Solutions for horizontal motion

guidelok horizontal

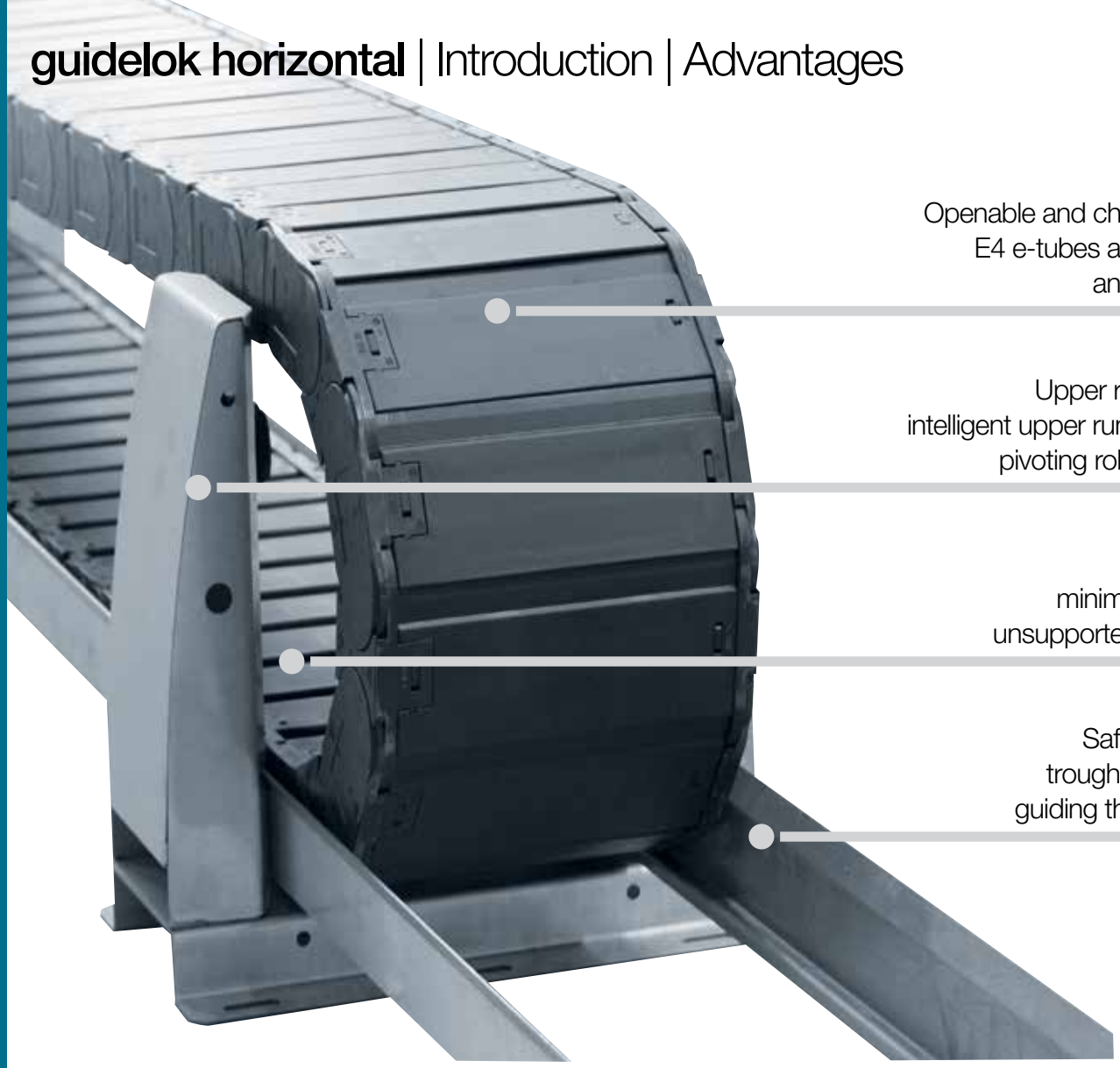
Upper run guide for long travels, unsupported in chip areas

Advantages of guidelok horizontal:

- Chips cannot get stuck between upper and lower run
- Modular system with few parts (also possible without lateral trough)
- Lower cost than most steel chains or gliding systems
- Open guide trough design, chips can fall through

When to use another system:

- For a cost-effective and fully enclosed complete solution
  ► **basic flizz®, page 1212**
- For a compact, quiet and cost-effective complete system as a maintenance-free alternative to a busbar
  ► **micro flizz®, page 1220**



Upper run guide for long travels, unsupported in chip areas - guidelok horizontal

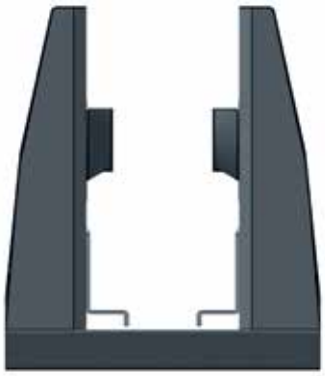
Especially for long travels on machine tools, when the e-chain® would normally need to glide but metallic chips are a problem. guidelok horizontal is a cost-effective solution.

- Unsupported travel lengths up to 164ft (50m) are possible
- Chips cannot get stuck between upper and lower run
- Modular system with few parts (also possible without lateral trough)
- Enormous increase of unsupported lengths for e-chains®
- Lower push/pull forces (smaller e-chains®, unsupported and rollers = energy-efficient)
- Lower cost than most steel chains or gliding systems
- Open guide trough design, chips can fall through

Typical industries and applications

● Machine tools ● Heavy chip environments ● Wherever a gliding application is not advisable

guidelok horizontal | Selection table | Technical data

Series Part No.	For e-chain® series	For bend radii from - up to *R* [mm]
	**guidelok horizontal -** upper run guide for long travels, 2 options (depending on the bend radius)	
907.645.	● E4.56/R4.56 ● E4.80/R4.80 ● E4.120/R4.120	5.91 - 11.81 (150 - 300)
907.837.	● E4.56/R4.56 ● E4.80/R4.80 ● E4.120/R4.120	13.78 - 19.69 (350 - 500)

Available from stock. Ready to ship in 24 - 48hrs.*

*Average time before the ordered goods are dispatched.

Technical data

Speed	**≤3.28ft/s (1m/s)**
Acceleration	**≤ 16.41ft/s² (15 m/s²)**

guidelok - chip-proof and unsupported over long travels, more cost-effective than most steel chains or complex gliding systems

Product range | Series 907.645 | For bend radii up to 300mm

Part No.	For E4.1	*Bi*	*R*				
guidelok	series	in. (mm)	in. (mm)				
907.645.*Bi*.*R*.LLLL/FFFF	E4.56	1.97 - 23.62 (50 - 600)	5.91 (150)	6.89 (175)	7.87 (200)	9.84 (250)	11.81 (300)
907.645.*Bi*.*R*.LLLL/FFFF	E4.80	1.97 - 23.62 (50 - 600)	5.91 (150)	6.89 (175)	7.87 (200)	9.84 (250)	11.81 (300)
907.645.*Bi*.*R*.LLLL/FFFF	E4.112	1.97 - 23.62 (50 - 600)	–	–	7.87 (200)	9.84 (250)	11.81 (300)
907.645.*Bi*.*R*.LLLL/FFFF	R4.56	2.95 - 18.19 (75 - 462)	5.91 (150)	6.89 (175)	7.87 (200)	9.84 (250)	11.81 (300)
907.645.*Bi*.*R*.LLLL/FFFF	R4.80	5.91 - 18.19 (150 - 462)	–	6.89 (175)	7.87 (200)	9.84 (250)	11.81 (300)
907.645.*Bi*.*R*.LLLL/FFFF	R4.112	7.87 - 19.69 (200 - 500)	–	–	–	9.84 (250)	11.81 (300)

More series and radii upon request. Delivery time upon request.

LLLL = Total length **FFFF** = Channel section length

Complete Part No. with required value for total length and channel section length. Example: **907.645.200.300.20000/2000.0**

Product range | Series 907.837 | For bend radii from 350 up to 500mm

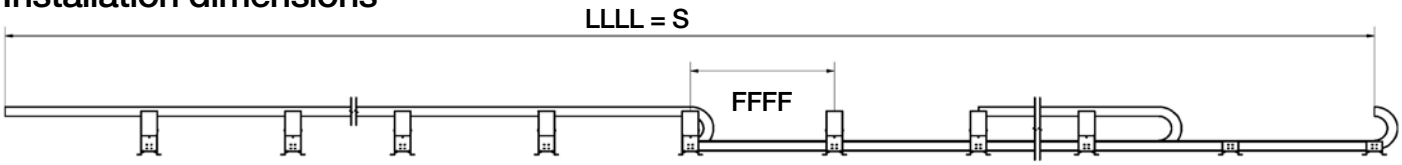
Part No.	For E4.1	*Bi*	*R*			
guidelok	series	[mm]	[mm]			
907.837.*Bi*.*R*.LLLL/FFFF	E4.56	7.87 - 23.62 (200 - 600)	13.78 (350)	15.75 (400)	17.72 (450)	19.69 (500)
907.837.*Bi*.*R*.LLLL/FFFF	E4.80	7.87 - 23.62 (200 - 600)	13.78 (350)	15.75 (400)	17.72 (450)	19.69 (500)
907.837.*Bi*.*R*.LLLL/FFFF	E4.112	7.87 - 23.62 (200 - 600)	13.78 (350)	15.75 (400)	17.72 (450)	19.69 (500)
907.837.*Bi*.*R*.LLLL/FFFF	R4.56	7.87 - 18.19 (200 - 462)	13.78 (350)	15.75 (400)	17.72 (450)	19.69 (500)
907.837.*Bi*.*R*.LLLL/FFFF	R4.80	7.87 - 18.19 (200 - 462)	13.78 (350)	15.75 (400)	17.72 (450)	19.69 (500)
907.837.*Bi*.*R*.LLLL/FFFF	R4.112	7.87 - 19.69 (200 - 500)	13.78 (350)	15.75 (400)	17.72 (450)	19.69 (500)

More series and radii upon request. Delivery time upon request.

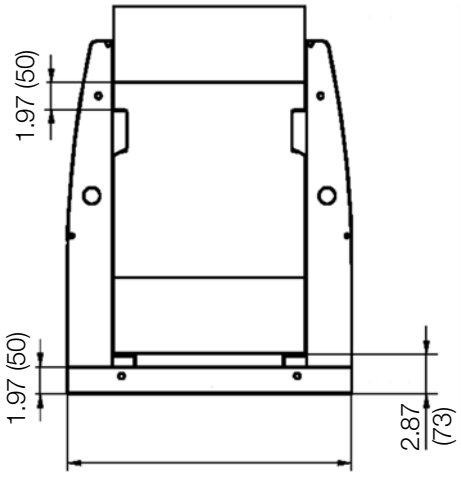
LLLL = Total length **FFFF** = Channel section length

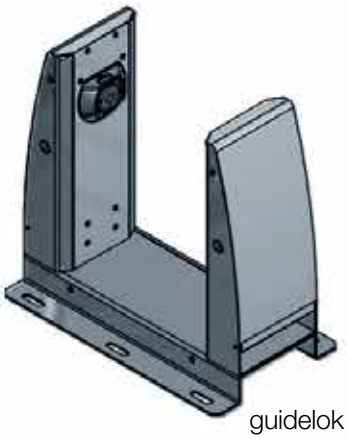
Complete Part No. with required value for total length and channel section length. Example: **907.645.200.300.20000/2000.0**

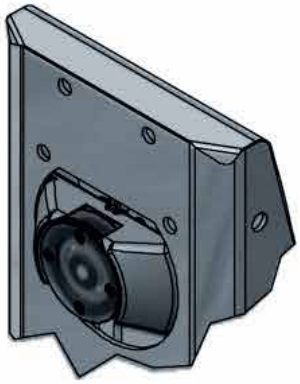
Installation dimensions



guidelok horizontal, principle sketch: **LLLL** = Total length / **FFFF** = Channel section length







guidelok horizontal - lateral supports with pivoting rollers for the upper run support of the e-chain®

Design principle - horizontal guidelok guides the e-chain® on special spring loaded roller supports, that are pushed back by the e-chains® radius

1

The e-chain® is guided in the trough channel, pushing back the spring loaded roller supports with its radius ...

2

... roller supports pivot in and out again after the radius ...

3

... the upper run then lays on the roller support

Find a video online
▶ www.igus.com/glhr-movie

Solutions for horizontal motion

basic flizz®

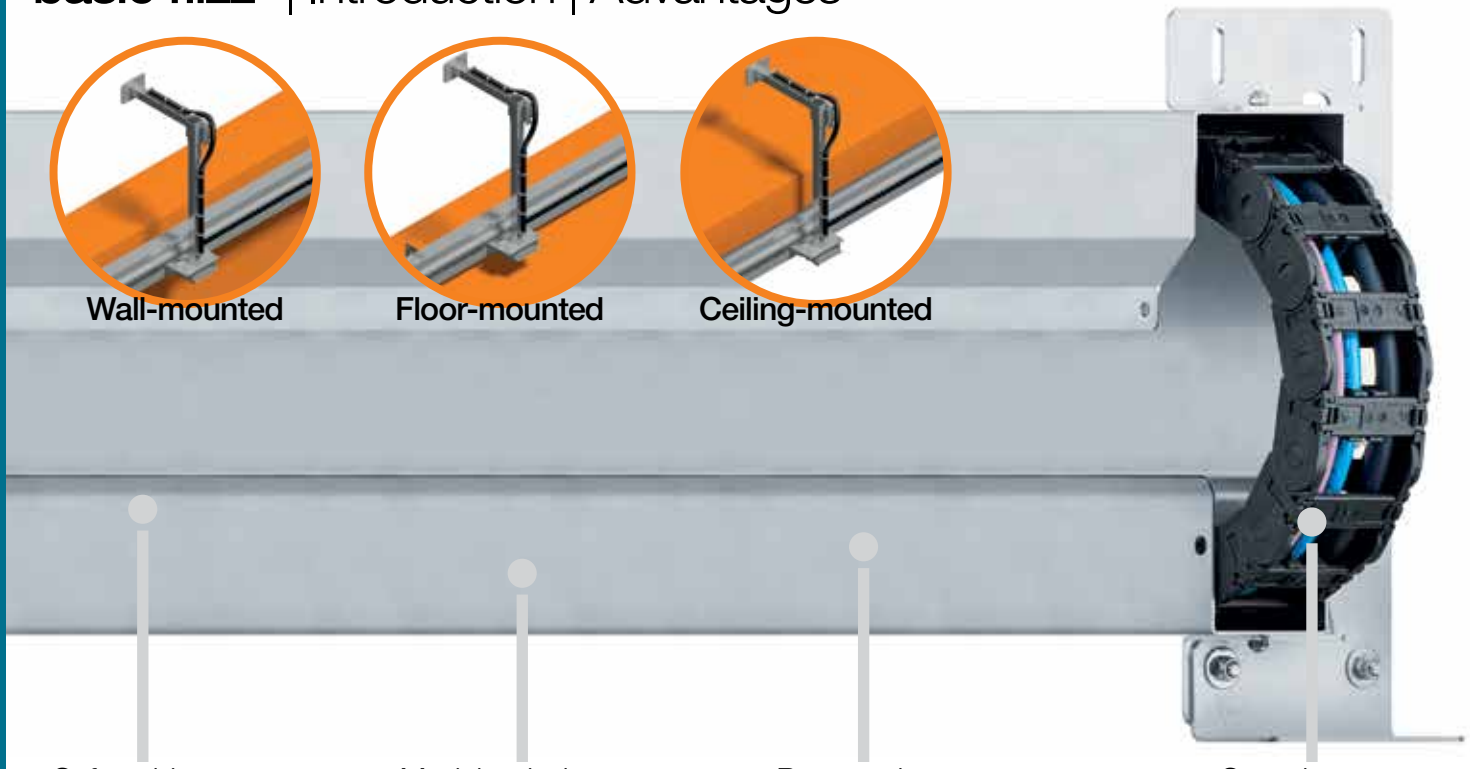
Cost-effective, enclosed solution for long travels, for example; waste-water treatment plants

Advantages of basic flizz®:

- Protection against weather and dirt exposure
- Low-maintenance system
- Cost-effective, fully enclosed complete system
- Standardized and modular design
- Easy wall, floor or ceiling mounting options
- Cables or hoses can be easily retrofitted as required
- Reduce power costs - directly driven by the scraper
- No additional drives needed (as is the case on cable reels)

When to use another system:

- For an upper run guide for long travels, unsupported in chip areas
  ► **guidelok horizontal, page 1206**
- For a compact, quiet and cost-effective complete system as a maintenance-free alternative to a busbar
  ► **micro flizz®, page 1220**



Safe guidance:
guide rail integrated
into the profile

Modular design:
easy assembly,
compact construction

Protected:
weather-resistant
stainless steel enclosure

Save time:
openable
e-chain®

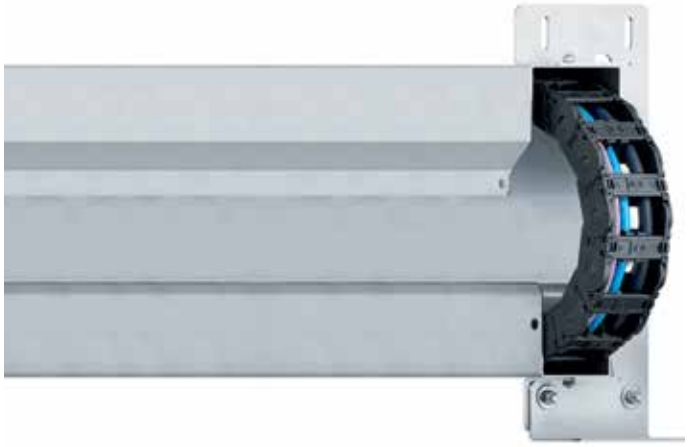
Cost-effective, enclosed solution for long travels, for example; waste water treatment plants - basic flizz®

- Low-maintenance system for travel lengths up to 3.94" (100m)
- Protection against weather and dirt exposure
- Cost-effective, fully enclosed complete system
- Standardized and modular design
- Easy installation using a bracket with different mounting options
- Cable lengths up to 50% shorter than festoons, low-profile installation
- Cables are guided with a defined bend radius so tensile forces are absorbed by the e-chain®
- Cables cannot tangle or get damaged
- No slip ring contact (as with cable reels)
- Cables or hoses can be easily retrofitted as required
- Reduce power costs - directly driven by the scraper. No additional drives needed (as is the case on cable reels)
- Optionally available moving end arm (e.g. as mechanical connection for scraper trolley)
- Available in 2 sizes, each also available in HD version for even higher push/pull forces
- 3500 v2 and 3500 HD optionally available as rol e-chain® for travel lengths up to 656ft (200m) and more

Typical industries and applications

● Wastewater and sewage treatment works (longitudinal scrapers, sand/grease traps) ● Electroplating facilities ● Cranes ● Plant construction ● River locks

basic flizz® | Selection table

Series Part No.	For e-chains® series	Outer height in (mm)	Support gap ft (m)	Travel length ≤ ft (m)
		**basic flizz® 2500 v2 and 2500 HD** weather-resistant, fully enclosed complete solution		
2500 v2	2500.05.100.0	16.06 (408)	9.84 (3)	328 (100)
2500 HD	E4.28.052.100.0	16.06 (408)	9.84 (3)	328 (100)
HD version for even higher push/pull forces				
Appropriate e-chain® must be ordered separately.				
		**basic flizz® 3500 v2 and 3500 HD** weather-resistant, fully enclosed complete solution for higher push/pull forces and fill weight		
3500 v2	3500.115.125.0 / 3500R.115.125.S10.0.E	24.33 (618)	9.84 (3)	492 (150)
3500 HD	E4.42.11.150.0 / 3838CR.11.150.S10.0.E	24.33 (618)	9.84 (3)	492 (150)
HD version for even higher push/pull forces				
Appropriate e-chain® must be ordered separately.				
Standard material: AISI 304 stainless steel, material 1.4301 (AISI 304). Option: galvanized steel or AISI 316L stainless steel, material 1.4404 (AISI 316L)				

2500 v2 / 2500 HD - available from stock. Ready to ship in 3-5 business days.*
3500 v2 / 3500 HD - ready to ship in 3 weeks*

*Average time before the ordered goods are dispatched.

QuickCad - 3D CAD configurator for basic flizz®

- Generate basic flizz® as a 3D model quickly and easily
- Fast download of the CAD data without registration
- Select installation version, infeed and operating direction
- Parts list generation and PDF data sheet of the application

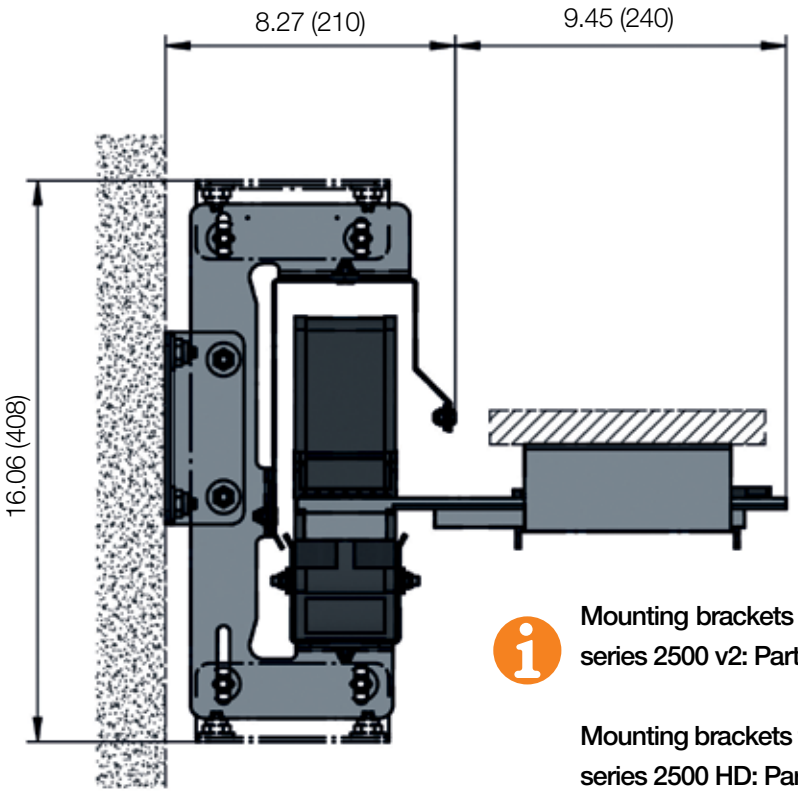
More information ▶ www.igus.com/basic-flizz

basic flizz® product range | Series 2500 v2 | Series 2500 HD

Description	Part No. basic flizz® 2500 v2	Part No. basic flizz® 2500 HD
Trough module without glide bar	IE31.3134.E	IE31.3134.E
Trough module fixed end at the joint	IE31.3135.E	IE31.3220.E
Trough module fixed end at the centre	IE31.3136.E	IE31.3222.E
Trough module with glide bar	IE31.3137.E	IE31.3137.E
Trough module with glide bar and tie wrap plate	IE31.3217.E	IE31.3217.E
Installation set v2	IE31.3138.E	IE31.3138.E
Floating moving end	IE20.2500.05.ST.05.E	IE20.2500.05.ST.05.E
Moving arm ▶ **please also see page 1218**	IE31.2316.E	IE31.2316.E

Standard material: 304 stainless steel, material 1.4301 (AISI 304). Option: galvanized steel or 316L stainless steel, material 1.4404 (AISI 316L)

basic flizz® installation dimensions | Series 2500 v2 | Series 2500 HD



Mounting brackets for e-chain® 2500 basic flizz® series 2500 v2: Part No. 2500.34PZB.A2

Mounting brackets for e-chain® E4.28 basic flizz® series 2500 HD: Part No. 916.809.1.052.VS.E.A2

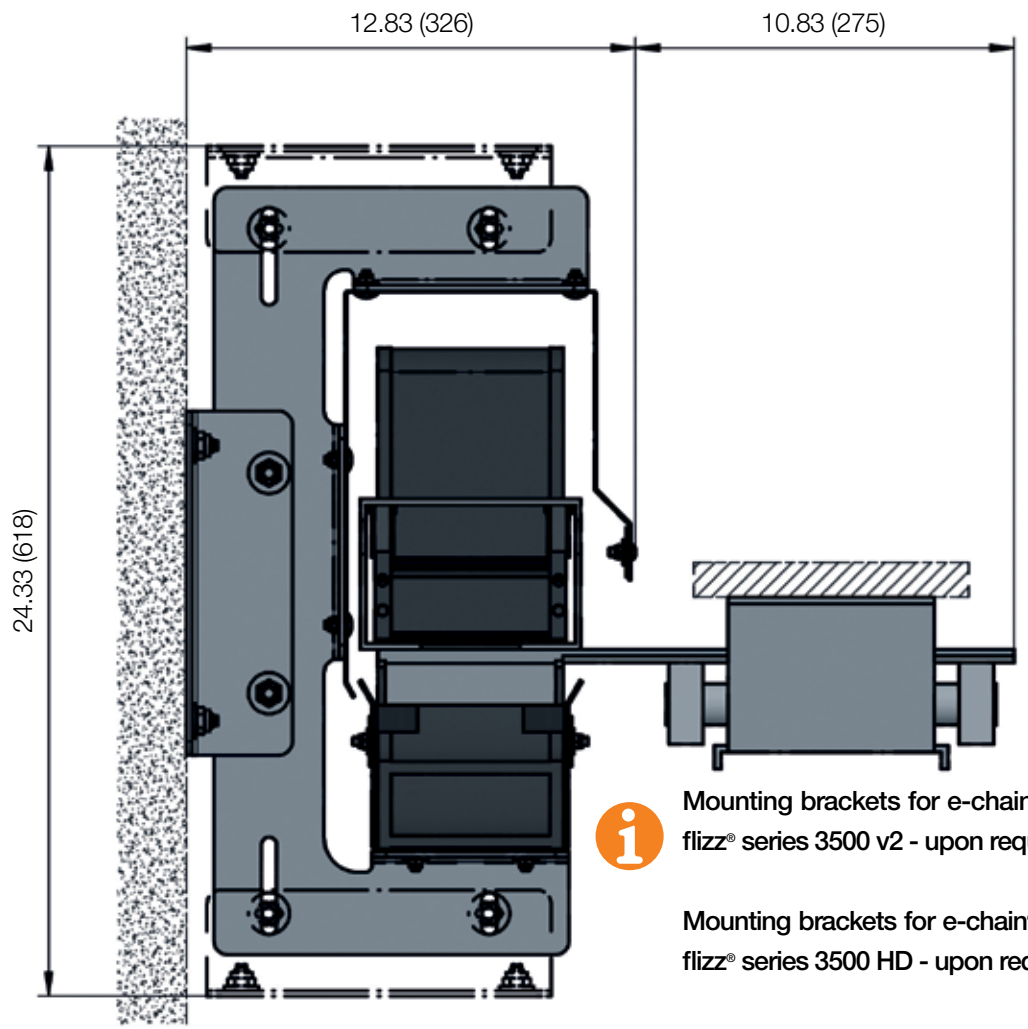
basic flizz® product range | Series 3500 v2 | Series 3500 HD

Description	Part No. basic flizz® 3500 v2*	Part No. basic flizz® 3500 HD*
Trough module without glide bar	IE31.3946.E	IE31.3946.E
Trough module fixed end at the joint	IE31.3947.E	IE31.3947.E
Trough module fixed end at the centre	IE31.3948.E	IE31.3948.E
Trough module with glide bar	IE31.3949.E	IE31.3949.E
Trough module with glide bar and tie wrap plate	IE31.3951.E	IE31.3951.E
Installation set v2	IE31.3950.E	IE31.3950.E
Floating moving end	IE20.3500.115.ST.01.E	IE20.3500.115.ST.01.E

*3500 v2 / 3500 HD - ready to ship in 3 weeks.

Standard material: 304 stainless steel, material 1.4301 (AISI 304). Option: galvanized steel or 316L stainless steel, material 1.4404 (AISI 316L)

basic flizz® installation dimensions | Series 3500 v2 | Series 3500 HD



Mounting brackets for e-chain® 3500 basic flizz® series 3500 v2 - upon request

Mounting brackets for e-chain® E4.42 basic flizz® series 3500 HD - upon request

Series 2500 v2·2500 HD | Adjustable moving arm

In addition to the floating moving end of the basic flizz® 2500 v2 and 2500 HD, igus® offers a modular and adjustable moving end arm for easy installation onto the existing structure

basic flizz® fully enclosed complete solution

Sand trap with telescopic igus® moving end arm - travel 62.34 ft (19m)

Longitudinal scraper, mounted in the basin, sewage treatment plant in Plauen, Germany - travel 174 ft (53m)

Sewage treatment plant in Volmetal, Germany - travel 85.31ft (26m)

Sand traps, sewage plant in Bamberg (Germany) - travel 85.31ft (26m)


igus
MFW.08.18.1-
ENERGY
DATA
AIR
LIQUIDS
GUIDANCE
IN ONE SYSTEM

Solutions for horizontal motion

micro flizz®

Guide energy, data, air and liquids together in ONE compact system

Advantages of micro flizz®:

- Compact, quiet, cost-effective complete system as a maintenance-free alternative to a busbar
- e-chain® is guided in special slots, no gliding
- Smooth running due to ball bearings in the guide carriages
- Fast assembly due to pre-configured, modular system
- Low space requirement
- Also available as pre-assembled system
- Easy to clean, hardly any abrasion

When to use another system:

- For an upper run guide for long travels, unsupported in chip areas
  ► **guidelok horizontal, page 1206**
- For a cost-effective and fully enclosed complete solution
  ► **basic flizz®, page 1212**

Easy connection:
easy and versatile mounting options due to T-grooves

Unsupported:
winglets hold the e-chain® securely in the guide channel

Secure:
integrated strain relief within the guide carriage

Maintenance-free:
aluminum channel and lubrication-free plastic e-chain®

Supplying energy, data and fluids in ONE compact system - micro flizz®

Maintenance-free, compact, quiet and cost-saving complete system - the alternative to the busbar system. For the safe guidance of energy, data, air and liquids in ONE system.

- Easy to clean
- No particle pollution due to abrasion
- Quiet, lubrication-free, and easy to install
- Operating speeds of up to 19.69ft/s (6m/s) in high accelerations
- Data rates of up to 10Gbit/s. Safely guides FOC and bus cables
- Travel lengths of up to 328ft (100m)
- Can be installed horizontally and vertically
- Low space requirement
- 3 sizes available

Typical industries and applications

● Storage and retrieval equipment ● Indoor cranes ● Industrial gates ● Workstations ● Wastewater and sewage treatment plants ● Camera systems ● Sliding doors ● Operator panels ● Measure systems ● Studio equipment ● Material handling equipment

Find a video online
▶ www.igus.com/MF-movie

iF product design award
2006 for igus® micro flizz®

Series	Inner height *hi* in. (mm)	Inner width *Bi* in. (mm)	Outer width *Ba* in. (mm)	Outer height *ha* in. (mm)	Bend radius *R* in. (mm)	Travel ≤ ft. (m)
						
				micro flizz® MF.06 unsupported e-chain® in an aluminum profile		
MF.06.10.018	.43 (11)	.39 (10)	.75 (19)	.67 (17)	.71 (018)	98.4 (30)
						
				micro flizz® MF.08 unsupported e-chain® in an aluminum profile		
MF.08.18.035	.51 (13)	.71 (18)	1.14 (29)	.83 (21)	1.38 (035)	164 (50)
						
				micro flizz® MF.10 unsupported e-chain® in an aluminum profile		
MF.10.50.075	.79 (20)	1.97 (50)	2.48 (63)	1.08 (27.5)	2.95 (075)	328 (100)

Available from stock. Ready to ship in 48 - 72hrs.*

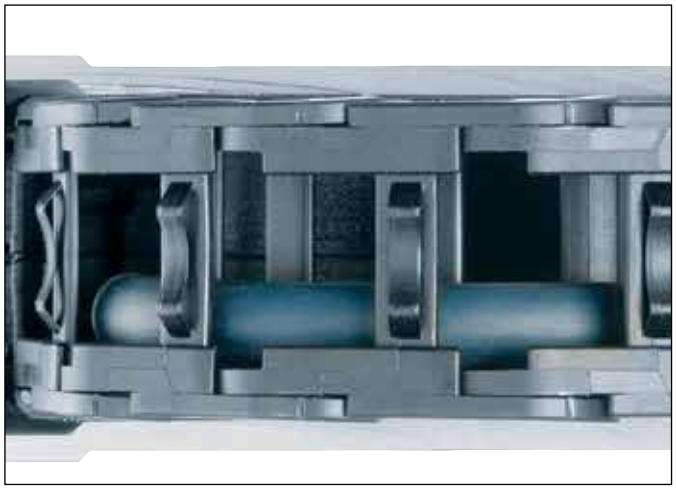
*Average time before the ordered goods are dispatched.

Technical data, dynamic values

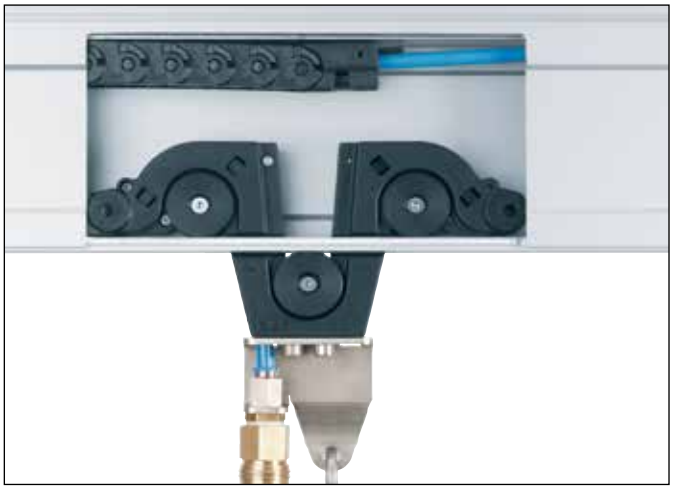
Series	Speed ≤ ft/s (m/s)	Acceleration ≤ ft/s² (m/s²)
MF.06.10.018	19.69 (6)	65.6 (20)
MF.08.18.035	19.69 (6)	98.43 (30)
MF.10.50.075	19.69 (6)	164 (50)

Separated upper and lower run: Running trough the radius, integrated wings fold in

In the extended position, the wings fold out and safely hold the upper run in the elevated position

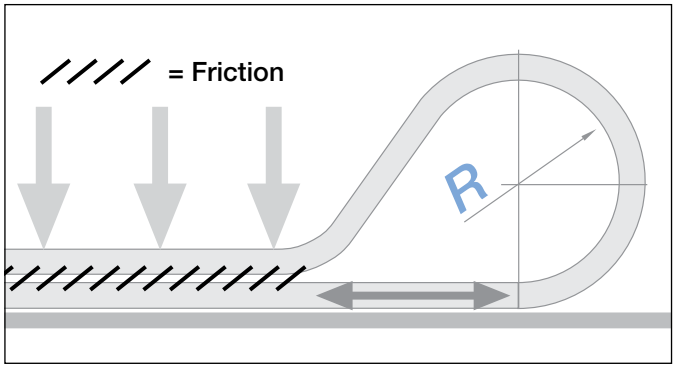


A polymer spring element cushions the motion inside the trough and lower noise

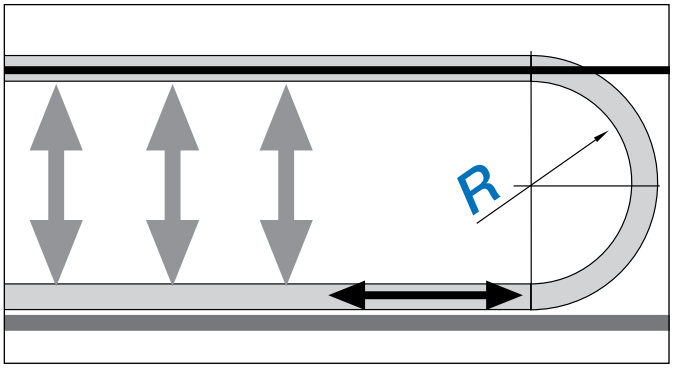


micro flizz® accessory: moving end connection for compressed air coupling

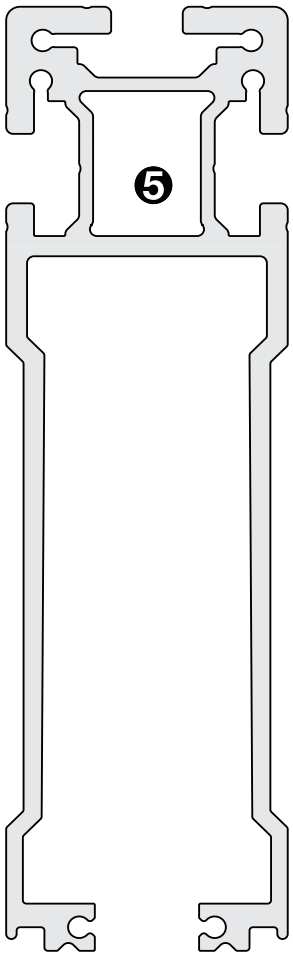
Special feature of the micro flizz® design



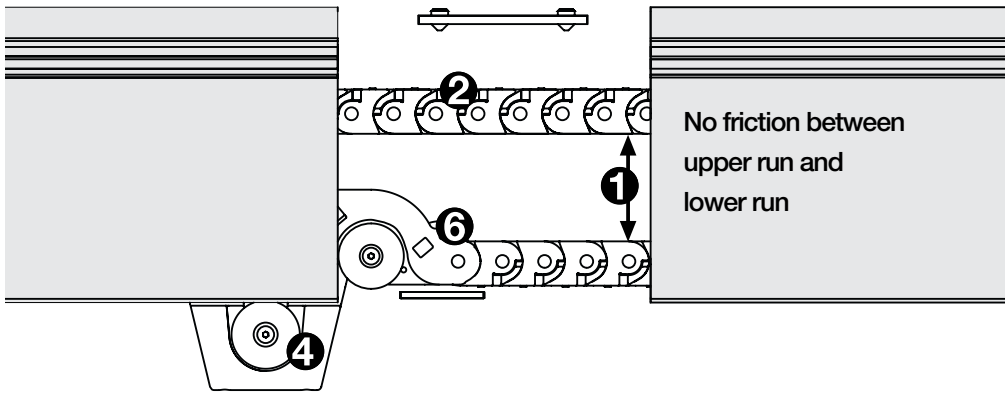
Yesterday: Moving lower run, gliding mode. Long travels need larger, stronger e-chains®

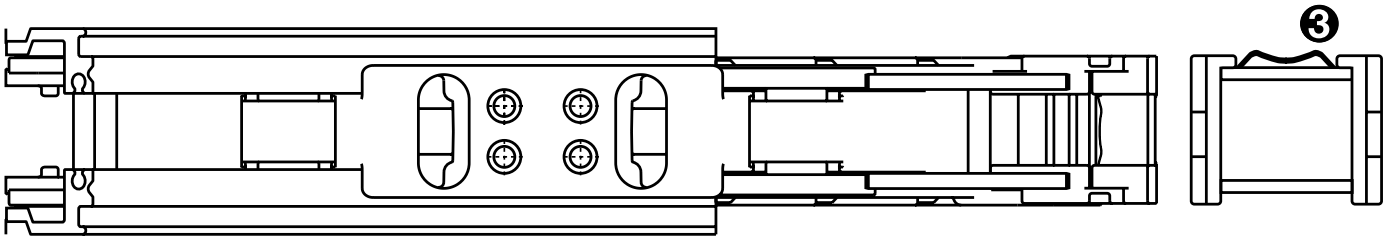


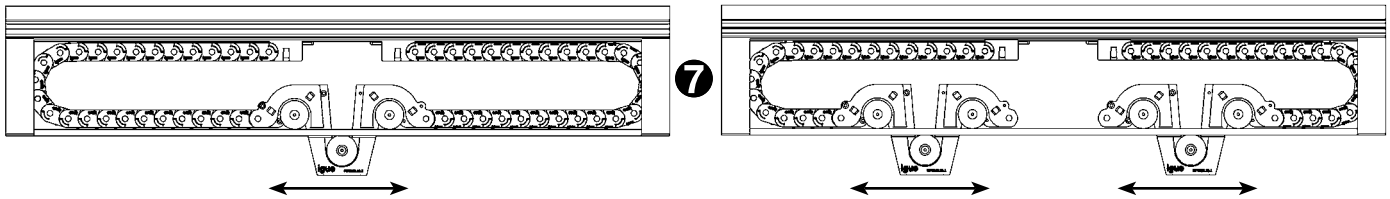
Today: micro flizz® - Small e-chains®, self-guiding in guide channel - Compared to the conventional system, friction is reduced by factor 3



❶ The upper run and lower run of the flizz® e-chain® are separated from each other, which means less friction and less energy used when the e-chain® moves
❷ Winglets hold the e-chain® securely in the guidance channel
❸ Plastic springs cause the e-chain® to roll along gently in the flizz® channel, as a result noise is significantly reduced
❹ Integrated strain relief in the guide carriage for secure fixation of the cables
❺ Universal connection possible due to three T-slots
❻ Attachment of the e-chain® by roller carriage on the moving end
❼ Reverse travel: double filling or two independent travels possible







chainflex® special cables for micro flizz®

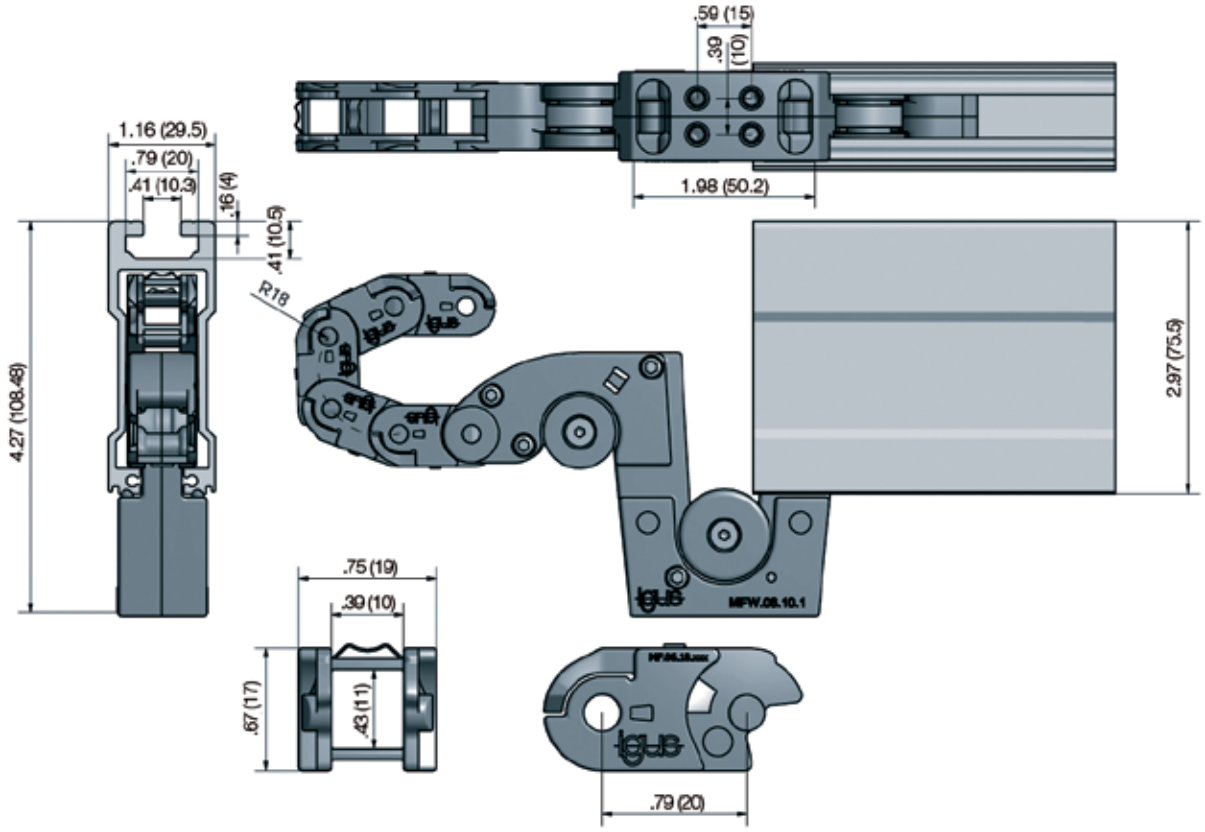
For the micro flizz® system, igus® has many suitable, highly-flexible special chainflex® cables for dynamic applications, available from stock! **More information ▶ www.igus.com/chainflex**

e-chain® visible for illustration only

micro flizz® | Series MF.06 | Product range

Part No. Series	*Bi* in. (mm)	*Ba* in. (mm)	*hi* in. (mm)	*ha* in. (mm)	*R* Bend radius in. (mm)
MF.06.10.018	.39 (10)	.75 (19)	.43 (11)	.67 (17)	| .71 (018) |

Installation dimensions | Series MF.06



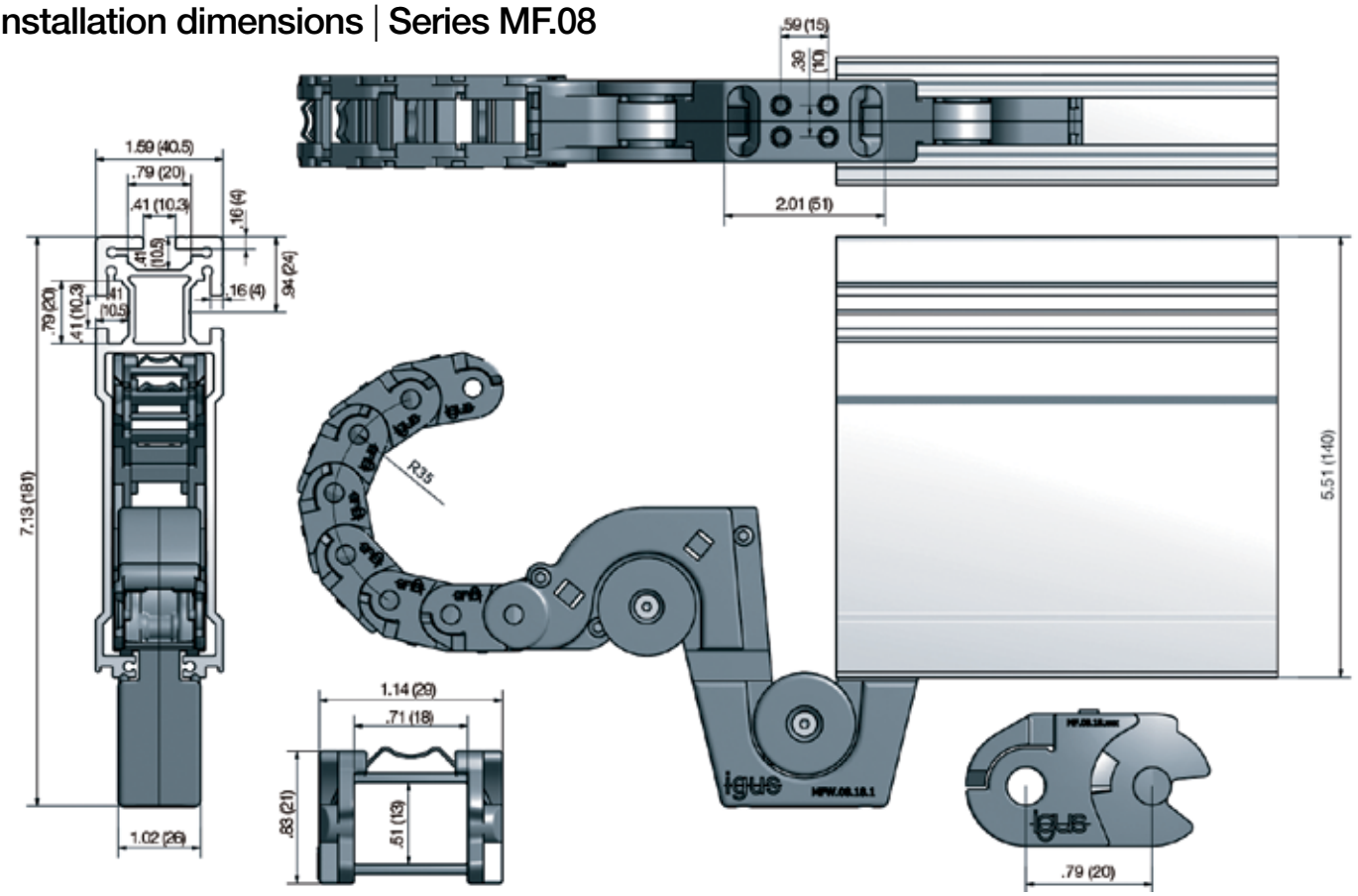
Installation height complete system	**4.27" (108.5mm)**
Installation width complete system	**1.16" (29.5mm)**
Recommended length channel pieces (die-cast aluminum material)	**6.56ft (2.0m) / 9.84ft (3.0m) / 19.69ft (6.0m)**
Cable diameter	**Max. ø .31" (8mm)**

e-chain® visible for illustration only

micro flizz® | Series MF.08 | Product range

Part No. Series	*Bi* in. (mm)	*Ba* in. (mm)	*hi* in. (mm)	*ha* in. (mm)	*R* Bend radius in. (mm)
MF.08.18.035	.71 (18)	1.14 (29)	.51 (13)	.83 (21)	1.38 (035)

Installation dimensions | Series MF.08



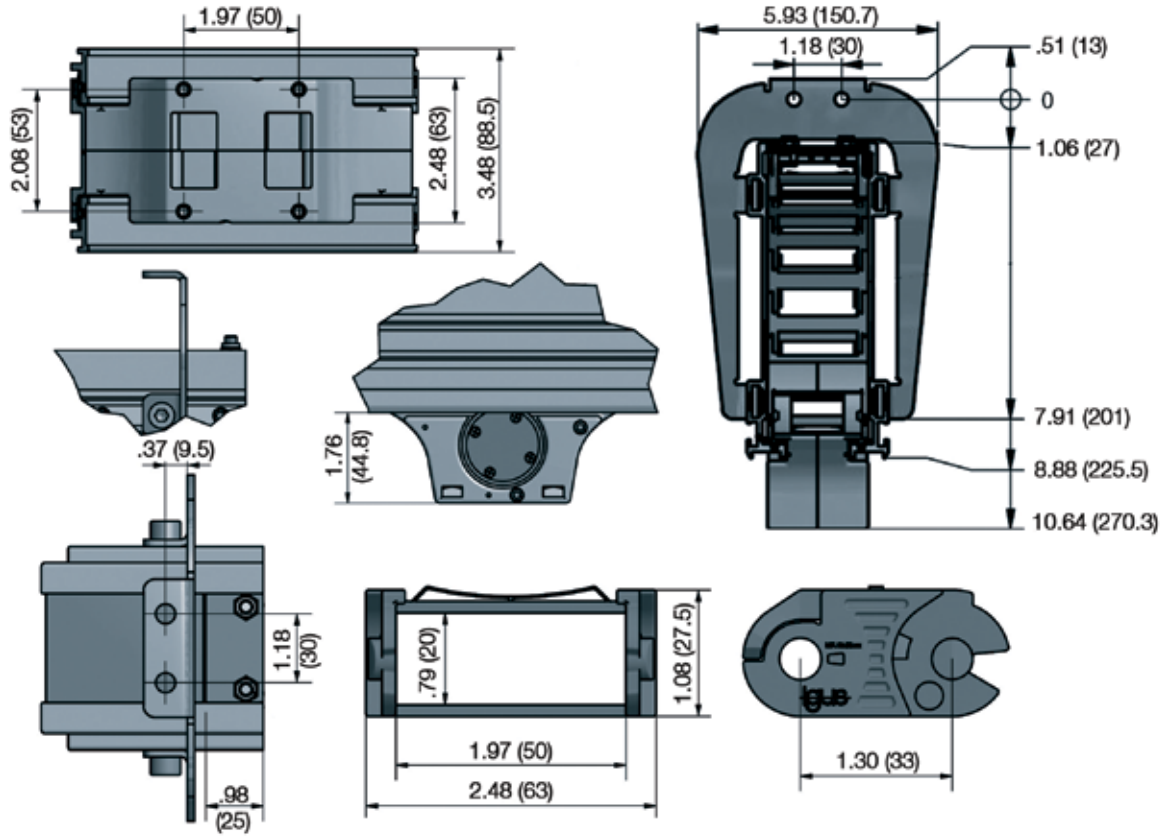
Installation height complete system	7.13" (181mm)
Installation width complete system	1.59" (40.5mm)
Recommended length channel pieces (die-cast aluminum material)	6.56ft (2.0m) / 9.84ft (3.0m) / 19.69ft (6.0m)
Cable diameter	Max. ø .37" (9.5mm)

e-chain® visible for illustration only

micro flizz® | Series MF.10 | Product range

Part No. Series	*Bi* in. (mm)	*Ba* in. (mm)	*hi* in. (mm)	*ha* in. (mm)	*R* Bend radius in. (mm)
MF.10.50.075	1.97 (50)	2.48 (63)	.79 (20)	1.08 (27.5)	2.95 (075)

Installation dimensions | Series MF.10



Installation height complete system	11.15" (283.3mm)
Installation width complete system	5.93" (150.7mm)
Recommended length channel pieces (die-cast aluminum material)	6.56ft (2.0m) / 9.84ft (3.0m) / 19.69ft (6.0m)
Cable diameter	Max. ø .63" (16mm)

micro flizz® | Application examples

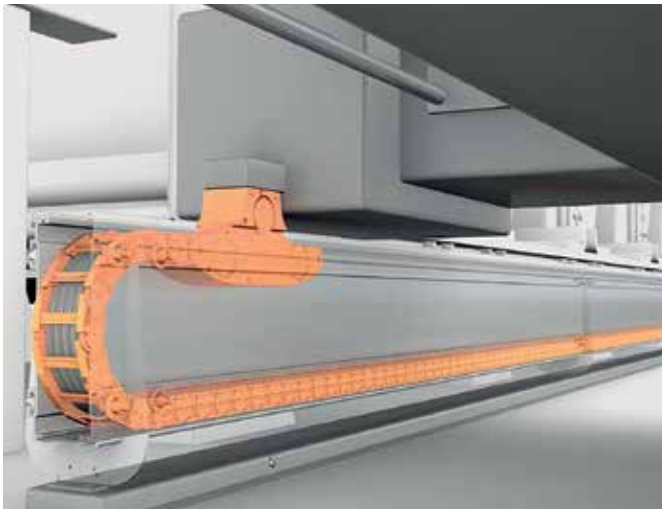
Up to 10GBit/s at a speed of 6m/s - together with the power supply in the micro flizz® MF.10

micro flizz® in the food sector

micro flizz® connecting a set of movable scales

igus® micro flizz® in a sewage plant

Aisle movements over distances of up to 100m at speeds up to 6m/s



Guidance of 4 single cores up to 35mm^2 and FOC cables with data rates of more than 10Gbit/s ▶ **www.igus.com/MF10**

micro flizz® | Order example | End infeed

Order example - end infeed

MF	06.	10.	018.	L / F	**MF.06.10.018.5000/2000**
MF	08.	18.	035.	L / F	**MF.08.18.035.5000/2000**
MF	10.	50.	075.	L / F	**MF.10.50.075.5000/2000**

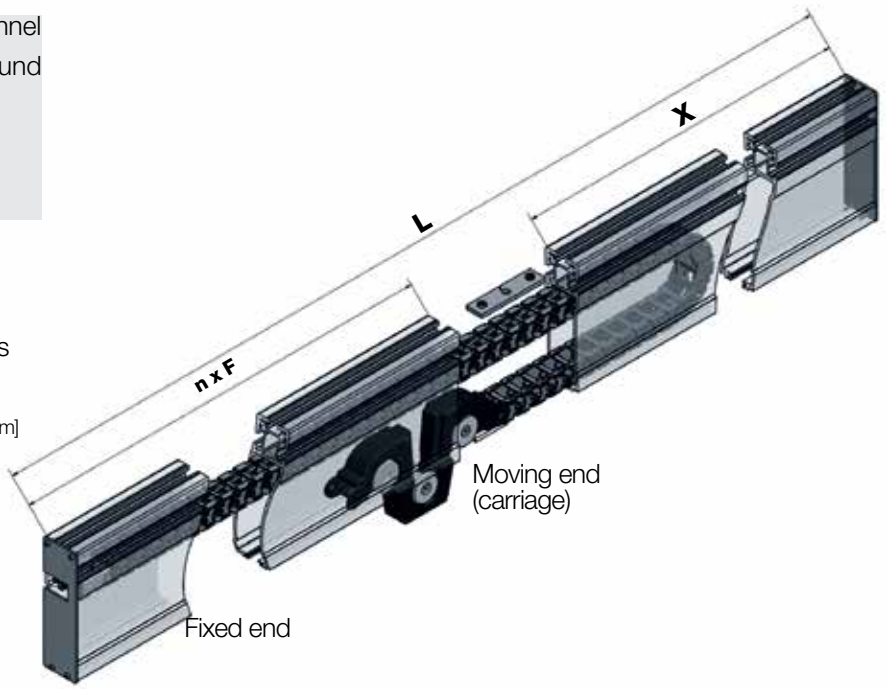
F = Channel section length [mm]
L = Total length [mm]
R = Bend radius [mm]
Bi = Inner e-chain® width
Version (series)
End infeed

micro flizz® as an end infeed version with a total length of 5,000mm, consisting of two 2,000mm channels and 1 channel with a residual length of 1,000mm

Calculate the number of channel sections needed (**n**). Then round off the result.

$$n = \frac{L}{F}$$

Bi = Inner e-chain® width
R = Bend radius [mm]
n = Number of channel pieces
S = Travel (**L** - 300 [mm])
F = Channel section length [mm]
L = Total length [mm]
X = Residual length [mm]



F = Recommended channel lengths: 2,000, 3,000, 6,000mm
Bi = Series 06: 10mm / Series 08: 18mm / Series 10: 50mm
hi = Series 06: 11mm / Series 08: 13mm / Series 10: 20mm

Order example - 2 carriages, opposing travel

MFG2	06.	10.	018.	L / F	**MFG2.06.10.018.10000/3000**
MFG2	08.	18.	035.	L / F	**MFG2.08.18.035.10000/3000**
MFG2	10.	50.	075.	L / F	**MFG2.10.50.075.10000/3000**

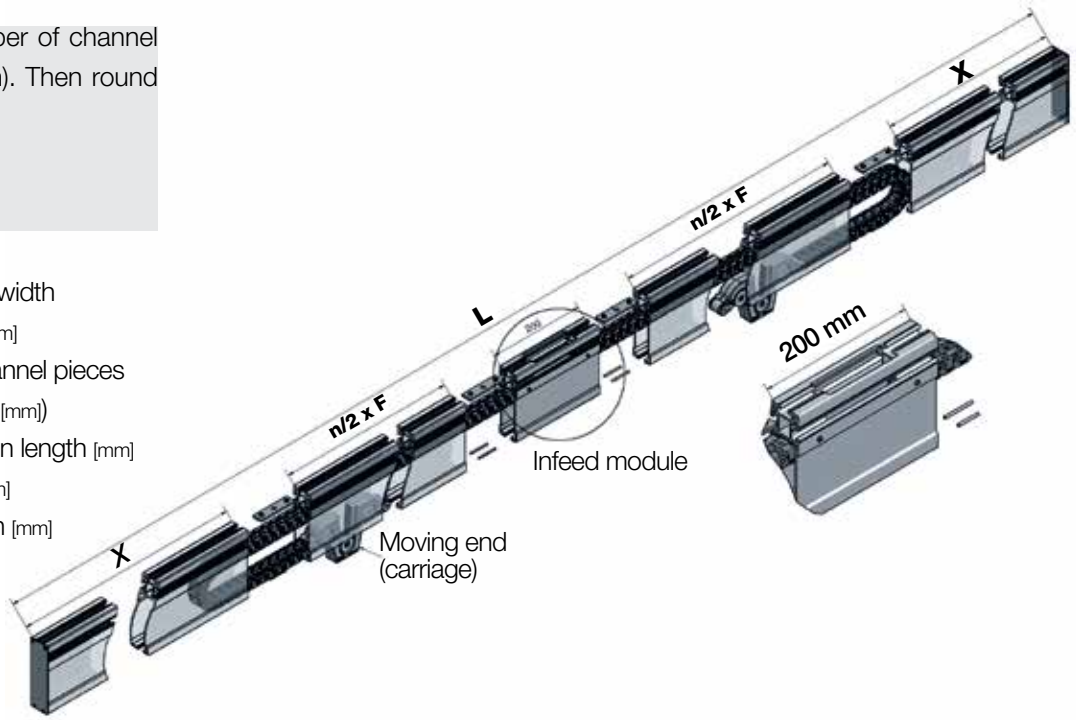
F = Channel section length [mm]
L = Total length [mm]
R = Bend radius [mm]
Bi = Inner e-chain® width
Version (series)
2 carriages in opposite directions

micro flizz® mounted with 2 opposing carriages. Total length 10,000mm, distributed over two 3,000mm channels, the infeed module (200mm) and two channels each with a residual length of 1,900mm

Calculate the number of channel sections needed (**n**). Then round off the result.

$$n = 2 \times \frac{L - 200}{2 \times F}$$

Bi = Inner e-chain® width
R = Bend radius [mm]
n = Number of channel pieces
S = Travel (**L** - 300 [mm])
F = Channel section length [mm]
L = Total length [mm]
X = Residual length [mm]



F = Recommended channel lengths: 2,000, 3,000, 6,000mm
Bi = Series 06: 10mm / Series 08: 18mm / Series 10: 50mm
hi = Series 06: 11mm / Series 08: 13mm / Series 10: 20mm