



Zipper



Zipper - Fast and easy access to cables and hoses

iF-Design Award

'Zipper' Energy Chains® enable lightning-fast opening and closing of lids. Different from the typical Energy Chain® design, which features side links and crossbars, Zipper chains are built with interconnected lids. These lids pull back like a zipper, removing the top section of the Energy Chain® in one uniform piece at any point along the length of the carrier. Cable installation and removal—especially for cables equipped with preassembled connectors—is both fast and simple because the unique design eliminates the need to snake cables through the carrier.

Typical industries and applications

- Pick & place robots
- Semi-conductor machines
- Linear motors, actuators
- Measuring equipment
- Machine tools (Zipper Energy Tube)



Cleanroom Class 1 (ISO class 3) for Zipper Series 15, tested by the Dryden Engineering Company, CA



Flammability Class
VDE 0304 IIC UL94 HB



iF-Design
Award Winner



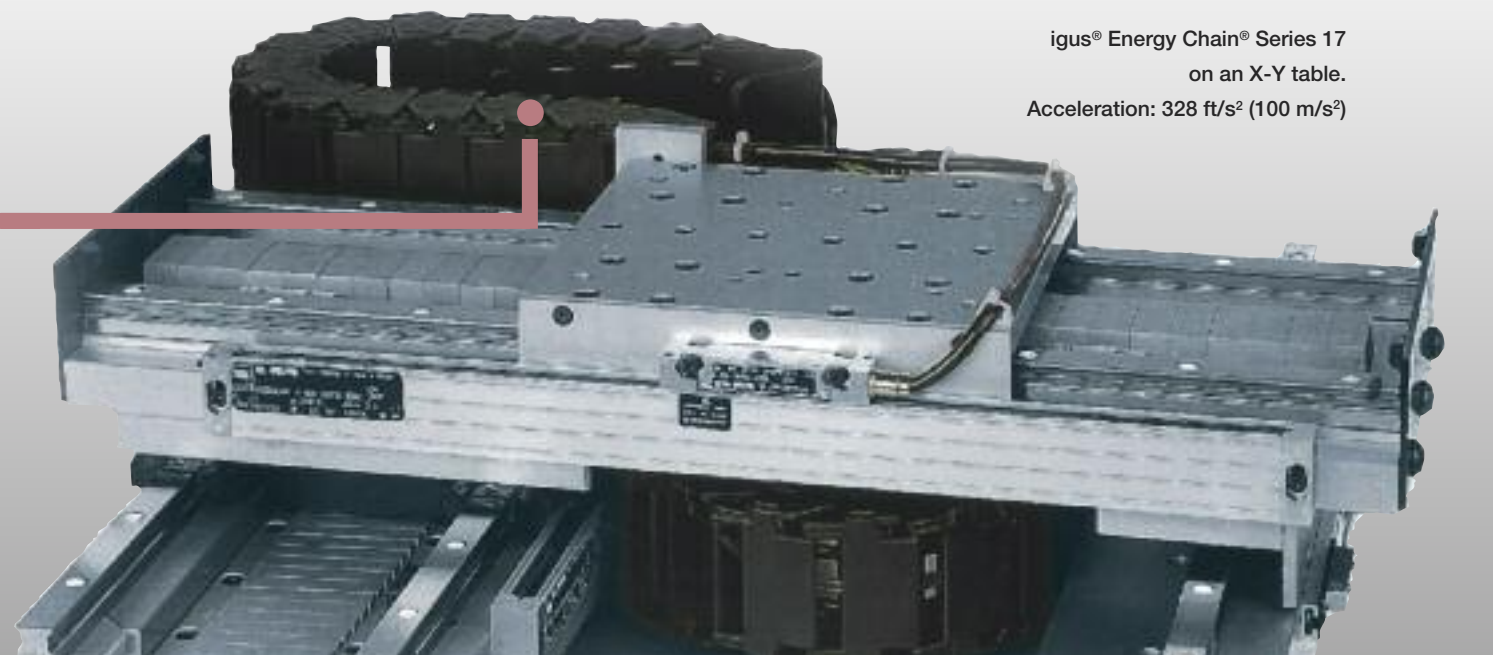
Low-noise



Fast Opening and Closing
with "Zipper"



igus® Energy Chain® Series 17
on an X-Y table.
Acceleration: 328 ft/s² (100 m/s²)

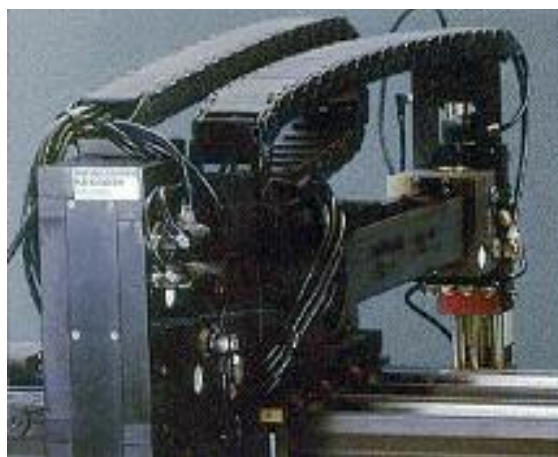


Lightning fast opening and closing with "Zipper"

- Reduced assembly-time
- Zipper-like design for quick opening and closing of lids
- Zipper lids can be separated and joined at each chain link
- Small pitch for low noise and smooth operation
- High accelerations: 328 ft/s² (100 m/s²) and more are possible
- Interior separation possible for larger versions (Series 15 and 17)



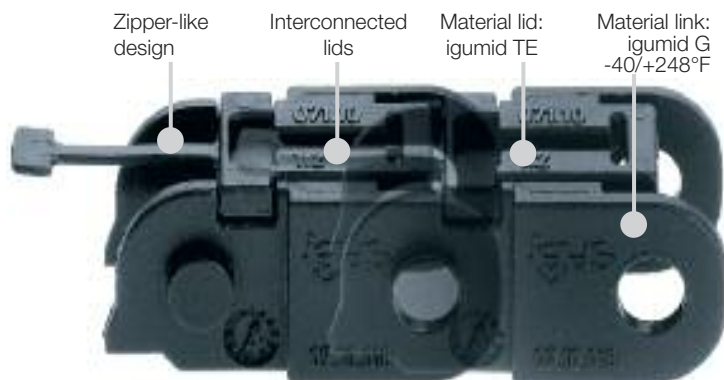
igus® Energy Chain® Series 15 Zipper in
automatic equipment - reduce assembly time



Series 15 with acceleration of 328 ft/s² (100 m/s²)
on pick-and-place robots, low noise

Energy Chain System® Zipper Selection Guide

energy chain® configurator 



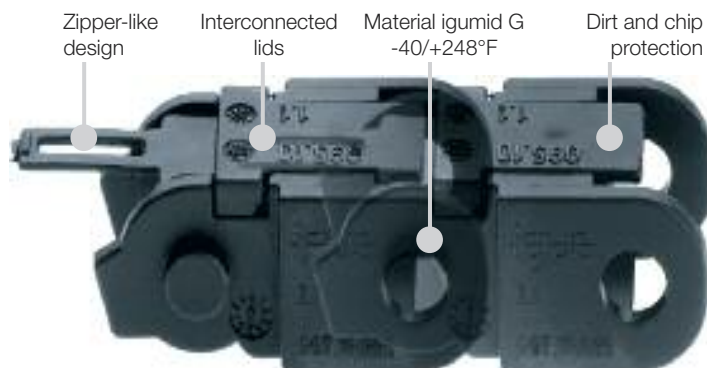
Zipper Energy Chains®

- Reduced assembly-time:
Zipper-like design for quick opening and closing of lids
- Zipper lids can be separated and joined at each chain link
- Small pitch for low noise, smooth operation
- High acceleration: 328 ft/s² (100 m/s²) and more
- Interior separation possible for larger versions
- You can find more technical data about the material, chemical resistance, temperatures ► **Design, Chapter 1**

Series	Inner height <i>hi</i>		Inner width <i>Bi</i>		Outer width <i>Ba</i>		Outer height <i>ha</i>		Bending radius <i>R</i>	
	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)
047	.35	(9.0)	.39- .63	(10 - 16)	.63- .87	(16.0 - 22.0)	.49	(12.5)	.71- 1.50	(18 - 38)
07	.41	(10.3)	.24- 2.52	(6 - 64)	.49- 2.80	(12.5 - 71.0)	.59	(15.0)	.71- 1.50	(18 - 38)
09	.59	(15.0)	.39- 1.97	(10 - 50)	.72- 2.29	(18.2 - 58.2)	.76	(19.3)	1.10- 1.89	(28 - 48)
15	.67	(17.0)	.59- 3.94	(15 - 100)	1.02- 4.45	(26.0 - 113.0)	.94	(24.0)	1.50- 7.09	(38 - 180)
17	1.26	(32.0)	.59- 3.94	(15 - 100)	1.02- 4.45	(26.0 - 113.0)	1.54	(39.0)	2.48- 4.92	(63 - 125)

For protection against dirt and debris

For information about this zipper series please refer to the Tubes section of the catalog ► **Tubes, Chapter 5**



Zipper Energy Tubes against chips and dirt

- Fully enclosed Energy Tube with zipper opening mechanism
- Protection against dirt and chips
- Superfast opening of interconnected lids
- Modular design - tool-free lengthening and shortening
- Small pitch for low noise, smooth operation, high acceleration
- You can find more technical data about the material, chemical resistance, temperatures ► **Design, Chapter 1**

Energy Chain System® Zipper Assembly Instructions

Assembling | Zipper



Push and click



Snap lids together



Position and...



...push and snap

Separating | Zipper



Zipp - upward . All lids fit like a "Zipper"



Separate lids



Release side-link



Twist and pull apart

Price Index

Series 047

Special Features / Options



Upon request: Cleanroom Class 1 (ISO class 3) tested by the Dryden Engineering Company, CA



Flammability Class
VDE 0304 IIC UL94 HB



Low-noise

Assembly Tips



"Zipper-fast" opening and closing

Usage Guidelines



- If fast, zipper-like accessibility to cables is required
- If quiet operation is required
- If aesthetic design is required
- If excellent service life is required
- If cost is a factor



- If easy filling without opening and closing is required

➤ Series E04 E-Z Chain

Features & Benefits

- 1 For high acceleration
- 2 Zipper lids can be separated and joined at each link
- 3 Small pitch for low-noise and smooth operation
- 4 'Zipper-fast' opening and closing
- 5 Mounting brackets available
- 6 Lightweight



Order Example: Complete Energy Chain®

Please indicate chain length or number of links. Example:

energy chain® configurator ➤

3.28 ft (1 m) 047-10-038-0



Energy Chain®

1 Set 0450-10-12



Mounting Bracket

Energy Chain System® Zipper Series 047

Installation Dimensions

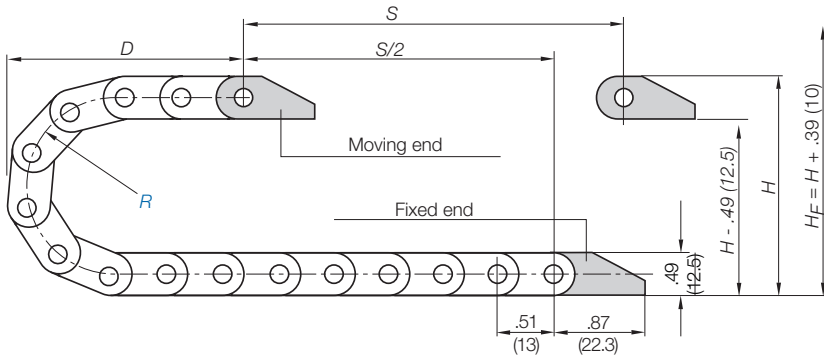
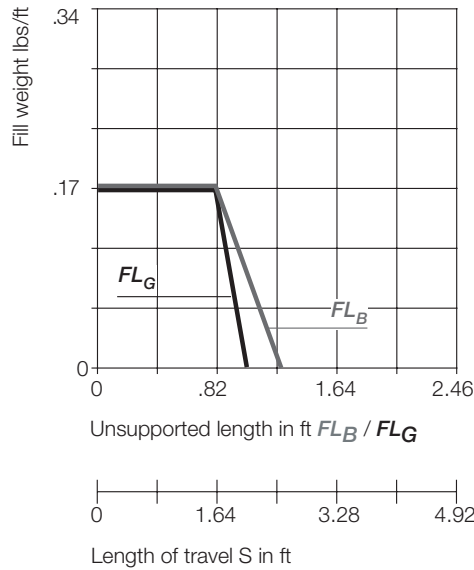
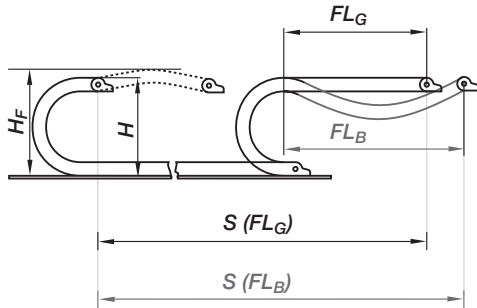
energy chain® configurator ►

igus®

047

Short travel, unsupported length

- FL_B = unsupported with permitted sag
 - FL_G = unsupported with straight upper run
- Further information ► Design, Chapter 1



The required clearance height: $H_F = H + .39$ in. (10 mm) (with .13 lbs/ft (0.2 kg/m) fill weight). Please consult igus® if space is particularly restricted.

R	.71 (018)	1.10 (028)	1.50 (038)
H*	1.91 (48.5)	2.70 (68.5)	3.48 (88.5)
D	1.73 (44)	2.13 (54)	2.52 (64)
K	3.35 (85)	4.53 (115)	5.91 (150)

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

Pitch per link = .51" (13 mm)
Links per ft (m) = 23.46 (77)
For center mount applications:
Chain length = $S/2 + K$

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

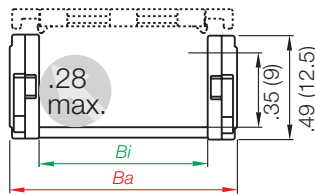
Speed / acceleration FL_G	max. 65.6 ft/s (20 m/s) / max. 656 ft/s² (200 m/s²)
Speed / acceleration FL_B	max. 9.84 ft/s (3 m/s) / max. 19.69 ft/s² (6 m/s²)
Gliding speed / acceleration (maximum)	max. 32.8 ft/s (10 m/s) / max. 164 ft/s² (50 m/s²)
Material - permitted temperature	igumid G / -40°F (-40°C)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

Technical Data



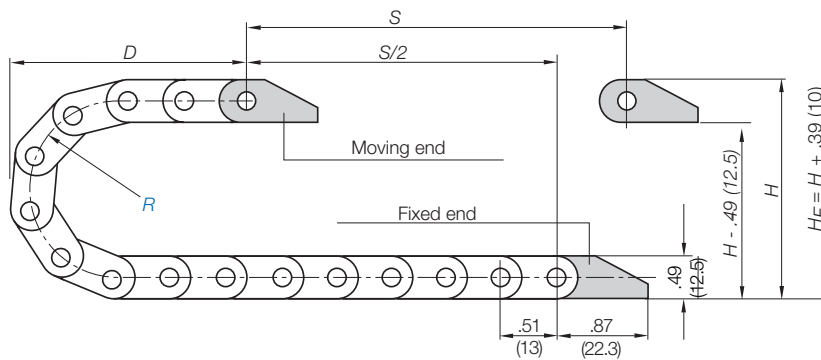
Details of material properties

► Chapter 1

Series 047 - zip open along the outer radius

Part Number Structure

047-	10-	038-	0
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Color - Black
 Bending radius
 Width
 Series



Supplement part number with required radius. Example: 047-10-**038**-0

Pitch: .51 in. (13 mm) per link links/ft (m) = 23.46 (77)

Part Number		<i>Bi</i> in. (mm)	<i>Ba</i> in. (mm)	Weight lbs/ft (kg/m)
047-10-	-0	.39 (10)	.63 (16)	≈ 0.07 (0.10)
047-16-	-0	.63 (16)	.87 (22)	≈ 0.07 (0.11)
Choose from the radii below for all of the above sizes				
<i>Radius</i> (mm) Example: 047-10- 038 -0				

	018	028	028
<i>R</i>	.71 (018)	1.10 (028)	1.50 (038)
<i>H*</i>	1.91 (48.5)	2.70 (68.5)	3.48 (88.5)
<i>D</i>	1.73 (44)	2.13 (54)	2.52 (64)
<i>K</i>	3.35 (85)	4.53 (115)	5.91 (150)

Energy Chain System® Zipper

Series 047

Mounting Brackets

energy chain® configurator

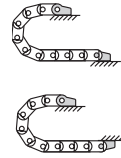
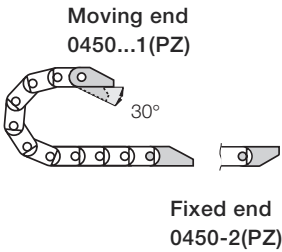


047



Plastic, one-piece

- One-piece mounting bracket
- Corrosion resistant
- Available preassembled

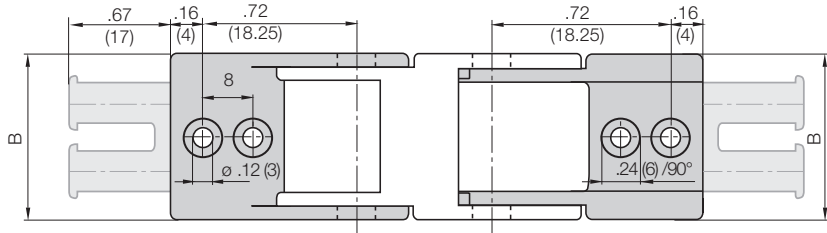


Possible installation configurations -

Part Number Structure

0450-	10-	12	PZ
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- With assembled strain relief tiewrap plates
- Complete Set
- Width
- Mounting brackets for selected chain type



Full set, for both ends:

0450-10-12 Full set, each part with pin/bore

Single-part order:

0450-10-1 Mounting bracket with bore

0450-10-2 Mounting bracket with pin

Chain Type	Part No. Full set with Tiewrap Plate	Part No. Full Set without Tiewrap Plate	Dimensions B in. (mm)	Number of Teeth
08-				
047-10	0450-10-12PZ	0450-10-12	.63 (16)	1
047-16	0450-16-12PZ	0450-16-12	.87 (22)	2

Additional Accessories

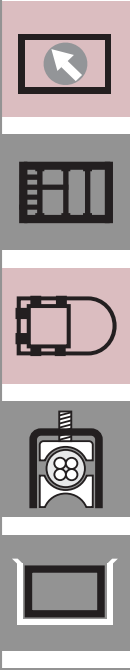


Quicksnap - the complete, detachable mounting unit, upon request



Quickfix - mounting bracket with dowel, upon request

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



Price Index



Series 07

Special Features / Options



Upon request: Cleanroom Class 1
(ISO class 3) tested by the Dryden
Engineering Company, CA



Flammability Class
VDE 0304 IIC UL94 HB



Low-noise

Assembly Tips



"Zipper-fast" opening and closing

Usage Guidelines



- If fast, zipper-like accessibility to cables is required
- If quiet operation is required
- If aesthetic design is required
- If excellent service life is required



- If a more cost-effective, openable Energy Chain is required
➤ **Series B07 E2 Micro**
- If cable installation without opening lids is possible
➤ **Series E06 E-Z Chain**
- If a closed tube system is required
➤ **Series R07 E2 Zipper Tube**

Features & Benefits

- 1 Mounting bracket with integrated strain relief
- 2 Zipper lids can be separated and joined at each link
- 3 Small pitch for low-noise and smooth operation
- 4 'Zipper-fast' opening and closing
- 5 For high acceleration
- 6 Lightweight



Order Example: Complete Energy Chain®

Please indicate chain length or number of links. Example:

3.28 ft (1 m) 07-20-038-0

1 Set 060-20-12PZ

energy chain® configurator ▶



Energy Chain®



Mounting Bracket

Energy Chain System® Zipper Series 07

Installation Dimensions

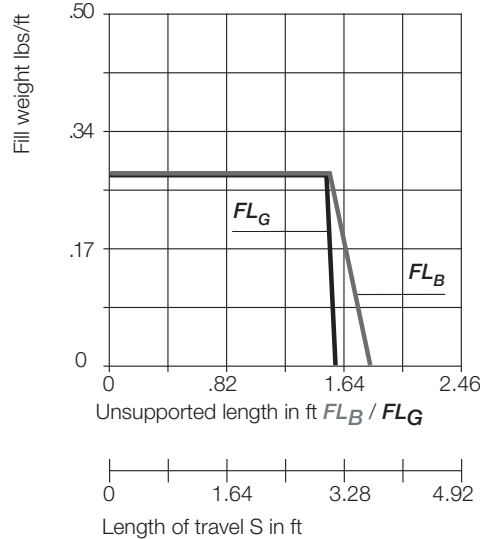
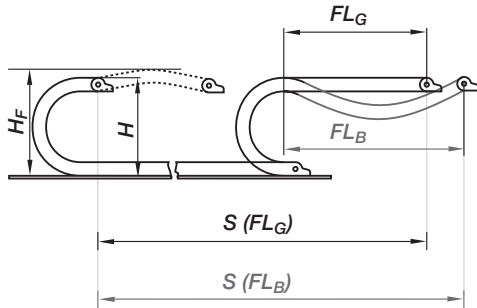
energy chain® configurator

igus®

07

Short travel, unsupported length

- FL_B = unsupported with permitted sag
 - FL_G = unsupported with straight upper run
- Further information ► Design, Chapter 1



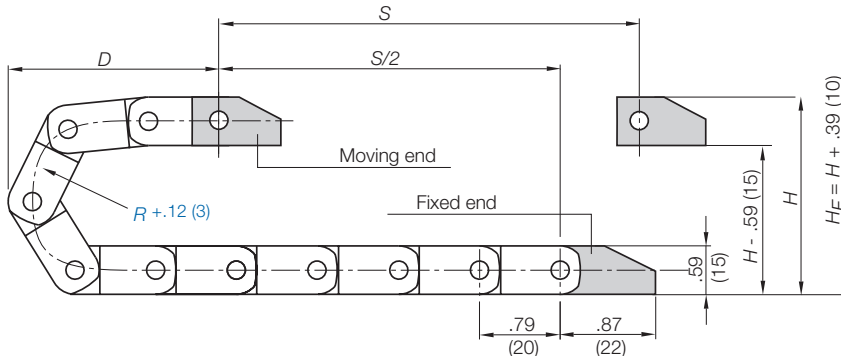
Short Travels - Unsupported



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



Pitch per link = .79" (20 mm)
Links per ft (m) = 15.24 (50)
For center mount applications:
Chain length = $\frac{S}{2} + K$

The required clearance height: $H_F = H + .39 \text{ in. (10 mm)}$ (with .13 lbs/ft (0.2 kg/m) fill weight). Please consult igus® if space is particularly restricted.

R	.71 (018)	1.10 (028)	1.50 (038)
H*	2.01 (51)	2.80 (71)	3.58 (91)
D	2.20 (56)	2.60 (66)	2.99 (76)
K	3.94 (100)	5.12 (130)	6.30 (160)

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



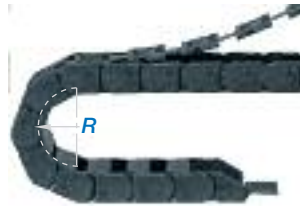
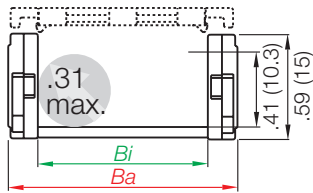
Details of material properties

► Chapter 1



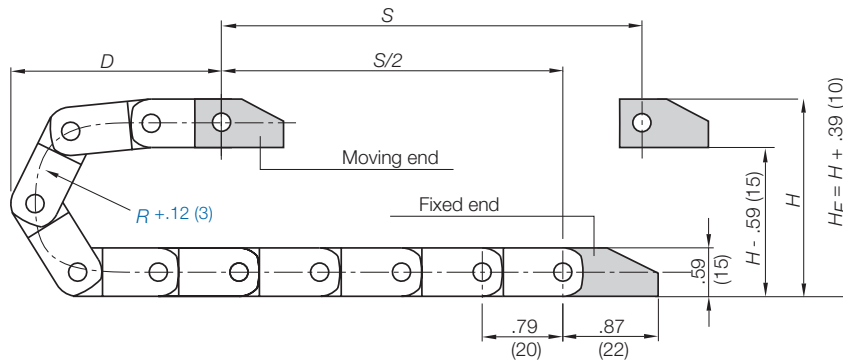
PDF: www.igus.com/e-chain-pdfs
Specs/CAD/RFQ: www.igus.com/e-chains
RoHS info: www.igus.com/RoHS



Series 07 - zip open along the outer radius

Part Number Structure

07-	20-	038-	0
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Color - Black
 Bending radius
 Width
 Series



Supplement part number with required radius. Example: 07-20-**038**-0

Pitch: .79 in. (20 mm) per link links/ft (m) = 15.24 (50)

Part Number		<i>Bi</i> in. (mm)	<i>Ba</i> in. (mm)	Weight lbs/ft (kg/m)
07-06-	-0	.24 (6)	.49 (12.5)	≈ 0.09 (0.13)
07-10-	-0	.39 (10)	.65 (16.5)	≈ 0.09 (0.14)
07-16-	-0	.63 (16)	.89 (22.5)	≈ 0.11 (0.16)
07-20-	-0	.79 (20)	1.06 (27.0)	≈ 0.11 (0.17)
07-30-	-0	1.18 (30)	1.46 (37.0)	≈ 0.13 (0.20)
07-40-	-0	1.57 (40)	1.85 (47.0)	≈ 0.15 (0.23)
07-50-	-0	1.97 (50)	2.24 (57.0)	≈ 0.17 (0.26)
07-64-	-0	2.52 (64)	2.80 (71.0)	≈ 0.20 (0.30)

Choose from the radii below for all of the above sizes

Radius (mm) Example: 07-20-**038**-0

	018	028	038
<i>R</i>	.71 (018)	1.10 (028)	1.50 (038)
<i>H*</i>	2.01 (51)	2.80 (71)	3.58 (91)
<i>D</i>	2.20 (56)	2.60 (66)	2.99 (76)
<i>K</i>	3.94 (100)	5.12 (130)	6.30 (160)

Energy Chain System® Zipper Series 07 Mounting Brackets

energy chain® configurator

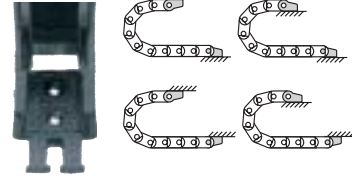
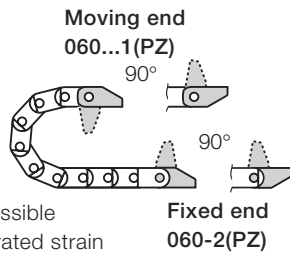
igus®

07



Plastic, one-piece

- One-piece mounting bracket
- Corrosion resistant
- Available preassembled
- Inner and outer attachment possible
- Available with or without integrated strain relief tiewrap plates

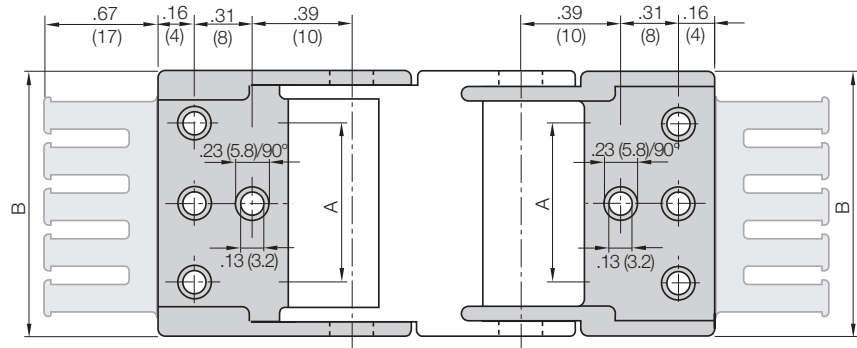


Possible installation configurations -

Part Number Structure

060-	20-	12	PZ
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- With assembled strain relief tiewrap plates
- Complete Set
- Width
- Mounting brackets for selected chain type



Full set, for both ends:

060- 20- 12 Full set, each part with pin/bore

Single-part order:

060- 20- 1 Mounting bracket with bore

060- 20- 2 Mounting bracket with pin

060-06-12 - 060-20-12:

Center bores only

060-30-12 - 060-64-12:

Outer bores only

Chain Type	Part No. Full set with Tiewrap Plate	Part No. Full Set without Tiewrap Plate	Dimension A in. (mm)	Dimensions B in. (mm)	Number of Teeth
07-06	060-06-12PZ	060-06-12	— —	.49 (12.5)	1
07-10	060-10-12PZ	060-10-12	— —	.65 (16.5)	1
07-16	060-16-12PZ	060-16-12	— —	.89 (22.5)	2
07-20	060-20-12PZ	060-20-12	— —	1.06 (27.0)	2
07-30	060-30-12PZ	060-30-12	.87 (22)	1.46 (37.0)	3
07-40	060-40-12PZ	060-40-12	1.26 (32)	1.85 (47.0)	4
07-50	060-50-12PZ	060-50-12	1.65 (42)	2.24 (57.0)	5
07-64	060-64-12PZ	060-64-12	2.20 (56)	2.80 (71.0)	6

Additional Accessories



Quicksnap - the complete, detachable mounting unit, upon request



Quickfix - mounting bracket with dowel, upon request

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



Price Index



Series 09

Special Features / Options



Upon request: Cleanroom Class 1
(ISO class 3) tested by the Dryden
Engineering Company, CA



Flammability Class
VDE 0304 IIC UL94 HB



Low-noise

Assembly Tips



"Zipper-fast" opening and closing

Usage Guidelines



- If fast, zipper-like accessibility to cables is required
- If quick, easy insertion of cables with preassembled connectors is required
- If quiet operation is required
- If aesthetic design is required
- If high acceleration and travel speed is present



- If a more cost-effective, openable Energy Chain is required
➤ **Series B09 E2 Micro**
- If cable installation without opening lids is possible
➤ **Series E08 E-Z Chain**
- If a closed tube system is required
➤ **Series R09 E2 Zipper Tube**

Features & Benefits

- 1 Zipper lids can be separated and joined at each link
- 2 Small pitch for low-noise and smooth operation
- 3 'Zipper-fast' opening and closing
- 4 For high acceleration
- 5 Mounting bracket with integrated strain relief
- 6 Lightweight



Order Example: Complete Energy Chain®

Please indicate chain length or number of links. Example:

3.28 ft (1 m) 09-20-038-0

1 Set 080-20-12PZ

energy chain® configurator ▶



Energy Chain®



Mounting Bracket

Energy Chain System® Zipper Series 09

Installation Dimensions

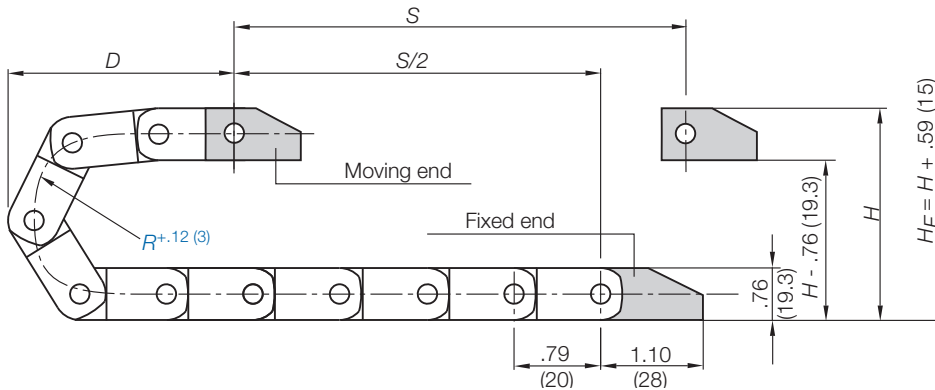
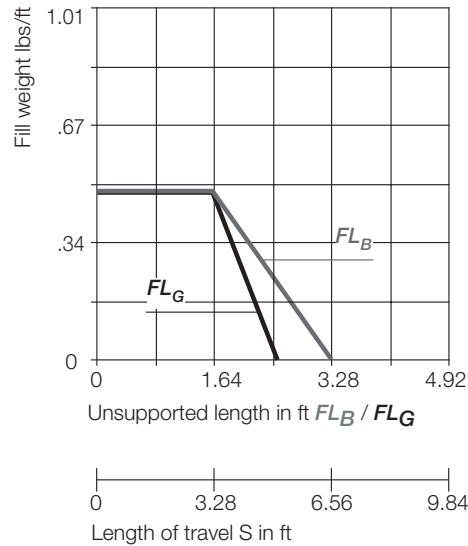
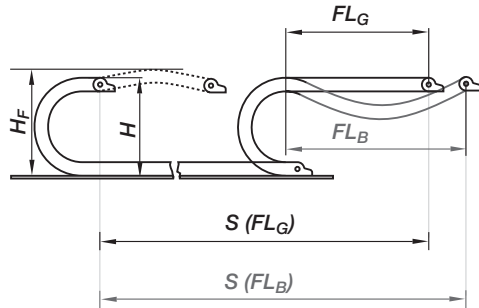
energy chain® configurator ►

igus®

09

Short travel, unsupported length

- FL_B = unsupported with permitted sag
 - FL_G = unsupported with straight upper run
- Further information ► Design, Chapter 1



The required clearance height: $H_F = H + .59$ in. (15 mm) (with .20 lbs/ft (0.3 kg/m) fill weight). Please consult igus® if space is particularly restricted.

R	1.10 (028)	1.50 (038)	1.89 (048)
H*	2.95 (75)	3.74 (95)	4.53 (115)
D	2.68 (68)	3.07 (78)	3.46 (88)
K	5.12 (130)	6.30 (160)	7.68 (195)

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

Pitch per link: = .79" (20 mm)

Links per ft (m): = 15.24 (50)

For center mount applications:

Chain length = $S/2 + K$



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



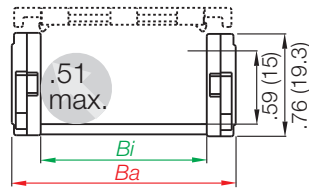
Speed / acceleration FL_G	max. 65.6 ft/s (20 m/s) / max. 656 ft/s ² (200 m/s ²)
Speed / acceleration FL_B	max. 9.84 ft/s (3 m/s) / max. 19.69 ft/s ² (6 m/s ²)
Gliding speed / acceleration (maximum)	max. 32.8 ft/s (10 m/s) / max. 164 ft/s ² (50 m/s ²)
Material - permitted temperature	igumid G / -40°F (-40°C) up to +248°F (+120°C)
Flammability Class, igumid G	VDE 0304 IIC UL94 HB

Technical Data



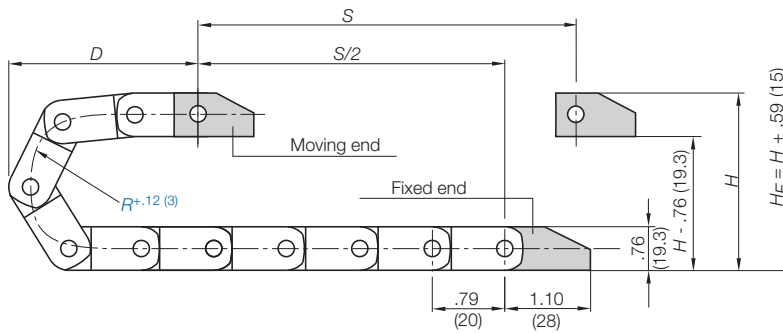
Details of material properties

► Chapter 1

Series 09 - zip open along the outer radius

Part Number Structure

09-	20-	038-	0
-----	-----	------	---

Color - Black
 Bending radius
 Width
 Series



Supplement part number with required radius. Example: 09-20-**038**-0

Pitch: .79 in. (20 mm) per link links/ft (m) = 15.24 (50)

Part Number		<i>Bi</i> in. (mm)	<i>Ba</i> in. (mm)	Weight lbs/ft (kg/m)
09-10-	-0	.39 (10)	.72 (18.2)	≈ 0.14 (0.21)
09-16-	-0	.63 (16)	.95 (24.2)	≈ 0.16 (0.24)
09-20-	-0	.79 (20)	1.11 (28.2)	≈ 0.17 (0.25)
09-30-	-0	1.18 (30)	1.50 (38.2)	≈ 0.19 (0.28)
09-40-	-0	1.57 (40)	1.90 (48.2)	≈ 0.21 (0.31)
09-50-	-0	1.97 (50)	2.29 (58.2)	≈ 0.23 (0.34)

Choose from the radii below for all of the above sizes

Radius (mm) Example: 09-20-**038**-0

	028	038	048
<i>R</i>	1.10 (028)	1.50 (038)	1.89 (048)
<i>H*</i>	2.95 (75)	3.74 (95)	4.53 (115)
<i>D</i>	2.68 (68)	3.07 (78)	3.46 (88)
<i>K</i>	5.12 (130)	6.30 (160)	7.68 (195)

Energy Chain System® Zipper Series 09 Mounting Brackets

energy chain® configurator ►

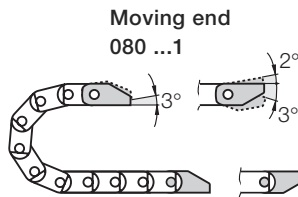
igus®

09

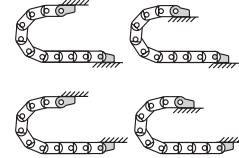


Plastic, pivoting

- One-piece mounting bracket
- Corrosion resistant
- Available preassembled
- Inner and outer attachment possible
- Available with or without strain relief tiewrap plates



Fixed end
080...2

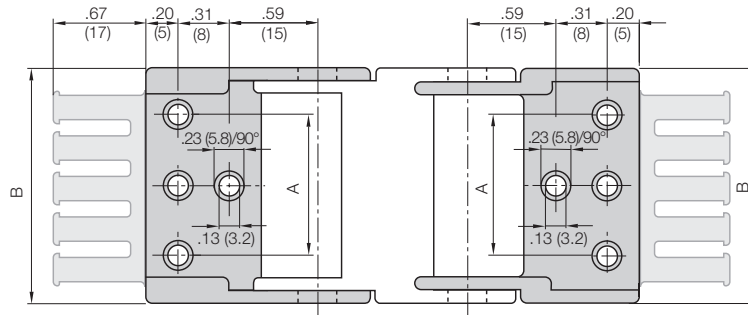


Possible installation configurations -

Part Number Structure

080- 20- 12 PZ

- With assembled strain relief tiewrap plates
- Complete Set
- Width
- Mounting brackets for selected chain type



Full set, for both ends:

080- 20- 12 Full set, each part with pin/bore

Single-part order:

080- 20- 1 Mounting bracket with bore

080- 20- 2 Mounting bracket with pin

080-10-12 - 080-20-12:

Center bores only

080-30-12 - 080-50-12:

Outer bores only

Chain Type	Part No. Full set with Tiewrap Plate	Part No. Full Set without Tiewrap Plate	Dimension A in. (mm)	Dimensions B in. (mm)	Number of Teeth
08-10	080-10-12PZ	080-10-12	— —	.72 (18.2)	1
08-16	080-16-12PZ	080-16-12	— —	.95 (24.2)	2
08-20	080-20-12PZ	080-20-12	— —	1.11 (28.2)	2
08-30	080-30-12PZ	080-30-12	.87 (22)	1.50 (38.2)	3
08-40	080-40-12PZ	080-40-12	1.26 (32)	1.90 (48.2)	4
08-50	080-50-12PZ	080-50-12	1.65 (42)	2.29 (58.2)	5

Additional Accessories



Quicksnap - the complete, detachable mounting unit, upon request



Quickfix - mounting bracket with dowel, upon request

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



Price Index



Series 15

Special Features / Options



Upon request: Cleanroom Class 1 (ISO class 3) tested by the Dryden Engineering Company, CA



Flammability Class
VDE 0304 IIC UL94 HB



Low-noise

Assembly Tips



"Zipper-fast" opening and closing

Usage Guidelines



- If fast, zipper-like accessibility to cables is required
- If connection options are required (Quicksnap, Quickfix)
- If interior separation is required
- If high stability and long service life are required



- If opening of the link is not necessary
➤ **Series 10 E2 Mini**
- If torsion occurs
➤ **Series E14 E-Z Chain**
- If the chain must snap-open along the inner radius
➤ **Series B15i E2 Mini**

Features & Benefits

- 1 Large pins and double stop dog for superior life and long unsupported length
- 2 'Zipper-fast' opening and closing
- 3 Small pitch for low-noise, smooth operation
- 4 Zipper lids can be separated and joined at each link
- 5 Mounting bracket with integrated strain relief
- 6 For high acceleration



Order Example: Complete Energy Chain®

Please indicate chain length or number of links. Example:

energy chain® configurator

3.28 ft (1 m) **15-025-038-0**



Energy Chain®

With 2 separators **154** assembled every 2nd link



Interior Separation

1 Set **1025-12PZ**



Mounting Bracket

Energy Chain System® Zipper Series 15

Installation Dimensions

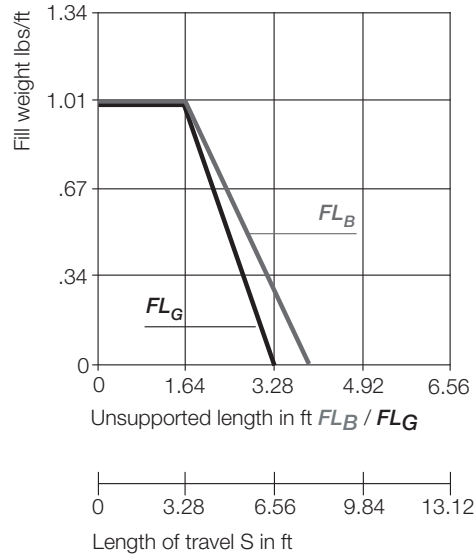
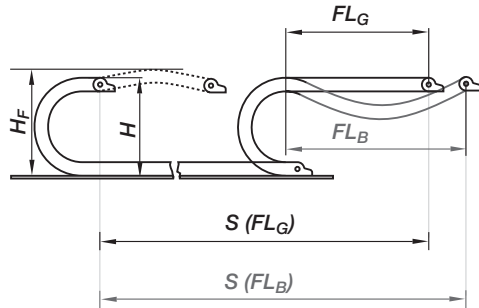
energy chain® configurator



15

Short travel, unsupported length

- FL_B = unsupported with permitted sag
 - FL_G = unsupported with straight upper run
- Further information ► Design, Chapter 1



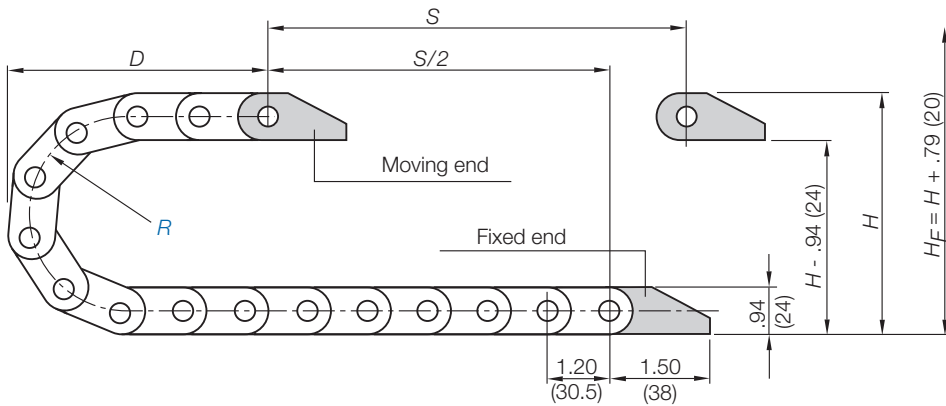
Short Travels - Unsupported



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



Pitch per link: = 1.20" (30.5 mm)
Links per ft (m): = 10.06 (33)
For center mount applications:
Chain length = $S/2 + K$

The required clearance height: $H_F = H + .79 \text{ in. (20 mm)}$ (with .67 lbs/ft (1.0 kg/m) fill weight).
Please consult igus® if space is particularly restricted.

R	1.50 (038)	1.89 (048)	2.95 (075)	3.94 (100)	4.33 (110)	4.92 (125)	5.71 (145)	7.09 (180)
H	3.90 (99)	4.69 (119)	6.81 (173)	8.78 (223)	9.57 (243)	10.75 (273)	12.32 (313)	15.08 (383)
D	3.74 (95)	4.13 (105)	5.20 (132)	6.18 (157)	6.57 (167)	7.17 (182)	7.95 (202)	9.33 (237)
K	7.28 (185)	8.46 (215)	11.81 (300)	14.96 (380)	16.14 (410)	17.91 (455)	20.47 (520)	24.80 (630)

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. 32.8 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

Technical Data

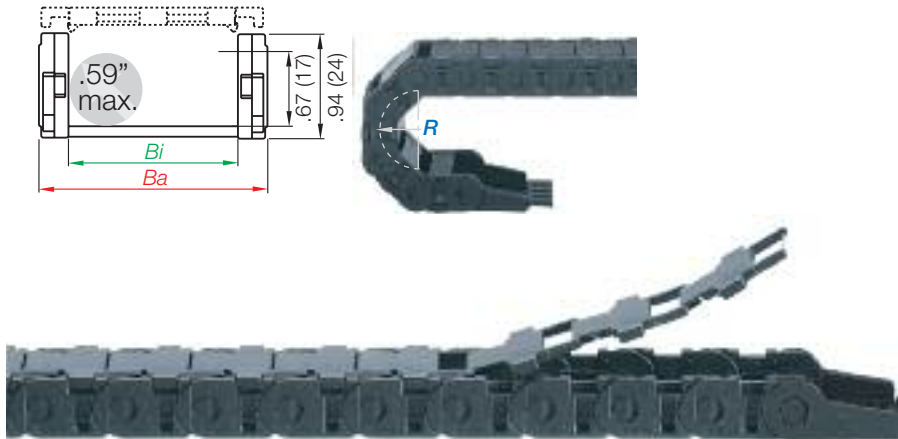
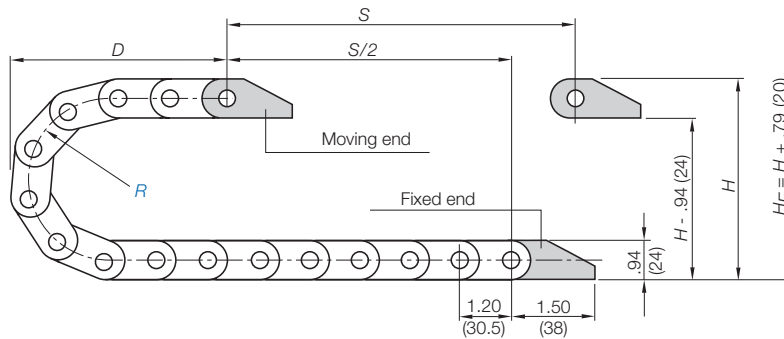
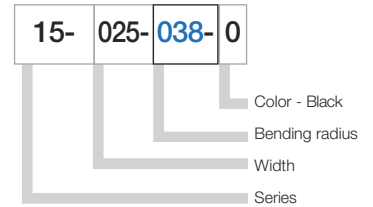


Details of material properties

► Chapter 1

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



Series 15 - Zip-open along the outer radius

Part Number Structure


Supplement part number with required radius. Example: 15-025-**038**-0
 Pitch: 1.20 in. (30.5 mm) per link links/ft (m) = 10.06 (33)

Part Number

Snap-open			Bi	Ba	Weight
outer radius			in. (mm)	in. (mm)	lbs/ft (kg/m)
15-015-		-0	.59 (15)	1.02 (26)	≈ 0.24 (0.35)
15-025-		-0	.98 (25)	1.42 (36)	≈ 0.27 (0.40)
15-038-		-0	1.50 (38)	1.93 (49)	≈ 0.31 (0.46)
15-050-		-0	1.97 (50)	2.40 (61)	≈ 0.35 (0.52)
15-5-		-0	2.48 (63)	2.99 (76)	≈ 0.42 (0.63)
15-6		-0	3.15 (80)	3.70 (94)	≈ 0.47 (0.70)
15-7		-0	3.94 (100)	4.45 (113)	≈ 0.51 (0.76)
Choose from the radii below for all of the above sizes					
Radius (mm) Example: 15-025- 038 -0					

	038	048	075	100	110	125	145	180
R	1.50 (38)	1.89 (48)	2.95 (75)	3.94 (100)	4.33 (110)	4.92 (125)	5.71 (145)	7.09 (180)
H	3.90 (99)	4.69 (119)	6.81 (173)	8.78 (223)	9.57 (243)	10.75 (273)	12.32 (313)	15.08 (383)
D	3.74 (95)	4.13 (105)	5.20 (132)	6.18 (157)	6.57 (167)	7.17 (182)	7.95 (202)	9.33 (237)
K	7.28 (185)	8.46 (215)	11.81 (300)	14.96 (380)	16.14 (410)	17.91 (455)	20.47 (520)	24.80 (630)

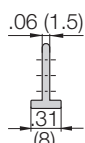
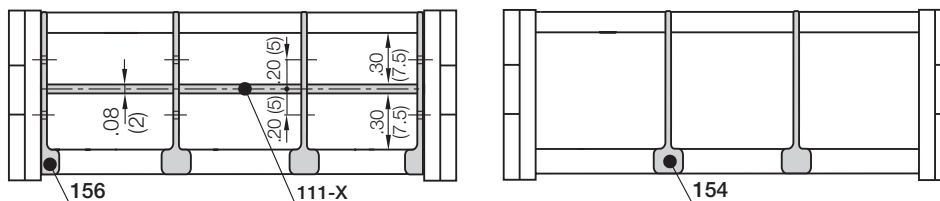
0=Standard color black. For other colors see Chapter 1

Interior Separation



Option 1: Vertical separators

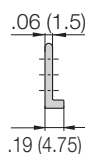
Vertical separators are used if only a vertical subdivision of the Energy Chain® interior is required. A slotted separator is used for this subdivision. This separator can also be used with full-width shelves for a continuous horizontal subdivision. By standard, vertical separators are assembled every other Energy Chain® link.



Vertical separator, slotted

Unassembled **Part No. 153**

Assembled Part No. 154



Side plate

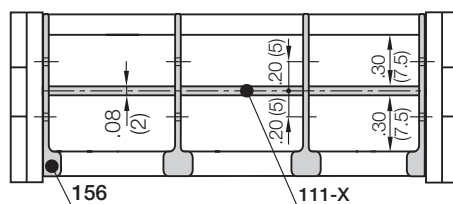
Unassembled	Part No. 155
-------------	--------------

Assembled Part No. 156

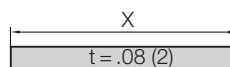


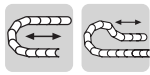
Option 2: Full-width shelf

Interior separation with continuous horizontal subdivision is practical is using a large number of thin cables with similar or identical diameters.



Width X in. (mm)	Part No. Unassembled	Part No. Assembled
.59 (015)	110-15	111-15
.98 (025)	110-25	111-25
1.50 (038)	110-38	111-38
1.97 (050)	110-50	111-50
2.48 (063)	110-63	111-63
3.15 (080)	110-80	111-80
3.94 (100)	110-100	111-100





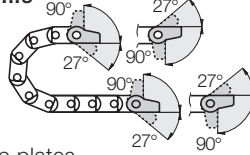
Standard

Option 1: pivoting

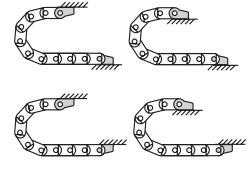
- Well suited for space-restricted conditions
- Strain relief with detachable tiwrap plates
- Can be mounted on either the fixed or moving end of the chain
- Variable traverse angle for flexible assembly

Moving end

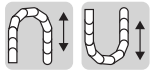
10...3



Fixed end
10...4



Possible installation configurations -

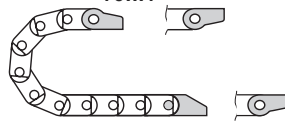


Option 2: locking

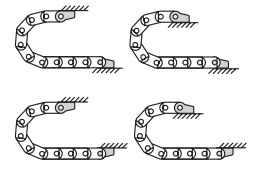
- Extreme accelerations
- If space is limited for height
- Can be mounted on either the fixed or moving end of the chain

Moving end

10...1

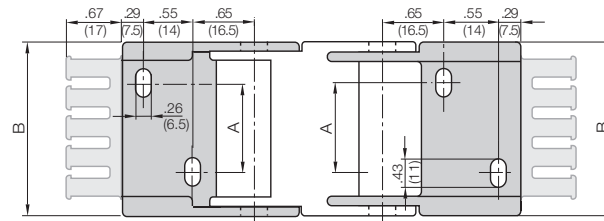


Fixed end
10...2

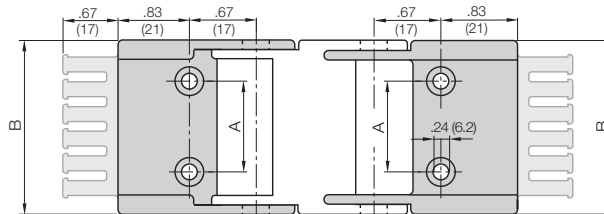


Possible installation configurations -

For Energy Chain
15-015 to 15-050



For Energy Chain
15-5 to 15-7



Part Number Structure

1025- 34- P PZ

- With tiwrap plate
- Without tiwrap plate
- Complete Set
12 = Pivoting
34 = Locking
- Mounting brackets for selected chain type

Part number examples are shown for pivoting brackets. For locking brackets fill in the blank with **12**

Part No. Full Set (pivoting)
with Tiwrap Plate
Series 15 with 25mm inner width
1025-34PZ

Part No. Full Set (pivoting)
without Tiwrap Plate
Series 15 with 25 mm inner width
1025-34P

Full set, for both ends:
1025- 34- PZ Full set, each part with pin/bore + tiwrap plate
Single-part order:
1025- 3- PZ Mounting bracket with bore + tiwrap plate
1025- 4- PZ Mounting bracket with pin + tiwrap plate

For Chain Type	Part No. Full set with Tiwrap Plate	Part No. Full Set without Tiwrap Plate	Dimension A in. (mm)	Dimensions B in. (mm)	Number of Teeth
15-015	1015- ☐ PZ	1015- ☐ P	— —	1.00 (25.5)	2
15-025	1025- ☐ PZ	1025- ☐ P	.39 (10)	1.40 (35.5)	3
15-038	1038- ☐ PZ	1038- ☐ P	.91 (23)	1.91 (48.5)	4
15-050	1050- ☐ PZ	1050- ☐ P	1.38 (35)	2.38 (60.5)	5
15-5	105- ☐ PZ	105- ☐ P	1.89 (48)	2.95 (75.0)	6
15-6	106- ☐ PZ	106- ☐ P	2.56 (65)	3.62 (92.0)	8
15-7	107- ☐ PZ	107- ☐ P	3.35 (85)	4.41 (112.0)	10

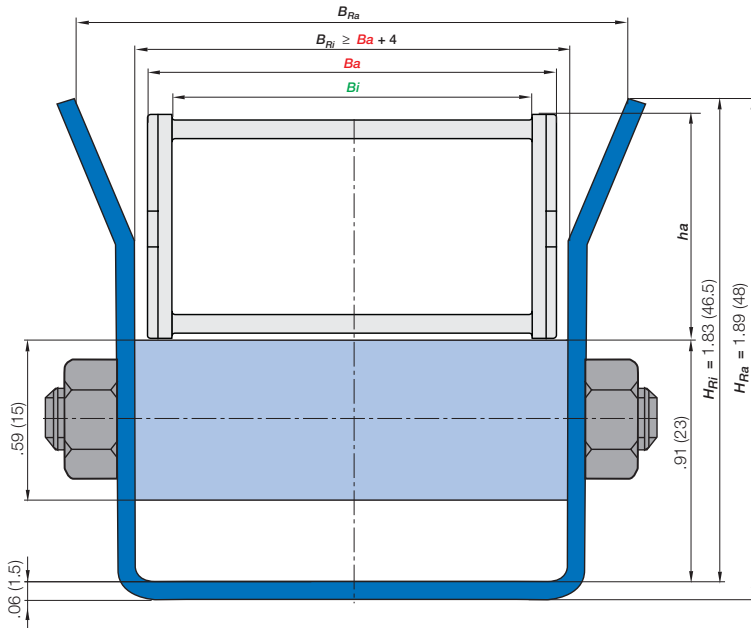
34 or **12**

For pivoting brackets choose **34**

For locking brackets choose **12**

Example: 1025- **34** PZ

One-piece guide troughs made of steel are available for the Series 15 Zipper Energy Chains®. These guide troughs are available from stock for outer chain widths up to 2.36 in. (60 mm). For wider Energy Chains® and Tubes, special solutions are possible with short lead times. No installation sets are required for these trough sizes since the guide troughs consist of a one-piece U-profile. The joint connection with this type of guide trough is specified individually for every application.



Dimensions Guide troughs 91-10 — 91-71

For Series	Part No.	B _{Ra} in. (mm)	B _{Ri} in. (mm)	Weight lbs/ft (kg/m)
15-015				
Trough without glide bar 6.56 ft. (2m section)	91-10	1.59 (40.5)	1.18 (30)	1.01 (1.50)
Glide bar 6.56 ft. (2m section)	91-11	1.59 (40.5)	1.18 (30)	.30 (.45)
15-025				
Trough without glide bar 6.56 ft. (2m section)	91-20	1.99 (50.5)	1.57 (40)	1.11 (1.65)
Glide bar 6.56 ft. (2m section)	91-21	1.99 (50.5)	1.57 (40)	.38 (.57)
15-038				
Trough without glide bar 6.56 ft. (2m section)	91-30	2.46 (62.5)	2.05 (52)	1.21 (1.80)
Glide bar 6.56 ft. (2m section)	91-31	2.46 (62.5)	2.05 (52)	.46 (.68)
15-050				
Trough without glide bar 6.56 ft. (2m section)	91-40	2.85 (72.5)	2.44 (62)	1.28 (1.90)
Glide bar 6.56 ft. (2m section)	91-41	2.85 (72.5)	2.44 (62)	.61 (.91)
15-5				
Trough without glide bar 6.56 ft. (2m section)	91-50	3.60 (91.5)	3.19 (81)	1.52 (2.26)
Glide bar 6.56 ft. (2m section)	91-51	3.60 (91.5)	3.19 (81)	.84 (1.25)
15-6				
Trough without glide bar 6.56 ft. (2m section)	91-60	4.27 (108.5)	3.86 (98)	1.83 (2.72)
Glide bar 6.56 ft. (2m section)	91-61	4.27 (108.5)	3.86 (98)	.91 (1.35)
15-7				
Trough without glide bar 6.56 ft. (2m section)	91-70	5.06 (128.5)	4.65 (118)	2.13 (3.17)
Glide bar 6.56 ft. (2m section)	91-71	5.06 (128.5)	4.65 (118)	1.14 (1.70)

Trough material in general: St 1203 galvanized



Price Index



Series 17

Special Features / Options



Upon request: Cleanroom Class 1 (ISO class 3) tested by the Dryden Engineering Company, CA



Flammability Class
VDE 0304 IIC UL94 HB



Low-noise

Assembly Tips



"Zipper-fast" opening and closing

Usage Guidelines



- If fast, zipper-like accessibility to cables is required
- If connection options are required (Quicksnap, Quickfix)
- If interior separation is required
- If quiet operation is required



- If individual links must open as opposed to 'zipping' open
➤ **Series B17 E2 Mini**
- If torsion occurs
➤ **Series E16 E-Z Chain**

Features & Benefits

- 1 Interior separation possible
- 2 Small pitch for low-noise, smooth operation
- 3 'Zipper-fast' opening and closing
- 4 For high acceleration
- 5 Zipper lids can be separated and joined at each link
- 6 Mounting bracket with integrated strain relief



Order Example: Complete Energy Chain®

Please indicate chain length or number of links. Example:

energy chain® configurator

3.28 ft (1 m) **17-2-063-0**



Energy Chain®

With 2 separators **172** assembled every 2nd link



Interior Separation

1 Set **117-2-12PZ**



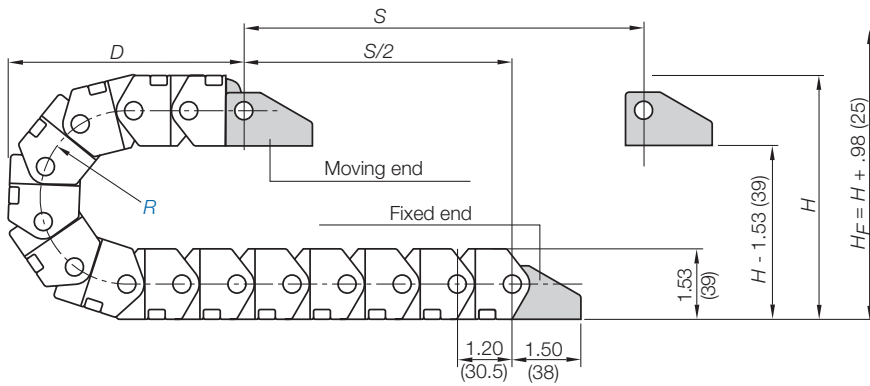
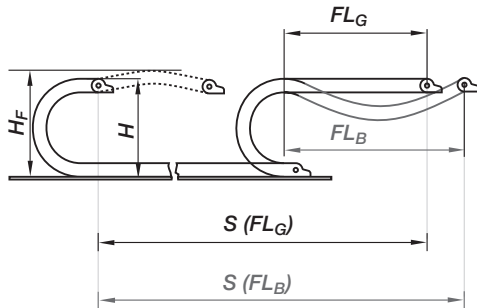
Mounting Bracket

Energy Chain System® Zipper Series 17

Installation Dimensions

Short travel, unsupported length

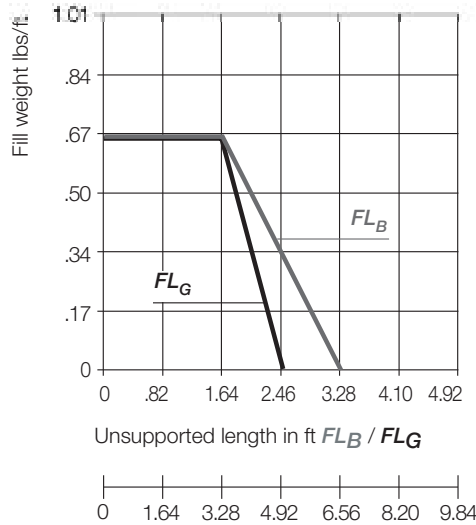
- FL_B = unsupported with permitted sag
 - FL_G = unsupported with straight upper run
- Further information ► Design, Chapter 1



The required clearance height: $H_f = H + .98$ in. (25 mm) (with 1.01 lbs/ft (1.5 kg/m) fill weight. Please consult igus® if space is particularly restricted.

R	2.48 (063)	2.95 (075)	3.94 (100)	4.92 (125)
H	6.50 (165)	7.44 (189)	9.41 (239)	11.38 (289)
D	5.04 (128)	5.51 (140)	6.50 (165)	7.48 (190)
K	10.24 (260)	11.81 (300)	14.96 (380)	17.91 (455)

energy chain® configurator ►



igus®

17

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

Pitch per link: = 1.20" (30.5 mm)
 Links per ft (m): = 10.06 (33)
 For center mount applications:
 Chain length = $\frac{S}{2} + K$

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



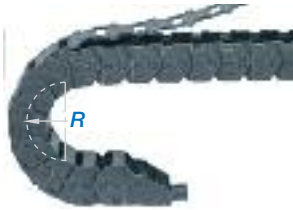
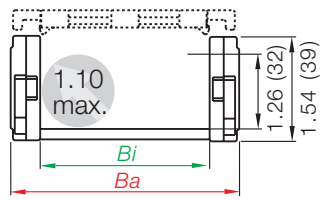
Technical Data



Details of material properties

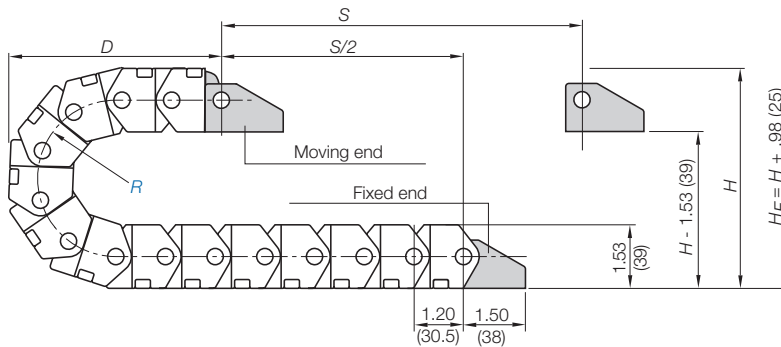
► Chapter 1

3.26


STANDARD
Series 17 - Zip-open along the outer radius - Standard

Part Number Structure

17-	2-	063-	0
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Color - Black
 Bending radius
 Width
 Series



Supplement part number with required radius. Example: 17-1-**063**-0
 Pitch: 1.20 in. (30.5 mm) per link links/ft (m) = 10.06 (33)

Part Number	<i>Bi</i> in. (mm)	<i>Ba</i> in. (mm)	Weight lbs/ft (kg/m)
17-1- -0	.59 (15)	1.02 (26)	≈ 0.35 (0.52)
17-2- -0	.98 (25)	1.42 (36)	≈ 0.40 (0.59)
17-3- -0	1.50 (38)	1.93 (49)	≈ 0.44 (0.65)
17-4- -0	1.97 (50)	2.40 (61)	≈ 0.47 (0.70)
17-5- -0	2.48 (63)	2.99 (76)	≈ 0.56 (0.83)
17-6- -0	3.15 (80)	3.66 (93)	≈ 0.62 (0.92)
17-7- -0	3.94 (100)	4.45 (113)	≈ 0.71 (1.06)

Choose from the radii below for all of the above sizes

Radius (mm) Example: 17-1-**063**-0

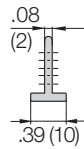
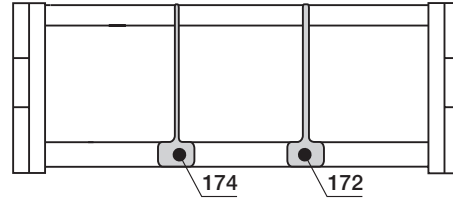
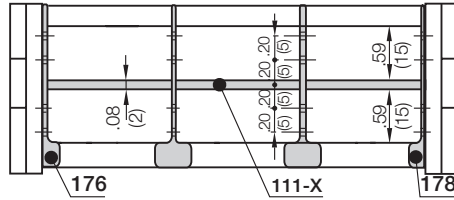
	063	075	100	125
R	2.48 (063)	2.95 (075)	3.94 (100)	4.92 (125)
H	6.50 (165)	7.44 (189)	9.41 (239)	11.38 (289)
D	5.04 (128)	5.51 (140)	6.50 (165)	7.48 (190)
K	10.24 (260)	11.81 (300)	14.96 (380)	17.91 (455)

0=Standard color black. For other colors see Chapter 1



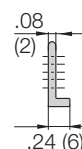
Option 1: Vertical separators

Vertical separators are used if only a vertical subdivision of the Energy Chain® interior is required. A slotted separator is used for this subdivision. This separator can also be used with full-width shelves for a continuous horizontal subdivision. By standard, vertical separators are assembled every other Energy Chain® link.



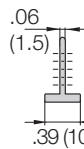
**Vertical Separator
for 17-1 to 17-4**

Unassembled **Part No. 171**
Assembled **Part No. 172**



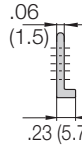
**Side Plate
for 17-1 to 17-4**

Unassembled **Part No. 175**
Assembled **Part No. 176**



**Vertical Separator
for 17-5 to 17-7**

Unassembled **Part No. 173**
Assembled **Part No. 174**



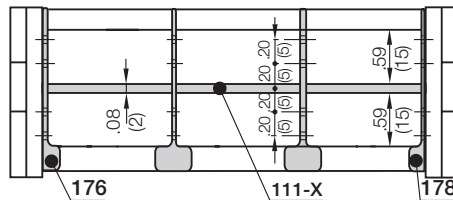
**Side plate
for 17-5 to 17-7**

Unassembled **Part No. 177**
Assembled **Part No. 178**

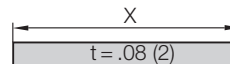


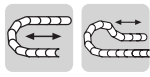
Option 2: Full-width shelf

Interior separation with continuous horizontal subdivision is practical is using a large number of thin cables with similar or identical diameters.

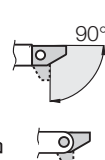
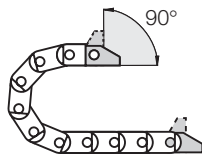
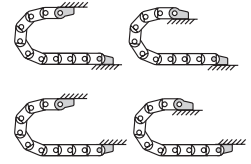


Width X in. (mm)	Part No. Unassembled	Part No. Assembled
.59 (015)	110-15	111-15
.98 (025)	110-25	111-25
1.50 (038)	110-38	111-38
1.97 (050)	110-50	111-50
2.48 (063)	110-63	111-63
3.15 (080)	110-80	111-80
3.94 (100)	110-100	111-100

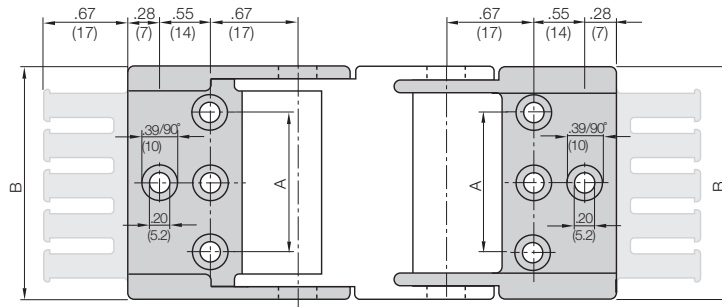



Standard
Option 1: pivoting

- One-piece mounting bracket
- Corrosion resistant
- Available pre-assembled
- Inner and outer attachment possible
- With or without strain relief tiewrap plates

Moving end
117...1P(Z)

Fixed end
117...2P(Z)


Possible installation configurations -


Part Number Structure
117-1- 12- P PZ

- With tiewrap plate
- Without tiewrap plate
- Complete Set
- 12 = Pivoting**
- Mounting brackets for selected chain type

Full set, for both ends:
117-1- 12- PZ Full set, each part with pin/bore + tiewrap plate

Single-part order:
117-1- 1- PZ Mounting bracket with bore + tiewrap plate

117-1- 2- PZ Mounting bracket with pin + tiewrap plate

For Chain Type	Part No. Full set with Tiewrap Plate	Part No. Full Set without Tiewrap Plate	Number of Teeth	Dimension A in.	Dimension A (mm)	Dimensions B in.	Dimensions B (mm)
17-1	117-1-12PZ	117-1-12P	2	—	—	1.00	(25.5)
17-2	117-2-12PZ	117-2-12P	3	.47	(12)	1.40	(35.5)
17-3	117-3-12PZ	117-3-12P	4	.98	(25)	1.91	(48.5)
17-4	117-4-12PZ	117-4-12P	5	1.46	(37)	2.38	(60.5)
17-5	117-5-12PZ	117-5-12P	6	1.89	(48)	2.99	(76.0)
17-6	117-6-12PZ	117-6-12P	8	2.56	(65)	3.66	(93.0)
17-7	117-7-12PZ	117-7-12P	10	3.35	(85)	4.45	(113.0)

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

