



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

- ❶ Protection for cables and hoses, against hot chips
- ❷ Removable lids along outer radius
- ❸ Large pins for high stability
- ❹ Smooth, chip-repellent exterior
- ❺ Small pitch for low-noise, smooth operation
- ❻ Fully enclosed
- ❼ KMA mounting brackets with attachment capability on all sides
- ❽ **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:

- 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 5.102](#)



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**

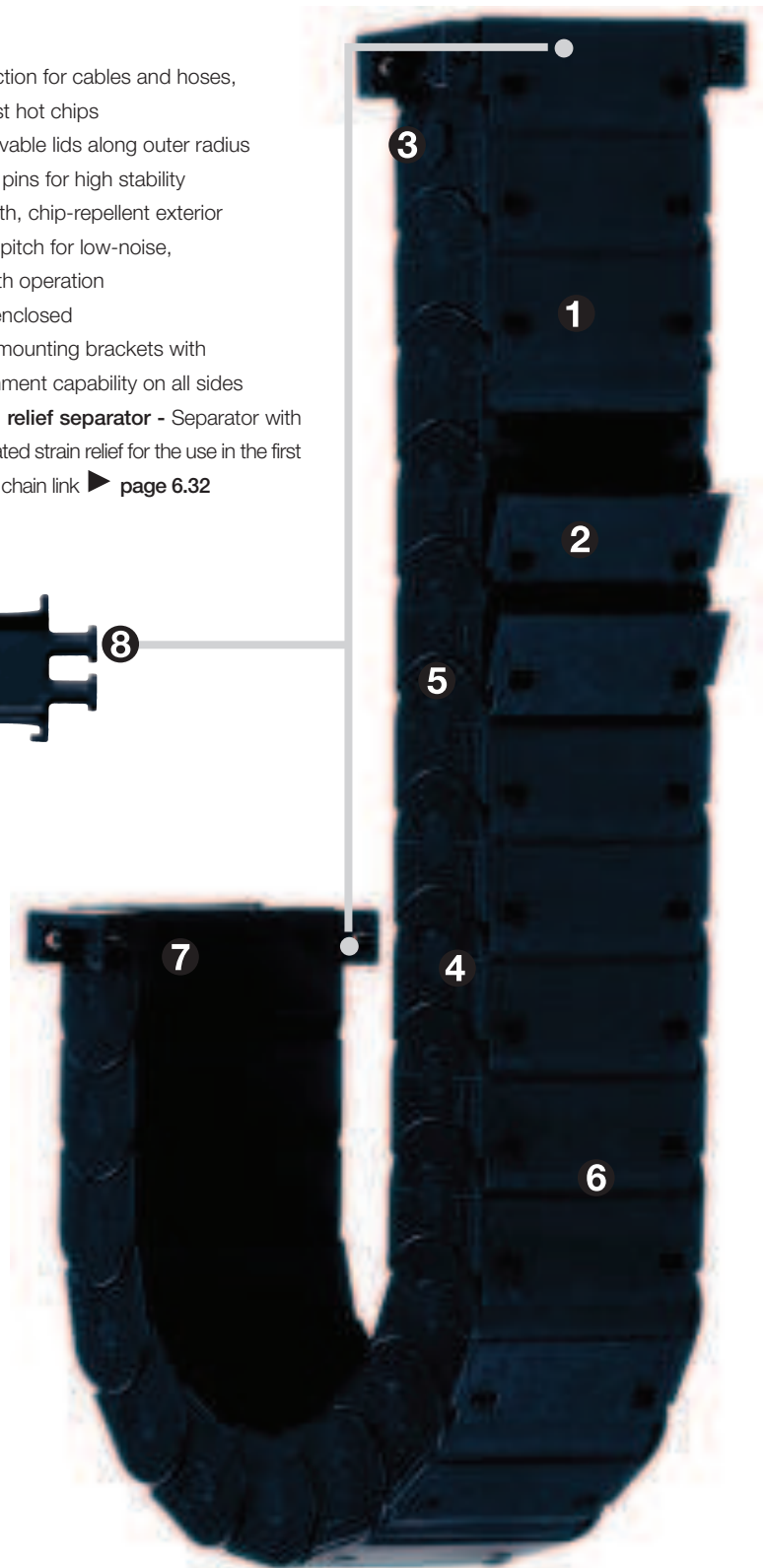
 **E-Tube**

with 2 separators **482** assembled every 2<sup>nd</sup> link

 **Interior separation**

1 set **480.075.12**

 **Mounting bracket**

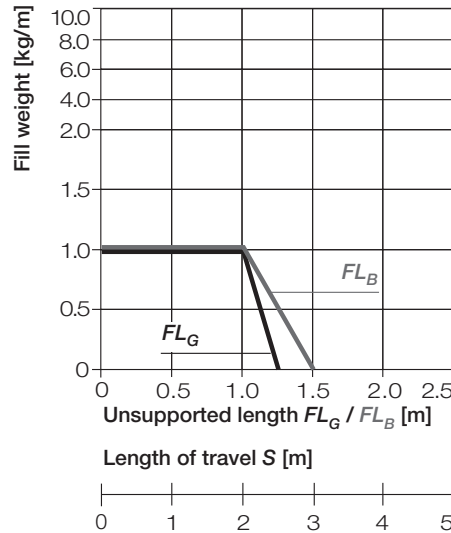
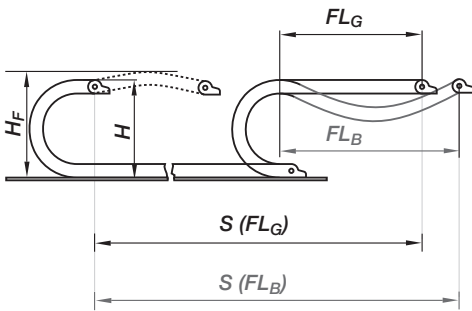


**Unsupported length**

$FL_G$  = with straight upper run

$FL_B$  = with permitted sag

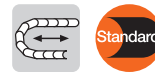
Further information ► **Design, page 1.12**



- $S$  = Length of travel
  - $R$  = Bending radius
  - $H$  = Nominal clearance height
  - $H_F$  = Required clearance height
  - $H_{RI}$  = Trough inner height
  - $D$  = Overlength E-Chain® radius in final position
  - $K = \pi \cdot R + \text{"safety"}$
  - $D_2$  = 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  $\leq 50$  m
- Vertical, standing  $\leq 4$  m
- Side mounted, un supp.  $\leq 1,5$  m
- Rotary requires further calculation
- Unsupported length of upper run = upon request



**Short travels - unsupported**

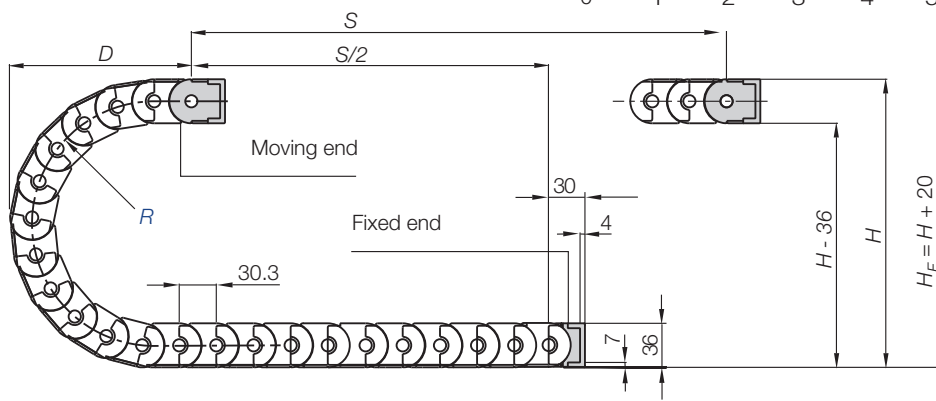
Unsupported E-Chains® feature positive camber over short travels. This must be accounted for when specifying the clearance height  $H_F$ . Please consult igus® if space is particularly restricted.

The required

clearance height:

$H_F = H + 20$  mm

(with 0,5 kg/m fill weight)



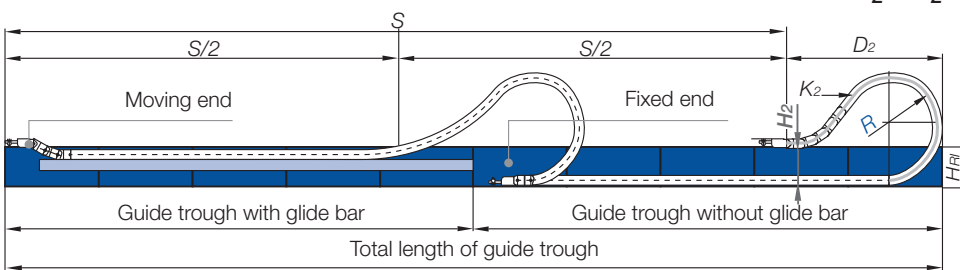
Pitch = 30,3 mm/link    Links/m = 33 (999,9 mm)    Chain length =  $S/2 + K$

| R              | 060 | 075 | 100 | 125 | 150 | 175  | 200  | 250 |
|----------------|-----|-----|-----|-----|-----|------|------|-----|
| H              | 156 | 186 | 236 | 286 | 336 | 386  | 436  | 536 |
| D              | 110 | 125 | 150 | 175 | 200 | 225  | 250  | 300 |
| K              | 250 | 300 | 375 | 455 | 535 | 610  | 690  | 850 |
| H <sub>2</sub> | 156 | 186 | 140 | 140 | 140 | 140  | 140  | *   |
| D <sub>2</sub> | 110 | 125 | 330 | 450 | 610 | 730  | 690  | *   |
| K <sub>2</sub> | 250 | 300 | 545 | 758 | 970 | 1151 | 1182 | *   |

\*upon request

**Long travel lengths from 10 m to max. 50 m**

Chain length =  $S/2 + K_2$



In case of travels between 4 and 10 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/s <sup>2</sup> ] |
| Speed / acceleration $FL_B$            | max. 3 [m/s] / max. 6 [m/s <sup>2</sup> ]    |
| Gliding speed / acceleration (maximum) | max. 3 [m/s] / max. 10 [m/s <sup>2</sup> ]   |
| Material - permitted temperature °C    | igumid G / -40° up to +120° C                |
| Flammability class, igumid G           | VDE 0304 IIC UL94 HB                         |



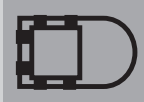
**Details of material properties**

► page 1.38

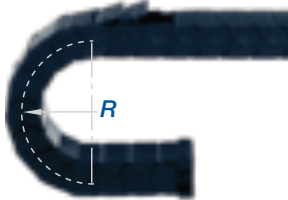
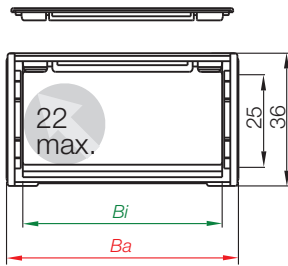


E2 E-Tubes Type R  
Inner height: 25 mm

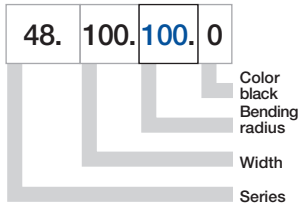
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► page 6.5



Part No. structure



Series R48 - snap-open along outer radius

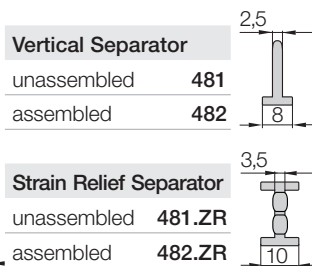
| Part No.   | $B_i$ [mm] | $B_a$ [mm] | $R$ [mm] | Bending radii |     |     |     |     |     |     |        | Weight [kg/m] |
|------------|------------|------------|----------|---------------|-----|-----|-----|-----|-----|-----|--------|---------------|
| 48.025.□.0 | 25         | 36         | 060      | 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



E2 E-Tubes | R | Series R48 | Accessories | Interior Separation

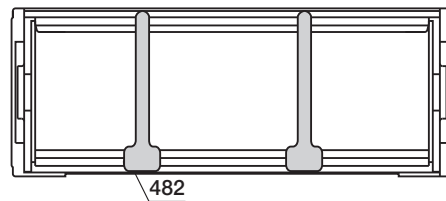


Option 1: Vertical Separators

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 position 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.

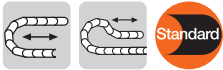
Order example - Full E-Tube made of HT\*: **48.100.100.0.HT**

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](http://www.igus.de/en/HT)



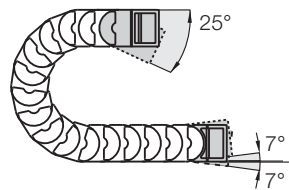


### Option KMA\* - pivoting

- Recommended for unsupported applications
- Bolted connection outside of chain cross-section possible
- Space-restricted
- Universal 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

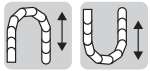
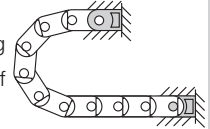


480...2

Fixed end (inner link)



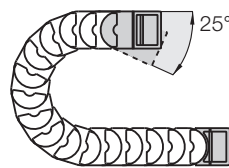
The attachment variants arising automatically by the choice of the KMA mounting bracket



### Option KMA - locking

- Recommended for vertical hanging / standing applications
- Bolted connection outside of chain cross-section possible
- At very high speed and acceleration
- Universal 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

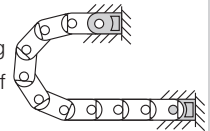


485...2

Fixed end (inner link)

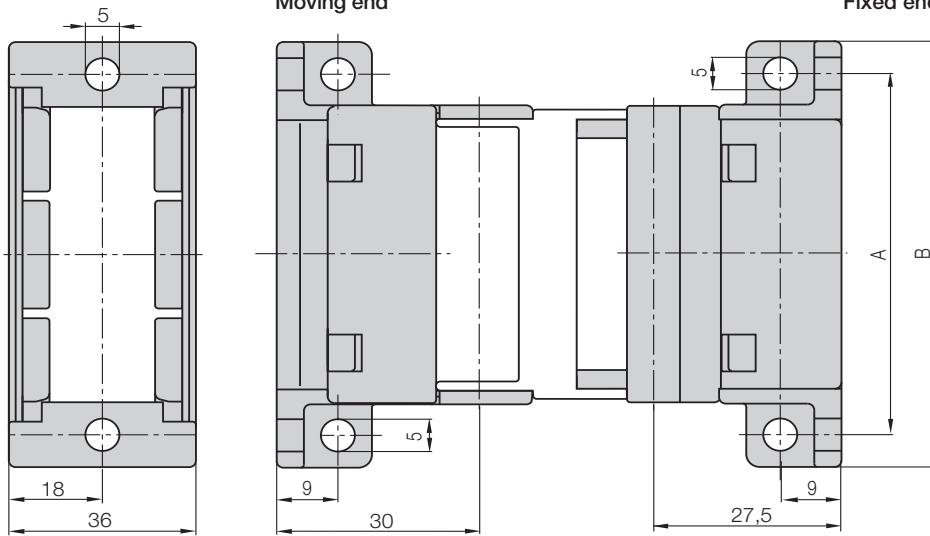


The attachment variants arising automatically by the choice of the KMA mounting bracket



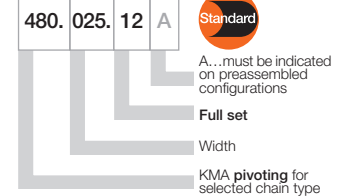
480...1 (pivoting)  
485...1 (locking)  
Moving end

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



### Dimensions and order configurations

#### Part No. structure (pivoting)



#### Full set, for both ends:

480.025.12

#### Single-part order:

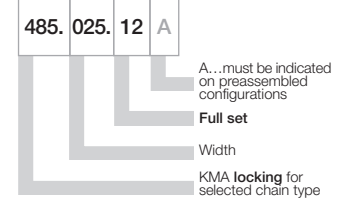
480.025.1

Mounting bracket with bore

480.025.2

Mounting bracket with pin

#### Part No. structure (locking)



#### 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

| 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

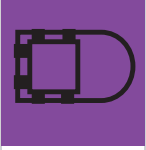
For the preassembled mode please add the index A e.g. 480.025.12 A

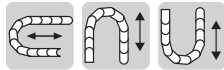
The following parts are required for attachment of the mounting brackets:

- 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



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

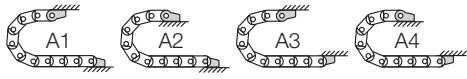
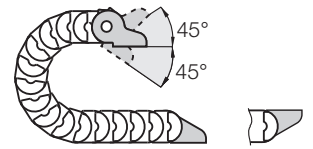




**Steel mounting bracket**

- Locked connection to E-Tube
- Electrically conductive
- Minimized external width

Moving end (outer link)  
482...1



Possible installation conditions -

Further installation angles ► installation sketch

482...2

Fixed end (inner link)

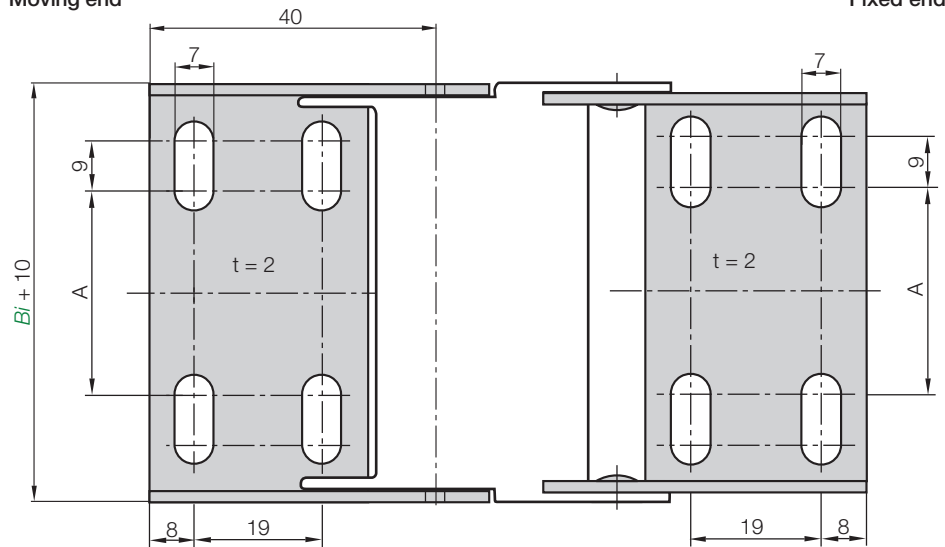
**Dimensions and order configurations**

482...1

Moving end

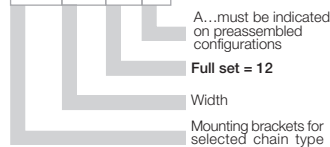
482...2

Fixed end



**Part No. structure**

|      |      |    |    |
|------|------|----|----|
| 482. | 050. | 12 | A1 |
|------|------|----|----|



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

| 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         |

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

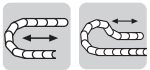
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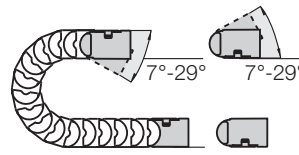




**Angled polymer bracket**

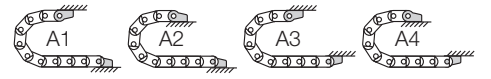
- Attachment option for strain relief tie-wrap plate
- Locked connection to E-Tube
- Minimized external width

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



4800...2(PZB)

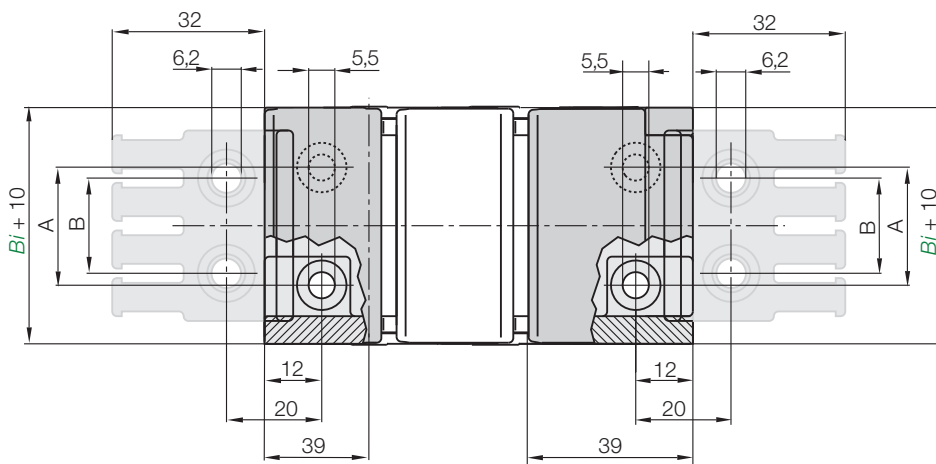
Fixed end (inner link)



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 tie-wrap plates | Part No. Full set without tie-wrap 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

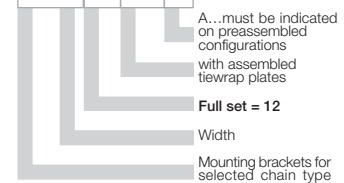
For the preassembled mode please add the index A1 ... A4 e.g. 4800.050.12PZB A1

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**

4800.025.12 PZB A1



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

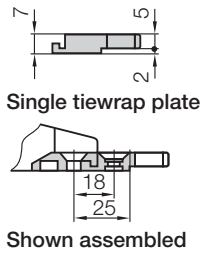
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Fax +49- (0) 22 03-96 49-222



▶ page 6.5

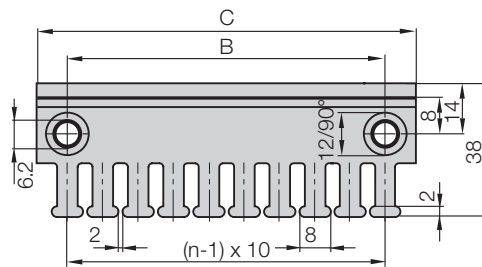


Strain relief separator for the use in the first or last chain link ▶ page 6.32



### Tiewrap plate as individual part

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



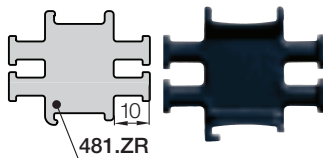
| Tiewrap plate       | No. of teeth <i>n</i> | Dim. C [mm] | Dim. B [mm] |
|---------------------|-----------------------|-------------|-------------|
| 2020.ZB             | 3                     | 30          | 15          |
| 2030.ZB             | 4                     | 40          | 20          |
| 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         | -           |

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### Cable tiewraps as individual part

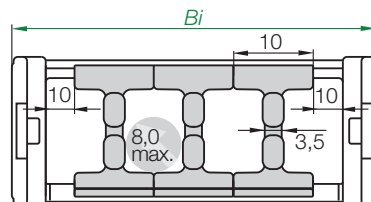
| Cable tiewraps (100-piece bag) | Width x length | max. Ø | Tensile strength |
|--------------------------------|----------------|--------|------------------|
| CFB.001                        | 4,8 x 150 mm   | 36 mm  | 222 N            |



### 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 |



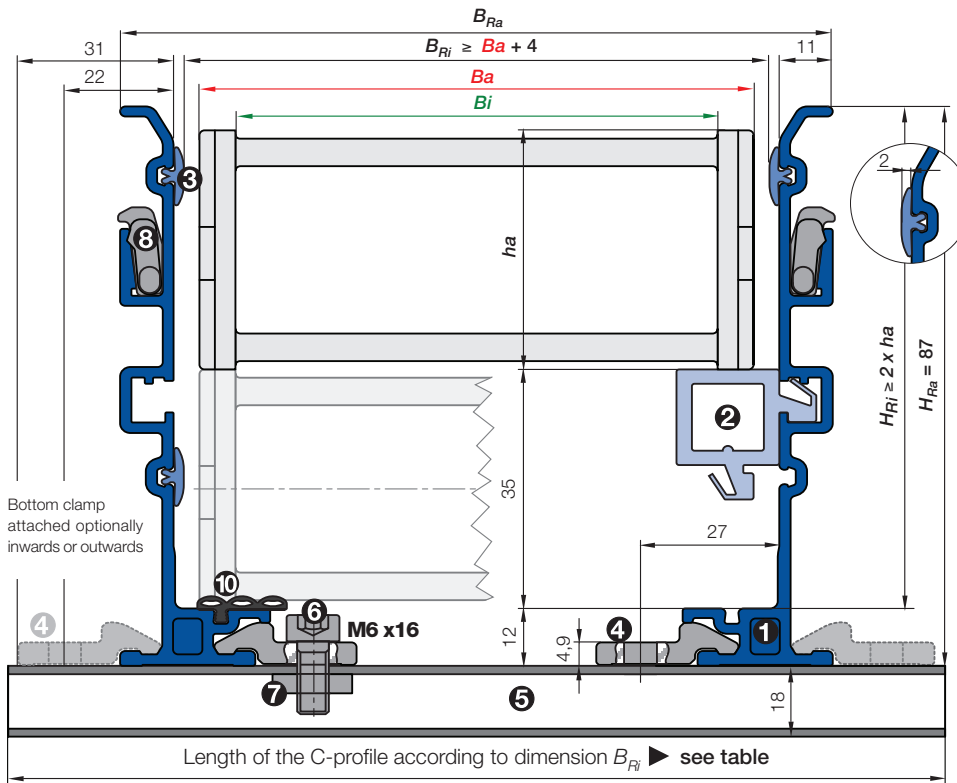
**Strain Relief Separator** - The number of separators is depending on the cables and the available inner space. Example: E-Chain® inner width *Bi* 50 mm: 3 Strain Relief Separator, max. cable diameter 8 mm. **Details ▶ chapter 10**

igus® GmbH  
51147 Cologne

Internet: [www.igus.eu](http://www.igus.eu)  
E-mail: [info@igus.de](mailto:info@igus.de)



Other strain relief elements  
▶ chapter 10



- $B_a$  = Outer width E-Chains® / E-Tube
- $B_i$  = Inner width E-Chains® / E-Tube
- $h_a$  = Outer height E-Chains® / E-Tube
- $H_{Ri}$  = Inner trough height
- $H_{Ra}$  = Outer trough height
- $B_{Ri}$  = Inner trough width ▶ depends on dim.  $B_a$
- $B_{Ra}$  = Outer trough width
- $n_{Mon}$  = Number of installation sets (left/right)
- $n_{Ri}$  = Number of troughs sets (left/right)
- !  $H_{Ri} \geq 2 \cdot h_a$
- $B_{Ri} \geq B_a + 4$
- = Guide trough set      ● = Glide bar
- = Installation set "Basic"      ● = C-profile

**Installation set "Basic" with C-profile**

Bottom Clamp attached optionally inwards or outwards

48.100.075.0 ▶ Order example

| $B_{Ri}$<br>[mm] | Part No.         |                   |
|------------------|------------------|-------------------|
|                  | attached inwards | 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        |

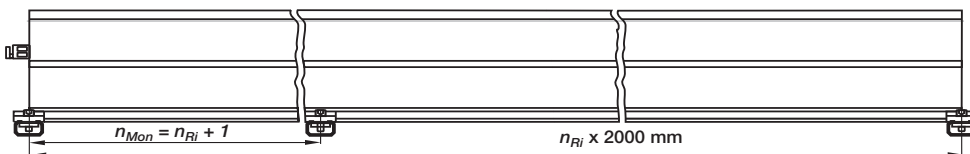
Insert for the installation set "Heavy Duty": **971.50.XXX** instead of **(960.30.XXX)** on the right column "attached outwards"



- **Components, trough "Basic":** ① Trough side parts, aluminum, 2 m ② Glide bar, plastic, 2 m ③ Glide strips, plastic, 2 m (without glide strips on request) ⑩ Optional: Silencer profile, rubber
- **Components, installation set "Basic":** ④ Bottom clamp, aluminum ⑤ C-profile, steel galvanized ⑥ Screw M6 x16 ⑦ Sliding nut M6 ⑧ 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**

**Other guide trough systems**



**"Heavy Duty"** for the fastidiously 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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