Energy Chain system® E4-1
Series E4-42/H4-42/R4-42

Features & Benefits
1. Wide, rounded plastic crossbars - cable friendly
2. Low-noise operation through integrated brake in the radial stop dog system
3. Hinged snap-open removable lids along the outer radius of the Energy Tube
4. Straight run through inner-/outer-link design
5. QuickLock Crossbar, 385-X-Q, available for faster assembly/disassembly
6. The tongue and groove design provides greater lateral stability
7. New Interior separation kit available
8. Crossbars are removable along both radii
9. 15% more tensile strength (compared to the older E4 series), better unsupported length through improved stop dog system and vertical radial stops
10. Version NCST “without camber” simply by turning outer links without unnecessary rework

Price Index

Special Options Available
- Low noise version available with special rubber pads
- Cleanroom test upon request
- ESD classification: Electrically conductive
- ESD/ATEX version upon request

Assembly Tips
Opening Energy Chains®: Remove crossbars and clips - Insert screwdriver into the slot, push down, release by lever action
Remove lids/bottoms (Energy Tubes) - Insert screwdriver into the slot, release by lever action

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

Usage Guidelines

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

- When an extremely low vibration Energy Chain®/Energy Tube is required
  ➤ Series E6-40/R6-40
- When an economic one-sided snap-open Energy Chain®/Energy Tube is required
  ➤ Series 3400/3450/3480/3500

Order Example: Complete Energy Chain®
Please indicate chain length or number of links. Example:

16.4 ft (5 m) E4-42-20-300-0
With 2 separators 382 assembled every 2nd link
1 Set E4-420-20-12P

Also available without camber. Add NCST to the end of the part number. Ex: E4-42-20-300NCST

6.33
Energy Chain system® E4-1
Series E4-42/H4-42/R4-42
Installation Dimensions

Short Travels - Unsupported

- FLB = unsupported with permitted sag
- FLG = unsupported with straight upper run

Further information ➤ Design, Chapter 1, main catalog

The required clearance height: \( H_r = H + 1.57 \text{ in. (40 mm)} \) (with 2.02 lbs/ft (3 kg/m) fill weight.
Please consult igus® if space is particularly restricted.

For long travels with lowered mounting height
Long travel lengths from 32.8 ft. (10 m) to max. 994 ft. (300 m)

For center mount applications:
Chain length = \( \frac{S}{2} + K \)

The required clearance height: \( H_r = H + 1.57 \text{ in. (40 mm)} \) (with 2.02 lbs/ft (3 kg/m) fill weight.
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For long travels with lowered mounting height
Long travel lengths from 32.8 ft. (10 m) to max. 994 ft. (300 m)

For center mount applications:
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The required clearance height: \( H_r = H + 1.57 \text{ in. (40 mm)} \) (with 2.02 lbs/ft (3 kg/m) fill weight.
Please consult igus® if space is particularly restricted.

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

Speed / acceleration FLG max. 65.6 ft/s (20 m/s) / max. 656 ft/s² (200 m/s²)
Speed / acceleration FLB 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
Energy Chain system® E4-1
Series E4-42/H4-42/R4-42
Product Range

Series E4-42 - Energy Chain® with crossbars every link

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

Part Number Structure
E4-42-400-300-0
- Color - Black
- Bending radius
- Width
- Series

Series H4-42 - Energy Chain® with crossbars every other link

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

Part Number Structure
H4-42-400-300-0
- Color - Black
- Bending radius
- Width
- Series

Series R4-42 - fully enclosed Energy 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
R4-42-25-300-0
- Color - Black
- Bending radius
- Width
- Series

Energy Chain® as separate parts, links and side plates

- Single crossbar, Energy Chain® - Part No. 385-Bi
- Single lid, Energy Tube - Part No. 785-Bi
- Inner side link
- Outer side link
- Inner side links, each left/right or outer side links, each left/right
- Single bottom, Energy Tube - Part No. 786-Bi
- Outer side link, single part - Part No. E4-42-01
  (Suitable for all radii)
- Inner side link, single part - Part No. E4-42-02
## Energy Chain system® E4-1
### Series E4-42/H4-42/R4-42
#### Product Range

Supplement part number with required radius. Example: E4-42-400-0-300

- Pitch: 2.64 in. (67mm) per link, links/ft(m) = 4.57 (15)

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>E4-42</td>
</tr>
<tr>
<td></td>
<td>lbs/ft (kg/m)</td>
</tr>
<tr>
<td>E4-42-05</td>
<td>1.29 (1.92)</td>
</tr>
<tr>
<td>H4-42-06</td>
<td>1.36 (2.03)</td>
</tr>
<tr>
<td>E4-42-07</td>
<td>1.38 (2.06)</td>
</tr>
<tr>
<td>R4-42-08</td>
<td>1.42 (2.12)</td>
</tr>
<tr>
<td>E4-42-10</td>
<td>1.47 (2.19)</td>
</tr>
<tr>
<td>H4-42-11</td>
<td>1.50 (2.24)</td>
</tr>
<tr>
<td>R4-42-12</td>
<td>1.51 (2.25)</td>
</tr>
<tr>
<td>E4-42-13</td>
<td>1.57 (2.34)</td>
</tr>
<tr>
<td>H4-42-15</td>
<td>1.61 (2.39)</td>
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<tr>
<td>R4-42-16</td>
<td>1.65 (2.46)</td>
</tr>
<tr>
<td>E4-42-17</td>
<td>1.67 (2.48)</td>
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<td>1.71 (2.55)</td>
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<td>1.73 (2.57)</td>
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<td>R4-42-22</td>
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<tr>
<td>E4-42-23</td>
<td>1.90 (2.84)</td>
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<td>H4-42-24</td>
<td>1.93 (2.87)</td>
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<tr>
<td>R4-42-25</td>
<td>2.00 (2.98)</td>
</tr>
<tr>
<td>E4-42-26</td>
<td>2.05 (3.05)</td>
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<tr>
<td>H4-42-27</td>
<td>2.09 (3.11)</td>
</tr>
<tr>
<td>R4-42-28</td>
<td>2.11 (3.14)</td>
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<td>E4-42-29</td>
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<td>H4-42-30</td>
<td>2.19 (3.26)</td>
</tr>
<tr>
<td>R4-42-31</td>
<td>2.24 (3.34)</td>
</tr>
<tr>
<td>E4-42-32</td>
<td>2.28 (3.40)</td>
</tr>
<tr>
<td>H4-42-33</td>
<td>2.41 (3.59)</td>
</tr>
<tr>
<td>R4-42-34</td>
<td>2.47 (3.67)</td>
</tr>
<tr>
<td>E4-42-35</td>
<td>2.51 (3.73)</td>
</tr>
<tr>
<td>H4-42-36</td>
<td>2.55 (3.79)</td>
</tr>
<tr>
<td>R4-42-37</td>
<td>2.58 (3.84)</td>
</tr>
</tbody>
</table>

Choose from the radii below for all of the above sizes:

**Radius (mm) Example: E4-42-400-0-300**

<table>
<thead>
<tr>
<th><strong>R</strong></th>
<th>2.95 (75)</th>
<th>3.94 (100)</th>
<th>4.92 (125)</th>
<th>5.91 (150)</th>
<th>6.89 (175)</th>
<th>7.87 (200)</th>
<th>8.94 (250)</th>
<th>11.81 (300)</th>
<th>13.78 (350)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>H</strong></td>
<td>8.43 (214)</td>
<td>10.39 (264)</td>
<td>12.36 (314)</td>
<td>14.33 (364)</td>
<td>16.30 (414)</td>
<td>18.27 (464)</td>
<td>22.20 (664)</td>
<td>26.14 (664)</td>
<td>30.08 (764)</td>
</tr>
<tr>
<td><strong>D</strong></td>
<td>6.85 (174)</td>
<td>7.83 (198)</td>
<td>8.82 (224)</td>
<td>9.80 (248)</td>
<td>10.78 (274)</td>
<td>11.77 (298)</td>
<td>13.74 (348)</td>
<td>15.71 (398)</td>
<td>17.68 (448)</td>
</tr>
<tr>
<td><strong>K</strong></td>
<td>14.57 (370)</td>
<td>17.72 (450)</td>
<td>20.87 (530)</td>
<td>24.02 (610)</td>
<td>26.97 (685)</td>
<td>30.12 (765)</td>
<td>36.22 (920)</td>
<td>42.52 (1080)</td>
<td>48.62 (1235)</td>
</tr>
</tbody>
</table>

**This radius is not available for the R4-42 Series**

*Removable lid only, no hinged option
0 = Standard color black.
For other colors see Chapter 1, main catalog

For wider chains see page 6.39.
For large diameter hoses see page 6.39.
Shelves and Separators

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

- **Split separator T423 for Energy Chains®**
  This separator is ideal for subsequent shelving or the initial assembly of the Energy Chain. Fast assembly and disassembly using a hinge/push mechanism. Enhances flexibility.

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

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

- **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.

- **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.

### 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.

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

The diagram below is for reference purposes only. Multiple configurations are possible. To create your e-chain shelving cross section please see our online e-chain configurator. Call 1-800-521-2747 for assistance and/or go to igus.com click on the Products drop down menu, choose Energy Chain Cable Carriers and on the next drop down menu simply click on e-chain Configurator.
Vertical separators are used if a vertical subdivision of the Energy Chain® interior is required. By standard, vertical separators are assembled every other Energy Chain® link. 

**NOTE:** Observe a lateral spacing of at least .98 in. (25mm) for Energy Tubes.
Energy Chain system® E4-1
Series E4-42/H4-42/R4-42
Special Accessories

Extension links - for extremely wide Energy Chains® up to 9.84 ft (3m)
- For applications in which particularly high fill weights necessitate extremely wide Energy Chains®
- The extension link design allows virtually limitless side-by-side attachment of chains
- The unsupported length of a chain can be increased when additional loads are required
- Extension links can be used with Energy Chains®, Energy Tubes or a combination of both
- They are suitable for unsupported and gliding applications in a guide trough
- Energy Chains® with extension links are attached with KMA or steel mounting brackets.

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.

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

Part number example for Energy Chain®
E4-42-10/20/10-200-R-0

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

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- Please consult igus® for design assistance
**Mounting Brackets**

**Option 1: pivoting**
- Recommended for unsupported and gliding applications
- Attachment capability on all sides
- Bolted connection outside of chain cross-section
- Space restricted conditions
- Corrosion resistant

**Option 2: locking**
- Profile rail option
- Universal use
- Corrosion resistant
- Vertical hanging/standing travels
- Extreme accelerations

---

**Part Number Structure**

<table>
<thead>
<tr>
<th>Width</th>
<th>Part No. Full Set chain/tube</th>
<th>Part No. Full Set with profile rail</th>
<th>B/ in. (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>06</td>
<td>E4-420/R4-42 = Pivoting for chain</td>
<td>E4-420 = Pivoting for chain</td>
<td>1.97 (50)</td>
</tr>
<tr>
<td>07</td>
<td>E4-420/R4-42 = Pivoting for tube</td>
<td>E4-420 = Pivoting for tube</td>
<td>2.68 (68)</td>
</tr>
<tr>
<td>07</td>
<td>E4-420/R4-42 = Locking for chain</td>
<td>E4-420 = Locking for chain</td>
<td>2.95 (75)</td>
</tr>
<tr>
<td>07</td>
<td>E4-420/R4-42 = Locking for tube</td>
<td>E4-420 = Locking for tube</td>
<td>3.43 (87)</td>
</tr>
<tr>
<td>07</td>
<td>E4-420/R4-42 = Locking for tube</td>
<td>E4-420 = Locking for tube</td>
<td>3.94 (100)</td>
</tr>
<tr>
<td>11</td>
<td>E4-420/R4-42 = Locking for chain</td>
<td>E4-420 = Locking for chain</td>
<td>4.25 (108)</td>
</tr>
<tr>
<td>11</td>
<td>E4-420/R4-42 = Locking for tube</td>
<td>E4-420 = Locking for tube</td>
<td>4.41 (112)</td>
</tr>
<tr>
<td>11</td>
<td>E4-420/R4-42 = Locking for tube</td>
<td>E4-420 = Locking for tube</td>
<td>4.92 (125)</td>
</tr>
<tr>
<td>13</td>
<td>E4-420/R4-42 = Locking for chain</td>
<td>E4-420 = Locking for chain</td>
<td>5.39 (137)</td>
</tr>
<tr>
<td>15</td>
<td>E4-420/R4-42 = Locking for chain</td>
<td>E4-420 = Locking for chain</td>
<td>5.91 (150)</td>
</tr>
<tr>
<td>16</td>
<td>E4-420/R4-42 = Locking for chain</td>
<td>E4-420 = Locking for chain</td>
<td>6.38 (162)</td>
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<tr>
<td>17</td>
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<td>E4-420 = Locking for chain</td>
<td>6.61 (168)</td>
</tr>
<tr>
<td>18</td>
<td>E4-420/R4-42 = Locking for chain</td>
<td>E4-420 = Locking for chain</td>
<td>6.89 (175)</td>
</tr>
<tr>
<td>18</td>
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<td>E4-420 = Locking for chain</td>
<td>7.36 (187)</td>
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<tr>
<td>20</td>
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<td>E4-420 = Locking for chain</td>
<td>7.87 (200)</td>
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<tr>
<td>212</td>
<td>E4-420 = Locking for chain</td>
<td>E4-420 = Locking for chain</td>
<td>8.35 (212)</td>
</tr>
</tbody>
</table>

---

**Part number examples are shown for pivoting brackets for Energy Chain.**

For locking brackets change part number to 421

**Width**
- 06
- 07
- 07
- 07
- 11
- 11
- 11
- 12
- 12
- 13
- 15
- 16
- 17
- 18
- 18
- 20
- 212

**Part No. Full Set (pivoting)**
- Series E4-42 or H4-42
- E4-420-Width-12

**Part No. Full Set with profile rail**
- Series E4-42 or H4-42
- E4-420-Width-12P

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Due to the design of the E4-42 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 -1

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**Specs/CAD/RFQ**: www.igus.com/e-chains

**RoHS info**: www.igus.com/RoHS

**PDF**: www.igus.com/e-chain-pdfs
energy chain system® E4-1
Series E4-42/H4-42/R4-42
Strain Relief

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.

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Single Clamp</th>
<th>Part No.</th>
<th>Double Clamp</th>
<th>Part No.</th>
<th>Triple Clamp</th>
<th>Cable ø</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel</td>
<td>Stainless</td>
<td>Steel</td>
<td>Stainless</td>
<td>Steel</td>
<td>Stainless</td>
<td>in. (mm)</td>
</tr>
<tr>
<td>CFX12-1M</td>
<td>CFX12-1E</td>
<td>CFX12-2</td>
<td>CFX12-2E</td>
<td>CFX12-3</td>
<td>–</td>
<td>.24 - .47</td>
</tr>
<tr>
<td>CFX14-1M</td>
<td>CFX14-1E</td>
<td>CFX14-2</td>
<td>CFX14-2E</td>
<td>CFX14-3</td>
<td>–</td>
<td>.47 - .55</td>
</tr>
<tr>
<td>CFX16-1M</td>
<td>CFX16-1E</td>
<td>CFX16-2</td>
<td>CFX16-2E</td>
<td>CFX16-3</td>
<td>–</td>
<td>.55 - .63</td>
</tr>
<tr>
<td>CFX18-1M</td>
<td>CFX18-1E</td>
<td>CFX18-2</td>
<td>CFX18-2E</td>
<td>CFX18-3</td>
<td>–</td>
<td>.63 - .71</td>
</tr>
<tr>
<td>CFX20-1M</td>
<td>CFX20-1E</td>
<td>CFX20-2</td>
<td>CFX20-2E</td>
<td>CFX20-3</td>
<td>–</td>
<td>.71 - .79</td>
</tr>
<tr>
<td>CFX22-1M</td>
<td>CFX22-1E</td>
<td>CFX22-2</td>
<td>CFX22-2E</td>
<td>CFX22-3</td>
<td>–</td>
<td>.79 - .87</td>
</tr>
<tr>
<td>CFX26-1M</td>
<td>CFX26-1E</td>
<td>CFX26-2</td>
<td>CFX26-2E</td>
<td>–</td>
<td>–</td>
<td>.87 - 1.02</td>
</tr>
<tr>
<td>CFX30-1M</td>
<td>CFX30-1E</td>
<td>CFX30-2</td>
<td>CFX30-2E</td>
<td>–</td>
<td>–</td>
<td>1.02 - 1.18</td>
</tr>
<tr>
<td>CFX34-1M</td>
<td>CFX34-1E</td>
<td>CFX34-2</td>
<td>CFX34-2E</td>
<td>–</td>
<td>–</td>
<td>1.18 - 1.34</td>
</tr>
<tr>
<td>CFX38-1M</td>
<td>CFX38-1E</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>1.34 - 1.50</td>
</tr>
<tr>
<td>CFX42-1M</td>
<td>CFX42-1E</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>1.50 - 1.65</td>
</tr>
</tbody>
</table>

For more information please refer to strain relief section of Chapter 10 in main catalog.

Chainfix clamps for the profile rail

Tiewrap Plates

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.

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

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 in main catalog.

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.

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Number of Teeth</th>
<th>Width of Strain Relief in. (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3050-ZC</td>
<td>5</td>
<td>1.97 (50)</td>
</tr>
<tr>
<td>3075-ZC</td>
<td>7</td>
<td>2.95 (75)</td>
</tr>
</tbody>
</table>

For more information please refer to strain relief section of Chapter 10 in main catalog.

For more information please refer to strain relief section of Chapter 10 in main catalog.

Modular snap-on strain relief device
Chainfix clips are available for cable diameters ranging from .16” (4mm) to .94” (24 mm). They are 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 in main catalog.
Guide troughs are used with applications where the upper run of the Energy Chain® glides on the lower run. If using igus® steel guide troughs, the following components are required:

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

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

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

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

- 25 sections of 6.56 ft (2 m) guide trough
  - Part No. 93-30
- 13 sections of 6.56 ft (2 m) glide bar
  - Part No. 93-01

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