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Introduction

Compare the steps required to complete a project;
Aluminum vs. Steel Weldment

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<th>Aluminum Extrusion</th>
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<td>9. Delivery</td>
<td></td>
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<td>10. Maintenance</td>
<td></td>
</tr>
</tbody>
</table>

Welding steel is expensive
Steel is less costly than aluminum. However, welding steel is an expensive and time consuming process. Welding requires skilled labor and extensive safety precautions to protect personnel from dangerous light and smoke during the welding process. Priming and painting have an environmental impact to be considered and spray booths are a governmental agency concern. The welding is usually done either off-site or in another area of the building, away from the project site. Any changes required later are difficult to make, and often look like a patch or obvious fix.

Assembling aluminum extrusions is fast and simple
Aluminum extrusions have nearly the same tensile strength as mild steel with a much higher strength to weight ratio. A few simple tools and low-tech labor are all that is required for most projects. Aluminum extrusion assembly can easily be done right at the project site, with no special safety equipment required. Construction or design changes or adjustments can be easily and immediately implemented. Even "design as you go" projects have a finished professional look. With great visual aesthetics. The anodized aluminum does not need painting. As soon as the last extrusion is in place, that part of the project is ready for use. The T-slot concept easily accom-
modates later additions or revisions to the project, without looking patched. Finished projects are inherently square, so the need for shimming or leveling is reduced. The nonporous, hollow extrusions are ideal for use as air reservoirs and manifolds for both pressure and valve exhaust collection. Covered extrusion T-slots can be used as conduits for protecting sensor and control wiring.

**The true cost of steel fixtures includes the cost of welding**
The true cost of steel includes the cost and special needs of the welding process, special equipment, safety concerns, painting and delivery to the site. Once completed, the project is difficult to modify.

**Aluminum extrusion fixtures are easier than steel fixtures**
Assembly of aluminum extrusions is fast, requires simple tools and labor. It requires no painting, is clean, reusable, easily modified and looks good.

T-Slot technology is widely utilized in industrial structural components.

**FRAME-WORLD** extruded aluminum profiles utilize these longitudinal slots for inserting T-bolts and nuts anywhere along its length to attach connection brackets and accessories.

Threading and machining the ends allows for end joint connections.

No welding or painting is required. All joint connections are screwed together to provide extensive flexibility and allow for conversions, extensions and are separable.

ALWAYS WEAR SAFETY GLASSES
Aluminum Extrusion
Product Line-Up

Bulk Profiles
- Standard 8’, 12’, 16’ lengths. (other lengths can be furnished in quantity)
- Available in standard and smooth-series (slotless) designs
- 1/4” and 5/16” slot sizes
- Standard anodized or optional powder coat finishes
- Skidded, wrapped, padded and banded for shipping

Cut/Machined Profiles
- Extrusions cut to specified lengths (including miter cuts)
- Custom machining available: drilled holes, tapped holes, counterbores, milling, etc.

Components & Accessories
- Wide range of brackets, joining plates, gussets, fasteners, handles, end caps, angles, panel material, bolts, etc.
- Special hinges for ultra-strong doors
- Custom accessories available
Kits & I.D. Kits
- Kits for multiple frame orders, profiles and accessories are bundled and packaged for each individual frame
- I.D. Kits indicate lengths on each extrusion (eliminates profile measuring during assembly)
- Saves you time, money and labor

FastFrames
Pre-engineered Modules and Sub Assemblies
- Includes panels, doors, bases, carts
- All necessary hardware is included
- Available assembled or in kit form
- Greatly simplifies design, ordering and assembly
- Single part number ordering

Complete Solutions
- Complete turnkey solutions for machine guards, bases, frames, enclosures, racks, workstations & more
- Tremendous labor (cost) savings
- The simplest solution available
FRAME-WORLD’s Aluminum Extrusions can be used in any industrial setting, for any purpose!

Any setting, Any purpose

Machining & Parts

Machine Fixturing

Slide Mount
as Carts

as Racks

Work Stations

Stands
Support brackets

Enclosures

Staging carts
Conveyors

Production Staging
But most importantly, FRAME-WORLD’s extrusions are a cost effective, low maintenance way to make machine safety guards.
FastFrames
The fastest and easiest way to develop frames, machine guards, enclosures, carts and conveyor systems.

• Order panels, doors, carts, bases and conveyors with a single part number!
• Each is available pre-assembled or in kit form
• All necessary hardware is included
FastFrames
Pre-engineered modules

Order this!
FastFrames

Pre-engineered modules

**Example**

Build this entire safety enclosure with only 12 ordered parts, instead of 567 individual components.

**Bill of Material**

(1) D-6636-BW-K-SH 36" Opening Door
(1) D-6624-BW-K-SH 24" Opening Door
(1) P3-7236-BW-K 36" Panel
(1) P3-7224-BW-K 24" Panel
(6) P1-7236-BW-K 36" Panel
(2) P1-7224-BW-K 24" Panel

These dimensions achieved using standard sized panels.

If desired enclosure height, width or depth cannot be achieved with standard sized panels, FRAME-WORLD can add additional panels and adjust the height to do so.

Please contact your distributor or the factory for custom sizes.
FastFrames
Pre-engineered modules

Standard Enclosure Panels

- FastFrames standard enclosure panels can be purchased pre-assembled or in kit form.

- Frame construction:
  - Panels
    - Extrusion frame is EX-9 (page 30).
    - Corner connectors are EF-29A universal fasteners (page 106).
    - Floor mounting brackets are EB-15AL (page 175).

- Inside panel construction options:
  - 2" x 2" black PVC coated wire mesh is EB-38-2 (page 182)
  - 1" x 1" black PVC coated wire mesh is EB-38-1 (page 182).
  - 1" x 1" yellow PVC coated wire mesh is EB-38-1Y (page 182).
  - 1/4" thick Lexan is EB-160 (page 189).
  - Wire mesh brackets are EB-49B/EB49Y (page 185).
  - Lexan Gasket is EB-40A (page 199).

- Standard panel widths are 18", 24", 30", 36", 48".

- Standard panel heights are 40", 60", 72" & 84".

- Panel to panel connecting brackets and hardware are included.

- Floor anchors are furnished and installed by customer.

- Smooth Series extrusion panels are available.

- Custom sizes available
Standard Enclosure Doors

- **FastFrames** standard doors can be purchased pre-assembled or in kit form.

- Frame construction:
  - **Doors**
    - Extrusion frame is EX-9 (page 30).
    - Corner connectors are EF-29A (page 106).
    - Hinges are EF-70 (page 216).
    - Handle is EF-15B (page 225).
    - Latch is EF-22HD (page 240).

- Inside panel construction options:
  - 2’ x 2’ black PVC coated wire mesh is EB-38-2 (page 182)
  - 1” x 1” black PVC coated wire mesh is EB-38-1 (page 182).
  - 1” x 1” yellow PVC coated wire mesh is EB-38-1Y (page 182).
  - 1/4” thick Lexan is EB-160 (page 189).
  - Wire mesh brackets are EB-49B/EB49Y (page 185).
  - Lexan Gasket is EB-40A (page 199).

- Standard door widths are 24”, 30”, 36” & 48” opening.

- Standard door heights are 34”, 54”, 66”, & 78”.

- Smooth Series extrusion panels are available.

- Custom sizes available
FastFrames
Pre-engineered modules

Standard Enclosure Panels

Standard (1) Leg Panel
Model P1

Standard (2) Leg Panel
Model P3

Standard (1) Leg Panel
Model P2

Standard Basic Panel
Model P4
Note: Mounting Hardware Not Included
FastFrames
Pre-engineered modules

Standard Enclosure Panels

- Standard panel heights are 40", 60", 72" & 84".
- Standard panel widths are 18", 24", 30", 36" & 48".
- Smooth Series extrusion panels are available.
- **Custom sizes available** - consult the factory

Panel Ordering Example

<table>
<thead>
<tr>
<th>Panel Model No.</th>
<th>Panel Height</th>
<th>Panel Width</th>
<th>Processing</th>
<th>Inside Panel Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>P2 - 6018 - LX - K</td>
<td>60&quot;</td>
<td>18&quot;</td>
<td>A - Assembled, K - Kit form</td>
<td>BW - 1&quot; Black Wire Mesh, BW2 - 2&quot; Black Wire Mesh, YW - 1&quot; Yellow Wire Mesh, LX - Lexan</td>
</tr>
</tbody>
</table>
FastFrames
Pre-engineered modules

Standard Enclosure Doors

- Standard door heights are 30", 34", 54", 66", & 78".
- Standard door widths are 24", 30", 36" & 48" opening.
- Smooth Series extrusion panels are available.
- Custom sizes are available - consult the factory

Note: Part Nos. D-5436, D-6636, & D-7836 have a center extrusion bar.

Door Ordering Example

D- 6624 -BW -A - SH

Door Height
Door Width

Inside Panel Material
BW - 1" Black Wire Mesh
BW2 - 2" Black Wire Mesh
YW - 1" Yellow Wire Mesh
LX - Lexan

Processing
A - Assembled
K - Kit form

Door Hardware
SH - Standard Hinges, Handle and Latch/Stop
NH - No Hinges, Handle and Latch/Stop
Standard Material Carts

- 1 1/2" x 1 1/2" extrusion frame
- 3/8" thick high density polyethylene top and shelf material
- 3" diameter casters with brake, 1" wide rubber wheels
- Standard height: 35.0"
- All shelves are height adjustable
- Carts are shipped as kits or assembled
- Shelf sides are achieved by turning shelf upside down
- All hardware included
- 300 pound total capacity

**Custom sizes available**
**FastFrames**
Pre-engineered modules

**FASTFRAMES**

**Standard Material Carts**

![Diagram of a shelf cart with dimensions L (Length), W (Width), and 35.0 Height]

### Model C2 Shelf Cart - (2) shelves

<table>
<thead>
<tr>
<th>Length (L)</th>
<th>18”</th>
<th>22” Width (W)</th>
<th>26”</th>
<th>30”</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>C2-3018</td>
<td>C2-3022</td>
<td>C2-3026</td>
<td>C2-3030</td>
</tr>
<tr>
<td>36</td>
<td>C2-3618</td>
<td>C2-3622</td>
<td>C2-3626</td>
<td>C2-3630</td>
</tr>
</tbody>
</table>

### Model C3 Shelf Cart- (3) shelves

<table>
<thead>
<tr>
<th>Length (L)</th>
<th>18”</th>
<th>22” Width (W)</th>
<th>26”</th>
<th>30”</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>C3-3018</td>
<td>C3-3022</td>
<td>C3-3026</td>
<td>C3-3030</td>
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<tr>
<td>36</td>
<td>C3-3618</td>
<td>C3-3622</td>
<td>C3-3626</td>
<td>C3-3630</td>
</tr>
</tbody>
</table>

### Material Cart Ordering Example

**C2-3018 -A**

- No. of shelves
  - C2: 2
  - C3: 3
- Processing
  - A: Assembled
  - K: Kit form

**Custom sizes are available** - consult the factory
FastFrames
Pre-engineered modules

Standard Bases and Tables

- Available in kit form or assembled
- Includes adjustable legs
- Floor Anchor Brackets available on request
- Choice of Light, Standard or Heavy Duty
- Standard Heights of 30" or 35"
- Tops and enclosure panels available on request - consult factory
- Sweep height = 6.00"
- Light Duty is EX-1
- Standard Duty is EX-2
- Heavy Duty is EX-3
- Custom sizes available
# FastFrames

Pre-engineered modules

## FASTFRAMES

<table>
<thead>
<tr>
<th>Model L Light Duty</th>
<th>Length (L)</th>
<th>Width (W)</th>
<th>Max Load</th>
</tr>
</thead>
<tbody>
<tr>
<td>36&quot;</td>
<td>L-3624</td>
<td>L-3630</td>
<td>400</td>
</tr>
<tr>
<td>48&quot;</td>
<td>L-4824</td>
<td>L-4830</td>
<td>360</td>
</tr>
<tr>
<td>60&quot;</td>
<td>L-6024</td>
<td>L-6030</td>
<td>300</td>
</tr>
<tr>
<td>72&quot;</td>
<td>L-7224</td>
<td>L-7230</td>
<td>240</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model S Standard Duty</th>
<th>Length (L)</th>
<th>Width (W)</th>
<th>Max Load</th>
</tr>
</thead>
<tbody>
<tr>
<td>36&quot;</td>
<td>S-3624</td>
<td>S-3630</td>
<td>2800</td>
</tr>
<tr>
<td>48&quot;</td>
<td>S-4824</td>
<td>S-4830</td>
<td>2000</td>
</tr>
<tr>
<td>60&quot;</td>
<td>S-6024</td>
<td>S-6030</td>
<td>1720</td>
</tr>
<tr>
<td>72&quot;</td>
<td>S-7224</td>
<td>S-7230</td>
<td>1480</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Model H Heavy Duty</th>
<th>Length (L)</th>
<th>Width (W)</th>
<th>Max Load</th>
</tr>
</thead>
<tbody>
<tr>
<td>36&quot;</td>
<td>H-3624</td>
<td>H-3630</td>
<td>5400</td>
</tr>
<tr>
<td>48&quot;</td>
<td>H-4824</td>
<td>H-4830</td>
<td>3800</td>
</tr>
<tr>
<td>60&quot;</td>
<td>H-6024</td>
<td>H-6030</td>
<td>3300</td>
</tr>
<tr>
<td>72&quot;</td>
<td>H-7224</td>
<td>H-7230</td>
<td>3000</td>
</tr>
</tbody>
</table>

### Standard Base Ordering Example

**S- 4824 -30 -A - FA**

- **Model**
  - L - Light Duty
  - S - Standard Duty
  - H - Heavy Duty

- **Base Length**
- **Base Width**
- **Height**
  - 30 - 30 inches
  - 35 - 35 inches

- **FA** - Optional Floor Anchor Brackets
- **Processing**
  - A - Assembled
  - K - Kit form

Custom sizes are available - consult the factory
FrameQuoter
Aluminum Extrusion Design Software

FrameQuoter is the most advanced and easiest to use aluminum profile design and quote software available today! It will enable you to quickly and easily produce professional looking 3D drawings with bills of materials and quotations that are detailed and accurate, 5 times faster than doing them by hand! FrameQuoter will increase your efficiency and confidence.
You Can Design This Machine Guard
In 2 ½ Hours…

Or In Just 14 Minutes.

Try Our
FREE Design Software
And See For Yourself.

Designing a machine guard, frame or enclosure can be a very time-consuming and frustrating experience. Any errors, omissions or miscalculations can result in a structure which is cumbersome to use, doesn’t fit the application, or is totally useless. Our FrameQuoter design software eliminates these problems, and helps you create the ideal structure, quickly and easily.

FrameQuoter Software Decreases Design Time
By Up To 92% And Eliminates Errors, Omissions and Hassles

Actual field studies have shown that our FrameQuoter design software will drastically reduce the amount of time required to design a machine guard or frame. And because we have simplified and/or automated many functions (“snap-in-place” corner brackets, automatically includes necessary machining, nuts, bolts, etc.), you will have less errors, mistakes or hassles. You can be assured that every structure you design will be right the first time, every time.

Easy To Learn, Easy To Use

This was the #1 design criteria. With even a basic knowledge of AutoCAD, you will quickly master FrameQuoter. We have shortened and/or eliminated many of the steps necessary with other design software packages by using simple icons and drop-down menus. A complete Bill of Materials is also only one mouse click away.

Incredible Life-Like Full-Color Graphics
FrameQuoter is the only design software package that enables you to develop wireframe, hidden and shaded drawings in 2D and 3D, in both simplified and detailed views. The “Detailed-Shaded” view shows you the final assembly with incredible detail & clarity:

The Possibilities Are Endless
If you can build it with aluminum extrusions, you can design it with FrameQuoter. People have designed wall racks, workstations, tables, machine bases, machining stations, clean room enclosures, tool fixtures, and much more. Unlike other design packages, FrameQuoter enables you to employ every FRAME-WORLD extrusion, and every bracket and accessory into any drawing. You can even add non-FRAME-WORLD parts to the Bill of Materials!

Solidworks Library Available
FRAME-WORLD offers a full Solidworks (TM) parasolid library of all our products. Additional CAD formats of our part library, including .igs, .dwg, and .dxf, are also available. All CAD files are available for download at www.frame-world.com
### Metric Sizes for FRAME-WORLD T-slot Extrusions and Accessories

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Extrusion Size</th>
<th>Fastener Size</th>
<th>Nearest Metric</th>
<th>Inches</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>EX-1</td>
<td>1.5&quot; x 1.5&quot;</td>
<td>5/16-18 m8</td>
<td>38 x 38 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EX-2</td>
<td>1.5&quot; x 3&quot;</td>
<td>5/16-18 m8</td>
<td>38 x 76 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EX-3</td>
<td>3&quot; x 3&quot;</td>
<td>5/16-18 m8</td>
<td>76 x 76 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EX-6</td>
<td>1.5&quot; x 1.5&quot;</td>
<td>5/16-18 m8</td>
<td>38 x 38 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EX-7</td>
<td>1.5&quot; corner</td>
<td>5/16-18 m8</td>
<td>38 x 38 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EX-8</td>
<td>1.5&quot; round</td>
<td>5/16-18 m8</td>
<td>38 x 38 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EX-9</td>
<td>1.5&quot; x 1.5&quot;</td>
<td>5/16-18 m8</td>
<td>38 x 38 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EX-11</td>
<td>1&quot; x 1&quot;</td>
<td>1/4-20 m6</td>
<td>25 x 25 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EX-12</td>
<td>1&quot; x 2&quot;</td>
<td>1/4-20 m6</td>
<td>25 x 50 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EX-13</td>
<td>1&quot; x 3&quot;</td>
<td>1/4-20 m6</td>
<td>25 x 76 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EX-22</td>
<td>2&quot; x 2&quot;</td>
<td>1/4-20 m6</td>
<td>50 x 50 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EX-24</td>
<td>2.0&quot; x 4.0&quot;</td>
<td>1/4-20 m6</td>
<td>50 x 100 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EX-26</td>
<td>1.5&quot; x 4.5&quot;</td>
<td>5/16-18 m8</td>
<td>38 x 174 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EX-36</td>
<td>3&quot; x 6&quot;</td>
<td>5/16-18 m8</td>
<td>76 x 152 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EX-37</td>
<td>3.0&quot; x 3.0&quot;</td>
<td>5/16-18 m8</td>
<td>76 x 76 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EX-45HD</td>
<td>4.5&quot; x 4.5&quot;</td>
<td>5/16-18 m8</td>
<td>114 x 114 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EX-52</td>
<td>1&quot; x 1.5&quot;</td>
<td>5/16-18 m8</td>
<td>25 x 38 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EX-54</td>
<td>1&quot; x 1.5&quot;</td>
<td>5/16-18 m8</td>
<td>25 x 38 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EX-60</td>
<td>2.38&quot; x 2.38&quot;</td>
<td>5/16-18 m8</td>
<td>60 x 60 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EX-61</td>
<td>1.5&quot; x 1.5&quot;</td>
<td>5/16-18 m8</td>
<td>38 x 38 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EX-63</td>
<td>1.5&quot; x 1.5&quot;</td>
<td>5/16-18 m8</td>
<td>38 x 38 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EX-64</td>
<td>1.5&quot; x 1.5&quot;</td>
<td>5/16-18 m8</td>
<td>38 x 38 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EX-65</td>
<td>1.5&quot; x 1.5&quot;</td>
<td>5/16-18 m8</td>
<td>38 x 38 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EX-66</td>
<td>1.5&quot; x 3&quot;</td>
<td>5/16-18 m8</td>
<td>38 x 76 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EX-67</td>
<td>1.5&quot; x 3&quot;</td>
<td>5/16-18 m8</td>
<td>38 x 76 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EX-68</td>
<td>1.5&quot; x 3&quot;</td>
<td>5/16-18 m8</td>
<td>38 x 76 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EX-69</td>
<td>1.5&quot; x 3&quot;</td>
<td>5/16-18 m8</td>
<td>38 x 76 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EX-70</td>
<td>1&quot; x 1&quot;</td>
<td>1/4-20 m6</td>
<td>25 x 25 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EX-71</td>
<td>1&quot; x 1&quot;</td>
<td>1/4-20 m6</td>
<td>25 x 25 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EX-72</td>
<td>1&quot; x 1&quot;</td>
<td>1/4-20 m6</td>
<td>25 x 25 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EX-73</td>
<td>1&quot; x 1&quot;</td>
<td>1/4-20 m6</td>
<td>25 x 25 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EX-82</td>
<td>1.5&quot; angle</td>
<td>5/16-18 m8</td>
<td>38 x 38 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EX-83</td>
<td>1.5&quot; x 3.0&quot;</td>
<td>5/16-18 m8</td>
<td>38 x 76 mm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5/16" SLOTS

EX-1
1.5" x 1.5"

EX-6
1.5" x 1.5"

EX-9
1.5" x 1.5"

EX-2
1.5" x 3.0"

EX-67
1.5" x 3.0"

EX-83
1.5" x 3.0"

EX-26
1.5" x 4.5"

EX-3
3.0" x 3.0"

EX-37
3.0" x 3.0"

EX-36
3.0" x 6.0"

EX-45HD
4.5" x 4.5"

EX-60
2.38" x 2.38"

Structural
Aluminum Extrusions
Structural Aluminum Extrusions

SMOOTH-Series

EX-63
1.5" x 1.5"

EX-64
1.5" x 1.5"

EX-65
1.5" x 1.5"

EX-61
1.5" x 1.5"

EX-7
1.5" x 1.5"

EX-8
1.5" x 1.5"

EX-68
1.5" x 3.0"

EX-66
1.5" x 3.0"

EX-69
1.5" x 3.0"

EX-52
1.0" x 1.5"

EX-54
1.0" x 1.5"

EX-82
1.5" x 1.5" 45 deg.
**Structural Aluminum Extrusions**

**EX-1**

- **Finish =** Clear anodized
- **Material =** 6063-T5 Aluminum
- **Est. Area =** 1.164 Sq. In.

**Section Properties:**
- Moment of Inertia $\text{in}^4 = 0.242$
- Section modulus $\text{in}^3 = 0.323$

**EX-6**

- **Finish =** Clear anodized
- **Material =** 6063-T5 Aluminum
- **Est. Area =** 0.878 Sq. In.

**Section Properties:**
- Moment of Inertia $\text{in}^4 = 0.199$
- Section modulus $\text{in}^3 = 0.265$
Structural Aluminum Extrusions

**EX-9**

- 5/16" Slot Size
- Weight/Ft = .85 lbs.
- Est. Area = .73 Sq. In.
- Finish = Clear Anodized
- Material = 6105-T5 Aluminum
- 96", 192.63" Standard Lengths

**EX-2**

- Finish = Clear anodized
- Material = 6105-T5 Aluminum
- Est. Area = 2.051 Sq. In.
- Weight/ft = 2.471 lbs.
- 96", 144.25", 192.63" Lengths standard.
**Structural Aluminum Extrusions**

**EX-67**

- **Finish** = Clear anodized
- **Material** = 6105-T5 Aluminum
- **Est. Area** = 3.188 Sq. In.
- **Weight/ft** = 4.037 lbs
- **Lengths standard**: 96", 144.25", 192.63"

**Section Properties:**
- Moment of Inertia in^4: 3.26
- Section modulus in^3: 2.173

**EX-3**

- **Finish** = Clear anodized
- **Material** = 6105-T5 Aluminum
- **Est. Area** = 1.569 Sq. In.
- **Weight/ft** = 1.845 lbs
- **Lengths standard**: 96", 144.25", 192.63"

**Section Properties:**
- Moment of Inertia in^4: 1.376, 0.387
- Section modulus in^3: 0.917, 0.516
Structural Aluminum Extrusions

EX-26

- Finish = Clear anodized
- Material = 6105-T5 Aluminum
- Est. Area = 3.02 Sq. In.
- Weight/ft = 3.552 lbs.
- 96", 192.63" Standard Lengths

Section Properties:

Moment of Intertia in^4 5.6781 .6911
Section modulus in^3 2.5236 .9215

EX-37

- 5/16" Slot Size
- Weight/Ft = 2.81 lbs.
- Est. Area = 2.35 Sq. In.
- Finish = Clear Anodized
- Material = 6105-T5 Aluminum
- 96", 192.63" Standard Lengths

- 5/16" Slot Size
- Weight/Ft = 2.81 lbs.
- Est. Area = 2.35 Sq. In.
- Finish = Clear Anodized
- Material = 6105-T5 Aluminum
- 96", 192.63" Standard Lengths
### Structural Aluminum Extrusions

**EX-36**

- **Finish =** Clear anodized
- **Material =** 6063-T6 Aluminum
- **Est. Area =** 5.924 Sq. In.
- **Weight/ft =** 6.967 lbs.
- **Lengths standard.**

**Section Properties:**

- Moment of Intertia $in^4$: 22.05, 6.41
- Section modulus $in^3$: 7.35, 4.28

**EX-60**

- **Finish =** Clear anodized
- **Material =** 6105-T6 Aluminum
- **Est. Area =** 2.041 Sq. In.
- **Weight/ft =** 2.400 lbs
- **Lengths standard.**

**Section Properties:**

- Moment of Intertia $in^4$: 1.021
- Section modulus $in^3$: 0.860

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**EX-83**

**Finish:** Clear Anodize  
**Material:** 6105-T6 Aluminum  
**Est. Area:** 1.464 Sq In.  
**Wt./Ft.:** 1.722 lbs.  
**Std. Length:** 144"  

**Section Properties:**  
- Moment of Inertia in\(^4\): 1.229  
- Section Modulus in\(^3\): 0.779

---

**EX-45HD**

**Finish:** Mill Finish  
**Material:** 6105-T6 Aluminum  
**Est. Area:** 6.330 Sq In.  
**Wt./Ft.:** 7.445 lbs.  
**Std. Length:** 192.63"  

**Special cut charge required for non-standard length (EM-1-EX45)**  

**Section Properties:**  
- Moment of Inertia in\(^4\): 16.4  
- Section Modulus in\(^3\): 6.56
SMOOTH-Series Aluminum Profiles Give You Less:

Less Slots.  
Less Grooves.  
Less Dirt.  
Less Germs.  
Less Maintenance.  
And Less Headaches.  
For Less Money.

Aluminum extrusions are the ideal choice when building protective machine guards, machine frames or enclosures for any industrial environment. Unfortunately, traditional aluminum profiles are also a breeding ground for dirt, oil, grease, mold, mildew, germs and bacteria to accumulate and grow. They have up to 22 places to hide (3 exposed T-slots and 19 grooves, per length of extrusion). This makes maintenance and cleaning difficult, ongoing and very expensive. Health and safety issues are a huge concern.

How do you stop the maintenance nightmare? Our SMOOTH-Series profiles eliminate all the dirt catching grooves, and provide you only the number of T-slots required for your assembly. The SMOOTH surfaces wipe clean easily, without the toothbrush-scrubbing, knuckle-breaking cleaning required for exposed slots and grooves. Dirt, germs and other contaminants don’t have a place to hide.
Structural Aluminum Extrusions

Traditional Aluminum Extrusion
4 Slots & 16 Grooves

FRAME-WORLD’s SMOOTH-Series
1 Slot, NO Grooves

Suitable for clean rooms, tough enough for steel mills
SMOOTH-Series profiles are ideal for any manufacturing facility where dirt, germs, mold, mildew and bacteria build-up can result in critical health and safety issues:

- Clean Rooms
- Food & Beverage
- Packaging
- Pharmaceutical
- Medical and Biotechnology
- Electronics

The same SMOOTH-Series profiles can also withstand harsh industrial environments where dirt, oil, grease and chemicals are a daily fact of life.

In stock and available for immediate delivery.
This is the only full range of truly smooth profiles in U.S. fractional sizes on the market. All models and versions are available for same-day shipment. For your convenience, SMOOTH-Series profiles are also available as kits, engineered sub-assemblies, or as complete turnkey solutions (machine guards, frames, enclosures, etc.).
**Structural Aluminum Extrusions**

**SMOOTH-Series**

**EX-61**

- Finish = Clear anodized
- Material = 6105-T5 Aluminum
- Est. Area = .833 Sq. In.
- Weight/ft = 1.018 lbs
- 96", 144.25", 192.63" Lengths standard.

**Section Properties:**
- Moment of Inertia in\(^4\): 0.200, 0.210
- Section modulus in\(^3\): 0.267, 0.276

**EX-63**

- Finish = Clear anodized
- Material = 6105-T5 Aluminum
- Est. Area = .866 Sq. In.
- Weight/ft = .980 lbs
- 96", 144.25", 192.63" Lengths standard.

**Section Properties:**
- Moment of Inertia in\(^4\): 0.195, 0.203
- Section modulus in\(^3\): 0.260, 0.267
EX-64

**SMOOTH-Series**

- Finish = Clear anodized
- Material = 6105-T5 Aluminum
- Est. Area = .849 Sq. In.
- Weight/ft = .998 lbs
- 96”, 144.25”, 192.63” Lengths standard.

**Section Properties:**
- Moment of Inertia in$^4$ 0.190 0.210
- Section modulus in$^3$ 0.253 0.280

EX-65

**SMOOTH-Series**

- Finish = Clear anodized
- Material = 6105-T5 Aluminum
- Est. Area = .849 Sq. In.
- Weight/ft = .998 lbs
- 96”, 144.25”, 192.63” Lengths standard.

**Section Properties:**
- Moment of Inertia in$^4$ 0.200
- Section modulus in$^3$ 0.267
**SMOOTH-Series**

**EX-7**

- **Finish**: Clear anodized
- **Material**: 6105-T6 Aluminum
- **Est. Area**: 0.729 Sq. In.
- **Weight/ft**: 0.854 lbs.
- **96"**, 192.63" Lengths standard.

**Section Properties:**
- Moment of Intertia $in^4$: 0.137
- Section modulus $in^3$: 0.195

**EX-8**

- **Finish**: Clear anodized
- **Material**: 6105-T6 Aluminum
- **Est. Area**: 0.803 Sq. In.
- **Weight/ft**: 0.945 lbs.
- **96"**, 192.63" Lengths standard.

**Section Properties:**
- Moment of Intertia $in^4$: 0.156
- Section modulus $in^3$: 0.188
**Structural Aluminum Extrusions**

**EX-68**

- Finish = Clear anodized
- Material = 6105-T5 Aluminum
- Est. Area = 1.599 Sq. In.
- Weight/ft = 1.880 lbs.
- 96", 144.25", 192.63"
  Lengths standard.

**Section Properties:**
- Moment of Inertia $in^4$ 1.385 0.401
- Section modulus $in^3$ 0.923 0.535

**EX-66**

- Finish = Clear anodized
- Material = 6105-T5 Aluminum
- Est. Area = 1.599 Sq. In.
- Weight/ft = 1.880 lbs.
- 96", 144.25", 192.63"
  Lengths standard.

**Section Properties:**
- Moment of Inertia $in^4$ 1.385 0.401
- Section modulus $in^3$ 0.923 0.535
SMOOTH-Series

**EX-69**

- **Finish** = Clear anodized
- **Material** = 6105-T5 Aluminum
- **Est. Area** = 0.818 Sq. In.
- **Weight/ft** = 1.880 lbs.
- **96", 144.25", 192.63" Lengths standard.**

**Section Properties:**

- Moment of Inertia in$^4$: 1.385
- Section Modulus in$^3$: 0.923

**SMOOTH-Series**

**EX-52**

- **Finish** = Clear anodized
- **Material** = 6105-T5 Aluminum
- **Est. Area** = 1.599 Sq. In.
- **Weight/ft** = 1.880 lbs.
- **96", 144.25", 192.63" Lengths standard.**

**Section Properties:**

- Moment of Inertia in$^4$: 0.417
- Section Modulus in$^3$: 0.549
Structural Aluminum Extrusions

**EX-54**

**SMOOTH-Series**

- 5/16" Slots
- Finish = Clear anodized
- Material = 6105-T5 Aluminum
- Weight/ft = 1.008 lbs.
- 96", 144.25", 192.63" Lengths standard.

**Section Properties:**
- Moment of Inertia in^4: 0.142, 0.100
- Section modulus in^3: 0.189, 0.200

**EX-82**

**SMOOTH-Series**

- 5/16" Slot Size
- Weight/ft = 1.02 lbs.
- Est. Area = .85 Sq. In.
- Finish = Clear Anodized
- Material = 6105-T5 Aluminum
- 96", 192.63" Standard Lengths

- 26 typ.
- .26 typ. (5/16" tap size)

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SHOP ONLINE at www.airlinehyd.com  800-999-7378
Mounting and connecting brackets have clearance holes for 5/16" (8 mm) dia. connecting screws which are all on .75" and 1.5" centers.

FRAME-WORLD designed fastener brackets, extrusions, hardware and accessories provide an unlimited system for structural design and assembly.

Note: Mounting brackets and plates are made of clear anodized aluminum unless otherwise specified.

Recommended torque for 5/16-18 or m8 fasteners is 15 to 20 ft lbs.
Section C.1
Corner Angle Brackets

Section C.2
Gusseted Corner Angle Brackets
Section C.3
Steel Corner Angle Brackets
Section C.4
Internal & Adjustable Corner Brackets
Section C.5
Joining Plates
Section C.6
Floor Mounts, Casters and Adjustable Feet

5/16" SLOTS
Section C.7
Panels, Doors and Hardware
Section C.8

Hinges, Handles and Latches
Section C.9
Sliding Components and Bearings
Section C.12
Screws, Nuts & Fasteners

5/16” SLOTS
Section C.13
Miscellaneous Components

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page 304
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page 309
page 310
page 311
Corner Angle

EB-1

Recommended Hardware
(2) EF-12-.63 BHCS
(2) EF-2 T-nut

Material - Aluminum
Finish - Clear Anodize
Corner Angle

**EB-2**

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(4) EF-12-.63 BHCS
(4) EF-2 T-nut

0.343 Dia. Thru (4)
1.50 typ.
2.88
1.50
1.50
Corner Angle

EB-3

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(4) EF-12-.63 BHCS
(4) EF-2 T-nut

.343 Dia. Thru (4)

1.50 typ.

1.38

3.00

2.5

3.00

3.00

1.50

Material - Aluminum
Finish - Clear Anodize
Corner Angle

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(8) EF-12-.63 BHCS
(8) EF-2 T-nut

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Corner Angle

EB-59

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(6) EF-12-.63 BHCS
(6) EF-2 T-nut

.343 Dia Thru (6)
Corner Angle

**EB-55**

Material - Aluminum

Finish - Clear Anodize

Recommended Hardware

- (8) EF-12-.63 BHCS
- (8) EF-2 T-nut
**Corner Angle**

**EB-56**

**Material:** Aluminum  
**Finish:** Clear Anodize

**Recommended Hardware:**  
(16) EF-12-.63 BHCS  
(16) EF-2 T-nut

**Dimensions:**  
- Width: 6.00 typ.  
- Height: 3.00 typ.  
- Depth: .75 typ.
Corner Angle

EB-100

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(3) EF-12-.63 BHCS
(3) EF-2 T-nut
Corner Angle

EB-101

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(6) EF-12-.63 BHCS
(6) EF-2 T-nut
Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(2) EF-12-.63 BHCS
(2) EF-2 T-nut

5/16" SLOTS

5/16" slot
.343 dia. slot
.343 dia. thru
.25
.50
.50
.75
1.50
1.50
1.31

EB-102
Slotted Corner Angle

EB-103

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(4) EF-12-.63 BHCS
(4) EF-2 T-nut
Economy Corner Panel Angle

**EB-81**

![Diagram of an economy corner panel angle with dimensions and recommended hardware.](image)

**Material - Aluminum**

**Finish - Clear Anodize**

**Recommended Hardware**

- (2) EF-12-.63 BHCS
- (2) EF-2 T-nut

**Dimensions**

- .343 Dia. Thru (2)
- .50
- 1.00
- 1.50
- .25
- 1.50
- 5/16" SLOTS
Economy Corner Panel Angle

EB-82

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(4) EF-12-.63 BHCS
(4) EF-2 T-nut

EB-80
Corner Angle

**EB-30**

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware:
(4) EF-12-.63 BHCS
(4) EF-2 T-nut

-.343 dia. thru (4)

3.00

1.50

.75

1.50

3.00

5/16" SLOTS
Corner Angle

EB-25

.343 dia.
thru (6)

.75

1.50

3.00

3.00

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(6) EF-12-.63 BHCS
(6) EF-2 T-nut
Corner Angle

EB-57

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(6) EF-12-.63 BHCS
(6) EF-2 T-nut
Corner Angle

EB-58

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(6) EF-12-.63 BHCS
(6) EF-2 T-nut

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Corner Gusset

EB-111

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(2) EF-12-.63 BHCS
(2) EF-2 T-nut

.343 dia. thru & c'bore (2)

5/16" SLOTS
Corner Gusset

EB-112

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(4) EF-12-.63 BHCS
(4) EF-2 T-nut

.343 dia thru & c'bore (4)

1.50, .75, .75, .75, 1.50, 3.00

5/16" SLOTS
Corner Gusset

EB-113

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(6) EF-12-.63 BHCS
(6) EF-2 T-nut

.343 dia thru & c'bore (6)

1.50 .75
1.50 1.50 1.50 1.50 4.50
1.50 .75 .75 .75
Corner Gusset

EB-114

Material - Aluminum
Finish - Clear Anodize

.343 dia thru & c'bore (8)

1.50
.75
.75
.75
.75
1.50 typ.
6.00

Recommended Hardware
(8) EF-12-.63 BHCS
(8) EF-2 T-nut

5/16" SLOTS
Corner Gusset

EB-121

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(4) EF-12-.63 BHCS
(4) EF-2 T-nut

.343 dia. thru & c'bore (4)

Material - Aluminum
Finish - Clear Anodize

Corner Gusset

EB-121

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(4) EF-12-.63 BHCS
(4) EF-2 T-nut

.343 dia. thru & c'bore (4)
Corner Gusset

**EB-122**

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(8) EF-12-.63 BHCS
(8) EF-2 T-nut

Corner Gusset Dimensions:
- 3.00 x 1.50 x 3.00
- .75 x .75 x .75

Corner Gusset Features:
- .343 dia. thru & c'bore (8)
- 5/16" SLOTS

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Corner Gusset

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(12) EF-12-.63 BHCS
(12) EF-2 T-nut

Edge slots: .343 dia. thru & c'bore (12)
Corner Gusset

EB-124

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(16) EF-12-.63 BHCS
(16) EF-2 T-nut

.343 dia. thru & c'bore (16)
1.5 x 1.5 Extrusion Corner Gusset

EB-6

Material - Aluminum (EX-1)
Finish - Clear Anodize
Hardware included
1.5 x 1.5 Extrusion
Corner Gusset
EB-7

Material - Aluminum (EX-1)
Finish - Clear Anodize

Hardware included
Special lengths (6" - 96")
available on request
EB-7-SP
Angle Blocks

**EB-36**
- **Recommended Hardware**
  - (1) EF-11-.75 SHCS
  - (1) EF-11-.63 SHCS
  - (1) EF-2 T-nut

**EB-37**
- **Recommended Hardware**
  - (2) EF-11-.75 SHCS
  - (2) EF-11-.63 SHCS
  - (2) EF-2 T-nut

**Material** - Aluminum

**Finish** - Clear Anodize
Corner Gusset

EB-44

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(4) EF-11-.63 SHCS
(4) EF-2 T-nut

5/16" C'bore (2)
Corner Gusset
(used with EX-52 and EX-54)

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(4) EF-11-.63 SHCS
(4) EF-2 T-nut

5/16" SLOTS

EB-20
1.5 x 3.0 Extrusion Corner Gusset

EB-8

Material - Aluminum (EX-2)
Finish - Clear Anodize

Hardware included

Material - Aluminum (EX-2)
Finish - Clear Anodize
1.5 x 3.0 Extrusion Corner Gusset

EB-9

Hardware included

Special lengths (6" - 96") available on request
EB-9-SP

Material - Aluminum (EX-2)
Finish - Clear Anodize
Cast Corner Gusset

EB-10
EB-10A

Slotted

Recommended Hardware
(2) EF-12-.63 BHCS
(2) EF-2 T-nut

Material - Aluminum
Finish - Grey Powder Coat
Cast Corner Gusset

**EB-11**

- **Material:** Aluminum
- **Finish:** Grey Powder Coat

**Recommended Hardware**
- (4) EF-12-.63 BHCS
- (4) EF-2 T-nut

**Dimensions**
- 3.00
- 1.50 typ.
- 1.35
- .343 Dia. Thru (4)

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Cast Corner Gusset

EB-12

Material - Aluminum
Finish - Grey Powder Coat

Recommended Hardware
(8) EF-12-.63 BHCS
(8) EF-2 T-nut

.343 Dia. Thru (8)

3.00

3.00

2.88 typ.

5/16" SLOTS
Steel Double Angle Bracket

EB-17

Recommended Hardware
(4) EF-12-.63 BHCS
(4) EF-2 T-nut

Material - Steel
Finish - Zinc Plated
Steel Welded Corner Angle

EB-16

Material - Steel
Finish - Black Powder Coat

Recommended Hardware
(4) EF-12-.63 BHCS
(4) EF-2 T-nut

93
Steel Corner Angle

EB-15P

Material - Steel
Finish - Black Powder Coat

Recommended Hardware:
(4) EF-12-.63 BHCS
(4) EF-2 T-nut
Steel Welded Corner Angle

EB-15LH (left hand)  
EB-15RH (right hand)

Material - Steel  
Finish - Black Powder Coat

Recommended Hardware
(4) EF-12-.63 BHCS  
(4) EF-2 T-nut

EB-15LH (left hand)  
EB-15RH (right hand)
Steel Corner Angle

EB-14P

Material - Steel
Finish - Black Powder Coat

Recommended Hardware
(8) EF-12-.63 BHCS
(8) EF-2 T-nut
Steel Welded Corner Angle

EB-14G

Material - Steel
Finish - Black Powder Coat

Recommended Hardware
(8) EF-12-.63 BHCS
(8) EF-2 T-nut
Anchor Fastener

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EF-62</td>
<td>with hardware</td>
</tr>
<tr>
<td>EF-62P</td>
<td>without hardware</td>
</tr>
<tr>
<td>EF-62M</td>
<td>with metric hardware</td>
</tr>
<tr>
<td>EF-62SS</td>
<td>with stainless steel bolt</td>
</tr>
</tbody>
</table>

Material:
Anchor - Cast Zinc, Zinc Plated
Bolt - Steel, Black Oxide Coating
T-nut - Steel Zinc Coated
Double Anchor Fastener

- **X = 1.50 in.**
  - EF-63
  - EF-63M
  - EF-63SS

- **X = 1.50 in. with metric hardware**
  - EF-64
  - EF-64M
  - EF-64SS

- **X = 1.50 in. with stainless steel bolt**
  - EF-63
  - EF-63M
  - EF-63SS

- **X = 3.0 in.**
  - EF-64
  - EF-64M
  - EF-64SS

- **X = 3.0 in. with metric hardware**
  - EF-64
  - EF-64M
  - EF-64SS

- **X = 3.0 in. with stainless steel bolt**
  - EF-64
  - EF-64M
  - EF-64SS

**Material:**
- Anchor - Cast Zinc, Zinc Plated
- Bolt - Steel, Black Oxide Coating
- T-nut - Steel Zinc Coated

All Hardware Included

- .812 dia. x
- .650 deep (2) c’bore

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Anchor Butt Fastener

**EF-61**
**EF-61M**
**EF-61SS**

with metric hardware
with stainless steel bolt

All Hardware Included

.750 dia. x .650 deep (2) c'bore

Material:
- Anchor - Cast Zinc, Zinc Plated
- Bolt - Steel, Black Oxide Coating
- T-nut - Steel Zinc Coated
Set Screw Anchor Fastener

with Hardware EF-49

DRILL Ø 5/8" X 1.00 DEEP

Hardware Included

Use with 5/16" Slot Extrusions Only

Material
Anchor - Cold Rolled Steel
Bolt - Cold Rolled Steel
Set Screw - Steel, Black Oxide Coating
Plate Connector

**EF-100**
- hardware included

**EF-100M**
- metric hardware included

- Material - Cast Zinc
- Finish - Zinc Plated

---

5/16" SLOTS

---

Find more details at www.frame-world.com
Internal Corner Bracket

Material - Steel
Finish - Zinc Plated

Hardware Included

EF-27
Internal Corner Bracket

**EF-27A** use with EX-52 and EX-54

Material - Steel
Finish - Zinc Plated

Hardware Included

Note: This is the strongest door corner available anywhere.

- .625 dia (3) thru outside surface only
- .343 Dia Thru (3)
- Drill thru .343 dia.
- Tap 5/16-18 center hole
- Drill and tap 5/16-18 (2)

5/16`` SLOTS
Universal Connector

zinc plated steel  EF-29
stainless steel  EF-SS29

Requires (1) EF-12-1.0 BHCS

Ex-1, Ex-6, or Ex-9

EX-1, EX-6, or EX-9

.31 dia. access hole

5/16" SLOTS
Universal Connector

**EF-29A** zinc plated steel  
**EF-SS29A** stainless steel

Note: No need to notch panel

 Requires (1) EF-12-1.0 BHCS
Universal Connector

Use with SMOOTH-Series profiles EX-52, EX-54, EX-61, EX-63, EX-64, EX-65

Eliminates need to notch panel at corner

Requires (1) EF-12-1.0 BHCS

Material - Steel
Finish - Zinc Plated

Hole Plug Included

EF-12-1.0

EF-19E

.31 dia. thru
.75

EF-29B

5/16" SLOTS
Double Universal Connector

**EF-29D** .33 wide slot

![Diagram of Double Universal Connector](image)

- .31 dia. access hole (2)

Requires (2) EF-12-1.0 BHCS

Material - Steel
Finish - Zinc Plated
Castle Corner

Requires
(3) EF-12-.75 BHCS

Material - Aluminum
Finish - Clear Anodize
3-way Castle Corner

ECC-A

Requires
(3) EF-12-.75 BHCS

Hole plugs included

Material - Aluminum
Finish - Clear Anodize
EX-8

EX-8

EX-8

Hardware Included

Material - Aluminum
Finish - Clear Anodize
Castle Corner 1.5 x 1.5 Profiles

EB-86

Hardware Included

Material - Bracket: Die Cast Zinc
Cap: Reinforced Nylon

Round Cover Cap Included

 ø.34 typ.

.75 typ.

1.40 typ.

5/16” SLOTS
Castle Corner 1.5 x 1.5 Profiles

Material - Aluminum
Finish - Clear Anodize

Hardware Included

EX-65
EX-8
EX-8

5/16" SLOTS

EB-53
Castle Corner 1.5 x 1.5 Profiles

Material - Aluminum
Finish - Clear Anodize

Hardware Included
**Castle Corner**

**EB-50**

![Diagram of EB-50 Castle Corner]

- **Material**: Aluminum
- **Finish**: Clear Anodize
- **Dimensions**:
  - 1.50 typ.
  - .38 typ.
  - .343 Dia. Thru (3)
  - .75 typ.

**Hardware Included**

![Ex-7 Hardware Illustration]

**EX-7 (3)**

**Trade Marked by Stationary Mounting** (3)
5/16" SLOTS

Castle Corner

EB-51

1.50 typ.

.38 typ.

.343 Dia. Thru (3)

EX-7 (2)

.38 typ.

.75 typ.

Material - Aluminum
Finish - Clear Anodize

Hardware Included

EX-65

Material - Aluminum
Finish - Clear Anodize
Adjustable Joint Connector

Material - Aluminum
Finish - Grey Powder Coat

Requires
(2) EF-11-.63 SHCS
(1) EF-2 T-nut

.343 Dia. Thru (2)
2.13
1.50

5/16" SLOTS
Pivoting Hinge

EB-13P

Material - Aluminum
Finish - Grey Powder Coat

Requires
(2) EF-11-.63 SHCS
(1) EF-2 T-nut

Bronze Bushing

5/16" SLOTS
Pivot Joint with Locking Handle

Material - Aluminum
Finish - Grey Powder Coat

Requires
(2) EF-11-.63 SHCS
(1) EF-2 T-nut

EB-13LH

Material - Aluminum
Finish - Grey Powder Coat
Adjustable Corner Post

**EB-46**

Material - Aluminum

Finish - Clear Anodize

Requiring:
- (1) EF-11-1.25 SHCS
- (1) EF-2 T-nut

Drilled and c'bored for 5/16 SHCS

5/16-18

Assembly
- (2) EB-48
- (1) EB-46
Adjustable Corner Post

EB-47

Material - Aluminum
Finish - Clear Anodize

Requires
(2) EF-11-1.25 SHCS
(2) EF-2 T-nut

drilled and c'bored for 5/16 SHCS (2)

5/16-18 tap both ends

Assembly
(2) EB-48
(1) EB-47
Adjustable Arm Post

**EB-48**

use with EB-46 & EB-47

- Material: Aluminum
- Finish: Clear Anodize

Requires:
- (3) EF-12-.63 BHCS
- (2) EF-2 T-nut

Assembly:
- (2) EB-48
- (1) EB-46

Material: Aluminum
Finish: Clear Anodize
Adjustable Post Angle

Use with EB-46, EB-47

EB-66

Recomended Hardware
(3) EF-12-.63 SHCS
(2) EF-2 T-nut

Material - Aluminum
Finish - Clear Anodize
Pivoting Post Arm with Bushing

EB-65

Use with EB-68, EB-69

For Shoulder Bolt order (1) EF-46

Recommended Hardware
(2) EF-12-.63 BHCS
(2) EF-2 T-nut
(1) EF-46

Material - Aluminum
Finish - Clear Anodize
Pivoting Post Angle with Bushing

Use with EB-68, EB-69

EB-67

For Shoulder
Bolt order (1) EF-46

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(2) 5/16-18 x 5/8 FHCS
(2) EF-2 T-nut
(1) EF-46
Pivoting Corner Post

**EB-68** Use with (2) EB-65 or (2) EB-67

**Recommended Hardware**
(2) EF-11-1.25 SHCS
(2) EF-2 T-nut

**Material - Aluminum**
**Finish - Clear Anodize**
Pivoting Corner Post

Use with (2) EB-65 or (2) EB-67

EB-69

Material - Aluminum
Finish - Clear Anodize

Recomended Hardware
(1) EF-11-1.25 SHCS
(1) EF-2 T-nut

drilled and c'bored for 5/16 SHCS

1.50
.75
1.44
.76
5/16-18
Joining Plate

**EB-33**
**EB-33-S**

1 hole is slotted

- Material: Aluminum
- Finish: Clear Anodize

Recommended Hardware:
- (2) EF-12-.63 BHCS
- (2) EF-2 T-nut

Dimensions:
- .343 dia. thru (2)
- 1.50 typ.
- .75 typ.
- 3.00
- .25
- 1.50

5/16" SLOTS
Joining Plate

EB-31

Material - Aluminum
Finish - Clear Anodize

.343 dia. thru (3)
.75 typ.
1.50 typ.
1.50
typ.
4.50

Recommended Hardware
(3) EF-12-.63 BHCS
(3) EF-2 T-nut

5/16" SLOTS
Joining Plate

**EB-28**

Material - Aluminum
Finish - Clear Anodize

**5/16" SLOTS**

- .343 dia. thru (4)
- 1.50 typ.
- .75 typ.
- .25
- 1.50
- 6.00

Recommended Hardware:
- (4) EF-12-.63 BHCS
- (4) EF-2 T-nut

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Joining Plate

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(4) EF-12-.63 BHCS
(4) EF-2 T-nut

EB-29

5/16" SLOTS
Joining Plate

**EB-32**

Material - Aluminum
Finish - Clear Anodize

**Recommended Hardware**
- (6) EF-12-.63 BHCS
- (6) EF-2 T-nut

**Dimensions**
- 4.50
- 3.00 typ.
- 1.50 typ.
- .75 typ.
- .343 dia. thru (6)

**5/16” SLOTS**
Joining Plate

**EB-26**

- **Material**: Aluminum
- **Finish**: Clear Anodize

**Recommended Hardware**
- (8) EF-12-.63 BHCS
- (8) EF-2 T-nut

**Dimensions**
- .343 Dia Thru (8)
- 1.50 typ.
- .75 typ.
- 3.00
- 6.00
- .25

**Notes**
- 5/16" SLOTS
Joining Plate

EB-83

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(9) EF-12-.63 BHCS
(9) EF-2 T-nut
Joining Plate

EB-84

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(12) EF-12-.63 BHCS
(12) EF-2 T-nut

5/16" SLOTS

.25

1.50 Typ.

.343 Dia. Thru (12)

4.50

135

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Joining Plate

**EB-85**

**Material - Aluminum**

**Finish - Clear Anodize**

**Recommended Hardware**

- (15) EF-12-.63 BHCS
- (15) EF-2 T-nut

**Dimensions**

- 7.50" x 4.50"
- .25" x .75 typ.
- 1.50 typ.
Joining Plate

Material - Aluminum
Finish - Clear Anodize

EB-79

Recommended Hardware:
(4) EF-12-.63 BHCS
(4) EF-2 T-nut

Dimensions:
- 4.50
- 3.00
- 1.50 typ.
- .75 typ.
- .343 dia thru (4)
- .25

5/16" SLOTS
Joining Plate

EB-22

5/16" SLOTS

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(5) EF-12-.63 BHCS
(5) EF-2 T-nut

0.343 Dia.
Thru (6)

4.50

1.50 typ.

0.75

4.50

0.25

Material - Aluminum
Finish - Clear Anodize

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Joining Plate

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(7) EF-12-.63 BHCS
(7) EF-2 T-nut

5/16" SLOTS
Joining Plate

**EB-34**

Material - Aluminum
Finish - Clear Anodize

**Recommended Hardware**

- (7) EF-12-.63 BHCS
- (7) EF-2 T-nut

Dimensions:
- 5/16" SLOTS
- 4.50
- 1.50 typ.
- 0.75 typ.
- 0.25
Joining Plate

EB-27

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(12) EF-12-.63 BHCS
(12) EF-2 T-nut

.343 dia. thru (12)
.25
6.00
dow (12)

.75 typ.
1.50 typ.
6.00
Joining Plate

EB-73

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(4) EF-12-.63 BHCS
(4) EF-2 T-nut

5/16" SLOTS

.25
1.50
.343 Dia Thru (4)
1.50
1.50 typ.
3.00
4.50

.343 Dia Thru (4)
Joining Plate

EB-23

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(5) EF-12-.63 BHCS
(5) EF-2 T-nut

.343 Dia. Thru (5)
4.50
1.50 typ.
.25
.75 typ.
4.50

5/16” SLOTS
Joining Plate

EB-74

5/16" SLOTS

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(7) EF-12-.63 BHCS
(7) EF-2 T-nut

.343 Dia. Thru (7)
1.50 typ.
6.00
1.50
.25
1.50
6.00

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Joining Plate

EB-87

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(8) EF-12-.63 BHCS
(8) EF-2 T-nut

.343 Dia. Thru (8)

4.50
1.50
.75 typ.
1.50 typ.
6.00

.25
Joining Plate

EB-24

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(12) EF-12-.63 BHCS
(12) EF-2 T-nut

.343 Dia. Thru (12)
.75 typ.
1.50 typ.
.25
6.00
6.00

5/16" SLOTS
Joining Plate

EB-76

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(7) EF-12-.63 BHCS
(7) EF-2 T-nut
Joining Plate

EB-78

Material - Aluminum
Finish - Clear Anodize

Recommended
Hardware
(16) EF-12-.63 BHCS
(16) EF-2 T-nut

5/16” SLOTS

.25
3.00

.343 Dia.
Thru (16)

6.00
1.50 typ.

3.00

9.00

.343 Dia.
Thru (16)

6.00
1.50 typ.

3.00

9.00

EB-78
45° Joining Plate

EB-77

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(4) EF-12-.63 BHCS
(4) EF-2 T-nut

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30° Joining Plate

**EB-125**

- **Material:** Aluminum
- **Finish:** Clear Anodize
- **Recommended Hardware:**
  - (4) EF-12-.63 BHCS
  - (4) EF-2 T-nut

**Dimensions:**

- 3.25
- 1.50 typ.
- .75 typ.

**Notes:**

Material - Aluminum
Finish - Clear Anodize
60° Joining Plate

EB-126

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(4) EF-12-.63 BHCS
(4) EF-2 T-nut

3.25

1.50 typ.

.75 typ.

.343 dia thru (4)

5/16" SLOTS
45° Joining Plate

EB-127

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware:
(4) EF-12-.63 BHCS
(4) EF-2 T-nut

.343 Dia. Thru (4)
45°
3.00
4.50
.25

5/16" SLOTS
60° Joining Plate

EB-128

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(4) EF-12-.63 BHCS
(4) EF-2 T-nut
30° Joining Plate

**EB-129**

- **Material:** Aluminum
- **Finish:** Clear Anodize

**Recommended Hardware**
- (4) EF-12-.63 BHCS
- (4) EF-2 T-nut

- **.343 Dia. Thru (4)**
- **.25**
- **3.00**
- **30°**
- **4.50**

**5/16" SLOTS**
Leveling Plate

<table>
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<th>Thread Type</th>
<th>Thread Size</th>
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<tr>
<td>EBP-1A</td>
<td>3/8-16</td>
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<tr>
<td>EBP-1B</td>
<td>5/8-11</td>
</tr>
<tr>
<td>EBP-1C</td>
<td>3/4-10</td>
</tr>
</tbody>
</table>

- Drilled & C’Bored for 5/16 SHCS (2) plc’s
- Requires (2) EF-11-1.0 SHCS

Material - Aluminum
Finish - Clear Anodize
Leveling Plate

Material - Aluminum
Finish - Clear Anodize

Requires
(4) EF-11-1.0 SHCS

- EBP-2 1/2-13
- EBP-2A 3/8-16
- EBP-2B 5/8-11
- EBP-2C 3/4-10

Drilled & C'Bored for 5/16 SHCS
(4) plc's

.thread

Material - Aluminum
Finish - Clear Anodize
Leveling Anchor Plate

Material - Aluminum
Finish - Clear Anodize

Requires
(4) EF-11-1.0 SHCS

Drilled & C'Bored for 5/16 SHCS (4) plc's
.56 dia. thru for floor anchor

Thread
EBP-3 1/2-13
EBP-3A 3/8-16
EBP-3B 5/8-11
EBP-3C 3/4-10

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Leveling Anchor Plate

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<th>1/2-13</th>
</tr>
</thead>
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<td>EBP-4A</td>
<td>3/8-16</td>
</tr>
<tr>
<td>EBP-4B</td>
<td>5/8-11</td>
</tr>
<tr>
<td>EBP-4C</td>
<td>3/4-10</td>
</tr>
</tbody>
</table>

Drilled & C'Bored for 5/16 SHCS (2) plc's

.56 dia. thru for floor anchor

Requires (2) EF-11-1.0 SHCS

Material - Aluminum
Finish - Clear Anodize
Leveling Plate

EBP-6
EBP-6A
EBP-6B
EBP-6C

thread
EBP-6  1/2-13
EBP-6A  3/8-16
EBP-6B  5/8-11
EBP-6C  3/4-10

Drill & C'bore for 5/16 SHCS (3) plcs

Requires
(3) EF-11-.875 SHCS
(3) EF-2 T-nut

Material - Aluminum
Finish - Clear Anodize
Leveling Anchor Plate

EBP-8

Material - Aluminum
Finish - Clear Anodize

Requires
(1) EF-11-1.0 SHCS

3.00
2.50
.75
.75
.75
.75
.343 dia. thru (c'bored from bottom)
.56 thru

5/16" SLOTS
Floor Lock Mounting Plate

EB-154

Material - Steel
Finish - Zinc Coated

Recommended Hardware
(4) EF-11.75
(4) EF-1

5/16" SLOTS

DRILLED & C'BOR EED FOR 5/16 SHCS (4)

3/8-16 TAP (4)

1.50
1.50
1.25
1.50

.69
2.63
4.00

.44
3.63
4.50

.75

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Adjustable Leg (Economy)

**EAL**

**EAL-1**

- Tap for 5/16-18
- 5/16-18 thd

- DELRIN pad

Max load = 250 lbs ea.

1 3/8 DIA.

**EAL-2**

- Tap for 3/8-16
- 3/8-16 thd

- DELRIN pad

Max load = 400 lbs ea.

1 3/8 DIA.
Adjustable Leg (Economy)

**EAL-E1**

Max load = 1700 lbs ea.

Material - Steel
Finish - Zinc Plated

Tap for 5/16-18

5/16-18 thd

3/4

1 1/2

**EAL-E2**

Max load = 1700 lbs ea.

Material - Steel
Finish - Zinc Plated

Tap for 3/8-16

3/8-16 thd

7/8

1 1/2
Adjustable Leg (Economy)

**EAL-E**

**EAL-E3**

use with EBP Bracket

1/2-13 thd.

2 1/2

1 1/16

Max load = 4200 lbs ea.

Material - Steel
Finish - Zinc Plated
Adjustable Swivel Leg

<table>
<thead>
<tr>
<th>Part No</th>
<th>Max (lbs) Work Load</th>
<th>A</th>
<th>C</th>
<th>D</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAL-4</td>
<td>3750 3/8-16</td>
<td>3/8</td>
<td>1/2</td>
<td>1/4</td>
<td>2</td>
</tr>
<tr>
<td>EAL-3</td>
<td>5000 1/2-13</td>
<td>1/2</td>
<td>3/8</td>
<td>1/4</td>
<td>2</td>
</tr>
<tr>
<td>EAL-5</td>
<td>6000 5/8-11</td>
<td>5/8</td>
<td>1/4</td>
<td>2/2</td>
<td>2</td>
</tr>
<tr>
<td>EAL-6</td>
<td>7200 5/8-10</td>
<td>5/8</td>
<td>3/4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>EAL-10</td>
<td>2300 9/16-18</td>
<td>1.25</td>
<td>1 1/4</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

Material - Steel
Finish - Yellow Zinc Plate
### Adjustable Leg (Cushioned)

<table>
<thead>
<tr>
<th>Part No</th>
<th>Max (lbs) Work Load</th>
<th>C Thd Size</th>
<th>D</th>
<th>B</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAL-7</td>
<td>100</td>
<td>5/16-18</td>
<td>1.0</td>
<td>1 13/16</td>
<td>1 1/4</td>
</tr>
<tr>
<td>EAL-8</td>
<td>300</td>
<td>3/8-16</td>
<td>1.5</td>
<td>63/64</td>
<td>3.0</td>
</tr>
<tr>
<td>EAL-9</td>
<td>300</td>
<td>1/2-13</td>
<td>1.5</td>
<td>1 1/16</td>
<td>2.0</td>
</tr>
</tbody>
</table>

- **Zinc Plated Steel**
- **70 Durometer Neoprene Rubber**
### Threaded Stem Caster

<table>
<thead>
<tr>
<th>Part no.</th>
<th>D</th>
<th>H</th>
<th>Stem</th>
<th>Brake</th>
<th>Max. Load</th>
<th>Wheel Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC-S1</td>
<td>2</td>
<td>2 5/8</td>
<td>3/8-16 x 1 1/4</td>
<td>Yes</td>
<td>125 lbs</td>
<td>1.00</td>
</tr>
<tr>
<td>EC-S2</td>
<td>3</td>
<td>3 3/4</td>
<td>3/8-16 x 1 1/4</td>
<td>Yes</td>
<td>250 lbs</td>
<td>1.25</td>
</tr>
<tr>
<td>EC-S3</td>
<td>4</td>
<td>5</td>
<td>1/2-13 x 1 1/2</td>
<td>Yes</td>
<td>300 lbs</td>
<td>1.25</td>
</tr>
</tbody>
</table>

Note: Wheel material is hard plastic
Fixed Plate Caster

**EC-3F**

**EC-4F**

**EC-5F**

The casters have (4) .343 dia mtg holes on 1 3/4" x 3.00" centers

EX-3 uses caster plate EBP-5

Recommended Hardware

(4) EF-11.63 BHCS

Note: Wheel material is hard plastic

<table>
<thead>
<tr>
<th>Part no.</th>
<th>D</th>
<th>H</th>
<th>Brake</th>
<th>Max. Load</th>
<th>Wheel Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC-3F</td>
<td>3</td>
<td>4.13</td>
<td>No</td>
<td>250 lbs</td>
<td>1.25</td>
</tr>
<tr>
<td>EC-4F</td>
<td>4</td>
<td>5.00</td>
<td>No</td>
<td>300 lbs</td>
<td>1.25</td>
</tr>
<tr>
<td>EC-5F</td>
<td>5</td>
<td>6.00</td>
<td>No</td>
<td>325 lbs</td>
<td>1.25</td>
</tr>
</tbody>
</table>
Swivel Plate Caster w/brake

EX-3 uses caster plate EBP-5

EBP-5 (required)

Recommended Hardware
(4) EF-12.63 BHCS

The casters have (4) .343 dia
mtg holes on 1 3/4" x 3.00" centers

Note: Wheel material is hard plastic

<table>
<thead>
<tr>
<th>Part no.</th>
<th>D</th>
<th>H</th>
<th>Brake</th>
<th>Max. Load</th>
<th>Wheel Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC-3S</td>
<td>3</td>
<td>4.13</td>
<td>Yes</td>
<td>250 lbs</td>
<td>1.25</td>
</tr>
<tr>
<td>EC-4S</td>
<td>4</td>
<td>5.00</td>
<td>Yes</td>
<td>300 lbs</td>
<td>1.25</td>
</tr>
<tr>
<td>EC-5S</td>
<td>5</td>
<td>6.00</td>
<td>Yes</td>
<td>325 lbs</td>
<td>1.25</td>
</tr>
</tbody>
</table>
Total Lock Swivel Plate Caster

ECT-4S

Locking Mechanism
- Locks
- Wheel Rotation
- and Swivel

The Casters Have (4) Ø.343 Mounting Holes on 1 3/4" x 2 7/8" Centers

Note: Wheel Material is Grey Polyurethane

<table>
<thead>
<tr>
<th>PART NO</th>
<th>Ø D</th>
<th>H</th>
<th>BRAKE</th>
<th>MAX LOAD</th>
<th>WHEEL WIDTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECT-4S</td>
<td>4.00</td>
<td>5.13</td>
<td>YES</td>
<td>250 lbs</td>
<td>1.25</td>
</tr>
</tbody>
</table>
Total Lock Fixed Plate Caster

ECT-4F

EX-3 USES CASTER PLATE EBP-5
REQUIRED HARDWARE
(4) EF-12-63 SHCS

The Casters Have (4) Ø.343 Mounting Holes
on 1 3/4" x 2 7/8" Centers

Note: Wheel Material is Grey Polyurethane

<table>
<thead>
<tr>
<th>PART NO</th>
<th>ØD</th>
<th>H</th>
<th>BRAKE</th>
<th>MAX LOAD</th>
<th>WHEEL WIDTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECT-4F</td>
<td>4.00</td>
<td>5.13</td>
<td>NO</td>
<td>250 lbs</td>
<td>1.25</td>
</tr>
</tbody>
</table>
Caster Mounting Plate

EBP-5 for Plate Casters

Material - Aluminum
Finish - Clear Anodize

Drilled & C'Bores for 5/16 SHCS (4) plc's

Requires (4) EF-11-1.0 SHCS

5/16-18 thru (4) holes

Material - Aluminum
Finish - Clear Anodize

5/16" SLOTS
Caster Mounting Plate

For Plate Casters EBP-5A

Material - Aluminum
Finish - Clear Anodize

Drilled and c'bored for 5/16 SHCS (4)

Requires
(2) EF-11-.75 SHCS
(2) EF-2 T-nut

Note: Plate can be rotated 90°
Floor Locks

**EB-151**

**EB-153**

Top Plate Dimension - 4.0" x 4.0"
Bolt Diameter - Ø 0.375"
Mounting Hole Centerline - 2.625" x 3.625"
(4) 3/8-16 x 5/8" BHCS Included
Use EB-154 Mounting Plate for 5/16" Slot Extrusions.

<table>
<thead>
<tr>
<th>PART NO</th>
<th>RETRACTED</th>
<th>EXTENDED</th>
</tr>
</thead>
<tbody>
<tr>
<td>EB-151</td>
<td>5 1/16&quot;</td>
<td>5 5/8&quot;</td>
</tr>
<tr>
<td>EB-153</td>
<td>6 3/4&quot;</td>
<td>7 3/4&quot;</td>
</tr>
</tbody>
</table>
Economy Aluminum Floor Mount

EB-15AL

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(2) EF-12-.75 BHCS
(1) EF-2D T-nut

5/16" SLOTS
Economy Aluminum Floor Mount

**EB-15AL3**

**Recommended Hardware**

- (4) EF-12-.75 BHCS
- (2) EF-2D T-nut

**Material - Aluminum**

**Finish - Clear Anodize**
Floor Mounting Bracket

EB-17-FT

Material - Steel
Finish - Grey Powder Coat

-.200" thick

Use with 5/16" slot extrusions

Recommended Hardware
(4) EF-12-.63 BHCS
(2) EF-2D T-nut

Material - Steel
Finish - Grey Powder Coat
Adjustable Leveling Foot

EB-70

Material - Die Cast Zinc
Finish - Black Powder Coat

Hardware for Mounting to Extrusion Included
Use with 5/16" slot Extrusions

5/16" SLOTS

M8 BOLTS TYP.

2.88 MAX.

.31 MIN.

3/8 FLOOR ANCHOR RECOMMENDED NOT INCLUDED

FRAMES WORLD
Steel Flanged Foot

EB-41

Material - Steel
Finish - Black Powder Coat

Recommended Hardware
(2) EF-11-1.0 BHCS

Use with 1.5" square profiles

Dimensions:
- 9/16 dia. thru (4)
- 5/16-18 tap (2)
- 2.00
- 1.50
- .75
- .25
- 5.00
- 4.00
- 5.00

5/16" SLOTS
Steel Flanged Foot

Material - Steel
Finish - Black Powder Coat

Recommended Hardware
(2) EF-11-1.0 SHCS

Use with 1.5" x 3" profiles

Dimensions:
- 5/16" Slots
- 9/16 dia thru (4)
- 5/16-18 tap (2)
- 1.75\( \times \) 1.75
- 6.50
- 5.00
- 4.00
- 6.50
- 5.00
Steel Flanged Foot

EB-43

Material - Steel
Finish - Black Powder Coat

Recommended Hardware
(4) EF-11-1.0 BHCS

use with EX-3 or EX-37

9/16 Dia. Thru (4)

5/16-18 tap (8)

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### Wire Mesh

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EB-38-1/2</td>
<td>16 gage wire $\frac{1}{2}'' \times \frac{1}{2}''$ opening - Black</td>
</tr>
<tr>
<td>EB-38-1/2/Y</td>
<td>16 gage wire $\frac{1}{2}'' \times \frac{1}{2}''$ opening - Yellow</td>
</tr>
<tr>
<td>EB-38-1</td>
<td>12 gage wire $1'' \times 1''$ opening - Black</td>
</tr>
<tr>
<td>EB-38-1/Y</td>
<td>12 gage wire $1'' \times 1''$ opening - Yellow</td>
</tr>
<tr>
<td>EB-38-2</td>
<td>12 gage wire $2'' \times 2''$ opening - Black</td>
</tr>
</tbody>
</table>

Sheet size - 48'' x 96''

Material - PVC Coated Steel

Yellow or Black

Other colors/finishes available upon request
Wire Mesh (Black Rubber) Retaining Strip

Use with EB-38-1 or EB-38-1/2 EB-38G

To specify length required, order EB-38G, length in feet.

Note: Snug fit - eliminates rattles

Material - Black Rubber

Cut wire mesh to X + .63”
Wire Mesh Bracket

EB-39A
EB-39B

All Hardware Included

Material - Steel
Finish - Black Powder Coat

Note: Leave comb when cutting to size

Cut wire mesh to X + .75"

EF-4
EF-2D
EB-39A
EB-39B
Wire Mesh Bracket

Black Powder Coat  EB-49B
Yellow Powder Coat  EB-49Y

Note: to be used with EB-38-1 and EB-38-1Y screen only

Material - Powder Coated Steel

Hardware Included

EF-4

crossing wire

Cut wire mesh to X + 0.75"

Note: Leave comb when cutting to size

Note: To assure proper clamping, assemble bracket on crossing wire side of wire mesh
Wire Mesh Bracket

EB-63

Material - Aluminum
Finish - Clear Anodize

Hardware Included

.343 dia thru .25 typ.
1.50
1.50

.343 dia slot
.50
1.50
1.50

.38

5/16-18 thd
.75 typ.

.25 typ.
1.50

5/16” SLOTS
Double Wire Mesh Bracket

EB-64

Material - Aluminum
Finish - Clear Anodize

Hardware Included

.343 dia thru
4.50
.25 typ.

.343 dia slot
.50
1.50

.38

5/16-18 thd
.75 typ.

1.50
1.50

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Wire Mesh Bracket

EB-96

Note: Use with EB-38-2

Material - Steel
Finish - Black Powder Coat

Cut Wire Mesh to X + .75"
Note: Leave Comb when cutting to size

Hardware Included
Plastic Panels

Stocked in 48" x 96" sheets
Sold by the square foot.

EB-160  Polycarb 1/4" Clear Panel
EB-161  Polycarb 1/4" Bronze Panel
EB-162  Polycarb 1/4" Black Panel
EB-165  Polycarb 3/16" Clear Panel
EB-166  Polycarb 3/16" Bronze Panel
EB-170  Acrylic 1/4" Clear Panel
EB-171  Acrylic 1/4" Bronze Panel
EB-172  Acrylic 1/4" Black Panel
EB-175  Acrylic 3/16" Clear Panel
EB-176  Acrylic 3/16" Bronze Panel
EB-177  Acrylic 3/16" Black Panel
EB-180  ABS-Haircell 1/4" Black Panel
EB-181  ABS-Haircell 3/16" Black Panel
EB-185  Expanded PVC 6mm Yellow Panel
EB-186  Expanded PVC 3mm Yellow Panel
EB-187  Expanded PVC 6mm Grey Panel
EB-188  Expanded PVC 3mm Grey Panel
EB-189  Expanded PVC 6mm Blue Panel
EB-190  Expanded PVC 3mm Blue Panel
EB-191  Expanded PVC 6mm Red Panel
EB-192  Expanded PVC 3mm Red Panel
EB-193  Expanded PVC 6mm Black Panel
EB-194  Expanded PVC 3mm Black Panel
EB-195  Expanded PVC 6mm White Panel
EB-196  Expanded PVC 3mm White Panel
EB-197  Polycarb 1/4" Clear Scratch-resistant Panel
EB-198  Polycarb 3/16" Clear Scratch-resistant Panel

Cut to size panels can be furnished on request.

For panels with both sides less than or equal to 48", order EM-4S Cutting Service.

For panels with any side larger than 48", order EM-4L cutting service.
1/4 Turn Panel Bracket

| EB-88A | .235 Thick Panel |
| EB-88B | .220 Thick Panel |
| EB-88C | .170 Thick Panel |

Note: Panel holes are .31 dia. .63 from panel edge.

Panel is flush mounted.

Plastic and rubber washers included

Recommended Hardware
(1) EF-12-.50 BHCS
(1) EF-1 T-nut or
(1) EF-2 T-nut
Double Panel Bracket

EB-61

Material - Aluminum
Finish - Clear Anodize

Hardware Included

.343 dia thru
.25 typ.
4.50
1.50
.90
5/16-18 tap thru (2)
1.52

5/16" SLOTS
Panel Bracket

**EB-62**

- Material: Aluminum
- Finish: Clear Anodize

5/16" SLOTS

- .343 dia thru
- .25 typ.
- 1.52
- 1.50
- 1.50
- 5/16-18 tap thru
- .90

Hardware Included

Material - Aluminum
Finish - Clear Anodize
Panel Mounting Angle

EB-5

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(1) EF-12-.50 BHCS
(1) EF-12-.63 BHCS
(2) EF-2 T-nut

Note:
Allows flush mount of panel

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FAX 847/458-0934 e-mail: info@frame-world.com web: frame-world.com

SHQ ONLINE at www.airlinehyd.com 800-999-7378
Panel Mounting Angle

**EB-80**

1/4-20 tap use (1) 11-231

Note:
Allows flush mount of panel

Recommended Hardware
(1) 11-231 BHCS
(1) EF-12-.63 BHCS
(1) EF-2 T-nut

Material - Aluminum
Finish - Clear Anodize
Panel Mounting Bracket

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(1) EF-11-1.25 SHCS
(1) EF-12-.63 BHCS
(1) EF-2 T-nut

.343 dia. thru

.50

.88

.50

5/16-18 tap

5/16" SLOTS
Panel Mounting Bracket

**EF-25B**

- Material: Aluminum
- Finish: Clear Anodize

**Recommended Hardware**
- (1) EF-11-1.25 SHCS
- (1) EF-12-.63 BHCS
- (1) EF-2 T-nut

**Flush surface with 1/4" panels**

**Dimensions**
- 1.25 in
- 0.88 in
- 0.44 in
- 5/16-18 thd

**Panel dimensions**
- 0.343 dia thru
Corner Joint and Panel Bracket

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(2) 11-225 SHCS
(1) EF-12-.63 BHCS
Plastic Panel Retaining Gasket

EB-40

1/4" (.23 actual)

Note: insert gasket after panel is installed in 5/16" wide slot profiles

Material - Flexible PVC (Black)
Plastic Panel Retaining Gasket

Material - Flexible PVC (Grey)

Note: For use on 5/16" wide profile slots.

Material - Flexible PVC (Grey)
Plastic Panel Retaining Gasket

**EB-40B**

3/16" (.17 actual)

Note: For use on 5/16" wide profile slots.

Material - Flexible PVC (Grey)
Thin Panel Gasket

EB-45

Cut panel to X + .75"

Material - Rubber (Black)

<table>
<thead>
<tr>
<th>Material</th>
<th>Thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 gage</td>
<td>.060</td>
</tr>
<tr>
<td>14 gage</td>
<td>.075</td>
</tr>
<tr>
<td>13 gage</td>
<td>.090</td>
</tr>
<tr>
<td>12 gage</td>
<td>.105</td>
</tr>
</tbody>
</table>
Door Stop (Light Blocking)

EX-56 (.385 lbs/ft)

Standard size 96" and 192", sold by the inch

Material - Aluminum
Finish - Clear Anodize

For mounting to extrusion drill and countersink for 10-32 FHCS as required
Rubber Door Seal

EF-60

Note: Supplied with pull off adhesive cover strip

Sold by the foot

Example: Door Frame Cross-Section

EX-56 Aluminum Extrusion (Door stop)

EF-60 Rubber door seal
Door Slides (3 Tracks) 5/16" slots

**EF-17-3**
Upper Door Slide Track (1/4" panels)

**EF-18-3**
Lower Door Slide Track (1/4" panels)

Cut Panels to X - 1/2"

Material - Rigid PVC

Sold in 6 ft. lengths
T-Slot Cover

EF-23

Sold in 6 ft. lengths

EF-23G  Gray Rigid PVC
EF-23B  Black Rigid PVC
EF-23Y  Yellow Rigid PVC
EF-23A  Clear Anodized Aluminum
EF-23SO Safety Orange Rigid PVC
T-slot Cover or Panel Gasket

EF-45

5/16" SLOTS

X + 3/4"

X

1/4

Note:
T-slot cover rests below surface of extrusion - can pass under brackets.

Cut panel to X + .75"

EF-45B Black
EF-45Y Yellow
EF-45G Grey
EF-45SO Safety Orange

Material - Rigid PVC
Stiffener for Plastic Panel

Stiffener w/ handle (.343 lb/ft)  EF-140
Stiffener w/o handle (.173 lb/ft)  EF-141

Material: Aluminum
Finish: Clear Anodize

Stocked in 144" lengths
Sold by the inch

Note: Must use 1/4" Lexan for both EF-140 & EF-141

Note: can be used for swinging, slide and vertical lift doors.
**Bi-fold Door Pad**

**EF-110** use on 1.5 x 1.5 sq. extrusions with 5/16 wide slots

- **Material:** DELRIN

**Hardware Included**

- X = width of door opening
- Y = height of door opening
- LX1 = \( \frac{(X-6.75)}{2} + .9375 \)
- LX2 = \( \frac{(X-6.75)}{2} - .9375 \)
- LY = Y -.5625

---

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Bi-fold Door Pad

**EF-111**

**Material - DELRIN**

**UHMW**

**Delrin**

**Hardware Included**

```
X = width of door opening
Y = height of door opening

LX1 = \frac{(X-6.75)}{2} + .9375

LX2 = \frac{(X-6.75)}{2} - .9375

LY = Y-.5625
```
Bi-fold Door Pad

**EF-115** use on EX-52 and EX-54

- **Material**: DELRIN
- **Hardware Included**

**Dimensions**:
- \( X = \text{width of door opening} \)
- \( Y = \text{height of door opening} \)

**Calculations**:
- \( \text{LX1} = \frac{(X-6.75)}{2} + .9375 \)
- \( \text{LX2} = \frac{(X-6.75)}{2} - .9375 \)
- \( \text{LY} = Y - .5625 \)
Aluminum Hinge

Material - Aluminum
Finish - Clear Anodize

Fixed pin

.343 dia. thru (4)

Hardware Included
Plastic Hinge
(Adjustable Friction Type)

EF-20

Material - Plastic

Hardware Included

5/16” SLOTS

2.50

1.88

1.50

0.75

2.25

0.28 DIA. THRU
(4) HOLES

Tension Adjustment
Steel Hinge

EF-72

Material - Steel
Finish - Black Powder Coat

Hardware Included

Material - Steel
Finish - Black Powder Coat
Steel Slotted Hinge

EF-75

Material - Steel
 Finish - Black Powder Coat
Steel Lift-Off Hinge

EF-21LH Left Hand  EF-21RH Right Hand

Hardware Included

Material - Steel
Finish - Zinc Plated
Hidden Steel Hinge (.33" slot size)

EF-70

Drilled and countersunk for 1/4-20 FHCS (4)

Material - Steel
Finish - Black Powder Coat
Die Cast Zinc Hinge

EF-73

Hardware Included

Material - Zinc Die Cast
Finish - Black Powder Coat
Die Cast Zinc Locking Hinge

**EF-74**

**5/16” SLOTS**

- **Material**: Zinc Die Cast
- **Finish**: Black Powder Coat

Hardware Included

**Dimensions**:
- Width: 1.57" + 1.61"
- Height: 2.91" + 1.77"
- Thickness: .83" + .32" (Typ.)

**Contact Information**
- Address: 9116 Virginia Road, Lake in the Hills, IL 60156
- Telephone: 847/458-0993
- FAX: 847/458-0934
- E-mail: info@frame-world.com
- Website: frame-world.com
Heavy Duty Hinge Assembly

EB-130

Hardware Included
Material - Aluminum
Finish - Clear Anodize

nnylon flat washer (2)

bushing

drill and c'bore for 5/16-18 shcs typ.

Material - Aluminum
Finish - Clear Anodize
Left Hand Lift-Off Hinge - 5/16" slots

**EB-132**
One Set w/Long & Short Pin Assemblies

**EB-132L**
Long Pin Assembly Only

**EB-132S**
Short Pin Assembly Only

---

**Material** - Aluminum

**Finish** - Clear Anodize

**Hardware Included**
- 1/4 dia. nylon flat washer (2)
- .250 dia. dowell
- .88
- .75 typ.
- .38
- .25

**Note:** Use short and long pin assemblies together as shown to ease lift-off and replacement of doors.
Right Hand Lift-Off Hinge - 5/16" slots

One Set w/Long & Short Pin Assemblies

<table>
<thead>
<tr>
<th></th>
<th>EB-133L</th>
<th>EB-133S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long Pin Assembly Only</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Short Pin Assembly Only</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Hardware Included
Material - Aluminum
Finish - Clear Anodize

Note: Use short and long pin assemblies together as shown to ease lift-off and replacement of doors.
Heavy Duty Transition
5/16 - 1/4 slots Hinge Assembly

EB-140

Hardware Included
Material - Aluminum
Finish - Clear Anodize

5/16” SLOTS

EX-11

EX-1
Left Hand Transition
Lift-Off Hinge 5/16 - 1/4 slots

One Set w/Long & Short Pin Assemblies

EB-142
EB-142L
EB-142S

Long Pin Assembly Only
Short Pin Assembly Only

Hardware Included
Material - Aluminum
Finish - Clear Anodize

Note: Use short and long pin assemblies together as shown to ease lift-off and replacement of doors.

EB-142
EB-142L
EB-142S

EX-11

EX-1

EB-142L
EB-142S
Right Hand Transition Lift-Off Hinge 5/16 - 1/4 slots

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EB-143</td>
<td>One Set w/Long &amp; Short Pin Assemblies</td>
</tr>
<tr>
<td>EB-143L</td>
<td>Long Pin Assembly Only</td>
</tr>
<tr>
<td>EB-143S</td>
<td>Short Pin Assembly Only</td>
</tr>
</tbody>
</table>

Hardware Included
Material - Aluminum
Finish - Clear Anodize

Note: Use short and long pin assemblies together as shown to ease lift-off and replacement of doors.
Plastic Handle

**EF-15**

**Recommended Hardware**
1. (2) EF-11-.75 SHCS
2. (2) EF-2 T-nut

**Material - Black Plastic**

**Part No.** | **A** | **B** | **C**
---|---|---|---
EF-15A | 4.61 | 1.61 | 1.06
EF-15B | 5.20 | 1.77 | 1.02
EF-15C | 7.05 | 1.97 | 1.10
Offset Extrusion Door Handle

EF-48

Material: Zinc Plated Steel

Material: Anodized Aluminum

Hardware Included

5/16" SLOTS
Extruded Door Handle

Mounting Hardware Included

Material - Aluminum
Finish - Black Powder Coat

227
Extruded Door Handle

EF-181

Mounting Hardware Included

Material - Aluminum
Finish - Black Powder Coat
Extruded Door Hand Grip

EF-182

Mounting Hardware Included

Material - Aluminum
Finish - Black Powder Coat

5/16" SLOTS

8.00

.25 CLEARANCE THRU (2)

2.00

1.00

1.00

4.00

2.00
Safety Door Handle

EF-125
EF-126
EF-127

Black Handle Base
Colored Bolt Cover

EF-125 Black Cover
EF-126 Yellow Cover
EF-127 Orange Cover

Recommended Hardware
For 5/16" slot sizes, use:
(2) 11-222 & (2) EF-2A

For 1/4" slot sizes, use:
(2) 11-221 & (2) 11-210

Material - Plastic

Note: Fingers will not pass through

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Aluminum Handle

EF-16

Material - Aluminum  
Finish - Clear Anodize

Hardware Included

Note: 8-32 bolt length determined by panel thickness
Deluxe Door Handle

**EF-40**

**EF-40A**
Non-Locking

**EF-40B**
Locking

Hardware included

.875 dia mounting hole

For factory supplied mounting hole, order EF-40H and provide hole location

Material - Steel
Handle Finish - Black Powder Coat
Chrome Door Handle

EF-41

Material - Steel
Handle Finish - Chrome

EF-41A
Non-Locking

EF-41B
Locking

For factory supplied mounting holes, order EF-41H and provide hole location

EF-41C
Inside Handle

.75 dia. mounting hole

1.50
Adjustable Locking Handle (Male)

**EF-32**

- **EF-32-1**, L=0.78
- **EF-32-2**, L=1.25
- **EF-32-3**, L=0.78
- **EF-32-4**, L=1.25

Handle Material - Plastic

**5/16” SLOTS**
Adjustable Locking Handle (Female)

Handle Material - Plastic

EF-33

1.77

EF-33-1

tapped for 1/4-20

3.07

tapped for 5/16-18

EF-33-2

5/16" SLOTS
Door Stop Bracket

EB-35

Recommended Hardware
(1) EF-12-.63 BHCS
(1) EF-1 Pivot T-nut

Material - Aluminum
Finish - Clear Anodize

EF-60 Rubber Door Stop

Prevents door from over-swing
Deluxe Dead Bolt Latch

Material:
Mounting Plates: Aluminum, Clear Anodize
Dead Bolt: Zinc Plated Steel

Hardware Included

.75 slot (2 each)
.75
.44

.50
1.50
.25
1.50
2.00

.281 slot (2 each)
Deadbolt Latch

**EF-171**

.375 dia. Bolt

**5/16” SLOTS**

Hardware Included

Use with 5/16” slot extrusions

Material - Zinc Plated Steel
Magnetic Door Latch Assembly

EF-22

includes 1/4-20 FHCS striker and all hardware
Heavy Duty Magnetic Door Latch Assembly

EF-22HD

Material - Steel
Finish - Zinc Plate and Black Powder Coat

Hardware Included

Our most popular latch.
Mechanical Latch

EF-24

Use with 1 1/2" extrusions (5/16" slot size)

Hardware Included

Catch Material - Zinc Plated Brass
Base Material - Aluminum
Mechanical Door Latch 5/16" Slots

EF-78 excludes EX-52 & EX-54

Adjustable Tension

5/16" SLOTS

2.00

Door Front

.25

Hardware Included

Material Mounting Plates: Aluminum, Clear Anodize
Latch: Zinc Plated Brass
Mechanical Door Latch

EF-22A

Drilled and countersunk for 1/4-20 FHCS

Hardware Included

Catch Material - Zinc Plated Brass
Base Material - Aluminum (Clear Anodized)
Bearing Block (Plastic)

EF-34

Drilled and countersunk for 1/4-20 FHCS (2)

EF-34A L=1.50
EF-34B L=1.0

Hardware Included

Bearing Material - DELRIN (white)
Offset Bearing Block (Plastic)

**EF-35**

Drilled and countersunk for 1/4-20 FHCS (2)

- Load Capacity = 50 lbs.
- Bearing Material - DELRIN (white)

Hardware Included
Slider Block Bracket

EF-36

Note: See part no EB-38 for example

Recommended Hardware
(4) EF-157-.63
(2) EF-2A T-nut

Material - Aluminum
Finish - Clear Anodize

Drilled and Countersunk for 1/4-20 FHCS (4)

5/16 dia clearance

1.75
1.00
1.00
1.75
1.50
2.88

.69 typ.
Plastic Slider

**EF-37**

Load Capacity = 50 lbs.

Bearing Material - DELRIN (white)
Slider Assembly

**EF-38**
Slider Assembly (as shown)

**EF-38S**
Slider Assembly
(less clamp handle for sliding only)

---

Recommended Hardware

(2) EF-157-.63
(2) EF-2A T-nut
Blank Bearing Pad UHMW for 5/16" Slot extrusions EF-39

Material - UHMW (white)

Standard length is 60" and 120" — sold by the inch.
Blank Hanging Slider Track
5/16" Slot Size

Material - UHMW
Sold by the inch
Stock length is 60" & 120"
Color is Safety Yellow
Hanging Slider Track  5/16" Slot Size

Drilled and c'sunk for 1/4-20 FHCS (2)

Hardware Included
Material - UHMW
Color is Safety Yellow
T-slot Roller

Load Capacity 30 lbs. Hardware Included

Material - DELRIN (white)
Door Roller Block - 5/16" Slot (lift out)

1/8" offset
on center

<table>
<thead>
<tr>
<th>1/8&quot; offset</th>
<th>EF-88</th>
</tr>
</thead>
<tbody>
<tr>
<td>on center</td>
<td>EF-89</td>
</tr>
</tbody>
</table>

Door Clearance Between Sliders
= .25" using (4) EF-88 and (4) EF-35A
= .13" using (2) EF-88 with (2) EF-35A
and (2) EF-89 with (2) EF-34A

```
X= Door Opening Height
Y = Door Height = X - .91"
```

Hardware Included

EF-88
EF-89
EF-34A or EF-35A on top
EX-67 Frame
EX-6 Doors
EF-48 Offset Handle
Door Roller Block Assembly

**Hardware Included**

Load Capacity 25 lbs.

**Roller Material - DELRIN**

**Block Material - Aluminum (Clear Anodized)**
Single Mount Linear Bearing

EB-91

Note: 3-piece design for adjustability

Recommended Hardware
(2) EF-12-.875 BHCS
(2) EF-55 T-nut

Bearing Material - DELRIN
Plate Material - Aluminum (Clear Anodized)
Single Mount Linear Bearing with Locking Handle

**EB-91LH**

**Bearing Material - DELRIN**
**Plate Material - Aluminum (Clear Anodized)**

**Note:** 3-piece design for adjustability

**Recommended Hardware**
- (2) EF-12-.875 BHCS
- (2) EF-55 T-nut

**Dimensions:**
- .343 Dia. Thru (2)
- 1.50 typ
- .75 typ
- 3.00
Single Mount Linear Bearing

EB-93

Note: 3-piece design for adjustability

Bearing Material - DELRIN

Plate Material - Aluminum (Clear Anodized)

Recommended Hardware
(4) EF-12-.875 BHCS
(4) EF-55 T-nut

5/16” SLOTS

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Single Mount Linear Bearing
with Locking Handle

**EB-93LH**

**Bearing Material - DELRIN**

**Plate Material - Aluminum (Clear Anodized)**

**Recommended Hardware**

- (4) EF-12-.875 BHCS
- (4) EF-55 T-nut

**Dimensions**

- 2.25
- .13
- 1.50
- 2.13
- .50
- 4.50 .38 typ.
- 3.00
- 1.50 typ.
- .75 typ.
- .343 Dia. Thru (2 each side)
Double Mount Linear Bearing

EB-92

Note: 3-piece design for adjustability

Recommended Hardware
(8) EF-12-.875 BHCS
(8) EF-55 T-nut

Bearing Material - DELRIN
Plate Material - Aluminum (Clear Anodized)
Double Mount Linear Bearing with Locking Handle

**EB-92LH**

**Bearing Material** - DELRIN

**Plate Material** - Aluminum (Clear Anodized)

**Recommended Hardware**

- (8) EF-12-.875 BHCS
- (8) EF-55 T-nut

Dimensions:

- 2.25
- 2.13
- 1.50
- 1.50
- 0.13
- 0.50
- 4.50
- 6.00
- 0.38 typ.
- 0.75 typ.
**Single Mount Linear Bearing**

**EB-94**

![Diagram of Single Mount Linear Bearing](image)

**Note:** 3-piece design for adjustability

**Bearing Material -** DELRIN  
**Plate Material -** Aluminum (Clear Anodized)

**Recommended Hardware:**  
(4) EF-12-.875 BHCS  
(4) EF-55 T-nut

**Dimensions:**
- 2.25 x 1.50 typ.  
- 0.75 typ.  
- 6.00 x 1.50 typ.  
- 0.343 Dia. Thru (2 each side)  
- 1.50 typ.  
- 0.75 typ.  
- 3.00
Single Mount Linear Bearing with Locking Handle

EB-94LH

Bearing Material - DELRIN
Plate Material - Aluminum (Clear Anodized)

Recommended Hardware
(4) EF-12-.875 BHCS
(4) EF-55 T-nut
Double Mount Linear Bearing

EB-95

Note: 3-piece design for adjustability

Recommended Hardware
(8) EF-12-.875 BHCS
(8) EF-55 T-nut

Bearing Material - DELRIN
Plate Material - Aluminum (Clear Anodized)
Double Mount Linear Bearing with Locking Handle

**EB-95LH**

**Bearing Material - DELRIN**

**Plate Material - Aluminum (Clear Anodized)**

Recommended Hardware:

- (8) EF-12-.875 BHCS
- (8) EF-55 T-nut
Stanchions

5/16" SLOTS
Single Shaft Base

**EB-200**
with locking handle

**EB-201**
with locking 5/16 SHCS

---

**Material - Aluminum**

**Finish - Clear Anodize**

---

**Recommended Hardware**

(4) EF-11-1.75 SHCS
(4) EF-55 T-nut

---

For shafts, see page 275.

**EX-2, EX-67, EX-3, EX-37**

---

Cable/Hose pass-thru

---

2.25
1.50
2.25
3.00
1.001 dia.

---

2.25
2.25

---

Created from frame-world.com
Double Shaft Base

with locking 5/16 SHCS

EB-202
EB-203

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(6) EF-11-1.75 SHCS
(6) EF-55 T-nut

For shafts, see page 275.

EX-2, EX-67, EX-3, EX-37

Cable/Hose pass-thru

5/16" SLOTS
Single Shaft Mounting Plate

**EB-204** with locking handle
**EB-205** with locking 5/16 SHCS

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(4) EF-11-1.0 SHCS
(4) EF-55 T-nut

For shafts, see page 275.
Double Shaft Mounting Plate

with locking handle
with locking 5/16 SHCS

Material - Aluminum
Finish - Clear Anodize

Requires
(6) EF-11-1.0 SHCS
(6) EF-55 T-nut

For shafts, see page 275.

EX-2, EX-67,
EX-3, EX-37

5/16" SLOTS

EB-206
EB-207
Cross Clamp

**EB-208**
with locking handle

**EB-209**
with locking 5/16 SHCS

Material - Aluminum
Finish - Clear Anodize

For shafts, see page 275.
Single Shaft Mounting Block

with locking handle

with locking 5/16 SHCS

EB-210

EB-211

Material - Aluminum
Finish - Clear Anodize

For shafts, see page 275.
Double Shaft Mounting Block

**EB-212** with locking handle

**EB-213** with locking 5/16 SHCS

Material - Aluminum
Finish - Clear Anodize

For shafts, see page 275.

Requires
(6) EF-11-1.25 SHCS
(6) EF-55 T-nut

5/16" SLOTS

EX-2, EX-67, EX-3, EX-37

Dimensions:
- 2.25
- 1.50
- 2.88
- 6.50
- 2.88
- 3.50
- 1.001 dia (2)

Requires
(6) EF-11-1.25 SHCS
(6) EF-55 T-nut
Single Horizontal Base

with locking handle
with locking 5/16 SHCS

Material - Aluminum
Finish - Clear Anodize

Requires
(2) EF-11-1.25 SHCS
(2) EF-55 T-nut

For shafts, see page 275.

EX-2, EX-67,
EX-3, EX-37
**Single Horizontal Base**

**EB-216**
- with locking handle

**EB-217**
- with locking 5/16 SHCS

 Requires
(4) EF-11-1.25 SHCS
(4) EF-55 T-nut

**Material** - Aluminum
**Finish** - Clear Anodize

For shafts, see page 275.
EB-218  Anodized Aluminum
Stock Length = 71"

EB-219  Ground and Polished Steel (DOM)
Stock Length = 71"

Note: For any length other than stock length for all of the above, add EM-1 cutting charge
Conveyor Roller Mounting Block

**EF-150** 5/16" profiles
**EF-151** 1/4" profiles

Axle size up to 7/16" hex or 1/2" round
Fasteners Included

Rollers can be put in or taken out individually without taking conveyor apart

<table>
<thead>
<tr>
<th>Part no.</th>
<th>Inches</th>
</tr>
</thead>
<tbody>
<tr>
<td>EF-161</td>
<td>14.375</td>
</tr>
<tr>
<td>EF-162</td>
<td>20.375</td>
</tr>
<tr>
<td>EF-163</td>
<td>26.375</td>
</tr>
<tr>
<td>EF-166</td>
<td>14.375</td>
</tr>
<tr>
<td>EF-167</td>
<td>20.375</td>
</tr>
<tr>
<td>EF-168</td>
<td>26.375</td>
</tr>
</tbody>
</table>

Note: See page 277 for rollers.

Material - Aluminum
Finish - Clear Anodize
Conveyor Rollers

**EF-160**

**Steel Rollers**
(Mild-uncoated)
- EF-161 12.75" long
- EF-162 18.75" long
- EF-163 24.75" long

**Plastic Rollers**
(PVC)
- EF-166 12.75" long
- EF-167 18.75" long
- EF-168 24.75" long

Note: Other roller types available, consult factory.
**Socket Head Cap Screw**

**EF-11**

**Fractional**
EF-11 (5/16-18 thd)

| L - inch | .5 | .63 | .75 | .875 | 1.0 | 1.25 | 1.5 | 1.75 | 2.0 |

**Material** - Steel

**Finish** - Black Oxide Coated

**Metric**
EF-11M (m8 thd)

| L - mm | 12 | 16 | 20 | 25 | 30 | 35 |

**EF-11SS** Stainless Steel

**L-inch**
EF-11SS-.5
EF-11SS-.63
EF-11SS-.75
EF-11SS-1.0
EF-11SS-1.25

**Material** - Stainless Steel
Zinc Plated Cap Screw

Socket Head  **EF-11K**

**Fractional (5/16" - 18 thd) L = inch**

- EF-11K-.50
- EF-11K-.63
- EF-11K-.75
- EF-11K-.875
- EF-11K-1.00
- EF-11K-1.25
- EF-11K-1.50

**Metric (M8 x 1.25 thd) L = mm**

- EF-11MK-12
- EF-11MK-16
- EF-11MK-20
- EF-11MK-25
- EF-11MK-30
- EF-11MK-35

**Material - Steel**

**Finish - Bright Zinc Plated**

Button Head  **EF-12K**

**Fractional (5/16" - 18 thd) L = inch**

- EF-12K-.50
- EF-12K-.63
- EF-12K-.75
- EF-12K-.875
- EF-12K-1.00
- EF-12K-1.25
- EF-12K-1.50

**Metric (M8 x 1.25 thd) L = mm**

- EF-12MK-12
- EF-12MK-16
- EF-12MK-20
- EF-12MK-25
- EF-12MK-30
- EF-12MK-35

**Material - Steel**

**Finish - Bright Zinc Plated**
**Button Head Cap Screw**

**EF-12**

**Fractional EF-12**
(5/16-18 thd)
L - inch
- .5
- .63
- .75
- .875
- 1.0
- 1.25
- 1.5

**Metric EF-12M**
(m8 thd)
L - mm
- 12
- 16
- 20
- 25
- 30

Material - Steel
Finish - Black Oxide Coated

**EF-12SS**
Stainless Steel Button Head Cap Screw

**L-inch**
- EF-12SS-.5
- EF-12SS-.63
- EF-12SS-.75
- EF-12SS-1.0
- EF-12SS-1.25

Material - Stainless Steel
Flat Head Socket Cap Screws

<table>
<thead>
<tr>
<th>Thread Size</th>
<th>Steel</th>
<th>Stainless Steel</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/16-18 thd</td>
<td>EF-156</td>
<td>EF-156SS</td>
</tr>
<tr>
<td>1/4-20 thd</td>
<td>EF-157</td>
<td>EF-157SS</td>
</tr>
<tr>
<td>#10-32 thd</td>
<td>EF-158</td>
<td>EF-158SS</td>
</tr>
</tbody>
</table>

Material - Steel  
Finish - Black Oxide

Material - Stainless Steel  
Finish - Black Oxide Coated

**Button Head Cap Screw (Flanged)**  
**EF-12F**

<table>
<thead>
<tr>
<th>EF-12F (flanged)</th>
<th>(5/16-18 thd)</th>
</tr>
</thead>
<tbody>
<tr>
<td>L - inch</td>
<td></td>
</tr>
<tr>
<td>.5</td>
<td></td>
</tr>
<tr>
<td>.63</td>
<td></td>
</tr>
<tr>
<td>.75</td>
<td></td>
</tr>
<tr>
<td>1.0</td>
<td></td>
</tr>
</tbody>
</table>

Material - Steel  
Finish - Black Oxide Coated
Zinc Plated Hex Cap Screw

**EF-155**

**5/16” SLOTS**

Fractional
(5/16” - 18 thd) L = inch

- EF-155-50
- EF-155-63
- EF-155-75
- EF-155-875
- EF-155-1.00
- EF-155-1.25
- EF-155-1.50

Material - Steel
Finish - Bright Zinc Plated

Metric
(M8 x 1.25 thd) L = mm

- EF-155M-12
- EF-155M-16
- EF-155M-20
- EF-155M-25
- EF-155M-30

Material - Steel
Finish - Yellow Zinc Plated
5/16-18 Turn Lock T-Bolt

EF-9

Material - Steel
Finish - Zinc Plated
### T-Bolt

**EF-10**

<table>
<thead>
<tr>
<th>Fractional</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>EF-10 (5/16-18 thd)</td>
<td>EF-10M (m8 thd)</td>
</tr>
<tr>
<td>L - inch</td>
<td>L - mm</td>
</tr>
<tr>
<td>.75</td>
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<tr>
<td>1.0</td>
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<tr>
<td>1.25</td>
<td>35</td>
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<tr>
<td>1.5</td>
<td>45</td>
</tr>
<tr>
<td>2.0</td>
<td></td>
</tr>
</tbody>
</table>

**Material - Steel**

**Finish - Zinc Plated**
EF-13A Washer Hardened Steel Heavy Duty (Black Oxide) (use with M8 also)
EF-SS13A Washer (Stainless Steel)
EF-13S Washer (Zinc Plated)

Material - Steel

EF-13B Serrated Belleville (use with M8 also)

Material - Steel
Finish - Black Oxide

EF-13C 5/16-18 Hex Nut
EF-13CM M8 Hex Nut

Material - Steel
Finish - Zinc Plated

EF-13L Locking Washer

Material - Steel
Finish - Zinc Plated
Pivot T-nut with Rubber Bumper

Material - Steel
Finish - Zinc Plated

EF-1 5/16-18 thd
EF-1A 1/4-20 thd
EF-1B 10-32 thd
EF-1C m8 thd
EF-1D m6 thd
EF-1E 8-32 thd

Rubber bumper
Pivot T-nut with Set Screw

Material - Steel
Finish - Zinc Plated

<table>
<thead>
<tr>
<th>Part</th>
<th>Thread</th>
</tr>
</thead>
<tbody>
<tr>
<td>EF-65</td>
<td>5/16-18 thd</td>
</tr>
<tr>
<td>EF-66</td>
<td>1/4-20 thd</td>
</tr>
<tr>
<td>EF-67</td>
<td>10-32 thd</td>
</tr>
<tr>
<td>EF-68</td>
<td>m8 thd</td>
</tr>
<tr>
<td>EF-69</td>
<td>m6 thd</td>
</tr>
</tbody>
</table>

1/8" setscrew
Ball and Spring Pivot T-nut

<table>
<thead>
<tr>
<th>EF-91</th>
<th>use with EX-1, EX-2, EX-26, EX-3, and EX-36 only</th>
</tr>
</thead>
<tbody>
<tr>
<td>EF-92</td>
<td></td>
</tr>
<tr>
<td>EF-93</td>
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<td>EF-94</td>
<td></td>
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<tr>
<td>EF-95</td>
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</table>

5/16" SLOTS

<table>
<thead>
<tr>
<th>Material - Steel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finish - Zinc Plated</td>
</tr>
</tbody>
</table>
Economy T-nut

EF-2

5/16" SLOTS

Material - Steel
Finish - Zinc Plated

EF-2  5/16-18 thd
EF-2A  1/4-20 thd
EF-2B  10-32 thd
EF-2C  m8 thd
EF-2E  m6 thd
EF-2H  6-32 thd
11-217  8-32 thd

.75
Stainless Steel Economy T-nut

**EF-2ST**
5/16-18 thd

**EF-2AST**
1/4-20 thd

**EF-2CST**
m8 thd
Economy T-nut with Set Screw

- **EF-50**
  - 5/16-18 thd

- **EF-51**
  - 1/4-20 thd

- **EF-52**
  - m8 thd

**Material**: Steel

**Finish**: Zinc Plated

Set screw (included)

Set screw holds T-nut in place
Long Economy T-nut

Material - Steel
Finish - Zinc Plated

EF-4    5/16-18 thd
EF-4A   1/4-20 thd
EF-4B   10-32 thd
EF-4C   m8 thd
EF-4D   m6 thd
11-217  8-32 thd
11-219  6-32 thd
Double Thread Economy T-nut

Material - Steel
Finish - Zinc Plated
Heavy Duty T-nut

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EF-55</strong></td>
<td>.33 Slot Width</td>
</tr>
<tr>
<td><strong>EF-56</strong></td>
<td></td>
</tr>
<tr>
<td><strong>EF-57</strong></td>
<td></td>
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<tr>
<td><strong>EF-58</strong></td>
<td></td>
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<tr>
<td><strong>EF-59</strong></td>
<td></td>
</tr>
<tr>
<td><strong>EF-83</strong></td>
<td></td>
</tr>
<tr>
<td><strong>EF-84</strong></td>
<td></td>
</tr>
</tbody>
</table>

5/16" SLOTS

**EF-55** 5/16-18 thd  
**EF-56** 1/4-20 thd  
**EF-57** 10-32 thd  
**EF-58** m8 thd  
**EF-59** m6 thd  
**EF-83** 8-32 thd  
**EF-84** 6-32 thd

Note: Provides increased thread engagement

Material - Steel  
Finish - Zinc Plated
Continuous T-nut

.33 Slot Width  EF-53

Special lengths can be provided on request

Material - Steel
Finish - Zinc Plated
Blank Continuous T-nut

EF-53B

5/16” SLOTS

5/16” SLOTS

Standard Lengths
6”, 12” 24”

.63

Special Lengths
on Request

Note: Factory supplied tapped holes
   can be supplied per customer specification

Material - Steel
Finish - Zinc Plated
Z-nut

Use with 5/16" Slot Extrusions Only

Material - Steel
Finish - Zinc Plated
Push Lock Fastener

EF-14

5/16" SLOTS

Material - Nylon

Note: Hole can be threaded for permanent installation

EF-19 Plastic End Plates
Plastic End Plates

**EF-19**

- **EF-19-A**: use with EX-1, EX-6, EX-61, EX-63, EX-64, and EX-65
- **EF-19-B**: use with EX-2, EX-67 and EX-68
- **EF-19-C**: use with EX-3, and EX-36
- **EF-19-D**: use with EX-7
- **EF-19-E**: use with EX-52, and 11-251
- **EF-19-F**: use with EX-8
- **EF-19-G**: use with EX-82

Push Lock Fasteners included with ALL end plates

Material - Black ABS Plastic

Note: for metal covers, consult the factory.
Pneumatic Manifold
End Plate and Gasket

**PM-2**

**PM-2**

Drilled and C'bored for 5/16-18 SHCS (2)

3/8 NPT

Cork Gasket Included

EX-2, EX-67

Note: Cross-sectional internal area = .7 sq. in.

**PM-2B**

Drilled and C'bored for 5/16-18 SHCS (2)

EX-2, EX-67

Cork Gasket Included

Note: Cross-sectional internal area = .7 sq. in.

Recommended Hardware

(2) EF-11-1.0

Note: tap extrusion holes

5/16-18 thread
PM-3

Drilled and C'bored for 5/16-18 SHCS (4)

1/2 NPT

Cork Gasket Included

Note: Cross-sectional internal area = 3.5 sq. in.

PM-3B

Drilled and C'bored for 5/16-18 SHCS (4)

Cork Gasket Included

Note: Cross-sectional internal area = 3.5 sq. in.

Recommended Hardware
(4) EF-11-1.0
Pressure Manifold Plate

PM-31
PM-32

5/16" SLOTS

3.00
1.50
.75
1.50
.75

1/8 NPT PM-31
1/4 NPT PM-32

includes O-ring seal

Recommended Hardware
(2) EF-11-.875 SHCS
(2) EF-2 T-nuts

Material - Aluminum
Finish - Clear Anodize
Hanger Clip
5/16" wide slot

Material
Zinc Plated Steel

EF-145

5/16" SLOTS

.63

.22 thru

.63
Tool Hanger

ETH

5/16" SLOTS

Can be locked in place with 5/16-18 set screws

Max. load 40 lbs

Material - Steel
Finish - Zinc Plated
Tool Hanger

without Snap Hook
EF-146

with Snap Hook
EF-146A

Material
Hanger - Rigid Nylon
Hook - Zinc Plated Steel

Maximum Load 25 lbs
EF-28

use on all 5/16" slot extrusions with 1.5" sides

Material - Rigid PVC
Color - Black

Standard length 72"

Can be used as hand-rail covers
Clamp Bars for EX-1, EX-2, EX-3, EX-6

**EF-30**

- **Materials**: Aluminum
- **Finish**: Clear Anodize

**Specifications**:
- **Dimensions**:
  - EF-30A: CB for 5/16, 1.38 x .38
  - EF-30B: CB for 5/16, 1.50 x .625
  - EF-30C: CB for 5/16, 3.0 x .75

**Required Accessories**:
- (2) EF-11-63 SHCS
- (2) EF-2 T-nut

**Ordering Information**:
- **Part Number**: 5/16" SLOTS
- **Dimensions**: 2.88 x 1.50 x .38

---

**Notes**:
- For more information, visit frame-world.com
- Contact: 847/458-0993
- E-mail: info@frame-world.com

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**FrameWorld**

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---

**SHOP ONLINE at www.airlinehyd.com**

**800-999-7378**
Safety Switch Bracket

EB-110

5/16" SLOTS

Material - Aluminum
Finish - Clear Anodize

Requires
(2) EF-12.5 BHCS
(2) EF-2 T-nut

Stationary door post
Door frame
Actuator key bolted to door
Safety switch (not provided)
EF-1/EF-2
EF-12.5 (2)
EB-110

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**Single Tubing Clamp**

**EF-42**

<table>
<thead>
<tr>
<th>Tubing Size</th>
<th>X</th>
<th>Y</th>
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</thead>
<tbody>
<tr>
<td>EF-42A 3/8&quot;</td>
<td>1.06</td>
<td>.56</td>
</tr>
<tr>
<td>EF-42B 1/2&quot;</td>
<td>1.38</td>
<td>.88</td>
</tr>
<tr>
<td>EF-42C 3/4&quot;</td>
<td>1.63</td>
<td>1.19</td>
</tr>
<tr>
<td>EF-42D 1&quot;</td>
<td>1.69</td>
<td>1.19</td>
</tr>
</tbody>
</table>

Material - Polypropylene

Hardware Required:

- **EF-42A** (1) 11-224 SHCS, (1) EF-1A T-nut
- **EF-42B** (1) 11-225 SHCS, (1) EF-1A T-nut
- **EF-42C** (1) 11-226 SHCS, (1) EF-1A T-nut
- **EF-42D** (1) 11-226 SHCS, (1) EF-1A T-nut
Double Tubing Clamp

**EF-43**

<table>
<thead>
<tr>
<th>Tubing Size</th>
<th>X</th>
<th>Y</th>
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</thead>
<tbody>
<tr>
<td>EF-43A</td>
<td>3/8&quot;</td>
<td>1.66</td>
</tr>
<tr>
<td>EF-43B</td>
<td>1/2&quot;</td>
<td>2.18</td>
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<tr>
<td>EF-43C</td>
<td>3/4&quot;</td>
<td>2.81</td>
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<tr>
<td>EF-43D</td>
<td>1&quot;</td>
<td>2.88</td>
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Hardware Required:
- **EF-43A** (1) 11-224 SHCS, (1) EF-1A T-nut
- **EF-43B** (1) 11-225 SHCS, (1) EF-1A T-nut
- **EF-43C** (1) 11-226 SHCS, (1) EF-1A T-nut
- **EF-43D** (1) 11-226 SHCS, (1) EF-1A T-nut

Material - Polypropylene
Plate Material - Aluminum
Finish - Clear Anodize
Modular Vacuum Components and Tooling
### VB-Series Vacuum Cups

**Cup Material** is Nitrile Buna N Rubber (NBR)  
Silicone is specified with -S suffix

<table>
<thead>
<tr>
<th>PART NO</th>
<th>PART NO Silicone</th>
<th>∅D</th>
<th>A</th>
<th>B</th>
<th>T</th>
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</thead>
<tbody>
<tr>
<td>VB-5</td>
<td>VB-5-S</td>
<td>.22</td>
<td>.52</td>
<td>.14</td>
<td>#10-32</td>
</tr>
<tr>
<td>VB-10</td>
<td>VB-10-S</td>
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<td>.83</td>
<td>.16</td>
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<tr>
<td>VB-20</td>
<td>VB-20-S</td>
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<td>.96</td>
<td>.24</td>
<td>1/8-NPT</td>
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<tr>
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<td>1.34</td>
<td>.31</td>
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<tr>
<td>VB-50</td>
<td>VB-50-S</td>
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<td>1.73</td>
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<td>1.97</td>
<td>.71</td>
<td>1/2 NPT</td>
</tr>
<tr>
<td>VB-110</td>
<td>VB-110-S</td>
<td>4.53</td>
<td>2.48</td>
<td>.59</td>
<td>1/2 NPT</td>
</tr>
</tbody>
</table>

**Dimensions:**
- **A**
- **B**
- **T**
- ∅D

**Modular Tooling**
Vacuum Cups

VMB-Series

Cup Material is Nitrile Buna N Rubber (NBR)
Silicone is specified with -S suffix

<table>
<thead>
<tr>
<th>PART NO</th>
<th>PART NO Silicone</th>
<th>∅D</th>
<th>A</th>
<th>B</th>
<th>T</th>
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</thead>
<tbody>
<tr>
<td>VMB-20</td>
<td>VMB-20-S</td>
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<td>.96</td>
<td>.24</td>
<td>1/8 NPT</td>
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<tr>
<td>VMB-30</td>
<td>VMB-30-S</td>
<td>1.18</td>
<td>1.46</td>
<td>.28</td>
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<tr>
<td>VMB-50</td>
<td>VMB-50-S</td>
<td>1.97</td>
<td>2.36</td>
<td>.35</td>
<td>1/8 NPT</td>
</tr>
</tbody>
</table>

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Vacuum Cups

VU & VF-Series

<table>
<thead>
<tr>
<th>PART NO NBR</th>
<th>PART NO Silicone</th>
<th>∅D</th>
<th>A</th>
<th>B</th>
<th>T</th>
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<tbody>
<tr>
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<td>VU-6-S</td>
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<tr>
<td>VU-10</td>
<td>VU-10-S</td>
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<td>.61</td>
<td>.14</td>
<td>#10-32</td>
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<tr>
<td>VF-15</td>
<td>VF-15-S</td>
<td>.65</td>
<td>.63</td>
<td>.16</td>
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<tr>
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<td>VF-20-S</td>
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<td>.37</td>
<td>.24</td>
<td>1/8 NPT</td>
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<tr>
<td>VF-30</td>
<td>VF-30-S</td>
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<td>VF-50</td>
<td>VF-50-S</td>
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<td>1.04</td>
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<td>VF-110-S</td>
<td>4.41</td>
<td>1.14</td>
<td>.59</td>
<td>1/2 NPT</td>
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</table>

Cup Material is Nitrile Buna N Rubber (NBR)
Silicone is specified with -S suffix
Vacuum Cups Oval
VOC-Series

<table>
<thead>
<tr>
<th>PART NO</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>T1</th>
<th>T2</th>
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<tbody>
<tr>
<td>VOC-35</td>
<td>3.70</td>
<td>1.46</td>
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<td>.16</td>
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<td>1/8 NPT</td>
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<td>VOC-60</td>
<td>5.51</td>
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<td>1.18</td>
<td>.16</td>
<td>2.99</td>
<td>3/8 NPT</td>
<td>m8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MODEL</th>
<th>(in²)</th>
<th>LIFTING FORCE (lb) Perpendicular</th>
<th>LIFTING FORCE (lb) Parallel</th>
</tr>
</thead>
<tbody>
<tr>
<td>VOC-35</td>
<td>1.22</td>
<td>2.9 psi 8.7 psi 13.0 psi</td>
<td>2.9 psi 8.7 psi 13.0 psi</td>
</tr>
<tr>
<td>VOC-60</td>
<td>3.17</td>
<td>11.02 29.54 38.36</td>
<td>36.16 42.3</td>
</tr>
</tbody>
</table>

Cup Material is Nitrile Buna N Rubber (NBR)
Small Vacuum Stems

**MT-ST**

**Spring type with low fitting**

**Spring type with high fitting**

**Fixed and adjustable type**

Note: Vacuum cups sold separately

**Fittings accept Ø1/4 tubing**

<table>
<thead>
<tr>
<th>PART NO</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>USE WITH VACUUM CUPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>MT-ST-A</td>
<td>1.81</td>
<td>.88</td>
<td>.53</td>
<td>1/2-20</td>
<td>VB-5, VB-10, VB-15, VU-6, VU-10, VF-15</td>
</tr>
<tr>
<td>MT-ST-B</td>
<td>2.25</td>
<td>.88</td>
<td>.53</td>
<td>1/2-20</td>
<td></td>
</tr>
<tr>
<td>MT-ST-C</td>
<td>3.31</td>
<td>1.00</td>
<td>--</td>
<td>1/2-20</td>
<td></td>
</tr>
</tbody>
</table>
Medium Vacuum Stems

**MT-ST**

- **Spring type with low fitting**

**Fittings accept Ø1/4 tubing**

<table>
<thead>
<tr>
<th>PART NO</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>USE WITH VACUUM CUPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>MT-ST-D</td>
<td>2.25</td>
<td>.88</td>
<td>.53</td>
<td>1/2-20</td>
<td>VB-20, VF-20</td>
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<tr>
<td>MT-ST-E</td>
<td>2.50</td>
<td>.88</td>
<td>.53</td>
<td>1/2-20</td>
<td>VB-30, VB-50, VF-30, VF-50</td>
</tr>
</tbody>
</table>

Note: Vacuum cups sold separately
Large Vacuum Stems

**MT-ST**

Rigid clamp type with top fitting

![MT-ST-F](image)

![MT-ST-G](image)

Rigid clamp type with bottom fitting

![MT-ST-H](image)

Spring type with top fitting

![MT-ST-I](image)

Spring type with bottom fitting

![MT-ST-J](image)

![MT-ST-K](image)

Note: Vacuum cups sold separately

Fittings accept Ø1/4 tubing

<table>
<thead>
<tr>
<th>PART NO</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>SPRING</th>
<th>USE WITH VACUUM CUPS</th>
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</thead>
<tbody>
<tr>
<td>MT-ST-F</td>
<td>2.62</td>
<td>1.50</td>
<td>--</td>
<td>0.50</td>
<td>NO</td>
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</tr>
<tr>
<td>MT-ST-G</td>
<td>2.87</td>
<td>1.50</td>
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<td>0.50</td>
<td>NO</td>
<td>VF-50, VB-50</td>
</tr>
<tr>
<td>MT-ST-H</td>
<td>1.88</td>
<td>1.50</td>
<td>--</td>
<td>0.50</td>
<td>NO</td>
<td>VF-50, VB-50</td>
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<tr>
<td>MT-ST-I</td>
<td>3.25</td>
<td>2.13</td>
<td>1.00</td>
<td>0.50</td>
<td>YES</td>
<td>VF-20, VF-30, VB-20, VB-30</td>
</tr>
<tr>
<td>MT-ST-J</td>
<td>3.50</td>
<td>2.13</td>
<td>1.00</td>
<td>0.50</td>
<td>YES</td>
<td>VF-50, VB-50</td>
</tr>
<tr>
<td>MT-ST-K</td>
<td>2.56</td>
<td>1.88</td>
<td>1.00</td>
<td>0.50</td>
<td>YES</td>
<td>VF-50, VB-50</td>
</tr>
</tbody>
</table>

MODULAR TOOLS
MODULAR TOOLING

Vacuum Arms

MT-VA

MT-VA-6B
Bushings for spring type stems

MT-VA-4C
MT-VA-6C
Threaded for all 1/2-20 stems

MT-VA-4T
MT-VA-6T
Bushings for spring type stems

MT-VA-BC

Requires Square Nut [SMN-56]

<table>
<thead>
<tr>
<th>PART NO</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>MT-VA-4T</td>
<td>4.00</td>
<td>1.00</td>
<td>.50</td>
<td>.34</td>
<td>--</td>
<td>1/2-20 THD.</td>
</tr>
<tr>
<td>MT-VA-6T</td>
<td>6.00</td>
<td>1.00</td>
<td>.50</td>
<td>.34</td>
<td>--</td>
<td>1/2-20 THD</td>
</tr>
<tr>
<td>MT-VA-4C</td>
<td>4.00</td>
<td>1.00</td>
<td>.50</td>
<td>.56</td>
<td>--</td>
<td>Ø.50 CLAMP</td>
</tr>
<tr>
<td>MT-VA-6C</td>
<td>6.00</td>
<td>1.00</td>
<td>.50</td>
<td>.56</td>
<td>--</td>
<td>Ø.50 CLAMP</td>
</tr>
<tr>
<td>MT-VA-6B</td>
<td>6.00</td>
<td>1.00</td>
<td>.50</td>
<td>.62</td>
<td>--</td>
<td>Ø.50 BUSHING</td>
</tr>
<tr>
<td>MT-VA-BC</td>
<td>1.50</td>
<td>1.38</td>
<td>1.25</td>
<td>1.00</td>
<td>.69</td>
<td>Ø.50 BUSHING</td>
</tr>
</tbody>
</table>

Material - Aluminum
Finish - Clear Anodize
Large Vacuum Stem Assemblies

**MT-STL-CL**

**MT-STL-SP**

Clamp type

Spring type

Keyed for 5/16 slot extrusion profiles

**PART NO** | **A** | **B** | **C** | **D** | **SPRING** | **USE WITH VACUUM CUPS**
--- | --- | --- | --- | --- | --- | ---
**MT-STL-CL** | 4.36 | 2.94 | 1.44 | Ø1.00 | NO | VB-75, VB-150, VF-75, VF-150
**MT-STL-SP** | 4.36 | 2.75 | -- | Ø1.00 | YES | VB-75, VB-150, VF-75, VF-150

Note: Vacuum cups sold separately

Fittings Accept Ø1/4 Tubing
Small Vacuum Assembly Plate

MT-SAS

SEE ARM OPTIONS
SEE QUICK DISCONNECT OPTIONS
Square Nut SMN-56 (not shown)
SEE CUP OPTIONS
SEE STEM OPTIONS

Plate Material - Aluminum
Finish - Clear Anodize
MODULAR TOOLING

Medium Vacuum Assembly Plate

MT-MAS

SEE ARM OPTIONS
SEE QUICK DISCONNECT OPTIONS
SEE STEM OPTIONS
SEE CUP OPTIONS

Square Nut SMN-56 (not shown)

EX-11 (1” x 1”)

Plate Material - Aluminum
Finish - Clear Anodize

AS REQ’D (L)

2.50
2.00

5.00
1.00

1/4-20 THD. (4) THRU

Ø1/4 (2) FOR DOWEL PIN SLIP FIT-THRU

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06/09
Large Vacuum Assembly Plate

MT-LAS

SEE ARM OPTIONS
SEE QUICK DISCONNECT OPTIONS
SEE STEM OPTIONS
SEE CUP OPTIONS

Square Nut SMN-56 (not shown)

EX-6
(1-1/2” x 1-1/2”)

Plate Material - Aluminum
Finish - Clear Anodize

AS REQ’D (L)

8.00

2.50

2.00

6.50

1.00

1/4-20 THD. (4) THRU

\( \phi 1/4 \) (2) FOR DOWEL PIN SLIP FIT-THRU
Electromagnet Quick Change Module

MT-QCMG-A
MT-QCMG-B

NOTE: TOOLING SOLD SEPARATELY

DC-POWERED ELECTROMAGNET REQUIRES A DC POWER SUPPLY
10 WATTS, 12VDC
MAX. PULL 160 lbs.
Pneumatic Quick Change Module

MT-QCPN-A
MT-QCPN-B

NOTE: TOOLING SOLD SEPARATELY

1/4-20 THD. (4)

2.00

C’BORED FOR
1/4 S.H.C.S.

2.50

2.00

1.00

.80

1/8 NPT

φ1/4 DOWEL PINS

φ.251 (2)

MT-QCPN-A

MT-QCPN-B

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FAX 847/458-0934 e-mail: info@frame-world.com web: frame-world.com

SHOP ONLINE at www.airlinehyd.com 800-999-7378
### 90° Mini Clamp (Standard)

**MT-MCL-1**

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>G</th>
<th>STROKE</th>
<th>H</th>
<th>CLOSING FORCE*</th>
</tr>
</thead>
<tbody>
<tr>
<td>MT-MCL-1</td>
<td>0.787</td>
<td>.787</td>
<td>3.74</td>
<td>.787</td>
<td>M17 x 1</td>
<td>95°</td>
<td>M5</td>
<td>16 lbf</td>
</tr>
</tbody>
</table>

* at 87 PSI
### 90° Mini Clamp (Sensor)

**MT-MCL-2**

![Image of 90° Mini Clamp](image)

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>G</th>
<th>STROKE</th>
<th>H</th>
<th>CLOSING FORCE*</th>
</tr>
</thead>
<tbody>
<tr>
<td>MT-MCL-2</td>
<td>0.787</td>
<td>.787</td>
<td>4.92</td>
<td>.787</td>
<td>M17 x 1</td>
<td>95°</td>
<td>M5</td>
<td>16 lbf</td>
</tr>
</tbody>
</table>

* at 87 PSI

Order Sensors Separately

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>DESCRIPTION</th>
<th>CONNECTION</th>
<th>VOLTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>MT-MCL-SP</td>
<td>PNP Sensor</td>
<td>3-wire, 78.74&quot; long cable</td>
<td>6-24 vdc</td>
</tr>
<tr>
<td>MT-MCL-SN</td>
<td>NPN Sensor</td>
<td>3-wire, 78.74&quot; long cable</td>
<td>6-24 vdc</td>
</tr>
</tbody>
</table>
**Mini Clamp Mounting Arm**

**MT-MCA**

**PART NO** | **A** | **B** | **C** | **D** | **E** | **F**
---|---|---|---|---|---|---
MT-MCA-4C | 4.00 | 1.00 | .50 | .56 | -- | Ø.75 CLAMP
MT-MCA-6C | 6.00 | 1.00 | .50 | .56 | -- | Ø.75 CLAMP

Requires Square Nut **SMN-56**

Material - Aluminum
Finish - Clear Anodize
Vacuum Generator

**MODULAR TOOLING**

**VGEN-1**

\[ P = \text{COMPRESSED AIR CONNECTION} \]
\[ V = \text{VACUUM CONNECTION} \]
\[ E = \text{EXHAUST} \]

![Diagram of VGEN-1 Vacuum Generator](image)

- **Capacity:** Approx 4 in\(^2\)

![Pressure-Vacuum Graph](image)

**GRAPH OF SUPPLY PRESSURE vs. VACUUM PRODUCED**
Vacuum Generator

VGEN-2

P = COMPRESSED AIR CONNECTION
V = VACUUM CONNECTION
E = EXHAUST

Capacity: Approx 10 in²

GRAPH OF SUPPLY PRESSURE vs. VACUUM PRODUCED
**Vacuum Switch**

**VSW-1**

---

**SPECIFICATIONS**

<table>
<thead>
<tr>
<th><strong>APPLICABLE FLUID</strong></th>
<th>NON-CORROSIVE GASES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PRESSURE RANGE</strong></td>
<td>0.0 ~ - 101.3 kPa</td>
</tr>
<tr>
<td><strong>PRESSURE PROOF FORCE</strong></td>
<td>500 kPa</td>
</tr>
<tr>
<td><strong>MATERIAL OF PRESSURE PORT</strong></td>
<td>Zn DIE CASTING</td>
</tr>
<tr>
<td><strong>POWER SUPPLY VOLTAGE</strong></td>
<td>12~24 VDC ± 10%, RIPPLE (P-P) 10% or LESS</td>
</tr>
<tr>
<td><strong>POWER CONSUMPTION</strong></td>
<td>55 mA or LESS</td>
</tr>
<tr>
<td><strong>OUTPUT</strong></td>
<td>NPN or PNP OPEN COLLECTOR 2 OUTPUTS, MAX 80 mA</td>
</tr>
<tr>
<td><strong>RESPONSE TIME</strong></td>
<td>≤2.5 ms (CHATTERING-PROOF FUNCTION: 24ms, 192ms AND 768 ms SELECTIONS)</td>
</tr>
<tr>
<td><strong>PROTECTION STRUCTURE</strong></td>
<td>IP 40</td>
</tr>
<tr>
<td><strong>OPERATING AMBIENT TEMPERATURE (°C)</strong></td>
<td>OPERATION: 0–50°C, STORAGE: -20–60°C (NO CONDENSATION FREEZING)</td>
</tr>
</tbody>
</table>
Vacuum or Pneumatic Manifolds

MT-MFLD

<table>
<thead>
<tr>
<th>PART NO</th>
<th>PORTS</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>MT-MFD-L8</td>
<td>8</td>
<td>3.75</td>
<td>3.25</td>
<td>.75</td>
<td>1.25</td>
<td>.27</td>
<td>.75</td>
<td>1/4 NPT</td>
<td>1/8 NPT (8)</td>
</tr>
<tr>
<td>MT-MFD-L12</td>
<td>12</td>
<td>5.25</td>
<td>4.75</td>
<td>.75</td>
<td>1.25</td>
<td>.27</td>
<td>.75</td>
<td>1/4 NPT</td>
<td>1/8 NPT (12)</td>
</tr>
<tr>
<td>MT-MFD-S8</td>
<td>8</td>
<td>3.00</td>
<td>2.50</td>
<td>.63</td>
<td>1.00</td>
<td>.20</td>
<td>.50</td>
<td>1/8 NPT</td>
<td>10-32 THD. (8)</td>
</tr>
<tr>
<td>MT-MFD-S12</td>
<td>12</td>
<td>4.00</td>
<td>3.50</td>
<td>.63</td>
<td>1.00</td>
<td>.20</td>
<td>.50</td>
<td>1/8 NPT</td>
<td>10-32 THD. (8)</td>
</tr>
</tbody>
</table>
1/4" Wide Slot Profiles

EX-11
1" x 1"

EX-12
1" x 2"

EX-13
1" x 3"

EX-22
2" x 2"

EX-24
2" x 4"
1/4" Wide Slot Profiles

EX-11

- Finish = Clear anodized
- Material = 6105-T5 Aluminum
- Weight/ft = .530 lbs.
- 96", 144.25", 192.63" Lengths standard.

**Section Properties:**
- Moment of Inertia (in$^4$) = .049
- Section Modulus (in$^3$) = .097

EX-12

- Finish = Clear anodized
- Material = 6105-T5 Aluminum
- Est. Area = .807 Sq. In.
- Weight/ft = .949 lbs.
- 96", 192.63" Lengths standard.

**Section Properties:**
- Moment of Inertia (in$^4$) = .316
- Section Modulus (in$^3$) = .176
1/4" Wide Slot Profiles

EX-13

- Finish = Clear anodized
- Material = 6105-T5 Aluminum
- Est. Area = 1.162 Sq. In.
- Weight/ft = 1.367 lbs.
- 96", 192.63" Lengths standard.

Section Properties:
- Moment of Intertia in^4 1.376 0.387
- Section modulus in^3 0.917 0.516

EX-22

- Finish = Clear anodized
- Material = 6105-T5 Aluminum
- Est. Area = 0.451 Sq. In.
- Weight/ft = 1.468 lbs.
- 96", 192.63" Lengths standard.

Section Properties:
- Moment of Intertia in^4 .49
- Section modulus in^3 .097
**EX-24**

- Finish = Clear anodized
- Material = 6063-T6HT Aluminum
- Est. Area = 2.352 Sq. In.
- Weight/ft = 2.766 lbs.
- 96", 192.63" Lengths standard.

**Section Properties:**
- Moment of Inertia in^4: 3.634
- Section modulus in^3: 1.078

**SMOOTH-Series**

**EX-14**

- Finish = Clear anodized
- Material = 6105-T6 Aluminum
- Est. Area = .438 Sq. In.
- Weight/ft = .515 lbs.
- 96", 192.63" Lengths standard.

**Section Properties:**
- Moment of Inertia in^4: .0368
- Section modulus in^3: .0675
**SMOOTH-Series**

**EX-70**

- Finish = Clear anodized
- Material = 6105-T5 Aluminum

**Section Properties:**
- Moment of Intertia in^4: 0.057
- Section modulus in^3: 0.114

- Weight/ft = 0.576 lbs.
- 96", 192.63" Lengths standard.

**SMOOTH-Series**

**EX-71**

- Finish = Clear anodized
- Material = 6105-T5 Aluminum

**Section Properties:**
- Moment of Intertia in^4: 0.057
- Section modulus in^3: 0.114

- Weight/ft = 0.550 lbs.
- 96", 192.63" Lengths standard.
1/4" Wide Slot Profiles

**EX-72**

- Finish = Clear anodized
- Material = 6105-T5 Aluminum

**Section Properties:**
- Moment of Inertia in$^4$ .051
- Section modulus in$^3$ .098

**EX-73**

- Finish = Clear anodized
- Material = 6105-T5 Aluminum

**Section Properties:**
- Moment of Inertia in$^4$ .051
- Section modulus in$^3$ .099

**Material:**
- Weight/ft = .546 lbs.
- 96", 192.63" Lengths standard.

**SMOOTH-Series**

**EX-72**

1.00

.26 typ.

.09 typ.

201 dia.

(1/4" dia tap size)

23

**EX-73**

1.00

.26 typ.

.09 typ.

201 dia.

(1/4" dia tap size)

23

Weight/ft = .523 lbs.
96", 192.63" Lengths standard.
Section F.1
Corner Angle Brackets

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Section F.2
Gusseted Corner Angle Brackets

Section F.3
Steel Corner Angle Brackets
Section F.4
Internal & Adjustable Corner Brackets

Section F.5
Joining Plates
Section F.6
Floor Mounts, Casters and Adjustable Feet
Section F.7
Panels, Doors and Hardware
Section F.8
Hinges, Handles and Latches
Section F.9
Sliding Components and Bearings
Mounting brackets and plates are made from clear anodized aluminum unless specified.

Mounting and connecting brackets have 9/32" diameter clearance holes which are on .50" or 1.00" centers.

Any deviations are specified.

**Recommended torque for fasteners is 12-17 ft lbs.**
Corner Angle

Recommended Hardware
(2) 11-231 BHCS
(2) 11-210 T-nut

Material - Aluminum
Finish - Clear Anodize
Corner Angle

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(3) 11-231 BHCS
(3) 11-210 T-nut
Corner Angle

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(4) 11-231 BHCS
(4) 11-210 T-nut
Corner Angle

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(4) 11-231 BHCS
(4) 11-210 T-nut
Corner Angle

11-6

.281 Dia. Thru (8)

2.00

1.00

2.00 typ.

1.9

Recommended Hardware
(8) 11-231 BHCS
(8) 11-210 T-nut

Material - Aluminum
Finish - Clear Anodize

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Corner Angle

11-80

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(6) 11-231 BHCS
(6) 11-210 T-nut

1/4" SLOTS
Corner Angle

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(6) 11-231 BHCS
(6) 11-210 T-nut

3.00
.19
.281 Dia.
Thru (6)

1.00
1.00
1.00

1/4" SLOTS

Frame World

11-13

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FAX 847/458-0934  e-mail: info@frame-world.com  web: frame-world.com
Corner Angle

11-14

.19

2.00

.281 Dia. Thru (12)

2.00

1.00 typ.

3.00

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(12) 11-231 BHCS
(12) 11-210 T-nut
Slotted Corner Angle 11-15

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(2) 11-231 BHCS
(2) 11-210 T-nut
Slotted Corner Angle

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(4) 11-231 BHCS
(4) 11-210 T-nut
Corner Angle

11-81

.M.281 dia. thru (4)

1.00

2.50

.75

.75

1.00

2.50

.88

Recommended Hardware

(4) 11-231 BHCS
(4) 11-210 T-nut

Material - Aluminum
Finish - Clear Anodize

1/4" SLOTS
Corner Angle

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(6) 11-231 BHCS
(6) 11-210 T-nut
Corner Angle

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(6) 11-231 BHCS
(6) 11-210 T-nut
Corner Angle

11-37

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(6) 11-231 BHCS
(6) 11-210 T-nut

1/4” SLOTS

1.00

.281 Dia.
Thru (6)

1.00 typ.

.19

2.00

2.00

2.00
Transition Corner Angle

.33 wide slot to .27 wide slot

Recommended Hardware
(1) 11-231 BHCS
(1) EF-12-.63 BHCS
(1) 11-210 T-nut
(1) EF-2 T-nut

Material - Aluminum
Finish - Clear Anodize
Transition Corner Angle

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware:
- (2) 11-231 BHCS
- (2) 11-210 T-nut
- (1) EF-12-.63 BHCS
- (1) EF-2 T-nut
Transition Corner Angle

0.33 wide slot to 0.27 wide slot

**11-54**

<table>
<thead>
<tr>
<th>.343 Dia. Thru (2)</th>
<th>.281 Dia. Thru (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.19</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.00</td>
</tr>
</tbody>
</table>

- 3.00
- 1.50 typ.
- 0.75 typ.
- 1.00

**Material** - Aluminum

**Finish** - Clear Anodize

**Recommended Hardware**

- (2) 11-231 BHCS
- (2) 11-210 T-nut
- (2) EF-12.63 BHCS
- (2) EF-2 T-nut

**1/4" SLOTS**

**EX-1, EX-6 or EX-9**
Corner Gusset

11-160

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(2) 11-231 BHCS
(2) 11-210 T-nut

.281 dia. thru & c’bore (2)

1.00
.50
.50
1.00
.50
1.00

1/4" SLOTS

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Corner Gusset

11-161

0.281 dia thru & c'bore (4)

1.00

0.50

0.50

1.00

2.00

Recommended Hardware
(4) 11-231 BHCS
(4) 11-210 T-nut

Material - Aluminum
Finish - Clear Anodize
Corner Gusset

**11-162**

---

**Material - Aluminum**

**Finish - Clear Anodize**

---

**Recommended Hardware**

(6) 11-231 BHCS

(6) 11-210 T-nut
Corner Gusset

**11-163**

- **Material**: Aluminum
- **Finish**: Clear Anodize

**Recommended Hardware**
- (8) 11-231 BHCS
- (8) 11-210 T-nut

`.281 dia thru & c'bore (8)`

Dimensions:
- Height: 1.00
- Width: 4.00
- Length: 1.00 typ.
- Thickness: .50
- Diameter: .50

---

**SHOP ONLINE at www.airlinehyd.com**

**800-999-7378**
Corner Gusset

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(4) 11-231 BHCS
(4) 11-210 T-nut
Corner Gusset

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(8) 11-231 BHCS
(8) 11-210 T-nut
Corner Gusset

11-172

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(12) 11-231 BHCS
(12) 11-210 T-nut

.281 dia. thru & c'bore (12)
Corner Gusset

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(16) 11-231 BHCS
(16) 11-210 T-nut

Material - Aluminum
Finish - Clear Anodize
Corner Gusset

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(2) 11-221 SHCS
(2) 11-210 T-nut

1/4" SLOTS
Corner Gusset

11-34

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(4) 11-221 SHCS
(4) 11-210 T-nut

1/4" C'bore (2)

0.81 typ.
Angle Blocks

11-103

11-104

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware

11-103
(1) 11-222 SHCS
(1) 11-223 SHCS
(1) 11-210 T-nut

11-104
(2) 11-222 SHCS
(2) 11-223 SHCS
(2) 11-210 T-nut

Drilled and c'bore for 11-222 SHCS
Drilled and c'bore for 11-223 SHCS
Extrusion Gusset

Material - Aluminum (EX-11)
Finish - Clear Anodize

Hardware included
Special lengths (4" - 96") available on request 11-7-SP
Extrusion Gusset

11-12

Hardware included

Special lengths (4" - 96") available on request
11-12-SP

Material - Aluminum (EX-12)
Finish - Clear Anodize
Double Steel Corner Bracket

Recommended Hardware
(4) 11-230 BHCS
(4) 11-210 T-nut

Material - Steel
Finish - Zinc Plating
Steel Angle Bracket

**Material - Steel**
**Finish - Black Powder Coat**

Recommended Hardware
(4) 11-230 BHCS
(4) 11-210 T-nut

1/4" SLOTS
Steel Angle Bracket

Material - Steel
Finish - Black Powder Coat

Recommended Hardware
(4) 11-230 BHCS
(4) 11-210 T-nut

1/4" SLOTS
Welded Steel Angle Bracket

<table>
<thead>
<tr>
<th></th>
<th>11-61</th>
<th>Left Hand</th>
<th>11-62</th>
<th>Right Hand</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4&quot; SLOTS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Recommended Hardware:
- (4) 11-230 BHCS
- (4) 11-210 T-nut

Material - Steel
Finish - Black Powder Coat
Steel Angle Bracket

Material - Steel
Finish - Black Powder Coat

Recommended Hardware
(8) 11-230 BHCS
(8) 11-210 T-nut
Welded Steel Angle Bracket

Material - Steel
Finish - Black Powder Coat

Recommended Hardware
(8) 11-230 BHCS
(8) 11-210 T-nut

1/4" SLOTS
Anchor Fastener

<table>
<thead>
<tr>
<th>With Hardware</th>
<th>11-242</th>
</tr>
</thead>
<tbody>
<tr>
<td>Without Hardware</td>
<td>11-242P</td>
</tr>
<tr>
<td>With Metric Hardware</td>
<td>11-242M</td>
</tr>
</tbody>
</table>

Material:
- Anchor - Cast Zinc, Zinc Plated
- Bolt - Steel, Black Oxide Coating
- T-nut - Steel Zinc Coated
Double Anchor Fastener

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Metric Hardware</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-248</td>
<td>Double Anchor Fastener</td>
<td></td>
</tr>
<tr>
<td>11-248M</td>
<td>with Metric Hardware</td>
<td></td>
</tr>
<tr>
<td>11-249</td>
<td>Double Anchor Fastener</td>
<td></td>
</tr>
<tr>
<td>11-249M</td>
<td>with Metric Hardware</td>
<td></td>
</tr>
</tbody>
</table>

**Hardware Included**

- **11-248**
  - $x = 1.0$

- **11-249**
  - $x = 2.0$

**Material:**
- Anchor: Cast Zinc, Zinc Plated
- Bolt: Steel, Black Oxide Coating
- T-nut: Steel Zinc Coated

**Dimensions:**
- .562 dia. x .445 deep (2) places
- .500
Anchor Butt Fastener

11-243

with metric Hardware

11-234M

Material:
Anchor - Cast Zinc, Zinc Plated
Bolt - Steel, Black Oxide Coating
T-nut - Steel Zinc Coated

Hardware Included

.562 dia.
.445 deep
(2) holes

1/4" SLOTS
Universal Connector

### 11-262
- **Zinc Plated Steel**
- **11-262SS**
- **Stainless Steel**

Requires (1) 11-233 BHCS

Universal Panel Connector

### 11-267
- **Zinc Plated Steel**
- **11-267SS**
- **Stainless Steel**

Requires (1) 11-233 BHCS

No panel trimming required
Universal Connector

Material - Steel
Finish - Zinc Plated

Recommended Hardware
(2) 11-233 BHCS

Universal Connector

.25 dia. access hole (2)

1/4" SLOTS
Universal Connector

**11-269**

*use with EX-70, EX-71, EX-72 and EX-73*

- **Hole plug included**
- **.31 dia. access hole**
- **No panel trimming required.**

Recommended Hardware:
(1) 11-233 BHCS

**Material - Steel**
**Finish - Zinc Plated**
3-way Castle Corner

11-24

Material - Aluminum
Finish - Clear Anodize

Hole Plugs Included

Recommended Hardware
(3) 11-233 BHCS

Use with EX-11
Castle Corner

11-56 For 1" x 1" 1/4" Slot Profiles

Hardware Included
Material - Aluminum
Finish - Clear Anodize

EX-14

EX-14

EX-14

1/4" SLOTS
Castle Corner
For 1" x 1" 1/4" Slot Profiles

Hardware Included
Material: Aluminum
Finish: Clear Anodize

EX-14
Hardware Included
Material - Aluminum
Finish - Clear Anodize
Adjustable Corner Post Arm

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(3) 11-231 BHCS
(2) 11-210 T-nut

Assembled
(1) 11-10
(2) 11-11

.281 Dia. Thru (3)
3.51
1.00
50
50
1.00
4.00

1/4" SLOTS

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800-999-7378
Adjustable Corner Post

**11-10**

**Recommended Hardware**
- (1) 11-224 SHCS
- (1) 11-210 T-nut

**Assembled**
- (1) 11-10
- (2) 11-11

**Material - Aluminum**
**Finish - Clear Anodize**
Adjustable Corner Post

11-9

Recommended Hardware
(2) 11-224 SHCS
(2) 11-210 T-nut

Assembled
(1) 11-9
(2) 11-11

Material - Aluminum
Finish - Clear Anodize

drilled and c'bored for 1/4-20 shcs (2)
1/4-20 tap (both ends)
Pivoting Post Arm with Bushing

11-105 use with 11-108 or 11-109

For shoulder bolt, order (1) 11-204

Recommended Hardware
(2) 11-210 T-nut
(2) 11-231 BHCS
(1) 11-204 Shoulder Bolt

Assembled
(2) 11-105
(1) 11-109
(2) 11-204

Material - Aluminum
Finish - Clear Anodize
Adjustable Post Angle

**11-106**

- .281 dia. thru (3)
- .49
- 1.00
- 1.00
- 2.00
- 1.00
- .50
- 1.00

**Recommended Hardware**
- (3) 11-231 BHCS
- (2) 11-210 T-nut

**Material** - Aluminum

**Finish** - Clear Anodize
Pivoting Post Angle with Bushing

11-107 use with 11-108 or 11-109

For shoulder bolt, order (1) 11-204

5/16 I.D. bushing

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(2) 1/4-20 x .5 FHSC
(2) 11-210 T-nut
(1) 11-204 Shoulder Bolt

Assembled
(2) 11-107
(1) 11-109

Material - Aluminum
Finish - Clear Anodize
Pivoting Corner Post

use with 11-105 or 11-107

11-108

Recommended Hardware
(2) 11-224 BHCS
(2) 11-210 T-nut

Assembled
(2) 11-105
(1) 11-108
(2) 11-204

Material - Aluminum
Finish - Clear Anodize
Pivoting Corner Post

11-109 use with 11-105 or 11-107

1/4" SLOTS

Recommended Hardware
(1) 11-224 BHCS
(1) 11-210 T-nut

Assembled
(2) 11-105
(1) 11-109
(2) 11-204

Material - Aluminum
Finish - Clear Anodize
Joining Plate

11-38

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(2) 11-231 BHCS
(2) 11-210 T-nut

1/4" SLOTS
Joining Plate

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(3) 11-231 BHCS
(3) 11-210 T-nut
Joining Plate

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(4) 11-231 BHCS
(4) 11-210 T-nut

1/4" SLOTS

.281 dia. thru (4)
4.00
1.00
.50
1.00
.19

Material - Aluminum
Finish - Clear Anodize
Joining Plate

11-39

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(4) 11-231 BHCS
(4) 11-210 T-nut

1/4" SLOTS

2.00

.19

1.00 typ.

.281 Dia. Thru (4)

2.00
Joining Plate

**11-28**

![Diagram of joining plate with dimensions: .281 dia. thru (6), .19, 2.00, 3.00, 1.00 typ., .50 typ.]

**Recommended Hardware**
(6) 11-231 BHCS
(6) 11-210 T-nut

**Material:** Aluminum

**Finish:** Clear Anodize
Joining Plate

11-27

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(8) 11-231 BHCS
(8) 11-210 T-nut

06/09
Joining Plate

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(4) 11-231 BHCS
(4) 11-210 T-nut

.281 dia. thru (4)
.19
2.00
2.00
1.00 typ.
.50 typ.
3.00
Joining Plate

11-20

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(5) 11-231 BHCS
(5) 11-210 T-nut

1/4" SLOTS

.281 dia. thru (6).

.19

3.00

1.00

.50
Joining Plate

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(7) 11-231 BHCS
(7) 11-210 T-nut
Joining Plate

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(12) 11-231 BHCS
(12) 11-210 T-nut
Joining Plate

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(4) 11-231 BHCS
(4) 11-210 T-nut
Joining Plate

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(5) 11-231 BHCS
(5) 11-210 T-nut

1/4" SLOTS

06/09
Joining Plate

11-43

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(7) 11-231 BHCS
(7) 11-210 T-nut
Joining Plate

11-26

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(12) 11-231 BHCS
(12) 11-210 T-nut
Joining Plate

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(7) 11-231 BHCS
(7) 11-210 T-nut

11-51

1/4" SLOTS

06/09
Joining Plate

**11-40**

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware:
- (16) 11-231 BHCS
- (16) 11-210 T-nut

![Diagram of Joining Plate with dimensions and recommended hardware]
Leveling Plate

11-45

Material - Aluminum
Finish - Clear Anodize

Drilled & C'Bored for 1/4-20 SHCS
(2) plc's

Recommended Hardware
(2) 11-223 SHCS

11-45A 3/8-16 UNC thru
11-45B 1/2-13 UNC thru

Material - Aluminum
Finish - Clear Anodize
Leveling Anchor Plate

11-48

Material - Aluminum
Finish - Clear Anodize

11-48A  3/8-16 UNC thru
11-48B  1/2-13 UNC thru

Drilled & C'Bored for 1/4-20 SHCS
(2) pcs

7/16” Dia. thru for floor anchor

Recommended Hardware
(2) 11-223 SHCS
Leveling Plate

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(4) 11-223 SHCS

11-46A 3/8-16 UNC thru
11-46B 1/2-13 UNC thru

Drilled & C'Bored for 1/4-20 SHCS (4) plc's
Leveling Anchor Plate

Material - Aluminum

Finish - Clear Anodize

Recommended Hardware
(4) 11-223 SHCS

1/4-20 SHCS—(4) plcs

Drilled & C'Bored for 1/4-20 SHCS—(4) plcs

7/16 Dia. thru for floor anchor

11-47A 3/8-16 UNC thru
11-47B 1/2-13 UNC thru

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Leveling Anchor Plate

11-66

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(1) 11-223 SHCS

2.50
2.00
.50
.50
.50
1.00

.50
.50
.281 thru (c' bored from the bottom)

.56 thru

1/4" SLOTS
Leveling Plate

Material - Aluminum
Finish - Clear Anodize

1/4" SLOTS

11-49

11-49A 3/8-16 UNC tap thru
11-49B 1/2-13 UNC tap thru

Drilled & C'bored for 1/4-20 SHCS (3) pics
2.00 square

Recommended Hardware
(3) 11-221 SHCS
(3) 11-210 T-nut

Material - Aluminum
Finish - Clear Anodize
Threaded Stem Caster

**EX-12**

- 11-45A or 11-45B
- 1.25"
- H
- D

<table>
<thead>
<tr>
<th>Part no.</th>
<th>D</th>
<th>H</th>
<th>Stem</th>
<th>Brake</th>
<th>Max. Load</th>
<th>Wheel Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC-S1</td>
<td>2</td>
<td>2 7/8</td>
<td>3/8-16 x 1 1/4</td>
<td>Yes</td>
<td>125 lbs</td>
<td>1.00</td>
</tr>
<tr>
<td>EC-S2</td>
<td>3</td>
<td>3 3/4</td>
<td>3/8-16 x 1 1/4</td>
<td>Yes</td>
<td>250 lbs</td>
<td>1.25</td>
</tr>
<tr>
<td>EC-S3</td>
<td>4</td>
<td>5</td>
<td>1/4-13 x 1 1/2</td>
<td>Yes</td>
<td>300 lbs</td>
<td>1.25</td>
</tr>
</tbody>
</table>

Note: Wheel material is hard plastic
Swivel Plate Caster w/brake

EX-22 uses caster plate 11-50

The casters have (4) .343 dia mtg. holes on 1 3/4" x 3.00" centers

Recommended Hardware
(4) EF-12-.5 BHCS

Note: Wheel material is hard plastic

<table>
<thead>
<tr>
<th>Part no.</th>
<th>D</th>
<th>H</th>
<th>Brake</th>
<th>Max. Load</th>
<th>Wheel Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-110</td>
<td>3&quot;</td>
<td>4.13</td>
<td>Yes</td>
<td>250 lbs</td>
<td>1.25</td>
</tr>
<tr>
<td>11-111</td>
<td>4&quot;</td>
<td>5.00</td>
<td>Yes</td>
<td>300 lbs</td>
<td>1.25</td>
</tr>
<tr>
<td>11-112</td>
<td>5&quot;</td>
<td>6.00</td>
<td>Yes</td>
<td>325 lbs</td>
<td>1.25</td>
</tr>
</tbody>
</table>

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SHOP ONLINE at www.airlinehyd.com 800-999-7378
Fixed Plate Caster

11-120
11-121
11-122

EX-22 uses caster plate 11-50

The casters have (4) .343 dia. mounting holes on 1 3/4" x 3.00" centers

Recommended Hardware
(4) EF-12-.50 BHCS

Note: Wheel material is hard plastic

<table>
<thead>
<tr>
<th>Part no.</th>
<th>D</th>
<th>H</th>
<th>Brake</th>
<th>Max. Load</th>
<th>Wheel Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-120</td>
<td>3&quot;</td>
<td>4.13</td>
<td>No</td>
<td>250 lbs</td>
<td>1.25</td>
</tr>
<tr>
<td>11-121</td>
<td>4&quot;</td>
<td>5.00</td>
<td>No</td>
<td>300 lbs</td>
<td>1.25</td>
</tr>
<tr>
<td>11-122</td>
<td>5&quot;</td>
<td>6.00</td>
<td>No</td>
<td>325 lbs</td>
<td>1.25</td>
</tr>
</tbody>
</table>
Caster Plate

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware:
(4) 11-221 SHCS for extrusion end mounting
or
(4) 11-223 SHCS for extrusion slot mounting
(4) 11-210 T-nut

For Casters, See Pages 427 & 428
Caster Mounting Plate

11-55

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware:
(4) 11-221 SHCS
(4) 11-210 T-nut

5/16-18 tap (4)
1.75
2.94
2.50
3.75
1.00

Drill & c bore for 1/4-20 shcs (4)

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Threaded Stem Caster Bracket (Steel)

11-270

---

Material - Steel
Finish - Black Powder Coat

Recommended Hardware:
(2) 11-221 SHCS
(2) 11-210 T-nut

---

EC-S1
EC-S2

---
Adjustable Legs

<table>
<thead>
<tr>
<th>Style</th>
<th>Load Capacity</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-35</td>
<td>100 lbs</td>
<td>Steel</td>
</tr>
<tr>
<td>11-36</td>
<td>150 lbs</td>
<td>Steel</td>
</tr>
</tbody>
</table>

Deluxe Leg

<table>
<thead>
<tr>
<th>Style</th>
<th>Load Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-52</td>
<td>2000 lbs</td>
</tr>
</tbody>
</table>

DELIN Pad

Load = 100 lbs

Material - Steel

Load = 150 lbs

1/4-20 thread

Load = 2000 lbs

DELIN Pad

1.00 DIA.

0.50 DIA.

1.50 DIA.

1.25 DIA.

0.75 DIA.

1.00 DIA.
Steel Flanged Foot

Material - Steel
Finish - Black Powder Coat

Recommended Hardware
(2) 11-223 SHCS

use with EX-11
Steel Flanged Foot

11-71

Material - Steel
Finish - Black Powder Coat

Recommended Hardware
(2) 11-223 SHCS

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Steel Flanged Foot

Material - Steel
Finish - Black Powder Coat

Recommended Hardware
(4) 11-223 SHCS

Use with EX-22

Material - Steel
Finish - Black Powder Coat

Recommended Hardware
(4) 11-223 SHCS
Economy Aluminum Floor Mount

Recommended Hardware
(2) 11-232 BHCS
(2) 11-205 T-nut

Material - Aluminum
Finish - Clear Anodize

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SHOP ONLINE at www.airlinehyd.com 800-999-7378
Economy Aluminum Floor Mount

11-74

Recommended Hardware
(4) 11-232 BHCS
(4) 11-205 T-nut

Material - Aluminum
Finish - Clear Anodize
Wire Mesh Bracket (Steel)

Material - Steel
Finish - Black Powder Coat

Hardware Included
Cut wire mesh to X + .50"

EB-38-1 or EB-38-1/2

1/4" SLOTS

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SHOP ONLINE at www.airlinehyd.com  800-999-7378
Wire Mesh Retaining Strip (Rubber)

EB-38-1 or EB-38-1/2

Note: Provides snug fit

Cut wire mesh to $X + .38"$

$1/4"$ SLOTS
Door Slide (3 track)

Upper Door Slide (3 track)  11-32
Lower Door Slide (3 track)  11-33

11-32

Material - Rigid PVC

Sold in 6 foot lengths

cut panels to X - 1/2"

Material - Rigid PVC

Cut Panels to X - 1/2"

Sold in 6 foot lengths

1/4" SLOTS
T-Slot Cover

Part No.
11-244  Safety Orange
11-245  Gray
11-246  Black
11-247  Yellow

Sold in 6 ft. lengths

Material - Rigid PVC
Plastic Panel Retaining Gasket

Material - Black Flexible PVC

3/16" (.17 actual)

Cut panel to X + .50"

Note: Install panel, then gasket
Plastic Panel Retaining Gasket

11-298 3/16" for .170 thick panels
11-299 1/8" for .125 thick panels

Material:
Flexible Vinyl (Gray)

11-298 for .170 thick panels
11-299 for .125 thick panels

Cut panel to X + .50"

Material:
Flexible Vinyl (Gray)
Thin Panel Gasket

Material - Rubber (Black)

<table>
<thead>
<tr>
<th>Material</th>
<th>Thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 gage</td>
<td>.060</td>
</tr>
<tr>
<td>14 gage</td>
<td>.075</td>
</tr>
<tr>
<td>13 gage</td>
<td>.090</td>
</tr>
<tr>
<td>12 gage</td>
<td>.105</td>
</tr>
</tbody>
</table>

Cut panel to X + .50"
Panel Mounting Bracket

**11-260**

Clearance for 1/4-20 x 1.0 SHCS

 Requires
(1) 11-224 SHCS
(1) 11-210 T-nut
(1) 11-231 BHCS

Material - Aluminum
Finish - Clear Anodize
Panel Mounting Bracket

Material - Aluminum
Finish - Clear Anodized

Recommended Hardware
(1) 11-230 BHCS
(1) 11-210 T-nut
(1) 11-233 BHCS
(1) 11-240 Washer
(1) 11-241 Hex nut
Internal Corner Bracket

11-261

Material - Steel
Finish - Zinc Plated
Bi-fold Door Pad

Use on 1" x 1" sq. extrusions with 1/4" wide slots

Hardware Included
Pad material is DELRIN
Aluminum Hinge

11-252

Material - Aluminum
Finish - Clear Anodize

Hardware Included

1/4" SLOTS

.08 1.50
2.00
1.25
.281 Dia. Thru (4)
2.50
Steel Hinge

Material: Steel
Finish: Black Powder Coat

Hardware Included

1/4" SLOTS
Hidden Steel Hinge

Material - Steel
Finish - Black Powder Coat

Hardware Included

Drilled and countersunk for 10-32 FHCS

Fixed Pin

Material - Steel
Finish - Black Powder Coat
Steel Slotted Hinge

Hardware Included

Material - Steel
Finish - Black Powder Coat
Steel Lift-Off Hinge

11-253 Steel Lift-Off Hinge (left hand)
11-254 Steel Lift-Off Hinge (right hand)

Material - Steel
Finish - Zinc Plated

Hardware Included

1/4" SLOTS
Plastic Hinge

Material - Plastic

Hardware Included

.19 DIA. THRU (4) HOLES

Tension Adjustment

1.69
1.25
1.44
1.00
0.50

1/4" SLOTS

11-255

Material - Plastic
Aluminum Transition Hinge
(EX-1, EX-6 or EX-9 to EX-11)

Material - Aluminum
Finish - Clear Anodize

Hardware Included

1.5 x 1.5 profiles
1 x 1 profiles

.343 Dia. Thru (2)
.50
.281 Dia. Thru (2)
1.50
2.50
2.50

1/4" Slots

Heavy Duty Hinge

Hardware Included
Material - Aluminum
Finish - Clear Anodize

Material - Aluminum
Finish - Clear Anodize

06/09
9116 Virginia Road, Lake in the Hills, IL 60156
Telephone 847/458-0993
FAX 847/458-0934
e-mail: info@frame-world.com web: frame-world.com

SHQP ONLINE at www.airlinehyd.com 800-999-7378
Left Hand Lift-Off Hinge - 1/4" slots

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-402</td>
<td>One Set w/Long &amp; Short Pin Assemblies</td>
</tr>
<tr>
<td>11-402L</td>
<td>Long Pin Assembly Only</td>
</tr>
<tr>
<td>11-402S</td>
<td>Short Pin Assembly Only</td>
</tr>
</tbody>
</table>

Hardware Included
Material - Aluminum
Finish - Clear Anodize

Note: Use short and long pin assemblies together as shown to ease lift-off and replacement of doors.
Right Hand Lift-Off Hinge - 1/4" slots

One Set w/Long & Short Pin Assemblies 11-403
Long Pin Assembly Only 11-403L
Short Pin Assembly Only 11-403S

Hardware Included
Material - Aluminum
Finish - Clear Anodize

Note: Use short and long pin assemblies together as shown to ease lift-off and replacement of doors.
Heavy Duty Transition 5/16 - 1/4 slots
Hinge Assembly

EB-140

Hardware Included
Material - Aluminum
Finish - Clear Anodize
Left Hand Transition
Lift-Off Hinge 5/16 - 1/4 slots

One Set w/Long & Short Pin Assemblies
EB-142
Long Pin Assembly Only
EB-142L
Short Pin Assembly Only
EB-142S

Hardware Included
Material - Aluminum
Finish - Clear Anodize

Note: Use short and long pin assemblies together as shown to ease lift-off and replacement of doors.

EX-11
EB-142L
EB-142S

EX-1

EB-142

Right Hand Transition
Lift-Off Hinge 5/16 - 1/4 slots

**EB-143**
One Set w/Long & Short Pin Assemblies

**EB-143L**
Long Pin Assembly Only

**EB-143S**
Short Pin Assembly Only

**Hardware Included**
Material - Aluminum
Finish - Clear Anodize

**Note:** Use short and long pin assemblies together as shown to ease lift-off and replacement of doors.
Plastic Handle

11-256

Requires
(2) 11-221 SHCS
(2) 11-210 T-nut

Material - Plastic
Color - Black
Mechanical Latch 1/4" slots

Hardware Included
Material Mounting Plates: Aluminum, Clear Anodize
Latch: Zinc Plated Brass

Adjustable tension

2.00

1/4" SLOTS
Transition Mechanical Latch
5/16 - 1/4" slots

Adjustable tension

Hardware Included
Material Mounting Plates: Aluminum, Clear Anodize
Latch: Zinc Plated Brass
**Single Door Mechanical Latch**

**11-264**

- Catch Material: Zinc Plated Brass
- Base Material: Aluminum
- Hardware and Mounting Brackets Included

**Double Door Mechanical Latch**

**11-265**

- Catch Material: Zinc Plated Brass
- Base Material: Aluminum
- Hardware and Mounting Brackets Included
Deluxe Dead Bolt Latch

**Material:**
- Mounting Plates: Aluminum, Clear Anodize
- Dead Bolt: Zinc Plated Steel

**Hardware Included**

**Dimensions:**
- .281 slot (2 each) at various positions
- .50, 1.50, .25, 1.50, .75, 2.00, .44
Deadbolt Latch

11-273 .281 dia. Bolt

Hardware Included
Use with 1/4" slot extrusions
Material - Zinc Plated Steel
Heavy Duty Magnetic Door Latch Assembly

Material - Steel
Finish - Zinc Plated

Hardware Included

Material - Steel
Finish - Zinc Plated

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9116 Virginia Road  Lake in the Hills, IL 60156  Telephone 847/458-0993
FAX 847/458-0934  e-mail: info@frame-world.com  web: frame-world.com
Slider Assembly

<table>
<thead>
<tr>
<th>11-98</th>
<th>Slider Assembly (as shown)</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-99</td>
<td>Slider Assembly (less clamp handle for sliding only)</td>
</tr>
</tbody>
</table>

Bearing Material is DELRIN (White)

Hardware Included with 11-98 and 11-99
Plastic Slider

Load Capacity = 50lbs

Bearing Material is DELRIN (White)
Slider Bracket

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(2) 11-231 BHCS
(2) 11-210 T-nut
(2) 10-32 x 5/8 BHCS

Note: see part no. 11-98 for example
Blank Bearing Pad UHMW

for 1/4" slot extrusions 11-302

Stock Length 60"

Material - UHMW (White)
Offset Bearing Block (Plastic)

11-290

Drilled and countersunk for 10-32 FHCS (2)

.25 Between Doors with (2) 11-290
.125 Between Doors with (1) 11-290 and (1) 11-291

EX-12 or EX-22

Bearing material is DELRIN (White)

Hardware Included
Bearing Block (Plastic)

Drilled and countersunk for 10-32 FHCS (2)

Hardware Included

Bearing material is DELRIN (White)
Offset Bearing Block (Plastic)

11-293

Drilled and countersunk for 10-32 FHCS (2)

.25

.50

.06 offset

.50

.25

.22

1.00

.13 Between Doors with (2) 11-293

.06 Between Doors with (1) 11-293 and (1) 11-291

EX-12 or EX-22

Hardware Included

Bearing material is DELRIN (White)

1/4" SLOTS
Door Roller Block - 1/4" Slot (lift out)

Door Clearance Between Sliders
- .13" using (4) 11-288 and (4) 11-293
- .06" using (2) 11-288 with (2) 11-293 and (2) 11-289 with (2) 11-291

EX-12 Frame
11-291 or 11-293 on top

EX-11 Doors

X = Door Opening Height
Y = Door Height = X - .95"

Block material is annodized aluminum
Roller is DELRIN

Hardware Included
T-slot Roller

Hardware Included
Single Mount Linear Bearing

Recommended Hardware
(2) 11-233 BHCS
(2) 11-205 T-nut

Bearing Material - DELRIN
Plate Material - Aluminum
Finish - Clear Anodize

Note: 3-piece design for adjustability
Single Mount Linear Bearing with Locking Handle

11-91LH

Bearing Material - DELRIN
Plate Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(2) 11-233 BHCS
(2) 11-205 T-nut

1/4" SLOTS

.281 Dia. Thru (2)

.50 typ.

2.00

1.00 typ.

.50 typ.

.63

2.38

1.19

.13

1.31

2.31

.31
Single Mount Linear Bearing

11-93

Note: 3-piece design for adjustability

Recommended Hardware
(4) 11-233 BHCS
(4) 11-205 T-nut

Bearing Material - DELRIN
Plate Material - Aluminum
Finish - Clear Anodize
Single Mount Linear Bearing with Locking Handle

**11-93LH**

Bearing Material - DELRIN
Plate Material - Aluminum
Finish - Clear Anodize

Note: 3-piece design for adjustability

Recommended Hardware
(4) 11-233 BHCS
(4) 11-205 T-nut

1.56
1.19
1.75
.13

.50

.281 Dia. Thru (2 each side)

3.50 .28 typ.

1.00 typ

.50 typ.

2.00

.50 typ.
Double Mount Linear Bearing

Note: 3-piece design for adjustability

Recommended Hardware
(8) 11-233 BHCS
(8) 11-205 T-nut

Bearing Material - DELRIN
Plate Material - Aluminum
Finish - Clear Anodize

11-92
Double Mount Linear Bearing
with Locking Handle

11-92LH

Note: 3-piece design for adjustability

Recommended Hardware
(8) 11-233 BHCS
(8) 11-205 T-nut

Bearing Material - DELRIN
Plate Material - Aluminum
Finish - Clear Anodize
Single Mount Linear Bearing

EX-12 or EX-22

Note: 3-piece design for adjustability

Recommended Hardware
(4) 11-233 BHCS
(4) 11-205 T-nut

Bearing Material - DELRIN
Plate Material - Aluminum
Finish - Clear Anodize
Single Mount Linear Bearing
with Locking Handle

11-94LH

Bearing Material - DELRIN
Plate Material - Aluminum
Finish - Clear Anodize

Note: 3-piece design for adjustability

Recommended Hardware
(4) 11-233 BHCS
(4) 11-205 T-nut

EX-12 or EX-22

.281 Dia. Thru (2 each side)
Double Mount Linear Bearing

**11-95**

Note: 3-piece design for adjustability

Recommended Hardware
(8) 11-233 BHCS
(8) 11-205 T-nut

Bearing Material - DELRIN
Plate Material - Aluminum
Finish - Clear Anodize

EX-12 or EX-22

.281 dia. thru (4 each side)
Double Mount Linear Bearing with Locking Handle

11-95LH

Exid-12 or EX-22

.281 Dia. Thru (4 each side)

Recommended Hardware
(8) 11-233 BHCS
(8) 11-205 T-nut

Bearing Material - DELRIN
Plate Material - Aluminum
Finish - Clear Anodize

Note: 3-piece design for adjustability
Single Shaft Base

with locking handle 11-500
with locking 5/16 SHCS 11-501

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(4) 11-226 SHCS
(4) 11-205 T-nut

Cable/Hose pass-thru

For shafts, see page 496
Double Shaft Base

11-502 with locking handle
11-503 with locking 5/16 SHCS

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(6) 11-226 SHCS
(6) 11-205 T-nut

For shafts, see page 496
Single Shaft Mounting Base

With locking handle 11-504
With locking 5/16 SHCS 11-505

For shafts, see page 496

Recommended Hardware
(4) 11-223 SHCS
(4) 11-205 T-nut

Material - Aluminum
Finish - Clear Anodize
Double Shaft Mounting Base

**11-506** with locking handle
**11-507** with locking 5/16 SHCS

For shafts, see page 496

Recommended Hardware
- (6) 11-223 SHCS
- (6) 11-205 T-nut

Material - Aluminum
Finish - Clear Anodize
Double Shaft Mounting Block

with locking handle 11-508
with locking 5/16 SHCS 11-509

Material - Aluminum
Finish - Clear Anodize

Recommended Hardware
(4) 11-224 SHCS
(4) 11-205 T-nut

For shafts, see page 496
Single Shaft Mounting Block

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-510</td>
<td>with locking handle</td>
</tr>
<tr>
<td>11-511</td>
<td>with locking 5/16 SHCS</td>
</tr>
</tbody>
</table>

Material - Aluminum  
Finish - Clear Anodize

Recommended Hardware:
(2) 11-224 SHCS  
(2) 11-205 T-nut

For shafts, see page 496
Single Horizontal Base

with locking handle 11-512
with locking 5/16 SHCS 11-513

Recommended Hardware
(4) 11-226 SHCS
(4) 11-205 T-nut

Material - Aluminum
Finish - Clear Anodize

For shafts, see page 496
Stanchion Shafts

EB-218  Anodized Aluminum
Stock Length = 71"

EB-219  Polished Steel
Stock Length = 71"

Note: For any length other than stock length for all of the above, add EM-1 cutting charge
### Button Head Cap Screw

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-230</td>
<td>1/4-20 thd x 3/8&quot; long</td>
</tr>
<tr>
<td>11-231</td>
<td>1/4-20 thd x 1/2&quot; long</td>
</tr>
<tr>
<td>11-232</td>
<td>1/4-20 thd x 5/8&quot; long</td>
</tr>
<tr>
<td>11-233</td>
<td>1/4-20 thd x 3/4&quot; long</td>
</tr>
<tr>
<td>11-234</td>
<td>1/4-20 thd x 1.0&quot; long</td>
</tr>
<tr>
<td>11-235</td>
<td>1/4-20 thd x 1.25&quot; long</td>
</tr>
</tbody>
</table>

Finish - Black Oxide

### Stainless Steel Button Head Cap Screw

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-456</td>
<td>1/4-20 thd</td>
</tr>
</tbody>
</table>

L-inch

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-456</td>
<td>.38</td>
</tr>
<tr>
<td>11-456</td>
<td>.50</td>
</tr>
<tr>
<td>11-456</td>
<td>.63</td>
</tr>
<tr>
<td>11-456</td>
<td>.75</td>
</tr>
</tbody>
</table>
Metric Button Head Cap Screw

11-454

Material - Steel
Finish - Black Oxide

Flanged Button Head Cap Screw

11-350
11-351
11-352

Part No.
11-350 1/4-20 thd x 3/8" long
11-351 1/4-20 thd x 1/2" long
11-352 1/4-20 thd x 3/4" long

Finish - Black Oxide
<table>
<thead>
<tr>
<th>Part No.</th>
<th>Thread Size</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-220</td>
<td>1/4-20</td>
<td>3/8&quot;</td>
</tr>
<tr>
<td>11-221</td>
<td>1/4-20</td>
<td>1/2&quot;</td>
</tr>
<tr>
<td>11-222</td>
<td>1/4-20</td>
<td>5/8&quot;</td>
</tr>
<tr>
<td>11-223</td>
<td>1/4-20</td>
<td>3/4&quot;</td>
</tr>
<tr>
<td>11-224</td>
<td>1/4-20</td>
<td>1.0&quot;</td>
</tr>
<tr>
<td>11-225</td>
<td>1/4-20</td>
<td>1.25&quot;</td>
</tr>
<tr>
<td>11-226</td>
<td>1/4-20</td>
<td>1.50&quot;</td>
</tr>
</tbody>
</table>

Finish - Black Oxide
**Metric Socket Head Cap Screw**

**11-450**

- **m6 thd**
- **Material - Steel**
- **Finish - Black Oxide**

<table>
<thead>
<tr>
<th>Length</th>
<th>Metric</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-450-10</td>
<td>10mm</td>
<td></td>
</tr>
<tr>
<td>11-450-12</td>
<td>12mm</td>
<td></td>
</tr>
<tr>
<td>11-450-16</td>
<td>16mm</td>
<td></td>
</tr>
<tr>
<td>11-450-20</td>
<td>20mm</td>
<td></td>
</tr>
<tr>
<td>11-450-25</td>
<td>25mm</td>
<td></td>
</tr>
</tbody>
</table>

**Stainless Steel Socket Head Cap Screw**

**11-452**

- **1/4-20 thd**

<table>
<thead>
<tr>
<th>L-inch</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-452-.5</td>
<td></td>
</tr>
<tr>
<td>11-452-.63</td>
<td></td>
</tr>
<tr>
<td>11-452-.75</td>
<td></td>
</tr>
<tr>
<td>11-452-1.0</td>
<td></td>
</tr>
</tbody>
</table>
Zinc Plated Cap Screw

Socket Head 11-220K

Fractional
(1/4 - 20 thd)
Part No  Thread Length
11-220K  .375
11-221K  .50
11-222K  .63
11-223K  .75
11-224K  1.00

Metric
(M6 x 1.0 thd)
Part No  Thread Length
11-450K-10  10
11-450K-12  12
11-450K-16  16
11-450K-20  20
11-450K-25  25

Material - Steel
Finish - Bright Zinc Plated

Button Head 11-230K

Fractional
(1/4 - 20 thd)
Part No  Thread Length
11-230K  .375
11-231K  .50
11-232K  .63
11-233K  .75
11-234K  1.00

Metric
(M6 x 1.0 thd)
Part No  Thread Length
11-454K-10  10
11-454K-12  12
11-454K-16  16
11-454K-20  20
11-454K-25  25

Material - Steel
Finish - Bright Zinc Plated
Zinc Plated Hex Cap Screw

11-458

Fractional
(1/4" - 18 thd) L = inch

11-458-.38
11-458-.50
11-458-.63
11-458-.75
11-458-1.00
11-458-1.25

Material - Steel
Finish - Bright Zinc Plated

Metric
(M6 x 1.25 thd) L = mm

11-458M-12
11-458M-16
11-458M-20
11-458M-25
11-458M-30

Finish - Yellow Zinc Plated

Flat Head Socket Cap Screws

EF-157
EF-158

1/4-20 thd.
#10-32 thd.

Steel

(1/4" - 20 thd) L = inch
EF-157-.50
EF-157-.63
EF-157-.75
EF-157-1.0

(1/4" - 20 thd) L = inch
EF-157SS-.50
EF-157SS-.63

Stainless Steel

(1/4" - 20 thd) L = inch
EF-157SS-.50
EF-157SS-.63

(1/4" - 20 thd) L = inch
EF-157SS-.50
EF-157SS-.63

1/4" SLOTS

Material - Stainless Steel
Finish - Black Oxide

Material - Stainless Steel
## Economy T-Nut (Offset Thread)

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Thread Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-210</td>
<td>1/4-20 thd</td>
</tr>
<tr>
<td>11-211</td>
<td>10-32 thd</td>
</tr>
<tr>
<td>11-212</td>
<td>m6 thd</td>
</tr>
<tr>
<td>11-213</td>
<td>8-32 thd</td>
</tr>
<tr>
<td>11-214</td>
<td>6-32 thd</td>
</tr>
<tr>
<td>11-239</td>
<td>m5 thd</td>
</tr>
</tbody>
</table>

**Material:** Steel  
**Finish:** Zinc Plated
### Economy T-Nut (Centered Thread)

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Thread Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-215</td>
<td>1/4-20 thd</td>
</tr>
<tr>
<td>11-216</td>
<td>10-32 thd</td>
</tr>
<tr>
<td>11-217</td>
<td>8-32 thd</td>
</tr>
<tr>
<td>11-219</td>
<td>6-32 thd</td>
</tr>
<tr>
<td>11-215SS</td>
<td>1/4-20 thd</td>
</tr>
<tr>
<td></td>
<td>Stainless Steel T-nut</td>
</tr>
</tbody>
</table>

**Material:** Steel  
**Finish:** Zinc Plated
Double Economy T-nut

11-360

1/4-20 thd (x2)

Material - Steel
Finish - Zinc Plated
Pivot T-Nut with Rubber Bumper

Material - Steel
Finish - Zinc Plated

Part No.
11-201 1/4-20 thd
11-202 10-32 thd
11-203 m6 thd
11-227 8-32 thd
Pivot T-nut with Set Screw

11-340
11-341
11-342

Material - Steel
Finish - Zinc Plated

10-32 setscrew included

1/4-20 thd
10-32 thd
m6 thd

.75
## Heavy Duty T-Nut

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Thread Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-205</td>
<td>1/4-20 thd</td>
</tr>
<tr>
<td>11-206</td>
<td>10-32 thd</td>
</tr>
<tr>
<td>11-207</td>
<td>M6 thd</td>
</tr>
<tr>
<td>11-208</td>
<td>8-32 thd</td>
</tr>
<tr>
<td>11-209</td>
<td>6-32 thd</td>
</tr>
</tbody>
</table>

**Note:** Provides increased thread engagement

**Material:** Steel  
**Finish:** Zinc Plated
Continuous T-nut

.26 slot width

1/4-20 thd (12)

1.00 typ.

.50

Special Lengths can be provided on request
Material is zinc plated steel

Material - Steel
Finish - Zinc Plated
Blank Continuous T-nut

**11-218B** .25 inch slot size

Standard Lengths
6", 12", 24"

Special lengths available upon request

Note: Factory supplied tapped holes can be supplied per customer specification

Material - Steel
Finish - Zinc Plated
1/4" Washers and Nuts

11-240
Washer Hardened Steel Heavy Duty
(Black Oxide)

11-240SS
Washer (Stainless Steel)

11-240S
Washer (Zinc Plated)

Material - Steel
Finish - Black Oxide

11-241
1/4-20 Hex Nut

11-241M
M6-1.0 Hex Nut

Material - Steel
Finish - Zinc Plated

11-240L
Locking Washer

Material - Steel
Finish - Zinc Plated
## Plastic End Plates

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Extrusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-250</td>
<td>Plastic End Plate 11-250</td>
<td>EX-11</td>
</tr>
<tr>
<td>11-257</td>
<td>Plastic End Plate 11-257</td>
<td>EX-12</td>
</tr>
<tr>
<td>11-258</td>
<td>Plastic End Plate 11-258</td>
<td>EX-22</td>
</tr>
<tr>
<td>11-259</td>
<td>Plastic End Plate 11-259</td>
<td>EX-13</td>
</tr>
<tr>
<td>11-277</td>
<td>Plastic End Plate 11-277</td>
<td>EX-14</td>
</tr>
</tbody>
</table>

### Push Lock Fasteners

- Included with each end plate
- Material: Black ABS

Note: For metal covers, consult the factory.
Push Lock Fastener

Material - Nylon

Note: thread bolt hole for permanent installation

To be used with Plastic End Caps
Pressure Manifold Plate

11-100

2.00
1.00
.50
.50
2.00
3/8" NPT

Cross Sectional Area = 1.63 sq. in.

Noted: for side porting, use 11-101 or 11-102

drilled & c'bored for 1/4-20 shcs (4)

Gasket, Cork

Gasket Included
Requires (4)11-224 SHCS

Material - Aluminum
Finish - Clear Anodize
Pressure Manifold Plate

1/8 NPT
1/4 NPT

Includes O-ring Seal
Requires
(2) 11-221 SHCS
(2) 11-210 T-Nut

O-ring Material - Buna N
Material - Aluminum
Finish - Clear Anodize
Hanger Clip

Material: Steel
Finish: Zinc Plated

.63

.22 thru
Extrusion Molding
use on all 1/4" slot extrusions with 1.0" sides 11-320

Material - Rigid PVC
Color - Black

Standard length 72"

Can be used as handrail covers
Drill Fixture

Use on EX-11, EX-12, EX-13, EX-22 for drilling access holes for universal style corners

Material - Aluminum
Finish - Clear Anodize

Hardware Included
FRAME-WORLD Extruded Aluminum
Specifications and Tolerances

- **Flatness:** within .004" per inch of width
- **Twist:** will not exceed .25° per foot with a maximum of 1.5° total in (16) feet.
- **Straightness:** within .0125" per foot and within a maximum of .120 in (16) feet
- **Length:** +.125" for standard length
  +.015" for cut pieces
- **Yield Strength:** 35,000 PSI
- **Tensile Strength:** 38,000 PSI
- **Surface Finish:** Etch and clear anodize standard
  Powder Coating in color is also available.

Metric Sizes for FRAME-WORLD Extrusions and Accessories

FRAME-WORLD extrusions and accessories are designed using standard American dimensions, and use American dimension fasteners. Metric size fasteners are stocked as catalog items and conversion of extrusion profile to nominal or nearest metric size in whole mm is simple: 1 inch = 25 mm, 1.5 inches = 38 mm, 3 inches = 76 mm.

**Self Locking Feature (5/16" wide slots)**

Our EX-1, EX-2, EX-26, EX-3 and EX-36 extrusion has a 2-3 degree decline form the extrusion edge to slot centerline.
Our EX-6, EX-7, EX-8, EX-52, EX-54, EX-61, EX-63, EX-64, EX-65, EX-66, EX-67, EX-68 and EX-69 extrusions have a 1 degree decline from the extrusion edge.

When fasteners are properly tightened, this feature serves as a lock mechanism to form a shake-proof connection.

**Recommended torque on fasteners**

5/16-18 or m8 thread - 15 to 20 ft/lbs.

The FRAME-WORLD EX-11, EX-12, EX-13, EX-14, EX-22, EX-70, EX-71, EX-72, EX-73 and EX-24 extrusions have a .5 – 1.0 degree decline from extrusion edge to slot centerline.

This feature serves as a lock mechanism forming a shake-proof connection to keep all fasteners tight.

**Recommended torque on fasteners**

1/4-20 or m6 thread - 12 to 17 ft/lbs.
• Finish = Clear anodized
• Material = 6105-T5 Aluminum
• Est. Area = 1.164 Sq. In.

• Weight/ft = 1.4522 lbs.
• 96", 144.25", 192.63" Lengths standard.

Section Properties:
Moment of Intertia in^4 = .242
Section modulus in^3 = .323

Load condition:
Fixed at both ends, load at center
Deflection = y (inches)

\[ y = \frac{PL^3}{4.65 \times 10^8} \]
EX-1 Structural Aluminum Extrusions

Load condition:
Fixed at one end, sliding at one end, load at center
Deflection = Y (inches)

\[ E \frac{L^5}{24EI} = \frac{PL^3}{2.60 \times 10^8} \]

Load condition:
Fixed at one end, load at unsupported end
Deflection = Y (inches)

\[ E \frac{L^5}{24EI} = \frac{PL^3}{7.26 \times 10^6} \]
Structural Aluminum Extrusions

EX-2

- Finish = Clear anodized
- Material = 6105-T5 Aluminum
- Est. Area = 2.051 Sq. In.
- Weight/ft = 2.471 lbs.
- 96", 144.25", 192.63" Lengths standard.

Section Properties:
- Moment of Intertia in^4: 1.76, .481
- Section modulus in^3: 1.173, .641

Load condition:
- Fixed at both ends, load at center
- Deflection = y (inches)

Load at center

Span

Deflection = y

y = \frac{PL^3}{3.38 \times 10^6}

y = \frac{PL^3}{9.24 \times 10^8}
Load condition:
Fixed at one end, sliding at one end, load at center
Deflection = Y (inches)

Load condition:
Fixed at one end, load at unsupported end
Deflection = Y (inches)
Structural Aluminum Extrusions

**EX-3**

- **Finish =** Clear anodized
- **Material =** 6105-T5 Aluminum
- **Est. Area =** 3.188 Sq. In.
- **Weight/ft =** 4.037 lbs.
- **96”, 144.25”, 192.63”**
  Lengths standard.

**Section Properties:**
- Moment of Intertia in$^4$ 3.26
- Section modulus in$^3$ 2.173

**Load condition:**
- Fixed at both ends, load at center
- Deflection = $y$ (inches)

**Equation:**

$$y = \frac{PL^3}{6.26 \times 10^9}$$

<table>
<thead>
<tr>
<th>Load lbs (P)</th>
<th>Load at center</th>
</tr>
</thead>
<tbody>
<tr>
<td>7000</td>
<td>10</td>
</tr>
<tr>
<td>6500</td>
<td>20</td>
</tr>
<tr>
<td>6000</td>
<td>30</td>
</tr>
<tr>
<td>5500</td>
<td>40</td>
</tr>
<tr>
<td>5000</td>
<td>50</td>
</tr>
<tr>
<td>4500</td>
<td>60</td>
</tr>
<tr>
<td>4000</td>
<td>70</td>
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<td>80</td>
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<td>3000</td>
<td>90</td>
</tr>
<tr>
<td>2500</td>
<td>100</td>
</tr>
<tr>
<td>2000</td>
<td>110</td>
</tr>
<tr>
<td>1500</td>
<td>120</td>
</tr>
</tbody>
</table>

**TECHNICAL**

526  
9116 Virginia Road  Lake in the Hills, IL 60156  Telephone 847/458-0993  FAX 847/458-0934  e-mail: info@frame-world.com  web: frame-world.com  

SHOP ONLINE at www.airlinehyd.com  800-999-7378
### Structural Aluminum Extrusions

<table>
<thead>
<tr>
<th>Span in inches (L)</th>
<th>Load lbs (P)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>5500</td>
</tr>
<tr>
<td>20</td>
<td>5000</td>
</tr>
<tr>
<td>30</td>
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<td>4000</td>
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<td>3500</td>
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<tr>
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<td>3000</td>
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<td>80</td>
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<td>100</td>
<td>1000</td>
</tr>
<tr>
<td>110</td>
<td>500</td>
</tr>
<tr>
<td>120</td>
<td>0</td>
</tr>
</tbody>
</table>

**Load condition:**
Fixed at one end, sliding at one end, load at center
Deflection = Y (inches)

\[ y = \frac{PL^3}{3.5 \times 10^9} \]

### Load at center

<table>
<thead>
<tr>
<th>Span in inches (L)</th>
<th>Load lbs (P)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>2900</td>
</tr>
<tr>
<td>20</td>
<td>2700</td>
</tr>
<tr>
<td>30</td>
<td>2500</td>
</tr>
<tr>
<td>40</td>
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</tr>
<tr>
<td>50</td>
<td>2100</td>
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<tr>
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<tr>
<td>90</td>
<td>1300</td>
</tr>
<tr>
<td>100</td>
<td>1100</td>
</tr>
<tr>
<td>110</td>
<td>900</td>
</tr>
<tr>
<td>120</td>
<td>700</td>
</tr>
</tbody>
</table>

**Load condition:**
Fixed at one end, sliding at one end, load at center
Deflection = Y (inches)

\[ y = \frac{PL^3}{9.78 \times 10^7} \]
Structural Aluminum Extrusions

**EX-6**

- **Finish** = Clear anodized
- **Material** = 6105-T5 Aluminum
- **Est. Area** = .878 Sq. In.
- **Weight/ft** = 1.029 lbs.
- **96", 144.25", 192.63" Lengths standard.**

**Section Properties:**
- Moment of Intertia in\(^4\) = .199
- Section modulus in\(^3\) = .265

**Load condition:**
- Fixed at both ends, load at center
- Deflection = \(y\) (inches)

\[
y = \frac{PL^3}{3.82 \times 10^8}
\]
Structural Aluminum Extrusions

EX-6

Load condition:
Fixed at one end, sliding at one end, load at center
Deflection = Y (inches)

\[ y = \frac{PL^3}{2.14 \times 10^{18}} \]

Load condition:
Fixed at one end, load at unsupported end
Deflection = Y (inches)

\[ y = \frac{PL^3}{5.97 \times 10^{15}} \]

Load at center

Span

Load at end

Span

Load in lbs (P)

Span in inches (L)
Structural Aluminum Extrusions

EX-7

- Finish = Clear anodized
- Material = 6105-T5 Aluminum

Section Properties:
- Moment of Intertia in\(^4\) = .137
- Section modulus in\(^3\) = .195

Load condition:
Fixed at both ends, load at center
Deflection = \(y\) (inches)

\[
y = \frac{PL^3}{2.62 \times 10^8}
\]

- Weight/ft = .854 lbs.
- 96", 192.63" Lengths standard.
Load condition: Fixed at one end, sliding at one end, load at center
Deflection = Y (inches)

\[ y = \frac{PL^3}{1.47 \times 10^6} \]

Load condition: Fixed at one end, load at unsupported end
Deflection = Y (inches)

\[ y = \frac{PL^3}{4.10 \times 10^6} \]
Structural Aluminum Extrusions

**EX-8**

- **Finish** = Clear anodized
- **Material** = 6105-T6 Aluminum
- **Est. Area** = .803 Sq. In.
- **Weight/ft** = .945 lbs.
- **96", 192.63" Lengths standard.**

**Section Properties:**
- **Moment of Intertia in**⁴ = .156
- **Section modulus in**³ = .188

**Load condition:**
- Fixed at both ends, load at center
- Deflection = y (inches)

\[ y = \frac{PL^3}{3.00 \times 10^6} \]
EX-8

Structural Aluminum Extrusions

Load condition:
Fixed at one end, sliding at one end, load at center
Deflection = Y (inches)

Load at center

Span

2500

2000

1500

1000

500

0

5

10

15

20

25

30

35

Load lbs (P)

Span in inches (L)

\[ y = \frac{PL^3}{1.67 \times 10^8} \]

Load condition:
Fixed at one end, load at unsupported end
Deflection = Y (inches)

Load at end

Span

500

400

300

200

100

0

5

10

15

20

25

30

35

Load lbs (P)

Span in inches (L)

\[ y = \frac{PL^3}{4.10 \times 10^6} \]
45 Degree Light Extrusion

EX-82

- 5/16" Slot Size
- Weight/Ft = 1.02 lbs.
- Est. Area = .85 Sq. In.
- Finish = Clear Anodized
- Material = 6105-T5 Aluminum
- 96", 192.63" Standard Lengths

Section Properties:
Moment of Inertia in\(^4\) 0.1872 0.1854
Section modulus in\(^3\) 0.2035 0.1817

Load condition:
Fixed at both ends, load at center
Deflection = y (inches)

\[ y = \frac{PL^3}{3.595 \times 10^8} \]

\[ y = \frac{PL^3}{3.559 \times 10^8} \]
45 Degree Light Extrusion

Load condition:
Fixed at one end, sliding at one end,
load at center
Deflection = Y (inches)

\[ y = \frac{PL^3}{2.010 \times 10^8} \]

Load at center
Span

Load condition:
Fixed at one end,
load at unsupported end
Deflection = Y (inches)

\[ y = \frac{PL^3}{5.617 \times 10^6} \]

Load at end
Span
1.5” x 1.5” Ultra-Light Extrusion

EX-9

- 5/16” Slot Size
- Weight/Ft = .85 lbs.
- Est. Area = .73 Sq. In.
- Finish = Clear Anodized
- Material = 6105-T5 Aluminum
- 96”, 192.63” Standard Lengths

**Section Properties:**
- Moment of Inertia \( \text{in}^4 \) = 0.1623
- Section modulus \( \text{in}^3 \) = 0.2164

Load condition:
- Fixed at both ends, load at center
- Deflection = \( y \) (inches)

\[
\frac{y_{\text{max}}}{L} = \frac{PL^3}{3.12 \times 10^8}
\]
1.5” x 1.5” Ultra-Light Extrusion

EX-9

Span Load at center

Load at center

Load condition:
Fixed at one end, sliding at one end,
load at center
Deflection = Y (inches)

\[ y_{max} = \frac{PL^3}{1.74 \times 10^6} \]

Span in inches (L)

ymax = PL³

Load lob (P)

Load at end

Load condition:
Fixed at one end,
load at unsupported end
Deflection = Y (inches)

\[ y_{max} = \frac{PL^3}{4.86 \times 10^6} \]

Span in inches (L)

ymax = PL³
Structural Aluminum Extrusions

EX-26

- Finish = Clear anodized
- Material = 6105-T5 Aluminum
- Est. Area = 3.02 Sq. In.
- Weight/ft = 3.552 lbs.
- 96", 192.63" Lengths standard.

Finish = Clear anodized
Material = 6105-T5 Aluminum
Est. Area = 3.02 Sq. In.
Weight/ft = 3.552 lbs.
96", 192.63" Lengths standard.

Section Properties:
- Moment of Intertia in^4: 5.6781, .6911
- Section modulus in^3: 2.5236, .9215

Load condition:
Fixed at both ends, load at center
Deflection = y (inches)

Load at center
Span

\[ y = \frac{PL^3}{1.09 \times 10^{10}} \]

\[ y = \frac{PL^3}{1.33 \times 10^{10}} \]
Load condition:
Fixed at one end, sliding at one end, load at center
Deflection = $Y$ (inches)

$$y = \frac{PL^3}{6.09 \times 10^8}$$

Span in inches ($L$)

---

Load condition:
Fixed at one end, load at unsupported end
Deflection = $Y$ (inches)

$$y = \frac{PL^3}{7.42 \times 10^8}$$

Span in inches ($L$)
Finish = Clear anodized
Material = 6063-T6 Aluminum
Est. Area = 5.924 Sq. In.

Weight/ft = 6.967 lbs.
96", 192.63" Lengths standard.

Section Properties:
Moment of Inertia in\(^4\) 22.05 6.41
Section modulus in\(^3\) 7.35 4.28

Load condition:
Fixed at both ends, load at center
Deflection = \(y\) (inches)

\[ Y_{max} = \frac{P L^3}{4 E I} \]
\[ Y_{max} = \frac{P L^3}{1.32 \times 10^8} \]
Load condition:
Fixed at one end, sliding at one end,
load at center
Deflection = Y (inches)

\[ Y_{\text{max}} = \frac{PL^3}{2.37 \times 10^8} \]

Load condition:
Fixed at one end, sliding at one end,
load at center
Deflection = Y (inches)

\[ Y_{\text{max}} = \frac{PL^3}{6.88 \times 10^9} \]
3" x 3" Light Extrusion

EX-37

- 5/16" Slot Size
- Weight/Ft = 2.81 lbs.
- Est. Area = 2.35 Sq. In.
- Finish = Clear Anodized
- Material = 6105-T5 Aluminum
- 96", 192.63" Standard Lengths

Section Properties:
- Moment of Intertia in^4 2.44
- Section modulus in^3 1.63

Load at center
Span

Load condition:
Fixed at both ends, load at center
Deflection = y (inches)

\[ y = \frac{PL^3}{4.69 \times 10^9} \]
Load condition:
Fixed at one end, sliding at one end,
load at center
Deflection = Y (inches)

\[ y_{\text{max}} = \frac{PL^3}{2.63 \times 10^9} \]

Span in inches (L)

Load lbs (P)

Load condition:
Fixed at one end,
load at unsupported end
Deflection = Y (inches)

\[ y_{\text{max}} = \frac{PL^3}{4.86 \times 10^6} \]

Span in inches (L)

Load lbs (P)
Structural Aluminum Extrusions

**EX-52**

- Finish = Clear anodized
- Material = 6105-T5 Aluminum
- Weight/ft = .954 lbs.
- 96", 192.63" Lengths standard.

**Section Properties:**
- Moment of Intertia in^4: 0.417
- Section modulus in^3: 0.549

- Load at center (P)
- Span (L)

- Load condition:
  - Fixed at both ends, load at center
  - Deflection = y (inches)

- \[ Y_{max} = \frac{PL^3}{8.01 \times 10^6} \]
- \[ Y_{max} = \frac{PL^3}{1.90 \times 10^6} \]
Load condition:
Fixed at one end, sliding at one end, load at center
Deflection = Y (inches)

\[ Y_{\text{max}} = \frac{PL^3}{4.48 \times 10^6} \]

Load condition:
Fixed at one end, load at unsupported end
Deflection = Y (inches)

\[ Y_{\text{max}} = \frac{PL^3}{1.06 \times 10^7} \]

Load condition:
Fixed at one end, sliding at one end, load at center
Deflection = Y (inches)

\[ Y_{\text{max}} = \frac{PL^3}{1.25 \times 10^7} \]

Load condition:
Fixed at one end, load at unsupported end
Deflection = Y (inches)

\[ Y_{\text{max}} = \frac{PL^3}{2.97 \times 10^8} \]
EX-54

- Finish = Clear anodized
- Material = 6105-T5 Aluminum
- Weight/ft = 1.008 lbs.
- 96", 192.63° Lengths standard.

Section Properties:
- Moment of Intertia in^4: 0.142 in^4, 0.100 in^4
- Section modulus in^3: 0.189 in^3, 0.200 in^3

Load condition:
- Fixed at both ends, load at center
- Deflection = y (inches)

Y_{max} = \frac{PL^3}{2.73 \times 10^8}

Y_{max} = \frac{PL^3}{1.92 \times 10^9}

Span L, in.

Load P, lbs.

0 20 40 60 80 100 120
6,250 5,000 4,750 3,750 2,500 1,250 0
Load condition: Fixed at one end, sliding at one end, load at center
Deflection = \( Y \) (inches)

\[ Y_{\text{max}} = \frac{PL^3}{1.07 \times 10^6} \]

Load condition: Fixed at one end, load at unsupported end
Deflection = \( Y \) (inches)

\[ Y_{\text{max}} = \frac{PL^3}{4.26 \times 10^6} \]

\[ Y_{\text{max}} = \frac{PL^3}{3 \times 10^6} \]

Structural Aluminum Extrusions

EX-54
Structural Aluminum Extrusions

EX-60

- Finish = Clear anodized
- Material = 6105-T6 Aluminum
- Est. Area = 2.041 Sq. In.
- Weight/ft = 2.400 lbs
- 96", 192.63" Lengths standard.

**Section Properties:**
- Moment of Inertia in\(^4\) = 1.0211
- Section modulus in\(^3\) = 0.860

![Diagram of EX-60 extrusion]

Load condition:
- Fixed at both ends, load at center
- Deflection = \(y\) (inches)

\[ y = \frac{PL^3}{1.88 \times 10^9} \]
EX-60

Load condition:
Fixed at one end, sliding at one end, 
load at center 
Deflection = Y (inches)

Load at center
Span

EX-60

\[ y = \frac{PL^3}{1.096 \times 10^9} \]

Load at end
Span

Load condition:
Fixed at one end, 
load at unsupported end 
Deflection = Y (inches)

EX-60

\[ y = \frac{PL^3}{3.063 \times 10^7} \]
Structural Aluminum Extrusions

EX-61

- Finish = Clear anodized
- Material = 6105-T5 Aluminum
- Est. Area = .866 Sq. In.

- Weight/ft = 1.018 lbs
- 96", 192.63" Lengths standard.

**Section Properties:**
- Moment of Inertia in$^4$: 0.200, 0.210
- Section modulus in$^3$: 0.267, 0.276

Load condition:
Fixed at both ends, load at center
Deflection = y (inches)

\[ Y_{\text{max}} = \frac{PL^3}{3.84 \times 10^6} \]

\[ Y_{\text{max}} = \frac{PL^3}{4.03 \times 10^6} \]
Structural Aluminum Extrusions

EX-61

Load condition:
Fixed at one end, sliding at one end, load at center
Deflection = Y (inches)

\[ Y_{\text{max}} = \frac{PL^3}{2.15 \times 10^6} \]

Load at center (P)

Load condition:
Fixed at one end, load at unsupported end
Deflection = Y (inches)

\[ Y_{\text{max}} = \frac{PL^3}{2.25 \times 10^6} \]

Load at center (P)

Load condition:
Fixed at one end, sliding at one end, load at center
Deflection = Y (inches)

\[ Y_{\text{max}} = \frac{PL^3}{6.00 \times 10^6} \]

Load at end (P)

Load at center (P)

Load at end (P)
- Finish = Clear anodized
- Material = 6105-T5 Aluminum
- Est. Area = .833 Sq. In.

- Weight/ft = .980 lbs.
- 96”, 192.63” Lengths standard.

**Section Properties:**
- Moment of Intertia in$^4$: 0.195, 0.203
- Section modulus in$^3$: 0.260, 0.267

Load condition:
- Fixed at both ends, load at center
- Deflection = $y$ (inches)

$$Y_{max} = \frac{PL^3}{3.74 \times 10^9}$$

$$Y_{max} = \frac{PL^3}{9.99 \times 10^9}$$
Structural Aluminum Extrusions

EX-63

Load condition:
Fixed at one end, sliding at one end,
load at center
Deflection = Y (inches)

Load condition:
Fixed at one end, sliding at one end,
load at center
Deflection = Y (inches)

Load at center (P)
Load at end (P)

Span L, in,
**Structural Aluminum Extrusions**

**EX-64**

- Finish = Clear anodized
- Material = 6105-T5 Aluminum
- Est. Area = .849 Sq. In.

- Weight/ft = .998 lbs
- 96", 192.63" Lengths standard.

**Section Properties:**

<table>
<thead>
<tr>
<th>Moment of Inertia in(^4)</th>
<th>0.190</th>
<th>0.210</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section Modulus in(^3)</td>
<td>0.253</td>
<td>0.280</td>
</tr>
</tbody>
</table>

**Load condition:**

Fixed at both ends, load at center

Deflection = \(y\) (inches)

Load at center \(P\)

Span \(L\)

\[
Y_{max} = \frac{PL^3}{3.65 \times 10^6}
\]

\[
Y_{max} = \frac{PL^3}{4.08 \times 10^6}
\]
Structural Aluminum Extrusions

**EX-64**

**Load condition:**
Fixed at one end, sliding at one end, load at center
Deflection = \( Y \) (inches)

\[
Y_{\text{max}} = \frac{PL^3}{2.25 \times 10^8}
\]

**Load condition:**
Fixed at one end, load at unsupported end
Deflection = \( Y \) (inches)

\[
Y_{\text{max}} = \frac{PL^3}{6.30 \times 10^6}
\]

**Load condition:**
Fixed at one end, sliding at one end, load at center
Deflection = \( Y \) (inches)

\[
Y_{\text{max}} = \frac{PL^3}{2.04 \times 10^8}
\]

**Load condition:**
Fixed at one end, load at unsupported end
Deflection = \( Y \) (inches)

\[
Y_{\text{max}} = \frac{PL^3}{2.70 \times 10^6}
\]
**Structural Aluminum Extrusions**

**EX-65**

- **Finish =** Clear anodized
- **Material =** 6105-T5 Aluminum
- **Est. Area =** .849 Sq. In.

- **Weight/ft =** .998 lbs.
- **96", 192.63" Lengths standard.**

**Section Properties:**
- Moment of Inertia in\(^4\) = 0.200
- Section modulus in\(^3\) = 0.267

**Load condition:**
- Fixed at both ends, load at center
- Deflection = \(y\) (inches)

**Y\(_{max}\) =** \(\frac{PL^2}{3.84 \times 10^6}\)

![Diagram of EX-65 extrusion](Image)
Load condition:
Fixed at one end, sliding at one end,
load at center
Deflection = Y (inches)

\[ Y_{\text{max}} = \frac{PL^3}{2.15 \times 10^6} \]

Load condition:
Fixed at one end, sliding at one end,
load at center
Deflection = Y (inches)

\[ Y_{\text{max}} = \frac{PL^3}{6.00 \times 10^6} \]
• Finish = Clear anodized  
• Material = 6105-T5 Aluminum  
• Est. Area = 1.559 Sq. In.

- Weight/ft = 1.833 lbs.
- 96", 192.63" Lengths standard.

**Section Properties:**
- Moment of Intertia in$^4$: 1.385, 0.401
- Section modulus in$^3$: 0.923, 0.535

*Load condition:*
- Fixed at both ends, load at center
- Deflection = $y$ (inches)

$Y_{\text{max}} = \frac{PL^3}{2.66 \times 10^6}$

$Y_{\text{max}} = \frac{PL^3}{7.70 \times 10^6}$
Load condition:
Fixed at one end, sliding at one end,
load at center
Deflection = Y (inches)

\[ Y_{\text{max}} = \frac{PL^3}{1.48 \times 10^6} \]

Load condition:
Fixed at one end, load at center
Deflection = Y (inches)

\[ Y_{\text{max}} = \frac{PL^3}{4.16 \times 10^7} \]

Load condition:
Fixed at one end, sliding at one end, load at center
Deflection = Y (inches)

\[ Y_{\text{max}} = \frac{PL^3}{4.40 \times 10^7} \]
**EX-67**

**Structural Aluminum Extrusions**

- **Finish =** Clear anodized
- **Material =** 6105-T5 Aluminum
- **Est. Area =** 1.569 Sq. In.
- **Weight/ft =** 1.845 lbs
- **Lengths standard:** 96", 144.25", 192.63"

**Section Properties:**
- Moment of Inertia in$^4$: 1.376, 0.387
- Section modulus in$^3$: 0.917, 0.516

**Load condition:**
- Fixed at both ends, load at center
- Deflection = $y$ (inches)

**Graph:**
- $Y_{max} = \frac{PL^3}{2.64 \times 10^8}$
- $Y_{max} = \frac{PL^3}{7.43 \times 10^8}$

---

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Structural Aluminum Extrusions

EX-67

Load condition:
Fixed at one end, sliding at one end, load at center
Deflection = Y (inches)

Load at center (P)

Span (L)

Load at center (P)

Span (L)

Load condition:
Fixed at one end, load at unsupported end
Deflection = Y (inches)
Structural Aluminum Extrusions

EX-68

Finish = Clear anodized
Material = 6105-T5 Aluminum
Est. Area = 1.599 Sq. In.

Weight/ft = 1.880 lbs.
96", 192.63" Lengths standard.

Section Properties:
Moment of Intertia in^4 1.385 0.401
Section modulus in^3 0.923 0.535

Load condition:
Fixed at both ends, load at center
Deflection = y (inches)

Load P, lbs.
Span L, in.

YP_{max} = 2.66 \times 10^6
YP_{max} = 7.70 \times 10^6

YP_{max} = 7.70 \times 10^6
YP_{max} = 7.70 \times 10^6

YP_{max} = 7.70 \times 10^6
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YP_{max} = 7.70 \times 10^6
YP_{max} = 7.70 \times 10^6

YP_{max} = 7.70 \times 10^6
YP_{max} = 7.70 \times 10^6
Structural
Aluminum Extrusions

EX-68

Load condition:
Fixed at one end, sliding at one end,
load at center
Deflection = Y (inches)

Load at center (P)

Span L, in.

Load P, lbs.

\[ Y_{\text{max}} = \frac{PL^3}{1.48 \times 10^8} \]

\[ Y_{\text{max}} = \frac{PL^3}{4.40 \times 10^7} \]

Load condition:
Fixed at one end,
load at unsupported end
Deflection = Y (inches)

Load at end (P)

Span L, in.

Load P, lbs.

\[ Y_{\text{max}} = \frac{PL^3}{1.20 \times 10^8} \]

\[ Y_{\text{max}} = \frac{PL^3}{4.16 \times 10^7} \]
Structural Aluminum Extrusions

EX-69

- Finish = Clear anodized
- Material = 6105-T5 Aluminum
- Est. Area = 1.554 Sq. In.
- Weight/ft = 1.828 lbs.
- 96", 192.63" Lengths standard.

Section Properties:
- Moment of Inertia in⁴: 1.385, 0.401
- Section modulus in³: 0.923, 0.535

Load condition:
- Fixed at both ends, load at center
- Deflection = y (inches)

\[ Y_{\text{max}} = \frac{PL^3}{2.66 \times 10^6} \]

\[ Y_{\text{max}} = \frac{PL^3}{7.70 \times 10^6} \]
Load condition:
Fixed at one end, sliding at one end, load at center
Deflection = Y (inches)

\[ Y_{\text{max}} = \frac{PL^3}{1.48 \times 10^8} \]

Load condition:
Fixed at one end, load at unsupported end
Deflection = Y (inches)

\[ Y_{\text{max}} = \frac{PL^3}{4.16 \times 10^7} \]
Aluminum Extrusion

Finish: Clear Anodize
Material: 6105-T6 Aluminum
Est. Area: 1.464 Sq In.
Wt./Ft. 1.722 lbs.
Std. Length: 144.25"

Section Properties:
Moment of Inertia in$^4$ 1.229
Section Modulus in$^3$ 0.779

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Aluminum Extrusion
EX-45HD

Finish: Mill Finish
Material: 6105-T6 Aluminum
Est. Area: 6.330 Sq In.
Wt./Ft. 7.445 lbs.
Std. Length: 192.63"
Special cut charge required for non-standard length (EM-1-EX45)

Section Properties:
Moment of Inertia in$^4$ 16.4
Section Modulus in$^3$ 6.56
Aluminum Extrusion

**EX-11**

- Finish = Clear anodized
- Material = 6105-T5 Aluminum

**Section Properties:**
- Moment of Inertia in^4 = .049
- Section modulus in^3 = .097

**Load condition:**
Fixed at both ends, load at center
Deflection = y (inches)

\[ y = \frac{PL^3}{9.33 \times 10^7} \]

- Weight/ft = .530 lbs.
- 96", 144.25", 192.63" Lengths standard.
Load condition:
Fixed at one end, sliding at one end, load at center
Deflection = Y (inches)

\[ y = \frac{PL^3}{5.22 \times 10^7} \]

Load condition:
Fixed at one end, load at unsupported end
Deflection = Y (inches)

\[ y = \frac{PL^3}{1.46 \times 10^6} \]
Aluminum Extrusion

EX-12

- Finish = Clear anodized
- Material = 6105-T5 Aluminum
- Est. Area = .807 Sq. In.
- Weight/ft = .949 lbs.
- 96", 192.63" Lengths standard.

Section Properties:

<table>
<thead>
<tr>
<th>Moment of Intertia in^4</th>
<th>.316</th>
<th>.088</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section modulus in^3</td>
<td>.316</td>
<td>.176</td>
</tr>
</tbody>
</table>

Load condition:
Fixed at both ends, load at center
Deflection = y (inches)

\[ y = \frac{PL^3}{6.07 \times 10^6} \]

\[ y = \frac{PL^3}{1.69 \times 10^6} \]
Load condition:
Fixed at one end, sliding at one end,
load at center
Deflection = $y$ (inches)

$$y = \frac{PL^2}{3.39 \times 10^8}$$

Load condition:
Fixed at one end, load at unsupported end
Deflection = $y$ (inches)

$$y = \frac{PL^2}{9.46 \times 10^7}$$
Aluminum Extrusion

EX-13

- Finish = Clear anodized
- Material = 6105-T5 Aluminum
- Est. Area = 1.162 Sq. In.
- Weight/ft = 1.367 lbs.
- 96", 192.63" Lengths standard.

**Section Properties:**
- Moment of Intertia in^4 1.376 0.387
- Section modulus in^3 0.917 0.516

**Load condition:**
Fixed at both ends, load at center
Deflection = y (inches)

**Load vs. Span Graph:**
- Y_max = 2.42 x 10^6
- PL^3 / (3EI)

**Graph:**
- Load P, lbs.
- Span L, in.
Load condition:
- Fixed at one end, sliding at one end,
  load at center
- Deflection = Y (inches)

**Fixed at one end, sliding at one end, load at center**

\[ Y_{\text{max}} = \frac{PL^3}{1.06 \times 10^9} \]

**Fixed at one end, load at unsupported end**

\[ Y_{\text{max}} = \frac{PL^3}{3.36 \times 10^7} \]
Aluminum Extrusion

EX-14

• Finish = Clear anodized
• Material = 6105-T6 Aluminum
• Est. Area = .438 Sq. In.

• Weight/ft = .515 lbs.
• 96", 192.63" Lengths standard.

Section Properties:

Moment of Inertia in$^4$ .037
Section modulus in$^3$ .068

Load condition:
Fixed at both ends, load at center
Deflection = y (inches)

$y = \frac{PL^3}{7.07 \times 10^7}$
Aluminum Extrusion

Load condition:
Fixed at one end, sliding at one end, load at center
Deflection = Y (inches)

\[ y = \frac{PL^3}{3.95 \times 10^6} \]

Load at center
Span

Load condition:
Fixed at one end, load at unsupported end
Deflection = Y (inches)

\[ y = \frac{PL^3}{1.10 \times 10^6} \]

Load at end
Span
Aluminum Extrusion

EX-22

- Finish = Clear anodized
- Material = 6105-T5 Aluminum
- Est. Area = 1.249 Sq. In.

**Section Properties:**
- Moment of Inertia in^4: 0.569
- Section modulus in^3: 0.569

**Load condition:**
Fixed at both ends, load at center
Deflection = y (inches)

\[ y = \frac{PL^3}{10W} \]

- Weight/ft = 1.468 lbs.
- 96", 192.63" Lengths standard.

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Load condition:
Fixed at one end, sliding at one end,
load at center
Deflection = Y (inches)

Load condition:
Fixed at one end,
load at unsupported end
Deflection = Y (inches)
Structural Aluminum Extrusions

EX-24

- Finish = Clear anodized
- Material = 6063-T6HT Aluminum
- Est. Area = 2.352 Sq. In.

<table>
<thead>
<tr>
<th>Section Properties:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Moment of Intertia in(^4)</td>
<td>3.634</td>
</tr>
<tr>
<td>Section modulus in(^3)</td>
<td>1.817</td>
</tr>
</tbody>
</table>

Weight/ft = 2.766 lbs.
96", 192.63" Lengths standard.

Load condition:
Fixed at both ends, load at center
Deflection = \(y\) (inches)

\[
y = \frac{PL^3}{48EI}
\]

\[
y = \frac{PL^3}{6.98 \times 10^6}
\]

\[
y = \frac{PL^3}{2.07 \times 10^9}
\]
Load condition: Fixed at one end, sliding at one end, load at center
Deflection = Y (inches)

Load condition: Fixed at one end, load at unsupported end
Deflection = Y (inches)
Aluminum Extrusion

EX-70

- Finish = Clear anodized
- Material = 6105-T5 Aluminum

- Weight/ft = .576 lbs.
- 96", 192.63" Lengths standard.

**Section Properties:**

- Moment of Intertia in\(^4\) = .057, .052
- Section modulus in\(^3\) = .114, .099

**Load condition:**
Fixed at both ends, load at center
Deflection = \(y\) (inches)

\[
y = \frac{P L^2}{9.96 \times 10^6}
\]

\[
y = \frac{P L^3}{1.094 \times 10^6}
\]
EX-70
Aluminum Extrusion

Load condition:
Fixed at one end, sliding at one end,
load at center
Deflection = Y (inches)

Load at center

Load at end

Deflection = Y (inches)

Load at end
Aluminum Extrusion

**EX-71**

- Finish = Clear anodized
- Material = 6105-T5 Aluminum

**Section Properties:**
- Moment of Inertia $in^4$: .057, .046
- Section modulus $in^3$: .114, .093

**Load condition:**
- Fixed at both ends, load at center
- Deflection = $y$ (inches)

\[
y = \frac{PL^3}{1.09 \times 10^6}
\]

\[
y = \frac{PL^3}{8.91 \times 10^7}
\]
Load condition:
Fixed at one end, sliding at one end, load at center
Deflection = Y (inches)

y = \frac{PL^3}{6.10 \times 10^7}

y = \frac{PL^3}{4.98 \times 10^7}

Load condition:
Fixed at one end, load at unsupported end
Deflection = Y (inches)

y = \frac{PL^3}{1.70 \times 10^6}

y = \frac{PL^3}{1.40 \times 10^6}
Aluminum Extrusion

EX-72

- Finish = Clear anodized
- Material = 6105-T5 Aluminum

- Weight/ft = .546 lbs.
- 96", 192.63" Lengths standard.

Section Properties:
- Moment of Intertia in⁴ = .051
- Section modulus in³ = .098

Load condition:
Fixed at both ends, load at center
Deflection = y (inches)

\[ y = \frac{PL^2}{9.85 \times 10^7} \]
Load condition:
Fixed at one end, sliding at one end,
deflection = Y (inches)

\[ Y = \frac{PL^3}{48EI} \]

Load condition:
Fixed at one end, load at unsupported end,
deflection = Y (inches)

\[ Y = \frac{PL^3}{384EI} \]
Aluminum Extrusion

**EX-73**

- **Finish =** Clear anodized
- **Material =** 6105-T5 Aluminum
- **Est. Area =** .451 Sq. In.
- **Weight/ft =** .523 lbs.
- **96", 192.63" Lengths standard.**

**Section Properties:**

- Moment of Intertia in$^4$: .051, .046
- Section modulus in$^3$: .099, .092

**Load condition:**

- Fixed at both ends, load at center
- Deflection = $y$ (inches)

**Equations:**

- $y = \frac{P L^3}{8.87 \times 10^7}$
- $y = \frac{P L^3}{9.81 \times 10^7}$
Load condition:
Fixed at one end, sliding at one end,
load at center
Deflection = Y (inches)

\[ y = \frac{PL^3}{4.96 \times 10^7} \]

Load condition:
Fixed at one end,
load at unsupported end
Deflection = Y (inches)

\[ y = \frac{PL^3}{1.39 \times 10^6} \]
FRAME-WORLD’s blank angle bracket profiles are made from aluminum and are provided with a standard mill finish. Clear anodized finish is also available. They are stocked in 8 ft. and 12 ft. lengths.

**EX-15**

**EX-15-ANDZ**

1.68 lb/ft

For special lengths, consult the factory.

**EX-16**

**EX-16-ANDZ**

.81 lb/ft

For special lengths, consult the factory.
FRAME-WORLD's blank angle bracket profiles are made from aluminum and are provided with a standard mill finish. Clear anodized finish is also available. They are stocked in 8 ft. and 12 ft. lengths.

**EX-17**

**EX-17-ANDZ**

.83 lb/ft

For special lengths, consult the factory.

**EX-18**

**EX-18-ANDZ**

.40 lb/ft
Structural Angle Bracket Profiles

FRAME-WORLD Blank Angle Profiles are made from aluminum and are provided with a standard mill finish. They are stocked in 8 ft. and 12 ft. lengths.

**EX-34**
**EX-34-ANDZ**

1.25 lb/ft

![Diagram of EX-34 angle bracket profile]

For special lengths, consult the factory.
Door Stop

EX-53

Mill Finish

.24 lb/ft

Material: Aluminum
Finish: Mill Finish

Standard Length 96", 192.63"

For special lengths, consult the factory.
Angle Bracket Profiles

FRAME-WORLD's blank angle bracket profiles are made from aluminum and are provided with a standard mill finish. Clear anodized finish is also available. They are stocked in 8 ft. and 12 ft. lengths.

<table>
<thead>
<tr>
<th>EX-30</th>
<th>EX-30-ANDZ</th>
<th>1.10 lb/ft</th>
<th>.38 typ.</th>
</tr>
</thead>
<tbody>
<tr>
<td>EX-32</td>
<td>EX-32-ANDZ</td>
<td>.42 lb/ft</td>
<td>.13 typ.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EX-31</th>
<th>EX-31-ANDZ</th>
<th>2.61 lb/ft</th>
<th>.38 typ.</th>
</tr>
</thead>
<tbody>
<tr>
<td>EX-33</td>
<td>EX-33-ANDZ</td>
<td>1.33 lb/ft</td>
<td>.13 typ.</td>
</tr>
</tbody>
</table>

For special lengths, consult the factory.
FRAME-WORLD can provide you with a kit that is ready to assemble. We will provide machining services such as access holes, taps, cuts and counterbores. We can also provide miter cuts and any special milling, drilling or tapping requirements that you may have.

In addition to the items within this catalog, FRAME-WORLD can also provide panels cut to size. Materials can be Acrylic (Plexiglass®), Polycarbonate (Lexan®) expanded PVC (Sintra®) or ABS (Haircell). This also includes any drilling, tapping or machining required for panel mounting.

Customized packaging is also available, such as kits for multiple quantities of the same item (i.e. frame, fixture, panel, etc.) or labeling individual components of one item.

For all special services and for any parts not shown in this catalog, please contact our Application Group.

### Standard Machining Services

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EM-1</td>
<td>Cut to length 5/16&quot; or 1/4&quot; slot profiles</td>
</tr>
<tr>
<td></td>
<td>- Any profile shape (except EX-45HD)</td>
</tr>
<tr>
<td></td>
<td>- Length tolerance = +.015&quot;</td>
</tr>
<tr>
<td></td>
<td>- Squareness = .002&quot; per inch</td>
</tr>
<tr>
<td>EM-1-EX-45</td>
<td>Cut to length EX-45HD</td>
</tr>
<tr>
<td></td>
<td>- Length tolerance = +.030&quot;</td>
</tr>
<tr>
<td></td>
<td>- Squareness = .005&quot; per inch</td>
</tr>
<tr>
<td>EM-2</td>
<td>End hole tap</td>
</tr>
<tr>
<td></td>
<td>A. 5/16&quot; slot profiles 5/16&quot;-18 x 1.0 deep thread</td>
</tr>
<tr>
<td></td>
<td>- .260 dia. extruded hole size</td>
</tr>
<tr>
<td></td>
<td>- m8 x 1.25 on request</td>
</tr>
<tr>
<td></td>
<td>B. 1/4&quot; slot profiles 1/4-20 x .75 deep thread</td>
</tr>
<tr>
<td></td>
<td>- .201 dia. extruded hole size</td>
</tr>
<tr>
<td></td>
<td>- m6 x 1.0 on request</td>
</tr>
</tbody>
</table>
4. T-slot identification

EX-1  EX-6  EX-9  EX-11
EX-61  EX-70  EX-52
EX-65  EX-72
EX-64  EX-71  EX-54
EX-63  EX-73

EX-7  EX-14  EX-8  EX-82
EX-67  EX-2  EX-12
EX-68
EX-66
EX-69

EX-3  EX-37  EX-22
EX-36  EX-24
EX-26
5. Access Hole Drill
   A. For 5/16" wide slot profiles
      the drill dia. = .31"
      all the way through
   B. For 1/4" wide slot profiles
      the drill dia. = .25"
      all the way through.

Example:
(2) pcs EX-1 x 60.0" with EM-3's on A & B at .75 from each end and on B at 30.0"

Total EM-1 cuts =2
Total EM-3 Drills = 10

6. C'bore or C'sink Hole Drill
   Specify type and location for a countersink hole in a panel or extrusion.

Example:
For a panel: Drill and C'sink for 5/16-18 FHCS per dwg
   (must submit sketch of panel)
For an extrusion: Drill and C'bore for 5/16-18 SHCS slot [A] @ 0.75, 2.25 from end.
7. Anchor Fastener Counter Bores

A. For 5/16" slot profiles the counterbore
   **EM-5**
   dia. = .812 x .650 deep
   location is .875 from the end

   ![Diagram of EM-5 counterbore]

   Example
   (2) EX-2 x 30.0" with EM-5's at O & P both ends
   Total EM-1 cuts = 2
   Total EM-5 counterbores = 8
   Total EF-62 anchor fasteners = 8

B. For 1/4" slot profiles the counterbore
   **EM-7**
   dia. = .562 x .445 deep
   location is .500 from the end

   ![Diagram of EM-7 counterbore]

   Example
   (2) EX-12 x 50.0" with EM-7's at N & Q both ends
   Total EM-1 cuts = 2
   Total EM-7 counterbores = 8
   Total 11-242 anchor fasteners = 8
A. For 5/16" slot profiles using double anchor fasteners EF-63 & EF-64
   - The counterbore dia. = .812 x .650
   - Location is .875 from the end

   Example
   (2) EX-2 x 30.0" with EM-5's at N & Q both ends
   - Total EM-1 cuts = 2
   - Total EM-5 counterbores = 8
   - Total EF-64 anchor fasteners = 4

B. For 1/4" slot profiles using double anchor fasteners 11-248 & 11-249,
   - The counterbore dia. = .562 x .445 deep
   - Location is .500 from the end

   Example
   (2) EX-12 x 20.0" with EM-7's at N & Q both ends
   - Total EM-1 cuts = 2
   - Total EM-7 counterbores = 8
   - Total 11-249 anchor fasteners = 4
8. Anchor Butt Fastener Counterbores

A. For 5/16" wide slot profiles the counterbore dia. = .812 x .650 deep. Location is .75 from the end

Example: (for a 300" long piece)

(2) EX-1 x 150.0
(2) EM-1
(4) EM-8
(2) EF-61

B. For 1/4" wide slot profiles the counterbore dia. = .562 x .445 deep. Location is .438 from the end

Example: (for a 200" long piece)

(2) EX-11 x 100.0
(2) EM-1
(4) EM-9
(2) 11-243
9. Set Screw Anchor Fastener Counterbore

For 5/16" wide slot profiles using and EF-49 fastener, an EM-13 counterbore dia = .625 dia x 1.00 deep at a distance of 1.312" from the end of the extrusion.

Example:
EX-65 ; 32.000" ; EM-13 [F] @ 1.312, 30.688

10. Wire Mesh and Plastic Panels Cut to Size

Panels any side ≤ 48.0" EM-4S
Panels any side > 48.0" EM-4L

A. Wire Mesh and Plastic Panels are sold by the number of square feet

B. To calculate square feet, multiply the length by width (in inches) and then divide by 144. Round up to nearest square foot.

C. Example:
(1) EB-38-1 that is 24" x 47"
Order:
(8) sq ft EB-38-1 (1) @ 24" x 47"
(1) EM-4S

Total Sq. Ft. = \( \frac{47.0 \times 24.0}{144.0} = (8) \) sq. ft. EB-38-1
11. Clearance Hole in a Panel
For clearance holes drilled into panel material, include an EM-3P. Please provide a sketch.

12. Notch in Panel or Mesh
For notches in panels or mesh, include an EM-4N for each notch. Please provide a sketch.

13. Extrusion Mitre Cuts & Counter Bores
Miter cut per end
Counter bore & hardware per end

(1) EM-6/Cut Piece

Example:

```
\begin{center}
\begin{tikzpicture}
\draw (0,0) -- (3,0) -- (1.5,1.5) -- (0,3) -- cycle;
\draw[->] (0,0) -- (3,0) node[midway,above] {36.0};
\draw[->] (0,0) -- (0,3) node[midway,right] {45};
\draw[->] (1.5,1.5) -- (0,0) node[midway,left] {45};
\end{tikzpicture}
\end{center}
```

Order:
(1) EX-1 x 36.0
(2) EM-6
(2) EM-10 (times (2) for double slot, i.e. EX-2)
Note: for custom angles, consult the factory.
When comparing all costs in the fabrication of a typical machine or table frame using FRAME-WORLD components versus steel weldments, most users realize a 15 to 25% savings. Here are the reasons, or extra steps and equipment in weldment structures:

- Welding fixtures and clamps
- Welding time
- Grinding equipment and grinding of welds
- Clean and degrease
- Drill, tapping or reaming mounting holes
- Deburr
- Primer
- Paint frame and touch up after mounting

It's easy to see the savings and esthetic effect of FRAME-WORLD.

### Parts List

- 8 - EX-3-30 Extrusion
- 2 - EX-3-48 Extrusion
- 2 - EX-3-42 Extrusion
- 4 - EB-9 Angle Bracket
- 12 - EB-12 Angle Bracket
- 4 - EBP-2 Leveling Plate
- 4 - EAL Adjustable Leg
- 4 - EF-19-C Plastic End Plate
- 16 - EF-62 Anchor Fastener
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- **11-456-75**: Stainless Steel Button Head Cap Screw
- **11-458-38**: Zinc Plated Hex Cap Screw
- **11-458-50**: Zinc Plated Hex Cap Screw
- **11-458-63**: Zinc Plated Hex Cap Screw
- **11-458-10**: Zinc Plated Hex Cap Screw
- **11-458-.75**: Zinc Plated Hex Cap Screw
- **11-458-.50**: Zinc Plated Hex Cap Screw
- **11-458-.63**: Zinc Plated Hex Cap Screw
- **11-458-.50**: Zinc Plated Hex Cap Screw
- **11-458-.38**: Zinc Plated Hex Cap Screw
- **11-456-.75**: Stainless Steel Button Head Cap Screw
- **11-456-.50**: Stainless Steel Button Head Cap Screw
- **11-456-.38**: Stainless Steel Button Head Cap Screw
- **11-456-.25**: Stainless Steel Button Head Cap Screw
- **11-456-.20**: Stainless Steel Button Head Cap Screw
- **11-456-.10**: Stainless Steel Button Head Cap Screw
- **11-456-.05**: Stainless Steel Button Head Cap Screw
- **11-456-.03**: Stainless Steel Button Head Cap Screw

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- **11-459**: Steel Button Head Cap Screw
- **11-458M-30**: Zinc Plated Hex Cap Screw
- **11-458M-25**: Zinc Plated Hex Cap Screw
- **11-458M-20**: Zinc Plated Hex Cap Screw
- **11-458M-16**: Zinc Plated Hex Cap Screw
- **11-458M-12**: Zinc Plated Hex Cap Screw
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