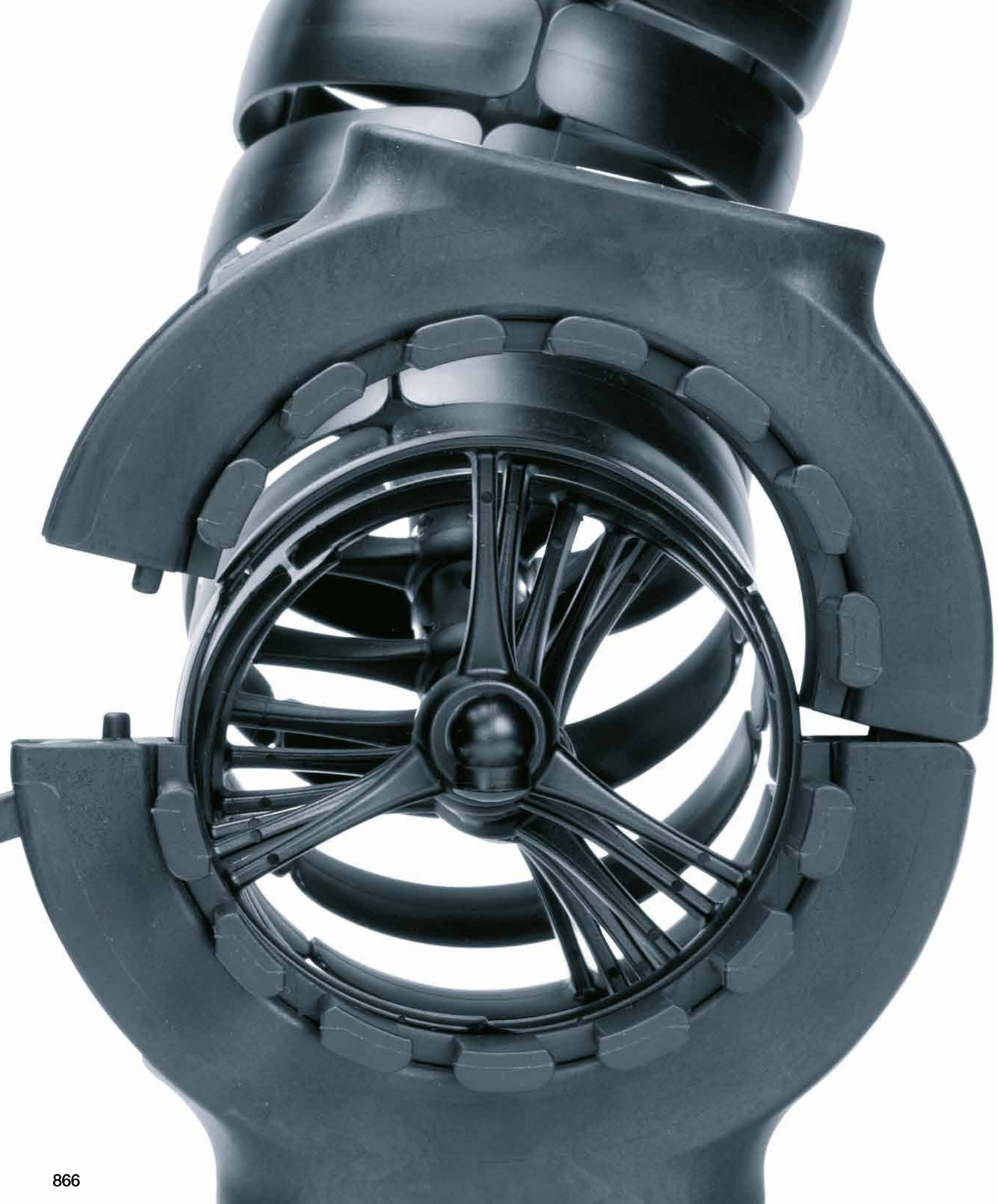
igus® 3D e-chains®

Robotic, 3D and circular movements: triflex® | twisterchain | twisterband |



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
- Small bend radius and short pitch
- Fillable from the outside

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

- For circular movements with high loads

► **twisterchain system, page 966**

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 ball and socket joint
- Compact retraction system options to prevent loop formation
- Fibre-rod option for partial directional control and reinforcement
- No extra support elements required e.g. steel cables, spring suspensions etc.
- 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 at
▶ www.igus.eu/triflexR_assembly

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

*The delivery times indicated correspond to the average time until the ordered goods are dispatched.

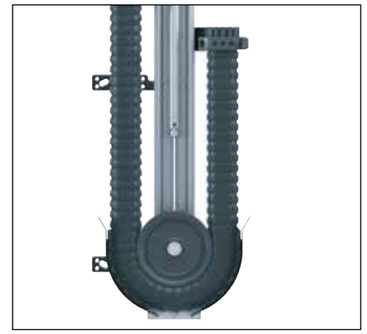
The defined torsion stop ensures an even distribution of the torsional load across the entire length

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

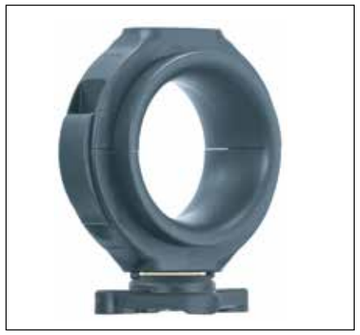
Openable - series TRCF and TRLF have snap lock mechanism for easy filling

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

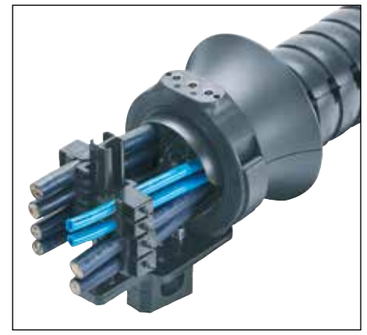


4 retraction system options available to prevent formation of loops in the robot's working area

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

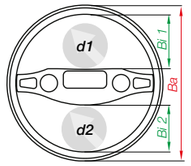
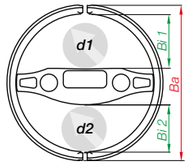
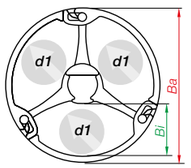


Various heavy duty and compact connections and quick-change units are available

Serie TRC - electrically conductive ESD e-chains® - several series available from stock

UL94-V2 classification

iF product design award
2004 for igus® series TRC
2007 for igus® series TRL
2013 for igus® series TRLF

Series	Inner height Bi1 [mm]	Inner height Bi2 [mm]	≤ ø cable d1 [mm]	≤ ø cable d2 [mm]	Outer width Ba [mm]	Bend radius R [mm]	Pitch [mm]	Links per m	Page
	**Series TRC - closed design** chip protection, smooth outer contour								
TRC.30	12	10	10	8	34.5	50	11.3	89	**874**
TRC.40	15	13	13	11	43	58	13.9	72	**874**
TRC.50	18.8	16.2	16.5	14	54	80	17.4	58	**874**
TRC.60	22.5	19.5	20.5	17.5	65	87	20.4	49	**874**
TRC.70	28	24	26	22	81	110	25.6	39	**874**
TRC.85	33	28	31	26	94.5	135	30.6	33	**874**
TRC.100	37.5	32.5	35.5	30.5	108	145	34.5	29	**874**
TRC.125[2]	43.3	43.3	41	41	135	182	44.6	23	**874**
	**Series TRE - "easy" design** very easy to fill, cables are simply pushed in								
TRE.30	12	10	10[1]	8[1]	34.5	50	11.3	89	**876**
TRE.40	15	13	13[1]	11[1]	43	58	13.9	72	**876**
TRE.50	18.8	16.2	16.5[1]	14[1]	54	80	17.4	58	**876**
TRE.60	22.5	19.5	20.5[1]	17.5[1]	65	87	20.4	49	**876**
TRE.70	28	24	26[1]	22[1]	81	110	25.6	39	**876**
TRE.85	33	28	31[1]	26[1]	94.5	135	30.6	33	**876**
TRE.100	37.5	32.5	35.5[1]	30.5[1]	108	145	34.5	29	**876**
TRE.125[2]	43.3	43.3	41[1]	41[1]	135	182	44.6	23	**876**
	**Series TRCF - closed design with snap lock mechanism** chip protection, smooth outer contour								
TRCF.65	22.3	–	20	–	70.2	100	23.1	44	**878**
TRCF.85	30	–	28	–	94.5	135	30.6	33	**878**
TRCF.85[4]	30	–	28	–	94.5	240	30.6	33	**878**
TRCF.100	34.3	–	32	–	108	145	34.5	29	**878**

1) For quick and easy fitting or removal of cables using the "easy" design, we recommend a maximum cable diameter of 70% of the specified value

2) Max. cable diameter Ø 41mm. Max. cable diameter changes to Ø 36 mm, if lengthening or shortening an already populated triflex® R

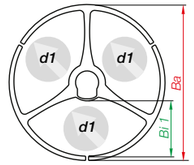
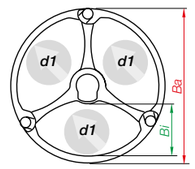
3) TRL 30 with 2-chamber design

4) Special size TRCF.85.240.0 with 240 degree bend radius and a range of accessories

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

*The delivery times indicated correspond to the average time until the ordered goods are dispatched.

triflex® R | Selection table

Series	Inner height Bi1 [mm]	Inner height Bi2 [mm]	≤ ø cable d1 [mm]	≤ ø cable d2 [mm]	Outer width Ba [mm]	Bend radius R [mm]	Pitch [mm]	Links per m	Page
	**Series TRL - the "light" version with the "easy" design** easy to fill and cost-effective								
TRL.30[3]	12.5	11	10[1]	8[1]	34.5	50	11.3	89	**880**
TRL.40	15	–	13[1]	–	45	58	13.9	72	**880**
TRL.60	23	–	20.5[1]	–	65	87	20.4	49	**880**
TRL.70	28	–	26[1]	–	81	110	25.6	39	**880**
TRL.100	38	–	35.5[1]	–	108	145	34.5	29	**880**
	**Series TRLF - light version with snap lock mechanism** lightweight and cost-effective								
TRLF.65	24.4	–	22	–	70.2	100	23.1	44	**882**
TRLF.85	32.8	–	30	–	94.5	135	30.6	33	**882**
TRLF.100	37.5	–	35.5	–	108	145	34.4	29	**882**
TRLF.125	46.8	–	44.5	–	135	182	44.1	23	**882**

triflex® R | Retraction system overview

Series	System	For triflex® R e-chains®	For ø Index [mm]	Page
	**RSP -** pneumatic retraction system	**TRC·TRE·TRCF**	60 - 125	**908**
	**RS -** modular retraction system	**TRC·TRE**	40 - 100	**914**
	**RSE linear -** cost-effective retraction system, linear	**TRC·TRE·TRCF**	40 - 125	**920**
	**RSE -** cost-effective retraction system, for small robots	**TRC·TRE**	40 - 50	**926**

Technical data

Speed / acceleration	upon request
Material - permitted temperature °C, igumid G (TRLF/TRCF)	**-40°C / +120°C**
Material - permitted temperature °C, igumid NB (TRC/TRE/TRL)	**-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.eu/triflex_B_disassemblytool

Assembly video available online at

▶ www.igus.eu/triflexR_assembly

For series TRE.B	Part No. 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 TRE.B	Part No. 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

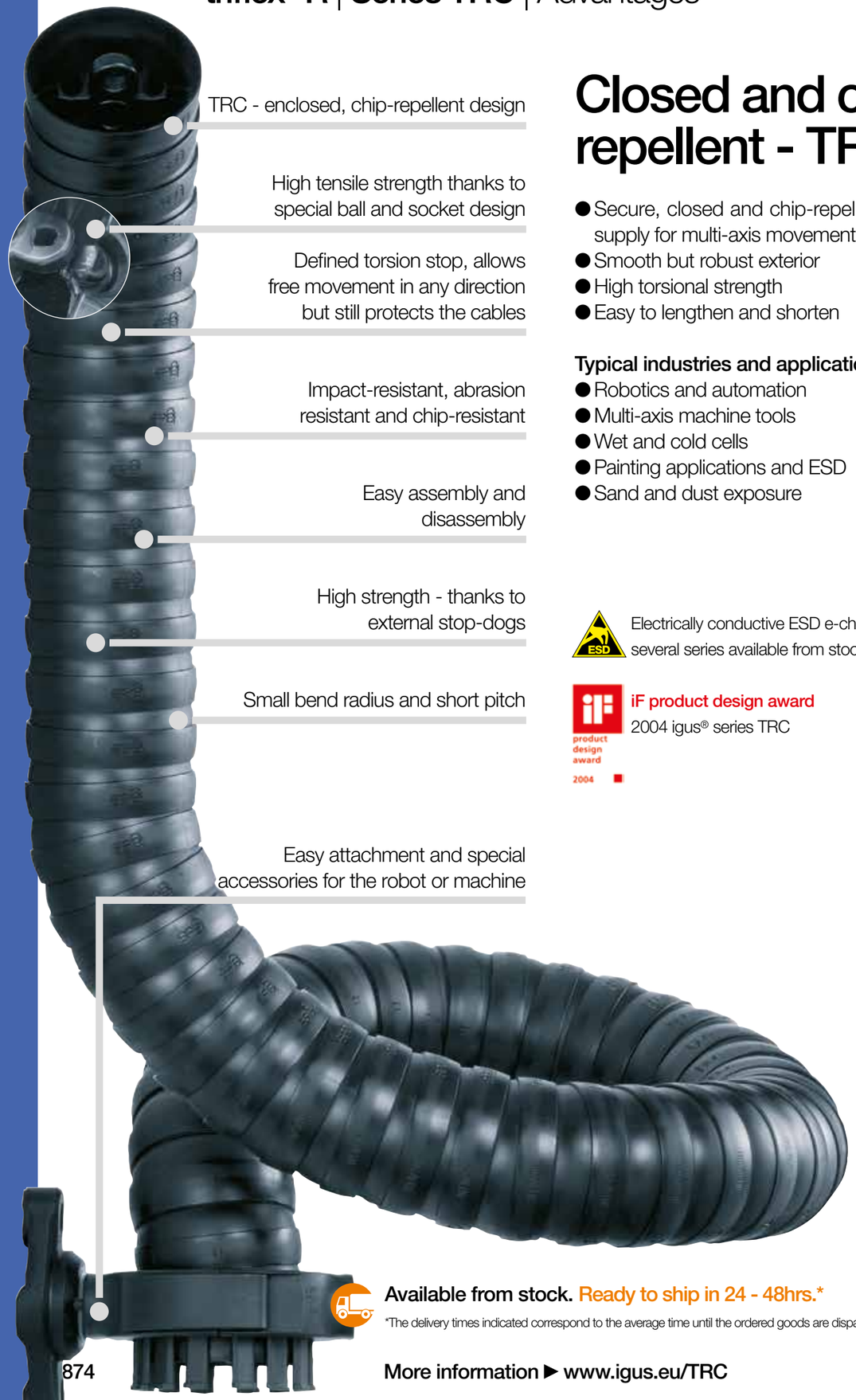
igus® triflex® R TRCF - closed version, openable with a screwdriver

triflex® RS for a low profile retraction system.. Integrated fibre 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

triflex® TR.RSE.40.L or R, cost-effective and lightweight retraction system with guide roller, for small robots

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



TRC - enclosed, chip-repellent design

High tensile strength thanks to special ball and socket design

Defined torsion stop, allows free movement in any direction but still protects the cables

Impact-resistant, abrasion resistant and chip-resistant

Easy assembly and disassembly

High strength - thanks to external stop-dogs

Small bend radius and short pitch

Easy attachment and special accessories for the robot or machine

Closed and chip-repellent - TRC

- 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 from stock

iF product design award
2004 igus® series TRC

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

*The delivery times indicated correspond to the average time until the ordered goods are dispatched.

More information ▶ www.igus.eu/TRC

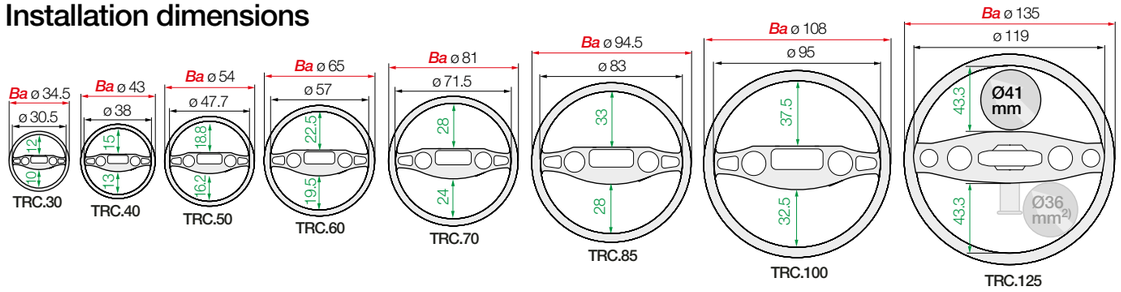
e-tubes | Series TRC | Totally enclosed, non-openable

Part No. e-tubes	Bi1 [mm]	Bi2 [mm]	Ba [mm]	R [mm]	d1 [mm]	d2 [mm]	Pitch [mm]	Links per m	Weight [kg/m]
TRC. 30. 050 .0	12	10	34.5	050	10	8	11.3	89	≈ 0.27
TRC. 40. 058 .0[1]	15	13	43	058	13	11	13.9	72	≈ 0.37
TRC. 50. 080 .0	18.8	16.2	54	080	16.5	14	17.4	58	≈ 0.59
TRC. 60. 087 .0[1]	22.5	19.5	65	087	20.5	17.5	20.4	49	≈ 0.85
TRC. 70. 110 .0[1]	28	24	81	110	26	22	25.6	39	≈ 1.32
TRC. 85. 135 .0	33	28	94.5	135	31	26	30.6	33	≈ 1.75
TRC. 100.145 .0	37.5	32.5	108	145	35.5	30.5	34.5	29	≈ 2.38
TRC. 125.182 .0	43.3	43.3	135	182	41	41[2]	44.6	23	≈ 4.70

1) Available as ESD version from stock

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

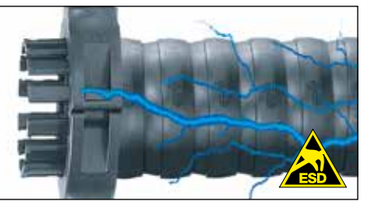
Installation dimensions



ESD - many sizes from stock

- Standardised product made from igumid ESD
- ESD material tested with over 10 million cycles for the toughest requirements
- Short delivery times including mounting brackets and interior separation; 24hrs, from stock

More information ▶ www.igus.eu/esd



TRE - "easy" design - simply press cables in

High tensile strength thanks to special ball and socket design

Defined torsion stop, allows free movement in any direction 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

Small bend radius and short pitch

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 torsional strength
- Easy to shorten and lengthen.
- **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 needed

Electrically conductive ESD e-chains® 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.*

*The delivery times indicated correspond to the average time until the ordered goods are dispatched.

More information ▶ www.igus.eu/TRE

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

Part No. e-chains®	Bi1 [mm]	Bi2 [mm]	Ba [mm]	R [mm]	d1 2) [mm]	d2 2) [mm]	Pitch [mm]	Links per m	Weight [kg/m]
TRE.30.050.0	12	10	34.5	050	10	8	11.3	89	≈ 0.26
TRE.40.058.0.B	15	13	43	058	13	11	13.9	72	≈ 0.36
TRE.50.080.0.B	18.8	16.2	54	080	16.5	14	17.4	58	≈ 0.56
TRE.60.087.0.B	22.5	19.5	65	087	20.5	17.5	20.4	49	≈ 0.83
TRE.70.110.0.B	28	24	81	110	26	22	25.6	39	≈ 1.30
TRE.85.135.0.B	33	28	94.5	135	31	26	30.6	33	≈ 1.67
TRE.100.145.0.B / C1)	37.5	32.5	108	145	35.5	30.5	34.5	29	≈ 2.35
TRE.125.182.0	43.3	43.3	135	182	41	41 3)	44.6	23	≈ 4.40

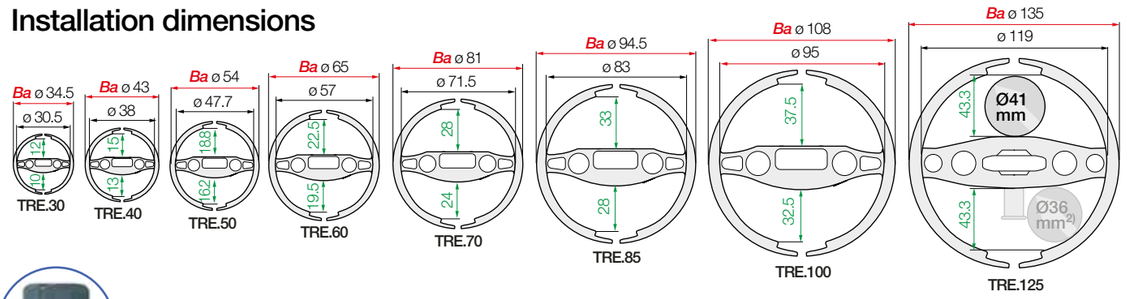
B-Series = 4-x higher torsion forces **C-Series** = quick assembly, 50% higher forces

1) Available as **C-Version** Part No. **TRE.100.145.0.C**

2) For quick and easy fitting or removal of cables using the "easy" design, we recommend a maximum cable diameter of 70% of the specified value

3) TRE 125: max. cable diameter Ø 41mm. Max. cable diameter changes to Ø 36mm when an already populated e-chain needs to be shortened or lengthened TRE.LOCK

Installation dimensions

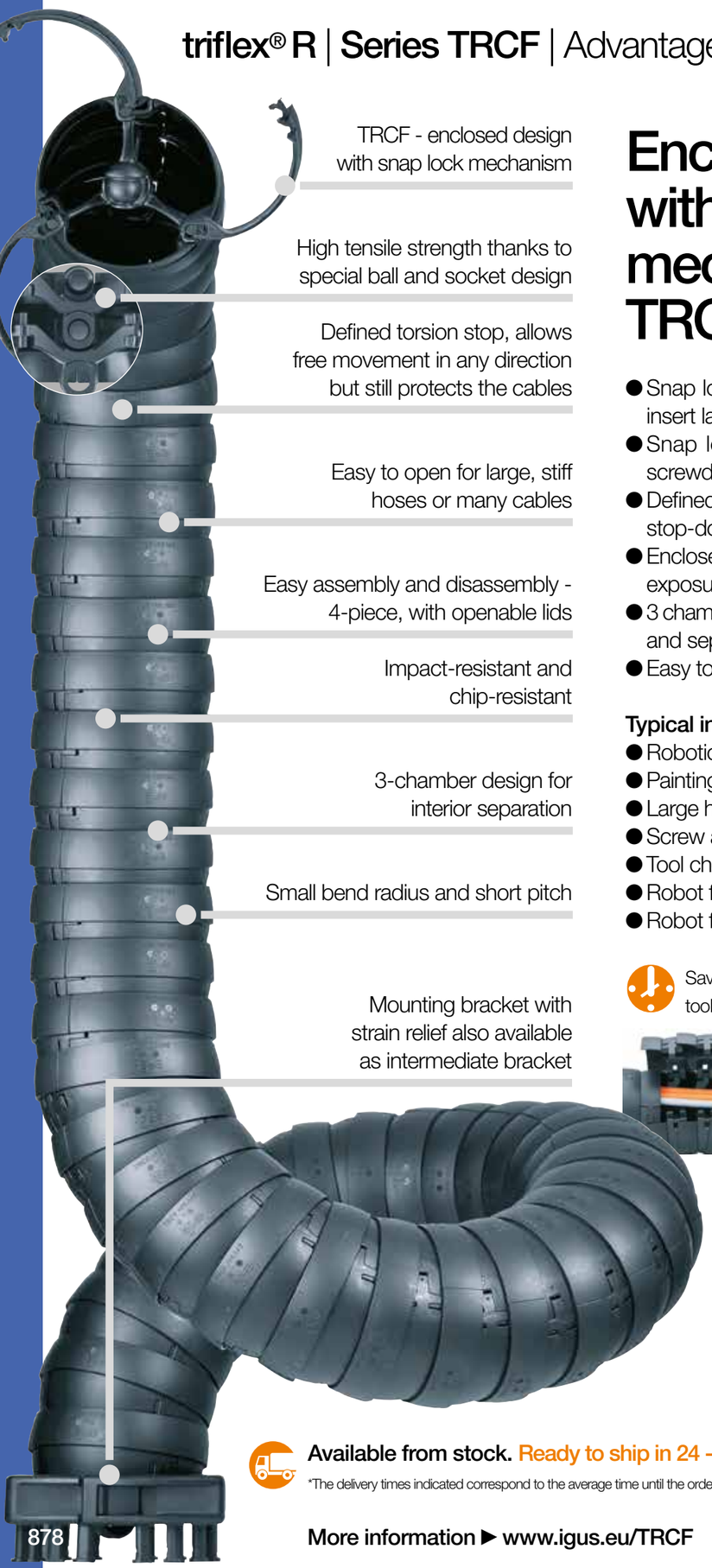


TRE.LOCK clips

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]
TRE.30/40.LOCK	30/40
TRE.50.LOCK	50
TRE.60.LOCK	60

Part No. as an individual part	Size [mm]
TRE.70.LOCK	70/85
TRE.100.LOCK	100
TRE.125.LOCK	125



Enclosed design with snap lock mechanism - TRCF

- 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
- Easy to lengthen and shorten

Typical industries and applications

- Robotics and automation
- Painting applications
- Large hydraulic hoses
- Screw and rivet feeds
- Tool changer applications
- Robot for laser welding
- Robot for screw and rivet applications

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.*

*The delivery times indicated correspond to the average time until the ordered goods are dispatched.

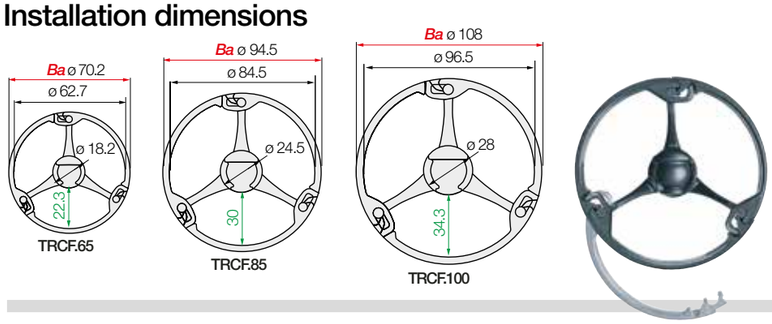
More information ▶ www.igus.eu/TRCF

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

Part No. e-tubes	Bi1 [mm]	Ba [mm]	R [mm]	d1 [mm]	Pitch [mm]	Links per m	Weight [kg/m]
TRCF.65.100.0	22.3	70.2	100	20	23.1	44	≈ 1.10
TRCF.85.135.0	30	94.5	135	28	30.6	33	≈ 2.10
TRCF.85.240.0[1)]	30	94.5	240	28	30.6	33	≈ 2.10
TRCF.100.145.0	34.3	108	145	32	34.5	29	≈ 2.70

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

Installation dimensions

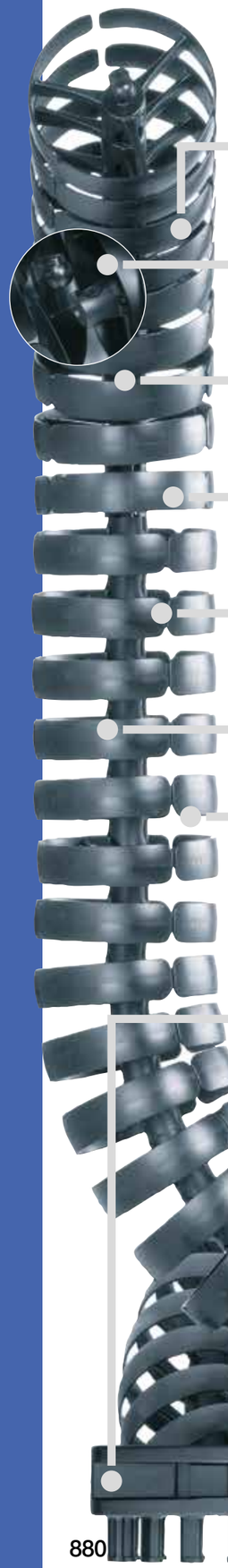


Snap lock mechanism for fast opening, video online
▶ **www.igus.eu/TRLFlip**

Special size TRCF.85.240.0 with 240mm bend radius and a special range of accessories

- For secure guidance of laser light cables on robots
- The large bend radius (*R* 240mm) increases the service life of the laser light cable by preventing kinking

More information ▶ www.igus.eu/TRCF



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

High tensile strength thanks to special ball and socket design

Defined torsion stop, allows free movement in any direction 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

Small bend radius and short pitch

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

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

*The delivery times indicated correspond to the average time until the ordered goods are dispatched.

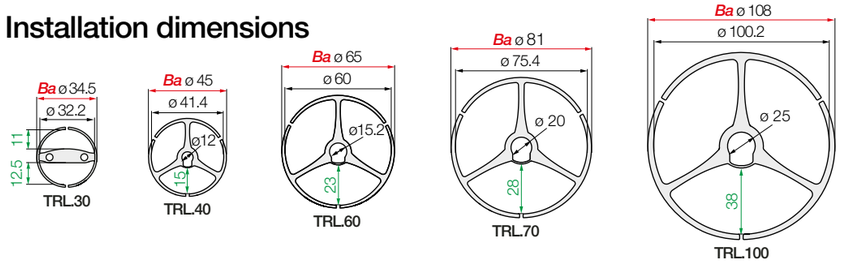
e-chains® | TRL series | Light version with "easy" design - simply press cables in

Part No. e-chains®	Bi1 [mm]	Bi2 [mm]	Ba [mm]	R [mm]	d1 2) [mm]	d2 2) [mm]	Pitch [mm]	Links per m	Weight [kg/m]
TRL.30. 050 .0 1)	12.5	11	34.5	050	10	8	11.3	89	≈ 0.26
TRL.40. 058 .0	15	–	45	058	13	–	13.9	72	≈ 0.29
TRL.60. 087 .0	23	–	65	087	20.5	–	20.4	49	≈ 0.49
TRL.70. 110 .0	28	–	81	110	26	–	25.6	39	≈ 0.82
TRL.100. 145 .0	38	–	108	145	35.5	–	34.5	29	≈ 1.42

1) Only available with 2-chamber design

2) For quick and easy fitting or removal of cables using the "easy" design, we recommend a maximum cable diameter of 70% of the specified value

Installation dimensions



TRLF - light and cost-effective with snap lock mechanism

High tensile strength thanks to special ball and socket design

Defined torsion stop, allows free movement in any direction but still protects the cables

Easy to open for large, stiff hoses or many cables

Easy assembly and disassembly

3-chamber design for interior separation

Small bend radius and short pitch

Lightweight mounting bracket available with strain relief or as intermediate bracket

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!

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

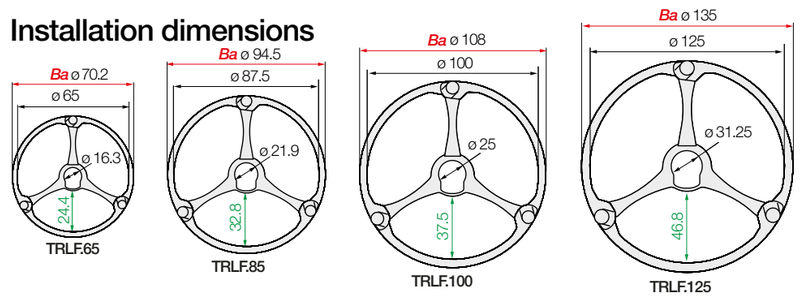
*The delivery times indicated correspond to the average time until the ordered goods are dispatched.

More information ▶ www.igus.eu/TRLF

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

Part No. e-chains®	Bi1 [mm]	Ba [mm]	R [mm]	d1 [mm]	Pitch [mm]	Links per m	[kg/m]
TRLF. 65. 100 .0	24.4	70.2	100	22	23.1	44	≈ 0.79
TRLF. 85. 135 .0	32.8	94.5	135	30	30.6	33	≈ 1.45
TRLF. 100. 145 .0	37.5	108	145	35.5	34.5	29	≈ 1.90
TRLF. 125. 182 .0	46.8	135	182	44.5	44.1	23	≈ 4.13

Installation dimensions

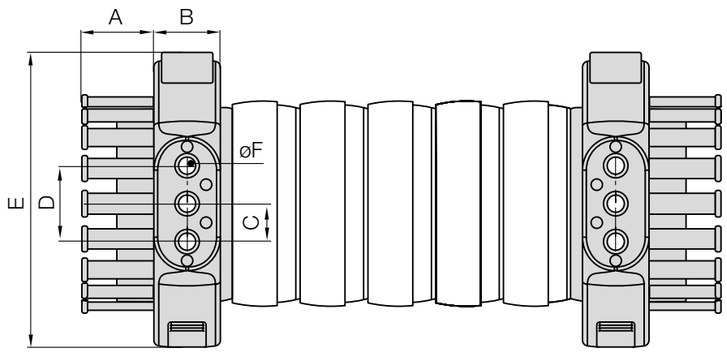


Snap lock mechanism for fast opening, video online
▶ www.igus.eu/TRLF

triflex® R | TRC·TRE·TRCF·TRL·TRLF | Accessories

Standard mounting brackets | **With** strain relief

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 [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]
30.	▶	Alternative: light mounting bracket	–	–	–	–	–	–
40.	▶	**TR.40.01**.M6 1) 2)	17.8	21	13.5	27	84.5	6.5
50.	▶	**TR.50.01**.M6 1)	21	21	13.5	27	84.5	6.5
60.	▶	**TR.60.01**.M8 1) 2)	25	32	20	40	126	9
65.	▶	TR.65.01.M8 1) 5)	25	32	20	40	126	9
70.	▶	**TR.70.01**.M8 1) 2)	25	32	20	40	126	9
85.	▶	**TR.85.01**.M8 1)	38	35	20	40	155	9
85. (*R 240*)	▶	**TR.85.240.01**.M8 1) 4)	38	35	20	40	155	9
100.	▶	**TR.100.01**.M8 1)	38	35	20	40	155	9
125.	▶	Alternative: standard mounting bracket without strain relief						

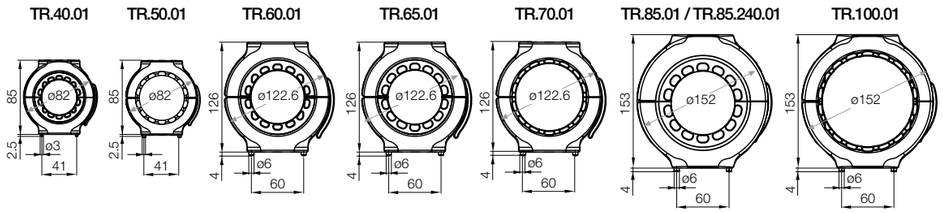
Strain reliefs are for use on the fixed end and/or moving end.

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

2) ⚠ Available as ESD version from stock

4) Only for special size TRCF.85.240.0 with 240 degree bend radius 5) Available for delivery upon request. Please consult igus® for delivery time.

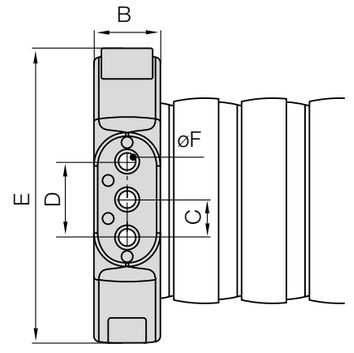
TR.40.01 TR.50.01 TR.60.01 TR.65.01 TR.70.01 TR.85.01 / TR.85.240.01 TR.100.01



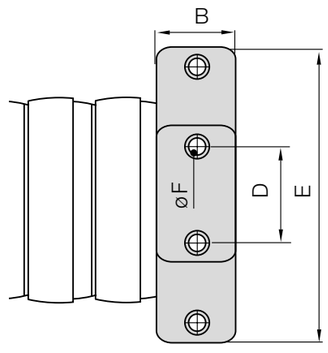
triflex® R | TRC·TRE·TRCF·TRL·TRLF | Accessories

Standard mounting brackets | **Without** strain relief

Without strain relief, only for
TR.40.02 - TR.100.02



Without strain relief, only for
TR.125.02



- Recommended for TRC/TRE/TRCF, also compatible with TRL/TRLF
- Standard fixation onto the machine/ robot, without strain relief
- Can also serve as intermediate bracket

Standard mounting brackets | Without strain relief

TR.40.02 - TR.100.02

TR.125.02

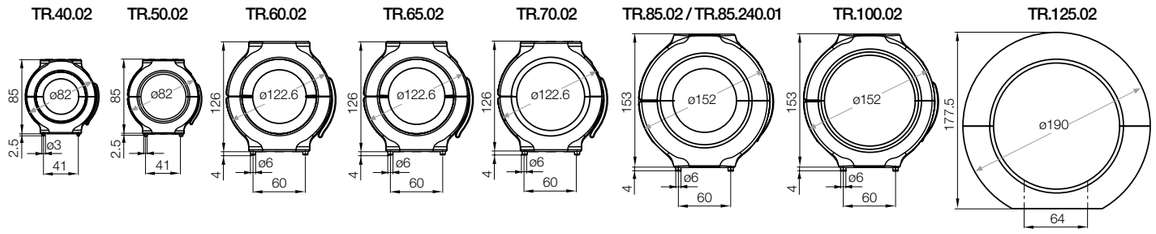
Ø Index		Part No. **without** strain relief or as intermediate bracket	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]
30.	▶	Alternative: light mounting bracket	–	–	–	–	–	–
40.	▶	**TR.40.02**.M6 1)	–	21	13.5	27	84.5	6.5
50.	▶	**TR.50.02**.M6 1)	–	21	13.5	27	84.5	6.5
60.	▶	**TR.60.02**.M8 1))	–	32	20	40	126	9
65.	▶	**TR.65.02**.M8 1)	–	32	20	40	126	9
70.	▶	**TR.70.02**.M8 1)	–	32	20	40	126	9
85.	▶	**TR.85.02**.M8 1)	–	35	20	40	155	9
85. (*R 240*)	▶	**TR.85.240.02**.M8 1) 4)	–	35	20	40	155	9
100.	▶	**TR.100.02**.M8 1)	–	35	20	40	155	9
125.	▶	**TR.125.02**.M8 1)	–	40	–	64	190	9

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

2) ⚠ Available as ESD version from stock

4) Only for special size TRCF.85.240.0 with 240 degree bend radius

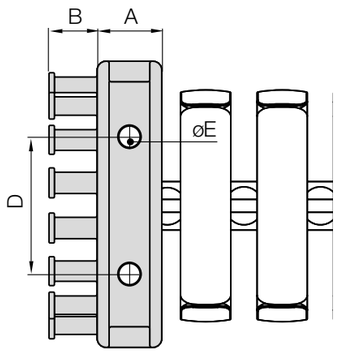
TR.40.02 TR.50.02 TR.60.02 TR.65.02 TR.70.02 TR.85.02 / TR.85.240.01 TR.100.02 TR.125.02



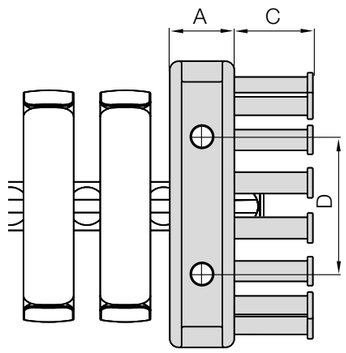
triflex® R | TRC·TRE·TRCF·TRL·TRLF | Accessories

Light mounting brackets | **With** strain relief

Short strain relief
TL.30.01.Z1 - TL.100.01.Z1



Long strain relief
TL.40.01.Z2 - TL.100.01.Z2



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

Light mounting brackets | With strain relief

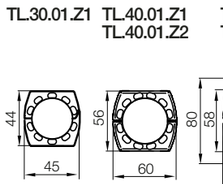
TL.30.01.Z1 - TL.100.01.Z1

TL.40.01.Z2 - TL.100.01.Z2

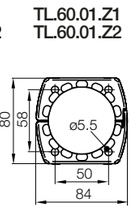
Ø Index		Part No. with **short** strain relief	Part No. with **long** strain relief	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
30.	▶	**TL.30.01.Z1**	–	13	12.5	–	24	4.5
40.	▶	**TL.40.01.Z1** [1]	**TL.40.01.Z2**	14	12.5	20	36	5.8
50.	▶	Alternative: standard mounting bracket		–	–	–	–	–
60.	▶	**TL.60.01.Z1** [1]	**TL.60.01.Z2**	20	17	27	48	5.8
65.	▶	**TL.65.01.Z1** [1]	–	27	13.5	–	64	6.5
70.	▶	**TL.70.01.Z1** [1]	**TL.70.01.Z2**	27	17.5	27.5	64	6.5
85.	▶	**TL.85.01.Z1**	–	30	26.5	–	64	6.5
85. (*R 240*)	▶	Alternative: standard mounting bracket		–	–	–	–	–
100.	▶	**TL.100.01.Z1** [1]	**TL.100.01.Z2**	30	22.5	42.5	64	6.5
125.	▶	Alternative: standard mounting bracket		–	–	–	–	–

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

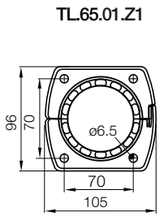
TL.30.01.Z1 TL.40.01.Z1 TL.40.01.Z2



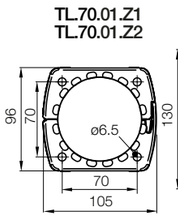
TL.60.01.Z1 TL.60.01.Z2



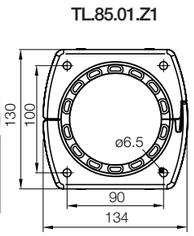
TL.65.01.Z1



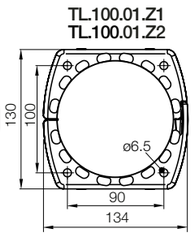
TL.70.01.Z1 TL.70.01.Z2



TL.85.01.Z1



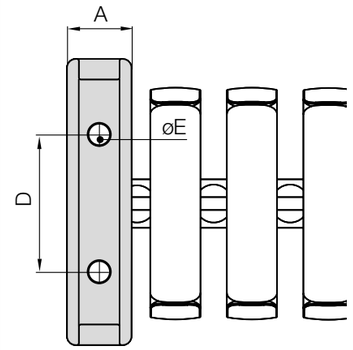
TL.100.01.Z1 TL.100.01.Z2



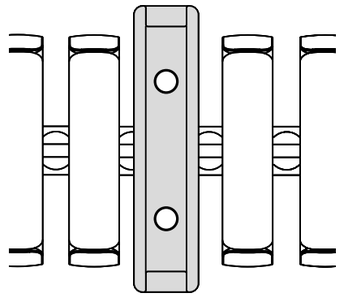
triflex® R | TRC·TRE·TRCF·TRL·TRLF | Accessories

Light mounting brackets | **Without** strain relief

Without strain relief
TL.30.01.Z0 - TL.100.01.Z0



Intermediate bracket
TL.30.01.Z0 - TL.100.01.Z0



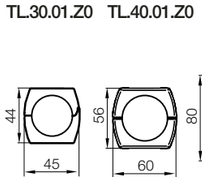
- Recommended for TRL/TRLF, also compatible with TRC/TRE/TRCF
- Light fixation onto the machine/robot, without strain relief
- Can also serve as intermediate bracket

Light mounting brackets | Without strain relief

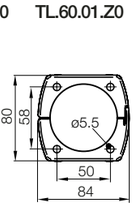
TL.30.01.Z0 - TL.100.01.Z0

Ø Index		Part No. **without** strain relief or as intermediate bracket	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
30.	▶	**TL.30.01.Z0**	13	–	–	24	4.5
40.	▶	**TL.40.01.Z0**	14	–	–	36	5.8
50.	▶	Alternative: standard mounting bracket	–	–	–	–	–
60.	▶	**TL.60.01.Z0**	20	–	–	48	5.8
65.	▶	**TL.65.01.Z0**	27	–	–	64	6.5
70.	▶	**TL.70.01.Z0**	27	–	–	64	6.5
85.	▶	**TL.85.01.Z0**	30	–	–	64	6.5
85. (*R 240*)	▶	Alternative: standard mounting bracket	–	–	–	–	–
100.	▶	**TL.100.01.Z0**	30	–	–	64	6.5
125.	▶	Alternative: standard mounting bracket	–	–	–	–	–

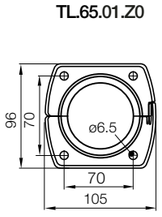
TL.30.01.Z0 TL.40.01.Z0



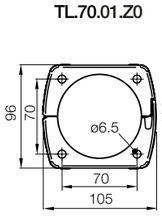
TL.60.01.Z0



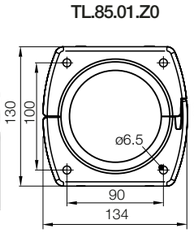
TL.65.01.Z0



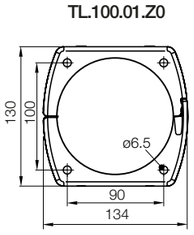
TL.70.01.Z0



TL.85.01.Z0



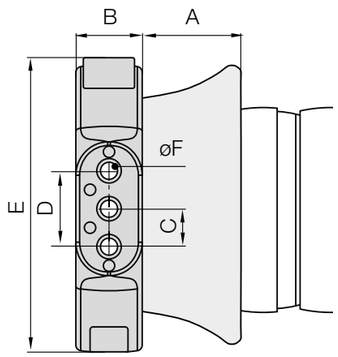
TL.100.01.Z0



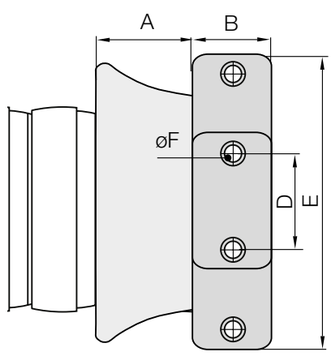
triflex® R | Series TRC·TRE·TRCF·TRL·TRLF | Accessories

Mounting brackets | With radius support

Mounting bracket with radius support, only for TR.40.09 - TR.100.09



Mounting bracket with radius support, only for TR.125.09



- The triflex® R radius support for triflex® R energy supply at the most highly stressed points (axis 6)
- Provides higher operational reliability for robotic applications

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

TR.40.09 - TR.100.09

TR.125.09

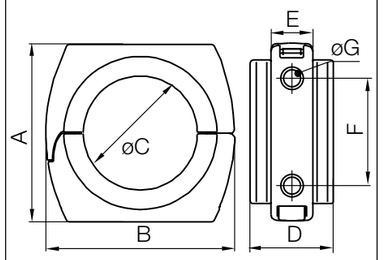
Ø Index		Part No. with radius support	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]
30.	▶	–	–	–	–	–	–	–
40.	▶	**TR.40.09**.M6 1)	28	21	13.5	27	84.5	6.5
50.	▶	**TR.50.09**.M6 1)	38	21	13.5	27	84.5	6.5
60.	▶	**TR.60.09**.M8 1)	38	32	20	40	126	9
65.	▶	**TR.65.09**.M8 1)	45	32	20	40	126	9
70.	▶	**TR.70.09**.M8 1)	43	32	20	40	126	9
85.	▶	**TR.85.09**.M8 1)	49	35	20	40	155	9
85. (*R 240*)	▶	–	–	–	–	–	–	–
100.	▶	**TR.100.09**.M8 1)	67	35	20	40	155	9
125.	▶	**TR.125.09**.M8 1)	72	40	–	64	190	9

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

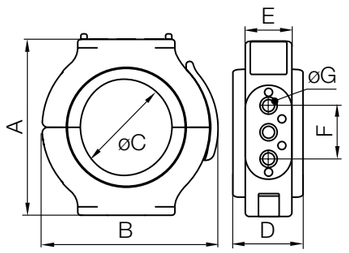
triflex® R | Series TRC·TRE·TRCF | Accessories

Gliding feed-throughs

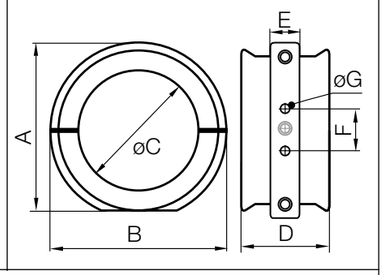
Gliding feed-through, only for TL.30.05



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 892

Gliding feed-through | For TRC·TRE·TRCF

TL.30.05

TR.40.05 + TR.60-85.05

TR.50.05 + TR.100.05 - TR.125.05

Ø Index		Part No. gliding feed-through	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]
30.	▶	**TL.30.05**	56	60	36	28	14	36	5.8
40.	▶	**TR.40.05**.M6 1)	85	84.5	46	32	21	27	6.5
50.	▶	**TR.50.05**.M6 1)	96	102	58	67	21	27	6.5
60.	▶	**TR.60.05**.M8 1)	126	126	70	50	32	40	9
65.	▶	**TR.65.05**.M8 1)	126	126	75	75	32	40	9
70.	▶	**TR.70.05**.M8 1)	153	155	86	70	35	40	9
85.	▶	**TR.85.05**.M8 1)	153	155	100	84	35	40	9
85. (*R 240*)	▶	**TR.85.05**.M8 1)	153	155	100	84	35	40	9
100.	▶	**TR.100.05**.M8 1) *	162.5	169.5	115	85	28	40	8.5
125.	▶	**TR.125.05**.M8 1)	179	190	142	84	40	64	9

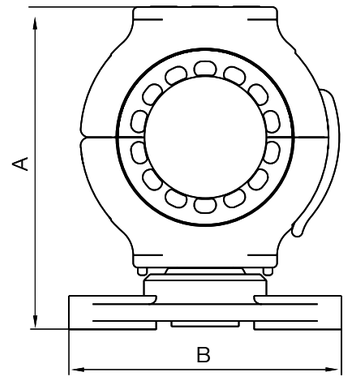
*TR.100.05 with 3 holes

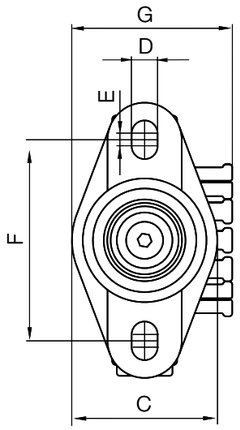
Standard: through holes in Ø G 1) Option: with insert nuts, steel, M6/M8

triflex® R | Series TRC·TRE·TRCF·TRL·TRLF | Accessories

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

With integrated strain relief tiewrap plates
TR.40.03 - 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 [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]
30.	–	–	–	–	–	–	–	–
40.	**TR.40.03**	105	89	47	8.4	4.1	65	51.8
50.	**TR.50.03**	105	89	47	8.4	4.1	65	55
60.	**TR.60.03**	152	118	65	10.5	5.5	87.5	73.5
65.	TR.65.03 [5]	152	118	65	10.5	5.5	87.5	73.5
70.	**TR.70.03**	152	118	65	10.5	5.5	87.5	73.5
85.	**TR.85.03**	179	118	65	10.5	5.5	87.5	88
85. (*R 240*)	**TR.85.240.03** [4]	179	118	65	10.5	5.5	87.5	88
100.	**TR.100.03**	179	118	65	10.5	5.5	87.5	88
125.	–	–	–	–	–	–	–	–

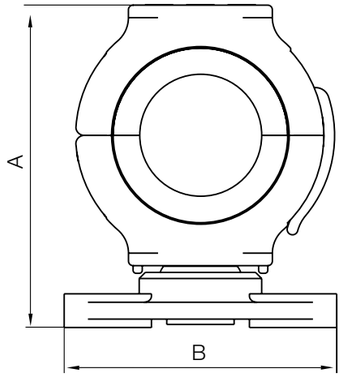
4) Only for special size TRCF.85.240.0 with 240 degree bend radius

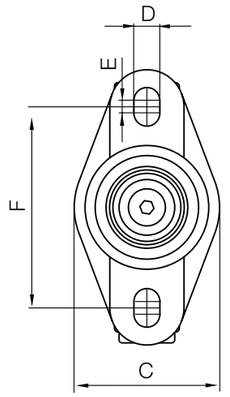
5) Available upon request. Please consult igus® for delivery time.

triflex® R | Series TRC·TRE·TRCF | Accessories

Swivel bearing-mounting bracket | **Without** strain relief

Without strain relief
TR.40.04 - 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

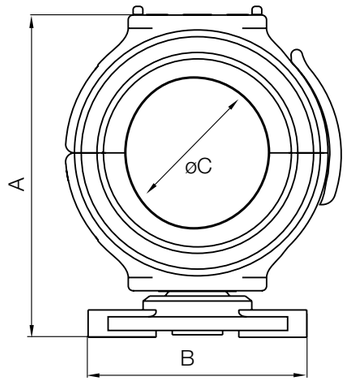
Ø Index	Part No. **without** strain relief	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]
30.	–	–	–	–	–	–	–	–
40.	**TR.40.04**	105	89	47	8.4	4.1	65	–
50.	**TR.50.04**	105	89	47	8.4	4.1	65	–
60.	**TR.60.04**	152	118	65	10.5	5.5	87.5	–
65.	**TR.65.04**	152	118	65	10.5	5.5	87.5	–
70.	**TR.70.04**	152	118	65	10.5	5.5	87.5	–
85.	**TR.85.04**	179	118	65	10.5	5.5	87.5	–
85. (*R 240*)	**TR.85.240.04** [4]	179	118	65	10.5	5.5	87.5	–
100.	**TR.100.04**	179	118	65	10.5	5.5	87.5	–
125.	–	–	–	–	–	–	–	–

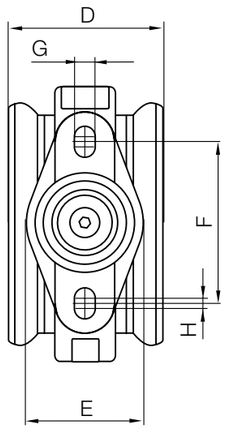
4) Only for special size TRCF.85.240.0 with 240 degree bend radius

triflex® R | Series TRC·TRE·TRCF | Accessories

Swivel bearing gliding feed-throughs

Swivel bearing gliding feed-throughs
TR.40.07 - 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

TR.40.07 - TR.85.07

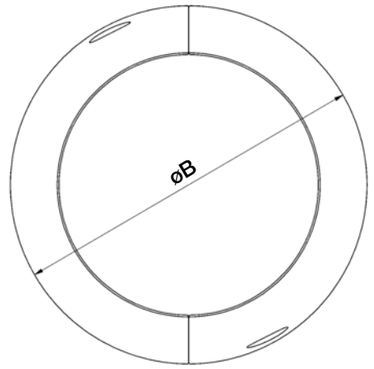
Ø Index	Part No. **with** swivel bearing	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]
30.	–	–	–	–	–	–	–	–
40.	**TR.40.07**	108	89	46	32	47	65	8.4
50.	**TR.50.07**	119	89	58	67	47	65	8.4
60.	**TR.60.07**	156	118	70	50	65	87.5	10.5
65.	**TR.65.07**	156	118	75	75	65	87.5	10.5
70.	**TR.70.07**	183	118	86	70	65	87.5	10.5
85.	**TR.85.07**	183	118	100	84	65	87.5	10.5
85. (*R 240*)	**TR.85.07** 4)	183	118	100	84	65	87.5	10.5
100.	–	–	–	–	–	–	–	–
125.	–	–	–	–	–	–	–	–

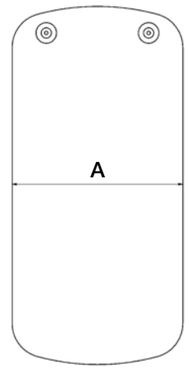
4) Only for special size TRCF.85.240.0 with 240 degree bend radius

triflex® R | Series TRC·TRE·TRCF | Accessories

Protectors

Protectors
TR.XX.10 / 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 - TR.125.10

TR.40.30 - TR.100.30

Ø Index	Part No. with screw connection	Part No. with quick release	A [mm]	B [mm]
30.	–	–	–	–
40.	**TR.40.10**	**TR.40.30** 2)	27	55
50.	**TR.50.10**	TR.50.30 1)	34	69
60.	**TR.60.10**	**TR.60.30** 2)	40	80
65.	**TR.65.10**	TR.65.30 1)	44	88
70.	**TR.70.10**	**TR.70.30**	50	102
85.	**TR.85.10**	**TR.85.30**	59	118
85. (*R 240*)	**TR.85.240.10** 4)	TR.85.240.30 1) 4)	63	120
100.	**TR.100.10**	**TR.100.30**	67	133
125.	**TR.125.10**	–	82	170

1) Available upon request. Delivery time upon request

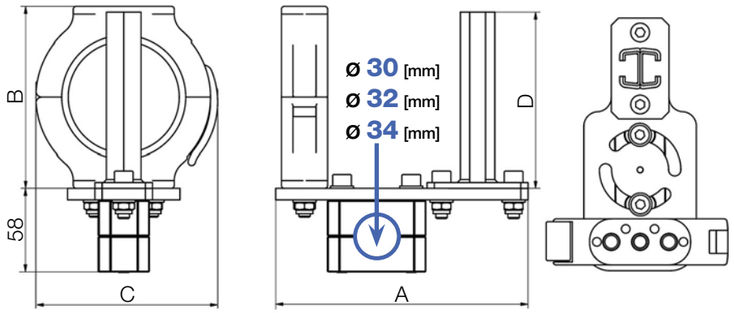
2) TR.40.30, TR.60.30 without an additional locking clip

4) Only for special size TRCF.85.240.0 with 240 degree bend radius

triflex® R | Series TRC·TRE·TRCF | Accessories

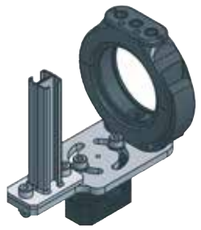
Heavy duty connections, for axis 6

Heavy duty connection Standard
TR.60.20.XX - 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 - TR.125.20.XX

Ø Index		Part No. standard	Clamp ø [mm]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
30.	▶	–	–	–	–	–	–	–
40.	▶	–	–	–	–	–	–	–
50.	▶	–	–	–	–	–	–	–
60.	▶	**TR.60.20.**	| **30** | **32** | **34** |	175	126	126	122	–
65.	▶	**TR.65.20.**	| **30** | **32** | **34** |	175	126	126	122	–
70.	▶	**TR.70.20.**	| **30** | **32** | **34** |	175	126	126	122	–
85.	▶	**TR.85.20.**	| **30** | **32** | **34** |	175	153	155	149	–
85. (*R 240*)	▶	**TR.85.240.20.** [4]	| **30** | **32** | **34** |	175	153	155	149	–
100.	▶	**TR.100.20.**	| **30** | **32** | **34** |	175	153	155	149	–
125.	▶	**TR.125.20.**	| **30** | **32** | **34** |	180	190	190	175	–

Standard clamp for axis 6: ø 30mm

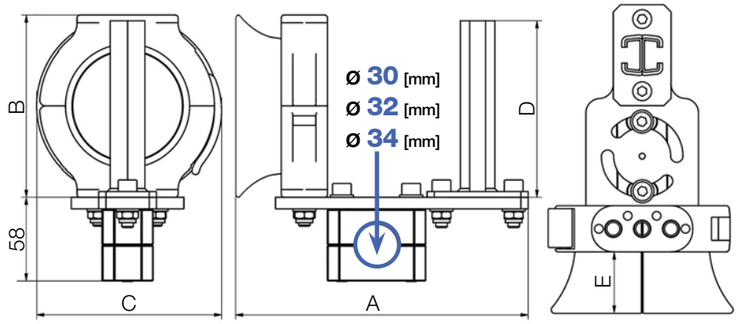
4) Only for special size TRCF.85.240.0 with 240 degree bend radius

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

triflex® R | Series TRC·TRE·TRCF | Accessories

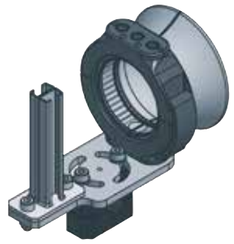
Heavy duty connections for axis 6 | With radius support

Heavy duty connection - with radius support
TR.60.23.XX - 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

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



TR.60.23.XX - TR.125.23.XX

Ø Index		Part No. with radius support	Clamp ø [mm]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
30.	▶	–	–	–	–	–	–	–
40.	▶	–	–	–	–	–	–	–
50.	▶	–	–	–	–	–	–	–
60.	▶	**TR.60.23.**	| **30** | **32** | **34** |	209	126	130	122	38
65.	▶	**TR.65.23.**	| **30** | **32** | **34** |	214	126	130	122	45
70.	▶	**TR.70.23.**	| **30** | **32** | **34** |	214	126	130	122	43
85.	▶	**TR.85.23.**	| **30** | **32** | **34** |	222	155	155	149	49
85. (*R 240*)	▶	–	–	–	155	–	149	–
100.	▶	**TR.100.23.**	| **30** | **32** | **34** |	240	155	155	149	67
125.	▶	**TR.125.23.**	| **30** | **32** | **34** |	252	190	190	175	72

Standard clamp for axis 6: ø 30mm

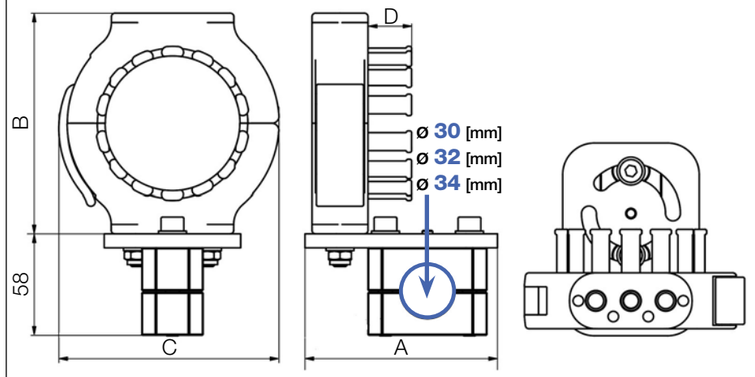
4) Only for special size TRCF.85.240.0 with 240 degree bend radius

Part No. with desired diameter for the axis 6 clamp | **30** | **32** | **34** | e.g. **TR.100.23.30**

triflex® R | Series TRC·TRE·TRCF | Accessories

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

Compact connection **with** strain relief
TR.40.21.01.**XX** - TR.100.21.01.**XX**



- With integrated strain relief tiewrap 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 - TR.100.21.01.XX

Ø Index	Part No. with strain relief	Clamp ø [mm]	A [mm]	B [mm]	C [mm]	D [mm]
30.	–	–	–	–	–	–
40.	**TR.40.21.01.**	| **30** | **32** | **34** |	110	85	84.5	17.8
50.	**TR.50.21.01.**	| **30** | **32** | **34** |	110	85	84.5	21
60.	**TR.60.21.01.**	| **30** | **32** | **34** |	110	126	126	25
65.	TR.65.21.01.[5]	| **30** | **32** | **34** |	110	126	126	25
70.	**TR.70.21.01.**	| **30** | **32** | **34** |	110	126	126	25
85.	**TR.85.21.01.**	| **30** | **32** | **34** |	110	153	155	38
85. (*R 240*)	**TR.85.240.21.01.**[4]	| **30** | **32** | **34** |	110	153	155	38
100.	**TR.100.21.01.**	| **30** | **32** | **34** |	110	153	155	38
125.	–	–	–	–	–	–

Standard clamp for axis 6: ø 30mm

4) Only for special size TRCF.85.240.0 with 240 degree bend radius

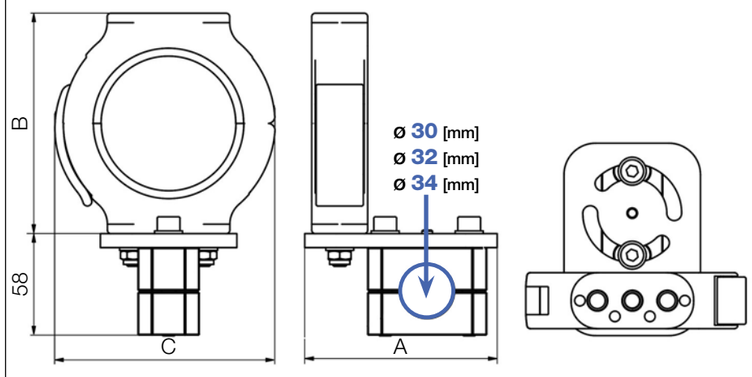
5) Available upon request. Please consult igus® for delivery time.

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

triflex® R | Series TRC·TRE·TRCF | Accessories

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

Compact connection **without** strain relief
TR.40.21.02.**XX** - 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 - TR.100.21.02.XX

Ø Index	Part No. without strain relief	Clamp ø [mm]	A [mm]	B [mm]	C [mm]	D [mm]
30.	–	–	–	–	–	–
40.	**TR.40.21.02.**	| **30** | **32** | **34** |	110	85	84.5	–
50.	**TR.50.21.02.**	| **30** | **32** | **34** |	110	85	84.5	–
60.	**TR.60.21.02.**	| **30** | **32** | **34** |	110	126	126	–
65.	**TR.65.21.02.**	| **30** | **32** | **34** |	110	126	126	–
70.	**TR.70.21.02.**	| **30** | **32** | **34** |	110	126	126	–
85.	**TR.85.21.02.**	| **30** | **32** | **34** |	110	153	155	–
85. (*R 240*)	**TR.85.240.21.02.**[4]	| **30** | **32** | **34** |	110	153	155	–
100.	**TR.100.21.02.**	| **30** | **32** | **34** |	110	153	155	–
125.	–	–	–	–	–	–

Standard clamp for axis 6: ø 30mm

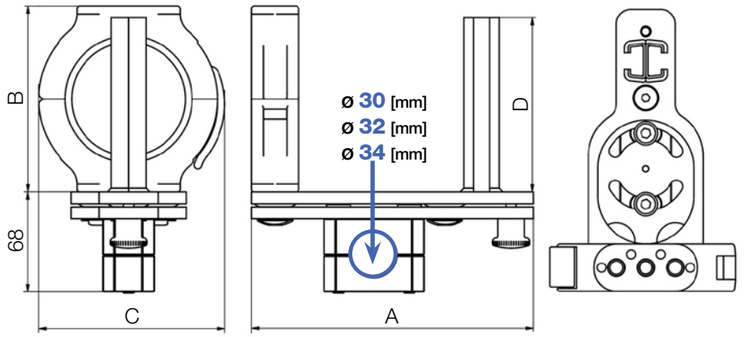
4) Only for special size TRCF.85.240.0 with 240 degree bend radius

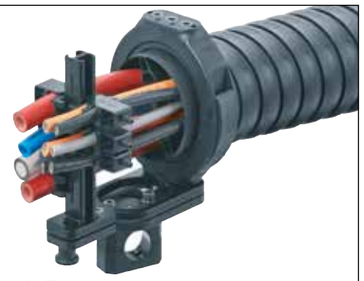
Part No. with desired diameter for the axis 6 clamp | **30** | **32** | **34** | e.g. **TR.100.21.02.30**

triflex® R | Series TRC·TRE·TRCF | Accessories

Quick exchange kit for clamp axis 6

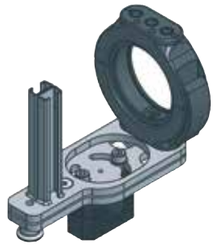
Quick exchange kit
TR.60.22.**XX** - TR.100.22.**XX**





- 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 - TR.100.22.XX

Ø Index	Part No. quick-change unit	Clamp ø [mm]	A [mm]	B [mm]	C [mm]	D [mm]
30.	–	–	–	–	–	–
40.	–	–	–	–	–	–
50.	–	–	–	–	–	–
60.	**TR.60.22.**	| **30** | **32** | **34** |	191	126	126	126
65.	**TR.65.22.**	| **30** | **32** | **34** |	191	126	126	126
70.	**TR.70.22.**	| **30** | **32** | **34** |	191	126	126	126
85.	**TR.85.22.**	| **30** | **32** | **34** |	191	153	155	153
85. (*R 240*)	**TR.85.240.22.** 4)	| **30** | **32** | **34** |	191	153	155	153
100.	**TR.100.22.**	| **30** | **32** | **34** |	191	153	155	153
125.	–	–	–	–	–	–

Standard clamp for axis 6: ø 30mm

4) Only for special size TRCF.85.240.0 with 240 degree bend radius

Part No. with desired diameter for the axis 6 clamp | **30** | **32** | **34** | e.g. **TR.100.22.30**

triflex® R | Clamps | Accessories

chainfix clamps

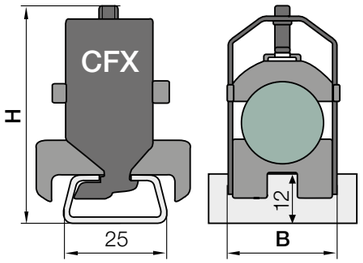
chainfix | Single clamp incl. bottom saddles

- 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 C-profile
- 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 galvanised steel) or stainless steel (material 1.4301/AISI 304) available

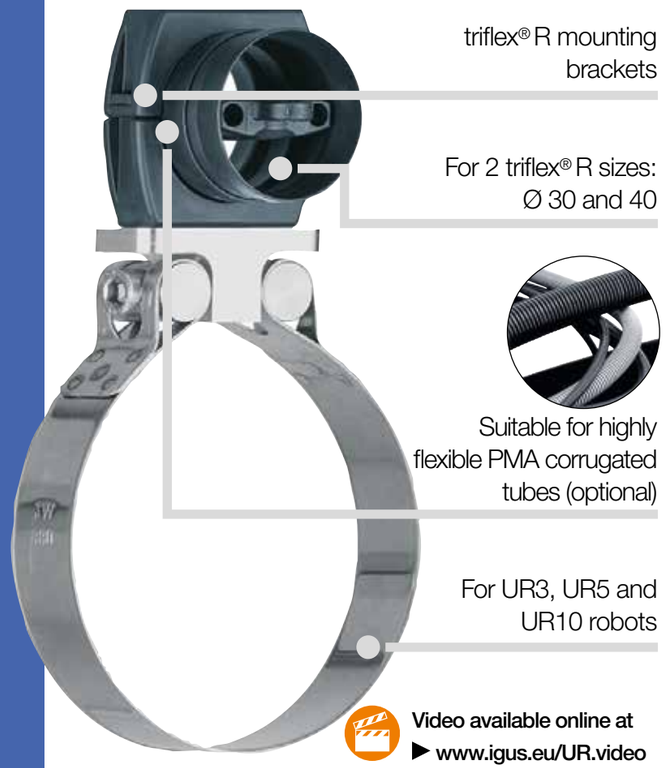
Part No. steel	Part No. stainless steel*	≤ Ø [mm]	B+2 [mm]	H [mm]
CFX12.1	CFX12.1.E	06 - 12	16	54
CFX14.1	CFX14.1.E	12 - 14	18	50
CFX16.1	CFX16.1.E	14 - 16	20	52
CFX18.1	CFX18.1.E	16 - 18	22	54
CFX20.1	CFX20.1.E	18 - 20	24	56

Part No. steel	Part No. stainless steel*	≤ Ø [mm]	B+2 [mm]	H [mm]
CFX22.1	CFX22.1.E	20 - 22	26	58
CFX26.1	CFX26.1.E	22 - 26	30	67
CFX30.1	CFX30.1.E	26 - 30	34	71
CFX34.1	CFX34.1.E	30 - 34	38	75

*Stainless steel material: 1.4301/AISI 304



Individual strain relief for every cable offers security and easy replacement



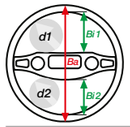
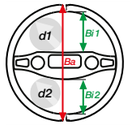
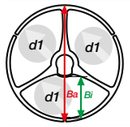
Video available online at
▶ www.igus.eu/UR.video

Mounting brackets for "Universal Robots" - UR brackets

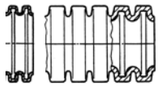
The "Universal Robots" company makes easy-to-use, lightweight robot systems. The triflex® R 30 and 40 sizes are a perfect fit for the UR3, UR5 and UR10 robot systems, both technically and visually. Connecting the system is quick and easy when using the UR brackets.

- Safe cable guidance with triflex® R for "universal robots"
- Easy connection with screw clips
- For UR3, UR5 and UR10 robots
- For TRC,TRE, TRL: Ø 30 and 40mm
- Suitable for PMA corrugated tube I-PIST-29B (optional)

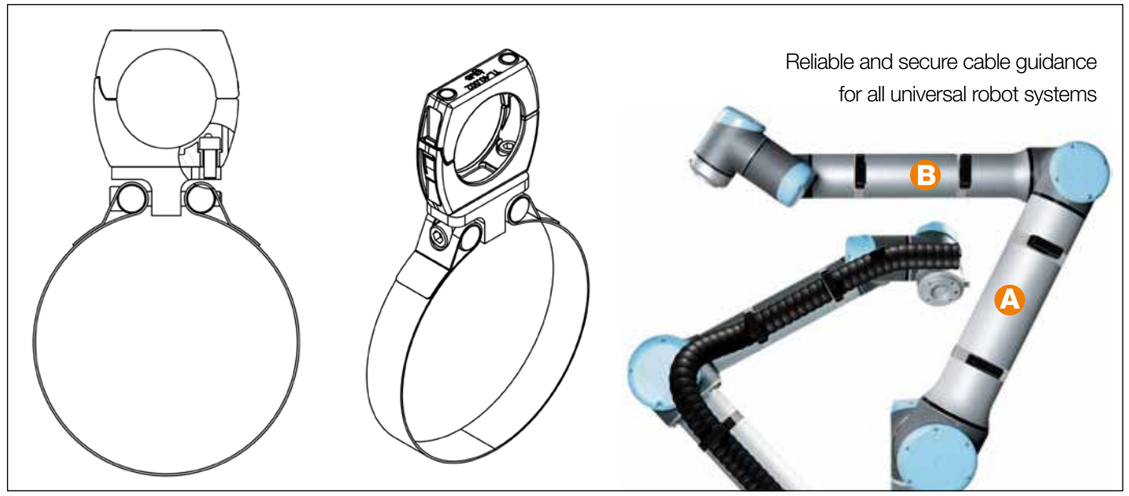
Overview triflex® R e-chains® | For TRC·TRE·TRL

Principle sketch	Part No. series	*Bi1* [mm]	*Bi2* [mm]	*Ba* [mm]	*R* [mm]	*d1* [mm]	*d2* [mm]	Pitch [mm]	Links per m
	Series TRC - enclosed design								
	TRC.30.050.0	12	10	34.5	050	10	8	11.3	89
	TRC.40.058.0	15	13	43	058	13	11	13.9	72
	Series TRE - "easy" design								
	TRE.30.050.0	12	10	34.5	050	10	8	11.3	89
	TRE.40.058.0.B	15	13	43	058	13	11	13.9	72
	Series TRL - light version of the "easy" design								
	TRL.30.050.0	12.5	11	34.5	050	10	8	11.3	89
	TRL.40.058.0	15	–	45	058	13	–	13.9	72

PMA hoses overview | For PMAFLEX corrugated tubes

Principle sketch	Part No. series	Corrugated tube nominal width	Metric size [mm]	Inner Ø *d1* [mm]	Outer Ø *d2* [mm]	Static *R* [mm]*	Dynamic *R* [mm]**	VE [mm]
	I-PIST-29B	29	32	29.0	34.3	45	110	50

*Static *R* = minimum recommended bend radius for static (fixed) installation **Dynamic *R* = minimum recommended bend radius for dynamic (flexible) laying



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 [mm]	Position
TR.911.965.054.Z0	TR.911.965.054.Z1	UR3	054	B
TR.911.965.066.Z0	TR.911.965.066.Z1	UR3	066	A
TR.911.965.075.Z0	TR.911.965.075.Z1	UR5	075	B
TR.911.965.086.Z0	TR.911.965.086.Z1	UR5	086	A
TR.911.965.086.Z0	TR.911.965.086.Z1	UR10	086	B
TR.911.965.086.Z0	TR.911.965.086.Z1	UR5	086	A
TR.911.965.086.Z0	TR.911.965.086.Z1	UR10	086	B
TR.911.965.108.Z0	TR.911.965.108.Z1	UR10	108	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 [mm]	Position
TR.911.966.054.Z0	TR.911.966.054.Z1	UR3	054	B
TR.911.966.066.Z0	TR.911.966.066.Z1	UR3	066	A
TR.911.966.075.Z0	TR.911.966.075.Z1	UR5	075	B
TR.911.966.086.Z0	TR.911.966.086.Z1	UR5	086	A
TR.911.966.086.Z0	TR.911.966.086.Z1	UR10	086	B
TR.911.966.108.Z0	TR.911.966.108.Z1	UR10	108	A

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

For PMA hose I-PIST-29B	Part No. **without** strain relief	For UR-robot system	Ø [mm]	Position
	TR.914.836.054.Z0	UR3	054	B
	TR.914.836.066.Z0	UR3	066	A
	TR.914.836.075.Z0	UR5	075	B
	TR.914.836.086.Z0	UR5	086	A
	TR.914.836.086.Z0	UR10	086	B
	TR.914.836.108.Z0	UR10	108	A

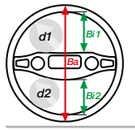
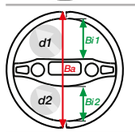
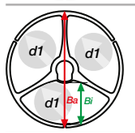
triflex® R | Series TRC·TRE·TRL | Accessories

For KUKA LBR iiwa

Mounting brackets for KUKA LBR iiwa

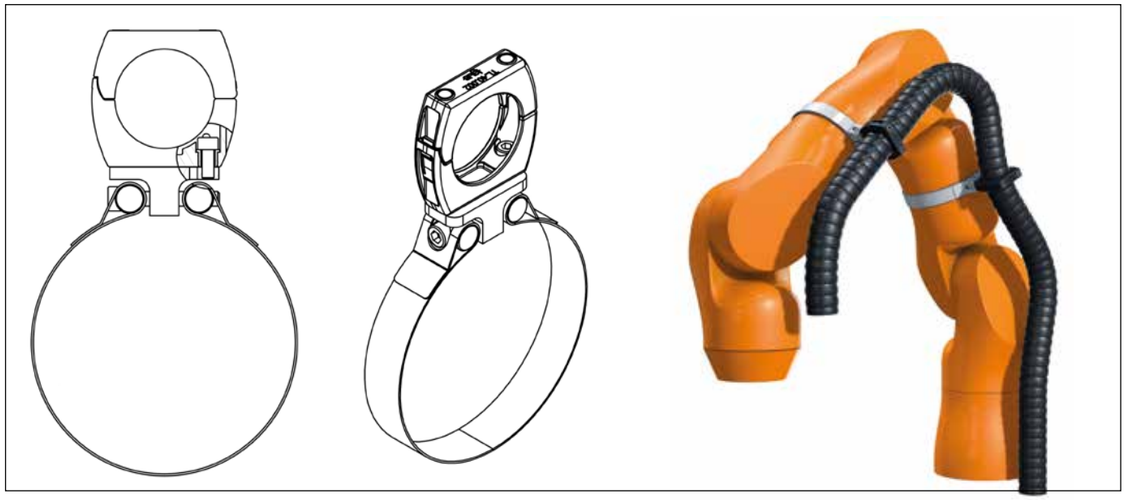
- Safe cable guidance with triflex® R for KUKA LBR iiwa robots
- For KUKA LBR iiwa 14 R820 and KUKA LBR iiwa 7 R800
- Easy connection with screw clips
- For 2 triflex® R sizes: Ø 30 and 40
- For TRC, TRE and TRL e-chains®

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

Principle sketch	Part No. series	*Bi1* [mm]	*Bi2* [mm]	*Ba* [mm]	*R* [mm]	*d1* [mm]	*d2* [mm]	Pitch [mm]	Links per m
	Series TRC - enclosed design								
	TRC.30.050.0	12	10	34.5	050	10	8	11.3	89
	TRC.40.058.0	15	13	43	058	13	11	13.9	72
	Series TRE - "easy" design								
	TRE.30.050.0	12	10	34.5	050	10	8	11.3	89
	TRE.40.058.0.B	15	13	43	058	13	11	13.9	72
	Series TRL - light version of the "easy" design								
	TRL.30.050.0	12.5	11	34.5	050	10	8	11.3	89
	TRL.40.058.0	15	–	45	058	13	–	13.9	72

triflex® R | Series TRC·TRE·TRCF | Accessories

For KUKA LBR iiwa



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

Part No. **without** strain relief	Part No. **with** strain relief	For KUKA LBR iiwa	Ø [mm]
TR.914.951.Z0	TR.914.951.Z1	LBR iiwa 14 R820 LBR iiwa 7 R800	136

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

Part No. **without** strain relief	Part No. **with** strain relief	For KUKA LBR iiwa	Ø [mm]
TR.914.952.Z0	TR.914.952.Z1	LBR iiwa 14 R820 LBR iiwa 7 R800	136

triflex® R | Series TRC·TRE·TRCF·TRL·TRLF | Accessories

Protective jackets

Standard protective jacket

● 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. jacket	Standard lengths[2] XXXX [mm]
30. ▶	–	–
40. ▶	**TR.40.14.**	| 500 | 1000 | 1500 | 2000 |
50. ▶	TR.50.14.[1]	| 500 | 1000 | 1500 | 2000 |
60. ▶	**TR.60.14.**	| 500 | 1000 | 1500 | 2000 |
65. ▶	TR.65.14.[1]	| 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 |

1) Available upon request 2) Special lengths upon request

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

Example: **TR.60.14.500**

Heat shield protective jacket

● 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. jacket	Standard lengths[2] XXXX [mm]
30. ▶	–	–
40. ▶	**TR.40.18.**	| 500 | 1000 | 1500 | 2000 |
50. ▶	TR.50.18.[1]	| 500 | 1000 | 1500 | 2000 |
60. ▶	**TR.60.18.**	| 500 | 1000 | 1500 | 2000 |
65. ▶	TR.65.18.[1]	| 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 |

1) Available upon request 2) Special lengths upon request

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

Example: **TR.60.18.500**

Wear resistant protective jacket

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

Ø Index	Part No. jacket	Standard lengths[2] XXXX [mm]
30. ▶	–	–
40. ▶	**TR.40.19.**	| 500 | 1000 | 1500 | 2000 |
50. ▶	TR.50.19.[1]	| 500 | 1000 | 1500 | 2000 |
60. ▶	**TR.60.19.**	| 500 | 1000 | 1500 | 2000 |
65. ▶	TR.65.19.[1]	| 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 |

1) Available upon request 2) Special lengths upon request

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

Example: **TR.60.19.500**

triflex® R | Filling

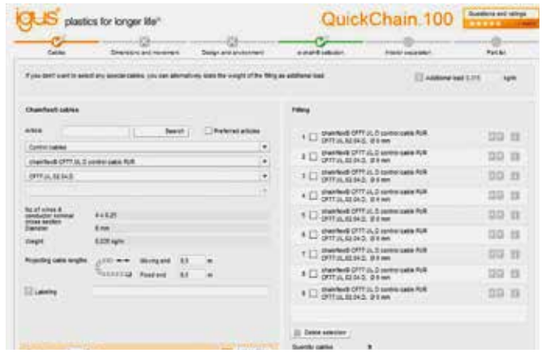
interior separation configurator

triflex® R interior separation - configure e-chains® easily

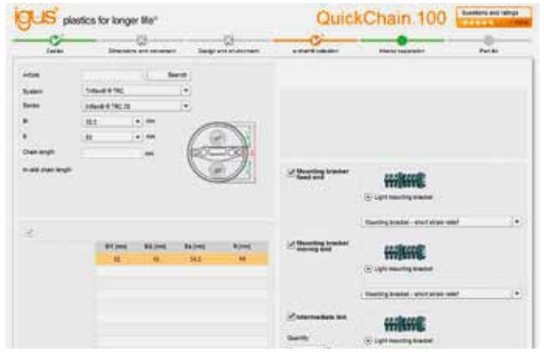
Quick and easy creation of interior separation layouts for triflex® R. After selecting the cables, they can be dragged & dropped into the e-chain® layout. The interior separation configurator creates a parts list of the e-chain® and the cables contained in the configuration. The configurations can be saved and reloaded. The entire configuration can be transferred to the shopping cart with a click.

● Quick and easy interior separation configurator
● Accounts for maximum filling rules for cables and hoses
● Creation of parts lists
● Easy enquiry and ordering

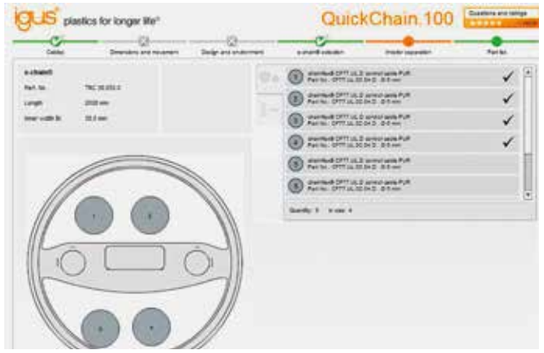
More information and interior separation configurator
▶ www.igus.eu/triflexR-IA



1. Select cables, hoses and lengths



2. Select e-chain® and size



3. Fill the e-chain® with cables and hoses

4. Result: parts list, price and drawings

triflex® R - readychain® dress-packs

Customised system consisting of the triflex® R, chainflex® and connectors

● Eliminate storage costs for cables, e-chains® and plugs
● Shorten turnaround times by half,minimise your machine downtime
● Reduce the number of suppliers and orders by 75%

More information ▶ www.readychain.eu

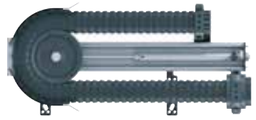
triflex® R | Retraction system | TRC·TRE·TRCF | Accessories

For supplying energy to articulated robots | Overview

triflex® R retraction systems - prevent loop formation on robots

The global growth in automation for industrial production is leading to more and more complex robotic applications. Target cycle times are getting shorter and downtime must also be reduced. To provide reliable protection against premature system failure and downtime, we recommend the use of a triflex® R e-chain®, especially to bridge the last three axes on robots. The length change that results from the robot's movement is compensated by our triflex® R retraction systems. This constantly guides the igus® e-chain® in a controlled way to prevent the formation of loops in the robot's working area.

4 triflex® R retraction system types available from stock:



RSP
Pneumatic retraction system
▶ From page 908

Advantages of RSP:
- For series TRC·TRE·TRCF with a ø-index of 60-125mm
- For robots with a load capacity from approx. 50 kg
- Up to 780mm retraction length possible
- For applications with a high fill weight
- For a sensor-based monitoring
- Constant force over the complete travel
- Standard pneumatic components

RS
Modular retraction system
▶ From page 914

Advantages of RS:
- For series TRC·TRE with ø-index 40-100mm
- For robots with a load capacity from approx. 10 kg
- Up to 670 mm retraction length possible
- If a linear guide system is not needed
- For use with adverse environmental influences
- Retraction force provided by integrated fibre-rods

RSE linear
Cost-effective retraction system, linear
▶ From page 920

Advantages of RSE linear:
- For series TRC·TRE·TRCF* with ø-index 40-125mm
- Special linear guide avoids small bend radii
- Up to 490mm retraction length possible
- Simple, linear retraction without loops, fibre-rods or guide rollers
- Cost-effective
- Maintenance-free igus® drylin® W linear unit

*TRCF not available for each width, see product range

RSE
Cost-effective retraction system with deflection
▶ From page 926

Advantages of RSE:
- For series TRC·TRE with ø-index 40-50mm
- For small robots, very light
- Up to 500mm retraction length possible
- For highly dynamic movements
- Cost-effective
- Maintenance-free igus® drylin® W linear unit

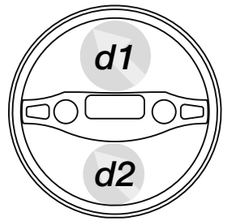
triflex® R | Retraction system | TRC·TRE·TRCF | Accessories

Selection tools

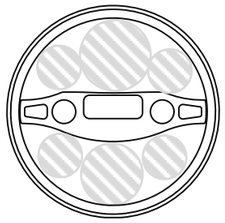
Choosing the right e-chain® size and retraction system

If you want to select a suitable retraction system yourself, please ensure that you observe the maximum cable diameter and usage data.

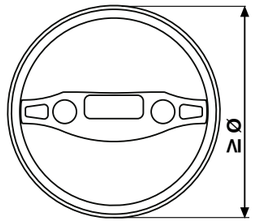
1 **The largest cable diameter ø ...**



2 **... and max. usable e-chain® cross section area ...**



3 **... determine the necessary Ø index of the triflex® R ...**



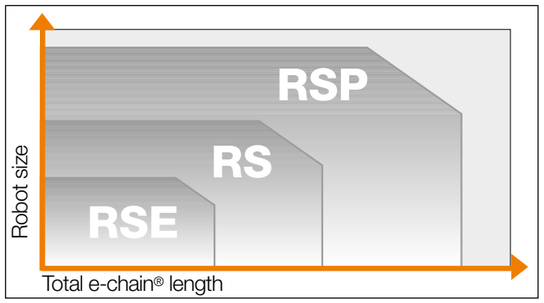
4 **... select from 4 retraction systems options:**

Max. cable Ø 1. chamber *d1* [mm]	Max. cable Ø 2. chamber *d2* [mm]	Coverage of the entire area [mm²]	Minimum Ø-index triflex® R	Retraction system RSP	RS	RSE linear	RSE
–	–	–	30.	–	–	–	–
< 15	< 13	< 500	40.	–	●	●	●
< 18.8	< 16.2	< 750	50.	–	–	●	●
< 22.5	< 19.5	< 1000	60.	●	●	●	–
–	–	–	65.	–	–	–	–
< 28	< 24	< 1750	70.	●	●	●	–
< 33	< 28	< 2500	85.	●	●	●	–
< 37.5	< 32.5	< 3000	100.	●	●	●	–
< 43	< 43	< 4500	125.	●	–	●	–

● = yes, it is possible – = it is not possible

Interior separation configurator - quick and easy creation of interior layouts for triflex® R.
More information ▶ www.igus.eu/triflexR-IA

Selection tool for triflex® R retraction systems

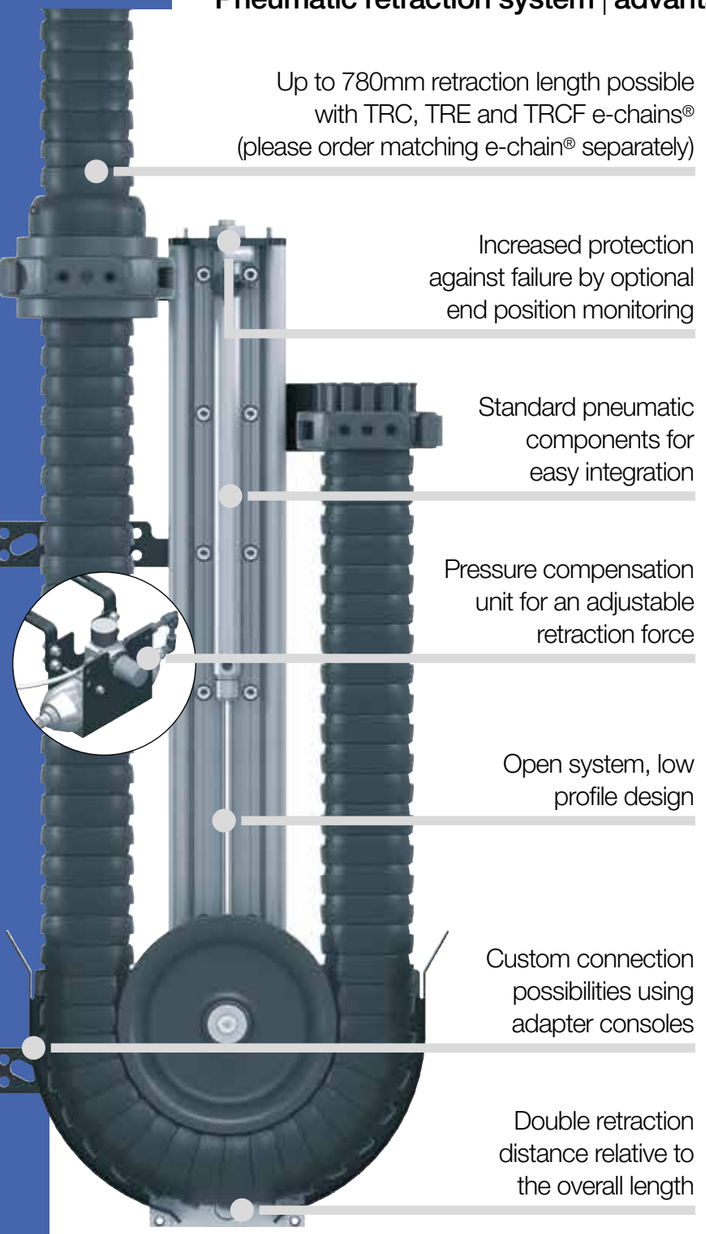


Possible Ø-index for triflex® R retraction systems

For series	RSP Ø Index	RS Ø Index	RSE linear Ø Index	RSE Ø Index
TRC	60 - 125	40 - 100	40 - 125	40 - 50
TRE	60 - 125	40 - 100	40 - 125	40 - 50
TRCF	65 - 100	–	65 - 100	–
TRL*	–	–	–	–
TRLF*	–	–	–	–

* Retraction systems not available for this series

Pneumatic retraction system | advantages



Pneumatic retraction system - triflex® RSP

triflex® RSP prevents loops on the robot head, with a continuously adjustable retraction force. Extension lengths of up to 780mm enable a secure guidance of the cables and hoses, even with large arm diameters and very complex movements. The retraction forces can be adjusted using a pneumatic cylinder. Whether light or heavy fill weights, long or short robot arms - with the igus® RSP retraction system the retraction force can be adjusted to the individual application.

- For axis 3-6 on industrial robots
- Larger retraction forces than RS system
- Even larger e-chains® up to Ø 125mm can be guided safely
- Almost constant force over the complete travel, even with heavy fill weights
- The end position can be monitored so damage can be prevented
- Mounting options for numerous robot models and manufacturers with adapter consoles
- Very low energy consumption with integrated air reservoir

Optional accessories | RSP pneumatic retraction system

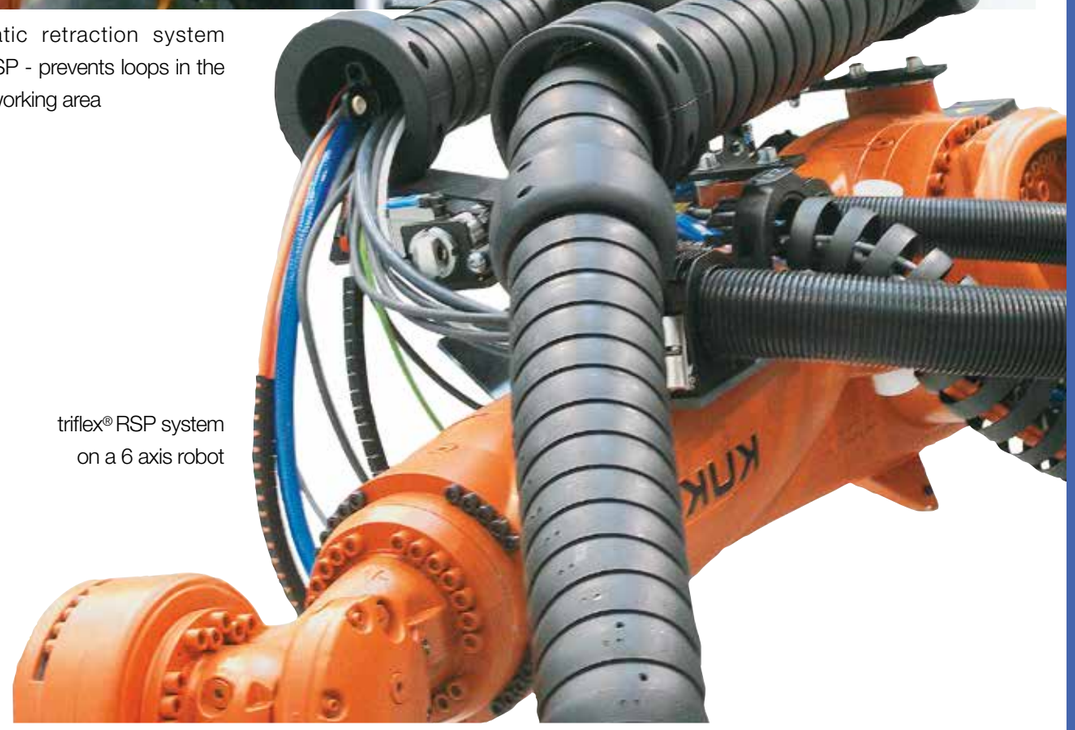
Adjustment unit -
for accurate adjustment of the system position

Adapter consoles -
for custom mounting options

Axis 6 clamp -
for triflex®R mounting bracket

RSP - R(etraction) S(ystem) P(neumatic)

Pneumatic retraction system triflex® RSP - prevents loops in the robot's working area

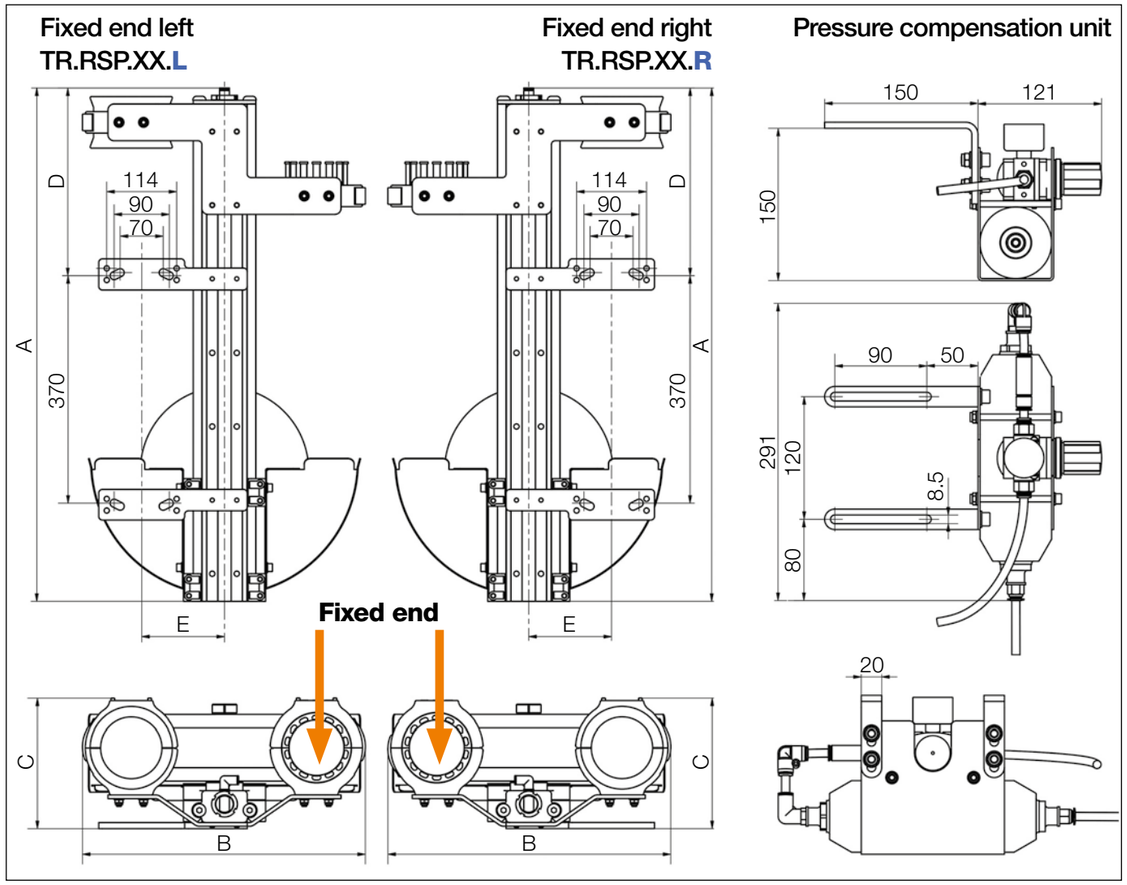


triflex® RSP system on a 6 axis robot

triflex® R | RSP | For series TRC·TRE·TRCF | Accessories

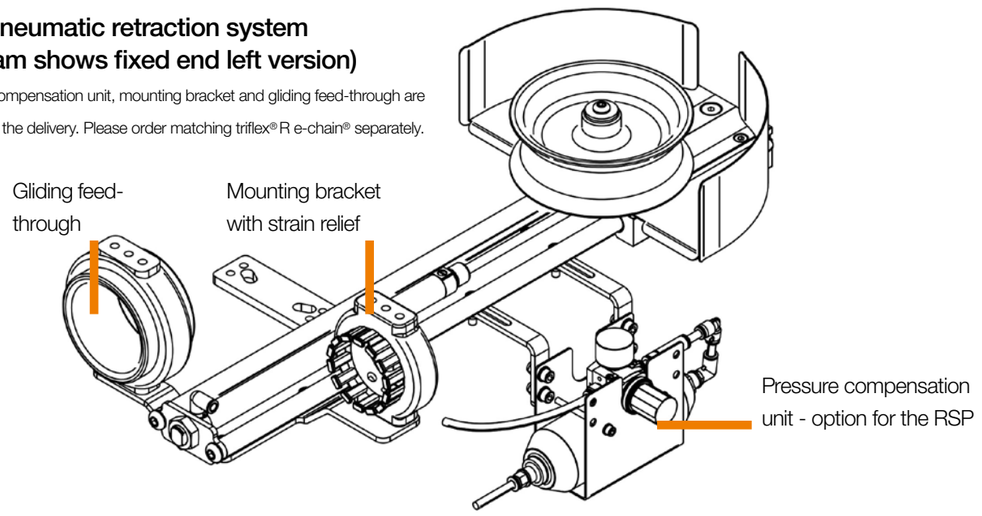
Technical data

Dimensions | RSP pneumatic retraction system



RSP pneumatic retraction system (diagram shows fixed end left version)

Pressure compensation unit, mounting bracket and gliding feed-through are included in the delivery. Please order matching triflex® R e-chain® separately.



triflex® R | RSP | For series TRC·TRE·TRCF | Accessories

Product range

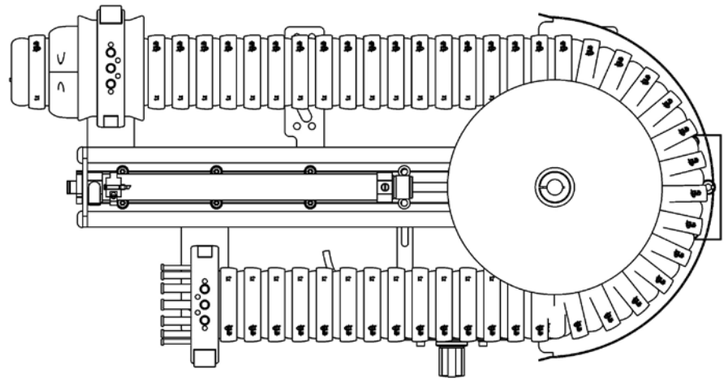
Product range | RSP pneumatic retraction system

Ø Index	Part No. fixed end **left**	Part No. fixed end **right**	Retraction length[1] ≤ [mm]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Weight* [kg]
30.	–	–	–	–	–	–	–	–	–
40.	–	–	–	–	–	–	–	–	–
50.	–	–	–	–	–	–	–	–	–
60.	TR.RSP.60.L	TR.RSP.60.R	580	792	396	177	277	135	16.1
65.	TR.RSP.65.L	TR.RSP.65.R	580	792	396	177	277	135	16.1
70.	TR.RSP.70.L	TR.RSP.70.R	580	792	396	177	277	135	16.2
85.	TR.RSP.85.L	TR.RSP.85.R	620	836	461	213	306	135	19.4
85. (*R 240*)	–	–	–	–	–	–	–	–	–
100.	TR.RSP.100.L	TR.RSP.100.R	620	845	467	213	306	135	19.5
125.	TR.RSP.125.L	TR.RSP.125.R	780	1043	570	245	405	135	24.1

Pressure compensation unit, mounting bracket and gliding feed-through are included in the delivery. Please order matching triflex® R e-chain® separately.

1) These are the maximum values. In normal operation a filling of no more than 70% is advised.

*Plus 2.3 kg for pressure compensation unit



Order key

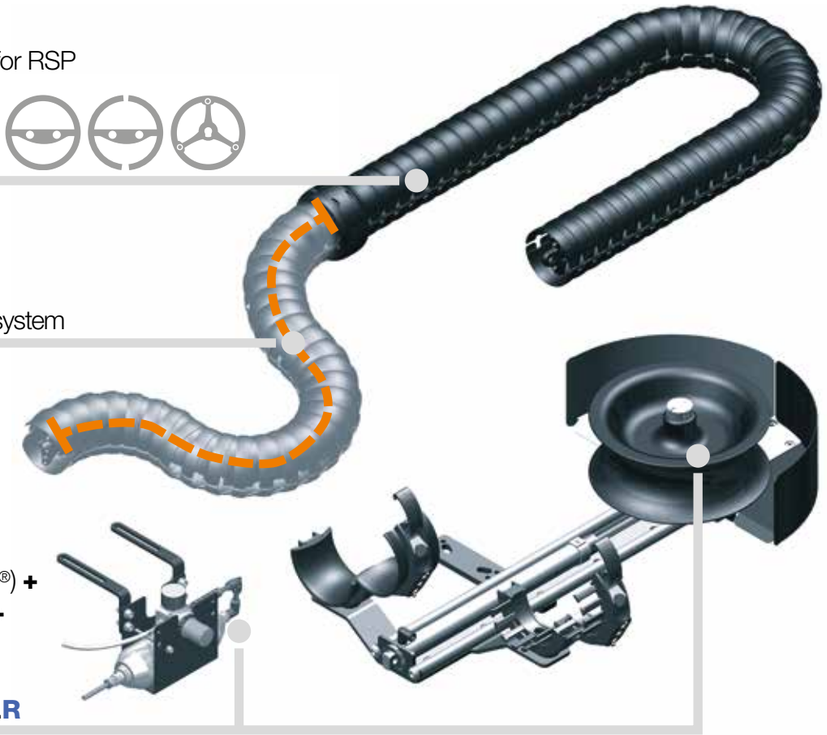
TR.RSP.XX.**L** / **R**

R = Fixed end right
L = Fixed end left
Ø Index
System
e-chains® series

triflex® R | RSP | For series TRC·TRE·TRCF | Accessories

RSP retraction system and matching e-chains®

System design | RSP and matching e-chains®



Matching triflex® R e-chains® for RSP
TRC .RSP.XX.*R*.LLLL.0
TRE .RSP.XX.*R*.LLLL.0.(B)
TRCF.RSP.XX.*R*.LLLL.0

Overall length =
additional length from the
gliding feed-through **LLLL** +
the e-chain® length within the system

RSP-System (without e-chain®) +
Pressure compensation unit +
Mounting bracket +
Gliding feed-through =
TR.RSP.XX.L or **TR.RSP.XX.R**

Sample order of a complete TR.RSP system, ø-Index 60, fixed end on the left, and e-chain® (standard length: 500mm)

System	Insert Ø index **XX** / select fixed end **.L / .R**	**TR.RSP.XX.L**
+ e-chain®	Insert ø-index **XX** / Insert bend radius ***R*** / Insert standard length **LLLL**	**TRC.RSP.XX.*R*.LLLL.0**
Order text:	**TR.RSP.60.L + TRC.RSP.60.087.0500.0**	

Order key e-chains®

TRC .RSP.XX.*R*.LLLL.0
TRE .RSP.XX.*R*.LLLL.0.B
TRCF.RSP.XX.*R*.LLLL.0

- Default colour black
- Additional length
- ***R*** Bend radius
- Ø Index
- System
- e-chains® series

triflex® R | RSP | For series TRC·TRE·TRCF | Accessories

RSP e-chains® and cable length calculation

Product range | Matching e-chains® for RSP

Ø Index	Part No. **TRC** enclosed	Part No. **TRE** "easy" design	Part No.**TRCF** with snap lock mechanism
30.	–	–	–
40.	–	–	–
50.	–	–	–
60.	TRC.RSP.60.087.LLLL.0	TRE.RSP.60.087.LLLL.0.B	–
65.	–	–	TRCF.RSP.65.100.LLLL.0
70.	TRC.RSP.70.110.LLLL.0	TRE.RSP.70.110.LLLL.0.B	–
85.	TRC.RSP.85.135.LLLL.0	TRE.RSP.85.135.LLLL.0.B	TRCF.RSP.85.135.LLLL.0
85. (*R 240*)	–	–	–
100.	TRC.RSP.100.145.LLLL.0	TRE.RSP.100.145.LLLL.0.B/C 1)	TRCF.RSP.100.145.LLLL.0
125.	TRC.RSP.125.182.LLLL.0	TRE.RSP.125.182.LLLL.0	–

1) Available for B- and C-versions

*Standard lengths from the gliding feed-through outside the system - special lengths upon request.

e-chains® standard lengths*
LLLL [mm] | **0500** | **1000** | **1500** | **2000** |

Part No. with **LLLL** standard length value (measured from the gliding feed-through) corresponds to the robot arm length from axis 3.
For example: **TRC.RSP.60.087.0500.0**

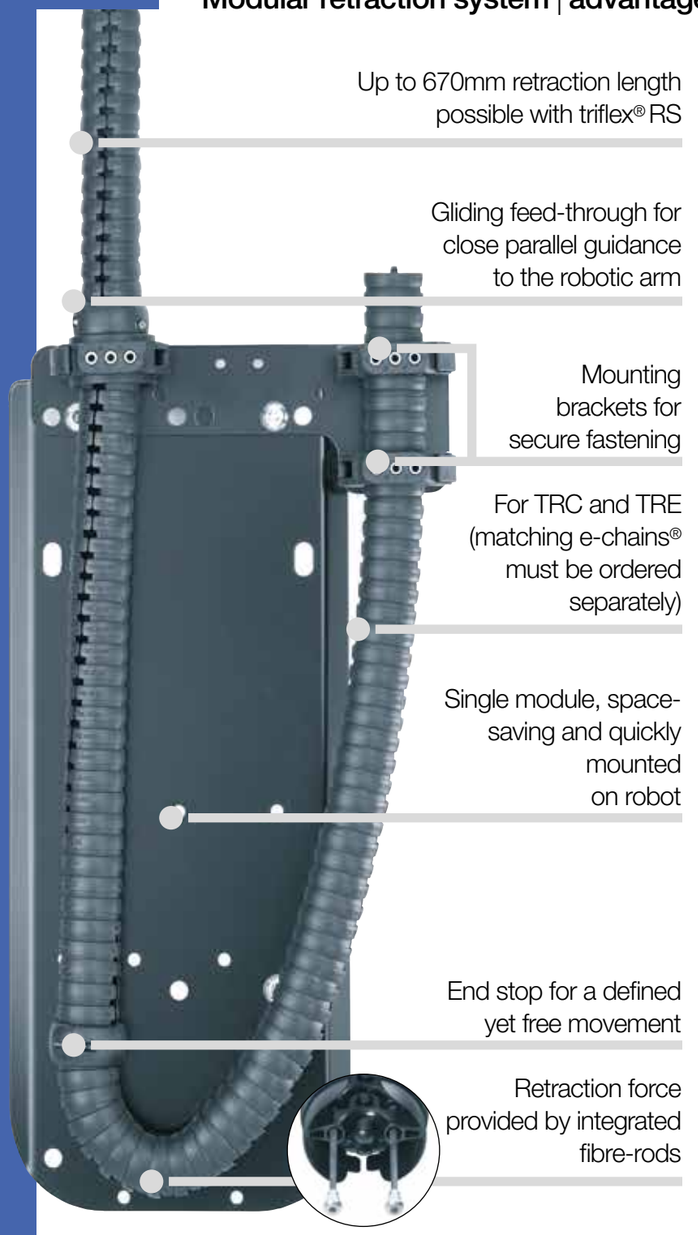
Calculating the overall chain length | RSP e-chains®

Ø Index	Bend radius ***R*** [mm]	e-chain® length* [mm]	Number of e-chains® links	Total e-chain® length [mm]
30.	–	–	–	–
40.	–	–	–	–
50.	–	–	–	–
60.	087	1489	73	**LLLL** + 1489
65.	100	1432	62	**LLLL** + 1432
70.	110	1484	58	**LLLL** + 1484
85.	135	1622	53	**LLLL** + 1622
85. (*R 240*)	–	–	–	–
100.	145	1656	48	**LLLL** + 1656
125.	182	1962	44	**LLLL** + 1962

*Values are related to the e-chain® length within the system

Please add the e-chain® length within the system to the standard length **LLLL** (measured from the gliding feed-through) to get the **overall chain length**

Modular retraction system | advantages



Modular retraction system - triflex® RS

triflex® RS is a retraction system for robots with medium to high payloads. With triflex® RS, the multi-axis triflex® R e-chain® is routed parallel to the robot arm. Integrated fibre rods produce a directed pretension, avoiding the formation of loops in the working area of the robot head. This also allows applications to be implemented in very limited space. triflex® RS offers the possibility to design the energy supply for tools without stressing the cables, thus minimising downtimes.

- Space-saving, closely routed on the robot arm
- A system solution proven and tested in thousands of applications
- Universal installation
- Integrated fibre-rods - no external mechanical components such as springs or steel cables required!

Optional accessories | RS modular retraction system

Cover -
for additional mounting space and extreme movements

Adjustment unit -
for accurate adjustment of the system position

Adapter consoles -
for custom mounting options

Axis 6 clamp -
for triflex® R mounting bracket

RS - R(etraction) S(ystem)

triflex® RS for a low profile e-chain® guide. The triflex® RS retraction unit runs parallel to the robot arm.
Video at ▶ www.igus.eu/RS_Film

Option: triflex® RS with cover for more mounting space

triflex® R | RS | For series TRC·TRE | Accessories

Technical data

Installation height | RS modular retraction system

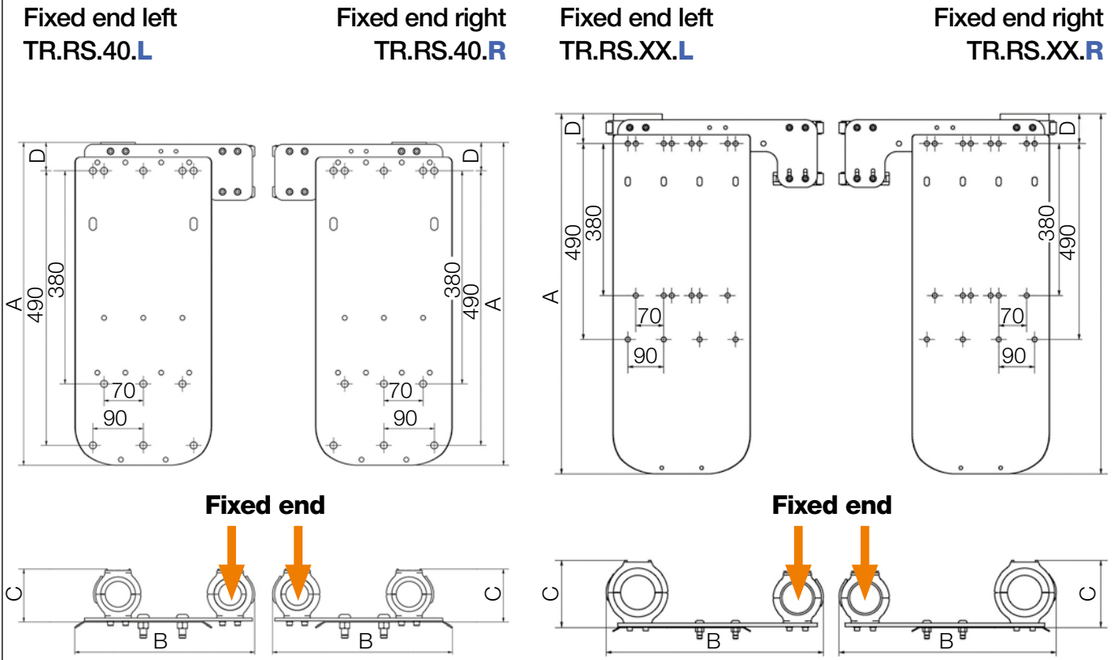


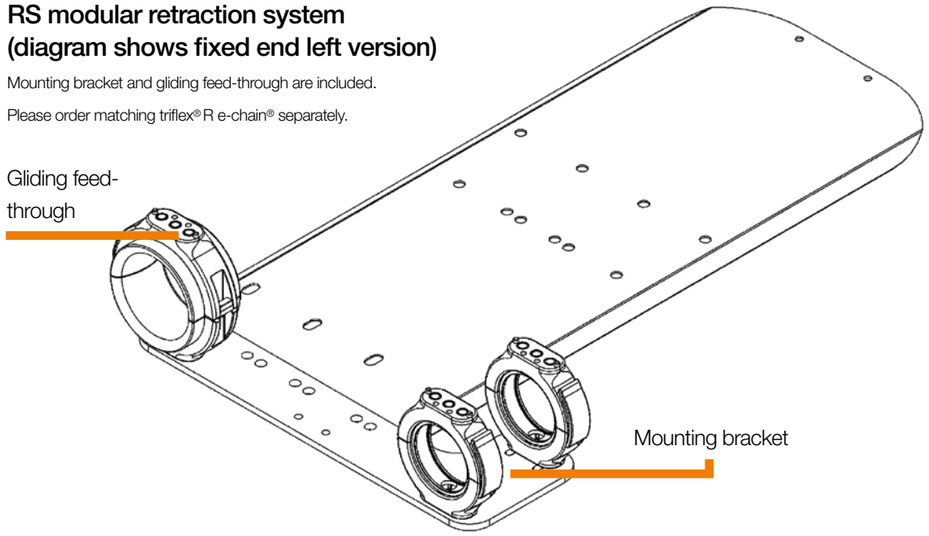
Illustration shows triflex® RS ø index: 40

Illustration shows triflex® RS ø index: 60 - 100

RS modular retraction system (diagram shows fixed end left version)

Mounting bracket and gliding feed-through are included.

Please order matching triflex® R e-chain® separately.



triflex® R | RS | For series TRC·TRE | Accessories

Product range

Product range | RS modular retraction system

Ø Index		Part No. fixed end **left**	Part No. fixed end **right**	Retraction length[1] ≤ [mm]	A [mm]	B [mm]	C [mm]	D [mm]	Weight [kg]
30.	▶	–	–	–	–	–	–	–	–
40.	▶	**TR.RS.40.L**	**TR.RS.40.R**	460	576	301	95	51	3.5
50.	▶	–	–	–	–	–	–	–	–
60.	▶	**TR.RS.60.L**	**TR.RS.60.R**	550	900	528	150	65	8.7
65.	▶	–	–	–	–	–	–	–	–
70.	▶	**TR.RS.70.L**	**TR.RS.70.R**	620	900	545	167	65	9.2
85.	▶	**TR.RS.85.L**	**TR.RS.85.R**	670	900	565	167	65	9.5
85. (*R 240*)	▶	–	–	–	–	–	–	–	–
100.	▶	**TR.RS.100.L**	**TR.RS.100.R**	580	938	614	167	108	11.5
125.	▶	–	–	–	–	–	–	–	–

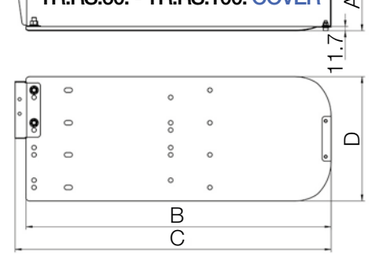
1) These are the maximum values. In normal operation a filling of no more than 70% is advised.

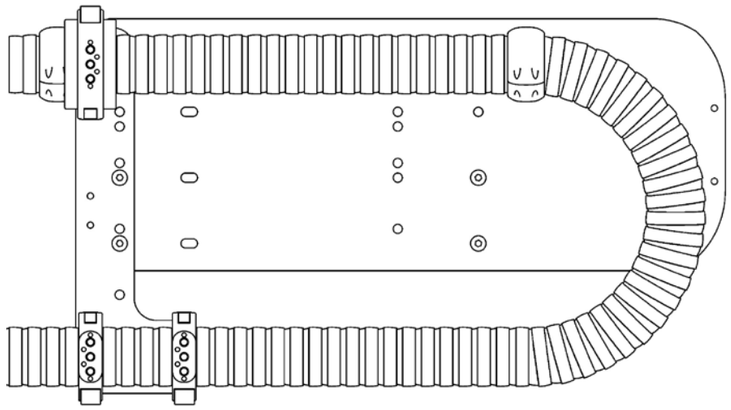
Please order matching triflex® R e-chain® separately.

Product range | Cover, optional

Ø Index		Optional cover retrofit kit	A [mm]	B [mm]	C [mm]	D [mm]	Load* ≤ [kg]	Weight [kg]
30.	▶	–	–	–	–	–	–	–
40.	▶	**TR.RS.40.**COVER	101.7	550	567.5	244.6	1.5	2.6
50.	▶	–	–	–	–	–	–	–
60.	▶	**TR.RS.60.**COVER	170.7	850	880	344.6	3.5	7.2
65.	▶	–	–	–	–	–	–	–
70.	▶	**TR.RS.70.**COVER	170.7	850	880	344.6	3.5	7.2
85.	▶	**TR.RS.85.**COVER	170.7	850	880	344.6	3.5	7.2
85. (*R 240*)	▶	–	–	–	–	–	–	–
100.	▶	**TR.RS.100.**COVER	172	853	910.5	397.6	3.5	7.1
125.	▶	–	–	–	–	–	–	–

*Maximum fill weight to be used with the cover





Order key

TR.RS.XX.L / R

- **R** = Fixed end right
- **L** = Fixed end left
- Ø Index
- System
- e-chains® series

triflex® R | RS | For series TRC·TRE | Accessories

RS retraction system and matching e-chain®

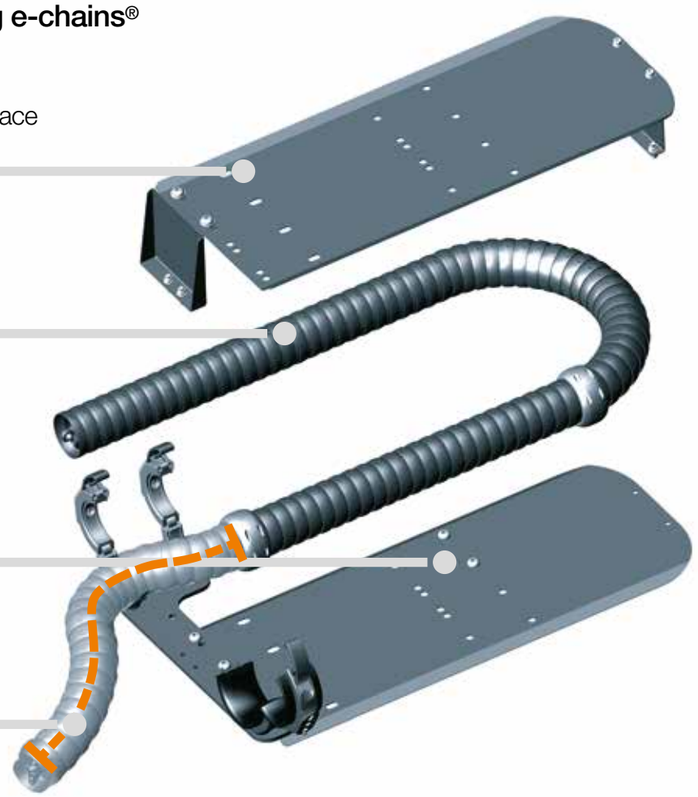
System design | RS and matching e-chains®

Optional cover for additional installation space
on the robot: **TR.RS.XX.COVER**

Matching triflex® R e-chains® for RS
with integrated fibre-rods
TRC.RS.XX.*R*.LLLL.0
TRE.RS.XX.*R*.LLLL.0.B

RSE linear system (without e-chain®)+
Support plate +
Mounting bracket +
Gliding feed-through =
TR.RS.XX.L or **TR.RS.XX.R**

Overall length =
additional length from the
gliding feed-through **LLLL** +
the e-chain® length within the system



Sample order of a complete TR.RS system, ø-Index 60, fixed end on the left, including cover and e-chain® (standard length: 500mm)

System	Insert Ø index **XX** / select fixed end **.L / .R**	**TR.RS.XX.L**
+ Cover	Insert Ø index **XX** (cover optional)	**TR.RS.XX.COVER**
+ e-chain®	Insert ø-index **XX** / Insert bend radius ***R*** / Insert standard length **LLLL**	**TRC.RS.XX.*R*.LLLL.0**

Order text: **TR.RS.60.L + TR.RS.60.COVER + TRC.RS.60.087.0500.0**

Order key e-chains®

TRC.RS.XX.*R*.LLLL.0
TRE.RS.XX.*R*.LLLL.0.B

- Default colour black
- Additional length
- ***R*** Bend radius
- Ø Index
- System
- e-chains® series

triflex® R
RS

triflex® R | RS | For series TRC·TRE | Accessories

RS e-chains® and cable length calculation

Product range | Matching e-chains® for RS

Ø Index	Part No. **TRC** enclosed	Part No. **TRE** "easy" design
30.	–	–
40.	**TRC.RS.40.058. LLLL.0**	**TRE.RS.40.058. LLLL.0.B**
50.	–	–
60.	**TRC.RS.60.087. LLLL.0**	**TRE.RS.60.087. LLLL.0.B**
65.	–	–
70.	**TRC.RS.70.110. LLLL.0**	**TRE.RS.70.110. LLLL.0.B**
85.	**TRC.RS.85.135. LLLL.0**	**TRE.RS.85.135. LLLL.0.B**
85. (*R 240*)	–	–
100.	**TRC.RS.100.145.LLLL.0**	**TRE.RS.100.145.LLLL.0.B/C**
125.	–	–

1) Available for B- and C-versions

*Standard lengths from the gliding feed-through outside the system - special lengths upon request.

e-chains® standard lengths*

LLLL [mm] | **0500** | **1000** | **1500** | **2000** |

Part No. with **LLLL** standard length value (measured from the gliding feed-through) corresponds to the robot arm length from axis 3.
For example: **TRC.RS.60.087.0500.0**

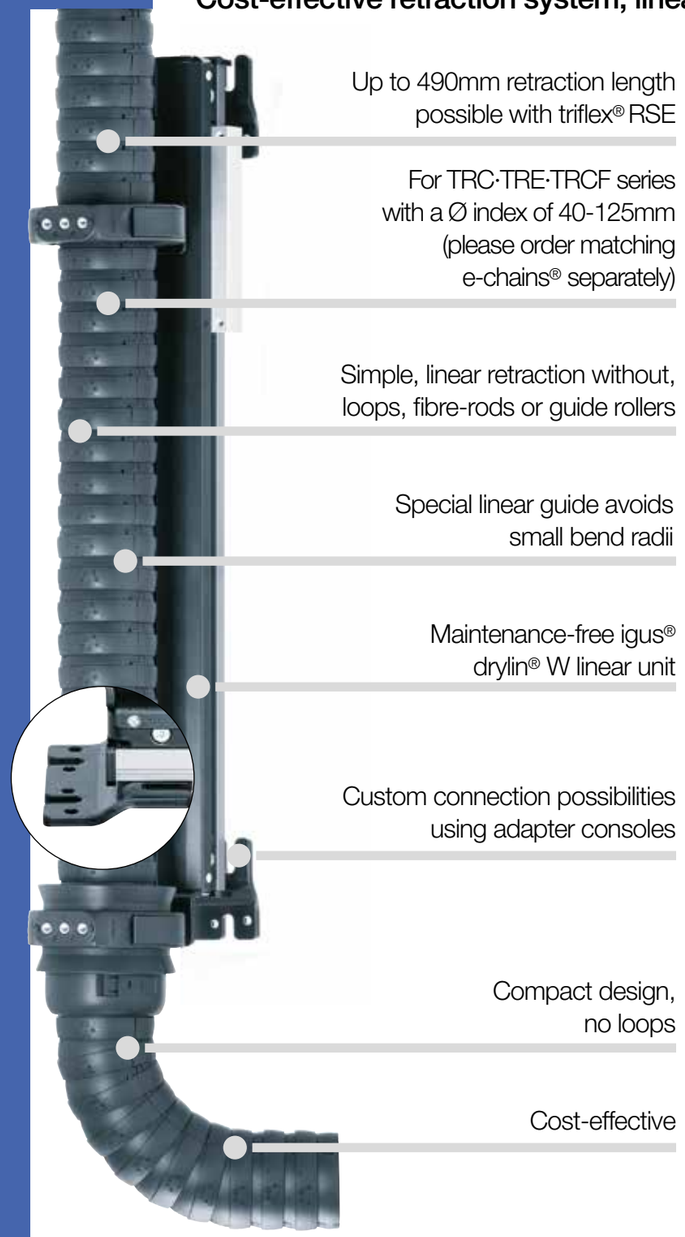
Calculating the overall chain length | RS e-chains®

Ø Index	Bend radius ***R*** [mm]	e-chain® length* [mm]	Number of e-chains® links	Total e-chain® length [mm]
30.	–	–	–	–
40.	**058**	1251	90	**LLLL** + 1251
50.	–	–	–	–
60.	**087**	1734	85	**LLLL** + 1734
65.	–	–	–	–
70.	**110**	1895	74	**LLLL** + 1895
85.	**135**	2080	68	**LLLL** + 2080
85. (*R 240*)	–	–	–	–
100.	**145**	2105	61	**LLLL** + 2105
125.	–	–	–	–

*Values are related to the e-chain® length within the system

Please add the e-chain® length within the system to the standard length **LLLL** (measured from the gliding feed-through) to get the **overall chain length**

Cost-effective retraction system, linear | Advantages



Cost-effective, linear retraction system - triflex® RSE linear

The more complex the automated production technology, the greater the requirements placed on the energy supply system. It is increasingly the case that not only electric power and fluids have to be supplied to production robots; but also laser cables and supply hoses for rivets, pins and screws. As these often cannot function with small bend radii, the new triflex® RSE relies on very easy linear retraction without loops and spring rods or deflection rollers. The purpose of the triflex® RSE retraction system is to hold the e-chain® as closely as possible to the robot arm in order to prevent the e-chain® from intruding upon or blocking the robot's movements.

- Simple, linear retraction without bends, fibre-rods or guide rollers
- For series TRC·TRE·TRCF with a ø-index of 40-125mm
- Special linear guide avoids small bend radii
- Up to 490mm retraction length possible
- Cost-effective
- Maintenance-free igus® drylin® W linear unit

Optional accessories | RSE linear, cost-effective linear retraction system

Adapter consoles -
for custom mounting options

Axis 6 clamp -
for triflex®R mounting bracket

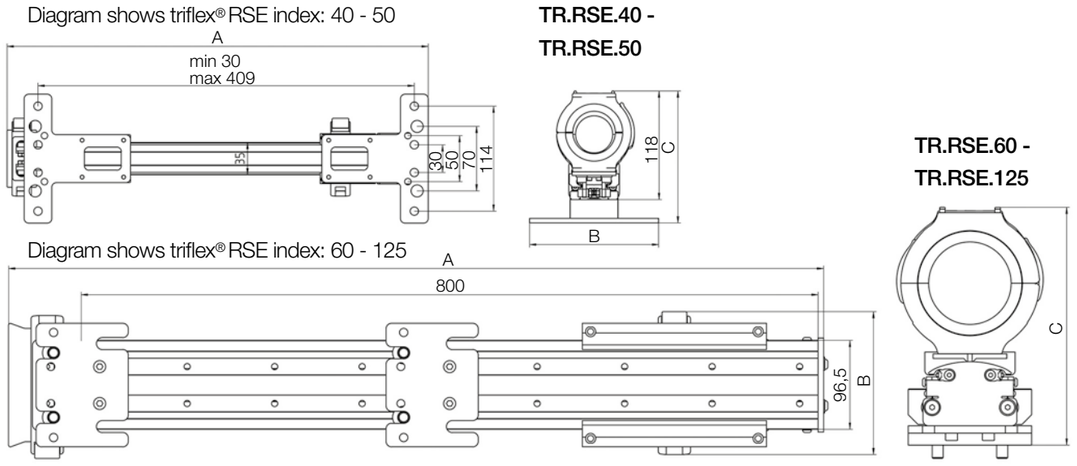
RSE - **R**(etraction) **S**(ystem) **E**(lastic)

igus® TR.RSE system on test robot

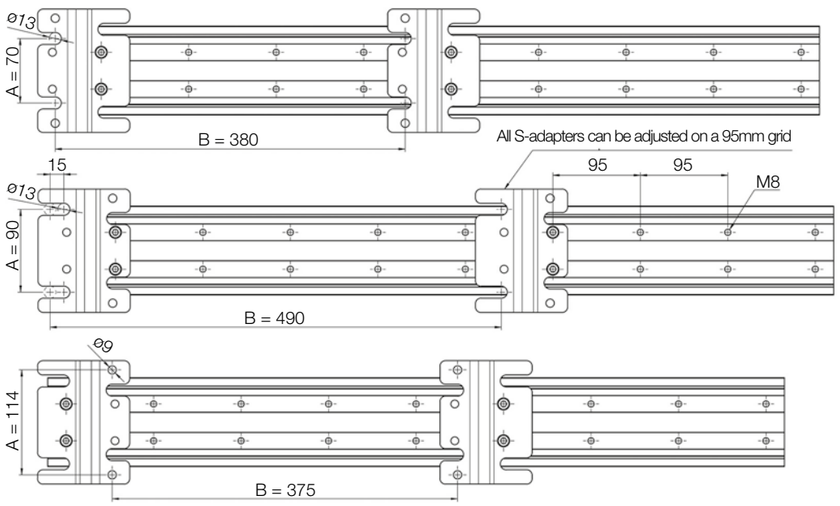
Lightweight, linear TR.RSE.40 retraction system for small robots

Linear TR.RSE retraction system for sizes 60-125 with attachment brackets for a wide variety of robot models

Dimensions | RSE linear, cost-effective linear retraction system



Possible installation positions for TR.RS.60 - TR.RS.125 | RSE linear



Installation position 01

Installation position 02

Installation position03

Installation position 01

A [mm]	B [mm]	Thread size
70	190	M12
70	285	M12
70	380	M12
70	475	M12
70	570	M12
70	665	M12
70	760	M12

Installation position 02

A [mm]	B [mm]	Thread size
90	175 - 205	M12
90	270 - 300	M12
90	365 - 395	M12
90	460 - 490	M12
90	555 - 585	M12
90	650 - 680	M12
90	745 - 775	M12

Installation position 03

A [mm]	B [mm]	Thread size
114	185	M8
114	280	M8
114	375	M8
114	470	M8
114	565	M8
114	660	M8

Product range | RSE linear, cost-effective linear retraction system

Ø Index	Part No. RSE linear	Retraction length[1] ≤ [mm]	A [mm]	B [mm]	C [mm]	Weight [kg]	Part No. RSE support
30.	–	–	–	–	–	–	–
40.	**TR.RSE.40**	290	457	140	143	1.4	–
50.	**TR.RSE.50**	290	475	140	151	1.7	–
60.	**TR.RSE.60**	490	868	134	231	9.9	**TR.914.973.60**
65.	**TR.RSE.65**	490	880	134	231	10.0	**TR.914.973.65**
70.	**TR.RSE.70**	490	878	155	258	10.0	**TR.914.973.70**
85.	**TR.RSE.85**	490	885	155	258	10.0	**TR.914.973.85**
85. (*R 240*)	**TR.RSE.85.240**	490	885	155	258	10.0	–
100.	**TR.RSE.100**	490	886	170	264	10.2	**TR.914.973.100**
125.	**TR.RSE.125**	490	876	190	280	10.5	–

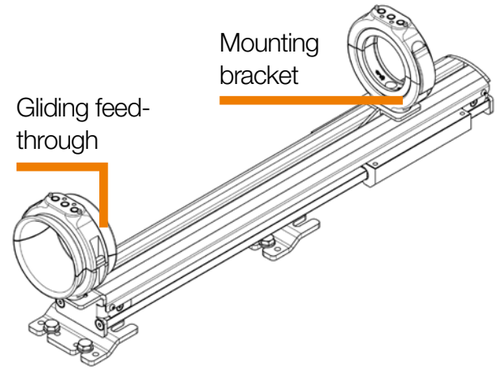
1) These are the maximum values. In normal operation a filling of no more than 70% is advised.

Please order matching triflex® R e-chain® separately. Optional RSE support must be ordered separately.

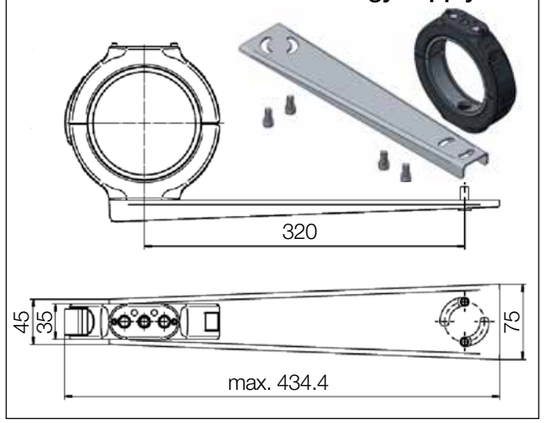
RSE linear - retraction system

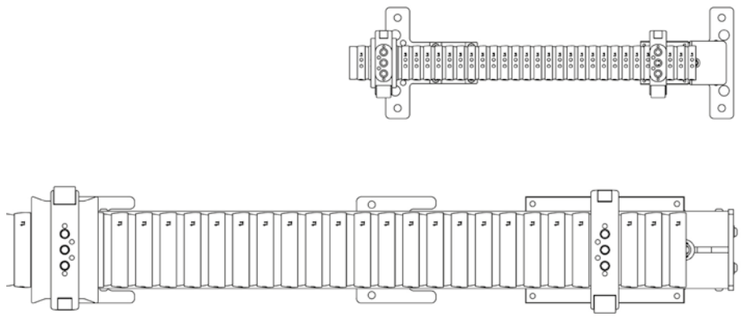
Mounting bracket and gliding feed-through are included.

Please order matching triflex® R e-chain® separately.



Optional - RSE support for the lateral deflection of the triflex® R energy supply





Order key

TR.RSE.XX

- Ø Index
- System
- e-chains® series

triflex® R | RSE linear | For series TRC·TRE·TRCF | Accessories

RSE linear and matching e-chains®

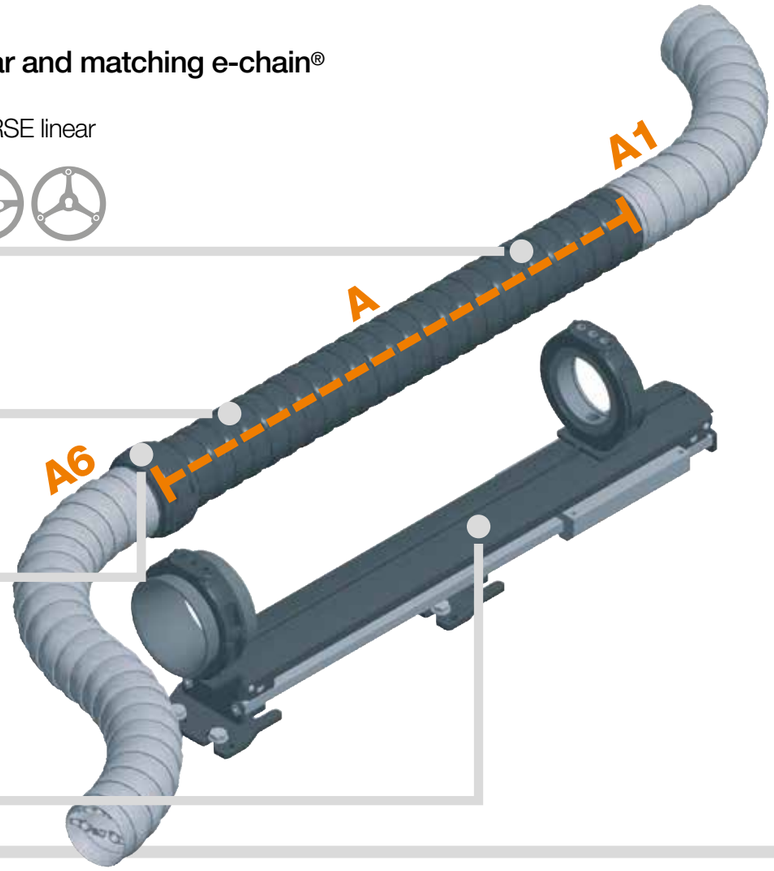
System design | RSE linear and matching e-chain®

Matching triflex® R e-chain® for RSE linear
TRC .XX.*R*.0
TRE .XX.*R*.0.B
TRCF.XX.*R*.0

Excess length in direction **A1** +
Dimension **A** +
Excess length in direction **A6** =
Total e-chain® length

Limit protector

RSE linear system
(without e-chain®)+
Mounting bracket +
Gliding feed-through =
TR.RSE.XX



Sample order of a complete TR.RSE linear system, Ø index 40, and e-chain® (length: 2 m)

System	Insert Ø index **XX**	**TR.RSE.XX**
+ e-chain®	Insert Ø index **XX** / Insert bend radius ***R*** / Insert standard length LLLL in metres	**2 m TRC.XX.*R*.0**
+ Protector	Protector with quick-lock fastener	**TR.XX.30**
Order text:	**TR.RSE.40. + 2 m TRC.40.058.0 + TR.40.30**	

Order key e-chains®

TRC .XX.*R*.0
TRE .XX.*R*.0.B
TRCF.XX.*R*.0

- Default colour black
- ***R*** Bend radius
- Ø Index
- e-chains® series

Product range | Matching e-chains® and protectors for RSE linear

Ø Index	Part No. **TRC** enclosed	Part No. **TRE** "easy" design	Part No. **TRCF** with snap lock mechanism	Protector with screw fastener	Protector with quick-lock fastener
30.	–	–	–	–	–
40.	TRC.40.058.0	TRE.40.058.0.B	–	TR.40.10	TR.40.30
50.	TRC.50.080.0	TRE.50.080.0.B	–	TR.50.10	–
60.	TRC.60.087.0	TRE.60.087.0.B	–	TR.60.10	TR.60.30
65.	–	–	TRCF.65.100.0	TR.65.10	–
70.	TRC.70.110.0	TRE.70.110.0.B	–	TR.70.10	TR.70.30
85.	TRC.85.135.0	TRE.85.135.0.B	TRCF.85.135.0	TR.85.10	TR.85.30
85. (*R 240*)	–	–	TRCF.85.240.0	TR.85.240.10	–
100.	TRC.100.145.0	TRE.100.145.0.B/C[1]	TRCF.100.145.0	TR.100.10	TR.100.30
125.	TRC.125.182.0	TRE.125.182.0.B	–	TR.125.10	–

1) Available for B- and C-versions

Please order e-chains® as piece parts and purchase a protector for each one.

Please order protectors with screw connections or quick release as limit protectors.

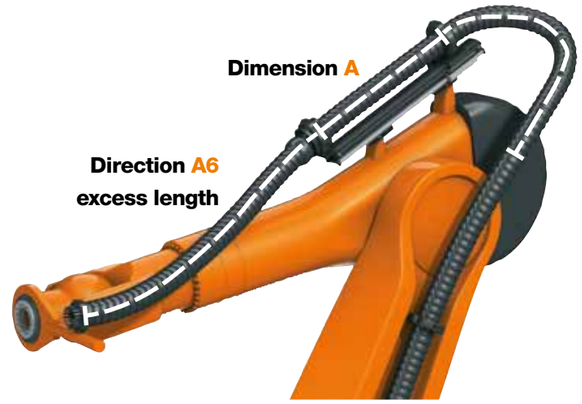
To calculate the total chain length, add the desired excess length from axis 1 and axis 6 to dimension A (lower table). Additionally, at least 1 limit protector must be ordered.

Please note that all triflex® R e-chains can be lengthened and shortened individually and can be customized to meet the needs of your application.

Calculating the overall chain length | RSE linear e-chains®

Ø Index	Bend radius ***R*** [mm]	A [mm]
30.	–	–
40.	058	390
50.	080	390
60.	087	750
65.	100	750
70.	110	750
85.	135	750
85. (*R 240*)	240	750
100.	145	750
125.	182	750

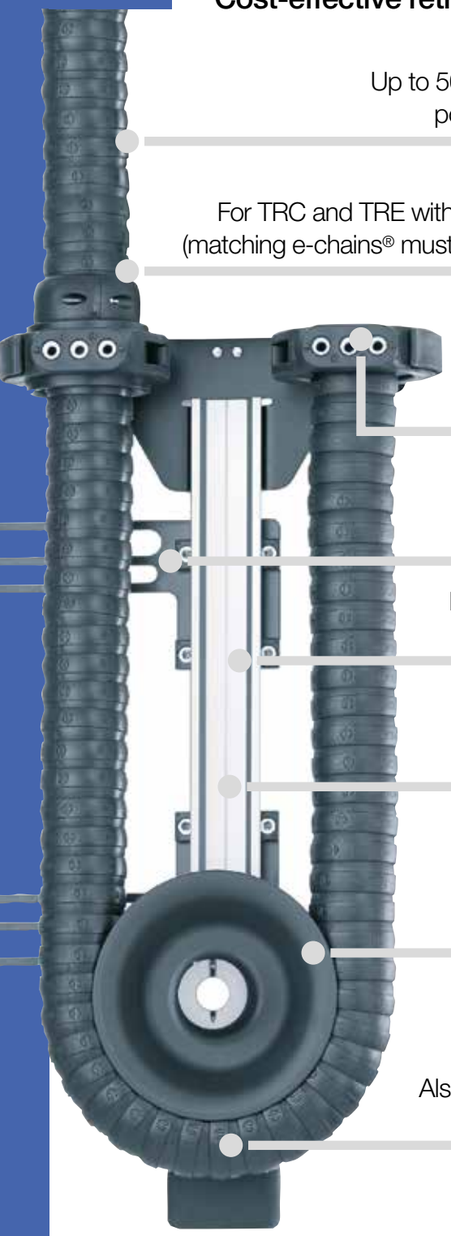
Excess length in direction **A6** + Dimension **A** +
excess length in direction **A1** = **total chain length**



triflex® R length calculation for RSE linear

triflex® R | RSE | For series TRC·TRE | Accessories

Cost-effective retraction system with deflection | Advantages



Up to 500mm retraction length possible with triflex® RSE

For TRC and TRE with ø index 40 and 50mm (matching e-chains® must be ordered separately)

Delivered with left or right fixed end already assembled

Custom connection possibilities using adapter consoles

Maintenance-free igus® drylin® W linear unit

Adjustable mounting position

Open system, low profile design

Also for high accelerations (due to low weight)

Cost-effective retraction system with deflection for small robots - triflex® RSE

Specially developed for robots with small to medium cable and hose filling, the igus® triflex® RSE retraction system offers a way to prevent loop formation in the workspace of the robot, even in highly dynamic applications.

- For series TRC·TRE sizes 40 and 50mm
- Extremely fast response, even in highly dynamic robot programs
- Low weight, very little reduction in robot handling capacity
- Universal adjustable installation brackets
- Maintenance and lubrication-free igus® drylin® W linear unit
- For maximum degrees of freedom
- For cable diameters up to 18.8mm

Optional accessories | RS modular retraction system

Cover -
for additional mounting space and complex movements

Adapter consoles -
for custom mounting options

Axis 6 clamp -
for triflex® R mounting bracket

triflex® R | RSE | For series TRC·TRE | Application example

RSE - **R**(etraction) **S**(ystem) **E**(lastic)

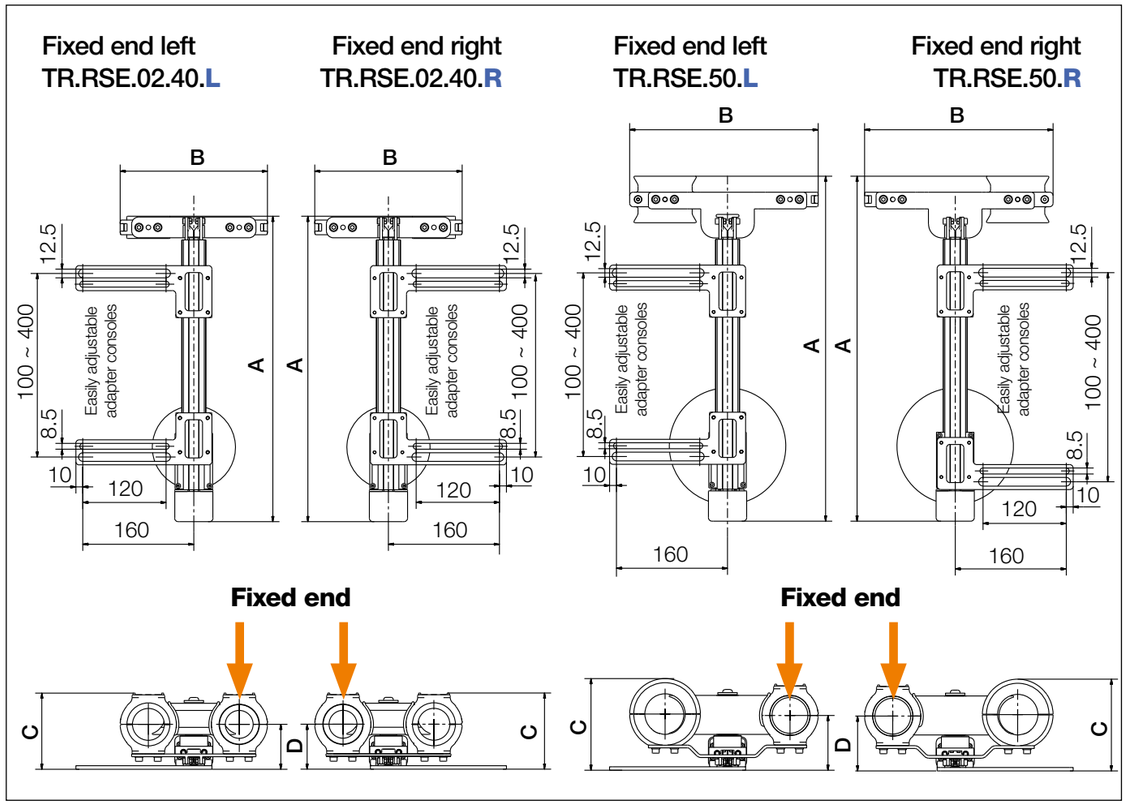
Reliable and controlled energy supply, even in confined space

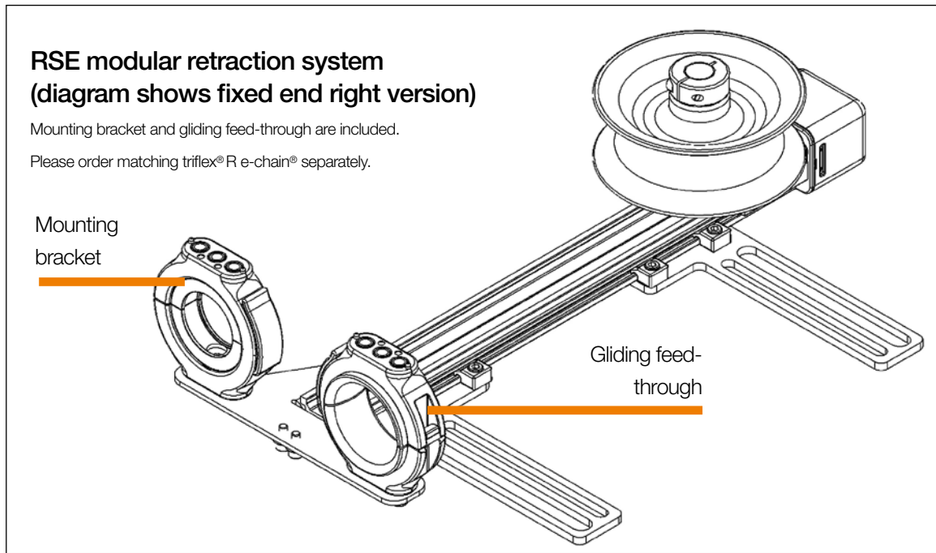
e-chain® is guided closely to the arm with a low profile

triflex® R | RSE | For series TRC·TRE | Accessories

Technical data

Dimensions | RSE cost-effective retraction system





triflex® R
RSE

triflex® R | RSE | For series TRC·TRE | Accessories

Product range

Product range | RSE cost-effective retraction system with deflection

Ø Index		Part No. fixed end **left**	Part No. fixed end **right**	Retraction length[1] ≤ [mm]	A [mm]	B [mm]	C [mm]	D [mm]	Weight [kg]
40.	▶	TR.RSE.02.40.L	TR.RSE.02.40.R	500	440	220	110	64.7	1.6
50.	▶	TR.RSE.50.L	TR.RSE.50.R	500	497	275	132	79	2.1

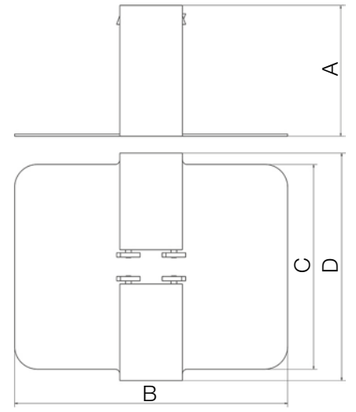
1) These are the maximum values. In normal operation a filling of no more than 70% is advised.

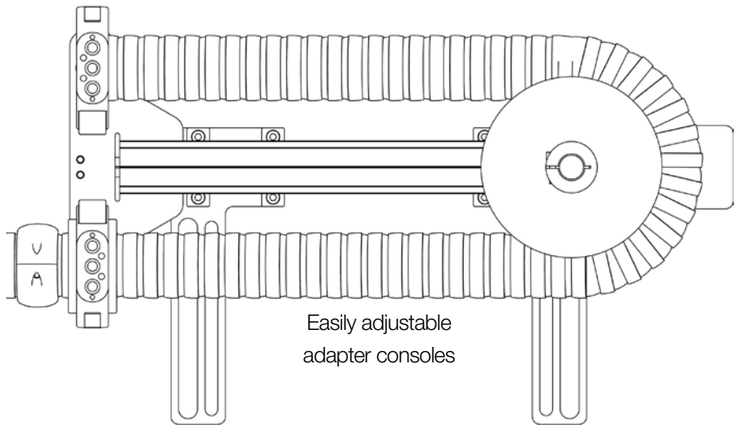
Please order matching triflex® R e-chain® separately.

Product range | Cover, optional

Ø Index		Optional cover retrofit kit	A [mm]	B [mm]	C [mm]	D [mm]	Load* ≤ [kg]	Weight [kg]
40.	▶	TR.RSE.40.COVER	115	240	180	200	1.5	1.1
50.	▶	TR.RSE.50.COVER	126	300	248	248	1.5	1.7

*Maximum fill weight to be used with the cover





Order key

TR.RSE.XX.**L** / **R**

- **R** = Fixed end right
- **L** = Fixed end left
- Ø Index
- System
- e-chains® series

triflex® R | RSE | For series TRC·TRE | Accessories

RSE and matching e-chains®

System design | RSE and matching e-chains®

Cover for additional installation space
on the robot, optional: **TR.RSE.XX.COVER**

Matching triflex®R e-chains® for RSE
TRC.RSE.XX.*R*.LLLL.0
TRE.RSE.XX.*R*.LLLL.0.B

Overall length =
additional length from the
gliding feed-through **LLLL** +
the e-chain® length within the system

RSE system
(e-chain® not included) +
Mounting bracket +
Gliding feed-through =
TR.RSE.(02).XX.L or
TR.RSE.(02).XX.R

Sample order of a complete TR.RSE system, Ø Index 40, fixed end on the left, including cover and e-chain® (standard length: 500mm)

System	Insert Ø index **XX** / select fixed end **.L / .R**	**TR.RSE.02.XX.L**
+ Cover	Insert Ø index **XX** (cover optional)	**TR.RSE.XX.COVER**
+ e-chain®	Insert ø-index **XX** / Insert bend radius ***R*** / Insert standard length **LLLL**	**TRC.RSE.XX.*R*.LLLL.0**

Order text: **TR.RSE.02.40.L + TR.RSE.40.COVER + TRC.RSE.40.058.0500.0**

Order key e-chains®

TRC.RSE.XX.*R*.LLLL.0
TRE.RSE.XX.*R*.LLLL.0.B

- Default colour black
- Additional length
- ***R*** Bend radius
- Ø Index
- System
- e-chains® series

triflex® R | RSE | For series TRC·TRE | Accessories

RSE e-chains® and cable length calculation

Product range | Matching e-chains® for RSE

Ø Index		Part No. **TRC** enclosed	Part No. **TRE** "easy" design
40.	▶	TRC.RSE.40.058. **LLLL**.0	TRE.RSE.40.058. **LLLL**.0.B
50.	▶	TRC.RSE.50.080. **LLLL**.0	TRE.RSE.50.080. **LLLL**.0.B

*Standard lengths from the gliding feed-through outside the system - special lengths upon request.

e-chains® standard lengths*
LLLL [mm] | **0500** | **0750** | **1000** | **1250** |

Part No. with **LLLL** standard length value (measured from the gliding feed-through) corresponds to the robot arm length from axis 3.
For example: **TRC.RSE.40.058.0500.0**

Calculating the overall chain length | RSE e-chains®

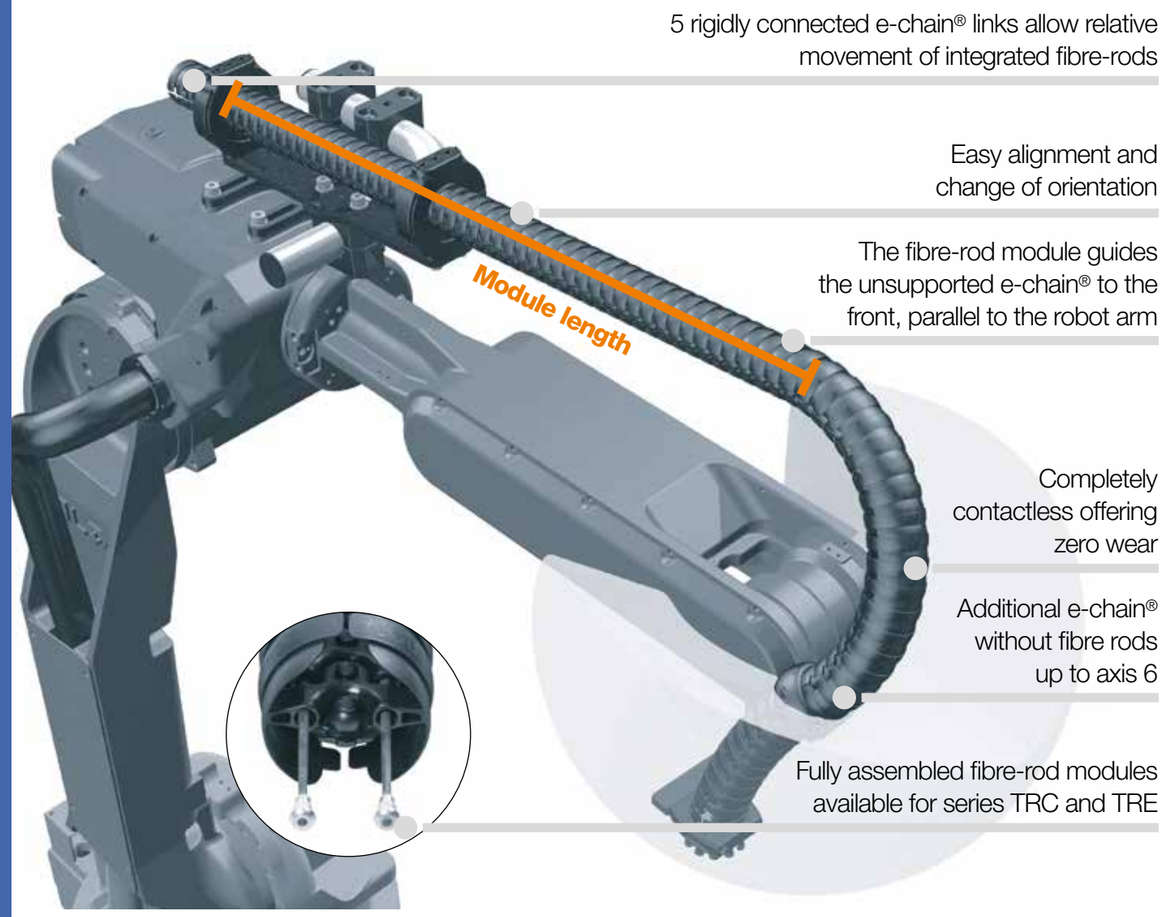
Ø Index		Bend radius ***R*** [mm]	e-chain® length* [mm]	Number of e-chains® links	Total e-chain® length [mm]
40.	▶	058	904	65	**LLLL** + 904
50.	▶	080	1044	60	**LLLL** + 1044

*Values are related to the e-chain® length within the system

Please add the e-chain® length within the system to the standard length **LLLL** (measured from the gliding feed-through) to get the **overall chain length**

triflex® R | Series TRC·TRE | Accessories

Fibre-rod module | Universal mounting kits



Fibre-rod modules for a directional pretension of the e-chain®

We supply fully assembled fibre-rod modules for triflex® R e-chain® Series TRC and TRE. The integrated fibre-rods generate a directional pretension for the e-chain®. This system creates a unique choice of movements for the energy supply system to the final axis of industrial robots. The fibre-rod module guides the unsupported e-chain® to the front, parallel to the robot arm. The bending properties of the modules depends on the installation orientation: only the front end allows flexible movement. The five rear e-chain® links are rigidly connected to allow relative movement of the integrated fibre-rods. This results in a fully contactless and therefore zero-wear energy supply system, designed for moderate movements with limited rotational motion of the axes. Additional e-chain® without fibre-rods for the final axis area needs to be ordered separately.

Product range

Part No. fibre-rod modules for TRC / TRE		Length [m]
TRC.40	**TRE.40**	
TRC.F.**40**.1000.1.0	TRE.F.**40**.1000.1.0.B	≈ 1.0
TRC.F.**40**.0900.1.0	TRE.F.**40**.0900.1.0.B	≈ 0.9
TRC.F.**40**.0800.1.0*	TRE.F.**40**.0800.1.0.B*	≈ 0.8
TRC.F.**40**.0700.1.0	TRE.F.**40**.0700.1.0.B	≈ 0.7
TRC.F.**40**.0600.1.0	TRE.F.**40**.0600.1.0.B	≈ 0.6
TRC.F.**40**.0500.1.0	TRE.F.**40**.0500.1.0.B	≈ 0.5
TRC.F.**40**.0400.1.0	TRE.F.**40**.0400.1.0.B	≈ 0.4
TRC.50	**TRE.50**	
TRC.F.**50**.1400.1.0	TRE.F.**50**.1400.1.0.B	≈ 1.4
TRC.F.**50**.1200.1.0	TRE.F.**50**.1200.1.0.B	≈ 1.2
TRC.F.**50**.1000.1.0*	TRE.F.**50**.1000.1.0.B*	≈ 1.0
TRC.F.**50**.0800.1.0	TRE.F.**50**.0800.1.0.B	≈ 0.8
TRC.F.**50**.0600.1.0	TRE.F.**50**.0600.1.0.B	≈ 0.6
TRC.F.**50**.0400.1.0	TRE.F.**50**.0400.1.0.B	≈ 0.4
TRC.60	**TRE.60**	
TRC.F.**60**.1400.1.0	TRE.F.**60**.1400.1.0.B	≈ 1.4
TRC.F.**60**.1200.1.0	TRE.F.**60**.1200.1.0.B	≈ 1.2
TRC.F.**60**.1000.1.0*	TRE.F.**60**.1000.1.0.B*	≈ 1.0
TRC.F.**60**.0800.1.0	TRE.F.**60**.0800.1.0.B	≈ 0.8
TRC.F.**60**.0600.1.0	TRE.F.**60**.0600.1.0.B	≈ 0.6
TRC.F.**60**.0400.1.0	TRE.F.**60**.0400.1.0.B	≈ 0.4
TRC.70	**TRE.70**	
TRC.F.**70**.1800.1.0	TRE.F.**70**.1800.1.0.B	≈ 1.8
TRC.F.**70**.1600.1.0	TRE.F.**70**.1600.1.0.B	≈ 1.6
TRC.F.**70**.1400.1.0	TRE.F.**70**.1400.1.0.B	≈ 1.4
TRC.F.**70**.1200.1.0*	TRE.F.**70**.1200.1.0.B*	≈ 1.2
TRC.F.**70**.1000.1.0	TRE.F.**70**.1000.1.0.B	≈ 1.0
TRC.F.**70**.0800.1.0	TRE.F.**70**.0800.1.0.B	≈ 0.8

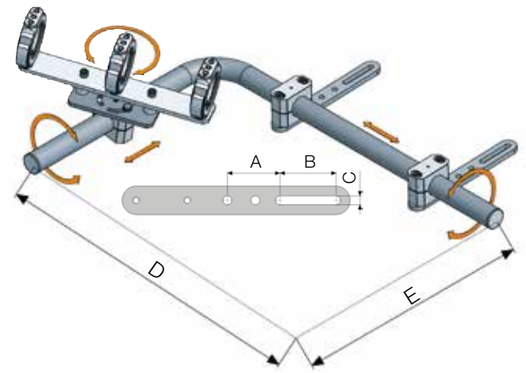
Part No. fibre-rod modules for TRC / TRE		Length [m]
TRC.85	**TRE.85**	
TRC.F.**85**.2000.1.0	TRE.F.**85**.2000.1.0.B	≈ 2.0
TRC.F.**85**.1800.1.0	TRE.F.**85**.1800.1.0.B	≈ 1.8
TRC.F.**85**.1600.1.0	TRE.F.**85**.1600.1.0.B	≈ 1.6
TRC.F.**85**.1400.1.0*	TRE.F.**85**.1400.1.0.B*	≈ 1.4
TRC.F.**85**.1200.1.0	TRE.F.**85**.1200.1.0.B	≈ 1.2
TRC.F.**85**.1000.1.0	TRE.F.**85**.1000.1.0.B	≈ 1.0
TRC.F.**85**.0800.1.0	TRE.F.**85**.0800.1.0.B	≈ 0.8
TRC.100	**TRE.100**	
TRC.F.**100**.2000.1.0	TRE.F.**100**.2000.1.0.B/.**C**[1]	≈ 2.0
TRC.F.**100**.1800.1.0	TRE.F.**100**.1800.1.0.B/.**C**[1]	≈ 1.8
TRC.F.**100**.1600.1.0	TRE.F.**100**.1600.1.0.B/.**C**[1]	≈ 1.6
TRC.F.**100**.1400.1.0*	TRE.F.**100**.1400.1.0.B/.**C**[1]*	≈ 1.4
TRC.F.**100**.1200.1.0	TRE.F.**100**.1200.1.0.B/.**C**[1]	≈ 1.2
TRC.F.**100**.1000.1.0	TRE.F.**100**.1000.1.0.B/.**C**[1]	≈ 1.0
TRC.125	**TRE.125**	
TRC.F.**125**.2000.1.0	TRE.F.**125**.2000.1.0	≈ 2.0
TRC.F.**125**.1800.1.0*	TRE.F.**125**.1800.1.0*	≈ 1.8
TRC.F.**125**.1600.1.0	TRE.F.**125**.1600.1.0	≈ 1.6
TRC.F.**125**.1400.1.0	TRE.F.**125**.1400.1.0	≈ 1.4
TRC.F.**125**.1200.1.0	TRE.F.**125**.1200.1.0	≈ 1.2
TRC.F.**125**.1000.1.0	TRE.F.**125**.1000.1.0	≈ 1.0

*Maximum recommended length for fibre-rod modules

1) For die C version please add the index .C

Universal mounting kit | For TRC·TRE

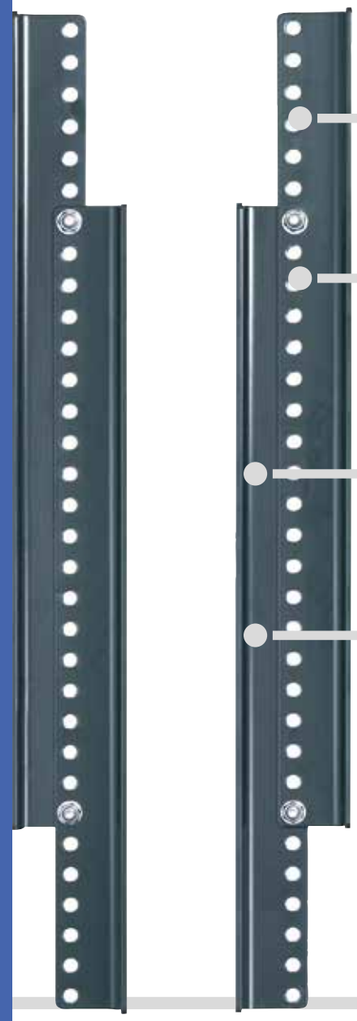
● Stainless steel angle tube with attachment brackets ● Freely positionable ● The energy supply system can be quickly and easily adapted to new programming sequences of the robot ● With 2 mounting brackets for sizes 40 and 60 - with 3 mounting brackets starting at size 70



Ø Index	Part No.	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Weight [kg]
40.	**TR.40.80**	74	40	8.4	475	325	3.6
50.	**TR.50.80**	74	40	8.4	475	325	3.6
60.	**TR.60.80**	74	40	8.4	625	325	4.7
70.	**TR.70.80**	75	80	12.6	875	575	5.9
85.	**TR.85.80**	75	80	12.6	875	575	6.3
100.	**TR.100.80**	75	80	12.6	875	575	6.3
125.	**TR.125.80**	75	80	12.6	875	575	8.5

triflex® R | For RSP·RS | Accessories

Adjustment units for retraction systems



Wide adjustment range of ± 250mm

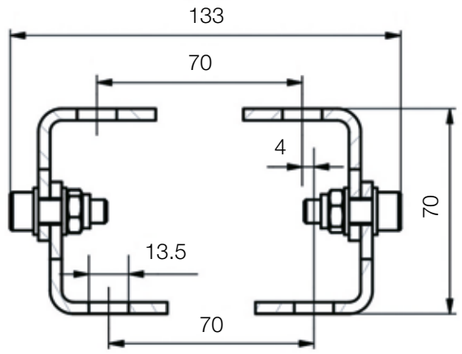
Can be combined with igus® adapter consoles

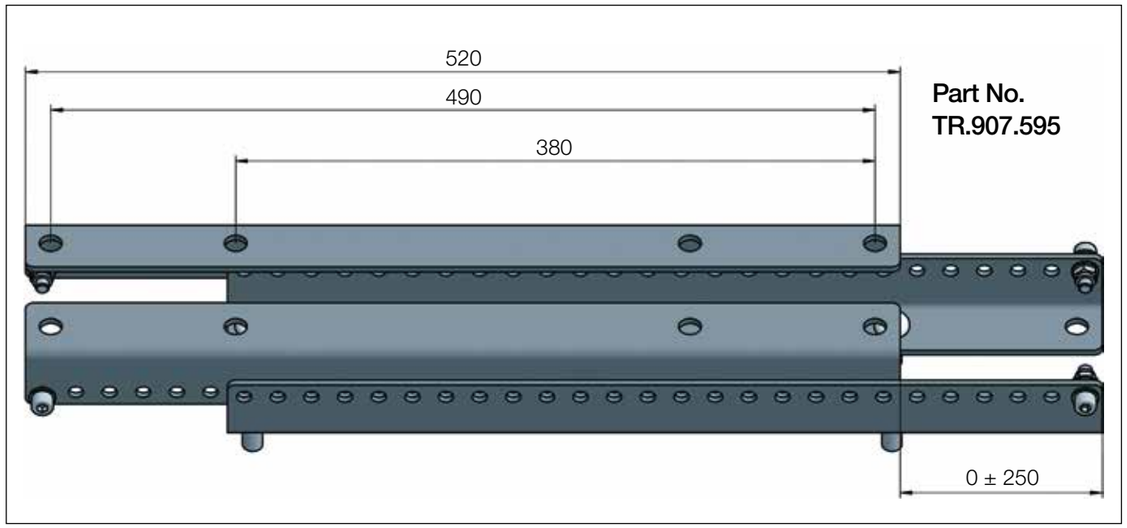
Simplifies alignment for robot cells with restricted space

Part No. TR.907.595
weight: 5.0kg

Adjustment unit for RSP and RS retraction systems

The optional adjustment unit is installed between the robot arm and the retraction system, and allows accurate adjustments of the position of the igus® retraction system on the robot arm. Particularly useful for multiple working programs using the same cable package.





Adjustment unit to easily change the position of the retraction system

triflex® R | For RSP·RS·RSE | Accessories

Adapter consoles for retraction systems

43 adapter consoles for many robot models, from stock

For all triflex® RSP , RS and RSE modules

3D CAD data available online for download
▶ **www.igus.eu/consoles**

Also for robots needing side-mounted installation

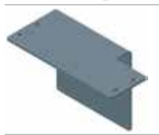
Adapter consoles for RSP, RS and RSE retraction systems

The RS and RSP retraction systems provide all widely used drill patterns for attachment: 380 x 70 mm and 490 x 90 mm (in Ø12.5 mm). We also supply a wide range of manufacturer and model-dependent adapter consoles from stock, in order to adapt to other robot variations. For example, many robot models are equipped from the factory with only side-mounted mounting options - in these cases, our adapter product range also supports simple installation of the retraction systems without additional engineering. **Adapter consoles for many robot models, from stock. Product range ▶ next page**

Application example with RS system on ABB Series 6600

triflex® R | For RSP·RS·RSE | Accessories

Adapter consoles for retraction systems, from stock | Product range

Adapter console	Part No.	Manufacturer	Robot model	Weight [kg]
	TR.907.347	**ABB**	IRB 6600 IRB 6640 IRB 6650	4.0
	TR.907.468	**ABB**	IRB 6400	9.8
	TR.907.448	**ABB**	IRB 4400	5.0
	TR.907.381	**ABB**	IRB 2400/10 IRB 2400/16	5.2
	TR.907.905	**ABB**	IRB 6620	2.8
	TR.908.494	**ABB**	IRB 4600 IRB 2600	2.9
	TR.907.374	**Comau**	NH1 130-2.6 NJ 110-3.0 NH3 165-2.7 NJ 110-2.6 NH3 220-2.7 SMART5 NJ 165 3.0	4.7
	TR.907.447	**Comau**	NM 45-2.0 NM 16-3.1	3.4
	TR.908.493	**Comau**	Smart six	2.2
	TR.907.327	**Yaskawa**	UP 20 UP 165 ES 280 MH6 UP 50 ES 165 HP 20 HP 165 UP 130 ES 200 HP 50	3.6
	TR.909.641	**Yaskawa**	MH50	2.0

More adapter consoles upon request. CAD data online.

triflex® R

triflex® R | For RSP·RS·RSE | Accessories

Adapter consoles for retraction systems, from stock | Product range

Adapter console	Part No.	Manufacturer	Robot model	Weight [kg]
	TR.911.220	**Fanuc**	M-710iC 50 M-710iC 70	2.0
	TR.908.973	**Fanuc**	M-710iB 45	1.1
	TR.907.270	**Fanuc**	IR-2000iB S 430 R-2000iA S 420 R-1000iA	4.5
	TR.907.470.12	**Fanuc**	M-900iA 260L M-900iA 350	6.8
	TR.907.902.12	**Fanuc**	M-900iA 600	8.9
	TR.910.876	**Fanuc**	M900-IB700	4.6
	TR.907.599	**Kuka**	KR5 KR6 KR5arc KR16	2.5
	TR.908.113	**Kuka**	KR-1000	5.2
	TR.908.014	**Kuka**	KR 60 (HA) KR 30 (HA)	4.3
	TR.907.706	**Reis**	RV30-26 RV60-26 RV10-16 RV60-40 RV20-16 RV60-60 RV60-16 RV130	4.3
	TR.911.223 Spacer bolt	**Kuka**	Series Quantec (4 piece kit)	0.6

More adapter consoles upon request. CAD data online.

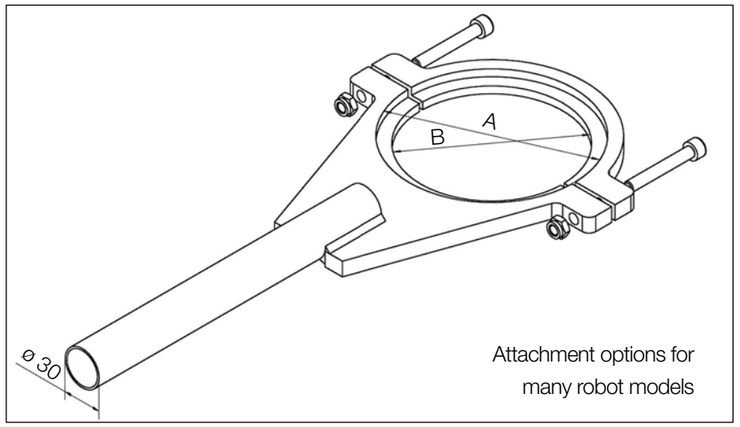
triflex® R | For all kind of robots | Accessories

Clamps | For attachment to axis 6

Clamps for attachment to axis 6

The clamp is used to attach a mounting bracket to axis 6, with a bar (Ø 30mm) for all robots. They are easy and quick to assemble.

- For use with heavy duty connection **TR.XX.20** / **TR.XX.23**
- For use with compact connection **TR.XX.21.01** / **TR.XX.21.02**
- For use with quick exchange unit **TR.XX.22**



Attachment options for many robot models

triflex® R | For all kind of robots | Accessories

Axis 6 clamps | Product range

Part No. Clamp	Robot model	With recess	A [mm]	B [mm]	Weight [kg]
TR.907.857	KUKA KR 30-3 (HA)	yes	130	115	1.9
	KUKA KR 60-3 (HA)	yes	130	115	1.9
	KUKA KR 60 L45-3 (HA)	yes	130	115	1.9
	KUKA KR 60 L30-3 (HA)	yes	130	115	1.9
TR.907.901	KUKA Quantec, large flange	yes	205	190	2.5
	KUKA KR 125/3	yes	205	190	2.5
	KUKA KR 150/3	yes	205	190	2.5
	KUKA KR 200/3	yes	205	190	2.5
	KUKA KR 360/1	yes	205	190	2.5
	KUKA KR 500/1	yes	205	190	2.5
	KUKA KR 150/2 Series 2000	yes	205	190	2.5
	KUKA KR 180/2 Series 2000	yes	205	190	2.5
	KUKA KR 210/2 Series 2000	yes	205	190	2.5
TR.908.115	KUKA KR 1000 Titan	yes	250	242	3.05
TR.907.992	Fanuc R-2000iB	yes	165	160	2.4
	Fanuc R-2000iA	yes	165	160	2.4
	Reis RV 130	yes	165	160	2.4
TR.908.065	Fanuc M-710iC 50	yes	130	124	2.2
	Fanuc M-710iC 70	yes	130	124	2.2
TR.909.387	Yaskawa UP 50	yes	125	100	1.9
	Yaskawa HP 50	yes	125	100	1.9
	Yaskawa MH 50	yes	125	100	1.9
TR.910.544	Reis RV60-60	yes	145	125	1.9
	Reis RV60-40	yes	145	125	1.9
	Fanuc R-1000	yes	145	125	1.9
TR.908.347	Stäubli TX200	yes	145	125	1.9
TR.907.667.125	for custom flange	no	125	= A	2.1
TR.907.667.140	KUKA Quantec small flange	no	140	= A	2.2
TR.907.667.142	Hyundai HX 165	no	142	= A	2.25
TR.907.667.150	Comau NJ 130	no	150	= A	2.4
TR.907.667.160	ABB IRB 6400	no	160	= A	2.45
	Fanuc S420	no	160	= A	2.45
TR.907.667.180	for custom flange	no	180	= A	2.55
TR.907.667.190	Comau NH3	no	190	= A	2.6
TR.907.667.200	KUKA KR 125/1	no	200	= A	2.7
	KUKA KR 150/1	no	200	= A	2.7
	KUKA KR 200/1	no	200	= A	2.7
	ABB IRB 6640	no	200	= A	2.7
	ABB IRB 6620	no	200	= A	2.7
	ABB IRB 6650	no	200	= A	2.7
TR.907.667.220	KUKA KR 360-2	no	220	= A	2.82
	KUKA KR 500-2	no	220	= A	2.82
	KUKA KR 360-3	no	220	= A	2.82
	KUKA KR 500-3	no	220	= A	2.82
TR.908.107.223	ABB IRB 7600-340	no	223	= A	3.5
	ABB IRB 7600-500	no	223	= A	3.5
TR.907.667.250	Fanuc M900iA 350	no	250	= A	3.2
	Fanuc M900iA 260L	no	250	= A	3.2
TR.907.667.275	Fanuc M900iA 200P	no	275	= A	3.4
TR.907.667.315	Fanuc M900iA 600	no	315	= A	3.6
	Fanuc M900iA 400L	no	315	= A	3.6

Other dimensions available upon request