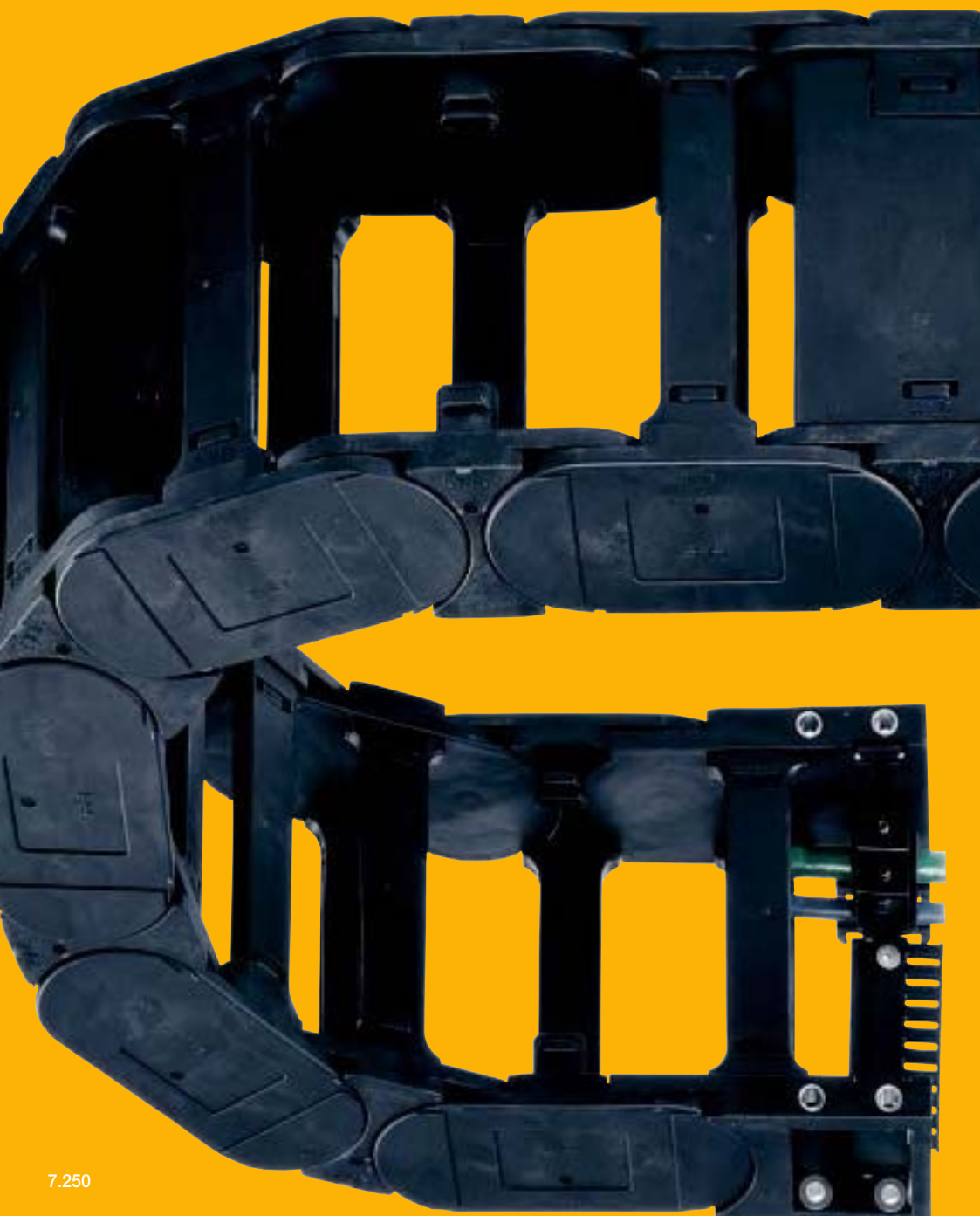






E4/00

E4.1-predecessor for smooth running and easy assembly

For new constructions we recommend:

System E4.1 ► from page 7.6

E4/00 - The E4.1- predecessor for smooth running and easy assembly

E4/00 (pronounced: E4-hundred) - Its "inner link - outer link" design makes it easy to assemble and disassemble on site. The "noise buffer" design feature reduces operating noises noticeably. The system E4/00 is furthermore available from stock

Typical industries and applications

- Robotics and handling
- Material handling
- Freezing environment
- Construction machinery
- Machine tools
- Woodworking machinery
- Machines of all kinds
- Semicon
- Cleanroom
- Welding machines
- General machinery



IPA Certificate, Cleanroom ISO Class 3 (DIN 14644-1) at $v = 1 \text{ m/s}$ for Series 280.10.100.0 tested with igus® chainflex® cables



ESD/ATEX upon request



Low-noise due to special rubber pads design



System E4/00 proved for long travels



System E4 - 4-piece design link





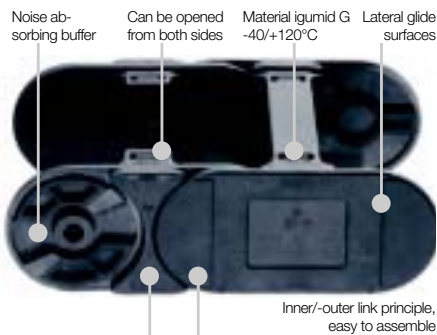
Long unsupported spans, high stability



Quiet and strong - ideal for handling applications



Sturdy design for construction machines



E4/00: e-chains® with a 4-piece design link

- Lowest noise in its class
- Further noise reduction with rubber pads (Series E4/101)
- Broad application spectrum
- Numerous interior separation possibilities
- Broad system of modular accessories
- Widths up to 3000 mm using extension links
- Maximum stability in the igus® range
- Can be opened along both radii
- Max. travel: 200 - 400 m
- You can find more technical data about the material, chemical resistance, temperatures ► **Design, from page 1.38**

Selection table

Series	Inner height <i>hi</i> [mm]	Inner width <i>Bi</i> [mm]	Outer width <i>Ba</i> [mm]	Outer height <i>ha</i> [mm]	Bending radius <i>R</i> [mm]	Unsupported length max. [m]	page
--------	--------------------------------	-------------------------------	-------------------------------	--------------------------------	---------------------------------	--------------------------------	------

Crossbars every link for particularly demanding applications



220	28	40 - 300	60 - 320	42	55 - 250	2,00	7.256
280	32	50 - 400	73 - 423	54	63 - 300	3,00	7.264
380	42	50 - 400	76 - 426	64	75 - 350	3,80	7.274
400	56	50 - 600	84 - 634	84	135 - 500	4,50	7.284
600	108	200 - 600	252 - 652	140	200 - 1000	7,00	7.294
640	112	87 - 562	139 - 614	140	200 - 1000	7,00	7.302

Crossbars every 2nd link for almost all applications



290	32	50 - 400	73 - 423	54	63 - 300	3,00	7.264
390	42	50 - 400	76 - 426	64	75 - 350	3,80	7.274
410	56	50 - 600	84 - 634	84	135 - 500	4,50	7.284
601	108	200 - 600	252 - 652	140	200 - 1000	7,00	7.294

e-tubes fully enclosed, excellent cable protection

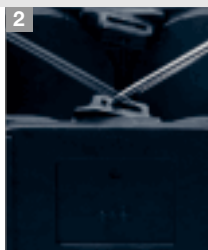


R760	28	50 - 300	70 - 320	42	75 - 250	2,00	7.256
R770	32	50 - 300	73 - 323	54	125 - 300	3,00	7.264
R780	42	50 - 300	76 - 326	64	125 - 350	3,80	7.274
R880	56	75 - 462	109 - 497	84	150 - 500	4,50	7.284
R608	108	200 - 500	252 - 552	140	250 - 1000	7,00	7.294

System E4/00 | e-chains® | Opening



Remove crossbars - Insert screwdriver into the slot, push down, release by lever action



Remove clip - Insert screwdriver into the slot, release by lever action

System E4/00 | e-tubes | Opening



Remove lids/bottoms - Insert screwdriver into the slot, release by lever action



Release **only one side** to swivel the lid

System E4/00 | e-chains® and e-tubes | Assembling



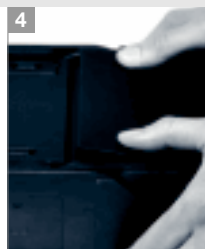
Line up two inner side links, side by side. Attach an outer side link between



Assemble crossbars - Push down and snap in by using a screwdriver



Assemble clips (e-chains® with crossbars every other link) - Push down and snap in



Assemble e-tube lids/bottoms - Attach to the connector at an angle - Snap in

System E4/00 | e-chains® and e-tubes | Separating



Remove crossbars, clips, lids and bottoms at the outer links...



...guide the screwdriver into the slot between side links and release it by levering ...



...remove the outer links to the side...



...and separate the e-chain®

Price index



Series 220

Series R760



Low noise version E4/101
Series 221 available with
special rubber pads design



Cleanroom test
upon request



ESD classification:
Electrically conductive ESD/ATEX
version upon request



Opening e-chains®: Remove crossbars and
clips - Insert screwdriver into the slot, push
down, release by lever action



Remove lids/bottoms (e-tubes) - Insert screw-
driver into the slot, release by lever action



When to use the Series 220/R760:

- If a low-noise version is required
- At very high speeds and/or accelerations
- For long travels
- For high additional loads

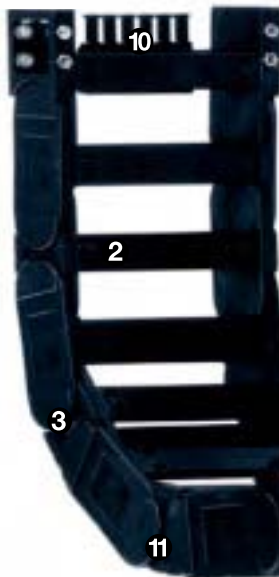


When not to use it:

- Zig-zag lift applications
▶ System E4/4, from page 7.312
- For side-mounted applications
▶ System E4/4, from page 7.312
- If an extrem vibration-free e-chain® is necessary
▶ Series E6.29/R6.29, page 8.40/8.46

- 1 Crossbars are removable along both radii
- 2 Wide, rounded plastic crossbars - cable friendly
- 3 Stop dog with "brake" for noise reduction
- 4 Closed and open styles can be combined
- 5 Hinged snap-open removable lids along outer radius of e-tube
- 6 Optimized glide pads
- 7 Numerous interior separation possibilities
- 8 KMA mounting brackets with attachment points on all sides
- 9 Locking or pivoting mounting brackets available
- 10 Integrated strain relief possible
- 11 e-chains® also available with reverse bending radius "RBR"

Also available as
E4/00-NC without
camber: 220-NC



Order example complete e-chain®

Please indicate chain-lengths or number of links Example: 3 m or 66 links

3 m 220.300.250.0



e-chain®

with 2 separators 2211 assembled every 2nd link

Interior separation

1 set 2200.300.1.12



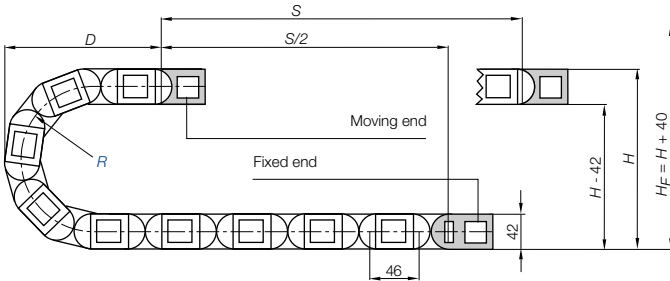
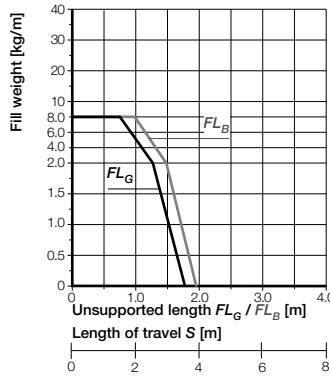
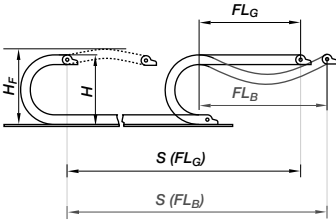
Mounting bracket



Unsupported length

 FL_G = with straight upper run

 FL_B = with permitted sag

Further information ► **Design, page 1.12**

Pitch = 46 mm/link Links/m = 22 (1012 mm) Chain length = $S/2 + K$

	R	055*	063*	075	100	125	150	175	200	250
H	154	170	194	244	294	344	394	444	544	
D	125	133	145	170	195	220	245	270	320	
K	265	290	330	410	485	565	645	725	880	
H ₂	112	128	152	158	158	158	158	158	158	
D ₂ ⁺²⁵	125	133	145	350	490	530	655	730	935	
K ₂	265	290	330	598	782	920	1104	1242	1610	

*not available for R760

- S = Length of travel
- R = Bending radius
- H = Nominal clearance height
- H_F = Required clearance height
- H_{int} = Trough inner height
- D = Overlength e-chain*
radius in final position
- K = $\pi \cdot R$ + "safety"
- D₂ = Overlength - long travels, gliding
- H₂ = "Further add-on"
- H₂ = "Mounting height"

*if the mounting bracket location is set lower

Other installation methods

Vertical, hanging ≤ 80 m

Vertical, standing ≤ 5 m

Side mounted, un supp. ≤ 2 m

Rotary requires further calculation

Unsupported length of upper run
= upon request

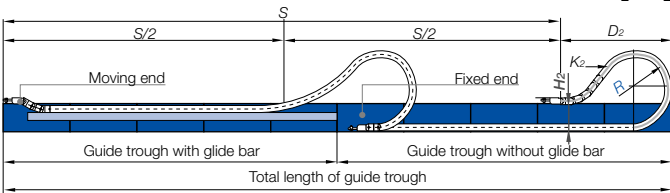

Short travels - unsupported

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:

 $H_F = H + 40 \text{ mm}$

(with 1,0 kg/m fill weight)

Long travel lengths from 10 m to max. 200 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. 200 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



Details of material properties

► page 1.38

Speed / acceleration FL_G	max. 20 [m/s] / max. 200 [m/s ²]
Speed / acceleration FL_B	max. 3 [m/s] / max. 6 [m/s ²]
Gliding speed / acceleration (maximum)	max. 10 [m/s] / max. 50 [m/s ²]
Material - permitted temperature °C	igumid G / -40° up to +120° C
Flammability class, igumid G	VDE 0304 IIC UL94 HB

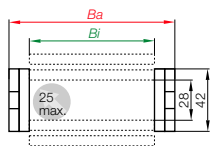

For support of the lower run - **Support Tray tool kit** available ► page 9.70

System E4/00
Inner height: 28 mm

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


► page 7.255

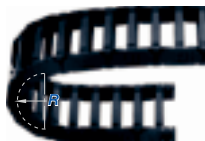
7.257



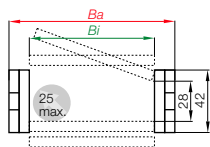
Part No. structure

220. 300. **250.** 0

Series 220 - e-chain® with crossbars every link



- Robust solution with crossbars every link
- Can be opened from two sides
- Removable crossbars



Part No. structure

760. 300. **250.** 0

Series R760 - Fully enclosed e-tube



- Fully enclosed
- Excellent cable protection against dirt
- Protection against hot chips (up to 900°C)
- Lids along the entire inner radius are completely removable. Lids along the entire outer radius are single sided snap-open with a hinge on the other side to keep them attached to the chain or completely removable.



Low-noise! Special low-noise version with rubber pads

Series 221 - Order example 221.100.250.0

Further information:

www.igus.de or phone +49-(0) 22 03-96 49-800



R [mm]	055*	063*	075	100	125	150	175	200	250
----------	------	------	-----	-----	-----	-----	-----	-----	-----

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

**Hot Chips
up to 850°C**

Full e-tube made of HT[®]:

760,050,150,0.**HT**

Lids made of HT:

760,050, **HTE**, 150,0

*for long travels upon request

Further Information:

Further information:
www.igus.de/en/HT

Delivery time

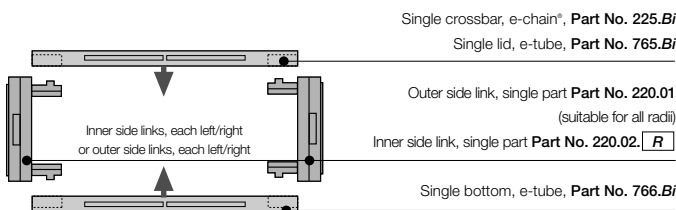
**Delivery time
up to 4 weeks**

up to 4 weeks!

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▶ page 7.255



Part No. e-chain®
links, single parts

Inner side link

Outer side link





Vertical separators are used if a vertical subdivision is required. In the standard configuration, a separator is mounted at every second link. **Note:** Observe a lateral spacing of at least 20 mm (e-tube)!



Vertical separator
2201



Vertical separator
7603



Spacer
205.09

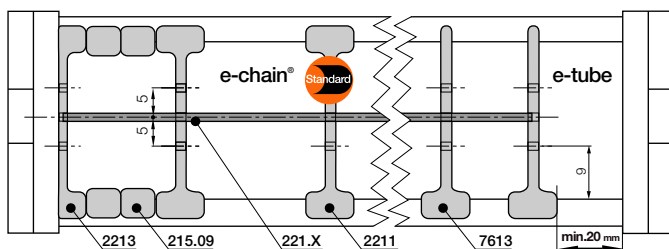
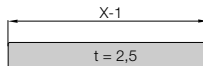


Side plate
2203



Full-width shelf 220.X

Full-width shelf



Vertical separator for e-chains*

unassembled	2201
assembled	2211



Vertical separator for e-tubes

unassembled	7603
assembled	7613



Spacer* for e-chains*

unassembled	205.09
assembled	215.09



Side plate for e-chains*

unassembled	2203
assembled	2213



*For side-mounted applications

Option 1: Vertical separators and spacers

● **Standard separator 2201 for e-chains*** is used when vertical and horizontal separation is required. Due to its slot, it allows basic vertical/horizontal shelving arrangements.

● **Vertical separator 7603 for e-tubes R760.**

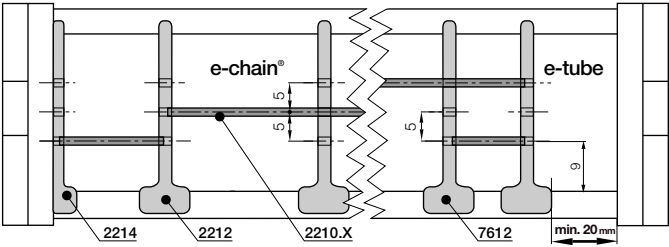
● Separators (e.g. "side mounted") for e-chains* can be fixed in their position with **spacers 205.09**. The available inner height will be reduced by 2 mm, per spacer and side. To avoid this, the parts can be assembled on outside of the crossbar (not for long travels)

Additionally:

● **Side plate 2203 and full-width shelf 220.X** - this option makes sense in applications with many thin cables with similar diameters. It is based upon **vertical separator 2201 (7603)** for the Series **R760 e-tube** is put in place and the shelf is inserted into the separator's slots. If no separators are desired, **side plate 2203** must be used with the **Series 220 e-chain***. This solution is not available for e-tubes.

Width X [mm]	Part No. unassembled	Part No. assembled
040	220.40	221.40
050	220.50	221.50
062	220.62	221.62
070	220.70	221.70
075	220.75	221.75
087	220.87	221.87

Width X [mm]	Part No. unassembled	Part No. assembled
100	220.100	221.100
125	220.125	221.125
150	220.150	221.150
175	220.175	221.175
200	220.200	221.200



For use with many cables of differing diameters, e-chains* and e-tubes can be subdivided both vertically and horizontally. The shelves can be arranged elevator-shifted with different bottoms

Option 2: Shelves

● Side plates 2204, middle plates 2202 and shelves 2200.X form the basic pattern of a shelf system. Shelves of various widths can be arranged at 3 different heights (in 5 mm increments).

● A middle plate 7602 is available for the e-tube. Side plates are not available for the e-tube.

4	Side plate for e-chains*	
7	unassembled	2204
	assembled	2214

4	Middle plate for e-chains*	
10	unassembled	2202
	assembled	2212

4	Middle plate for e-tubes	
10	unassembled	7602
	assembled	7612

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



Side plate 2204



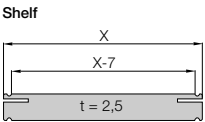
Middle plate 2202



Middle plate 7602



Shelf 2200.X



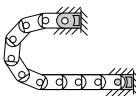
Shelf

System E4/00
Inner height: 28 mm

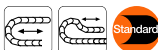
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► page 7.255



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

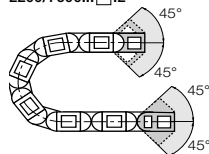


The Standard - Option KMA* - pivoting

- Recommended for unsupported and gliding applications
- Universally mountable with attachment capability on all sides
- Bolted connection outside of chain cross-section
- Confined installation conditions
- Corrosion resistant

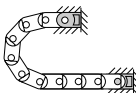
*KMA = Polymer Metal Mounting Bracket

Moving end
2200/7600... .2

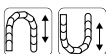


Fixed end

2200/7600... .1



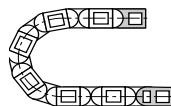
The attachment variants arising automatically by the choice of the KMA mounting bracket



Option KMA - locking

- Recommended for vertical hanging / standing applications
- Additionally:**
- Universally mountable
 - Corrosion resistant
 - Locked connections
 - At very high acceleration

Moving end
2300/7650....2



Fixed end
2300/7650.....1

Dimensions and order configurations

Part No. structure (pivoting)

2200.	050.	2.	12
-------	------	----	----

Full set
odd/even
Width
2200 = e-chain

Part No. structure (locking)

2300.	050.	2.	12
-------	------	----	----

Full set
 odd/even
 Width
 2300 = e-chain*

Note: The E4/00 System may end with either an inner side or an outer side link. Keep in mind that an outer side link always forms the first chain link at the moving end. The Part No. depends on an even or odd numbers of links. Please insert: **1** for odd number of links or **2** for even number of links

Full set, for both ends:

2200.	040.	2.	12	(even)
-------	------	----	----	--------

Single-part order:

2200.040. 2. 2 (even)

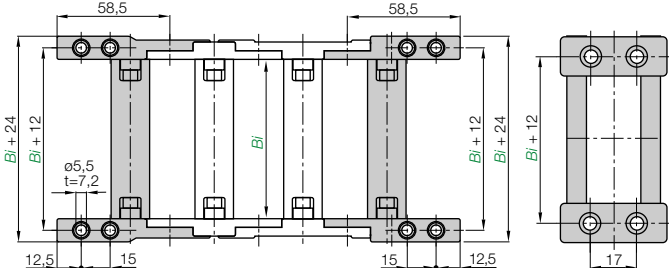
Mounting bracket moving end

2200.040.2.1 (even)

Mounting bracket **fixed end**

Fixed end
2200/7600... ☐.1 (pivoting)
2300/7650... ☐.1 (locking)

Moving end
(pivoting) 2200/7600...☐.2
(locking) 2300/7650...☐.2



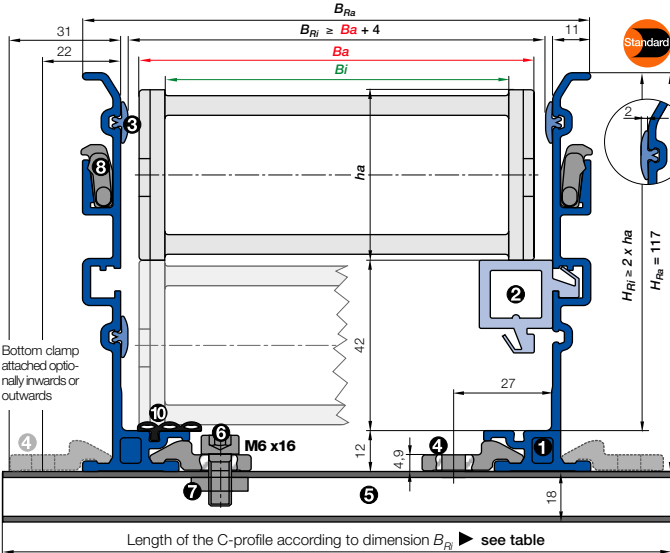
Width	Part No. full set			<i>Bi</i>	Width	Part No. full set			<i>Bi</i>	
index	pivoting	locking		[mm]	index	pivoting	locking		[mm]	
.040. ▶	<u>2200</u>	2300	.040.	□.12	40	.150. ▶	<u>2200/7600</u>	2300/7650	.150.□.12	150
.050. ▶	<u>2200/7600</u>	2300/7650	.050.	□.12	50	.175. ▶	<u>2200/7600</u>	2300/7650	.175.□.12	175
.062. ▶	<u>2200</u>	2300	.062.	□.12	62	.200. ▶	<u>2200/7600</u>	2300/7650	.200.□.12	200
.070. ▶	<u>2200</u>	2300	.070.	□.12	70	.225. ▶	<u>2200/7600</u>	2300/7650	.225.□.12	225
.075. ▶	<u>2200/7600</u>	2300/7650	.075.	□.12	75	.250. ▶	<u>2200/7600</u>	2300/7650	.250.□.12	250
.087. ▶	<u>2200</u>	2300	.087.	□.12	87	.275. ▶	<u>2200</u>	2300	.275.□.12	275
.100. ▶	<u>2200/7600</u>	2300/7650	.100.	□.12	100	.300. ▶	<u>2200/7600</u>	2300/7650	.300.□.12	300
.125. ▶	<u>2200/7600</u>	2300/7650	.125.	□.12	125					

Please insert **1** for odd number of links or **2** for even number of links

E4/00 | **Series 220-R760** | **Accessories** | Strain Relief

Strain relief tiewrap plate Part No. 2050.Z can be fixed on the last crossbar. **Details ► chapter 10**

Part. No.	Width [mm]	Number of teeth
2050.Z	60	6

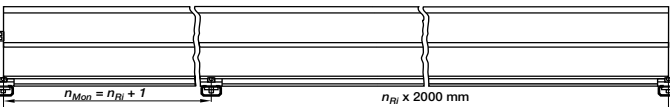


- **Components, trough "Basic":** ❶ Trough side parts, aluminum, 2 m ❷ Glide bar, plastic, 2 m ❸ Glide strips, plastic, 2 m (without glide strips on request) ❹ Optional: Silencer profile, rubber
- **Components, installation set "Basic":** ❶ Bottom clamp, aluminum ❷ C-profile, steel galvanized ❸ Screw M6 x 16 ❹ Sliding nut M6 ❺ Interface connector, plastic



Order example: Length of travel 30 m - Center mounted for Series 220.070.250.0 with $B_{Ri} = 94$

- 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. 972.02.30.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. 972.02.31.SL
- Installation set "Basic" complete (guide trough-sets + 1)
Order text: 17 installation sets "Basic" Part No. 960.30.150
- Module for the fixed end
Order text: 1 set Part No. 972.82
- Option:** For an additional noise dampening with silencer profile, please add Index A - Example: Part No. 972.02.30.SLA



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



A quick fix for mounting the stationary end of an e-chain®

With this module for the fixed end, fast and easy mounting onto the Aluminum "SuperTrough" is now possible without any drilling. Fast mounting of the e-chain® by clamping onto the aluminum trough

● Quick relocation of the stationary end ● No drilling necessary

- 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 trough sets (left/right)
- ❶ $H_{Ri} \geq 2 \cdot h_a$
❷ $B_{Ri} \geq B_a + 4$
- = Guide trough set ● = Glide bar
● = Installation set "Basic" ● = C-profile

Installation set "Basic" with C-profile
Bottom Clamp attached optionally inwards or outwards

220.070.250.0 ► Order example

B_{Ri} [mm]	Part No. attached inwards	Part No. attached outwards
.040 64	–	960.30.175
.050 74	960.30.125	960.30.175
.062 86	960.30.150	960.30.200
.070 94	960.30.150	960.30.200
.075 99	960.30.150	960.30.200
.087 111	960.30.175	960.30.225
.100 124	960.30.175	960.30.225
.125 149	960.30.200	960.30.250
.150 174	960.30.225	960.30.275
.175 199	960.30.250	960.30.300
.200 224	960.30.275	960.30.325
.225 249	960.30.300	960.30.350
.250 274	960.30.325	960.30.375
.275 299	960.30.350	960.30.400
.300 324	960.30.375	960.30.425

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

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► chapter 10



► chapter 9



► page 7.255

Price index



Low noise version E4/101
Series 281 available with
special rubber pads design



IPA Certificate, Cleanroom ISO
Class 3 at v=1 m/s and ISO Class
4 at v=2 m/s for Series 280.10.100.0



ESD classification:
Electrically conductive ESD/ATEX
version upon request



Opening e-chains*: Remove crossbars and
clips - Insert screwdriver into the slot, push
down, release by lever action



Remove lids/bottoms (e-tubes) - Insert screw-
driver into the slot, release by lever action



When to use the Series 280/290/R770:

- If a low-noise version is required
- At very high speeds and/or accelerations
- For long travels
- For high additional loads
- Also available without camber



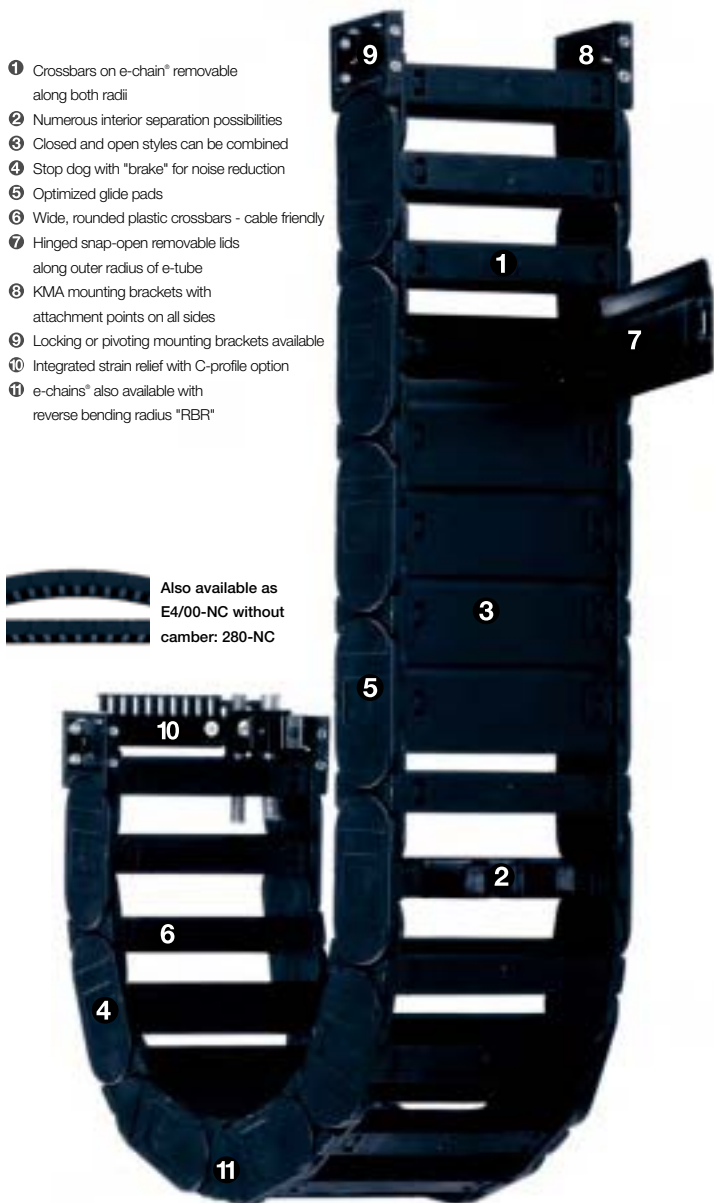
When not to use it:

- If long side-mounted, unsupported length is required
▶ Series E4.32, page 7.42
- If an extrem vibration-free e-chain* is necessary
▶ Series E6.35, page 8.50

- 1 Crossbars on e-chain* removable
along both radii
- 2 Numerous interior separation possibilities
- 3 Closed and open styles can be combined
- 4 Stop dog with "brake" for noise reduction
- 5 Optimized glide pads
- 6 Wide, rounded plastic crossbars - cable friendly
- 7 Hinged snap-open removable lids
along outer radius of e-tube
- 8 KMA mounting brackets with
attachment points on all sides
- 9 Locking or pivoting mounting brackets available
- 10 Integrated strain relief with C-profile option
- 11 e-chains* also available with
reverse bending radius "RBR"



Also available as
E4/00-NC without
camber: 280-NC



Order example complete e-chain®

Please indicate chain-lengths or number of links Example: 4 m or 72 links

4 m 280.30.300.0

e-chain®

with 2 separators 282 assembled every 2nd link

Interior separation

1 set 2800.30.1.12.C

Mounting bracket

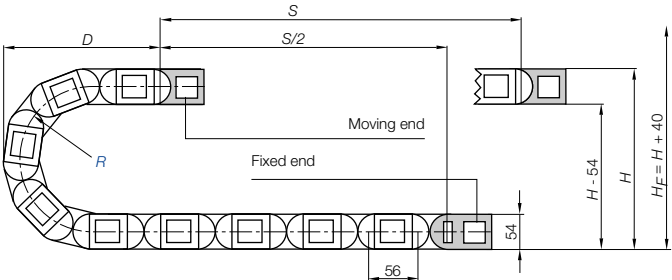
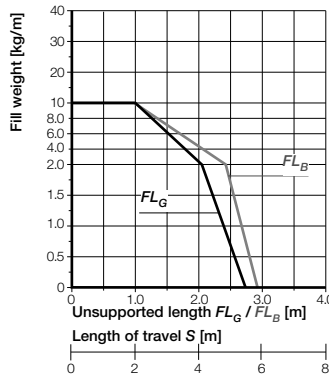
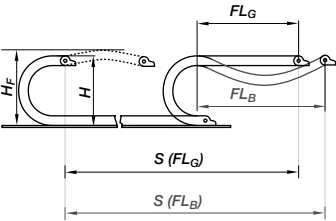


Unsupported length

FL_G = with straight upper run

FL_B = with permitted sag

Further information ► Design, page 1.12



Pitch = 56 mm/link Links/m = 18 (1008 mm) Chain length = $S/2 + K$

R	063	075	100	125	150	175	200	220	250	300
$H +^{+30}_0$	180	205	255	305	355	405	455	495	555	655
D	146	158	183	208	233	258	283	303	333	383
K	310	350	430	505	585	665	745	805	900	1055
H_2	126	151	166	166	166	166	166	166	166	166
$D_2 +^{+25}_0$	146	158	370	470	500	655	770	900	930	1100
K_2	310	350	616	784	896	1120	1288	1456	1568	1904

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

Other installation methods

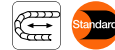
Vertical, hanging ≤ 80 m

Vertical, standing ≤ 5 m

Side mounted, unupp. $\leq 1,5$ m

Rotary requires further calculation

Unsupported length of upper run = upon request



Short travels - unsupported

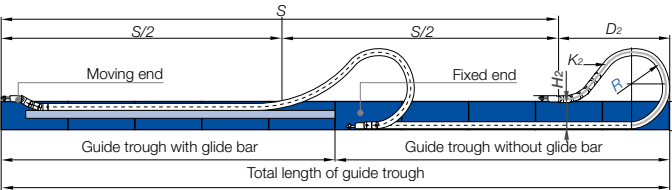
Unsupported e-chains® feature positive camber over short travels. This must be accounted for when specifying the clearance height H_F . Please consult igus® if space is particularly restricted.

The required clearance height:

$H_F = H + 40$ mm

(with 2,0 kg/m fill weight)

Long travel lengths from 10 m to max. 200 m Chain length = $S/2 + K_2$



In case of travels between 6,0 and 10 m we recommend a longer unsupported length.



Gliding, long travel applications (max. 200 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



Details of material properties

► page 1.38

Speed / acceleration FL_G	max. 20 [m/s] / max. 200 [m/s²]
Speed / acceleration FL_B	max. 3 [m/s] / max. 6 [m/s²]
Gliding speed / acceleration (maximum)	max. 10 [m/s] / max. 50 [m/s²]
Material - permitted temperature °C	igumid G / -40° up to +120° C
Flammability class, igumid G	VDE 0304 IIC UL94 HB



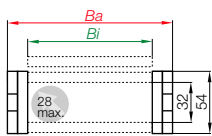
For support of the lower run - **Support Tray tool kit** available ► page 9.70

System E4/00
Inner height: 32 mm

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► page 7.255

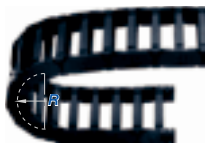


Part No. structure

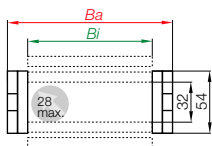
280. 30. 300. 0

Color
black
Bending
radius
Width
Series

Series 280 - e-chain® with crossbars every link



- Crossbars every link
- For rigid hydraulic hoses
- For applications particularly demanding
- Can be opened from two sides



Part No. structure

290. 20. 300. 0

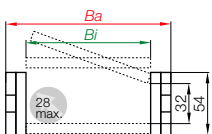
Color
black
Bending
radius
Width
Series



Series 290 - e-chain® with crossbars every 2nd link



- Crossbars every 2nd link = Standard
- For nearly every situation
- Can be opened from two sides
- Easy assembly
- Stable
- Attractive price



Part No. structure

770. 30. 300. 0

Color
black
Bending
radius
Width
Series

Series R770 - Fully enclosed e-tube



- Fully enclosed
- Excellent cable protection against dirt
- Protection against hot chips (up to 900°C)
- Lids along the entire inner radius are completely removable. Lids along the entire outer radius are single sided snap-open with a hinge on the other side to keep them attached to the chain or completely removable.



Low-noise! Special low-noise version with rubber pads

Series 281 - Order example 281.10.250.0

Further information:

www.igus.de or phone +49-(0) 22 03-96 49-800



Part No.		Bi [mm]	Ba [mm]	280 [kg/m]	290 [kg/m]	R770 [kg/m]
280/290/770.05...	.0*	50	73	≈ 1,73	≈ 1,64	≈ 2,63
280/290.06.....	.0	68	91	≈ 1,79	≈ 1,67	–
280/290/770.07...	.0	75	98	≈ 1,84	≈ 1,69	≈ 2,75
280/290.087.....	.0	87	110	≈ 1,93	≈ 1,73	–
280/290/770.10...	.0	100	123	≈ 2,02	≈ 1,78	≈ 2,83
280/290/770.11...	.0	108	131	≈ 2,08	≈ 1,81	≈ 2,94
280/290.112.....	.0	112	136	≈ 2,15	≈ 1,84	–
280/290/770.12...	.0	125	148	≈ 2,20	≈ 1,87	≈ 3,03
280/290.137.....	.0	137	161	≈ 2,29	≈ 1,91	–
280/290/770.15...	.0	150	173	≈ 2,38	≈ 1,96	≈ 3,19
280/290.162.....	.0	162	186	≈ 2,44	≈ 1,99	–
280/290/770.17...	.0	168	191	≈ 2,51	≈ 2,02	≈ 3,39
280/290.18.....	.0	175	198	≈ 2,56	≈ 2,05	–
280/290.187.....	.0	187	211	≈ 2,65	≈ 2,09	–
280/290/770.20...	.0	200	223	≈ 2,74	≈ 2,14	≈ 3,59
280/290.212.....	.0	212	236	≈ 2,87	≈ 2,20	–
280/290.23.....	.0	225	248	≈ 2,92	≈ 2,22	–
280/290.237.....	.0	237	261	≈ 3,05	≈ 2,29	–
280/290/770.25...	.0	250	273	≈ 3,10	≈ 2,32	≈ 4,04
280/290.262.....	.0	262	286	≈ 3,19	≈ 2,36	–
280/290.28.....	.0	275	298	≈ 3,28	≈ 2,41	–
280/290.29.....	.0	287	311	≈ 3,37	≈ 2,45	–
280/290/770.30...	.0	300	323	≈ 3,46	≈ 2,50	≈ 4,43
280/290.312.....	.0	312	336	≈ 3,59	≈ 2,56	–
280/290.325.....	.0	325	348	≈ 3,68	≈ 2,60	–
280/290.337.....	.0	337	361	≈ 3,77	≈ 2,65	–
280/290.350.....	.0	350	373	≈ 3,86	≈ 2,69	–
280/290.362.....	.0	362	386	≈ 3,95	≈ 2,74	–
280/290.375.....	.0	375	398	≈ 4,04	≈ 2,79	–
280/290.387.....	.0	387	411	≈ 4,11	≈ 2,82	–
280/290.400.....	.0	400	423	≈ 4,18	≈ 2,86	–

Available bending radii

R [mm] **063**** **075**** **100**** 125 150 175 200 220 250 300

Supplement Part No. with required radius. Example: 280.30.300.0

0 = standard color, other colors ► page 1.39 · Pitch = 56 mm/link - Links/m = 18

*Removable lid only, no hinged option · **not available for R770

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® "gumid HT" material. Order example:

Full e-tube made of HT:

770.30.150.0.HT

Lids made of HT:

770.30.HTE.150.0

for long travels upon request

Further Information:

www.igus.de/en/HT

Delivery time

up to 4 weeks!

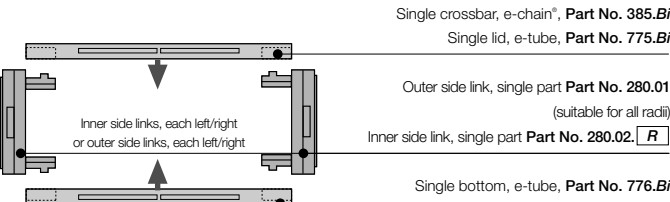


System E4/00
Inner height: 32 mm

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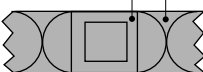
Extender crossbar for large
diameter hoses ► page 7.270



Part No. e-chain® links, single parts

Inner side link

Outer side link



► page 7.255



Vertical separators are used if a vertical subdivision is required. In the standard configuration, a separator is mounted at every second link. **Note:** Observe a lateral spacing of at least 25 mm (e-tube)!



Vertical separator
281



Vertical separator
281T



Vertical separator
281.14



Vertical separator
283



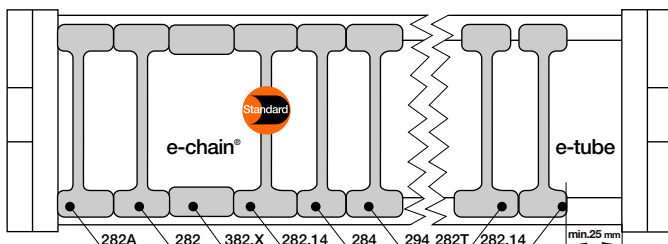
Spacer
381.XX



Locking separator
293



Asymmetric
separator 281A



Vertical separator for e-chains*

unassembled	281
assembled	282

Vertical separator for e-tubes

unassembled	281T
assembled	282T

Vertical separator for e-chains*/e-tubes

unassembled	281.14
assembled	282.14

Vertical separator for e-chains*

unassembled	283
assembled	284

Spacer* for e-chains*

unassembled	381.XX
assembled	382.XX

Locking separator for e-chains*

unassembled	293
assembled	294

Asymmetric separator for e-chains*

unassembled	281A
assembled	282A

*For side-mounted applications



Option 1: Vertical separators and spacers

● **Standard separator 281 for e-chains®** offers safe stability due to its broad foot design, also when used with thick cables or hoses. If the distance needed between separators is greater than this separator's dimension, we offer the **Vertical separator 281.14**.

● The **vertical separator 281T for e-tubes** clamps to the fixed radius and remains free along the other radius to facilitate lid removal. If installing these yourself, please ensure that they are identically aligned. If the distance needed between separators is greater than this separator's dimension, we offer the **Vertical separator 281.14**.

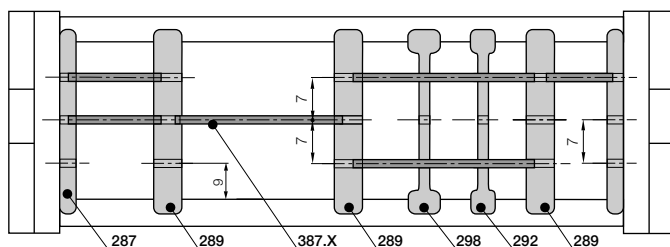
● **Vertical separator 283 with a narrow foot for e-chains®** with applications where a large number of small cables need to be individually separated.

● Separators (e.g. "side mounted") for e-chains® can be fixed in their position with **spacers 381.XX**. The available inner height will be reduced by 2 mm, per spacer and side. To avoid this, the parts can be assembled on outside of the crossbar (not for long travels) **XX = width of the spacer** (available 10, 15 and 20).

Additionally:

● **Locking separator 293 for e-chains®** - with increased retention force for applications exposed to very high humidity or extreme loads. The extra retention force is achieved by asymmetric claws for the crossbar. Ensure proper alignment (not for e-tubes).

● **Asymmetric separator 281A for e-chains®** (not for e-tubes) with an 12-mm base, for combinations between spacers of different widths and vertical separators in side-mounted applications, for instance.



For use with many cables of differing diameters, e-chains* and e-tubes can be subdivided both vertically and horizontally. The shelves can be arranged elevator-shifted with different bottoms

Option 2: Shelves

● Side plates 286, middle plates 288 und shelves 386.X form the basic pattern of a shelf system. Shelves of various widths can be arranged at 3 different heights (in 7 mm increments).

● For special applications: Vertical separator with injection moulded shelf 281.S.57 (57,5 mm) or 281.S.45 (45 mm).

● Slotted separators 291 (not for e-tubes), are used for very fine subdivisions. However, they cannot be retrofitted into an existing separation system without dismantling the interior separators first.

● The unilateral open, slotted separator 297 can be retrofitted into an existing interior separation system without a need for dismantling the interior separators. During an installation of open slotted separators, the top and bottom notches cannot be occupied by shelves.

Side plate for e-chains*/e-tubes		
unassembled	286	
assembled	287	

Middle plate for e-chains*/e-tubes		
unassembled	288	
assembled	289	

Vertical separator for e-chains*/e-tubes		
unassembled	281.S.57	
assembled	282.S.57	

Vertical separator for e-chains*/e-tubes		
unassembled	281.S.45	
assembled	282.S.45	

Slotted separator for e-chains*		
unassembled	291	
assembled	292	

Open slotted separator for e-chains*/e-tubes		
unassembled	297	
assembled	298	

Width X [mm]	Part No. unassembled	Part No. assembled
018	386.18	387.18
023	386.23	387.23
025	386.25	387.25
028	386.28	387.28
033	386.33	387.33
043	386.43	387.43
050	386.50	387.50
054	386.54	387.54
062	386.62	387.62
075	386.75	387.75

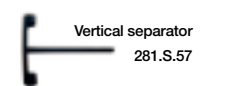
Width X [mm]	Part No. unassembled	Part No. assembled
087	386.87	387.87
100	386.100	387.100
108	386.108	387.108
125	386.125	387.125
150	386.150	387.150
175	386.175	387.175
200	386.200	387.200
208	386.208	387.208
225	386.225	387.225



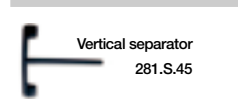
Side plate
286



Middle plate
288



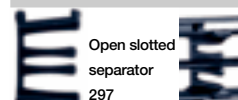
Vertical separator
281.S.57



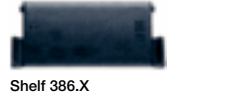
Vertical separator
281.S.45



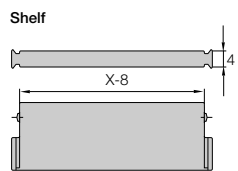
Slotted
separator
291



Open slotted
separator
297



Shelf 386.X



Shelf

System E4/00
Inner height: 32 mm

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



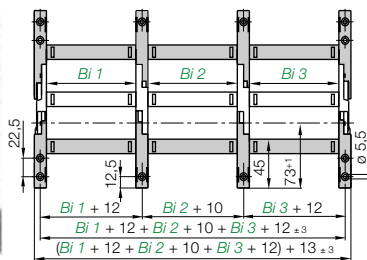
► page 7.255



Part No. structure
280.10 / 20 / 10. 200 .0
280.Bi1/Bi2/Bi3. R .0

Extension links - for extremely wide e-chains® up to 3,0 m

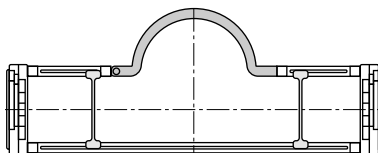
- For applications in which particularly high fill weights necessitate extremely wide e-chains® (up to 3000 mm)
- The extension link design allows virtually limitless side-by-side attachment of chains
- The unsupported length of a chain can be increased when additional loads are required
- Extension links can be used with e-chains®, e-tubes or as a combination of both
- They are suitable for unsupported and gliding applications in a guide trough
- e-chains® with extension links are attached with KMA or steel mounting brackets



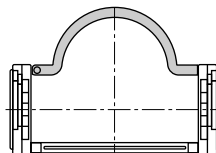
Consult igus® for your extender crossbar applications. We are happy to assist you with your design layout

Extender crossbars - careful guide of hoses applications

- Suitable for hoses with a maximum outer diameter of 105 mm
- Gliding operation with crossbars assembled along the outer radius and a special guide trough
- Gliding operation not guaranteed with crossbars assembled along the inner radius
- The extender crossbar can either be attached to the side links directly or can be used in combination with two stranded snap-open crossbars



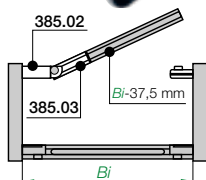
385.15RHD115 round extender crossbar combined with snap-open crossbars



385.18RD115 round strap attached directly on the side link

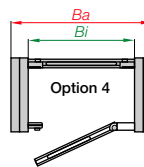
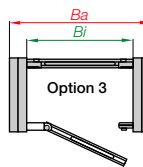
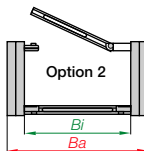
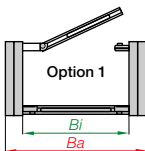
Part No.	Max Ø [mm] hose	Form	Installation side link	Combination with snap-open crossb.
385.15.RHD115	105	○	-	+
385.18.RD115	105	○	+	-

○ = round + = yes / - = no



Hinged crossbars

- Typically e-chain® crossbars are completely removable. In cases where the snap-open crossbars have to remain at the open link of the e-chain®, a hinged design has been developed
- Length: 37,5 mm **Part No. 385.02** / snap-open crossbar (shortened): Bi-37,5 mm **Part No. 385.03**
- Please consult igus® for design assistance





igus® chainfix steel clamps and chainfix stainless-steel clamps - max. pull forces, adjustable with hexagon socket. Available as single, double or triple clamps.

Details ► chapter 10

chainfix clamps for the C-profile

Part No. single clamps		Part No. double clamps		Part No. triple clamps		Cable
steel	stainless steel	steel	stainless steel	steel	stainless steel	ø [mm]
CFX12.1	CFX12.1.E	CFX12.2	CFX12.2.E	CFX12.3	–	06 - 12
CFX14.1	CFX14.1.E	CFX14.2	CFX14.2.E	CFX14.3	–	12 - 14
CFX16.1	CFX16.1.E	CFX16.2	CFX16.2.E	CFX16.3	–	14 - 16
CFX18.1	CFX18.1.E	CFX18.2	CFX18.2.E	CFX18.3	–	16 - 18
CFX20.1	CFX20.1.E	CFX20.2	CFX20.2.E	CFX20.3	–	18 - 20
CFX22.1	CFX22.1.E	CFX22.2	CFX22.2.E	CFX22.3	–	20 - 22
CFX26.1	CFX26.1.E	CFX26.2	CFX26.2.E	–	–	22 - 26
CFX30.1	CFX30.1.E	CFX30.2	CFX30.2.E	–	–	26 - 30
CFX34.1	CFX34.1.E	CFX34.2	CFX34.2.E	–	–	30 - 34
CFX38.1	CFX38.1.E	–	–	–	–	34 - 38
CFX42.1	CFX42.1.E	–	–	–	–	38 - 42



chainfix Clip - Modular snap-on strain relief device for C-profile

Available for all igus® e-chainsystems® with C-profiles and also suitable for assembly in the KMA mounting brackets and clip-on strain relief for crossbars. High pull forces, plug-in modular snap-on strain relief device. Details ► chapter 10

Cable ø [mm]	Part No. clamp	Part No. bottom part
04 - 08	CFC-08-M	CFC-08-C
08 - 12	CFC-12-M	CFC-12-C
12 - 16	CFC-16-M	CFC-16-C
16 - 20	CFC-20-M	CFC-20-C
20 - 24	CFC-24-M	CFC-24-C



chainfix Nugget for the C-Profile

Strain relief for the fixation of cables up to a diameter of Ø 30 mm. Easy to assemble, without any screws and tools. Easy strain relief due to fixation with pre-harnessed cable strap, very small space requirement. Details ► chapter 10

Part No.	ø max. conduit [mm]	Width [mm]
CFN.20	20	10,8
CFN.30.52*	30	16,4
CFN.20.N35*	20	20,0



chainfix tiewrap plates with clip-on connection for the C-profile

Can be plugged into the KMA C-profile. Easy to assemble without any screws. Easily solvable with screwdriver nevertheless safe stop. For all e-chains® with KMA and integrated C-profile. Details ► chapter 10

Part No.	Width of strain relief [mm]	Number of teeth
3050.ZC	50	5
3075.ZC	75	7

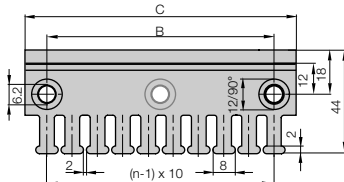
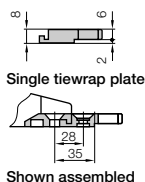


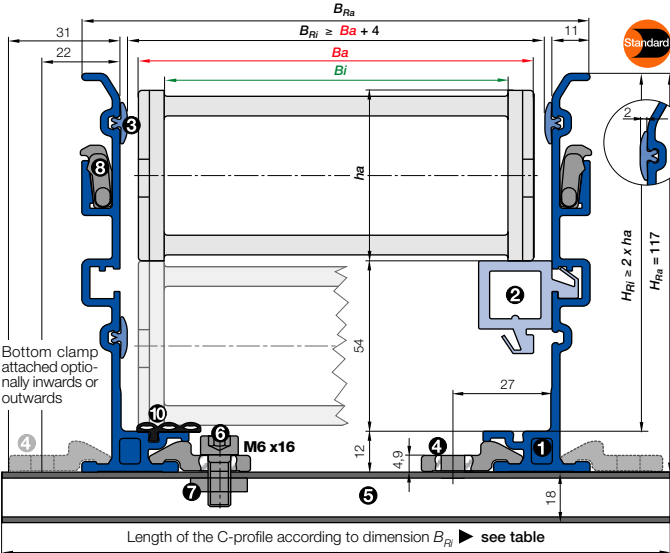
Tiewrap plate as individual part

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

Tiewrap plate	No. of teeth n	Dim. C [mm]	Dim. B [mm]	Center bore
3050.ZB	5	50	30	–
3075.ZB	7	75	55	–
3100.ZB	10	100	80	–
3115.ZB	11	115	95	–
3125.ZB	12	125	105	–
3150.ZB	15	150	130	–
3175.ZB	17	175	155	–
3200.ZB	20	200	180	+
3225.ZB	22	225	205	+
3250.ZB	25	250	230	+

(– = no / + = yes)





- 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) ❹ Optional: Silencer profile, rubber
- Components, installation set "Basic": ❶ Bottom clamp, aluminum ❷ C-profile, steel galvanized ❸ Screw M6 x16 ❹ Sliding nut M6 ❺ Interface connector, plastic



Order example: Length of travel 30 m -
Center mounted for Series 280.30.300.0 with $B_{Ri} = 327$

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. 972.31.SL

Installation set "Basic" complete (guide trough-sets + 1)

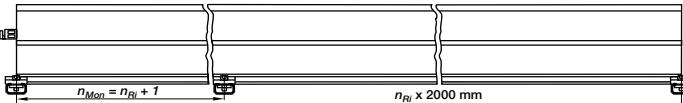
Order text: 17 installation sets "Basic" Part No. 960.30.375

Module for the fixed end

Order text: 1 set Part No. 972.80

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



A quick fix for mounting
the stationary end of an e-chain®

With this module for the fixed end, fast and easy
mounting onto the Aluminum "SuperTrough" is now
possible without any drilling. Fast mounting of the
e-chain® by clamping onto the aluminum trough

- Quick relocation of the stationary end ● No
drilling necessary ▶ page 9.16

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 trough 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

280.05.200.0 ▶ Order example

B_{Ri} [mm]	Part No. attached inwards	Part No. attached outwards
.05 77	960.30.125	960.30.175
.06 95	960.30.150	960.30.200
.07 102	960.30.150	960.30.200
.087 114	960.30.175	960.30.225
.10 127	960.30.175	960.30.225
.11 135	960.30.200	960.30.250
.112 140	960.30.200	960.30.250
.12 152	960.30.200	960.30.250
.137 165	960.30.225	960.30.275
.15 177	960.30.225	960.30.275
.162 190	960.30.250	960.30.300
.17 195	960.30.250	960.30.300
.18 202	960.30.250	960.30.300
.187 215	960.30.275	960.30.325
.20 227	960.30.275	960.30.325
.212 240	960.30.300	960.30.350
.23 252	960.30.300	960.30.350
.237 265	960.30.325	960.30.375
.25 277	960.30.325	960.30.375
.262 290	960.30.350	960.30.400
.28 302	960.30.350	960.30.400
.29 315	960.30.375	960.30.425
.30 327	960.30.375	960.30.425
.312 340	960.30.400	960.30.450
.325 352	960.30.400	960.30.450
.337 365	960.30.425	960.30.475
.350 377	960.30.425	960.30.475
.362 390	960.30.450	960.30.500
.375 402	960.30.450	960.30.500
.387 415	960.30.475	960.30.525
.400 427	960.30.475	960.30.525

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

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▶ chapter 10



▶ chapter 9



▶ page 7.255

Price index



Low noise version E4/101
Series 381 available with
special rubber pads design



Cleanroom test
upon request



ESD classification:
Electrically conductive ESD/ATEX
version upon request



Opening e-chains*: Remove crossbars and
clips - Insert screwdriver into the slot, push
down, release by lever action



Remove lids/bottoms (e-tubes) - Insert screw-
driver into the slot, release by lever action



When to use the Series 380/390/R780:

- If a low-noise version is required
- At very high speed and/or acceleration
- For long travels
- For high additional loads
- Also available without camber



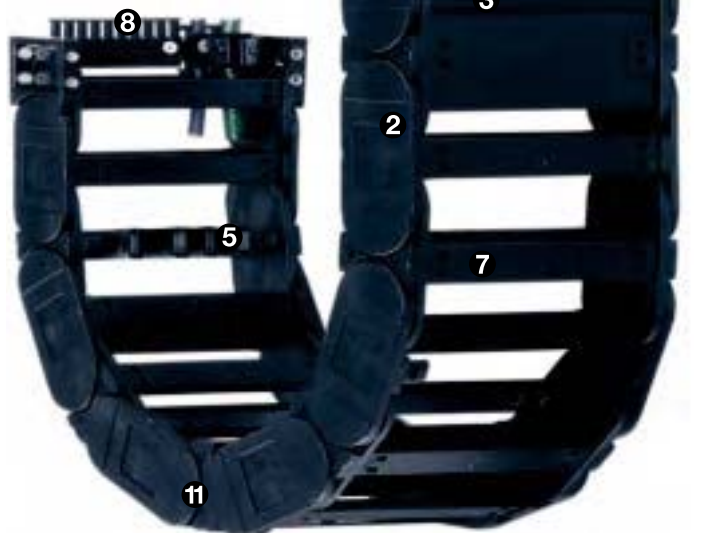
When not to use it:

- If long side-mounted, unsupported
length is required
▶ Series E4.42, page 7.60
- If an extrem vibration-free e-chain* is necessary
▶ Series E6.40, page 8.56
▶ Series R6.40, page 8.62

- 1 Crossbars on e-chain* removable
along both radii
- 2 Stop dog with "brake" for noise reduction
- 3 Closed and open styles can be combined
- 4 Hinged snap-open removable lids
along outer radius of e-tube
- 5 Numerous interior separation possibilities
- 6 Optimized glide pads
with lateral wear allowance
- 7 Wide, rounded plastic crossbars - cable friendly
- 8 Integrated strain relief possible
- 9 KMA mounting brackets with
attachment points on all sides
- 10 Locking or pivoting mounting brackets available
- 11 e-chains* also available with
reverse bending radius "RBR"



Also available as
E4/00-NC without
camber: 380-NC



Order example complete e-chain*

Please indicate chain-lengths or number of links Example: 5 m or 75 links

5 m 380.20.300.0

e-chain*

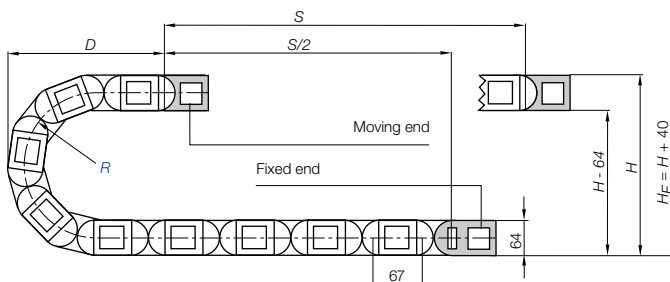
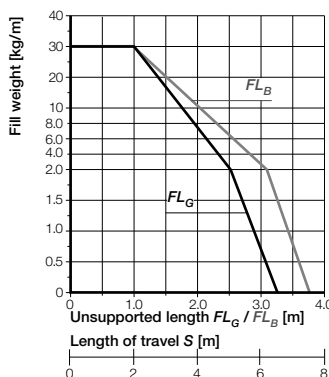
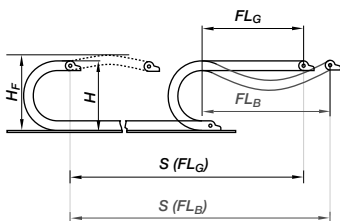
with 2 separators 382 assembled every 2nd link

Interior separation

1 set 3800.20.1.12.C

Mounting bracket



Unsupported length FL_G = with straight upper run FL_B = with permitted sagFurther information ► **Design, page 1.12**

Pitch = 67 mm/link Links/m = 15 (1005 mm) Chain length = $S/2 + K$

R	075	100	115	125	150	170	200	215	250	300	350
$H_{25}^{0.5}$	215	265	295	315	365	405	465	495	565	665	765
D	174	199	214	224	249	269	299	314	349	399	449
K	370	450	500	530	610	670	765	810	920	1080	1235
H_2	151	201	231	186	186	186	186	186	186	186	186
D_2^{+25}	174	199	214	475	570	620	780	865	1030	1150	1500
K_2	370	450	500	804	938	1072	1340	1407	1675	1943	2412

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

Other installation methodsVertical, hanging ≤ 100 mVertical, standing ≤ 6 mSide mounted, un supp. ≤ 2 m

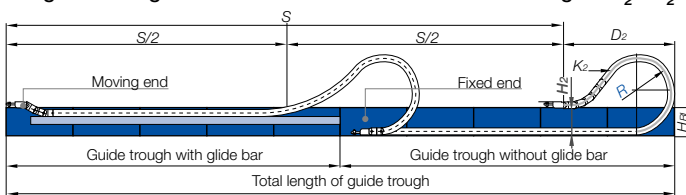
Rotary requires further calculation

 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:
 $H_F = H + 40$ mm

(with 2,0 kg/m fill weight)

Long travel lengths from 12 m to max. 300 m Chain length = $S/2 + K_2$ 

In case of travels between 8,0 and 12 m we recommend a longer unsupported length.

**Gliding, long travel applications (max. 300 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. 20 [m/s] / max. 200 [m/s ²]
Speed / acceleration FL_B	max. 3 [m/s] / max. 6 [m/s ²]
Gliding speed / acceleration (maximum)	max. 10 [m/s] / max. 50 [m/s ²]
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

For support of the lower run - **Support Tray tool kit** available ► page 9.70

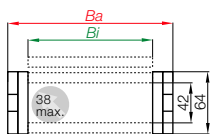
42

 System E4/00
 Inner height: 42 mm

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► page 2.755

7.275

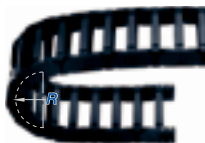


Part No. structure

380. 400. 300. 0



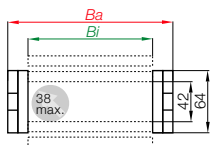
Series 380 - e-chain® with crossbars every link



- Crossbars every link
- For rigid hydraulic hoses
- For applications particularly demanding
- Can be opened from two sides



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Part No. structure

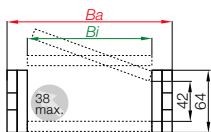
390. 400. 300. 0

Series 390 - e-chain® with crossbars every 2nd link

- Crossbars every 2nd link = Standard
- For nearly every situation
- Can be opened from two sides
- Easy assembly
- Stable
- Attractive price



igus® GmbH
51147 Cologne



Part No. structure

780. 25. 300. 0



Series R780 - Fully enclosed e-tube



- Fully enclosed
- Excellent cable protection against dirt
- Protection against hot chips (up to 900°C)
- Lids along the entire inner radius are completely removable. Lids along the entire outer radius are single sided snap-open with a hinge on the other side to keep them attached to the chain or completely removable.



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

Low-noise! Special low-noise version with rubber pads

Series 381 - Order example: 381.15.250.0

Further information:

www.igus.de or phone +49-(0) 22 03-96 49-800

Part No.		Bi [mm]	Ba [mm]	380 [kg/m]	390 [kg/m]	R780 [kg/m]
380/390/780.05...	☐ .0*	50	76	≈ 2,06	≈ 1,98	≈ 2,25
380/390.06.....	☐ .0	68	94	≈ 2,09	≈ 1,99	–
380/390/780.07...	☐ .0	75	101	≈ 2,12	≈ 2,01	≈ 2,38
380/390.087.....	☐ .0	87	114	≈ 2,18	≈ 2,04	–
380/390/780.10...	☐ .0	100	126	≈ 2,25	≈ 2,08	≈ 2,60
380/390/780.11...	☐ .0	108	134	≈ 2,30	≈ 2,10	≈ 2,65
380/390.112.....	☐ .0	112	139	≈ 2,30	≈ 2,10	–
380/390/780.12...	☐ .0	125	151	≈ 2,40	≈ 2,15	≈ 2,81
380/390.137.....	☐ .0	137	164	≈ 2,44	≈ 2,17	–
380/390/780.15...	☐ .0	150	176	≈ 2,53	≈ 2,21	≈ 3,07
380/390.162.....	☐ .0	162	189	≈ 2,55	≈ 2,22	–
380/390/780.17...	☐ .0	168	194	≈ 2,62	≈ 2,26	≈ 3,24
380/390.18.....	☐ .0	175	201	≈ 2,62	≈ 2,26	–
380/390.187.....	☐ .0	187	214	≈ 2,69	≈ 2,30	–
380/390/780.20...	☐ .0	200	226	≈ 2,77	≈ 2,33	≈ 3,53
380/390.212.....	☐ .0	212	239	≈ 2,84	≈ 2,37	–
380/390.23.....	☐ .0	225	251	≈ 2,92	≈ 2,41	–
380/390.237.....	☐ .0	237	264	≈ 2,96	≈ 2,43	–
380/390/780.25...	☐ .0	250	276	≈ 3,05	≈ 2,47	≈ 4,33
380/390.262.....	☐ .0	262	289	≈ 3,06	≈ 2,48	–
380/390.28.....	☐ .0	275	301	≈ 3,17	≈ 2,53	–
380/390.29.....	☐ .0	287	314	≈ 3,19	≈ 2,54	–
380/390/780.30...	☐ .0	300	326	≈ 3,32	≈ 2,61	≈ 4,89
380/390.312.....	☐ .0	312	339	≈ 3,34	≈ 2,62	–
380/390.325.....	☐ .0	325	351	≈ 3,41	≈ 2,66	–
380/390.337.....	☐ .0	337	364	≈ 3,46	≈ 2,68	–
380/390.350.....	☐ .0	350	376	≈ 3,68	≈ 2,79	–
380/390.362.....	☐ .0	362	389	≈ 3,74	≈ 2,82	–
380/390.375.....	☐ .0	375	402	≈ 3,79	≈ 2,84	–
380/390.387.....	☐ .0	387	414	≈ 3,85	≈ 2,87	–
380/390.400.....	☐ .0	400	426	≈ 3,90	≈ 2,90	–

Available bending radii

R [mm] ☐75** ☐100** ☐115** ☐125 ☐150 ☐170 ☐200 ☐215 ☐250 ☐300 ☐350

Supplement Part No. with required radius. Example: 380.400. ☐300 ☐0

0 = standard color, other colors ► page 1.39 · Pitch = 67 mm/link - Links/m = 15

*Removable lid only, no hinged option · **not available for R780

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® "gumid HT" material. Order example: Full e-tube made of HT*: **780.30.150.0.HT** Lids made of HT: **780.30.HTE.150.0** for long travels upon request Further Information: www.igus.de/en/HT Delivery time up to 4 weeks!

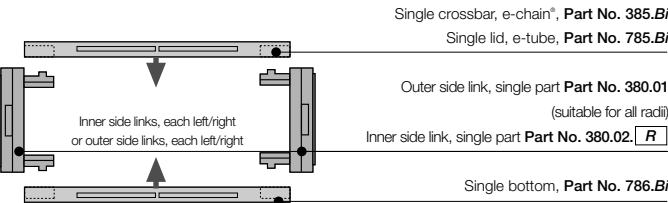


System E4/00
Inner height: 42 mm

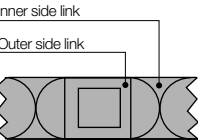
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Extender crossbar for large diameter hoses ► page 7.280



Part No. e-chain® links, single parts





Vertical separators are used if a vertical subdivision is required. In the standard configuration, a separator is mounted at every second link. **Note:** Observe a lateral spacing of at least 25 mm (e-tube)!



Vertical separator
381



Vertical separator
with a narrow base
3881



Vertical separator
381T



Spacer
381.XX



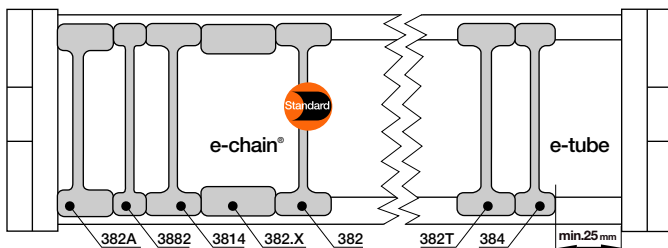
Locking separator
3804



Locking separator
383



Asymmetric
separator 381A



Vertical separator

for e-chains*

unassembled	381
assembled	382



Vertical separator*

for e-chains*

unassembled	3881
assembled	3882



Vertical separator

for e-tubes

unassembled	381T
assembled	382T



Spacer*

for e-chains*

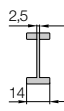
unassembled	381.XX
assembled	382.XX



Locking separator

for e-chains*

unassembled	3804
assembled	3814



Locking separator

for e-tubes

unassembled	383
assembled	384



Asymmetric separator

for e-chains*

unassembled	381A
assembled	382A



*For side-mounted applications

Option 1: Vertical separators and spacers

● **Standard separator 381 for e-chains®** offers safe stability due to its broad foot design, also when used with thick cables or hoses.

● **Vertical separator 3881 with a narrow foot (7 mm) for e-chains®** with applications where a large number of small cables need to be individually separated.

● The **vertical separator 381T for e-tubes** clamps to the fixed radius and remains free along the other radius to facilitate lid removal. If installing these yourself, please ensure that they are identically aligned.

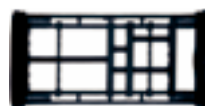
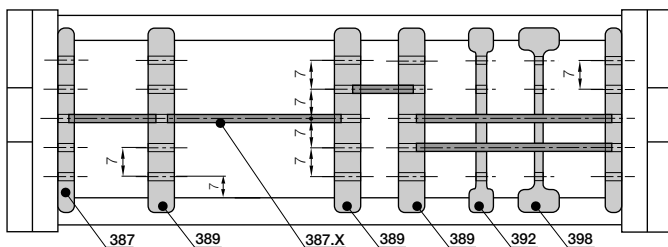
● Separators (e.g. "side mounted") for e-chains® can be fixed in their position with **spacers 381.XX**. The available inner height will be reduced by 2 mm, per spacer and side. To avoid this, the parts can be assembled on outside of the crossbar (not for long travels)
XX = width of the spacer (available 10, 15 and 20)

Additionally:

● **Locking separator 3804 for e-chains®** - with increased retention force for applications exposed to very high humidity or extreme loads. The extra retention force is achieved by asymmetric claws for the crossbar. Ensure proper alignment.

● **Locking separator 383 for e-chains®** - with increased retention force for applications exposed to very high humidity or extreme loads. The extra retention force is achieved by asymmetric claws for the crossbar. Ensure proper alignment.

● **Asymmetric separator 381A for e-chains®** (not for e-tubes) with an 14-mm base, for combinations between spacers of different widths and vertical separators in side-mounted



For use with many cables of differing diameters, e-chains® and e-tubes can be subdivided both vertically and horizontally. The shelves can be arranged elevator-shifted with different bottoms

Option 2: Shelves

● Side plates 386, middle plates 388 and shelves 386.X form the basic pattern of a shelf system. Shelves of various widths can be arranged at 5 different heights (in 7 mm increments).

● Slotted separators 391, are used for very fine subdivisions. However, they cannot be retrofitted into an existing separation system without dismantling the interior separators first.

● The unilateral open slotted separator 397 can be retrofitted into an existing interior separation system without a need for dismantling the interior separators. During an installation of open slotted separators, the top and bottom notches cannot be occupied by shelves.



Side plate for e-chains®/e-tubes	
unassembled	386
assembled	387



Middle plate for e-chains®/e-tubes	
unassembled	388
assembled	389



Slotted separator for e-chains®/e-tubes	
unassembled	391
assembled	392



Open slotted separator for e-chains®/e-tubes	
unassembled	397
assembled	398

Width X [mm]	Part No. unassembled	Part No. assembled
018	386.18	387.18
023	386.23	387.23
025	386.25	387.25
028	386.28	387.28
033	386.33	387.33
043	386.43	387.43
050	386.50	387.50
054	386.54	387.54
062	386.62	387.62

Width X [mm]	Part No. unassembled	Part No. assembled
075	386.75	387.75
087	386.87	387.87
100	386.100	387.100
108	386.108	387.108
125	386.125	387.125
150	386.150	387.150
175	386.175	387.175
200	386.200	387.200
208	386.208	387.208



Side plate
386



Middle plate
388



Slotted
separator
391

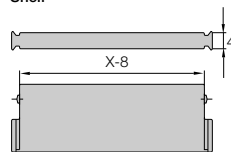


Open slotted
separator
397



Shelf 386.X

Shelf



System E4/00
Inner height: 42 mm

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





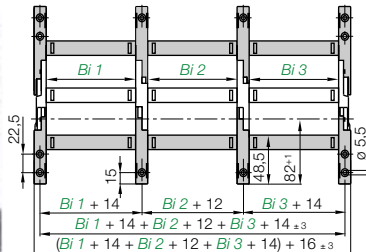
Part No. structure

380.10 / 20 / 10. 200.0380.Bi1/Bi2/Bi3. R.0

E4/00 | Series 380-390-R780 | Product Range

Extension links - for extremely wide e-chains® up to 3,0 m

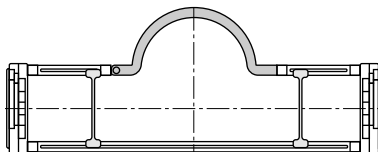
- For applications in which particularly high fill weights necessitate extremely wide e-chains® (up to 3000 mm)
- The extension link design allows virtually limitless side-by-side attachment of chains
- The unsupported length of a chain can be increased when additional loads are required
- Extension links can be used with e-chains®, e-tubes or as a combination of both
- They are suitable for unsupported and gliding applications in a guide trough
- e-chains® with extension links are attached with KMA or steel mounting brackets



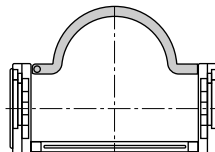
Consult igus® for your extender crossbar applications. We are happy to assist you with your design layout

Extender crossbars - careful guide of hoses applications

- Suitable for hoses with a maximum outer diameter of 115 mm
- Gliding operation with crossbars assembled along the outer radius and a special guide trough
- Gliding operation not guaranteed with crossbars assembled along the inner radius
- The extender crossbar can either be attached to the side links directly or can be used in combination with two stranded snap-open crossbars



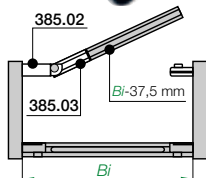
385.15RHD115 round extender crossbar combined with snap-open crossbars



385.18RD115 round strap attached directly on the side link

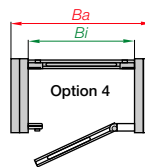
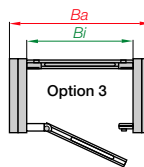
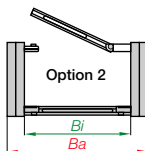
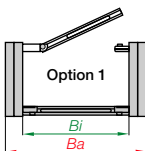
Part No.	Max Ø [mm] hose	Form	Installation side link	Combination with snap-open crossb.
385.15.RHD115	115	○	-	+
385.18.RD115	115	○	+	-

○ = round + = yes / - = no



Hinged crossbars

- Typically e-chain® crossbars are completely removable. In cases where the snap-open crossbars have to remain at the open link of the e-chain®, a hinged design has been developed
- Length: 37,5 mm **Part No. 385.02** / snap-open crossbar (shortened): Bi-37,5 mm **Part No. 385.03**
- Please consult igus® for design assistance





igus® chainfix steel clamps and chainfix stainless-steel clamps - max. pull forces, adjustable with hexagon socket. Available as single, double or triple clamps.

Details ► chapter 10

chainfix clamps for C-profile

Part No. single clamps		Part No. double clamps		Part No. triple clamps		Cable
steel	stainless steel	steel	stainless steel	steel	stainless steel	ø [mm]
CFX12.1	CFX12.1.E	CFX12.2	CFX12.2.E	CFX12.3	–	06 - 12
CFX14.1	CFX14.1.E	CFX14.2	CFX14.2.E	CFX14.3	–	12 - 14
CFX16.1	CFX16.1.E	CFX16.2	CFX16.2.E	CFX16.3	–	14 - 16
CFX18.1	CFX18.1.E	CFX18.2	CFX18.2.E	CFX18.3	–	16 - 18
CFX20.1	CFX20.1.E	CFX20.2	CFX20.2.E	CFX20.3	–	18 - 20
CFX22.1	CFX22.1.E	CFX22.2	CFX22.2.E	CFX22.3	–	20 - 22
CFX26.1	CFX26.1.E	CFX26.2	CFX26.2.E	–	–	22 - 26
CFX30.1	CFX30.1.E	CFX30.2	CFX30.2.E	–	–	26 - 30
CFX34.1	CFX34.1.E	CFX34.2	CFX34.2.E	–	–	30 - 34
CFX38.1	CFX38.1.E	–	–	–	–	34 - 38
CFX42.1	CFX42.1.E	–	–	–	–	38 - 42



chainfix Clip - Modular snap-on strain relief device for C-profile

Available for all igus® e-chainsystems® with C-profiles and also suitable for assembly in the KMA mounting brackets and clip-on strain relief for crossbars. High pull forces, plug-in modular snap-on strain relief device. Details ► chapter 10

Cable ø [mm]	Part No. clamp	Part No. bottom part
04 - 08	CFC-08-M	CFC-08-C
08 - 12	CFC-12-M	CFC-12-C
12 - 16	CFC-16-M	CFC-16-C
16 - 20	CFC-20-M	CFC-20-C
20 - 24	CFC-24-M	CFC-24-C



chainfix Nugget for the C-Profile

Strain relief for the fixation of cables up to a diameter of Ø 30 mm. Easy to assemble, without any screws and tools. Easy strain relief due to fixation with pre-harnessed cable strap, very small space requirement.

Details ► chapter 10

Part No.	ø max. conduit [mm]	Width [mm]
CFN.20	20	10,8
CFN.30.52*	30	16,4
CFN.20.N35*	20	20,0



chainfix tiwrap plates with clip-on connection for the C-profile

Can be plugged into the KMA C-profile. Easy to assemble without any screws. Easily solvable with screwdriver nevertheless safe stop. For all e-chains® with KMA and integrated C-profile. Details ► chapter 10

Part No.	Width of strain relief [mm]	Number of teeth
3050.ZC	50	5
3075.ZC	75	7

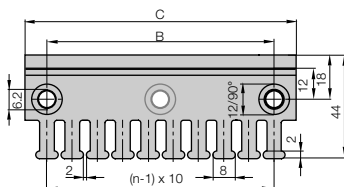
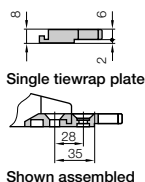


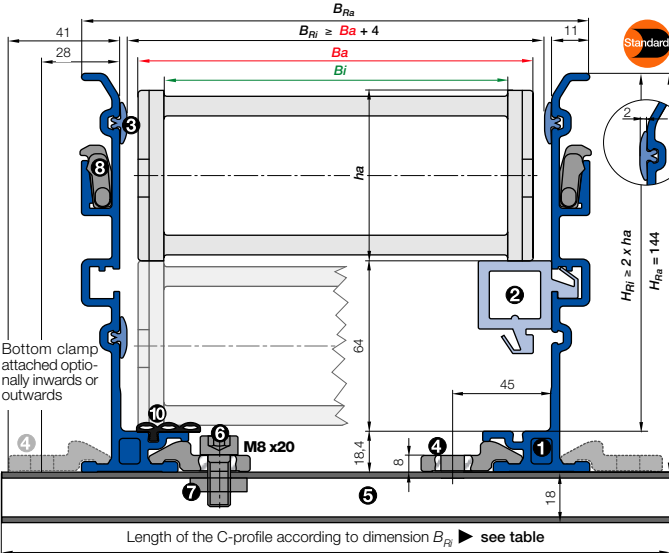
Tiewrap plate as individual part

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

Tiewrap plate	No. of teeth n	Dim. C [mm]	Dim. B [mm]	Center bore
3050.ZB	5	50	30	–
3075.ZB	7	75	55	–
3100.ZB	10	100	80	–
3115.ZB	11	115	95	–
3125.ZB	12	125	105	–
3150.ZB	15	150	130	–
3175.ZB	17	175	155	–
3200.ZB	20	200	180	+
3225.ZB	22	225	205	+
3250.ZB	25	250	230	+

(– = no / + = yes)





- 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) ❺ Optional: Silencer profile, rubber
- Components, installation set "Basic": ❹ Bottom clamp, aluminum ❺ C-profile, steel galvanized ❻ Screw M8 x 20 ❼ Sliding nut M8 ❸ Interface connector, plastic



Order example: Length of travel 30 m -
Center mounted for Series 380.20.300.0 with $B_{Ri} = 230$

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)

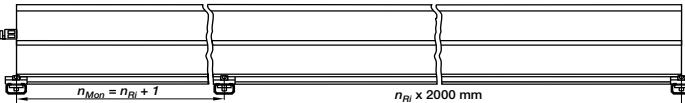
Order text: 17 installation sets "Basic" Part No. 960.40.300

Module for the fixed end

Order text: 1 set Part No. 973.81

Option: For an additional noise dampening with
silencer profile, please add Index A - Example:

Part No. 973.30.SLA



Prinzipzeichnung: Anzahl der zu montierenden Montagesets "Basic" = Anzahl der Rinnenstücke + 1



A quick fix for mounting
the stationary end of an e-chain®

With this module for the fixed end, fast and easy
mounting onto the Aluminum "SuperTrough" is now
possible without any drilling. Fast mounting of the
e-chain® by clamping onto the aluminum trough

- Quick relocation of the stationary end ● No
drilling necessary ► page 9.16

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 trough 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

380.05.300.0 ► Order example

B_{Ri} [mm]	attached inwards	Part No. attached outwards
.05	80	960.40.200
.06	98	960.40.225
.07	105	960.40.225
.087	118	960.40.175
.10	130	960.40.200
.11	138	960.40.200
.112	143	960.40.200
.12	155	960.40.225
.137	168	960.40.225
.15	180	960.40.250
.162	193	960.40.250
.17	198	960.40.250
.18	205	960.40.275
.187	218	960.40.275
.20	230	960.40.300
.212	243	960.40.300
.23	255	960.40.325
.237	268	960.40.325
.25	280	960.40.350
.262	293	960.40.350
.28	305	960.40.375
.29	318	960.40.375
.30	330	960.40.400
.312	343	960.40.400
.325	355	960.40.425
.337	368	960.40.425
.350	380	960.40.450
.362	393	960.40.450
.375	406	960.40.475
.387	418	960.40.475
.400	430	960.40.500

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

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► chapter 10



► chapter 9



► page 7.255

Price index



Low noise version E4/101
Series 401 available with
special rubber pads design



Cleanroom test
upon request



ESD classification:
Electrically conductive ESD/ATEX
version upon request



Opening e-chains*: Remove crossbars and clips - Insert screwdriver into the slot, push down, release by lever action



Remove lids/bottoms (e-tubes) - Insert screwdriver into the slot, release by lever action



When to use the Series 400/410/R880:

- If a low-noise version is required
- At very high speeds and/or accelerations
- For long travels
- For high additional loads
- Also available without camber



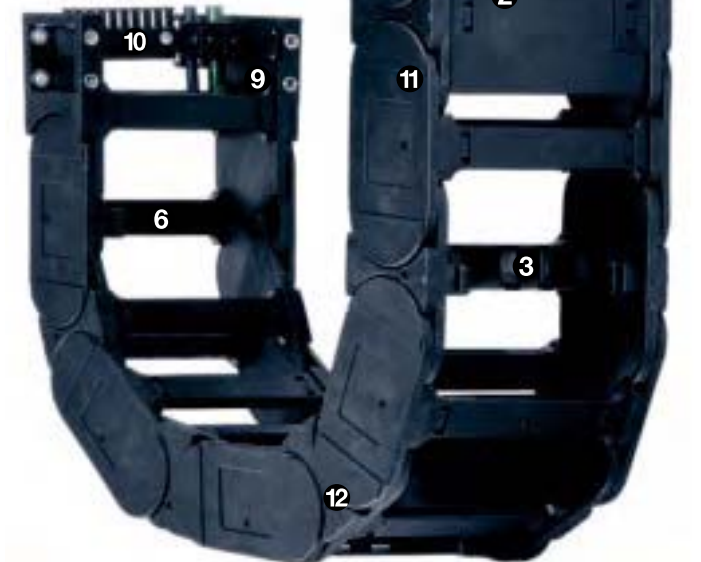
When not to use it:

- If long side-mounted, unsupported length is required
► Series E4.56, page 7.78
- If an extrem vibration-free e-chain* is necessary
► Series E6.52, page 8.66

- 1 Crossbars on e-chain* removable along both radii
- 2 Closed and open styles can be combined
- 3 Numerous interior separation possibilities
- 4 Hinged snap-open removable lids along outer radius
- 5 Stop dog with "brake" for noise reduction
- 6 Wide, rounded plastic crossbars
- 7 Optimized glide pads with lateral wear allowance
- 8 KMA mounting brackets with attachment points on all sides
- 9 Locking or pivoting mounting brackets available
- 10 Integrated strain relief possible
- 11 Dirt-repellent exterior
- 12 e-chains* also available with reverse bending radius "RBR"



Also available as
E4/00-NC without
camber: 400-NC



Order example complete e-chain*

Please indicate chain-lengths or number of links Example: 3 m or 33 links

3 m 400.30.300.0

e-chain*

with 2 separators 411 assembled every 2nd link

Interior separation

1 set 4000.30.1.12.C

Mounting bracket

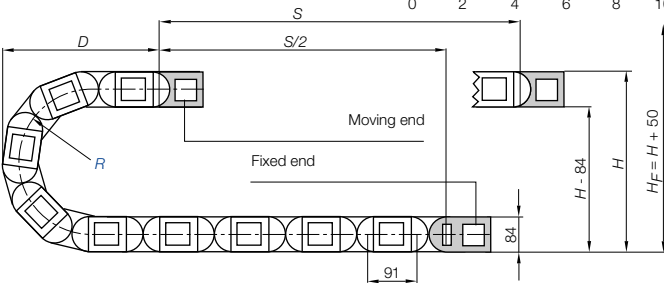
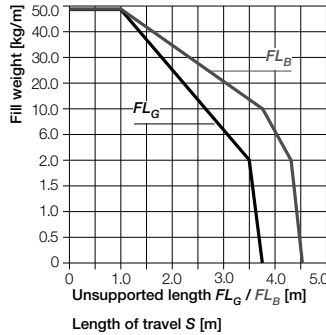
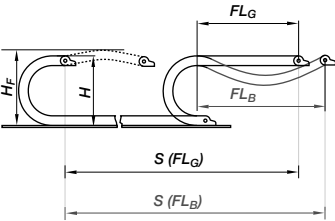


Unsupported length

FL_G = with straight upper run

FL_B = with permitted sag

Further information ► Design, page 1.12



Pitch = 91 mm/link Links/m = 11 (1001 mm) Chain length = $S/2 + K$

R	135	150	175	200	240	250	300	350	400	500
$H_{25}^{0.5}$	360	385	435	485	565	585	685	785	885	1085
D	270	285	310	335	375	385	435	485	535	635
K	650	750	825	900	1020	1050	1225	1340	1450	1775
H_2	276	266	266	266	266	266	266	266	266	266
D_2^{+25}	270	480	600	730	950	920	1180	1440	1530	1900
K_2	650	819	1092	1274	1547	1547	2002	2275	2548	3276

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

Other installation methods

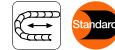
Vertical, hanging ≤ 100 m

Vertical, standing ≤ 6 m

Side mounted, unupp. $\leq 2,5$ m

Rotary requires further calculation

Unsupported length of upper run = upon request



Short travels - unsupported

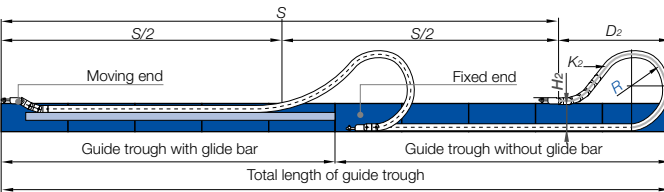
Unsupported e-chains® feature positive camber over short travels. This must be accounted for when specifying the clearance height H_F . Please consult igus® if space is particularly restricted.

The required clearance height:

$H_F = H + 50$ mm

(with 3,0 kg/m fill weight)

Long travel lengths from 12 m to max. 400 m Chain length = $S/2 + K_2$



In case of travels between 9,0 and 12 m we recommend a longer unsupported length.



Gliding, long travel applications (max. 400 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



Details of material properties

► page 1.38

Speed / acceleration FL_G	max. 20 [m/s] / max. 200 [m/s²]
Speed / acceleration FL_B	max. 3 [m/s] / max. 6 [m/s²]
Gliding speed / acceleration (maximum)	max. 10 [m/s] / max. 50 [m/s²]
Material - permitted temperature °C	igumid G / -40° up to +120° C
Flammability class, igumid G	VDE 0304 IIC UL94 HB



For support of the lower run - **Support Tray tool kit** available ► page 9.70

56

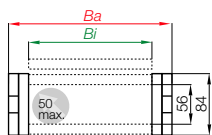
System E4/00
Inner height: 56 mm

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► page 7.255

7.285



Part No. structure

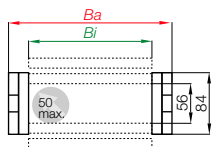
400. 13. 250. 0



Series 400 - e-chain® with crossbars every link



- Crossbars every link
- For rigid hydraulic hoses
- For applications particularly demanding
- Can be opened from two sides

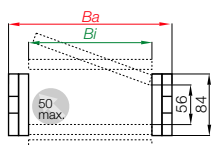


Part No. structure

410. 13. 250. 0

Series 410 - e-chain® with crossbars every 2nd link

- Crossbars every 2nd link = Standard
- For nearly every situation
- Can be opened from two sides
- Easy assembly
- Stable
- Attractive price



Part No. structure

880. 25. 250. 0



Series R880 - Fully enclosed e-tube



- Fully enclosed
- Excellent cable protection against dirt
- Protection against hot chips (up to 900°C)
- Lids along the entire inner radius are completely removable. Lids along the entire outer radius are single sided snap-open with a hinge on the other side to keep them attached to the chain or completely removable.



Low-noise! Special low-noise version with rubber pads

Series 401 - Order example: 401.22.250.0

Further information:

www.igus.de or phone +49-(0) 22 03-96 49-800

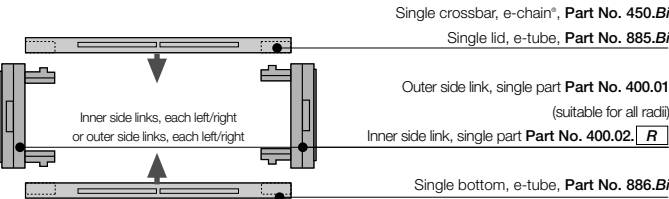
Part No.		Bi [mm]	Ba [mm]	400 [kg/m]	410 [kg/m]	R880 [kg/m]
400/410.05.....	☐ .0	50	84	≈ 3,44	≈ 3,12	–
400/410.06.....	☐ .0	65	99	≈ 3,50	≈ 3,20	–
400/410/880.07.....	☐ .0*	75	109	≈ 3,53	≈ 3,44	≈ 3,98
400/410.08.....	☐ .0	87	121	≈ 3,56	≈ 3,48	–
400/410/880.10.....	☐ .0	100	134	≈ 3,71	≈ 3,53	≈ 4,27
400/410.11.....	☐ .0	112	147	≈ 3,84	≈ 3,60	–
400/410/880.12.....	☐ .0	125	159	≈ 3,91	≈ 3,63	≈ 4,63
400/410.13.....	☐ .0	137	172	≈ 4,04	≈ 3,70	–
400/410/880.15.....	☐ .0	150	184	≈ 4,10	≈ 3,73	≈ 5,06
400/410.16.....	☐ .0	162	197	≈ 4,21	≈ 3,78	–
400/410/880.17.....	☐ .0	175	209	≈ 4,32	≈ 3,84	≈ 5,37
400/410.18.....	☐ .0	187	222	≈ 4,43	≈ 3,89	–
400/410/880.20.....	☐ .0	200	234	≈ 4,46	≈ 3,91	≈ 5,63
400/410.21.....	☐ .0	212	247	≈ 4,57	≈ 3,96	–
400/410.22.....	☐ .0	225	259	≈ 4,63	≈ 3,99	–
400/410.23.....	☐ .0	237	272	≈ 4,76	≈ 4,06	–
400/410/880.25.....	☐ .0	250	284	≈ 4,85	≈ 4,10	≈ 6,36
400/410.26.....	☐ .0	262	297	≈ 4,94	≈ 4,15	–
400/410/880.27.....	☐ .0	275	309	≈ 5,05	≈ 4,20	≈ 6,72
400/410.28.....	☐ .0	287	322	≈ 5,07	≈ 4,21	–
400/410/880.30.....	☐ .0	300	334	≈ 5,29	≈ 4,32	≈ 7,02
400/410.31.....	☐ .0	312	347	≈ 5,29	≈ 4,32	–
400/410.32.....	☐ .0	325	359	≈ 5,38	≈ 4,37	–
400/410.33.....	☐ .0	337	372	≈ 5,56	≈ 4,46	–
400/410/880.35.....	☐ .0	350	384	≈ 5,71	≈ 4,53	≈ 7,72
400/410.36.....	☐ .0	362	397	≈ 5,71	≈ 4,53	–
400/410.37.....	☐ .0	375	409	≈ 5,73	≈ 4,54	–
400/410.38.....	☐ .0	387	422	≈ 5,82	≈ 4,59	–
400/410/880.40.....	☐ .0	400	434	≈ 6,02	≈ 4,69	≈ 8,72
400/410.41.....	☐ .0	412	447	≈ 6,17	≈ 4,76	–
400/410.42.....	☐ .0	425	459	≈ 6,33	≈ 4,84	–
400/410.43.....	☐ .0	437	472	≈ 6,39	≈ 4,87	–
400/410.45.....	☐ .0	450	484	≈ 6,46	≈ 4,91	–
400/410/880.46.....	☐ .0	462	497	≈ 6,48	≈ 4,92	≈ 9,19
400/410.47.....	☐ .0	475	509	≈ 6,61	≈ 4,98	–
400/410.48.....	☐ .0	487	522	≈ 6,65	≈ 5,01	–
400/410.50.....	☐ .0	500	534	≈ 6,74	≈ 5,05	–
400/410.51.....	☐ .0	512	547	≈ 6,77	≈ 5,06	–
400/410.52.....	☐ .0	525	559	≈ 6,81	≈ 5,08	–
400/410.53.....	☐ .0	537	572	≈ 6,96	≈ 5,16	–
400/410.55.....	☐ .0	550	584	≈ 7,45	≈ 5,40	–
400/410.60.....	☐ .0	600	634	≈ 7,65	≈ 5,50	–

Available bending radii

R [mm] ☐135** ☐150 ☐175 ☐200 ☐240 ☐250 ☐300 ☐350 ☐400 ☐500

Supplement Part No. with required radius. Example: 400.30.☐300.0

0 = standard color, other colors ▶ page 1.39 · Pitch = 91 mm/link - Links/m = 11



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® "gumid HT" material. Order example: Full e-tube made of HT*: 880.40.150.0.HT Lids made of HT: 880.40.HTE.150.0 for long travels upon request Further Information: www.igus.de/en/HT Delivery time up to 4 weeks!



System E4/00
Inner height: 56 mm

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▶ page 7.255

* Removable lid only, no hinged option
** not available for R880

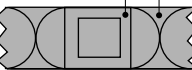


Extender crossbar for large diameter hoses ▶ page 7.290

Part No. e-chain® links, single parts

Inner side link

Outer side link





Vertical separators are used if a vertical subdivision is required. In the standard configuration, a separator is mounted at every second link. **Note:** Observe a lateral spacing of at least 32 mm (e-tube) and 16 mm (e-chain)!



Vertical separator
401



Vertical separator
483



Spacer
405.XX



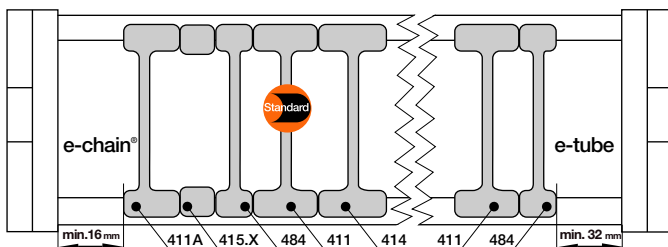
Locking separator
404



Vertical separator
406



Asymmetric
separator 401A



Vertical separator for e-chains/e-tubes

unassembled	401
assembled	411



Vertical separator for e-chains/e-tubes

unassembled	483
assembled	484



Spacer* for e-chains*

unassembled	405.XX
assembled	415.XX



Locking separator for e-chains*

unassembled	404
assembled	414



Vertical separator for e-tubes

unassembled	406
assembled	416



Asymmetric separator for e-chains*

unassembled	401A
assembled	411A



*For side-mounted applications

Option 1: Vertical separators and spacers

● **Standard separator 401 for e-chains/e-tubes** offers safe stability due to its broad foot design, also when used with thick cables or hoses.

● **Vertical separator 483 with a narrow foot for e-chains* and e-tubes** with applications where a large number of small cables need to be individually separated.

● Separators (e.g. "side mounted") for e-chains* can be fixed in their position with **Spacers 405.XX**. The available inner height will be reduced by 2 mm, per spacer and side. To avoid this, the parts can be assembled on outside of the crossbar (not for long travels)
XX = width of the spacer (available 10, 15, 20, 30 and 40 mm)

Additionally:

● **Locking separator for e-chains* 404** - with increased retention force for applications exposed to very high humidity or extreme loads. The extra retention force is achieved by asymmetric claws for the crossbar. Ensure proper alignment

● **Locking separator 406 for E4-Tubes** - safe fitting locked on lid or bottom of the Tube and sideways slideable. The opposing lid or bottom can easily be opened and closed. Especially capable if many separators need to be assembled on a tight inner width

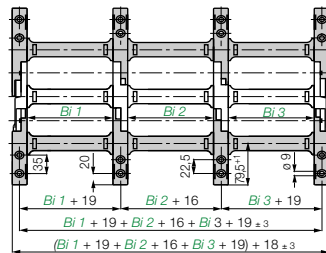
● **Asymmetric separator 401A for e-chains*** with an 18-mm base, for combinations between spacers of different widths and vertical separators in side-mounted applications, for instance.



Part No. structure
400.10 /20 /10. 200.0
400.B11/B12/B13. R.0

Extension links - for extremely wide e-chains® up to 3,0 m

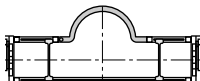
- For applications in which particularly high fill weights necessitate extremely wide e-chains® (up to 3000 mm)
- The extension link design allows virtually limitless side-by-side attachment of chains
- The unsupported length of a chain can be increased when additional loads are required
- Extension links can be used with e-chains®, e-tubes or as a combination of both
- They are suitable for unsupported and gliding applications in a guide trough
- e-chains® with extension links are attached with KMA or steel mounting brackets



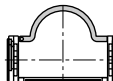
Consult igus® for your extender crossbar applications. We are happy to assist you with your design layout

Extender crossbars - careful guide of hoses applications

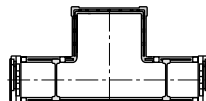
- Suitable for hoses with a maximum outer diameter of 245 mm
- Gliding operation with crossbars assembled along the outer radius and a special guide trough
- Gliding operation not guaranteed with crossbars assembled along the inner radius
- The extender crossbar can either be attached to the side links directly or can be used in combination with two stranded snap-open crossbars



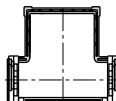
Round extender crossbar with snap-open crossbars



Attached directly to the side link



Square extender crossbar with snap-open crossbars



Attached directly to the side link

Part No.	Max Ø [mm] hose	Form	Installation side link	Combination with snap-open crossb.
450.15.RHD115	115	○	–	+
450.17.RD115	115	○	+	–
450.25.D150	150	□	+	–
450.30.D200	180	□	+	–
450.35.D250	195	□	+	–
450.40.D300	245	□	+	–
450.20.HD150	150	□	–	+
450.25.HD200	180	□	–	+
450.30.HD250	195	□	–	+

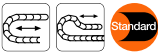
○ = round □ = square + = yes / – = no



E4 snapclip

- For side-mounted applications
- Serves as a clip-on, lateral guide for hoses and cables on e-chains®
- The loops can be adjusted as required
- Compatible with many E4 e-chains®
- Stylish and economical
- One clip and one locking band are needed for each chain link
- Call us if you have any questions on project planning

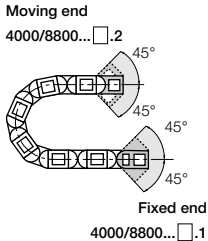
Part No.	Form
450.B12	Locking clip, comprising a locking element
450.B12.200	Locking band, comprising a locking element and band; 12 x 1,5 x 200 mm



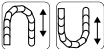
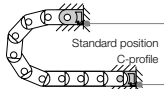
The Standard - Option KMA* - pivoting

- Recommended for unsupported and gliding applications
- Confined installation conditions
- Option - integrated C-profile strain relief device with chainfix clip or strain relief tiewrap plates
- Corrosion resistant
- Universally mountable with attachment capability on all sides

*KMA = Polymer Metal Mounting Bracket

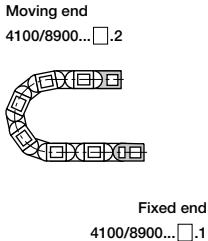


The attachment variants arising automatically by the choice of the KMA mounting bracket

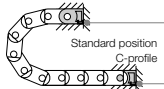


Option KMA - locking

- Recommended for vertical hanging / standing applications
- Additionally:**
- Universally mountable
 - C-profile option
 - Corrosion resistant
 - Locked connections
 - At very high acceleration

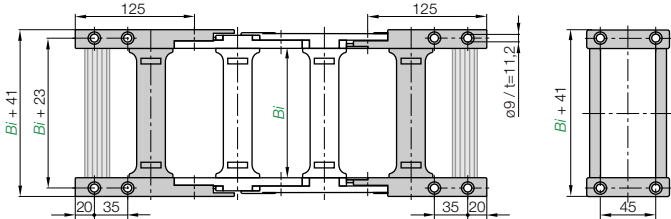


The attachment variants arising automatically by the choice of the KMA mounting bracket



Fixed end 4000/8800... 1 (pivoting)
4100/8900... 1 (locking)

Moving end 4000/8800... 2 (pivoting)
4100/8900... 2 (locking)

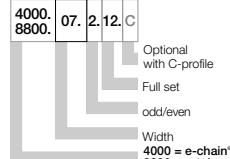


Width index	Part No. full set pivoting	Part No. full set locking	C-profile option [mm]	Width index	Part No. full set pivoting	Part No. full set locking	C-profile option [mm]
.05.	4000	4100	.05. 12. 50	.31.	4000	4100	.31. 12. 312
.06.	4000	4100	.06. 12. 65	.32.	4000	4100	.32. 12. 325
.07.	4000/8800	4100/8900.07. 12. 75	.07. 12. 75	.33.	4000	4100	.33. 12. 337
.08.	4000	4100	.08. 12. 87	.35.	4000/8800	4100/8900.35. 12. 350	.35. 12. 350
.10.	4000/8800	4100/8900.10. 12. 100	.10. 12. 100	.36.	4000	4100	.36. 12. 362
.11.	4000	4100	.11. 12. 112	.37.	4000	4100	.37. 12. 375
.12.	4000/8800	4100/8900.12. 12. 125	.12. 12. 125	.38.	4000	4100	.38. 12. 387
.13.	4000	4100	.13. 12. 137	.40.	4000/8800	4100/8900.40. 12. 400	.40. 12. 400
.15.	4000/8800	4100/8900.15. 12. 150	.15. 12. 150	.41.	4000	4100	.41. 12. 412
.16.	4000	4100	.16. 12. 162	.42.	4000	4100	.42. 12. 425
.17.	4000/8800	4100/8900.17. 12. 175	.17. 12. 175	.43.	4000	4100	.43. 12. 437
.18.	4000	4100	.18. 12. 187	.45.	4000	4100	.45. 12. 450
.20.	4000/8800	4100/8900.20. 12. 200	.20. 12. 200	.46.	4000/8800	4100/8900.46. 12. 462	.46. 12. 462
.21.	4000	4100	.21. 12. 212	.47.	4000	4100	.47. 12. 475
.22.	4000	4100	.22. 12. 225	.48.	4000	4100	.48. 12. 487
.23.	4000	4100	.23. 12. 237	.50.	4000	4100	.50. 12. 500
.25.	4000/8800	4100/8900.25. 12. 250	.25. 12. 250	.51.	4000	4100	.51. 12. 512
.26.	4000	4100	.26. 12. 262	.52.	4000	4100	.52. 12. 525
.27.	4000/8800	4100/8900.27. 12. 275	.27. 12. 275	.53.	4000	4100	.53. 12. 537
.28.	4000	4100	.28. 12. 287	.55.	4000	4100	.55. 12. 550
.30.	4000/8800	4100/8900.30. 12. 300	.30. 12. 300	.60.	4000	4100	.60. 12. 600

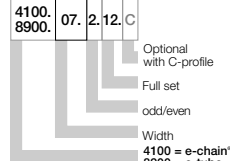
Please insert 1 for odd number of links or 2 for even number of links

Dimensions and order configurations

Part No. structure (pivoting)



Part No. structure (locking)



Note: The E4/00 System may end with either an inner side or an outer side link. Keep in mind that an outer side link always forms the first chain link at the moving end. The Part No. depends on an even or odd numbers of links. Please insert: 1 for odd number of links or 2 for even number of links

Full set, for both ends:

4000. 05. 2. 12. C (even)

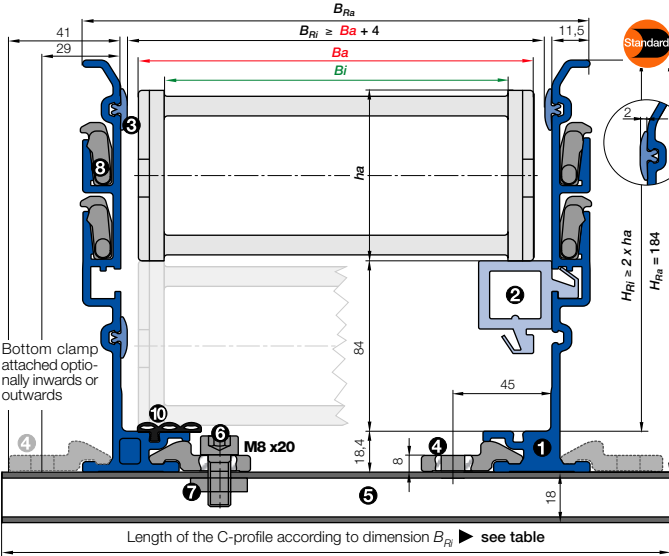
Single-part order:

4000. 05. 2. 2. C (even)

Mounting bracket moving end

4000. 05. 2. 1. C (even)

Mounting bracket fixed end



- 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) ❹ Optional: Silencer profile, rubber
- Components, installation set "Basic": ❺ Bottom clamp, aluminum ❻ C-profile, steel galvanized ❼ Screw M8 x 20 ❽ Sliding nut M8 ❾ Interface connector, plastic



Order example: Length of travel 30 m -
Center mounted for Series 400.10.200.0 with $B_{Ri} = 138$

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. 974.30.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. 974.31.SL

Installation set "Basic" complete (guide trough-sets + 1)

Order text: 17 installation sets "Basic" Part No. 960.50.200

Module for the fixed end

Order text: 1 set Part No. 974.80

Option: For an additional noise dampening with
silencer profile, please add Index A - Example:

Part No. 974.30.SLA



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



A quick fix for mounting
the stationary end of an e-chain®

With this module for the fixed end, fast and easy mounting onto the Aluminum "SuperTrough" is now possible without any drilling. Fast mounting of the e-chain® by clamping onto the aluminum trough

- Quick relocation of the stationary end ● No drilling necessary ▶ page 9.16

- 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 trough 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

400.05.200.0 ▶ Order example

B_{Ri} [mm]	Part No. attached inwards	Part No. attached outwards
.05 88	-	960.50.225
.06 103	-	960.50.225
.07 113	-	960.50.250
.08 125	960.50.175	960.50.250
.10 138	960.50.200	960.50.275
.11 151	960.50.200	960.50.275
.12 163	960.50.225	960.50.300
.13 176	960.50.225	960.50.300
.15 188	960.50.250	960.50.325
.16 201	960.50.250	960.50.325
.17 213	960.50.275	960.50.350
.18 226	960.50.275	960.50.350
.20 238	960.50.300	960.50.375
.21 251	960.50.300	960.50.375
.22 263	960.50.325	960.50.400
.23 276	960.50.325	960.50.400
.25 288	960.50.350	960.50.425
.26 301	960.50.350	960.50.425
.27 313	960.50.375	960.50.450
.28 326	960.50.375	960.50.450
.30 338	960.50.400	960.50.475
.31 351	960.50.400	960.50.475
.32 363	960.50.425	960.50.500
.33 376	960.50.425	960.50.500
.35 388	960.50.450	960.50.525
.36 401	960.50.450	960.50.525
.37 413	960.50.475	960.50.550
.38 426	960.50.475	960.50.550
.40 438	960.50.500	960.50.575
.41 451	960.50.500	960.50.575
.42 463	960.50.525	960.50.600
.43 476	960.50.525	960.50.600
.45 488	960.50.550	960.50.625
.46 501	960.50.550	960.50.625
.47 513	960.50.575	960.50.650
.48 526	960.50.575	960.50.650
.50 538	960.50.600	960.50.675
.51 551	960.50.600	960.50.675
.52 563	960.50.625	960.50.700
.53 576	960.50.625	960.50.700
.55 588	960.50.650	960.50.725
.60 638	960.50.700	960.50.775

Insert for the installation set
"Heavy-Duty": 974.50.XXX
instead of (960.50.XXX) on the
right column "attached outwards"



Price Index



Cleanroom test
upon request



ESD classification:
Electrically conductive ESD/ATEX
version upon request

- ① Crossbars on e-chain® removable along both radii
- ② Hinged snap-open removable lids along outer radius
- ③ Stop dog with "brake" for noise reduction
- ④ Wide, rounded plastic crossbars - cable friendly
- ⑤ Optimized glide pads with lateral wear allowance
- ⑥ Numerous interior separation possibilities
- ⑦ Closed and open styles can be combined
- ⑧ Dirt-repellent exterior
- ⑨ e-chains® also available with reverse bending radius "RBR"



Opening e-chains®: Remove crossbars and clips - Insert screwdriver into the slot, push down, release by lever action



Remove lids/bottoms (e-tubes) - Insert screwdriver into the slot, release by lever action



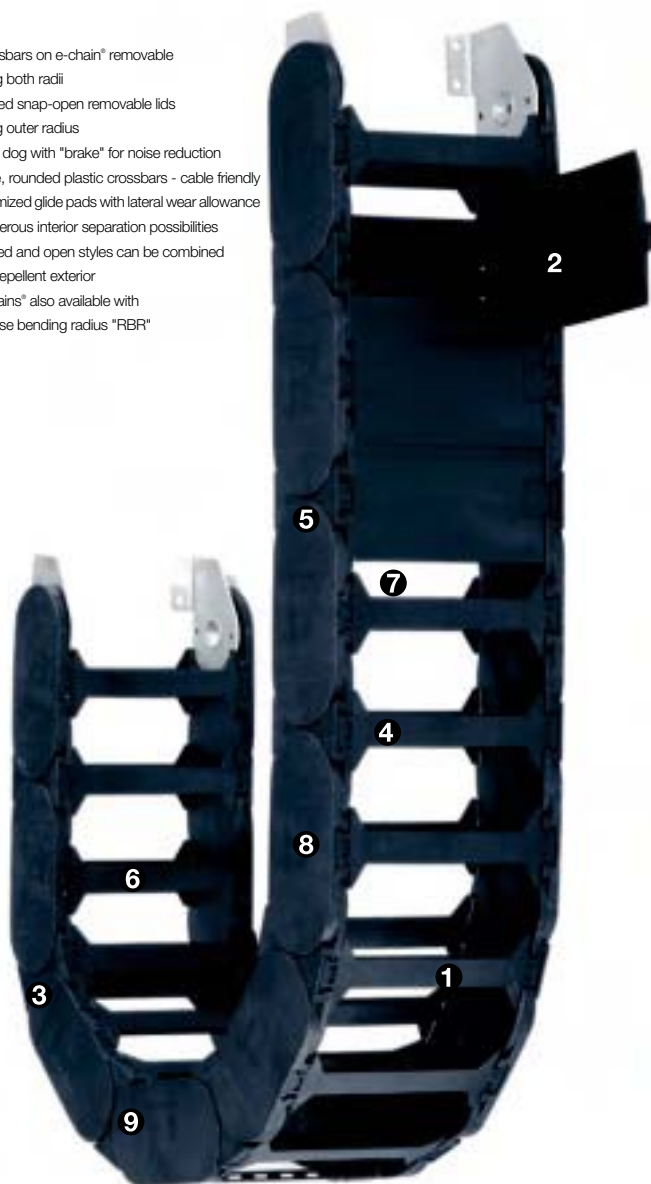
When to use the Series 600/601/R608:

- If a low-noise version is required
- At very high speeds and/or accelerations
- For long travels
- For high additional loads



When not to use it:

- If a simple and low-cost solution is required
▶ Series 1640, page 7.114
- If an increased inner height is required
▶ Series 640, page 7.302



Order example complete e-chain®

Please indicate chain-lengths or number of links Example: 6 m or 42 links

6 m 600.30.300.0



e-chain®

with 2 separators 6011 assembled every 2nd link



Interior separation

1 set 6000.1.12



Mounting bracket

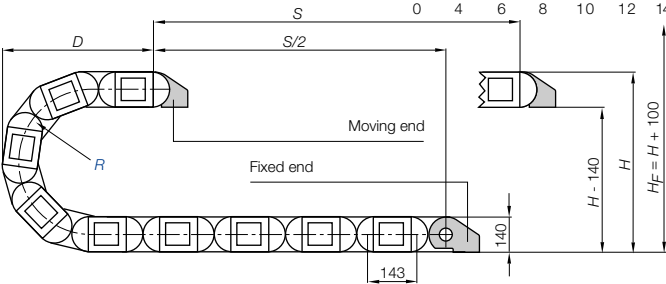
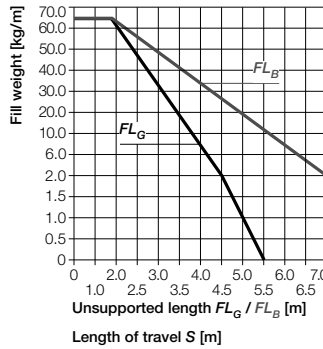
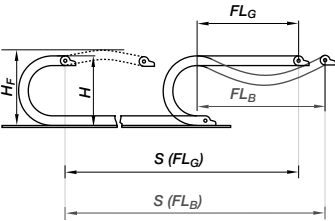


Unsupported length

FL_G = with straight upper run

FL_B = with permitted sag

Further information ► Design, page 1.12



Pitch = 143 mm/link Links/m = 7 (1001 mm) Chain length = $S/2 + K$

R	200	250	300	350	400	450	500	550	600	750	1000
H	545	645	745	845	945	1045	1145	1245	1345	1645	2145
D	415	465	515	565	615	665	715	765	815	965	1215
K	920	1080	1240	1400	1560	1720	1870	2020	2175	2660	3435
H ₂	325	325	325	325	325	325	325	325	325	325	-
D ₂ ⁺²⁵	900	1000	1100	1250	1450	1600	1700	1900	2050	2850	-
K ₂	1573	1716	1859	2288	2574	2860	3146	3432	3861	5005	-

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

Other installation methods

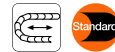
Vertical, hanging ≤ 120 m

Vertical, standing ≤ 6 m

Side mounted, un supp. ≤ 6 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.

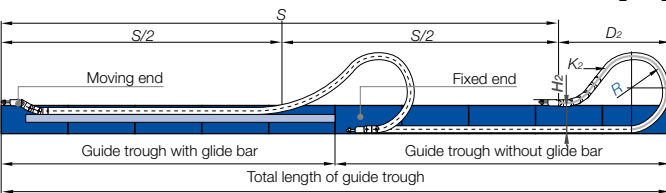
The required

clearance height:

$H_F = H + 100$ mm

(with 5,0 kg/m fill weight)

Long travel lengths from 15 m to max. 450 m Chain length = $S/2 + K_2$



In case of travels between 10 and 15 m we recommend a longer unsupported length.



Gliding, long travel applications (max. 450 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

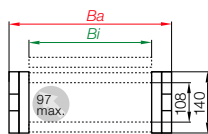


Details of material properties

► page 1.38

Speed / acceleration FL_G	max. 20 [m/s] / max. 200 [m/s²]
Speed / acceleration FL_B	max. 3 [m/s] / max. 6 [m/s²]
Gliding speed / acceleration (maximum)	max. 10 [m/s] / max. 50 [m/s²]
Material - permitted temperature °C	igumid G / -40° up to +120° C
Flammability class, igumid G	VDE 0304 IIC UL94 HB



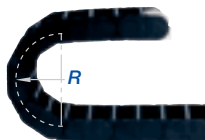


Part No. structure

600. 30. 300. 0



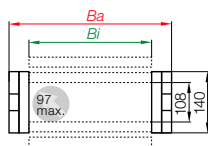
Series 600 - e-chain® with crossbars every link



- Crossbars every link
- For rigid hydraulic hoses
- For applications particularly demanding
- Can be opened from two sides



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



Part No. structure

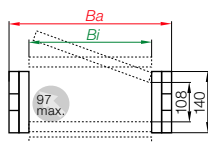
601. 30. 300. 0

Series 601 - e-chain® with crossbars every 2nd link

- Crossbars every 2nd link = Standard
- For nearly every situation
- Can be opened from two sides
- Easy assembly
- Stable
- Attractive price



igus® GmbH
51147 Cologne

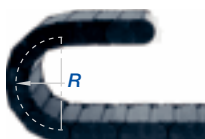


Part No. structure

608. 30. 300. 0



Series R608 - Fully enclosed e-tube



- Fully enclosed
- Excellent cable protection against dirt
- Protection against hot chips (up to 900°C)
- Lids along the entire inner radius are completely removable. Lids along the entire outer radius are single sided snap-open with a hinge on the other side to keep them attached to the chain or completely removable.



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

Part No.		Bi [mm]	Ba [mm]	600 [kg/m]	601 [kg/m]	R608 [kg/m]
600/601/608.20...	.0	200	252	≈ 8,75	≈ 7,99	**
600/601/608.25...	.0	250	302	≈ 9,11	≈ 8,17	**
600/601/608.30...	.0	300	352	≈ 9,45	≈ 8,34	**
600/601/608.32...	.0	320	372	≈ 9,59	≈ 8,41	–
600/601/608.35...	.0	350	402	≈ 9,74	≈ 8,48	**
600/601.38...	.0**	380	432	≈ 10,01	≈ 8,62	–
600/601/608.40...	.0	400	452	≈ 10,19	≈ 8,71	**
600/601.45...	.0	450	502	≈ 10,32	≈ 8,77	–
600/601/608.50...	.0**	500	552	≈ 10,63	≈ 8,93	**
600/601.55...	.0	550	602	≈ 10,98	≈ 9,10	–
600/601.60...	.0	600	652	≈ 11,47	≈ 9,35	–

**NEW in this catalog

Available bending radii

R [mm] **200*** 250 300 350 400 450 500 550 600 750 1000

Supplement Part No. with required radius. Example: 600.30.300.0

0 = standard color, other colors ► page 1.39 · Pitch = 143 mm/link - Links/m = 7

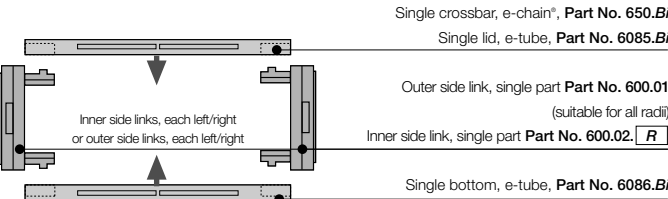
*not available for R608 **upon request

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: **608.40.250.0.HT**
Lids made of HT: **608.40.HTE.250.0**
*for long travels upon request
Further Information: www.igus.de/en/HT
Delivery time up to 4 weeks!



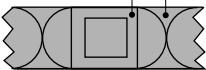
Extension links for extremely wide e-chains*
► upon request



Part No. e-chain® links, single parts

Inner side link

Outer side link



System E4/00
Inner height: 108 mm

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



► page 7.255



Vertical separators are used if a vertical subdivision is required. In the standard configuration, a separator is mounted at every second link. **Note:** Observe a lateral spacing of at least 32 mm (e-tube) and 6 mm (e-chain)!

Exception: Minimum spacing
Locking separator 6008 = 23 mm



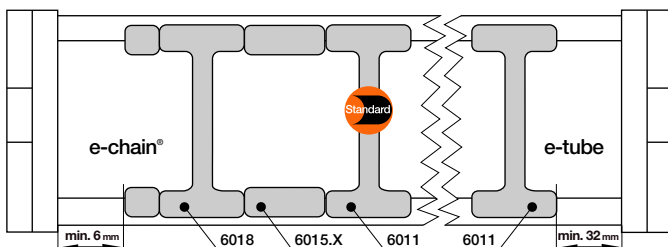
Vertical separator
6001



Spacer
6005.XX



Locking separator
6008



Vertical separator for e-chains/e-tubes

unassembled	6001
assembled	6011



Spacer*, for e-chains*

unassembled	6005.XX
assembled	6015.XX



Locking separator for e-chains*

unassembled	6008
assembled	6018



*For side-mounted applications

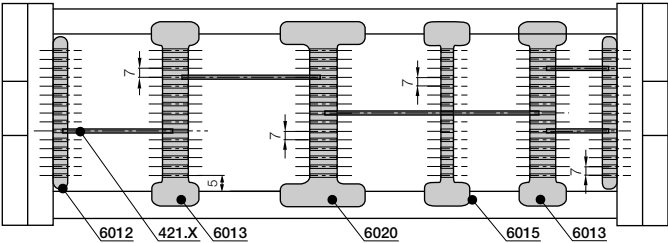
Option 1: Vertical separators and spacers

● **Standard separator 6001 for e-chains® and e-tubes** offers safe stability due to its wide base design, also when used with thick cables or hoses.

● Separators (e.g. "side mounted") for e-chains® can be fixed in their position with **Spacers 6005.XX**. The available inner height will be reduced by 2 mm, per spacer and side. To avoid this, the parts can be assembled on outside of the crossbar (not for long travels) **XX = width of the spacer** (available 10, 15, 20 mm)

Additionally:

● **Locking separator 6008 for e-chains®** - with increased retention force for applications exposed to very high humidity or extreme loads. The extra retention force is achieved by asymmetric claws for the crossbar. Ensure proper alignment.



For use with many cables of differing diameters, e-chains® and e-tubes can be subdivided both vertically and horizontally. The shelves can be arranged elevator-shifted with different bottoms

Option 2: Shelves

● Side plates 6002, middle plates 6003 and shelves 420.X form the basic pattern of a shelf system. Shelves of various widths can be arranged at 15 different heights (in 7 mm increments).

● Locking vertical separator 6010 combined with shelves. Triple slots (only for e-chains®).

● Slotted separators 6004 are used for very fine subdivisions. However, they cannot be retrofitted into an existing separation system without dismantling the interior separators first.

● The unilateral open slotted separator 6005 can be retrofitted into an existing interior separation system without a need for dismantling the interior separators. During an installation of open slotted separators, the top and bottom notches cannot be occupied by shelves.



Side plate for e-chains®/e-tubes	
unassembled	6002
assembled	6012



Middle plate for e-chains®/e-tubes	
unassembled	6003
assembled	6013



Locking vertical separator for e-chains®	
unassembled	6010
assembled	6020



Slotted separator for e-chains®/e-tubes	
unassembled	6004
assembled	6014



Open slotted separator for e-chains®/e-tubes	
unassembled	6005
assembled	6015

Width X [mm]	Part No. unassembled	Part No. assembled
018	420.18	421.18
023	420.23	421.23
025	420.25	421.25
028	420.28	421.28
033	420.33	421.33
043	420.43	421.43
050	420.50	421.50
062	420.62	421.62

Width X [mm]	Part No. unassembled	Part No. assembled
075	420.75	421.75
088	420.88	421.88
100	420.100	421.100
125	420.125	421.125
150	420.150	421.150
175	420.175	421.175
187	420.187	421.187
200	420.200	421.200



Side plate
6002



Middle plate
6003



Locking vertical
separator
6010



Slotted
separator
6004

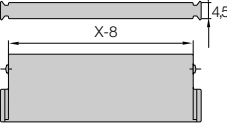


Open slotted
separator
6005



Shelf 420.X

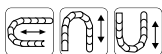
Shelf



System E4/00
Inner height: 108 mm

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





Option steel - pivoting

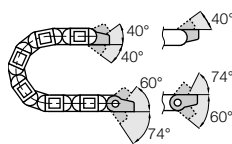
- For pivoting connections
- One part (two-piece) for all chain widths
- Electrically conductive



Possible installation conditions -

Further installation angles ► installation sketch

Moving end
6000.1

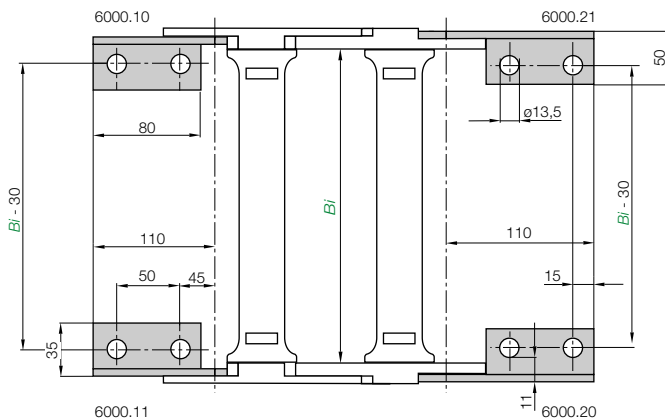


Fixed end
6000.2

Dimensions and order configurations

Moving end
6000.1

Fixed end
6000.2



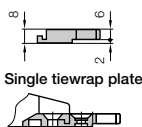
Note mounting brackets:

Depending on the e-chain® length, the carrier will end with outer or inner side links. For the best appearance, make sure the chain ends with outer side link whenever possible. An odd number of links will always end with outer side links.

Part No.	Mounting bracket
----------	------------------

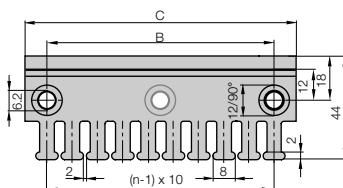
6000.1.12	Full attachment set (both sides) for e-chain*, ending with outer side link
6000.3.12	Full attachment set (both sides) for e-chain*, beginning with outer side link (moving end), ending with inner side link (fixed end)
6000.1	Mounting bracket set moving end (one side) for outer side link
6000.2	Mounting bracket set fixed end (one side) for inner side link

E4/00 | Series 600·601·R608 | Accessories | Strain Relief



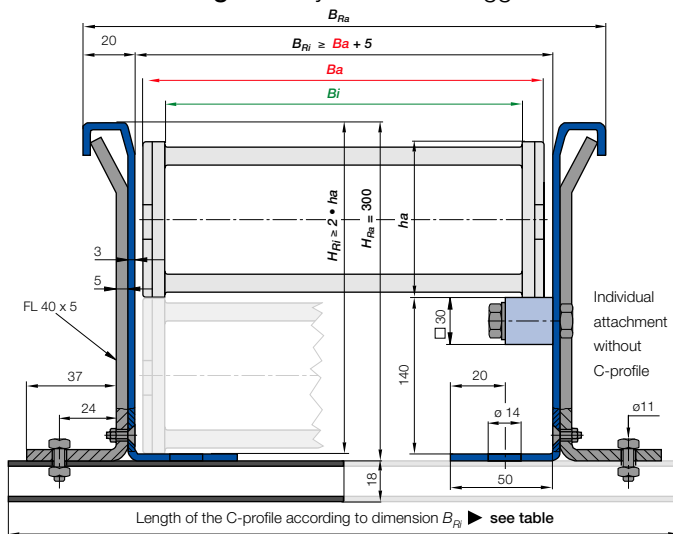
Single tiewrap plate

Shown assembled



Tiewrap plate	No. of teeth n	Dim. C [mm]	Dim. B [mm]	Center bore
3050.ZB	5	50	30	–
3075.ZB	7	75	55	–
3100.ZB	10	100	80	–
3115.ZB	11	115	95	–
3125.ZB	12	125	105	–
3150.ZB	15	150	130	–
3175.ZB	17	175	155	–
3200.ZB	20	200	180	+
3225.ZB	22	225	205	+
3250.ZB	25	250	230	+

(- = no / + = yes)



Guide troughs are used with applications where the upper run of the e-chain® glides on the lower run. If using igus® steel guide troughs, the following components are required:

- **Guide trough without glide bars**
Part No. 98.30
- **Guide trough with glide bars**
Part No. 98.31
- **Installation sets as end connectors**
Part No. 98.50.XX

.XX indicates the length of the C-profile on which the guide trough is mounted. The values and part numbers are specified in the table on the left. Standard length of the trough components and glide bars is 2 m. The required overall length of the guide trough directly correlates to the length of travel. Special dimensions are available for confined spaces.



Illustration top: Guide trough with and without glide bar. Illustration bottom: installation set

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 trough sets (left/right)
H_{Ri} ≥ 2 • ha
B_{Ri} ≥ Ba + 5

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

Installation set with C-profile

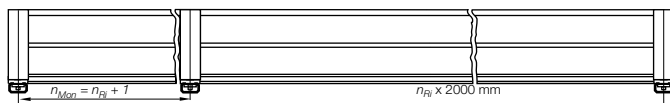
600.20.300.0 ► Order example

Part No.	Installation set
.20	257 98.50.375
.25	307 98.50.425
.30	357 98.50.475
.32	377 98.50.500
.35	407 98.50.525
.40	457 98.50.575
.45	507 98.50.625
.50	557 98.50.675
.55	607 98.50.725
.60	657 98.50.775

Order example: Length of travel 30 m - Center mounted for Series 600.30.300.0 with B_{Ri} = 357

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. 98.30
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. 98.31
Installation set "Basic" complete (Guide trough-sets + 1)	
Order text: 17 Installation sets (with C-profile)	Part No. 98.50.475

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



► chapter 10



► chapter 9



► page 7.255



Price index

Cleanroom test
upon requestESD classification:
Electrically conductive ESD/ATEX
version upon request

- ① Optimum ratio of inner height to outer height
- ② Numerous interior separation possibilities
- ③ Stop dog with "brake" for noise reduction
- ④ Wide, rounded plastic crossbars - cable friendly
- ⑤ Optimized glide pads with lateral wear allowance
- ⑥ Dirt-repellent exterior
- ⑦ e-chains® also available with reverse bending radius "RBR"
- ⑧ Crossbars are removable along both radii



Opening e-chains®: Remove crossbars and clips - Insert screwdriver into the slot, push down, release by lever action. Repeat action for the other side



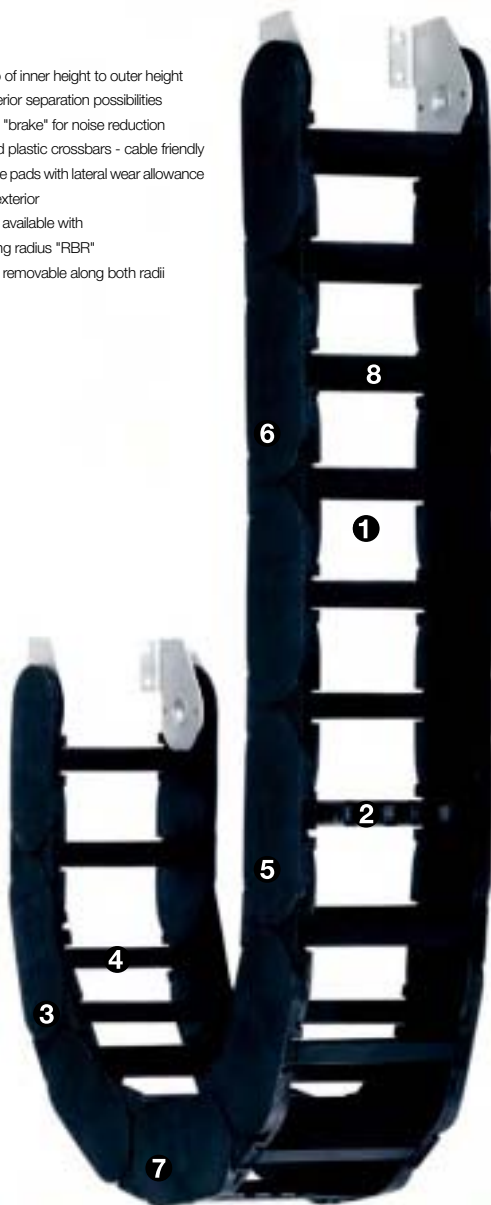
When to use the Series 640:

- If a low-noise version is required
- At very high speeds and/or accelerations
- For long travels
- For high additional loads



When not to use it:

- If a simple and low-cost solution is required
► **Series 1640, page 7.114**
- If higher stability is required
► **Series 600/601/R608, page 7.294**
- If an enclosed solution is required
► **Series R608, page 7.294**



Order example complete e-chain®

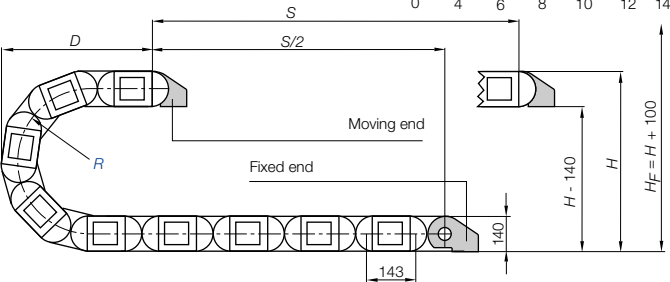
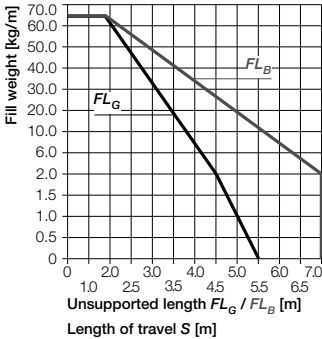
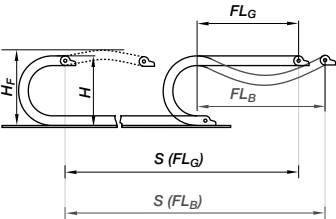
Please indicate chain-lengths or number of links **Example: 4 m or 28 links**4 m **640.33.300.0****e-chain®**with 2 separators **6411** assembled every 2nd link**Interior separation**1 set **6000.1.12****Mounting bracket**

Unsupported length

FL_G = with straight upper run

FL_B = with permitted sag

Further information ► Design, page 1.12



Pitch = 143 mm/link Links/m = 7 (1001 mm) Chain length = $S/2 + K$

R	200	250	300	350	400	450	500	550	600	750	1000
H	545	645	745	845	945	1045	1145	1245	1345	1645	2145
D	415	465	515	565	615	665	715	765	815	965	1215
K	920	1080	1240	1400	1560	1720	1870	2020	2175	2660	3435
H ₂	325	325	325	325	325	325	325	325	325	325	–
D ₂ ⁺²⁵	800	900	1100	1200	1430	1580	1700	1850	2050	2850	–
K ₂	1287	1430	1859	2145	2574	2860	3146	3432	3861	5005	–

- S = Length of travel
- R = Bending radius
- H = Nominal clearance height
- H_F = Required clearance height
- H_{int} = Trough inner height
- D = Overlength e-chain" radius in final position
- K = $\pi \cdot R$ + "safety"
- D₂ = Overlength - long travels, gliding
- K₂ = "Further add-on"
- H₂ = "Mounting height"
- *if the mounting bracket location is set lower

Other installation methods

- Vertical, hanging ≤ 120 m
- Vertical, standing ≤ 6 m
- Side mounted, un supp. ≤ 4 m
- Rotary requires further calculation
- Unsupported length of upper run = upon request

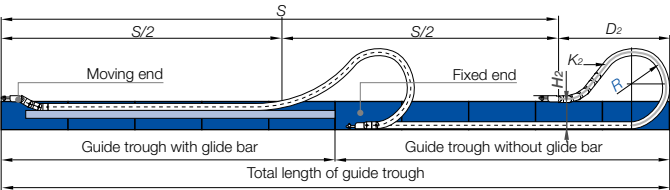


Short travels - unsupported

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 + 100 mm
(with 5,0 kg/m fill weight)

Long travel lengths from 10 m to max. 450 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. 450 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.

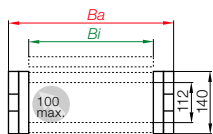
Technical Data



Details of material properties
► page 1.38

Speed / acceleration FL_G	max. 20 [m/s] / max. 200 [m/s²]
Speed / acceleration FL_B	max. 3 [m/s] / max. 6 [m/s²]
Gliding speed / acceleration (maximum)	max. 10 [m/s] / max. 50 [m/s²]
Material - permitted temperature °C	igumid G / -40° up to +120° C
Flammability class, igumid G	VDE 0304 IIC UL94 HB





Part No. structure

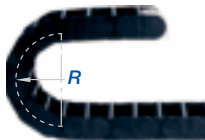
640.	33.	300.	0
------	-----	------	---

Color
black
Bending
radius

Width

Series

Series 640 - e-chain® with crossbars every link



- Crossbars every link
- For rigid hydraulic hoses
- For applications particularly demanding
- Can be opened from two sides



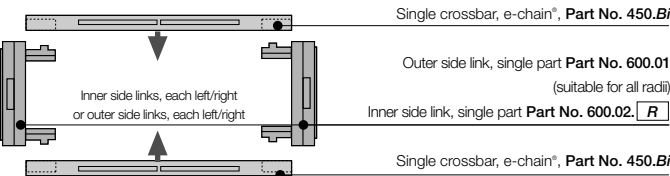
Part No.	<i>Bi</i> [mm]	<i>Ba</i> [mm]	Weight [kg/m]
640.12. .0	87	139	≈ 7,57
640.13. .0	100	152	≈ 7,66
640.15. .0	112	164	≈ 7,70
640.16. .0	125	177	≈ 7,77
640.17. .0	137	189	≈ 7,84
640.18. .0	150	202	≈ 7,91
640.20. .0	162	214	≈ 7,92
640.21. .0	175	227	≈ 7,99
640.22. .0	187	239	≈ 8,04
640.23. .0	200	252	≈ 8,12
640.25. .0	212	264	≈ 8,18
640.26. .0	225	277	≈ 8,23
640.27. .0	237	289	≈ 8,30
640.28. .0	250	302	≈ 8,32
640.30. .0	262	314	≈ 8,39
640.31. .0	275	327	≈ 8,46
640.32. .0	287	339	≈ 8,51
640.33. .0	300	352	≈ 8,62
640.35. .0	312	364	≈ 8,68
640.36. .0	325	377	≈ 8,72
640.37. .0	337	389	≈ 8,74
640.38. .0	350	402	≈ 8,79
640.40. .0	362	414	≈ 8,92
640.41. .0	375	427	≈ 9,02
640.42. .0	387	439	≈ 9,11
640.43. .0	400	452	≈ 9,16
640.45. .0	412	464	≈ 9,20
640.46. .0	425	477	≈ 9,21
640.47. .0	437	489	≈ 9,26
640.48. .0	450	502	≈ 9,30
640.50. .0	462	514	≈ 9,38
640.51. .0	475	527	≈ 9,39
640.52. .0	487	539	≈ 9,42
640.53. .0	500	552	≈ 9,52
640.55. .0	512	564	≈ 9,83
640.60. .0	562	614	≈ 9,95

Available bending radii

R [mm] 2002503003504004505005506007501000

Supplement Part No. with required radius. Example: 640.33.300.0

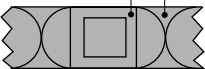
0 = standard color, other colors ▶ page 1.39 · Pitch = 143 mm/link - Links/m = 7



Part No. e-chain®
links, single parts

Inner side link

Outer side link



System E4/00
Inner height: 112 mm

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



▶ page 7.255



Vertical separators are used if a vertical subdivision is required. In the standard configuration, a separator is mounted at every second link.



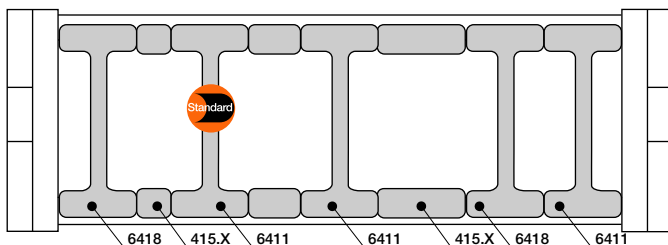
Vertical separator
6401



Spacer
405.XX



Locking separator
6408



Vertical separator for e-chains*

unassembled	6401
assembled	6411



Spacer* for e-chains*

unassembled	405.XX
assembled	415.XX



Locking separator for e-chains*

unassembled	6408
assembled	6418



*For side-mounted applications

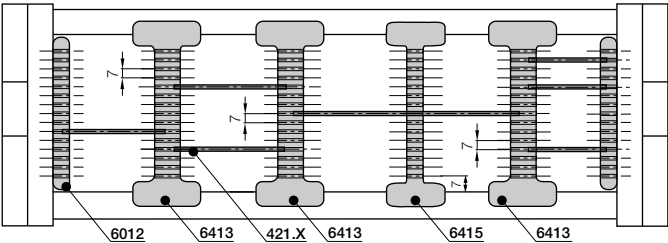
Option 1: Vertical separators and spacers

● **Standard separator 6401 for e-chains®** offers safe stability due to its wide base design, also when used with thick cables or hoses.

● Separators (e.g. "side mounted") for e-chains® can be fixed in their position with **Spacers 405.XX**. The available inner height will be reduced by 2 mm, per spacer and side. To avoid this, the parts can be assembled on outside of the crossbar (not for long travels)
XX = width of the spacer (available 10, 15, 20, 30, 40 mm)

Additionally:

● The **Locking separator for e-chains® 6408** is designed for applications exposed to extremely high humidity, for example, at composting plants. The lateral cam serves for uniform alignment of the vertical separators; if these separators are misaligned, they will inevitably get damaged on an attempt to open the e-chain®.



For use with many cables of differing diameters, e-chains* and e-tubes can be subdivided both vertically and horizontally. The shelves can be arranged elevator-shifted with different bottoms

Option 2: Shelves

● Side plates 6002, middle plates 6403 and shelves 420.X form the basic pattern of a shelf system. Shelves of various widths can be arranged at 15 different heights (in 7 mm increments).

● The unilateral open slotted separator 6405 can be retrofitted into an existing interior separation system without a need for dismantling the interior separators. During an installation of open slotted separators, the top and bottom notches cannot be occupied by shelves.



Side plate for e-chains*	
unassembled	6002
assembled	6012



Middle plate for e-chains*	
unassembled	6403
assembled	6413



Open slotted separator for e-chains*	
unassembled	6405
assembled	6415

Width X [mm]	Part No. unassembled	Part No. assembled
018	420.18	421.18
023	420.23	421.23
025	420.25	421.25
028	420.28	421.28
033	420.33	421.33
043	420.43	421.43
050	420.50	421.50
062	420.62	421.62

Width X [mm]	Part No. unassembled	Part No. assembled
075	420.75	421.75
088	420.88	421.88
100	420.100	421.100
125	420.125	421.125
150	420.150	421.150
175	420.175	421.175
187	420.187	421.187
200	420.200	421.200



Side plate 6002



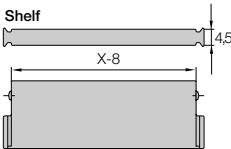
Middle plate 6403



Open slotted separator 6405



Shelf 420.X



Additional elements for interior separation



Rollclip	
unassembled	489.27
assembled	490.27

Rollclip - minimizes abrasion of particularly sensitive hoses. The Rollclip is simply clamped onto the opening crossbar. The movable rollers compensate for relative movement between the chain and hose.

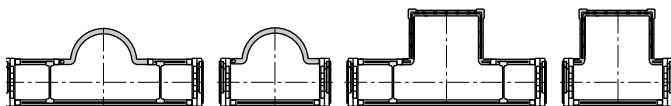




Consult igus® for your extender crossbar applications. We are happy to assist you with your design layout

Extender crossbars - careful guide of hoses applications

- Suitable for hoses with a maximum outer diameter of 300 mm
- Gliding operation with crossbars assembled along the outer radius and a special guide trough
- Gliding operation not guaranteed with crossbars assembled along the inner radius
- The extender crossbar can either be attached to the side links directly or can be used in combination with two stranded snap-open crossbars



Round extender crossbar with snap-open crossbars

Attached directly to the side link

Square extender crossbar with snap-open crossbars

Attached directly to the side link

Part No.	Max Ø [mm] hose	Form	Installation side link	Combination with snap-open crossb.
450.15.RHD115	115	○	-	+
450.17.RD115	115	○	+	-
450.25.D150	150	□	+	-
450.30.D200	200	□	+	-
450.35.D250	250	□	+	-
450.40.D300	300	□	+	-
450.20.HD150	150	□	-	+
450.25.HD200	200	□	-	+
450.30.HD250	250	□	-	+

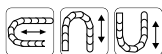
○ = round □ = square + = yes / - = no



E4 snapclip

- For side-mounted applications
- Serves as a clip-on, lateral guide for hoses and cables on e-chains®
- The loops can be adjusted as required
- Compatible with many E4 e-chains®
- Stylish and economical
- One clip and one locking band are needed for each chain link
- Call us if you have any questions on project planning

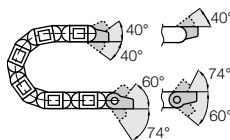
Part No.	Form
450.B12	Locking clip, comprising a locking element
450.B12.200	Locking band, comprising a locking element and band; 12 x 1,5 x 200 mm



Option steel - pivoting

- For pivoting connections
- One part (two-piece) for all chain widths
- Electrically conductive

Moving end
6000.1



Fixed end
6000.2

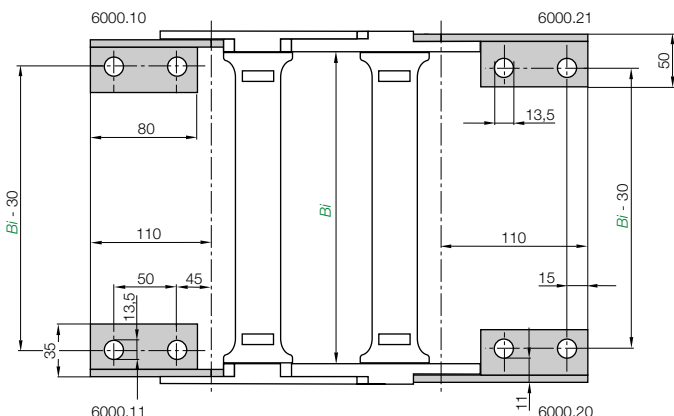
Possible installation conditions -

Further installation angles ► installation sketch



Moving end
6000.1

Fixed end
6000.2



Dimensions and order configurations

Part No.	Mounting bracket
----------	------------------

6000.1.12	Full attachment set (both sides) for e-chain*, ending with outer side link
6000.3.12	Full attachment set (both sides) for e-chain*, beginning with outer side link (moving end), ending with inner side link (fixed end)
6000.1	Mounting bracket set moving end (one side) for outer side link
6000.2	Mounting bracket set fixed end (one side) for inner side link

Note mounting brackets:

Depending on the e-chain® length, the carrier will end with outer or inner side links. For the best appearance, make sure the chain ends with outer side link whenever possible. An odd number of links will always end with outer side links.

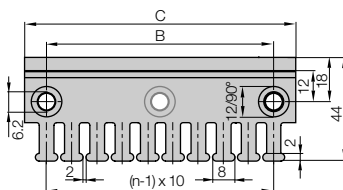
E4/00 | **Series 640** | **Accessories** | Strain Relief

Tiewrap plate	No. of teeth n	Dim. C [mm]	Dim. B [mm]	Center bore
3050.ZB	5	50	30	–
3075.ZB	7	75	55	–
3100.ZB	10	100	80	–
3115.ZB	11	115	95	–
3125.ZB	12	125	105	–
3150.ZB	15	150	130	–
3175.ZB	17	175	155	–
3200.ZB	20	200	180	+
3225.ZB	22	225	205	+
3250.ZB	25	250	230	+

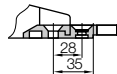
Tiewrap plate as individual part

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

chapter 10



Single tiewrap plate



Shown assembled



▶ chapter 10



▶ page 7.255

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 trough sets (left/right)

! **H_{Ri} ≥ 2 • ha**
B_{Ri} ≥ Ba + 5

● = Guide trough set

● = Glide bar

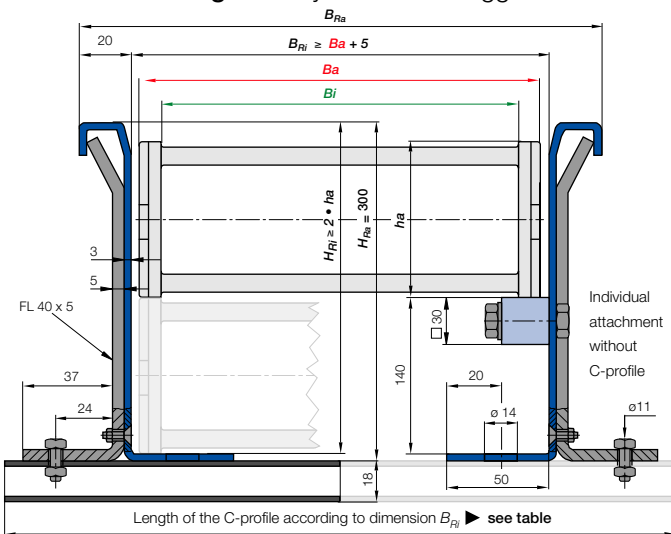
● = Installation set

● = C-profile

Installation set with C-profile

640.12.300.0 ► Order example

	Part No.	Installation set
.12	144	98.50.275
.13	157	98.50.275
.15	169	98.50.300
.16	182	98.50.300
.17	194	98.50.325
.18	207	98.50.325
.20	219	98.50.350
.21	232	98.50.350
.22	244	98.50.375
.23	257	98.50.375
.25	269	98.50.400
.26	282	98.50.400
.27	294	98.50.425
.28	307	98.50.425
.30	319	98.50.450
.31	332	98.50.450
.32	344	98.50.475
.33	357	98.50.475
.35	369	98.50.500
.36	382	98.50.500
.37	394	98.50.525
.38	407	98.50.525
.40	419	98.50.550
.41	432	98.50.550
.42	444	98.50.575
.43	457	98.50.575
.45	469	98.50.600
.46	482	98.50.600
.47	494	98.50.625
.48	507	98.50.625
.50	519	98.50.650
.51	532	98.50.650
.52	544	98.50.675
.53	557	98.50.675
.55	569	98.50.700
.60	619	98.50.750



Guide troughs are used with applications where the upper run of the e-chain® glides on the lower run. If using igus® steel guide troughs, the following components are required:

● Guide trough without glide bars

Part No. 98.30

● Guide trough with glide bars

Part No. 98.31

● Installation sets as end connectors

Part No. 98.50.XX

.XX indicates the length of the C-profile on which the guide trough is mounted. The values and part numbers are specified in the table on the left. Standard length of the trough components and glide bars is 2 m. The required overall length of the guide trough directly correlates to the length of travel. Special dimensions are available for confined spaces.



Illustration top: Guide trough with and without glide bar. Illustration bottom: installation set



Order example: Length of travel 30 m - Center mounted for Series 640.33.300.0 with $B_{Ri} = 357$

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. 98.30**

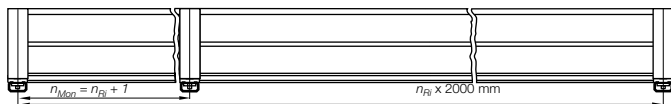
Guide trough set (set of 2 trough side parts, incl. glide strips) **with** glide bar

Order text: 16 m Guide trough with glide bar (8 x 2 m sections) **Part No. 98.31**

Installation set "Basic" complete (Guide trough-sets + 1)

Order text: 17 Installation sets (with C-profile) **Part No. 98.50.475**

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



Details about steel guide troughs ► chapter 9, Guide Troughs

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