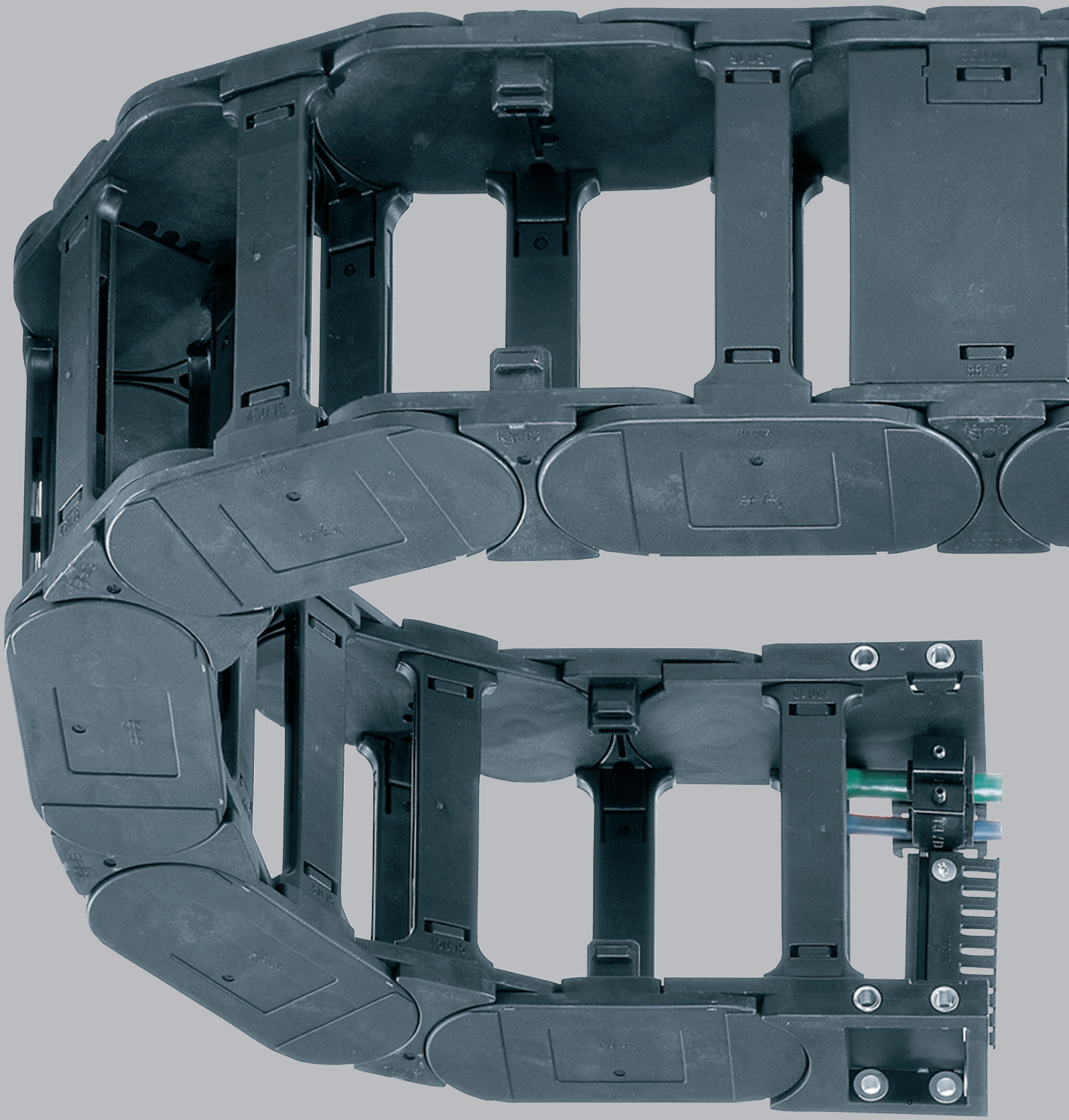
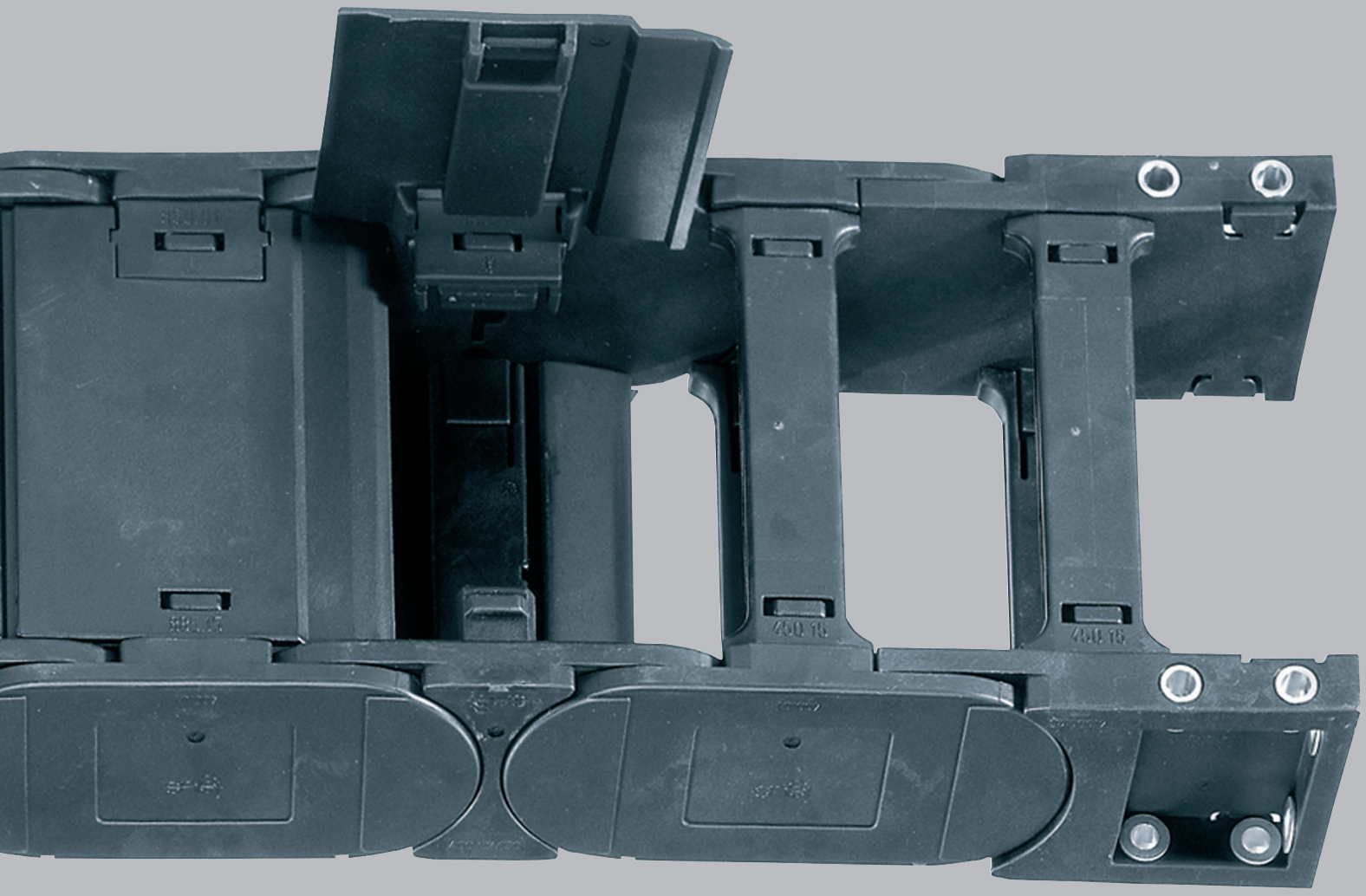




E4/100

For new applications we recommend using System E4-1 in place of the following series: Series 220, 280, 380 and 400.
Continue to use the Series 600 and 640 until and E4-1 equivalent is available.

For new applications we recommend System E4-1

E4/100 - for smooth running and easy assembly

E4/00 has a unique design featuring inner and outer side links, which makes it extremely easy to assemble and disassemble on site. E4/00 can reduce noise by up to 50 percent and can handle high fill weights, high accelerations and high speeds. Available from stock.

Typical industries and applications

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

IPA Certificate, Cleanroom ISO Class 3 (DIN 14644-1) at v = 1 m/s for Series 280-10-100-0 tested with igus® Chainflex® cables

ATEX/ESD: Excellent performance with the special material igumid ESD (upon request) “Rear grip” achieves long-term electrical conductivity

High torsional rigidity

System E4/4 approved with long travels

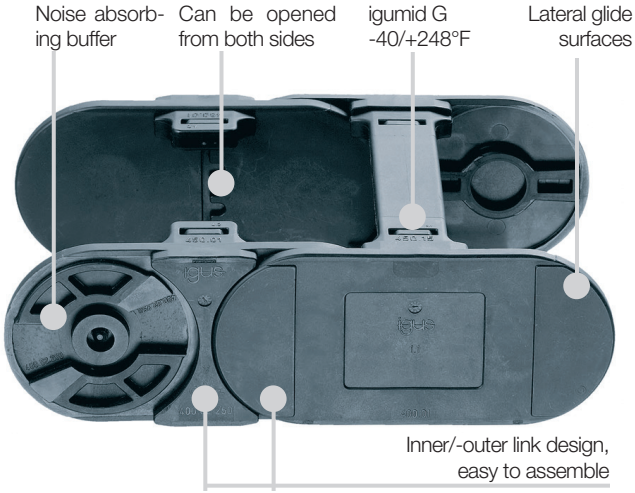
System E4 - 4-piece E-Chain® links

Long unsupported spans, high stability

Quiet and strong - ideal for handling applications

Sturdy design for construction equipment

E-Chain System® E4/100
Selection Guide



- 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* in.	(mm)	Inner width *Bi* in.	(mm)	Outer width *Ba* in.	(mm)	Outer height *ha* in.	(mm)	Bending radius *R* 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

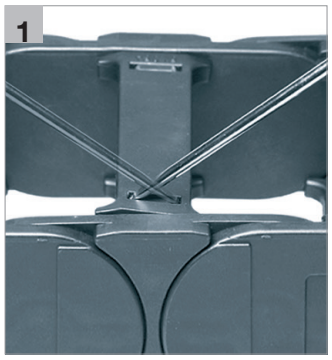
Series	Inner height *hi* in.	(mm)	Inner width *Bi* in.	(mm)	Outer width *Ba* in.	(mm)	Outer height *ha* in.	(mm)	Bending radius *R* in.	(mm)
290	1.26	(32)	1.97-15.75	(50-400)	2.87-16.65	(73-423)	2.13	(54)	2.48-11.81	(63-300)
390	1.65	(42)	1.97-15.75	(50-400)	2.99-16.77	(76-426)	2.52	(64)	2.95-13.78	(75-350)
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)

E-Tubes
fully enclosed, excellent cable protection

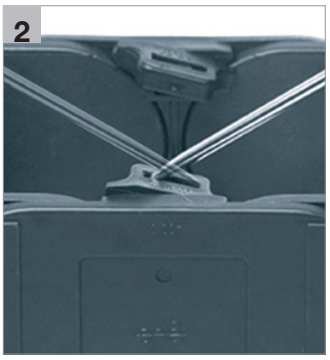
Series	Inner height *hi* in.	(mm)	Inner width *Bi* in.	(mm)	Outer width *Ba* in.	(mm)	Outer height *ha* in.	(mm)	Bending radius *R* in.	(mm)
R760	1.10	(28)	1.97-11.81	(50-300)	2.76-12.60	(70-320)	1.65	(42)	2.95-9.84	(75-250)
R770	1.26	(32)	1.97-11.81	(50-300)	2.87-12.72	(73-323)	2.13	(54)	4.92-11.81	(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)

E-Chain System® E4/100
Assembly instructions

E-Chains® - Opening

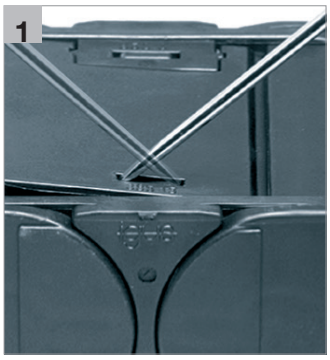


Remove crossbars - Insert screwdriver into the slot, using a lever action, apply pressure to the screwdriver to remove the crossbar.

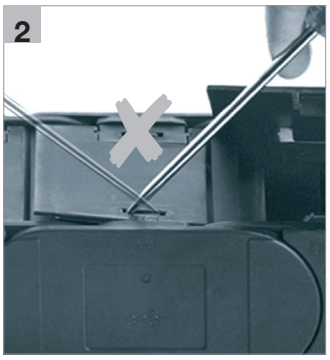


Remove clips - Insert screwdriver into the slot, using a lever action, apply pressure to the screwdriver to remove the clip

E-Tube - Opening



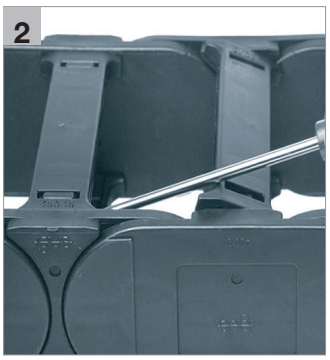
Remove lids/bottoms - Insert screwdriver into the slot, using a lever action apply pressure to the screwdriver to release



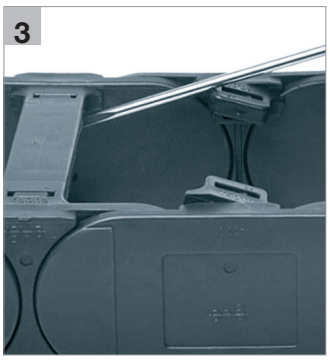
Release only **one side** to open the lid

E-Chains® and E-Tubes - Assembling

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



Assemble crossbars - push down and snap in using a screwdriver

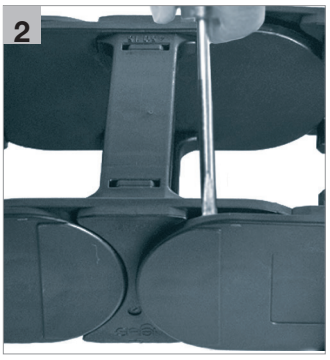


Assemble clips (for E-Chains with crossbars every other link) - push down and snap in using a screwdriver

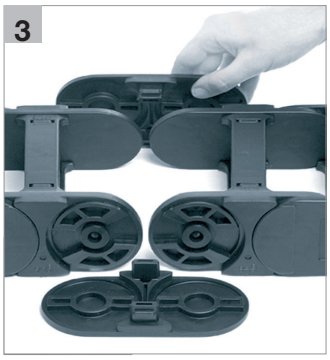
Assemble E-Tube lids and bottoms - Attach to the connector at an angle and snap in place

E-Chains® and E-Tubes - Separating

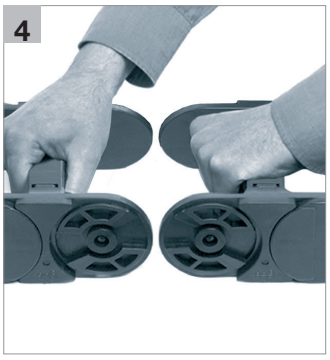
Remove crossbars, clips, lids and bottoms at the outer links



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



Remove the outer links



Separate the E-Chain®

E-Chain System® E4/100
Series 220/R760

For new applications use Series E4-28

1.10” 1.10”

Price Index

Series 220 Series R760

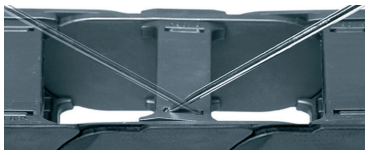
Special Features / Options

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

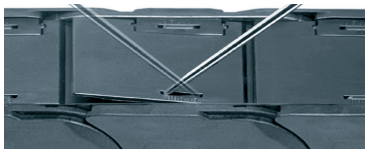
Cleanroom test upon request

ESD classification: Electrically conductive ESD/ ATEX version upon request

Assembly Tips



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



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

Other Installation Methods

Vertical, hanging ≤ 262 ft (80 m)
Vertical, standing ≤ 16.4 ft (5 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

- For zig-zag lift applications
  ➤ **System E4/4**
- For side-mounted applications
  ➤ **System E4/4**
- If an extremely vibration-free E-Chain® is necessary
  ➤ **Series E6-29/R6-29**

Features & Benefits

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

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

Order Example: Complete E-Chain®

Please indicate chain length or number of links. Example:

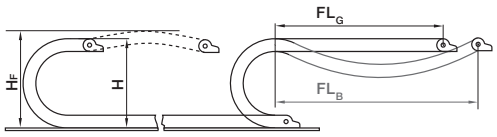
9.84 ft (3 m) **220-300-250-0**	**E-Chain®**
With 2 separators **2211** assembled every 2nd link	**Interior Separation**
1 Set **2200-300-12**	**Mounting Bracket**

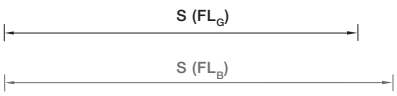
E-Chain System® E4/100
Series 220/R760
Installation Dimensions

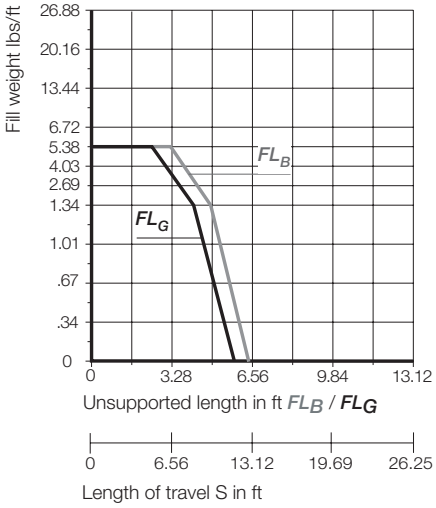
Short travel, unsupported length

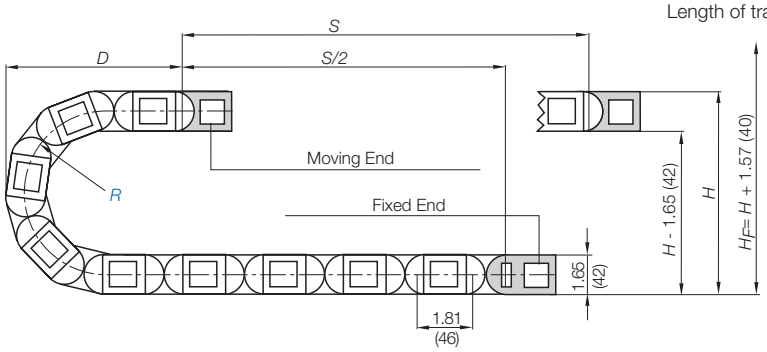
- FL_B = unsupported with permitted sag
- FL_G = unsupported with straight upper run

Further information ➤ Design, Chapter 1









Pitch per link: = 1.81" (46 mm)
Links per ft (m): = 6.71 (22)
For center mount applications:
Chain length = $S/2 + K$

The required clearance height: $H_F = H + 1.57$ **in. (40 mm)** (with .67 lbs/ft (1 kg/m) fill weight.
Please consult igus® if space is particularly restricted.

R	2.17 (055**)	2.48 (063*)	2.95 (075)	3.94 (100)	4.92 (125)	5.91 (150)	6.89 (175)	7.87 (200)	9.84 (250)
H	6.06 (154)	6.69 (170)	7.64 (194)	9.61 (244)	11.57 (294)	13.54 (344)	15.51 (394)	17.48 (444)	21.42 (544)
D	4.92 (125)	5.24 (133)	5.71 (145)	6.69 (170)	7.68 (195)	8.66 (220)	9.65 (245)	10.63 (270)	12.60 (320)
K	10.43 (265)	11.42 (290)	12.99 (330)	16.14 (410)	19.09 (485)	22.24 (565)	25.39 (645)	28.54 (725)	34.65 (880)

Short Travels - Unsupported

Unsupported E-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 E-Chain® radius in final position
K = π • *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

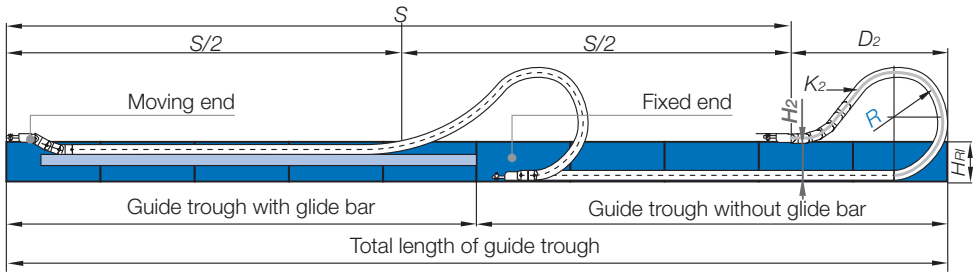
*If the mounting bracket location is set lower

**Not available for R760

For long travels with lowered mounting height

Long travel lengths from 32.8 ft.(10m) to max. 656 ft. (200m)

For center mount applications:
Chain length: = $S/2 + K_2$



R	2.17 (055**)	2.48 (063**)	2.95 (075)	3.94 (100)	4.92 (125)	5.91 (150)	6.89 (175)	7.87 (200)	9.84 (250)
H2	-	-	-	6.22 (158)	6.22 (158)	6.22 (158)	6.22 (158)	6.22 (158)	6.22 (158)
D2	-	-	-	13.78 (350)	19.29 (490)	20.87 (530)	25.79 (655)	28.74 (730)	36.81 (935)
K2	-	-	-	23.54 (598)	30.79 (782)	36.22 (920)	43.46 (1104)	48.90 (1242)	63.39 (1610)

Long Travels - Gliding

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

**Not available for R760

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

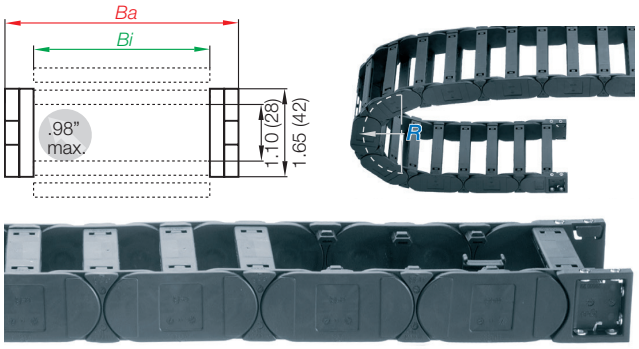
Details of material properties
➤ **Chapter 1**

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

E-Chain System® E4/100
Series 220/R760

igus® E-Chain System®
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 220 - E-Chain® with crossbars every link



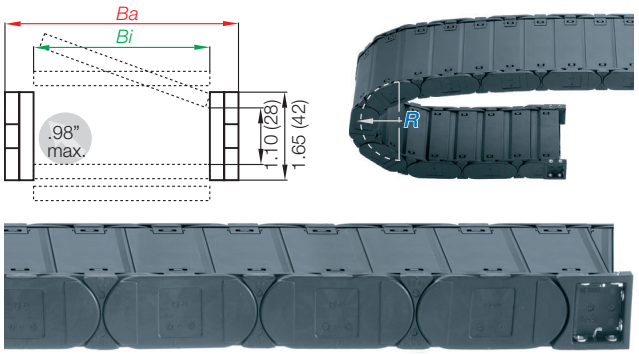
- Robust solution with crossbars every link
- Can be opened from two sides
- Removable crossbars

Part Number Structure

220- 300- 250- 0

- Color - Black
- Bending radius
- Width
- Series

Series R760 - fully enclosed E-Tube



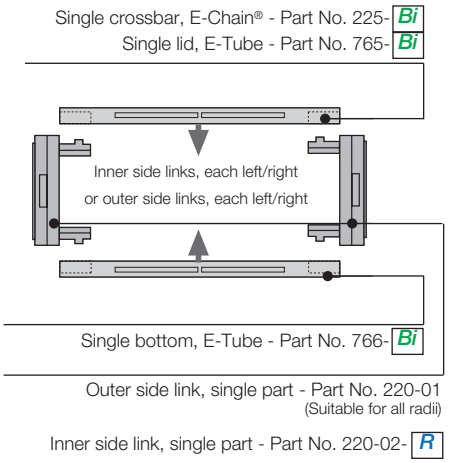
- Fully enclosed
- Excellent cable and hose protection against dirt
- Protection against hot chips
- Lids along inner radius are completely removable
- Lids along the outer radius are single-sided, snap open, hinged on one side as well as completely removable

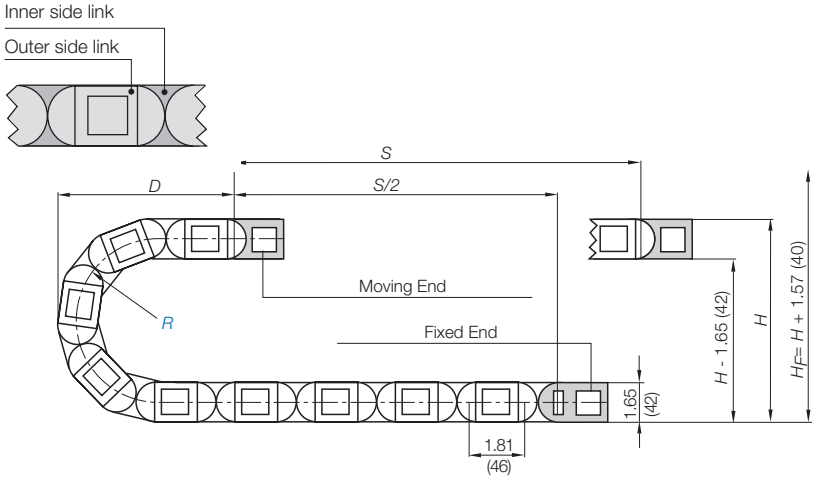
Part Number Structure

760- 300- 250- 0

- Color - Black
- Bending radius
- Width
- Series

E-Chain® as separate parts, links and side plates





E-Chain System® E4/100
Series 220/R760

Supplement part number with required radius. Example: 220-300-250-0
Pitch: 1.81 in. (46mm) per link links/ft(m) = 6.71 (22)

Part Number. Crossbars Every link	Tube Version			*Bi* in. (mm)	*Ba* in. (mm)	220 lbs/ft (kg/m)	R760 lbs/ft (kg/m)
220-040-		☐	-0	1.57 (40)	2.36 (60)	≈ 0.71 (1.06)	–
220-050-	760-050-	☐	-0	1.97 (50)	2.76 (70)	≈ 0.74 (1.10)	≈ 0.84 (1.25)
220-062-		☐	-0	2.44 (62)	3.23 (82)	≈ 0.77 (1.14)	–
220-070-		☐	-0	2.76 (70)	3.54 (90)	≈ 0.79 (1.18)	–
220-075-	760-075	☐	-0	2.95 (75)	3.74 (95)	≈ 0.81 (1.21)	≈ 0.97 (1.44)
220-087-		☐	-0	3.43 (87)	4.21 (107)	≈ 0.85 (1.27)	–
220-100-	760-100-	☐	-0	3.94 (100)	4.72 (120)	≈ 0.89 (1.32)	≈ 1.10 (1.64)
220-125-	760-125-	☐	-0	4.92 (125)	5.71 (145)	≈ 0.96 (1.43)	≈ 1.24 (1.84)
220-150-	760-150-	☐	-0	5.91 (150)	6.69 (170)	≈ 1.03 (1.54)	≈ 1.36 (2.02)
220-175-	760-175-	☐	-0	6.89 (175)	7.68 (195)	≈ 1.11 (1.65)	≈ 1.52 (2.26)
220-200-	760-200-	☐	-0	7.87 (200)	8.66 (220)	≈ 1.18 (1.76)	≈ 1.61 (2.40)
220-225-	760-225-	☐	-0	8.86 (225)	9.65 (245)	≈ 1.26 (1.87)	≈ 1.72 (2.56)
220-250-	760-250-	☐	-0	9.84 (250)	10.63 (270)	≈ 1.33 (1.98)	≈ 1.92 (2.85)
220-275-		☐	-0	10.83 (275)	11.61 (295)	≈ 1.40 (2.09)	–
220-300-	760-300-	☐	-0	11.81 (300)	12.60 (320)	≈ 1.48 (2.20)	≈ 2.16 (3.21)

Choose from the radii below for all of the above sizes
Radius (mm) Example: 220-300-250-0

	055**	063**	075	100	125	150	175	200	250
R	2.17 (055*)	2.48 (063*)	2.95 (075)	3.94 (100)	4.92 (125)	5.91 (150)	6.89 (175)	7.87 (200)	9.84 (250)
H	6.06 (154)	6.69 (170)	7.64 (194)	9.61 (244)	11.57 (294)	13.54 (344)	15.51 (394)	17.48 (444)	21.42 (544)
D	4.92 (125)	5.24 (133)	5.71 (145)	6.69 (170)	7.68 (195)	8.66 (220)	9.65 (245)	10.63 (270)	12.60 (320)
K	10.43 (265)	11.42 (290)	12.99 (330)	16.14 (410)	19.09 (485)	22.24 (565)	25.39 (645)	28.54 (725)	34.65 (880)

** This radius is not available for the R760 Series
0=Standard color black. For other colors see Chapter 1

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

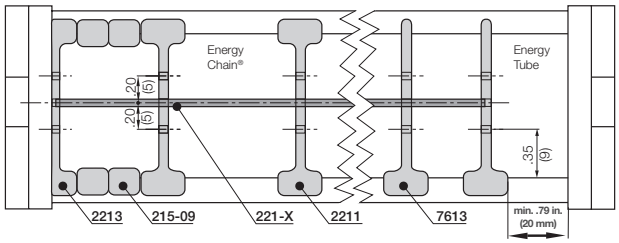
E-Chain System® E4/100
Series 220/R760
Interior Separation

igus® E-Chain System®
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

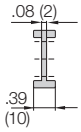
Option 1: Vertical separators and spacers

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

NOTE: Observe a lateral spacing of at least .79 in. (20mm) for E-Tubes and



Vertical separator 2201

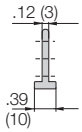


Vertical separator (Chain only)

Unassembled	**Part No. 2201**
Assembled	**Part No. 2211**

- **Standard separator 2201 for E-Chains®**
  This separator is used for vertical subdivision. Because they are slotted, separators can also be used horizontally to form simple compartments.

Vertical separator 7603

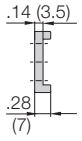


Vertical separator (tube only)

Unassembled	**Part No. 7603**
Assembled	**Part No. 7613**

- **Vertical separator 7603 for E-Tubes**
  This separator is used for vertical subdivision. Because they are slotted, separators can also be used horizontally to form simple compartments.

Side plate 2203



Side plate (chain only)

Unassembled	**Part No. 2203**
Assembled	**Part No. 2213**

- **Side plate 2203 for E-Chains®**
  Used in conjunction with full-width shelf 220-X, this option is used for applications involving many thin cables with similar diameters.

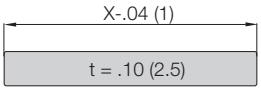
Spacers 205-09

Spacer (chain only)

Unassembled	**Part No. 205-09**
Assembled	**Part No. 215-09**

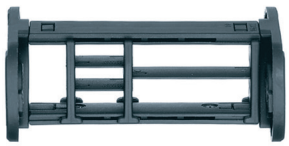
- **NOTE ON SPACERS**
  Vertical separators are adjustable, but can be fixed in position by means of a spacer. Spacers are most often necessary for side mounted applications. The available inner height is reduced by .08" (2mm) **per spacer** (for example if one spacer is placed on either side of the 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)**.

Full-width shelf 220-XX



Width X in.	(mm)	Part No. Unassembled	Part No. Assembled
1.57	(040)	**220-40**	**221-40**
1.97	(050)	**220-50**	**221-50**
2.44	(062)	**220-62**	**221-62**
2.76	(070)	**220-70**	**221-70**
2.95	(075)	**220-75**	**221-75**
3.43	(087)	**220-87**	**221-87**

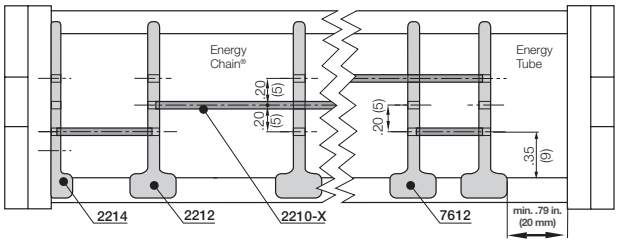
Width X in.	(mm)	Part No. Unassembled	Part No. Assembled
3.94	(100)	**220-100**	**221-100**
4.92	(125)	**220-125**	**221-125**
5.91	(150)	**220-150**	**221-150**
6.89	(175)	**220-175**	**221-175**
7.87	(200)	**220-200**	**221-200**



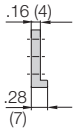
Option 2: Shelves

E-Chains® and E-Tubes can be subdivided both vertically and horizontally using the various interior separation elements.

➤ **Design, Chapter 1** for layout recommendations.



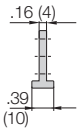
- **Side plates 2204**
  This component is used to form the basic pattern of a shelf system.



Side plate	
Unassembled	**Part No. 2204**
Assembled	**Part No. 2214**

Side plate 2204

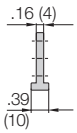
- **Vertical separator 2202 for E-Chain®**
  This component is used to form the basic pattern of a shelf system.



Vertical separator (chain only)	
Unassembled	**Part No. 2202**
Assembled	**Part No. 2212**

Vertical separator 2202

- **Vertical separator 7602 for E-Tube**
  This separator is slotted and able to be combined with shelves



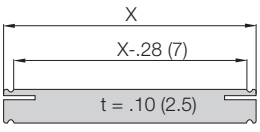
Vertical separator (tube only)	
Unassembled	**Part No. 7602**
Assembled	**Part No. 7612**

Vertical separator 7602

Shelves 420-XX

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

Width X in.	(mm)	Part No. Unassembled	Part No. Assembled	Width X in.	(mm)	Part No. Unassembled	Part No. Assembled
.71	(18)	**2200-18**	**2210-18**	1.89	(48)	**2200-48**	**2210-48**
.91	(23)	**2200-23**	**2210-23**	2.28	(58)	**2200-58**	**2210-58**
1.10	(28)	**2200-28**	**2210-28**	2.68	(68)	**2200-68**	**2210-68**
1.30	(33)	**2200-33**	**2210-33**	2.87	(73)	**2200-73**	**2210-73**
1.50	(38)	**2200-38**	**2210-38**	3.46	(88)	**2200-88**	**2210-88**
1.69	(43)	**2200-43**	**2210-43**	3.90	(99)	**2200-99**	**2210-99**



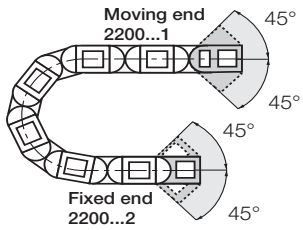
PDF: www.igus.com/e-chain-pdfs
Specs/CAD/RFQ: www.igus.com/e-chains
RoHS info: www.igus.com/RoHS

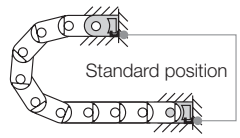
E-Chain System® E4/100
Series 220/R760
Mounting Brackets - KMA

igus® E-Chain System®
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: pivoting

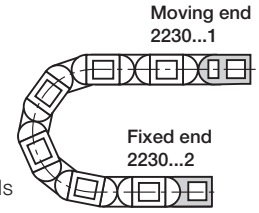
- Universal use
- Corrosion resistant
- Short and long travels
- Space-restricted conditions

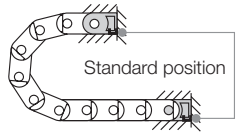




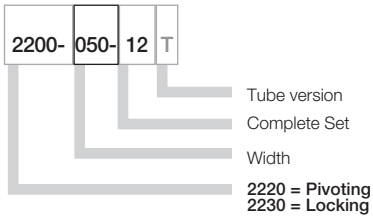
Option 2: locking

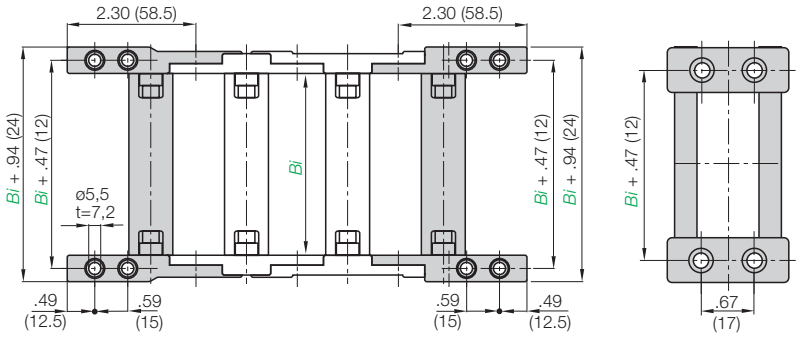
- Universal use
- Corrosion resistant
- Extreme accelerations
- Vertical hanging/standing travels





Part Number Structure





Part number examples are shown for pivoting brackets. For locking brackets change part number to 2230

Part No. Full Set (pivoting)
Series 220
2220-Width-12

Part No. Full Set (pivoting)
Tube Series R760
2220-Width-12T

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**

Width	Part No. Full Set			Tube Option	*Bi*
	Pivoting	Locking			in. (mm)
-040	2220	2230	-040-12		1.57 (40)
-050	2220	2230	-050-12	T	1.97 (50)
-062	2220	2230	-062-12		2.44 (62)
-070	2220	2230	-070-12		2.76 (70)
-075	2220	2230	-075-12	T	2.95 (75)
-087	2220	2230	-087-12		3.43 (87)
-100	2220	2230	-100-12	T	3.94 (100)
-125	2220	2230	-125-12	T	4.92 (125)
-150	2220	2230	-150-12	T	5.91 (150)
-175	2220	2230	-175-12	T	6.89 (175)
-200	2220	2230	-200-12	T	7.87 (200)
-225	2220	2230	-225-12	T	8.86 (225)
-250	2220	2230	-250-12	T	9.84 (250)
-275	2220	2230	-275-12		10.83 (275)
-300	2220	2230	-300-12	T	11.81 (300)

E-Chain System® E4/100
Series 220/R760
Guide Troughs

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

- Full travel length of guide trough
  Part No. 96-30
- 1/2 travel length of glide bars
  Part No. 92-01
- Installation sets as end connectors
  Part No. 95-50-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 on the left. Standard length of the trough components and glide bars is 6.56 ft (2m). 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

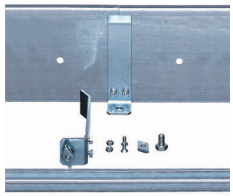
Required guide troughs:
164 ft (50 m) guide trough,
82 ft (25 m) glide bar

= 25 sections of 6.56 ft (2 m) guide trough
Part No. 96-30

= 13 sections of 6.56 ft. (2 m) glide bar
Part No. 92-01

Required number of installation sets
= Number of guide trough components + 1
= 25 + 1 = 26
Part number of the installation sets
95-50-XXX
Example: 95-50-400 for 15.75 (400 mm) long profile rail

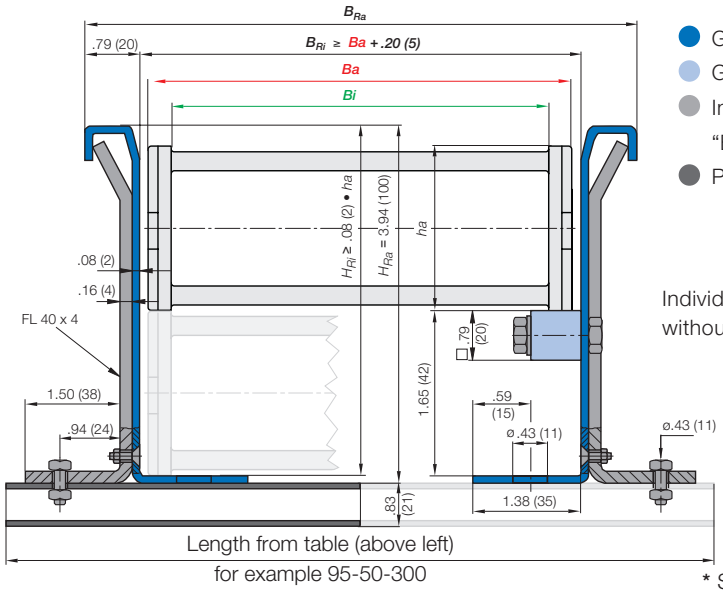
Left: Guide trough with glide bars
Right: Guide troughs without glide bars



Installation sets as section connectors

Width of Crossbar
220-**040**-200-0

	B_{Ri}	Installation Part No.
-040	2.56 (65)	*
-050	2.95 (75)	**95-50-200**
-062	3.43 (87)	**95-50-200**
-070	3.74 (95)	**95-50-200**
-075	3.94 (100)	**95-50-225**
-100	4.92 (125)	**95-50-250**
-125	5.91 (150)	**95-50-275**
-150	6.89 (175)	**95-50-300**
-175	7.87 (200)	**95-50-325**
-200	8.86 (225)	**95-50-350**
-225	9.84 (250)	**95-50-375**
-250	10.83 (275)	**95-50-400**
-275	11.81 (300)	**95-50-425**
-300	12.80 (325)	**95-50-450**



- 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

E-Chain System® E4/100
Series 280/290/R770

For new applications use Series E4-32

1.26" 1.26"

Price Index

Series 280

Series 290

Series R770

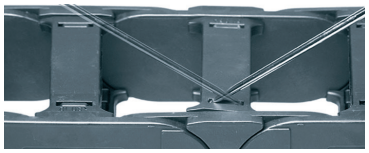
Special Features / Options

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

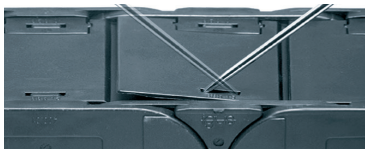
IPA Certificate, Cleanroom ISO Class 3 (DIN 14644-1) at v = 1 m/s for Series 280.10.100.0 tested with igus® Chainflex® cables

ESD classification: Electrically conductive ESD/ ATEX version upon request

Assembly Tips



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



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

Other Installation Methods

Vertical, hanging ≤ 262 ft (80 m)
Vertical, standing ≤ 16.4 ft (5 m)
Side-mounted, unsupp. ≤ 4.92 ft (1.5 m)
Rotary requires further calculation

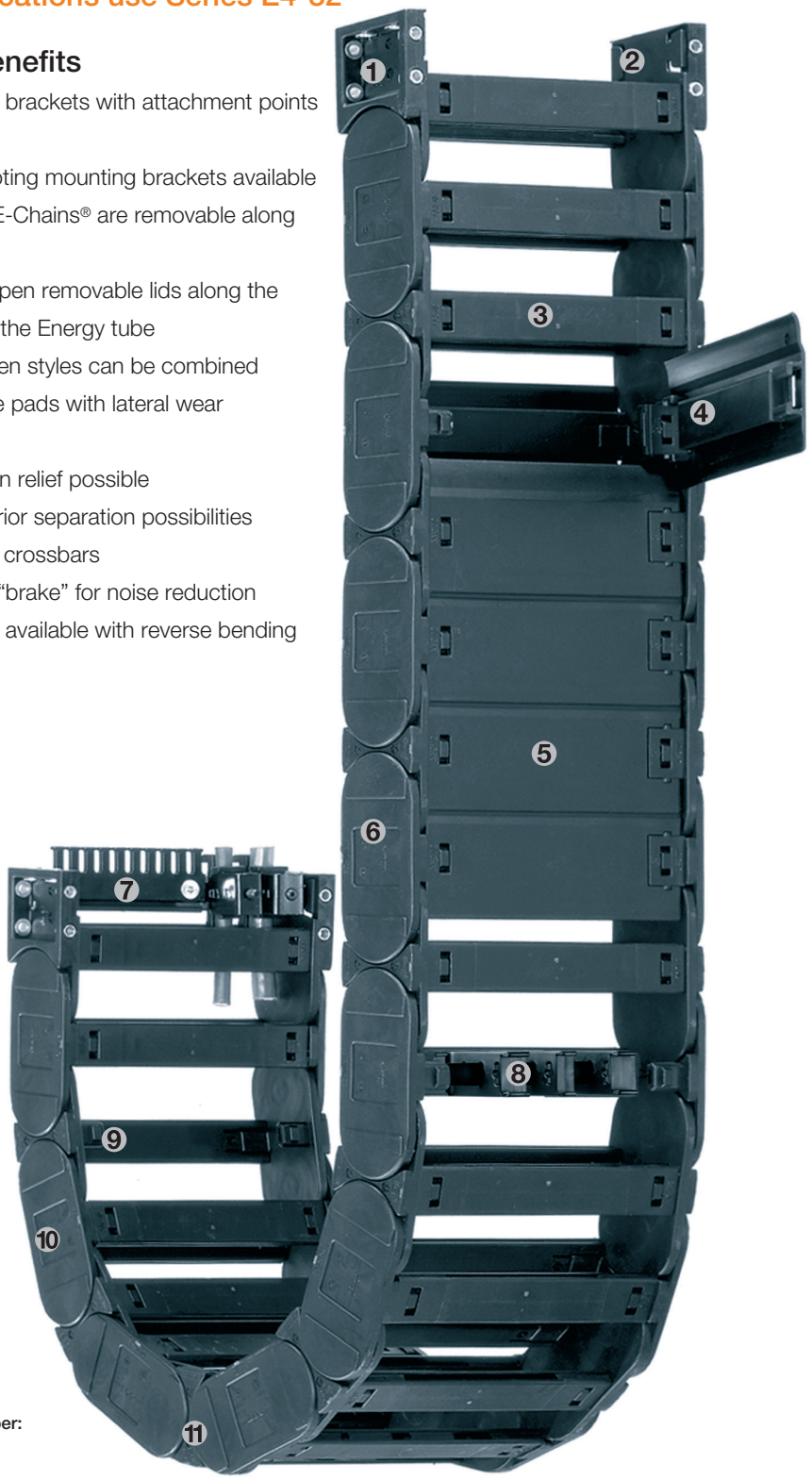
Usage Guidelines

- 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 2828/2928/R7728**
- If single-radius accessibility is sufficient
  ➤ **Series 26/27/27i, Chapter 4**

Features & Benefits

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



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

Order Example: Complete E-Chain®

Please indicate chain length or number of links. Example:

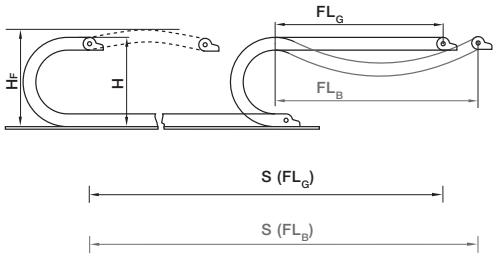
13.12 ft (4 m) **280-30-300-0**	**E-Chain®**
With 2 separators **281** assembled every 2nd link	**Interior Separation**
1 Set **28000-30-12P**	**Mounting Bracket**

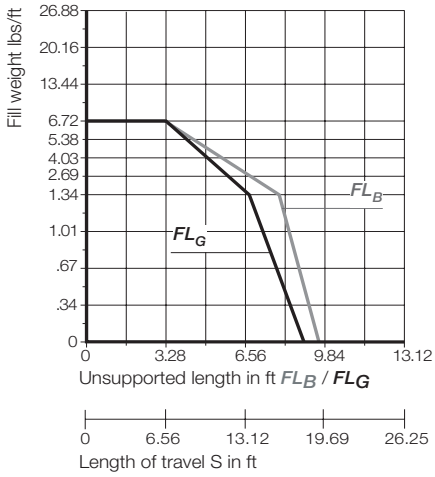
E-Chain System® E4/100
Series 280/290/R770
Installation Dimensions

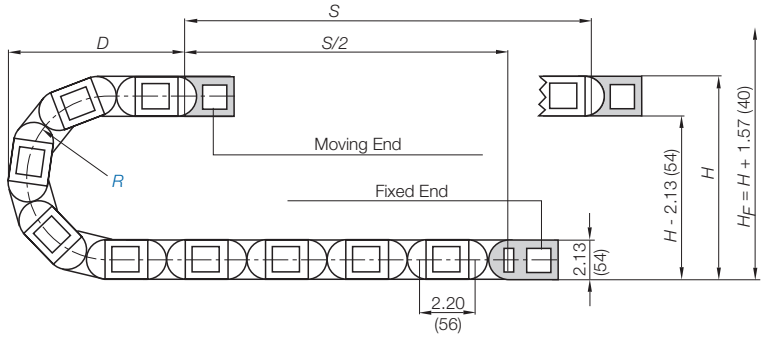
Short travel, unsupported length

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

Further information ➤ Design, Chapter 1







Pitch per link: = 2.20" (56 mm)
Links per ft (m): = 5.49 (18)
For center mount applications:
Chain length = $\frac{S}{2} + K$

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.

Short Travels - Unsupported

Unsupported E-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 E-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

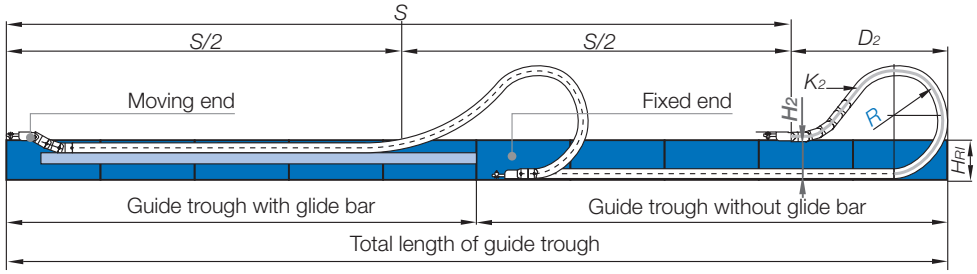
R	2.48 (063**)	2.95 (075**)	3.94 (100**)	4.92 (125)	5.91 (150)	6.89 (175)	7.87 (200)	8.66 (220)	9.84 (250)	11.81 (300)
H^{0}_{+20}	7.09 (180)	8.07 (205)	10.04 (255)	12.01 (305)	13.98 (355)	15.51 (405)	17.91 (455)	19.49 (495)	21.85 (555)	25.79 (655)
D	5.75 (146)	6.22 (158)	7.20 (183)	8.19 (208)	9.17 (233)	10.16 (258)	11.14 (283)	11.93 (303)	13.11 (333)	15.08 (383)
K	12.20 (310)	13.78 (350)	16.93 (430)	19.88 (505)	23.03 (585)	26.18 (665)	29.33 (745)	31.69 (805)	35.43 (900)	41.54 (1055)

**Not available for R770

For long travels with lowered mounting height

Long travel lengths from 32.8 ft.(10m) to max. 656 ft. (200m)

For center mount applications:
Chain length: = $\frac{S}{2} + K_2$



Long Travels - Gliding

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

R	2.48 (063**)	2.95 (075**)	3.94 (100**)	4.92 (125)	5.91 (150)	6.89 (175)	7.87 (200)	8.66 (220)	9.84 (250)	11.81 (300)
H_2	-	-	6.54 (166)	6.54 (166)	6.54 (166)	6.54 (166)	6.54 (166)	6.54 (166)	6.54 (166)	6.54 (166)
D_{2+25}	-	-	14.57 (370)	18.50 (470)	19.69 (500)	25.79 (655)	30.31 (770)	35.43 (900)	36.61 (930)	43.31 (1100)
K_2	-	-	24.25 (616)	30.87 (784)	35.27 (896)	44.10 (1120)	50.71 (1288)	57.32 (1456)	61.73 (1568)	75.00 (1904)

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

**Not available for R770

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

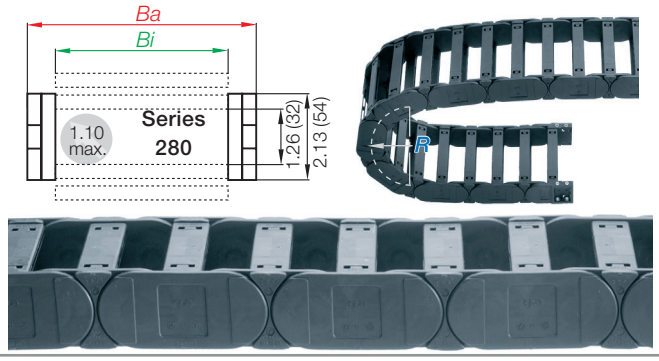
Details of material properties
➤ Chapter 1

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

E-Chain System® E4/100
Series 280/290/R770

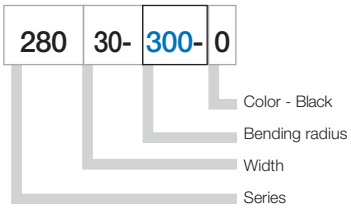
igus® E-Chain System®
Telephone 1-800-521-2747
Fax 1-401-438-7270
Internet: http://www.igus.com
email: sales@igus.com
QuickSpec: http://www.igus.com/quickspec

Series 280 - E-Chain® with crossbars every link

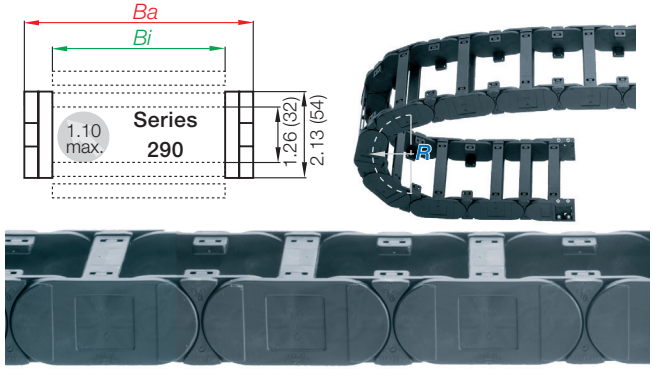


- Crossbars every link
- For use with rigid hydraulic hoses
- For particularly demanding applications
- Can be opened from both sides

Part Number Structure

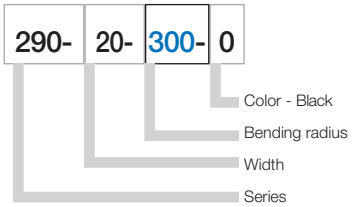


Series 290 - E-Chain® with crossbars every other link

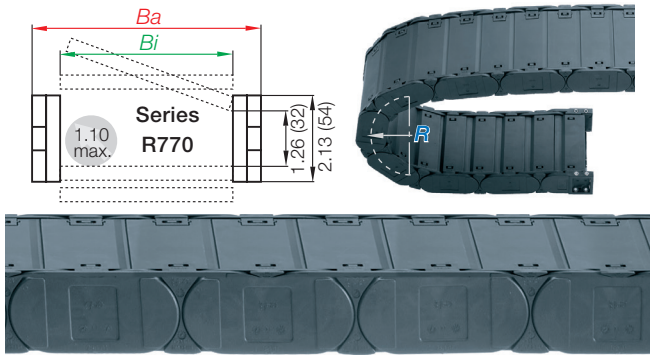


- Crossbars every other link Standard configuration
- For nearly every situation
- Can be opened from both sides
- Easy assembly
- Stable
- Cost-effective

Part Number Structure

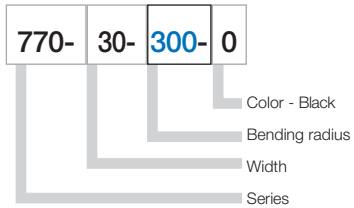


Series R770 - fully enclosed E-Tube

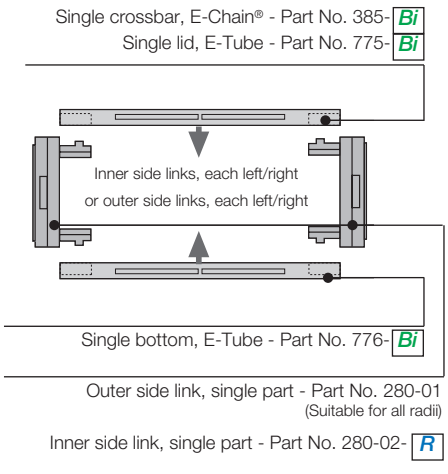


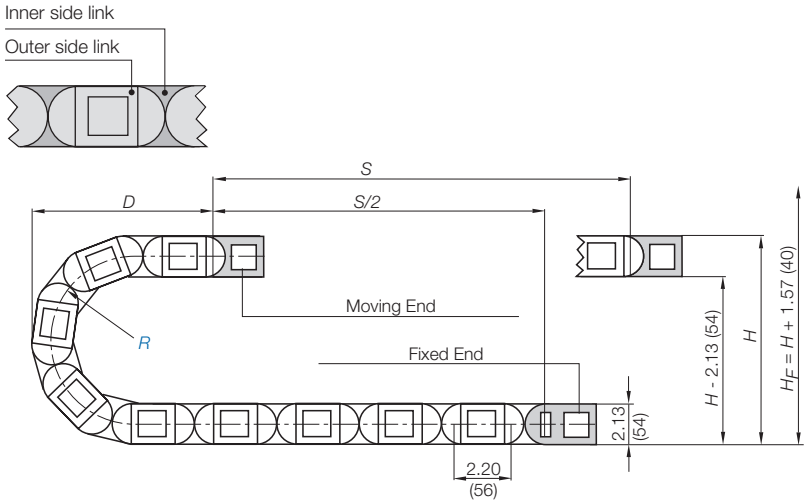
- Fully enclosed
- Excellent cable and hose protection against dirt
- Protection against hot chips
- Lids along inner radius are completely removable
- Lids along the outer radius are single-sided, snap open, hinged on one side as well as completely removable

Part Number Structure



E-Chain® as separate parts, links and side plates





Supplement part number with required radius. Example: 280-30-300-0
Pitch: 2.20 in. (56mm) per link links/ft (m) = 5.49 (18)

Part Number						Weight		
Crossbars Every link	Crossbars Every other	Tube Version		*Bi* in. (mm)	*Ba* in. (mm)	280 lbs/ft (kg/m)	290 lbs/ft (kg/m)	R770 lbs/ft (kg/m)
280-05-	290-05	*770-05-	[ ]-0	1.97 (50)	2.87 (73)	≈ 1.16 (1.73)	≈ 1.10 (1.64)	≈ 1.76 (2.63)
280-06-	290-06-		[ ]-0	2.68 (68)	3.58 (91)	≈ 1.20 (1.79)	≈ 1.12 (1.67)	–
280-07-	290-07	770-07-	[ ]-0	2.95 (75)	3.86 (98)	≈ 1.24 (1.84)	≈ 1.14 (1.69)	≈ 1.84 (2.75)
280-087-	290-087-		[ ]-0	3.43 (87)	4.33 (110)	≈ 1.30 (1.93)	≈ 1.16 (1.73)	–
280-10-	290-10-	770-10-	[ ]-0	3.94 (100)	4.84 (123)	≈ 1.36 (2.02)	≈ 1.20 (1.78)	≈ 1.90 (2.83)
280-11-	290-11-	770-11-	[ ]-0	4.25 (108)	5.16 (131)	≈ 1.40 (2.08)	≈ 1.22 (1.81)	≈ 1.98 (2.94)
280-112-	290-112-		[ ]-0	4.41(112)	5.35 (136)	≈ 1.44 (2.15)	≈ 1.24 (1.84)	–
280-12-	290-12-	770-12-	[ ]-0	4.92 (125)	5.83 (148)	≈ 1.48 (2.20)	≈ 1.26 (1.87)	≈ 2.04 (3.03)
280-137-	290-137-		[ ]-0	5.39 (137)	6.34 (161)	≈ 1.54 (2.29)	≈ 1.28 (1.91)	–
280-15-	290-15-	770-15-	[ ]-0	5.91 (150)	6.81 (173)	≈ 1.60 (2.38)	≈ 1.32 (1.96)	≈ 2.14 (3.19)
280-162-	290-162-		[ ]-0	6.38 (162)	7.32 (186)	≈ 1.64 (2.44)	≈ 1.34 (1.99)	–
280-17-	290-17-	770-17-	[ ]-0	6.61 (168)	7.52 (191)	≈ 1.69 (2.51)	≈ 1.36 (2.02)	≈ 2.28 (3.39)
280-18-	290-18-		[ ]-0	6.89 (175)	7.80 (198)	≈ 1.72 (2.56)	≈ 1.38 (2.05)	–
280-187-	290-187-		[ ]-0	7.36 (187)	8.31 (211)	≈ 1.78 (2.65)	≈ 1.40 (2.09)	–
280-20-	290-20-	770-20-	[ ]-0	7.87 (200)	8.78 (223)	≈ 1.84 (2.74)	≈ 1.44 (2.14)	≈ 2.41 (3.59)
280-212-	290-212-		[ ]-0	8.35 (212)	9.29 (236)	≈ 1.93 (2.87)	≈ 1.48 (2.20)	–
280-23-	290-23-		[ ]-0	8.86 (225)	9.76 (248)	≈ 1.96 (2.92)	≈ 1.49 (2.22)	–
280-237-	290-237-		[ ]-0	9.33 (237)	10.28 (261)	≈ 2.05 (3.05)	≈ 1.54 (2.29)	–
280-25-	290-25-	770-25-	[ ]-0	9.84 (250)	10.75 (273)	≈ 2.08 (3.10)	≈ 1.56 (2.32)	≈ 2.72 (4.04)
280-262-	290-262-		[ ]-0	10.31 (262)	11.26 (286)	≈ 2.14 (3.19)	≈ 1.59 (2.36)	–
280-28	290-28-		[ ]-0	10.83 (275)	11.73 (298)	≈ 2.20 (3.28)	≈ 1.62 (2.41)	–
280-29-	290-29-		[ ]-0	11.30 (287)	12.24 (311)	≈ 2.26 (3.37)	≈ 1.65 (2.45)	–
280-30-	290-30-	770-30-	[ ]-0	11.81 (300)	12.72 (323)	≈ 2.33 (3.46)	≈ 1.68 (2.50)	≈ 2.98 (4.43)
280-312-	290-312-		[ ]-0	12.28 (312)	13.23 (336)	≈ 3.86 (3.59)	≈ 1.72 (2.56)	–
280-325-	290-325-		[ ]-0	12.79 (325)	13.70 (348)	≈ 2.47 (3.68)	≈ 1.75 (2.60)	–
280-337-	290-337-		[ ]-0	13.27 (337)	14.21 (361)	≈ 2.53 (3.77)	≈ 1.78 (2.65)	–
280-350-	290-350-		[ ]-0	13.78 (350)	14.69 (373)	≈ 2.59 (3.86)	≈ 1.81 (2.69)	–
280-362-	290-362-		[ ]-0	14.25 (362)	15.20 (386)	≈ 2.65 (3.95)	≈ 1.84 (2.74)	–
280-375-	290-375-		[ ]-0	14.76 (375)	15.67 (398)	≈ 2.72 (4.04)	≈ 1.88 (2.79)	–
280-387-	290-387-		[ ]-0	15.24 (387)	16.18 (411)	≈ 2.76 (4.11)	≈ 1.90 (2.82)	–
280-400	290-400-		[ ]-0	15.75 (400)	16.65 (423)	≈ 2.81 (4.18)	≈ 1.92 (2.86)	–

Choose from the radii below for all of the above sizes
Radius (mm) Example: 280-07-150-0

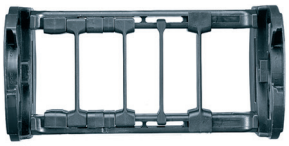
	063**	075**	100**	125	150	175	200	220	250	300
R	2.48 (063*)	2.95 (075)	3.94 (100)	4.92 (125)	5.91 (150)	6.89 (175)	7.87 (200)	8.66 (220)	9.84 (250)	11.81 (300)
H $^{-0}_{+20}$	7.09 (180)	8.07 (205)	10.04 (255)	12.01 (305)	13.98 (355)	15.94 (405)	17.91 (455)	19.49 (495)	21.85 (555)	25.79 (655)
D	5.75 (146)	6.22 (158)	7.20 (183)	8.19 (208)	9.17 (233)	10.16 (258)	11.14 (283)	11.93 (303)	13.11 (333)	15.08 (383)
K	12.20 (310)	13.78 (350)	16.93 (430)	19.88 (505)	23.03 (585)	26.18 (665)	29.33 (745)	31.69 (805)	35.43 (900)	41.54 (1055)

** This radius is not available for the R770 Series
*Removable lid only, no hinged option

0=Standard color black. For other colors see Chapter 1
For wider chains see page 6.285. For large diameter hoses see page 6.285

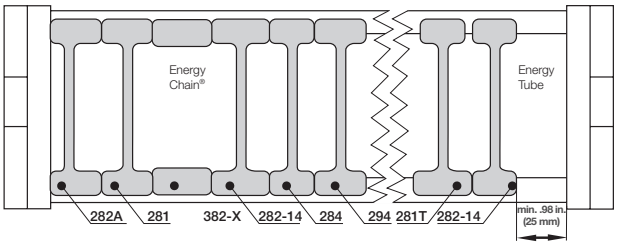
PDF: www.igus.com/e-chain-pdfs
Specs/CAD/RFQ: www.igus.com/e-chains
RoHS info: www.igus.com/RoHS

E-Chain System® E4/100
Series 280/290/R770
Interior Separation



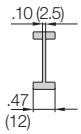
Option 1: Vertical separators and spacers

Vertical separators are used if a vertical subdivision of the E-Chain® interior is required. By standard, vertical separators are assembled every other E-Chain® link.
NOTE: Observe a lateral spacing of at least .98 in. (25mm) for E-Tubes



Standard

Vertical separator 280



Separator (chain/tube)

Unassembled	**Part No. 280**
Assembled	**Part No. 281**

- **Standard separator 280 for E-Chains® and E-Tubes**
  This separator offers safe stability due to its wide base design, also when used with thick cables or hoses.

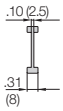
Vertical separator 280 -14

Separator (chain/tube)

Unassembled	**Part No. 280-14**
Assembled	**Part No. 281-14**

- **Vertical separator 280-14 for E-Chains® and E-Tubes**
  This separator offers safe stability due to its broad base design when used with thick cables or hoses.

Vertical separator 283

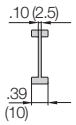


Separator (chain only)

Unassembled	**Part No. 283**
Assembled	**Part No. 284**

- **Vertical separator 283 for E-Chains®**
  This separator features a narrow base for use in applications where a large number of small cables need to be individually separated.

Locking separator 293

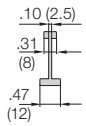


Locking Separator (chain only)

Unassembled	**Part No. 293**
Assembled	**Part No. 294**

- **Locking separator 293 for E-Chains®**
  This separator is used in applications with very high relative humidity It features increased retention force which is produced by asymmetrical retention “clamps” attached to the chain’s cross-bar. Please ensure that they are properly aligned.

Locking separator 281T

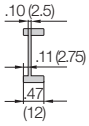


Locking Separator (tubes only)

Unassembled	**Part No. 280T**
Assembled	**Part No. 281T**

- **Locking separator 281T for E-Tubes**
  It clamps to the fixed radius and remains free along the other radius to facilitate lid removal.

Asymmetric separator 281A



Asymmetric separator (chain only)

Unassembled	**Part No. 280A**
Assembled	**Part No. 281A**

- **Asymmetrical separator 281A for E-Chains®**
  This separator features an (12mm) 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

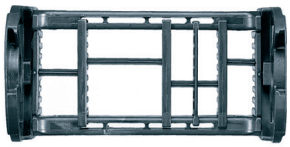
Spacers available in the following sizes:

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)**.

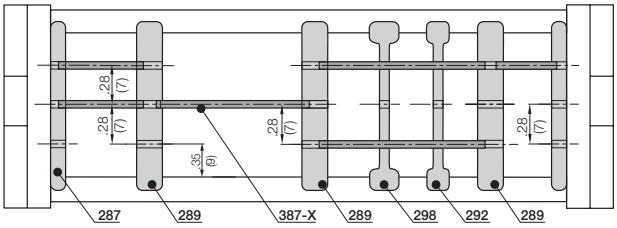
igus® E-Chain System®
Telephone 1-800-521-2747
Fax 1-401-438-7270
Internet: http://www.igus.com
email: sales@igus.com
QuickSpec: http://www.igus.com/quickspec

E-Chain System® E4/100
Series 280/290/R770
Interior Separation

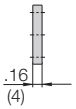


Option 2: Shelves

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



- **Side plates 286**
  This component is used to form the basic pattern of a shelf system.



Side Plate	
Unassembled	**Part No. 286**
Assembled	**Part No. 287**

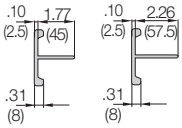
Side plate 286

- **Vertical separator 288**
  This component is used to form the basic pattern of a shelf system.

Vertical Separator	
Unassembled	**Part No. 288**
Assembled	**Part No. 289**

Vertical separator 288

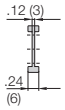
- **Locking vertical separator 281-S**
  This separator is slotted and able to be combined with shelves



Separators w/Integrated Shelf	
Unassembled	**Part No. 281-S-45**
Assembled	**Part No. 282-S-45**
Unassembled	**Part No. 281-S-57**
Assembled	**Part No. 282-S-57**

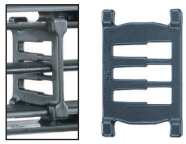
Separator with integrated shelf 281-S

- **Closed Slotted separators 291**
  These are used for complex subdivisions. However, they cannot be retrofitted into an existing interior separation system without removing the shelves first.

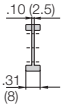


Slotted Separators	
Unassembled	**Part No. 291**
Assembled	**Part No. 292**

Closed slotted separator 291

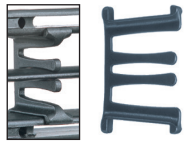


- **Open slotted separator 297**
  This separator can be retrofitted into an existing interior separation system without removing the shelves, as long as these shelves fit into the middle slot only.



Slotted Separators, Open	
Unassembled	**Part No. 297**
Assembled	**Part No. 298**

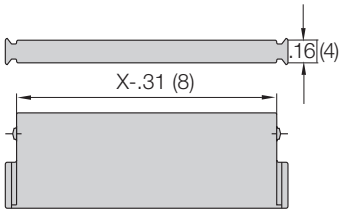
Open slotted separator 297



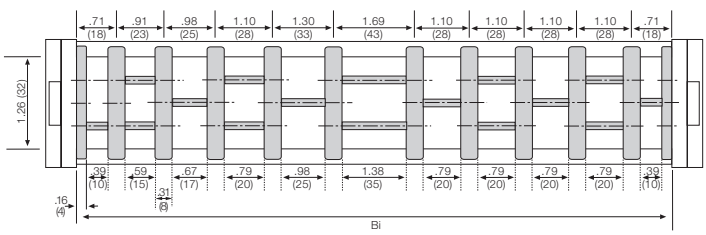
Width X		Usable Width		Part No.	Part No.
in.	(mm)	in.	(mm)	Unassembled	Assembled
.71	(18)	.39	(10)	**386-18**	**387-18**
.91	(23)	.59	(15)	**386-23**	**387-23**
.98	(25)	.67	(17)	**386-25**	**387-25**
1.10	(28)	.79	(20)	**386-28**	**387-28**
1.30	(33)	.98	(25)	**386-33**	**387-33**
1.69	(43)	1.38	(35)	**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 3 different heights in .28" (7mm) increments



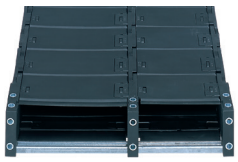
The diagram below is for reference purposes only. Multiple configurations are possible. To create your E-Chain shelving cross section please see our online E-Chain configurator. Call 1-800-521-2747 for assistance and/or go to igus.com click on the ***Products*** drop down menu, choose ***E-Chain Cable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

E-Chain System® E4/100
Series 280/290/R770
Special Accessories

igus® E-Chain System®
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 E-Chain®

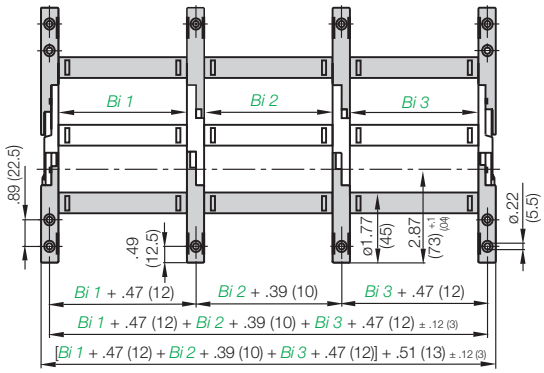
280-10/20/10- 200 **-0**

280-*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 E-Chains® up to 9.84 ft (3m)

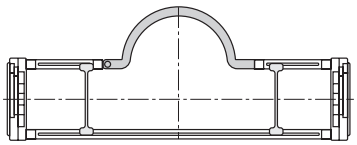
- For applications in which particularly high fill weights necessitate extremely wide E-Chains®
- The extension link design allows virtually limitless side-by-side attachment of chains
- The unsupported length of a chain can be increased when additional loads are required
- Extension links can be used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



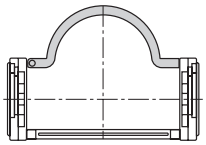
Consult igus® for your extender crossbar applications. We will be happy to assist you with your design layout.

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

- Intended for cables and hoses with a maximum outer diameter of 4.13 in. (105 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.

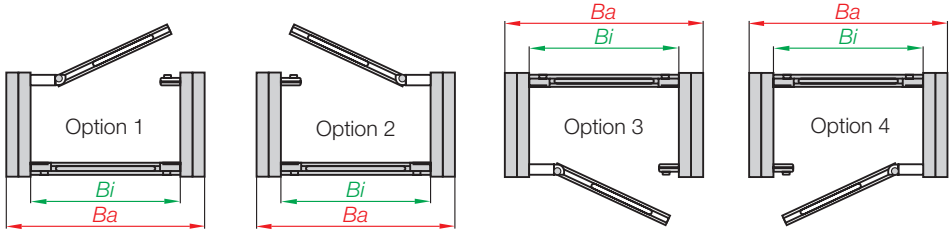


Attached directly to the side link.

Part No.	Max Ø Hose in. (mm)	Style	Installation Side Link	Combined with Snap-Open Crossbars
385-15-RHD115	4.13 (105)	Round	No	Yes
385-18-RD115	4.13 (105)	Round	Yes	No

Hinged crossbars

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

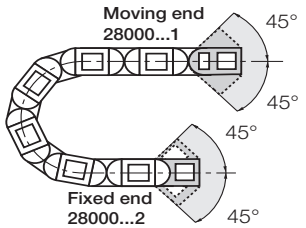


E-Chain System® E4/100
Series 280/290/R770
Mounting Brackets - KMA

Standard

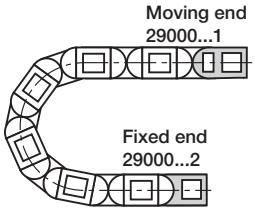
Option 1: pivoting

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

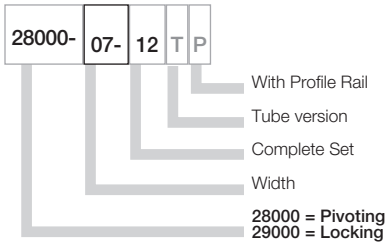


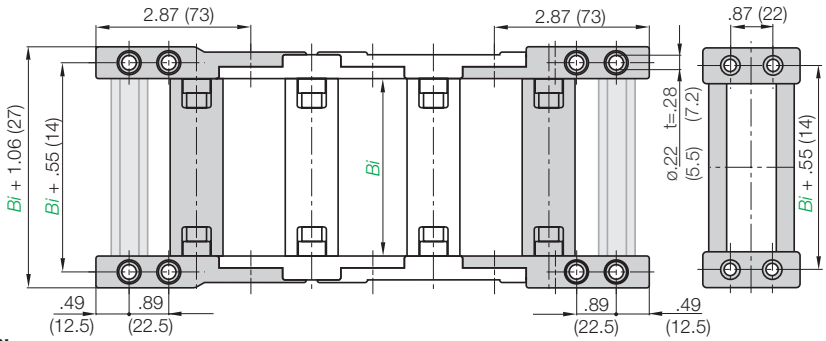
Option 2: locking

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



Part Number Structure





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 29000

Part No. Full Set (pivoting)
Series 2828 or 290:
28000-Width-12

Part No. Full Set (pivoting)
with profile rail
Series 2828 or 290
28000-Width-12P

Part No. Full Set (pivoting)
Tube Series R770
28000-Width-12T

Part No. Full Set (pivoting)
with Profile Rail
Series 770
28000-Width-12TP

Width	Part No. Full Set Pivoting	Part No. Full Set Locking		Tube Option	With Profile Rail	*Bi* in. (mm)
-05*	28000	29000	-05-12	T	P	1.97 (50)
-06	28000	29000	-06-12		P	2.68 (68)
-07	28000	29000	-07-12	T	P	2.95 (75)
-087	28000	29000	-087-12		P	3.43 (87)
-10	28000	29000	-10-12	T	P	3.94 (100)
-11	28000	29000	-11-12	T	P	4.25 (108)
-112	28000	29000	-112-12		P	4.41 (112)
-12	28000	29000	-12-12	T	P	4.92 (125)
-137	28000	29000	-137-12		P	5.39 (137)
-15	28000	29000	-15-12	T	P	5.91 (150)
-162	28000	29000	-162-12		P	6.38 (162)
-17	28000	29000	-17-12	T	P	6.61 (168)
-18	28000	29000	-18-12		P	6.89 (175)
-187	28000	29000	-187-12		P	7.36 (187)
-20	28000	29000	-20-12	T	P	7.87 (200)
-212	28000	29000	-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	28000	29000	-23-12		P	8.86 (225)
-237	28000	29000	-237-12		P	9.33 (237)
-25	28000	29000	-25-12	T	P	9.84 (250)
-262	28000	29000	-262-12		P	10.31 (262)
-28	28000	29000	-28-12		P	10.83 (275)
-29	28000	29000	-29-12		P	11.30 (287)
-30	28000	29000	-30-12	T	P	11.81 (300)
-312	28000	29000	-312-12		P	12.28 (312)
-325	28000	29000	-325-12		P	12.79 (325)
-337	28000	29000	-337-12		P	13.27 (337)
-350	28000	29000	-350-12		P	13.78 (350)
-362	28000	29000	-362-12		P	14.25 (362)
-375	28000	29000	-375-12		P	14.76 (375)
-387	28000	29000	-387-12		P	15.24 (387)
-400	28000	29000	-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

E-Chain System® E4/100
Series 280/290/R770
Strain Relief

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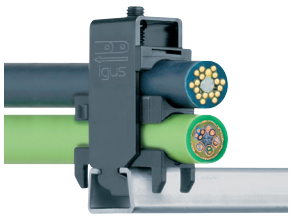
QuickSpec: http://www.igus.com/quickspec

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)
CFX12-1M	CFX12-1E	CFX12-2	CFX12-2E	CFX12-3	–	.24 - .47	(06 - 12)
CFX14-1M	CFX14-1E	CFX14-2	CFX14-2E	CFX14-3	–	.47 - .55	(12 - 14)
CFX16-1M	CFX16-1E	CFX16-2	CFX16-2E	CFX16-3	–	.55 - .63	(14 - 16)
CFX18-1M	CFX18-1E	CFX18-2	CFX18-2E	CFX18-3	–	.63 - .71	(16 - 18)
CFX20-1M	CFX20-1E	CFX20-2	CFX20-2E	CFX20-3	–	.71 - .79	(18 - 20)
CFX22-1M	CFX22-1E	CFX22-2	CFX22-2E	CFX22-3	–	.79 - .87	(20 - 22)
CFX26-1M	CFX26-1E	CFX26-2	CFX26-2E	–	–	.87 - 1.02	(22 - 26)
CFX30-1M	CFX30-1E	CFX30-2	CFX30-2E	–	–	1.02 - 1.18	(26 - 30)
CFX34-1M	CFX34-1E	CFX34-2	CFX34-2E	–	–	1.18 - 1.34	(30 - 34)
CFX38-1M	CFX38-1E	–	–	–	–	1.34 - 1.50	(34 - 38)
CFX42-1M	CFX42-1E	–	–	–	–	1.50 - 1.65	(38 - 42)

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

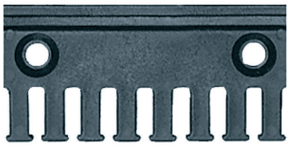
Chainfix Clip

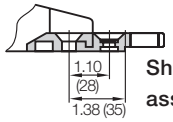
Modular snap-on strain relief device

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**

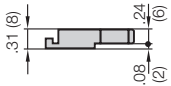
Cable ø		Part No.	Part No.
in.	(mm)	Clamp	Bottom
.16-.31	(04-08)	CFC-08-M	CFC-08-C
.31-.47	(08-12)	CFC-12-M	CFC-12-C
.47-.63	(12-16)	CFC-16-M	CFC-16-C
.63-.79	(16-20)	CFC-20-M	CFC-20-C
.79-.94	(20-24)	CFC-24-M	CFC-24-C

Tiewrap Plates





Shown assembled

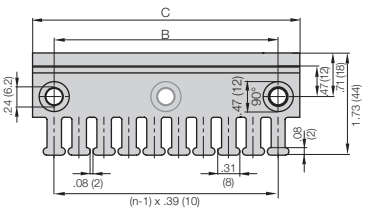


Single tiewrap plate

Option 1:
Tiewrap plates as an individual part

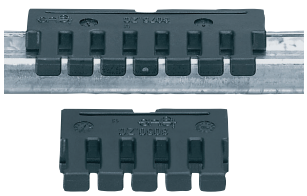
Available as an individual component, can be fixed onto a mounting bracket with the use of a profile rail.

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

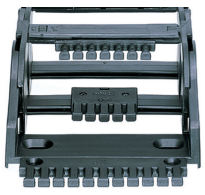


Option 2:
Clip-on Tiewrap plates

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 E-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

E-Chain System® E4/100
Series 280/290/R770
Guide Troughs

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

- Full travel length of guide trough
  Part Number 98-30
- 1/2 travel length of glide bars
  Part number 92-01
- Installation sets as end connectors
  Part Number 93-50-XX

Width of Crossbar
280-**05**-200-0

	B_{Ri}	Installation Part No.
-05	3.15 (78)	**93-50-200**
-06	3.86 (96)	**93-50-225**
-07	4.13 (103)	**93-50-225**
-087	4.61 (115)	**93-50-225**
-10	5.12 (128)	**93-50-250**
-11	5.43 (136)	**93-50-250**
-112	5.59 (141)	**93-50-250**
-12	6.10 (153)	**93-50-275**
-137	6.57 (166)	**93-50-275**
-15	7.09 (178)	**93-50-300**
-162	7.56 (191)	**93-50-300**
-17	7.80 (196)	**93-50-325**
-18	8.07 (203)	**93-50-325**
-187	8.54 (216)	**93-50-325**
-20	9.06 (228)	**93-50-350**
-212	9.53 (241)	**93-50-350**
-23	10.04 (253)	**93-50-375**
-237	10.51 (266)	**93-50-375**
-25	11.02 (278)	**93-50-400**
-262	11.50 (291)	**93-50-400**
-28	12.01 (303)	**93-50-425**
-29	12.48 (316)	**93-50-425**
-30	12.99 (328)	**93-50-450**
-312	13.46 (341)	**93-50-450**
-325	13.98 (353)	**93-50-475**
-337	14.45 (366)	**93-50-475**
-350	14.96 (378)	**93-50-500**
-362	15.43 (391)	**93-50-500**
-375	15.94 (403)	**93-50-525**
-387	16.42 (416)	**93-50-525**
-400	16.93 (428)	**93-50-550**

Standard length profile rail

-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 on the left. 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.

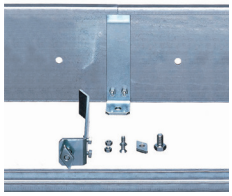
Example:
Length of travel 164 ft (50 m)
Center mounted
Required guide troughs:
164 ft (50 m) guide trough
82 ft (25 m) glide bar

= 25 sections of 6.56 ft (2 m) guide trough
Part No. 98-30

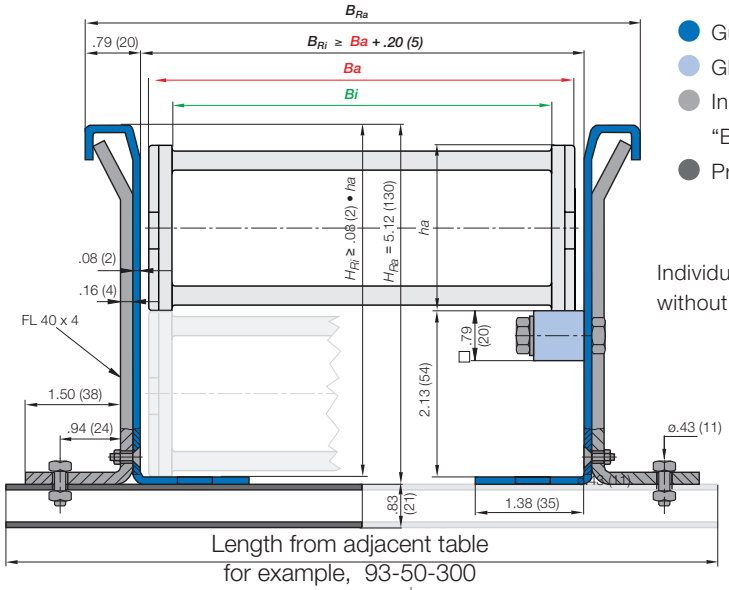
= 13 sections of 6.56 ft (2 m) glide bar
Part No. 92-01

Required number of installation sets:
= Number of guide trough components + 1
= 25 + 1 = 26
Part number 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



Length from adjacent table
for example, 93-50-300

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

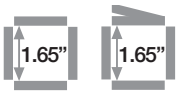
Individual attachment without profile rail

* Specialized guide trough available upon request

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

E-Chain System® E4/100
Series 380/390/R780

For new applications use Series E4-42



Price Index

Series 380

Series 390

Series R780

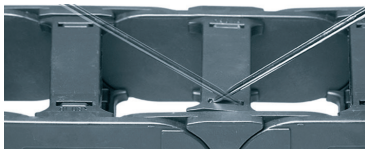
Special Features / Options

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

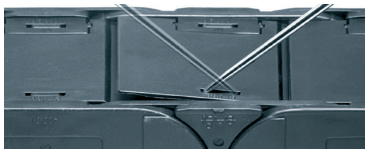
Cleanroom test upon request

ESD classification: Electrically conductive ESD/ ATEX version upon request

Assembly Tips



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



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

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

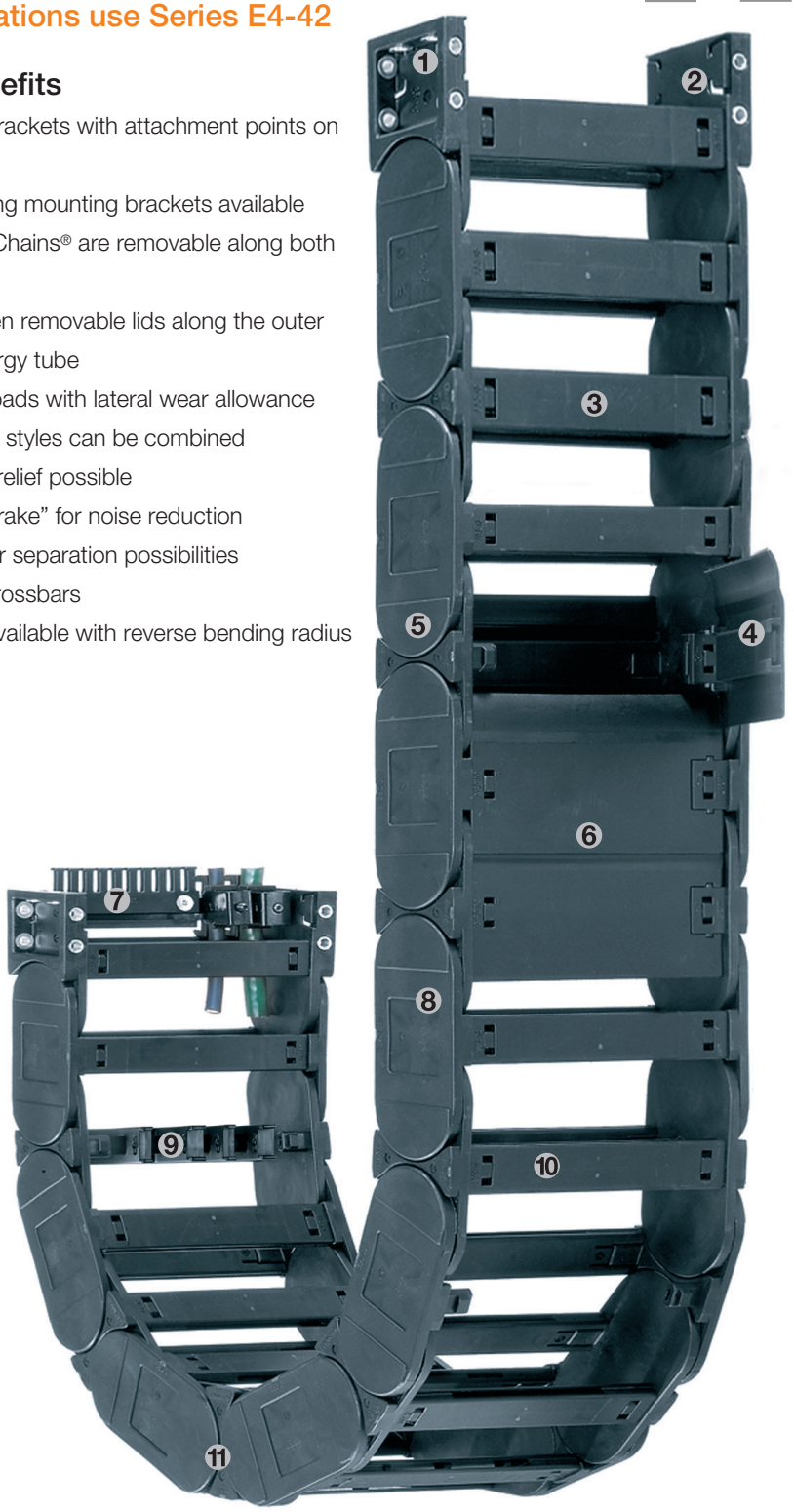
Usage Guidelines

- 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 E-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. E-Chains® also available with reverse bending radius “RBR”



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

Order Example: Complete E-Chain®

Please indicate chain length or number of links. Example:

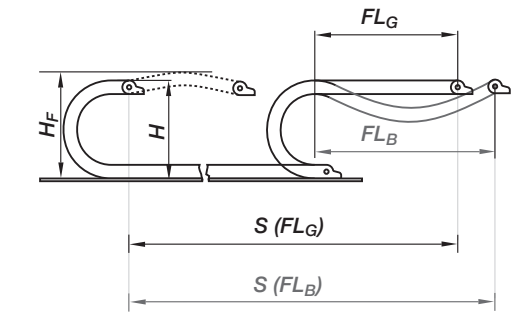
16.4 ft (5 m) **380-20-300-0**	**E-Chain®**
With 2 separators **381** assembled every 2nd link	**Interior Separation**
1 Set **38000-20-12P**	**Mounting Bracket**

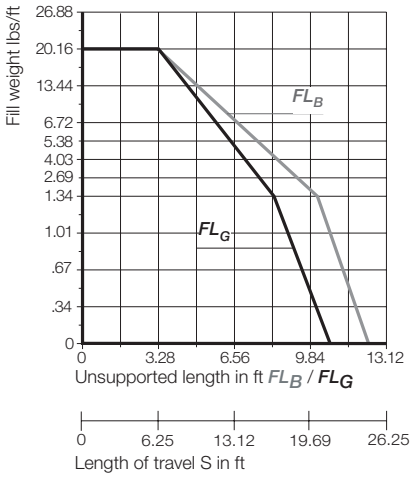
E-Chain System® E4/100
Series 380/390/R780
Installation Dimensions

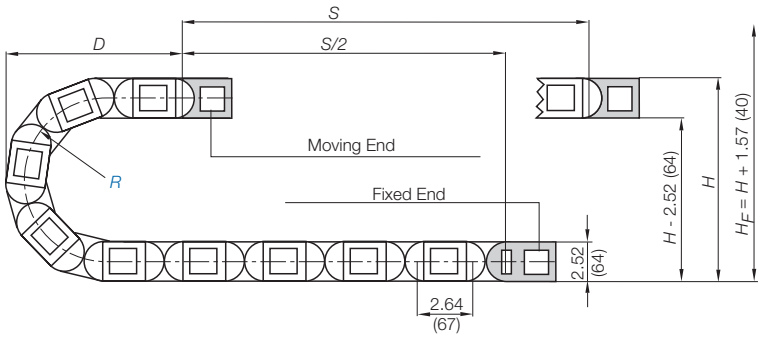
Short travel, unsupported length

- 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 $^{-0}_{+25}$	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 E-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

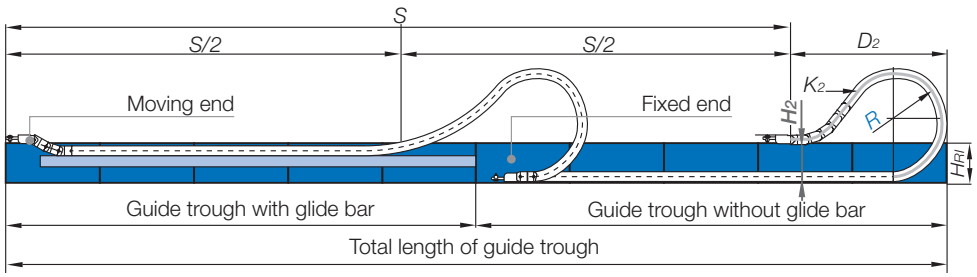
S = Length of travel
R = Bending radius
H = Nominal clearance height
D = Overlength E-Chain® radius in final position
K = π • *R* + *safety buffer*
H_F = Required clearance height
H_{RI} = Trough inner height
H_2 = *Mounting height
D_2 = Overlength - long travels, gliding
K_2 = *Add-on

*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 E-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 $^{}_{+25}$	-	-	-	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**

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

Technical Data

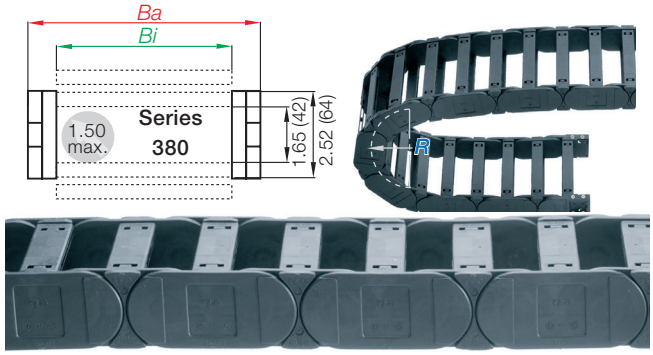
Details of material properties
➤ Chapter 1

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

E-Chain System® E4/100
Series 380/390/R780

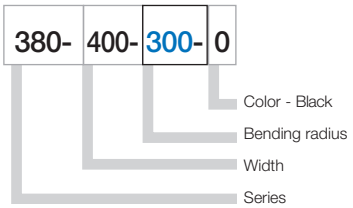
igus® E-Chain System®
Telephone 1-800-521-2747
Fax 1-401-438-7270
Internet: http://www.igus.com
email: sales@igus.com
QuickSpec: http://www.igus.com/quickspec

Series 380 - E-Chain® with crossbars every link

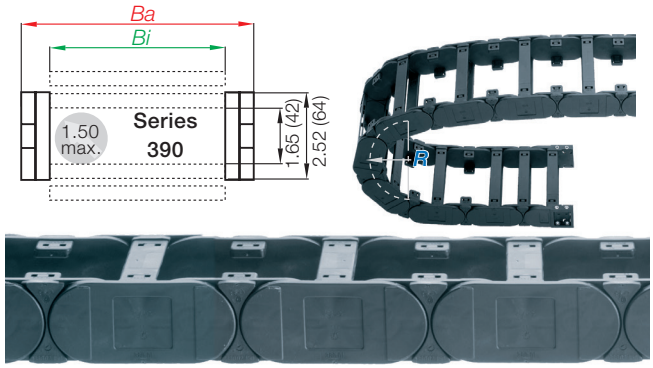


- Crossbars every link
- For use with rigid hydraulic hoses
- For particularly demanding applications
- Can be opened from both sides

Part Number Structure

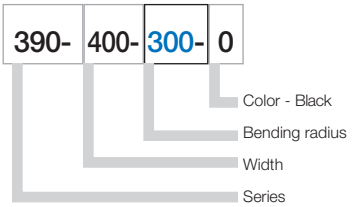


Series 390 - E-Chain® with crossbars every other link

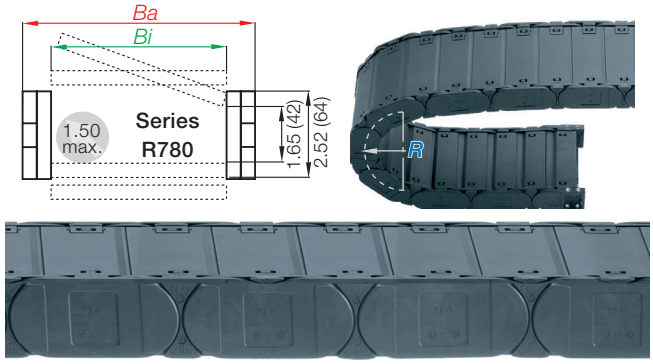


- Crossbars every other link Standard configuration
- For nearly every situation
- Can be opened from both sides
- Easy assembly
- Stable
- Cost-effective

Part Number Structure

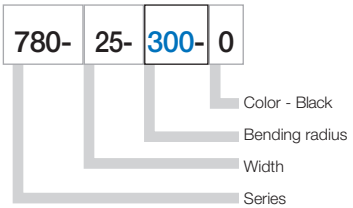


Series R780 - fully enclosed E-Tube

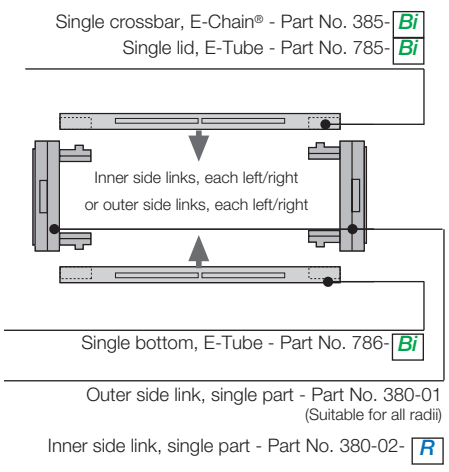


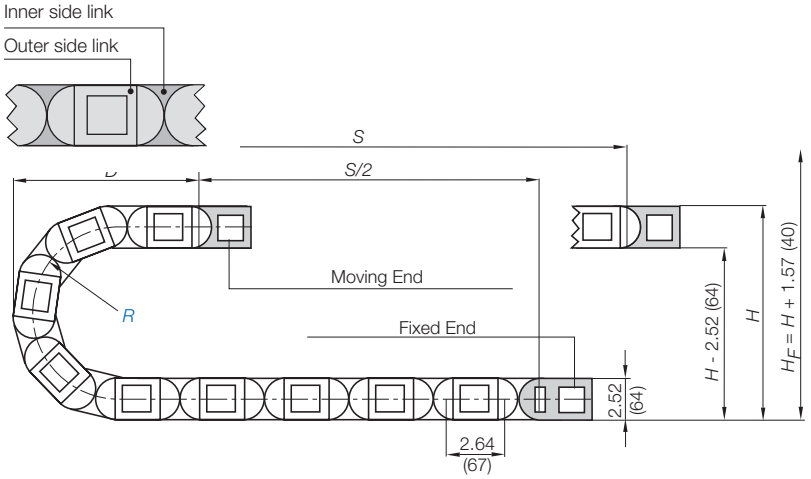
- Fully enclosed
- Excellent cable and hose protection against dirt
- Protection against hot chips
- Lids along inner radius are completely removable
- Lids along the outer radius are single-sided, snap open, hinged on one side as well as completely removable

Part Number Structure



E-Chain® as separate parts, links and side plates





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						Weight		
Crossbars Every link	Crossbars Every other	Tube Version		*Bi* in. (mm)	*Ba* 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

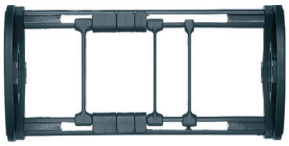
	075**	100**	115**	125	150	170	200	215	250	300	350
R	2.95 (075)	3.94 (100)	4.53 (115)	4.92 (125)	5.91 (150)	6.69 (170)	7.87 (200)	8.46 (215)	9.84 (250)	11.81 (300)	13.78 (350)
H $^{0}_{+20}$	8.46 (215)	10.43 (265)	11.61 (295)	12.40 (315)	14.37 (365)	15.94 (405)	18.31 (465)	19.49 (495)	22.24 (565)	26.18 (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 6.295. For large diameter hoses see page 6.295

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

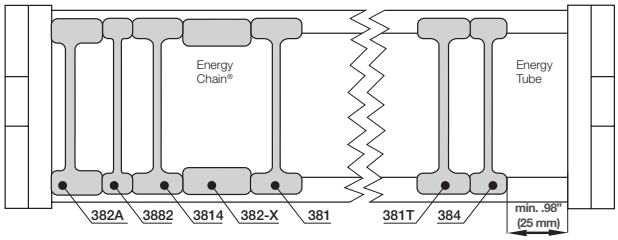
E-Chain System® E4/100
Series 380/390/R780
Interior Separation



Option 1: Vertical separators and spacers

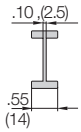
Vertical separators are used if a vertical subdivision of the E-Chain® interior is required. By standard, vertical separators are assembled every other E-Chain® link.

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



Standard

Vertical separator 380

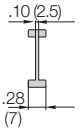


Separator (chain/tube)

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

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

Vertical separator 3881

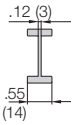


Separator (chain only)

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

- **Vertical separator 3881 for E-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

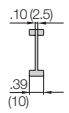


Vertical Separator (tubes only)

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

- **Vertical separator 380T for E-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.

Locking separator 383

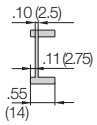


Locking Separator (tubes only)

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

- **Locking separator 383 for E-Tubes**
  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 E-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

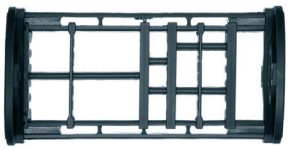
Spacers available in the following sizes:

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)**.

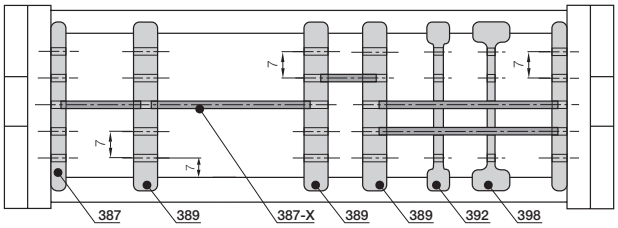
igus® E-Chain System®
Telephone 1-800-521-2747
Fax 1-401-438-7270
Internet: http://www.igus.com
email: sales@igus.com
QuickSpec: http://www.igus.com/quickspec

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

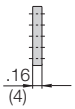


Option 2: Shelves

E-Chains® and E-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

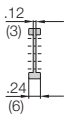
- **Vertical separator 388**
  This component is used to form the basic pattern of a shelf system.

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.

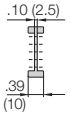


Slotted Separators

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

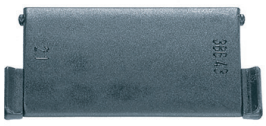
Unassembled	**Part No. 397**
Assembled	**Part No. 398**

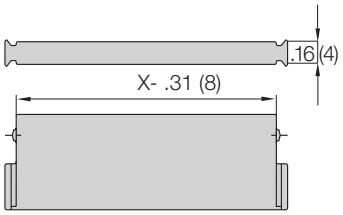
Open slotted separator 397

Width X in.	Width X (mm)	Usable Width in.	Usable Width (mm)	Part No. Unassembled	Part No. 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**

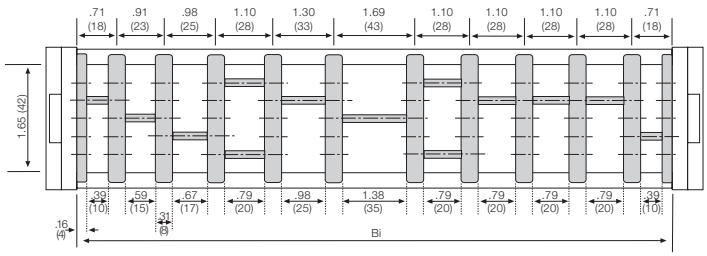
Shelves 386-XX

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





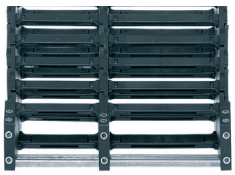
The diagram below is for reference purposes only. Multiple configurations are possible. To create your E-Chain shelving cross section please see our online E-Chain configurator. Call 1-800-521-2747 for assistance and/or go to igus.com click on the ***Products*** drop down menu, choose ***E-Chain Cable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

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

igus® E-Chain System®
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 E-Chain®

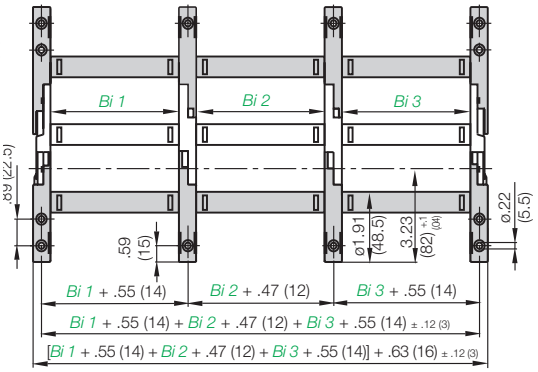
380-10/20/10- 200 **-0**

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 E-Chains® up to 9.84 ft (3m)

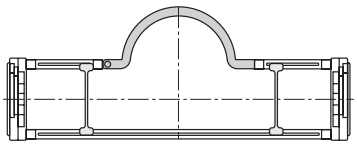
- For applications in which particularly high fill weights necessitate extremely wide E-Chains®
- The extension link design allows virtually limitless side-by-side attachment of chains
- The unsupported length of a chain can be increased when additional loads are required
- Extension links can be used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



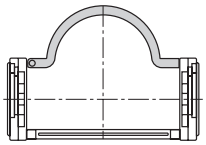
Extender crossbars - For careful guiding of large diameter cables and hoses

- 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.

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



Round extender crossbar combined with standard snap-open crossbars.

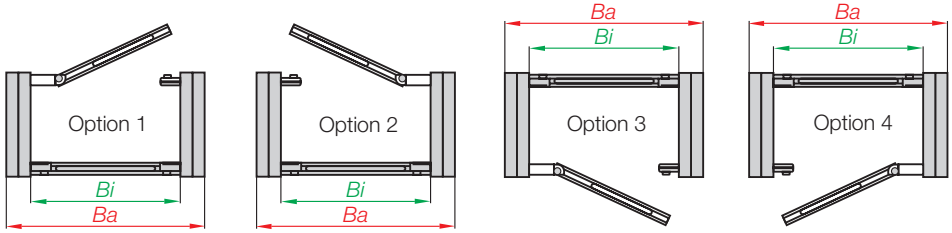


Attached directly to the side link.

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

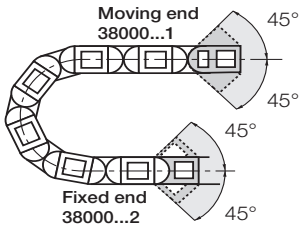


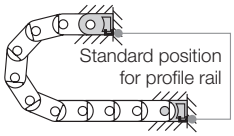
E-Chain System® E4/100
Series 380/390/R780
Mounting Brackets - KMA

Standard

Option 1: KMA pivoting

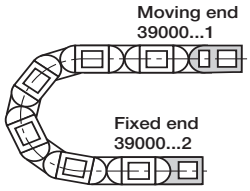
- Profile rail option
- Universal use
- Corrosion resistant
- Short and long travels
- Space-restricted conditions

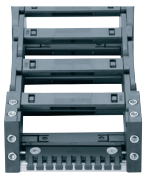


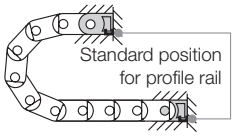


Option 2: KMA locking

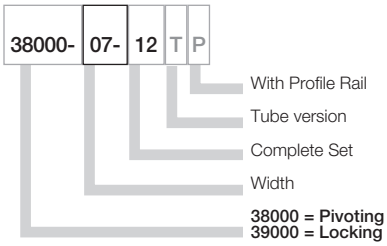
- Profile rail option
- Universal use
- Corrosion resistant
- Vertical hanging/standing travels
- Extreme accelerations

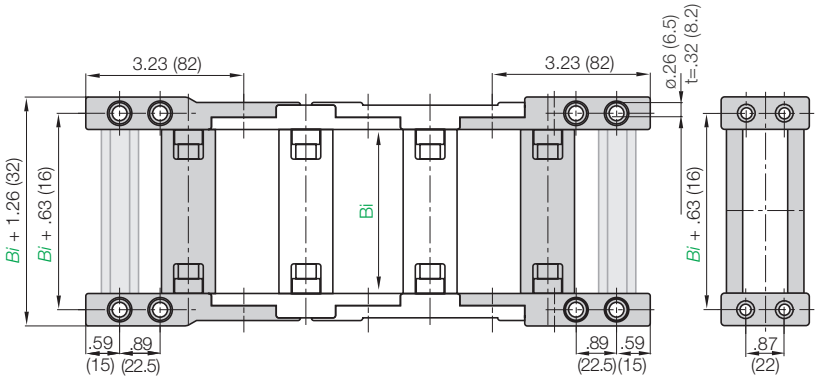






Part Number Structure





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)

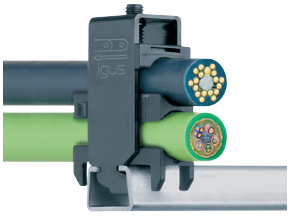
PDF: www.igus.com/e-chain-pdfs
Specs/CAD/RFQ: www.igus.com/e-chains
RoHS info: www.igus.com/RoHS

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

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

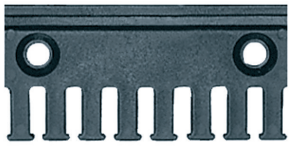
Chainfix Clip

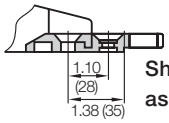
Modular snap-on strain relief device

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**

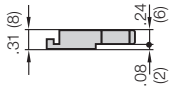
Cable ø		Part No.	Part No.
in.	(mm)	Clamp	Bottom
.16-.31	(04-08)	CFC-08-M	CFC-08-C
.31-.47	(08-12)	CFC-12-M	CFC-12-C
.47-.63	(12-16)	CFC-16-M	CFC-16-C
.63-.79	(16-20)	CFC-20-M	CFC-20-C
.79-.94	(20-24)	CFC-24-M	CFC-24-C

Tiewrap Plates





Shown assembled

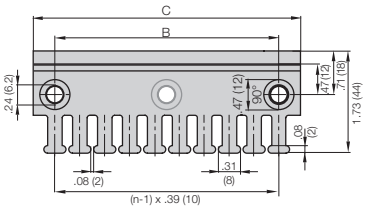


Single tiewrap plate

Option 1:
Tiewrap plates as an individual part

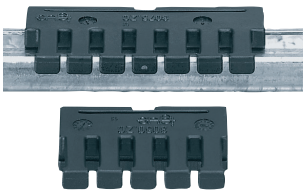
Available as an individual component, can be fixed onto a mounting bracket with the use of a profile rail.

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

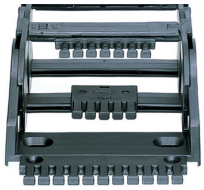


Option 2:
Clip-on Tiewrap plates

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 E-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

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

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 E-Chain® glides on the lower run. If using igus® steel guide troughs, the following components are required:

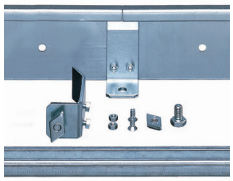
- Full travel length of guide trough
  Part No. 93-30
- 1/2 travel length of glide bars
  Part No. 93-01
- Installation sets as end connectors
  Part No. 93-50-XX

-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

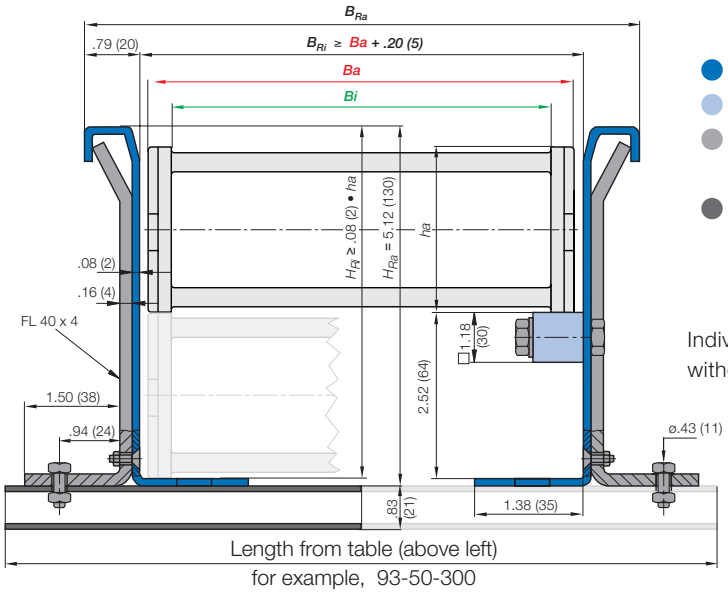
Example:
Length of travel 164 ft (50 m)
Center mounted
Required guide troughs:
164 ft (50 m) guide trough,
82 ft (25 m) glide bar
= 25 sections of 6.56 ft (2 m) guide trough
Part No. 93-30
= 13 sections of 6.56 ft (2 m) glide bar
Part No. 93-01

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

E-Chain System® E4/100
Series 400/410/R880

For new applications use Series E4-56

Price Index

Series 400

Series 410

Series R880

Special Features / Options

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

Cleanroom test upon request

ESD classification: Electrically conductive ESD/ ATEX version upon request

Assembly Tips

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

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

Other Installation Methods

Vertical, hanging ≤ 328 ft (100 m)
Vertical, standing ≤ 19.69 ft (6 m)
Side-mounted, unsupp. ≤ 8.20 ft (2.5 m)
Rotary requires further calculation

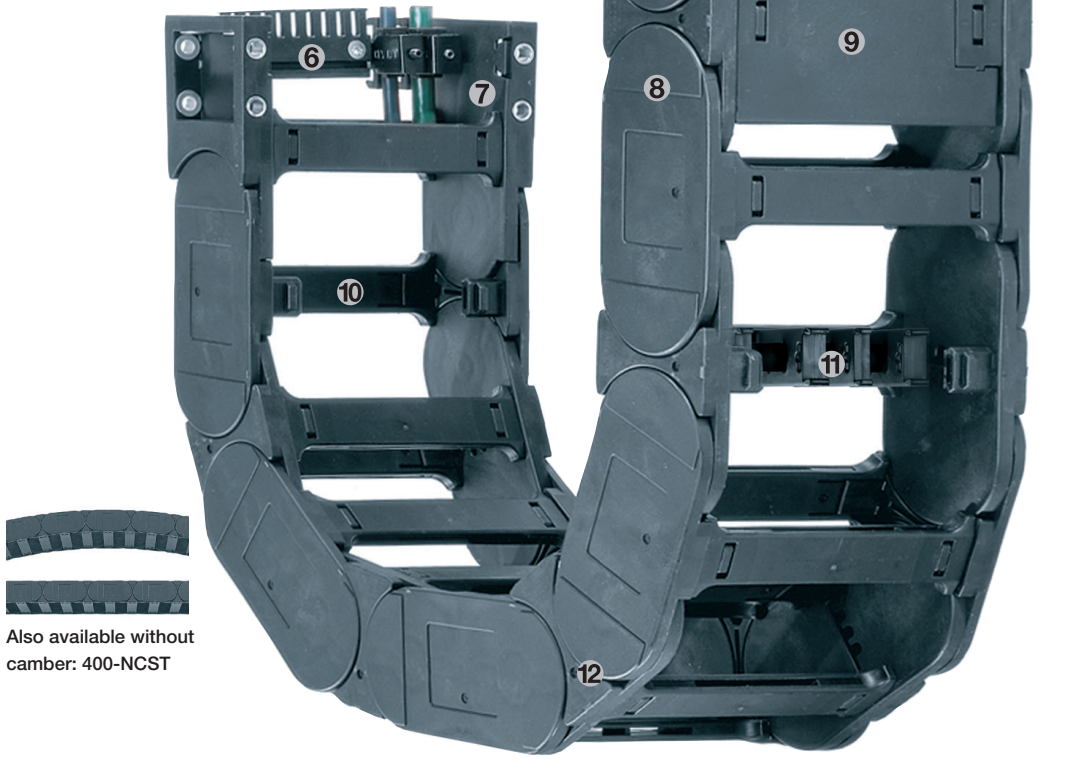
Usage Guidelines

- When quiet operation is required
- When very high speeds and/or accelerations are required
- For long travels
- For high fill weights

- When side-mounting with a long unsupported length is required
  ➤ **Series 4040/4041/R8840**
- When a simpler, low-cost solution is required
  ➤ **Series 14040/R18840**
- If an extreme vibration-free solution is required
  ➤ **Series 14040/R18840**

Features & Benefits

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



Also available without camber: 400-NCST

Order Example: Complete E-Chain®

Please indicate chain length or number of links. Example:

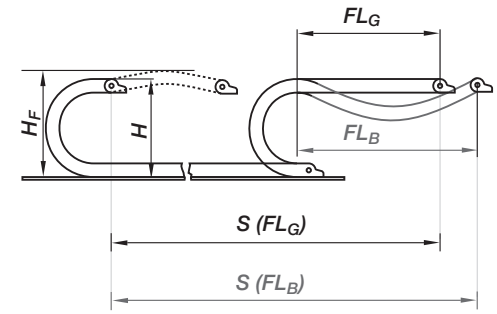
9.84 ft (3 m) **400-30-300-0**	**E-Chain®**
With 2 separators **411** assembled every 2nd link	**Interior separation**
1 Set **40000-30-12P**	**Mounting bracket**

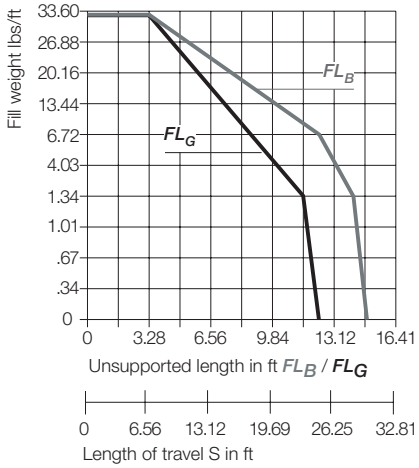
E-Chain System® E4/100
Series 400/410/R880
Installation Dimensions

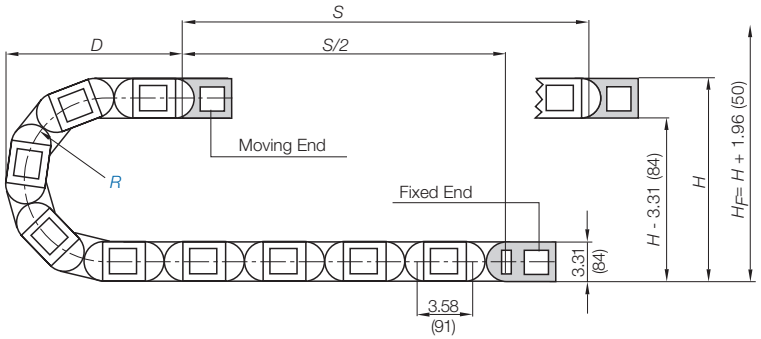
Short travel, unsupported length

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

Further information ➤ Design, Chapter 1







Pitch per link: = 3.58" (91 mm)
Links per ft (m): = 3.35 (11)
For center mount applications:
Chain length = $\frac{S}{2} + K$

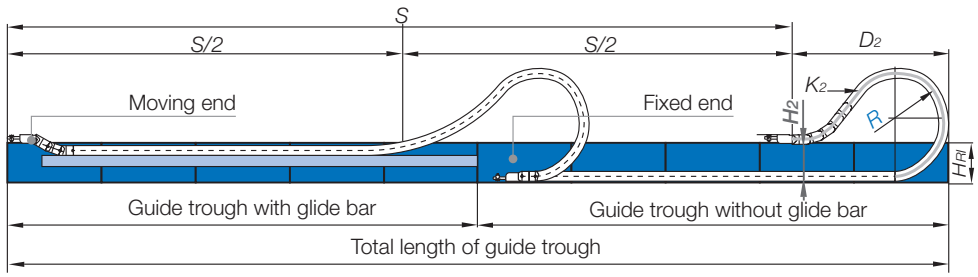
The required clearance height: $H_F = H + 1.96$ **in. (50 mm)** (with 2.02 lbs/ft (3 kg/m) fill weight. Please consult igus® if space is particularly restricted.

R	5.31 (135)	5.91 (150)	6.89 (175)	7.87 (200)	9.45 (240)	9.84 (250)	11.81 (300)	13.78 (350)	15.75 (400)	19.68 (500)
H^{*0}_{+25}	14.17 (360)	15.16 (385)	17.13 (435)	19.09 (485)	22.24 (565)	23.03 (585)	26.97 (685)	30.91 (785)	34.84 (885)	42.72 (1085)
D	10.63 (270)	11.22 (285)	12.20 (310)	13.19 (335)	14.76 (375)	15.16 (385)	17.13 (435)	19.09 (485)	21.06 (535)	25.00 (635)
K	25.59 (650)	29.53 (750)	32.48 (825)	35.43 (900)	40.16 (1020)	41.34 (1050)	48.23 (1225)	52.76 (1340)	57.09 (1450)	69.88 (1775)

For long travels with lowered mounting height

Long travel lengths from 32.8 ft.(10m) to max. 1,312.4 ft. (400m)

For center mount applications:
Chain length: = $\frac{S}{2} + K_2$



R	5.31 (135)	5.91 (150)	6.89 (175)	7.87 (200)	9.45 (240)	9.84 (250)	11.81 (300)	13.78 (350)	15.75 (400)	19.68 (500)
H2	-	10.47 (266)	10.47 (266)	10.47 (266)	10.47 (266)	10.47 (266)	10.47 (266)	10.47 (266)	10.47 (266)	10.47 (266)
D2	-	18.90 (480)	23.62 (600)	28.74 (730)	36.22 (920)	37.40 (950)	46.46 (1180)	56.69 (1440)	60.24 (1530)	74.80 (1900)
K2	-	32.24 (819)	42.99 (1092)	50.16 (1274)	60.91 (1547)	60.91 (1547)	78.82 (2002)	89.57 (2275)	100.31(2548)	128.98 (3276)

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

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

Short Travels - Unsupported

Unsupported E-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 E-Chain® radius in final position
K = π • *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

Long Travels - Gliding

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

Technical Data

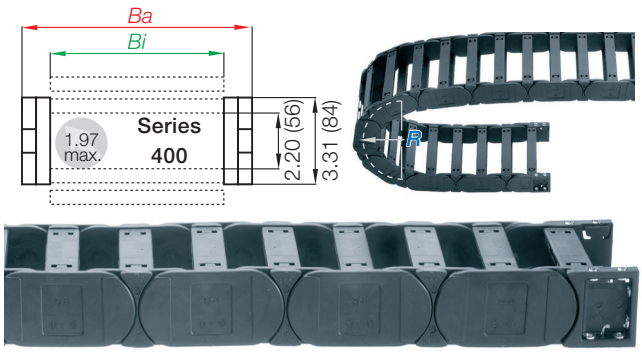
Details of material properties
➤ **Design , Chapter 1**

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

E-Chain System® E4/100
Series 400/410/R880

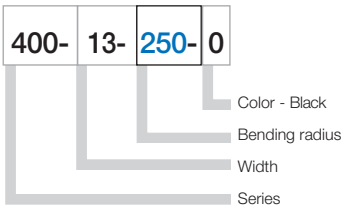
igus® E-Chain System®
Telephone 1-800-521-2747
Fax 1-401-438-7270
Internet: http://www.igus.com
email: sales@igus.com
QuickSpec: http://www.igus.com/quickspec

Series 400 - E-Chain® with crossbars every link

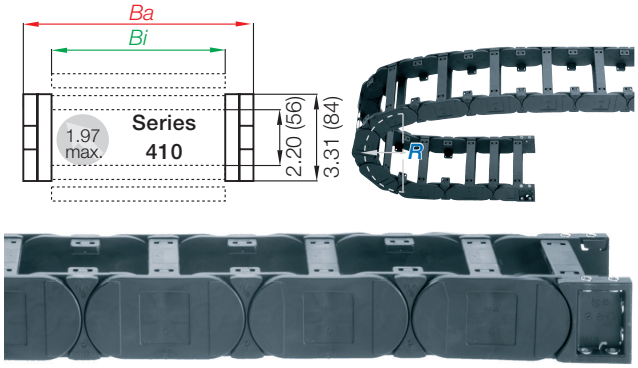


- Crossbars every link
- For use with rigid hydraulic hoses
- For particularly demanding applications
- Can be opened from both sides

Part Number Structure

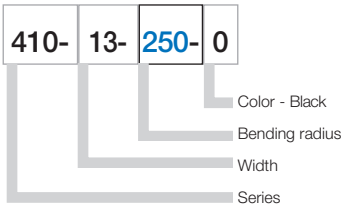


Series 410 - E-Chain® with crossbars every other link

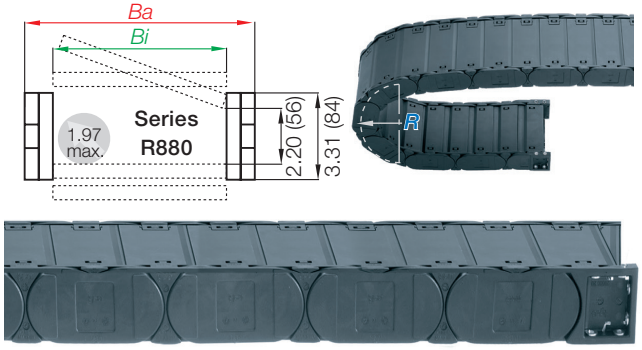


- Crossbars every other link
- Standard configuration
- For nearly every situation
- Can be opened from both sides
- Easy assembly
- Stable
- Cost-effective

Part Number Structure

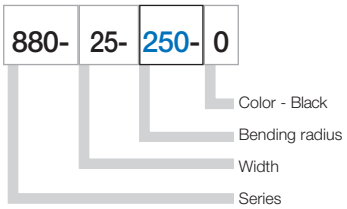


Series R880 - fully enclosed E-Tube

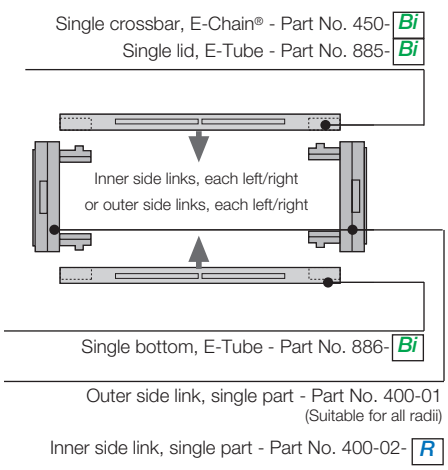


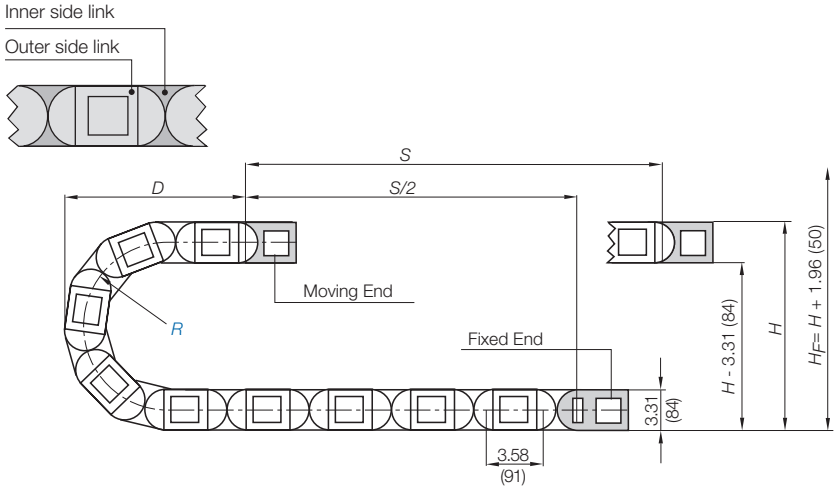
- Fully enclosed
- Excellent cable and hose protection against dirt
- Protection against hot chips
- Lids along inner radius are completely removable
- Lids along the outer radius are single-sided, snap open, hinged on one side as well as completely removable

Part Number Structure



E-Chain® as separate parts, links and side plates





E-Chain System® E4/100
Series 400/410/R880

Supplement part number with required radius. Example: 400-30-[300]-0
Pitch: 3.58 in. (91mm) per link links/ft (m) = 3.35 (11)

Part Number. Crossbars Every link	Crossbars Every other	Tube Version			*Bi* in. (mm)	*Ba* in. (mm)	400 lbs/ft (kg/m)	410 lbs/ft (kg/m)	R880 lbs/ft (kg/m)
400-05-	410-05-			-0	1.97 (50)	3.31 (84)	≈ 2.31 (3.44)	≈ 2.10 (3.12)	–
400-06-	410-06-			-0	2.56 (65)	3.90 (99)	≈ 2.35 (3.50)	≈ 2.15 (3.20)	–
400-07-	410-07-	880-07-		-0*	2.95 (75)	4.29 (109)	≈ 2.37 (3.53)	≈ 2.31 (3.44)	≈ 2.67 (3.98)
400-10-	410-10-	880-10-		-0	3.94 (100)	5.28 (134)	≈ 2.49 (3.71)	≈ 2.37 (3.53)	≈ 2.87 (4.27)
400-11-	410-11	-		-0	4.41 (112)	5.79 (147)	≈ 2.58 (3.84)	≈ 2.42 (3.60)	–
400-12-	410-12-	880-12-		-0	4.92 (125)	6.26 (159)	≈ 2.63 (3.91)	≈ 2.44 (3.63)	≈ 3.11 (4.63)
400-13-	410-13-			-0	5.39 (137)	6.77 (172)	≈ 2.72 (4.04)	≈ 2.49 (3.70)	–
400-15-	410-15-	880-15-		-0	5.91 (150)	7.24 (184)	≈ 2.76 (4.10)	≈ 2.51 (3.73)	≈ 3.40 (5.06)
400-16-	410-16-			-0	6.38 (162)	7.76 (197)	≈ 2.83 (4.21)	≈ 2.54 (3.78)	–
400-17-	410-17-			-0	6.89 (175)	8.23 (209)	≈ 2.90 (4.32)	≈ 2.58 (3.84)	–
400-18-	410-18-			-0	7.36 (187)	8.74 (222)	≈ 2.98 (4.43)	≈ 2.61 (3.89)	–
400-20-	410-20-	880-20-		-0	7.87 (200)	9.21 (234)	≈ 3.00 (4.46)	≈ 2.63 (3.91)	≈ 3.78 (5.63)
400-21-	410-21-			-0	8.35 (212)	9.72 (247)	≈ 3.07 (4.57)	≈ 2.66 (3.96)	–
400-22-	410-22-			-0	8.86 (225)	10.20 (259)	≈ 3.11 (4.63)	≈ 2.68 (3.99)	–
400-23-	410-23-			-0	9.33 (237)	10.71 (272)	≈ 3.20 (4.76)	≈ 2.73 (4.06)	–
400-25-	410-25-	880-25-		-0	9.84 (250)	11.18 (284)	≈ 3.26 (4.85)	≈ 2.76 (4.10)	≈ 4.27 (6.36)
400-26-	410-26-			-0	10.31 (262)	11.69 (297)	≈ 3.32 (4.94)	≈ 2.79 (4.15)	–
400-27-	410-27-	880-27-		-0	10.83 (275)	12.17 (309)	≈ 3.39 (5.05)	≈ 2.82 (4.20)	≈ 4.52 (6.72)
400-28-	410-28-			-0	11.30 (287)	12.68 (322)	≈ 3.41 (5.07)	≈ 2.83 (4.21)	–
400-30-	410-30-	880-30-		-0	11.81 (300)	13.15 (334)	≈ 3.56 (5.29)	≈ 2.90 (4.32)	≈ 4.72 (7.02)
400-31-	410-31-			-0	12.28 (312)	13.66 (347)	≈ 3.56 (5.29)	≈ 2.90 (4.32)	–
400-32-	410-32-			-0	12.79 (325)	14.13 (359)	≈ 3.62 (5.38)	≈ 2.94 (4.37)	–
400-33-	410-33-			-0	13.27 (337)	14.65 (372)	≈ 3.74 (5.56)	≈ 3.00 (4.46)	–
400-35-	410-35-	880-35-		-0	13.78 (350)	15.12 (384)	≈ 3.84 (5.71)	≈ 3.04 (4.53)	≈ 5.19 (7.72)
400-36-	410-36-			-0	14.25 (362)	15.63 (397)	≈ 3.84 (5.71)	≈ 3.04 (4.53)	–
400-37-	410-37-			-0	14.76 (375)	16.10 (409)	≈ 3.85 (5.73)	≈ 3.05 (4.54)	–
400-38-	410-38-			-0	15.24 (387)	16.61 (422)	≈ 3.91 (5.82)	≈ 3.08 (4.59)	–
400-40-	410-40-	880-40-		-0	15.75 (400)	17.09 (434)	≈ 4.05 (6.02)	≈ 3.15 (4.69)	≈ 5.86 (8.72)
400-41-	410-41-			-0	16.22 (412)	17.60 (447)	≈ 4.15 (6.17)	≈ 3.20 (4.76)	–
400-42-	410-42-			-0	16.73 (425)	18.07 (459)	≈ 4.25 (6.33)	≈ 3.25 (4.84)	–
400-43-	410-43-			-0	17.20 (437)	18.58 (472)	≈ 4.29 (6.39)	≈ 3.27 (4.87)	–
400-45-	410-45-			-0	17.72 (450)	19.06 (484)	≈ 4.34 (6.46)	≈ 3.30 (4.91)	–
400-46-	410-46-	880-46-		-0	18.19 (462)	19.57 (497)	≈ 4.35 (6.48)	≈ 3.31 (4.92)	≈ 6.18 (9.19)
400-47-	410-47-			-0	18.70 (475)	20.04 (509)	≈ 4.44 (6.61)	≈ 3.35 (4.98)	–
400-48-	410-48-			-0	19.17 (487)	20.55 (522)	≈ 4.47 (6.65)	≈ 3.37 (5.01)	–
400-50-	410-50-			-0	19.69 (500)	21.02 (534)	≈ 4.53 (6.74)	≈ 3.39 (5.05)	–
400-51-	410-51-			-0	20.16 (512)	21.54 (547)	≈ 4.55 (6.77)	≈ 3.40 (5.06)	–
400-52-	410-52-			-0	20.67 (525)	22.01 (559)	≈ 4.58 (6.81)	≈ 3.41 (5.08)	–
400-53-	410-53-			-0	21.14 (537)	22.52 (572)	≈ 4.68 (6.96)	≈ 3.47 (5.16)	–
400-55-	410-55-			-0	21.65 (550)	22.99 (584)	≈ 5.01 (7.45)	≈ 3.63 (5.40)	–
400-60-	410-60-			-0	23.62 (600)	24.96 (634)	≈ 5.14 (7.65)	≈ 3.70 (5.50)	–

Choose from the radii below for all of the above sizes
Radius (mm) Example: 400-30-[300]-0

	135**	150	175	200	240	250	300	350	400	500
R	5.31 (135)	5.91 (150)	6.89 (175)	7.87 (200)	9.45 (240)	9.84 (250)	11.81 (300)	13.78 (350)	15.75 (400)	19.69 (500)
H**+25	14.17 (360)	15.16 (385)	17.13 (435)	19.09 (485)	22.24 (565)	23.03 (585)	26.97 (685)	30.91 (785)	34.84 (885)	42.72 (1085)
D	10.63 (270)	11.22 (285)	12.20 (310)	13.19 (335)	14.76 (375)	15.16 (385)	17.13 (435)	19.09 (485)	21.06 (535)	25.00 (635)
K	25.59 (650)	29.53 (750)	32.48 (825)	35.43 (900)	40.16 (1020)	41.34 (1050)	48.23 (1225)	52.76 (1340)	57.09 (1450)	69.88 (1775)

** This radius is not available for the R880 Series
*Removable lid only, no hinged option

0=Standard color black. For other colors see Chapter 1
For wider chains see page 6.305. For large diameter hoses see page 6.305

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

E-Chain System® E4/100
Series 400/410/R880
Interior Separation

igus® E-Chain System®

Telephone 1-800-521-2747
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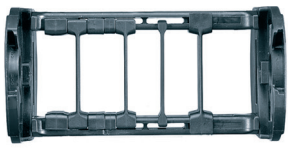
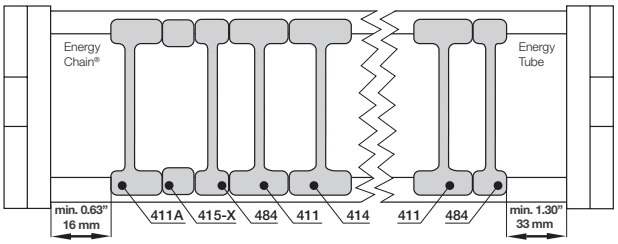
Internet: http://www.igus.com
email: sales@igus.com
QuickSpec: http://www.igus.com/quickspec



Option 1: Vertical separators and spacers

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

NOTE: Observe a lateral spacing of at least 1.26 in. (32mm) for E-Tubes and .63 in. (16mm) for E-Chain®. There is no minimum spacing needed for side plates



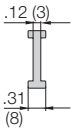
Vertical separator 401

Vertical separator

Unassembled	**Part No. 401**
Assembled	**Part No. 411**

- **Standard separator 401 for E-Chains® and E-Tubes**
  This separator offers safe stability due to its wide base design, also when used with thick cables or hoses.

Vertical separator 483



Vertical separator

Unassembled	**Part No. 483**
Assembled	**Part No. 484**

- **Vertical separator 483 for E-Chains® and E-Tubes**
  This separator offers a narrow base for applications where a large number of small cables need to be individually separated.

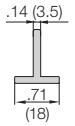
Locking separator 404

Locking separator (chain only)

Unassembled	**Part No. 404**
Assembled	**Part No. 414**

- **Locking separator 404 for E-Chains®**
  This separator features increased retention force for applications exposed to very high humidity and extreme loads. The extra retention force is achieved by asymmetric claws for the crossbar. Take care to ensure proper alignment.

Locking separator 406

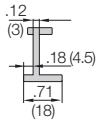


Locking separator (tube only)

Unassembled	**Part No. 406**
Assembled	**Part No. 416**

- **Locking separator 406 for E-Tubes**
  It features a single sided, secure fit, and can be placed on the lid or the bottom of the E-Tube. The single side locking design helps to eliminate difficulties in assembling the opposite cover or crossbar

Asymmetric separator 401A



Asymmetrical separator (chain only)

Unassembled	**Part No. 401A**
Assembled	**Part No. 411A**

- **Asymmetrical separator 401A for E-Chains®**
  This separator features an .71" (18mm) base. It can be used in combinations between spacers of different widths and vertical separators in side mounted applications.

Spacers 405-XX

Spacer (chain only)

Unassembled	**Part No. 405-XX**
Assembled	**Part No. 415-XX**

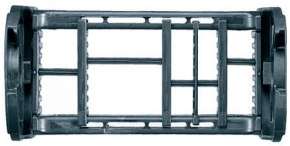
XX = width of the spacer

- **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)**.

Spacers available in the following sizes:

Part No. Unassembled	Part No. Assembled	in.	(mm)
405 -10	**415 -10**	.39"	(10)
405 -15	**415 -15**	.59"	(15)
405 -20	**415 -20**	.79"	(20)
405 -30	**415 -30**	1.18"	(30)
405 -40	**415 -40**	1.57"	(40)

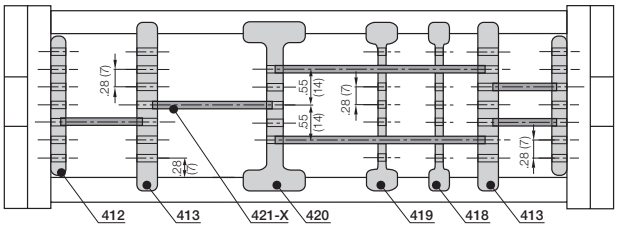
E-Chain System® E4/100
Series 400/410/R880
Interior Separation



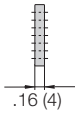
Option 2: Shelves

E-Chains® and E-Tubes can be subdivided both vertically and horizontally using the various interior separation elements.

➤ **Design, Chapter 1** for layout recommendations.



- **Side plates 402**
  This component is used to form the basic pattern of a shelf system.

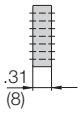


Side plate

Unassembled	**Part No. 402**
Assembled	**Part No. 412**

Side plate 402

- **Vertical separator 403**
  This component is used to form the basic pattern of a shelf system.

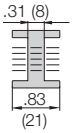


Vertical separator

Unassembled	**Part No. 403**
Assembled	**Part No. 413**

Vertical separator 403

- **Locking vertical separator 410**
  This separator is slotted and able to be combined with shelves

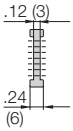


Locking vertical separator

Unassembled	**Part No. 410**
Assembled	**Part No. 420**

Locking vertical separator 410

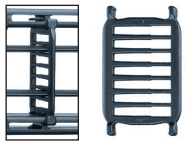
- **Slotted separators 408**
  These are used for very complex subdivisions. However, they cannot be retrofitted into an existing separation system without removing the shelves first.



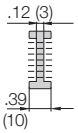
Slotted separators, closed

Unassembled	**Part No. 408**
Assembled	**Part No. 418**

Closed slotted separator 408



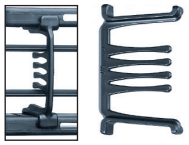
- **Slotted separator 409**
  This separator can be retrofitted into an existing interior separation system without removing the shelves, as long as these shelves fit into any of the 3 middle slots



Slotted separators, open

Unassembled	**Part No. 409**
Assembled	**Part No. 419**

Open slotted separator 409

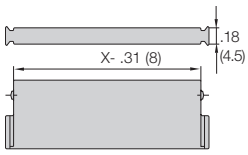


Shelves 420-XX

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

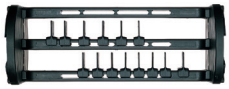
Width X in.	(mm)	Usable Width in.	(mm)	Part No. Unassembled	Part No. Assembled
.71	(18)	.39	(10)	**420-18**	**421-18**
.91	(23)	.59	(15)	**420-23**	**421-23**
.98	(25)	.67	(17)	**420-25**	**421-25**
1.10	(28)	.79	(20)	**420-28**	**421-28**
1.30	(33)	.98	(25)	**420-33**	**421-33**
1.69	(43)	1.38	(35)	**420-43**	**421-43**
1.97	(50)	1.65	(42)	**420-50**	**421-50**
2.44	(62)	2.13	(54)	**420-62**	**421-62**

Width X in.	(mm)	Usable Width in.	(mm)	Part No. Unassembled	Part No. Assembled
2.95	(75)	2.64	(67)	**420-75**	**421-75**
3.46	(88)	3.15	(80)	**420-88**	**421-88**
3.94	(100)	3.62	(92)	**420-100**	**421-100**
4.92	(125)	4.61	(117)	**420-125**	**421-125**
5.91	(150)	5.59	(142)	**420-150**	**421-150**
6.89	(175)	6.57	(167)	**420-175**	**421-175**
7.36	(187)	7.05	(179)	**420-187**	**421-187**
7.87	(200)	7.56	(192)	**420-200**	**421-200**

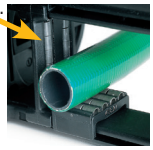


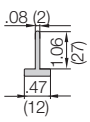
Center crossbar - developed for applications involving a very large number of thin cables, individually separated. This offers the option of subdividing the E-Chain® into upper and lower halves, with mutually independent separators.

Rollclip - minimizes abrasion of particularly sensitive hoses or cables in an E-Chain®. The integrated rollers compensate for relative movement between the chain and the hose or cable. This reduces the abrasion of the hoses or cables



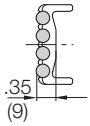
Roller separator - performs a similar function to the Rollclip, but doubles as a separator. Consult igus® if you have any questions regarding the roller separator.





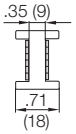
Center crossbar

Unassembled	**Part No. 405**
Assembled	**Part No. 415**



Rollclip

Unassembled	**Part No. 489-27**
Assembled	**Part No. 490-27**



Center crossbar

Unassembled	**Part No. 429**
Assembled	**Part No. 430**

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

igus® E-Chain System®

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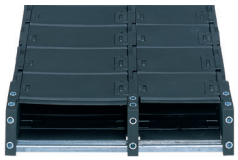
email: sales@igus.com
QuickSpec: http://www.igus.com/quickspec

E-Chain System® E4/100
Series 400/410/R880
Special Accessories



Part number example for E-Chain®

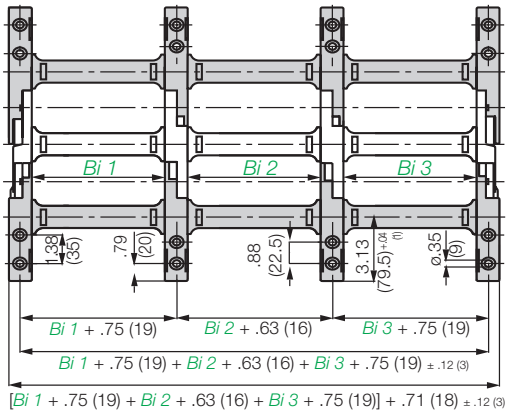
400-10/20/10- 200 **-0**

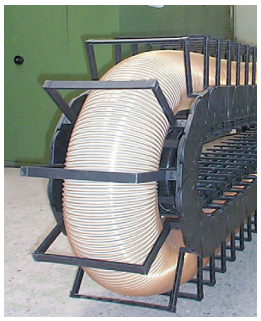
400-*Bi1*/*Bi2*/*Bi3*- R **-0**

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 E-Chains® up to 9.84 ft (3m)

- For applications in which particularly high fill weights necessitate extremely wide E-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 E-Chains®, E-Tubes or a combination of both
- They are suitable for unsupported and gliding applications in a guide trough
- E-Chains® with extension links are attached with KMA or steel mounting brackets.

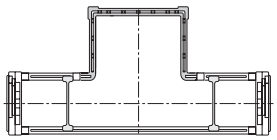




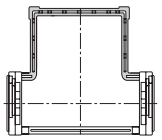
Consult igus® for your extender crossbar applications. We will be happy to assist you with your design layout.

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

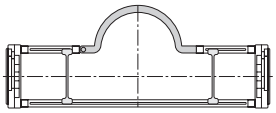
- Intended for cables and hoses with a maximum outer diameter of 9.65 in. (245 mm).
- Can be attached along either the inner or outer radius, inner radius preferred
- Gliding operation with crossbars assembled along the outer radius in conjunction with a special guide trough
- Gliding operation not guaranteed 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.



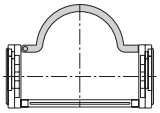
Square extender crossbar combined with standard snap-open crossbars.



Attached directly to the side link.



Round extender crossbar combined with standard snap-open crossbars.



Attached directly to the side link.

Part No.	Max Ø Hose	Style	Installation Side Link	Combined with Snap-Open Crossbars
450-15-RHD115	By request	Round	No	Yes
450-17-RD115	By request	Round	Yes	No
450-25-D150	By request	Square	Yes	No
450-30-D200	By request	Square	Yes	No
450-35-D250	By request	Square	Yes	No
450-40-D300	By request	Square	Yes	No
450-20-HD150	By request	Square	No	Yes
450-25-HD200	By request	Square	No	Yes
450-30-HD250	By request	Square	No	Yes

E4 clip on cable binder

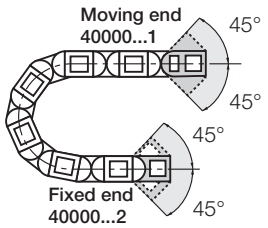
- For side mounted applications
- Serves as a clip-on, lateral guide for hoses and cables on E-Chains®
- The loops can be adjusted as needed
- Compatible with many E4 E-Chains®
- Economical
- One clip and one locking band are needed for each chain link

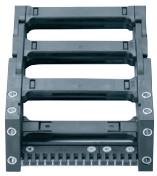
Part No.	Form
450-B12	Locking clip, comprised of a locking element
450-B12-200	Locking band, comprised of a locking element and band; 12 x 1.5 x 200 mm

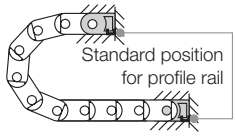
E-Chain System® E4/100
Series 400/410/R880
Mounting Brackets, KMA

Option 1: pivoting

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

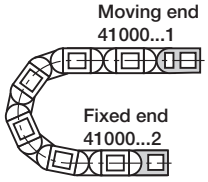


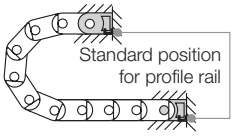




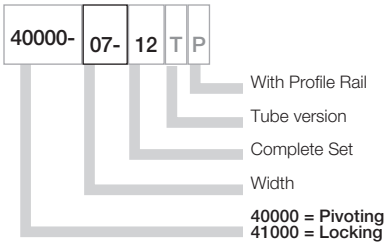
Option 2: locking

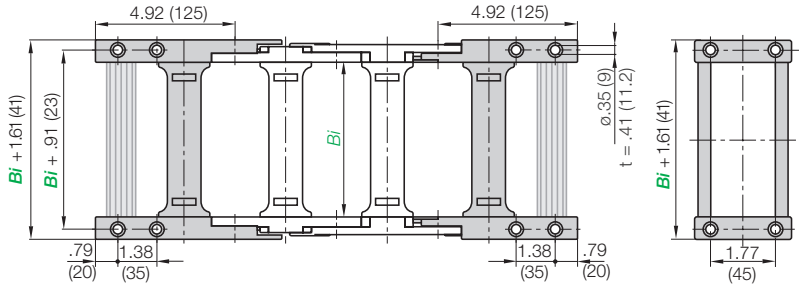
- Profile rail option
- Universal use
- Corrosion resistant
- Extreme accelerations
- Vertical hanging/standing travels





Part Number Structure





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 41000

Part No. Full Set (pivoting)
Series 400 or 410:
40000-Width-12

Part No. Full Set (pivoting)
with profile rail
Series 400 or 410
40000-Width-12P

Part No. Full Set (pivoting)
Tube Series R880
40000-Width-12T

Part No. Full Set (pivoting)
with Profile Rail
Series R880
40000-Width-12TP

Width	Part No. Full Set Pivoting	Part No. Full Set Locking		Tube Option	With Profile Rail	*Bi* in. (mm)
-05	40000	41000	-05-12		P	1.97 (50)
-06	40000	41000	-06-12		P	2.56 (65)
-07	40000	41000	-07-12	T	P	2.95 (75)
-10	40000	41000	-10-12	T	P	3.94 (100)
-11	40000	41000	-11-12		P	4.41 (112)
-12	40000	41000	-12-12	T	P	4.92 (125)
-13	40000	41000	-13-12		P	5.39 (137)
-15	40000	41000	-15-12	T	P	5.91 (150)
-16	40000	41000	-16-12		P	6.38 (162)
-17	40000	41000	-17-12		P	6.89 (175)
-18	40000	41000	-18-12		P	7.36 (187)
-20	40000	41000	-20-12	T	P	7.87 (200)
-21	40000	41000	-21-12		P	8.35 (212)
-22	40000	41000	-22-12		P	8.86 (225)
-23	40000	41000	-23-12		P	9.33 (237)
-25	40000	41000	-25-12	T	P	9.84 (250)
-26	40000	41000	-26-12		P	10.31 (262)
-27	40000	41000	-27-12	T	P	10.83 (275)
-28	40000	41000	-28-12		P	11.30 (287)
-30	40000	41000	-30-12	T	P	11.81 (300)
-31	40000	41000	-31-12		P	12.28 (312)

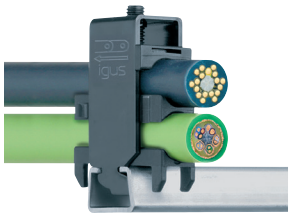
Width	Part No. Full Set Pivoting	Part No. Full Set Locking		Tube Option	With Profile Rail	*Bi* in. (mm)
-32	40000	41000	-32-12		P	12.79 (325)
-33	40000	41000	-33-12		P	13.27 (337)
-35	40000	41000	-35-12	T	P	13.78 (350)
-36	40000	41000	-36-12		P	14.25 (362)
-37	40000	41000	-37-12		P	14.76 (375)
-38	40000	41000	-38-12		P	15.24 (387)
-40	40000	41000	-40-12	T	P	15.75 (400)
-41	40000	41000	-41-12		P	16.22 (412)
-42	40000	41000	-42-12		P	16.73 (425)
-43	40000	41000	-43-12		P	17.20 (437)
-45	40000	41000	-45-12		P	17.72 (450)
-46	40000	41000	-46-12	T	P	18.19 (462)
-47	40000	41000	-47-12		P	18.70 (475)
-48	40000	41000	-48-12		P	19.17 (487)
-50	40000	41000	-50-12		P	19.69 (500)
-51	40000	41000	-51-12		P	20.16 (512)
-52	40000	41000	-52-12		P	20.67 (525)
-53	40000	41000	-53-12		P	21.14 (537)
-55	40000	41000	-55-12		P	21.65 (550)
-60	40000	41000	-60-12		P	23.62 (600)

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

E-Chain System® E4/100
Series 400/410/R880
Strain Relief

igus® E-Chain System®
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

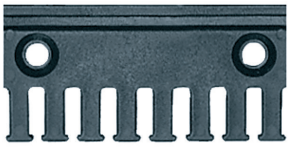
Chainfix Clip

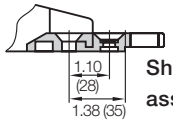
Modular snap-on strain relief device

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**

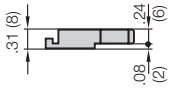
Cable ø		Part No.	Part No.
in.	(mm)	Clamp	Bottom
.16-.31	(04-08)	CFC-08-M	CFC-08-C
.31-.47	(08-12)	CFC-12-M	CFC-12-C
.47-.63	(12-16)	CFC-16-M	CFC-16-C
.63-.79	(16-20)	CFC-20-M	CFC-20-C
.79-.94	(20-24)	CFC-24-M	CFC-24-C

Tiewrap Plates





Shown assembled

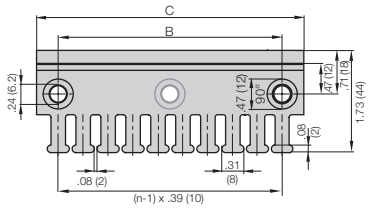


Single tiewrap plate

Option 1:
Tiewrap plates as an individual part

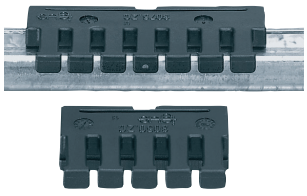
Available as an individual component, can be fixed onto a mounting bracket with the use of a profile rail.

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 E-Chain®.

Part No.	Number of Teeth	Width of Strain Relief in.	(mm)
4550-ZS	5	1.89	(48)
4575-ZS	7	2.91	(74)

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

E-Chain System® E4/100
Series 400/410/R880
Guide Trough

Width of Crossbar
400-**05**-200-0

	B_{Ri}	Installation Part No.
-05	3.50 (89)	*
-06	4.09 (104)	**94-50-225**
-07	4.49 (114)	**94-50-225**
-10	5.47 (139)	**94-50-250**
-11	5.98 (152)	**94-50-275**
-12	6.46 (164)	**94-50-275**
-13	6.97 (177)	**94-50-300**
-15	7.44 (189)	**94-50-300**
-16	7.95 (202)	**94-50-325**
-17	8.42 (214)	**94-50-325**
-18	8.94 (227)	**94-50-350**
-20	9.41 (239)	**94-50-350**
-21	9.92 (252)	**94-50-375**
-22	10.39 (264)	**94-50-375**
-23	10.91 (277)	**94-50-400**
-25	11.38 (289)	**94-50-400**
-26	11.89 (302)	**94-50-425**
-27	12.36 (314)	**94-50-425**
-28	12.87 (327)	**94-50-450**
-30	13.35 (339)	**94-50-450**
-31	13.86 (352)	**94-50-475**
-32	14.33 (364)	**94-50-475**
-33	14.84 (377)	**94-50-500**
-35	15.31 (389)	**94-50-500**
-36	15.82 (402)	**94-50-525**
-37	16.30 (414)	**94-50-525**
-38	16.81 (427)	**94-50-550**
-40	17.28 (439)	**94-50-550**
-41	17.79 (452)	**94-50-575**
-42	18.27 (464)	**94-50-575**
-43	18.78 (477)	**94-50-600**
-45	19.25 (489)	**94-50-600**
-46	19.76 (502)	**94-50-625**
-47	20.24 (514)	**94-50-625**
-48	20.75 (527)	**94-50-650**
-50	21.22 (539)	**94-50-650**
-51	21.73 (552)	**94-50-675**
-52	22.20 (564)	**94-50-675**
-53	22.72 (577)	**94-50-700**
-55	23.19 (589)	**94-50-700**
-60	25.16 (639)	**94-50-750**

Standard length profile rail

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

- Full travel length of guide trough
  Part No. 94-30
- 1/2 travel length glide bars
  Part No. 93-01
- Installation sets as end connectors
  Part No. 94-50-XX

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

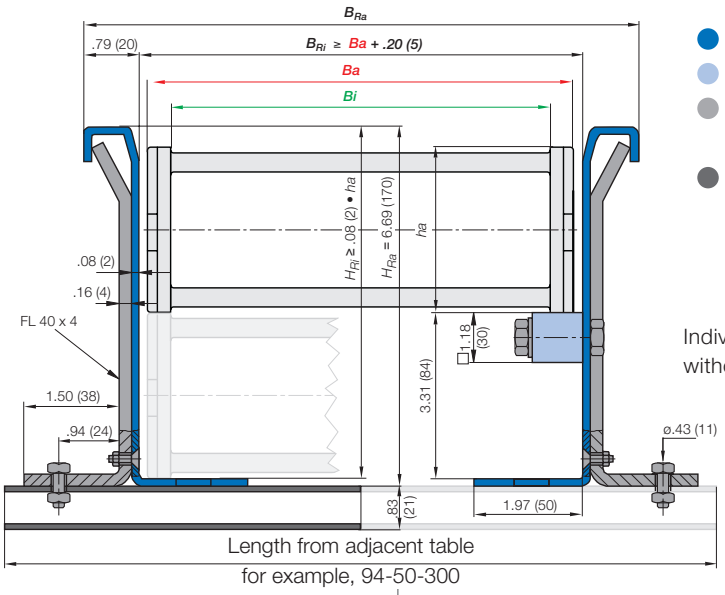
Example:
Length of travel 164 ft (50 m)
Center mounted

Required guide troughs:
164 ft (50 m) guide trough
82 ft (25 m) glide bars

= 25 sections of 6.56 ft (2 m) guide trough
Part No. 94-30

= 13 sections of 6.56 ft (2 m) glide bars
Part No. 93-01

Required number of installation sets:
= Number of guide trough components + 1
= 25 + 1 = 26
Part number of the installation sets
94-50-XXX
Example:
94-50-400 for 15.75 (400 mm) long profile rail



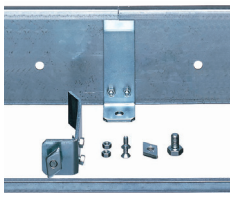
Length from adjacent table
for example, 94-50-300

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

Individual attachment without profile rail

* Specialized guide trough available upon request

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



Installation sets as section connectors

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

E-Chain System® E4/100
Series 640

4.41”

Price Index

Series 640

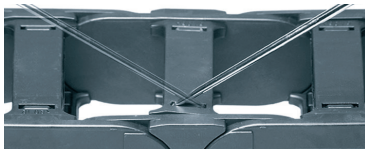
Special Features / Options

This E4 Series is a low-noise version

Cleanroom test upon request

ESD classification: Electrically conductive ESD/ ATEX version upon request

Assembly Tips



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

Other Installation Methods

Vertical, hanging ≤ 394 ft (120 m)
Vertical, standing ≤ 19.69 ft (6 m)
Side-mounted, unsupp. ≤ 13.12 ft (4 m)
Rotary requires further calculation

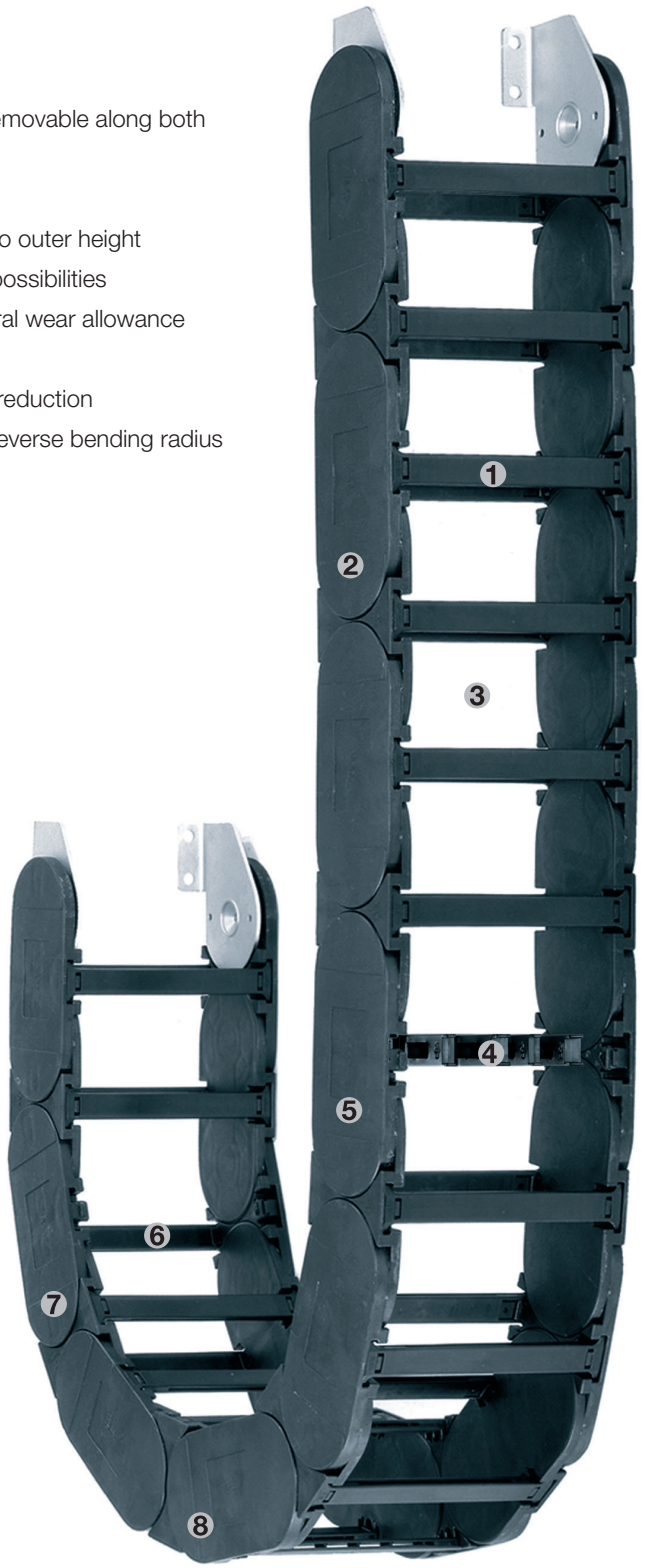
Usage Guidelines

- When quiet operation is required
- When very high speeds and/or accelerations are required
- For long travels
- For high fill weights

- When a simpler, low-cost solution is required
  ➤ **Series 1640**
- If higher stability is required
  ➤ **Series 600/601/R608**
- If an enclosed solution is required
  ➤ **Series R608**

Features & Benefits

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



Order Example: Complete E-Chain®

Please indicate chain length or number of links. Example:

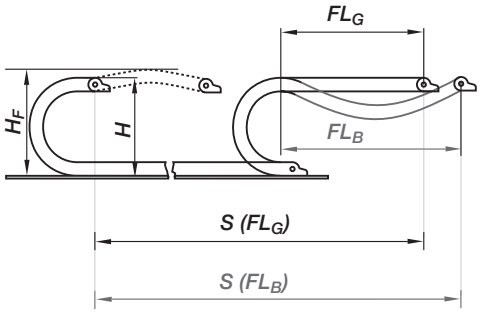
13.12 ft (4 m) **640-33-300-0**	**E-Chain®**
With 2 separators **6411** assembled every 2nd link	**Interior Separation**
1 Set **6000-12**	**Mounting Bracket**

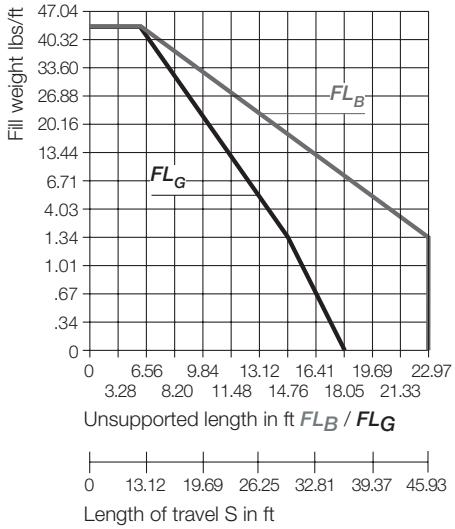
E-Chain System® E4/100
Series 640
Installation Dimensions

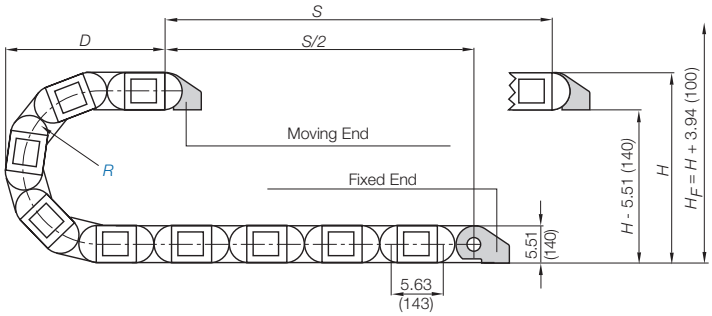
Short travel, unsupported length

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

Further information ➤ Design, Chapter 1







Pitch per link: = 5.63" (143 mm)
Links per ft (m): = 2.13 (7)
For center mount applications:
Chain length = $^{S}/_{2} + K$

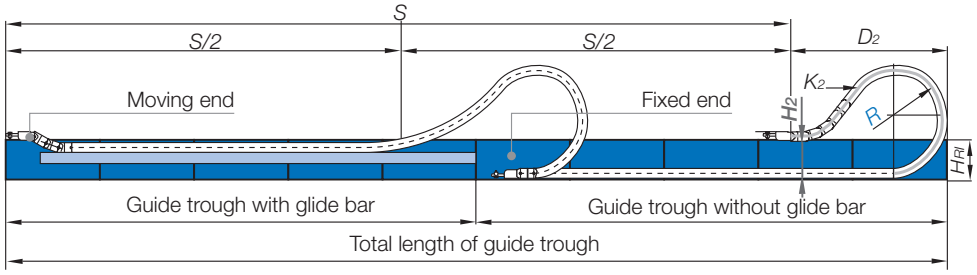
The required clearance height: $H_F = H$ **+ 3.94 in. (100 mm)** (with 3.36 lbs/ft (5 kg/m) fill weight. Please consult igus® if space is particularly restricted.

R	7.87 (200)	9.84 (250)	11.81 (300)	13.78 (350)	15.75 (400)	17.72 (450)	19.69 (500)	21.65 (550)	23.62 (600)	29.53 (750)	39.37 (1000)
H	21.46 (545)	25.39 (645)	29.33 (745)	33.27 (845)	37.20 (945)	41.14 (1045)	45.08 (1145)	49.02 (1245)	52.95 (1345)	64.76 (1645)	84.45 (2145)
D	16.34 (415)	18.31 (465)	20.27 (515)	22.24 (565)	24.21 (615)	26.18 (665)	28.15 (715)	30.12 (765)	32.09 (815)	37.99 (965)	47.83 (1215)
K	36.22 (920)	42.52 (1080)	48.82 (1240)	55.12 (1400)	61.42 (1560)	67.72 (1720)	73.62 (1870)	79.53 (2020)	85.63 (2175)	104.72 (2660)	135.24 (3435)

For long travels with lowered mounting height

Long travel lengths from 32.8 ft. (10 m) to max. 1,476 ft. (450 m)

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



R	7.87 (200)	9.84 (250)	11.81 (300)	13.78 (350)	15.75 (400)	17.72 (450)	19.69 (500)	21.65 (550)	23.62 (600)	29.53 (750)	39.37 (1000)
H_2	12.80 (325)	12.80 (325)	12.80 (325)	12.80 (325)	12.80 (325)	12.80 (325)	12.80 (325)	12.80 (325)	12.80 (325)	12.80 (325)	-
$D_{2\,+20}$	31.50 (800)	35.43 (900)	43.31 (1100)	47.24 (1200)	56.30 (1430)	62.20 (1580)	66.93 (1700)	72.83 (1850)	80.71 (2050)	112.20 (2850)	-
K_2	50.67 (1287)	56.30 (1430)	73.19 (1859)	84.45 (2145)	101.33 (2574)	112.60 (2860)	123.86 (3146)	135.12 (3432)	152.01 (3861)	197.05 (5005)	-

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

Short Travels - Unsupported

Unsupported E-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 E-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

Long Travels - Gliding

If the unsupported length is exceeded, the E-Chain®/Tube must glide on itself. This requires a guide trough.

Design, Chapter 1

Technical Data

Details of material properties

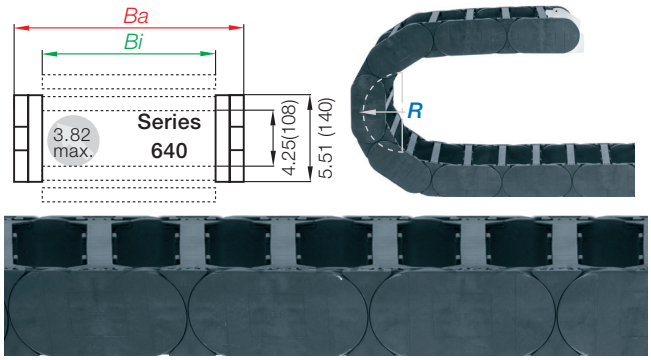
➤ **Chapter 1**

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

E-Chain System® E4/100
Series 640

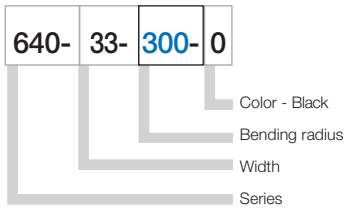
igus® E-Chain System®
Telephone 1-800-521-2747
Fax 1-401-438-7270
Internet: http://www.igus.com
email: sales@igus.com
QuickSpec: http://www.igus.com/quickspec

Series 600 - E-Chain® with crossbars every link

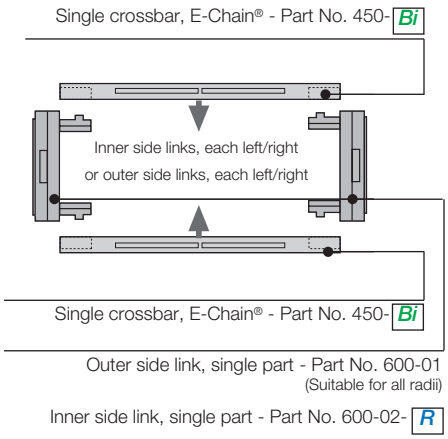


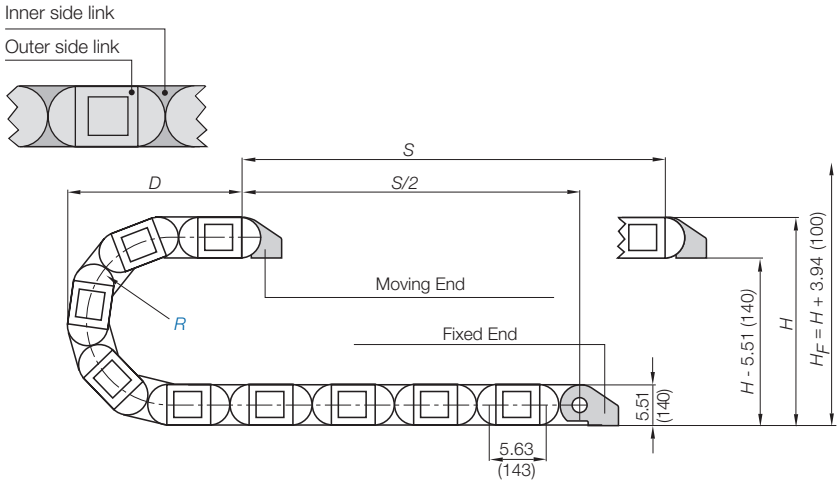
- Crossbars every link
- For use with rigid hydraulic hoses
- For particularly demanding applications
- Can be opened from both sides

Part Number Structure



E-Chain® as separate parts, links and side plates





E-Chain System® E4/100
Series 640

Supplement part number with required radius. Example: 640-33-300-0
Pitch: 5.63 in. (143 mm) per link links/ft (m) = 2.13 (7)

Part Number. Crossbars Every link			*Bi* in. (mm)	*Ba* in. (mm)	640 lbs/ft (kg/m)
640-12-		-0	3.43 (87)	5.47 (139)	≈ 5.09 (7.57)
640-13-		-0	3.90 (99)	5.98 (152)	≈ 5.15 (7.66)
640-15-		-0	4.41 (112)	6.46 (164)	≈ 5.17 (7.70)
640-16-		-0	4.88 (124)	6.97 (177)	≈ 5.22 (7.77)
640-17-		-0	5.39 (137)	7.44 (189)	≈ 5.27 (7.84)
640-18-		-0	5.87 (149)	7.95 (202)	≈ 5.32 (7.91)
640-20-		-0	6.38 (162)	8.43 (214)	≈ 5.32 (7.92)
640-21-		-0	6.85 (174)	8.94 (227)	≈ 5.37 (7.99)
640-22-		-0	7.36 (187)	9.41 (239)	≈ 5.40 (8.04)
640-23-		-0	7.83 (199)	9.92 (252)	≈ 5.46 (8.12)
640-25-		-0	8.35 (212)	10.39 (264)	≈ 5.50 (8.18)
640-26-		-0	8.82 (224)	10.91 (277)	≈ 5.53 (8.23)
640-27-		-0	9.33 (237)	11.38 (289)	≈ 5.58 (8.30)
640-28-		-0	9.80 (249)	11.89 (302)	≈ 5.59 (8.32)
640-30-		-0	10.31 (262)	12.36 (314)	≈ 5.69 (8.39)
640-31-		-0	10.79 (274)	12.87 (327)	≈ 5.69 (8.46)
640-32-		-0	11.30 (287)	13.35 (339)	≈ 5.73 (8.51)
640-33-		-0	11.81 (300)	13.86 (352)	≈ 5.79 (8.62)
640-35-		-0	12.28 (312)	14.33 (364)	≈ 5.86 (8.68)
640-36-		-0	12.76 (324)	14.84 (377)	≈ 5.86 (8.72)
640-37-		-0	13.27 (337)	15.31 (389)	≈ 5.87 (8.74)
640-38-		-0	13.74 (349)	15.83 (402)	≈ 5.91 (8.79)
640-40-		-0	14.25 (362)	16.30 (414)	≈ 5.99 (8.92)
640-41-		-0	14.72 (374)	16.81 (427)	≈ 6.06 (9.02)
640-42-		-0	15.24 (387)	17.28 (439)	≈ 6.12 (9.11)
640-43-		-0	15.71 (399)	17.80 (452)	≈ 6.16 (9.16)
640-45-		-0	16.22 (412)	18.27 (464)	≈ 6.18 (9.20)
640-46-		-0	16.69 (424)	18.78 (477)	≈ 6.19 (9.21)
640-47-		-0	17.20 (437)	19.25 (489)	≈ 6.25 (9.26)
640-48-		-0	17.67 (449)	19.76 (502)	≈ 6.25 (9.30)
640-50-		-0	18.19 (462)	20.24 (514)	≈ 6.30 (9.38)
640-51-		-0	18.66 (474)	20.75 (527)	≈ 6.31 (9.39)
640-52-		-0	19.17 (487)	21.22 (539)	≈ 6.33 (9.42)
640-53-		-0	19.65 (499)	21.73 (552)	≈ 6.40 (9.52)
640-55-		-0	20.16 (512)	22.20 (564)	≈ 6.61 (9.83)
640-60-		-0	22.13 (562)	24.17 (614)	≈ 6.69 (9.95)

Choose from the radii below for all of the above sizes
Radius (mm) Example: 640-33-300-0

	200	250	300	350	400	450	500	550	600	750	1000
R	7.87 (200)	9.84 (250)	11.81 (300)	13.78 (350)	15.75 (400)	17.72 (450)	19.69 (500)	21.65 (550)	23.62 (600)	29.53 (750)	39.37 (1000)
H	21.46 (545)	25.39 (645)	29.33 (745)	33.27 (845)	37.20 (945)	41.14 (1045)	45.08 (1145)	49.02 (1245)	52.95 (1345)	64.76 (1645)	84.45 (2145)
D	16.34 (415)	18.31 (465)	20.27 (515)	22.24 (565)	24.21 (615)	26.18 (665)	28.15 (715)	30.12 (765)	32.09 (815)	37.99 (965)	47.83 (1215)
K	36.22 (920)	42.52 (1080)	48.82 (1240)	55.12 (1400)	61.42 (1560)	67.72 (1720)	73.62 (1870)	79.53 (2020)	85.63 (2175)	104.72 (2660)	135.24 (3435)

0=Standard color black. For other colors see Chapter 1
. For large diameter hoses see page 6.315

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Specs/CAD/RFQ: www.igus.com/e-chains
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E-Chain System® E4/100
Series 640
Interior Separation

igus® E-Chain System®
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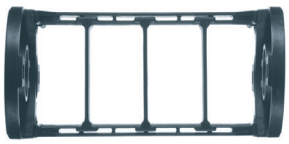
email: sales@igus.com
QuickSpec: http://www.igus.com/quickspec



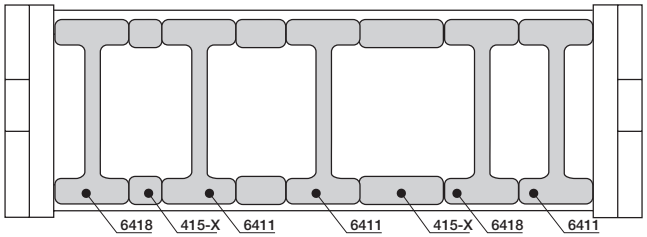
Option 1: Vertical separators and spacers

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

NOTE: Observe a lateral spacing of at least 1.26 in. (32mm) for E-Tubes and .63 in. (16mm) for E-Chain®. There is no minimum spacing needed for side plates

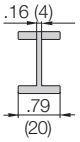
Exception: Minimum spacing

Locking separator 6008 = .91" (23 mm)



Standard

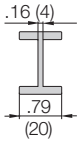
Vertical separator 6401



Vertical separator	
Unassembled	**Part No. 6401**
Assembled	**Part No. 6411**

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

Locking separator 6408



Locking separator (chain only)	
Unassembled	**Part No. 6408**
Assembled	**Part No. 6418**

- **Locking separator 6408 for E-Chains®**
  This separator is used for applications that are exposed to extremely high humidity. The clamp at the side serves to uniformly align the separators. In order to avoid destroying the separators when opening the E-Chain®, make sure all separators are identically aligned.

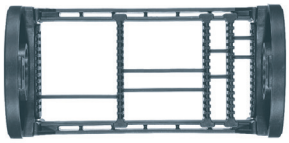
Spacers 405-XX

- 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)**.

Spacers available in the following sizes:

Part No. Unassembled	Part No. Assembled	in.	(mm)
405 -10	415 -10	.39"	(10)
405 -15	415 -15	.59"	(15)
405 -20	415 -20	79"	(20)
405 -30	415 -30	1.18"	(30)
405 -40	415 -40	1.57"	(40)

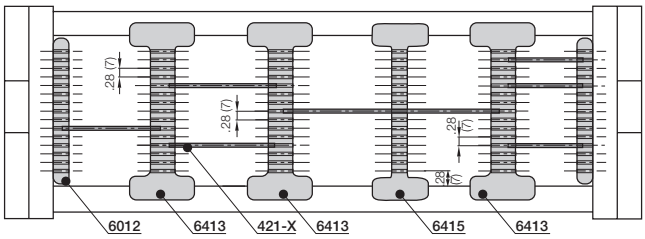
E-Chain System® E4/100
Series 640
Interior Separation



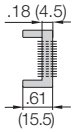
Option 2: Shelves

E-Chains® and E-Tubes can be subdivided both vertically and horizontally using the various interior separation elements.

➤ **Design, Chapter 1** for layout recommendations.



- **Side plates 6002**
  This component is used to form the basic pattern of a shelf system.

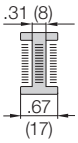


Side plate

Unassembled	**Part No. 6002**
Assembled	**Part No. 6012**

Side plate 6002

- **Vertical separator 6403**
  This component is used to form the basic pattern of a shelf system.

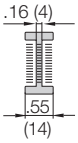


Vertical separator

Unassembled	**Part No. 6403**
Assembled	**Part No. 6413**

Vertical separator 6403

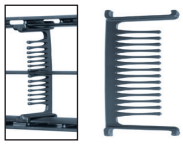
- **Slotted separator 6405**
  This separator can be retrofitted into an existing interior separation system without removing the shelves, as long as these shelves fit into any of the 13 middle slots



Slotted separators, open

Unassembled	**Part No. 6405**
Assembled	**Part No. 6415**

Open slotted separator 6405

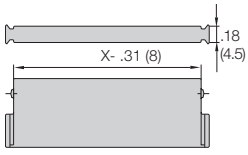


Shelves 420-XX

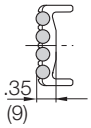
These components form the basic pattern of a shelf system. Shelves of various widths can be arranged at 7 different heights in .28" (7mm) increments

Width X in.	Width X (mm)	Usable Width in.	Usable Width (mm)	Part No. Unassembled	Part No. Assembled
.71	(18)	.39	(10)	**420-18**	**421-18**
.91	(23)	.59	(15)	**420-23**	**421-23**
.98	(25)	.67	(17)	**420-25**	**421-25**
1.10	(28)	.79	(20)	**420-28**	**421-28**
1.30	(33)	.98	(25)	**420-33**	**421-33**
1.69	(43)	1.38	(35)	**420-43**	**421-43**
1.97	(50)	1.65	(42)	**420-50**	**421-50**
2.44	(62)	2.13	(54)	**420-62**	**421-62**

Width X in.	Width X (mm)	Usable Width in.	Usable Width (mm)	Part No. Unassembled	Part No. Assembled
2.95	(75)	2.64	(67)	**420-75**	**421-75**
3.46	(88)	3.15	(80)	**420-88**	**421-88**
3.94	(100)	3.62	(92)	**420-100**	**421-100**
4.92	(125)	4.61	(117)	**420-125**	**421-125**
5.91	(150)	5.59	(142)	**420-150**	**421-150**
6.89	(175)	6.57	(167)	**420-175**	**421-175**
7.36	(187)	7.05	(179)	**420-187**	**421-187**
7.87	(200)	7.56	(192)	**420-200**	**421-200**

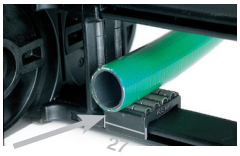


Rollclip - minimizes abrasion of particularly sensitive hoses or cables in an E-Chain®. The integrated rollers compensate for relative movement between the chain and the hose or cable. This reduces the abrasion of the hoses or cables



Rollclip

Unassembled	**Part No. 489-27**
Assembled	**Part No. 490-27**



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E-Chain System® E4/100
Series 640
Special Accessories

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Fax 1-401-438-7270

Internet: http://www.igus.com
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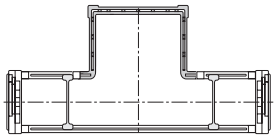
QuickSpec: http://www.igus.com/quickspec

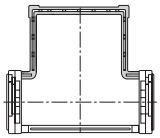
Consult igus® for your extender crossbar applications. We will be happy to assist you with your design layout.

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

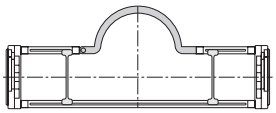
- Intended for cables and hoses with a maximum outer diameter of 11.81 in. (300 mm).
- Can be attached along either the inner or outer radius, inner radius preferred
- Gliding operation with crossbars assembled along the outer radius in conjunction with a special guide trough
- Gliding operation not 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.



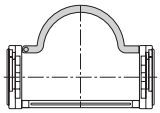
Square extender crossbar combined with standard snap-open crossbars.



Attached directly to the side link.

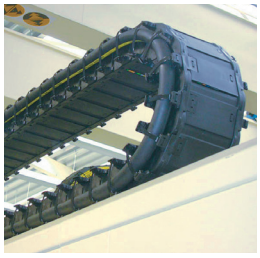


Round extender crossbar combined with standard snap-open crossbars.



Attached directly to the side link.

Part No.	Max Ø Hose	Style	Installation Side Link	Combined with Snap-Open Crossbars
450-15-RHD115	By request	Round	No	Yes
450-17-RD115	By request	Round	Yes	No
450-25-D150	By request	Square	Yes	No
450-30-D200	By request	Square	Yes	No
450-35-D250	By request	Square	Yes	No
450-40-D300	By request	Square	Yes	No
450-20-HD150	By request	Square	No	Yes
450-25-HD200	By request	Square	No	Yes
450-30-HD250	By request	Square	No	Yes



E4 clip on cable binder

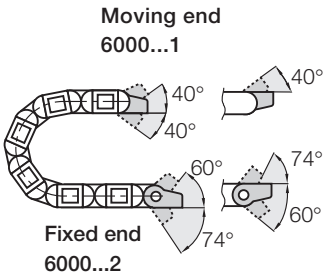
- For side mounted applications
- Serves as a clip-on, lateral guide for hoses and cables on E-Chains®
- The loops can be adjusted as needed
- Compatible with many E4 E-Chains®
- Economical
- One clip and one locking band are needed for each chain link

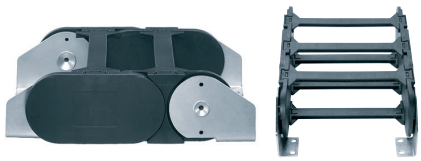
Part No.	Form
450-B12	Locking clip, comprised of a locking element
450-B12-200	Locking band, comprised of a locking element and band; 12 x 1.5 x 200 mm

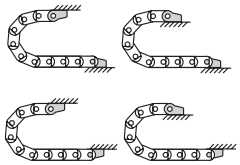
E-Chain System® E4/100
Series 640
Mounting Brackets - Steel

Option 1: pivoting

- For pivoting connections
- One part for all chain widths
- Electrically conductive







Possible installation configurations -

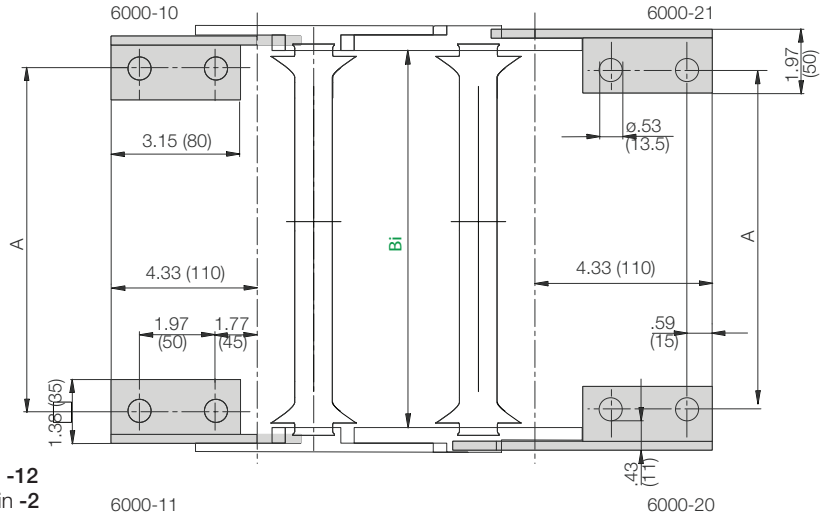
Part No. Mounting Brackets Full Set
4 parts, 2 with pin, 2 with bore
Series 640
6000-12

Part No. Mounting Bracket Moving End
2 parts, 1 left & 1 right with bore
Series 640
6000-1

Part No. Mounting Bracket Fixed End
2 parts, 1 left & 1 right with pin
Series 640
6000-2

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**



Bracket Mounting Dimensions

Width of Chain *Bi*	Mounting Brackets Part Number	Full Set	Moving End Only	Fixed End Only	Mounting Dimension A in. (mm)
3.43 (87)	6000	-12	-1	-2	2.24 (57)
3.90 (99)	6000	-12	-1	-2	2.72 (69)
4.41 (112)	6000	-12	-1	-2	3.23 (82)
4.88 (124)	6000	-12	-1	-2	3.70 (94)
5.39 (137)	6000	-12	-1	-2	4.21 (107)
5.87 (149)	6000	-12	-1	-2	4.69 (119)
6.38 (162)	6000	-12	-1	-2	5.20 (132)
6.85 (174)	6000	-12	-1	-2	5.67 (144)
7.36 (187)	6000	-12	-1	-2	6.18 (157)
7.83 (199)	6000	-12	-1	-2	6.65 (169)
8.35 (212)	6000	-12	-1	-2	7.16 (182)
8.82 (224)	6000	-12	-1	-2	7.64 (194)
9.33 (237)	6000	-12	-1	-2	8.15 (207)
9.80 (249)	6000	-12	-1	-2	8.62 (219)
10.31 (262)	6000	-12	-1	-2	9.13 (232)
10.79 (274)	6000	-12	-1	-2	9.61 (244)
11.30 (287)	6000	-12	-1	-2	10.12 (257)
11.77 (299)	6000	-12	-1	-2	10.59 (269)

Width of Chain *Bi*	Mounting Brackets Part Number	Full Set	Moving End Only	Fixed End Only	Mounting Dimension A in. (mm)
12.28 (312)	6000	-12	-1	-2	11.10 (282)
12.76 (324)	6000	-12	-1	-2	11.57 (294)
13.27 (337)	6000	-12	-1	-2	12.09 (307)
13.74 (349)	6000	-12	-1	-2	12.56 (319)
14.25 (362)	6000	-12	-1	-2	13.07 (332)
14.72 (374)	6000	-12	-1	-2	13.54 (344)
15.24 (387)	6000	-12	-1	-2	14.06 (357)
15.71 (399)	6000	-12	-1	-2	14.53 (369)
16.22 (412)	6000	-12	-1	-2	15.04 (382)
16.69 (424)	6000	-12	-1	-2	15.51 (394)
17.20 (437)	6000	-12	-1	-2	16.02 (407)
17.68 (449)	6000	-12	-1	-2	16.49 (419)
18.19 (462)	6000	-12	-1	-2	17.01 (432)
18.66 (474)	6000	-12	-1	-2	17.48 (444)
19.17 (487)	6000	-12	-1	-2	17.99 (457)
19.65 (499)	6000	-12	-1	-2	18.46 (469)
20.16 (512)	6000	-12	-1	-2	18.98 (482)
22.13 (562)	6000	-12	-1	-2	20.94 (532)

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

E-Chain System® E4/100
Series 640
Guide Trough

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

Width of Crossbar
640-**12**-200-0

	B_{Ri}	Installation Part No.
-12	5.67 (144)	**97-50-275**
-13	6.18 (157)	**97-50-275**
-15	6.65 (169)	**97-50-300**
-16	7.16 (182)	**97-50-300**
-17	6.46 (164)	**97-50-325**
-18	8.15 (207)	**97-50-325**
-20	8.62 (219)	**97-50-350**
-21	9.13 (232)	**97-50-350**
-22	9.61 (244)	**97-50-375**
-23	10.12 (257)	**97-50-375**
-25	10.59 (269)	**97-50-400**
-26	11.10 (282)	**97-50-400**
-27	11.57 (294)	**97-50-425**
-28	12.09 (307)	**97-50-425**
-30	12.56 (319)	**97-50-450**
-31	13.07 (332)	**97-50-450**
-32	13.54 (344)	**97-50-475**
-33	14.06 (357)	**97-50-475**
-35	14.53 (369)	**97-50-500**
-36	15.04 (382)	**97-50-500**
-37	15.51 (394)	**97-50-525**
-38	16.02 (407)	**97-50-525**
-40	16.50 (419)	**97-50-550**
-41	17.01 (432)	**97-50-550**
-42	17.48 (444)	**97-50-575**
-43	17.99 (457)	**97-50-575**
-45	18.46 (469)	**97-50-600**
-46	18.98 (482)	**97-50-600**
-47	19.45 (494)	**97-50-625**
-48	19.96 (507)	**97-50-625**
-50	20.43 (519)	**97-50-650**
-51	20.94 (532)	**97-50-650**
-52	21.42 (544)	**97-50-675**
-53	21.93 (557)	**97-50-675**
-55	22.40 (569)	**97-50-700**
-60	24.37 (619)	**97-50-750**

Standard length profile rail

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

- Full travel length of guide trough
  Part No. 97-30
- 1/2 travel length glide bars
  Part No. 93-01
- Installation sets as end connectors
  Part No. 97-50-XX

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

Example:
Length of travel 164 ft (50 m)
Center-mounted

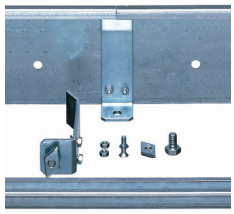
Required guide troughs:
164 ft (50 m) guide trough, 82 ft. (25 m) glide bar

= 25 sections of 6.56 ft (2 m) guide trough
Part No. 97-30

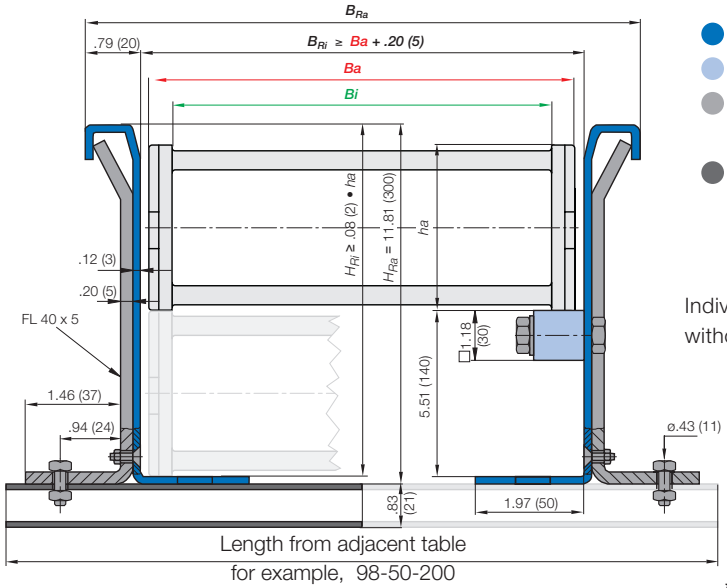
= 13 sections of 6.56 ft (2 m) glide bar
Part No. 93-01

Required number of installation sets:
= Number of guide trough components + 1
= 25 + 1 = 26
Part No. of the installation sets **97-50-XXX**
Example:
97-50-400 for 15.75 (400 mm) long profile rail

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



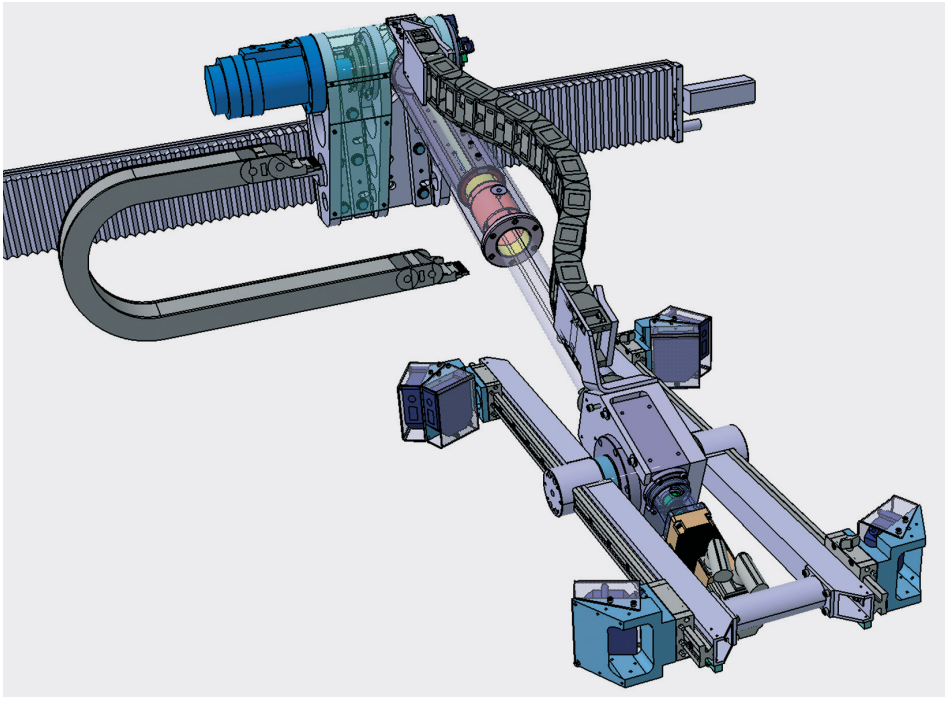
Installation sets as section connectors



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

Individual attachment without profile rail

* Specialized guide trough available upon request



Friction welding machine - Special E4/00 version bend in two directions