

E3 **clean-room**

Highly dynamic and cleanroom compatible



Advantages of the E3 system:

- For high speeds and accelerations
- For extremely fast opening and closing
- Low noise 38dB(A)¹⁾ - small pitch for low noise, smooth running
- Suitable for cleanrooms according to IPA cleanroom Class 1²⁾

1) Extremely low-noise - tested at the igus® lab 2) Cleanroom - Series E3.15.040.075.0



When to use another e-chain® series:

- When a larger e-chain® with IPA cleanroom Class 1 is required
 - ▶ **E6.1**, page 832
- When longer unsupported lengths are required
 - ▶ **E6.1**, page 832
- When an enclosed e-chain® is required
 - ▶ **e-skin® corrugated tube SKS20**, page 812



Universal:
polymer mounting brackets
or mounting angles

Low noise from 38dB(A)¹⁾:
small pitch for low noise,
smooth running

IPA cleanroom Class 1²⁾:
virtually no wear or abrasion

Fast assembly:
zip-open along
the outer radius

Dynamic:
high speeds and
accelerations

Modular design:
crossbars, interior separation
and links all in one band

Modular:
easy to lengthen and
shorten at any point

High dynamics and cleanroom compatible - System E3

E3 combines small pitch, smooth running, low noise, stability, easy assembly and low cost. The spring connector element replaces the pin and bore and avoids relative movement between the joints. This means virtually no wear or abrasion (cleanroom). To reduce production and assembly costs, the spring connector is on a segment of ten e-chain® links.

1) Extremely low-noise - tested at the igus® lab 2) Cleanroom - Series E3.15.040.075.0

Typical industries and applications

- Semi-conductor manufacturing and handling
- Pick and place robots
- Optics
- Material handling technology
- Measuring technology
- Printers and plotters
- Cleanroom environments
- General mechanical engineering



IPA Qualification Certificate[®] - Report IG 0704-400:
ISO Class 1, according to DIN EN ISO 14644-1 for system
E3, series E3.15.040.075 at v = 0.5m/s, 1.0m/s, 2.0m/s

38dB(A)¹⁾ - level determined at the igus® test-lab acc.
to DIN 45635, with consideration of background
noises, E3.22.060.044.0 at v = 1.8m/s



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]	Bend radius <i>R</i> [mm]	Unsupported length ≤ [m]	Page
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System E3 -
3-piece e-chains®
crossbars on a strip -
zip-open along the outer radius

E3.10	10	20 - 60	32 - 72	15	15 - 48	≈ 0.70	922
E3.15	15	20 - 60	32 - 72	20	32 - 75	≈ 0.90	926
E3.22	22	20 - 60	32 - 72	27	44 - 75	≈ 1.20	930

Available from stock. Ready to ship in 72hrs.*
*Average time before the ordered goods are dispatched.

Further information about igus® cleanroom e-chains® and the new, unique igus® cleanroom laboratory for IPA cleanroom Class 1 components ► From page 144

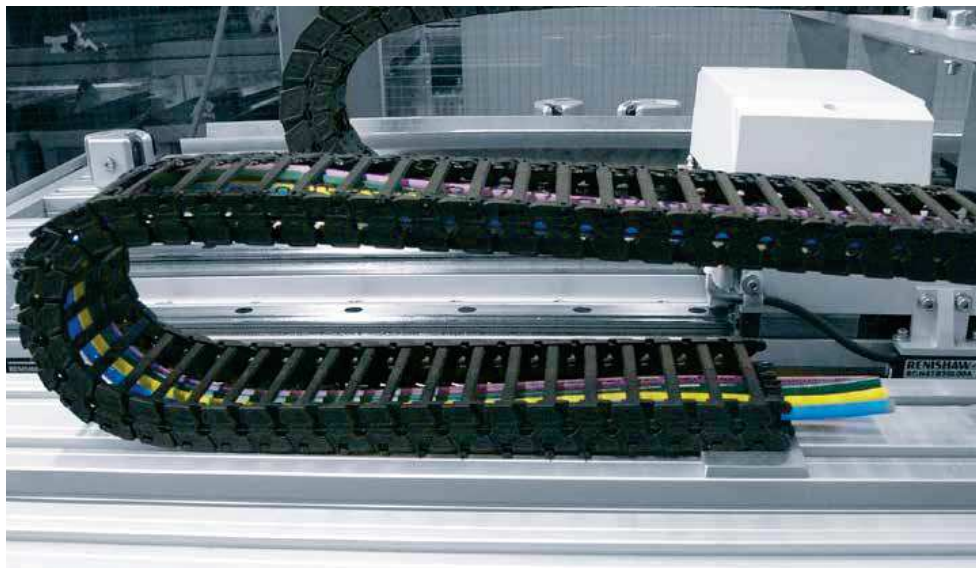


Long-term tests in our acoustics laboratory at a speed of 1.8m/s and an acceleration of 3m/s² showed reductions of 19-20dB(A) compared to conventional e-chains®

Technical data

	Speed FL_G / acceleration FL_G	≤ 20 [m/s] / ≤ 200 [m/s ²]
	Speed FL_B / acceleration FL_B	≤ 3 [m/s] / ≤ 6 [m/s ²]
	e-chain® link material, igumid G - permitted temperature °C	upon request
	Scalable crossbar material, igumid TE - permitted temperature °C	upon request
	Flammability class	VDE 0304 IIC UL94-HB

■ FL_G = unsupported with straight upper run ■ FL_B = unsupported with permitted sag



1,125 chainflex® cables are certified according to IPA ISO Class 1 or Class 2. chainflex® cables with tested outer jacket material are available from stock

Options with order keys | Examples based on series E3.10

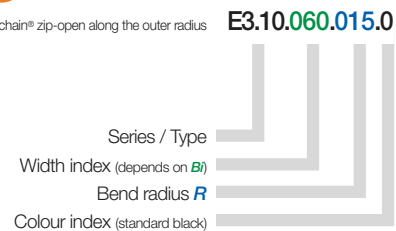
	Standard	NC version - (No Camber) without pretension
	Part No. Standard	Part No. NC version
	E3.10.060.R.0	E3.10.060.R.0.NC
	Ready to ship in 72hrs.*	Ready to ship in 12 business days*
*Average time before the ordered goods are dispatched.		

Order example | Order key and colour examples | Examples based on series E3.10

	Order example for complete e-chain® (1.0m), colour black, with mounting brackets and interior separation:	
e-chain® (1.0m)	Please indicate e-chain® length or number of links: 1.0m or 60 links	E3.10.060.015.0
+ Mounting angle	1 set (with tie-wrap plates)	E3.100.060.12
Interior separation	with 2 separators assembled every 2 nd link	2 x E3.10.11
Order text:	1m E3.10.060.015.0 + E3.100.060.12 + 2 x E3.10.11	

Order key

e-chain® zip-open along the outer radius



Order index for colour options

Colour	Order index	Colour	Order index
■ Black	Standard .0	■ Orange	Special colour .2
■ Silver-grey	Special colour .31	■ Yellow	Special colour .4
□ White	Special colour .1	■ Light grey	Special colour .14
■ Grey-white	Special colour .1S		

Black e-chains® ready to ship in 72hrs.*
Above special colours upon request.

Fast opening, for high accelerations



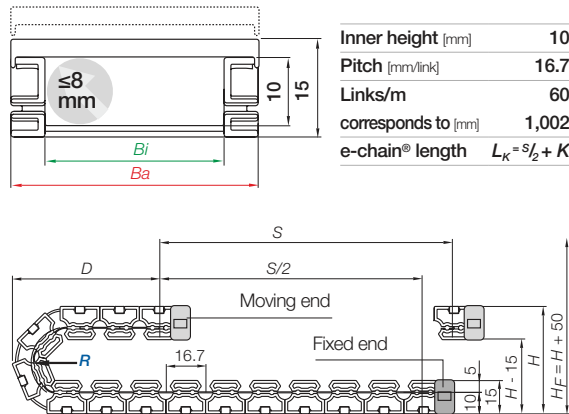
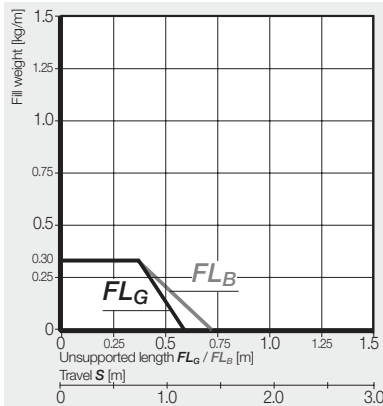
Image with plastic mounting bracket

e-chains® | Series E3.10 | Crossbars on a strip - zip-open along the outer radius

Part No.	Bi [mm]	Ba [mm]	R Available bend radii [mm]	E3.10 [kg/m]
E3.10.020 .R.0	20	32	015 028 - -	≈ 0.12
E3.10.040 .R.0	40	52	015 - 038 048	≈ 0.15
E3.10.060 .R.0	60	72	015 - 038 -	≈ 0.20

Complete Part No. with required radius (R). Example: E3.10.060.015.0 Mounting angle, polymer

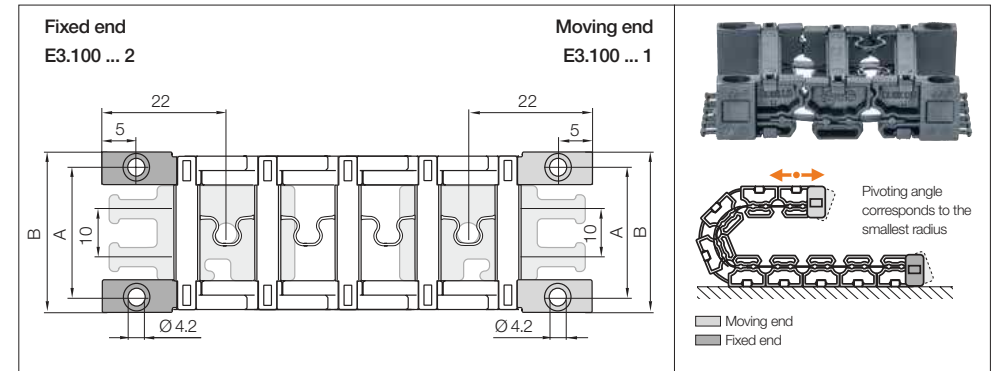
Installation dimensions



R	015	028	038	048
H	60	86	106	126
D	50	63	73	83
K	85	125	155	185

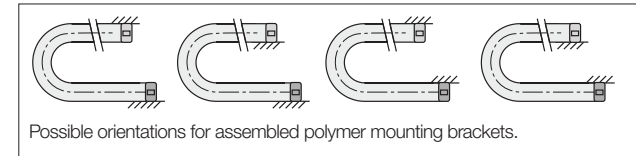
The required clearance height: $H_f = H + 50$ mm (with 0.1 kg/m fill weight)

Mounting brackets, polymer | Pivoting



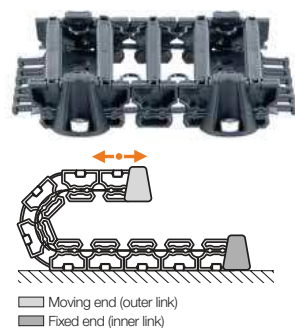
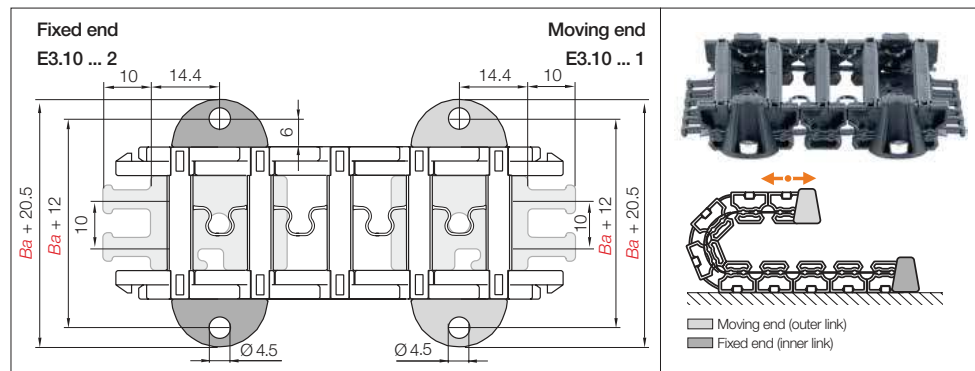
Width index	Part No. full set without tiewrap plates	A [mm]	B [mm]	Part No. strain relief at both ends*
020.	E3.100.020.12	28	36	E3.020.12
040.	E3.100.040.12	48	56	E3.040.12
060.	E3.100.060.12	68	76	E3.060.12

*Tiewrap plates must be ordered separately.



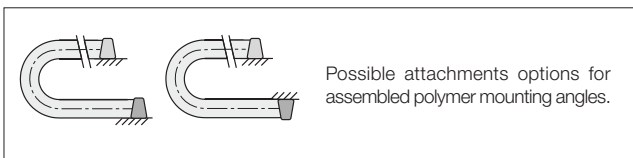
Part No. E3.100.XXX.12
Full set without strain relief. Tiewrap plates must be ordered separately.

Part No. E3.00.020
Tiewrap plate as a single part



Width index	Part No. full set Strain relief at both ends + 4 mounting angles*	Part No. Mounting angle* (single part)	Part No. strain relief at both ends	Ba [mm]
020.	▶ E3.10.020.12	E3.10.00	E3.020.12	32
040.	▶ E3.10.040.12	E3.10.00	E3.040.12	52
060.	▶ E3.10.060.12	E3.10.00	E3.060.12	72

*Note: If the mounting brackets are used, two links each end must be added to the calculated e-chain® length, because the first two links are fixed by the mounting brackets.



Possible attachments options for assembled polymer mounting angles.

E3.10.060.12 Order example
 Full set
 width index
 Series



Part No. E3.10.XXX.12

Full set with strain relief at both ends.
2 tie-wrap plates + 4 mounting angles



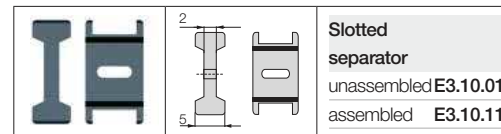
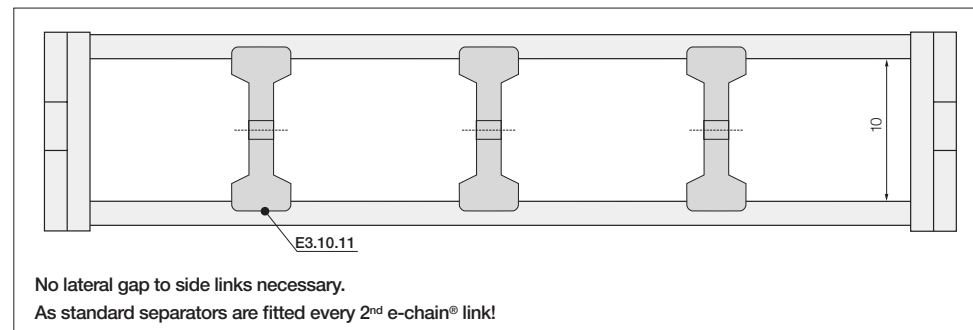
Part No. E3.10.00

Mounting angle as an individual part



Part No. E3.00.020

Tie-wrap plate as a single part



Slotted separator
 unassembled E3.10.01
 assembled E3.10.11

Slotted separator

Separators can be arranged at any position in the chain cross section to divide the interior of the e-chain®.



E3 e-chains® in optional white colour; ideal for cleanroom and medical applications, available upon request



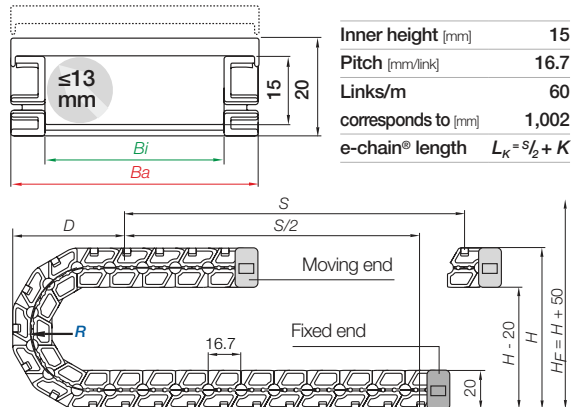
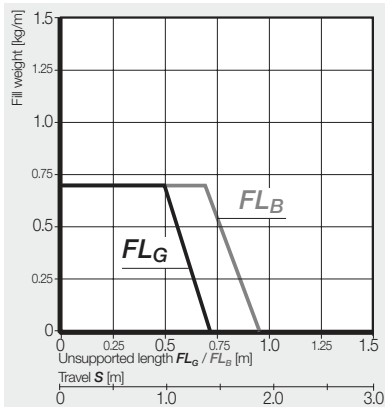
Image with plastic mounting bracket

e-chains® | Series E3.15 | Crossbars on a strip - zip-open along the outer radius

Part No.	Bi [mm]	Ba [mm]	R Available bend radii [mm]	E3.15 [kg/m]
E3.15.020 .R.0	20	32	032 - - -	≈ 0.22
E3.15.040 .R.0	40	52	032 038 048 075	≈ 0.25
E3.15.060 .R.0	60	72	032 038 048 075	≈ 0.32

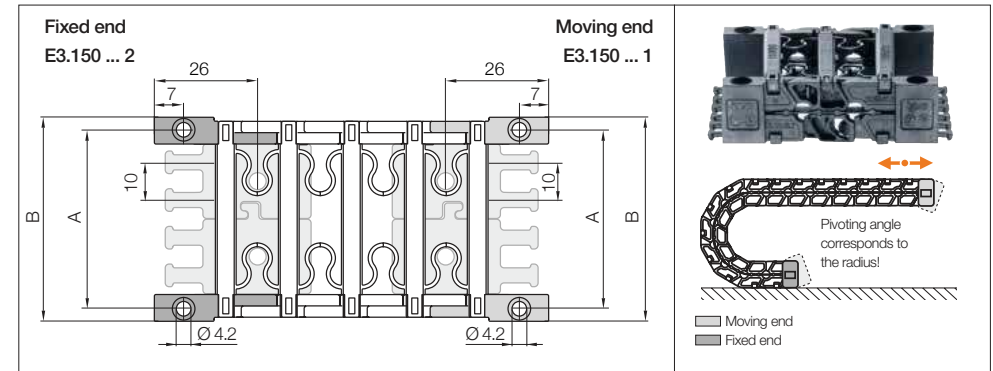
Complete Part No. with required radius (R). Example: E3.15.060.032.0

Installation dimensions

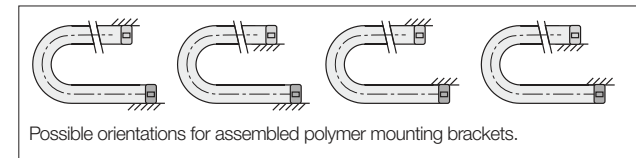


R	032	038	048	075
H	99	111	131	185
D	67	73	83	110
K	135	155	185	270

The required clearance height: $H_f = H + 50\text{mm}$ (with 0.2kg/m fill weight)



Width index	Part No. full set without tiewrap plates	A [mm]	B [mm]	Part No. strain relief at both ends
020.	E3.150.020.12	28	36	E3.020.12
040.	E3.150.040.12	48	56	E3.040.12
060.	E3.150.060.12	68	76	E3.060.12

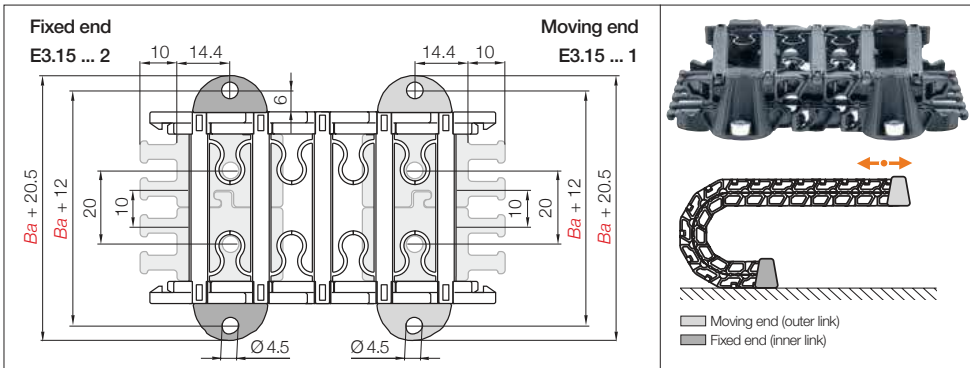


Possible orientations for assembled polymer mounting brackets.



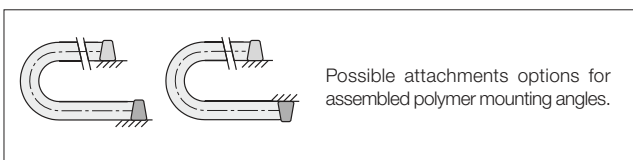
Part No. E3.150.XXX.12
Full set without strain relief. Tiewrap plates must be ordered separately.

Part No. E3.00.020
Tiewrap plate as a single part



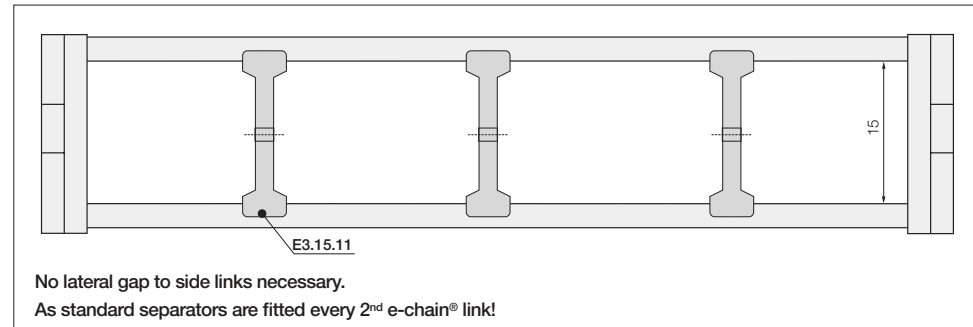
Width index	Part No. full set Strain relief at both ends + 4 mounting angles*	Part No. Mounting angle* (single part)	Part No. strain relief at both ends	Ba [mm]
020.	▶ E3.15.020.12	E3.15.00	E3.020.12	32
040.	▶ E3.15.040.12	E3.15.00	E3.040.12	52
060.	▶ E3.15.060.12	E3.15.00	E3.060.12	72

***Note:** If the mounting brackets are used, two links each end must be added to the calculated e-chain® length, because the first two links are fixed by the mounting brackets.



Possible attachments options for assembled polymer mounting angles.

E3.15.060.12 Order example
 Full set
 width index
 Series

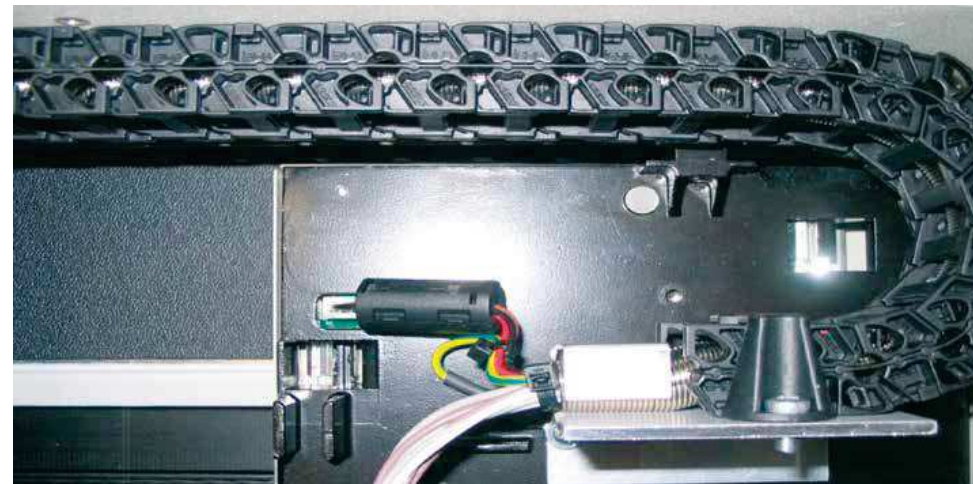


Slotted separator
 unassembled E3.15.01
 assembled E3.15.11

Slotted separator
on a strip
 unassembled E3.15.01.10
 assembled E3.15.11.10

Slotted separator
 Separators can be arranged at any position in the chain cross section to divide the interior of the e-chain®.

Slotted separator on a strip
 Five vertical separators altogether on one strip over ten e-chain® links are mounted on the openable crossbars. In this way separate chambers are formed, protecting the cables. Dimensions same as E3.15.01.



igus® E3 system, ideal for very small installation spaces as well as very low-noise operation



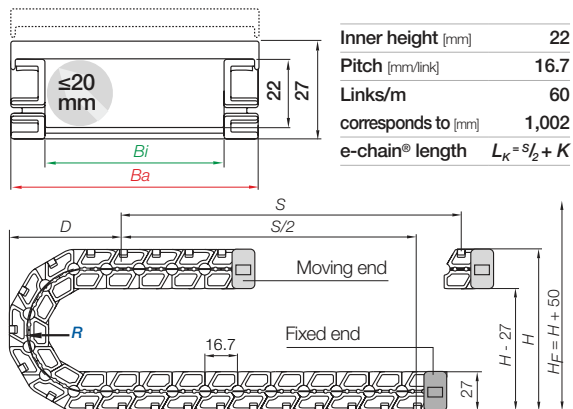
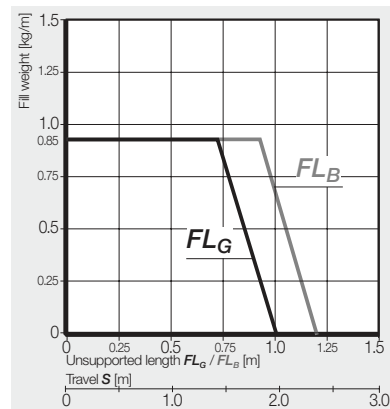
Image with plastic mounting bracket

e-chains® | Series E3.22 | Crossbars on a strip - zip-open along the outer radius

Part No.	Bi [mm]	Ba [mm]	R Available bend radii [mm]	E3.22 [kg/m]
E3.22.020 .R.0	20	32	044 050 075	≈ 0.30
E3.22.040 .R.0	40	52	044 050 075	≈ 0.32
E3.22.060 .R.0	60	72	044 - 075	≈ 0.41

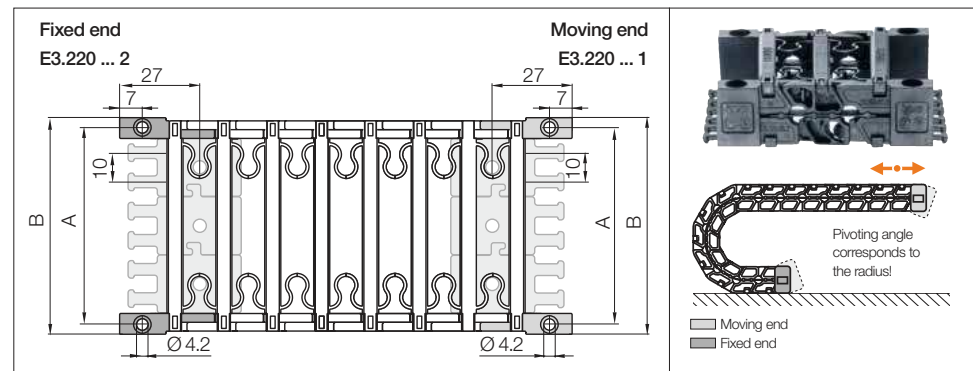
Complete Part No. with required radius (R). Example: E3.22.060.044.0

Installation dimensions

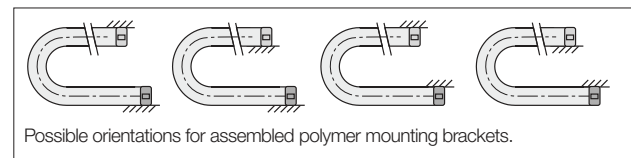


R	044	050	075
H	134	146	196
D	82	88	113
K	175	195	270

The required clearance height: $H_f = H + 50\text{mm}$ (with 0.3kg/m fill weight)



Width index	Part No. full set without tiewrap plates	A [mm]	B [mm]	Part No. strain relief at both ends
020.	E3.220.020.12	28	36	E3.020.12
040.	E3.220.040.12	48	56	E3.040.12
060.	E3.220.060.12	68	76	E3.060.12

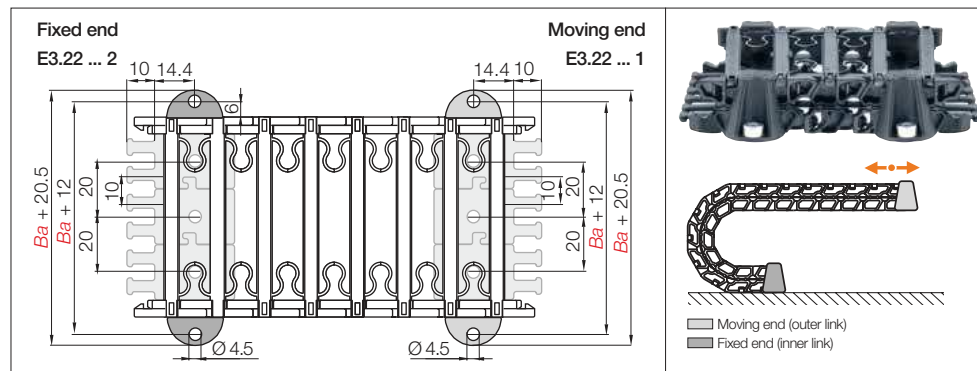


Possible orientations for assembled polymer mounting brackets.



Part No. E3.220.XXX.12
Full set without strain relief. Tiewrap plates must be ordered separately.

Part No. E3.00.020
Tiewrap plate as a single part

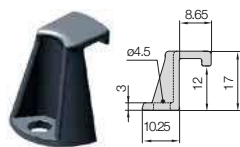


Width index	Part No. full set Strain relief at both ends + 4 mounting angles*	Part No. Mounting angle* (single part)	Part No. strain relief at both ends	Ba [mm]
020.	▶ E3.22.020.12	E3.22.00	E3.020.12	32
040.	▶ E3.22.040.12	E3.22.00	E3.040.12	52
060.	▶ E3.22.060.12	E3.22.00	E3.060.12	72

***Note:** If the mounting brackets are used, two links each end must be added to the calculated e-chain® length, because the first two links are fixed by the mounting brackets.



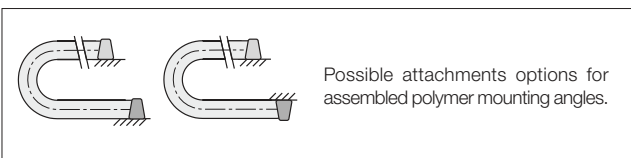
Part No. E3.22.XXX.12
Full set with strain relief at both ends.
2 tiwrap plates + 4 mounting angles



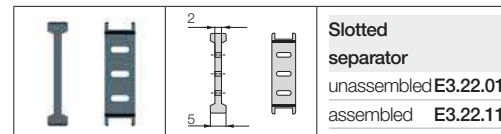
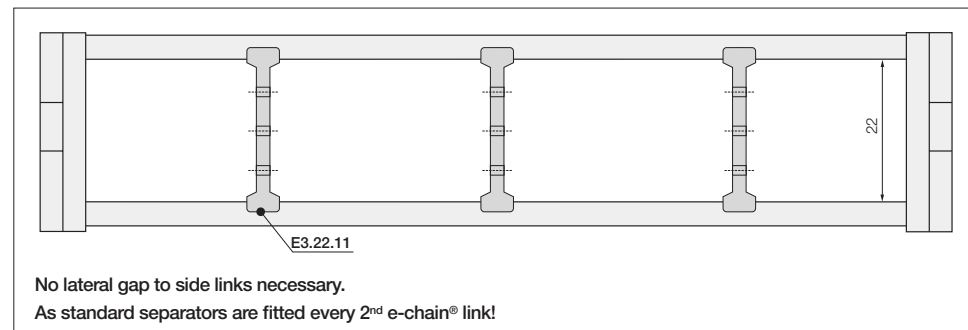
Part No. E3.22.00
Mounting angle as an individual part



Part No. E3.00.020
Tiwrap plate as a single part



E3.22.060.12 Order example
 Full set
 width index
 Series



Slotted separator
 Separators can be arranged at any position in the chain cross section to divide the interior of the e-chain®.



igus® series E3.15 side mounted as a low-abrasion guide for cables in a scanner system