

igus[®]
System E4
E4-1, E4-1 light, E4/light

E4-1 e-chain® series for almost all applications

The E4-1 system combines all the advantages of its three predecessors:

- Tongue and groove design provides greater lateral stability, high shear force on long travels and for longer unsupported lengths
- Ideal for side-mounted applications
- Noise dampening “brakes” and rubber dampers available
- Snap-open links for quick assembly, with or without pretension
- Dirt repellent and wear-resistant
- Side wear pads

Almost all accessories and mounting dimensions are identical. With the E4-1, the service life of your application can be still increased with lower costs.

Typical industries and applications

- Crane
- Indoor crane
- Composting plants
- Sewage plants
- Machine tools
- General mechanical engineering
- Material handling technology
- Refrigeration engineering
- Construction machinery
- Wood working
- Robotics and handling systems



Cleanroom test upon request



Reduced noise due to special rubber pads and special stop dog design



ESD classification: Electrically conductive ESD/ATEX version upon request



System E4-1 field proven in long travels



Fully enclosed e-tubes available as special design with HT material for 1562°F hot chips



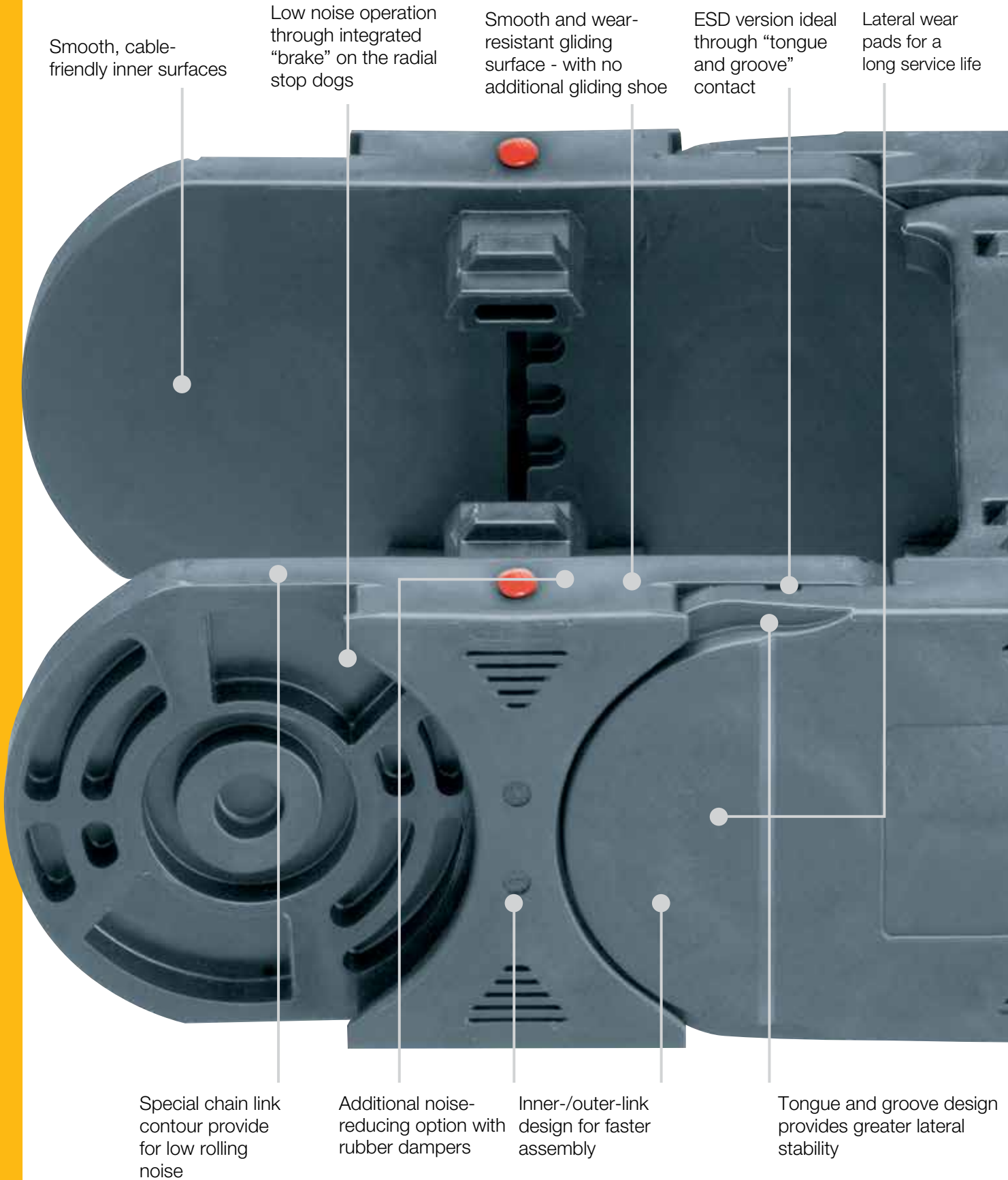


The E4-42 series in a machine tool, completely assembled with igus® chainflex® cables

Application	Design feature
Long unsupported length	Special stop dogs, tongue and groove link design
Low-noise operation, unsupported gliding	Integrated “brake”, smooth gliding surfaces - rubber dampers optional
Hanging and standing installation	Torsional stability through tongue and groove link design, “no camber” option by flipping the outer link
Long travels	High push/pull forces through tongue and groove link design and stop dogs, large and smooth gliding surfaces
Side-mounted, unsupported	Tongue and groove link design increases unsupported length by about 30% mounted on the side
Fast assembly	“Inner link/outer link” design
Rotary motion	Through simple flipping of links or easy modification, gliding surfaces on the side
Increase service life of cable	Smooth, wide solid polymer support for cables, many quick-mounting shelving options
Increase service life of chains	Large pins, optimized material, high stability
ESD, ATEX	Tongue and groove link design for secure contact surfaces in motion (special version in conductive material)
Operation under dirt, chips, humidity	Tongue and groove link design design prevents chain breakage, dirt-resistant design

E4-1 Design Features

The E4-1 Series combines the tongue and groove link design and the inner and outer link design of previous E4 constructions – all in one e-chain®



Smooth, cable-friendly inner surfaces

Low noise operation through integrated “brake” on the radial stop dogs

Smooth and wear-resistant gliding surface - with no additional gliding shoe

ESD version ideal through “tongue and groove” contact

Lateral wear pads for a long service life

Special chain link contour provide for low rolling noise

Additional noise-reducing option with rubber dampers

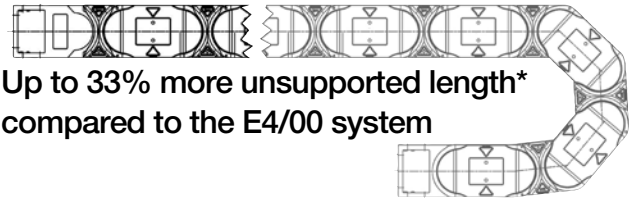
Inner-/outer-link design for faster assembly

Tongue and groove design provides greater lateral stability

E4-1 Design Features



Cut costs by eliminating additional components with E4-1 e-chains® - Proven durability and stability

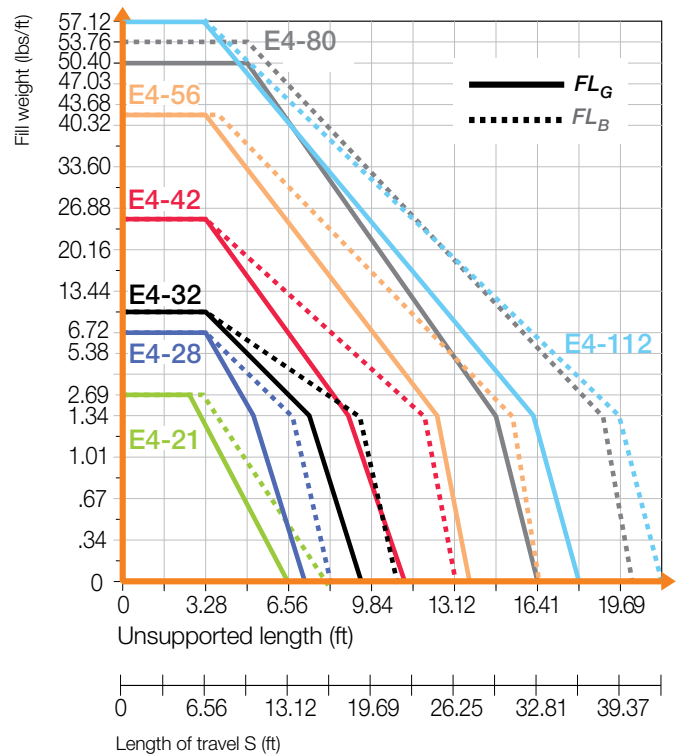


- Up to 133% higher tensile strength*
- Up to 33% more unsupported length*. Save in the purchase cost, as you can now use smaller e-chains®
- Due to the large unsupported lengths or loads, oversized energy supply systems can be optimized with the igus® E4-1 system

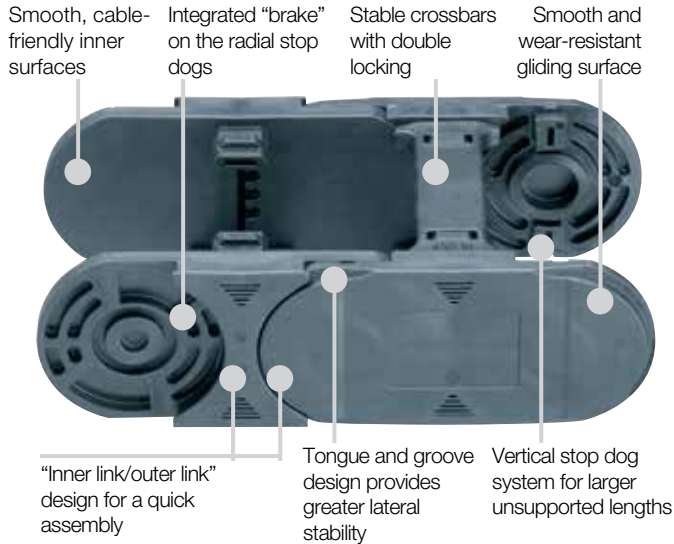
* Compared to the igus® E4/00 system series

** Test at igus® laboratory: Sag tested with defined weight and length over 96h

Selection table and assembly instructions
 ► page 6.7



E4-1 Design Features



- Available in 40 width sizes in both e-chain® and e-tube
- Interlocking side links for optimum lateral stability, for high push/pull force on long travels
- Long unsupported lengths
- "Brake" and rubber dampers as additional noise-reducing options
- Inner link/outer link design for quick assembly with various interior separation options
- Double locking stable crossbars that open from both sides
- Support Tray tool kit for the support of the lower run
- **Chapter 9**
- Find more technical data about the material, chemical resistance, temperatures ➤ **Chapter 1**

Crossbars every link for particularly demanding applications



Series	Inner height h_i in. (mm)	Inner width B_i in. (mm)	Outer width B_a in. (mm)	Outer height h_a in. (mm)	Bending radius R in. (mm)
E4-21	.82 (21)	1.18-5.51 (30-140)	1.73-5.28 (44-134)	1.10 (28)	1.50-7.87 (38-200)
E4-28	1.10 (28)	1.57-11.81 (40-300)	2.36-12.60 (60-320)	1.65 (42)	2.16-9.84 (55-250)
E4-32	1.26 (32)	1.97-15.75 (50-400)	2.87-16.65 (73-423)	2.13 (54)	2.48-11.81 (63-300)
E4-42	1.65 (42)	1.97-15.75 (50-400)	2.99-16.77 (76-426)	2.52 (64)	2.95-13.78 (75-350)
E4-56	2.20 (56)	1.97-23.62 (50-600)	3.31-24.96 (84-634)	3.31 (84)	5.31-19.69 (135-500)
E4-80	3.15 (80)	1.97-23.62 (50-600)	3.94-25.59 (100-650)	4.25 (108)	5.91-39.37 (150-1000)
E4-112	4.41 (112)	1.97-23.62 (50-600)	4.02-25.67 (102-652)	5.51 (140)	7.87-39.37 (200-1000)
E4-162	6.38 (162)	7.87-23.62 (200-600)	10.08-25.83 (256-656)	7.68 (195)	9.84-39.37 (250-1000)
800	7.87 (200)	7.87-23.62 (200-600)	10.24-25.98 (260-660)	9.29 (236)	12.80-39.37 (325-1000)
840	8.03 (204)	3.94-22.16 (100-563)	6.30-24.53 (160-623)	9.29 (236)	12.80-39.37 (325-1000)
E4-350	13.78 (350)	15.75-31.50 (400-800)	21.26-37.01 (540-940)	17.72 (450)	19.69-39.37 (500-1000)

Crossbars every 2nd link for almost all applications



Series	Inner height h_i in. (mm)	Inner width B_i in. (mm)	Outer width B_a in. (mm)	Outer height h_a in. (mm)	Bending radius R in. (mm)
H4-32	1.26 (32)	1.97-15.75 (50-400)	2.87-16.65 (73-423)	2.13 (54)	2.48-11.81 (63-300)
H4-42	1.65 (42)	1.97-15.75 (50-400)	2.99-16.77 (76-426)	2.52 (64)	2.95-13.78 (75-350)
H4-56	2.20 (56)	1.97-23.62 (50-600)	3.31-24.96 (84-634)	3.31 (84)	5.31-19.69 (135-500)
H4-80	3.15 (80)	1.97-23.62 (50-600)	3.94-25.59 (100-650)	4.25 (108)	5.91-39.37 (150-1000)

e-tubes fully enclosed, for complete cable protection



Series	Inner height h_i in. (mm)	Inner width B_i in. (mm)	Outer width B_a in. (mm)	Outer height h_a in. (mm)	Bending radius R in. (mm)
R4-28	1.10 (28)	1.97-11.81 (50-300)	2.76-12.60 (70-320)	1.65 (42)	2.95-9.84 (75-250)
R4-32	1.26 (32)	1.97-11.81 (50-300)	2.87-12.72 (73-323)	2.13 (54)	4.92-11.81 (125-300)
R4-42	1.65 (42)	1.97-11.81 (50-300)	2.99-12.83 (76-326)	2.52 (64)	4.92-13.78 (125-350)
R4-56	2.20 (56)	2.95-18.19 (75-462)	4.29-19.57 (109-497)	3.31 (84)	5.31-19.69 (135-500)
R4-80	3.15 (80)	5.91-18.19 (150-462)	7.87-20.20 (200-513)	4.25 (108)	7.87-39.37 (200-1000)
R4-112	4.25 (108)	7.87-19.69 (200-500)	9.92-21.73 (252-552)	5.51 (140)	9.84-39.37 (250-1000)

e-chain system® E4-1

Assembly instructions

e-chains® - Opening



1 Remove crossbars - Insert screwdriver into the slot, using a lever action, apply pressure to the screwdriver to remove the crossbar.

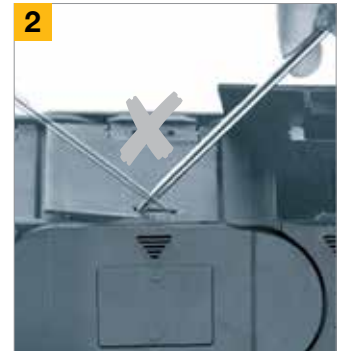


2 Remove clips - Insert screwdriver into the slot, using a lever action, apply pressure to the screwdriver to remove the clip

e-tube - Opening



1 Remove lids/bottoms - Insert screwdriver into the slot, using a lever action apply pressure to the screwdriver to release

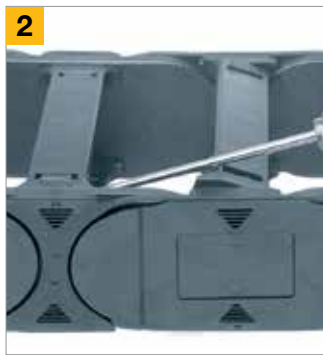


2 Release only **one side** to open the lid

e-chains® and e-tubes - Assembling



1 Line up two inner side links side by side. Attach an outer side link between



2 Assemble crossbars - push down and snap in using a screwdriver



3 Assemble clips (for e-chains with crossbars every other link) - push down and snap in using a screwdriver



4 Assemble e-tube lids and bottoms - Attach to the connector at an angle and snap in place

e-chains® and e-tubes - Separating



1 Remove crossbars, clips, lids and bottoms at the outer links



2 Insert screwdriver into the slot between the side links. Using a lever action, release the side links



3 Remove the outer links



4 Separate the e-chain®



Available from stock. Orders ship as early as today.*

*On average 90% of orders ship the same day..

Price Index


Series E4-21

Special Options Available


Low noise version available
with special rubber pads



Cleanroom test upon request



ESD classification:
Electrically conductive ESD/
ATEX version upon request

Assembly Tips


Opening e-chains®: Remove crossbars
and clips - Insert screwdriver into the slot,
push down, release by lever action

Other Installation Methods

Vertical, hanging ≤ 131 ft (40 m)

Vertical, standing ≤ 9.84 ft (3 m)

Side-mounted, un supp. ≤ 3.28 ft (1 m)

Rotary requires further calculation

Usage Guidelines

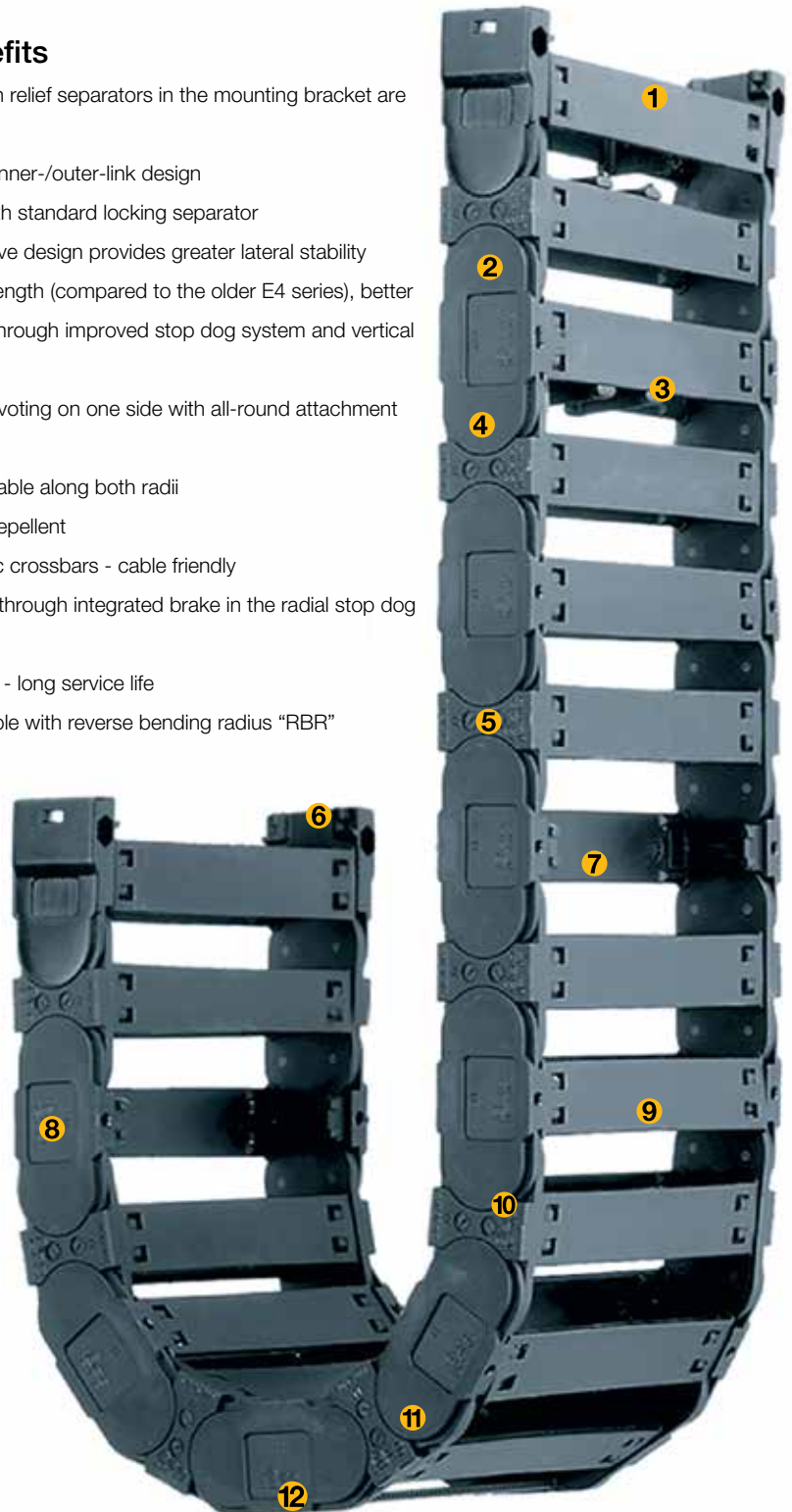

- If quiet operation is required
- If very high speeds and/or accelerations are required
- Long travels
- High fill weights



- When an economic one-sided snap-open e-chain/tube is required
➤ **Series 1400/1500**
- When a one-sided snap-open e-tube is required at a low price
➤ **Series 1450/1480**

Features & Benefits

- 1 Strain relief with strain relief separators in the mounting bracket are available
- 2 Straight run through inner-/outer-link design
- 3 Interior separation with standard locking separator
- 4 The tongue and groove design provides greater lateral stability
- 5 15% more tensile strength (compared to the older E4 series), better unsupported length through improved stop dog system and vertical radial stops
- 6 Mounting brackets pivoting on one side with all-round attachment option
- 7 Crossbars are removable along both radii
- 8 Smooth outline, dirt repellent
- 9 Wide, rounded plastic crossbars - cable friendly
- 10 Low-noise operation through integrated brake in the radial stop dog system
- 11 Optimized glide pads - long service life
- 12 e-chains® also available with reverse bending radius "RBR"


Order Example: Complete e-chain®

Please indicate chain length or number of links. Example:

6.56 ft (2 m) **E4-21-120-100-0**

e-chain®

With 2 separators **T2112** assembled every 2nd link

Interior Separation

1 Set **E4-210-120-12**

Mounting Bracket

e-chain system® E4-1

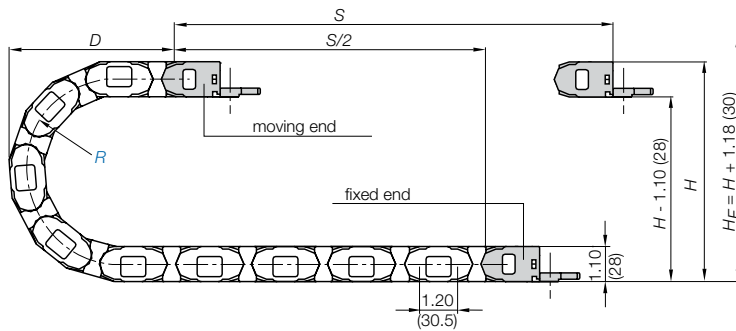
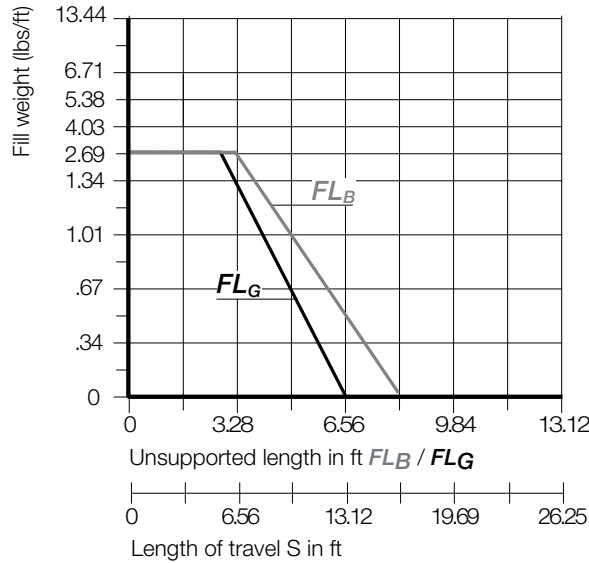
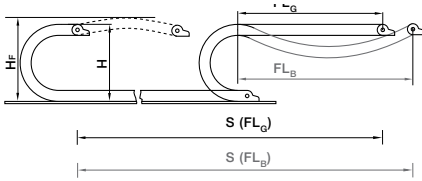
Series E4-21

Installation Dimensions

Short travel, unsupported length

- FL_B = unsupported with permitted sag
- FL_G = unsupported with straight upper run

Further information ► Design, Chapter 1



Pitch per link = 1.20" (30.5 mm)
 Links per ft (m) = 10.06 (33)
 For center mount applications:
 Chain length = $\frac{S}{2} + K$

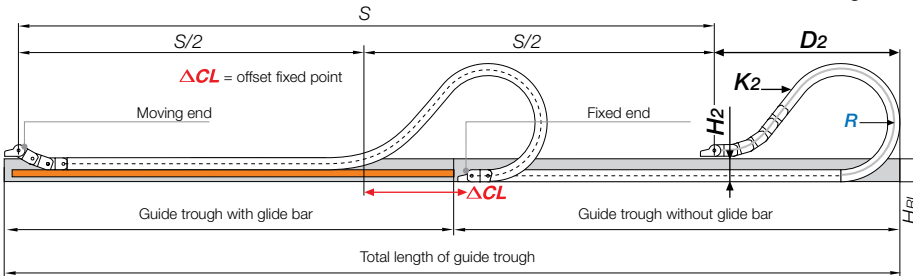
The required clearance height:
 $H_f = H + 1.18$ in. (30 mm) (with 1.01 lbs/ft (1.5 kg/m) fill weight).
 Please consult igus® if space is particularly restricted.

R	1.50 (038)	1.89 (048)	2.48 (063)	2.95 (075)	3.94 (100)	5.91 (150)	7.87 (200)
H	4.09 (104)	4.88 (124)	6.06 (154)	7.01 (178)	8.98 (228)	12.91 (328)	16.85 (428)
D	3.86 (98)	4.25 (108)	4.84 (123)	5.31 (135)	6.30 (160)	8.27 (210)	10.24 (260)
K	7.28 (185)	8.46 (215)	10.24 (260)	11.81 (300)	14.96 (380)	21.06 (535)	27.17 (690)

For long travels with lowered mounting height

Long travel lengths from 32.8 ft. (10m) to max. 394 ft. (120m)

For center mount applications:
 Chain length = $\frac{S}{2} + K_2$



R	1.50 (038)	1.89 (048)	2.48 (063)	2.95 (075)	3.94 (100)	5.91 (150)	7.87 (200)
H ₂	-	-	-	-	5.31 (135)	5.31 (135)	5.31 (135)
D ₂₊₂₅	-	-	-	-	19.29 (490)	20.87 (530)	26.18 (665)
K ₂	-	-	-	-	30.79 (782)	36.22 (920)	43.46 (1104)
ΔACL	-	-	-	-	10.63 (270)	14.57 (370)	18.50 (470)

In case of travels between 13 and 32.8 ft (4 and 10 m) we recommend a longer unsupported length.



E4-21

Short Travels - Unsupported

Unsupported e-chains® feature positive camber over short travels. This must be accounted for when specifying the clearance height. Please refer to **Installation dimensions** for further details.

Legend

- S = Length of travel
- R = Bending radius
- H = Nominal clearance height
- D = Overlength e-chain® radius in final position
- $K = \pi \cdot R + \text{safety buffer}$
- H_f = Required clearance height
- H_{in} = Trough inner height
- H₂ = *Mounting height
- D₂ = Overlength - long travels, gliding
- K₂ = *Add-on

*If the mounting bracket location is set lower



PDF: igus.com/e-chain-pdfs
 Product information: igus.com/e-chains

Long Travels - Gliding



If the unsupported length is exceeded, the e-chain®/ Tube must glide on itself. This requires a guide trough.

Design, Chapter 1 main catalog



For support of the lower run, see Chapter 9 of the main catalog for the Support Tray tool kit

Technical Data



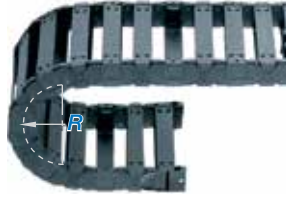
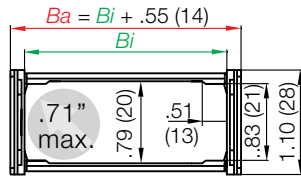
Details of material properties

► Chapter 1

Speed / acceleration FL_G	max. 65.6 ft/s (20 m/s) / max. 656 ft/s ² (200 m/s ²)
Speed / acceleration FL_B	max. 9.84 ft/s (3 m/s) / max. 19.69 ft/s ² (6 m/s ²)
Gliding speed / acceleration (maximum)	max. 32.8 ft/s (10 m/s) / max. 164 ft/s ² (50 m/s ²)
Material - permitted temperature	igumid G / -40°F (-40°C) up to +248°F (+120°C)
Flammability Class, igumid G	VDE 0304 IIC UL94 HB

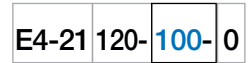
Series E4-21 - e-chain® with crossbars every link

igus®
e-chain system®



- Crossbars every link
- Removable crossbars
- Separator for locking crossbar (fixable) Standard
- Can be opened from both sides

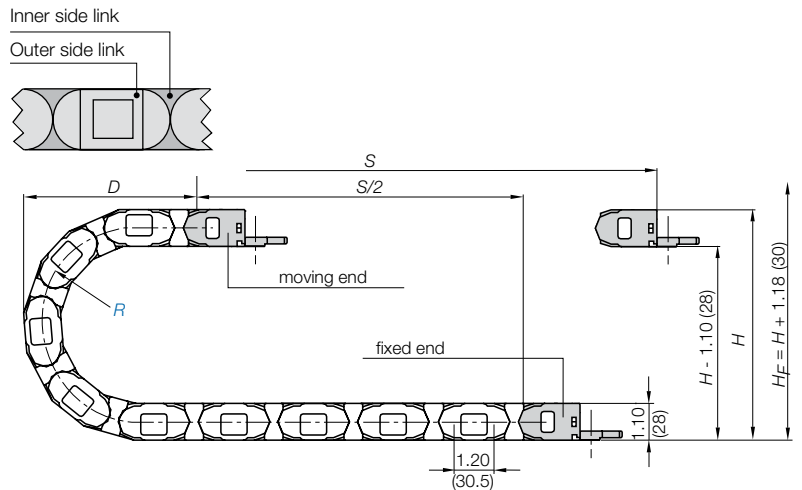
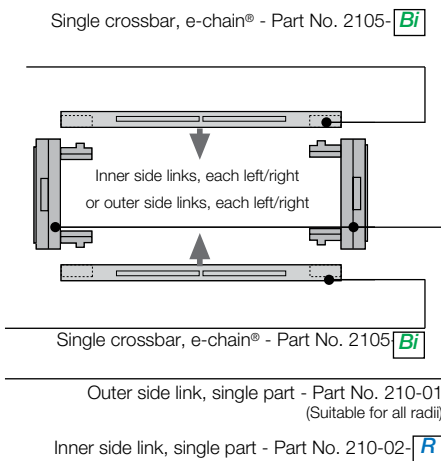
Part Number Structure



- Color - Black
- Bending radius
- Width
- Series



e-chain® as separate parts, links and side plates



Supplement part number with required radius. Example: E4-21-120-100-0
Pitch: 1.20 in. (30.5 mm) per link links/ft(m) = 10.06 (33)

Part Number.	<i>Bi</i>	<i>Ba</i>	Weight
Snap-open inner radius	in. (mm)	in. (mm)	lbs/ft (kg/m)
E4-21-030-□-0	1.18 (30)	1.73 (44)	≈ 0.40 (0.60)
E4-21-040-□-0	1.57 (40)	2.13 (54)	≈ 0.43 (0.64)
E4-21-050-□-0	1.97 (50)	2.52 (64)	≈ 0.45 (0.67)
E4-21-060-□-0	2.36 (60)	2.91 (74)	≈ 0.48 (0.71)
E4-21-070-□-0	2.76 (70)	3.31 (84)	≈ 0.50 (0.74)
E4-21-080-□-0	3.15 (80)	3.70 (94)	≈ 0.52 (0.78)
E4-21-090-□-0	3.54 (90)	4.09 (104)	≈ 0.55 (0.82)
E4-21-100-□-0	3.94 (100)	4.49 (114)	≈ 0.57 (0.85)
E4-21-110-□-0	4.33 (110)	4.88 (124)	≈ 0.60 (0.89)
E4-21-120-□-0	4.72 (120)	5.28 (134)	≈ 0.62 (0.92)
E4-21-140-□-0	5.51 (140)	6.06 (154)	≈ 0.67 (0.99)

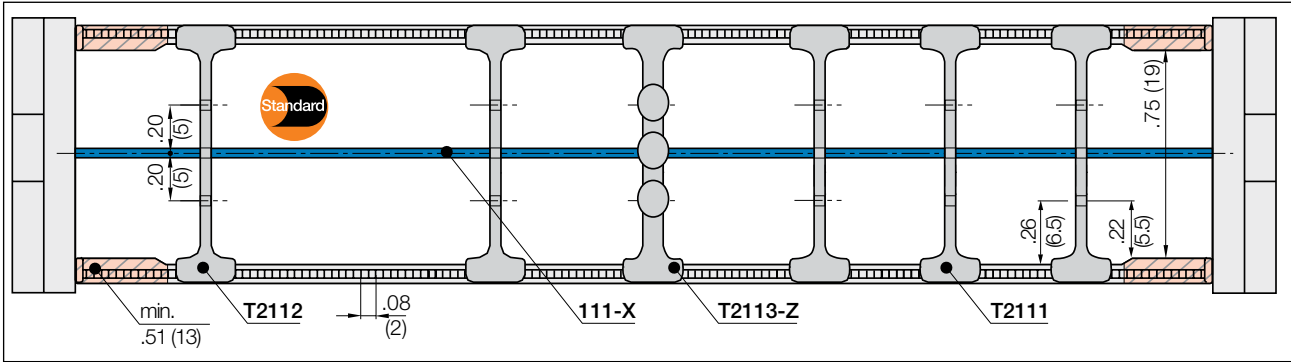
Choose from the radii below for all of the above sizes

Radius (mm) Example: E4-21-120-100-0

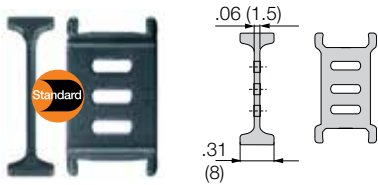
	038	048	063	075	100	150	200
<i>R</i>	1.50 (038)	1.89 (048)	2.48 (063)	2.95 (075)	3.94 (100)	5.91 (150)	7.87 (200)
<i>H</i>	4.09 (104)	4.88 (124)	6.06 (154)	7.01 (178)	8.98 (228)	12.91 (328)	16.85 (428)
<i>D</i>	3.86 (98)	4.25 (108)	4.84 (123)	5.31 (135)	6.30 (160)	8.27 (210)	10.24 (260)
<i>K</i>	7.28 (185)	8.46 (215)	10.24 (260)	11.81 (300)	14.96 (380)	21.06 (535)	27.17 (690)

Telephone 1-800-521-2747

Internet: igus.com
email: sales@igus.com
QuickSpec: igus.com/quickspec



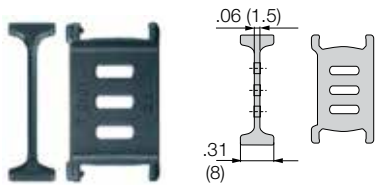
Note: Please maintain a lateral spacing of .51" (13 mm) between the separators and the side links. In the standard configuration separators are assembled every 2nd e-chain® link



Separator, wide base

Unassembled	Part No. T2102
Assembled	Part No. T2112

- **Standard separator T2102**
 is used when vertical separation is required. Due to its slot, it allows basic vertical/horizontal shelving arrangements.

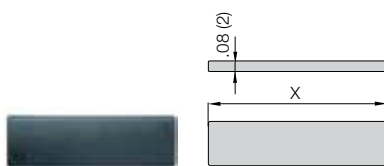


Separator, narrow head

Unassembled	Part No. T2101
Assembled	Part No. T2111

- **Notch separator T2101**
 Can be locked in .08 (2mm) increments due to notches on the crossbars of the e-chain®. The separator cannot slide sideways during operation.

Full-width shelves - for the standard interior separation



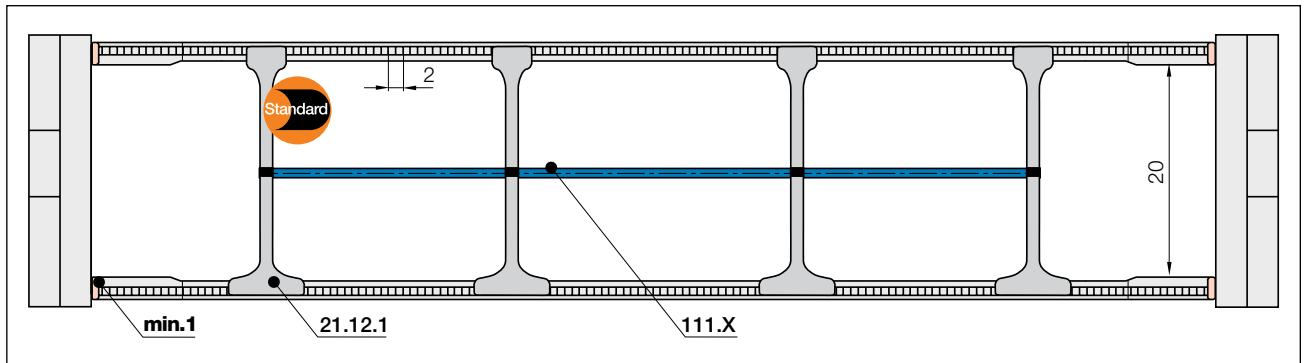
Full width shelf

Unassembled	Part No. 110-X
Assembled	Part No. 111-X

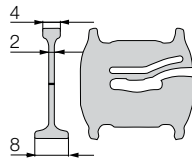
- **Full width shelf 110-X**
 is used in applications with many thin cables with similar diameters. Full width shelves can be arranged at 3 different heights in .20" (5 mm) increments.

Width X in. (mm)	Part No. Unassembled	Part No. Assembled	Width X in. (mm)	Part No. Unassembled	Part No. Assembled	Width X in. (mm)	Part No. Unassembled	Part No. Assembled
1.18 (30)	110-30	111-30	2.76 (70)	110-70	111-70	4.33 (110)	110-110	111-110
1.57 (40)	110-40	111-40	3.15 (80)	110-80	111-80	4.72 (120)	110-120	111-120
1.97 (50)	110-50	111-50	3.54 (90)	110-90	111-90			
2.36 (60)	110-60	111-60	3.94 (100)	110-100	111-100			





Note: Please maintain a lateral spacing of .51" (13 mm) between the separators and the side links. In the standard configuration separators are assembled every 2nd e-chain® link



Lean Separator

Unassembled	Part No. 21-12
Assembled	Part No. 21-12-1



- **Lean separators 31-12**
New design allows extremely fast fitting of shelves in several layers, which significantly reduces assembly time. Enables extremely fast replacement of individual cables in a very full e-chain®.
- **Lean separator design - several layers of cables fitted quickly, save up to 50%* assembly time**
(*Lean separator vs. standard separator - measured on a 4m long e-chain® fitted with 12 cables in the igus® harnessing factory)

Separator with integrated strain relief teeth

- Can be integrated into the mounting bracket or placed at any point in the e-chain®
- Combines strain relief and interior separation, for restricted space conditions
- Strain relief separator is easy to assemble without any screws

Part No. T2103.Z. More information ► Chapter 10



Aluminum support tray

- Corrosion-resistant and seawater-resistant aluminium rails with adjustable width
- Noise-reducing glide strip integrated as standard
- Easy installation and connection of the e-chain®
- Open design - dirt and debris fall through

More information ► Chapter 9



Reduce assembly time - E4 e-chain® opener

- e-chain® opener tools for easy opening and closing of e-chains®
- Simple opening and closing of e-chain® crossbars
- Also for use in hard to reach locations
- Significant assembly time reduction

More information ► www.igus.com/E4savetime



e-chain system® E4-1

Series E4-21

Mounting Brackets - Polymer



E4-21

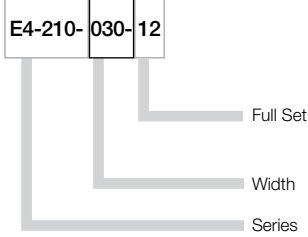


Option: pivoting

- Recommended for unsupported and gliding applications
- KMA mounting bracket with attachment points on all sides
- Well suited for tight installation conditions
- Integrated strain relief possible



Part Number Structure



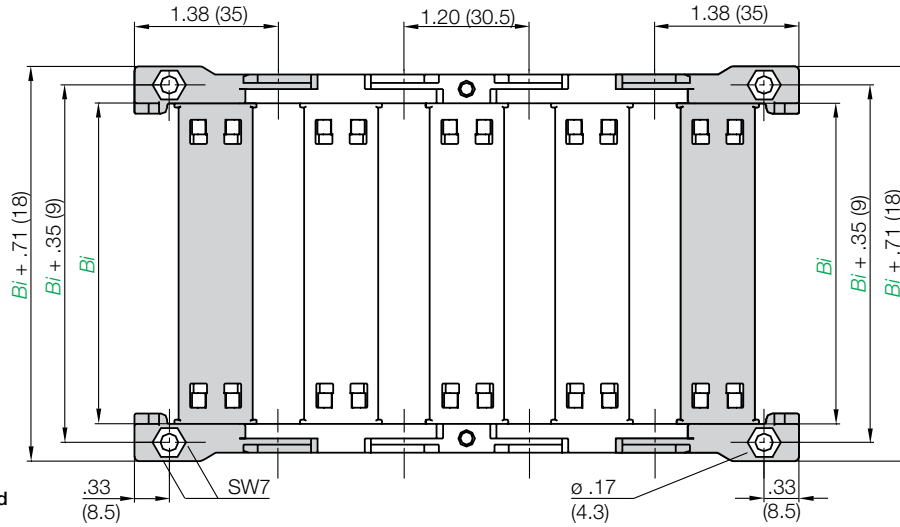
Full set, for both ends:

E4-210-030-12

Single-part order:

E4-210-030-1 Mounting bracket moving end

E4-210-030-2 Mounting bracket fixed end



Width	Part No. Full Set	Bi in. (mm)	Width	Part No. Full Set	Bi in. (mm)
-030	E4-210-030-12	1.18 (30)	-090	E4-210-090-12	3.54 (90)
-040	E4-210-040-12	1.57 (40)	-100	E4-210-100-12	3.94 (100)
-050	E4-210-050-12	1.97 (50)	-110	E4-210-110-12	4.33 (110)
-060	E4-210-060-12	2.36 (60)	-120	E4-210-120-12	4.72 (120)
-070	E4-210-070-12	2.75 (70)	-140	E4-210-140-12	5.51 (140)
-080	E4-210-080-12	3.15 (80)			



Special feature mounting brackets KMA: Series E4-21

- Mounting brackets with attachment points on all sides
- Mounting hole is countersunk for socket head screw (M4) and hexagon nut (M4)
- **Attention:** Series E4-21 always needs to end with an inner link (odd number of links)



igus®
e-chain system®

Telephone 1-800-521-2747

Internet: igus.com
email: sales@igus.com
QuickSpec: igus.com/quickspec

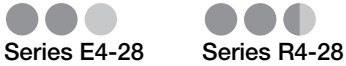
E4-28
R4-28



e-chain system® E4-1 Series E4-28/R4-28



Price Index



Special Options Available

- Low noise version available with special rubber pads
- Cleanroom test upon request
- ESD classification: Electrically conductive ESD/ATEX version upon request

Assembly Tips



Opening e-chains®: Remove crossbars and clips - Insert screwdriver into the slot, push down, release by lever action



Remove lids/bottoms (e-tubes) - Insert screwdriver into the slot, release by lever action

Other Installation Methods

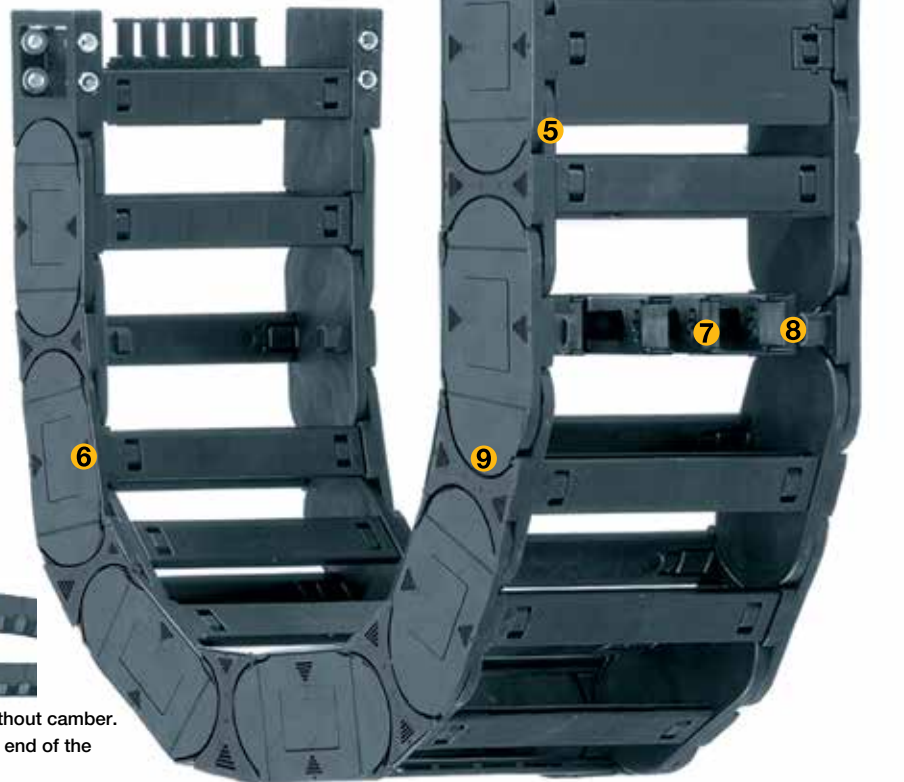
- Vertical, hanging ≤ 262 ft (80 m)
- Vertical, standing ≤ 16.4 ft (5 m)
- Side-mounted, unsupp. ≤ 3.94 ft (1.2 m)
- Rotary requires further calculation

Usage Guidelines

- If quiet operation is required
- If very high speeds and/or accelerations are required
- Long travels
- High fill weights
- When an extremely low vibration e-chain®/e-tube is required
 - Series E6-29
 - Series R6-29
- When an economic one-sided snap-open e-chain®/e-tube is required
 - Series 2400/2450/2480/2500

Features & Benefits

- 1 Wide, rounded plastic crossbars - cable friendly
- 2 Low-noise operation through integrated brake in the radial stop dog system
- 3 Hinged snap-open removable lids along outer radius of e-tube
- 4 Straight run through inner-/outer-link design
- 5 The tongue and groove design provides greater lateral stability
- 6 15% more tensile strength (compared to the older E4 series), better Optimized glide pads - long service life
- 7 Shelving program with a wide range of options
- 8 Crossbars are removable along both radii
- 9 15% more tensile strength (compared to the best E4 series), better unsupported length through improved stop dog system and vertical radial stops
- 10 Version NCST "without camber" simply by turning outer links without unnecessary rework

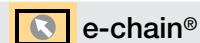


Also available without camber. Add NCST to the end of the part number.
Ex: E4-28-300-250NCST

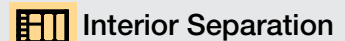
Order Example: Complete e-chain®

Please indicate chain length or number of links. Example:

9.84 ft (3 m) **E4-28-300-250-0**



With 2 separators **2211** assembled every 2nd link



1 Set **E4-280-300-12**



e-chain system® E4-1

Series E4-28/R4-28

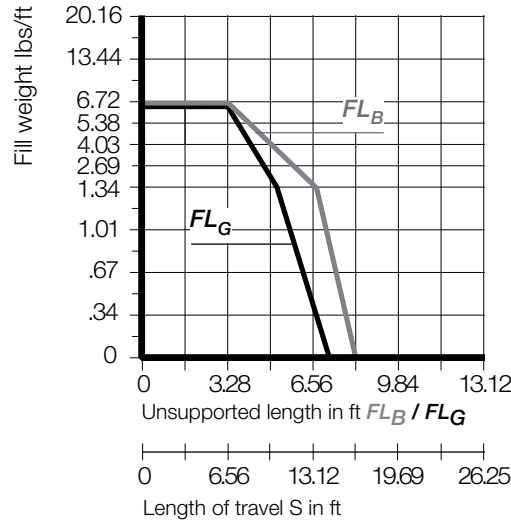
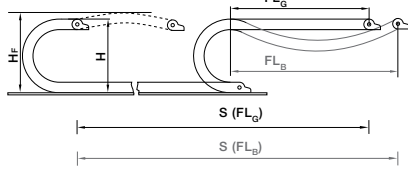
Installation Dimensions



E4-28
R4-28

Short travel, unsupported length

- FL_B = unsupported with permitted sag
 - FL_G = unsupported with straight upper run
- Further information ► Design, Chapter 1



Short Travels - Unsupported

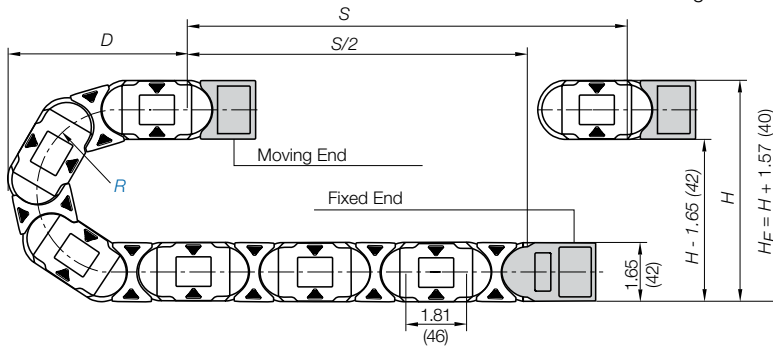
Unsupported e-chains® feature positive camber over short travels. This must be accounted for when specifying the clearance height. Please refer to **Installation dimensions** for further details.

Legend

- S = Length of travel
- R = Bending radius
- H = Nominal clearance height
- D = Overlength e-chain® radius in final position
- $K = \pi \cdot R + \text{safety buffer}$
- H_f = Required clearance height
- H_{ri} = Trough inner height
- H_2 = *Mounting height
- D_2 = Overlength - long travels, gliding
- K_2 = *Add-on

Pitch per link = 1.81" (46 mm)
Links per ft (m) = 6.71 (22)
For center mount applications:
Chain length = $\frac{S}{2} + K$

*If the mounting bracket location is set lower



The required clearance height: $H_f = H +$ (with .67 lbs/ft (1.0 kg/m) fill weight).
Please consult igus® if space is particularly restricted.

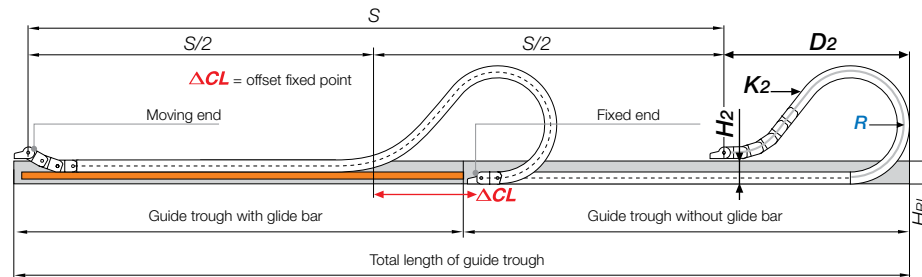
R	2.17 (055)	2.48 (063)	2.95 (075)	3.94 (100)	4.92 (125)	5.91 (150)	6.89 (175)	7.87 (200)	9.84 (250)
H	5.98 (152)	6.61 (168)	7.56 (192)	9.53 (242)	11.50 (292)	13.46 (342)	15.43 (392)	17.40 (442)	21.34 (542)
D	5.71 (145)	6.02 (153)	6.50 (165)	7.48 (190)	8.46 (215)	9.45 (240)	10.43 (265)	11.42 (290)	13.39 (340)
K	10.43 (265)	11.42 (290)	12.99 (330)	16.14 (410)	19.09 (485)	22.24 (565)	25.39 (645)	28.54 (725)	34.65 (880)

For long travels with lowered mounting height

Long travel lengths from 32.8 ft.(10m) to max. 656 ft. (200m)

For center mount applications:

$$\text{Chain length} = \frac{S}{2} + K_2$$



R	2.17 (055)	2.48 (063)	2.95 (075)	3.94 (100)	4.92 (125)	5.91 (150)	6.89 (175)	7.87 (200)	9.84 (250)
H_2	-	-	-	6.22 (158)	6.22 (158)	6.22 (158)	6.22 (158)	6.22 (158)	6.22 (158)
D_2	-	-	-	13.78 (350)	19.29 (490)	20.87 (530)	26.18 (665)	28.74 (730)	36.81 (935)
K_2	-	-	-	23.54 (598)	30.79 (782)	36.22 (920)	43.46 (1104)	48.89 (1242)	63.39 (1610)
ΔCL	-	-	-	5.91 (150)	10.63 (270)	11.81 (300)	15.75 (400)	17.72 (450)	23.62 (600)

In case of travels between 13 and 32.8 ft (4 and 10 m) we recommend a longer unsupported length.

Long Travels - Gliding



If the unsupported length is exceeded, the e-chain®/ Tube must glide on itself. This requires a guide trough.

Design, Chapter 1



For support of the lower run, see Chapter 9 of the main catalog for the Support Tray tool kit

Technical Data



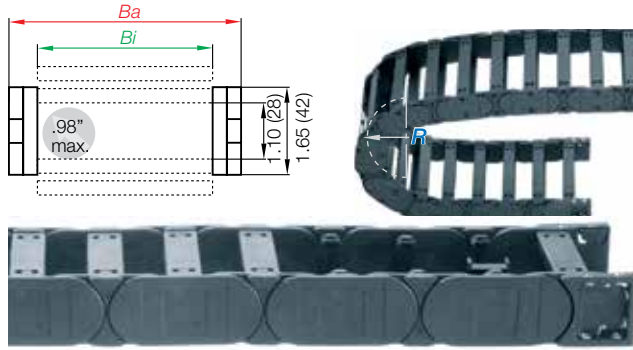
Details of material properties

► Chapter 1

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains

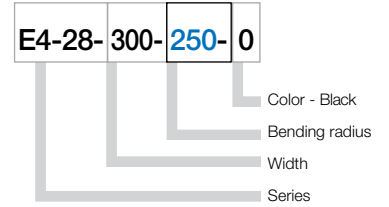


Series E4-28 - e-chain® with crossbars every link

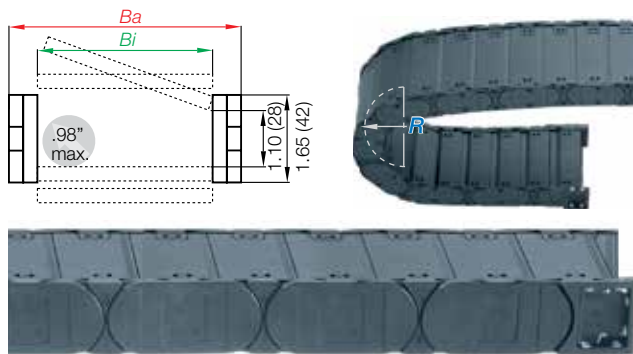


- Robust solution with crossbars every link
- Can be opened from two sides
- Removable crossbars

Part Number Structure

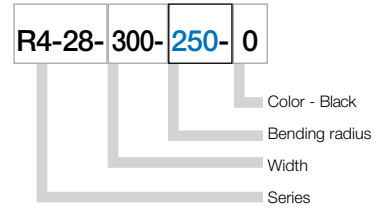


Series R4-28 - fully enclosed e-tube

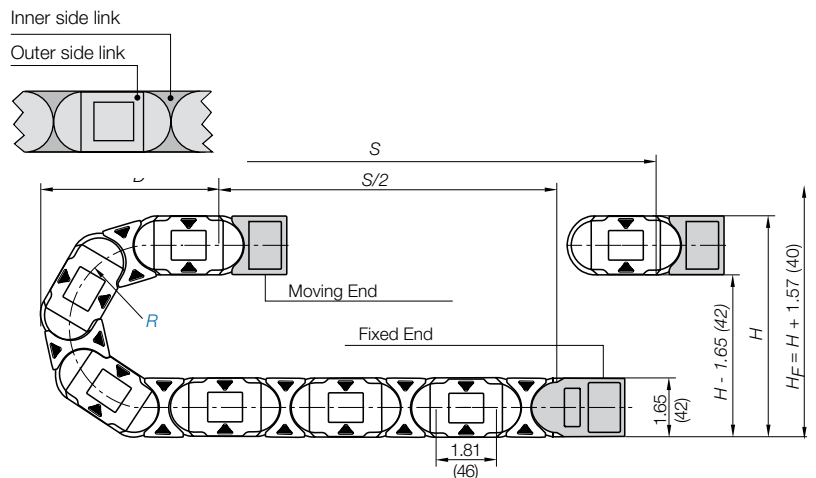
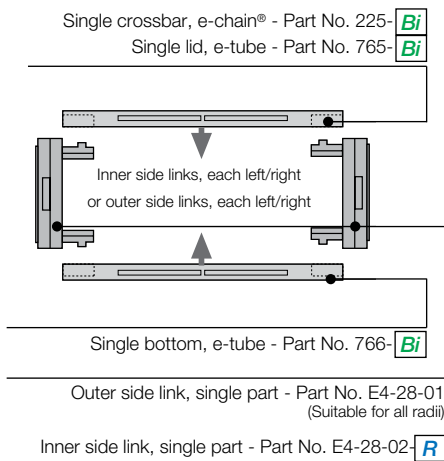


- Fully enclosed
- Excellent cable and hose protection against dirt
- Protection against hot chips
- Lids along inner radius are completely removable
- Lids along the outer radius are single-sided, snap open, hinged on one side as well as completely removable

Part Number Structure



e-chain® as separate parts, links and side plates



e-chain system® E4-1

Series E4-28/R4-28

Product Range



E4-28
R4-28

Supplement part number with required radius. Example: E4-28-300--0
Pitch: 1.81 in. (46mm) per link links/ft (m) = 6.71 (22)

Part Number.				<i>Bi</i>	<i>Ba</i>	E4-28	R4-28
Crossbars	Tube			in. (mm)	in. (mm)	lbs/ft (kg/m)	lbs/ft (kg/m)
Every link	Version						
E4-28-040-		<input type="text" value=""/>	-0	1.57 (40)	2.36 (60)	≈ 0.71 (1.06)	–
E4-28-050-	R4-28-050-	<input type="text" value=""/>	-0	1.97 (50)	2.76 (70)	≈ 0.75 (1.11)	≈ 1.48 (2.20)
E4-28-052		<input type="text" value=""/>	-0	2.05 (52)	2.83 (72)	≈ 0.76 (1.13)	–
E4-28-062-		<input type="text" value=""/>	-0	2.44 (62)	3.23 (82)	≈ 0.79 (1.17)	–
E4-28-070-		<input type="text" value=""/>	-0	2.76 (70)	3.54 (90)	≈ 0.81 (1.20)	–
E4-28-075-	R4-28-075	<input type="text" value=""/>	-0	2.95 (75)	3.74 (95)	≈ 0.83 (1.23)	≈ 1.56 (2.32)
E4-28-087-		<input type="text" value=""/>	-0	3.43 (87)	4.21 (107)	≈ 0.86 (1.28)	–
E4-28-100-	R4-28-100-	<input type="text" value=""/>	-0	3.94 (100)	4.72 (120)	≈ 0.92 (1.37)	≈ 1.71 (2.54)
E4-28-125-	R4-28-125-	<input type="text" value=""/>	-0	4.92 (125)	5.71 (145)	≈ 1.01 (1.51)	≈ 1.87 (2.78)
E4-28-150-	R4-28-150-	<input type="text" value=""/>	-0	5.91 (150)	6.69 (170)	≈ 1.08 (1.61)	≈ 2.03 (3.02)
E4-28-175-	R4-28-175-	<input type="text" value=""/>	-0	6.89 (175)	7.68 (195)	≈ 1.15 (1.71)	≈ 2.19 (3.26)
E4-28-200-	R4-28-200-	<input type="text" value=""/>	-0	7.87 (200)	8.66 (220)	≈ 1.24 (1.84)	≈ 2.35 (3.50)
E4-28-225-	R4-28-225-	<input type="text" value=""/>	-0	8.86 (225)	9.65 (245)	≈ 1.34 (1.99)	≈ 2.57 (3.82)
E4-28-250-	R4-28-250-	<input type="text" value=""/>	-0	9.84 (250)	10.63 (270)	≈ 1.44 (2.14)	≈ 2.67 (3.98)
E4-28-275-		<input type="text" value=""/>	-0	10.83 (275)	11.61 (295)	≈ 1.53 (2.27)	–
E4-28-300-	R4-28-300-	<input type="text" value=""/>	-0	11.81 (300)	12.60 (320)	≈ 1.61 (2.39)	≈ 3.00 (4.46)

Choose from the radii below for all of the above sizes
Radius (mm) Example: E4-28-300--0

	055*	063*	075	100	125	150	175	200	250
<i>R</i>	2.17 (055*)	2.48 (063*)	2.95 (075)	3.94 (100)	4.92 (125)	5.91 (150)	6.89 (175)	7.87 (200)	9.84 (250)
<i>H</i>	5.98 (152)	6.61 (168)	7.56 (192)	9.53 (242)	11.50 (292)	13.46 (342)	15.43 (392)	17.40 (442)	21.34 (542)
<i>D</i>	5.71 (145)	6.02 (153)	6.50 (165)	7.48 (190)	8.46 (215)	9.45 (240)	10.43 (265)	11.42 (290)	13.39 (340)
<i>K</i>	10.43 (265)	11.42 (290)	12.99 (330)	16.14 (410)	19.09 (485)	22.24 (565)	25.39 (645)	28.54 (725)	34.65 (880)

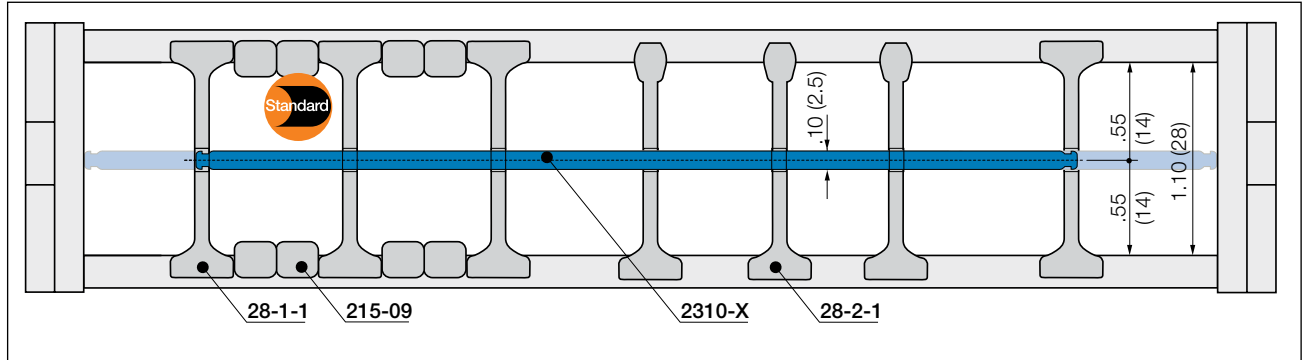
* This radius is not available for the R4-28 Series

0 = Standard color black.

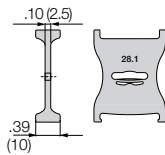
For other colors see Chapter 1

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains





In the standard configuration separators are assembled every 2nd e-chain® link

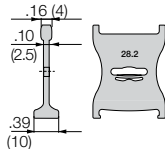


Separator, wide base

Unassembled	Part No. 28-1
Assembled	Part No. 28-1-1

- **Standard separator 28-1 for all applications**

Separator with wide base for maximum locking strength and safe standing in e-chains®.



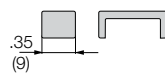
Separator, narrow head

Unassembled	Part No. 28-2
Assembled	Part No. 28-2-1

- **Separator 28-2**

For even faster installation

is used when vertical and horizontal separation is required. Due to its slot, it allows basic vertical/horizontal shelving arrangements.



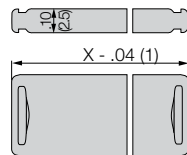
Spacer for e-chains®

Unassembled	Part No. 205-09
Assembled	Part No. 215-09

- **Spacer 205-09**

Separators can be fixed in position by spacers. The available interior height is reduced by .08 (2 mm) per spacer (.16 (4 mm) when spacers are fitted on both sides. To avoid this, the parts can also be installed from the outside on the opening crossbar. (Not for long travel applications.)

Lockable full-width shelves - for the standard interior separation



Full width shelf, lockable

Unassembled	Part No. 2300-X
Assembled	Part No. 2310-X

- **Full width shelf, lockable**

is used when vertical and horizontal separation is required. Due to its slot, it allows basic vertical/horizontal shelving arrangements.

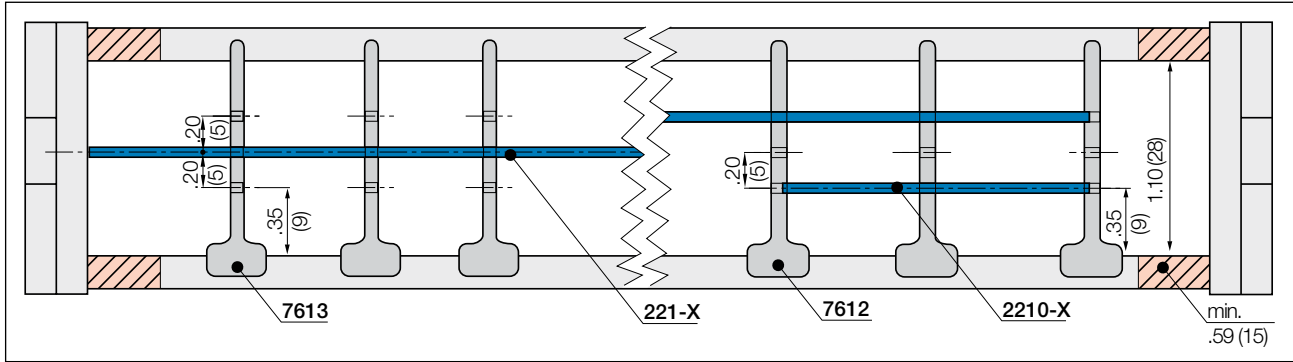
Width X in. (mm)	Part No. Unassembled	Part No. Assembled	Width X in. (mm)	Part No. Unassembled	Part No. Assembled	Width X in. (mm)	Part No. Unassembled	Part No. Assembled
015	2300-15	2310-15	060	2300-60	2310-60	087	2300-87	2310-87
025	2300-25	2310-25	062	2300-62	2310-62	090	2300-90	2310-90
030	2300-30	2310-30	065	2300-65	2310-65	100	2300-100	2310-100
038	2300-38	2310-38	070	2300-70	2310-70	103	2300-103	2310-103
040	2300-40	2310-40	075	2300-75	2310-75	110	2300-110	2310-110
050	2300-50	2310-50	077	2300-77	2310-77	120	2300-120	2310-120
057	2300-57	2310-57	080	2300-80	2310-80	125	2300-125	2310-125

Separator with integrated strain relief teeth

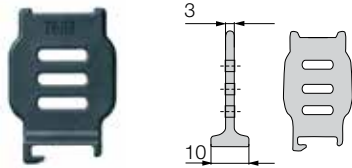
- Can be integrated into the mounting bracket or placed at any point in the e-chain®
- Combines strain relief and interior separation, for restricted space conditions
- Strain relief separator is easy to assemble without any screws

Part No. T2103.Z. More information ► Chapter 10





Note e-tube: Please maintain a lateral spacing of .59" (15 mm) between the separators and the side links. In the standard configuration separators are assembled every 2nd e-chain® link

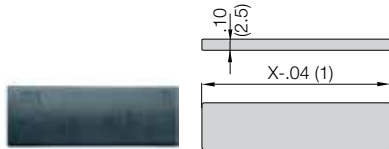


Separator, e-tubes only

Unassembled	Part No. 7603
Assembled	Part No. 7613

- **Slotted separator for full-width shelves** is used when vertical separation is required. Due to its slot, it allows basic vertical/horizontal shelving arrangements.

Full-width shelves - for the standard interior separation

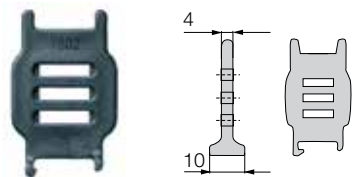


Full width shelf

Unassembled	Part No. 220-X
Assembled	Part No. 221-X

- **Full width shelf 220-X** is used in applications with many thin cables with similar diameters. Full width shelves can be arranged at 3 different heights in .20" (5 mm) increments.

Width X in. (mm)	Part No. Unassembled	Part No. Assembled	Width X in. (mm)	Part No. Unassembled	Part No. Assembled	Width X in. (mm)	Part No. Unassembled	Part No. Assembled
1.57 (40)	220-40	221-40	2.95 (75)	220-75	221-75	5.91 (150)	220-150	221-150
1.97 (50)	220-50	221-50	3.43 (87)	220-87	221-87	6.89 (175)	220-175	221-175
2.44 (62)	220-62	221-62	3.94 (100)	220-100	221-100	7.87 (200)	220-200	221-200
2.76 (70)	220-70	221-70	1.92 (125)	220-125	221-125			

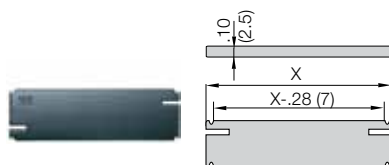


Slotted separator

Unassembled	Part No. 7602
Assembled	Part No. 7612

- **Slotted separator for partial shelves 7602** Can be locked in .08 (2mm) increments due to notches on the crossbars of the e-chain®. The separator cannot slide sideways during operation.

Shelves - for the standard interior separation



Shelf for e-tubes

Unassembled	Part No. 2200-X
Assembled	Part No. 2210-X

- **Shelves 2200-X** is used in applications with many cables with different diameters. Shelves can be fitted at different heights.

Width X	Part No. Unassembled	Part No. Assembled	Width X	Part No. Unassembled	Part No. Assembled	Width X	Part No. Unassembled	Part No. Assembled
018	2200-18	2210-40	043	2200-43	2210-87	088	2200-88	2210-200
023	2200-23	2210-50	048	2200-48	221-100	099	2200-99	2210-200
028	2200-28	2210-62	058	2200-58	2210-125	124	2200-124	2210-200
033	2200-33	2210-70	068	2200-68	2210-150	149	2200-149	2210-200
038	2200-38	2210-75	073	2200-73	2210-175			

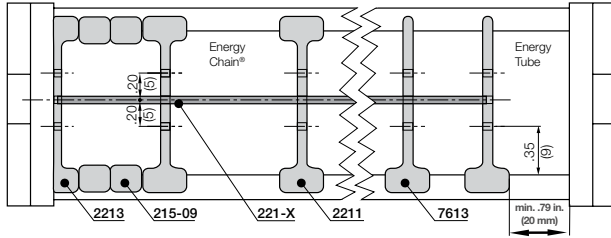




Option 1: Vertical separators and spacers

Vertical separators are used if a vertical subdivision of the e-chain® interior is required. By standard, vertical separators are assembled every other e-chain® link.

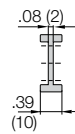
NOTE: Observe a lateral spacing of at least .79 in. (20mm) for e-tubes and



STANDARD



Vertical separator
2201



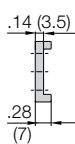
Vertical separator (Chain only)

Unassembled	Part No. 2201
Assembled	Part No. 2211

- **Vertical separator 2201 for e-chains®**
This separator is used for vertical subdivision. Because they are slotted, separators can also be used horizontally to form simple compartments.



Side plate
2203



Side plate (chain only)

Unassembled	Part No. 2203
Assembled	Part No. 2213

- **Side plate 2203 for e-chains®**
Used in conjunction with full-width shelf 220-X, this option is used for applications involving many thin cables with similar diameters.



Spacers
205-09

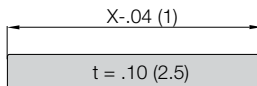


Spacer (chain only)

Unassembled	Part No. 205-09
Assembled	Part No. 215-09

- **NOTE ON SPACERS**
Vertical separators are adjustable, but can be fixed in position by means of a spacer. Spacers are most often necessary for side mounted applications. The available inner height is reduced by .08" (2mm) **per spacer** (for example if one spacer is placed on either side of the separator, the overall inner height is reduced by .16" (4mm)). To avoid this, place the spacers on the **outside** of the opening crossbar (**not for long travels**).

Full-width shelf 220-XX



Width X in. (mm)	Part No.		Width X in. (mm)	Part No.	
	Unassembled	Assembled		Unassembled	Assembled
1.57 (040)	220-40	221-40	3.94 (100)	220-100	221-100
1.97 (050)	220-50	221-50	4.92 (125)	220-125	221-125
2.44 (062)	220-62	221-62	5.91 (150)	220-150	221-150
2.76 (070)	220-70	221-70	6.89 (175)	220-175	221-175
2.95 (075)	220-75	221-75	7.87 (200)	220-200	221-200
3.43 (087)	220-87	221-87			

e-chain system® E4-1
 Series R4-28
 Interior Separation - Previous Generation



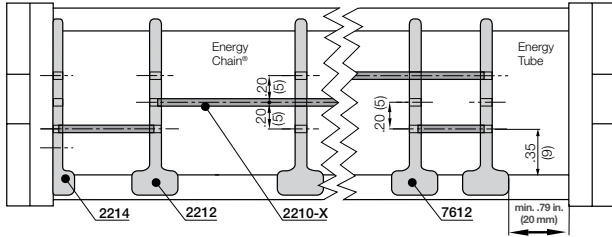
E4-28
 R4-28



Option 2: Shelves

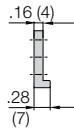
e-chains® and e-tubes can be subdivided both vertically and horizontally using the various interior separation elements.

► **Design, Chapter 1**, for layout recommendations.



• **Side plates 2204**

This component is used to form the basic pattern of a shelf system.



Side plate

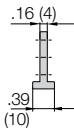
Unassembled	Part No. 2204
Assembled	Part No. 2214

Side plate
 2204



• **Vertical separator 2202 for e-chain®**

This component is used to form the basic pattern of a shelf system.



**Vertical separator
 (chain only)**

Unassembled	Part No. 2202
Assembled	Part No. 2212

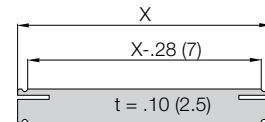
Vertical separator
 2202



Shelves 420-XX

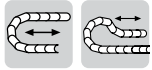
These components form the basic pattern of a shelf system. Shelves of various widths can be arranged at 3 different heights in .20" (5mm) increments

Width X in. (mm)	Part No. Unassembled	Part No. Assembled	Width X in. (mm)	Part No. Unassembled	Part No. Assembled
.71 (18)	2200-18	2210-18	2.28 (58)	2200-58	2210-58
.91 (23)	2200-23	2210-23	2.68 (68)	2200-68	2210-68
1.10 (28)	2200-28	2210-28	2.87 (73)	2200-73	2210-73
1.30 (33)	2200-33	2210-33	3.46 (88)	2200-88	2210-88
1.50 (38)	2200-38	2210-38	3.90 (99)	2200-99	2210-99
1.69 (43)	2200-43	2210-43	4.88 (124)	2200-124	2210-124
1.89 (48)	2200-48	2210-48	5.87 (149)	2200-149	2210-149



PDF: igus.com/e-chain-pdfs
 Product information: igus.com/e-chains

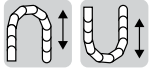
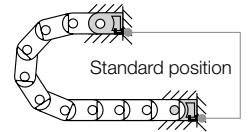
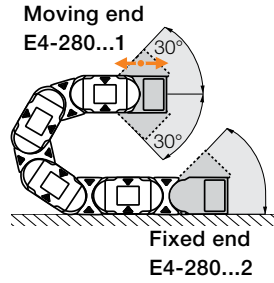




Standard

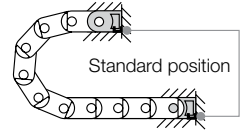
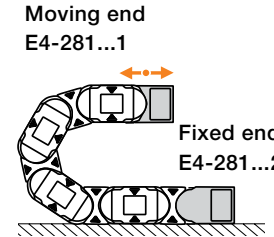
Option 1: pivoting

- Unsupported and gliding applications
- mounting capabilities on all sides
- Bolted connection outside of chain cross-section
- Space-restricted conditions
- corrosion-resistant



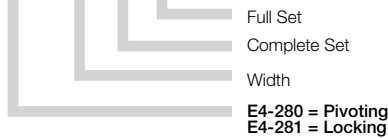
Option 2: locking

- Vertical hanging/standing applications
- For high accelerations
- Universally mountable
- Various mounting positions
- Corrosion-resistant



Part Number Structure

E4-281-040-2-12



Full set, for both ends:

E4-280-040-12

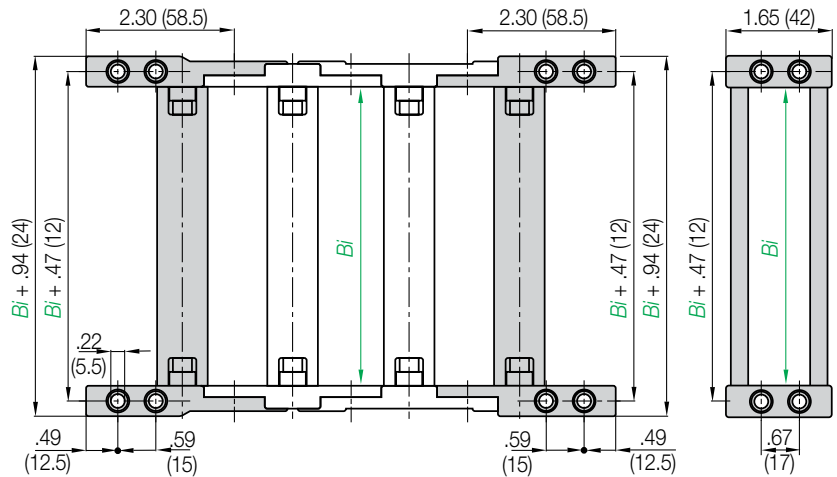
Single-part order:

E4-280-040-1

Mounting bracket moving end

E4-280-040-2

Mounting bracket fixed end



Part number example is shown for pivoting brackets.
For locking brackets change part number to E4-281

Part No. Full Set (pivoting)
Series E4-28
E4-28-Width-12

Width	Part No. Full Set			Bi in. (mm)
	Pivoting	Locking		
-040	E4-280	E4-281	-040-12	1.57 (40)
-050	E4-280	E4-281	-050-12	1.97 (50)
-052	E4-280	E4-281	-052-12	2.05 (52)
-062	E4-280	E4-281	-062-12	2.44 (62)
-070	E4-280	E4-281	-070-12	2.76 (70)
-075	E4-280	E4-281	-075-12	2.95 (75)
-087	E4-280	E4-281	-087-12	3.43 (87)
-100	E4-280	E4-281	-100-12	3.94 (100)
-125	E4-280	E4-281	-125-12	4.92 (125)
-150	E4-280	E4-281	-150-12	5.91 (150)
-175	E4-280	E4-281	-175-12	6.89 (175)
-200	E4-280	E4-281	-200-12	7.87 (200)
-225	E4-280	E4-281	-225-12	8.86 (225)
-250	E4-280	E4-281	-250-12	9.84 (250)
-275	E4-280	E4-281	-275-12	10.83 (275)
-300	E4-280	E4-281	-300-12	11.81 (300)

Due to the design of the E4-28 series chains,
please note the following when ordering brackets:

Even number of links = full set, part number ending in -12
Odd number of links = 2 pieces, part number ending in -1

Strain relief tiwrap plate
Part No. 2050-Z can be fixed
on the last crossbar.
Details ► chapter 10 main catalog

Part. No.	Width [mm]	Number of teeth
2050.Z	60	6

e-chain system® E4-1

Series R4-28

Mounting Bracket - KMA

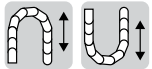
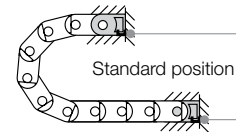
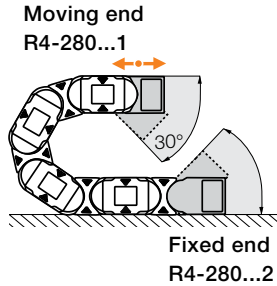


E4-28
R4-28



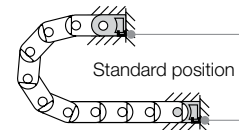
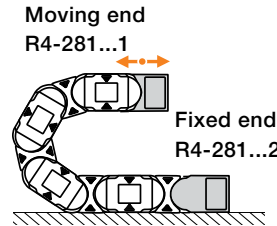
Option 1: pivoting

- Unsupported and gliding applications
- mounting capabilities on all sides
- Bolted connection outside of chain cross-section
- Space-restricted conditions
- corrosion-resistant



Option 2: locking

- Vertical hanging/standing applications
- For high accelerations
- Universally mountable
- Various mounting positions
- Corrosion-resistant



Part Number Structure

R4-281-040-2-12



Full set, for both ends:

R4-280-040-12

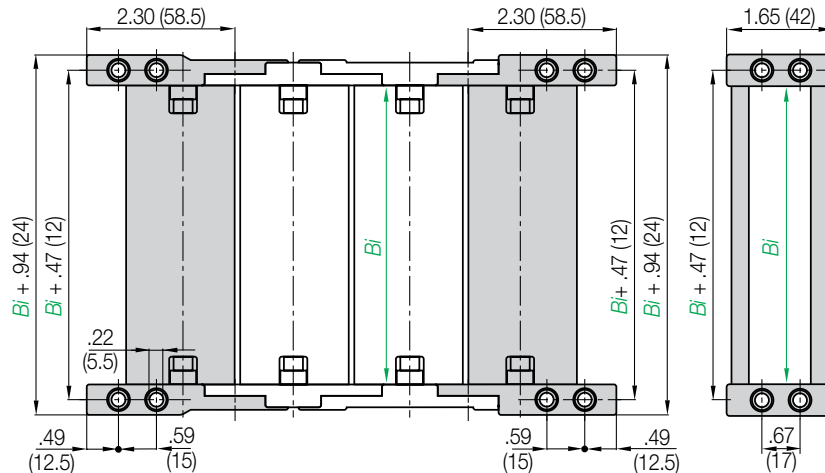
Single-part order:

R4-280-040-1

Mounting bracket moving end

R4-280-040-2

Mounting bracket fixed end



Part number example is shown for pivoting brackets.
For locking brackets change part number to R4-281

Part No. Full Set (pivoting)
Series R4-28
R4-28-Width-12

Width	Part No. Full Set		<i>Bi</i>	in. (mm)
	Pivoting	Locking		
-050	R4-280	R4-281	-050-12	1.97 (50)
-075	R4-280	R4-281	-075-12	2.95 (75)
-100	R4-280	R4-281	-100-12	3.94 (100)
-125	R4-280	R4-281	-125-12	4.92 (125)
-150	R4-280	R4-281	-150-12	5.91 (150)
-175	R4-280	R4-281	-175-12	6.89 (175)
-200	R4-280	R4-281	-200-12	7.87 (200)
-225	R4-280	R4-281	-225-12	8.86 (225)
-250	R4-280	R4-281	-250-12	9.84 (250)
-300	R4-280	R4-281	-300-12	11.81 (300)

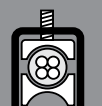
Due to the design of the E4-28 series chains,
please note the following when ordering brackets:

Even number of links = full set, part number ending in -12
Odd number of links = 2 pieces, part number ending in -1

Strain relief tiwrap plate
Part No. 2050-Z can be fixed on the last crossbar.
Details ► chapter 10 main catalog

Part. No.	Width [mm]	Number of teeth
2050.Z	60	6

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains



Guide troughs are used with applications where the upper run of the e-chain® glides on the lower run. If using igus® steel guide troughs, the following components are required:

- Full travel length of guide trough
Part No. 96-30
- 1/2 travel length of glide bars
Part No. 92-01
- Installation sets as end connectors
Part No. 95-50-XX

-XX indicates the length of the profile rail on which the guide trough is mounted. The values and part numbers are specified in the table on the left. Standard length of the trough components and glide bars is 6.56 ft (2m). The required overall length of the guide trough directly correlates to the length of travel.

Example:

Length of travel 164 ft. (50 m)
Center mounted

Required guide troughs:

164 ft (50 m) guide trough,
82 ft (25 m) glide bar
= 25 sections of 6.56 ft (2 m) guide trough

Part No. 96-30

= 13 sections of 6.56 ft. (2 m) glide bar

Part No. 92-01

Required number of installation sets

= Number of guide trough components + 1
= 25 + 1 = 26

Part number of the installation sets

95-50-XXX

Example: 95-50-400 for
15.75 (400 mm) long profile rail



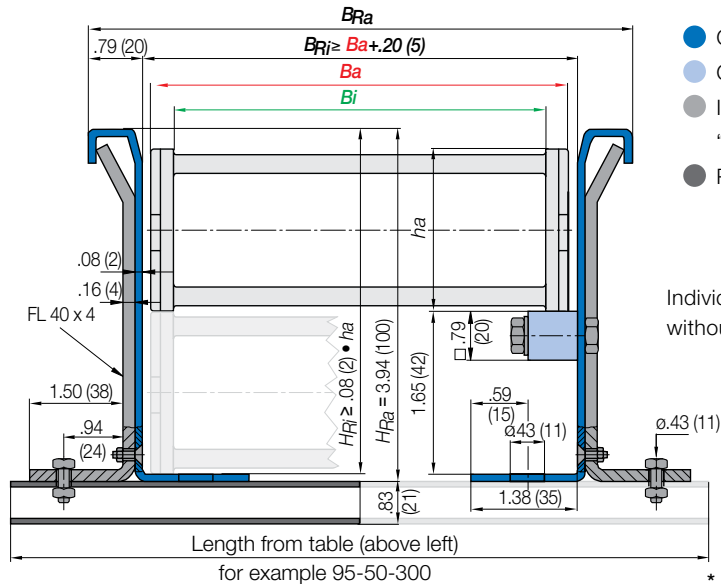
Left: Guide trough with glide bars
Right: Guide troughs without glide bars



Installation sets as section connectors

Width of Crossbar
E4-28-040-200-0

	B_{Ri}	Installation Part No.
-040	2.56 (65)	*
-050	2.95 (75)	95-50-200
-052	2.99 (76)	95.50-200
-062	3.43 (87)	95-50-200
-070	3.74 (95)	95-50-200
-075	3.94 (100)	95-50-225
-100	4.92 (125)	95-50-250
-125	5.91 (150)	95-50-275
-150	6.89 (175)	95-50-300
-175	7.87 (200)	95-50-325
-200	8.86 (225)	95-50-350
-225	9.84 (250)	95-50-375
-250	10.83 (275)	95-50-400
-275	11.81 (300)	95-50-425
-300	12.80 (325)	95-50-450



- Guide trough
- Glide bars
- Installation set "Basic"
- Profile rail

Individual attachment without profile rail

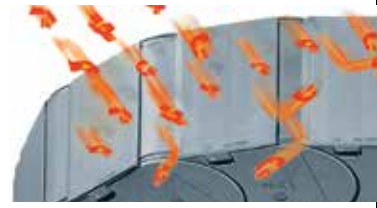
Standard length profile rail

* Specialized guide trough available upon request

Hot chips up to 1562°F

- e-tubes to withstand 1,562°F hot chips, as a special option
- No hot chips melting or embedding into the chain
- igus® igumid HT material

More information ► www.igus.com/HT



Aluminum support tray

- Corrosion-resistant and seawater-resistant aluminium rails with adjustable width
- Noise-reducing glide strip integrated as standard
- Easy installation and connection of the e-chain®
- Open design - dirt and debris fall through

More information ► [Chapter 9](#)



Reduce assembly time - E4 e-chain® opener

- e-chain® opener tools for easy opening and closing of e-chains®
- Simple opening and closing of e-chain® crossbars
- Also for use in hard to reach locations
- Significant assembly time reduction

More information ► www.igus.com/E4savetime

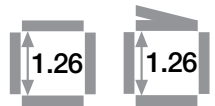


E4-32
H4-32
R4-32

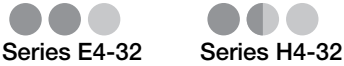


e-chain system® E4-1

Series E4-32/H4-32/R4-32



Price Index



Series E4-32

Series H4-32



Series R4-32

Special Options Available



Low noise version available with special rubber pads



Cleanroom test upon request



ESD classification:
Electrically conductive ESD/
ATEX version upon request

Assembly Tips



Opening e-chains®: Remove crossbars and clips - Insert screwdriver into the slot, push down, release by lever action



Remove lids/bottoms (e-tubes) - Insert screwdriver into the slot, release by lever action

Other Installation Methods

- Vertical, hanging ≤ 262 ft (80 m)
- Vertical, standing ≤ 16.4 ft (5 m)
- Side-mounted, un_supp. ≤ 4.92 ft (1.5 m)
- Rotary requires further calculation

Usage Guidelines



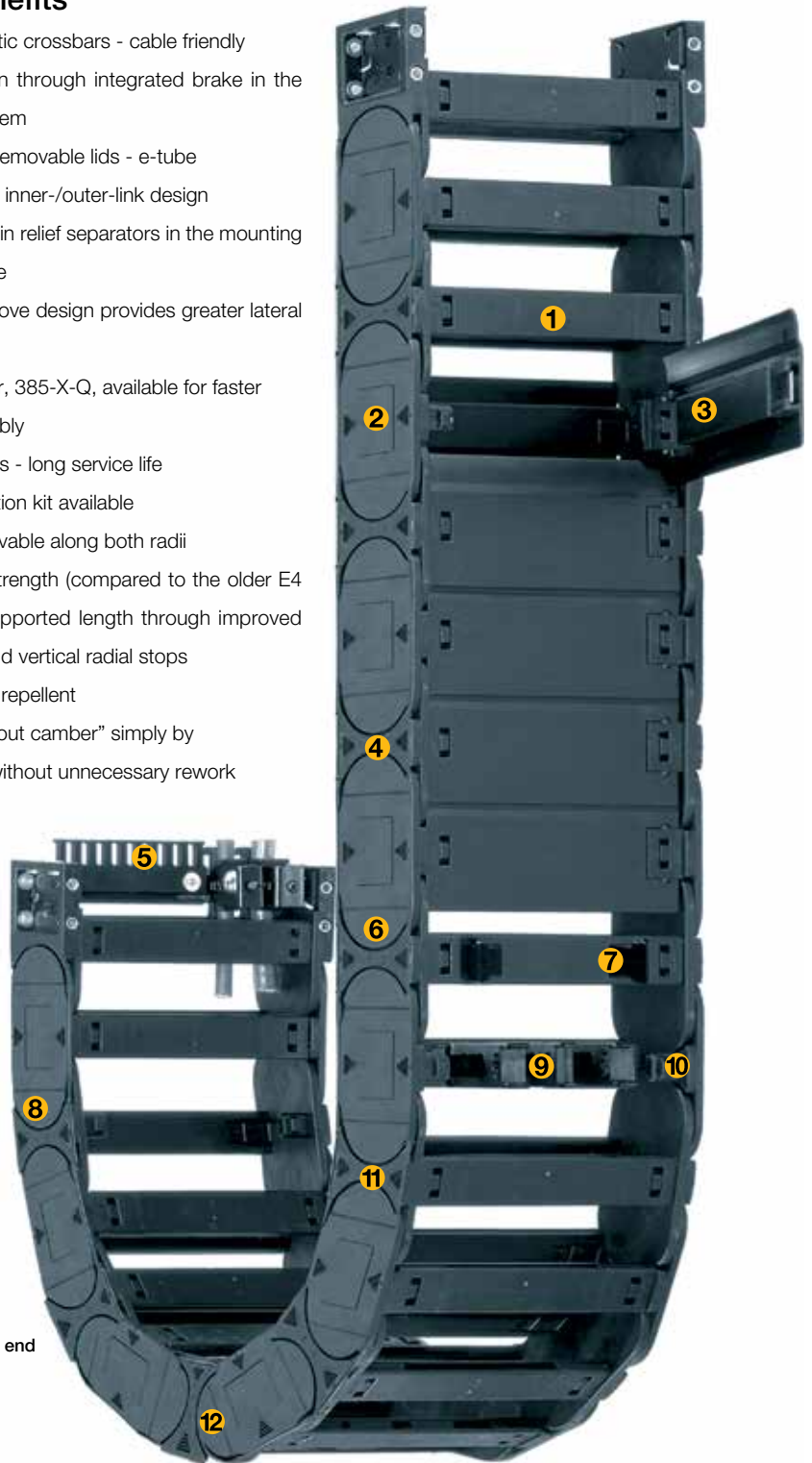
- If quiet operation is required
- If very high speeds and/or accelerations are required
- Long travels
- High additional loads



- When an extremely low vibration e-chain® is required
 - Series E6-35
- When an economic one-sided snap-open e-chain®/e-tube is required
 - Series 2600/2650/2680/2700

Features & Benefits

- 1 Wide, rounded plastic crossbars - cable friendly
- 2 Low-noise operation through integrated brake in the radial stop dog system
- 3 Hinged snap-open removable lids - e-tube
- 4 Straight run through inner-/outer-link design
- 5 Strain relief with strain relief separators in the mounting bracket are available
- 6 The tongue and groove design provides greater lateral stability
- 7 QuickLock Crossbar, 385-X-Q, available for faster assembly/disassembly
- 8 Optimized glide pads - long service life
- 9 New Interior separation kit available
- 10 Crossbars are removable along both radii
- 11 15% more tensile strength (compared to the older E4 series), better unsupported length through improved stop dog system and vertical radial stops
- 12 Smooth outline, dirt repellent
- 13 Version NCST "without camber" simply by turning outer links without unnecessary rework



Also available without camber. Add NCST to the end of the part number.
Ex: E4-32-30-300NCST

Order Example: Complete e-chain®

Please indicate chain length or number of links. Example:

13.12 ft (4 m) **E4-32-30-300-0**



e-chain®

With 2 separators **282** assembled every 2nd link



Interior Separation

1 Set **E4-320-30-12P**



Mounting Bracket

e-chain system® E4-1

Series E4-32/H4-32/R4-32

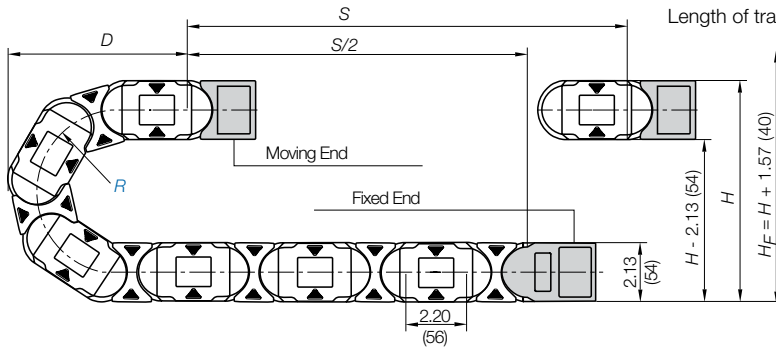
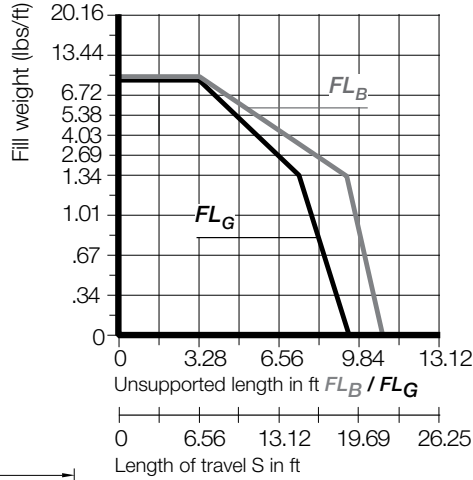
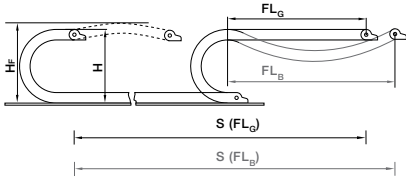
Installation Dimensions



E4-32
H4-32
R4-32

Short travel, unsupported length

- FL_B = unsupported with permitted sag
 - FL_G = unsupported with straight upper run
- Further information ► Design, Chapter 1



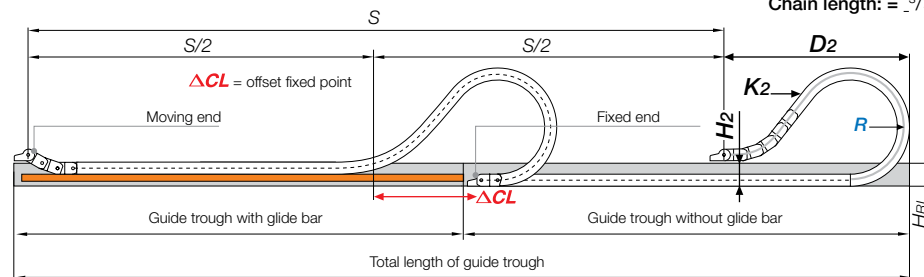
Pitch per link = 2.20" (56 mm)
Links per ft (m) = 5.49 (18)
For center mount applications:
Chain length = $\frac{S}{2} + K$

The required clearance height: $H_f = H + 1.57$ in. (40 mm) (with 1.34 lbs/ft (2.0 kg/m) fill weight). Please consult igus® if space is particularly restricted.

R	2.48 (063)	2.95 (075)	3.94 (100)	4.92 (125)	5.91 (150)	6.89 (175)	7.87 (200)	8.66 (220)	9.84 (250)	11.81 (300)
H	7.09 (180)	8.03 (204)	10.00 (254)	11.97 (304)	13.94 (354)	15.91 (404)	17.87 (454)	19.45 (494)	21.81 (554)	25.75 (654)
D	6.85 (174)	7.32 (186)	8.31 (211)	9.29 (236)	10.28 (261)	11.26 (286)	12.24 (311)	13.03 (331)	14.21 (361)	16.18 (411)
K	12.20 (310)	13.78 (350)	16.93 (430)	19.88 (505)	23.03 (585)	26.18 (665)	29.33 (745)	31.69 (805)	35.43 (900)	41.54 (1055)

For long travels with lowered mounting height

Long travel lengths from 32.8 ft.(10m) to max. 656 ft. (200m)



For center mount applications:
Chain length = $\frac{S}{2} + K_2$

Long Travels - Gliding



If the unsupported length is exceeded, the e-chain®/ Tube must glide on itself. This requires a guide trough.

Design, Chapter 1

R	2.48 (063)	2.95 (075)	3.94 (100)	4.92 (125)	5.91 (150)	6.89 (175)	7.87 (200)	8.66 (220)	9.84 (250)	11.81 (300)
H ₂	-	-	6.54 (166)	6.54 (166)	6.54 (166)	6.54 (166)	6.54 (166)	6.54 (166)	6.54 (166)	6.54 (166)
D ₂	-	-	14.57 (370)	18.50 (470)	19.69 (500)	25.79 (655)	30.31 (770)	35.43 (900)	36.61 (930)	43.31 (1100)
K ₂	-	-	24.25 (616)	30.87 (784)	35.27 (896)	44.10 (1120)	50.71 (1288)	57.32 (1456)	61.73 (1568)	75.00 (1904)
ΔCL	-	-	6.30 (160)	8.27 (210)	9.45 (240)	14.57 (370)	18.11 (460)	21.26 (540)	22.44 (570)	27.17 (690)

In case of travels between 22.9 and 32.8 ft (7 and 10 m) we recommend a longer unsupported length.



For support of the lower run, see Chapter 9 of the main catalog for the Support Tray tool kit

Speed / acceleration FL_G	max. 65.6 ft/s (20 m/s) / max. 656 ft/s ² (200 m/s ²)
Speed / acceleration FL_B	max. 9.84 ft/s (3 m/s) / max. 19.69 ft/s ² (6 m/s ²)
Gliding speed / acceleration (maximum)	max. 32.8 ft/s (10 m/s) / max. 164 ft/s ² (50 m/s ²)
Material - permitted temperature	igumid G / -40°F (-40°C) up to +248°F (+120°C)
Flammability Class, igumid G	VDE 0304 IIC UL94 HB

Technical Data



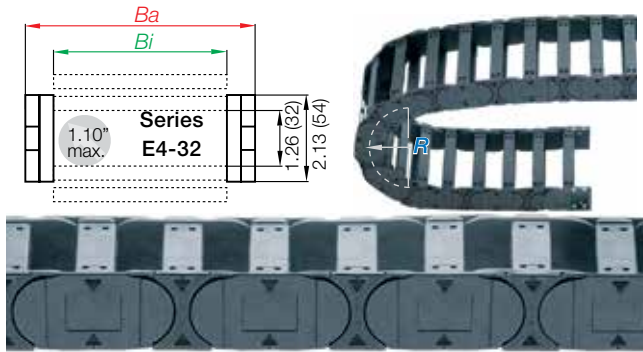
Details of material properties

► Chapter 1

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains



Series E4-32 - e-chain® with crossbars every link



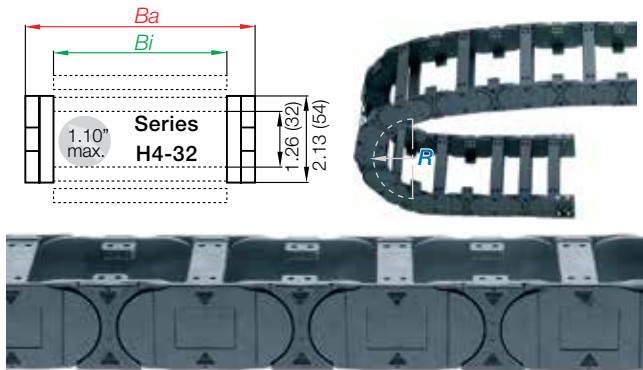
- Crossbars every link
- For use with rigid hydraulic hoses
- For particularly demanding applications
- Can be opened from both sides

Part Number Structure

E4-32 30- 300- 0



Series H4-32 - e-chain® with crossbars every other link



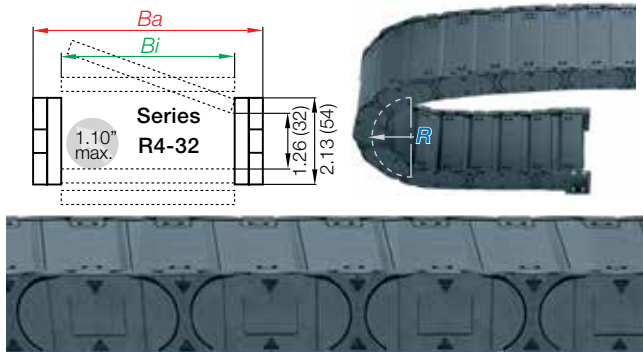
- Crossbars every other link
- Standard configuration
- For nearly every situation
- Can be opened from both sides
- Easy assembly
- Stable
- Cost-effective

Part Number Structure

H4-32- 20- 300- 0



Series R4-32 - fully enclosed e-tube



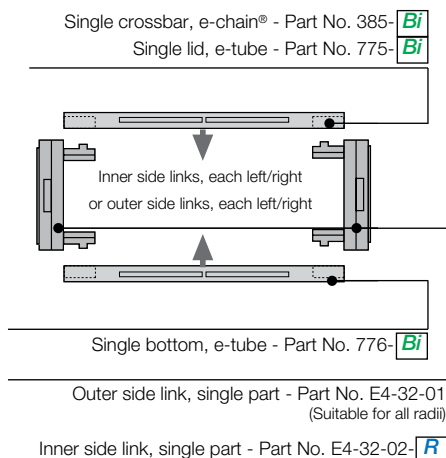
- Fully enclosed
- Excellent cable and hose protection against dirt
- Protection against hot chips
- Lids along inner radius are completely removable
- Lids along the outer radius are single-sided, snap open, hinged on one side as well as completely removable

Part Number Structure

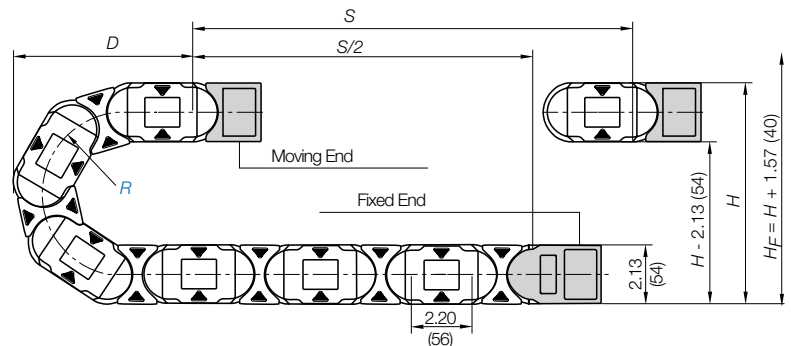
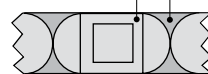
R4-32- 30- 300- 0



e-chain® as separate parts, links and side plates



Inner side link
Outer side link



e-chain system® E4-1

Series E4-32/H4-32/R4-32

Product Range



E4-32
H4-32
R4-32

Supplement part number with required radius. Example: E4-32-30-300-0
Pitch: 2.20 in. (56mm) per link links/ft(m) = 5.49 (18)

Part Number			Weight					
Crossbars Every link	Crossbars Every other	Tube Version	<i>Bi</i> in. (mm)	<i>Ba</i> in. (mm)	E4-32 lbs/ft (kg/m)	H4-32 lbs/ft (kg/m)	R4-32 lbs/ft (kg/m)	
E4-32-05-	H4-32-05-	*R4-32-05-	<input type="checkbox"/> -0	1.97 (50)	2.87 (73)	≈ 1.05 (1.57)	≈ 0.96 (1.43)	≈ 1.65 (2.45)
E4-32-06-	H4-32-06-		<input type="checkbox"/> -0	2.68 (68)	3.58 (91)	≈ 1.14 (1.70)	≈ 1.00 (1.49)	-
E4-32-07-	H4-32-07-	R4-32-07-	<input type="checkbox"/> -0	2.95 (75)	3.86 (98)	≈ 1.16 (1.73)	≈ 1.01(1.51)	≈ 1.73 (2.57)
E4-32-087-	H4-32-087-		<input type="checkbox"/> -0	3.43 (87)	4.33 (110)	≈ 1.21 (1.80)	≈ 1.03 (1.54)	-
E4-32-097-	H4-32-097-		<input type="checkbox"/> -0	3.82 (97)	4.72 (120)	≈ 1.25 (1.86)	≈ 1.05 (1.57)	-
E4-32-10-	H4-32-10-	R4-32-10-	<input type="checkbox"/> -0	3.94 (100)	4.84 (123)	≈ 1.27 (1.89)	≈ 1.06 (1.58)	≈ 1.78 (2.65)
E4-32-11-	H4-32-11-	R4-32-11-	<input type="checkbox"/> -0	4.25 (108)	5.16 (131)	≈ 1.30 (1.94)	≈ 1.08 (1.61)	≈ 1.85 (2.76)
E4-32-112-	H4-32-112-		<input type="checkbox"/> -0	4.41(112)	5.35 (136)	≈ 1.32 (1.96)	≈ 1.09 (1.62)	-
E4-32-12-	H4-32-12-	R4-32-12-	<input type="checkbox"/> -0	4.92 (125)	5.83 (148)	≈ 1.39 (2.07)	≈ 1.13 (1.68)	≈ 1.92 (2.85)
E4-32-137-	H4-32-137-		<input type="checkbox"/> -0	5.39 (137)	6.34 (161)	≈ 1.42 (2.12)	≈ 1.14 (1.70)	-
E4-32-15-	H4-32-15-	R4-32-15-	<input type="checkbox"/> -0	5.91 (150)	6.81 (173)	≈ 1.49 (2.21)	≈ 1.18 (1.75)	≈ 2.02 (3.01)
E4-32-162-	H4-32-162-		<input type="checkbox"/> -0	6.38 (162)	7.32 (186)	≈ 1.50 (2.24)	≈ 1.18 (1.76)	-
E4-32-17-	H4-32-17-	R4-32-17-	<input type="checkbox"/> -0	6.61 (168)	7.52 (191)	≈ 1.56 (2.32)	≈ 1.21 (1.80)	≈ 2.16 (3.21)
E4-32-18-	H4-32-18-		<input type="checkbox"/> -0	6.89 (175)	7.80 (198)	≈ 1.58 (2.35)	≈ 1.22 (1.81)	-
E4-32-187-	H4-32-187-		<input type="checkbox"/> -0	7.36 (187)	8.31 (211)	≈ 1.61 (2.39)	≈ 1.24 (1.84)	-
E4-32-20-	H4-32-20-	R4-32-20-	<input type="checkbox"/> -0	7.87 (200)	8.78 (223)	≈ 1.69 (2.52)	≈ 1.28 (1.90)	≈ 2.29 (3.41)
E4-32-212-	H4-32-212-		<input type="checkbox"/> -0	8.35 (212)	9.29 (236)	≈ 1.73 (2.57)	≈ 1.30 (1.93)	-
E4-32-23-	H4-32-23-		<input type="checkbox"/> -0	8.86 (225)	9.76 (248)	≈ 1.79 (2.67)	≈ 1.33 (1.98)	-
E4-32-237-	H4-32-237-		<input type="checkbox"/> -0	9.33 (237)	10.28 (261)	≈ 1.81 (2.70)	≈ 1.34 (1.99)	-
E4-32-25-	H4-32-25-	R4-32-25-	<input type="checkbox"/> -0	9.84 (250)	10.75 (273)	≈ 1.90 (2.83)	≈ 1.38 (2.06)	≈ 2.59 (3.86)
E4-32-262-	H4-32-262-		<input type="checkbox"/> -0	10.31 (262)	11.26 (286)	≈ 1.96 (2.92)	≈ 1.41 (2.10)	-
E4-32-28	H4-32-28-		<input type="checkbox"/> -0	10.83 (275)	11.73 (298)	≈ 2.01 (2.99)	≈ 1.44 (2.14)	-
E4-32-29-	H4-32-29-		<input type="checkbox"/> -0	11.30 (287)	12.24 (311)	≈ 2.02 (3.02)	≈ 1.44 (2.15)	-
E4-32-30-	H4-32-30-	R4-32-30-	<input type="checkbox"/> -0	11.81 (300)	12.72 (323)	≈ 2.12 (3.15)	≈ 1.49 (2.22)	≈ 2.85 (4.25)
E4-32-312-	H4-32-312-		<input type="checkbox"/> -0	12.28 (312)	13.23 (336)	≈ 2.14 (3.18)	≈ 1.50 (2.23)	-
E4-32-325-	H4-32-325-		<input type="checkbox"/> -0	12.79 (325)	13.70 (348)	≈ 2.20 (3.28)	≈ 1.53 (2.28)	-
E4-32-337-	H4-32-337-		<input type="checkbox"/> -0	13.27 (337)	14.21 (361)	≈ 2.24 (3.34)	≈ 1.55 (2.31)	-
E4-32-350-	H4-32-350-		<input type="checkbox"/> -0	13.78 (350)	14.69 (373)	≈ 2.40 (3.57)	≈ 1.63 (2.42)	-
E4-32-362-	H4-32-362-		<input type="checkbox"/> -0	14.25 (362)	15.20 (386)	≈ 2.46 (3.66)	≈ 1.66 (2.47)	-
E4-32-375-	H4-32-375-		<input type="checkbox"/> -0	14.76 (375)	15.67 (398)	≈ 2.51 (3.74)	≈ 1.69 (2.51)	-
E4-32-387-	H4-32-387-		<input type="checkbox"/> -0	15.24 (387)	16.18 (411)	≈ 2.55 (3.80)	≈ 1.71 (2.54)	-
E4-32-400	H4-32-400-		<input type="checkbox"/> -0	15.75 (400)	16.65 (423)	≈ 2.60 (3.87)	≈ 1.73 (2.58)	-

Choose from the radii below for all of the above sizes

Radius (mm) Example: E4-32-30-300-0

	063**	075**	100	125	150	175	200	220	250	300
<i>R</i>	2.48 (063**)	2.95 (075**)	3.94 (100)	4.92 (125)	5.91 (150)	6.89 (175)	7.87 (200)	8.66 (220)	9.84 (250)	11.81 (300)
<i>H</i> $^{0}_{+20}$	7.09 (180)	8.03 (204)	10.00 (254)	11.97 (304)	13.94 (354)	15.91 (404)	17.87 (454)	19.45 (494)	21.81 (554)	25.75 (654)
<i>D</i>	6.85 (174)	7.32 (186)	8.31 (211)	9.29 (236)	10.28 (261)	11.26 (286)	12.24 (311)	13.03 (331)	14.21 (361)	16.18 (411)
<i>K</i>	12.20 (310)	13.78 (350)	16.93 (430)	19.88 (505)	23.03 (585)	26.18 (665)	29.33 (745)	31.69 (805)	35.43 (900)	41.54 (1055)

** This radius is not available for the R4-32 Series

*Removable lid only, no hinged option

0 = Standard color black.

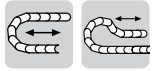
For other colors see Chapter 1

For wider chains see page 6.36

For large diameter hoses see page 6.37

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains

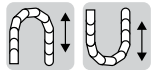
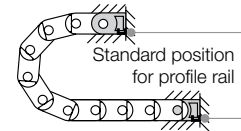
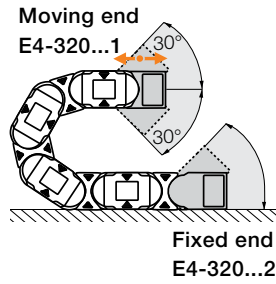




Standard

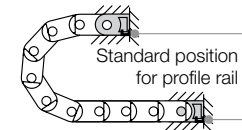
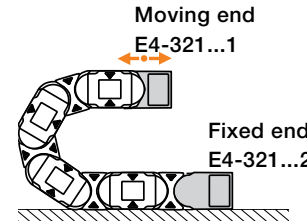
Option 1: pivoting

- Recommended for unsupported and gliding applications
- Attachment capability on all sides
- Bolted connection outside of chain cross-section
- Space restricted conditions
- Corrosion resistant

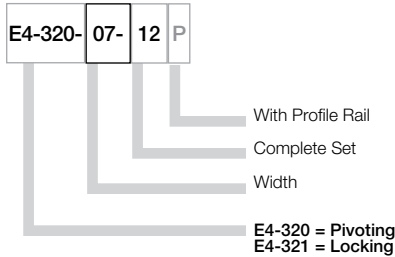


Option 2: locking

- Profile rail option
- Universal use
- Corrosion resistant
- Vertical hanging/standing travels
- Extreme accelerations

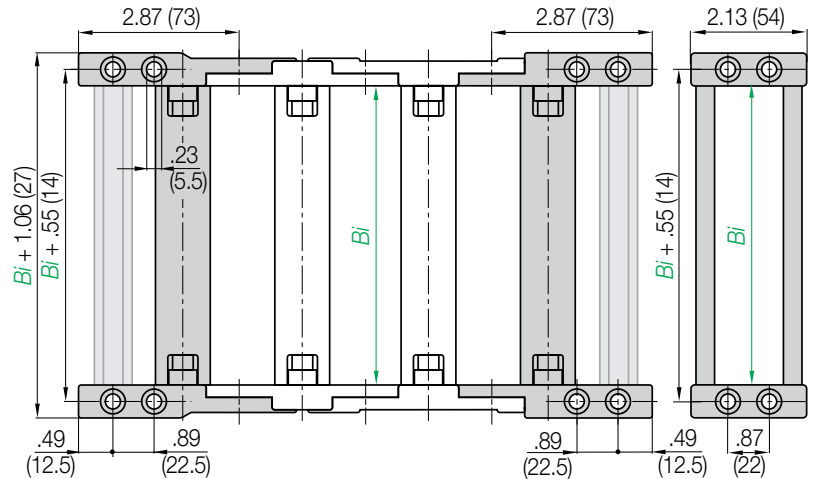


Part Number Structure



Due to the design of the E4-32 series chains, please note the following when ordering brackets:

Even number of links = full set, part number ending in -12; Odd number of links = 2 pieces, part number ending in -1



Part No. Full Set (pivoting)
Series E4-32 or H4-32
E4-320-Width-12

Part No. Full Set (pivoting)
with profile rail
Series E4-32 or H4-32
E4-320-Width-12P

Part number examples are shown for pivoting brackets for e-chain.
For locking brackets change part number to 321

Width	Part No. Full Set chain		With Profile Rail	Bi in. (mm)	Width	Part No. Full Set chain		With Profile Rail	Bi in. (mm)
	Pivoting	Locking				Pivoting	Locking		
-05	E4-320	E4-321	-05-12	1.97 (50)	-212	E4-320	E4-321	-212-12	8.35 (212)
-06	E4-320	E4-321	-06-12	2.68 (68)	-23	E4-320	E4-321	-23-12	8.86 (225)
-07	E4-320	E4-321	-07-12	2.95 (75)	-237	E4-320	E4-321	-237-12	9.33 (237)
-087	E4-320	E4-321	-087-12	3.43 (87)	-25	E4-320	E4-321	-25-12	9.84 (250)
-097	E4-320	E4-321	-097-12	3.82 (97)	-262	E4-320	E4-321	-262-12	10.31 (262)
-10	E4-320	E4-321	-10-12	3.94 (100)	-28	E4-320	E4-321	-28-12	10.83 (275)
-11	E4-320	E4-321	-11-12	4.25 (108)	-29	E4-320	E4-321	-29-12	11.30 (287)
-112	E4-320	E4-321	-112-12	4.41 (112)	-30	E4-320	E4-321	-30-12	11.81 (300)
-12	E4-320	E4-321	-12-12	4.92 (125)	-312	E4-320	E4-321	-312-12	12.28 (312)
-137	E4-320	E4-321	-137-12	5.39 (137)	-325	E4-320	E4-321	-325-12	12.79 (325)
-15	E4-320	E4-321	-15-12	5.91 (150)	-337	E4-320	E4-321	-337-12	13.27 (337)
-162	E4-320	E4-321	-162-12	6.38 (162)	-350	E4-320	E4-321	-350-12	13.78 (350)
-17	E4-320	E4-321	-17-12	6.61 (168)	-362	E4-320	E4-321	-362-12	14.25 (362)
-18	E4-320	E4-321	-18-12	6.89 (175)	-375	E4-320	E4-321	-375-12	14.76 (375)
-187	E4-320	E4-321	-187-12	7.36 (187)	-387	E4-320	E4-321	-387-12	15.24 (387)
-20	E4-320	E4-321	-20-12	7.87 (200)	-400	E4-320	E4-321	-400-12	15.75 (400)

e-chain system® E4-1

Series R4-32

Mounting Brackets - KMA

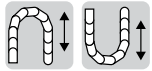
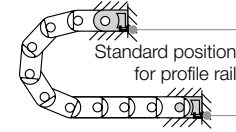
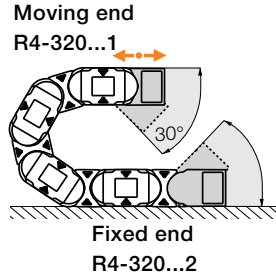


E4-32
H4-32
R4-32



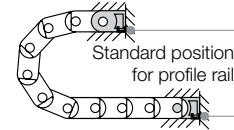
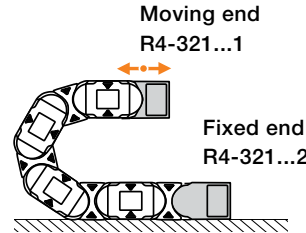
Option 1: pivoting

- Recommended for unsupported and gliding applications
- Attachment capability on all sides
- Bolted connection outside of chain cross-section
- Space restricted conditions
- Corrosion resistant

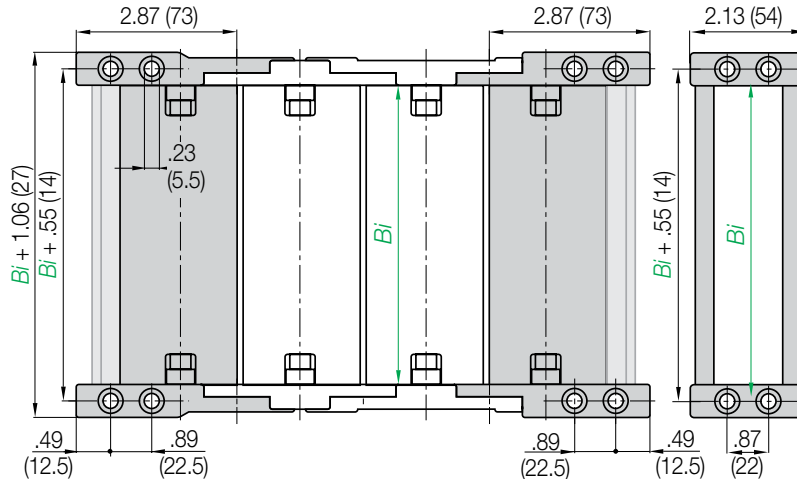
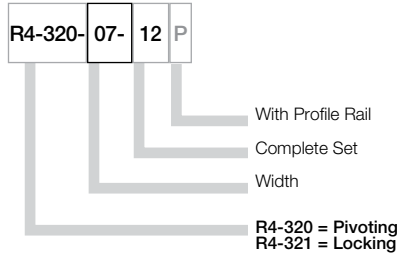


Option 2: locking

- Profile rail option
- Universal use
- Corrosion resistant
- Vertical hanging/standing travels
- Extreme accelerations



Part Number Structure



Due to the design of the E4-32 series chains, please note the following when ordering brackets:

Even number of links = full set, part number ending in -12; Odd number of links = 2 pieces, part number ending in -1

Part No. Full Set (pivoting)
Tube Series R4-32
R4-320-Width-12

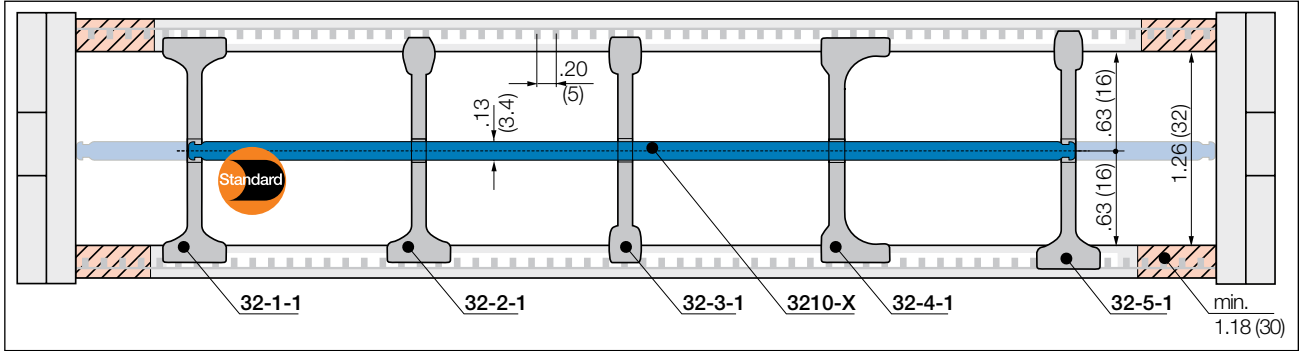
Part No. Full Set (pivoting)
with Profile Rail
Tube Series R4-32
R4-320-Width-12P

Part number examples are shown for pivoting brackets for e-chain.
For locking brackets change part number to 321

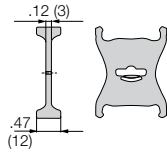
Width	Part No. Full Set tube		With Profile Rail	Bi in. (mm)	Width	Part No. Full Set tube		With Profile Rail	Bi in. (mm)		
	Pivoting	Locking				Pivoting	Locking				
-05	R4-320	R4-321	-05-12	P	1.97 (50)	-15	R4-320	R4-321	-15-12	P	5.91 (150)
-07	R4-320	R4-321	-07-12	P	2.95 (75)	-17	R4-320	R4-321	-17-12	P	6.61 (168)
-10	R4-320	R4-321	-10-12	P	3.94 (100)	-20	R4-320	R4-321	-20-12	P	7.87 (200)
-11	R4-320	R4-321	-11-12	P	4.25 (108)	-25	R4-320	R4-321	-25-12	P	9.84 (250)
-12	R4-320	R4-321	-12-12	P	4.92 (125)	-30	R4-320	R4-321	-30-12	P	11.81 (300)

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains





Note e-tube: Please maintain a lateral spacing of 1.18" (30 mm) between the separators and the side links. In the standard configuration separators are assembled every 2nd e-chain® link



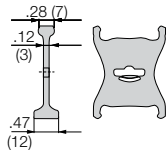
Separator, wide base

Unassembled Part No. 32-1

Assembled Part No. 32-1-1

- **Standard separator 32-1 for all applications**

Separator with wide base for maximum locking strength and safe standing in e-chains®.



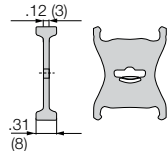
Separator, narrow head

Unassembled Part No. 32-2

Assembled Part No. 32-2-1

- **Separator 32-2 For even faster installation**

is used when vertical and horizontal separation is required. Due to its slot, it allows basic vertical/horizontal shelving arrangements.



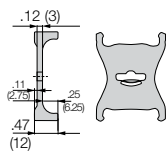
Separator, narrow base

Unassembled Part No. 32-3

Assembled Part No. 32-3-1

- **Separator 32-3 For many thin cables**

is used when vertical and horizontal separation is required. Due to its slot, it allows basic vertical/horizontal shelving arrangements.



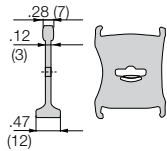
Separator, asymmetrical

Unassembled Part No. 32-4

Assembled Part No. 32-4-1

- **Separator 32-4 For side mounted applications**

is used when vertical and horizontal separation is required. Due to its slot, it allows basic vertical/horizontal shelving arrangements.



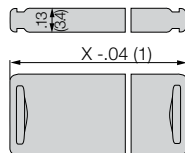
Separator, asymmetrical

Unassembled Part No. 32-5

Assembled Part No. 32-5-1

- **Separator 32-5 Locks safely in .20" (5 mm) increments**
Notch separator for exact positioning in e-chains®. Recommended for side-mounted applications.

Lockable full-width shelves - for the standard interior separation



Full width shelf, lockable

Unassembled Part No. 3200-X

Assembled Part No. 3210-X

- **Full width shelf, lockable**
Shelf locks safely into separators on both ends, fixed width possible. Separators can be moved freely over the shelf in horizontal direction. Can be used at one height.

Width X in. (mm)	Part No. Unassembled	Part No. Assembled	Width X in. (mm)	Part No. Unassembled	Part No. Assembled	Width X in. (mm)	Part No. Unassembled	Part No. Assembled
1.97 (050)	3200-50	3210-50	4.92 (125)	3200-125	3210-125	8.86 (225)	3200-225	3210-225
2.95 (075)	3200-75	3210-75	5.91 (150)	3200-150	3210-150	9.84 (250)	3200-250	3210-250
3.94 (100)	3200-100	3210-100	6.89 (175)	3200-175	3210-175			
4.53 (115)	3200-115	3210-115	7.87 (200)	3200-200	3210-200			

e-chain system® E4-1

Series Series E4-32/H4-32/R4-32

Interior Separation - Previous Generation



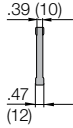
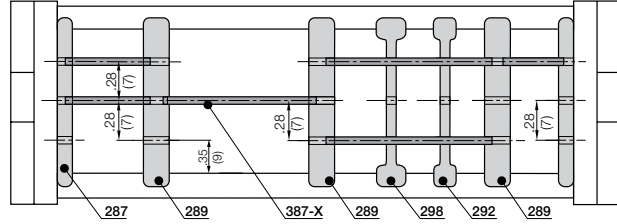
E4-32
H4-32
R4-32



Shelves and Separators

e-chains® and e-tubes can be subdivided both vertically and horizontally using the various interior separation elements. ➤

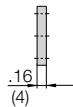
Design, Chapter 1 for layout recommendations.



Split Separator (chain only)

Unassembled	Part No. T323
Assembled	Part No. T323M

- **Split separator T323 for e-chains®**
This separator is ideal for subsequent shelving or the initial assembly of the e-chain. Fast assembly and disassembly using a hinge/push mechanism. Enhances flexibility



Side Plate

Unassembled	Part No. 286
Assembled	Part No. 287

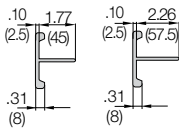
- **Side plates 286**
This component is used to form the basic pattern of a shelf system.



Vertical Separator

Unassembled	Part No. 288
Assembled	Part No. 289

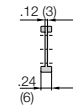
- **Vertical separator 288**
This component is used to form the basic pattern of a shelf system.



Separators w/Integrated Shelf

Unassembled	Part No. 281-S-45
Assembled	Part No. 282-S-45
Unassembled	Part No. 281-S-57
Assembled	Part No. 282-S-57

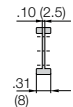
- **Locking vertical separator 281-S**
This separator is slotted and able to be combined with shelves



Slotted Separators

Unassembled	Part No. 291
Assembled	Part No. 292

- **Closed Slotted separators 291**
These are used for complex subdivisions. However, they cannot be retrofitted into an existing interior separation system without removing the shelves first.



Slotted Separators, Open

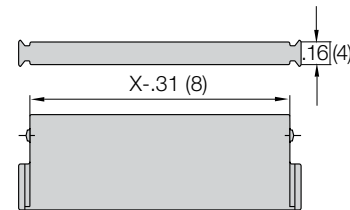
Unassembled	Part No. 297
Assembled	Part No. 298

- **Open slotted separator 297**
This separator can be retrofitted into an existing interior separation system without removing the shelves, as long as these shelves fit into the middle slot only.

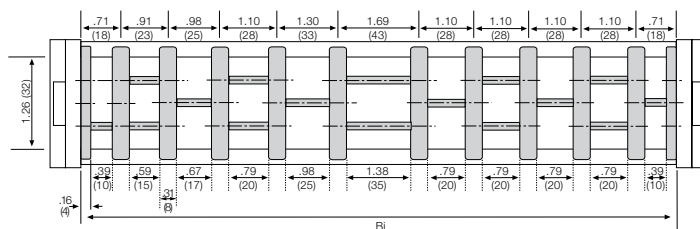
Width X in. (mm)	Usable Width in. (mm)	Part No. Unassembled	Part No. Assembled
.71 (18)	.39 (10)	386-18	387-18
.91 (23)	.59 (15)	386-23	387-23
.98 (25)	.67 (17)	386-25	387-25
1.10 (28)	.79 (20)	386-28	387-28
1.30 (33)	.98 (25)	386-33	387-33
1.69 (43)	1.38 (35)	386-43	387-43
1.97 (50)	1.65 (42)	386-50	387-50
2.13 (54)	1.81 (46)	386-54	387-54
2.44 (62)	2.13 (54)	386-62	387-62
2.95 (75)	2.64 (67)	386-75	387-75
3.43 (87)	3.12 (87)	386-87	387-87
3.94 (100)	3.62 (92)	386-100	387-100
4.25 (108)	3.94 (100)	386-108	387-108
4.92 (125)	4.61 (117)	386-125	387-125
5.91 (150)	5.59 (142)	386-150	387-150
6.89 (175)	6.57 (167)	386-175	387-175
7.87 (200)	7.56 (192)	386-200	387-200
8.19 (208)	7.87 (200)	386-208	387-208
8.86 (225)	8.54 (217)	386-225	387-225

Shelves 386-XX

These components form the basic pattern of a shelf system. Shelves of various widths can be arranged at 3 different heights in .28" (7mm) increments



The diagram below is for reference purposes only. Multiple configurations are possible. To create your e-chain shelving cross section please see our online e-chain configurator. Call 1-800-521-2747 for assistance and/or go to igus.com click on the **Products** drop down menu, choose **e-chain Cable Carriers** and on the next drop down menu simply click on **e-chain Configurator**.



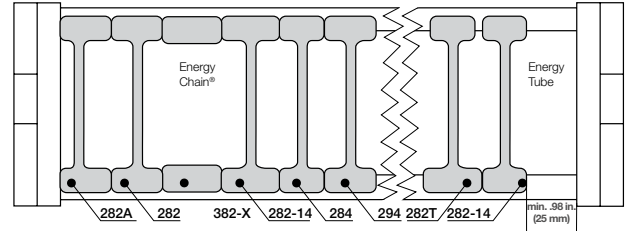
PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains



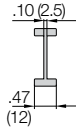


Vertical separators and spacers

Vertical separators are used if a vertical subdivision of the e-chain® interior is required. By standard, vertical separators are assembled every other e-chain® link.

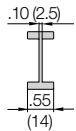


NOTE: Observe a lateral spacing of at least .98 in. (25mm) for e-tubes



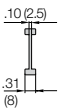
Separator (chain/tube)

Unassembled	Part No. 280
Assembled	Part No. 281



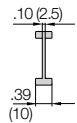
Separator (chain/tube)

Unassembled	Part No. 280-14
Assembled	Part No. 281-14



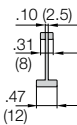
Separator (chain only)

Unassembled	Part No. 283
Assembled	Part No. 284



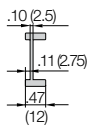
Locking Separator (chain only)

Unassembled	Part No. 293
Assembled	Part No. 294



Locking Separator (tubes only)

Unassembled	Part No. 281T
Assembled	Part No. 282T



Asymmetric separator (chain only)

Unassembled	Part No. 280A
Assembled	Part No. 281A



Spacer (chain only)

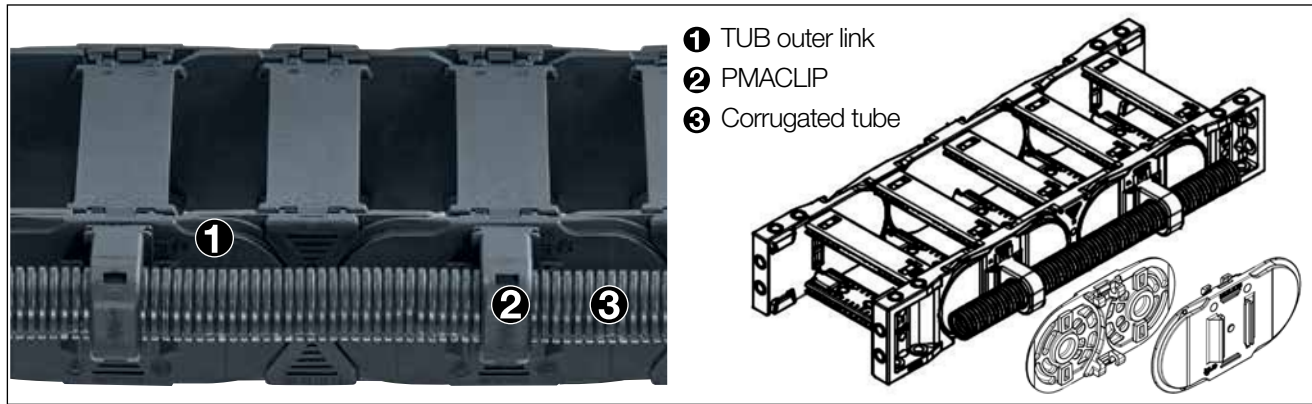
Unassembled	Part No. 381-XX
Assembled	Part No. 382-XX

XX = width of the spacer

Spacers available in the following sizes:

Part No.	Part No.	in.	(mm)
Unassembled	Assembled		
381 -10	382 -10	.39"	(10)
381 -15	382 -15	.59"	(15)
381 -20	382 -20	.79"	(20)

- Standard separator 280 for e-chains® and e-tubes**
This separator offers safe stability due to its wide base design, also when used with thick cables or hoses.
- Vertical separator 280-14 for e-chains® and e-tubes**
This separator offers safe stability due to its broad base design when used with thick cables or hoses.
- Vertical separator 283 for e-chains®**
This separator features a narrow base for use in applications where a large number of small cables need to be individually separated.
- Locking separator 293 for e-chains®**
This separator is used in applications with very high relative humidity. It features increased retention force which is produced by asymmetrical retention "clamps" attached to the chain's crossbar. Please ensure that they are properly aligned.
- Locking separator 281T for e-tubes**
It clamps to the fixed radius and remains free along the other radius to facilitate lid removal.
- Asymmetrical separator 281A for e-chains®**
This separator features an (12mm) base. It can be used in combinations between spacers of different widths and vertical separators in side mounted applications.
- NOTE ON SPACERS**
Vertical separators are adjustable, but can be fixed in position by means of a spacer. Spacers are most often necessary for side mounted applications. The available inner height is reduced by .08" (2mm) **per spacer** (for example if one spacer is placed on either side of the separator, the overall inner height is reduced by .16" (4mm). To avoid this, place the spacers on the **outside** of the opening crossbar (**not for long travels**).



- ❶ TUB outer link
- ❷ PMACLIP
- ❸ Corrugated tube

TUB | Safe guidance for corrugated tubes parallel to the e-chain®

- Additional, simple guidance for corrugated tubes on the outside of the e-chain®
- PMACLIP allows corrugated tubes with nominal widths .28 (07mm), .39 (10mm), .47 (12mm), .67 (17mm) to be easily clipped on
- Easy access to the corrugated tubes, fast replacement of the hoses
- Reduce assembly time and cost - easy to assemble, without any additional screws or tools
- The part number includes the e-chain® with TUB side sections; the PMACLIP support and the hose are ordered separately

Part No. TUB	Part No. TUB	Part No. TUB	For corrugated tube nominal diameter
Outer link right*	Outer link left*	Outer link at both ends*	Ø [mm]
E4-32-XXXTUBR-R-0	E4-32-XXXTUBL-R-0	E4-32-XXXTUB-R-0	.28 (07), .39 (10), .47 (12), .67 (17)

*View from the fixed end

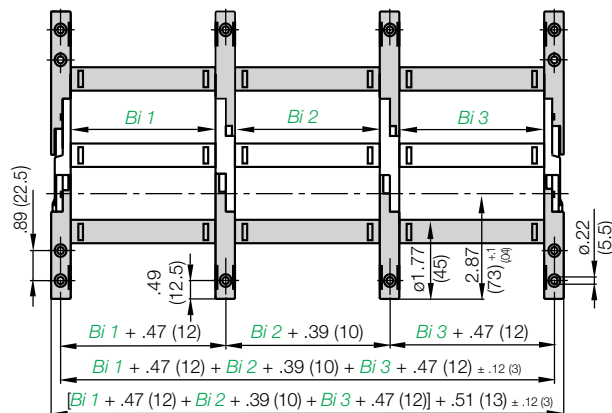
Part number appended with width index **XXX Bi** and radius (**R**) e.g.

E4-32-100TUBR-150-0 = with TUB outer sections every 2nd right hand link



Extension links - for extremely wide e-chains® up to 9.84 ft (3m)

- For applications in which particularly high fill weights necessitate extremely wide e-chains®
- The extension link design allows virtually limitless side-by-side attachment of chains
- The unsupported length of a chain can be increased when additional loads are required
- Extension links can be used with e-chains®, e-tubes or a combination of both
- They are suitable for unsupported and gliding applications in a guide trough
- e-chains® with extension links are attached with KMA or steel mounting brackets.



Part number example for e-chain®

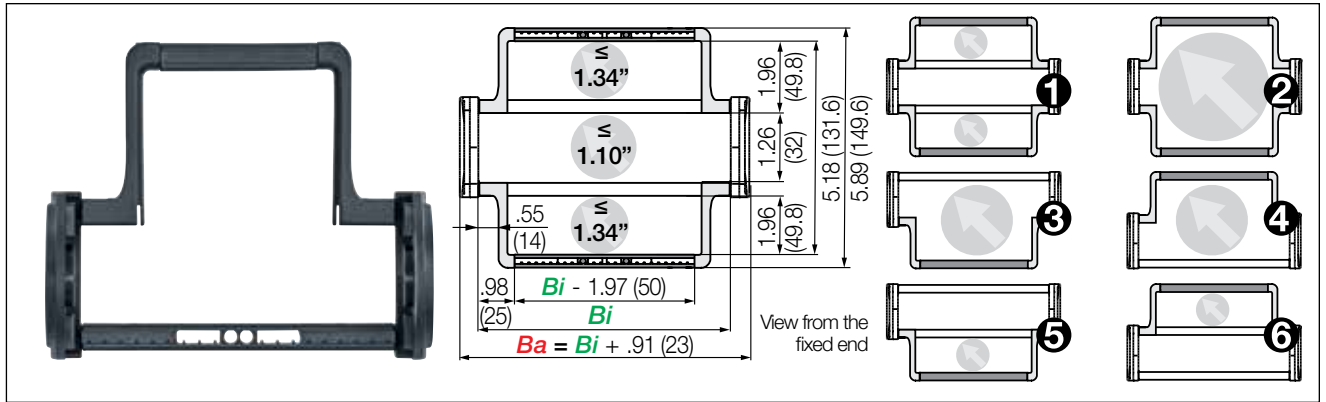
E4-32-10/20/10-200-0
E4-32-**Bi1/Bi2/Bi3**-R-0

We **strongly recommend** on-site consultation with an igus® technician for individual advice regarding mounting brackets, guide troughs and other design details.

Part No.	Part No.	Part No.
Extension link e-chain®	Extension link e-tube	Extension link as an individual part
E4-32- Bi1/Bi2/Bi3 -R-0	R4-32- Bi1/Bi2/Bi3 -R-0	284-R-

Complete Part No. with the width index **Bi1/Bi2/Bi3/etc.** and the radius (**R**). Example: E4-32-10/20/10-200-0





Extender crossbars with flexible width | Safe guiding for large hoses

- For guiding and protecting large hoses
- With mounting for noise dampers
- Cable-friendly design, high crossbar holding force
- The openable extender crossbars can be fitted in different ways and combinations
- Optionally openable along the inner or outer radius

Versions e-chain® with extender crossbar

	Hose Ø ≤ in. (mm)	Part No. e-chain® with extender crossbar
1 Extender crossbar and standard crossbar alternating along the inner and outer radius ¹⁾	1.34 (34)	E4-32-XXXHB50-R-0
2 Extender crossbar on both sides along the inner and outer radius ²⁾	4.72 (120)	E4-32-XXXB50-R-0
3 Extender crossbar along the outer radius ³⁾	2.83 (72)	E4-32-XXXBE50-R-0
4 Extender crossbar along the inner radius ²⁾	2.83 (72)	E4-32-XXXBZ50-R-0
5 Extender crossbar and standard crossbar alternating along the outer radius ³⁾	1.34 (34)	E4-32-XXXHBE50-R-0
6 Extender crossbar and standard crossbar alternating along inner radius ¹⁾	1.34 (34)	E4-32-XXXHBZ50-R-0

1) Minimum bend radius: **R 125**

2) Minimum bend radius: **R 150**

3) Minimum bend radius: **R 063** *Width available upon request. Delivery time upon request

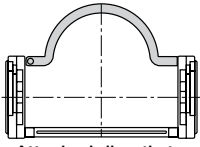
Bi [mm] Available inner widths

| 100 | 125 | 137 | 150 | 162 | 175 | 187 | 200 | 212 | 225 | 237 | 250 |
| 262 | 275 | 287 | 300 | 312 | 325 | 337 | 350 | 362 | 375 | 387 | 400 |

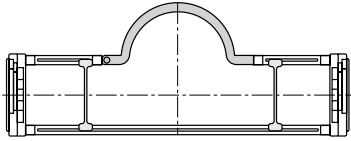
Complete Part No. with the width index **XXX Bi** and the radius (**R**). Example
E4-32-100B50-150-0 = extender crossbar on both sides along inner and outer radius



The E4.1 can be fitted with openable extender crossbars, which increase the size of the interior of the e-chain®. Crossbars can be fitted in various ways: from one or both sides, alternating with standard crossbars and or any combination



Attached directly to the side link.



Round extender crossbar combined with standard snap-open crossbars.

Extender crossbars

For careful guiding of large diameter cables and hoses

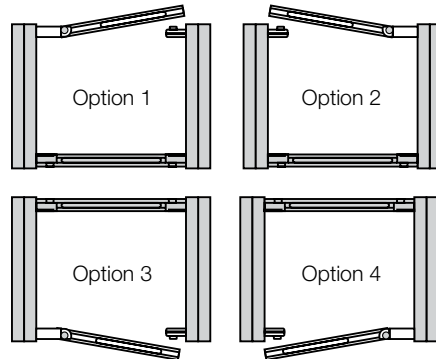
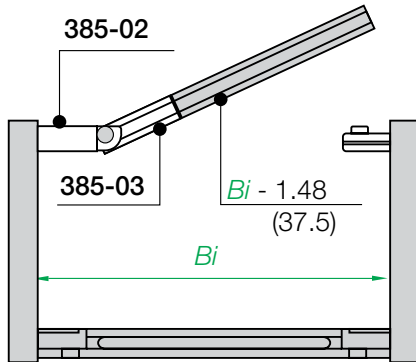
- Intended for cables and hoses with a maximum outer diameter of 4.13 in. (105 mm).
- Gliding operation with crossbars assembled along the outer radius in conjunction with a special guide trough
- Gliding operation not guaranteed with crossbars assembled along the inner radius
- The extender crossbar can either be attached to the side links directly or can be used in combination with two standard snap-open crossbars.



Part No.	Max Ø Hose in. (mm)	Style	Installation Side Link	Combined with Snap-Open Crossbars
385-15-RHD115	4.13 (105)	Round	No	Yes
385-18-RD115	4.13 (105)	Round	Yes	No

Hinged crossbars

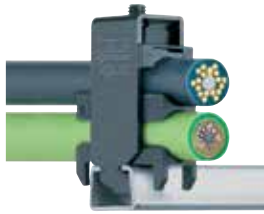
- Typically, e-chain® crossbars are completely removable. In cases where it is preferable that the opening crossbars remain on the e-chain®, a hinged design has been developed.
- Hinged crossbar: Part No. 385-02
- Snap-open crossbar (shortened): Bi-1.48" (37.5 mm) Part No. 385-03 (smallest inner width Bi = 3.44" (87.5 mm))



Part No. e-chain® with hinged crossbar	Part No. swivel clip as an individual part	Part No. openable crossbar as an individual part
E4-32-Bi-Z-R-0	385-02	385-03



Chainfix clamps for the profile rail



igus® Chainfix strain relief elements are available in either steel or stainless steel. They can be adjusted with a hexagon socket and are available in single, double and triple configurations.

Part No. Single Clamp		Part No. Double Clamp		Part No. Triple Clamp		Cable ø	
Steel	Stainless	Steel	Stainless	Steel	Stainless	in.	(mm)
CFX12-1M	CFX12-1ME	CFX12-2M	CFX12-2ME	CFX12-3M	-	.24 - .47	(06 - 12)
CFX14-1M	CFX14-1ME	CFX14-2M	CFX14-2ME	CFX14-3M	-	.47 - .55	(12 - 14)
CFX16-1M	CFX16-1ME	CFX16-2M	CFX16-2ME	CFX16-3M	-	.55 - .63	(14 - 16)
CFX18-1M	CFX18-1ME	CFX18-2M	CFX18-2ME	CFX18-3M	-	.63 - .71	(16 - 18)
CFX20-1M	CFX20-1ME	CFX20-2M	CFX20-2ME	CFX20-3M	-	.71 - .79	(18 - 20)
CFX22-1M	CFX22-1ME	CFX22-2M	CFX22-2ME	CFX22-3M	-	.79 - .87	(20 - 22)
CFX26-1M	CFX26-1ME	CFX26-2M	CFX26-2ME	-	-	.87 - 1.02	(22 - 26)
CFX30-1M	CFX30-1ME	CFX30-2M	CFX30-2ME	-	-	1.02 - 1.18	(26 - 30)
CFX34-1M	CFX34-1ME	CFX34-2M	CFX34-2ME	-	-	1.18 - 1.34	(30 - 34)
CFX38-1M	CFX38-1ME	-	-	-	-	1.34 - 1.50	(34 - 38)
CFX42-1M	CFX42-1ME	-	-	-	-	1.50 - 1.65	(38 - 42)

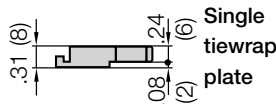
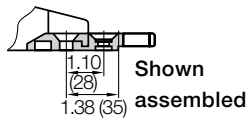
For more information please refer to strain relief section of Chapter 10

Tiewrap Plates

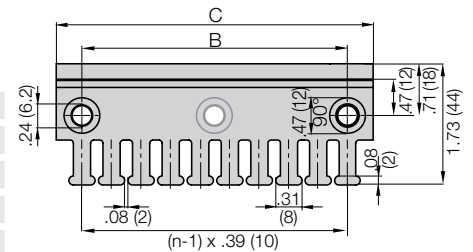
Option 1:

Tiewrap plates as an individual part

Available as an individual component, can be fixed onto a mounting bracket with the use of a profile rail.



Tiewrap Plate	n Number of Teeth	C Overall Width in. (mm)	B Bore Width in. (mm)	Center Bore
3050-ZB	5	1.97 (50)	1.18 (30)	no
3075-ZB	7	2.95 (75)	2.16 (55)	no
3100-ZB	10	3.94 (100)	3.15 (80)	no
3115-ZB	11	4.53 (115)	3.74 (95)	no
3125-ZB	12	4.92 (125)	4.13 (105)	no
3150-ZB	15	5.91 (150)	5.12 (130)	no
3175-ZB	17	6.89 (175)	6.10 (155)	no
3200-ZB	20	7.87 (200)	7.09 (180)	yes
3225-ZB	22	8.86 (225)	8.07 (205)	yes
3250-ZB	25	9.84 (250)	9.06 (230)	yes



If used with KMA brackets with profile rail please add "KMA" to the end of the part number.

Example: 3050-ZBKMA

For more information please refer to strain relief section of Chapter 10

Option 2:
Clip-on Tiewrap plates

Available as a clip-on tiewrap plate without the use of bolts They are inserted and removed with a screwdriver used as a lever. Clip-on tiewrap plates are also available as an attachment to the opening crossbars.



Part No.	Number of Teeth	Width of Strain Relief in. (mm)
3050-ZC	5	1.97 (50)
3075-ZC	7	2.95 (75)

e-chain system® E4-1

Series E4-32/H4-32/R4-32

Guide Trough



E4-32
H4-32
R4-32

Guide troughs are used with applications where the upper run of the e-chain® glides on the lower run. If using igus® steel guide troughs, the following components are required:

- Full travel length of guide trough
Part Number 98-30
- 1/2 travel length of glide bars
Part number 92-01
- Installation sets as end connectors
Part Number 93-50-XX

-XX indicates the length of the profile rail on which the guide trough is mounted. The values and part numbers are specified in the table on the left. The standard length of the trough components and glide bars is 6.56 ft (2 m.) The required overall length of the guide trough directly correlates to the length of travel.

Example:

Length of travel 164 ft (50 m)
Center mounted

Required guide troughs:

164 ft (50 m) guide trough
82 ft (25 m) glide bar
= 25 sections of 6.56 ft (2 m) guide trough

Part No. 98-30

= 13 sections of 6.56 ft (2 m) glide bar

Part No. 92-01

Required number of installation sets:

= Number of guide trough components + 1
= 25 + 1 = 26

Part number of the installation sets

93-50-XXX

Example: 93-50-400 for 15.75" (400 mm) long profile rail.



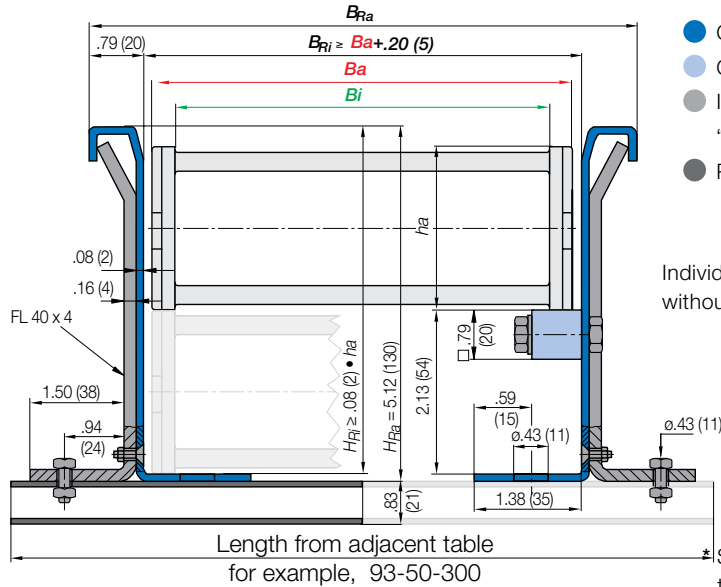
Left: Guide trough with glide bars
Right: Guide troughs without glide bars



Installation sets as section connectors

Width of Crossbar
E4-32-05-200-0

	B_{Ri}	Installation Part No.
-05	3.15 (78)	93-50-200
-06	3.86 (96)	93-50-225
-07	4.13 (103)	93-50-225
-087	4.61 (115)	93-50-225
-097	4.92 (125)	93-50-250
-10	5.12 (128)	93-50-250
-11	5.43 (136)	93-50-250
-112	5.59 (141)	93-50-250
-12	6.10 (153)	93-50-275
-137	6.57 (166)	93-50-275
-15	7.09 (178)	93-50-300
-162	7.56 (191)	93-50-300
-17	7.80 (196)	93-50-325
-18	8.07 (203)	93-50-325
-187	8.54 (216)	93-50-325
-20	9.06 (228)	93-50-350
-212	9.53 (241)	93-50-350
-23	10.04 (253)	93-50-375
-237	10.51 (266)	93-50-375
-25	11.02 (278)	93-50-400
-262	11.50 (291)	93-50-400
-28	12.01 (303)	93-50-425
-29	12.48 (316)	93-50-425
-30	12.99 (328)	93-50-450
-312	13.46 (341)	93-50-450
-325	13.98 (353)	93-50-475
-337	14.45 (366)	93-50-475
-350	14.96 (378)	93-50-500
-362	15.43 (391)	93-50-500
-375	15.94 (403)	93-50-525
-387	16.42 (416)	93-50-525
-400	16.93 (428)	93-50-550



Standard length profile rail

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains



E4-42
H4-42
R4-42



e-chain system® E4-1

Series E4-42/H4-42/R4-42

Price Index



Series E4-42



Series H4-42



Series R4-42

Special Options Available



Low noise version available with special rubber pads



Cleanroom test upon request



ESD classification:
Electrically conductive ESD/
ATEX version upon request

Assembly Tips



Opening e-chains®: Remove crossbars and clips - Insert screwdriver into the slot, push down, release by lever action



Remove lids/bottoms (e-tubes) - Insert screwdriver into the slot, release by lever action

Other Installation Methods

Vertical, hanging ≤ 328 ft (100 m)

Vertical, standing ≤ 19.69 ft (6 m)

Side-mounted, un_supp. ≤ 6.56 ft (2 m)

Rotary requires further calculation

Usage Guidelines



- If quiet operation is required
- If very high speeds and/or accelerations are required
- Long travels
- High additional loads



- When an extremely low vibration e-chain®/e-tube is required
➤ Series E6-40/R6-40
- When an economic one-sided snap-open e-chain®/e-tube is required
➤ Series 3400/3450/3480/3500

Features & Benefits

- 1 Wide, rounded plastic crossbars - cable friendly
- 2 Low-noise operation through integrated brake in the radial stop dog system
- 3 Hinged snap-open removable lids along the outer radius of the e-tube
- 4 Straight run through inner-/outer-link design
- 5 QuickLock Crossbar, 385-X-Q, available for faster assembly/disassembly
- 6 The tongue and groove design provides greater lateral stability
- 7 New Interior separation kit available
- 8 Crossbars are removable along both radii
- 9 15% more tensile strength (compared to the older E4 series), better unsupported length through improved stop dog system and vertical radial stops
- 10 Version NCST "without camber" simply by turning outer links without unnecessary rework

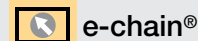


Also available without camber.
Add NCST to the end of the part number.
Ex: E4-42-20-300NCST

Order Example: Complete e-chain®

Please indicate chain length or number of links. Example:

16.4 ft (5 m) **E4-42-20-300-0**



e-chain®

With 2 separators **42.1.1** assembled every 2nd link



Interior Separation

1 Set **E4-420-20-12P**



Mounting Bracket

e-chain system® E4-1

Series E4-42/H4-42/R4-42

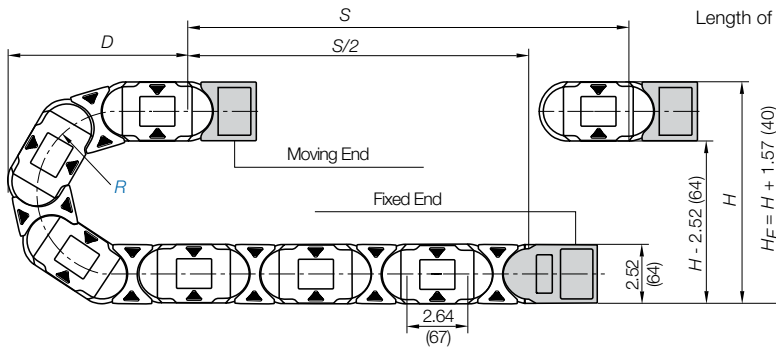
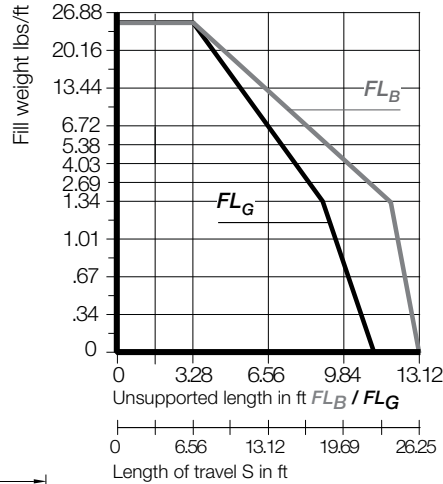
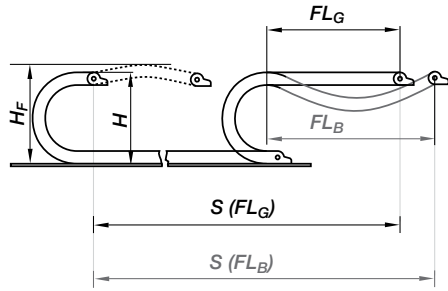
Installation Dimensions



E4-42
H4-42
R4-42

Short travel, unsupported length

- FL_B = unsupported with permitted sag
 - FL_G = unsupported with straight upper run
- Further information ► Design, Chapter 1



Pitch per link = 2.64" (67 mm)
Links per ft (m) = 4.57 (15)
For center mount applications:
Chain length = $\frac{S}{2} + K$

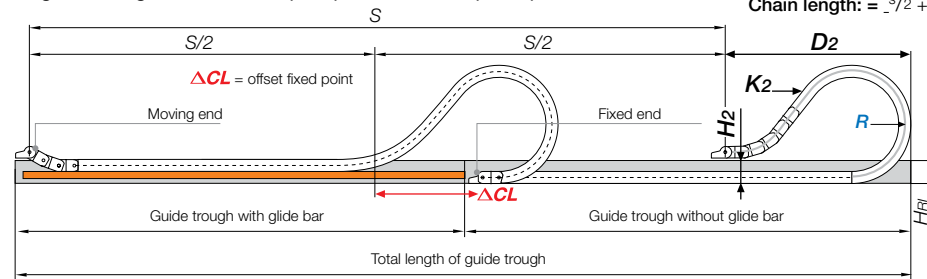
The required clearance height: $H_F = H + 1.57$ in. (40 mm) (with 2.02 lbs/ft (3 kg/m) fill weight).
Please consult igus® if space is particularly restricted.

R	2.95 (075*)	3.94 (100*)	4.53 (115*)	4.92 (125)	5.91 (150)	6.30 (160)	6.69 (175)	7.87 (200)	9.84 (250)	11.81 (300)	13.78 (350)
H ± 0.25	8.43 (214)	10.39 (264)	11.57 (294)	12.36 (314)	14.33 (364)	15.12 (384)	16.30 (414)	18.27 (464)	22.20 (564)	26.14 (664)	30.08 (764)
D	8.19 (208)	9.17 (233)	9.76 (248)	10.15 (258)	11.14 (283)	11.54 (293)	12.13 (308)	13.11 (333)	15.08 (383)	17.05 (433)	19.02 (483)
K	14.57 (370)	17.72 (450)	19.69 (500)	20.87 (530)	24.02 (610)	25.20 (640)	26.97 (685)	30.12 (765)	36.22 (920)	42.52 (1080)	48.62 (1235)

*Radius not available for e-tubes

For long travels with lowered mounting height

Long travel lengths from 32.8 ft. (10 m) to max. 984 ft. (300 m)



For center mount applications:
Chain length = $\frac{S}{2} + K_2$

R	2.95 (075*)	3.94 (100*)	4.53 (115*)	4.92 (125)	5.91 (150)	6.30 (160)	6.69 (175)	7.87 (200)	9.84 (250)	11.81 (300)	13.78 (350)
H ₂	-	-	9.06 (230)	7.32 (186)	7.32 (186)	7.32 (186)	7.32 (186)	7.32 (186)	7.32 (186)	7.32 (186)	7.32 (186)
D ₂ ± 25	-	-	17.13 (435)	18.70 (475)	22.44 (570)	24.53 (623)	26.38 (670)	30.71 (780)	40.55 (1030)	45.28 (1150)	59.06 (1500)
K ₂	-	-	29.02 (737)	31.65 (804)	36.93 (938)	42.20 (1072)	44.84 (1139)	52.76 (1340)	65.94 (1675)	76.50 (1943)	94.96 (2412)
ΔCL	-	-	7.87 (200)	9.06 (230)	11.81 (300)	14.96 (380)	14.96 (380)	18.11 (460)	25.98 (660)	28.74 (730)	40.55 (1030)

In case of travels between 26.3 and 29.4 ft (8 and 12 m) we recommend a longer unsupported length.

For support of the lower run, see Chapter 9 for the Support Tray tool kit

*Radius not available for e-tubes

Short Travels - Unsupported

Unsupported e-chains® feature positive camber over short travels. This must be accounted for when specifying the clearance height. Please refer to **Installation dimensions** for further details.

Legend

- S = Length of travel
- R = Bending radius
- H = Nominal clearance height
- D = Overlength e-chain® radius in final position
- K = $\pi \cdot R + \text{ safety buffer}$
- H_F = Required clearance height
- H_{RI} = Trough inner height
- H₂ = *Mounting height
- D₂ = Overlength - long travels, gliding
- K₂ = *Add-on

*If the mounting bracket location is set lower

Long Travels - Gliding

If the unsupported length is exceeded, the e-chain®/ Tube must glide on itself. This requires a guide trough.

Design, Chapter 1

Technical Data

Speed / acceleration FL_G	max. 65.6 ft/s (20 m/s) / max. 656 ft/s ² (200 m/s ²)
Speed / acceleration FL_B	max. 9.84 ft/s (3 m/s) / max. 19.69 ft/s ² (6 m/s ²)
Gliding speed / acceleration (maximum)	max. 32.8 ft/s (10 m/s) / max. 164 ft/s ² (50 m/s ²)
Material - permitted temperature	igumid G / -40°F (-40°C) up to +248°F (+120°C)
Flammability Class, igumid G	VDE 0304 IIC UL94 HB



Details of material properties

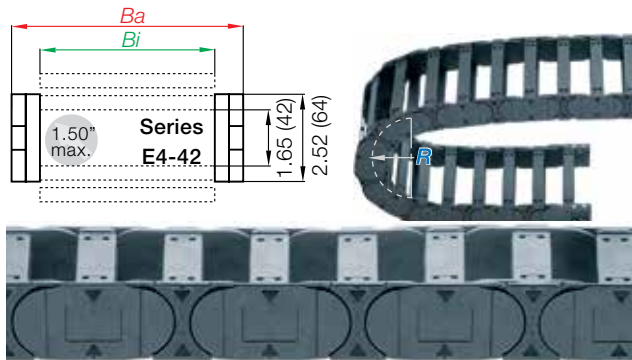
► Chapter 1



PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains

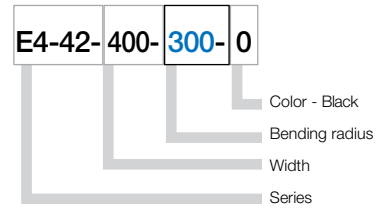


Series E4-42 - e-chain® with crossbars every link

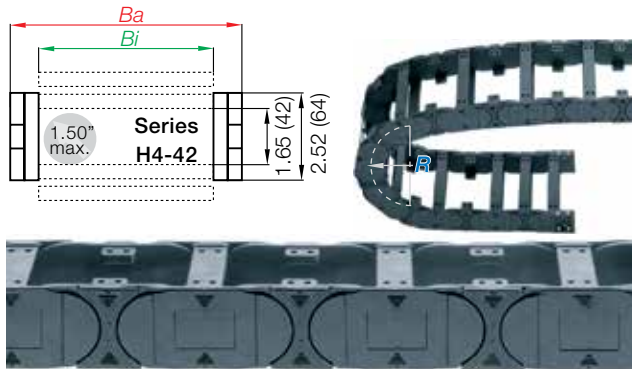


- Crossbars every link
- For use with rigid hydraulic hoses
- For particularly demanding applications
- Can be opened from both sides

Part Number Structure

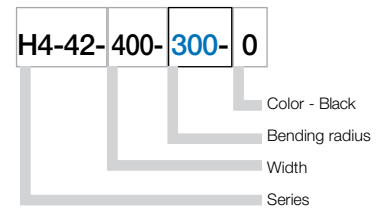


Series H4-42 - e-chain® with crossbars every other link

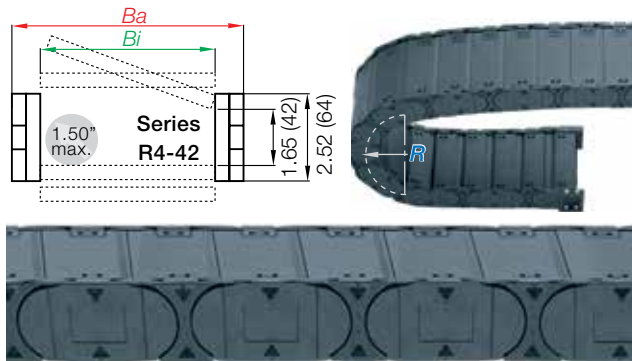


- Crossbars every other link
- Standard configuration
- For nearly every situation
- Can be opened from both sides
- Easy assembly
- Stable
- Cost-effective

Part Number Structure

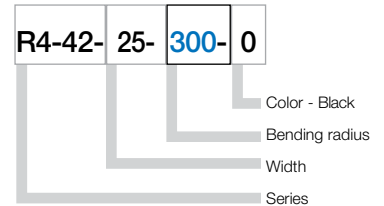


Series R4-42 - fully enclosed e-tube

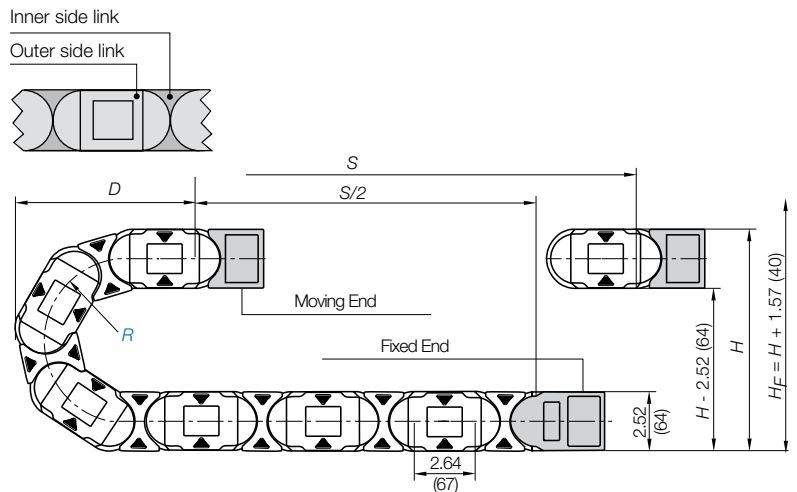
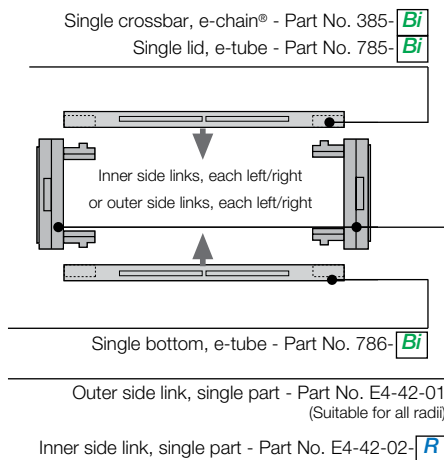


- Fully enclosed
- Excellent cable and hose protection against dirt
- Protection against hot chips
- Lids along inner radius are completely removable
- Lids along the outer radius are single-sided, snap open, hinged on one side as well as completely removable

Part Number Structure



e-chain® as separate parts, links and side plates



e-chain system® E4-1

Series E4-42/H4-42/R4-42

Product Range



E4-42
H4-42
R4-42

Supplement part number with required radius. Example: E4-42-400-300-0
Pitch: 2.64 in. (67mm) per link, links/ft(m) = 4.57 (15)

Part Number			Weight					
Crossbars Every link	Crossbars Every other	Tube Version	<i>Bi</i> in. (mm)	<i>Ba</i> in. (mm)	E4-42 lbs/ft (kg/m)	H4-42 lbs/ft (kg/m)	R4-42 lbs/ft (kg/m)	
E4-42-05-	H4-42-05-	*R4-42-05- <input type="checkbox"/> -0	1.97 (50)	2.99 (76)	≈ 1.29 (1.92)	≈ 1.21 (1.80)	≈ 1.44 (2.15)	
E4-42-06-	H4-42-06-	<input type="checkbox"/> -0	2.68 (68)	3.70 (94)	≈ 1.36 (2.03)	≈ 1.25 (1.86)	-	
E4-42-07-	H4-42-07-	R4-42-07- <input type="checkbox"/> -0	2.95 (75)	3.98 (101)	≈ 1.38 (2.06)	≈ 1.26 (1.87)	≈ 1.53 (2.28)	
E4-42-087-	H4-42-087-	<input type="checkbox"/> -0	3.43 (87)	4.49 (114)	≈ 1.42 (2.12)	≈ 1.28 (1.90)	≈ 1.62 (2.41)	
E4-42-097	H4-42-097	<input type="checkbox"/> -0	3.82 (97)	4.72 (120)	≈ 1.43 (2.14)	≈ 1.29 (1.92)	-	
E4-42-10-	H4-42-10-	R4-42-10- <input type="checkbox"/> -0	3.94 (100)	4.96 (126)	≈ 1.47 (2.19)	≈ 1.32 (1.96)	≈ 1.69 (2.52)	
E4-42-11-	H4-42-11-	R4-42-11- <input type="checkbox"/> -0	4.25 (108)	5.28 (134)	≈ 1.50 (2.24)	≈ 1.32 (1.97)	≈ 1.73 (2.57)	
E4-42-112-	H4-42-112-	<input type="checkbox"/> -0	4.41(112)	5.47 (139)	≈ 1.51 (2.25)	≈ 1.32 (1.97)	-	
E4-42-12-	H4-42-12-	R4-42-12- <input type="checkbox"/> -0	4.92 (125)	5.94 (151)	≈ 1.57 (2.34)	≈ 1.35 (2.01)	≈ 1.83 (2.73)	
E4-42-137-	H4-42-137-	<input type="checkbox"/> -0	5.39 (137)	6.46 (164)	≈ 1.61 (2.39)	≈ 1.37 (2.04)	-	
E4-42-15-	H4-42-15-	R4-42-15- <input type="checkbox"/> -0	5.91 (150)	6.93 (176)	≈ 1.65 (2.46)	≈ 1.39 (2.07)	≈ 2.00 (2.98)	
E4-42-162-	H4-42-162-	<input type="checkbox"/> -0	6.38 (162)	7.44 (189)	≈ 1.67 (2.48)	≈ 1.40 (2.09)	-	
E4-42-17-	H4-42-17-	R4-42-17- <input type="checkbox"/> -0	6.61 (168)	7.64 (194)	≈ 1.71 (2.55)	≈ 1.42 (2.12)	≈ 2.12 (3.15)	
E4-42-18-	H4-42-18-	<input type="checkbox"/> -0	6.89 (175)	7.91 (201)	≈ 1.73 (2.57)	≈ 1.43 (2.13)	-	
E4-42-187-	H4-42-187-	<input type="checkbox"/> -0	7.36 (187)	8.43 (214)	≈ 1.75 (2.61)	≈ 1.44 (2.15)	-	
E4-42-20-	H4-42-20-	R4-42-20- <input type="checkbox"/> -0	7.87 (200)	8.90 (226)	≈ 1.83 (2.72)	≈ 1.48 (2.20)	≈ 2.32 (3.45)	
E4-42-212-	H4-42-212-	<input type="checkbox"/> -0	8.35 (212)	9.41 (239)	≈ 1.85 (2.76)	≈ 1.49 (2.22)	-	
E4-42-23-	H4-42-23-	<input type="checkbox"/> -0	8.86 (225)	9.88 (251)	≈ 1.90 (2.84)	≈ 1.52 (2.26)	-	
E4-42-237-	H4-42-237-	<input type="checkbox"/> -0	9.33 (237)	10.39 (264)	≈ 1.93 (2.87)	≈ 1.53 (2.28)	-	
E4-42-25-	H4-42-25-	R4-42-25- <input type="checkbox"/> -0	9.84 (250)	10.87 (276)	≈ 2.00 (2.98)	≈ 1.57 (2.33)	≈ 2.86 (4.25)	
E4-42-262-	H4-42-262-	<input type="checkbox"/> -0	10.31 (262)	11.38 (289)	≈ 2.05 (3.05)	≈ 1.59 (2.37)	-	
E4-42-28	H4-42-28-	<input type="checkbox"/> -0	10.83 (275)	11.85 (301)	≈ 2.09 (3.11)	≈ 1.61 (2.40)	-	
E4-42-29-	H4-42-29-	<input type="checkbox"/> -0	11.30 (287)	12.36 (314)	≈ 2.11 (3.14)	≈ 1.62 (2.41)	-	
E4-42-30-	H4-42-30-	R4-42-30- <input type="checkbox"/> -0	11.81 (300)	12.83 (326)	≈ 2.18 (3.24)	≈ 1.65 (2.46)	≈ 3.29 (4.89)	
E4-42-312-	H4-42-312-	<input type="checkbox"/> -0	12.28 (312)	13.35 (339)	≈ 2.19 (3.26)	≈ 1.66 (2.47)	-	
E4-42-325-	H4-42-325-	<input type="checkbox"/> -0	12.79 (325)	13.82 (351)	≈ 2.24 (3.34)	≈ 1.69 (2.52)	-	
E4-42-337-	H4-42-337-	<input type="checkbox"/> -0	13.27 (337)	14.33 (364)	≈ 2.28 (3.40)	≈ 1.71 (2.54)	-	
E4-42-350-	H4-42-350-	<input type="checkbox"/> -0	13.78 (350)	14.80 (376)	≈ 2.41 (3.59)	≈ 1.77 (2.64)	-	
E4-42-362-	H4-42-362-	<input type="checkbox"/> -0	14.25 (362)	15.31 (389)	≈ 2.47 (3.67)	≈ 1.80 (2.68)	-	
E4-42-375-	H4-42-375-	<input type="checkbox"/> -0	14.76 (375)	15.83 (402)	≈ 2.51 (3.73)	≈ 1.82 (2.71)	-	
E4-42-387-	H4-42-387-	<input type="checkbox"/> -0	15.24 (387)	16.30 (414)	≈ 2.55 (3.79)	≈ 1.84 (2.74)	-	
E4-42-400	H4-42-400-	<input type="checkbox"/> -0	15.75 (400)	16.77 (426)	≈ 2.58 (3.84)	≈ 1.85 (2.76)	-	

Choose from the radii below for all of the above sizes

Radius (mm) Example: E4-42-400-300-0

	075**	100**	115**	125	150	160	175	200	250	300	350
<i>R</i>	2.95 (075*)	3.94 (100*)	4.53 (115*)	4.92 (125)	5.91 (150)	6.30 (160)	6.69 (175)	7.87 (200)	9.84 (250)	11.81 (300)	13.78 (350)
<i>H</i> $\frac{D}{20}$	8.43 (214)	10.39 (264)	11.57 (294)	12.36 (314)	14.33 (364)	15.12 (384)	16.30 (414)	18.27 (464)	22.20 (564)	26.14 (664)	30.08 (764)
<i>D</i>	8.19 (208)	9.17 (233)	9.76 (248)	10.15 (258)	11.14 (283)	11.54 (293)	12.13 (308)	13.11 (333)	15.08 (383)	17.05 (433)	19.02 (483)
<i>K</i>	14.57 (370)	17.72 (450)	19.69 (500)	20.87 (530)	24.02 (610)	25.20 (640)	26.97 (685)	30.12 (765)	36.22 (920)	42.52 (1080)	48.62 (1235)

** This radius is not available for the R4-42 Series

*Removable lid only, no hinged option

0 = Standard color black.

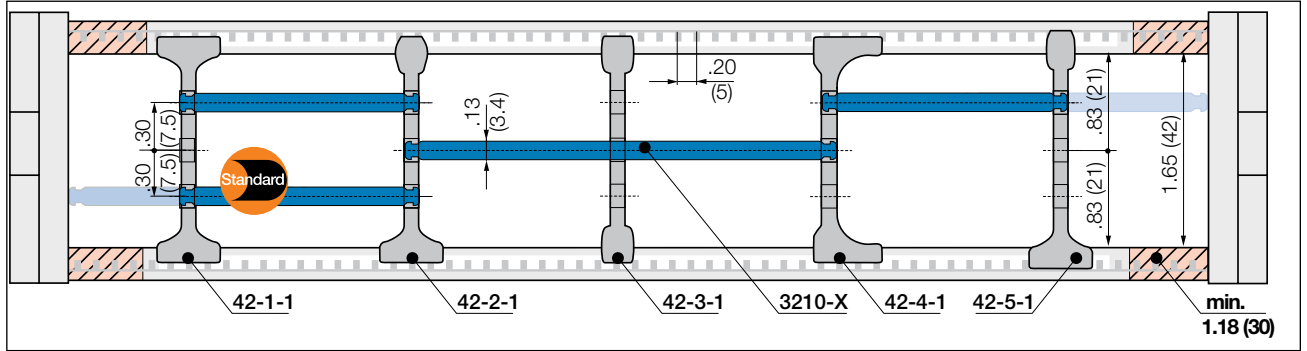
For other colors see Chapter 1

For wider chains see page 6.51

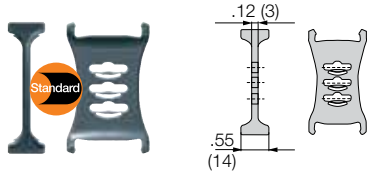
For large diameter hoses see page 6.52

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains





Note e-tube: Please maintain a lateral spacing of 1.18" (30 mm) between the separators and the side links. In the standard configuration separators are assembled every 2nd e-chain® link

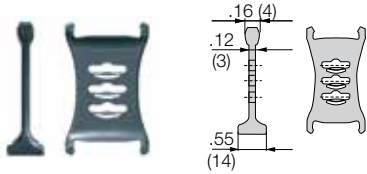


Separator, wide base

Unassembled	Part No. 42-1
Assembled	Part No. 42-1-1

- **Standard separator 42-1 for all applications**

Separator with wide base for maximum locking strength and safe standing in e-chains®.



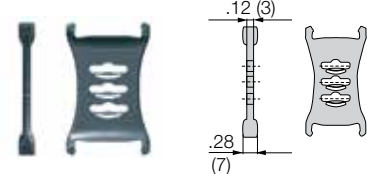
Separator, narrow head

Unassembled	Part No. 42-2
Assembled	Part No. 42-2-1

- **Separator 42-2**

For even faster installation

is used when vertical and horizontal separation is required. Due to its slot, it allows basic vertical/horizontal shelving arrangements.



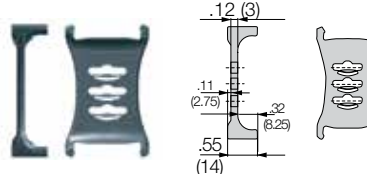
Separator, narrow base

Unassembled	Part No. 42-3
Assembled	Part No. 42-3-1

- **Separator 42-3**

For many thin cables

is used when vertical and horizontal separation is required. Due to its slot, it allows basic vertical/horizontal shelving arrangements.



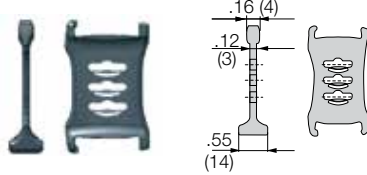
Separator, asymmetrical

Unassembled	Part No. 42-4
Assembled	Part No. 42-4-1

- **Separator 42-4**

For side mounted applications

is used when vertical and horizontal separation is required. Due to its slot, it allows basic vertical/horizontal shelving arrangements.



Separator, asymmetrical

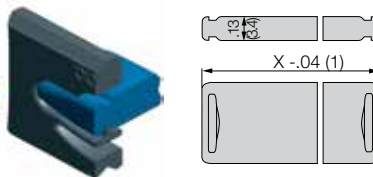
Unassembled	Part No. 42-5
Assembled	Part No. 42-5-1

- **Separator 42-5**

Locks safely in .30" (7.5 mm) increments

Notch separator for exact positioning in e-chains®. Recommended for side-mounted applications.

Lockable full-width shelves - for the standard interior separation



Full width shelf, lockable

Unassembled	Part No. 3200-X
Assembled	Part No. 3210-X

- **Full width shelf, lockable**

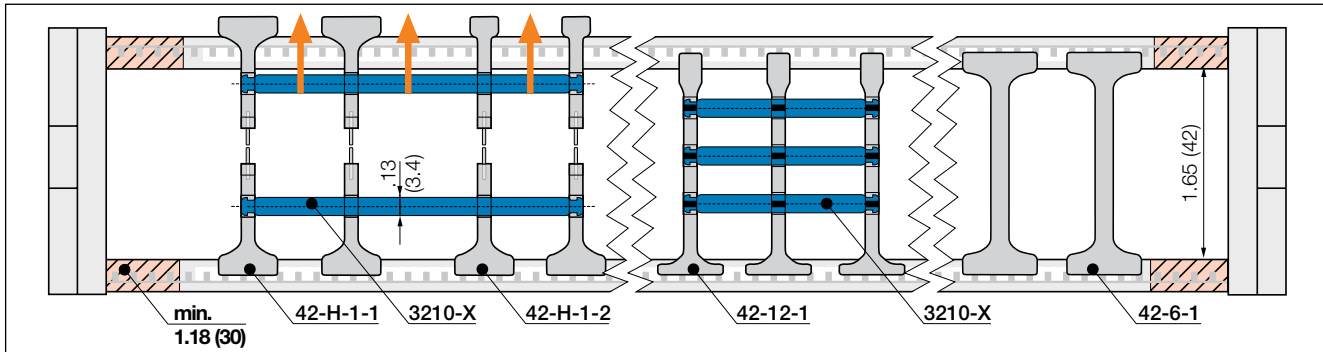
Shelf locks safely into separators on both ends, fixed width possible. Separators can be moved freely over the shelf in horizontal direction. Can be used at one height.

Width X in. (mm)	Part No. Unassembled	Part No. Assembled	Width X in. (mm)	Part No. Unassembled	Part No. Assembled	Width X in. (mm)	Part No. Unassembled	Part No. Assembled
1.97 (050)	3200-50	3210-50	4.92 (125)	3200-125	3210-125	8.86 (225)	3200-225	3210-225
2.95 (075)	3200-75	3210-75	5.91 (150)	3200-150	3210-150	9.84 (250)	3200-250	3210-250
3.94 (100)	3200-100	3210-100	6.89 (175)	3200-175	3210-175			
4.53 (115)	3200-115	3210-115	7.87 (200)	3200-200	3210-200			

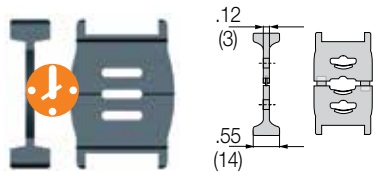
e-chain system® E4-1
 Series E4-42/H4-42/R4-42
 Interior Separation - Previous Generation



E4-42
 H4-42
 R4-42

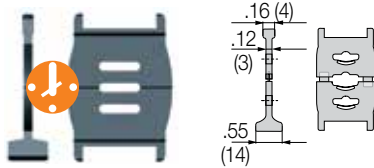


Note e-tube: Please maintain a lateral spacing of 1.18" (30 mm) between the separators and the side links. In the standard configuration separators are assembled every 2nd e-chain® link



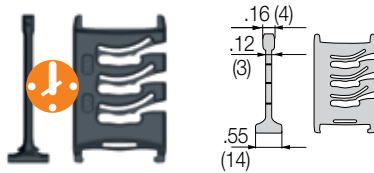
Separator, wide base

Unassembled Part No. 42-H-1
 Assembled Part No. 42-H-1-1



Separator, narrow head

Unassembled Part No. 42-H-2
 Assembled Part No. 42-H-2-1



Lean separator

Unassembled Part No. 42-12
 Assembled Part No. 42-12-1



• **Split separators for all applications**

In order to fill e-chains® more easily and effectively, these separators can be split in the middle. This allows easier access to middle shelf partitions. Fast assembly and easy retrofit. 2 types available: with wide or narrow top.

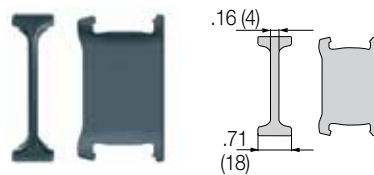
• **Lean separators 42-12**

New design allows extremely fast fitting of shelves in several layers, which significantly reduces assembly time. Enables extremely fast replacement of individual cables in a very full e-chain®.

• **Lean separator design - several layers of cables fitted quickly, save up to 50%* assembly time**

(*Lean separator vs. standard separator - measured on a 4m long e-chain® fitted with 12 cables in the igus® harnessing factory)

More interior separation options



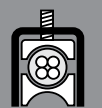
Notch locking separator

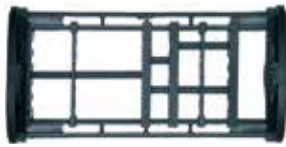
Unassembled Part No. 42-6
 Assembled Part No. 42-6-1

• **Notch locking separator for increased holding force**

Notch locking separators offer higher crossbar opening forces for high humidity and/or large hydraulic hoses. They can be positioned precisely and then locked in position

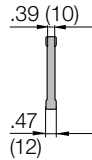
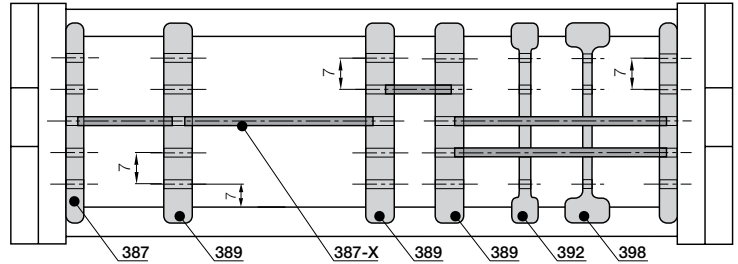
PDF: igus.com/e-chain-pdfs
 Product information: igus.com/e-chains





Shelves and Separators

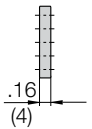
e-chains® and e-tubes can be subdivided both vertically and horizontally using the various interior separation elements. ► **Design, Chapter 1** for layout recommendations.



Split separator (chain only)

Unassembled	Part No. T423
Assembled	Part No. T423M

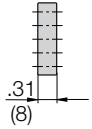
- **Split separator T423 for e-chains®**
This separator is ideal for subsequent shelving or the initial assembly of the e-chain. Fast assembly and disassembly using a hinge/push mechanism. Enhances flexibility



Side Plate

Unassembled	Part No. 386
Assembled	Part No. 387

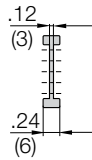
- **Side plates 386**
This component is used to form the basic pattern of a shelf system.



Vertical Separator

Unassembled	Part No. 388
Assembled	Part No. 389

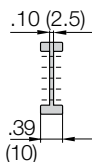
- **Vertical separator 388**
This component is used to form the basic pattern of a shelf system.



Slotted Separators

Unassembled	Part No. 391
Assembled	Part No. 392

- **Closed Slotted separators 391**
These are used for complex subdivisions. However, they cannot be retrofitted into an existing interior separation system without removing the shelves first.



Slotted Separators, Open

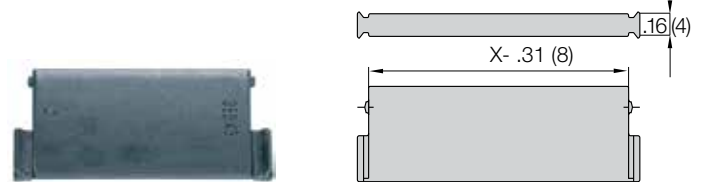
Unassembled	Part No. 397
Assembled	Part No. 398

- **Open slotted separator 397**
This separator can be retrofitted into an existing interior separation system without removing the shelves, as long as these shelves fit into the middle 3 slots only.

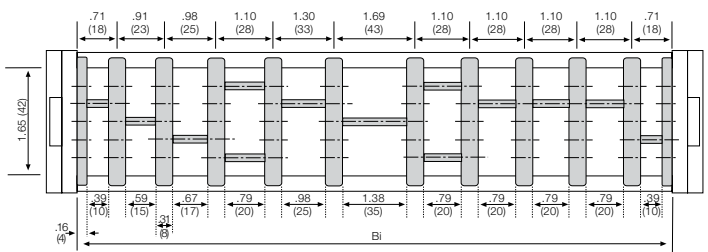
Width X	Usable Width	Part No.	Part No.
in. (mm)	in. (mm)	Unassembled	Assembled
.71 (18)	.39 (10)	386-18	387-18
.91 (23)	.59 (15)	386-23	387-23
.98 (25)	.67 (17)	386-25	387-25
1.10 (28)	.79 (20)	386-28	387-28
1.30 (33)	.98 (25)	386-33	387-33
1.69 (43)	1.38 (35)	386-43	387-43
1.97 (50)	1.65 (42)	386-50	387-50
2.13 (54)	1.81 (46)	386-54	387-54
2.44 (62)	2.13 (54)	386-62	387-62
2.95 (75)	2.64 (67)	386-75	387-75
3.43 (87)	3.12 (87)	386-87	387-87
3.94 (100)	3.62 (92)	386-100	387-100
4.25 (108)	3.94 (100)	386-108	387-108
4.92 (125)	4.61 (117)	386-125	387-125
5.91 (150)	5.59 (142)	386-150	387-150
6.89 (175)	6.57 (167)	386-175	387-175
7.87 (200)	7.56 (192)	386-200	387-200
8.19 (208)	7.87 (200)	386-208	387-208

Shelves 386-XX

These components form the basic pattern of a shelf system. Shelves of various widths can be arranged at 5 different heights in .28" (7mm) increments



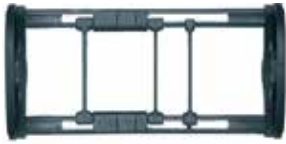
The diagram below is for reference purposes only. Multiple configurations are possible. To create your e-chain shelving cross section please see our online e-chain configurator. Call 1-800-521-2747 for assistance and/or go to igus.com click on the **Products** drop down menu, choose **e-chain Cable Carriers** and on the next drop down menu simply click on **e-chain Configurator**.



e-chain system® E4-1
 Series E4-42/H4-42/R4-42
 Interior Separation - Previous Generation



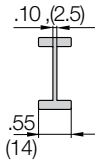
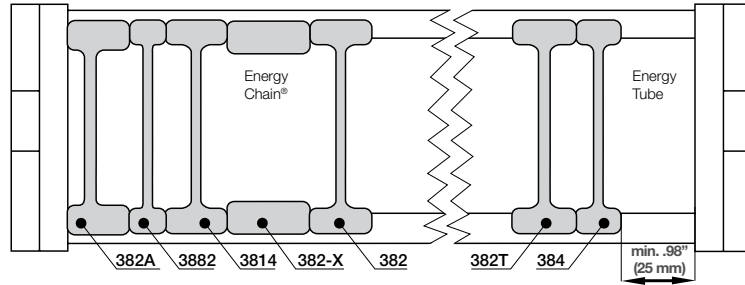
E4-42
 H4-42
 R4-42



Vertical separators and spacers

Vertical separators are used if a vertical subdivision of the e-chain® interior is required. By standard, vertical separators are assembled every other e-chain® link.

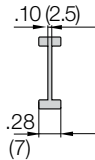
NOTE: Observe a lateral spacing of at least .98 in. (25mm) for e-tubes



Separator (chain/tube)

Unassembled **Part No. 380**
 Assembled **Part No. 381**

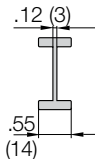
- **Standard separator 380 for e-chains® and e-tubes**
 This separator offers safe stability due to its wide base design, also when used with thick cables or hoses.



Separator (chain only)

Unassembled **Part No. 3881**
 Assembled **Part No. 3882**

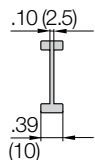
- **Vertical separator 3881 for e-chains®**
 This separator features a narrow 7mm base for applications where a large number of small cables need to be individually separated.



Vertical Separator (tubes only)

Part No. 380T **Part No. 381T**

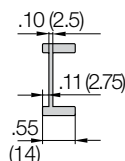
- **Locking separator 380T for e-tubes**
 It clamps to the fixed radius and remains free along the other radius to facilitate lid removal. When installing please ensure they are identically aligned.



Separator (chain only)

Unassembled **Part No. 383**
 Assembled **Part No. 384**

- **Vertical separator 383 for e-chains®**
 This separator features an increased retention force for applications exposed to very high humidity or extreme loads. It features asymmetric claws for the crossbar which results in the increased retention force.



Asymmetric separator (chain only)

Unassembled **Part No. 381A**
 Assembled **Part No. 382A**

- **Asymmetrical separator 381A for e-chains®**
 This separator features an (14mm) base. It can be used in combinations between spacers of different widths and vertical separators in side mounted applications.



Spacer (chain only)

Unassembled **Part No. 381-XX**
 Assembled **Part No. 382-XX**
 XX = width of the spacer

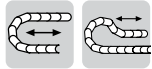
- **NOTE ON SPACERS**
 Vertical separators are adjustable, but can be fixed in position by means of a spacer. Spacers are most often necessary for side mounted applications. The available inner height is reduced by .08" (2mm) **per spacer** (for example if one spacer is placed on either side of the separator, the overall inner height is reduced by .16" (4mm)). To avoid this, place the spacers on the **outside** of the opening crossbar (**not for long travels**).

Spacers available in the following sizes:

Part No. Unassembled	Part No. Assembled	in.	(mm)
381 -10	382 -10	.39"	(10)
381 -15	382 -15	.59"	(15)
381 -20	382 -20	.79"	(20)

PDF: igus.com/e-chain-pdfs
 Product information: igus.com/e-chains

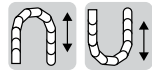




Standard

Option 1: pivoting

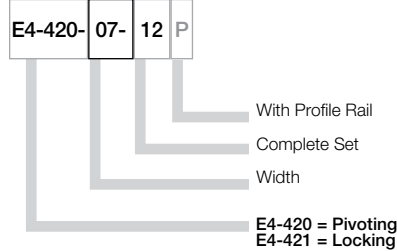
- Recommended for unsupported and gliding applications
- Attachment capability on all sides
- Bolted connection outside of chain cross-section
- Space restricted conditions
- Corrosion resistant



Option 2: locking

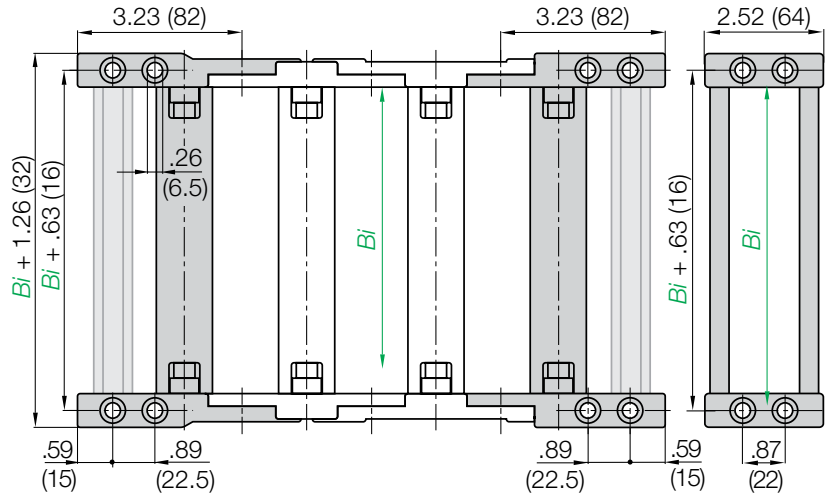
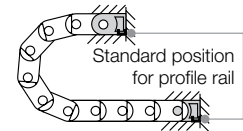
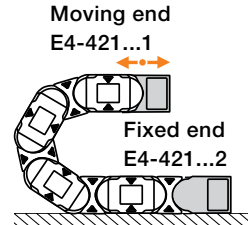
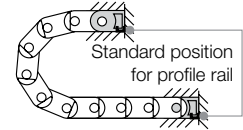
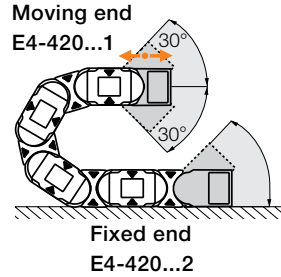
- Profile rail option
- Universal use
- Corrosion resistant
- Vertical hanging/standing travels
- Extreme accelerations

Part Number Structure



Due to the design of the E4-42 series chains, please note the following when ordering brackets:

Even number of links = full set, part number ending in -12; Odd number of links = 2 pieces, part number ending in -1



Part No. Full Set (pivoting)
Series E4-42 or H4-42
E4-420-Width-12

Part No. Full Set (pivoting)
with profile rail
Series E4-42 or H4-42
E4-420-Width-12P

Part number examples are shown for pivoting brackets for e-chain.
For locking brackets change part number to 421

Width	Part No. Full Set chain		With Profile Rail	Bi in. (mm)	Width	Part No. Full Set chain		With Profile Rail	Bi in. (mm)
	Pivoting	Locking				Pivoting	Locking		
-05*	E4-420	E4-421	-05-12	1.97 (50)	-212	E4-420	E4-421	-212-12	8.35 (212)
-06	E4-420	E4-421	-06-12	2.68 (68)	-23	E4-420	E4-421	-23-12	8.86 (225)
-07	E4-420	E4-421	-07-12	2.95 (75)	-237	E4-420	E4-421	-237-12	9.33 (237)
-087	E4-420	E4-421	-087-12	3.43 (87)	-25	E4-420	E4-421	-25-12	9.84 (250)
-097	E4-420	E4-421	-097-12	3.82 (97)	-262	E4-420	E4-421	-262-12	10.31 (262)
-10	E4-420	E4-421	-10-12	3.94 (100)	-28	E4-420	E4-421	-28-12	10.83 (275)
-11	E4-420	E4-421	-11-12	4.25 (108)	-29	E4-420	E4-421	-29-12	11.30 (287)
-112	E4-420	E4-421	-112-12	4.41 (112)	-30	E4-420	E4-421	-30-12	11.81 (300)
-12	E4-420	E4-421	-12-12	4.92 (125)	-312	E4-420	E4-421	-312-12	12.28 (312)
-137	E4-420	E4-421	-137-12	5.39 (137)	-325	E4-420	E4-421	-325-12	12.79 (325)
-15	E4-420	E4-421	-15-12	5.91 (150)	-337	E4-420	E4-421	-337-12	13.27 (337)
-162	E4-420	E4-421	-162-12	6.38 (162)	-350	E4-420	E4-421	-350-12	13.78 (350)
-17	E4-420	E4-421	-17-12	6.61 (168)	-362	E4-420	E4-421	-362-12	14.25 (362)
-18	E4-420	E4-421	-18-12	6.89 (175)	-375	E4-420	E4-421	-375-12	14.76 (375)
-187	E4-420	E4-421	-187-12	7.36 (187)	-387	E4-420	E4-421	-387-12	15.24 (387)
-20	E4-420	E4-421	-20-12	7.87 (200)	-400	E4-420	E4-421	-400-12	15.75 (400)

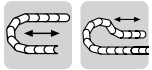
e-chain system® E4-1

Series E4-42/H4-42/R4-42

Mounting Brackets



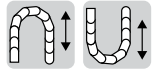
E4-42
H4-42
R4-42



Standard

Option 1: pivoting

- Recommended for unsupported and gliding applications
- Attachment capability on all sides
- Bolted connection outside of chain cross-section
- Space restricted conditions
- Corrosion resistant



Option 2: locking

- Profile rail option
- Universal use
- Corrosion resistant
- Vertical hanging/standing travels
- Extreme accelerations

Part Number Structure

R4-420-07-12 P



Due to the design of the R4-42 series chains, please note the following when ordering brackets:

Even number of links = full set, part number ending in -12; Odd number of links = 2 pieces, part number ending in -1

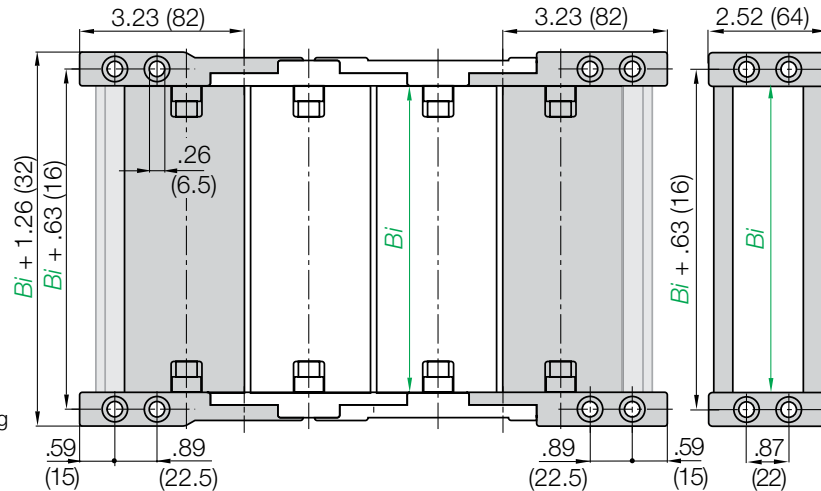
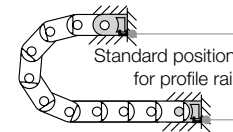
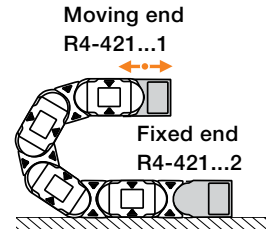
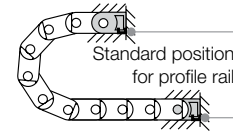
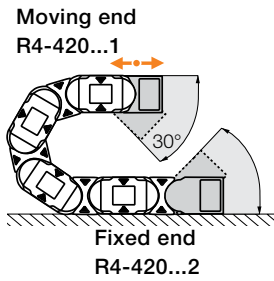
Part No. Full Set (pivoting)
Tube Series R4-42
R4-420-Width-12

Part No. Full Set (pivoting)
with Profile Rail
Tube Series R4-42
R4-420-Width-12P

Part number examples are shown for pivoting brackets for e-chain.
For locking brackets change part number to 421

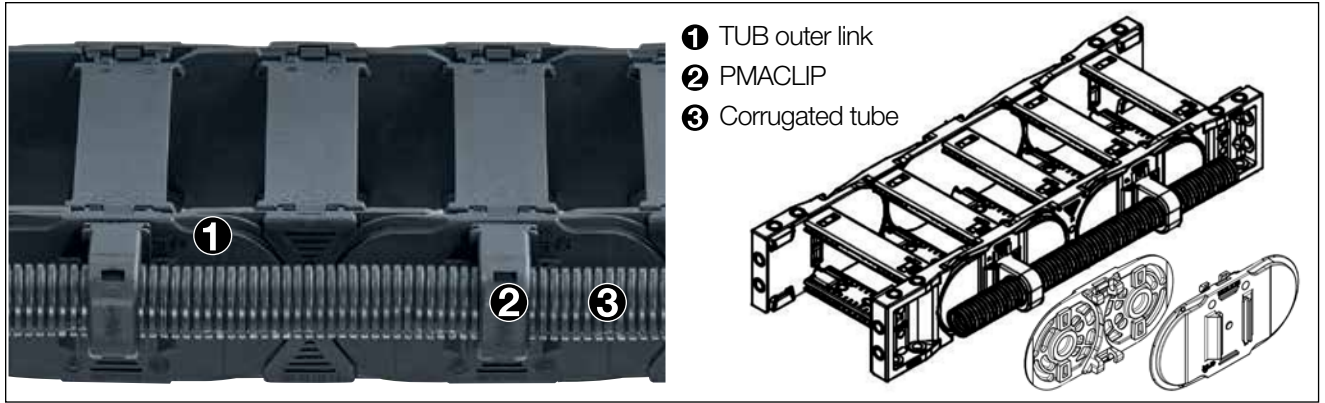
Width	Part No. Full Set chain		With Profile Rail	<i>Bi</i>
	Pivoting	Locking		in. (mm)
-05*	R4-420	R4-421	-05-12	P 1.97 (50)
-07	R4-420	R4-421	-07-12	P 2.95 (75)
-087	R4-420	R4-421	-087-12	P 3.43 (87)
-10	R4-420	R4-421	-10-12	P 3.94 (100)
-11	R4-420	R4-421	-11-12	P 4.25 (108)
-12	R4-420	R4-421	-12-12	P 4.92 (125)

Width	Part No. Full Set chain		With Profile Rail	<i>Bi</i>
	Pivoting	Locking		in. (mm)
-15	R4-420	R4-421	-15-12	P 5.91 (150)
-17	R4-420	R4-421	-17-12	P 6.61 (168)
-20	R4-420	R4-421	-20-12	P 7.87 (200)
-25	R4-420	R4-421	-25-12	P 9.84 (250)
-30	R4-420	ER4-421	-30-12	P 11.81 (300)



PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains





- ❶ TUB outer link
- ❷ PMACLIP
- ❸ Corrugated tube

TUB | Safe guidance for corrugated tubes parallel to the e-chain®

- Additional, simple guidance for corrugated tubes on the outside of the e-chain®
- PMACLIP allows corrugated tubes with nominal widths .28 (07mm), .39 (10mm), .47 (12mm), .67 (17mm) to be easily clipped on
- Easy access to the corrugated tubes, fast replacement of the hoses
- Reduce assembly time and cost - easy to assemble, without any additional screws or tools
- The part number includes the e-chain® with TUB side sections; the PMACLIP support and the hose are ordered separately

Part No. TUB	Part No. TUB	Part No. TUB	For corrugated tube nominal diameter
Outer link right*	Outer link left*	Outer link at both ends*	Ø [mm]
E4-42-XXXTUBR-R-0	E4-42-XXXTUBL-R-0	E4-42-XXXTUB-R-0	.28 (07), .39 (10), .47 (12), .67 (17)

*View from the fixed end

Part number appended with width index **XXX Bi** and radius (**R**) e.g.

E4-42-100TUBR-150-0 = with TUB outer sections every 2nd right hand link

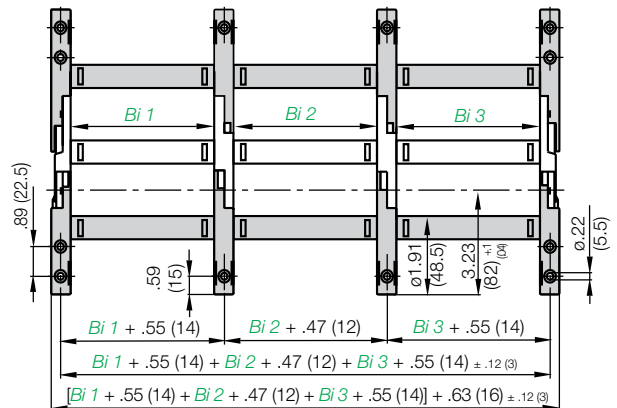


Extension links - for extremely wide e-chains® up to 9.84 ft (3m)

- For applications in which particularly high fill weights necessitate extremely wide e-chains®
- The extension link design allows virtually limitless side-by-side attachment of chains
- The unsupported length of a chain can be increased when additional loads are required
- Extension links can be used with e-chains®, e-tubes or a combination of both
- They are suitable for unsupported and gliding applications in a guide trough
- e-chains® with extension links are attached with KMA or steel mounting brackets.

Part number example for e-chain®

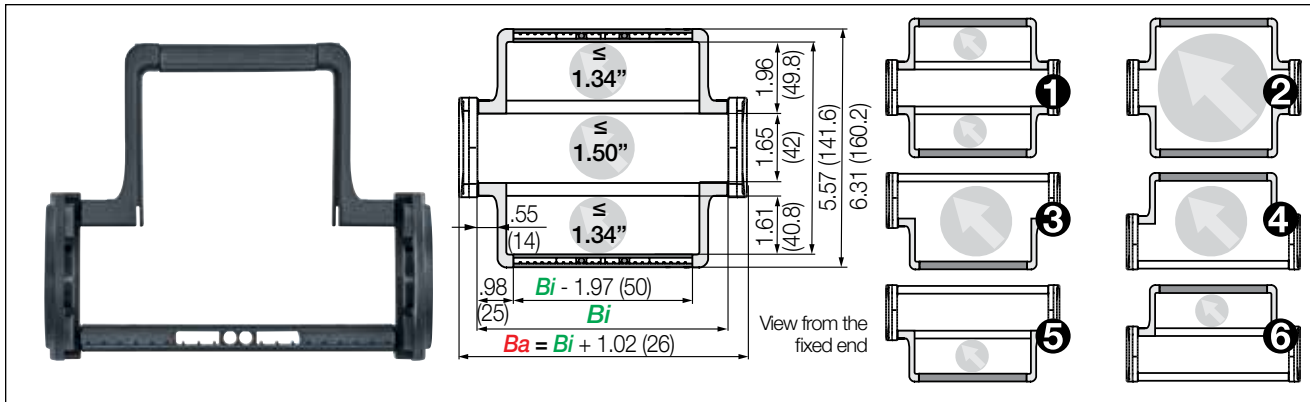
E4-42-10/20/10-200-0
E4-42-Bi1/Bi2/Bi3-R-0



We **strongly recommend** on-site consultation with an igus® technician for individual advice regarding mounting brackets, guide troughs and other design details.

Part No.	Part No.	Part No.
Extension link e-chain®	Extension link e-tube	Extension link as an individual part
E4-42-Bi1/Bi2/Bi3-R-0	R4-42-Bi1/Bi2/Bi3-R-0	384-R-

Complete Part No. with the width index **Bi1/Bi2/Bi3/etc.** and the radius (**R**). Example: E4-32-10/20/10-200-0



Extender crossbars with flexible width | Safe guiding for large hoses

- For guiding and protecting large hoses
- With mounting for noise dampers
- Cable-friendly design, high crossbar holding force
- The openable extender crossbars can be fitted in different ways and combinations
- Optionally openable along the inner or outer radius

Versions e-chain[®]

with extender crossbar

	Hose $\varnothing \leq$ in. (mm)	Part No. e-chain [®] with extender crossbar
❶ Extender crossbar and standard crossbar alternating along the inner and outer radius ¹⁾	1.34 (34)	E4-42-XXXHB50-R-0
❷ Extender crossbar on both sides along the inner and outer radius ²⁾	5.12 (130)	E4-42-XXXB50-R-0
❸ Extender crossbar along the outer radius ³⁾	3.35 (85)	E4-42-XXXBE50-R-0
❹ Extender crossbar along the inner radius ²⁾	3.35 (85)	E4-42-XXXBZ50-R-0
❺ Extender crossbar and standard crossbar alternating along the outer radius ³⁾	1.34 (34)	E4-42-XXXHBE50-R-0
❻ Extender crossbar and standard crossbar alternating along inner radius ¹⁾	1.34 (34)	E4-42-XXXHBZ50-R-0

1) Minimum bend radius: **R 125**

2) Minimum bend radius: **R 150**

3) Minimum bend radius: **R 075** *Width available upon request. Delivery time upon request

Bi [mm] Available inner widths

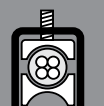
| 100 | 125 | 137 | 150 | 162 | 175 | 187 | 200 | 212 | 225 | 237 | 250 |
| 262 | 275 | 287 | 300 | 312 | 325 | 337 | 350 | 362 | 375 | 387 | 400 |

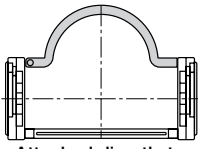
Complete Part No. with the width index **XXX Bi** and the radius (**R**). Example

E4-42-100B50-150-0 = extender crossbar on both sides along inner and outer radius

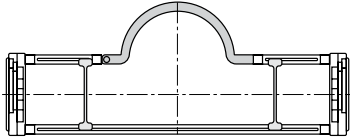


The E4.1 can be fitted with openable extender crossbars, which increase the size of the interior of the e-chain[®]. Crossbars can be fitted in various ways: from one or both sides, alternating with standard crossbars and or any combination





Attached directly to the side link.



Round extender crossbar combined with standard snap-open crossbars.

Extender crossbars

For careful guiding of large diameter cables and hoses

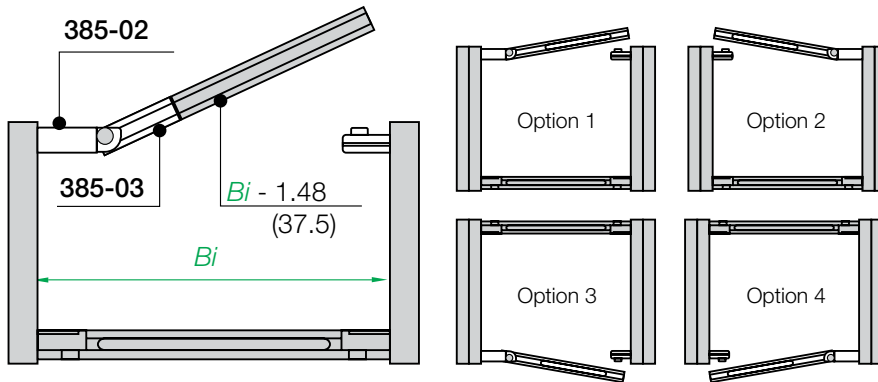
- Intended for cables and hoses with a maximum outer diameter of 4.13 in. (105 mm).
- Gliding operation with crossbars assembled along the outer radius in conjunction with a special guide trough
- Gliding operation not guaranteed with crossbars assembled along the inner radius
- The extender crossbar can either be attached to the side links directly or can be used in combination with two standard snap-open crossbars.



Part No.	Max Ø Hose in. (mm)	Style	Installation Side Link	Combined with Snap-Open Crossbars
385-15-RHD115	4.13 (105)	Round	No	Yes
385-18-RD115	4.13 (105)	Round	Yes	No

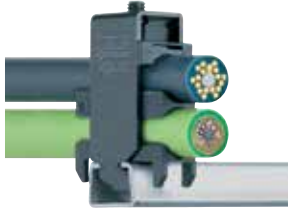
Hinged crossbars

- Typically, e-chain® crossbars are completely removable. In cases where it is preferable that the opening crossbars remain on the e-chain®, a hinged design has been developed.
- Hinged crossbar: Part No. 385-02
- Snap-open crossbar (shortened): Bi-1.48" (37.5 mm) Part No. 385-03 (smallest inner width Bi = 3.44" (87.5 mm))



Part No.	Part No.	Part No. openable
e-chain® with hinged crossbar	swivel clip as an individual part	crossbar as an individual part
E4-42-Bi-Z-R-0	385-02	385-03

Chainfix clamps for the profile rail



igus® Chainfix strain relief elements are available in either steel or stainless steel. They can be adjusted with a hexagon socket and are available in single, double and triple configurations.

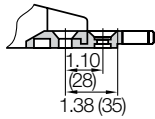
Part No. Single Clamp		Part No. Double Clamp		Part No. Triple Clamp		Cable ø	
Steel	Stainless	Steel	Stainless	Steel	Stainless	in.	(mm)
CFX12-1	CFX12-1E	CFX12-2	CFX12-2E	CFX12-3	–	.24 - .47	(06 - 12)
CFX14-1	CFX14-1E	CFX14-2	CFX14-2E	CFX14-3	–	.47 - .55	(12 - 14)
CFX16-1	CFX16-1E	CFX16-2	CFX16-2E	CFX16-3	–	.55 - .63	(14 - 16)
CFX18-1	CFX18-1E	CFX18-2	CFX18-2E	CFX18-3	–	.63 - .71	(16 - 18)
CFX20-1	CFX20-1E	CFX20-2	CFX20-2E	CFX20-3	–	.71 - .79	(18 - 20)
CFX22-1	CFX22-1E	CFX22-2	CFX22-2E	CFX22-3	–	.79 - .87	(20 - 22)
CFX26-1	CFX26-1E	CFX26-2	CFX26-2E	–	–	.87 - 1.02	(22 - 26)
CFX30-1	CFX30-1E	CFX30-2	CFX30-2E	–	–	1.02 - 1.18	(26 - 30)
CFX34-1	CFX34-1E	CFX34-2	CFX34-2E	–	–	1.18 - 1.34	(30 - 34)
CFX38-1	CFX38-1E	–	–	–	–	1.34 - 1.50	(34 - 38)
CFX42-1	CFX42-1E	–	–	–	–	1.50 - 1.65	(38 - 42)

For more information please refer to strain relief section of Chapter 10.

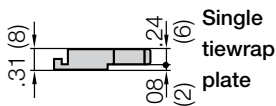
Tiewrap Plates

Option 1:
Tiewrap plates as an individual part

Available as an individual component, can be fixed onto a mounting bracket with the use of a profile rail.

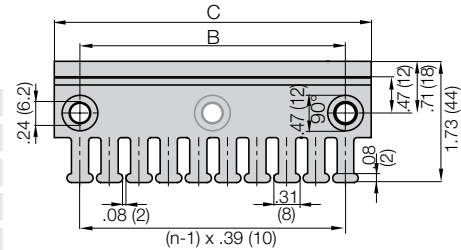


Shown assembled



Single tiewrap plate

Tiewrap Plate	n Number of Teeth	C Overall Width in. (mm)	B Bore Width in. (mm)	Center Bore
3050-ZB	5	1.97 (50)	1.18 (30)	no
3075-ZB	7	2.95 (75)	2.16 (55)	no
3100-ZB	10	3.94 (100)	3.15 (80)	no
3115-ZB	11	4.53 (115)	3.74 (95)	no
3125-ZB	12	4.92 (125)	4.13 (105)	no
3150-ZB	15	5.91 (150)	5.12 (130)	no
3175-ZB	17	6.89 (175)	6.10 (155)	no
3200-ZB	20	7.87 (200)	7.09 (180)	yes
3225-ZB	22	8.86 (225)	8.07 (205)	yes
3250-ZB	25	9.84 (250)	9.06 (230)	yes



If used with KMA brackets with profile rail please add "KMA" to the end of the part number.

Example: 3050-ZBKMA

For more information please refer to strain relief section of Chapter 10

Option 2:
Clip-on Tiewrap plates

Available as a clip-on tiewrap plate without the use of bolts They are inserted and removed with a screwdriver used as a lever. Clip-on tiewrap plates are also available as an attachment to the opening crossbars.



Part No.	Number of Teeth	Width of Strain Relief in. (mm)
3050-ZC	5	1.97 (50)
3075-ZC	7	2.95 (75)

For more information please refer to strain relief section of Chapter 10.



Width of Crossbar
E4-42-05-200-0

	B_{Ri}	Installation Part No.
-05	3.19 (81)	93-50-200
-06	3.90 (99)	93-50-225
-07	4.17 (106)	93-50-225
-087	4.69 (119)	93-50-250
-097	4.92 (125)	93-50-250
-10	5.16 (131)	93-50-250
-11	5.47 (139)	93-50-250
-112	5.67 (144)	93-50-275
-12	6.14 (156)	93-50-275
-137	6.65 (169)	93-50-300
-15	7.12 (181)	93-50-300
-162	7.64 (194)	93-50-325
-17	7.83 (199)	93-50-325
-18	8.11 (206)	93-50-325
-187	8.62 (219)	93-50-350
-20	9.09 (231)	93-50-350
-212	9.61 (244)	93-50-375
-23	10.08 (256)	93-50-375
-237	10.59 (269)	93-50-400
-25	11.06 (281)	93-50-400
-262	11.57 (294)	93-50-425
-28	12.05 (306)	93-50-425
-29	12.56 (319)	93-50-450
-30	13.03 (331)	93-50-450
-312	13.54 (344)	93-50-475
-325	14.01 (356)	93-50-475
-337	14.52 (369)	93-50-500
-350	15.00 (381)	93-50-500
-362	15.51 (394)	93-50-525
-375	16.02 (407)	93-50-525
-387	16.50 (419)	93-50-550
-400	16.97 (431)	93-50-550

Guide troughs are used with applications where the upper run of the e-chain® glides on the lower run. If using igus® steel guide troughs, the following components are required:

- Full travel length of guide trough
Part No. 93-30
- 1/2 travel length of glide bars
Part No. 93-01
- Installation sets as end connectors
Part No. 93-50-XX

-XX indicates the length of the profile rail on which the guide trough is mounted. The values and part numbers are specified in the table below. The standard length of the trough components and glide bars is 6.56 ft (2 m). The required overall length of the guide trough directly correlates to the length of travel

Example:

Length of travel 164 ft (50 m)
Center mounted

Required guide troughs:

164 ft (50 m) guide trough,
82 ft (25 m) glide bar
= 25 sections of 6.56 ft (2 m) guide trough

Part No. 93-30

= 13 sections of 6.56 ft (2 m) glide bar

Part No. 93-01

Required number of installation sets:

= Number of guide trough components + 1
= 25 + 1 = 26

Part No. of the installation sets **93-50-XXX**

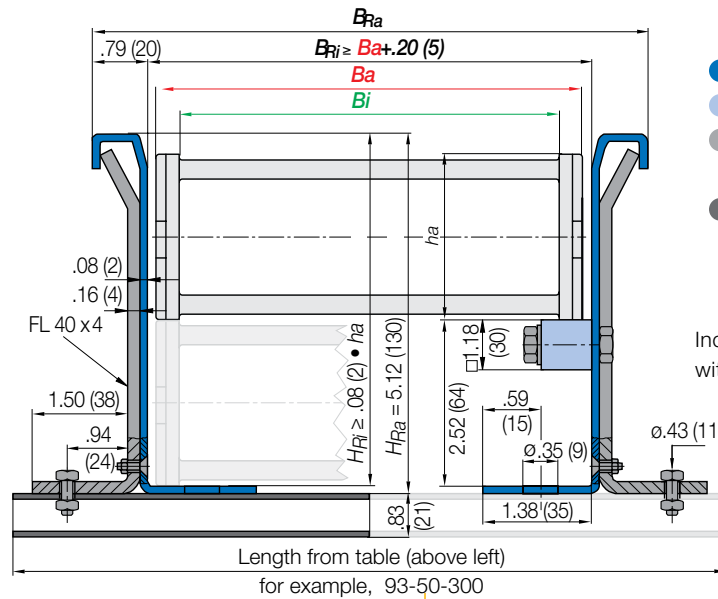
Example: 93-50-400 for 15.75 (400 mm) long profile rail



Left: Guide trough with glide bars
Right: Guide troughs without glide bars



Installation sets as section connectors



- Guide trough
- Glide bars
- Installation set "Basic"
- Profile rail

Individual attachment without profile rail

* Specialized guide trough available upon request

Standard length profile rail

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains



E4-56
H4-56
R4-56



e-chain system® E4-1

Series E4-56/H4-56/R4-56

Price Index



Series E4-56



Series H4-56



Series R4-56

Special Options Available



Low noise version available with special rubber pads



Cleanroom test upon request



ESD classification: Electrically conductive ESD/ATEX version upon request

Assembly Tips



Opening e-chains®: Remove crossbars and clips - Insert screwdriver into the slot, push down, release by lever action



Remove lids/bottoms (e-tubes) - Insert screwdriver into the slot, release by lever action

Other Installation Methods

Vertical, hanging ≤ 328 ft (100 m)

Vertical, standing ≤ 19.69 ft (6 m)

Side-mounted, un_supp. ≤ 8.20 ft (2.5 m)

Rotary requires further calculation

Usage Guidelines



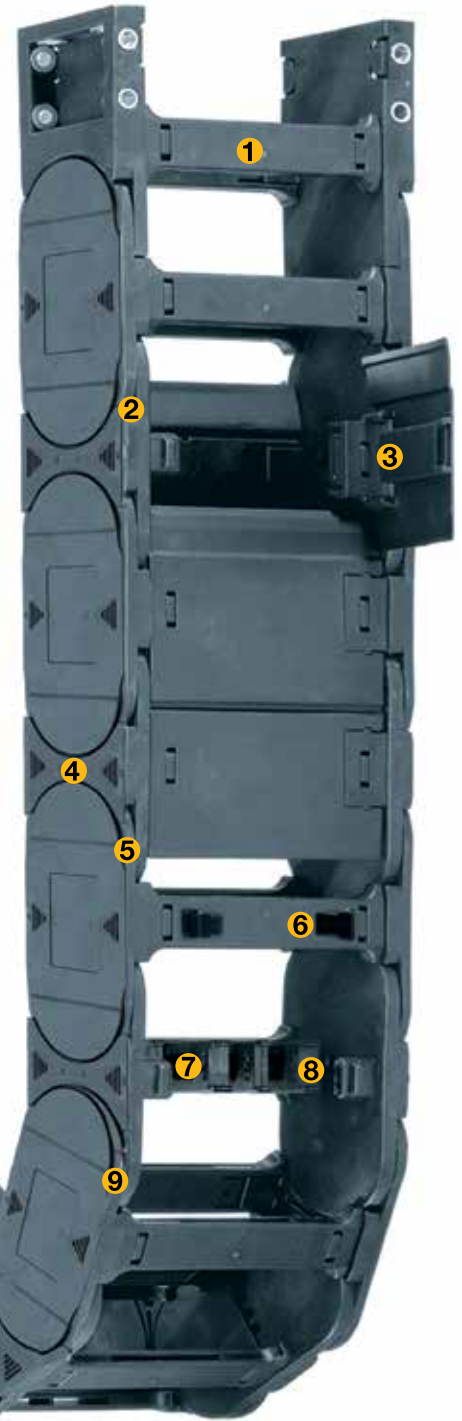
- If quiet operation is required
- If very high speeds and/or accelerations are required
- Long travels
- High additional loads



- When an extremely low vibration e-chain®/e-tube is required
➤ Series E6-52
- When an economic one-sided snap-open e-chain®/e-tube is required
➤ Series 14040/14140/R18840

Features & Benefits

- 1 Wide, rounded plastic crossbars - cable friendly
- 2 Low-noise operation through integrated brake in the radial stop dog system
- 3 Hinged snap-open removable lids along the outer radius of the e-tube
- 4 Straight run through inner-/outer-link design
- 5 The tongue and groove design provides greater lateral stability
- 6 QuickLock Crossbar, 450-X-Q, available for faster assembly/disassembly
- 7 New Interior separation kit available
- 8 Crossbars are removable along both radii
- 9 15% more tensile strength (compared to the older E4 series), better unsupported length through improved stop dog system and vertical radial stops
- 10 Version NCST "without camber" simply by turning outer links without unnecessary rework



Also available without camber. Add NCST to the end of the part number.
Ex: E4-56-30-300NCST

Order Example: Complete e-chain®

Please indicate chain length or number of links. Example:

9.84 ft (3 m) **E4-56-30-300-0**



e-chain®

With 2 separators **56.1.1** assembled every 2nd link



Interior Separation

1 Set **E4-560-30-12P**



Mounting Bracket

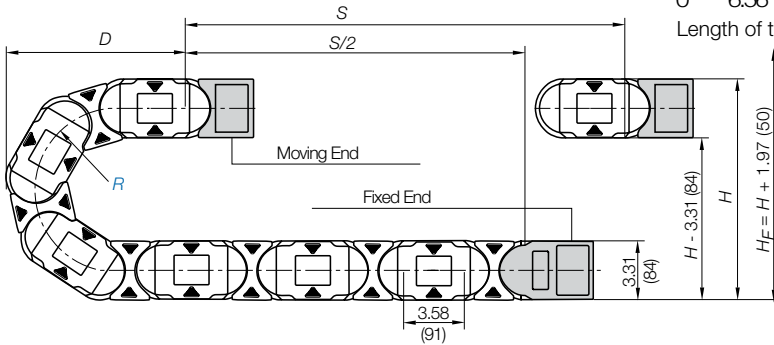
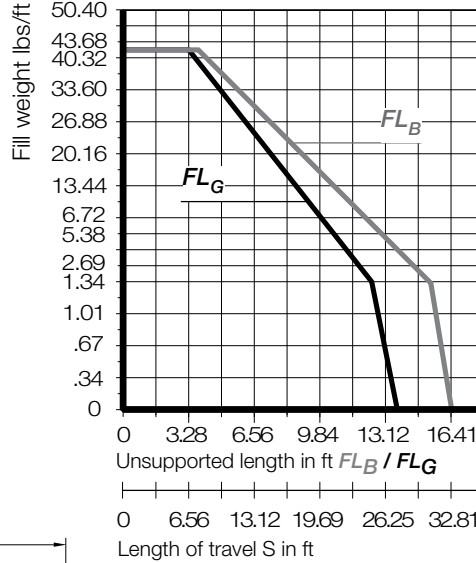
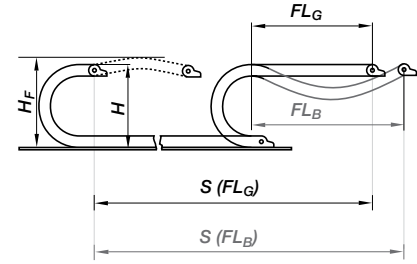
e-chain system® E4-1

Series E4-56/H4-56/R4-56

Installation Dimensions

Short travel, unsupported length

- FL_B = unsupported with permitted sag
 - FL_G = unsupported with straight upper run
- Further information ► Design, Chapter 1



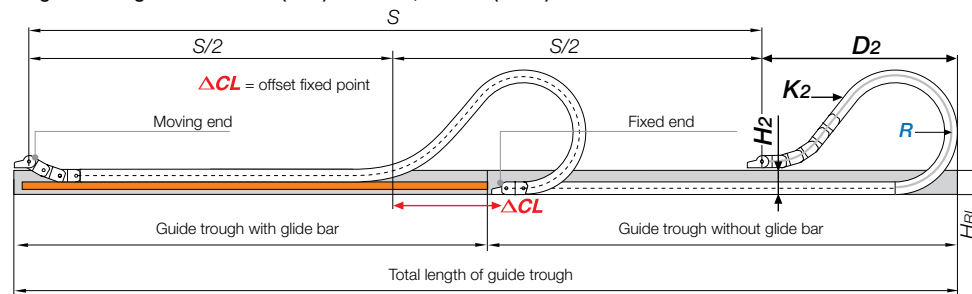
Pitch per link: = 3.58" (91 mm)
 Links per ft (m): = 3.35 (11)
 For center mount applications:
 Chain length = $\frac{S}{2} + K$

The required clearance height: $H_F = H + 1.96$ in. (50 mm) (with 2.02 lbs/ft (3 kg/m) fill weight. Please consult igus® if space is particularly restricted.

R	*5.31 (135)	5.91 (150)	6.89 (175)	7.87 (200)	9.45 (240)	9.84 (250)	11.81 (300)	13.78 (350)	15.75 (400)	17.72 (450)	19.68 (500)
H^{*+25}	13.94 (354)	15.12 (384)	17.09 (434)	19.06 (484)	22.20 (564)	22.99 (584)	26.93 (684)	30.87 (784)	34.80 (884)	38.74 (984)	42.68 (1084)
D	12.36 (314)	12.95 (329)	13.94 (354)	14.92 (379)	16.50 (419)	16.89 (429)	18.86 (479)	20.83 (529)	22.79 (579)	24.76 (629)	26.73 (679)
K	24.02 (610)	25.79 (655)	28.94 (735)	32.09 (815)	37.01 (940)	38.19 (970)	44.29 (1125)	50.59 (1285)	56.69 (1440)	62.99 (1600)	69.09 (1755)

For long travels with lowered mounting height

Long travel lengths from 32.8 ft.(10m) to max. 1,312.4 ft. (400m)



For center mount applications:
 Chain length: = $\frac{S}{2} + K_2$

Long Travels - Gliding



If the unsupported length is exceeded, the e-chain®/ Tube must glide on itself. This requires a guide trough.

Design, Chapter 1

R	*5.31 (135)	5.91 (150)	6.89 (175)	7.87 (200)	9.45 (240)	9.84 (250)	11.81 (300)	13.78 (350)	15.75 (400)	17.72 (450)	19.68 (500)
H ₂	10.63 (270)	10.47 (266)	10.47 (266)	10.47 (266)	10.47 (266)	10.47 (266)	10.47 (266)	10.47 (266)	10.47 (266)	10.47 (266)	10.47 (266)
D ₂	10.55 (268)	17.72 (450)	22.83 (580)	27.95 (710)	35.43 (900)	38.58 (980)	46.46 (1180)	56.69 (1440)	60.24 (1530)	66.93 (1700)	72.83 (1850)
K ₂	24.02 (610)	32.24 (819)	42.99 (1092)	50.16 (1274)	60.91 (1547)	64.49 (1638)	78.82 (2002)	89.57 (2275)	100.31 (2548)	114.64 (2912)	128.98 (3276)
ΔCL	-	6.26 (159)	10.20 (259)	14.54 (359)	20.04 (509)	22.01 (559)	27.91 (709)	35.79 (909)	37.76 (959)	41.69 (1059)	45.63 (1159)

In case of travels between 32.8 and 39.4 ft (10 and 12 m) we recommend a longer unsupported length.

For support of the lower run, see Chapter 9 for the Support Tray tool kit

*135 mm not available for the R4-56 e-chain

Technical Data

Speed / acceleration FL_G	max. 65.6 ft/s (20 m/s) / max. 656 ft/s ² (200 m/s ²)
Speed / acceleration FL_B	max. 9.84 ft/s (3 m/s) / max. 19.69 ft/s ² (6 m/s ²)
Gliding speed / acceleration (maximum)	max. 32.8 ft/s (10 m/s) / max. 164 ft/s ² (50 m/s ²)
Material - permitted temperature	igumid G / -40°F (-40°C) up to +248°F (+120°C)
Flammability Class, igumid G	VDE 0304 IIC UL94 HB



Details of material properties

► Chapter 1

Legend

- S = Length of travel
- R = Bending radius
- H = Nominal clearance height
- D = Overlength e-chain® radius in final position
- $K = \pi \cdot R + \text{safety buffer}$
- H_F = Required clearance height
- H_{Ri} = Trough inner height
- H_2 = *Mounting height
- D_2 = Overlength - long travels, gliding
- K_2 = *Add-on

*If the mounting bracket location is set lower

Short Travels - Unsupported

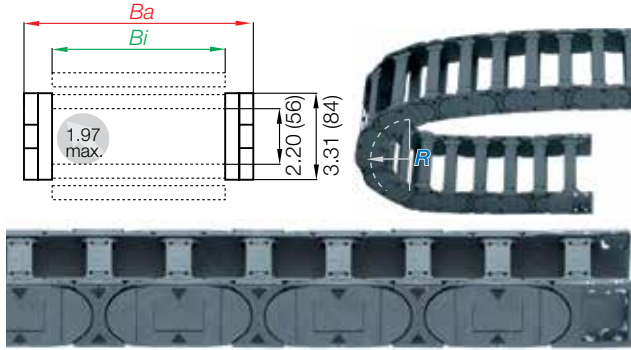
Unsupported e-chains® feature positive camber over short travels. This must be accounted for when specifying the clearance height. Please refer to **Installation dimensions** for further details.



PDF: igus.com/e-chain-pdfs
 Product information: igus.com/e-chains

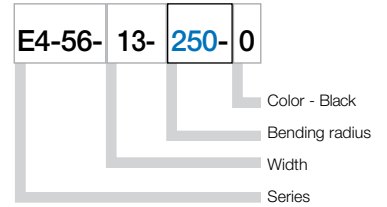


Series E4-56 - e-chain® with crossbars every link

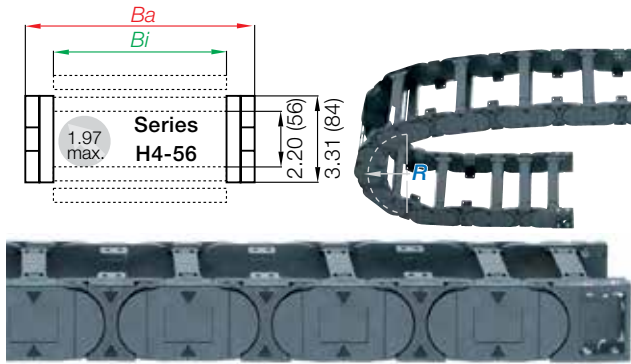


- Crossbars every link
- For use with rigid hydraulic hoses
- For particularly demanding applications
- Can be opened from both sides

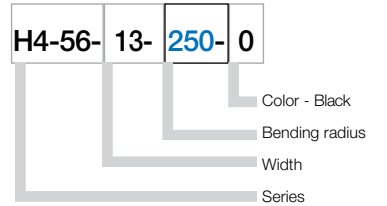
Part Number Structure



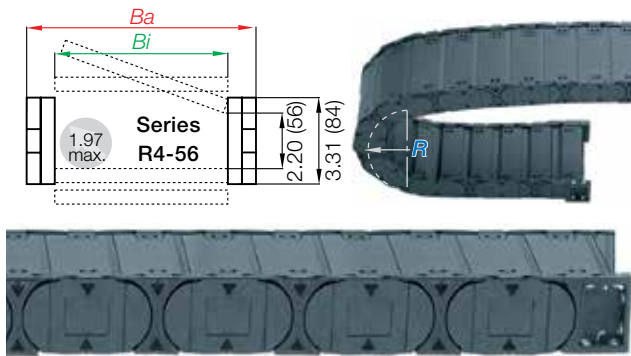
Series H4-56 - e-chain® with crossbars every other link



- Crossbars every other link
- Standard configuration
- For nearly every situation
- Can be opened from both sides
- Easy assembly
- Stable
- Cost-effective

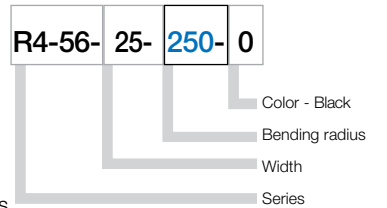


Series R4-56 - fully enclosed e-tube

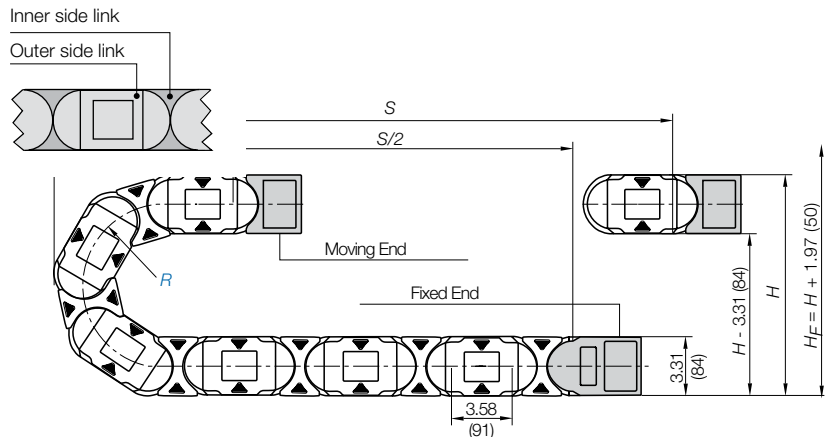
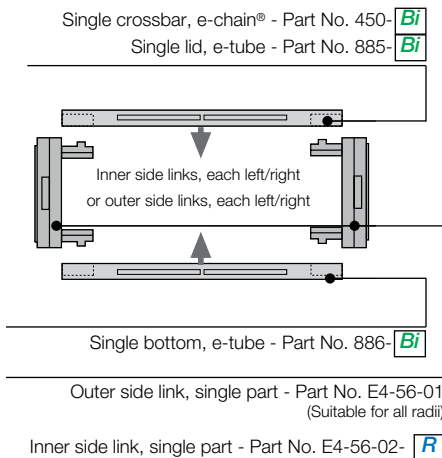


- Fully enclosed
- Excellent cable and hose protection against dirt
- Protection against hot chips
- Lids along inner radius are completely removable
- Lids along the outer radius are single-sided, snap open, hinged on one side as well as completely removable

Part Number Structure



e-chain® as separate parts, links and side plates



e-chain system® E4-1
Series E4-56/H4-56/R4-56
Product Range



E4-56
H4-56
R4-56

Part Number			Weight					
Crossbars	Crossbars	Tube	<i>Bi</i>	<i>Ba</i>	E4-56	H4-56	R4-56	
Every link	Every other	Version	in. (mm)	in. (mm)	lbs/ft (kg/m)	lbs/ft (kg/m)	lbs/ft (kg/m)	
E4-56-05-	H4-56-05-	<input type="checkbox"/> -0	1.97 (50)	3.31 (84)	≈ 2.22 (3.30)	≈ 2.12 (3.16)	-	
E4-56-055-	H4-56-055-	<input type="checkbox"/> -0	2.17 (55)	3.50 (89)	≈ 2.45 (3.65)	≈ 2.43 (3.62)	-	
E4-56-06-	H4-56-06-	<input type="checkbox"/> -0	2.56 (65)	3.90 (99)	≈ 2.28 (3.39)	≈ 2.15 (3.20)	-	
E4-56-07-	H4-56-07-	*R4-56-07-	2.95 (75)	4.29 (109)	≈ 2.33 (3.46)	≈ 2.18 (3.24)	≈ 2.63 (3.91)	
E4-56-08-	H4-56-08-	<input type="checkbox"/> -0	3.43 (87)	4.76 (121)	≈ 2.38 (3.54)	≈ 2.20 (3.28)	-	
E4-56-10-	H4-56-10-	R4-56-10-	3.94 (100)	5.28 (134)	≈ 2.44 (3.63)	≈ 2.23 (3.32)	≈ 2.82 (4.20)	
E4-56-11-	H4-56-11-	<input type="checkbox"/> -0	4.41 (112)	5.79 (147)	≈ 2.52 (3.75)	≈ 2.27 (3.38)	-	
E4-56-12-	H4-56-12-	R4-56-12-	4.92 (125)	6.26 (159)	≈ 2.57 (3.83)	≈ 2.30 (3.42)	≈ 3.06 (4.56)	
E4-56-13-	H4-56-13-	<input type="checkbox"/> -0	5.39 (137)	6.77 (172)	≈ 2.66 (3.96)	≈ 2.35 (3.49)	-	
E4-56-15-	H4-56-15-	R4-56-15-	5.91 (150)	7.24 (184)	≈ 2.69 (4.00)	≈ 2.36 (3.51)	≈ 3.32 (4.94)	
E4-56-16-	H4-56-16-	<input type="checkbox"/> -0	6.38 (162)	7.76 (197)	≈ 2.76 (4.11)	≈ 2.39 (3.56)	-	
E4-56-169-	H4-56-169-	<input type="checkbox"/> -0	6.65 (169)	8.03 (204)	≈ 3.02 (4.49)	≈ 2.71 (4.03)	-	
E4-56-17-	H4-56-17-	R4-56-17-	6.89 (175)	8.23 (209)	≈ 2.86 (4.25)	≈ 2.44 (3.63)	≈ 3.53 (5.25)	
E4-56-182-	H4-56-182-	<input type="checkbox"/> -0	7.16 (182)	8.54 (217)	≈ 3.08 (4.59)	≈ 2.74 (4.08)	-	
E4-56-18-	H4-56-18-	<input type="checkbox"/> -0	7.36 (187)	8.74 (222)	≈ 2.93 (4.36)	≈ 2.48 (3.69)	-	
E4-56-20-	H4-56-20-	R4-56-20-	7.87 (200)	9.21 (234)	≈ 2.96 (4.41)	≈ 2.49 (3.71)	≈ 3.74 (5.56)	
E4-56-207-	H4-56-207-	<input type="checkbox"/> -0	8.15 (207)	9.53 (242)	≈ 3.21 (4.77)	≈ 2.80 (4.17)	-	
E4-56-21-	H4-56-21-	<input type="checkbox"/> -0	8.35 (212)	9.72 (247)	≈ 3.01 (4.48)	≈ 2.52 (3.75)	-	
E4-56-22-	H4-56-22-	<input type="checkbox"/> -0	8.86 (225)	10.20 (259)	≈ 3.06 (4.55)	≈ 2.54 (3.78)	-	
E4-56-23-	H4-56-23-	<input type="checkbox"/> -0	9.33 (237)	10.71 (272)	≈ 3.13 (4.66)	≈ 2.58 (3.84)	-	
E4-56-25-	H4-56-25-	R4-56-25-	9.84 (250)	11.18 (284)	≈ 3.21 (4.77)	≈ 2.61 (3.89)	≈ 4.23 (6.29)	
E4-56-26-	H4-56-26-	<input type="checkbox"/> -0	10.31 (262)	11.69 (297)	≈ 3.27 (4.87)	≈ 2.65 (3.94)	-	
E4-56-27-	H4-56-27-	R4-56-27-	10.83 (275)	12.17 (309)	≈ 3.34 (4.97)	≈ 2.68 (3.99)	≈ 4.47 (6.65)	
E4-56-28-	H4-56-28-	<input type="checkbox"/> -0	11.30 (287)	12.68 (322)	≈ 3.38 (5.03)	≈ 2.70 (4.02)	-	
E4-56-30-	H4-56-30-	R4-56-30-	11.81 (300)	13.15 (334)	≈ 3.48 (5.18)	≈ 2.76 (4.10)	≈ 4.67 (6.95)	
E4-56-31-	H4-56-31-	<input type="checkbox"/> -0	12.28 (312)	13.66 (347)	≈ 3.50 (5.21)	≈ 2.76 (4.11)	-	
E4-56-32-	H4-56-32-	<input type="checkbox"/> -0	12.79 (325)	14.13 (359)	≈ 3.57 (5.32)	≈ 2.80 (4.17)	-	
E4-56-33-	H4-56-33-	<input type="checkbox"/> -0	13.27 (337)	14.65 (372)	≈ 3.66 (5.44)	≈ 2.84 (4.23)	-	
E4-56-35-	H4-56-35-	R4-56-35-	13.78 (350)	15.12 (384)	≈ 3.79 (5.64)	≈ 2.91 (4.33)	≈ 5.14 (7.65)	
E4-56-36-	H4-56-36-	<input type="checkbox"/> -0	14.25 (362)	15.63 (397)	≈ 3.73 (5.55)	≈ 2.88 (4.28)	-	
E4-56-37-	H4-56-37-	<input type="checkbox"/> -0	14.76 (375)	16.10 (409)	≈ 3.80 (5.65)	≈ 2.91 (4.33)	-	
E4-56-38-	H4-56-38-	<input type="checkbox"/> -0	15.24 (387)	16.61 (422)	≈ 3.87 (5.76)	≈ 2.95 (4.39)	-	
E4-56-40-	H4-56-40-	R4-56-40-	15.75 (400)	17.09 (434)	≈ 4.05 (6.03)	≈ 3.04 (4.52)	≈ 5.81 (8.65)	
E4-56-41-	H4-56-41-	<input type="checkbox"/> -0	16.22 (412)	17.60 (447)	≈ 4.00 (5.96)	≈ 3.01 (4.48)	-	
E4-56-42-	H4-56-42-	<input type="checkbox"/> -0	16.73 (425)	18.07 (459)	≈ 4.19 (6.23)	≈ 3.11 (4.63)	-	
E4-56-43-	H4-56-43-	<input type="checkbox"/> -0	17.20 (437)	18.58 (472)	≈ 4.09 (6.09)	≈ 3.06 (4.55)	-	
E4-56-45-	H4-56-45-	<input type="checkbox"/> -0	17.72 (450)	19.06 (484)	≈ 4.31 (6.42)	≈ 3.17 (4.72)	-	
E4-56-46-	H4-56-46-	R4-56-46-	18.19 (462)	19.57 (497)	≈ 4.28 (6.37)	≈ 3.15 (4.69)	≈ 6.13 (9.12)	
E4-56-47-	H4-56-47-	<input type="checkbox"/> -0	18.70 (475)	20.04 (509)	≈ 4.31 (6.41)	≈ 3.16 (4.71)	-	
E4-56-48-	H4-56-48-	<input type="checkbox"/> -0	19.17 (487)	20.55 (522)	≈ 4.48 (6.66)	≈ 3.25 (4.84)	-	
E4-56-50-	H4-56-50-	<input type="checkbox"/> -0	19.69 (500)	21.02 (534)	≈ 4.54 (6.76)	≈ 3.29 (4.89)	-	
E4-56-51-	H4-56-51-	<input type="checkbox"/> -0	20.16 (512)	21.54 (547)	≈ 4.48 (6.67)	≈ 3.25 (4.84)	-	
E4-56-52-	H4-56-52-	<input type="checkbox"/> -0	20.67 (525)	22.01 (559)	≈ 4.60 (6.84)	≈ 3.31 (4.93)	-	
E4-56-53-	H4-56-53-	<input type="checkbox"/> -0	21.14 (537)	22.52 (572)	≈ 4.66 (6.93)	≈ 3.34 (4.97)	-	
E4-56-55-	H4-56-55-	<input type="checkbox"/> -0	21.65 (550)	22.99 (584)	≈ 4.95 (7.36)	≈ 3.48 (5.18)	-	
E4-56-60-	H4-56-60-	<input type="checkbox"/> -0	23.62 (600)	24.96 (634)	≈ 5.09 (7.58)	≈ 3.56 (5.30)	-	

Choose from the radii below for all of the above sizes

Radius (mm) Example: E4-56-30--0

	135**	150	175	200	240	250	300	350	400	450	500
<i>R</i>	5.31 (135)	5.91 (150)	6.89 (175)	7.87 (200)	9.45 (240)	9.84 (250)	11.81 (300)	13.78 (350)	15.75 (400)	17.72 (450)	19.68 (500)
<i>H²⁵</i>	13.94 (354)	15.12 (384)	17.09 (434)	19.06 (484)	22.20 (564)	22.99 (584)	26.93 (684)	30.87 (784)	34.80 (884)	38.74 (984)	42.68 (1084)
<i>D</i>	12.36 (314)	12.95 (329)	13.94 (354)	14.92 (379)	16.50 (419)	16.89 (429)	18.86 (479)	20.83 (529)	22.79 (579)	24.76 (629)	26.73 (679)
<i>K</i>	24.02 (610)	25.79 (655)	28.94 (735)	32.09 (815)	37.01 (940)	38.19 (970)	44.29 (1125)	50.59 (1285)	56.69 (1440)	62.99 (1600)	69.09 (1755)

** This radius is not available for the R4-56 Series

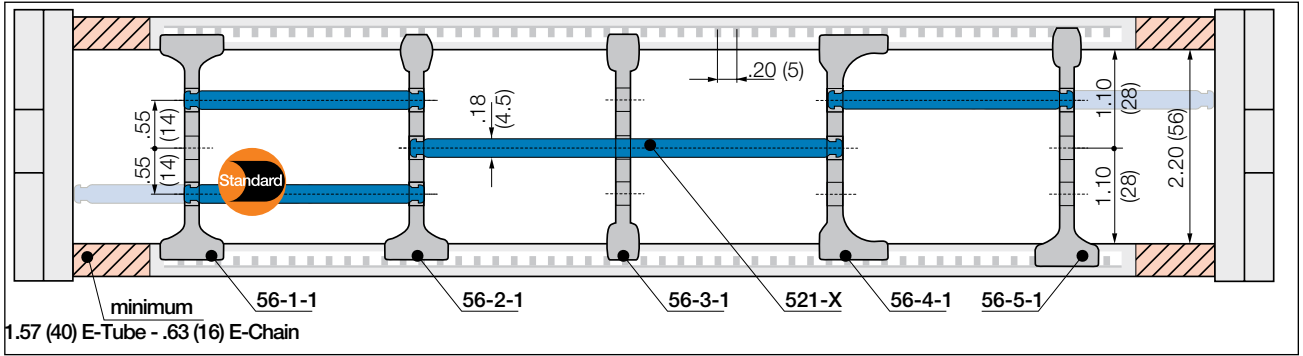
*Removable lid only, no hinged option

0 = Standard color black. For other colors see Chapter 1

For wider chains see page 6.69 For large diameter hoses see page 6.69

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains





1.57 (40) E-Tube - .63 (16) E-Chain

Note Please maintain a lateral spacing of 1.57" (40 mm) for e-tube and .63" (16 mm) for e-chains® between the separators and the side links. In the standard configuration separators are assembled every 2nd e-chain® link

		Separator, wide base Unassembled Part No. 56-1 Assembled Part No. 56-1-1	<ul style="list-style-type: none">● Standard separator 56-1 for all applications Separator with wide base for maximum locking strength and safe standing in e-chains®.
		Separator, narrow head Unassembled Part No. 56-2 Assembled Part No. 56-2-1	<ul style="list-style-type: none">● Separator 56-2 For even faster installation is used when vertical and horizontal separation is required. Due to its slot, it allows basic vertical/horizontal shelving arrangements.
		Separator, narrow base Unassembled Part No. 56-3 Assembled Part No. 56-3-1	<ul style="list-style-type: none">● Separator 56-3 For many thin cables is used when vertical and horizontal separation is required. Due to its slot, it allows basic vertical/horizontal shelving arrangements.
		Separator, asymmetrical Unassembled Part No. 56-4 Assembled Part No. 56-4-1	<ul style="list-style-type: none">● Separator 56-4 For side mounted applications is used when vertical and horizontal separation is required. Due to its slot, it allows basic vertical/horizontal shelving arrangements.
		Separator, asymmetrical Unassembled Part No. 56-5 Assembled Part No. 56-5-1	<ul style="list-style-type: none">● Separator 56-5 Locks safely in .30" (7.5 mm) increments Notch separator for exact positioning in e-chains®, Recommended for side-mounted applications.

Lockable full-width shelves - for the standard interior separation

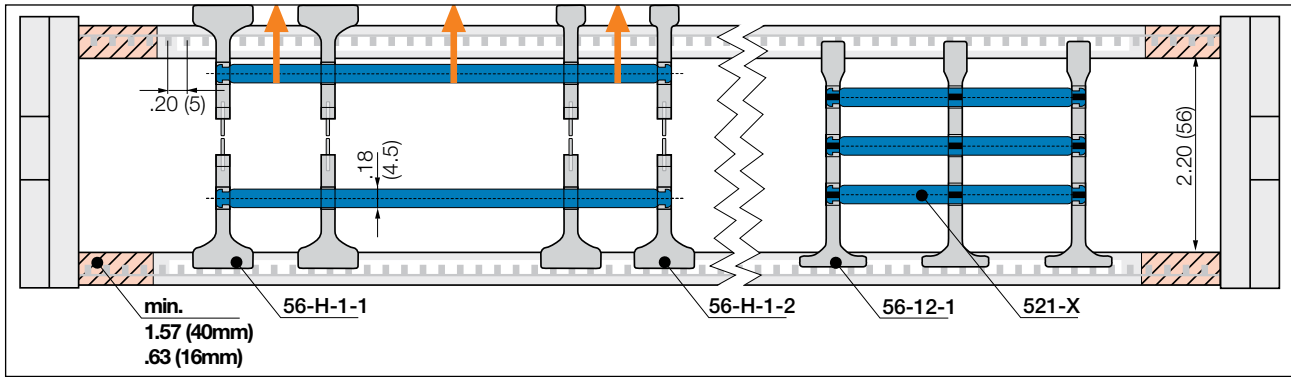
		Full width shelf, lockable Unassembled Part No. 520-X Assembled Part No. 521-X	<ul style="list-style-type: none">● Full width shelf, lockable Shelf locks safely into separators on both ends, fixed width possible. Separators can be moved freely over the shelf in horizontal direction. Can be arranged at 3 different heights.
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Width X in. (mm)	Part No. Unassembled	Part No. Assembled	Width X in. (mm)	Part No. Unassembled	Part No. Assembled	Width X in. (mm)	Part No. Unassembled	Part No. Assembled
1.97 (050)	520-50	521-50	5.91 (150)	520-125	521-125	11.81 (300)	520-125	521-125
2.56 (065)	520-65	521-65	6.89 (175)	520-125	521-125	13.78 (350)	520-125	521-125
2.95 (075)	520-75	521-75	7.87 (200)	520-125	521-125	14.76 (375)	520-125	521-125
3.94 (100)	520-100	521-100	8.86 (225)	520-125	521-125	15.24 (387)	520-125	521-125
4.92 (125)	520-125	521-125	9.84 (250)	520-125	521-125	17.723 (450)	520-125	521-125

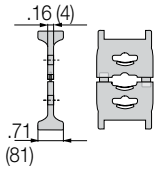
e-chain system® E4-1
 Series E4-56/H4-56/R4-56
 Interior Separation - New Generation



E4-56
 H4-56
 R4-56

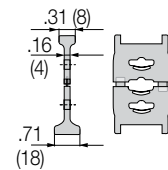
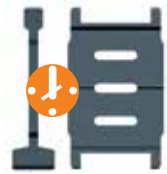


Note Please maintain a lateral spacing of 1.57" (40 mm) for e-tube and .63" (16 mm) for e-chains® between the separators and the side links. In the standard configuration separators are assembled every 2nd e-chain® link



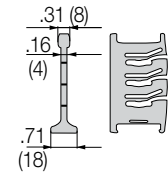
Separator, wide base

Unassembled **Part No. 56-H-1**
 Assembled **Part No. 56-H-1-1**



Separator, narrow head

Unassembled **Part No. 56-H-2**
 Assembled **Part No. 56-H-2-1**



Lean separator

Unassembled **Part No. 56-12**
 Assembled **Part No. 56-12-1**

• **Split separators for all applications**

In order to fill e-chains® more easily and effectively, these separators can be split in the middle. This allows easier access to middle shelf partitions. Fast assembly and easy retrofit. 2 types available: with wide or narrow top.

• **Lean separators 56-12**

New design allows extremely fast fitting of shelves in several layers, which significantly reduces assembly time. Enables extremely fast replacement of individual cables in a very full e-chain®.

• **Lean separator design - several layers of cables fitted quickly, save up to 50%* assembly time**

(*Lean separator vs. standard separator - measured on a 4m long e-chain® fitted with 12 cables in the igus® harnessing factory)



PDF: igus.com/e-chain-pdfs
 Product information: igus.com/e-chains

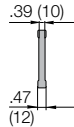
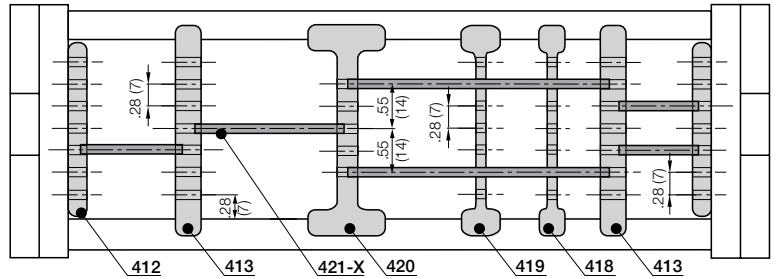




Shelves and separators

e-chains® and e-tubes can be subdivided both vertically and horizontally using the various interior separation elements.

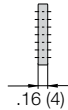
► Design, Chapter 1 for layout recommendations.



Split separator (chain only)

Unassembled	Part No. T563
Assembled	Part No. T563M

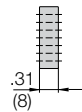
- **Split separator T563 for e-chains®**
This separator is ideal for subsequent shelving or the initial assembly of the e-chain. Fast assembly and disassembly using a hinge/push mechanism. Enhances flexibility



Side plate

Unassembled	Part No. 402
Assembled	Part No. 412

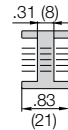
- **Side plates 402**
This component is used to form the basic pattern of a shelf system.



Vertical separator

Unassembled	Part No. 403
Assembled	Part No. 413

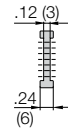
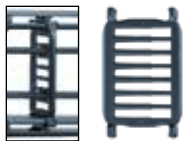
- **Vertical separator 403**
This component is used to form the basic pattern of a shelf system.



Locking vertical separator

Unassembled	Part No. 410
Assembled	Part No. 420

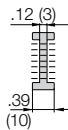
- **Locking vertical separator 410**
This separator is slotted and able to be combined with shelves. For e-chains® only



Slotted separators, closed

Unassembled	Part No. 408
Assembled	Part No. 418

- **Slotted separators 408**
These are used for very complex subdivisions. However, they cannot be retrofitted into an existing separation system without removing the shelves first.



Slotted separators, open

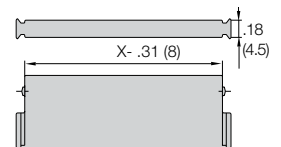
Unassembled	Part No. 409
Assembled	Part No. 419

- **Slotted separator 409**
This separator can be retrofitted into an existing interior separation system without removing the shelves, as long as these shelves fit into any of the 3 middle slots

Shelves 420-XX

These components form the basic pattern of a shelf system. Shelves of various widths can be arranged at 7 different heights in .28" (7mm) increments

Width X in. (mm)	Usable Width in. (mm)	Part No. Unassembled	Part No. Assembled	Width X in. (mm)	Usable Width in. (mm)	Part No. Unassembled	Part No. Assembled
.71 (18)	.39 (10)	420-18	421-18	2.95 (75)	2.64 (67)	420-75	421-75
.91 (23)	.59 (15)	420-23	421-23	3.46 (88)	3.15 (80)	420-88	421-88
.98 (25)	.67 (17)	420-25	421-25	3.94 (100)	3.62 (92)	420-100	421-100
1.10 (28)	.79 (20)	420-28	421-28	4.92 (125)	4.61(117)	420-125	421-125
1.30 (33)	.98 (25)	420-33	421-33	5.91 (150)	5.59(142)	420-150	421-150
1.69 (43)	1.38 (35)	420-43	421-43	6.89 (175)	6.57(167)	420-175	421-175
1.97 (50)	1.65 (42)	420-50	421-50	7.36 (187)	7.05(179)	420-187	421-187
2.44 (62)	2.13 (54)	420-62	421-62	7.87 (200)	7.56(192)	420-200	421-200



e-chain system® E4-1

Series E4-56/H4-56/R4-56

Interior Separation - Previous Generation



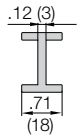
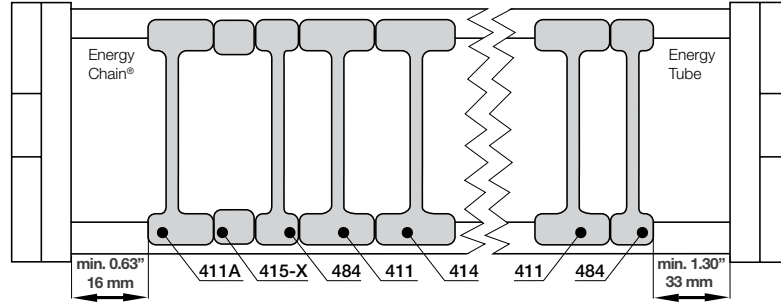
E4-56
H4-56
R4-56



Vertical separators and spacers

Vertical separators are used if a vertical subdivision of the e-chain® interior is required. In standard configuration, a separator is installed every second chain link.

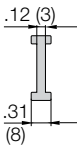
NOTE: Observe a lateral spacing of at least 1.26 in. (32mm) for e-tubes and .63 in. (16mm) for e-chain®. There is no minimum spacing needed for side plates



Vertical separator

Unassembled	Part No. 401
Assembled	Part No. 411

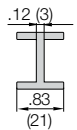
- **Standard separator 401 for e-chains® and e-tubes**
This separator offers safe stability due to its wide base design.



Vertical separator

Unassembled	Part No. 483
Assembled	Part No. 484

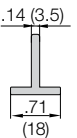
- **Vertical separator 483 for e-chains® and e-tubes**
This separator offers a narrow base for applications where a large number of small cables need to be individually separated.



Locking separator (chain only)

Unassembled	Part No. 404
Assembled	Part No. 414

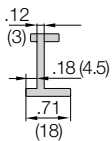
- **Locking separator 404 for e-chains®**
This separator features increased retention force for applications exposed to very high humidity and extreme loads. The extra retention force is achieved by asymmetric claws for the crossbar. Take care to ensure proper alignment.



Locking separator (tube only)

Unassembled	Part No. 406
Assembled	Part No. 416

- **Locking separator 406 for e-tubes**
It features a single sided, secure fit, and can be placed on the lid or the bottom of the e-tube. The single side locking design helps to eliminate difficulties in assembling the opposite cover or crossbar



Asymmetrical separator (chain only)

Unassembled	Part No. 401A
Assembled	Part No. 411A

- **Asymmetrical separator 401A for e-chains®**
This separator features an .71" (18mm) base. It can be used in combinations between spacers of different widths and vertical separators in side mounted applications.



Spacer (chain only)

Unassembled	Part No. 405-XX
Assembled	Part No. 415-XX

XX = width of the spacer

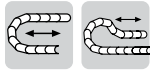
- **NOTE ON SPACERS**
Vertical separators are adjustable, but can be fixed in position by means of a spacer. Spacers are most often necessary for side mounted applications.
The available inner height is reduced by .08" (2mm) **per spacer** (for example if one spacer is placed on either side of the separator, the overall inner height is reduced by .16" (4mm). To avoid this, place the spacers on the **outside** of the opening crossbar (**not for long travels**).

Spacers available in the following sizes:

Part No. Unassembled	Part No. Assembled	in.	(mm)	Part No. Unassembled	Part No. Assembled	in.	(mm)
405 -10	415 -10	.39"	(10)	405 -30	415 -30	1.18"	(30)
405 -15	415 -15	.59"	(15)	405 -40	415 -40	1.57"	(40)
405 -20	415 -20	.79"	(20)				

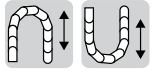
PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains





Option 1: pivoting
Standard

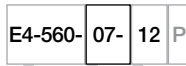
- Recommended for unsupported and gliding applications
- Attachment capability on all sides
- Bolted connection outside of chain cross-section
- Space restricted conditions
- Corrosion resistant



Option 2: locking

- Profile rail option
- Universal use
- Corrosion resistant
- Vertical hanging/standing travels
- Extreme accelerations

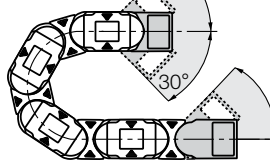
Part Number Structure



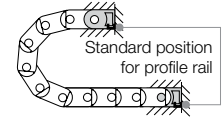
- With Profile Rail
- Complete Set
- Width
- E4-560 = Pivoting
- E4-561 = Locking

Due to the design of the E4-56 series chains, please note the following when ordering brackets:
Even number of links = full set, part number ending in -12
Odd number of links = 2 pieces, part number ending in -1

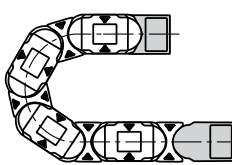
Moving end
E4-560...1



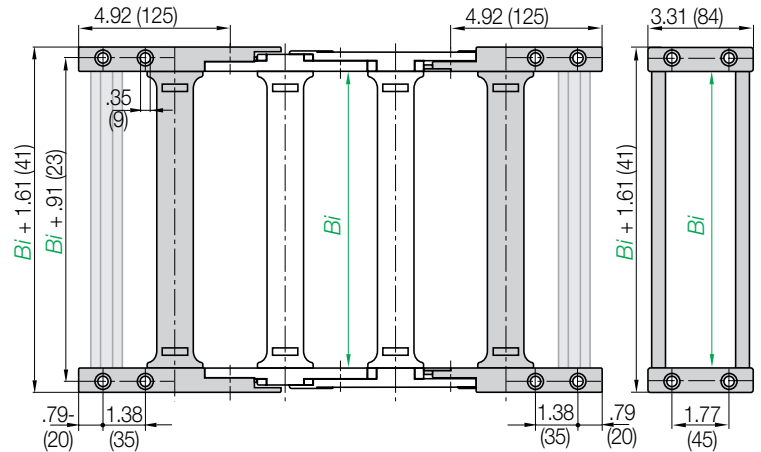
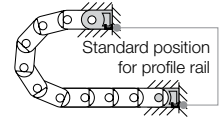
Fixed end
E4-560...2



Moving end
E4-561...1



Fixed end
E4-561...2



Part No. Full Set (pivoting)
Series E4-56 or H4-56
E4-560-Width-12

Part No. Full Set (pivoting)
with profile rail
Series E4-56 or H4-56
E4-560-Width-12P

Part number examples are shown for pivoting brackets for e-chain. For locking brackets change part number to 561

idth	Part No. Full Set chain		With Profile Rail	Bi in. (mm)
	Pivoting	Locking		
-05*	E4-560	E4-561	-05-12 P	1.97 (50)
-055	E4-560	E4-561	-055-12 P	2.17 (55)
-06	E4-560	E4-561	-06-12 P	2.56 (65)
-07	E4-560	E4-561	-07-12 P	2.95 (75)
-08	E4-560	E4-561	-08-12 P	3.43 (87)
-10	E4-560	E4-561	-10-12 P	3.94 (100)
-11	E4-560	E4-561	-11-12 P	4.41 (112)
-12	E4-560	E4-561	-12-12 P	4.92 (125)
-13	E4-560	E4-561	-13-12 P	5.39 (137)
-15	E4-560	E4-561	-15-12 P	5.91 (150)
-16	E4-560	E4-561	-16-12 P	6.38 (162)
-169	E4-560	E4-561	-169-12 P	6.65 (169)
-17	E4-560	E4-561	-17-12 P	6.89 (175)
-182	E4-560	E4-561	-182-12 P	7.17 (182)
-18	E4-560	E4-561	-18-12 P	7.36 (187)
-20	E4-560	E4-561	-20-12 P	7.87 (200)
-207	E4-560	E4-561	-207-12 P	8.15 (207)
-21	E4-560	E4-561	-21-12 P	8.35 (212)
-22	E4-560	E4-561	-22-12 P	8.86 (225)
-23	E4-560	E4-561	-23-12 P	9.33 (237)
-25	E4-560	E4-561	-25-12 P	9.84 (250)
-26	E4-560	E4-561	-26-12 P	10.31 (262)
-27	E4-560	E4-561	-27-12 P	10.83 (275)

Width	Part No. Full Set chain		With Profile Rail	Bi in. (mm)
	Pivoting	Locking		
-28	E4-560	E4-561	-28-12 P	11.30 (287)
-30	E4-560	E4-561	-30-12 P	11.81 (300)
-31	E4-560	E4-561	-31-12 P	12.28 (312)
-32	E4-560	E4-561	-32-12 P	12.79 (325)
-33	E4-560	E4-561	-33-12 P	13.27 (337)
-35	E4-560	E4-561	-35-12 P	13.78 (350)
-36	E4-560	E4-561	-36-12 P	14.25 (362)
-37	E4-560	E4-561	-37-12 P	14.76 (375)
-38	E4-560	E4-561	-38-12 P	15.24 (387)
-40	E4-560	E4-561	-40-12 P	15.75 (400)
-41	E4-560	E4-561	-41-12 P	16.22 (412)
-42	E4-560	E4-561	-42-12 P	16.73 (425)
-43	E4-560	E4-561	-43-12 P	17.20 (437)
-45	E4-560	E4-561	-45-12 P	17.72 (450)
-46	E4-560	E4-561	-46-12 P	18.19 (462)
-47	E4-560	E4-561	-47-12 P	18.70 (475)
-48	E4-560	E4-561	-48-12 P	19.17 (487)
-50	E4-560	E4-561	-50-12 P	19.69 (500)
-51	E4-560	E4-561	-51-12 P	20.16 (512)
-52	E4-560	E4-561	-52-12 P	20.67 (525)
-53	E4-560	E4-561	-53-12 P	21.14 (537)
-55	E4-560	E4-561	-55-12 P	21.65 (550)
-60	E4-560	E4-561	-60-12 P	23.62 (600)

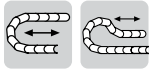
e-chain system® E4-1

Series E4-56/H4-56/R4-56

Mounting Brackets



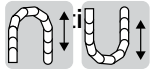
E4-56
H4-56
R4-56



Option 1: pivoting



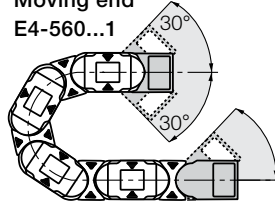
- Recommended for unsupported and gliding applications
- Attachment capability on all sides
- Bolted connection outside of chain cross-section
- Space restricted conditions
- Corrosion resistant



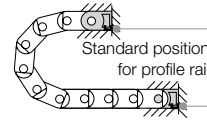
locking

- Profile rail option
- Universal use
- Corrosion resistant
- Vertical hanging/standing travels
- Extreme accelerations

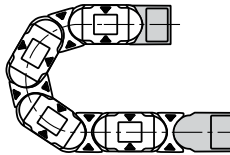
Moving end
E4-560...1



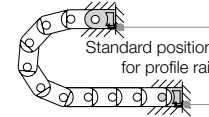
Fixed end
E4-560...2



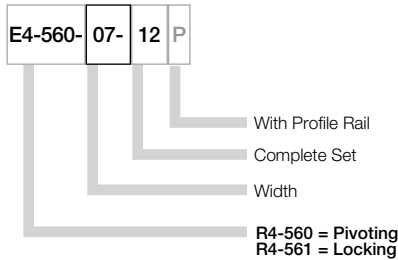
Moving end
E4-561...1



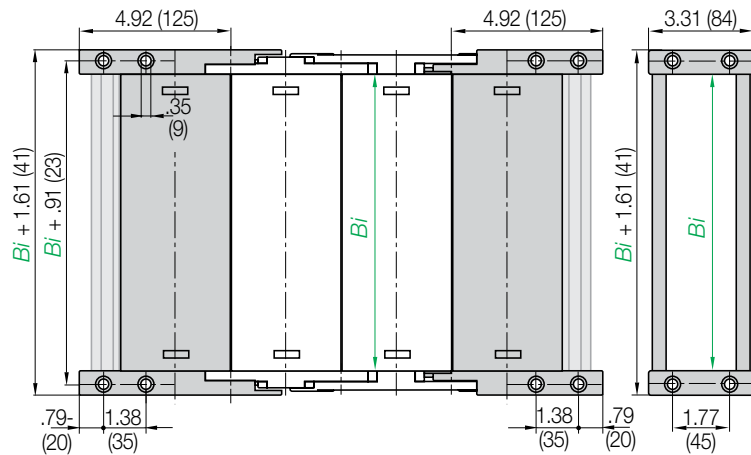
Fixed end
E4-561...2



Part Number Structure



Due to the design of the E4-56 series chains, please note the following when ordering brackets:
Even number of links = full set, part number ending in -12
Odd number of links = 2 pieces, part number ending in -1



Part No. Full Set (pivoting)

Tube Series R4-56

R4-560-Width-12

Part No. Full Set (pivoting)

with Profile Rail

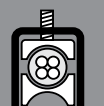
Tube Series R4-56

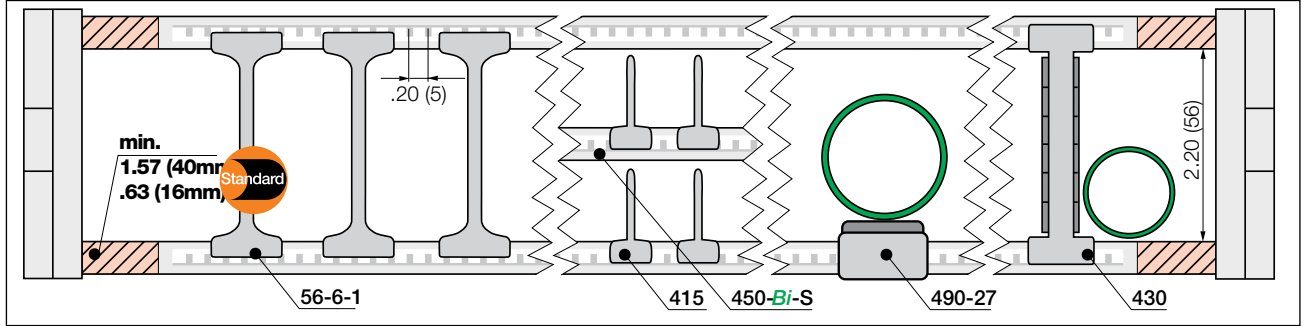
R4-560-Width-12P

Part number examples are shown for pivoting brackets for e-chain. For locking brackets change part number to 561

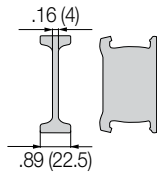
Width	Part No. Full Set tube		With Profile Rail	Bi in. (mm)	Part No. Full Set tube		With Profile Rail	Bi in. (mm)			
	Pivoting	Locking			Pivoting	Locking					
-07	R4-560	R4-561	-07-12		2.95 (75)	-25	ER4-560	R4-561	-25-12		9.84 (250)
-10	R4-560	R4-561	-10-12		3.94 (100)	-27	R4-560	R4-561	-27-12		10.83 (275)
-12	R4-560	R4-561	-12-12		4.92 (125)	-30	R4-560	R4-561	-30-12		11.81 (300)
-15	R4-560	R4-561	-15-12		5.91 (150)	-35	R4-560	R4-561	-35-12		13.78 (350)
-17	R4-560	R4-561	-17-12		6.89 (175)	-40	R4-560	R4-561	-40-12		15.75 (400)
-20	R4-560	R4-561	-20-12		7.87 (200)	-46	R4-560	ER4-561	-46-12		18.19 (462)

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains





Note Please maintain a lateral spacing of 1.57" (40 mm) for e-tube and .63" (16 mm) for e-chains® between the separators and the side links. In the standard configuration separators are assembled every 2nd e-chain® link

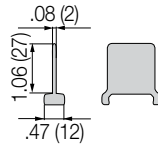


Notch locking separator

Unassembled	Part No. 56-6
Assembled	Part No. 56-6-1

● **Notch locking separator for increased holding force**

Notch locking separators offer higher crossbar opening forces for high humidity and/or large hydraulic hoses. They can be positioned precisely and then locked in position.

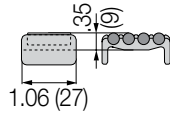


Partial height separator

Unassembled	Part No. 405
Assembled	Part No. 415

● **Partial height separator***

In conjunction with an additional opening crossbar, **part no. 450-Bi-S**, it provides the option to separate the upper and lower halves of the e-chain® independently of each other.

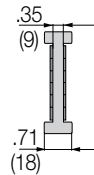


Rollclip* for e-chains®

Unassembled	Part No. 489-27
Assembled	Part No. 490-27

● **Rollclip***

Minimizes abrasion of sensitive hoses. Simply clamps onto the opening crossbar. The movable rollers compensate for relative movement between the e-chain® and hose.



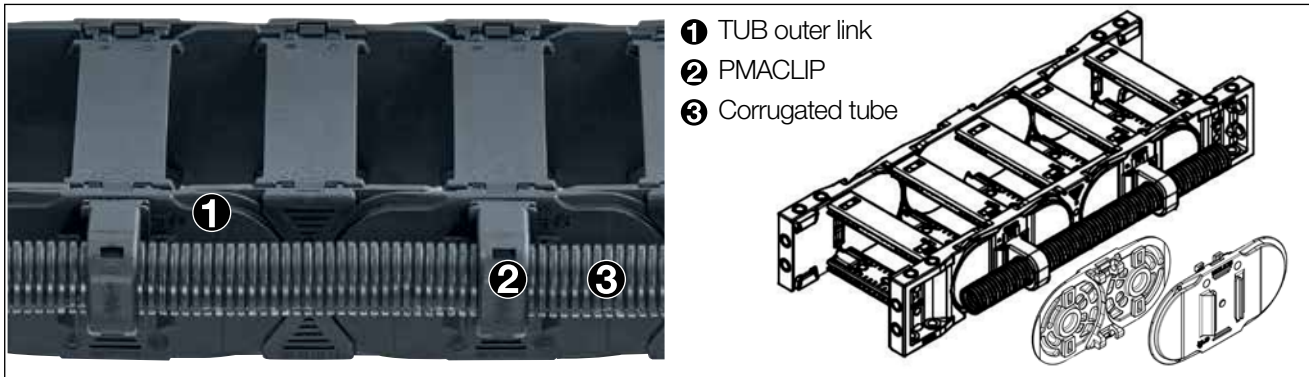
Roller separator for e-chains®

Unassembled	Part No. 429
Assembled	Part No. 430

● **Roller separator***

The roller separator is used in a similar way to the rollclip. It is used like a separator. For rigid cables and hoses.

*Only for e-chains®



TUB | Safe guidance for corrugated tubes parallel to the e-chain®

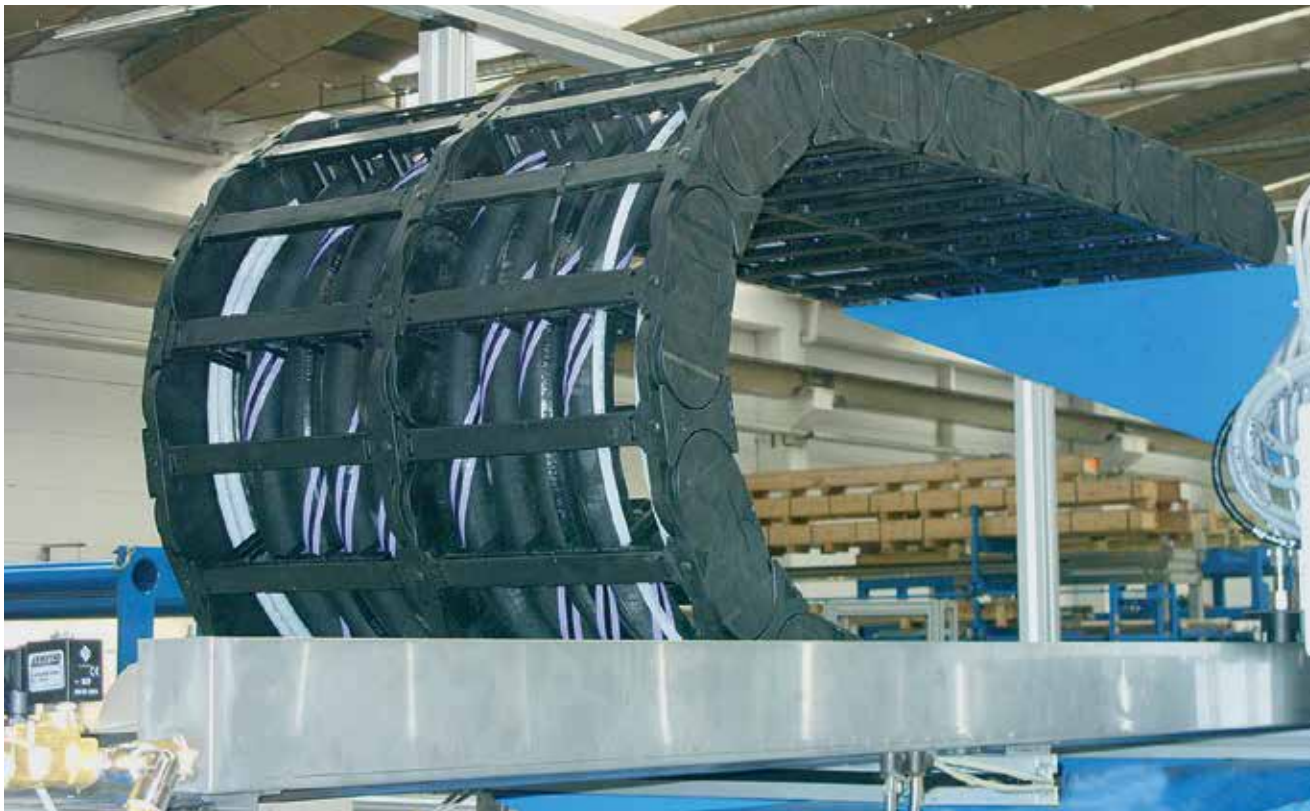
- Additional, simple guidance for corrugated tubes on the outside of the e-chain®
- PMACLIP allows corrugated tubes with nominal widths .28 (07mm), .39 (10mm), .47 (12mm), .67 (17mm) to be easily clipped on
- Easy access to the corrugated tubes, fast replacement of the hoses
- Reduce assembly time and cost - easy to assemble, without any additional screws or tools
- The part number includes the e-chain® with TUB side sections; the PMACLIP support and the hose are ordered separately

Part No. TUB	Part No. TUB	Part No. TUB	For corrugated tube nominal diameter
Outer link right*	Outer link left*	Outer link at both ends*	Ø [mm]
E4-56-XXXTUBR-R-0	E4-56-XXXTUBL-L-R-0	E4-56-XXXTUB-R-0	.28 (07), .39 (10), .47 (12), .67 (17)

*View from the fixed end

Part number appended with width index **XXX Bi** and radius (**R**) e.g.

E4-56-100TUBR-150-0 = with TUB outer sections every 2nd right hand link



E4-1 as a noise-optimized version with extension links. Unsupported application with high fill weight. Assembled with rigid hydraulic hoses. The max. noise level can be reduced up to 9dB(A) using the optional rubber dampers





Extension links - for extremely wide e-chains® up to 9.84 ft (3m)

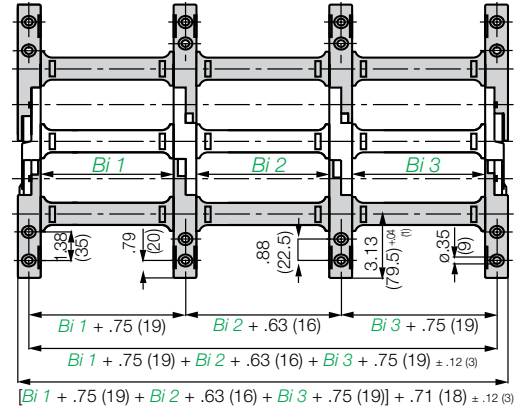
- For applications in which particularly high fill weights necessitate extremely wide e-chains®
- The extension link design allows virtually limitless side-by-side attachment of chains
- The unsupported length of a chain can be increased when additional loads are required
- Extension links can be used with e-chains®, e-tubes or a combination of both
- They are suitable for unsupported and gliding applications in a guide trough
- e-chains® with extension links are attached with KMA or steel mounting brackets.

Part number example for e-chain®

E4-56-10/20/10- 200 -0

E4-56-*Bi1/Bi2/Bi3*- R -0

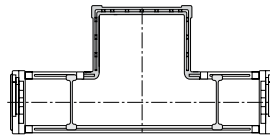
We strongly recommend on-site consultation with an igus® technician for individual advice regarding mounting brackets, guide troughs and other design details.



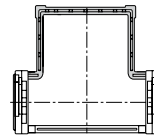
Consult igus® for your extender crossbar applications. We will be happy to assist you with your design layout.

Extender crossbars - For careful guiding of large diameter cables and hoses

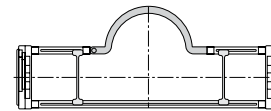
- Intended for cables and hoses with a maximum outer diameter of 9.65 in. (245 mm).
- Can be attached along either the inner or outer radius, inner radius preferred
- Gliding operation with crossbars assembled along the outer radius in conjunction with a special guide trough
- Gliding operation not guaranteed with crossbars assembled along the inner radius
- The extender crossbar can either be attached to the side links directly or can be used in combination with two standard snap-open crossbars.



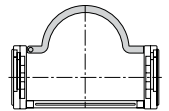
Square extender crossbar combined with standard snap-open crossbars.



Attached directly to the side link.



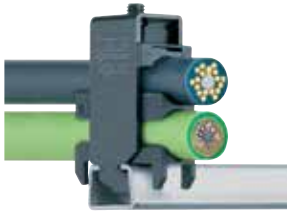
Round extender crossbar combined with standard snap-open crossbars.



Attached directly to the side link.

Part No.	Max Ø Hose	Style	Installation Side Link	Combined with Snap-Open Crossbars
450-15-RHD115	4.52 (115)	Round	No	Yes
450-17-RD115	4.52 (115)	Round	Yes	No
450-25-D150	5.91 (150)	Square	Yes	No
450-30-D200	7.09 (180)	Square	Yes	No
450-35-D250	7.68 (195)	Square	Yes	No
450-40-D300	9.65 (245)	Square	Yes	No
450-20-HD150	5.91 (150)	Square	No	Yes
450-25-HD200	7.09 (180)	Square	No	Yes
450-30-HD250	7.68 (195)	Square	No	Yes

Chainfix clamps for the profile rail



For more information please refer to strain relief section of Chapter 10.

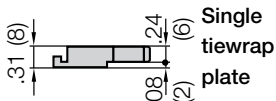
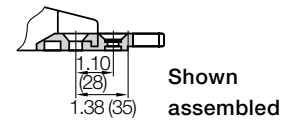
igus® Chainfix strain relief elements are available in either steel or stainless steel. They can be adjusted with a hexagon socket and are available in single, double and triple configurations.

Part No. Single Clamp		Part No. Double Clamp		Part No. Triple Clamp		Cable ø	
Steel	Stainless	Steel	Stainless	Steel	Stainless	in.	(mm)
CFX12-1	CFX12-1E	CFX12-2	CFX12-2E	CFX12-3	-	.24 - .47	(6 - 12)
CFX14-1	CFX14-1E	CFX14-2	CFX14-2E	CFX14-3	-	.47 - .55	(12 - 14)
CFX16-1	CFX16-1E	CFX16-2	CFX16-2E	CFX16-3	-	.55 - .63	(14 - 16)
CFX18-1	CFX18-1E	CFX18-2	CFX18-2E	CFX18-3	-	.63 - .71	(16 - 18)
CFX20-1	CFX20-1E	CFX20-2	CFX20-2E	CFX20-3	-	.71 - .79	(18 - 20)
CFX22-1	CFX22-1E	CFX22-2	CFX22-2E	CFX22-3	-	.79 - .87	(20 - 22)
CFX26-1	CFX26-1E	CFX26-2	CFX26-2E	-	-	.87 - 1.02	(22 - 26)
CFX30-1	CFX30-1E	CFX30-2	CFX30-2E	-	-	1.02 - 1.18	(26 - 30)
CFX34-1	CFX34-1E	CFX34-2	CFX34-2E	-	-	1.18 - 1.34	(30 - 34)
CFX38-1	CFX38-1E	-	-	-	-	1.34 - 1.50	(34 - 38)
CFX42-1	CFX42-1E	-	-	-	-	1.50 - 1.65	(38 - 42)

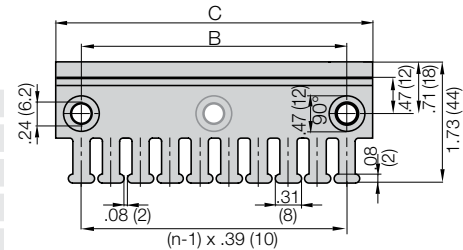
Tiewrap Plates

**Option 1:
Tiewrap plates as an individual part**

Available as an individual component, can be fixed onto a mounting bracket with the use of a profile rail.



Tiewrap Plate	n Number of Teeth	C Overall Width in. (mm)	B Bore Width in. (mm)	Center Bore
3050-ZB	5	1.97 (50)	1.18 (30)	no
3075-ZB	7	2.95 (75)	2.16 (55)	no
3100-ZB	10	3.94 (100)	3.15 (80)	no
3115-ZB	11	4.53 (115)	3.74 (95)	no
3125-ZB	12	4.92 (125)	4.13 (105)	no
3150-ZB	15	5.91 (150)	5.12 (130)	no
3175-ZB	17	6.89 (175)	6.10 (155)	no
3200-ZB	20	7.87 (200)	7.09 (180)	yes
3225-ZB	22	8.86 (225)	8.07 (205)	yes
3250-ZB	25	9.84 (250)	9.06 (230)	yes



If used with KMA brackets with profile rail please add "KMA" to the end of the part number.

Example: 3050-ZBKMA

For more information please refer to strain relief section of Chapter 10

**Option 2:
Clip-on Tiewrap plates**

Available as a clip-on tiewrap plate without the use of bolts They are inserted and removed with a screwdriver used as a lever. Clip-on tiewrap plates are also available as an attachment to the opening crossbars.



Part No.	Number of Teeth	Width of Strain Relief in. (mm)
3050-ZC	5	1.97 (50)
3075-ZC	7	2.95 (75)

For more information please refer to strain relief section of Chapter 10.

**Option 3:
Clip-on Tiewrap plates for opening crossbars**

Clip-on tiewrap plates are also available as an attachment to opening crossbars. They can be positioned at any point along the e-chain®.



Part No.	Number of Teeth	Width of Strain Relief in. (mm)
4550-ZS	5	1.89 (48)
4575-ZS	7	2.91 (74)

For more information please refer to strain relief section of Chapter 10



Width of Crossbar
E4-56-05-200-0

	B_{Ri}	
-05	3.50 (89)	*
-06	4.09 (104)	94-50-225
-07	4.49 (114)	94-50-225
-08	5.04 (128)	94-50-250
-10	5.47 (139)	94-50-250
-11	5.98 (152)	94-50-275
-12	6.46 (164)	94-50-275
-13	6.97 (177)	94-50-300
-15	7.44 (189)	94-50-300
-16	7.95 (202)	94-50-325
-17	8.42 (214)	94-50-325
-18	8.94 (227)	94-50-350
-20	9.41 (239)	94-50-350
-21	9.92 (252)	94-50-375
-22	10.39 (264)	94-50-375
-23	10.91 (277)	94-50-400
-25	11.38 (289)	94-50-400
-26	11.89 (302)	94-50-425
-27	12.36 (314)	94-50-425
-28	12.87 (327)	94-50-450
-30	13.35 (339)	94-50-450
-31	13.86 (352)	94-50-475
-32	14.33 (364)	94-50-475
-33	14.84 (377)	94-50-500
-35	15.31 (389)	94-50-500
-36	15.82 (402)	94-50-525
-37	16.30 (414)	94-50-525
-38	16.81 (427)	94-50-550
-40	17.28 (439)	94-50-550
-41	17.79 (452)	94-50-575
-42	18.27 (464)	94-50-575
-43	18.78 (477)	94-50-600
-45	19.25 (489)	94-50-600
-46	19.76 (502)	94-50-625
-47	20.24 (514)	94-50-625
-48	20.75 (527)	94-50-650
-50	21.22 (539)	94-50-650
-51	21.73 (552)	94-50-675
-52	22.20 (564)	94-50-675
-53	22.72 (577)	94-50-700
-55	23.19 (589)	94-50-700
-60	25.16 (639)	94-50-750

Installation
Part No.

Guide troughs are used with applications where the upper run of the e-chain® glides on the lower run. If using igus® steel guide troughs, the following components are required.

- Full travel length of guide trough
Part No. 94-30
- 1/2 travel length glide bars
Part No. 93-01
- Installation sets as end connectors
Part No. 94-50-XX

.XX indicates the length of the profile rails on which the guide trough is mounted. The values and part numbers are specified in the table on the left. The standard length of the trough components and glide bars is 6.56 ft (2m). The required overall length of the guide trough directly correlates to the length of travel.

Example:

Length of travel 164 ft (50 m)
Center mounted

Required guide troughs:

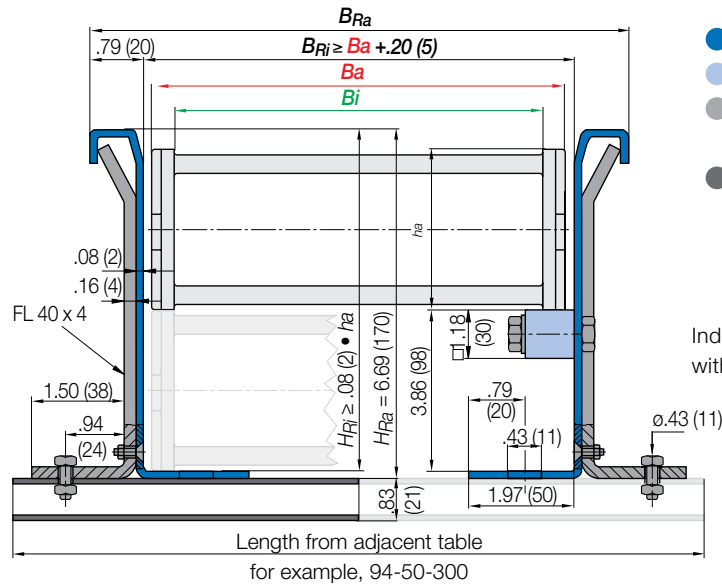
164 ft (50 m) guide trough
82 ft (25 m) glide bars
= 25 sections of 6.56 ft (2 m) guide trough
Part No. 94-30
= 13 sections of 6.56 ft (2 m) glide bars
Part No. 93-01

Required number of installation sets:

= Number of guide trough components + 1
= 25 + 1 = 26
Part number of the installation sets
94-50-XXX

Example:

94-50-400 for 15.75 (400 mm) long profile rail



Individual attachment without profile rail

* Specialized guide trough available upon request

Standard length profile rail



Left: Guide trough with glide bars
Right: Guide troughs without glide bars



Installation sets as section connectors

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains



E4-80
H4-80
R4-80



e-chain system® E4-1

Series E4-80/H4-80/R4-80

Price Index



Series E4-80



Series H4-80



Series R4-80

Special Options Available



Low noise version available with special rubber pads



Cleanroom test upon request



ESD classification: Electrically conductive ESD/ATEX version upon request

Assembly Tips



Opening e-chains®: Remove crossbars and clips - Insert screwdriver into the slot, push down, release by lever action



Remove lids/bottoms (e-tubes) - Insert screwdriver into the slot, release by lever action

Other Installation Methods

Vertical, hanging ≤ 394 ft (120 m)

Vertical, standing ≤ 19.69 ft (6 m)

Side-mounted, un supp. ≤ 9.84 ft (3 m)

Rotary requires further calculation

Usage Guidelines



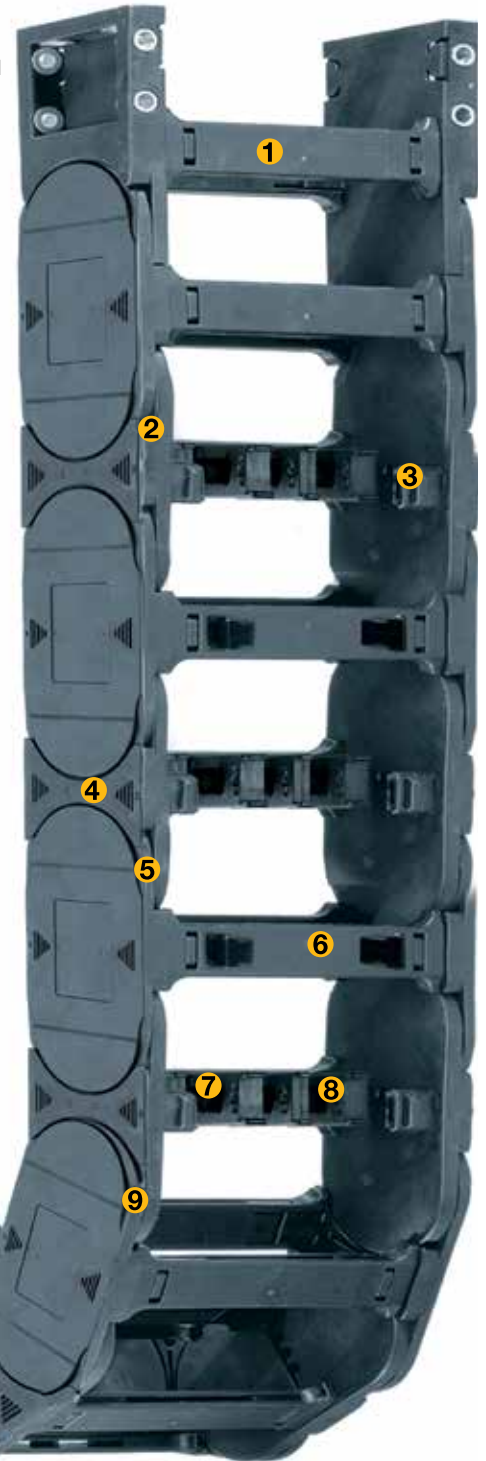
- If quiet operation is required
- If very high speeds and/or accelerations are required
- Long travels
- High additional loads



- When an extremely low vibration e-chain®/e-tube is required
➤ Series E6-80
- When an economic one-sided snap-open e-chain®/e-tube is required
➤ Series 15050/15150/R19850

Features & Benefits

- 1 Wide, rounded plastic crossbars - cable friendly
- 2 Low-noise operation through integrated brake in the radial stop dog system
- 3 Hinged snap-open removable lids along the outer radius of the e-tube
- 4 Straight run through inner-/outer-link design
- 5 The tongue and groove design provides greater lateral stability
- 6 QuickLock Crossbar, 450-X-Q, available for faster assembly/disassembly
- 7 New Interior separation kit available
- 8 Crossbars are removable along both radii
- 9 15% more tensile strength (compared to the older E4 series), better unsupported length through improved stop dog system and vertical radial stops
- 10 Version NCST "without camber" simply by turning outer links without unnecessary rework

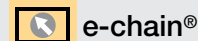


Also available without camber. Add NCST to the end of the part number.
Ex: E4-80-30-300NCST

Order Example: Complete e-chain®

Please indicate chain length or number of links. Example:

16.4 ft (5 m) **E4-80-30-300-0**



e-chain®

With 2 separators **80.1.1** assembled every 2nd link



Interior Separation

1 Set **E4-800-30-12P**



Mounting Bracket

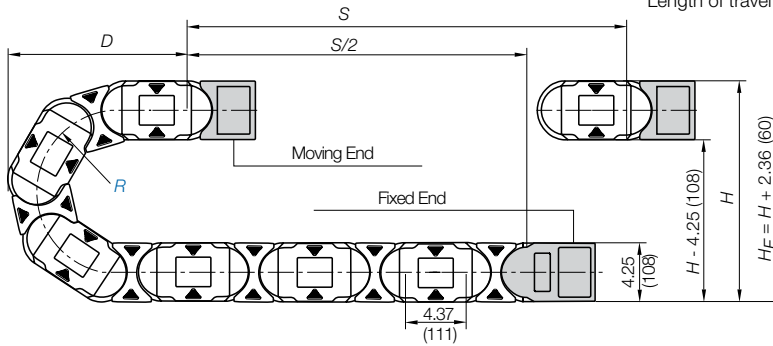
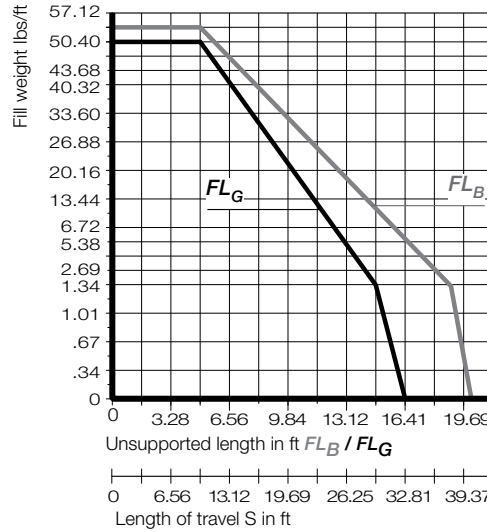
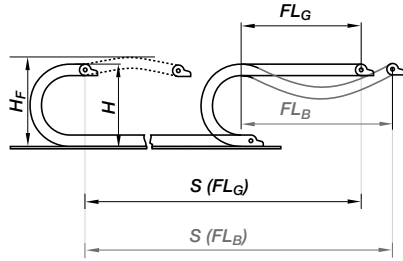
e-chain system® E4-1

Series E4-80/H4-80/R4-80

Installation Dimensions

Short travel, unsupported length

- FL_B = unsupported with permitted sag
 - FL_G = unsupported with straight upper run
- Further information ► Design, Chapter 1



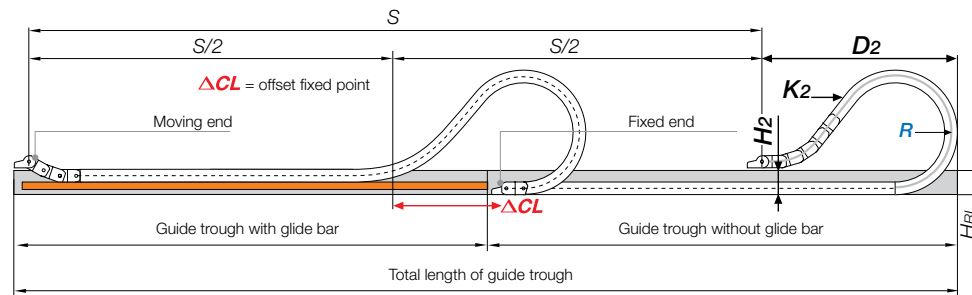
Pitch per link = 4.37" (111 mm)
 Links per ft (m) = 2.75 (9)
 For center mount applications:
 Chain length = $\frac{S}{2} + K$

The required clearance height: $H_F = H + 2.36$ in. (60 mm) (with 2.02 lbs/ft (3 kg/m) fill weight). Please consult igus® if space is particularly restricted.

R	5.91 (150)	7.87 (200)	9.84 (250)	11.81 (300)	13.78 (350)	15.75 (400)	19.68 (500)	21.65 (550)	23.62 (600)	39.37 (1000)
H_{+25}^0	16.06 (408)	20.00 (508)	23.94 (608)	27.87 (708)	31.81 (808)	35.75 (908)	43.62 (1108)	47.56 (1208)	51.50 (1308)	82.99 (2108)
D	14.61 (371)	16.57 (421)	18.54 (471)	20.51 (521)	22.48 (571)	24.45 (621)	28.38 (721)	30.35 (771)	32.32 (821)	48.07 (1221)
K	27.36 (695)	33.66 (855)	39.76 (1010)	45.87 (1165)	52.17 (1325)	58.27 (1480)	70.67 (1795)	76.77 (1950)	83.07 (2110)	132.48 (3365)

For long travels with lowered mounting height

Long travel lengths from 32.8 ft.(10m) to max. 1,312 ft. (400m)



R	5.91 (150)	7.87 (200)	9.84 (250)	11.81 (300)	13.78 (350)	15.75 (400)	19.68 (500)	21.65 (550)	23.62 (600)	39.37 (1000)
H_2	9.53 (242)	9.53 (242)	9.53 (242)	9.53 (242)	9.53 (242)	9.53 (242)	9.53 (242)	-	-	-
D_{+25}	21.65 (550)	31.50 (800)	39.37 (1000)	47.24 (1200)	57.09 (1450)	62.99 (1600)	82.68 (2100)	-	-	-
K_2	35.04 (890)	52.36 (1330)	65.55 (1665)	78.74 (2000)	91.73 (2330)	104.72 (2660)	135.43 (3440)	-	-	-
ΔCL	7.44 (189)	15.61 (389)	21.22 (539)	27.13 (689)	35.00 (889)	38.94 (989)	54.69 (1389)	-	-	-

In case of travels between 13 and 32.8 ft (4 and 10 m) we recommend a longer unsupported length.

For support of the lower run, see Chapter 9 of the main catalog for the Support Tray tool kit



E4-80
H4-80
R4-80

Short Travels - Unsupported

Unsupported e-chains® feature positive camber over short travels. This must be accounted for when specifying the clearance height. Please refer to **Installation dimensions** for further details.

Legend

- S = Length of travel
 - R = Bending radius
 - H = Nominal clearance height
 - D = Overlength e-chain® radius in final position
 - $K = \pi \cdot R + \text{safety buffer}$
 - H_F = Required clearance height
 - H_{Fri} = Trough inner height
 - H_2 = *Mounting height
 - D_2 = Overlength - long travels, gliding
 - K_2 = *Add-on
- *If the mounting bracket location is set lower



PDF: igus.com/e-chain-pdfs
 Product information: igus.com/e-chains

Long Travels - Gliding



If the unsupported length is exceeded, the e-chain® Tube must glide on itself. This requires a guide trough.

Design, Chapter 1

Technical Data

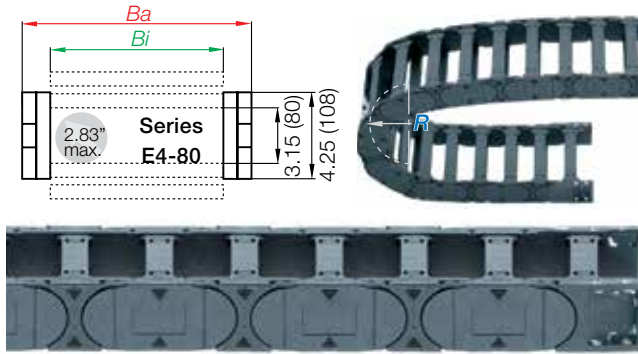
Speed / acceleration FL_G	max. 65.6 ft/s (20 m/s) / max. 656 ft/s ² (200 m/s ²)
Speed / acceleration FL_B	max. 9.84 ft/s (3 m/s) / max. 19.69 ft/s ² (6 m/s ²)
Gliding speed / acceleration (maximum)	max. 32.8 ft/s (10 m/s) / max. 164 ft/s ² (50 m/s ²)
Material - permitted temperature	igumid G / -40°F (-40°C) up to +248°F (+120°C)
Flammability Class, igumid G	VDE 0304 IIC UL94 HB



Details of material properties
 ► Chapter 1

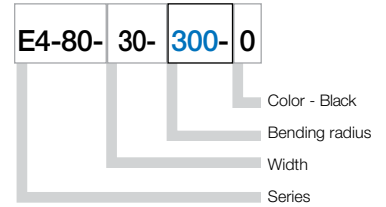


Series E4-80 - e-chain® with crossbars every link

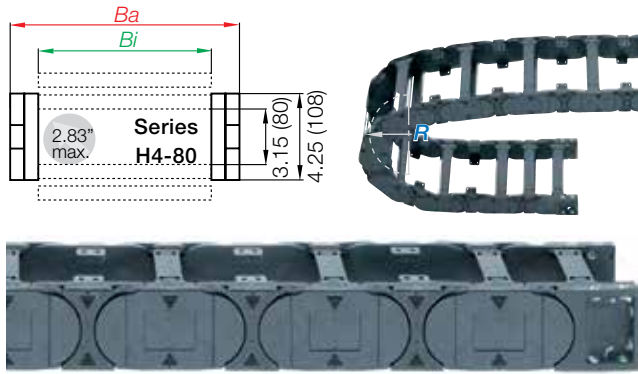


- Crossbars every link
- For use with rigid hydraulic hoses
- For particularly demanding applications
- Can be opened from both sides

Part Number Structure

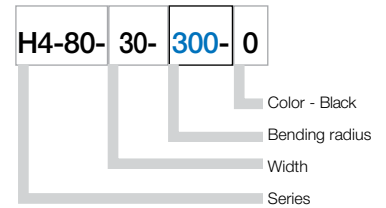


Series H4-80 - e-chain® with crossbars every other link

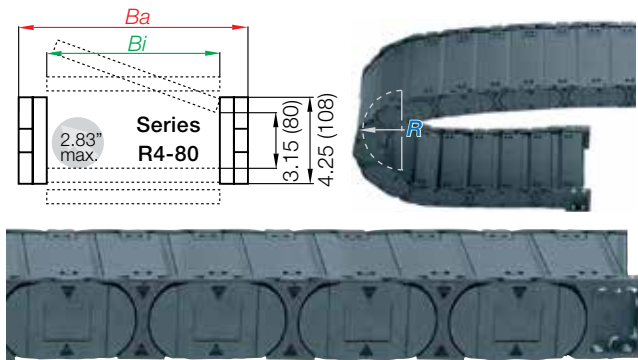


- Crossbars every other link - Standard configuration
- For nearly every situation
- Can be opened from both sides
- Easy assembly
- Stable
- Cost-effective

Part Number Structure

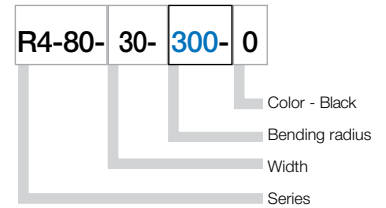


Series R4-80 - fully enclosed e-tube

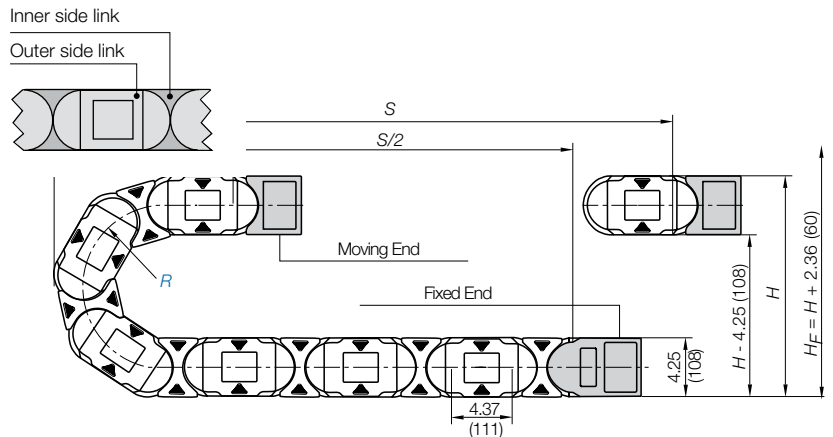
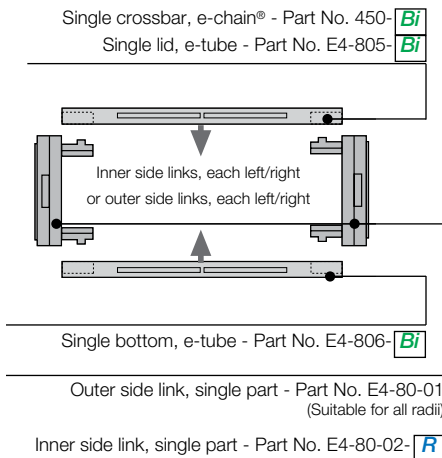


- Fully enclosed
- Excellent cable and hose protection against dirt
- Protection against hot chips
- Lids along inner radius are completely removable
- Lids along the outer radius are single-sided, snap open, hinged on one side as well as completely removable

Part Number Structure



e-chain® as separate parts, links and side plates



e-chain system® E4-1

Series E4-80/H4-80/R4-80



E4-80
H4-80
R4-80

Supplement part number with required radius. Example: E4-80-30-300-0

Pitch: 4.37 in. (91mm) per link links/ft (m) = 2.75 (9)

Part Number				Weight				
Crossbars	Crossbars	Tube		<i>Bi</i>	<i>Ba</i>	E4-80	H4-80	R4-80
Every link	Every other	Version		in. (mm)	in. (mm)	lbs/ft (kg/m)	lbs/ft (kg/m)	lbs/ft (kg/m)
E4-80-05-	H4-80-05-		<input type="checkbox"/> -0	1.97 (50)	3.94 (100)	≈ 3.59 (5.34)	≈ 3.51 (5.22)	-
E4-80-055-	H4-80-055-		<input type="checkbox"/> -0	2.17 (55)	4.13 (105)	≈ (5.77)	≈ (5.74)	-
E4-80-06-	H4-80-06-		<input type="checkbox"/> -0	2.56 (65)	4.53 (115)	≈ 3.64 (5.41)	≈ 3.53 (5.26)	-
E4-80-07-	H4-80-07-	R4-80-07-	<input type="checkbox"/> -0	2.95 (75)	4.92 (125)	≈ 3.68 (5.47)	≈ 3.55 (5.29)	-
E4-80-08-	H4-80-08-		<input type="checkbox"/> -0	3.43 (87)	5.39 (137)	≈ 3.74 (5.56)	≈ 3.57 (5.32)	-
E4-80-10-	H4-80-10-	R4-80-10-	<input type="checkbox"/> -0	3.94 (100)	5.91 (150)	≈ 3.77 (5.61)	≈ 3.60 (5.36)	≈ 4.50 (6.70)
E4-80-11-	H4-80-11-		<input type="checkbox"/> -0	4.41 (112)	6.42 (163)	≈ 3.84 (5.71)	≈ 3.63 (5.40)	-
E4-80-12-	H4-80-12-	R4-80-12-	<input type="checkbox"/> -0	4.92 (125)	6.89 (175)	≈ 3.88 (5.77)	≈ 3.66 (5.44)	-
E4-80-13-	H4-80-13-		<input type="checkbox"/> -0	5.39 (137)	7.40 (188)	≈ 3.95 (5.88)	≈ 3.69 (5.49)	-
E4-80-15-	H4-80-15-	R4-80-15-	<input type="checkbox"/> -0	5.91 (150)	7.87 (200)	≈ 3.97 (5.91)	≈ 3.70 (5.51)	≈ 6.86 (4.52)
E4-80-16-	H4-80-16-		<input type="checkbox"/> -0	6.38 (162)	8.39 (213)	≈ 4.03 (6.00)	≈ 3.73 (5.55)	-
E4-80-169	H4-80-169-		<input type="checkbox"/> -0	6.65 (169)	8.66 (220)	≈ 4.34 (6.46)	≈ 4.09 (6.08)	-
E4-80-17-	H4-80-17-	R4-80-17-	<input type="checkbox"/> -0	6.89 (175)	8.86 (225)	≈ 2.76 (6.11)	≈ 3.77 (5.61)	-
E4-80-182	H4-80-182-		<input type="checkbox"/> -0	7.17 (182)	9.17 (233)	≈ 4.39 (6.54)	≈ 4.11 (6.12)	-
E4-80-18-	H4-80-18-		<input type="checkbox"/> -0	7.36 (187)	9.37 (238)	≈ 4.17 (6.20)	≈ 3.80 (5.65)	-
E4-80-20-	H4-80-20-	R4-80-20-	<input type="checkbox"/> -0	7.87 (200)	9.84 (250)	≈ 4.20 (6.25)	≈ 3.82 (5.68)	≈ 6.86 (7.23)
E4-80-207-	H4-80-207-		<input type="checkbox"/> -0	8.15 (207)	10.16 (258)	≈ 4.49 (6.68)	≈ 4.17 (6.20)	-
E4-80-21-	H4-80-21-		<input type="checkbox"/> -0	8.35 (212)	10.35 (263)	≈ 4.23 (6.31)	≈ 3.84 (5.71)	-
E4-80-22-	H4-80-22-		<input type="checkbox"/> -0	8.86 (225)	10.83 (275)	≈ 4.27 (6.36)	≈ 3.85 (5.73)	-
E4-80-23-	H4-80-23-		<input type="checkbox"/> -0	9.33 (237)	11.34 (288)	≈ 4.33 (6.45)	≈ 3.88(5.78)	-
E4-80-25-	H4-80-25-	R4-80-25-	<input type="checkbox"/> -0	9.84 (250)	11.81 (300)	≈ 4.39 (6.54)	≈ 3.91 (5.82)	≈ 5.42 (8.06)
E4-80-26-	H4-80-26-		<input type="checkbox"/> -0	10.31 (262)	12.32 (313)	≈ 4.45 (6.62)	≈ 3.94 (5.86)	-
E4-80-27-	H4-80-27-	R4-80-27-	<input type="checkbox"/> -0	10.83 (275)	12.80 (325)	≈ 4.50 (6.70)	≈ 3.96 (5.90)	-
E4-80-28-	H4-80-28-		<input type="checkbox"/> -0	11.30 (287)	13.31 (338)	≈ 4.54 (6.75)	≈ 3.98 (5.93)	-
E4-80-30-	H4-80-30-	R4-80-30-	<input type="checkbox"/> -0	11.81 (300)	13.78 (350)	≈ 4.62 (6.87)	≈ 4.03 (5.99)	≈ 5.87 (8.73)
E4-80-31-	H4-80-31-		<input type="checkbox"/> -0	12.28 (312)	14.29 (363)	≈ 4.64 (6.90)	≈ 4.03 (6.00)	-
E4-80-32-	H4-80-32-		<input type="checkbox"/> -0	12.79 (325)	14.76 (375)	≈ 4.70 (6.99)	≈ 4.07 (6.05)	-
E4-80-33-	H4-80-33-		<input type="checkbox"/> -0	13.27 (337)	15.28 (388)	≈ 4.76 (7.09)	≈ 4.10 (6.10)	-
E4-80-35-	H4-80-35-	R4-80-35-	<input type="checkbox"/> -0	13.78 (350)	15.75 (400)	≈ 4.87 (7.25)	≈ 4.15 (6.18)	≈ 6.36 (9.47)
E4-80-36-	H4-80-36-		<input type="checkbox"/> -0	14.25 (362)	16.26 (413)	≈ 4.82 (7.18)	≈ 2.53 (6.14)	-
E4-80-37-	H4-80-37-		<input type="checkbox"/> -0	14.76 (375)	16.73 (425)	≈ 4.88 (7.26)	≈ 4.15 (6.18)	-
E4-80-38-	H4-80-38-		<input type="checkbox"/> -0	15.24 (387)	17.24 (438)	≈ 4.94 (7.35)	≈ 4.19 (6.23)	-
E4-80-40-	H4-80-40-	R4-80-40-	<input type="checkbox"/> -0	15.75 (400)	17.72 (450)	≈ 5.09 (7.57)	≈ 4.26 (6.34)	≈ 6.86 (10.21)
E4-80-41-	H4-80-41-		<input type="checkbox"/> -0	16.22 (412)	18.23 (463)	≈ 5.05 (7.51)	≈ 4.24 (6.31)	-
E4-80-42-	H4-80-42-		<input type="checkbox"/> -0	16.73 (425)	18.70 (475)	≈ 5.21 (7.75)	≈ 4.32 (6.43)	-
E4-80-43-	H4-80-43-		<input type="checkbox"/> -0	17.20 (437)	19.21 (488)	≈ 5.12 (7.62)	≈ 4.27 (6.36)	-
E4-80-45-	H4-80-45-		<input type="checkbox"/> -0	17.72 (450)	19.69 (500)	≈ 5.30 (7.89)	≈ 4.37 (6.50)	-
E4-80-46-	H4-80-46-	R4-80-46-	<input type="checkbox"/> -0	18.19 (462)	20.20 (513)	≈ 5.27 (7.85)	≈ 4.35 (6.48)	≈ 7.36 (10.96)
E4-80-47-	H4-80-47-		<input type="checkbox"/> -0	18.70 (475)	20.67 (525)	≈ 5.29 (7.88)	≈ 4.36 (6.49)	-
E4-80-48-	H4-80-48-		<input type="checkbox"/> -0	19.17 (487)	21.19 (538)	≈ 5.44 (8.09)	≈ (4.43 6.60)	-
E4-80-50-	H4-80-50-		<input type="checkbox"/> -0	19.69 (500)	21.65 (550)	≈ 5.44 (8.09)	≈ 4.43 (6.60)	-
E4-80-51-	H4-80-51-		<input type="checkbox"/> -0	20.16 (512)	22.16 (563)	≈ 5.49 (8.17)	≈ 4.46 (6.63)	-
E4-80-52-	H4-80-52-		<input type="checkbox"/> -0	20.67 (525)	22.64 (575)	≈ 5.54 (8.24)	≈ 4.48 (6.67)	-
E4-80-53-	H4-80-53-		<input type="checkbox"/> -0	21.14 (537)	23.15 (588)	≈ 5.58 (8.31)	≈ 4.51 (6.71)	-
E4-80-55-	H4-80-55-		<input type="checkbox"/> -0	21.65 (550)	23.62 (600)	≈ 5.82 (8.66)	≈ 4.62 (6.88)	-
E4-80-60-	H4-80-60-		<input type="checkbox"/> -0	23.62 (600)	25.59 (650)	≈ 5.94 (8.84)	≈ 4.68 (6.97)	-

Choose from the radii below for all of the above sizes

Radius (mm) Example: E4-80-30-300-0

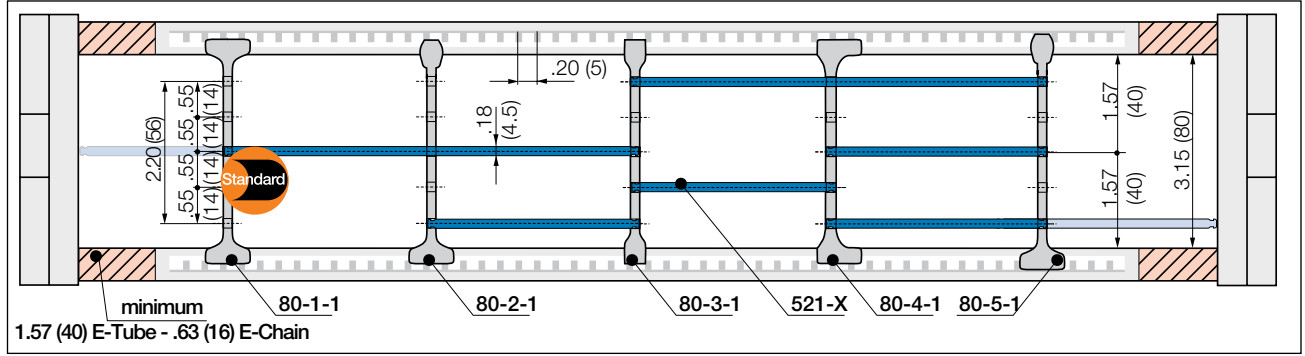
	150	200	250	300	350	400	500	550	600	1000
<i>R</i>	5.91 (150)	7.87 (200)	9.84 (250)	11.81 (300)	13.78 (350)	15.75 (400)	19.68 (500)	21.65 (550)	23.62 (600)	39.37 (1000)
<i>H₊₂₅⁰</i>	16.06 (408)	20.00 (508)	23.94 (608)	27.87 (708)	31.81 (808)	35.75 (908)	43.62 (1108)	47.56 (1208)	51.50 (1308)	82.99 (2108)
<i>D</i>	14.61 (371)	16.57 (421)	18.54 (471)	20.51 (521)	22.48 (571)	24.45 (621)	28.38 (721)	30.35 (771)	32.32 (821)	48.07 (1221)
<i>K</i>	27.36 (695)	33.66 (855)	39.76 (1010)	45.87 (1165)	52.17 (1325)	58.27 (1480)	70.67 (1795)	76.77 (1950)	83.07 (2110)	132.48 (3365)

0 = Standard color black. For other colors see Chapter 1

For wider chains see page 6.85 For large diameter hoses see page 6.85

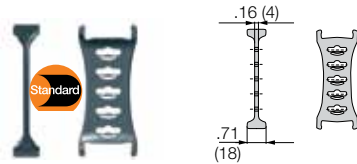
PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains





Note Please maintain a lateral spacing of 1.57" (40 mm) for e-tube and .63" (16 mm) for e-chains® between the separators and the side links. In the standard configuration separators are assembled every 2nd e-chain® link

Telephone 1-800-521-2747

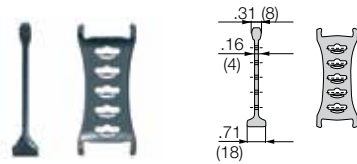


Separator, wide base

Unassembled **Part No. 80-1**

Assembled **Part No. 80-1-1**

- **Standard separator 80-1 for all applications**
Separator with wide base for maximum locking strength and safe standing in e-chains®.

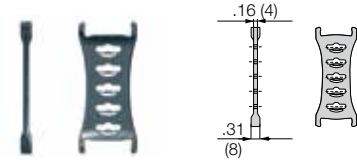


Separator, narrow head

Unassembled **Part No. 80-2**

Assembled **Part No. 80-2-1**

- **Separator 80-2 For even faster installation**
is used when vertical and horizontal separation is required. Due to its slot, it allows basic vertical/horizontal shelving arrangements.

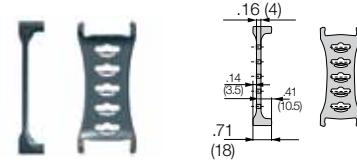


Separator, narrow base

Unassembled **Part No. 80-3**

Assembled **Part No. 80-3-1**

- **Separator 80-3 For many thin cables**
is used when vertical and horizontal separation is required. Due to its slot, it allows basic vertical/horizontal shelving arrangements.

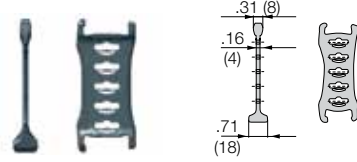


Separator, asymmetrical

Unassembled **Part No. 80-4**

Assembled **Part No. 80-4-1**

- **Separator 80-4 For side mounted applications**
is used when vertical and horizontal separation is required. Due to its slot, it allows basic vertical/horizontal shelving arrangements.



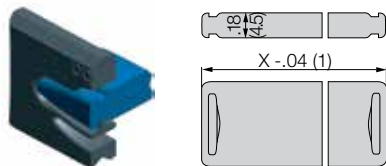
Separator, asymmetrical

Unassembled **Part No. 80-5**

Assembled **Part No. 80-5-1**

- **Separator 80-5 Locks safely in .30" (7.5 mm) increments**
Notch separator for exact positioning in e-chains®. Recommended for side-mounted applications.

Lockable full-width shelves - for the standard interior separation



Full width shelf, lockable

Unassembled **Part No. 520-X**

Assembled **Part No. 521-X**

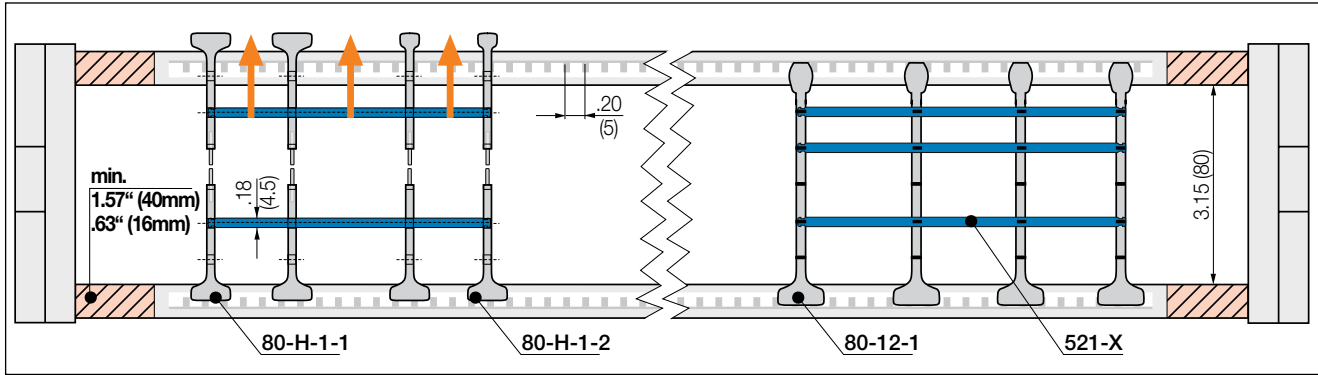
- **Full width shelf, lockable**
Shelf locks safely into separators on both ends, fixed width possible. Separators can be moved freely over the shelf in horizontal direction. Can be arranged at 5 different heights.

Width X in. (mm)	Part No. Unassembled	Part No. Assembled	Width X in. (mm)	Part No. Unassembled	Part No. Assembled	Width X in. (mm)	Part No. Unassembled	Part No. Assembled
1.97 (050)	520-50	521-50	5.91 (150)	520-150	521-150	11.81 (300)	520-300	521-300
2.56 (065)	520-65	521-65	6.89 (175)	520-175	521-175	13.78 (350)	520-350	521-350
2.95 (075)	520-75	521-75	7.87 (200)	520-200	521-200	14.76 (375)	520-375	521-375
3.94 (100)	520-100	521-100	8.86 (225)	520-225	521-225	15.24 (387)	520-387	521-387
4.92 (125)	520-125	521-125	9.84 (250)	520-250	521-250	17.723 (450)	520-450	521-450

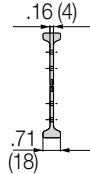
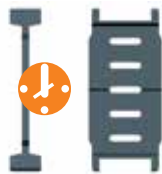
e-chain system® E4-1
 Series E4-80/H4-80/R4-80
 Interior Separation - New Generation



E4-80
 H4-80
 R4-80

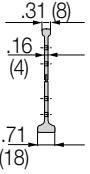
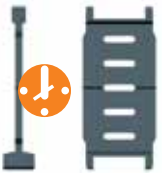


Note Please maintain a lateral spacing of 1.57" (40 mm) for e-tube and .63" (16 mm) for e-chains® between the separators and the side links. In the standard configuration separators are assembled every 2nd e-chain® link



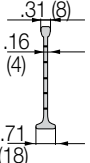
Separator, wide base

Unassembled **Part No. 80-H-1**
 Assembled **Part No. 80-H-1-1**



Separator, narrow head

Unassembled **Part No. 80-H-2**
 Assembled **Part No. 80-H-2-1**



Lean separator

Unassembled **Part No. 80-12**
 Assembled **Part No. 80-12-1**

• **Split separators for all applications**

In order to fill e-chains® more easily and effectively, these separators can be split in the middle. This allows easier access to middle shelf partitions. Fast assembly and easy retrofit. 2 types available: with wide or narrow top.

• **Lean separators 80-12**

New design allows extremely fast fitting of shelves in several layers, which significantly reduces assembly time. Enables extremely fast replacement of individual cables in a very full e-chain®.

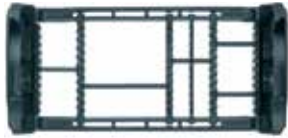
• **Lean separator design - several layers of cables fitted quickly, save up to 50%* assembly time**

(*Lean separator vs. standard separator - measured on a 4m long e-chain® fitted with 12 cables in the igus® harnessing factory)



PDF: igus.com/e-chain-pdfs
 Product information: igus.com/e-chains

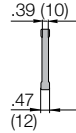
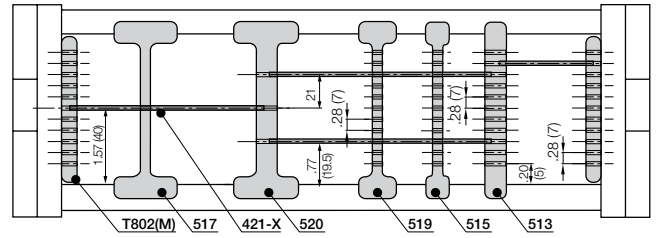




Shelves and separators

e-chains® and e-tubes can be subdivided both vertically and horizontally using the various interior separation elements.

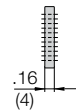
► **Design, Chapter 1** for layout recommendations.



Side plate (for e-chains®)

Unassembled	Part No. T803
Assembled	Part No. T803M

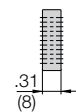
- **Split separator T803**
This component is used to form the basic pattern of a shelf system.



Side plate (for e-chains®)

Unassembled	Part No. T802
Assembled	Part No. T802M

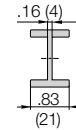
- **Side plates 802**
This component is used to form the basic pattern of a shelf system.



Vertical separator (for e-chains®)

Unassembled	Part No. 503
Assembled	Part No. 513

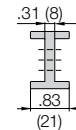
- **Vertical separator 503**
This component is used to form the basic pattern of a shelf system.



Locking vertical separator (for e-chains®)

Unassembled	Part No. 507
Assembled	Part No. 517

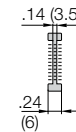
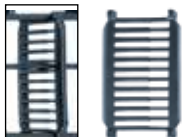
- **Locking vertical separator 507**
This separator features increased retention force for applications exposed to very high humidity and extreme loads. The extra retention force is achieved by asymmetric claws for the crossbar. Take care to ensure proper alignment.



Locking vertical separator (for e-chains®)

Unassembled	Part No. 510
Assembled	Part No. 520

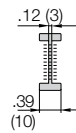
- **Locking vertical separator 510**
This separator is slotted and able to be combined with shelves. For e-chains® only.



Slotted separators, closed (for e-chains®)

Unassembled	Part No. 505
Assembled	Part No. 515

- **Slotted separators 505**
These are used for very complex subdivisions. However, they cannot be retrofitted into an existing separation system without removing the shelves first.



Slotted separators, open (for e-chains®)

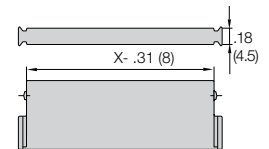
Unassembled	Part No. 509
Assembled	Part No. 519

- **Slotted separator 509**
This separator can be retrofitted into an existing interior separation system without removing the shelves, as long as these shelves fit into any of the 7 middle slots

Shelves 420-XX

These components form the basic pattern of a shelf system. Shelves of various widths can be arranged at 11 different heights in .28" (7mm) increments

Width X in. (mm)	Usable Width in. (mm)	Part No. Unassembled	Part No. Assembled	Width X in. (mm)	Usable Width in. (mm)	Part No. Unassembled	Part No. Assembled
.71 (18)	.39 (10)	420-18	421-18	2.95 (75)	2.64 (67)	420-75	421-75
.91 (23)	.59 (15)	420-23	421-23	3.46 (88)	3.15 (80)	420-88	421-88
.98 (25)	.67 (17)	420-25	421-25	3.94 (100)	3.62 (92)	420-100	421-100
1.10 (28)	.79 (20)	420-28	421-28	4.92 (125)	4.61(117)	420-125	421-125
1.30 (33)	.98 (25)	420-33	421-33	5.91 (150)	5.59(142)	420-150	421-150
1.69 (43)	1.38 (35)	420-43	421-43	6.89 (175)	6.57(167)	420-175	421-175
1.97 (50)	1.65 (42)	420-50	421-50	7.36 (187)	7.05(179)	420-187	421-187
2.44 (62)	2.13 (54)	420-62	421-62	7.87 (200)	7.56(192)	420-200	421-200



e-chain system® E4-1

Series E4-80/H4-80/R4-80

Interior Separation - Previous Generation



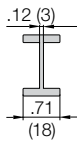
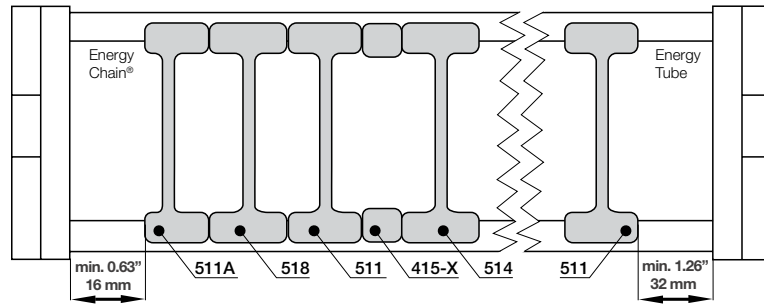
E4-80
H4-80
R4-80



Vertical separators and spacers

Vertical separators are used if a vertical subdivision of the e-chain® interior is required. By standard, vertical separators are assembled every other e-chain® link.

NOTE: Observe a lateral spacing of at least 1.30 in. (33mm) for e-tubes and .63 in. (16mm) for e-chain®. There is no minimum spacing needed for side plates

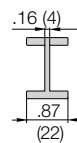


Vertical separator

Unassembled **Part No. 501**

Assembled **Part No. 511**

- **Standard separator 501 for e-chains® and e-tubes**
This separator offers safe stability due to its wide base design, also when used with thick cables or hoses.

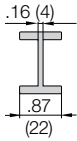


Locking separator (for e-chains®)

Unassembled **Part No. 504**

Assembled **Part No. 514**

- **Locking separator 504 for e-chains®**
This separator features increased retention force for applications exposed to very high humidity and extreme loads. If locking separators are used, the e-chain® is more difficult to open.

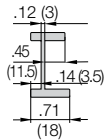


Locking separator (for e-tubes)

Unassembled **Part No. 508**

Assembled **Part No. 518**

- **Locking separator 508 for e-tubes**
This separator is used for applications that are exposed to extremely high humidity. The clamp at the side serves to uniformly align the separators. In order to avoid destroying the separators when opening the e-chain®, make sure all separators are identically aligned.



Asymmetrical separator (for e-chains®)

Unassembled **Part No. 501A**

Assembled **Part No. 511A**

- **Asymmetrical separator 501A for e-chains®**
This separator is NOT for e-tubes. It features an (18mm) base and can be used in combinations between spacers of different widths and vertical separators in side mounted applications.



Spacer (for e-chains®)

Unassembled **Part No. 405-XX**

Assembled **Part No. 415-XX**

XX = width of the spacer

- **NOTE ON SPACERS**
Vertical separators are adjustable, but can be fixed in position by means of a spacer. Spacers are most often necessary for side mounted applications. The available inner height is reduced by .08" (2mm) **per spacer** (for example if one spacer is placed on either side of the separator, the overall inner height is reduced by .16" (4mm)). To avoid this, place the spacers on the **outside** of the opening crossbar (**not for long travels**).

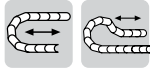
Spacers available in the following sizes:

Part No. Unassembled	Part No. Assembled	in.	(mm)	Part No. Unassembled	Part No. Assembled	in.	(mm)
405 -10	415 -10	.39"	(10)	405 -30	415 -30	1.18"	(30)
405 -15	415 -15	.59"	(15)	405 -40	415 -40	1.57"	(40)
405 -20	415 -20	.79"	(20)				



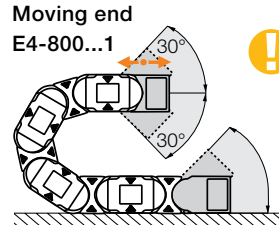
PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains



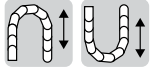
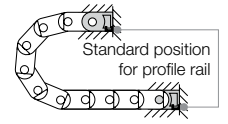


Option 1: pivoting

- Recommended for unsupported and gliding applications
- Attachment capability on all sides
- Bolted connection outside of chain cross-section
- Space restricted conditions
- Corrosion resistant

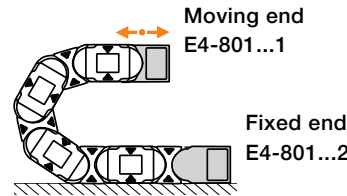


Standard

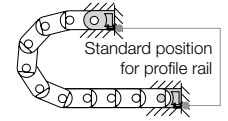


Option 2: locking

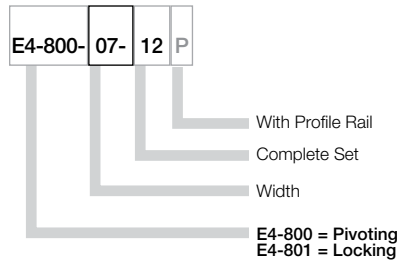
- Profile rail option
- Universal use
- Corrosion resistant
- Vertical hanging/standing travels
- Extreme accelerations



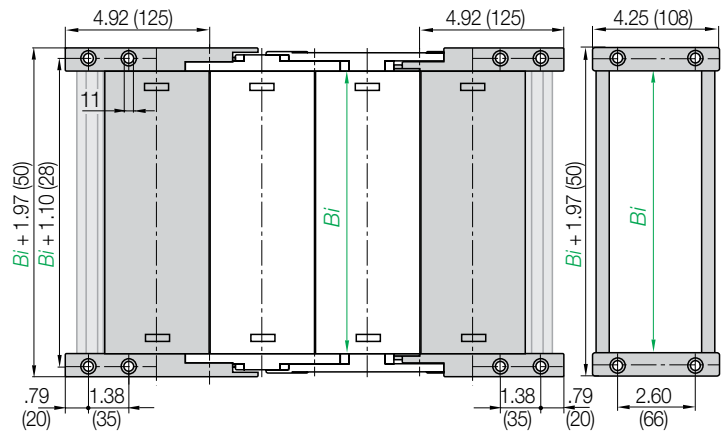
Fixed end
E4-801...2



Part Number Structure



Due to the design of the E4-80 series chains, please note the following when ordering brackets:
Even number of links = full set, part number ending in -12
Odd number of links = 2 pieces, part number ending in -1



Part No. Full Set (pivoting)
Series E4-80 or H4-80
E4-800-Width-12

Part No. Full Set (pivoting)
with profile rail
Series E4-80 or H4-80
E4-800-Width-12P

Part number examples are shown for pivoting brackets for e-chain. For locking brackets change part number to 801

Width	Part No. Full Set chain		With Profile Rail	Bi in. (mm)
	Pivoting	Locking		
-05*	E4-800	E4-801	-05-12 P	1.97 (50)
-055	E4-800	E4-801	-055-12 P	2.17 (55)
-06	E4-800	E4-801	-06-12 P	2.56 (65)
-07	E4-800	E4-801	-07-12 P	2.95 (75)
-08	E4-800	E4-801	-08-12 P	3.43 (87)
-10	E4-800	E4-801	-10-12 P	3.94 (100)
-11	E4-800	E4-801	-11-12 P	4.41 (112)
-12	E4-800	E4-801	-12-12 P	4.92 (125)
-13	E4-800	E4-801	-13-12 P	5.39 (137)
-15	E4-800	E4-801	-15-12 P	5.91 (150)
-16	E4-800	E4-801	-16-12 P	6.38 (162)
-169	E4-800	E4-801	-169-12 P	6.65 (169)
-17	E4-800	E4-801	-17-12 P	6.89 (175)
-182	E4-800	E4-801	-082-12 P	7.17 (182)
-18	E4-800	E4-801	-18-12 P	7.36 (187)
-20	E4-800	E4-801	-20-12 P	7.87 (200)
-207	E4-800	E4-801	-207-12 P	8.15 (207)
-21	E4-800	E4-801	-21-12 P	8.35 (212)
-22	E4-800	E4-801	-22-12 P	8.86 (225)
-23	E4-800	E4-801	-23-12 P	9.33 (237)
-25	E4-800	E4-801	-25-12 P	9.84 (250)
-26	E4-800	E4-801	-26-12 P	10.31 (262)
-27	E4-800	E4-801	-27-12 P	10.83 (275)

Width	Part No. Full Set chain		With Profile Rail	Bi in. (mm)
	Pivoting	Locking		
-28	E4-800	E4-801	-28-12 P	11.30 (287)
-30	E4-800	E4-801	-30-12 P	11.81 (300)
-31	E4-800	E4-801	-31-12 P	12.28 (312)
-32	E4-800	E4-801	-32-12 P	12.79 (325)
-33	E4-800	E4-801	-33-12 P	13.27 (337)
-35	E4-800	E4-801	-35-12 P	13.78 (350)
-36	E4-800	E4-801	-36-12 P	14.25 (362)
-37	E4-800	E4-801	-37-12 P	14.76 (375)
-38	E4-800	E4-801	-38-12 P	15.24 (387)
-40	E4-800	E4-801	-40-12 P	15.75 (400)
-41	E4-800	E4-801	-41-12 P	16.22 (412)
-42	E4-800	E4-801	-42-12 P	16.73 (425)
-43	E4-800	E4-801	-43-12 P	17.20 (437)
-45	E4-800	E4-801	-45-12 P	17.72 (450)
-46	E4-800	E4-801	-46-12 P	18.19 (462)
-47	E4-800	E4-801	-47-12 P	18.70 (475)
-48	E4-800	E4-801	-48-12 P	19.17 (487)
-50	E4-800	E4-801	-50-12 P	19.69 (500)
-51	E4-800	E4-801	-51-12 P	20.16 (512)
-52	E4-800	E4-801	-52-12 P	20.67 (525)
-53	E4-800	E4-801	-53-12 P	21.14 (537)
-55	E4-800	E4-801	-55-12 P	21.65 (550)
-60	E4-800	E4-801	-60-12 P	23.62 (600)

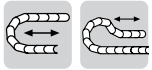
e-chain system® E4-1

Series E4-80/H4-80/R4-80

Mounting Brackets

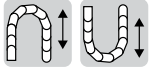
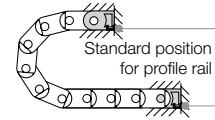
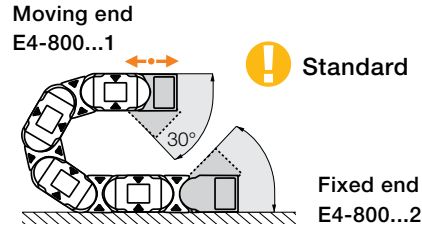


E4-80
H4-80
R4-80



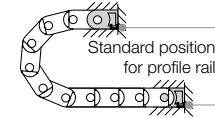
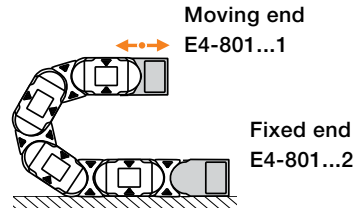
Option 1: pivoting

- Recommended for unsupported and gliding applications
- Attachment capability on all sides
- Bolted connection outside of chain cross-section
- Space restricted conditions
- Corrosion resistant

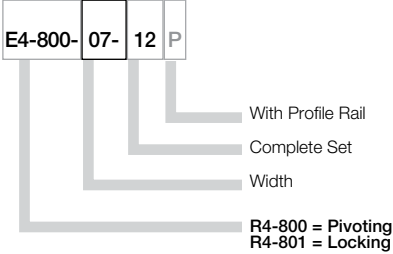


Option 2: locking

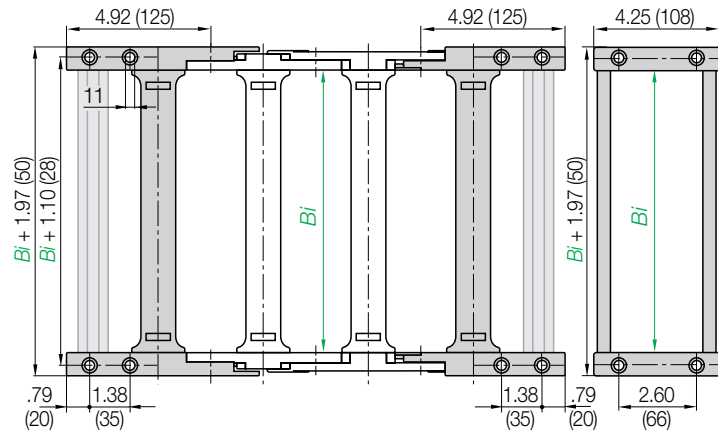
- Profile rail option
- Universal use
- Corrosion resistant
- Vertical hanging/standing travels
- Extreme accelerations



Part Number Structure



Due to the design of the E4-80 series chains, please note the following when ordering brackets:
Even number of links = full set, part number ending in -12
Odd number of links = 2 pieces, part number ending in -1



Part No. Full Set (pivoting)

Tube Series R4-80
R4-800-Width-12

Part No. Full Set (pivoting)

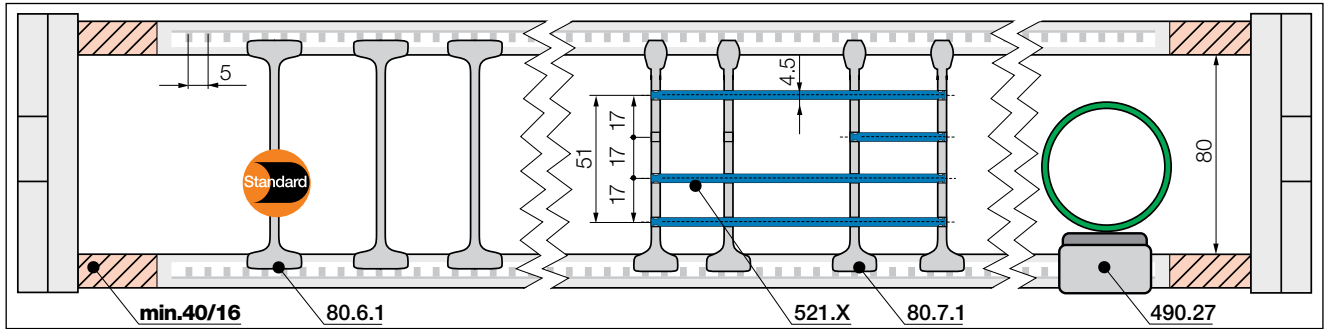
with Profile Rail
Tube Series R4-80
R4-800-Width-12P

Part number examples are shown for pivoting brackets for e-chain. For locking brackets change part number to 801

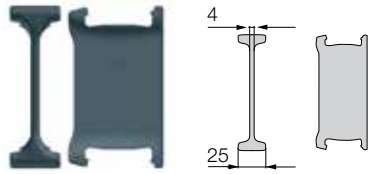
Width	Part No. Full Set tube		With Profile Rail	Bi in. (mm)	Width	Part No. Full Set tube		With Profile Rail	Bi in. (mm)		
	Pivoting	Locking				Pivoting	Locking				
-07	R4-800	R4-801	-07-12	P	2.95 (75)	-25	R4-800	R4-801	-25-12	P	9.84 (250)
-10	R4-800	R4-801	-10-12	P	3.94 (100)	-27	R4-800	R4-801	-27-12	P	10.83 (275)
-12	R4-800	R4-801	-12-12	P	4.92 (125)	-30	R4-800	R4-801	-30-12	P	11.81 (300)
-15	R4-800	R4-801	-15-12	P	5.91 (150)	-35	R4-800	R4-801	-35-12	P	13.78 (350)
-17	R4-800	R4-801	-17-12	P	6.89 (175)	-40	R4-800	R4-801	-40-12	P	15.75 (400)
-20	R4-800	R4-801	-20-12	P	7.87 (200)	-46	R4-800	R4-801	-46-12	P	18.19 (462)

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains





Note Please maintain a lateral spacing of 1.57" (40 mm) for e-tube and .63" (16 mm) for e-chains® between the separators and the side links. In the standard configuration separators are assembled every 2nd e-chain® link

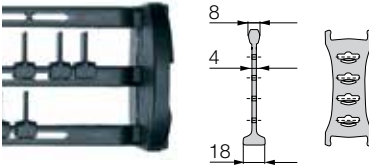


Notch locking separator

Unassembled	Part No. 80-6
Assembled	Part No. 80-6-1

● **Notch locking separator for increased holding force**

Notch locking separators offer higher crossbar opening forces for high humidity and/or large hydraulic hoses. They can be positioned precisely and then locked in position.

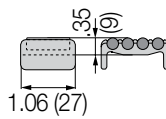


Partial height separator

Unassembled	Part No. 80-7
Assembled	Part No. 80-7-1

● **Partial height separator***

In conjunction with an additional opening crossbar, **part no. 450-Bi-S**, it provides the option to separate the upper and lower halves of the e-chain® independently of each other.



Rollclip* for e-chains®

Unassembled	Part No. 489-27
Assembled	Part No. 490-27

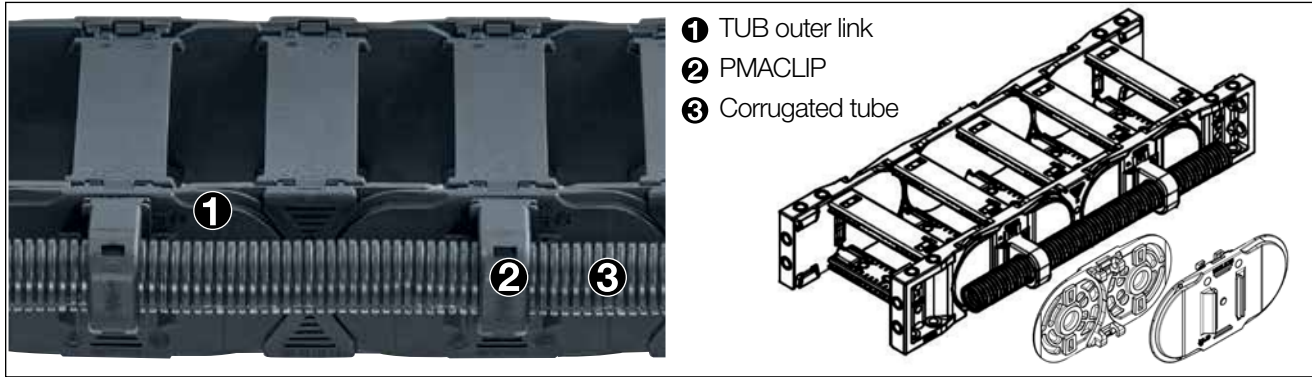
● **Rollclip***

Minimizes abrasion of sensitive hoses. Simply clamps onto the opening crossbar. The movable rollers compensate for relative movement between the e-chain® and hose.

*Only for e-chains®

Telephone 1-800-521-2747

Internet: igus.com
email: sales@igus.com
QuickSpec: igus.com/quickspec



- ❶ TUB outer link
- ❷ PMACLIP
- ❸ Corrugated tube

TUB | Safe guidance for corrugated tubes parallel to the e-chain®

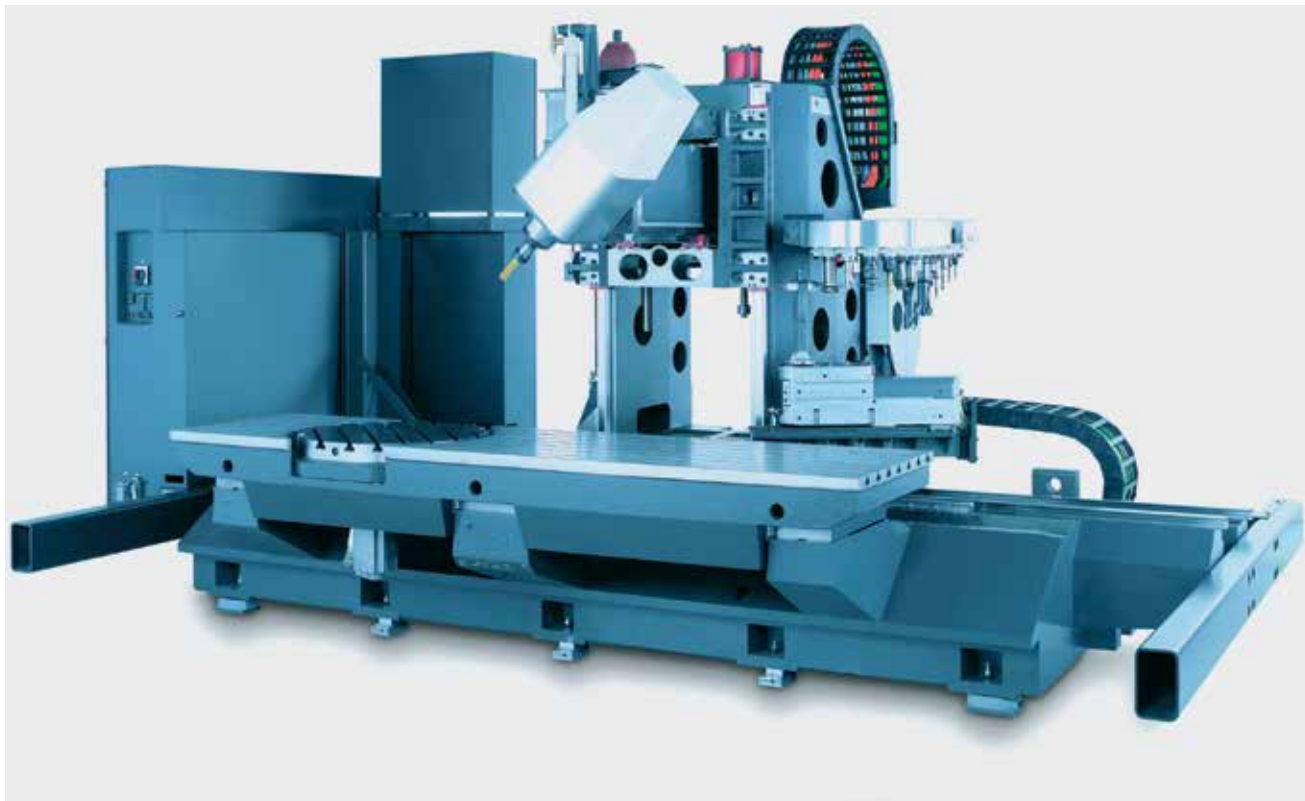
- Additional, simple guidance for corrugated tubes on the outside of the e-chain®
- PMACLIP allows corrugated tubes with nominal widths .28 (07mm), .39 (10mm), .47 (12mm), .67 (17mm) to be easily clipped on
- Easy access to the corrugated tubes, fast replacement of the hoses
- Reduce assembly time and cost - easy to assemble, without any additional screws or tools
- The part number includes the e-chain® with TUB side sections; the PMACLIP support and the hose are ordered separately

Part No. TUB	Part No. TUB	Part No. TUB	For corrugated tube nominal diameter
Outer link right*	Outer link left*	Outer link at both ends*	Ø [mm]
E4-80-XXXTUBR-R-0	E4-80-XXXTUBL-R-0	E4-80-XXXTUB-R-0	.28 (07), .39 (10), .47 (12), .67 (17)

*View from the fixed end

Part number appended with width index **XXX Bi** and radius **(R)** e.g.

E4-80-100TUBR-150-0 = with TUB outer sections every 2nd right hand link



Due to the undercut design igus® E4-1 series feature high lateral stability. High lateral accelerations of up to 26.25ft/s² (8m/s²) can be managed on this milling machine for bicycles



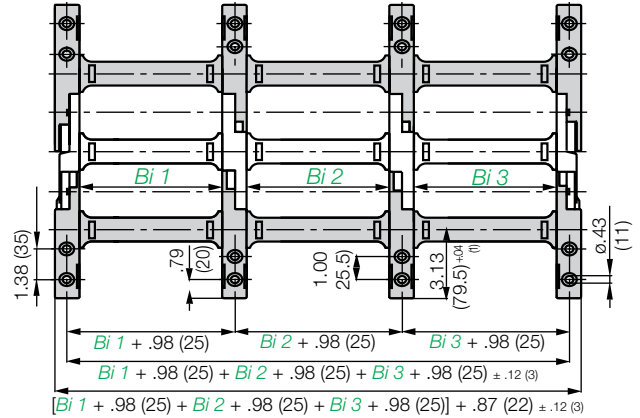


Extension links - for extremely wide e-chains® up to 9.84 ft (3m)

- For applications in which particularly high fill weights necessitate extremely wide e-chains® (up to 118" (3000 mm))
- The extension link design allows virtually limitless side-by-side attachment of chains
- The unsupported length of a chain can be increased when additional loads are required
- Extension links can be used with e-chains®, e-tubes or a combination of both
- They are suitable for unsupported and gliding applications in a guide trough
- e-chains® with extension links are attached with KMA or steel mounting brackets.

Part number example for e-chain®
E4-80-10/20/10-200-0
E4-80-*Bi1/Bi2/Bi3*-R-0

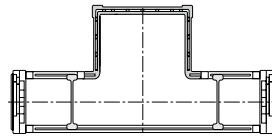
We strongly recommend on-site consultation with an igus® technician for individual advice regarding mounting brackets, guide troughs and other design details.



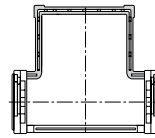
Consult igus® for your extender crossbar applications. We will be happy to assist you with your design layout.

Extender crossbars - For careful guiding of large diameter cables and hoses

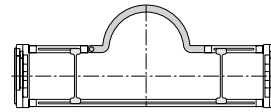
- Intended for cables and hoses with a maximum outer diameter of 10.63 in. (270 mm).
- Can be attached along either the inner or outer radius, inner radius preferred
- Gliding operation with crossbars assembled along the outer radius in conjunction with a special guide trough
- Gliding operation not guaranteed with crossbars assembled along the inner radius
- The extender crossbar can either be attached to the side links directly or can be used in combination with two standard snap-open crossbars.



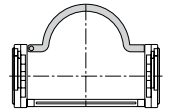
Square extender crossbar combined with standard snap-open crossbars.



Attached directly to the side link.



Round extender crossbar combined with standard snap-open crossbars.



Attached directly to the side link.

Part No.	Max Ø Hose	Style	Installation Side Link	Combined with Snap-Open Crossbars
450-15-RHD115	4.52 (115)	Round	No	Yes
450-17-RD115	4.52 (115)	Round	Yes	No
450-25-D150	5.91 (150)	Square	Yes	No
450-30-D200	7.87 (200)	Square	Yes	No
450-35-D250	8.66 (220)	Square	Yes	No
450-40-D300	10.63 (270)	Square	Yes	No
450-20-HD150	5.91 (150)	Square	No	Yes
450-25-HD200	7.87 (200)	Square	No	Yes
450-30-HD250	8.66 (220)	Square	No	Yes

e-chain system® E4-1

Series E4-80/H4-80/R4-80

Strain Relief



E4-80
H4-80
R4-80

Chainfix clamps for the profile rail



igus® Chainfix strain relief elements are available in either steel or stainless steel. They can be adjusted with a hexagon socket and are available in single, double and triple configurations.

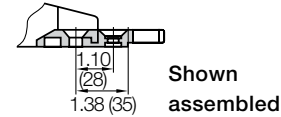
Part No. Single Clamp		Part No. Double Clamp		Part No. Triple Clamp		Cable ø	
Steel	Stainless	Steel	Stainless	Steel	Stainless	in.	(mm)
CFX12-1	CFX12-1E	CFX12-2	CFX12-2E	CFX12-3	–	.24 - .47	(6 - 12)
CFX14-1	CFX14-1E	CFX14-2	CFX14-2E	CFX14-3	–	.47 - .55	(12 - 14)
CFX16-1	CFX16-1E	CFX16-2	CFX16-2E	CFX16-3	–	.55 - .63	(14 - 16)
CFX18-1	CFX18-1E	CFX18-2	CFX18-2E	CFX18-3	–	.63 - .71	(16 - 18)
CFX20-1	CFX20-1E	CFX20-2	CFX20-2E	CFX20-3	–	.71 - .79	(18 - 20)
CFX22-1	CFX22-1E	CFX22-2	CFX22-2E	CFX22-3	–	.79 - .87	(20 - 22)
CFX26-1	CFX26-1E	CFX26-2	CFX26-2E	–	–	.87 - 1.02	(22 - 26)
CFX30-1	CFX30-1E	CFX30-2	CFX30-2E	–	–	1.02 - 1.18	(26 - 30)
CFX34-1	CFX34-1E	CFX34-2	CFX34-2E	–	–	1.18 - 1.34	(30 - 34)
CFX38-1	CFX38-1E	–	–	–	–	1.34 - 1.50	(34 - 38)
CFX42-1	CFX42-1E	–	–	–	–	1.50 - 1.65	(38 - 42)

For more information please refer to strain relief section of Chapter 10.

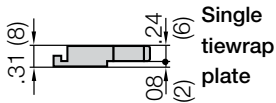
Tiewrap Plates

Option 1: Tiewrap plates as an individual part

Available as an individual component, can be fixed onto a mounting bracket with the use of a profile rail.

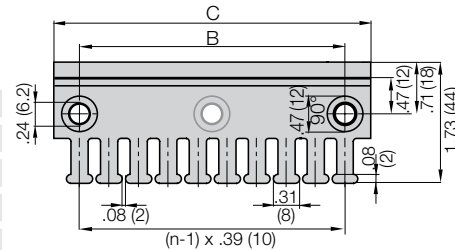


Shown assembled



Single tiewrap plate

Tiewrap Plate	n Number of Teeth	C Overall Width in. (mm)	B Bore Width in. (mm)	Center Bore
3050-ZB	5	1.97 (50)	1.18 (30)	no
3075-ZB	7	2.95 (75)	2.16 (55)	no
3100-ZB	10	3.94 (100)	3.15 (80)	no
3115-ZB	11	4.53 (115)	3.74 (95)	no
3125-ZB	12	4.92 (125)	4.13 (105)	no
3150-ZB	15	5.91 (150)	5.12 (130)	no
3175-ZB	17	6.89 (175)	6.10 (155)	no
3200-ZB	20	7.87 (200)	7.09 (180)	yes
3225-ZB	22	8.86 (225)	8.07 (205)	yes
3250-ZB	25	9.84 (250)	9.06 (230)	yes



If used with KMA brackets with profile rail please add "KMA" to the end of the part number.

Example: 3050-ZBKMA

For more information please refer to strain relief section of Chapter 10

Option 2: Clip-on Tiewrap plates

Available as a clip-on tiewrap plate without the use of bolts. They are inserted and removed with a screwdriver used as a lever. Clip-on tiewrap plates are also available as an attachment to the opening crossbars.



Part No.	Number of Teeth	Width of Strain Relief in. (mm)
3050-ZC	5	1.97 (50)
3075-ZC	7	2.95 (75)

For more information please refer to strain relief section of Chapter 10.

Option 3: Clip-on Tiewrap plates for opening crossbars

Clip-on tiewrap plates are also available as an attachment to opening crossbars. They can be positioned at any point along the e-chain®.



Part No.	Number of Teeth	Width of Strain Relief in. (mm)
4550-ZS	5	1.89 (48)
4575-ZS	7	2.91 (74)

For more information please refer to strain relief section of Chapter 10

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains



Width of Crossbar
E4-80-05-200-0

	B_{Ri}	Installation Part No.
-05	4.13 (105)	96-50-225
-06	4.72 (120)	96-50-250
-07	5.12 (130)	96-50-250
-08	5.59 (142)	96-50-275
-10	6.10 (155)	96-50-275
-11	6.61 (168)	96-50-300
-12	7.09 (180)	96-50-300
-13	7.60 (193)	96-50-325
-15	8.07 (205)	96-50-325
-16	8.58 (218)	96-50-350
-17	9.06 (230)	96-50-350
-18	9.57 (243)	96-50-375
-20	10.04 (255)	96-50-375
-21	10.55 (268)	96-50-400
-22	11.02 (280)	96-50-400
-23	11.54 (293)	96-50-425
-25	12.01 (305)	96-50-425
-26	12.52 (318)	96-50-450
-27	12.99 (330)	96-50-450
-28	13.50 (343)	96-50-475
-30	13.98 (355)	96-50-475
-31	14.49 (368)	96-50-500
-32	14.96 (380)	96-50-500
-33	15.47 (393)	96-50-525
-35	15.94 (405)	96-50-525
-36	16.46 (418)	96-50-550
-37	16.93 (430)	96-50-550
-38	17.44 (443)	96-50-575
-40	17.91 (455)	96-50-575
-41	18.43 (468)	96-50-600
-42	18.90 (480)	96-50-600
-43	19.41 (493)	96-50-625
-45	19.88 (505)	96-50-625
-46	20.39 (518)	96-50-650
-47	20.87 (530)	96-50-650
-48	21.38 (543)	96-50-675
-50	21.85 (555)	96-50-675
-51	22.36 (568)	96-50-700
-52	22.83 (580)	96-50-700
-53	23.35 (593)	96-50-725
-55	23.82 (605)	96-50-725
-60	25.79 (655)	96-50-775

Guide troughs are used with applications where the upper run of the e-chain® glides on the lower run. If using igus® steel guide troughs, the following components are required:

- Full travel length of guide trough
Part No. 99-30
- 1/2 travel length glide bars
Part No. 93-01
- Installation sets as end connectors
Part No. 96-50-XX

-XX indicates the length of the profile rails on which the guide trough is mounted. The values and part numbers are specified in the table on the right. The standard length of the trough components and glide bars is 6.56 ft (2 m). The overall length of the guide trough directly correlates to the length of travel.

Example:

Length of travel 164 ft (50 m)
Center-mounted

Required guide troughs:

164 ft (50 m) guide trough, 82 ft. (25 m) glide bar
= 25 sections of 6.56 ft (2 m) guide trough

Part No. 99-30

= 13 sections of 6.56 ft (2 m) glide bar

Part No. 93-01

Required number of installation set:

= Number of guide trough components + 1
= 25 + 1 = 26

Part No. of the installation sets **96-50-XXX**

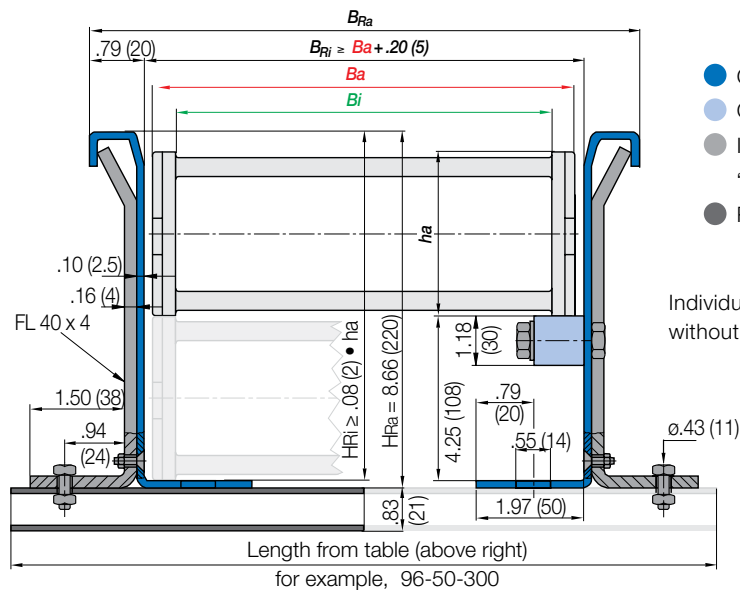
Example: 96-50-400 for 15.75 (400 mm) long profile rail



Left: Guide trough with glide bars
Right: Guide troughs without glide bars



Installation sets as section connectors



- Guide trough
- Glide bars
- Installation set "Basic"
- Profile rail

Individual attachment without profile rail

* Specialized guide trough available upon request

Standard length profile rail

For further technical information on guide troughs
► Chapter 9



PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains



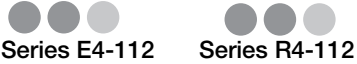
E4-112
R4-112






e-chain system® E4-1 Series E4-112/R4-112



Price Index



Special Options Available

-  Low noise version available with special rubber pads
-  Cleanroom test upon request
-  ESD classification: Electrically conductive ESD/ATEX version upon request

Assembly Tips



Opening e-chains®: Remove crossbars and clips - Insert screwdriver into the slot, push down, release by lever action




Remove lids/bottoms (e-tubes) - Insert screwdriver into the slot, release by lever action

Other Installation Methods

- Vertical, hanging ≤ 394 ft (120 m)
- Vertical, standing ≤ 19.69 ft (6 m)
- Side-mounted, un_supp. ≤ 9.84 ft (3 m)
- Rotary requires further calculation

Usage Guidelines

-  If a robust e-chain/Energy is required
- If inner widths up to 23.62" (600 mm) are required
- For unsupported lengths up to 21.3 ft. (6.5 m) and fill weights up to 57.12 lbs/ft. (85 kg/m)
- For long travels

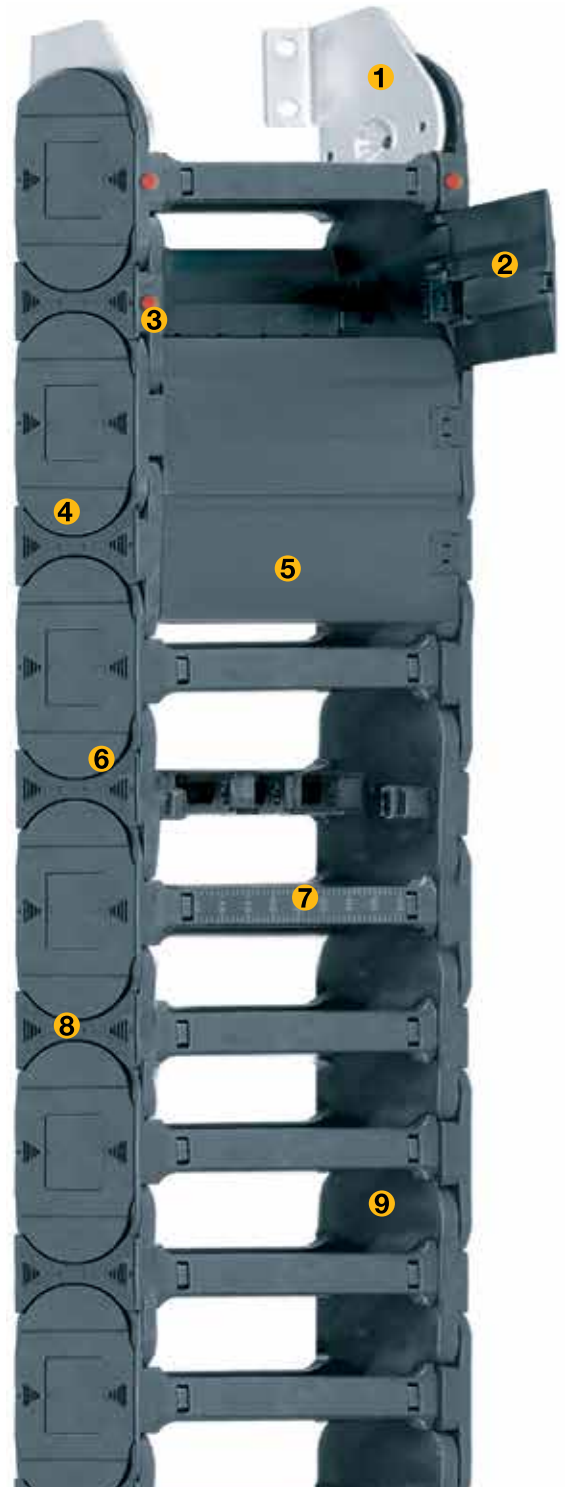
-  When an e-chain is needed for rough applications with greater inner height
 - Series 800
- When a lighter e-chain® is needed
 - Series 1640

Features & Benefits

- 1 Steel mounting brackets
- 2 Hinged, snap-open removable lids along the outer radius
- 3 Noise dampening pads, optional = -10dB(A)
- 4 Gliding surfaces, long travels
- 5 Chip protection with e-tube
- 6 Undercut for more stability
- 7 Notch crossbar with backside scaling
- 8 Straight run due to the inner/outer link design
- 9 Low noise operation due to integrated "brake"




Also available without camber. Add NCST to the end of the part number.
Ex: E4-112-30-300NCST




Order Example: Complete e-chain®

Please indicate chain length or number of links. Example:


16.4 ft (5 m) **E4-112-30-300-0**

 e-chain®

With 2 separators **112.1.1** assembled every 2nd link

 Interior Separation

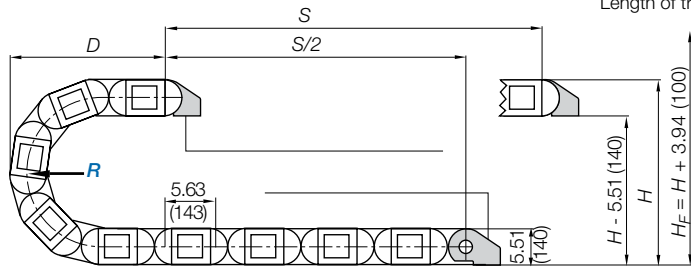
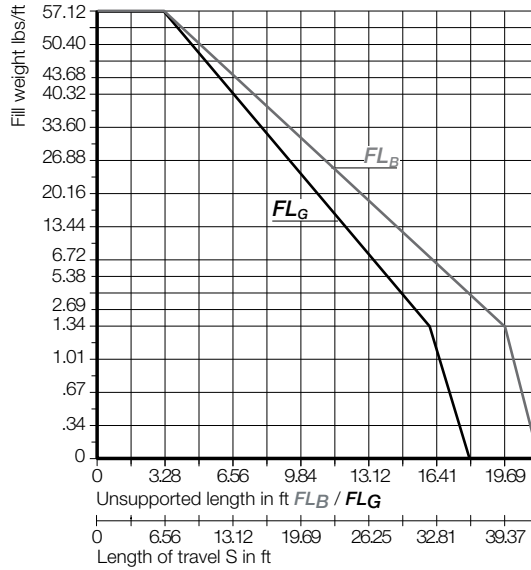
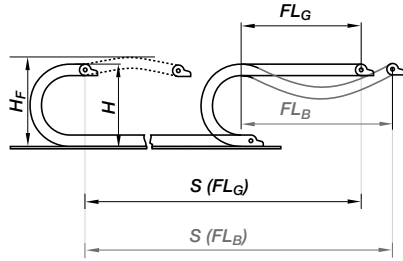
1 Set **E4.11210.112VS**

 Mounting Bracket

e-chain system® E4-1 Series E4-112/R4-112 Installation Dimensions

Short travel, unsupported length

- FL_B = unsupported with permitted sag
 - FL_G = unsupported with straight upper run
- Further information ► Design, Chapter 1



Pitch per link: = 5.63" (143 mm)
Links per ft (m): = 2.13 (7)
For center mount applications:
Chain length = $\frac{S}{2} + K$

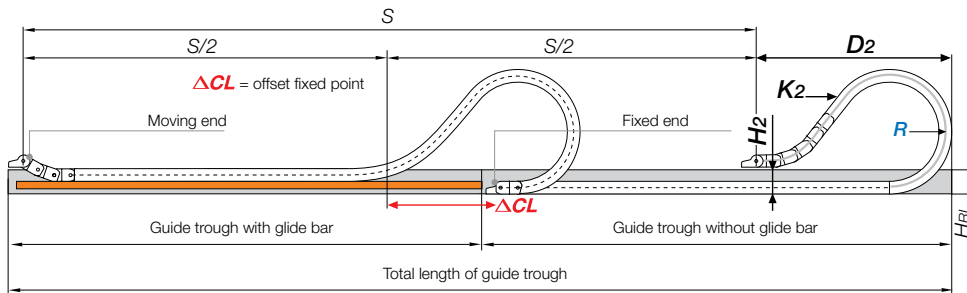
The required clearance height: $H_F = H + 3.94$ in. (100 mm) with 3.36 lbs/ft (5 kg/m) fill weight.
Please consult igus® if space is particularly restricted.

R	7.87 (200*)	9.84 (250)	11.81 (300)	13.78 (350)	15.75 (400)	19.84 (450)	19.68 (500)	21.65 (550)	23.62 (600)	29.53 (750)	39.37 (1000)
H	21.46 (545)	25.39 (645)	29.33 (745)	33.27 (845)	37.20 (945)	41.14 (1045)	45.08 (1145)	49.02 (1245)	52.95 (1345)	64.76 (1645)	84.45 (2145)
D	16.34 (415)	18.31 (465)	20.27 (515)	22.24 (565)	24.21 (615)	26.18 (665)	28.15 (715)	30.12 (765)	32.09 (815)	37.99 (965)	47.83 (1215)
K	36.02 (915)	42.32 (1075)	48.43 (1230)	54.72 (1390)	60.83 (1545)	66.93 (1700)	75.86 (1860)	79.33 (2015)	85.63 (2175)	104.13 (2645)	135.04 (3430)

* Radius not available for e-tubes

For long travels with lowered mounting height

Long travel lengths from 45.9 ft. (14m) to max. 1,476 ft. (450m)



For center mount applications:
Chain length = $\frac{S}{2} + K_2$

Long Travels - Gliding



If the unsupported length is exceeded, the e-chain®/ Tube must glide on itself. This requires a guide trough.
Design, Chapter 1

R	7.87 (200**)	9.84 (250)	11.81 (300)	13.78 (350)	15.75 (400)	19.84 (450)	19.68 (500)	21.65 (550)	23.62 (600)	29.53 (750)	39.37 (1000)
H ₂	12.80 (325)	12.80 (325)	12.80 (325)	12.80 (325)	12.80 (325)	12.80 (325)	12.80 (325)	12.80 (325)	12.80 (325)	-	-
D ₂	35.43 (900)	39.37 (1000)	43.31 (1100)	49.21 (1250)	57.09 (1450)	62.99 (1600)	66.93 (1700)	74.80 (1900)	80.71 (2050)	-	-
K ₂	61.93 (1573)	67.56 (1716)	73.19 (1859)	90.08 (2288)	101.34 (2574)	112.60 (2860)	123.86 (3146)	135.12 (3432)	152.01 (3861)	-	-
ΔCL	17.72 (450)	19.68 (500)	21.65 (550)	25.59 (650)	31.50 (800)	35.43 (900)	37.40 (950)	43.31 (1100)	47.24 (1200)	-	-

In case of travels between 13 and 32.8 ft (4 and 10 m) we recommend a longer unsupported length. **200 radius is not available for the e-tubes

Speed / acceleration FL_G	max. 65.6 ft/s (20 m/s) / max. 656 ft/s ² (200 m/s ²)
Speed / acceleration FL_B	max. 9.84 ft/s (3 m/s) / max. 19.69 ft/s ² (6 m/s ²)
Gliding speed / acceleration (maximum)	max. 32.8 ft/s (10 m/s) / max. 164 ft/s ² (50 m/s ²)
Material - permitted temperature	igumid G / -40°F (-40°C) up to +248°F (+120°C)
Flammability Class, igumid G	VDE 0304 IIC UL94 HB

Technical Data



Details of material properties
► Chapter 1



E4-112
R4-112



Short Travels - Unsupported

Unsupported e-chains® feature positive camber over short travels. This must be accounted for when specifying the clearance height. Please refer to **Installation dimensions** for further details.

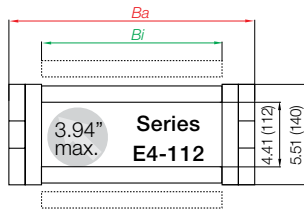
Legend

- S = Length of travel
 - R = Bending radius
 - H = Nominal clearance height
 - D = Overlength e-chain® radius in final position
 - $K = \pi \cdot R + \text{safety buffer}$
 - H_F = Required clearance height
 - H_{RI} = Trough inner height
 - H_2 = *Mounting height
 - D_2 = Overlength - long travels, gliding
 - K_2 = *Add-on
- *If the mounting bracket location is set lower

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains

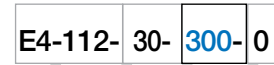


Series E4-112 - e-chain® with crossbars every link

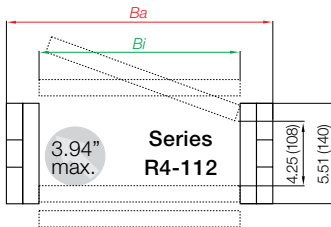


- Crossbars every link
- For use with rigid hydraulic hoses
- For particularly demanding applications
- Can be opened from both sides

Part Number Structure



Series R4-112 - fully enclosed e-tube

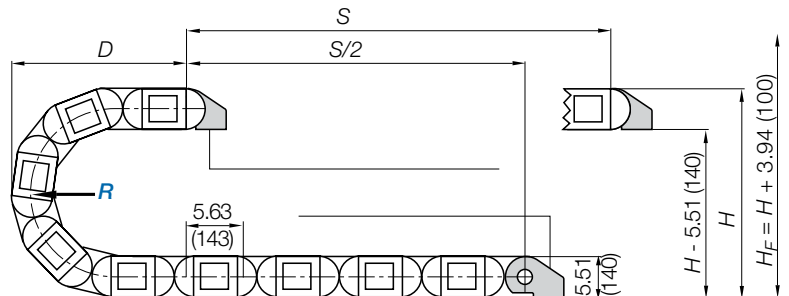
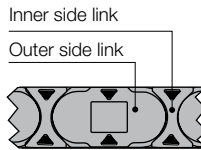
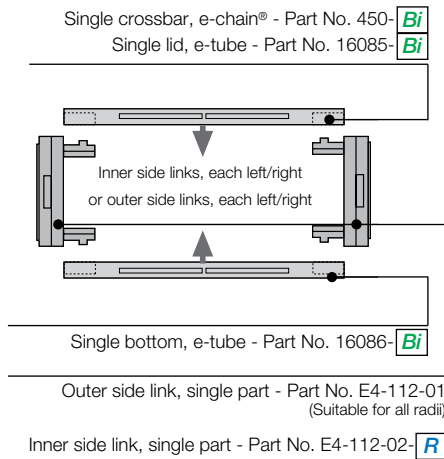


- Fully enclosed
- Excellent cable and hose protection against dirt
- Protection against hot chips
- Lids along the outer radius are single-sided, snap open, hinged on one side as well as completely removable

Part Number Structure



e-chain® as separate parts, links and side plates



e-chain system® E4-1 Series E4-112/R4-112

Supplement part number with required radius. Example: E4-112-30-300-0

Pitch: 5.63 in. (143mm) per link links/ft (m) = 2.13 (7)



E4-112
R4-112

Part Number			Weight			
Crossbars Every link	Tube Version		<i>Bi</i> in. (mm)	<i>Ba</i> in. (mm)	E4-112 lbs/ft (kg/m)	R4-112 lbs/ft (kg/m)
E4-112-05-		<input type="checkbox"/> -0	1.97 (50)	4.02 (102)	≈ 4.63 (6.89)	-
E4-112-055-		<input type="checkbox"/> -0	2.17 (55)	4.21 (107)	≈ 5.25 (7.81)	-
E4-112-06-		<input type="checkbox"/> -0	2.56 (65)	4.61 (117)	≈ 4.67 (6.95)	-
E4-112-07-		<input type="checkbox"/> -0	2.95 (75)	5.00 (127)	≈ 4.70 (6.99)	-
E4-112-08-		<input type="checkbox"/> -0	3.43 (87)	5.47 (139)	≈ 4.74 (7.05)	-
E4-112-10-		<input type="checkbox"/> -0	3.94 (100)	5.98 (152)	≈ 4.77 (7.10)	-
E4-112-11-		<input type="checkbox"/> -0	4.41 (112)	6.46 (164)	≈ 4.82 (7.18)	-
E4-112-12-		<input type="checkbox"/> -0	4.92 (125)	6.97 (177)	≈ 4.86 (7.23)	-
E4-112-13-		<input type="checkbox"/> -0	5.39 (137)	7.44 (189)	≈ 4.91 (7.31)	-
E4-112-15-		<input type="checkbox"/> -0	5.91 (150)	7.95 (202)	≈ 4.93 (7.34)	-
E4-112-16-		<input type="checkbox"/> -0	6.38 (162)	8.43 (214)	≈ 4.98 (7.41)	-
E4-112-169-		<input type="checkbox"/> -0	6.65 (169)	4.21 (222)	≈ 5.61 (8.35)	-
E4-112-17-		<input type="checkbox"/> -0	6.89 (175)	8.94 (227)	≈ 5.03 (7.49)	-
E4-112-182-		<input type="checkbox"/> -0	7.17 (182)	9.25 (235)	≈ 5.65 (8.41)	-
E4-112-18-		<input type="checkbox"/> -0	7.36 (187)	9.41 (239)	≈ 5.08 (7.56)	-
E4-112-20-	R4-112-20-	<input type="checkbox"/> -0	7.87 (200)	9.92 (252)	≈ 5.10 (7.60)	≈ 6.22 (9.26)
E4-112-207-		<input type="checkbox"/> -0	8.15 (207)	8.11 (206)	≈ 5.72 (8.52)	-
E4-112-21-		<input type="checkbox"/> -0	8.35 (212)	10.39 (264)	≈ 5.13 (7.64)	-
E4-112-22-		<input type="checkbox"/> -0	8.86 (225)	10.91 (277)	≈ 5.17 (7.69)	-
E4-112-23-		<input type="checkbox"/> -0	9.33 (237)	11.38 (289)	≈ 5.21 (7.76)	-
E4-112-25-	R4-112-25-	<input type="checkbox"/> -0	9.84 (250)	11.89 (302)	≈ 5.26 (7.83)	≈ 6.66 (9.91)
E4-112-26-		<input type="checkbox"/> -0	10.31 (262)	12.36 (314)	≈ 5.30 (7.89)	-
E4-112-27-		<input type="checkbox"/> -0	10.83 (275)	12.87 (327)	≈ 5.34 (7.95)	-
E4-112-28-		<input type="checkbox"/> -0	11.30 (287)	13.35 (339)	≈ 5.37 (7.99)	-
E4-112-30-	R4-112-30-	<input type="checkbox"/> -0	11.81 (300)	13.86 (352)	≈ 5.44 (8.09)	≈ 7.08 (10.53)
E4-112-31-		<input type="checkbox"/> -0	12.28 (312)	14.33 (364)	≈ 5.45 (8.11)	-
E4-112-32-		<input type="checkbox"/> -0	12.79 (325)	14.84 (377)	≈ 5.50 (8.18)	-
E4-112-33-		<input type="checkbox"/> -0	13.27 (337)	15.31 (389)	≈ 5.54 (8.25)	-
E4-112-35-	R4-112-35-	<input type="checkbox"/> -0	13.78 (350)	15.83 (402)	≈ 5.63 (8.38)	≈ 7.51 (11.18)
E4-112-36-		<input type="checkbox"/> -0	14.25 (362)	16.30 (414)	≈ 5.59 (8.32)	-
E4-112-37-		<input type="checkbox"/> -0	14.76 (375)	16.81 (427)	≈ 5.63 (8.38)	-
E4-112-38-		<input type="checkbox"/> -0	15.24 (387)	17.28 (439)	≈ 5.68 (8.46)	-
E4-112-40-	R4-112-40-	<input type="checkbox"/> -0	15.75 (400)	17.80 (452)	≈ 5.80 (8.63)	≈ 7.94 (11.82)
E4-112-41-		<input type="checkbox"/> -0	16.22 (412)	18.27 (464)	≈ 5.77 (8.58)	-
E4-112-42-		<input type="checkbox"/> -0	16.73 (425)	18.78 (477)	≈ 5.89 (8.77)	-
E4-112-43-		<input type="checkbox"/> -0	17.20 (437)	19.25 (489)	≈ 5.83 (8.67)	-
E4-112-45-		<input type="checkbox"/> -0	17.72 (450)	19.76 (502)	≈ 5.97 (8.88)	-
E4-112-46-		<input type="checkbox"/> -0	18.19 (462)	20.24 (514)	≈ 5.95 (8.85)	-
E4-112-47-		<input type="checkbox"/> -0	18.70 (475)	20.75 (527)	≈ 5.96 (8.87)	-
E4-112-48-		<input type="checkbox"/> -0	19.17 (487)	21.22 (539)	≈ 6.07 (9.03)	-
E4-112-50-	R4-112-40-	<input type="checkbox"/> -0	19.69 (500)	21.73 (552)	≈ 6.07 (9.03)	≈ 8.54 (12.71)
E4-112-51-		<input type="checkbox"/> -0	20.16 (512)	22.20 (564)	≈ 6.11 (9.09)	-
E4-112-52-		<input type="checkbox"/> -0	20.67 (525)	22.72 (577)	≈ 6.15 (9.15)	-
E4-112-53-		<input type="checkbox"/> -0	21.14 (537)	23.19 (589)	≈ 6.18 (9.20)	-
E4-112-55-		<input type="checkbox"/> -0	21.65 (550)	23.70 (602)	≈ 6.36 (9.47)	-
E4-112-60-		<input type="checkbox"/> -0	23.62 (600)	25.67 (652)	≈ 6.46 (9.62)	-

Choose from the radii below for all of the above sizes

Radius (mm) Example: E4-112-30-300-0

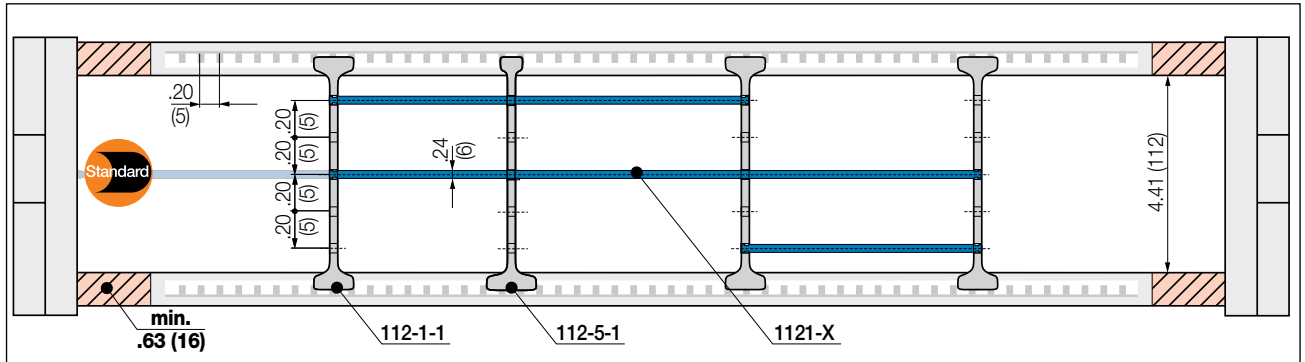
	200**	250	300	350	400	450	500	550	600	750	1000
<i>R</i>	7.87 (200)	9.84 (250)	11.81 (300)	13.78 (350)	15.75 (400)	19.68 (500)	21.65 (550)	23.62 (600)	29.53 (750)	39.37 (1000)	
<i>H</i>	21.46 (545)	25.39 (645)	29.33 (745)	33.27 (845)	37.20 (945)	41.14 (1045)	45.08 (1145)	49.02 (1245)	52.95 (1345)	64.76 (1645)	84.45 (2145)
<i>D</i>	16.34 (415)	18.31 (465)	20.27 (515)	22.24 (565)	24.21 (615)	26.18 (665)	28.15 (715)	30.12 (765)	32.09 (815)	37.99 (965)	47.83 (1215)
<i>K</i>	36.02 (915)	42.32 (1075)	48.43 (1230)	54.72 (1390)	60.83 (1545)	66.93 (1700)	75.86 (1860)	79.33 (2015)	85.63 (2175)	104.13 (2645)	135.04 (3430)

0=Standard color black. For other colors see Chapter 1

**200 radius is not available for the e-tubes

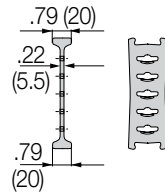
PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains





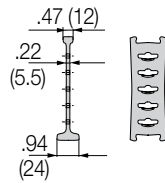
Note Please maintain a lateral spacing of .63" (16 mm) for e-chains® between the separators and the side links. In the standard configuration separators are assembled every 2nd e-chain® link

Telephone 1-800-521-2747



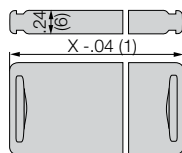
Standard Separator, wide base
Unassembled Part No. 112-1
Assembled Part No. 112-1-1

- **Standard separator for any application**
Separator with a wide base for maximum holding force in the e-chain®



Notched Separator for notched crossbar
Unassembled Part No. 112-5
Assembled Part No. 112-5-1

- **Locks securely in preset increments**
Notch separator for exact positioning in e-chains®. Recommended for side-mounted applications



Full-width shelf, lockable
Unassembled Part No. 1120-X
Assembled Part No. 1121-X

- **Horizontal separation**
Full-width shelf locks securely into separators at both ends, giving a fixed width. Can be used as full-width or partial shelf.

Shelves

Width = X [mm]

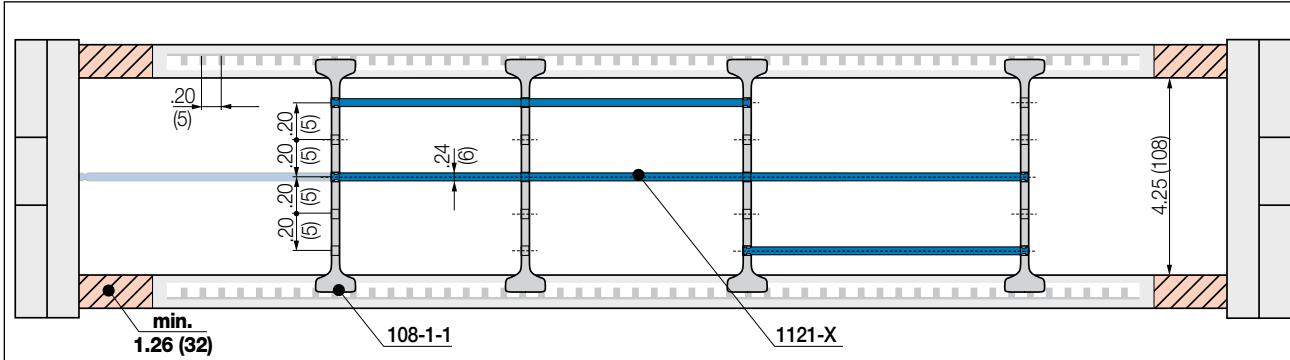


Width = X [mm]	X			X			X		
	in. (mm)	unassembled	assembled	in. (mm)	unassembled	assembled	in. (mm)	unassembled	assembled
1.97 (050)	1120-050	1121-050	5.91 (150)	1120-150	1121-150	11.81 (300)	1120-300	1121-300	
2.56 (065)	1120-065	1121-065	6.89 (175)	1120-175	1121-175	13.78 (350)	1120-350	1121-350	
2.95 (075)	1120-075	1121-075	7.87 (200)	1120-200	1121-200	14.76 (375)	1120-375	1121-375	
3.94 (100)	1120-100	1121-100	8.86 (225)	1120-225	1121-225	15.24 (387)	1120-387	1121-387	
4.92 (125)	1120-125	1121-125	9.84 (250)	1120-250	1121-250	17.72 (450)	1120-450	1121-450	

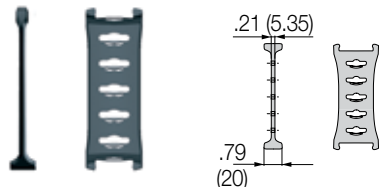
e-chain system® E4-1
 Series R4-112
 Interior Separation - Only for e-tubes



E4-112
 R4-112



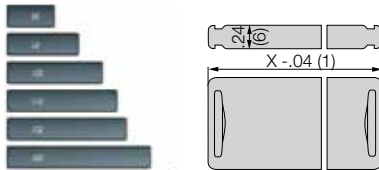
Note Please maintain a lateral spacing of 1.26" (32 mm) for e-tube between the separators and the side links. In the standard configuration separators are assembled every 2nd e-chain® link



**Notched Separator
 for notched crossbar**

Unassembled	Part No. 108-1
Assembled	Part No. 108-1-1

- **Standard separator for any application**
 For a vertical subdivision. Offers safe stability due to its wide base design, also when used with thick cables or hoses



Full-width shelf, lockable

Unassembled	Part No. 1120-X
Assembled	Part No. 1121-X

- **Horizontal separation**
 Full-width shelf locks securely into separators at both ends, giving a fixed width. Can be used as full-width or partial shelf.

Shelves

Width = X [mm]



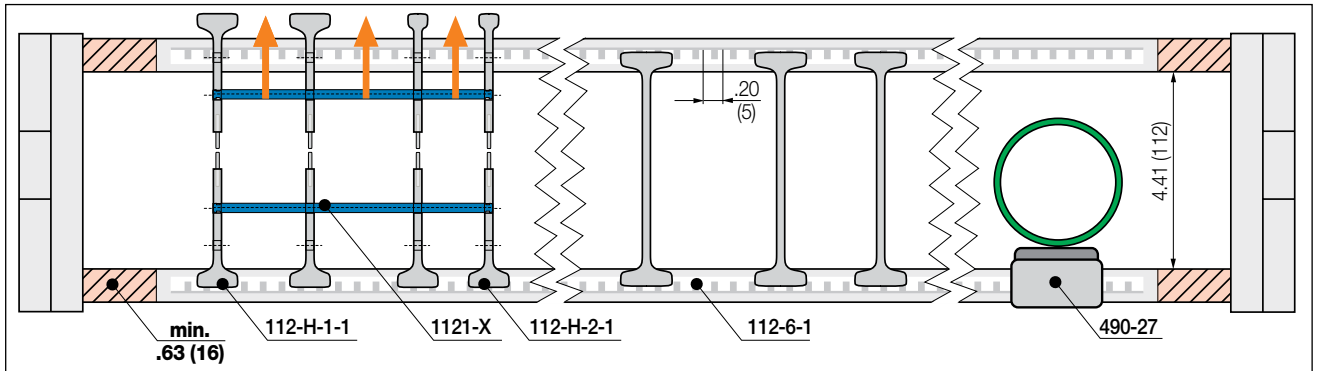
X	unassembled	assembled	X	unassembled	assembled	X	unassembled	assembled
in. (mm)			in. (mm)			in. (mm)		
1.97 (050)	1120-050	1121-050	5.91 (150)	1120-150	1121-150	11.81 (300)	1120-300	1121-300
2.56 (065)	1120-065	1121-065	6.89 (175)	1120-175	1121-175	13.78 (350)	1120-350	1121-350
2.95 (075)	1120-075	1121-075	7.87 (200)	1120-200	1121-200	14.76 (375)	1120-375	1121-375
3.94 (100)	1120-100	1121-100	8.86 (225)	1120-225	1121-225	15.24 (387)	1120-387	1121-387
4.92 (125)	1120-125	1121-125	9.84 (250)	1120-250	1121-250	17.72 (450)	1120-450	1121-450



Compact design, custom configuration: two nested E4-112 e-chains® each around 39.4 ft. (12m) long carry very heavy fill weights

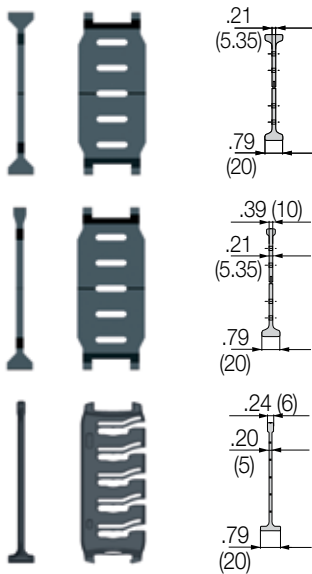
PDF: igus.com/e-chain-pdfs
 Product information: igus.com/e-chains





Note Please maintain a lateral spacing of 1.57" (40 mm) for e-tube and .63" (16 mm) for e-chains® between the separators and the side links. In the standard configuration separators are assembled every 2nd e-chain® link

Telephone 1-800-521-2747



Separator, wide base

Unassembled Part No. 112-H-1
Assembled Part No. 112-H-1-1

Separator, narrow head

Unassembled Part No. 112-H-2
Assembled Part No. 112-H-2-1

Lean separator

Unassembled Part No. 112-12
Assembled Part No. 112-12-1

● **Split separators for all applications**

In order to fill e-chains® more easily and effectively, these separators can be split in the middle. This allows easier access to middle shelf partitions. Fast assembly and easy retrofit. 2 types available: with wide or narrow top.

● **Lean separators 112-12**

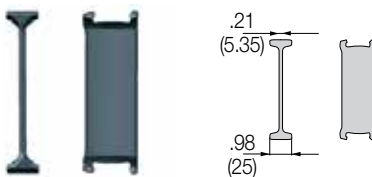
New design allows extremely fast fitting of shelves in several layers, which significantly reduces assembly time. Enables extremely fast replacement of individual cables in a very full e-chain®.

● **Lean separator design - several layers of cables fitted quickly, save up to 50%* assembly time**

(*Lean separator vs. standard separator - measured on a 4m long e-chain® fitted with 12 cables in the igus® harnessing factory)

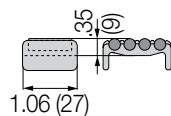


More interior separation options



Notch locking separator

Unassembled Part No. 112-6
Assembled Part No. 112-6-1



Rollclip* for e-chains®

Unassembled Part No. 489-27
Assembled Part No. 490-27

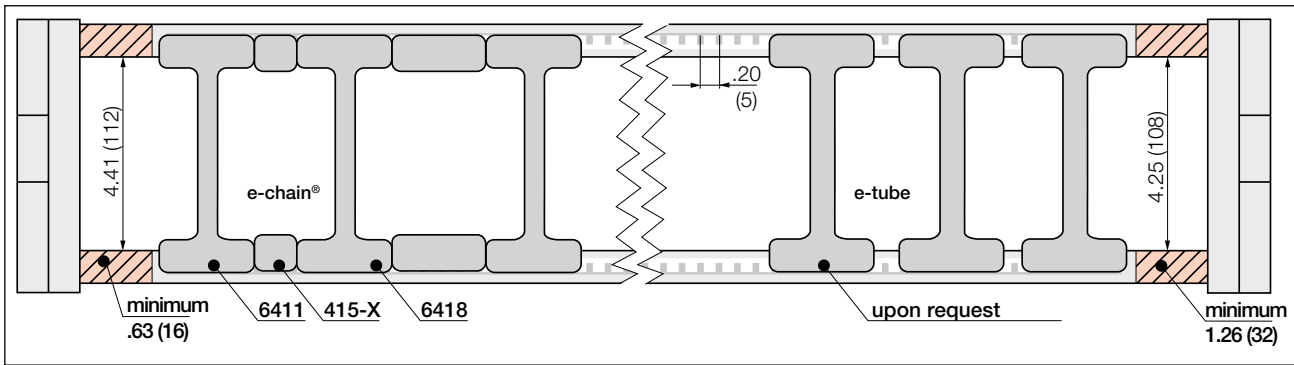
● **Notch locking separator for increased holding force**

Notch locking separators offer higher crossbar opening forces for high humidity and/or large hydraulic hoses. They can be positioned precisely and then locked in position.

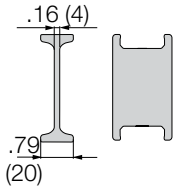
● **Rollclip***

Minimizes abrasion of sensitive hoses. Simply clamps onto the opening crossbar. The movable rollers compensate for relative movement between the e-chain® and hose.

*Only for e-chains®



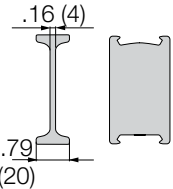
Note Please maintain a lateral spacing of 1.26" (32 mm) for e-tube and .63" (16 mm) for e-chains® between the separators and the side links. In the standard configuration separators are assembled every 2nd e-chain® link



Separator (chain only)

Unassembled	Part No. 6401
Assembled	Part No. 6411

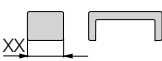
- **Standard separator 6401 for e-chains®**
 For a vertical subdivision. Offers safe stability due to its wide base design, also when used with thick cables or hoses (Separator for e-tubes 1608 upon request)



Separator, locking (chain only)

Unassembled	Part No. 6408
Assembled	Part No. 6418

- **Separator 6408 for e-chains®**
 For applications exposed to very high humidity (>85%). Locks with extra retention force. Tip: one locking separator per e-chain® link for better mounting.



Spacer (chain only)

Unassembled	Part No. 405-XX
Assembled	Part No. 415-XX

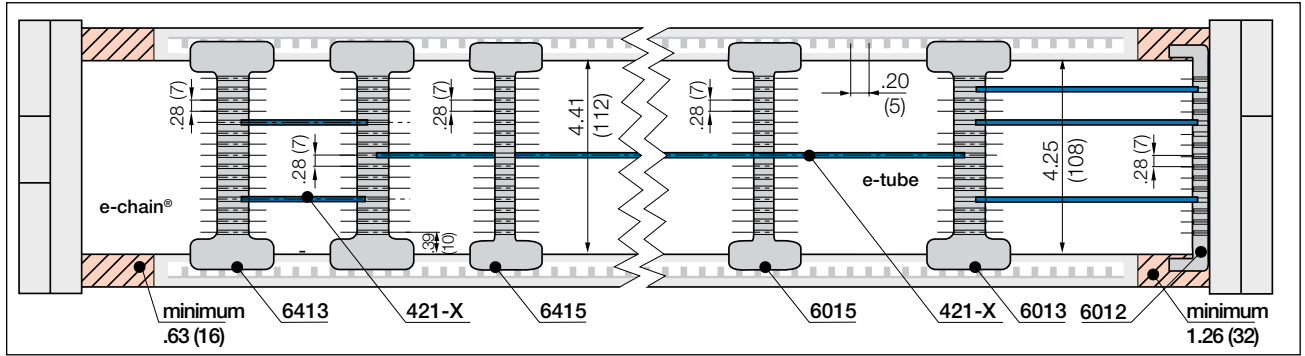
XX = width of the spacer

- **NOTE ON SPACERS for e-chains®**
 Vertical separators are adjustable, but can be fixed in position by means of a spacer. Spacers are most often necessary for side mounted applications. The available inner height is reduced by .08" (2mm) **per spacer** (for example if one spacer is placed on either side of the separator, the overall inner height is reduced by .16" (4mm)). To avoid this, place the spacers on the **outside** of the opening crossbar (**not for long travels**).

Spacers available in the following sizes:

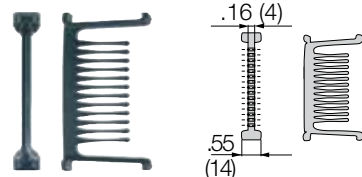
Part No. Unassembled	Part No. Assembled	Width	
		in.	(mm)
405 -10	415 -10	.39"	(10)
405 -15	415 -15	.59"	(15)
405 -20	415 -20	.79"	(20)
405 -30	415 -30	1.18"	(30)
405 -40	415 -40	1.57"	(40)





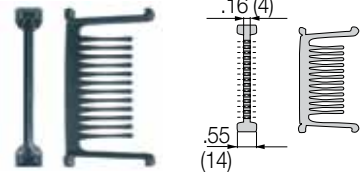
Note Please maintain a lateral spacing of 1.26" (32 mm) for e-tube and .63" (16 mm) for e-chains® between the separators and the side links. In the standard configuration separators are assembled every 2nd e-chain® link

Telephone 1-800-521-2747



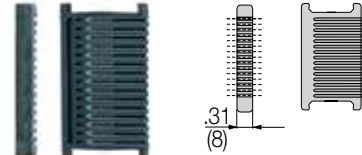
Slotted separator, open (e-chains®)
Unassembled Part No. 6405
Assembled Part No. 6415

- **Open, slotted separator 6405**
For e-chains® (unilateral open)
This separator can be retrofitted into an existing interior separation system without removing the shelves. The top and bottom botches cannot be occupied by shelves



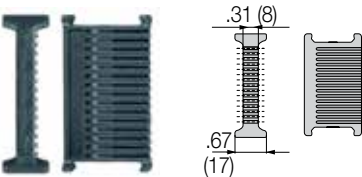
Slotted separator, open (e-tubes)
Unassembled Part No. 6005
Assembled Part No. 6015

- **Open, slotted separator 6005**
For e-tubes (unilateral open)
This separator can be retrofitted into an existing interior separation system without removing the shelves. The top and bottom botches cannot be occupied by shelves



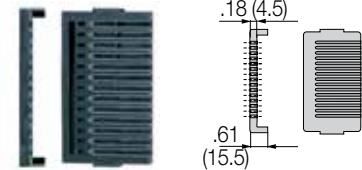
Vertical separator (e-chains®)
Unassembled Part No. 6403
Assembled Part No. 6413

- **Vertical separator 6403**
For e-chains®
This component is used to form the basic pattern of a shelf system. The shelf 420-X can be installed at 15 different heights in .28" (7 mm) increments



Vertical separator, locking (e-tubes)
Unassembled Part No. 6003
Assembled Part No. 6013

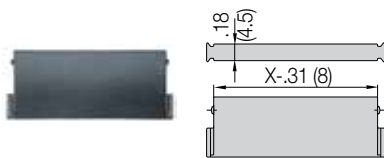
- **Locking vertical separator 6003**
For e-tubes
This component is used to form the basic pattern of a shelf system.



Side plate
Unassembled Part No. 6002
Assembled Part No. 6012

- **Side plate 6002**
For e-chains® / Tubes
This component is used to form the basic pattern of a shelf system. Allows modular shelving close to the side links.

Full-width shelves - for the standard interior separation



Full width shelf
Unassembled Part No. 420-X
Assembled Part No. 421-X

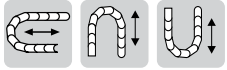
- **Full width shelf 420-X**
These components form the basic pattern of a shelf system. Shelves of various widths can be arranged at 7 different heights in .28" (7mm) increments

Width X	Part No.	Part No.	Width X	Part No.	Part No.	Width X	Part No.	Part No.
in. (mm)	Unassembled	Assembled	in. (mm)	Unassembled	Assembled	in. (mm)	Unassembled	Assembled
.71 (18)	420-18	421-18	1.97 (50)	420-50	421-50	5.91 (150)	420-150	421-150
.91 (23)	420-23	421-23	2.44 (62)	420-62	421-62	6.89 (175)	420-175	421-175
.98 (25)	420-25	421-25	2.95 (75)	420-75	421-75	7.36 (187)	420-187	421-187
1.10 (28)	420-28	421-28	3.46 (88)	420-88	421-88	7.87 (200)	420-200	421-200
1.30 (33)	420-33	421-33	3.94 (100)	420-100	421-100			
1.69 (43)	420-43	421-43	4.92 (125)	420-125	421-125			

e-chain system® E4-1 Series E4-112/R4-112 Mounting Bracket - Steel



E4-112
R4-112

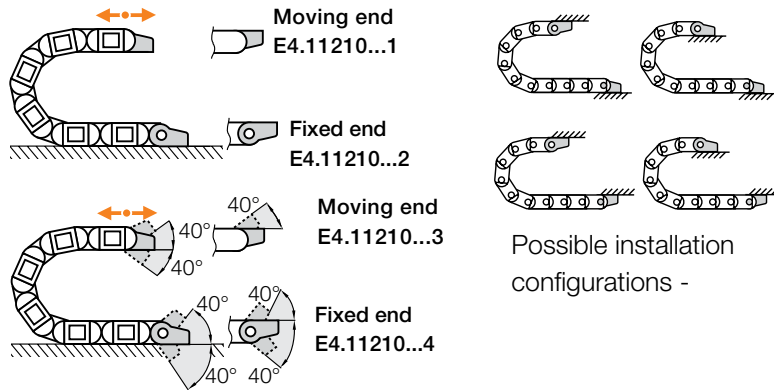


Option 2: Locking

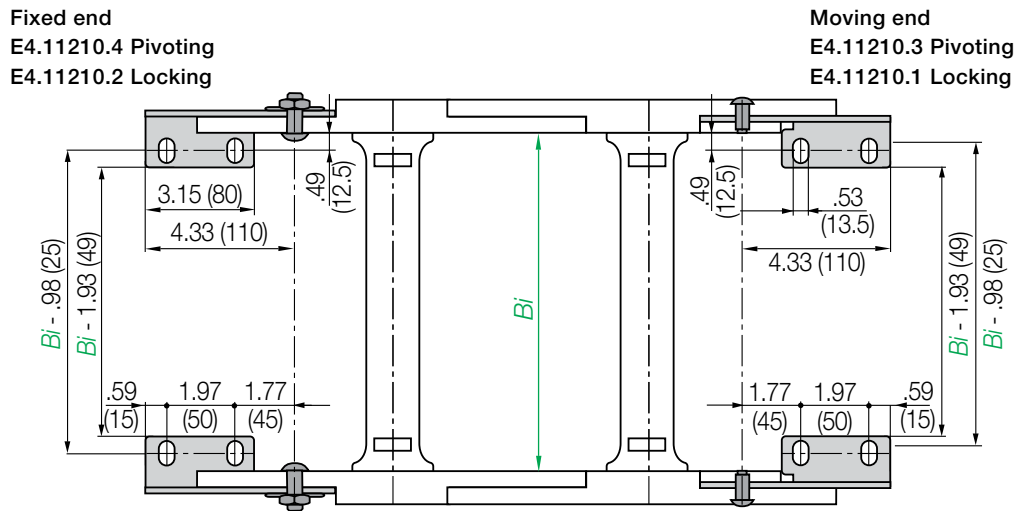
- For vertical hanging and vertical standing applications
- One part for all chain widths
- Electrically conductive

Option 1: pivoting

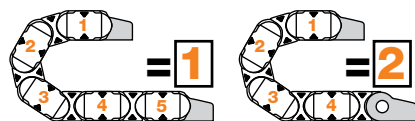
- For unsupported and gliding applications
- One part for all chain widths
- Electrically conductive



Possible installation configurations -



Part No. full set	Description
steel locking	mounting bracket
E4.11210.112VS	Full set (both ends), For a chain with an odd number of links
E4.11210.212VS	Full set (both ends), For a chain with an even number of links
steel pivoting	mounting bracket
E4.11210.134VS	Full set (both ends), For a chain with an odd number of links
E4.11210.234VS	Full set (both ends), For a chain with an even number of links



Note: Depending on the chain length, the e-chain® may end with either an outer or an inner side link. For the best appearance, make sure the e-chain® ends with outer side links whenever possible. (with odd number of links)



Strain relief such as clamps, tiwrap plates, nuggets and plug-in clips are available from stock.
The complete chainfix range with ordering options ► Chapter 10

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains





Part number example for e-chain®

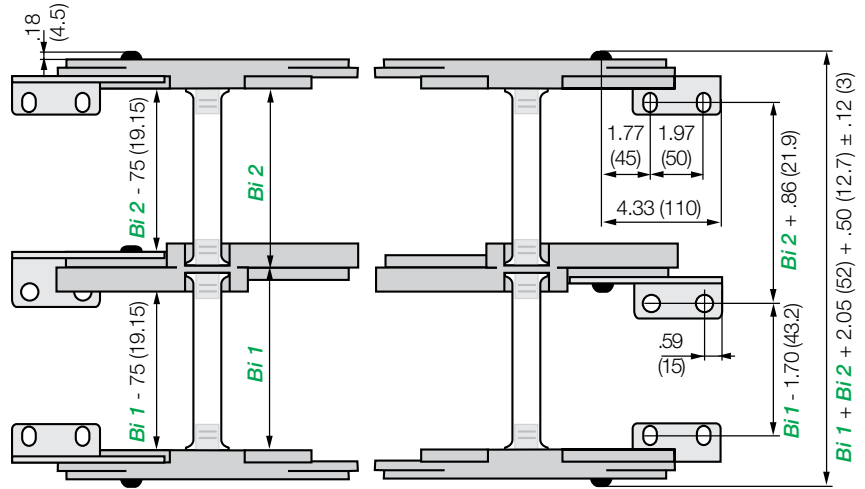
E4-112-10/20/10-200-0

E4-112-*Bi1/Bi2/Bi3*-R-0



Extension links - for extremely wide e-chains® up to 9.84 ft (3m)

- For applications in which particularly high fill weights necessitate extremely wide e-chains®
- The extension link design allows virtually limitless side-by-side attachment of chains
- The unsupported length of a chain can be increased when additional loads are required
- Extension links can be used with e-chains®, e-tubes or a combination of both
- They are suitable for unsupported and gliding applications in a guide trough
- e-chains® with extension links are attached with steel mounting brackets.



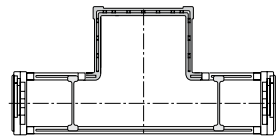
We **strongly recommend** on-site consultation with an igus® technician for individual advice regarding mounting brackets, guide troughs and other design details.



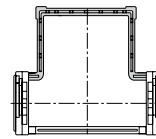
Consult igus® for your extender crossbar applications. We will be happy to assist you with your design layout.

Extender crossbars - For careful guiding of large diameter cables and hoses

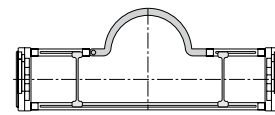
- Intended for cables and hoses with a maximum outer diameter of 11.81 in. (300 mm).
- Can be attached along either the inner or outer radius, inner radius preferred
- Gliding operation with crossbars assembled along the outer radius in conjunction with a special guide trough
- Gliding operation not guaranteed with crossbars assembled along the inner radius
- The extender crossbar can either be attached to the side links directly or can be used in combination with two standard snap-open crossbars.



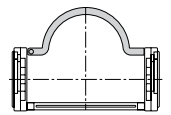
Square extender crossbar combined with standard snap-open crossbars.



Attached directly to the side link.



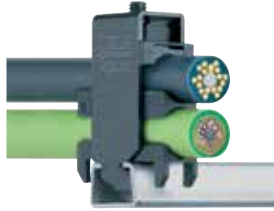
Round extender crossbar combined with standard snap-open crossbars.



Attached directly to the side link.

Part No.	Max Ø Hose	Style	Installation Side Link	Combined with Snap-Open Crossbars
450-15-RHD115	4.53 (115)	Round	No	Yes
450-17-RD115	4.53 (115)	Round	Yes	No
450-25-D150	5.91 (150)	Square	Yes	No
450-30-D200	7.87 (200)	Square	Yes	No
450-35-D250	8.66 (220)	Square	Yes	No
450-40-D300	10.63 (270)	Square	Yes	No
450-20-HD150	5.91 (150)	Square	No	Yes
450-25-HD200	7.87 (200)	Square	No	Yes
450-30-HD250	8.66 (220)	Square	No	Yes

Chainfix clamps for the profile rail

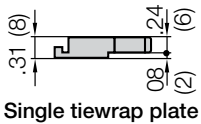
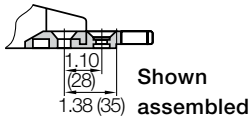


igus® Chainfix strain relief elements are available in either steel or stainless steel. They can be adjusted with a hexagon socket and are available in single, double and triple configurations.

Part No. Single Clamp		Part No. Double Clamp		Part No. Triple Clamp		Cable ø	
Steel	Stainless	Steel	Stainless	Steel	Stainless	in.	(mm)
CFX12-1	CFX12-1E	CFX12-2	CFX12-2E	CFX12-3	–	.24 - .47	(6 - 12)
CFX14-1	CFX14-1E	CFX14-2	CFX14-2E	CFX14-3	–	.47 - .55	(12 - 14)
CFX16-1	CFX16-1E	CFX16-2	CFX16-2E	CFX16-3	–	.55 - .63	(14 - 16)
CFX18-1	CFX18-1E	CFX18-2	CFX18-2E	CFX18-3	–	.63 - .71	(16 - 18)
CFX20-1	CFX20-1E	CFX20-2	CFX20-2E	CFX20-3	–	.71 - .79	(18 - 20)
CFX22-1	CFX22-1E	CFX22-2	CFX22-2E	CFX22-3	–	.79 - .87	(20 - 22)
CFX26-1	CFX26-1E	CFX26-2	CFX26-2E	–	–	.87 - 1.02	(22 - 26)
CFX30-1	CFX30-1E	CFX30-2	CFX30-2E	–	–	1.02 - 1.18	(26 - 30)
CFX34-1	CFX34-1E	CFX34-2	CFX34-2E	–	–	1.18 - 1.34	(30 - 34)
CFX38-1	CFX38-1E	–	–	–	–	1.34 - 1.50	(34 - 38)
CFX42-1	CFX42-1E	–	–	–	–	1.50 - 1.65	(38 - 42)

For more information please refer to strain relief section of Chapter 10.

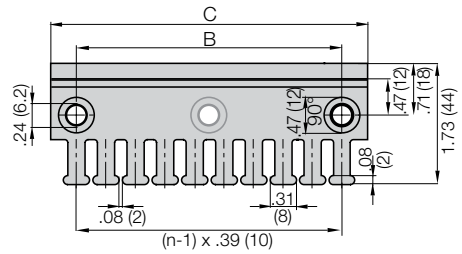
Tiewrap Plates



Option 1:
Tiewrap plates as an individual part

Available as an individual component, can be fixed onto a mounting bracket with the use of a profile rail.

Tiewrap Plate	n Number of Teeth	C Overall Width in. (mm)	B Bore Width in. (mm)	Center Bore
3050-ZB	5	1.97 (50)	1.18 (30)	no
3075-ZB	7	2.95 (75)	2.16 (55)	no
3100-ZB	10	3.94 (100)	3.15 (80)	no
3115-ZB	11	4.53 (115)	3.74 (95)	no
3125-ZB	12	4.92 (125)	4.13 (105)	no
3150-ZB	15	5.91 (150)	5.12 (130)	no
3175-ZB	17	6.89 (175)	6.10 (155)	no
3200-ZB	20	7.87 (200)	7.09 (180)	yes
3225-ZB	22	8.86 (225)	8.07 (205)	yes
3250-ZB	25	9.84 (250)	9.06 (230)	yes



If used with KMA brackets with profile rail please add "KMA" to the end of the part number.

Example: 3050-ZBKMA

For more information please refer to strain relief section of Chapter 10.

Option 2:
Clip-on Tiewrap plates

Available as a clip-on tiewrap plate without the use of bolts They are inserted and removed with a screwdriver used as a lever. Clip-on tiewrap plates are also available as an attachment to the opening crossbars.

Part No.	Number of Teeth	Width of Strain Relief in. (mm)
3050-ZC	5	1.97 (50)
3075-ZC	7	2.95 (75)

For more information please refer to strain relief section of Chapter 10.

Option 3:
Clip-on Tiewrap plates for opening crossbars

Clip-on tiewrap plates are also available as an attachment to opening crossbars. They can be positioned at any point along the e-chain®.

Part No.	Number of Teeth	Width of Strain Relief in. (mm)
4550-ZS	5	1.89 (48)
4575-ZS	7	2.91 (74)

For more information please refer to strain relief section of Chapter 10.



Width of Crossbar
E4-112-12-300-0

	B_{Ri}	Installation Part No.
-05	4.21 (107)	97-50-225
-06	4.80 (122)	97-50-225
-07	5.20 (132)	97-50-250
-10	6.18 (157)	97-50-275
-11	6.65 (169)	97-50-275
-12	7.17 (182)	97-50-300
-13	76.38 (194)	97-50-300
-15	8.15 (207)	97-50-325
-16	8.62 (219)	97-50-325
-17	9.13 (232)	97-50-350
-18	9.61 (244)	97-50-350
-20	10.12 (257)	97-50-375
-21	10.59 (269)	97-50-375
-22	11.10 (282)	97-50-400
-23	11.57 (294)	97-50-400
-25	12.09 (307)	97-50-425
-26	12.56 (319)	97-50-425
-27	13.07 (332)	97-50-450
-28	13.54 (344)	97-50-450
-30	14.06 (357)	97-50-475
-31	14.53 (369)	97-50-475
-32	15.04 (382)	97-50-500
-33	15.51 (394)	97-50-500
-35	16.02 (407)	97-50-525
-36	16.50 (419)	97-50-525
-37	17.01 (432)	97-50-550
-38	17.48 (444)	97-50-550
-40	17.99 (457)	97-50-575
-41	18.46 (469)	97-50-575
-42	18.98 (482)	97-50-600
-43	19.45 (494)	97-50-600
-45	19.96 (507)	97-50-625
-46	20.43 (519)	97-50-625
-47	20.94 (532)	97-50-650
-48	21.42 (544)	97-50-650
-50	21.93 (557)	97-50-675
-51	22.40 (569)	97-50-675
-52	22.91 (582)	97-50-700
-53	23.39 (594)	97-50-700
-55	23.90 (607)	97-50-725
-60	25.87 (657)	97-50-775

Guide troughs are used with applications where the upper run of the e-chain® glides on the lower run. If using igus® steel guide troughs, the following components are required:

- Full travel length of guide trough
Part No. 97-30
- 1/2 travel length glide bars
Part No. 93-01
- Installation sets as end connectors
Part No. 97-50-XX

-XX indicates the length of the profile rails on which the guide trough is mounted. The values and part numbers are specified in the table on the left. The standard length of the trough components and glide bars is 6.56 ft (2 m). The overall length of the guide trough directly correlates to the length of travel.

Example:

Length of travel 164 ft (50 m)
Center-mounted

Required guide troughs:

164 ft (50 m) guide trough, 82 ft. (25 m) glide bar
= 25 sections of 6.56 ft (2 m) guide trough

Part No. 97-30

= 13 sections of 6.56 ft (2 m) glide bar

Part No. 93-01

Required number of installation set:

= Number of guide trough components + 1
= 25 + 1 = 26

Part No. of the installation sets **97-50-XXX**

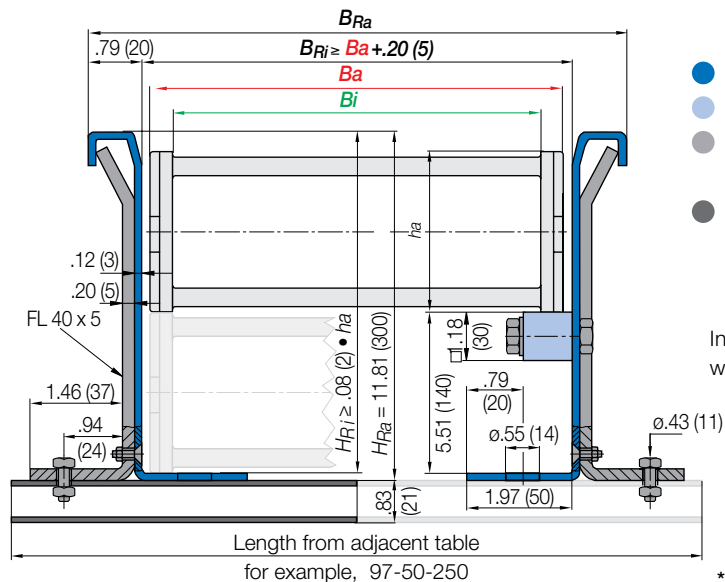
Example:

97-50-400 for 15.75 (400 mm) long profile rail



Left: Guide trough with glide bars
Right: Guide troughs without glide bars

Installation sets as section connectors



- Guide trough
- Glide bars
- Installation set "Basic"
- Profile rail

Individual attachment without profile rail

* Specialized guide trough available upon request

Standard length profile rail

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains



Price Index


Series E4-162

Special Options Available


Low noise version available with special rubber pads



Cleanroom test upon request



ESD classification:
Electrically conductive ESD/
ATEX version upon request

Assembly Tips

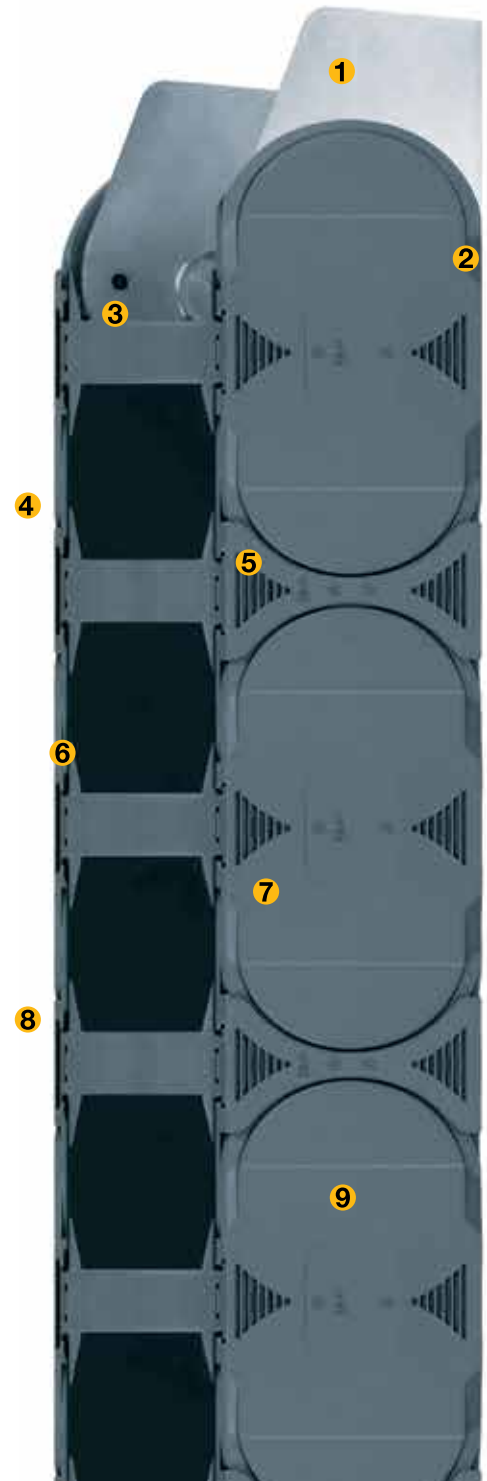

Opening e-chains®: Remove crossbars and clips - Insert screwdriver into the slot, push down, release by lever action



Also available without camber.
Add NCST to the end of the part number.
Ex: E4-162-30-300NCST

Features & Benefits

- 1 Steel mounting brackets
- 2 Hinged, snap-open removable lids along the outer radius
- 3 Noise dampening pads, optional = -10dB(A)
- 4 Gliding surfaces, long travels
- 5 Chip protection with e-tube
- 6 Undercut for more stability
- 7 Notch crossbar with backside scaling
- 8 Straight run due to the inner/outer link design
- 9 Low noise operation due to integrated "brake"


Other Installation Methods

Vertical, hanging ≤ 394 ft (120 m)

Vertical, standing ≤ 19.69 ft (6 m)

Side-mounted, un_supp. upon request

Rotary requires further calculation

Usage Guidelines


- If a robust e-chain/Energy is required
- If inner widths up to 23.62" (600 mm) are required
- For unsupported lengths up to 21.3 ft. (6.5 m) and fill weights up to 60.48 lbs/ft. (90 kg/m)
- For long travels



- When an e-chain is needed for rough applications with greater inner height
 - Series 800
- When a lighter e-chain® is needed
 - Series 1640

Order Example: Complete e-chain®

Please indicate chain length or number of links. Example:

16.4 ft (5 m) **E4-162-30-300-0**



e-chain®

With 2 separators **162.1.1** assembled every 2nd link



Interior Separation

1 Set **E4-16210-12**



Mounting Bracket

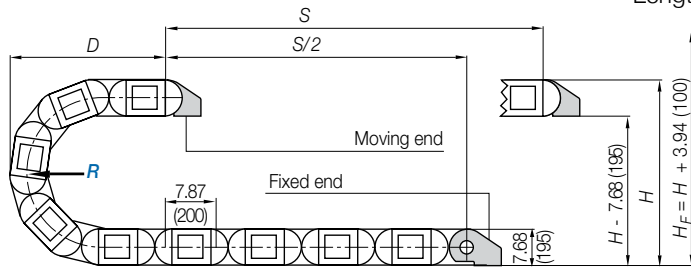
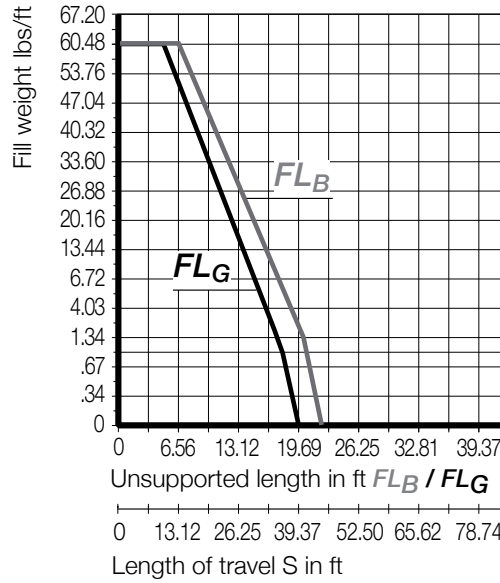
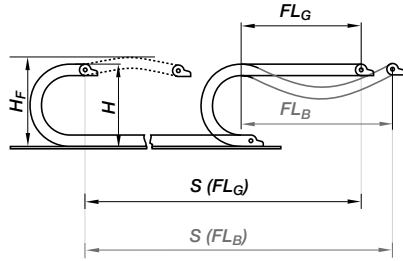
e-chain system® E4-1

Series E4-162

Installation Dimensions

Short travel, unsupported length

- FL_B = unsupported with permitted sag
 - FL_G = unsupported with straight upper run
- Further information ► Design, Chapter 1



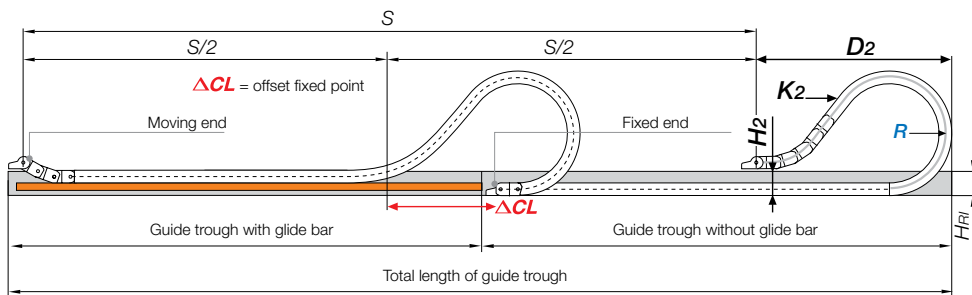
Pitch per link = 7.87" (200 mm)
 Links per ft (m) = 1.52 (5)
 For center mount applications:
 Chain length = $\frac{S}{2} + K$

The required clearance height: $H_F = H + 3.94$ in. (100 mm) with 3.36 lbs/ft (5 kg/m) fill weight.
 Please consult igus® if space is particularly restricted.

R	9.84 (250)	11.81 (300)	13.78 (350)	15.75 (400)	9.84 (450)	19.68 (500)	21.65 (550)	23.62 (600)	29.53 (750)	39.37 (1000)
H	27.56 (700)	31.50 (800)	35.43 (900)	39.37 (1000)	43.31 (1100)	47.24 (1200)	51.18 (1300)	55.12 (1400)	66.93 (1700)	86.61 (2200)
D	25.51 (648)	27.48 (698)	29.45 (748)	31.42 (798)	33.39 (848)	35.35 (898)	37.32 (948)	39.29 (998)	45.20 (1148)	55.04 (1398)
K	46.85 (1190)	52.95 (1345)	59.06 (1500)	65.35 (1660)	71.46 (1815)	77.76 (1975)	83.86 (2130)	89.96 (2285)	108.66 (2760)	139.57 (3545)

For long travels with lowered mounting height

Long travel lengths from 45.9 ft.(14m) to max. 1,476 ft. (450m)



For center mount applications:
 Chain length = $\frac{S}{2} + K_2$

Long Travels - Gliding



If the unsupported length is exceeded, the e-chain®/ Tube must glide on itself. This requires a guide trough.

Design, Chapter 1

R	9.84 (250)	11.81 (300)	13.78 (350)	15.75 (400)	9.84 (450)	19.68 (500)	21.65 (550)	23.62 (600)	29.53 (750)	39.37 (1000)
H ₂	*	22.83 (580)	22.83 (580)	22.83 (580)	22.83 (580)	22.83 (580)	22.83 (580)	22.83 (580)	**	**
D ₂	*	37.40 (950)	41.34 (1050)	53.15 (1350)	62.99 (1600)	76.77 (1950)	80.71 (2050)	94.49 (2400)	**	**
K ₂	*	62.99 (1600)	70.87 (1800)	94.49 (2400)	110.24 (2800)	125.98 (3200)	133.86 (3400)	149.61 (3800)	**	**
ΔCL	*	11.81 (300)	13.78 (350)	23.62 (600)	31.50 (800)	43.31 (1100)	45.28 (1150)	57.09 (1450)	**	**

In case of travels between 39.4 and 45.9 ft (12 and 14 m) we recommend a longer unsupported length.

Speed / acceleration FL_G	max. 65.6 ft/s (20 m/s) / max. 656 ft/s ² (200 m/s ²)
Speed / acceleration FL_B	max. 9.84 ft/s (3 m/s) / max. 19.69 ft/s ² (6 m/s ²)
Gliding speed / acceleration (maximum)	max. 32.8 ft/s (10 m/s) / max. 164 ft/s ² (50 m/s ²)
Material - permitted temperature	igumid G / -40°F (-40°C) up to +248°F (+120°C)
Flammability Class, igumid G	VDE 0304 IIC UL94 HB

Technical Data



Details of material properties

► Chapter 1



E4-162



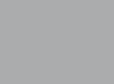
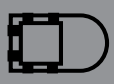
Short Travels - Unsupported

Unsupported e-chains® feature positive camber over short travels. This must be accounted for when specifying the clearance height. Please refer to **Installation dimensions** for further details.

Legend

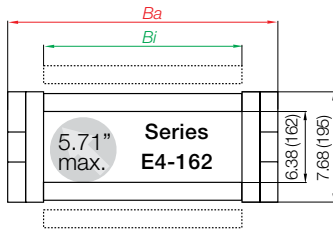
- S = Length of travel
 - R = Bending radius
 - H = Nominal clearance height
 - D = Overlength e-chain® radius in final position
 - $K = \pi \cdot R + \text{safety buffer}$
 - H_f = Required clearance height
 - H_{RI} = Trough inner height
 - H_2 = *Mounting height
 - D_2 = Overlength - long travels, gliding
 - K_2 = *Add-on
- *If the mounting bracket location is set lower

PDF: igus.com/e-chain-pdfs
 Product information: igus.com/e-chains



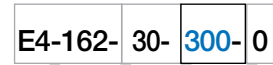
6.104

Series E4-112 - e-chain® with crossbars every link



- Crossbars every link
- For use with rigid hydraulic hoses
- For particularly demanding applications
- Can be opened from both sides

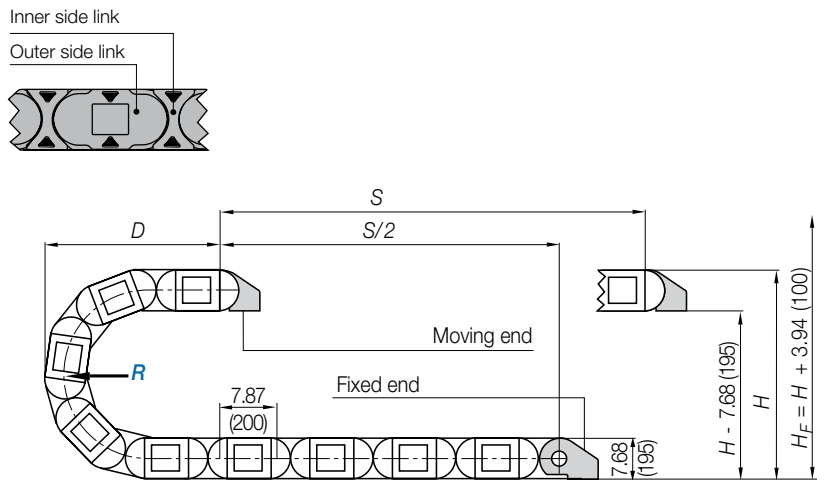
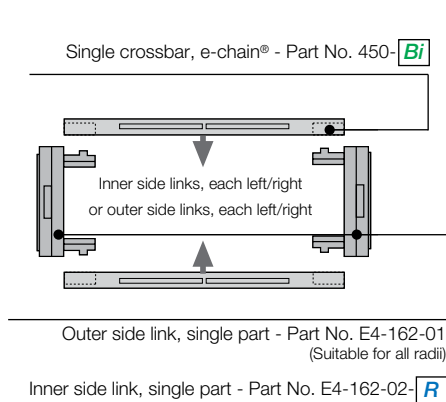
Part Number Structure



- Color - Black
- Bending radius
- Width
- Series



e-chain® as separate parts, links and side plates



Supplement part number with required radius. Example: E4-162-30-**300**-0
Pitch: 7.87 in. (200mm) per link links/ft (m) = 1.52 (5)

Part Number	Crossbars Every link	Bi in. (mm)	Ba in. (mm)	Weight E4-112 lbs/ft (kg/m)
E4-162-20-	<input type="text"/> -0	7.87 (200)	10.08 (256)	≈ 7.02 (10.45)
E4-162-25-	<input type="text"/> -0	9.84 (250)	12.05 (306)	≈ 7.22 (10.74)
E4-162-30-	<input type="text"/> -0	11.81 (300)	14.02 (356)	≈ 7.38 (10.99)
E4-162-32-	<input type="text"/> -0	12.79 (325)	15.00 (381)	≈ 7.41 (11.02)
E4-162-35-	<input type="text"/> -0	13.78 (350)	15.98 (406)	≈ 7.53 (11.21)
E4-162-40-	<input type="text"/> -0	15.75 (400)	17.95 (456)	≈ 7.73 (11.51)
E4-162-45-	<input type="text"/> -0	17.72 (450)	19.92 (506)	≈ 7.82 (11.65)
E4-162-50-	<input type="text"/> -0	19.69 (500)	21.89 (556)	≈ 7.95 (11.83)
E4-162-55-	<input type="text"/> -0	21.65 (550)	23.86 (606)	≈ 8.14 (12.11)
E4-162-60-	<input type="text"/> -0	23.62 (600)	25.83 (656)	≈ 8.37 (12.45)

Choose from the radii below for all of the above sizes

Radius (mm) Example: E4-162-30-**300**-0

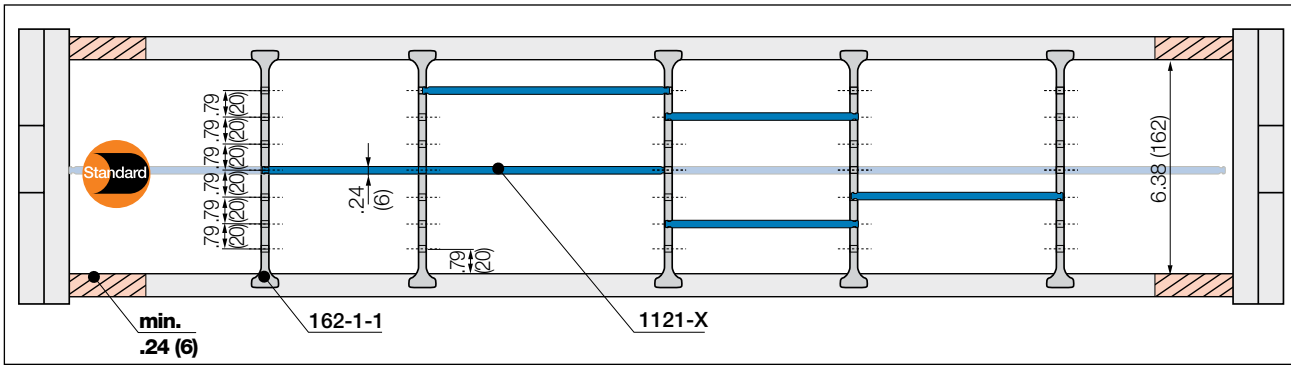
	250	300	350	400	450	500	550	600	750	1000
R	9.84 (250)	11.81 (300)	13.78 (350)	15.75 (400)	19.68 (500)	21.65 (550)	23.62 (600)	29.53 (750)	39.37 (1000)	
H	27.56 (700)	31.50 (800)	35.43 (900)	39.37 (1000)	43.31 (1100)	47.24 (1200)	51.18 (1300)	55.12 (1400)	66.93 (1700)	86.61 (2200)
D	25.51 (648)	27.48 (698)	29.45 (748)	31.42 (798)	33.39 (848)	35.35 (898)	37.32 (948)	39.29 (998)	45.20 (1148)	55.04 (1398)
K	46.85 (1190)	52.95 (1345)	59.06 (1500)	65.35 (1660)	71.46 (1815)	77.76 (1975)	83.86 (2130)	89.96 (2285)	108.66 (2760)	139.57 (3545)

0=Standard color black. For other colors see Chapter 1

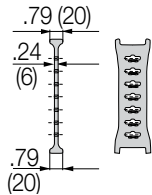
e-chain system® E4-1
Series E4-162
Interior Separation



E4-162



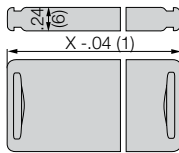
Note Please maintain a lateral spacing of .24" (6 mm) for e-chains® between the separators and the side links. In the standard configuration separators are assembled every 2nd e-chain® link



Standard Separator, wide base

Unassembled	Part No. 162-1
Assembled	Part No. 162-1-1

- **Standard separator for any application**
Separator with a wide base for maximum holding force in the e-chain®



Full-width shelf, lockable

Unassembled	Part No. 1120-X
Assembled	Part No. 1121-X

- **Horizontal separation**
Full-width shelf locks securely into separators at both ends, giving a fixed width. Can be used as full-width or partial shelf.

Shelves

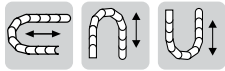
Width = X [mm]



X in. (mm)	unassembled	assembled	X in. (mm)	unassembled	assembled	X in. (mm)	unassembled	assembled
1.97 (050)	1120-050	1121-050	5.91 (150)	1120-150	1121-150	11.81 (300)	1120-300	1121-300
2.56 (065)	1120-065	1121-065	6.89 (175)	1120-175	1121-175	13.78 (350)	1120-350	1121-350
2.95 (075)	1120-075	1121-075	7.87 (200)	1120-200	1121-200	14.76 (375)	1120-375	1121-375
3.94 (100)	1120-100	1121-100	8.86 (225)	1120-225	1121-225	15.24 (387)	1120-387	1121-387
4.92 (125)	1120-125	1121-125	9.84 (250)	1120-250	1121-250	17.72 (450)	1120-450	1121-450

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains



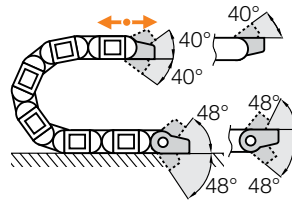


Option 1: pivoting

- For unsupported and gliding applications
- One part for all chain widths
- Electrically conductive

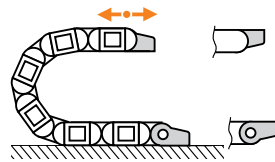
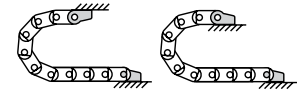
Option 2: Locking

- For vertical hanging and vertical standing applications
- One part for all chain widths
- Electrically conductive



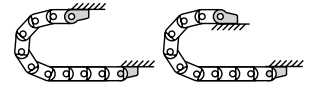
Moving end
 E4-16210...3

Fixed end
 E4-16210...4



Moving end
 E4-16210...1

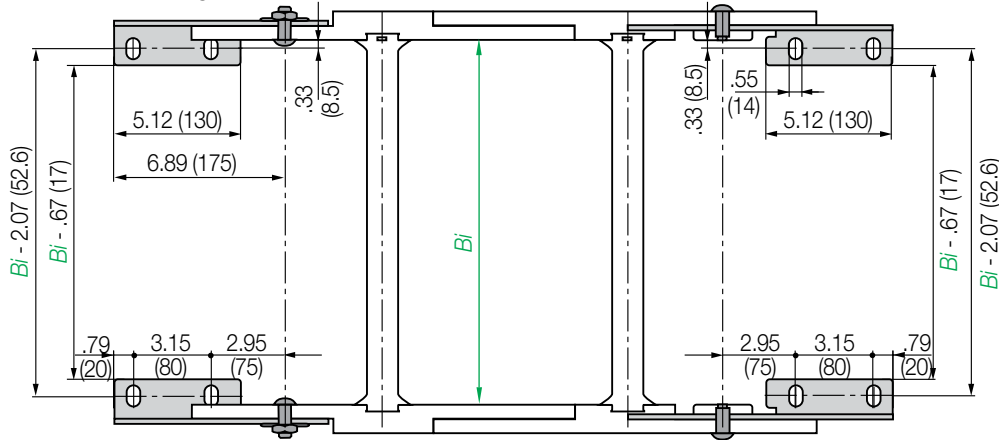
Fixed end
 E4-16210...2



Possible installation configurations -

Fixed end
 E4-11210-4 Pivoting
 E4-11210-2 Locking

Moving end
 E4-11210-3 Pivoting
 E4-11210-1 Locking



Part No. full set	Description
steel pivoting	mounting bracket

E4-16210-□-34-VS-E Full set (both ends), ending with outer side link, **screwed** - standard

E4-16210-□-34-VS-E Full set (both ends) - beginning with outer side link (moving end) - ending with inner side link (fixed end), **screwed** - standard

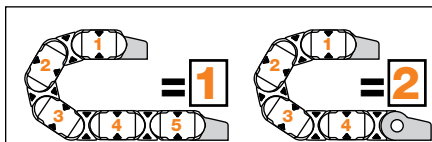
Stainless steel version available. Please add index **-E** (Material: stainless steel 1.4301)

Part No. full set	Description
steel locking	mounting bracket

E4-16210-□-12-VS-E Full set (both ends), ending with outer side link, **screwed** - standard

E4-16210-□-12-VS-E Full set (both ends) - beginning with outer side link (moving end) - ending with inner side link (fixed end), **screwed** - standard

Stainless steel version available. Please add index **-E** (Material: stainless steel 1.4301)



Note: Depending on the chain length, the e-chain® may end with □ either an outer or an □ inner side link. For the best appearance, make sure the e-chain® ends with □ outer side links whenever possible. (with odd number of links)



Strain relief such as clamps, tiewrap plates, nuggets and plug-in clips are available from stock.

The complete chainfix range with ordering options ► Chapter 10

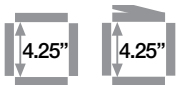
PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains



600
601
R608



e-chain system® E4/100 Series 600/601/R608



Price Index



Special Features / Options



This E4 Series is a low-noise version



Cleanroom test upon request



ESD classification:
Electrically conductive ESD/
ATEX version upon request

Assembly Tips



Opening e-chains®: Remove crossbars and clips - Insert screwdriver into the slot, push down, release by lever action



Remove lids/bottoms (e-tubes) - Insert screwdriver into the slot, release by lever action

Other Installation Methods

Vertical, hanging ≤ 394 ft (120 m)

Vertical, standing ≤ 19.69 ft (6 m)

Side-mounted, un_supp. ≤ 19.69 ft (6 m)

Rotary requires further calculation

Usage Guidelines



- When quiet operation is required
- When very high speeds and/or accelerations are required
- For long travels
- For high fill weights



- When a simpler, low-cost solution is required
➤ **Series 1640**
- If an increased inner height is required
➤ **Series 640**

Features & Benefits

- 1 Hinged snap-open removable lids along the outer radius
- 2 Optimized glide pads with lateral wear allowance
- 3 Closed and open styles can be combined
- 4 Wide, rounded crossbars
- 5 Dirt-repellent exterior
- 6 Numerous interior separation possibilities
- 7 Stop dog with brake for noise reduction
- 8 Crossbars on e-chains® are removable along both radii
- 9 e-chains® also available with reverse bending radius "RBR"



Order Example: Complete e-chain®

Please indicate chain length or number of links. Example:

19.69 ft (6 m) **600-30-300-0**

e-chain®

With 2 separators **6011** assembled every 2nd link

Interior Separation

1 Set **6000-12**

Mounting Bracket

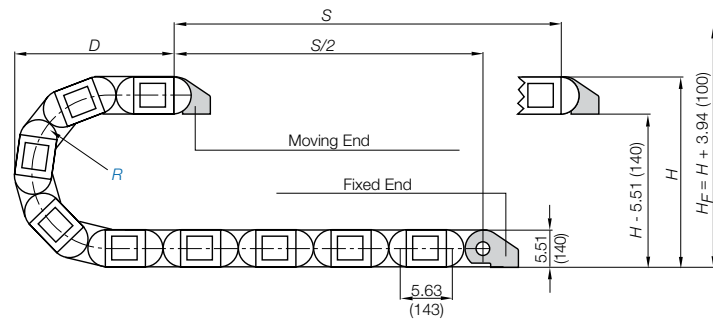
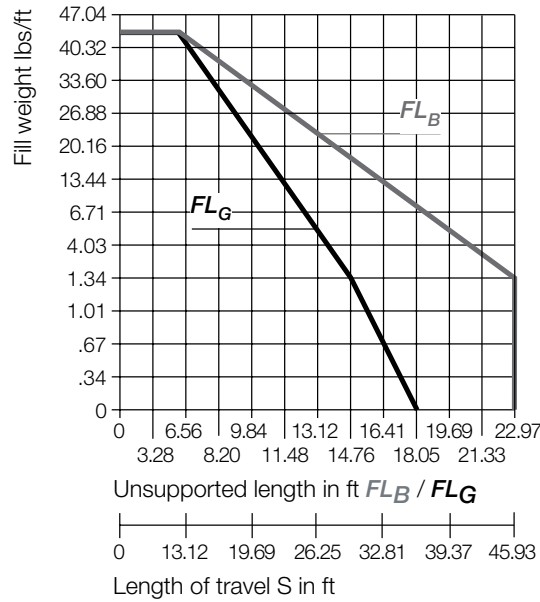
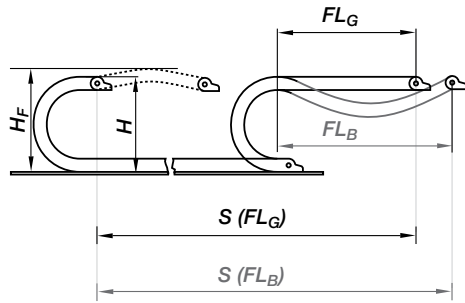
e-chain system® E4/100

Series 600/601/R608

Installation Dimensions

Short travel, unsupported length

- FL_B = unsupported with permitted sag
 - FL_G = unsupported with straight upper run
- Further information ► Design, Chapter 1



Pitch per link: = 5.63" (143 mm)

Links per ft (m): = 2.13 (7)

For center mount applications:

Chain length = $\frac{S}{2} + K$

The required clearance height: $H_F = H + 3.94$ in. (100 mm) (with 3.36 lbs/ft (5 kg/m) fill weight. Please consult igus® if space is particularly restricted.

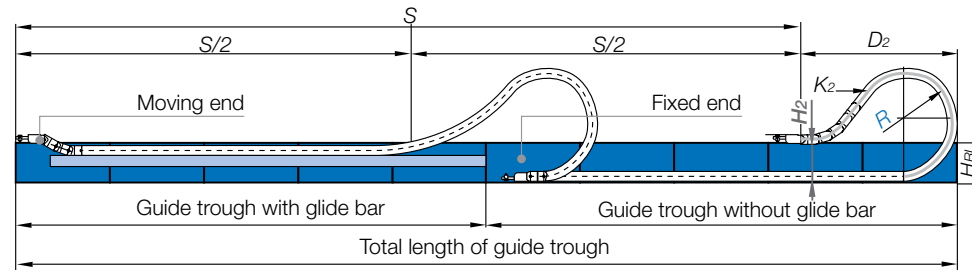
R	7.87 (200)	9.84 (250)	11.81 (300)	13.78 (350)	15.75 (400)	17.72 (450)	19.69 (500)	21.65 (550)	23.62 (600)	29.53 (750)	39.37 (1000)
H	21.46 (545)	25.39 (645)	29.33 (745)	33.27 (845)	37.20 (945)	41.14 (1045)	45.08 (1145)	49.02 (1245)	52.95 (1345)	64.76 (1645)	84.45 (2145)
D	16.34 (415)	18.31 (465)	20.27 (515)	22.24 (565)	24.21 (615)	26.18 (665)	28.15 (715)	30.12 (765)	32.09 (815)	37.99 (965)	47.83 (1215)
K	36.22 (920)	42.52 (1080)	48.82 (1240)	55.12 (1400)	61.42 (1560)	67.72 (1720)	73.62 (1870)	79.53 (2020)	85.63 (2175)	104.72 (2660)	135.24 (3435)

For long travels with lowered mounting height

Long travel lengths from 32.8 ft. (10 m) to max. 1,476 ft. (450 m)

For center mount applications:

Chain length: = $\frac{S}{2} + K_2$



Long Travels - Gliding



If the unsupported length is exceeded, the e-chain®/ Tube must glide on itself. This requires a guide trough.

Design, Chapter 1

R	7.87 (200)	9.84 (250)	11.81 (300)	13.78 (350)	15.75 (400)	17.72 (450)	19.69 (500)	21.65 (550)	23.62 (600)	29.53 (750)	39.37 (1000)
H_2	12.80 (325)	12.80 (325)	12.80 (325)	12.80 (325)	12.80 (325)	12.80 (325)	12.80 (325)	12.80 (325)	12.80 (325)	12.80 (325)	-
D_{2+20}	35.43 (900)	39.37 (1000)	43.31 (1100)	49.21 (1250)	57.09 (1450)	62.99 (1600)	66.93 (1700)	74.80 (1900)	80.71 (2050)	112.20 (2850)	-
K_2	61.93 (1573)	67.56 (1716)	73.19 (1859)	90.08 (2288)	101.33 (2574)	112.60 (2860)	123.86 (3146)	135.12 (3432)	152.01 (3861)	197.05 (5005)	-

Speed / acceleration FL_G	max. 65.6 ft/s (20 m/s) / max. 656 ft/s ² (200 m/s ²)
Speed / acceleration FL_B	max. 9.84 ft/s (3 m/s) / max. 19.69 ft/s ² (6 m/s ²)
Gliding speed / acceleration (maximum)	max. 32.8 ft/s (10 m/s) / max. 164 ft/s ² (50 m/s ²)
Material - permitted temperature	igumid G / -40°F (-40°C) up to +248°F (+120°C)
Flammability Class, igumid G	VDE 0304 IIC UL94 HB

Technical Data



Details of material properties

► Chapter 1

Legend

- S = Length of travel
 - R = Bending radius
 - H = Nominal clearance height
 - D = Overlength e-chain® radius in final position
 - $K = \pi \cdot R + \text{safety buffer}$
 - H_F = Required clearance height
 - H_{in} = Trough inner height
 - $H_2 = * \text{Mounting height}$
 - $D_2 = \text{Overlength} - \text{long travels, gliding}$
 - $K_2 = * \text{Add-on}$
- *If the mounting bracket location is set lower

Short Travels - Unsupported

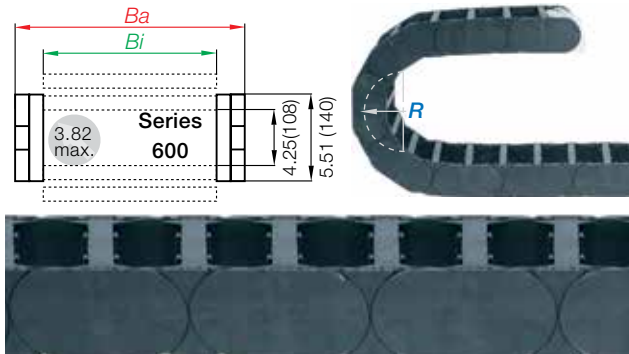


Unsupported e-chains® feature positive camber over short travels. This must be accounted for when specifying the clearance height. Please refer to Installation dimensions for further details.

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains

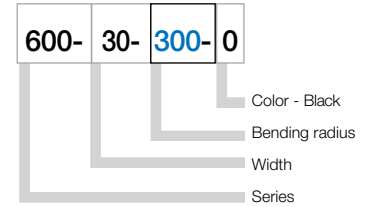


Series 600 - e-chain® with crossbars every link

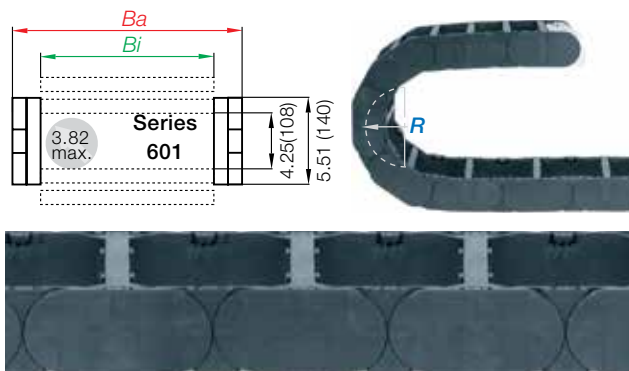


- Crossbars every link
- For use with rigid hydraulic hoses
- For particularly demanding applications
- Can be opened from both sides

Part Number Structure

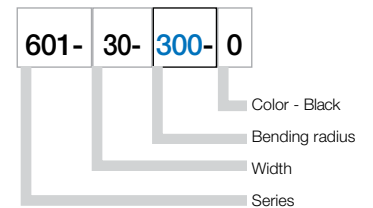


Series 601 - e-chain® with crossbars every other link

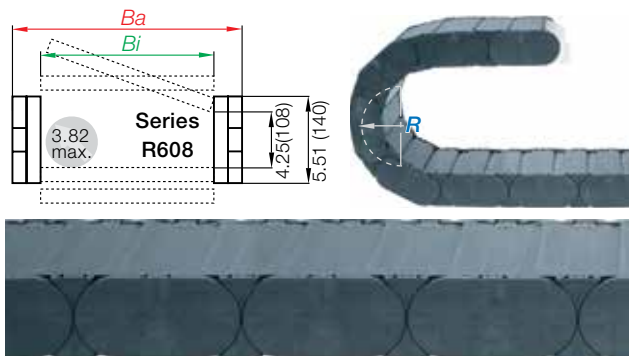


- Crossbars every other link - Standard configuration
- For nearly every situation
- Can be opened from both sides
- Easy assembly
- Stable
- Cost-effective

Part Number Structure

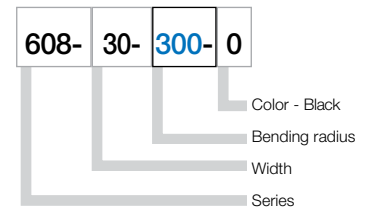


Series R608 - fully enclosed e-tube

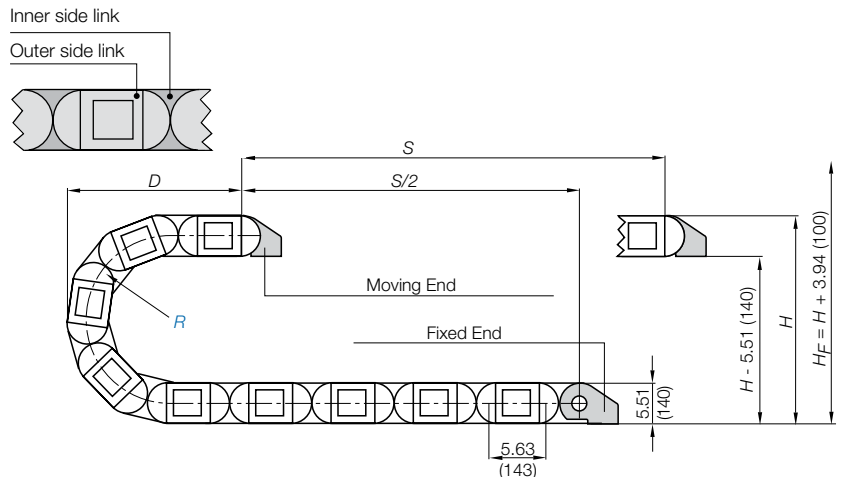
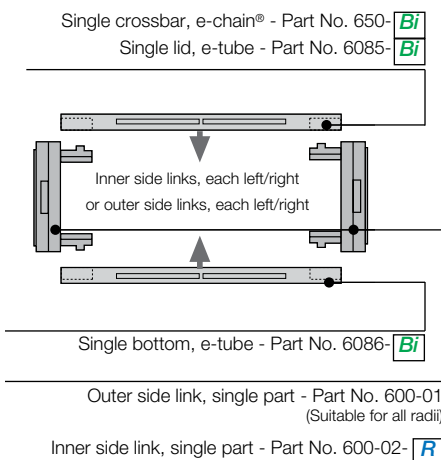


- Fully enclosed
- Excellent cable and hose protection against dirt
- Protection against hot chips
- Lids along inner radius are completely removable
- Lids along the outer radius are single-sided, snap open, hinged on one side as well as completely removable

Part Number Structure



e-chain® as separate parts, links and side plates



e-chain system® E4/100

Series 600/601/R608



600
601
R608

Supplement part number with required radius. Example: 600-30-300-0
Pitch: 5.63 in. (143 mm) per link links/ft(m) = 2.13 (7)

Part Number.				<i>Bi</i>	<i>Ba</i>	600	601	R608	
Crossbars Every link	Crossbars Every other	Tube Version		in. (mm)	in. (mm)	lbs/ft (kg/m)	lbs/ft (kg/m)	lbs/ft (kg/m)	
600-20-	601-20-	608-20-	<input type="checkbox"/>	-0	7.87 (200)	9.92 (252)	≈ 3.00 (4.46)	≈ 2.63 (3.91)	*
600-25-	601-25-	608-25-	<input type="checkbox"/>	-0	9.84 (250)	11.89 (302)	≈ 3.26 (4.85)	≈ 2.76 (4.10)	*
600-30-	601-30-	608-30-	<input type="checkbox"/>	-0	11.81 (300)	13.86 (352)	≈ 3.55 (5.29)	≈ 2.90 (4.32)	*
600-32-	601-32-		<input type="checkbox"/>	-0	12.60 (320)	14.65 (372)	≈ 3.62 (5.38)	≈ 2.94 (4.37)	-
600-35-	601-35-	608-35-	<input type="checkbox"/>	-0	13.78 (350)	15.83 (402)	≈ 3.84 (5.71)	≈ 3.04 (4.53)	*
600-40-	601-40-	608-40-	<input type="checkbox"/>	-0	15.75 (400)	17.80 (452)	≈ 4.05 (6.02)	≈ 3.15 (4.69)	*
600-45-	601-45-		<input type="checkbox"/>	-0	17.72 (450)	19.76 (502)	≈ 4.34 (6.46)	≈ 3.30 (4.91)	-
600-50-	601-50-		<input type="checkbox"/>	-0	19.69 (500)	21.73 (552)	≈ 4.53 (6.74)	≈ 3.39 (5.05)	-
600-55-	601-55-		<input type="checkbox"/>	-0	21.65 (550)	23.70 (602)	≈ 5.01 (7.45)	≈ 3.63 (5.40)	-
600-60-	601-60-		<input type="checkbox"/>	-0	23.62 (600)	25.67 (652)	≈ 5.14 (7.65)	≈ 3.70 (5.50)	-

Choose from the radii below for all of the above sizes
Radius (mm) Example: 600-30-300-0

	200**	250	300	350	400	450	500	550	600	750	1000
<i>R</i>	7.87 (200)	9.84 (250)	11.81 (300)	13.78 (350)	15.75 (400)	17.72 (450)	19.69 (500)	21.65 (550)	23.62 (600)	29.53 (750)	39.37 (1000)
<i>H</i>	21.46 (545)	25.39 (645)	29.33 (745)	33.27 (845)	37.20 (945)	41.14 (1045)	45.08 (1145)	49.02 (1245)	52.95 (1345)	64.76 (1645)	84.45 (2145)
<i>D</i>	16.34 (415)	18.31 (465)	20.27 (515)	22.24 (565)	24.21 (615)	26.18 (665)	28.15 (715)	30.12 (765)	32.09 (815)	37.99 (965)	47.83 (1215)
<i>K</i>	36.22 (920)	42.52 (1080)	48.82 (1240)	55.12 (1400)	61.42 (1560)	67.72 (1720)	73.62 (1870)	79.53 (2020)	85.63 (2175)	104.72 (2660)	135.24 (3435)

** This radius is not available for the R608 Series
*Upon request

0=Standard color black. For other colors see Chapter 1

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains





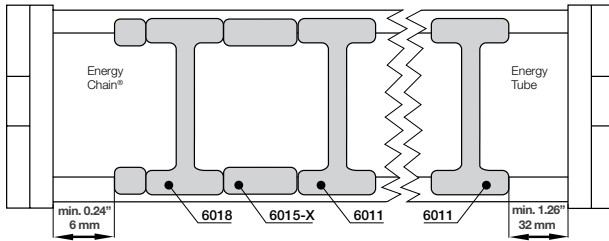
Option 1: Vertical separators and spacers

Vertical separators are used if a vertical subdivision of the e-chain® interior is required. By standard, vertical separators are assembled every other e-chain® link.

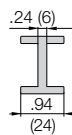
NOTE: Observe a lateral spacing of at least 1.26 in. (32mm) for e-tubes and .63 in. (16mm) for e-chain®. There is no minimum spacing needed for side plates

Exception: Minimum spacing

Locking separator 6008 = .91" (23 mm)



Vertical separator
6001



Vertical separator

Unassembled **Part No. 6001**

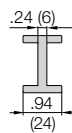
Assembled **Part No. 6011**

- **Standard separator 6001 for e-chains® and e-tubes**

This separator offers safe stability due to its wide base design, also when used with thick cables or hoses.



Locking separator
6008



Locking separator (chain only)

Unassembled **Part No. 6008**

Assembled **Part No. 6018**

- **Locking separator 6008 for e-chains®**

This separator features increased retention force for applications exposed to very high humidity and extreme loads. The extra retention force is achieved by asymmetric claws for the crossbar. Take care to ensure proper alignment.



Spacers
6005-XX



Spacers available in the following sizes:

Part No. Unassembled	Part No. Assembled	in. (mm)
6005 -10	6015 -10	.39" (10)
6005 -15	6015 -15	.59" (15)
6005 -20	6015 -20	.79" (20)

- **NOTE ON SPACERS**

Vertical separators are adjustable, but can be fixed in position by means of a spacer. Spacers are most often necessary for side mounted applications. The available inner height is reduced by .08" (2mm) **per spacer** (for example if one spacer is placed on either side of the separator, the overall inner height is reduced by .16" (4mm). To avoid this, place the spacers on the **outside** of the opening crossbar (**not for long travels**).

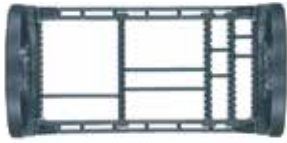
e-chain system® E4/100

Series 600/601/R608

Interior Separation



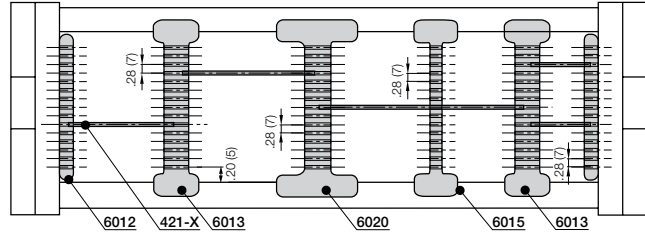
600
601
R608



Option 2: Shelves

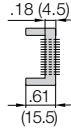
e-chains® and e-tubes can be subdivided both vertically and horizontally using the various interior separation elements.

► **Design, Chapter 1** for layout recommendations.



- **Side plates 6002**

This component is used to form the basic pattern of a shelf system.



Side plate

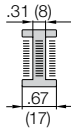
Unassembled	Part No. 6002
Assembled	Part No. 6012

Side plate
6002



- **Vertical separator 6003**

This component is used to form the basic pattern of a shelf system.



Vertical separator

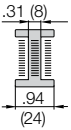
Unassembled	Part No. 6003
Assembled	Part No. 6013

Vertical separator
6003



- **Locking vertical separator 6010**

This separator is slotted and able to be combined with shelves



Locking vertical separator

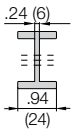
Unassembled	Part No. 6010
Assembled	Part No. 6020

Locking vertical separator
6010



- **Slotted separators 6004**

These are used for very complex subdivisions. However, they cannot be retrofitted into an existing separation system without removing the shelves first.



Slotted separators, closed

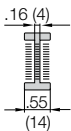
Unassembled	Part No. 6004
Assembled	Part No. 6014

Closed slotted separator
6004



- **Slotted separator 6005**

This separator can be retrofitted into an existing interior separation system without removing the shelves, as long as these shelves fit into any of the 11 middle slots



Slotted separators, open

Unassembled	Part No. 6005
Assembled	Part No. 6015

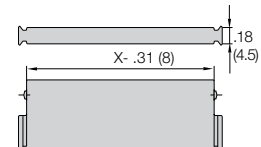
Open slotted separator
6005



Shelves 420-XX

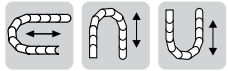
These components form the basic pattern of a shelf system. Shelves of various widths can be arranged at 7 different heights in .28" (7mm) increments

Width X in. (mm)	Usable Width in. (mm)	Part No. Unassembled	Part No. Assembled	Width X in. (mm)	Usable Width in. (mm)	Part No. Unassembled	Part No. Assembled
.71 (18)	.39 (10)	420-18	421-18	2.95 (75)	2.64 (67)	420-75	421-75
.91 (23)	.59 (15)	420-23	421-23	3.46 (88)	3.15 (80)	420-88	421-88
.98 (25)	.67 (17)	420-25	421-25	3.94 (100)	3.62 (92)	420-100	421-100
1.10 (28)	.79 (20)	420-28	421-28	4.92 (125)	4.61(117)	420-125	421-125
1.30 (33)	.98 (25)	420-33	421-33	5.91 (150)	5.59(142)	420-150	421-150
1.69 (43)	1.38 (35)	420-43	421-43	6.89 (175)	6.57(167)	420-175	421-175
1.97 (50)	1.65 (42)	420-50	421-50	7.36 (187)	7.05(179)	420-187	421-187
2.44 (62)	2.13 (54)	420-62	421-62	7.87 (200)	7.56(192)	420-200	421-200



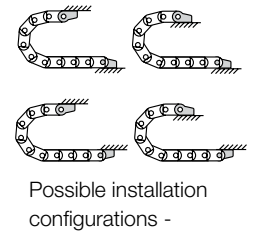
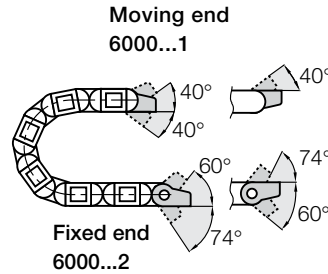
PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains





Option 1: pivoting

- For pivoting connections
- One part for all chain widths
- Electrically conductive



Part No. Mounting Brackets Full Set

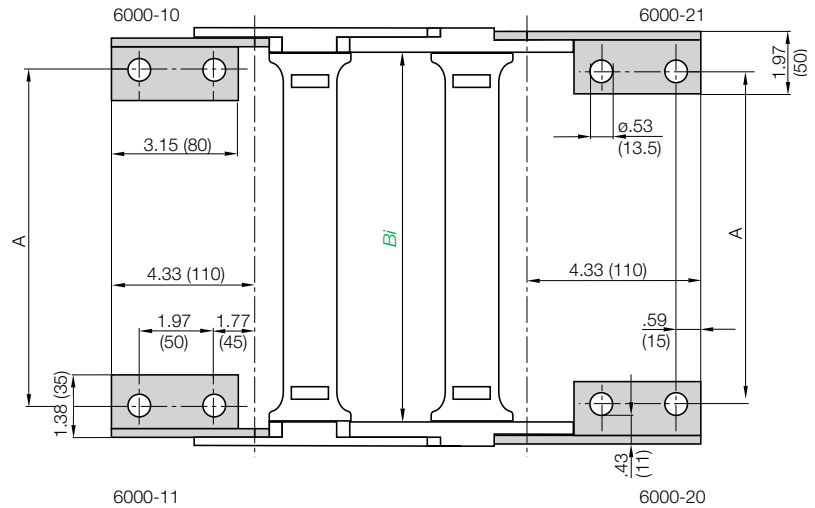
4 parts, 2 with pin, 2 with bore
Series 600/601/R608
6000-12

Part No. Mounting Bracket Moving End

2 parts, 1 left & 1 right with bore
Series 600/601/R608
6000-1

Part No. Mounting Bracket Fixed End

2 parts, 1 left & 1 right with pin
Series 600/601/R608
6000-2



Bracket Mounting Dimensions

Width of Chain <i>Bi</i>	Part Number	Mounting Brackets*			A in. (mm)
		Full Set	Moving End Only	Fixed End Only	
7.87 (200)	6000	-12	-1	-2	6.69 (170)
9.84 (250)	6000	-12	-1	-2	8.66 (220)
11.81 (300)	6000	-12	-1	-2	10.63 (270)
12.60 (320)	6000	-12	-1	-2	14.42 (290)
13.78 (350)	6000	-12	-1	-2	12.60 (320)
15.75 (400)	6000	-12	-1	-2	14.57 (370)
17.72 (450)	6000	-12	-1	-2	16.54 (420)
19.69 (500)	6000	-12	-1	-2	18.50 (470)
21.65 (550)	6000	-12	-1	-2	20.47 (520)
23.62 (600)	6000	-12	-1	-2	22.48 (570)

***Ordering information**

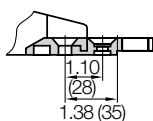
Due to the design of the E4/100 series chains, please note the following when ordering brackets:

Even number of links = full set, part number ending in -12
Odd number of links = 2 pieces, part number ending in -2

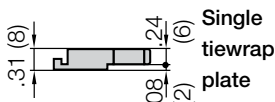
Tiewrap Plates

Option 1: Tiewrap plates as an individual part

Available as an individual component, can be fixed onto a mounting bracket with the use of a profile rail.

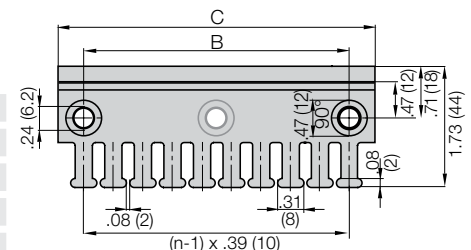


Shown assembled



Single tiewrap plate

Tiewrap Plate	n Number of Teeth	C Overall Width in. (mm)	B Bore Width in. (mm)	Center Bore
3050-ZB	5	1.97 (50)	1.18 (30)	no
3075-ZB	7	2.95 (75)	2.16 (55)	no
3100-ZB	10	3.94 (100)	3.15 (80)	no
3115-ZB	11	4.53 (115)	3.74 (95)	no
3125-ZB	12	4.92 (125)	4.13 (105)	no
3150-ZB	15	5.91 (150)	5.12 (130)	no
3175-ZB	17	6.89 (175)	6.10 (155)	no
3200-ZB	20	7.87 (200)	7.09 (180)	yes
3225-ZB	22	8.86 (225)	8.07 (205)	yes
3250-ZB	25	9.84 (250)	9.06 (230)	yes



For more information please refer to strain relief section of Chapter 10

e-chain system® E4/100

Series 600/601/R608

Guide Trough



600
601
R608

Guide troughs are used with applications where the upper run of the e-chain® glides on the lower run. If using igus® steel guide troughs, the following components are required:

- Full travel length of guide trough
Part No. 97-30
- 1/2 travel length glide bars
Part No. 93-01
- Installation sets as end connectors
Part No. 97-50-XX

-XX indicates the length of the profile rails on which the guide trough is mounted. The values and part numbers are specified in the table below. The standard length of the trough components and glide bars is 6.56 ft (2 m). The overall length of the guide trough directly correlates to the length of travel.

Example:
Length of travel 164 ft (50 m)
Center-mounted

Required guide troughs:
164 ft (50 m) guide trough, 82 ft. (25 m) glide bar
= 25 sections of 6.56 ft (2 m) guide trough

Part No. 97-30
= 13 sections of 6.56 ft (2 m) glide bar

Part No. 93-01
Required number of installation set:
= Number of guide trough components + 1
= 25 + 1 = 26
Part No. of the installation sets **97-50-XXX**
Example:
97-50-400 for 15.75 (400 mm) long profile rail



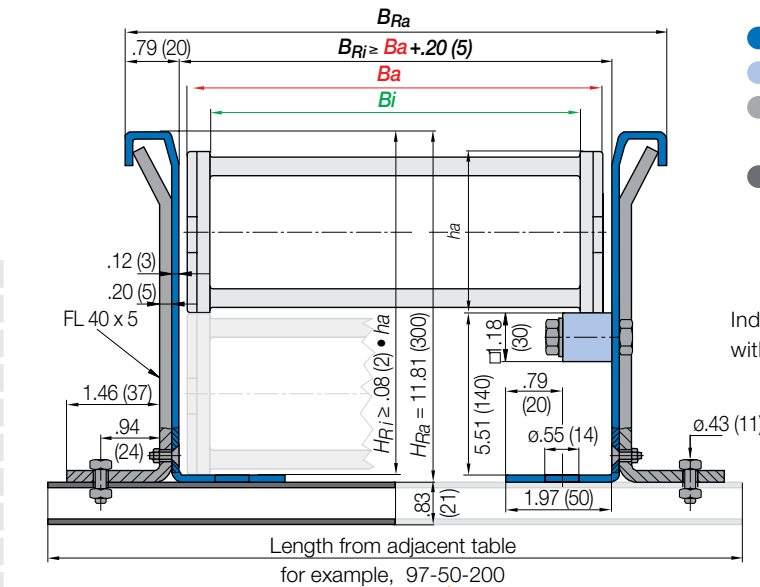
Left: Guide trough with glide bars
Right: Guide troughs without glide bars



Installation sets as section connectors

Width of Crossbar
600-05-200-0

	B_{Ri}	Installation Part No.
-20	10.12 (257)	97-50-375
-25	12.09 (307)	97-50-425
-30	14.06 (357)	97-50-475
-32	14.84 (377)	97-50-500
-35	16.02 (407)	97-50-525
-40	17.99 (457)	97-50-575
-45	19.96 (507)	97-50-625
-50	21.93 (557)	97-50-675
-55	23.90 (607)	97-50-725
-60	25.87 (657)	97-50-775



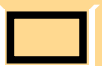
- Guide trough
- Glide bars
- Installation set "Basic"
- Profile rail

Individual attachment without profile rail

Standard length profile rail

* Specialized guide trough available upon request

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains



Price Index


Series 800

Special Features / Options


ESD classification:
Electrically conductive ESD/
ATEX version upon request

Assembly Tips


Opening e-chains®: Remove crossbars and clips - Insert screwdriver into the slot, push down, release by lever action

Other Installation Methods

Vertical, hanging: consult igus®

Vertical, standing ≤ 19.69 ft (6 m)

Side-mounted, unsupp. ≤ 19.69 ft (6 m)

Rotary requires further calculation

Usage Guidelines


- If a particularly large and rigid e-chain® is required
- For very high speeds and/or accelerations
- For long travels
- For high additional loads

Features & Benefits

- 1 Dirt-repellent exterior
- 2 Optimized glide pads with lateral wear allowance
- 3 Wide, rounded crossbars
- 4 Crossbars on e-chains® are removable along both radii
- 5 Each chain link consists of four opening crossbars which increases its rigidity and allows for a greater unsupported length
- 6 Undercut for more stability
- 7 e-chains also available with reverse bending radius "RBR"


Order Example: Complete e-chain®

Please indicate chain length or number of links. Example:

16.4 ft (5 m) **800-30-350-0**



e-chain®

With 2 separators **8011** assembled every 2nd link



Interior Separation

1 Set **8000-12**

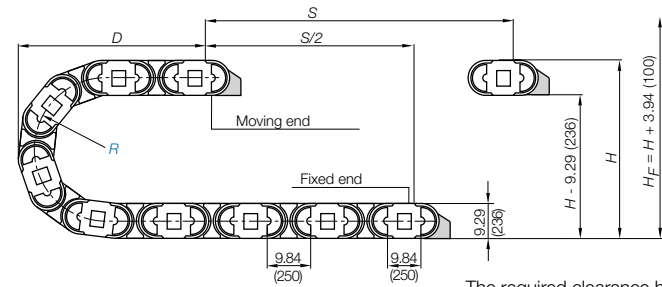
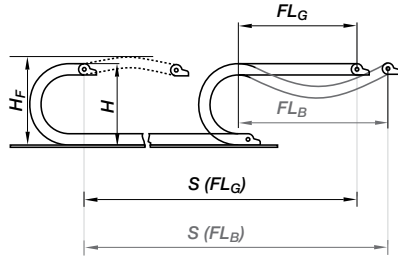


Mounting Bracket

e-chain system® E4-1 Series 800 Installation Dimensions

Short travel, unsupported length

- FL_B = unsupported with permitted sag
 - FL_G = unsupported with straight upper run
- Further information ► Design, Chapter 1



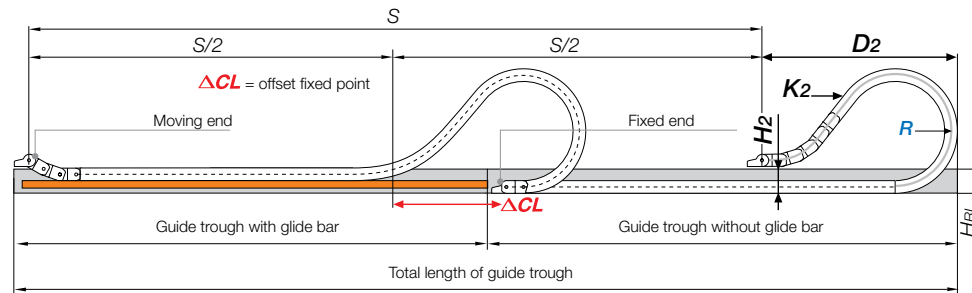
The required clearance height: $H_F = H + 3.94$ in. (100 mm) (with 3.36 lbs/ft (5 kg/m) fill weight. Please consult igus® if space is particularly restricted.

R	12.80 (325)	13.78 (350)	15.75 (400)	17.72 (450)	19.69 (500)	23.62 (600)	29.53 (750)	39.37 (1000)
H^*	34.88 (886)	36.85 (936)	40.79 (1036)	44.72 (1136)	48.66 (1236)	56.53 (1436)	68.35 (1736)	88.03 (2236)
D	32.20 (818)	33.19 (843)	35.16 (893)	37.13 (943)	39.09 (993)	43.03 (1093)	48.94 (1243)	58.78 (1493)
K	60.04 (1525)	62.99 (1600)	69.29 (1760)	75.39 (1915)	81.69 (2075)	93.90 (2385)	112.60 (2860)	143.50 (3645)

For long travels with lowered mounting height

Please consult igus® when choosing to use a lowered mounting height with this series

Long travel lengths from 49.2 ft. (15 m) to max. 1,476 ft. (450 m)



R	12.80 (325)	13.78 (350)	15.75 (400)	17.72 (450)	19.69 (500)	23.62 (600)	29.53 (750)	39.37 (1000)
H_2	22.83 (580)	22.83 (580)	22.83 (580)	22.83 (580)	22.83 (580)	22.83 (580)	22.83 (580)	22.83 (580)
D_2	40.55 (1030)	42.52 (1080)	54.33 (1380)	63.39 (1610)	78.74 (2000)	97.64 (2480)	*	*
K_2	78.74 (2000)	78.74 (2000)	98.43 (2500)	118.11 (3000)	127.95 (3250)	157.48 (4000)	*	*
ΔCL	9.84 (250)	11.81 (300)	21.65 (550)	29.53 (750)	41.34 (1050)	55.12 (1400)	*	*

In case of travels between 39.4 and 32.8 ft (12 and 15 m) we recommend a longer unsupported length. **200 radius is not available for the e-tubes

Speed / acceleration FL_G	max. 65.6 ft/s (20 m/s) / max. 656 ft/s ² (200 m/s ²)
Speed / acceleration FL_B	max. 9.84 ft/s (3 m/s) / max. 19.69 ft/s ² (6 m/s ²)
Gliding speed / acceleration (maximum)	max. 32.8 ft/s (10 m/s) / max. 164 ft/s ² (50 m/s ²)
Material - permitted temperature	igumid G / -40°F (-40°C) up to +248°F (+120°C)
Flammability Class, igumid G	VDE 0304 IIC UL94 HB

igus®

800

Short Travels - Unsupported



Unsupported e-chains® feature positive camber over short travels. This must be accounted for when specifying the clearance height. Please refer to **Installation dimensions** for further details.

Legend

- S = Length of travel
- R = Bending radius
- H = Nominal clearance height
- D = Overlength e-chain® radius in final position
- $K = \pi \cdot R + \text{safety buffer}$
- H_F = Required clearance height
- H_{ri} = Trough inner height
- H_2 = *Mounting height
- D_2 = Overlength - long travels, gliding
- K_2 = *Add-on

*If the mounting bracket location is set lower

Long Travels - Gliding



If the unsupported length is exceeded, the e-chain®/Tube must glide on itself. This requires a guide trough.

Design, Chapter 1

For center mount applications:
Chain length: $= \frac{S}{2} + K_2$

Technical Data



Details of material properties

► Chapter 1

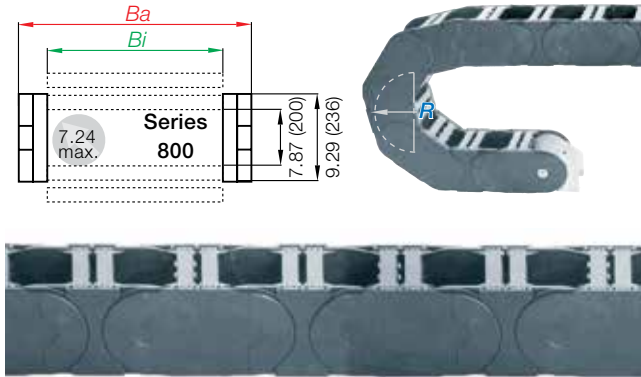
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PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains



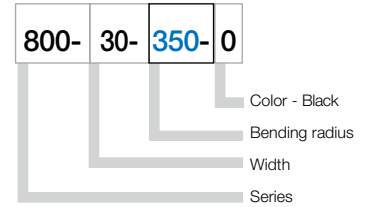
6.118

Series 800 - e-chain® with crossbars every link



- Crossbars every link
- For use with rigid hydraulic hoses
- For particularly demanding applications
- Can be opened from both sides

Part Number Structure



Telephone 1-800-521-2747

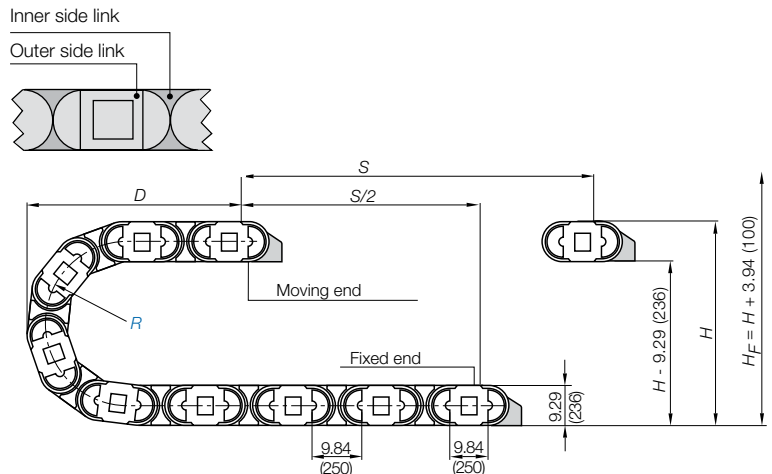
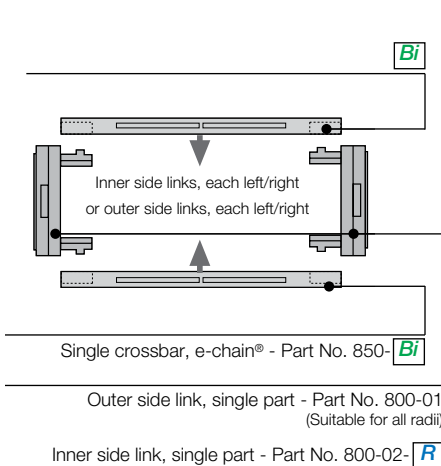
Supplement part number with required radius. Example: 800-30-**350**-0
Pitch: 9.84 in. (250 mm) per link links/ft(m) = 1.22 (4)

Part Number.		<i>Bi</i>	<i>Ba</i>	800
Crossbars	Every link	in. (mm)	in. (mm)	lbs/ft (kg/m)
800-20-	<input type="checkbox"/>	7.87 (200)	10.24 (260)	≈ 10.14 (15.09)
800-25-	<input type="checkbox"/>	9.84 (250)	12.20 (310)	≈ 10.42 (15.50)
800-30-	<input type="checkbox"/>	11.81 (300)	14.17 (360)	≈ 10.68 (15.89)
800-32-	<input type="checkbox"/>	12.80 (325)	15.16 (385)	≈ 10.79 (16.05)
800-35-	<input type="checkbox"/>	13.78 (350)	16.14 (410)	≈ 10.90 (16.22)
800-40-	<input type="checkbox"/>	15.75 (400)	18.11 (460)	≈ 11.25 (16.74)
800-45-	<input type="checkbox"/>	17.72 (450)	20.08 (510)	≈ 11.34 (16.88)
800-50-	<input type="checkbox"/>	19.69 (500)	22.04 (560)	≈ 11.58 (17.23)
800-55-	<input type="checkbox"/>	21.65 (550)	24.02 (610)	≈ 11.85 (17.63)
800-60-	<input type="checkbox"/>	23.62 (600)	25.98 (660)	≈ 12.22 (18.19)

Choose from the radii below for all of the above sizes

	Radius (mm)							
	325	350	400	450	500	600	750	1000
<i>R</i>	12.80 (325)	13.78 (350)	15.75 (400)	17.72 (450)	19.69 (500)	23.62 (600)	29.53 (750)	39.37 (1000)
<i>H*</i>	34.88 (886)	36.85 (936)	40.79 (1036)	44.72 (1136)	48.66 (1236)	56.53 (1436)	60.47 (1536)	88.03 (2236)
<i>D</i>	32.20 (818)	33.19 (843)	35.16 (893)	37.13 (943)	39.09 (993)	43.03 (1093)	48.94 (1243)	58.78 (1493)
<i>K</i>	60.04 (1525)	62.99 (1600)	69.29 (1760)	75.39 (1915)	81.69 (2075)	93.90 (2385)	112.60 (2860)	143.50 (3645)

e-chain® as separate parts, links and side plates



Internet: igus.com
email: sales@igus.com
QuickSpec: igus.com/quickspec



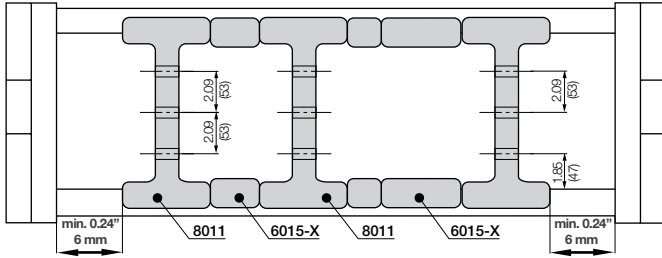
Option 1: Vertical separators and spacers

Vertical separators are used if a vertical subdivision of the e-chain® interior is required. By standard, vertical separators are assembled every other e-chain® link.

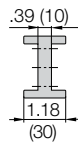
NOTE: Observe a lateral spacing of at least 1.26 in. (32mm) for e-tubes and .63 in. (16mm) for e-chain®. There is no minimum spacing needed for side plates

Exception: Minimum spacing

Locking separator 6008 = .91" (23 mm)



Vertical separator 8001



Vertical separator

Unassembled	Part No. 8001
Assembled	Part No. 8011

- **Standard separator 8001 for e-chains®**
This separator offers safe stability due to its wide base design, also when used with thick cables or hoses.



Spacers 6005-XX



Spacer (chain only)

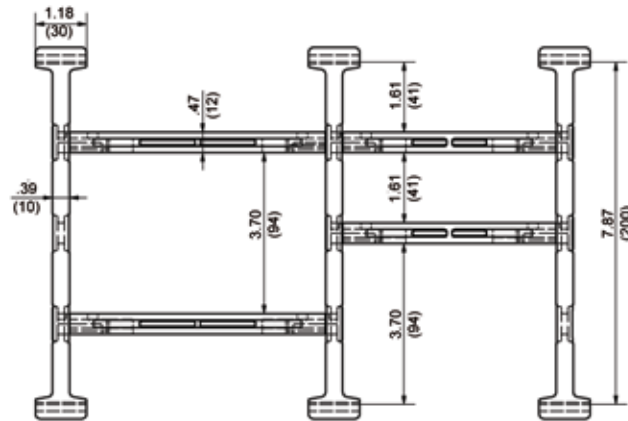
Unassembled	Part No. 6005
Assembled	Part No. 6015

- **NOTE ON SPACERS**
Vertical separators are adjustable, but can be fixed in position by means of a spacer. Spacers are most often necessary for side mounted applications. The available inner height is reduced by .08" (2mm) **per spacer** (for example if one spacer is placed on either side of the separator, the overall inner height is reduced by .16" (4mm)). To avoid this, place the spacers on the **outside** of the opening crossbar (**not for long travels**).

Spacers available in the following sizes:

Part No. Unassembled	Part No. Assembled	in.	(mm)
6005 -10	6015 -10	.39"	(10)
6005 -15	6015 -15	.59"	(15)
6005 -20	6015 -20	.79"	(20)

Modular E4 shelving system safeguards large cables - Series 800



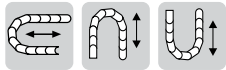
- Easy assembly
- Robust, also for large cable diameters
- Modular
- Widths from 50 to 600 mm
- For use with **vertical separator 8001** and **crossbar 450-XX**

Modular Shelving

Single sided snap in tab

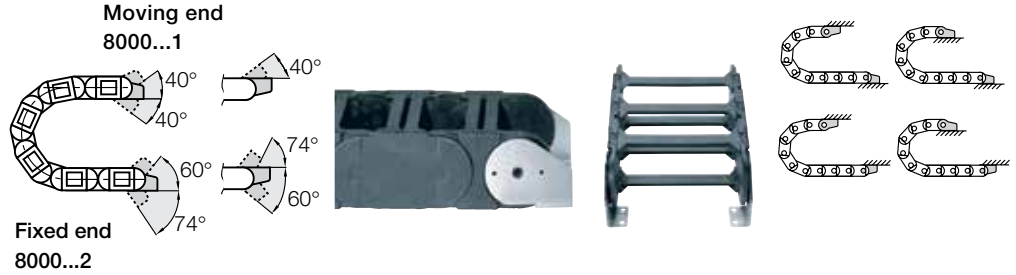
Unassembled	Part No. 8001H1	Part No. 8001H2	Part No. 8011H2
Assembled	Part No. 8011H1		





Option 1: pivoting

- For pivoting connections
- One part for all chain widths
- Electrically conductive



Part No. Mounting Brackets Full Set

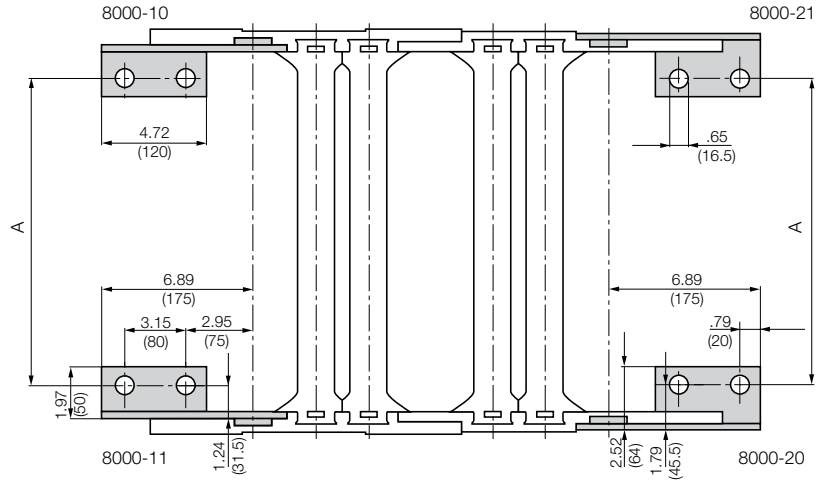
4 parts, 2 with pin, 2 with bore
Series 800
8000-12

Part No. Mounting Bracket Moving End

2 parts, 1 left & 1 right with bore
Series 800
8000-1

Part No. Mounting Bracket Fixed End

2 parts, 1 left & 1 right with pin
Series 800
8000-2



Bracket Mounting Dimensions

Mounting Brackets

Width of Chain <i>Bi</i>	Part Number	Full Set	Moving End Only	Fixed End Only	A in. (mm)
7.87 (200)	8000	-12	-1	-2	5.91 (150)
9.84 (250)	8000	-12	-1	-2	7.87 (200)
11.81 (300)	8000	-12	-1	-2	9.84 (250)
12.80 (325)	8000	-12	-1	-2	10.83 (275)
13.78 (350)	8000	-12	-1	-2	11.81 (300)
15.75 (400)	8000	-12	-1	-2	13.78 (350)
17.72 (450)	8000	-12	-1	-2	15.75 (400)
19.69 (500)	8000	-12	-1	-2	17.72 (450)
21.65 (550)	8000	-12	-1	-2	19.69 (500)
23.62 (600)	8000	-12	-1	-2	21.65 (550)

Due to the design of the E4/100 series chains, please note the following when ordering brackets:

Even number of links = full set, part number ending in -12
Odd number of links = 2 pieces, part number ending in -1

e-chain system® E4-1

Series 800

Guide Trough

Guide troughs are used with applications where the upper run of the e-chain® glides on the lower run. If using igus® steel guide troughs, the following components are required:

- Full travel length of guide trough
Part No. 90-30
- 1/2 travel length glide bars
Part No. 90-31
- Installation sets as end connectors
Part No. 90-50-XX

-XX indicates the length of the profile rails on which the guide trough is mounted. The values and part numbers are specified in the table on the right. Standard length of the trough components and glide bars is 6.56 ft (2m).

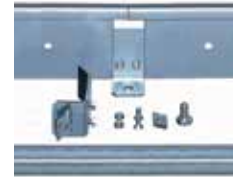
The required overall length of the guide trough directly correlates to the length of travel.

Example:
Length of travel 164 ft (50m)
Center mounted

Required guide troughs:
164 ft (50 m) guide trough
82 ft (25 m) glide bars
= 25 sections of (2 m) guide trough without glide bars **Part No. 90-30**
= 13 section of (2 m) guide troughs with glide bars **Part No. 90-31**
Required number of installation sets:
= Number of guide trough components + 1
= 25 + 1 = 26
Part number of the installation sets **90-50-XXX**
Example:
90-50-400 for (400 m) long profile rail



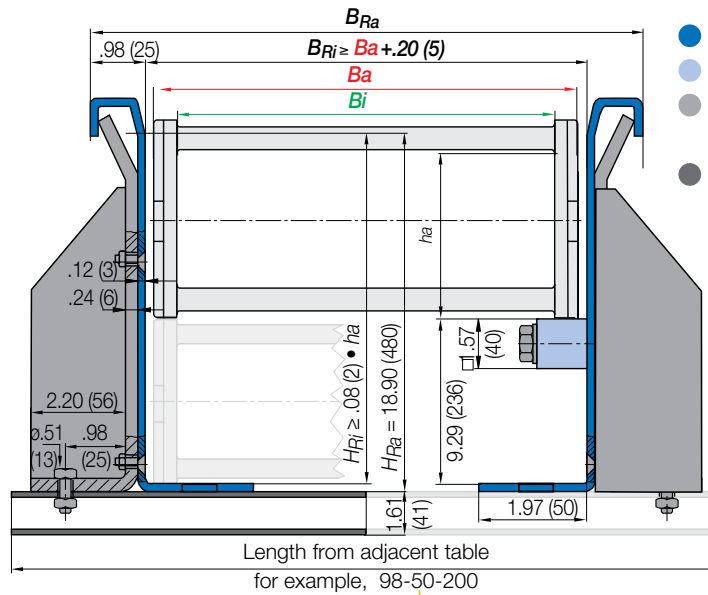
Left: Guide trough with glide bars
Right: Guide troughs without glide bars



Installation sets as section connectors

Width of Crossbar
640-12-200-0

	B_{Ri}	Installation Part No.
-20	10.43 (265)	90-50-450
-25	12.40 (315)	90-50-500
-30	14.37 (365)	90-50-550
-32	15.35 (390)	90-50-575
-35	16.33 (415)	90-50-600
-40	18.31 (465)	90-50-650
-45	20.28 (515)	90-50-700
-50	22.24 (565)	90-50-750
-55	24.21 (615)	90-50-800
-60	26.18 (665)	90-50-850



- Guide trough
- Glide bars
- Installation set "Basic"
- Profile rail

Standard length profile rail

Individual attachment without profile rail

* Specialized guide trough available upon request



Price Index



Series 840

Special Options Available



ESD classification:
Electrically conductive ESD/
ATEX version upon request

Assembly Tips



Opening e-chains®: Remove crossbars and clips - Insert screwdriver into the slot, push down, release by lever action

Other Installation Methods

- Vertical, hanging: consult igus®
- Vertical, standing ≤ 19.69 ft (6 m)
- Side-mounted, un_supp. ≤ 19.69 ft (6 m)
- Rotary requires further calculation

Usage Guidelines



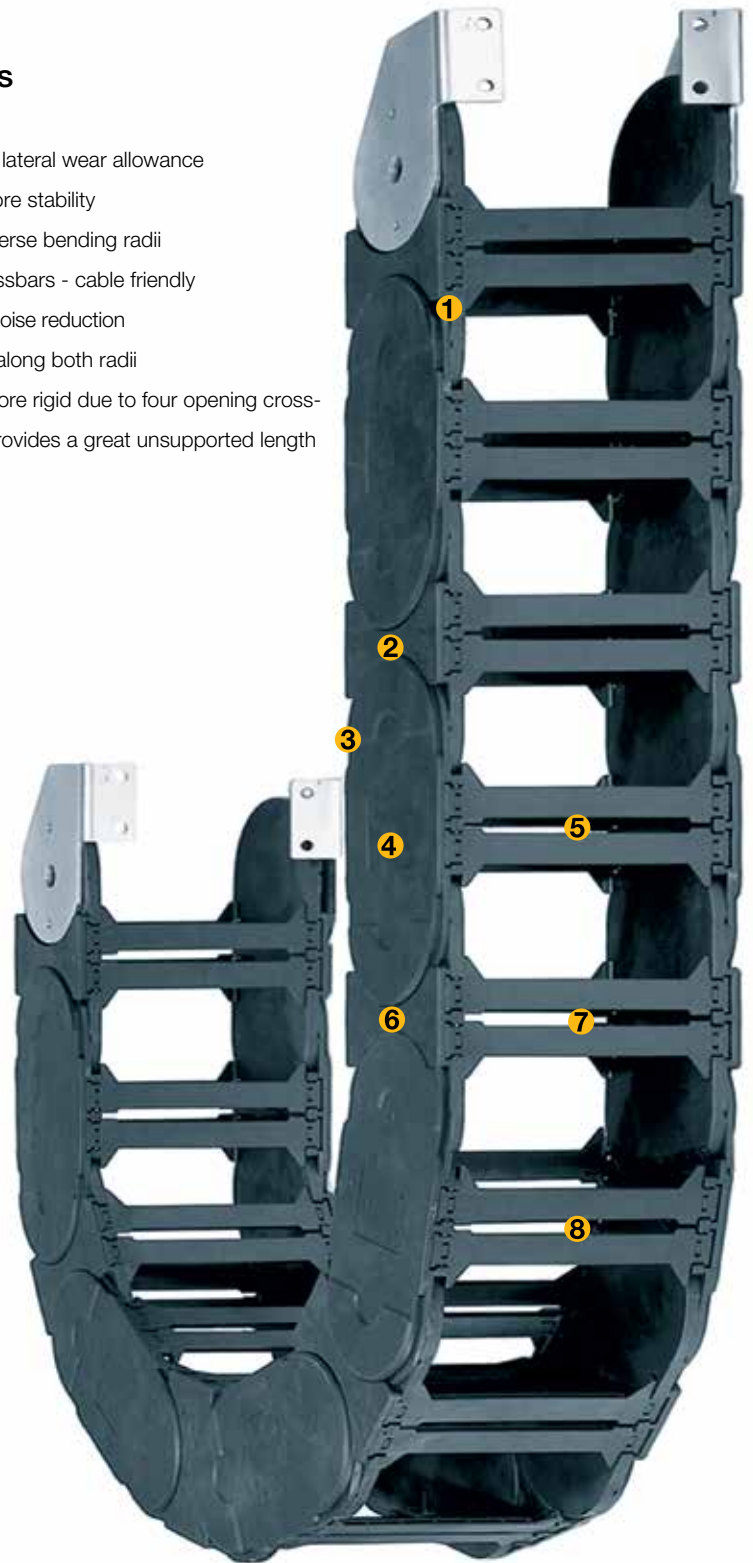
- If a particularly big and stable e-chain® is required
- At very high speeds and/or accelerations
- For long travels
- For high additional loads
- Large cable/hose diameters



- If a more stable e-chain® with identical inner height is required
➤ Series 800

Features & Benefits

- 1 Dirt-repellent exterior
- 2 Optimized glide pads with lateral wear allowance
- 3 Tongue and groove for more stability
- 4 e-chain® available with reverse bending radii
- 5 Wide, rounded plastic crossbars - cable friendly
- 6 Stop dog with "brake" for noise reduction
- 7 Crossbars are removable along both radii
- 8 Each chain link is made more rigid due to four opening crossbars, and consequently provides a great unsupported length



Order Example: Complete e-chain®

Please indicate chain length or number of links. Example:

23 ft (7 m) 840-30-350-0



e-chain®

With 2 separators 8411 assembled every 2nd link



Interior Separation

1 Set 8000-12

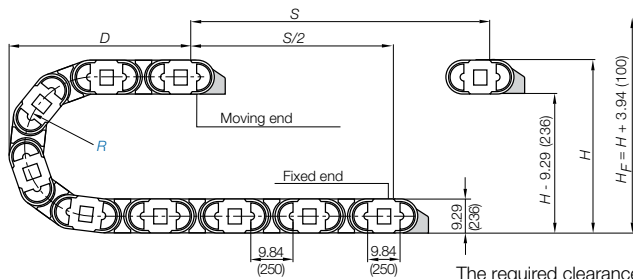
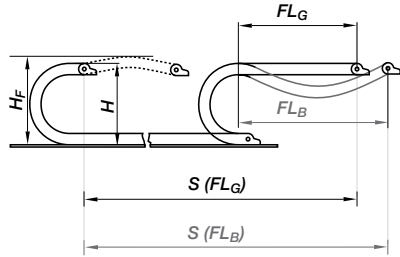


Mounting Bracket

e-chain system® E4-1 Series 840 Installation Dimensions

Short travel, unsupported length

- FL_B = unsupported with permitted sag
 - FL_G = unsupported with straight upper run
- Further information ► Design, Chapter 1



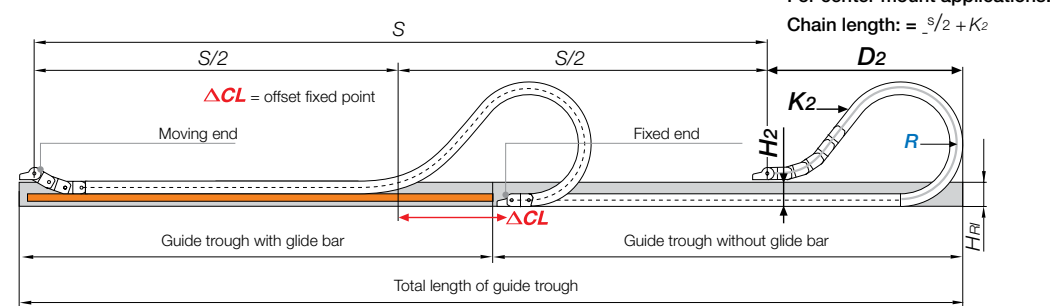
The required clearance height: $H_f = H + 3.94$ in. (100 mm) (with 3.36 lbs/ft (5 kg/m) fill weight. Please consult igus® if space is particularly restricted.

R	12.80 (325)	13.78 (350)	15.75 (400)	17.72 (450)	19.69 (500)	23.62 (600)	29.53 (750)	39.37 (1000)
H^*	34.88 (886)	36.85 (936)	40.79 (1036)	44.72 (1136)	48.66 (1236)	56.53 (1436)	68.35 (1736)	88.03 (2236)
D	32.20 (818)	33.19 (843)	35.16 (893)	37.13 (943)	39.09 (993)	43.03 (1093)	48.94 (1243)	58.78 (1493)
K	60.04 (1525)	62.99 (1600)	69.29 (1760)	75.39 (1915)	81.69 (2075)	93.90 (2385)	112.60 (2860)	143.50 (3645)

For long travels with lowered mounting height

Please consult igus® when choosing to use a lowered mounting height with this series

Long travel lengths from 32.8 ft. (10 m) to max. 1,476 ft. (450 m)



R	12.80 (325)	13.78 (350)	15.75 (400)	17.72 (450)	19.69 (500)	23.62 (600)	29.53 (750)	39.37 (1000)
H_2	22.83 (580)	22.83 (580)	22.83 (580)	22.83 (580)	22.83 (580)	22.83 (580)	22.83 (580)	22.83 (580)
D_2	40.55 (1030)	42.52 (1080)	54.33 (1380)	63.39 (1610)	78.74 (2000)	97.64 (2480)	*	*
K_2	78.74 (2000)	78.74 (2000)	98.43 (2500)	118.11 (3000)	127.95 (3250)	157.48 (4000)	*	*
ΔCL	9.84 (250)	11.81 (300)	21.65 (550)	29.53 (750)	41.34 (1050)	55.12 (1400)	*	*

In case of travels between 39.4 and 32.8 ft (12 and 15 m) we recommend a longer unsupported length. **200 radius is not available for the e-tubes

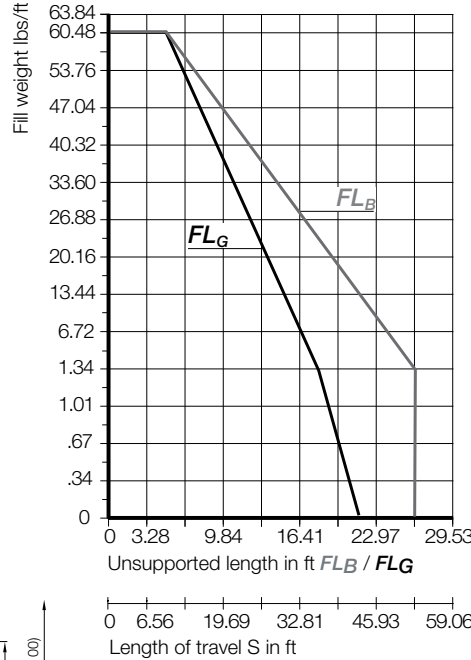
Speed / acceleration FL_G	max. 65.6 ft/s (20 m/s) / max. 656 ft/s ² (200 m/s ²)
Speed / acceleration FL_B	max. 9.84 ft/s (3 m/s) / max. 19.69 ft/s ² (6 m/s ²)
Gliding speed / acceleration (maximum)	max. 32.8 ft/s (10 m/s) / max. 164 ft/s ² (50 m/s ²)
Material - permitted temperature	igumid G / -40°F (-40°C) up to +248°F (+120°C)
Flammability Class, igumid G	VDE 0304 IIC UL94 HB

Short Travels - Unsupported

Unsupported e-chains® feature positive camber over short travels. This must be accounted for when specifying the clearance height. Please refer to **Installation dimensions** for further details.

Legend

- S = Length of travel
 - R = Bending radius
 - H = Nominal clearance height
 - D = Overlength e-chain® radius in final position
 - $K = \pi \cdot R + \text{safety buffer}$
 - H_f = Required clearance height
 - H_{ri} = Trough inner height
 - H_2 = *Mounting height
 - D_2 = Overlength - long travels, gliding
 - K_2 = *Add-on
- *If the mounting bracket location is set lower



Pitch per link: = 9.84" (250 mm)
Links per ft (m): = 1.22 (4)
For center mount applications:
Chain length = $S/2 + K$

Long Travels - Gliding



If the unsupported length is exceeded, the e-chain®/ Tube must glide on itself. This requires a guide trough.

Design, Chapter 1

Technical Data

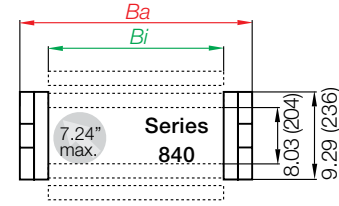


Details of material properties

► Chapter 1

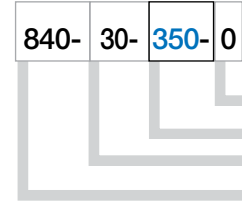


Series 840 - e-chain® with crossbars every link

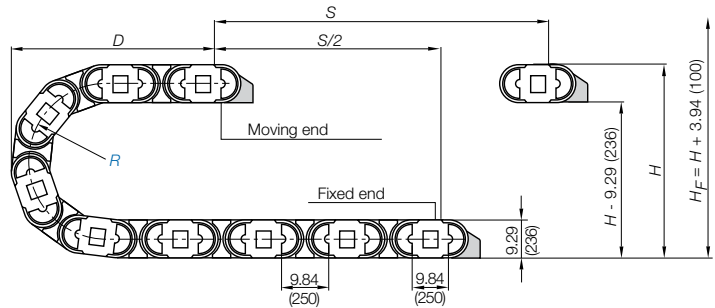
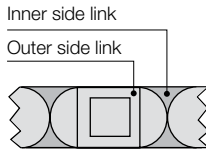
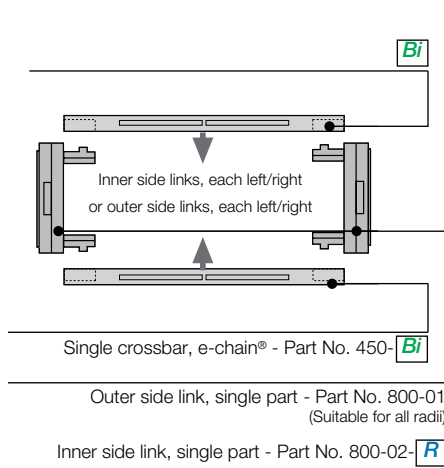


- Crossbars every link
- For use with rigid hydraulic hoses
- For particularly demanding applications
- Can be opened from both sides

Part Number Structure



e-chain® as separate parts, links and side plates



e-chain system® E4-1

Series 840

Product Range



Supplement part number with required radius. Example: 840-30-350-0
 Pitch: 9.84 in. (250 mm) per link links/ft (m) = 1.22 (4)

Part Number.		<i>Bi</i>	<i>Ba</i>	840
Crossbars		in. (mm)	in. (mm)	lbs/ft (kg/m)
Every link				
840-13-	<input type="text"/> -0	3.94 (100)	6.30 (160)	≈ 9.30 (13.84)
840-15-	<input type="text"/> -0	4.45 (113)	6.81 (173)	≈ 9.32 (13.87)
840-16-	<input type="text"/> -0	4.92 (125)	7.28 (185)	≈ 9.37 (13.95)
840-17-	<input type="text"/> -0	5.43 (138)	7.80 (198)	≈ 9.43 (14.04)
840-18-	<input type="text"/> -0	5.91 (150)	8.27 (210)	≈ 9.49 (14.13)
840-20-	<input type="text"/> -0	6.42 (163)	8.78 (223)	≈ 9.52 (14.17)
840-21-	<input type="text"/> -0	6.89 (175)	9.25 (235)	≈ 9.56 (14.22)
840-22-	<input type="text"/> -0	7.40 (188)	9.76 (248)	≈ 9.59 (14.27)
840-23-	<input type="text"/> -0	7.87 (200)	10.24 (260)	≈ 9.64 (14.35)
840-25-	<input type="text"/> -0	8.38 (213)	10.75 (273)	≈ 9.70 (14.43)
840-26-	<input type="text"/> -0	8.86 (225)	11.22 (285)	≈ 9.74 (14.49)
840-27-	<input type="text"/> -0	9.37 (238)	11.73 (298)	≈ 9.79 (14.57)
840-28-	<input type="text"/> -0	9.84 (250)	12.20 (310)	≈ 9.82 (14.61)
840-30-	<input type="text"/> -0	10.35 (263)	12.72 (323)	≈ 9.89 (14.72)
840-31-	<input type="text"/> -0	10.83 (275)	13.19 (335)	≈ 9.91 (14.75)
840-32-	<input type="text"/> -0	11.34 (288)	13.70 (348)	≈ 9.96 (14.82)
840-33-	<input type="text"/> -0	11.81 (300)	14.17 (360)	≈ 10.02 (14.91)
840-35-	<input type="text"/> -0	12.32 (313)	14.69 (373)	≈ 10.12 (15.06)
840-36-	<input type="text"/> -0	12.80 (325)	15.16 (385)	≈ 10.14 (15.09)
840-37-	<input type="text"/> -0	13.31 (338)	15.67 (398)	≈ 10.15 (15.11)
840-38-	<input type="text"/> -0	13.78 (350)	16.14 (410)	≈ 10.18 (15.15)
840-40-	<input type="text"/> -0	14.29 (363)	16.65 (423)	≈ 10.31 (15.34)
840-41-	<input type="text"/> -0	14.76 (375)	17.13 (435)	≈ 10.34 (15.39)
840-42-	<input type="text"/> -0	15.28 (388)	17.64 (448)	≈ 10.42 (15.50)
840-43-	<input type="text"/> -0	15.75 (400)	18.11 (460)	≈ 10.46 (15.57)
840-45-	<input type="text"/> -0	16.26 (413)	18.62 (473)	≈ 10.50 (15.63)
840-46-	<input type="text"/> -0	16.73 (425)	19.09 (485)	≈ 10.54 (15.69)
840-47-	<input type="text"/> -0	17.24 (438)	19.61 (498)	≈ 10.56 (15.72)
840-48-	<input type="text"/> -0	17.72 (450)	20.08 (510)	≈ 10.62 (15.80)
840-50-	<input type="text"/> -0	18.23 (463)	20.59 (523)	≈ 10.66 (15.87)
840-51-	<input type="text"/> -0	18.70 (475)	21.06 (535)	≈ 10.69 (15.91)
840-52-	<input type="text"/> -0	19.21 (488)	21.57 (548)	≈ 10.70 (15.93)
840-53-	<input type="text"/> -0	19.69 (500)	22.05 (560)	≈ 10.75 (16.00)
840-55-	<input type="text"/> -0	20.20 (513)	22.56 (573)	≈ 10.96 (16.31)
840-60-	<input type="text"/> -0	22.17 (563)	24.53 (623)	≈ (11.07 16.47)

Choose from the radii below for all of the above sizes

Radius (mm) Example: 840-30-350-0

	325	350	400	450	500	600	750	1000
<i>R</i>	12.80 (325)	13.78 (350)	15.75 (400)	17.72 (450)	19.69 (500)	23.62 (600)	29.53 (750)	39.37 (1000)
<i>H*</i>	34.88 (886)	36.85 (936)	40.79 (1036)	44.72 (1136)	48.66 (1236)	56.53 (1436)	68.34 (1736)	88.03 (2236)
<i>D</i>	32.20 (818)	33.19 (843)	35.16 (893)	37.13 (943)	39.09 (993)	43.03 (1093)	48.94 (1243)	58.78 (1493)
<i>K</i>	60.04 (1525)	62.99 (1600)	69.29 (1760)	75.39 (1915)	81.69 (2075)	93.90 (2385)	112.60 (2860)	143.50 (3645)

0 = Standard color black. For other colors see Chapter 1

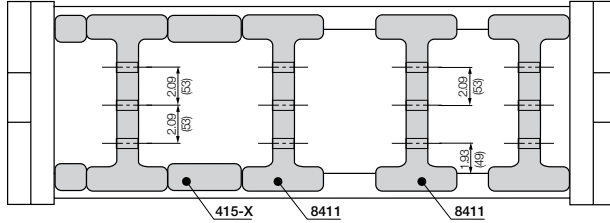
PDF: igus.com/e-chain-pdfs
 Product information: igus.com/e-chains



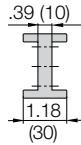


Vertical separators and spacers

Vertical separators are used if a vertical subdivision of the e-chain® interior is required. By standard, vertical separators are assembled every other e-chain® link.



Vertical separator
8401



Vertical separator

Unassembled	Part No. 8401
Assembled	Part No. 8411



Spacers
405-XX



Spacer (chain only)

Unassembled	Part No. 405.XX
Assembled	Part No. 415.XX

Spacers available in the following sizes:

Part No. Unassembled	Part No. Assembled	in.	(mm)
405 -10	415 -10	.39"	(10)
405 -15	415 -15	.59"	(15)
405 -20	415 -20	.79"	(20)
405 -30	415 -30	1.18"	(30)
405 -40	415 -40	1.57"	(40)

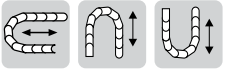
- **Standard separator 8401 for e-chains®**
This separator offers safe stability due to its wide base design, also when used with thick cables or hoses.

- **NOTE ON SPACERS**
Vertical separators are adjustable, but can be fixed in position by means of a spacer. Spacers are most often necessary for side mounted applications. The available inner height is reduced by .08" (2mm) **per spacer** (for example if one spacer is placed on either side of the separator, the overall inner height is reduced by .16" (4mm)). To avoid this, place the spacers on the **outside** of the opening crossbar (**not for long travels**).

e-chain system® E4-1

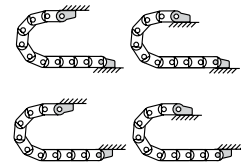
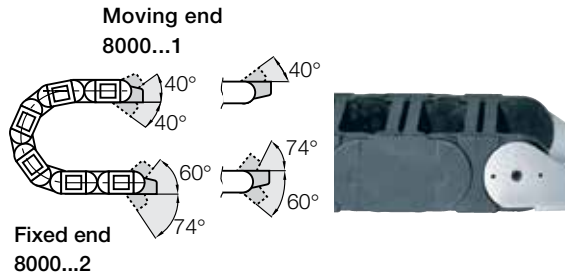
Series 840

Mounting Brackets

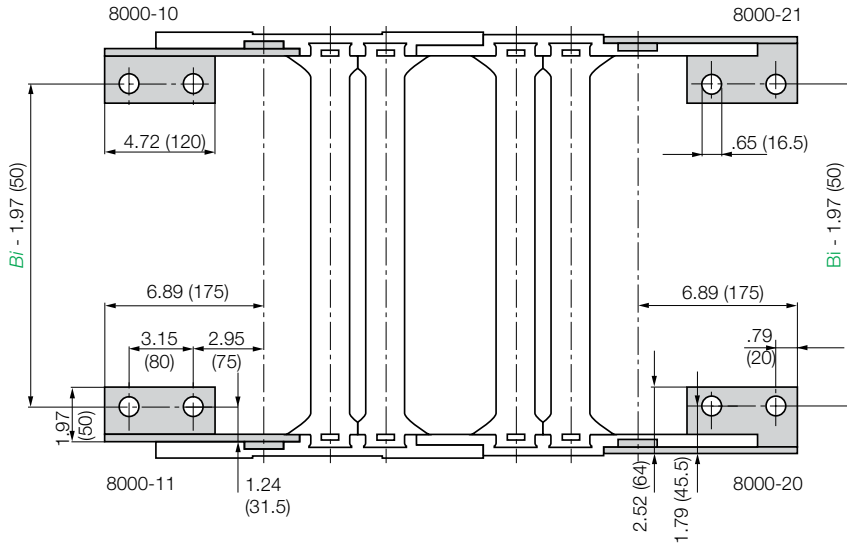


Option 1: pivoting

- For pivoting connections
- One part for all chain widths
- Electrically conductive



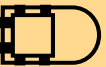
Possible installation configurations -



Part No.	Mounting bracket
8000-12	Full set
8000-1	moving end
8000-2	fixed end

Due to the design of the E4/100 series chains, please note the following when ordering brackets:

- Even number of links = full set, part number ending in -12
- Odd number of links = 2 pieces, part number ending in -2



Width of Crossbar
840-20-200-0

	B_{Ri}	Installation Part No.
-13	6.49 (165)	90-50-350
-15	7.01 (178)	90-50-350
-16	7.48 (190)	90-50-375
-17	7.99 (203)	90-50-375
-18	8.46 (215)	90-50-400
-20	8.98 (228)	90-50-400
-21	9.45 (240)	90-50-425
-22	9.96 (253)	90-50-425
-23	10.43 (265)	90-50-450
-25	10.94 (278)	90-50-450
-26	11.42 (290)	90-50-475
-27	11.93 (303)	90-50-475
-28	12.40 (315)	90-50-500
-30	12.91 (328)	90-50-500
-31	13.39 (340)	90-50-525
-32	13.90 (353)	90-50-525
-33	14.37 (365)	90-50-550
-35	14.88 (378)	90-50-550
-36	15.35 (390)	90-50-575
-37	15.87 (403)	90-50-575
-38	16.34 (415)	90-50-600
-40	16.85 (428)	90-50-600
-41	17.32 (440)	90-50-625
-42	17.83 (453)	90-50-625
-43	18.31 (465)	90-50-650
-45	18.82 (478)	90-50-650
-46	19.29 (490)	90-50-675
-47	19.80 (503)	90-50-675
-48	20.20 (513)	90-50-700
-50	20.79 (528)	90-50-700
-51	21.26 (540)	90-50-725
-52	21.77 (553)	90-50-725
-53	22.24 (565)	90-50-750
-55	22.76 (578)	90-50-750
-60	26.18 (665)	90-50-800

Guide troughs are used with applications where the upper run of the e-chain® glides on the lower run. If using igus® steel guide troughs, the following components are required:

- Full travel length of guide trough
Part No. 90-30
- 1/2 travel length glide bars
Part No. 90-31
- Installation sets as end connectors
Part No. 90-50-XX

-XX indicates the length of the profile rails on which the guide trough is mounted. The values and part numbers are specified in the table on the right. Standard length of the trough components and glide bars is 6.56 ft (2m). The required overall length of the guide trough directly correlates to the length of travel.

Example:

Length of travel 164 ft (50m)
Center mounted

Required guide troughs:

164 ft (50 m) guide trough
82 ft (25 m) glide bars
= 25 sections of (2 m) guide trough without glide bars **Part No. 90-30**
= 13 section of (2 m) guide troughs with glide bars **Part No. 90-31**

Required number of installation sets:

= Number of guide trough components + 1
= 25 + 1 = 26

Part number of the installation sets
90-50-XXX

Example:

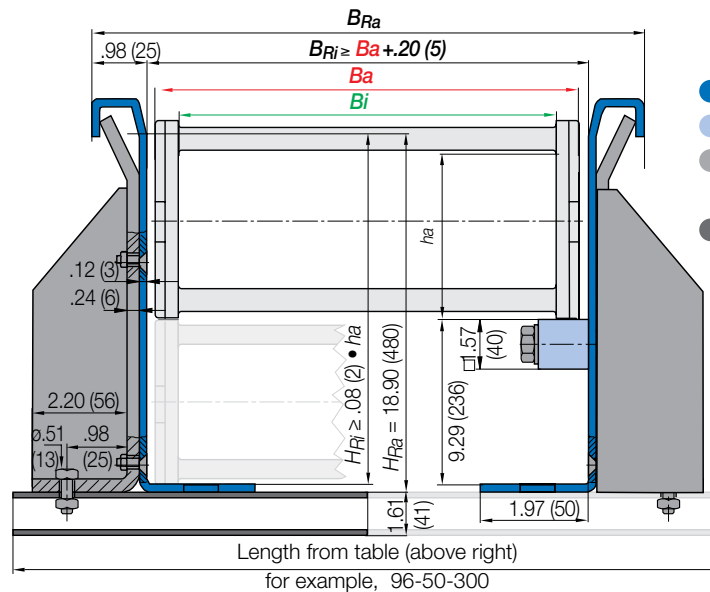
90-50-400 for (400 m) long profile rail



Left: Guide trough with glide bars
Right: Guide troughs without glide bars



Installation sets as section connectors



- Guide trough
- Glide bars
- Installation set "Basic"
- Profile rail

Length from table (above right)
for example, 96-50-300

Individual attachment without profile rail

* Specialized guide trough available upon request

Standard length profile rail

For further technical information on guide troughs
➤ Chapter 9

Price Index


Series E4-350

Special Options Available


Very high fill weights
possible > 100 kg/m



Very huge interior,
inner height 13.78" (350 mm),
inner width up to 39.37" (1000 mm)


Features & Benefits

- 1 Electrically insulating
- 2 The world's largest* all-plastic e-chain® (*issue 10/2008, available from 2009)
- 3 Maintenance-free - no grease or oil needed to lubricate the joints
- 4 Designed to carry thick, heavy and stiff cables and hoses
- 5 Ideal for rough use on oil platforms, in steel plants, or in heavy duty machinery
- 6 Steel mounting brackets, also available in stainless steel upon request
- 7 Solid crossbars made from high-tech polymer
- 8 Tongue and groove design provides greater lateral stability
- 9 Modular design saves assembly time
- 10 Interior separation available
- 11 Highly resistant to wear, corrosion and sea water
- 12 Plastic material reduces noise


Usage Guidelines


- If a maintenance-free offshore e-chain® is required
- If no use of oil and grease is needed
- If electrical insulation is necessary
- If resistance to corrosion and sea water is required
- If 100% plastics is the first choice for your application

Order Example: Complete e-chain®

Please indicate chain length or number of links. Example:

16.4 ft (5 m) **E4-350-200-500-0****e-chain®**With 2 separators **351-1F** assembled every 2nd link**Interior Separation**1 Set **E4-350100-1-12****Mounting Bracket**

e-chain system® E4-1

Series E4-350

Installation Dimensions



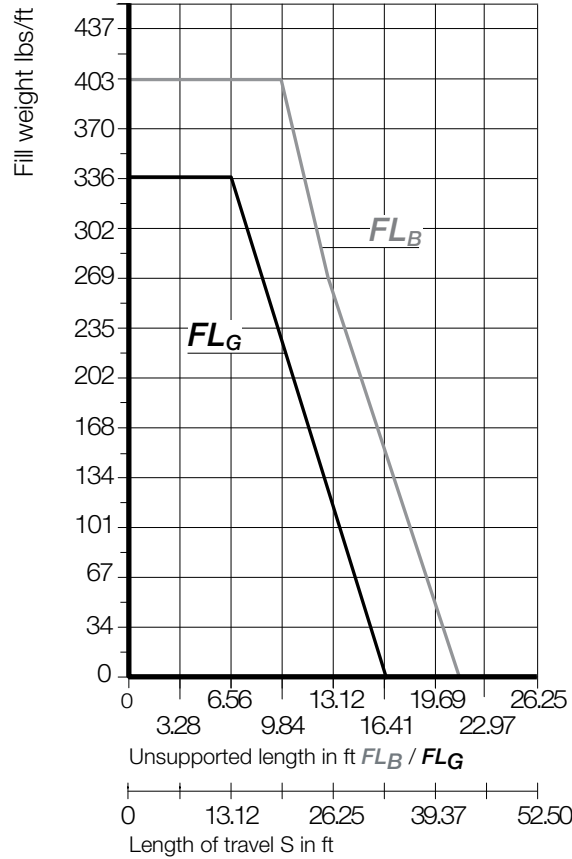
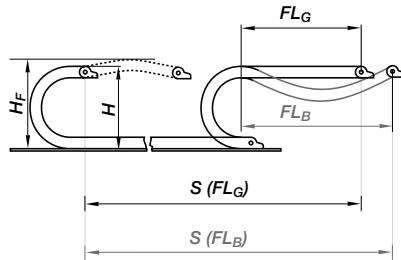
E4-350

Short travel, unsupported length

- FL_B = unsupported with permitted sag
- FL_G = unsupported with straight upper run

Further information

► Design, Chapter 1



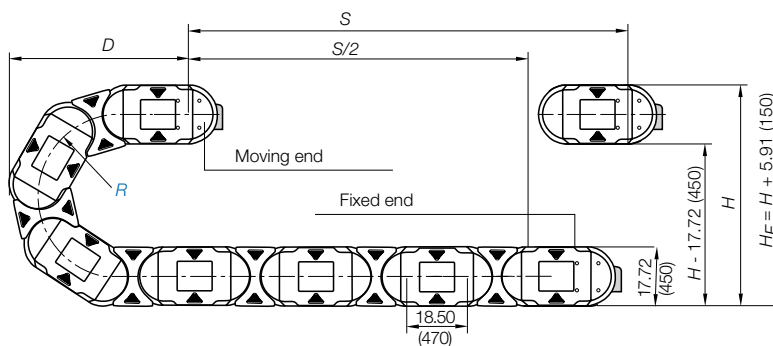
Short Travels - Unsupported



Unsupported e-chains® feature positive camber over short travels. This must be accounted for when specifying the clearance height. Please refer to **Installation dimensions** for further details.

Legend

- S = Length of travel
- R = Bending radius
- H = Nominal clearance height
- D = Overlength e-chain® radius in final position
- $K = \pi \cdot R + \text{safety buffer}$
- H_f = Required clearance height



Pitch per link = 18.50" (470 mm)
 Links per ft (m) = .64 (2)
 For center mount applications:
 Chain length = $\frac{S}{2} + K$

The required clearance height: $H_f = H + 5.91$ in. (150 mm)

R	19.69 (500)	29.53 (750)	39.37 (1000)
H^*	57.09 (1450)	76.77 (1950)	96.46 (2450)
D	56.30 (1430)	66.14 (1680)	75.98 (1930)
K	99.02 (2515)	129.92 (3300)	160.83 (4085)

Material - permitted temperature
 Flammability Class, igumid G

igumid G / -40°F (-40°C) up to +248°F (+120° C)
 VDE 0304 IIC UL94 HB

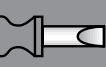
Technical Data



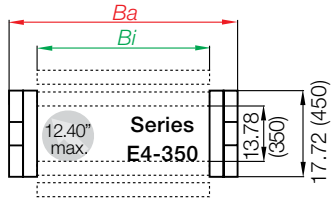
Details of material properties

► Chapter 1

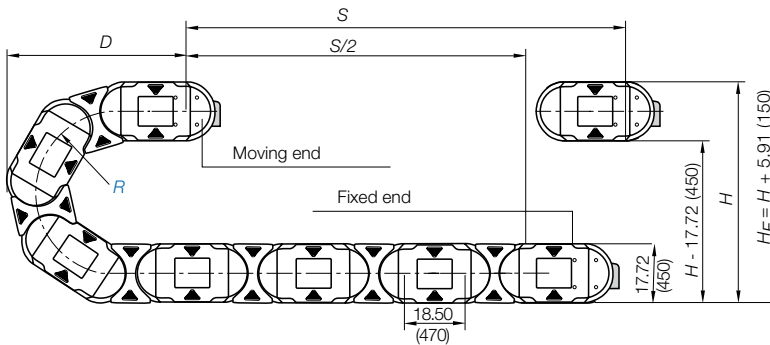
PDF: igus.com/e-chain-pdfs
 Product information: igus.com/e-chains



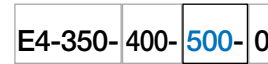
Series E4-350 - e-chain® with crossbars every link



- Crossbars every link
- For rigid hydraulic hoses
- For particularly demanding applications
- Can be opened from both sides



Part Number Structure



- Color - Black
- Bending radius
- Width
- Series

Supplement part number with required radius. Example: E4-350-200-500-0
Pitch: 18.50 in. (470 mm) per link links/ft(m) = .64 (2)

Part Number.

Crossbars		<i>Bi</i>	<i>Ba</i>	E4-350(61.9)
Every link		in. (mm)	in. (mm)	lbs/ft (kg/m)
E4-350-400 - <input type="text"/> -0		15.75 (400)	21.26 (540)	41.59 (61.9)
E4-350-500 - <input type="text"/> -0		19.69 (500)	25.20 (640)	44.15 (65.7)
E4-350-600 - <input type="text"/> -0		23.62 (600)	29.13 (740)	46.77 (69.6)
E4-350-700 - <input type="text"/> -0		27.56 (700)	33.07 (840)	49.32 (73.4)
E4-350-800 - <input type="text"/> -0		31.50 (800)	37.01 (940)	51.88 (77.2)

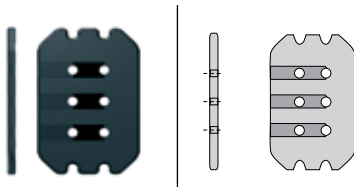
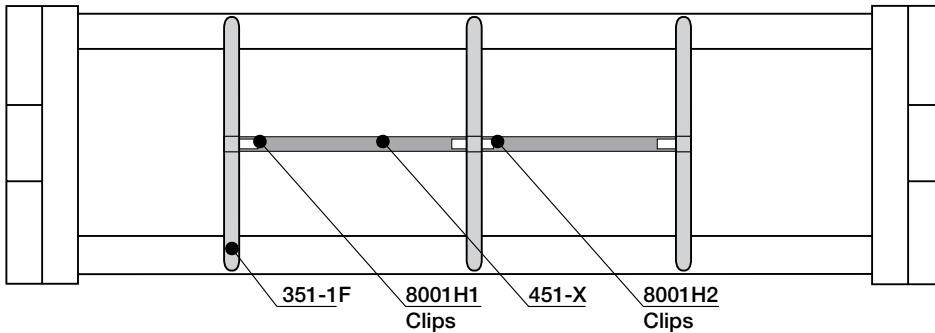
Choose from the radii below for all of the above sizes

Radius (mm) Example: E4-350-400-500-0

	500	750	1000
<i>R</i>	19.69 (500)	29.53 (750)	39.37 (1000)
<i>H*</i>	57.09 (1450)	76.77 (1950)	96.46 (2450)
<i>D</i>	56.30 (1430)	66.14 (1680)	75.98 (1930)
<i>K</i>	99.02 (2515)	129.92 (3300)	160.83 (4085)

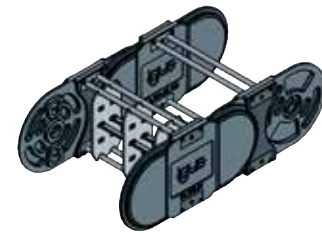
0 = Standard color black. For other colors see Chapter 1

e-chain system® E4-1
Series E4-350
Interior Separation



Separator for vertical subdivision
For a vertical subdivision in 3 positions

unassembled	350.1F
assembled	351.1F



Heavy duty interior separation for cable-safe guidance



Shelf for horizontal subdivision
For horizontal separation with clip separators for vertical subdivision. Horizontal shelves of various widths can be arranged at 3 different positions

unassembled	450-X
assembled	451-X

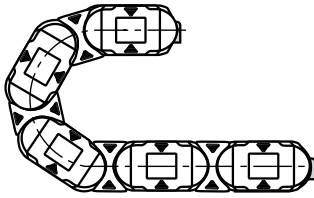
Width X in. (mm)	Part No. unassembled	Part No. assembled
1.97 (50)	450-50	451-50
2.56 (65)	450-65	451-65
2.95 (75)	450-75	451-75
3.43 (87)	450-87	451-87
3.94 (100)	450-100	451-100
4.41 (112)	450-112	451-112
4.92 (125)	450-125	451-125
5.39 (137)	450-137	451-137
5.91 (150)	450-150	451-150
6.38 (162)	450-162	451-162
6.89 (175)	450-175	451-175
7.36 (187)	450-187	451-187
7.87 (200)	450-200	451-200
8.34 (212)	450-212	451-212
8.85 (225)	450-225	451-225
9.33 (237)	450-237	451-237
9.84 (250)	450-250	451-250
10.31 (262)	450-262	451-262
10.83 (275)	450-275	451-275
11.30 (287)	450-287	451-287
11.81 (300)	450-300	451-300

Width X in. (mm)	Part No. unassembled	Part No. assembled
12.28 (312)	450-312	451-312
12.80 (325)	450-325	451-325
13.27 (337)	450-337	451-337
13.78 (350)	450-350	451-350
14.25 (362)	450-362	451-362
14.76 (375)	450-375	451-375
15.24 (387)	450-387	451-387
15.75 (400)	450-400	451-400
16.22 (412)	450-412	451-412
16.73 (425)	450-425	451-425
17.20 (437)	450-437	451-437
17.72 (450)	450-450	451-450
18.19 (462)	450-462	451-462
18.70 (475)	450-475	451-475
19.17 (487)	450-487	451-487
19.69 (500)	450-500	451-500
20.16 (512)	450-512	451-512
20.67 (525)	450-525	451-525
21.14 (537)	450-537	451-537
21.65 (550)	450-550	451-550
23.62 (600)	450-600	451-600

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains



Moving end

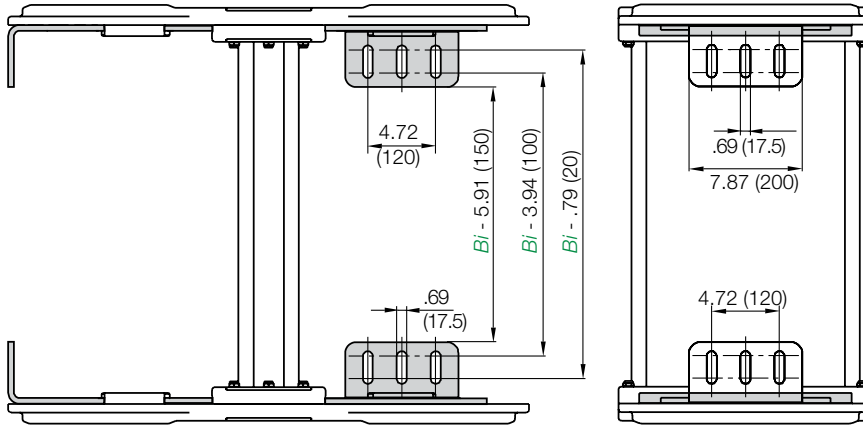


Fixed end



E4-350100-1
Moving end

E4-350100-1
Fixed end

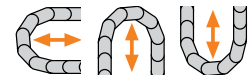


Steel mounting brackets

E4-350100-1-12-SS	Full set (both sides) for e-chain®, ending with outer side link (4 pieces)
E4-350100-1-SS	Mounting bracket set (one side) for outer side link (2 pieces)

Stainless steel version available please add suffix **-SS**
(Material: stainless steel 1.4301)

Note: By ordering steel mounting brackets in combination with an e-chain® / e-tube, they will be delivered assembled!



- For pivoting connections
- Secure connection
- One part (two-piece) for all e-chain® widths
- Electrically conductive



Robust steel mounting bracket for secure mounting and connection

e-chain system® E4-1
Series E4-350



E4-350

igus®
e-chain system®

Telephone 1-800-521-2747

Internet: igus.com
email: sales@igus.com
QuickSpec: igus.com/quickspec





igus[®]
E4-1 light

E4-1 light

High dynamics, light and cost- effective

All around e-chains® and e-tubes for high dynamics. The E4-1 light series was developed to combine the advantages of the E2/000 and the E4-1 series. The stability of the E4-1 system and the ease of accessibility of the E2/000. The stability and price of the E4-1 light falls between these systems and makes it the perfect alternative for your application.

- Weight reduction and high stability at the same time
- 30% lighter and lower-priced than E4-1
- Crossbars, lid and shelves pivotable on either side
- Very tightly fitting lids and bottoms, virtually no gaps and openings
- Snap-open along the inner and outer radius
- Ideal ratio of internal and external dimensions due to thinner outer links and optimized crossbar design
- Inner diameter completely accessible for easy filling

Typical industries and applications

- Machine tools
- General mechanical engineering



Low noise operation due to integrated “brakes”



ESD classification: Electrically conductive
ESD/ATEX version upon request



High torsional rigidity





New snap-open mechanism, Series E4-1 and R4-1 Light, choice of snap-open on left or right



Denseness test at the igus® lab: High chip protection in the test. Stop-dogs completely free of xhips



Lightweight, stable E4-1 light e-chains® now available as a closed e-tube. Very tight closing, rounded lids

e-chain system® E4-1 light Selection Guide



Crossbars every link

Crossbars on both sides pivotable, snap-open along the inner and outer radius

Series	Inner height <i>hi</i> in. (mm)	Inner width <i>Bi</i> in. (mm)	Outer width <i>Ba</i> in. (mm)	Outer height <i>ha</i> in. (mm)	Bending radius <i>R</i> in. (mm)
E4-31L	1.22 (31)	1.57-6.89 (40-175)	2.13-7.44 (54-189)	1.65 (42)	2.16-9.84 (55-250)
E4-38L	1.50 (38)	1.97-11.81 (50-300)	2.60-12.44 (66-316)	2.13 (54)	2.48-11.81 (63-300)
E4-48L	1.89 (48)	1.97-11.81 (50-300)	2.76-12.60 (70-320)	2.52 (64)	2.95-13.78 (75-350)
E4-64L	2.52 (64)	3.43-7.87 (87-200)	4.45-7.91 (113-201)	3.31 (84)	3.94-15.75 (100-400)



e-tubes

Fully enclosed, lids on both sides pivotable, snap-open along the inner and outer radius

Series	Inner height <i>hi</i> in. (mm)	Inner width <i>Bi</i> in. (mm)	Outer width <i>Ba</i> in. (mm)	Outer height <i>ha</i> in. (mm)	Bending radius <i>R</i> in. (mm)
R4-31L	1.22 (31)	1.97-3.94 (50-100)	2.52-4.49 (64-114)	1.65 (42)	2.95-9.84 (075-250)
R4-38L	1.50 (38)	1.97-9.84 (50-250)	2.60-10.47 (66-266)	2.13 (54)	4.92-11.81 (125-300)
R4-48L	1.89 (48)	2.95-9.84 (50-250)	2.76-10.63 (70-270)	2.52 (64)	4.92-13.78 (125-350)

E4-1 light e-chains® - options and accessories



pivoting and locking KMA connection elements possible



Extender crossbars increase the inner height by 1.91" (48.5 mm)



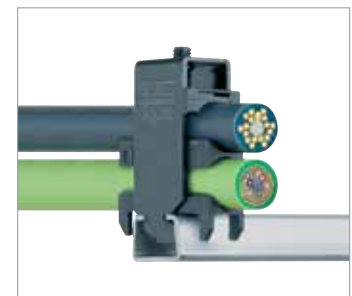
Guide troughs available in steel or aluminum versions



New, particularly cable-friendly interior separation program available



KMA mounting brackets with attachment options on all sides



Wide variety of strain relief options available

e-chain system® E4-1 light Assembly instructions

E4-1 light e-chains® - Assembly



1 Line up the two inner side links, side by side



2 Attach an outer side link between and push side links together

E4-1 light e-chains® - Assembly



3 Snap the crossbars into place

E4-1 light e-chains® - Opening



4 To open, place screwdriver on the inside of the fastening mechanism and pry to the outside.

 Available from stock. Orders ship as early as today.*

*On average 90% of orders ship the same day..

Price Index



Special Options Available

- Low noise version available with special rubber pads
- Cleanroom test upon request
- ESD classification: Electrically conductive ESD/ATEX version upon request

Assembly Tips



Opening To open, insert the screwdriver into the locking mechanism and pry it open outwards

Other Installation Methods

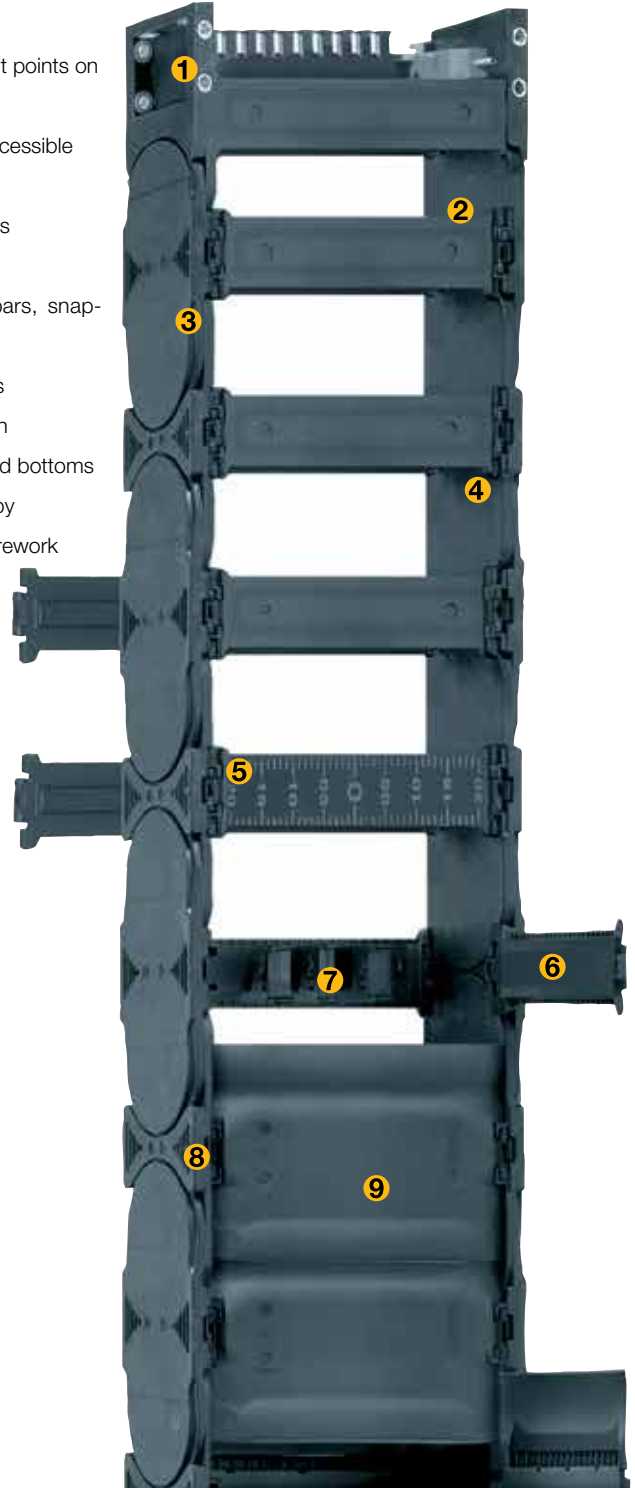
- Vertical, hanging ≤ 131 ft (40 m)
- Vertical, standing ≤ 8.20 ft (2.5 m)
- Side-mounted, un_supp. ≤ 1.99 ft (0.6 m)
- Rotary requires further calculation

Usage Guidelines

- If a lightweight, cost-effective e-chain® for high dynamics is required
 - If very tight fitting lids and bottoms are required
 - If short assembly times are required
 - If optimized interior-exterior dimensions ratio is needed
- When the e-chain® needs to be extremely quiet (32dB(A)) with very low vibration
 - Series E6-1, Chapter 7
 - When the e-chain® is to be used in cleanrooms (cleanroom ISO class 1)
 - Series E6-1, Chapter 7
 - If even higher strength is required
 - Series E4-1, Chapter 6

Features & Benefits

- 1 KMA mounting brackets with attachment points on all sides
- 2 Easy filling: inner diameter completely accessible
- 3 High stability due to undercut design
- 4 Efficient: less weight, enhanced dynamics
- 5 Notch crossbar with visual scale
- 6 Short assembly time: pivotable crossbars, snap-open along the inner and outer radius
- 7 Numerous interior separation possibilities
- 8 Straight run due to inner/outer link design
- 9 Chip protection: very tightly fitting lids and bottoms
- 10 Version NCST "without camber" simply by turning outer links without unnecessary rework



Also available without camber. Add NCST to the end of the part number.
Ex: E4-31L-100-200NCST

Order Example: Complete e-chain®

Please indicate chain length or number of links. Example:

13.12 ft (4 m) **E4-31L-100-200-0**

e-chain®

With 2 separators **31-1-1** assembled every 2nd link

Interior Separation

1 Set **E4-310-100-12P**

Mounting Bracket

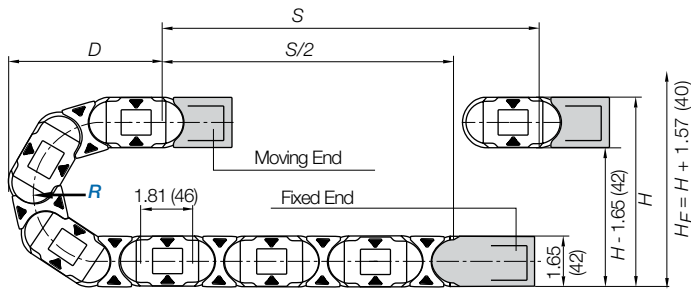
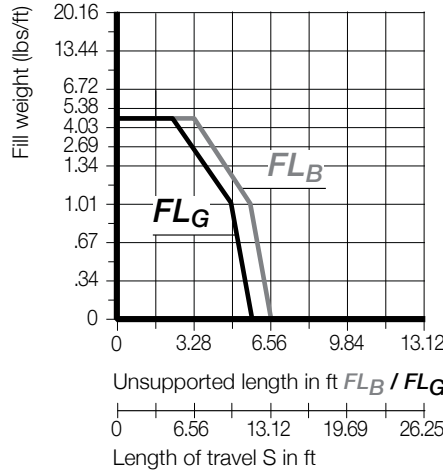
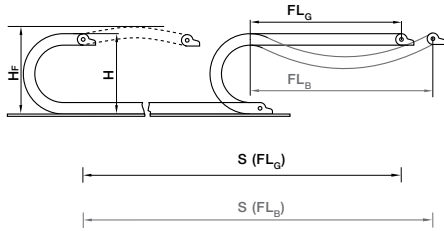
e-chain system® E4-1 light Series E4-31L/R4-31L Installation Dimensions



E4-31L
R4-31L

Short travel, unsupported length

- FL_B = unsupported with permitted sag
 - FL_G = unsupported with straight upper run
- Further information ► Design, Chapter 1



The required clearance height: $H_F = H + 1.57$ in. (40 mm) (with .67 lbs/ft (1.0 kg/m) fill weight. Please consult igus® if space is particularly restricted.

R	2.16 (055")	2.48 (063")	2.95 (075)	3.94 (100)	4.92 (125)	5.91 (150)	6.89 (175)	7.87 (200)	9.84 (250)
H	5.98 (152)	6.61 (168)	7.56 (192)	9.52 (242)	11.50 (292)	13.46 (342)	15.43 (392)	17.40 (442)	21.34 (542)
D	5.71 (145)	6.02 (153)	6.50 (165)	7.48 (190)	8.46 (215)	9.45 (240)	10.43 (265)	11.42 (290)	13.39 (340)
K	10.43 (265)	11.42 (290)	12.99 (330)	16.14 (410)	19.09 (485)	22.24 (565)	25.39 (645)	28.54 (725)	34.65 (880)

1) Radius not available for e-tubes



For support of the lower run, see Chapter 9 of the main catalog for the Support Tray tool kit

Short Travels - Unsupported

Unsupported e-chains® feature positive camber over short travels. This must be accounted for when specifying the clearance height. Please refer to for further details.

Legend

- S = Length of travel
- R = Bending radius
- H = Nominal clearance height
- D = Overlength e-chain® radius in final position
- $K = \pi \cdot R + \text{safety buffer}$
- H_F = Required clearance height
- H_{RI} = Trough inner height
- H_2 = *Mounting height
- D_2 = Overlength - long travels, gliding
- K_2 = *Add-on
- *If the mounting bracket location is set lower



PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains



Speed / acceleration FL_G	max. 65.6 ft/s (20 m/s) / max. 656 ft/s ² (200 m/s ²)
Speed / acceleration FL_B	max. 9.84 ft/s (3 m/s) / max. 19.69 ft/s ² (6 m/s ²)
Gliding speed / acceleration (maximum)	max. 16.4 ft/s (5 m/s) / max. 82 ft/s ² (25 m/s ²)
Material - permitted temperature	igumid G / -40°F (-40°C) up to +248°F (+120° C)
Flammability Class, igumid G	VDE 0304 IIC UL94 HB

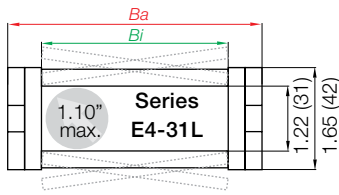
Technical Data



Details of material properties

► Chapter 1

6.144

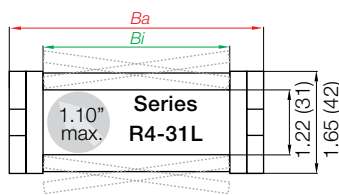
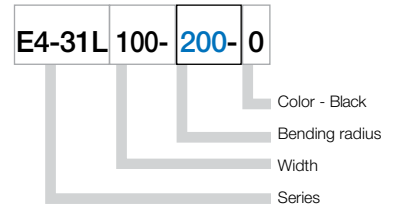


Series E4-31L - e-chain® with crossbars every link

- Crossbars every link
- For use with rigid hydraulic hoses
- For particularly demanding applications
- Can be opened from both sides



Part Number Structure

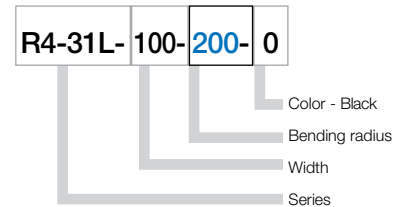


Series R4-31L - fully enclosed e-tube

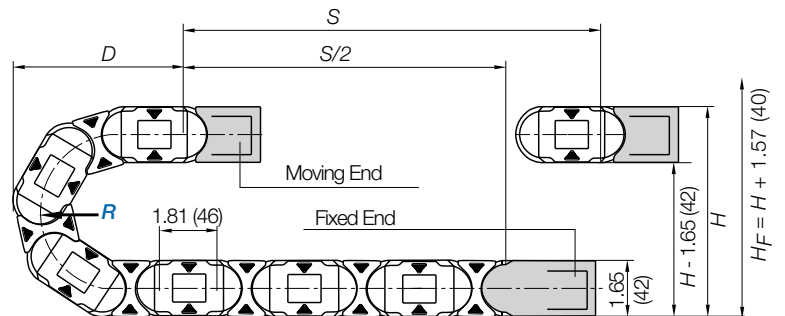
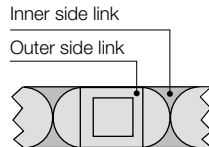
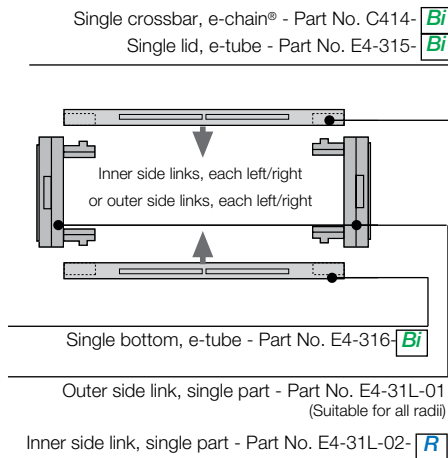
- Fully enclosed
- Excellent cable and hose protection against dirt
- Protection against hot chips
- Lids along inner radius are completely removable
- Lids along the outer radius are single-sided, snap open, hinged on one side as well as completely removable



Part Number Structure



e-chain® as separate parts, links and side plates



e-chain system® E4-1 light

Series E4-31L/R4-31L

Product Range



E4-31L
R4-31L

Supplement part number with required radius. Example: E4-31L-100--0
Pitch: 1.81 in. (46 mm) per link links/ft (m) = 6.6 (22)

Part Number			Weight			
Crossbars	Tube		<i>Bi</i>	<i>Ba</i>	E4-31L	R4-31L
Every link	Version		in. (mm)	in. (mm)	lbs/ft (kg/m)	lbs/ft (kg/m)
E4-31L-040-		<input type="text" value=""/> -0	1.97 (40)	2.13 (54)	≈ 0.47 (0.70)	–
E4-31L-050-	R4-31L-050-	<input type="text" value=""/> -0	1.97 (50)	2.52 (64)	≈ 0.54 (0.74)	≈ 0.58(0.87)
E4-31L-062-		<input type="text" value=""/> -0	2.44 (62)	2.99 (76)	≈ 0.51 (0.76)	–
E4-31L-075-		<input type="text" value=""/> -0	2.95 (75)	3.50 (89)	≈ 0.52 (0.78)	≈ 0.68(1.01)
E4-31L-087-		<input type="text" value=""/> -0	3.94 (87)	3.98 (101)	≈ 0.56 (0.83)	–
E4-31L-100-	R4-31L-100-	<input type="text" value=""/> -0	3.94 (100)	4.49 (114)	≈ 0.59 (0.88)	≈ 0.74(1.10)
E4-31L-112-		<input type="text" value=""/> -0	4.41 (112)	4.96 (126)	≈ 0.62 (0.93)	–
E4-31L-125-		<input type="text" value=""/> -0	4.92 (125)	5.47 (139)	≈ 0.64 (0.96)	≈ 0.86 (1.28)
E4-31L-150-		<input type="text" value=""/> -0	5.91 (150)	6.46 (164)	≈ 0.67 (1.00)	≈ 0.94 (1.40)
E4-31L-162-		<input type="text" value=""/> -0	6.38 (162)	6.93 (176)	≈ 0.70 (1.04)	–
E4-31L-175-		<input type="text" value=""/> -0	6.89 (175)	7.44 (189)	≈ 0.75 (1.13)	≈ 1.04 (1.55)

Choose from the radii below for all of the above sizes

Radius (mm) Example: E4-31L-100--0

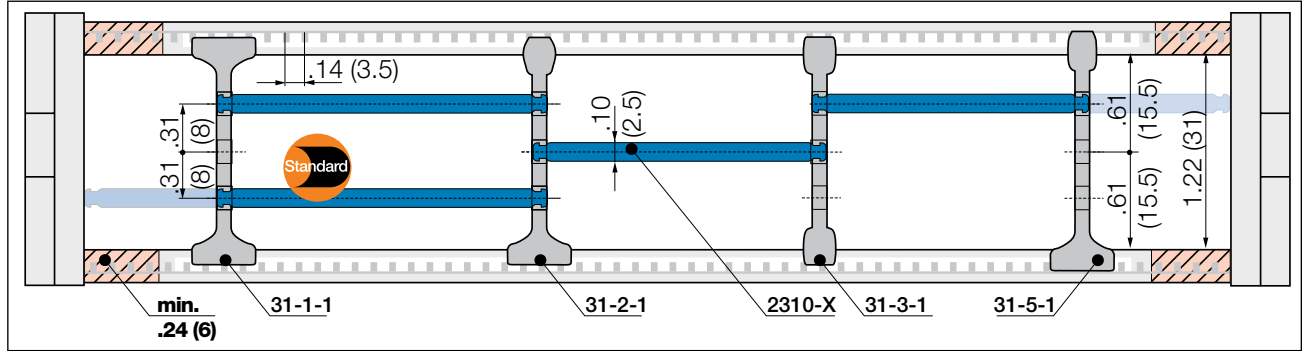
	055 ¹⁾	063 ¹⁾	075	125	150	175	200	250	300
<i>R</i>	2.16 (055 ¹⁾)	2.48 (063 ¹⁾)	2.95 (075)	3.94 (100)	4.92 (125)	5.91 (150)	6.89 (175)	7.87 (200)	9.84 (250)
<i>H</i>	5.98 (152)	6.61 (168)	7.56 (192)	9.52 (242)	11.50 (292)	13.46 (342)	15.43 (392)	17.40 (442)	21.34 (542)
<i>D</i>	5.71 (145)	6.02 (153)	6.50 (165)	7.48 (190)	8.46 (215)	9.45 (240)	10.43 (265)	11.42 (290)	13.39 (340)
<i>K</i>	10.43 (265)	11.42 (290)	12.99 (330)	16.14 (410)	19.09 (485)	22.24 (565)	25.39 (645)	28.54 (725)	34.65 (880)

1) Radius not available for e-tubes

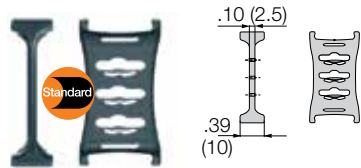
For other colors see Chapter 1

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains





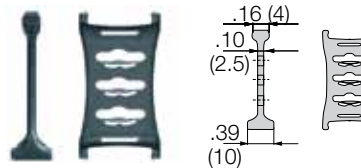
Note e-tube: Please maintain a lateral spacing of .24" (6 mm) between the separators and the side links. In the standard configuration separators are assembled every 2nd e-chain® link



Separator, wide base

Unassembled	Part No. 31-1
Assembled	Part No. 31-1-1

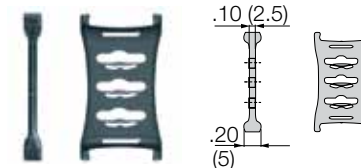
- **Standard separator 31-1 for all applications**
Separator with wide base for maximum locking strength and safe standing in e-chains® and e-tubes.



Separator, narrow head

Unassembled	Part No. 31-2
Assembled	Part No. 31-2-1

- **Separator 31-2 For even faster installation**
Firm hold to one side with a wide base, narrow on opposed side for easy cable assembly (slight grip).



Separator, narrow base

Unassembled	Part No. 31-3
Assembled	Part No. 31-3-1

- **Separator 31-3 For many thin cables**
Separator with a narrow base for a large number of thin cables side by side. Saves space in e-chains®.

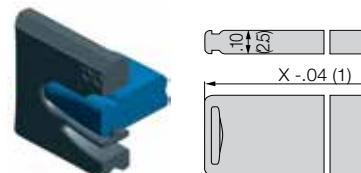


Notch separator for notch crossbar

Unassembled	Part No. 31-5
Assembled	Part No. 31-5-1

- **Separator 31-5 Locks safely in preset increments**
Notch separator for exact positioning in e-chains®. Recommended for side-mounted applications.

Lockable full-width shelves - for the standard interior separation



Full width shelf, lockable

Unassembled	Part No. 2300-X
Assembled	Part No. 2310-X

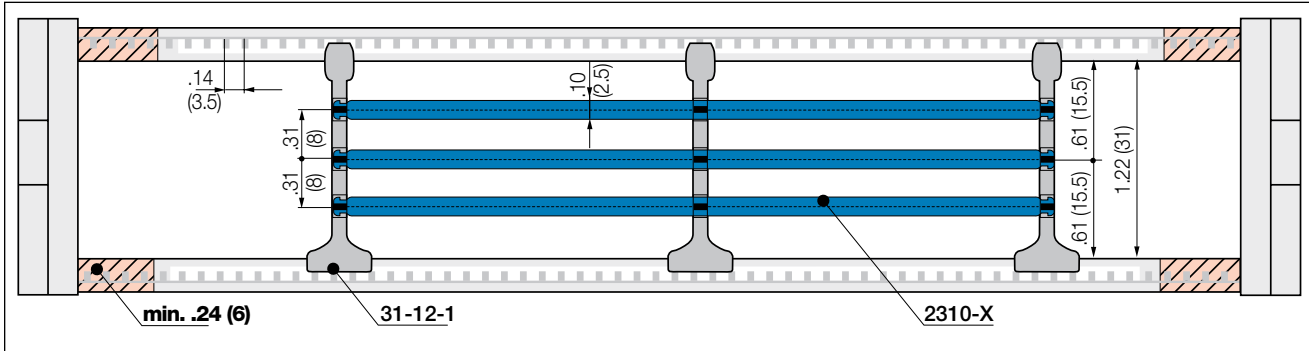
- **Full width shelf, lockable**
Shelf locks safely into separators on both ends, fixed width possible. Can be used as full width or partial shelf

Width X in. (mm)	Part No. Unassembled	Part No. Assembled	Width X in. (mm)	Part No. Unassembled	Part No. Assembled	Width X in. (mm)	Part No. Unassembled	Part No. Assembled
(015)	2300-015	2310-015	(060)	2300-060	2310-060	(087)	2300-087	2310-87
(025)	2300-025	2310-025	(062)	2300-062	2310-062	(090)	2300-090	2310-90
(030)	2300-030	2310-030	(065)	2300-065	2310-065	(100)	2300-100	2310-100
(038)	2300-038	2310-038	(070)	2300-070	2310-070	(103)	2300-103	2310-103
(040)	2300-040	2310-040	(075)	2300-075	2310-075	(110)	2300-110	2310-110
(050)	2300-050	2310-050	(077)	2300-077	2310-077	(120)	2300-120	2310-120
(057)	2300-057	2310-057	(080)	2300-080	2310-080	(125)	2300-125	2310-125

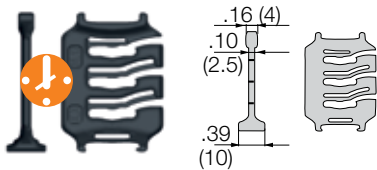
e-chain system® E4-1 light
Series E4-31L/R4-31L
Interior Separation



E4-31L
R4-31L



Note e-tube: Please maintain a lateral spacing of .24" (6 mm) between the separators and the side links. In the standard configuration separators are assembled every 2nd e-chain® link



Lean Separator

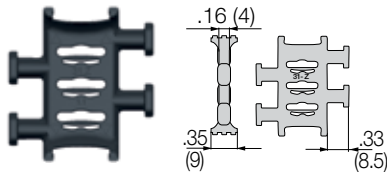
Unassembled	Part No. 31-12
Assembled	Part No. 31-12-1

• **Lean separators 31-12**

New design allows extremely fast fitting of shelves in several layers, which significantly reduces assembly time. Enables extremely fast replacement of individual cables in a very full e-chain®.



- **Lean separator design - several layers of cables fitted quickly, save up to 50%* assembly time** (*Lean separator vs. standard separator - measured on a 4m long e-chain® fitted with 12 cables in the igus® harnessing factory)



Separator with integrated strain relief

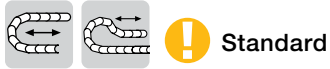
Unassembled	Part No. 31-Z
Assembled	Part No. 31-Z-1

• **Separator 31-Z with integrated strain relief**

Can be integrated into the mounting bracket or placed at any point in the e-chain®. Combines strain relief and interior separation, for restricted space conditions. Strain relief separator is easy to assemble without any tools

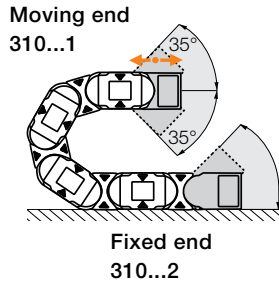
PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains



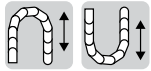
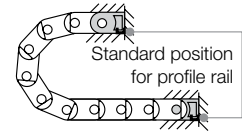


Option 1: pivoting

- Recommended for unsupported and gliding applications
- Attachment capability on all sides
- Bolted connection outside of chain cross-section
- Space restricted conditions
- Corrosion resistant

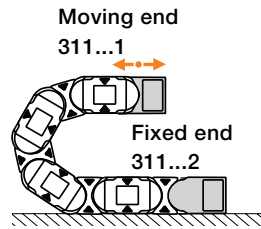


Pivoting angle depends on radius

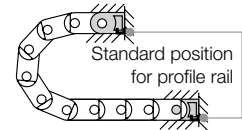


Option 2: locking

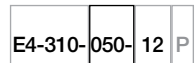
- Profile rail option
- Universal use
- Corrosion resistant
- Vertical hanging/standing travels
- Extreme accelerations



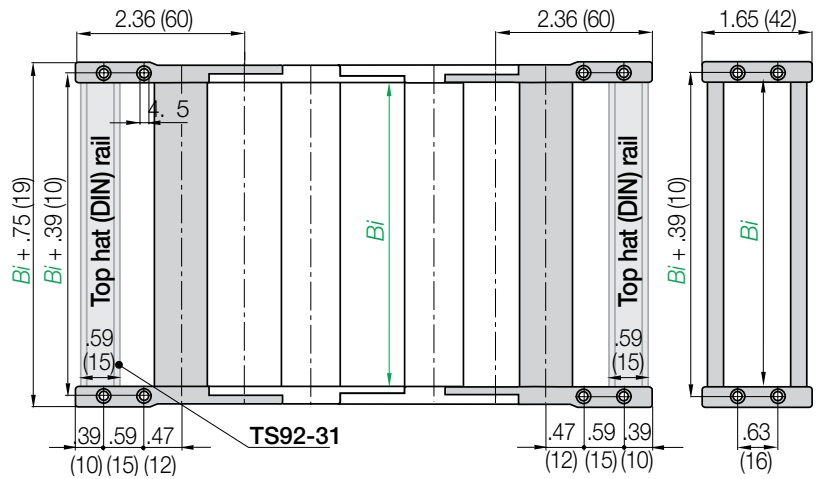
Pivoting angle depends on radius



Part Number Structure



- With Profile Rail
- Complete Set
- Width
- E4-310 = Pivoting for chain
- E4-311 = Locking for chain



Due to the design of the E4-31L series chains, please note the following when ordering brackets:
Even number of links = full set, part number ending in -12; Odd number of links = 2 pieces, part number ending in -1

Part number examples are shown for pivoting brackets for e-chain.
For locking brackets change part number to 311

Part No. Full Set (pivoting)
Series E4-31L
E4-310-Width-12

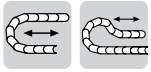
Part No. Full Set (pivoting)
with profile rail
Series E4-31L
E4-310-Width-12P

Width	Part No. Full Set chain		With Profile Rail	Bi in. (mm)	Width	Part No. Full Set chain		With Profile Rail	Bi in. (mm)
	Pivoting	Locking				Pivoting	Locking		
-040	E4-310	E4-311	-040-12	P 1.57 (40)	-112	E4-310	E4-311	-112-12	P 4.41 (112.5)
-050	E4-310	E4-311	-050-12	P 1.97 (50)	-125	E4-310	E4-311	-125-12	P 4.92 (125)
-062	E4-310	E4-311	-062-12	P 2.68 (62.5)	-150	E4-310	E4-311	-150-12	P 5.91 (150)
-075	E4-310	E4-311	-075-12	P 2.95 (75)	-162	E4-310	E4-311	-162-12	P 6.38 (162.5)
-087	E4-310	E4-311	-087-12	P 3.43 (87.5)	-175	E4-310	E4-311	-175-12	P 6.61 (175)
-100	E4-310	E4-311	-100-12	P 3.94 (100)					

e-chain system® E4-1 light Series R4-31L Mounting Brackets - KMA



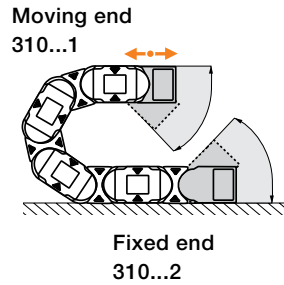
E4-31L
R4-31L



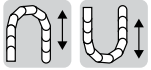
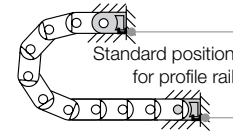
Standard

Option 1: pivoting

- Recommended for unsupported and gliding applications
- Attachment capability on all sides
- Bolted connection outside of chain cross-section
- Space restricted conditions
- Corrosion resistant

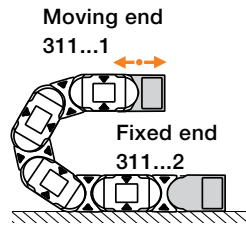


Pivoting angle depends on radius

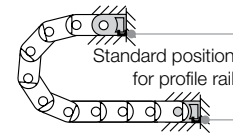


Option 2: locking

- Profile rail option
- Universal use
- Corrosion resistant
- Vertical hanging/standing travels
- Extreme accelerations



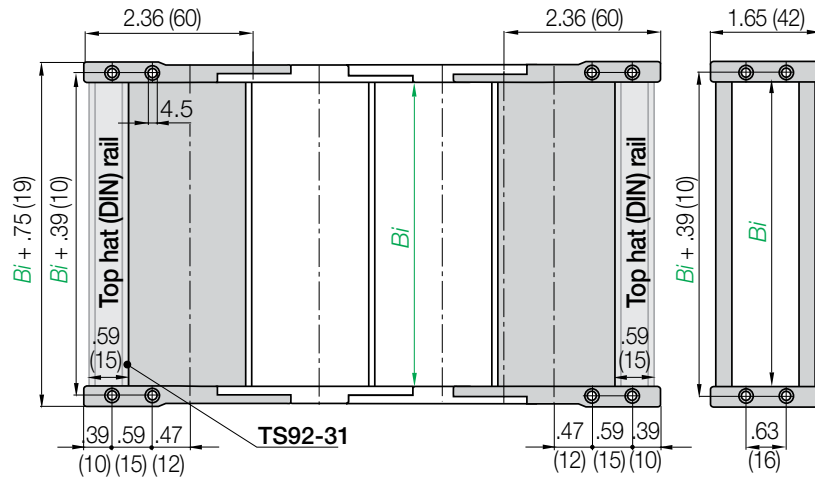
Pivoting angle depends on radius



Part Number Structure

R4-310-050-12 P

- With Profile Rail
- Complete Set
- Width
- R4-310 = Pivoting for tube
- R4-311 = Locking for tube



Due to the design of the R4-31L series chains, please note the following when ordering brackets:
Even number of links = full set, part number ending in -12; Odd number of links = 2 pieces, part number ending in -1

Part number examples are shown for pivoting brackets for e-chain.
For locking brackets change part number to 311

Part No. Full Set (pivoting)
Tube Series R4-31L
R4-310-Width-12

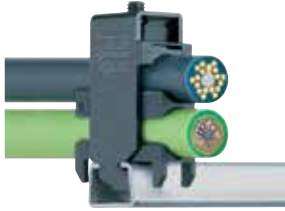
Part No. Full Set (pivoting)
with Profile Rail
Tube Series R4-31L
R4-310-Width-12P

Width	Part No. Full Set e-tube		With Profile Rail	Bi in. (mm)
	Pivoting	Locking		
-050	R4-310	R4-311	-050-12 P	1.97 (50)
-100	R4-310	R4-311	-100-12 P	3.94 (100)

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains



Chainfix clamps for the profile rail



igus® Chainfix strain relief elements are available in either steel or stainless steel. They can be adjusted with a hexagon socket and are available in single, double and triple configurations.

Part No. Single Clamp		Part No. Double Clamp		Part No. Triple Clamp		Cable ø	
Steel	Stainless	Steel	Stainless	Steel	Stainless	in.	(mm)
CFX12-1	CFX12-1E	CFX12-2	CFX12-2E	CFX12-3	-	.24 - .47	(06 - 12)
CFX14-1	CFX14-1E	CFX14-2	CFX14-2E	CFX14-3	-	.47 - .55	(12 - 14)
CFX16-1	CFX16-1E	CFX16-2	CFX16-2E	CFX16-3	-	.55 - .63	(14 - 16)
CFX18-1	CFX18-1E	CFX18-2	CFX18-2E	CFX18-3	-	.63 - .71	(16 - 18)
CFX20-1	CFX20-1E	CFX20-2	CFX20-2E	CFX20-3	-	.71 - .79	(18 - 20)
CFX22-1	CFX22-1E	CFX22-2	CFX22-2E	CFX22-3	-	.79 - .87	(20 - 22)
CFX26-1	CFX26-1E	CFX26-2	CFX26-2E	-	-	.87 - 1.02	(22 - 26)
CFX30-1	CFX30-1E	CFX30-2	CFX30-2E	-	-	1.02 - 1.18	(26 - 30)
CFX34-1	CFX34-1E	CFX34-2	CFX34-2E	-	-	1.18 - 1.34	(30 - 34)
CFX38-1	CFX38-1E	-	-	-	-	1.34 - 1.50	(34 - 38)
CFX42-1	CFX42-1E	-	-	-	-	1.50 - 1.65	(38 - 42)

For more information please refer to strain relief section of Chapter 10

Strain relief with tiewrap teeth



Part No.	For series	Inner height <i>hi</i> in. (mm)	For use in
CFV-31-N15	E4-31L/R4-31L	1.22 (31)	Top-hat (DIN) rail 15 (TS92.31)

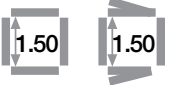
PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains



E4-38L
R4-38L






e-chain system® E4-1 light Series E4-38L/R4-38L



Price Index



Special Options Available

-  Low noise version available with special rubber pads
-  Cleanroom test upon request
-  ESD classification: Electrically conductive ESD/ATEX version upon request

Assembly Tips





Opening To open, insert the screwdriver into the locking mechanism and pry it open outwards

Other Installation Methods

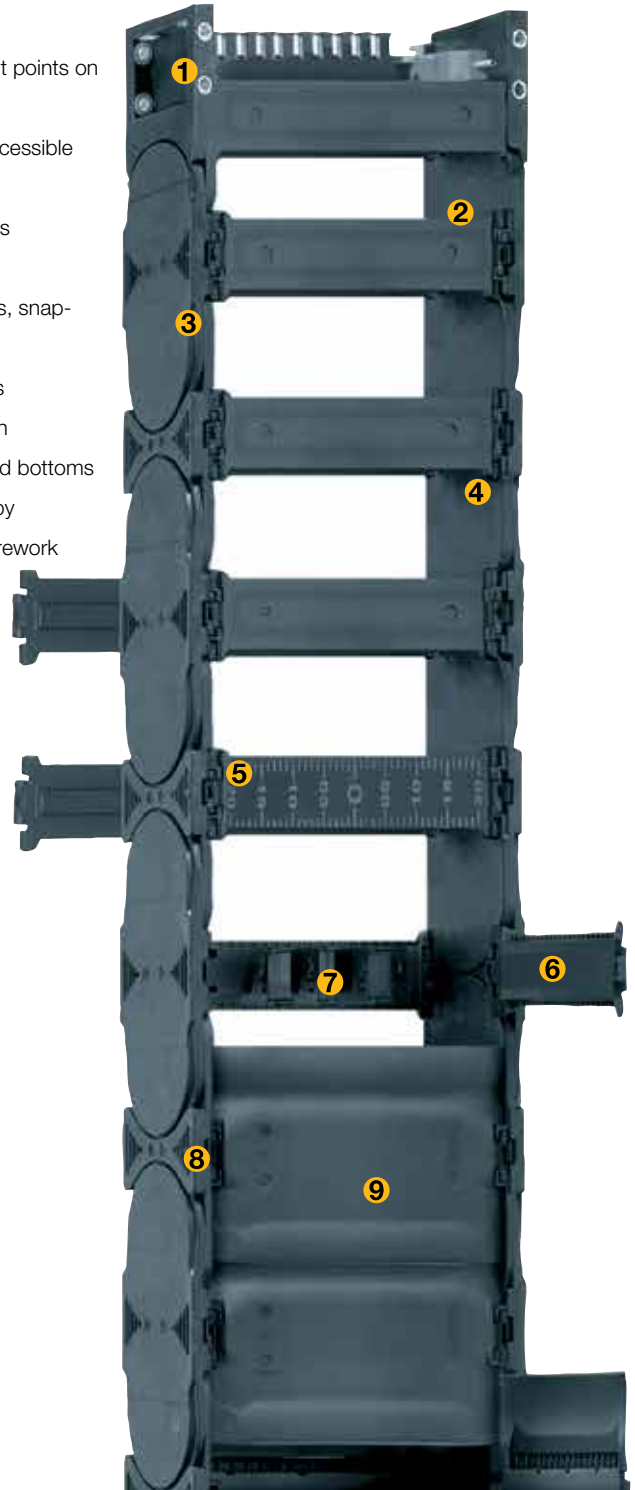
- Vertical, hanging ≤ 164 ft (50 m)
- Vertical, standing ≤ 9.84 ft (3 m)
- Side-mounted, un_supp. ≤ 3.28 ft (1 m)
- Rotary requires further calculation

Usage Guidelines

- 
 - If a lightweight, cost-effective e-chain® for high dynamics is required
 - If very tight fitting lids and bottoms are required
 - If short assembly times are required
 - If optimized interior-exterior dimensions ratio is needed
- 
 - When the e-chain® needs to be extremely quiet (32dB(A)) with very low vibration
 - **Series E6-1, Chapter 7**
 - When the e-chain® is to be used in cleanrooms (cleanroom ISO class 1)
 - **Series E6-1, Chapter 7**
 - If even higher strength is required
 - **Series E4-1, Chapter 6**

Features & Benefits




- 1** KMA mounting brackets with attachment points on all sides
- 2** Easy filling: inner diameter completely accessible
- 3** High stability due to undercut design
- 4** Efficient: less weight, enhanced dynamics
- 5** Notch crossbar with visual scale
- 6** Short assembly time: pivotable crossbars, snap-open along the inner and outer radius
- 7** Numerous interior separation possibilities
- 8** Straight run due to inner/outer link design
- 9** Chip protection: very tightly fitting lids and bottoms
- 10** Version NCST “without camber” simply by turning outer links without unnecessary rework



Also available without camber. Add NCST to the end of the part number.
Ex: E4-38L-100-200NCST

Order Example: Complete e-chain®

Please indicate chain length or number of links. Example:

13.12 ft (4 m) E4-38L-100-200-0	 e-chain®
With 2 separators 38-1-1 assembled every 2nd link	 Interior Separation
1 Set E4-380-100-12P	 Mounting Bracket

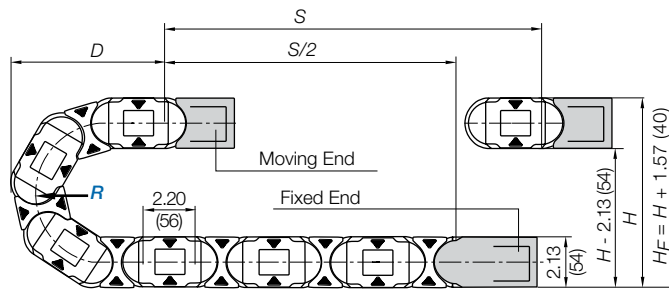
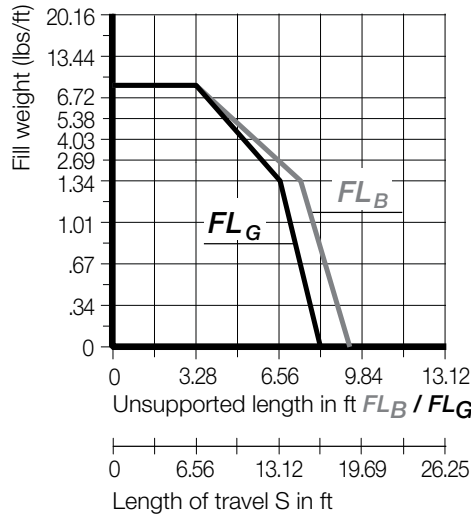
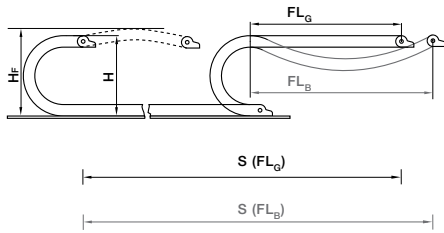
e-chain system® E4-1 light Series E4-38L/R4-38L Installation Dimensions



E4-38L
R4-38L

Short travel, unsupported length

- FL_B = unsupported with permitted sag
 - FL_G = unsupported with straight upper run
- Further information ► Design, Chapter 1



Pitch per link: = 2.20" (56 mm)
Links per ft (m): = 5.49 (18)
For center mount applications:
Chain length = $S/2 + K$

The required clearance height: $H_F = H + 1.57$ in. (40 mm) (with 1.34 lbs/ft (2.0 kg/m) fill weight. Please consult igus® if space is particularly restricted.

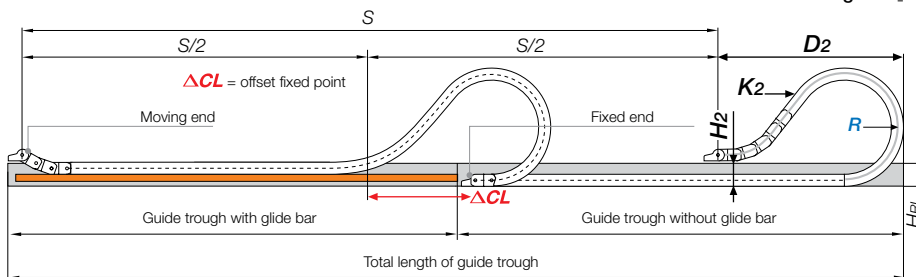
R	2.48 (063**)	2.95 (075**)	3.94 (100**)	4.92 (125)	5.91 (150)	6.89 (175)	7.87 (200)	9.84 (250)	11.81 (300)
H	7.09 (180)	8.03 (204)	10.00 (254)	11.97 (304)	13.94 (354)	15.91 (404)	17.87 (454)	21.81 (554)	25.75 (654)
D	6.85 (174)	7.32 (186)	8.31 (211)	9.29 (236)	10.28 (261)	11.26 (286)	12.24 (311)	14.21 (361)	16.18 (411)
K	12.20 (310)	13.78 (350)	16.93 (430)	19.88 (505)	23.03 (585)	26.18 (665)	29.33 (745)	35.43 (900)	41.54 (1055)

For long travels with lowered mounting height

Long travel lengths from 32.8 ft.(10m) to max. 262 ft. (80m)

For center mount applications:

$$\text{Chain length} = S/2 + K_2$$



Long Travels - Gliding



If the unsupported length is exceeded, the e-chain®/ Tube must glide on itself. This requires a guide trough.

Design, Chapter 1

R	2.48 (063**)	2.95 (075**)	3.94 (100**)	4.92 (125)	5.91 (150)	6.89 (175)	7.87 (200)	8.66 (220)	9.84 (250)	11.81 (300)
H ₂	—	—	3.78 (96)	3.78 (96)	3.78 (96)	3.78 (96)	3.78 (96)	3.78 (96)	—	—
D ₂	—	—	14.57 (370)	18.50 (470)	19.69 (500)	25.79 (655)	30.31 (770)	35.43 (900)	—	—
K ₂	—	—	24.25 (616)	30.87 (784)	35.27 (896)	44.10 (1120)	50.71 (1288)	57.32 (1456)	—	—
ΔCL	—	—	6.30 (160)	8.27 (210)	9.45 (240)	14.57 (370)	18.11 (460)	21.26 (540)	—	—

In case of travels between 16.4 and 32.8 ft (5 and 10 m) we recommend a longer unsupported length.

**Radius not available for e-tubes 2) Radius not suitable for long travel applications. Please consult igus®



For support of the lower run, see Chapter 9 of the main catalog for the Support Tray tool kit

Speed / acceleration FL_G	max. 65.6 ft/s (20 m/s) / max. 656 ft/s ² (200 m/s ²)
Speed / acceleration FL_B	max. 9.84 ft/s (3 m/s) / max. 19.69 ft/s ² (6 m/s ²)
Gliding speed / acceleration (maximum)	max. 16.4 ft/s (5 m/s) / max. 82 ft/s ² (25 m/s ²)
Material - permitted temperature	igumid G / -40°F (-40°C) up to +248°F (+120° C)
Flammability Class, igumid G	VDE 0304 IIC UL94 HB

Technical Data



Details of material properties

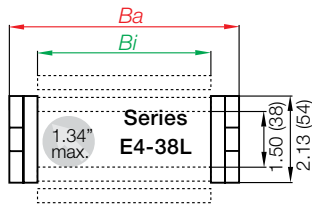
► Chapter 1



PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains



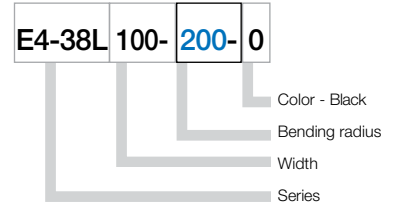
Series E4-38L - e-chain® with crossbars every link



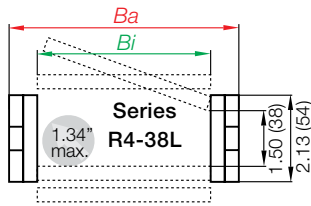
- Crossbars every link
- For use with rigid hydraulic hoses
- For particularly demanding applications
- Can be opened from both sides



Part Number Structure



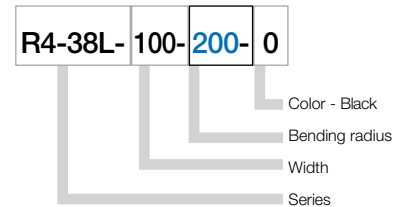
Series R4-38L - fully enclosed e-tube



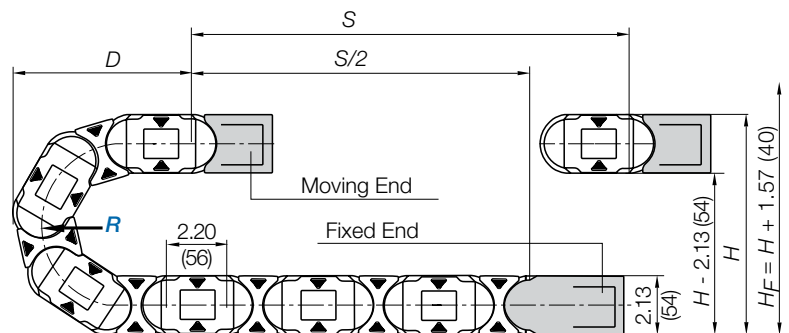
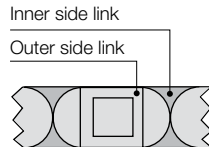
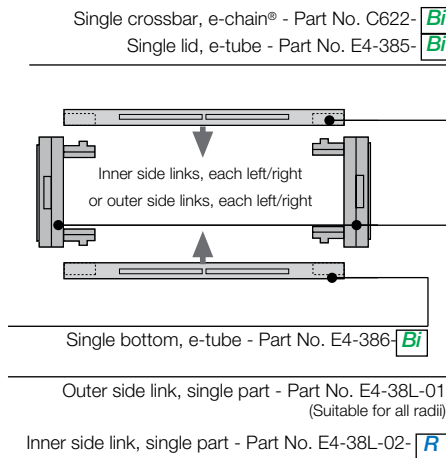
- Fully enclosed
- Excellent cable and hose protection against dirt
- Protection against hot chips
- Lids along inner radius are completely removable
- Lids along the outer radius are single-sided, snap open, hinged on one side as well as completely removable



Part Number Structure



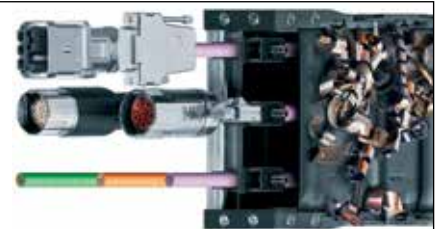
e-chain® as separate parts, links and side plates



Hot chips up to +1,562°F

- e-tubes to withstand +1,562°F hot chips, as a special option
- No hot chip melting or embedding into the chain
- igus® igumid HT material

More information ► www.igus.com/HT



e-chain system® E4-1 light

Series E4-38L/R4-38L

Product Range



E4-38L
R4-38L

Supplement part number with required radius. Example: E4-38L-100-200-0
Pitch: 2.20 in. (56 mm) per link links/ft (m) = 5.49 (18)

Part Number				Weight			
Crossbars	Tube			<i>Bi</i>	<i>Ba</i>	E4-38L	R4-38L
Every link	Version			in. (mm)	in. (mm)	lbs/ft (kg/m)	lbs/ft (kg/m)
E4-38L-050-	R4-38L-050-	<input type="checkbox"/>	-0	1.97 (50)	2.60 (66)	≈ 0.76 (1.13)	≈ 0.81 (1.20)
E4-38L-062-		<input type="checkbox"/>	-0	2.46 (62.5)	3.09 (78.5)	≈ 0.80 (1.19)	–
E4-38L-075-	R4-38L-075-	<input type="checkbox"/>	-0	2.95 (75)	3.58 (91)	≈ 0.85 (1.26)	≈ 0.93 (1.38)
E4-38L-087-		<input type="checkbox"/>	-0	3.44 (87.5)	4.07 (103.5)	≈ 0.87 (1.30)	–
E4-38L-100-	R4-38L-100-	<input type="checkbox"/>	-0	3.94 (100)	4.57 (116)	≈ 0.92 (1.37)	≈ 1.08 (1.60)
E4-38L-105-		<input type="checkbox"/>	-0	4.13 (105)	4.92 (125)	≈ 0.93 (1.39)	–
E4-38L-112-		<input type="checkbox"/>	-0	4.43 (112.5)	5.06 (128.5)	≈ 0.97 (1.44)	–
E4-38L-125-	R4-38L-125-	<input type="checkbox"/>	-0	4.92 (125)	5.55 (141)	≈ 1.01 (1.50)	≈ 1.18 (1.75)
E4-38L-137-		<input type="checkbox"/>	-0	5.41 (137.5)	6.04 (153.5)	≈ 1.04 (1.55)	–
E4-38L-150-	R4-38L-150-	<input type="checkbox"/>	-0	5.91 (150)	6.54 (166)	≈ 1.11 (1.65)	≈ 1.29 (1.92)
E4-38L-162-		<input type="checkbox"/>	-0	6.40 (162.5)	7.03 (178.5)	≈ 1.14 (1.69)	–
E4-38L-175-	R4-38L-175-	<input type="checkbox"/>	-0	6.89 (175)	7.52 (191)	≈ 1.17 (1.74)	≈ 1.41 (2.10)
E4-38L-187-		<input type="checkbox"/>	-0	7.36 (187)	7.99 (203)	≈ 1.21 (1.80)	–
E4-38L-200-	R4-38L-200-	<input type="checkbox"/>	-0	7.87 (200)	8.50 (216)	≈ 1.25 (1.86)	≈ 1.54 (2.29)
E4-38L-212-		<input type="checkbox"/>	-0	8.35 (212)	8.98 (228)	≈ 1.28 (1.90)	–
E4-38L-225-		<input type="checkbox"/>	-0	8.86 (225)	9.49 (241)	≈ 1.32 (1.97)	–
E4-38L-237-		<input type="checkbox"/>	-0	9.33 (237)	9.96 (253)	≈ 1.38 (2.05)	–
E4-38L-250-	R4-38L-250-	<input type="checkbox"/>	-0	9.84 (250)	10.47 (266)	≈ 1.42 (2.11)	≈ 1.78 (2.65)
E4-38L-262-		<input type="checkbox"/>	-0	10.31 (262)	10.94 (278)	≈ 1.44 (2.15)	–
E4-38L-300-		<input type="checkbox"/>	-0	11.81 (300)	12.44 (316)	≈ 1.59 (2.36)	≈ 2.02 (3.00)

Choose from the radii below for all of the above sizes
Radius (mm) Example: E4-38L-100-200-0

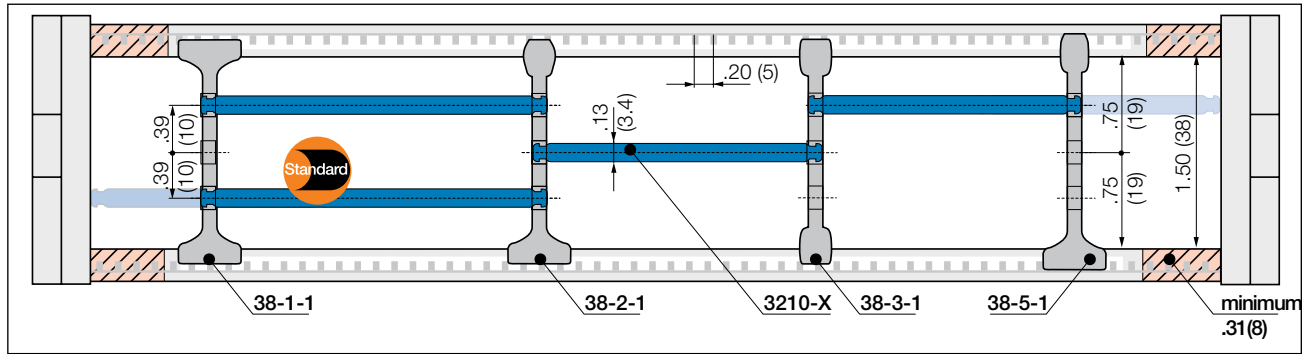
	063**	075**	100**	125	150	175	200	250	300
<i>R</i>	2.48 (063*)	2.95 (075)	3.94 (100)	4.92 (125)	5.91 (150)	6.89 (175)	7.87 (200)	9.84 (250)	11.81 (300)
<i>H</i>	7.09 (180)	8.03 (204)	10.00 (254)	11.97 (304)	13.94 (354)	15.91 (404)	17.87 (454)	21.81 (554)	25.75 (654)
<i>D</i>	6.85 (174)	7.32 (186)	8.31 (211)	9.29 (236)	10.28 (261)	11.26 (286)	12.24 (311)	14.21 (361)	16.18 (411)
<i>K</i>	12.20 (310)	13.78 (350)	16.93 (430)	19.88 (505)	23.03 (585)	26.18 (665)	29.33 (745)	35.43 (900)	41.54 (1055)

** This radius is not available for the R4-32 Series
*Removable lid only, no hinged option
0 = Standard color black.
For other colors see Chapter 1

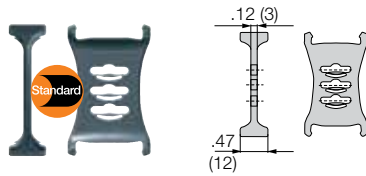
For large diameter hoses see page 6.161

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains





Note e-tube: Please maintain a lateral spacing of .31" (8 mm) between the separators and the side links. In the standard configuration separators are assembled every 2nd e-chain® link



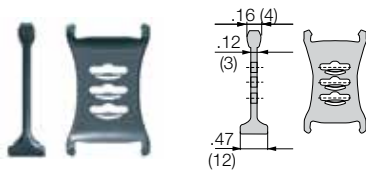
Separator, wide base

Unassembled Part No. 38-1

Assembled Part No. 38-1-1

- **Standard separator 38-1 for all applications**

Separator with wide base for maximum locking strength and safe standing in e-chains® and e-tubes.



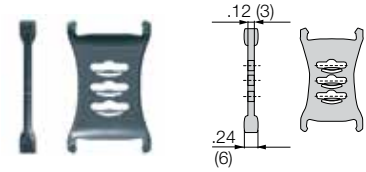
Separator, narrow head

Unassembled Part No. 38-2

Assembled Part No. 38-2-1

- **Separator 38-2 For even faster installation**

Firm hold to one side with a wide base, narrow on opposed side for easy cable assembly (slight grip).



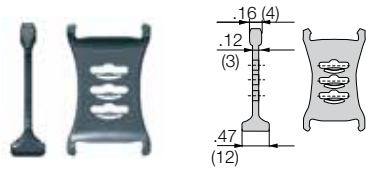
Separator, narrow base

Unassembled Part No. 38-3

Assembled Part No. 38-3-1

- **Separator 38-3 For many thin cables**

Separator with a narrow base for a large number of thin cables side by side. Saves space in e-chains®.



Notch separator for notch crossbar

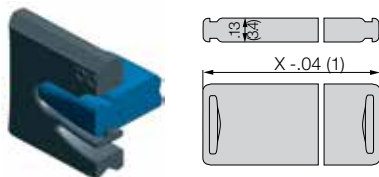
Unassembled Part No. 38-5

Assembled Part No. 38-5-1

- **Separator 38-5 Locks safely in .20" (5 mm) increments**

Notch separator for exact positioning in e-chains®. Recommended for side-mounted applications.

Lockable full-width shelves - for the standard interior separation



Full width shelf, lockable

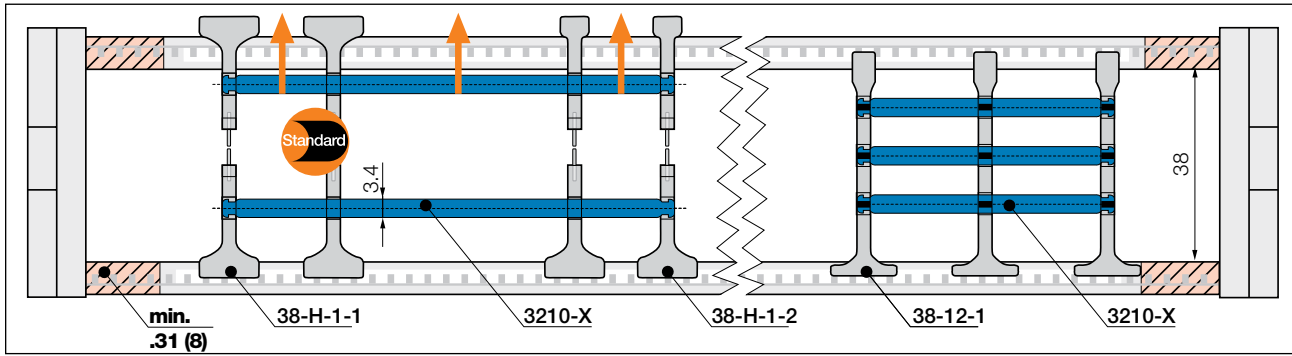
Unassembled Part No. 3200-X

Assembled Part No. 3210-X

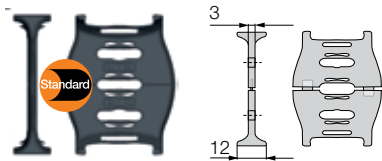
- **Full width shelf, lockable**

Shelf locks safely into separators on both ends, fixed width possible. Separators can be moved freely over the shelf in horizontal direction. Can be used at 3 different heights.

Width X in. (mm)	Part No. Unassembled	Part No. Assembled	Width X in. (mm)	Part No. Unassembled	Part No. Assembled	Width X in. (mm)	Part No. Unassembled	Part No. Assembled
1.97 (050)	3200-50	3210-50	4.92 (125)	3200-125	3210-125	8.86 (225)	3200-225	3210-225
2.95 (075)	3200-75	3210-75	5.91 (150)	3200-150	3210-150	9.84 (250)	3200-250	3210-250
3.94 (100)	3200-100	3210-100	6.89 (175)	3200-175	3210-175			
4.53 (115)	3200-115	3210-115	7.87 (200)	3200-200	3210-200			

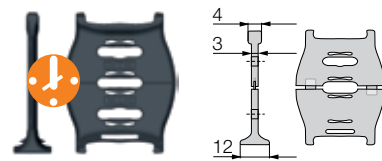


Note e-tube: Please maintain a lateral spacing of .24" (6 mm) between the separators and the side links. In the standard configuration separators are assembled every 2nd e-chain® link



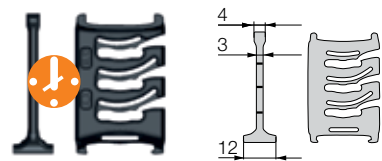
Separator, wide base

Unassembled Part No. 38-H-1
 Assembled Part No. 38-H-1-1



Lean Separator

Unassembled Part No. 38-H-2
 Assembled Part No. 38-H-2-1



Lean Separator

Unassembled Part No. 38-12
 Assembled Part No. 38-12-1



• **Split separators for all applications**

In order to fill e-chains® more easily and effectively, these separators can be split in the middle. This allows easier access to middle shelf partitions. Fast assembly and easy retrofit. 2 types available: with wide or narrow top.

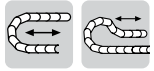
• **Lean separators 38-12**

New design allows extremely fast fitting of shelves in several layers, which significantly reduces assembly time. Enables extremely fast replacement of individual cables in a very full e-chain®.

• **Lean separator design - several layers of cables fitted quickly, save up to 50%* assembly time**

(*Lean separator vs. standard separator - measured on a 4m long e-chain® fitted with 12 cables in the igus® harnessing factory)

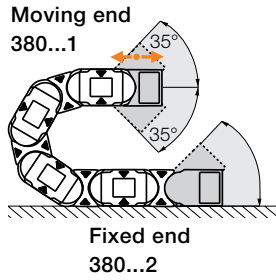




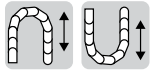
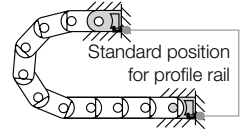
Standard

Option 1: pivoting

- Recommended for unsupported and gliding applications
- Attachment capability on all sides
- Bolted connection outside of chain cross-section
- Space restricted conditions
- Corrosion resistant

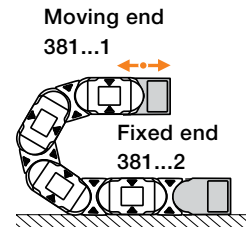


Pivoting angle depends on radius

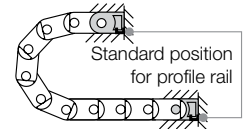


Option 2: locking

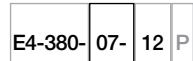
- Profile rail option
- Universal use
- Corrosion resistant
- Vertical hanging/standing travels
- Extreme accelerations



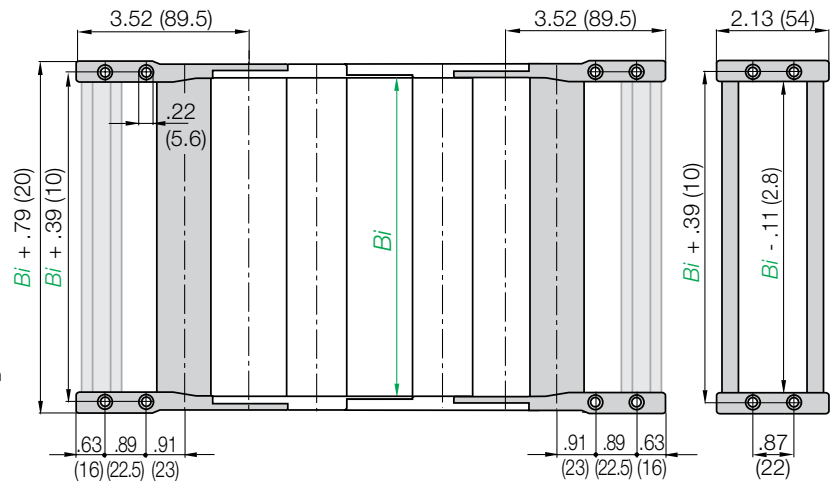
Pivoting angle depends on radius



Part Number Structure



- With Profile Rail
- Complete Set
- Width
- E4-380 = Pivoting for chain
- E4-381 = Locking for chain



Due to the design of the E4-38L series chains, please note the following when ordering brackets:
Even number of links = full set, part number ending in -12; Odd number of links = 2 pieces, part number ending in -1

Part number examples are shown for pivoting brackets for e-chain.
For locking brackets change part number to 381

Part No. Full Set (pivoting)
Series E4-38L
E4-380-Width-12

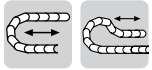
Part No. Full Set (pivoting)
with profile rail
Series E4-38L
E4-380-Width-12P

Width	Part No. Full Set chain		With Profile Rail	Bi in. (mm)	Width	Part No. Full Set chain		With Profile Rail	Bi in. (mm)
	Pivoting	Locking				Pivoting	Locking		
-050	E4-380	E4-381	-050-12	P 1.97 (50)	-150	E4-380	E4-381	-150-12	P 5.91 (150)
-062	E4-380	E4-381	-062-12	P 2.68 (62.5)	-162	E4-380	E4-381	-162-12	P 6.38 (162.5)
-075	E4-380	E4-381	-075-12	P 2.95 (75)	-175	E4-380	E4-381	-175-12	P 6.61 (175)
-087	E4-380	E4-381	-087-12	P 3.43 (87.5)	-200	E4-380	E4-381	-200-12	P 7.87 (200)
-100	E4-380	E4-381	-100-12	P 3.94 (100)	-225	E4-380	E4-381	-225-12	P
-105	E4-380	E4-381	-105-12	P 4.25 (105)	-237	E4-380	E4-381	-237-12	P
-112	E4-380	E4-381	-112-12	P 4.41 (112.5)	-250	E4-380	E4-381	-250-12	P 9.84 (250)
-125	E4-380	E4-381	-125-12	P 4.92 (125)	-262	E4-380	E4-381	-262-12	P
-137	E4-380	E4-381	-137-12	P 5.39 (137.5)	-300	E4-380	E4-381	-300-12	P

e-chain system® E4-1 light Series R4-38L Mounting Brackets - KMA



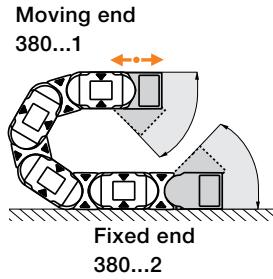
E4-38L
R4-38L



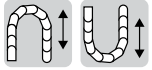
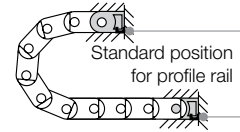
Standard

Option 1: pivoting

- Recommended for unsupported and gliding applications
- Attachment capability on all sides
- Bolted connection outside of chain cross-section
- Space restricted conditions
- Corrosion resistant

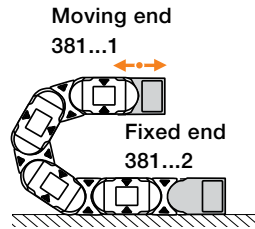


Pivoting angle depends on radius

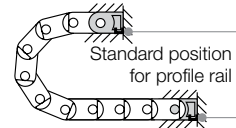


Option 2: locking

- Profile rail option
- Universal use
- Corrosion resistant
- Vertical hanging/standing travels
- Extreme accelerations



Pivoting angle depends on radius

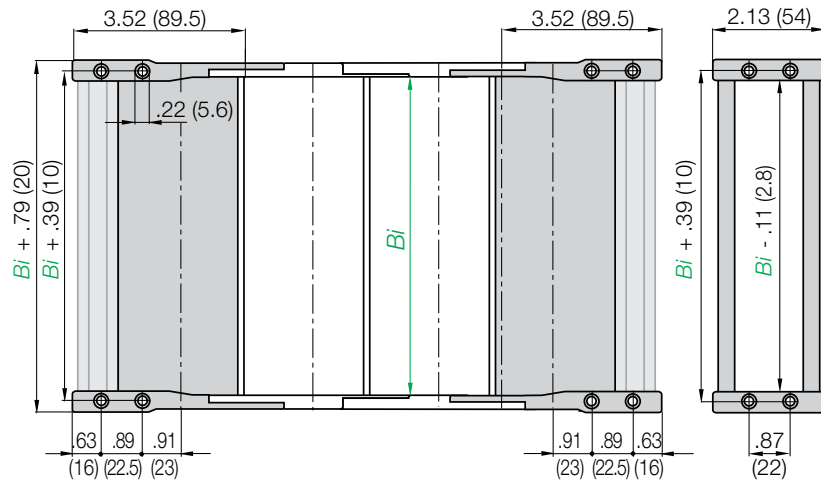


Part Number Structure

R4-380-07-12 P

With Profile Rail
Complete Set
Width

R4-380 = Pivoting for tube
R4-381 = Locking for tube



Due to the design of the R4-38L series chains, please note the following when ordering brackets:
Even number of links = full set, part number ending in -12; Odd number of links = 2 pieces, part number ending in -1

Part number examples are shown for pivoting brackets for e-chain.
For locking brackets change part number to 381

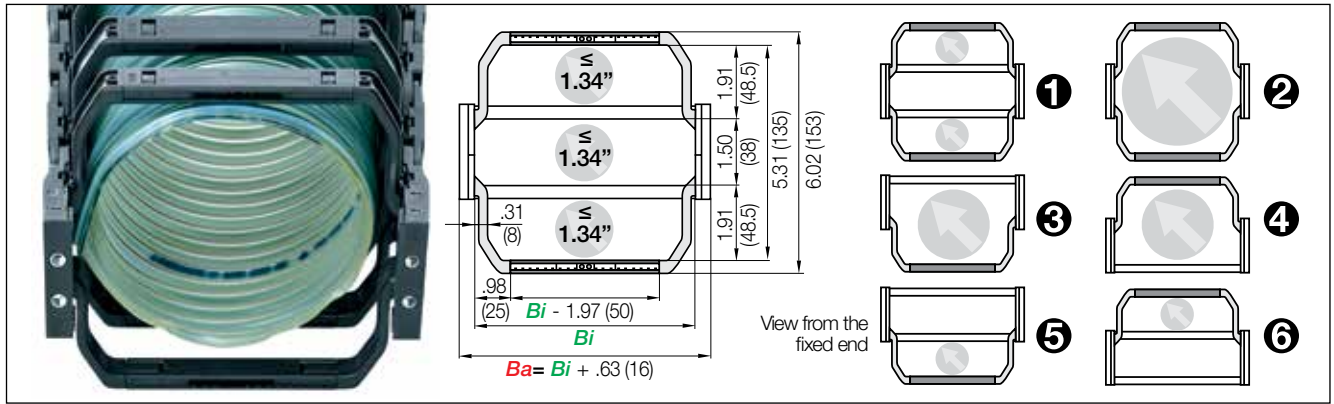
Part No. Full Set (pivoting)
Tube Series R4-38L
R4-380-Width-12

Part No. Full Set (pivoting)
with Profile Rail
Tube Series R4-38L
R4-380-Width-12P

Width	Part No. Full Set tube		With Profile Rail	Bi in. (mm)	Width	Part No. Full Set tube		With Profile Rail	Bi in. (mm)		
	Pivoting	Locking				Pivoting	Locking				
-050	R4-380	R4-381	-050-12	P	1.97 (50)	-150	R4-380	R4-381	-150-12	P	5.91 (150)
-075	R4-380	R4-381	-075-12	P	2.95 (75)	-175	R4-380	R4-381	-175-12	P	6.61 (175)
-100	R4-380	R4-381	-100-12	P	3.94 (100)	-200	R4-380	R4-381	-200-12	P	7.87 (200)
-125	R4-380	R4-381	-125-12	P	4.92 (125)	-250	R4-380	R4-381	-250-12	P	9.84 (250)

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains





Extender crossbars with flexible width | Safe guiding for large hoses

- For guiding and protecting large hoses
- With mounting for noise dampers
- Cable-friendly design, high crossbar holding force
- The openable extender crossbars can be fitted in different ways and combinations
- Optionally openable along the inner or outer radius

Versions e-chain® with extender crossbar

	Hose Ø ≤ in. (mm)	Part No. e-chain® with extender crossbar
1 Extender crossbar and standard crossbar alternating along the inner and outer radius ¹⁾	1.34 (34)	E4-38L-XXXHB48-R-0
2 Extender crossbar on both sides along the inner and outer radius ²⁾	4.80 (122)	E4-38L-XXXB48-R-0
3 Extender crossbar along the outer radius ³⁾	3.07 (78)	E4-38L-XXXBE48-R-0
4 Extender crossbar along the inner radius ²⁾	3.07 (78)	E4-38L-XXXBZ48-R-0
5 Extender crossbar and standard crossbar alternating along the outer radius ³⁾	1.34 (34)	E4-38L-XXXHBE48-R-0
6 Extender crossbar and standard crossbar alternating along inner radius ¹⁾	1.34 (34)	E4-38L-XXXHBZ48-R-0

1) Minimum bend radius: **R 125** 2) Minimum bend radius: **R 150** 3) Minimum bend radius: **R 063** *Width available upon request. Delivery time upon request

Bi [mm] Available inner widths

| 100 | 125 | 137 | 150 | 162 | 175 | 187 | 200 | 212 | 225 | 237 | 250 |

Complete Part No. with the width index **XXX Bi** and the radius (**R**). Example

E4-38L-100B48-150-0 = extender crossbar on both sides along inner and outer radius



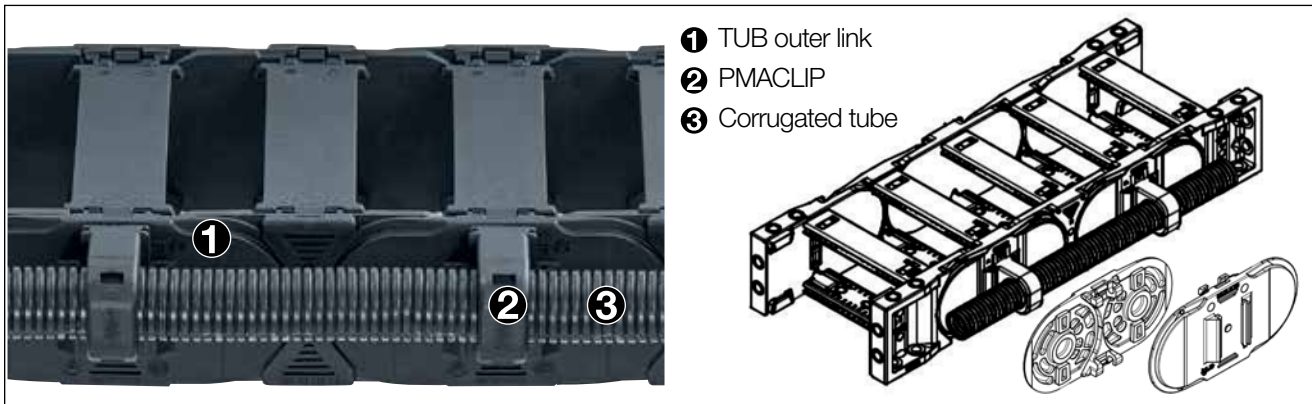
The E4.1L can be fitted with openable extender crossbars, which increase the size of the interior of the e-chain®. Crossbars can be fitted in various ways: from one or both sides, alternating with standard crossbars and or any combination

Aluminum support tray

- Corrosion-resistant and seawater-resistant aluminium rails with adjustable width
- Noise-reducing glide strip integrated as standard
- Easy installation and connection of the e-chain®
- Open design - dirt and debris fall through

More information ► Chapter 9





TUB | Safe guidance for corrugated tubes parallel to the e-chain®

- Additional, simple guidance for corrugated tubes on the outside of the e-chain®
- PMACLIP allows corrugated tubes with nominal widths .28 (07mm), .39 (10mm), .47 (12mm), .67 (17mm) to be easily clipped on
- Easy access to the corrugated tubes, fast replacement of the hoses
- Reduce assembly time and cost - easy to assemble, without any additional screws or tools
- The part number includes the e-chain® with TUB side sections; the PMACLIP support and the hose are ordered separately

Part No. TUB	Part No. TUB	Part No. TUB	For corrugated tube nominal diameter
Outer link right*	Outer link left*	Outer link at both ends*	Ø in. (mm)
E4-38L-XXXTUBR-R-0	E4-38L-XXXTUBL-L-R-0	E4-38L-XXXTUB-R-0	.28 (07), .39 (10), .47 (12), .67 (17)

*View from the fixed end

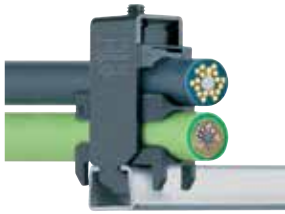
Part number appended with width index **XXX Bi** and radius **(R)** e.g.

E4-38L-100TUBR-150-0 = with TUB outer sections every 2nd right hand link

PDF: igus.com/e-chain-pdfs
 Product information: igus.com/e-chains



Chainfix clamps for the profile rail



igus® Chainfix strain relief elements are available in either steel or stainless steel. They can be adjusted with a hexagon socket and are available in single, double and triple configurations.

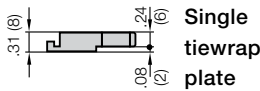
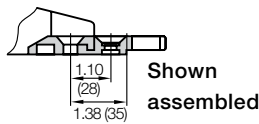
Part No. Single Clamp		Part No. Double Clamp		Part No. Triple Clamp		Cable ø	
Steel	Stainless	Steel	Stainless	Steel	Stainless	in.	(mm)
CFX12-1	CFX12-1E	CFX12-2	CFX12-2E	CFX12-3	-	.24 - .47	(06 - 12)
CFX14-1	CFX14-1E	CFX14-2	CFX14-2E	CFX14-3	-	.47 - .55	(12 - 14)
CFX16-1	CFX16-1E	CFX16-2	CFX16-2E	CFX16-3	-	.55 - .63	(14 - 16)
CFX18-1	CFX18-1E	CFX18-2	CFX18-2E	CFX18-3	-	.63 - .71	(16 - 18)
CFX20-1	CFX20-1E	CFX20-2	CFX20-2E	CFX20-3	-	.71 - .79	(18 - 20)
CFX22-1	CFX22-1E	CFX22-2	CFX22-2E	CFX22-3	-	.79 - .87	(20 - 22)
CFX26-1	CFX26-1E	CFX26-2	CFX26-2E	-	-	.87 - 1.02	(22 - 26)
CFX30-1	CFX30-1E	CFX30-2	CFX30-2E	-	-	1.02 - 1.18	(26 - 30)
CFX34-1	CFX34-1E	CFX34-2	CFX34-2E	-	-	1.18 - 1.34	(30 - 34)
CFX38-1	CFX38-1E	-	-	-	-	1.34 - 1.50	(34 - 38)
CFX42-1	CFX42-1E	-	-	-	-	1.50 - 1.65	(38 - 42)

For more information please refer to strain relief section of Chapter 10

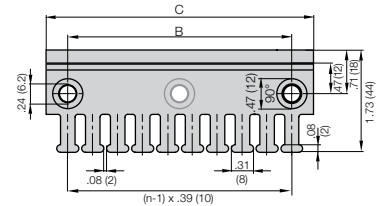
Tiewrap Plates

**Option 1:
Tiewrap plates as an individual part**

Available as an individual component, can be fixed onto a mounting bracket with the use of a profile rail.



Tiewrap Plate	n Number of Teeth	C Overall Width in. (mm)	B Bore Width in. (mm)	Center Bore
3050-ZB	5	1.97 (50)	1.18 (30)	no
3075-ZB	7	2.95 (75)	2.16 (55)	no
3100-ZB	10	3.94 (100)	3.15 (80)	no
3115-ZB	11	4.53 (115)	3.74 (95)	no
3125-ZB	12	4.92 (125)	4.13 (105)	no
3150-ZB	15	5.91 (150)	5.12 (130)	no
3175-ZB	17	6.89 (175)	6.10 (155)	no
3200-ZB	20	7.87 (200)	7.09 (180)	yes
3225-ZB	22	8.86 (225)	8.07 (205)	yes
3250-ZB	25	9.84 (250)	9.06 (230)	yes



If used with KMA brackets with profile rail please add "KMA" to the end of the part number.

For more information please refer to strain relief section of Chapter 10

**Option 2:
Clip-on Tiewrap plates**

Available as a clip-on tiewrap plate without the use of bolts. They are inserted and removed with a screwdriver used as a lever. Clip-on tiewrap plates are also available as an attachment to the opening crossbars.

Part No.	Number of Teeth	Width of Strain Relief in. (mm)
3050-ZC	5	1.97 (50)
3075-ZC	7	2.95 (75)

For more information please refer to strain relief section of Chapter 10

Strain relief with tiewrap teeth



Part No.	For series	Inner height <i>hi</i> in. (mm)	For use in
CFV-42-C	E4-64L	2.52 (64)	Top-hat (DIN) rail 15 (TS92.31)

e-chain system® E4-1 light Series E4-38L/R4-38L Guide Trough



E4-38L
R4-38L

Guide troughs are used with applications where the upper run of the e-chain® glides on the lower run. If using igus® steel guide troughs, the following components are required:

- Full travel length of guide trough
Part Number 98-30
- 1/2 travel length of glide bars
Part number 92-01
- Installation sets as end connectors
Part Number 93-50-XX

Width of Crossbar
E4-38-050-200-0

	B_{Ri}	Installation Part No.
-050	2.80 (71)	93-50-200
-062	3.27 (83)	93-50-200
-075	3.78 (96)	93-50-225
-087	4.25 (108)	93-50-225
-100	4.76 (121)	93-50-250
-105	4.96 (126)	93-50-250
-112	5.24 (133)	93-50-250
-125	5.75 (146)	93-50-275
-137	6.22 (158)	93-50-275
-150	6.73 (171)	93-50-300
-162	7.21 (183)	93-50-300
-175	7.72 (196)	93-50-325
-187	8.19 (208)	93-50-325
-200	8.70 (221)	93-50-350
-212	9.17 (233)	93-50-350
-225	9.69 (246)	93-50-375
-237	10.16 (258)	93-50-375
-250	10.67 (271)	93-50-400
-262	11.14 (283)	93-50-400
-300	12.64 (321)	93-50-450

-XX indicates the length of the profile rail on which the guide trough is mounted. The values and part numbers are specified in the table on the left. The standard length of the trough components and glide bars is 6.56 ft (2 m.) The required overall length of the guide trough directly correlates to the length of travel.

Example:

Length of travel 164 ft (50 m)
Center mounted

Required guide troughs:

164 ft (50 m) guide trough
82 ft (25 m) glide bar
= 25 sections of 6.56 ft (2 m) guide trough

Part No. 98-30

= 13 sections of 6.56 ft (2 m) glide bar

Part No. 92-01

Required number of installation sets:

= Number of guide trough components + 1
= 25 + 1 = 26

Part number of the installation sets

93-50-XXX

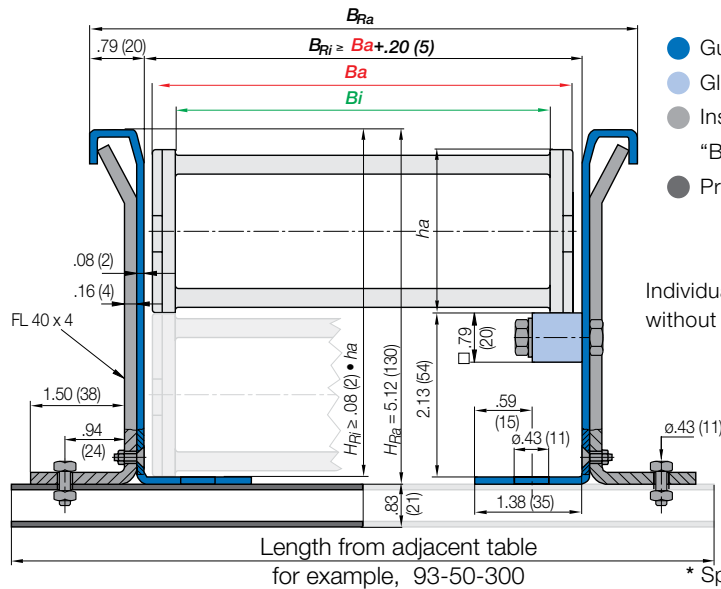
Example: 93-50-400 for 15.75" (400 mm) long profile rail.



Left: Guide trough with glide bars
Right: Guide troughs without glide bars



Installation sets as section connectors



- Guide trough
- Glide bars
- Installation set "Basic"
- Profile rail

Individual attachment without profile rail

* Specialized guide trough available upon request

Standard length profile rail

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains



Price Index



Special Options Available

- Low noise version available with special rubber pads
- Cleanroom test upon request
- ESD classification: Electrically conductive ESD/ATEX version upon request

Assembly Tips



Opening To open, insert the screwdriver into the locking mechanism and pry it open outwards

Other Installation Methods

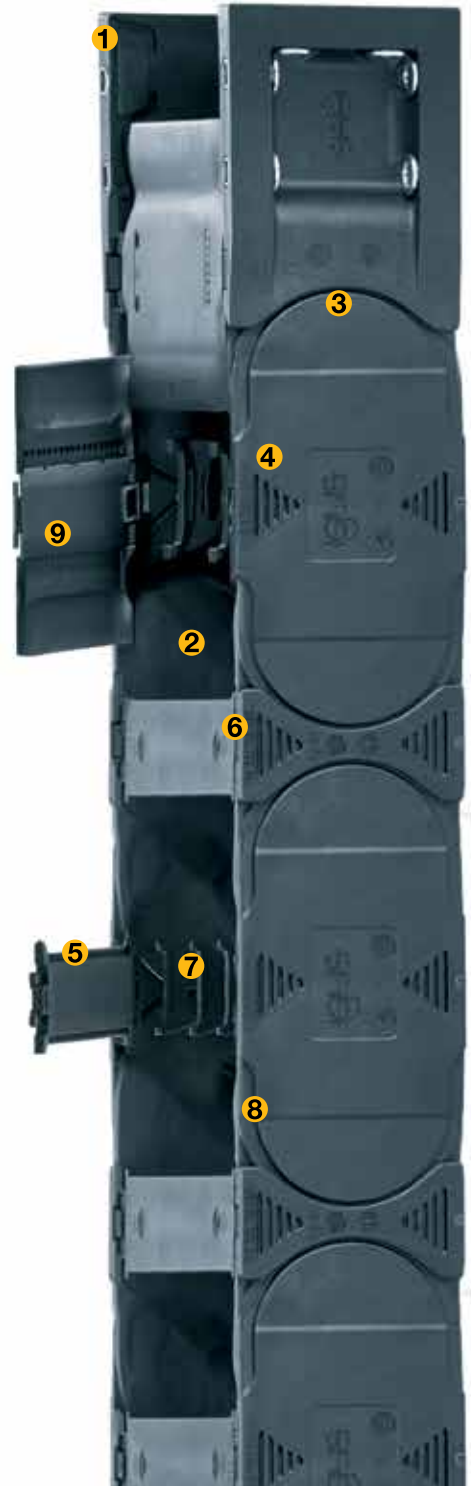
- Vertical, hanging ≤ 262 ft (80 m)
- Vertical, standing ≤ 9.84 ft (3 m)
- Side-mounted, unsupp. ≤ 3.94 ft (1.2 m)
- Rotary requires further calculation

Usage Guidelines

- If a lightweight, cost-effective e-chain® for high dynamics is required
- If very tight fitting lids and bottoms are required
- If short assembly times are required
- If optimized interior-exterior dimensions ratio is needed
- When the e-chain® needs to be extremely quiet (32dB(A)) with very low vibration
 - Series E6-1, Chapter 7
- When the e-chain® is to be used in cleanrooms (cleanroom ISO class 1)
 - Series E6-1, Chapter 7
 - If even higher strength is required
 - Series E4-1, Chapter 6

Features & Benefits

- 1 KMA mounting brackets with attachment points on all sides
- 2 Easy filling: inner diameter completely accessible
- 3 High stability due to undercut design
- 4 Efficient: less weight, enhanced dynamics
- 5 Notch crossbar with visual scale
- 6 Short assembly time: pivotable crossbars, snap-open along the inner and outer radius
- 7 Numerous interior separation possibilities
- 8 Straight run due to inner/outer link design
- 9 Chip protection: very tightly fitting lids and bottoms
- 10 Version NCST "without camber" simply by turning outer links without unnecessary rework



Also available without camber. Add NCST to the end of the part number.
Ex: E4-38L-100-300NCST

Order Example: Complete e-chain®

Please indicate chain length or number of links. Example:

13.12 ft (4 m) E4-48L-100-200-0		e-chain®
With 2 separators 48-1-1 assembled every 2nd link		Interior Separation
1 Set E4-480-100-12P		Mounting Bracket

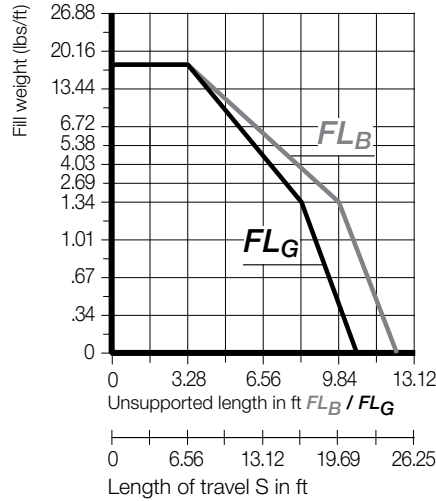
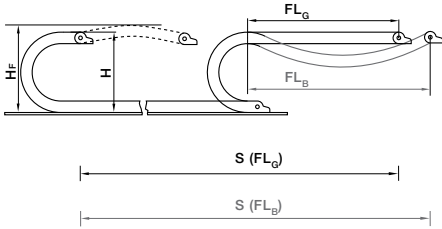
e-chain system® E4-1 light Series E4-48L/R4-48L Installation Dimensions



E4-48L
R4-48L

Short travel, unsupported length

- FL_B = unsupported with permitted sag
 - FL_G = unsupported with straight upper run
- Further information ► Design, Chapter 1

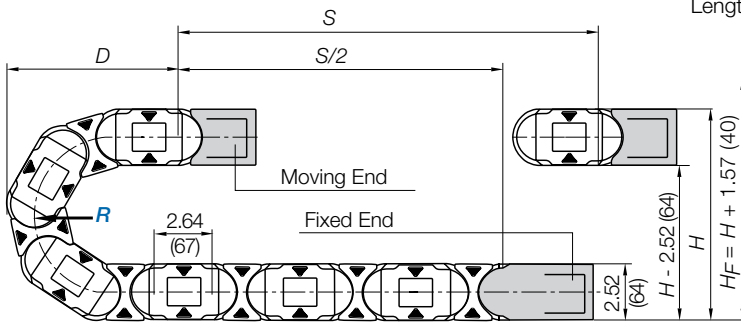


Short Travels - Unsupported

Unsupported e-chains® feature positive camber over short travels. This must be accounted for when specifying the clearance height. Please refer to for further details.

Legend

- S = Length of travel
- R = Bending radius
- H = Nominal clearance height
- D = Overlength e-chain® radius in final position
- $K = \pi \cdot R + \text{safety buffer}$
- Hf = Required clearance height
- Hri = Trough inner height
- H2 = *Mounting height
- D2 = Overlength - long travels, gliding
- K2 = *Add-on
- *If the mounting bracket location is set lower



Pitch per link: = 2.64" (67 mm)
Links per ft (m): = 4.54 (15)
For center mount applications:
Chain length = $S/2 + K$

The required clearance height: $H_f = H + 1.57$ in. (40 mm) (with 1.68 lbs/ft (2.5 kg/m) fill weight. Please consult igus® if space is particularly restricted.

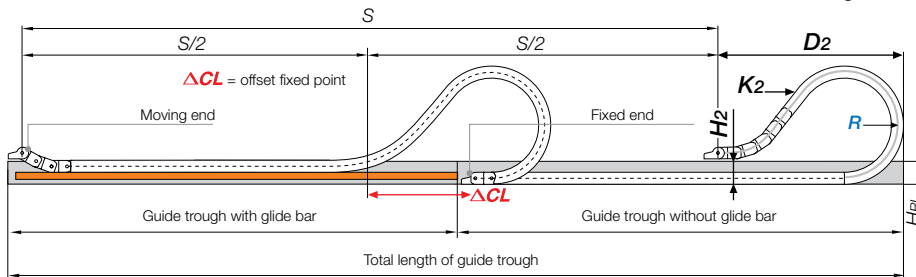
R	2.95 (075*)	3.94 (100*)	4.92 (125)	5.91 (150)	6.69 (175)	7.87 (200)	9.84 (250)	11.81 (300)	13.78 (350)
H	8.43 (214)	10.39 (264)	12.36 (314)	14.33 (364)	16.30 (414)	18.27 (464)	22.20 (564)	26.14 (664)	30.08 (764)
D	8.19 (208)	9.17 (233)	10.16 (258)	11.14 (283)	12.13 (308)	13.11 (333)	15.08 (383)	17.05 (433)	19.02 (483)
K	14.57 (370)	17.72 (450)	20.87 (530)	24.02 (610)	26.97 (685)	30.12 (765)	36.22 (920)	42.52 (1080)	48.62 (1235)

For long travels with lowered mounting height

Long travel lengths from 32.8 ft.(10m) to max. 262 ft. (80m)

For center mount applications:

Chain length: = $S/2 + K_2$



Long Travels - Gliding



If the unsupported length is exceeded, the e-chain®/ Tube must glide on itself. This requires a guide trough.

Design, Chapter 1

R	2.95 (075**)	3.94 (100**)	4.92 (125)	5.91 (150)	6.69 (175)	7.87 (200)	9.84 (250)	11.81 (300)	13.78 (350)
H2	—	—	4.17 (106)	4.17 (106)	4.17 (106)	4.17 (106)	4.17 (106)	—	—
D2	—	—	18.70 (475)	22.44 (570)	26.38 (670)	30.71 (780)	40.55 (1030)	—	—
K2	—	—	31.65 (804)	36.93 (938)	44.84 (1139)	52.76 (1340)	65.94 (1675)	—	—
ΔCL	—	—	9.06 (230)	11.81 (300)	14.96 (380)	18.11 (460)	25.98 (660)	—	—

In case of travels between 16.4 and 32.8 ft (5 and 10 m) we recommend a longer unsupported length.

**Radius not available for e-tubes 2) Radius not suitable for long travel applications. Please consult igus®



For support of the lower run, see Chapter 9 of the main catalog for the Support Tray tool kit

Speed / acceleration FL_G	max. 65.6 ft/s (20 m/s) / max. 656 ft/s ² (200 m/s ²)
Speed / acceleration FL_B	max. 9.84 ft/s (3 m/s) / max. 19.69 ft/s ² (6 m/s ²)
Gliding speed / acceleration (maximum)	max. 16.4 ft/s (5 m/s) / max. 82 ft/s ² (25 m/s ²)
Material - permitted temperature	igumid G / -40°F (-40°C) up to +248°F (+120°C)
Flammability Class, igumid G	VDE 0304 IIC UL94 HB

Technical Data

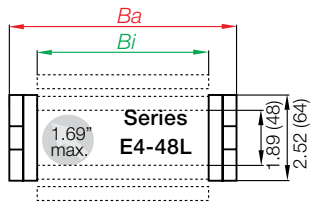


Details of material properties

► Chapter 1

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains



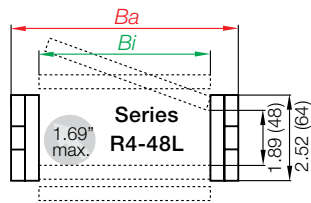
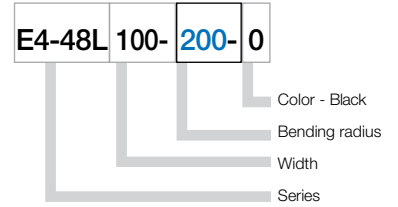


Series E4-48L - e-chain® with crossbars every link

- Crossbars every link
- For use with rigid hydraulic hoses
- For particularly demanding applications
- Can be opened from both sides



Part Number Structure

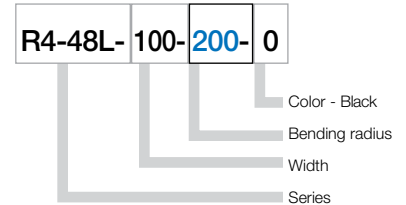


Series R4-48L - fully enclosed e-tube

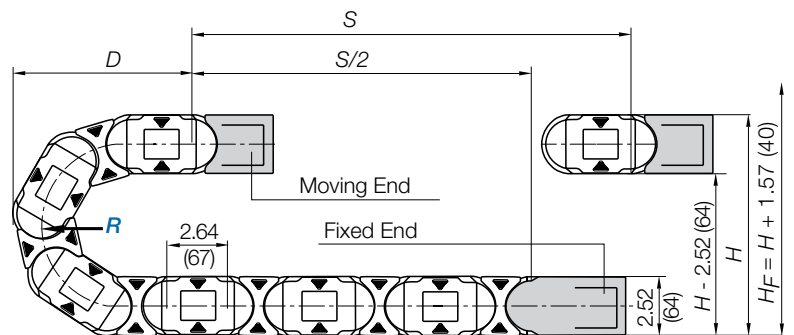
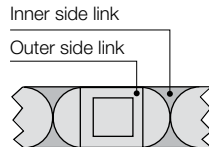
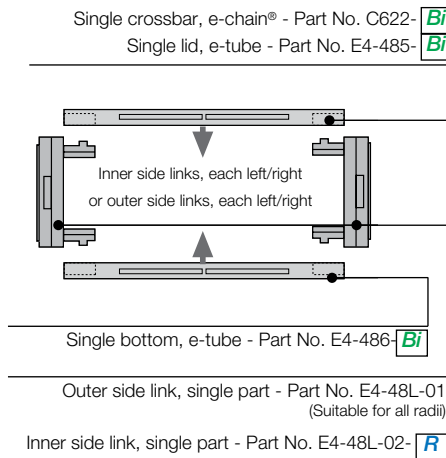
- Fully enclosed
- Excellent cable and hose protection against dirt
- Protection against hot chips
- Lids along inner radius are completely removable
- Lids along the outer radius are single-sided, snap open, hinged on one side as well as completely removable



Part Number Structure



e-chain® as separate parts, links and side plates



e-chain system® E4-1 light

Series E4-48L/R4-48L

Product Range



E4-48L
R4-48L

Supplement part number with required radius. Example: E4-48L-100-200-0
Pitch: 2.64 in. (67 mm) per link links/ft (m) = 4.54 (15)

Part Number				Weight			
Crossbars	Tube			<i>Bi</i>	<i>Ba</i>	E4-48L	R4-48L
Every link	Version			in. (mm)	in. (mm)	lbs/ft (kg/m)	lbs/ft (kg/m)
E4-48L-050-	R4-48L-050-	<input type="checkbox"/>	-0	1.97 (50)	2.76 (70)	≈ 1.02 (1.53)	≈ 1.10 (1.64)
E4-48L-062-	R4-48L-062-	<input type="checkbox"/>	-0	2.46 (62.5)	3.25 (82.5)	≈ 1.06 (1.58)	≈ 1.16 (1.73)
E4-48L-075-	R4-48L-075-	<input type="checkbox"/>	-0	2.95 (75)	3.74 (95)	≈ 1.10 (1.64)	≈ 1.22 (1.82)
E4-48L-087-		<input type="checkbox"/>	-0	3.44 (87.5)	4.23 (107.5)	≈ 1.20 (1.67)	–
E4-48L-100-	R4-48L-100-	<input type="checkbox"/>	-0	3.94 (100)	4.72 (120)	≈ 1.16 (1.73)	≈ 1.35 (2.01)
E4-48L-105-		<input type="checkbox"/>	-0	4.13 (105)	4.92 (125)	≈ 1.17 (1.74)	–
E4-48L-112-		<input type="checkbox"/>	-0	4.41 (112)	5.20 (132)	≈ 1.20 (1.79)	–
E4-48L-125-	R4-48L-125-	<input type="checkbox"/>	-0	4.92 (125)	5.71 (145)	≈ 1.24 (1.84)	≈ 1.46 (2.18)
E4-48L-137-		<input type="checkbox"/>	-0	5.39 (137)	6.18 (157)	≈ 1.26 (1.88)	–
E4-48L-150-	R4-48L-150-	<input type="checkbox"/>	-0	5.91 (150)	6.69 (170)	≈ 1.32 (1.97)	≈ 1.59 (2.36)
E4-48L-162-		<input type="checkbox"/>	-0	6.38 (162)	7.17 (182)	≈ 1.34 (2.00)	–
E4-48L-175-	R4-48L-175-	<input type="checkbox"/>	-0	6.89 (175)	7.68 (195)	≈ 1.37 (2.04)	≈ 1.73 (2.58)
E4-48L-200-	R4-48L-200-	<input type="checkbox"/>	-0	7.87 (200)	8.66 (220)	≈ 1.44 (2.14)	≈ 1.81 (2.70)
E4-48L-225-		<input type="checkbox"/>	-0	8.86 (225)	9.65 (245)	≈ 1.50 (2.24)	–
E4-48L-237-		<input type="checkbox"/>	-0	9.33 (237)	10.12 (257)	≈ 1.55 (2.30)	–
E4-48L-250-	R4-48L-250-	<input type="checkbox"/>	-0	9.84 (250)	10.63 (270)	≈ 1.58 (2.35)	≈ 2.07 (3.08)
E4-48L-262-		<input type="checkbox"/>	-0	10.31 (262)	11.10 (282)	≈ 1.61 (2.39)	–
E4-48L-300-		<input type="checkbox"/>	-0	11.81 (300)	12.60 (320)	≈ 1.73 (2.56)	–

Choose from the radii below for all of the above sizes

Radius (mm) Example: E4-48L-100-200-0

	075**	100**	125	150	175	200	250	300	350
<i>R</i>	2.95 (075)	3.94 (100)	4.92 (125)	5.91 (150)	6.89 (175)	7.87 (200)	9.84 (250)	11.81 (300)	13.78 (350)
<i>H</i>	8.43 (214)	10.39 (264)	12.36 (314)	14.33 (364)	16.30 (414)	18.27 (464)	22.20 (564)	26.14 (664)	30.08 (764)
<i>D</i>	8.19 (208)	9.17 (233)	10.16 (258)	11.14 (283)	12.13 (308)	13.11 (333)	15.08 (383)	17.05 (433)	19.02 (483)
<i>K</i>	14.57 (370)	17.72 (450)	20.87 (530)	24.02 (610)	26.97 (685)	30.12 (765)	36.22 (920)	42.52 (1080)	48.62 (1235)

** This radius is not available for the R4-32 Series

*Removable lid only, no hinged option

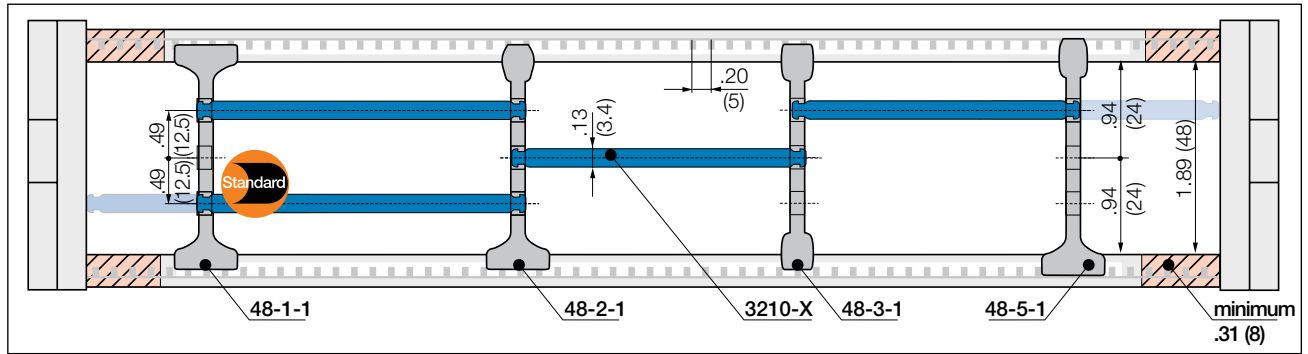
0 = Standard color black.

For other colors see Chapter 1

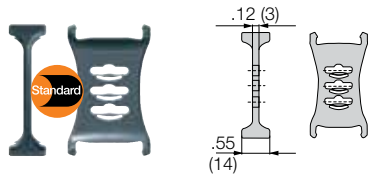
For large diameter hoses see page 6.174

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains





Note e-tube: Please maintain a lateral spacing of .31" (8 mm) between the separators and the side links. In the standard configuration separators are assembled every 2nd e-chain® link



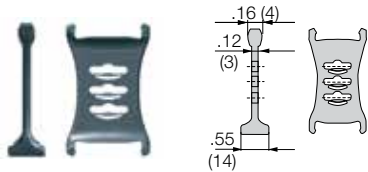
Separator, wide base

Unassembled Part No. 48-1

Assembled Part No. 48-1-1

- **Standard separator 48-1**
for all applications

Separator with wide base for maximum locking strength and safe standing in e-chains® and e-tubes.



Separator, narrow head

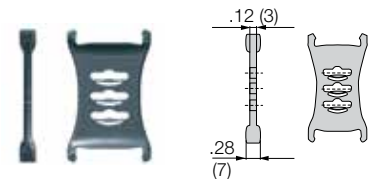
Unassembled Part No. 48-2

Assembled Part No. 48-2-1

- **Separator 48-2**

For even faster installation

is used when vertical and horizontal separation is required. Due to its slot, it allows basic vertical/horizontal shelving arrangements.



Separator, narrow base

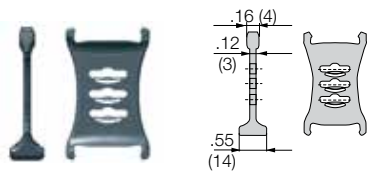
Unassembled Part No. 48-3

Assembled Part No. 42-3-1

- **Separator 48-3**

For many thin cables

is used when vertical and horizontal separation is required. Due to its slot, it allows basic vertical/horizontal shelving arrangements.



Separator, asymmetrical

Unassembled Part No. 48-5

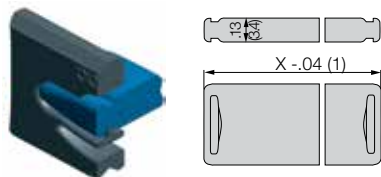
Assembled Part No. 48-5-1

- **Separator 48-5**

Locks safely in .30" (7.5 mm) increments

Notch separator for exact positioning in e-chains®. Recommended for side-mounted applications.

Lockable full-width shelves - for the standard interior separation



Full width shelf, lockable

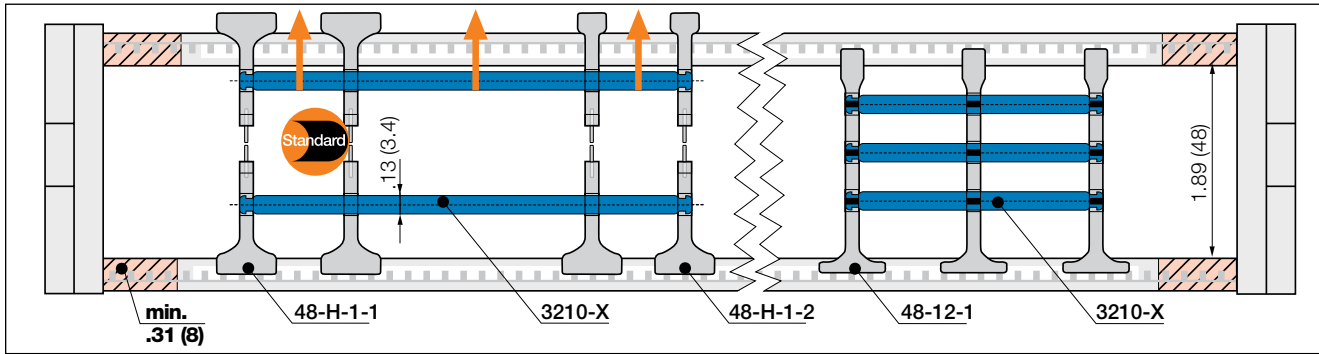
Unassembled Part No. 3200-X

Assembled Part No. 3210-X

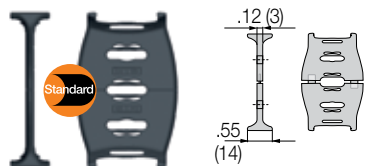
- **Full width shelf, lockable**

Shelf locks safely into separators on both ends, fixed width possible. Separators can be moved freely over the shelf in horizontal direction. Can be used at 3 different heights.

Width X in. (mm)	Part No. Unassembled	Part No. Assembled	Width X in. (mm)	Part No. Unassembled	Part No. Assembled	Width X in. (mm)	Part No. Unassembled	Part No. Assembled
1.97 (050)	3200-50	3210-50	4.92 (125)	3200-125	3210-125	8.86 (225)	3200-225	3210-225
2.95 (075)	3200-75	3210-75	5.91 (150)	3200-150	3210-150	9.84 (250)	3200-250	3210-250
3.94 (100)	3200-100	3210-100	6.89 (175)	3200-175	3210-175			
4.53 (115)	3200-115	3210-115	7.87 (200)	3200-200	3210-200			

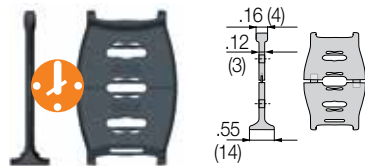


Note e-tube: Please maintain a lateral spacing of .24" (6 mm) between the separators and the side links. In the standard configuration separators are assembled every 2nd e-chain® link



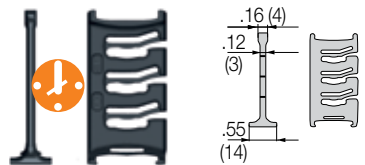
Separator, wide base/top

Unassembled **Part No. 48-H-1**
Assembled **Part No. 48-H-1-1**



Split separator, narrow top

Unassembled **Part No. 48-H-2**
Assembled **Part No. 48-H-2-1**



Lean Separator

Unassembled **Part No. 48-12**
Assembled **Part No. 48-12-1**



• **Split separators for all applications**

In order to fill e-chains® more easily and effectively, these separators can be split in the middle. This allows easier access to middle shelf partitions. Fast assembly and easy retrofit. 2 types available: with wide or narrow top.

• **Lean separators 48-12**

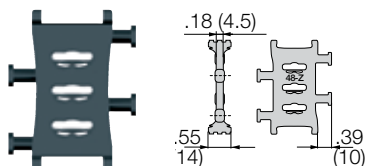
New design allows extremely fast fitting of shelves in several layers, which significantly reduces assembly time. Enables extremely fast replacement of individual cables in a very full e-chain®.

• **Lean separator design - several layers of cables fitted quickly, save up to 50%* assembly time**

(*Lean separator vs. standard separator - measured on a 4m long e-chain® fitted with 12 cables in the igus® harnessing factory)

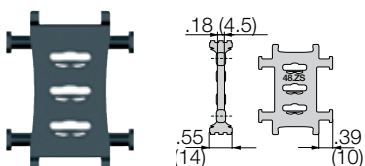
• **Separator 48-Z with integrated strain relief**

Can be integrated into the mounting bracket or placed at any point in the e-chain®. Combines strain relief and interior separation, for restricted space conditions. Strain relief separator is easy to assemble without any tools



Separator, integrated strain relief

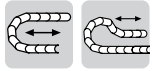
Unassembled **Part No. 48-Z**
Assembled **Part No. 48-Z-1**



Separator, integrated strain relief

Unassembled **Part No. 48-ZS**
Assembled **Part No. 48-ZS-1**

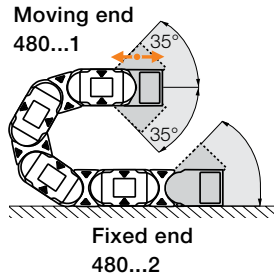




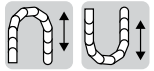
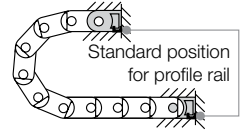
Standard

Option 1: pivoting

- Recommended for unsupported and gliding applications
- Attachment capability on all sides
- Bolted connection outside of chain cross-section
- Space restricted conditions
- Corrosion resistant

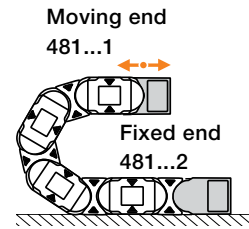


Pivoting angle depends on radius

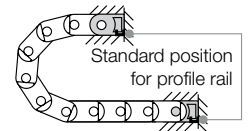


Option 2: locking

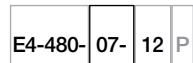
- Profile rail option
- Universal use
- Corrosion resistant
- Vertical hanging/standing travels
- Extreme accelerations



Pivoting angle depends on radius

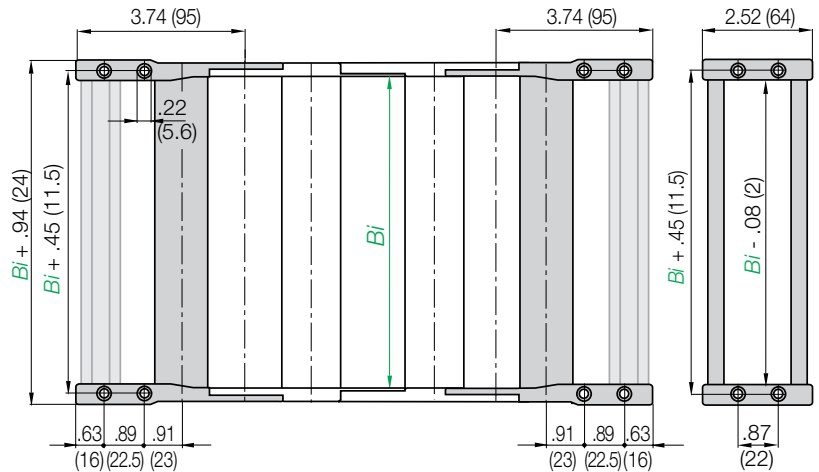


Part Number Structure



With Profile Rail
Complete Set
Width

E4-480 = Pivoting
E4-481 = Locking



Due to the design of the E4-48L series chains, please note the following when ordering brackets:

Even number of links = full set, part number ending in -12; Odd number of links = 2 pieces, part number ending in -1

Part number examples are shown for pivoting brackets for e-chain.
For locking brackets change part number to 481

Part No. Full Set (pivoting)
Series E4-48L
E4-480-Width-12

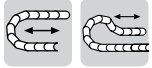
Part No. Full Set (pivoting)
with profile rail
Series E4-48L
E4-480-Width-12P

Width	Part No. Full Set chain		With Profile Rail	Bi in. (mm)	Width	Part No. Full Set chain		With Profile Rail	Bi in. (mm)
	Pivoting	Locking				Pivoting	Locking		
-050	E4-480	E4-481	-050-12	P 1.97 (50)	-150	E4-480	E4-481	-150-12	P 5.91 (150)
-062	E4-480	E4-481	-062-12	P 2.68 (62.5)	-162	E4-480	E4-481	-162-12	P 6.38 (162)
-075	E4-480	E4-481	-075-12	P 2.95 (75)	-175	E4-480	E4-481	-175-12	P 6.61 (175)
-087	E4-480	E4-481	-087-12	P 3.43 (87.5)	-200	E4-480	E4-481	-200-12	P 7.87 (200)
-100	E4-480	E4-481	-100-12	P 3.94 (100)	-225	E4-480	E4-481	-225-12	P 8.86 (225)
-105	E4-480	E4-481	-105-12	P 4.25 (105)	-237	E4-480	E4-481	-237-12	P 9.33 (237)
-112	E4-480	E4-481	-112-12	P 4.41 (112)	-250	E4-480	E4-481	-250-12	P 9.84 (250)
-125	E4-480	E4-481	-125-12	P 4.92 (125)	-262	E4-480	E4-481	-262-12	P 10.31 (262)
-137	E4-480	E4-481	-137-12	P 5.39 (137)					

e-chain system® E4-1 light Series E4-48L/R4-48L Mounting Brackets - KMA



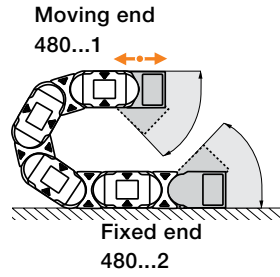
E4-48L
R4-48L



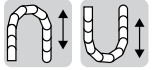
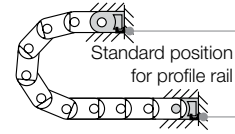
Standard

Option 1: pivoting

- Recommended for unsupported and gliding applications
- Attachment capability on all sides
- Bolted connection outside of chain cross-section
- Space restricted conditions
- Corrosion resistant

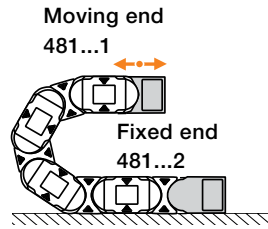


Pivoting angle depends on radius

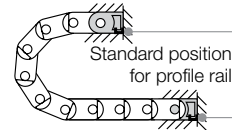


Option 2: locking

- Profile rail option
- Universal use
- Corrosion resistant
- Vertical hanging/standing travels
- Extreme accelerations



Pivoting angle depends on radius

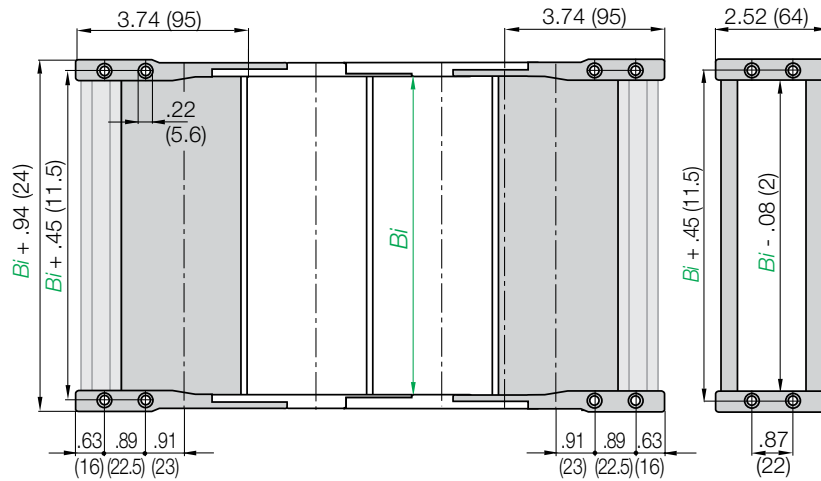


Part Number Structure

R4-480-07-12 P

With Profile Rail
Complete Set
Width

R4-480 = Pivoting
R4-481 = Locking



Due to the design of the R4-48L series chains, please note the following when ordering brackets:

Even number of links = full set, part number ending in -12; Odd number of links = 2 pieces, part number ending in -1

Part number examples are shown for pivoting brackets for e-chain.

For locking brackets change part number to 481

Part No. Full Set (pivoting)

Tube Series R4-48L

R4-480-Width-12

Part No. Full Set (pivoting)

with Profile Rail

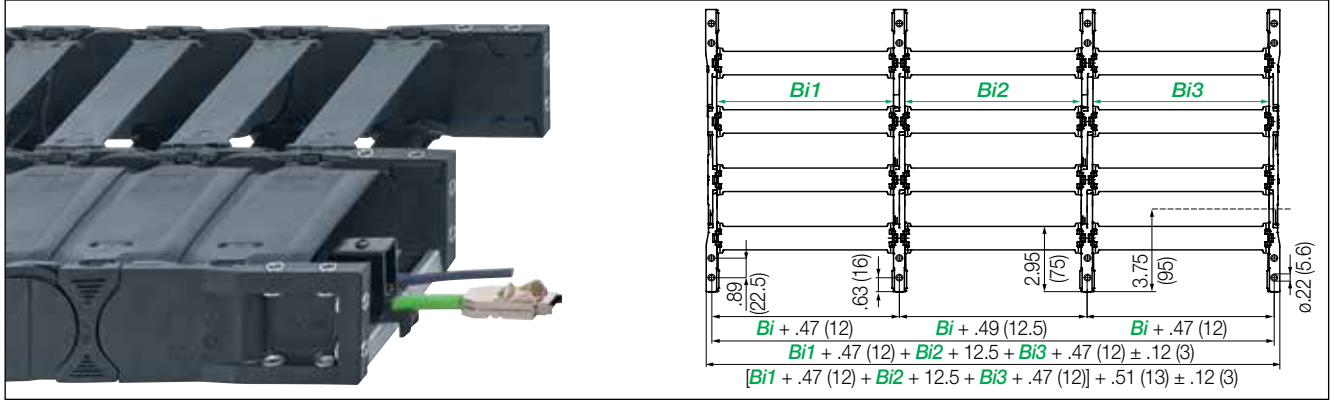
Tube Series R4-48L

R4-480-Width-12P

Width	Part No. Full Set tube		With Profile Rail	Bi in. (mm)	Width	Part No. Full Set tube		With Profile Rail	Bi in. (mm)		
	Pivoting	Locking				Pivoting	Locking				
-050	R4-480	R4-481	-050-12	P	1.97 (50)	-150	R4-480	R4-481	-150-12	P	5.91 (150)
-062	R4-480	R4-481	-062-12	P	2.68 (62.5)	-175	R4-480	R4-481	-175-12	P	6.61 (175)
-075	R4-480	R4-481	-075-12	P	2.95 (75)	-200	R4-480	R4-481	-200-12	P	7.87 (200)
-100	R4-480	R4-481	-100-12	P	3.94 (100)	-250	R4-480	R4-481	-250-12	P	9.84 (250)
-125	R4-480	R4-481	-125-12	P	4.92 (125)						

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains





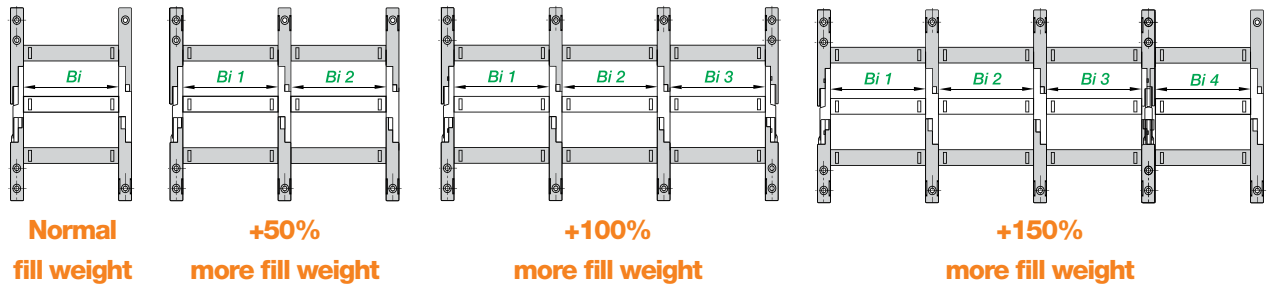
Extension links | For extremely wide e-chains® up to 6.56 ft. (2.0m) with 50% more fill weight

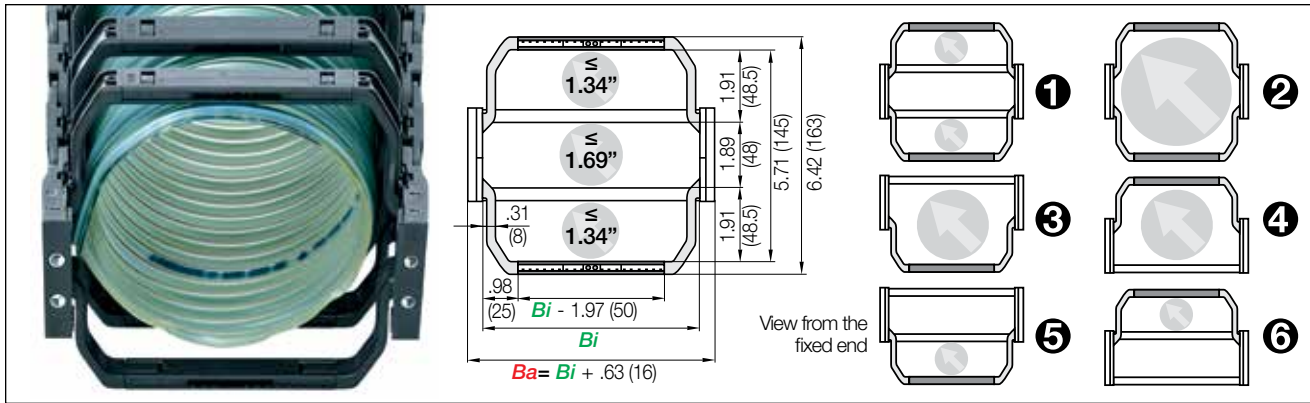
- Extension link e-chains® for 50% higher fill weight extension link up to widths of 6.56 ft. (2.0m) and more
- For heavy fill weights or e-chains® with many heavy cables next to each other
- e-chains® and e-tubes can be combined

Part No.	Part No.	Part No.
Extension link e-chain®	Extension link e-tube	Extension link as an individual part
E4-48L- <i>Bi1/Bi2/Bi3-R-0</i>	R4-48L- <i>Bi1/Bi2/Bi3-R-0</i>	E4-48ML- <i>R-</i>

Complete Part No. with the width index *Bi1/Bi2/Bi3/etc.* and the radius (*R*). Example: E4-48L-175/175/175-150-0

Increase of the fill weight per extension link





Extender crossbars with flexible width | Safe guiding for large hoses

- For guiding and protecting large hoses
- With mounting for noise dampers
- Cable-friendly design, high crossbar holding force
- The openable extender crossbars can be fitted in different ways and combinations
- Optionally openable along the inner or outer radius

Versions e-chain[®]

with extender crossbar

	Hose Ø ≤ in. (mm)	Part No. e-chain [®] with extender crossbar
➊ Extender crossbar and standard crossbar alternating along the inner and outer radius ¹⁾	1.34 (34)	E4-48L-XXXHB48-R-0
➋ Extender crossbar on both sides along the inner and outer radius ²⁾	5.12 (130)	E4-48L-XXXB48-R-0
➌ Extender crossbar along the outer radius ³⁾	3.35 (85)	E4-48L-XXXBE48-R-0
➍ Extender crossbar along the inner radius ²⁾	3.35 (85)	E4-48L-XXXBZ48-R-0
➎ Extender crossbar and standard crossbar alternating along the outer radius ³⁾	1.34 (34)	E4-48L-XXXHBE48-R-0
➏ Extender crossbar and standard crossbar alternating along inner radius ¹⁾	1.34 (34)	E4-48L-XXXHBZ48-R-0

1) Minimum bend radius: **R 125**

2) Minimum bend radius: **R 150**

3) Minimum bend radius: **R 075** *Width available upon request. Delivery time upon request

Bi [mm] Available inner widths

| 100 | 125 | 137 | 150 | 162 | 175 | 187 | 200 | 212 | 225 | 237 | 250 |

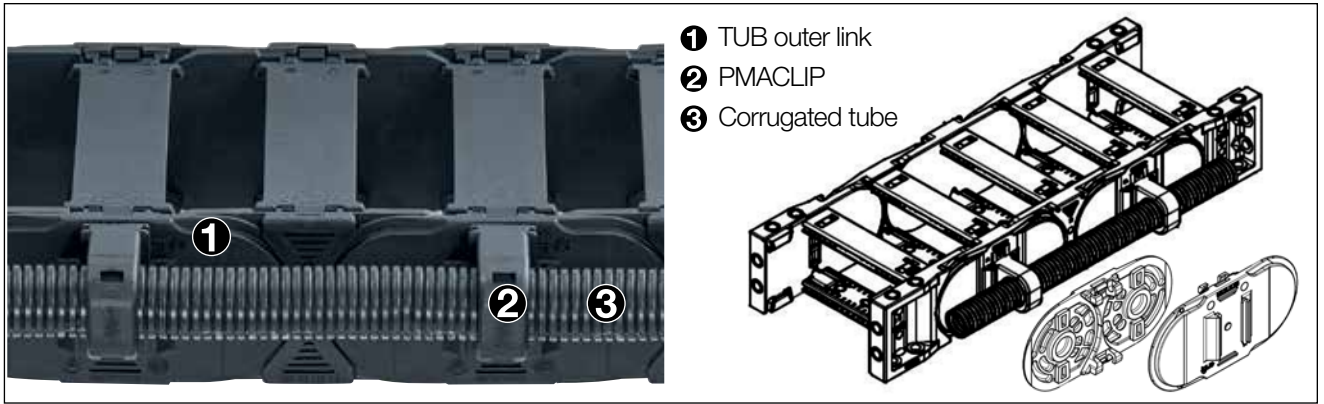
Complete Part No. with the width index **XXX Bi** and the radius (**R**). Example

E4-48L-100B48-150-0 = extender crossbar on both sides along inner and outer radius



The E4.1L can be fitted with openable extender crossbars, which increase the size of the interior of the e-chain[®]. Crossbars can be fitted in various ways: from one or both sides, alternating with standard crossbars and or any combination





- ❶ TUB outer link
- ❷ PMACLIP
- ❸ Corrugated tube

TUB | Safe guidance for corrugated tubes parallel to the e-chain®

- Additional, simple guidance for corrugated tubes on the outside of the e-chain®
- PMACLIP allows corrugated tubes with nominal widths .28 (07mm), .39 (10mm), .47 (12mm), .67 (17mm) to be easily clipped on
- Easy access to the corrugated tubes, fast replacement of the hoses
- Reduce assembly time and cost - easy to assemble, without any additional screws or tools
- The part number includes the e-chain® with TUB side sections; the PMACLIP support and the hose are ordered separately

Part No. TUB	Part No. TUB	Part No. TUB	For corrugated tube nominal diameter
Outer link right*	Outer link left*	Outer link at both ends*	Ø [mm]
E4-48L-XXXTUBR-R-0	E4-48L-XXXTUBL-R-0	E4-48L-XXXTUB-R-0	.28 (07), .39 (10), .47 (12), .67 (17)

*View from the fixed end

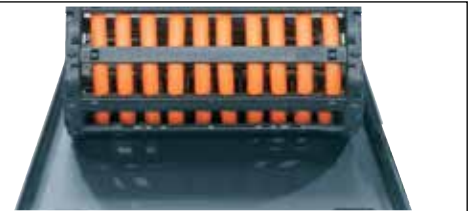
Part number appended with width index **XXX Bi** and radius (**R**) e.g.

E4-48L-100TUBR-150-0 = with TUB outer sections every 2nd right hand link

Steel support tray for support on the lower run

- Simple one-piece support trays for the lower run
- To your requirements and specifications
- 4 options available

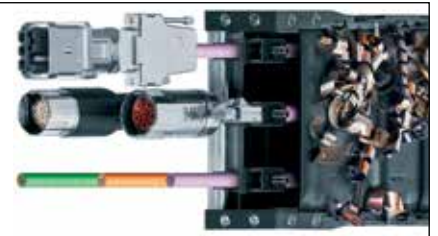
More information ► Chapter 9



Hot chips up to +1,562°F

- e-tubes to withstand +1,562°F hot chips, as a special option
- No hot chip melting or embedding into the chain
- igus® igumid HT material

More information ► www.igus.com/HT



Honeycomb strain relief - CFU - Assembled in seconds

- Simply insert cables and hoses into the honeycomb and close
- Strain relief of different cables in one slot
- Easy to make changes to the filling
- Can be used in gliding applications

More information ► Chapter 10



e-chain system® E4-1 light

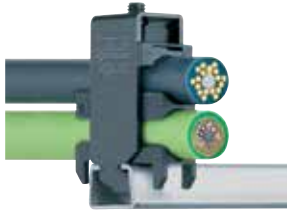
Series E4-48L/R4-48L

Strain Relief



E4-48L
R4-48L

Chainfix clamps for the profile rail



igus® Chainfix strain relief elements are available in either steel or stainless steel. They can be adjusted with a hexagon socket and are available in single, double and triple configurations.

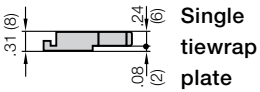
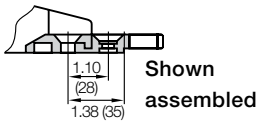
Part No. Single Clamp		Part No. Double Clamp		Part No. Triple Clamp		Cable ø	
Steel	Stainless	Steel	Stainless	Steel	Stainless	in.	(mm)
CFX12-1	CFX12-1E	CFX12-2	CFX12-2E	CFX12-3	–	.24 - .47	(06 - 12)
CFX14-1	CFX14-1E	CFX14-2	CFX14-2E	CFX14-3	–	.47 - .55	(12 - 14)
CFX16-1	CFX16-1E	CFX16-2	CFX16-2E	CFX16-3	–	.55 - .63	(14 - 16)
CFX18-1	CFX18-1E	CFX18-2	CFX18-2E	CFX18-3	–	.63 - .71	(16 - 18)
CFX20-1	CFX20-1E	CFX20-2	CFX20-2E	CFX20-3	–	.71 - .79	(18 - 20)
CFX22-1	CFX22-1E	CFX22-2	CFX22-2E	CFX22-3	–	.79 - .87	(20 - 22)
CFX26-1	CFX26-1E	CFX26-2	CFX26-2E	–	–	.87 - 1.02	(22 - 26)
CFX30-1	CFX30-1E	CFX30-2	CFX30-2E	–	–	1.02 - 1.18	(26 - 30)
CFX34-1	CFX34-1E	CFX34-2	CFX34-2E	–	–	1.18 - 1.34	(30 - 34)
CFX38-1	CFX38-1E	–	–	–	–	1.34 - 1.50	(34 - 38)
CFX42-1	CFX42-1E	–	–	–	–	1.50 - 1.65	(38 - 42)

For more information please refer to strain relief section of Chapter 10

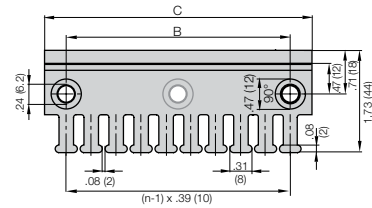
Tiewrap Plates

Option 1: Tiewrap plates as an individual part

Available as an individual component, can be fixed onto a mounting bracket with the use of a profile rail.



Tiewrap Plate	n Number of Teeth	C Overall Width in. (mm)	B Bore Width in. (mm)	Center Bore
3050-ZB	5	1.97 (50)	1.18 (30)	no
3075-ZB	7	2.95 (75)	2.16 (55)	no
3100-ZB	10	3.94 (100)	3.15 (80)	no
3115-ZB	11	4.53 (115)	3.74 (95)	no
3125-ZB	12	4.92 (125)	4.13 (105)	no
3150-ZB	15	5.91 (150)	5.12 (130)	no
3175-ZB	17	6.89 (175)	6.10 (155)	no
3200-ZB	20	7.87 (200)	7.09 (180)	yes
3225-ZB	22	8.86 (225)	8.07 (205)	yes
3250-ZB	25	9.84 (250)	9.06 (230)	yes



If used with KMA brackets with profile rail please add "KMA" to the end of the part number.

For more information please refer to strain relief section of Chapter 10

Option 2: Clip-on Tiewrap plates

Available as a clip-on tiewrap plate without the use of bolts They are inserted and removed with a screwdriver used as a lever. Clip-on tiewrap plates are also available as an attachment to the opening crossbars.



Part No.	Number of Teeth	Width of Strain Relief in. (mm)
3050-ZC	5	1.97 (50)
3075-ZC	7	2.95 (75)

For more information please refer to strain relief section of Chapter 10

Strain relief with tiewrap teeth



Part No.	For series	Inner height <i>hi</i> in. (mm)	For use in
CFV-42-C	E4-64L	2.52 (64)	Top-hat (DIN) rail 15 (TS92.31)

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains



Guide troughs are used with applications where the upper run of the e-chain® glides on the lower run. If using igus® steel guide troughs, the following components are required:

- Full travel length of guide trough
Part No. 93-30
- 1/2 travel length of glide bars
Part No. 93-01
- Installation sets as end connectors
Part No. 93-50-XX

-XX indicates the length of the profile rail on which the guide trough is mounted. The values and part numbers are specified in the table below. The standard length of the trough components and glide bars is 6.56 ft (2 m). The required overall length of the guide trough directly correlates to the length of travel

Example:

Length of travel 164 ft (50 m)
Center mounted

Required guide troughs:

164 ft (50 m) guide trough,
82 ft (25 m) glide bar
= 25 sections of 6.56 ft (2 m) guide trough

Part No. 93-30

= 13 sections of 6.56 ft (2 m) glide bar

Part No. 93-01

Required number of installation sets:

= Number of guide trough components + 1
= 25 + 1 = 26

Part No. of the installation sets **93-50-XXX**

Example: 93-50-400 for 15.75 (400 mm) long profile rail



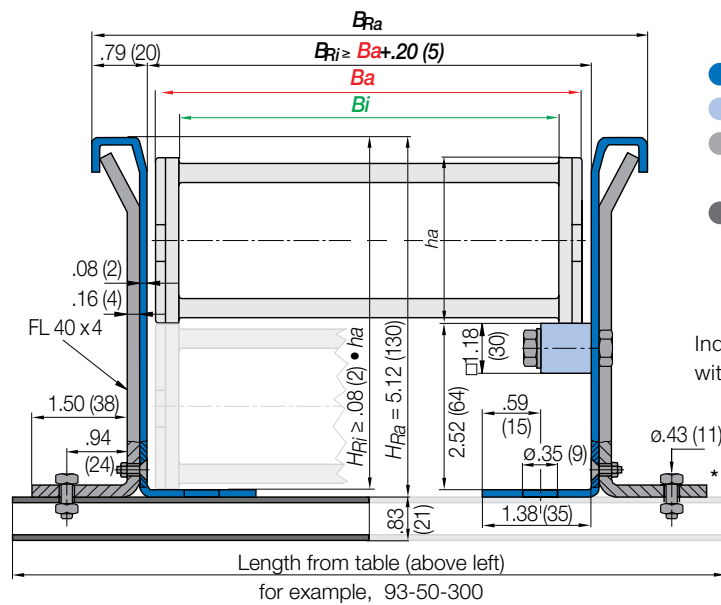
Left: Guide trough with glide bars
Right: Guide troughs without glide bars



Installation sets as section connectors

Width of Crossbar
E4-48L-100-200-0

	B_{Ri}	Installation Part No.
-050	2.95 (75)	93-50-200
-062	3.43 (87)	93-50-200
-075	3.94 (100)	93-50-225
-087	4.41 (112)	93-50-225
-100	4.92 (125)	93-50-250
-105	5.11 (130)	93-50-250
-112	5.39 (137)	93-50-250
-125	5.91 (150)	93-50-275
-137	6.38 (162)	93-50-275
-150	6.89 (175)	93-50-300
-162	7.36 (187)	93-50-300
-175	7.87 (200)	93-50-325
-200	8.86 (225)	93-50-350
-225	9.84 (250)	93-50-375
-237	10.31 (262)	93-50-375
-250	10.83 (275)	93-50-400
-262	11.30 (287)	93-50-400
-300	12.80 (325)	93-50-450



- Guide trough
- Glide bars
- Installation set "Basic"
- Profile rail

Individual attachment without profile rail

* Specialized guide trough available upon request

Standard length profile rail

e-chain system® E4-1 light
Series E4-48L/R4-48L



E4-48L
R4-48L

igus®
e-chain system®

Telephone 1-800-521-2747

Internet: igus.com
email: sales@igus.com
QuickSpec: igus.com/quickspec

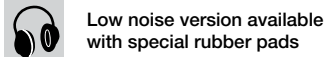
6.178

Price Index



Series E4-64L Series R4-64L

Special Options Available



Low noise version available with special rubber pads



Cleanroom test upon request



ESD classification:
Electrically conductive ESD/
ATEX version upon request

Assembly Tips



Opening To open, insert the screwdriver into the locking mechanism and pry it open outwards

Other Installation Methods

Vertical, hanging ≤ 262.5 ft (80 m)

Vertical, standing ≤ 26.25 ft (8 m)

Side-mounted, un supp. ≤ 6.56 ft (2.0 m)

Rotary requires further calculation

Usage Guidelines



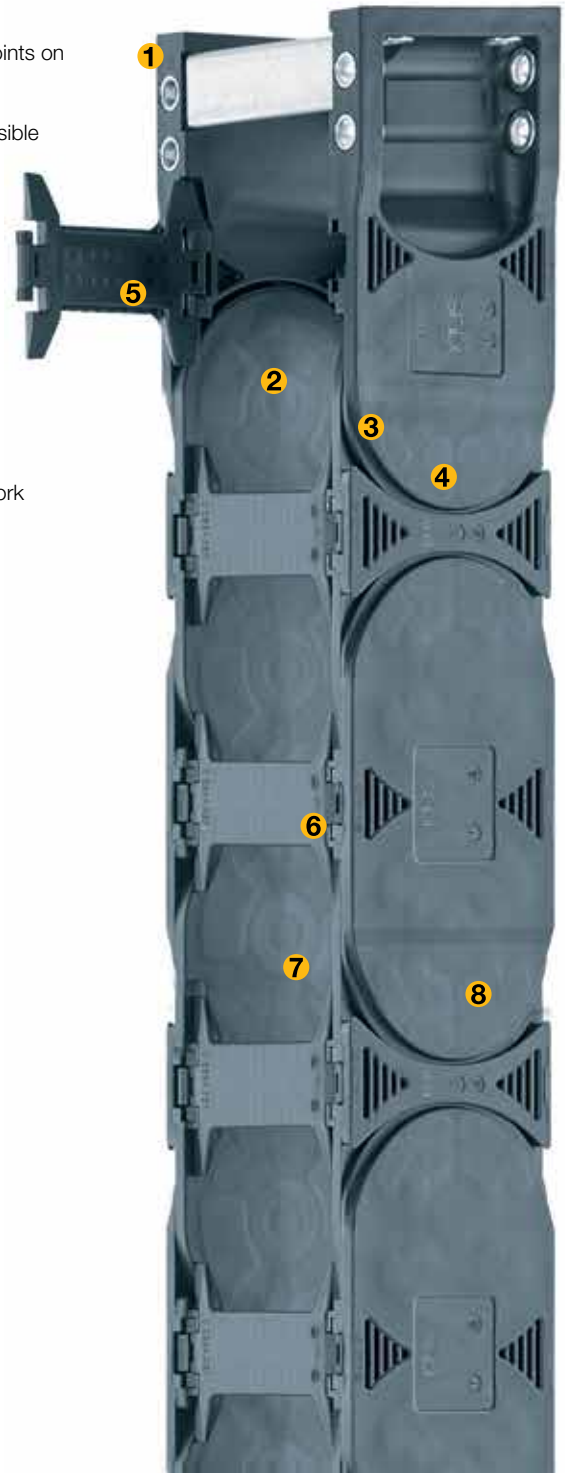
- If a lightweight, cost-effective e-chain® for high dynamics is required
- If short assembly times are required
- If optimized interior-exterior dimensions ratio is needed



- When the e-chain® needs to be extremely quiet (32dB(A)) with very low vibration
 - **Series E6-1, Chapter 7**
- When the e-chain® is to be used in cleanrooms (cleanroom ISO class 1)
 - **Series E6-1, Chapter 7**
- If even higher strength is required
 - **Series E4-1, Chapter 6**

Features & Benefits

- 1 KMA mounting brackets with attachment points on all sides
- 2 Easy filling: inner diameter completely accessible
- 3 High stability due to undercut design
- 4 Efficient: less weight, enhanced dynamics
- 5 Notch crossbar with visual scale
- 6 Short assembly time: pivotable crossbars, snap-open along the inner and outer radius
- 7 Interior separation possible
- 8 Straight run due to inner/outer link design
- 9 Version NCST "without camber" simply by turning outer links without unnecessary rework



Also available without camber. Add NCST to the end of the part number.
Ex: E4-64L-100-200NCST

Order Example: Complete e-chain®

Please indicate chain length or number of links. Example:

13.12 ft (4 m) **E4-64L-100-200-0**

e-chain®

With 2 separators **64-2-1** assembled every 2nd link

Interior Separation

1 Set **E4-640-100-12P**

Mounting Bracket

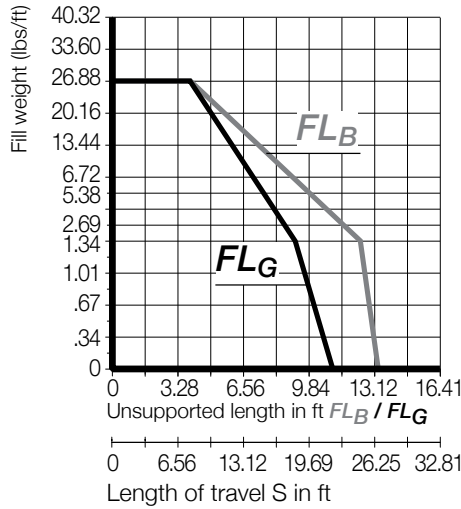
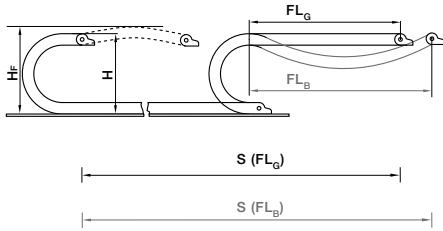
e-chain system® E4-1 light Series E4-64L Installation Dimensions



E4-64L

Short travel, unsupported length

- FL_B = unsupported with permitted sag
 - FL_G = unsupported with straight upper run
- Further information ► Design, Chapter 1

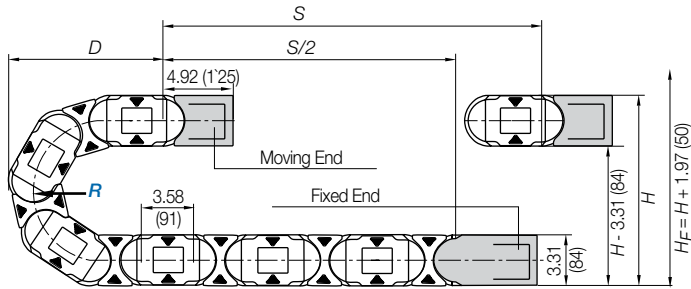


Short Travels - Unsupported

Unsupported e-chains® feature positive camber over short travels. This must be accounted for when specifying the clearance height. Please refer to for further details.

Legend

- S = Length of travel
- R = Bending radius
- H = Nominal clearance height
- D = Overlength e-chain® radius in final position
- $K = \pi \cdot R + \text{safety buffer}$
- H_f = Required clearance height
- H_{R1} = Trough inner height
- H_2 = *Mounting height
- D_2 = Overlength - long travels, gliding
- K_2 = *Add-on
- *If the mounting bracket location is set lower

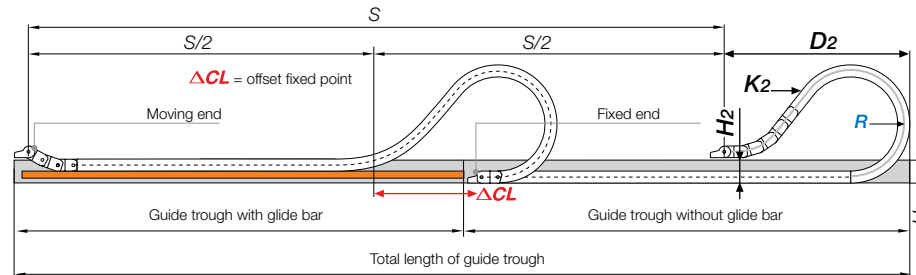


- Pitch per link = 3.58" (91 mm)
- Links per (m) = (11)
- For center mount applications:
Chain length = $S/2 + K$

The required clearance height: $H_f = H + 1.97$ in. (50 mm) (with .67 lbs/ft (1.0 kg/m) fill weight. Please consult igus® if space is particularly restricted.

R	3.94 (100)	4.92 (125)	5.91 (150)	6.89 (175)	7.87 (200)	9.84 (250)	11.81 (300)	13.78 (350)	15.75 (400)
H	11.18 (284)	13.15 (334)	15.12 (384)	17.09 (434)	19.06 (484)	22.99 (584)	26.93 (684)	30.87 (784)	34.80 (884)
D	10.98 (279)	11.97 (304)	12.95 (329)	13.94 (354)	14.92 (379)	16.89 (429)	18.86 (479)	20.83 (529)	22.80 (579)
K	19.69 (500)	22.64 (575)	25.79 (655)	28.94 (735)	32.09 (815)	38.19 (970)	44.29 (1125)	50.59 (1285)	56.69 (1440)

Gliding applications | For long travels, upon request



For center mount applications:
Chain length = $S/2 + K_2$

Note: We recommend the project planning of such a system to be carried out by igus®. In case of travels between 16.4 and 32.8 ft. (5 and 10m) we recommend an e-chain® with a longer unsupported length.

R	3.94 (100)	4.92 (125)	5.91 (150)	6.89 (175)	7.87 (200)	9.84 (250)	11.81 (300)	13.78 (350)	15.75 (400)
H_2	—	7.09 (180)	7.09 (180)	7.09 (180)	7.09 (180)	7.09 (180)	—	—	—
D_2	—	19.88 (505)	22.83 (580)	27.76 (705)	32.68 (830)	42.52 (1080)	—	—	—
K_2	—	32.24 (819)	35.83 (910)	46.57 (1183)	53.74 (1365)	68.07 (1729)	—	—	—
ΔCL	—	**	**	**	**	**	—	—	—

**Values upon request

Speed / acceleration FL_G	max. 65.6 ft/s (20 m/s) / max. 656 ft/s ² (200 m/s ²)
Speed / acceleration FL_B	max. 9.84 ft/s (3 m/s) / max. 19.69 ft/s ² (6 m/s ²)
Gliding speed / acceleration (maximum)	max. 16.4 ft/s (5 m/s) / max. 82 ft/s ² (25 m/s ²)
Material - permitted temperature	igumid G / -40°F (-40°C) up to +248°F (+120° C)
Flammability Class, igumid G	VDE 0304 IIC UL94 HB

Technical Data



Details of material properties

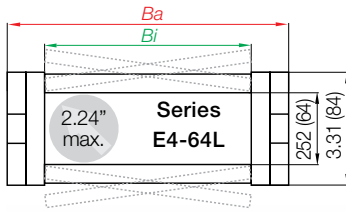
► Chapter 1



PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains

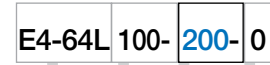


Series E4-64L - e-chain® with crossbars every link



- Crossbars every link
- For use with rigid hydraulic hoses
- For particularly demanding applications
- Can be opened from both sides

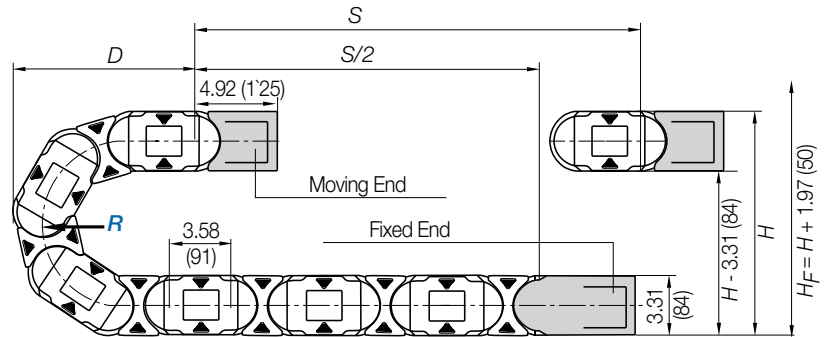
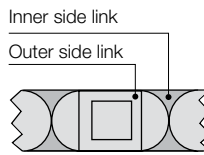
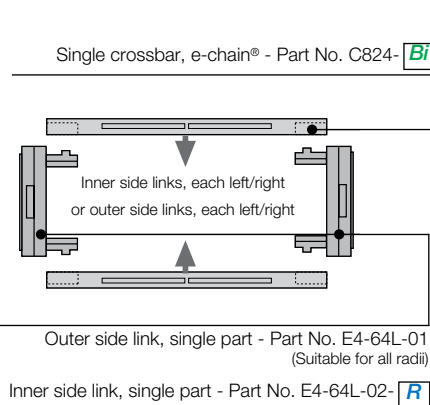
Part Number Structure



- Color - Black
- Bending radius
- Width
- Series



e-chain® as separate parts, links and side plates



Supplement part number with required radius. Example: E4-64L-100-200-0
Pitch: 3.58 in. (91 mm) per link links/ft (m) = (11)

Part Number	Bi	Ba	Weight E4-64L
Crossbars	in. (mm)	in. (mm)	lbs/ft (kg/m)
E4-64L-087-□-0	3.94 (87)	3.98 (101)	≈ 0.56 (0.83)
E4-64L-100-□-0	3.94 (100)	4.49 (114)	≈ 0.59 (0.88)
E4-64L-150-□-0	5.91 (150)	6.46 (164)	≈ 0.67 (1.00)
E4-64L-175-□-0	6.89 (175)	7.44 (189)	≈ 0.75 (1.13)
E4-64L-200-□-0	9.84 (200)	8.43 (214)	≈ 0.79 (1.17)

Choose from the radii below for all of the above sizes

Radius (mm) Example: E4-64L-100-200-0

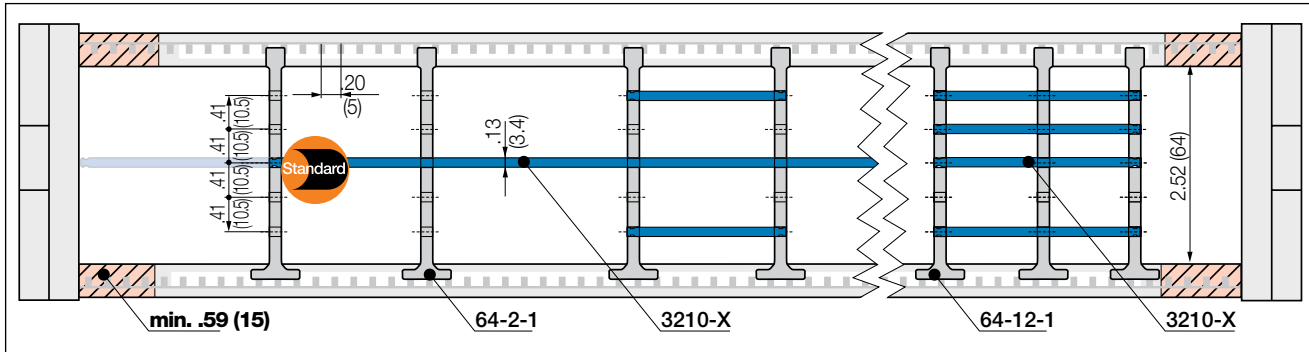
	100	125	150	175	200	250	300	350	400
R	3.94 (100)	4.92 (125)	5.91 (150)	6.89 (175)	7.87 (200)	9.84 (250)	11.81 (300)	13.78 (350)	15.75 (400)
H	11.18 (284)	13.15 (334)	15.12 (384)	17.09 (434)	19.06 (484)	22.99 (584)	26.93 (684)	30.87 (784)	34.80 (884)
D	10.98 (279)	11.97 (304)	12.95 (329)	13.94 (354)	14.92 (379)	16.89 (429)	18.86 (479)	20.83 (529)	22.80 (579)
K	19.69 (500)	22.64 (575)	25.79 (655)	28.94 (735)	32.09 (815)	38.19 (970)	44.29 (1125)	50.59 (1285)	56.69 (1440)

For other colors see Chapter 1

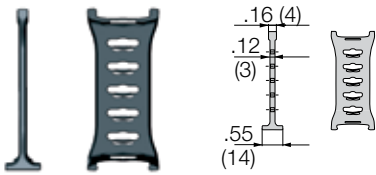
e-chain system® E4-1 light
Series E4-64L/R4-64L
Interior Separation



E4-64L



Note: Please maintain a lateral spacing of .24" (6 mm) between the separators and the side links. In the standard configuration separators are assembled every 2nd e-chain® link



Separator, narrow top

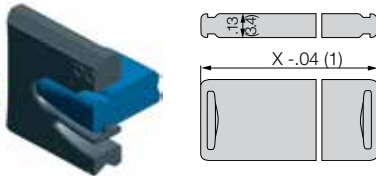
Unassembled	Part No. 64-2
Assembled	Part No. 64-2-1

• **Separator 64-2**

For even faster installation

Firm hold to one side with a wide base, narrow on opposed side for easy cable assembly (slight grip).

Lockable full-width shelves - for the standard interior separation



Full width shelf, lockable

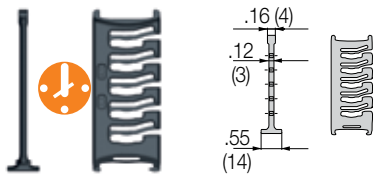
Unassembled	Part No. 3200-X
Assembled	Part No. 3210-X

• **Full width shelf, lockable**

Shelf locks safely into separators on both ends, fixed width possible. Separators can be moved freely over the shelf in horizontal direction. Can be used at 3 different heights.

Width X in. (mm)	Part No. Unassembled	Part No. Assembled	Width X in. (mm)	Part No. Unassembled	Part No. Assembled	Width X in. (mm)	Part No. Unassembled	Part No. Assembled
1.97 (050)	3200-50	3210-50	4.92 (125)	3200-125	3210-125	8.86 (225)	3200-225	3210-225
2.95 (075)	3200-75	3210-75	5.91 (150)	3200-150	3210-150	9.84 (250)	3200-250	3210-250
3.94 (100)	3200-100	3210-100	6.89 (175)	3200-175	3210-175			
4.53 (115)	3200-115	3210-115	7.87 (200)	3200-200	3210-200			

Interior separation | To allow faster filling



Lean Separator

Unassembled	Part No. 64-2
Assembled	Part No. 64-2-1

• **Lean separators**

New design allows extremely fast fitting of shelves in several layers, which significantly reduces assembly time. Enables extremely fast replacement of individual cables in a very full e-chain®.

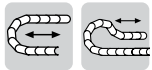


• **Lean separator design - several layers of cables fitted quickly, save up to 50%* assembly time**

(*Lean separator vs. standard separator - measured on a 13.12 ft. (4m) long e-chain® fitted with 12 cables in the igus® harnessing factory)

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains

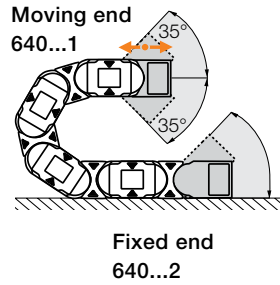




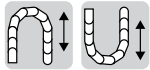
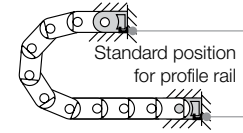
Standard

Option 1: pivoting

- Recommended for unsupported and gliding applications
- Attachment capability on all sides
- Bolted connection outside of chain cross-section
- Space restricted conditions
- Corrosion resistant

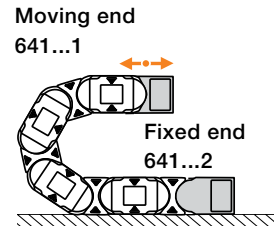


Pivoting angle depends on radius

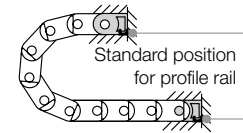


Option 2: locking

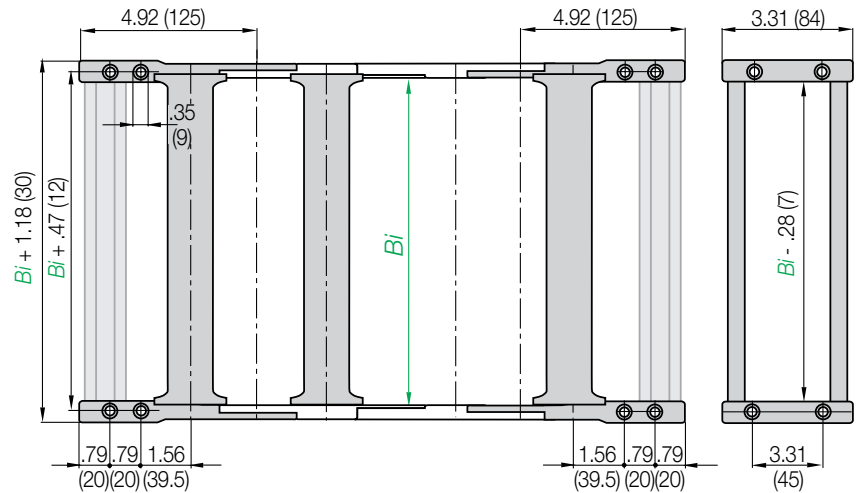
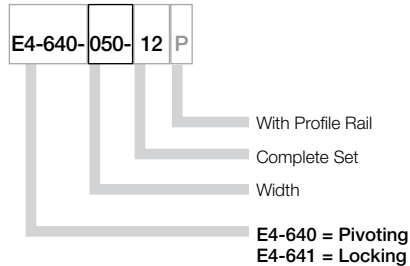
- Profile rail option
- Universal use
- Corrosion resistant
- Vertical hanging/standing travels
- Extreme accelerations



Pivoting angle depends on radius



Part Number Structure



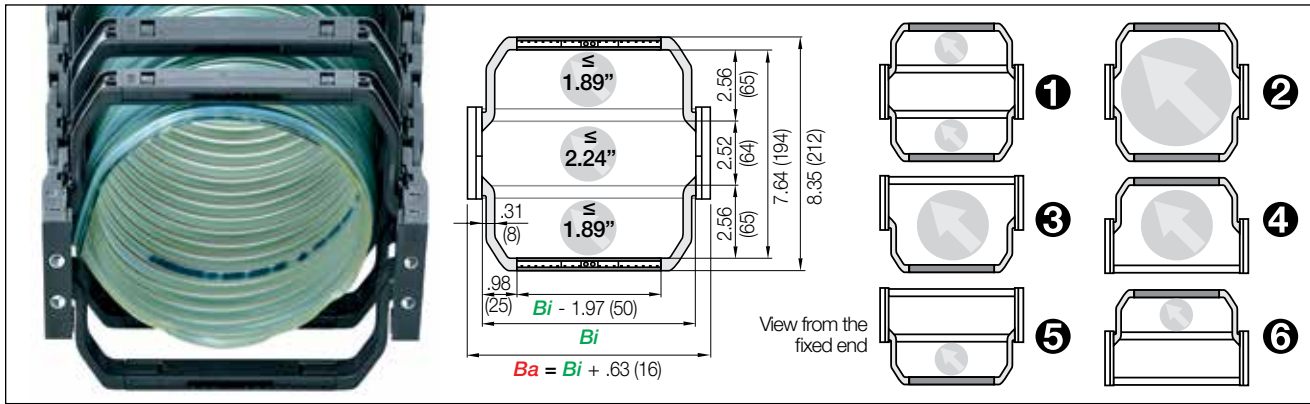
Due to the design of the E4-64L series chains, please note the following when ordering brackets:
Even number of links = full set, part number ending in -12; Odd number of links = 2 pieces, part number ending in -1

Part number examples are shown for pivoting brackets for e-chain.
For locking brackets change part number to 641

Part No. Full Set (pivoting) Series E4-64L
E4-640-Width-12

Part No. Full Set (pivoting) with profile rail Series E4-64L
E4-640-Width-12P

Width	Part No. Full Set chain		With Profile Rail	B_i in. (mm)	Width	Part No. Full Set chain		With Profile Rail	B_i in. (mm)
	Pivoting	Locking				Pivoting	Locking		
-040	E4-640	E4-641	-040-12	P 1.57 (40)	-125	E4-640	E4-641	-125-12	P 4.92 (125)
-050	E4-640	E4-641	-050-12	P 1.97 (50)	-137	E4-640	E4-641	-137-12	P 5.39 (137.5)
-062	E4-640	E4-641	-062-12	P 2.68 (62.5)	-150	E4-640	E4-641	-150-12	P 5.91 (150)
-075	E4-640	E4-641	-075-12	P 2.95 (75)	-162	E4-640	E4-641	-162-12	P 6.38 (162.5)
-087	E4-640	E4-641	-087-12	P 3.43 (87.5)	-175	E4-640	E4-641	-175-12	P 6.61 (175)
-100	E4-640	E4-641	-100-12	P 3.94 (100)	-187	E4-640	E4-641	-187-12	P 7.36 (187)
-112	E4-640	E4-641	-112-12	P 4.41 (112.5)	-200	E4-640/	E4-641	-200-12	P 7.87 (200)



Extender crossbars with flexible width | Safe guiding for large hoses

- For guiding and protecting large hoses
- With mounting for noise dampers
- Cable-friendly design, high crossbar holding force
- The openable extender crossbars can be fitted in different ways and combinations
- Optionally openable along the inner or outer radius

Versions e-chain®

with extender crossbar

	Hose Ø ≤ in. (mm)	Part No. e-chain® with extender crossbar
① Extender crossbar and standard crossbar alternating along the inner and outer radius ¹⁾	1.89 (48)	E4-64L-XXXHB65-R-0
② Extender crossbar on both sides along the inner and outer radius ²⁾	6.69 (170)	E4-64L-XXXB65-R-0
③ Extender crossbar along the outer radius ³⁾	3.35 (115)	E4-64L-XXXBE65-R-0
④ Extender crossbar along the inner radius ²⁾	3.35 (115)	E4-48L-XXXBZ65-R-0
⑤ Extender crossbar and standard crossbar alternating along the outer radius ³⁾	1.89 (48)	E4-48L-XXXHBE65-R-0
⑥ Extender crossbar and standard crossbar alternating along inner radius ¹⁾	1.89 (48)	E4-48L-XXXHBZ65-R-0

1) Minimum bend radius: **R 125**

2) Minimum bend radius: **R 150**

3) Minimum bend radius: **R 100** *Width available upon request. Delivery time upon request

Bi [mm] Available inner widths

| 100 | 125 | 137 | 150 | 162 | 175 | 187 | 200 | 212 | 225 | 237 | 250 |

Complete Part No. with the width index **XXX Bi** and the radius (**R**). Example

E4-64L-100B65-150-0 = extender crossbar on both sides along inner and outer radius

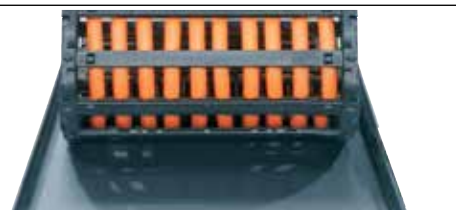


The E4.1L can be fitted with openable extender crossbars, which increase the size of the interior of the e-chain®. Crossbars can be fitted in various ways: from one or both sides, alternating with standard crossbars and or any combination

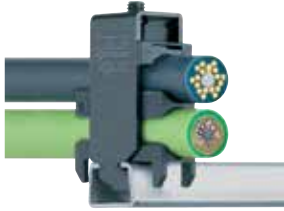
Steel support tray for support on the lower run

- Simple one-piece support trays for the lower run
- To your requirements and specifications
- 4 options available

More information ► Chapter 9



Chainfix clamps for the profile rail



igus® Chainfix strain relief elements are available in either steel or stainless steel. They can be adjusted with a hexagon socket and are available in single, double and triple configurations.

Part No. Single Clamp		Part No. Double Clamp		Part No. Triple Clamp		Cable ø	
Steel	Stainless	Steel	Stainless	Steel	Stainless	in.	(mm)
CFX12-1	CFX12-1E	CFX12-2	CFX12-2E	CFX12-3	-	.24 - .47	(06 - 12)
CFX14-1	CFX14-1E	CFX14-2	CFX14-2E	CFX14-3	-	.47 - .55	(12 - 14)
CFX16-1	CFX16-1E	CFX16-2	CFX16-2E	CFX16-3	-	.55 - .63	(14 - 16)
CFX18-1	CFX18-1E	CFX18-2	CFX18-2E	CFX18-3	-	.63 - .71	(16 - 18)
CFX20-1	CFX20-1E	CFX20-2	CFX20-2E	CFX20-3	-	.71 - .79	(18 - 20)
CFX22-1	CFX22-1E	CFX22-2	CFX22-2E	CFX22-3	-	.79 - .87	(20 - 22)
CFX26-1	CFX26-1E	CFX26-2	CFX26-2E	-	-	.87 - 1.02	(22 - 26)
CFX30-1	CFX30-1E	CFX30-2	CFX30-2E	-	-	1.02 - 1.18	(26 - 30)
CFX34-1	CFX34-1E	CFX34-2	CFX34-2E	-	-	1.18 - 1.34	(30 - 34)
CFX38-1	CFX38-1E	-	-	-	-	1.34 - 1.50	(34 - 38)
CFX42-1	CFX42-1E	-	-	-	-	1.50 - 1.65	(38 - 42)

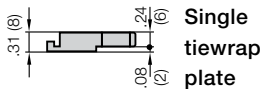
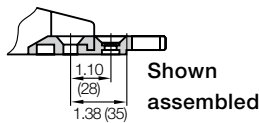
For more information please refer to strain relief section of Chapter 10

Tiewrap Plates

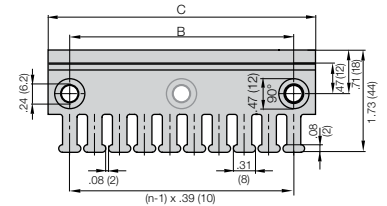
Option 1:

Tiewrap plates as an individual part

Available as an individual component, can be fixed onto a mounting bracket with the use of a profile rail.



Tiewrap Plate	n Number of Teeth	C Overall Width in. (mm)	B Bore Width in. (mm)	Center Bore
3050-ZB	5	1.97 (50)	1.18 (30)	no
3075-ZB	7	2.95 (75)	2.16 (55)	no
3100-ZB	10	3.94 (100)	3.15 (80)	no
3115-ZB	11	4.53 (115)	3.74 (95)	no
3125-ZB	12	4.92 (125)	4.13 (105)	no
3150-ZB	15	5.91 (150)	5.12 (130)	no
3175-ZB	17	6.89 (175)	6.10 (155)	no
3200-ZB	20	7.87 (200)	7.09 (180)	yes
3225-ZB	22	8.86 (225)	8.07 (205)	yes
3250-ZB	25	9.84 (250)	9.06 (230)	yes



If used with KMA brackets with profile rail please add "KMA" to the end of the part number.

For more information please refer to strain relief section of Chapter 10

Option 2:

Clip-on Tiewrap plates

Available as a clip-on tiewrap plate without the use of bolts. They are inserted and removed with a screwdriver used as a lever. Clip-on tiewrap plates are also available as an attachment to the opening crossbars.



Part No.	Number of Teeth	Width of Strain Relief in. (mm)
3050-ZC	5	1.97 (50)
3075-ZC	7	2.95 (75)

For more information please refer to strain relief section of Chapter 10

Strain relief with tiewrap teeth



Part No.	For series	Inner height <i>hi</i> in. (mm)	For use in
CFV-80-C	E4-64L	2.52 (64)	Top-hat (DIN) rail 15 (TS92.31)

e-chain system® E4-1 light Series E4-64L Guide Trough



E4-64L

Guide troughs are used with applications where the upper run of the e-chain® glides on the lower run. If using igus® steel guide troughs, the following components are required.

- Full travel length of guide trough
Part No. 94-30
- 1/2 travel length glide bars
Part No. 93-01
- Installation sets as end connectors
Part No. 94-50-XX

.XX indicates the length of the profile rails on which the guide trough is mounted. The values and part numbers are specified in the table on the left. The standard length of the trough components and glide bars is 6.56 ft (2m). The required overall length of the guide trough directly correlates to the length of travel.

Example:

Length of travel 164 ft (50 m)
Center mounted
-

Required guide troughs:

164 ft (50 m) guide trough
82 ft (25 m) glide bars
= 25 sections of 6.56 ft (2 m) guide trough

Part No. 94-30

= 13 sections of 6.56 ft (2 m) glide bars

Part No. 93-01

Required number of installation sets:

= Number of guide trough components + 1
= 25 + 1 = 26

Part number of the installation sets

94-50-XXX

Example:

94-50-400 for 15.75 (400 mm) long profile rail



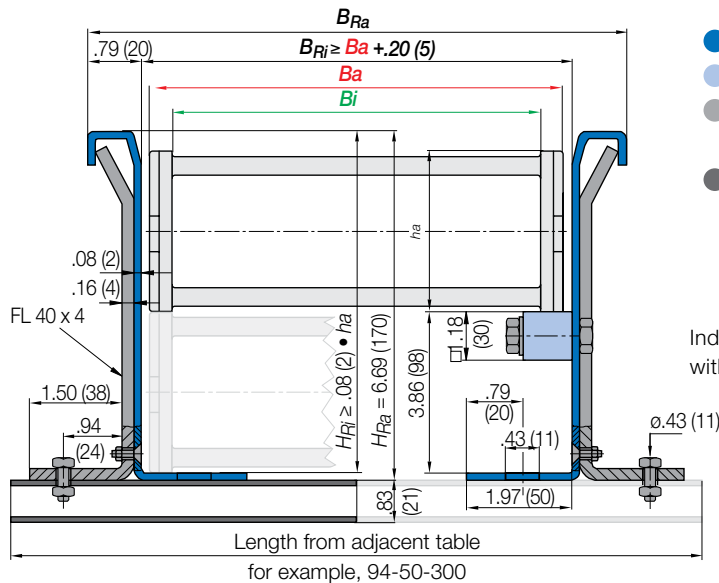
Left: Guide trough with glide bars
Right: Guide troughs without glide bars



Installation sets as section connectors

Width of Crossbar
E4-56-05-200-0

	B_{Pi}	Installation Part No.
-087	4.65 (118)	94-50-250
-100	5.16 (131)	94-50-250
-150	7.13 (181)	94-50-300
-200	9.09 (231)	94-50-350



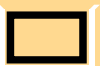
- Guide trough
- Glide bars
- Installation set "Basic"
- Profile rail

Individual attachment without profile rail

* Specialized guide trough available upon request

Standard length profile rail

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains







hooks.

claws.

igus[®]
E4/light

6.188

E4/light - stable, lightweight and cost-effective

System E4/Light – E4 ‘light’ features smaller side links (all sizes and styles) and thinner crossbars (specifically styles 14240 and 14340) when compared to igus®’ standard E4 cable carriers. It’s cost-effective, lightweight and still offers a large interior space for multiple cables and hoses. E4 light works especially for unsupported, short travel applications and is also ideal in hanging and short-standing designs.

Typical industries and applications

- Machine tools
- Material handling
- Stone cutting machines
- Woodworking machines
- General machinery
- Vehicles
- Construction machinery
- Limited long travel applications



ATEX/ESD: Excellent performance with the special material igumid ESD (upon request) “Rear grip” achieves long-term electrical conductivity



Side-mounted - unsupported



High torsional rigidity



System E4/4 approved
with long travels





E4/light e-chains® and e-tubes are ideal in Machine Tools

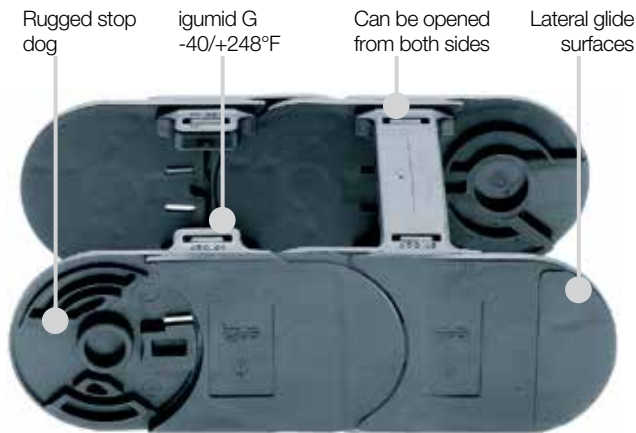


E4/light in an unsupported application



With the space-saving igus® E4 polymer e-chains® the overall dimension for the installation for this crane system was considerably reduced

e-chain system® E4 light Selection Guide



E4/light version with the approved E4/4 Series undercut design

- Lightweight
- Optimized ratio of interior and exterior dimension
- Cost-effective
- Numerous interior separation possibilities
- Wide range of modular accessories
- Narrow outer links
- Maximum stability in the igus® range
- Maximum travel: 492 - 820 ft (150 - 250 m)
- You can find more technical data about the material, chemical resistance, temperatures ► **Design, Chapter 1**

Crossbars every link for particularly demanding applications



Series	Inner height <i>hi</i> in. (mm)	Inner width <i>Bi</i> in. (mm)	Outer width <i>Ba</i> in. (mm)	Outer height <i>ha</i> in. (mm)	Bending radius <i>R</i> in. (mm)
14040	2.20 (56)	1.97-23.62 (50-600)	2.99-24.65 (76-626)	3.31 (84)	5.31-19.69 (135-500)
14240	2.44 (62)	1.97-15.75 (50-400)	2.99-16.77 (76-426)	3.31 (84)	5.31-19.69 (135-500)
14550	2.76 (70)	1.97-23.62 (50-600)	3.03-24.69 (77-627)	3.86 (98)	5.91-23.62 (150-600)
15050	3.15 (80)	1.97-23.62 (50-600)	3.15-24.80 (80-630)	4.25 (108)	5.91-19.69 (150-500)
15250	3.39 (86)	1.97-23.62 (50-400)	3.15-16.93 (80-430)	4.25 (108)	5.91-23.62 (150-600)
1640	4.41 (112)	1.97-23.62 (50-600)	3.31-24.96 (84-634)	5.51 (140)	7.87-23.62 (200-600)

Crossbars every 2nd link for almost all applications



Series	Inner height <i>hi</i> in. (mm)	Inner width <i>Bi</i> in. (mm)	Outer width <i>Ba</i> in. (mm)	Outer height <i>ha</i> in. (mm)	Bending radius <i>R</i> in. (mm)
14140	2.20 (56)	1.97-23.62 (50-600)	2.99-24.65 (76-626)	3.31 (84)	5.31-19.69 (135-500)
14340	2.44 (62)	1.97-15.75 (50-400)	2.99-16.77 (76-426)	3.31 (84)	5.31-19.69 (135-500)
14650	2.76 (70)	1.97-23.62 (50-600)	3.03-24.69 (77-627)	3.86 (98)	5.91-23.62 (150-600)
15150	3.15 (80)	1.97-23.62 (50-600)	3.15-24.80 (80-630)	4.25 (108)	5.91-19.69 (150-500)
15350	3.39 (86)	1.97-23.62 (50-400)	3.15-16.93 (80-430)	4.25 (108)	5.91-23.62 (150-600)

e-tubes fully enclosed, excellent cable protection

Available for certain widths and radii



Series	Inner height <i>hi</i> in. (mm)	Inner width <i>Bi</i> in. (mm)	Outer width <i>Ba</i> in. (mm)	Outer height <i>ha</i> in. (mm)	Bending radius <i>R</i> in. (mm)
R18840	2.20 (56)	2.95-18.19 (75-462)	3.98-19.25 (101-489)	3.31 (84)	5.91-19.69 (150-500)
R19050	2.76 (70)	2.95-18.19 (75-462)	4.01-19.25 (102-489)	3.86 (98)	7.87-23.62 (200-600)
R19850	3.15 (80)	2.95-18.19 (75-462)	4.13-19.41 (105-493)	4.25 (108)	7.87-19.69 (200-500)
R1608	4.25 (108)	7.87-19.69 (200-500)	9.21-17.09 (234-434)	5.51 (140)	9.84-23.62 (250-600)

e-chain system® E4 light

Assembly instructions

e-chains® and e-tubes - Assembling



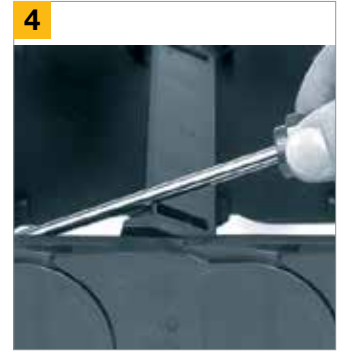
1 Position at one side ...



2 ... and snap in



3 Position opposite side.
Press together and snap in



4 Assemble crossbars - push down and snap in using a screwdriver

Assembling continued



5 Assemble clips (for e-chains with crossbars every other link) - push down and snap in using a screwdriver



6 Assemble e-tube lids and bottoms - Attach to the connector at an angle and snap in place

e-chains® - Opening



1 Remove crossbars - Insert screwdriver into the slot, using a lever action, apply pressure to the screwdriver to remove the crossbar.

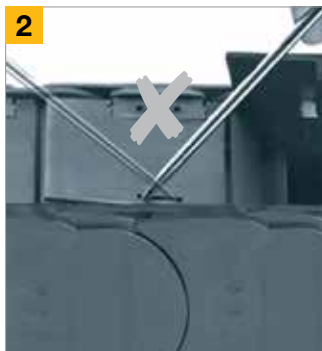


2 Remove clips - Insert screwdriver into the slot, using a lever action, apply pressure to the screwdriver to remove the clip

e-tube - Opening



1 Remove lids/bottoms - Insert screwdriver into the slot, using a lever action apply pressure to the screwdriver to release



2 Release only **one side** to open the lid

e-chains® and e-tubes - Separating



1 Remove crossbars, clips, lids and bottoms at the outer links



2 Insert screwdriver into the slot between the side links. Using a lever action, release the side links

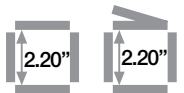
 Available from stock. Orders ship as early as today.*

*On average 90% of orders ship the same day..

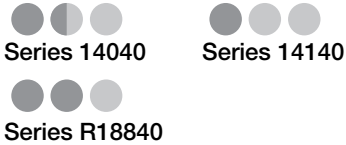
14040
14140
R18840



e-chain system® E4 light Series 14040/14140/R18840



Price Index



Special Features / Options

ESD classification:
Electrically conductive ESD/
ATEX version upon request

High torsional rigidity

Side-mounted - unsupported

Assembly Tips



Opening e-chains®: Remove crossbars and clips - Insert screwdriver into the slot, push down, release by lever action



Remove lids/bottoms (e-tubes) - Insert screwdriver into the slot, release by lever action

Other Installation Methods

Vertical, hanging ≤ 262 ft (80 m)

Vertical, standing ≤ 19.69 ft (6 m)

Side-mounted, un supp. ≤ 6.56 ft (2 m)

Rotary requires further calculation

Usage Guidelines



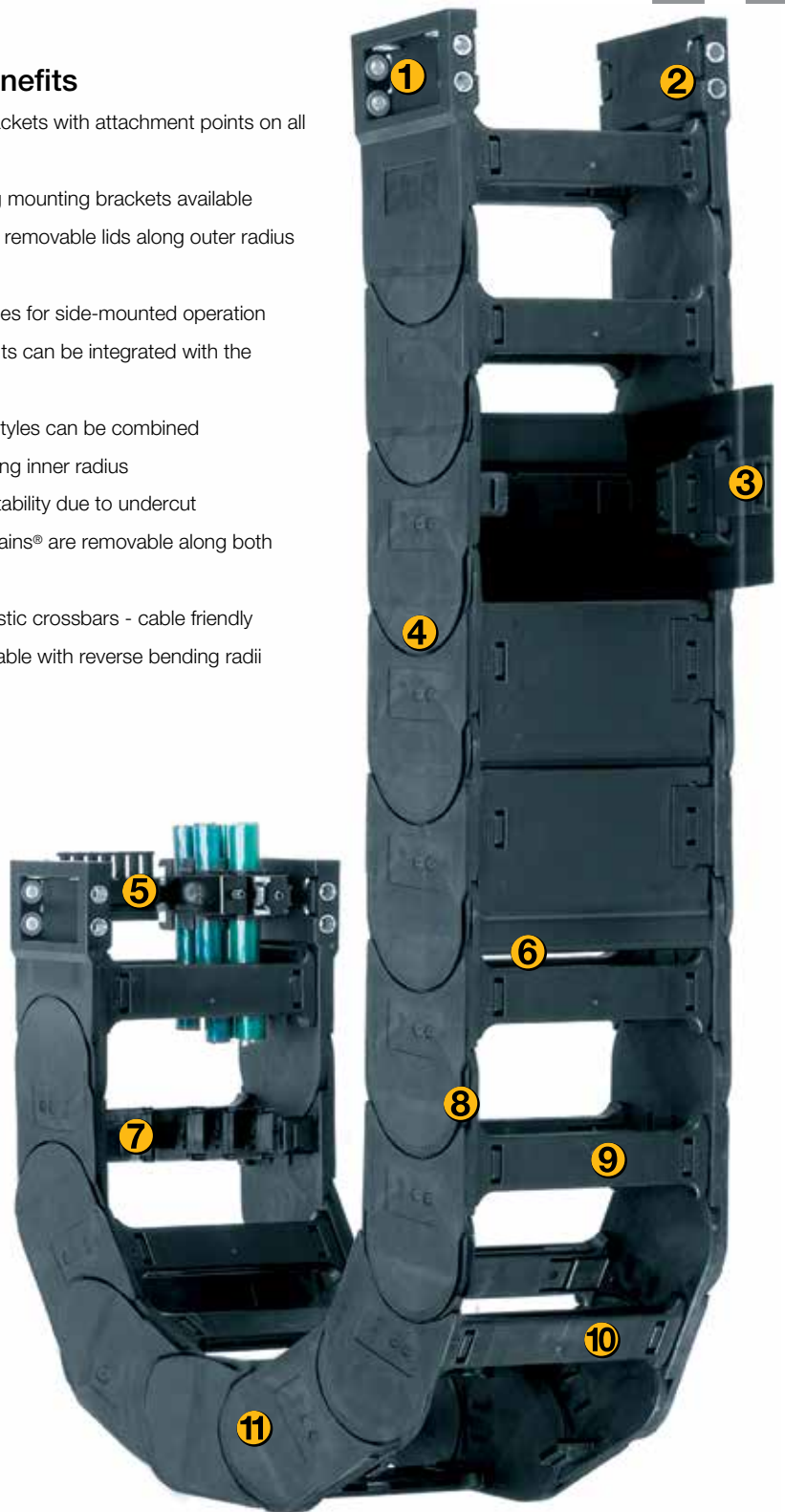
- If a simpler low-cost solution is required
- For maximum inner width with minimal outer width
- If the Series 400 is too large



- If a quieter version is required
➤ Series E6-52
- If side-mounted chain/tube with a long unsupported travel is required
➤ Series E4-56/H4-56/R4-56
- If increased unsupported lengths and longer travels are required
➤ Series E4-56/H4-56/R4-56

Features & Benefits

- 1 KMA mounting brackets with attachment points on all sides
- 2 Locking or pivoting mounting brackets available
- 3 Hinged snap-open removable lids along outer radius of e-tube
- 4 Lateral glide surfaces for side-mounted operation
- 5 Strain relief elements can be integrated with the mounting bracket
- 6 Closed and open styles can be combined
- 7 Removable lids along inner radius
- 8 High side-mount stability due to undercut
- 9 Crossbars on e-chains® are removable along both radii
- 10 Wide, rounded plastic crossbars - cable friendly
- 11 e-chain® also available with reverse bending radii



Order Example: Complete e-chain®

Please indicate chain length or number of links. Example:

16.4 ft (5 m) 14040-30-300-0

e-chain®

With 2 separators 56.1.1 assembled every 2nd link

Interior Separation

1 Set 141400-30-12P

Mounting Bracket

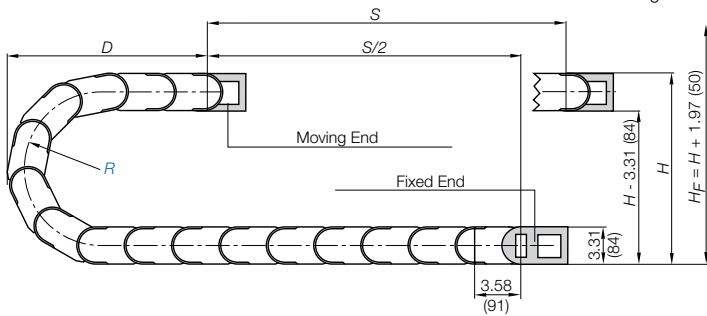
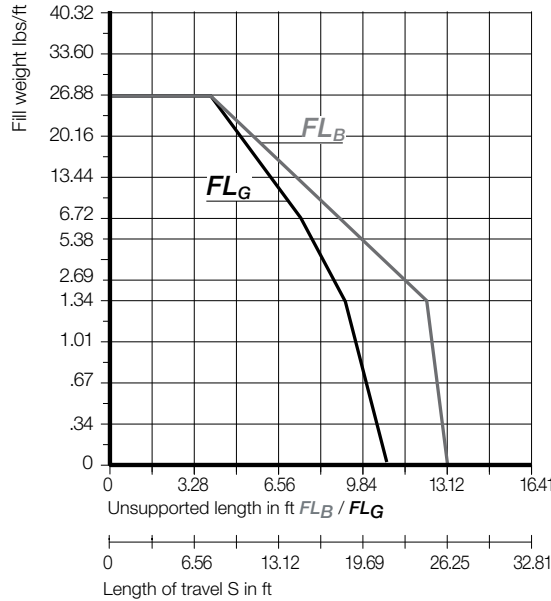
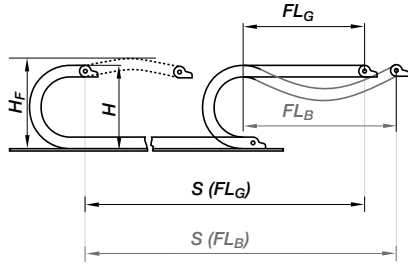
e-chain system® E4 light

Series 14040/14140/R18840

Installation Dimensions

Short travel, unsupported length

- FL_B = unsupported with permitted sag
 - FL_G = unsupported with straight upper run
- Further information ► Design, Chapter 1



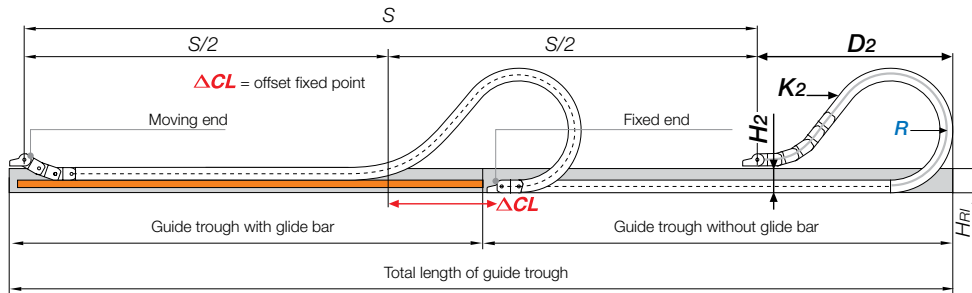
Pitch per link: = 3.58" (91 mm)
 Links per ft (m): = 3.35 (11)
 For center mount applications:
 Chain length = $\frac{S}{2} + K$

The required clearance height: $H_F = H + 1.97$ in. (50 mm) (with 1.34 lbs/ft (2 kg/m) fill weight). Please consult igus® if space is particularly restricted.

R^{+25}	5.31 (135)	5.91 (150)	6.89 (175)	7.87 (200)	9.84 (250)	11.81 (300)	15.75 (400)	19.68 (500)
H	14.17 (360)	15.16 (385)	17.13 (435)	19.09 (485)	23.03 (585)	26.97 (685)	34.84 (885)	42.72 (1085)
D	10.63 (270)	11.22 (285)	12.20 (310)	13.19 (335)	15.16 (385)	17.13 (435)	21.06 (535)	25.00 (635)
K	25.59 (650)	29.53 (750)	32.48 (825)	35.43 (900)	41.34 (1050)	48.23 (1225)	57.09 (1450)	69.88 (1775)

For long travels with lowered mounting height

Long travel lengths from 32.8 ft.(10m) to max. 492 ft. (150m)



R	5.31 (135)	5.91 (150)	6.89 (175)	7.87 (200)	9.84 (250)	11.81 (300)	15.75 (400)	19.68 (500)
H_2	10.47 (266)	10.47 (266)	10.47 (266)	10.47 (266)	10.47 (266)	10.47 (266)	10.47 (266)	10.47 (266)
D_2^{+25}	15.35 (390)	17.72 (450)	20.87 (530)	27.95 (710)	36.22 (920)	44.09 (1120)	60.24 (1530)	72.05 (1830)
K_2	28.66 (728)	32.24 (819)	39.41 (1001)	50.16 (1274)	64.49 (1638)	75.23 (1911)	100.31 (2548)	125.39 (3185)
ΔCL	4.88 (124)	6.26 (159)	8.22 (209)	14.13 (359)	20.04 (509)	25.94 (659)	37.76 (959)	45.63 (1159)

Speed / acceleration FL_G	max. 65.6 ft/s (20 m/s) / max. 656 ft/s ² (200 m/s ²)
Speed / acceleration FL_B	max. 9.84 ft/s (3 m/s) / max. 19.69 ft/s ² (6 m/s ²)
Gliding speed / acceleration (maximum)	max. 32.8 ft/s (10 m/s) / max. 164 ft/s ² (50 m/s ²)
Material - permitted temperature	igumid G / -40°F (-40°C) up to +248°F (+120°C)
Flammability Class, igumid G	VDE 0304 IIC UL94 HB



14040
14140
R18840

Short Travels - Unsupported



Unsupported e-chains® feature positive camber over short travels. This must be accounted for when specifying the clearance height. Please refer to **Installation dimensions** for further details.

Legend

- S = Length of travel
- R = Bending radius
- H = Nominal clearance height
- D = Overlength e-chain® radius in final position
- $K = \pi \cdot R + \text{safety buffer}$
- H_F = Required clearance height
- HRI = Trough inner height
- $H_2 = \text{*Mounting height}$
- $D_2 = \text{*Overlength - long travels, gliding}$
- $K_2 = \text{*Add-on}$
- *If the mounting bracket location is set lower



PDF: igus.com/e-chain-pdfs
 Product information: igus.com/e-chains

Long Travels - Gliding



If the unsupported length is exceeded, the e-chain®/ Tube must glide on itself. This requires a guide trough. **Design, Chapter 1**



For support of the lower run, see **Chapter 9** of the main catalog for the **Support Tray tool kit**

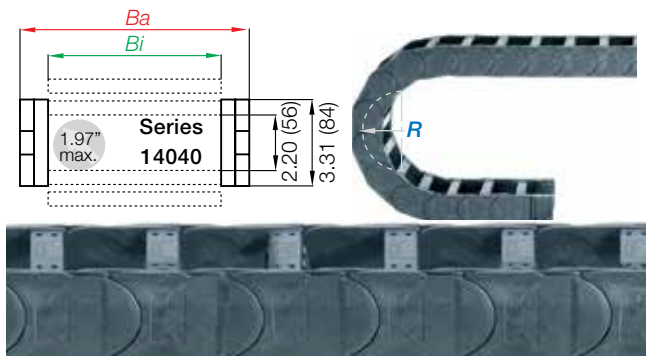
Technical Data



Details of material properties ► **Chapter 1**

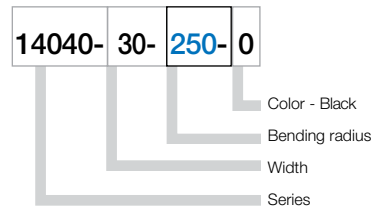


Series 14040 - e-chain® with crossbars every link

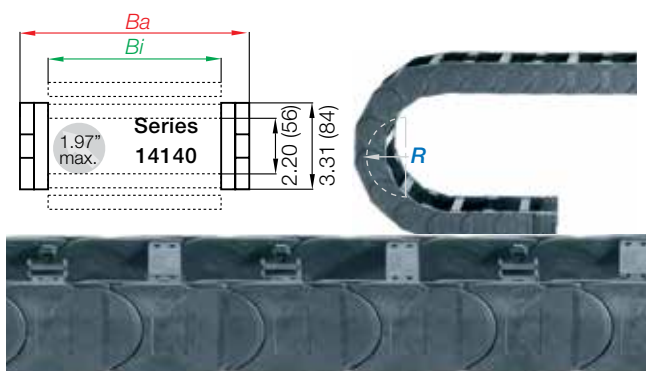


- Crossbars every link
- For use with rigid hydraulic hoses
- For particularly demanding applications
- Can be opened from both sides

Part Number Structure

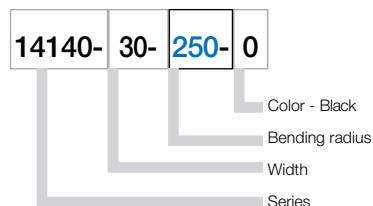


Series 14140 - e-chain® with crossbars every other link

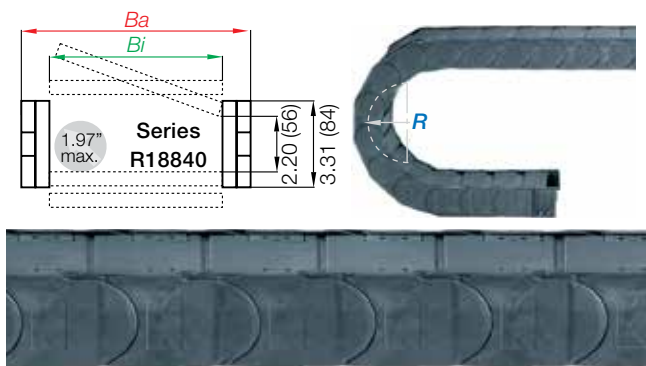


- Crossbars every other link - Standard configuration
- For nearly every situation
- Can be opened from both sides
- Easy assembly
- Stable
- Cost-effective

Part Number Structure

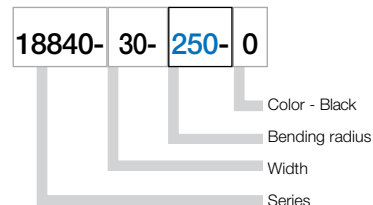


Series R18840 - fully enclosed e-tube

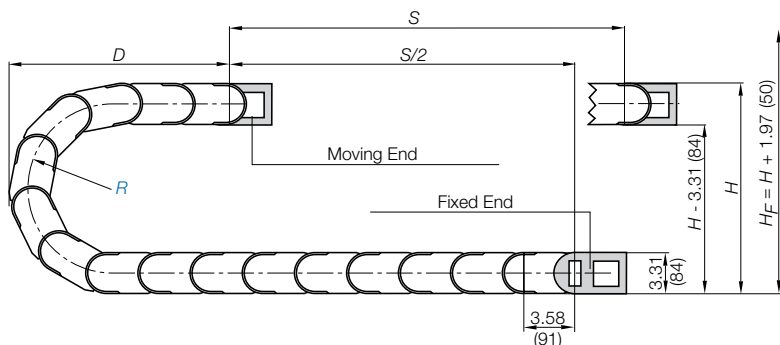
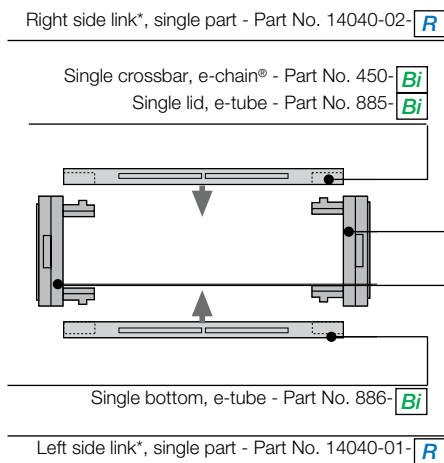


- Fully enclosed
- Excellent cable and hose protection against dirt
- Protection against hot chips
- Lids along inner radius are completely removable
- Lids along the outer radius are single-sided, snap open, hinged on one side as well as completely removable

Part Number Structure



e-chain® as separate parts, links and side plates



*View from the fixed point of the e-chain®/e-tube

e-chain system® E4 light

Series 14040/14140/R18840



14040
14140
R18840

Supplement part number with required radius. Example: 14040-30-300-0

Pitch: 3.58 in. (91mm) per link links/ft (m) = 3.35 (11)

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains

Part Number.			<i>Bi</i>	<i>Ba</i>	14040	14140	R18840
Crossbars Every link	Crossbars Every other	Tube Version	in. (mm)	in. (mm)	lbs/ft (kg/m)	lbs/ft (kg/m)	lbs/ft (kg/m)
14040-05-	14140-05-	<input type="checkbox"/> -0	1.97 (50)	2.99 (76)	≈ 1.79 (2.66)	≈ 1.67 (2.48)	-
14040-06-	14140-06-	<input type="checkbox"/> -0	2.56 (65)	3.58 (91)	≈ 1.66 (2.47)	≈ 1.69 (2.51)	-
14040-07-	14140-07-	18840-07- <input type="checkbox"/> -0*	2.95 (75)	3.98 (101)	≈ 1.85 (2.75)	≈ 1.51 (2.25)	≈ 2.15 (3.20)
14040-08-	14140-08-	<input type="checkbox"/> -0	3.43 (87)	4.45 (113)	≈ 1.91 (2.84)	≈ 1.61 (2.44)	-
14040-10-	14140-10-	18840-10- <input type="checkbox"/> -0	3.94 (100)	4.96 (126)	≈ 1.97 (2.93)	≈ 1.75 (2.61)	≈ 2.35 (3.49)
14040-11-	14140-11-	<input type="checkbox"/> -0	4.41 (112)	5.47 (139)	≈ 2.06 (3.06)	≈ 1.79 (2.67)	-
14040-12-	14140-12-	18840-12- <input type="checkbox"/> -0	4.92 (125)	5.94 (151)	≈ 2.10 (3.12)	≈ 1.82 (2.71)	≈ 2.59 (3.85)
14040-13-	14140-13-	<input type="checkbox"/> -0	5.39 (137)	6.46 (164)	≈ 2.19 (3.26)	≈ 1.86 (2.77)	-
14040-15-	14140-15-	18840-15- <input type="checkbox"/> -0	5.91 (150)	6.93 (176)	≈ 2.23 (3.32)	≈ 1.89 (2.81)	≈ 2.88 (4.28)
14040-16-	14140-16-	<input type="checkbox"/> -0	6.38 (162)	7.44 (189)	≈ 2.30 (3.43)	≈ 1.92 (2.86)	-
14040-17-	14140-17-	18840-17- <input type="checkbox"/> -0	6.89 (175)	7.91 (201)	≈ 2.38 (3.54)	≈ 1.96 (2.92)	≈ 3.05 (4.54)
14040-18-	14140-18-	<input type="checkbox"/> -0	7.36 (187)	8.43 (214)	≈ 2.45 (3.65)	≈ 2.00 (2.97)	-
14040-20-	14140-20-	18840-20- <input type="checkbox"/> -0	7.87 (200)	8.90 (226)	≈ 2.47 (3.67)	≈ 2.00 (2.98)	≈ 3.26 (4.85)
14040-21-	14140-21-	<input type="checkbox"/> -0	8.35 (212)	9.41 (239)	≈ 2.54 (3.78)	≈ 2.04 (3.04)	-
14040-22-	14140-22-	<input type="checkbox"/> -0	8.86 (225)	9.88 (251)	≈ 2.59 (3.85)	≈ 2.06 (3.07)	-
14040-23-	14140-23-	<input type="checkbox"/> -0	9.33 (237)	10.39 (264)	≈ 2.67 (3.98)	≈ 2.11 (3.14)	-
14040-25-	14140-25-	18840-25- <input type="checkbox"/> -0	9.84 (250)	10.87 (276)	≈ 2.73 (4.07)	≈ 2.14 (3.18)	≈ 3.75 (5.58)
14040-26-	14140-26-	<input type="checkbox"/> -0	10.31 (262)	11.38 (289)	≈ 2.80 (4.16)	≈ 2.16 (3.22)	-
14040-27-	14140-27-	18840-27- <input type="checkbox"/> -0	10.83 (275)	11.85 (301)	≈ 2.87 (4.27)	≈ 2.20 (3.28)	≈ 3.93 (5.85)
14040-28-	14140-28-	<input type="checkbox"/> -0	11.30 (287)	12.36 (314)	≈ 2.88 (4.29)	≈ 2.21 (3.29)	-
14040-30-	14140-30-	18840-30- <input type="checkbox"/> -0	11.81 (300)	12.83 (326)	≈ 3.03 (4.51)	≈ 2.28 (3.40)	≈ 4.19 (6.24)
14040-31-	14140-31-	<input type="checkbox"/> -0	12.28 (312)	13.35 (339)	≈ 3.07 (4.57)	≈ 2.30 (3.42)	-
14040-32-	14140-32-	<input type="checkbox"/> -0	12.79 (325)	13.82 (351)	≈ 3.09 (4.60)	≈ 2.31 (3.44)	-
14040-33-	14140-33-	<input type="checkbox"/> -0	13.27 (337)	14.33 (364)	≈ 3.21 (4.77)	≈ 2.37 (3.53)	-
14040-35-	14140-35-	18840-35- <input type="checkbox"/> -0	13.78 (350)	14.80 (376)	≈ 3.31 (4.93)	≈ 2.43 (3.61)	≈ 4.70 (6.99)
14040-36-	14140-36-	<input type="checkbox"/> -0	14.25 (362)	15.31 (389)	≈ 3.32 (4.94)	≈ 2.43 (3.61)	-
14040-37-	14140-37-	<input type="checkbox"/> -0	14.76 (375)	15.79 (401)	≈ 3.33 (4.95)	≈ 2.43 (3.62)	-
14040-38-	14140-38-	<input type="checkbox"/> -0	15.24 (387)	16.30 (414)	≈ 3.39 (5.04)	≈ 2.46 (3.66)	-
14040-40-	14140-40-	18840-40- <input type="checkbox"/> -0	15.75 (400)	16.77 (426)	≈ 3.52 (5.24)	≈ 2.53 (3.76)	≈ 5.34 (7.94)
14040-41-	14140-41-	<input type="checkbox"/> -0	16.22 (412)	17.28 (439)	≈ 3.62 (5.39)	≈ 2.58 (3.84)	-
14040-42-	14140-42-	<input type="checkbox"/> -0	16.73 (425)	17.76 (451)	≈ 3.72 (5.54)	≈ 2.63 (3.92)	-
14040-43-	14140-43-	<input type="checkbox"/> -0	17.20 (437)	18.27 (464)	≈ 3.77 (5.61)	≈ 2.65 (3.95)	-
14040-45-	14140-45-	<input type="checkbox"/> -0	17.72 (450)	18.74 (476)	≈ 3.82 (5.68)	≈ 2.67 (3.98)	-
14040-46-	14140-46-	18840-46- <input type="checkbox"/> -0	18.19 (462)	19.25 (489)	≈ 3.83 (5.70)	≈ 2.68 (3.99)	≈ 5.64 (8.40)
14040-47-	14140-47-	<input type="checkbox"/> -0	18.70 (475)	19.72 (501)	≈ 3.92 (5.83)	≈ 2.73 (4.06)	-
14040-48-	14140-48-	<input type="checkbox"/> -0	19.17 (487)	20.24 (514)	≈ 3.94 (5.86)	≈ 2.74 (4.08)	-
14040-50-	14140-50-	<input type="checkbox"/> -0	19.69 (500)	20.71 (526)	≈ 4.00 (5.96)	≈ 2.78 (4.13)	-
14040-51-	14140-51-	<input type="checkbox"/> -0	20.16 (512)	21.22 (539)	≈ 4.02 (5.98)	≈ 2.78 (4.14)	-
14040-52-	14140-52-	<input type="checkbox"/> -0	20.67 (525)	21.69 (551)	≈ 4.05 (6.03)	≈ 2.80 (4.16)	-
14040-53-	14140-53-	<input type="checkbox"/> -0	21.14 (537)	22.20 (564)	≈ 4.15 (6.18)	≈ 2.85 (4.24)	-
14040-55-	14140-55-	<input type="checkbox"/> -0	21.65 (550)	22.68 (576)	≈ 4.48 (6.67)	≈ 3.01 (4.48)	-
14040-60-	14140-60-	<input type="checkbox"/> -0	23.62 (600)	24.65 (626)	≈ 4.69 (6.98)	≈ 3.08 (4.58)	-

Choose from the radii below for all of the above sizes

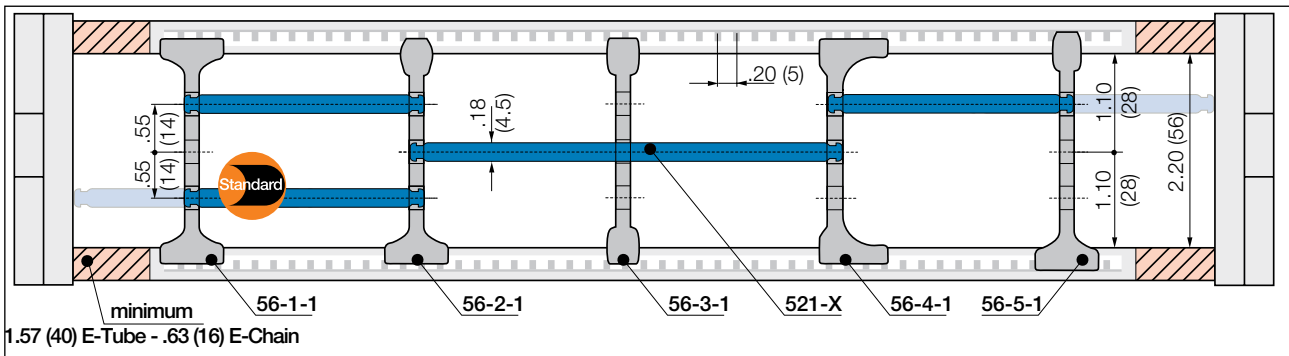
Radius (mm) Example: 14040-30-300-0

	135**	150	175	200	250	300	400	500
<i>R</i>	5.31 (135)	5.91 (150)	6.89 (175)	7.87 (200)	9.84 (250)	11.81 (300)	15.75 (400)	19.68 (500)
<i>H</i> ₂₅	14.17 (360)	15.16 (385)	17.13 (435)	19.09 (485)	23.03 (585)	26.97 (685)	34.84 (885)	42.72 (1085)
<i>D</i>	10.63 (270)	11.22 (285)	12.20 (310)	13.19 (335)	15.16 (385)	17.13 (435)	21.06 (535)	25.00 (635)
<i>K</i>	25.59 (650)	29.53 (750)	32.48 (825)	35.43 (900)	41.34 (1050)	48.23 (1225)	57.09 (1450)	69.88 (1775)

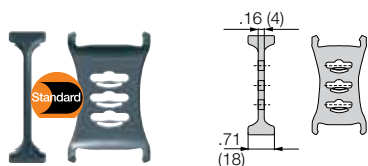
** This radius is not available for the R18840 Series
*Removable lid only, no hinged option

0=Standard color black. For other colors see Chapter 1
For wider chains see page 6.200 For large diameter hoses see page 6.200





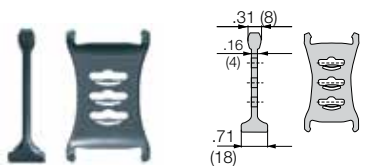
Note Please maintain a lateral spacing of 1.57" (40 mm) for e-tube and .63" (16 mm) for e-chains® between the separators and the side links. In the standard configuration separators are assembled every 2nd e-chain® link



Separator, wide base

Unassembled	Part No. 56-1
Assembled	Part No. 56-1-1

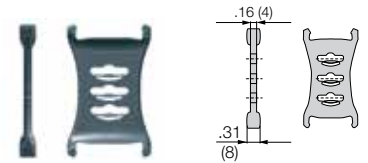
- **Standard separator 56-1 for all applications**
Separator with wide base for maximum locking strength and safe standing in e-chains®.



Separator, narrow head

Unassembled	Part No. 56-2
Assembled	Part No. 56-2-1

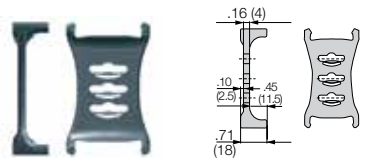
- **Separator 56-2 For even faster installation**
is used when vertical and horizontal separation is required. Due to its slot, it allows basic vertical/horizontal shelving arrangements.



Separator, narrow base

Unassembled	Part No. 56-3
Assembled	Part No. 56-3-1

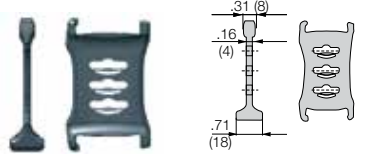
- **Separator 56-3 For many thin cables**
is used when vertical and horizontal separation is required. Due to its slot, it allows basic vertical/horizontal shelving arrangements.



Separator, asymmetrical

Unassembled	Part No. 56-4
Assembled	Part No. 56-4-1

- **Separator 56-4 For side mounted applications**
is used when vertical and horizontal separation is required. Due to its slot, it allows basic vertical/horizontal shelving arrangements.

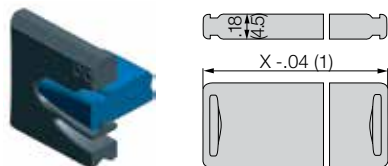


Separator, asymmetrical

Unassembled	Part No. 56-5
Assembled	Part No. 56-5-1

- **Separator 56-5 Locks safely in .30" (7.5 mm) increments**
Notch separator for exact positioning in e-chains®, Recommended for side-mounted applications.

Lockable full-width shelves - for the standard interior separation



Full width shelf, lockable

Unassembled	Part No. 520-X
Assembled	Part No. 521-X

- **Full width shelf, lockable**
Shelf locks safely into separators on both ends, fixed width possible. Separators can be moved freely over the shelf in horizontal direction. Can be arranged at 3 different heights.

Width X in. (mm)	Part No. Unassembled	Part No. Assembled	Width X in. (mm)	Part No. Unassembled	Part No. Assembled	Width X in. (mm)	Part No. Unassembled	Part No. Assembled
1.97 (050)	520-50	521-50	5.91 (150)	520-150	521-150	11.81 (300)	520-300	521-300
2.56 (065)	520-65	521-65	6.89 (175)	520-175	521-175	13.78 (350)	520-350	521-350
2.95 (075)	520-75	521-75	7.87 (200)	520-200	521-200	14.76 (375)	520-375	521-375
3.94 (100)	520-100	521-100	8.86 (225)	520-225	521-225	15.24 (387)	520-387	521-387
4.92 (125)	520-125	521-125	9.84 (250)	520-250	521-250	17.72 (450)	520-450	521-450

e-chain system® E4 light

Series 14040/14140/R18840

Interior Separation - Previous Generation



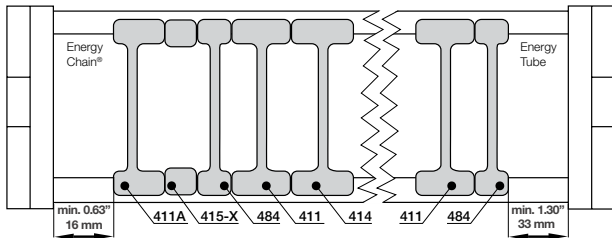
14040
14140
R18840



Option 1: Vertical separators and spacers

Vertical separators are used if a vertical subdivision of the e-chain® interior is required. By standard, vertical separators are assembled every other e-chain® link.

NOTE: Observe a lateral spacing of at least 1.30 in. (33mm) for e-tubes and .63 in. (16mm) for e-chain®. There is no minimum spacing needed for side plates



STANDARD
Vertical separator
401



Vertical separator

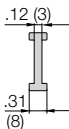
Unassembled	Part No. 401
Assembled	Part No. 411

- **Standard separator 401 for e-chains® and e-tubes**

This separator offers safe stability due to its wide base design, also when used with thick cables or hoses.



Vertical separator
483



Vertical separator

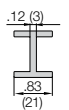
Unassembled	Part No. 483
Assembled	Part No. 484

- **Vertical separator 483 for e-chains® and e-tubes**

This separator offers a narrow base for applications where a large number of small cables need to be individually separated.



Locking separator
404



Locking separator (chain only)

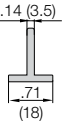
Unassembled	Part No. 404
Assembled	Part No. 414

- **Locking separator 404 for e-chains®**

This separator features increased retention force for applications exposed to very high humidity and extreme loads. The extra retention force is achieved by asymmetric claws for the crossbar. Take care to ensure proper alignment.



Locking separator
406



Locking separator (tube only)

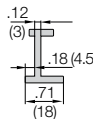
Unassembled	Part No. 406
Assembled	Part No. 416

- **Locking separator 406 for e-tubes**

It features a single sided, secure fit, and can be placed on the lid or the bottom of the e-tube. The single side locking design helps to eliminate difficulties in assembling the opposite cover or crossbar



Asymmetric separator
401A



Asymmetrical separator (chain only)

Unassembled	Part No. 401A
Assembled	Part No. 411A

- **Asymmetrical separator 401A for e-chains®**

This separator features an (18mm) base. It can be used in combinations between spacers of different widths and vertical separators in side mounted applications.



Spacers
405-XX



Spacer (chain only)

Unassembled	Part No. 405-XX
Assembled	Part No. 415-XX

XX = width of the spacer

- **NOTE ON SPACERS**

Vertical separators are adjustable, but can be fixed in position by means of a spacer. Spacers are most often necessary for side mounted applications.

The available inner height is reduced by .08" (2mm) **per spacer** (for example if one spacer is placed on either side of the separator, the overall inner height is reduced by .16" (4mm). To avoid this, place the spacers on the **outside** of the opening crossbar (**not for long travels**).

Spacers available in the following sizes:

Part No. Unassembled	Part No. Assembled	in.	(mm)
405 -10	415 -10	.39"	(10)
405 -15	415 -15	.59"	(15)
405 -20	415 -20	.79"	(20)
405 -30	415 -30	1.18"	(30)
405 -40	415 -40	1.57"	(40)

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains



14040
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R18840



e-chain system® E4 light Series 14040/14140/R18840 Interior Separation - Previous Generation

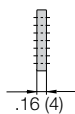
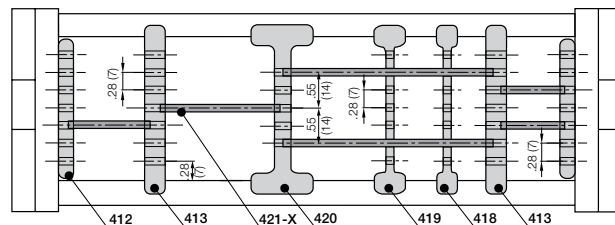
igus®
e-chain system®

Telephone 1-800-521-2747

Internet: igus.com
email: sales@igus.com
QuickSpec: igus.com/quickspec



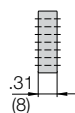
Shelves and separators
e-chains® and e-tubes can be subdivided both vertically and horizontally using the various interior separation elements.
► **Design, Chapter 1** for layout recommendations.



Side plate

Unassembled	Part No. 402
Assembled	Part No. 412

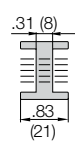
- **Side plates 402**
This component is used to form the basic pattern of a shelf system.



Vertical separator

Unassembled	Part No. 403
Assembled	Part No. 413

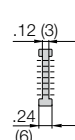
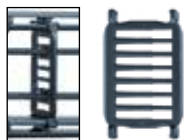
- **Vertical separator 403**
This component is used to form the basic pattern of a shelf system.



Locking vertical separator

Unassembled	Part No. 410
Assembled	Part No. 420

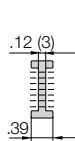
- **Locking vertical separator 410**
This separator is slotted and able to be combined with shelves. For e-chains® only



Slotted separators, closed

Unassembled	Part No. 408
Assembled	Part No. 418

- **Slotted separators 408**
These are used for very complex subdivisions. However, they cannot be retrofitted into an existing separation system without removing the shelves first.



Slotted separators, open

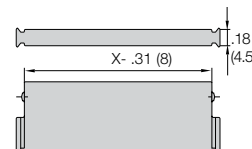
Unassembled	Part No. 409
Assembled	Part No. 419

- **Slotted separator 409**
This separator can be retrofitted into an existing interior separation system without removing the shelves, as long as these shelves fit into any of the 3 middle slots

Shelves 420-XX

These components form the basic pattern of a shelf system. Shelves of various widths can be arranged at 7 different heights in .28" (7mm) increments

Width X in. (mm)	Usable Width in. (mm)	Part No. Unassembled	Part No. Assembled	Width X in. (mm)	Usable Width in. (mm)	Part No. Unassembled	Part No. Assembled
.71 (18)	.39 (10)	420-18	421-18	2.95 (75)	2.64 (67)	420-75	421-75
.91 (23)	.59 (15)	420-23	421-23	3.46 (88)	3.15 (80)	420-88	421-88
.98 (25)	.67 (17)	420-25	421-25	3.94 (100)	3.62 (92)	420-100	421-100
1.10 (28)	.79 (20)	420-28	421-28	4.92 (125)	4.61(117)	420-125	421-125
1.30 (33)	.98 (25)	420-33	421-33	5.91 (150)	5.59(142)	420-150	421-150
1.69 (43)	1.38 (35)	420-43	421-43	6.89 (175)	6.57(167)	420-175	421-175
1.97 (50)	1.65 (42)	420-50	421-50	7.36 (187)	7.05(179)	420-187	421-187
2.44 (62)	2.13 (54)	420-62	421-62	7.87 (200)	7.56(192)	420-200	421-200



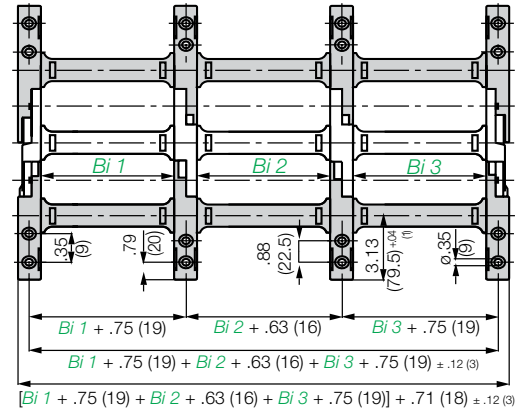


Extension links - for extremely wide e-chains® up to 9.84 ft (3m)

- For applications in which particularly high fill weights necessitate extremely wide e-chains®
- The extension link design allows virtually limitless side-by-side attachment of chains
- The unsupported length of a chain can be increased when additional loads are required
- Extension links can be used with e-chains®, e-tubes or a combination of both
- They are suitable for unsupported and gliding applications in a guide trough
- e-chains® with extension links are attached with KMA or steel mounting brackets.

Part number example for e-chain®
14040-10/20/10-200-0
14040-*Bi1/Bi2/Bi3*-R-0

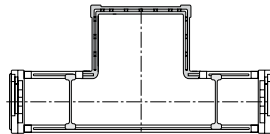
We strongly recommend on-site consultation with an igus® technician for individual advice regarding mounting brackets, guide troughs and other design details.



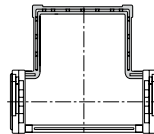
Consult igus® for your extender crossbar applications. We will be happy to assist you with your design layout.

Extender crossbars - For careful guiding of large diameter cables and hoses

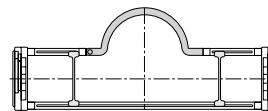
- Intended for cables and hoses with a maximum outer diameter of 9.64 in. (245 mm).
- Can be attached along either the inner or outer radius, inner radius preferred
- Gliding operation with crossbars assembled along the outer radius in conjunction with a special guide trough
- Gliding operation not guaranteed with crossbars assembled along the inner radius
- The extender crossbar can either be attached to the side links directly or can be used in combination with two standard snap-open crossbars.



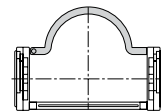
Square extender crossbar combined with standard snap-open crossbars.



Attached directly to the side link.



Round extender crossbar combined with standard snap-open crossbars.



Attached directly to the side link.

Part No.	Max Ø Hose	Style	Installation Side Link	Combined with Snap-Open Crossbars
450-15-RHD115	4.52 (115)	Round	No	Yes
450-17-RD115	4.52 (115)	Round	Yes	No
450-25-D150	5.91 (150)	Square	Yes	No
450-30-D200	7.09 (180)	Square	Yes	No
450-35-D250	7.68 (195)	Square	Yes	No
450-40-D300	9.65 (245)	Square	Yes	No
450-20-HD150	5.91 (150)	Square	No	Yes
450-25-HD200	7.09 (180)	Square	No	Yes
450-30-HD250	7.68 (195)	Square	No	Yes



E4 clip on cable binder

- For side mounted applications
- Serves as a clip-on, lateral guide for hoses and cables on e-chains®
- The loops can be adjusted as needed
- Compatible with many E4 e-chains®
- Economical
- One clip and one locking band are needed for each chain link

Part No.	Form
450-B12	Locking clip, comprised of a locking element
450-B12-200	Locking band, comprised of a locking element and band; 12 x 1.5 x 200 mm



14040
14140
R18840



e-chain system® E4 light Series 14040/14140/R18840 Mounting Brackets

igus®
e-chain system®

Telephone 1-800-521-2747

Internet: igus.com
email: sales@igus.com
QuickSpec: igus.com/quickspec

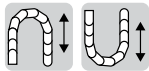
6.201



Standard

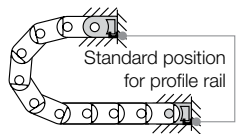
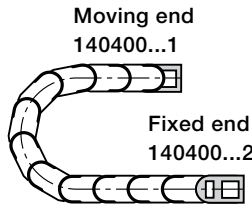
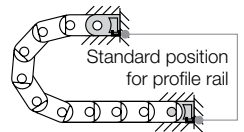
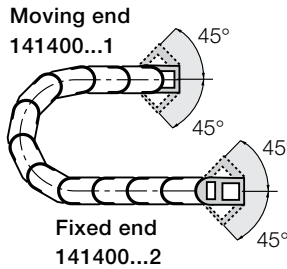
Option 1: KMA pivoting

- Profile rail option
- Universal use
- Corrosion resistant
- Short and long travels
- Space-restricted conditions

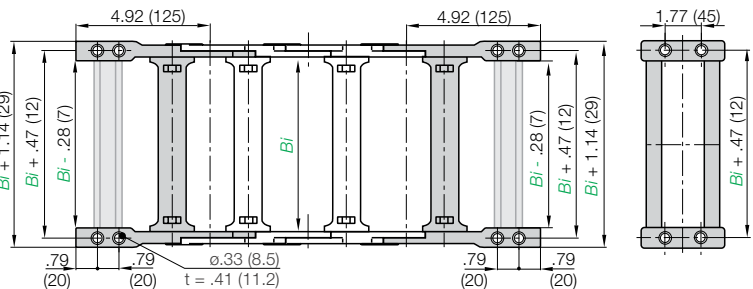
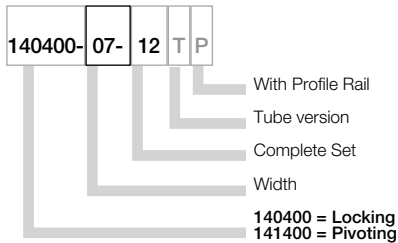


Option 2: KMA locking

- Profile rail option
- Universal use
- Corrosion resistant
- Extreme accelerations
- Vertical hanging/standing travels



Part Number Structure



Full set, for both ends:

140400-05-12 Full set, each part with pin/bore

Single-part order:

140400-05-1 Mounting bracket with bore
140400-05-2 Mounting bracket with pin

Part number examples are shown for pivoting brackets. For locking brackets change part number to 140400

Part No. Full Set (pivoting)
Series 14040 or 14140:
141400-Width-12

Part No. Full Set (pivoting)
with profile rail
Series 14040 or 14140
141400-Width-12P

Part No. Full Set (pivoting)
Tube Series R18840
141400-Width-12T

Part No. Full Set (pivoting)
with Profile Rail
Tube Series R18840
141400-Width-12TP

Width	Part No. Full Set		Tube Option	With Profile Rail	Bi in. (mm)	Width	Part No. Full Set		Tube Option	With Profile Rail	Bi in. (mm)
	Locking	Pivoting					Locking	Pivoting			
-05	140400	141400	-05-12	P	1.97 (50)	-31	140400	141400	-31-12	P	12.28 (312)
-06	140400	141400	-06-12	P	2.56 (65)	-32	140400	141400	-32-12	P	12.79 (325)
-07	140400	141400	-07-12	T	2.95 (75)	-33	140400	141400	-33-12	P	13.27 (337)
-08	140400	141400	-08-12	P	3.43 (87)	-35	140400	141400	-35-12	T	13.78 (350)
-10	140400	141400	-10-12	T	3.94 (100)	-36	140400	141400	-36-12	P	14.25 (362)
-11	140400	141400	-11-12	P	4.41 (112)	-37	140400	141400	-37-12	P	14.76 (375)
-12	140400	141400	-12-12	T	4.92 (125)	-38	140400	141400	-38-12	P	15.24 (387)
-13	140400	141400	-13-12	P	5.39 (137)	-40*	140400	141400	-40-12	T	15.75 (400)
-15	140400	141400	-15-12	T	5.91 (150)	-41	140400	141400	-41-12	P	16.22 (412)
-16	140400	141400	-16-12	P	6.38 (162)	-42	140400	141400	-42-12	P	16.73 (425)
-17	140400	141400	-17-12	T	6.89 (175)	-43	140400	141400	-43-12	P	17.20 (437)
-18	140400	141400	-18-12	P	7.36 (187)	-45	140400	141400	-45-12	P	17.72 (450)
-20	140400	141400	-20-12	T	7.87 (200)	-46	140400	141400	-46-12	T	18.19 (462)
-21	140400	141400	-21-12	P	8.35 (212)	-47	140400	141400	-47-12	P	18.70 (475)
-22	140400	141400	-22-12	P	8.86 (225)	-48	140400	141400	-48-12	P	19.17 (487)
-23	140400	141400	-23-12	P	9.33 (237)	-50	140400	141400	-50-12	P	19.69 (500)
-25	140400	141400	-25-12	T	9.84 (250)	-51	140400	141400	-51-12	P	20.16 (512)
-26	140400	141400	-26-12	P	10.31 (262)	-52	140400	141400	-52-12	P	20.67 (525)
-27	140400	141400	-27-12	T	10.83 (275)	-53	140400	141400	-53-12	P	21.14 (537)
-28	140400	141400	-28-12	P	11.30 (287)	-55	140400	141400	-55-12	P	21.65 (550)
-30	140400	141400	-30-12	T	11.81 (300)	-60	140400	141400	-60-12	P	23.62 (600)

e-chain system® E4 light

Series 14040/14140/R18840

Strain Relief



14040
14140
R18840

Chainfix clamps for the profile rail



igus® Chainfix strain relief elements are available in either steel or stainless steel. They can be adjusted with a hexagon socket and are available in single, double and triple configurations.

Part No. Single Clamp		Part No. Double Clamp		Part No. Triple Clamp		Cable ø	
Steel	Stainless	Steel	Stainless	Steel	Stainless	in.	(mm)
CFX12-1	CFX12-1E	CFX12-2	CFX12-2E	CFX12-3	-	.24 - .47	(6 - 12)
CFX14-1	CFX14-1E	CFX14-2	CFX14-2E	CFX14-3	-	.47 - .55	(12 - 14)
CFX16-1	CFX16-1E	CFX16-2	CFX16-2E	CFX16-3	-	.55 - .63	(14 - 16)
CFX18-1	CFX18-1E	CFX18-2	CFX18-2E	CFX18-3	-	.63 - .71	(16 - 18)
CFX20-1	CFX20-1E	CFX20-2	CFX20-2E	CFX20-3	-	.71 - .79	(18 - 20)
CFX22-1	CFX22-1E	CFX22-2	CFX22-2E	CFX22-3	-	.79 - .87	(20 - 22)
CFX26-1	CFX26-1E	CFX26-2	CFX26-2E	-	-	.87 - 1.02	(22 - 26)
CFX30-1	CFX30-1E	CFX30-2	CFX30-2E	-	-	1.02 - 1.18	(26 - 30)
CFX34-1	CFX34-1E	CFX34-2	CFX34-2E	-	-	1.18 - 1.34	(30 - 34)
CFX38-1	CFX38-1E	-	-	-	-	1.34 - 1.50	(34 - 38)
CFX42-1	CFX42-1E	-	-	-	-	1.50 - 1.65	(38 - 42)

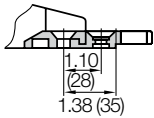
For more information please refer to strain relief section of Chapter 10

Tiewrap Plates

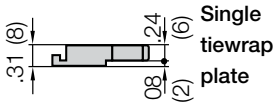
Option 1:

Tiewrap plates as an individual part

Available as an individual component, can be fixed onto a mounting bracket with the use of a profile rail.

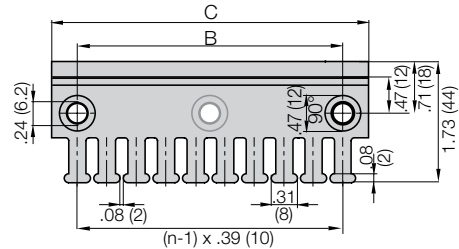


Shown assembled



Single tiewrap plate

Tiewrap Plate	n Number of Teeth	C Overall Width in. (mm)	B Bore Width in. (mm)	Center Bore
3050-ZB	5	1.97 (50)	1.18 (30)	no
3075-ZB	7	2.95 (75)	2.16 (55)	no
3100-ZB	10	3.94 (100)	3.15 (80)	no
3115-ZB	11	4.53 (115)	3.74 (95)	no
3125-ZB	12	4.92 (125)	4.13 (105)	no
3150-ZB	15	5.91 (150)	5.12 (130)	no
3175-ZB	17	6.89 (175)	6.10 (155)	no
3200-ZB	20	7.87 (200)	7.09 (180)	yes
3225-ZB	22	8.86 (225)	8.07 (205)	yes
3250-ZB	25	9.84 (250)	9.06 (230)	yes



If used with KMA brackets with profile rail please add "KMA" to the end of the part number.

Example: 3050-ZBKMA

For more information please refer to strain relief section of Chapter 10

Option 2:

Clip-on Tiewrap plates

Available as a clip-on tiewrap plate without the use of bolts They are inserted and removed with a screwdriver used as a lever. Clip-on tiewrap plates are also available as an attachment to the opening crossbars.



Part No.	Number of Teeth	Width of Strain Relief in. (mm)
3050-ZC	5	1.97 (50)
3075-ZC	7	2.95 (75)

For more information please refer to strain relief section of Chapter 10

Option 3:

Clip-on Tiewrap plates for opening crossbars

Clip-on tiewrap plates are also available as an attachment to opening crossbars. They can be positioned at any point along the e-chain®.



Part No.	Number of Teeth	Width of Strain Relief in. (mm)
4550-ZS	5	1.89 (48)
4575-ZS	7	2.91 (74)

For more information please refer to strain relief section of Chapter 10

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains



Width of Crossbar
14040-05-200-0

	B_{Ri}		Installation Part No.
-05	3.19 (81)	*	
-06	3.78 (96)	*	
-07	4.17 (106)		94-50-225
-10	5.16 (131)		94-50-250
-11	5.63 (143)		94-50-275
-12	6.14 (156)		94-50-275
-13	6.61 (168)		94-50-300
-15	7.13 (181)		94-50-300
-16	7.60 (193)		94-50-325
-17	8.11 (206)		94-50-325
-18	8.58 (218)		94-50-350
-20	9.09 (231)		94-50-350
-21	9.57 (243)		94-50-375
-22	10.08 (256)		94-50-375
-23	10.55 (268)		94-50-400
-25	11.06 (281)		94-50-400
-26	11.54 (293)		94-50-425
-27	12.05 (306)		94-50-425
-28	12.52 (318)		94-50-450
-30	13.03 (331)		94-50-450
-31	13.50 (343)		94-50-475
-32	14.02 (356)		94-50-475
-33	14.49 (368)		94-50-500
-35	15.00 (381)		94-50-500
-36	15.47 (393)		94-50-525
-37	15.98 (406)		94-50-525
-38	16.46 (418)		94-50-550
-40	16.97 (431)		94-50-550
-41	17.44 (443)		94-50-575
-42	17.95 (456)		94-50-575
-43	18.43 (468)		94-50-600
-45	18.94 (481)		94-50-600
-46	19.41 (493)		94-50-625
-47	19.92 (506)		94-50-625
-48	20.59 (518)		94-50-650
-50	20.91 (531)		94-50-650
-51	21.38 (543)		94-50-675
-52	21.89 (556)		94-50-675
-53	22.36 (568)		94-50-700
-55	22.87 (581)		94-50-700
-60	24.84 (631)		94-50-750

Guide troughs are used with applications where the upper run of the e-chain® glides on the lower run. If using igus® steel guide troughs, the following components are required:

- Full travel length of guide trough
Part No. 94-30
- 1/2 travel length glide bars
Part No. 93-01
- Installation sets as end connectors
Part No. 94-50-XX

.XX indicates the length of the profile rails on which the guide trough is mounted. The values and part numbers are specified in the table on the left. The standard length of the trough components and glide bars is 6.56 ft (2 m). The required overall length of the guide trough directly correlates to the length of travel.

Example:

Length of travel 164 ft (50 m)
Center mounted

- Required guide troughs**
164 ft (50 m) guide trough
82 ft (25 m) glide bars
= 25 sections of 6.56 ft (2 m) guide trough
Part No. 94-30
= 13 sections of 6.56 ft (2 m) glide bars
Part No. 93-01

Required number of installation sets:

= Number of guide trough components + 1
= 25 + 1 = 26

Part number of the installation sets

94-50-XXX

Example:

94-50-400 for 15.75 (400 mm) long profile rail

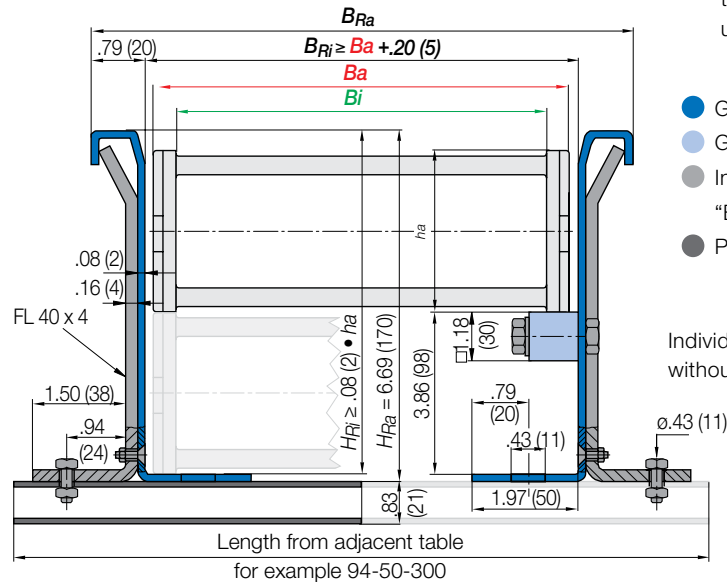


Installation sets as section connectors



Left: Guide trough with glide bars
Right: Guide troughs without glide bars

* Specialized guide trough available upon request



Standard length profile rail

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains



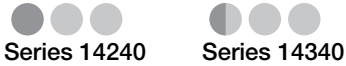
14240
14340



e-chain system® E4 light Series 14240/14340



Price Index



Special Features / Options

ESD classification:
Electrically conductive ESD/
ATEX version upon request

High torsional rigidity

Side-mounted - unsupported

Assembly Tips



Opening e-chains®: Remove crossbars and clips - Insert screwdriver into the slot, push down, release by lever action

Other Installation Methods

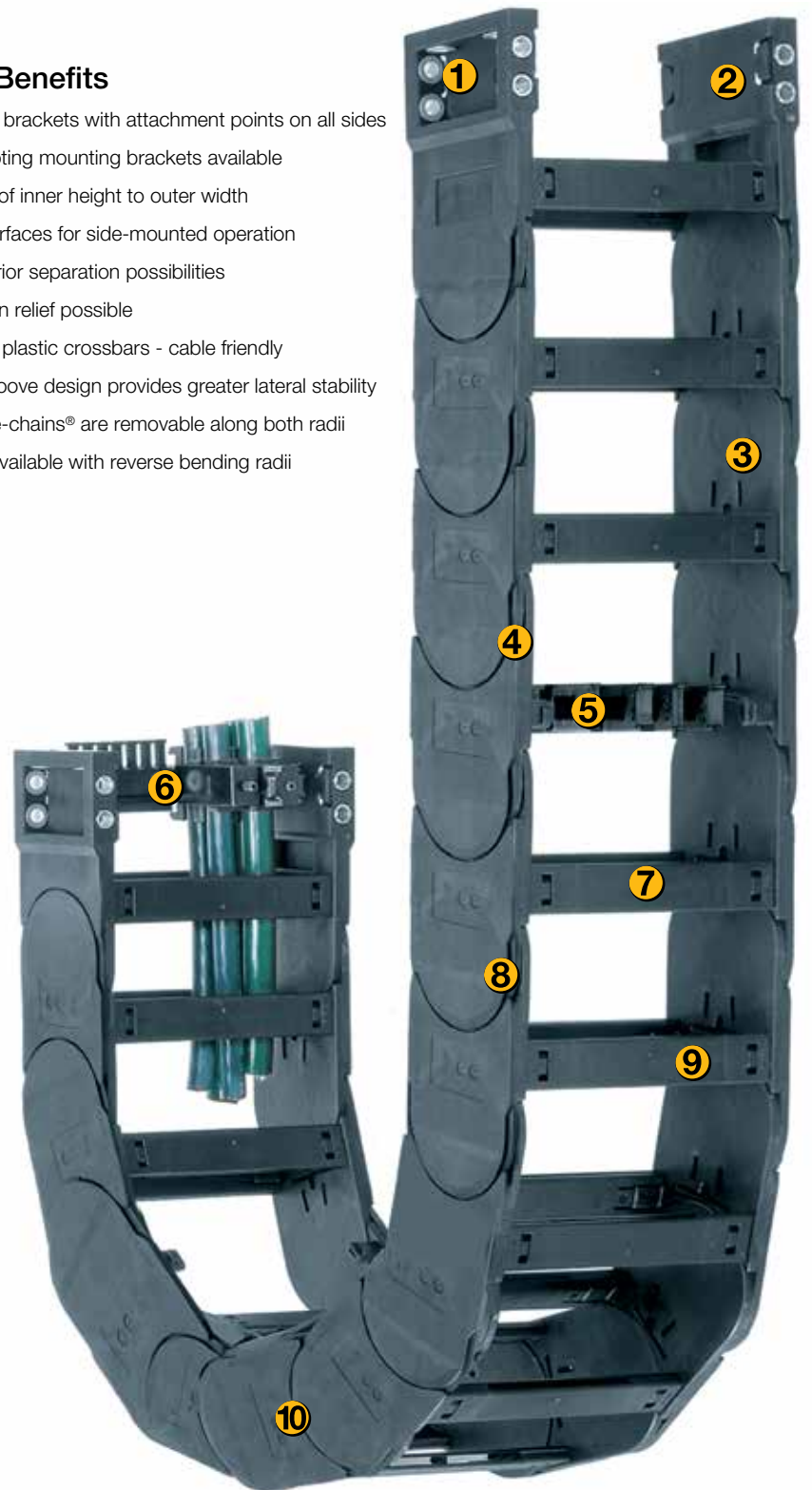
- Vertical, hanging ≤ 262 ft (80 m)
- Vertical, standing ≤ 19.69 ft (6 m)
- Side-mounted, un supp. ≤ 6.56 ft (2 m)
- Rotary requires further calculation

Usage Guidelines

- If a simpler low-cost solution is required
- If optimized interior space is required
- If the Series 400 is too large
- If a quieter version is required
 - Series E6-62
- If side-mounted chain/tube with a long unsupported travel is required
 - Series E4-56/H4-56/R4-56
- If increased unsupported lengths and longer travels are required
 - Series E4-56/H4-56/R4-56
- If high fill weights and/or stiff cables and hoses are used
 - Series 14040
- If chip protection is necessary
 - Series 18840

Features & Benefits

- 1 KMA mounting brackets with attachment points on all sides
- 2 Locking or pivoting mounting brackets available
- 3 Optimum ratio of inner height to outer width
- 4 Lateral glide surfaces for side-mounted operation
- 5 Numerous interior separation possibilities
- 6 Integrated strain relief possible
- 7 Wide, rounded plastic crossbars - cable friendly
- 8 Tongue and groove design provides greater lateral stability
- 9 Crossbars on e-chains® are removable along both radii
- 10 e-chain® also available with reverse bending radii



Order Example: Complete e-chain®

Please indicate chain length or number of links. Example:

19.69 ft (6 m) **14240-30-300-0**

e-chain®

With 2 separators **62.1.1** assembled every 2nd link

Interior Separation

1 Set **142400-30-12P**

Mounting Bracket

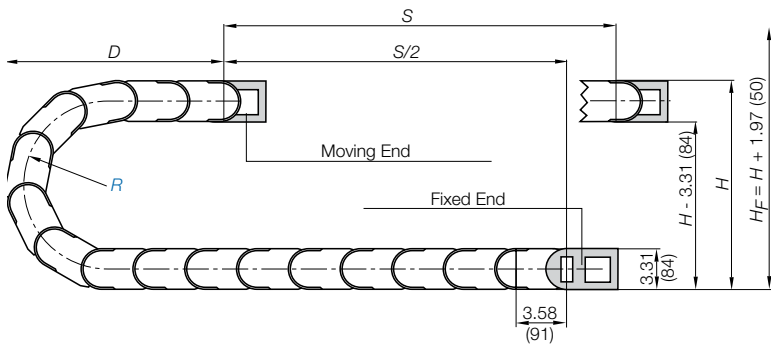
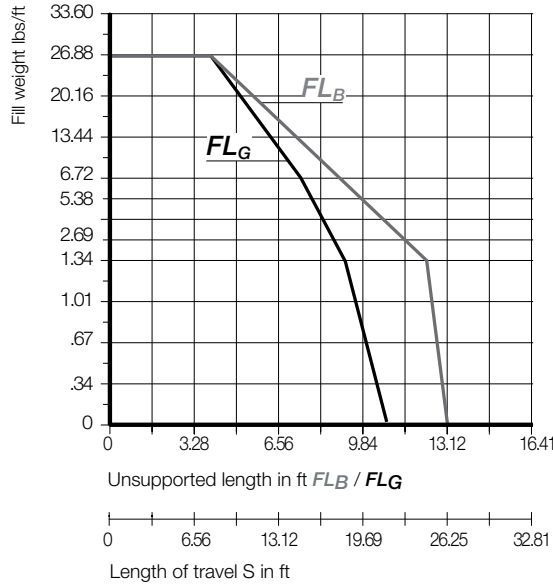
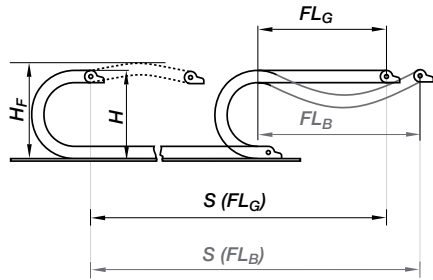
e-chain system® E4 light

Series 14240/14340

Installation Dimensions

Short travel, unsupported length

- FL_B = unsupported with permitted sag
 - FL_G = unsupported with straight upper run
- Further information ► Design, Chapter 1



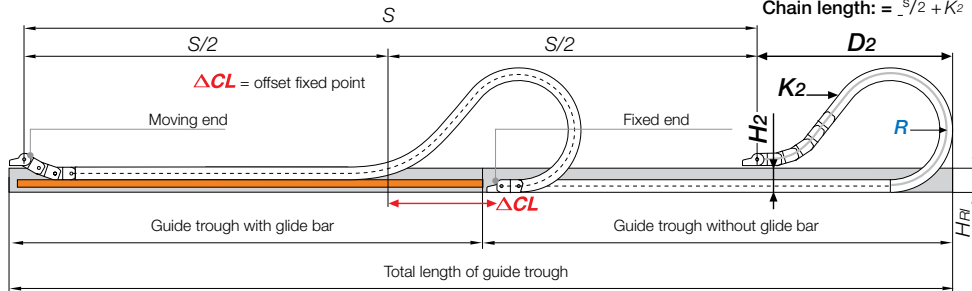
Pitch per link = 3.58" (91 mm)
 Links per ft (m) = 3.35 (11)
 For center mount applications:
 Chain length = $\frac{S}{2} + K$

The required clearance height: $H_F = H + 1.97$ in. (50 mm) (with 1.34 lbs/ft (2 kg/m) fill weight. Please consult igus® if space is particularly restricted.

R	5.31 (135)	5.91 (150)	6.89 (175)	7.87 (200)	9.84 (250)	11.81 (300)	15.75 (400)	19.68 (500)
H_{25}	14.17 (360)	15.16 (385)	17.13 (435)	19.09 (485)	23.03 (585)	26.97 (685)	34.84 (885)	42.72 (1085)
D	10.63 (270)	11.22 (285)	12.20 (310)	13.19 (335)	15.16 (385)	17.13 (435)	21.06 (535)	25.00 (635)
K	25.59 (650)	29.53 (750)	32.48 (825)	35.43 (900)	41.34 (1050)	48.23 (1225)	57.09 (1450)	69.88 (1775)

For long travels with lowered mounting height

Long travel lengths from 32.8 ft.(10m) to max. 492 ft. (150m)



For center mount applications:
 Chain length = $\frac{S}{2} + K_2$

R	5.31 (135)	5.91 (150)	6.89 (175)	7.87 (200)	9.84 (250)	11.81 (300)	15.75 (400)	19.68 (500)
H_2	10.47 (266)	10.47 (266)	10.47 (266)	10.47 (266)	10.47 (266)	10.47 (266)	10.47 (266)	10.47 (266)
D_2^{+25}	15.35 (390)	17.72 (450)	20.87 (530)	27.95 (710)	36.22 (920)	44.09 (1120)	60.24 (1530)	72.05 (1830)
K_2	28.66 (728)	32.24 (819)	39.41 (1001)	50.16 (1274)	64.49 (1638)	75.23 (1911)	100.31 (2548)	125.39 (3185)
ΔCL	4.88 (124)	6.26 (159)	8.22 (209)	14.13 (359)	20.04 (509)	25.94 (659)	37.76 (959)	45.63 (1159)

Speed / acceleration FL_G	max. 65.6 ft/s (20 m/s) / max. 656 ft/s ² (200 m/s ²)
Speed / acceleration FL_B	max. 9.84 ft/s (3 m/s) / max. 19.69 ft/s ² (6 m/s ²)
Gliding speed / acceleration (maximum)	max. 32.8 ft/s (10 m/s) / max. 164 ft/s ² (50 m/s ²)
Material - permitted temperature	igumid G / -40°F (-40°C) up to +248°F (+120°C)
Flammability Class, igumid G	VDE 0304 IIC UL94 HB



14240
14340

Short Travels - Unsupported



Unsupported e-chains® feature positive camber over short travels. This must be accounted for when specifying the clearance height. Please refer to **Installation dimensions** for further details.

Legend

- S = Length of travel
 - R = Bending radius
 - H = Nominal clearance height
 - D = Overlength e-chain® radius in final position
 - $K = \pi \cdot R + \text{safety buffer}$
 - H_F = Required clearance height
 - H_{in} = Trough inner height
 - H_2 = *Mounting height
 - D_2 = Overlength - long travels, gliding
 - K_2 = *Add-on
- *If the mounting bracket location is set lower



PDF: igus.com/e-chain-pdfs
 Product information: igus.com/e-chains



Long Travels - Gliding



If the unsupported length is exceeded, the e-chain®/ Tube must glide on itself. This requires a guide trough.

Design, Chapter 1



For support of the lower run, see **Chapter 9** of the main catalog for the **Support Tray tool kit**

Technical Data

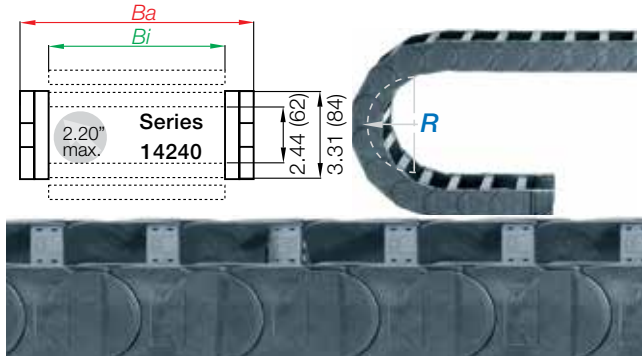


Details of material properties

► Chapter 1

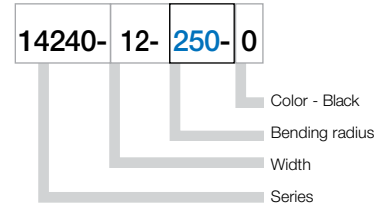


Series 14240 - e-chain® with crossbars every link

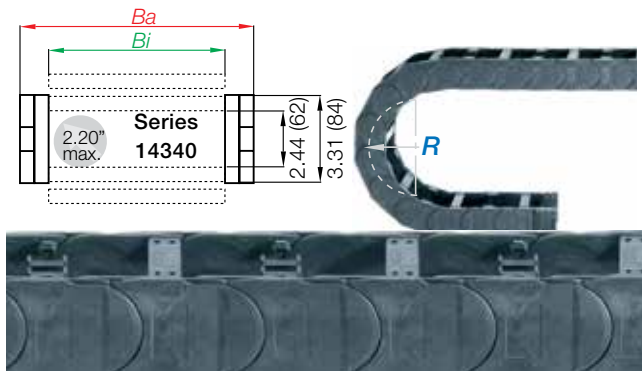


- Crossbars every link
- For use with rigid hydraulic hoses
- For particularly demanding applications
- Can be opened from both sides

Part Number Structure

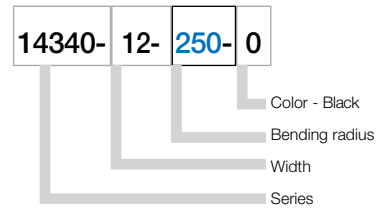


Series 14340 - e-chain® with crossbars every other link



- Crossbars every other link - Standard configuration
- For nearly every situation
- Can be opened from both sides
- Easy assembly
- Stable
- Cost-effective

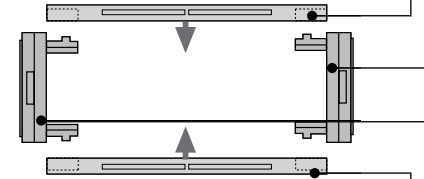
Part Number Structure



e-chain® as separate parts, links and side plates

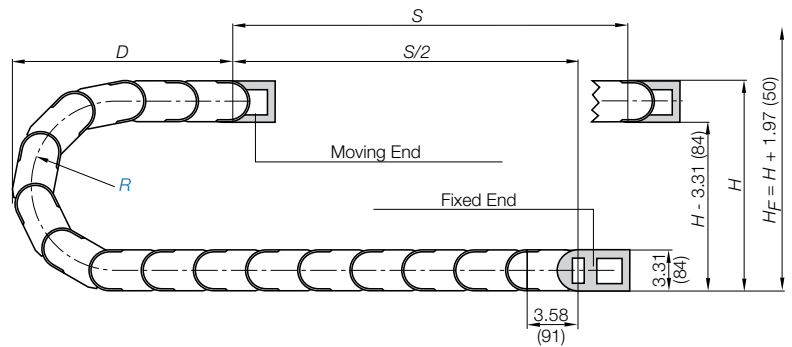
Right side link*, single part - Part No. 14240-02-R

Single crossbar, e-chain® - Part No. 385-Bi



Single crossbar, e-chain® - Part No. 385-Bi

Left side link*, single part - Part No. 14240-01-R



*View from the fixed point of the e-chain®/e-tube

e-chain system® E4 light

Series 14240/14340

Supplement part number with required radius. Example: 14040-30-300-0

Pitch: 3.58 in. (91mm) per link links/ft (m) = 3.35 (11)



14240
14340

Part Number.				<i>Bi</i>	<i>Ba</i>	14240	14340
Crossbars	Crossbars			in. (mm)	in. (mm)	lbs/ft (kg/m)	lbs/ft (kg/m)
Every link	Every other						
14240-05-	14340-05-	<input type="checkbox"/>	-0	1.97 (50)	2.99 (76)	≈1.59 (2.37)	≈ 1.56 (2.32)
14240-06-	14340-06-	<input type="checkbox"/>	-0	2.68 (68)	3.70 (94)	≈ 1.61 (2.40)	≈ 1.57 (2.33)
14240-07-	14340-07-	<input type="checkbox"/>	-0	2.95 (75)	3.98 (101)	≈ 1.63 (2.42)	≈ 1.57 (2.34)
14240-087-	14340-087-	<input type="checkbox"/>	-0	3.43 (87)	4.49 (114)	≈ 1.66 (2.47)	≈ 1.59 (2.36)
14240-10-	14340-10-	<input type="checkbox"/>	-0	3.94 (100)	4.96 (126)	≈ 1.69 (2.52)	≈ 1.61 (2.39)
14240-11-	14340-11-	<input type="checkbox"/>	-0	4.25 (108)	5.28 (134)	≈ 1.71 (2.55)	≈ 1.61 (2.40)
14240-112-	14340-112-	<input type="checkbox"/>	-0	4.41 (112)	5.47 (139)	≈ 1.71 (2.55)	≈ 1.62 (2.41)
14240-12-	14340-12-	<input type="checkbox"/>	-0	4.92 (125)	5.94 (151)	≈ 1.76 (2.62)	≈ 1.64 (2.44)
14240-137-	14340-137-	<input type="checkbox"/>	-0	5.39 (137)	6.46 (164)	≈ 1.79 (2.66)	≈ 1.65 (2.46)
14240-15-	14340-15-	<input type="checkbox"/>	-0	5.91 (150)	6.93 (176)	≈ 1.83 (2.72)	≈ 1.67 (2.49)
14240-162-	14340-162-	<input type="checkbox"/>	-0	6.38 (162)	7.44 (189)	≈ 1.83 (2.73)	≈ 1.67 (2.49)
14240-17-	14340-17-	<input type="checkbox"/>	-0	6.61 (168)	7.64 (194)	≈ 1.88 (2.79)	≈ 1.69 (2.52)
14240-18-	14340-18-	<input type="checkbox"/>	-0	6.89 (175)	7.91 (201)	≈ 1.90 (2.82)	≈ 1.70 (2.53)
14240-187-	14340-187-	<input type="checkbox"/>	-0	7.36 (187)	8.43 (214)	≈ 1.91 (2.84)	≈ 1.71 (2.55)
14240-20-	14340-20-	<input type="checkbox"/>	-0	7.87 (200)	8.90 (226)	≈ 1.94 (2.89)	≈ 1.73 (2.58)
14240-212-	14340-212-	<input type="checkbox"/>	-0	8.35 (212)	9.41 (239)	≈ 1.98 (2.95)	≈ 1.75 (2.60)
14240-23-	14340-23-	<input type="checkbox"/>	-0	8.86 (225)	9.88 (251)	≈ 2.02 (3.01)	≈ 1.77 (2.63)
14240-237-	14340-237-	<input type="checkbox"/>	-0	9.33 (237)	10.39 (264)	≈ 2.04 (3.04)	≈ 1.78 (2.65)
14240-25-	14340-25-	<input type="checkbox"/>	-0	9.84 (250)	10.87 (276)	≈ 2.08 (3.10)	≈ 1.80 (2.68)
14240-262-	14340-262-	<input type="checkbox"/>	-0	10.31 (262)	11.38 (289)	≈ 2.09 (3.11)	≈ 1.81 (2.69)
14240-28-	14340-28-	<input type="checkbox"/>	-0	10.83 (275)	11.85 (301)	≈ 2.14 (3.19)	≈ 1.83 (2.72)
14240-29-	14340-29-	<input type="checkbox"/>	-0	11.30 (287)	12.36 (314)	≈ 2.15 (3.20)	≈ 1.83 (2.73)
14240-30-	14340-30-	<input type="checkbox"/>	-0	11.81 (300)	12.83 (326)	≈ 2.22 (3.30)	≈ 1.87 (2.78)
14240-312-	14340-312-	<input type="checkbox"/>	-0	12.28 (312)	13.35 (339)	≈ 2.22 (3.31)	≈ 1.88 (2.79)
14240-325-	14340-325-	<input type="checkbox"/>	-0	12.79 (325)	13.82 (351)	≈ 2.26 (3.37)	≈ 1.89 (2.81)
14240-337-	14340-337-	<input type="checkbox"/>	-0	13.27 (337)	14.33 (364)	≈ 2.28 (3.40)	≈ 1.90 (2.83)
14240-350-	14340-350-	<input type="checkbox"/>	-0	13.78 (350)	14.80 (376)	≈ 2.39 (3.56)	≈ 1.96 (2.91)
14240-362-	14340-362-	<input type="checkbox"/>	-0	14.25 (362)	15.31 (389)	≈ 2.43 (3.61)	≈ 1.97 (2.93)
14240-375-	14340-375-	<input type="checkbox"/>	-0	14.76 (375)	15.79 (401)	≈ 2.45 (3.64)	≈ 1.98 (2.95)
14240-387-	14340-387-	<input type="checkbox"/>	-0	15.24 (387)	16.30 (414)	≈ 2.48 (3.69)	≈ 2.00 (2.97)
14240-400-	14340-400-	<input type="checkbox"/>	-0	15.75 (400)	16.77 (426)	≈ 2.51 (3.73)	≈ 2.00 (2.99)

Choose from the radii below for all of the above sizes

Radius (mm) Example: 14240-30-300-0

	135	150	175	200	250	300	400	500
R	5.31 (135)	5.91 (150)	6.89 (175)	7.87 (200)	9.84 (250)	11.81 (300)	15.75 (400)	19.68 (500)
H $\frac{3}{16}$	14.17 (360)	15.16 (385)	17.13 (435)	19.09 (485)	23.03 (585)	26.97 (685)	34.84 (885)	42.72 (1085)
D	10.63 (270)	11.22 (285)	12.20 (310)	13.19 (335)	15.16 (385)	17.13 (435)	21.06 (535)	25.00 (635)
K	25.59 (650)	29.53 (750)	32.48 (825)	35.43 (900)	41.34 (1050)	48.23 (1225)	57.09 (1450)	69.88 (1775)

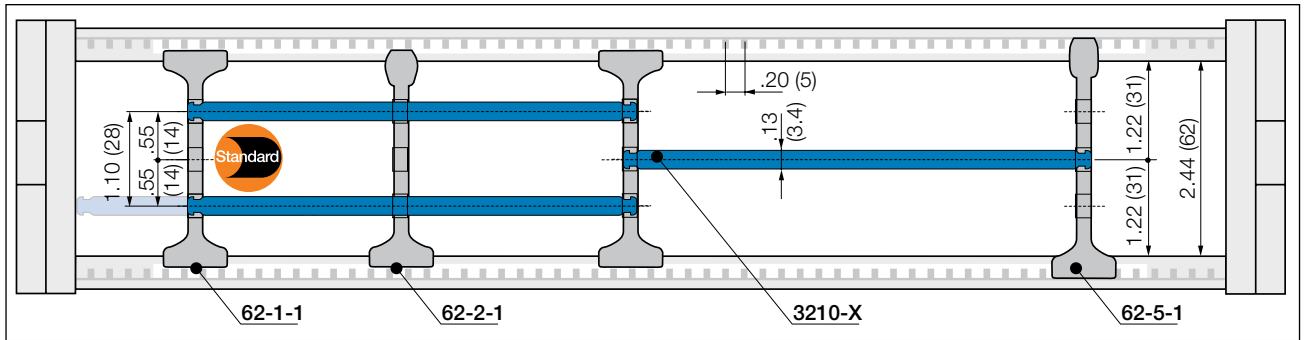
*Removable lid only, no hinged option

0=Standard color black. For other colors see Chapter 1

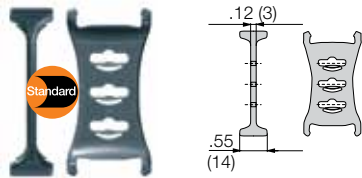
For large diameter hoses see page 6.212

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains





In the standard configuration separators are assembled every 2nd e-chain® link

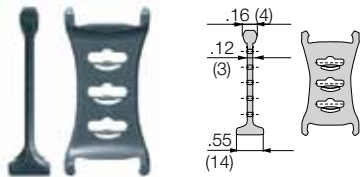


Separator, wide base

Unassembled **Part No. 62-1**
Assembled **Part No. 62-1-1**

- **Standard separator 62-1 for all applications**

Separator with wide base for maximum locking strength and safe standing in e-chains®.

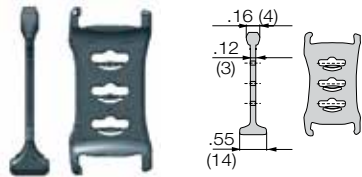


Separator for QuickLock crossbar

Unassembled **Part No. 62-2**
Assembled **Part No. 62-2-1**

- **Separator 62-2 For even faster installation**

Separator for igus® QuickLock crossbar 385-X-Q. Firm hold to one side with a wide base, narrow on opposed side for easy cable assembly (slight grip)

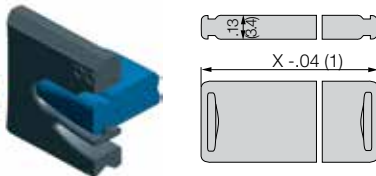


Notch separator for notch crossbar

Unassembled **Part No. 62-5**
Assembled **Part No. 62-5-1**

- **Separator 62-5 Locks safely in .20" (5 mm) increments**
Notch separator for exact positioning in e-chains®. Recommended for side mounted applications.

Lockable full-width shelves - for the standard interior separation



Full width shelf, lockable

Unassembled **Part No. 3200-X**
Assembled **Part No. 3210-X**

- **Full width shelf, lockable**
Shelf locks into separators on both ends, fixed width possible. Separators can be moved freely over the shelf in horizontal direction. Can be arranged at 3 different heights.

Width X in. (mm)	Part No. Unassembled	Part No. Assembled	Width X in. (mm)	Part No. Unassembled	Part No. Assembled
1.97 (050)	3200-50	3210-50	5.91 (150)	3200-150	3210-150
2.95 (075)	3200-75	3210-75	6.89 (175)	3200-175	3210-175
3.94 (100)	3200-100	3210-100	7.87 (200)	3200-200	3210-200
4.53 (115)	3200-115	3210-115	8.86 (225)	3200-225	3210-225
4.92 (125)	3200-125	3210-125	9.84 (250)	3200-250	3210-250

e-chain system® E4 light

Series 14240/14340

Interior Separation - Previous Generation

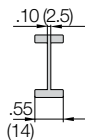
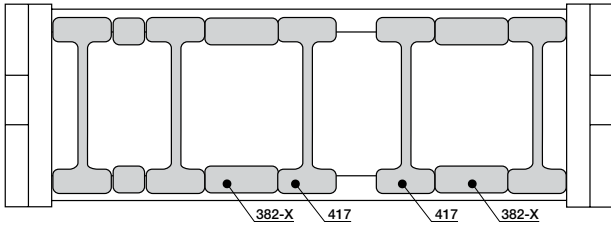


14240
14340

Option 1: Vertical separators and spacers

Vertical separators are used if a vertical subdivision of the e-chain® interior is required. By standard, vertical separators are assembled every other e-chain® link.

NOTE: Observe a lateral spacing of at least 1.30 in. (33mm) for e-tubes and .63 in. (16mm) for e-chain®. There is no minimum spacing needed for side plates



Vertical separator

Unassembled	Part No. 407
Assembled	Part No. 417

- **Standard separator 407 for e-chains® and e-tubes**
This separator offers safe stability due to its wide base design, also when used with thick cables or hoses.



Spacer (chain only)

Unassembled	Part No. 381-XX
Assembled	Part No. 382-XX

XX = width of the spacer

- **NOTE ON SPACERS**
Vertical separators are adjustable, but can be fixed in position by means of a spacer. Spacers are most often necessary for side mounted applications.
The available inner height is reduced by .08" (2mm) **per spacer** (for example if one spacer is placed on either side of the separator, the overall inner height is reduced by .16" (4mm). To avoid this, place the spacers on the **outside** of the opening crossbar (**not for long travels**).

Spacers available in the following sizes:

Part No. Unassembled	Part No. Assembled	in.	(mm)
381-10	382-10	.39"	(10)
381-15	382-15	.59"	(15)
381-20	382-20	.79"	(20)

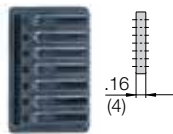
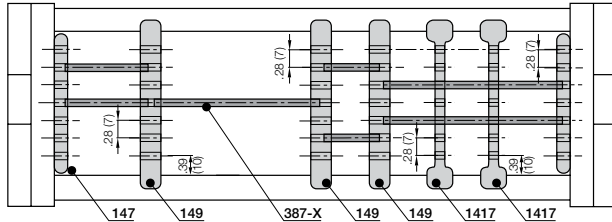
PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains



Option 2: Shelves

e-chains® and e-tubes can be subdivided both vertically and horizontally using the various interior separation elements.

► **Design, Chapter 1** for layout recommendations.

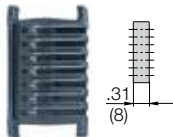


Side plate

Unassembled	Part No. 146
Assembled	Part No. 147

● **Side plates 146**

This component is used to form the basic pattern of a shelf system.

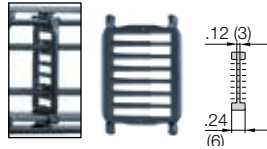


Vertical separator

Unassembled	Part No. 148
Assembled	Part No. 149

● **Vertical separator 148**

This component is used to form the basic pattern of a shelf system.



Slotted separators, closed

Unassembled	Part No. 1407
Assembled	Part No. 1417

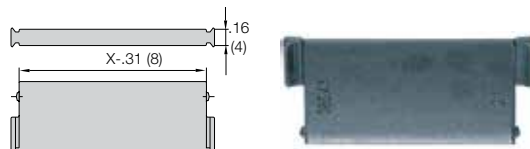
● **Slotted separators 1407**

These are used for very complex subdivisions. However, they cannot be retrofitted into an existing separation system without removing the shelves first.

Shelves 420-XX

These components form the basic pattern of a shelf system.

Shelves of various widths can be arranged at 7 different heights in .28" (7mm) increments



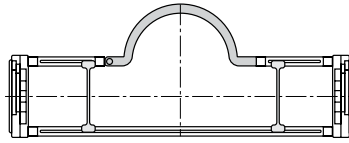
Width X in. (mm)	Usable Width in. (mm)	Part No. Unassembled	Part No. Assembled	Width X in. (mm)	Usable Width in. (mm)	Part No. Unassembled	Part No. Assembled
.71 (18)	.39 (10)	386-18	387-18	2.95 (75)	2.64 (67)	386-75	387-75
.91 (23)	.59 (15)	386-23	387-23	3.43 (87)	3.11 (79)	386-87	387-87
.98 (25)	.67 (17)	386-25	387-25	3.94 (100)	3.62 (92)	386-100	387-100
1.10 (28)	.79 (20)	386-28	387-28	4.25 (108)	3.94 (100)	386-108	387-108
1.30 (33)	.98 (25)	386-33	387-33	4.92 (125)	4.61 (117)	386-125	387-125
1.69 (43)	1.38 (35)	386-43	387-43	5.91 (150)	5.59 (142)	386-150	387-150
1.97 (50)	1.65 (42)	386-50	387-50	6.89 (175)	6.57 (167)	386-175	387-175
2.13 (54)	1.81 (46)	386-54	387-54	7.87 (200)	7.56 (192)	386-200	387-200
2.44 (62)	2.13 (54)	386-62	387-62	8.19 (208)	7.87 (200)	386-208	387-208



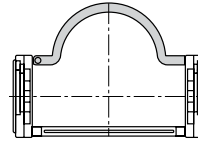
Consult igus® for your extender crossbar applications. We will be happy to assist you with your design layout.

Extender crossbars - For careful guiding of large diameter cables and hoses

- Intended for cables and hoses with a maximum outer diameter of 4.53 in. (115 mm).
- Gliding operation with crossbars assembled along the outer radius in conjunction with a special guide trough
- Gliding operation not guaranteed with crossbars assembled along the inner radius
- The extender crossbar can either be attached to the side links directly or can be used in combination with two standard snap-open crossbars.



Round extender crossbar combined with standard snap-open crossbars.

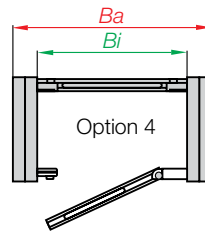
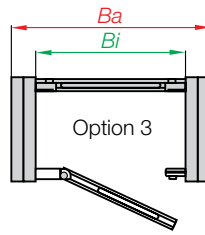
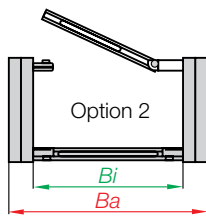
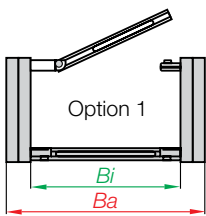


Attached directly to the side link.

Part No.	Max Ø Hose in. (mm)	Style	Installation Side Link	Combined with Snap-Open Crossbars
385-15-RHD115	4.53 (115)	Round	No	Yes
385-18-RD115	4.53 (115)	Round	Yes	No

Hinged crossbars

- Typically, e-chain® crossbars are completely removable. In cases where it is preferable that the opening crossbars remain on the e-chain®, a hinged design has been developed.
- Please consult igus® for design assistance



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14340

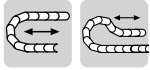


e-chain system® E4 light Series 14240/14340 Mounting Brackets - KMA

igus®
e-chain system®

Telephone 1-800-521-2747

Internet: igus.com
email: sales@igus.com
QuickSpec: igus.com/quickspec

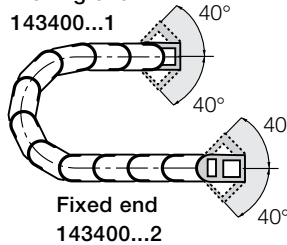


Standard

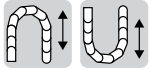
Option 1: KMA pivoting

- Profile rail option
- Universal use
- Corrosion resistant
- Short and long travels
- Space-restricted conditions

Moving end
143400...1



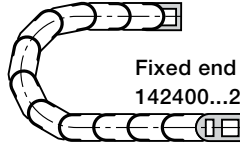
Fixed end
143400...2



Option 2: KMA locking

- Profile rail option
- Universal use
- Corrosion resistant
- Extreme accelerations
- Vertical hanging/standing travels

Moving end
142400...1

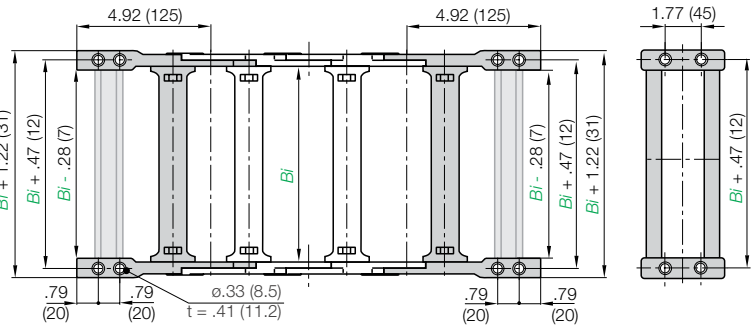
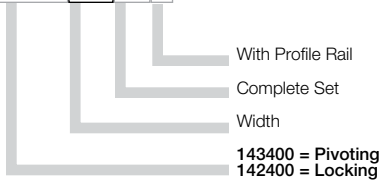


Fixed end
142400...2



Part Number Structure

143400-07-12 P



Full set, for both ends:

143400-05-12 Full set, each part with pin/bore

Single-part order:

143400-05-1 Mounting bracket with bore
143400-05-2 Mounting bracket with pin

Part number examples are shown for pivoting brackets. For locking brackets change part number to 142400

Part No. Full Set (pivoting)
Series 14240 or 14340:
143400-Width-12

Part No. Full Set (pivoting)
with profile rail
Series 14240 or 14340
143400-Width-12P

Width	Part No. Full Set		With Profile Rail	Bi in. (mm)	Width	Part No. Full Set		With Profile Rail	Bi in. (mm)
	Pivoting	Locking				Pivoting	Locking		
-05	143400	142400	-05-12 P	1.97 (50)	-23	143400	142400	-23-12 P	8.86 (225)
-06	143400	142400	-06-12 P	2.68 (68)	-237	143400	142400	-237-12 P	9.33 (237)
-07	143400	142400	-07-12 P	2.95 (75)	-25	143400	142400	-25-12 P	9.84 (250)
-087	143400	142400	-087-12 P	3.43 (87)	-262	143400	142400	-262-12 P	10.31 (262)
-10	143400	142400	-10-12 P	3.94 (100)	-28	143400	142400	-28-12 P	10.83 (275)
-11	143400	142400	-11-12 P	4.25 (108)	-29	143400	142400	-29-12 P	11.30 (287)
-112	143400	142400	-112-12 P	4.41 (112)	-30	143400	142400	-30-12 P	11.81 (300)
-12	143400	142400	-12-12 P	4.92 (125)	-312	143400	142400	-312-12 P	12.28 (312)
-137	143400	142400	-137-12 P	5.39 (137)	-325	143400	142400	-325-12 P	12.79 (325)
-15	143400	142400	-15-12 P	5.91 (150)	-337	143400	142400	-337-12 P	13.27 (337)
-162	143400	142400	-162-12 P	6.38 (162)	-350	143400	142400	-350-12 P	13.78 (350)
-17	143400	142400	-17-12 P	6.61 (168)	-362	143400	142400	-362-12 P	14.25 (362)
-18	143400	142400	-18-12 P	6.89 (175)	-375	143400	142400	-375-12 P	14.76 (375)
-187	143400	142400	-187-12 P	7.36 (187)	-387	143400	142400	-387-12 P	15.24 (387)
-20	143400	142400	-20-12 P	7.87 (200)	-400	143400	142400	-400-12 P	15.75 (400)
-212	143400	142400	-212-12 P	8.35 (212)					

e-chain system® E4 light

Series 14240/14340

Strain Relief



14240
14340

Chainfix clamps for the profile rail



igus® Chainfix strain relief elements are available in either steel or stainless steel. They can be adjusted with a hexagon socket and are available in single, double and triple configurations.

Part No. Single Clamp		Part No. Double Clamp		Part No. Triple Clamp		Cable ø	
Steel	Stainless	Steel	Stainless	Steel	Stainless	in.	(mm)
CFX12-1	CFX12-1E	CFX12-2	CFX12-2E	CFX12-3	–	.24 - .47	(6 - 12)
CFX14-1	CFX14-1E	CFX14-2	CFX14-2E	CFX14-3	–	.47 - .55	(12 - 14)
CFX16-1	CFX16-1E	CFX16-2	CFX16-2E	CFX16-3	–	.55 - .63	(14 - 16)
CFX18-1	CFX18-1E	CFX18-2	CFX18-2E	CFX18-3	–	.63 - .71	(16 - 18)
CFX20-1	CFX20-1E	CFX20-2	CFX20-2E	CFX20-3	–	.71 - .79	(18 - 20)
CFX22-1	CFX22-1E	CFX22-2	CFX22-2E	CFX22-3	–	.79 - .87	(20 - 22)
CFX26-1	CFX26-1E	CFX26-2	CFX26-2E	–	–	.87 - 1.02	(22 - 26)
CFX30-1	CFX30-1E	CFX30-2	CFX30-2E	–	–	1.02 - 1.18	(26 - 30)
CFX34-1	CFX34-1E	CFX34-2	CFX34-2E	–	–	1.18 - 1.34	(30 - 34)
CFX38-1	CFX38-1E	–	–	–	–	1.34 - 1.50	(34 - 38)
CFX42-1	CFX42-1E	–	–	–	–	1.50 - 1.65	(38 - 42)

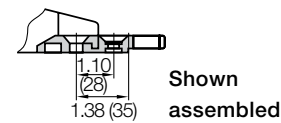
For more information please refer to strain relief section of Chapter 10

Tiewrap Plates

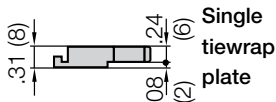
Option 1:

Tiewrap plates as an individual part

Available as an individual component, can be fixed onto a mounting bracket with the use of a profile rail.

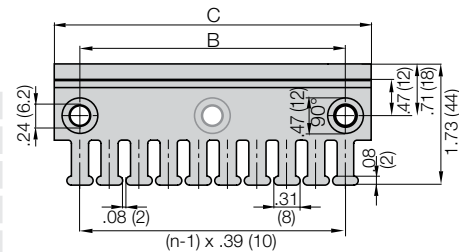


Shown assembled



Single tiewrap plate

Tiewrap Plate	n Number of Teeth	C Overall Width in. (mm)	B Bore Width in. (mm)	Center Bore
3050-ZB	5	1.97 (50)	1.18 (30)	no
3075-ZB	7	2.95 (75)	2.16 (55)	no
3100-ZB	10	3.94 (100)	3.15 (80)	no
3115-ZB	11	4.53 (115)	3.74 (95)	no
3125-ZB	12	4.92 (125)	4.13 (105)	no
3150-ZB	15	5.91 (150)	5.12 (130)	no
3175-ZB	17	6.89 (175)	6.10 (155)	no
3200-ZB	20	7.87 (200)	7.09 (180)	yes
3225-ZB	22	8.86 (225)	8.07 (205)	yes
3250-ZB	25	9.84 (250)	9.06 (230)	yes



If used with KMA brackets with profile rail please add "KMA" to the end of the part number.

Example: 3050-ZBKMA

For more information please refer to strain relief section of Chapter 10



Option 2:

Clip-on Tiewrap plates

Available as a clip-on tiewrap plate without the use of bolts They are inserted and removed with a screwdriver used as a lever. Clip-on tiewrap plates are also available as an attachment to the opening crossbars.

Part No.	Number of Teeth	Width of Strain Relief in. (mm)
3050-ZC	5	1.97 (50)
3075-ZC	7	2.95 (75)

For more information please refer to strain relief section of Chapter 10



Option 3:

Clip-on Tiewrap plates for opening crossbars

Clip-on tiewrap plates are also available as an attachment to opening crossbars. They can be positioned at any point along the e-chain®.

Part No.	Number of Teeth	Width of Strain Relief in. (mm)
3850-ZS	5	1.89 (48)

For more information please refer to strain relief section of Chapter 10

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains



Width of Crossbar
14240-05-200-0

	B_{Ri}	Installation Part No.
-05	3.19 (81)	*
-06	3.90 (99)	*
-07	4.17 (106)	94-50-225
-087	4.65 (118)	94-50-250
-10	5.16 (131)	94-50-250
-11	5.47 (139)	94-50-250
-112	5.63 (143)	94-50-275
-12	6.14 (156)	94-50-275
-137	6.61 (168)	94-50-300
-15	7.12 (181)	94-50-300
-162	7.60 (193)	94-50-325
-17	7.83 (199)	94-50-325
-18	8.11 (206)	94-50-325
-187	8.58 (218)	94-50-350
-20	9.09 (231)	94-50-350
-212	9.57 (243)	94-50-375
-23	10.08 (256)	94-50-375
-237	10.55 (268)	94-50-400
-25	11.06 (281)	94-50-400
-262	11.54 (293)	94-50-425
-28	12.05 (306)	94-50-425
-29	12.52 (318)	94-50-450
-30	13.03 (331)	94-50-450
-312	13.50 (343)	94-50-475
-325	14.02 (356)	94-50-475
-337	14.49 (368)	94-50-500
-350	15.00 (381)	94-50-500
-362	15.47 (393)	94-50-525
-375	15.98 (406)	94-50-525
-387	16.46 (418)	94-50-550
-400	16.97 (431)	94-50-550

Guide troughs are used with applications where the upper run of the e-chain® glides on the lower run. If using igus® steel guide troughs, the following components are required:

- Full travel length of guide trough
Part No. 94-30
- 1/2 travel length glide bars
Part No. 93-01
- Installation sets as end connectors
Part No. 94-50-XX

.XX indicates the length of the profile rails on which the guide trough is mounted. The values and part numbers are specified in the table on the left. The standard length of the trough components and glide bars is 6.56 ft (2 m). The required overall length of the guide trough directly correlates to the length of travel.

Example:

Length of travel 164 ft (50 m)
Center mounted

Required guide troughs

164 ft (50 m) guide trough
82 ft (25 m) glide bars
= 25 sections of 6.56 ft (2 m) guide trough

Part No. 94-30

= 13 sections of 6.56 ft (2 m) glide bars

Part No. 93-01

Required number of installation sets:

= Number of guide trough components + 1
= 25 + 1 = 26

Part number of the installation sets

94-50-XXX

Example:

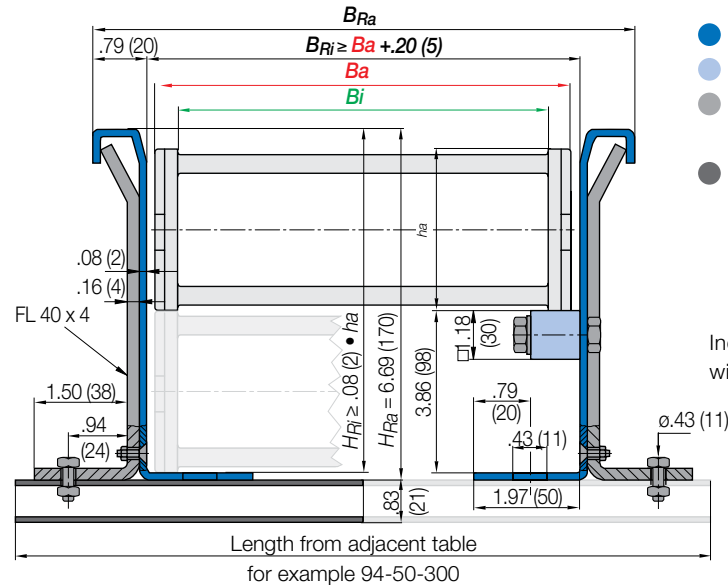
94-50-400 for 15.75 (400 mm) long profile rail



Left: Guide trough with glide bars
Right: Guide troughs without glide bars



Installation sets as section connectors



- Guide trough
- Glide bars
- Installation set "Basic"
- Profile rail

Individual attachment without profile rail

* Specialized guide trough available upon request

Standard length profile rail

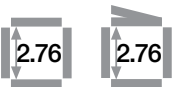
PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains



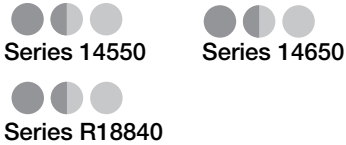
14550
14650
R19050



e-chain system® E4 light Series 14550/14650/R19050



Price Index



Special Features / Options

ESD classification:
Electrically conductive ESD/
ATEX version upon request

High torsional rigidity

Side-mounted - unsupported

Assembly Tips



Opening e-chains®: Remove crossbars and clips - Insert screwdriver into the slot, push down, release by lever action



Remove lids/bottoms (e-tubes) - Insert screwdriver into the slot, release by lever action

Other Installation Methods

Vertical, hanging ≤ 262 ft (80 m)

Vertical, standing ≤ 19.69 ft (6 m)

Side-mounted, un supp. ≤ 6.56 ft (2 m)

Rotary requires further calculation

Usage Guidelines



- If weight and price reduction is needed
- If an e-chain®/e-tube with an inner height of 2.76" (70 mm) is required



- If an extremely low-noise version is required
➤ Series E6-80L
- If side-mounted chain/tube with a longer unsupported travel is required
➤ Series E4-800
- If increased unsupported lengths and longer travels are required
➤ Series E4-80

Features & Benefits

- 1 KMA mounting brackets with attachment points on all sides
- 2 Noise dampening pads, optional = -10dB(A)
- 3 Hinged snap-open removable lids along outer radius of e-tube
- 4 Lateral glide surfaces for side-mounted operation
- 5 25% faster assembly with QuickLock Crossbar
- 6 High stability due to undercut design
- 7 Notch crossbar with visual scale
- 8 No camber: no rework due to special design



Order Example: Complete e-chain®

Please indicate chain length or number of links. Example:

16.4 ft (5 m) 14550-30-300-0

e-chain®

With 2 separators 70-1-1 assembled every 2nd link

Interior Separation

1 Set 145500-30-12P

Mounting Bracket

e-chain system® E4 light

Series 14550/14650/R19050

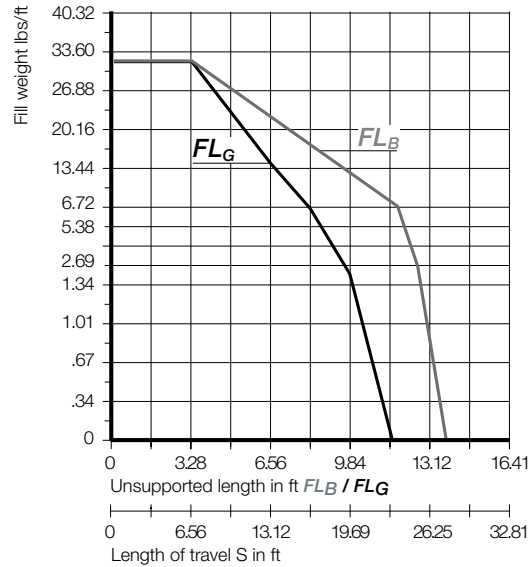
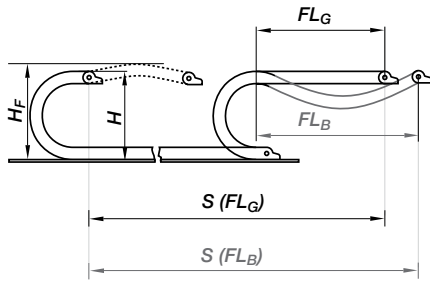
Installation Dimensions



14550
14650
R19050

Short travel, unsupported length

- FL_B = unsupported with permitted sag
 - FL_G = unsupported with straight upper run
- Further information ► Design, Chapter 1



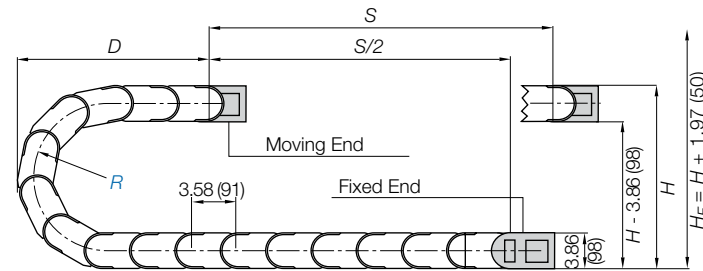
Short Travels - Unsupported



Unsupported e-chains® feature positive camber over short travels. This must be accounted for when specifying the clearance height. Please refer to **Installation dimensions** for further details.

Legend

- S = Length of travel
 - R = Bending radius
 - H = Nominal clearance height
 - D = Overlength e-chain® radius in final position
 - $K = \pi \cdot R + \text{safety buffer}$
 - H_F = Required clearance height
 - HRI = Trough inner height
 - $H_2 = \text{*Mounting height}$
 - $D_2 = \text{Overlength - long travels, gliding}$
 - $K_2 = \text{*Add-on}$
- *If the mounting bracket location is set lower



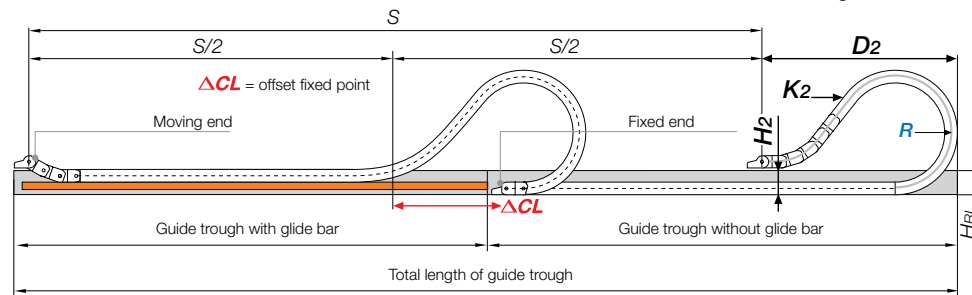
Pitch per link = 3.58" (91 mm)
Links per ft (m) = 3.35 (11)
For center mount applications:
Chain length = $\frac{S}{2} + K$

The required clearance height: $H_F = H + 1.97$ in. (50 mm) (with 1.68 lbs/ft (2.5 kg/m) fill weight. Please consult igus® if space is particularly restricted.

	5.91 (150*)	6.89 (175*)	7.87 (200)	9.84 (250)	11.81 (300)	13.78 (350)	15.75 (400)	17.72 (450)	19.68 (500)	23.62 (600)
R	5.91 (150*)	6.89 (175*)	7.87 (200)	9.84 (250)	11.81 (300)	13.78 (350)	15.75 (400)	17.72 (450)	19.68 (500)	23.62 (600)
H	15.67 (398)	17.64 (448)	19.61 (498)	23.54 (598)	27.48 (698)	31.42 (798)	35.35 (898)	39.29 (998)	43.23(1098)	51.10 (1298)
D	13.23 (336)	14.21 (361)	15.19 (386)	17.17 (436)	19.13 (486)	21.10 (536)	23.07 (586)	25.04 (636)	27.01 (686)	30.94 (786)
K	25.79 (655)	28.94 (735)	32.09 (815)	38.19 (970)	44.29 (1125)	50.59 (1285)	56.29 (1440)	62.99 (1600)	69.09 (1755)	81.50 (2070)

For long travels with lowered mounting height

Long travel lengths from 32.8 ft.(10m) to max. 492 ft. (150m)



For center mount applications:

Chain length = $\frac{S}{2} + K_2$

Long Travels - Gliding



If the unsupported length is exceeded, the e-chain®/ Tube must glide on itself. This requires a guide trough. Design, Chapter 1

	5.91 (150*)	6.89 (175*)	7.87 (200)	9.84 (250)	11.81 (300)	13.78 (350)	15.75 (400)	17.72 (450)	19.68 (500)	23.62 (600) ²⁾
R	5.91 (150*)	6.89 (175*)	7.87 (200)	9.84 (250)	11.81 (300)	13.78 (350)	15.75 (400)	17.72 (450)	19.68 (500)	23.62 (600) ²⁾
H ₂	10.47 (266)	10.47 (266)	10.47 (266)	10.47 (266)	10.47 (266)	10.47 (266)	10.47 (266)	10.47 (266)	10.47 (266)	-
D ₂ +25	17.72 (450)	20.87 (530)	27.95 (710)	36.22 (920)	44.09 (1120)	52.76 (1340)	60.24 (1530)	67.72 (1720)	75.20 (1910)	-
K ₂	32.24 (819)	39.41 (1001)	50.16 (1274)	64.49 (1638)	75.24 (1911)	85.98 (2184)	100.31 (2548)	111.06 (2821)	125.39 (3185)	-
ΔCL	4.88 (124)	6.26 (159)	8.22 (209)	14.13 (359)	20.04 (509)	25.94 (659)	32.64 (829)	37.76 (959)	45.63 (1159)	-

*Radius not available for e-tubes ²⁾ R600 not suitable for long travels. Please consult igus®



For support of the lower run, see Chapter 9 of the main catalog for the Support Tray tool kit

Speed / acceleration FL_G	max. 65.6 ft/s (20 m/s) / max. 656 ft/s ² (200 m/s ²)
Speed / acceleration FL_B	max. 9.84 ft/s (3 m/s) / max. 19.69 ft/s ² (6 m/s ²)
Gliding speed / acceleration (maximum)	max. 32.8 ft/s (10 m/s) / max. 164 ft/s ² (50 m/s ²)
Material - permitted temperature	igumid G / -40°F (-40°C) up to +248°F (+120° C)
Flammability Class, igumid G	VDE 0304 IIC UL94 HB

Technical Data



Details of material properties ► Chapter 1

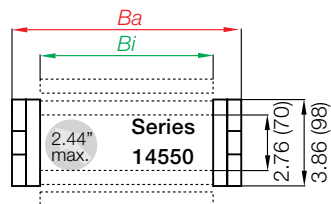
PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains

2.76



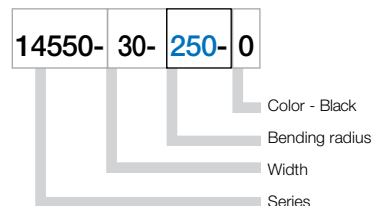
6.218

Series 14550 - e-chain® with crossbars every link

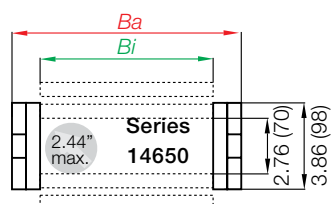


- Crossbars every link
- For use with rigid hydraulic hoses
- For particularly demanding applications
- Can be opened from both sides

Part Number Structure

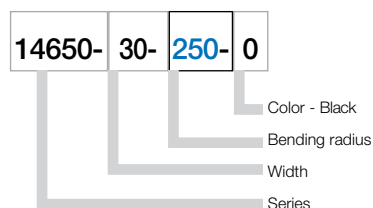


Series 14650 - e-chain® with crossbars every other link

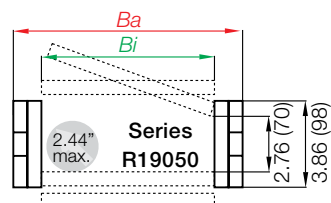


- Crossbars every other link - Standard configuration
- For nearly every situation
- Can be opened from both sides
- Easy assembly
- Stable
- Cost-effective

Part Number Structure

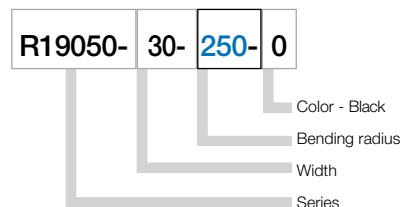


Series R19050 - fully enclosed e-tube



- Fully enclosed
- Excellent cable and hose protection against dirt
- Protection against hot chips
- Lids along inner radius are completely removable
- Lids along the outer radius are single-sided, snap open, hinged on one side as well as completely removable

Part Number Structure

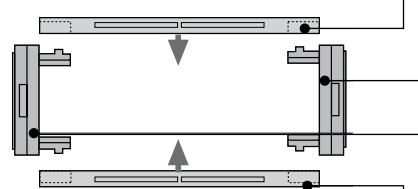


e-chain® as separate parts, links and side plates

Right side link*, single part - Part No. 14550-02-R

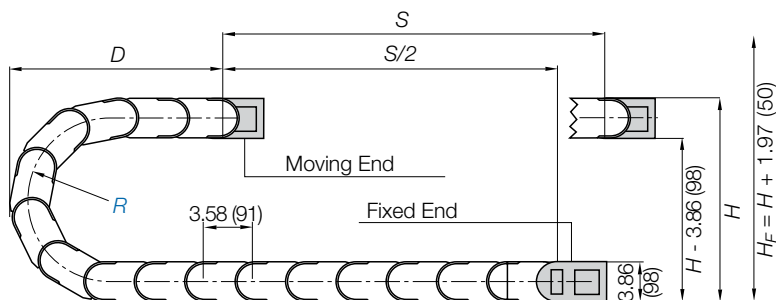
Single crossbar, e-chain® - Part No. 450-Bi

Single lid, e-tube - Part No. 885-Bi



Single bottom, e-tube - Part No. 886-Bi

Left side link*, single part - Part No. 14550-01-R



*View from the fixed point of the e-chain®/e-tube

e-chain system® E4 light

Series 14550/14650/R19050

Supplement part number with required radius. Example: 14550-30-300-0

Pitch: 3.58 in. (91mm) per link links/ft (m) = 3.35 (11)



14550
14650
R19050

Part Number			<i>Bi</i>	<i>Ba</i>	14550	14650	R19050
Crossbars Every link	Crossbars Every other	Tube Version	in. (mm)	in. (mm)	lbs/ft (kg/m)	lbs/ft (kg/m)	lbs/ft (kg/m)
14550-05-	14650-05-	<input type="checkbox"/> -0	1.97 (50)	3.03 (77)	≈ 2.41 (3.28)	≈ 2.49 (3.27)	-
14550-06-	14650-06-	<input type="checkbox"/> -0	2.56 (65)	3.62 (92)	≈ 2.26 (3.37)	≈ 2.22 (3.31)	-
14550-07-	14650-07-	19050-07- <input type="checkbox"/> -0	2.95 (75)	4.02 (102)	≈ 2.31 (3.44)	≈ 2.25 (3.35)	≈ 2.69 (4.00)
14550-08-	14650-08-	<input type="checkbox"/> -0	3.43 (87)	4.49 (114)	≈ 2.37 (3.52)	≈ 2.27 (3.38)	-
14550-10-	14650-10-	19050-10- <input type="checkbox"/> -0	3.94 (100)	5.00 (127)	≈ 2.43 (3.61)	≈ 2.30 (3.43)	≈ 2.91 (4.33)
14550-11-	14650-11-	<input type="checkbox"/> -0	4.41 (112)	5.47 (139)	≈ 2.51 (3.73)	≈ 2.35 (3.49)	-
14550-12-	14650-12-	19050-12- <input type="checkbox"/> -0	4.92 (125)	5.98 (152)	≈ 2.56 (3.81)	≈ 2.37 (3.53)	≈ 3.16 (4.70)
14550-13-	14650-13-	<input type="checkbox"/> -0	5.39 (137)	6.46 (164)	≈ 2.65 (3.94)	≈ 2.42 (3.60)	-
14550-15-	14650-15-	19050-15- <input type="checkbox"/> -0	5.91 (150)	6.97 (177)	≈ 2.67 (3.98)	≈ 2.43 (3.62)	≈ 3.39 (5.04)
14550-16-	14650-16-	<input type="checkbox"/> -0	6.38 (162)	7.44 (189)	≈ 2.75 (4.09)	≈ 2.47 (3.67)	-
14550-17-	14650-17-	19050-17- <input type="checkbox"/> -0	6.89 (175)	7.95 (202)	≈ 2.84 (4.23)	≈ 2.51 (3.74)	≈ 3.64 (5.41)
14550-18-	14650-18-	<input type="checkbox"/> -0	7.36 (187)	8.43 (214)	≈ 2.92 (4.34)	≈ 2.55 (3.80)	-
14550-20-	14650-20-	19050-20- <input type="checkbox"/> -0	7.87 (200)	8.94 (227)	≈ 2.95 (4.39)	≈ 2.57 (3.82)	≈ 3.79 (5.64)
14550-21-	14650-21-	<input type="checkbox"/> -0	8.35 (212)	9.41 (239)	≈ 3.00 (4.46)	≈ 2.59 (3.86)	-
14550-22-	14650-22-	<input type="checkbox"/> -0	8.86 (225)	9.92 (252)	≈ 3.04 (4.53)	≈ 2.61 (3.89)	-
14550-23-	14650-23-	<input type="checkbox"/> -0	9.33 (237)	10.39 (264)	≈ 3.12 (4.64)	≈ 2.84 (3.95)	-
14550-25-	14650-25-	19050-25- <input type="checkbox"/> -0	9.84 (250)	10.91 (277)	≈ 3.20 (4.76)	≈ 2.69 (4.00)	≈ 4.25 (6.32)
14550-26-	14650-26-	<input type="checkbox"/> -0	10.31 (262)	11.38 (289)	≈ 3.26 (4.85)	≈ 2.72 (4.05)	-
14550-27-	14650-27-	19050-27- <input type="checkbox"/> -0	10.83 (275)	11.89 (302)	≈ 3.33 (4.95)	≈ 2.76 (4.10)	≈ 4.47 (6.65)
14550-28-	14650-28-	<input type="checkbox"/> -0	11.30 (287)	12.36 (314)	≈ 3.37 (5.01)	≈ 2.78 (4.13)	-
14550-30-	14650-30-	19050-30- <input type="checkbox"/> -0	11.81 (300)	12.87 (327)	≈ 3.47 (5.16)	≈ 2.83 (4.21)	≈ 4.70 (6.99)
14550-31-	14650-31-	<input type="checkbox"/> -0	12.28 (312)	13.35 (339)	≈ 3.49 (5.20)	≈ 2.84 (4.23)	-
14550-32-	14650-32-	<input type="checkbox"/> -0	12.79 (325)	13.86 (352)	≈ 3.56 (5.30)	≈ 2.88 (4.28)	-
14550-33-	14650-33-	<input type="checkbox"/> -0	13.27 (337)	14.33 (364)	≈ 3.64 (5.42)	≈ 2.92 (4.34)	-
14550-35-	14650-35-	19050-35- <input type="checkbox"/> -0	13.78 (350)	14.84 (377)	≈ 3.78 (5.62)	≈ 2.98 (4.44)	≈ 5.16 (7.68)
14550-36-	14650-36-	<input type="checkbox"/> -0	14.25 (362)	15.31 (389)	≈ 3.72 (5.53)	≈ 2.95 (4.39)	-
14550-37-	14650-37-	<input type="checkbox"/> -0	14.76 (375)	15.83 (402)	≈ 3.78 (5.63)	≈ 2.98 (4.44)	-
14550-38-	14650-38-	<input type="checkbox"/> -0	15.24 (387)	16.30 (414)	≈ 3.86 (5.74)	≈ 3.02 (4.50)	-
14550-40-	14650-40-	19050-40- <input type="checkbox"/> -0	15.75 (400)	16.81 (427)	≈ 4.04 (6.01)	≈ 3.11 (4.63)	≈ 5.62 (8.36)
14550-41-	14650-41-	<input type="checkbox"/> -0	16.22 (412)	17.28 (439)	≈ 3.99 (5.94)	≈ 3.09 (4.60)	-
14550-42-	14650-42-	<input type="checkbox"/> -0	16.73 (425)	17.79 (452)	≈ 4.19 (6.23)	≈ 3.19 (4.74)	-
14550-43-	14650-43-	<input type="checkbox"/> -0	17.20 (437)	18.27 (464)	≈ 4.08 (6.07)	≈ 3.13 (4.66)	-
14550-45-	14650-45-	<input type="checkbox"/> -0	17.72 (450)	18.78 (477)	≈ 4.30 (6.40)	≈ 3.25 (4.83)	-
14550-46-	14650-46-	19050-46- <input type="checkbox"/> -0	18.19 (462)	19.25 (489)	≈ 4.27 (6.35)	≈ 3.23 (4.80)	≈ 6.19 (9.21)
14550-47-	14650-47-	<input type="checkbox"/> -0	18.70 (475)	19.76 (502)	≈ 4.29 (6.39)	≈ 3.24 (4.82)	-
14550-48-	14650-48-	<input type="checkbox"/> -0	19.17 (487)	20.24 (514)	≈ 4.46 (6.64)	≈ 3.33 (4.95)	-
14550-50-	14650-50-	<input type="checkbox"/> -0	19.69 (500)	20.75 (527)	≈ 4.53 (6.74)	≈ 3.36 (5.00)	-
14550-51-	14650-51-	<input type="checkbox"/> -0	20.16 (512)	21.22 (539)	≈ 4.47 (6.65)	≈ 3.33 (4.95)	-
14550-52-	14650-52-	<input type="checkbox"/> -0	20.67 (525)	21.73 (552)	≈ 4.58 (6.82)	≈ 3.39 (5.04)	-
14550-53-	14650-53-	<input type="checkbox"/> -0	21.14 (537)	22.20 (564)	≈ 4.65 (6.92)	≈ 3.42 (5.09)	-
14550-55-	14650-55-	<input type="checkbox"/> -0	21.65 (550)	22.72 (577)	≈ 4.93 (7.34)	≈ 3.56 (5.30)	-
14550-60-	14650-60-	<input type="checkbox"/> -0	23.62 (600)	24.69 (627)	≈ 5.09 (7.57)	≈ 3.64 (5.41)	-

Choose from the radii below for all of the above sizes

Radius (mm) Example: 14550-30-300-0

	150*	175*	200	250	300	350	400	450	500	600
<i>R</i>	5.91 (150)	6.89 (175)	7.87 (200)	9.84 (250)	11.81 (300)	13.78 (350)	15.75 (400)	17.72 (450)	19.68 (500)	23.62 (600)
<i>H</i>	15.67 (398)	17.64 (448)	19.61 (498)	23.54 (598)	27.48 (698)	31.42 (798)	35.35 (898)	39.29 (998)	43.23(1098)	51.10 (1298)
<i>D</i>	13.23 (336)	14.21 (361)	15.19 (386)	17.17 (436)	19.13 (486)	21.10 (536)	23.07 (586)	25.04 (636)	27.01 (686)	30.94 (786)
<i>K</i>	25.79 (655)	28.94 (735)	32.09 (815)	38.19 (970)	44.29 (1125)	50.59 (1285)	56.29 (1440)	62.99 (1600)	69.09 (1755)	81.50 (2070)

* This radius is not available for the Tube Series

¹ Values upon request

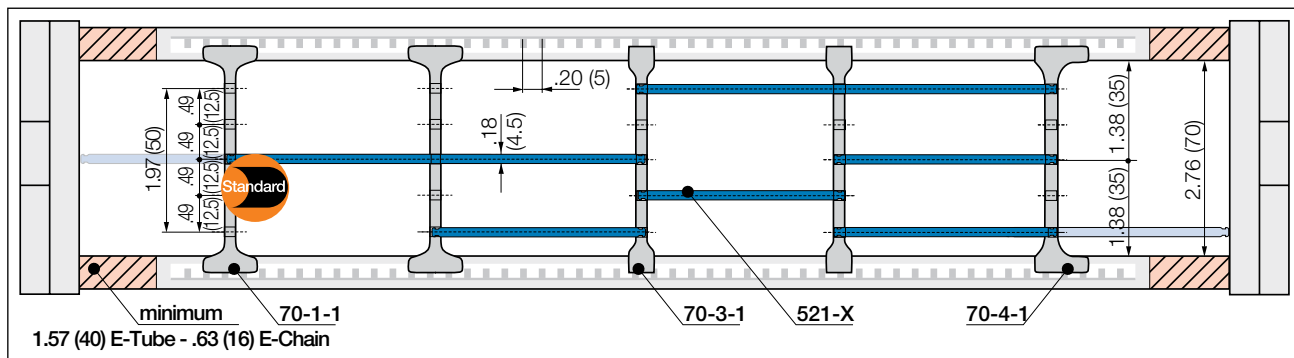
² Note: for using *R 600* for long travels (gliding) please consult igus® first.

0=Standard color black. For other colors see Chapter 1

For large diameter hoses see page 6.22

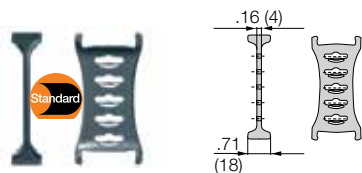
PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains





Note Please maintain a lateral spacing of 1.57" (40 mm) for e-tube and .63" (16 mm) for e-chains® between the separators and the side links. In the standard configuration separators are assembled every 2nd e-chain® link

Telephone 1-800-521-2747

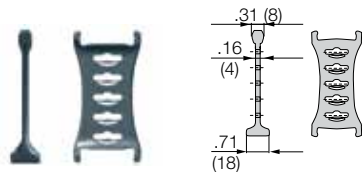


Separator, wide base

Unassembled Part No. 70-1
Assembled Part No. 70-1-1

- **Standard separator 70-1 for all applications**

Separator with wide base for maximum locking strength and safe standing in e-chains®.



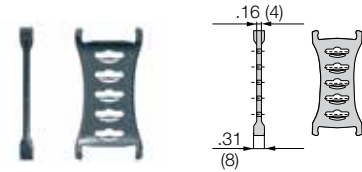
Separator, narrow head

Unassembled Part No. 70-2
Assembled Part No. 70-2-1

- **Separator 70-2**

For even faster installation

Separator for igus® QuickLock crossbar 385-X-Q. Firm hold to one side with a wide base, narrow on opposed side for easy cable assembly (slight grip)



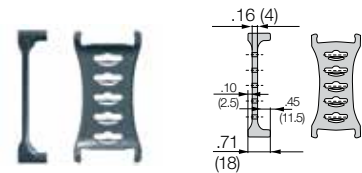
Separator, narrow base

Unassembled Part No. 70-3
Assembled Part No. 70-3-1

- **Separator 70-3**

For many thin cables

Separator with a narrow base for many thin cables side by side. Saves space in e-chains® and e-tubes.



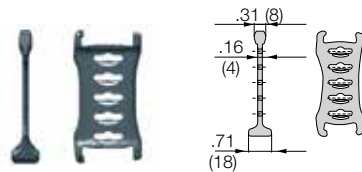
Separator, asymmetrical

Unassembled Part No. 70-4
Assembled Part No. 70-4-1

- **Separator 70-4**

For side mounted applications

Asymmetrical separator, for defined distance. No additional spacers necessary for e-chains® and e-tubes.



Separator, asymmetrical

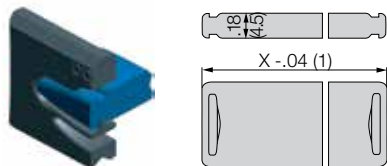
Unassembled Part No. 70-5
Assembled Part No. 70-5-1

- **Separator 70-5**

Locks safely in .20" (5 mm) increments

Notch separator for exact positioning in e-chains®. Recommended for side-mounted applications.

Lockable full-width shelves - for the standard interior separation



Full width shelf, lockable

Unassembled Part No. 520-X
Assembled Part No. 521-X

- **Full width shelf, lockable**

Shelf locks safely into separators on both ends, fixed width possible. Separators can be moved freely over the shelf in horizontal direction. Can be arranged at 5 different heights.

Internet: igus.com
email: sales@igus.com
QuickSpec: igus.com/quickspec

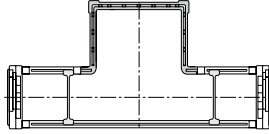
Width X in. (mm)	Part No. Unassembled	Part No. Assembled	Width X in. (mm)	Part No. Unassembled	Part No. Assembled	Width X in. (mm)	Part No. Unassembled	Part No. Assembled
1.97 (050)	520-50	521-50	5.91 (150)	520-150	521-150	11.81 (300)	520-300	521-300
2.56 (065)	520-65	521-65	6.89 (175)	520-175	521-175	13.78 (350)	520-350	521-350
2.95 (075)	520-75	521-75	7.87 (200)	520-200	521-200	14.76 (375)	520-375	521-375
3.94 (100)	520-100	521-100	8.86 (225)	520-225	521-225	15.24 (387)	520-387	521-387
4.92 (125)	520-125	521-125	9.84 (250)	520-250	521-250	17.723 (450)	520-450	521-450



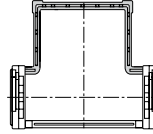
Consult igus® for your extender crossbar applications. We will be happy to assist you with your design layout.

Extender crossbars - For careful guiding of large diameter cables and hoses

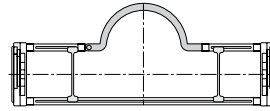
- Intended for cables and hoses with a maximum outer diameter of 9.64 in. (245 mm).
- Can be attached along either the inner or outer radius, inner radius preferred
- Gliding operation with crossbars assembled along the outer radius in conjunction with a special guide trough
- Gliding operation not guaranteed with crossbars assembled along the inner radius
- The extender crossbar can either be attached to the side links directly or can be used in combination with two standard snap-open crossbars.



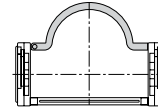
Square extender crossbar combined with standard snap-open crossbars.



Attached directly to the side link.



Round extender crossbar combined with standard snap-open crossbars.



Attached directly to the side link.

Part No.	Max Ø Hose	Style	Installation Side Link	Combined with Snap-Open Crossbars
450-15-RHD115	4.52 (115)	Round	No	Yes
450-17-RD115	4.52 (115)	Round	Yes	No
450-25-D150	5.91 (150)	Square	Yes	No
450-30-D200	7.09 (180)	Square	Yes	No
450-35-D250	7.68 (195)	Square	Yes	No
450-40-D300	9.65 (245)	Square	Yes	No
450-20-HD150	5.91 (150)	Square	No	Yes
450-25-HD200	7.09 (180)	Square	No	Yes
450-30-HD250	7.68 (195)	Square	No	Yes

PDF: igus.com/e-chain-pdfs
 Product information: igus.com/e-chains



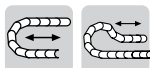
14550
14650
R19050



e-chain system® E4 light Series 14550/14650/R19050 Mounting Brackets

igus®
e-chain system®

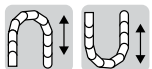
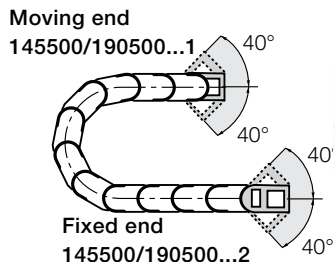
Telephone 1-800-521-2747



Standard Standard

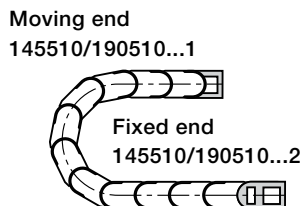
Option 1: KMA pivoting

- Profile rail option
- Universal use
- Corrosion resistant
- Short and long travels
- Space-restricted conditions



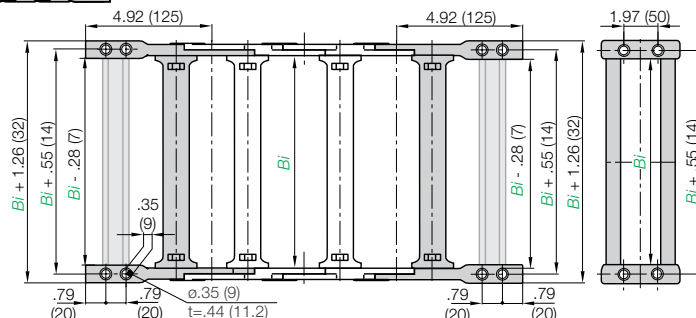
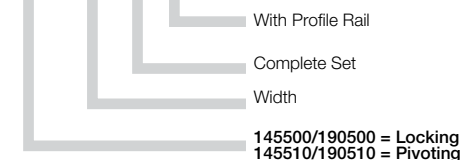
Option 2: KMA locking

- Profile rail option
- Universal use
- Corrosion resistant
- Extreme accelerations
- Vertical hanging/standing travels



Part Number Structure

145500 05- 12 P



Full set, for both ends:

145500- [05-] [12] Full set, each part with pin/bore

Single-part order:

145500- [05-] [1] Mounting bracket with bore
145500- [05-] [2] Mounting bracket with pin

Part number examples are shown for pivoting brackets. For locking brackets change part number to 145510

Part No. Full Set (pivoting for Chain)	Part No. Full Set (pivoting for Chain) with profile rail	Part No. Full Set (pivoting for Tube) Tube Series R19050	Part No. Full Set (pivoting for Tube) with Profile Rail Tube Series R19050
Series 14550 or 14650: 145500-Width-12	Series 14550 or 14650 145550-Width-12P	190500-Width-12	190510-Width-12P

Width	Part No. Full Set		With Profile	Bi in. (mm)	Width	Part No. Full Set		With Profile	Bi in. (mm)		
	Pivoting Chain/Tube	Locking Chain/Tube				Pivoting Chain/Tube	Locking Chain/Tube				
-05	145500-	145510-	05-12	P	1.97 (50)	-31	145500-	145510-	31-12	P	12.28 (312)
-06	145500-	145510-	06-12	P	2.56 (65)	-32	145500-	145510-	32-12	P	12.79 (325)
-07	145500-/190500-	145510-/190510-	07-12	P	2.95 (75)	-33	145500-	145510-	33-12	P	13.27 (337)
-08	145500-	145510-	08-12	P	3.43 (87)	-35	145500-/190500-	145510-/190510-	35-12	P	13.78 (350)
-10	145500-/190500-	145510-/190510-	10-12	P	3.94 (100)	-36	145500-	145510-	36-12	P	14.25 (362)
-11	145500-	145510-	11-12	P	4.41 (112)	-37	145500-	145510-	37-12	P	14.76 (375)
-12	145500-/190500-	145510-/190510-	12-12	P	4.92 (125)	-38	145500-	145510-	38-12	P	15.24 (387)
-13	145500-	145510-	13-12	P	5.39 (137)	-40	145500-/190500-	145510-/190510-	40-12	P	15.75 (400)
-15	145500-/190500-	145510-/190510-	15-12	P	5.91 (150)	-41	145500-	145510-	41-12	P	16.22 (412)
-16	145500-	145510-	16-12	P	6.38 (162)	-42	145500-	145510-	42-12	P	16.73 (425)
-17	145500-/190500-	145510-/190510-	17-12	P	6.89 (175)	-43	145500-	145510-	43-12	P	17.20 (437)
-18	145500-	145510-	18-12	P	7.36 (187)	-45	145500-	145510-	45-12	P	17.72 (450)
-20	145500-/190500-	145510-/190510-	20-12	P	7.87 (200)	-46	145500-/190500-	145510-/190510-	46-12	P	18.19 (462)
-21	145500-	145510-	21-12	P	8.35 (212)	-47	145500-	145510-	47-12	P	18.70 (475)
-22	145500-	145510-	22-12	P	8.86 (225)	-48	145500-	145510-	48-12	P	19.17 (487)
-23	145500-	145510-	23-12	P	9.33 (237)	-50	145500-	145510-	50-12	P	19.69 (500)
-25	145500-/190500-	145510-/190510-	25-12	P	9.84 (250)	-51	145500-	145510-	51-12	P	20.16 (512)
-26	145500-	145510-	26-12	P	10.31 (262)	-52	145500-	145510-	52-12	P	20.67 (525)
-27	145500-/190500-	145510-/190510-	27-12	P	10.83 (275)	-53	145500-	145510-	53-12	P	21.14 (537)
-28	145500-	145510-	28-12	P	11.30 (287)	-55	145500-	145510-	55-12	P	21.65 (550)
-30	145500-/190500-	145510-/190510-	30-12	P	11.81 (300)	-60	145500-	145510-	60-12	P	23.62 (600)

Internet: igus.com
email: sales@igus.com
QuickSpec: igus.com/quickspec

e-chain system® E4 light

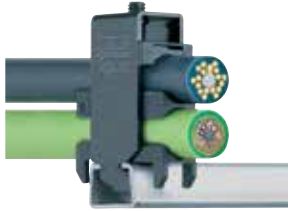
Series 14550/14650/R19050

Strain Relief



14550
14650
R19050

Chainfix clamps for the profile rail



igus® Chainfix strain relief elements are available in either steel or stainless steel. They can be adjusted with a hexagon socket and are available in single, double and triple configurations.

Part No. Single Clamp		Part No. Double Clamp		Part No. Triple Clamp		Cable ø	
Steel	Stainless	Steel	Stainless	Steel	Stainless	in.	(mm)
CFX12-1	CFX12-1E	CFX12-2	CFX12-2E	CFX12-3	-	.24 - .47	(6 - 12)
CFX14-1	CFX14-1E	CFX14-2	CFX14-2E	CFX14-3	-	.47 - .55	(12 - 14)
CFX16-1	CFX16-1E	CFX16-2	CFX16-2E	CFX16-3	-	.55 - .63	(14 - 16)
CFX18-1	CFX18-1E	CFX18-2	CFX18-2E	CFX18-3	-	.63 - .71	(16 - 18)
CFX20-1	CFX20-1E	CFX20-2	CFX20-2E	CFX20-3	-	.71 - .79	(18 - 20)
CFX22-1	CFX22-1E	CFX22-2	CFX22-2E	CFX22-3	-	.79 - .87	(20 - 22)
CFX26-1	CFX26-1E	CFX26-2	CFX26-2E	-	-	.87 - 1.02	(22 - 26)
CFX30-1	CFX30-1E	CFX30-2	CFX30-2E	-	-	1.02 - 1.18	(26 - 30)
CFX34-1	CFX34-1E	CFX34-2	CFX34-2E	-	-	1.18 - 1.34	(30 - 34)
CFX38-1	CFX38-1E	-	-	-	-	1.34 - 1.50	(34 - 38)
CFX42-1	CFX42-1E	-	-	-	-	1.50 - 1.65	(38 - 42)

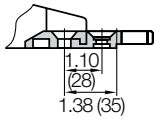
For more information please refer to strain relief section of Chapter 10

Tiewrap Plates

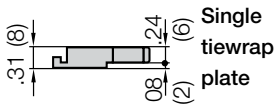
Option 1:

Tiewrap plates as an individual part

Available as an individual component, can be fixed onto a mounting bracket with the use of a profile rail.

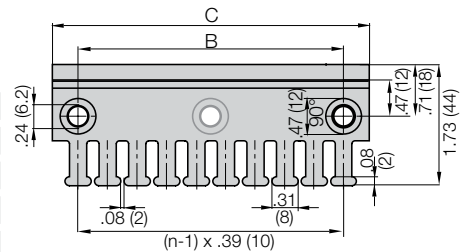


Shown assembled



Single tiewrap plate

Tiewrap Plate	n Number of Teeth	C Overall Width in. (mm)	B Bore Width in. (mm)	Center Bore
3050-ZB	5	1.97 (50)	1.18 (30)	no
3075-ZB	7	2.95 (75)	2.16 (55)	no
3100-ZB	10	3.94 (100)	3.15 (80)	no
3115-ZB	11	4.53 (115)	3.74 (95)	no
3125-ZB	12	4.92 (125)	4.13 (105)	no
3150-ZB	15	5.91 (150)	5.12 (130)	no
3175-ZB	17	6.89 (175)	6.10 (155)	no
3200-ZB	20	7.87 (200)	7.09 (180)	yes
3225-ZB	22	8.86 (225)	8.07 (205)	yes
3250-ZB	25	9.84 (250)	9.06 (230)	yes



If used with KMA brackets with profile rail please add "KMA" to the end of the part number.

Example: 3050-ZBKMA

For more information please refer to strain relief section of Chapter 10

Option 2:

Clip-on Tiewrap plates

Available as a clip-on tiewrap plate without the use of bolts They are inserted and removed with a screwdriver used as a lever. Clip-on tiewrap plates are also available as an attachment to the opening crossbars.



Part No.	Number of Teeth	Width of Strain Relief in. (mm)
3050-ZC	5	1.97 (50)
3075-ZC	7	2.95 (75)

For more information please refer to strain relief section of Chapter 10

Option 3:

Clip-on Tiewrap plates for opening crossbars

Clip-on tiewrap plates are also available as an attachment to opening crossbars. They can be positioned at any point along the e-chain®.



Part No.	Number of Teeth	Width of Strain Relief in. (mm)
4550-ZS	5	1.89 (48)
4575-ZS	7	2.91 (74)

For more information please refer to strain relief section of Chapter 10

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains



Width of Crossbar
14550-10-200-0

	B_{Ri}	Installation Part No.
-05	3.23 (82)	*
-06	3.82 (97)	*
-07	4.21 (107)	94-50-225
-08	4.69 (119)	94-50-250
-10	5.20 (132)	94-50-250
-11	5.67 (144)	94-50-275
-12	6.18 (157)	94-50-275
-13	6.65 (169)	94-50-300
-15	7.17 (182)	94-50-300
-16	7.64 (194)	94-50-325
-17	8.15 (207)	94-50-325
-18	8.62 (219)	94-50-350
-20	9.13 (232)	94-50-350
-21	9.61 (244)	94-50-375
-22	10.12 (257)	94-50-375
-23	10.59 (269)	94-50-400
-25	11.10 (282)	94-50-400
-26	11.57 (294)	94-50-425
-27	12.09 (307)	94-50-425
-28	12.56 (319)	94-50-450
-30	13.07 (332)	94-50-450
-31	13.54 (344)	94-50-475
-32	14.06 (357)	94-50-475
-33	14.53 (369)	94-50-500
-35	15.04 (382)	94-50-500
-36	15.51 (394)	94-50-525
-37	16.02 (407)	94-50-525
-38	16.50 (419)	94-50-550
-40	17.01 (432)	94-50-550
-41	17.48 (444)	94-50-575
-42	17.99 (457)	94-50-575
-43	18.46 (469)	94-50-600
-45	18.98 (482)	94-50-600
-46	19.45 (494)	94-50-625
-47	19.96 (507)	94-50-625
-48	20.43 (519)	94-50-650
-50	20.94 (532)	94-50-650
-51	21.42 (544)	94-50-675
-52	21.93 (557)	94-50-675
-53	22.40 (569)	94-50-700
-55	22.91 (582)	94-50-700
-60	24.88 (632)	94-50-750

Guide troughs are used with applications where the upper run of the e-chain® glides on the lower run. If using igus® steel guide troughs, the following components are required:

- Full travel length of guide trough
Part No. 94-14550-30
- 1/2 travel length glide bars
Part No. 93-01
- Installation sets as end connectors
Part No. 94-50-XX

.XX indicates the length of the profile rails on which the guide trough is mounted. The values and part numbers are specified in the table on the left. The standard length of the trough components and glide bars is 6.56 ft (2 m). The required overall length of the guide trough directly correlates to the length of travel.

Example:

Length of travel 164 ft (50 m)
Center mounted

Required guide troughs

164 ft (50 m) guide trough
82 ft (25 m) glide bars
= 25 sections of 6.56 ft (2 m) guide trough

Part No. 94-30

= 13 sections of 6.56 ft (2 m) glide bars

Part No. 93-01

Required number of installation sets:

= Number of guide trough components + 1
= 25 + 1 = 26

Part number of the installation sets

94-50-XXX

Example:

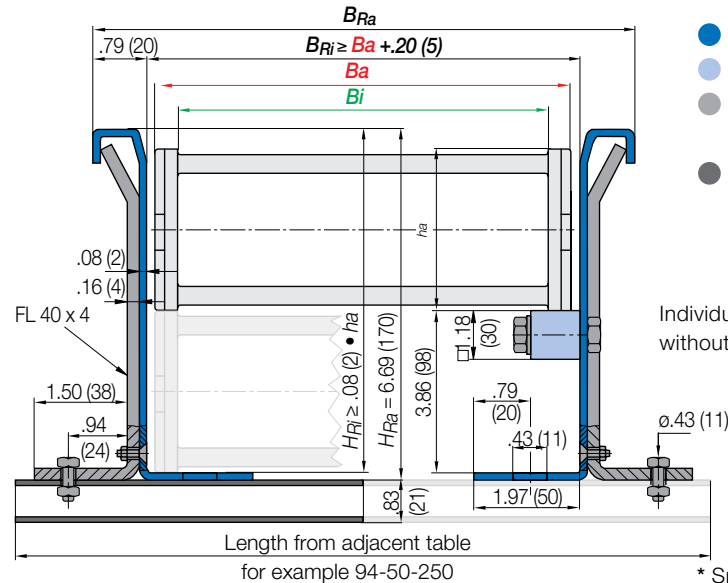
94-50-400 for 15.75 (400 mm) long profile rail



Left: Guide trough with glide bars
Right: Guide troughs without glide bars



Installation sets as section connectors



- Guide trough
- Glide bars
- Installation set "Basic"
- Profile rail

Individual attachment without profile rail

* Specialized guide trough available upon request

Standard length profile rail

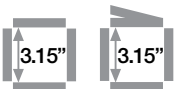
PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains



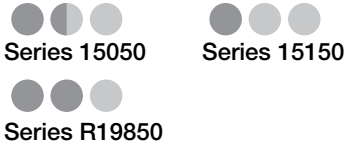
15050
15150
R19850



e-chain system® E4 light Series 15050/15150/R19850



Price Index



Special Features / Options

ESD classification:
Electrically conductive ESD/
ATEX version upon request

High torsional rigidity

Side-mounted - unsupported

Assembly Tips



Opening e-chains®: Remove crossbars and clips - Insert screwdriver into the slot, push down, release by lever action



Remove lids/bottoms (e-tubes) - Insert screwdriver into the slot, release by lever action

Other Installation Methods

Vertical, hanging ≤ 328 ft (100 m)

Vertical, standing ≤ 19.69 ft (6 m)

Side-mounted, un supp. ≤ 6.56 ft (2 m)

Rotary requires further calculation

Usage Guidelines



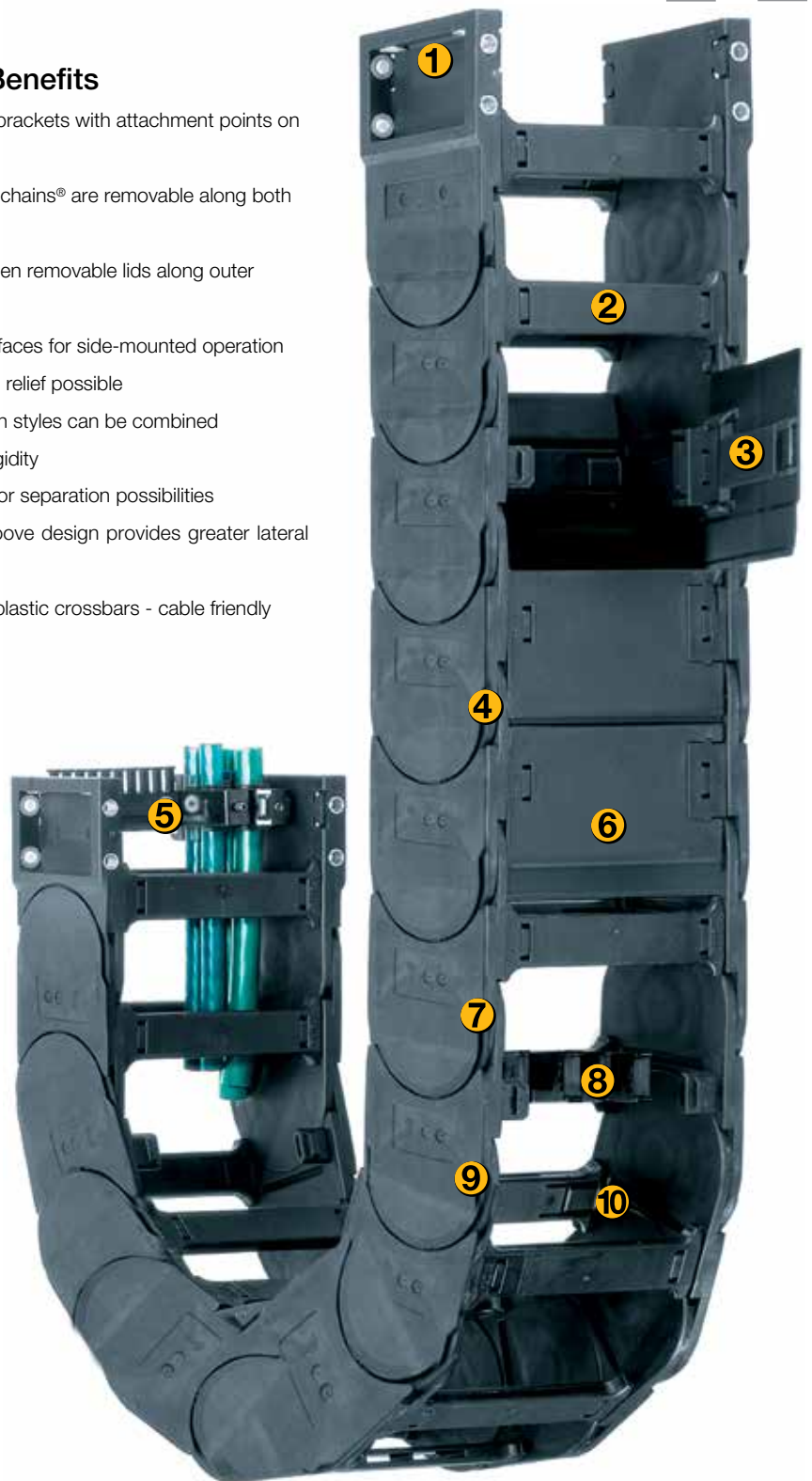
- If a simpler low-cost solution is required
- For maximum inner width with minimal outer width
- If the Series 5050 is too large



- If side-mounted chain/tube with a long unsupported travel is required
➤ Series E4-80/H4-80/R4-80

Features & Benefits

- 1 KMA mounting brackets with attachment points on all sides
- 2 Crossbars on e-chains® are removable along both radii
- 3 Hinged snap-open removable lids along outer radius of e-tube
- 4 Lateral glide surfaces for side-mounted operation
- 5 Integrated strain relief possible
- 6 Closed and open styles can be combined
- 7 High torsional rigidity
- 8 Numerous interior separation possibilities
- 9 Tongue and groove design provides greater lateral stability
- 10 Wide, rounded plastic crossbars - cable friendly



Order Example: Complete e-chain®

Please indicate chain length or number of links. Example:

16.4 ft (5 m) 15050-30-300-0



e-chain®

With 2 separators 80.1.1 assembled every 2nd link



Interior Separation

1 Set 150500-30-12P



Mounting Bracket

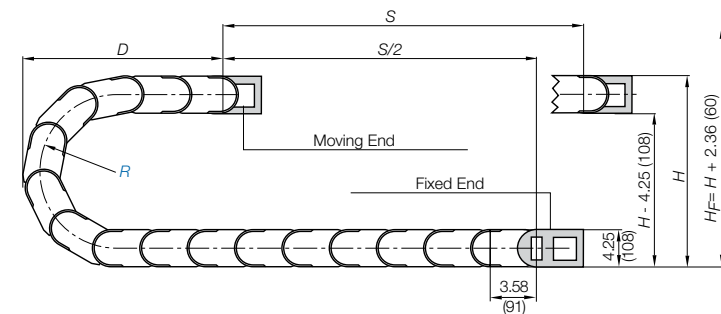
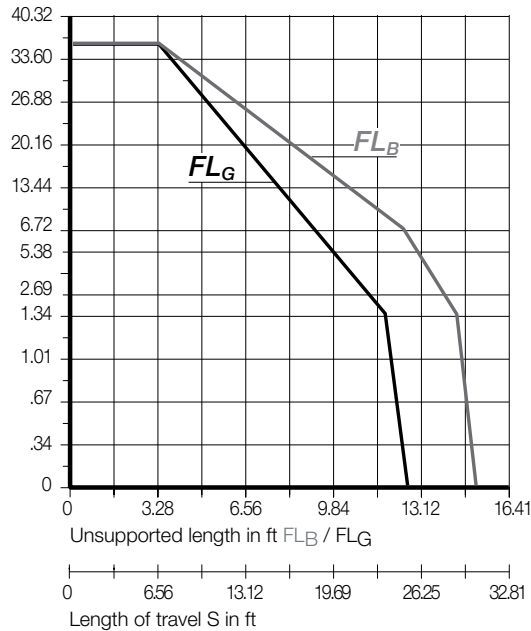
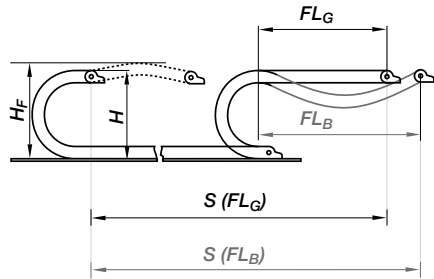
e-chain system® E4 light

Series 15050/15150/R19850

Installation Dimensions

Short travel, unsupported length

- FL_B = unsupported with permitted sag
 - FL_G = unsupported with straight upper run
- Further information ► Design, Chapter 1



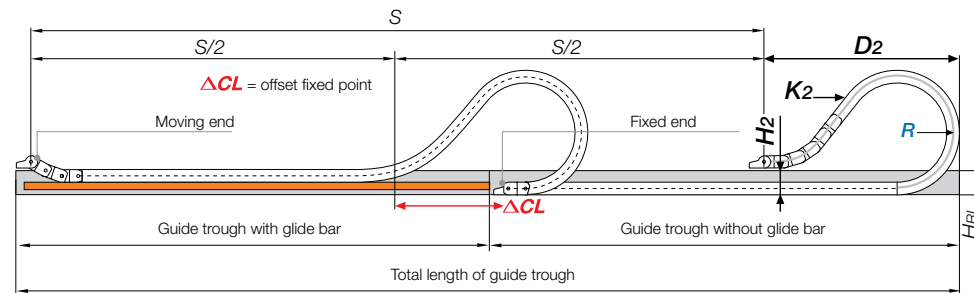
Pitch per link: = 3.58" (91 mm)
 Links per ft (m): = 3.35 (11)
 For center mount applications:
 Chain length = $\frac{S}{2} + K$

The required clearance height: $H_f = H + 2.36$ in. (60 mm) (with 2.02 lbs/ft (3 kg/m) fill weight). Please consult igus® if space is particularly restricted.

R	5.91 (150)	7.87 (200)	9.84 (250)	11.81 (300)	13.78 (350)	15.75 (400)	19.68 (500)	23.62 (600)
H_{2s}	16.06 (408)	20.00 (508)	23.94 (608)	27.87 (708)	31.81 (808)	35.75 (908)	43.62 (1108)	51.50 (1308)
D	13.43 (341)	15.39 (391)	17.36 (441)	19.33 (491)	21.30 (541)	23.27 (591)	27.20 (691)	31.14 (791)
K	25.79 (655)	32.09 (815)	38.19 (970)	44.29 (1125)	50.59 (1285)	56.69 (1440)	69.09 (1755)	81.50 (2070)

For long travels with lowered mounting height

Long travel lengths from 32.8 ft.(10m) to max. 820 ft. (250m)



R	5.91 (150*)	7.87 (200)	9.84 (250)	11.81 (300)	13.78 (350)	15.75 (400)	19.68 (500)	23.62 (600 ¹⁾)
H_2	9.53 (242)	9.53 (242)	9.53 (242)	9.53 (242)	9.53 (242)	9.53 (242)	9.53 (242)	*
D_2^{+25}	21.65 (550)	31.50 (800)	37.40 (950)	47.24 (1200)	61.02 (1550)	66.93 (1700)	85.63 (2175)	*
K_2	35.83 (910)	50.16 (1274)	64.49 (1638)	78.82 (2002)	96.73 (2457)	107.48 (2730)	136.14 (3458)	*
ΔCL	8.23 (209)	16.10 (409)	20.04 (509)	27.91 (709)	39.72 (1009)	43.66 (1109)	58.42 (1484)	*

¹⁾ R 600 not suitable for long travel applications. Please consult igus®

Speed / acceleration FL_G	max. 65.6 ft/s (20 m/s) / max. 656 ft/s ² (200 m/s ²)
Speed / acceleration FL_B	max. 9.84 ft/s (3 m/s) / max. 19.69 ft/s ² (6 m/s ²)
Gliding speed / acceleration (maximum)	max. 32.8 ft/s (10 m/s) / max. 164 ft/s ² (50 m/s ²)
Material - permitted temperature	igumid G / -40°F (-40°C) up to +248°F (+120°C)
Flammability Class, igumid G	VDE 0304 IIC UL94 HB



15050
15150
R19850

Short Travels - Unsupported



Unsupported e-chains® feature positive camber over short travels. This must be accounted for when specifying the clearance height. Please refer to **Installation dimensions** for further details.

Legend

- S = Length of travel
 - R = Bending radius
 - H = Nominal clearance height
 - D = Overlength e-chain® radius in final position
 - $K = \pi \cdot R + \text{safety buffer}$
 - H_f = Required clearance height
 - H_{ri} = Trough inner height
 - H_2 = *Mounting height
 - D_2 = Overlength - long travels, gliding
 - K_2 = *Add-on
- *If the mounting bracket location is set lower



PDF: igus.com/e-chain-pdfs
 Product information: igus.com/e-chains

Long Travels - Gliding



If the unsupported length is exceeded, the e-chain®/ Tube must glide on itself. This requires a guide trough.

Design, Chapter 1

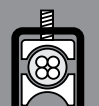


For support of the lower run, see **Chapter 9** of the main catalog for the **Support Tray** tool kit

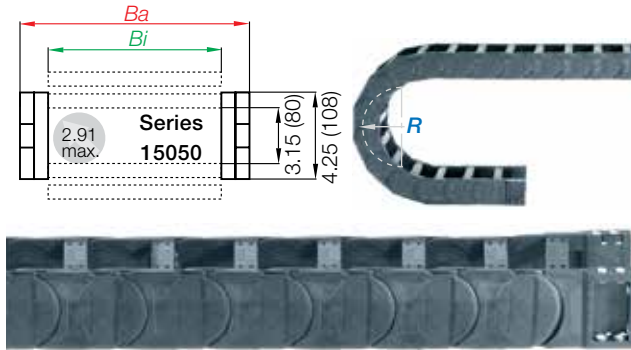
Technical Data



Details of material properties ► **Chapter 1**

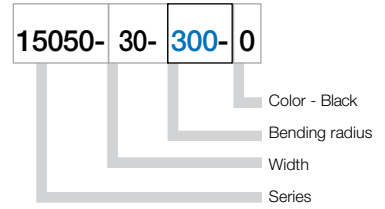


Series 15050 - e-chain® with crossbars every link

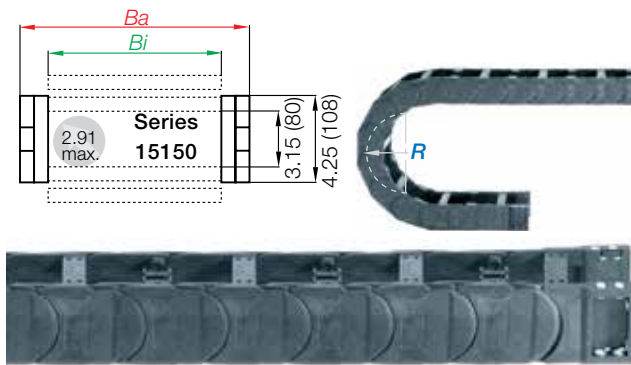


- Crossbars every link
- For use with rigid hydraulic hoses
- For particularly demanding applications
- Can be opened from both sides

Part Number Structure

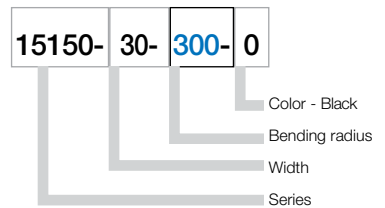


Series 15150 - e-chain® with crossbars every other link

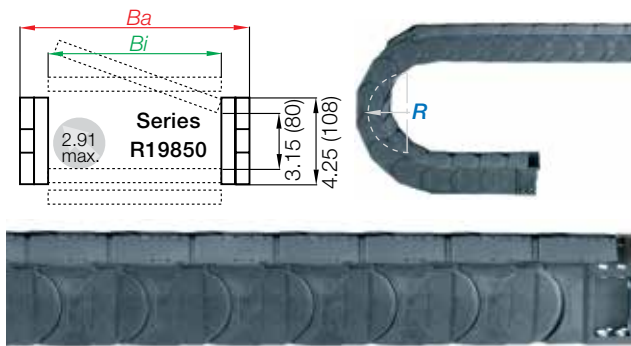


- Crossbars every other link - Standard configuration
- For nearly every situation
- Can be opened from both sides
- Easy assembly
- Stable
- Cost-effective

Part Number Structure



Series R19850 - fully enclosed e-tube

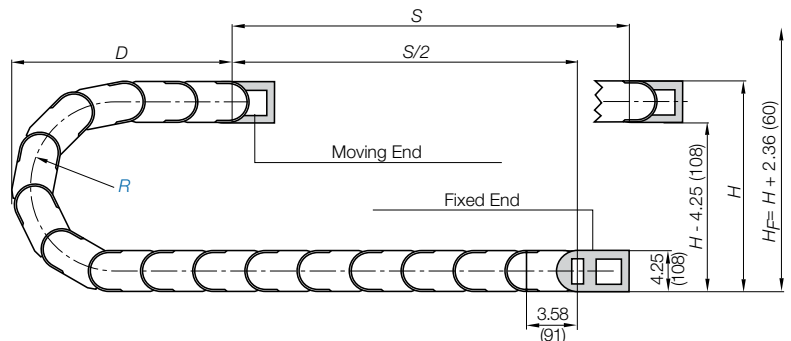
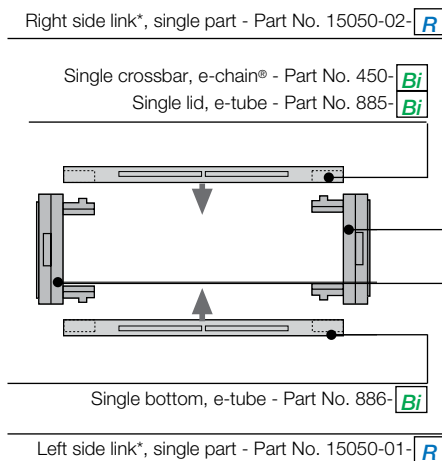


- Fully enclosed
- Excellent cable and hose protection against dirt
- Protection against hot chips
- Lids along inner radius are completely removable
- Lids along the outer radius are single-sided, snap open, hinged on one side as well as completely removable

Part Number Structure



e-chain® as separate parts, links and side plates



*View from the fixed point of the e-chain®/e-tube

e-chain system® E4 light

Series 15050/15150/R19850

Supplement part number with required radius. Example: 15050-30-300-0

Pitch: 3.58 in. (91mm) per link links/ft (m) = 3.35 (11)



15050
15150
R19850

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains

Part Number.			<i>Bi</i>	<i>Ba</i>	15050	15150	R19850
Crossbars Every link	Crossbars Every other	Tube Version	in. (mm)	in. (mm)	lbs/ft (kg/m)	lbs/ft (kg/m)	lbs/ft (kg/m)
15050-05-	15150-05-	<input type="checkbox"/> -0	1.97 (50)	3.15 (80)	≈2.59 (3.85)	≈ 2.58 (3.84)	-
15050-06-	15150-06-	<input type="checkbox"/> -0	2.56 (65)	3.74 (95)	≈2.65 (3.95)	≈ 2.61 (3.88)	-
15050-07-	15150-07-	19850-07- <input type="checkbox"/> -0*	2.95 (75)	4.13 (105)	≈2.69 (4.00)	≈ 2.63 (3.92)	≈ 3.00 (4.46)
15050-08-	15150-08-	<input type="checkbox"/> -0	3.43 (87)	4.61 (117)	≈ 2.72 (4.05)	≈ 2.66 (3.96)	-
15050-10-	15150-10-	19850-10- <input type="checkbox"/> -0	3.94 (100)	5.12 (130)	≈ 2.81 (4.18)	≈ 2.69 (4.00)	≈ 3.18 (4.74)
15050-11-	15150-11-	<input type="checkbox"/> -0	4.41 (112)	5.63 (143)	≈ 2.90 (4.31)	≈ 2.73 (4.07)	-
15050-12-	15150-12-	19850-12- <input type="checkbox"/> -0	4.92 (125)	6.10 (155)	≈ 2.94 (4.38)	≈ 2.76 (4.10)	≈ 3.43 (5.10)
15050-13-	15150-13-	<input type="checkbox"/> -0	5.39 (137)	6.61 (168)	≈ 3.03 (4.51)	≈ 2.80 (4.17)	-
15050-15-	15150-15-	19850-15- <input type="checkbox"/> -0	5.91 (150)	7.09 (180)	≈ 3.08 (4.58)	≈ 2.82 (4.20)	≈ 3.72 (5.53)
15050-16-	15150-16-	<input type="checkbox"/> -0	6.38 (162)	7.60 (193)	≈ 3.15 (4.69)	≈ 2.86 (4.26)	-
15050-17-	15150-17-	19850-17- <input type="checkbox"/> -0	6.89 (175)	8.07 (205)	≈ 3.23 (4.80)	≈ 2.90 (4.31)	≈ 3.95 (5.80)
15050-18-	15150-18-	<input type="checkbox"/> -0	7.36 (187)	8.58 (218)	≈ 3.30 (4.91)	≈ 2.94 (4.37)	-
15050-20-	15150-20-	19850-20- <input type="checkbox"/> -0	7.87 (200)	9.06 (230)	≈ 3.31 (4.93)	≈ 2.94 (4.38)	≈ 4.11 (6.11)
15050-21-	15150-21-	<input type="checkbox"/> -0	8.35 (212)	9.57 (243)	≈ 3.39 (5.04)	≈ 2.98 (4.43)	-
15050-22-	15150-22-	<input type="checkbox"/> -0	8.86 (225)	10.04 (255)	≈ 3.43 (5.10)	≈ 3.00 (4.47)	-
15050-23-	15150-23-	<input type="checkbox"/> -0	9.33 (237)	10.55 (268)	≈ 3.52 (5.24)	≈ 3.04 (4.53)	-
15050-25-	15150-25-	19850-25- <input type="checkbox"/> -0	9.84 (250)	11.02 (280)	≈ 3.57 (5.32)	≈ 3.08 (4.58)	≈ 4.59 (6.83)
15050-26-	15150-26-	<input type="checkbox"/> -0	10.31 (262)	11.54 (293)	≈ 3.64 (5.41)	≈ 3.10 (4.62)	-
15050-27-	15150-27-	19850-27- <input type="checkbox"/> -0	10.83 (275)	12.01 (305)	≈ 3.71 (5.52)	≈ 3.14 (4.68)	≈ 4.87 (7.26)
15050-28-	15150-28-	<input type="checkbox"/> -0	11.30 (287)	12.52 (318)	≈ 3.72 (5.54)	≈ 3.15 (4.69)	-
15050-30-	15150-30-	19850-30- <input type="checkbox"/> -0	11.81 (300)	12.99 (330)	≈ 3.87 (5.76)	≈ 3.23 (4.80)	≈ 5.03 (7.49)
15050-31-	15150-31-	<input type="checkbox"/> -0	12.28 (312)	13.50 (343)	≈ 3.90 (5.80)	≈ 3.24 (4.82)	-
15050-32-	15150-32-	<input type="checkbox"/> -0	12.79 (325)	13.98 (355)	≈ 3.93 (5.85)	≈ 3.25 (4.84)	-
15050-33-	15150-33-	<input type="checkbox"/> -0	13.27 (337)	14.49 (368)	≈ 4.05 (6.03)	≈ 3.31 (4.93)	-
15050-35-	15150-35-	19850-35- <input type="checkbox"/> -0	13.78 (350)	14.96 (380)	≈ 4.15 (6.18)	≈ 3.37 (5.01)	≈ 5.54 (8.24)
15050-36-	15150-36-	<input type="checkbox"/> -0	14.25 (362)	15.47 (393)	≈ 4.16 (6.19)	≈ 3.37 (5.02)	-
15050-37-	15150-37-	<input type="checkbox"/> -0	14.76 (375)	15.94 (405)	≈ 4.17 (6.20)	≈ 3.37 (5.02)	-
15050-38-	15150-38-	<input type="checkbox"/> -0	15.24 (387)	16.46 (418)	≈ 4.23 (6.29)	≈ 3.40 (5.06)	-
15050-40-	15150-40-	19850-40- <input type="checkbox"/> -0	15.75 (400)	16.93 (430)	≈ 4.36 (6.49)	≈ 3.47 (5.16)	≈ 6.18 (9.20)
15050-41-	15150-41-	<input type="checkbox"/> -0	16.22 (412)	17.44 (443)	≈ 4.46 (6.64)	≈ 3.52 (5.24)	-
15050-42-	15150-42-	<input type="checkbox"/> -0	16.73 (425)	17.91 (455)	≈ 4.57 (6.80)	≈ 3.57 (5.31)	-
15050-43-	15150-43-	<input type="checkbox"/> -0	17.20 (437)	18.43 (468)	≈ 4.61 (6.86)	≈ 3.60 (5.35)	-
15050-45-	15150-45-	<input type="checkbox"/> -0	17.72 (450)	18.90 (480)	≈ 4.66 (6.93)	≈ 3.62 (5.38)	-
15050-46-	15150-46-	19850-46- <input type="checkbox"/> -0	18.19 (462)	19.41 (493)	≈ 4.67 (6.95)	≈ 3.62 (5.39)	≈ 6.49 (9.66)
15050-47-	15150-47-	<input type="checkbox"/> -0	18.70 (475)	19.88 (505)	≈ 4.76 (7.08)	≈ 3.67 (5.46)	-
15050-48-	15150-48-	<input type="checkbox"/> -0	19.17 (487)	20.39 (518)	≈ 4.81 (7.16)	≈ 3.69 (5.49)	-
15050-50-	15150-50-	<input type="checkbox"/> -0	19.69 (500)	20.87 (530)	≈ 4.85 (7.22)	≈ 3.71 (5.52)	-
15050-51-	15150-51-	<input type="checkbox"/> -0	20.16 (512)	21.38 (543)	≈ 4.87 (7.24)	≈ 3.72 (5.53)	-
15050-52-	15150-52-	<input type="checkbox"/> -0	20.67 (525)	21.85 (555)	≈ 4.89 (7.28)	≈ 3.74 (5.56)	-
15050-53-	15150-53-	<input type="checkbox"/> -0	21.14 (537)	22.36 (568)	≈ 5.00 (7.44)	≈ 3.78 (5.63)	-
15050-55-	15150-55-	<input type="checkbox"/> -0	21.65 (550)	22.83 (580)	≈ 5.32 (7.92)	≈ 3.94 (5.87)	-
15050-60-	15150-60-	<input type="checkbox"/> -0	23.62 (600)	24.80 (630)	≈ 5.46 (8.12)	≈ 4.01 (5.97)	-

Choose from the radii below for all of the above sizes

Radius (mm) Example: 15050-30-300-0

	150**	200	250	300	350	400	500
<i>R</i>	5.91 (150)	7.87 (200)	9.84 (250)	11.81 (300)	13.78 (350)	15.75 (400)	19.68 (500)
<i>H</i> ₂₅	16.14 (410)	20.08 (510)	24.02 (610)	27.95 (710)	31.89 (810)	35.83 (910)	43.70 (1110)
<i>D</i>	11.81 (300)	13.78 (350)	15.75 (400)	17.72 (450)	19.69 (500)	21.65 (550)	25.59 (650)
<i>K</i>	29.53 (750)	35.43 (900)	41.34 (1050)	48.23 (1225)	54.13 (1375)	57.09 (1450)	65.94 (1675)

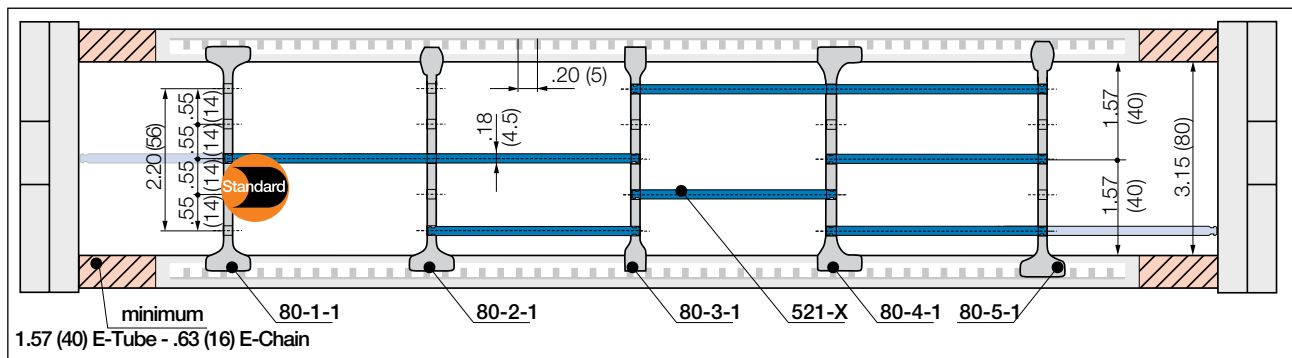
** This radius is not available for the R19850 Series

* Removable lid only, no hinged option

0=Standard color black. For other colors see Chapter 1

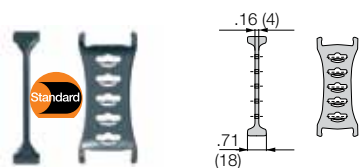
For wider chains see page 6.234 For large diameter hoses see page 6.234





Note Please maintain a lateral spacing of 1.57" (40 mm) for e-tube and .63" (16 mm) for e-chains® between the separators and the side links. In the standard configuration separators are assembled every 2nd e-chain® link

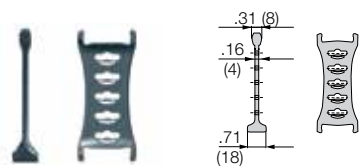
Telephone 1-800-521-2747



Separator, wide base

Unassembled	Part No. 80-1
Assembled	Part No. 80-1-1

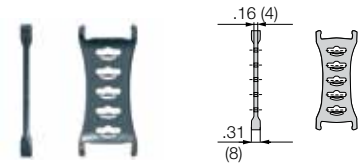
- **Standard separator 80-1 for all applications**
Separator with wide base for maximum locking strength and safe standing in e-chains®.



Separator, narrow head

Unassembled	Part No. 80-2
Assembled	Part No. 80-2-1

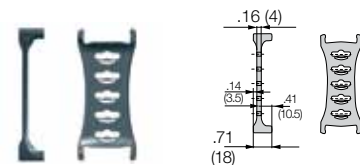
- **Separator 80-2 For even faster installation**
is used when vertical and horizontal separation is required. Due to its slot, it allows basic vertical/horizontal shelving arrangements.



Separator, narrow base

Unassembled	Part No. 80-3
Assembled	Part No. 80-3-1

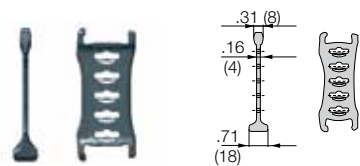
- **Separator 80-3 For many thin cables**
is used when vertical and horizontal separation is required. Due to its slot, it allows basic vertical/horizontal shelving arrangements.



Separator, asymmetrical

Unassembled	Part No. 80-4
Assembled	Part No. 80-4-1

- **Separator 80-4 For side mounted applications**
is used when vertical and horizontal separation is required. Due to its slot, it allows basic vertical/horizontal shelving arrangements.

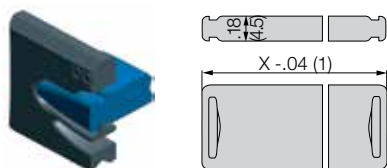


Separator, asymmetrical

Unassembled	Part No. 80-5
Assembled	Part No. 80-5-1

- **Separator 80-5 Locks safely in .30" (7.5 mm) increments**
Notch separator for exact positioning in e-chains®, Recommended for side-mounted applications.

Lockable full-width shelves - for the standard interior separation



Full width shelf, lockable

Unassembled	Part No. 520-X
Assembled	Part No. 521-X

- **Full width shelf, lockable**
Shelf locks safely into separators on both ends, fixed width possible. Separators can be moved freely over the shelf in horizontal direction. Can be arranged at 5 different heights.

Width X in. (mm)	Part No. Unassembled	Part No. Assembled	Width X in. (mm)	Part No. Unassembled	Part No. Assembled	Width X in. (mm)	Part No. Unassembled	Part No. Assembled
1.97 (050)	520-50	521-50	5.91 (150)	520-150	521-150	11.81 (300)	520-300	521-300
2.56 (065)	520-65	521-65	6.89 (175)	520-175	521-175	13.78 (350)	520-350	521-350
2.95 (075)	520-75	521-75	7.87 (200)	520-200	521-200	14.76 (375)	520-375	521-375
3.94 (100)	520-100	521-100	8.86 (225)	520-225	521-225	15.24 (387)	520-387	521-387
4.92 (125)	520-125	521-125	9.84 (250)	520-250	521-250	17.723 (450)	520-450	521-450

e-chain system® E4 light

Series 15050/15150/R19850

Interior Separation - Previous Generation



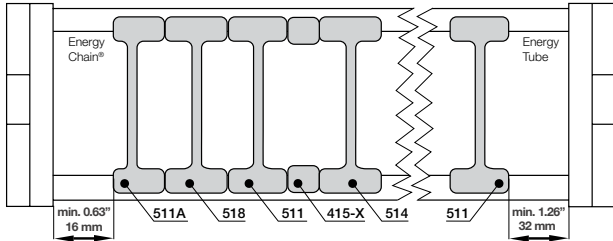
15050
15150
R19850



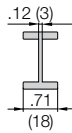
Option 1: Vertical separators and spacers

Vertical separators are used if a vertical subdivision of the e-chain® interior is required. By standard, vertical separators are assembled every other e-chain® link.

NOTE: Observe a lateral spacing of at least 1.30 in. (33mm) for e-tubes and .63 in. (16mm) for e-chain®. There is no minimum spacing needed for side plates



STANDARD
Vertical separator
501



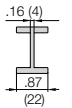
Vertical separator

Unassembled	Part No. 501
Assembled	Part No. 511

- **Standard separator 501 for e-chains® and e-tubes**
This separator offers safe stability due to its wide base design, also when used with thick cables or hoses.



Locking separator
504



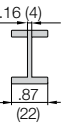
Locking separator (chain only)

Unassembled	Part No. 504
Assembled	Part No. 514

- **Locking separator 504 for e-chains®**
This separator features increased retention force for applications exposed to very high humidity and extreme loads. If locking separators are used, the e-chain® is more difficult to open.



Locking separator
508



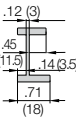
Locking separator (chain only)

Unassembled	Part No. 508
Assembled	Part No. 518

- **Locking separator 508 for e-chains®**
This separator is used for applications that are exposed to extremely high humidity. The clamp at the side serves to uniformly align the separators. In order to avoid destroying the separators when opening the e-chain®, make sure all separators are identically aligned.



Asymmetric separator
501A



Asymmetrical separator (chain only)

Unassembled	Part No. 501A
Assembled	Part No. 511A

- **Asymmetrical separator 501A for e-chains®**
This separator features an (18mm) base. It can be used in combinations between spacers of different widths and vertical separators in side mounted applications.



Spacers
405-XX



Spacer (chain only)

Unassembled	Part No. 405-XX
Assembled	Part No. 415-XX

XX = width of the spacer

- **NOTE ON SPACERS**
Vertical separators are adjustable, but can be fixed in position by means of a spacer. Spacers are most often necessary for side mounted applications. The available inner height is reduced by .08" (2mm) per spacer (for example if one spacer is placed on either side of the separator, the overall inner height is reduced by .16" (4mm). To avoid this, place the spacers on the **outside** of the opening crossbar (not for long travels).

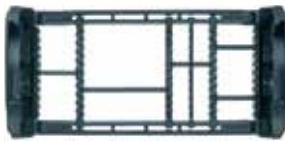
Spacers available in the following sizes:

Part No. Unassembled	Part No. Assembled	in.	(mm)
405 -10	415 -10	.39"	(10)
405 -15	415 -15	.59"	(15)
405 -20	415 -20	.79"	(20)
405 -30	415 -30	1.18"	(30)
405 -40	415 -40	1.57"	(40)



PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains

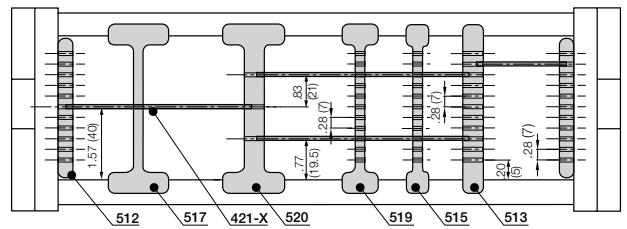




Option 2: Shelves

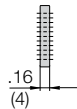
e-chains® and e-tubes can be subdivided both vertically and horizontally using the various interior separation elements.

► **Design, Chapter 1** for layout recommendations.



• **Side plates 502**

This component is used to form the basic pattern of a shelf system.



Side plate

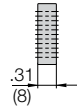
Unassembled	Part No. 502
Assembled	Part No. 512

Side plate 502



• **Vertical separator 503**

This component is used to form the basic pattern of a shelf system.



Vertical separator

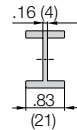
Unassembled	Part No. 503
Assembled	Part No. 513

Vertical separator 503



• **Locking vertical separator 507**

This separator features increased retention force for applications exposed to very high humidity and extreme loads. The extra retention force is achieved by asymmetric claws for the crossbar. Take care to ensure proper alignment.



Locking vertical separator

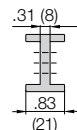
Unassembled	Part No. 507
Assembled	Part No. 517

Locking vertical separator 507



• **Locking vertical separator 510**

This separator is slotted and able to be combined with shelves. For e-chains® only.



Locking vertical separator

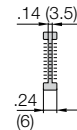
Unassembled	Part No. 510
Assembled	Part No. 520

Locking vertical separator 510



• **Slotted separators 505**

These are used for very complex subdivisions. However, they cannot be retrofitted into an existing separation system without removing the shelves first.



Slotted separators, closed

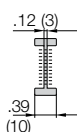
Unassembled	Part No. 505
Assembled	Part No. 515

Closed slotted separator 505



• **Slotted separator 509**

This separator can be retrofitted into an existing interior separation system without removing the shelves, as long as these shelves fit into any of the 7 middle slots



Slotted separators, open

Unassembled	Part No. 509
Assembled	Part No. 519

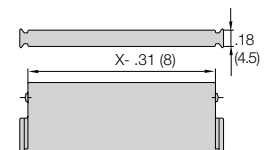
Open slotted separator 509



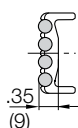
Shelves 420-XX

These components form the basic pattern of a shelf system. Shelves of various widths can be arranged at 7 different heights in .28" (7mm) increments

Width X in. (mm)	Usable Width in. (mm)	Part No. Unassembled	Part No. Assembled	Width X in. (mm)	Usable Width in. (mm)	Part No. Unassembled	Part No. Assembled
.71 (18)	.39 (10)	420-18	421-18	2.95 (75)	2.64 (67)	420-75	421-75
.91 (23)	.59 (15)	420-23	421-23	3.46 (88)	3.15 (80)	420-88	421-88
.98 (25)	.67 (17)	420-25	421-25	3.94 (100)	3.62 (92)	420-100	421-100
1.10 (28)	.79 (20)	420-28	421-28	4.92 (125)	4.61(117)	420-125	421-125
1.30 (33)	.98 (25)	420-33	421-33	5.91 (150)	5.59(142)	420-150	421-150
1.69 (43)	1.38 (35)	420-43	421-43	6.89 (175)	6.57(167)	420-175	421-175
1.97 (50)	1.65 (42)	420-50	421-50	7.36 (187)	7.05(179)	420-187	421-187
2.44 (62)	2.13 (54)	420-62	421-62	7.87 (200)	7.56(192)	420-200	421-200

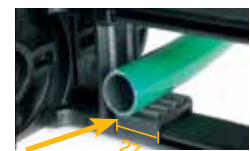


Rollclip - minimizes abrasion of particularly sensitive hoses or cables in an e-chain®. The integrated rollers compensate for relative movement between the chain and the hose or cable. This reduces the abrasion of the hoses or cables



Rollclip

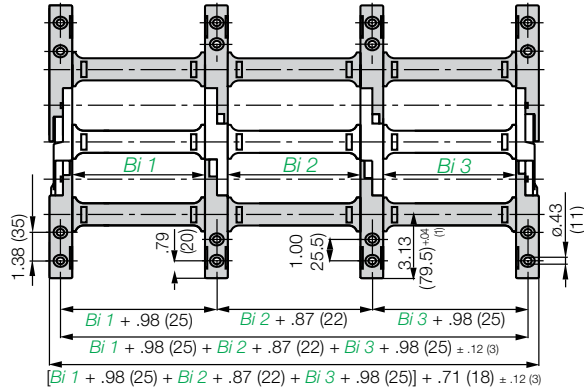
Unassembled	Part No. 489-27
Assembled	Part No. 490-27





Extension links - for extremely wide e-chains® up to 9.84 ft (3m)

- For applications in which particularly high fill weights necessitate extremely wide e-chains®
- The extension link design allows virtually limitless side-by-side attachment of chains
- The unsupported length of a chain can be increased when additional loads are required
- Extension links can be used with e-chains®, e-tubes or a combination of both
- They are suitable for unsupported and gliding applications in a guide trough
- e-chains® with extension links are attached with KMA or steel mounting brackets.



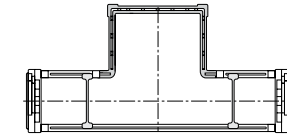
Part number example for e-chain®
15050-10/20/10-200-0
15050-*Bi1/Bi2/Bi3*-R-0

We **strongly recommend** on-site consultation with an igus® technician for individual advice regarding mounting brackets, guide troughs and other design details.

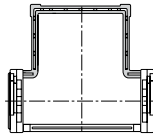


Extender crossbars - For careful guiding of large diameter cables and hoses

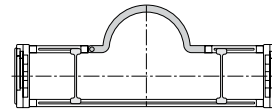
- Intended for cables and hoses with a maximum outer diameter of 10.63 in. (270 mm).
- Can be attached along either the inner or outer radius, inner radius preferred
- Gliding operation with crossbars assembled along the outer radius in conjunction with a special guide trough
- Gliding operation not guaranteed with crossbars assembled along the inner radius
- The extender crossbar can either be attached to the side links directly or can be used in combination with two standard snap-open crossbars.



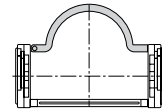
Square extender crossbar combined with standard snap-open crossbars.



Attached directly to the side link.



Round extender crossbar combined with standard snap-open crossbars.



Attached directly to the side link.

Consult igus® for your extender crossbar applications. We will be happy to assist you with your design layout.

Part No.	Max Ø Hose	Style	Installation Side Link	Combined with Snap-Open Crossbars
450-15-RHD115	4.52 (115)	Round	No	Yes
450-17-RD115	4.52 (115)	Round	Yes	No
450-25-D150	5.91 (150)	Square	Yes	No
450-30-D200	7.09 (180)	Square	Yes	No
450-35-D250	7.68 (195)	Square	Yes	No
450-40-D300	9.65 (245)	Square	Yes	No
450-20-HD150	5.91 (150)	Square	No	Yes
450-25-HD200	7.09 (180)	Square	No	Yes
450-30-HD250	7.68 (195)	Square	No	Yes

E4 clip on cable binder

- For side mounted applications
- Serves as a clip-on, lateral guide for hoses and cables on e-chains®
- The loops can be adjusted as needed

- Compatible with many E4 e-chains®
- Economical
- One clip and one locking band are needed for each chain link

Part No.	Form
450-B12	Locking clip, comprised of a locking element
450-B12-200	Locking band, comprised of a locking element and band; 12 x 1.5 x 200 mm



15050
15150
R19850



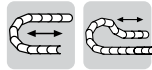
e-chain system® E4 light Series 15050/15150/R19850 Mounting Brackets - KMA

igus®
e-chain system®

Telephone 1-800-521-2747

Internet: igus.com
email: sales@igus.com
QuickSpec: igus.com/quickspec

6.235

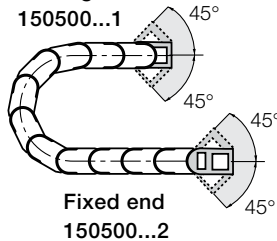


Standard

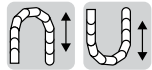
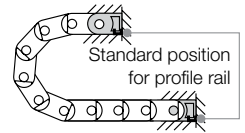
Option 1: KMA pivoting

- Profile rail option
- Universal use
- Corrosion resistant
- Short and long travels
- Space-restricted conditions

Moving end
150500...1



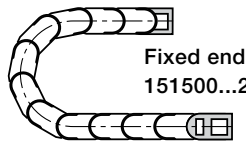
Fixed end
150500...2



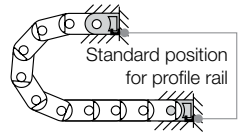
Option 2: KMA locking

- Profile rail option
- Universal use
- Corrosion resistant
- Extreme accelerations
- Vertical hanging/standing travels

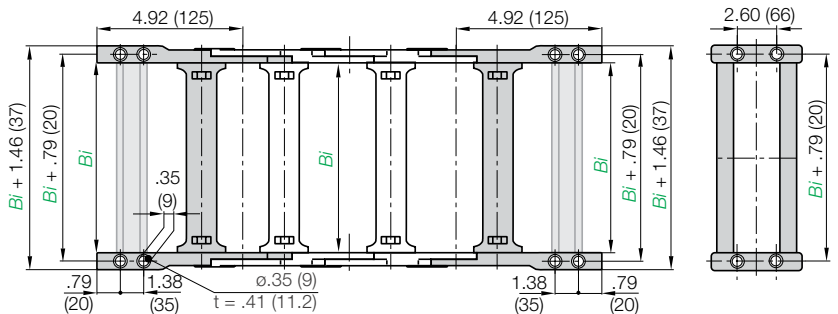
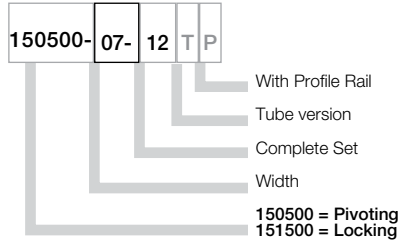
Moving end
151500...1



Fixed end
151500...2



Part Number Structure



Full set, for both ends:

150500-05-12 Full set, each part with pin/bore

Single-part order:

150500-05-1 Mounting bracket with bore

150500-05-2 Mounting bracket with pin

Part number examples are shown for pivoting brackets. For locking brackets change part number to 151500

Part No. Full Set (pivoting)

Series 15050 or 15150:

150500-Width-12

Part No. Full Set (pivoting)

with profile rail

Series 15050 or 15150

150500-Width-12P

Part No. Full Set (pivoting)

Tube Series R19850

150500-Width-12T

Part No. Full Set (pivoting)

with Profile Rail

Tube Series R19850

150500-Width-12TP

Width	Part No. Full Set		Tube Option	With Profile Rail	Bi in. (mm)	Width	Part No. Full Set		Tube Option	With Profile Rail	Bi in. (mm)
	Pivoting	Locking					Pivoting	Locking			
-05	150500	151500	-05-12	P	1.97 (50)	-31	150500	151500	-31-12	P	12.28 (312)
-06	150500	151500	-06-12	P	2.56 (65)	-32	150500	151500	-32-12	P	12.79 (325)
-07	150500	151500	-07-12	T	2.95 (75)	-33	150500	151500	-33-12	P	13.27 (337)
-10	150500	151500	-10-12	T	3.94 (100)	-35	150500	151500	-35-12	T	13.78 (350)
-11	150500	151500	-11-12	P	4.41 (112)	-36	150500	151500	-36-12	P	14.25 (362)
-12	150500	151500	-12-12	T	4.92 (125)	-37	150500	151500	-37-12	P	14.76 (375)
-13	150500	151500	-13-12	P	5.39 (137)	-38	150500	151500	-38-12	P	15.24 (387)
-15	150500	151500	-15-12	T	5.91 (150)	-40	150500	151500	-40-12	T	15.75 (400)
-16	150500	151500	-16-12	P	6.38 (162)	-41	150500	151500	-41-12	P	16.22 (412)
-17	150500	151500	-17-12	T	6.89 (175)	-42	150500	151500	-42-12	P	16.73 (425)
-18	150500	151500	-18-12	P	7.36 (187)	-43	150500	151500	-43-12	P	17.20 (437)
-20	150500	151500	-20-12	T	7.87 (200)	-45	150500	151500	-45-12	P	17.72 (450)
-21	150500	151500	-21-12	P	8.35 (212)	-46	150500	151500	-46-12	T	18.19 (462)
-22	150500	151500	-22-12	P	8.86 (225)	-47	150500	151500	-47-12	P	18.70 (475)
-23	150500	151500	-23-12	P	9.33 (237)	-48	150500	151500	-48-12	P	19.17 (487)
-25	150500	151500	-25-12	T	9.84 (250)	-50	150500	151500	-50-12	P	19.69 (500)
-26	150500	151500	-26-12	P	10.31 (262)	-51	150500	151500	-51-12	P	20.16 (512)
-27	150500	151500	-27-12	T	10.83 (275)	-52	150500	151500	-52-12	P	20.67 (525)
-28	150500	151500	-28-12	P	11.30 (287)	-53	150500	151500	-53-12	P	21.14 (537)
-30	150500	151500	-30-12	T	11.81 (300)	-55	150500	151500	-55-12	P	21.65 (550)
						-60	150500	151500	-60-12	P	23.62 (600)

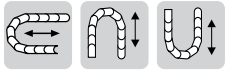
e-chain system® E4 light

Series 15050/15150/R19850

Mounting Brackets - Steel

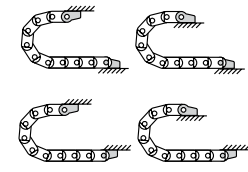
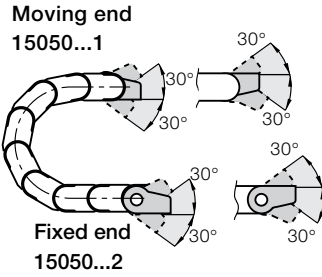


15050
15150
R19850



Option 1: pivoting

- For pivoting connections
- One part for all chain widths
- Electrically conductive



Possible installation configurations -

Part No. Mounting Brackets Full Set

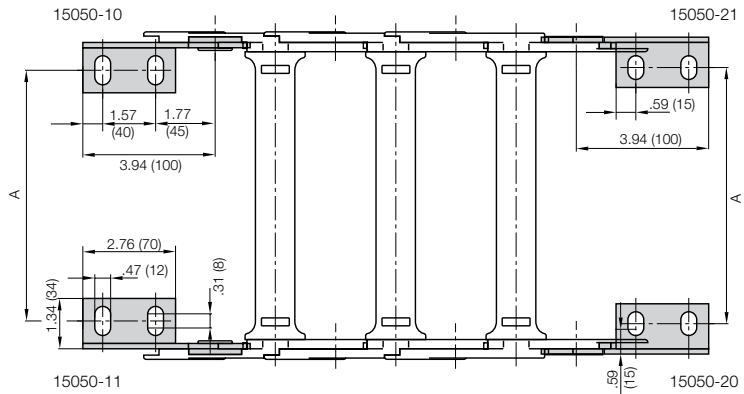
4 parts, 2 with pin, 2 with bore
Series 15050, 15150 or R19850:
15050-12

Part No. Mounting Bracket Moving End

2 parts, 1 left & 1 right with bore
Series 15050, 15150 or R19850:
15050-1

Part No. Mounting Bracket Fixed End

2 parts, 1 left & 1 right with pin
Series 15050, 15150 or R19850:
15050-2



Bracket Mounting Dimensions

Width of Chain <i>Bi</i>	Part Number	Mounting Brackets			Mounting Dimension A in. (mm)	Width of Chain <i>Bi</i>	Part Number	Mounting Brackets			Mounting Dimension A in. (mm)
		Full Set	Moving End Only	Fixed End Only				Full Set	Moving End Only	Fixed End Only	
1.97 (50)	15050	-12	-1	-2	1.02 (26)	12.79 (325)	15050	-12	-1	-2	11.85 (301)
2.56 (65)	15050	-12	-1	-2	1.61 (41)	13.27 (337)	15050	-12	-1	-2	12.32 (313)
2.95 (75)	15050	-12	-1	-2	2.01 (51)	13.78 (350)	15050	-12	-1	-2	12.83 (326)
3.94 (100)	15050	-12	-1	-2	2.99 (76)	14.25 (362)	15050	-12	-1	-2	15.28 (388)
4.41 (112)	15050	-12	-1	-2	3.46 (88)	14.76 (375)	15050	-12	-1	-2	13.82 (351)
4.92 (125)	15050	-12	-1	-2	3.98 (101)	15.24 (387)	15050	-12	-1	-2	14.29 (363)
5.39 (137)	15050	-12	-1	-2	4.45 (113)	15.75 (400)	15050	-12	-1	-2	14.80 (376)
5.91 (150)	15050	-12	-1	-2	4.96 (126)	16.22 (412)	15050	-12	-1	-2	15.28 (388)
6.38 (162)	15050	-12	-1	-2	5.43 (138)	16.73 (425)	15050	-12	-1	-2	15.79 (401)
6.89 (175)	15050	-12	-1	-2	5.94 (151)	17.20 (437)	15050	-12	-1	-2	16.26 (413)
7.36 (187)	15050	-12	-1	-2	6.42 (163)	17.72 (450)	15050	-12	-1	-2	16.77 (426)
7.87 (200)	15050	-12	-1	-2	6.93 (176)	18.19 (462)	15050	-12	-1	-2	17.24 (438)
8.35 (212)	15050	-12	-1	-2	7.40 (188)	18.70 (475)	15050	-12	-1	-2	17.76 (451)
8.86 (225)	15050	-12	-1	-2	7.91 (201)	19.17 (487)	15050	-12	-1	-2	18.23 (463)
9.33 (237)	15050	-12	-1	-2	8.39 (213)	19.69 (500)	15050	-12	-1	-2	18.74 (476)
9.84 (250)	15050	-12	-1	-2	8.90 (226)	20.16 (512)	15050	-12	-1	-2	19.21 (488)
10.31 (262)	15050	-12	-1	-2	9.37 (238)	20.67 (525)	15050	-12	-1	-2	19.72 (501)
10.83 (275)	15050	-12	-1	-2	9.88 (251)	21.14 (537)	15050	-12	-1	-2	20.20 (513)
11.30 (287)	15050	-12	-1	-2	10.35 (263)	21.65 (550)	15050	-12	-1	-2	20.71 (526)
11.81 (300)	15050	-12	-1	-2	10.87 (276)	23.62 (600)	15050	-12	-1	-2	22.68 (576)
12.28 (312)	15050	-12	-1	-2	11.34 (288)						

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains



Chainfix clamps for the profile rail



igus® Chainfix strain relief elements are available in either steel or stainless steel. They can be adjusted with a hexagon socket and are available in single, double and triple configurations.

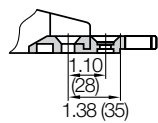
Part No. Single Clamp		Part No. Double Clamp		Part No. Triple Clamp		Cable ø	
Steel	Stainless	Steel	Stainless	Steel	Stainless	in.	(mm)
CFX12-1	CFX12-1E	CFX12-2	CFX12-2E	CFX12-3	-	.24 - .47	(6 - 12)
CFX14-1	CFX14-1E	CFX14-2	CFX14-2E	CFX14-3	-	.47 - .55	(12 - 14)
CFX16-1	CFX16-1E	CFX16-2	CFX16-2E	CFX16-3	-	.55 - .63	(14 - 16)
CFX18-1	CFX18-1E	CFX18-2	CFX18-2E	CFX18-3	-	.63 - .71	(16 - 18)
CFX20-1	CFX20-1E	CFX20-2	CFX20-2E	CFX20-3	-	.71 - .79	(18 - 20)
CFX22-1	CFX22-1E	CFX22-2	CFX22-2E	CFX22-3	-	.79 - .87	(20 - 22)
CFX26-1	CFX26-1E	CFX26-2	CFX26-2E	-	-	.87 - 1.02	(22 - 26)
CFX30-1	CFX30-1E	CFX30-2	CFX30-2E	-	-	1.02 - 1.18	(26 - 30)
CFX34-1	CFX34-1E	CFX34-2	CFX34-2E	-	-	1.18 - 1.34	(30 - 34)
CFX38-1	CFX38-1E	-	-	-	-	1.34 - 1.50	(34 - 38)
CFX42-1	CFX42-1E	-	-	-	-	1.50 - 1.65	(38 - 42)

For more information please refer to strain relief section of Chapter 10

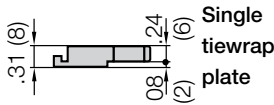
Tiewrap Plates

Option 1:
Tiewrap plates as an individual part

Available as an individual component, can be fixed onto a mounting bracket with the use of a profile rail.

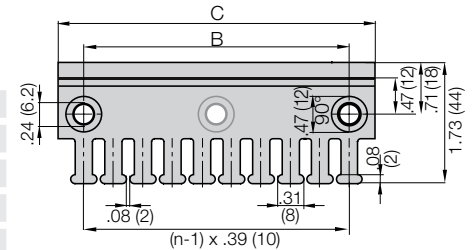


Shown assembled



Single tiewrap plate

Tiewrap Plate	n Number of Teeth	C Overall Width in. (mm)	B Bore Width in. (mm)	Center Bore
3050-ZB	5	1.97 (50)	1.18 (30)	no
3075-ZB	7	2.95 (75)	2.16 (55)	no
3100-ZB	10	3.94 (100)	3.15 (80)	no
3115-ZB	11	4.53 (115)	3.74 (95)	no
3125-ZB	12	4.92 (125)	4.13 (105)	no
3150-ZB	15	5.91 (150)	5.12 (130)	no
3175-ZB	17	6.89 (175)	6.10 (155)	no
3200-ZB	20	7.87 (200)	7.09 (180)	yes
3225-ZB	22	8.86 (225)	8.07 (205)	yes
3250-ZB	25	9.84 (250)	9.06 (230)	yes



If used with KMA brackets with profile rail please add "KMA" to the end of the part number.

Example: 3050-ZBKMA

For more information please refer to strain relief section of Chapter 10

Option 2:
Clip-on Tiewrap plates

Available as a clip-on tiewrap plate without the use of bolts They are inserted and removed with a screwdriver used as a lever. Clip-on tiewrap plates are also available as an attachment to the opening crossbars.



Part No.	Number of Teeth	Width of Strain Relief in. (mm)
3050-ZC	5	1.97 (50)
3075-ZC	7	2.95 (75)

For more information please refer to strain relief section of Chapter 10

Option 3:
Clip-on Tiewrap plates for opening crossbars

Clip-on tiewrap plates are also available as an attachment to opening crossbars. They can be positioned at any point along the e-chain®.



Part No.	Number of Teeth	Width of Strain Relief in. (mm)
4550-ZS	5	1.89 (48)
4575-ZS	7	2.91 (74)

For more information please refer to strain relief section of Chapter 10

e-chain system® E4 light

Series 15050/15150/R19850

Guide Trough



15050
15150
R19850

Width of Crossbar
15050-05-200-0

	B_{Ri}	Installation Part No.
-05	3.35 (85) *	
-07	4.33 (110)	96-50-225
-10	5.31 (135)	96-50-250
-11	5.83 (148)	96-50-275
-12	6.30 (160)	96-50-275
-13	6.81 (173)	96-50-300
-15	7.28 (185)	96-50-300
-16	7.80 (198)	96-50-325
-17	8.27 (210)	96-50-325
-18	8.78 (223)	96-50-350
-20	9.25 (235)	96-50-350
-21	9.76 (248)	96-50-375
-22	10.24 (260)	96-50-375
-23	10.75 (273)	96-50-400
-25	11.22 (285)	96-50-400
-26	11.73 (298)	96-50-425
-27	12.20 (310)	96-50-425
-28	12.72 (323)	96-50-450
-30	13.19 (335)	96-50-450
-31	13.70 (348)	96-50-475
-32	14.17 (360)	96-50-475
-33	14.69 (373)	96-50-500
-35	15.16 (385)	96-50-500
-36	15.67 (398)	96-50-525
-37	16.14 (410)	96-50-525
-38	16.65 (423)	96-50-550
-40	17.13 (435)	96-50-550
-41	17.63 (448)	96-50-575
-42	18.11 (460)	96-50-575
-43	18.62 (473)	96-50-600
-45	19.09 (485)	96-50-600
-46	19.61 (498)	96-50-625
-47	20.08 (510)	96-50-625
-48	20.59 (523)	96-50-650
-50	21.06 (535)	96-50-650
-51	21.57 (548)	96-50-675
-52	22.04 (560)	96-50-675
-53	22.56 (573)	96-50-700
-55	23.03 (585)	96-50-700
-60	25.00 (635)	96-50-750

Guide troughs are used with applications where the upper run of the e-chain® glides on the lower run. If using igus® steel guide troughs, the following components are required:

- Full travel length of guide trough
Part No. 99-30
- 1/2 travel length glide bars
Part No. 93-01
- Installation sets as end connectors
Part No. 96-50-XX

-XX indicates the length of the profile rails on which the guide trough is mounted. The values and part numbers are specified in the table on the left. The standard length of the trough components and glide bars is 6.56 ft (2 m). The overall length of the guide trough directly correlates to the length of travel.

Example:

Length of travel 164 ft (50 m)
Center-mounted

Required guide troughs:

164 ft (50 m) guide trough, 82 ft. (25 m) glide bar
= 25 sections of 6.56 ft (2 m) guide trough

Part No. 99-30

= 13 sections of 6.56 ft (2 m) glide bar

Part No. 93-01

Required number of installation set:

= Number of guide trough components + 1
= 25 + 1 = 26

Part No. of the installation sets **96-50-XXX**

Example:

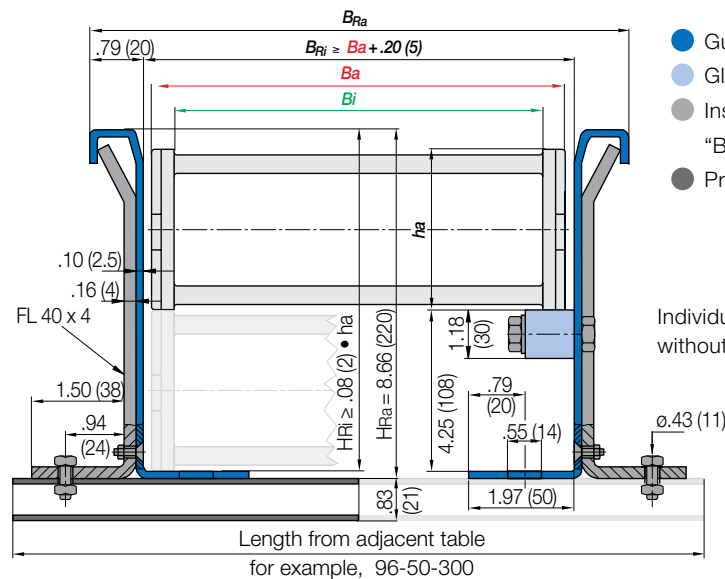
96-50-400 for 15.75 (400 mm) long profile rail



Left: Guide trough with glide bars
Right: Guide troughs without glide bars



Installation sets as section connectors



- Guide trough
- Glide bars
- Installation set "Basic"
- Profile rail

Individual attachment without profile rail

* Specialized guide trough available upon request

Standard length profile rail

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains



15050
15150
R19850



e-chain system® E4 light
Series 15050/15150/R19850
Application Example

igus®
e-chain system®

Telephone 1-800-521-2747

Internet: igus.com
email: sales@igus.com
QuickSpec: igus.com/quickspec



Spray-painting robot with System E4 e-chain® used in an ATEX version made of igumid ESD. High accelerations of up to 19.69 f/s^2 (6 m/s^2) and high braking rates with a weight of the robot of approximately one ton



PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains



15250
15350



e-chain system® E4 light Series 15250/15350

3.39

Price Index



Special Features / Options

ESD classification:
Electrically conductive ESD/
ATEX version upon request

High torsional rigidity

Side-mounted - unsupported

Assembly Tips



Opening e-chains®: Remove crossbars and clips - Insert screwdriver into the slot, push down, release by lever action



Remove lids/bottoms (e-tubes) - Insert screwdriver into the slot, release by lever action

Other Installation Methods

- Vertical, hanging ≤ 262 ft (80 m)
- Vertical, standing ≤ 19.69 ft (6 m)
- Side-mounted, un supp. ≤ 6.56 ft (2 m)
- Rotary requires further calculation

Usage Guidelines

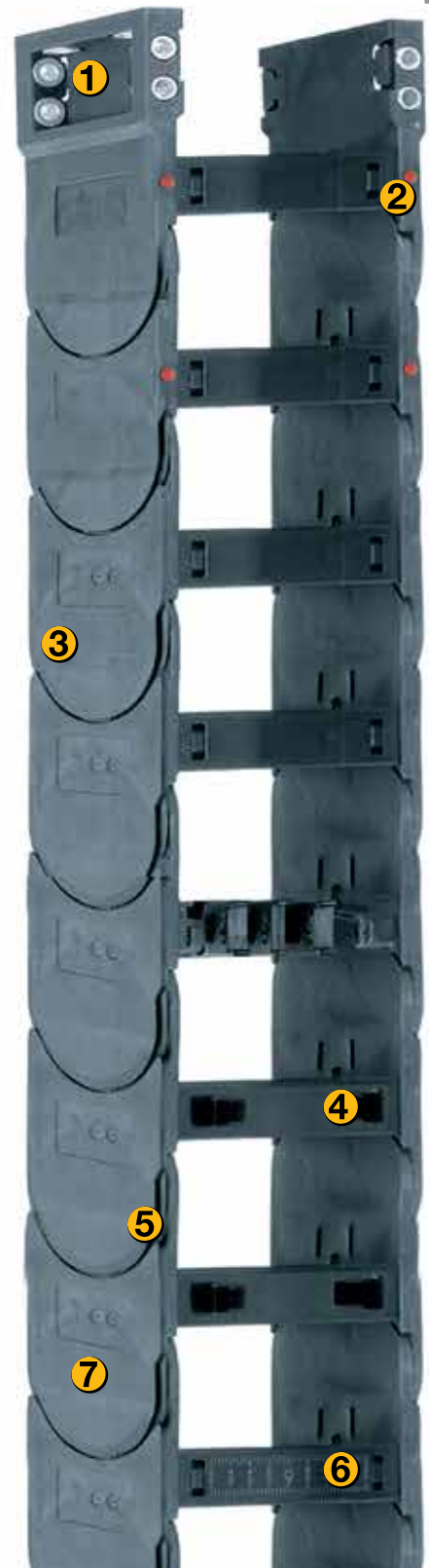
- If weight and price reduction is needed
- If an e-chain®/e-tube with an inner height of 3.39" (86 mm) is required

- If an extremely low-noise and low-vibration version is required
➤ **Series E6-80L**
- If side-mounted chain with a longer unsupported travel is required
➤ **Series E4-80**
- If increased unsupported lengths and longer travels are required
➤ **Series E4-80**
- If high fill weights and/or stiff cables and hoses are used
➤ **Series E4-80**
- If chip protection is necessary
➤ **Series R4-80**

6.241

Features & Benefits

- 1** KMA mounting brackets with attachment points on all sides
- 2** Noise dampening pads, optional = -10dB(A)
- 3** Lateral glide surfaces for side-mounted operation
- 4** 25% faster assembly with QuickLock Crossbar
- 5** High stability due to undercut design
- 6** Notch crossbar with visual scale
- 7** No camber: no rework due to special design



Order Example: Complete e-chain®

Please indicate chain length or number of links. Example:

16.4 ft (5 m) **15250-12-250-0**

e-chain®

With 2 separators **86-1-1** assembled every 2nd link

Interior Separation

1 Set **152500-12-12P**

Mounting Bracket

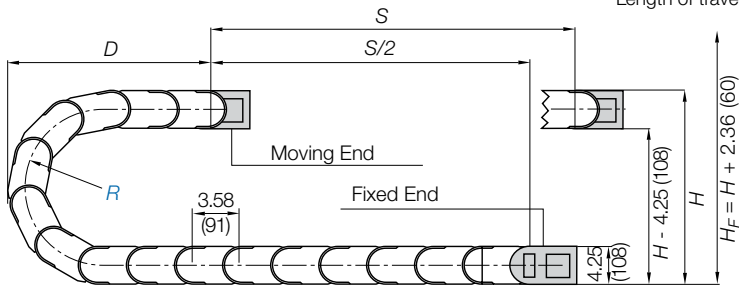
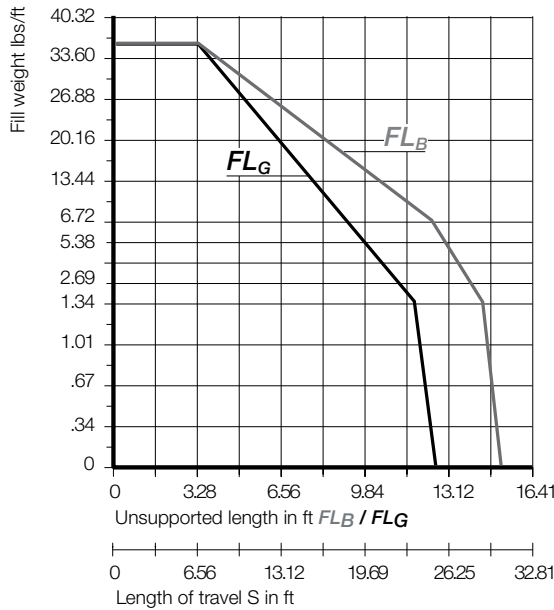
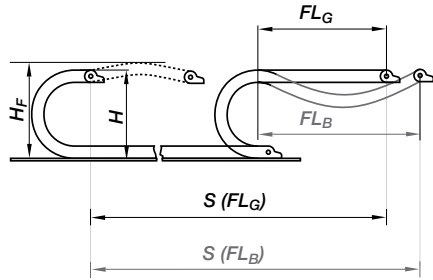
e-chain system® E4 light

Series 15250/15350

Installation Dimensions

Short travel, unsupported length

- FL_B = unsupported with permitted sag
 - FL_G = unsupported with straight upper run
- Further information ► Design, Chapter 1



Pitch per link = 3.58" (91 mm)
 Links per ft (m) = 3.35 (11)
 For center mount applications:
 Chain length = $\frac{S}{2} + K$

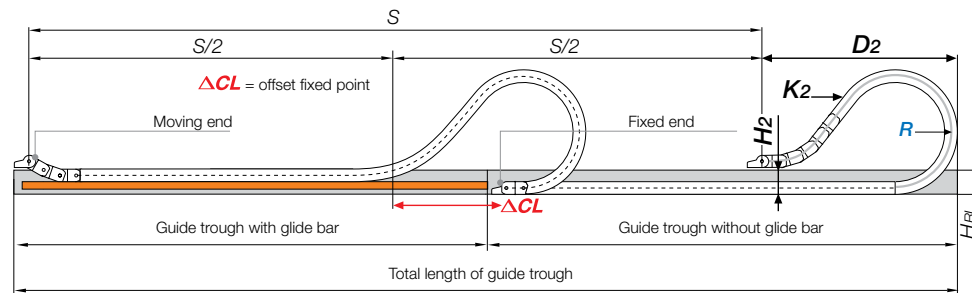
The required clearance height: $H_F = H + 2.36$ in. (60 mm) (with 2.02 lbs/ft (3 kg/m) fill weight. Please consult igus® if space is particularly restricted.

R	5.91 (150)	7.87 (200)	9.84 (250)	11.81 (300)	13.78 (350)	15.75 (400)	19.68 (500)	23.62 (600)
H_{25}	16.06 (408)	20.00 (508)	23.94 (608)	27.87 (708)	31.81 (808)	35.75 (908)	43.62 (1108)	51.50 (1308)
D	13.43 (341)	15.39 (391)	17.36 (441)	19.33 (491)	21.30 (541)	23.27 (591)	27.20 (691)	31.14 (791)
K	25.79 (655)	32.09 (815)	38.19 (970)	44.29 (1125)	50.59 (1285)	56.69 (1440)	69.09 (1755)	81.50 (2070)

For long travels with lowered mounting height

Long travel lengths from 32.8 ft.(10m) to max. 820 ft. (250m)

For center mount applications:
 Chain length = $\frac{S}{2} + K_2$



R	5.91 (150*)	7.87 (200)	9.84 (250)	11.81 (300)	13.78 (350)	15.75 (400)	19.68 (500)	23.62 (600*)
H_2	9.53 (242)	9.53 (242)	9.53 (242)	9.53 (242)	9.53 (242)	9.53 (242)	9.53 (242)	*
D_{25}	21.65 (550)	31.50 (800)	37.40 (950)	47.24 (1200)	61.02 (1550)	66.93 (1700)	85.63 (2175)	*
K_2	35.83 (910)	50.16 (1274)	64.49 (1638)	78.82 (2002)	96.73 (2457)	107.48 (2730)	136.14 (3458)	*
ΔCL	8.23 (209)	16.10 (409)	20.04 (509)	27.91 (709)	39.72 (1009)	43.66 (1109)	58.42 (1484)	*

Speed / acceleration FL_G	max. 65.6 ft/s (20 m/s) / max. 656 ft/s ² (200 m/s ²)
Speed / acceleration FL_B	max. 9.84 ft/s (3 m/s) / max. 19.69 ft/s ² (6 m/s ²)
Gliding speed / acceleration (maximum)	max. 32.8 ft/s (10 m/s) / max. 164 ft/s ² (50 m/s ²)
Material - permitted temperature	igumid G / -40°F (-40°C) up to +248°F (+120°C)
Flammability Class, igumid G	VDE 0304 IIC UL94 HB



15250
15350

Short Travels - Unsupported



Unsupported e-chains® feature positive camber over short travels. This must be accounted for when specifying the clearance height. Please refer to **Installation dimensions** for further details.

Legend

- S = Length of travel
 - R = Bending radius
 - H = Nominal clearance height
 - D = Overlength e-chain® radius in final position
 - $K = \pi \cdot R + \text{safety buffer}$
 - H_F = Required clearance height
 - H_{in} = Trough inner height
 - H_2 = *Mounting height
 - D_2 = Overlength - long travels, gliding
 - K_2 = *Add-on
- *If the mounting bracket location is set lower

3.39

PDF: igus.com/e-chain-pdfs
 Product information: igus.com/e-chains

Long Travels - Gliding



If the unsupported length is exceeded, the e-chain®/ Tube must glide on itself. This requires a guide trough.

Design, Chapter 1



For support of the lower run, see **Chapter 9** of the main catalog for the **Support Tray tool kit**

Technical Data

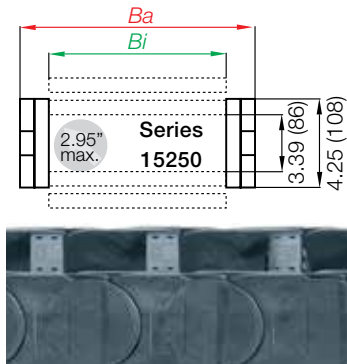


Details of material properties ► **Chapter 1**



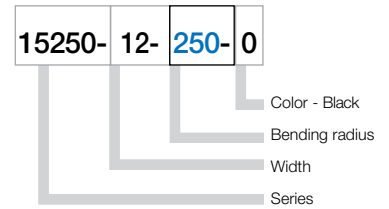
6.242

Series 15250 - e-chain® with crossbars every link

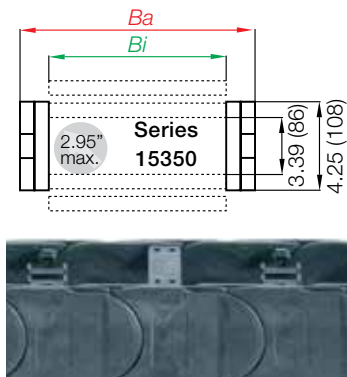


- Crossbars every link
- For use with rigid hydraulic hoses
- For particularly demanding applications
- Can be opened from both sides

Part Number Structure

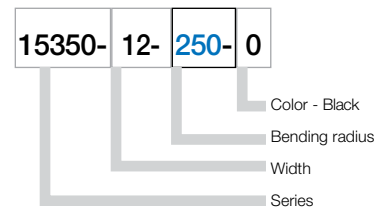


Series 15350 - e-chain® with crossbars every other link



- Crossbars every other link - Standard configuration
- For nearly every situation
- Can be opened from both sides
- Easy assembly
- Stable
- Cost-effective

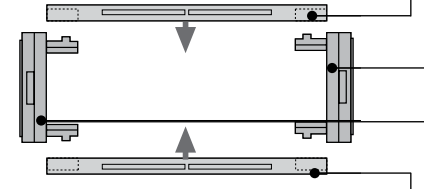
Part Number Structure



e-chain® as separate parts, links and side plates

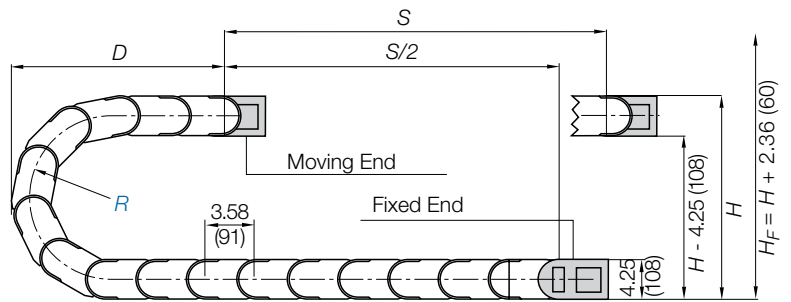
Right side link*, single part - Part No. 15250-02-R

Single crossbar, e-chain® - Part No. 385-Bi



Single crossbar, e-chain® - Part No. 385-Bi

Left side link*, single part - Part No. 15250-01-R



*View from the fixed point of the e-chain®/e-tube

e-chain system® E4 light

Series 15250/15350

Supplement part number with required radius. Example: 15250-30-300-0

Pitch: 3.58 in. (91mm) per link links/ft (m) = 3.35 (11)



15250
15350

Part Number.				<i>Bi</i>	<i>Ba</i>	15250	15350
Crossbars	Crossbars			in. (mm)	in. (mm)	lbs/ft (kg/m)	lbs/ft (kg/m)
Every link	Every other						
15250-05-	15350-05-	<input type="checkbox"/>	-0	1.97 (50)	3.15 (80)	≈ 2.45 (3.64)	≈ 2.39 (3.56)
15250-06-	15350-06-	<input type="checkbox"/>	-0	2.68 (68)	3.86 (98)	≈ 2.50 (3.72)	≈ 2.42 (3.60)
15250-07-	15350-07-	<input type="checkbox"/>	-0	2.95 (75)	4.13 (105)	≈ 2.51 (3.74)	≈ 2.43 (3.61)
15250-087-	15350-087-	<input type="checkbox"/>	-0	3.43 (87)	4.61 (117)	≈ 2.55 (3.79)	≈ 2.44 (3.63)
15250-097-	15350-097-	<input type="checkbox"/>	-0	3.82 (97)	5.00 (127)	≈ 2.57 (3.83)	≈ 2.45 (3.65)
15250-10-	15350-10-	<input type="checkbox"/>	-0	3.94 (100)	5.12 (130)	≈ 2.59 (3.85)	≈ 2.46 (3.66)
15250-11-	15350-11-	<input type="checkbox"/>	-0	4.25 (108)	5.43 (138)	≈ 2.60 (3.87)	≈ 2.47 (3.67)
15250-112-	15350-112-	<input type="checkbox"/>	-0	4.41 (112)	5.63 (143)	≈ 2.61 (3.88)	≈ 2.47 (3.68)
15250-12-	15350-12-	<input type="checkbox"/>	-0	4.92 (125)	6.10 (155)	≈ 2.65 (3.95)	≈ 2.49 (3.71)
15250-137-	15350-137-	<input type="checkbox"/>	-0	5.39 (137)	6.57 (167)	≈ 2.67 (3.98)	≈ 2.51 (3.73)
15250-15-	15350-15-	<input type="checkbox"/>	-0	5.91 (150)	7.09 (180)	≈ 2.71 (4.04)	≈ 2.52 (3.75)
15250-162-	15350-162-	<input type="checkbox"/>	-0	6.38 (162)	7.60 (193)	≈ 2.73 (4.06)	≈ 2.53 (3.76)
15250-17-	15350-17-	<input type="checkbox"/>	-0	6.61 (168)	7.80 (198)	≈ 2.76 (4.11)	≈ 2.55 (3.79)
15250-18-	15350-18-	<input type="checkbox"/>	-0	6.89 (175)	8.07 (205)	≈ 2.77 (4.12)	≈ 2.55 (3.80)
15250-187-	15350-187-	<input type="checkbox"/>	-0	7.36 (187)	8.58 (218)	≈ 2.79 (4.15)	≈ 2.56 (3.81)
15250-20-	15350-20-	<input type="checkbox"/>	-0	7.87 (200)	9.05 (230)	≈ 2.84 (4.23)	≈ 2.59 (3.85)
15250-212-	15350-212-	<input type="checkbox"/>	-0	8.35 (212)	9.56 (243)	≈ 2.86 (4.26)	≈ 2.59 (3.86)
15250-23-	15350-23-	<input type="checkbox"/>	-0	8.86 (225)	10.04 (255)	≈ 2.90 (4.32)	≈ 2.61 (3.89)
15250-237-	15350-237-	<input type="checkbox"/>	-0	9.33 (237)	10.55 (268)	≈ 2.92 (4.34)	≈ 2.62 (3.90)
15250-25-	15350-25-	<input type="checkbox"/>	-0	9.84 (250)	11.02 (280)	≈ 2.97 (4.42)	≈ 2.65 (3.94)
15250-262-	15350-262-	<input type="checkbox"/>	-0	10.31 (262)	11.54 (293)	≈ 3.00 (4.47)	≈ 2.67 (3.97)
15250-28-	15350-28-	<input type="checkbox"/>	-0	10.83 (275)	12.01 (305)	≈ 3.03 (4.51)	≈ 2.68 (3.99)
15250-29-	15350-29-	<input type="checkbox"/>	-0	11.30 (287)	12.52 (318)	≈ 3.04 (4.53)	≈ 2.69 (4.00)
15250-30-	15350-30-	<input type="checkbox"/>	-0	11.81 (300)	12.99 (330)	≈ 3.10 (4.61)	≈ 2.71 (4.04)
15250-312-	15350-312-	<input type="checkbox"/>	-0	12.28 (312)	13.50 (343)	≈ 3.11 (4.63)	≈ 2.72 (4.05)
15250-325-	15350-325-	<input type="checkbox"/>	-0	12.79 (325)	13.98 (355)	≈ 3.15 (4.69)	≈ 2.73 (4.06)
15250-337-	15350-337-	<input type="checkbox"/>	-0	13.27 (337)	14.49 (368)	≈ 3.18 (4.73)	≈ 2.76 (4.10)
15250-350-	15350-350-	<input type="checkbox"/>	-0	13.78 (350)	14.96 (380)	≈ 3.27 (4.87)	≈ 2.80 (4.17)
15250-362-	15350-362-	<input type="checkbox"/>	-0	14.25 (362)	15.47 (393)	≈ 3.31 (4.92)	≈ 2.82 (4.20)
15250-375-	15350-375-	<input type="checkbox"/>	-0	14.76 (375)	15.94 (405)	≈ 3.34 (4.97)	≈ 2.84 (4.22)
15250-387-	15350-387-	<input type="checkbox"/>	-0	15.24 (387)	16.46 (418)	≈ 3.37 (5.01)	≈ 2.85 (4.24)
15250-400-	15350-400-	<input type="checkbox"/>	-0	15.75 (400)	16.93 (430)	≈ 3.39 (5.05)	≈ 2.86 (4.26)

Choose from the radii below for all of the above sizes

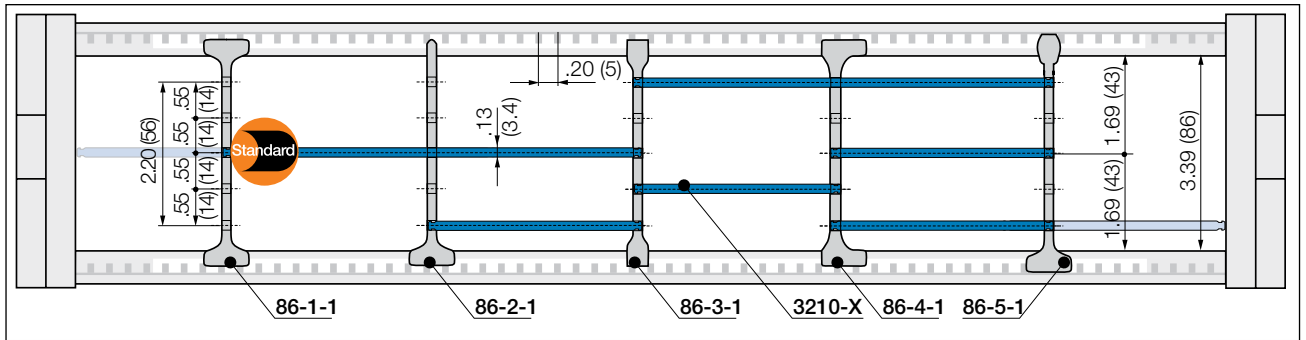
Radius (mm) Example: 15250-30-300-0

	150	200	250	300	350	400	500	600
<i>R</i>	5.91 (150)	7.87 (200)	9.84 (250)	11.81 (300)	13.78 (350)	15.75 (400)	19.68 (500)	23.62 (600)
<i>H</i> ₂₅	16.06 (408)	20.00 (508)	23.94 (608)	27.87 (708)	31.81 (808)	35.75 (908)	43.62 (1108)	51.50 (1308)
<i>D</i>	13.43 (341)	15.39 (391)	17.36 (441)	19.33 (491)	21.30 (541)	23.27 (591)	27.20 (691)	31.14 (791)
<i>K</i>	25.79 (655)	32.09 (815)	38.19 (970)	44.29 (1125)	50.59 (1285)	56.69 (1440)	69.09 (1755)	81.50 (2070)

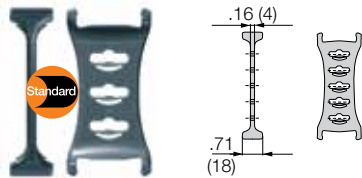
0=Standard color black. For other colors see Chapter 1
For large diameter hoses see page 6.246

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains





In the standard configuration separators are assembled every 2nd e-chain® link

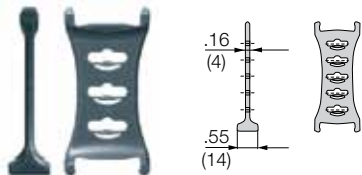


Separator, wide base

Unassembled **Part No. 86-1**
Assembled **Part No. 86-1-1**

● **Standard separator 86-1 for all applications**

Separator with wide base for maximum locking strength and safe standing in e-chains®.

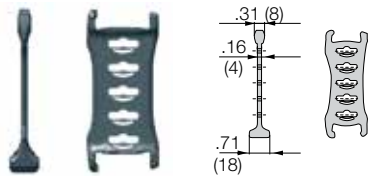


Separator for QuickLock crossbar

Unassembled **Part No. 86-2**
Assembled **Part No. 86-2-1**

● **Separator 86-2 For even faster installation**

Separator for igus® QuickLock crossbar 385-X-Q. Firm hold to one side with a wide base, narrow on opposed side for easy cable assembly (slight grip)



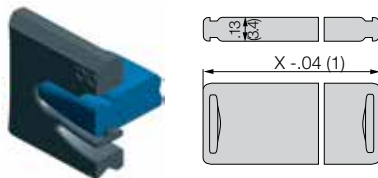
Notch separator for notch crossbar

Unassembled **Part No. 86-5**
Assembled **Part No. 86-5-1**

● **Separator 86-5**

Locks safely in .20" (5 mm) increments
Notch separator for exact positioning in e-chains®. Recommended for side mounted applications.

Lockable full-width shelves - for the standard interior separation



Full width shelf, lockable

Unassembled **Part No. 3200-X**
Assembled **Part No. 3210-X**

● **Full width shelf, lockable**

Shelf locks into separators on both ends, fixed width possible. Separators can be moved freely over the shelf in horizontal direction. Can be arranged at 3 different heights.

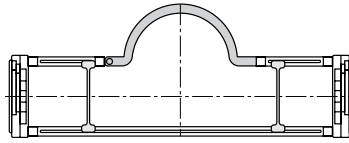
Width X in. (mm)	Part No. Unassembled	Part No. Assembled	Width X in. (mm)	Part No. Unassembled	Part No. Assembled
1.97 (050)	3200-50	3210-50	5.91 (150)	3200-150	3210-150
2.95 (075)	3200-75	3210-75	6.89 (175)	3200-175	3210-175
3.94 (100)	3200-100	3210-100	7.87 (200)	3200-200	3210-200
4.53 (115)	3200-115	3210-115	8.86 (225)	3200-225	3210-225
4.92 (125)	3200-125	3210-125	9.84 (250)	3200-250	3210-250



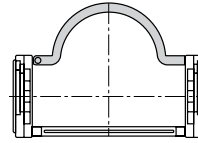
Consult igus® for your extender crossbar applications. We will be happy to assist you with your design layout.

Extender crossbars - For careful guiding of large diameter cables and hoses

- Intended for cables and hoses with a maximum outer diameter of 4.53 in. (115 mm).
- Gliding operation with crossbars assembled along the outer radius in conjunction with a special guide trough
- Gliding operation not guaranteed with crossbars assembled along the inner radius
- The extender crossbar can either be attached to the side links directly or can be used in combination with two standard snap-open crossbars.



Round extender crossbar combined with standard snap-open crossbars.

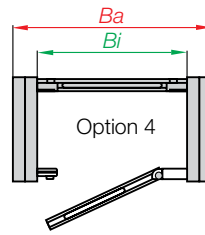
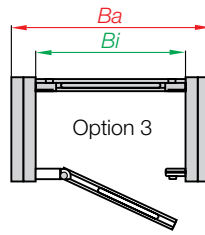
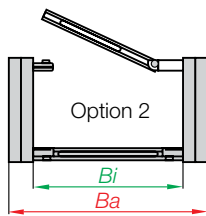
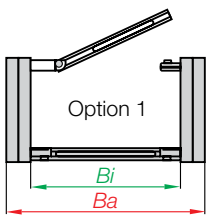


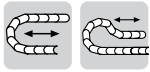
Attached directly to the side link.

Part No.	Max Ø Hose in. (mm)	Style	Installation Side Link	Combined with Snap-Open Crossbars
385-15-RHD115	4.53 (115)	Round	No	Yes
385-18-RD115	4.53 (115)	Round	Yes	No

Hinged crossbars

- Typically, e-chain® crossbars are completely removable. In cases where it is preferable that the opening crossbars remain on the e-chain®, a hinged design has been developed.
- Please consult igus® for design assistance

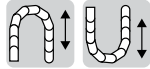
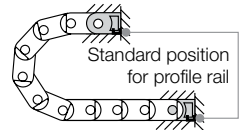
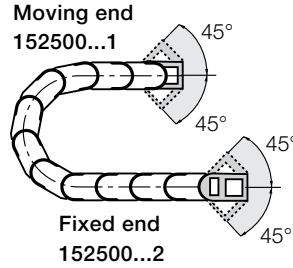




Standard

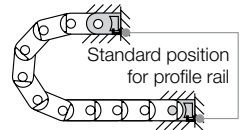
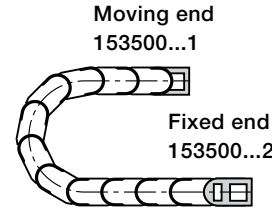
Option 1: KMA pivoting

- Profile rail option
- Universal use
- Corrosion resistant
- Short and long travels
- Space-restricted conditions

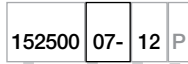


Option 2: KMA locking

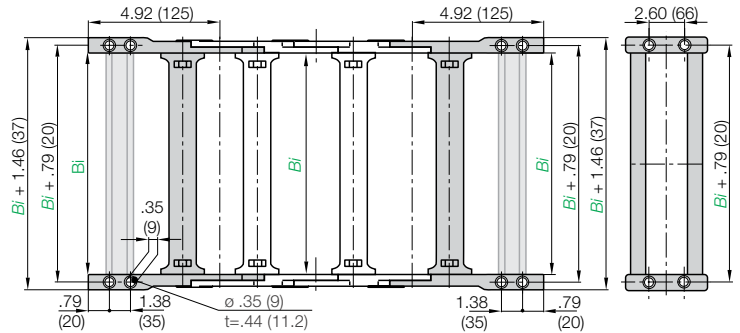
- Profile rail option
- Universal use
- Corrosion resistant
- Extreme accelerations
- Vertical hanging/standing travels



Part Number Structure



With Profile Rail
Complete Set
Width
152500 = Pivoting
153500 = Locking



Full set, for both ends:

152500-05-12 Full set, each part with pin/bore

Single-part order:

152500-05-1 Mounting bracket with bore
152500-05-2 Mounting bracket with pin

Bracket Mounting Dimensions

Width	Part No. Full Set		With Profile Rail	Bi in. (mm)	Part No. Full Set		With Profile Rail	Bi in. (mm)			
	Pivoting	Locking			Pivoting	Locking					
-05	152500	153500	-05-12	P	1.97 (50)	-212	152500	153500	-212-12	P	8.35 (212)
-06	152500	153500	-06-12	P	2.56 (65)	-23	152500	153500	-23-12	P	8.86 (225)
-07	152500	153500	-07-12	P	2.95 (75)	-237	152500	153500	-237-12	P	9.33 (237)
-087	152500	153500	-087-12	P	3.43 (87)	-25	152500	153500	-25-12	P	9.84 (250)
-09	152500	153500	-09-12	P	3.82 (97)	-262	152500	153500	-262-12	P	10.31 (262)
-10	152500	153500	-10-12	P	3.94 (100)	-28	152500	153500	-28-12	P	10.83 (275)
-11	152500	153500	-11-12	P	4.25 (108)	-29	152500	153500	-29-12	P	11.30 (287)
-112	152500	153500	-112-12	P	4.41 (112)	-30	152500	153500	-30-12	P	11.81 (300)
-12	152500	153500	-12-12	P	4.92 (125)	-312	152500	153500	-312-12	P	12.28 (312)
-137	152500	153500	-137-12	P	5.39 (137)	-325	152500	153500	-325-12	P	12.79 (325)
-15	152500	153500	-15-12	P	5.91 (150)	-337	152500	153500	-337-12	P	13.27 (337)
-162	152500	153500	-162-12	P	6.38 (162)	-350	152500	153500	-350-12	P	13.78 (350)
-17	152500	153500	-17-12	P	6.61 (168)	-362	152500	153500	-362-12	P	14.25 (362)
-18	152500	153500	-18-12	P	6.89 (175)	-375	152500	153500	-375-12	P	14.76 (375)
-187	152500	153500	-187-12	P	7.36 (187)	-387	152500	153500	-387-12	P	15.24 (387)
-20	152500	153500	-20-12	P	7.87 (200)	-400	152500	153500	-400-12	P	15.75 (400)

e-chain system® E4 light

Series 15250/15350

Strain Relief



15250
15350

Chainfix clamps for the profile rail



igus® Chainfix strain relief elements are available in either steel or stainless steel. They can be adjusted with a hexagon socket and are available in single, double and triple configurations.

Part No. Single Clamp		Part No. Double Clamp		Part No. Triple Clamp		Cable ø	
Steel	Stainless	Steel	Stainless	Steel	Stainless	in.	(mm)
CFX12-1	CFX12-1E	CFX12-2	CFX12-2E	CFX12-3	-	.24 - .47	(6 - 12)
CFX14-1	CFX14-1E	CFX14-2	CFX14-2E	CFX14-3	-	.47 - .55	(12 - 14)
CFX16-1	CFX16-1E	CFX16-2	CFX16-2E	CFX16-3	-	.55 - .63	(14 - 16)
CFX18-1	CFX18-1E	CFX18-2	CFX18-2E	CFX18-3	-	.63 - .71	(16 - 18)
CFX20-1	CFX20-1E	CFX20-2	CFX20-2E	CFX20-3	-	.71 - .79	(18 - 20)
CFX22-1	CFX22-1E	CFX22-2	CFX22-2E	CFX22-3	-	.79 - .87	(20 - 22)
CFX26-1	CFX26-1E	CFX26-2	CFX26-2E	-	-	.87 - 1.02	(22 - 26)
CFX30-1	CFX30-1E	CFX30-2	CFX30-2E	-	-	1.02 - 1.18	(26 - 30)
CFX34-1	CFX34-1E	CFX34-2	CFX34-2E	-	-	1.18 - 1.34	(30 - 34)
CFX38-1	CFX38-1E	-	-	-	-	1.34 - 1.50	(34 - 38)
CFX42-1	CFX42-1E	-	-	-	-	1.50 - 1.65	(38 - 42)

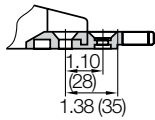
For more information please refer to strain relief section of Chapter 10

Tiewrap Plates

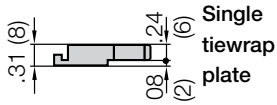
Option 1:

Tiewrap plates as an individual part

Available as an individual component, can be fixed onto a mounting bracket with the use of a profile rail.

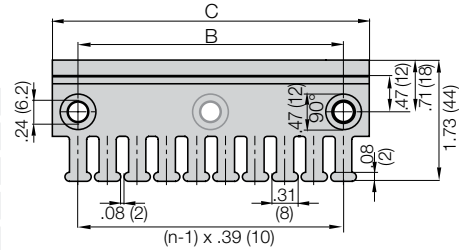


Shown assembled



Single tiewrap plate

Tiewrap Plate	n Number of Teeth	C Overall Width in. (mm)	B Bore Width in. (mm)	Center Bore
3050-ZB	5	1.97 (50)	1.18 (30)	no
3075-ZB	7	2.95 (75)	2.16 (55)	no
3100-ZB	10	3.94 (100)	3.15 (80)	no
3115-ZB	11	4.53 (115)	3.74 (95)	no
3125-ZB	12	4.92 (125)	4.13 (105)	no
3150-ZB	15	5.91 (150)	5.12 (130)	no
3175-ZB	17	6.89 (175)	6.10 (155)	no
3200-ZB	20	7.87 (200)	7.09 (180)	yes
3225-ZB	22	8.86 (225)	8.07 (205)	yes
3250-ZB	25	9.84 (250)	9.06 (230)	yes



If used with KMA brackets with profile rail please add "KMA" to the end of the part number.

Example: 3050-ZBKMA

For more information please refer to strain relief section of Chapter 10

Option 2:

Clip-on Tiewrap plates

Available as a clip-on tiewrap plate without the use of bolts They are inserted and removed with a screwdriver used as a lever. Clip-on tiewrap plates are also available as an attachment to the opening crossbars.



Part No.	Number of Teeth	Width of Strain Relief in. (mm)
3050-ZC	5	1.97 (50)
3075-ZC	7	2.95 (75)

For more information please refer to strain relief section of Chapter 10

Option 3:

Clip-on Tiewrap plates for opening crossbars

Clip-on tiewrap plates are also available as an attachment to opening crossbars. They can be positioned at any point along the e-chain®.



Part No.	Number of Teeth	Width of Strain Relief in. (mm)
3850-ZS	5	1.89 (48)

For more information please refer to strain relief section of Chapter 10

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains



15250
15350



e-chain system® E4 light Series 15250/15350 Guide Trough

igus®
e-chain system®

Telephone 1-800-521-2747

Internet: igus.com
email: sales@igus.com
QuickSpec: igus.com/quickspec

Width of Crossbar
15250-20-300-0

	B_{Ri}	Installation Part No.
-05	3.35 (85) *	
-06	4.06 (103)	96-50-225
-07	4.33 (110)	96-50-225
-087	4.80 (122)	96-50-250
-09	5.20 (132)	96-50-250
-10	5.31 (135)	96-50-250
-11	5.63 (143)	96-50-275
-112	5.83 (148)	96-50-275
-12	6.30 (160)	96-50-275
-13	6.77 (172)	96-50-300
-15	7.28 (185)	96-50-300
-16	7.80 (198)	96-50-325
-17	7.99 (203)	96-50-325
-17	8.27 (210)	96-50-325
-18	8.78 (223)	96-50-350
-20	9.25 (235)	96-50-350
-21	9.76 (248)	96-50-375
-22	10.24 (260)	96-50-375
-23	10.75 (273)	96-50-400
-25	11.22 (285)	96-50-400
-26	11.73 (298)	96-50-425
-27	12.20 (310)	96-50-425
-28	12.72 (323)	96-50-450
-30	13.19 (335)	96-50-450
-31	13.70 (348)	96-50-475
-32	14.17 (360)	96-50-475
-33	14.69 (373)	96-50-500
-35	15.16 (385)	96-50-500
-36	15.67 (398)	96-50-525
-37	16.14 (410)	96-50-525
-38	16.65 (423)	96-50-550
-40	17.13 (435)	96-50-550

* Specialized guide trough available upon request

Guide troughs are used with applications where the upper run of the e-chain® glides on the lower run. If using igus® steel guide troughs, the following components are required:

- Full travel length of guide trough
Part No. 99-30
- 1/2 travel length glide bars
Part No. 93-01
- Installation sets as end connectors
Part No. 96-50-XX

-XX indicates the length of the profile rails on which the guide trough is mounted. The values and part numbers are specified in the table on the left. The standard length of the trough components and glide bars is 6.56 ft (2 m). The overall length of the guide trough directly correlates to the length of travel.

Example:

Length of travel 164 ft (50 m)
Center-mounted

Required guide troughs:

164 ft (50 m) guide trough, 82 ft. (25 m) glide bar
= 25 sections of 6.56 ft (2 m) guide trough

Part No. 99-30

= 13 sections of 6.56 ft (2 m) glide bar

Part No. 93-01

Required number of installation set:

= Number of guide trough components + 1
= 25 + 1 = 26

Part No. of the installation sets **96-50-XXX**

Example:

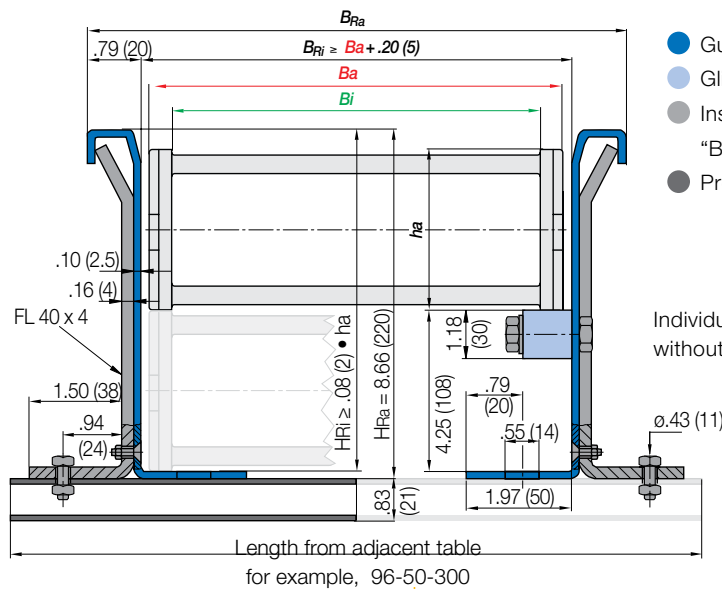
96-50-400 for 15.75 (400 mm) long profile rail



Left: Guide trough with glide bars
Right: Guide troughs without glide bars



Installation sets as section connectors



Standard length profile rail

e-chain system® E4 light
Series 15250/15350
Application Example

igus®

15250
15350



System E4/light e-chain® - can be filled with cables with diameters up to 3.94" (100 mm)

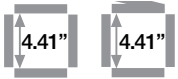
PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains



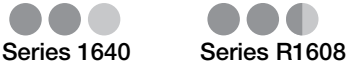
1640
R1608



e-chain system® E4 light Series 1640/R1608



Price Index



Special Features / Options

ESD classification:
Electrically conductive ESD/
ATEX version upon request

High torsional rigidity

Side-mounted - unsupported

Assembly Tips



Opening e-chains®: Remove crossbars and clips - Insert screwdriver into the slot, push down, release by lever action



Remove lids/bottoms (e-tubes) - Insert screwdriver into the slot, release by lever action

Other Installation Methods

Vertical, hanging ≤ consult igus®

Vertical, standing ≤ 16.4 ft (5 m)

Side-mounted, un supp. ≤ 6.56 ft (2 m)

Rotary requires further calculation

Usage Guidelines



- If a simpler, low-cost solution is required
- If optimized interior space is required
- If the Series 400 is too large



- If maximum stability is required
➤ Series 600/R608

Features & Benefits

- 1 Numerous interior separation possibilities
- 2 Hinged snap-open removable lids along outer radius of e-tube
- 3 Lateral glide surfaces for side-mounted operation
- 4 Closed and open styles can be combined
- 5 Removable lids along inner radius
- 6 Wide, rounded plastic crossbars - cable friendly
- 7 Dirt repellent exterior
- 8 e-chain® also available with reverse bending radii



Order Example: Complete e-chain®

Please indicate chain length or number of links. Example:

6.56 ft (2 m) 1640-30-300-0

e-chain®

With 2 separators 6411 assembled every 2nd link

Interior Separation

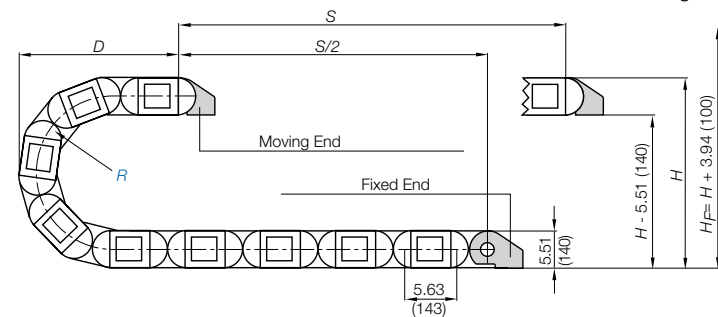
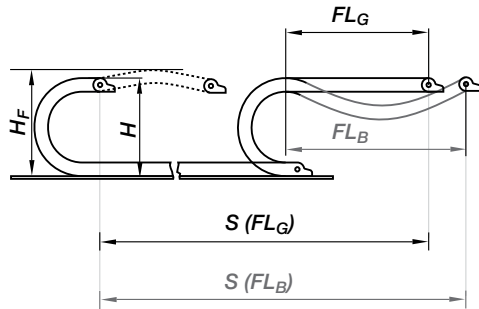
1 Set 16000-12

Mounting Bracket

e-chain system® E4 light Series 1640/R1608 Installation Dimensions

Short travel, unsupported length

- FL_B = unsupported with permitted sag
 - FL_G = unsupported with straight upper run
- Further information ► Design, Chapter 1



The required clearance height: $H_F = H + 3.94$ in. (100 mm) with 3.36 lbs/ft (5 kg/m) fill weight. Please consult igus® if space is particularly restricted.

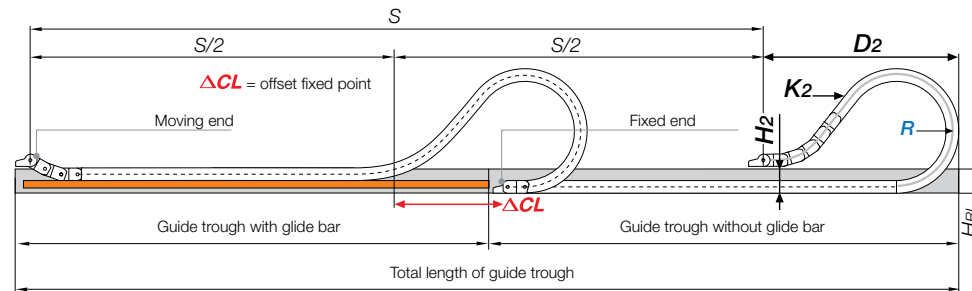
R	7.87 (200)	9.84 (250)	11.81 (300)	13.78 (350)	15.75 (400)	17.72 (450)	19.69 (500)	21.65 (550)	23.62 (600)
H	21.46 (545)	25.39 (645)	29.41 (747)	33.27 (845)	37.20 (945)	41.14 (1045)	45.08 (1145)	49.02 (1245)	52.95 (1345)
D	16.34 (415)	18.31 (465)	20.27 (515)	22.24 (565)	24.21 (615)	26.18 (665)	28.15 (715)	30.12 (765)	32.09 (815)
K	36.22 (920)	42.52 (1080)	48.82 (1240)	55.12 (1400)	61.42 (1560)	67.72 (1720)	73.62 (1870)	79.53 (2020)	85.63 (2175)

For long travels with lowered mounting height

Long travel lengths from 32.8 ft. (10 m) to max. 1,312 ft. (400 m)

For center mount applications:

$$\text{Chain length} = \frac{S}{2} + K_2$$



R	7.87 (200)	9.84 (250)	11.81 (300)	13.78 (350)	15.75 (400)	17.72 (450)	19.69 (500)	21.65 (550)	23.62 (600)
H_2	12.80 (325)	12.80 (325)	12.80 (325)	12.80 (325)	12.80 (325)	12.80 (325)	12.80 (325)	12.80 (325)	12.80 (325)
D_2^{+25}	35.43 (900)	39.37 (1000)	43.31 (1100)	49.21 (1200)	57.09 (1450)	62.99 (1600)	66.93 (1700)	74.80 (1900)	80.71 (2050)
K_2	61.93 (1573)	67.56 (1716)	73.19 (1859)	90.08 (2288)	101.33 (2574)	112.60 (2860)	123.86 (3146)	135.12 (3432)	152.01 (3861)
ΔCL	17.72 (450)	19.69 (500)	21.65 (550)	25.59 (650)	31.50 (800)	35.43 (900)	37.40 (950)	43.31 (1100)	47.24 (1200)

Speed / acceleration FL_G	max. 65.6 ft/s (20 m/s) / max. 656 ft/s ² (200 m/s ²)
Speed / acceleration FL_B	max. 9.84 ft/s (3 m/s) / max. 19.69 ft/s ² (6 m/s ²)
Gliding speed / acceleration (maximum)	max. 32.8 ft/s (10 m/s) / max. 164 ft/s ² (50 m/s ²)
Material - permitted temperature	igumid G / -40°F (-40°C) up to +248°F (+120°C)
Flammability Class, igumid G	VDE 0304 IIC UL94 HB

igus®

1640
R1608

Short Travels - Unsupported



Unsupported e-chains® feature positive camber over short travels. This must be accounted for when specifying the clearance height. Please refer to **Installation dimensions** for further details.

Legend

- S = Length of travel
 - R = Bending radius
 - H = Nominal clearance height
 - D = Overlength e-chain® radius in final position
 - $K = \pi \cdot R + \text{safety buffer}$
 - H_F = Required clearance height
 - H_{RI} = Trough inner height
 - H_2 = *Mounting height
 - D_2 = Overlength - long travels, gliding
 - K_2 = *Add-on
- *If the mounting bracket location is set lower



PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains

Long Travels - Gliding



If the unsupported length is exceeded, the e-chain®/ Tube must glide on itself. This requires a guide trough. **Design, Chapter 1**

Technical Data

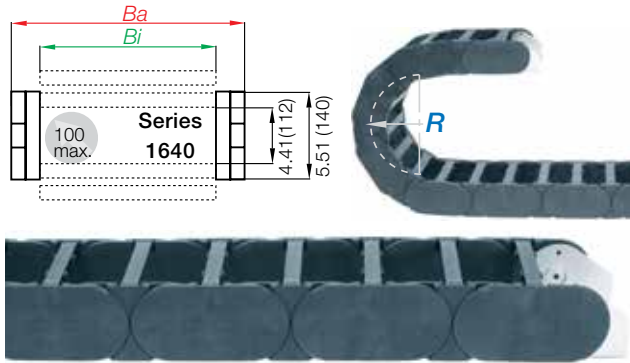


Details of material properties

► Chapter 1

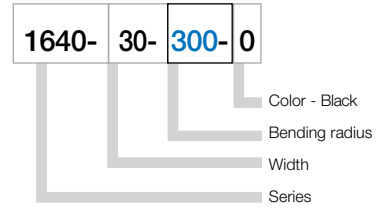
6.252

Series 1640 - e-chain® with crossbars every link

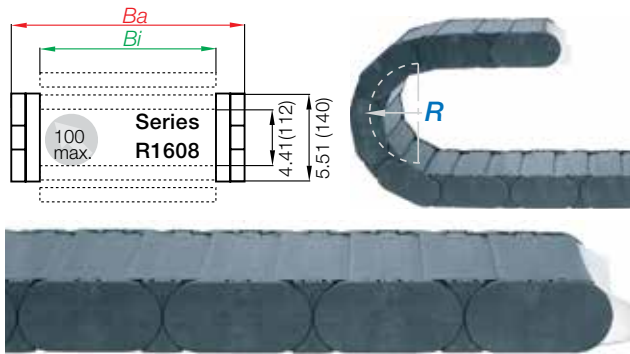


- Crossbars every link
- For use with rigid hydraulic hoses
- For particularly demanding applications
- Can be opened from both sides

Part Number Structure

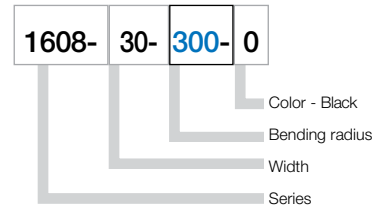


Series R1608 - fully enclosed e-tube

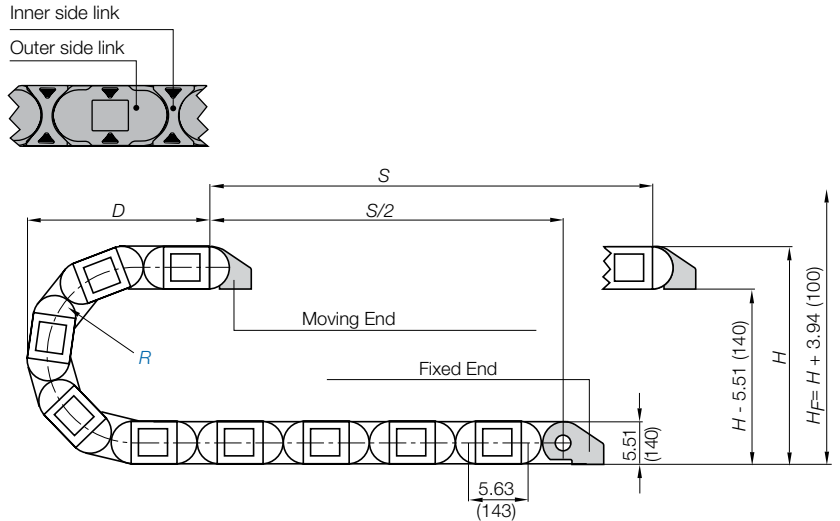
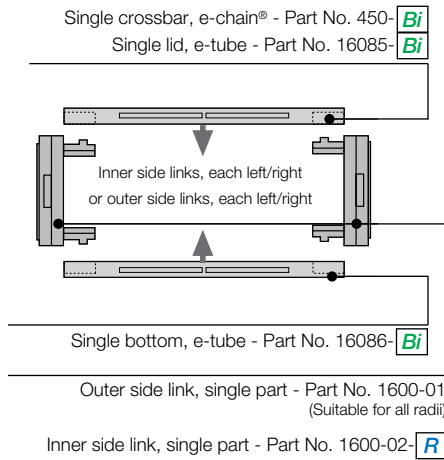


- Fully enclosed
- Excellent cable and hose protection against dirt
- Protection against hot chips
- Lids along inner radius are completely removable
- Lids along the outer radius are single-sided, snap open, hinged on one side as well as completely removable

Part Number Structure



e-chain® as separate parts, links and side plates



e-chain system® E4 light

Series 1640/R1608



1640
R1608

Supplement part number with required radius. Example: 1640-30-300-0

Pitch: 5.63 in. (143mm) per link links/ft (m) = 2.13 (7)

Part Number.		<i>Bi</i>	<i>Ba</i>	1640	R1608
Crossbars	Tube	in. (mm)	in. (mm)	lbs/ft (kg/m)	lbs/ft (kg/m)
Every link	Version				
1640-05-	<input type="checkbox"/> -0	1.97 (50)	3.31 (84)	≈ 3.43 (5.10)	-
1640-06-	<input type="checkbox"/> -0	2.56 (65)	3.90 (99)	≈ 3.48 (5.18)	-
1640-07-	<input type="checkbox"/> -0	2.95 (75)	4.29 (109)	≈ 3.54 (5.27)	-
1640-08-	<input type="checkbox"/> -0	3.43 (87)	4.76 (121)	≈ 3.57 (5.31)	-
1640-10-	<input type="checkbox"/> -0	3.94 (100)	5.28 (134)	≈ 3.60 (5.36)	-
1640-11-	<input type="checkbox"/> -0	4.41 (112)	5.75 (146)	≈ 3.66 (5.45)	-
1640-12-	<input type="checkbox"/> -0	4.92 (125)	6.26 (159)	≈ 3.72 (5.54)	-
1640-13-	<input type="checkbox"/> -0	5.39 (137)	6.73 (171)	≈ 3.78 (5.63)	-
1640-15-	<input type="checkbox"/> -0	5.91 (150)	7.24 (184)	≈ 3.81 (5.67)	-
1640-16-	<input type="checkbox"/> -0	6.38 (162)	7.72 (196)	≈ 3.86 (5.74)	-
1640-17-	<input type="checkbox"/> -0	6.89 (175)	8.23 (209)	≈ 3.90 (5.81)	-
1640-18-	<input type="checkbox"/> -0	7.36 (187)	8.70 (221)	≈ 3.95 (5.88)	-
1640-20-	1608-20- <input type="checkbox"/> -0	7.87 (200)	9.21 (234)	≈ 3.96 (5.89)	≈ 5.17 (7.69)
1640-21-	<input type="checkbox"/> -0	8.35 (212)	9.69 (246)	≈ 4.00 (5.96)	-
1640-22-	<input type="checkbox"/> -0	8.86 (225)	10.20 (259)	≈ 4.04 (6.01)	-
1640-23-	<input type="checkbox"/> -0	9.33 (237)	10.67 (271)	≈ 4.09 (6.09)	-
1640-25-	1608-25- <input type="checkbox"/> -0	9.84 (250)	11.18 (284)	≈ 4.13 (6.15)	≈ 5.64 (8.39)
1640-26-	<input type="checkbox"/> -0	10.31 (262)	11.65 (296)	≈ 4.17 (6.20)	-
1640-27-	<input type="checkbox"/> -0	10.83 (275)	12.17 (309)	≈ 4.21 (6.27)	-
1640-28-	<input type="checkbox"/> -0	11.30 (287)	12.64 (321)	≈ 4.23 (6.29)	-
1640-30-	1608-30- <input type="checkbox"/> -0	11.81 (300)	13.15 (334)	≈ 4.26 (6.34)	≈ 6.11 (9.09)
1640-31-	<input type="checkbox"/> -0	12.28 (312)	13.62 (346)	≈ 4.31 (6.41)	-
1640-32-	<input type="checkbox"/> -0	12.79 (325)	14.13 (359)	≈ 4.35 (6.48)	-
1640-33-	<input type="checkbox"/> -0	13.27 (337)	14.61 (371)	≈ 4.43 (6.59)	-
1640-35-	1608-35- <input type="checkbox"/> -0	13.78 (350)	15.12 (384)	≈ 4.44 (6.61)	≈ 6.58 (9.79)
1640-36-	<input type="checkbox"/> -0	14.25 (362)	15.59 (396)	≈ 4.48 (6.67)	-
1640-37-	<input type="checkbox"/> -0	14.76 (375)	16.10 (409)	≈ 4.51 (6.71)	-
1640-38-	<input type="checkbox"/> -0	15.24 (387)	16.57 (421)	≈ 4.54 (6.76)	-
1640-40-	1608-40- <input type="checkbox"/> -0	15.75 (400)	17.09 (434)	≈ 4.63 (6.89)	≈ 7.05 (10.49)
1640-41-	<input type="checkbox"/> -0	16.22 (412)	17.56 (446)	≈ 4.70 (6.99)	-
1640-42-	<input type="checkbox"/> -0	16.73 (425)	18.07 (459)	≈ 4.76 (7.08)	-
1640-43-	<input type="checkbox"/> -0	17.20 (437)	18.54 (471)	≈ 4.79 (7.13)	-
1640-45-	<input type="checkbox"/> -0	17.72 (450)	19.06 (484)	≈ 4.82 (7.17)	-
1640-46-	<input type="checkbox"/> -0	18.19 (462)	19.53 (496)	≈ 4.82 (7.18)	-
1640-47-	<input type="checkbox"/> -0	18.70 (475)	20.04 (509)	≈ 4.85 (7.22)	-
1640-48-	<input type="checkbox"/> -0	19.17 (487)	20.51 (521)	≈ 4.89 (7.27)	-
1640-50-	<input type="checkbox"/> -0	19.69 (500)	21.02 (534)	≈ 4.94 (7.35)	-
1640-51-	<input type="checkbox"/> -0	20.16 (512)	21.50 (546)	≈ 4.95 (7.36)	-
1640-52-	<input type="checkbox"/> -0	20.67 (525)	22.01 (559)	≈ 4.97 (7.39)	-
1640-53-	<input type="checkbox"/> -0	21.14 (537)	22.48 (571)	≈ 5.03 (7.49)	-
1640-55-	<input type="checkbox"/> -0	21.65 (550)	22.99 (584)	≈ 5.24 (7.80)	-
1640-60-	<input type="checkbox"/> -0	23.62 (600)	24.96 (634)	≈ 5.32 (7.92)	-

Choose from the radii below for all of the above sizes

Radius (mm) Example: 1640-30-300-0

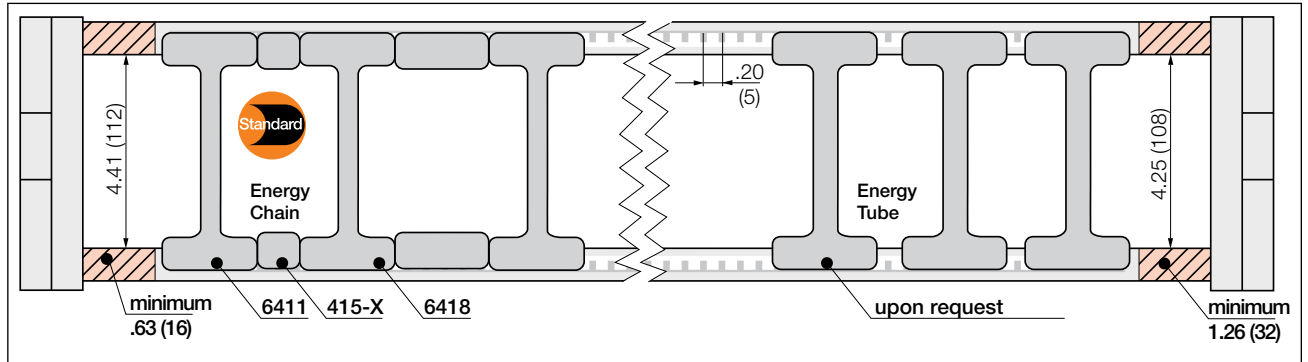
	200**	250	300	350	400	450	500	550	600
<i>R</i>	7.87 (200)	9.84 (250)	11.81 (300)	13.78 (350)	15.75 (400)	17.72 (450)	19.68 (500)	21.65 (550)	23.62 (600)
<i>H</i>	21.46 (545)	25.39 (645)	29.41 (747)	33.27 (845)	37.20 (945)	41.14 (1045)	45.08 (1145)	49.02 (1245)	52.95 (1345)
<i>D</i>	16.34 (415)	18.31 (465)	20.27 (515)	22.24 (565)	24.21 (615)	26.18 (665)	28.15 (715)	30.12 (765)	32.09 (815)
<i>K</i>	36.22 (920)	42.52 (1080)	48.82 (1240)	55.12 (1400)	61.42 (1560)	67.72 (1720)	73.62 (1870)	79.53 (2020)	85.63 (2175)

0=Standard color black. For other colors see Chapter 1

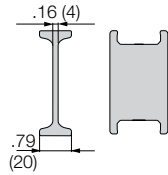
For wider chains see page 6.257. For large diameter hoses see page 6.257

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains





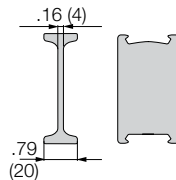
Note Please maintain a lateral spacing of 1.26" (32 mm) for e-tube and .63" (16 mm) for e-chains® between the separators and the side links. In the standard configuration separators are assembled every 2nd e-chain® link



Separator (chain only)

Unassembled	Part No. 6401
Assembled	Part No. 6411

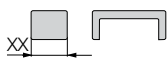
- **Standard separator 6401 for e-chains®**
For a vertical subdivision. Offers safe stability due to its wide base design, also when used with thick cables or hoses (Separator for e-tubes 1608 upon request)



Separator, locking (chain only)

Unassembled	Part No. 6408
Assembled	Part No. 6418

- **Separator 6408 for e-chains®**
For applications exposed to very high humidity (>85%). Locks with extra retention force. Tip: one locking separator per e-chain® link for better mounting.



Spacer (chain only)

Unassembled	Part No. 405-XX
Assembled	Part No. 415-XX

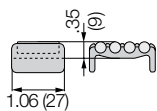
XX = width of the spacer

- **NOTE ON SPACERS for e-chains®**
Vertical separators are adjustable, but can be fixed in position by means of a spacer. Spacers are most often necessary for side mounted applications. The available inner height is reduced by .08" (2mm) **per spacer** (for example if one spacer is placed on either side of the separator, the overall inner height is reduced by .16" (4mm)). To avoid this, place the spacers on the **outside** of the opening crossbar (**not for long travels**).

Spacers available in the following sizes:

Part No. Unassembled	Part No. Assembled	Width	
		in.	(mm)
405 -10	415 -10	.39"	(10)
405 -15	415 -15	.59"	(15)
405 -20	415 -20	.79"	(20)
405 -30	415 -30	1.18"	(30)
405 -40	415 -40	1.57"	(40)

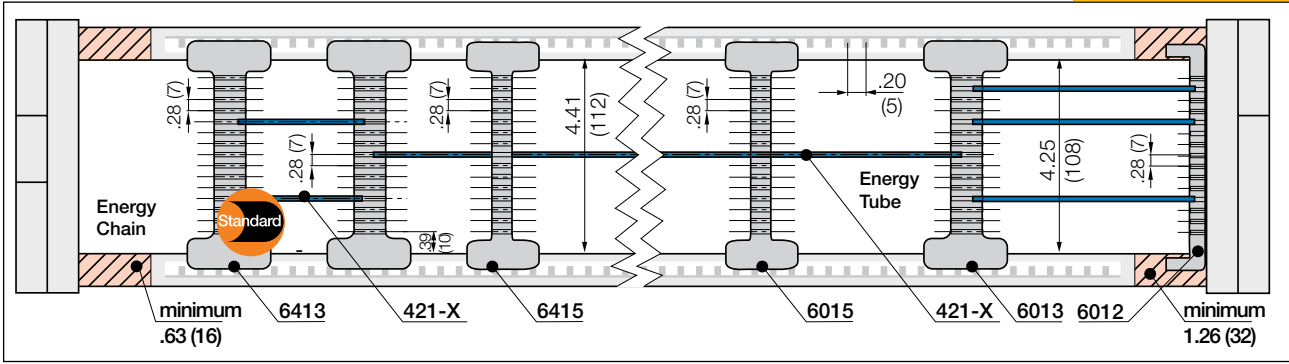
Additional elements - interior separation



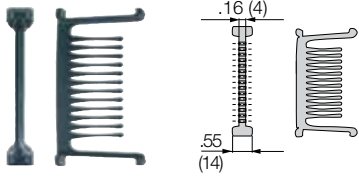
Rollclip

Unassembled	Part No. 489-27
Assembled	Part No. 490-27

- **Rollclip** - minimizes abrasion of particularly sensitive hoses or cables in an e-chain®. The integrated rollers compensate for relative movement between the chain and the hose or cable. This reduces the abrasion of the hoses or cables



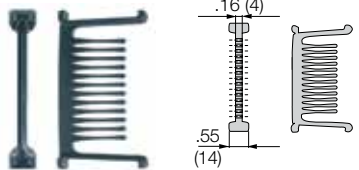
Note Please maintain a lateral spacing of 1.26" (32 mm) for e-tube and .63" (16 mm) for e-chains® between the separators and the side links. In the standard configuration separators are assembled every 2nd e-chain® link



Slotted separator, open (e-chains®)

Unassembled Part No. 6405

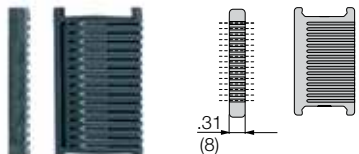
Assembled Part No. 6415



Slotted separator, open (e-tubes)

Unassembled Part No. 6005

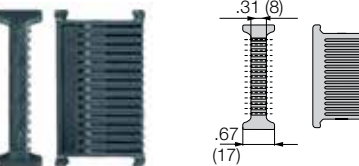
Assembled Part No. 6015



Vertical separator (e-chains®)

Unassembled Part No. 6403

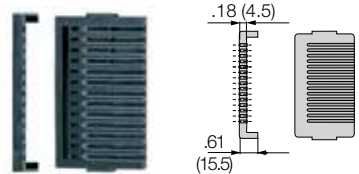
Assembled Part No. 6413



Vertical separator, locking (e-tubes)

Unassembled Part No. 6003

Assembled Part No. 6013



Side plate

Unassembled Part No. 6002

Assembled Part No. 6012

- **Open, slotted separator 6405**
For e-chains® (unilateral open)
This separator can be retrofitted into an existing interior separation system without removing the shelves. The top and bottom botches cannot be occupied by shelves

- **Open, slotted separator 6005**
For e-tubes (unilateral open)
This separator can be retrofitted into an existing interior separation system without removing the shelves. The top and bottom botches cannot be occupied by shelves

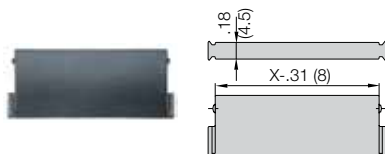
- **Vertical separator 6403**
For e-chains®
This component is used to form the basic pattern of a shelf system. The shelf 420-X can be installed at 15 different heights in .28" (7 mm) increments

- **Locking vertical separator 6003**
For e-tubes
This component is used to form the basic pattern of a shelf system.

- **Side plate 6002**
For e-chains® / Tubes
This component is used to form the basic pattern of a shelf system. Allows modular shelving close to the side links.

- **Full width shelf 420-X**
These components form the basic pattern of a shelf system. Shelves of various widths can be arranged at 7 different heights in .28" (7mm) increments

Full-width shelves - for the standard interior separation



Full width shelf

Unassembled Part No. 420-X

Assembled Part No. 421-X

Width X in. (mm)	Part No. Unassembled	Part No. Assembled	Width X in. (mm)	Part No. Unassembled	Part No. Assembled	Width X in. (mm)	Part No. Unassembled	Part No. Assembled
.71 (18)	420-18	421-18	1.97 (50)	420-50	421-50	5.91 (150)	420-150	421-150
.91 (23)	420-23	421-23	2.44 (62)	420-62	421-62	6.89 (175)	420-175	421-175
.98 (25)	420-25	421-25	2.95 (75)	420-75	421-75	7.36 (187)	420-187	421-187
1.10 (28)	420-28	421-28	3.46 (88)	420-88	421-88	7.87 (200)	420-200	421-200
1.30 (33)	420-33	421-33	3.94 (100)	420-100	421-100			
1.69 (43)	420-43	421-43	4.92 (125)	420-125	421-125			

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains





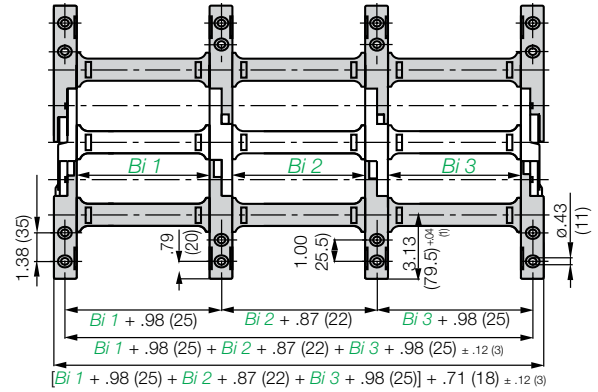
Extension links - for extremely wide e-chains® up to 9.84 ft (3m)

- For applications in which particularly high fill weights necessitate extremely wide e-chains®
- The extension link design allows virtually limitless side-by-side attachment of chains
- The unsupported length of a chain can be increased when additional loads are required
- Extension links can be used with e-chains®, e-tubes or a combination of both
- They are suitable for unsupported and gliding applications in a guide trough
- e-chains® with extension links are attached with KMA or steel mounting brackets.

Part number example for e-chain®

1640-10/20/10-200-0
1640-Bi1/Bi2/Bi3-R-0

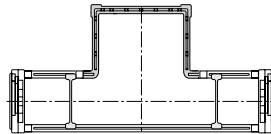
We strongly recommend on-site consultation with an igus® technician for individual advice regarding mounting brackets, guide troughs and other design details.



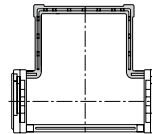
Consult igus® for your extender crossbar applications. We will be happy to assist you with your design layout.

Extender crossbars - For careful guiding of large diameter cables and hoses

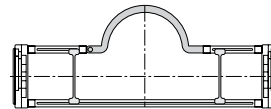
- Intended for cables and hoses with a maximum outer diameter of 11.81 in. (300 mm).
- Can be attached along either the inner or outer radius, inner radius preferred
- Gliding operation with crossbars assembled along the outer radius in conjunction with a special guide trough
- Gliding operation not guaranteed with crossbars assembled along the inner radius
- The extender crossbar can either be attached to the side links directly or can be used in combination with two standard snap-open crossbars.



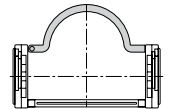
Square extender crossbar combined with standard snap-open crossbars.



Attached directly to the side link.



Round extender crossbar combined with standard snap-open crossbars.



Attached directly to the side link.

Part No.	Max Ø Hose	Style	Installation Side Link	Combined with Snap-Open Crossbars
450-15-RHD115	4.52 (115)	Round	No	Yes
450-17-RD115	4.52 (115)	Round	Yes	No
450-25-D150	5.91 (150)	Square	Yes	No
450-30-D200	7.09 (180)	Square	Yes	No
450-35-D250	7.68 (195)	Square	Yes	No
450-40-D300	9.65 (245)	Square	Yes	No
450-20-HD150	5.91 (150)	Square	No	Yes
450-25-HD200	7.09 (180)	Square	No	Yes
450-30-HD250	7.68 (195)	Square	No	Yes

E4 clip on cable binder

- For side mounted applications
- Serves as a clip-on, lateral guide for hoses and cables on e-chains®
- The loops can be adjusted as needed

- Compatible with many E4 e-chains®
- Economical
- One clip and one locking band are needed for each chain link

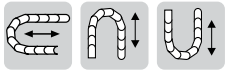


Part No.	Form
450-B12	Locking clip, comprised of a locking element
450-B12-200	Locking band, comprised of a locking element and band; 12 x 1.5 x 200 mm

e-chain system® E4 light Series 1640/R1608 Mounting Brackets - Steel

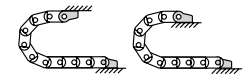
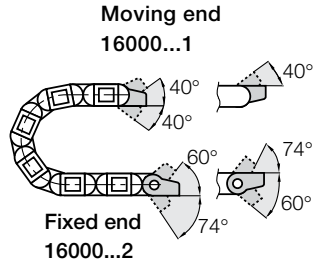


1640
R1608



Option 1: pivoting

- For pivoting connections
- One part for all chain widths
- Electrically conductive



Possible installation configurations -

Part No. Mounting Brackets Full Set

4 parts, 2 with pin, 2 with bore
Series 1640 or R1608
16000-12

Part No. Mounting Bracket Moving End

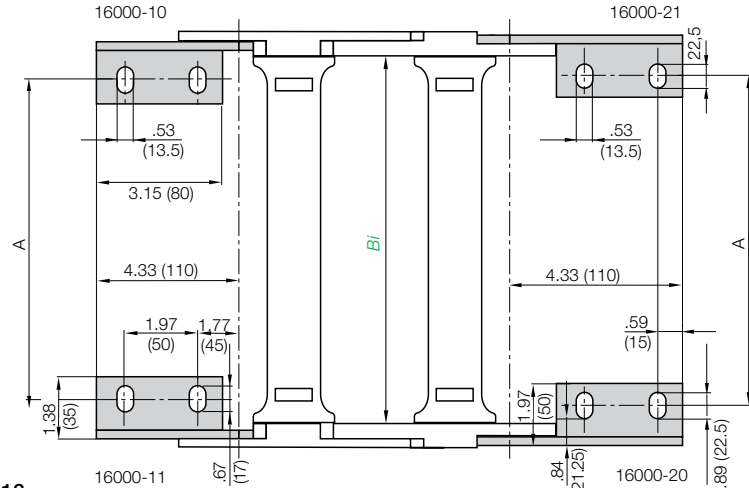
2 parts, 1 left & 1 right with bore
Series 1640 or R1608
16000-1

Part No. Mounting Bracket Fixed End

2 parts, 1 left & 1 right with pin
Series 1640 or R1608
16000-2

Due to the design of the E4/100 series chains,
please note the following when ordering brackets:

Even number of links = full set, part number ending in -12
Odd number of links = 2 pieces, part number ending in -1



Bracket Mounting dimensions

Mounting Brackets						Mounting Brackets					
Width of Chain <i>Bi</i>	Part Number	Full Set	Moving End Only	Fixed End Only	A in. (mm)	Width of Chain <i>Bi</i>	Part Number	Full Set	Moving End Only	Fixed End Only	A in. (mm)
1.97 (50)	16000	-12	-1	-2	.79 (20)	12.28 (312)	16000	-12	-1	-2	11.10 (282)
2.56 (65)	16000	-12	-1	-2	1.38 (35)	12.79 (325)	16000	-12	-1	-2	11.61 (295)
2.95 (75)	16000	-12	-1	-2	1.77 (45)	13.27 (337)	16000	-12	-1	-2	12.09 (307)
3.43 (87)	16000	-12	-1	-2	2.24 (57)	13.78 (350)	16000	-12	-1	-2	12.60 (320)
3.94 (100)	16000	-12	-1	-2	2.76 (70)	14.25 (362)	16000	-12	-1	-2	13.07 (332)
4.41 (112)	16000	-12	-1	-2	3.23 (82)	14.76 (375)	16000	-12	-1	-2	13.58 (345)
4.92 (125)	16000	-12	-1	-2	3.74 (95)	15.24 (387)	16000	-12	-1	-2	14.06 (357)
5.39 (137)	16000	-12	-1	-2	4.21 (107)	15.75 (400)	16000	-12	-1	-2	14.57 (370)
5.91 (150)	16000	-12	-1	-2	4.72 (120)	16.22 (412)	16000	-12	-1	-2	15.04 (382)
6.38 (162)	16000	-12	-1	-2	5.20 (132)	16.73 (425)	16000	-12	-1	-2	15.55 (395)
6.89 (175)	16000	-12	-1	-2	5.71 (145)	17.20 (437)	16000	-12	-1	-2	16.02 (407)
7.36 (187)	16000	-12	-1	-2	6.18 (157)	17.72 (450)	16000	-12	-1	-2	16.54 (420)
7.87 (200)	16000	-12	-1	-2	6.69 (170)	18.19 (462)	16000	-12	-1	-2	17.01 (432)
8.35 (212)	16000	-12	-1	-2	7.16 (182)	18.70 (475)	16000	-12	-1	-2	17.52 (445)
8.86 (225)	16000	-12	-1	-2	7.68 (195)	19.17 (487)	16000	-12	-1	-2	17.99 (457)
9.33 (237)	16000	-12	-1	-2	8.15 (207)	19.69 (500)	16000	-12	-1	-2	18.50 (470)
9.84 (250)	16000	-12	-1	-2	8.66 (220)	20.16 (512)	16000	-12	-1	-2	18.98 (482)
10.31 (262)	16000	-12	-1	-2	9.13 (232)	20.67 (525)	16000	-12	-1	-2	19.49 (495)
10.83 (275)	16000	-12	-1	-2	9.65 (245)	21.14 (537)	16000	-12	-1	-2	19.96 (507)
11.30 (287)	16000	-12	-1	-2	10.12 (257)	21.65 (550)	16000	-12	-1	-2	20.47 (520)
11.81 (300)	16000	-12	-1	-2	10.63 (270)	23.62 (600)	16000	-12	-1	-2	22.44 (570)

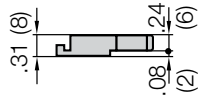
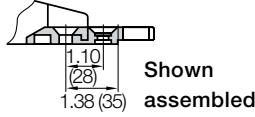
PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains



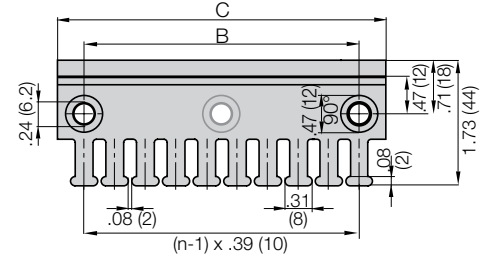
Tiewrap Plates

Tiewrap plates as an individual part

Available as an individual component, can be fixed onto a mounting bracket with the use of a profile rail.



Tiewrap Plate	n Number of Teeth	C Overall Width in. (mm)	B Bore Width in. (mm)	Center Bore
3050-ZB	5	1.97 (50)	1.18 (30)	no
3075-ZB	7	2.95 (75)	2.16 (55)	no
3100-ZB	10	3.94 (100)	3.15 (80)	no
3115-ZB	11	4.53 (115)	3.74 (95)	no
3125-ZB	12	4.92 (125)	4.13 (105)	no
3150-ZB	15	5.91 (150)	5.12 (130)	no
3175-ZB	17	6.89 (175)	6.10 (155)	no
3200-ZB	20	7.87 (200)	7.09 (180)	yes
3225-ZB	22	8.86 (225)	8.07 (205)	yes
3250-ZB	25	9.84 (250)	9.06 (230)	yes



For more information please refer to strain relief section of Chapter 10

e-chain system® E4 light

Series 1640/R1608

Guide Trough



1640
R1608

Width of Crossbar
1640-12-250-0

	B_{Ri}	Installation Part No.
-05	3.50 (89)	*
-06	4.09 (104)	97-50-225
-07	4.49 (114)	97-50-250
-10	5.47 (139)	97-50-275
-11	5.94 (151)	97-50-275
-12	6.46 (164)	97-50-300
-13	6.93 (176)	97-50-300
-15	7.44 (189)	97-50-325
-16	7.91 (201)	97-50-325
-17	8.43 (214)	97-50-350
-18	8.90 (226)	97-50-350
-20	9.41 (239)	97-50-375
-21	9.88 (251)	97-50-375
-22	10.39 (264)	97-50-400
-23	10.87 (276)	97-50-400
-25	11.38 (289)	97-50-425
-26	11.85 (301)	97-50-425
-27	12.36 (314)	97-50-450
-28	12.83 (326)	97-50-450
-30	13.35 (339)	97-50-475
-31	13.82 (351)	97-50-475
-32	14.33 (364)	97-50-500
-33	14.80 (376)	97-50-500
-35	15.31 (389)	97-50-525
-36	15.79 (401)	97-50-525
-37	16.30 (414)	97-50-550
-38	16.77 (426)	97-50-550
-40	17.28 (439)	97-50-575
-41	17.76 (451)	97-50-575
-42	18.27 (464)	97-50-600
-43	18.74 (476)	97-50-600
-45	19.25 (489)	97-50-625
-46	19.72 (501)	97-50-625
-47	20.24 (514)	97-50-650
-48	20.71 (526)	97-50-650
-50	21.22 (539)	97-50-675
-51	21.69 (551)	97-50-675
-52	22.20 (564)	97-50-700
-53	22.68 (576)	97-50-700
-55	23.19 (589)	97-50-725
-60	25.16 (639)	97-50-775

Guide troughs are used with applications where the upper run of the e-chain® glides on the lower run. If using igus® steel guide troughs, the following components are required:

- Full travel length of guide trough
Part No. 97-30
- 1/2 travel length glide bars
Part No. 93-01
- Installation sets as end connectors
Part No. 97-50-XX

-XX indicates the length of the profile rails on which the guide trough is mounted. The values and part numbers are specified in the table on the left. The standard length of the trough components and glide bars is 6.56 ft (2 m). The overall length of the guide trough directly correlates to the length of travel.

Example:

Length of travel 164 ft (50 m)
Center-mounted

Required guide troughs:

164 ft (50 m) guide trough, 82 ft. (25 m) glide bar
= 25 sections of 6.56 ft (2 m) guide trough

Part No. 97-30

= 13 sections of 6.56 ft (2 m) glide bar

Part No. 93-01

Required number of installation set:

= Number of guide trough components + 1
= 25 + 1 = 26

Part No. of the installation sets **97-50-XXX**

Example:

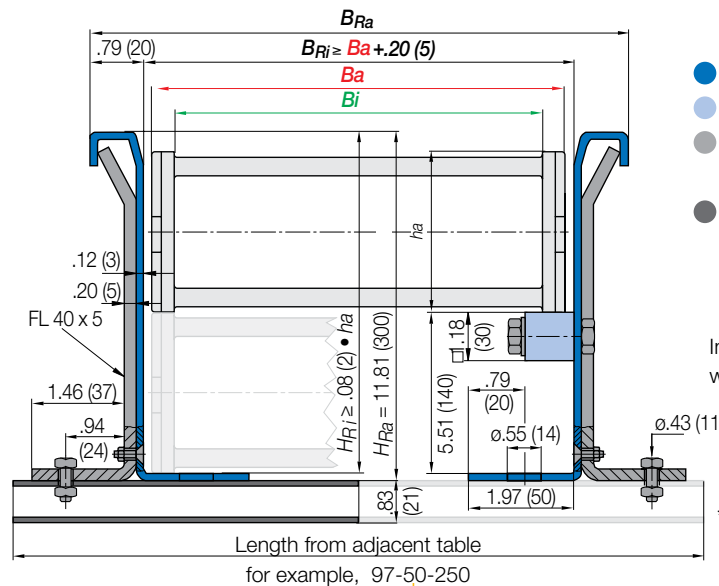
97-50-400 for 15.75 (400 mm) long profile rail



Left: Guide trough with glide bars
Right: Guide troughs without glide bars



Installation sets as section connectors



- Guide trough
- Glide bars
- Installation set "Basic"
- Profile rail

Individual attachment without profile rail

* Specialized guide trough available upon request

Standard length profile rail

PDF: igus.com/e-chain-pdfs
Product information: igus.com/e-chains

