

1400
1450
1500



Energy Chain System® E2 Medium Series 1400/1450/1500



Price Index



Series 1400/1450/1500

Special Features / Options



IPA Qualification Certificate, Air Cleanliness Class ISO Class 3 (at $v = 2$ m/s) upon request



ESD classification: Electrically conductive ESD/ATEX version upon request



Flammability Class VDE 0304 IIC UL94 HB

Assembly Tips



Snap-open mechanism, choice of snap-open on left or right. Hinged crossbar can be swiveled by more than 180° on both sides. Lightning-fast closing by hand. Secure fit without additional locking devices.

Other Installation Methods

Vertical, hanging ≤ 65.6 ft (20 m)

Vertical, standing ≤ 6.56 ft (2 m)

Side-mounted, unsupp. ≤ 2.30 ft (0.7 m)

Rotary requires further calculation

Usage Guidelines



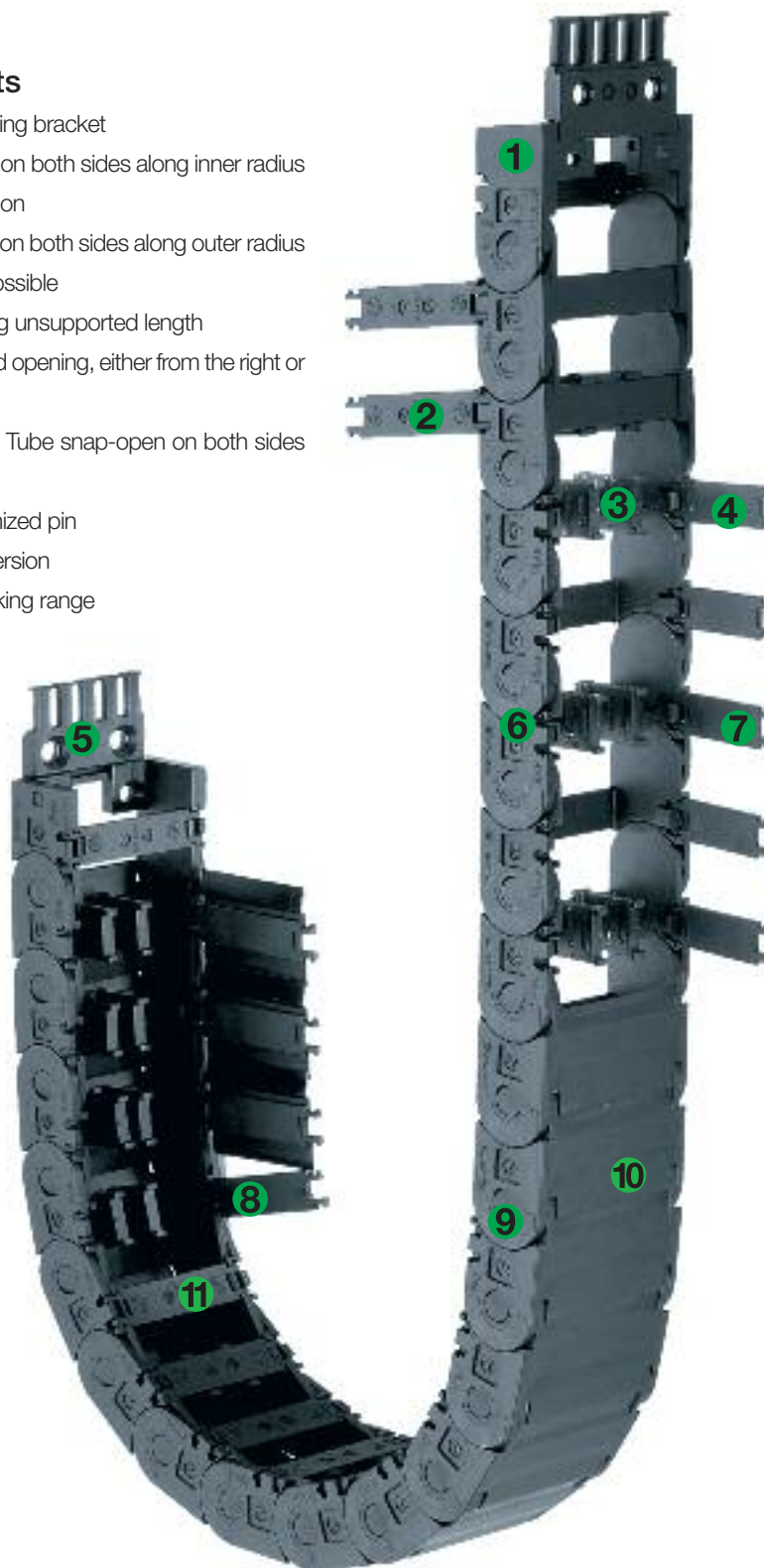
- If snap-open accessibility along the inner or outer radius is required
- If integrated strain relief at the mounting point is required
- If half Energy Tube is required (Series 1450)
- If long service life is required
- If easy installation is required



- If the application is very simple
➤ Series E200 E-Z Chain

Features & Benefits

- 1 Tried-and-tested mounting bracket
- 2 Series 1400 snap-open on both sides along inner radius
- 3 Modular interior separation
- 4 Series 1500 snap-open on both sides along outer radius
- 5 Integrated strain relief possible
- 6 Double stop dog for long unsupported length
- 7 Opening system for rapid opening, either from the right or the left
- 8 Series 1450 half Energy Tube snap-open on both sides along inner radius
- 9 Easy assembly by optimized pin
- 10 Also available as ESD version
- 11 Crossbars with high locking range



Order Example: Complete Energy Chain®

Please indicate chain length or number of links. Example:

energy chain® configurator ➤

9.84 ft (3 m) 1400-038-100-0



Energy Chain®

With 2 separators 14011 assembled every 2nd link



Interior Separation

1 Set 15000-038-34PZB



Mounting Bracket

Energy Chain System® E2 Medium Series 1400/1450/1500 Installation Dimensions

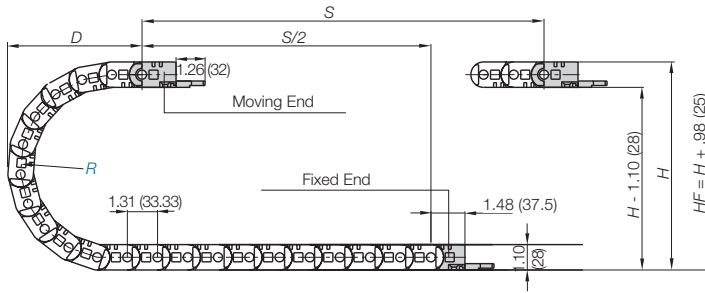
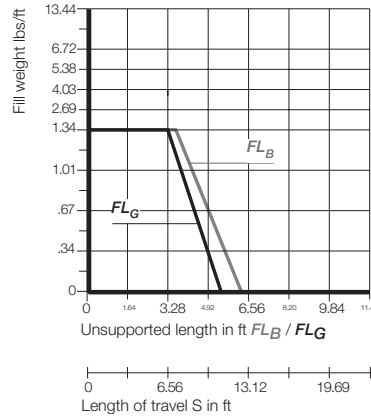
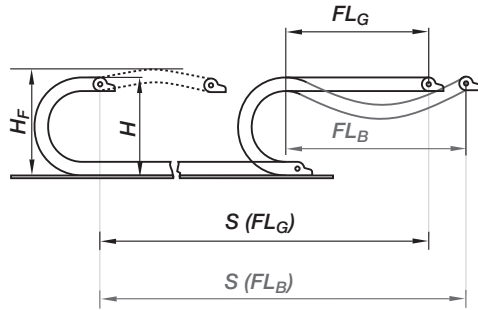
energy chain® configurator

igus®

1400
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1500

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 = 1.31" (33.3 mm)
Links per ft (m) = 9.14 (30)
For center mount applications:
Chain length = $\frac{S}{2} + K$

The required clearance height: $H_F = H + .98$ in. (25 mm) (with .34 lbs/ft (0.5 kg/m) fill weight).
Please consult igus® if space is particularly restricted.

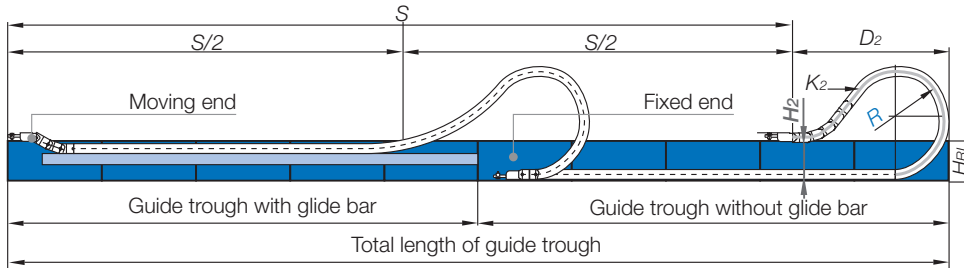
R	1.38 (035)*	1.50 (038)*	1.89 (048)*	2.95 (075)	3.94 (100)	4.92 (125)	5.71 (145)	7.09 (180)
H	3.86 (98)	4.09 (104)	4.88 (124)	7.01 (178)	8.98 (228)	10.94 (278)	12.52 (318)	15.28 (388)
D	3.90 (99)	4.02 (102)	4.41 (112)	5.47 (139)	6.46 (164)	7.44 (189)	8.23 (209)	9.61 (244)
K	7.09 (180)	7.48 (190)	8.66 (220)	12.01 (305)	15.16 (385)	18.11 (460)	20.67 (525)	25.00 (635)

*Not available for the 1450

For long travels with lowered mounting height

Long travel lengths from 32.8 ft. (10 m) to max. 246 ft. (75 m)

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



In case of travels between 13 ft. (4m) and 32.8 ft. (10m) we recommend a longer unsupported length.

R	1.38 (035)*	1.50 (038)*	1.89 (048)*	2.95 (075)	3.94 (100)	4.92 (125)	5.71 (145)	7.09 (180)
H ₂	-	-	-	-	3.94 (100)	3.94 (100)	3.94 (100)	3.94 (100)
D ₂ +25	-	-	-	-	13.39 (340)	19.49 (495)	21.26 (540)	27.17 (690)
K ₂	-	-	-	-	23.62 (600)	31.50 (800)	37.01 (940)	46.06 (1170)

*Not available for the 1450

Short Travels - Unsupported



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

Legend

- S = Length of travel
- R = Bending radius
- H = Nominal clearance height
- D = Overlength Energy Chain® radius in final position
- $K = \pi \cdot R + \text{safety buffer}$
- H_F = Required clearance height
- HRI = Trough inner height
- H₂ = *Mounting height
- D₂ = Overlength - long travels, gliding
- K₂ = *Add-on
- *If the mounting bracket location is set lower

Long Travels - Gliding



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

Design, Chapter 1

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



► Chapter 9

Speed / acceleration FL_G	max. 65.6 ft/s (20 m/s) / max. 656 ft/s ² (200 m/s ²)
Speed / acceleration FL_B	max. 9.84 ft/s (3 m/s) / max. 19.69 ft/s ² (6 m/s ²)
Gliding speed / acceleration (maximum)	max. 32.81 ft/s (10 m/s) / max. 164 ft/s ² (50 m/s ²)
Material - permitted temperature	igumid G / -40°F (-40°C) up to +248°F (+120°C)
Flammability Class, igumid G	VDE 0304 IIC UL94 HB

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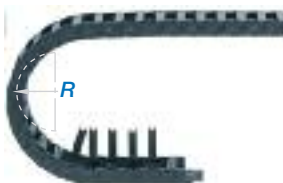
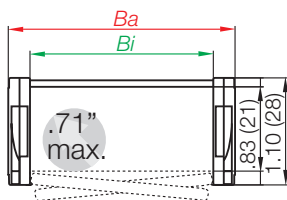
Energy Chain System® E2 Medium Series 1400/1450/1500

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Series 1400 - Snap-open along the inner radius

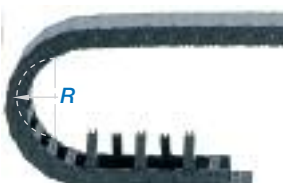
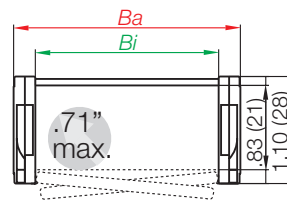


Part Number Structure

1400-038-100-0

Color - Black
Bending radius
Width
Series

Series 1450 - Half Energy Tube - Snap-open along the inner radius

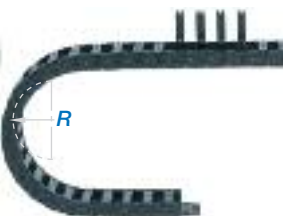
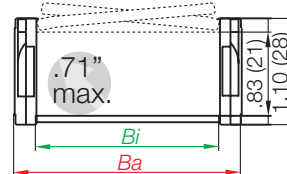


Part Number Structure

1450-038-100-0

Color - Black
Bending radius
Width
Series

Series 1500 - Snap open along the outer radius

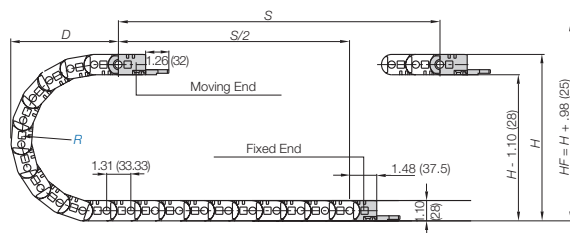


Part Number Structure

1500-038-100-0

Color - Black
Bending radius
Width
Series

Supplement part number with required radius. Example: 1400-038-100-0
Pitch: 1.31 in. (33.3 mm) per link links/ft (m) = 9.14 (30)



Part Number				Weight		Weight	
Snap-open Inner Radius	Half E-Tube Snap-open Inner Radius	Snap-open Outer Radius		<i>Bi</i> in. (mm)	<i>Ba</i> in. (mm)	1400/1500 lbs/ft (kg/m)	1450 lbs/ft (kg/m)
1400-015-	1450-015-	1500-015-	-0	.59 (15)	1.12 (28.5)	≈ 0.31 (0.46)	≈ 0.32 (0.48)
1400-020-	-	1500-020-	-0	.79 (20)	1.32 (33.5)	≈ 0.32 (0.47)	-
1400-025-	1450-025-	1500-025-	-0	.98 (25)	1.52 (38.5)	≈ 0.33 (0.49)	≈ 0.38 (0.57)
1400-038-	1450-038-	1500-038-	-0	1.50 (38)	2.03 (51.5)	≈ 0.36 (0.53)	≈ 0.40 (0.59)
1400-050-	1450-050-	1500-050-	-0	1.97 (50)	2.50 (63.5)	≈ 0.38 (0.56)	≈ 0.44 (0.65)
1400-068-	1450-068-	1500-068-	-0	2.68 (68)	3.21 (81.5)	≈ 0.42 (0.63)	≈ 0.50 (0.74)
1400-080-	1450-080-	1500-080-	-0	3.15 (80)	3.68 (93.5)	≈ 0.45 (0.67)	≈ 0.54 (0.80)
1400-100-	1450-100-	1500-100-	-0	3.94 (100)	4.47 (113.5)	≈ 0.50 (0.74)	≈ 0.60 (0.90)
1400-125-	1450-125-	1500-125-	-0	4.92 (125)	5.45 (138.5)	≈ 0.56 (0.83)	≈ 0.69 (1.03)

Choose from the radii below for all of the above sizes

Radius (mm) Example: 250-10-100-0

	035*	038*	048*	075	100	125	145	180
R	1.38 (035)*	1.50 (038)*	1.89 (048)*	2.95 (075)	3.94 (100)	4.92 (125)	5.71 (145)	7.09 (180)
H+4	3.86 (98)	4.09 (104)	4.88 (124)	7.01 (178)	8.98 (228)	10.94 (278)	12.52 (318)	15.28 (388)
D	3.90 (99)	4.02 (102)	4.41 (112)	5.47 (139)	6.46 (164)	7.44 (189)	8.23 (209)	9.61 (244)
K	7.09 (180)	7.48 (190)	8.66 (220)	12.01 (305)	15.16 (385)	18.11 (460)	20.67 (525)	25.00 (635)

*Not available for
the 1450

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Energy Chain System® E2 Medium

Series 1400/1450/1500

Interior Separation

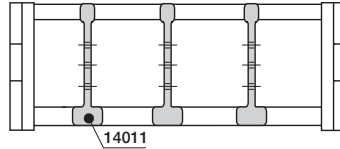
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1400
1450
1500

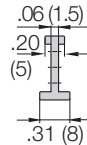
Option 1: Vertical separators for Energy Chains® 1400 and 1500

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



STANDARD

Slotted Vertical separator
14001



Vertical Separator, slotted

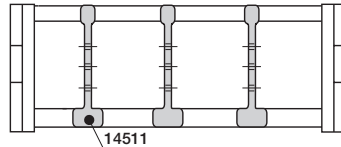
Unassembled	Part No. 14001
Assembled	Part No. 14011

- Standard separator 14001 for Energy Chains®**

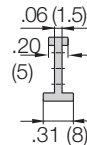
This separator is used for general subdivision of Energy Chain®. Can be used in combination with full-width shelf 111-X.

Option 2: Vertical separators for Half Energy Tube 1450

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



Slotted vertical separator
14501



Vertical Separator, slotted

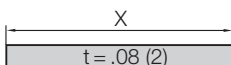
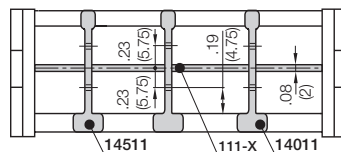
Unassembled	Part No. 14501
Assembled	Part No. 14511

- Slotted separator 14501 for Half Energy Tube**

This component is used to form the basic pattern of a shelf system. Can be used in combination with full-width shelf 111-X.

Option 3: Full-width shelf for all styles 1400/1450/1500

It is ideal for use in applications involving many thin cables with similar or identical diameters. This shelf slides into place and spans the entire width of the chain.



Width X	Part No.	Part No.
in. (mm)	Unassembled	Assembled
.59 (015)	110-15	111-15
.79 (020)	110-20	111-20
.98 (025)	110-25	111-25
1.50 (038)	110-38	111-38
1.97 (050)	110-50	111-50

Width X	Part No.	Part No.
in. (mm)	Unassembled	Assembled
2.68 (068)	110-68	111-68
3.15 (080)	110-80	111-80
3.94 (100)	110-100	111-100
4.92 (125)	110-125	111-125

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



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1450
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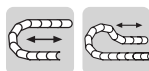
Energy Chain System® E2 Medium Series 1400/1450/1500 Mounting Brackets - One Piece

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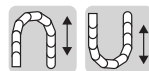
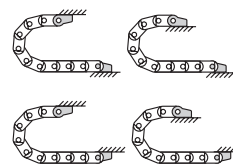
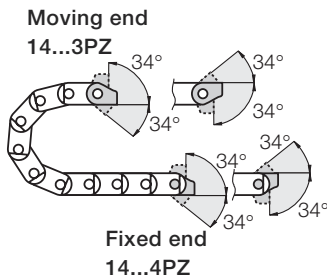
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Standard

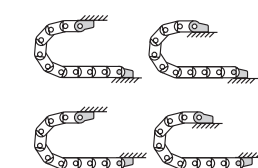
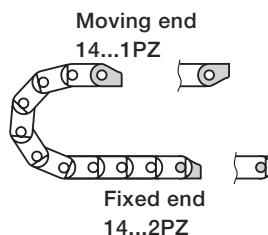
Option 1: pivoting

- Unsupported and gliding applications
- Space-restricted conditions
- Integrated strain relief
- Easy to assemble
- Various mounting positions



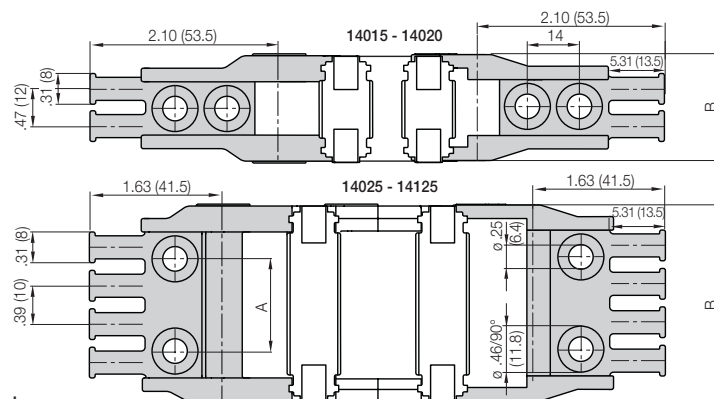
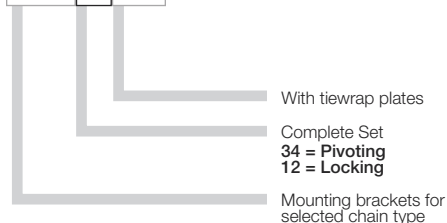
Option 2: locking

- Unsupported applications
- Extreme speed/accelerations
- If space is limited for height (H_F)
- Various mounting positions



Part Number Structure

14015- 34 PZ



Full set, for both ends:

14015- 34 PZ Full set, each part with pin/bore + tie-wrap plate

Single-part order:

14015- 3 PZ Mounting bracket with bore + tie-wrap plate

14015- 4 PZ Mounting bracket with pin + tie-wrap plate

For Chain Type	Part No. Full Set with Tie-wrap Plate	Dimension A in. (mm)	Dimension B in. (mm)	Number
1400/1450/1500-015	14015- ☐ PZ	— —	1.12 (28.5)	2
1400/1450/1500-020	14020- ☐ PZ	— —	1.32 (33.5)	2
1400/1450/1500-025	14025- ☐ PZ	.51 (13)	1.52 (38.5)	2
1400/1450/1500-038	14038- ☐ PZ	.94 (24)	2.03 (51.5)	4
1400/1450/1500-050	14050- ☐ PZ	1.42 (36)	2.50 (63.5)	6
1400/1450/1500-068	14068- ☐ PZ	2.13 (54)	3.21 (81.5)	7
1400/1450/1500-080	14080- ☐ PZ	2.60 (66)	3.68 (93.5)	8
1400/1450/1500-100	14100- ☐ PZ	3.39 (86)	4.47 (113.5)	10
1400/1450/1500-125	14125- ☐ PZ	4.37 (111)	5.45 (138.5)	13

34 or 12

For pivoting brackets choose 34

For locking brackets choose 12

Example: 14015- 34 PZB

1400
1450
1500



Energy Chain System® E2 Medium Series 1400/1450/1500 Mounting Brackets - Steel

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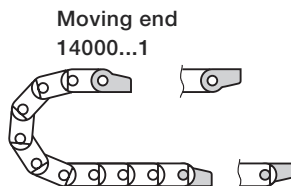
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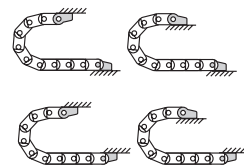


Option 4: Steel

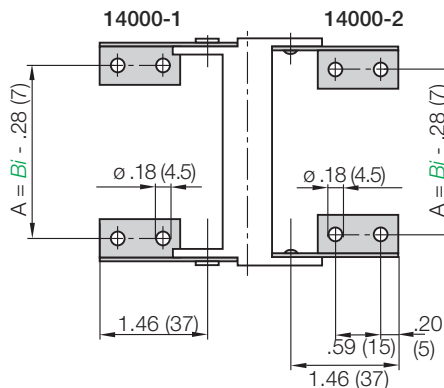
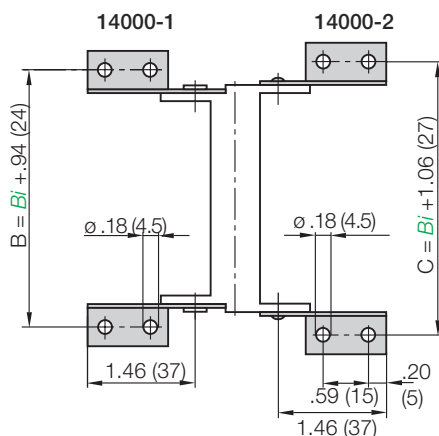
- Locked connections
- One part (two-piece) for all chain widths
- Electrically conductive
- Bolted connection outside of chain cross-section possible



Fixed end
14000...2



Possible installation
configurations -



Chain Type	Part No. Full Set	Dimension A		Dimension B		Dimension C	
		in.	(mm)	in.	(mm)	in.	(mm)
1400/1450/1500-015	14000-12	.31	(8)	1.54	(39)	1.65	(42)
1400/1450/1500-020	14000-12	.51	(13)	1.73	(44)	1.85	(47)
1400/1450/1500-025	14000-12	.71	(18)	1.93	(49)	2.05	(52)
1400/1450/1500-038	14000-12	1.22	(31)	2.44	(62)	2.56	(65)
1400/1450/1500-050	14000-12	1.69	(43)	2.91	(74)	3.03	(77)
1400/1450/1500-068	14000-12	2.40	(61)	3.62	(92)	3.74	(95)
1400/1450/1500-080	14000-12	2.87	(73)	4.09	(104)	4.21	(107)
1400/1450/1500-100	14000-12	3.66	(93)	4.88	(124)	5.00	(127)
1400/1450/1500-125	14000-12	4.65	(118)	5.87	(149)	5.98	(152)

Part No. Mounting Brackets Full Set

4 parts, 2 with pin, 2 with bore
Series 1400/1450/1500:
14000-12

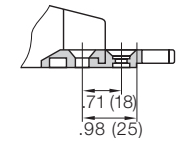
Part No. Mounting Bracket Moving End

2 parts, 1 left & 1 right
Series 1400/1450/1500:
14000-1

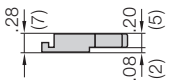
Part No. Mounting Bracket Fixed End

2 parts, 1 left & 1 right
Series 1400/1450/1500:
14000-2

Tiewrap Plates



Shown
assembled



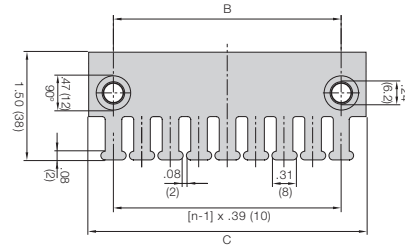
Single
tiewrap
plate

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 Plates	n Number of Teeth	Dimension C	Dimension B
2020-ZB	3	1.18 (30)	.59 (15)
2030-ZB	4	1.57 (40)	.79 (20)
2040-ZB	5	1.97 (50)	1.18 (30)
2050-ZB	6	2.36 (60)	1.57 (40)
2070-ZB	8	3.15 (80)	2.36 (60)
2090-ZB	9	3.54 (90)	2.76 (70)
2100-ZB	10	3.94 (100)	3.15 (80)
2125-ZB	12	4.72 (120)	3.94 (100)



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



Strain relief for steel mounting brackets

Clip-on connection is not possible with steel mounting brackets. In this case, the tiewrap plates must be bolted directly into separate bore holes in front of the mounting bracket. Alternatively the tiewrap plates 20XX-ZB can be also used here. **Details chapter 10**



Cable tiewraps as individual parts

Cable tiewraps 100 pieces/bag	Width x Length		Maximum Ø		Tensile Strength	
	in.	(mm)	in.	(mm)	lbs	(N)
CFB-001	.19 x 5.91	(4.8 x 150)	1.42	(36)	50	(222)





Series 350 Energy Chain®, steel guide trough and Chainflex cables used in a shelf conveyor application

Selection Guide

E2/000

Series	Inner height <i>hi</i> in. (mm)	Inner width <i>Bi</i> in. (mm)	Outer width <i>Ba</i> in. (mm)	Outer height <i>ha</i> in. (mm)	Bending radius <i>R</i> in. (mm)
1400/1500	.83 (21)	.59-4.92 (15-125)	1.12-5.45 (28.5-138.5)	1.10 (28)	1.38-7.09 (35-180)
1450	.83 (21)	.59-4.92 (15-125)	1.12-5.45 (28.5-138.5)	1.10 (28)	2.95-7.09 (75-180)

E2 Medium

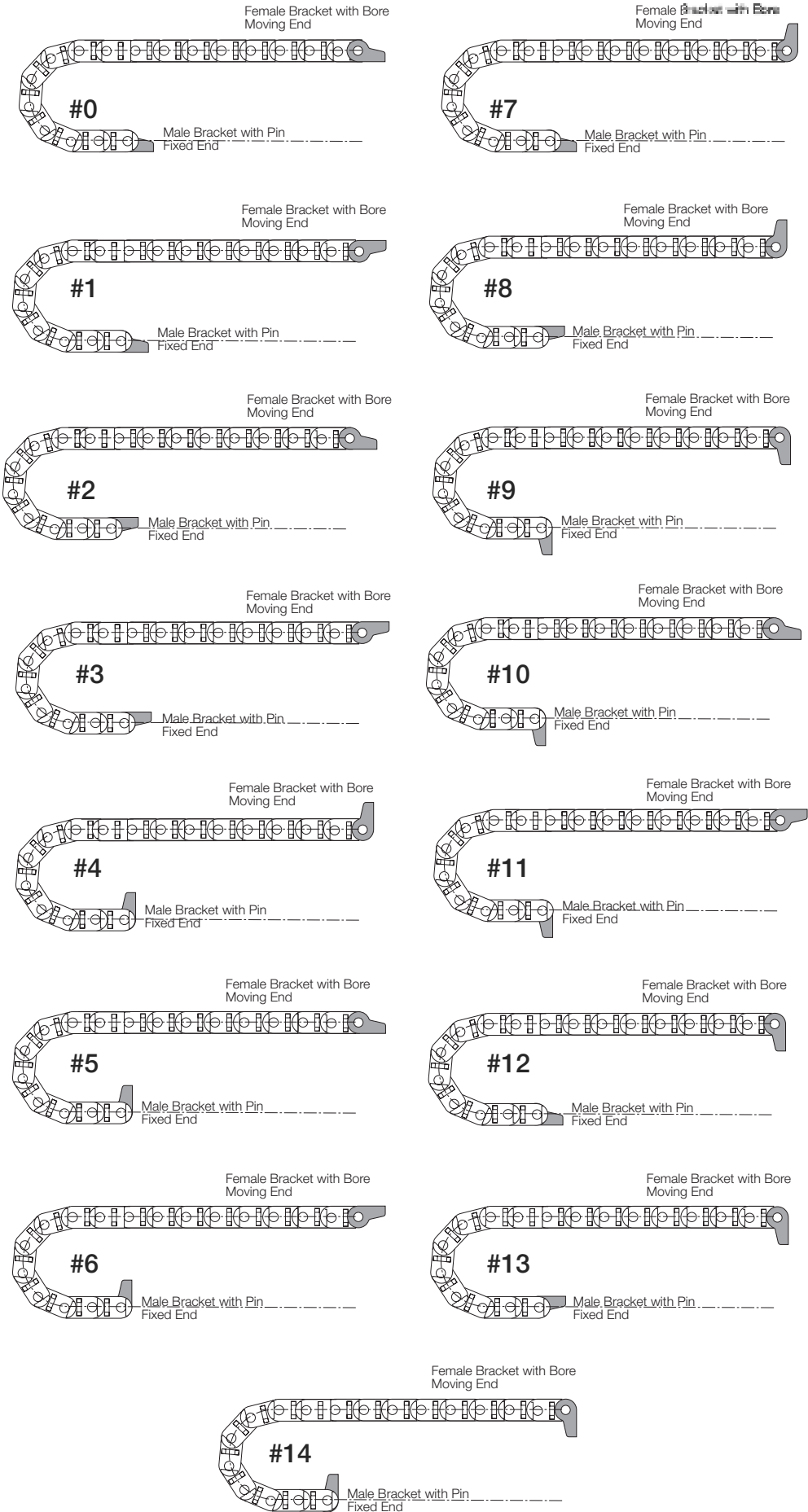
Series	Inner height <i>hi</i> in. (mm)	Inner width <i>Bi</i> in. (mm)	Outer width <i>Ba</i> in. (mm)	Outer height <i>ha</i> in. (mm)	Bending radius <i>R</i> in. (mm)
200	.98 (25)	.98-4.92 (25-125)	1.61-5.55 (41-141)	1.38 (35)	2.16-9.84 (55-250)
240	.98 (25)	.98-4.92 (25-125)	1.61-5.55 (41-141)	1.38 (35)	2.16-9.84 (55-250)
250	.98 (25)	.98-4.92 (25-125)	1.61-5.55 (41-141)	1.38 (35)	2.16-9.84 (55-250)
26	1.38 (35)	1.97-7.87 (50-200)	2.60-8.62 (66-219)	1.97 (50)	2.48-9.84 (63-250)
27	1.38 (35)	1.97-7.87 (50-200)	2.60-8.62 (66-219)	1.97 (50)	2.48-9.84 (63-250)
27i	1.38 (35)	1.97-7.87 (50-200)	2.60-8.62 (66-219)	1.97 (50)	2.48-9.84 (63-250)
340	1.77 (45)	1.97-9.84 (50-250)	2.76-10.63 (70-270)	2.64 (67)	2.95-11.81 (75-300)
350	1.77 (45)	1.97-9.84 (50-250)	2.76-10.63 (70-270)	2.64 (67)	2.95-11.81 (75-300)

energy chain® configurator 

Energy Chain System® E2 Medium Bracket Configurations

• Not all configurations apply to all mounting brackets.

Please refer to bracket specifications pages of each individual series.



Energy Chain System® E2 Medium Assembly Instructions

Energy Chains® - Assembling Series 200/240/250



1. Joining chain sections: push sections together; angle one side until pin snaps into bore; repeat on other side



2. To open crossbars: press screwdriver into tab on top of link, lever screwdriver until crossbar opens



3. Repeat Step 1 on other side



4. To close crossbars: push down on crossbar with thumb until it snaps into place

Energy Chains® - Separating



1. Separating chain sections: insert screwdriver between two links. Twist until pin disengages from bore; pull sections apart



1. Attaching mounting brackets: snap bracket into link (see Step 4 - "Joining chain sections")



2. Snap tie-wrap plate into bottom groove of the mounting bracket

Energy Chains® - Assembling Series 26/27/27i and Series 340/350



1. Joining chain sections: push sections together; angle one side until pin snaps into bore; repeat on other side



2. Repeat Step 1 on other side



2. Repeat Step 1 on other side



3. To close crossbars: push down on crossbar with thumb until it snaps into place

Assembling continued



5. Separating chain sections: insert screwdriver between two links



6. Twist until pin disengages from bore; pull sections apart



7. Attaching mounting brackets: snap bracket into link (see Step 4 - "Joining chain sections")



8. Snap tie-wrap plate into bottom groove of the mounting bracket

Energy Chains® and Energy Tubes - Separating