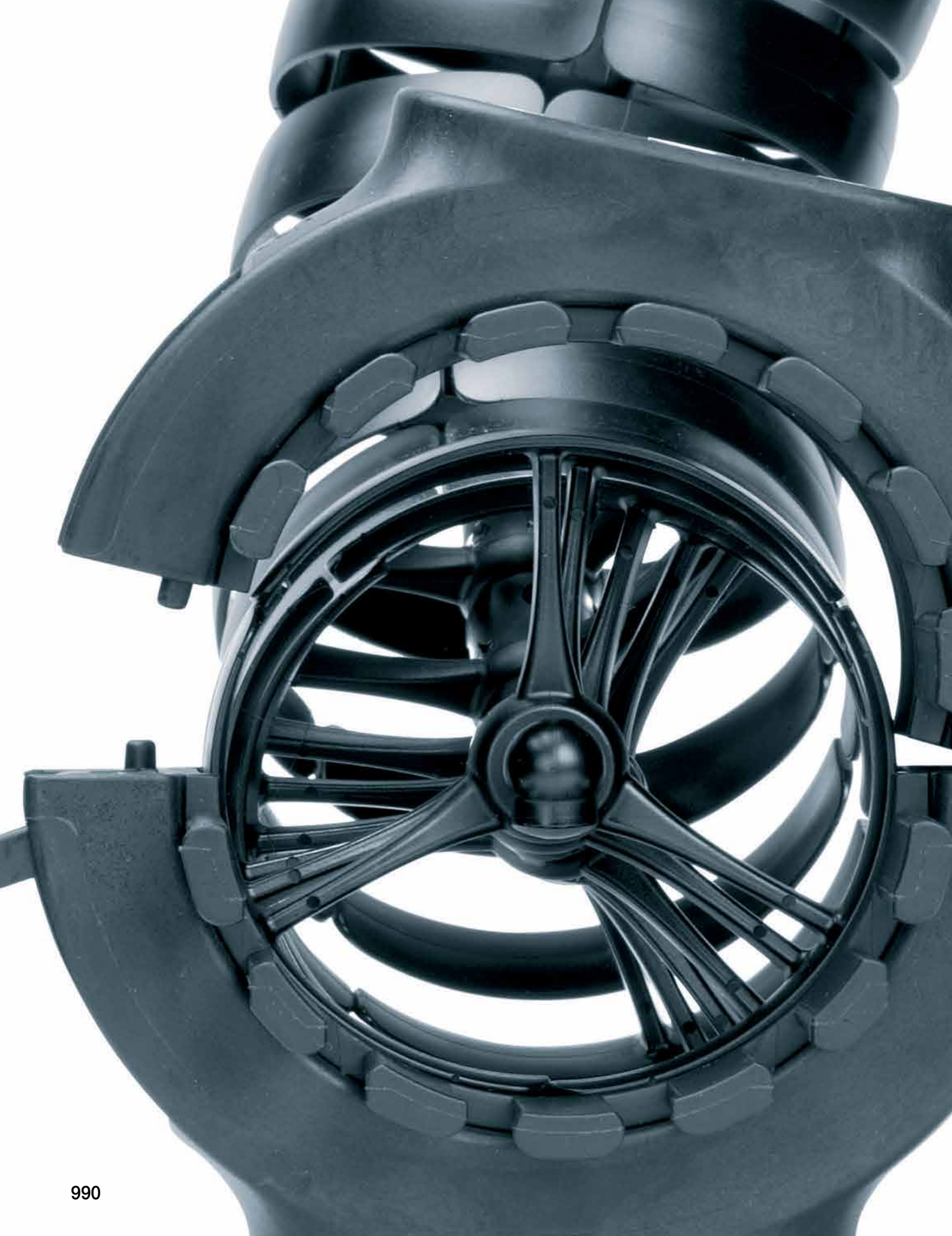






triflex[®] R

**For multi-axis movements
and robots**



triflex[®] R advantages:

- For the most demanding multi-axis applications on industrial robots
- Defined torsion stop-dog
- Defined minimum bend radius
- Easy to lengthen and shorten
- Fillable from the outside



When to use another 3D e-chain[®] series:

- For circular movements with high loads
 - ▶ **twisterchain system**, page 1124

For multi-axis movements and robots - triflex® R

triflex® R (R for "round") is the third generation of multi-axis igus® e-chains®. The key design characteristics of igus® triflex® R have made this product very successful in the robot industry.

- Defined torsion stop-dog on each e-chain® link
- Defined minimum bend radius
- High tensile strength due to ball and socket joint
- Compact retraction system options to prevent loop formation
- Fiber-rod option for partial directional control and reinforcement
- No extra support elements required, e.g. steel cables, spring suspensions
- Wide range of accessories

triflex® R available in 5 versions from stock

- TRC** closed design with smooth and robust exterior
- TRE** "easy" design, easy to fill from outside
- TRCF** closed design with snap-lock mechanism
- TRL** very lightweight, with "easy" design
- TRLF** light version with snap-lock mechanism

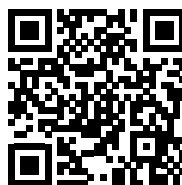
Typical industries and applications

- The first choice for multi-axis robots
- Machine tools
- Handling machines - 6-axis
- Conveyor systems
- Packaging machines
- General mechanical engineering, etc.



Assembly video available online.

To view the video scan the QR code



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

*Average time before the ordered goods are dispatched.



The defined torsion stop ensures an even distribution of the torsional load across the entire length



A tough, bend radius stop-dog actively prevents cables and hoses from kinking



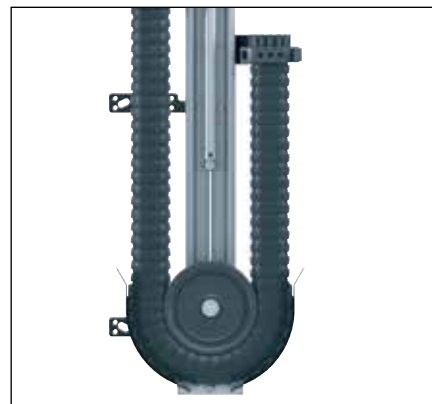
Interior separation: two or three chamber design for a reliable cable guidance



Openable - series TRCF and TRLF have snap lock mechanism for easy filling



Tensile strength is absorbed directly by the e-chain® - no additional supports are necessary



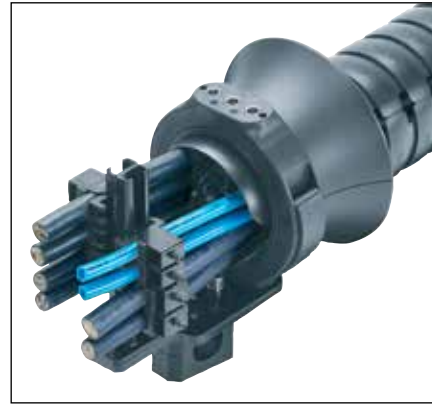
5 retraction system options available to prevent formation of loops in the robot's working area



Standard and light mounting brackets available with or without integrated strain relief. Some versions available in ESD material, from stock



Mounting brackets options with gliding feed-through and swivel bearing. Bearing with a maintenance-free igubal® ball and socket joint



Various heavy duty and compact connections and quick-change units are available



Series TRC - electrically conductive ESD e-chains® - several series available upon request



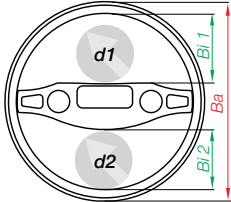
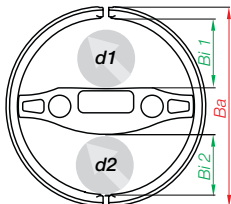
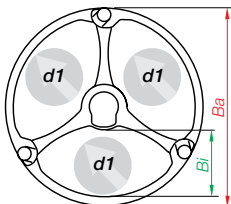
UL94-V2 classification



iF product design award

2004 for igus® series TRC
2007 for igus® series TRL
2013 for igus® series TRLF

triflex® R | Selection table

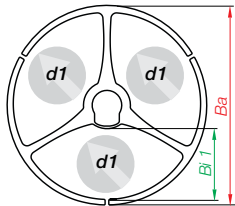
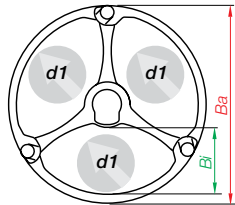
Series	Inner height				Outer diameter		Bend radius		max. cable ø				Pitch		Links	
	Bi 1		Bi 2		Ba		R		d1		d2					
	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)	per ft	per m
							Series TRC - closed design chip protection, smooth outer contour									
TRC.30	.47	(12)	.39	(10)	1.36	(34.5)	1.97	(50)	.39	(10)	.31	(8)	.44	(11.3)	27.27	(89)
TRC.40	.59	(15)	.51	(13)	1.69	(43)	2.28	(58)	.51	(13)	.43	(11)	.55	(13.9)	21.82	(72)
TRC.50	.74	(18.8)	.64	(16.2)	2.13	(54)	3.15	(80)	.65	(16.5)	.55	(14)	.69	(17.4)	17.39	(58)
TRC.60	.88	(22.5)	.77	(19.5)	2.56	(65)	3.43	(87)	.81	(20.5)	.69	(17.5)	.80	(20.4)	15.00	(49)
TRC.70	1.10	(28)	.94	(24)	3.19	(81)	4.33	(110)	1.02	(26)	.87	(22)	1.01	(25.6)	11.88	(39)
TRC.85	1.30	(33)	1.10	(28)	3.72	(94.5)	5.31	(135)	1.22	(31)	1.02	(26)	1.20	(30.6)	10.00	(33)
TRC.100	1.48	(37.5)	1.28	(32.5)	4.25	(108)	5.71	(145)	1.40	(35.5)	1.20	(30.5)	1.36	(34.5)	8.82	(29)
TRC.125 ¹⁾	1.70	(43.3)	1.70	(43.3)	5.31	(135)	7.17	(182)	1.61	(41)	1.61	(41)	1.76	(44.6)	6.82	(23)
							Series TRE - "easy" design very easy to fill, cables are simply pushed in									
TRE.30	.47	(12)	.39	(10)	1.36	(34.5)	1.97	(50)	.39	(10)	.31	(8)	.44	(11.3)	27.27	(89)
TRE.40	.59	(15)	.51	(13)	1.69	(43)	2.28	(58)	.51	(13)	.43	(11)	.55	(13.9)	21.82	(72)
TRE.50	.74	(18.8)	.64	(16.2)	2.13	(54)	3.15	(80)	.65	(16.5)	.55	(14)	.69	(17.4)	17.39	(58)
TRE.60	.88	(22.5)	.77	(19.5)	2.56	(65)	3.43	(87)	.81	(20.5)	.69	(17.5)	.80	(20.4)	15.00	(49)
TRE.70	1.10	(28)	.94	(24)	3.19	(81)	4.33	(110)	1.02	(26)	.87	(22)	1.01	(25.6)	11.88	(39)
TRE.85	1.30	(33)	1.10	(28)	3.72	(94.5)	5.31	(135)	1.22	(31)	1.02	(26)	1.20	(30.6)	10.00	(33)
TRE.100	1.48	(37.5)	1.28	(32.5)	4.25	(108)	5.71	(145)	1.40	(35.5)	1.20	(30.5)	1.36	(34.5)	8.82	(29)
TRE.125 ¹⁾	1.70	(43.3)	1.70	(43.3)	5.31	(135)	7.17	(182)	1.61	(41)	1.61	(41)	1.76	(44.6)	6.82	(23)
							Series TRCF - closed design with snap lock mechanism chip protection, smooth outer contour									
TRCF.65	.88	(22.3)	—	—	2.76	(70.2)	3.94	(100)	.79	(20)	—	—	.91	(23.1)	13.19	(44)
TRCF.65 ³⁾	.88	(22.3)	—	—	2.76	(70.2)	7.87	(200)	.79	(20)	—	—	.91	(23.1)	13.19	(44)
TRCF.85	1.18	(30)	—	—	3.72	(94.5)	5.31	(135)	1.10	(28)	—	—	1.20	(30.6)	10.00	(33)
TRCF.85 ³⁾	1.18	(30)	—	—	3.72	(94.5)	9.45	(240)	1.10	(28)	—	—	1.20	(30.6)	10.00	(33)
TRCF.100	1.35	(34.3)	—	—	4.25	(108)	5.71	(145)	1.27	(32.3)	—	—	1.35	(34.4)	8.89	(29)

1) Max. cable diameter Ø 1.61" (41mm). Max. cable diameter changes to Ø 1.42" (36 mm), if lengthening or shortening an already populated triflex® R

2) TRL 30 with 2-chamber design

3) Special size with increased bend radius and special range of accessories

triflex® R | selection table

Series	Inner height				Outer diameter		Bend radius		max. cable ø				Pitch		Links	
	Bi 1		Bi 2		Ba		R		d1		d2					
	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)	per ft	per m
							Series TRL - the “light” version with “easy” design easy to fill and cost effective									
TRL.30 ³	.47	(12)	.39	(10)	1.36	(34.5)	1.97	(50)	.39	(10*)	.31	(8*)	.44	(11.3)	27.27	(89)
TRL.40	.59	(15)	—	—	1.69	(43)	2.28	(58)	.51	(13*)	—	—	.55	(13.9)	21.82	(72)
TRL.60	.91	(23)	—	—	2.56	(65)	3.43	(87)	.81	(20.5*)	—	—	.80	(20.4)	15.00	(49)
TRL.70	1.10	(28)	—	—	3.19	(81)	4.33	(110)	1.02	(26*)	—	—	1.01	(25.6)	11.88	(39)
TRL.100	1.50	(38)	—	—	4.25	(108)	5.31	(145)	1.40	(35.5*)	—	—	1.36	(34.5)	8.82	(29)
							Series TRLF - the “light” version with snap lock mechanism lightweight and cost effective									
TRLF.65	.96	(24.4)	—	—	2.76	(70.2)	3.94	(100)	.87	(22)	—	—	.91	(23.1)	13.19	(44)
TRLF.85	1.29	(32.8)	—	—	3.72	(94.5)	5.31	(135)	1.18	(30)	—	—	1.20	(30.6)	10.00	(33)
TRLF.100	1.48	(37.5)	—	—	4.25	(108)	5.71	(145)	1.40	(35.5)	—	—	1.35	(34.4)	8.89	(29)
TRLF.125	1.84	(46.8)	—	—	5.31	(135)	7.17	(182)	1.75	(44.5)	—	—	1.74	(44.1)	6.90	(23)

triflex® R - Retraction system overview

Series	System	For triflex® R e-chains®	For ø Index	
			in.	(mm)
	RSE•RSEC linear - retraction system	TRC-TRE-TRCF	1.57 - 4.92	(40 - 100)
	RSEL linear - retraction system	TRC-TRE-TRCF	2.76 - 3.35	(60 - 100)
	RS - modular retraction system	TRC-TRE	1.57 - 3.94	(40 - 100)
	RSP - pneumatic retraction system	TRC-TRE-TRCF	2.36 - 4.92	(60 - 125)
	RSE Wheel- retraction system	TRC-TRE	1.57 - 1.97	(40 - 50)

Technical data

	Speed / acceleration	upon request
	Material - permitted temperature, igumid G (TRLF/TRCF)	-40°F / +248°F (-40°C / +120°C)
	Material - permitted temperature, igumid NB (TRC/TRE/TRL)	-40°F / +176°F (-40°C / +80°C)
	Flammability class, igumid G (TRLF/TRCF)	VDE 0304 IIC UL94-HB
	Flammability class, igumid NB (TRC/TRE/TRL)	VDE 0304 IIC UL94-V2

Reduce installation times with easy-to-use disassembly tools



Easy-to-use disassembly tools for triflex® TRE (B version) and TRCF. Easy disassembly at any point along the e-chain®, even when full.

More information

► www.igus.com/triflex_B_disassemblytool



Assembly video available online at

► www.igus.com/triflexR_assembly

For series	Part No.
TRE.B	disassembly tool
TRE.40.B	MAT0050175
TRE.50.B	MAT0051190
TRE.60.B / TRE.70.B	MAT0051135
TRE.85.B	MAT0050170
TRE.100.B	MAT0050172

For series	Part No.
TRCF	disassembly tool
TRCF.65	MAT0051135
TRCF.85	MAT0050170
TRCF.100	MAT0050172



igus® triflex® R TRLF - light version, easily openable by hand or with a screwdriver



igus® triflex® R TRCF - closed version, openable with a screwdriver



triflex® RS for a low profile retraction system. Integrated fiber rods generate the directed pretension so that loops do not form in the working area



Pneumatic retraction system triflex® RSP - prevents loop formation on the robot



RSE Wheel cost-effective and lightweight retraction system with guide roller, for small robots



RSE linear retraction system for triflex® R, sizes 40-125

Closed and chip-repellent - TRC

TRC - enclosed, chip-repellent design

High tensile strength thanks to special ball and socket design

Defined torsion stop, allows free movement in multiple directions but still protects the cables

Impact-resistant, abrasion resistant and chip-resistant

Easy assembly and disassembly

High strength - thanks to external stop-dogs

Easy attachment and special accessories for the robot or machine

- Secure, closed and chip-repellent energy supply for multi-axis movements
- Smooth but robust exterior
- High torsional strength
- Easy to lengthen and shorten

Typical industries and applications

- Robotics and automation
- Multi-axis machine tools
- Wet and cold cells
- Painting applications and ESD
- Sand and dust exposure



Electrically conductive ESD e-chains® - several series available upon request



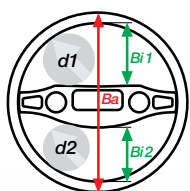
iF product design award
2004 igus® series TRC



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

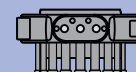
*Average time before the ordered goods are dispatched.

More information ► www.igus.com/triflexR



triflex® R | Series TRC | Product range

Robotic applications, closed, chip-repellent



TRC

► 1008



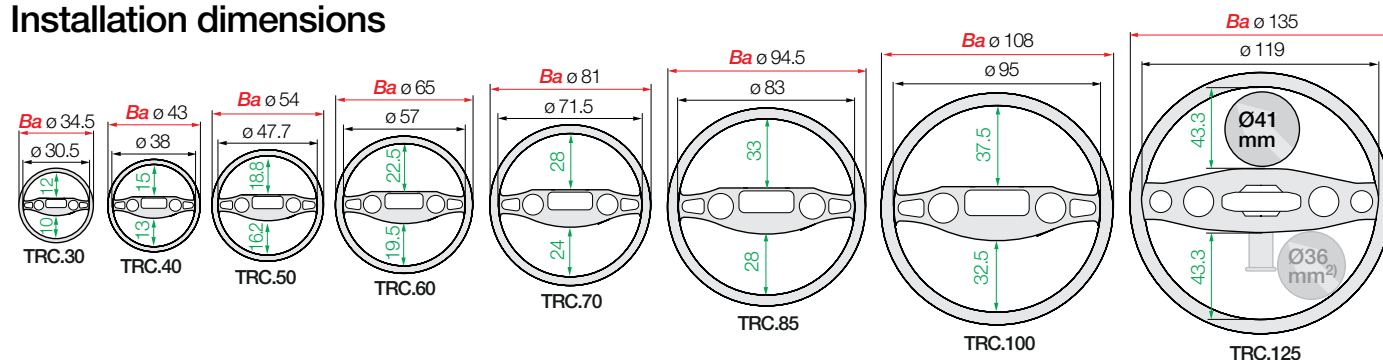
e-tubes | Series TRC | Totally enclosed, non-openable

Part No.	Bi 1	Bi 2	Ba	R	d1	d2	Pitch	Links	Weight
e-tubes	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	per ft. (per m)	lbs/ft (kg/m)
TRC. 30. 050 .0	.47 (12)	.39 (10)	1.36 (34.5)	1.97 (50)	.39 (10)	.31 (8)	.44 (11.3)	27.27 (89)	≈ 0.18 (0.27)
TRC. 40. 058 .0▲	.59 (15)	.51 (13)	1.69 (43)	2.28 (58)	.51 (13)	.43 (11)	.55 (13.9)	21.82 (72)	≈ 0.25 (0.37)
TRC. 50. 080 .0▲	.74 (18.8)	.64 (16.2)	2.13 (54)	3.15 (80)	.65 (16.5)	.55 (14)	.69 (17.4)	17.39 (58)	≈ 0.40 (0.59)
TRC. 60. 087 .0▲	.88 (22.5)	.77 (19.5)	2.56 (65)	3.43 (87)	.81 (20.5)	.69 (17.5)	.80 (20.4)	15.00 (49)	≈ 0.57 (0.85)
TRC. 70. 110 .0▲	1.10 (28)	.94 (24)	3.19 (81)	4.33 (110)	1.02 (26)	.87 (22)	1.01 (25.6)	11.88 (39)	≈ 0.89 (1.32)
TRC. 85. 135 .0	1.30 (33)	1.10 (28)	3.72 (94.5)	5.31 (135)	1.22 (31)	1.02 (26)	1.20 (30.6)	10.00 (33)	≈ 1.18 (1.75)
TRC. 100. 145 .0	1.48 (37.5)	1.28 (32.5)	4.25 (108)	5.71 (145)	1.40 (35.5)	1.20 (30.5)	1.36 (34.5)	8.82 (29)	≈ 1.60 (2.38)
TRC. 125. 182 .0	1.70 (43.3)	1.70 (43.3)	5.31 (135)	7.17 (182)	1.61 (41)	1.61 (41) ¹⁾	1.74 (44.1)	6.82 (23)	≈ 3.16 (4.70)

▲ ESD version (Electro Static Discharge) available upon request. More information ► From page 144

1) TRE.125 max. cable diameter Ø 1.61 (41mm). Max. cable diameter changes to Ø 1.42 (36mm) when an already populated e-chain needs to be shortened or lengthened

Installation dimensions



ESD - Available upon request

- Standardized product made from igumid ESD
- ESD material tested with over 10 million cycles for highest requirements

More information and the complete product range

► www.igus.com/esd



TRE - "easy" design -
simply press cables in

High tensile strength due to
special ball and socket design

Defined torsion stop, allows free
movement in multiple directions
but still protects the cables

"Easy" design for fast filling
with cables and hoses

Simple tool for fast
disassembly of the
triflex® B versions

High strength - thanks to
external stop-dogs

Easy attachment and special
accessories for the robot or machine

Easy to fill - simply press cables in - TRE

- Easy to fill energy supply for multi-axis movements
- High torsion resistance
- Easy to lengthen and shorten
- **B version** - 4x increase in radial stability, allows larger torsion forces
- **C version and TRE.125** - fast assembly due to pin connection and spherical igubal® joint allowing 50% higher tensile forces

Typical industries and applications

- Robotics and automation
- Spot welding and pick and place applications
- When fast cable replacement is required



Series TRE - electrically conductive
ESD version upon request



Save time - easy disassembly
tool available for triflex® R

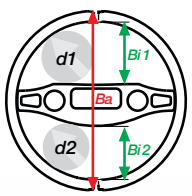


TRE - very easy to fill,
cables are simply pushed in



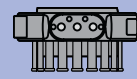
Available from stock. **Ready to ship in 24 - 48hrs.***

*Average time before the ordered goods are dispatched.



triflex® R | Series TRE | Product range

Robotic applications, easy filling



TRE

► 1008



e-chains® | Series TRE | "easy" design - simply press cables in

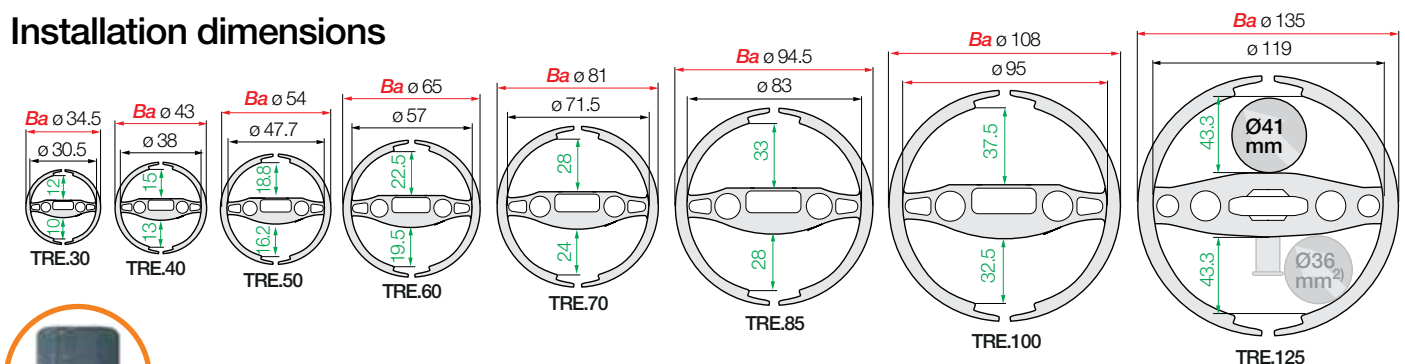
Part No.	Bi 1	Bi 2	Ba	R	d1	d2	Pitch	Links	Weight
e-tubes	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	per ft. (per m)	lbs/ft (kg/m)
TRE. 30. 050 .0.B	.47 (12)	.39 (10)	1.36 (34.5)	1.97 (050)	.39 (10)	.31 (8)	.44 (11.3)	27.27 (89)	≈ 0.18 (0.27)
TRE. 40. 058 .0.B▲	.59 (15)	.51 (13)	1.69 (43)	2.28 (058)	.51 (13)	.43 (11)	.55 (13.9)	21.82 (72)	≈ 0.25 (0.37)
TRE. 50. 080 .0.B▲	.74 (18.8)	.64 (16.2)	2.13 (54)	3.15 (080)	.65 (16.5)	.55 (14)	.69 (17.4)	17.39 (58)	≈ 0.40 (0.59)
TRE. 60. 087 .0.B▲	.88 (22.5)	.77 (19.5)	2.56 (65)	3.43 (087)	.81 (20.5)	.69 (17.5)	.80 (20.4)	15.00 (49)	≈ 0.57 (0.85)
TRE. 70. 110 .0.B▲	1.10 (28)	.94 (24)	3.19 (81)	4.33 (110)	1.02 (26)	.87 (22)	1.01 (25.6)	11.88 (39)	≈ 0.89 (1.32)
TRE. 85. 135 .0.B / C	1.30 (33)	1.10 (28)	3.72 (94.5)	5.31 (135)	1.22 (31)	1.02 (26)	1.20 (30.6)	10.00 (33)	≈ 1.18 (1.75)
TRE. 100. 145 .0.B / C	1.48 (37.5)	1.28 (32.5)	4.25 (108)	5.71 (145)	1.40 (35.5)	1.20 (30.5)	1.36 (34.5)	8.82 (29)	≈ 1.60 (2.38)
TRE. 125. 182 .0	1.70 (43.3)	1.70 (43.3)	5.31 (135)	7.17 (182)	1.61 (41)	1.61 (41) ²⁾	1.74 (44.1)	6.82 (23)	≈ 3.16 (4.70)

▲ ESD version (Electro Static Discharge) available upon request. More information ► www.igus.com/esd

B-Series = 4-x higher torsion forces C-Series = quick assembly, 50% higher forces

2) TRE.125 max. cable diameter Ø 1.61 (41mm). Max. cable diameter changes to Ø 1.42 (36mm) when an already populated e-chain needs to be shortened or lengthened

Installation dimensions



TRE.LOCK clips

Clips for a secure fit in the mounting bracket. Supplied with every mounting bracket. Please use the Part No. on the right for reordering individual parts.

Part No. as an individual part	Size [mm]	Part No. as an individual part	Size [mm]
MAT0072125	30/40	MAT0072127	100
MAT0074101	50/60	MAT0072128	125
MAT0072126	70/85		

Enclosed design with snap-lock mechanism - TRCF

TRCF - enclosed design with snap-lock mechanism

High tensile strength due to special ball and socket design

Defined torsion stop, allows free movement in multiple directions but still protects the cables

Simple to open for large, stiff hoses or many cables

Easy assembly and disassembly - 4-piece, with openable lids

Impact-resistant and dirt-resistant

3-chamber system for interior separation

Mounting bracket with strain relief also available as intermediate bracket

- Snap-lock mechanism for fast opening to insert large cables or hoses
- Snap lock mechanism openable with a screwdriver
- Defined minimum bend radius and torsion stop-dog for optimum cable protection
- Enclosed version, for use with dirt and chip exposure
- 3 chamber design for ideal cable distribution and separation
- Can be easily lengthened and shortened

Typical industries and applications

- Robotics and automation
- Laser welding
- Screw and rivet applications
- Large hydraulic hoses
- Large debris environment



Save time - easy disassembly tool available for triflex® R

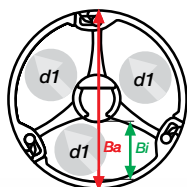


Flip open, insert cable, and close snap lock mechanism - then ready to run!



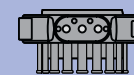
Available from stock. Ready to ship in 24 - 48hrs.*

*Average time before the ordered goods are dispatched.



triflex® R | Series TRCF | Product range

Closed design, chip-resistant, quick filling



TRCF

► 1008



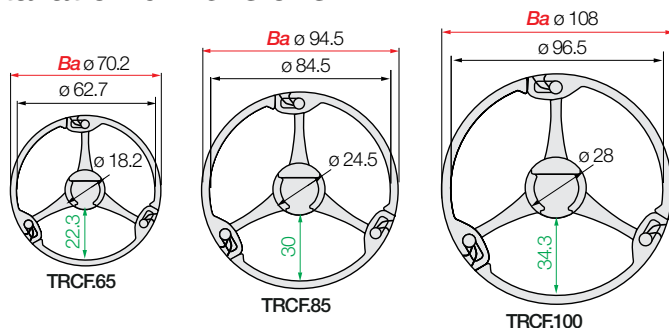
e-tubes | Series TRCF | Fully enclosed design, with snap-lock mechanism

Part No.	Bi 1	Ba	R	d1	Pitch	Links	Weight
e-tubes	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	per ft. (per m)	lbs/ft (kg/m)
TRCF.65. 100 .0	.88 (22.3)	2.76 (70.2)	3.94 (100)	.79 (20)	.91 (23.1)	13.19 (44)	≈ 0.74 (1.10)
TRCF.65. 200 .0 ¹⁾	.88 (22.3)	2.76 (70.2)	7.87 (200)	.79 (20)	.91 (23.1)	13.19 (44)	≈ 0.74 (1.10)
TRCF.85. 135 .0	1.18 (30)	3.72 (94.5)	5.31 (135)	1.10 (28)	1.20 (30.6)	10.00 (33)	≈ 1.41 (2.10)
TRCF.85. 240 .0 ²⁾	1.18 (30)	3.72 (94.5)	9.45 (240)	1.10 (28)	1.20 (30.6)	10.00 (33)	≈ 1.41 (2.10)
TRCF.100. 145 .0	1.35 (34.3)	4.25 (108)	5.71 (145)	1.27 (32.3)	1.36 (34.5)	8.82 (29)	≈ 1.81 (2.70)

1) Special size Part No. **TRCF.65.200.0** with 200mm bend radius and a range of accessories

2) Special size Part No. **TRCF.85.240.0** with 240mm bend radius and a range of accessories

Installation dimensions



Snap-lock mechanism for fast opening, video online

► www.igus.com/TRCF

Special sizes larger bend radius

- The large bend radii 7.87" / 9.45" (200/240mm) increase the service life of laser light cables by preventing kinks
- Special range of accessories available
- Special sizes Part No. **TRCF.65.200.0** and **TRCF.85.240.0**

More information ► www.igus.com/TRCF



R
7.87" (200mm)
9.45" (240mm)

TRL - light and cost-effective
with "easy" design

High tensile strength due to
special ball and socket design

Defined torsion stop, allows free
movement in multiple directions
but still protects the cables

"Easy" design for fast filling
with cables and hoses

Easy assembly and disassembly

Extremely lightweight due
to one-piece design

Mounting bracket with strain relief also
available as intermediate bracket

Lightweight and cost-effective - TRL

- Very easy to fill
- Multi-axis e-chain® for simple applications
- Easy to lengthen and shorten

Typical industries and applications

- Robot axes 1-3
- Non-robotic applications
- Bundling cables for operator controls
- Filament feeds on 3D printers
- Office applications



iF product design award

2007 igus® series TRL

product
design
award

2004

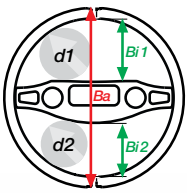


Available from stock. Ready to ship in 24 - 48hrs.*

*Average time before the ordered goods are dispatched.

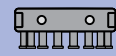
More information ► www.igus.com/triflexR

igus



triflex® R | Series TRL | Product range

Robotic applications, easy filling



► 1010

TRL

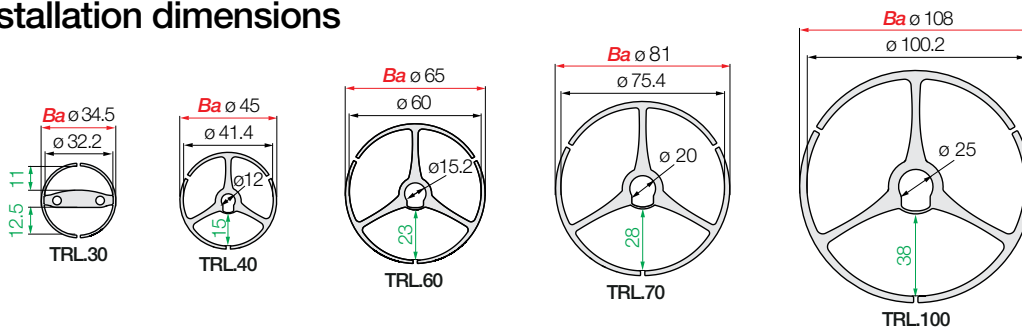


e-chains® | Series TRL | Light version with "easy" design - simply press cables in

Part No. e-chains®	Bi 1 in. (mm)	Bi 2 in. (mm)	Ba in. (mm)	R in. (mm)	d1 in. (mm)	d2 in. (mm)	Pitch in. (mm)	Links per ft. (per m)	Weight lbs/ft (kg/m)
TRL 30. 050 .0 ¹	.47 (12)	.43 (11)	1.36 (34.5)	1.97 (050)	.39 (10)	.31 (8)	.44 (11.3)	27.27 (89)	≈ 0.17 (0.26)
TRL 40. 058 .0	.59 (15)	—	1.77 (45)	2.28 (058)	.51 (13)	—	.55 (13.9)	21.82 (72)	≈ 0.19 (0.29)
TRL 60. 087 .0	.91 (23)	—	2.56 (65)	3.43 (087)	.81 (20.5)	—	.80 (20.4)	15.00 (49)	≈ 0.33 (0.49)
TRL 70. 110 .0	1.10 (28)	—	3.19 (81)	4.33 (110)	1.02 (26)	—	1.01 (25.6)	11.88 (39)	≈ 0.55 (0.82)
TRL 100.145 .0	1.50 (38)	—	4.25 (108)	5.71 (145)	1.40 (35.5)	—	1.36 (34.5)	8.82 (29)	≈ 0.95 (1.42)

1) Only available with 2-chamber design

Installation dimensions



Lightweight, with snap-lock mechanism - TRLF

- Snap-lock mechanism for fast opening
- Openable by hand or with a screwdriver
- For large, stiff hoses or many cables
- Economical multi-axis e-chain® for less demanding applications
- Easy to lengthen and shorten

Typical industries and applications

- Painting hoses
- Rivet feeds
- Robot axes 1-3
- Non-robotic applications
- Special machine construction
- High-tech design



iF product design award

2013 igus® series TRLF



Flip open, insert cable, and close snap lock mechanism - then ready to run!

TRLF - light and cost-effective with snap-lock mechanism

High tensile strength due to special ball and socket design

Defined torsion stop, allows free movement in multiple directions but still protects the cables

Simple to open for large, stiff hoses or many cables

Easy assembly and disassembly

Impact-resistant and dirt-resistant

3-chamber system for interior separation

Lightweight mounting bracket available with strain relief or as intermediate bracket

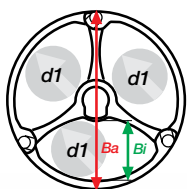


Available from stock. Ready to ship in 24 - 48hrs.*

*Average time before the ordered goods are dispatched.

More information ► www.igus.com/triflexR

igus



triflex® R | Series TRLF | Product range

Quick filling with larger hoses and cables



TRLF

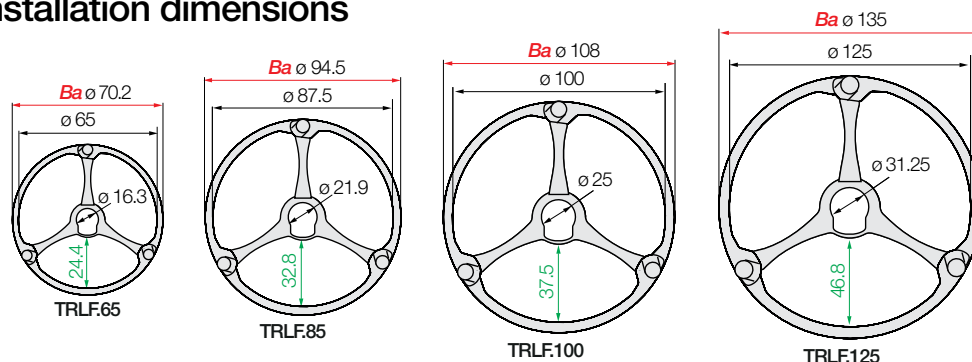
► 1010



e-chains® | Series TRLF | Light version with snap lock mechanism

Part No.	<i>Bi 1</i>	<i>Ba</i>	<i>R</i>	<i>d1</i>	Pitch	Links	Weight
e-tubes	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	per ft. (per m)	lbs/ft (kg/m)
TRLF. 65. 100 .0	.88 (24.4)	2.76 (70.2)	3.94 (100)	.87 (22)	.91 (23.1)	13.19 (44)	≈ 0.53 (0.79)
TRLF. 85. 135 .0	1.18 (32.8)	3.72 (94.5)	5.31 (135)	1.18 (30)	1.20 (30.6)	10.00 (33)	≈ 0.97 (1.45)
TRLF. 100. 145 .0	1.18 (37.5)	3.72 (94.5)	5.71 (145)	1.40 (35.5)	1.36 (34.5)	8.82 (29)	≈ 1.28 (1.90)
TRLF. 125. 182 .0	1.35 (46.8)	4.25 (108)	7.17 (182)	1.75 (44.5)	1.74 (44.1)	6.90 (23)	≈ 2.78 (4.13)

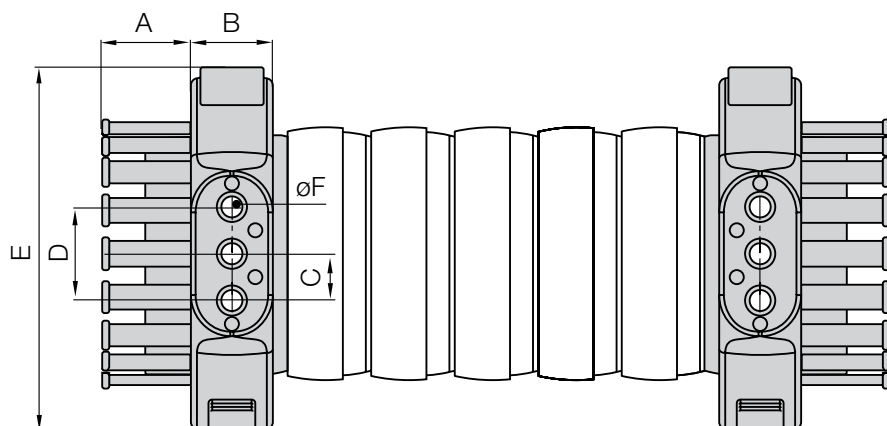
Installation dimensions



Snap-lock mechanism for fast opening, video online

► www.igus.com/TRLF

With integrated strain relief tiewrap plates
TR.40.01 / TR.100.01



- Recommended for TRC/TRE/TRCF, also compatible with TRL/TRLF
- Standard fixation onto the robot or machine, with strain relief



Standard mounting brackets - With strain relief



TR.40.01 –
TR.100.01

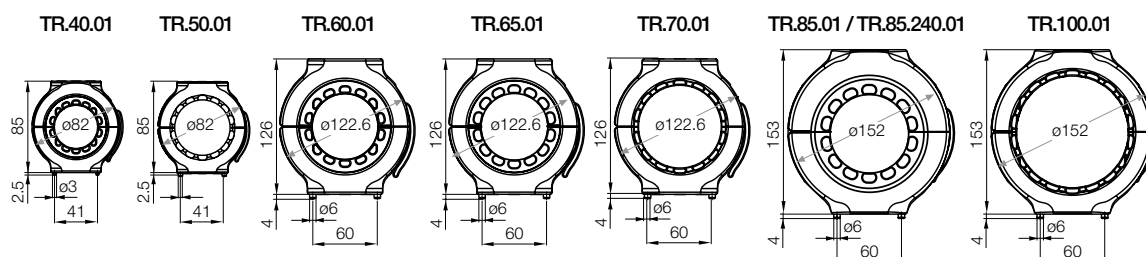
ø Index	Part No. with strain relief	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	E in. (mm)	F in. (mm)
30.	▶ Alternative: light mounting bracket	–	–	–	–	–	–
40.	▶ TR.40.01.M6 ^{1) 2)}	.70 (17.8)	.83 (21)	.53 (13.5)	1.06 (27)	3.33 (84.5)	.26 (6.5)
50.	▶ TR.50.01.M6 ^{1) 2)}	.83 (21)	.83 (21)	.53 (13.5)	1.06 (27)	3.33 (84.5)	.26 (6.5)
60.	▶ TR.60.01.M8 ^{1) 2)}	.98 (25)	1.26 (32)	.79 (20)	1.57 (40)	4.96 (126)	.35 (9)
65.	▶ TR.65.01.M8 ¹⁾	.98 (25)	1.26 (32)	.79 (20)	1.57 (40)	4.96 (126)	.35 (9)
65. (R 200)	▶ TR.65.200.01.M8 ^{1) 4)}	.98 (25)	1.26 (32)	.79 (20)	1.57 (40)	4.96 (126)	.35 (9)
70.	▶ TR.70.01.M8 ^{1) 2)}	.98 (25)	1.26 (32)	.79 (20)	1.57 (40)	4.96 (126)	.35 (9)
85.	▶ TR.85.01.M8 ¹⁾	1.50 (38)	1.38 (35)	.79 (20)	1.57 (40)	6.10 (155)	.35 (9)
85. (R 240)	▶ TR.85.240.01.M8 ^{1) 4)}	1.50 (38)	1.38 (35)	.79 (20)	1.57 (40)	6.10 (155)	.35 (9)
100.	▶ TR.100.01.M8 ^{1) 2)}	1.50 (38)	1.38 (35)	.79 (20)	1.57 (40)	6.10 (155)	.35 (9)
125.	▶ Alternative: standard mounting bracket without strain relief						

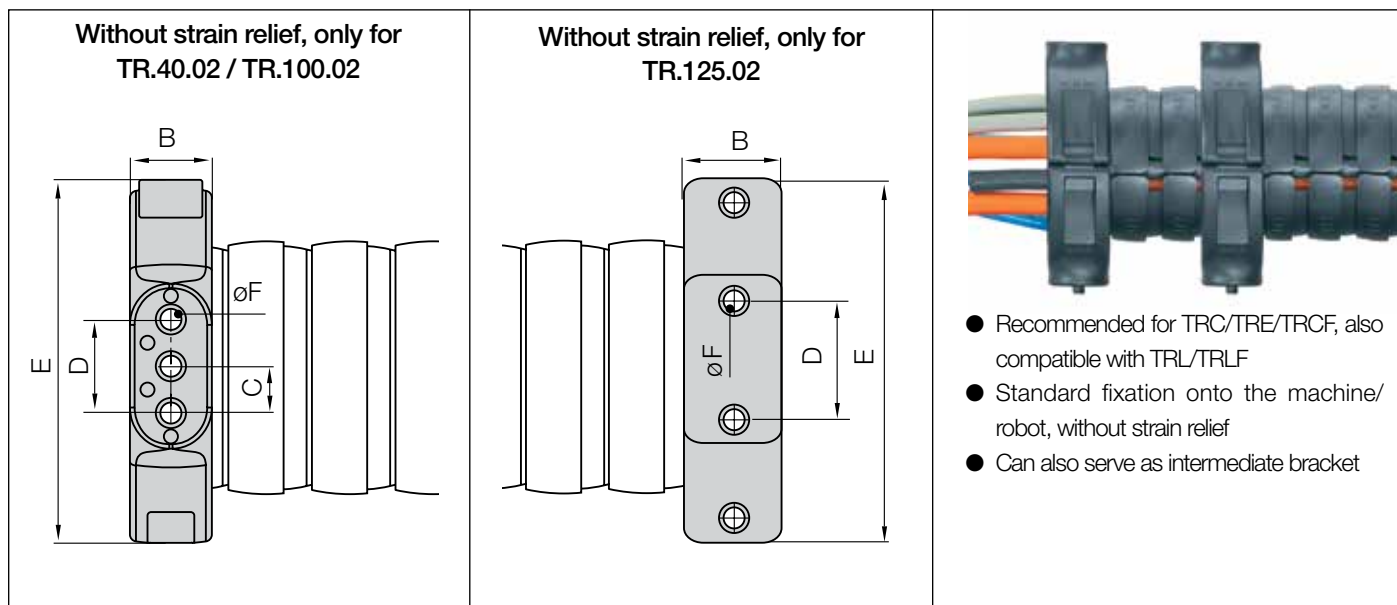
Strain relief is for use on the fixed end and/or moving end.

Standard: through holes in Ø F - 1) option: with threaded bushings, steel, M6/M8

2) ⚠ ESD version (Electro Static Discharge) available upon request. More information ▶ From page 144

4) Only for special size with larger bend radius.



Standard mounting brackets | **Without strain relief**


Standard mounting brackets - Without strain relief


TR.40.02 –
TR.100.02

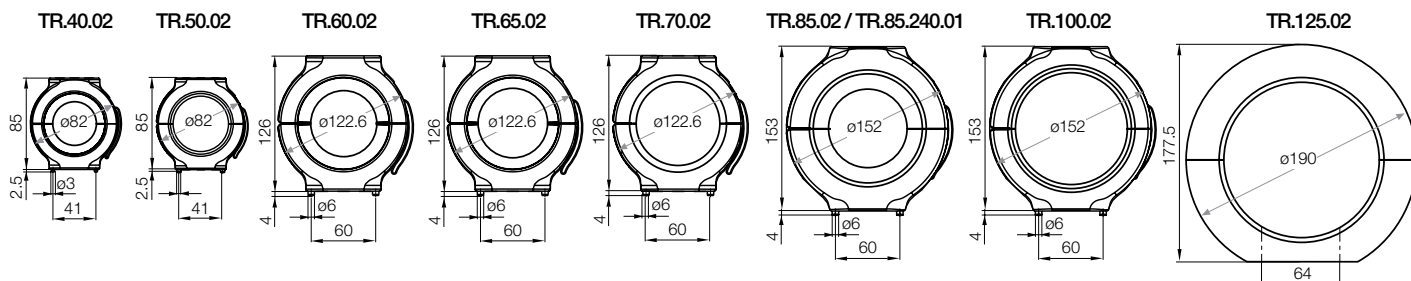

TR.125.02

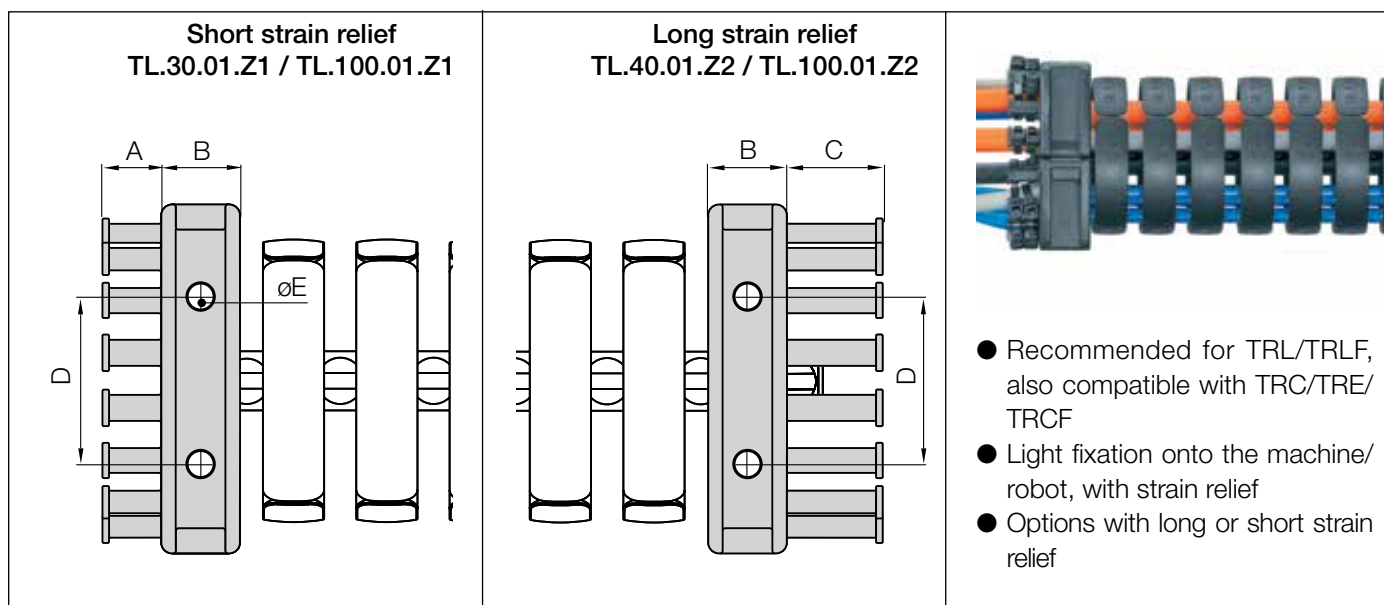
ø Index	Part No. without strain relief or as intermediate bracket	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	E in. (mm)	F in. (mm)
30.	► Alternative: light mounting bracket	–	–	–	–	–	–
40.	► TR.40.02.M6 ¹⁾	–	.83 (21)	.53 (13.5)	1.06 (27)	3.33 (84.5)	.26 (6.5)
50.	► TR.50.02.M6 ¹⁾	–	.83 (21)	.53 (13.5)	1.06 (27)	3.33 (84.5)	.26 (6.5)
60.	► TR.60.02.M8 ¹⁾	–	1.26 (32)	.79 (20)	1.57 (40)	4.96 (126)	.35 (9)
65.	► TR.65.02.M8 ¹⁾	–	1.26 (32)	.79 (20)	1.57 (40)	4.96 (126)	.35 (9)
65. (R 200)	► TR.65.200.02.M8 ^{1) 4)}	–	1.26 (32)	.79 (20)	1.57 (40)	4.96 (126)	.35 (9)
70.	► TR.70.02.M8 ¹⁾	–	1.26 (32)	.79 (20)	1.57 (40)	4.96 (126)	.35 (9)
85.	► TR.85.02.M8 ¹⁾	–	1.38 (35)	.79 (20)	1.57 (40)	6.10 (155)	.35 (9)
85. (R 240)	► TR.85.240.02.M8 ^{1) 4)}	–	1.38 (35)	.79 (20)	1.57 (40)	6.10 (155)	.35 (9)
100.	► TR.100.02.M8 ¹⁾	–	1.38 (35)	.79 (20)	1.57 (40)	6.10 (155)	.35 (9)
125.	► TR.125.02.M8 ¹⁾	–	1.57 (40)	–	2.52 (64)	7.48 (190)	.35 (9)

Standard: through holes in Ø F - 1) option: with threaded bushings, steel, M6/M8

2) ⚠ ESD version (Electro Static Discharge) available upon request. More information ► From page 144

4) Only for special size with larger bend radius



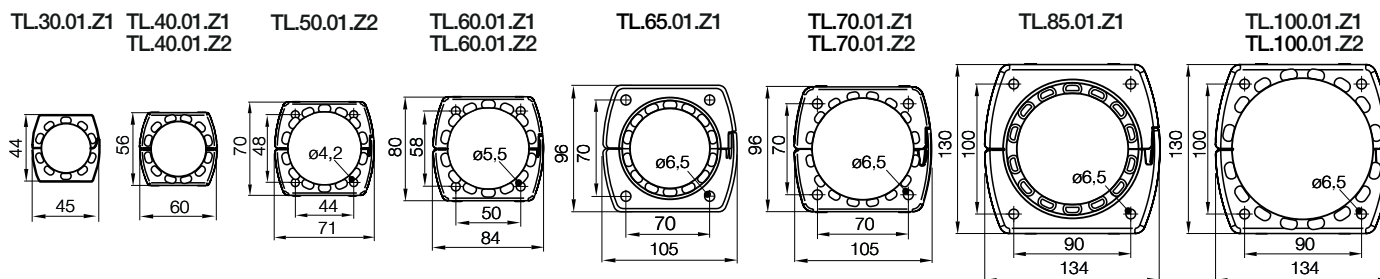


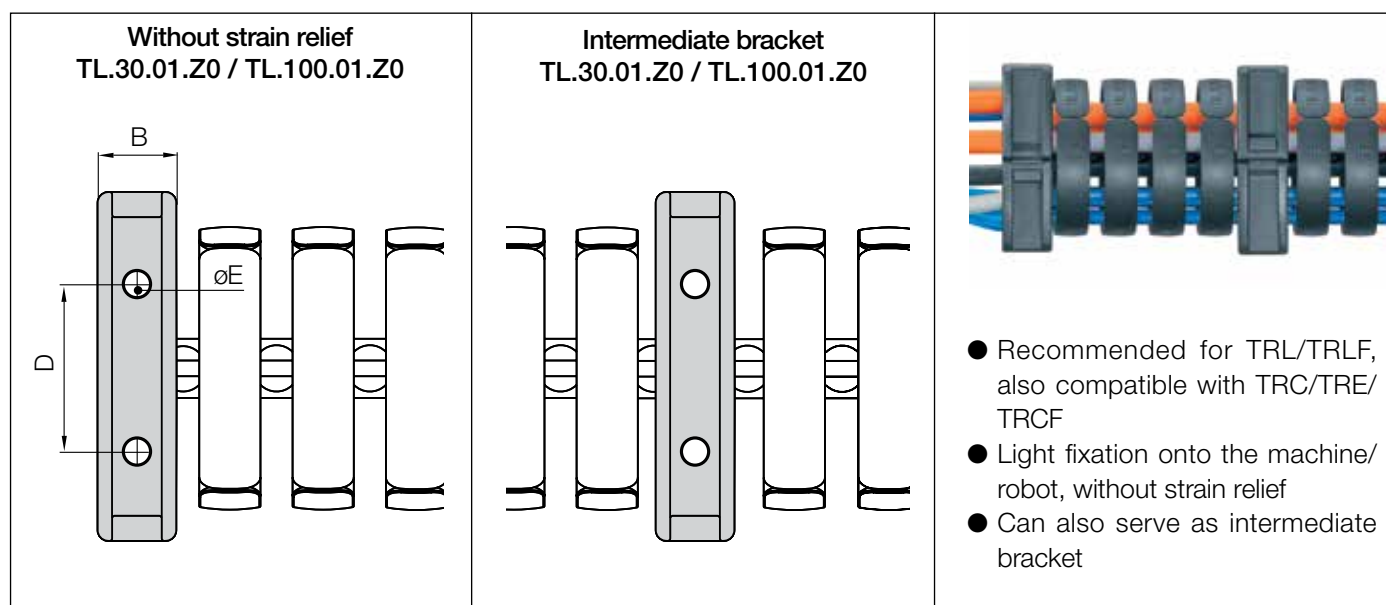
Light mounting brackets - With strain relief

TL.30.01.Z1 to
TL.100.01.Z1TL.40.01.Z2 to
TL.100.01.Z2

ø Index	Part No. with short strain relief	Part No. with long strain relief	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	E in. (mm)
30.	▶ TL.30.01.Z1	–	.49 (12.5)	.51 (13)	–	.94 (24)	.18 (4.5)
40.	▶ TL.40.01.Z1 ¹⁾	TL.40.01.Z2	.49 (12.5)	.55 (14)	.79 (20)	1.42 (36)	.23 (5.8)
50.	▶	TL.50.01.Z2	–	.65 (16.5)	.93 (23.5)	1.42 (36)	.23 (5.8)
60.	▶ TL.60.01.Z1 ¹⁾	TL.60.01.Z2	.67 (17)	.79 (20)	1.06 (27)	1.89 (48)	.23 (5.8)
65.	▶ TL.65.01.Z1 ¹⁾	–	.53 (13.5)	1.06 (27)	–	2.52 (64)	.26 (6.5)
65. (R 200)	▶ Alternative: standard mounting bracket	–	–	–	–	–	–
70.	▶ TL.70.01.Z1 ¹⁾	TL.70.01.Z2	.69 (17.5)	1.06 (27)	1.08 (27.5)	2.52 (64)	.26 (6.5)
85.	▶ TL.85.01.Z1	–	1.04 (26.5)	1.18 (30)	–	2.52 (64)	.26 (6.5)
85. (R 240)	▶ Alternative: standard mounting bracket	–	–	–	–	–	–
100.	▶ TL.100.01.Z ¹⁾	TL.100.01.Z2	.88 (22.5)	1.18 (30)	1.67 (42.5)	2.52 (64)	.26 (6.5)
125.	▶ Alternative: standard mounting bracket	–	–	–	–	–	–

1) For moving end (ball) suitable only for series TRL/TRLF

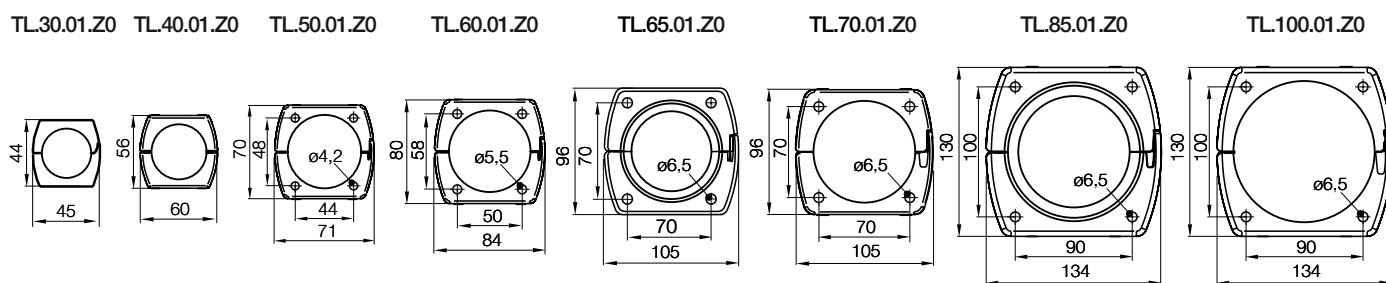


Light mounting brackets | **Without strain relief**

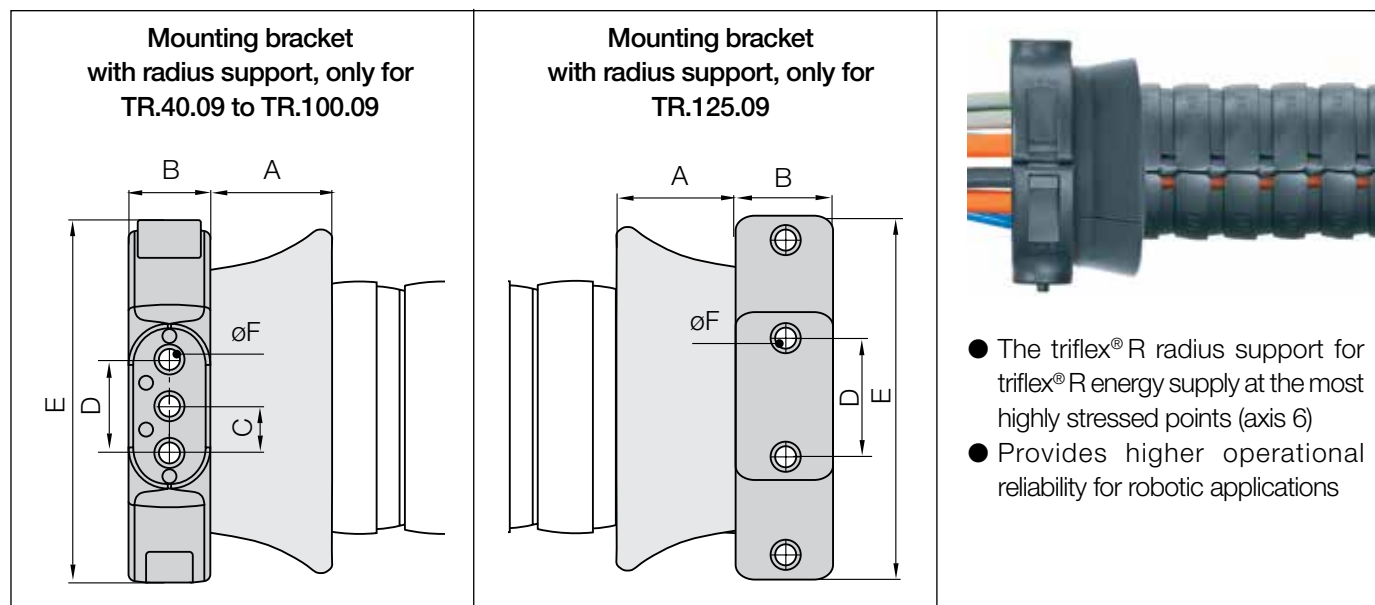
Light mounting brackets - Without strain relief

TL.30.01.Z0 to
TL.100.01.Z0

ø Index	Part No. without strain relief or as intermediate bracket	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	E in. (mm)
30.	▶ TL.30.01.Z0	–	.51 (13)	–	.94 (24)	.18 (4.5)
40.	▶ TL.40.01.Z0	–	.55 (14)	–	1.42 (36)	.23 (5.8)
50.	▶ TL.50.01.Z0	–	.65 (16.5)	–	1.42 (36)	.23 (5.8)
60.	▶ TL.60.01.Z0	–	.79 (20)	–	1.89 (48)	.23 (5.8)
65.	▶ TL.65.01.Z0	–	1.06 (27)	–	2.52 (64)	.26 (6.5)
65.	▶ Alternative: standard mounting bracket	–	–	–	–	–
70.	▶ TL.70.01.Z0	–	1.06 (27)	–	2.52 (64)	.26 (6.5)
85.	▶ TL.85.01.Z0	–	1.18 (30)	–	2.52 (64)	.26 (6.5)
85. (R 240)	▶ Alternative: standard mounting bracket	–	–	–	–	–
100.	▶ TL.100.01.Z0	–	1.18 (30)	–	2.52 (64)	.26 (6.5)
125.	▶ Alternative: standard mounting bracket	–	–	–	–	–



Mounting brackets | With radius support



Mounting brackets | With radius support | For TRC·TRE·TRCF·TRL·TRLF

TR.40.09 -
TR.100.09

TR.125.09

$\emptyset$ Index	Part No. with radius support	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	E in. (mm)	F in. (mm)
30.	► –	–	–	–	–	–	–
40.	► TR.40.09.M6 ¹⁾	1.10 (28)	.83 (21)	.53 (13.5)	1.06 (27)	3.33 (84.5)	.26 (6.5)
50.	► TR.50.09.M6 ¹⁾	1.50 (38)	.83 (21)	.53 (13.5)	1.06 (27)	3.33 (84.5)	.26 (6.5)
60.	► TR.60.09.M8 ¹⁾	1.50 (38)	1.26 (32)	.79 (20)	1.57 (40)	4.96 (126)	.35 (9)
65.	► TR.65.09.M8 ¹⁾	1.77 (45)	1.26 (32)	.79 (20)	1.57 (40)	4.96 (126)	.35 (9)
65. (R 200)	► –	–	–	–	–	–	–
70.	► TR.70.09.M8 ¹⁾	1.69 (43)	1.26 (32)	.79 (20)	1.57 (40)	4.96 (126)	.35 (9)
85.	► TR.85.09.M8 ¹⁾	1.93 (49)	1.38 (35)	.79 (20)	1.57 (40)	6.10 (155)	.35 (9)
85. (R 240)	► TR.85.240.09	3.82 (97)	1.38 (35)	.79 (20)	1.57 (40)	6.10 (155)	.35 (9)
100.	► TR.100.09.M8 ¹⁾	2.64 (67)	1.38 (35)	.79 (20)	1.57 (40)	6.10 (155)	.35 (9)
125.	► TR.125.09.M8 ¹⁾	2.83 (72)	1.57 (40)	–	2.52 (64)	7.48 (190)	.35 (9)

Standard: through holes in $\emptyset F$ -

1) option: with threaded bushings, steel, M6/M8

Gliding feed-throughs

Gliding feed-through, only for TL.30.05	Gliding feed-through, only for TR.40.05 + TR.60.85.05	Gliding feed-through, only for TR.50.05 + TR.100.05 - TR.125.05

● The gliding feed-through enables easy guidance of the e-chain® and can also be used as an additional guide
 ● Gliding feed-through with swivel bearing ► [Page 1016](#)



Gliding feed-through | For TRC·TRE·TRCF

Ø Index	Part No. Gliding feed-through	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	E in. (mm)	F in. (mm)	G in. (mm)
30.	► TL.30.05	2.20 (56)	2.36 (60)	1.42 (36)	1.10 (28)	.55 (14)	1.42 (36)	.23 (5.8)
40.	► TR.40.05.M6 ¹⁾	3.35 (85)	3.33 (84.5)	1.81 (46)	1.26 (32)	.83 (21)	1.06 (27)	.26 (6.5)
50.	► TR.50.05.M6 ¹⁾	3.78 (96)	4.02 (102)	2.28 (58)	2.64 (67)	.83 (21)	1.06 (27)	.26 (6.5)
60.	► TR.60.05.M8 ¹⁾	4.96 (126)	4.96 (126)	2.76 (70)	1.97 (50)	1.26 (32)	1.57 (40)	.35 (9)
65.	► TR.65.05.M8 ¹⁾	4.96 (126)	4.96 (126)	2.95 (75)	2.95 (75)	1.26 (32)	1.57 (40)	.35 (9)
65. (R 200)	► TR.65.05.M8 ¹⁾	4.96 (126)	4.96 (126)	2.95 (75)	2.95 (75)	1.26 (32)	1.57 (40)	.35 (9)
70.	► TR.70.05.M8 ¹⁾	6.02 (153)	6.10 (155)	3.39 (86)	2.76 (70)	1.38 (35)	1.57 (40)	.35 (9)
85.	► TR.85.05.M8 ¹⁾	6.02 (153)	6.10 (155)	3.94 (100)	3.31 (84)	1.38 (35)	1.57 (40)	.35 (9)
85. (R 240)	► TR.85.05.M8 ¹⁾	6.02 (153)	6.10 (155)	3.94 (100)	3.31 (84)	1.38 (35)	1.57 (40)	.35 (9)
100.	► TR.100.05.M8 ¹⁾ *	6.40 (162.5)	6.67 (169.5)	4.53 (115)	3.35 (85)	1.10 (28)	1.57 (40)	.33 (8.5)
125.	► TR.125.05.M8 ¹⁾	7.05 (179)	7.48 (190)	5.59 (142)	3.31 (84)	1.57 (40)	2.52 (64)	.35 (9)

*TR.100.05 with 3 holes
 Standard: through holes in Ø G
 1) option: with insert nuts, steel, M6/M8

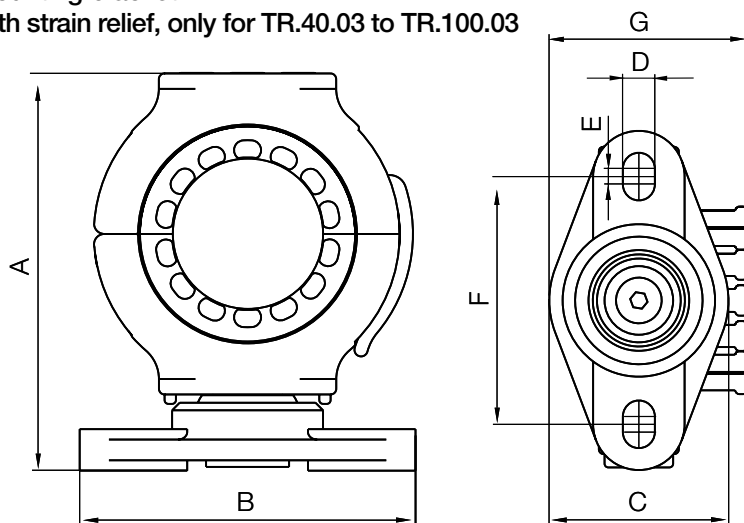

TL.30.05

**TR.40.05 +
TR.60-85.05**

**TR.50.05 +
TR.100.05 -
TR.125.05**

Swivel bearing mounting brackets | **With strain relief**

Mounting bracket
with strain relief, only for TR.40.03 to TR.100.03



- Standard mounting bracket with strain relief and maintenance-free igubal® spherical bearing
- Pivoting mounting for extreme rotating and reverse bending movements
- For TRC·TRE·TRCF·TRL·TRLF

Swivel bearing mounting brackets - With strain relief - For TRC·TRE·TRCF·TRL·TRLF



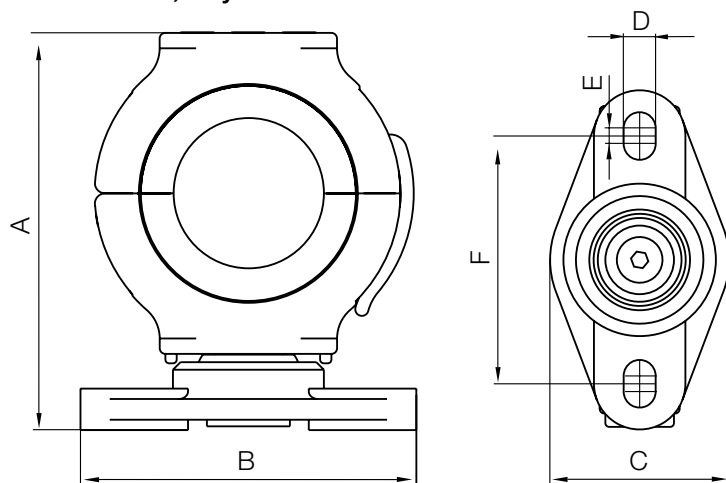
**TR.40.03 /
TR.100.03**

ø Index	Part No. with strain relief	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	E in. (mm)	F in. (mm)	G in. (mm)
30.	▶	–	–	–	–	–	–	–
40.	▶ TR.40.03	4.13 (105)	3.50 (89)	1.85 (47)	.33 (8.4)	.16 (4.1)	2.56 (65)	2.04 (51.8)
50.	▶ TR.50.03	4.13 (105)	3.50 (89)	1.85 (47)	.33 (8.4)	.16 (4.1)	2.56 (65)	2.17 (55)
60.	▶ TR.60.03	5.98 (152)	4.65 (118)	2.56 (65)	.41 (10.5)	.22 (5.5)	3.44 (87.5)	2.89 (73.5)
65.	▶ TR.65.03	5.98 (152)	4.65 (118)	2.56 (65)	.41 (10.5)	.22 (5.5)	3.44 (87.5)	2.89 (73.5)
65. (R 200)	▶ TR.65.200.03 ⁴⁾	5.98 (152)	4.65 (118)	2.56 (65)	.41 (10.5)	.22 (5.5)	3.44 (87.5)	2.89 (73.5)
70.	▶ TR.70.03	5.98 (152)	4.65 (118)	2.56 (65)	.41 (10.5)	.22 (5.5)	3.44 (87.5)	2.89 (73.5)
85.	▶ TR.85.03	7.05 (179)	4.65 (118)	2.56 (65)	.41 (10.5)	.22 (5.5)	3.44 (87.5)	3.46 (88)
85. (R 240)	▶ TR.85.240.03 ⁴⁾	7.05 (179)	4.65 (118)	2.56 (65)	.41 (10.5)	.22 (5.5)	3.44 (87.5)	3.46 (88)
100.	▶ TR.100.03	7.05 (179)	4.65 (118)	2.56 (65)	.41 (10.5)	.22 (5.5)	3.44 (87.5)	3.46 (88)
125.	▶	–	–	–	–	–	–	–

4) Only for special size with larger bend radius

Swivel bearing mounting brackets | **Without strain relief**

Mounting bracket
without strain relief, only for TR.40.04 to TR.100.04



- Standard mounting bracket without strain relief and maintenance-free igubal® spherical bearing
- Pivoting mounting for extreme rotating and reverse bending movements
- For TRC·TRE·TRCF·TRL·TRLF

Swivel bearing mounting brackets - Without strain relief - For TRC·TRE·TRCF·TRL·TRLF

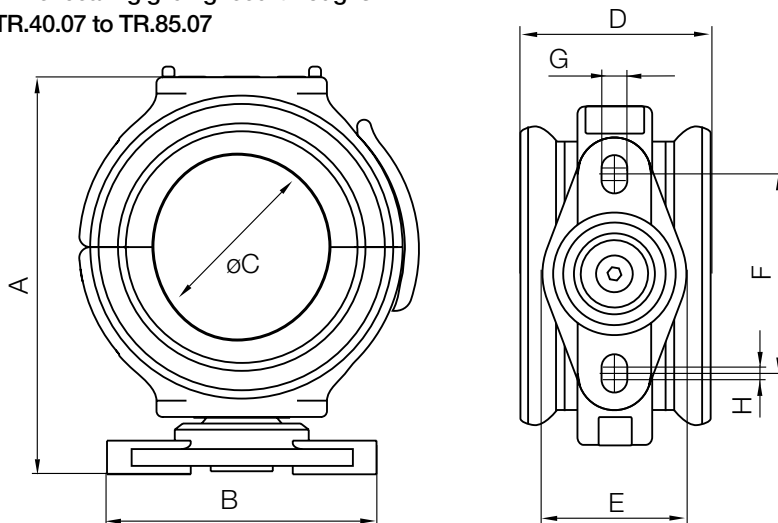


**TR.40.04 /
TR.100.04**

ø Index	Part No. without strain relief	A		B		C		D		E		F		G	
		in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)
30.	▶	–		–		–		–		–		–		–	
40.	▶ TR.40.04	4.13	(105)	3.50	(89)	1.85	(47)	.33	(8.4)	.16	(4.1)	2.56	(65)	–	
50.	▶ TR.50.04	4.13	(105)	3.50	(89)	1.85	(47)	.33	(8.4)	.16	(4.1)	2.56	(65)	–	
60.	▶ TR.60.04	5.98	(152)	4.65	(118)	2.56	(65)	.41	(10.5)	.22	(5.5)	3.44	(87.5)	–	
65.	▶ TR.65.04	5.98	(152)	4.65	(118)	2.56	(65)	.41	(10.5)	.22	(5.5)	3.44	(87.5)	–	
65. (R 200)	▶ TR.65.200.04 ⁴⁾	5.98	(152)	4.65	(118)	2.56	(65)	.41	(10.5)	.22	(5.5)	3.44	(87.5)	–	
70.	▶ TR.70.04	5.98	(152)	4.65	(118)	2.56	(65)	.41	(10.5)	.22	(5.5)	3.44	(87.5)	–	
85.	▶ TR.85.04	7.05	(179)	4.65	(118)	2.56	(65)	.41	(10.5)	.22	(5.5)	3.44	(87.5)	–	
85. (R 240)	▶ TR.85.240.04 ⁴⁾	7.05	(179)	4.65	(118)	2.56	(65)	.41	(10.5)	.22	(5.5)	3.44	(87.5)	–	
100.	▶ TR.100.04	7.05	(179)	4.65	(118)	2.56	(65)	.41	(10.5)	.22	(5.5)	3.44	(87.5)	–	
125.	▶	–		–		–		–		–		–		–	

4) Only for special size with larger bend radius

Swivel bearing gliding feed-throughs

Swivel bearing gliding feed-throughs
TR.40.07 to TR.85.07

- Gliding feed-through with swivel bearing
- For TRC·TRE·TRCF e-chains®
- Pivoting mounting with maintenance-free igubal® spherical bearings

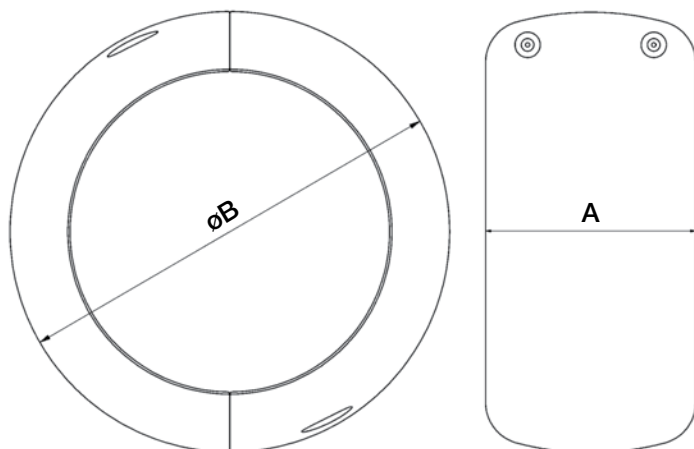
Swivel bearing gliding feed-throughs - For TRC·TRE·TRCF



ø Index	Part No. with swivel bearing	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	E in. (mm)	F in. (mm)	G in. (mm)
30.	► -	-	-	-	-	-	-	-
40.	► TR.40.07	4.25 (108)	3.50 (89)	1.81 (46)	1.26 (32)	1.85 (47)	2.56 (65)	.33 (8.4)
50.	► TR.50.07	4.69 (119)	3.50 (89)	2.28 (58)	2.64 (67)	1.85 (47)	2.56 (65)	.33 (8.4)
60.	► TR.60.07	6.14 (156)	4.65 (118)	2.76 (70)	1.97 (50)	2.56 (65)	3.44 (87.5)	.41 (10.5)
65.	► TR.65.07	6.14 (156)	4.65 (118)	2.95 (75)	2.95 (75)	2.56 (65)	3.44 (87.5)	.41 (10.5)
65. (R 200)	► TR.65.07	6.14 (156)	4.65 (118)	2.95 (75)	2.95 (75)	2.56 (65)	3.44 (87.5)	.41 (10.5)
70.	► TR.70.07	7.20 (183)	4.65 (118)	3.39 (86)	2.76 (70)	2.56 (65)	3.44 (87.5)	.41 (10.5)
85.	► TR.85.07	7.20 (183)	4.65 (118)	3.94 (100)	3.31 (84)	2.56 (65)	3.44 (87.5)	.41 (10.5)
85. (R 240)	► TR.85.07	7.20 (183)	4.65 (118)	3.94 (100)	3.31 (84)	2.56 (65)	3.44 (87.5)	.41 (10.5)
100.	► TR.100.07	7.44 (189)	4.65 (118)	4.53 (115)	3.35 (85)	3.11 (79)	3.44 (87.5)	.41 (10.5)
125.	► -	-	-	-	-	-	-	-

Protectors

Protector
TR.XX.10 to TR.XX.30



- Optional protectors can be fitted at contact points
- For extreme operations and long service life
- Easy gliding over edges
- Damping, light, freely positionable
- Easy to fit and quick replacement
- Protector with quick-release fastener also available

Protectors - For TRC·TRE·TRCF



TR.40.10 to
TR.125.10



TR.40.30 to
TR.100.30

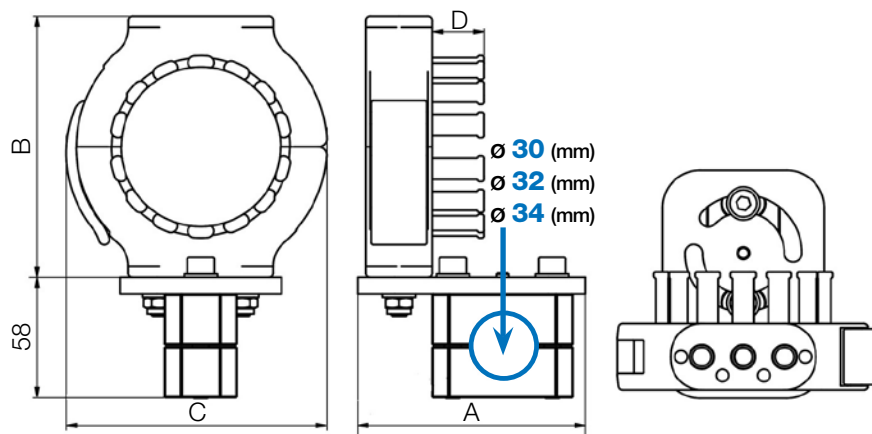
$\varnothing$ Index	Part No. with screw connection	Part No. with quick release	A in. (mm)	B in. (mm)
30.	► TR.30.10	–	.87 (22)	1.85 (47)
40.	► TR.40.10	TR.40.30 ²⁾	1.06 (27)	2.17 (55)
50.	► TR.50.10	TR.50.30 ²⁾	1.34 (34)	2.72 (69)
60.	► TR.60.10	TR.60.30 ²⁾	1.57 (40)	3.15 (80)
65.	► TR.65.10	TR.65.30 ²⁾	1.73 (44)	3.46 (88)
65. (R 200)	► –	–	1.73 (44)	3.46 (88)
70.	► TR.70.10	TR.70.30	1.97 (50)	4.02 (102)
85.	► TR.85.10	TR.85.30	2.32 (59)	4.65 (118)
85. (R 240)	► TR.85.240.10 ⁴⁾	–	2.48 (63)	4.72 (120)
100.	► TR.100.10	TR.100.30	2.64 (67)	5.24 (133)
125.	► TR.125.10	–	3.23 (82)	6.69 (170)

2) Without an additional locking clip - a safety clip is used from size 70

4) Only for special size with larger bend radius

Compact connections for clamp axis 6 | **With strain relief**

Compact connection - **With strain relief**
 TR.40.21.01.XX to TR.100.21.01.XX



- With integrated strain relief tie-wrap plates
- Safe and simple securing of the cables with cable ties
- Various adjustment options

Compact connections - With strain relief - For TRC-TRE-TRCF



TR.40.21.01.XX to
 TR.100.21.01.XX

Ø Index	Part No. with strain relief	Clamp diameter Ø (mm)	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)
30.	► –	–	–	–	–	–
40.	► TR.40.21.01. ²⁾	30 32 34	4.33 (110)	3.35 (85)	3.33 (84.5)	.70 (17.8)
50.	► TR.50.21.01. ²⁾	30 32 34	4.33 (110)	3.35 (85)	3.33 (84.5)	.83 (21)
60.	► TR.60.21.01. ²⁾	30 32 34	4.33 (110)	4.96 (126)	4.96 (126)	.98 (25)
65.	► TR.65.21.01.	30 32 34	4.33 (110)	4.96 (126)	4.96 (126)	.98 (25)
65. (R 200)	► TR.65.200.21.01. ⁴⁾	30 32 34	4.33 (110)	4.96 (126)	4.96 (126)	.98 (25)
70.	► TR.70.21.01. ²⁾	30 32 34	4.33 (110)	4.96 (126)	4.96 (126)	.98 (25)
85.	► TR.85.21.01.	30 32 34	4.33 (110)	6.02 (153)	6.10 (155)	1.50 (38)
85. (R 240)	► TR.85.240.21.01. ⁴⁾	30 32 34	4.33 (110)	6.02 (153)	6.10 (155)	1.50 (38)
100.	► TR.100.21.01. ²⁾	30 32 34	4.33 (110)	6.02 (153)	6.10 (155)	1.50 (38)
125.	► –	–	–	–	–	–

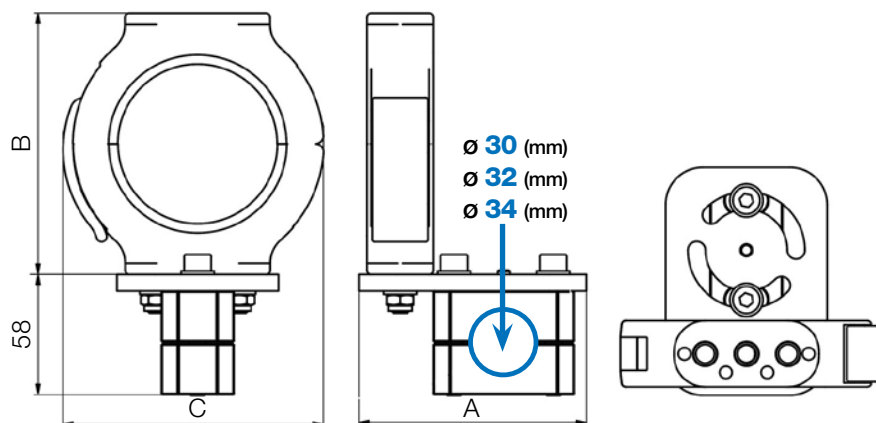
Standard clamp for axis 6: Ø (30mm) 1.18"

4) Only for special size with larger bend radius

Part No. with desired diameter for the axis 6 clamp | 30 | 32 | 34 | e.g. TR.100.21.30

Compact connections for clamp axis 6 | **Without strain relief**

Compact connection - **Without strain relief**
 TR.40.21.02.XX to TR.100.21.02.XX



- Without strain relief
- Space-saving
- Various adjustment options

Compact connections - Without strain relief - For TRC-TRE-TRCF



TR.40.21.02.XX to
 TR.100.21.02.XX

Ø Index	Part No. without strain relief	Clamp diameter Ø (mm)	A in. (mm)	B in. (mm)	C in. (mm)
30.	► –	–	–	–	–
40.	► TR.40.21.02. ²⁾	30 32 34	4.33 (110)	3.35 (85)	3.33 (84.5)
50.	► TR.50.21.02. ²⁾	30 32 34	4.33 (110)	3.35 (85)	3.33 (84.5)
60.	► TR.60.21.02. ²⁾	30 32 34	4.33 (110)	4.96 (126)	4.96 (126)
65.	► TR.65.21.02.	30 32 34	4.33 (110)	4.96 (126)	4.96 (126)
65. (R 200)	► TR.65.200.21.02.	30 32 34	4.33 (110)	4.96 (126)	4.96 (126)
70.	► TR.70.21.02. ²⁾	30 32 34	4.33 (110)	6.02 (153)	6.10 (155)
85.	► TR.85.21.02.	30 32 34	4.33 (110)	6.02 (153)	6.10 (155)
85. (R 240)	► TR.85.240.21.02. ⁴⁾	30 32 34	4.33 (110)	6.02 (153)	6.10 (155)
100.	► TR.100.21.02. ²⁾	30 32 34	4.33 (110)	6.02 (153)	6.10 (155)
125.	► –	–	–	–	–

Standard clamp for axis 6: Ø (30mm) 1.18"

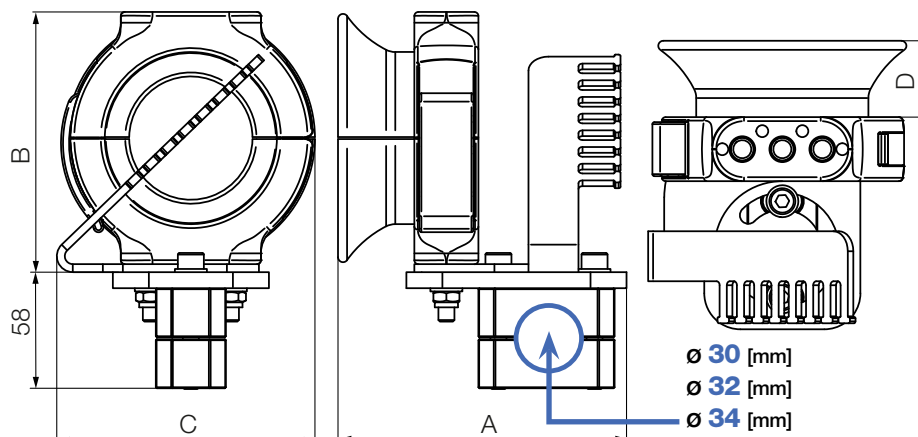
4) Only for special size with larger bend radius

Part No. with desired diameter for the axis 6 clamp | 30 | 32 | 34 | e.g. TR.100.21.02.30

Compact connections for clamp axis 6

Compact connection with radius support and strain relief

TR.40.21.09.XX - TR.100.21.09.XX



- With integrated strain relief tie-wrap plates
- Radius support for higher operational reliability
- Safe and simple securing of the cables with cable ties
- Various adjustment option

Compact connections, with radius support and strain relief - For TRC·TRE·TRCF

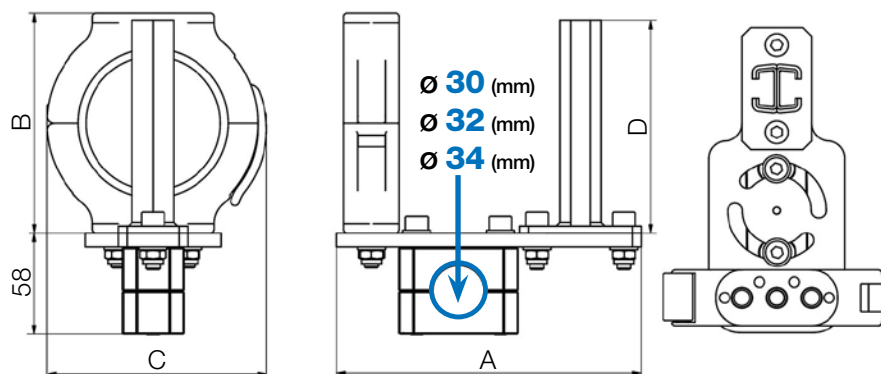
TR.40.21.09.XX to
TR.100.21.09.XX

Ø Index	Part No. standard	Clamp diameter Ø (mm)	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)
30.	▶ -	-	-	-	-	-
40.	▶ TR.40.21.09.	30 32 34	5.28 (134)	3.35 (85)	3.31 (84)	1.10 (28)
50.	▶ TR.50.21.09.	30 32 34	5.67 (144)	3.35 (85)	3.33 (84.5)	1.50 (38)
60.	▶ TR.60.21.09.	30 32 34	5.67 (144)	5.12 (130)	5.08 (129)	1.50 (38)
65.	▶ TR.65.21.09.	30 32 34	5.94 (151)	5.12 (130)	5.12 (130)	1.77 (45)
65. (R 200)	▶ -	-	-	-	-	-
70.	▶ TR.70.21.09.	-	5.87 (149)	5.12 (130)	5.12 (130)	1.69 (43)
85.	▶ TR.85.21.09.	-	6.18 (157)	6.18 (157)	6.10 (155)	1.93 (49)
85. (R 240)	▶ -	-	-	-	-	-
100.	▶ TR.100.21.09.	30 32 34	6.85 (174)	6.61 (168)	6.89 (175)	2.64 (67)
125.	▶ -	-	-	-	-	-

Standard clamp for axis 6: Ø (30mm) 1.18"

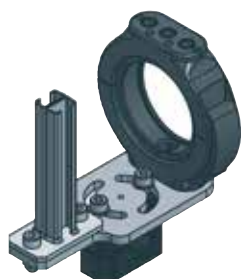
Part No. with desired diameter for the axis 6 clamp | 30 | 32 | 34 | e.g. TR.100.21.09.30

Heavy-duty connections for axis 6

Heavy duty connections - Standard
TR.60.20.XX to TR.125.20.XX

- Heavy duty connection - standard
- For cables with large cross section
- For heavy hydraulic hoses
- Double C-profile for CFX clamps
- igus® chainfix clamps must be ordered separately

Heavy duty connections - For TRC·TRE·TRCF

TR.60.20.XX to
TR.125.20.XX

Ø Index	Part No. standard	Clamp diameter Ø (mm)	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)
30.	▶ --	--	--	--	--	--
40.	▶ --	--	--	--	--	--
50.	▶ --	--	--	--	--	--
60.	▶ TR.60.20.	30 32 34	6.89 (175)	4.96 (126)	4.96 (126)	4.80 (122)
65.	▶ TR.65.20.	30 32 34	6.89 (175)	4.96 (126)	4.96 (126)	4.80 (122)
65. (R 240)	▶ TR.65.200.20. ⁴⁾	30 32 34	6.89 (175)	4.96 (126)	4.96 (126)	4.80 (122)
70.	▶ TR.70.20.	30 32 34	6.89 (175)	4.96 (126)	4.96 (126)	4.80 (122)
85.	▶ TR.85.20.	30 32 34	6.89 (175)	6.02 (153)	6.10 (155)	5.87 (149)
85. (R 240)	▶ TR.85.240.20. ⁴⁾	30 32 34	6.89 (175)	6.02 (153)	6.10 (155)	5.87 (149)
100.	▶ TR.100.20.	30 32 34	6.89 (175)	6.02 (153)	6.10 (155)	5.87 (149)
125.	▶ TR.125.20.	30 32 34	7.09 (180)	7.48 (190)	7.48 (190)	6.89 (175)

Standard clamp for axis 6: Ø (30mm) 1.18"

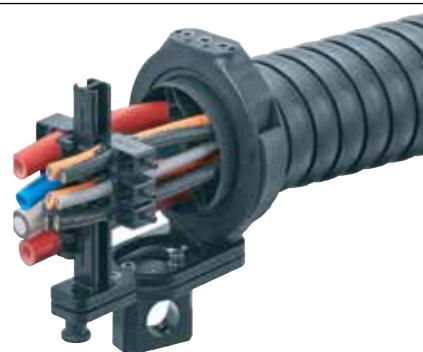
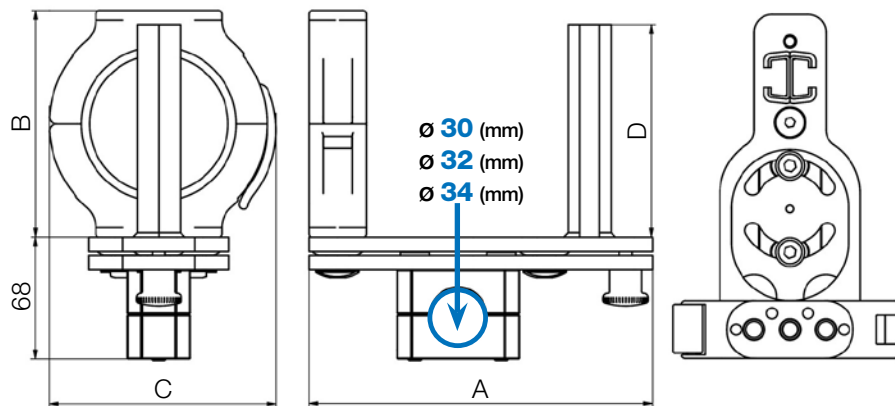
⁴⁾ Only for special size with larger bend radius

Part No. with desired diameter for the axis 6 clamp | 30 | 32 | 34 | e.g. TR.100.20.30

Quick exchange kit for clamp axis 6

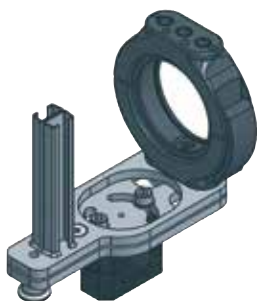
Quick exchange kit

TR.60.22.XX to TR.100.22.XX



- Exchange in seconds
- No repeat alignment required
- Exchange the triflex® R unit incl. cables without tools
- Option available with strain relief

Quick exchange kit - For TRC-TRE-TRCF

TR.60.22.XX to
TR.100.22.XX

Ø Index	Part No. quick change unit	Clamp diameter Ø (mm)	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)
30.	► -	-	-	-	-	-
40.	► -	-	-	-	-	-
50.	► -	-	-	-	-	-
60.	► TR.60.22.	30 32 34	7.52 (191)	4.96 (126)	4.96 (126)	4.96 (126)
65.	► TR.65.22.	30 32 34	7.52 (191)	4.96 (126)	4.96 (126)	4.96 (126)
65.	TR.65.200.22. ⁴⁾	30 32 34	7.52 (191)	4.96 (126)	4.96 (126)	4.96 (126)
70.	► TR.70.22.	30 32 34	7.52 (191)	4.96 (126)	4.96 (126)	4.96 (126)
85.	► TR.85.22.	30 32 34	7.52 (191)	6.02 (153)	6.10 (155)	6.02 (153)
85. (R 240)	► TR.85.240.22. ⁴⁾	30 32 34	7.52 (191)	6.02 (153)	6.10 (155)	6.02 (153)
100.	► TR.100.22.	30 32 34	7.52 (191)	6.02 (153)	6.10 (155)	6.02 (153)
125.	► -	-	-	-	-	-

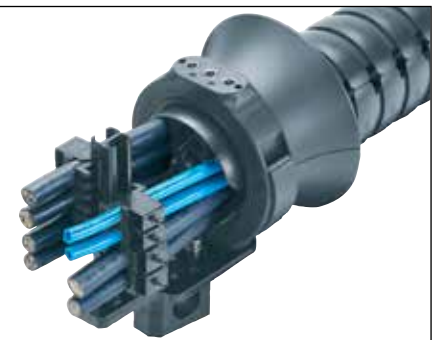
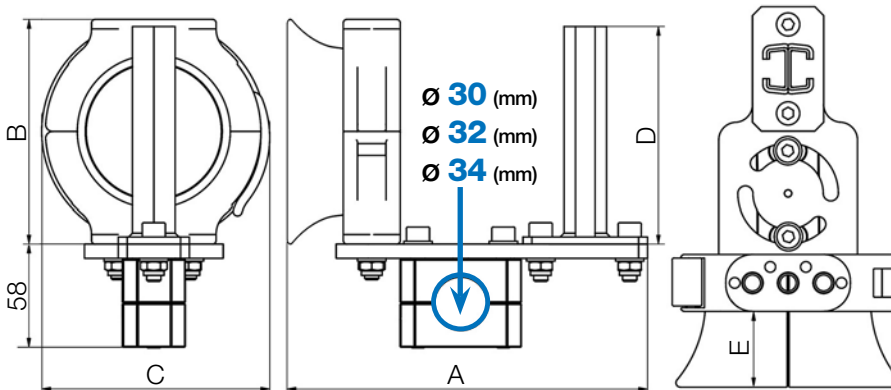
Standard clamp for axis 6: Ø (30mm) 1.18"

⁴⁾ Only for special size with larger bend radius

Part No. with desired diameter for the axis 6 clamp | 30 | 32 | 34 | e.g. TR.100.22-30

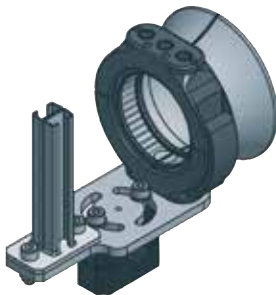
Heavy-duty connections for axis 6 | With radius support

Heavy duty connections - With radius support
TR.60.23.XX to TR.125.23.XX



- With radius support
- For cables with large cross section
- For heavy hydraulic hoses
- Double C-profile for CFX clamps
- igus® chainfix clamps must be ordered separately. Protector with quick-release fastener also available

Heavy duty connections - With radius support - For TRC·TRE·TRCF



TR.60.23.XX to
TR.125.23.XX

ø Index	Part No. with radius support	Clamp diameter ø (mm)	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	E in. (mm)
30.	▶ –	–	–	–	–	–	–
40.	▶ –	–	–	–	–	–	–
50.	▶ –	–	–	–	–	–	–
60.	▶ TR.60.23.	30 32 34	8.23 (209)	4.96 (126)	5.12 (130)	4.80 (122)	1.50 (38)
65.	▶ TR.65.23.	30 32 34	8.43 (214)	4.96 (126)	5.12 (130)	4.80 (122)	1.77 (45)
65. (R 200)	▶ –	–	–	–	–	–	–
70.	▶ TR.70.23.	30 32 34	8.43 (214)	4.96 (126)	5.12 (130)	4.80 (122)	1.69 (43)
85.	▶ TR.85.23.	30 32 34	8.74 (222)	6.10 (155)	6.10 (155)	5.87 (149)	1.93 (49)
85. (R 240)	▶ –	–	–	–	–	–	–
100.	▶ TR.100.23.	30 32 34	9.45 (240)	6.10 (155)	6.10 (155)	5.87 (149)	2.64 (67)
125.	▶ TR.125.23.	30 32 34	9.92 (252)	7.48 (190)	7.48 (190)	6.89 (175)	2.83 (72)

Standard clamp for axis 6: ø (30mm) 1.18"

Part No. with desired diameter for the axis 6 clamp | 30 | 32 | 34 | e.g. TR.100.20.30

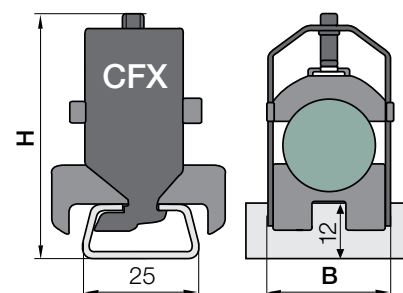
chainfix clamps

chainfix - Single clamp including bottom saddles

- For use with heavy-duty connection
TR.XX.20 / TR.XX.23 and quick release unit TR.XX.22
- Reliably absorbs tensile forces even for larger cable diameters
- Specifically recommended for solid welding cables and rigid hydraulic hoses
- Space- and time-saving assembly onto the profile rail
- Simple assembly with hex head set screw
- High strength for dynamic applications with improved stacker elements
- Built-in ribs on the stacker elements give secure grip on the cables
- Steel (material galvanized steel) or stainless steel (material 1.4301/AISI 304) available

Part No. steel	Part No. stainless steel*	≤ Ø in. (mm)	B*2 in. (mm)	H in. (mm)
CFX12-1	CFX12-1-E	.24 - .47 (06 - 12)	.63 (16)	1.57 (40)
CFX14-1	CFX14-1-E	.47 - .55 (12 - 14)	.71 (18)	1.97 (50)
CFX16-1	CFX16-1-E	.55 - .63 (14 - 16)	.79 (20)	2.05 (52)
CFX18-1	CFX18-1-E	.63 - .71 (16 - 18)	.87 (22)	2.13 (54)
CFX20-1	CFX20-1-E	.71 - .79 (18 - 20)	.94 (24)	2.20 (56)
CFX22-1	CFX22-1-E	.79 - .87 (20 - 22)	1.02 (26)	2.28 (58)
CFX26-1	CFX26-1-E	.87 - 1.02 (22 - 26)	1.18 (30)	2.64 (67)
CFX30-1	CFX30-1-E	1.02 - 1.18 (26 - 30)	1.34 (34)	2.80 (71)
CFX34-1	CFX34-1-E	1.18 - 1.34 (30 - 34)	1.50 (38)	2.95 (75)

*Stainless steel material: 1.4301/AISI 304



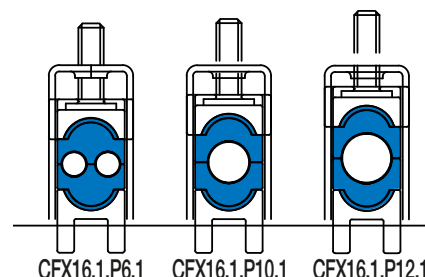
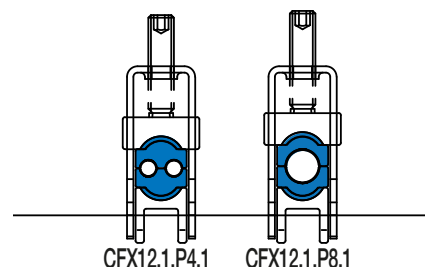
Pneumatic stacker saddles | For CFX and CFXL clamps

- Strain relief of pneumatic hoses without crushing or damage
- For pneumatic hose diameters of 4mm, 6mm, 8mm, 10mm and 12mm
- High holding force due to "all-round" grip
- The cross section of pneumatic hoses is fully retained
- No crushing of the hoses, and therefore no loss of hose length
- Colored identification markings, inserts are blue
- Fast assembly without checking the tightening torque

Part No.			≤ Ø in. (mm)
CFX12	CDA.4 / 4-12.P	CDA.8 / 12.P	
CFX12.1.P4.1	2 x	–	.16 (04)
CFX12.1.P8.1	–	2 x	.31 (08)

Part No.				≤ Ø in. (mm)
CFX16	CDA.6 / 6-16.P	CDA.10-16.P	CDA.12-16.P	
CFX16.1.P6.1	2 x	–	–	.24 (06)
CFX16.1.P10.1	–	2 x	–	.39 (10)
CFX16.1.P12.1	–	–	2 x	.47 (12)

Standard material: galvanized steel. For the stainless steel version (material 1.4301/AISI 304), please add the part number with index .E



Protective sleeves

Standard protective sleeve



● Base support: fabric ● Plastic coated ● Easy to replace with Velcro fastenings ● Elastic sealing strips ● Standard lengths available from stock ● For paint or sealing applications ● PVC material ● Polyester coated fabrics

ø Index	Part No. sleeve	Standard lengths ²⁾ XXXX (mm)
30.	▶ –	–
40.	▶ TR.40.14.	500 1000 1500 2000
50.	▶ TR.50.14.	500 1000 1500 2000
60.	▶ TR.60.14.	500 1000 1500 2000
65.	▶ TR.65.14.	500 1000 1500 2000
70.	▶ TR.70.14.	500 1000 1500 2000
85.	▶ TR.85.14.	500 1000 1500 2000
100.	▶ TR.100.14.	500 1000 1500 2000
125.	▶ TR.125.14.	500 1000 1500 2000

2) Special lengths upon request

Part No. with the desired standard value for the length **XXXX**

Example: **TR.60.14.500**

Heat shield protective sleeve



Made from heat resistant, wear-resistant Kevlar ● Short-term protection against welding and metal spatter, temperatures up to 540°C ● High abrasion resistance ● Sealed design ● For tough environments ● Easy to replace or retrofit with zipper closure ● Velcro straps at each end ● Tough design Silicone-free ● Asbestos-free Standard lengths from stock

ø Index	Part No. sleeve	Standard lengths ²⁾ XXXX (mm)
30.	▶ –	–
40.	▶ TR.40.18.	500 1000 1500 2000
50.	▶ TR.50.18.	500 1000 1500 2000
60.	▶ TR.60.18.	500 1000 1500 2000
65.	▶ TR.65.18.	500 1000 1500 2000
70.	▶ TR.70.18.	500 1000 1500 2000
85.	▶ TR.85.18.	500 1000 1500 2000
100.	▶ TR.100.18.	500 1000 1500 2000
125.	▶ TR.125.18.	500 1000 1500 2000

2) Special lengths upon request

Part No. with the desired standard value for the length **XXXX**

Example: **TR.60.18.500**

Wear resistant protective sleeve



● Extremely high abrasion resistance ● Black leather ● For use in temperatures from -40°F to +212°F (-40°C to +100°C) ● Very Flexible ● Easy to exchange or retrofit ● Silicone-free ● Asbestos-free ● Standard lengths from stock

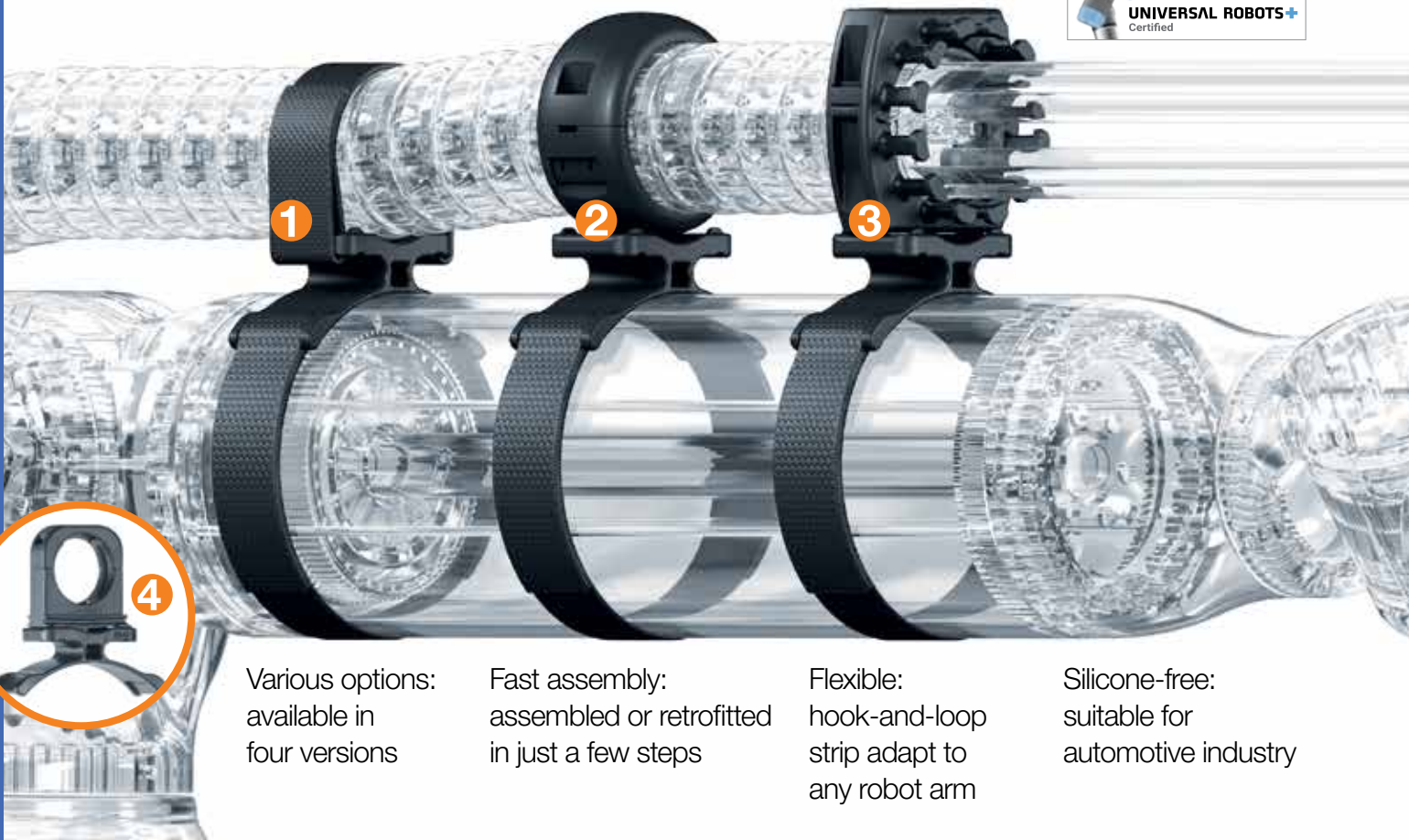
ø Index	Part No. sleeve	Standard lengths ²⁾ XXXX (mm)
30.	▶ –	–
40.	▶ TR.40.19.	500 1000 1500 2000
50.	▶ TR.50.19.	500 1000 1500 2000
60.	▶ TR.60.19.	500 1000 1500 2000
65.	▶ TR.65.19.	500 1000 1500 2000
70.	▶ TR.70.19.	500 1000 1500 2000
85.	▶ TR.85.19.	500 1000 1500 2000
100.	▶ TR.100.19.	500 1000 1500 2000
125.	▶ TR.125.19.	500 1000 1500 2000

2) Special lengths upon request

Part No. with the desired standard value for the length **XXXX**

Example: **TR.60.19.500**

Cobot universal mounting brackets



Various options:
available in
four versions

Fast assembly:
assembled or retrofitted
in just a few steps

Flexible:
hook-and-loop
strip adapt to
any robot arm

Silicone-free:
suitable for
automotive industry

Cost-effective, flexible and fast assembly - triflex® COB universal mounting brackets

For secure attachment of e-chains® or protective hoses to robots, users can now rely on the new Lean Robotics brackets from igus®. The universal mounting brackets with hook-and-loop strips are flexible and adapt to any robot arm. A slim design with rounded edges reduces the risk of injury if there is contact with the robot. The new Lean Robotics brackets are available in various designs and are suitable for use with the triflex® R TRC/TRE/TRL 30 and 40 series and for all commercially available protective hoses in various diameters.

- Compact, lightweight and smooth design
- For different robots arm diameters, universal applications
- Assembled and retrofitted in just a few steps
- Silicone-free, suitable for automotive industry
- Virtually no edges, so the risk of injury is minimized
- The standard universal mounting brackets ❶ are suitable for all sizes of the triflex® R e-chain® series TRC/TRE/TRL
- The standard universal mounting brackets with hook-and-loop strips and protector ❷ or mounting bracket ❸ are suitable for triflex® R e-chain® series TRC/TRE/TRL 30 and 40
- The standard universal mounting brackets with PMA Clip ❹ are suitable for nominal widths 17, 23, 29, 36 and 48mm
- Low-cost addition to the igus® cobot accessories range

Cobot universal mounting brackets overview

			
1 Standard for maximum adaptability	2 With triflex® R protector	3 With triflex® R mounting bracket and optional strain relief	4 With PMA clip
⊕ Benefits: ● 1 x polymer bracket ● 1m hook-and-loop strip ● Most cost-effective clamp in the range ● Silicone-free ● Maximum freedom for cable management	⊕ Benefits: ● 1 x polymer bracket ● 1m hook-and-loop strip ● 1 x round protector size 40 ● Silicone-free	⊕ Benefits: ● 1 x polymer bracket ● 1m hook-and-loop strip ● 1 x lightweight mounting bracket size 30 or 40*, available with and without strain relief ● *Size 40, option with long or short strain relief teeth ● Silicone-free	⊕ Benefits: ● 1 x polymer bracket ● 1m hook-and-loop strip ● 1 x PMA clip ● Available in 5 sizes for corrugated hoses ● Silicone-free
Suitable for: triflex® R e-chain® series TRC/TRE/TRL  UNIVERSAL ROBOTS+ Certified	Suitable for: triflex® R e-chain® series TRC/TRE/TRL, size 40	Suitable for: triflex® R e-chain® series TRC/TRE/TRL, size 30 and 40	Suitable for: Corrugated tube systems with nominal width 17, 23, 29, 36 and 48mm

Bracket for fiber-rod system**ø 40 for UR10, UR10e, UR20 and UR30**

Virtually contact-free management of cables on UR10 and UR10e

Easy retrofitting of cables and hoses

- Strong, defined cable management up to the tool
- Can be combined with our universal mounting brackets with hook-and-loop
- Individually adjustable plug-and-play for UR10 and UR10e

More information ► www.igus.com/info/n20-newspage-ur-fibre-rod

Cobot universal mounting brackets

Product range | ① Standard for maximum adaptability

Universal for diameters from .59" to 2.17" (15 to 55mm)

Product	Part No. mounting brackets	Size ø in. (mm)	Description
	TR.COB.01.00.0	.59-2.17 (15 - 55)	Support + 1m hook-and-loop strip

Product range | ② With triflex® R protector

For triflex® R e-chain® series TRC/TRE/TRL, size 40

Product	Part No. mounting brackets	Index ø in. (mm)	Description
	TR.COB.01.40.30.0	1.57 (40)	Protector size 40 + support + 1m hook-and-loop strip + plastic screw + protector

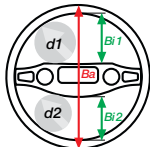
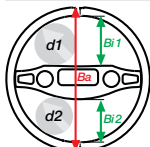
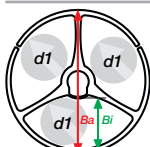
Product range | ③ With triflex® R mounting bracket and optional strain relief

For triflex® R e-chain® series TRC/TRE/TRL, size 30 and 40

Product	Part No. mounting brackets	Index ø in. (mm)	Description
	TR.COB.01.30.Z1.0	1.18 (30)	Lightweight mounting bracket, size 30 with short strain relief + support + 1m hook-and-loop strip
	TR.COB.01.40.Z1.0	1.57 (40)	Lightweight mounting bracket, size 40, with strain relief + support + 1m hook-and-loop strip + plastic screw TR AE
	TR.COB.01.40.Z2.0	1.57 (40)	Lightweight mounting bracket, size 40, with long strain relief + support + 1m hook-and-loop strip + plastic screw TR AE
	TR.COB.01.30.Z0.0	1.18 (30)	Lightweight mounting bracket, size 30, without strain relief + support + 1m hook-and-loop strip
	TR.COB.01.40.Z0.0	1.57 (40)	Lightweight mounting bracket, size 40, without strain relief + support + 1m hook-and-loop strip + plastic screw TR AE

Cobot universal mounting brackets

Overview triflex® R e-chains® | For TRC·TRE·TRL

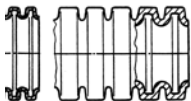
Principle sketch	Part No. Series	Bi1 in. (mm)	Bi2 in. (mm)	Ba in. (mm)	R in. (mm)	d1 in. (mm)	d2 in. (mm)	Pitch in. (mm)	Links per ft. (m)
	Series TRC - enclosed design								
	TRC.30.050.0	.47 (12)	.39 (10)	1.36 (34.5)	1.97 (050)	.39 (10)	.31 (8)	.44 (11.3)	27.27 (89)
	TRC.40.058.0	.59 (15)	.51 (13)	1.69 (43)	2.28 (058)	.51 (13)	.43 (11)	.55 (13.9)	21.82 (72)
	Series TRE - "easy" design								
	TRE.30.050.0.B	.47 (12)	.39 (10)	1.36 (34.5)	1.97 (050)	.39 (10)	.31 (8)	.44 (11.3)	27.27 (89)
	TRE.40.058.0.B	.59 (15)	.51 (13)	1.69 (43)	2.28 (058)	.51 (13)	.43 (11)	.55 (13.9)	21.82 (72)
	Series TRL - light version of the "easy"-design								
	TRL.30.050.0	12.5	.43 (11)	1.36 (34.5)	1.97 (050)	.39 (10)	.31 (8)	.44 (11.3)	27.27 (89)
	TRL.40.058.0	.59 (15)	–	1.77 (45)	2.28 (058)	.51 (13)	–	.55 (13.9)	21.82 (72)

Product range | 4 With PMA clip

Corrugated tube systems with nominal width .67" (17), .91" (23), 1.14" (29), 1.42" (36) and 1.89" (48mm)

Product	Part No. mounting brackets	NW in. (mm)	Description
	TR.COB.01.PMA.17.0	.67 (17)	PMA clip, nominal width 17 + support + 3.28ft. (1m) hook-and-loop strip + plastic screw + protector
	TR.COB.01.PMA.23.0	.91 (23)	PMA clip, nominal width 23 + support + 3.28ft. (1m) hook-and-loop strip + plastic screw + protector
	TR.COB.01.PMA.29.0	1.14 (29)	PMA clip, nominal width 29 + support + 3.28ft. (1m) hook-and-loop strip + plastic screw + protector
	TR.COB.01.PMA.36.0	1.42 (36)	PMA clip, nominal width 36 + support + 3.28ft. (1m) hook-and-loop strip + plastic screw + protector
	TR.COB.01.PMA.48.0	1.89 (48)	PMA clip, nominal width 48 + support + 3.28ft. (1m) hook-and-loop strip + plastic screw + protector

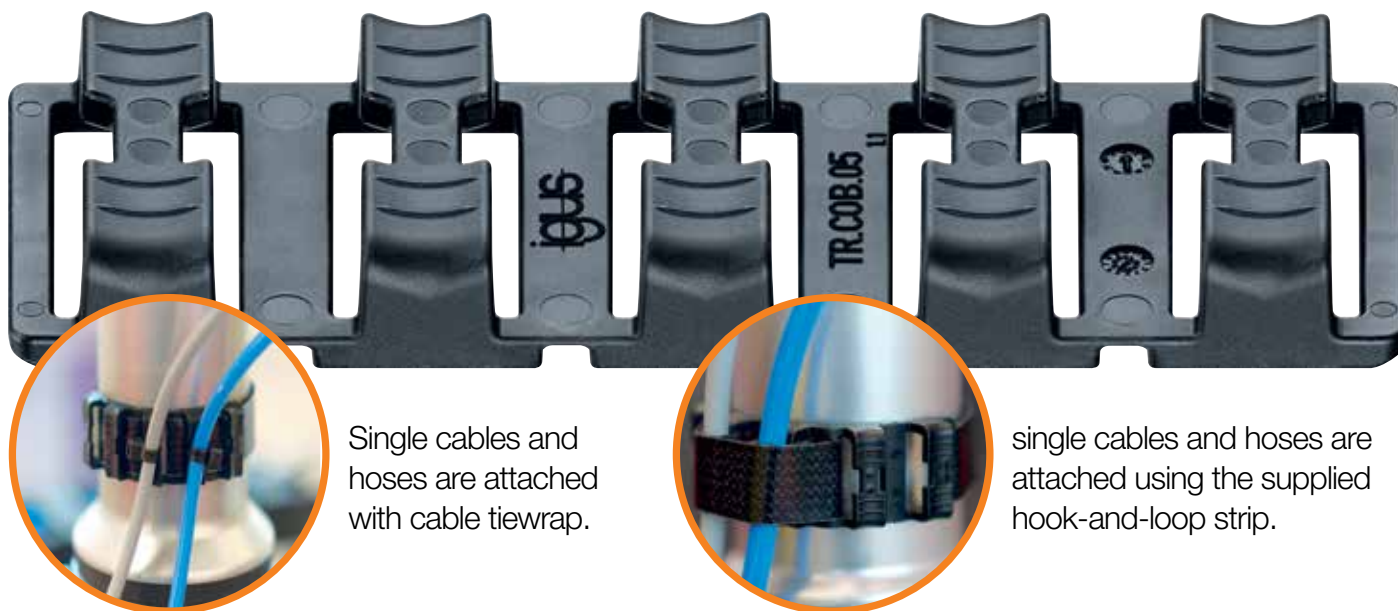
PMA hoses overview | For PMAFLEX corrugated tubes

Principle sketch	Part No. Series	Corrugated tube nominal width	Metric size in. (mm)	Inner Ø d1 in. (mm)	Outer Ø d2 in. (mm)	Static R in. (mm)*	Dynamic R in. (mm)**	VE ft. (m)
	I-PIST-17B	17	.79 (20)	.65 (16.4)	.83 (21.1)	1.18 (30)	2.56 (65)	1.64 (50)
	I-PIST-23B	23	.98 (25)	.89 (22.6)	1.12 (28.4)	1.38 (35)	3.54 (90)	1.64 (50)
	I-PIST-29B	29	1.26 (32)	1.14 (29.0)	1.35 (34.3)	1.77 (45)	4.33 (110)	1.64 (50)
	I-PIST-36B	36	1.57 (40)	1.44 (36.5)	1.67 (42.5)	2.36 (60)	7.09 (180)	1.64 (50)
	I-PIST-48B	48	1.97 (50)	1.84 (46.7)	2.13 (54.2)	2.76 (70)	7.87 (200)	1.64 (50)

*Static R = minimum recommended bend radius for static (fixed) installation

**Dynamic R = minimum recommended bend radius for dynamic (flexible) laying

Cobot cable clip



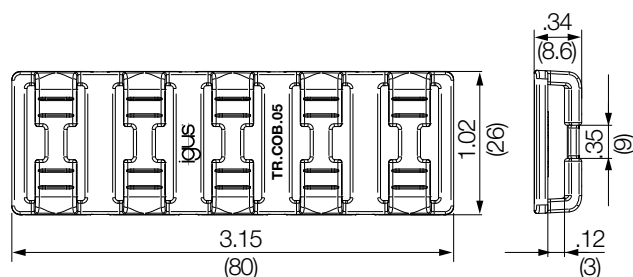
Single cables and hoses are attached with cable tiewrap.

single cables and hoses are attached using the supplied hook-and-loop strip.

Quick, easy and universal cable attachment - triflex® COB cable clip

Cable clip for fast, easy attachment of cables and hoses to cobots or small robots. Made of flexible plastic, the cable clip adapts to any arm diameter of a cobot, robot or object. A silicone-free hook-and-loop strip is used for optimal attachment, which can be selected in 19.69" (500mm) and 39.37" (1,000mm) lengths and can be easily shortened with scissors.

- Compact, lightweight design
- For different robots arm diameters, universal applications
- Assembled and retrofitted in just a few steps
- Silicone-free, suitable for automotive industry
- Virtually no edges, so the risk of injury is minimized
- Cost-effective
- Space-saving by shortening the brackets
- Alternative to fastening with just cable ties



Product range | Cable clip

Part No.	Description
Universal cable clip	Product
TR.COB.05.0500	Cable clip + 19.69" (500mm) hook-and-loop strip
TR.COB.05.1000	Cable clip + 39.34" (1,000mm) hook-and-loop strip

Fiber-rod bracket for Universal Robots



Additional flexibility when routing the cables for Universal Robots - Bracket for fiber-rod system

The igus® bracket for the triflex® R fiber-rod system of sizes 30 and 40 enables virtually contact-free management of cables on Universal Robots.

- Easy retrofitting of cables and hoses
- Strong, defined cable management up to the tool
- Can be combined with our cobot mounting brackets
- Plug and play for UR5, UR5e, UR10 and UR10e
- Minimization of looping by holding the e-chain® above the axis 4-6
- Elongated holes allow custom, infinite fiber-rod module adjustment
- Get a complete solution in just 8 clicks using our online tool ► www.igus.com/quickrobot

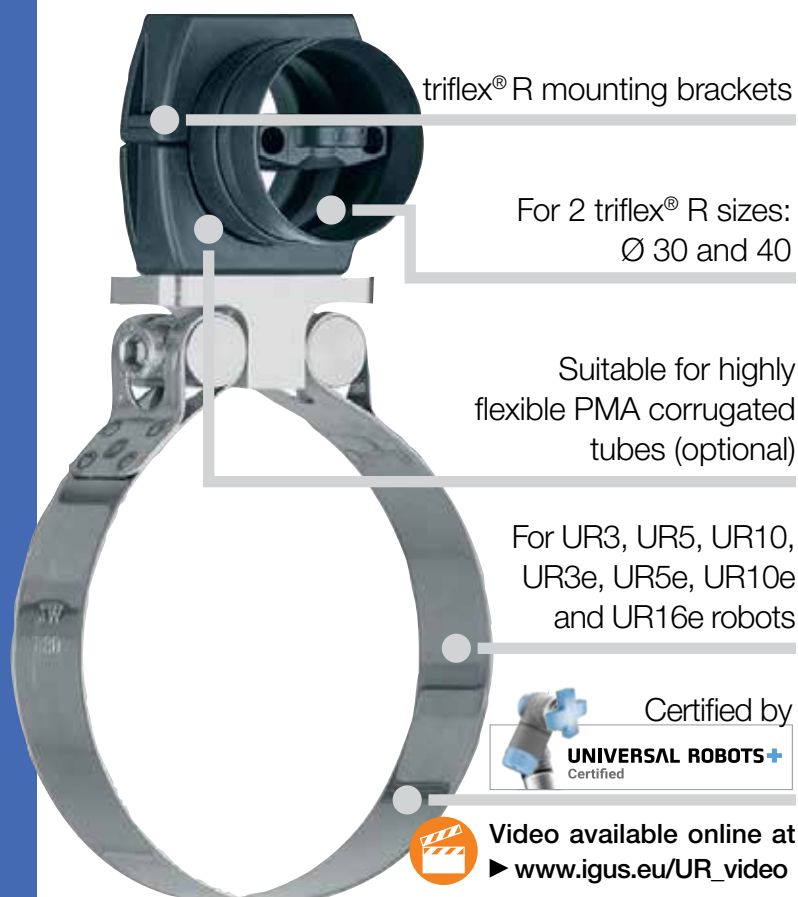
Product range | Suitable for TRE.30 fiber-rod systems

Part No.	For UR-robot system	ø [mm]
TR.920.166.075	UR5 / UR5e	75
TR.920.166.086	UR10 / UR10e	86

Product range | Suitable for TRE.40 and TRC.40 fiber-rod systems

Part No.	For UR-robot system	ø [mm]
TR.917.924	UR10 / UR10e	86
TR.920.645	UR20 / UR30	150

UR mounting brackets



Mounting brackets for Universal Robots - UR brackets

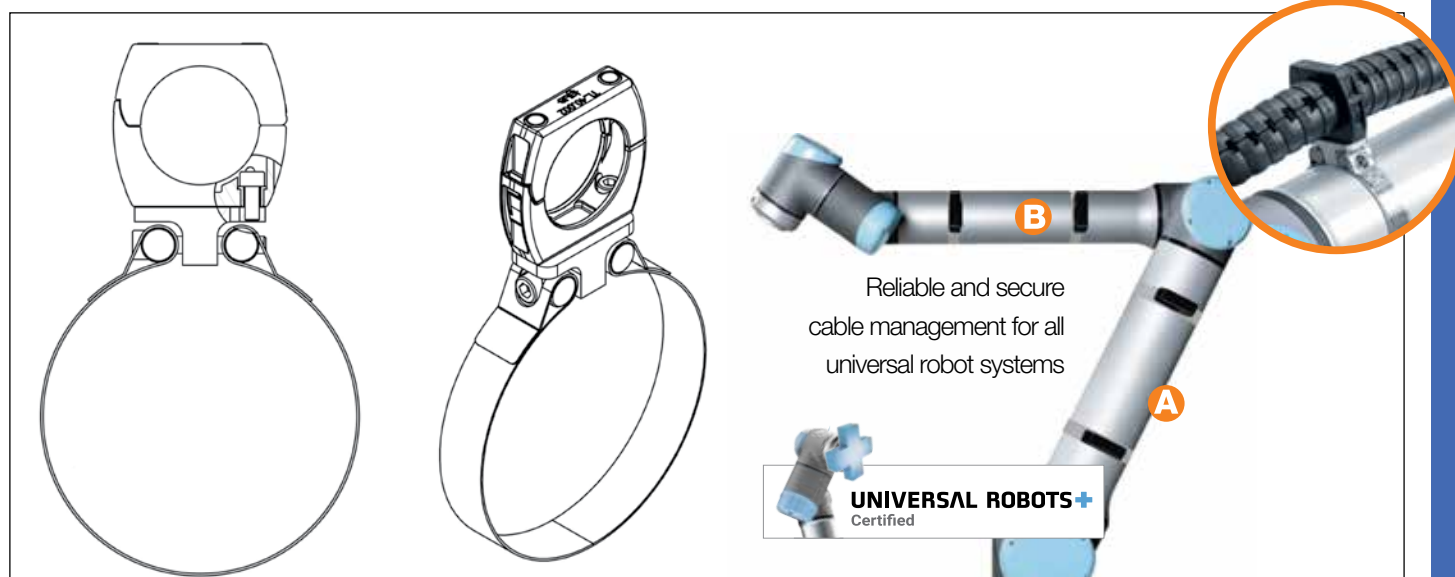
The "Universal Robots" company makes easy-to-use, lightweight robot systems. The triflex® R 30 and 40 sizes are a perfect fit for UR3, UR5, UR10, UR3e, UR5e, UR10e and UR16e robot systems, both technically and aesthetically. Connecting the system is quick and easy when using the UR brackets.

- Safe cable management with triflex® R for "universal robots"
- Easy connection with screw clips
- For TRC, TRE, TRL: Ø 30 and 40mm
- Suitable for PMA corrugated tube I-PIST-29B (optional)

Overview triflex® R e-chains® | For TRC·TRE·TRL

Principle sketch	Part No. Series	Bi1 in. (mm)	Bi2 in. (mm)	Ba in. (mm)	R in. (mm)	d1 in. (mm)	d2 in. (mm)	Pitch in. (mm)	Links per ft. (m)
	Series TRC - enclosed design								
	TRC.30.050.0	.47 (12)	.39 (10)	1.36 (34.5)	1.97 (050)	.39 (10)	.31 (8)	.44 (11.3)	27.27 (89)
	TRC.40.058.0	.59 (15)	.51 (13)	1.69 (43)	2.28 (058)	.51 (13)	.43 (11)	.55 (13.9)	21.82 (72)
	Series TRE - "easy" design								
	TRE.30.050.0.B	.47 (12)	.39 (10)	1.36 (34.5)	1.97 (050)	.39 (10)	.31 (8)	.44 (11.3)	27.27 (89)
	TRE.40.058.0.B	.59 (15)	.51 (13)	1.69 (43)	2.28 (058)	.51 (13)	.43 (11)	.55 (13.9)	21.82 (72)
	Series TRL - light version of the "easy"-design								
	TRL.30.050.0	12.5	.43 (11)	1.36 (34.5)	1.97 (050)	.39 (10)	.31 (8)	.44 (11.3)	27.27 (89)
	TRL.40.058.0	.59 (15)	—	1.77 (45)	2.28 (058)	.51 (13)	—	.55 (13.9)	21.82 (72)

UR mounting brackets



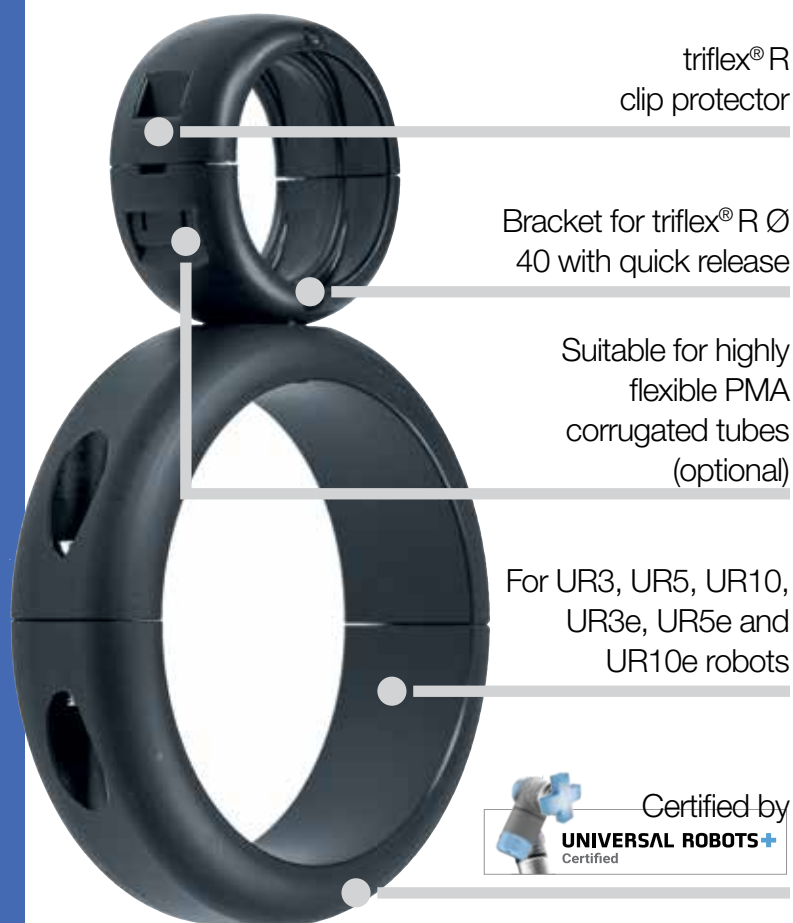
Product range | Suitable for TRC.30 · TRE.30 · TRL.30 e-chains®

Part No. without strain relief	Part No. with strain relief	For UR- robot system	Ø in. (mm)	Position
TR.911.965.054.Z0	TR.911.965.054.Z1	UR3/UR3e	2.13 (054)	B
TR.911.965.066.Z0	TR.911.965.066.Z1	UR3/UR3e	2.60 (066)	A
TR.911.965.075.Z0	TR.911.965.075.Z1	UR5/UR5e	2.95 (075)	B
TR.911.965.086.Z0	TR.911.965.086.Z1	UR5/UR5e	3.39 (086)	A
TR.911.965.086.Z0	TR.911.965.086.Z1	UR10/UR10e/UR16e	3.39 (086)	B
TR.911.965.108.Z0	TR.911.965.108.Z1	UR10/UR10e/UR16e	4.25 (108)	A
TR.911.965.150.Z0	TR.911.965.150.Z1	UR20/UR30	5.91 (150)	A

Product range | Suitable for TRC.40 · TRE.40 · TRL.40 e-chains®

Part No. without strain relief	Part No. with strain relief	For UR- robot system	Ø in. (mm)	Position
TR.911.966.054.Z0	TR.911.966.054.Z1	UR3/UR3e	2.13 (054)	B
TR.911.966.066.Z0	TR.911.966.066.Z1	UR3/UR3e	2.60 (066)	A
TR.911.966.075.Z0	TR.911.966.075.Z1	UR5/UR5e	2.95 (075)	B
TR.911.966.086.Z0	TR.911.966.086.Z1	UR5/UR5e	3.39 (086)	A
TR.911.966.086.Z0	TR.911.966.086.Z1	UR10/UR10e/UR16e	3.39 (086)	B
TR.911.966.108.Z0	TR.911.966.108.Z1	UR10/UR10e/UR16e	4.25 (108)	A
TR.911.966.150.Z0	TR.911.966.150.Z1	UR20/UR30	5.91 (150)	A

Cobot mounting brackets



For robot arms with human-robot collaboration - HRC clamps

Moving energy for cobots made easy. Energy can be supplied safely along all axes thanks to clamping ring for the triflex® R e-chains® of our robots, also for collaborative robots.

- Plastic bracket
- Simple screw connection for attachment to the robot arm
- Bracket for triflex® R Ø 40 with quick release
- Rounded MRK design
- For TRC, TRE and TRL e-chains®
- For UR and URe robot arms

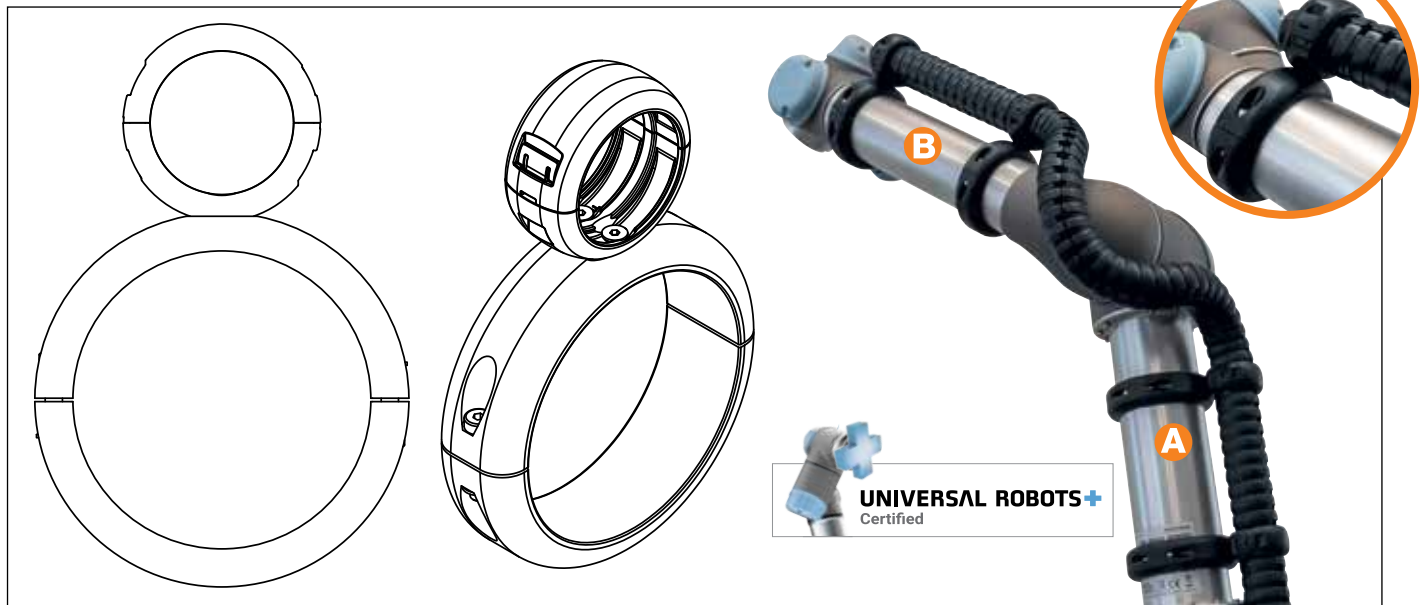
Overview triflex® R e-chains® | For TRC·TRE·TRL

Principle sketch	Part No. Series	Bi1 in. (mm)	Bi2 in. (mm)	Ba in. (mm)	R in. (mm)	d1 in. (mm)	d2 in. (mm)	Pitch in. (mm)	Links per ft. (m)
	Series TRC - enclosed design								
	TRC.40.058.0	.59 (15)	.51 (13)	1.69 (43)	2.28 (058)	.51 (13)	.43 (11)	.55 (13.9)	21.82 (72)
	Series TRE - "easy" design								
	TRE.40.058.0.B	.59 (15)	.51 (13)	1.69 (43)	2.28 (058)	.51 (13)	.43 (11)	.55 (13.9)	21.82 (72)
	Series TRL - light version of the "easy"-design								
	TRL.40.058.0	.59 (15)	–	1.77 (45)	2.28 (058)	.51 (13)	–	.55 (13.9)	21.82 (72)

PMA hoses overview | For PMAFLEX corrugated tubes

Principle sketch	Part No. Series	Corrugated tube nominal width	Metric size in. (mm)	Inner Ø d1 in. (mm)	Outer Ø d2 in. (mm)	Static R in. (mm)*	Dynamic R in. (mm)**	VE ft. (m)
	I-PIST-29B	29	1.25 (32)	1.14 (29.0)	1.35 (34.3)	1.77 (45)	4.33 (110)	1.64 (50)

Cobot mounting brackets



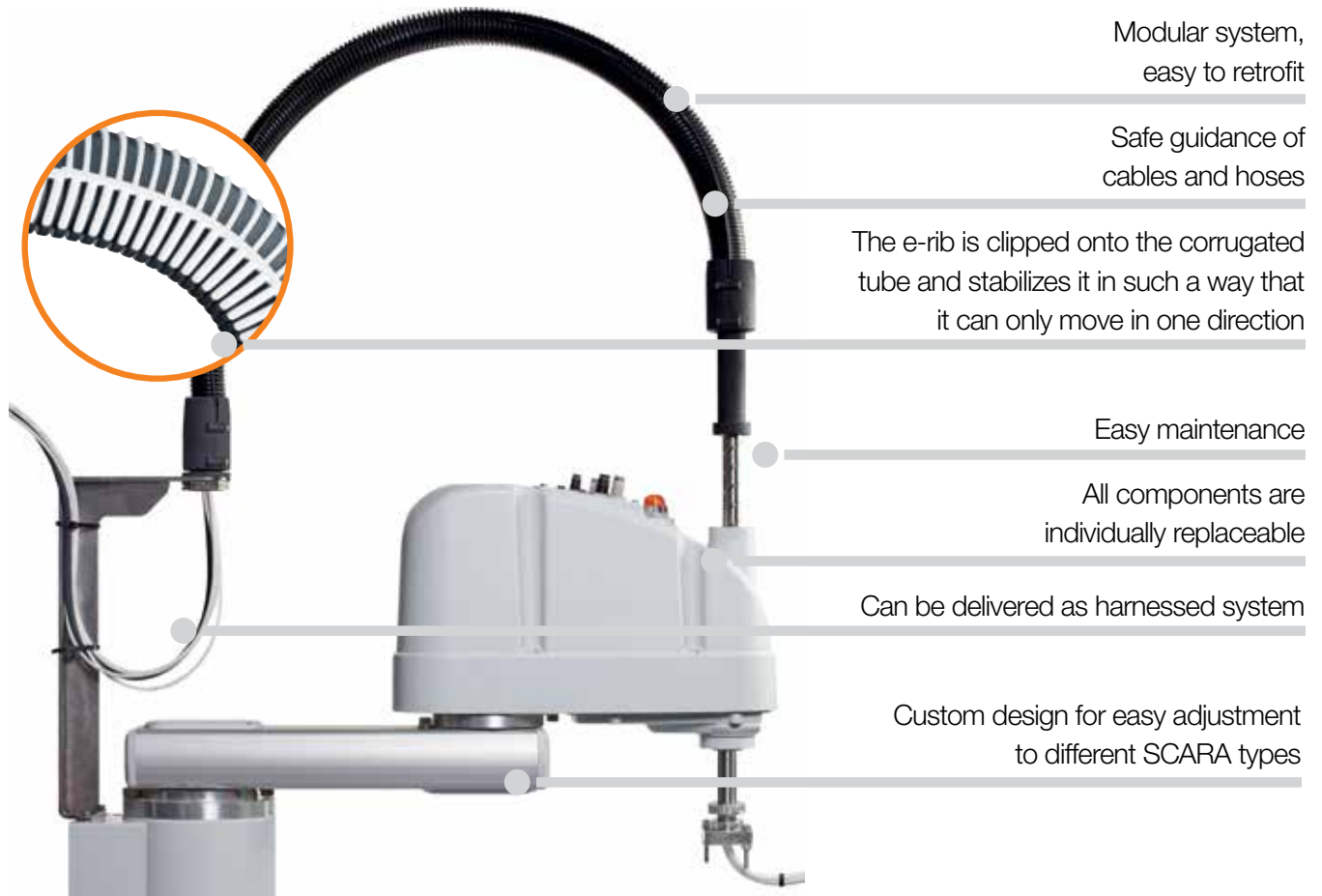
Product range | Suitable for TRC.40 · TRE.40 · TRL.40 e-chains®

Part No. cobot mounting brackets	For UR-robot system	UR ø [mm]	URe ø [mm]	Position
TR.916.810.54	UR3 / UR3e	2.13 (054)	2.13 (054)	B
TR.916.810.66	UR3 / UR3e	2.60 (066)	2.60 (066)	A
TR.916.810.75	UR5 / UR5e	2.95 (075)	2.95 (075)	B
TR.916.810.86	UR5 / UR5e	3.39 (086)	3.39 (086)	A
TR.916.810.86	UR10 / UR10e	3.39 (086)	3.39 (086)	B
TR.916.810.108	UR10	4.25 (108)	–	A
TR.916.810.110	UR10e	–	4.33 (110)	A

Product range | Suitable for PMA hose I-PIST-29B (optional)

For PMA hose I-PIST-29B	Part No. cobot mounting brackets	For UR-robot system	UR ø [mm]	URe ø [mm]	Position
	TR.916.810.54	UR3 / UR3e	2.13 (054)	2.13 (054)	B
	TR.916.810.66	UR3 / UR3e	2.60 (066)	2.60 (066)	A
	TR.916.810.75	UR5 / UR5e	2.95 (075)	2.95 (075)	B
	TR.916.810.86	UR5 / UR5e	3.39 (086)	3.39 (086)	A
	TR.916.810.86	UR10 / UR10e	3.39 (086)	3.39 (086)	B
	TR.916.810.108	UR10	4.25 (108)	–	A
	TR.916.810.110	UR10e	–	4.33 (110)	A

SCARA cable solutions (SCS)



Modular system,
easy to retrofit

Safe guidance of
cables and hoses

The e-rib is clipped onto the corrugated
tube and stabilizes it in such a way that
it can only move in one direction

Easy maintenance

All components are
individually replaceable

Can be delivered as harnessed system

Custom design for easy adjustment
to different SCARA types

Durable energy supply for SCARA robots

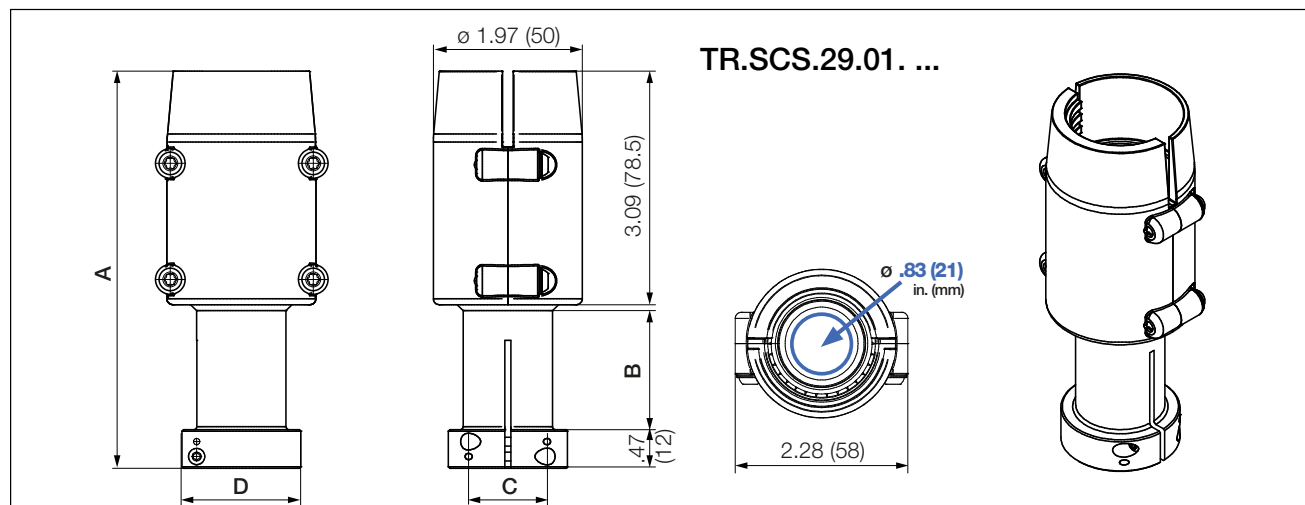
igus® has developed the SCARA Cable Solution (SCS) to route cables safely on SCARAs. The combination of a reinforced corrugated tube with the e-rib and the pivoted connections enables a process-reliable energy supply. The e-rib fills the joints of the corrugated hose to stabilize it in such a way that it can only move in one direction. The pivoted connections can either be attached directly to the ball screw (moving end) or with the help of an M40 screwed connection (fixed end). This solution will be available in nominal width 29 as standard.

- Safe guidance of cables and hoses on SCARA robots
- Quick, simple assembly
- Individually adaptable for different SCARA models
- Includes the energy supply system from axis 1 or 2 to the ball screw
- Corrugated tube inner diameter of 1.14" (29mm)

Product range | Reinforced corrugated tube with pre-assembled e-rib | Nominal width 29

Part No. reinforced corrugated tube	Standard lengths* LLLL (mm)
TR.SCS.29. LLLL .0	1000 1100 1300 1400 1500 2000 (*special lengths upon request)
Part No. with the desired standard value for the length LLLL . Example: TR.SCS.29. 2000 .0	

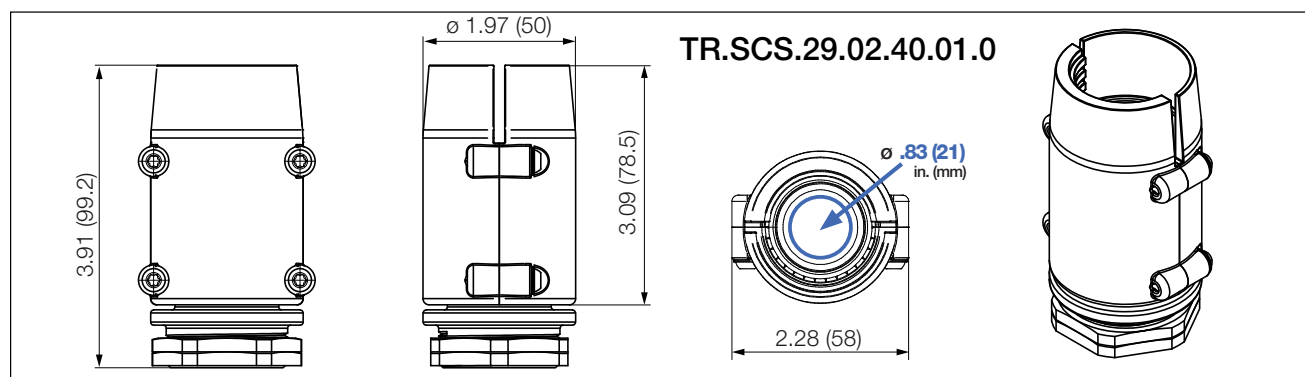
Energy supply on the SCARA robot



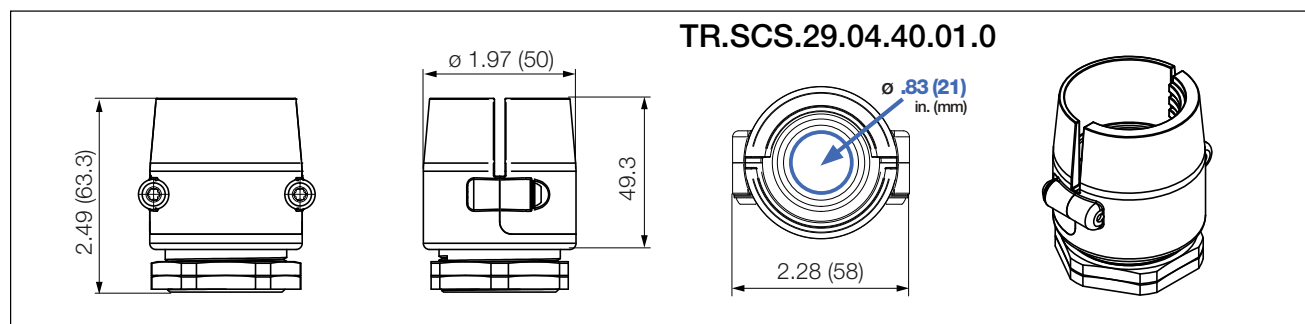
Product range | Moving end attachment

Part No.	A	B	C ø	D ø
SCARA connection	in. (mm)	in. (mm)	in. (mm)	in. (mm)
TR.SCS.29.01.16.48.01.0	5.53 (140.5)	1.89 (48)	.63 (16)	1.42 (36)
TR.SCS.29.01.16.97.01.0	7.46 (189.5)	3.82 (97)	.63 (16)	1.42 (36)
TR.SCS.29.01.20.40.01.0	5.26 (133.5)	1.57 (40)	.79 (20)	1.57 (40)
TR.SCS.29.01.20.64.01.0	6.22 (158.0)	2.52 (64)	.79 (20)	1.50 (38)
TR.SCS.29.01.20.94.01.0	7.38 (187.5)	3.70 (94)	.79 (20)	1.57 (40)
TR.SCS.29.01.25.35.01.0	5.02 (127.5)	1.38 (35)	.98 (25)	1.61 (41)
TR.SCS.29.01.25.48.01.0	5.53 (140.5)	1.89 (48)	.98 (25)	1.61 (41)

Product range | Fixed end attachment, pivoting | M40 screwed connection



Product range | Fixed end attachment, locking | M40 screwed connection



Clean SCARA cable solutions (CSCS)



e-skin® SKS20
IPA cleanroom Class 1

Safe guidance of
cables and hoses

Specially designed connections
for use in cleanrooms

Complete system IPA
cleanroom Class 2 certified

All components are
individually replaceable

Can be delivered as a harnessed system

Custom design for easy adjustment
to different SCARA types

Certified energy supply for cleanroom on SCARA robots

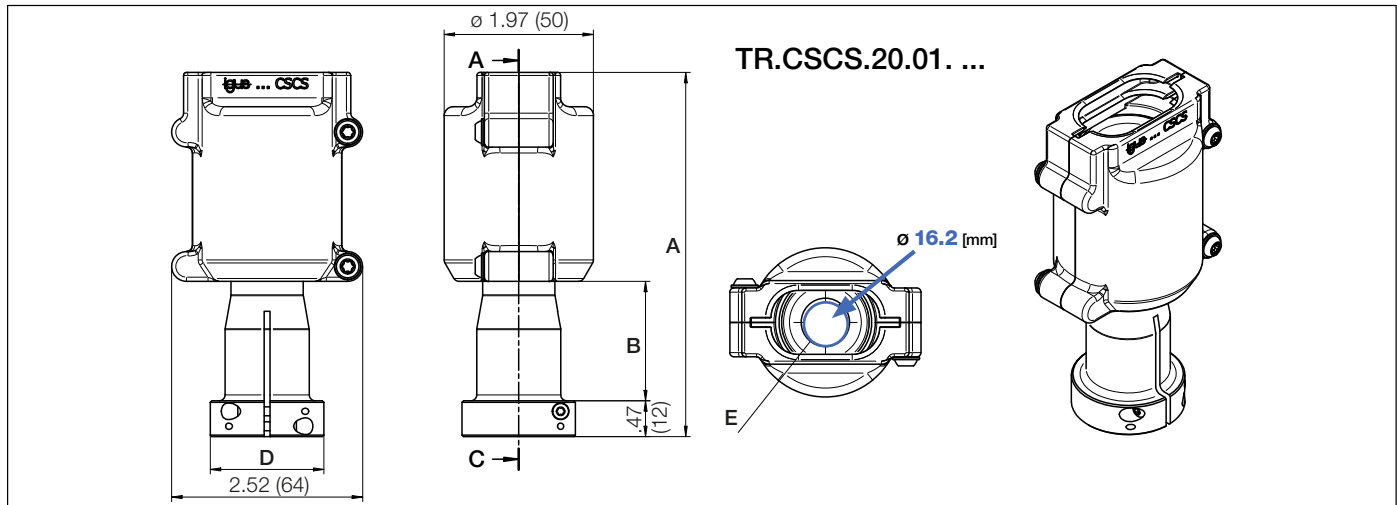
Based on the experience of the SCARA Cable Solution developed in 2020, a certified cleanroom variant is now available: the Clean SCARA Cable Solution. The optimized rotating mount connections allow up to ISO Class 2 (IPA-certified). In combination with the e-skin® design SKS20, which has been tried and tested in the highest cleanroom class, highly dynamic applications can also be implemented. The SKS20's proven zipper opening principle allows quick, easy cable filling. The new Clean SCARA Cable Solution is available in all known connections of the standard SCARA Cable Solution.

- IPA cleanroom Class 2 certified
- Reliable guidance of cables and hoses for SCARA robots in cleanroom
- Quick, simple assembly
- Individually adaptable for different SCARA models
- Includes the energy supply system from axis 1 or 2 to the ball screw
- Nominal width 24 available upon request

triflex® R | Series TRC·TRE·TRL | Product range

Energy supply for SCARA robots in cleanrooms

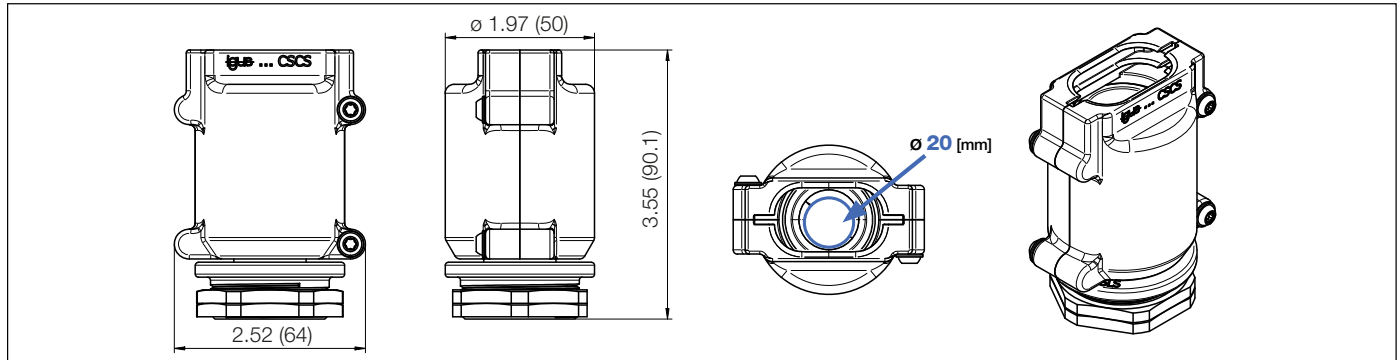
triflex® R



Product range | Moving end attachment

Part No.	A	B	C ø	D ø	E ø
Clean SCARA connection	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)
TR.CSCS.20.01.16.18.01.0	3.91 (99.4)	0.72 (18.4)	-	1.73 (44)	0.64 (16.2)
TR.CSCS.20.01.16.48.01.0	5.12 (130.0)	1.89 (48)	.63 (16)	1.42 (36)	0.64 (16.2)
TR.CSCS.20.01.16.97.01.0	7.05 (179.0)	3.82 (97)	.63 (16)	1.42 (36)	0.64 (16.2)
TR.CSCS.20.01.20.40.01.0	4.80 (122.0)	1.57 (40)	.79 (20)	1.50 (38)	0.64 (16.2)
TR.CSCS.20.01.20.94.01.0	6.93 (176.0)	3.70 (94)	.79 (20)	1.50 (38)	0.64 (16.2)
TR.CSCS.20.01.25.35.01.0	4.61 (117.0)	1.38 (35)	.98 (25)	1.61 (41)	0.71 (18.0)
TR.CSCS.20.01.25.48.01.0	5.12 (130.0)	1.89 (48)	.98 (25)	1.61 (41)	0.71 (18.0)

Product range | Fixed end attachment, pivoting | M40 screwed connection



Product range | Fixed end attachment, locking | M40 screwed connection

Part No.	hi	ha	Bi1	Ba	R min.	SKS H _F	Weight
Clean SCARA connection	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	lbs/ft (kg/m)
SKS20.033.02.1	.79 (20)	.98 (25)	1.30 (33)	1.97 (50)	2.17 (055)	6.30 (160) ¹⁾ / "7.87 (200) ¹⁾	≈ 0.134 (0.20)

IPA classification - report 2303-1401 for SKS20 + TR.CSCS

Test parameters	Result
V ₁ = 0.5m/s	a ₁ = 1.0m/s ²
V ₃ = 2.0m/s	a ₃ = 4.0m/s ²
Overall result	ISO Class 2

