Energy Chain System® E4/100
Series 380/390/R780

1.65” 1.65”

Price Index

Series 380 Series 390

Series R780

Special Features / Options

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

Clean-Room Cleanroom test upon request

EX ESD classification: Electrically conductive ESD/ATEX version upon request

Assembly Tips

Opening Energy Chains®: Remove cross-bars and clips - Insert screwdriver into the slot, push down, release by lever action

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

Other Installation Methods

Vertical, hanging ≤ 328 ft (100 m)
Vertical, standing ≤ 19.69 ft (6 m)
Side-mounted, unsupp. ≤ 6.56 ft (2 m)
Rotary requires further calculation

Usage Guidelines

- If quiet operation is required
- If very high speeds and/or accelerations are required
- Long travels
- High fill weights

- If long, side-mounted, unsupported length is required
  ➤ **Series 3838/3938/R7838**
- If single-radius accessibility is sufficient
  ➤ **Series 340/350, Chapter 4**

Features & Benefits

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

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

Order Example: Complete Energy Chain®

Please indicate chain length or number of links. Example:

energy chain® configurator

16.4 ft (5 m) **380-20-300-0**	**Energy Chain®**
With 2 separators **382** assembled every 2nd link	**Interior Separation**
1 Set **38000-20-12P**	**Mounting Bracket**

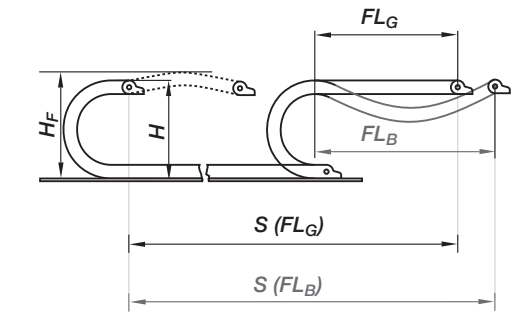
Energy Chain System® E4/100
Series 380/390/R780
Installation Dimensions

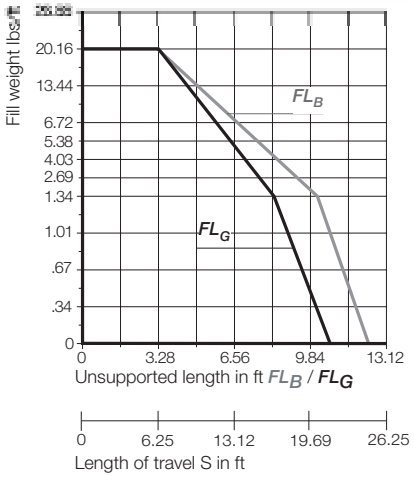
energy chain® configurator

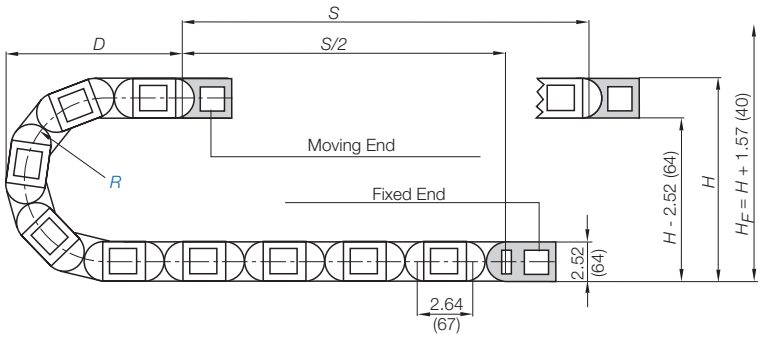
Short travel, unsupported length

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

Further information ➤ Design, Chapter 1







Pitch per link: = 2.64" (67 mm)
Links per ft (m): = 4.57 (15)
For center mount applications:
Chain length = $^{S}/_{2} + K$

The required clearance height: $H_F = H$ **+ 1.57 in. (40 mm)** (with 1.34 lbs/ft (2 kg/m) fill weight. Please consult igus® if space is particularly restricted.

R	2.95 (075)	3.94 (100)	4.53 (115)	4.92 (125)	5.91 (150)	6.69 (170)	7.87 (200)	8.46 (215)	9.84 (250)	11.81 (300)	13.78 (350)
H $^{-0}_{+20}$	8.46 (215)	10.43 (265)	11.61 (295)	12.40 (315)	14.37 (365)	15.94 (405)	18.31 (465)	19.49 (495)	22.24 (565)	26.18 (665)	30.12 (765)
D	6.85 (174)	7.83 (199)	8.43 (214)	8.82 (224)	9.80 (249)	10.59 (269)	11.77 (299)	12.36 (314)	13.74 (349)	15.71 (399)	17.68 (449)
K	14.57 (370)	17.72 (450)	19.69 (500)	20.87 (530)	24.02 (610)	26.38 (670)	30.12 (765)	31.89 (810)	36.22 (920)	42.52 (1080)	48.62 (1235)

Short Travels - Unsupported

Unsupported Energy Chains® feature positive camber over short travels. This must be accounted for when specifying the clearance height. Please refer to **Installation dimensions** for further details.

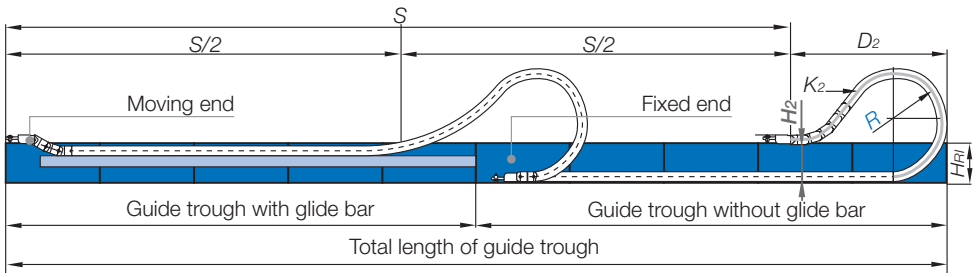
Legend

S = Length of travel
R = Bending radius
H = Nominal clearance height
D = Overlength Energy Chain® radius in final position
K = $\pi \bullet R$ + *safety buffer*
H_F = Required clearance height
H_{RI} = Trough inner height
H_2 = *Mounting height
D_2 = Overlength - long travels, gliding
K_2 = *Add-on
*If the mounting bracket location is set lower

For long travels with lowered mounting height

Long travel lengths from 32.8 ft. (10 m) to max. 984 ft. (300 m)

For center mount applications:
Chain length: = $^{S}/_{2} + K_2$



Long Travels - Gliding

If the unsupported length is exceeded, the Energy Chain®/Tube must glide on itself. This requires a guide trough.
Design, Chapter 1

R	2.95 (075)	3.94 (100)	4.53 (115)	4.92 (125)	5.91 (150)	6.69 (170)	7.87 (200)	8.46 (215)	9.84 (250)	11.81 (300)	13.78 (350)
H_2	-	-	-	7.32 (186)	7.32 (186)	7.32 (186)	7.32 (186)	7.32 (186)	7.32 (186)	7.32 (186)	7.32 (186)
$D_{2\ +20}$	-	-	-	18.70 (475)	22.44 (570)	24.41 (620)	30.71 (780)	34.06 (865)	40.55 (1030)	45.28 (1150)	59.06 (1500)
K_2	-	-	-	31.65 (804)	36.93 (938)	42.20 (1072)	52.76 (1340)	55.39 (1407)	65.94 (1675)	76.50 (1943)	94.96 (2412)

For support of the lower run, **see Chapter 9** for the **Support Tray tool kit**

Technical Data

Speed / acceleration FL_G	max. 65.6 ft/s (20 m/s) / max. 656 ft/s² (200 m/s²)
Speed / acceleration FL_B	max. 9.84 ft/s (3 m/s) / max. 19.69 ft/s² (6 m/s²)
Gliding speed / acceleration (maximum)	max. 32.8 ft/s (10 m/s) / max. 164 ft/s² (50 m/s²)
Material - permitted temperature	igumid G / -40°F (-40°C) up to +248°F (+120° C)
Flammability Class, igumid G	VDE 0304 IIC UL94 HB

Details of material properties
➤ **Chapter 1**

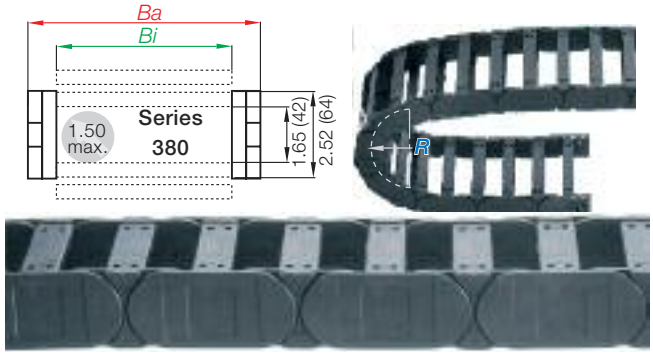
PDF: www.igus.com/e-chain-pdfs
Specs/CAD/RFQ: www.igus.com/e-chains
RoHS info: www.igus.com/RoHS

Energy Chain System® E4/100
Series 380/390/R780

Telephone 1-800-521-2747
Fax 1-401-438-7270

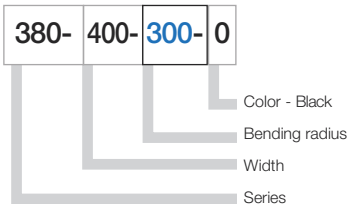
Internet: http://www.igus.com
email: sales@igus.com
QuickSpec: http://www.igus.com/quickspec

Series 380 - Energy Chain® with crossbars every link

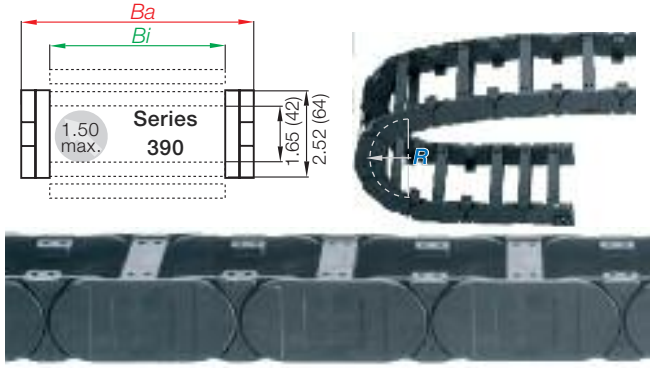


- Crossbars every link
- For use with rigid hydraulic hoses
- For particularly demanding applications
- Can be opened from both sides

Part Number Structure

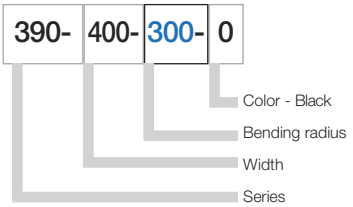


Series 390 - Energy Chain® with crossbars every other link

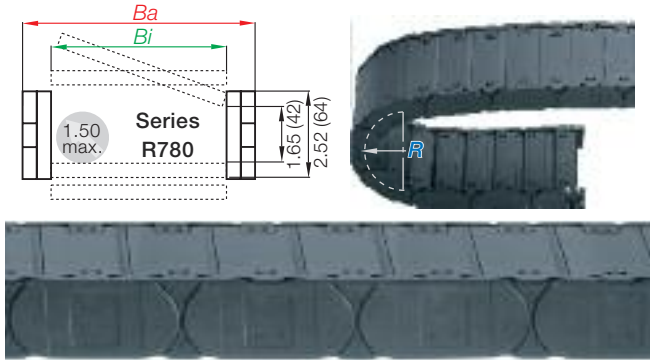


- Crossbars every other link Standard configuration
- For nearly every situation
- Can be opened from both sides
- Easy assembly
- Stable
- Cost-effective

Part Number Structure

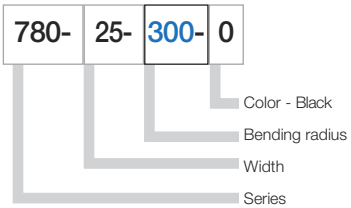


Series R780 - fully enclosed Energy Tube

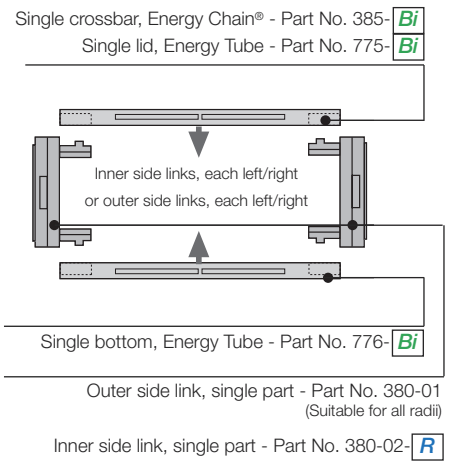


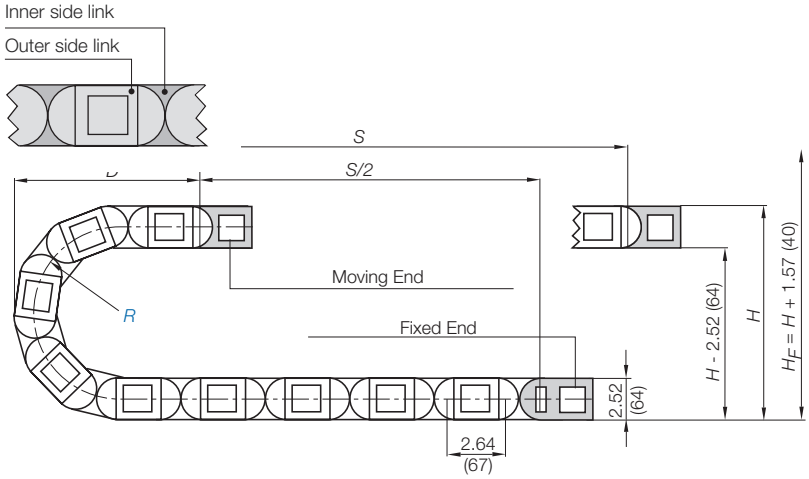
- Fully enclosed
- Excellent cable and hose protection against dirt
- Protection against hot chips up to 1652°F (900°C)
- Lids along inner radius are completely removable
- Lids along the outer radius are single-sided, snap open, hinged on one side as well as completely removable

Part Number Structure



Energy Chain® as separate parts, links and side plates





Energy Chain System® E4/100
Series 380/390/R780

Supplement part number with required radius. Example: 380-30-300-0
Pitch: 2.64 in. (67mm) per link, links/ft(m) = 4.57 (15)

Part Number				Bi	Ba	Weight		
Crossbars Every link	Crossbars Every other	Tube Version		in. (mm)	in. (mm)	380 lbs/ft (kg/m)	390 lbs/ft (kg/m)	R780 lbs/ft (kg/m)
380-05-	390-05	*780-05-	-0	1.97 (50)	2.99 (76)	≈ 1.38 (2.06)	≈ 1.33 (1.98)	≈ 1.51 (2.25)
380-06-	390-06-		-0	2.68 (68)	3.70 (94)	≈ 1.40 (2.09)	≈ 1.34 (1.99)	–
380-07-	390-07	780-07-	-0	2.95 (75)	3.98 (101)	≈ 1.42 (2.12)	≈ 1.35 (2.01)	≈ 1.60 (2.38)
380-087-	390-087-		-0	3.43 (87)	4.49 (114)	≈ 1.47 (2.18)	≈ 1.37 (2.04)	–
380-10-	390-10-	780-10-	-0	3.94 (100)	4.96 (126)	≈ 1.51 (2.25)	≈ 1.40 (2.08)	≈ 1.75 (2.60)
380-11-	390-11-	780-11-	-0	4.25 (108)	5.28 (134)	≈ 1.55 (2.30)	≈ 1.41 (2.10)	≈ 1.78 (2.65)
380-112-	390-112-		-0	4.41(112)	5.47 (139)	≈ 1.55 (2.30)	≈ 1.41 (2.10)	–
380-12-	390-12-	780-12-	-0	4.92 (125)	5.94 (151)	≈ 1.61 (2.40)	≈ 1.44 (2.15)	≈ 1.89 (2.81)
380-137-	390-137-		-0	5.39 (137)	6.46 (164)	≈ 1.64 (2.44)	≈ 1.46 (2.17)	–
380-15-	390-15-	780-15-	-0	5.91 (150)	6.93 (176)	≈ 1.70 (2.53)	≈ 1.49 (2.21)	≈ 2.06 (3.07)
380-162-	390-162-		-0	6.38 (162)	7.44 (189)	≈ 1.71 (2.55)	≈ 1.49 (2.22)	–
380-17-	390-17-	780-17-	-0	6.61 (168)	7.64 (194)	≈ 1.76 (2.62)	≈ 1.52 (2.26)	≈ 2.18 (3.24)
380-18-	390-18-		-0	6.89 (175)	7.91 (201)	≈ 1.76 (2.62)	≈ 1.52 (2.26)	–
380-187-	390-187-		-0	7.36 (187)	8.43 (214)	≈ 1.81 (2.69)	≈ 1.55 (2.30)	–
380-20-	390-20-	780-20-	-0	7.87 (200)	8.90 (226)	≈ 1.86 (2.77)	≈ 1.57 (2.33)	≈ 2.37 (3.53)
380-212-	390-212-		-0	8.35 (212)	9.41 (239)	≈ 1.91 (2.84)	≈ 1.59 (2.37)	–
380-23-	390-23-		-0	8.86 (225)	9.88 (251)	≈ 1.96 (2.92)	≈ 1.62 (2.41)	–
380-237-	390-237-		-0	9.33 (237)	10.39 (264)	≈ 1.99 (2.96)	≈ 1.63 (2.43)	–
380-25-	390-25-	780-25-	-0	9.84 (250)	10.87 (276)	≈ 2.05 (3.05)	≈ 1.66 (2.47)	≈ 2.91 (4.33)
380-262-	390-262-		-0	10.31 (262)	11.38 (289)	≈ 2.06 (3.06)	≈ 1.67 (2.48)	–
380-28	390-28-		-0	10.83 (275)	11.85 (301)	≈ 2.13 (3.17)	≈ 1.70 (2.53)	–
380-29-	390-29-		-0	11.30 (287)	12.36 (314)	≈ 2.14 (3.19)	≈ 1.71 (2.54)	–
380-30-	390-30-	780-30-	-0	11.81 (300)	12.83 (326)	≈ 2.23 (3.32)	≈ 1.75 (2.61)	≈ 3.29 (4.89)
380-312-	390-312-		-0	12.28 (312)	13.35 (339)	≈ 2.24 (3.34)	≈ 1.76 (2.62)	–
380-325-	390-325-		-0	12.79 (325)	13.82 (351)	≈ 2.29 (3.41)	≈ 1.79 (2.66)	–
380-337-	390-337-		-0	13.27 (337)	14.33 (364)	≈ 2.33 (3.46)	≈ 1.80 (2.68)	–
380-350-	390-350-		-0	13.78 (350)	14.80 (376)	≈ 2.47 (3.68)	≈ 1.88 (2.79)	–
380-362-	390-362-		-0	14.25 (362)	15.31 (389)	≈ 2.51 (3.74)	≈ 1.90 (2.82)	–
380-375-	390-375-		-0	14.76 (375)	15.83 (402)	≈ 2.55 (3.79)	≈ 1.91 (2.84)	–
380-387-	390-387-		-0	15.24 (387)	16.30 (414)	≈ 2.59 (3.85)	≈ 1.93 (2.87)	–
380-400	390-400-		-0	15.75 (400)	16.77 (426)	≈ 2.62 (3.90)	≈ 1.95 (2.90)	–

Choose from the radii below for all of the above sizes
Radius (mm) Example: 380-30-150-0

	075**	100**	115**	125	150	170	200	215	250	300	350
R	2.95 (075)	3.94 (100)	4.53 (115)	4.92 (125)	5.91 (150)	6.69 (170)	7.87 (200)	8.46 (215)	9.84 (250)	11.81 (300)	13.78 (350)
H $^{-0}_{+20}$	8.46 (215)	10.43 (265)	11.61 (295)	12.40 (315)	14.37 (365)	15.94 (405)	18.31 (465)	19.49 (495)	22.24 (565)	26.18 (665)	30.12 (765)
D	6.85 (174)	7.83 (199)	8.43 (214)	8.82 (224)	9.80 (249)	10.59 (269)	11.77 (299)	12.36 (314)	13.74 (349)	15.71 (399)	17.68 (449)
K	14.57 (370)	17.72 (450)	19.69 (500)	20.87 (530)	24.02 (610)	26.38 (670)	30.12 (765)	31.89 (810)	36.22 (920)	42.52 (1080)	48.62 (1235)

** This radius is not available for the R780 Series
*Removable lid only, no hinged option

0=Standard color black. For other colors see Chapter 1
For wider chains see page 6.85. For large diameter hoses see page 6.85

PDF: www.igus.com/e-chain-pdfs
Specs/CAD/RFQ: www.igus.com/e-chains
RoHS info: www.igus.com/RoHS

Energy Chain System® E4/100
Series 380/390/R780
Interior Separation

energy chain® configurator

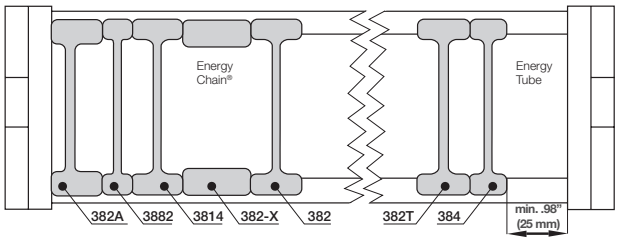
Telephone 1-800-521-2747
Fax 1-401-438-7270

Internet: http://www.igus.com
email: sales@igus.com
QuickSpec: http://www.igus.com/quickspec

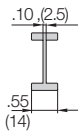
Option 1: Vertical separators and spacers

Vertical separators are used if a vertical subdivision of the Energy Chain® interior is required. By standard, vertical separators are assembled every other Energy Chain® link.

NOTE: Observe a lateral spacing of at least .98 in. (25mm) for Energy Tubes



STANDARD
Vertical separator 380

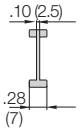


Separator (chain/tube)

Unassembled	**Part No. 380**
Assembled	**Part No. 381**

- **Standard separator 380 for Energy Chains® and Energy Tubes**
  This separator offers safe stability due to its wide base design, also when used with thick cables or hoses.

Vertical separator 3881

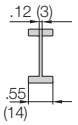


Separator (chain only)

Unassembled	**Part No. 3881**
Assembled	**Part No. 3882**

- **Vertical separator 3881 for Energy Chains®**
  This separator features a narrow 7mm base for applications where a large number of small cables need to be individually separated.

Vertical separator 380T

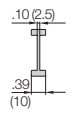


Vertical Separator (tubes only)

Unassembled	**Part No. 380T**
Assembled	**Part No. 381T**

- **Locking separator 380T for Energy Tubes**
  It clamps to the fixed radius and remains free along the other radius to facilitate lid removal. When installing please ensure they are identically aligned.

Vertical separator 383

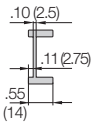


Separator (chain only)

Unassembled	**Part No. 383**
Assembled	**Part No. 384**

- **Vertical separator 383 for Energy Chains®**
  This separator features an increased retention force for applications exposed to very high humidity or extreme loads. It features asymmetric claws for the crossbar which results in the increased retention force.

Asymmetric separator 381A



Asymmetric separator (chain only)

Unassembled	**Part No. 381A**
Assembled	**Part No. 382A**

- **Asymmetrical separator 381A for Energy Chains®**
  This separator features an (14mm) base. It can be used in combinations between spacers of different widths and vertical separators in side mounted applications.

Spacers 381-XX

Spacer (chain only)

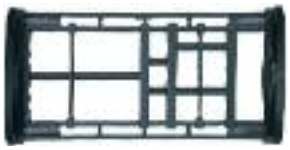
Unassembled	**Part No. 381-XX**
Assembled	**Part No. 382-XX**

XX = width of the spacer

Spacers available in the following sizes:

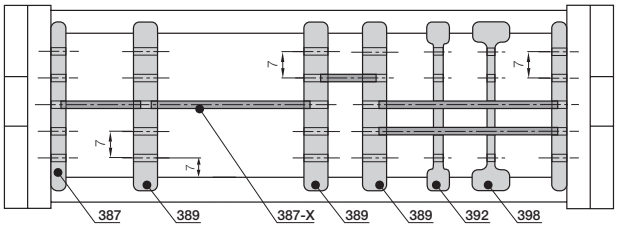
Part No. Unassembled	Part No. Assembled	in.	(mm)
381 -10	**382 -10**	.39"	(10)
381 -15	**382 -15**	.59"	(15)
381 -20	**382 -20**	79"	(20)

- **NOTE ON SPACERS**
  Vertical separators are adjustable, but can be fixed in position by means of a spacer. Spacers are most often necessary for side mounted applications. The available inner height is reduced by .08" (2mm) **per spacer** (for example if one spacer is placed on either side of the separator, the overall inner height is reduced by .16" (4mm). To avoid this, place the spacers on the **outside** of the opening crossbar **(not for long travels)**.

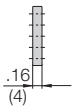


Option 2: Shelves

Energy Chains® and Energy Tubes can be subdivided both vertically and horizontally using the various interior separation elements. ➤ **Design, Chapter 1** for layout recommendations.



- **Side plates 386**
  This component is used to form the basic pattern of a shelf system.



Side Plate

Unassembled	**Part No. 386**
Assembled	**Part No. 387**

Side plate 386

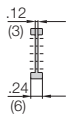
- **Vertical separator 388**
  This component is used to form the basic pattern of a shelf system.

Vertical Separator

Unassembled	**Part No. 388**
Assembled	**Part No. 389**

Vertical separator 388

- **Closed Slotted separators 391**
  These are used for complex subdivisions. However, they cannot be retrofitted into an existing interior separation system without removing the shelves first.

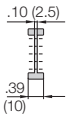


Slotted Separators

Unassembled	**Part No. 391**
Assembled	**Part No. 392**

Closed slotted separator 391

- **Open slotted separator 397**
  This separator can be retrofitted into an existing interior separation system without removing the shelves, as long as these shelves fit into the middle 3 slots only.



Slotted Separators, Open

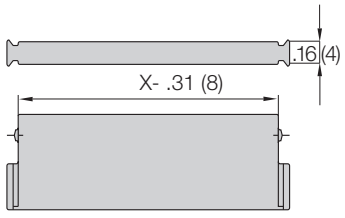
Unassembled	**Part No. 397**
Assembled	**Part No. 398**

Open slotted separator 397

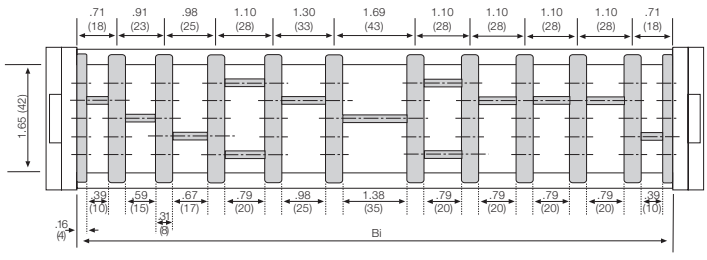
Width X		Usable Width		Part No.	Part No.
in.	(mm)	in.	(mm)	Unassembled	Assembled
.71	(18)	.39	(10)	**386-18**	**387-18**
.91	(23)	.59	(15)	**386-23**	**387-23**
.98	(25)	.67	(17)	**386-25**	**387-25**
1.10	(28)	.79	(20)	**386-28**	**387-28**
1.30	(33)	.98	(25)	**386-33**	**387-33**
1.69	(43)	1.38	(35)	**386-43**	**387-43**
1.97	(50)	1.65	(42)	**386-50**	**387-50**
2.13	(54)	1.81	(46)	**386-54**	**387-54**
2.44	(62)	2.13	(54)	**386-62**	**387-62**
2.95	(75)	2.64	(67)	**386-75**	**387-75**
3.43	(87)	3.12	(87)	**386-87**	**387-87**
3.94	(100)	3.62	(92)	**386-100**	**387-100**
4.25	(108)	3.94	(100)	**386-108**	**387-108**
4.92	(125)	4.61	(117)	**386-125**	**387-125**
5.91	(150)	5.59	(142)	**386-150**	**387-150**
6.89	(175)	6.57	(167)	**386-175**	**387-175**
7.87	(200)	7.56	(192)	**386-200**	**387-200**
8.19	(208)	7.87	(200)	**386-208**	**387-208**

Shelves 386-XX

These components form the basic pattern of a shelf system. Shelves of various widths can be arranged at 5 different heights in .28" (7mm) increments



The diagram below is for reference purposes only. Multiple configurations are possible. To create your e-chain shelving cross section please see our online e-chain configurator. Call 1-800-521-2747 for assistance and/or go to igus.com click on the ***Products*** drop down menu, choose ***Energy Chain Cable Carriers*** and on the next drop down menu simply click on ***e-chain Configurator***.



PDF: www.igus.com/e-chain-pdfs
Specs/CAD/RFQ: www.igus.com/e-chains
RoHS info: www.igus.com/RoHS

Energy Chain System® E4/100
Series 380/390/R780
Special Accessories

energy chain® configurator

Telephone 1-800-521-2747
Fax 1-401-438-7270

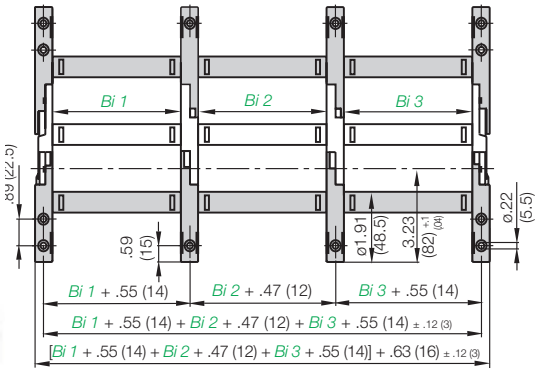
Internet: http://www.igus.com
email: sales@igus.com
QuickSpec: http://www.igus.com/quickspec

Part number example for Energy Chain®
380-10/20/10-[200]-0
380-*Bi1*/*Bi2*/*Bi3*-[*R*]-0

We **strongly recommend** on-site consultation with an igus® technician for individual advice regarding mounting brackets, guide troughs and other design details.

Extension links - for extremely wide Energy Chains® up to 9.84 ft (3m)

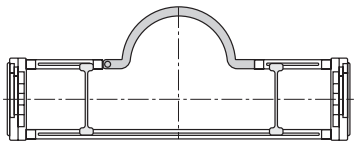
- For applications in which particularly high fill weights necessitate extremely wide Energy Chains®
- The extension link design allows virtually limitless side-by-side attachment of chains
- The unsupported length of a chain can be increased when additional loads are required
- Extension links can be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



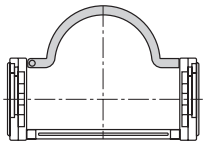
Consult igus® for your extender crossbar applications. We will be happy to assist you with your design layout.

Extender crossbars - For careful guiding of large diameter cables and hoses

- Intended for cables and hoses with a maximum outer diameter of 4.53 in. (115 mm).
- Gliding operation with crossbars assembled along the outer radius in conjunction with a special guide trough
- Gliding operation not guaranteed with crossbars assembled along the inner radius
- The extender crossbar can either be attached to the side links directly or can be used in combination with two standard snap-open crossbars.



Round extender crossbar combined with standard snap-open crossbars.

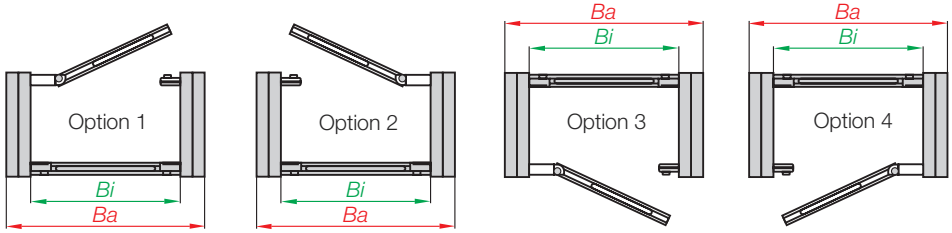


Attached directly to the side link.

Part No.	Max Ø Hose in. (mm)	Style	Installation Side Link	Combined with Snap-Open Crossbars
385-15-RHD115	4.53 (115)	Round	No	Yes
385-18-RD115	4.53 (115)	Round	Yes	No

Hinged crossbars

- Typically, Energy Chain® crossbars are completely removable. In cases where it is preferable that the opening crossbars remain on the Energy Chain®, a hinged design has been developed.
- Please consult igus® for design assistance



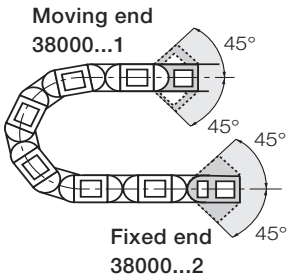
Energy Chain System® E4/100
Series 380/390/R780
Mounting Brackets - KMA

energy chain® configurator

Standard

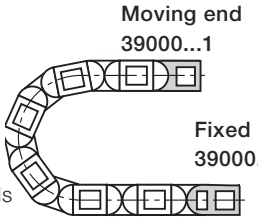
Option 1: KMA pivoting

- Profile rail option
- Universal use
- Corrosion resistant
- Short and long travels
- Space-restricted conditions



Option 2: KMA locking

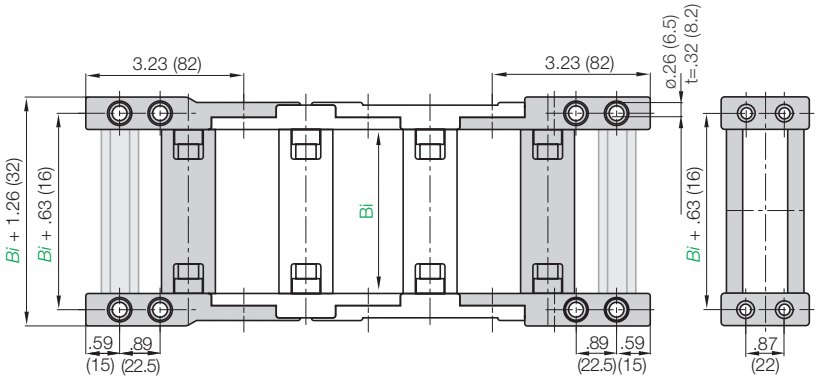
- Profile rail option
- Universal use
- Corrosion resistant
- Vertical hanging/standing travels
- Extreme accelerations



Part Number Structure

38000- | 07- | 12 | T | P

- With Profile Rail
- Tube version
- Complete Set
- Width
- 38000 = Pivoting, 39000 = Locking



Due to the design of the E4/100 series chains, please note the following when ordering brackets:

Even number of links = full set, part number ending in **-12**
Odd number of links = 2 pieces, part number ending in **-2**

Part number examples are shown for pivoting brackets. For locking brackets change part number to 39000

Part No. Full Set (pivoting)
Series 380 or 390:
38000-Width-12

Part No. Full Set (pivoting)
with profile rail
Series 380 or 390
38000-Width-12P

Part No. Full Set (pivoting)
Tube Series R780
38000-Width-12T

Part No. Full Set (pivoting)
with Profile Rail
Series 780
38000-Width-12TP

Width	Part No. Full Set Pivoting	Part No. Full Set Locking		Tube Option	With Profile Rail	*Bi* in. (mm)
-05*	38000	39000	-05-12	T	P	1.97 (50)
-06	38000	39000	-06-12		P	2.68 (68)
-07	38000	39000	-07-12	T	P	2.95 (75)
-087	38000	39000	-087-12		P	3.43 (87)
-10	38000	39000	-10-12	T	P	3.94 (100)
-11	38000	39000	-11-12	T	P	4.25 (108)
-112	38000	39000	-112-12		P	4.41 (112)
-12	38000	39000	-12-12	T	P	4.92 (125)
-137	38000	39000	-137-12		P	5.39 (137)
-15	38000	39000	-15-12	T	P	5.91 (150)
-162	38000	39000	-162-12		P	6.38 (162)
-17	38000	39000	-17-12	T	P	6.61 (168)
-18	38000	39000	-18-12		P	6.89 (175)
-187	38000	39000	-187-12		P	7.36 (187)
-20	38000	39000	-20-12	T	P	7.87 (200)
-212	38000	39000	-212-12		P	8.35 (212)

Width	Part No. Full Set Pivoting	Part No. Full Set Locking		Tube Option	With Profile Rail	*Bi* in. (mm)
-23	38000	39000	-23-12		P	8.86 (225)
-237	38000	39000	-237-12		P	9.33 (237)
-25	38000	39000	-25-12	T	P	9.84 (250)
-262	38000	39000	-262-12		P	10.31 (262)
-28	38000	39000	-28-12		P	10.83 (275)
-29	38000	39000	-29-12		P	11.30 (287)
-30	38000	39000	-30-12	T	P	11.81 (300)
-312	38000	39000	-312-12		P	12.28 (312)
-325	38000	39000	-325-12		P	12.79 (325)
-337	38000	39000	-337-12		P	13.27 (337)
-350	38000	39000	-350-12		P	13.78 (350)
-362	38000	39000	-362-12		P	14.25 (362)
-375	38000	39000	-375-12		P	14.76 (375)
-387	38000	39000	-387-12		P	15.24 (387)
-400	38000	39000	-400-12		P	15.75 (400)

PDF: www.igus.com/e-chain-pdfs
Specs/CAD/RFQ: www.igus.com/e-chains
RoHS info: www.igus.com/RoHS

Energy Chain System® E4/100
Series 380/390/R780
Strain Relief

energy chain® configurator

Telephone 1-800-521-2747
Fax 1-401-438-7270

Internet: http://www.igus.com
email: sales@igus.com
QuickSpec: http://www.igus.com/quickspec

Chainfix clamps for the profile rail

igus® Chainfix strain relief elements are available in either steel or stainless steel. They can be adjusted with a hexagon socket and are available in single, double and triple configurations.

Part No. Single Clamp		Part No. Double Clamp		Part No. Triple Clamp		Cable ø	
Steel	Stainless	Steel	Stainless	Steel	Stainless	in.	(mm)
CFX12-1	CFX12-1E	CFX12-2	CFX12-2E	CFX12-3	–	.24 - .47	(06 - 12)
CFX14-1	CFX14-1E	CFX14-2	CFX14-2E	CFX14-3	–	.47 - .55	(12 - 14)
CFX16-1	CFX16-1E	CFX16-2	CFX16-2E	CFX16-3	–	.55 - .63	(14 - 16)
CFX18-1	CFX18-1E	CFX18-2	CFX18-2E	CFX18-3	–	.63 - .71	(16 - 18)
CFX20-1	CFX20-1E	CFX20-2	CFX20-2E	CFX20-3	–	.71 - .79	(18 - 20)
CFX22-1	CFX22-1E	CFX22-2	CFX22-2E	CFX22-3	–	.79 - .87	(20 - 22)
CFX26-1	CFX26-1E	CFX26-2	CFX26-2E	–	–	.87 - 1.02	(22 - 26)
CFX30-1	CFX30-1E	CFX30-2	CFX30-2E	–	–	1.02 - 1.18	(26 - 30)
CFX34-1	CFX34-1E	CFX34-2	CFX34-2E	–	–	1.18 - 1.34	(30 - 34)
CFX38-1	CFX38-1E	–	–	–	–	1.34 - 1.50	(34 - 38)
CFX42-1	CFX42-1E	–	–	–	–	1.50 - 1.65	(38 - 42)

For more information please refer to strain relief section of Chapter 10

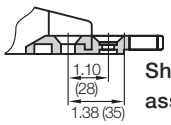
Chainfix Clip

Modular snap-on strain relief device

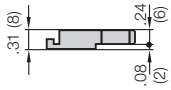
Chainfix clip is available for cable diameters ranging from .16" (4mm) to .94" (24 mm). It is suitable for assembly on KMA mounting brackets, clip-on strain relief for crossbars as well as profile rails. Quick assembly without the use of tools. **For more information please refer to strain relief section of Chapter 10**

Cable ø		Part No.	Part No.
in.	(mm)	Clamp	Bottom
.16-.31	(04-08)	CFC-08-M	CFC-08-C
.31-.47	(08-12)	CFC-12-M	CFC-12-C
.47-.63	(12-16)	CFC-16-M	CFC-16-C
.63-.79	(16-20)	CFC-20-M	CFC-20-C
.79-.94	(20-24)	CFC-24-M	CFC-24-C

Tiewrap Plates



Shown assembled

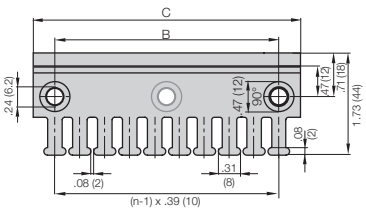


Single tiewrap plate

Option 1:
Tiewrap plates as an individual part

Available as an individual component, can be fixed onto a mounting bracket with the use of a profile rail.

Tiewrap Plate	n Number of Teeth	C Overall Width in. (mm)	B Bore Width in. (mm)	Center Bore
3050-ZB	5	1.97 (50)	1.18 (30)	no
3075-ZB	7	2.95 (75)	2.16 (55)	no
3100-ZB	10	3.94 (100)	3.15 (80)	no
3115-ZB	11	4.53 (115)	3.74 (95)	no
3125-ZB	12	4.92 (125)	4.13 (105)	no
3150-ZB	15	5.91 (150)	5.12 (130)	no
3175-ZB	17	6.89 (175)	6.10 (155)	no
3200-ZB	20	7.87 (200)	7.09 (180)	yes
3225-ZB	22	8.86 (225)	8.07 (205)	yes
3250-ZB	25	9.84 (250)	9.06 (230)	yes



If used with KMA brackets with profile rail please add "KMA" to the end of the part number.
Example: 3050-ZBKMA

For more information please refer to strain relief section of Chapter 10

Option 2:
Clip-on Tiewrap plates

Available as a clip-on tiewrap plate without the use of bolts They are inserted and removed with a screwdriver used as a lever. Clip-on tiewrap plates are also available as an attachment to the opening crossbars.

Part No.	Number of Teeth	Width of Strain Relief in.	(mm)
3050-ZC	5	1.97	(50)
3075-ZC	7	2.95	(75)

For more information please refer to strain relief section of Chapter 10

Option 3:
Clip-on Tiewrap plates for opening crossbars

Clip-on tiewrap plates are also available as an attachment to opening crossbars. They can be positioned at any point along the Energy Chain®.

Part No.	Number of Teeth	Width of Strain Relief in.	(mm)
3850-ZS	5	1.89	(48)

For more information please refer to strain relief section of Chapter 10

Energy Chain System® E4/100
Series 380/390/R780
Guide Trough

energy chain® configurator

Width of Crossbar
380-**05**-200-0

	B_{Ri}	Installation Part No.
-05	3.19 (81)	**93-50-200**
-06	3.90 (99)	**93-50-225**
-07	4.17 (106)	**93-50-225**
-087	4.69 (119)	**93-50-250**
-10	5.16 (131)	**93-50-250**
-11	5.47 (139)	**93-50-250**
-112	5.67 (144)	**93-50-275**
-12	6.14 (156)	**93-50-275**
-137	6.65 (169)	**93-50-300**
-15	7.12 (181)	**93-50-300**
-162	7.64 (194)	**93-50-325**
-17	7.83 (199)	**93-50-325**
-18	8.11 (206)	**93-50-325**
-187	8.62 (219)	**93-50-350**
-20	9.09 (231)	**93-50-350**
-212	9.61 (244)	**93-50-375**
-23	10.08 (256)	**93-50-375**
-237	10.59 (269)	**93-50-400**
-25	11.06 (281)	**93-50-400**
-262	11.57 (294)	**93-50-425**
-28	12.05 (306)	**93-50-425**
-29	12.56 (319)	**93-50-450**
-30	13.03 (331)	**93-50-450**
-312	13.54 (344)	**93-50-475**
-325	14.01 (356)	**93-50-475**
-337	14.52 (369)	**93-50-500**
-350	15.00 (381)	**93-50-500**
-362	15.51 (394)	**93-50-525**
-375	16.02 (407)	**93-50-525**
-387	16.50 (419)	**93-50-550**
-400	16.97 (431)	**93-50-550**

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

- Full travel length of guide trough
  Part No. 93-30
- 1/2 travel length of glide bars
  Part No. 93-01
- Installation sets as end connectors
  Part No. 93-50-XX

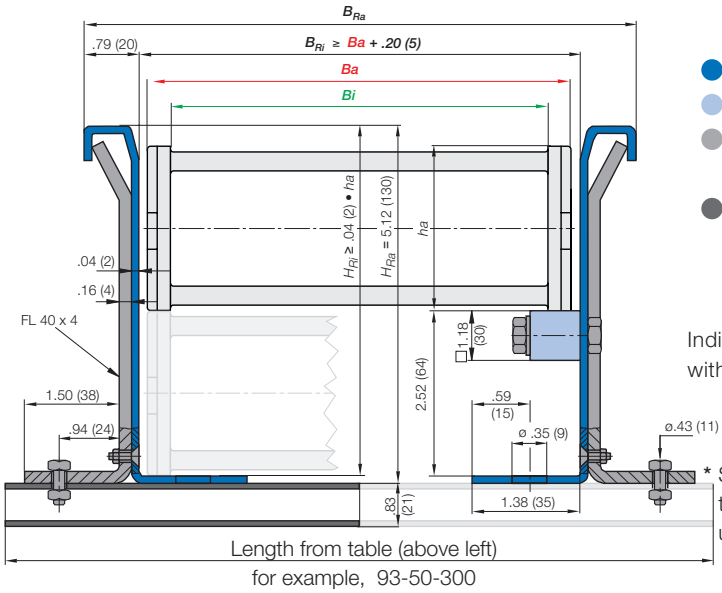
-XX indicates the length of the profile rail on which the guide trough is mounted. The values and part numbers are specified in the table below. The standard length of the trough components and glide bars is 6.56 ft (2 m). The required overall length of the guide trough directly correlates to the length of travel

Example:
Length of travel 164 ft (50 m)
Center mounted
Required guide troughs:
164 ft (50 m) guide trough,
82 ft (25 m) glide bar
= 25 sections of 6.56 ft (2 m) guide trough
Part No. 93-30
= 13 sections of 6.56 ft (2 m) glide bar
Part No. 93-01

Required number of installation sets:
= Number of guide trough components + 1
= 25 + 1 = 26
Part No. of the installation sets **93-50-XXX**
Example: 93-50-400 for 15.75 (400 mm) long profile rail

Left: Guide trough with glide bars
Right: Guide troughs without glide bars

Installation sets as section connectors



- Guide trough
- Glide bars
- Installation set "Basic"
- Profile rail

Individual attachment without profile rail

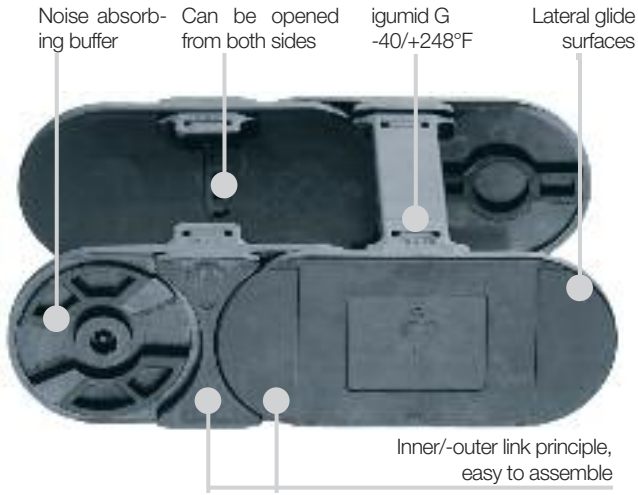
* Specialized guide trough available upon request

Standard length profile rail

PDF: www.igus.com/e-chain-pdfs
Specs/CAD/RFQ: www.igus.com/e-chains
RoHS info: www.igus.com/RoHS

Energy Chain System® E4/100
Selection Guide

energy chain® configurator



- Lowest noise in its class
- Further noise reduction with rubber pads (Series E4/101)
- Broad application spectrum
- Numerous interior separation possibilities
- Wide range of modular accessories
- Widths up to 118" (3000 mm) using extension links
- Maximum stability in the igus® range
- Can be opened along both the inner and outer radii
- Maximum travel: 656 - 1,312 ft. (200 - 400 m)
- You can find more technical data about the material, chemical resistance, temperatures ➤ **Design, Chapter 1**

Crossbars every link
for particularly demanding applications

Series	Inner height *hi*		Inner width *Bi*		Outer width *Ba*		Outer height *ha*		Bending radius *R*	
	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)
220	1.10	(28)	1.57-11.81	(40-300)	2.36-12.60	(60-320)	1.65	(42)	2.16-9.84	(55-250)
280	1.26	(32)	1.97-15.75	(50-400)	2.87-16.65	(73-423)	2.13	(54)	2.48-11.81	(63-300)
380	1.65	(42)	1.97-15.75	(50-400)	2.99-16.77	(76-426)	2.52	(64)	2.95-13.78	(75-350)
400	2.20	(56)	1.97-23.62	(50-600)	3.31-24.96	(84-634)	3.31	(84)	5.31-19.69	(135-500)
600	4.25	(108)	7.87-23.62	(200-600)	9.92-25.67	(252-652)	5.51	(140)	7.87-39.37	(200-1000)
640	4.41	(112)	3.43-22.13	(87-562)	5.47-24.17	(139-614)	5.51	(140)	7.87-39.37	(200-1000)
800	7.87	(200)	7.87-23.62	(200-600)	9.84-25.98	(250-660)	9.29	(236)	12.80-39.37	(325-1000)

Crossbars every 2nd link
for almost all applications

Series	Inner height *hi*		Inner width *Bi*		Outer width *Ba*		Outer height *ha*		Bending radius *R*	
	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)
290	1.26	(32)	1.97-15.75	(50-400)	2.87-16.65	(73-423)	2.13	(54)	2.48-11.81	(63-300)
390	1.65	(42)	1.97-15.75	(50-400)	2.99-16.77	(76-426)	2.52	(64)	2.95-13.78	(75-350)
410	2.20	(56)	1.97-23.62	(50-600)	3.31-24.96	(84-634)	3.31	(84)	5.31-19.69	(135-500)
601	4.25	(108)	7.87-23.62	(200-600)	9.92-25.67	(252-652)	5.51	(140)	7.87-39.37	(200-1000)

Energy Tubes
fully enclosed, excellent cable protection

Series	Inner height *hi*		Inner width *Bi*		Outer width *Ba*		Outer height *ha*		Bending radius *R*	
	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)
R760	1.10	(28)	1.97-11.81	(50-300)	2.76-12.60	(70-320)	1.65	(42)	2.95-9.84	(75-250)
R770	1.26	(32)	1.97-11.81	(50-300)	2.87-12.72	(73-323)	2.13	(54)	4.92-11.81	(125-300)
R780	1.65	(42)	1.97-11.81	(50-300)	2.99-12.83	(76-326)	2.52	(64)	4.92-13.78	(125-350)
R880	2.20	(56)	2.95-18.19	(75-462)	4.29-19.57	(109-497)	3.31	(84)	5.91-19.69	(150-500)
R608	4.25	(108)	7.87-15.75	(200-400)	9.92-17.80	(252-452)	5.51	(140)	9.84-39.37	(250-1000)

Energy Chain System® E4/100
Assembly instructions

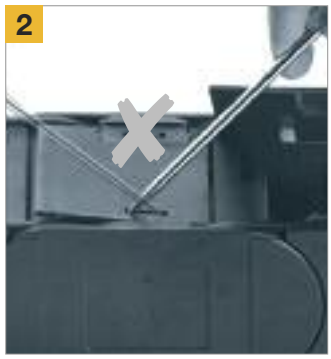
Energy Chains® - Opening

Remove crossbars - Insert screwdriver into the slot, using a lever action, apply pressure to the screwdriver to remove the crossbar.

Remove clips - Insert screwdriver into the slot, using a lever action, apply pressure to the screwdriver to remove the clip

Energy Tube - Opening

Remove lids/bottoms - Insert screwdriver into the slot, using a lever action apply pressure to the screwdriver to release



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

Energy Chains® and Energy Tubes - Assembling

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

Assemble crossbars - push down and snap in using a screwdriver

Assemble clips (for Energy Chains with crossbars every other link) - push down and snap in using a screwdriver

Assemble Energy Tube lids and bottoms - Attach to the connector at an angle and snap in place

Energy Chains® and Energy Tubes - Separating

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

Insert screwdriver into the slot between the side links. Using a lever action, release the side links

Remove the outer links

Separate the Energy Chain®