E2 e-tubes

Protection against dirt and debris

E2 e-tubes - protection in environments with dirt and debris

E2 Series R100 and Series R
Since igus® introduced the first openable e-tubes in the mid-1980`s, many additions and improvements have been introduced into the program. igus® e-tubes work in hot chip areas, in areas of dirt and dust generated by woodworking, steelmills, pulp and paper, textile, agriculture, coal plant and many other hostile environments.

Typical industries and applications
- Tooling machines
- Woodworking machines
- All kind of industries and machines with chip, dirt and dust

iF-Design Awards -
Series R117/118 and Series R68

ESD Classification: Electrically conductive
ESD/ATEX version upon request

UL94-V2 classifications upon request

e-tubes with HT-material for hot chips
up to 850°C available upon request

Series R100 - Cost effective alternative, for applications with low and medium speeds

Series R - For higher speeds and smooth running

E2 e-tubes in chip-area of a tooling machine. Resistant against hot metal chips up to 850°C

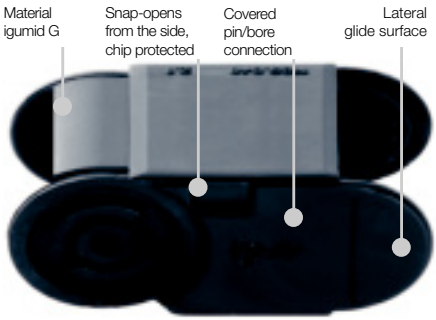
U-shaped supported e-tube
for high lateral acceleration

Standing application - R68 e-tube -
Note: the first links are supported

System RX - Extremely chip repellent e-tubes

Totally redesigned igus® e-tube - it repels chips, is extremely tight, and is still openable!

System RX ▶ from page 6.50

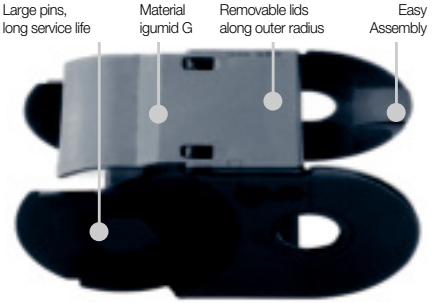


E2 Series R100 - robust and tight

- Very good protection against chips (including hot chips)
- Hinged, snap-open, removable lids along inner and outer radius reduce assembly time
- Space-efficient with optimized ratio of inner dimension to outer dimension
- Double stop dog for long service life and strong unsupported lengths
- Universal KMA mounting brackets with attachment capability on all sides
- You can find more technical data about the material, chemical resistance, temperatures ▶ **chapter Design, page 1.38**

Selection table

Series	Inner height *hi* [mm]	Inner width *Bi* [mm]	Outer width *Ba* [mm]	Outer height *ha* [mm]	Bending radius *R* [mm]	Unsupported length max. [m]	Page
R117/118	21	20-100	32-112	28	63 - 180	1,20	**6.6**
R157/158	40	40-200	56-216	50	100 - 250	2,25	**6.12**
R167/168	50	50-250	68-268	64	100 - 300	2,50	**6.20**



E2 Series R - small pitch for smooth motion

- Protection for cables and hoses against chips (including hot chips)
- Small pitch for low noise, smooth operation
- Smooth, chip repelland exterior
- Lids removable for assembly time reduction
- Double stop dog for strong unsupported lengths
- KMA mounting brackets with attachment capability on all sides
- Very small radii possible due to small pitch
- You can find more technical data about the material, chemical resistance, temperatures ▶ **chapter Design, page 1.38**

Selection table

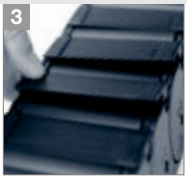
Series	Inner height *hi* [mm]	Inner width *Bi* [mm]	Outer width *Ba* [mm]	Outer height *ha* [mm]	Bending radius *R* [mm]	Unsupported length max. [m]	Page
R48	25	25-130	36-141	36	60 - 250	1,50	**6.26**
R58	35	50-200	66-216	50	75 - 250	2,30	**6.34**
R68	45	50-250	68-268	64	100 - 300	2,50	**6.42**

Type R100 | **Series R117/R118 · R157/R158 · R167/R168**

Assembling | Type R100

Push, click - and snap in pin

Swivel lids - push and snap



Slide last lid

Push and snap

Separating | Type R100

Lever open lid

Bend e-tube to remove lid

Release side-link

Twist and pull apart

Type R | **Series R48 · R58 · R68**

Assembling | Type R

Push and click

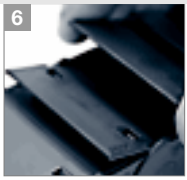
Snap in pin

Slide lid

Push and snap

Separating | Type R

Lever open lid



Remove lid

Release side-link

Twist and pull apart

You can find an assembly video on the web ▶ www.igus.de/en/video

E2 e-tubes | R100 | **Series R117·R118**

21 21

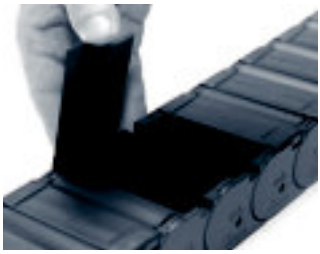
Price index

UL94-V2 classifications upon request

iF-Design Award Winner Series R117/R118

e-tubes with HT-material for hot chips up to 850°C available upon request

1. Effective chip protection, even against hot metal chips
2. Smooth, chip-repellent exterior
3. Double stop dog for strong unsupported length
4. Snap-open from the side, covered pin/bore connection
5. Lateral glide surfaces for side-mounted operation
6. Snap-open lids along inner or outer radius
7. Universal KMA mounting brackets with attachment capability on all sides
8. Space-efficient with optimized ratio of inner dimension to outer dimension



To open the e-tube Series R100 lift up the lid and swivel lid to the side

When to use the Series R117/R118:

- If snap-open accessibility along inner or outer radius is required
- If price is an issue
- If flush attachment is required

When not to use it:

- For smoother running and smaller pitch
  ▶ **e-tubes E2, Series R48, page 6.26**
- If no chip protection is required
  ▶ **Series 1400/1500 E2/000, page 5.142**

Order example complete e-tube

Please indicate e-tube-lengths or number of links **Example: 1 m or 33 links**

1 m **117.100.100.0**	e-tube
with 2 separators **1186.01** assembled every 2nd link	Interior separation
1 set **11800.100.14**	Mounting bracket

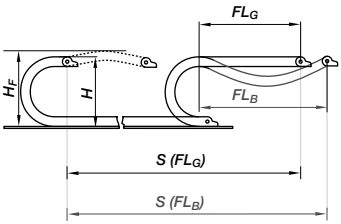
Available from stock. Delivery in 24h or today! (Delivery time means time until shipping of goods)

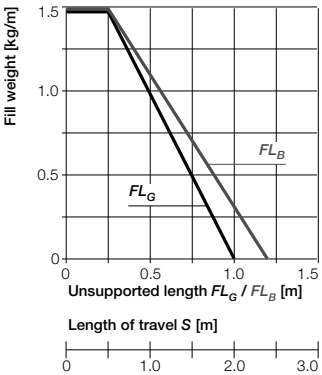
Unsupported length

FL_G = with straight upper run

FL_B = with permitted sag

Further information ▶ **Design, page 1.12**





S = Length of travel

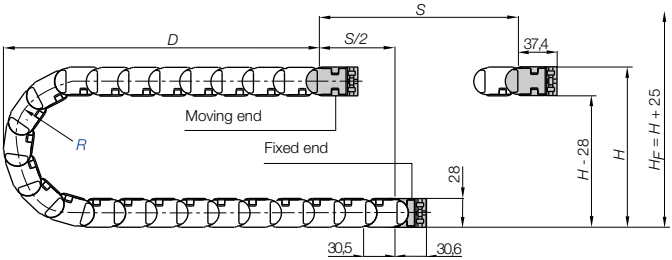
R = Bending radius

H = Nominal clearence height

H_F = Required clearence height

D = Overlength e-chain® radius in final position

K = $\pi \bullet R$ + "safety"



Short travels - unsupported

Unsupported e-chains® feature positive camber over short travels. This must be accounted for when specifying the clearance height H_F. Please consult igus® if space is particularly restricted.

Pitch = 30,5 mm/link **Links/m =** 33 (1000,6 mm) **Chain length =** $^{S}/_{2} + K$

R	063	075	100	110	125	145	180
H	154	178	228	248	278	318	388
D	123	135	160	170	185	205	240
K	260	300	380	410	455	520	630

The required clearance height:
$H_F = H$ + 25 mm
(with 1,0 kg/m fill weight)

Hot Chips up to 850°C

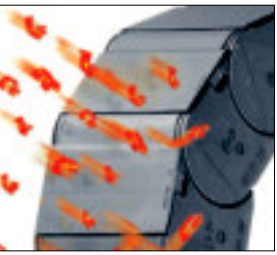
e-tubes that repel hot chips, up to 850 °C. Some applications, depending on amount and size of the chips, can burn or melt the surface. That is no longer the case with the igus® "igumid HT" material.

Order example - Full e-tube made of HT*: 118.080.100.0.HT

Order example - Lids made of HT: 118.080HT.100.0

*for long travels upon request

Delivery time up to 4 weeks! Further Information: www.igus.de/en/HT



Technical Data

Speed / acceleration FL_G	max. 10 [m/s] / max. 100 [m/s²]
Speed / acceleration FL_B	max. 3 [m/s] / max. 6 [m/s²]
Gliding speed / acceleration (maximum)	max. 0,5 [m/s] / max. 5 [m/s²]
Material - permitted temperature °C	igumid G / -40° up to +120° C
Flammability class, igumid G	VDE 0304 IIC UL94 HB

Details of material properties

▶ **page 1.38**

E2 e-tubes Type R
Inner height: 21 mm

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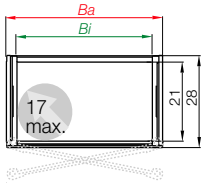
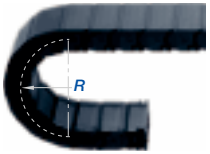
▶ page 6.5





Series R117 - hinged, snap-open on both sides of the inner radius

Part No.	Bi [mm]	Ba [mm]	R [mm] Bending radii	Weight [kg/m]
117.020.□.0	20	32	063 075 100 110 125 145 180	≈ 0,43
117.025.□.0	25	37	063 075 100 110 125 145 180	≈ 0,46
117.038.□.0	38	50	063 075 100 110 125 145 180	≈ 0,56
117.048.□.0	48	60	063 075 100 110 125 145 180	≈ 0,66
117.063.□.0	63	75	063 075 100 110 125 145 180	≈ 0,76
117.080.□.0	80	92	063 075 100 110 125 145 180	≈ 0,89
117.100.□.0	100	112	063 075 100 110 125 145 180	≈ 1,06

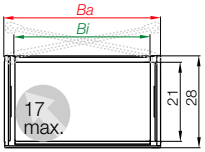
Supplement Part No. with required radius. Example: 117.100.100.0

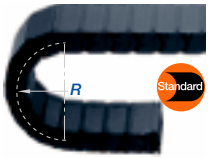
0 = standard color, other colors ▶ page 1.39 · Pitch = 30,5 mm/link - Links/m = 33

Part No. structure

117.	100.	100.	0

Color black
Bending radius
Width
Series





Series R118 - hinged, snap-open on both sides of the outer radius

Part No.	Bi [mm]	Ba [mm]	R [mm] Bending radii	Weight [kg/m]
118.020.□.0	20	32	063 075 100 110 125 145 180	≈ 0,43
118.025.□.0	25	37	063 075 100 110 125 145 180	≈ 0,46
118.038.□.0	38	50	063 075 100 110 125 145 180	≈ 0,56
118.048.□.0	48	60	063 075 100 110 125 145 180	≈ 0,66
118.063.□.0	63	75	063 075 100 110 125 145 180	≈ 0,76
118.080.□.0	80	92	063 075 100 110 125 145 180	≈ 0,89
118.100.□.0	100	112	063 075 100 110 125 145 180	≈ 1,06

The sizes **020 / 038 / 063 / 100** are available upon request.

Delivery time: approx. 8-10 weeks after receipt of order

Supplement Part No. with required radius. Example: 118.080.100.0

0 = standard color, other colors ▶ page 1.39 · Pitch = 30,5 mm/link - Links/m = 33

Part No. structure

118.	080.	100.	0

Color black
Bending radius
Width
Series

Series R117·R118 | Accessories | Interior Separation

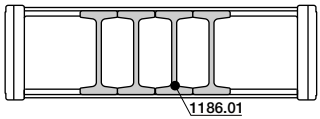
Vertical Separator	
unassembled	1185.01
assembled	1186.01

Option 1: Vertical Separators

Vertical Separators are used if a vertical subdivision of the e-chain® interior is required -

By standard Vertical Separators are assembled every other e-chain® link

● **Standard** subdivision with **Vertical Separator 1185.01**



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igus® GmbH
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E-mail: info@igus.de

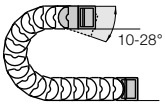
Standard

Option KMA* - pivoting

- Pivoting
- Short and long travels
- Space-restricted
- Corrosion-resistant
- Pivoting option at fixed end available upon request (Part No. 11800...12)

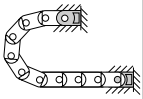
*KMA = Polymer Metal Mounting Bracket

Moving end (outer link)
11800....1



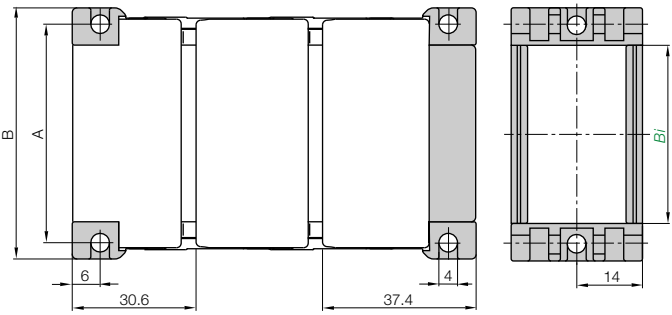
11800...4
Fixed end (inner link)

Mounting bracket attachment



11800...4
Fixed end

11800...1
Moving end



For Series	Part No. full set	Dim. A [mm]	Dim. B [mm]
117·118.020. ▶	11800. 020 .14	29	36
117·118.025. ▶	11800. 025 .14	34	41
117·118.038. ▶	11800. 038 .14	47	54
117·118.048. ▶	11800. 048 .14	57	64
117·118.063. ▶	11800. 063 .14	72	79
117·118.080. ▶	11800. 080 .14	89	96
117·118.100. ▶	11800. 100 .14	109	116

Please add the Part No. with the requested index - **e.g. 11800. 048 .14**

For the **preassembled** mode please add the index A **e.g. 11800. 048 .14** A

Dimensions and order configurations

The mounting brackets are supplied with hexagon nuts and can be attached with M4 bolts, or the mounting brackets may also be attached with M4 socket head cap bolts.

Part No. structure

11800.	020.	14	A

- A...must be indicated on preassembled configurations
- **Full set = 14**
- Width
- KMA **pivoting** for selecfed chain type

Full set, for both ends:
11800. 020. 14

Single-part order:
11800. 020. 1
Mounting bracket **with bore**

11800. 020. 4
Mounting bracket **with pin**

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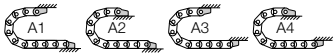
▶ page 6.5

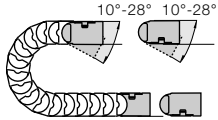


Possible installation conditions for assembled mounting brackets ▶ Order example "preassembled" below

Angled polymer bracket

- Locked connection to e-tube
- Minimized external width
- For long travels
- Attachment option for strain relief tiewrap plate

Moving end (outer link)
1180...1PZ(B)



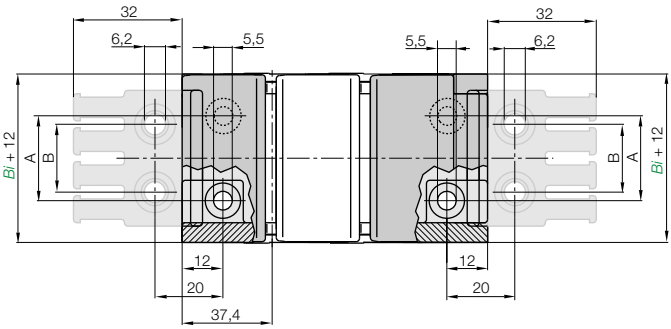
1180...4PZ(B) Fixed end (inner link)

Dimensions and order configurations

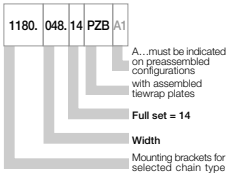
Strain relief is possible on the moving end and/or the fixed end.

1180...1PZ(B)
Moving end

1180 ...4PZ(B)
Fixed end



Part No. structure



Full set, for both ends:
1180.048.14PZB +tiewrap plate

Single-part order:
1180.048.1PZB +tiewrap plate
Mounting bracket **with bore**
1180.048.4PZB +tiewrap plate
Mounting bracket **with pin**

For Series	Part No. full set **with** tiewrap plate	Part No. full set **without** tiewrap plate	Dim. A [mm]	Dim. B [mm]
117·118.025. ▶	1180.025.14PZB	1180.025.14PZ	12	15
117·118.038. ▶	1180.038.14PZB	1180.038.14PZ	25	20
117·118.048. ▶	1180.048.14PZB	1180.048.14PZ	35	30
117·118.063. ▶	1180.063.14PZB	1180.063.14PZ	50	40
117·118.080. ▶	1180.080.14PZB	1180.080.14PZ	67	60
117·118.100. ▶	1180.100.14PZB	1180.100.14PZ	87	80

Please add the Part No. with the requested index - **e.g. 1180.048.14 PZB**
For the **preassembled** mode please add the index A1...A4 **e.g. 1180.048 14PZB A1**
The following parts are required for attachment of the mounting brackets:

- **Countersunk bolt M5 DIN 912-8.8** Length depends on the thickness of the attachment base
- **Hexagon nut M5 DIN 934-8**

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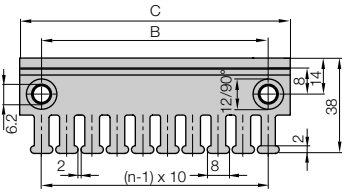
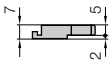
Tiewrap plate	No. of teeth *n*	Dim. C [mm]	Dim. B [mm]
2020.ZB	3	30	15
2030.ZB	4	40	20
2040.ZB	5	50	30
2050.ZB	6	60	40
2070.ZB	8	80	60
2090.ZB =			
(2030.ZB + 2040.ZB)	9	90	–
2100.ZB	10	100	80
2125.ZB =			
(2050.ZB + 2050.ZB)	12	120	–

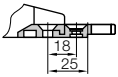
Tiewrap plate as individual part

As individual component screwed on KMA. Can be plugged in the mounting brackets. **Details ▶ chapter 10**





Single tiewrap plate



Shown assembled

Cable tiewraps as individual part

Cable tiewraps (100-piece bag)	Width x length	max. Ø	Tensile strength
CFB.001	4,8 x 150 mm	36 mm	222 N

Other strain relief elements
▶ chapter 10

E2 e-tubes Type R
Inner height: 21 mm

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▶ chapter 10

▶ page 6.5

E2 e-tubes | R100 | **Series R157·R158**

40 40

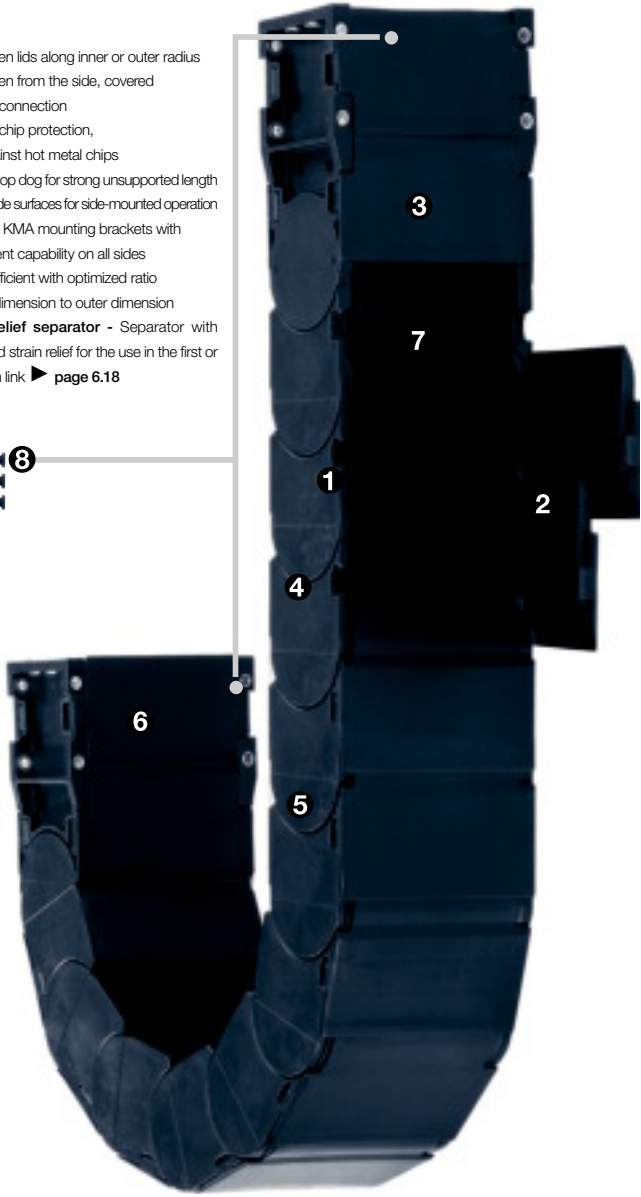
Price index

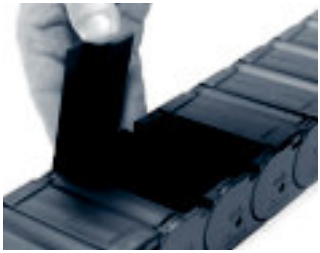
UL94-V2 classifications upon request

ESD classification: Electrically conductive ESD/ATEX version upon request

e-tubes with HT-material for hot chips up to 850°C available upon request

1. Snap-open lids along inner or outer radius
2. Snap-open from the side, covered pin/bore connection
3. Effective chip protection, even against hot metal chips
4. Double stop dog for strong unsupported length
5. Lateral glide surfaces for side-mounted operation
6. Universal KMA mounting brackets with attachment capability on all sides
7. Space-efficient with optimized ratio of inner dimension to outer dimension
8. **Strain relief separator** - Separator with integrated strain relief for the use in the first or last chain link ▶ **page 6.18**





To open the e-tube Series R100 lift up the lid and swivel lid to the side

When to use the Series R157/R158:

- If snap-open accessibility along inner or outer radius is required
- If a low-cost, lightweight e-tube for many types of applications required
- If flush attachment is required
- If chip-repellent features are required

When not to use it:

- For extremely chip repellent e-tubes
  ▶ **System RX, Series RX32, page 6.58**
- If snap-open accessibility along both sides is required
  ▶ **System E4.1, Series R4.32, page 7.42**
- If very smooth travel due to small pitch is required
  ▶ **Type R, Series R58, page 6.34**

Order example complete e-tube

Please indicate e-tube-lengths or number of links **Example: 1 m or 22 links**

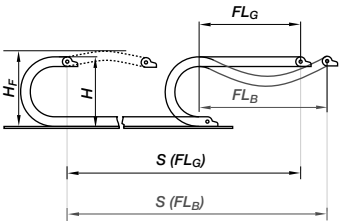
1 m **157.088.100.0**	**e-tube**
with 2 separators **1586.01** assembled every 2nd link	**Interior separation**
1 set **15800.088.12**	**Mounting bracket**

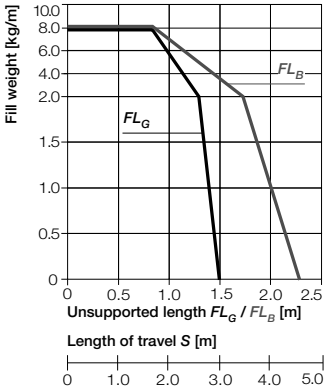
Available from stock. Delivery in 24h or today! (Delivery time means time until shipping of goods)

Phone +49- (0) 22 03-96 49-800
Fax +49- (0) 22 03-96 49-222

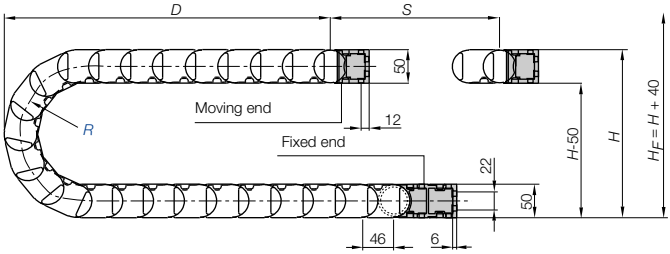
Unsupported length

FL_G = with straight upper run
FL_B = with permitted sag
Further information ▶ **Design, page 1.12**





S = Length of travel
R = Bending radius
H = Nominal clearence height
H_F = Required clearence height
D = Overlength e-chain® radius in final position
K = $\pi \bullet R$ + "safety"



Short travels - unsupported

Unsupported e-chains® feature positive camber over short travels. This must be accounted for when specifying the clearance height H_F. Please consult igus® if space is particularly restricted.

Pitch = 46 mm/link **Links/m =** 22 (1012 mm) **Chain length =** $^S/_2 + K$

R	100	125	150	175	200	250
H	250	300	350	400	450	550
D	194	219	244	269	294	344
K	410	485	565	645	725	880

The required clearance height:
H_F = H + 40 mm
(with 1,0 kg/m fill weight)

Hot Chips up to 850°C

e-tubes that repel hot chips, up to 850 °C. Some applications, depending on amount and size of the chips, can burn or melt the surface. That is no longer the case with the igus® "igumid HT" material.

Order example - Full e-tube made of HT*: 158.100.100.0.HT
Order example - Lids made of HT: 158.100HT.100.0

*for long travels upon request

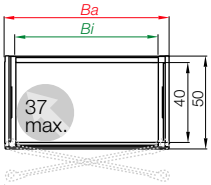
Delivery time up to 4 weeks! Further Information: www.igus.de/en/HT

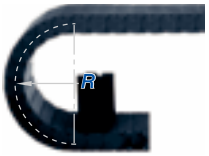
Technical Data

Speed / acceleration FL_G	max. 10 [m/s] / max. 100 [m/s²]
Speed / acceleration FL_B	max. 3 [m/s] / max. 6 [m/s²]
Gliding speed / acceleration (maximum)	max. 0,5 [m/s] / max. 5 [m/s²]
Material - permitted temperature °C	igumid G / -40° up to +120° C
Flammability class, igumid G	VDE 0304 IIC UL94 HB

Details of material properties
▶ **page 1.38**

▶ page 6.5





Series R157 - hinged, snap-open on both sides of the inner radius

Part No.		Bi [mm]	Ba [mm]	R [mm] Bending radii						Weight [kg/m]
157.040.	.0*	40	56	100	125	150	175	200	250	≈ 1,21
157.050.	.0	50	66	100	125	150	175	200	250	≈ 1,30
157.075.	.0	75	91	100	125	150	175	200	250	≈ 1,50
157.088.	.0	88	104	100	125	150	175	200	250	≈ 1,57
157.090.	.0**	88	104	100	125	150	175	200	250	≈ 1,63
157.100.	.0	100	116	100	125	150	175	200	250	≈ 1,71
157.125.	.0	125	141	100	125	150	175	200	250	≈ 1,92
157.135.	.0	135	150	100	125	150	175	200	250	≈ 2,10
157.150.	.0	150	166	100	125	150	175	200	250	≈ 2,13
157.175.	.0	175	191	100	125	150	175	200	250	≈ 2,34
157.200.	.0	200	216	100	125	150	175	200	250	≈ 2,55

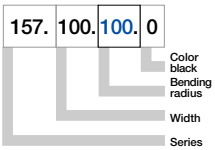
* Lid removable only, not hinged

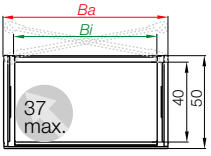
** Same dimensions as 157.088 - less recent design, no hinged option

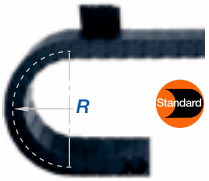
Supplement Part No. with required radius. Example: 157.100.100.0

0 = standard color, other colors ▶ page 1.39 · Pitch = 46 mm/link - Links/m = 22

Part No. structure







Series R158 - hinged, snap-open on both sides of the outer radius

Part No.		Bi [mm]	Ba [mm]	R [mm] Bending radii						Weight [kg/m]
158.040.	.0*	40	56	100	125	150	175	200	250	≈ 1,21
158.050.	.0	50	66	100	125	150	175	200	250	≈ 1,30
158.075.	.0	75	91	100	125	150	175	200	250	≈ 1,50
158.088.	.0	88	104	100	125	150	175	200	250	≈ 1,57
158.090.	.0**	88	104	100	125	150	175	200	250	≈ 1,63
158.100.	.0	100	116	100	125	150	175	200	250	≈ 1,71
158.125.	.0	125	141	100	125	150	175	200	250	≈ 1,92
158.135.	.0	135	150	100	125	150	175	200	250	≈ 2,10
158.150.	.0	150	166	100	125	150	175	200	250	≈ 2,13
158.175.	.0	175	191	100	125	150	175	200	250	≈ 2,34
158.200.	.0	200	216	100	125	150	175	200	250	≈ 2,55

* Lid removable only, not hinged

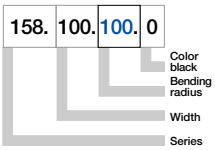
** Same dimensions as 158.088 - less recent design, no hinged option

The size **125** is available upon request. Delivery time: approx. 8-10 weeks after receipt of order

Supplement Part No. with required radius. Example: 158.100.100.0

0 = standard color, other colors ▶ page 1.39 · Pitch = 46 mm/link - Links/m = 22

Part No. structure



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Fax +49- (0) 22 03-96 49-222
igus® GmbH
51147 Cologne
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E-mail: info@igus.de

Option 1: Vertical Separators

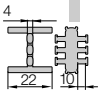
Vertical Separators are used if a vertical subdivision of the e-chain® interior is required -
By standard Vertical Separators are assembled every other e-chain® link

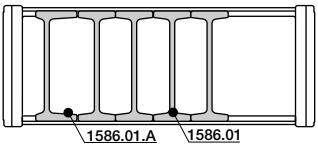
- **Standard** subdivision with **Vertical Separator 1586.01**
- **Asymetrical Separator 1586.01.A** for side-mounted operations
- **Strain Relief Separator 1586.01.Z**, integrable in the mounting bracket, to postition at any point - can be combined with **Full-Width Shelf 221.X** and **Shelf 2210.X**

Vertical Separator	
unassembled	**1585.01**
assembled	**1586.01**

Asymetrical Separator	
unassembled	**1585.01.A**
assembled	**1586.01.A**

Strain Relief Separator	
unassembled	**1585.01.Z**
assembled	**1586.01.Z**



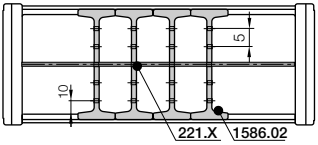


Option 2: Full-Width Shelves

For applications involving many thin cables with similar or identical diameters

- **Vertical Separator, slotted 1586.02** for applications with **Full-Width Shelf 221.X**

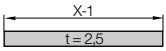
Vert. Separator, slotted	
unassembled	**1585.02**
assembled	**1586.02**



Width X [mm]	Part No. unassembled	Part No. assembled
040	**220.40**	**221.40**
050	**220.50**	**221.50**
075	**220.75**	**221.75**
088	**220.87**	**221.87**
100	**220.100**	**221.100**

Width X [mm]	Part No. unassembled	Part No. assembled
125	**220.125**	**221.125**
135	**220.135**	**221.135**
150	**220.150**	**221.150**
175	**220.175**	**221.175**
200	**220.200**	**221.200**

Full-Width Shelf

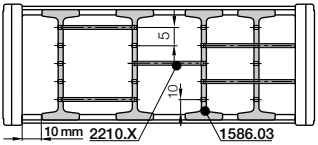


Option 3: Shelves

For applications involving many cables with similar or identical diameters. Partial separation into individual chambers can be achieved and the entire width *Bi*-10 mm can be used

- **Shelf 2210.X** can be combined with **Middle Plate 1586.03**

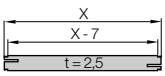
Middle Plate	
unassembled	**1585.03**
assembled	**1586.03**



Width X [mm]	Part No. unassembled	Part No. assembled
018	**2200.18**	**2210.18**
023	**2200.23**	**2210.23**
028	**2200.28**	**2210.28**
033	**2200.33**	**2210.33**
038	**2200.38**	**2210.38**
043	**2200.43**	**2210.43**
048	**2200.48**	**2210.48**

Width X [mm]	Part No. unassembled	Part No. assembled
058	**2200.58**	**2210.58**
068	**2200.68**	**2210.68**
073	**2200.73**	**2210.73**
088	**2200.88**	**2210.88**
099	**2200.99**	**2210.99**
124	**2200.124**	**2210.124**
149	**2200.149**	**2210.149**

Shelf



▶ page 6.5

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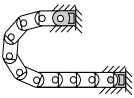


The attachment variants arising automatically by the choice of the KMA mounting bracket

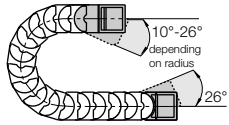
Standard

Option KMA* - pivoting, extended

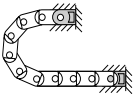
- Recommended for unsupported and gliding applications
- Extended, pivoting
- Easy to install
- Universally mountable with attachment capability on all sides
- Locked connection to e-tube
- Long travels with lowered mounting height possible

*KMA = Polymer Metal Mounting Bracket

Moving end (outer link)
15800/15801 ...1



15800/15801...2
Fixed end (inner link)

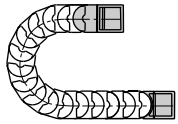


The attachment variants arising automatically by the choice of the KMA mounting bracket

Option KMA - locking, extended

- Recommended for vertical hanging / standing applications
- Extended, locking
- Easy to install
- Flush mounting at both ends of the e-tube
- Universally mountable with attachment capability on all sides
- Corrosion-resistant

Moving end (outer link)
15800/15801 ...3



15800/15801...4
Fixed end (inner link)

Dimensions and order configurations

Quickflange upon request

Part No. structure (pivoting)

15800. 100. 12 A

Standard

A...must be indicated on preassembled configurations
Full set pivoting = 12
Width
KMA for selected chain type

Full set, for both ends:
15800. 100. 12

Single-part order:
15800. 100. 1
Mounting bracket **with bore**
15800. 100. 2
Mounting bracket **with pin**

Part No. structure (locking)

15800. 100. 34 A

A...must be indicated on preassembled configurations
Full set locking = 34
Width
KMA for selected chain type

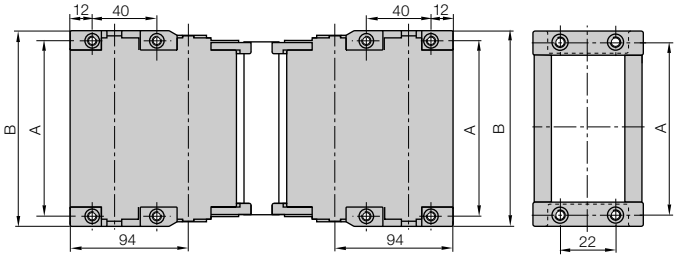
Full set, for both ends:
15800. 100. 34

Single-part order:
15800. 100. 3
Mounting bracket **with bore**
15800. 100. 4
Mounting bracket **with pin**

15800/15801...1 Standard! (pivoting)
15800/15801...3 (locking)
Moving end

Standard! (pivoting) 15800/15801...2
(locking) 15800/15801...4
Fixed end

Quickflange available upon request



For Series	Part No. full set	Dim. A [mm]	Dim. B [mm]
157·158.040 ▶	15801.040.	50	61
157·158.050 ▶	15800.050.	60	71
157·158.075 ▶	15800.075.	85	96
157·158.088 ▶	15800.088.	98	109
157·158.090 ▶	15801.090.	98	109
157·158.100 ▶	15800.100.	110	121
157·158.125 ▶	15800.125.	135	146
157·158.135 ▶	15800.135.	145	156
157·158.150 ▶	15800.150.	160	171
157·158.175 ▶	15800.175.	185	196
157·158.200 ▶	15800.200.	210	221

Please add the Part No. with the requested index - 12 for the pivoting configuration
e.g. 15800.100. 12 or 34 for the locking configuration **e.g. 15800.100. 34**
For the **preassembled** mode please add the index A **e.g. 15800.100. 12 A**
The following parts are required for attachment of the mounting brackets:

- **Socket head cap bolt M5 DIN 912-8.8** Length depends on the thickness of the attachment base
- **Washer 5,3 DIN 125-ST** ● **Hexagon nut M5 DIN 934-8**

Strain relief separator for the use in the first or last chain link ▶ page 6.18

igus® GmbH
51147 Cologne

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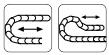
E-mail: info@igus.de



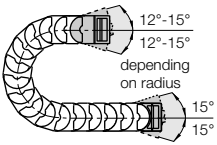
Option KMA* - pivoting, abbreviated

- Recommended for unsupported and gliding applications
- Abbreviated, pivoting
- Universally mountable with attachment capability on all sides
- Locked connection to e-tube
- Corrosion-resistant
- Space-restricted
- Long travels with lowered mounting height possible

*KMA = Polymer Metal Mounting Bracket

Moving end (outer link)

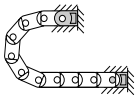
1580....1

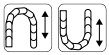


1580...2

Fixed end (inner link)

The attachment variants arising automatically by the choice of the KMA mounting bracket



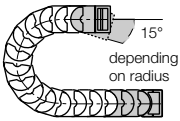


Option KMA - locking, abbreviated

- Recommended for vertical hanging / standing applications
- Abbreviated, locking
- Flush mounting at both ends of the e-tube
- Corrosion-resistant
- Flush mounting, turned 90° at fixed end option

Moving end (outer link)

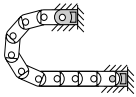
1585...1



1585...2

Fixed end (inner link)

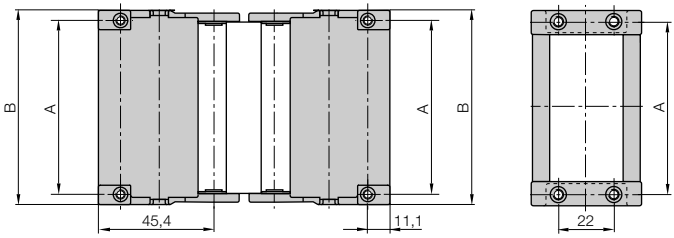
The attachment variants arising automatically by the choice of the KMA mounting bracket



1580...1 (pivoting)
1585...1 (locking)
Moving end

(pivoting) 1580...2
(locking) 1585...2
Fixed end

Quickflange available upon request



For Series	Part No. full set	Dim. A [mm]	Dim. B [mm]
157·158.040 ▶	☐.040.12	50	61
157·158.050 ▶	☐.050.12	60	71
157·158.075 ▶	☐.075.12	85	96
157·158.088 ▶	☐.088.12	98	109
157·158.090 ▶	☐.090.12	98	109
157·158.100 ▶	☐.100.12	110	121
157·158.125 ▶	☐.125.12	135	146
157·158.135 ▶	☐.135.12	145	156
157·158.150 ▶	☐.150.12	160	171
157·158.175 ▶	☐.175.12	185	196
157·158.200 ▶	☐.200.12	210	221

Please add the Part No. with the requested index - 1580 for the pivoting configuration
e.g. 1580.**100.12** or 1585 for the locking configuration **e.g.** 1585.**100.12**
For the **preassembled** mode please add the index A **e.g.** 1580.**100.12** A
The following parts are required for attachment of the mounting brackets:

- **Socket head cap bolt M5 DIN 912-8.8** Length depends on the thickness of the attachment base
- **Washer 5,3 DIN 125-ST** ● **Hexagon nut M5 DIN 934-8**

Dimensions and order configurations

Quickflange upon request

Part No. structure (pivoting)

1580. 040. 12 A

- A...must be indicated on preassembled configurations
- **Full set**
- Width
- KMA **pivoting** for selected chain type

Full set, for both ends:
1580. 040. 12

Single-part order:
1580. 040. 1
Mounting bracket **with bore**
1580. 040. 2
Mounting bracket **with pin**

Part No. structure (locking)

1585. 040. 12 A

- A...must be indicated on preassembled configurations
- **Full set**
- Width
- KMA **locking** for selected chain type

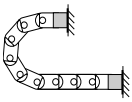
Full set, for both ends:
1585. 040. 12

Single-part order:
1585. 040. 1
Mounting bracket **with bore**
1585. 040. 2
Mounting bracket **with pin**

▶ page 6.5

Strain relief separator for the use in the first or last chain link ▶ page 6.18

Series R157·R158 | Accessories | Mounting Brackets, Steel, Flange

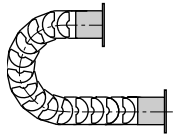


Flush mounting possibilities at both ends of the e-tube

Flange mounting brackets made of steel

- Metallic flange brackets with popular hole patterns, easily be replaced by their modern successors, without having to alter the hole pattern
- Bolted connection outside of chain cross-section possible
- Universally mountable with attachment capability on all sides
- Steel, galvanized
- One-piece mounting bracket
- High stability

Moving end (outer link)
906.461.X



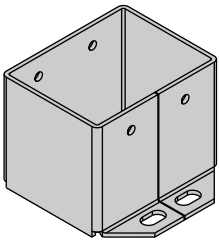
906.461.X
Fixed end (inner link)

Dimensions and order configurations

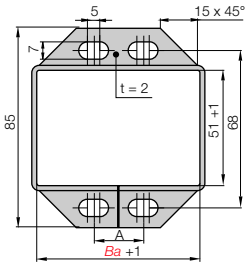
Hole patterns flange steeel mounting brackets 906.461.X

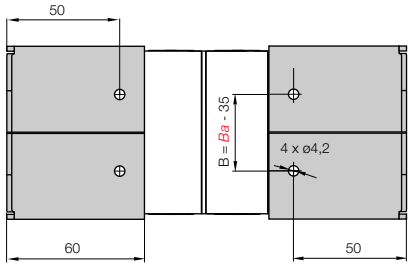
906.461.X
Moving end

906.461.X
Fixed end



Principle sketch flange steeel mounting brackets

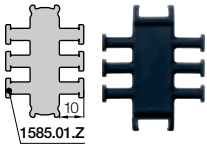




Mounting only with hexagon socket DIN 912 M6 and washer DIN 125, 6,3 mm

For Series	Hole pattern	Part No. full set	*Bi* [mm]	*Ba* [mm]	Dim. A [mm]	Dim. B [mm]
157·158.050 ▶	58.05	906.461.1	50	66	20	31
157·158.075 ▶	58.1	906.461.2	75	91	30	57

R100 | Series R157·R158 | Accessories | Strain Relief

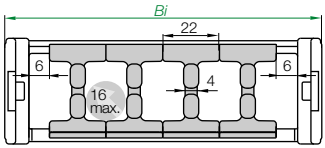


Strain relief separator

Separator with integrated strain relief, for use in the first or last chain link. For manufacturing of switchgear cabinets or for the assembly of machines. Easy to assemble without any fastening device. Separator base **1585.01.Z** is 22 mm wide. The possible number of separators per e-chain® is defined by its inner width *Bi* and by the cable-diameter. **Details ▶ chapter 10**

Part No.	Number of teeth	For Series
1585.01.Z	3 both sides	R157/158 e-tube

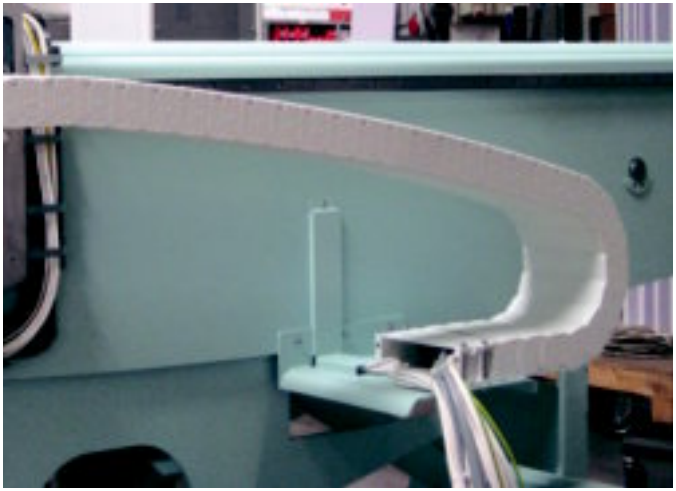
Other strain relief elements
▶ chapter 10



Strain Relief Separator - The number of seperators is depending on the cables and the available inner space. Example: e-chain® inner width *Bi* 100 mm: 4 Strain Relief Separator, max. cable diameter 16 mm. **Details ▶ chapter 10**

Phone +49- (0) 22 03-96 49-800
Fax +49- (0) 22 03-96 49-222
igus® GmbH
51147 Cologne
Internet: www.igus.eu
E-mail: info@igus.de

3D-CAD files, pdf-downloads and many online features ▶ www.igus.de/en/r157 · www.igus.de/en/r158



igus® e-tubes Series R100
in a medical application

Phone +49- (0) 22 03-96 49-800
Fax +49- (0) 22 03-96 49-222

▶ chapter 10

▶ page 6.5

E2 e-tubes | R100 | **Series R167·R168**

50 50

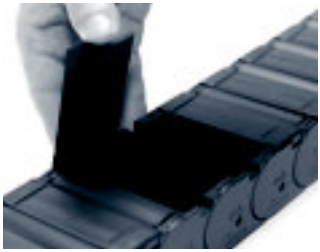
Price index

UL94-V2 classifications upon request

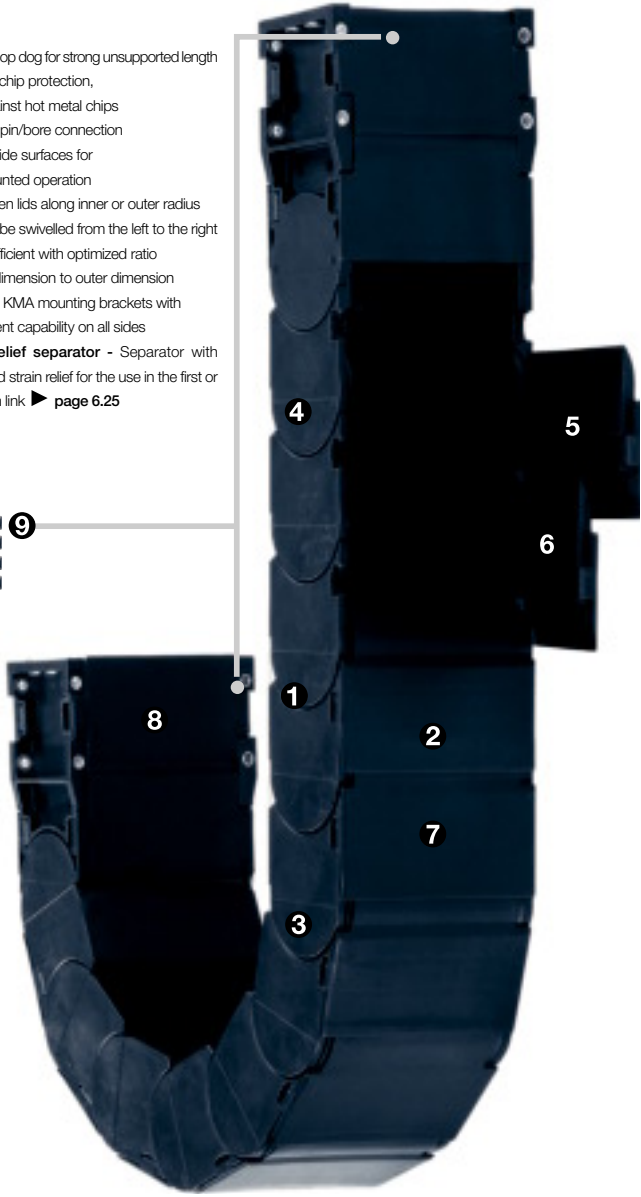
ESD classification: Electrically conductive ESD/ATEX version upon request

e-tubes with HT-material for hot chips up to 850°C available upon request

1. Double stop dog for strong unsupported length
2. Effective chip protection, even against hot metal chips
3. Covered pin/bore connection
4. Lateral glide surfaces for side-mounted operation
5. Snap-open lids along inner or outer radius
6. Lids can be swivelled from the left to the right
7. Space-efficient with optimized ratio of inner dimension to outer dimension
8. Universal KMA mounting brackets with attachment capability on all sides
9. **Strain relief separator -** Separator with integrated strain relief for the use in the first or last chain link ▶ **page 6.25**



To open the e-tube Series R100 lift up the lid and swivel lid to the side



When to use the Series R167/R168:

- If snap-open accessibility along inner or outer radius is required
- If a low-cost, lightweight e-tube for many types of applications required
- If flush attachment is required
- If chip-repellent features are required

When not to use it:

- For extremely chip repellent e-tubes
  ▶ **System RX, Series RX40, page 6.64**
- If snap-open accessibility along both sides is required
  ▶ **System E4.1, Series R4.42, page 7.60**
- If very smooth travel due to small pitch is required
  ▶ **Type R, Series R68, page 6.42**

Order example complete e-tube

Please indicate e-tube-lengths or number of links **Example: 1 m or 17 links**

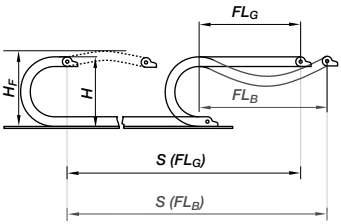
1 m **167.100.100.0**	**e-tube**
with 2 separators **1686.01** assembled every 2nd link	**Interior separation**
1 set **1680.100.12**	**Mounting bracket**

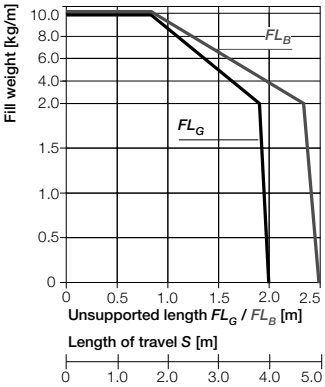
Available from stock. Delivery in 24h or today! (Delivery time means time until shipping of goods)

Phone +49- (0) 22 03-96 49-800
Fax +49- (0) 22 03-96 49-222

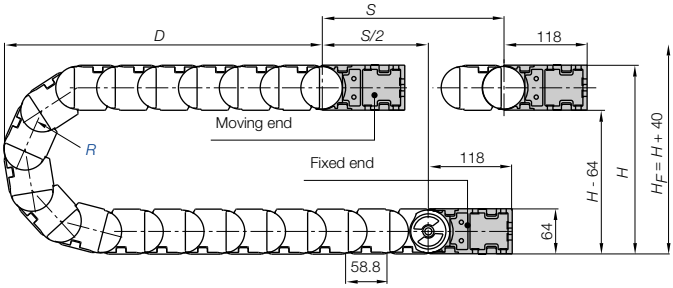
Unsupported length

FL_G = with straight upper run
FL_B = with permitted sag
Further information ▶ **Design, page 1.12**





S = Length of travel
R = Bending radius
H = Nominal clearence height
H_F = Required clearence height
D = Overlength e-chain® radius in final position
K = $\pi \bullet R$ + "safety"



Short travels - unsupported

Unsupported e-chains® feature positive camber over short travels. This must be accounted for when specifying the clearance height H_F. Please consult igus® if space is particularly restricted.

Pitch = 58,8 mm/link **Links/m =** 17 (999,6 mm) **Chain length =** $^S/_2 + K$

R	100	125	150	175	200	225	250	300
H	264	314	364	414	464	514	564	664
D	220	245	270	295	320	345	370	420
K	435	515	590	670	750	825	905	1065

The required clearance height:
H_F **= *H* + 40 mm**
(with 2,0 kg/m fill weight)

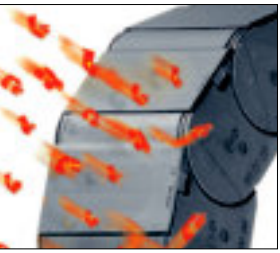
Hot Chips up to 850°C

e-tubes that repel hot chips, up to 850 °C. Some applications, depending on amount and size of the chips, can burn or melt the surface. That is no longer the case with the igus® "igumid HT" material.

Order example - Full e-tube made of HT*: 168.100.100.0.HT
Order example - Lids made of HT: 168.100HT.100.0

*for long travels upon request

Delivery time up to 4 weeks! Further Information: www.igus.de/en/HT

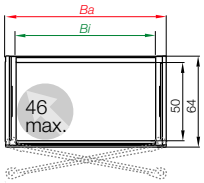


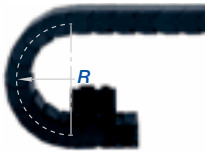
Technical Data

Speed / acceleration FL_G	max. 10 [m/s] / max. 100 [m/s²]
Speed / acceleration FL_B	max. 3 [m/s] / max. 6 [m/s²]
Gliding speed / acceleration (maximum)	max. 0,5 [m/s] / max. 5 [m/s²]
Material - permitted temperature °C	igumid G / -40° up to +120° C
Flammability class, igumid G	VDE 0304 IIC UL94 HB

Details of material properties
▶ **page 1.38**

▶ page 6.5





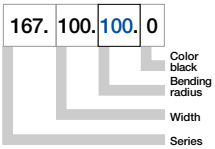
Series R167 - hinged, snap-open on both sides of the inner radius

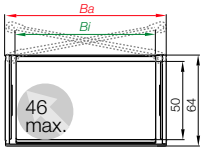
Part No.	Bi [mm]	Ba [mm]	R [mm] Bending radii								Weight [kg/m]
167.050.□.0	50	68	100	125	150	175	200	225	250	300	≈ 1,58
167.075.□.0	75	93	100	125	150	175	200	225	250	300	≈ 1,84
167.100.□.0	100	118	100	125	150	175	200	225	250	300	≈ 2,09
167.115.□.0	115	133	100	125	150	175	200	225	250	300	≈ 2,24
167.125.□.0	125	143	100	125	150	175	200	225	250	300	≈ 2,35
167.150.□.0	150	168	100	125	150	175	200	225	250	300	≈ 2,60
167.175.□.0	175	193	100	125	150	175	200	225	250	300	≈ 2,86
167.200.□.0	200	218	100	125	150	175	200	225	250	300	≈ 3,11
167.225.□.0	225	243	100	125	150	175	200	225	250	300	≈ 3,37
167.250.□.0	250	268	100	125	150	175	200	225	250	300	≈ 3,62

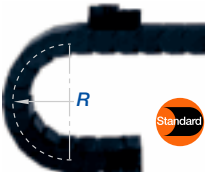
Supplement Part No. with required radius. Example: 167.100.100.0

0 = standard color, other colors ▶ page 1.39 · Pitch = 58,8 mm/link - Links/m = 17

Part No. structure







Series R168 - hinged, snap-open on both sides of the outer radius

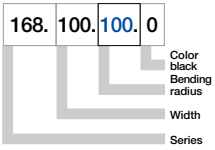
Part No.	Bi [mm]	Ba [mm]	R [mm] Bending radii								Weight [kg/m]
168.050.□.0	50	68	100	125	150	175	200	225	250	300	≈ 1,58
168.075.□.0	75	93	100	125	150	175	200	225	250	300	≈ 1,84
168.100.□.0	100	118	100	125	150	175	200	225	250	300	≈ 2,09
168.115.□.0	115	133	100	125	150	175	200	225	250	300	≈ 2,24
168.125.□.0	125	143	100	125	150	175	200	225	250	300	≈ 2,35
168.150.□.0	150	168	100	125	150	175	200	225	250	300	≈ 2,60
168.175.□.0	175	193	100	125	150	175	200	225	250	300	≈ 2,86
168.200.□.0	200	218	100	125	150	175	200	225	250	300	≈ 3,11
168.225.□.0	225	243	100	125	150	175	200	225	250	300	≈ 3,37
168.250.□.0	250	268	100	125	150	175	200	225	250	300	≈ 3,62

The sizes **125 / 225 / 250** are available upon request. Delivery time: approx. 8-10 weeks after receipt of order

Supplement Part No. with required radius. Example: 168.100.100.0

0 = standard color, other colors ▶ page 1.39 · Pitch = 58,8 mm/link - Links/m = 17

Part No. structure



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Fax +49- (0) 22 03-96 49-222
igus® GmbH
51147 Cologne
Internet: www.igus.eu
E-mail: info@igus.de

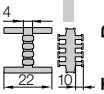
Option 1: Vertical Separators

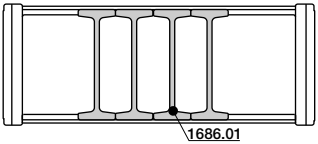
Vertical Separators are used if a vertical subdivision of the e-chain® interior is required -
By standard Vertical Separators are assembled every other e-chain® link

- **Standard** subdivision with **Vertical Separator 1686.01**
- **Strain Relief Separator 1686.01.Z**, integrable in the mounting bracket, to postition at any point - can be combined with **Full-Width Shelf 321.X** and **Shelf 2210.X**

Vertical Separator	
unassembled	**1685.01**
assembled	**1686.01**

Strain Relief Separator	
unassembled	**1685.01.Z**
assembled	**1686.01.Z**



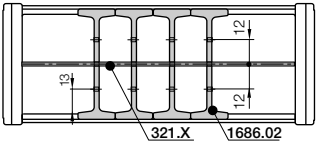


Option 2: Full-Width Shelves

For applications involving many thin cables with similar or identical diameters

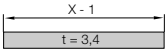
- **Vertical Separator, slotted 1686.02** for applications with **Full-Width Shelf 321.X**

Vert. Separator, slotted	
unassembled	**1685.02**
assembled	**1686.02**



Width X [mm]	Part No. unassembled	Part No. assembled	Width X [mm]	Part No. unassembled	Part No. assembled
050	**320.050**	**321.050**	150	**320.150**	**321.150**
075	**320.075**	**321.075**	175	**320.175**	**321.175**
100	**320.100**	**321.100**	200	**320.200**	**321.200**
115	**320.115**	**321.115**	225	**320.225**	**321.225**
125	**320.125**	**321.125**	250	**320.250**	**321.250**

Full-Width Shelf



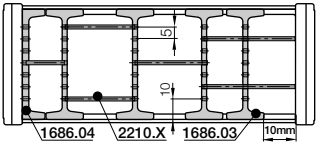
Option 3: Shelves

For applications involving many cables with similar or identical diameters. Partial separation into individual chambers can be achieved and the entire width *Bi*-10 mm can be used

- **Shelf 2210.X** can be combined with **Middle Plate 1686.03** and **Side Plate 1686.04**

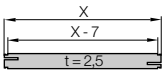
Middle Plate	
unassembled	**1685.03**
assembled	**1686.03**

Side Plate	
unassembled	**1685.04**
assembled	**1686.04**



Width X [mm]	Part No. unassembled	Part No. assembled	Width X [mm]	Part No. unassembled	Part No. assembled
018	**2200.18**	**2210.18**	058	**2200.58**	**2210.58**
023	**2200.23**	**2210.23**	068	**2200.68**	**2210.68**
028	**2200.28**	**2210.28**	073	**2200.73**	**2210.73**
033	**2200.33**	**2210.33**	088	**2200.88**	**2210.88**
038	**2200.38**	**2210.38**	099	**2200.99**	**2210.99**
043	**2200.43**	**2210.43**	124	**2200.0124**	**2210.124**
048	**2200.48**	**2210.48**	149	**2200.0149**	**2210.149**

Shelf

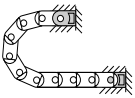


▶ page 6.5

E2 e-tubes Type R
Inner height: 50 mm

Phone +49- (0) 22 03-96 49-800
Fax +49- (0) 22 03-96 49-222

Series R167·R168 | Accessories | Mounting Brackets, KMA



The attachment variants arising automatically by the choice of the KMA mounting bracket

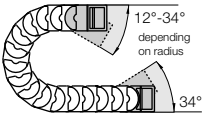
Standard

Option KMA* - pivoting

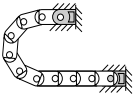
- Recommended for unsupported and gliding applications
- Option - KMA with Quickflange, bolted connection outside of e-tube cross-section
- Universally mountable with attachment capability on all sides
- Locked connection to e-tube
- Long travels with lowered mounting height possible
- Corrosion-resistant

*KMA = Polymer Metal Mounting Bracket

Moving end (outer link)
1680...1



1680...2
Fixed end (inner link)

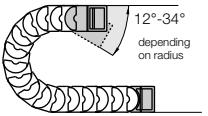


The attachment variants arising automatically by the choice of the KMA mounting bracket

Option KMA - locking

- Recommended for vertical hanging / standing applications
- Option - KMA with Quickflange, bolted connection outside of e-tube cross-section
- At very high speed and acceleration
- Universally mountable with attachment capability on all sides
- Flush mounting at both ends of the e-tube

Moving end (outer link)
1680...1



1680...4
Fixed end (inner link)

Dimensions and order configurations

Quickflange upon request

Part No. structure (pivoting)

1680.	100.	12	A

Standard

A…must be indicated on preassembled configurations
Full set pivoting = 12
Width
KMA for selected chain type

Full set, for both ends:
1680. 100. 12

Single-part order:
1680. 100. 1

Mounting bracket **with bore**
1680. 100. 2

Mounting bracket **with pin**

Part No. structure (locking)

1680.	100.	14	A

A…must be indicated on preassembled configurations
Full set locking = 14
Width
KMA for selected chain type

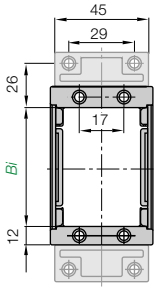
Full set, for both ends:
1680. 100. 14

Single-part order:
1680. 100. 1

Mounting bracket **with bore**
1680. 100. 4

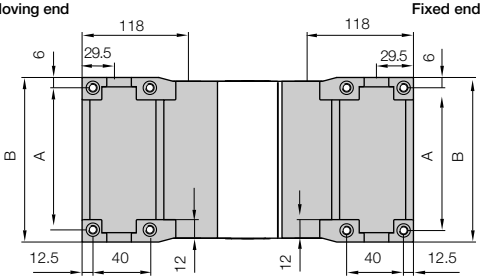
Mounting bracket **with pin**

Quickflange



1680...1 Standard! (pivoting)
1680...1 (locking)
Moving end

Standard! (pivoting) 1680...2
(locking) 1680...4
Fixed end



For Series	Part No. full set	Part No. full set with Quickflange	Dim. A [mm]	Dim. B [mm]
167·168.050 ▶	1680.050. ☐	1680.050. ☐ QF	62	74
167·168.075 ▶	1680.075. ☐	1680.075. ☐ QF	87	99
167·168.100 ▶	1680.100. ☐	1680.100. ☐ QF	112	124
167·168.115 ▶	1680.115. ☐	1680.115. ☐ QF	127	139
167·168.125 ▶	1680.125. ☐	1680.125. ☐ QF	137	149
167·168.150 ▶	1680.150. ☐	1680.150. ☐ QF	162	174
167·168.175 ▶	1680.175. ☐	1680.175. ☐ QF	187	199
167·168.200 ▶	1680.200. ☐	1680.200. ☐ QF	212	224
167·168.225 ▶	1680.225. ☐	1680.225. ☐ QF	237	249
167·168.250 ▶	1680.250. ☐	1680.250. ☐ QF	262	274

Please add the Part No. with the requested index - 12 for the pivoting configuration **e.g. 1680.100. 12** or 14 for the locking configuration **e.g. 1680.100. 14**

For the **preassembled** mode please add the index A **e.g. 1680.100. 12 A**

Quickflange unassembled: **Part No. 16800.QF**

The following parts are required for attachment of the mounting brackets:

- **Socket head cap bolt M5 DIN 912-8.8** Length depends on the thickness of the attachment base
- **Washer 5,3 DIN 125-ST** ● **Hexagon nut M5 DIN 934-8**

Strain relief separator for the use in the first or last chain link ▶ page 6.25

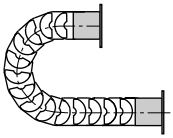
igus® GmbH
51147 Cologne

Internet: www.igus.eu
E-mail: info@igus.de

Flange mounting brackets made of steel

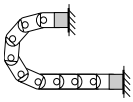
- Metallic flange brackets with popular hole patterns, easily be replaced by their modern successors, without having to alter the hole pattern
- Bolted connection outside of chain cross-section possible
- Universally mountable with attachment capability on all sides
- Steel, galvanized
- One-piece mounting bracket
- High stability

Moving end (outer link)
905.050.X

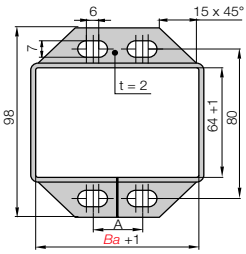


905.050.X
Fixed end (inner link)

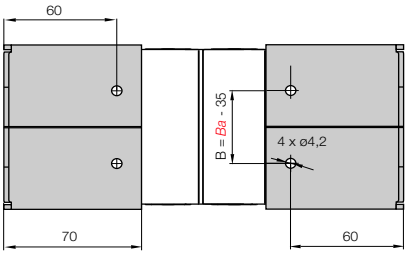
Flush mounting possibilities at both ends of the e-tube



Hole patterns flange steeel mounting brackets 905.050.X

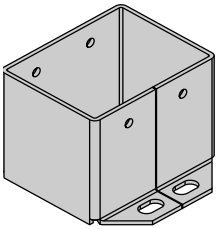


905.050.X
Moving end



905.050.X
Fixed end

Dimensions and order configurations



Principle sketch flange steeel mounting brackets

Mounting only with hexagon socket DIN 912 M6 and washer DIN 125, 6,3 mm

For Series	Hole pattern	Part No. full set	*Bi* [mm]	*Ba* [mm]	Dim. A [mm]	Dim. B [mm]
R168.075 ▶	**68.01**	**905.050.1**	75	93	30	58
R168.115 ▶	**68.02**	**905.050.2**	115	133	50	98
R168.175 ▶	**68.03**	**905.050.3**	175	193	100	158

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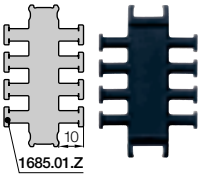
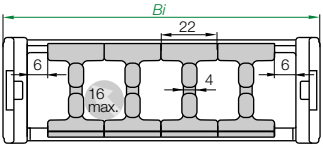
R100 | Serie R167·R168 | Accessories | Strain Relief

Strain relief separator

Separator with integrated strain relief, for use in the first or last chain link. For manufacturing of switchgear cabinets or for the assembly of machines. Easy to assemble without any fastening device. Separator base **1658.01.Z** is 22 mm wide. The possible number of separators per e-chain® is defined by its inner width *Bi* and by the cable-diameter. **Details ▶ chapter 10**

Part No.	Number of teeth	For Series	
1658.01.Z	4 both sides	**R167/168**	e-tube





Strain Relief Separator - The number of seperators is depending on the cables and the available inner space. Example: e-chain® inner width *Bi* 100 mm: 4 Strain Relief Separator, max. cable diameter 16 mm. **Details ▶ chapter 10**

Other strain relief elements ▶ chapter 10

▶ chapter 10
▶ page 6.5

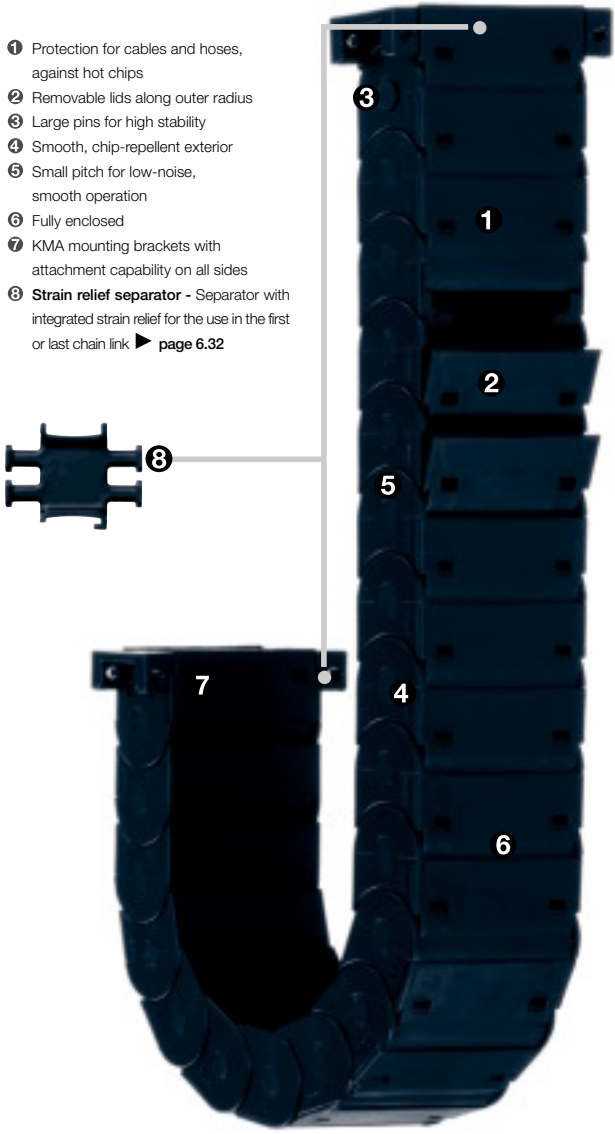
Price index

UL94-V2 classifications upon request

ESD classification: Electrically conductive ESD/ATEX version upon request

e-tubes with HT-material for hot chips up to 850°C available upon request

1. Protection for cables and hoses, against hot chips
2. Removable lids along outer radius
3. Large pins for high stability
4. Smooth, chip-repellent exterior
5. Small pitch for low-noise, smooth operation
6. Fully enclosed
7. KMA mounting brackets with attachment capability on all sides
8. **Strain relief separator -** Separator with integrated strain relief for the use in the first or last chain link ▶ **page 6.32**



To open the e-tube Series R lift up the lid (with a screwdriver) and remove the lid

When to use the Series R48:

- If particularly quiet operation is required
- At very high speed
- If chip-repellent features are required

When not to use it:

- For extremely chip repellent e-tubes
  ▶ **System RX, Series RX32, page 6.58**
- If a particularly low-cost solution is the main factor
  ▶ **Series R117/R118, page 6.6**
- If no chip protection is required
  ▶ **Series 2400/2500 E2/000, page 5.160**

Order example complete e-tube

Please indicate e-tube-lengths or number of links **Example: 1 m or 33 links**

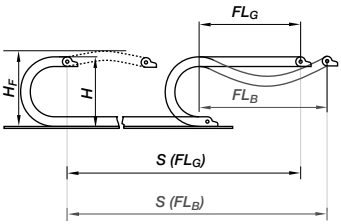
1 m **48.075.060.0**	**e-tube**
with 2 separators **482** assembled every 2nd link	**Interior separation**
1 set **480.075.12**	**Mounting bracket**

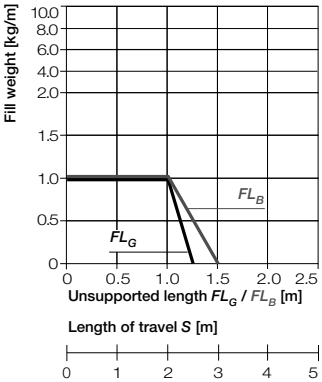
Available from stock. Delivery in 24h or today! (Delivery time means time until shipping of goods)

Phone +49- (0) 22 03-96 49-800
Fax +49- (0) 22 03-96 49-222

Unsupported length

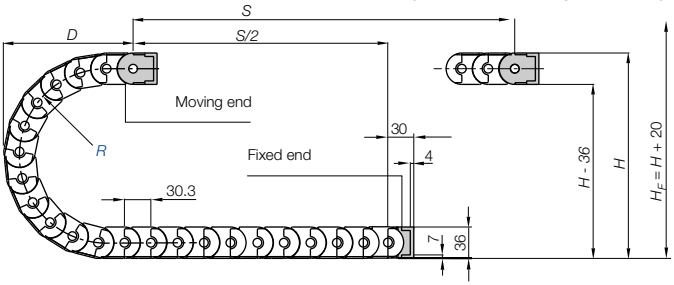
FL_G = with straight upper run
FL_B = with permitted sag
Further information ▶ **Design, page 1.12**





S = Length of travel
R = Bending radius
H = Nominal clearence height
H_F = Required clearence height
H_{RI} = Trough inner height
D = Overlength e-chain® radius in final position
K = $\pi \bullet R$ + "safety"
D_2 = Over length - long travels, gliding
K_2 = *Further add-on
H_2 = *Mounting height
*if the mounting bracket location is set lower

Other installation methods
Vertical, hanging ≤ 50 m
Vertical, standing ≤ 4 m
Side mounted, unsupp. ≤ 1,5 m
Rotary requires further calculation
Unsupported length of upper run = upon request



Pitch = 30,3 mm/link **Links/m** = 33 (999,9 mm) **Chain length** = $S/2 + K$

R	060	075	100	125	150	175	200	250
H	156	186	236	286	336	386	436	536
D	123	138	163	188	213	238	263	313
K	250	300	375	455	535	615	690	850
H_2	156	186	176	176	176	176	176	*
D_2	110	125	330	450	610	730	690	*
K_2	250	300	545	758	970	1151	1182	*

*upon request

Standard

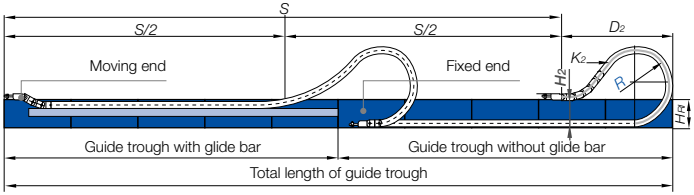
Short travels - unsupported

Unsupported e-chains® feature positive camber over short travels. This must be accounted for when specifying the clearance height H_F. Please consult igus® if space is particularly restricted.

The required clearance height:
$H_F = H + 20$ mm
(with 0,5 kg/m fill weight)

Long travel lengths from 5,0 m to max. 50 m

Chain length = $S/2 + K_2$



In case of travels between 2,0 and 5,0 m we recommend a longer unsupported length.

Gliding, long travel applications (max. 50 m)

In this case the e-chain® upper run will be introduced in a guide trough on the lower run. We recommend to realize the engineering of such a plant by our technicians.

Technical Data

Speed / acceleration FL_G	max. 10 [m/s] / max. 100 [m/s²]
Speed / acceleration FL_B	max. 3 [m/s] / max. 6 [m/s²]
Gliding speed / acceleration (maximum)	max. 3 [m/s] / max. 10 [m/s²]
Material - permitted temperature °C	igumid G / -40° up to +120° C
Flammability class, igumid G	VDE 0304 IIC UL94 HB

Details of material properties
▶ **page 1.38**

▶ page 6.5

igus® e-chainsystems®
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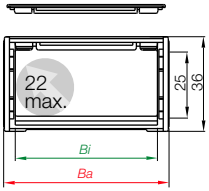
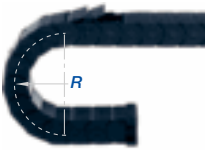
igus® GmbH
51147 Cologne
Internet: www.igus.eu
E-mail: info@igus.de

E2 e-tubes | R | **Series R48** | **Product Range**





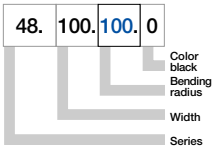
Series R48 - snap-open along outer radius

Part No.	Bi [mm]	Ba [mm]	R [mm]	Bending radii								Weight [kg/m]
48.025.□.0	25	36		060	075	100	125	150	175	200	250	≈ 0,64
48.050.□.0	50	61		060	075	100	125	150	175	200	250	≈ 0,84
48.075.□.0	75	86		060	075	100	125	150	175	200	250	≈ 1,03
48.100.□.0	100	111		060	075	100	125	150	175	200	250	≈ 1,23
48.130.□.0	130	141		060	075	100	125	150	175	200	250	≈ 1,46

Supplement Part No. with required radius. Example: 48.100.100.0

0 = standard color, other colors ▶ page 1.39 · Pitch = 30,3 mm/link - Links/m = 33

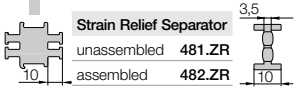
Part No. structure



E2 e-tubes | R | **Series R48** | **Accessories** | Interior Separation

Vertical Separator	
unassembled	481
assembled	482

Strain Relief Separator	
unassembled	481.ZR
assembled	482.ZR

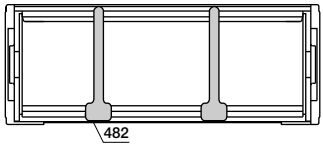


Option 1: Vertical Separators

Vertical Separators are used if a vertical subdivision of the e-chain® interior is required -

By standard Vertical Separators are assembled every other e-chain® link

- **Standard** subdivision with **Vertical Separator 482**
- **Strain Relief Separator 482.ZR**, integrable in the mounting bracket, to postition at any point



Hot Chips up to 850°C

e-tubes that repel hot chips, up to 850 °C. Some applications, depending on amount and size of the chips, can burn or melt the surface. That is no longer the case with the igus® "igumid HT" material.

Order example - Full e-tube made of HT*: 48.100.100.0.HT

Order example - Lids made of HT: 48.100HT.100.0

*for long travels upon request

Delivery time up to 4 weeks! Further Information: www.igus.de/en/HT

3D-CAD files, pdf-downloads and many online features ▶ www.igus.de/en/r48

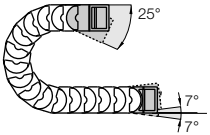
Option KMA* - pivoting

- Recommended for unsupported applications
- Bolted connection outside of chain cross-section possible
- Space-restricted
- Universally mountable with attachment capability on all sides
- Mounting-surfaces can be used on the upper side or front-sided

*KMA = Polymer Metal Mounting Bracket

Moving end (outer link)

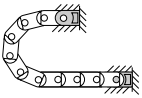
480....1



480...2

Fixed end (inner link)

The attachment variants arising automatically by the choice of the KMA mounting bracket

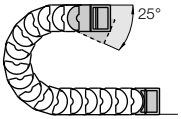


Option KMA - locking

- Recommended for vertical hanging / standing applications
- Bolted connection outside of chain cross-section possible
- At very high speed and acceleration
- Universally mountable with attachment capability on all sides
- Mounting-surfaces can be used on the upper side or front-sided

Moving end (outer link)

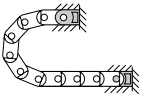
485...1



485...2

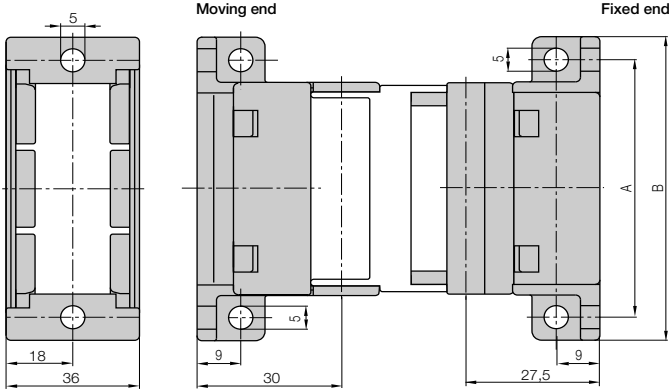
Fixed end (inner link)

The attachment variants arising automatically by the choice of the KMA mounting bracket



480...1 (pivoting)
485...1 (locking)
Moving end

(pivoting) 480...2
(locking) 485...2
Fixed end



For Series	Part No. full set	Dim. A [mm]	Dim. B [mm]
48.025 ▶	☐.025.12	45	55
48.050 ▶	☐.050.12	70	80
48.075 ▶	☐.075.12	95	105
48.100 ▶	☐.100.12	120	130
48.130 ▶	☐.130.12	150	160

Please add the Part No. with the requested index - 480 for the pivoting configuration

e.g. 480 **.025.12** or 485 for the locking configuration **e.g.** 485 **.025.12**

For the **preassembled** mode please add the index A **e.g.** 480 **.025.12** A

The following parts are required for attachment of the mounting brackets:

- **Socket head cap bolt M5 DIN 912-8.8** Length depends on the thickness of the attachment base
- **Washer 5,3 DIN 125-ST** ● **Hexagon nut M5 DIN 934-8**

Dimensions and order configurations

Part No. structure (pivoting)

480. 025. 12 A

A...must be indicated on preassembled configurations
Full set
Width
KMA **pivoting** for selected chain type

Full set, for both ends:
480. 025. 12

Single-part order:
480. 025. 1
Mounting bracket **with bore**
480. 025. 2
Mounting bracket **with pin**

Part No. structure (locking)

485. 025. 12 A

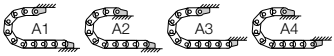
A...must be indicated on preassembled configurations
Full set
Width
KMA **locking** for selected chain type

Full set, for both ends:
485. 025. 12

Single-part order:
485. 025. 1
Mounting bracket **with bore**
485. 025. 2
Mounting bracket **with pin**

▶ page 6.5

Strain relief separator for the use in the first or last chain link ▶ page 6.32

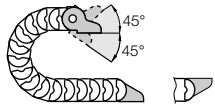


Possible installation conditions -
Further installation angles ▶ installation sketch

Steel mounting bracket

- Locked connection to e-tube
- Electrically conductive
- Minimized external width

Moving end (outer link)
482....1

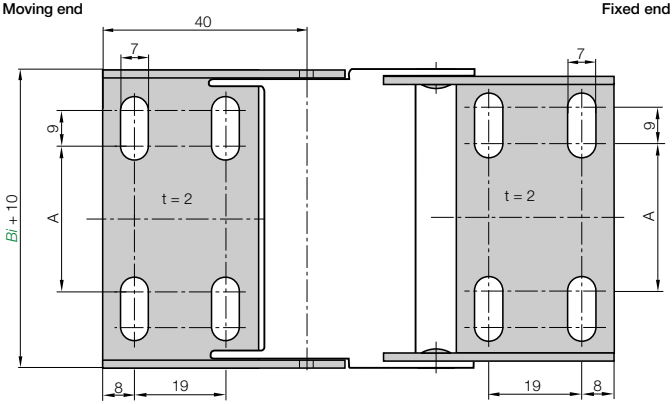


482...2
Fixed end (inner link)

Dimensions and order configurations

482...1
Moving end

482...2
Fixed end



Part No. structure

482.	050.	12	A1

- A1 … must be indicated on preassembled configurations
- **Full set = 12**
- Width
- Mounting brackets for selected chain type

For Series	Part No. full set	Dim. A [mm]
48.025. ▶	482. 025 .12	–
48.050. ▶	482. 050 .12	22
48.075. ▶	482. 075 .12	47
48.100. ▶	482. 100 .12	72
48.130. ▶	482. 130 .12	102

Full set, for both ends:
482. 050. 12

Single-part order:
482. 050. 1
Mounting bracket **with bore**
482. 050. 2
Mounting bracket **with pin**

Please add the Part No. with the requested index - **e.g. 482. 050 .12**
For the **preassembled** mode please add the index A1 ... A4 **e.g. 482. 050 12 A1**

The following parts are required for attachment of the mounting brackets:

- **Socket head cap bolt M5 DIN 912-8.8** Length depends on the thickness of the attachment base
- **Washer 5,3 DIN 125-ST** ● **Hexagon nut M5 DIN 934-8**

Strain relief separator for the use in the first or last chain link ▶ page 6.32

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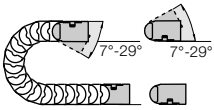
igus® GmbH
51147 Cologne

Internet: www.igus.eu
E-mail: info@igus.de

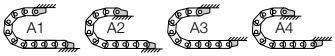
Angled polymer bracket

- Attachment option for strain relief tiewrap plate
- Locked connection to e-tube
- Minimized external width

Moving end (outer link)
4800...1(PZB)



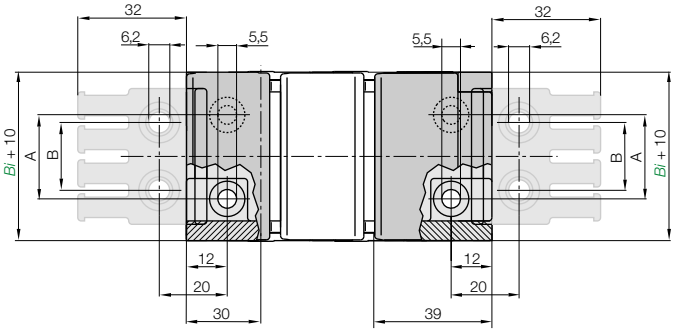
4800...2(PZB)
Fixed end (inner link)



Possible installation conditions for assembled mounting brackets ▶ Order example "preassembled" below

4800...1(PZB)
Moving end

4800 ...2(PZB)
Fixed end



Dimensions and order configurations

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

For Series	Part No. Full set **with** tiewrap plates	Part No. Full set **without** tiewrap plates	Dim. A [mm]	Dim. B [mm]
48.025. ▶	4800. 025 .12PZB	4800. 025 .12	12	15
48.050. ▶	4800. 050 .12PZB	4800. 050 .12	37	30
48.075. ▶	4800. 075 .12PZB	4800. 075 .12	62	60
48.100. ▶	4800. 100 .12PZB	4800. 100 .12	87	80
48.130. ▶	–	4800. 130 .12	117	–

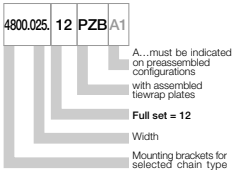
Please add the Part No. with the requested index - **e.g. 4800. 050 .12 PZB**

For the **preassembled** mode please add the index A1 ... A4 **e.g. 4800. 050 12PZB** A1

The following parts are required for attachment of the mounting brackets:

- **Countersunk bolt M5 DIN 912-8.8** Length depends on the thickness of the attachment base
- **Hexagon nut M5 DIN 934-8**

Part No. structure



Full set, for both ends:
4800. 025. 12 PZB

Single-part order:
4800. 025. 1 PZB
Mounting bracket **with bore**

4800. 025. 2 PZB
Mounting bracket **with pin**

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▶ page 6.5

Strain relief separator for the use in the first or last chain link ▶ page 6.32

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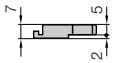
51147 Cologne

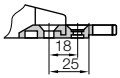
Internet: www.igus.eu
E-mail: info@igus.de

Tiewrap plate as individual part

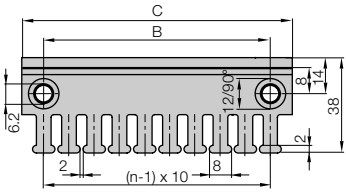
As individual component screwed on KMA. Can be plugged in the mounting brackets. **Details ▶ chapter 10**



Single tiewrap plate



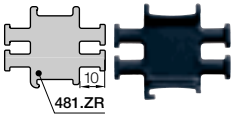
Shown assembled



Tiewrap plate	No. of teeth *n*	Dim. C [mm]	Dim. B [mm]
2020.ZB	3	30	15
2030.ZB	4	40	20
2040.ZB	5	50	30
2050.ZB	6	60	40
2070.ZB	8	80	60
2090.ZB =			
(2030.ZB + 2040.ZB)	9	90	–
2100.ZB	10	100	80
2125.ZB =			
(2050.ZB + 2050.ZB)	12	120	–

Cable tiewraps as individual part

Cable tiewraps (100-piece bag)	Width x length	max. Ø	Tensile strength
CFB.001	4,8 x 150 mm	36 mm	222 N

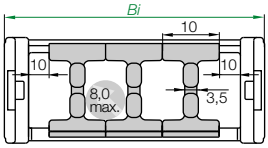


Strain relief separator

Separator with integrated strain relief, for use in the first or last chain link. For manufacturing of switchgear cabinets or for the assembly of machines. Easy to assemble without any fastening device. Separator base 481.ZR is 10 mm wide. The possible number of separators per e-chain® is defined by its inner width *Bi* and by the cable-diameter. **Details ▶ chapter 10**

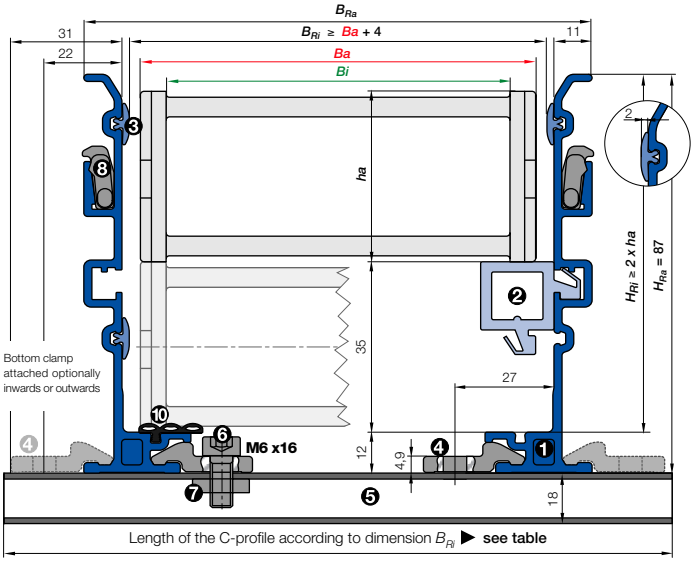
Part No.	Number of teeth	For Series
481.ZR	2 both sides	**R48** e-tube

Other strain relief elements ▶ chapter 10



Strain Relief Separator - The number of seperators is depending on the cables and the available inner space. Example: e-chain® inner width *Bi* 50 mm: 3 Strain Relief Separator, max. cable diameter 8 mm. **Details ▶ chapter 10**

Part No. 971.30.SL | 971.31.SL | Trough height: 87 mm
Aluminum "SuperTrough" | Basic Version



Ba = Outer width e-chains® / e-tube
Bi = Inner width e-chains® / e-tube
ha = Outer height e-chains® / e-tube
H_{Ri} = Inner trough height
H_{Ra} = Outer trough height
B_{Ri} = Inner trough width ▶ depends on dim. *Ba*
B_{Ra} = Outer trough width
n_{Mon} = Number of installation sets (left/right)
n_{Ri} = Number of troughs sets (left/right)

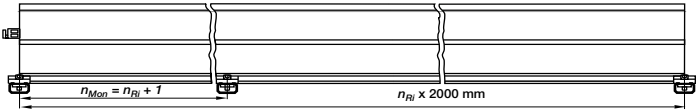
! $H_{Ri} \geq 2 \bullet ha$
$B_{Ri} \geq Ba + 4$

● = Guide trough set ● = Glide bar
● = Installation set "Basic" ● = C-profile

● **Components, trough "Basic":** ❶ Trough side parts, aluminum, 2 m ❷ Glide bar, plastic, 2 m ❸ Glide strips, plastic, 2 m (without glide strips on request) ❿ Optional: Silencer profile, rubber ● **Components, installation set "Basic":** ❹ Bottom clamp, aluminum ❺ C-profile, steel galvanized ❻ Screw M6 x16 ❼ Sliding nut M6 ❽ Interface connector, plastic

Order example: Length of travel 30 m - Center mounted for Series 48.100.075.0 with B_{Ri} = 115

Guide trough set (set of 2 trough side parts, incl. glide strips) **without** glide bar **Order text: 16 m guide trough without glide bar (8 x 2 m sections)**	**Part No. 971.30.SL**
Guide trough set (set of 2 trough side parts, incl. glide strips) **with** glide bar **Order text: 16 m guide trough with glide bar (8 x 2 m sections)**	**Part No. 971.31.SL**
Installation set "Basic" complete **(guide trough-sets + 1)** **Order text: 17 installation sets "Basic"**	**Part No. 960.30.175**
Option: For an additional noise dampening with silencer profile, please add Index A - Example:	**Part No. 971.30.SLA**



Principle sketch: Number of installation sets to be installed = Number of trough sections + 1

Installation set "Basic" with C-profile

Bottom Clamp attached optionally **inwards** or **outwards**

48.100.075.0 ▶ Order example

	B_{Ri} [mm]	Part No. attached inwards	Part No. attached outwards
.025	40	–	**960.30.150**
.050	65	–	**960.30.175**
.075	90	**960.30.150**	**960.30.200**
.100	115	**960.30.175**	**960.30.225**
.130	145	**960.30.200**	**960.30.250**

Insert for the installation set "Heavy Duty": **971.50.XXX** instead of (**960.30.XXX**) on the right column "attached outwards"

Other guide trough systems

"Heavy Duty" for heavy plant construction with glide bar and silencer profiles
▶ **chapter 9**

"Steel trough" very stable and robust guide trough out of steel, 2 pieces, adjustable on chain width
▶ **chapter 9**

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Fax +49- (0) 22 03-96 49-222

▶ chapter 10
▶ chapter 9
▶ page 6.5

Details about Alu "SuperTrough" and further guidance possibilities ▶ chapter 9, Guide Troughs

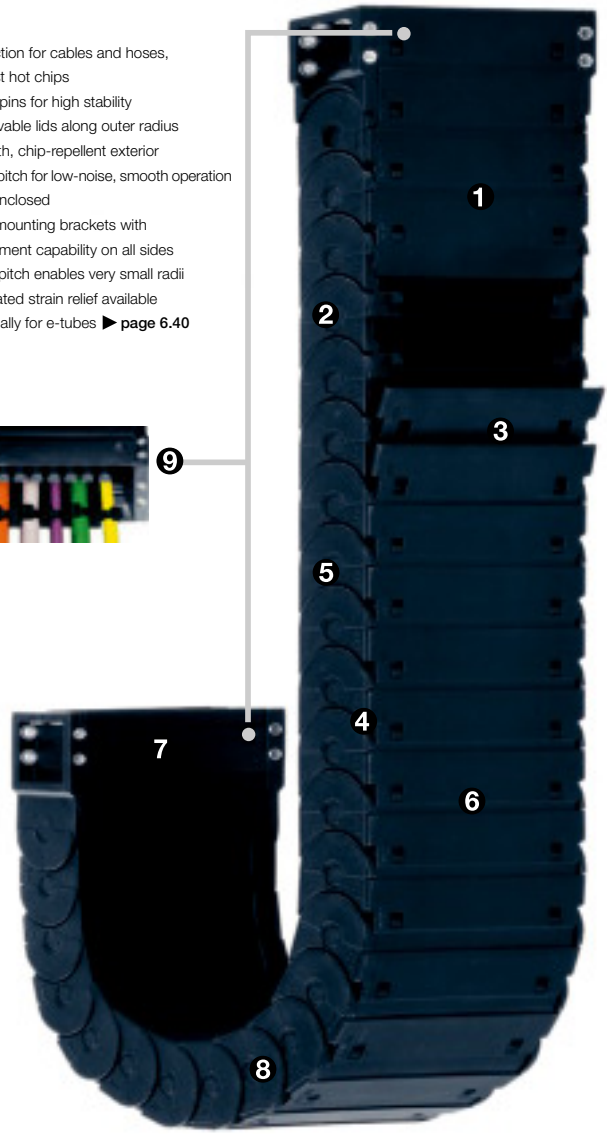
Price index

UL94-V2 classifications upon request

ESD classification: Electrically conductive ESD/ATEX version upon request

e-tubes with HT-material for hot chips up to 850°C available upon request

1. Protection for cables and hoses, against hot chips
2. Large pins for high stability
3. Removable lids along outer radius
4. Smooth, chip-repellent exterior
5. Small pitch for low-noise, smooth operation
6. Fully enclosed
7. KMA mounting brackets with attachment capability on all sides
8. Small pitch enables very small radii
9. Integrated strain relief available especially for e-tubes ▶ **page 6.40**



To open the e-tube Series R lift up the lid (with a screwdriver) and remove the lid

When to use the Series R58:

- If particularly quiet operation is required
- At very high speed
- If chip protection is subject to stringent requirements

When not to use it:

- If a particularly low-cost solution is the main factor
  ▶ **Series R157/158, page 6.12**
- If no chip protection is required
  ▶ **Series 2600/2700 E2/000, page 5.182**

Order example complete e-tube

Please indicate e-tube-lengths or number of links **Example: 1 m or 56 links**

1 m **58.100.100.0**	**e-tube**
with 2 separators **582** assembled every 2nd link	**Interior separation**
1 set **580.100.12**	**Mounting bracket**

Available from stock. Delivery in 24h or today! (Delivery time means time until shipping of goods)

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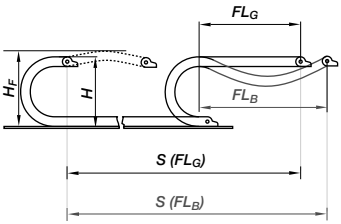
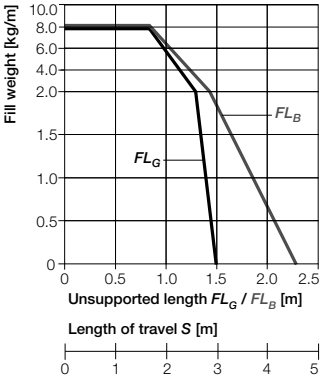
Unsupported length

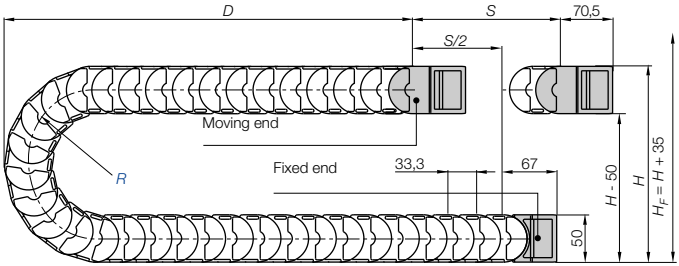
FL_G = with straight upper run
FL_B = with permitted sag
Further information ▶ **Design, page 1.12**





S = Length of travel
R = Bending radius
H = Nominal clearence height
H_F = Required clearence height
H_{RI} = Trough inner height
D = Overlength e-chain® radius in final position
K = $\pi \bullet R$ + "safety"
D_2 = Over length - long travels, gliding
K_2 = *Further add-on
H_2 = *Mounting height
*if the mounting bracket location is set lower

Other installation methods
Vertical, hanging ≤ 50 m
Vertical, standing ≤ 4 m
Side mounted, unsupp. ≤ 2m
Rotary requires further calculation
Unsupported length of upper run = upon request



Pitch = 33,3 mm/link **Links/m** = 30 (999 mm) **Chain length** = $^S/_2 + K$

R	075	100	125	150	200	250
H	200	250	300	350	450	550
D	150	175	200	225	275	325
K	305	385	460	540	695	855
H_2	200	216	216	216	216	216
D_2	150	310	380	480	800	1050
K_2	375	500	699	866	1265	1665

Standard

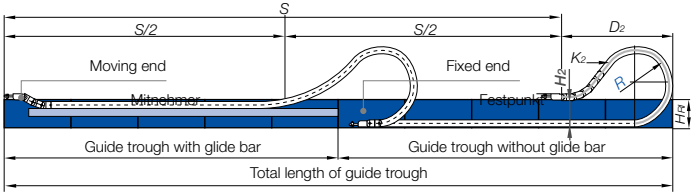
Short travels - unsupported

Unsupported e-chains® feature positive camber over short travels. This must be accounted for when specifying the clearance height H_F. Please consult igus® if space is particularly restricted.

The required clearance height:
H_F = H + 35 mm
(with 0,5 kg/m fill weight)

Long travel lengths from 5,0 m to max. 75 m

Chain length = $^S/_2 + K_2$



In case of travels between 3,0 and 5,0 m we recommend a longer unsupported length.

Gliding, long travel applications (max. 75 m)

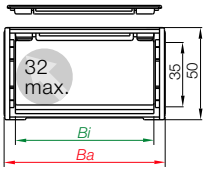
In this case the e-chain® upper run will be introduced in a guide trough on the lower run. We recommend to realize the engineering of such a plant by our technicians.

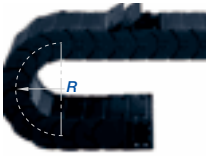
Technical Data

Speed / acceleration FL_G	max. 10 [m/s] / max. 100 [m/s²]
Speed / acceleration FL_B	max. 3 [m/s] / max. 6 [m/s²]
Gliding speed / acceleration (maximum)	max. 3 [m/s] / max. 10 [m/s²]
Material - permitted temperature °C	igumid G / -40° up to +120° C
Flammability class, igumid G	VDE 0304 IIC UL94 HB

Details of material properties
▶ **page 1.38**

▶ page 6.5





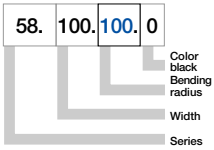
Series R58 - snap-open along outer radius

Part No.	Bi [mm]	Ba [mm]	R [mm]	Bending radii						Weight [kg/m]
58.050.□.0	50	66	075	100	125	150	200	250		≈ 1,50
58.075.□.0	75	91	075	100	125	150	200	250		≈ 1,77
58.100.□.0	100	116	075	100	125	150	200	250		≈ 2,04
58.125.□.0	125	141	075	100	125	150	200	250		≈ 2,31
58.150.□.0	150	166	075	100	125	150	200	250		≈ 2,61
58.175.□.0	175	191	075	100	125	150	200	250		≈ 2,88
58.200.□.0	200	216	075	100	125	150	200	250		≈ 3,15

Supplement Part No. with required radius. Example: 58.100.100.0

0 = standard color, other colors ▶ page 1.39 · Pitch = 33,3 mm/link - Links/m = 30

Part No. structure



Hot Chips up to 850°C

e-tubes that repel hot chips, up to 850 °C. Some applications, depending on amount and size of the chips, can burn or melt the surface. That is no longer the case with the igus® "igumid HT" material.

Order example - Full e-tube made of HT*: 58.100.100.0.HT

Order example - Lids made of HT: 58.100HT.100.0

*for long travels upon request

Delivery time up to 4 weeks! Further Information: www.igus.de/en/HT

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51147 Cologne
Internet: www.igus.eu
E-mail: info@igus.de

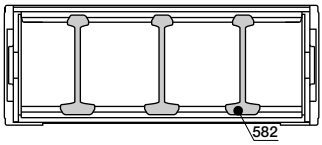
Option 1: Vertical Separators

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

- **Standard** subdivision with **Vertical Separator 582**

Vertical Separator	
unassembled	581
assembled	582

Standard

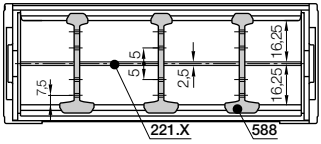


Option 2: Full-Width Shelves

For applications involving many thin cables with similar or identical diameters

- **Vertical Separator, slotted 588** can be combined with **Full-Width Shelf 221.X**

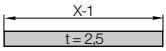
Vert. Separator, slotted	
unassembled	587
assembled	588



Width X [mm]	Part No. unassembled	Part No. assembled
050	**220.50**	**221.50**
075	**220.75**	**221.75**
100	**220.100**	**221.100**
125	**220.125**	**221.125**

Width X [mm]	Part No. unassembled	Part No. assembled
150	**220.150**	**221.150**
175	**220.175**	**221.175**
200	**220.200**	**221.200**

Full-Width Shelf

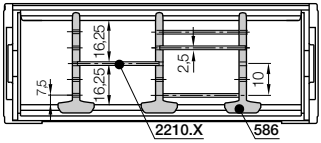


Option 3: Shelves

For applications involving many cables with similar or identical diameters. Partial separation into individual chambers can be achieved and the entire width *Bi*-10 mm can be used

- **Shelf 2210.X** can be combined with **Middle Plate 586**

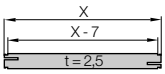
Middle Plate	
unassembled	585
assembled	586



Width X [mm]	Part No. unassembled	Part No. assembled
018	**2200.18**	**2210.18**
023	**2200.23**	**2210.23**
028	**2200.28**	**2210.28**
033	**2200.33**	**2210.33**
038	**2200.38**	**2210.38**
043	**2200.43**	**2210.43**
048	**2200.48**	**2210.48**

Width X [mm]	Part No. unassembled	Part No. assembled
058	**2200.58**	**2210.58**
068	**2200.68**	**2210.68**
073	**2200.73**	**2210.73**
088	**2200.88**	**2210.88**
099	**2200.99**	**2210.99**
124	**2200.124**	**2210.124**
149	**2200.149**	**2210.149**

Shelf



▶ page 6.5

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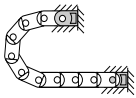


The attachment variants arising automatically by the choice of the KMA mounting bracket

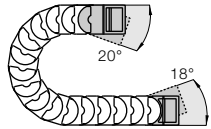
Standard

Option KMA* - pivoting

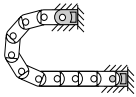
- Option - KMA with Quickflange for short and long travels
- Recommended for unsupported and gliding applications
- Space-restricted
- Universally mountable with attachment capability on all sides

*KMA = Polymer Metal Mounting Bracket

Moving end (outer link)
580...1



580...2
Fixed end (inner link)

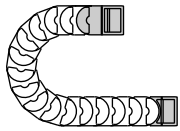


The attachment variants arising automatically by the choice of the KMA mounting bracket

Option KMA - locking

- Option - KMA with Quickflange
- Recommended for vertical hanging / standing applications
- At very high speed and acceleration
- Universally mountable with attachment capability on all sides
- Flush mounting at both ends of the e-tube

Moving end (outer link)
580...3



580...4
Fixed end (inner link)

Dimensions and order configurations

Quickflange upon request

Part No. structure (pivoting)

580.	050.	12	A

Standard

A...must be indicated on preassembled configurations
Full set pivoting = 12
Width
KMA for selected chain type

Full set, for both ends:
580. 050. 12

Single-part order:
580. 050. 1

Mounting bracket **with bore**
580. 050. 2

Mounting bracket **with pin**

Part No. structure (locking)

580.	050.	34	A

A...must be indicated on preassembled configurations
Full set locking = 34
Width
KMA for selected chain type

Full set, for both ends:
580. 050. 34

Single-part order:
580. 050. 3

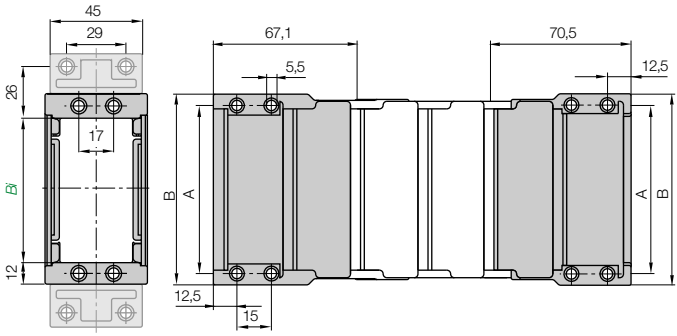
Mounting bracket **with bore**
580. 050. 4

Mounting bracket **with pin**

Quickflange
Part No. 16800.QF,
unassembled

580...2 Standard! (pivoting)
580...4 (locking)
Fixed end

Standard! (pivoting) 580...1
(locking) 580...3
Moving end



For Series	Part No. Full set	Part No. Full set with Quickflange	Dim. A [mm]	Dim. B [mm]
58.050. ▶	580.050.	580.050. QF	62	74
58.075. ▶	580.075.	580.075. QF	87	99
58.100. ▶	580.100.	580.100. QF	112	124
58.125. ▶	580.125.	580.125. QF	137	149
58.150. ▶	580.150.	580.150. QF	162	174
58.175. ▶	580.175.	580.175. QF	187	199
58.200. ▶	580.200.	580.200. QF	212	224

Please add the Part No. with the requested index - 12 for the pivoting configuration **e.g. 580.100.** 12 or 34 for the locking configuration **e.g. 580.100.** 34

For the **preassembled** mode please add the index A **e.g. 580.100.** 34 A

Quickflange unassembled: **Part No. 16800.QF**

The following parts are required for attachment of the mounting brackets:

- **Socket head cap bolt M5 DIN 912-8.8** Length depends on the thickness of the attachment base
- **Washer 5,3 DIN 125-ST** ● **Hexagon nut M5 DIN 934-8**

Integrated strain relief for E2 e-tubes - Series R ▶ page 6.40

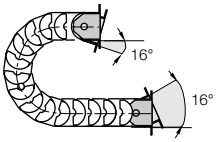
igus® GmbH
51147 Cologne

Internet: www.igus.eu
E-mail: info@igus.de

Flange mounting brackets made of steel

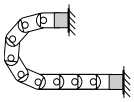
- Metallic flange brackets with popular hole patterns, easily be replaced by their modern successors, without having to alter the hole pattern
- Bolted connection outside of chain cross-section possible
- Universally mountable with attachment capability on all sides
- Steel, galvanized
- One-piece mounting bracket
- High stability

Moving end (outer link)
906.463.X.1

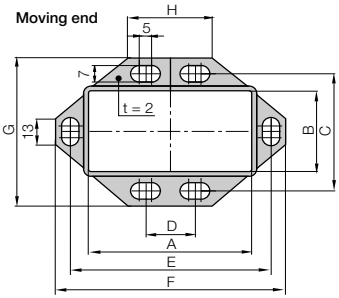


906.463.X.2
Fixed end (inner link)

Flush mounting possibilities at both ends of the e-tube

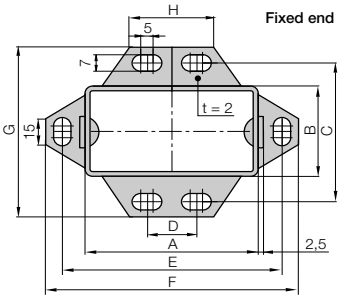


906.463.X.1
Moving end



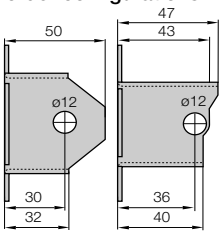
Hole pattern metallic flange
Moving end 906.463.X.1

906.463.X.2
Fixed end

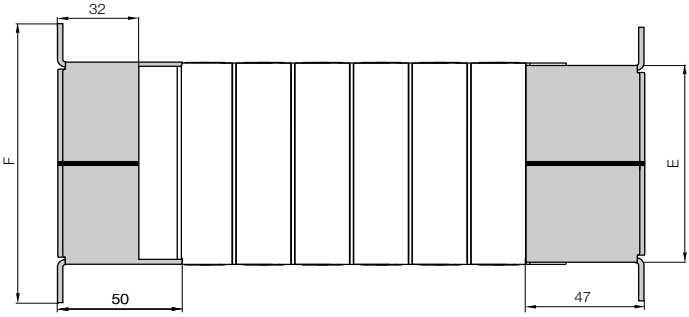


Hole pattern metallic flange
Fixed end 906.463.X.2

Dimensions and order configurations



Moving end **906.463.X.1** | **Fixed end** **906.463.X.2**



Full set, for both ends:
906. 463. X. 12.
Single-part order:
906. 463. X. 1
Mounting bracket **with bore**
906. 463. X. 2.
Mounting bracket **with pin**

For Series	Hole pattern	Part No. Moving end	Part No. Fixed end	*Bi* [mm]	*Ba* [mm]	Dim. A [mm]	Dim. B [mm]	Dim. C [mm]	Dim. D [mm]	Dim. E [mm]	Dim. F [mm]	Dim. G [mm]	Dim. H [mm]
58.050 ▶	58.05	906.463.05.1	906.463.05.2	50	66	58,3	48	68	20	78,5	90,5	82	24,5
58.075 ▶	58.1	906.463.1.1	906.463.1.2	75	91	83,3	48	68	30	104	116	82	50

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▶ page 6.5

Integrated strain relief for E2 e-tubes - Series R ▶ page 6.40

Integrated strain relief for E2 e-tubes - Series R

Characteristic features: ● Strain relief disappears completely in the e-tube ● Easy to assemble without any screws ● **Use:** Individual part for the manufacturing of switchgear cabinets or for the assembly of machines ● Accessory for igus® e-chainsystems®

Part. No.	Width [mm]	Number of teeth	For Series
5850.Z	46	4	**R58**

Number of tiewrap plates 5850.Z for selected inner width *Bi*

Bi [mm]	Width tiewrap plate [mm]	Number of tiewrap plate *n*	Total number of teeth
50	–	–	–
75	46	1	4
100	46	1	4
125	46	2	8
150	46	2	8
175	46	3	12
200	46	3	12

Other strain relief elements
▶ chapter 10

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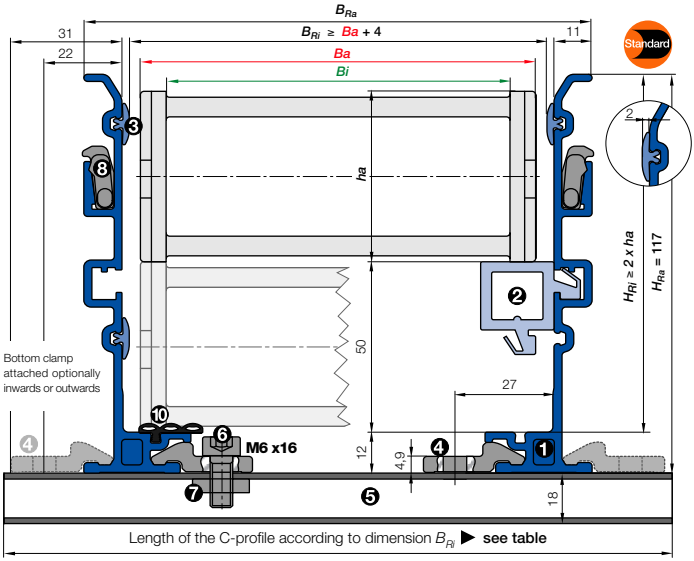
Fax +49- (0) 22 03-96 49-222
igus® GmbH
51147 Cologne
Internet: www.igus.eu
E-mail: info@igus.de

Part No. 972.30.SL | 972.32.SL | Trough height: 117 mm
Aluminum "SuperTrough" | Basic Version



● **Components, trough "Basic":** ❶ Trough side parts, aluminum, 2 m ❷ Glide bar, plastic, 2 m ❸ Glide strips, plastic, 2 m (without glide strips on request) ⑩ Optional: Silencer profile, rubber ● **Components, installation set "Basic":** ❹ Bottom clamp, aluminum ❺ C-profile, steel galvanized ❻ Screw M6 x16 ❼ Sliding nut M6 ❽ Interface connector, plastic

Ba = Outer width e-chains® / e-tube
Bi = Inner width e-chains® / e-tube
ha = Outer height e-chains® / e-tube
H_{Ri} = Inner trough height
H_{Ra} = Outer trough height
B_{Ri} = Inner trough width ▶ depends on dim. *Ba*
B_{Ra} = Outer trough width
n_{Mon} = Number of installation sets (left/right)
n_{Ri} = Number of troughs sets (left/right)

! $H_{Ri} \geq 2 \bullet ha$
$B_{Ri} \geq Ba + 4$

● = Guide trough set ● = Glide bar
● = Installation set "Basic" ● = C-profile

Installation set "Basic" with C-profile

Bottom Clamp attached optionally **inwards** or **outwards**

58.075.200.0 ▶ Order example

	B_{Ri} [mm]	Part No. attached inwards	Part No. attached outwards
.050	70	–	960.30.175
.075	95	960.30.150	960.30.200
.100	120	960.30.175	960.30.225
.125	145	960.30.200	960.30.250
.150	170	960.30.225	960.30.275
.175	195	960.30.250	960.30.300
.200	220	960.30.275	960.30.325

Insert for the installation set "Heavy Duty": **972.50.XXX** instead of (**960.30.XXX**) on the right column "attached outwards"

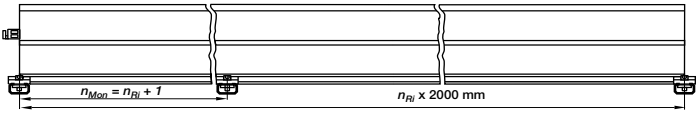
Order example: Length of travel 30 m - Center mounted for Series 58.075.200.0 with B_{Ri} = 95

Guide trough set (set of 2 trough side parts, incl. glide strips) **without** glide bar
Order text: 16 m guide trough without glide bar (8 x 2 m sections) Part No. 972.30.SL

Guide trough set (set of 2 trough side parts, incl. glide strips) **with** glide bar
Order text: 16 m guide trough with glide bar (8 x 2 m sections) Part No. 972.32.SL

Installation set "Basic" complete **(guide trough-sets + 1)**
Order text: 17 installation sets "Basic" Part No. 960.30.150

Option: For an additional noise dampening with silencer profile, please add Index A - Example: Part No. 972.30.SLA



Principle sketch: Number of installation sets to be installed = Number of trough sections + 1

Other guide trough systems

"Heavy Duty" for heavy plant construction with glide bar and silencer profiles
▶ chapter 9

"Steel trough" very stable and robust guide trough out of steel, 2 pieces, adjustable on chain width
▶ chapter 9

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▶ chapter 10
▶ chapter 9
▶ page 6.75

Price index

UL94-V2 classifications upon request

ESD classification: Electrically conductive ESD/ATEX version upon request

iF-Design Award Winner Series R68

e-tubes with HT-material for hot chips up to 850°C available upon request

1. Protection for cables and hoses, against hot chips
2. Large pins for high stability
3. Smooth, chip-repellent exterior
4. Small pitch for low-noise, smooth operation
5. Removable lids along outer radius
6. Fully enclosed
7. KMA mounting brackets with attachment capability on all sides
8. Integrated strain relief available especially for e-tubes ▶ **page 6.48**

To open the e-tube Series R lift up the lid (with a screwdriver) and remove the lid

When to use the Series R68:

- If particularly quiet operation is required
- At very high speed
- If chip protection is subject to stringent requirements

When not to use it:

- For extremely chip repellent e-tubes
  ▶ **System RX, Series RX32, page 6.58**
- If a particularly low-cost solution is the main factor
  ▶ **Series R167/R168, page 6.20**
- If no chip protection is required
  ▶ **Series 3400/3500 E2/000, page 5.204**

Order example complete e-tube

Please indicate e-tube-lengths or number of links **Example: 1 m or 28 links**

1 m **68.100.100.0**	**e-tube**
with 2 separators **311** assembled every 2nd link	**Interior separation**
1 set **680.100.12**	**Mounting bracket**

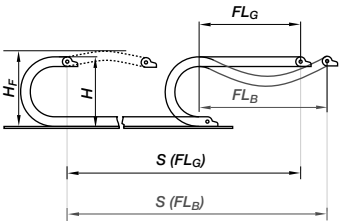
Available from stock. Delivery in 24h or today! (Delivery time means time until shipping of goods)

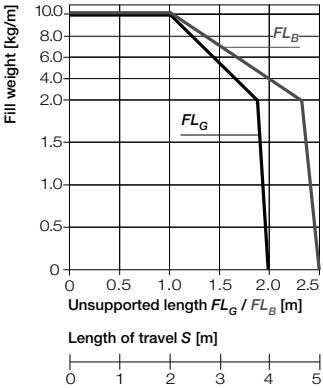
Unsupported length

FL_G = with straight upper run

FL_B = with permitted sag

Further information ▶ **Design, page 1.12**

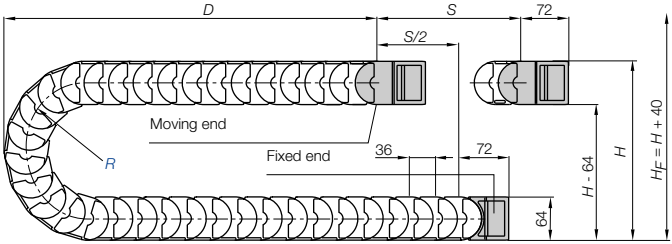




S = Length of travel
R = Bending radius
H = Nominal clearence height
H_F = Required clearence height
H_{RI} = Trough inner height
D = Overlength e-chain® radius in final position
K = $\pi \bullet R$ + "safety"
D_2 = Over length - long travels, gliding
K_2 = *Further add-on
H_2 = *Mounting height

*if the mounting bracket location is set lower

Other installation methods
Vertical, hanging ≤ 60 m
Vertical, standing ≤ 4 m
Side mounted, unsupp. ≤ 2m
Rotary requires further calculation
Unsupported length of upper run = upon request



Pitch = 36 mm/link **Links/m** = 28 (1008 mm) **Chain length** = $S/2 + K$

R	100	125	150	175	200	225	250	300
H	264	314	364	414	464	514	564	664
D	186	211	236	261	286	311	336	386
K	390	465	545	625	705	780	860	1015
H_2	265	284	284	284	284	284	284	284
D_2	200	370	440	540	650	700	850	1050
K_2	500	648	792	900	1116	1269	1476	1800

Standard

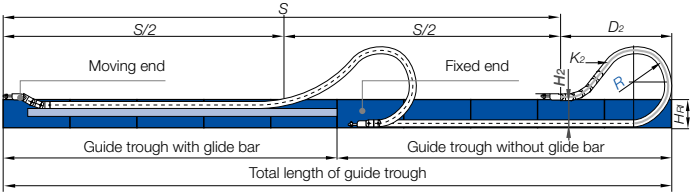
Short travels - unsupported

Unsupported e-chains® feature positive camber over short travels. This must be accounted for when specifying the clearance height H_F. Please consult igus® if space is particularly restricted.

The required clearance height:
H_F = H + 40 mm
(with 2,5 kg/m fill weight)

Long travel lengths from 6,0 m to max. 100 m

Chain length = $S/2 + K_2$



In case of travels between 4,0 and 6,0 m we recommend a longer unsupported length.

Gliding, long travel applications (max. 100 m)

In this case the e-chain® upper run will be introduced in a guide trough on the lower run. We recommend to realize the engineering of such a plant by our technicians.

Technical Data

Speed / acceleration FL_G	max. 10 [m/s] / max. 100 [m/s²]
Speed / acceleration FL_B	max. 3 [m/s] / max. 6 [m/s²]
Gliding speed / acceleration (maximum)	max. 3 [m/s] / max. 10 [m/s²]
Material - permitted temperature °C	igumid G / -40° up to +120° C
Flammability class, igumid G	VDE 0304 IIC UL94 HB

Details of material properties
▶ **page 1.38**

▶ page 6.5

E2 e-tubes Type R
Inner height: 45 mm

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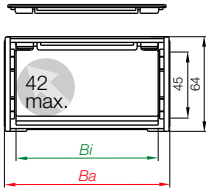

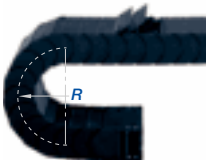

Series R68 - snap-open along outer radius

Part No.	Bi [mm]	Ba [mm]	R [mm]	Bending radii								Weight [kg/m]
68.050.□.0	50	68		100	125	150	175	200	225	250	300	≈ 1,90
68.075.□.0	75	93		100	125	150	175	200	225	250	300	≈ 2,18
68.100.□.0	100	118		100	125	150	175	200	225	250	300	≈ 2,46
68.115.□.0	115	133		100	125	150	175	200	225	250	300	≈ 2,63
68.125.□.0	125	143		100	125	150	175	200	225	250	300	≈ 2,77
68.150.□.0	150	168		100	125	150	175	200	225	250	300	≈ 3,05
68.175.□.0	175	193		100	125	150	175	200	225	250	300	≈ 3,36
68.200.□.0	200	218		100	125	150	175	200	225	250	300	≈ 3,64
68.225.□.0	225	243		100	125	150	175	200	225	250	300	≈ 3,92
68.250.□.0	250	268		100	125	150	175	200	225	250	300	≈ 4,23

Supplement Part No. with required radius. Example: 68.100.100.0

0 = standard color, other colors ▶ page 1.39 · Pitch = 36 mm/link - Links/m = 28

Part No. structure

68. 100. 100. 0

- Color black
- Bending radius
- Width
- Series

Hot Chips up to 850°C

e-tubes that repel hot chips, up to 850 °C. Some applications, depending on amount and size of the chips, can burn or melt the surface. That is no longer the case with the igus® "igumid HT" material.

Order example - Full e-tube made of HT*: 68.100.100.0.HT

Order example - Lids made of HT: 68.100HT.100.0

*for long travels upon request

Delivery time up to 4 weeks! Further Information: www.igus.de/en/HT

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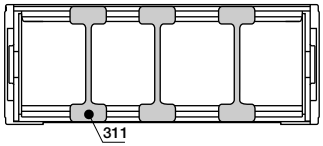
E-mail: info@igus.de

Option 1: Vertical Separators

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

- **Standard** subdivision with **Vertical Separator 311**
  (if you select bending radius R = 100 please use **Vertical Separator 34511**)



Vertical Separator*	
unassembled	**301**
assembled	**311**

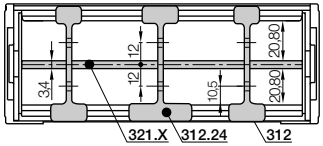
*not suitable for bending radius = 100

Vertical Separator, for bending radius R = 100	
unassembled	**34501**
assembled	**34511**

Option 2: Full-Width Shelves

For applications involving many thin cables with similar or identical diameters

- **Vertical Separator, slotted 312** or **Vertical Separator, slotted 312.24** with wide base can be combined with Full-Width Shelf 221.X



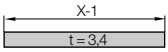
Vert. Separator, slotted	
unassembled	**302**
assembled	**312**

Vert. Separator, slotted	
unassembled	**302.24**
assembled	**312.24**

Width X [mm]	Part No. unassembled	Part No. assembled
50	**320.050**	**321.050**
75	**320.075**	**321.075**
100	**320.100**	**321.100**
115	**320.115**	**321.115**
125	**320.125**	**321.125**

Width X [mm]	Part No. unassembled	Part No. assembled
150	**320.150**	**321.150**
175	**320.175**	**321.175**
200	**320.200**	**321.200**
225	**320.225**	**321.225**
250	**320.250**	**321.250**

Full-Width Shelf



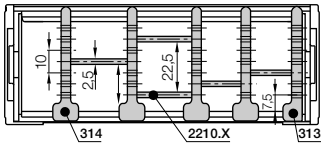
Option 3: Shelves

For applications involving many cables with similar or identical diameters. Partial separation into individual chambers can be achieved and the entire width *Bi*-10 mm can be used

- **Shelf 2210.X** can be combined with **Side Plate 313** and **Middle Plate 314**
- Option 3 **"Shelves"** can also be combined with option 1 **"Vertical Separators"**

Side Plate	
unassembled	**303**
assembled	**313**

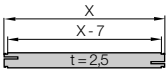
Middle Plate	
unassembled	**304**
assembled	**314**



Width X [mm]	Part No. unassembled	Part No. assembled
018	**2200.18**	**2210.18**
023	**2200.23**	**2210.23**
028	**2200.28**	**2210.28**
033	**2200.33**	**2210.33**
038	**2200.38**	**2210.38**
043	**2200.43**	**2210.43**
048	**2200.48**	**2210.48**

Width X [mm]	Part No. unassembled	Part No. assembled
058	**2200.58**	**2210.58**
068	**2200.68**	**2210.68**
073	**2200.73**	**2210.73**
088	**2200.88**	**2210.88**
099	**2200.99**	**2210.99**
124	**2200.124**	**2210.124**
149	**2200.149**	**2210.149**

Shelf



E2 e-tubes Type R
Inner height: 45 mm

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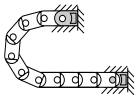
▶ page 6.5



The attachment variants arising automatically by the choice of the KMA mounting bracket

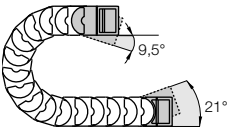
Standard

Option KMA* - pivoting

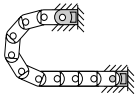
- Recommended for unsupported and gliding applications
- Option - KMA with Quickflange
- Short and long travels
- Universally mountable with attachment capability on all sides

*KMA = Polymer Metal Mounting Bracket

Moving end (outer link)
680...1



680...2
Fixed end (inner link)

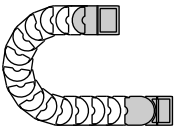


The attachment variants arising automatically by the choice of the KMA mounting bracket

Option KMA - locking

- Recommended for vertical hanging / standing applications
- Option - KMA with Quickflange
- At very high speed and acceleration
- Universally mountable with attachment capability on all sides
- Flush mounting at both ends of the e-tube

Moving end (outer link)
680...3



680...4
Fixed end (inner link)

Dimensions and order configurations

Quickflange upon request

Part No. structure (pivoting)

680.	100.	12	A

Standard

A...must be indicated on preassembled configurations
Full set pivoting = 12
Width
KMA for selected chain type

Full set, for both ends:
680. 100. 12

Single-part order:
680. 100. 1
Mounting bracket **with bore**
680. 100. 2
Mounting bracket **with pin**

Part No. structure (locking)

680.	100.	34	A

A...must be indicated on preassembled configurations
Full set locking = 34
Width
KMA for selected chain type

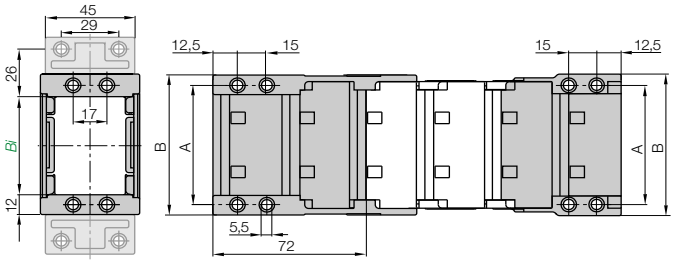
Full set, for both ends:
680. 100. 34

Single-part order:
680. 100. 3
Mounting bracket **with bore**
680. 100. 4
Mounting bracket **with pin**

Quickflange
Part No. 16800.QF,
unassembled

680...1 Standard! (pivoting)
680...3 (locking)
Moving end

Standard! (pivoting) 680...2
(locking) 680...4
Fixed end



For Series	Part No. Full set	Part No. Full set with Quickflange	Dim. A [mm]	Dim. B [mm]
68.050. ▶	680.050.	680.050. QF	62	74
68.075. ▶	680.075.	680.075. QF	87	99
68.100. ▶	680.100.	680.100. QF	112	124
68.115. ▶	680.115.	680.115. QF	127	139
68.125. ▶	680.125.	680.125. QF	137	149
68.150. ▶	680.150.	680.150. QF	162	174
68.175. ▶	680.175.	680.175. QF	187	199
68.200. ▶	680.200.	680.200. QF	212	224
68.225. ▶	680.225.	680.225. QF	237	249
68.250. ▶	680.250.	680.250. QF	262	274

Please add the Part No. with the requested index - 12 for the pivoting configuration
e.g. 680.100. 12 or 34 for the locking configuration **e.g. 680.100.** 34
For the **preassembled** mode please add the index A **e.g. 680.100.** 34 A
Quickflange unassembled: **Part No. 16800.QF**
The following parts are required for attachment of the mounting brackets:

- **Socket head cap bolt M5 DIN 912-8.8** Length depends on the thickness of the attachment base
- **Washer 5,3 DIN 125-ST** ● **Hexagon nut M5 DIN 934-8**

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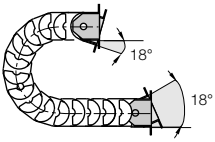
Integrated strain relief for E2 e-tubes - Series R ▶ page 6.48

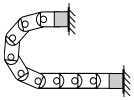
Flange mounting brackets made of steel

- Metallic flange brackets with popular hole patterns, easily be replaced by their modern successors, without having to alter the hole pattern
- Bolted connection outside of chain cross-section possible
- Universally mountable with attachment capability on all sides
- Steel, galvanized
- One-piece mounting bracket
- High stability

Moving end (outer link)
906.462.X.1

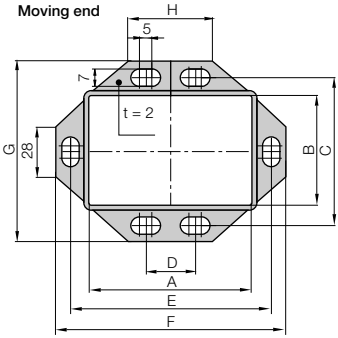


906.462.X.2
Fixed end (inner link)

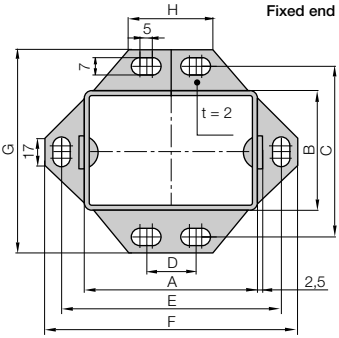


Flush mounting possibilities at both ends of the e-tube

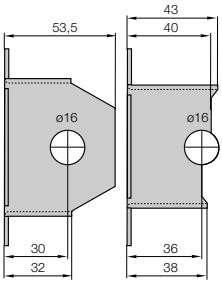
906.462.X.1
Moving end



906.462.X.2
Fixed end



Dimensions and order configurations

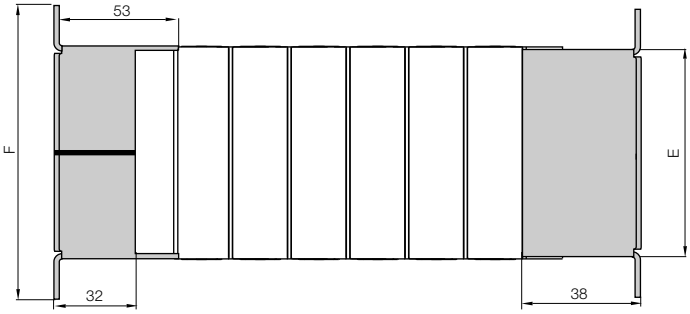


Hole pattern metallic flange
Moving end 906.462.X.1

Hole pattern metallic flange
Fixed end 906.462.X.2

Moving end
906.462.X.1

Fixed end
906.462.X.2



Full set, for both ends:

906.	462.	X.	12.

Single-part order:

906.	462.	X.	1

Mounting bracket **with bore**

906.	462.	X.	2.

Mounting bracket **with pin**

For Series	Hole pattern	Part No. Moving end	Part No. Fixed end	*Bi* [mm]	*Ba* [mm]	Dim. A [mm]	Dim. B [mm]	Dim. C [mm]	Dim. D [mm]	Dim. E [mm]	Dim. F [mm]	Dim. G [mm]	Dim. H [mm]
68.075 ▶	68.1	906.462.1.1	906.462.1.2	75	93	83,4	59	80	30	104	116	95	38
68.115 ▶	68.2	906.462.2.1	906.462.2.2	115	133	123,4	59	80	50	144	156	95	78
68.175 ▶	68.3	906.462.3.1	906.462.3.2	175	193	183,4	59	80	100	204	216	95	138

Integrated strain relief for E2 e-tubes - Series R ▶ page 6.48

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▶ page 6.5

Integrated strain relief for E2 e-tubes - Series R

Characteristic features: ● Strain relief disappears completely in the e-tube ● Easy to assemble without any screws ● **Use:** Individual part for the manufacturing of switchgear cabinets or for the assembly of machines ● Accessory for igus® e-chainsystems®

Part. No.	Width [mm]	Number of teeth	For Series
3050.Z	50	5	**R68**
3075.Z	75	7	**R68**

Number of tiewrap plates 3050.Z for selected inner width *Bi*

Bi [mm]	Width tiewrap plate [mm]	Number of tiewrap plate *n*	Total number of teeth
50	–	–	–
75	–	–	–
100	50	1	5
115	50	1	5
125	50	1	5
150	50	2	10
175	50	2	10
200	50	3	15
225	50	3	15
250	50	4	20

Number of tiewrap plates 3075.Z for selected inner width *Bi*

Bi [mm]	Width tiewrap plate [mm]	Number of tiewrap plate *n*	Total number of teeth
50	–	–	–
75	–	–	–
100	–	–	–
115	75	1	7
125	75	1	7
150	75	1	7
175	75	2	14
200	75	2	14
225	75	3	21
250	75	3	21

Other strain relief elements
▶ chapter 10

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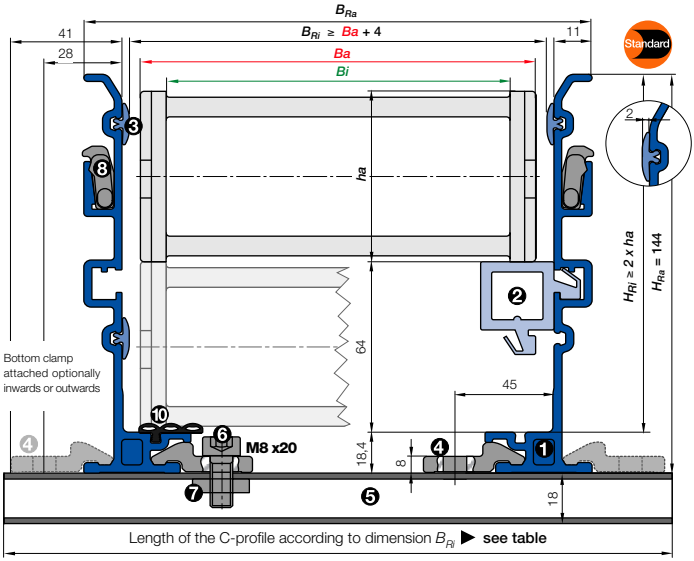
E-mail: info@igus.de

Part No. 973.30.SL | 973.31.SL | Trough height: 144 mm
Aluminum "SuperTrough" | Basic Version



● **Components, trough "Basic":** ❶ Trough side parts, aluminum, 2 m ❷ Glide bar, plastic, 2 m ❸ Glide strips, plastic, 2 m (without glide strips on request) ⑩ Optional: Silencer profile, rubber ● **Components, installation set "Basic":** ❹ Bottom clamp, aluminum ❺ C-profile, steel galvanized ❻ Screw M6 x16 ❼ Sliding nut M6 ❽ Interface connector, plastic

Ba = Outer width e-chains® / e-tube
Bi = Inner width e-chains® / e-tube
ha = Outer height e-chains® / e-tube
H_{Ri} = Inner trough height
H_{Ra} = Outer trough height
B_{Ri} = Inner trough width ▶ depends on dim. *Ba*
B_{Ra} = Outer trough width
n_{Mon} = Number of installation sets (left/right)
n_{Ri} = Number of troughs sets (left/right)

! $H_{Ri} \geq 2 \bullet ha$
$B_{Ri} \geq Ba + 4$

● = Guide trough set ● = Glide bar
● = Installation set "Basic" ● = C-profile

Installation set "Basic" with C-profile

Bottom Clamp attached optionally **inwards** or **outwards**

68.**100**.200.0 ▶ Order example

	B_{Ri} [mm]	Part No. attached inwards	Part No. attached outwards
.050	72	–	**960.40.200**
.075	97	–	**960.40.225**
.100	122	**960.40.175**	**960.40.250**
.115	137	**960.40.200**	**960.40.275**
.125	147	**960.40.200**	**960.40.275**
.150	172	**960.40.225**	**960.40.300**
.175	197	**960.40.250**	**960.40.325**
.200	222	**960.40.275**	**960.40.350**
.225	247	**960.40.300**	**960.40.375**
.250	272	**960.40.325**	**960.40.400**

Insert for the installation set "Heavy Duty": **973.50.XXX** instead of (**960.40.XXX**) on the right column "attached outwards"

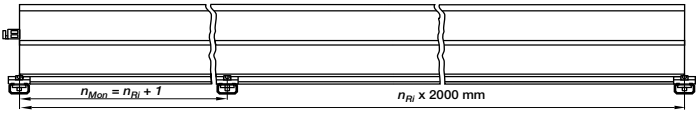
Order example: Length of travel 30 m - Center mounted for Series 68.100.200.0 with B_{Ri} = 122

Guide trough set (set of 2 trough side parts, incl. glide strips) **without** glide bar
Order text: 16 m guide trough without glide bar (8 x 2 m sections) Part No. 973.30.SL

Guide trough set (set of 2 trough side parts, incl. glide strips) **with** glide bar
Order text: 16 m guide trough with glide bar (8 x 2 m sections) Part No. 973.31.SL

Installation set "Basic" complete **(guide trough-sets + 1)**
Order text: 17 installation sets "Basic" Part No. 960.40.175

Option: For an additional noise dampening with silencer profile, please add Index A - Example: Part No. 973.30.SLA



Principle sketch: Number of installation sets to be installed = Number of trough sections + 1

Other guide trough systems

"Heavy Duty" for heavy plant construction with glide bar and silencer profiles
▶ **chapter 9**

"Steel trough" very stable and robust guide trough out of steel, 2 pieces, adjustable on chain width
▶ **chapter 9**

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▶ chapter 10
▶ chapter 9
▶ page 6.5