E4.1L

The best combination of strength and low weight

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

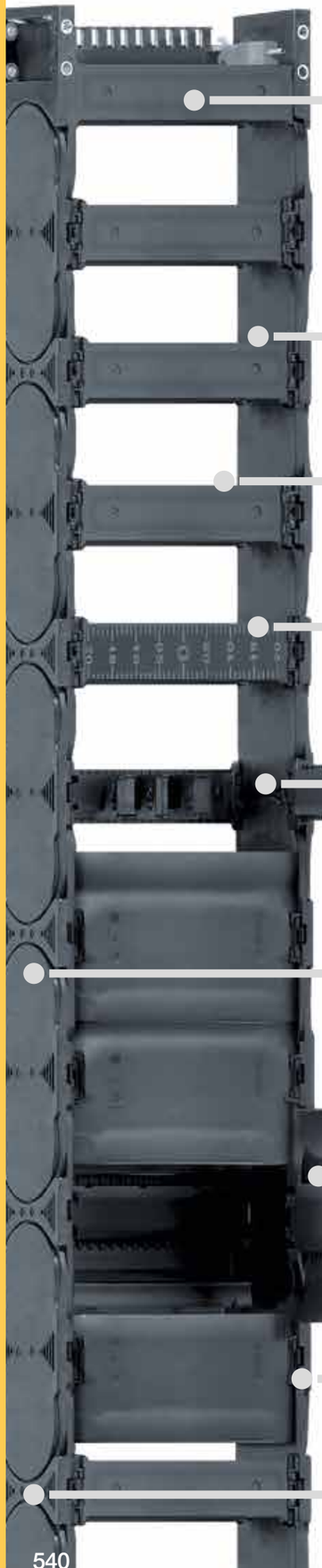
Advantages of the E4.1L system:

- 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 chainfix 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 time with the E4.1L(ean). Whether as an e-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, improved crossbars and separators and the new honeycomb strain relief system result in an 80% faster installation. Easily adaptable to any application due to the modular design, this universal solution makes optimal use of the space, is lighter than the alternatives and yet 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.

Typical industries and applications

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

Electrically conductive ESD e-chains® upon request

High torsional rigidity

iF product design award 2014 for series R4.1L

Series	Inner height *hi* [mm]	Inner width *Bi* [mm]	Outer width *Ba* [mm]	Outer height *ha* [mm]	Bend radius *R* [mm]	Unsupported length ≤ [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.

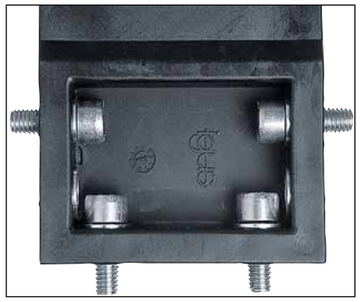
What does "Lean" mean in the E4.1L system?

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.

E4.1L e-chains® and R4.1L e-tube crossbars, lids and shelves are openable along the inner and outer radius, from both sides

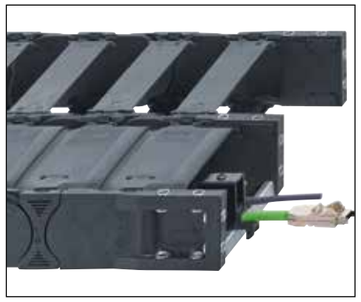
Lean separators enable extremely fast cable filling in several layers

Assembled in seconds - CFU honeycomb strain relief. Simply insert cables and hoses into the honeycomb and close

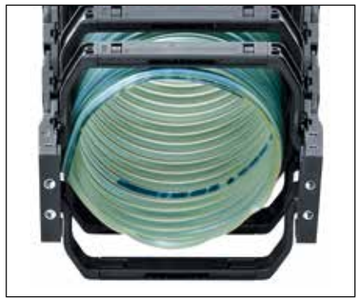


KMA mounting brackets with attachment options from any side

Safe parallel guiding of corrugated tubes with the optional, external TUB guidance

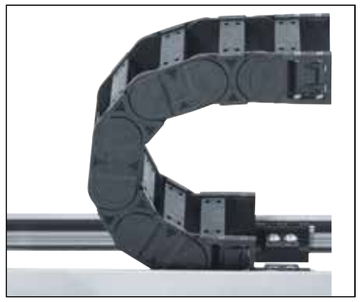


Extension links - for extremely wide e-chains® up to 2.0m with 50% more fill weight



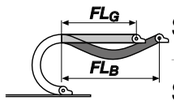
Flexible extender crossbar range - e-chain® extender with crossbars for enlarging the interior

Aluminium "SuperTrough" - the standard igus® guide trough ▶ **From page 1298**



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

Technical data



Speed gliding[1] / acceleration gliding[1]	≤ 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

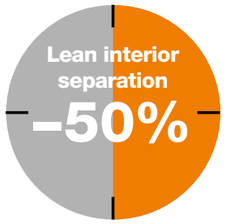
Series	Unsupported	Gliding1)	Vertical hanging	Vertical standing	Side mounted unsupported
E4.31L / R4.31L	≤ 4.0m	upon request	≤ 40m	≤ 2.5m	≤ 0.6m
E4.38L / R4.38L	≤ 5.5m	≤ 80m	≤ 50m	≤ 3.0m	≤ 1.0m
E4.48L / R4.48L	≤ 7.5m	≤ 100m	≤ 80m	≤ 3.0m	≤ 1.2m
E4.64L	≤ 4.0m	upon request	≤ 80m	≤ 8.0m	≤ 2.0m

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

Interior separation



Approx. 50% time saving with lean interior separation compared to standard interior separation*

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

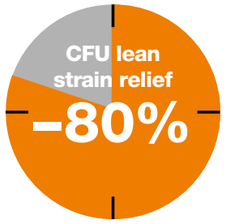
Time-saving lean separators

- 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

Strain relief



Approx. 80% time saving with CFU strain relief compared to conventional chainfix CFX clamps*

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

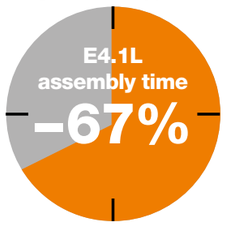
CFU.V strain relief with innovative honeycomb design for fast assembly and high holding force

- 80%* faster filling, openable 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

Opening crossbars and lids



Approx. 67% less assembly time with E4.1L compared to E4.1*

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

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

Options with order keys | Examples based on series E4.38L/R4.38L

Standard	*Simply turn outer side link, no additional rework*	*Reverse Bend Radius (RBR) for circular movements*	*Unsupported lengths +25% possible*	*ESD - electrically conductive material*
Part No. Standard	**Part No. NC version**	**Part No. *RBR***	**Part No. XXL material**	**Part No. igumid ESD**
E4.38L.100.*R*.0	**E4.38L.100.*R*.0.NC**	**E4.38L.100.*R1/R2*.0**	**E4.38L.100.*R*.0.XXL**	**E4.38L.100.*R*.0.ESD**
e-chain® with crossbars every link	e-chain® with crossbars every link	e-chain® with crossbars every link	e-chain® with crossbars every link [1]	e-chain® with crossbars every link
R4.38L.100.*R*.0	**R4.38L.100.*R*.0.NC**	***RBR*** for e-tubes - please consult igus®	**R4.38L.100.*R*.0.XXL**	**R4.38L.100.*R*.0.ESD**
e-tube, closed	e-tube, closed		e-tube, closed [1]	e-tube, closed
Ready to ship in 24 - 48hrs.*	Ready to ship in 24 - 48hrs.*	Ready to ship in 12 business days*	Ready to ship in 12 business days*	Ready to ship in 12 business days*

Order example | Examples based on series E4.38L

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 18 links	**E4.38L.100.150.0**
+ Mounting brackets	1 set (with odd number of links and integrated C-profiles)	**E4.380.100.1.12.C**
Interior separation	with 2 separators assembled every 2nd link	**2 x 38.1.1**
Order text:		**1m E4.38L.100.150.0 + E4.380.100.1.12.C + 2 x 38.1.1**

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

Order key

e-chain® with crossbars every link **E4.38L.100.150.0**

e-tube fully enclosed **R4.38L.100.150.0**

- Series / Type
- Inner height
- Width index (depends on *Bi*)
- Bend radius *R*
- Colour index (standard black)

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 24 - 48hrs.*

Above special colours upon request.

E4.1L | Series E4.31L·R4.31L | Product range

Light design, high dynamics, cost-effective

e-chains® | E4.31L | Crossbars every link (openable along inner and outer radius, from both sides)
e-tubes | R4.31L | Fully enclosed (lids openable along inner and outer radius, from both sides)

Part No. e-chains®	Part No. e-tubes	Bi [mm]	Ba [mm]	E4.31L [kg/m]	R4.31L [kg/m]
E4.31L. 040.*R*.0	–	40	54	≈ 0.70	–
E4.31L. 050.*R*.0	R4.31L. 050.*R*.0	50	64	≈ 0.74	≈ 0.87
E4.31L. 062.*R*.0	–	62	76	≈ 0.76	–
E4.31L. 075.*R*.0	R4.31L. 075.*R*.0	75	89	≈ 0.78	≈ 1.01
E4.31L. 087.*R*.0	–	87	101	≈ 0.83	–
E4.31L. 100.*R*.0	R4.31L. 100.*R*.0	100	114	≈ 0.88	≈ 1.10
E4.31L. 112.*R*.0	–	112	126	≈ 0.93	–
E4.31L. 125.*R*.0	R4.31L. 125.*R*.0**	125	139	≈ 0.96	≈ 1.28
E4.31L. 137.*R*.0**	–	137	151	≈ 0.98	–
E4.31L. 150.*R*.0	R4.31L. 150.*R*.0**	150	164	≈ 1.00	≈ 1.40
E4.31L. 162.*R*.0	–	162	176	≈ 1.04	–
E4.31L. 175.*R*.0	R4.31L. 175.*R*.0**	175	189	≈ 1.13	≈ 1.55
E4.31L. 187.*R*.0**	–	187	201	≈ 1.17	–
E4.31L. 200.*R*.0**	R4.31L. 200.*R*.0**	200	214	≈ 1.17	≈ 1.68

**Width available upon request. Please consult igus® for delivery time.

1) Radius not available for e-tubes

Available bend radii

R [mm] | 055[1)] | 063[1)] | 075 | 100 | 125 | 150 | 175 | 200 | 250 |

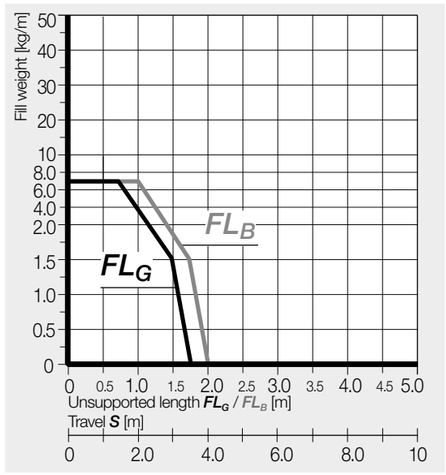
Complete Part No. with required radius (*R*). Example:

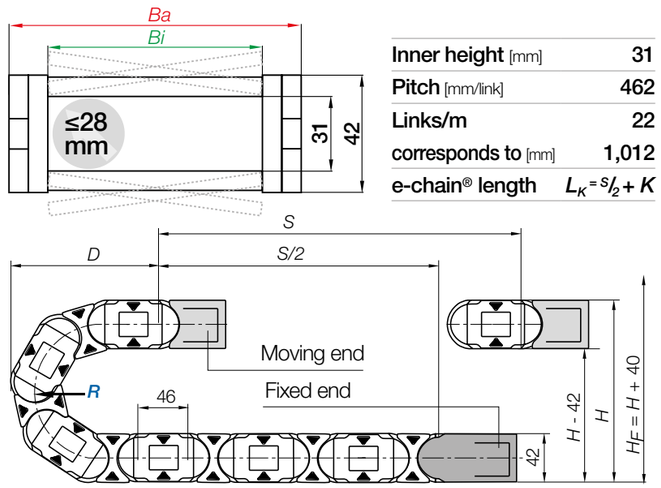
E4.31L.050.075.0 = crossbars every link / R4.31L.050.075.0 = fully enclosed

E4.1L | E4.31L·R4.31L | Installation dimensions

Unsupported applications | Short travels

▶ 1392 ▶ 1314





Inner height [mm]	31
Pitch [mm/link]	462
Links/m	22
corresponds to [mm]	1,012
e-chain® length	$L_K = S/2 + K$

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

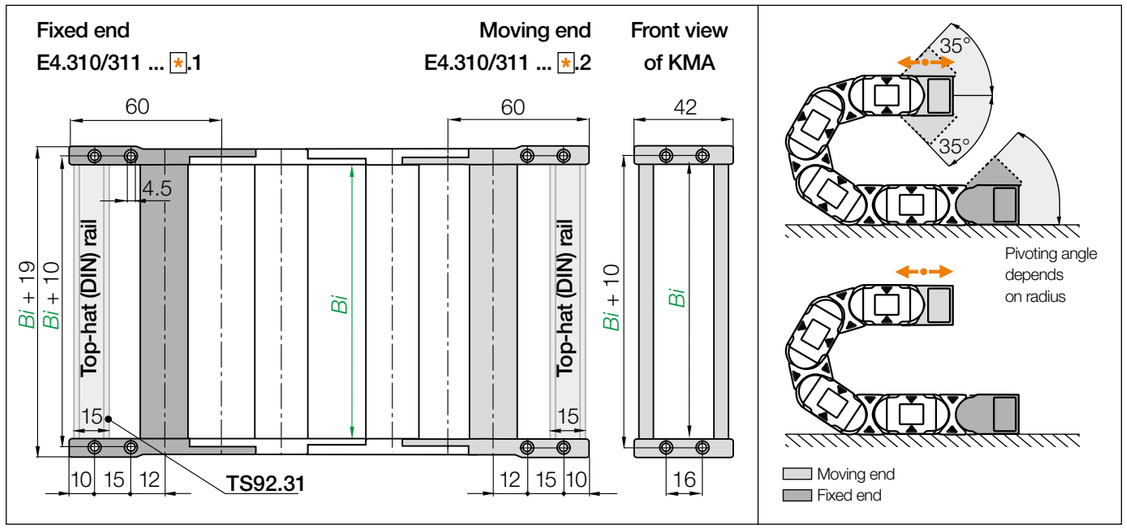
The required clearance height: $H_F = H + 40$mm (with 1.0kg/m fill weight)

1) Radius not available for e-tubes

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

E4.1L | **e-chains®** E4.31L | Accessories

KMA mounting brackets | Attachment from any side | Pivoting | Locking



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

Width index	Part No. full set **KMA pivoting**	Part No. full set **KMA locking**	*Bi* [mm]	Width index	Part No. full set **KMA pivoting**	Part No. full set **KMA locking**	*Bi* [mm]
040. ▶	**E4.310.040.✱.12.C**	**E4.311.040.✱.12.C**	40	125. ▶	**E4.310.125.✱.12.C**	**E4.311.125.✱.12.C**	125
050. ▶	**E4.310.050.✱.12.C**	**E4.311.050.✱.12.C**	50	137. ▶	E4.310.137.✱.12.C*	E4.311.137.✱.12.C*	137
062. ▶	**E4.310.062.✱.12.C**	**E4.311.062.✱.12.C**	62	150. ▶	**E4.310.150.✱.12.C**	**E4.311.150.✱.12.C**	150
075. ▶	**E4.310.075.✱.12.C**	**E4.311.075.✱.12.C**	75	162. ▶	**E4.310.162.✱.12.C**	**E4.311.162.✱.12.C**	162
087. ▶	**E4.310.087.✱.12.C**	**E4.311.087.✱.12.C**	87	175. ▶	**E4.310.175.✱.12.C**	**E4.311.175.✱.12.C**	175
100. ▶	**E4.310.100.✱.12.C**	**E4.311.100.✱.12.C**	100	187. ▶	E4.310.187.✱.12.C*	E4.311.187.✱.12.C*	187
112. ▶	**E4.310.112.✱.12.C**	**E4.311.112.✱.12.C**	112	200. ▶	E4.310.200.✱.12.C*	E4.311.200.✱.12.C*	200

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

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

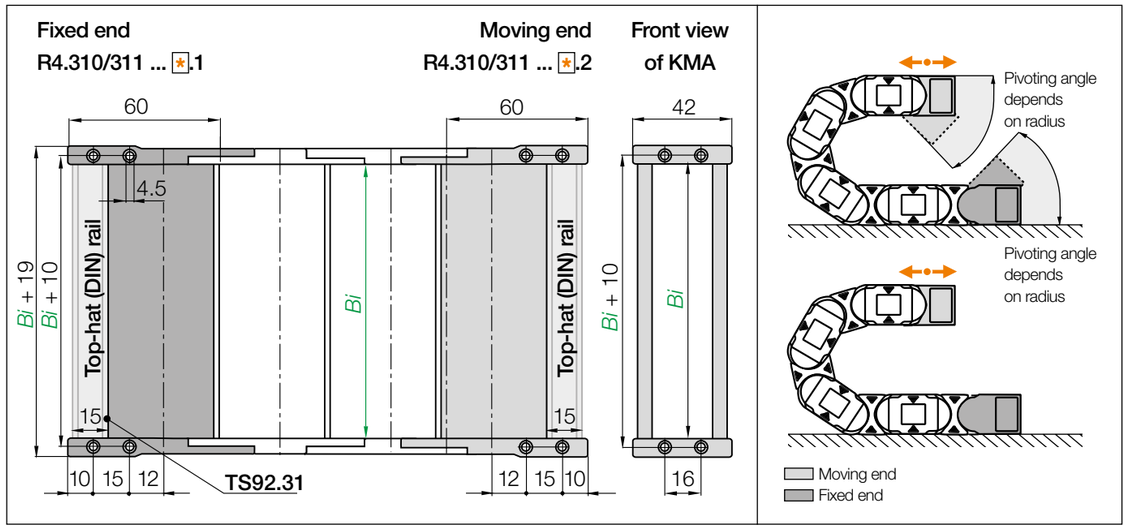
Strain relief elements with tiewrap teeth

- Stepped strain relief element outside of the e-chain® cross section
- For e-chains® and e-tubes
- Easy to retrofit
- Simple installation into top hat (DIN) rail 15 (TS92.31)

Part No. CFV.31.N15 - more information ▶ From page 1428

E4.1L | **e-tubes** R4.31L | Accessories

KMA mounting brackets | Attachment from any side | Pivoting | Locking



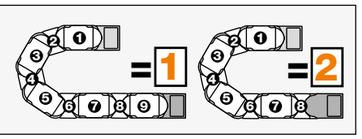
KMA pivoting | Recommended for unsupported and gliding applications
KMA locking | Recommended for vertical hanging and standing applications

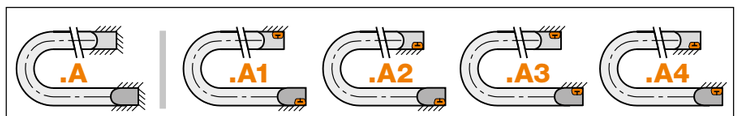
Width index	Part No. full set **KMA pivoting**	Part No. full set **KMA locking**	*Bi* [mm]	Width index	Part No. full set **KMA pivoting**	Part No. full set **KMA locking**	*Bi* [mm]
050. ▶	**R4.310.050.✱.12.C**	**R4.311.050.✱.12.C**	050	150. ▶	R4.310.150.✱.12.C*	R4.311.150.✱.12.C*	150
075. ▶	**R4.310.075.✱.12.C**	**R4.311.075.✱.12.C**	075	175. ▶	R4.310.175.✱.12.C*	R4.311.175.✱.12.C*	175
100. ▶	**R4.310.100.✱.12.C**	**R4.311.100.✱.12.C**	100	200. ▶	R4.310.200.✱.12.C*	R4.311.200.✱.12.C*	200
125. ▶	R4.310.125.✱.12.C*	R4.311.125.✱.12.C*	125				

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

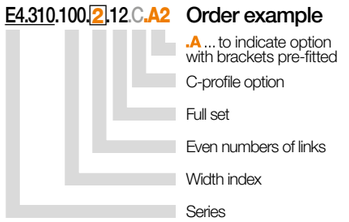
*Width available upon request. Delivery time upon request. **Note:** If a gliding application is required for a long travel, please consult igus®.

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 1 (for odd) or 2 (for even) depending on an even or odd number of links required.





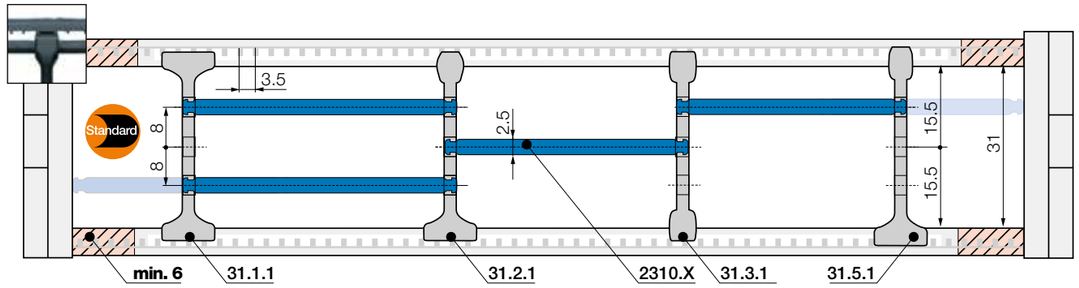
Possible orientations for KMA mounting brackets. For mounting brackets pre-fitted **without C-profile**, please attach index **.A**. For types pre-fitted **with C-profile**, please attach index **.A1**, **.A2**, **.A3** or **.A4**.



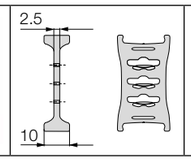
Strain relief **e.g. clamps, tiewrap plates, nuggets and clips are available from stock. The complete chainfix range with ordering options ▶ From page 1392**

E4.1L | Series E4.31L·R4.31L | Accessories

Interior separation | Increase cable service life



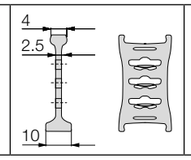
Note: Please be aware of the minimum lateral gap to the side links! **e-tube: 6mm** | **e-chain®: 6mm**
As standard separators are fitted every 2nd e-chain® link!



Standard separator, wide base	
unassembled	**31.1**
assembled	**31.1.1**

Standard - for any application

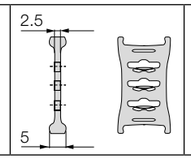
Separator with a wide base for maximum holding force.



Separator, narrow top	
unassembled	**31.2**
assembled	**31.2.1**

For even faster installation

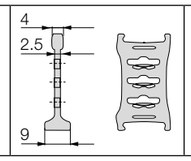
Wide on one side for high holding force, narrow on opposite side for easy cable fitting.



Separator, narrow	
unassembled	**31.3**
assembled	**31.3.1**

For small cables

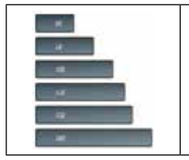
Separator with a narrow base for a large number of small cables side by side. Saves space.

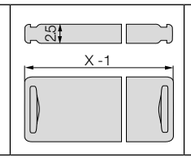


Notch separator for notched crossbar	
unassembled	**31.5**
assembled	**315.1**

Locks securely in preset increments

Notch separator for exact positioning.
Recommended for side-mounted applications.





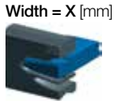
Shelf, lockable	
unassembled	**2300.X**
assembled	**2310.X**

Horizontal separation

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

Shelves

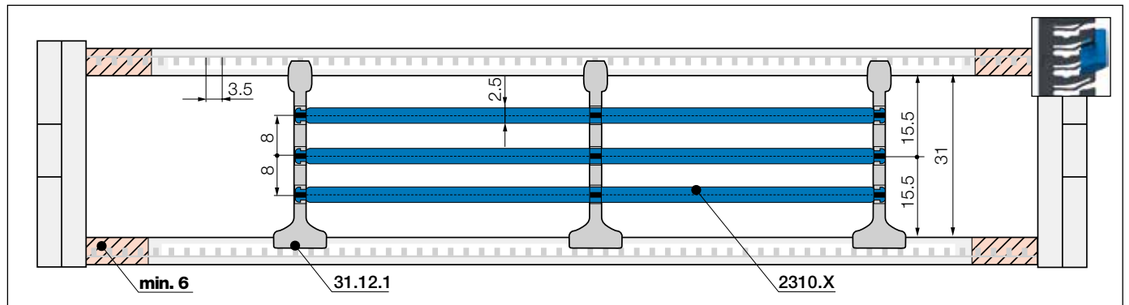
Width = X [mm]



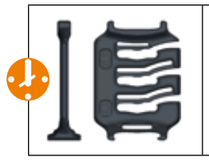
X [mm]	unassembled	assembled	X [mm]	unassembled	assembled	X [mm]	unassembled	assembled
015	**2300.015**	**2310.015**	060	**2300.060**	**2310.060**	087	**2300.87**	**2310.087**
025	**2300.025**	**2310.025**	062	**2300.062**	**2310.062**	090	**2300.90**	**2310.090**
030	**2300.030**	**2310.030**	065	**2300.065**	**2310.065**	100	**2300.100**	**2310.100**
038	**2300.038**	**2310.038**	070	**2300.070**	**2310.070**	103	**2300.103**	**2310.103**
040	**2300.040**	**2310.040**	075	**2300.075**	**2310.075**	110	**2300.110**	**2310.110**
050	**2300.050**	**2310.050**	077	**2300.077**	**2310.077**	120	**2300.120**	**2310.120**
057	**2300.057**	**2310.057**	080	**2300.080**	**2310.080**	125	**2300.125**	**2310.125**

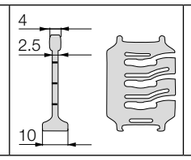
E4.1L | Series E4.31L·R4.31L | Accessories

Interior separation | To allow faster filling



Note: Please be aware of the minimum lateral gap to the side links! **e-tube: 6mm** | **e-chain®: 6mm**
As standard separators are fitted every 2nd e-chain® link!





Lean separator[1]	
unassembled	**31.12**
assembled	**31.12.1**

Lean separators[1]

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. 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

E4.1L | Series E4.38L·R4.38L | Product range

Light design, high dynamics, cost-effective

38

e-chains®| E4.38L | Crossbars every link (openable along inner and outer radius, from both sides)
e-tubes | R4.38L | Fully enclosed (lids openable along inner and outer radius, from both sides)

Part No. e-chains®	Part No. e-tubes	Bi [mm]	Ba [mm]	E4.38L [kg/m]	R4.38L [kg/m]
E4.38L. 050.*R*.0	R4.38L. 050.*R*.0	50	66	≈ 1.13	≈ 1.20
E4.38L. 062.*R*.0	–	62	78	≈ 1.19	–
E4.38L. 075.*R*.0	R4.38L. 075.*R*.0	75	91	≈ 1.26	≈ 1.38
E4.38L 087.*R*.0	–	87	103	≈ 1.30	–
E4.38L. 100.*R*.0	R4.38L. 100.*R*.0	100	116	≈ 1.37	≈ 1.60
E4.38L. 105.*R*.0	–	105	121	≈ 1.39	–
E4.38L. 112.*R*.0	–	112	128	≈ 1.44	–
E4.38L. 125.*R*.0	R4.38L. 125.*R*.0	125	141	≈ 1.50	≈ 1.75
E4.38L. 137.*R*.0	–	137	153	≈ 1.55	–
E4.38L. 150.*R*.0	R4.38L. 150.*R*.0	150	166	≈ 1.65	≈ 1.92
E4.38L. 162.*R*.0	–	162	178	≈ 1.69	–
E4.38L. 175.*R*.0	R4.38L. 175.*R*.0	175	191	≈ 1.74	≈ 2.10
E4.38L. 187.*R*.0	–	187	203	≈ 1.80	–
E4.38L. 200.*R*.0	R4.38L. 200.*R*.0	200	216	≈ 1.86	≈ 2.29
E4.38L. 212.*R*.0	–	212	228	≈ 1.90	–

Part No. e-chains®	Part No. e-tubes	Bi [mm]	Ba [mm]	E4.38L [kg/m]	R4.38L [kg/m]
E4.38L. 225.*R*.0	–	225	241	≈ 1.97	–
E4.38L. 237.*R*.0	–	237	253	≈ 2.05	–
E4.38L. 250.*R*.0	R4.38L. 250.*R*.0	250	266	≈ 2.11	≈ 2.65
E4.38L. 262.*R*.0	–	262	278	≈ 2.15	–
E4.38L. 275.*R*.0**	–	275	291	≈ 2.22	–
E4.38L. 287.*R*.0**	–	287	303	≈ 2.30	–
E4.38L. 300.*R*.0	R4.38L. 300.*R*.0**	300	316	≈ 2.36	≈ 3.00
E4.38L. 312.*R*.0**	–	312	328	≈ 2.40	–
E4.38L. 325.*R*.0**	–	325	34 1	≈ 2.47	–
E4.38L. 337.*R*.0**	–	337	353	≈ 2.55	–
E4.38L. 350.*R*.0**	–	350	366	≈ 2.57	–
E4.38L. 362.*R*.0**	–	362	378	≈ 2.60	–
E4.38L. 375.*R*.0**	–	375	391	≈ 2.65	–
E4.38L. 387.*R*.0**	–	387	403	≈ 2.76	–
E4.38L. 400.*R*.0**	–	400	416	≈ 2.83	–

**Width available upon request. Delivery time upon request.

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

Available bend radii

R [mm] | 063[1)] | 075[1)] | 100[1)] | 125 | 150 | 175 | 200 | 250 | 300 | 350* |

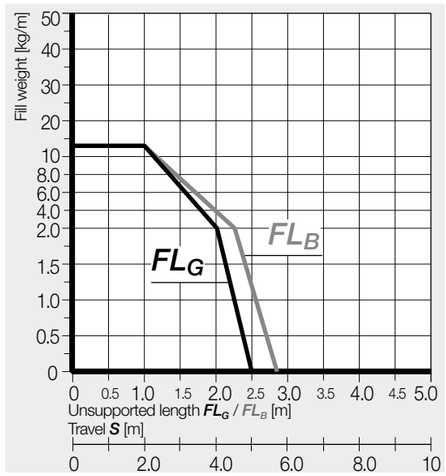
Complete Part No. with required radius (*R*). Example:

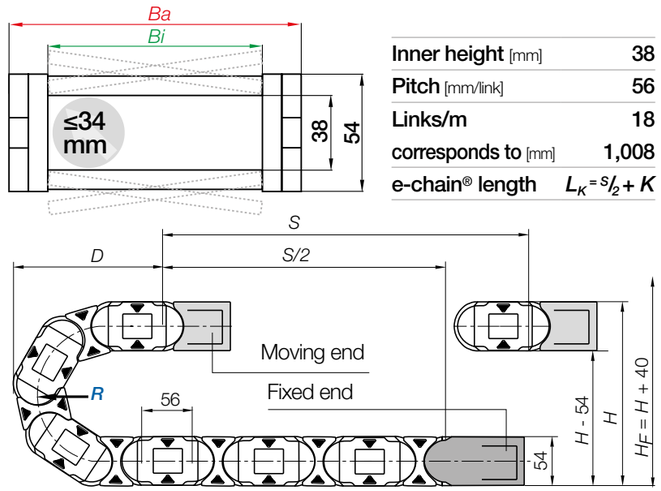
E4.38L.100.150.0 = crossbars every link / R4.38L.100.150.0 = fully enclosed

E4.1L | E4.38L·R4.38L | Installation dimensions

Unsupported applications | Short travels

▶ 1392 ▶ 1316





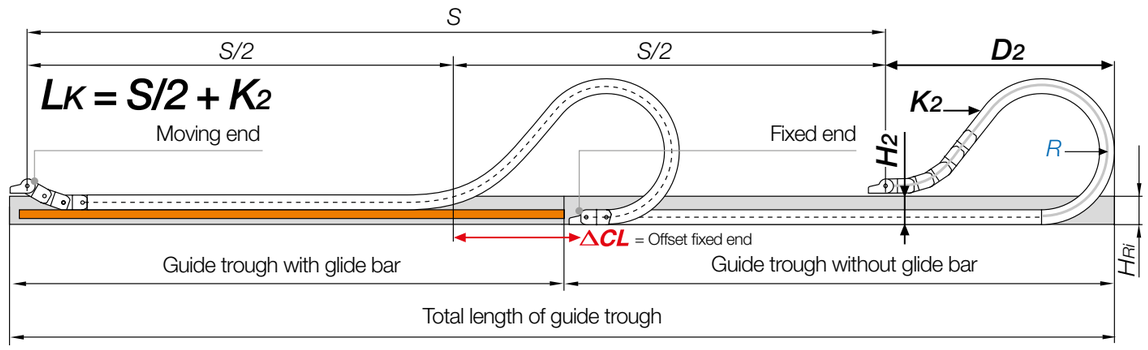
Inner height [mm]	38
Pitch [mm/link]	56
Links/m	18
corresponds to [mm]	1,008
e-chain® length	$L_K = S/2 + K$

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: $H_F = H + 40$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



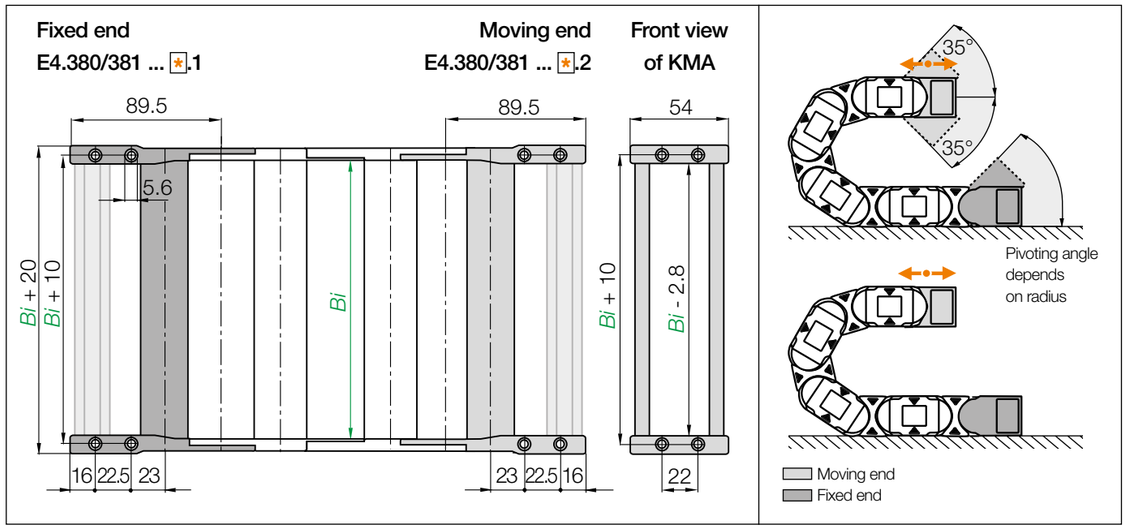
Note: We recommend the project planning of such a system to be carried out by igus®.
In case of travels between 5 and 10m we recommend an e-chain® with a longer unsupported length.

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®.

E4.1L | **e-chains®** E4.38L | Accessories

KMA mounting brackets | Attachment from any side | Pivoting | Locking



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

Width index	Part No. full set **KMA pivoting**	Part No. full set **KMA locking**	*Bi* [mm]
050. ▶	E4.380.050.*.12.C	E4.381.050.*.12.C	50
062. ▶	E4.380.062.*.12.C	E4.381.062.*.12.C	62
075. ▶	E4.380.075.*.12.C	E4.381.075.*.12.C	75
087. ▶	E4.380.087.*.12.C	E4.381.087.*.12.C	87
100. ▶	E4.380.100.*.12.C	E4.381.100.*.12.C	100
105. ▶	E4.380.105.*.12.C	E4.381.105.*.12.C	105
112. ▶	E4.380.112.*.12.C	E4.381.112.*.12.C	112
125. ▶	E4.380.125.*.12.C	E4.381.125.*.12.C	125
137. ▶	E4.380.137.*.12.C	E4.381.137.*.12.C	137
150. ▶	E4.380.150.*.12.C	E4.381.150.*.12.C	150
162. ▶	E4.380.162.*.12.C	E4.381.162.*.12.C	162
175. ▶	E4.380.175.*.12.C	E4.381.175.*.12.C	175
187. ▶	E4.380.187.*.12.C	E4.381.187.*.12.C	187
200. ▶	E4.380.200.*.12.C	E4.381.200.*.12.C	200
212. ▶	E4.380.212.*.12.C	E4.381.212.*.12.C	212

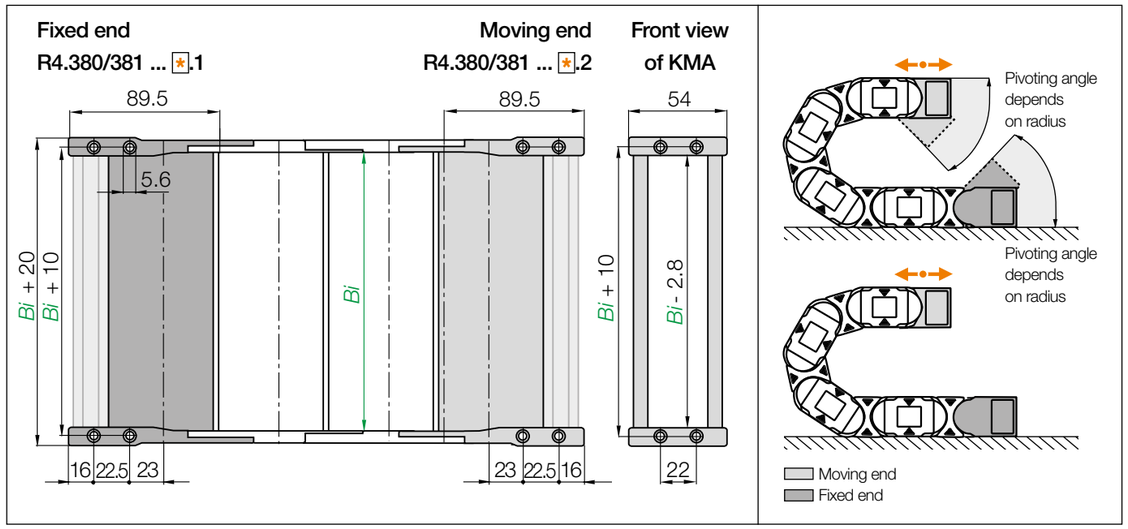
Width index	Part No. full set **KMA pivoting**	Part No. full set **KMA locking**	*Bi* [mm]
225. ▶	E4.380.225.*.12.C	E4.381.225.*.12.C	225
237. ▶	E4.380.237.*.12.C	E4.381.237.*.12.C	237
250. ▶	E4.380.250.*.12.C	E4.381.250.*.12.C	250
262. ▶	E4.380.262.*.12.C	E4.381.262.*.12.C	262
275. ▶	E4.380.275.*.12.C*	E4.381.275.*.12.C*	275
287. ▶	E4.380.287.*.12.C*	E4.381.287.*.12.C*	287
300. ▶	E4.380.300.*.12.C	E4.381.300.*.12.C	300
312. ▶	E4.380.312.*.12.C*	E4.381.312.*.12.C*	312
325. ▶	E4.380.325.*.12.C*	E4.381.325.*.12.C*	325
337. ▶	E4.380.337.*.12.C*	E4.381.337.*.12.C*	337
350. ▶	E4.380.350.*.12.C*	E4.381.350.*.12.C*	350
362. ▶	E4.380.362.*.12.C*	E4.381.362.*.12.C*	362
375. ▶	E4.380.375.*.12.C*	E4.381.375.*.12.C*	375
387. ▶	E4.380.387.*.12.C*	E4.381.387.*.12.C*	387
400. ▶	E4.380.400.*.12.C*	E4.381.400.*.12.C*	400

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

*Width available upon request. Delivery time upon request.

E4.1L | **e-tubes** R4.38L | Accessories

KMA mounting brackets | Attachment from any side | Pivoting | Locking



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

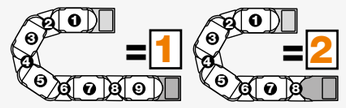
Width index	Part No. full set **KMA pivoting**	Part No. full set **KMA locking**	*Bi* [mm]
050. ▶	R4.380.050.*.12.C	R4.381.050.*.12.C	050
075. ▶	R4.380.075.*.12.C	R4.381.075.*.12.C	075
100. ▶	R4.380.100.*.12.C	R4.381.100.*.12.C	100
125. ▶	R4.380.125.*.12.C	R4.381.125.*.12.C	125
150. ▶	R4.380.150.*.12.C	R4.381.150.*.12.C	150

Width index	Part No. full set **KMA pivoting**	Part No. full set **KMA locking**	*Bi* [mm]
175. ▶	R4.380.175.*.12.C	R4.381.175.*.12.C	175
200. ▶	R4.380.200.*.12.C	R4.381.200.*.12.C	200
250. ▶	R4.380.250.*.12.C	R4.381.250.*.12.C	250
300. ▶	R4.380.300.*.12.C*	R4.381.300.*.12.C*	300

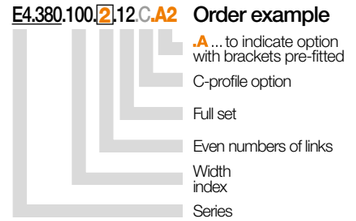
(KMA = polymer metal mounting bracket) For the C-profile option please add index **.C**

*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.



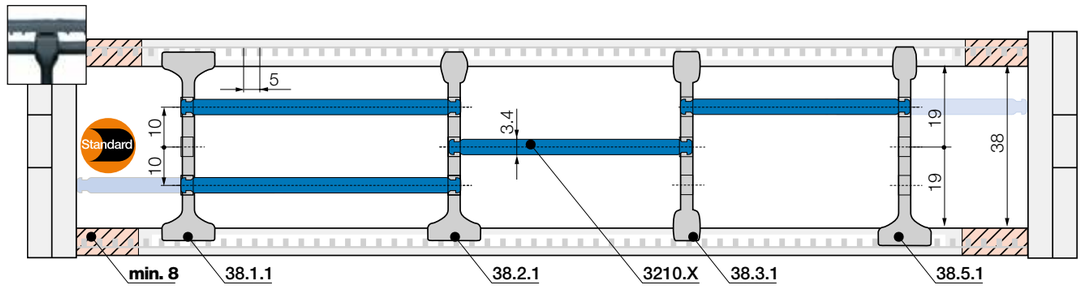
Possible orientations for KMA mounting brackets. For mounting brackets pre-fitted **without C-profile**, please attach index **.A**. For types pre-fitted **with C-profile**, please attach index **.A1**, **.A2**, **.A3** or **.A4**.



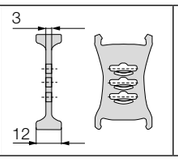
Strain relief **e.g. clamps, tiewrap plates, nuggets and clips are available from stock. The complete chainfix range with ordering options ▶ From page 1392**

E4.1L | Series E4.38L·R4.38L | Accessories

Interior separation | Increase cable service life



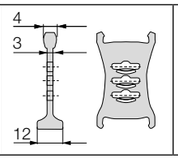
Note: Please be aware of the minimum lateral gap to the side links! **e-tube: 8mm** | **e-chain®: 8mm**
As standard separators are fitted every 2nd e-chain® link!



Standard separator, wide base	
unassembled	**38.1**
assembled	**38.1.1**

Standard - for any application

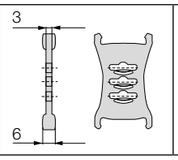
Separator with a wide base for maximum holding force.



Separator, narrow top	
unassembled	**38.2**
assembled	**38.2.1**

For even faster installation

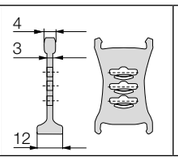
Wide on one side for high holding force, narrow on opposite side for easy cable fitting.



Separator, narrow	
unassembled	**38.3**
assembled	**38.3.1**

For small cables

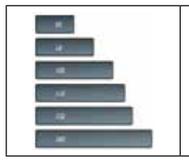
Separator with a narrow base for a large number of small cables side by side. Saves space.

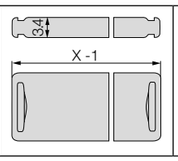


Notch separator for notched crossbar	
unassembled	**38.5**
assembled	**38.5.1**

Locks securely in preset increments

Notch separator for exact positioning.
Recommended for side-mounted applications.





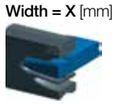
Shelf, lockable	
unassembled	**3200.X**
assembled	**3210.X**

Horizontal separation

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

Shelves

Width = X [mm]

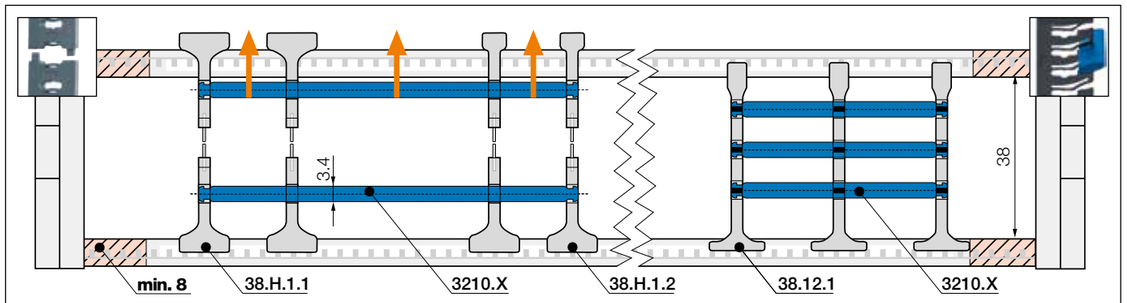


X [mm]	unassembled	assembled	X [mm]	unassembled	assembled	X [mm]	unassembled	assembled
050	**3200.050**	**3210.050**	125	**3200.125**	**3210.125**	225	**3200.225**	**3210.225**
075	**3200.075**	**3210.075**	150	**3200.150**	**3210.150**	250	**3200.250**	**3210.250**
100	**3200.100**	**3210.100**	175	**3200.175**	**3210.175**			
115	**3200.115**	**3210.115**	200	**3200.200**	**3210.200**			

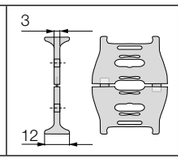
E4.38L
R4.38L

E4.1L | Series E4.38L·R4.38L | Accessories

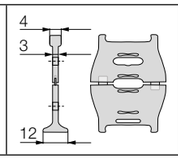
Interior separation | To allow faster filling



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!



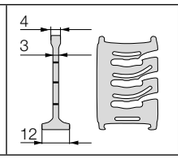
Split separator, wide base/top	
unassembled	**38.H.1**
assembled	**38.H.1.1**



Split separator, narrow top	
unassembled	**38.H.2**
assembled	**38.H.2.1**

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 separator[1)]	
unassembled	**38.12**
assembled	**38.12.1**

Lean separators[1)]

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

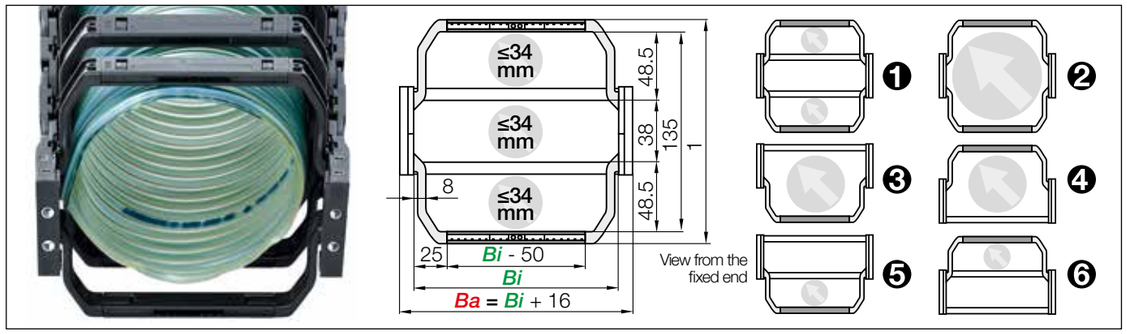
Separator with integrated strain relief teeth

- 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

E4.1L | Series E4.38L·R4.38L | Further accessories

e-chain® with openable extender crossbars



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

Versions e-chain® with extender crossbar	Hose Ø ≤ [mm]	Part No. e-chain® with extender crossbar
❶ Extender crossbar and standard crossbar alternating along the inner and outer radius [1]	34	E4.38L.XXXHB48.R.0
❷ Extender crossbar on both sides along the inner and outer radius [2]	122	E4.38L.XXXB48.R.0
❸ Extender crossbar along the outer radius [3]	78	E4.38L.XXXBE48.R.0
❹ Extender crossbar along the inner radius [2]	78	E4.38L.XXXBZ48.R.0
❺ Extender crossbar and standard crossbar alternating along the outer radius [3]	34	E4.38L.XXXHBE48.R.0
❻ Extender crossbar and standard crossbar alternating along inner radius [1]	34	E4.38L.XXXHBZ48.R.0

1) Minimum bend radius: R 125 2) Minimum bend radius: R 150 3) Minimum bend radius: R 063 *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:

E4.38L.100B48.150.0 = Bi 100 / extender crossbar on both sides along 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

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

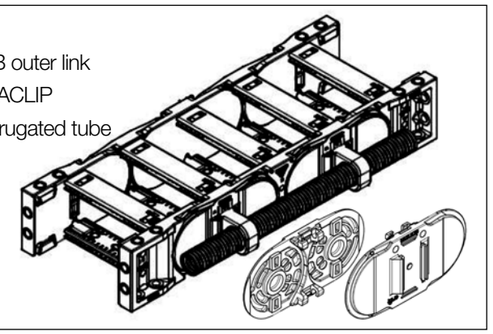
More information ▶ From page 1362

E4.38L
R4.38L

E4.1L | Series E4.38L·R4.38L | Further accessories

TUB

❶ TUB outer link
❷ PMACLIP
❸ Corrugated tube



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

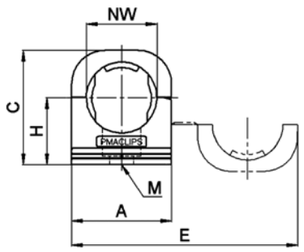
Part No. TUB Outer link right*	Part No. TUB Outer link left*	Part No. TUB Outer link at both ends*	For corrugated tube nominal diameter Ø [mm]
E4.38L.XXXTUBR.R.0	E4.38L.XXXTUBL.R.0	E4.38L.XXXTUB.R.0	07 / 10 / 12 / 17

*As viewed from the fixed end

Complete Part No. with the width index XXX of Bi 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

E4.1L | Series E4.48L·R4.48L | Product range

Light design, high dynamics, cost-effective

48

Standard **e-chains® | E4.48L | Crossbars every link** (openable along inner and outer radius, from both sides)
e-tubes | R4.48L | Fully enclosed (lids openable along inner and outer radius, from both sides)

Part No. e-chains®	Part No. e-tubes	Bi [mm]	Ba [mm]	E4.48L [kg/m]	R4.48L [kg/m]
E4.48L. 050.R.0	R4.48L. 050.R.0	50	70	≈ 1.53	≈ 1.64
E4.48L. 062.R.0	R4.48L. 062.R.0	62	82	≈ 1.58	≈ 1.69
E4.48L. 075.R.0	R4.48L. 075.R.0	75	95	≈ 1.64	≈ 1.82
E4.48L 087.R.0	R4.48L 087.R.0**	87	107	≈ 1.67	≈ 1.91
E4.48L. 100.R.0	R4.48L. 100.R.0	100	120	≈ 1.73	≈ 2.01
E4.48L. 105.R.0	–	105	125	≈ 1.74	–
E4.48L. 112. R.0	R4.48L. 112. R.0	112	132	≈ 1.79	≈ 2.15
E4.48L. 125.R.0	R4.48L. 125.R.0	125	145	≈ 1.84	≈ 2.18
E4.48L. 137.R.0	–	137	157	≈ 1.88	–
E4.48L. 150.R.0	R4.48L. 150.R.0	150	170	≈ 1.97	≈ 2.36
E4.48L. 162.R.0	–	162	182	≈ 2.00	–
E4.48L. 175.R.0	R4.48L. 175.R.0	175	195	≈ 2.04	≈ 2.58
E4.48L. 187.R.0	–	187	207	≈ 2.09	–
E4.48L. 200.R.0	R4.48L. 200.R.0	200	220	≈ 2.14	≈ 2.70
E4.48L. 212.R.0	–	212	232	≈ 2.18	–

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

**Width available upon request. Delivery time upon request.

1) Radius not available for e-tubes

Available bend radii

R [mm] | 075[1)] | 100[1)] | 125 | 150 | 175 | 200 | 250 | 300 | 350 |

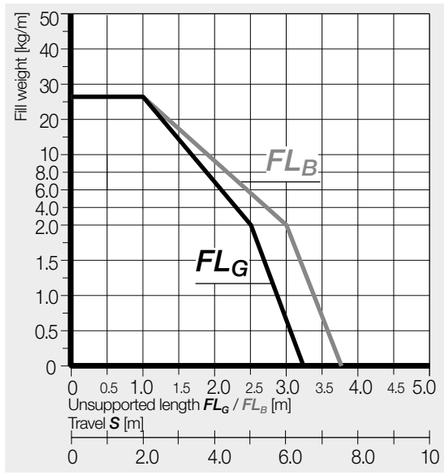
Complete Part No. with required radius (*R*). Example:

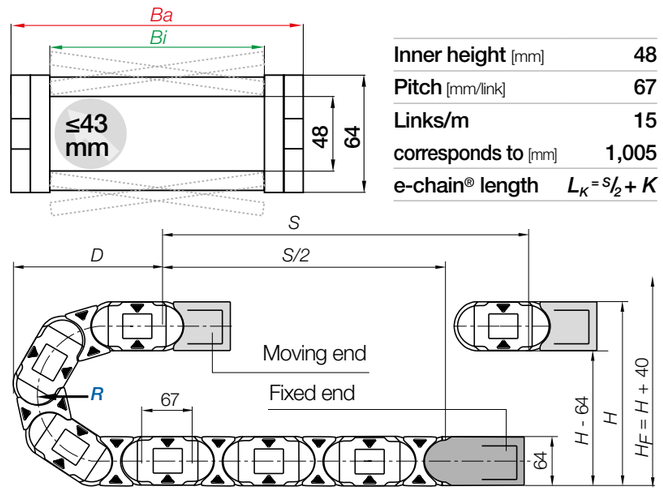
E4.48L.175.150.0 = crossbars every link / R4.48L.175.150.0 = fully enclosed

E4.1L | E4.48L·R4.48L | Installation dimensions

Unsupported applications | Short travels

▶ 1392 ▶ 1320





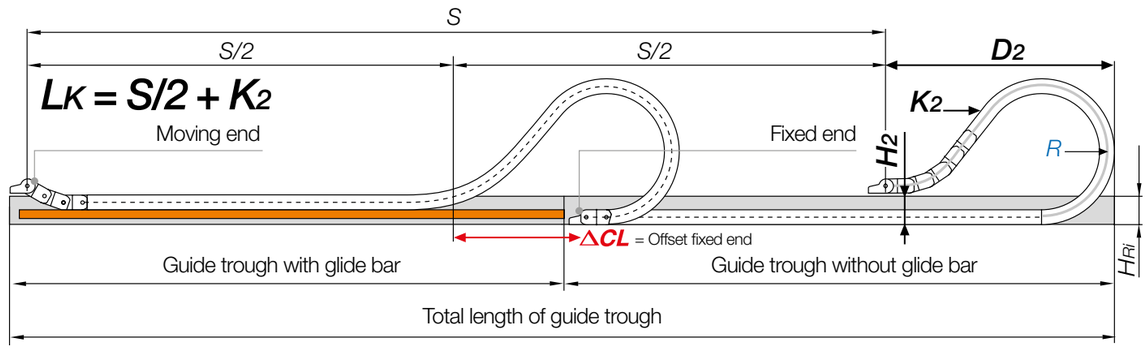
Inner height [mm]	48
Pitch [mm/link]	67
Links/m	15
corresponds to [mm]	1,005
e-chain® length	$L_K = S/2 + K$

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: $H_F = H + 40$mm (with 2.5kg/m fill weight)

1) Radius not available for e-tubes

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



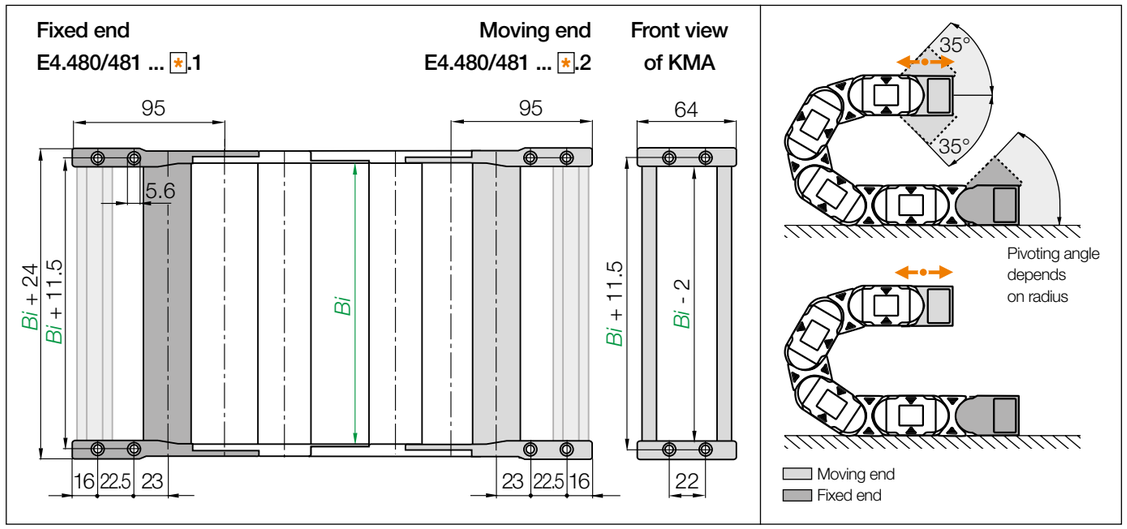
Note: We recommend the project planning of such a system to be carried out by igus®.
In case of travels between 5 and 10m we recommend an e-chain® with a longer unsupported length.

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®.

E4.1L | **e-chains®** E4.48L | Accessories

KMA mounting brackets | Attachment from any side | Pivoting | Locking



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

Width index	Part No. full set **KMA pivoting**	Part No. full set **KMA locking**	*Bi* [mm]
050. ▶	E4.480.050.*.12.C	E4.481.050.*.12.C	50
062. ▶	E4.480.062.*.12.C	E4.481.062.*.12.C	62
075. ▶	E4.480.075.*.12.C	E4.481.075.*.12.C	75
087. ▶	E4.480.087.*.12.C	E4.481.087.*.12.C	87
100. ▶	E4.480.100.*.12.C	E4.481.100.*.12.C	100
105. ▶	E4.480.105.*.12.C	E4.481.105.*.12.C	105
112. ▶	E4.480.112.*.12.C	E4.481.112.*.12.C	112
125. ▶	E4.480.125.*.12.C	E4.481.125.*.12.C	125
137. ▶	E4.480.137.*.12.C	E4.481.137.*.12.C	137
150. ▶	E4.480.150.*.12.C	E4.481.150.*.12.C	150
162. ▶	E4.480.162.*.12.C	E4.481.162.*.12.C	162
175. ▶	E4.480.175.*.12.C	E4.481.175.*.12.C	175
187. ▶	E4.480.187.*.12.C	E4.481.187.*.12.C	187
200. ▶	E4.480.200.*.12.C	E4.481.200.*.12.C	200
212. ▶	E4.480.212.*.12.C	E4.481.212.*.12.C	212

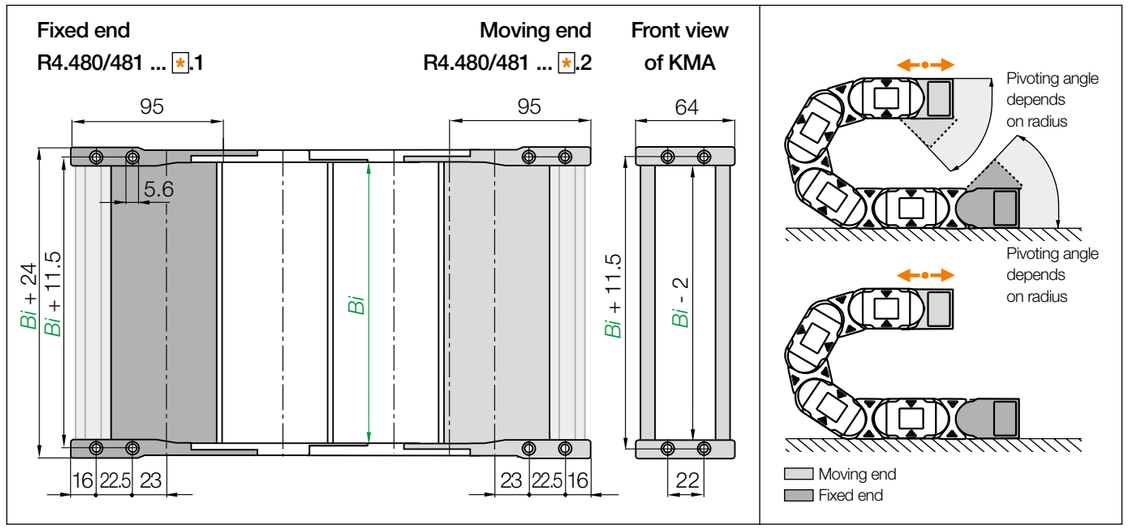
Width index	Part No. full set **KMA pivoting**	Part No. full set **KMA locking**	*Bi* [mm]
225. ▶	E4.480.225.*.12.C	E4.481.225.*.12.C	225
237. ▶	E4.480.237.*.12.C	E4.481.237.*.12.C	237
250. ▶	E4.480.250.*.12.C	E4.481.250.*.12.C	250
262. ▶	E4.480.262.*.12.C	E4.481.262.*.12.C	262
275. ▶	E4.480.275.*.12.C*	E4.481.275.*.12.C*	275
287. ▶	E4.480.287.*.12.C*	E4.481.287.*.12.C*	287
300. ▶	E4.480.300.*.12.C	E4.481.300.*.12.C	300
312. ▶	E4.480.312.*.12.C*	E4.481.312.*.12.C*	312
325. ▶	E4.480.325.*.12.C*	E4.481.325.*.12.C*	325
337. ▶	E4.480.337.*.12.C*	E4.481.337.*.12.C*	337
350. ▶	E4.480.350.*.12.C*	E4.481.350.*.12.C*	350
362. ▶	E4.480.362.*.12.C*	E4.481.362.*.12.C*	362
375. ▶	E4.480.375.*.12.C*	E4.481.375.*.12.C*	375
387. ▶	E4.480.387.*.12.C*	E4.481.387.*.12.C*	387
400. ▶	E4.480.400.*.12.C*	E4.481.400.*.12.C*	400

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

*Width available upon request. Delivery time upon request.

E4.1L | **e-tubes** R4.48L | Accessories

KMA mounting brackets | Attachment from any side | Pivoting | Locking



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

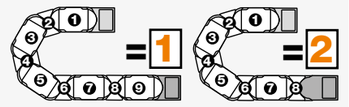
Width index	Part No. full set **KMA pivoting**	Part No. full set **KMA locking**	*Bi* [mm]
050. ▶	R4.480.050.*.12.C	R4.481.050.*.12.C	050
062. ▶	R4.480.062.*.12.C	R4.481.062.*.12.C	062
075. ▶	R4.480.075.*.12.C	R4.481.075.*.12.C	075
087. ▶	R4.480.087.*.12.C*	R4.481.087.*.12.C*	087
100. ▶	R4.480.100.*.12.C	R4.481.100.*.12.C	100
112. ▶	R4.480.112.*.12.C	R4.481.112.*.12.C	112
125. ▶	R4.480.125.*.12.C	R4.481.125.*.12.C	125

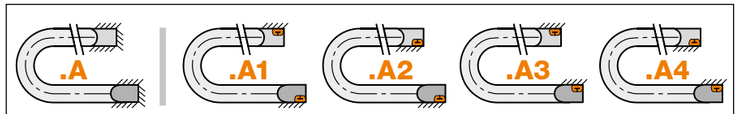
Width index	Part No. full set **KMA pivoting**	Part No. full set **KMA locking**	*Bi* [mm]
150. ▶	R4.480.150.*.12.C	R4.481.150.*.12.C	150
175. ▶	R4.480.175.*.12.C	R4.481.175.*.12.C	175
200. ▶	R4.480.200.*.12.C	R4.481.200.*.12.C	225
225. ▶	R4.480.225.*.12.C*	R4.481.225.*.12.C*	200
250. ▶	R4.480.250.*.12.C	R4.481.250.*.12.C	250
300. ▶	R4.480.300.*.12.C*	R4.481.300.*.12.C*	300

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

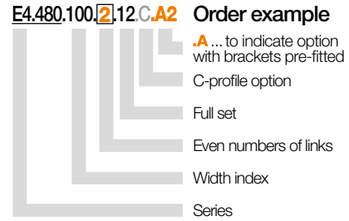
*Width available upon request. Delivery time upon request.

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.





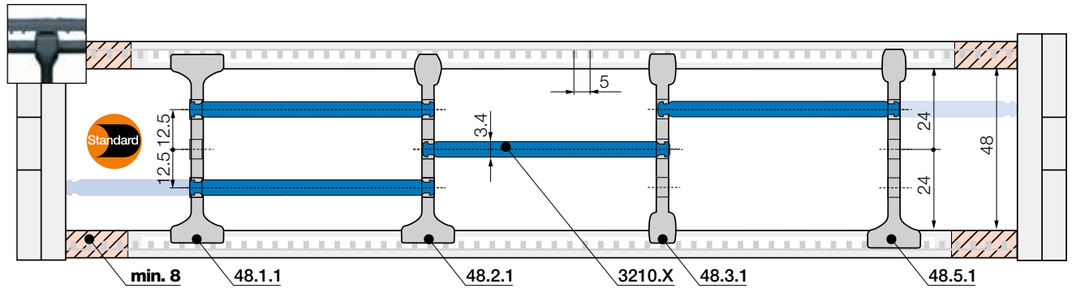
Possible orientations for KMA mounting brackets. For mounting brackets pre-fitted **without C-profile**, please attach index **.A**. For types pre-fitted **with C-profile**, please attach index **.A1**, **.A2**, **.A3** or **.A4**.



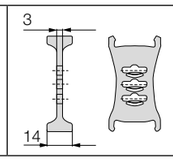
Strain relief **e.g. clamps, tiewrap plates, nuggets and clips are available from stock. The complete chainfix range with ordering options ▶ From page 1392**

E4.1L | Series E4.48L·R4.48L | Accessories

Interior separation | Increase cable service life



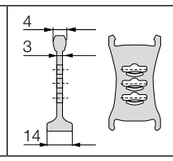
Note: Please be aware of the minimum lateral gap to the side links! **e-tube: 8mm** | **e-chain®: 8mm**
As standard separators are fitted every 2nd e-chain® link!



Standard separator, wide base	
unassembled	**48.1**
assembled	**48.1.1**

Standard - for any application

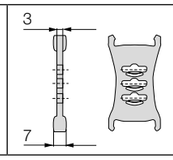
Separator with a wide base for maximum holding force.



Separator, narrow top	
unassembled	**48.2**
assembled	**48.2.1**

For even faster installation

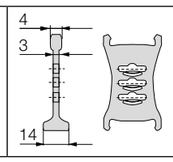
Wide on one side for high holding force, narrow on opposite side for easy cable fitting.



Separator, narrow	
unassembled	**48.3**
assembled	**48.3.1**

For small cables

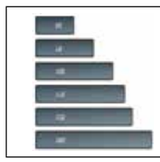
Separator with a narrow base for a large number of small cables side by side. Saves space.

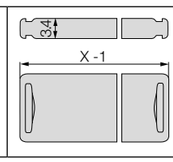


Notch separator for notched crossbar	
unassembled	**48.5**
assembled	**48.5.1**

Locks securely in preset increments

Notch separator for exact positioning.
Recommended for side-mounted applications.





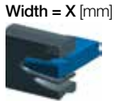
Shelf, lockable	
unassembled	**3200.X**
assembled	**3210.X**

Horizontal separation

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

Shelves

Width = X [mm]

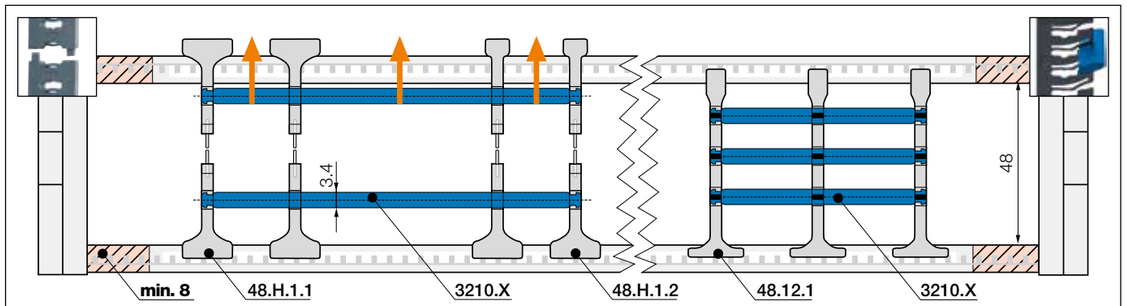


X [mm]	unassembled	assembled	X [mm]	unassembled	assembled	X [mm]	unassembled	assembled
050	**3200.050**	**3210.050**	125	**3200.125**	**3210.125**	225	**3200.225**	**3210.225**
075	**3200.075**	**3210.075**	150	**3200.150**	**3210.150**	250	**3200.250**	**3210.250**
100	**3200.100**	**3210.100**	175	**3200.175**	**3210.175**			
115	**3200.115**	**3210.115**	200	**3200.200**	**3210.200**			

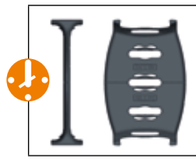
E4.48L
R4.48L

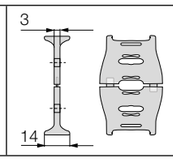
E4.1L | Series E4.48L·R4.48L | Accessories

Interior separation | To allow faster filling

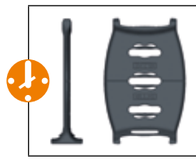


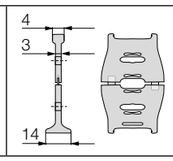
Note: Please be aware of the minimum lateral gap to the side links! **e-tube: 8mm** | **e-chain®: 8mm**
As standard separators are fitted every 2nd e-chain® link!





Split separator, wide base/top	
unassembled	**48.H.1**
assembled	**48.H.1.1**

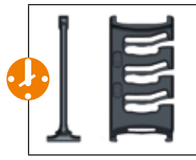


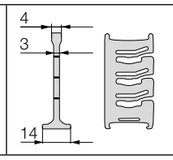


Split separator, narrow top	
unassembled	**48.H.2**
assembled	**48.H.2.1**

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 separator[1)]	
unassembled	**48.12**
assembled	**48.12.1**

Lean separators[1)]

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®!

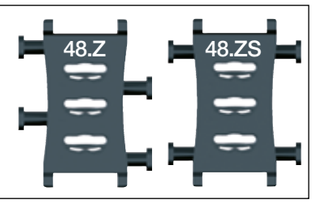
With the lean separator you can quickly insert several layers of cables into the e-chain® and reduce the installation time by up to 50%[2)].

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

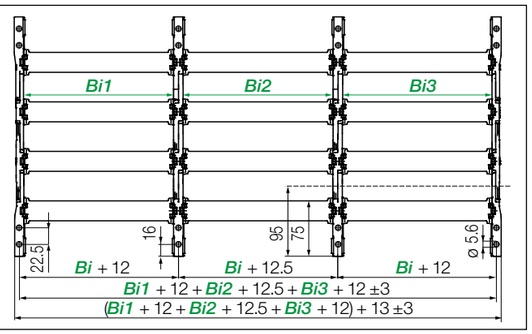
- Can be integrated into the mounting bracket or placed at any point
- Combines strain relief and interior separation, for restricted space conditions
- Strain relief separator is easy to assemble without any screws

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



E4.1L | Series E4.48L·R4.48L | Further accessories

Extension links



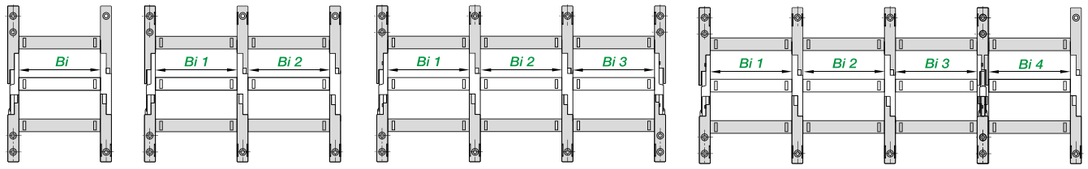
Extension links | For extremely wide e-chains® up to 2.0m with 50% more fill weight

- Extension link e-chains® for 50% higher fill weight extension link up to widths of 2.0m and more
- For heavy fill weights or e-chains® with many heavy cables next to each other
- e-chains® and e-tubes can be combined

Part No.	Part No.	Part No.
Extension link e-chain®	Extension link e-tube	Extension link as an individual part
E4.48L.*Bi1*/*Bi2*/*Bi3*.*R*.0	R4.48L.*Bi1*/*Bi2*/*Bi3*.*R*.0	E4.48ML.*R*.

Complete Part No.with the width index *Bi1*/*Bi2*/*Bi3*/*etc.* and the radius (*R*). Example: **E4.48L.175/175/175.150.0**

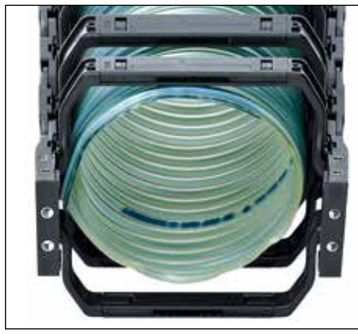
Increase of the fill weight per extension link

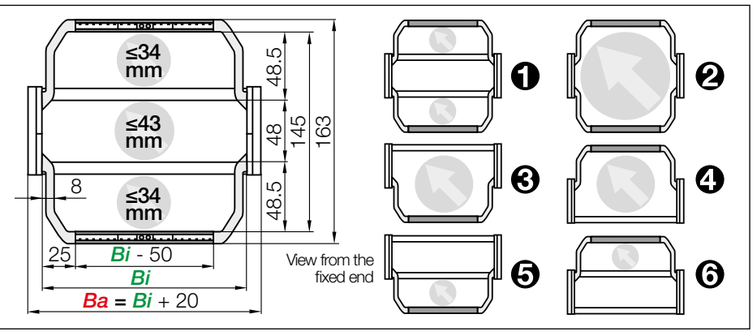


Normal fill weight | **+50% more fill weight** | **+100% more fill weight** | **+150% more fill weight**

E4.1L | Series E4.48L·R4.48L | Further accessories

e-chain® with openable extender crossbars





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

Versions	Hose	Part No.
e-chain® with extender crossbar	Ø ≤ [mm]	e-chain® with extender crossbar
❶ Extender crossbar and standard crossbar alternating along the inner and outer radius [1]	34	E4.48L.XXXHB48.*R*.0
❷ Extender crossbar on both sides along the inner and outer radius [2]	130	E4.48L.XXXB48.*R*.0
❸ Extender crossbar along the outer radius [3]	85	E4.48L.XXXBE48.*R*.0
❹ Extender crossbar along the inner radius [2]	85	E4.48L.XXXBZ48.*R*.0
❺ Extender crossbar and standard crossbar alternating along the outer radius [3]	34	E4.48L.XXXHBE48.*R*.0
❻ Extender crossbar and standard crossbar alternating along inner radius [1]	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**

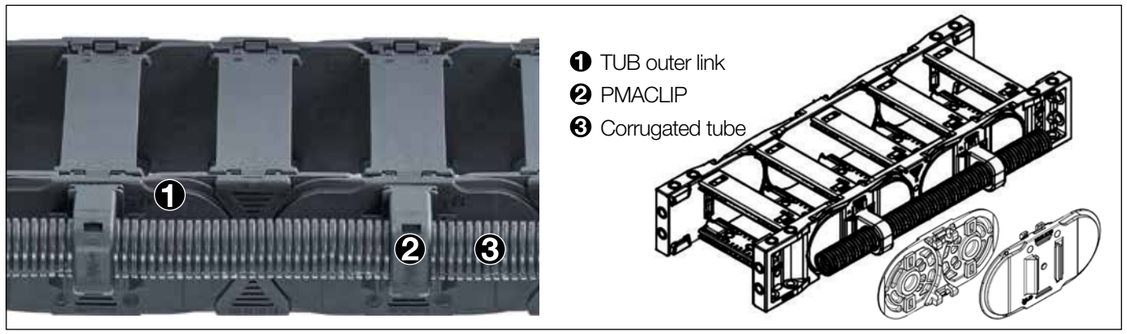
| 100 | 105 | 112 | 125 | 137 | 150 | 162 | 175 | 187 | 200 | 212 | 225 | 237 | 250 | 262 | 275* | 287* | 300 | 312* | 325* | 337* | 350* | 362* | 375* | 387* | 400* |

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

E4.48L.100B48.150.0 = *Bi* 100 / extender crossbar on both sides along 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

TUB



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

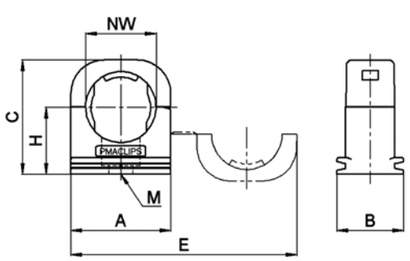
- Additional, simple guidance for corrugated tubes on the outside of the e-chain®
- PMACLIP support to be easily clipped on corrugated tubes with nominal widths 7, 10 ,12, 17, 23, 29, 36mm
- Easy access to the corrugated tubes, fast replacement of the hoses
- Reduce assembly time and cost - easy to assemble, 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 Outer link right*	Part No. TUB Outer link left*	Part No. TUB Outer link at both ends*	For corrugated tube nominal diameter Ø [mm]
E4.48L.XXXTUBR.R.0	E4.48L.XXXTUBL.R.0	E4.48L.XXXTUB.R.0	07 / 10 / 12 / 17 / 23 / 29 / 36

*As viewed from the fixed end

Complete Part No. with the width index XXX of *Bi* and the minimum bend radius (*R*). Example:
E4.48L.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
I-BFH-23-0	23	38.5	20.0	42.0	24.0	85.0	M6
I-BFH-29-0	29	45.5	20.0	48.0	27.0	99.0	M6
I-BFH-36-0	36	55.5	20.0	56.0	31.0	119.0	M6

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, openable 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

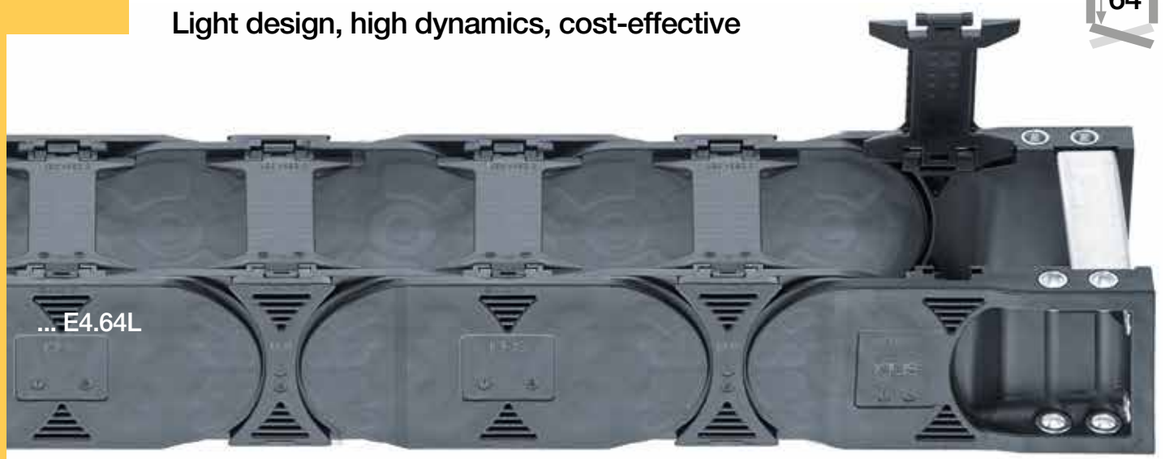
More information ▶ Page 1424

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

E4.1L | Series E4.64L | Product range

Light design, high dynamics, cost-effective

64



e-chains® | E4.64L | Crossbars every link (openable along inner and outer radius, from both sides)

Part No. e-chains®	Bi [mm]	Ba [mm]	E4.64L [kg/m]
E4.64L. 050.R.0*	50	76	≈ 2.37
E4.64L. 062.R.0*	62	88	≈ 2.41
E4.64L. 075.R.0	75	101	≈ 2.47
E4.64L. 087.R.0	87	113	≈ 2.54
E4.64L. 100.R.0	100	126	≈ 2.57
E4.64L. 112.R.0	112	138	≈ 2.63
E4.64L. 125.R.0	125	151	≈ 2.67
E4.64L. 137.R.0*	137	163	≈ 2.72
E4.64L. 150.R.0	150	176	≈ 2.77
E4.64L. 162.R.0*	162	188	≈ 2.83
E4.64L. 175.R.0	175	201	≈ 2.87
E4.64L. 187.R.0	187	213	≈ 2.93
E4.64L. 200.R.0	200	226	≈ 2.97
E4.64L. 212.R.0	212	238	≈ 3.03
E4.64L. 225.R.0	225	251	≈ 3.08

Part No. e-chains®	Bi [mm]	Ba [mm]	E4.64L [kg/m]
E4.64L. 237.R.0*	237	263	≈ 3.12
E4.64L. 250.R.0*	250	276	≈ 3.18
E4.64L. 262.R.0*	262	288	≈ 3.22
E4.64L. 275.R.0*	275	301	≈ 3.28
E4.64L. 287.R.0*	287	313	≈ 3.33
E4.64L. 300.R.0	300	326	≈ 3.38
E4.64L. 312.R.0*	312	338	≈ 3.43
E4.64L. 325.R.0	325	351	≈ 3.48
E4.64L. 337.R.0*	337	363	≈ 3.54
E4.64L. 350.R.0	350	376	≈ 3.58
E4.64L. 362.R.0*	362	388	≈ 3.63
E4.64L. 375.R.0*	375	401	≈ 3.68
E4.64L. 387.R.0*	387	413	≈ 3.73
E4.64L. 400.R.0*	400	426	≈ 3.78

*Width available upon request. Delivery time upon request.

Available bend radii

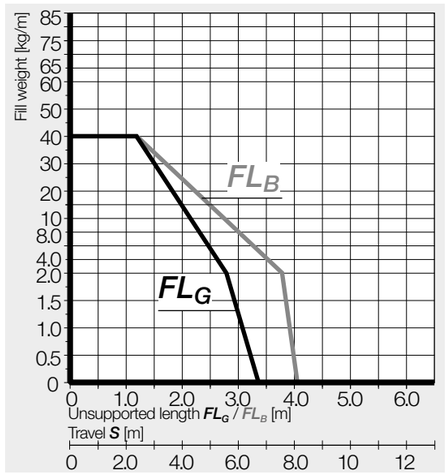
R [mm] | 100 | 125 | 150 | 175 | 200 | 250 | 300 | 350 | 400 |

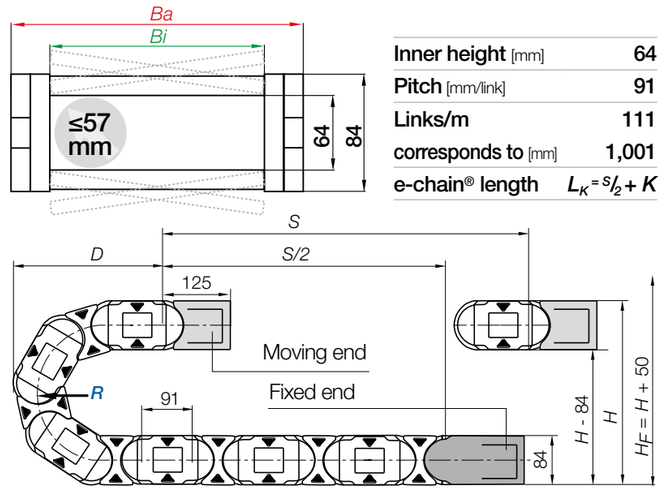
Complete Part No. with required radius (R). Example: **E4.64L.150.150.0 = crossbars every link**

E4.1L | Series E4.64L | Installation dimensions

▶ 1392 ▶ 1322

Unsupported applications | Short travels



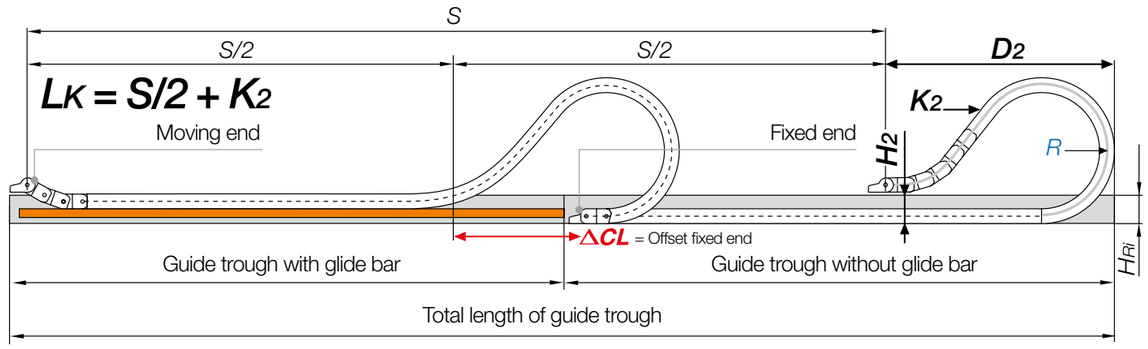


Inner height [mm]	64
Pitch [mm/link]	91
Links/m	111
corresponds to [mm]	1,001
e-chain® length	$L_K = S/2 + K$

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: $H_F = H + 50$mm (with 2.0kg/m fill weight)

Gliding applications | For long travels, upon request



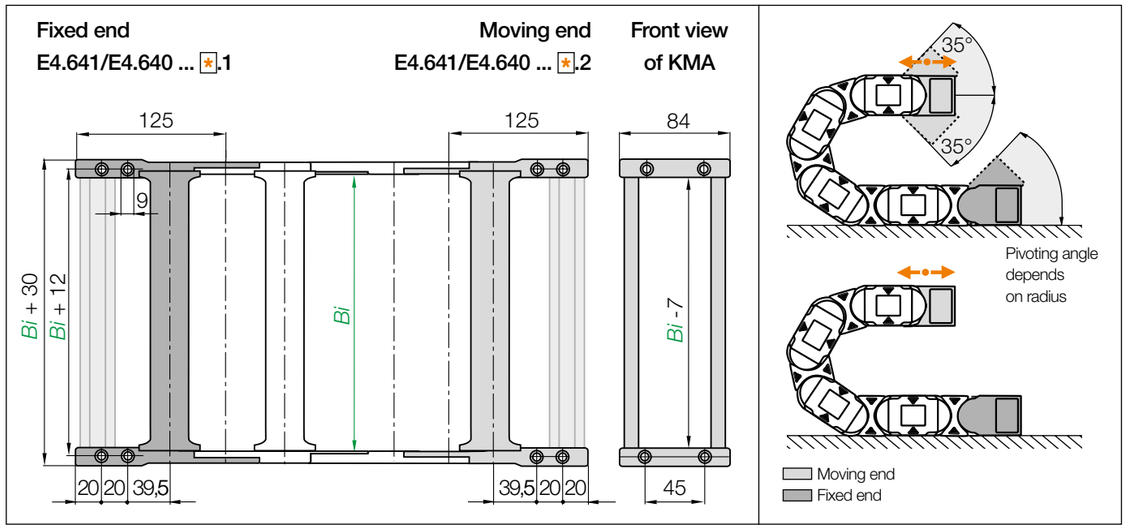
Note: We recommend the project planning of such a system to be carried out by igus®.
In case of travels between 5 and 10m we recommend an e-chain® with a longer unsupported length.

R	100	125	150	175	200	250	300	350	400
H_2	**	180	180	180	180	180	–	–	–
D_2	**	505	580	705	830	1,080	–	–	–
K_2	**	819	910	1,183	1,365	1,729	–	–	–
ΔCL	**	**	**	**	**	**	–	–	–

**Values upon request

E4.1L | e-chains® E4.64L | Accessories

KMA mounting brackets | Attachment from any side | Pivoting | Locking



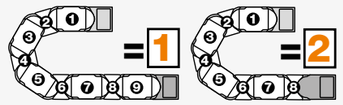
Standard **KMA pivoting | Recommended for unsupported and gliding applications**
KMA locking | Recommended for vertical hanging and standing applications

Width index	Part No. full set **KMA pivoting**	Part No. full set **KMA locking**	*Bi* [mm]
050. ▶	E4.640.050.*.12.C*	E4.641.050.*.12.C*	50
062. ▶	E4.640.062.*.12.C*	E4.641.062.*.12.C*	62
075. ▶	**E4.640.075.*.12.C**	**E4.641.075.*.12.C**	75
087. ▶	**E4.640.087.*.12.C**	**E4.641.087.*.12.C**	87
100. ▶	**E4.640.100.*.12.C**	**E4.641.100.*.12.C**	100
112. ▶	**E4.640.112.*.12.C**	**E4.641.112.*.12.C**	112
125. ▶	**E4.640.125.*.12.C**	**E4.641.125.*.12.C**	125
137. ▶	E4.640.137.*.12.C*	E4.641.137.*.12.C*	137
150. ▶	**E4.640.150.*.12.C**	**E4.641.150.*.12.C**	150
162. ▶	E4.640.162.*.12.C*	E4.641.162.*.12.C*	162
175. ▶	**E4.640.175.*.12.C**	**E4.641.175.*.12.C**	175
187. ▶	**E4.640.187.*.12.C**	**E4.641.187.*.12.C**	187
200. ▶	**E4.640.200.*.12.C**	**E4.641.200.*.12.C**	200
212. ▶	**E4.640.212.*.12.C**	**E4.641.212.*.12.C**	212
225. ▶	**E4.640.225.*.12.C**	**E4.641.225.*.12.C**	225

Width index	Part No. full set **KMA pivoting**	Part No. full set **KMA locking**	*Bi* [mm]
237. ▶	E4.640.237.*.12.C*	E4.641.237.*.12.C*	237
250. ▶	E4.640.250.*.12.C*	E4.641.250.*.12.C*	250
262. ▶	E4.640.262.*.12.C*	E4.641.262.*.12.C*	262
275. ▶	E4.640.275.*.12.C*	E4.641.275.*.12.C*	275
287. ▶	E4.640.287.*.12.C*	E4.641.287.*.12.C*	287
300. ▶	**E4.640.300.*.12.C**	**E4.641.300.*.12.C**	300
312. ▶	E4.640.312.*.12.C*	E4.641.312.*.12.C*	312
325. ▶	**E4.640.325.*.12.C**	**E4.641.325.*.12.C**	325
337. ▶	E4.640.337.*.12.C*	E4.641.337.*.12.C*	337
350. ▶	**E4.640.350.*.12.C**	**E4.641.350.*.12.C**	350
362. ▶	E4.640.362.*.12.C*	E4.641.362.*.12.C*	362
375. ▶	E4.640.375.*.12.C*	E4.641.375.*.12.C*	375
387. ▶	E4.640.387.*.12.C*	E4.641.387.*.12.C*	387
400. ▶	E4.640.400.*.12.C*	E4.641.400.*.12.C*	400

(KMA = polymer metal mounting bracket) For the C-profile option please add index **.C** *Width available upon request. Delivery time upon request.

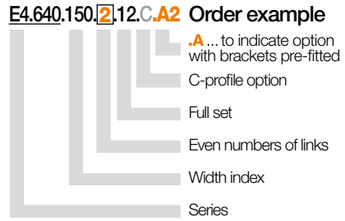
Note: *The e-chains® may end with either an inner or an outer side link. An outer side link should always be the first e-chain® link at the moving end. Please specify the index 1 (for odd) or 2 (for even) depending on an even or odd number of links required.



E4.1L | e-chains® E4.64L | Accessories

KMA mounting brackets | Attachment from any side

Possible orientations for KMA 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**.

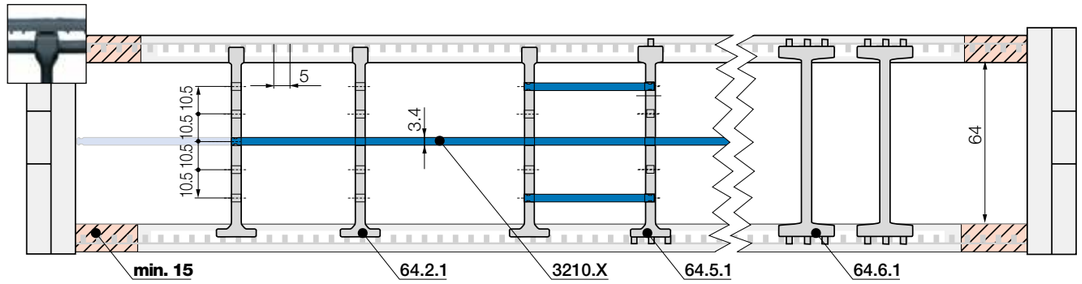


Strain relief **e.g. clamps, tiewrap plates, nuggets and clips are available from stock. The complete chainfix range with ordering options ▶ From page 1392**

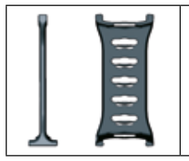
R4.1L e-tubes to guide motor, encoder and sensor cables on a bending machine

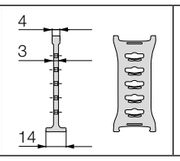
E4.1L | Series E4.64L | Accessories

Interior separation | Increase cable service life



Note: Please be aware of the minimum lateral gap to the side links! **e-chain®: 15mm**
As standard separators are fitted every 2nd e-chain® link!

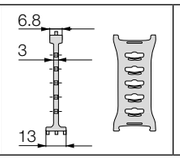




Separator, narrow top	
unassembled	64.2
assembled	64.2.1

For even faster installation

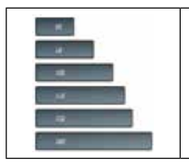
Wide on one side for high holding force, narrow on opposite side for easy cable fitting.

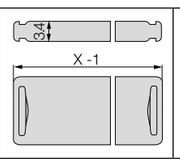


Notch separator for notched crossbar	
unassembled	64.5
assembled	64.5.1

Locks securely in preset increments

Notch separator for exact positioning.
Recommended for side-mounted applications.





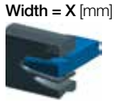
Shelf, lockable	
unassembled	3200.X
assembled	3210.X

Horizontal separation

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

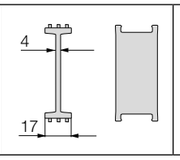
Shelves

Width = X [mm]



X [mm]	unassembled	assembled	X [mm]	unassembled	assembled	X [mm]	unassembled	assembled
050	**3200.050**	**3210.050**	125	**3200.125**	**3210.125**	225	**3200.225**	**3210.225**
075	**3200.075**	**3210.075**	150	**3200.150**	**3210.150**	250	**3200.250**	**3210.250**
100	**3200.100**	**3210.100**	175	**3200.175**	**3210.175**			
115	**3200.115**	**3210.115**	200	**3200.200**	**3210.200**			

More interior separation options



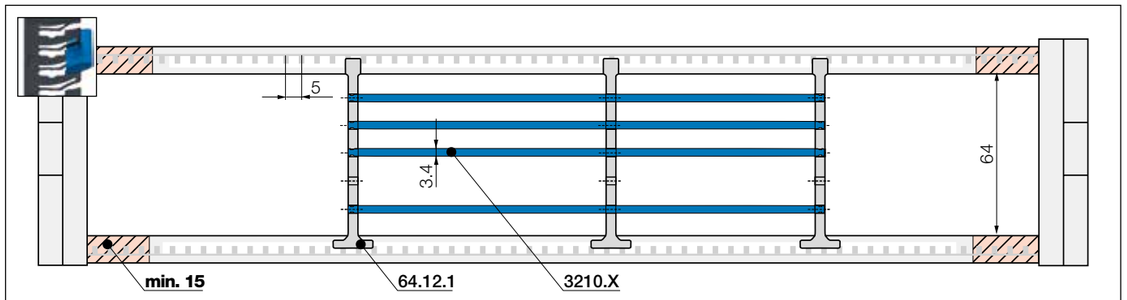
Notch locking separator, lockable for e-chains®	
unassembled	64.6
assembled	64.6.1

Notch locking separator for increased holding force

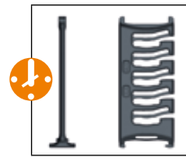
Notch locking separators offer higher crossbar opening forces for high humidity and/or large hydraulic hoses. They can be positioned precisely and then locked in position.

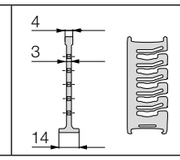
E4.1L | Series E4.64L | Accessories

Interior separation | To allow faster filling



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)]	
unassembled	64.12
assembled	64.12.1

Lean separators[1)]

For quick fitting of shelves in several layers.

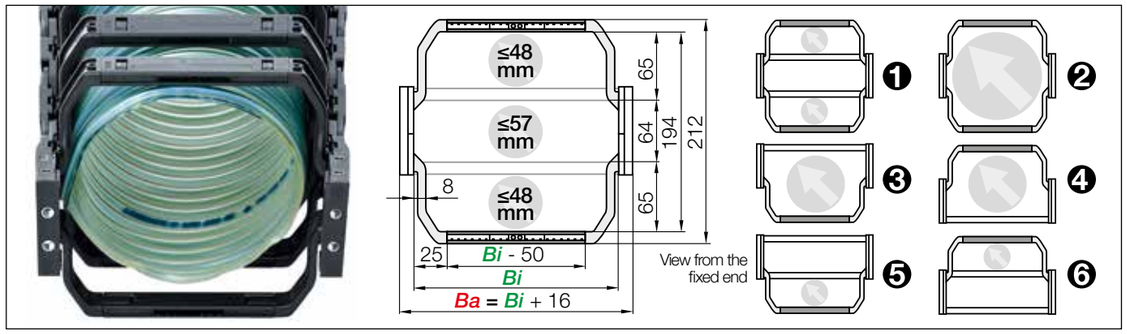
1) Note: Please combine maximum 4 lean separators with one shelf. Not suitable for side-mounted e-chains®!

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

e-chain® with openable extender crossbars



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

Versions	Hose	Part No.
e-chain® with extender crossbar	**Ø ≤ [mm]**	**e-chain® with extender crossbar**
❶ Extender crossbar and standard crossbar alternating along the inner and outer radius [1]	48	**E4.64L.XXXHB65.R.0**
❷ Extender crossbar on both sides along the inner and outer radius [2]	170	**E4.64L.XXXB65.R.0**
❸ Extender crossbar along the outer radius [3]	115	**E4.64L.XXXBE65.R.0**
❹ Extender crossbar along the inner radius [2]	115	**E4.64L.XXXBZ65.R.0**
❺ Extender crossbar and standard crossbar alternating along the outer radius [3]	48	**E4.64L.XXXHBE65.R.0**
❻ Extender crossbar and standard crossbar alternating along inner radius [1]	48	**E4.64L.XXXHBZ65.R.0**

1) Minimum bend radius: *R* 125 2) Minimum bend radius: *R* 150 3) Minimum bend radius: *R* 100 *Width available upon request. Delivery time upon request

Bi [mm] **Available inner widths**

| 100 | 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:

E4.64L.100B65.150.0 = *Bi* 100 / extender crossbar on both sides along 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

E4.1L | Series E4.64L | Further accessories

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

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