



E4.1L

The best combination of strength and low weight

Moving energy made even easier - fast harnessing and time-less design



Advantages of the E4.1L system:

- 30% lighter and more cost-effective than the comparable E4.1
- Very cost-efficient: strong and light due to optimised e-chain® link design
- Ideal ratio of internal and external dimensions with thinner outer links and optimised crossbar geometry
- e-chains® and e-tubes openable along the inner and outer radius, from both sides
- Inside completely accessible for easy filling
- Very tightly fitting lids on the e-tubes, virtually no gaps or openings
- Also suitable for side-mounted, standing and hanging applications
- Lower weight, high strength and good dynamics



When to use another e-chain® series:

- For easy, tool-free opening and closing - the next generation of easy-to-assemble e-chains®
- ▶ **E4Q, page 580**
- When the e-chain® needs to be extremely quiet (32dB(A)) with very low vibration
- ▶ **E6.1, page 832**
- When the e-chain® should have a cleanroom ISO Class 1 classification
- ▶ **E6.1, page 832**
- If even higher strength is required
- ▶ **E4.1, page 616**



1) Approx. 50% time saving with lean interior separation compared to standard interior separation, tested in the IguS® laboratory

2) Approx. 80% time saving with CFU lean strain relief compared to charifix CFX, tested in the IguS® laboratory

3) Approx. 67% less assembly time with E4.48L compared to E4.42, tested in the IguS® laboratory

The best combination of strength and low weight - E4.1L

significantly reduce assembly and harnessing with the E4.1L(lean). Whether as an chain® or a chip-proof energy tube, with its sleek design and matching accessories the E4.1L brings maximum efficiency at a cost-effective price. An easily accessible interior, proved crossbars and separators and the honeycomb strain relief system result in 80% faster installation. Easily adaptable to any application due to the modular design, this universal solution makes optimal use of space, is lighter than the alternatives and extremely strong. A cable-friendly interior ensures a long service life for the cables. The E4.1L reduces downtime and the assembly and maintenance time whilst saving time and money in operation and acquisition.

Industrial industries and applications

Machine tools ● General mechanical engineering ● If the strength of the E2/000 is sufficient, but an E4.1 is oversized

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 $\leq$ [m]	Page
 e-chains® with crossbars every link the lightweight all-rounder - even for demanding applications Please observe the guidelines for the e-chains® selection, further information ► From page 114							
E4.31L	311	40 - 175	54 - 189	42	055 - 250	2.00	548
E4.38L	38	50 - 300	66 - 316	54	063 - 300	2.75	554
E4.48L	48	50 - 300	70 - 320	64	075 - 350	3.75	562
E4.64L	64	75 - 350	101 - 376	84	100 - 400	4.00	572
 e-tubes lightweight, fully enclosed, excellent cable protection Please observe the guidelines for the e-chains® selection, further information ► From page 114							
R4.31L	31	50 - 100	64 - 114	42	075 - 250	2.00	548
R4.38L	38	50 - 250	66 - 266	54	125 - 300	2.75	554
R4.48L	48	50 - 250	70 - 270	64	125 - 350	3.75	562



Available from stock. Ready to ship in 24 - 48hrs. *
*Average time before the ordered goods are dispatched.



What does "Lean" mean in the E4.1L system?

Making a system "lean" means that its individual components are ideally matched to each other, making it more optimised. The aim is to avoid waste and increase efficiency. This is achieved in two ways: from the customer's point of view in order to fulfil their requirements, and from the producer's point of view in order to improve productivity and efficiency. igus® implements these lean properties in its energy supply systems in order to make time-saving e-chain® assembly possible, while also enabling quick and easy harnessing with cables.



ily fast



Extension links - for extremely wide e-chains® up to 2.0m with 50% more fill weight



Aluminium and steel support tray for support of the lower run ► **From page 1362**

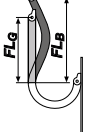


Technical data



Speed gliding¹⁾ / acceleration gliding¹⁾

≤ 5 [m/s] / ≤ 25 [m/s²]



Speed **FL_G** / acceleration **FL_G**

≤ 20 [m/s] / ≤ 200 [m/s²]

Speed **FL_B** / acceleration **FL_B**

≤ 3 [m/s] / ≤ 6 [m/s²]



Material - permitted temperature °C, igumid G

-40°C / +120°C



Flammability class, igumid G

VDE 0304 IIC UL94-HB

■ **FL_G** = unsupported with straight upper run ■ **FL_B** = unsupported with permitted sag
1) Series E4.31L / R4.31L: If a gliding application is required for a long travel, please consult igus®.

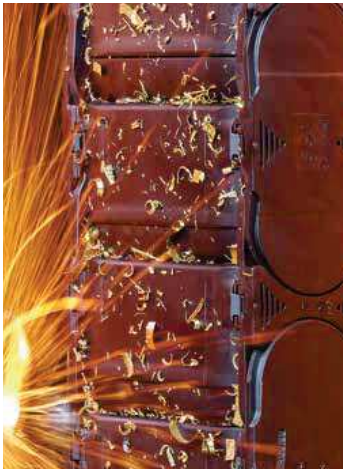
Installation types, maximum travels

Series	 Unsupported	 Vertical hanging (elastyn)	 Vertical standing	 Side mounted unsupported
E4.31L / R4.31L	≤ 4.0m	upon request	≤ 2.5m	≤ 0.6m
E4.38L / R4.38L	≤ 5.5m	≤ 80m	≤ 3.0m	≤ 1.0m
E4.48L / R4.48L	≤ 7.5m	≤ 100m	≤ 3.0m	≤ 1.2m
E4.64L	≤ 4.0m	upon request	≤ 8.0m	≤ 2.0m

1) Series E4.31L / R4.31L: If a gliding application is required for a long travel, please consult igus®.



Swarf test in the igus® lab - protection demonstrated in this test setup; stop-dogs completely free of swarf



The light and fully enclosed R4.1 L e-tubes from igus® are now available in a high-temperature version

igus 3D CAD, configurators, service life calculation and more ► www.igus.eu/lean



Lean interior separation vs.
standard interior separation - time
saving due to easy shelf fitting



Time-saving lean separators

- The design of the igus® lean separators allows extremely fast fitting of shelves in several layers
- Enable extremely fast replacement of individual cables in a very full e-chain®
- Several layers of cables fitted quickly
- Save up to 50%* assembly time

*Lean interior separation vs. standard interior separation. Measured on a 4m long e-chain® fitted with 12 cables in the igus® lab

▲ **approx. 50% time saving**



CFU.V strain relief with innovative honeycomb design for fast assembly and high holding force

- 80%* faster filling, operable from both sides for assembly in seconds
- Flexible honeycomb design for increased holding force
- Tribologically optimised honeycomb design for the best hold
- Different cables with diameters from 2mm to 17mm can be strain-relieved without problems
- Cables can be replaced easily
- Easy positioning of cables

*Lean strain relief CFU vs. chainfix CFX. Measured on a 4m long e-chain® fitted with 12 cables in the igus® lab

▲ **approx. 80% time saving**



Lean strain relief CFU vs. chainfix
CFX - time-saving due to the
innovative honeycomb structure

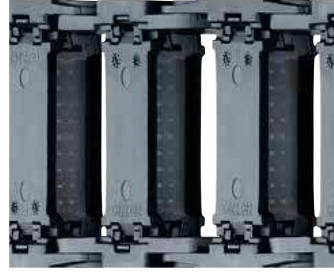


E4.1L - fast to harness

- With one of igus® fastest opening systems for simple e-chains® harnessing
- Save up to 67%* assembly time
- Lower weight, cable-friendly interior and improved ratio of inner to outer size
- Easy accessibility of the complete inner space, openable from both sides

*Series E4.48L vs. E4.42. Assembly time tested at the igus® lab

▲ **approx. 67% time saving**



Serie E4.48L vs. E4.42 - time-saving
due to easy opening mechanism

igus

igus 3D CAD, configurators, service life calculation and more ► www.igus.eu/lean

Series E4.38L/R4.38L

Free Bend
(RBR) for
movements
+25% possible

	Part No. XXL material	
100.R1/R2.0	E4.38L.100.R.0.XXL	e-chain® with crossbars every link ¹⁾

tubes - suit igus®	R4.38L.100.R.0.XXL	e-tube, closed ¹⁾
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Ready to ship
business days*
Ready to ship
in 12 business days*

ESD - electrically
conductive
material

Part No. igumid ESD	
E4.38L.100.R.0.ESD	e-chain® with crossbars every link

R4.38L.100.R.0.ESD	e-tube, closed
--------------------	----------------

Ready to ship
in 12 business days*

Order key and colour examples | Examples based on series E4.38L/R.4.38L

Order key		E4.38L.100.150.0		Order index for colour options	
e-chain® with crossbars every link		R4.38L.100.150.0		Colour	
e-tube fully enclosed				Order index	
Series / Type		Black		Standard	
Inner height		Silver-grey		Special colour	
Width index (depends on B)		White		Special colour	
Bend radius R		Grey-white		Special colour	
Colour index (standard black)		.0		Orange	
		.31		Yellow	
		.1		Light grey	
		.1S		Special colour	
				Black e-chains® ready to ship in 24 - 48hrs.*	
				Above special colours upon request.	

Order key	E4.38L.100.150.0
Links: 1.0m or 18 links	E4.38L.100.150.0
C-profiles	E4.380.100.1.12.C
2 x 38.1.1	2 x 38.1.1



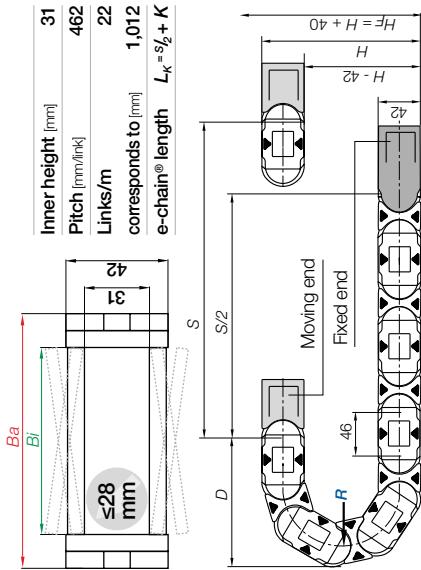
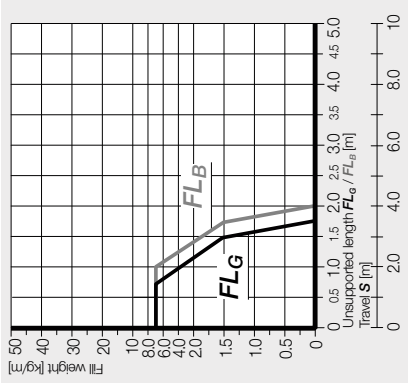
igus 3D CAD, configurators, service life calculation and more ► www.igus.eu/lean



inner and outer radius, from both sides)
and outer radius, from both sides)

Part No.	B <i>i</i>	B <i>a</i>	E4.31L	R4.31L
e-tubes	[mm]	[mm]	[kg/m]	[kg/m]
R.0	R4.31L.125.R.0**	125 139	≈ 0.96	≈ 1.26
R.0**	–	137 151	≈ 0.98	–
R.0	R4.31L.150.R.0**	150 164	≈ 1.00	≈ 1.40
R.0	–	162 176	≈ 1.04	–
R.0	R4.31L.175.R.0**	175 189	≈ 1.13	≈ 1.55
R.0**	–	187 201	≈ 1.17	–
R.0**	R4.31L.200.R.0**	200 214	≈ 1.17	≈ 1.68

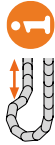
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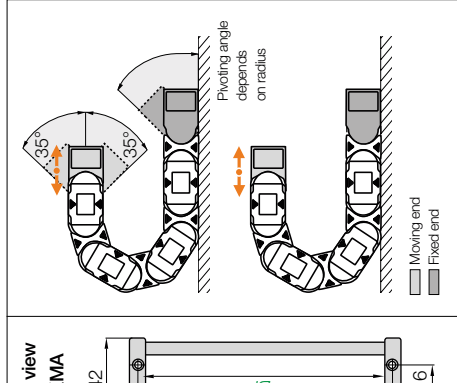
R	055 ¹⁾	063 ¹⁾	075	100	125	150	175	200	250
H	15.2	168	192	242	292	34.2	392	44.2	542
D	145	153	165	190	215	240	265	290	340
K	265	290	330	410	485	565	645	725	880

The required clearance height: $H_F = H + 40\text{mm}$ (with 1.0kg/m fill weight)

1) Radius not available for e-tubes



If a gliding application is required for
a long travel, please consult igus®.



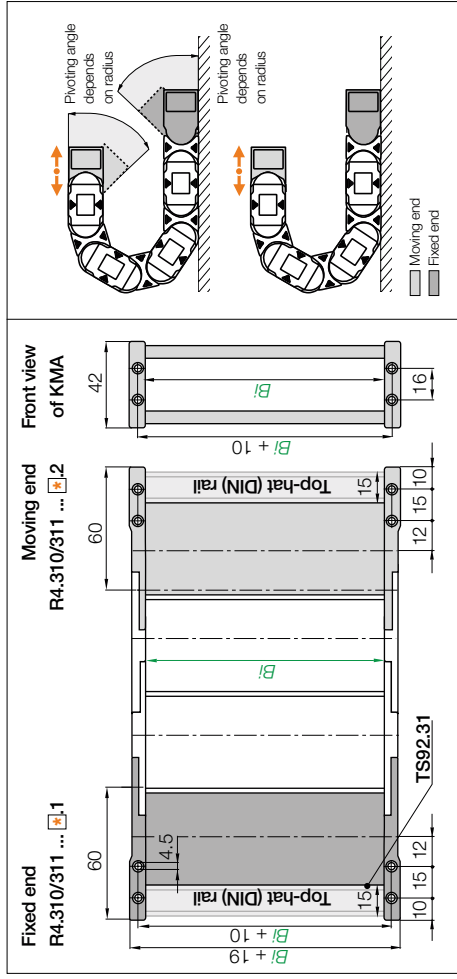
gliding applications and standing applications

art No. full set	MA pivoting	Part No. full set	Bi
4.310.125	12.C	E4.311.125	125
4.310.137	12.C*	E4.311.137	137
4.310.150	12.C	E4.311.150	150
4.310.162	12.C	E4.311.162	162
4.310.175	12.C	E4.311.175	175
4.310.187	12.C*	E4.311.187	187
4.310.200	12.C*	E4.311.200	200

For long travel, please consult iaus®.



eu/R4.31L



KMA pivoting	Recommended for unsupported and gliding applications
KMA locking	Recommended for vertical hanging and standing applications

<i>Bi</i>	<i>Bi</i> [mm]	Part No. full set	Part No. full set	Width index	<i>Bi</i> [mm]	Part No. full set	Part No. full set	Width index	<i>Bi</i> [mm]
		KMA pivoting	KMA locking			KMA pivoting	KMA locking		
	150	R4.310.050	R4.311.050	150. ▲	050	R4.310.150	R4.311.150	150. ▲	150
	175	R4.310.075	R4.311.075	175. ▲	075	R4.310.175	R4.311.175	175. ▲	175
	200	R4.310.100	R4.311.100	200. ▲	100	R4.310.200	R4.311.200	200. ▲	200
	125	R4.310.125	R4.311.125	125. ▲	125	R4.310.125	R4.311.125	125. ▲	125

(KVA = polymer metal mounting bracket) For the TS92.31 top-hat (DIN) rail option please add index **C**

*Width available upon request. **Note:** If a gliding application is required for a long travel, please consult igus®.

Note:  The e-chains® may end with either an inner or an outer side link. An outer side link should always be the first e-chain® link at the moving end. Please specify the index  (for odd) or  (for even) depending on an even or odd number of links required.

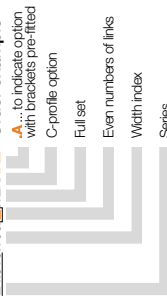


Telefon: +420 416 711 333
E-mail: lin-tech@hennlich.cz

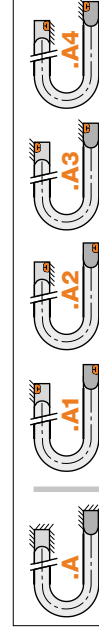
www.hennlich.cz/lin-tech

 **Strain relief** e.g. clamps, tie-wrap plates, nuggets and clips are available from stock. The complete chainfix range with ordering options ► From page 1392

E4.310.100.2.12.C.A2



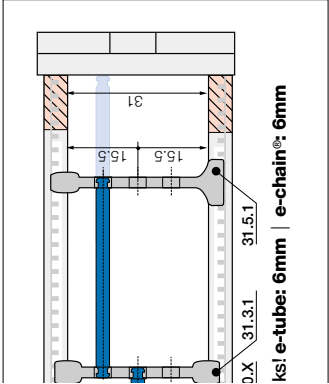
Possible orientations for KWA mounting brackets. For mounting brackets pre-fitted **without C-profile**, please attach index **A**. For types pre-fitted **with C-profile**, please attach index **A1**, **A2**, **A3** or **A4**.



Strain relief e.g. clamps, tiewrap plates, nuggets and clips are available from stock. The complete chainfix range with ordering options ► From page 1392

igus 3D CAD, configurators, service life calculation and more ► www.igus.eu/E4.1L

551



ard - for any application
or with a wide base for maximum holding force.

en faster installation
one side for high holding force, narrow on opposite
easy cable fitting.

all cables
or with a narrow base for a large number of small
side by side. Saves space.

securely in preset increments
separator for exact positioning.
needed for side-mounted applications.

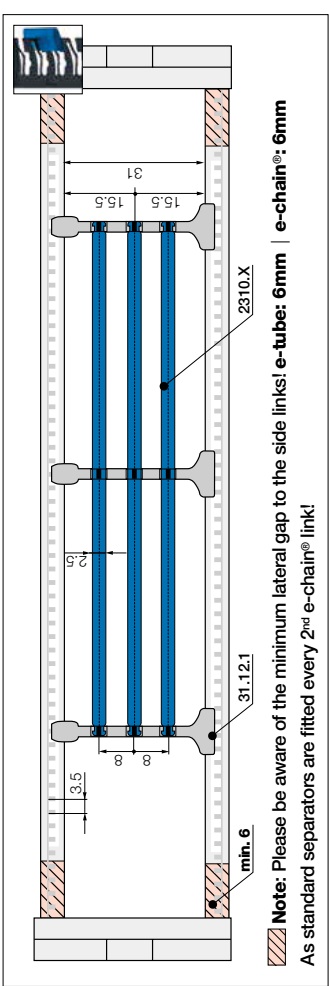
ntal separation
h shelf locks securely into separators at both ends,
fixed width. Can be used as full-width or partial shelf.

	assembled	X (mm)	unassembled	assembled
2310.060	087	2300.87	2310.087	
2310.062	090	2300.90	2310.090	
2310.065	100	2300.100	2310.100	
2310.070	103	2300.103	2310.103	
2310.075	110	2300.110	2310.110	
2310.077	120	2300.120	2310.120	
2310.080	125	2300.125	2310.125	

eu/R4.31L



igus 3D CAD, configurators, service life calculation and more ► www.igus.eu/E4.1L



Lean separators¹⁾
For quick fitting of shelves in several layers.
1) Note: Please combine maximum 4 lean separators with one shelf. Not suitable for side-mounted e-chains!

Lean separator ¹⁾	31.12
unassembled	31.12.1
assembled	31.12.1

With the lean separator you can quickly insert several layers of cables into the e-chain® and reduce the installation time by up to 50%²⁾.
2) Lean interior separation vs. Standard separator - measured on a 4m long e-chain® fitted with 12 cables in the igus® readychain® factory

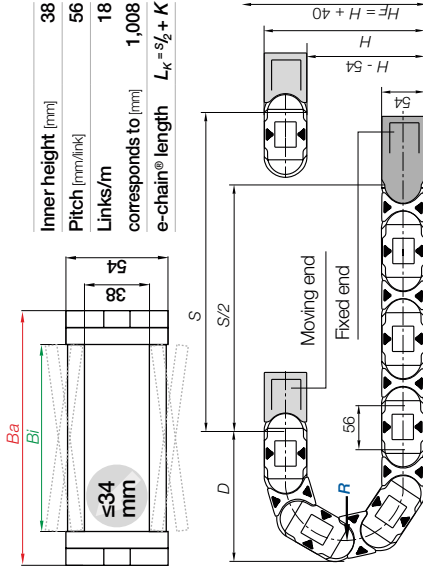
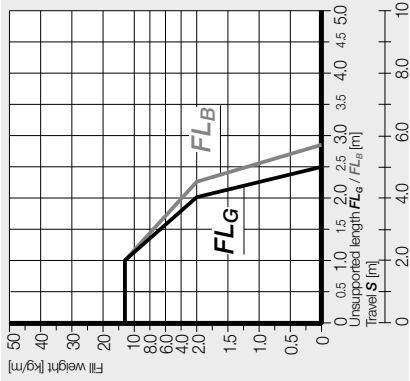
Separator with integrated strain relief teeth
● Can be integrated into the mounting bracket or placed at any point
● Combines strain relief and interior separation, for restricted space conditions
● Strain relief separator is easy to assemble without any screws
Part No. 31.Z - more information ► From page 1424

Aluminium support tray
● Corrosion-resistant and seawater-resistant aluminium rails with adjustable width
● Noise-reducing glide strip integrated as standard
● Easy installation and connection of the e-tube
● Open design - dirt and debris fall through
More information ► From page 1362



inner and outer radius, from both sides)
and outer radius, from both sides)

Part No. e-tubes	Bi [mm]	Ba [mm]	E4.38L [kg/m]	R4.38L [kg/m]
R.0	225	241	≈ 1,97	–
R.0	237	253	≈ 2,05	–
R.0	R4.38L 250.R.0	250 266	≈ 2,11	≈ 2,65
R.0	262	278	≈ 2,15	–
R.0**	275	291	≈ 2,22	–
R.0**	287	303	≈ 2,30	–
R.0	R4.38L 300.R.0**	300 316	≈ 2,36	≈ 3,00
R.0**	312	328	≈ 2,40	–
R.0**	325	341	≈ 2,47	–
R.0**	337	353	≈ 2,55	–
R.0**	350	366	≈ 2,57	–
R.0**	362	378	≈ 2,60	–
R.0**	375	391	≈ 2,65	–
R.0**	387	403	≈ 2,76	–
R.0**	400	416	≈ 2,83	–

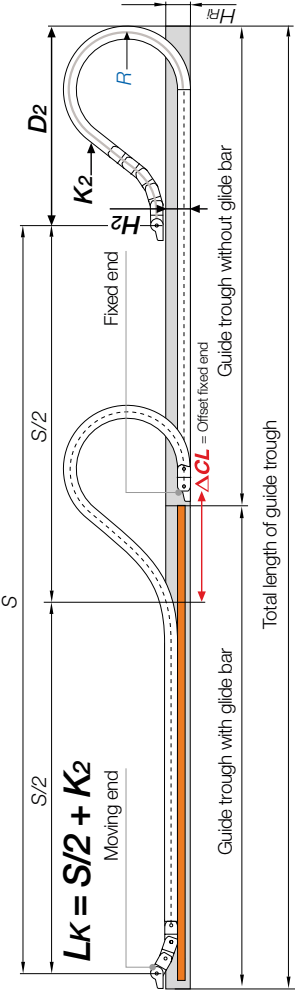


R	063 ¹⁾	075 ¹⁾	100 ¹⁾	125	150	175	200	250	300	350*
H	180	204	254	304	354	404	454	554	654	754
D	174	186	211	236	261	286	311	361	411	461
K	310	350	430	505	585	665	745	900	1,055	1,215

The required clearance height: $H_f = H + 40\text{mm}$ (with 2.0kg/m fill weight)

*Radius available upon request. Please consult igus® for delivery time. 1) Radius not available for e-tubes

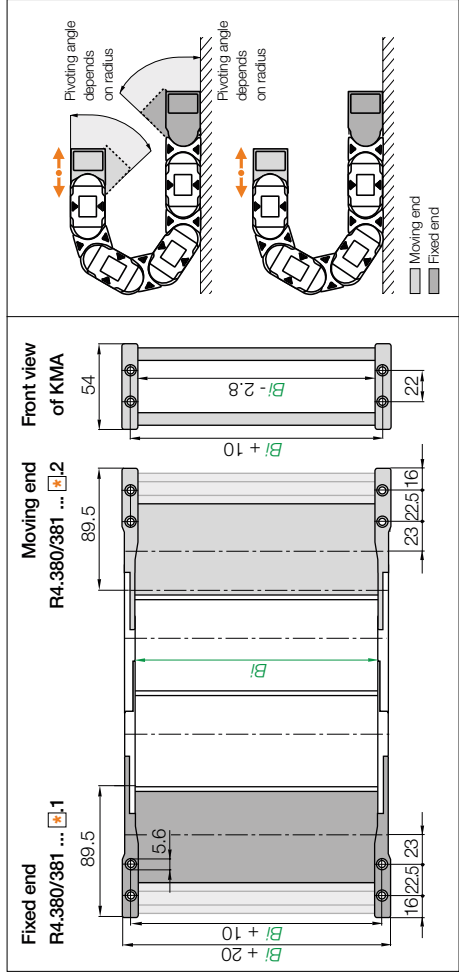
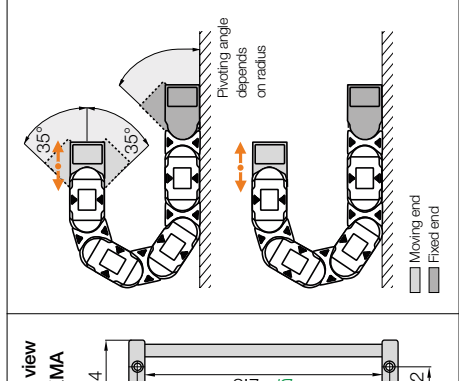
Gliding applications | For travel lengths from 10m to max. 80m



Note: We recommend the project planning of such a system to be carried out by igus®.
In case of travels between 5 and 10m we recommend an e-chain® with a longer unsupported length.

R	063 ¹⁾	075 ¹⁾	100 ¹⁾	125	150	175	200	250 ²⁾	300 ²⁾	350 ²⁾
H ₂	180	204	96	96	96	96	96	–	–	–
D ₂	174	186	370	470	500	655	770	–	–	–
K ₂	310	350	616	784	896	1,120	1,288	–	–	–
ΔCL	–	–	160	210	240	370	460	–	–	–

1) Radius not available for e-tubes 2) Radius not suitable for long travel applications. Please consult igus®.



gliding applications and standing applications

Part No. full set	Part No. full set	Bi
MA pivoting	KMA locking	[mm]
4.380.225.12 C	E4.381.225.12 C	225
4.380.237.12 C	E4.381.237.12 C	237
4.380.250.12 C	E4.381.250.12 C	250
4.380.262.12 C	E4.381.262.12 C	262
4.380.275.12 C*	E4.381.275.12 C*	275
4.380.287.12 C*	E4.381.287.12 C*	287
4.380.300.12 C	E4.381.300.12 C	300
4.380.312.12 C*	E4.381.312.12 C*	312
4.380.325.12 C*	E4.381.325.12 C*	325
4.380.337.12 C*	E4.381.337.12 C*	337
4.380.350.12 C*	E4.381.350.12 C*	350
4.380.362.12 C*	E4.381.362.12 C*	362
4.380.375.12 C*	E4.381.375.12 C*	375
4.380.387.12 C*	E4.381.387.12 C*	387
4.380.400.12 C*	E4.381.400.12 C*	400

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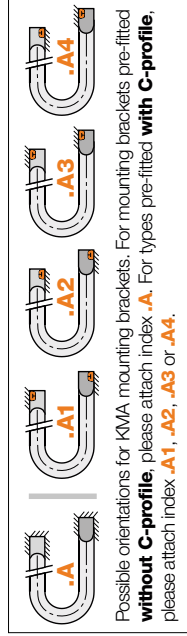
KMA pivoting | Recommended for unsupported and gliding applications KMA locking | Recommended for vertical hanging and standing applications

Width index	Part No. full set	Bi	Width index	Part No. full set	Bi
	KMA pivoting	[mm]		KMA locking	[mm]
050	R4.380.050.12 C	050	175	R4.381.175.12 C	175
075	R4.380.075.12 C	075	200	R4.381.200.12 C	200
100	R4.380.100.12 C	100	250	R4.381.250.12 C	250
125	R4.380.125.12 C	125	300	R4.381.300.12 C*	300
150	R4.380.150.12 C	150			

(KMA = polymer metal mounting bracket) For the C-profile option please add index **.C**

*Width available upon request. Delivery time upon request.

Note: The e-chains® may end with either an inner or an outer side link. An outer side link should always be the first e-chain® link at the moving end. Please specify the index **1** (for odd) or **2** (for even) depending on an even or odd number of links required.



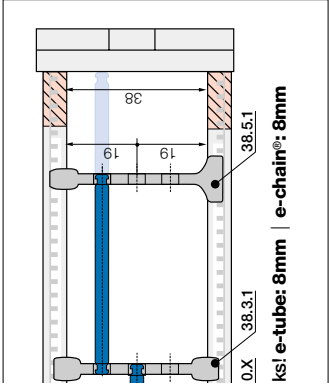
Strain relief e.g. clamps, tie-wrap plates, nuggets and clips are available from stock. The complete chainfix range with ordering options ▶ From page 1392

eu/R4.38L



igus 3D CAD, configurators, service life calculation and more ▶ www.igus.eu/E4.1L

557



ard - for any application

or with a wide base for maximum holding force.

en faster installation

one side for high holding force, narrow on opposite
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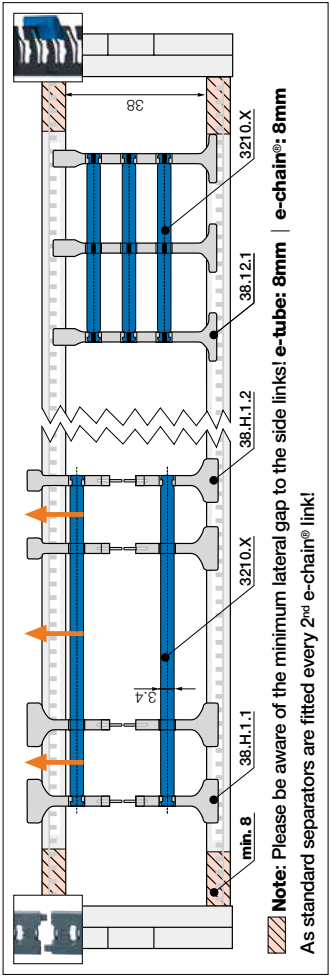
h shelf locks securely into separators at both ends,
ixed width. Can be used as full-width or partial shelf.

assembled	X [mm]	unassembled	assembled
3210.125	225	3200.225	3210.225
3210.150	250	3200.250	3210.250
3210.175			
3210.200			

eu/R4.38L

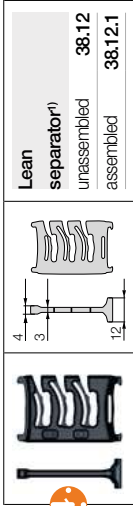
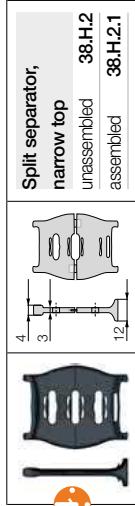
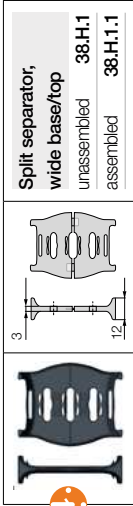


igus 3D CAD, configurators, service life calculation and more ► www.igus.eu/E4.1L



Split separators

In order to fill e-chains® more easily and effectively, these
separators can be split in the middle. This allows easier
access to middle shelf partitions. Fast assembly and easy
retrofit. 2 types available: with wide or narrow top.



Lean separators¹⁾

For quick fitting of shelves in several layers.

**1) Note: Please combine maximum 4 lean separators with one
shelf. Not suitable for side-mounted e-chains®!**

With the lean separator you can quickly insert several layers
of cables into the e-chain® and reduce the installation time by
up to 50% ²⁾.

²⁾ Lean interior separation vs. Standard separator - measured on a 4m long e-chain® fitted
with 12 cables in the igus® readychain® factory

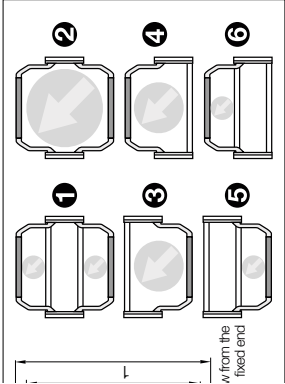


Separator with integrated strain relief teeth

- Can be integrated into the mounting bracket or placed at any point
- Combines strain relief and interior separation, for restricted space conditions
- Strain relief separator is easy to assemble without any screws

Part No. 38.Z - more information ► From page 1424





for large hoses

tations

Hose Ø ≤ [mm]	Part No. e-chain® with extender crossbar
34	E4.38L.XXXHB48.R.0
122	E4.38L.XXXB48.R.0
78	E4.38L.XXXBE48.R.0
78	E4.38L.XXXBZ48.R.0
34	E4.38L.XXXHBE48.R.0
34	E4.38L.XXXHBZ48.R.0

available upon request. Delivery time upon request

287*1 300 1312*1 325*1 337*1 350*1 362*1 375*1 387*1 400*1

s (R). Example:

inner and outer radius / bend radius (R) 150

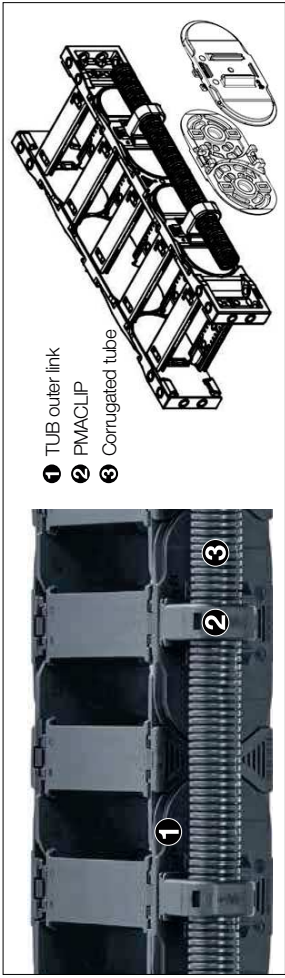


The E4.1L can be fitted with openable extender crossbars, which increase the size of the interior of the e-chain®. Crossbars can be fitted in various ways: from one or both sides, alternating with standard crossbars and or any combination



width

eu/R4.38L



TUB | Safe guidance for corrugated tubes parallel to the e-chain®

- Additional, simple guidance for corrugated tubes on the outside of the e-chain®
- PMAClip support to be easily clipped on corrugated tubes with nominal widths 07, 10, 12, 17mm
- Easy access to the corrugated tubes, fast replacement of the hoses
- Reduce assembly time and cost - easy to assemble, without any additional screws or tools
- The part number includes the e-chain® with TUB side sections; the PMAClip support and the hose are ordered separately

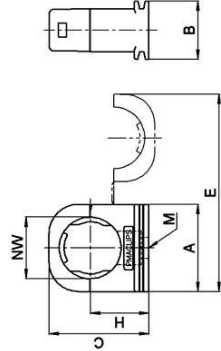
Part No. TUB	Part No. TUB	Part No. TUB	For corrugated tube nominal diameter
Outer link right*	Outer link left*	Outer link at both ends*	Ø [mm]
E4.38L.XXXTUBR.R.0	E4.38L.XXXTUBL.R.0	E4.38L.XXXTUB.R.0	07 / 10 / 12 / 17

*As viewed from the fixed end

Complete Part No. with the width index XXX of B1 and the minimum bend radius (R). Example:

E4.38L.100TUBR.150.0 = with TUB outer sections every 2nd right hand link

Product range | PMAClip | Support, one-piece, with safety clip

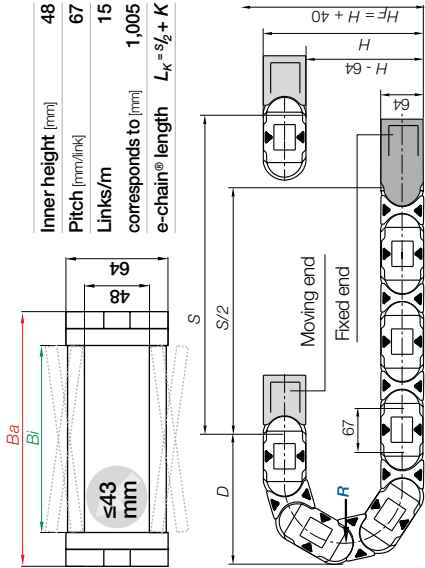


PMAClip support - one-piece construction with safety clip, suitable for corrugated tubes

Part No. PMAClip	NW Ø [mm]	A mm	B mm	C mm	H mm	E mm	M mm
I-BFH-07-0	07	17.0	20.0	21.5	13.5	40.5	M4
I-BFH-10-0	10	20.5	20.0	24.5	15.5	47.5	M5
I-BFH-12-0	12	24.0	20.0	27.0	16.5	54.5	M5
I-BFH-17-0	17	30.0	20.0	34.0	20.0	68.0	M6



inner and outer radius, from both sides)
and outer radius, from both sides)



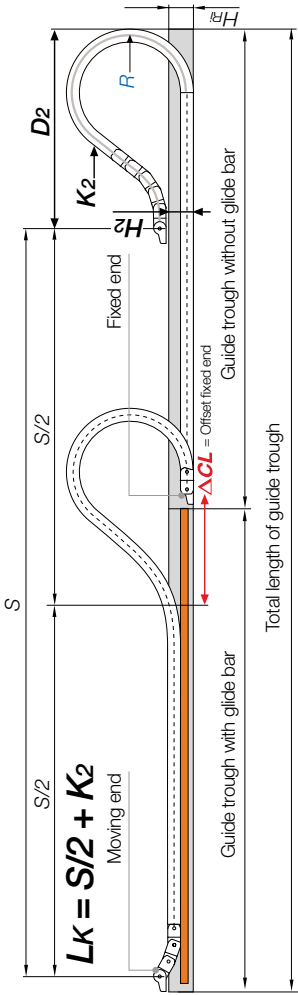
Part No.	Bi	Ba	E4.48L	R4.48L
e-tubes	[mm]	[mm]	[kg/m]	[kg/m]
R.0	R4.48L 225.R.0	225 245	≈ 2.24	≈ 2.97
R.0		237 257	≈ 2.30	—
R.0	R4.48L 250.R.0	250 270	≈ 2.35	≈ 3.08
R.0		262 282	≈ 2.39	—
R.0**		275 295	≈ 2.45	—
R.0**		287 307	≈ 2.51	—
R.0	R4.48L 300.R.0**	300 320	≈ 2.56	≈ 3.42
R.0**		312 332	≈ 2.60	—
R.0**		325 345	≈ 2.66	—
R.0**		337 357	≈ 2.72	—
R.0**		350 370	≈ 2.74	—
R.0**		362 382	≈ 2.77	—
R.0**		375 395	≈ 2.81	—
R.0**		387 407	≈ 2.90	—
R.0**		400 420	≈ 2.96	—

R	075 ¹⁾	100 ¹⁾	125	150	175	200	250	300	350
H	214	264	314	364	414	464	564	664	764
D	208	233	258	283	308	333	383	433	483
K	370	450	530	610	685	765	920	1,080	1,235

The required clearance height: $H_f = H + 40\text{mm}$ (with 2.5kg/m fill weight)

1) Radius not available for e-tubes

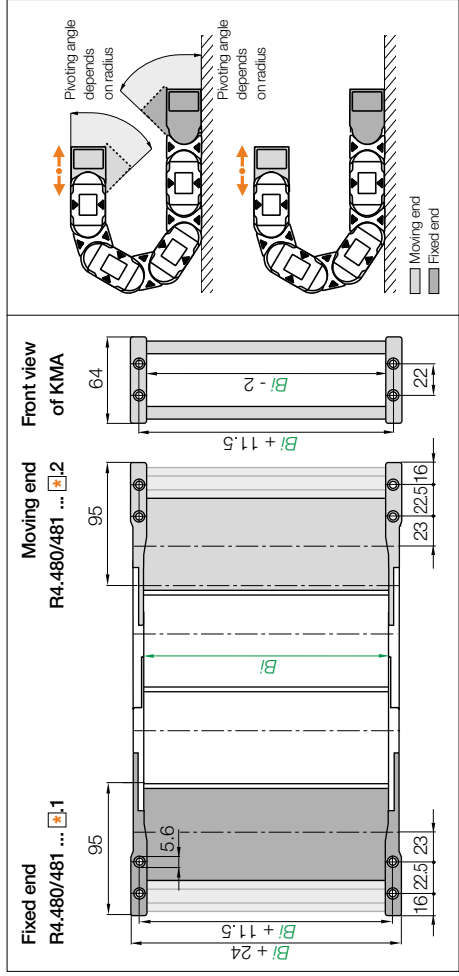
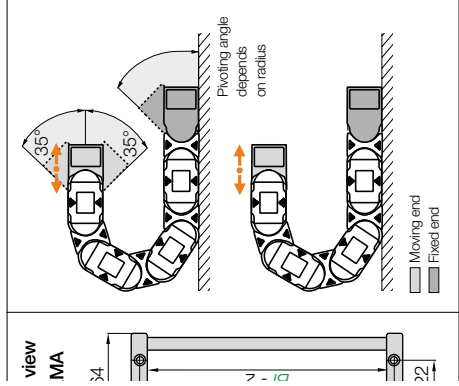
Gliding applications | For travel lengths from 10m to max. 100m



Note: We recommend the project planning of such a system to be carried out by igus®.
In case of travels between 5 and 10m we recommend an e-chain® with a longer unsupported length.

R	075 ¹⁾	100 ¹⁾	125	150	175	200	250	300 ²⁾	350 ²⁾
H ₂	214	264	106	106	106	106	106	—	—
D ₂	208	233	475	570	670	780	1,030	—	—
K ₂	370	450	804	938	1,139	1,340	1,675	—	—
ΔCL	—	—	230	300	380	460	660	—	—

1) Radius not available for e-tubes 2) Radius not suitable for long travel applications. Please consult igus®.



gliding applications and standing applications

Part No. full set	Part No. full set	Bi
MA pivoting	KMA locking	[mm]
4.480.225.12 C	E4.481.225.12 C	225
4.480.237.12 C	E4.481.237.12 C	237
4.480.250.12 C	E4.481.250.12 C	250
4.480.262.12 C	E4.481.262.12 C	262
4.480.275.12 C*	E4.481.275.12 C*	275
4.480.287.12 C*	E4.481.287.12 C*	287
4.480.300.12 C	E4.481.300.12 C	300
4.480.312.12 C*	E4.481.312.12 C*	312
4.480.325.12 C*	E4.481.325.12 C*	325
4.480.337.12 C*	E4.481.337.12 C*	337
4.480.350.12 C*	E4.481.350.12 C*	350
4.480.362.12 C*	E4.481.362.12 C*	362
4.480.375.12 C*	E4.481.375.12 C*	375
4.480.387.12 C*	E4.481.387.12 C*	387
4.480.400.12 C*	E4.481.400.12 C*	400

KMA pivoting | Recommended for unsupported and gliding applications KMA locking | Recommended for vertical hanging and standing applications

Width index	Part No. full set	Bi	Width index	Part No. full set	Bi
	KMA pivoting	[mm]		KMA locking	[mm]
050	R4.480.050.12 C	050	150	R4.481.150.12 C	150
062	R4.480.062.12 C	062	175	R4.481.175.12 C	175
075	R4.480.075.12 C	075	200	R4.481.200.12 C	225
087	R4.480.087.12 C*	087	225	R4.481.225.12 C*	200
100	R4.480.100.12 C	100	250	R4.481.250.12 C	250
112	R4.480.112.12 C	112	300	R4.481.300.12 C*	300
125	R4.480.125.12 C	125			

(KMA = polymer metal mounting bracket) For the C-profile option please add index .C

*Width available upon request. Delivery time upon request.

Note: The e-chains® may end with either an inner or an outer side link. An outer side link should always be the first e-chain® link at the moving end. Please specify the index 1 (for odd) or 2 (for even) depending on an even or odd number of links required.



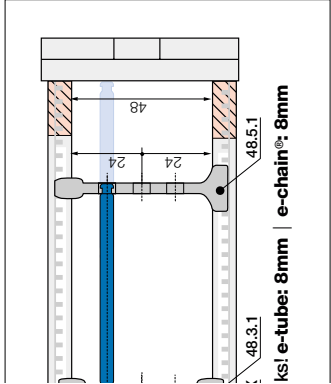
Strain relief e.g. clamps, tie-wrap plates, nuggets and clips are available from stock. The complete chainfix range with ordering options ▶ From page 1392

eu/R4.48L



igus 3D CAD, configurators, service life calculation and more ▶ www.igus.eu/E4.1L

565



ard - for any application

or with a wide base for maximum holding force.

en faster installation

one side for high holding force, narrow on opposite
easy cable fitting.

all cables

or with a narrow base for a large number of small
side by side. Saves space.

securely in preset increments

separator for exact positioning.
needed for side-mounted applications.

ntal separation

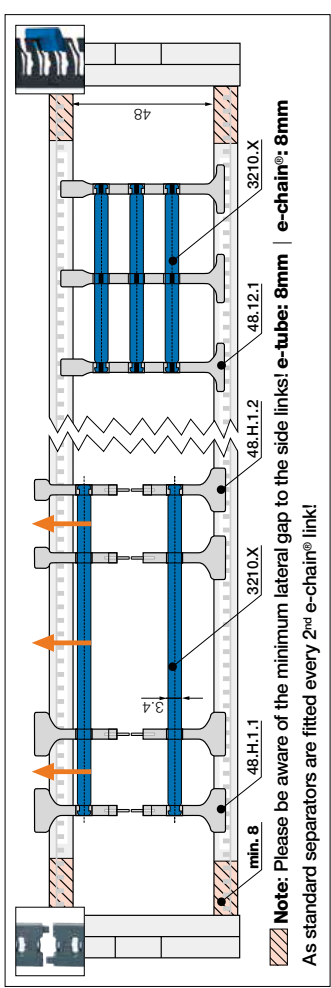
h shelf locks securely into separators at both ends,
fixed width. Can be used as full-width or partial shelf.

assembled	X (mm)	unassembled	assembled
3210.125	225	3200.225	3210.225
3210.150	250	3200.250	3210.250
3210.175			
3210.200			

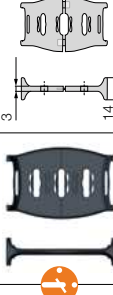
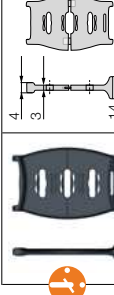
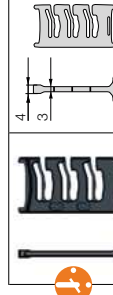
eu/R4.48L



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Note: Please be aware of the minimum lateral gap to the side links! e-tube: 8mm | e-chain®: 8mm
As standard separators are fitted every 2nd e-chain® link!

		Split separator, wide base/top unassembled 48.H.1 assembled 48.H.1.1
		Split separator, narrow top unassembled 48.H.2 assembled 48.H.2.1
		Lean separator¹⁾ unassembled 48.12 assembled 48.12.1

Split separators

In order to fill e-chains® more easily and effectively, these
separators can be split in the middle. This allows easier
access to middle shelf partitions. Fast assembly and easy
retrofit. 2 types available: with wide or narrow top.

Lean separators¹⁾

For quick fitting of shelves in several layers.

1) Note: Please combine **maximum 4 lean separators with one shelf. Not suitable for side-mounted e-chains®!**

With the lean separator you can quickly insert several layers
of cables into the e-chain® and reduce the installation time by
up to 50% ²⁾.

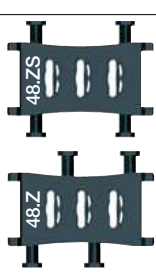
²⁾ Lean interior separation vs. Standard separator - measured on a 4m long e-chain® fitted
with 12 cables in the igus® readychain® factory

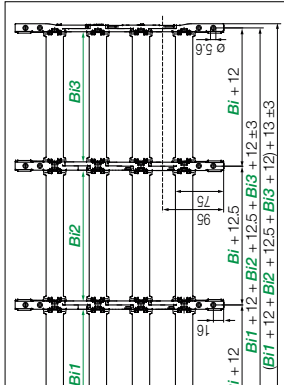


Separator with integrated strain relief teeth

- Can be integrated into the mounting bracket or placed at any point
- Combines strain relief and interior separation, for restricted space conditions
- Strain relief separator is easy to assemble without any screws

2 versions: Part No. 48.Z / Part No. 48.ZS - more information ► Form page 1424





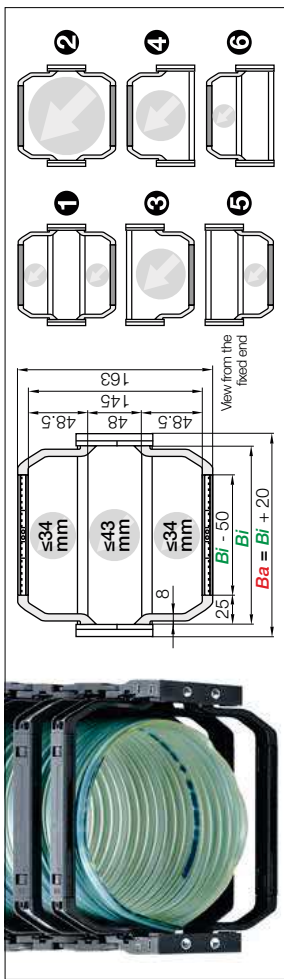
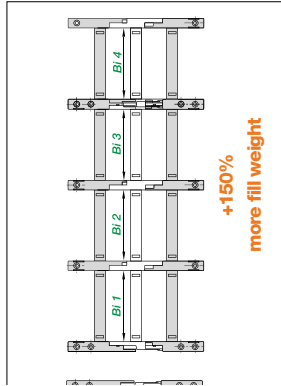
2.0m with 50% more fill weight

is of 2.0m and more

er

Part No.	Extension link as an individual part
E4.48ML _R .	
example: E4.48L	175/175/175.150.0

example: E4.48L175/175/175.150.0



Extender crossbars with flexible width | Safe guiding for large hoses

- For guiding and protecting large hoses
- With mounting for noise dampers
- Cable-friendly design, high crossbar holding force
- The openable extender crossbars can be fitted in different ways and combinations
- Optionally openable along the inner or outer radius

Part No.	Hose	Part No.
1	34	E4.48L.XXXHB48.R.0
2	130	E4.48L.XXXB48.R.0
3	85	E4.48L.XXXBE48.R.0
4	85	E4.48L.XXXBZ48.R.0
5	34	E4.48L.XXXHBE48.R.0
6	34	E4.48L.XXXHBZ48.R.0

1) Minimum bend radius: **R 125** 2) Minimum bend radius: **R 150** 3) Minimum bend radius: **R 075** *Width available upon request. Delivery time upon request

BI [mm] Available inner widths

100	105	112	125	137	150	162	175	187	200	212	225	237	250	262	275	287	300	312	325	337	350	362	375	387	400
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

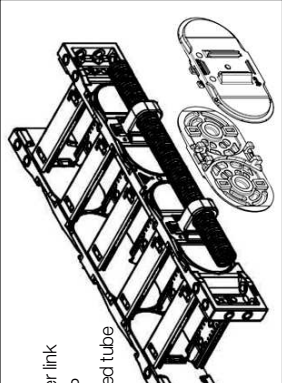
Complete Part No. with the width index **XXX** of **Bi** and the minimum bend radius (**R**). Example:

E4.48L100B48.150.0 = $B_i/100$ / extender crossbar on both sides along inner and outer

E4.48L $100B48.150.0 = B/100$ / extender crossbar on both sides along inner and outer radius (R) 150



The E4.1L can be fitted with operable extender crossbars, which increase the size of the interior of the e-chain®. Crossbars can be fitted in various ways: from one or both sides, alternating with standard crossbars and or any combination



to the e-chain®
widths 7, 10, 12, 17, 23, 29, 36mm

If screws or tools
JP support and the hose are ordered separately

both ends*	For corrugated tube nominal diameter	
	Ø [mm]	
TUB.R.0	07 / 10 / 12 / 17 / 23 / 29 / 36	

s (R), Example:
nk

h safety clip



PMAClip support - one-piece
construction with safety clip,
suitable for corrugated tubes

H	E	M
mm	mm	mm
13.5	40.5	M4
15.5	47.5	M5
16.5	54.5	M5
20.0	68.0	M6
24.0	85.0	M6
27.0	99.0	M6
31.0	119.0	M6

eu/R4.48L



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Steel support tray for support of the lower run

- Simple one-piece support trays for the lower run
- To your requirements and specification
- 4 options available

More information ► From page 1356



CFU strain relief with innovative honeycomb design

- Fast filling, operable from both sides for assembly in seconds
- Flexible honeycomb design for increased holding force
- Tribologically optimised honeycomb design for the best hold
- Universal use, compact, space-saving design

More information ► Page 1424

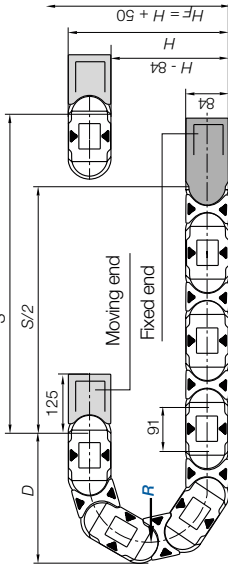
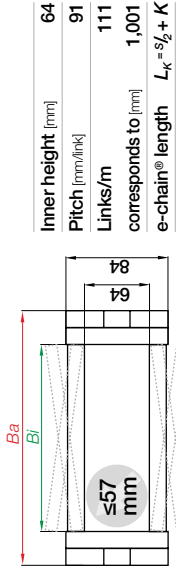
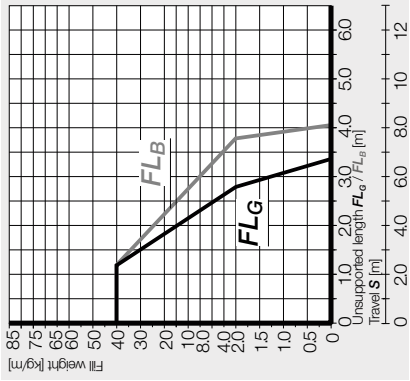


Due to the modular design, the E4.1L system can be adapted to almost any application. As an open version for cable guidance, with extender crossbars for large hoses, or enclosed chip-resistant tube complete with guide trough - just three of many options



inner and outer radius, from both sides)

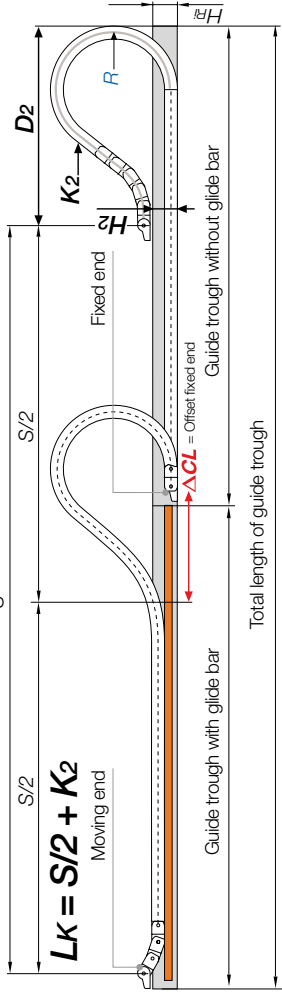
	Bi	Ba	E4.64L
	[mm]	[mm]	[kg/m]
R,0*	237	263	≈ 3,12
R,0*	250	276	≈ 3,18
R,0*	262	288	≈ 3,22
R,0*	275	301	≈ 3,28
R,0*	287	313	≈ 3,33
R,0	300	326	≈ 3,38
R,0*	312	338	≈ 3,43
R,0	325	351	≈ 3,48
R,0*	337	363	≈ 3,54
R,0	350	376	≈ 3,58
R,0*	362	388	≈ 3,63
R,0*	375	401	≈ 3,68
R,0*	387	413	≈ 3,73
R,0*	400	426	≈ 3,78



R	100	125	150	175	200	250	300	350	400
H	284	334	384	434	484	584	684	784	884
D	279	304	329	354	379	429	479	529	579
K	500	575	655	735	815	970	1,125	1,285	1,440

The required clearance height: $H_f = H + 50\text{mm}$ (with 2.0kg/m fill weight)

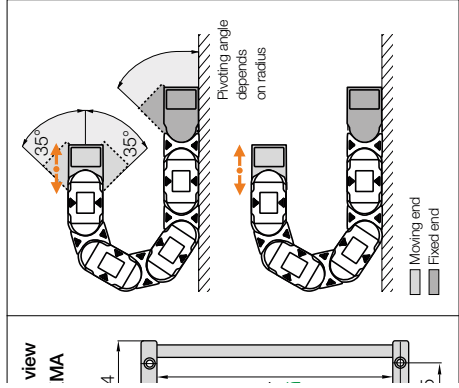
Gliding applications | For long travels, upon request



Note: We recommend the project planning of such a system to be carried out by igus®.
In case of travels between 5 and 10m we recommend an e-chain® with a longer unsupported length.

R	100	125	150	175	200	250	300	350	400
H2	**	180	180	180	180	180	-	-	-
D2	**	505	580	705	830	1,080	-	-	-
K2	**	819	910	1,183	1,365	1,729	-	-	-
ΔCL	**	**	**	**	**	**	-	-	-

**Values upon request



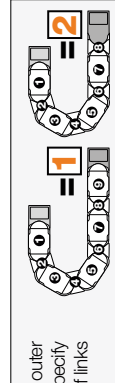
**HENNLICH -
ŽIJEME TECHNIKOU**

o.z. LIN-TECH HENNLICH s.r.o.
Českolipská 9, 412 01 Litoměřice

**sliding applications
and standing applications**

Part No. full set	Part No. full set	Bi
MA pivoting	KMA locking	[mm]
4.640.237  12 C*	E4.641.237  12 C*	237
4.640.250  12 C*	E4.641.250  12 C*	250
4.640.262  12 C*	E4.641.262  12 C*	262
4.640.275  12 C*	E4.641.275  12 C*	275
4.640.287  12 C*	E4.641.287  12 C*	287
4.640.300  12 C	E4.641.300  12 C	300
4.640.312  12 C*	E4.641.312  12 C*	312
4.640.325  12 C	E4.641.325  12 C	325
4.640.337  12 C*	E4.641.337  12 C*	337
4.640.350  12 C	E4.641.350  12 C	350
4.640.362  12 C*	E4.641.362  12 C*	362
4.640.375  12 C*	E4.641.375  12 C*	375
4.640.387  12 C*	E4.641.387  12 C*	387
4.640.400  12 C*	E4.641.400  12 C*	400

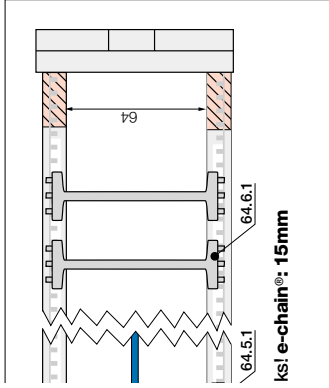
upon request. Delivery time upon request.



igus 3D CAD, configurators, service life calculation and more ► www.igus.eu/E4.1L



P4.1L e-tubes to guide motor, encoder and sensor cables on a bending machine



ks! e-chain®: 15mm

en faster installation

one side for high holding force, narrow on opposite
easy cable fitting.

securely in preset increments

separator for exact positioning.
needed for side-mounted applications.

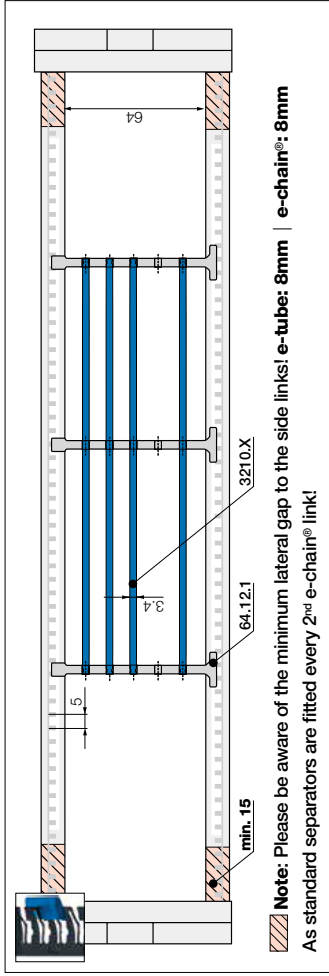
interior separation

h shelf locks securely into separators at both ends,
fixed width. Can be used as full-width or partial shelf.

assembled	X [mm]	unassembled	assembled
3210.125	225	3200.225	3210.225
3210.150	250	3200.250	3210.250
3210.175			
3210.200			

locking separator for increased holding

locking separators offer higher crossbar opening
for high humidity and/or large hydraulic hoses. They
positioned precisely and then locked in position.



Note: Please be aware of the minimum lateral gap to the side links! e-tube: 8mm | e-chain®: 8mm
As standard separators are fitted every 2nd e-chain® link!

	Lean separator ¹⁾	Lean separator ¹⁾
	unassembled	assembled
	64.12	64.12.1

Lean separators¹⁾

For quick fitting of shelves in several layers.

1) Note: Please combine maximum 4 lean separators with one shelf. Not suitable for side-mounted e-chains!

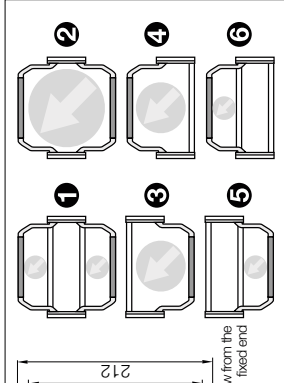
With the lean separator you can quickly insert several layers
of cables into the e-chain® and reduce the installation time by
up to 50%²⁾.

2) Lean interior separation vs. Standard separator - measured on a 4m long e-chain® fitted
with 12 cables in the igus® readychain® factory



Low weight combined with high strength for long unsupported lengths: E4.1L

igus 3D CAD, configurators, service life calculation and more ► www.igus.eu/E4.1L



Steel support tray for support of the lower run

- Simple one-piece support trays for the lower run
- To your requirements and specification
- 4 options available

More information ► From page 1356

for large hoses

tations

Hose $\varnothing \leq [\text{mm}]$	Part No. e-chain® with extender crossbar
48	E4.64L.XXXHB65.R.0
170	E4.64L.XXXB65.R.0
115	E4.64L.XXXBE65.R.0
115	E4.64L.XXXBZ65.R.0
48	E4.64L.XXXHB65.R.0
48	E4.64L.XXXHBZ65.R.0

available upon request. Delivery time upon request

287 | 300 | 312 | 325 | 337 | 350 | 362 | 375 | 387 | 400 |

s (R). Example:

inner and outer radius / bend radius (R) 150



The E4.1L can be fitted with openable extender crossbars, which increase the size of the interior of the e-chain®. Crossbars can be fitted in various ways: from one or both sides, alternating with standard crossbars and or any combination



The sharp S with the centrally arranged guided link system - in order to be able to implement the telescoping arm projecting from both sides, two igus® E4.1L series e-chains® were combined together offset by 180 degrees



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