



Revised 5-20

T-Slot Aluminum Framing

Parker Industrial Profile Systems



ENGINEERING YOUR SUCCESS.

T-Slot Aluminum Framing Solutions

Everything You Need to Build *Anything*

Parker's extensive line of structural T-slot aluminum extrusions, fasteners, panels, doors, hardware and accessories can be configured to meet any design challenge with a durable, high performance solution.



Cabinets and Storage



Material Handling Systems



Test Station with Granite Top



Factory Lean Solutions



Portable Gantry System



Machine Bases and Frames



Front Office Reception Desk

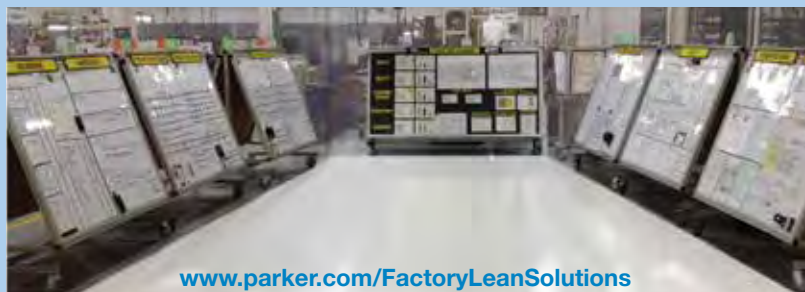


Workstations and Tables

NEW!

Factory Lean Solutions

Parker has introduced a series of standard lean factory solutions such as team tracking and communication boards and day by the hour boards using our modular T-slot aluminum framing system. These systems can be ordered as a kit or an assembly.



www.parker.com/FactoryLeanSolutions

Service and Support: When, Where & How You Need It

Customer satisfaction is key to your success, and ours. Our nationwide network of IPS service centers and distributors provide the right level of product and engineering expertise and response to support your needs.



Wadsworth, OH



Rohnert Park, CA



IPS Service Centers

- **Plant locations in Wadsworth, OH and Rohnert Park, CA**
- **Parts, accessories and extrusions in stock**
- **Engineering capabilities for kits and assemblies**
- **Machining services: cutting, tapping, drilling and counter boring**
- **Assembly services**
- **Factory direct customer service support**



Authorized Design Centers

- **Locations across the country**
- **Local inventory of most parts, accessories and extrusions**
- **Engineering capabilities for kits and assemblies**
- **Machining services: cutting, tapping, drilling and counter boring**
- **Assembly services**
- **Factory trained staff**



Authorized Distributors

- **Locations across the country**
- **Local support**
- **Other value added services**
- **Factory trained staff**

Online Tools

www.parker.com/ips



Parker IPS offers the tools needed to design and develop your assembly solution. Use our website for access to the industry's most comprehensive resource for:

- **Complete selection and specification information on all IPS products available on-line in pdf format**
- **Native SolidWorks® and Inventor® 3D CAD file libraries available for download or on USB for all IPS products**
- **Training materials**
- **Support and downloads**
- **Rapid quote requests**
- **Distributor/Design Center Locator**

Avoid paying too much for an over-engineered solution, contact our applications team today at 800-358-9068 for quick response and help with designing the best solution.

SolidWorks® is a registered trademark of Dassault Systemes Solidworks Corp.
Inventor® is a registered trademark of Autodesk Inc.

Think it. Design it. Build it.

From Concept to Completion.

Turn your brainstorm into an application quote in as little as 24 hours – Parker's IPS network can help!

Are other structural aluminum providers unable to provide the right solution? Are you considering using aluminum over traditional welded steel? We can convert pen or pencil sketches into final drawings and quotes, often saving you time and money.

Parker can also supply engineered kits or sub-assemblies to make your next project flow smoothly. Most quotes can be turned around quickly.

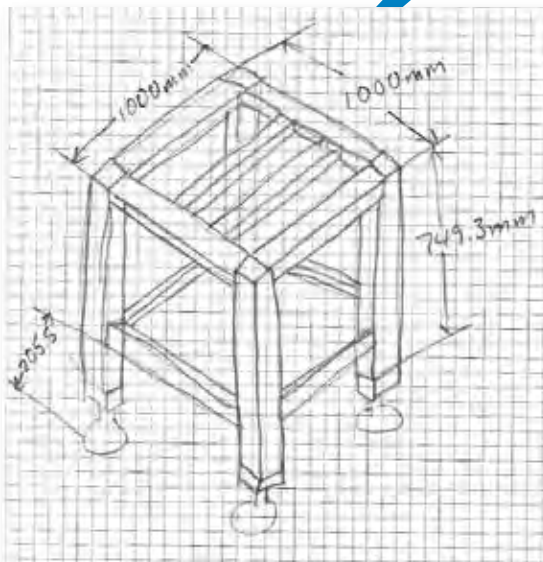
Call **800-358-9068** to discuss your requirements with an applications engineer.

Typical Applications

- Motion systems integration
- Enclosures and guarding
- Machine bases and frames
- Workstations and tables
- Material handling systems
- Lean manufacturing tools
- Clean room applications
- Conveyor frames
- Test equipment
- Tool racks
- Test tables
- Trade show booths
- Store fixtures
- Sound enclosures

Markets Served

- Aerospace
- Automotive
- Educational
- Industrial manufacturing
- Medical
- Packaging
- Pharmaceutical
- Plastics
- Semiconductor
- Textiles
- Tires



Complete Design Solutions

For the factory floor...



... and the front office!



***Put Our Product, Market,
& Application Experience
to Work for You***

IPS Solutions at Work:

Cardboard Storage

Before...



A valve manufacturing plant was looking to update their cardboard storage area. Throughout the day the shippers had to do a lot of bending and other tasks that were not ergonomically friendly.

After...



The valve manufacturer was able to use IPS to make the cardboard storage area more visually aesthetic, modular and ergonomically friendly. *This contributed to approximately 125,000 sq. ft. of reclaimed manufacturing floor space!*

Maintenance Workstations

Before...



This maintenance department was in need of a way to organize tools and make them accessible. They also needed a dedicated work area that was clear of clutter in which to work.

After...



By using Parker's T-Slot Aluminum Framing to revamp the maintenance area, the maintenance department was able to have a modular and more organized work space. *This improvement added to the overall plant productivity by roughly 14%.*

Steel Enclosure Replacement

Before...



A customer in the paper industry was looking to retrofit the steel enclosures around their machines. Steel has its benefits, but from a weight, modularity, and flexibility standpoint, the customer felt it was time to upgrade and came to Parker IPS for assistance.

After...



With the Parker IPS redesign, the customer was able to completely retrofit the heavy steel framing with lightweight but equally strong and durable aluminum. Pneumatic cylinders replaced the hydraulic cylinders to lift the enclosures, resulting in an added cost reduction. The line of sight for the machines was also greatly improved adding to the success of the plant upgrade.

Build Smart...

With T-Slot Aluminum Framing Components

Parker IPS materials can create an unlimited variety of machine bases and frames, linear-slide systems, safety guarding, enclosures, worktables, material handling systems, and other industrial structures. Innovative customers use our IPS technology as the foundation for systems that feature industry-leading Parker motion control solutions.

Think Aluminum

Aluminum framing offers numerous benefits over typical welded steel fabrication.

- **Extremely short turnaround time from design to completion**
- **No welding, grinding, cleaning, painting, or distortions**
- **Eliminates costly traditional manufacturing processes**
- **Flexibility to re-configure as requirements change**
- **Lighter**

Profiles

Parker offers a comprehensive offering of metric and inch based profiles:

- **100+ individual high-strength aluminum profiles**
- **All structural profiles are aircraft grade, high strength, mill-certified with metallurgical properties of 6105-T5**
- **Aesthetically appealing extrusions offer best-in-class rigidity, durability, and hardness**
- **Unique T-slot design for reliable connection and easy modification**
- **Metric sizes range from 20 mm to 160 mm; inch sizes range from 1" to 6"**
- **Extensive range of smooth, grooveless profiles**



Lean Solutions

- **Improve your Quality and Lean journey**
- **Tracking and Communication, Day by the Hour boards, and more!**
- **Pre-configured, standard part numbers**

Fasteners & Accessories

- **T-slots, end caps, fasteners, and covers**
- **Gussets, plates and brackets**
- **Handles and hinges**
- **Panels, sliding doors and gate hardware**
- **Feet and casters**
- **Work station accessories**
- **Slide blocks and bushings**
- **Rollers and slide bearings**



Panels & Wire Mesh

Panels and wire mesh are available in full sheets or to specified cut-to-size dimensions. Standard panel choices include:

- **Polycarbonate**
- **Trespa®**
- **Expanded PVC**
- **PVC coated wire mesh**
- **Aluminum composite**

Specialty panels of any material can be ordered for any project.

Machining Services

Standard machining options include cutting, tapping, drilling, and counter boring. Additional custom machining by our expert machinists ensure that your design is complete and to your exact requirements.

Choose What Suits Your Needs

Choose a level of service to suit your needs from a completely assembled structure to a bundle of uncut profiles:

Assemblies



Parker IPS offers complete assembled solutions that are designed, custom fabricated, and shipped in as little as seven business days. (Lead times may vary and are application dependent.)

Kits



Profiles are cut and machined to order, fasteners and accessories are included based on a parts list, and the entire order is packaged and shipped for final assembly at your location.

Bundles



Our entire product line can be ordered as bundles of uncut or cut-to-length profiles, with packages of fasteners and accessories.

Profiles & Accessories

- Basic Profiles
- Specialty Profiles
- Profile End Caps
- T-Slot and Profile Covers
- Conduit Profiles
- Conduit End Caps

Profiles
& Accessories

Fasteners

- Fasteners
- T-Nuts
- Miter Connectors
- Screws, Bolts, Nuts & Washers
- T-Clips & Cable Holders

Fasteners

Brackets, Gussets, & Plates

- Brackets
- Gussets
- Corner Elements
- Joining Plates

Brackets,
Gussets, &
Plates

Panels & Doors

- Panels & Wire Mesh
- Panel Mounting/Mesh Retainers
- Door Guides & Rollers
- Rail Carts

Panels
& Doors

Handles, Hinges, & Latches

- Handles
- Door Catches
- Latches & Locks
- Hinges
- Pivot Joint

Handles,
Hinges, &
Latches

Feet & Casters

- Feet
- Casters
- Base/Corner Mounting Plates

Feet &
Casters

Special Applications

- Pneumatic Components
- Workstation Accessories

Special

Linear Applications

- Slide Blocks
- Linear Roller Systems

Linear

Lean, Services, Tips, & Tools

- Machining Services
- Assembly Tips
- Tools
- Lean Communication Boards

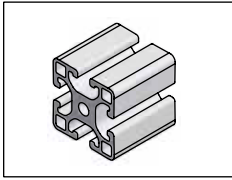
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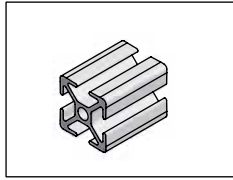
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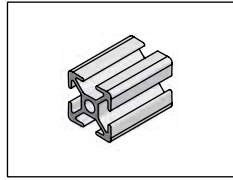
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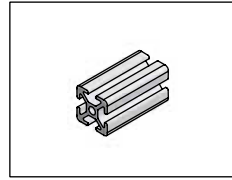
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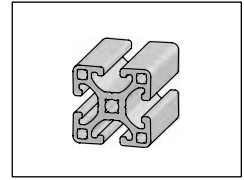
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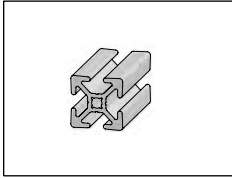
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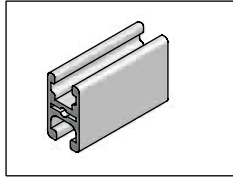
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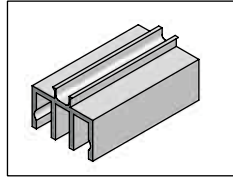
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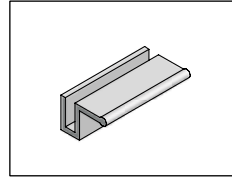
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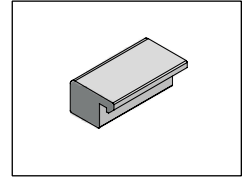
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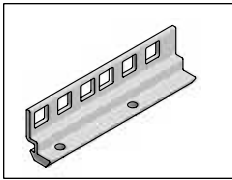
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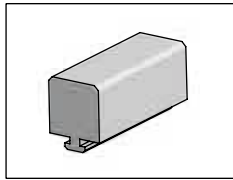
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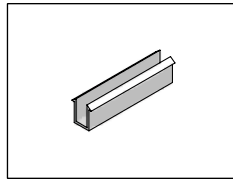
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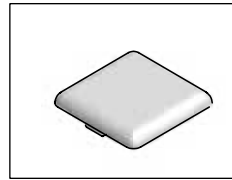
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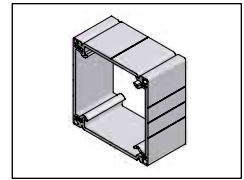
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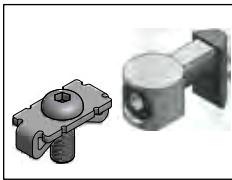


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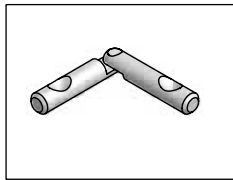


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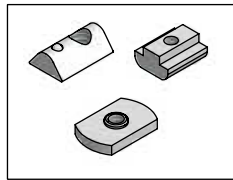
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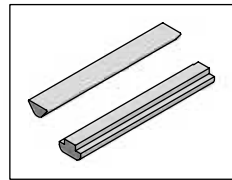
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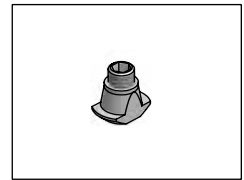
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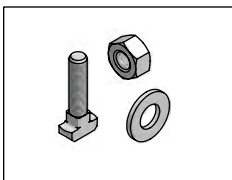
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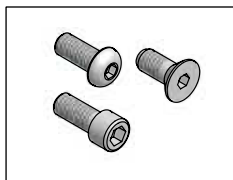
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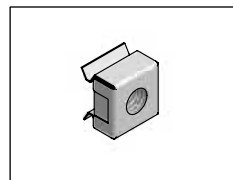
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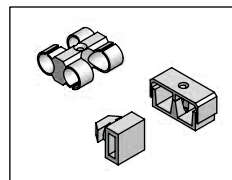
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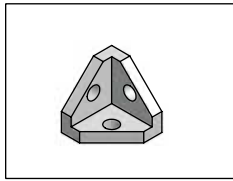


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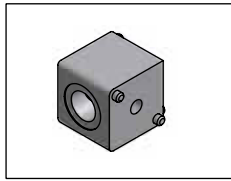


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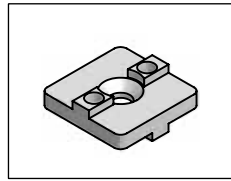
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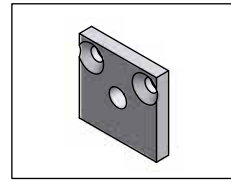
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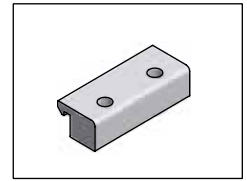
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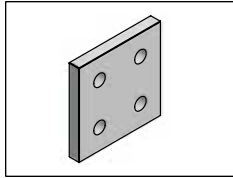
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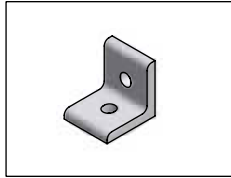
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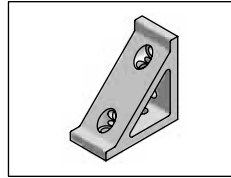
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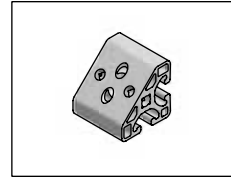
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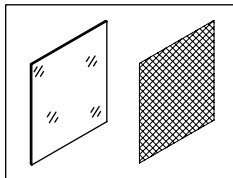


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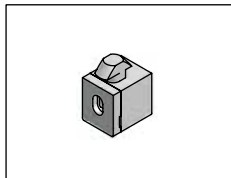


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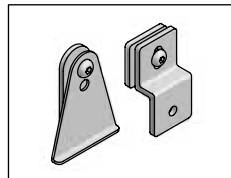
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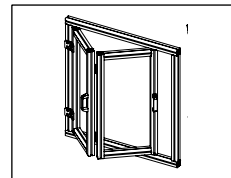
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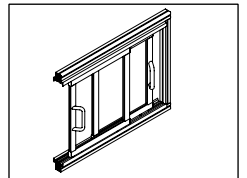
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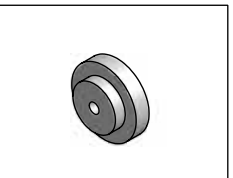
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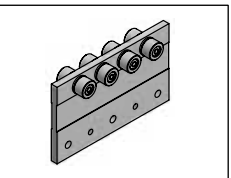
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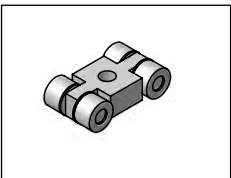
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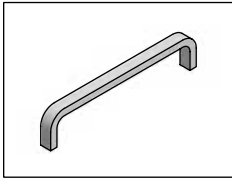
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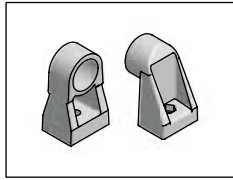
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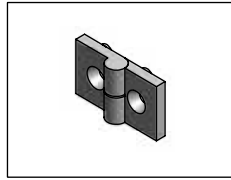
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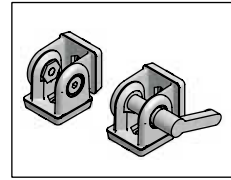
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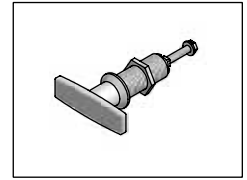
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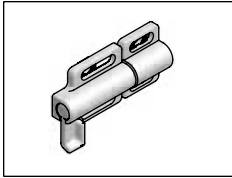
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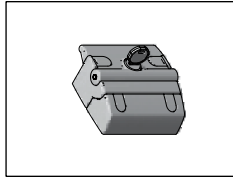
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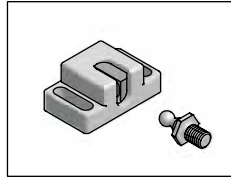
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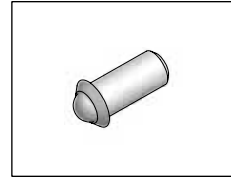
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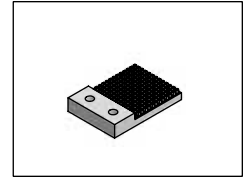
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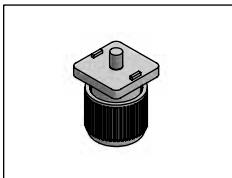


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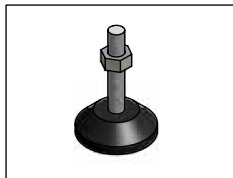


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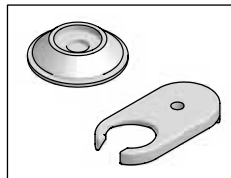
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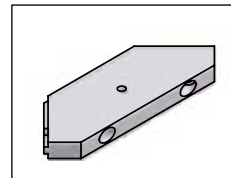
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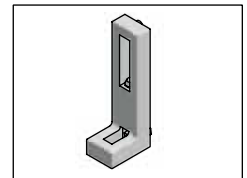
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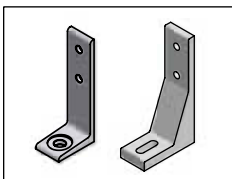
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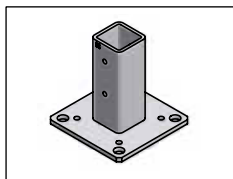
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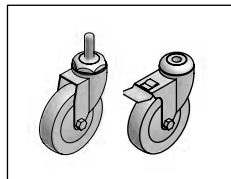
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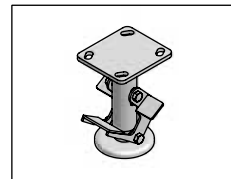
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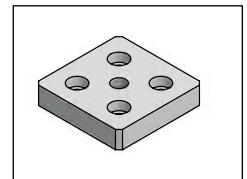
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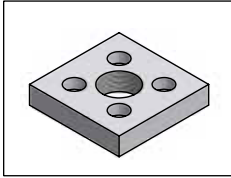


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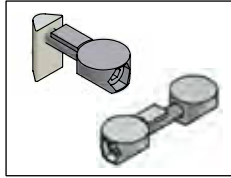


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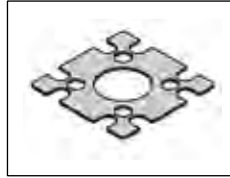
Section 7 – Special Applications



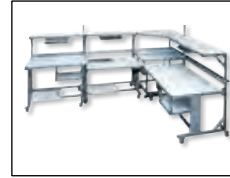
Pneumatic Plates
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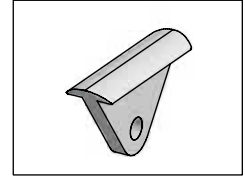
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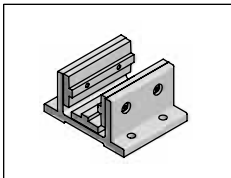


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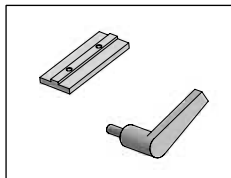


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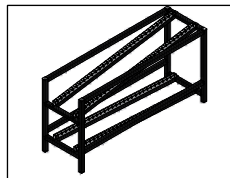
Section 8 – Linear Applications



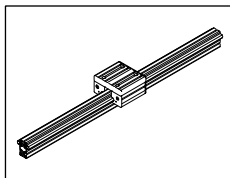
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Section 10 – Index and Offer of Sale

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Product Information

Each product page in the catalog includes:

- Application information and examples
- Technical information
- Dimensions
- How to assemble
- Recommended fasteners, if applicable
- Ordering information (part #, unit and weight)

Profile Compatibility

As a quick reference for product compatibility, the Ordering Information section groups product by profile series. Additional information can be found in the applications drawings associated. Where available, the Recommended Hardware section will highlight the necessary hardware components based on the profile series application.

Contact your Parker IPS Service Center or Customer Service to discuss specials or applications not found in this catalog.

How to Assemble

Technical Data

Application Information

Recommended Fastening Hardware

Ordering Information

Catalog 1816-3/US Industrial Profile Systems
Door Stops **Handles & Hinges**

40 Series
Door Stop - Straight (23-124)
Optional Velcro® Plate (23-158)
Door Stop - 28 - Angle (23-125)
Optional Velcro® Plate (23-158)
40 Series - 5.5mm
28 Series - 4mm
28 Series

Part #	A	B	C	D	E	F
23-125	51	44.5	25.4	30	4.75	M5

Door Stops

23-124

23-125

23-158*

Handles & Hinges

3D View

Dimensions

Part #

Application
 Door Stops provide a positive stop to keep the door lined up with a frame. An optional Velcro® plate can be added to create a light-duty catch.

Technical Data
 Aluminum, Clear Anodized with Velcro® Pad

Recommended Fastening Hardware (Order Separately)

Profile Series	Fastener	Part # 23-124	Part # 23-125	Part # 23-158
40, 30	Screws	24-120-6	24-220-6	24-212-5
	T-Nuts	20-056	20-056	20-052
28	Screws	24-120-6	24-210-5	24-210-5
	T-Nuts	20-055	20-038	20-038
1.5"	Screws	25-114-4	25-210-4	25-208-2
	T-Nuts	25-001 or 20-083	25-001 or 20-083	25-009 or 20-088
1"	Screws	25-112-4	25-206-2	25-206-2
	T-Nuts	25-031 or 25-034	25-030 or 25-035	25-030 or 25-035

Ordering Information

Description	Unit	Weight	Part #
Door Stop - Straight	Each	91 g	23-124
Door Stop 40, 30 - Angle	Each	91 g	23-125
Velcro® Plate	Each	9 g	23-158

* For wider surfaces, use 22-145 and apply velcro strip. Order M6 hardware separately.

Parker Hannifin Corporation
 Industrial Profile Systems
 Wadsworth, Ohio USA

♠ Throughout this catalog you may notice our ACE designator. This symbol will highlight our high-volume components and parts that will have reduced lead time when compared to items without the ACE designator. We encourage the use of these items to ensure the fastest service from our team.

Ordering Information

Parker offers several ways to order metric and Inch product so that you can choose a level of service to suit your needs. You can order everything from a bundle of uncut profiles to a completely assembled structure.

- **Bulk** – IPS product line can be ordered as bundles of profiles and packages of fasteners and accessories to machine and assemble at your location.
- **UPS Shipping Requirements** – IPS profiles can be shipped via UPS Air if they are cut to 8' (2.4m) length max and each package does not exceed 70 lbs (31kg). Cut charges will apply.
- **Kits** – IPS product line can be ordered in a kit form where the profiles are cut and machined to order and fasteners and accessories are included based on a parts list. This kit can be assembled at your location.
- **Complete Assembly** – IPS product line can be ordered completely assembled and shipped as an assembled unit. Shipping costs should be a consideration when using this method.



Ordering Choices

Machining Services

- **Order cut to size** – specify the length in millimeters or decimal meter dimensions. Example: 1500mm or 1.5 meters. See the conversion chart on page 19 for fraction to decimal conversions. A cut charge will be included with cut to size lengths.
- **Additional machining** should also be specified along with the profile if it is required for fasteners or accessories. Standard machining options include tapping, drilling, and counter boring. See machining services pages in this catalog for correct part numbers. Any additional custom machining can be done by our expert machinists to ensure that your design is complete and to your requirements.
- **Cut to length tolerance** is $\pm 0.40\text{mm}$ [± 0.015 "].

Profiles
& Accessories

Fasteners

Brackets,
Gussets, &
PlatesPanels
& DoorsHandles,
Hinges, &
LatchesFeet &
Casters

Special

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Choosing a Fastener/Accessory

What aspect is critical for fastening?

- Aesthetics/hidden (standard fastener, universal)
- Strength (universal fastener, standard)
- Ease-of-assembly
- Gussets and joining plates can be used instead of machining to assemble
- Adjustability (gussets, angle bracket, universal)

When ordering universal fasteners or standard fasteners, machining operations are required for the fastener to work in a profile. Part numbers and descriptions for machining operations are found in the machining services section of the catalog.

Choices of Accessories

A full range of accessories are available to complete an assembly:

- T-Slot Covers
- End Caps
- Brackets and Gussets
- Joining and Base Plates
- Casters
- Hinges
- Handles



What aspect is critical for accessories?

Parker offers a wide range of accessories to provide the right part for the special considerations of your application.

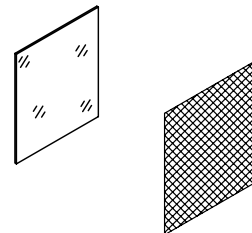
- Aesthetics
- Ease-of-assembly
- Load on structure
- Functionality

Panels & Wire Mesh

Panels and wire mesh can be ordered as a full sheet or cut to a specified dimension in square meters. When ordering full sheets, please add a P to the end of the part number that you are ordering (e.g. 26-790-6P)

Standard panel choices include:

- Polycarbonate
- TRESPA®
- Expanded PVC
- PVC Coated Wire Mesh
- Aluminum Composite



Specialty panels of any material can be ordered for any project. Additional time may be required to expedite any specials.

Technical Data

- All structural IPS profiles are prime aluminum, mill-certified with metallurgical properties equivalent to 6105-T5/6005-T5/6063-T6. Accessory products are 6061-T6 or 6063-T6.
 - Yield (0.2 limit) Rm min. 240 N/mm² (33-35 ksi)
 - Tensile strength Rm min. 260 N/mm² (37-42 ksi)
- Note: Cross sectional thickness variations of the profiles may influence yield and tensile strength.
- Elongation for 2 in. long specimens:
6005-T5 (thickness up thru 0.124 in), 6061-T6 (up thru 0.249 in), 6105-T5 (up thru 0.5 in) – 8% min
6005-T5 (thickness 0.125-1 in.), 6061-T6 (0.25 in. and over) – 10% min
 - Modulus of Elasticity "E" approximately 70,000 N/mm² (10,150 kpsi)
 - Brinell Hardness approximately 75 HB 2.5/187.5
 - The molecular structure of the 6005-T5 alloy is generally stable in an ambient temperature range of:
-40°C to +200°C (-40°F to +392°F)
Extreme temperature fluctuations may change the mechanical properties.

- Clear anodizing: AA M10, C22, A31, Clear
- Black anodizing: AA M10, C22, A34, Black
- Minimum depth: 0.010mm (0.0004 in.)
- Surface hardness: approximately 250 HV, outer surface exposed
- Custom anodizing and protective finishes available

- Extrusions conforming to DIN 17 615 specifications and to IPS blueprints.
- Twist per 300mm (1 ft) length not to exceed 0.25° and total twist over 6m (20 ft) length not to exceed 1.5°.
- Flatness 0.10mm (0.004 in) per 25mm (1 in) of width.
- Straightness 0.32mm (0.0125 in) per 300mm (1 ft) of length and not exceeding 3mm (0.12 in) over 6m (20 ft) of extrusion.
Maximum bow 3mm (0.12 in) over 6m (20 ft).
- Cut to length tolerance +/-0.40mm [+/-0.015"].

All 40, 30, 28, 20, 1.5" and 1" series profiles have a taper built-in to the T-slot. Preload in the material elastic range results in a vibration safe connection because the profile is pulled flush with the connecting surface during fastener tightening. The high-quality material ensures that the profile T-slot will remember its original shape if disassembly is required, making all IPS profiles completely reusable.

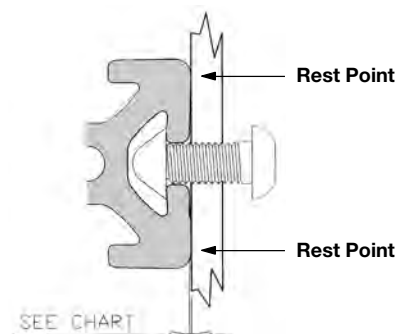
Profile Series	Preload Range
1.5", 40, 30, 28	0.2mm
20, 1"	0.1mm

Mechanical Properties

Profile Finish

Tolerances

Defined Rest Points



Profiles & Accessories

Fasteners

Brackets, Gussets, & Plates

Panels & Doors

Handles, Hinges, & Latches

Feet & Casters

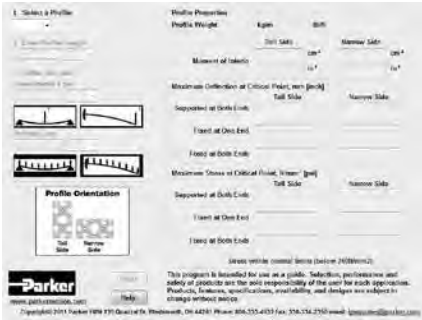
Special

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Deflection Calculation



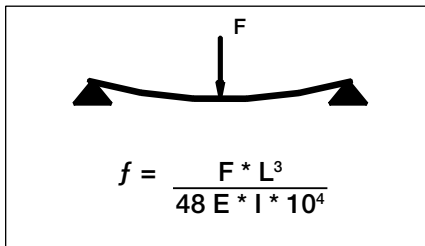
Application

Standalone program able to calculate deflection and stress of IPS aluminum profiles based on profile selection, length and load (evenly distributed and/or concentrated at the critical point). Three cases for the profile attachment are calculated: supported at both ends, fixed at one end, fixed at both ends. Metric or inch units of measure can be used to enter profile length and load. Calculated deflection given in both millimeters and inches. Stress values are given in both N/mm² and psi.

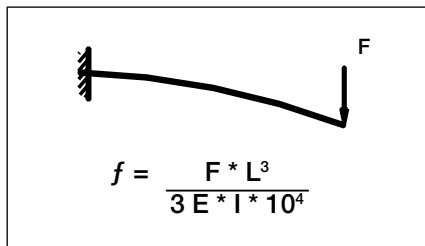
Download at www.parker.com/IPS

Formulas for calculating deflection at critical points

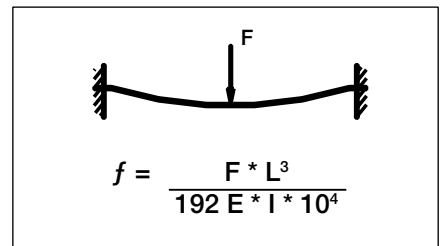
Supported at both ends



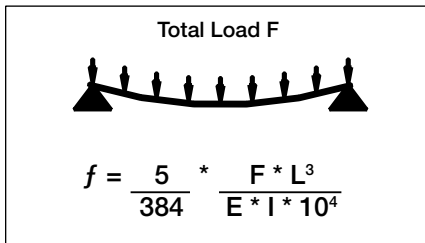
Fixed at one end



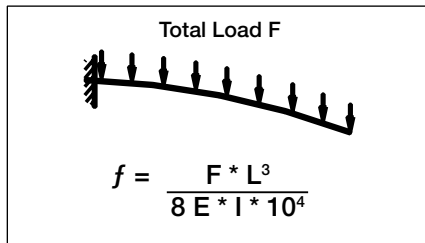
Fixed at both ends



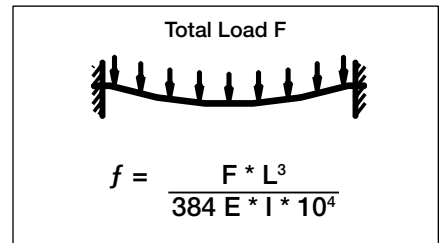
Total Load F



Total Load F



Total Load F



In the formulas:

f = deflection in mm

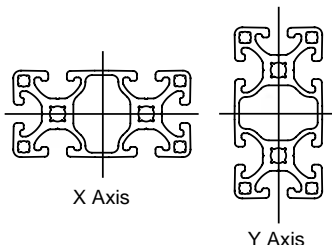
F = load in N

L = free profile length in mm

E = Modulus of Elasticity in N/mm²

$E_{Al} = 70,000 \text{ N/mm}^2$

I = Moment of inertia in cm⁴



Example

Find the deflection for the following conditions:

80x40 Standard Profile (10-080), upright

$I_x = 71.97 \text{ cm}^4$

$m = 3.18 \text{ kg/m}$

$L = 1000 \text{ mm}$

$F = 50 \text{ N}$ - concentrated load

No additional load other than profile weight

Calculate Profile weight (uniform load)

$$F_U = m * L * g = (3.18 * 10^{-3}) * 1000 * 9.81 = 31.2 \text{ N}$$

Total deflection $f_{TOTAL} = f_{CONCENTRATED} + f_{UNIFORM}$

Supported at both ends:

$$f = 0.021 + 0.008 \approx 0.03 \text{ mm}$$

Fixed at one end:

$$f = 0.331 + 0.077 \approx 0.408 \text{ mm}$$

Fixed at both ends:

$$f = 0.005 + 0.002 \approx 0.007 \text{ mm}$$

Fractions to Decimals

Fraction	Decimal
1/16	0.063
1/8	0.125
3/16	0.188
1/4	0.25
5/16	0.313
3/8	0.375
7/16	0.438
1/2	0.50
9/16	0.563
5/8	0.625
11/16	0.688
3/4	0.75
13/16	0.813
7/8	0.875
15/16	0.938

Metric/English Conversions

Below is a conversion chart for converting metric and inch units of measure for applicable physical conditions with this product line.

	Multiply	by	To Get
Linear	mm	0.03937	Inches
	Inches	25.4	mm
	cm	0.3937	Inches
	m (meters)	3.2808	Feet
	Feet	0.3048	m (meters)
Area	mm ²	0.00155	Inches ²
	Inches ²	645.16	mm ²
Volume	cm ³	0.06102	inches ³
	inches ³	16.387	cm ³
	inches ³	0.0165	liters
	Liters	61.024	inches ³
Mass	Gram (g)	0.0353	Ounce (oz)
	Ounce (oz)	28.329	Gram (g)
	Kilogram (kg)	2.2046	Pounds (lb)
	Pounds	0.4536	Kilograms (kg)
Velocity	Meters/Minute	3.281	Feet/Minute
	Feet/Minute	0.3048	Meters/Minute
Force	Kilograms-f (kgf)	9.807	Newtons (N)
	Newtons (N)	0.10194	Kilograms-f (kgf)
	Pounds-f (lbf)	4.448	Newtons (N)
	Newtons (N)	0.2248	Pounds-f (lbf)
Pressure	Bar	14.5	PSI
	PSI	0.069	Bar
Torque	Newton-Meters (Nm)	8.851	Pound-Inches (lb-in)
	Pound-Inches	0.11298	Newton-Meters (Nm)
Moment of Inertia	cm ⁴	0.02403	inch ⁴
	inch ⁴	41.623	cm ⁴

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All information in the catalog is current as of the print date, but information can certainly change over time. Always check parker.com/ips for the latest electronic version of the catalog and other product information.

The screenshot shows the Parker website homepage. At the top left is the Parker logo and navigation links: Home, Contact Us, Applications, Downloads. The main banner features the text "From Concept to Completion... Parker quickly transforms concepts into reality" above images of a wireframe, a clock, and a completed metal structure. Below this is the slogan "Think it. Design it. Build it." To the right of the banner are three call-to-action boxes: "Contact Parker" with a "Contact Us" button, "Products" with a "Product Page" button, and "EHS Today Article" with a "Read Article" button. Below the banner are three columns: "Products" (USA's largest provider of T-slot aluminum framing products), "Applications" (With the expertise of the world's top manufacturers, we can help you design the right T-slot aluminum framing system for your application), and "Downloads" (Parker PPS offers the most complete range of extrusions and T-slot aluminum framing solutions for your application). At the bottom, there are two paragraphs of text. The left paragraph states: "Parker PPS T-slot aluminum profile systems offer excellent value to many industry applications. Parker T-slot aluminum framing can also save you installation time and costly rework expenses versus steel structures. We work closely with our customers to design the optimized structure and even add in non-standard products to tailor frame application needs. Our high quality extrusions offer multiple wall thicknesses and make or buy options for costly designs." The right paragraph states: "For over 30 years Parker has been designing T-slot aluminum framing solutions for customers. We have created T-slot structures for machine safety and guarding, clean room enclosures, equipment workstations, lean factory solutions, and much more. Contact us today for help with your design."

! WARNING

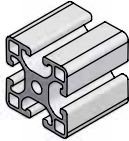
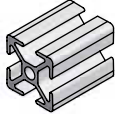
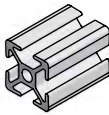
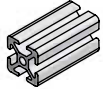


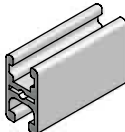

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from Parker Hannifin Corporation, its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application and review the information concerning the product or system in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met.

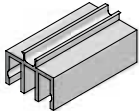
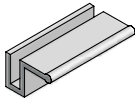
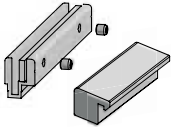
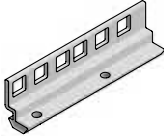
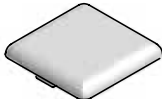
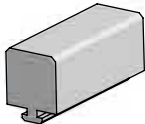
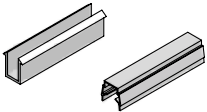
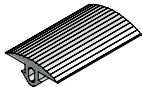
The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by Parker Hannifin Corporation and its subsidiaries at any time without notice.

Section 1 Profiles & Accessories

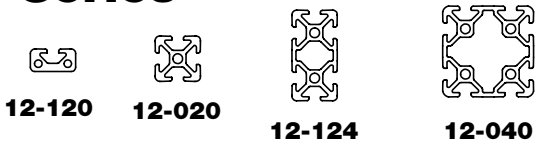
Profiles

40 Series	26-39	
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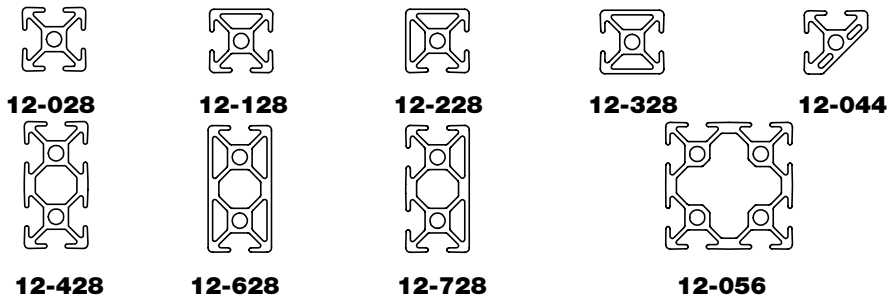
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Door Profiles Rolling Door Guide	62	
Panel Profiles Stiffener/Handle Panel Mounting	63 63	
Clamp Profiles Mesh Clamp Clamp Bar	64 64	
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Panel/Mesh Gaskets Cover Strips	67 68	
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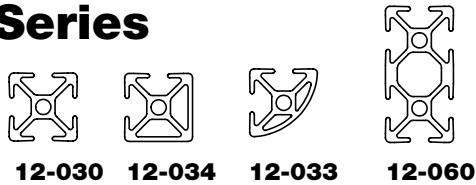
20 Series



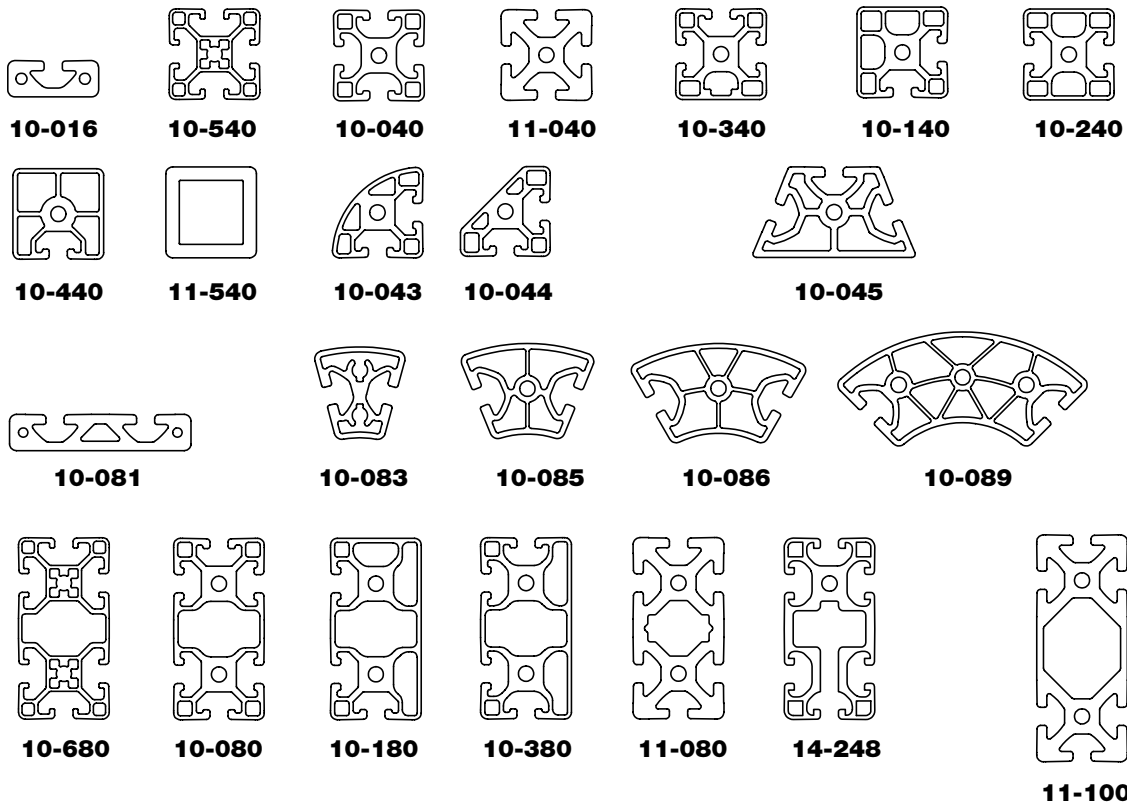
28 Series



30 Series

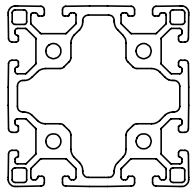


40 Series

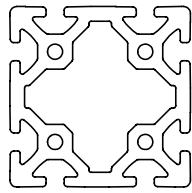


Overview

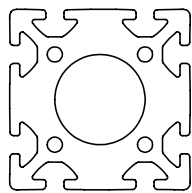
40 Series



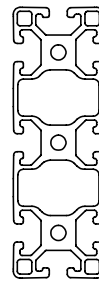
10-088



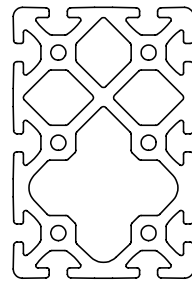
11-088



11-089



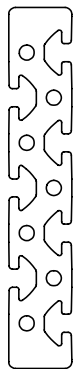
10-120



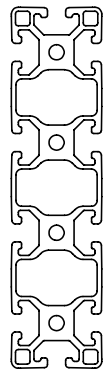
11-122



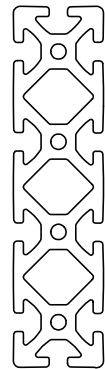
10-161



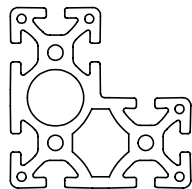
11-128



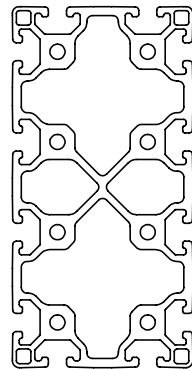
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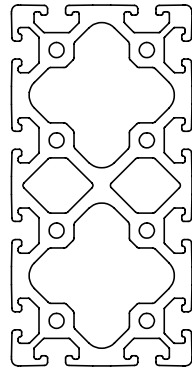
11-140



11-084



10-160



11-160

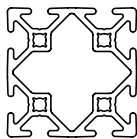
1" Series



12-1010

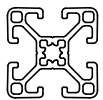


12-1020



12-2020

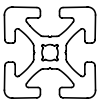
1.5" Series



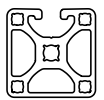
12-1515



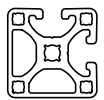
10-1515



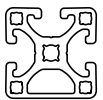
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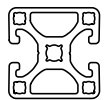
10-1591



10-1592



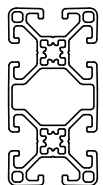
10-1593



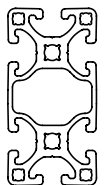
10-1594



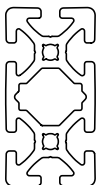
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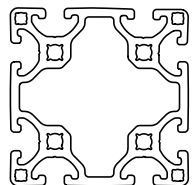
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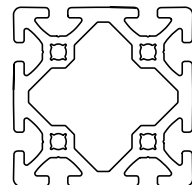
10-1530



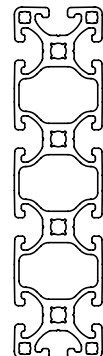
11-1530



10-3030



11-3030



10-1560

Overview

18x32 Frame Profile



12-032

Roller Systems



13-505



13-513

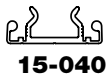


13-106

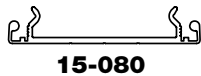


13-114

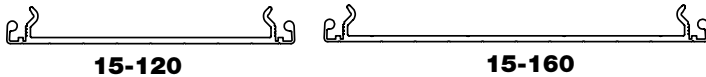
Conduit



15-040

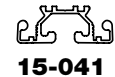


15-080

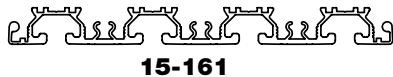


15-120

15-160



15-041



15-161



15-122



15-082



15-042

Door



12-012



12-014



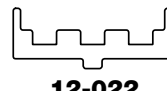
12-011



12-013



12-015



12-022

T-Slot Covers



12-101†



12-102†



12-103†



12-106



12-107



12-108†



12-111†



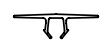
12-115†



12-116†



12-117-x



12-113†



12-114

Slides



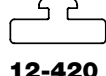
12-410



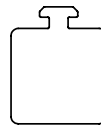
12-421



12-430



12-420



12-400

Panel



12-105



12-010*



12-109*



12-016

12-110*

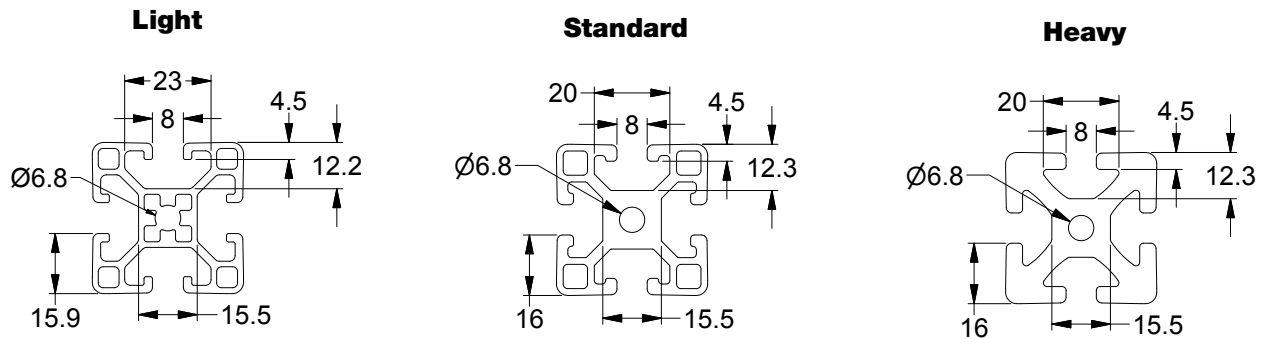
†Available in 2m bar only.

*Available in 3m bar only

40 Series

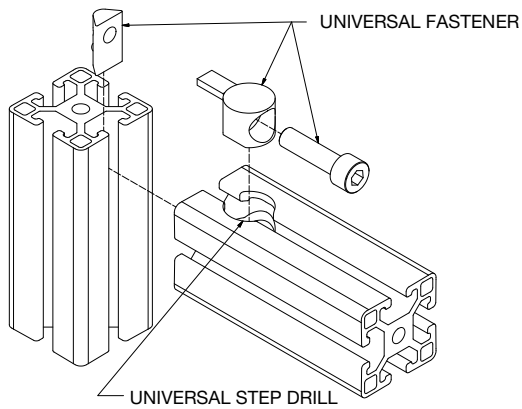
Part #	Description	Moment of Inertia		Section Modulus		Section [cm ²]	Weight [kg/m]	Cat. Page
		I _x [cm ⁴]	I _y [cm ⁴]	W _x [cm ³]	W _y [cm ³]			
10-016	Profile 16x40	1.10	7.19	1.29	3.60	4.38	1.17	24
10-040	Profile 40x40 Standard	9.46	9.46	4.73	4.73	6.65	1.72	19
10-043	Profile 40x40 Quarter Round	6.95	6.95	3.15	3.15	5.87	1.59	21
10-044	Profile 40x40-45° Standard	6.79	6.79	3.03	3.03	5.72	1.53	22
10-045	Profile 40x45° Heavy	16.25	34.51	7.40	12.20	10.22	2.76	22
10-080	Profile 40x80 Standard	17.23	71.56	8.62	17.89	11.49	3.18	26
10-081	Profile 16x80	2.22	50.72	2.61	12.68	8.41	2.20	24
10-083	Profile R40x80 30° Standard	8.48	5.87	4.01	3.64	5.71	1.57	23
10-085	Profile R40x80 45° Standard	10.69	16.64	4.75	8.23	6.99	1.92	23
10-086	Profile R40x80 60° Standard	13.02	35.75	6.30	10.38	8.26	2.25	23
10-088	Profile 80x80 Standard	136.85	136.85	34.21	34.21	19.98	5.45	27
10-089	Profile R40x80 90° Standard	21.68	110.54	8.73	20.89	12.67	3.44	23
10-120	Profile 40x120 Standard	25.04	225.56	12.52	37.59	16.66	4.35	28
10-140	Profile 40x40 Bi-Slot Corner	9.29	9.29	4.64	4.64	6.67	1.81	20
10-160	Profile 80x160 Standard	268.68	738.22	67.17	92.28	37.76	10.29	29
10-161	Profile 16x160	3.73	289.10	4.13	36.14	12.98	3.45	24
10-164	Profile 40x160 Standard	32.84	510.39	16.42	63.80	21.23	5.80	28
10-180	Profile 40x80 Tri-Slot Corner	16.61	68.92	8.14	17.15	11.16	2.83	26
10-240	Profile 40x40 Bi-Slot Mid-Frame	9.57	9.13	4.79	4.57	6.73	1.82	20
10-340	Profile 40x40 Tri-Slot	9.94	9.33	4.01	4.66	6.83	1.82	20
10-380	Profile 40x80 Quad-Slot	16.77	69.20	8.21	17.30	11.28	3.06	26
10-440	Profile 40x40 Mono-Slot	8.47	8.71	4.08	4.35	5.81	1.56	20
10-540	Profile 40x40 Light	8.27	8.27	4.14	4.14	5.20	1.41	19
10-680	Profile 40x80 Light	15.30	56.78	7.65	14.70	9.10	2.46	26
11-040	Profile 40x40 Heavy	14.26	14.26	7.13	7.13	9.29	2.53	19
11-080	Profile 40x80 Heavy	26.97	102.65	13.48	25.66	16.74	4.58	26
11-084	Profile 40x80x80 Corner Heavy	127.47	128.57	27.62	27.66	23.23	6.27	30
11-088	Profile 80x80 Heavy	186.37	186.37	46.59	46.59	26.23	7.02	27
11-089	Profile 80x80 Extra Heavy	223.90	223.90	55.97	55.97	37.39	9.83	27
11-100	Profile 40x100 Heavy	31.22	193.34	15.61	38.67	18.02	4.94	25
11-122	Profile 80x120 Heavy	274.14	738.22	68.53	119.29	39.79	10.82	27
11-128	Profile 28x160	20.62	737.99	14.73	92.25	31.27	8.46	25
11-140	Profile 40x160 Heavy	53.10	738.07	26.55	92.26	32.17	8.72	28
11-160	Profile 80x160 Heavy	343.37	1106.92	85.84	138.37	48.23	13.07	29
11-540	Profile 40x40 Heavy Square	15.78	15.78	7.89	7.89	7.98	2.16	31

T-Slot Detail

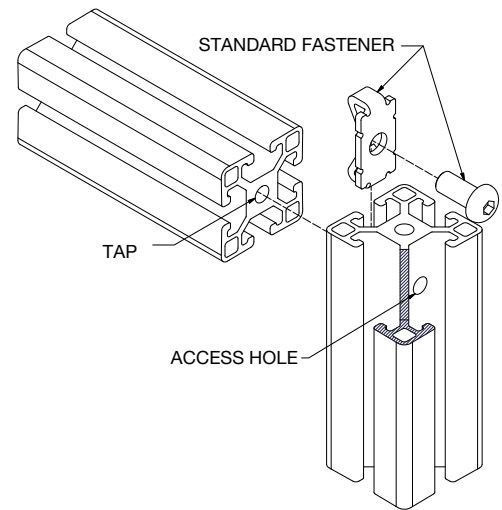


Fastening Methods

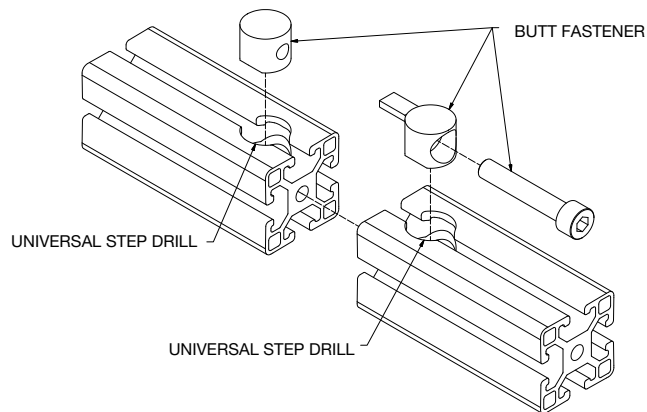
Universal Fastener



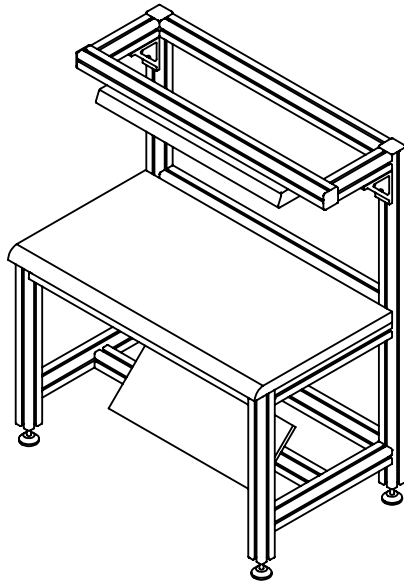
Standard Fastener



Butt Fastener



40 Series



Example Workstation

Application

- T-slots located on all four faces
- This profile provides extensive mounting options for connections and accessories directly onto a structure
- An excellent choice for general purpose applications such as workstations, machine guarding and enclosures
- These profiles are weight optimized and available in light, standard and heavy ratings

Technical Data

Aluminum, Clear or Black Anodized (See Technical Data page 9 for full material and finish specifications)

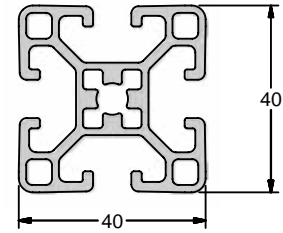
Part #	I_x [cm ⁴]	I_y [cm ⁴]	W_x [cm ³]	W_y [cm ³]	Section [cm ²]	Weight [kg/m]
10-540	8.27	8.27	4.14	4.14	5.20	1.41
10-040	9.46	9.46	4.73	4.73	6.65	1.72
11-040	14.26	14.26	7.13	7.13	9.29	2.53

Ordering Information

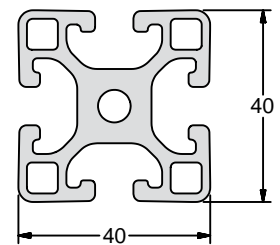
Description	Max. Length	Part # (Clear)	Part # (Black)
Profile 40x40 Light	6 meters	10-540	10-540B
Profile 40x40 Standard	6 meters	10-040	10-040B
Profile 40x40 Heavy	6 meters	11-040	
Cut to Length Service Number		19-001	19-001

End Caps	Part #
40x40	18-813

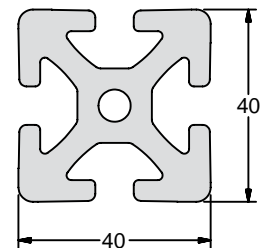
* End tap requires spiral tap



10-540* ♣

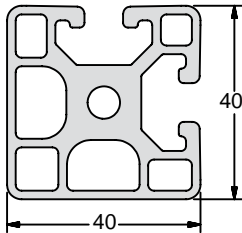


10-040 ♣

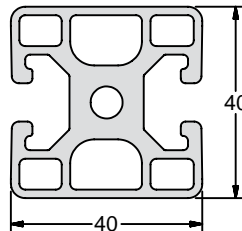


11-040 ♣

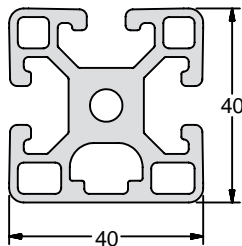
40 Series



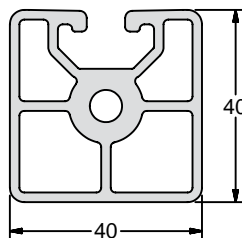
◆ **10-140**



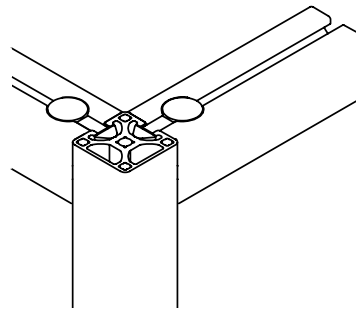
◆ **10-240**



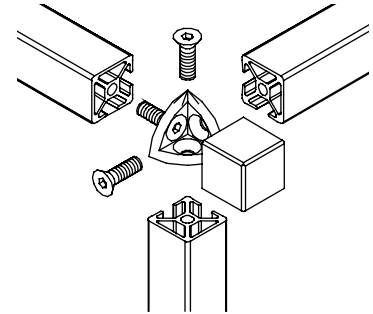
◆ **10-340**



◆ **10-440**



Universal Fastening Set 20-004 on 40 x 40 bi-slot corner profile.



Corner Bracket (22-146) and Square Connector Cap (18-842) used with 40 x 40 bi-slot corner profile.

Application

- Similar to 40X40 Standard profiles except closed faces are positioned in various arrangements
- Provides efficient fastening in a variety of configurations while retaining a smooth surface for applications requiring an aesthetically clean look
- Particularly useful in clean room, packaging, medical and pharmaceutical applications as they reduce areas where contaminants and dirt could potentially accumulate

Technical Data

Aluminum, Clear Anodized (See Technical Data page 9 for full material and finish specifications)

Part #	I_x [cm ⁴]	I_y [cm ⁴]	W_x [cm ³]	W_y [cm ³]	Section [cm ²]	Weight [kg/m]
10-140	9.29	9.29	4.64	4.64	6.67	1.81
10-240	9.57	9.13	4.79	4.57	6.73	1.82
10-340	9.94	9.33	4.01	4.66	6.83	1.82
10-440	8.47	8.71	4.08	4.35	5.81	1.56

Ordering Information

Description	Max. Length	Part # (Clear)
Profile 40x40 Bi-Slot Corner	6 meters	10-140
Profile 40x40 Bi-Slot Mid-Frame	6 meters	10-240
Profile 40x40 Tri-Slot	6 meters	10-340
Profile 40x40 Mono-Slot	6 meters	10-440
Cut to Length Service Number		19-001

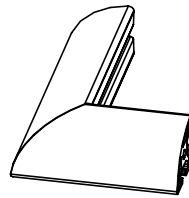
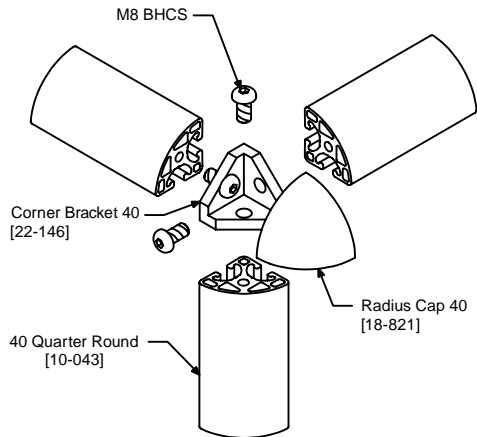
End Caps

40x40

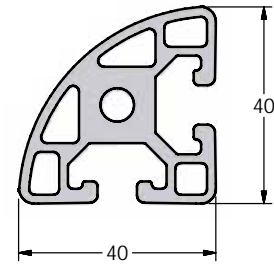
Part #

18-813

40 Series



Note: See page 67 for miter connector.



10-043

Application

This profile is designed with a radius quarter round face and T-Slots on the remaining perpendicular sides. This is particularly useful for engineering frames, workstation edges, shelving or enclosures where a rounded edge is aesthetically or functionally desirable.

Technical Data

Aluminum, Clear Anodized (See Technical Data page 9 for full material and finish specifications)

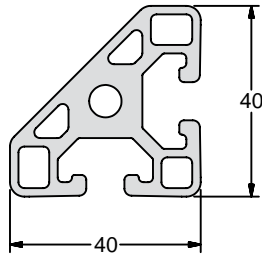
Part #	I_x [cm ⁴]	I_y [cm ⁴]	W_x [cm ³]	W_y [cm ³]	Section [cm ²]	Weight [kg/m]
10-043	6.95	6.95	3.15	3.15	5.87	1.59

Ordering Information

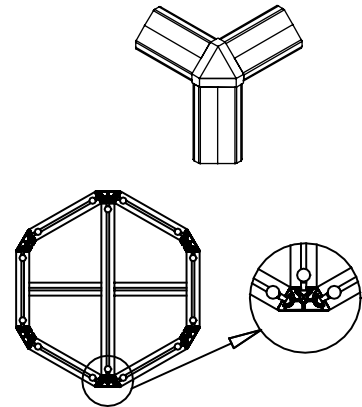
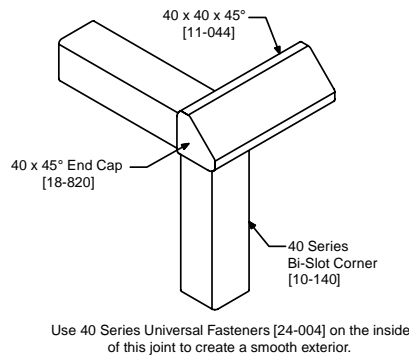
Description	Max. Length	Part # (Clear)
Profile 40x40 Quarter Round	6 meters	10-043
Cut to Length Service Number		19-001

End Caps	Part #
40x40 Quarter Round	18-843

40 Series



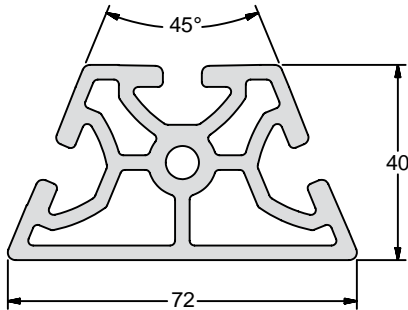
10-044



Application

With angled faces and perpendicular T-Slots, profile 10-044 is ideal for smoothing corners of structures for clean room, medical, pharmaceutical as well as display and workstation applications.

Profile 10-045 provides T-Slots on three sides: one parallel with the closed face, and two positioned to provide a 45° angle. This profile can be used when creating polygonal shaped structures.



10-045*

Technical Data

Aluminum, Clear Anodized (See Technical Data page 9 for full material and finish specifications)

Part #	I _x [cm ⁴]	I _y [cm ⁴]	W _x [cm ³]	W _y [cm ³]	Section [cm ²]	Weight [kg/m]
10-044	6.79	6.79	3.03	3.03	5.72	1.53
10-045	16.25	34.51	7.40	12.20	10.22	2.76

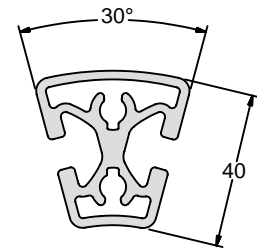
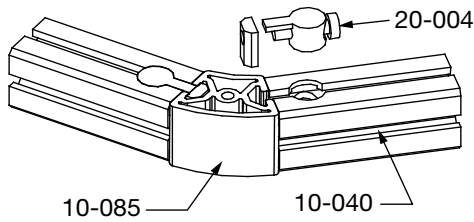
Ordering Information

Description	Max. Length	Part # (Clear)
Profile 40x40-45° Standard	6 meters	10-044
Profile 40x45° Heavy	3 meters	10-045
Cut to Length Service Number		19-001

End Caps	Part #
40x40-45°	18-820

* No end cap available

40 Series



10-083

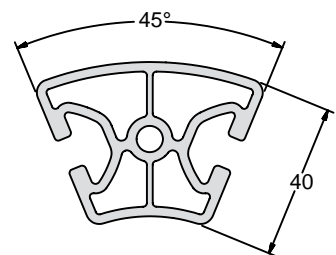
Application

Radius surfaces on two facing sides make these profiles particularly useful for creating rounded corners. They are ideal for applications requiring an aesthetically pleasing look, or where contaminants and dirt must be kept to a minimum such as medical and pharmaceutical environments. These profiles are also useful in constructing cases, tables and angled structure bases.

Technical Data

Aluminum, Clear Anodized (See Technical Data page 9 for full material and finish specifications)

Part #	I _x [cm ⁴]	I _y [cm ⁴]	W _x [cm ³]	W _y [cm ³]	Section [cm ²]	Weight [kg/m]
10-083	8.48	5.87	4.01	3.64	5.71	1.57
10-085	10.96	16.64	4.75	8.23	6.99	1.92
10-086	13.02	35.75	6.30	10.38	8.26	2.25
10-089	21.68	110.54	8.73	20.89	12.67	3.44

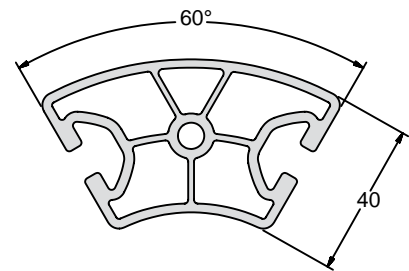


10-085

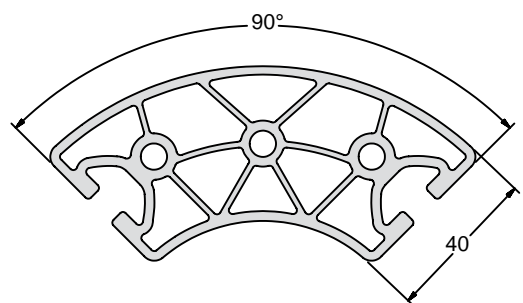
Ordering Information

Description	Max. Length	Part # (Clear)
Profile R40x80 30° Standard	3 meters	10-083
Profile R40x80 45° Standard	3 meters	10-085
Profile R40x80 60° Standard	3 meters	10-086
Profile R40x80 90° Standard	3 meters	10-089
Cut to Length Service Number		19-001

End Caps	Part #
10-083	18-883
10-085	18-885
10-086	18-886



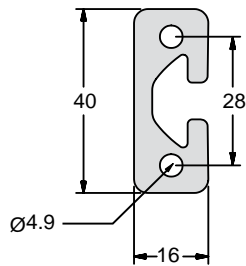
10-086



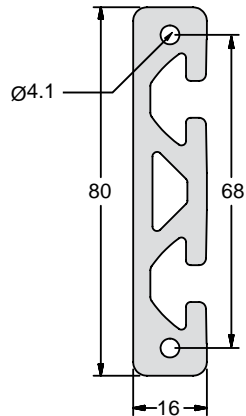
10-089*

* No end cap available

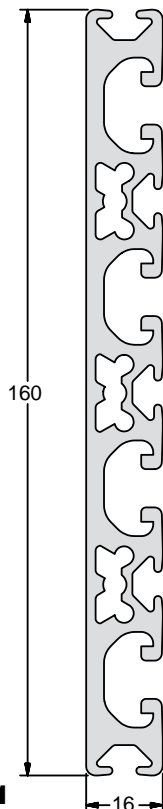
40 Series



10-016



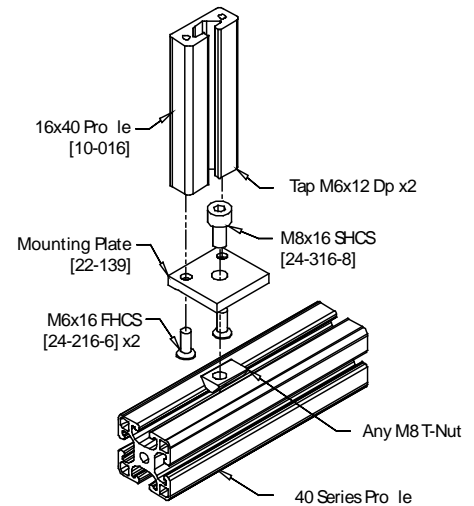
10-081



10-161

Application

Light construction and support for attaching items such as valves, limit switches, pneumatics and control equipment. Profile 10-081 can be used as a base plate on Roller System 6 Bearing Units. Profile 10-161 has a large surface area with 8mm and 5mm T-Slots providing convenient attachment points for multiple accessories (this profile should not be used as a structural member).



Technical Data

Aluminum, Clear Anodized (See Technical Data page 9 for full material and finish specifications)

Part #	I _x [cm ⁴]	I _y [cm ⁴]	W _x [cm ³]	W _y [cm ³]	Section [cm ²]	Weight [kg/m]
10-016	1.10	7.19	1.29	3.60	4.38	1.17
10-081	2.22	50.72	2.61	12.68	8.41	2.20
10-161	3.37	289.10	4.13	36.14	12.98	3.45

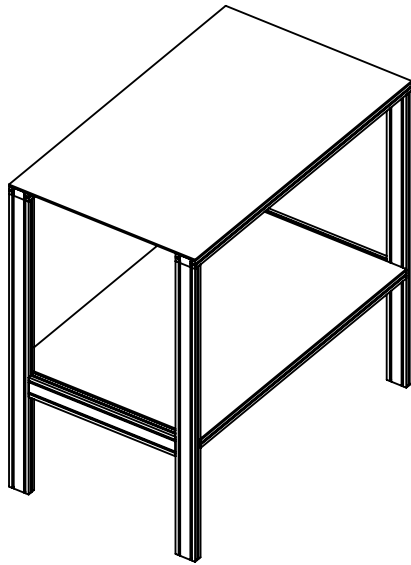
Ordering Information

Description	Max. Length	Part # (Clear)
Profile 16x40	6 meters	10-016
Profile 16x80	6 meters	10-081
Cut to Length Service Number		19-001
Profile 16x160	6 meters	10-161
Cut to Length Service Number		19-003

End Caps

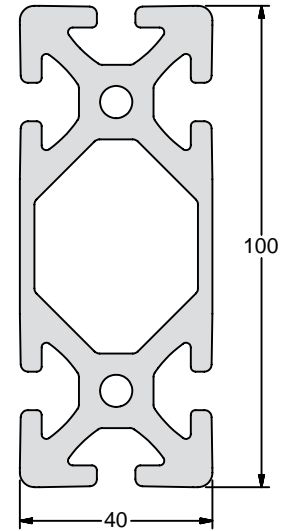
Profile	Part #
Profile 16x40	18-811
Profile 16x80	18-812
Profile 16x160	18-806

40 Series



Application

These heavy profiles are ideal for general engineering structures such as machine bases, structural supports and mounting surfaces on fixturing applications. 11-128 is used as a carriage plate for bearing block assemblies on Linear System 14.



11-100*

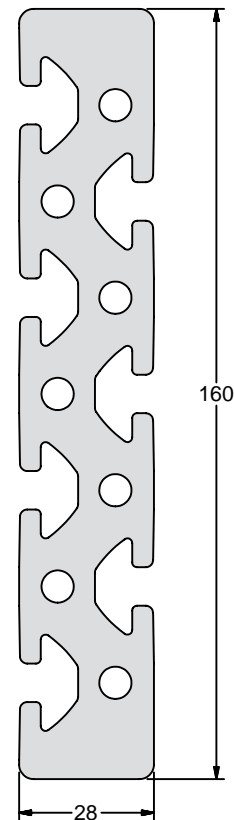
Technical Data

Aluminum, Clear Anodized (See Technical Data page 9 for full material and finish specifications)

Part #	I _x [cm ⁴]	I _y [cm ⁴]	W _x [cm ³]	W _y [cm ³]	Section [cm ²]	Weight [kg/m]
11-100	31.22	193.34	15.61	38.67	18.02	4.94
11-128	20.62	737.99	14.73	92.25	31.27	8.46

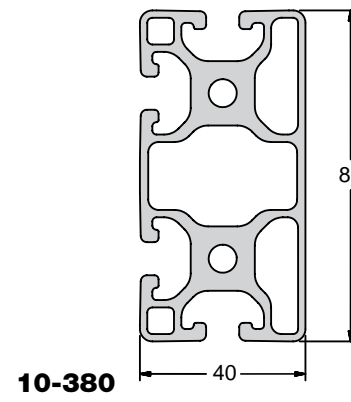
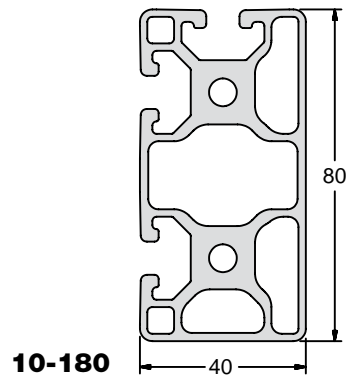
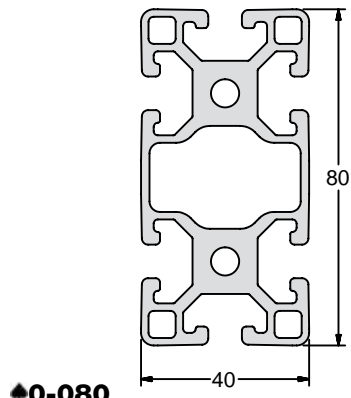
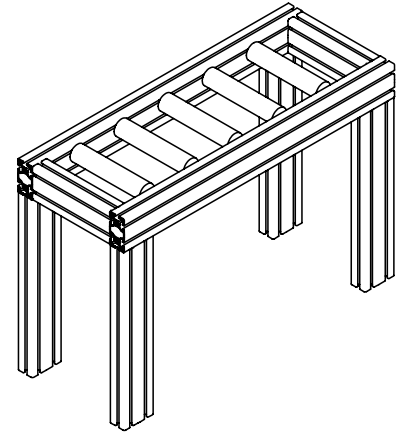
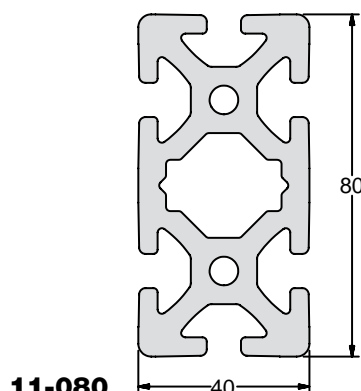
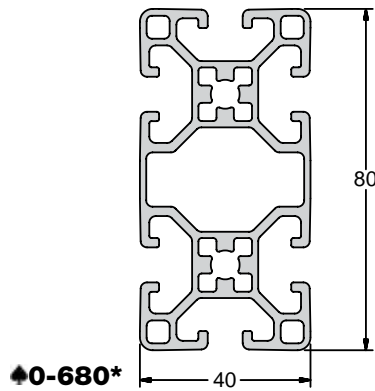
Ordering Information

Description	Max. Length	Part # (Clear)
Profile 40x100 Heavy	6 meters	11-100
Cut to Length Service Number		19-002
Profile 28x160	6 meters	11-128
Cut to Length Service Number		19-003
End Cap	Part #	
28x160	18-816	



11-128

40 Series



Application

Designed for applications where high strength is required. Ideal for general engineering structures such as machine frames, work stations and support structures. Profiles 10-080 and 11-080 can be used in the construction of linear slides with the IPS Roller Systems. Both profiles can also be used for compressed air piping.

Technical Data

Aluminum, Clear or Black Anodized (See Technical Data page 9 for full material and finish specifications)

Part #	I _x [cm ⁴]	I _y [cm ⁴]	W _x [cm ³]	W _y [cm ³]	Section [cm ²]	Weight [kg/m]
10-680	15.30	58.78	7.65	14.70	9.10	2.46
10-080	17.23	71.56	8.62	17.89	11.49	3.18
10-180	16.61	68.92	8.14	17.15	11.16	2.83
10-380	16.77	69.20	8.21	17.30	11.28	3.06
11-080	26.97	102.65	13.48	25.66	16.74	4.58

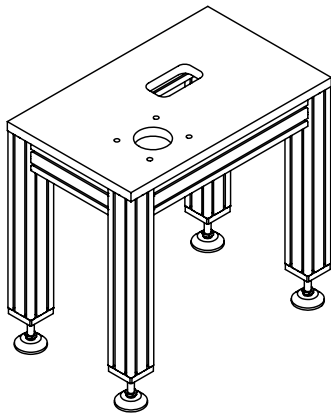
Ordering Information

Description	Max. Length	Part # (Clear)	Part # (Black)
Profile 40x80 Light	6 meters	10-680	
Profile 40x80 Standard	6 meters	10-080	10-080B
Profile 40x80 Tri-Slot Corner	6 meters	10-180	
Profile 40x80 Quad-Slot	6 meters	10-380	
Profile 40x80 Heavy	6 meters	11-080	
Cut to Length Service Number		19-001	

End Cap	Part #
40x80	18-814

*End tap requires spiral tap

40 Series



Application

Designed for heavy duty applications and construction of linear slides with IPS roller systems, these profiles are also suitable for compressed air piping.

Profile 11-089 can be used as a manifold for pressurized air (150 psi). This diameter can also be used to house electrical or air lines.

Technical Data

Aluminum, Clear or Black Anodized (See Technical Data page 9 for full material and finish specifications).

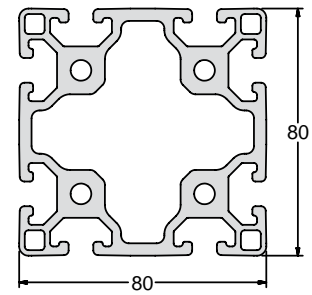
Part #	I_x [cm ⁴]	I_y [cm ⁴]	W_x [cm ³]	W_y [cm ³]	Section [cm ²]	Weight [kg/m]
10-088	136.85	136.85	34.21	34.21	19.98	5.45
11-088	186.36	186.37	46.59	46.59	26.23	7.02
11-089	223.90	223.90	55.97	53.97	37.39	9.83
11-122	269.71	556.69	67.42	89.78	37.95	10.28

Ordering Information

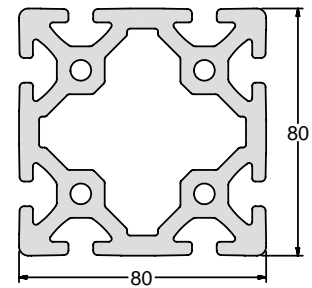
Description	Max. Length	Part # (Clear)	Part # (Black)
Profile 80x80 Standard	6 meters	10-088	10-088B
Profile 80x80 Heavy	6 meters	11-088	
Cut to Length Service Number		19-002	19-002
Profile 80x80 Extra Heavy	6 meters	11-089**	
Profile 80x120 Heavy	6 meters	11-122	
Cut to Length Service Number		19-003	

End Caps

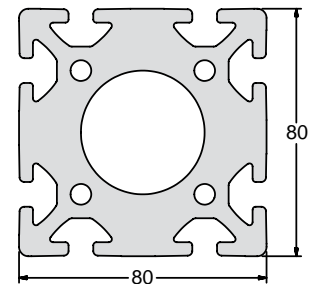
Part #	Part #
80x80	18-815
80x120	18-841



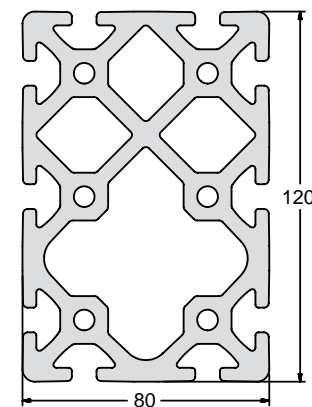
10-088



11-088



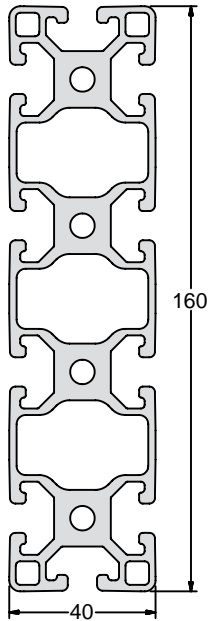
11-089**



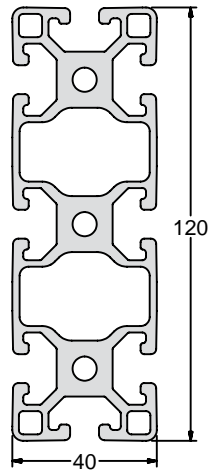
11-122

** Requires single ear fastener 20-144 / 25-014

40 Series



10-164



10-120

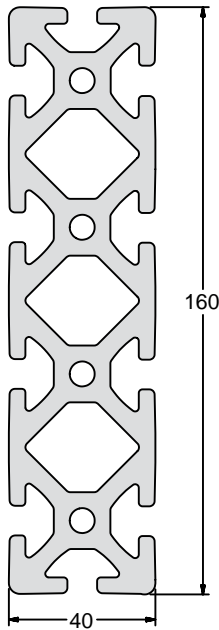
Application

Designed for applications such as fixturing, vertical structural support and headers for bearing block assemblies on IPS Linear System 14. These profiles are also suitable for compressed air piping.

Technical Data

Aluminum, Clear Anodized (See Technical Data page 9 for full material and finish specifications)

Part #	I_x [cm ⁴]	I_y [cm ⁴]	W_x [cm ³]	W_y [cm ³]	Section [cm ²]	Weight [kg/m]
10-120	25.04	225.56	12.52	37.59	16.66	4.35
10-164	32.84	510.4	16.42	63.8	21.23	5.80
11-140	53.10	738.07	26.55	92.26	32.17	8.72



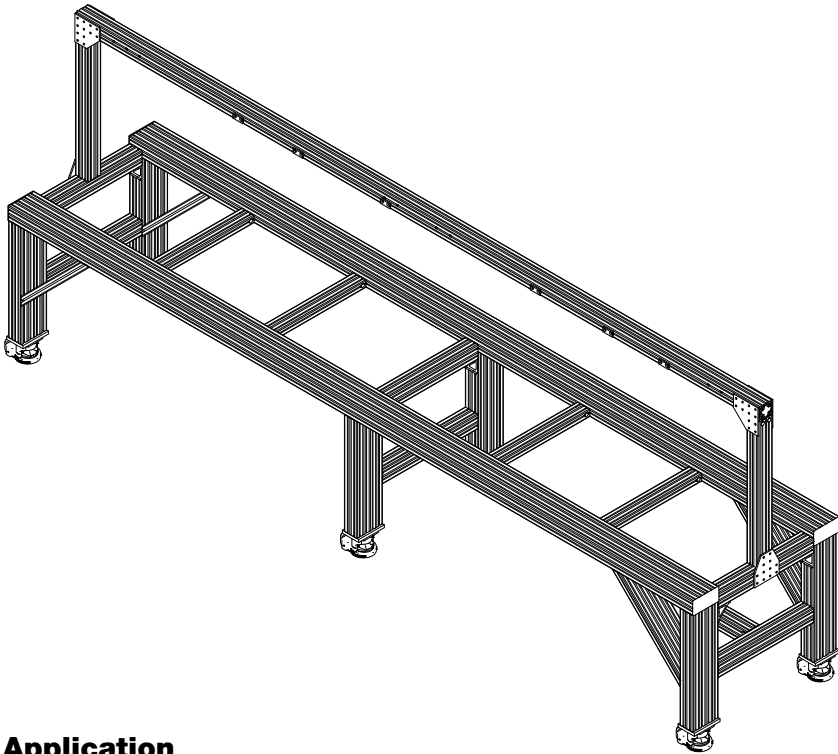
11-140

Ordering Information

Description	Max. Length	Part # (Clear)
Profile 40x120 Standard	6 meters	10-120
Profile 40x160 Standard	6 meters	10-164
Profile 40x160 Heavy	6 meters	11-140
Cut to Length Service Number		19-003

End Caps	Part #
40x120	18-840
40x160	18-817

40 Series



Application

Designed for very high load or wide span applications and construction of linear slides with IPS Roller Systems. These high-strength profiles are also suitable for compressed air piping.

Technical Data

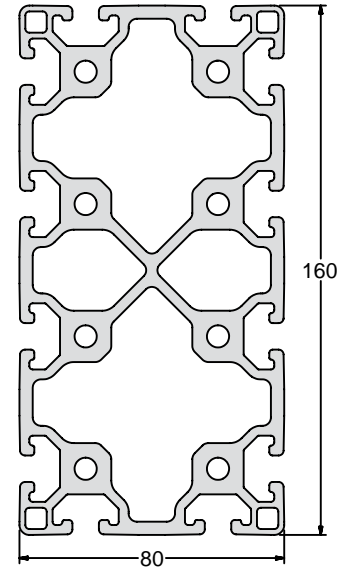
Aluminum, Clear Anodized (See Technical Data page 9 for full material and finish specifications)

Part #	I_x [cm ⁴]	I_y [cm ⁴]	W_x [cm ³]	W_y [cm ³]	Section [cm ²]	Weight [kg/m]
10-160	268.68	913.56	67.17	114.23	37.76	10.29
11-160	351.77	1176.22	87.94	147.02	46.76	12.67

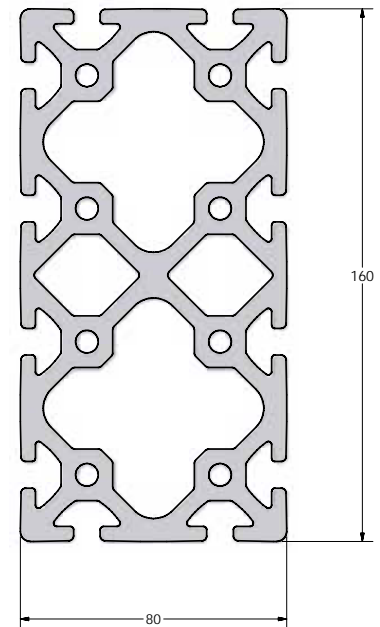
Ordering Information

Description	Max. Length	Part # (Clear)
Profile 80x160 Standard	6 meters	10-160
Profile 80x160 Heavy	6 meters	11-160
Cut to Length Service Number		19-003

End Cap	Part #
80x160	18-818

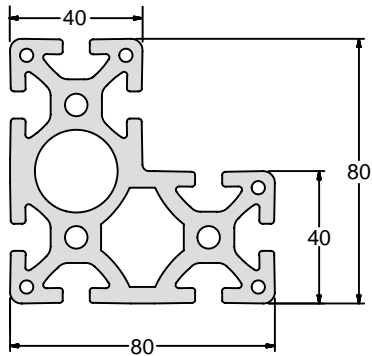


10-160



11-160

40 Series



11-084*



Application

Designed for very high load construction corner posts in structures or machine assemblies.

Technical Data

Aluminum, Clear Anodized (See Technical Data page 9 for full material and finish specifications).

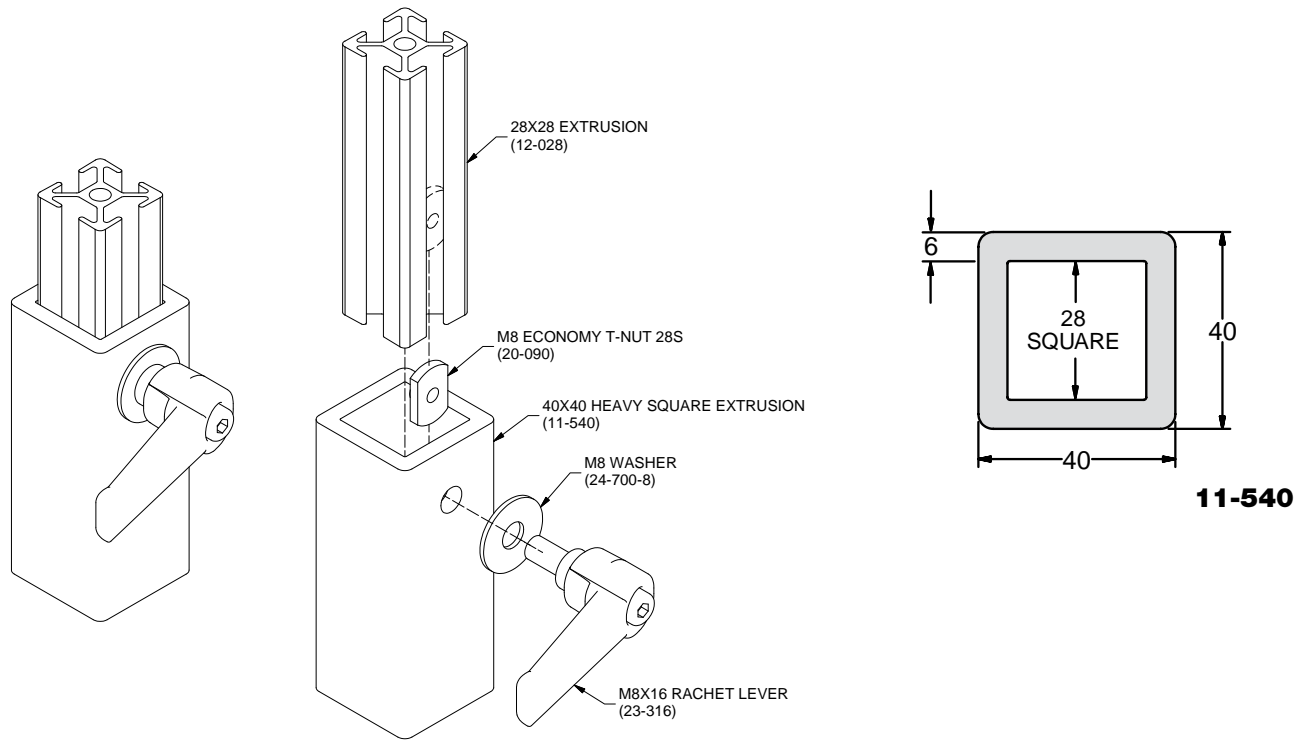
Part #	I_x [cm ⁴]	I_y [cm ⁴]	W_x [cm ³]	W_y [cm ³]	Section [cm ²]	Weight [kg/m]
11-084	127.47	128.57	27.62	27.66	23.23	6.27

Ordering Information

Description	Max. Length	Part # (Clear)
Profile 40x80x80 Corner Heavy	3 meters	11-084
Cut to Length Service Number		19-003

* No end cap available

40 Series



Application

These profiles are engineered as support elements for a variety of applications including table bases, frames and machine guarding. These profiles are engineered to create a telescoping post for lightweight applications. This cavity can also be used as a channel for counterweights. To mount the 11-540, please contact the factory.

Technical Data

Aluminum, Clear Anodized (See Technical Data page 9 for full material and finish specifications)

Part #	I _x [cm ⁴]	I _y [cm ⁴]	W _x [cm ³]	W _y [cm ³]	Section [cm ²]	Weight [kg/m]
11-540	15.78	15.78	7.89	7.89	7.98	2.16

Ordering Information

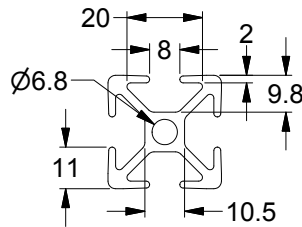
Description	Max. Length	Part # (Clear)
Profile 40x40 Heavy Square	6 meters	11-540
Cut to Length Service Number		19-001

End Caps	Part #
40x40 (11-540 only)	18-805

30 Series

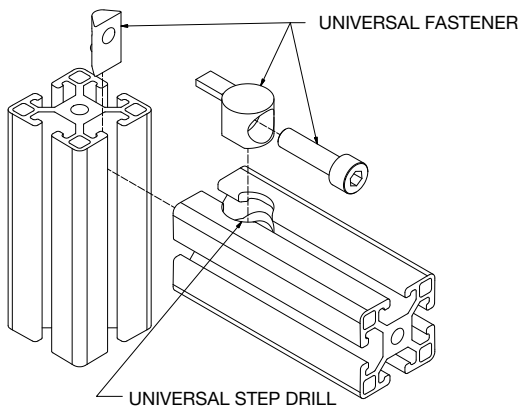
Part #	Description	Moment of Inertia		Section Modulus		Section [cm ²]	Weight [kg/m]	Cat. Page
		I _x [cm ⁴]	I _y [cm ⁴]	W _x [cm ³]	W _y [cm ³]			
12-030	Profile 30x30	3.15	3.15	2.10	2.10	3.33	0.90	33
12-033	Profile 30x30 Quarter Round	2.48	2.48	1.51	1.51	3.13	0.85	34
12-034	Profile 30x30 Bi-Slot Corner	3.52	3.51	2.24	2.23	3.69	1.00	33
12-060	Profile 30x60	6.12	21.20	4.08	7.07	6.19	1.68	35

T-Slot Detail

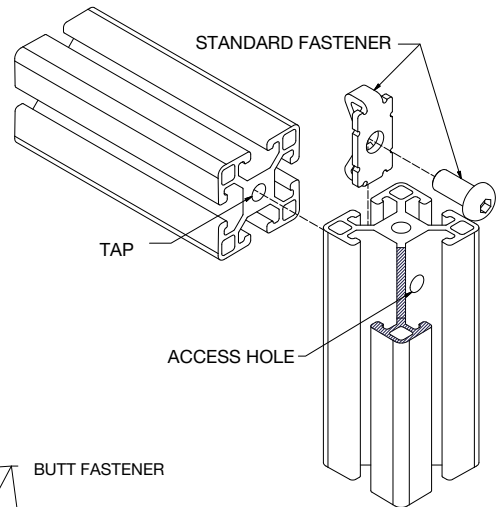


Fastening Methods

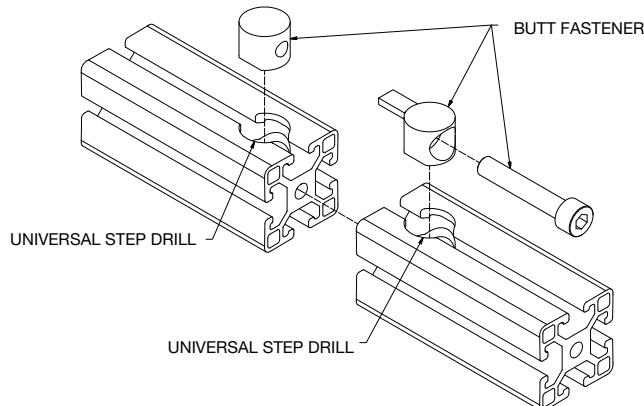
Universal Fastener



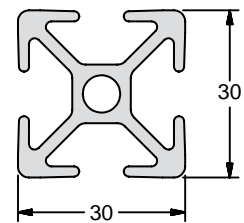
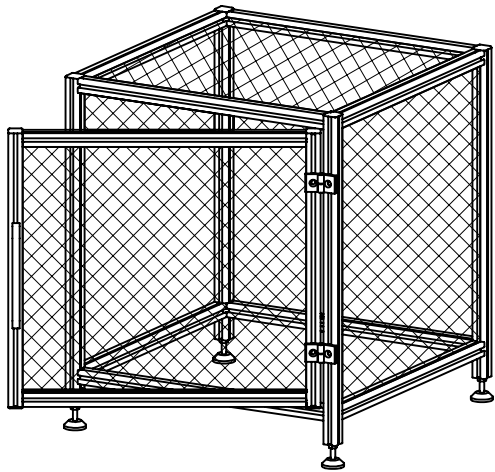
Standard Fastener



Butt Fastener



30 Series



12-030

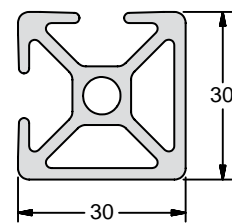
Application

Designed for general structures, safety guards and partition frames, light duty enclosures and industrial peripherals. Profile 12-034 has closed faces on two perpendicular sides making it ideal for constructing smooth corners.

Technical Data

Aluminum, Clear Anodized (See Technical Data page 9 for full material and finish specifications)

Part #	I_x [cm ⁴]	I_y [cm ⁴]	W_x [cm ³]	W_y [cm ³]	Section [cm ²]	Weight [kg/m]
12-030	3.15	3.15	2.10	2.10	3.33	0.90
12-034	3.52	3.51	2.24	2.23	3.69	1.00



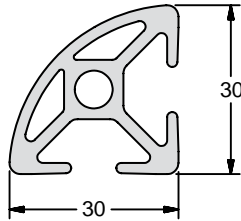
12-034

Ordering Information

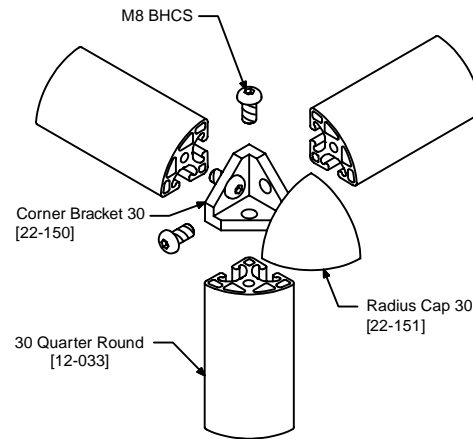
Description	Max. Length	Part # (Clear)
Profile 30x30	6 meters	12-030
Profile 30x30 Bi-Slot Corner	6 meters	12-034
Cut to Length Service Number		19-001

End Cap	Part #
30x30	18-803

30 Series



12-033



Application

Designed with a quarter round smooth face and T-Slots, this profile is particularly useful for engineering frames, shelving or enclosures where a radius edge is aesthetically or functionally desirable.

Technical Data

Aluminum, Clear Anodized (See Technical Data page 9 for full material and finish specifications)

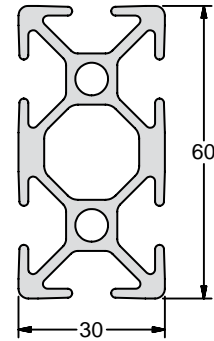
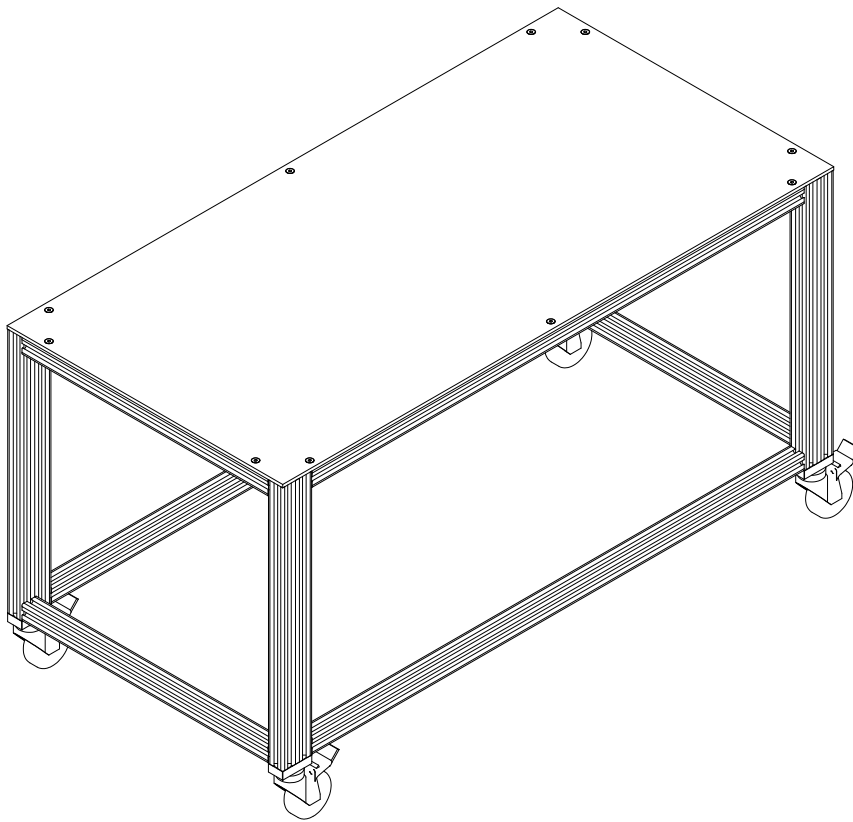
Part #	I_x [cm ⁴]	I_y [cm ⁴]	W_x [cm ³]	W_y [cm ³]	Section [cm ²]	Weight [kg/m]
12-033	2.48	2.48	1.51	1.51	3.13	0.85

Ordering Information

Description	Max. Length	Part #
Profile 30x30 Quarter Round	6 meters	12-033
Cut to Length Service Number		19-001

End Cap	Part #
30x30 Quarter Round	18-838

30 Series



12-060

Application

These profiles are ideal for general use structures, safety guards and partition frames, light duty enclosures and industrial peripherals.

Technical Data

Aluminum, Clear Anodized (See Technical Data page 9 for full material and finish specifications)

Part #	I_x [cm ⁴]	I_y [cm ⁴]	W_x [cm ³]	W_y [cm ³]	Section [cm ²]	Weight [kg/m]
12-060	6.12	21.20	4.08	7.07	6.19	1.68

Ordering Information

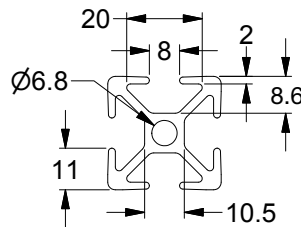
Description	Max. Length	Part #
Profile 30x60	6 meters	12-060
Cut to Length Service Number		19-001

End Cap	Part #
30x60	18-863

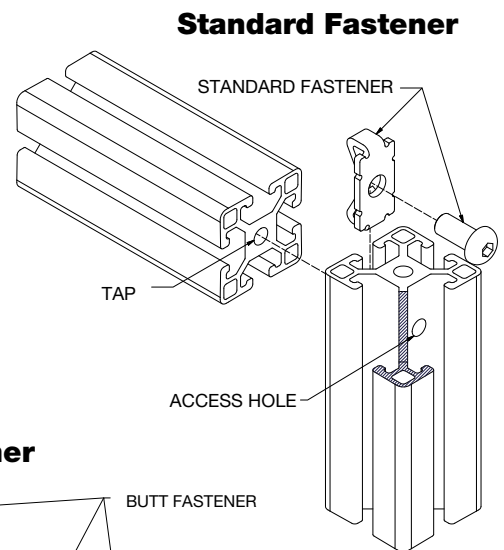
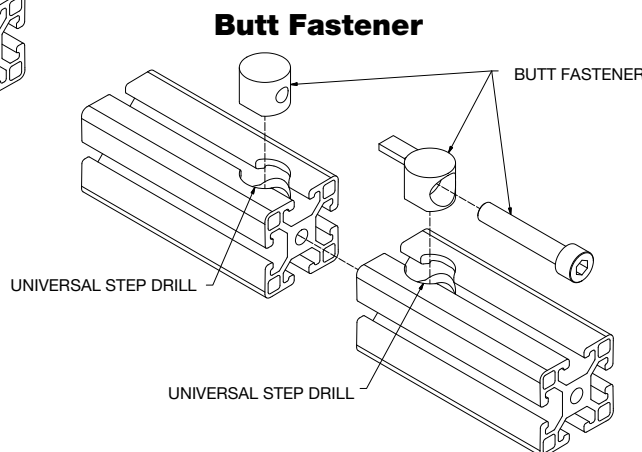
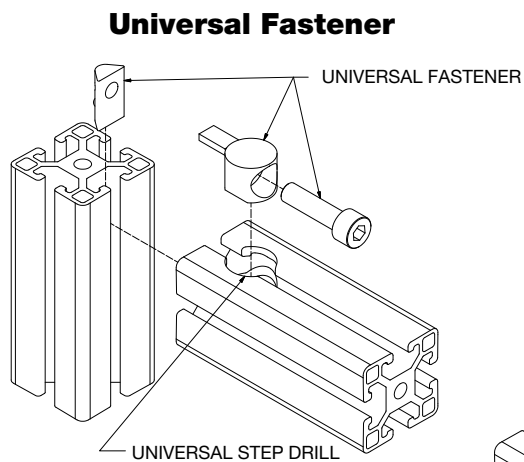
28 Series

Part #	Description	Moment of Inertia		Section Modulus		Section [cm ²]	Weight [kg/m]	Cat. Page
		I _x [cm ⁴]	I _y [cm ⁴]	W _x [cm ³]	W _y [cm ³]			
12-028	Profile 28x28	2.37	2.27	1.70	1.62	2.96	0.81	37
12-428	Profile 28x56	4.65	16.42	3.32	5.86	5.60	1.51	37
12-056	Profile 56x56	30.44	30.44	10.87	10.87	8.87	2.40	37
12-128	Profile 28x28 Tri-Slot	2.64	2.35	1.78	1.68	3.12	0.84	38
12-228	Profile 28x28 Bi-Slot	2.69	2.69	1.83	1.83	3.32	0.90	38
12-328	Profile 28x28 Bi-Slot Mid-Frame	2.41	3.00	1.72	2.14	3.32	0.90	38
12-044	Profile 28x28 45 Deg.	1.97	1.97	1.28	1.28	2.87	0.78	39
12-628	Profile 28x56 Bi-Slot	5.92	18.01	4.23	6.43	6.36	1.72	40
12-728	Profile 28x56 Quad-Slot	5.23	17.10	3.53	6.11	5.96	1.62	40

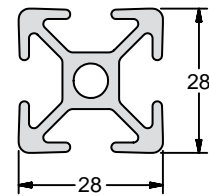
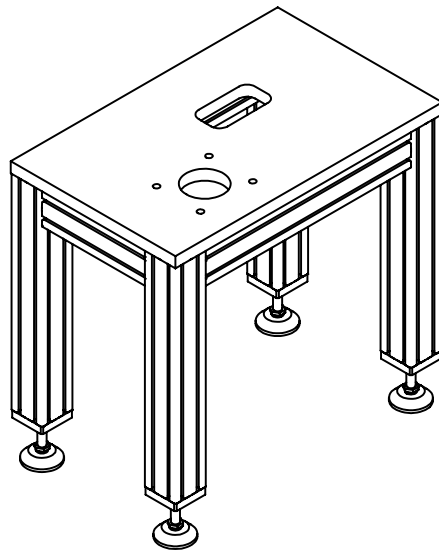
T-Slot Dimensions



Fastening Methods



28 Series



12-028 ↗

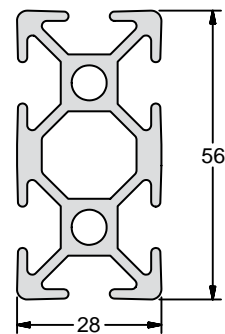
Application

These profiles are designed with T-slot faces on all four sides. They are useful for constructing safety guards, partition frames, light duty enclosures and industrial peripherals.

Technical Data

Aluminum, Clear Anodized (See Technical Data page 9 for full material and finish specifications)

Part #	I_x [cm ⁴]	I_y [cm ⁴]	W_x [cm ³]	W_y [cm ³]	Section [cm ²]	Weight [kg/m]
12-028	2.37	2.27	1.70	1.62	2.96	0.81
12-428	4.65	16.42	3.32	5.86	5.60	1.51
12-056	30.44	30.44	10.87	10.87	8.87	2.40

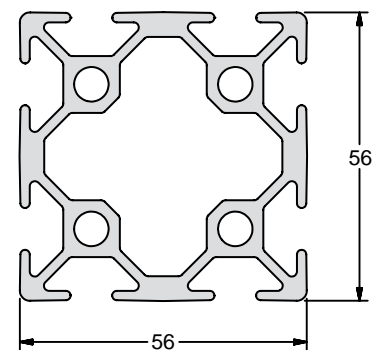


12-428

Ordering Information

Description	Max. Length	Part #
Profile 28x28	6 meters	12-028
Profile 28x56	6 meters	12-428
Profile 56x56	6 meters	12-056
Cut to Length Service Number		19-001

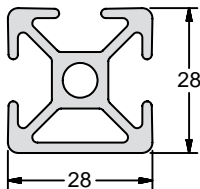
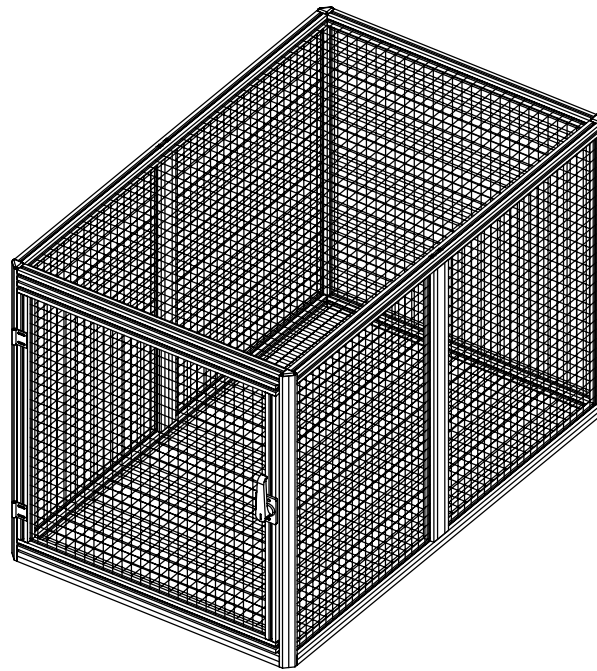
End Caps	Part #
28x28	18-808
28x56	18-809



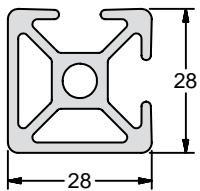
12-056*

* No end cap available

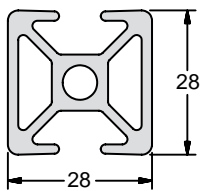
28 Series



12-128



12-228



12-328

Application

Designed with various closed faces, these profiles provide efficient fastening in a variety of configurations while retaining a smooth exterior for an aesthetically clean look.

Technical Data

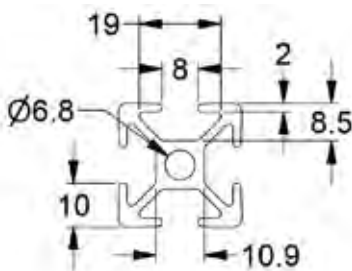
Aluminum, Clear Anodized (See Technical Data page 9 for full material and finish specifications)

Part #	I_x [cm ⁴]	I_y [cm ⁴]	W_x [cm ³]	W_y [cm ³]	Section [cm ²]	Weight [kg/m]
12-128	2.64	2.35	1.78	1.68	3.12	0.84
12-228	2.69	2.69	1.83	1.83	3.32	0.90
12-328	2.41	3.00	1.72	2.14	3.32	0.90

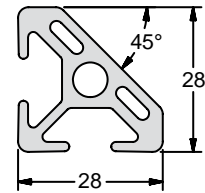
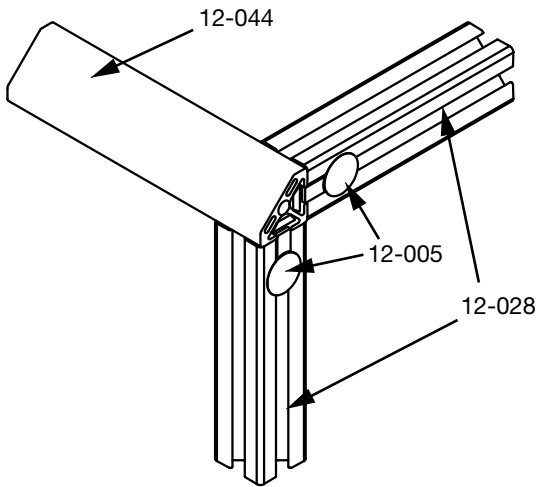
Ordering Information

Description	Max. Length	Part #
Profile 28x28 Tri-Slot	6 meters	12-128
Profile 28x28 Bi-Slot	6 meters	12-228
Profile 28x28 Bi-Slot Mid-Frame	6 meters	12-328
Cut to Length Service Number		19-001

End Cap	Part #
28x28	18-808



28 Series



12-044

Application

Designed with an angled closed face and T-Slots on two sides. This profile is ideal for applications where perpendicular surfaces are not desired.

Technical Data

Aluminum, Clear Anodized (See Technical Data page 9 for full material and finish specifications)

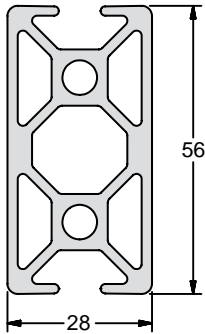
Part #	I_x [cm ⁴]	I_y [cm ⁴]	W_x [cm ³]	W_y [cm ³]	Section [cm ²]	Weight [kg/m]
12-044	1.97	1.97	1.28	1.28	2.87	0.78

Ordering Information

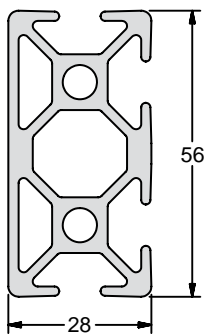
Description	Max. Length	Part #
Profile 28x28 45°	6 meters	12-044
Cut to Length Service Number		19-001

End Cap	Part #
28x28-45°	18-844

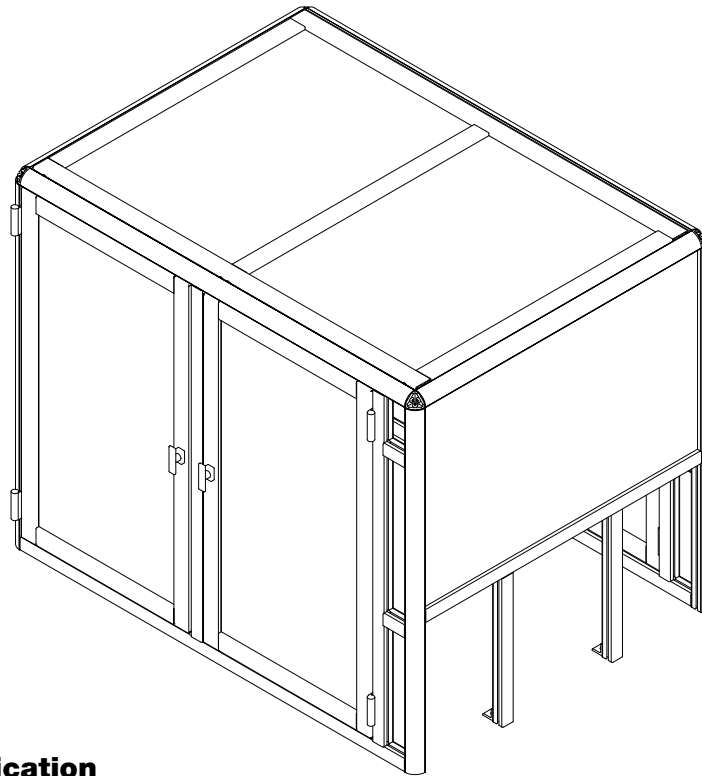
28 Series



12-628



12-728



Application

Designed with various closed faces, these profiles provide efficient fastening in a variety of configurations while retaining a smooth exterior for an aesthetically clean look.

Technical Data

Aluminum, Clear Anodized (See Technical Data page 9 for full material and finish specifications)

Part #	I_x [cm ⁴]	I_y [cm ⁴]	W_x [cm ³]	W_y [cm ³]	Section [cm ²]	Weight [kg/m]
12-628	5.92	18.01	4.23	6.43	6.36	1.72
12-728	5.23	17.10	3.53	6.11	5.96	1.62

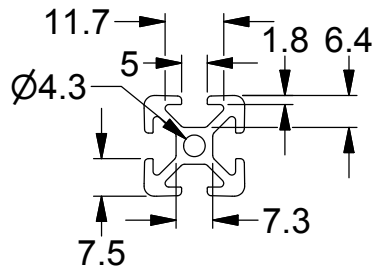
Ordering Information

Description	Unit	Part #
Profile 28x56 Bi-Slot	Cut off max. 6m	12-628
Profile 28x56 Quad-Slot	Cut off max. 6m	12-728
Cut to Length Service Number		19-001

End Cap	Part #
28x56	18-809

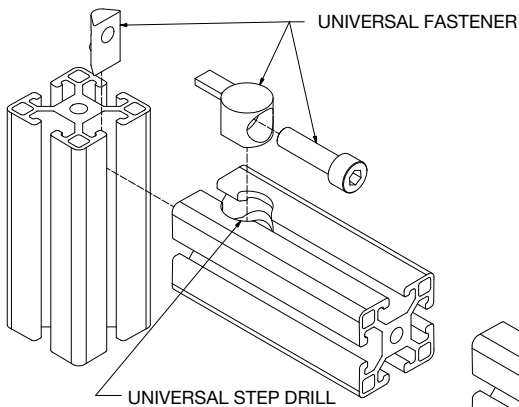
20 Series

Part #	Description	Moment of Inertia		Section Modulus		Section [cm ²]	Weight [kg/m]	Cat. Page
		I _x [cm ⁴]	I _y [cm ⁴]	W _x [cm ³]	W _y [cm ³]			
12-120	Profile 20x10	0.12	0.53	0.22	0.53	1.29	0.35	42
12-020	Profile 20x20	0.73	0.73	0.73	0.73	1.80	0.52	42
12-040	Profile 40x40 20 Series	8.74	8.74	4.37	4.37	4.83	1.32	43
12-124	Profile 20x40	1.33	5.03	1.33	2.52	3.16	0.86	42



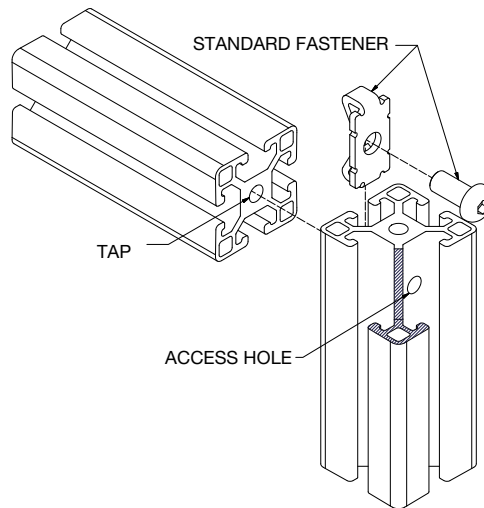
T-Slot Detail

Universal Fastener

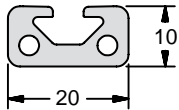
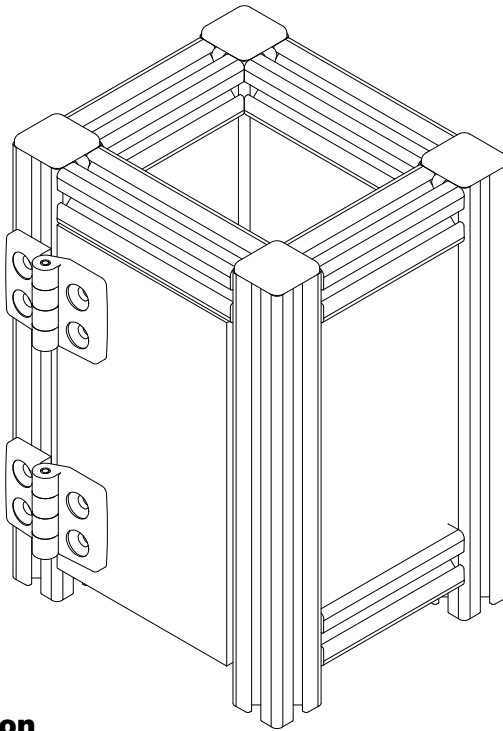


Fastening Methods

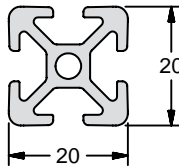
Standard Fastener



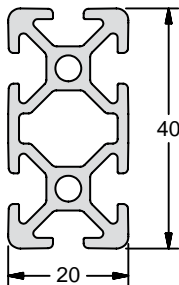
20 Series



12-120



12-020



12-124

Application

20 Series profiles are designed for light duty enclosures and fixtures. They are also useful in building light accessories and components on workstations or assembly tables. The 5mm T-slot requires 20 Series hardware.

Technical Data

Aluminum, Clear Anodized (See Technical Data page 9 for full material and finish specifications)

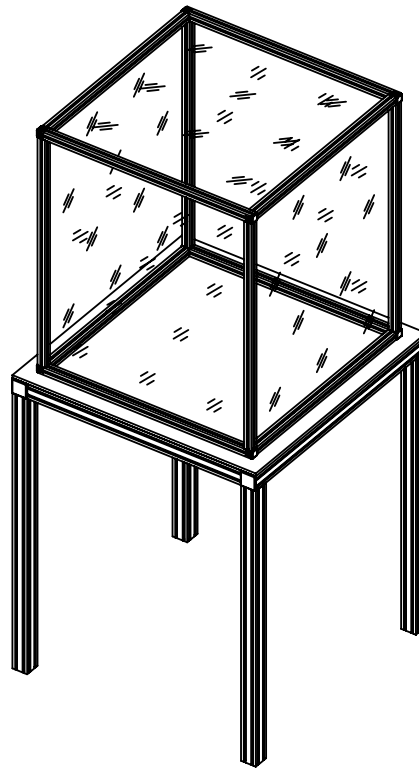
Part #	I_x [cm ⁴]	I_y [cm ⁴]	W_x [cm ³]	W_y [cm ³]	Section [cm ²]	Weight [kg/m]
12-120	0.12	0.53	0.22	0.53	1.29	0.35
12-020	0.73	0.73	0.73	0.73	1.80	0.52
12-124	1.33	5.03	1.33	2.52	3.16	0.86

Ordering Information

Description	Max. Length	Part # (Clear)
Profile 10x20	3 meters	12-120
Profile 20x20	3 meters	12-020
Profile 20x40	3 meters	12-124
Cut to Length Service Number		19-001

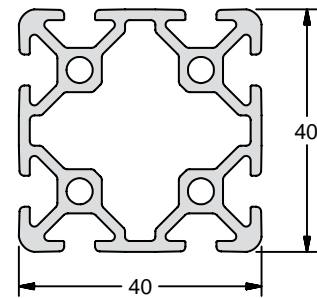
End Caps	Part #
10x20	18-830
20x20	18-802
20x40	18-831

20 Series



Application

20 Series profiles are designed for light duty enclosures and fixtures. They are also useful in building light accessories and components on workstations or assembly tables. The 5mm T-Slot requires 20 Series hardware.



12-040

Technical Data

Aluminum, Clear Anodized (See Technical Data page 9 for full material and finish specifications)

Part #	I_x [cm ⁴]	I_y [cm ⁴]	W_x [cm ³]	W_y [cm ³]	Section [cm ²]	Weight [kg/m]
12-040	8.74	8.74	4.37	4.37	4.83	1.32

Ordering Information

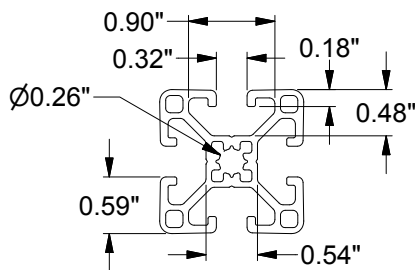
Description	Max. Length	Part # (Clear)
Profile 40x40, 20 Series	4 meters	12-040
Cut to Length Service Number		19-001

End Cap	Part #
40x40	18-832

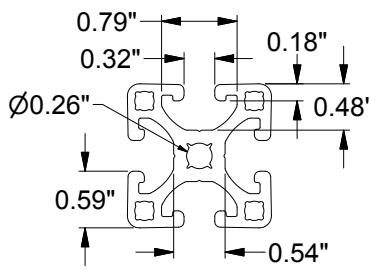
1.5" Series

Part #	Description	Moment of Inertia		Section Modulus		Section [cm ²]	Weight [kg/m]	Page
		I _x [cm ⁴]	I _y [cm ⁴]	W _x [cm ³]	W _y [cm ³]			
10-1515	Profile 1.5" x 1.5" Standard	8.49	8.49	4.46	4.46	6.19	1.70	45
10-1530	Profile 1.5" x 3" Standard	15.15	61.85	7.95	16.23	10.38	2.81	48
10-1543	Profile 1.5" Quarter Round	6.16	6.16	2.90	2.90	5.48	1.47	47
10-1560	Profile 1.5" x 6" Standard	27.97	420.89	14.68	55.24	18.33	6.98	50
10-1591	Profile 1.5" x 1.5" Mono-Slot	8.53	8.70	4.47	4.57	6.20	1.68	46
10-1592	Profile 1.5" x 1.5" Bi-Slot Corner	8.62	8.62	4.51	4.51	3.24	1.68	46
10-1593	Profile 1.5" x 1.5" Tri-Slot	8.66	8.49	4.53	4.46	6.22	1.69	46
10-1594	Profile 1.5" x 1.5" Bi-Slot Midframe	8.78	8.45	4.61	4.44	6.21	1.68	46
10-3030	Profile 3" x 3" Standard	113.38	113.38	29.76	29.76	17.42	4.72	49
11-1515	Profile 1.5" x 1.5" Heavy	11.24	11.24	5.90	5.90	7.74	2.10	45
11-1530	Profile 1.5" x 3" Heavy	21.10	78.79	11.08	20.68	14.00	3.72	48
11-3030	Profile 3" x 3" Heavy	146.43	146.43	38.43	38.43	22.61	6.04	49
12-1515	Profile 1.5" x 1.5" Light	7.08	7.08	3.72	3.72	4.82	1.31	45
12-1530	Profile 1.5" x 3" Light	13.10	49.63	6.88	13.03	8.43	2.28	48

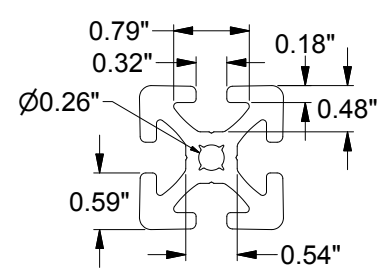
T-Slot Detail



Light



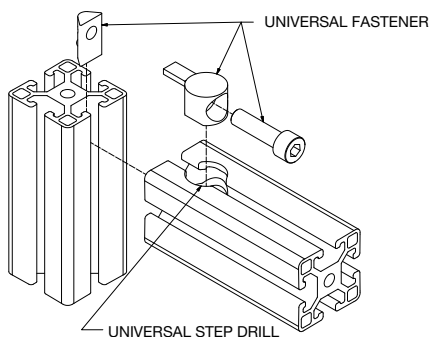
Standard



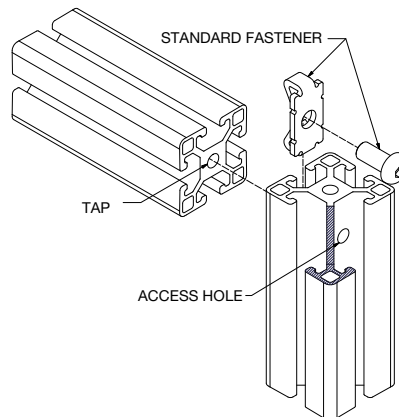
Heavy

Fastening Methods

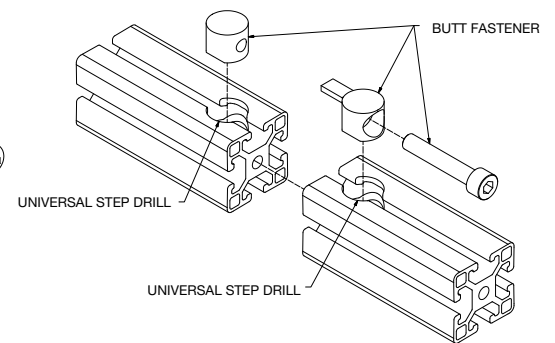
Universal Fastener



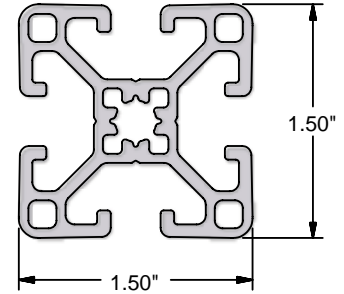
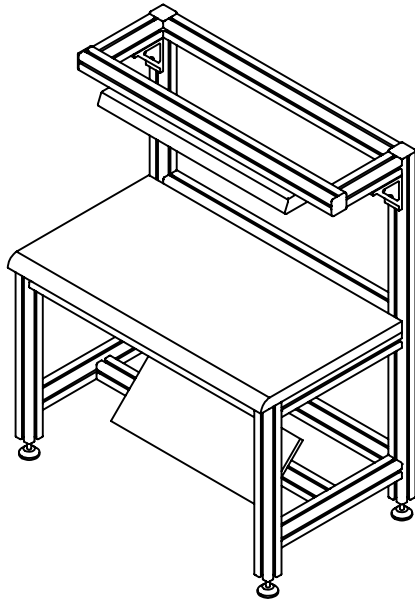
Standard Fastener



Butt Fastener



1.5" Series



12-1515* ⚡

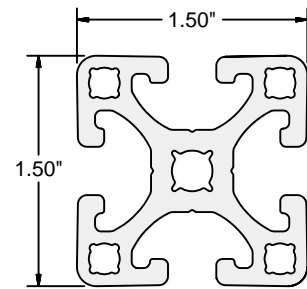
Application

The 12-1515, 10-1515 and 11-1515 are ideal general purpose extrusions for guards, enclosures, work stations, tool carts and smaller machine frames. T-slots on four sides allows for effortless mounting of accessories directly onto the structure without additional machining.

Technical Data

Aluminum, Clear Anodized (See Technical Data page 9 for full material and finish specification)

Part #	I_x [cm ⁴]	I_y [cm ⁴]	W_x [cm ³]	W_y [cm ³]	Section [cm ²]	Weight [kg/m]
10-1515	8.49	8.49	4.46	4.46	6.19	1.70
11-1515	11.24	11.24	5.90	5.90	7.74	2.10
12-1515	7.08	7.08	3.72	3.72	4.82	1.31



10-1515 ⚡

Ordering Information

Description

- Profile 1.5" x 1.5" Light
- Profile 1.5" x 1.5" Standard
- Profile 1.5" x 1.5" Heavy
- Cut to Length Service Number

Max. Length

- 6 meters
- 6 meters
- 6 meters

Part #

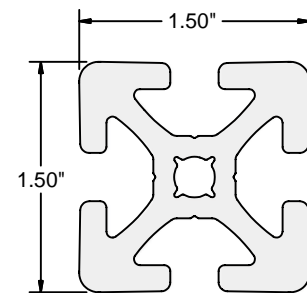
- 12-1515
- 10-1515
- 11-1515
- 19-001

End Cap

1.5" x 1.5"

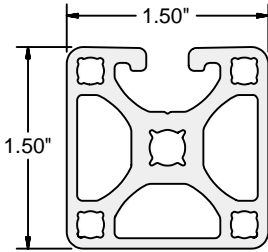
Part #

18-1515

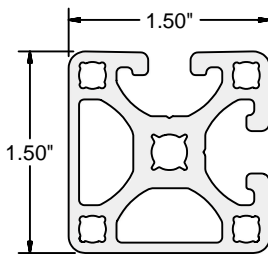


11-1515

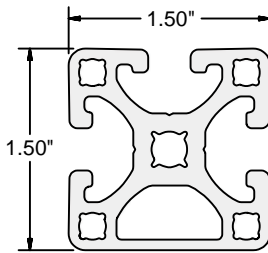
*End tap requires spiral tap



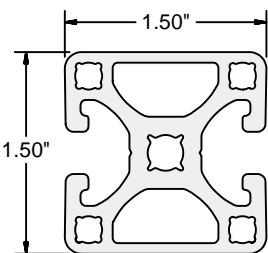
10-1591



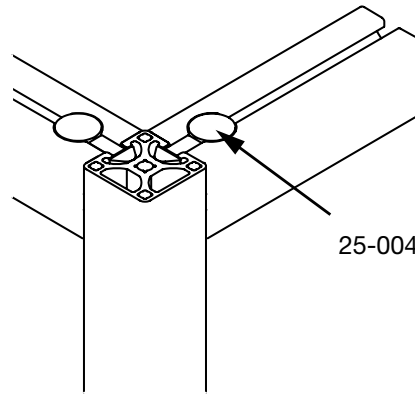
10-1592



10-1593



10-1594



Application

These profiles are designed with various closed faces. They are particularly useful when a smooth appearance is desired. The smooth surfaces are ideal for clean room, packaging, medical and pharmaceutical applications. The option of different T-slotted faces is ideal for fastening the profiles while retaining a smooth exterior to create the most aesthetic appearance.

Technical Data

Aluminum, Clear Anodized (See Technical Data page 9 for full material and finish specification)

Part #	I_x [cm ⁴]	I_y [cm ⁴]	W_x [cm ³]	W_y [cm ³]	Section [cm ²]	Weight [kg/m]
10-1591	8.53	8.70	4.47	4.57	6.20	1.68
10-1592	8.62	8.62	4.51	4.51	6.24	1.68
10-1593	8.66	8.49	4.53	4.46	6.22	1.69
10-1594	8.78	8.45	4.61	4.44	6.21	1.68

Ordering Information

Description	Max. Length	Part #
Profile 1.5" x 1.5" Mono-Slot	6 meters	10-1591
Profile 1.5" x 1.5" Bi-Slot Corner	6 meters	10-1592
Profile 1.5" x 1.5" Tri-Slot	6 meters	10-1593
Profile 1.5" x 1.5" Bi-Slot Midframe	6 meters	10-1594
Cut to Length Service Number		19-001

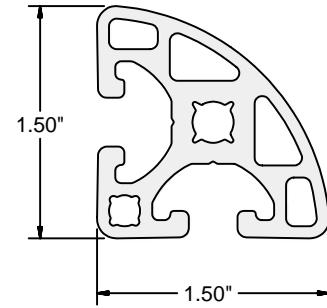
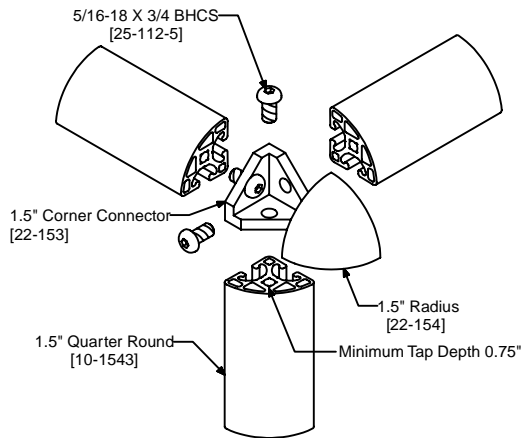
End Cap

1.5" x 1.5"

Part #

18-1515

1.5" Series



10-1543

Application

This profile is designed with a curved surface while retaining T-slotted surfaces for connecting. This is particularly useful for rounding or smoothing off corners of structures where ergonomics apply. The smooth surfaces are ideal for clean room, medical and pharmaceutical applications.

Technical Data

Aluminum, Clear Anodized (See Technical Data page 9 for full material and finish Specification)

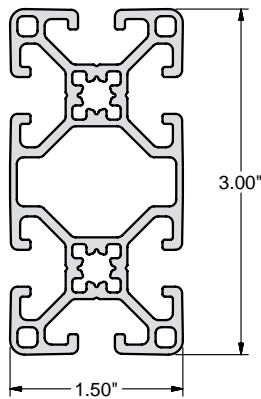
Part #	I_x [cm ⁴]	I_y [cm ⁴]	W_x [cm ³]	W_y [cm ³]	Section [cm ²]	Weight [kg/m]
10-1543	6.16	6.16	2.90	2.90	5.48	1.47

Ordering Information

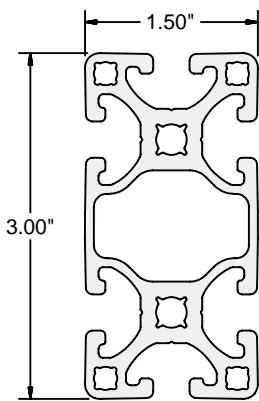
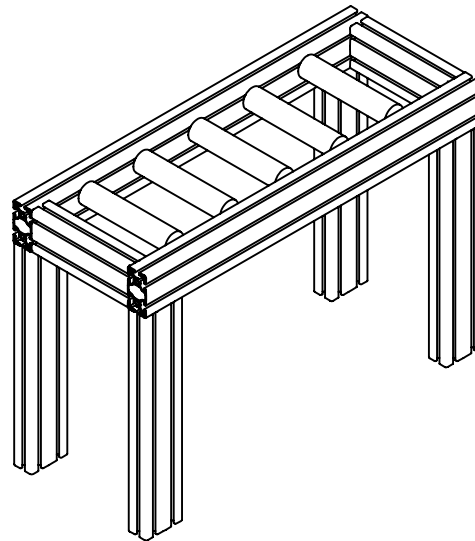
Description	Max. Length	Part #
Profile 1.5" x 1.5" Quarter Round	6 meters	10-1543
Cut to Length Service Number		19-001

End Cap	Part #
1.5" x 1.5" Quarter Round	18-1543

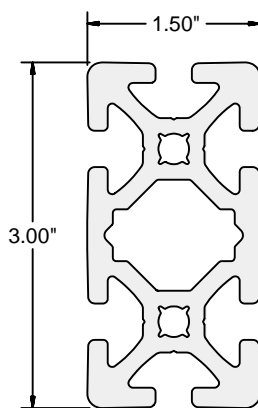
1.5" Series



12-1530*



10-1530



11-1530

* End tap requires spiral tap

Application

Profiles 10-1530 and 11-1530 are ideal general purpose extrusions for guards, enclosures, work stations, tool carts and machine frames. They are designed with a high inertial strength in the “Y” axis. This allows higher structural integrity to create more stable and rigid structures. T-slots on four sides allow for effortless mounting of accessories directly onto the structure without additional machining.

Technical Data

Aluminum, Clear Anodized (See Technical Data page 9 for full material and finish Specification)

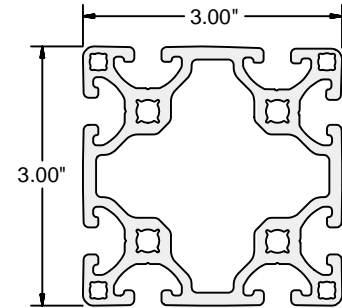
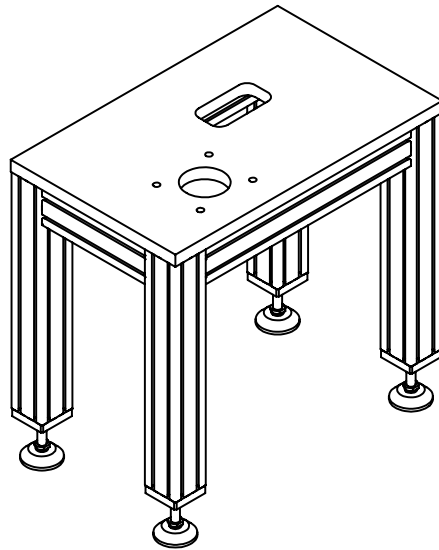
Part #	I_x [cm ⁴]	I_y [cm ⁴]	W_x [cm ³]	W_y [cm ³]	Section [cm ²]	Weight [kg/m]
10-1530	15.15	61.85	7.95	16.23	10.38	2.81
11-1530	21.10	78.79	11.08	20.68	14.00	3.72
12-1530	13.10	49.63	6.88	13.03	8.43	2.28

Ordering Information

Description	Max. Length	Part #
Profile 1.5" x 3" Light	6 meters	12-1530
Profile 1.5" x 3" Standard	6 meters	10-1530
Profile 1.5" x 3" Heavy	6 meters	11-1530
Cut to Length Service Number		19-001

End Cap	Part #
1.5" x 3"	18-1530

1.5" Series



10-3030

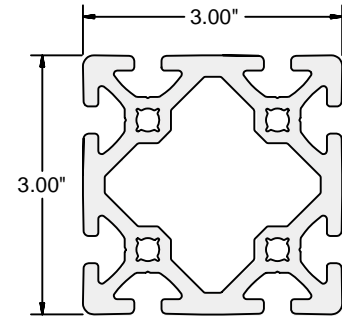
Application

These profiles are designed for medium to heavy duty structures and are ideal for structural support and post applications. These profiles have high structural integrity to create extra stable and rigid structures. T-slots on four sides allow for effortless mounting of accessories directly onto the structure without additional machining.

Technical Data

Aluminum, Clear Anodized (See Technical Data page 9 for full material and finish specification)

Part #	I_x [cm ⁴]	I_y [cm ⁴]	W_x [cm ³]	W_y [cm ³]	Section [cm ²]	Weight [kg/m]
10-3030	113.38	113.38	29.76	29.76	17.42	4.72
11-3030	146.43	146.43	38.43	38.43	22.61	6.04



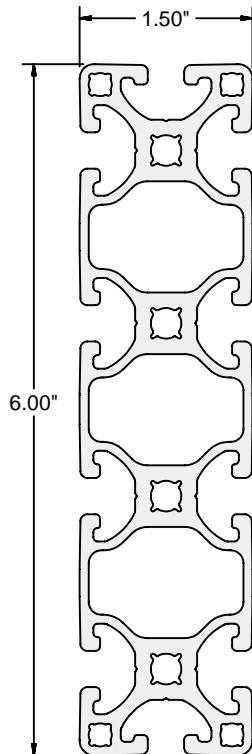
11-3030

Ordering Information

Description	Max. Length	Part #
Profile 3" x 3" Standard	6 meters	10-3030
Profile 3" x 3" Heavy	6 meters	11-3030
Cut to Length Service Number		19-002

End Cap	Part #
3" x 3"	18-3030

1.5" Series



Application

10-1560 is designed for heavy duty structures and is an ideal profile for structural support and post applications. 10-1560 is designed with a high inertial strength in the “Y” axis. This allows for very high structural integrity to create extra stable and rigid structures. T-slots on four sides allow for effortless mounting of accessories directly onto the structure without additional machining. Because of its multiple T-slots, it is also an ideal profile for a fixture table.

Technical Data

Aluminum, Clear Anodized (See Technical Data page 9 for full material and finish specification.)

Part #	I _x [cm ⁴]	I _y [cm ⁴]	W _x [cm ³]	W _y [cm ³]	Section [cm ²]	Weight [kg/m]
10-1560	27.97	420.89	14.68	55.24	18.33	6.98

Ordering Information

Description	Max. Length	Part #
Profile 1.5" x 6"	6 meters	10-1560
Cut to Length Service Number		19-003

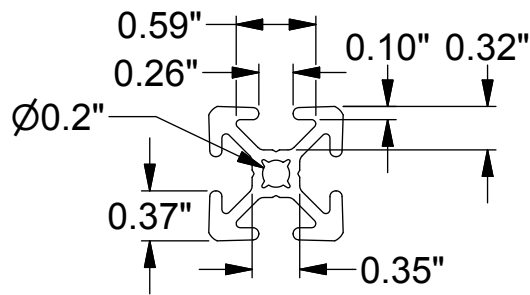
10-1560*

* No end cap available

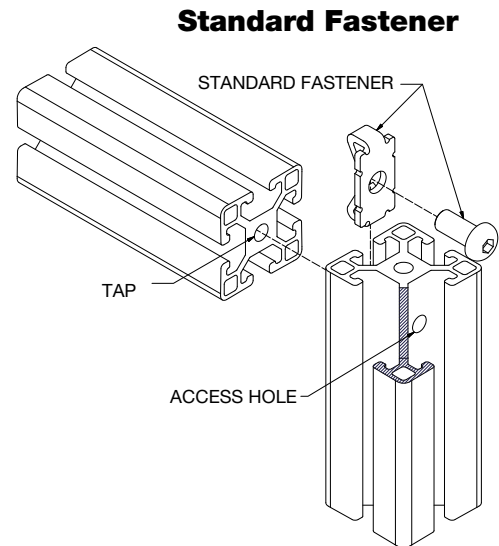
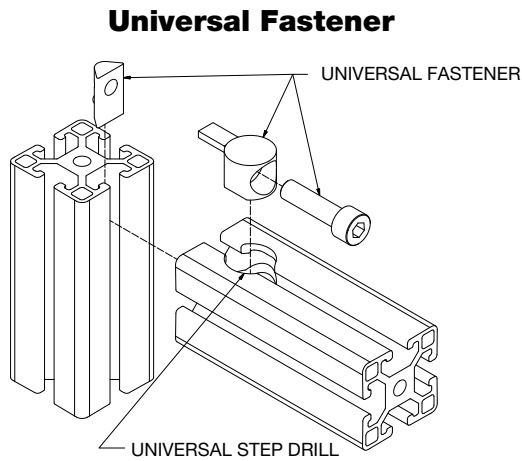
1" Series

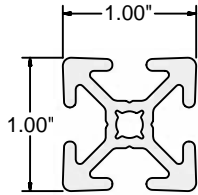
Part #	Description	Moment of Inertia		Section Modulus		Section [cm ²]	Weight [kg/m]	Page
		I _x [cm ⁴]	I _y [cm ⁴]	W _x [cm ³]	W _y [cm ³]			
12-1010	Profile 1" x 1"	1.91	1.91	1.51	1.51	2.84	0.77	52
12-1020	Profile 1" x 2"	3.62	13.03	2.85	5.13	5.16	1.41	52
12-2020	Profile 2" x 2"	23.68	23.68	9.32	9.32	8.13	2.21	52

T-Slot Detail

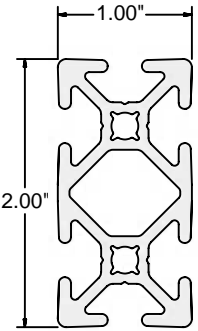


Fastening Methods

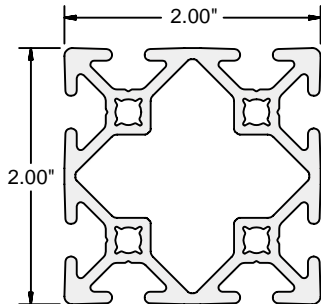




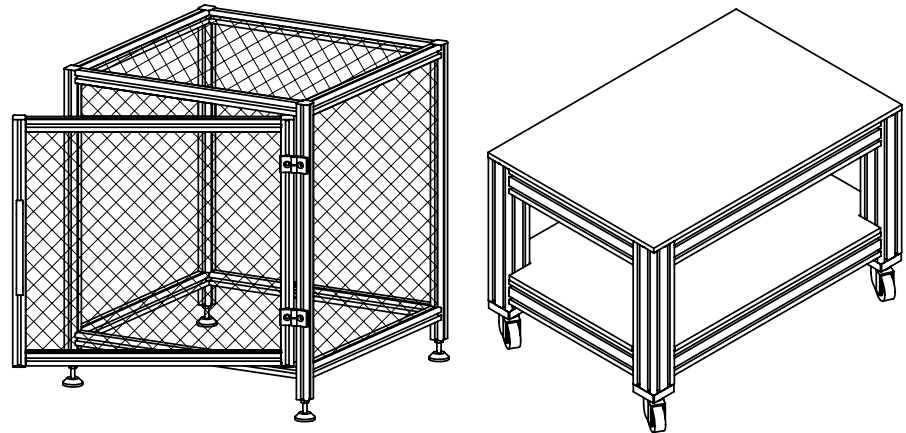
◆ **12-1010**



12-1020



12-2020



Application

1" Series profiles are designed for safety guards, enclosures, shelves, and other light to medium duty applications. T-Slots on four sides allows for effortless mounting of accessories directly onto the structure without additional machining.

The T-slot is smaller than the 1.5" Series, requiring different hardware. With profile 12-1020, higher rigidity can be attained by orienting the extrusion on its "Y" axis.

The 12-2020 profiles are ideal for support and post applications. With their higher rigidity, structures can be built with higher stability.

Technical Data

Aluminum, Clear Anodized (See Technical Data page 9 for full material and finish Specification)

Part #	I _x [cm ⁴]	I _y [cm ⁴]	W _x [cm ³]	W _y [cm ³]	Section [cm ²]	Weight [kg/m]
12-1010	1.91	1.91	1.51	1.51	2.84	0.77
12-1020	3.62	13.03	2.85	5.13	3.16	1.41
12-2020	23.68	23.68	9.32	9.32	8.13	2.21

Ordering Information

Description	Max. Length	Part #
Profile 1" x 1"	6 meters	12-1010
Profile 1" x 2"	6 meters	12-1020
Profile 2" x 2"	6 meters	12-2020
Cut to Length Service Number		19-001

End Caps	Part #
1" x 1"	18-1010
1" x 2"	18-1020
2" x 2"	18-2020

Application

- 12-032 is used for sliding door applications. (See page 129).
- 12-022 is used with 12-032 for large sliding doors. Applications include case packers, material handling equipment, packaging installations, and access panels for large machine enclosures. (See page 130.)
- 14-248 designed for use with rail carts (23-200, 23-201, and 23-202), which can be used in applications such as moving materials on workstations. (See page 133.)

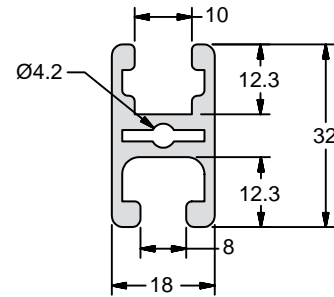
Technical Data

Aluminum, Clear Anodized (See Technical Data page 9 for full material and finish specifications)

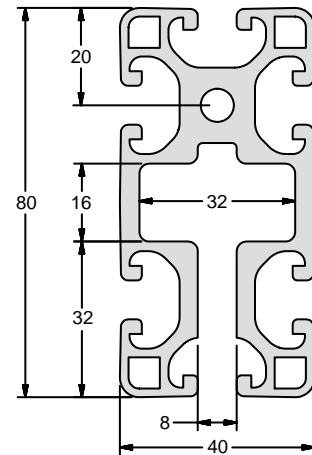
Part #	Weight [kg/m]
12-032	0.67
12-022	1.78
14-248	4.19

Ordering Information

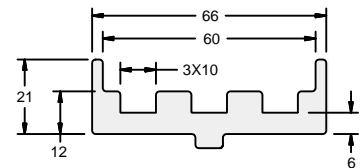
Description	Max. Length	Part #
Profile 18x32 Bi-Slot	6 meters	12-032
Profile Rolling Door Guide	3 meters	12-022
Profile 40x80 Rail Transport	6 meters	14-248
Cut to Length Service Number		19-001



12-032

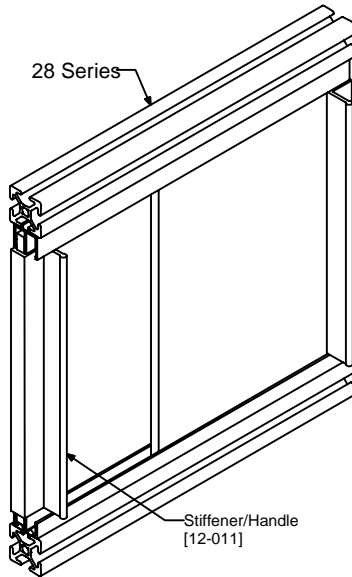


14-248

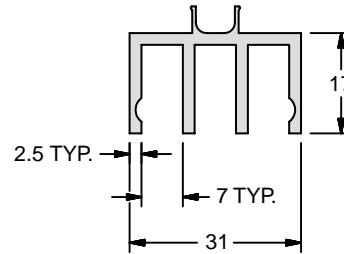


12-022

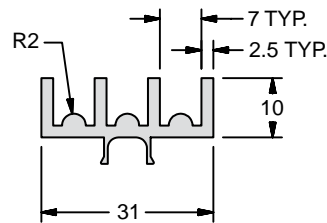
Sliding Door Guide Profile



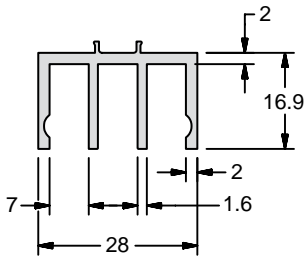
For removable doors: $B = A - 15 \text{ mm}$
For non-removable doors: $B = A - 10 \text{ mm}$



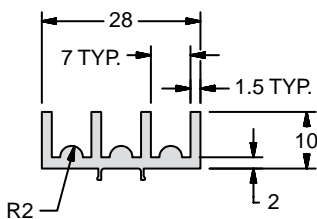
12-012*



12-013*



12-014



12-015

Application

These profiles create light duty sliding panels for windows and access ports for safety guards, enclosures or partitions. Installation onto 40, 30 or 28 Series profiles do not require fasteners and will snap into the T-Slot. The lower guides are designed to reduce friction. The upper guides facilitate lift-out removal of the panel without disassembly.

Technical Data

Aluminum, Clear Anodized
Three panel tracks
Panel width up to 6.4mm
Weight:
12-012, 12-014 0.45kg/m
12-013, 12-015 0.50kg/m

Ordering Information

Description	Max. Length	Part #
40 Series		
Profile Sliding Door Guide 40 Upper	3 meters	12-012
Profile Sliding Door Guide 40 Lower	3 meters	12-013
28/30 Series		
Profile Sliding Door Guide 30/28 Upper	3 meters	12-014
Profile Sliding Door Guide 30/28 Lower	3 meters	12-015
Cut to Length Service Number		19-001

* Does not install into 1.5" profile

Stiffener/Handle Profile

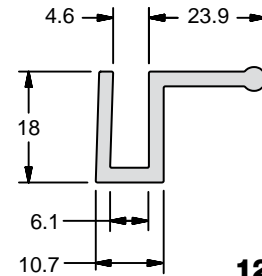
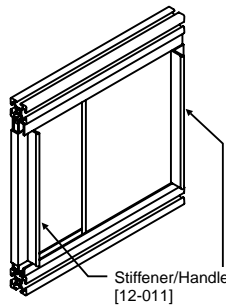
Application

Designed as a combination handle and stiffener for sliding panel doors (1/4" thick material). Panels snap into the profile slot and may be secured by an adhesive or a fastener.

Technical Data

Aluminum, Clear Anodized

Weight: 0.93kg/m



12-011

Ordering Information

Description	Max. Length	Part #
Panel Handle Stiffener	3 meters	12-011
Cut to Length Service Number		19-001

Panel Holder

Application

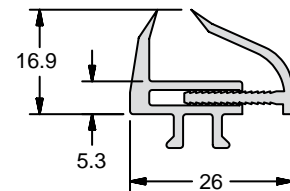
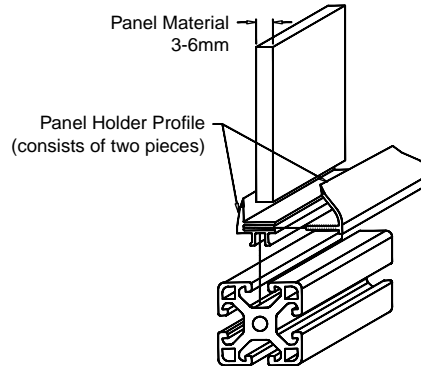
Profile designed for panels 3-6mm thick. Built-in seal for splash guard applications. Can be used for 40, 30, 28 and 1.5" Series profiles.

Technical Data

Base: Rigid PVC, Black

Lip Seal: Vinyl, Black

Weight: 0.16kg/m

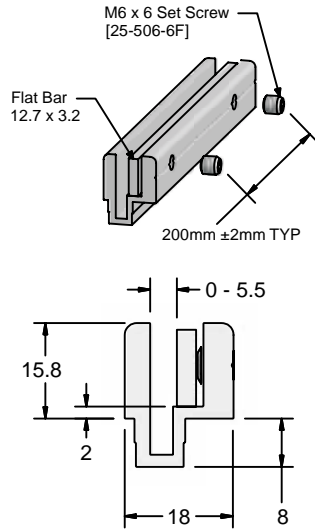


12-016B

Ordering Information

Description	Max. Length	Part #
Panel Holder Profile	2 meters	12-016B
Cut to Length Service Number		19-001

Mesh Clamp Profile



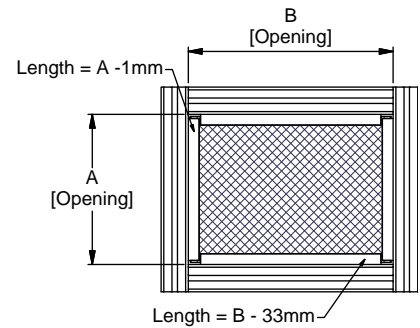
Application

Captures wire mesh panels up to 5.5mm thick. Excellent for constructing safety guards. Installs onto 40, 30, 28 and 1.5" series profiles without additional fasteners.

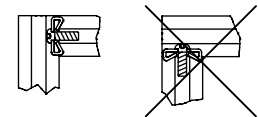
Technical Data

Aluminum, Clear Anodized
 Weight: 0.53 kg/m

Tapped for M6 every 200mm (±2mm)
 Includes clamp strip and M6X6 flat point screws



* Wire Mesh Size: A - 6mm and B - 6mm



Standard fastener position is critical to avoid interference with the mesh clamp.

12-010*

Ordering Information

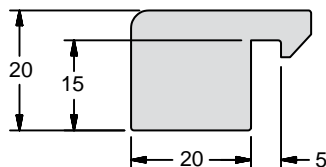
Description
 Mesh Clamp Profile
 Cut to Length Service Number

Max. Length
 3 meters

Part #
 12-010*
 19-001

* Sold by 3-meter piece

Clamp Bar



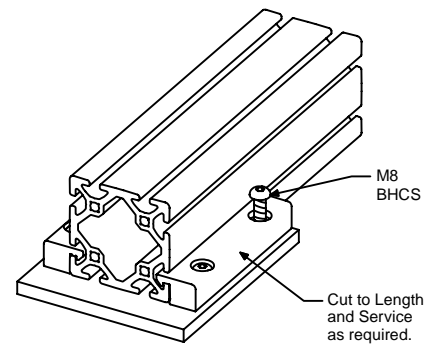
12-105

Application

Attaches 40 Series profiles to base plates or other parts. Must be used in pairs.

Technical Data

Aluminum, Clear Anodized
 Weight: 1.24 kg/m



Ordering Information

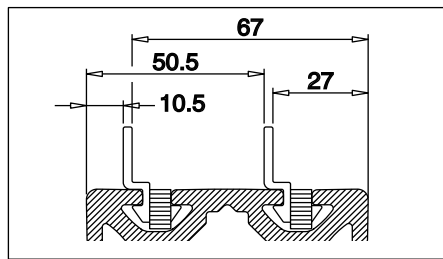
Description
 Clamp Bar Profile
 Cut to Length Service Number

Max. Length
 2 meters

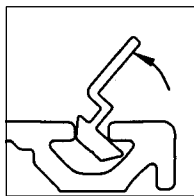
Part #
 12-105
 19-001

Rack Angle Profile

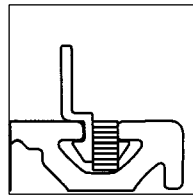
- 1 Installed dimensions (Profile dimension is 80mm)
- 2 Inserting rack angle into 40 series T-slot
- 3 Rack Angle is secured in T-slot with set screw M6x12. 12-109 requires 2 cuts to ensure matching pair
- 4 Panel is attached to 12-109 Rack Angle with M5 or M6 screw and clip nut



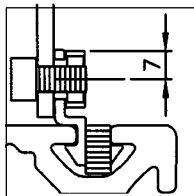
1



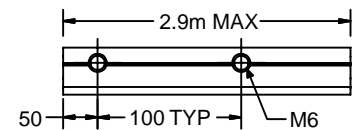
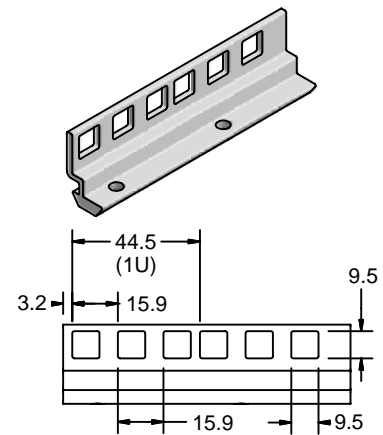
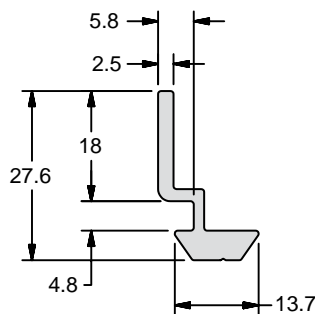
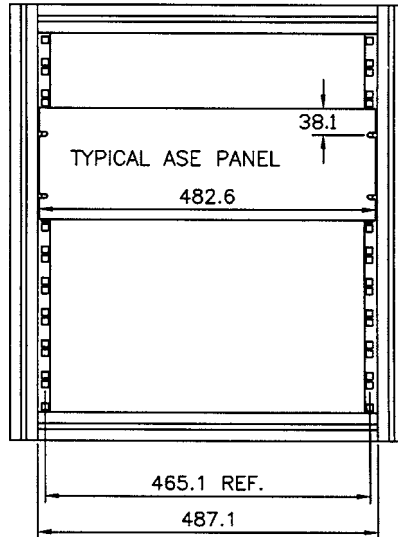
2



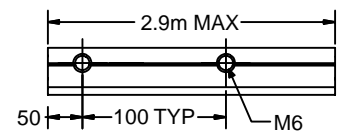
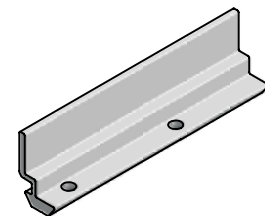
3



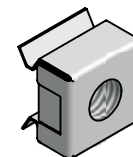
4



12-109*



12-110*



20-075
20-076
25-075
25-076

Application

Used for attaching standard 19" rack components to 40, 30, 28 and 1.5" Series Profiles (30 and 28 series require installation from end of profile).

12-109 is machined with square holes for installation of a Clip Nut. Clip Nut snaps into square holes for attaching panels and accessories.

12-110 is blank and can be used to support horizontal panels such as ceiling tiles.

Ordering Information

Description	Max. Length	Part #
Profile Rack Angle with Holes	3 meters	12-109
Profile Rack Angle no Holes	3 meters	12-110
Cut to Length Service Number		19-001
Rack Angle Clip Nut M5	Each	20-075
Rack Angle Clip Nut M6	Each	20-076
Rack Angle Clip Nut #10-32	Each	25-075
Rack Angle Clip Nut 1/4-20	Each	25-076

* Sold by 3-meter piece

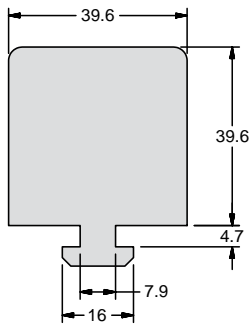
Technical Data

Extrusion:
Aluminum, Clear Anodized
Weight: 12-109 0.62kg/m
12-110 0.63kg/m

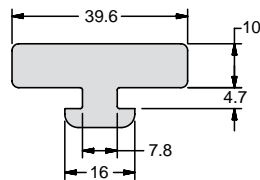
Includes M6X12 flat point set screws

Clip Nut: (Order separately)
Steel, Zinc Plated
Weight 5g

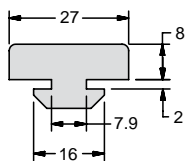
UHMW Slide Bar & Slide Strip



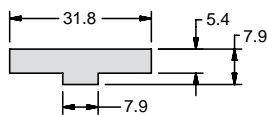
12-400



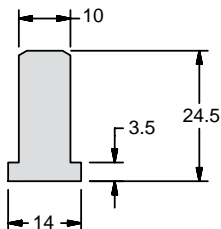
12-420



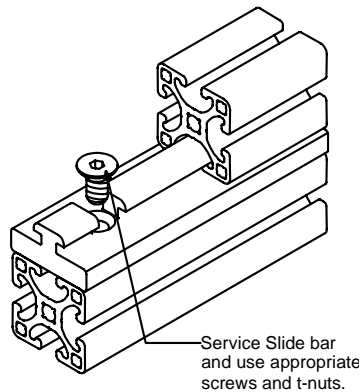
12-430



12-410



12-421



Application

Durable, low-friction material that is self-lubricating and easily machined. These profiles provide a smooth gliding surface for a wide range of applications including linear systems to adjustable work surfaces or sliding panels.

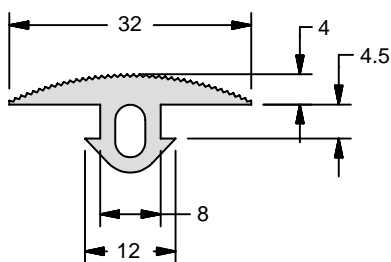
Technical Data

UHMW, White
40/1.5" Series Applications use:
12-400, 12-420, and 12-410
28/30 Series Applications use:
12-430

Ordering Information

Description	Max. Length	Part #	Wgt. (kg/m)
Slide Bar UHMW	3 meters	12-400	1.56
Slide Bar UHMW 40x10	3 meters	12-420	1.01
Slide Bar UHMW 28/30x8	3 meters	12-430	0.27
Slide Strip UHMW	3 meters	12-410	0.18
Guide Profile	3 meters	12-421	0.24
Cut to Length Service Number		19-001	

Anti-Skid Cover



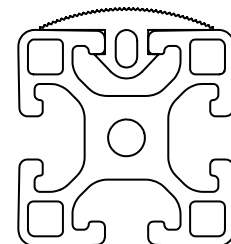
12-114

Application

Cover for 40 and 1.5" Series profiles is used for non-slip surfaces such as ladders and stops for sliding doors. Oil and water resistant.

Technical Data

Rubber, Black
Hardness 80 Shore



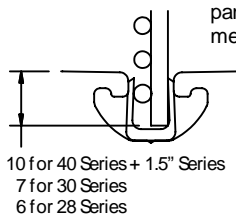
Ordering Information

Description	Max. Length	Weight	Part #
Anti-Skid Cover	20 meters	0.18 kg/m	12-114
Cut to Length Service Number			19-001

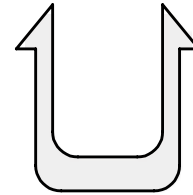
Wire Mesh Gasket

Application

Mesh gasket for mounting 12 gage wire mesh in 40, 30, 28 and 1.5" Series T-Slots.



Add length per side of panel for T-slot inserted mesh using the 12-107.



Technical Data

Molded Vinyl, Gray
Weight: 0.09 kg/m

Ordering Information

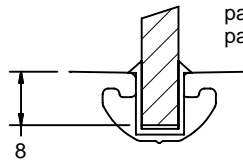
Description	Max. Length	Part #
Wire Mesh Gasket	30.5 meters	12-107
Cut to Length Service Number		19-001
Full Roll	30.5 meters	12-107R

12-107

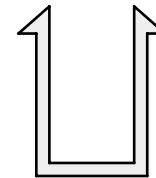
Panel Gasket

Application

Panel gasket for installing 6mm panels in 40, 30, 28 and 1.5" Series profile T-slot.



Add 8mm per side of panel for T-slot inserted panel using the 12-106.



Technical Data

Molded Vinyl, Grey
Weight: 0.04 kg/m

Ordering Information

Description	Max. Length	Part #
Panel Gasket	30.5 meters	12-106
Cut to Length Service Number		19-001
Full Roll	30.5 meters	12-106R

12-106

Panel Gasket

Application

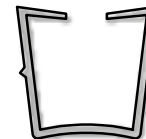
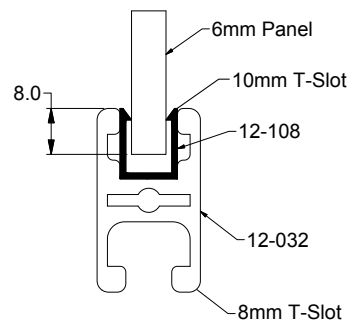
Panel gasket for installing 6mm or 8mm panels in the 10mm T-slots of 18x32 Door Profile (12-032).

Technical Data

PP & TPE, Black
Weight: 0.09 kg/m

Ordering Information

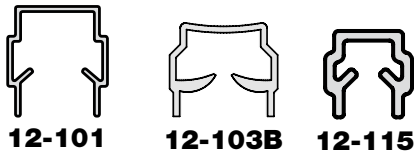
Description	Max. Length	Part #
Panel Gasket	2 meters	12-108



12-108*

*Sold by 2-meter piece

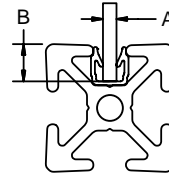
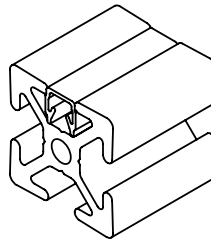
Cover/Gasket Strips



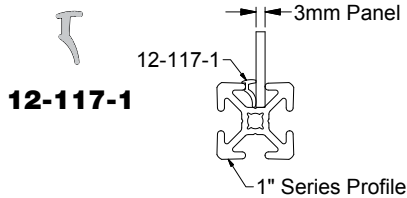
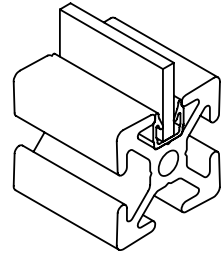
12-101

12-103B

12-115

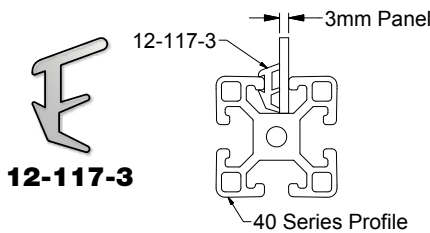


Series	A (mm)	B (mm)
40/30/1.5"	6	10
28	4-6	7
20	2	6



12-117-1

- T-slot covering can be cut easily with tin snips.
- Wires and cables can be concealed in T-slot with use of T-slot cover.



12-117-3

Application

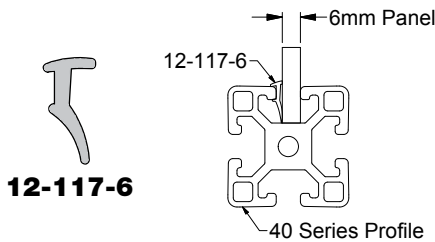
Primarily used to cover the T-Slot to prevent dust and debris from building up, or to conceal wiring routed in the T-Slot. These covers can also be inverted and used as a panel gasket. These items are easily cut with tin snips.

Technical Data

12-101, 12-103, 12-115: Polypropylene
12-113: Rigid PVC, Yellow
12-117-1/3/6: TPE, Black

Weight (kg/m):

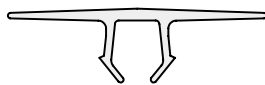
12-101	0.05
12-103	0.04
12-113	0.10
12-115	0.03
12-117-1	0.02
12-117-3	0.07
12-117-6	0.03



12-117-6

Ordering Information

Description	Max Length	Part # (Clear)	Part # (Black)	Part # (Yellow)	Part # (Gray)
Cover/Gasket Strip 40/1.5" Series	2 meters	12-101*	12-101B*	12-101Y*	12-101G*
Cover/Gasket Strip 28 Series	2 meters		12-103B*		
Cover/Gasket Strip 20 Series	2 meters	12-115*	12-115B*		
Safety Cover Strip 40/1.5" Series	2 meters				12-113*
Push-in Panel Seal (3mm) 1" Series	100 meters		12-117-1		
Push-in Panel Seal (3mm)	100 meters		12-117-3		
Push-in Panel Seal (6mm)	100 meters		12-117-6		



12-113

Cover Strips



12-102

Application

Used to cover the T-Slot to prevent dust and debris from building up, or to conceal wiring routed in the T-Slot.

Technical Data

Aluminum, Anodized or PVC



12-111

Ordering Information

Description	Max Length	Part # (Clear)	Part # (Black)	Part # (Yellow)	Part # (Blue)
Aluminum Cover Strip 40/1.5" Series	2 meters	12-102*			
PVC Cover Strip 40/1.5" Series	2 meters	12-111*	12-111B*	12-111Y*	12-111BL*
PVC Cover Strip 30/28 Series	2 meters	12-116*	12-116B*		



12-116

* Sold by 2 meter piece

Weight (kg/m): 12-102, 0.026; 12-111, 0.018; 12-116, 0.014

Application

Caps are used to cover the exposed ends of profiles after assembly. The caps provide both protection from potentially sharp edges, and also an aesthetically pleasing appearance.

Technical Data

Glass-Filled Nylon, Black

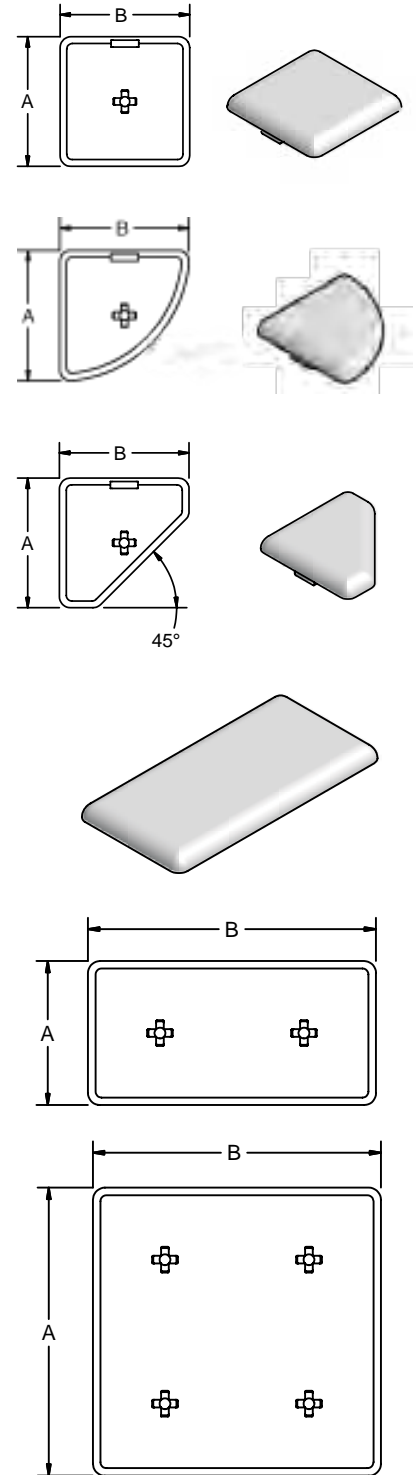


**Metric End Caps
Access Hole Plugs**

Ordering Information

Series	Size (A x B)	Unit	Wt (g)	Part #
40 Series	16x40	Each	4	18-811
	40x40*	Each	7	18-813
	40x40 (11-540 only)	Each	10	18-805
	40x40 Quarter Round	Each	5	18-843
	16x80	Each	6	18-812
	40x80*	Each	15	18-814
	80x80*	Each	28	18-815
	40x120	Each	22	18-840
	80x120	Each	43	18-841
	16x160	Each	10	18-806
	28x160	Each	20	18-816
	40x160	Each	28	18-817
	80x160	Each	66	18-818
	40x40-45°	Each	6	18-820
	R40/80-30	Each	17	18-883
	R40/80-45	Each	19	18-885
R40/80-60	Each	22	18-886	
30 Series	30x30 Quarter Round	Each	4	18-838
	30x30*	Each	5	18-803
	30x60*	Each	11	18-863
28 Series	28x28*	Each	4	18-808
	28x56*	Each	8	18-809
	28x28-45°	Each	3	18-844
20 Series	10x20	Each	0.5	18-830
	20x20	Each	1	18-802
	20x40	Each	2	18-831
	40x40, 20 Series	Each	4	18-832
18x32 Frame Profile	18x32 Door Profile	Each	3	18-807
Access Hole Plugs	7mm Plastic	Each	0.1	18-710
	7mm Nickel	Each	0.5	18-713

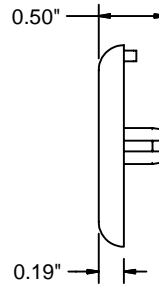
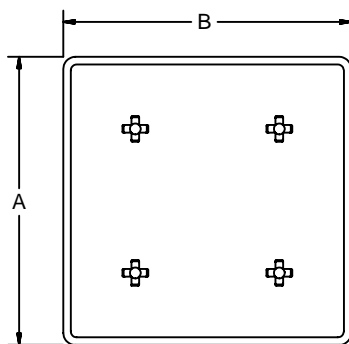
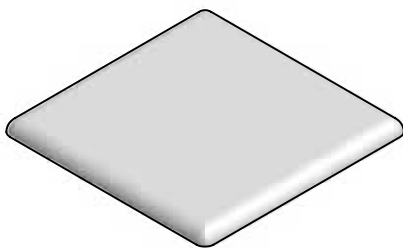
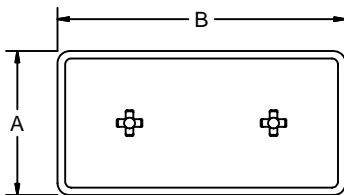
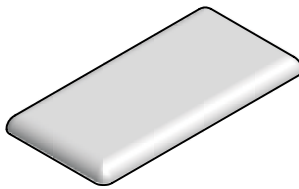
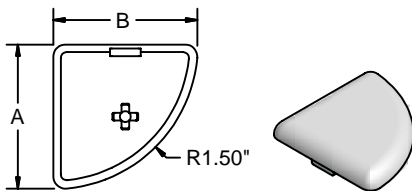
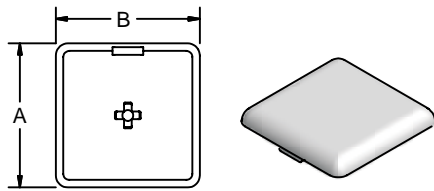
* Secure end caps available



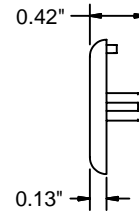
Access Hole Plugs



Inch End Caps Access Hole Plug



1.5" Series



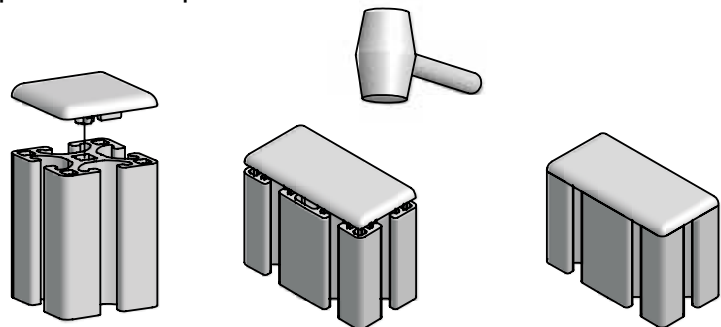
1" Series

Ordering Information

Series	Size (A x B)	Unit	Weight (g)	Part #
1.5" Series	1.5" x 1.5"	Each	7	18-1515
	1.5" x 1.5" Quarter Round	Each	6	18-1543
	1.5" x 3"	Each	14	18-1530
	3" x 3"	Each	28	18-3030
1" Series	1" x 1"	Each	3	18-1010
	1" x 2"	Each	7	18-1020
	2" x 2"	Each	14	18-2020
Access Hole Plugs	9/32" Plastic	Each	1	18-710
	9/32" Nickel Plated Steel	Each	5	18-713

Assembly Hint

Press end cap into end hole(s), then lightly tap with rubber or plastic mallet.



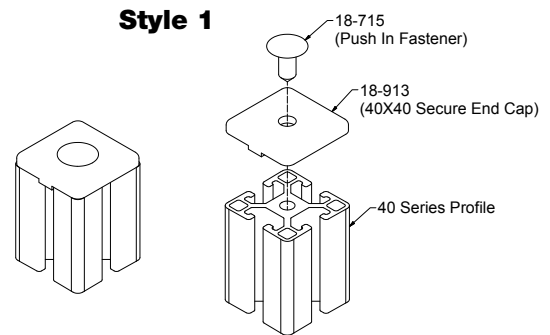
Secure End Caps

Application

Secure End Caps are attached to profile end with push-in fastener or screws, depending on type (sold separately). No profile servicing is required.

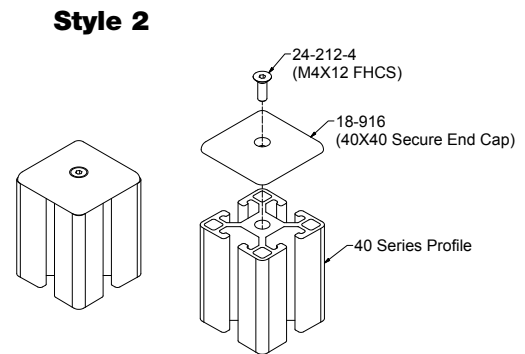
Technical Data

Glass-Filled Nylon, Black



Ordering Information

Series	Size	Unit	Weight (g)	Part #	Style
40	40x40	Each	7	18-913	1
	40x40	Each	7	18-916	2
	40x80	Each	23	18-914	1
	40x80	Each	23	18-917	2
	80x80	Each	23	18-918	1
	80x80	Each	23	18-915	2
30	30x30	Each	7	18-919	2
	30x60	Each	7	18-920	2
28	28x28	Each	7	18-911	1
	28x56	Each	7	18-912	1



Recommended Fastners (Order Separately)

Part #	Fastener	Qty	Description
18-913	18-715	1	Push-in Fastener
18-916	24-212-4	1	FHCS M4X12
18-914	18-715	2	Push-in Fastener
18-917	24-212-4	2	FHCS M4X12
18-918	18-715	4	Push-in Fastener
18-915	24-212-4	4	FHCS M4X12
18-919	24-212-4	1	FHCS M4X12
18-920	24-212-4	2	FHCS M4X12
18-911	18-715	1	Push-in Fastener
18-912	18-715	2	Push-in Fastener

Conduit

Conduit Elements

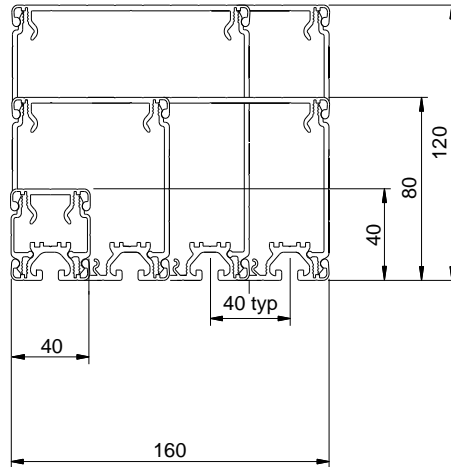
Conduit profiles provide a convenient way to integrate cable, hose and control components to an IPS structural assembly or linear system.

These anodized aluminum profiles are modular and provide great flexibility and are easy to assemble. The dimensions are based on 40mm increments and are compatible with all standard IPS elements.

Assembled conduit sections may be attached to any IPS profile using standard T-slot fastening methods. Reference grooves allow for accurate positioning of any necessary holes or machining.

IPS conduit profiles offer snap-together assembly that can be secured with optional locking screws.

Modular Dimensions

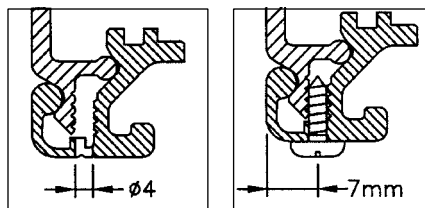
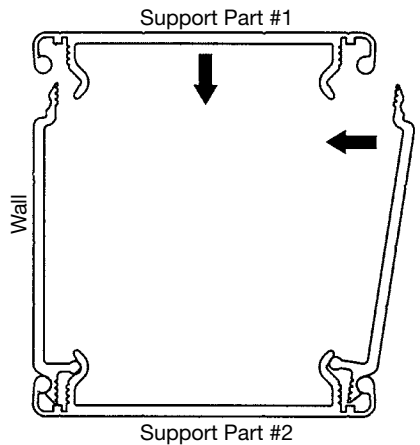


The conduit is made up of high tensile strength aluminum elements:

- Wall duct profile 40, 80 and 120
- Conduit support profile 40, 80, 120 and 160 (with or without T-slot)

Wall duct profiles of any required length are snapped into a support profile. Another support profile closes the duct with a "snap in" fit. The conduit may be secured with screws where necessary.

Assembly of Conduit Elements



1 Scored groove for locating locking screw (24-695) in Support Profile.

2 Locking screw turned into the pre-extruded threads of the support wall profiles.

Conduit Cross Section Guide

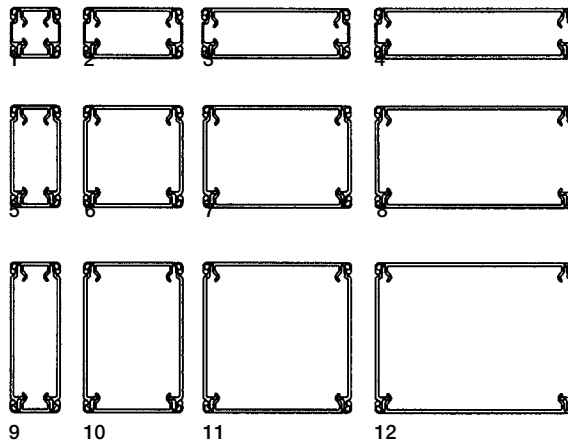
Type	Item #	Dimensions H x W [mm]	Qty	Wall Part#	Qty	Support Part #1	Qty	Support Part #2	Area [cm ²]	Area [inch ²]
Conduits Without T-Slots	1	40x40	2	15-042	2	15-040	—	—	16.00	2.48
	2	40x80	2	15-042	2	15-080	—	—	32.00	4.96
	3	40x120	2	15-042	2	15-120	—	—	48.00	7.44
	4	40x160	2	15-042	2	15-160	—	—	64.00	9.92
	5	40x80	2	15-082	2	15-040	—	—	32.00	4.96
	6	80x80	2	15-082	2	15-080	—	—	64.00	9.92
	7	80x120	2	15-082	2	15-120	—	—	96.00	14.88
	8	80x160	2	15-082	2	15-160	—	—	128.00	19.84
	9	40x120	2	15-122	2	15-040	—	—	48.00	7.44
	10	80x120	2	15-122	2	15-080	—	—	96.00	14.88
	11	120x120	2	15-122	2	15-120	—	—	144.00	22.32
	12	120x160	2	15-122	2	15-160	—	—	192.00	29.76
Conduits With T-Slots on One Side	13	40x40	2	15-042	1	15-040	1	15-041	9.20	1.43
	14	40x160	2	15-042	1	15-160	1	15-161	36.80	5.70
	15	40x80	2	15-082	1	15-040	1	15-041	25.20	3.91
	16	80x160	2	15-082	1	15-160	1	15-161	100.80	15.62
	17	40x120	2	15-122	1	15-040	1	15-041	41.20	6.39
	18	120x160	2	15-122	1	15-160	1	15-161	164.80	25.54
Conduits with T-Slots on Both Sides	19	80x160	2	15-082	2	15-161	—	—	73.60	11.41
	20	120x160	2	15-122	2	15-161	—	—	137.60	21.33
Conduits with Partitions	21	40x160	5	15-042	1	15-160	1	15-041	36.80	5.70
	22	80x160	5	15-082	1	15-160	1	15-161	100.80	15.62
	23	160x120	5	15-122	1	15-160	1	15-161	164.80	25.54

Conduit

Cross Sections

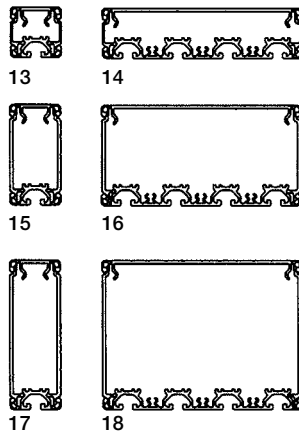
Conduits without T-slots

- 1 40x40
- 2 40x80
- 3 40x120
- 4 40x160
- 5 40x80
- 6 80x80
- 7 80x120
- 8 80x160
- 9 20x140
- 10 40x120
- 11 120x120
- 12 120x160



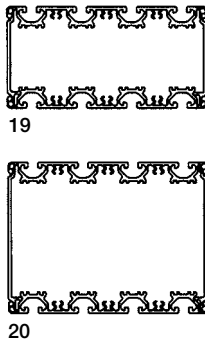
Conduits with T-slots on one side

- 13 40x40
- 14 40x160
- 15 40x80
- 16 80x160
- 17 40x120
- 18 120x160



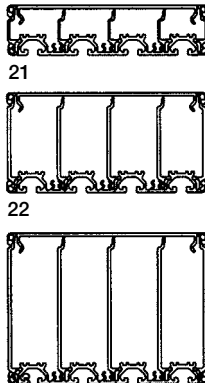
Conduits with T-slots on both sides

- 19 80x160
- 20 120x160

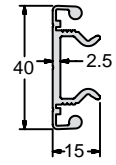


Conduits with Partitions

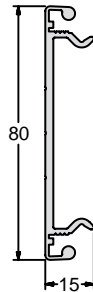
- 21 40x160
- 22 80x160
- 23 160x120



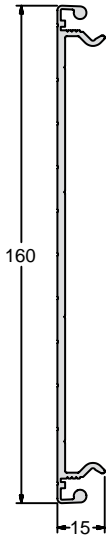
Conduit Support



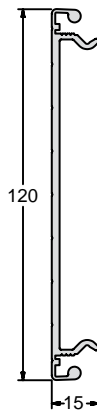
15-040



15-080*



15-160



15-120

Application

Bottom or cover components for conduit assemblies. Wall Duct profiles snap in for fast applications. Locking screw (24-695) can be added to secure the assembly and provide ground continuity between profiles members.

Ordering Information

Description
 Conduit Support 40
 Conduit Support 80
 Cut to Length Service Number
 Conduit Support 120
 Conduit Support 160
 Cut to Length Service Number

Technical Data

Aluminum, Clear Anodized

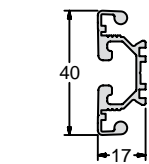
Weight kg/m

15-040	1.96
15-080	3.04
15-120	3.92
15-160	5.00

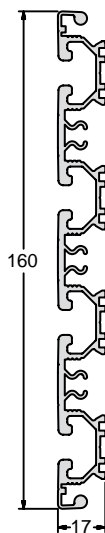
Unit Length	Part #
4 meters	15-040
4 meters	15-080*
Cut to Length Service Number	19-001
4 meters	15-120
4 meters	15-160
Cut to Length Service Number	19-002

* Sold by 4-meter piece. Pieces can be cut to length for the customer.

Conduit Support with T-Slot



15-041



15-161

Application

Bottom or cover components for conduit assemblies with 40 Series T-Slots on external face for mounting with standard hardware.

Ordering Information

Description
 Conduit Support 40 W/T-Slot
 Cut to Length Service Number
 Conduit Support 160 W/T-Slot
 Cut to Length Service Number

Technical Data

Aluminum, Clear Anodized

Weight kg/m

15-041	2.40
15-161	9.16

Unit Length	Part #
4 meters	15-041
Cut to Length Service Number	19-001
4 meters	15-161
Cut to Length Service Number	19-002

Conduit

Wall Duct Profiles

Application

This profile creates the sides of the conduit assembly and can be used to create partitioned spaces within assemblies using T-Slotted top and bottom supports.

Technical Data

Aluminum, Clear Anodized

	Weight kg/m
15-042	0.84
15-082	2.20
15-122	3.24

Ordering Information

Description

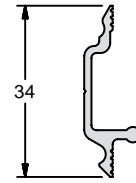
Conduit Wall Duct 40
Conduit Wall Duct 80
Conduit Wall Duct 120
Cut to Length Service Number

Unit Length

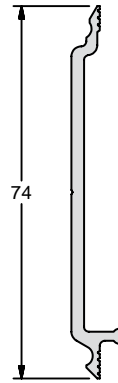
4 meters
4 meters
4 meters

Part #

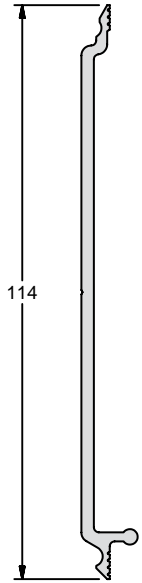
15-042
15-082
15-122
19-001



15-042

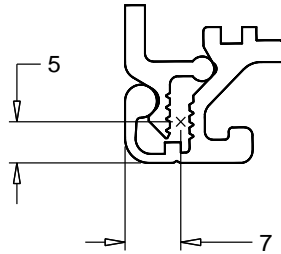
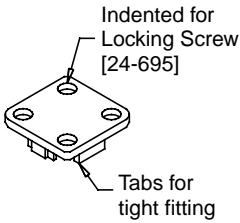


15-082

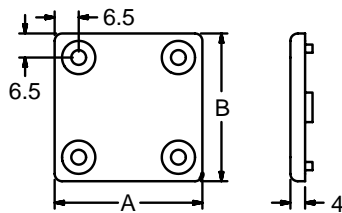


15-122

Conduit End Caps



Recommended location of 5mm hole for locking screw on custom conduit caps (note orientation).



Application

End Caps

Face covering for sealing the end openings of conduit assemblies. Not for use on 40 Series profiles.

Locking Screw

Securely fastens support and wall profiles and breaks the anodized coating creating a positive ground between profile members and installing end caps.

Technical Data

End Caps:
 Glass-Filled Nylon, Black

Locking Screw:
 Stainless Steel
 4.2 x 9.5mm, DIN 7971

Recommended Fasteners (Order Separately)

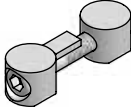
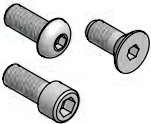
Screw	Qty
24-695	4 per End Cap

Ordering Information

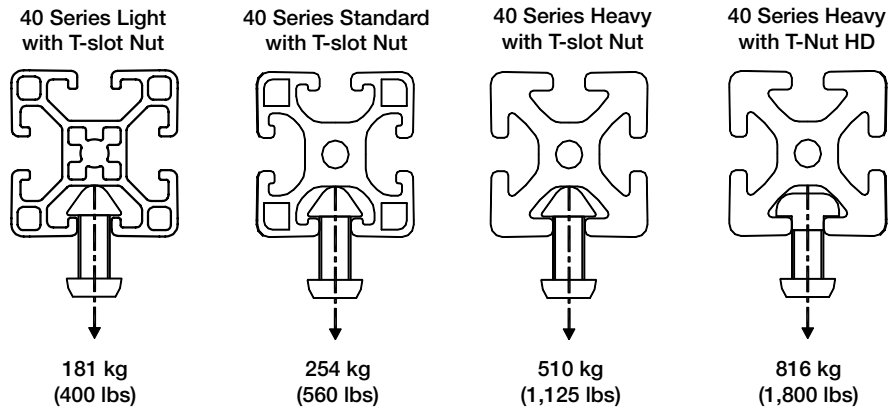
Description [AxB]	Unit	Part #	Weight (g)
Conduit Cap 40x40	Each	15-803	8
Conduit Cap 40x80	Each	15-804	14
Conduit Cap 40x120	Each	15-810	30
Conduit Cap 40x160	Each	15-806	30
Conduit Cap 80x80	Each	15-805	30
Conduit Cap 80x120	Each	15-811	50
Conduit Cap 80x160	Each	15-807	58
Conduit Cap 120x120	Each	15-812	70
Conduit Cap 120x160	Each	15-813	90
Locking Screw 4.2 x 9.5	Each	24-695	2

Contents

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<p>Flat Plate Fasteners 82</p>		<p>Heavy Duty T-Nuts 90 Heavy Duty T-Nut Bars 90</p>	
<p>Milling Connectors 82</p>		<p>Slide-in Economy T-Nuts 91-92</p>	
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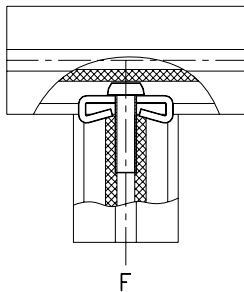
Overview



Safe Load

Pull Test

Two pieces of 40x40 Heavy profile were assembled to form a tee with a standard fastener and a button head screw. Force was applied until the tee started to separate. The profile failed before the fastener. The profiles were still held together at the end of the test. There were no catastrophic failures. Extra screw length beyond standard 18mm did not significantly change test results.



Screw	Engaged Length	Force (F)	
		N	Lbf
M8x18	10.8 mm	25,350	5,699
M8x20	12.8 mm	26,761	6,016
M8x25	17.8 mm	26,774	6,019
M8x30	22.8 mm	27,250	6,126

Fastener Quick Reference

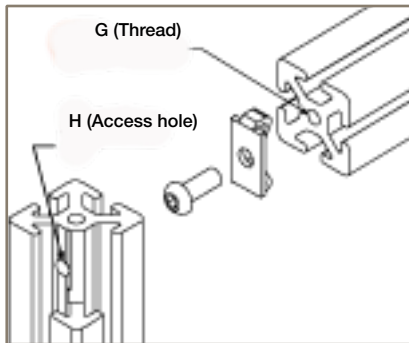
Fastener Type	Hardware	40 Series	30 Series	28 Series	20 Series	1.5" Series	1" Series
Standard Fastener 	M5				20-021		
	M8	20-002 ♣	20-003 ♣	20-003 ♣		20-002 ♣	
	M8 SS	20-002SS	20-003SS	20-003SS		20-002SS	
	1/4-20						25-022
	5/16-18	25-003				25-003	
5/16-18 SS	25-003SS				25-003SS		
Standard Fastener Single Tab 	M8	20-144				20-144	
	5/16-18	25-014				25-014	
Universal Fastener 	M5				20-040		
	M6		20-008	20-005			
	M8	20-004 ⁽¹⁾ ♣				20-004 ♣	
	1/4-20						25-023
	5/16-18	25-004				25-004	
Flat Plate 	M8x16	20-028				20-028	
	M8x10		20-028Z1	20-028Z1			
	5/16-18	25-028				25-028	
Butt Fastener 	M8x45	20-006 ⁽²⁾	20-012	20-012		20-006	
	1/4-20						25-017
	5/16-18	25-016				25-016	
Milling Connector 	M5	28-004	28-005				
Central Connector 		20-704					
		20-705					
Profile-to-Wall 	M8	20-015				20-015	
	5/16-18	25-015				25-015	
Self-Tapping 	M6	20-019				20-019	
Miter Connector 	Variable	27-022	27-023	27-023		27-024	

(1) Use 20-011 for 40 Series Pneumatic Applications

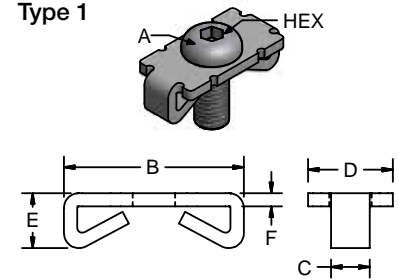
(2) Use 20-012 for 40 Series Pneumatic Applications

Standard

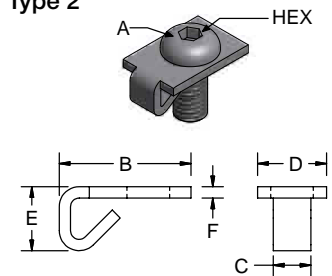
Series	G	G (Thread) Service Charge	H	H (Access Hole) Service Charge
40	M8X16	19-010	7	19-011
30	M8X16	19-010	7	19-011
28	M8X16	19-010	7	19-011
20	M5X10	19-005	5	19-041
1.5"	5/16-18X.75"	19-009	7	19-011
1"	1/4-20X.63"	19-008	6	19-042



Type 1



Type 2



Application

This is the primary fastening method used to join two pieces of profiles together.

The fastener couples with the taper in the T-Slots to create an extremely rigid joint. The tabs on the fastener align the profiles and provide anti-rotational support.

Note: You must use 20-144/25-014 Single Tab Standard Fastener set on closed face profiles and for 11-089

Technical Data

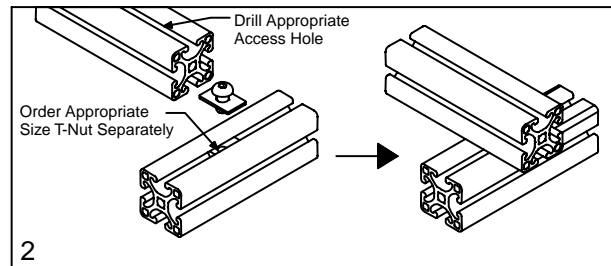
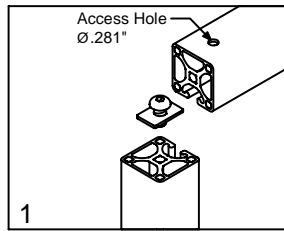
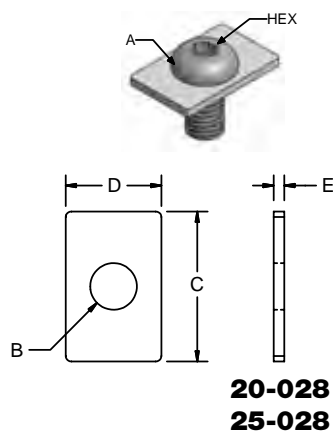
Steel, Zinc Plated
 Stainless Steel -
 Designated by SS at the end of part number

Ordering Information

Profile Series	Type	Dimensions							Torque Nm (ft-lbs)	Weight (g)	Part #*
		A	Hex	B	C	D	E	F			
40	1	M8x18	5	36	7.8	17	11	2.6	34 (25)	25	20-002 ⚡
	1	M8x18	5	36	7.8	17	11	2.6	34 (25)	21	20-002SS
	1	5/16-18 x 3/4"	3/16"	36	7.8	17	11	2.6	34 (25)	25	25-003
	1	5/16-18 x 3/4"	3/16"	36	7.8	17	11	2.6	34 (25)	25	25-003SS
	2	5/16-18 x 3/4"	3/16"	27	7.6	14	13	2.6	34 (25)	21	25-014
	2	M8x18	5	27	7.8	17	11	2.6	34 (25)	21	20-144
30/28	1	M8x18	5	23.7	7.8	16	8.9	1.9	34 (25)	15	20-003 ⚡
	1	M8x18	5	23.7	7.8	16	8.9	1.9	34 (25)	14	20-003SS
	2	M8x18	5	21	7.8	14	8.9	1.9	34 (25)	15	20-143
20	1	M5x12	3	4.8	4.8	10	4.5	1.1	8 (6)	5	20-021
1.5"	1	5/16-18 x 3/4"	3/16"	1.42"	0.307"	0.669"	0.433"	0.102"	34 (25)	25	25-003
	1	5/16-18 x 3/4"	3/16"	1.42"	0.307"	0.669"	0.433"	0.102"	34 (25)	25	25-003SS
	2	5/16-18 x 3/4"	3/16"	1.05"	0.300"	0.550"	0.510"	0.102"	34 (25)	21	25-014
1"	1	1/4-20 x 5/8"	5/32"	0.795	0.250	0.520	0.300	0.060	18 (13)	13	25-022

Series	Product Number	Description
40/1.5"	20-002Z1	Steel Standard Plate
	20-002Z1SS	Stainless Steel Plate
	20-144Z1	Single Ear Steel Plate
30/28	20-003Z1	Steel Standard Plate
	20-003Z1SS	Stainless Steel Plate
	20-143Z1	Single Ear Steel Plate
20	20-021Z1	Steel Standard Plate
1"	25-014Z1	Steel Standard Plate

Flat Plate



Application

This fastening set is suitable for connecting two profiles at 90° when a standard fastener cannot be used. It can also be used to connect two profiles where no end hole is available (see detail 2).

Technical Data

Steel, Zinc Plated

Ordering Information

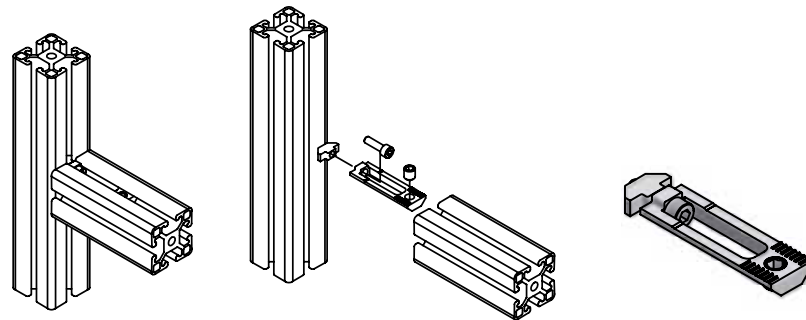
Profile Series	A	Hex	B	C	D	E	Torque Nm (ft-lbs)	Weight (g)	Part #
40	M8x18	5	8	27	17.5	2	34 (25)	13	20-028 *
1.5"	5/16-18x5/8"	3/16"	0.31"	1.06"	0.677"	0.075"	34 (25)	13	25-028

For 28 Series order:

Flat Plate Only **20-028Z1**

M8x10 BHCS Screw **24-110-8**

Milling Connector



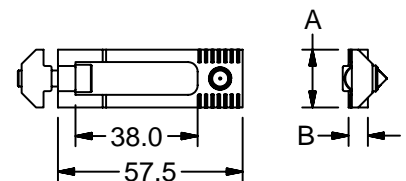
Application

For adjustable 90° profile connections. Milling Connectors allow the connection of two profiles without additional machining.

Technical Data

Steel, Zinc Plated
Includes screw and T-nut.

Torque: 8 Nm (6 ft-lbs)



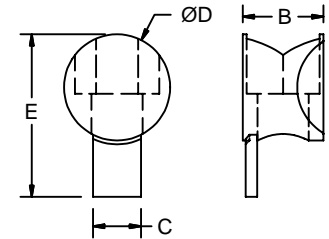
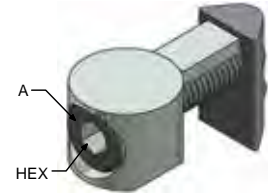
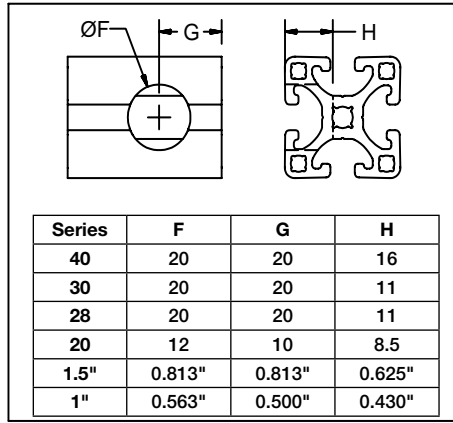
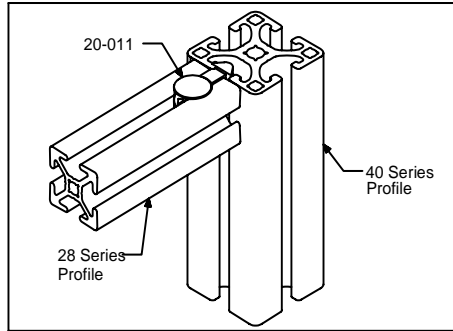
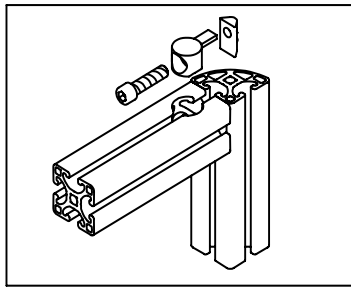
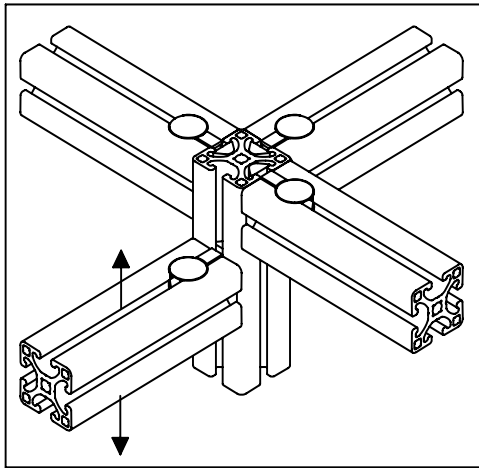
28-004
28-005

Ordering Information

Profile Series	Hex	A	B	Weight (g)	Part #
40, 1.5"	4	18	6.8	37.3	28-004
30	4	16	6.3	31.7	28-005

Universal

Fasteners



Application

For adjustable 90° profile connections. Ideal for retrofits and additions to existing frames.

Fastening set 20-011 is used to connect 28 Series to 40 Series profiles and for pneumatic applications. See page 178.

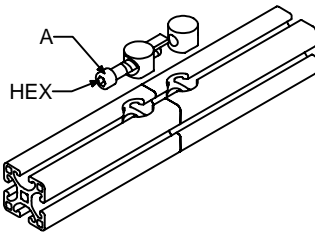
Technical Data

Zinc Cast, Galvanized
 Includes screw and T-nut

Ordering Information

Profile Series	A (SHCS)	Hex	B	C	D	E	Torque Nm (ft-lbs)	Wt. (g)	Part #	Service Charge
40	M8x30	6	16	8	20	33.8	34 (25)	41	20-004	19-015
28 to 40	M6x30	5	11	8	20	33.5	15 (11)	36	20-011	19-034
30	M6x27	5	11	8	20	31.3	15 (11)	31	20-008	19-034
28	M6x27	5	11	8	20	31.3	15 (11)	30	20-005	19-034
20	M4x14	3	8.5	5	12	17.2	4 (3)	7	20-040	19-035
1.5"	5/16-18x1¼"	1/4"	16	8	20	33.8	34 (25)	41	25-004	19-039
1"	1/4-20x¾"	3/16"	10.7	6.4	14	21.5	18 (13)	25	25-023	19-036
Universal Zinc Casting 40 (40 Series without T-Nut or Screw)									20-004Z1	—
Universal Zinc Casting 28 (28 Series without T-Nut or Screw)									20-005Z1	—
Universal Zinc Casting 20 (20 Series without T-Nut or Screw)									20-040Z1	—
Universal Zinc Casting 1" (1" Series without T-Nut or Screw)									25-023Z1	—

Butt-Fastener

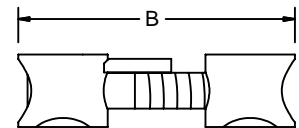
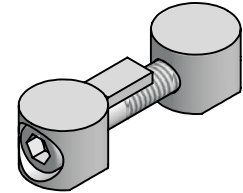


Application

For joining profiles end to end. Fastening dimensions and servicing are the same as corresponding universal fasteners.

Technical Data

Zinc Cast, Galvanized

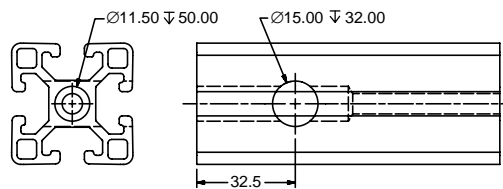
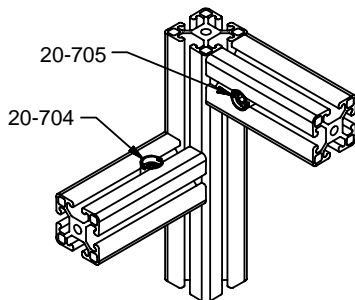


20-006
20-012
25-016
25-017

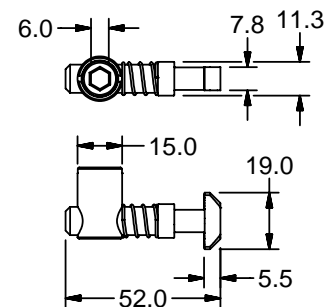
Ordering Information

Profile Series	Dimensions			Torque, Nm (ft-lbs)	Weight (g)	Part #	Service Charge
	A	Hex	B				
40	M8x45	6	60	34 (25)	59	20-006	19-015
30 & 28	M6x50 & M6 Nut	5	60	15 (11)	45	20-012	19-034
1.5"	5/16-18x1 3/4"	1/4"	2.41"	34 (25)	59	25-016	19-039
1"	1/4-20x1"	3/16"	1.55"	18 (13)	40	25-017	19-036

Central Connector



20-704



Application

For adjustable 90° profile connections. Central Connectors allow the connection of two profiles. For 40 Series only.

Technical Data

Steel, Zinc Plated

Ordering Information

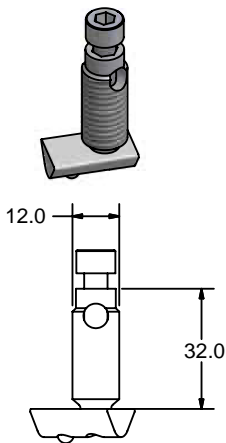
Description	Unit	Weight (g)	Part #	Service Charge
Hammer Perpendicular to Barrel	Each	49	20-704	19-037
Hammer Parallel to Barrel	Each	49	20-705	19-037



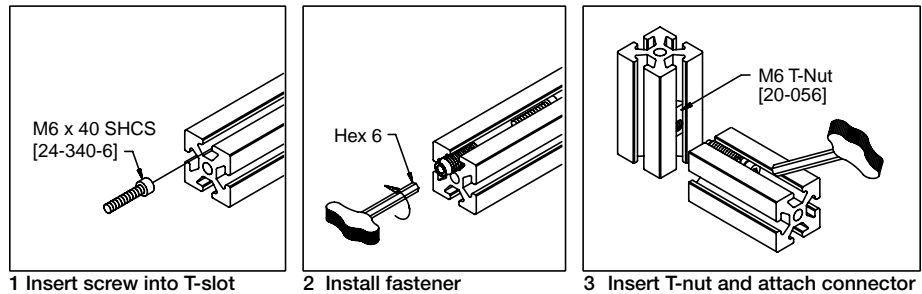
20-705

Self-Tapping Connector

Fasteners



20-019



Application

For right angle attachment of 40 and 1.5" Series Profiles. No servicing is required making it ideal for retrofitting existing structures.

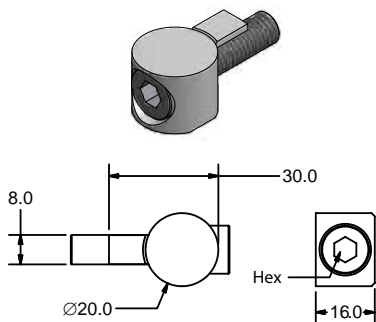
Technical Data

Steel
Torque: 15 Nm (11 ft-lbs)
Threads: Left Handed
Hardware included

Ordering Information

Description	Unit	Weight (g)	Part #
Self Tapping Connector 40/1.5"	Set	34	20-019

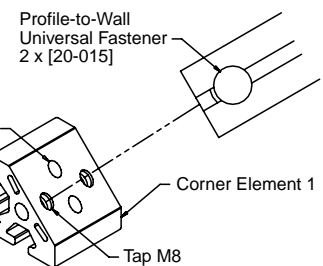
Profile-to-Wall Fastener



20-015

Application

Designed for connecting 40 and 1.5" Series profiles to parts without T-Slots such as corner elements.



Technical Data

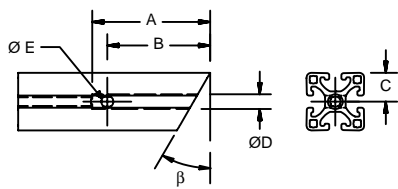
Steel, Zinc Plated

Ordering Information

Profile Series	Dimensions						Torque Nm (ft-lbs)	Weight (g)	Part #	Service Charges
	A	Hex	B	C	D	E				
40	M8x30	6	16	8	20	30	34 (25)	32	20-015	19-015
1.5"	5/16-18x1 1/4"	3/16"	0.630"	0.315"	0.787"	1.18"	34 (25)	32	25-015	19-040

Profile to wall casting without screw or washer 20-015Z1

Miter Connectors



40 Series

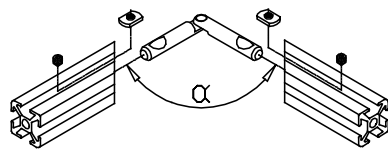
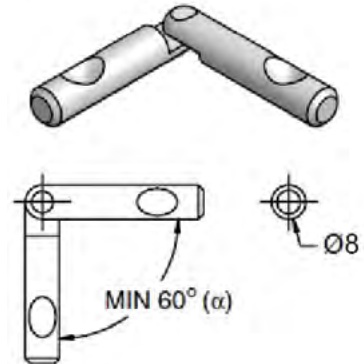
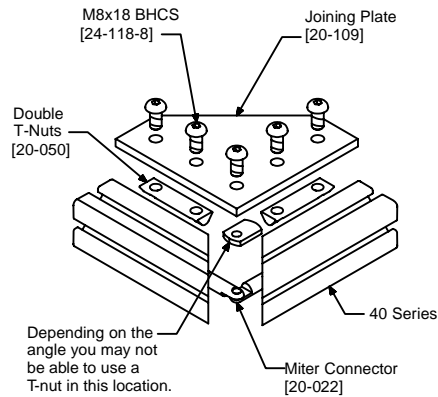
$\beta = 90^\circ - \alpha/2$
 $A = 46.5\text{mm} + C \tan \beta$
 $B = 36.5\text{mm} + C \tan \beta$
 $D = 8\text{mm}$
 $E = 8\text{mm}$

1.5" Series

$\beta = 90^\circ - \alpha/2$
 $A = 1.83" + C \tan \beta$
 $B = 1.44" + C \tan \beta$
 $D = 0.31"$
 $E = 0.31"$

30/28 Series

$\beta = 90^\circ - \alpha/2$
 $A = 46.5\text{mm} + C \tan \beta$
 $B = 36.5\text{mm} + C \tan \beta$
 $D = 8\text{mm}$
 $E = 6\text{mm}$



27-022
27-023
27-024

Application

Variable angle connectors are available for 40, 30, 28, and 1.5" series profiles.

Not for use as a structural fastener.
 Secure with joining plates as necessary.

Technical Data

Connector: Steel, Zinc Plated

Sets include necessary T-nuts and cone point screws.

Loctite® Thread Locker No. 262 is recommended to secure set screws.

Service charge is 19-038 for 27-022 and 27-024

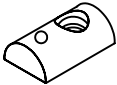



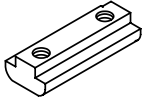


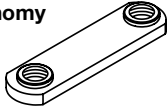

Service charge is 19-040 for 27-023

Ordering Information

Series	Description	Unit	Weight (g)	Part #
40	Variable	Set	67	27-022
28,30	Variable	Set	31	27-023
1.5"	Variable	Set	67	27-024

T-Nuts

Quick Reference

Type	Thread Size	40 Series	30 Series	28 Series	20 Series	1.5" Series	1" Series
Standard T-Nut 	M4	20-051			20-044	20-051	
	M5	20-052	20-052		20-045	20-052	
	M6	20-056 (SS)	20-056(SS) ⁽⁴⁾	20-055		20-056 (SS)	
	M8	20-058 (SS)	20-058 (SS)	20-057		20-058 (SS)	
	#10-32	25-009	25-009			25-009	25-030
	1/4-20	25-001	25-001	25-055		25-001	25-031
	5/16-18	25-002	25-002	25-057		25-002 ⁽³⁾	
Double T-Nut Standard 	M8	20-049 ⁽¹⁾	20-049 ⁽¹⁾			20-049	
	M8	20-050 ⁽²⁾	20-050 ⁽²⁾			20-050	
	5/16-18	25-041				25-041	
Self Aligning T- Nut 	M5	20-065	20-065 ⁽⁴⁾	20-065 ⁽⁴⁾		20-065	
	M6	20-066	20-066 ⁽⁴⁾	20-066 ⁽⁴⁾		20-066	
	M8	20-068	20-068 ⁽⁴⁾	20-068 ⁽⁴⁾		20-068	
Heavy Duty T-Nut  Ret. Spring 20-0614 ⁽³⁾	M5	20-067				20-067	
	M6	20-060 ⁽³⁾				20-060 ⁽³⁾	
	M8	20-064 ⁽³⁾				20-064 ⁽³⁾	
	1/4-20	25-050				25-050	
	5/16-18	25-051				25-051	
Double Heavy Duty T-Nut 	M8	20-063				20-063	
	1/4-20	25-052				25-052	
	5/16-18	25-053				25-053	
Economy Standard T-Nut 	M5				20-085		
	M6	20-080	20-090 (SS)	20-090 (SS)		20-080	
	M8	20-081	20-091	20-091		20-081	
	#10-32	20-088				20-088	20-088
	1/4-20	20-083	20-093	20-093		20-083	25-034
	5/16-18	20-082	20-092	20-092		20-082	
	#10-24					20-086	
Economy Offset T-Nut 	M6		20-190	20-190			
	M8	20-181					
	#8-32	25-045				25-045	25-045
	1/4-20	20-193	20-193	20-193		20-193	
	5/16-18	20-182				20-182	
Double Economy T-Nut 	1/4-20					25-048	
	5/16-18	25-046 ⁽⁵⁾ 25-047 ⁽⁶⁾				25-046 ⁽⁵⁾ 25-047 ⁽⁶⁾	
Drop-In Z-Nut 	M3	20-033	20-036	20-036		20-033	
	M4	20-034	20-037	20-037		20-034	
	M5	20-035	20-038	20-038		20-035	

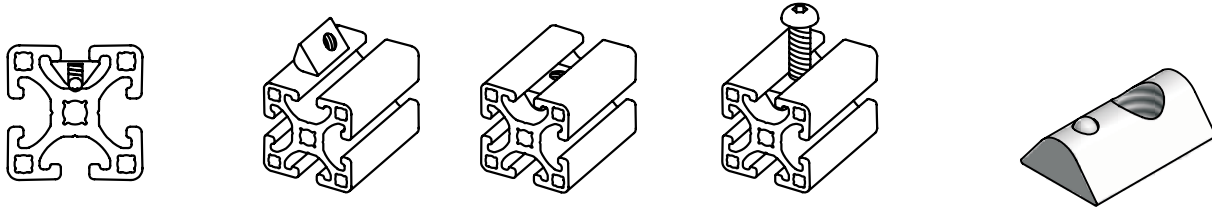
(1) 24mm hole centerline spacing
 (2) 40 mm hole centerline spacing

(3) 40/1.5" Series only, nut must be installed from profile end
 (4) On 30 and 28 Series, nut must be installed from profile end

(5) 7/8" hole spacing
 (6) 1" hole spacing

T-Nuts

Drop-in T-Nut



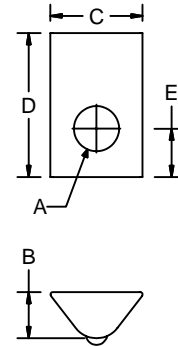
Standard T-nuts conveniently roll into profile T-slots at any location. The spring/ball locking feature keeps the T-nut in place in vertical applications.

Application

Standard mounting elements for profiles. The T-Nut can be inserted into profile T-Slots at any location to provide an instant threaded hole for mounting accessories or connectors.

Technical Data

Steel, Clear or Black Zinc Plated Parts designated with "SS" are stainless steel. Others may be available in stainless. Contact factory for availability.

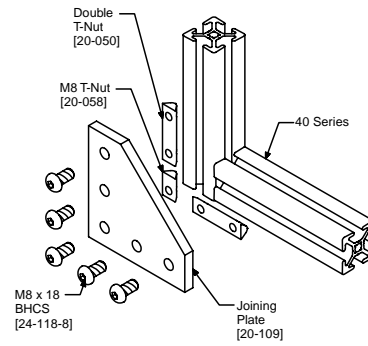
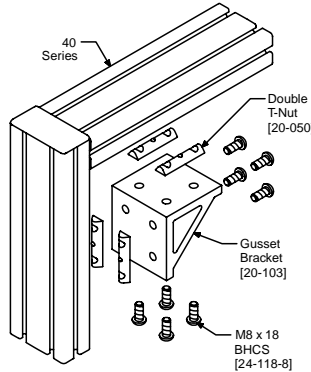
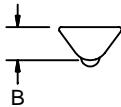
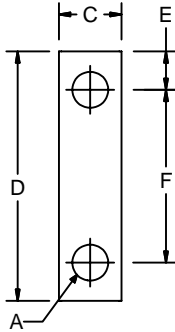
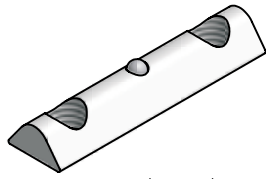


Ordering Information

Profile Series	Dimensions					Weight (g)	Part #
	A	B	C	D	E		
40, 30*, 1.5"	M4	7.3	13.8	23	7.5	11	20-051
	M5	7.3	13.8	23	7.5	11	20-052
	M6	7.3	13.8	23	5.5	11	20-056 *
	M6 SS	7.3	13.8	23	6.5	11	20-056SS
	M8	7.3	13.8	23	7.5	10	20-058 *
	M8 SS	7.3	13.8	23	6.5	11	20-058SS
	1/4-20	7.3	13.8	23	7.5	10	25-001
	5/16-18	7.3	13.8	23	7.5	9	25-002
28	#10-32	7.3	13.8	23	7.5	10	25-009
	M6	6	13.8	23	7	10	20-055
	M8	6	13.8	23	7	10	20-057
	1/4-20	6	12.9	23	7	10	25-055
20	5/16-18	6	12.9	23	7	10	25-057
	M4	4	8	11.5	4	1	20-044
1"	M5	4	8	11.5	4	1	20-045
	#10-32	0.200"	0.400"	0.625"	0.210"	5	25-030
	1/4-20	0.200"	0.400"	0.625"	0.210"	5	25-031

* Fits 30 Series, but may need to be inserted from profile end.

Double Drop-in T-Nut



Application

Standard mounting element where fastening hardware requires two T-Nuts.

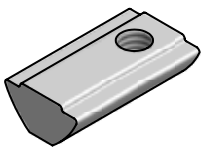
Technical Data

Metric T-Nuts: Steel, Clear Zinc Plated
Imperial T-Nuts: Steel, Black Zinc Plated or Clear Zinc Plated

Ordering Information

Profile Series	Dimensions						Weight (g)	Part #
	A	B	C	D	E	F		
40, 30, 1.5"	M8	7.3	13.8	38	7	24	15	20-049
	M8	7.3	13.8	55	7.5	40	23	20-050
	5/16-18	0.287"	0.543"	2.165"	0.333"	1.50"	23	25-041

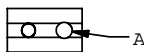
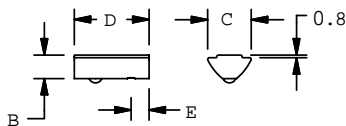
Self Aligning T-Nut



20-066



20-068



Application

Rolls into the T-Slot of 40 and 1.5" Series profiles at any location and held into position using a spring-loaded ball. The raised area fits into the T-Slot to prevent twisting. Should not be used where the raised area might interfere with other accessories such as tabs on universals, hinges, etc.

Technical Data

Steel, Zinc Plated
Fits 30 and 28 Series profiles but must be inserted from profile end.

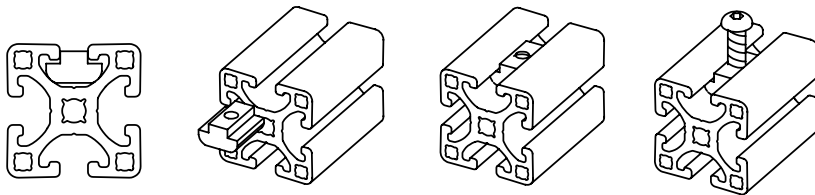
Ordering Information

Profile Series	Dimensions					Weight (g)	Part #
	A	B	C	D	E		
40, 30*	M5	7.3	13.5	22	6.4	10	20-065
28* &	M6	7.3	13.5	22	6.4	10	20-066
1.5"	M8	7.3	13.5	22	6.4	10	20-068

*Fits 30 and 28 Series profiles but must be inserted from profile end.

T-Nuts

Heavy Duty T-Nut



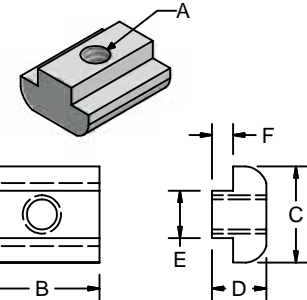
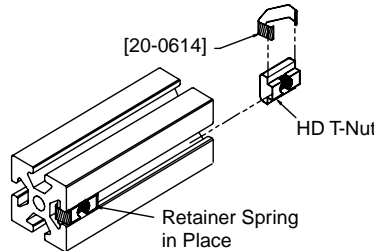
Heavy duty T-nuts must be inserted from the ends and slid to the desired location.

Application

Heavy duty T-Nut for 40 and 1.5" Series profiles.

Technical Data

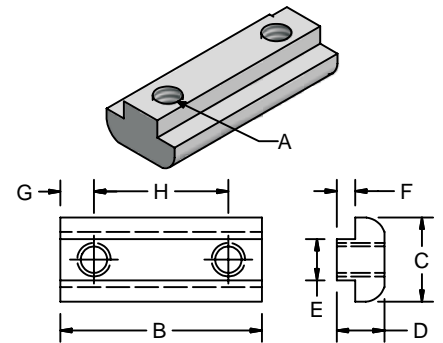
Steel, Zinc Plated



Single

Ordering Information

Profile Series	Style	Dimensions								Wt. (g)	Part #
		A	B	C	D	E	F	G	H		
40, 1.5"	Single	M5	22	16	8.8	7.9	3.5	-	-	13	20-067
		M6	20	16	8.8	7.9	3.5	-	-	13	20-060
		M8	20	16	8.8	7.9	3.5	-	-	13	20-064
		1/4-20	0.75"	0.63"	0.35"	0.31"	0.14"	-	-	14	25-050
		5/16-18	0.75"	0.63"	0.35"	0.31"	0.14"	-	-	13	25-051
	Retainer Spring for HD Single T-Slot Nuts										20-0614
Double	M8	38	16	8.8	7.9	3.5	6	24	25	20-063	
	1/4-20	1.50"	0.63"	0.35"	0.31"	0.14"	0.25"	1.00"	28	25-052	
	5/16-18	2.00"	0.63"	0.35"	0.31"	0.14"	0.25"	1.50"	32	25-053	



Double

T-Nut Bars

Application

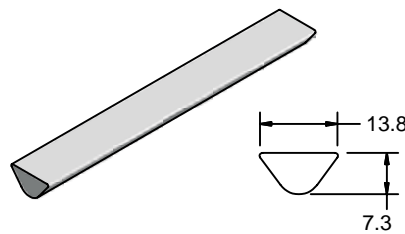
Bar stock for custom length T-Nuts. Can be cut to length and tapped. Sold by each length.

Technical Data

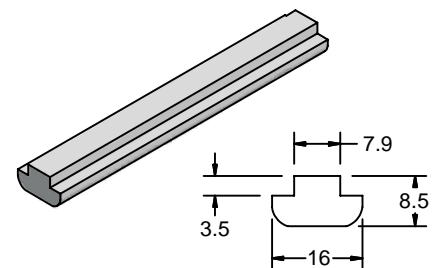
Steel

Max. tap hole: M8 (5/16")

Ordering Information



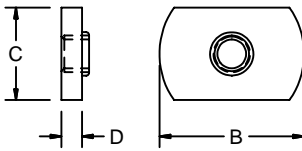
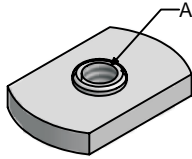
20-059



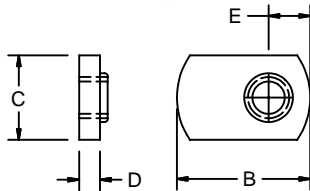
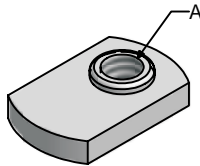
20-062
20-062L

Profile Series	Description	Unit	Weight (g)	Part #	Max Length (mm)
40, 30 and 1.5"	T-Slot Bar Heavy Duty	Each	420	20-062	500
	T-Slot Bar Heavy Duty	Each	1260	20-062L	1500
	T-Slot Bar Standard	Each	260	20-059	500

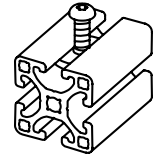
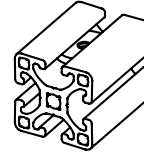
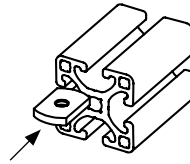
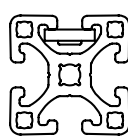
Economy Slide-In T-Nut



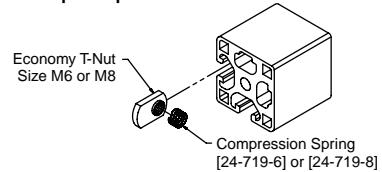
Standard



Offset



Economy T-nuts must be inserted from the ends of the profiles and slid to the desired location. A compression spring can be added to help keep the T-nut in location.



Application

Economical solution for fastening hardware or components to T-Slots. Economy T-Nuts slide into profile from the end to provide threaded hole for fastening. Available in standard or offset versions.

Technical Data

Metric T-Nuts: Steel, Clear Zinc Plated
 Imperial T-Nuts: Steel, Black Zinc Plated or Clear Zinc Plated
 Parts designated with "SS" are stainless steel.

Ordering Information

	Profile Series	Dimensions					Weight (g)	Part #
		A	B	C	D	E		
Standard	40, 1.5"	M6	25	16	3.6	-	10	20-080
		M8	25	16	3.6	-	10	20-081
		#10-32	22.5	11	2.4	-	5	20-088
		1/4-20	25	16	3.6	-	10	20-083 *
		5/16-18	25	16	3.6	-	10	20-082
	30, 28	M6	20.5	13	3.2	-	5	20-090
		M6	20.5	13	3.2	-	5	20-090SS
		M8	20.5	13	3.2	-	5	20-091
		1/4-20	20.5	13	3.2	-	5	20-093
		5/16-18	20.5	13	3.2	-	5	20-092
20	M5	16	9.6	2.4	-	5	20-085	
1"	#10-32	0.885"	0.440"	0.09"	-	5	20-088	
	1/4-20	1.00"	0.440"	0.09"	-	5	25-034	
Offset	40, 1.5"	M8	25	16	3.6	7.1	10	20-181
		#8-32	16	11	2.4	4.8	5	25-045
		1/4-20	20.5	13	3.2	6.4	5	20-193
		5/16-18	25	16	3.6	7.1	10	20-182
	30, 28	M6	20.5	13	3.2	6.4	5	20-190
		1/4-20	20.5	13	3.2	6.4	5	20-193
	1"	#8-32	0.885"	0.440"	0.09"	0.19"	5	25-045

Description

Compression Spring for Economy T-Slot Nuts M6

Weight

4 g

Part

24-719-6* *

Compression Spring for Economy T-Slot Nuts M8

4 g

24-719-8*

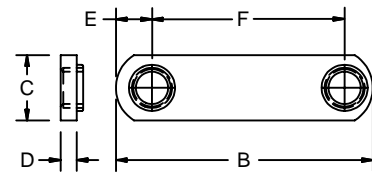
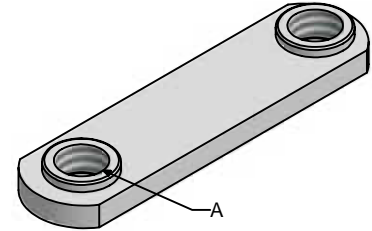
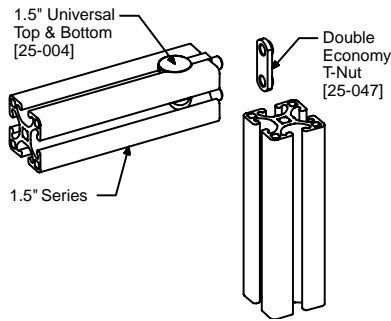
*Minimum order quantity = 100 pieces

T-Nuts

Double Economy Slide-In T-Nut

Application

Double Economy T-Nuts are an economical solution for fastening accessories, double universal fasteners and the primary T-Nut to a cross connection.



Technical Data

Steel, Black Zinc Plated

Ordering Information

Profile Series	Dimensions						Weight (g)	Part #
	A	B	C	D	E	F		
40, 1.5"	5/16-18	2.00"	0.51"	0.12"	0.22"	1.50"	20	25-046
		1.38"	0.51"	0.12"	0.25"	0.88"	13	25-047
	1/4-20	1.50"	0.51"	0.12"	0.25"	1.00"	15	25-048

25-046
25-047
25-048

Drop-In Z-Nut

Application

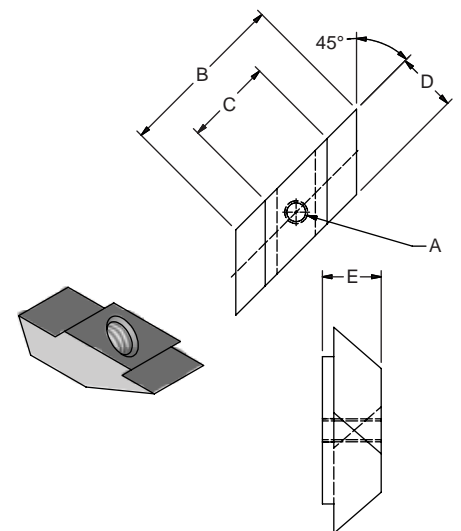
Universal mounting element that wedges into the profile when tightened. Can be inserted into the T-Slot at any position.

Technical Data

Zinc Cast, Galvanized

Ordering Information

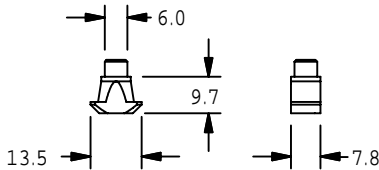
Profile Series	Dimensions					Weight (g)	Part #
	A	B	C	D	E		
40/1.5"	M3	22	11	8	7.7	5	20-033
	M4	22	11	8	7.7	5	20-034
	M5	22	11	8	7.7	5	20-035
30, 28	M3	22	11	8	6	5	20-036
	M4	22	11	8	6	5	20-037
	M5	22	11	8	6	5	20-038



Anodize Breaker

Application

Penetrates anodizing and provides ground continuity between 40, 30 and 1.5" Series profiles.



Technical Data

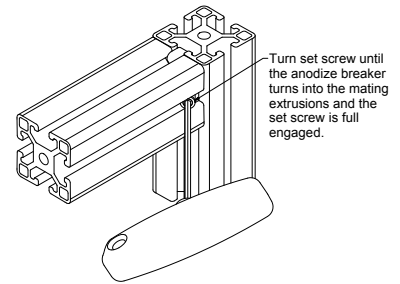
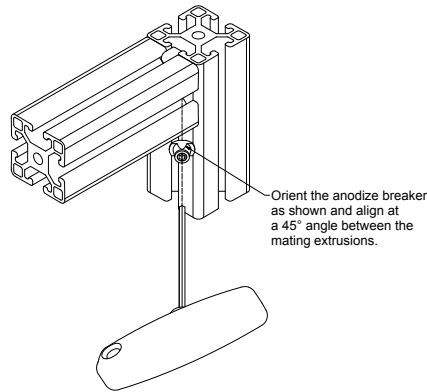
Steel, Galvanized

Dog point M6x12 set screw included.

Ordering Information

Description	Unit	Weight (g)	Part #
Anodize Breaker	Each	10	20-070

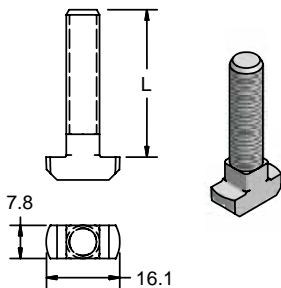
20-070



T-Bolt

Application

Threaded stud with T-Slot head for insertion into T-Slot of 40 and 1.5" Series profiles. These will only fit in the standard profile.

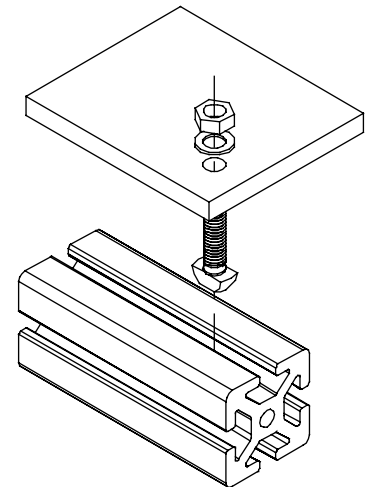


Technical Data

Steel, Zinc Plated

Ordering Information

Description (Thread x L)	Unit	Weight (g)	Part #
T-Bolt 40, M8x20	Each	1	24-420-8
T-Bolt 40, M8x25	Each	1	24-425-8
T-Bolt 40, M8x30	Each	2	24-430-8
T-Bolt 40, M8x40	Each	2	24-440-8



Nuts

Application

All profiles.

Technical Data

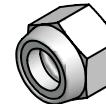
Steel, Zinc Plated

Ordering Information

Description	Unit	Weight (g)	Part #
M3 Hex Nut	Each	0.3	24-706-3
M4 Hex Nut	Each	0.5	24-706-4
M5 Hex Nut	Each	1	24-706-5
M6 Hex Nut	Each	2.5	24-706-6
M8 Hex Nut	Each	5	24-706-8
M10 Hex Nut	Each	11.6	24-706-10
M12 Hex Nut	Each	17.3	24-706-12
M14 Hex Nut	Each	25	24-706-14
M16 Hex Nut	Each	33	24-706-16
M6 Lock Nut	Each	3	24-716-6
M8 Lock Nut	Each	5	24-716-8
1/4-20 Hex Nut	Each	4.5	25-706-4
5/16-18 Hex Nut	Each	4.5	25-706-5
5/16-18 Lock Nut	Each	4.5	25-716-5



Hex Nut



Lock Nut

Washers

Application

All profiles.

Technical Data

Steel, Zinc Plated

Ordering Information

Description	Unit	Weight (g)	Part #
M4 Flat Washer	Each	0.1	24-700-4
M5 Flat Washer	Each	0.3	24-700-5
M6 Flat Washer	Each	0.4	24-700-6
M8 Flat Washer	Each	1	24-700-8
M6 Lock Washer	Each	6	24-707-6
M8 Lock Washer	Each	9	24-707-8
M10 Lock Washer	Each	11	24-707-10
M8 Rib Spring Washer	Each	6	24-718-8
M8 Safety Spring Washer	Each	6	24-709-8
M8 Spring Washer	Each	3	24-708-8
M10 Spring Washer	Each	6	24-708-10
0' size M8/Flat Washer	Each	6	24-701-8
5/8" OD M6 Flat Washer	Each	2	24-711-6
#10-32 Flat Washer	Each	2.8	25-700-2
1/4" Flat Washer	Each	2.8	25-700-4
5/16" Flat Washer	Each	2.8	25-700-5
5/16" Lock Washer	Each	2.8	25-707-5



Flat Washer



Lock Washer



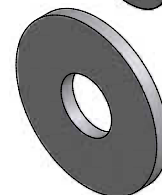
Rib Spring Washer



Safety Spring Washer

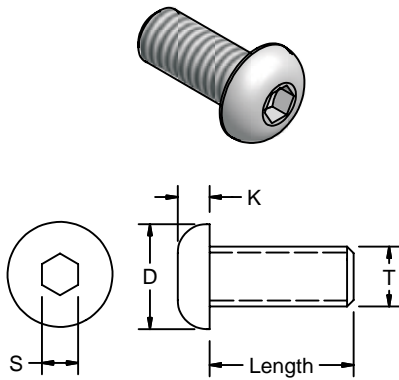


Spring Washer

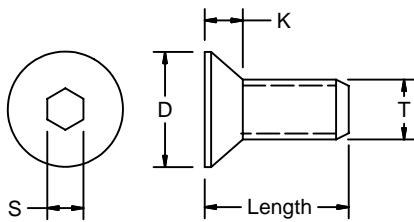
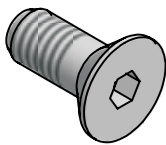


0' size M8/Flat Washer

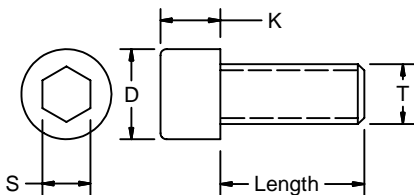
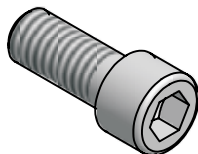
Metric Screws



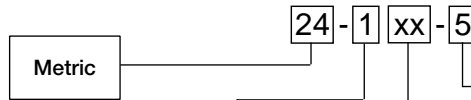
BUTTON HEAD



FLAT HEAD



SOCKET HEAD



Screw Type	Code
Button Head	1
Flat Head	2
Socket Head	3

Length
For stock lengths, see next page

Thread Type	Code
M3x.05	3
M4x0.7	4
M5x0.8	5
M6x1.0	6
M8x1.25	8
M10x1.5	10

Ordering Information

The stock part numbers are on the chart on the next page.

Note: Only screw items listed by part number on the following page are considered standard and are in stock. Non-stock items are special order with minimum quantity requirements.

Technical Data

Finish may vary. Stainless Steel is available on selected screws.

Order Quantities:

Order quantities are per screw. Contact customer service for box quantity and high volume orders.

Metric Screw Dimensions (mm)

Thread	Button Head			Flat Head			Socket Head		
	D*	K*	S	D*	K	S	D*	K*	S
M3	5.7	1.65	2	6	1.7	2	5.5	3	2.5
M4	7.6	2.2	2.5	8	2.3	2.5	7	4	3
M5	9.5	2.75	3	10	2.8	3	8.5	5	4
M6	10.5	3.3	4	12	3.3	4	10	6	5
M8	14	4.4	5	16	4.4	5	13	8	6
M10	17.5	5.5	6	20	5.5	6	16	10	8

*MAX size listed.

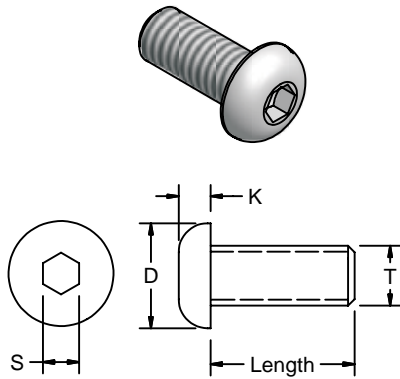
Screws

Metric Screw Quick Reference

	Length	M3x.05	M4x0.7	M5x0.8	M6x1.0	M8x1.25	M10x1.5
Button Head Screws	8			24-108-5 ♣	24-108-6 ♣		
	10	24-110-3	24-110-4	24-110-5 *	24-110-6 *	24-110-8 * ♣	
	12			24-112-5 * ♣	24-112-6 *	24-112-8 * ♣	
	14			24-114-5	24-114-6	24-114-8	
	16			24-116-5	24-116-6 * ♣	24-116-8 * ♣	
	18					24-118-8 * ♣	
	20			24-120-5 *	24-120-6 *	24-120-8 * ♣	24-120-10
	25			24-125-5	24-125-6 *	24-125-8 * ♣	24-125-10
	28					24-128-8	
	30			24-130-5	24-130-6 *	24-130-8	24-130-10
	35			24-135-5	24-135-6	24-135-8	
	40				24-140-6	24-140-8 *	24-140-10
	45			24-145-5		24-145-8	
	50					24-150-8	
	60				24-160-6	24-160-8	
80					24-180-8		
Flat Head Screws	8		24-208-4		24-208-6		
	10	24-210-3		24-210-5	24-210-6 *	24-210-8	
	12		24-212-4	24-212-5	24-212-6 *	24-212-8 *	
	14		24-214-4SS		24-214-6	24-214-8	
	16	24-216-3	24-216-4	24-216-5	24-216-6 * ♣	24-216-8 * ♣	
	18				24-218-6	24-218-8	
	20		24-220-4		24-220-6 *	24-220-8 *	
	25		24-225-4	24-225-5	24-225-6 *	24-225-8	
	30				24-230-6	24-230-8	
	35				24-235-6		
	45					24-245-8	
Socket Head Screws	8		24-308-4				
	10		24-310-4		24-310-6	24-310-8	
	12	24-312-3	24-312-4	24-312-5	24-312-6	24-312-8	
	14		24-314-4		24-314-6		
	16		24-316-4		24-316-6	24-316-8 *	
	18				24-318-6		
	20		24-320-4	24-320-5	24-320-6 *	24-320-8 *	
	25				24-325-6 *	24-325-8 *	
	27				24-327-6		
	30				24-330-6	24-330-8 ♣	
	33				24-333-6		
	35				24-335-6	24-335-8	
	40				24-340-6	24-340-8	
	45				24-345-6	24-345-8	
	50				24-350-6	24-350-8	
	80				24-380-6	24-380-8	
100					24-3100-8		
120				24-3120-6			

* These items are available in Stainless Steel. Add "SS" to the end of the Part #. These are only stock.

Imperial Screws



BUTTON HEAD

25-1XX-5

Imperial

Screw Type	Code
Button Head	1
Flat Head	2
Socket Head	3

Length
For stock lengths, see next page

Thread Type	Code
#8-32	1
#10-32	2
1/4-20	4
5/16-18	5
3/8-16	6
1/2-13	8

Ordering Information

The stock part numbers are on the next page.

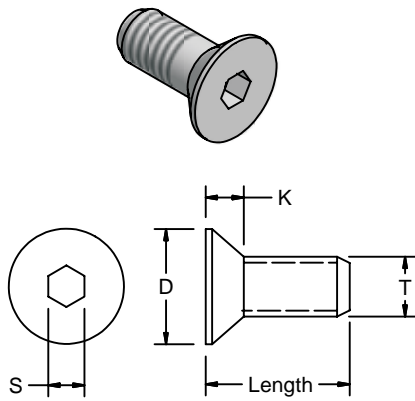
Note: Only screw items listed by part number on the following page are considered standard and are in stock. Non-stock items are special order with minimum quantity requirements.

Technical Data

Finish may vary. Stainless Steel is available on selected screws.

Order Quantities:

Order quantities are per screw. Contact customer service for box quantity and high volume orders.

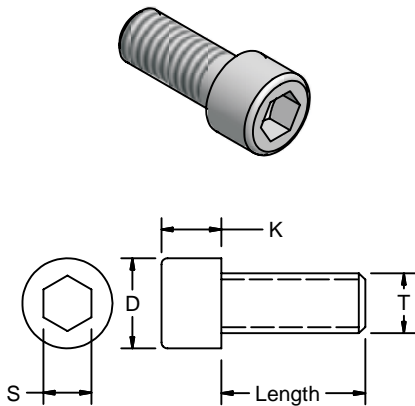


FLAT HEAD

Imperial Screw Dimensions (in)

Thread	Button Head			Flat Head			Socket Head		
	D*	K*	S	D*	K	S	D*	K*	S
#8-32	0.312	0.087	3/32	0.311	0.112	3/32	0.270	0.164	9/64
#10-32	0.361	0.101	1/8	0.359	0.127	1/8	0.312	0.190	5/32
1/4-20	0.437	0.132	5/32	0.480	0.161	5/32	0.375	0.250	3/16
5/16-18	0.547	0.166	3/16	0.600	0.198	3/16	0.469	0.312	1/4
3/8-16	0.656	0.199	7/32	0.720	0.234	7/32	0.562	0.375	5/16
1/2-13	0.875	0.265	5/16	0.872	0.251	5/16	0.750	0.500	3/8

*MAX size listed.



SOCKET HEAD

Imperial Screw Quick Reference

Type	Length	#8-32	#10-32	1/4-20	5/16-18	3/8-16
Button Head Screws	3/8"	25-106-1	25-106-2	25-106-4	25-106-5	
	1/2"		25-108-2	25-108-4	25-108-5	
	5/8"		25-110-2	25-110-4 ♦	25-110-5 ♦	
	3/4"		25-112-2	25-112-4	25-112-5 * ♦	
	7/8"			25-114-4	25-114-5	
	1"				25-116-5	
	1 1/8"				25-118-5	
	1 1/4"				25-120-5	25-120-6
	1 1/2"				25-124-5	
	1 3/4"				25-128-5	
Flat Head Screws	1/2"		25-208-2	25-208-4		
	5/8"			25-210-4	25-210-5	
	3/4"			25-212-4	25-212-5	
Socket Head Screws	1/2"	25-308-1			25-308-5	
	5/8"			25-310-4	25-310-5	
	3/4"			25-312-4	25-312-5	
	7/8"			25-314-4	25-314-5	
	1"			25-316-4	25-316-5	
	1 1/4"			25-320-4	25-320-5 ♦	
	1 3/4"				25-328-5	
	2"				25-332-5	

* These Items are available in Stainless Steel.
Add "SS" to the end of the part # for stainless steel.

Set Screws (Hexagon Socket)

Technical Data

Steel, Black Oxide

24-5xx-xC



24-5xx-xD



24-5xx-xF



24-508-8U

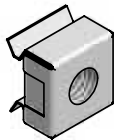


Ordering Information

Type	Description	Unit	Part #
Cone Point	M5 x 6	Each	24-506-5C
	M6 x 8	Each	24-508-6C
	M6 x 10	Each	24-510-6C
	M6 x 12	Each	24-512-6C
	M8 x 10	Each	24-510-8C
	M8 x 16	Each	24-516-8C
	1/4-20 x 3/8"	Each	25-506-4C
Dog Point	5/16-18 x 5/8"	Each	25-510-5C
	M6 x 12	Each	24-512-6D
Flat Point	M5 x 16	Each	24-516-5F
	M6 x 6	Each	24-506-6F *
	M6 x 12	Each	24-512-6F
	M6 x 16	Each	24-516-6F
	M10 x 25	Each	24-525-10F
Cup Point	M8 x 8	Each	24-508-8U
	1/4-20 x 5/8"	Each	25-510-4U

Fasteners

Clip Nuts



Application

Square nut with clip attachment for 19" Rack Angle. Nut snaps into square holes for attaching panels and accessories.

Technical Data

Steel, Zinc Plated

20-075
20-076
25-075
25-076

Ordering Information

Description	Unit	Weight (g)	Part #
Clip Nut M5	Each	4.5	20-075
Clip Nut M6	Each	4.5	20-076
Clip Nut #10-32	Each	4.5	25-075
Clip Nut 1/4-20	Each	4.5	25-076

T-Clips

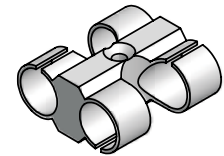
Application

Mounting element with two separate channels for fast, easy securing and routing of open wiring or tubing.

Technical Data

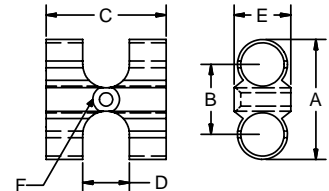
Glass-Filled Nylon, Black

Complete with screw and T-nut for 40 and 1.5 Series mounting.



Ordering Information

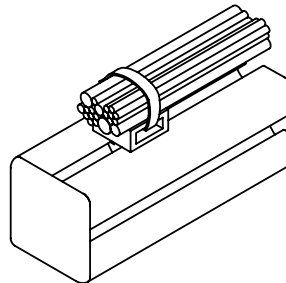
Range	Dimensions						Weight (g)	Part #
	A	B	C	D	E	F		
6-8	20	12	20	8	9	3	6	22-206
8-10	25	15	24	10	12	4	9	22-208
10-13	31	18	28	12	12	4	11	22-210
13-16	35	21	36	14	17	4	12	22-212
16-19	44	25	43	17	20	5	18	22-215



Cable Tie Holder

Application

Mounting element provides point for cable tie mounting. Suitable for use on 40, 30, 28, 1.5" and 1" Series profiles.



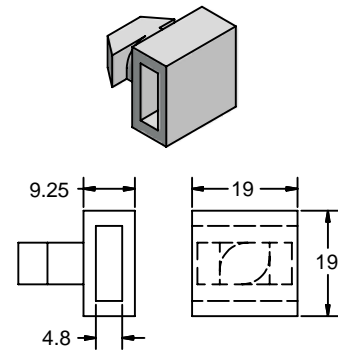
Technical Data

Glass-Filled Nylon, Black

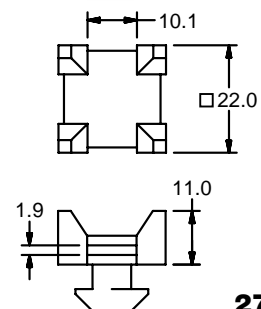
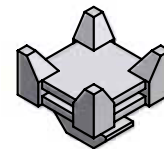
Insert into T-slot and twist 90°

Ordering Information

Description	Unit	Weight (g)	Part #
Cable Tie Holder, 40/1.5"	Each	4	22-202 ♦
Cable Tie Holder, 28/30	Each	4	22-201
Cross Cable Tie Holder, 40/1.5"	Each	4	27-202 ♦
Cross Cable Tie Holder, 1"	Each	4	27-203



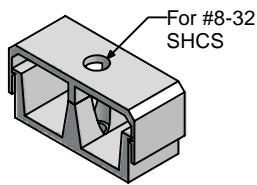
22-202
22-201



27-202
27-203

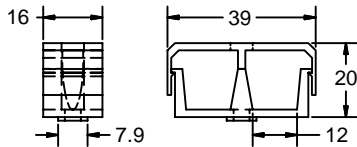
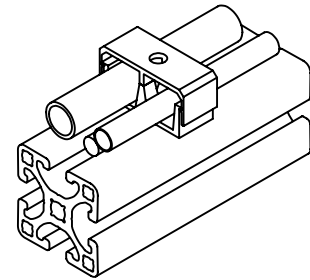
Cable/Hose Holder

Fasteners



Application

Mounting element with two separate channels for routing open wiring or tubing along the profile surface



Technical Data

Polypropylene, Black

Mounting screw and T-Nut included

12 mm maximum cable/hose diameter

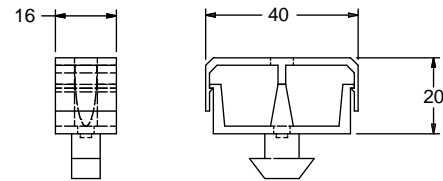
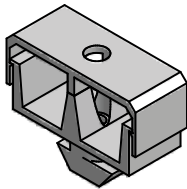
22-200
22-230

Ordering Information

Description

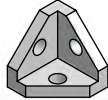
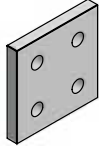


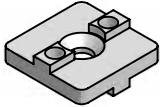


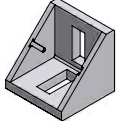
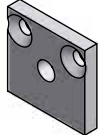


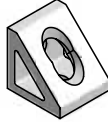
- Cable/Hose Holder, 40 Series
- Cable/Hose Holder, 1.5" Series
- Cable/Hose Holder (Qtr. Turn Style)

Unit	Weight (g)	Part #
Set	8	22-200
Set	8	22-230
Set	9	22-203



22-203

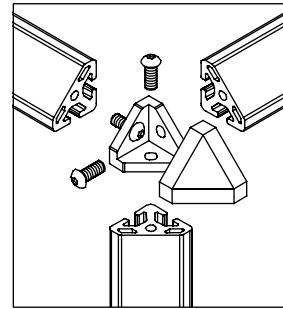
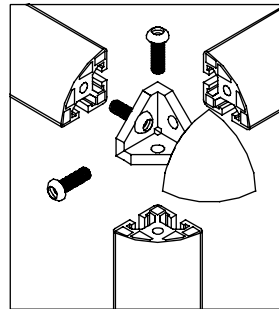
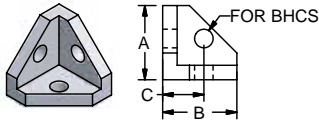
Section 3 Brackets, Gussets & Plates

Corner Brackets 103 	Joining Plates 107-108 
Corner Connectors 104 	Angle Brackets 109-110 
Cross Connector 105 	Machined Gussets 111 
Angle Connector 105 	Cast Gussets 112 
Mounting Plate 106 	Corner Elements 113 
Clamp Block 106 	Machined Corner Elements 114 

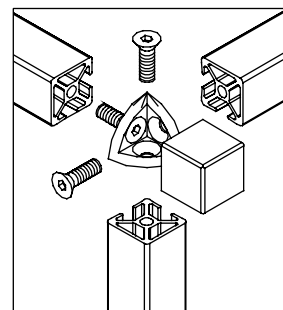
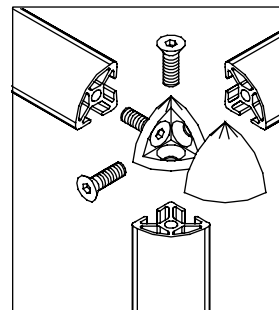
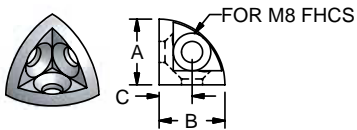
Corner Bracket

Brackets, Gussets & Plates

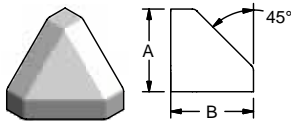
22-146
22-153



22-150



18-822



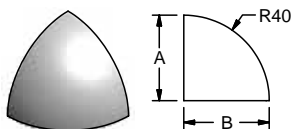
Application

Corner brackets are used for connecting 40, 30 and 1.5" Series profiles at right angles. Ideal for construction of display cases, tables, cover hoods or anywhere a protected corner is desired. Caps are designed to match the contour of the profile.

Technical Data

Bracket: Die Cast Zinc
 End Cap: Glass-Filled Nylon, Black
 Profile Series 40 and 30: Tap Profile Ends M8 (19-010)
 Profile Series 1.5": Tap Profile Ends (5/16-18) (19-009)
All fasteners included.

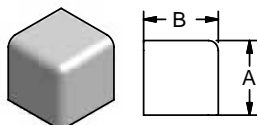
18-821
22-151
22-154



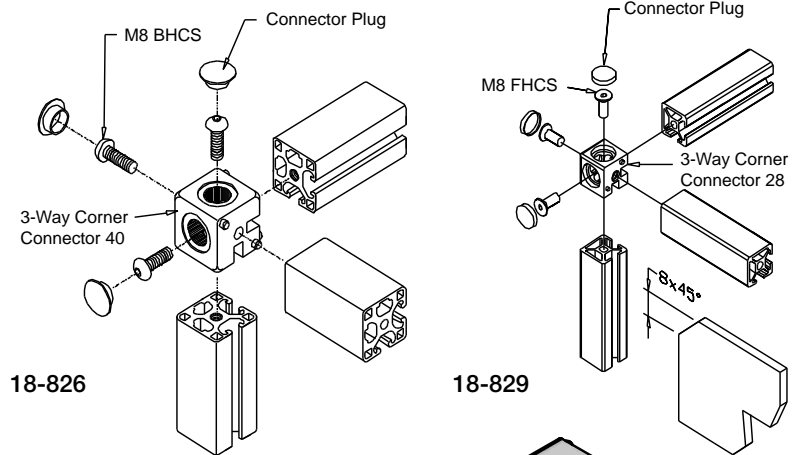
Ordering Information

Series	Description	A	B	C	Unit	Wt (g)	Part #
40	Corner Bracket	36	36	20	Set	120	22-146
	Radius Connector Cap	40	40	—	Each	8	18-821
	3x45° Connector Cap	40	40	—	Each	9	18-822
	Square Connector Cap	40	40	—	Each	15	18-842
30	Corner Bracket	28	28	15	Set	69	22-150
	Radius Connector Cap	30	30	—	Each	4	22-151
	Square Connector Cap	30	30	—	Each	7	22-152
1.5"	Corner Bracket	1.5"	1.5"	0.75"	Set	120	22-153
	Radius Connector Cap	1.5"	1.5"	—	Each	8	22-154

18-842
22-152



Corner Connector



Application

Corner connectors are ideal for use with slotted profiles. Suitable for clean room environments, some include access plugs to cover hardware.

Recommended Fasteners (Order Separately)

Series	2-Way	3-Way
40	(2) 24-225-8	(3) 24-225-8
30	(2) 24-216-8	(3) 24-216-8
28	—	(3) 24-216-8
20	(2) 24-212-5	(3) 24-212-5
1.5"	(2) 25-116-5	(3) 25-116-5
1"	(2) 25-212-4	(3) 25-212-4

Technical Data

40 Series

Block: Die-Cast Aluminum, Silver Paint
 Plug: Nylon

28 Series

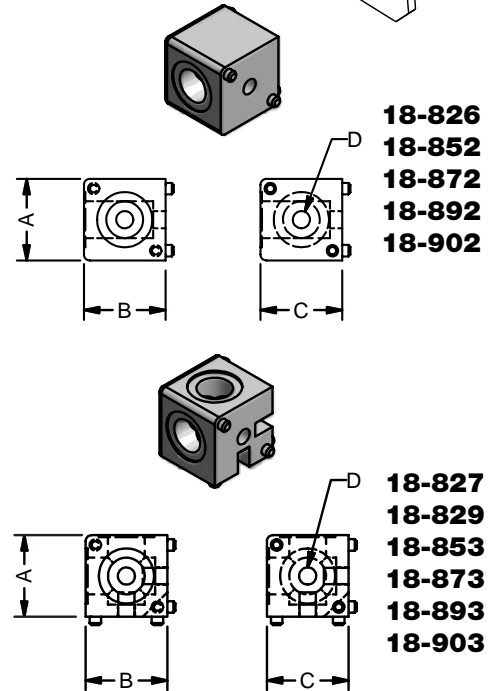
Block: Aluminum, Black Anodized
 Plug: Acetal (Delrin)

20, 1" and 1.5" Series

Block: Die-Cast Aluminum, Silver Paint
 Plug: Nylon

Profile ends must be tapped for screws.

Hardware not included.



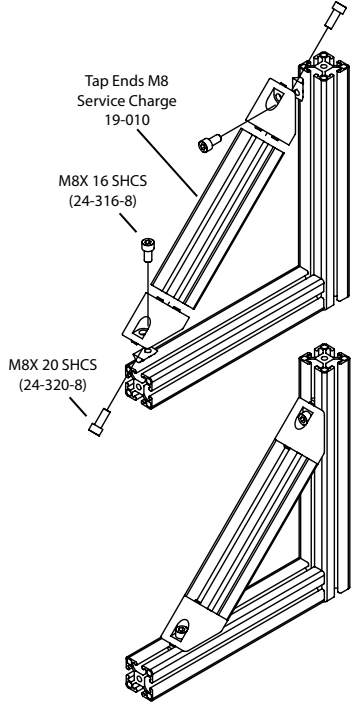
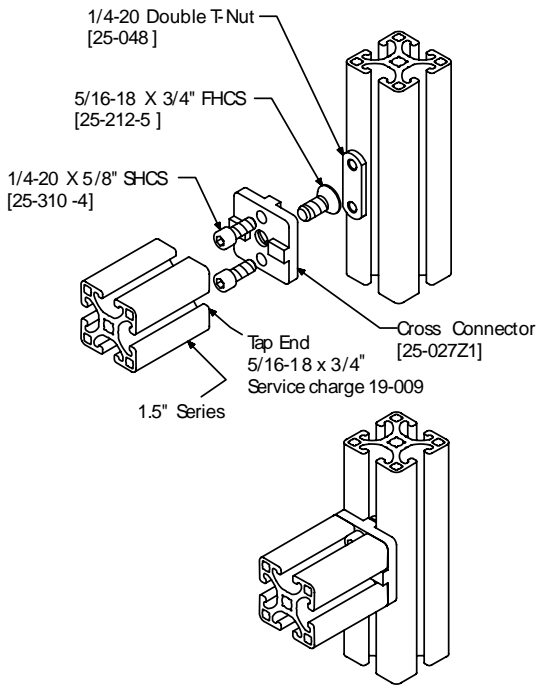
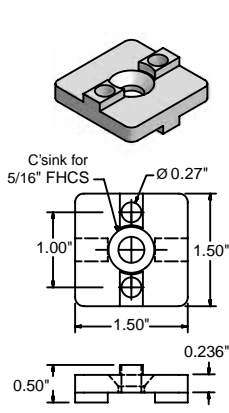
Ordering Information

Series	Description	A	B	C	D	Unit	Weight (g)	Part #	Service Charge
40	2-Way	40	40	40	M8 BHCS	Set	26	18-826	19-010
	3-Way	40	40	40	M8 BHCS	Set	26	18-827	19-010
30	2-Way	30	30	30	M8 FHCS	Set	47	18-902	19-010
	3-Way	30	30	30	M8 FHCS	Set	47	18-903	19-010
28	3-Way	28	28	28	M8 FHCS	Set	25	18-829	19-010
	Access Plug	—	—	—	—	Each	1	18-712	—
20	2-Way	20	20	20	M5 BHCS	Set	13	18-852	19-005
	3-Way	20	20	20	M5 BHCS	Set	10	18-853	19-005
1.5"	2-Way	1.5"	1.5"	1.5"	5/16-18 BHCS	Set	105	18-892	19-009
	3-Way	1.5"	1.5"	1.5"	5/16-18 BHCS	Set	91	18-893	19-009
1"	2-Way	1"	1"	1"	1/4-20 BHCS	Set	30	18-872	19-008
	3-Way	1"	1"	1"	1/4-20 BHCS	Set	26	18-873	19-008

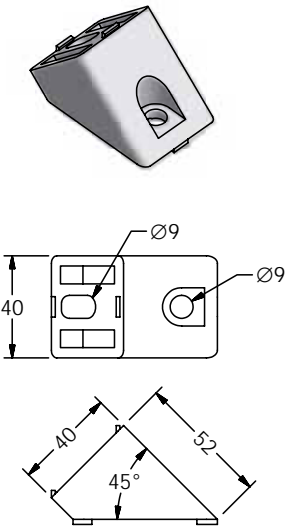
Profile Connectors

Brackets, Gussets & Plates

25-027



27-600



Application

The cross connector and angle connector are bracket style connectors that allow you to connect 40 or 1.5" Series profiles together with minimal servicing. You can cut the profile to length, tap one end of the profile and be able to join two pieces of profile together.

Technical Data

25-027
 Zinc Cast, Clear Zinc Plated
All fasteners included. To order plate only, add Z1 at end of part number.
27-600
 Zinc Cast, Clear Paint

Recommended Fasteners (Order Separately)

Part #	Series	Screws	T-Nut	Service Charge
27-600	40	24-320-8 24-316-8	20-058	19-010
	1.5"	25-312-5 25-310-5	25-002	19-009

Ordering Information

Series	Description	Unit	Weight (g)	Part #
40/1.5"	Cross Connector, Double Tab	Each	55	25-027
40/1.5"	Angle Connector, 45°	Each	200	27-600

For Machining M8 Tap, use part number 19-010 for each profile end.
 For machining 5/16-18 Tap, use part number 19-009 for each profile end.

Mounting Plate

Application

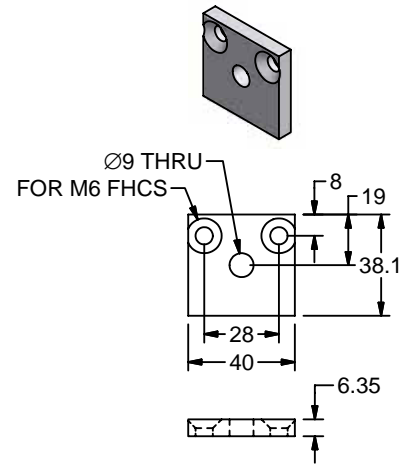
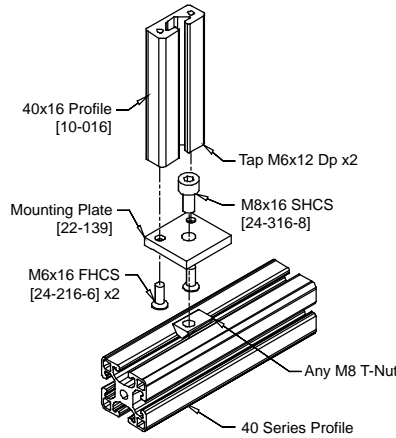
Designed to mount 16x40 profile (10-016) at 90° angle to any 40 Series profile.

Technical Data

Aluminum, Clear Anodized

Recommended Fasteners (Order Separately)

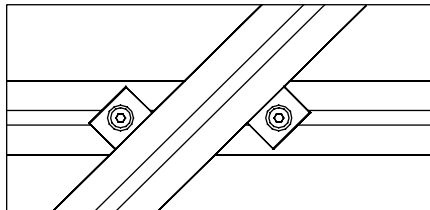
Screw	(1) 24-316-8
T-Nut	(1) 20-058
Screw	(2) 24-216-6



22-139

Ordering Information

Series	Description	Unit	Weight (g)	Part #
40	Mounting Plate for 16x40 profile	Each	19	22-139



Application

Cost effective connection of 40 Series profiles stacked at intersecting angles. Not recommended for linear applications. Use in pairs to accomplish proper clamping.

Ordering Information

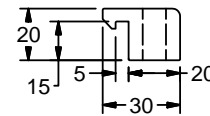
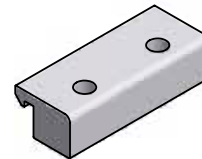
Series	Description	Unit	Weight (g)	Part #
40	Clamp Block 1	Each	30	20-018-1
	Clamp Block 2	Each	60	20-018-2

Technical Data

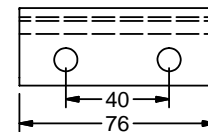
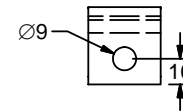
Aluminum, Clear Anodized

Recommended Fasteners (Order Separately)

Screw	T-Nut
24-130-8	20-064

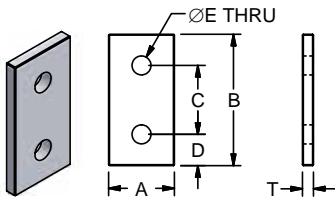


20-018-1
20-018-2

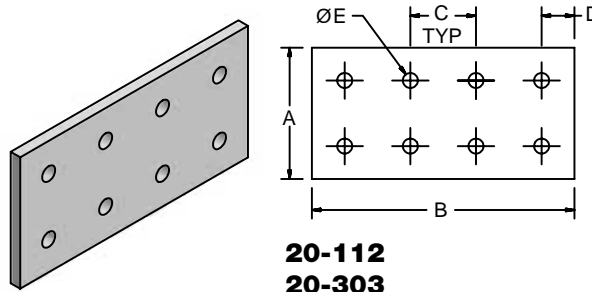


Straight

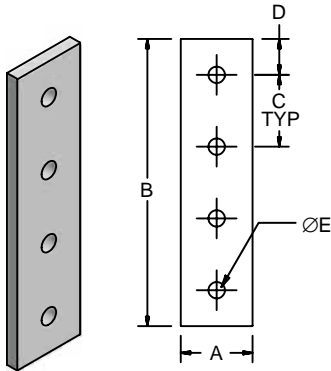
**Brackets,
Gussets
& Plates**



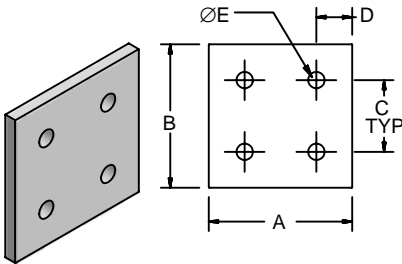
20-117
20-300, 20-310
22-140, 22-145



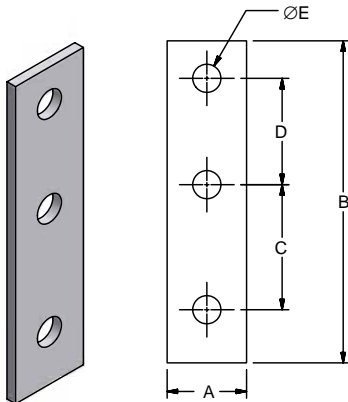
20-112
20-303
20-313



20-108
20-301, 20-311



20-111
20-118
20-302, 20-312



20-104

Application

Exterior joining plates for fastening profiles without servicing. Can also be used for additional strength on joints with fasteners.

Technical Data

Aluminum, Anodized

Recommended Fasteners (Order Separately)

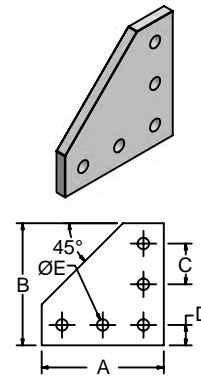
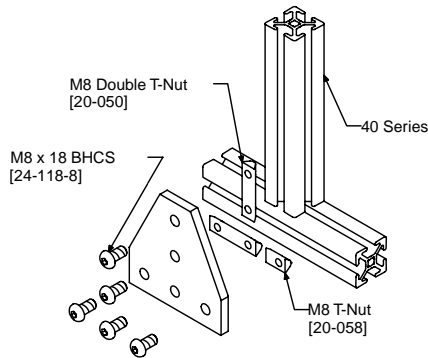
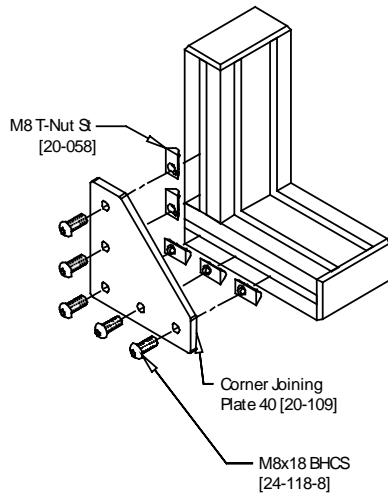
Series	Screws	T-Nuts	Double T-Nut (if applicable)
40	24-118-8	20-058	20-050
30	24-110-8	20-058	20-050
28	24-110-8	20-057	—
20	24-108-5	20-045	—
1.5"	25-110-5	25-002	25-041
1"	25-108-4	25-031	—

Ordering Information

Series	A	B	C	D	E	T	Unit	Wgt (g)	Part #
40	38	76	40	18	9	6.4	Each	40	22-140
	34	152	40	17	9	6.4	Each	86	20-108
	76	76	40	17	9	6.4	Each	90	20-111
	76	152	40	17	9	6.4	Each	188	20-112
30/28	25	54	28	13	9	3.2	Each	33	22-145
	25	103	40	34	9	3.2	Each	20	20-104
20	19	38	20	9	5.5	3.0	Each	7	20-117
	38	38	20	9	5.5	3.0	Each	11	20-118

Series	A	B	C	D	E	T	Unit	Wgt (g)	Part #
1.5"	1.50"	3.00"	1.50"	0.75"	0.34"	0.25"	Each	45	20-300
	1.50"	6.00"	1.50"	0.75"	0.34"	0.25"	Each	90	20-301
	3.00"	3.00"	1.50"	0.75"	0.34"	0.25"	Each	95	20-302
	3.00"	6.00"	1.50"	0.75"	0.34"	0.25"	Each	195	20-303
1"	1.00"	2.00"	1.00"	0.50"	0.28"	0.25"	Each	18	20-310
	1.00"	4.00"	1.00"	0.50"	0.28"	0.25"	Each	36	20-311
	2.00"	2.00"	1.00"	0.50"	0.28"	0.25"	Each	36	20-312
	2.00"	4.00"	1.00"	0.50"	0.28"	0.25"	Each	68	20-313

Corner & "T"



20-105
20-109
20-304
20-314

Application

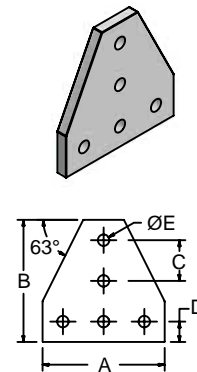
Exterior joining plates for fastening profiles without servicing. Can also be used for additional strength on joints with fasteners.

Technical Data

Aluminum, Anodized

Recommended Fasteners (Order Separately)

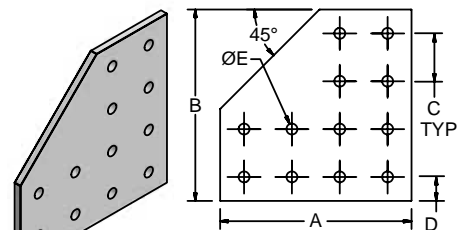
Series	Screws	T-Nuts	Double T-Nut (if applicable)
40	24-118-8	20-058	20-050
30	24-110-8	20-058	20-050
28	24-110-8	20-057	—
1.5"	25-110-5	25-002	25-041
1"	25-108-4	25-031	—



20-106
20-110
20-305
20-315

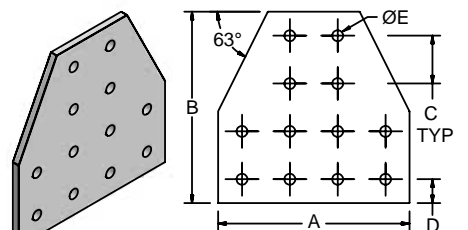
Ordering Information

Series	A	B	C	D	E	T	Unit	Weight (g)	Part #
40	114	114	40	17	9	6.4	Each	163	20-109
	114	114	40	17	9	6.4	Each	163	20-110
	154	154	40	17	9	6.4	Each	341	20-113
	154	154	40	17	9	6.4	Each	341	20-114
30/28	80	80	28	12	9	3.2	Each	39	20-105
	80	80	28	12	9	3.2	Each	39	20-106



20-113
20-306

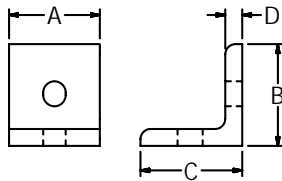
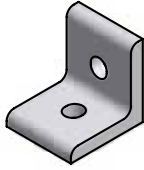
Series	A	B	C	D	E	T	Unit	Weight (g)	Part #
1.5"	4.50"	4.50"	1.50"	0.75"	0.34"	0.25"	Each	173	20-304
	4.50"	4.50"	1.50"	0.75"	0.34"	0.25"	Each	173	20-305
	6.00"	6.00"	1.50"	0.75"	0.34"	0.25"	Each	359	20-306
	6.00"	6.00"	1.50"	0.75"	0.34"	0.25"	Each	359	20-307
1"	3.00"	3.00"	1.00"	0.50"	0.28"	0.25"	Each	41	20-314
	3.00"	3.00"	1.00"	0.50"	0.28"	0.25"	Each	41	20-315



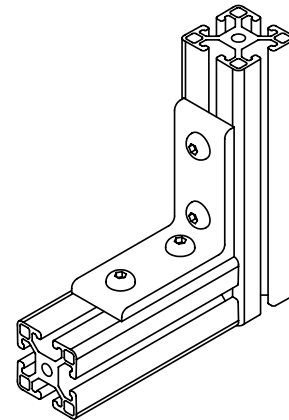
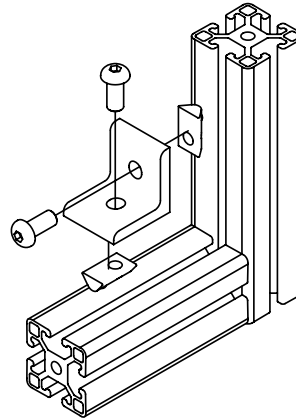
20-114
20-307

Angle Brackets

Brackets, Gussets & Plates



28-600
28-601
28-602



Application

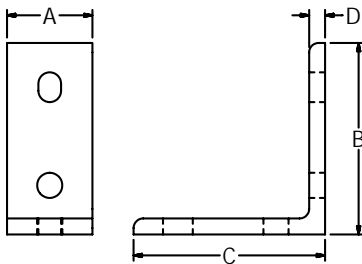
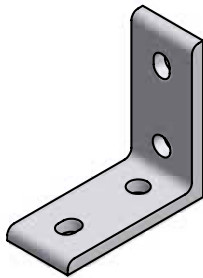
Angle Brackets are used to fasten profiles together without any machining. Although it does not provide as solid a joint as other fastening methods, it allows flexibility for positioning and joining of profiles with no servicing.

Technical Data

Aluminum, Clear Anodized

Recommended Fasteners (Order Separately)

Series	Screws	T-Nuts	Double T-Nut (if applicable)
40	24-118-8	20-058	20-050
30	24-112-8	20-058	—
28	24-110-8	20-057	—
20	24-108-5	20-045	—
1.5"	25-110-5	25-002	25-041
1"	25-106-2	25-030	—



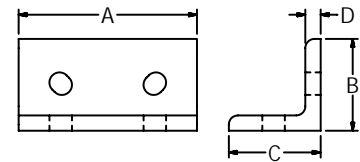
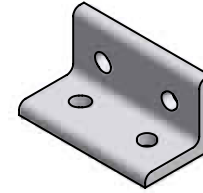
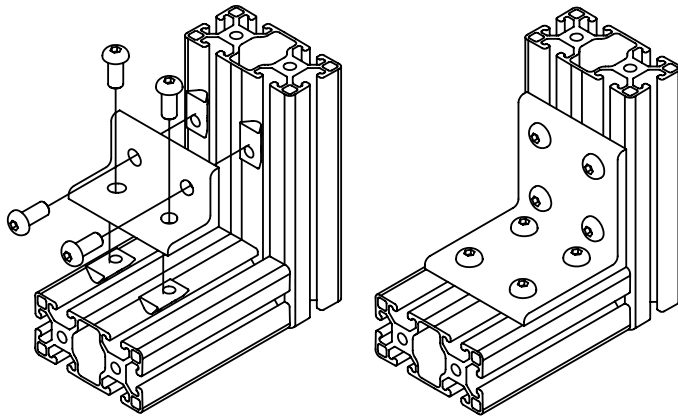
28-605
28-606

Ordering Information

Series	A	B	C	D	Weight (g)	Part #
40	34	38.1	38.1	6.4	38	28-602
	34	76.2	76.2	6.4	79	28-606
30/28	25	25.4	25.4	3.2	9	28-601
	25	57.2	57.2	3.2	21	28-605
20	15.9	19.1	19.1	3.2	4	28-600

Series	A	B	C	D	Weight (g)	Part #
1.5"	1.34"	1.50"	1.50"	0.25"	38	28-602
	1.34"	3.00"	3.00"	0.25"	79	28-606
1"	0.63"	0.75"	0.75"	0.13"	4	28-600

Angle Brackets



Application

Angle Brackets are used to fasten profiles together without any machining. Although it does not provide as solid a joint as other fastening methods, it allows flexibility for positioning and joining of profiles with no servicing.

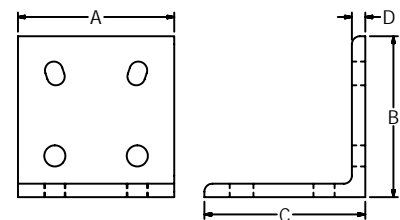
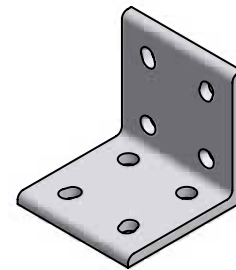
Technical Data

Aluminum, Clear Anodized

20-116
28-603
28-604

Recommended Fasteners (Order Separately)

Series	Screws	T-Nuts	Double T-Nut (if applicable)
40	24-118-8	20-058	20-050
30	24-112-8	20-058	—
28	24-110-8	20-057	—
20	24-108-5	20-045	—
1.5"	25-110-5	25-002	25-041
1"	25-106-2	25-030	—



28-607
28-608

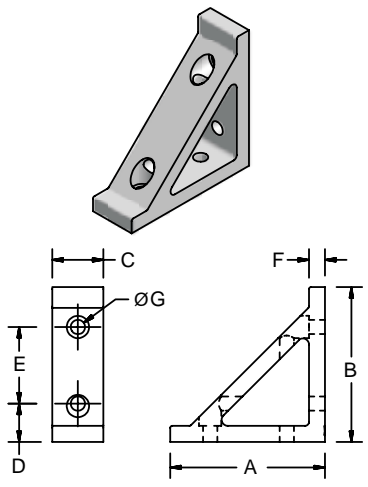
Ordering Information

Series	A	B	C	D	Weight (g)	Part #
40	74	38.1	38.1	6.4	84	28-604
	74	76.2	76.2	6.4	174	28-608
30/28	50.8	25.4	25.4	3.2	18	28-603
	53	57.2	57.2	3.2	45	28-607
20	36	19.1	19.1	3.2	10	20-116

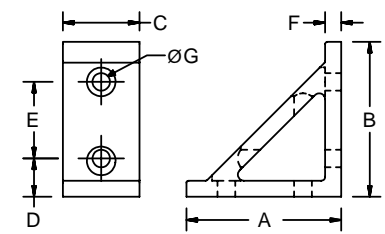
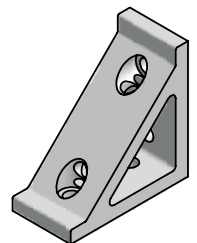
Series	A	B	C	D	Weight (g)	Part #
1.5"	2.91"	1.50"	1.50"	0.25"	84	28-604
	2.91"	3.00"	3.00"	0.25"	174	28-608
1"	2.00"	1.00"	1.00"	0.13"	18	28-603

Machined Gussets

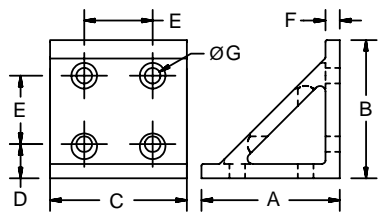
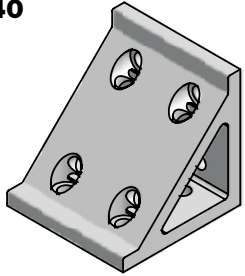
Brackets, Gussets & Plates



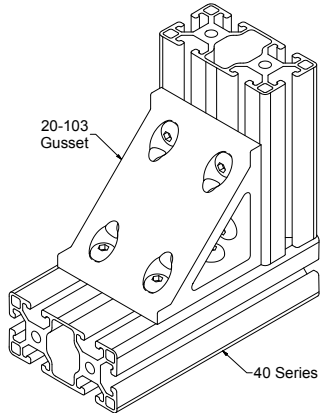
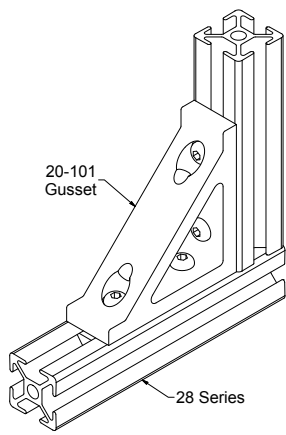
20-101
20-442



20-102
20-440



20-103
20-441



Application

Provide a high-strength connection between profiles. Gussets are used to attach profiles at 90° angles without additional profiles. Can be added to joints with fasteners to increase strength or ensure accurate right angles.

Technical Data

Aluminum, Clear Anodized

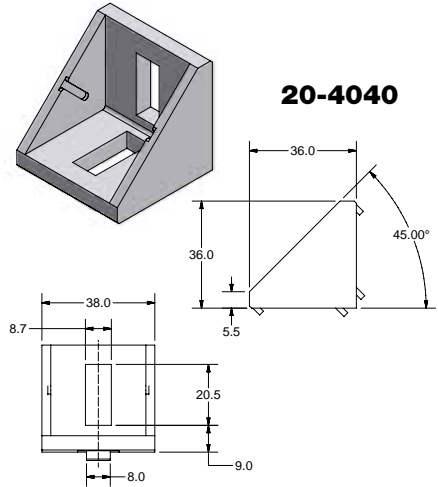
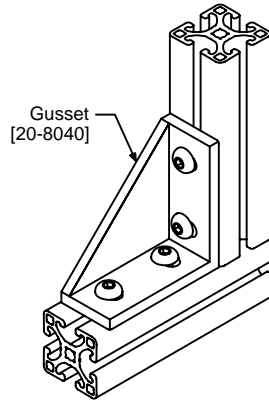
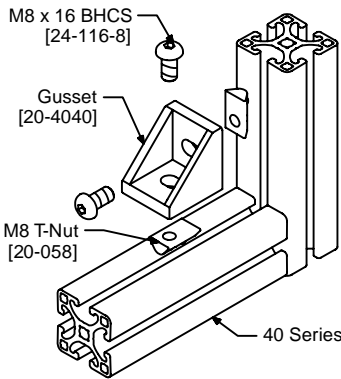
Recommended Fasteners (Order Separately)

Series	Screws	T-Nuts	Double T-Nuts
40	24-118-8	20-058	20-050
30	24-116-6	20-056	—
28	24-116-6	20-055	—
1.5"	25-112-5	25-002	—
1"	25-110-4	25-031	—

Ordering Information

Series	A	B	C	D	E	F	G	Wgt (g)	Part #
40	77	77	34	20	40	8	9	140	20-102
	77	77	74	20	40	8	9	310	20-103
30/28	77	77	25.4	20	40	8	7	110	20-101
1.5"	3.03"	3.03"	1.25"	0.75"	1.50"	0.32"	0.34"	140	20-440
	3.03"	3.03"	2.75"	0.75"	1.50"	0.32"	0.34"	310	20-441
1"	3.03"	3.03"	0.875"	0.75"	1.50"	0.32"	0.28"	110	20-442

Cast Gussets



Application

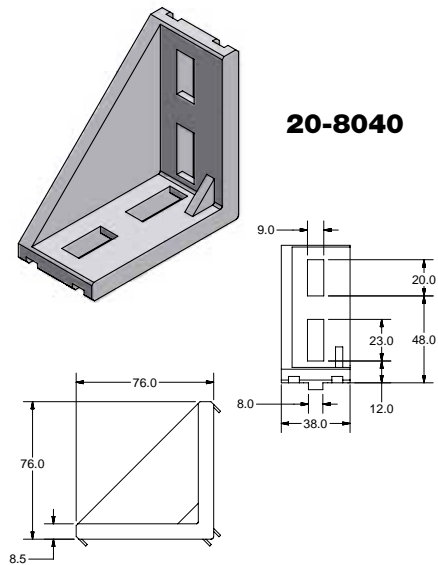
Provide a high-strength, right-angle connection between two profiles. These gussets can only be used for right angle connections in-line with T-slots as shown. Cast tabs help align the gussets in the center of the profile.

Technical Data

Die-Cast Aluminum

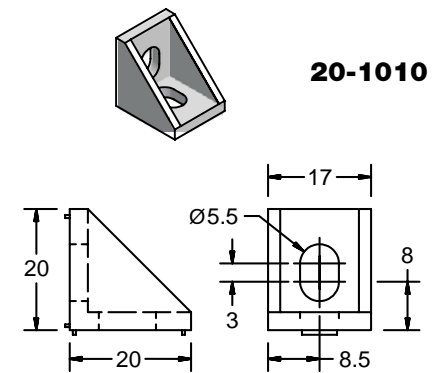
Recommended Fasteners (Order Separately)

Series	Screws	T-Nuts
40	24-116-8	20-058
1"	25-106-2	25-030
1.5"	25-112-5	25-002



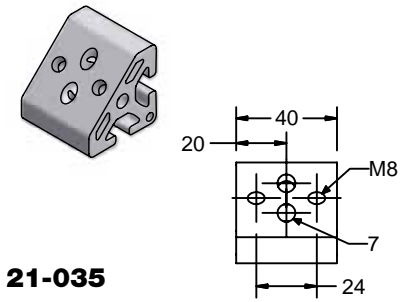
Ordering Information

Description	Unit	Weight (g)	Part #
Gusset 40	Each	59	20-4040 ♣
Gusset 40x80	Each	136	20-8040 ♣
Gusset 1"	Each	36	20-1010

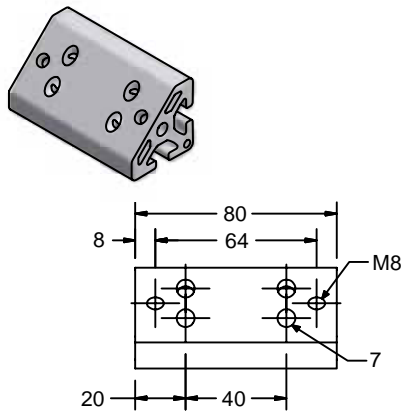
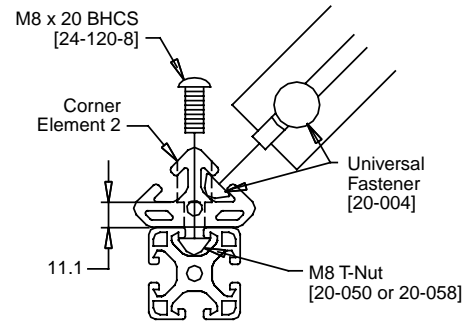
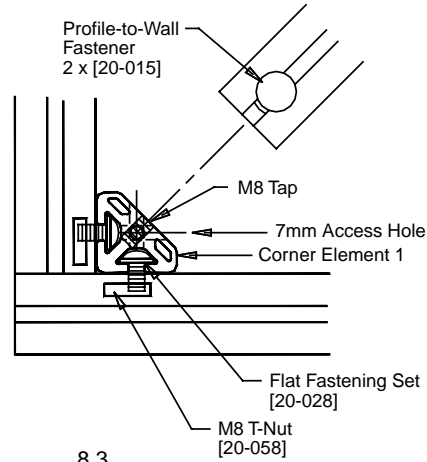


Corner Elements

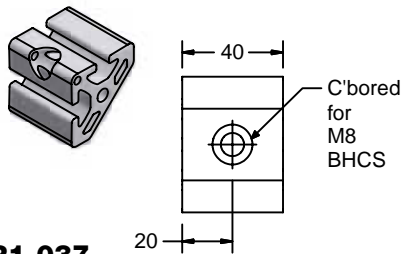
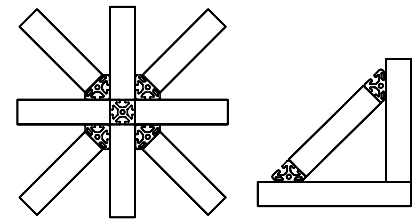
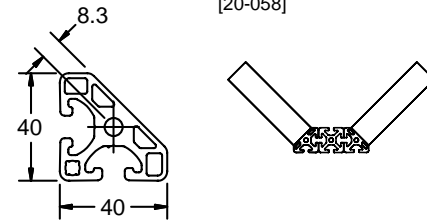
Brackets, Gussets & Plates



21-035



21-036



21-037

Application

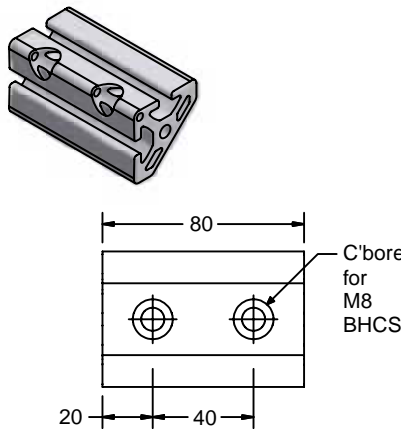
Designed for attaching profiles at 45°. Ideal for trusses, bracing and supports.

Technical Data

Aluminum, Clear Anodized

Ordering Information

Series	Description	Unit	Weight (g)	Part #
40	Corner Element 1, 40	Each	71	21-035
	Corner Element 1, 80	Each	45	21-036
	Corner Element 2, 40	Each	67	21-037
	Corner Element 2, 80	Each	133	21-038
	End Cap 40 x 40-45°	Each	6	18-820

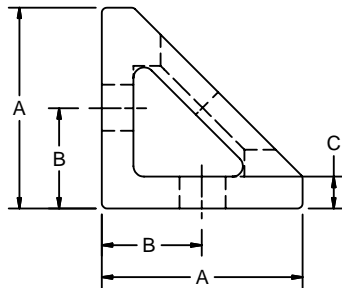
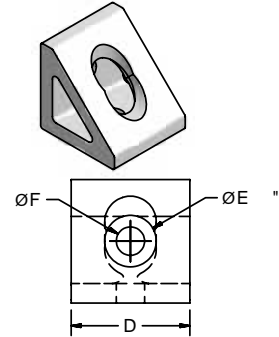
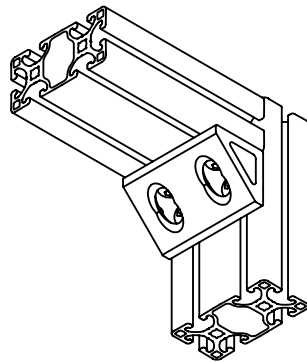
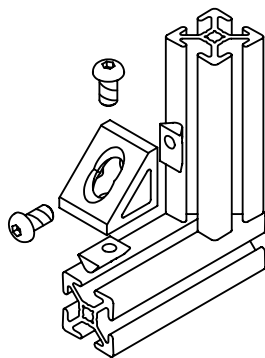


21-038

Recommended Fasteners (Order Separately)

Part Number	Screw	T-Nuts	Washer
21-035	(2) 20-028	(2) 20-058	—
21-036	(4) 20-028	(4) 20-058	—
21-037	(1) 24-120-8	(1) 20-058	(1) 24-707-8
21-038	(2) 24-120-8	(2) 20-058	(2) 24-707-8

Machined Corner Elements



20-2828M
20-4040M
20-506
20-508

Application

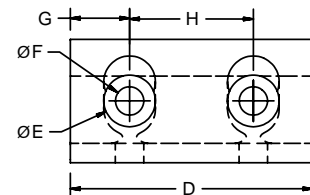
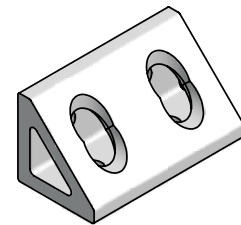
These corner brackets provide a high strength, accurate right angle connection between two profiles, while providing a low profile, aesthetically pleasing look.

Technical Data

Aluminum, Clear Anodized

Recommended Fasteners (Order Separately)

Series	Screws	T-Nuts	Double T-Nuts (if applicable)
40	24-116-8	20-058	20-050
28	24-112-6	20-055	—
1.5"	25-110-5	25-002	25-041
1"	25-106-4	25-031	—



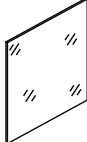

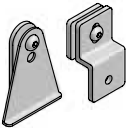
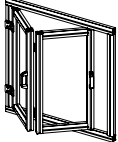

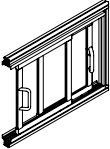


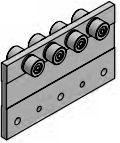
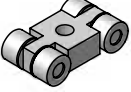
20-2856M
20-4080M
20-507
20-509

Ordering Information

Series	A	B	C	D	E	F	G	H	Wt. (g)	Part #
40	38	20	6	35	15	8.5	—	—	64	20-4040M
	38	20	6	75	15	8.5	17.5	40	136	20-4080M
28	27	14	5	25	11	7	—	—	23	20-2828M
	27	14	5	53	11	7	12.5	28	50	20-2856M
1.5"	1.496"	0.75"	0.177"	1.25"	0.63"	0.34"	—	—	64	20-508
	1.496"	0.75"	0.177"	2.75"	0.63"	0.34"	0.72"	1.50"	136	20-509
1"	1.000"	0.50"	0.236"	0.88"	0.44"	0.28"	—	—	23	20-506
	1.000"	0.50"	0.236"	1.88"	0.44"	0.28"	0.47"	1.00"	50	20-507

Contents

Section 4 Panels & Doors

Panels Wire Mesh	117-118 118		Panel Mounting Blocks	119-122		Wire Mesh Retainers	123-124		Bifold Door	125-126		Sliding Door Set Sliding Door Guide	127 128		Rolling Door Guide	130		Rollers	131-132	Roller Insert	133	Rail Carts	134	Roller Carts	134				
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Panels & Doors

Panel Selection Guide

Panel Type	Recommended Use					Opacity		Cost		
	Vertical, Non-Structural	Vertical, Structural	Horizontal, Non-Structural	Shelving, No Load	Shelving, Load Supporting	Transparent or See Through	Opaque	Low	Medium	High
Polycarbonate	✓		✓	✓		✓			✓	
Wire Mesh	✓		✓			✓		✓		
TRESPA®	✓ ¹	✓	✓ ¹	✓ ¹	✓		✓			✓
Expanded PVC	✓		✓				✓	✓		
Aluminum Veneer	✓	✓		✓	✓		✓		✓	

¹ Ask us about even more options.

As a standard, all panel part numbers end with “P” and will be shipped as a full sheet. To order a cut to length panel, remove the “P” from the standard part number and specify length and width.

Panel Materials

Polycarbonate High-impact resistant polycarbonate panels provide clarity, safety, security and energy savings. Meets every industry standard for general purpose window glazing. Clear or light smoked.

Wire Mesh Wire mesh provides a high level of security and can be used for safety guarding and enclosures. PVC coating provides a smooth, snag-free surface that is extremely rust and corrosion resistant.

TRESPA® TRESPA® is a solid grade decorative building panel, suitable for horizontal surfaces and vertical panels. Resistant to scratches, corrosives and solvents. Can be drilled and tapped.

Expanded PVC Light duty colored panel material, primarily for use vertically. Can also be used as light duty shelving material.

Aluminum on Veneer These panels have a very high strength to weight ratio. The panels have clear anodized aluminum skins each side with a high density hardboard core. These panels can be used in both horizontal and vertical applications.

Special Items Special panel materials including color selection of stock material are available. IPS capabilities include custom machining of steel and aluminum panels for use in fixtures, machine bases and assemblies.

Contact your local representative or an IPS Application Engineer to review special requirements.

Special item availability includes:

- Machined Steel and Aluminum Surfaces
- Welding Curtains
- Decorative Panels
- Glass and Clear Plastic Composites
- Perforated Metal Decking
- Sound Insulating Panels
- Wood and Laminate Panels

Panels

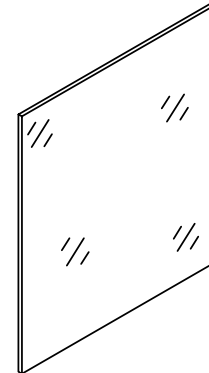
Polycarbonate Panels

Application

High-impact resistant polycarbonate panels provide clarity, safety, security and energy savings. Meets every industry standard for general-purpose window glazing.

Technical Data

Polycarbonate, Clear or Light Smoked
 UL Listed
 Maximum Size:
 1219.2 x 2438.4mm (4' x 8')



Ordering Information

Description	Unit	Weight	Part #
3mm Polycarbonate – Clear	m ²	3.60 kg/m ²	26-790-3P
6mm Polycarbonate – Clear	m ²	7.62 kg/m ²	26-790-6P
6mm Polycarbonate – Light Smoked	m ²	7.62 kg/m ²	26-795-6P

Call for other shades and thicknesses.

Panels & Doors

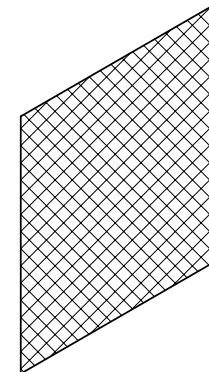
Wire Mesh

Application

Wire mesh provides a high level of security and can be used for safety guarding and enclosures. Provides a smooth, snag-free surface that is extremely rust and corrosion resistant.

Technical Data

Flat Welded Steel Wire with Fuse-Bonded PVC Coating.
 Maximum Size:
 1219.2 x 2438.4mm (4' x 8')



Ordering Information

Description	Wire Gage	Unit	Weight	Part #
1/2" x 1/2" Black	16	m ²	2.89 kg/m ²	26-210-05P
1" x 1" Black	12	m ²	4.17 kg/m ²	26-210-10P
1" x 1" Yellow	12	m ²	4.17 kg/m ²	26-250-10P
1½" x 1½" Black	12	m ²	2.98 kg/m ²	26-210-15P
2" x 2" Black	12	m ²	1.92 kg/m ²	26-210-20P

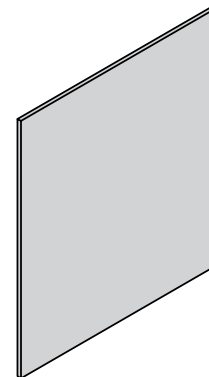
Application

TRESPA® is a solid grade decorative building panel, suitable for horizontal surfaces and vertical panels. Resistant to scratches, corrosives and solvents. Can be cut, drilled and milled. Suitable for doors, shelves and enclosures.

Technical Data

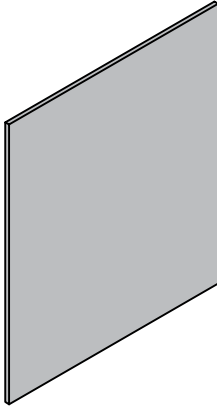
Thermosetting Resins, Homogeneously Reinforced with Cellulose Fibers.
 Non-toxic, asbestos free, has good fire retarding characteristics. Finished on both sides.
 Maximum Size:
 1828.8 x 2438.4mm (6' x 8')

TRESPA® Panels



Thickness	Unit	Weight (kg/m ²)	Part #			
			Black	Grey	Blue	White
6mm	m ²	8.1	26-410-6P	26-420-6P	26-430-6P	26-480-6P
8mm	m ²	10.8	26-410-8P	-	-	-
10mm	m ²	13.5	-	-	26-430-10P	-

Expanded PVC



Application

Light duty colored panel material, primarily for use vertically. Can also be used as light duty shelving material.

Technical Data

Rigid Expanded Foam Polyvinyl Chloride (PVC)

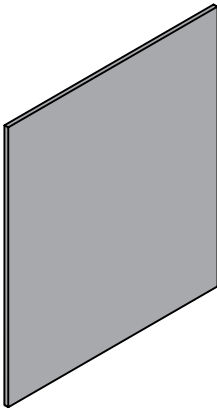
UL Recognized

Maximum Size:
1219.2 x 2438.4 mm (4' x 8')

Ordering Information

Description	Unit	Weight	Part #
6mm Expanded PVC – Black	m ²	4.19 kg/m ²	26-510-6P
6mm Expanded PVC – Blue	m ²	4.19 kg/m ²	26-530-6P
6mm Expanded PVC - White	m ²	4.19 kg/m ²	26-580-6P

Aluminum Veneer



Application

These panels have a very high strength to weight ratio. The panels have clear anodized aluminum skins on each side with a high density hardboard core. These panels can be used in both horizontal and vertical applications.

Technical Data

Veneer: Anodized Aluminum
26-110-6P + 26-180-6P:

PVC Core

26-170-6P:

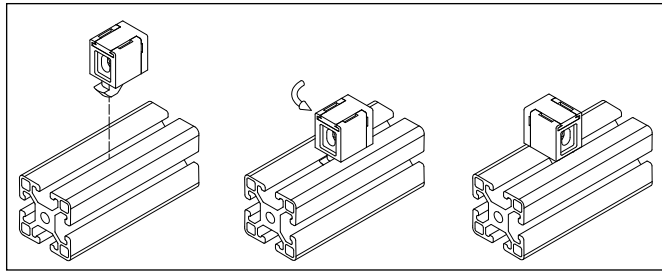
High Density Hardboard Core

Maximum Size:
1219.2 x 2438.4 mm (4' x 8')

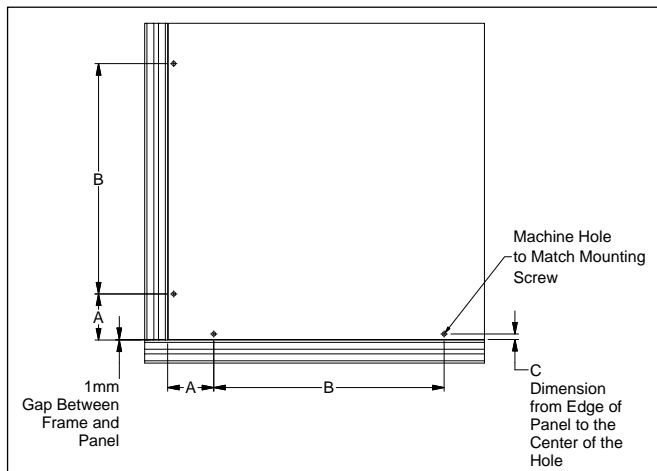
Ordering Information

Description	Unit	Weight	Part #
6mm Aluminum Veneer - Black	m ²	5.32 kg/m ²	26-110-6P
6mm Aluminum Veneer - Clear	m ²	5.32 kg/m ²	26-170-6P
6mm Aluminum veneer - White	m ²	5.32 kg/m ²	26-180-6P

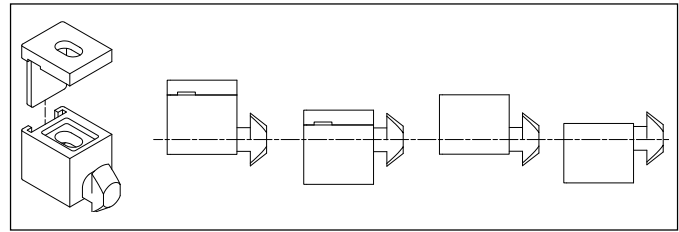
Multiblock



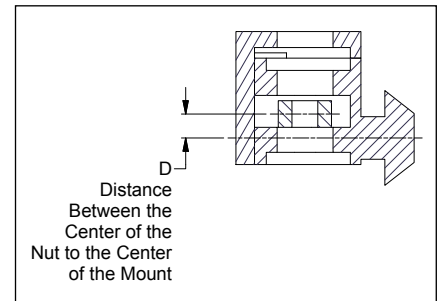
1



2



3



4

- 1 Insertion of Multiblock in the T-slot
- 2 Recommended spacing for fasteners and panel (see chart)
- 3 Multiblocks can be adjusted by how they are mounted and the position of the extender plate
- 4 Distance between Multiblock center and floating nut (see chart)

Panels & Doors

Application

Versatile block for mounting panels. The block locks into the T-slot at a 90° position with an offset design to suit various panel thicknesses. Movable captive nut provides larger alignment range for locating through holes in panels.

Technical Data

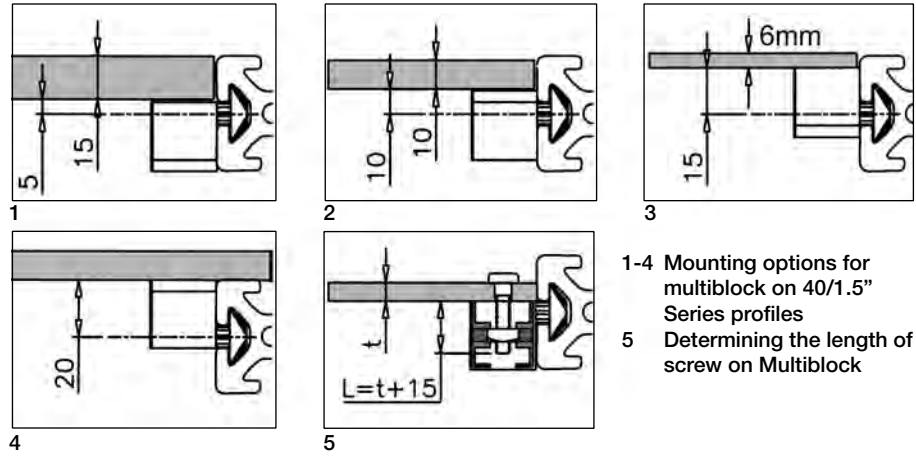
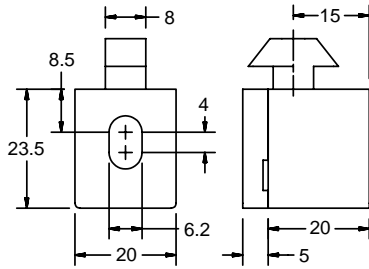
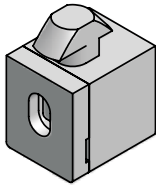
Glass-Filled Nylon, Black
 Square Nut: Steel

Spacing Table

Profile Series	Max Load kg (lbs)	Dimensions			
		A	B	C	D
40	25 (56)	80	400-600	9.5	5
30, 28	21 (47)	70	400-500	9.5	2.8
20	10 (22)	60	300-400	2	2
1.5"	25 (56)	5.0"	20" - 40"	0.37"	0.20"
1"	10 (22)	2.5"	10" - 15"	0.47"	0.08"

Multiblock

22-100
22-115



1-4 Mounting options for multiblock on 40/1.5" Series profiles
 5 Determining the length of screw on Multiblock

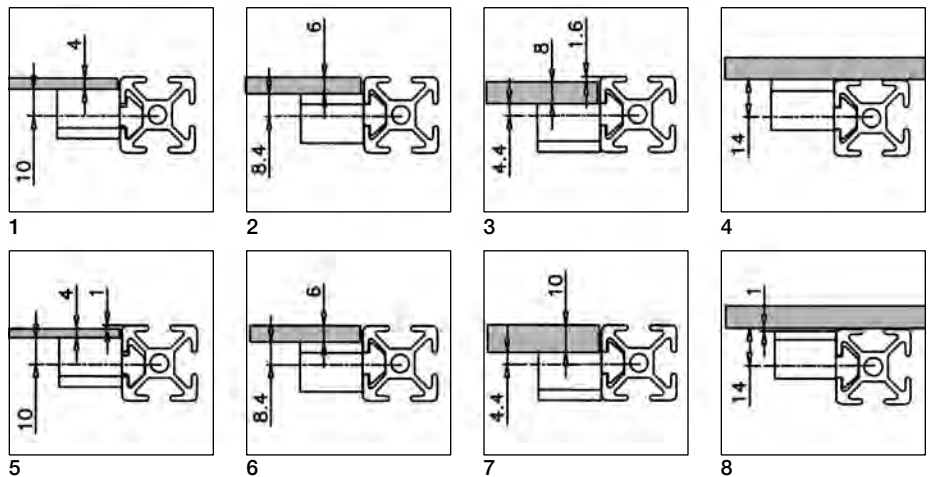
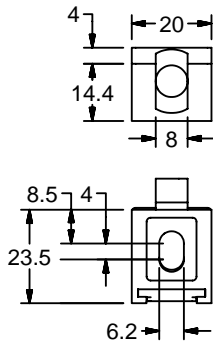
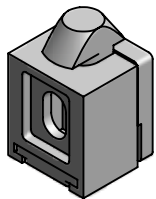
Ordering Information

Series	Description	Unit	Weight (g)	Part #
40/1.5"	Multiblock with M6 Nut	Each	13	22-100 *
40/1.5"	Multiblock with 1/4-20 Nut	Each	13	22-115

Bolt Length = Panel Thickness + 15mm

Multiblock 30/28

22-103



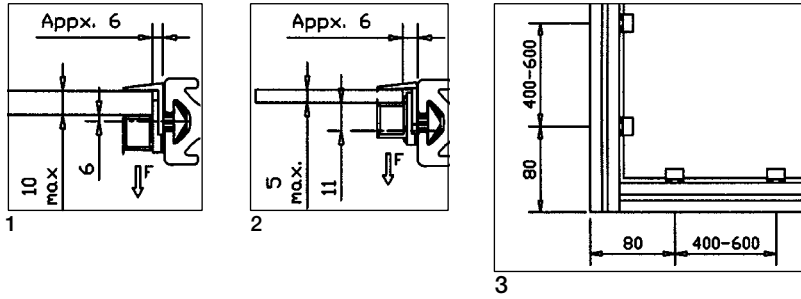
1-4 Mounting options for Multiblock 30/28 on 28 series profiles
 5-8 Mounting options for Multiblock 30/28 on 30 series profiles

Ordering Information

Series	Description	Unit	Weight (g)	Part #
28/30	Multiblock 30/28 with M6 Nut	Each	10	22-103

Bolt Length = Panel Thickness + 15mm

Clamp Multiblock



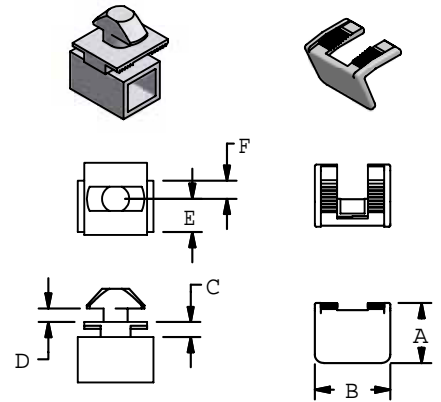
- 1 Mounting position for panels up to 10mm thick to clamp Multiblock
- 2 Mounting position for panels up to 5mm thick Multiblock rotated 180°
- 3 Recommended spacing for clamp Multiblock

Application

Mounting element for attaching panels to 40, 30, 28 and 1.5" Series profiles without using additional fasteners or machining the panel. Insert multiblock into T-Slot at any location and lock in position by turning 90° clockwise. Slide locking clip to secure the panel. To remove panel, loosen locking clip with a flat screwdriver. Use a new clamp multiblock after replacing the panel.

Technical Data

Glass-Filled Nylon, Black
 Max Panel Thicknesses
 22-112: 10mm (3/8")
 22-113: 8mm (5/16")



22-112
22-113

Ordering Information

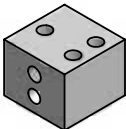
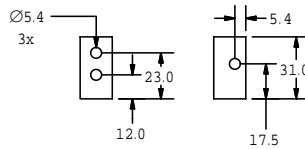
Series	Dimensions						Weight (g)	Part #
	A	B	C	D	E	F		
40/1.5"	20	25	5	5	11	6	10	22-112
30/28	20	22	5	2	7	-	7	22-113

Panels & Doors

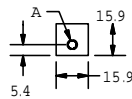
Multiblock



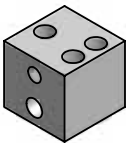
22-105



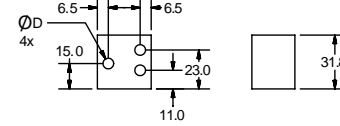
22-106



22-105



22-108



22-106
22-108

Application

Mounting element for panels and accessories. Various mounting dimensions are obtained by rotating the block.

Hardware will vary based on design and must be ordered separately.

Ordering Information

Series	Dimensions				Weight (g)	Part #
	A	B	C	∅D		
40, 30, 28	M5	-	-	-	18	22-105
	M6	17.5	25.4	6.3	58	22-106
	M8	22.5	30	8.3	60	22-108

Technical Data

Aluminum, Clear Anodized

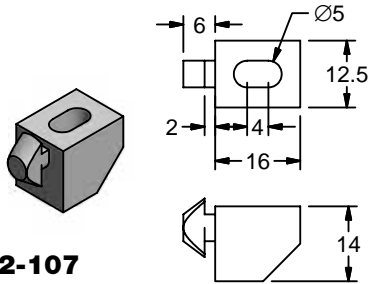
Max Load at 90° angle to T-slot:

22-105: 50 kg (112 lbs)

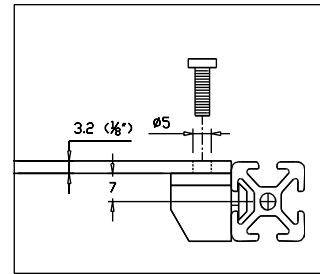
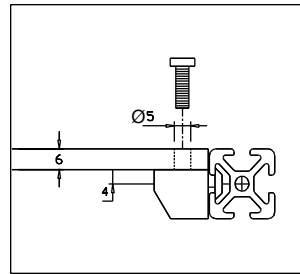
22-106: 77 kg (169 lbs)

22-108: 102 kg (225 lbs)

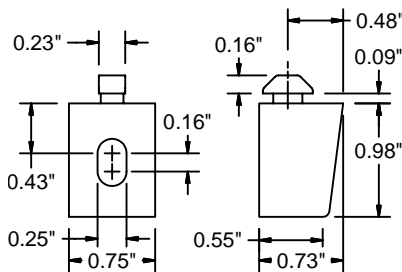
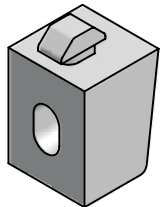
Multiblock



22-107



Mounting options for Multiblock

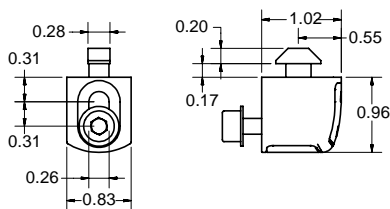


22-116

Ordering Information

Series	Description	Unit	Weight (g)	Part #
20	Multiblock with M4 Nut	Each	3	22-107
1"	Multiblock 1/4-20 Nut	Each	3	22-116

Uniblock 25 CS

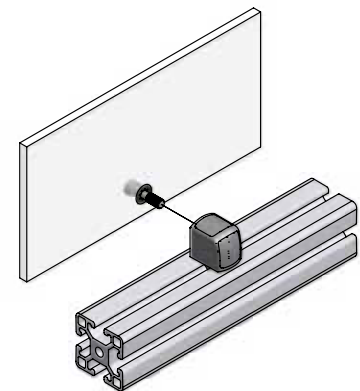


22-117

Application

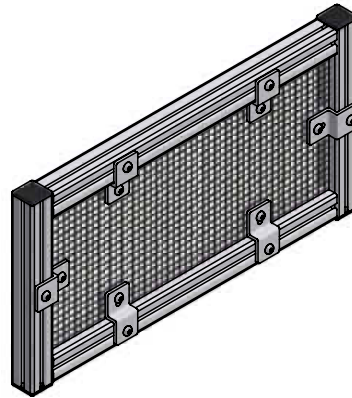
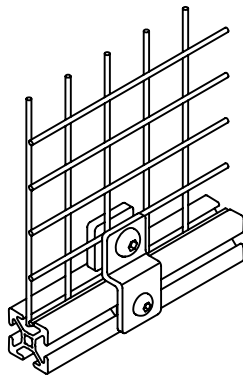
The Uniblock 25 CS includes a captive screw to prevent the loss of hardware when working behind a removable panel. The block locks at a 90° position with an offset for 6-8mm panel thicknesses on 40 and 1.5" Series extrusions.

This block is also instrumental in helping customers meet the General requirements for machine guarding, which is stated in OSHA 29 CFR 1910.212(a)(2).

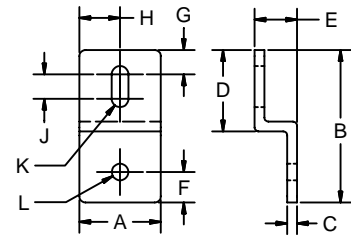
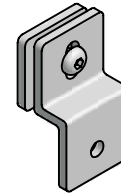


Ordering Information

Series	Description	Unit	Weight (g)	Part #
40/1.5"	Uniblock 25 CS	Each	39	22-117



Mesh



Back Plate included but not shown on dimension drawings.

20-200
20-202

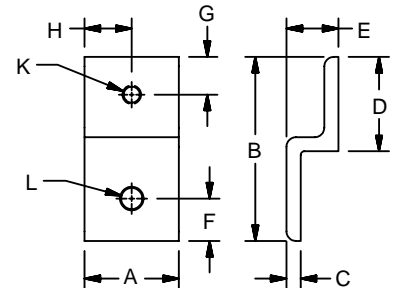
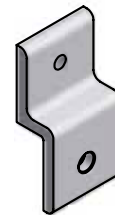
Application

Deluxe retainers are used to securely fasten wire mesh within the T-slot of profiles. This accessory requires screws and T-nuts to mount to profile; order these items separately.

Technical Data

Aluminum, Clear Anodized
Screw included to secure back plate to mesh retainer.

Panel



20-200P
20-202P

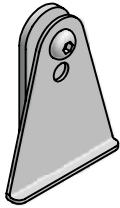
Recommended Fasteners (Order Separately)

Series	Screws	T-Nuts
40	24-116-8	20-058
20	24-108-5	20-045
1.5"	25-110-5	25-002

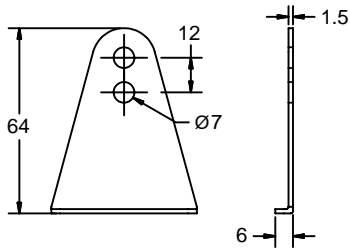
Ordering Information

Style	Series	A	B	C	D	E	F	G	H	J	K	L	Wt (g)	Part #
Mesh	40/1.5"	40	75	4.8	39	20.8	15	12	20	12	8.1	9	80	20-202
	20	20	39	2	20	9	9	4	10	6	5.5	5.5	14	20-200
Panel	40/1.5"	40	75	4.8	39	20.8	15	15	20	—	M8	9	60	20-202P
	20	20	39	2	20	9	9	7	10	—	M6	5.5	10	20-200P

Economy



Back Plate included but not shown on dimension drawings.



22-110
22-111

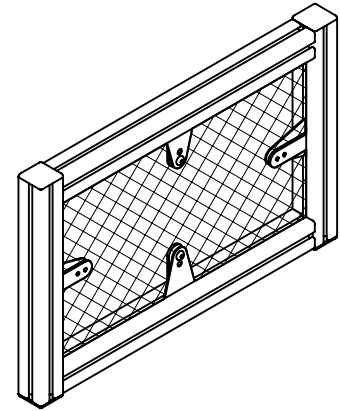
Application

Economical solution for securely fastening wire mesh to 40 and 1.5" Series profiles.

Technical Data

Steel, Black Zinc Plated

Screw included to secure back plate to retainer.

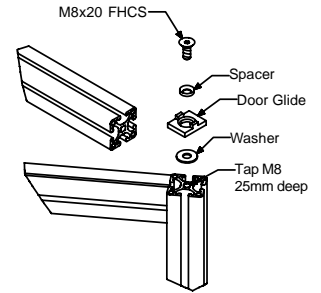
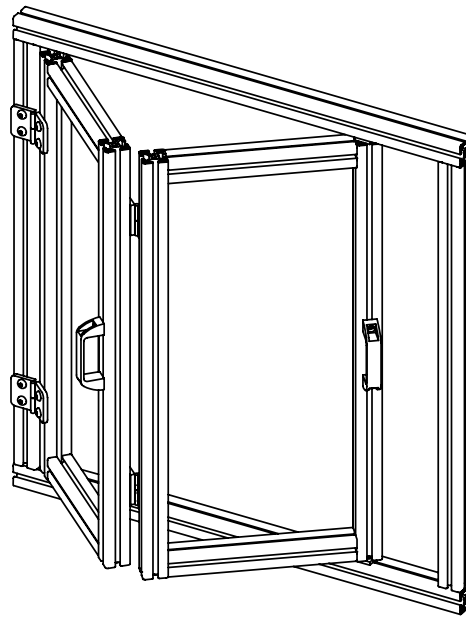
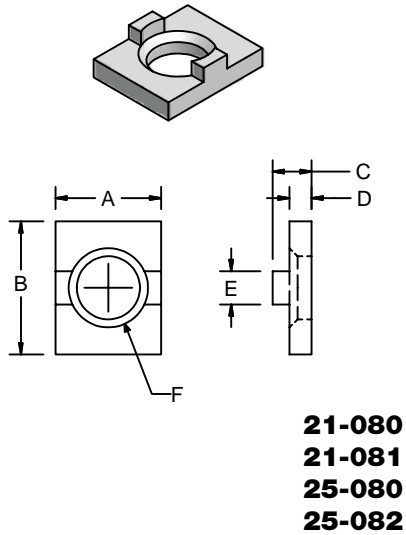


Ordering Information

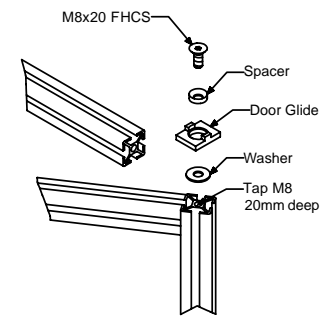
Description	Unit	Weight (g)	Part #
Economy Wire Mesh Retainer – M6	Each	59	22-110 *
Economy Wire Mesh Retainer – 1/4-20	Each	59	22-111

Bifold Doors

Bifold Door



40 Series



30/28 Series

Panels & Doors

Application

Bifold doors are used in very confined areas. Door glides allow rotational and sliding motion at the top and bottom of a vertical member within a permitted bifold door frame. Two glides (one top and one bottom) are required per door.

Technical Data

Door Glide: UHMW
 Spacer: Steel, Zinc Plated
 Washer: Steel, Zinc Plated
All fasteners included.

Use the following chart to help select the correct part for your application.

Frame & Door Series	Glide Part #
40	21-081
28	21-080
1.5"	25-080
1"	25-082

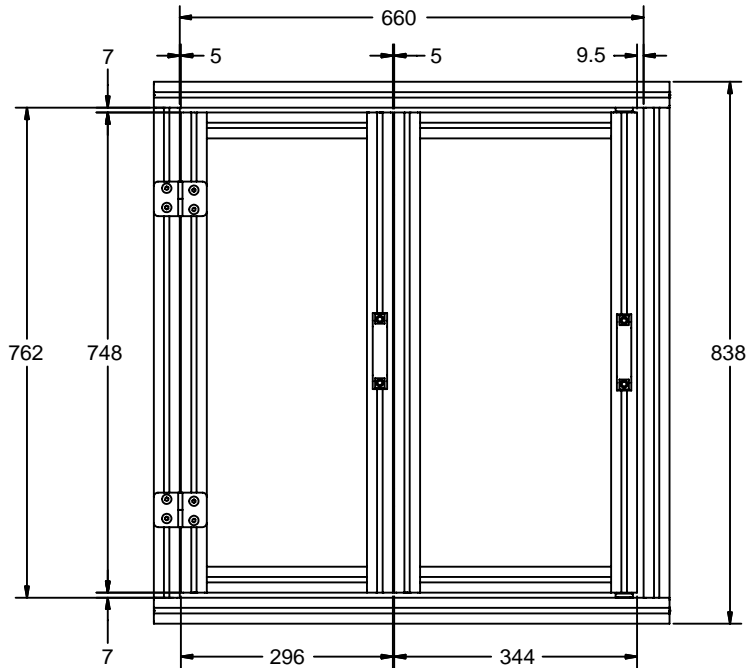
Ordering Information

Ships complete with 2 glides, 2 screws, 2 spacers and 2 washers.

Part #	Dimensions					
	A	B	C	D	E	F
21-081	36.6	32	9.4	5.3	8	Ø15.2 thru c'sink Ø19 x 90°
21-080	25.4	32	9.4	5.3	8	Ø11.1 thru c'sink Ø14 x 90°
25-080	1.44"	1.26"	0.370"	0.210"	0.315"	Ø0.598" thru c'sink Ø0.750 x 90°
25-082	1.00"	1.00"	0.370"	0.210"	0.250"	Ø0.438" thru c'sink Ø0.563 x 82°

Bifold Door

Design Example for 40/1.5" Series Bifold Door



Design Examples

Examples consider the hinges to be medium duty plastic hinges (page 143). Other hinges can be used and dimensions would only be slightly affected.

To determine the width of the narrow door, subtract the sum of the door gaps and 48mm from the frame's inside width dimension, then divide by 2.

Example:

Inside frame dimension -
(Hinge Gap + Hinge Gap + 9.5 + 48)

$$660 - (5 + 5 + 9.5 + 48)$$

$$660 - 67.5 = 592.5$$

$$\frac{592.5}{2} = 296$$

To determine the width of the wide door, add 48mm to the width of the narrow door.

Example:

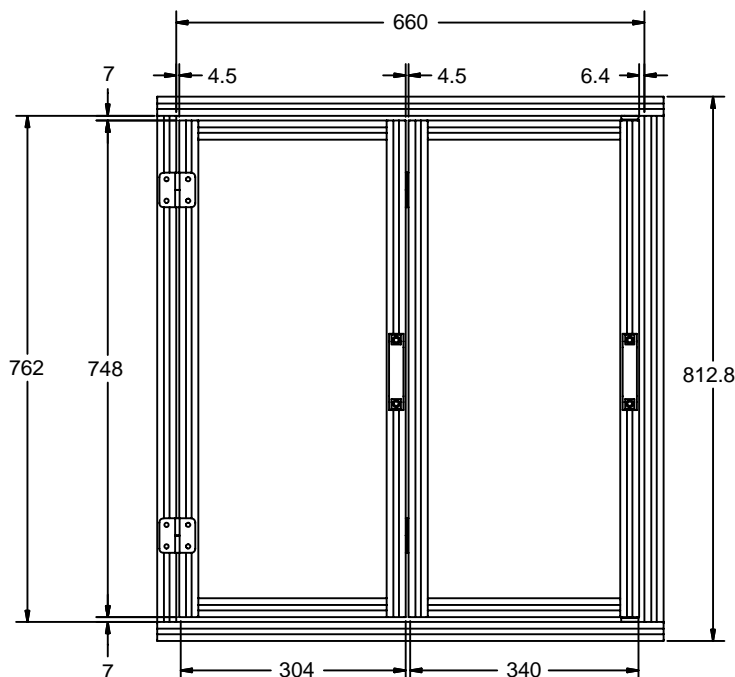
$$296 + 48 = 344$$

To determine vertical door dimension, subtract clearance required for guides and washers (14mm) from the vertical opening dimension.

Example:

$$762 - 14 = 748$$

Design Example for 28/1" Series Bifold Door



To determine the width of the narrow door, subtract the sum of the door gaps and 36mm from the frame's inside width dimension, then divide by 2.

Example:

Inside frame dimension -
(Hinge Gap + Hinge Gap + 6.4 + 36)

$$660 - (4.5 + 4.5 + 6.4 + 36)$$

$$660 - 52 = 608$$

$$\frac{608}{2} = 304$$

To determine the width of the wide door, add 36mm to the width of the narrow door.

Example:

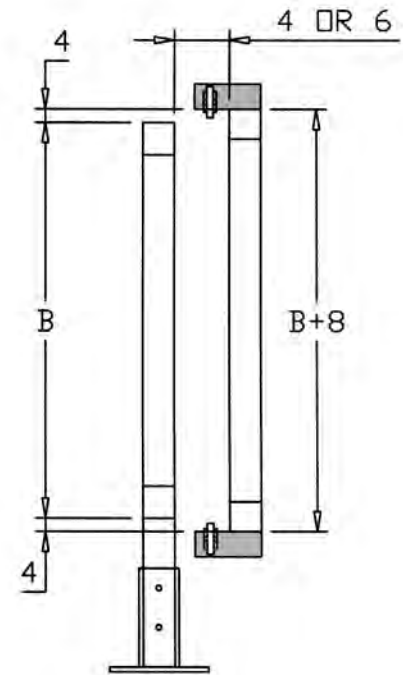
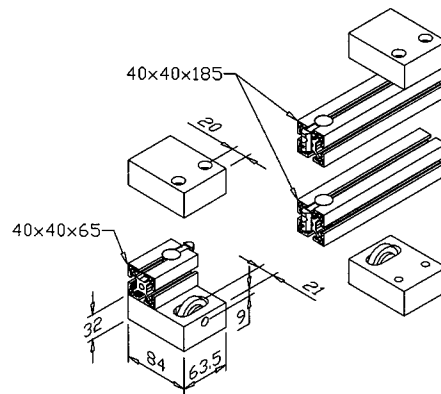
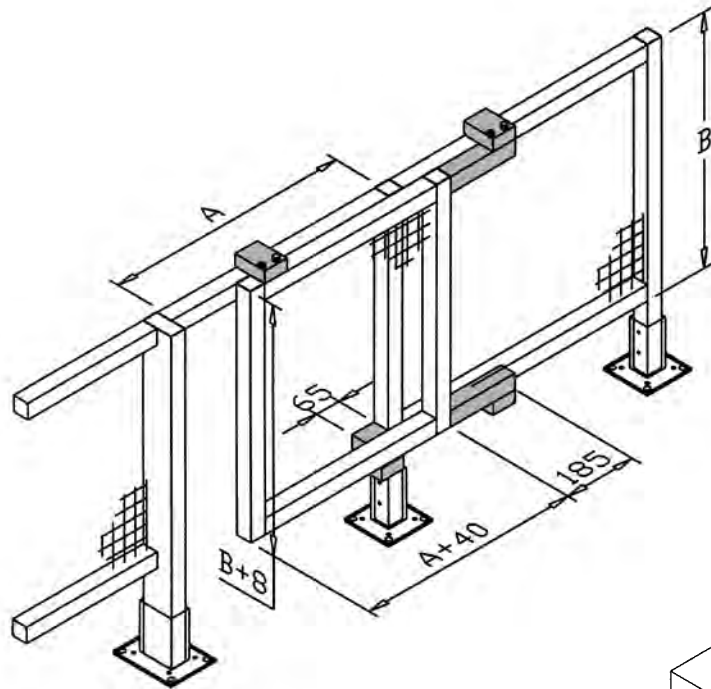
$$304 + 36 = 340$$

To determine vertical door dimension, subtract clearance required for guides and washers (14mm) from the vertical opening dimension.

Example:

$$762 - 14 = 748$$

Sliding Door Set



Panels & Doors

23-065

Application

Packaged system for creating a sliding door with 40 and 1.5" Series profiles. The set consists of the necessary supports, rollers and roller housing to mount the movable sliding panel to an assembly.

Hardware will vary based on design and must be ordered separately.

Technical Data

Supports: Aluminum, Clear Anodized
 Fully machined for assembly

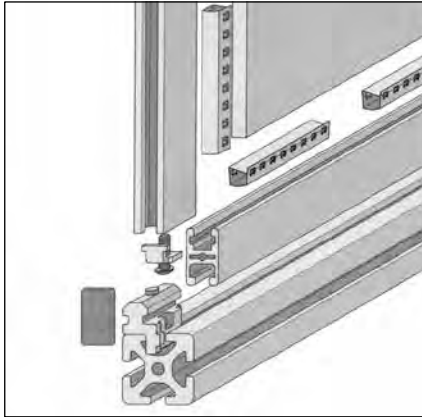
Rollers: Roller 40 (21-069)

Roller Holders: 10-040

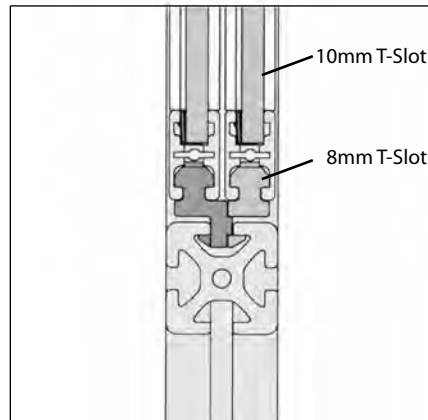
Ordering Information

Description	Unit	Weight (g)	Part #
Sliding-Door Set	Set	36	23-065

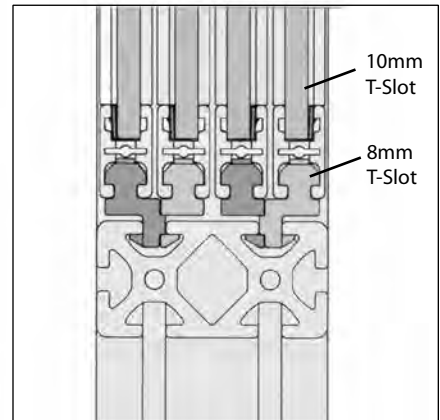
Sliding Door Guide



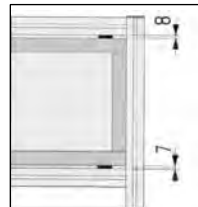
23-054



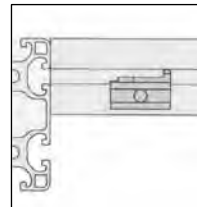
1



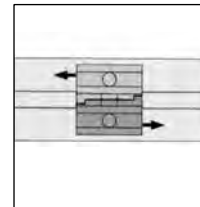
2



3



4



5

- 1 Two sliding doors in T-slot of a 40 series profile
- 2 Four sliding doors in T-slots of an 40x80 profile

- 3 Mounting dimensions within a frame
- 4 Slide piece positioning in the T-slot
- 5 Guide pieces function as stops when two doors slide in the same T-slot

Application

Allows a door constructed of 18x32 Bi-Slot profile (12-032) to slide in the T-Slot of a 40 Series profile. This guide attaches to the door frame through a 7mm mounting hole. Two guides with opposite offsets are available, allowing 2 panels to be mounted in a single T-Slot.

Ordering Information

Description
 Sliding-Door Guides for 12-032

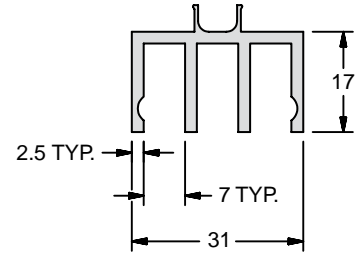
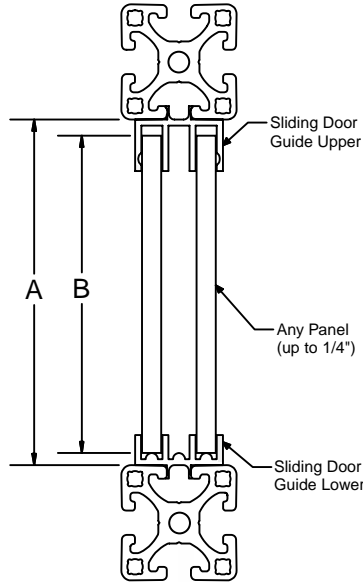
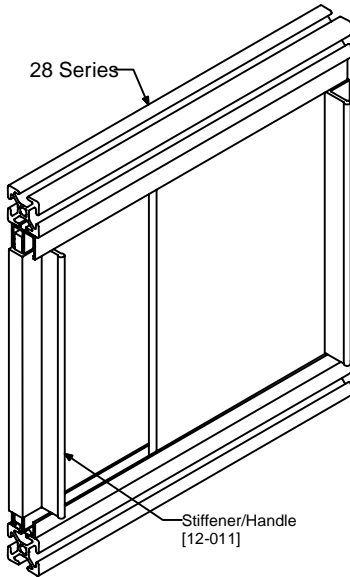
Technical Data

Polyoxymethylene, Black
 Spring/Spring Bolt: Steel
Set includes four guides – two of each offset.
 Door Sizing – size door 15mm smaller than frame opening. Door gap will be 7mm at bottom and 8mm at top.

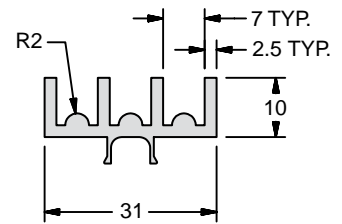
Unit	Weight (g)	Part #
Set	36	23-054

Sliding Door Guide Profile

Panels & Doors



12-012*



12-013*

* Does not install into 1.5" profile

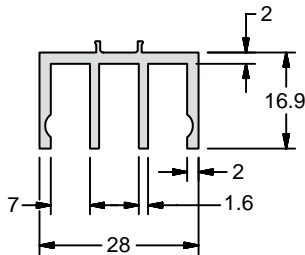
For removable doors: $B = A - 15 \text{ mm}$
 For non-removable doors: $B = A - 10 \text{ mm}$

Application

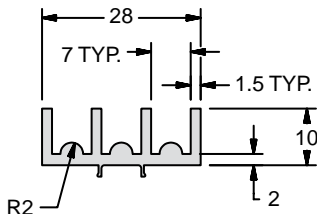
These profiles create light duty sliding panels for windows and access ports for safety guards, enclosures or partitions. Installation onto 40, 30 or 28 Series profiles do not require fasteners and will snap into the T-Slot. The lower guides are designed to reduce friction. The upper guides facilitate lift-out removal of the panel without disassembly.

Technical Data

Aluminum, Clear Anodized
 Three panel tracks
 Panel width up to 6.4mm
 Weight:
 12-012, 12-014 0.45kg/m
 12-013, 12-015 0.50kg/m



12-014

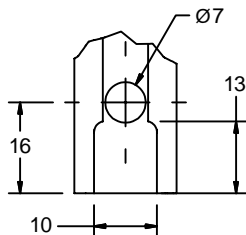
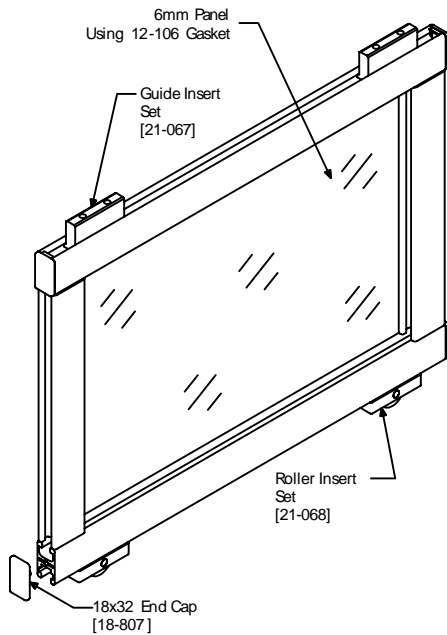


12-015

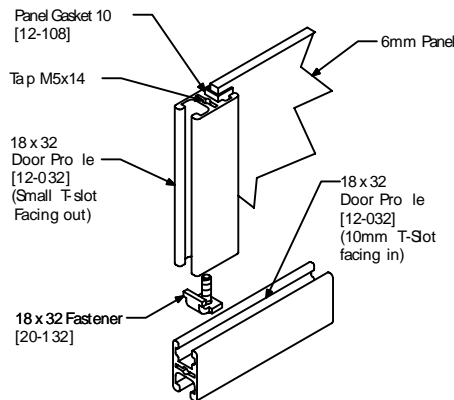
Ordering Information

Description	Max. Length	Part #
40 Series		
Profile Sliding Door Guide 40 Upper	3 meters	12-012
Profile Sliding Door Guide 40 Lower	3 meters	12-013
28/30 Series		
Profile Sliding Door Guide 30/28 Upper	3 meters	12-014
Profile Sliding Door Guide 30/28 Lower	3 meters	12-015
Cut to Length Service Number		19-001

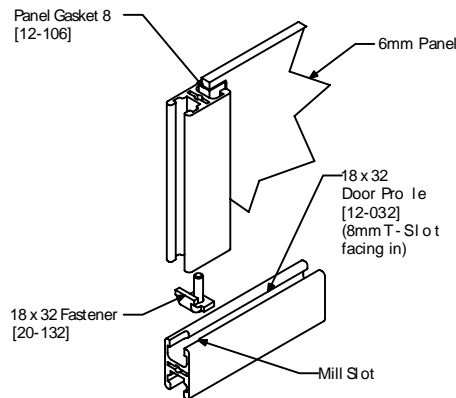
Rolling Door



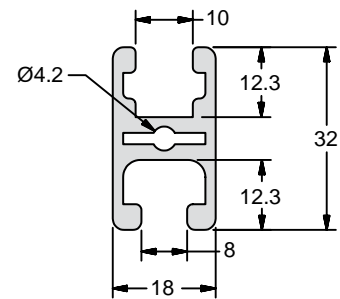
Mill Detail



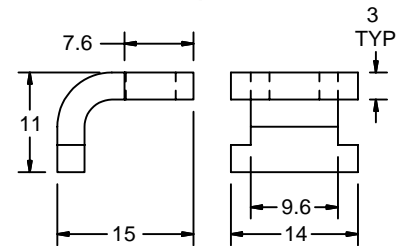
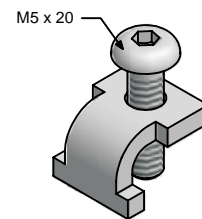
Frame for holding panels with 8mm T-slot facing out. (No milling required)



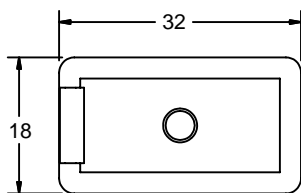
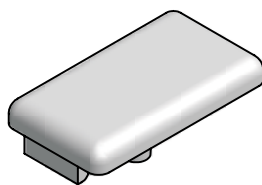
Frame for holding panels with 10mm T-slot facing out. (You must mill slot for fastener)



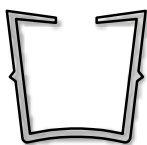
12-032



20-132



18-807



12-108

Application

Suitable for guarding, sliding doors, and enclosures. Panels up to 9mm thick may be clamped using spring clamp (22-032).

T-Slots will accept 6mm panels with Panel Gasket 8 or 10 (12-106 or 12-108).

Ordering Information

Description	Max. Length	Part #
Profile 18x32 Bi-Slot	6 meters	12-032
Cut to Length Service Number		19-001

Fasteners	Part #	Structural Accessories	Part #
18x32 Bi-Slot Fastener	20-132	Panel Gasket 8mm T-Slot	12-106
Clamp Spring	22-032	Panel Gasket 10mm T-Slot	12-108
End Caps		Roller Insert Set	21-068
18x32	18-807	Guide Insert Set	21-067
		Clamp Spring	22-032

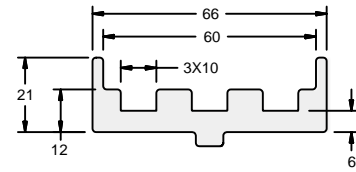
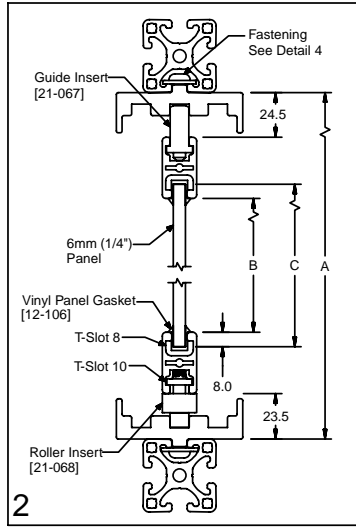
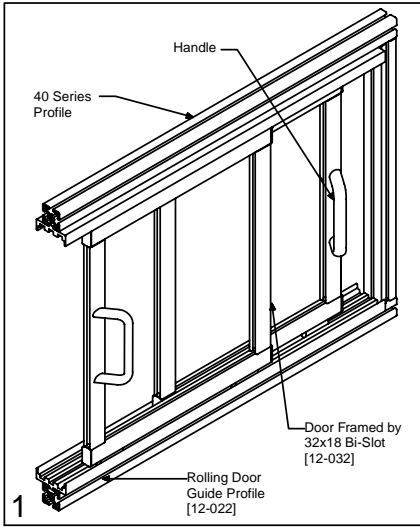
Technical Data

Aluminum, Clear Anodized
 Weight: 0.67 kg/m

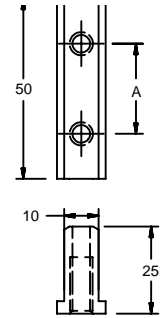
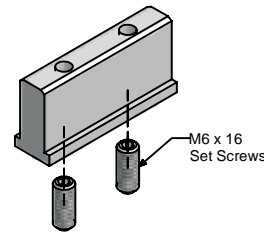
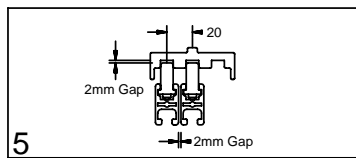
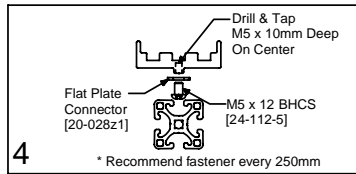
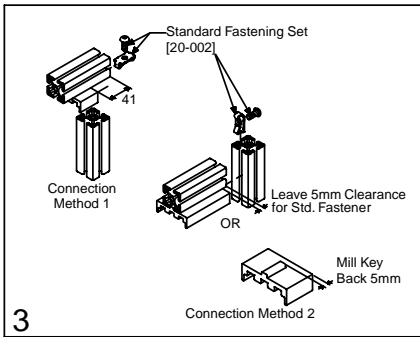
Fastening Set: Steel, Galvanized
 Weight: 9.0 g

Clamp Spring: Steel
 Weight: 4g

Rolling Door



12-022



**21-067
21-073**

Application

Designed for large doors. Applications that include case packers, material handling equipment, packaging installations and access panels for large machine enclosures.

Ordering Information

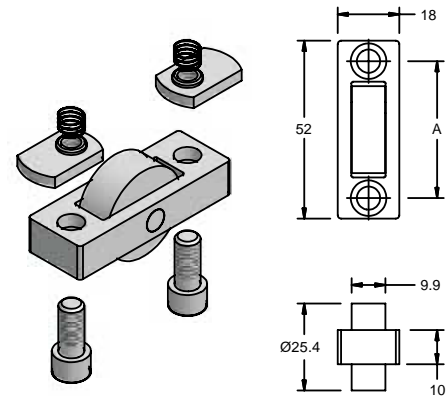
Description
Profile Rolling Door Guide
Cut to Length Service Number

Technical Data

Profile
Aluminum, Clear Anodized
Weight: 1.78 kg/m

Guide Insert
UHMW, White

Roller Insert
Roller: Delrin, Black, Pin: Steel
Housing: Aluminum, Clear Anodized



**21-068
21-075**

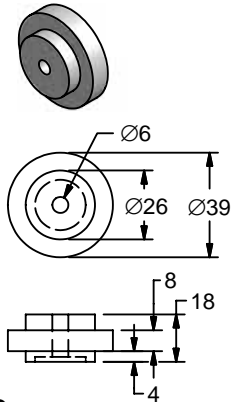
Roller Insert Set	Part #
40 Series (A=40mm)	21-068
1.5" Series (A=1.5")	21-075

Roller Set includes
(1) Housing, (1) roller,
(2) SHCS screws
and (2) Offset T-Slot nuts
with compression spring

Guide Insert Set	Part #
40 Series (A=30mm)	21-067
1.5" Series (A=1")	21-073

Guide Set including
(1) 50mm guide insert,
(2) setscrews

Roller 40



21-069

- 1 Assembly of roller into profile
- 2 Pocket machining for 21-069 into 40 Series heavy profile only (19-103)
- 3 The roller can be flipped around in the pocket to give a 2mm offset between profile

Application

Versatile ball bearing roller that can be mounted in the T-slot. Roller has asymmetric design for various clearance dimensions such as on sliding doors and panels.

Technical Data

Glass-Filled Nylon, Black

Complete with two deep groove ball bearings with dust covers.

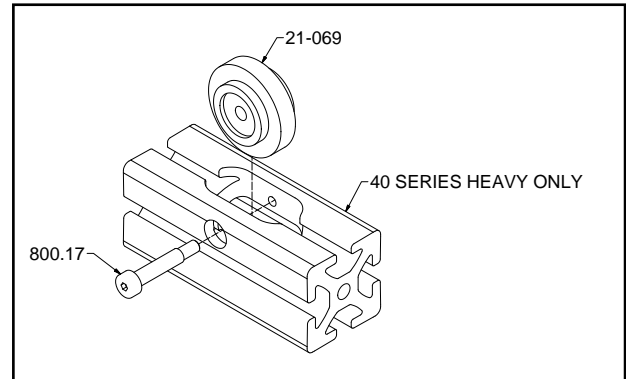
Max Load: 15.4 kg (34 lbs)

Leave 5mm offset between profiles.

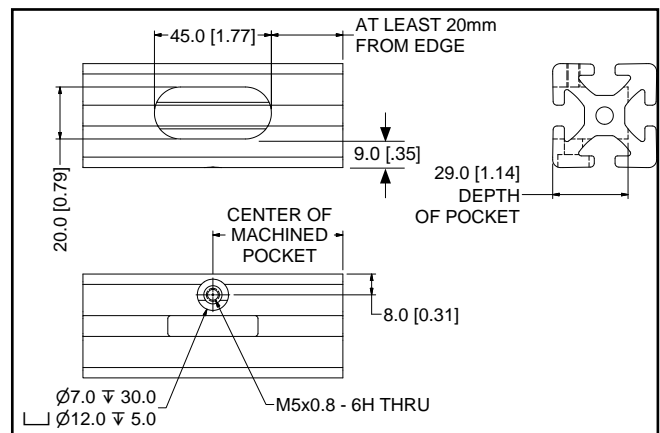
Hardware ordered separately.

Ordering Information

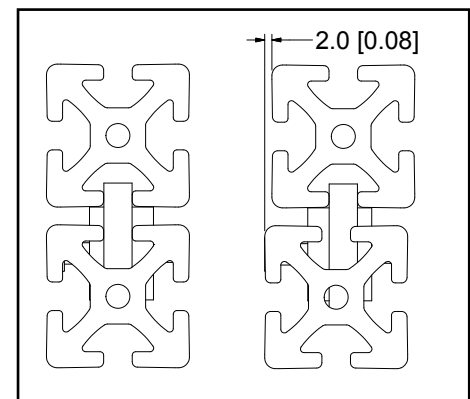
Description	Unit	Weight (g)	Part #
Roller 40	Each	32	21-069
Shoulder Bolt M5x6x25	Each		800.17



1



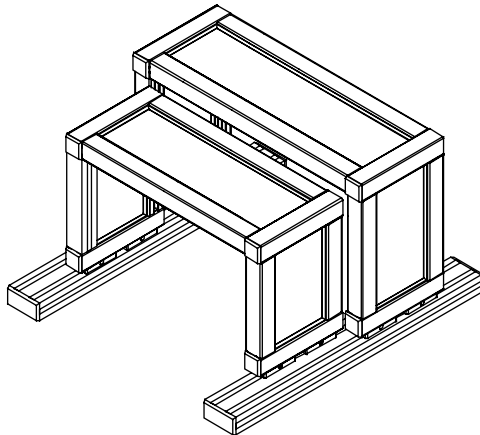
2



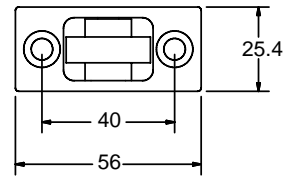
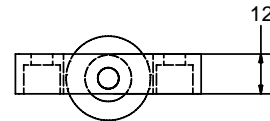
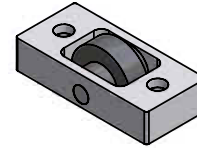
3

Rollers

Roller Insert 25



Two bypassing covers constructed with 28 series profiles rolling on a pair 30x60 profiles.



21-065

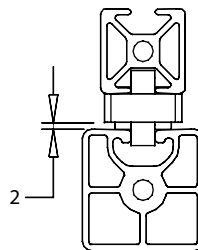
Panels & Doors

Application

Versatile roller mounted in a housing.

Technical Data

Roller: Delrin, Black
 Housing: Aluminum, Clear Anodized
 Pin: Stainless Steel



Clearance dimensions

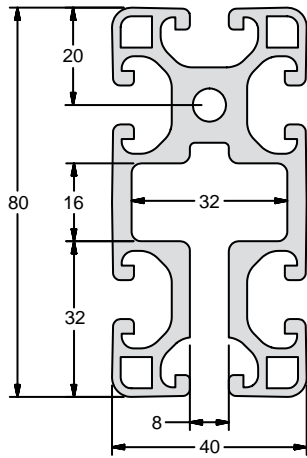
Recommended Fasteners (Order Separately)

Series	Screws	T-Nut
40	24-314-6	20-190
30	24-312-6	20-190
1.5"	25-108-4	20-193

Ordering Information

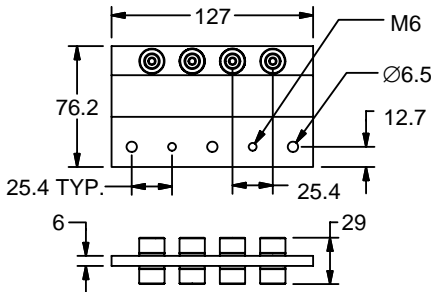
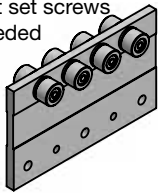
Description	Unit	Weight (g)	Part #
Roller Insert 25	Each	32	21-065

Rail Carts

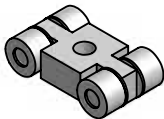


14-248

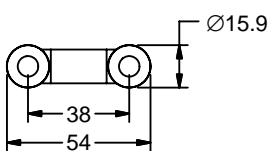
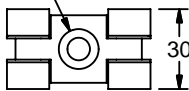
Adjust set screws as needed



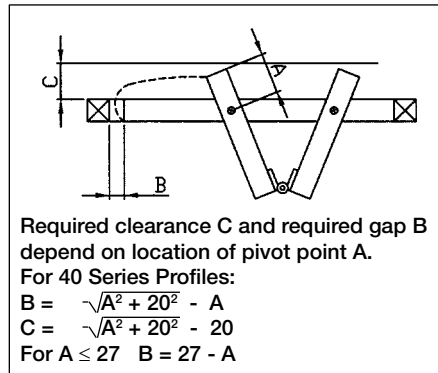
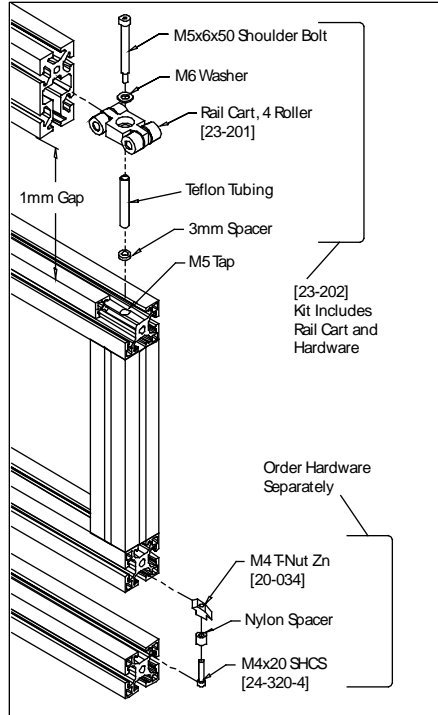
23-200



FOR M8 SHCS



23-202

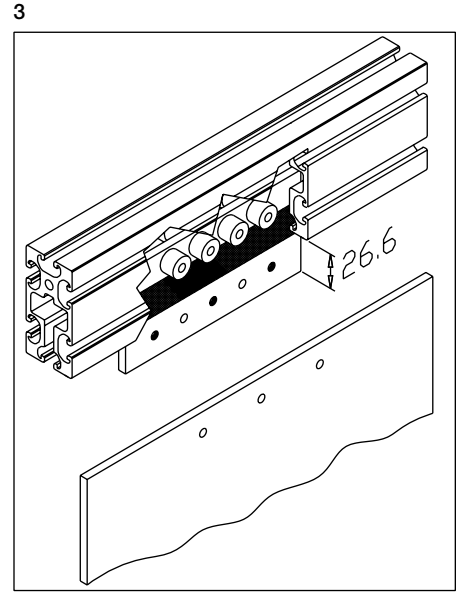
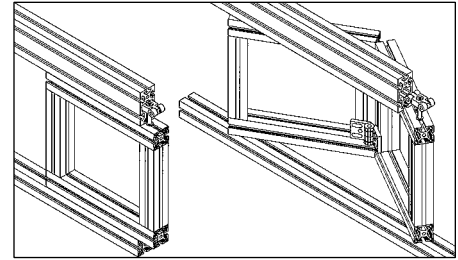


Application

Designed for use in 40x80 Rail Profile part #14-248. Rail carts used for hanging and sliding doors and other hanging components such as moving material on workstations.

Ordering Information

Description	Unit	Max Load kg (lbs)	Weight (g)	Part #
8-Roller Cart	Set	45 (100)	200	23-200
4-Roller Cart	Each	23 (50)	45	23-201
4-Roller Cart with Fastening Set	Set	23 (50)	64	23-202
Profile	Unit	Weight		Part #
Profile 40x80 Rail Transport	6 Meters	4.19 kg/m		14-248
Cut to Length Service Number				19-002



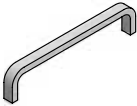
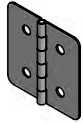
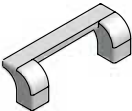
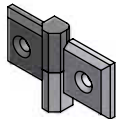
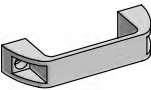
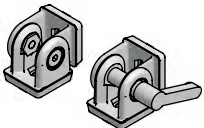
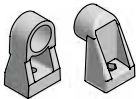

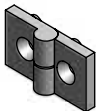

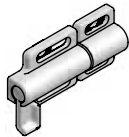
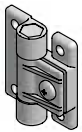
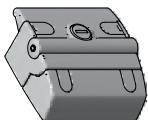

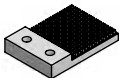
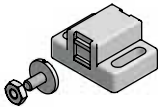

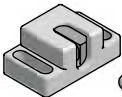
- 1 Assembling the 4-Roller Rail Cart to a door frame. Apply Loctite™ to M6 screw to prevent loosening. Guide along lower section for sliding door using nylon spacer (8mm long, O.D. 8mm)
- 2 Calculations for Bi-fold sliding doors
- 3 Sliding Door and Bi-fold sliding door assemblies
- 4 8-Roller Rail Cart assembly in 40x80 Rail profile

Technical Data

Housing: Aluminum, Clear Anodized
 Wheel: Delrin, Needle Roller Bearings
 Washer: Nylon

Hardware included with 23-202: Bolt, washer, Teflon® tubing and 3mm spacer.

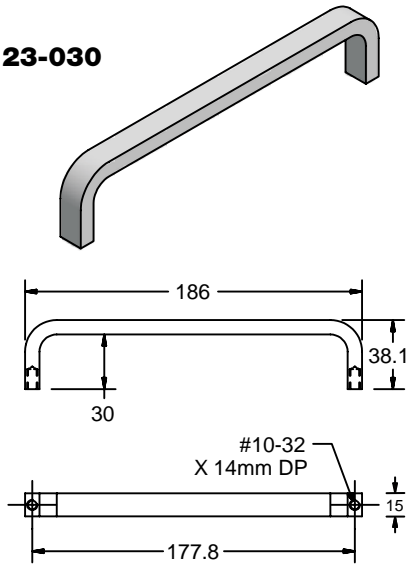
Section 5 Handles, Hinges, & Latches

Light Duty Metal Handles	136		Butt Hinges	150	
Light Duty Plastic Handles	137		Lift-Off Hinges	140-145	
Plastic Handles	138		Pivot Joints	154	
Tube Handles	139		Quarter Turn Latches	156-157	
Light Duty Hinges	140-142		Inside Handle	158	
			Latch Accessories	158	
Medium Duty Hinges	143-149		Dead Bolt	159	
Adjustable Hinges	152		Slam Latch	160	
Positioning Hinges	151		Door Stops	161	
Concealed Hinges	150		Magnetic Catches	162-163	
Multi-Series Hinges	153		Ball Catch	164	
			Ball Plunger	165	
			3-Way Ball Catch	165	

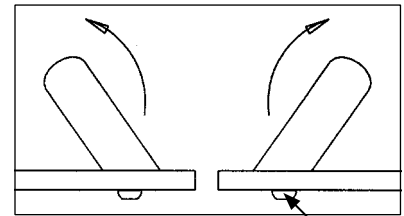
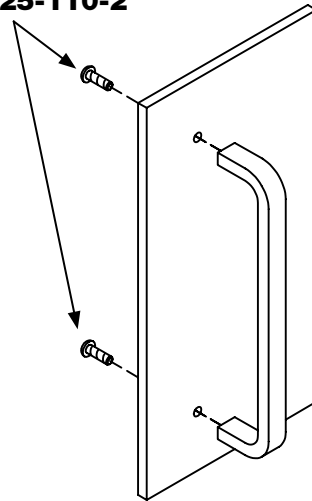
**Handles,
Hinges, &
Latches**

Light Duty Aluminum

23-030

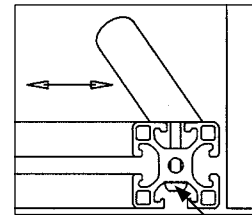


25-110-2



1 Swinging Doors

24-116-6 x 2



2 Sliding Door

24-140-6 x 2

Application

Handle for light duty doors

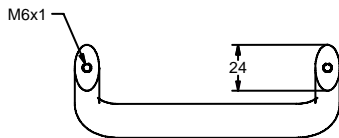
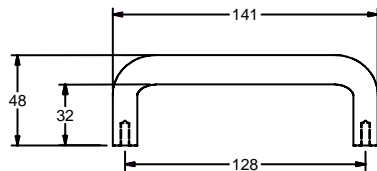
Technical Data

23-030: Aluminum, Clear Anodized

23-034: Aluminum, Black Powdercoat

23-030 includes fasteners

23-034



Recommended Fasteners (Order Separately)

Part #	Screws	Application
23-034	24-116-6	Panel Mount (picture #1)
	24-140-6	Profile Mount (picture #2)

Ordering Information

Description	Unit	Weight (g)	Part #
Light Duty Aluminum Handle	Each	85	23-030
Light Duty Aluminum Angled Handle	Each	11	23-034

Handles

Light Duty Plastic

Application

Handle for double doors to keep operators' hands from hitting when opening.

Technical Data

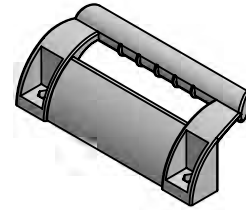
Glass-Fiber Reinforced Plastic
Black Matte Finish

Recommended Fasteners (Order Separately)

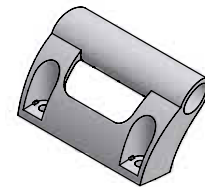
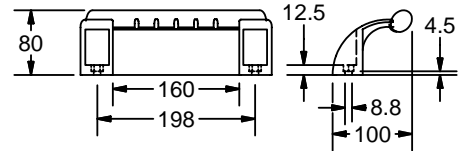
Series	Screws	T-Nuts
40/1.5"	24-316-8	20-058
30	24-312-8	20-058
28	24-312-8	20-057

Ordering Information

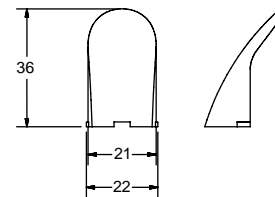
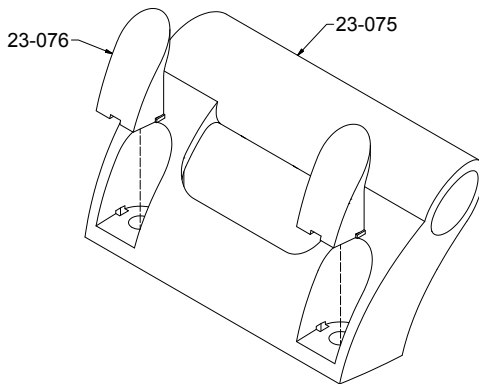
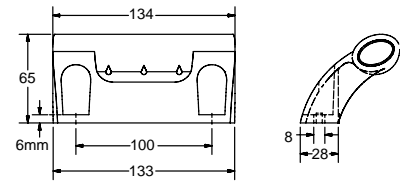
Description	Unit	Weight (g)	Part #
Large Angled Handle	Each	356	23-074
Open Angled Handle	Each	114	23-075
Caps for 23-075	Set	3	23-076



23-074*



23-075

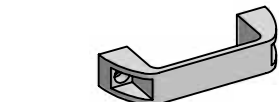


23-076

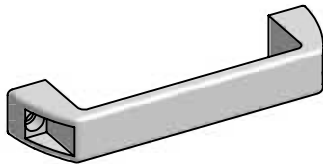
*No cap available

Handles,
Hinges, &
Latches

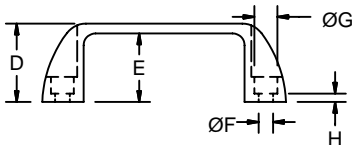
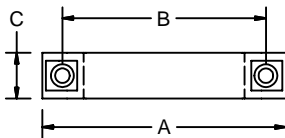
Plastic Handles



23-033

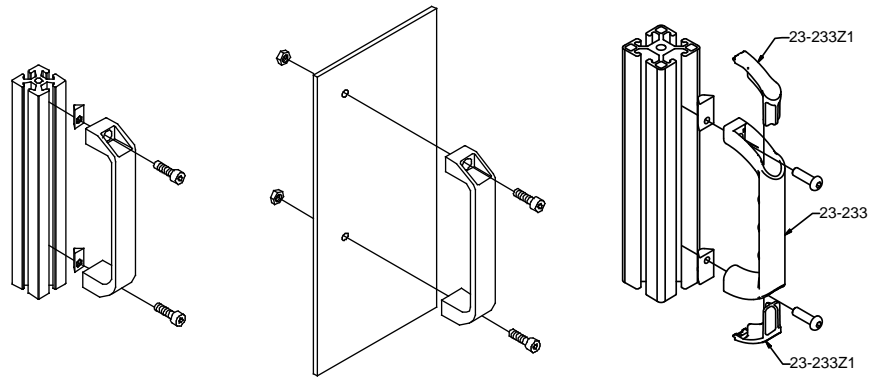
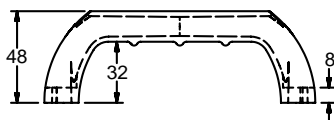
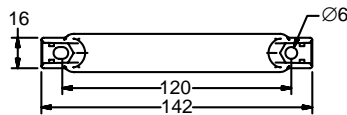
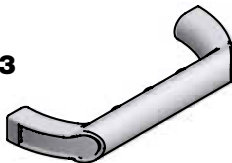


23-028



See chart for 23-028 and 23-033 dimensions

23-233



Application

Multipurpose handle for mounting onto panels or profiles. Hardware length is determined by applications.

Technical Data

Glass-Filled Nylon, Black

Recommended Fasteners (Order Separately)

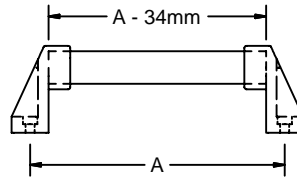
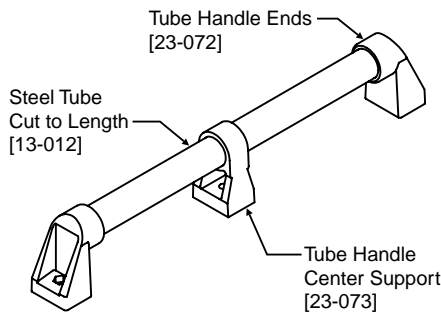
Mounting to Profile Only

Part #	Series	Screws	T-Nuts
23-033	40	24-318-6	20-056
	30	24-316-6	20-056
	28	24-314-6	20-055
	1.5"	25-110-4	25-001
	1"	25-108-4	25-031
23-028	40/30	24-318-6	20-056
	28	24-316-6	20-055
23-233	20	24-114-5	20-045

Ordering Information

Dimensions								Wgt (g)	Part #
A	B	C	D	E	F	G	H		
112	93.5	21	36	30	6.5	10.5	6	33	23-033
170	152	28	52	45	6.5	10.5	8.5	70	23-028
See Drawing								26.2	23-233
Caps for 23-233 (2 per)								4	23-233Z1

Handles



Application

Handle allows variable lengths. Order tube cut to length for a custom fit solution.

Cut length = A - 34mm

Technical Data

Polyamide, Black
Tube: Coated Steel

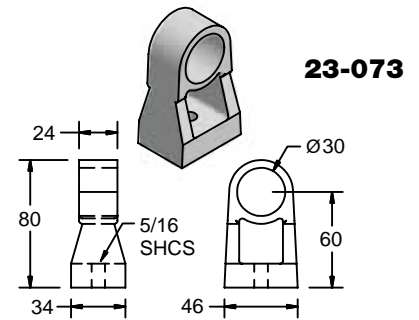
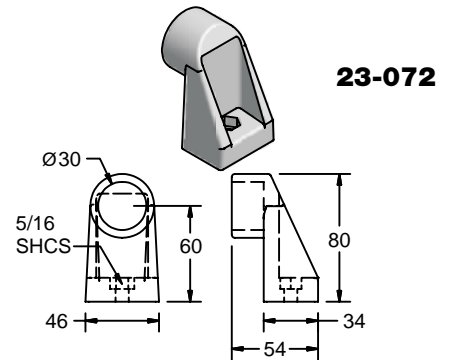
Recommended Fasteners (Order Separately)

Part #	Screws	T-Nuts
23-072	25-312-5	25-002
23-073	25-316-5	25-002

Ordering Information

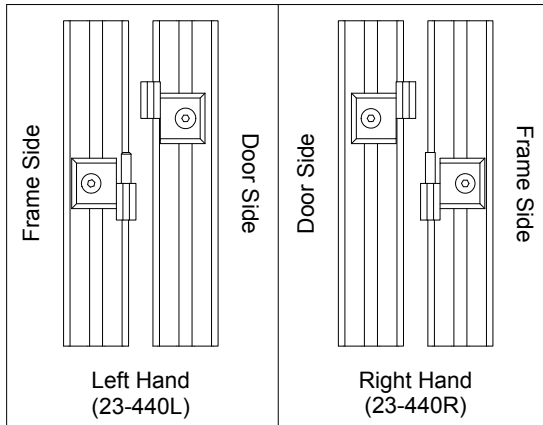
Description	Unit	Weight (g)	Part #
Tube Handle Ends	Each	12.7	23-072
Center Support for handles over 36"	Each	7.6	23-073
Coated Steel Tube	Max. 2.5 meters	1.52 kg/m	13-012
Cut to Length Service Number			19-007

Tube Handles



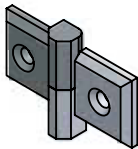
Handles, Hinges, & Latches

Lift-Off Hinges

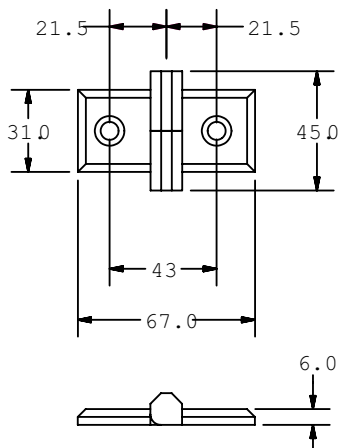


A lift-off hinge, also known as a loose joint hinge, allows a door to be removed from a frame without having to remove the fasteners. This is done by lifting the upper half of the hinge from the pin in the lower half of the hinge.

Lift-Off Hinge 40



23-440



Application

Versatile hinge for 40 series profiles. For lift-off and non-removable door configurations. Two T-slot alignment blocks are included.

Technical Data

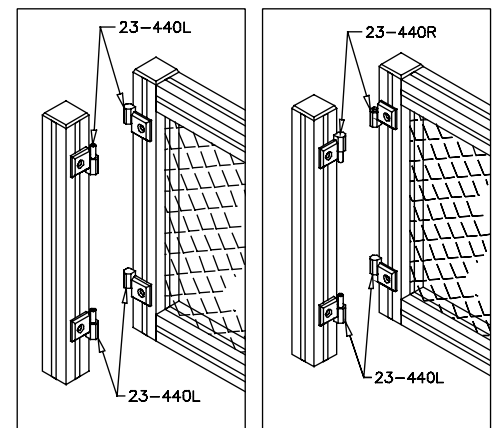
Zinc Die-Cast, Black Powdercoat
Pin: Steel, Zinc Plated

Recommended Fasteners (Order Separately)

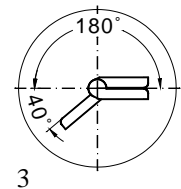
Screws	T-Nuts
24-216-6	20-056

Ordering Information

Description
Lift-Off Hinge 40 Left
Lift-Off Hinge 40 Right

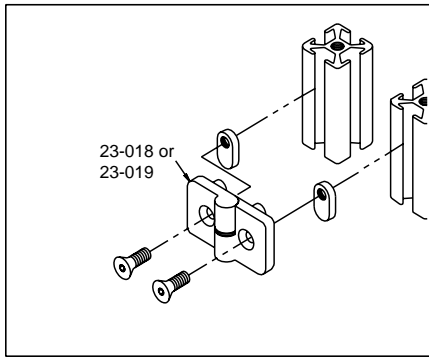


- 1 Lift-Off Door
- 2 Non-removable door
- 3 Range of swing

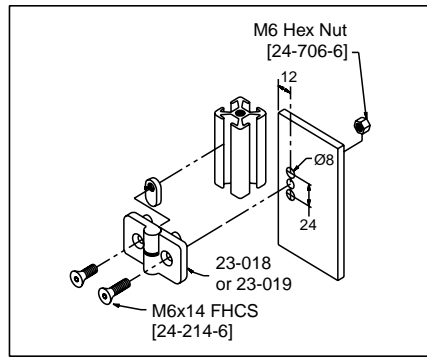


Unit	Weight (g)	Part #
Each	70	23-440L
Each	70	23-440R

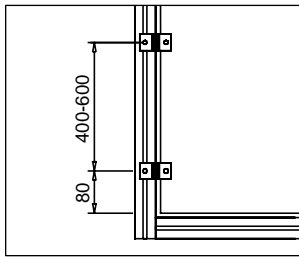
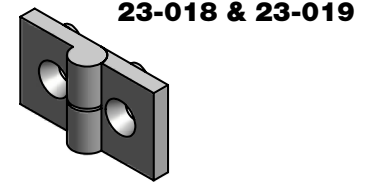
Light Duty 28



1

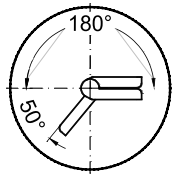
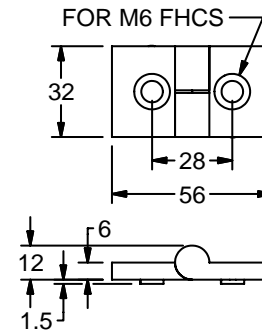


2



3

- 1-2 Attaching Light Duty Hinges 28 to 28 Series profiles and panels
- 3 Placement of hinges on panels
- 4 Range of swing



4

Application

For light doors and lids constructed of 28 Series profiles or light panel material.

Technical Data

Glass-Filled Nylon, Black
 Max Force: 100 N (22 lbf)

Recommended Fasteners (Order Separately)

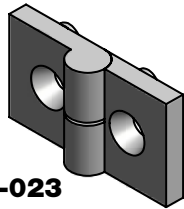
Screws	T-Nut	Hex Nut
24-212-6	20-055	24-706-6

Ordering Information

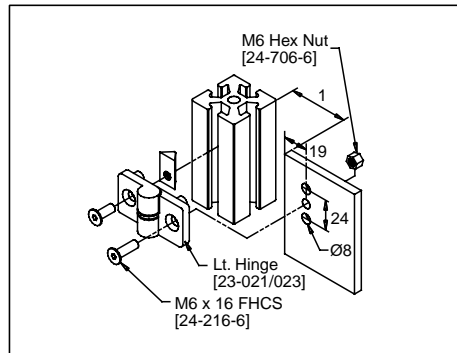
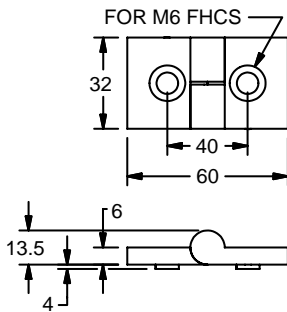
Description	Unit	Weight (g)	Part #
Light Duty Hinge 28, Right	Each	17	23-018
Light Duty Hinge 28, Left	Each	17	23-019

**Handles,
 Hinges, &
 Latches**

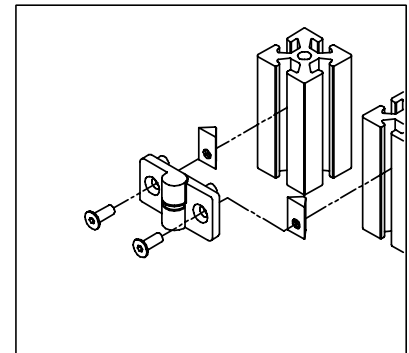
Light Duty 40



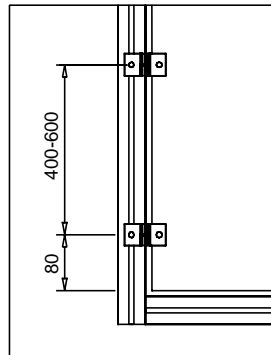
23-021 & 23-023



1

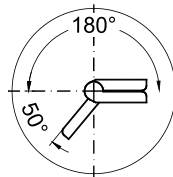


2



3

- 1-2 Attaching Light Duty Hinges 40 to 40 Series profiles and panels
- 3 Placement of hinges on panels
- 4 Range of swing



4

Application

For light doors and lids constructed of 40 Series profiles or light panel material

Technical Data

Glass-Filled Nylon, Black
 Max Force: 100 N (22 lbf)

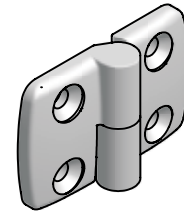
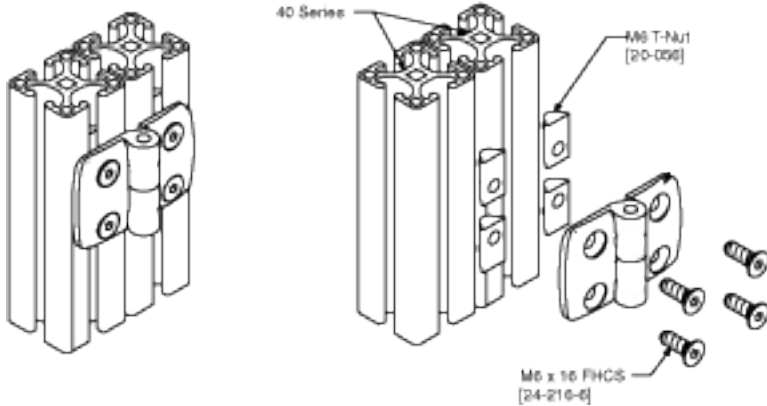
Recommended Fasteners (Order Separately)

Series	Screw	T-Nut	Hex Nut
40	24-216-6	20-080	24-706-6

Ordering Information

Description	Unit	Weight (g)	Part #
Light Duty Hinge 40, Right	Each	21	23-021
Light Duty Hinge 40, Left	Each	21	23-023

Medium Duty Plastic (Metric)



Application

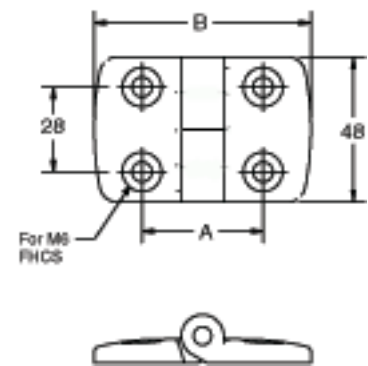
High-quality plastic hinges for constructing medium duty guard/ enclosure doors.

Technical Data

Glass-Filled Nylon, Black
 Stainless Steel Pin

Max Force:

23-535: 400 N (90 lbf)
 23-545: 450 N (100 lbf)
 23-550: 380 N (85 lbf)



Ordering Information

A	B	Hinge Type	Weight (g)	Part #
45	77	Left Side Mount	43	23-545L
		Right Side Mount	41	23-545R
35	59	Left Side Mount	35	23-535L
		Right Side Mount	33	23-545R
30	49	Left Side Mount	28	23-550L
		Right Side Mount	28	23-550R

Application Chart

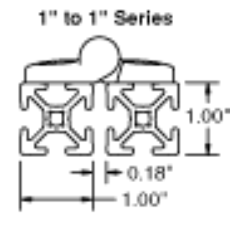
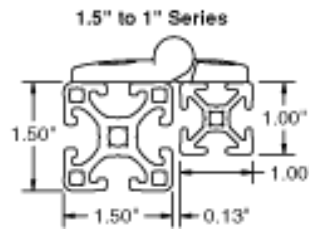
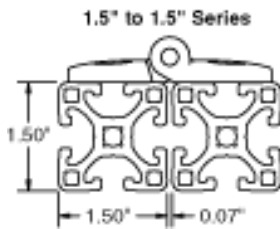
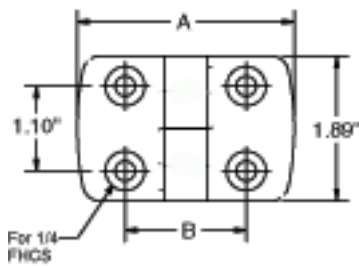
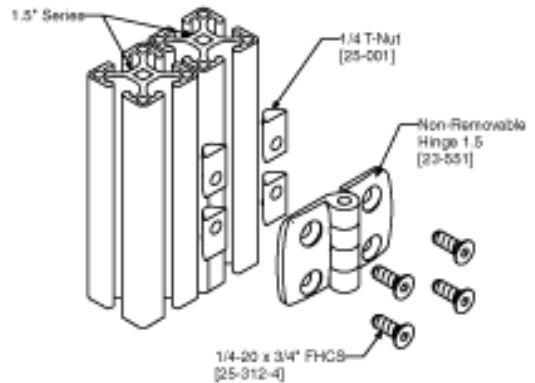
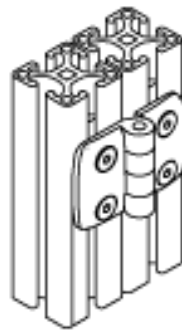
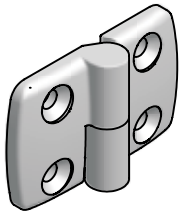
Mounting Surface 1	Mounting Surface 2	Gap	Left Hinge	Right Hinge
40 Series	40 Series	5	23-545L	23-545R
40 Series	Panel	-		
28 Series	40 Series	1	23-535L	23-535R
30 Series	40 Series	0		
28, 40 Series	Panel	-		
30 Series	30 Series	0	23-550L	23-550R
30, 28 Series	Panel	-		
28 Series	28 Series	7		

Recommended Fasteners (Order Separately)

Series	Screw	T-Nut	Panel	Screw	T-Nut
28	24-214-6	20-055	6mm Panel	-	-
30	24-214-6	20-056	6mm Panel	24-220-6	24-716-6
40	24-216-6	20-056	8mm Panel	24-220-6	24-716-6

Handles,
 Hinges, &
 Latches

Medium Duty Plastic (Inch)



Application

High-quality plastic hinges for constructing medium duty guard/enclosure doors.

Technical Data

Glass-Filled Nylon, Black
 Stainless Steel Pin

Max Force:
 23-550: 380 N (85 lbf)
 23-551: 400 N (90 lbf)
 23-552: 400 N (90 lbf)

Recommended Fasteners (Order Separately)

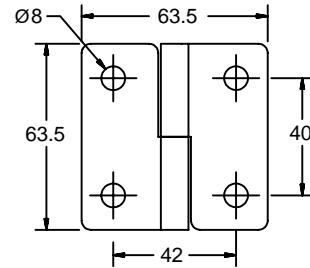
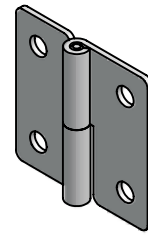
Series	Screws	T-Nuts
1.5"	25-212-4	25-001
1"	25-208-4	25-031

Ordering Information

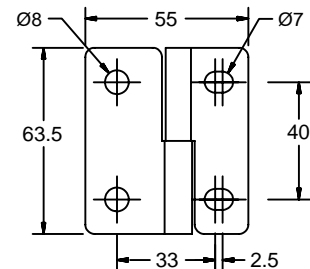
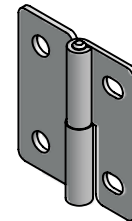
A	B	Hinge Type	Weight (g)	Part #
2.74"	1.57"	Left Side Mount, 1.5" to 1.5"	43	23-551L
		Right Side Mount, 1.5" to 1.5"	41	23-551R
1.93"	1.18"	Left Side Mount, 1" to 1"	28	23-550L
		Right Side Mount, 1" to 1"	28	23-550R

Steel

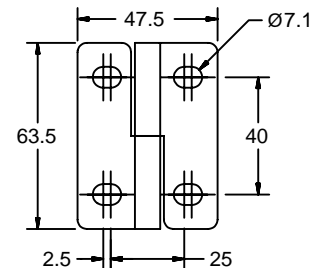
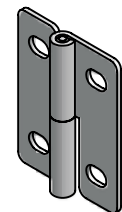
23-252



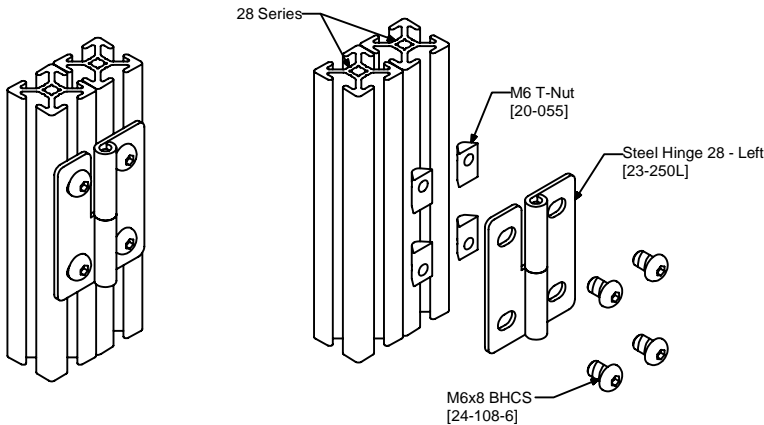
23-251



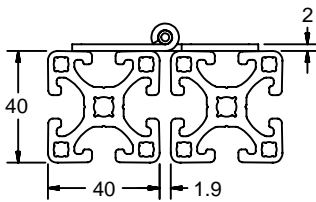
23-250



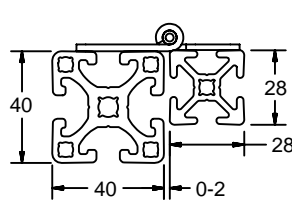
**Handles,
Hinges, &
Latches**



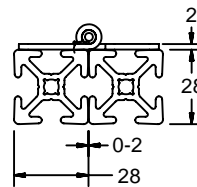
40 to 40 Series



40 to 28 Series



28 to 28 Series



Application

Steel hinges for constructing guard/ enclosure doors. Lift-off option allows access into enclosure. Specify a left hand or right hand lift-off hinge set depending on required direction of door opening.

Technical Data

Steel, Black Zinc Plated

Recommended Fasteners (Order Separately)

Series	Screws	T-Nuts
40	24-112-8	20-058
28	24-108-6	20-055
1.5"	25-108-4	25-001
1"	25-106-4	25-031

Ordering Information

Description	Unit*	Weight (g)	Part #
Steel Hinge 40/1.5" - Left	Each	18	23-252L
Steel Hinge 40/1.5" - Fixed	Each	18	23-252***
Steel Hinge 40/1.5" - Right	Each	18	23-252R
Steel Hinge 40/1.5" to 28/1" - Left	Each	14	23-251L
Steel Hinge 40/1.5" to 28/1" - Fixed	Each	14	23-251**
Steel Hinge 40/1.5" to 28/1" - Right	Each	14	23-251R
Steel Hinge 28/1" - Left	Each	13	23-250L
Steel Hinge 28/1" - Fixed	Each	13	23-250*
Steel Hinge 28/1" - Right	Each	13	23-250R

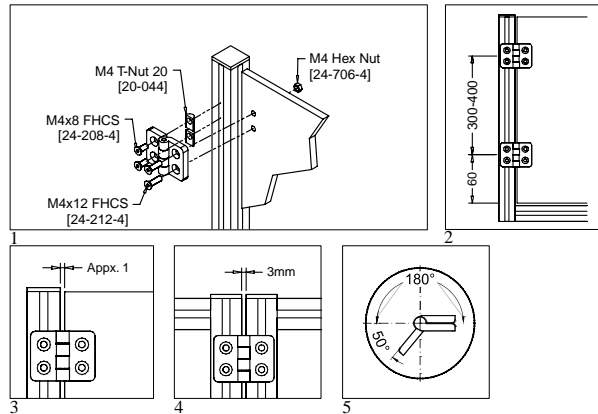
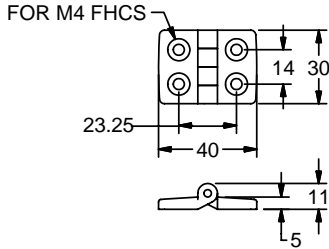
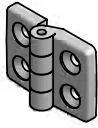
*Order 23-250L & 23-250R

**Order 23-251L & 23-251R

***Order 23-252L & 23-252R

Light Duty 20

23-020



- 1 Assembly of Hinge 20 on panel
- 2 Hinge positions
- 3-4 Clearance dimensions
- 5 Range of swing

Application

For light doors and lids constructed of 20 Series profiles

Technical Data

Glass-Filled Nylon, Black
Max Force: 200 N (45 lbf)

Recommended Fasteners (Order Separately)

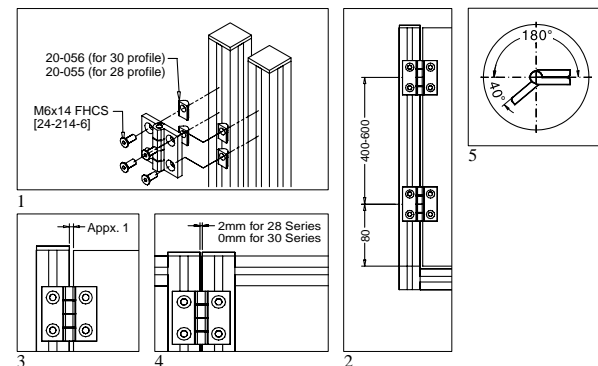
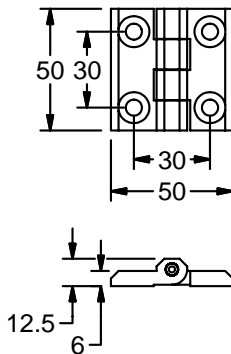
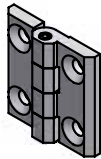
Screws	T-Nuts
24-208-4	20-044

Ordering Information

Description	Unit	Weight (g)	Part #
Hinge 20 Series	Each	7	23-020

Medium Hinge 30/28

23-242



- 1 Assembly of Medium Hinge 30/28 on profiles
- 2 Hinge positions
- 3-4 Clearance dimensions
- 5 Range of swing

Application

Suitable for medium loads such as machine and guard doors. Can be used with 30 or 28 Series profiles.

Technical Data

Zinc Cast, Black Powdercoat
Pin: Stainless Steel
Max Force: 1000 N (225 lbf)

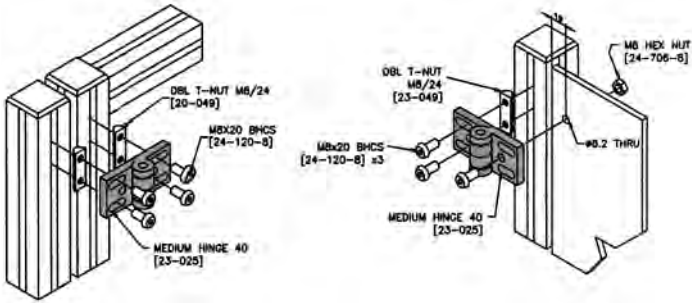
Recommended Fasteners (Order Separately)

Series	Screws	T-Nut
30	24-214-6	20-056
28	24-214-6	20-055

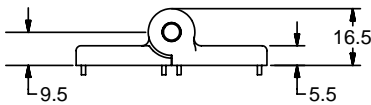
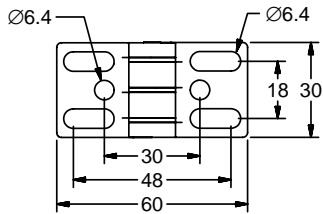
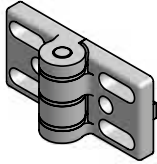
Ordering Information

Description	Unit	Weight (g)	Part #
Medium Hinge 30/28	Each	86	23-242

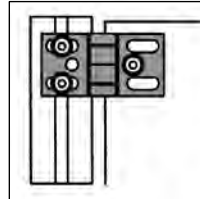
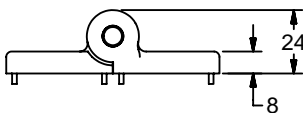
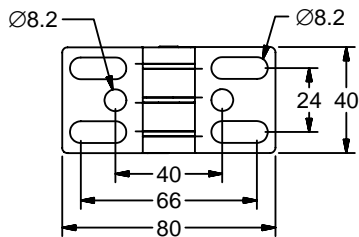
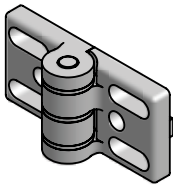
Medium Hinge



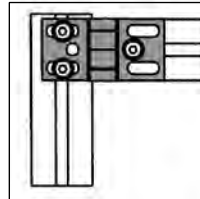
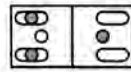
23-024



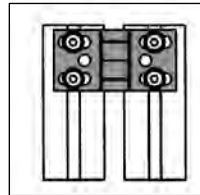
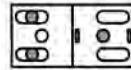
23-025



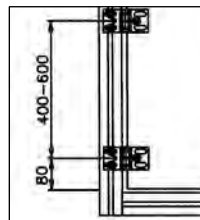
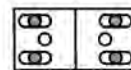
1 Fastening to vertical profile and panel element (all anti-torsion pins removed).



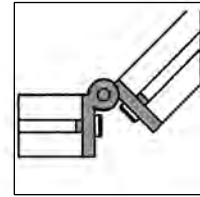
2 Fastening to vertical and horizontal profiles (2 anti-torsion pins removed).



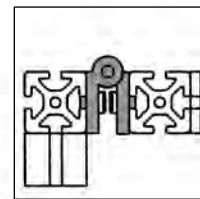
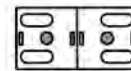
3 Fastening to vertical profiles (all anti-torsion pins removed).



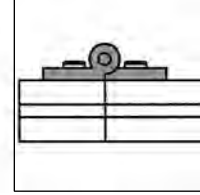
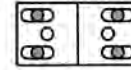
4 Positioning of hinges on a panel.



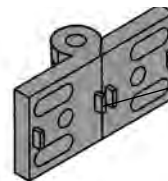
5 End face fastening of two profiles (with anti-torsion pins).



6 Connection of two horizontal profiles (all anti-torsion pins removed).



7 Connection of two horizontal profiles (with anti-torsion pins).



Anti-torsion pins can be removed with a screwdriver

Technical Data

Zinc Cast, Galvanized, Black

Max Force:

23-024: 350 N (78 lbf)

23-025: 500 N (112 lbf)

Recommended Fasteners (Order Separately)

Series	Screw	T-Nut
40	24-120-8	20-058
30	24-116-6	20-056

Application

Suitable for medium loads such as machine and guard/enclosure doors, and as an angle connecting element for profiles. Fastens to T-Slot or profile face with integral anti-torsion pins for precise squaring.

Ordering Information

Description

Medium Hinge 30

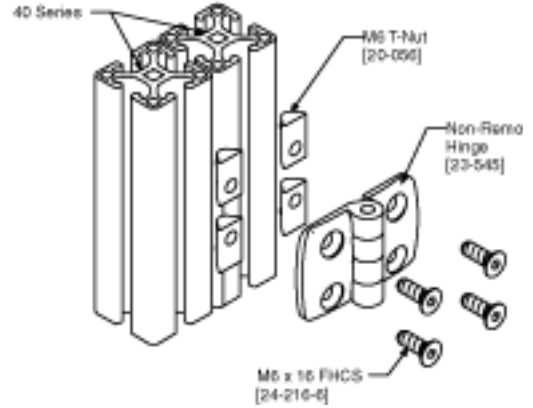
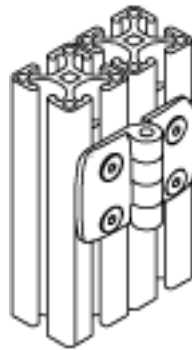
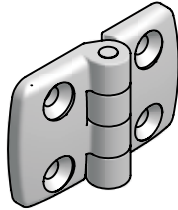
Medium Hinge 40

Unit Weight (g) Part

Each 180 23-024

Each 180 23-025

Medium Duty Plastic (Metric)



Application

High-quality plastic hinges for constructing medium duty guard/ enclosure doors.

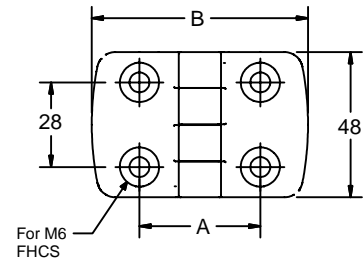
Technical Data

Glass-Filled Nylon, Black
Stainless Steel Pin

Max Force:
23-535: 400 N (90 lbf)
23-545: 450 N (100 lbf)
23-550: 380 N (85 lbf)

Ordering Information

A	B	Hinge Type	Weight (g)	Part #
45	77	Non Removable	43	23-545
35	59	Non Removable	35	23-535
30	49	Non Removable	28	23-550



Application Chart

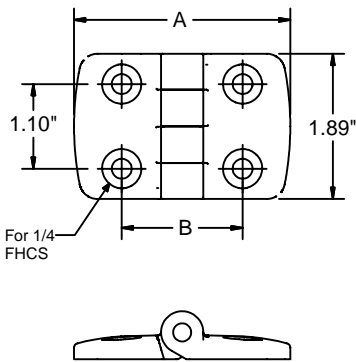
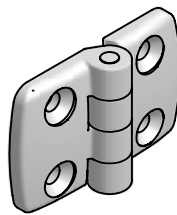
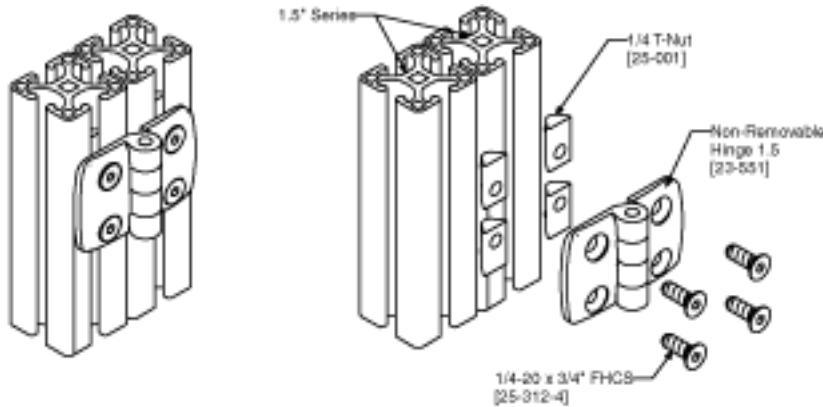
Mounting Surface 1	Mounting Surface 2	Gap	Non-Rem Hinge
40 Series	40 Series	5	23-545
40 Series	Panel	-	
28 Series	40 Series	1	23-535
30 Series	40 Series	0	
28, 40 Series	Panel	-	23-550
30 Series	30 Series	0	
30, 28 Series	Panel	-	
28 Series	28 Series	7	

Recommended Fasteners (Order Separately)

Series	Screw	T-Nut	Panel	Screw	T-Nut
28	24-214-6	20-055	6mm Panel	-	-
30	24-214-6	20-056	6mm Panel	24-220-6	24-716-6
40	24-216-6	20-056	8mm Panel	24-220-6	24-716-6

Hinges

Medium Duty Plastic (Inch)



Application

High-quality plastic hinges for constructing medium duty guard/ enclosure doors.

Technical Data

Glass-Filled Nylon, Black
Stainless Steel Pin

Max Force:
23-550: 380 N (85 lbf)
23-551: 400 N (90 lbf)
23-552: 400 N (90 lbf)

Recommended Fasteners (Order Separately)

Series	Screws	T-Nuts
1.5"	25-212-4	25-001
1"	25-208-4	25-031

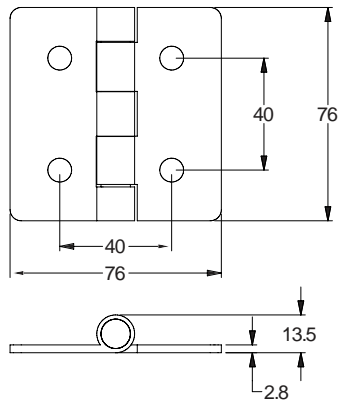
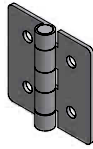
Ordering Information

A	B	Hinge Type	Weight (g)	Part #
2.74"	1.57"	Non Removable, 1.5" to 1.5"	43	23-551
2.28"	1.38"	Non Removable, 1.5" to 1"	35	23-552
1.93"	1.18"	Non Removable, 1" to 1"	28	23-550

Handles,
Hinges, &
Latches

Butt Hinge 40

23-011
23-011B



Application

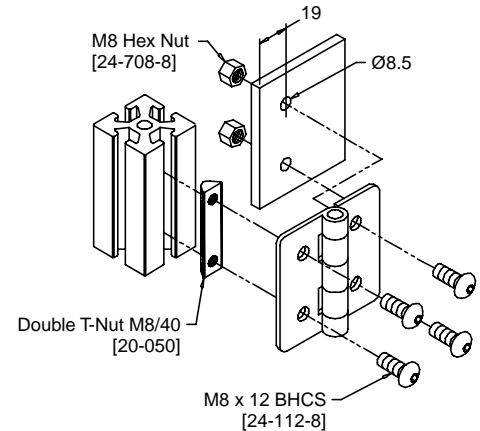
Steel hinge for constructing profile framed doors or panel doors.

Technical Data

Steel, Zinc Plated or Black Powdercoat.
Max Force: 250 N (56lbf)

Recommended Fasteners (Order Separately)

Mounting	Screws	T-Nuts	Hex Nuts
To 40 Series (Per Hinge Side)	24-112-8	20-050	—
To Panel (Per Hinge Side)	24-112-8	—	24-708-8

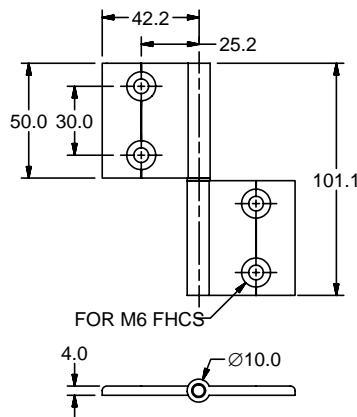
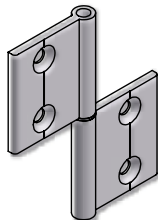


Ordering Information

Description	Unit	Wgt (g)	Part # (Clear)	Part # (Black)
Butt Hinge 40	Each	160	23-011	23-011B

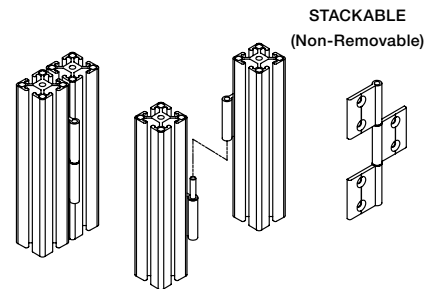
Concealed

23-225



Application

For inside or concealed door or lids. Used with 40 and 1.5" Series profiles using M6 T-nuts. Concealed hinges are stackable to create non-removable hinges. To create a stackable hinge, order an additional hinge half and an additional hinge pin.



Technical Data

Wings: Aluminum, Clear Anodized
Bolt: Stainless Steel
Max Force: 225 N (50 lbf)

Recommended Fasteners (Order Separately)

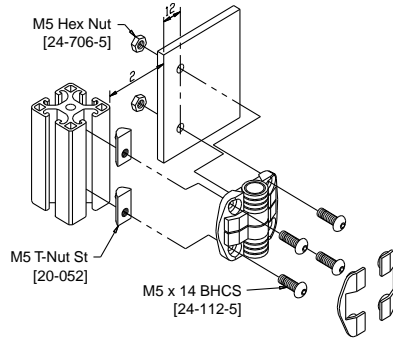
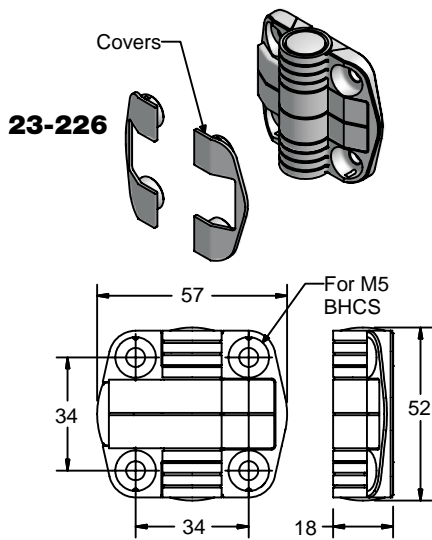
Screws	T-Nuts
24-216-6	20-056

Ordering Information

Description	Unit	Weight (g)	Part #
Full Hinge	Set	39.8	23-225
Half Hinge	Each	24	23-225Z1
Hinge Pin	Each	11.8	23-225Z2

Hinges

Positioning



Application

120° position hinge for swinging doors.

Technical Data

Acetal, Black
 Positioning Torque: 1.1 Nm (0.8 ft-lbf)
 Max Force: 325 N (73 lbf)

Recommended Fasteners (Order Separately)

Profile to Panel

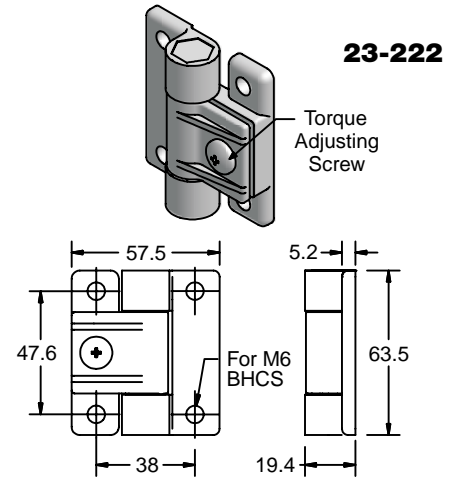
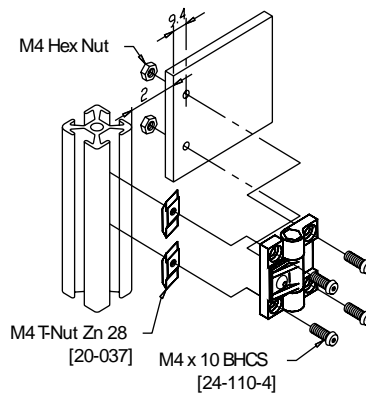
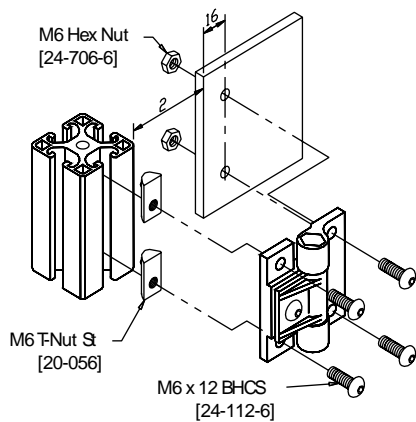
Screws	T-Nut	Hex Nut
24-112-5	20-052	24-706-5

Ordering Information

Description	Unit	Weight (g)	Part #
Positioning Hinge 120°	Each	37	23-226

Handles, Hinges, & Latches

Adjustable

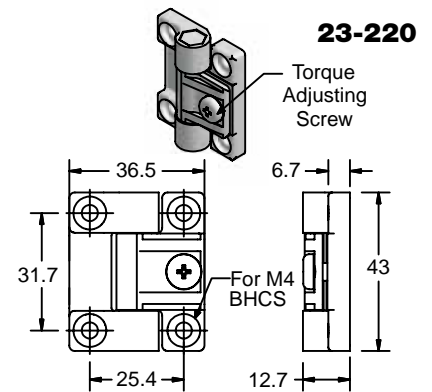


Application

Adjustable tension hinge for swinging doors to hold door open, partially open or closed. Can also adjust speed of opening or closing. Tighten the torque adjusting screw to increase the holding force and slow the opening and closing speed. Loosen the torque adjusting screw to decrease the holding force and speed up the opening and closing of the door.

Technical Data

Acetal, Black
 Polycarbonate Hinge Pin
 Max Force:
 23-220: 890 N (200 lbf)
 23-224: 2000 N (450 lbf)



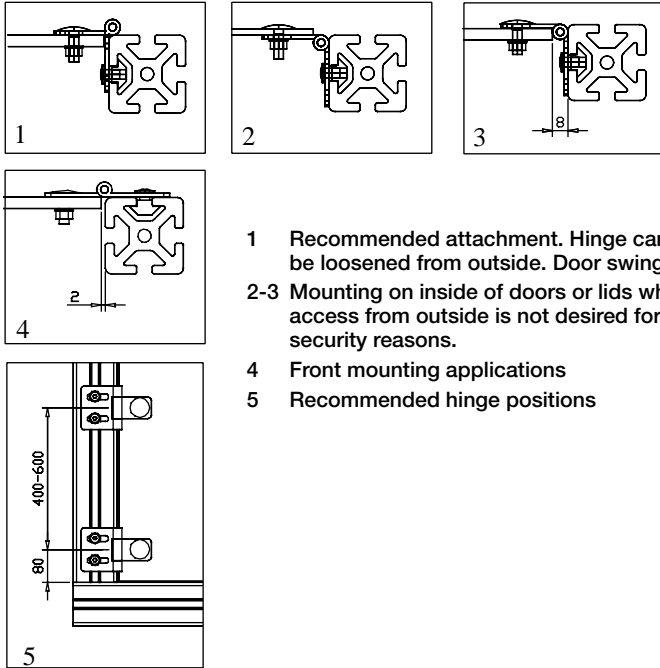
Recommended Fasteners (Order Separately)

Part #	Series	Screws	T-Nut	Hex Nut
23-222	40	(2) 24-112-6 (2) M6 sized for panel	(2) 20-056	(2) 24-706-6
	1.5"	(2) 25-110-4	(2) 25-001	(2) 25-706-4
23-220	28	(2) 24-110-4 (2) M4 sized for panel	(2) 20-037	(2) 24-706-4
	1"	(2) 25-106-1	(2) 25-045	(4) 25-043

Ordering Information

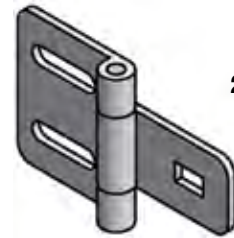
Description	Unit	Weight (g)	Part #
Adjustable Hinge 40/1.5"	Each	42	23-222
Adjustable Hinge 28/1"	Each	38	23-220

Hinges

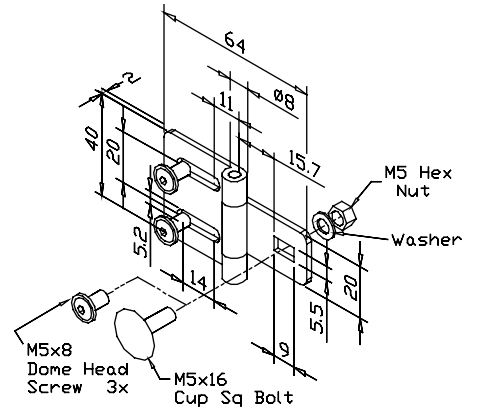


- 1 Recommended attachment. Hinge cannot be loosened from outside. Door swings 180°
- 2-3 Mounting on inside of doors or lids where access from outside is not desired for security reasons.
- 4 Front mounting applications
- 5 Recommended hinge positions

Panel Hinge



23-016



Application

For outside or inside of doors and lids. Used with 40, 30, 28, 20 and 1.5" Series profiles using M5 T-nuts.

Technical Data

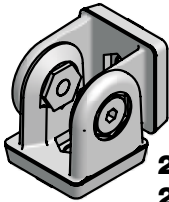
Steel, Black
 Includes: M5x16 cup square bolt, M5 hex nut, M5 washer, three M5x8 dome head screws. **Order M5 T-nuts separately. Different hardware may be required, depending on application; order separately.**
 Max Force: 250 N (56 lbf)

Ordering Information

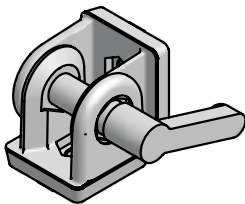
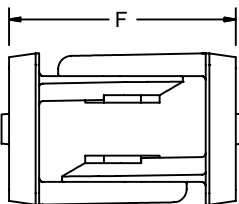
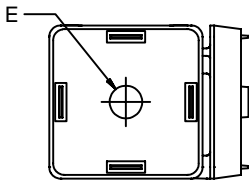
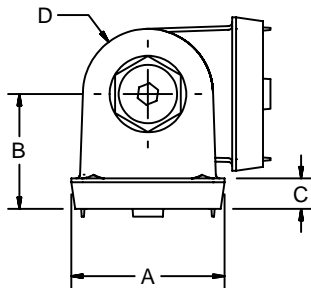
Description	Unit	Weight (g)	Part #
Panel Hinge	Set	51	23-016

**Handles,
Hinges, &
Latches**

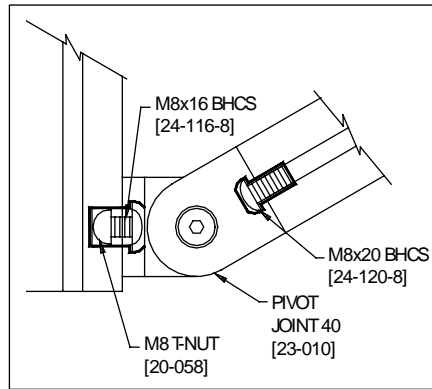
Pivot Joint



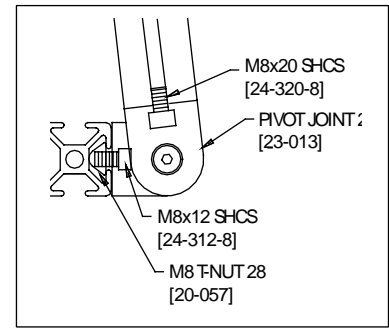
- 23-010 (B)**
- 23-013 (B)**
- 23-260**
- 23-262**



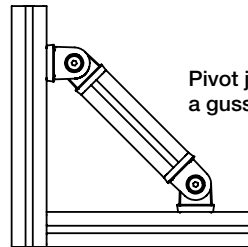
- 23-014 (B)**
- 23-015 (B)**
- 23-261**
- 23-263**



Attaching Pivot Joint 40 to 40 series profiles



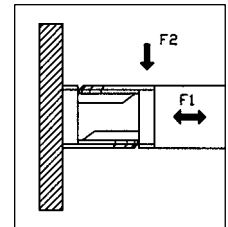
Attaching Pivot Joint 28 to 28 series profiles



Pivot joint as a gusset

	Load — N (lbs)	
	F1	F2
23-010: Pivot Joint 40		
Fixed connection:	5000 (1124)	2500 (1502)
Movable connection:	750 (168)	750 (168)
23-013: Pivot Joint 28		
Fixed connection:	1600 (360)	800 (180)
Movable connection:	250 (56)	250 (56)

Series	Dimensions					
	A	B	C	D	E	F
40	40	30	9	40	8.5	60
28/30	28	22.5	7	27	8.3	45
1.5"	1.57"	1.18"	0.16"	1.34"	0.335"	2.36"
1"	1.10"	0.89"	0.28"	1.04"	0.260"	1.78"



Application

For connecting profiles at various angles from 0° to 180°. Eliminates the need for a miter cut. Die-cast inserts provide alignment with the profile end and prevents rotation.

Technical Data

Zinc Die-Cast, Galvanized

Finishes available: Clear or Black (B)

Recommended Fasteners (Order Separately)

Series	Attachment to T-Slot		Attachment to End of Profile
	Screws	T-Nut	Screws
40	24-116-8	20-058	24-120-8
28/30	24-312-8	20-057	24-320-8
1.5"	25-110-5	25-002	25-112-5
1"	25-108-4	25-031	25-112-4

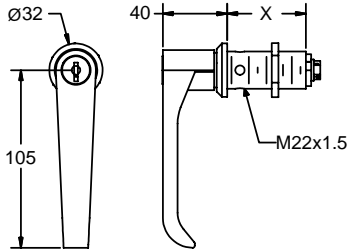
Pivot Joints

Ordering Information

Series	Description	Unit	Weight (g)	(Clear)	(Black)
40	Pivot Joint	Each	370	23-010	23-010B
	Pivot Joint with Clamp Handle	Each	410	23-014	23-014B
30, 28	Pivot Joint	Each	110	23-013	23-013B
	Pivot Joint with Clamp Handle	Each	180	23-015	23-015B
1.5"	Pivot Joint	Each	320	23-262	
	Pivot Joint with Clamp Handle	Each	410	23-263	
1"	Pivot Joint	Each	110	23-260	
	Pivot Joint with Clamp Handle	Each	180	23-261	

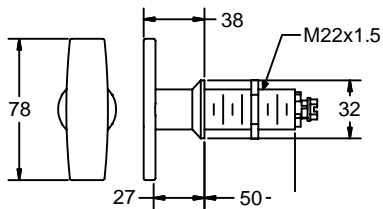
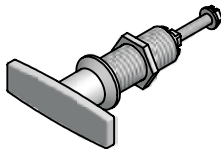
Quarter Turn Handle

- 23-038** ¹
- 23-039**
- 23-040** ¹
- 23-041**

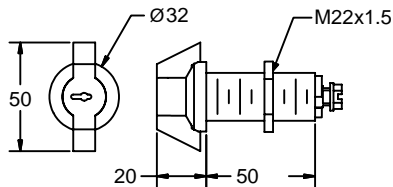
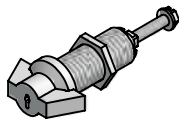


23-038, 23-039: X = 50
 23-040, 23-041: X = 40

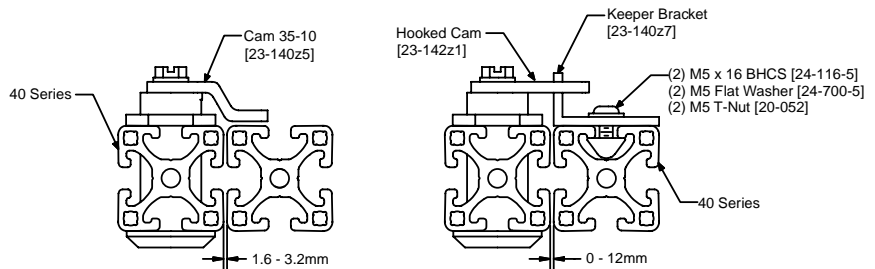
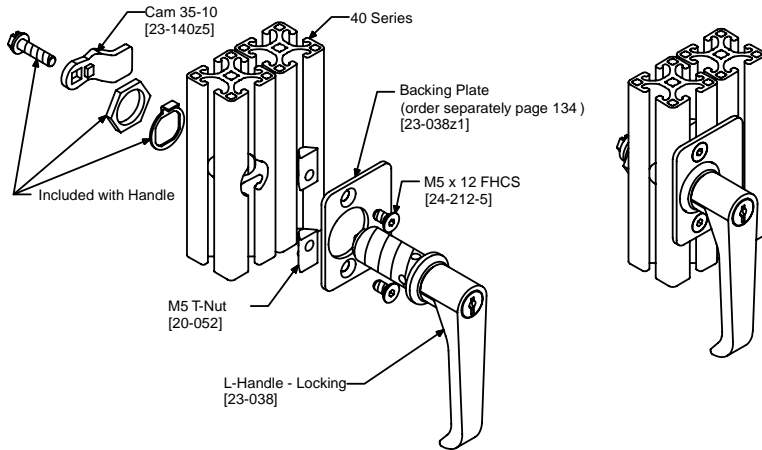
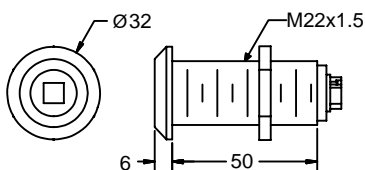
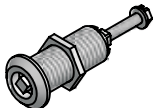
- 23-133**



- 23-134** ¹



- 23-135** ²

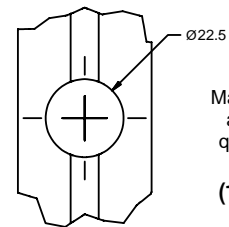


Application

Used for swinging, sliding or bifold door applications. Latch mounts through machined hole in extrusion.

Technical Data

Handle: Polyamide, Black
 Housing/Insert: Zinc Die-Cast, Black Powdercoat.
 Service Charge 19-018



Machining for any of the quarter turn locks.
(19-018)

Ordering Information

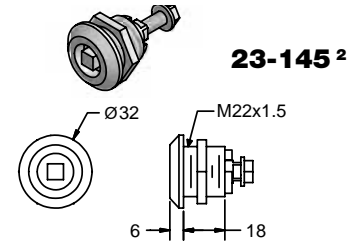
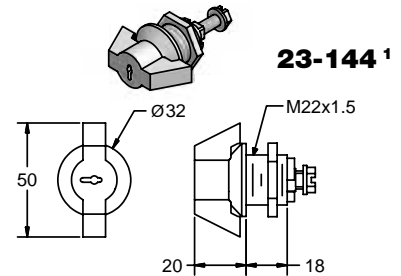
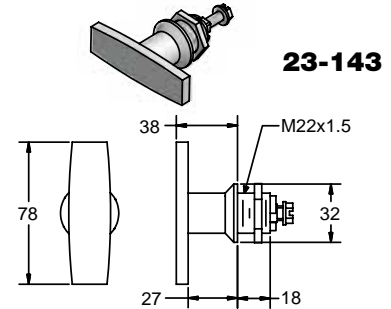
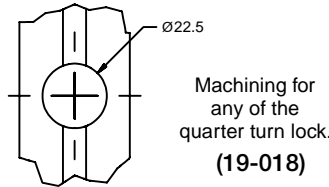
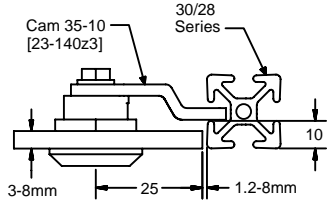
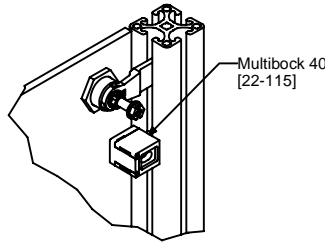
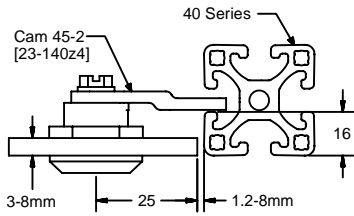
Profile Series	Description	Unit	Weight (g)	Part #
40	L-Handle, Locking*	Each	201	23-038
	L-Handle, Non-Locking*	Each	201	23-039
	T-Handle, Non-Locking*	Each	200	23-133
	Wing Knob, Locking*	Each	160	23-134
	Square Insert*	Each	50	23-135
28/30	L-Handle, Non-Locking*	Each	201	23-041
	L-Handle, Locking*	Each	201	23-040

* All locks come keyed alike except 28 Series; special keying options available as special order. Order spare key separately (see page 157).



Latches

Quarter Turn Handle



Application

Used for swinging door applications. Latch mounts directly to panel.

Technical Data

Handle: Polyamide, Black
Housing/Insert: Zinc Die-Cast, Black Powdercoat.

Service Charge 19-018

Ordering Information

Description	Unit	Weight (g)	Part #
T-Handle, Non-Locking	Each	135	23-143
Wing Knob, Locking*	Each	90	23-144
Square Insert*	Each	50	23-145

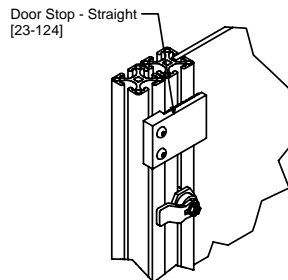
* All Locks come keyed alike; special keying options available as special order. Order spare key separately (see page 154).

Handles, Hinges, & Latches

Application

Various cams and keys for the quarter turn latches. You must order one cam per quarter turn lock.

Part #	Dimension A
23-140Z3	8
23-140Z4	2
23-140Z5	10
23-140Z6	-2



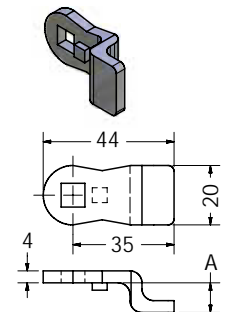
Ordering Information

Description	Unit	Weight (g)	Part #
Cam 35-10 (offset 8)	Each	22	23-140Z3
Cam 35-16 (offset 2)	Each	22	23-140Z4
Cam 35-8 (offset 10)	Each	18	23-140Z5
Cam 35-20 (offset -2)	Each	20	23-140Z6
Hooked Cam	Each	13	23-142Z1
1 Spare Key for 23-038/23-040 & 23-134/23-144	Each	4	23-140Z1
2 Square Key for 23-135/23-145	Each	4	23-140Z2

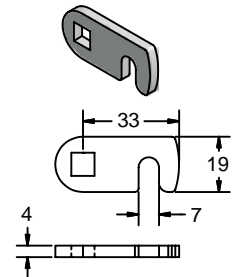


Cams & Keys

23-140Z4
23-140Z5
23-140Z6



23-142Z1



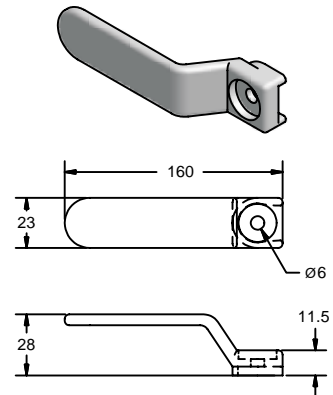
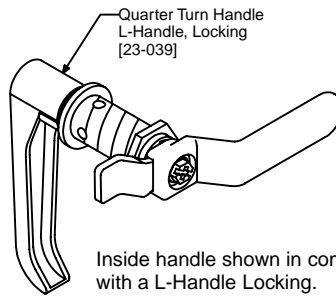
Inside Handle

Application

Can be combined with any of our quarter turn handles to extend operation to inside of door.

Technical Data

Polyamide, Red



23-159

Recommended Fasteners (Order Separately)

Quarter Turn Handle Part #	Screw	Washers
23-038, 23-039, 23-133	24-345-6	24-707-6, 24-711-6
23-040, 23-041	24-335-6	24-707-6, 24-711-6

Ordering Information

Description	Unit	Weight (g)	Part #
Inside Handle	Each	0.9	23-159

Keeper Bracket

Application

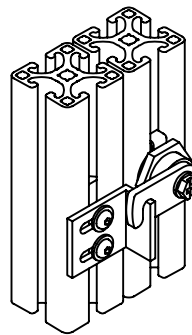
Keeper brackets are used with a hooked cam on bifold or sliding doors.

Technical Data

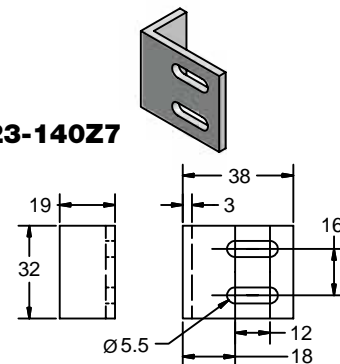
Aluminum, Clear Anodized

Recommended Fasteners (Order Separately)

Series	Screw	Washer	T-Nut
40	24-116-5	24-700-5	20-052
1.5"	25-110-2	25-700-2	25-009



23-140Z7



Backing Plate

Ordering Information

Description	Unit	Weight (g)	Part #
Keeper Bracket	Each	13	23-140Z7

Application

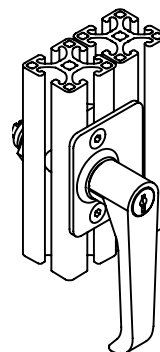
Backing plates can be added to a quarter turn latch and provide a positive stop for the door.

Technical Data

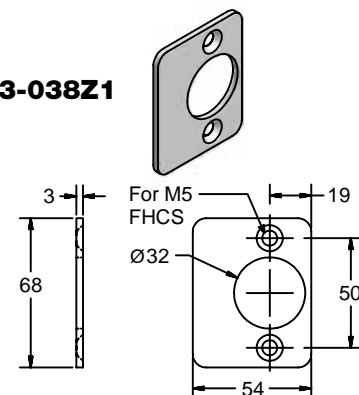
Steel, Matte Black Powder Coated

Recommended Fasteners (Order Separately)

Screws	T-Nut
24-212-5	20-052



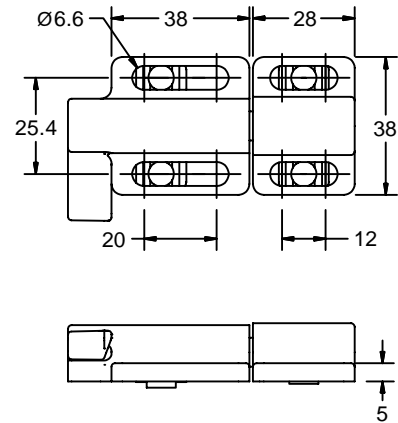
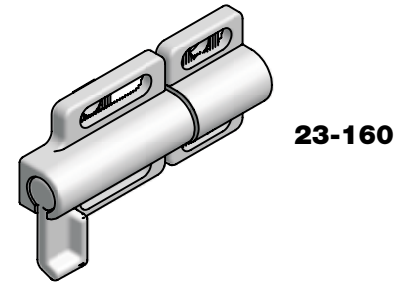
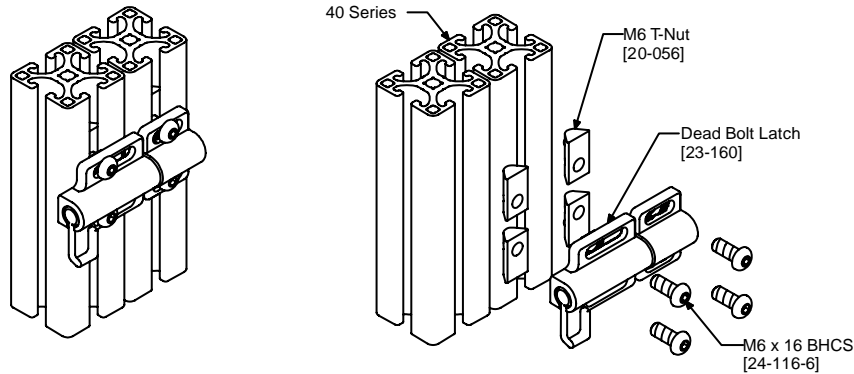
23-038Z1



Ordering Information

Description	Unit	Weight (g)	Part #
Backing Plate	Each	4.5	23-038Z1

Deadbolt



Application

Designed to secure doors using a spring loaded latch mechanism. Combine with a door stop for an effective latching solution.

Technical Data

Die-Cast Zinc, Clear

Recommended Fasteners (Order Separately)

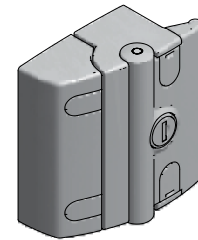
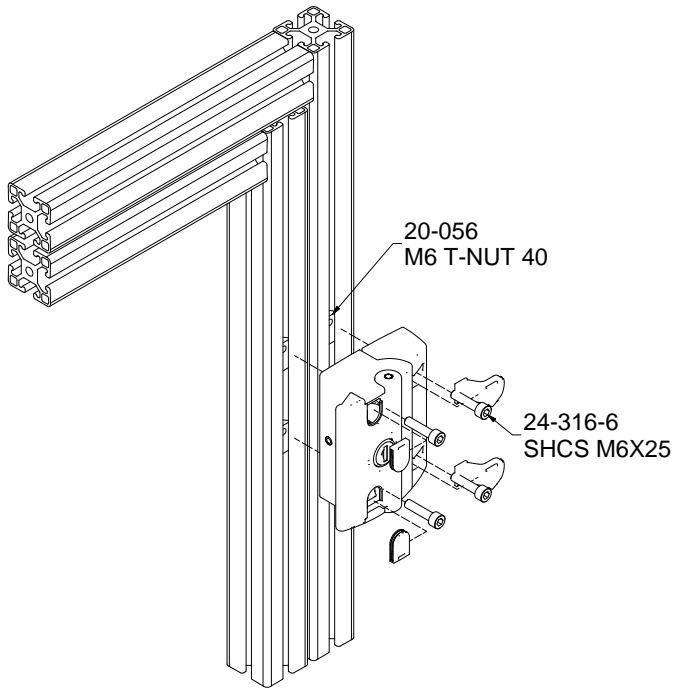
Profile Series	Screws	T-Nut
40	24-116-6	20-056
28/30	24-112-6	25-055
1.5"	25-110-4	25-001
1"	25-108-4	25-031

Ordering Information

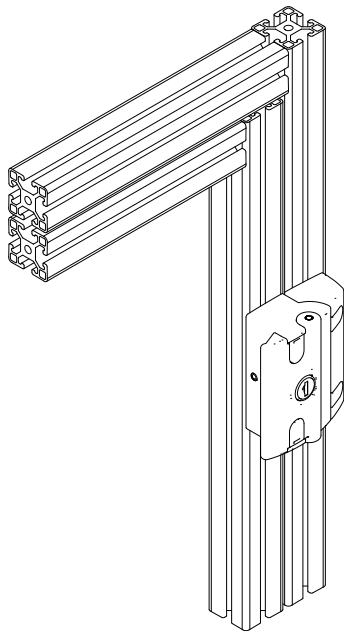
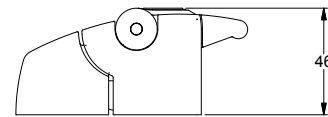
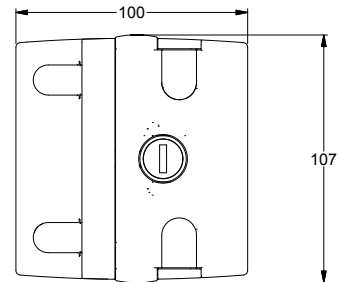
Description	Unit	Weight (g)	Part #
Dead Bolt Latch	Each	9	23-160

Handles,
Hinges, &
Latches

Slam Latch



23-155
23-156



Application

High strength latch designed to securely close door to the frame. An optional key locking version is available for extra security. Use with 40 and 1.5" Series only.

Technical Data

Die-Cast Zinc, Black

Recommended Fasteners (Order Separately)

Screw	T-Nut
24-316-6	20-056

Ordering Information

Description

Slam Latch - Locking*

Slam Latch - Non-Locking

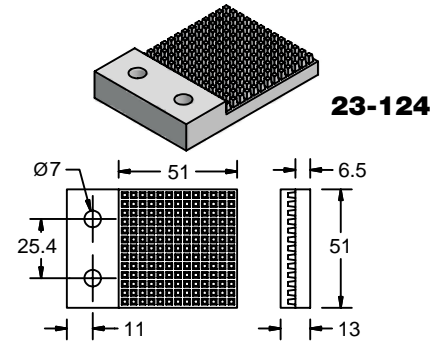
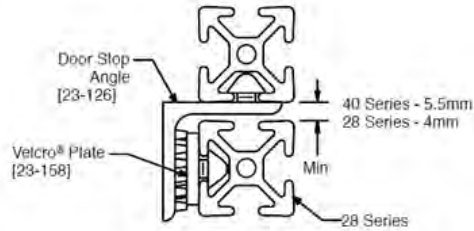
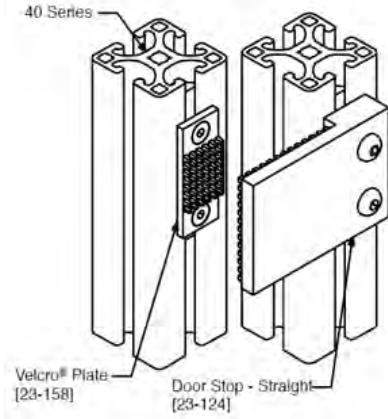
Unit Weight (g) Part #

Each 370 23-155

Each 340 23-156

*All locks come keyed alike; special keying options available as special order.

Light Duty Door Stops



Application

Door Stops provide a positive stop to keep the door lined up with a frame. A Velcro® plate can be added to create a light-duty catch.

Technical Data

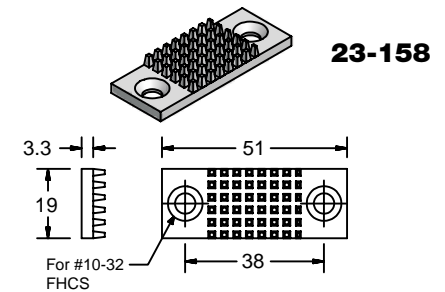
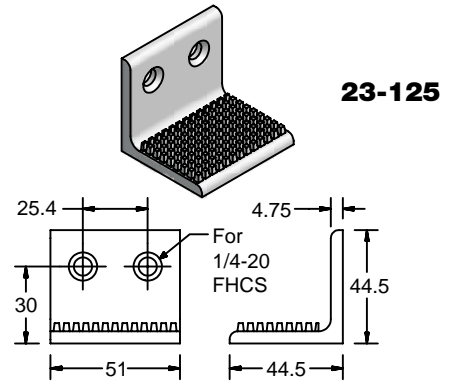
Aluminum, Clear Anodized with Velcro® Pad

Recommended Fasteners (Order Separately)

Profile Series	Fastener	Part # 23-124	Part # 23-125	Part # 23-158
40/30	Screws	25-114-4	25-210-4	25-208-2
	T-Nuts	25-001	25-001	25-009
28	Screws	25-112-4	25-208-4	25-208-2
	T-Nuts	25-055	25-055	20-038
1"	Screws	25-112-4	25-206-2	25-206-2
	T-Nuts	25-031	25-030	25-030

Ordering Information

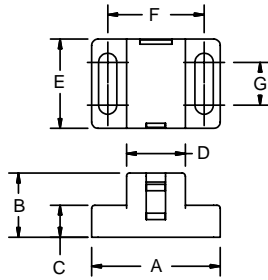
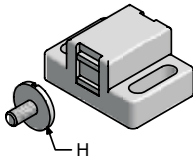
Description	Unit	Weight (g)	Part #
Door Stop - Straight	Each	91	23-124
Door Stop - Angle	Each	91	23-125
Velcro® Plate	Each	9	23-158



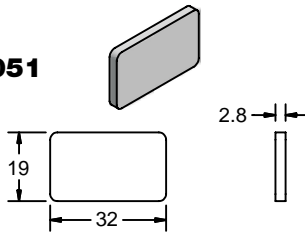
Handles, Hinges, & Latches

Magnetic Catches

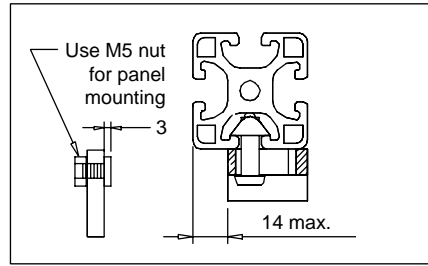
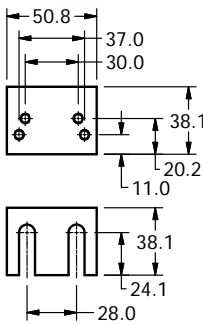
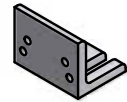
23-045
23-046



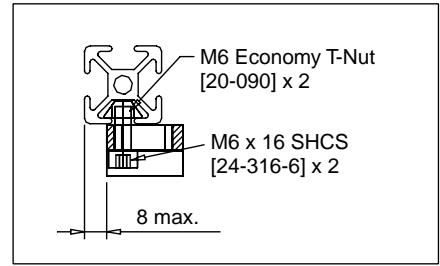
23-051



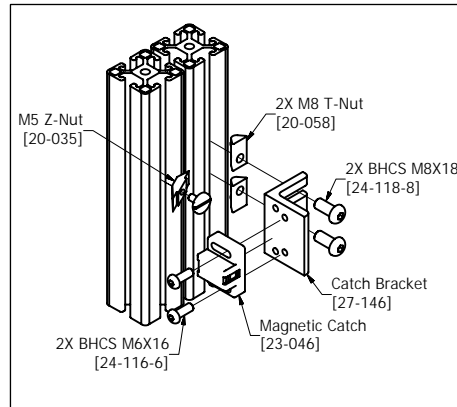
27-146



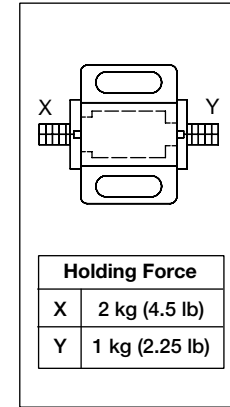
1



2



3



4

- 1 Mounting to 40 Series profile
- 2 Mounting to 28 Series profile
- 3 Assembly Bracket on 40 Series profile
- 4 Holding force for 23-046

Holding Force	
X	2 kg (4.5 lb)
Y	1 kg (2.25 lb)

Application

Quick catch for swinging or sliding doors. For different holding strengths, rotate catch 180°. Adjustable mounting position using slotted holes and appropriate mounting bracket if needed. Complete with pan head screw, or add optional plate for smooth mounting

Ordering Information

Series	A	B	C	D	E	F	G	H	Wgt (g)	Part #
40, 30, 28, 1.5"	40	20	10	18.32	27.8	30	12.9	M5x12	38	23-046
20, 1"	28	14	6	12	17	20	7.7	M4x5	9	23-045
All	See drawing								8	23-051

Technical Data

25-043 & 23-046 Magnetic Catch: Glass-Filled Nylon

23-051 Strike Plate: Steel, Zinc Plated with pressure sensitive adhesive backing.

27-146 Mounting Bracket: Aluminum, Clear Anodized.

Magnetic Catches

Recommended Fasteners (Order Separately)

Magnetic Catch Mounting Options

Series	Part #	Type	Mounted to Extrusion	Mounted to Bracket (Part Number 27-146)
40	23-046	Screw	24-120-6	24-116-6
		T-Nut	20-056	—
30	23-046	Screw	24-316-6	24-116-6
		T-Nut	20-090	—
28	23-046	Screw	24-316-6	24-116-6
		T-Nut	20-090	—
20	23-045	Screw	24-110-4	Extrusion Only
		T-Nut	20-044	
1.5"	23-046	Screw	25-112-4	24-116-6
		T-Nut	25-001	—
1.0"	23-045	Screw	25-108-2	Extrusion Only
		T-Nut	25-030	

Magnet Mounting Options

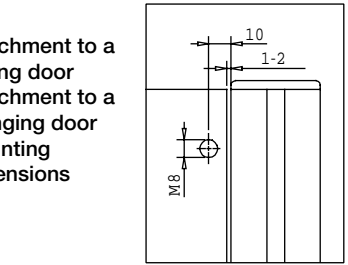
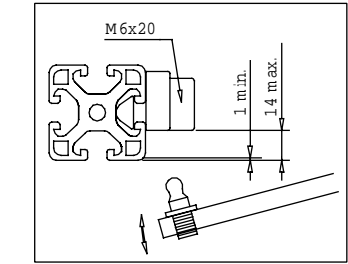
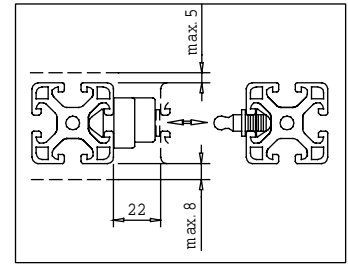
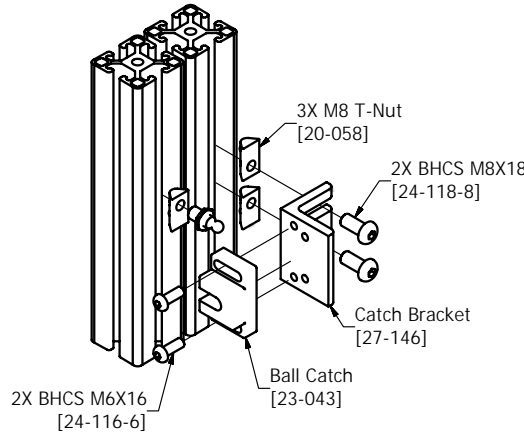
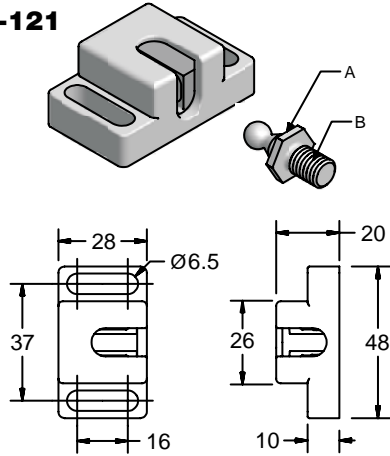
Series	Part #	Type	Screw (comes with the catch)	Strike Plate (Part Number 23-051)
40	23-046	T-Nut	20-035	—
30	23-046	T-Nut	20-038	—
28	23-046	T-Nut	20-038	—
20	23-045	T-Nut	20-045	—
1.5"	23-046	T-Nut	20-035	—
1.0"	23-045	T-Nut	Strike Plate Only	—

Bracket Mounting Options

Series	Part #	Type	Mounted to Extrusion
40	27-146	Screw	24-118-8
		T-Nut	20-058
30	27-146	Screw	24-116-8
		T-Nut	20-058
28	27-146	Screw	24-114-8
		T-Nut	20-057
1.5"	27-146	Screw	25-110-5
		T-Nut	25-002

Ball Catch

23-043
23-121



Application

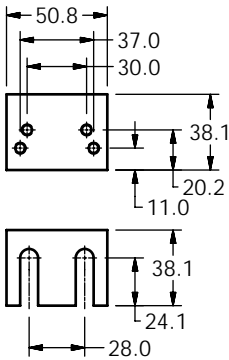
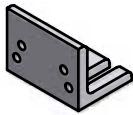
Catch for use on swinging and sliding doors. Brackets can be used to mount the catch in the location that you desire.

Technical Data

Housing: Glass-filled Nylon, Black
 Ball Screw: Stainless Steel
 Bracket: Aluminum, Anodized
 Holding Strength: 3-5 kg (6-110 lbs)

- 1 Attachment to a sliding door
- 2 Attachment to a swinging door
- 3 Mounting dimensions

27-146



Ordering Information

Series	Description	A (Hex)	B (Thread)	Unit	Wgt (g)	Part #
40	Ball Catch	13	M8	Each	23	23-043
40/1.5"	Ball Catch	1/2"	1/4-20	Each	29	23-121

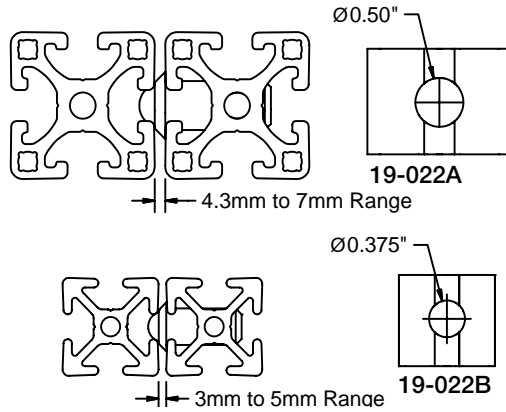
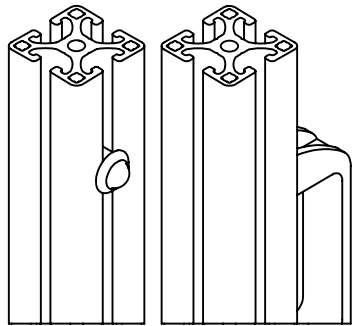
Recommended Fasteners (Order Separately)

Series	Part #	Type	Mounted to Extrusion	Mounted to Bracket (Part Number 27-146)
40	23-043	Screw	24-120-6	24-116-6
		T-Nut	20-056	—
		T-Nut	20-058	20-058
1.5"	23-121	Screw	25-112-4	24-116-6
		T-Nut	25-001	—
		T-Nut	25-002	25-002

Bracket Mounting Options

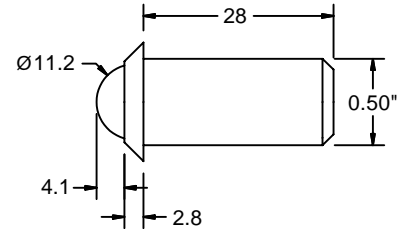
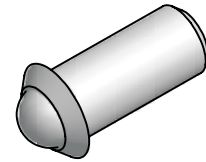
Series	Part #	Type	Mounted to Extrusion
40	27-146	Screw	24-118-8
		T-Nut	20-058
1.5"	27-146	Screw	25-110-5
		T-Nut	25-002

Door Catches

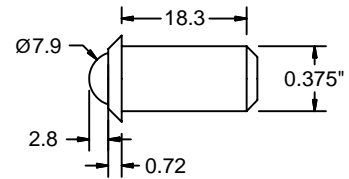
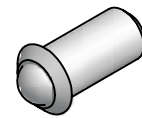


Ball Plungers

23-129



23-128



Application

An economical solution to hold swinging doors closed. The ball plunger presses easily into a machined hole in the extrusion, and the force of the ball in combination with a T-Slot on the door frame holds the door closed.

Technical Data

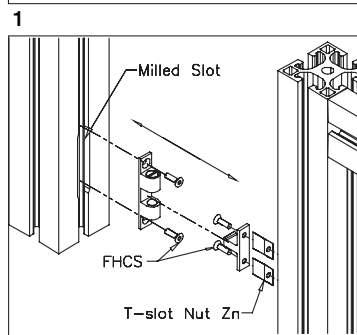
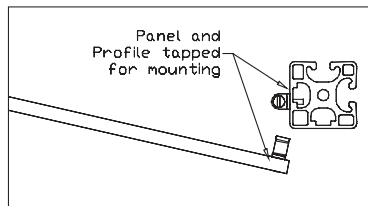
Housing: Steel, Black Oxide
Ball: Nylon

Part#	Holding Strength
23-128	2-6 kg (5-14 lbs.)
23-129	3-8 kg (8-18 lbs.)

Ordering Information

Profile Series	Description	Unit	Weight (g)	Part #
40, 30	1.5" Ball Plunger, 1/2" Dia. x 28mm	Each	22.7	23-129*
28, 1"	Ball Plunger, 3/8" Dia x 18mm	Each	13.6	23-128**

* Requires service 19-022A ** Requires service 19-022B



2

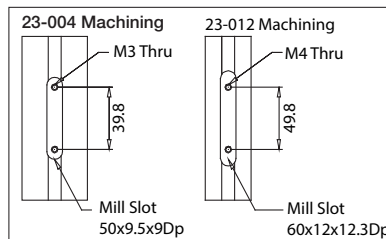
Application

Universal door catch for swinging and sliding doors in small and medium load ranges.

Description

- 3-Way Ball Catch, Small 28/30
- 3-Way Ball Catch, Medium 40

Unit	Weight (g)	Part #
Set	26	23-004
Set	40	23-012



3

- 3-Way Ball Catch on swinging door
- 3-Way Ball Catch on sliding door
- Machining for catches

Technical Data

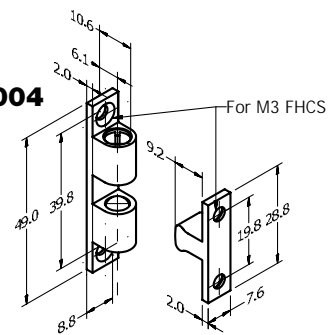
Brass, Chrome Finish
Two steel balls for adjustable spring tension

Recommended Fasteners (Order Separately)

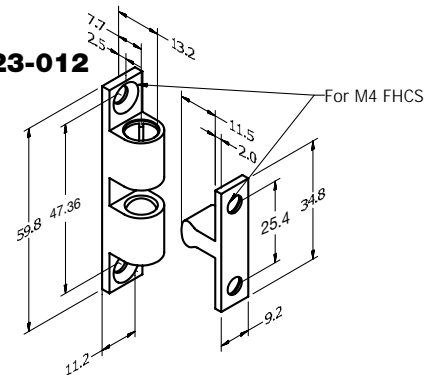
Part # 23-004	(4) 24-210-3
Part # 23-012	(4) 24-208-4

3-Way Ball Catch

23-004




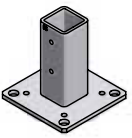




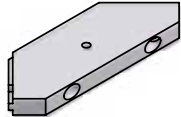




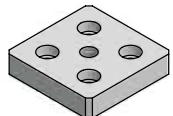
23-012



Handles, Hinges, & Latches

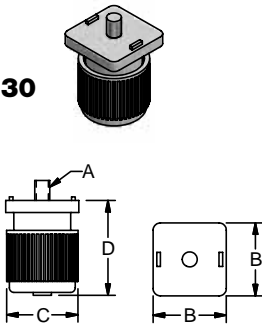
Contents

**Section 6
Feet & Casters**

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<p>Knuckle Feet 170-171</p>		<p>Hollow King Pin Casters 178</p>	
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<p>Floor Brackets 174 Economy Floor Brackets 175</p>		<p>Adapter Plates 184 Base Plates 182-183</p>	

Leveling Foot

21-001
21-001-30

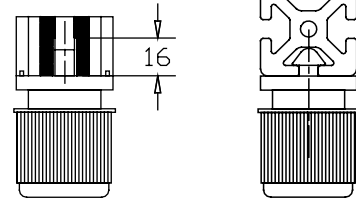


Application

For leveling tables and light equipment stands. Ratchet-type adjustment on 21-001 requires no tools. 21-001-30 is height adjustable by hand or with tools.

Technical Data

21-001
 Base - Glass-Filled Nylon, Black
 Spindle, Nut & Disk: Steel, Galvanized
 Mounts to end of 40 Series profile with machining 19-016. Fastens to T-Slot using 40 Series T-Nuts



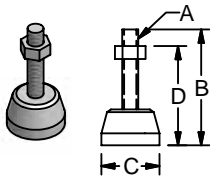
21-001-30
 Base: Glass-Filled Nylon, Black
 Spindle, Nut & Disk: Steel, Zinc Plated
 Mounts to end of 30 Series profile with machining 19-016. Fastens to T-Slot using 30 Series T-Nuts

Ordering Information

Profile Series	Dimensions					Max Load kg (lbs)	Weight (g)	Part #
	A	B	C	Dmin	Dmax			
40	M8x16	40	39	40	65	150 (331)	68	21-001
30	M8x16	30	30	37	50	150 (331)	47	21-001-30

Leveling Foot 20

21-007



Application

For leveling of light duty structures constructed of 20 series profiles

Technical Data

Base: Glass-Filled Nylon, Black
 Spindle, Nut & Disk: Steel, Zinc Plated

Ordering Information

Profile Series	Dimensions					Max Load kg (lbs)	Weight (g)	Part #
	A	B	C	Dmin	Dmax			
20	M5	37	18	12	29.5	50 (110)	12	21-007

Mounts to end of 20 Series profile with machining 19-043

* Dmin is without nut

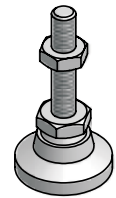
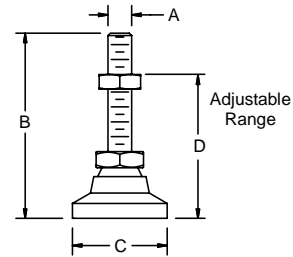
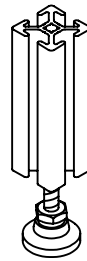
Leveling Feet

Application

For leveling of light duty structures. Constructed with a delrin base to protect the surface against scratching.

Technical Data

Base: Delrin, White
Stud: Steel, Black



21-410
21-411

Ordering Information

Profile Series	Dimensions					Max Load kg (lbs)	Weight (g)	Part #
	A	B	C	D min*	D max			
1"	1/4-20	1.94"	1.00"	0.70"	1.50"	1002 (220)	27	21-410
1.5"	3/8-16	2.88"	1.25"	0.80"	2.30"	470 (1036)	54	21-411

* Dmin is without nut.

21-411 can be used on 1.5" Profiles with a base plate.

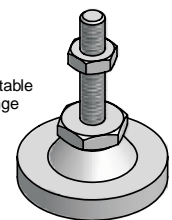
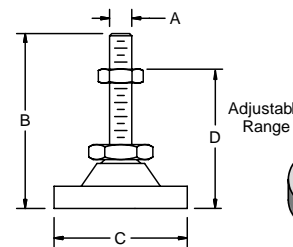
21-410 mounts to 1" Profiles with machining 19-044.

Application

For leveling of structures with high load capacity.

Technical Data

Steel



21-412
21-413
21-414

Ordering Information

Profile Series	Dimensions					Max Load kg (lbs)	Weight (g)	Part #
	A	B	C	D min*	D max			
1"	1/4-20	1.94"	1.00"	0.69"	1.50"	210 (463)	45	21-412
1.5"	3/8-16	2.88"	1.25"	0.70"	2.32"	470 (1036)	100	21-413
	1/2-13	3.13"	1.88"	0.85"	2.38"	770 (1698)	218	21-414

* Dmin is without nut.

21-413 & 21-414 can be used on 1.5" Profiles with a base plate.

21-412 mounts to 1" Profiles with machining 19-044.

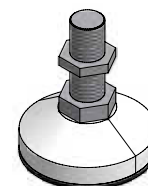
Application

For leveling of heavy duty structures constructed of 80x80 profiles

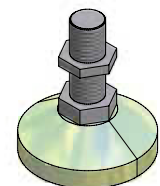
Technical Data

21-015 Base: Nylon with Non-skid Pad
Spindle & Nut: Steel, Yellow Zinc Plated

21-224 Base: Yellow Zinc Plated Steel
Spindle & Nut: Steel, Yellow Zinc Plated



21-015



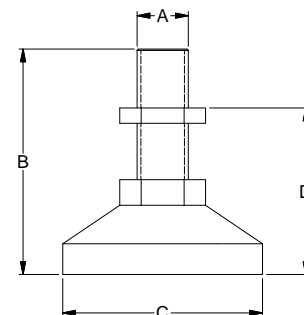
21-224

Ordering Information

Profile Series	Dimensions						Max Load kg (lbs)	Weight (g)	Part #
	A	B	C	D min*	D max	E			
40	M20	89	51	38	59	27	1200 (2646)	326	21-015
40	M20	89	51	38	59	27	2430 (5357)	771	21-224

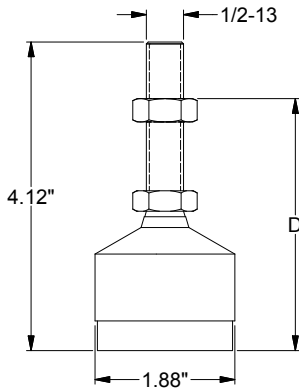
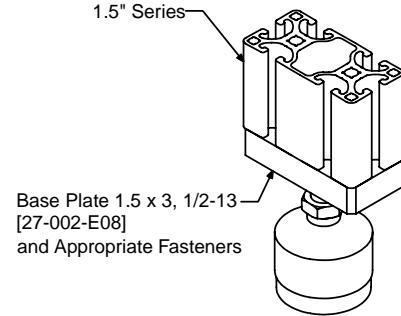
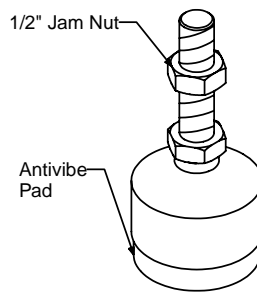
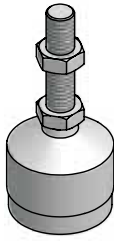
* Dmin is without nut.

Mounts to end of profile with base plate 27-003-M20.



Anti-Vibration

21-423



Application

Leveling foot with an anti-vibration pad to reduce transmitted vibration for high precision machinery.

This will reduce 98% of the transmitted vibration on most machinery.

Dmin*	Dmax
2.12"	3.37"

*Dmin is without nut.

Technical Data

Low Carbon Steel, Yellow Zinc Plated
Anti-Vibration Pad: Rubber

Part #	Max Load kg (lbs)
21-423	450 (992)

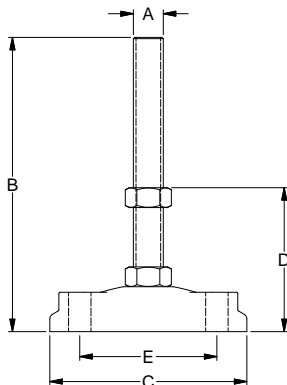
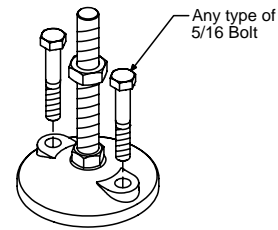
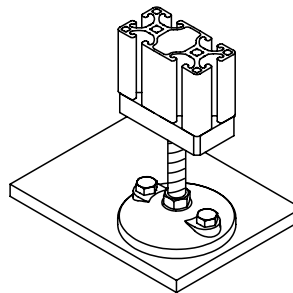
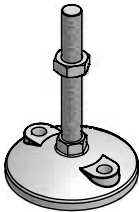
Ordering Information

Description
Anti-Vibration Feet

Unit Each
Weight (g) 370
Part # 21-423

Feet & Casters

21-420
21-421



Application

Leveling foot with holes to allow you to bolt structure directly to the floor or desired surface.

Technical Data

Base: Glass-Filled Nylon, Black
Thread & Nut - Steel Galvanized, Black

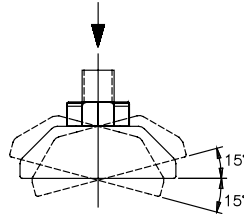
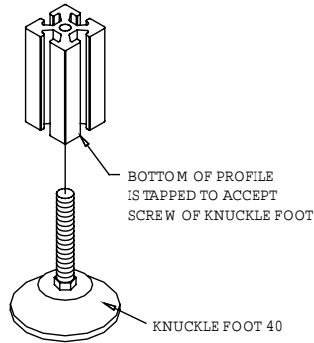
Ordering Information

Dimensions						Max Load kg (lb)	Weight (g)	Part #
A	B	C	Dmin*	D max	E			
1/2 -13	4.65	3.11	1.00"	3.90"	2.17	770 (1698)	220	21-420
5/8-11	3.94	3.94	1.10"	3.00"	2.91	900 (1984)	270	21-421

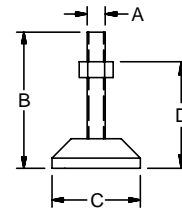
*Dmin is without nut.

Mount to end of Profile with base plate.

Knuckle Foot



21-008
21-009
21-012
21-401
21-402
21-403



Application

Adjustable height leveling foot for heavy and medium structures such as machine bases and assembly tables.

Technical Data

Base: Glass-Filled Nylon, Black
 Spindle, Nut & Disk: Steel, Galvanized
 Self-aligning leveling adjustment has a maximum tilt of 15° via ball and socket.

Ordering Information

Profile Series	Dimensions					Load kg (lbs)	Weight (g)	Part #
	A	B	C	Dmin*	Dmax			
40	M8	60	39	24	48	350 (772)	37	21-008
	M8	80	39	24	68	350 (772)	43	21-009
	M10	80	39	24	65	470 (1036)	66	21-012
28/30	M8	70	29	30	58	250 (551)	20	21-010
1.5"	5/16-18	2.40"	1.50"	0.96"	2.00"	350 (772)	36	21-401
	5/16-18	3.15"	1.50"	0.96"	2.50"	350 (772)	41	21-402
	3/8-16	3.15"	1.50"	0.96"	2.50"	470 (1036)	68	21-403

M8 (19-016) or 5/16-18 (19-045) thread mounts to end of profiles with machining called out next to thread dimension.

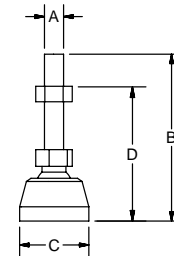
M10 (19-017) or 3/8-16 (19-046) thread mounts to end of 40 Series profiles with machining called out next to thread dimension.

All feet can be used on 40, 30, 28 and 1.5" Series Profile with a baseplate.

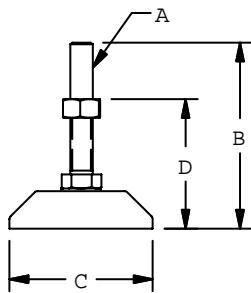
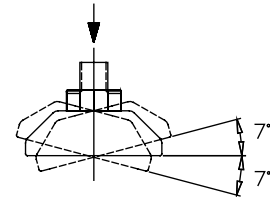
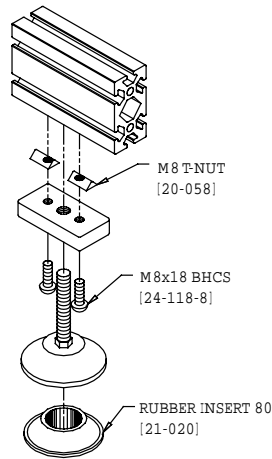
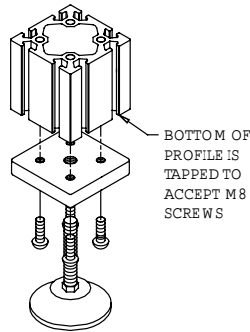
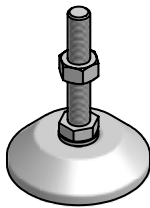
* Dmin is without nut.



21-010



Knuckle Foot



Application

Adjustable height leveling foot for heavy duty structures. Requires appropriate base plate for mounting.

Technical Data

Base: Zinc Cast
 Spindle & Nut: Steel, Galvanized

Ordering Information

Profile Series	Dimensions					Max Load kg (lbs)	Weight (g)	Part #
	A	B	C	Dmin*	Dmax			
40	M12	100	76	30	82	770 (1698)	290	21-013
40	M12	160	76	30	142	770 (1698)	330	21-014
40	M16	100	76	30	76	1450 (3197)	360	21-016
40	M16	160	76	30	136	1450 (3197)	440	21-018

Profile Series	Dimensions					Max Load kg (lbs)	Weight (g)	Part #
	A	B	C	Dmin*	Dmax			
1.5"	1/2-13	4.00	3.00	1.25"	3.25"	770 (1698)	290	21-404
1.5"	1/2-13	6.30	3.00	1.25"	5.50"	770 (1698)	330	21-405
1.5"	5/8-11	4.00	3.00	1.25"	3.06"	1450 (3197)	360	21-406
1.5"	5/8-11	6.30	3.00	1.25"	5.36"	1450 (3197)	440	21-407

* Dmin is without nut.

All feet can be used on 40, 30, 28, and 1.5" Series Profile with base plate.

Feet & Casters

Leveling Feet Accessories

Rubber Insert

Application

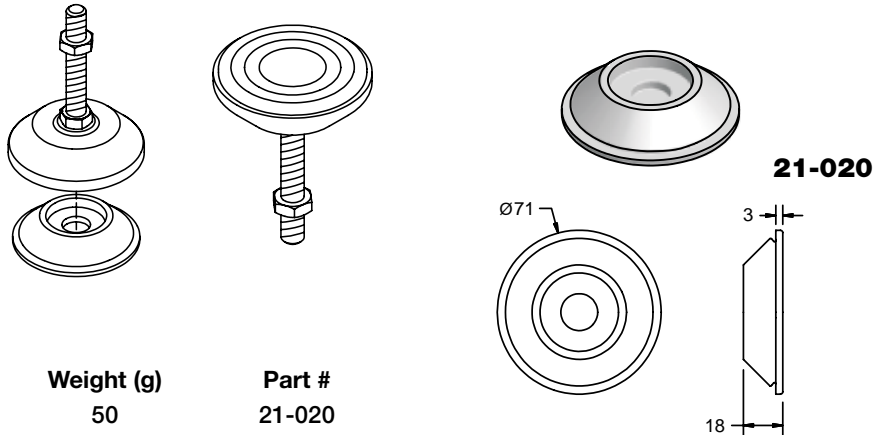
For vibration-dampening and floor protection with the Knuckle Foot 80 or Knuckle Foot 1.5.

Technical Data

Rubber, Black
Hardness 80° Shore A
Oil and water resistant

Ordering Information

Description	Unit	Weight (g)	Part #
Rubber Insert	Each	50	21-020



Clamping Shoe

Application

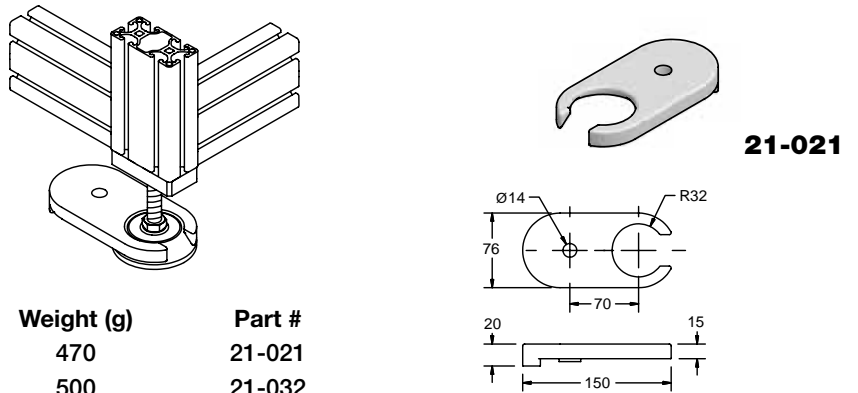
Clamps Knuckle Foot 80 or Knuckle Foot 1.5 to Floor. Floor fastening set mounts shoe to floor.

Technical Data

Zinc, Black Powdercoat

Ordering Information

Description	Unit	Weight (g)	Part #
Clamping Shoe	Each	470	21-021
Floor Fastening Set	Each	500	21-032



Corner Mounting Plate

Application

Mounting plate for knuckle feet or casters.

Technical Data

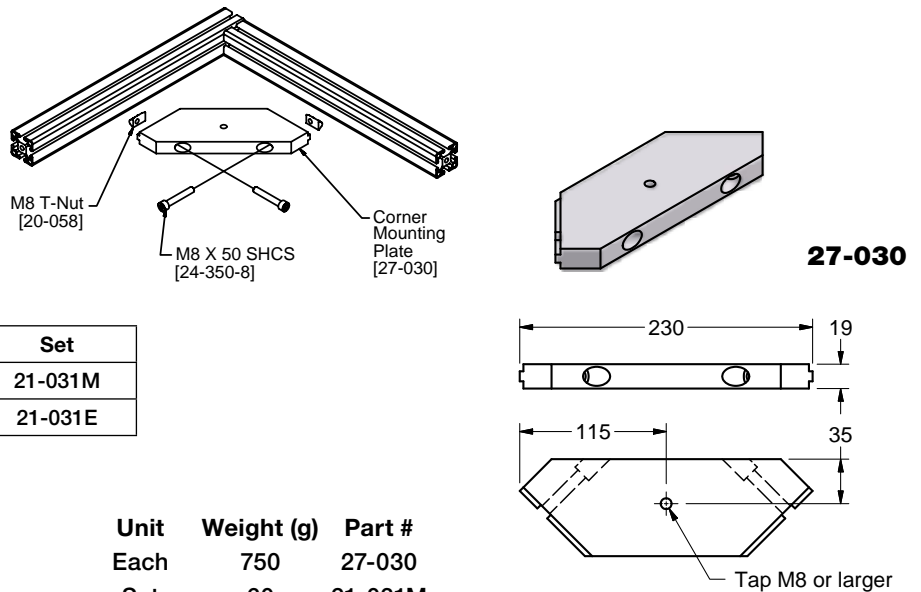
Aluminum, Clear Anodized

Recommended Fasteners (Order Separately)

Series	Screws	T-Nuts	Set
40	24-350-8	20-058	21-031M
1.5"	25-332-5	25-002	21-031E

Ordering Information

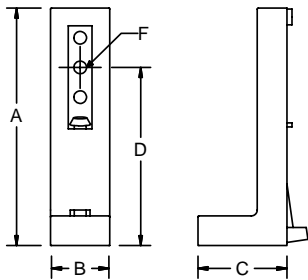
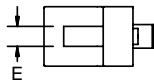
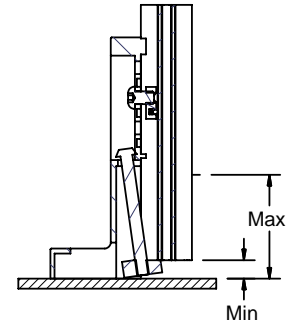
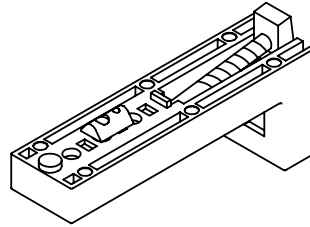
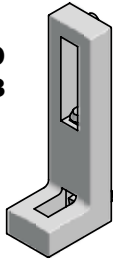
Series	Description	Unit	Weight (g)	Part #
40/1.5"	Corner Mounting Plate	Each	750	27-030
	Profile Fastening Set (Metric)	Set	60	21-031M
	Profile Fastening Set (English)	Set	60	21-031E



L-Base Feet

Leveling Foot

- 21-022**
- 21-022-30**
- 21-022-28**
- 21-415**
- 21-416**



Application

Leveling foot for light and heavy duty equipment. Height is adjustable by leveling screw, which is accessed from the top.

Technical Data

21-022
 Base: Zinc Cast, Black Powdercoat
 Max Vertical Load – 350 kg (772 lbs)
 All fasteners included.

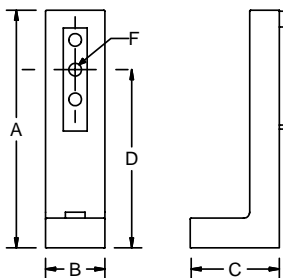
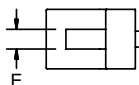
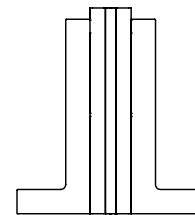
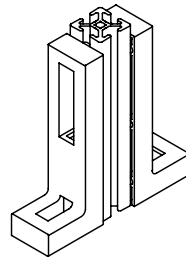
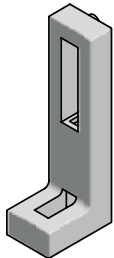
Ordering Information

Profile Series	Dimensions						Adjustment		Wt. (g)	Part #
	A	B	C	D	E	F	Min	Max		
40	160	40	60	120	10	8.3	10	75	280	21-022
30	120	30	45	81	10	8.3	8.5	31	220	21-022-30
28	120	30	45	81	10	6.4	8.5	31	220	21-022-28
1.5"	6.30"	1.57"	2.36"	4.72"	0.394"	0.331"	0.394"	2.00"	280	21-415
1"	4.72"	1.18"	1.77"	3.19"	0.394"	0.252"	0.335"	1.125"	220	21-416

Feet & Casters

Floor Anchor

- 21-023**
- 21-023-30**
- 21-023-28**
- 21-060**
- 21-061**



Application

For attachment of light equipment to floors or mounting surface
 All fastening hardware to attach to profile is included.

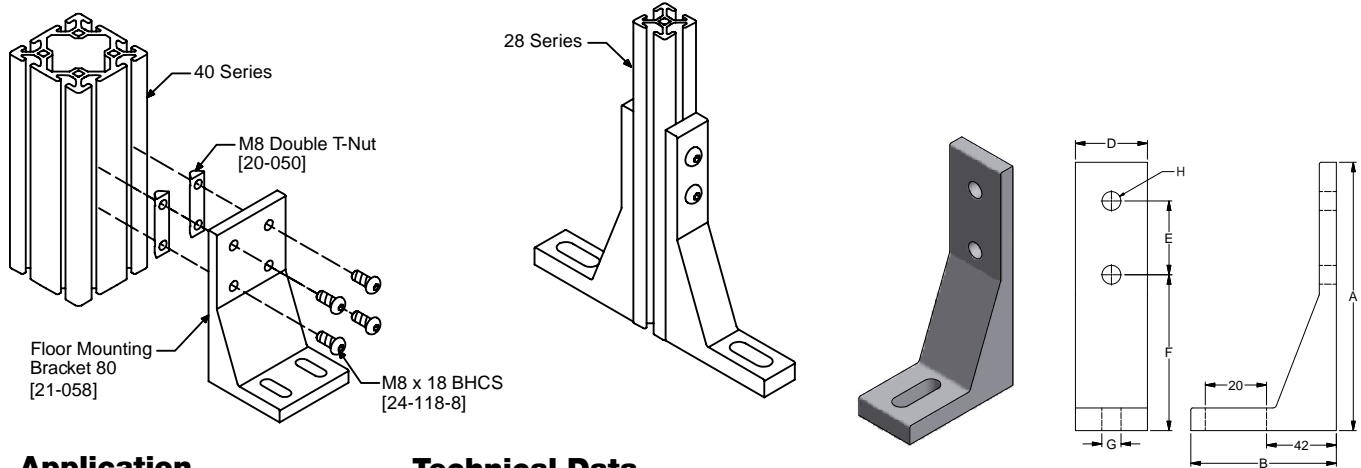
Technical Data

Zinc Cast, Black Powdercoat
 All fasteners included.

Ordering Information

Profile Series	Dimensions						Weight (g)	Part #
	A	B	C	D	E	F		
40	160	40	60	120	10	8.3	280	21-023
30	120	30	45	81	10	8.3	220	21-023-30
28	120	30	45	81	10	6.4	220	21-023-28
1.5"	6.30"	1.57"	2.36"	4.72"	0.394"	0.331"	280	21-060
1"	4.72"	1.18"	1.77"	3.19"	0.394"	0.252"	220	21-061

Floor Mounting Brackets



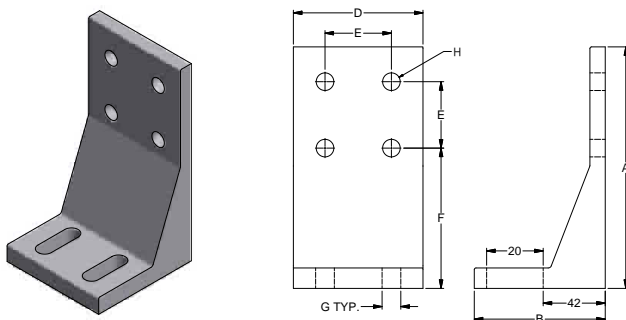
Application

Bracket for mounting structures to floor or mounting surface

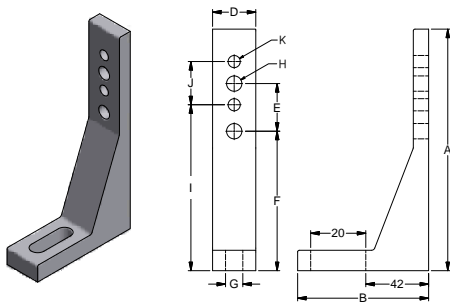
Technical Data

Aluminum, Clear Anodized

27-057



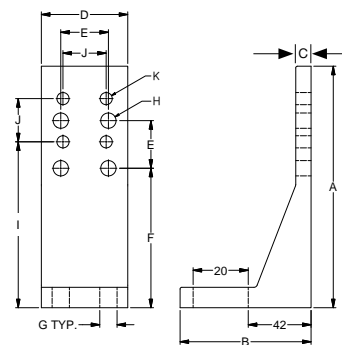
27-058



27-059

Recommended Fastener (Order Separately)

Series	Screws	T-Nuts	Double T-Nuts
40	24-118-8	20-058	20-050
30	24-118-8	20-058	20-050
28	24-116-8	20-057	—
1.5"	25-112-5	25-002	—
1"	25-110-4	25-031	—



27-060

Ordering Information

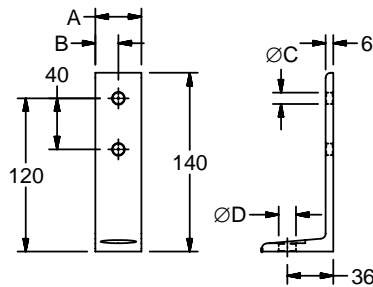
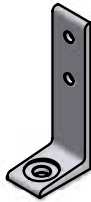
Profile Series	Dimensions											Weight (g)	Part #
	A	B	C	D	E	F	G	∅H	I	J	∅K		
40 1.5"	142	77	9	38	40	82	10	10	—	—	—	280	27-057
	142	77	9	76	40	82	10	10	—	—	—	570	27-058
30	142	77	9	28	28	82	10	9	97.6	25.4	7	190	27-059
28 1"	142	77	9	50.8	28	82	10	9	97.6	25.4	7	350	27-060

Economy Floor Mounting Brackets

Application

Economical light duty floor mounting brackets for 20, 30, 40, 1" and 1.5" Series profiles. Securely mounts structures to floor or mounting surface.

- 28-501**
- 28-502**
- 28-503**
- 28-504**
- 28-505**



Technical Data

Aluminum, Clear Anodized

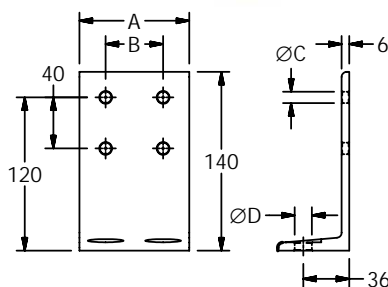
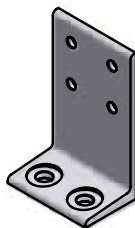
Recommended Fasteners (Order Separately)

Series	Screws	T-Nuts
40	24-116-8	20-058
30	24-114-6	20-056
20	24-112-5	20-045
1.5"	25-110-5	25-002
1"	25-108-4	25-031

Ordering Information

Profile	Style	A	B	ØC	ØD	Weight (g)	Part #
40	Single	36.0	18.0	9.0	13.5	115	28-505
	Double	76.0	40.0	9.0	13.5	245	28-510
30	Single	27.0	13.5	7.0	11.0	87	28-503
	Double	57.0	30.0	7.0	11.0	185	28-508
20	Single	18.0	9.0	5.5	9.0	60	28-501
	Double	38.0	20.0	5.5	9.0	125	28-506
1.5"	Single	34.0	17.0	9.0	13.5	108	28-505
	Double	72.0	38.0	9.0	13.5	230	28-509
1"	Single	23.0	11.5	7.0	9.0	75	28-502
	Double	48.0	25.1	7.0	9.0	156	28-507

- 28-506**
- 28-507**
- 28-508**
- 28-509**
- 28-510**



Feet & Casters

Flange Mounting

Flange Feet

Application

Heavy duty flange foot for attaching structures to floor. Tapped holes in base can be used for leveling.

Universal Flange Feet are machined to accommodate both the 40 and 1.5" Series profiles only.

Technical Data

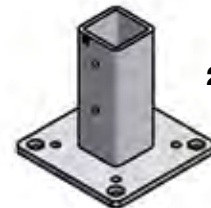
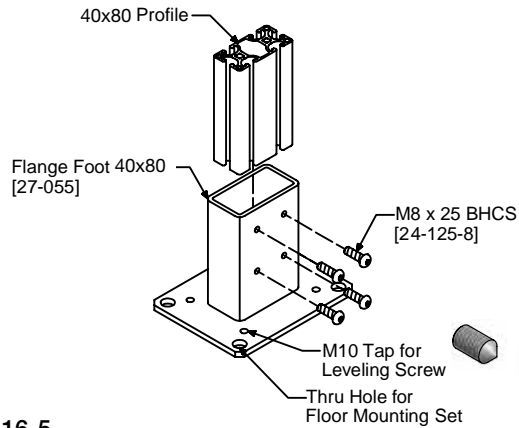
Steel, Black Finish

Recommended Fasteners (Order Separately)

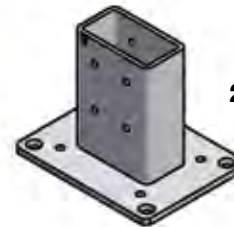
For clamping Profile use 24-125-8 or 25-116-5

For Leveling use 24-525-10F

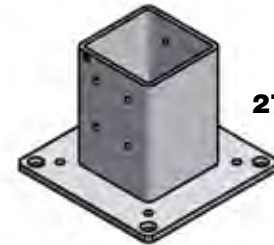
Floor Fastening Set 21-032 includes wedge anchor, washer and hex nut.



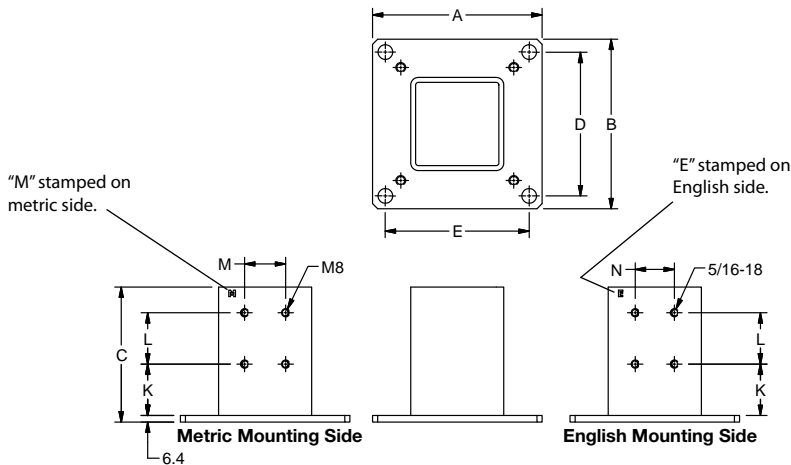
27-050



27-055



27-056



Ordering Information

Profile Size	Dimensions										Weight (g)	Part #
	A	B	C	D	E	F	K	L	M	N		
40 x 40 1.5" x 1.5"	125	125	128	100	100	14.3	50	50	—	—	1550	27-050
80 x 40 3" x 1.5"	165	127	125	100	140	14.3	50	50	40	38.1	2190	27-055
80 x 80 3" x 3"	165	165	125	140	140	14.3	25	50	40	38.1	2790	27-056

Casters

Caster Quick Reference

Type		Load Capacity kg (lbs)	Wheel	Wheel Dia. (mm)	Wheel Width (mm)	Total Height (mm)	Wheel Center	Weight (g)	Part #	Page
Hollow King Pin	Swivel	57 (125)	Rubber Grey Non-Marking	50	19	68	Pressed Steel	210	21-300	
	Swivel	57 (125)	Rubber Grey Non-Marking	50	19	68	Pressed Steel	240	21-301	
	Swivel	79 (175)	Neoprene Rubber, Black	75	25	100	Pressed Steel	390	21-310	
Threaded Stem	Swivel	113 (250)	Hard Rubber	125	32	162	Solid Rubber	1040	21-314	
	Swivel	113 (250)	Hard Rubber	125	32	162	Solid Rubber	1200	21-315	
	Leveling	226 (500)	Nylon	50	18	82	Pressed Steel	800	21-323	
	Leveling	226 (500)	Nylon	62	30	102	Pressed Steel	1200	21-327	
Plate Type	Swivel	102 (225)	Grey Poly	76	32	112	Pressed Steel	710	21-303	
	Swivel	102 (225)	Grey Poly	76	32	112	Pressed Steel	880	21-304	
	Rigid	102 (225)	Grey	76	31	119	Pressed Steel	300	21-302	
	Rigid	136 (300)	Hard Rubber Grey	127	32	165	Solid Rubber	920	21-311	
	Swivel	136 (300)	Blue Grey Rubber	125	32	165	Pressed Steel	1140	21-312	
	Swivel	136 (300)	Blue Grey Rubber	125	32	165	Pressed Steel	1290	21-313	
	Swivel	408 (900)	Purple Poly	152	51	191	Pressed Steel	2200	21-318	
	Swivel	408 (900)	Purple Poly	152	51	191	Pressed Steel	2600	21-319	
	Leveler	249 (550)	Nylon	50	18	82	Pressed Steel	800	21-324	
	Leveler	599 (1100)	Nylon	62	30	102	Pressed Steel	1200	21-328	
	Floor	567 (1250)	Vulcanized Rubber Pad	—	—	165 ret. 196 ext.	Pressed Steel	2100	21-325	

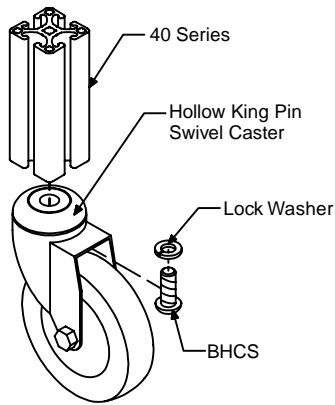
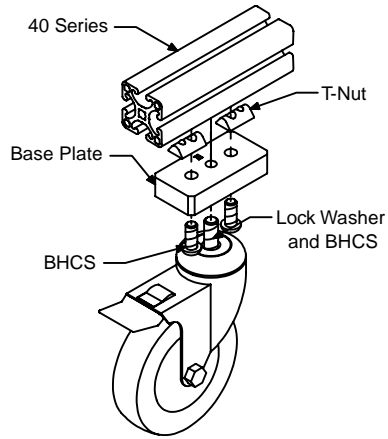
Feet & Casters

Mounting a threaded caster:

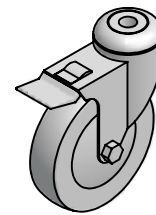
When mounting a threaded caster, remember that the screw is not to be used as a height adjustment.

Casters

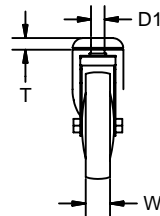
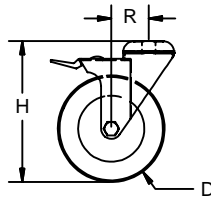
Hollow King Pin



21-300



**21-301
21-310**



Application

Castors designed for light and medium duty applications. Mounting surface is a hollow king pin with ball bearing swivel.

Technical Data

Housing: Pressed Steel, Zinc Chromated

**Recommended Fasteners
(Order Separately)**

Screw: 24-120-10

Washer: 24-707-10

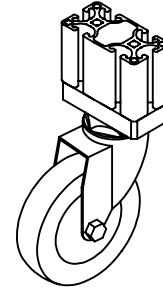
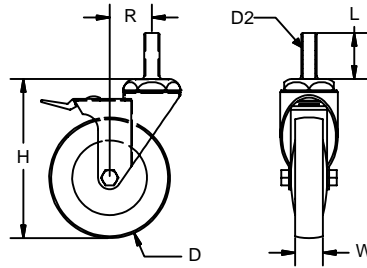
Ordering Information

Max Load kg (lbs)	Wheel	Dimensions						Lock	Weight (g)	Part #
		D	W	H	R	T	D1			
57 (125)	Rubber Black Non-Marking	50 (2")	19	68	16.9	7.8	10.2	None	210	21-300
57 (125)	Rubber Black Non-Marking	50 (2")	19	68	16.9	7.8	10.2	Wheel	240	21-301
79 (175)	Neoprene Rubber, Black	75 (3")	25	100	35.6	7.8	10.2	Total Lock	390	21-310

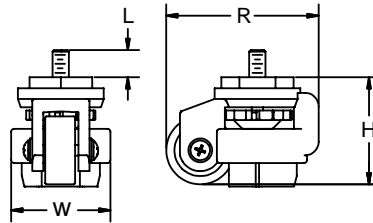
Casters

Threaded Casters

21-314



21-315



21-323
21-327



Application

Casters designed light to heavy loads. A wrench fits easily on the swivel to allow installation to a base plate.

21-323 and 21-327 are leveling casters with adjustable pad.

Technical Data

Housing: Pressed Steel, Ball Bearing Swivel Head.

Ordering Information

Max Load kg (lbs)	Wheel	Dimensions						Wheel Center	Lock	Wt. (g)	Part #
		W	D	H	R	D2	L				
113 (250)	Hard Rubber	32	125 (5")	160	41.3	M10	38	Pressed Steel	None	1040	21-314
113 (250)	Hard Rubber	32	125 (5")	160	41.3	M10	38	Pressed Steel	Total Lock	1200	21-315
226 (500)	Nylon	73	46 (1.81")	82	30.7	M12	19	Pressed Steel	Leveler	800	21-323
459 (1100)	Nylon	88	57 (2.25")	102	38.1	M12	19	Pressed Steel	Leveler	1200	21-327

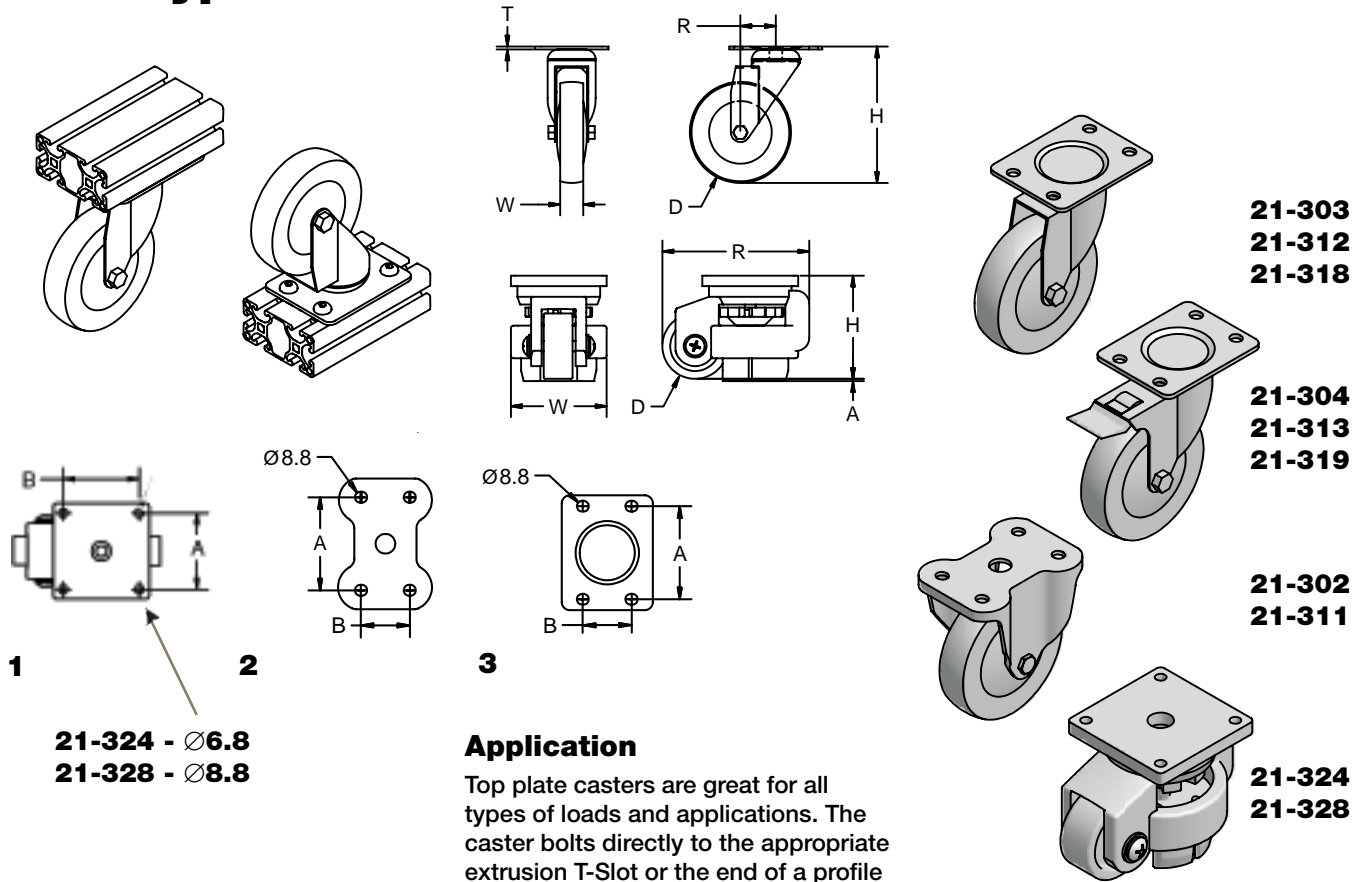
Mounting a threaded caster:

When mounting a threaded caster, remember that the screw is not to be used as a height adjustment.

Feet & Casters

Casters

Plate Type Casters



Application

Top plate casters are great for all types of loads and applications. The caster bolts directly to the appropriate extrusion T-Slot or the end of a profile using an adapter.

Technical Data

Housing: Pressed Steel, Ball Bearing Swivel Head.

Order hardware and base plates separately. See next page.

Ordering Information

Type	Max Load kg (lbs)	Wheel	Dimensions							Lock	Wt. (g)	Plate Dwg.	Part #
			D	W	H	R	T	A	B				
Swivel	102 (225)	Grey Poly	76 (3")	32	111	41.3	3	75	40	None	710	3	21-303
Swivel	102 (225)	Grey Poly	76 (3")	32	111	41.3	3	75	40	Total	880	3	21-304
Rigid	102 (225)	Grey	76 (3")	32	111	-	3	75	40	None	300	2	21-302
Rigid	136 (300)	Blue Grey Rubber	125 (5")	25.4	164	-	3	75	40	None	920	2	21-311
Swivel	136 (300)	Blue Grey Rubber	125 (5")	25.4	164	41.3	3	75	40	None	1140	3	21-312
Swivel	136 (300)	Blue Grey Rubber	125 (5")	25.4	164	41.3	3	75	40	Total Lock	1290	3	21-313
Swivel	408 (900)	Purple Poly	152 (6")	51	191	47.6	6	76-92	67-76	None	2200	3	21-318
Swivel	408 (900)	Purple Poly	152 (6")	51	191	47.6	6	76-92	67-76	Total Lock	2600	3	21-319
Leveler	249 (550)	Nylon	50 (2")	73	82	30.7	4.6	56.5	56.5	Foot	800	1	21-324*
Leveler	599 (1100)	Nylon	57 (2.25")	89	102	38.1	5.3	70	70	Foot	1200	1	21-328*

* Requires special mounting plate. Adapter plates for 1.5" profiles on page 172. Consult factory for engineering assistance for metric profile adapter plates.

Casters

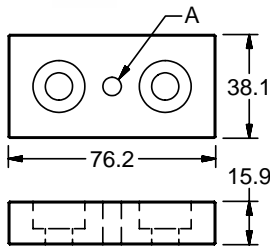
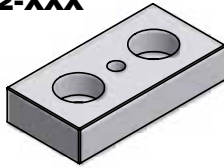
Recommended Fasteners (Order Separately)

Series	Mounting to Extrusion		Part Number
	Screw	Nut	
40	24-114-8	20-058	21-303
	24-114-8	20-058	21-304
	24-114-8	20-058	21-302
	24-114-8	20-058	21-311
	24-114-8	20-058	21-312
	24-114-8	20-058	21-313
	24-118-8	20-058	21-318
	24-118-8	20-058	21-319
	24-116-6	20-056	21-324
	24-116-8	20-058	21-328
1.5"	25-108-5	25-002	21-303
	25-108-5	25-002	21-304
	25-108-5	25-002	21-302
	25-108-5	25-002	21-311
	25-108-5	25-002	21-312
	25-108-5	25-002	21-313
	25-110-5	25-002	21-318
	25-110-5	25-002	21-319
	25-110-4	25-001	21-324
	25-110-5	25-002	21-328
Series	Mounting to Base Plate		Part Number
	Screw	T-Nut	
1.5"	25-108-4	—	21-324
	25-110-4	—	21-328

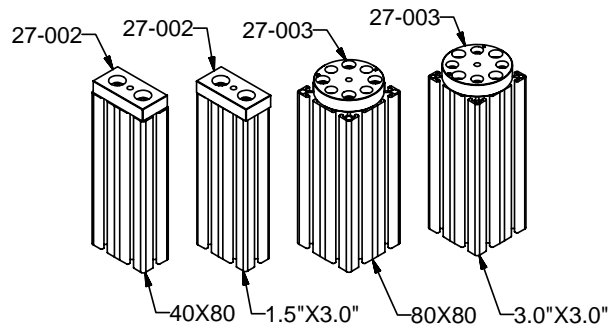
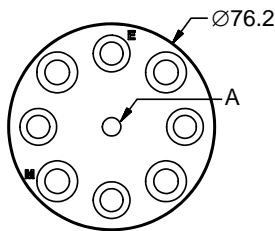
Base Plates

Base Plates

27-002-XXX



27-003-XXX



Application

Base plates are used primarily to mount leveling feet and casters on the end or side of an extrusion. These plates can also be used for mounting other parts such as lifting eyes.

The base plates adapt to both 40 and 1.5" Series extrusions.

Technical Data

Aluminum, Clear Anodized

Recommended Fasteners (Order Separately)

Mounting	Series	Screws	T-Nuts	Machining
Attached to Profile End	1.5"	25-114-5	—	19-009
	40	24-125-8	—	19-010
Attaching to T-Slot	1.5"	25-112-5	25-002	—
	40	24-118-8	20-058	—

Ordering Information

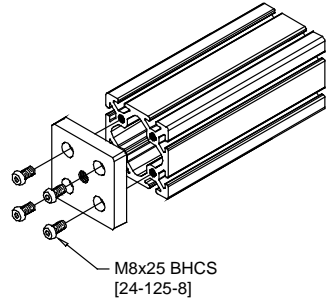
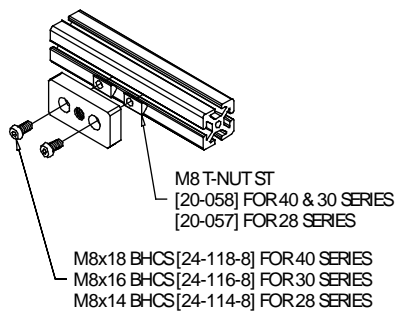
27-002-XXX

Code	A Thread	Weight (g)
M08	M8x1.25	105
M10	M10x1.5	104
M12	M12x1.75	103
M16	M16x2.0	100
M20	M20x2.5	97
E05	5/16-18	105
E06	3/8-16	105
E08	1/2-13	103
E10	5/8-11	101

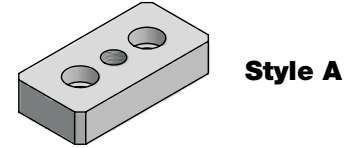
27-003-XXX

Code	A Thread	Weight (g)
M08	M8x1.25	154
M10	M10x1.5	154
M12	M12x1.75	152
M16	M16x2.0	149
M20	M20x2.5	146
E05	5/16-18	155
E06	3/8-16	154
E08	1/2-13	152
E10	5/8-11	150

Base Plates



Base Plates

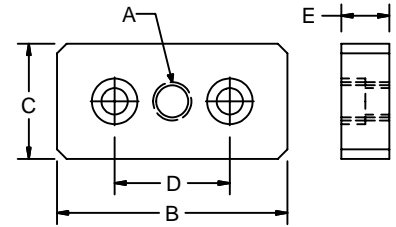


Application

Base plates are used primarily to mount leveling feet and casters on the end or side of an extrusion. These plates can also be used for mounting other parts such as lifting eyes.

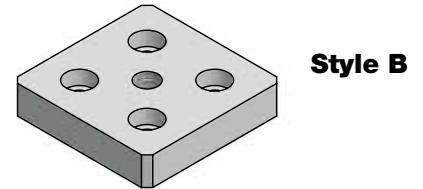
Technical Data

Aluminum, Clear Anodized
 21-220-8, 21-220-10
 21-220-12:
 Steel, Black Powdercoat
 21-1020-04, 21-1020-05, 21-2020-05,
 21-2020-06, 21-2020-06:
 Steel, Clear Zinc

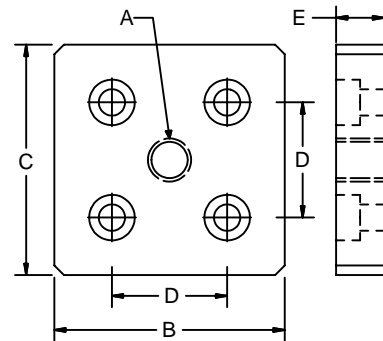


Recommended Fasteners (Order Separately)

Mounting	Series	Screws	T-Nuts	Machining
Attached to Profile End	30/28	24-125-8	—	19-010
	20	24-114-5	—	19-010
	1"	25-112-4	—	19-008
Attaching to T-Slot	30	24-116-8	20-058	—
	28	24-114-8	20-057	—
	20	24-112-5	20-045	—
	1"	25-110-4	25-031	—



Feet & Casters

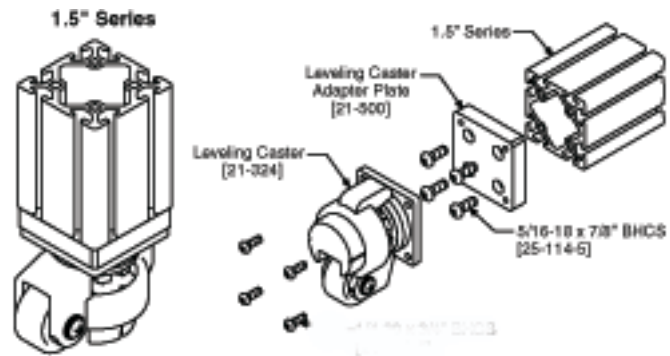
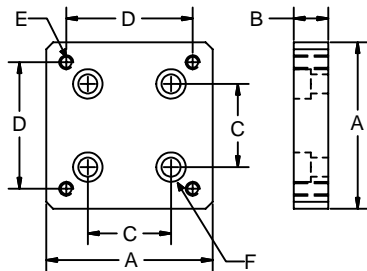
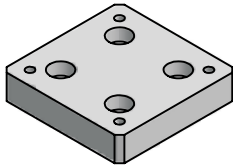


Ordering Information

Profile Series	Dimensions					Weight (g)	Part #	Style
	A	B	C	D	E			
30	M8x1.25	60	30	30	15.9	240	21-029-8	A
	M10x1.5	60	30	30	15.9	240	21-029-10	
	M12x1.75	60	30	30	15.9	240	21-029-12	
28	M8x1.25	54	25.4	28	15.9	150	21-004	A
	M10x1.5	54	25.4	28	15.9	150	21-005	
	M12x1.75	54	25.4	28	15.9	150	21-006	
	M8x1.25	54	54	28	15.9	300	21-204	B
	M10x1.5	54	54	28	15.9	300	21-205	
	M12x1.75	54	54	28	15.9	300	21-206	
20	M8x1.25	40	40	20	12	810	21-220-8	B
	M10x1.5	40	40	20	12	810	21-220-10	
	M12x1.75	40	40	20	12	810	21-220-12	
1"	1/4-20	2.0"	1.0"	1.0"	0.625"	150	21-1020-04	A
	5/16-18	2.0"	1.0"	1.0"	0.625"	150	21-1020-05	
	5/16-18	2.0"	2.0"	1.0"	0.625"	240	21-2020-05	B
	3/8-16	2.0"	2.0"	1.0"	0.625"	240	21-2020-06	
	1/2-13	2.0"	2.0"	1.0"	0.625"	240	21-2020-08	

Adapter Plates

21-500
21-502



Application

Used to mount leveling casters to either the end of the extrusion or T-slots for 1.5" Series only.

Technical Data

Aluminum, Clear Anodized

Series	Mounting the Base Plate to Extrusion			Part Number
	Mounting Method	Screw	Nut	
1.5"	End of the Extrusion	25-314-5	—	21-502
	T-Slot Mounting	25-312-5	25-002	
	End of the Extrusion	25-314-5	—	21-500
	T-Slot Mounting	25-312-5	25-002	

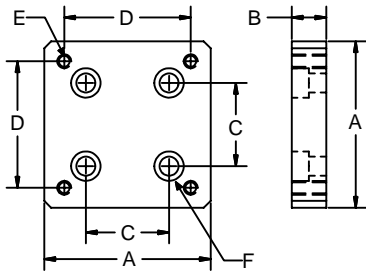
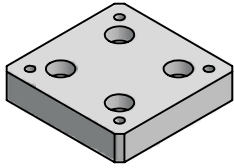
Series	Leveling Caster to Base Plate		
	Base Plate	Caster	Screw
1.5"	21-502	21-328	25-110-4
	21-500	21-324	25-108-4

Ordering Information

A	B	C	D	E	F	Wgt (g)	Part #
3.0"	0.625"	1.5"	2.28"	1/4-20	for 5/16	640	21-500
3.5"	0.625"	1.5"	2.76"	1/4-20	for 5/16	750	21-502

Adapter Plate & Floor Lock

21-504



Application

The floor lock adapter plate mounts to either the end of the extrusion or T-slots for 1.5" Series only. Floor lock used as brake for multiple applications.

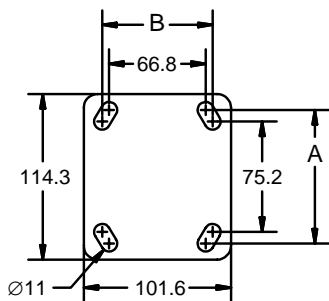
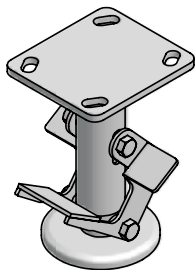
Technical Data

Aluminum, Clear Anodized

Series	Mounting the Base Plate to Extrusion			Part Number
	Mounting Method	Screw	Nut	
1.5"	End of the Extrusion	25-314-5	—	21-504
	T-Slot Mounting	25-312-5	25-002	

Series	Floor Lock to Base Plate		
	Base Plate	Floor Lock	Screw
1.5"	21-504	21-325	25-120-6

21-325



Ordering Information

A	B	C	D	E	F	Wgt (g)	Part #
4.5"	0.625"	1.5"	3.0"	3/8-16	for 5/16	850	21-504
92	67	—	—	—	—	2140	21-325

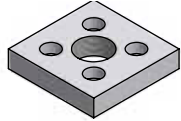
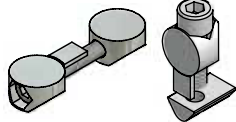

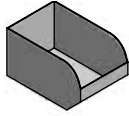

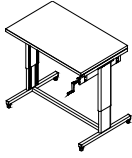
Floor Lock

Closed Height: 165

Engaged Height: 197

Special Applications

Section 7 Special Applications

Pneumatic Plates Connecting Blank	188 189	
Pneumatic Fasteners Universal Butt	189 189	
Pneumatic Seals	190	
Workstation Components Bins Drawers	192 193	
Tool Runner	193	
Lift Systems Two-Cylinder Four-Cylinder	194 195	

Pneumatic Profiles

Application

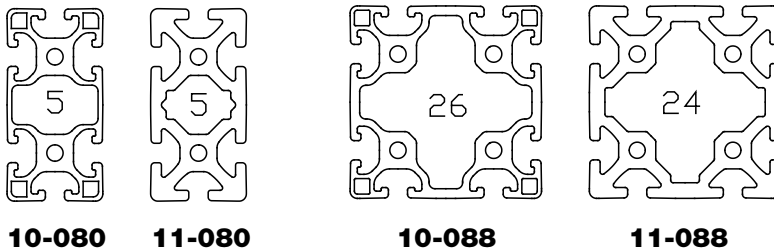
The cavity within a profile can be used to distribute compressed air as well as provide structural foundation for the system application. Connections may be made at any location using the proper accessory component and machining. Many of the profile configurations also provide for multiple channels allowing for the complete distribution of compressed air in complex systems.

Available Profiles

Part #	Description	Available Air Channels
10-080	Profile 80X40 Standard	1
11-080	Profile 80X40 Heavy	1
10-088	Profile 80X80 Standard	1
11-088	Profile 80X80 Heavy	1

Cavity areas shown are in cm² (1 cm² = 0.155 in²)

To calculate volume, multiply area by the profile length.



Pressure Ratings and Leak Test

Safe Maximum Pressure Rating

1725 kPa (250 psi)

Supporting Pressure Rating Data

Procedures

Stage 1

A sample assembly was connected to a nitrogen cylinder. Pressure of 690 kPa (100psi) was applied. The holding button head screws were checked and tightened to a torque of 13.6 Nm (10 ft-lbs). Pressure was increased in stages to 6900 kPa (1000 psi) with continuous inspection for leaks. This was duplicated for each profile.

Stage 2

A sample was filled with water and pressure was applied in the same manner as in stage 1. Pressure was increased until a gaskets leaked or profiles burst. This was duplicated for each profile.

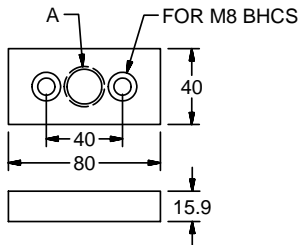
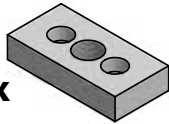
Sample Testing Results

Profile	Pressure Medium	Pressure kPa (psi)	Observation
10-080	Nitrogen	6,900 (1000)	No Leakage
	Water	9,655 (1400)	Profile Burst
10-088	Nitrogen	6,900 (1000)	No Leakage
	Water	9,655 (1400)	Profile Burst
11-080	Nitrogen	6,900 (1000)	No Leakage
	Water	27,580 (4000)	No Leakage
11-088	Nitrogen	6,900 (1000)	No Leakage
	Water	10,345 (1500)	Gasket Leaked

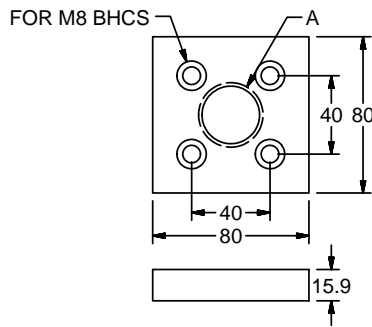
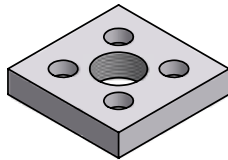
Special Applications

Connecting Plates

21-040ZX



21-043ZX



X = port type and size

Application

Connecting plates provide threaded ports and align with air chambers within properly machined profiles. Both styles are designed to be attached to the end face of the profile. The 80x80 plate can also be attached to the T-slotted side of a profile with an 80mm dimension. All plates include the appropriate sealing gasket. These plates can be used to seal end of profile by using appropriate plug.

Technical Data

Plate: Aluminum, Anodized

Seal: Neoprene or Buna

Recommended Fasteners (Order Separately)

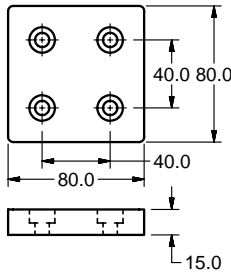
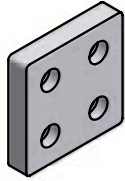
Mounting	Hardware	21-040ZX	21-043ZX
End Face Mount	Screw	(2) 24-125-8	(4) 24-125-8
Side Mount	Screw	(2) 24-118-8	(4) 24-118-8
	T-Nut	(2) 20-058	(4) 20-058

Ordering Information

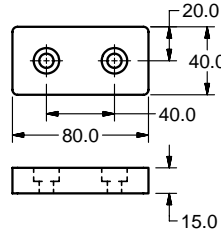
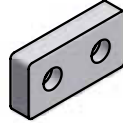
Description	A	Unit	Weight (g)	Part #
Connector Plate 40x80	1/8"-27 NPT	Set	110	21-040Z1
	1/4"-18 NPT	Set	110	21-040Z2
	3/8"-18 NPT	Set	110	21-040Z4
	1/4" BSPP	Set	110	21-040Z6
	1/2"-14 NPT	Set	110	21-040Z8
Connector Plate 80x80	1/2"-14 NPT	Set	230	21-043Z2
	1/2" BSPP	Set	230	21-043Z6
	1"-11.5 NPT	Set	230	21-043Z8

Blank Plates

21-8000Z1



21-4000Z1



Application

Used for closing 40x80 and 80x80 profile ends.

Technical Data

Aluminum, Clear Anodized

Recommended Fasteners

(Order Separately)

Screws: 24-125-8

Gasket:

21-041 for 21-4000Z1

21-042 for 21-8000Z1

Ordering Information

Description

Blank Plate 40x80

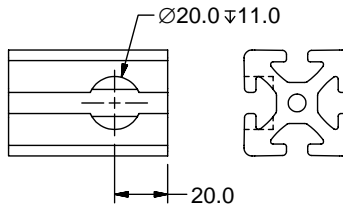
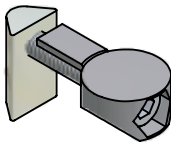
Blank Plate 80x80

Unit	Weight (g)	Part #
Each	100	21-4000Z1
Each	200	21-8000Z1

Pneumatic Fasteners

Special Applications

20-011



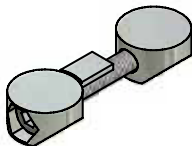
Application

Two styles for connecting 40x80 or larger profiles together when used as compressed air piping. Universal is used on 90° connections. Butt-Fastening is for end to end connections

Technical Data

Zinc Cast, Galvanized

20-012



Ordering Information

Description

Pneumatic Universal Fastening Set

Butt-Fastening Set M6

Unit	Weight (g)	Part #
Each	36	20-011
Each	45	20-012

Pneumatic Seals

Application

Replacement seals for pneumatic connections.

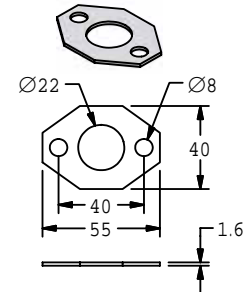
Technical Data

Neoprene or Buna, Black

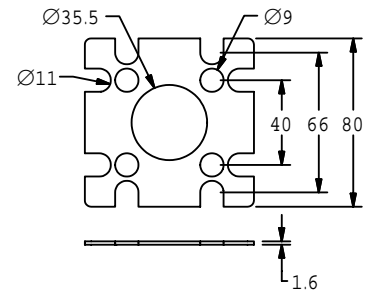
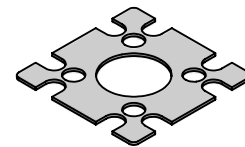
Note: Seals should be retightened after 24 hours of initial installation.

Ordering Information

Description	Unit	Weight (g)	Part #
Seal 40x80	Each	2	21-041
Seal 80x80	Each	6	21-042



21-041



21-042

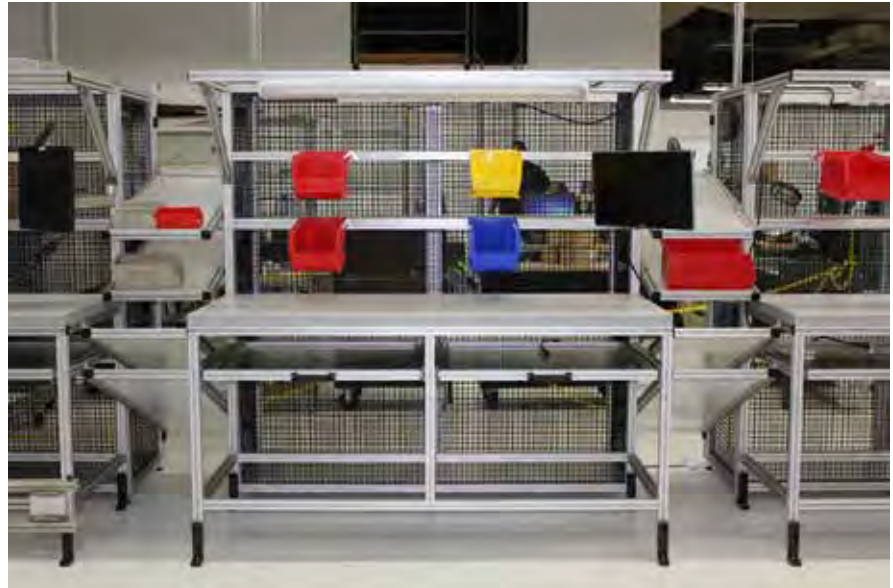
Workstations

Modular designed workstations by IPS offer a wide range of options and accessory combinations. All structural profiles used in our workstations are made of high strength aluminum, combined with our unique fastening system which provides exceptional flexibility in design for a wide range of applications. All profiles are clear anodized with several available in black. Special colors and coatings are available on request.

T-Slots provide easy attachment points for accessories. Closed face profiles are also available for applications requiring aesthetically clean looks or reduction in the potential for dust and contamination.

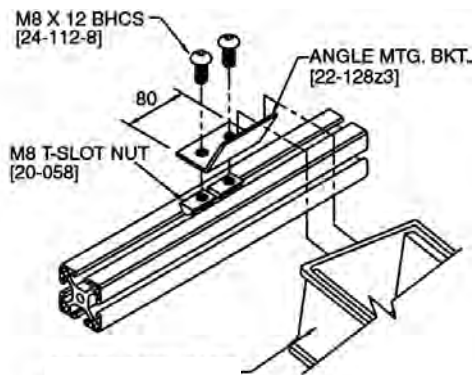
All workstations can be customized for your exact needs. From the heaviest assembly tables to ergonomic LEAN work cells, we have the products and expertise to meet your specifications.

Complete Workstations



Special Applications

Parts Bin



LARGE OR MEDIUM BIN

Figure 1

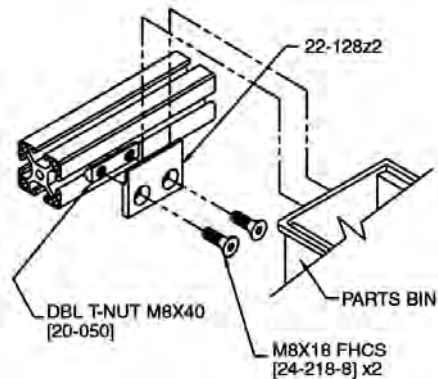
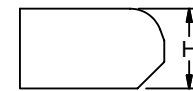
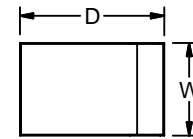
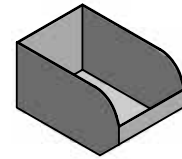


Figure 2



22-126 thru 22-129

Application

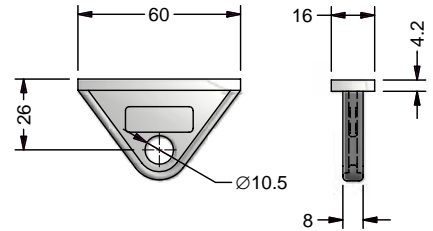
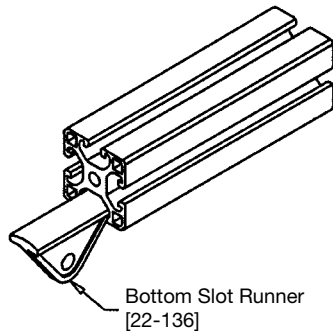
Bins for small to large parts and equipment on work benches, work stations, parts racks, etc. Minimizes parts handling.

Order all fasteners separately

Ordering Information

Description	Dimensions			Mounting Hardware	Material	Weight (g)	Part #
	W	D	H				
Parts Bins	140	280	127	See fig. 1-2 for mounting choices	Heavy Duty Polypropylene, Red	670	22-126
	280	280	127	See fig. 1-2 for mounting choices		1240	22-127
	105	187	76	See fig. 1-2 for mounting choices		110	22-129
Flat Mounting Bracket	60	6.4	25.4	Not included (See fig. 2)	Aluminum, Anodized	20	22-128Z2
Angled Mounting Bracket	80	47	30	Not included (See fig. 1)	Aluminum, Anodized	80	22-128Z3

Tool Runner



22-136

Application

To suspend and position tools at work stations. Runner slides in 40 series profile.

Technical Data

Runner: Glass-Filled Nylon, Black

Max Load: 10 kg (23 lbs)

Runner Stop can be created by using:

(1) Flat Point Set Screw [24-516-5F]

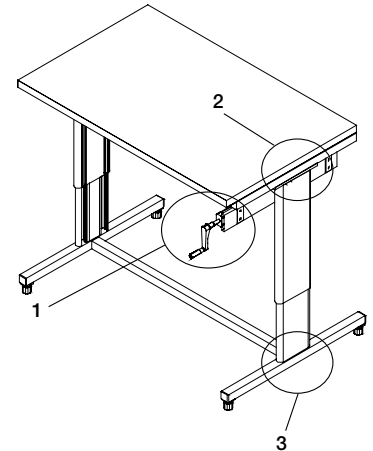
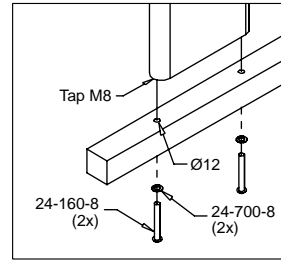
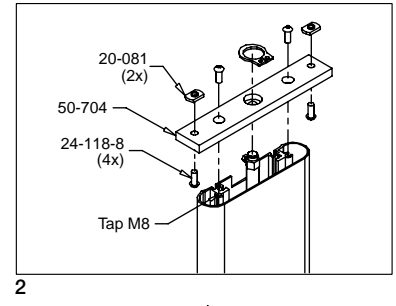
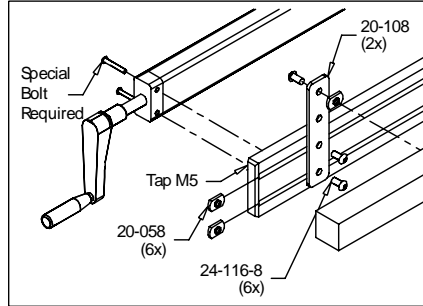
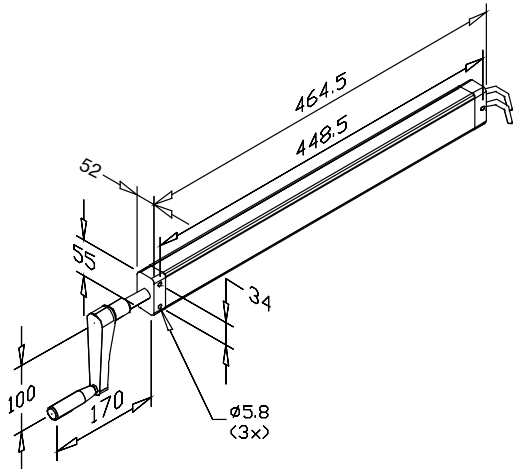
(1) M5 Z-Nut [20-035]

Ordering Information

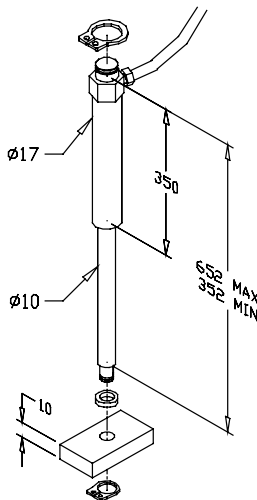
Description	Unit	Weight (g)	Part #
Runner	Each	12	22-136

Special Applications

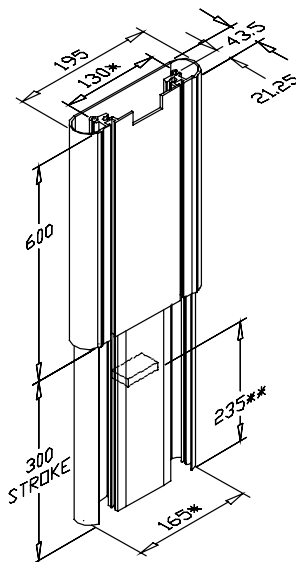
2-Cylinder Lift System with Telescopic Guides



50-702



50-703



* Distance between mounting holes
** Cylinder mounting distance

- 1 Mount pump to profile 10-081. Drill and tap the 10-081 M5 where the pump mounting holes match. Use appropriate bolt based off pump dimensions to mount the pump to the profile. Mount the 10-081 to the frame with 2X 20-108 flat plate using 24-116-8 and 20-058.
- 2 Mounting the top of the 50-703 to the frame. First tap the two bosses at the top of 50-703 M8. Use 24-118-8 to mount 50-704 to 50-703. Use 24-118-8 and 20-058 to mount to frame.
- 3 Mounting the bottom of the 50-703 to the frame. First tap the two bosses at the bottom of 50-703 M8. Drill and counterbore through the frame profile to match the M8 tapped hole on 50-703. Use 24-160-8 and 24-707-8 to mount to frame.

The mounting information above is only one example of how the lift system can be mounted. Order fasteners separately.

Application

2-Cylinder Lift System together with Telescopic Guides create a compact versatile height adjustment mechanism. The system consists of two fluid-drive cylinders connected by flexible tubing to a manual pump with a unique "fold-away" hand crank. Due to cylinder internal construction, use of telescopic guides is required. Each guide has four mounting holes (two on top, two on bottom) that can be tapped for M8 or 5/16"-18.

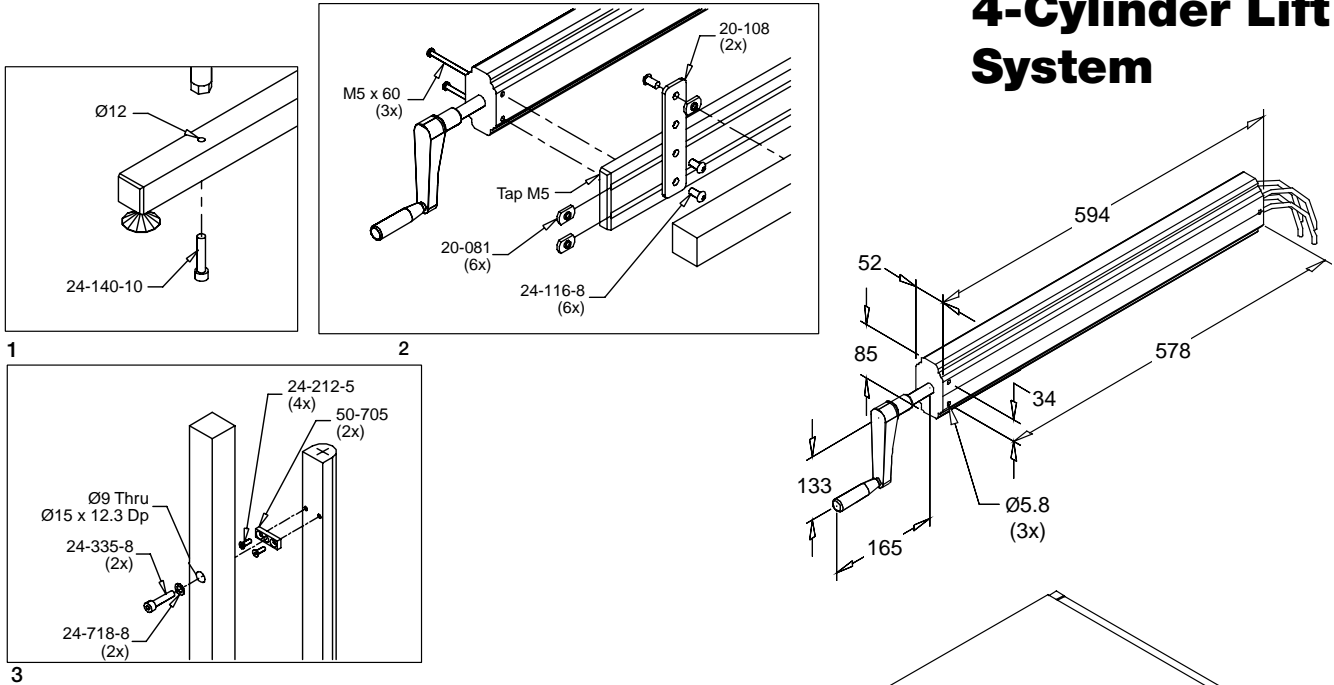
Technical Data

Maximum lift capacity 227 kg (500lbs.)
Adjustment range 300mm
Cylinders are single acting. External force of approx. 7 kg (15 lbs.) is required for return stroke.
Tubing Length: One at 8' and one at 10' section.
Minimum bending radius for tubing 40mm.
Operating temperature 0 - 115°F.

Ordering Information

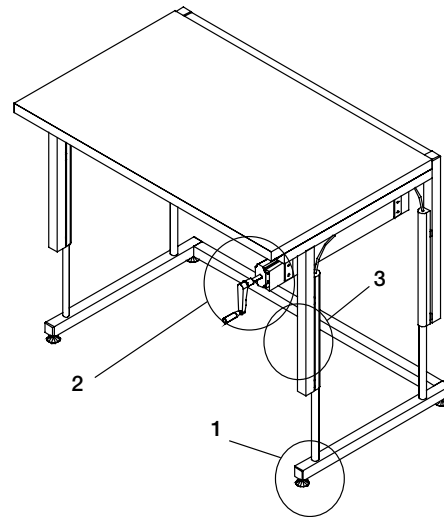
Description	Unit	Weight (g)	Part #
2-Cylinder Lift System	Set	4062	50-702
Telescopic Guide (2 required)	Each	430	50-703
Mounting Plate for 50-703	Each	6	50-704

4-Cylinder Lift System



- 1 Mount pump to profile 10-081. Drill and tap the 10-081 M5 where the pump mounting holes match. Use appropriate bolt based off pump dimensions to mount pump to profile. Mount the 10-081 to the frame with 2X 20-108 flat plates using 24-116-8 and 20-058.
- 2 Mounting the cylinders of the 50-700 to the frame. First drill and counterbore a hole through the frame profile to match up to the mounting holes on the cylinder. Attach the 50-705 to the cylinder with 24-212-5. Then mount the attached 50-705 frame profile with 24-335-8 and 24-718-8 through the previously drilled hole.
- 3 Mount the rod end of the cylinder to the frame by drill and counterboring a hole through and using a 24-140-10.

The mounting information above is only one example of how the lift system can be mounted. For example, a leveling foot can be placed in the rod end of the cylinder rather than attaching to the frame. Order fasteners separately.



Application

4-Cylinder Lift System is a compact versatile height adjustment mechanism. It consists of four fluid-drive cylinders connected by flexible tubing to a manual pump with a unique "fold-away" hand crank. The cylinders are completely self-contained, requiring no external support structure.

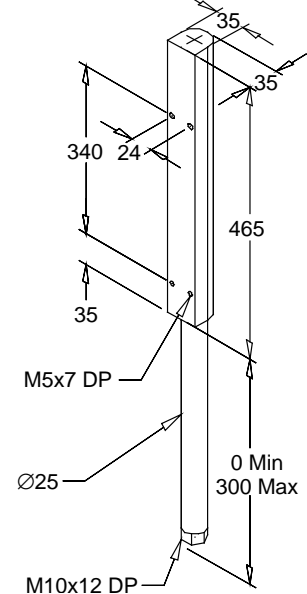
Each cylinder has five pre-tapped mounting holes: four on a flat side (M5x7mm deep) and one at the bottom (M10x12mm deep).

Technical Data

- Maximum lift capacity 340 kg (750lbs.)
- Adjustment range 300mm
- Cylinders are single acting. External force of approx. 9 kg (20 lbs.) is required for return stroke.
- Tubing Length: Two at 8' and two at 10' section.
- Minimum bending radius for tubing 40mm.
- Operating temperature 0 - 115°F.

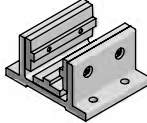

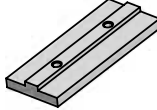


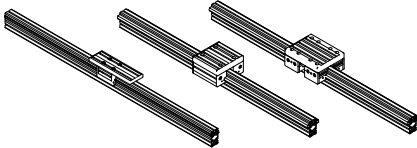
Ordering Information

Description	Unit	Weight (g)	Part #
4-Cylinder Lift System	Set	11700	50-700
Mounting Plate for 50-700 (2 per cylinder)	Each	6	50-705



Special Applications

Section 8 Linear Applications

Double Flange Slide Blocks 28 and 1" Series 40 and 1.5" Series	200-201 204-205	
Side Flange Slide Blocks 28 and 1" Series 40 and 1.5" Series	202-203 206-207	
Slide Pads & Shims	208	
Slide Block Accessories Clamp Accessories Ratchet Lever Clamp Machining	209 209 210-211	
Roller Track	212	
Roller Components	213-229	

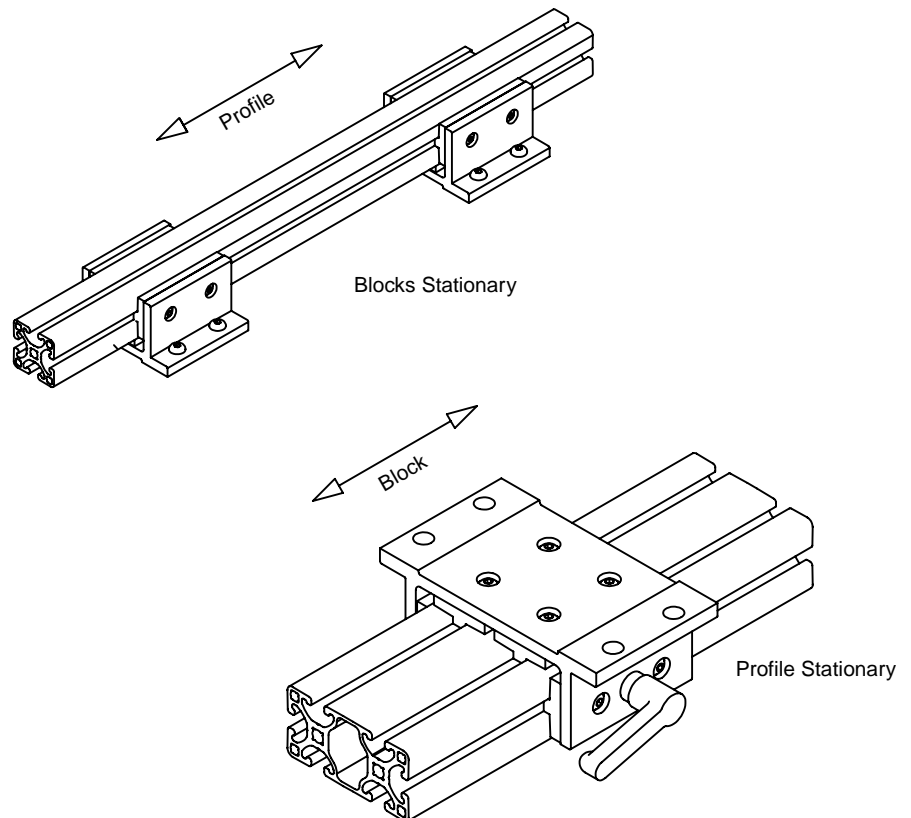
Slide Blocks



Application

Profile Slide Blocks are a versatile, cost efficient concept to build a multitude of adjustable slides and movable rail systems. UMHW slide pads engage directly into the T-slots. Shims provide adjustment for a variety of assembly tolerances. Slide blocks are designed for a compression load only.

The slide blocks attach to any surface with M8 button head screws. The block slides along a profile when the profile is stationary, or a profile slides in the block, when the block is mounted. Clamping mechanism can be added to lock slide block in place.



Linear Applications

Slide Blocks**UHMW-PE Design Information**

The slide blocks use UHMW slide pads. UHMW-PE has one of the highest impact strengths of any thermoplastic. It is abrasion resistant, has high tensile strength, displays resistance to stress cracking, and has a low coefficient of friction. It is well-suited where durability and low friction are of paramount importance. Its high resistance to corrosive chemicals, with the exception of oxidizing acids, make it an ideal choice for a wide variety of corrosive environment applications. Maximum operating temperature is 210°F. UHMW-PE can also operate successfully at temperatures as low as -375°F, making it an excellent material for cryogenic applications.

Coefficient of Friction

UHMW-PE polymer has a lower coefficient of friction than glass. Together with its self-lubricating characteristics, it is an ideal material for bearings, bushings, valves, wear strips, or any application where sliding contact is encountered.

Materials	Static	Kinetic
Aluminium vs. UHMW-PE	0.12	0.016

Anodized 204 R1 spec on extruded aluminum.

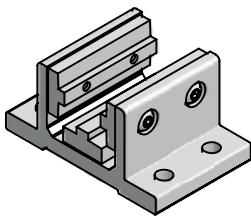
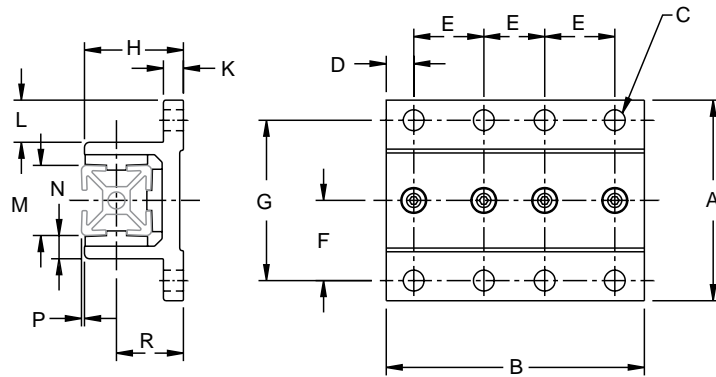
Chemical Resistance of UHMW-PE

Test specimens	Dumb-bell type
Duration of Test	30 days
+ Resistant	Mechanical properties not appreciably affected
/ Limited Resistance	Decreases in yield stress and ultimate tensile strength less than 20%
- Not Resistant	Decreases in yield stress and ultimate tensile strength greater than 20%

Reagent	20°C	50°C	80°C	Reagent	20°C	50°C	80°C
I. Inorganic Acids				V. Hydrocarbons			
Chromic acid (80%)	+	+	/	Benzene	/	/	-
Hydrochloric acid (conc)	+	+	+	Carbon Tetrachloride	/	-	-
Hydrocyanic acid	+	+	-	Cyclohexane	+	+	-
Hydrofluoric acid	-	-	-	Dichloroethylene	-	-	-
Nitric acid (conc)	/	-	-	Diesel oil	+	+	/
Nitric acid (50%)	+	+	/	n-Heptane	+	+	-
Nitric acid (20%)	+	+	+	Petroleum ether	+	-	-
Phosphoric acid (85%)	+	-	-	Trichloroethylene	/	-	-
Sulphuric acid (conc)	+	-	-	Toluene	/	-	-
Sulphuric acid (50%)	+	+	+	White spirit	+	/	-
				Xylene	/	/	-
II. Alkalis				VI. Alcohols, Ketones, Ester and Amines			
Aqueous ammonia	+	+	-	Acetone	+	+	-
Potassium Hydroxide Solution	+	+	+	Aniline	+	+	/
Sodium Hydroxide Solution	+	+	+	Benzyl alcohol	+	+	+
III. Aqueous Solutions of Inorganic Salts				Butyl alcohol	+	+	+
Aluminum Chloride	+	+	-	Cyclohexanol	+	+	+
Aluminum Nitrate	+	+	+	Ethanol	+	+	-
Bleaching powder	+	+	+	Ethyl acetate	+	+	-
Calcium Chloride	+	+	+	Ethylene glycol	+	+	+
Sodium Carbonate	+	+	+	Glycene	+	+	+
Sodium Chloride	+	+	+	Lauryl alcohol	+	+	+
Sodium Hypochlorite	+	+	+	Propyl alcohol	+	+	+
Zinc Chloride	+	+	+	VII. Miscellaneous			
IV. Organic Acids				Beer	+	+	+
Acetic acid (99%)	+	+	/	Detergents in aqueous solution	+	+	+
Acetic acid (10%)	+	+	+	Distilled water	+	+	+
Butyric acid	+	+	-	Hydrogen peroxide 30%	+	+	-
Citric acid	+	+	+	Linseed oil	+	+	+
Formic acid	+	+	-	Milk	+	+	+
Oleic acid	+	+	/	Olive Oil	+	+	+
				Sea water	+	+	+
				Wine	+	+	+

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Double Flange



30-2801
30-1002

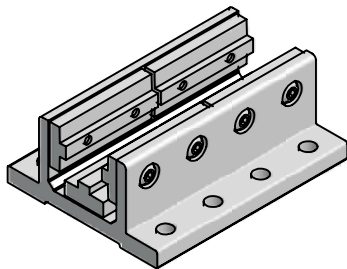
28 Series

Part #	A	B	C	D	E	F	G
30-2801	80	50	4xØ8.3	11	28	32	64
30-2808	80	100	8xØ8.3	8	28	32	64
Part #	H	K	L	M	N	P*	R
30-2801	39.5	8	16.75	28	9.25	1.1	26.9
30-2808	39.5	8	16.75	28	9.25	1.1	26.9

* Add 28mm (1.102") when using 12-248 profile.

1" Series

Part #	A	B	C	D	E	F	G
30-1002	3.15"	2.00"	4xØ0.28"	0.50"	1.00"	1.25"	2.50"
30-1004	3.15"	4.00"	8xØ0.28"	0.50"	1.00"	1.25"	2.50"
Part #	H	K	L	M	N	P	R
30-1002	1.56"	0.31"	0.66"	1.03"	0.40"	0.06"	1.11"
30-1004	1.56"	0.31"	0.66"	1.03"	0.40"	0.06"	1.11"



30-2808
30-1004

Application

The slide block units offer low cost linear guidance. They utilize glide pads oriented within T-slots. You make your own guidance device, by providing the power – pneumatically, electromechanically or manually.

Shims are available to provide a more precise fit. See page 203 for optional clamping mechanism and page 210 for machining details.

Technical Data

Aluminum, Clear Anodized

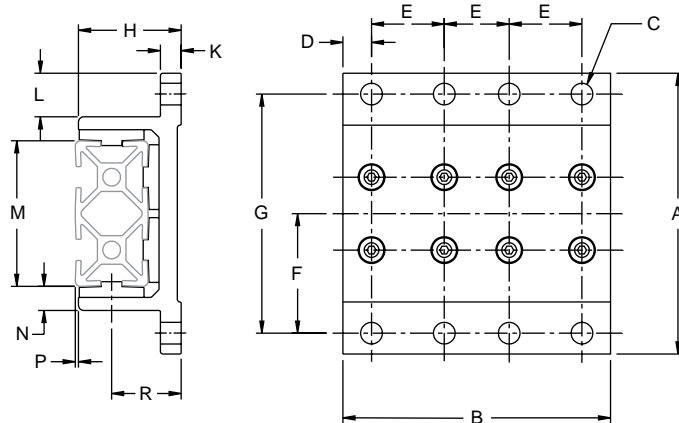
UHMW Glide Pads

Ordering Information

Description	Unit	Weight (g)	Part #
Slide Block 28, 50mm Long	Each	140	30-2801
Slide Block 28, 100mm Long	Each	580	30-2808
Slide Block 1, 2" Long	Each	140	30-1002
Slide Block 1, 4" Long	Each	250	30-1004

Slide Blocks

Double Flange

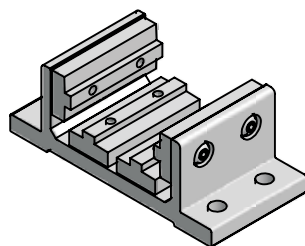


28 Series

30-5601
30-2002

Part #	A	B	C	D	E	F	G
30-5601	108	50	4xØ8.3	11	28	46	92
30-5608	108	100	8xØ8.3	8	28	46	92
Part #	H	K	L	M	N	P*	R
30-5601	39.5	8	16.75	56	9.25	1.125	26.75
30-5608	39.5	8	16.75	56	9.25	1.125	26.75

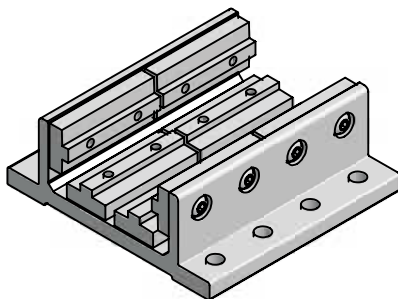
* Add 28mm (1.102") when using 12-056 profile.



1" Series

30-5608
30-2004

Part #	A	B	C	D	E	F	G
30-2002	4.25"	2.00"	4xØ0.28"	0.50"	1.00"	1.75"	3.50"
30-2004	4.25"	4.00"	8xØ0.28"	0.50"	1.00"	1.75"	3.50"
Part #	H	K	L	M	N	P	R
30-2002	1.56"	0.31"	0.66"	2.03"	0.45"	0.06"	1.11"
30-2004	1.56"	0.31"	0.66"	2.03"	0.45"	0.06"	1.11"



Application Data

These double flange units offer low cost linear guidance. They utilize glide pads oriented within T-slots. You make your own guidance device, by providing the power – pneumatically, electromechanically or manually.

Shims are available to provide a more precise fit. See page 203 for optional clamping mechanism and page 210 for machining details.

Technical Data

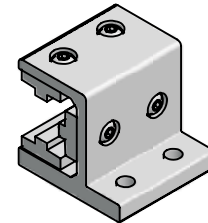
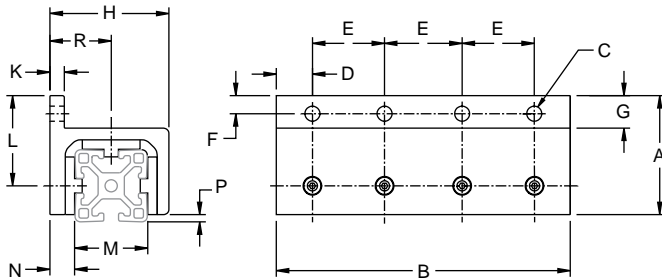
Aluminum, Clear Anodized
UHMW Glide Pads

Ordering Information

Description	Unit	Weight (g)	Part #
Slide Block 28, 50mm Long	Each	340	30-5601
Slide Block 28, 100mm Long	Each	720	30-5608
Slide Block 2, 2" Long	Each	230	30-2002
Slide Block 2, 4" Long	Each	420	30-2004

Linear Applications

Side Flange



30-2821
30-1012

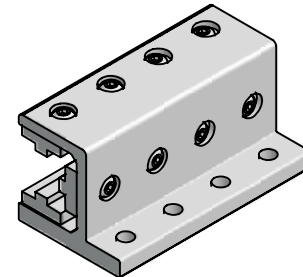
28 Series

Part #	A	B	C	D	E	F	G
30-2821	54	50	2xØ8.3	11	28	10	18
30-2828	54	100	4xØ8.3	8	28	10	18
Part #	H	K	L	M	N	P*	R
30-2821	49.5	8	41	28	11.9	1.2	26.3
30-2828	49.5	8	41	28	11.9	1.2	26.3

* Add 28mm (1.102") when using 12-428 profile.

1" Series

Part #	A	B	C	D	E	F	G
30-1012	2.13"	2.00"	2xØ0.28"	0.50"	1.00"	0.375"	0.71"
30-1014	2.13"	4.00"	4xØ0.28"	0.50"	1.00"	0.375"	0.71"
Part #	H	K	L	M	N	P	R
30-1012	1.95"	0.31"	1.68"	1.03"	0.52"	0.06"	1.03"
30-1014	1.96"	0.31"	1.68"	1.03"	0.52"	0.06"	1.03"



30-2828
30-1014

Application

The slide block units offer low cost linear guidance. They utilize glide pads oriented within T-slots. You make your own guidance device, by providing the power – pneumatically, electromechanically or manually.

Shims are available to provide a more precise fit. See page 203 for optional clamping mechanism and page 210 for machining details.

Technical Data

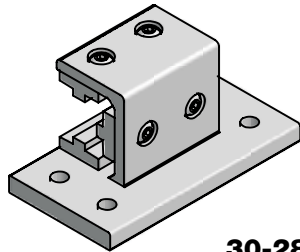
Aluminum, Clear Anodized

UHMW Glide Pads

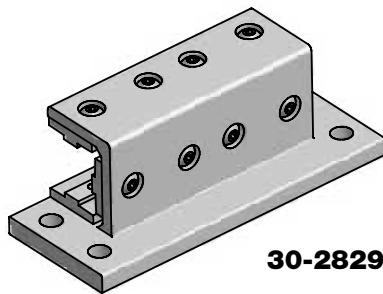
Ordering Information

Description	Unit	Weight (g)	Part #
Slide Block 28, 50mm Long	Each	340	30-2821
Slide Block 28, 100mm Long	Each	390	30-2828
Slide Block 1", 2" Long	Each	140	30-1012
Slide Block 1", 4" Long	Each	250	30-1014

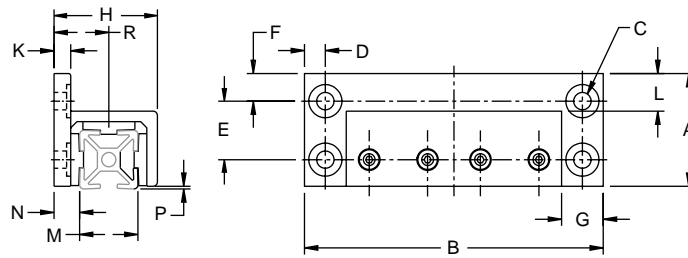
Side Flange Extended



30-2822
30-1024



30-2829



28 Series

Part #	A	B	C	D	E	F	G
30-2822	54	90	4xØ8.3	10	28	13.2	20
30-2829	54	140	4xØ8.3	10	28	13.2	20
Part #	H	K	L	M	N	P*	R
30-2822	49.5	8	18	28	12	11.9	26.3
30-2829	49.5	8	18	28	12	11.9	26.3

* Add 28mm (1.102") when using 12-428 profile.

1" Series

Part #	A	B	C	D	E	F	G
30-1024	2.13"	4.00"	4xØ0.28"	0.50"	1.00"	0.56"	1.00"
Part #	H	K	L	M	N	P	R
30-1024	1.95"	0.31"	0.71"	1.03"	0.52"	0.06"	1.03"

Application

The slide block units offer low cost linear guidance. They utilize glide pads oriented within T-slots. You make your own guidance device, by providing the power – pneumatically, electromechanically or manually.

Shims are available to provide a more precise fit. See page 203 for optional clamping mechanism and page 210 for machining details.

Technical Data

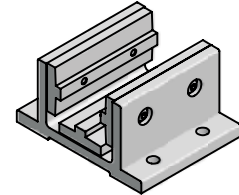
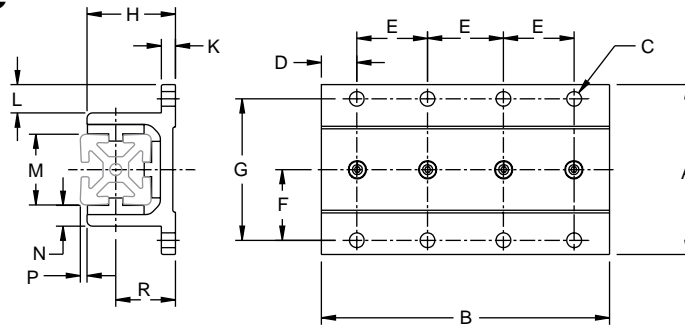
Aluminum, Clear Anodized

UHMW Glide Pads

Ordering Information

Description	Unit	Weight (g)	Part #
Slide Block 28, 90mm Long	Each	340	30-2822
Slide Block 28, 140mm Long	Each	720	30-2829
Slide Block 1" Extended, 4" Long	Each	260	30-1024

Double Flange

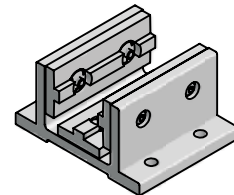


40 Series

Part #	A	B	C	D	E	F	G
30-4001	96	80	4xØ8.3	20	40	40	80
30-4008	96	160	8xØ8.3	20	40	40	80
Part #	H	K	L	M	N	P*	R
30-4001	50	8	16	40	12	4	34
30-4008	50	8	16	40	12	4	34

30-4001
30-1503

* Add: 40mm (1.575") when using 10-080, 10-680 or 11-080 profile.
80mm (3.15") when using 10-120 profile.
120mm (4.72") when using 10-164 or 11-140 profile.



1.5" Series

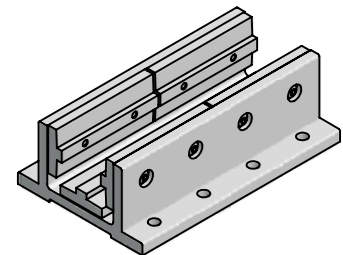
Part #	A	B	C	D	E	F	G
30-1503	3.78"	3.00"	4xØ0.28"	0.75"	1.50"	1.50"	3.00"
30-1506	3.78"	6.00"	8xØ0.28"	0.75"	1.50"	1.50"	3.00"
Part #	H	K	L	M	N	P	R
30-1503	1.97"	0.31"	0.63"	1.52"	0.50"	0.12"	1.34"
30-1506	1.97"	0.31"	0.63"	1.52"	0.50"	0.12"	1.34"

30-4001HC
30-1503HC

Application

The slide block units offer low cost linear guidance. They utilize glide pads oriented within T-slots. You make your own guidance device, by providing the power – pneumatically, electromechanically or manually. High cycle (HC) units utilize a steel threaded insert to mount the pad to the unit. These specially designed slide block units are used in high cycle applications.

Shims are available to provide a more precise fit. See page 203 for optional clamping mechanism and page 210 for machining details.



30-4008
30-1506

Technical Data

Aluminum, Clear Anodized

UHMW Glide Pads

Safe load:

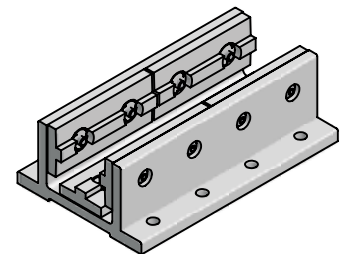
30-4001 or 30-1503 = 102 kg (225 lbs)

30-4008 or 30-1506 = 204 kg (450 lbs)

Ordering Information

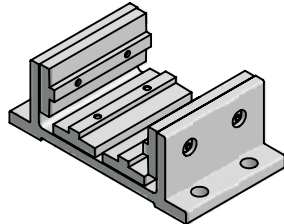
Description	Unit	Weight (g)	Part #
Slide Block 40, 80mm Long	Each	310	30-4001
Slide Block 40, 160mm Long	Each	620	30-4008
Slide Block 40 HC, 80mm Long	Each	310	30-4001HC
Slide Block 40 HC, 160mm Long	Each	620	30-4008HC
Slide Block 1.5, 3" Long	Each	310	30-1503
Slide Block 1.5, 6" Long	Each	620	30-1506
Slide Block 1.5 HC, 3" Long	Each	310	30-1503HC
Slide Block 1.5 HC, 6" Long	Each	620	30-1506HC

30-4008HC
30-1506HC

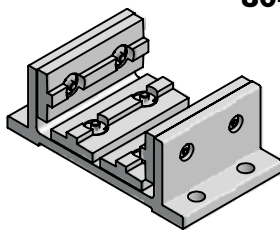


Slide Blocks

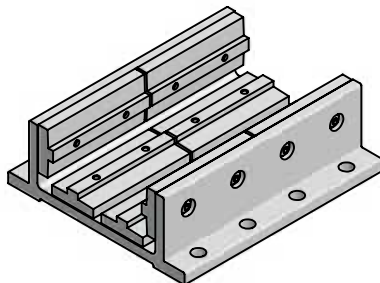
Double Flange



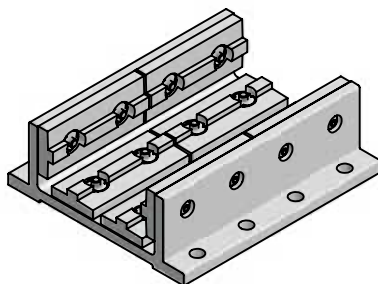
**30-8001
30-3003**



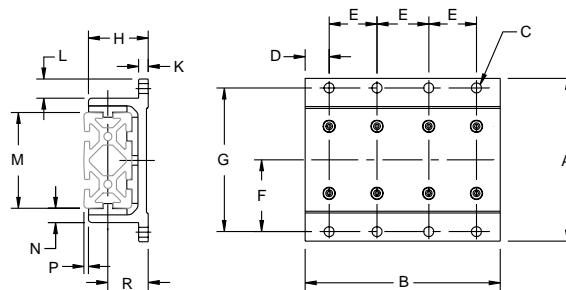
**30-8001HC
30-3003HC**



**30-8008
30-3006**



**30-8008HC
30-3006HC**



Technical Data

Aluminum, Clear Anodized

UHMW Glide Pads

Safe load:

30-8001 or 30-3003 = 204 kg (450 lb)

30-8008 or 30-3006 = 408 kg (900 lb)

40 Series

Part #	A	B	C	D	E	F	G
30-8001	136	80	4xØ8.3	20	40	60	120
30-8008	136	160	8xØ8.3	20	40	60	120
Part #	H	K	L	M	N	P*	R
30-8001	50	8	16	80	12	3.7	34
30-8008	50	8	16	80	12	3.7	34

* Add: 40mm (1.575") when using 10-088 or 11-088 profile.
120mm (4.72") when using 10-160 or 11-160 profile.

1.5" Series

Part #	A	B	C	D	E	F	G
30-3003	5.35"	3.00"	4xØ0.34"	0.75"	1.50"	2.35"	4.69"
30-3006	5.35"	6.00"	8xØ0.34"	0.75"	1.50"	2.35"	4.69"
Part #	H	K	L	M	N	P	R
30-3003	1.97"	0.31"	0.63"	3.02"	0.54"	0.12"	1.34"
30-3006	1.93"	0.31"	0.63"	3.02"	0.54"	0.12"	1.34"

Application

The slide block units offer low cost linear guidance. They utilize glide pads oriented within T-slots. You make your own guidance device, by providing the power – pneumatically, electromechanically or manually. High cycle (HC) units utilize a steel threaded insert to mount the pad to the unit. These specially designed slide block units are used in high cycle applications.

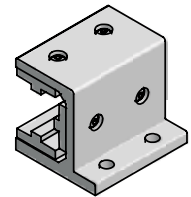
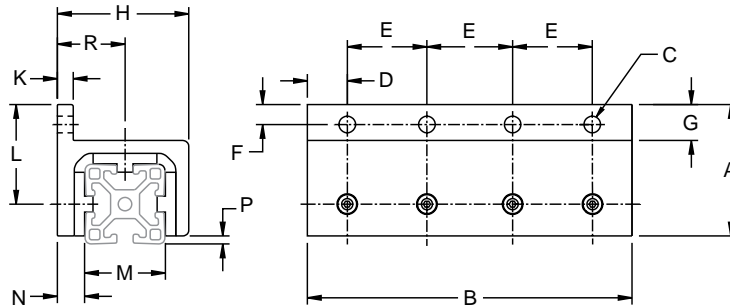
Shims are available to provide a more precise fit. See page 203 for optional clamping mechanism and page 210 for machining details.

Linear Applications

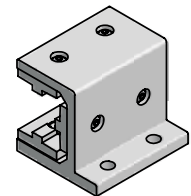
Ordering Information

Description	Unit	Weight (g)	Part #
Slide Block 80, 80mm Long	Each	380	30-8001
Slide Block 80, 160mm Long	Each	760	30-8008
Slide Block 80 HC, 80mm Long	Each	380	30-8001HC
Slide Block 80 HC, 160mm Long	Each	760	30-8008HC
Slide Block 3, 3" Long	Each	380	30-3003
Slide Block 3, 6" Long	Each	760	30-3006
Slide Block 3 HC, 3" Long	Each	380	30-3003HC
Slide Block 3 HC, 6" Long	Each	760	30-3006HC

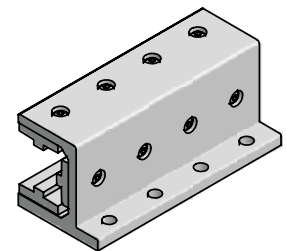
Side Flange



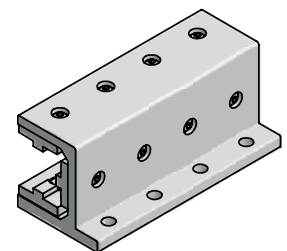
30-4021
30-1513



30-4021HC
30-1513HC



30-4028
30-1523



30-4028HC
30-1523HC

40 Series

Part #	A	B	C	D	E	F	G
30-4021	66	80	2xØ8.3	20	40	10	18
30-4028	66	160	4xØ8.3	20	40	10	18
Part #	H	K	L	M	N	P*	R
30-4021	66	8	50	40	14	4	34
30-4028	66	8	50	40	14	4	34

* Add: 40mm (1.575") when using 10-080, 10-680 or 11-080 profile.
80mm (3.15") when using 10-120 profile.
120mm (4.72") when using 10-164 or 11-140 profile.

1.5" Series

Part #	A	B	C	D	E	F	G
30-1513	2.60"	3.00"	2xØ0.34"	0.75"	1.50"	0.38"	0.71"
30-1523	2.60"	6.00"	4xØ0.34"	0.75"	1.50"	0.38"	0.71"
Part #	H	K	L	M	N	P	R
30-1513	2.60"	0.31"	1.97"	1.61"	0.58"	0.12"	1.34"
30-1523	2.60"	0.31"	1.97"	1.61"	0.58"	0.12"	1.34"

Application

The slide block units offer low cost linear guidance. They utilize glide pads oriented within T-slots. You make your own guidance device, by providing the power – pneumatically, electromechanically or manually. High cycle (HC) units utilize a steel threaded insert to mount the pad to the unit. These specially designed slide block units are used in high cycle applications.

Shims are available to provide a more precise fit. See page 203 for optional clamping mechanism and page 210 for machining details.

Technical Data

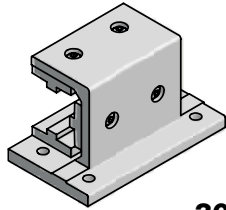
Aluminum, Clear Anodized

UHMW Glide Pads

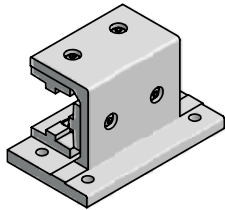
Ordering Information

Description	Unit	Weight (g)	Part #
Slide Block 40, 80mm Long	Each	310	30-4021
Slide Block 40, 160mm Long	Each	420	30-4028
Slide Block 40 HC, 80mm Long	Each	310	30-4021HC
Slide Block 40 HC, 160mm Long	Each	420	30-4028HC
Slide Block 1.5, 3" Long	Each	310	30-1513
Slide Block 1.5, 6" Long	Each	620	30-1523
Slide Block 1.5 HC, 3" Long	Each	310	30-1513HC
Slide Block 1.5 HC, 6" Long	Each	620	30-1523HC

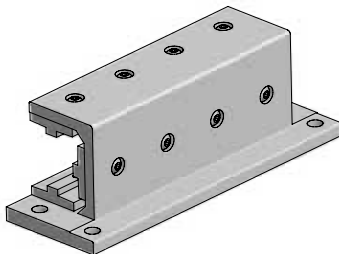
Side Flange Extended



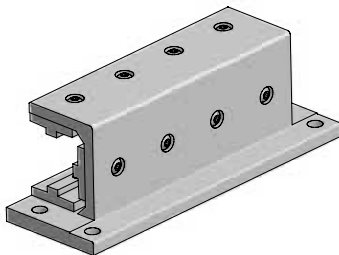
30-4022
30-1516



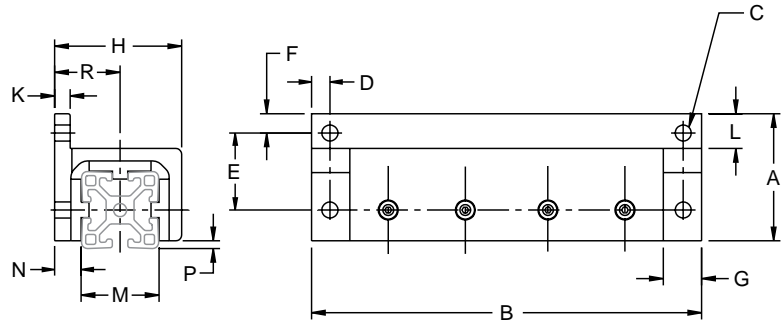
30-4022HC
30-1516HC



30-4029



30-4029HC



40 Series

Part #	A	B	C	D	E	F	G
30-4022	66	120	4xØ8.3	10	40	10	20
30-4029	66	200	4xØ8.3	10	40	10	20
Part #	H	K	L	M	N	P*	R
30-4022	66	8	18	40	14	4	34
30-4029	66	8	18	40	14	4	34

* Add: 40mm (1.575") when using 10-080, 10-680 or 11-080 profile.
 80mm (3.15") when using 10-120 profile.
 120mm (4.72") when using 10-164 or 11-140 profile.

1.5" Series

Part #	A	B	C	D	E	F	G
30-1516	2.60"	4.50"	4xØ0.34"	0.50"	1.50"	0.47"	0.75"
Part #	H	K	L	M	N	P*	R
30-1516	2.60"	0.31"	1.97"	1.50"	0.58"	0.12"	1.34"

Application

The slide block units offer low cost linear guidance. They utilize glide pads oriented within T-slots. You make your own guidance device, by providing the power – pneumatically, electromechanically or manually. High cycle (HC) units utilize a steel threaded insert to mount the pad to the unit. These specially designed slide block units are used in high cycle applications.

Shims are available to provide a more precise fit. See page 203 for optional clamping mechanism and page 210 for machining details.

Technical Data

Aluminum, Clear Anodized

UHMW Glide Pads

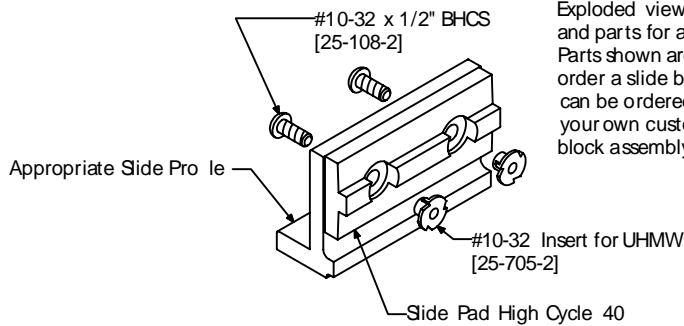
Ordering Information

Description	Unit	Weight (g)	Part #
Slide Block 40, 120mm Long	Each	340	30-4022
Slide Block 40, 200mm Long	Each	720	30-4029
Slide Block 40 HC, 120mm Long	Each	340	30-4022HC
Slide Block 40 HC, 200mm Long	Each	720	30-4029HC
Slide Block 1.5, 4.5# Long	Each	370	30-1516
Slide Block 1.5 HC, 4.5# Long	Each	370	30-1516HC

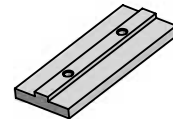
Linear Applications

Slide Blocks

Slide Pads & Shims



Exploded view of the assembly and parts for a high cycle slide. Parts shown are included when you order a slide block assembly, but can be ordered separately to make your own custom high cycle side block assembly.



Application

Glide pads let you custom design a low friction guidance unit. Slide pad can also be attached to a profile to serve as a guide in sliding door applications.

Technical Data

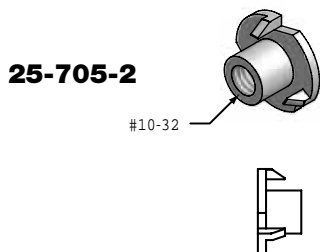
Slide Pad: UHMW
 Shim: PET (Polyethylene Terephthalate), 0.005" Thick

Ordering Information

Description	Unit	Weight (g)	Part #
Slide Pad 28 Series, 50mm*	Each	5	30-2800-2
Slide Pad 40 Series, 80mm*	Each	15	30-4000-2
Slide Pad 40 Series, 80mm High Cycle	Each	4	30-4000-6
Shim 80	Set		30-412Z2
Shim 160	Set		30-812Z2
Slide Pad, 1" x 2" *	Each	13	30-1000
Slide Pad, 1" x 2" Top*	Each	16	30-1001
Slide Pad, 1" x 2" Sides*	Each	16	30-2000
Slide Pad, 1.5" x 3" *	Each	36	30-1500
Slide Pad, 1.5" x 3" High Cycle	Each	33	30-1501
Slide Pad, 3" *	Each	41	30-3000
Slide Pad, 3" High Cycle	Each	38	30-3001

* Tapped

High Cycle Nut



Application

Threaded insert nut used to create high cycle UHMW slide blocks.

Technical Data

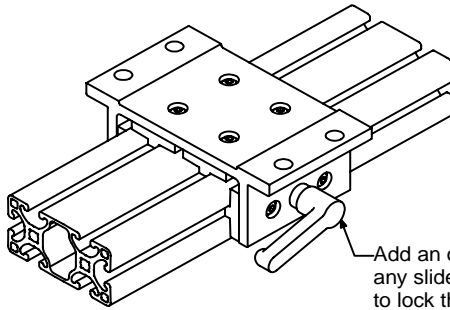
Steel, Zinc Plated
 Accepts #10-32 screw.

Ordering Information

Description	Unit	Weight (g)	Part #
High Cycle Nut #10-32	Each	0.5	25-705-2

Slide Blocks

Clamp Accessories



Add an optional locking handle to any slide block, to provide a mechanism to lock the slide block in place anywhere on the extrusion.

Application

These clamp accessories provide positioning and adjustment for 40 Series slide units. Handles provide mechanism to lock the slide block in place anywhere on the extrusion.

Slide extrusions and pads can be drilled to accept clamp. See page 210.

Ordering Information

Series	Description	Weight (g)	Part Number
40/1.5"	Ratcheting L-Handle	56	30-0011
	Star Handle	39	30-0015
28	Ratcheting L-Handle	49	30-0001
	Star Handle	30	30-0005



30-0001



30-0005



30-0011



30-0015

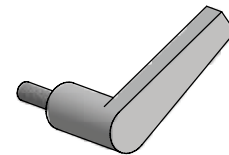
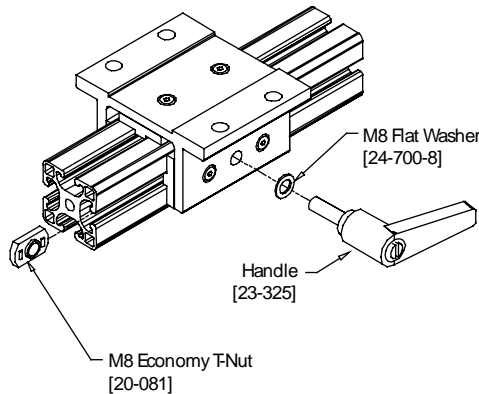
Application

For use on applications where a locking handle is desired, particularly on profile slide blocks. A 9mm hole is required to mount the ratchet lever.

Technical Data

Fiber Reinforced Techno-Polymer Plastic with Metal Insert.

Hardware varies with application.



23-325

Ordering Information

Description	Unit	Weight (g)	Part #
Ratchet Lever M8 x 16	Each	87	23-316
Ratchet Lever M8 x 20	Each	43	23-320
Ratchet Lever M8 x 25	Each	45	23-325
Ratchet Lever M8 x 40	Each	50	23-340
Ratchet Lever M8 x 50	Each	53	23-350
Ratchet Lever M8 x 63	Each	57	23-363

Ratchet Lever

Linear Applications

Slide Blocks

Clamp Machining

Slide blocks may be pre-drilled for mounting of the clamp. If drilling is desired, specify the machining service number and give the location of the hole(s) to be drilled according to the drawings below.

Ordering Information

Profiles	Hole Size	Machining Service No.
28, 40, 1.5"	Ø9	19-140

Ordering Examples:

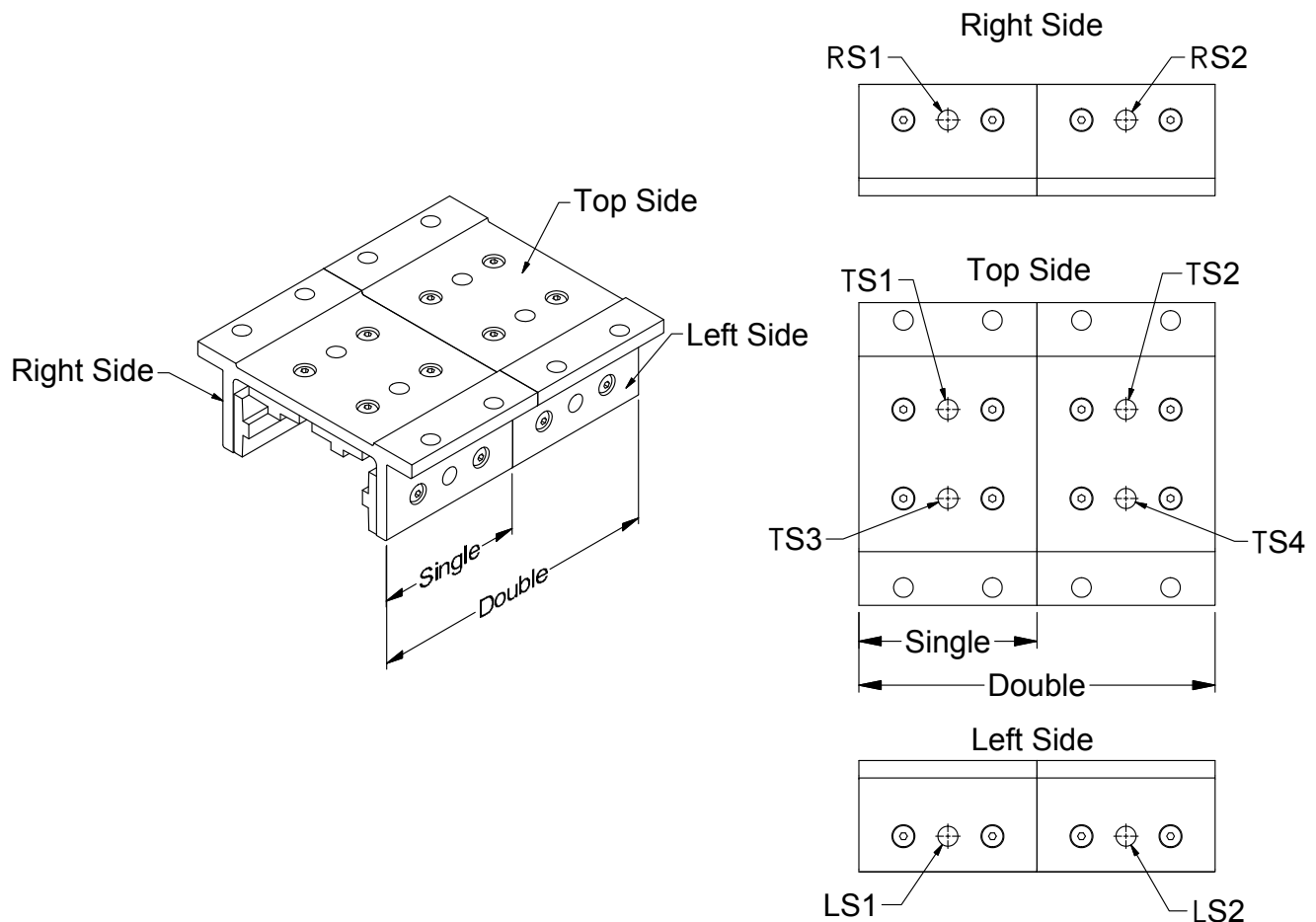
Multiple clamps may be mounted on a slide block. Each clamp requires a hole to be drilled. Note the description and the number of holes is added to the slide block part number.

Guide drilled for two clamps, one on the right and one on the left:

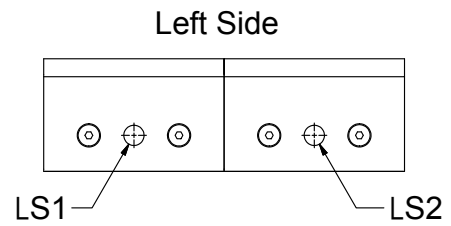
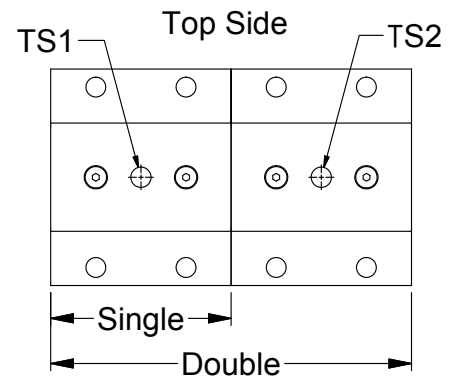
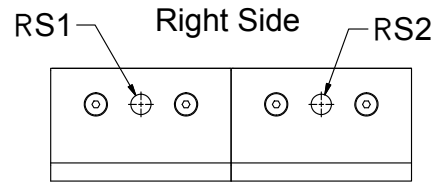
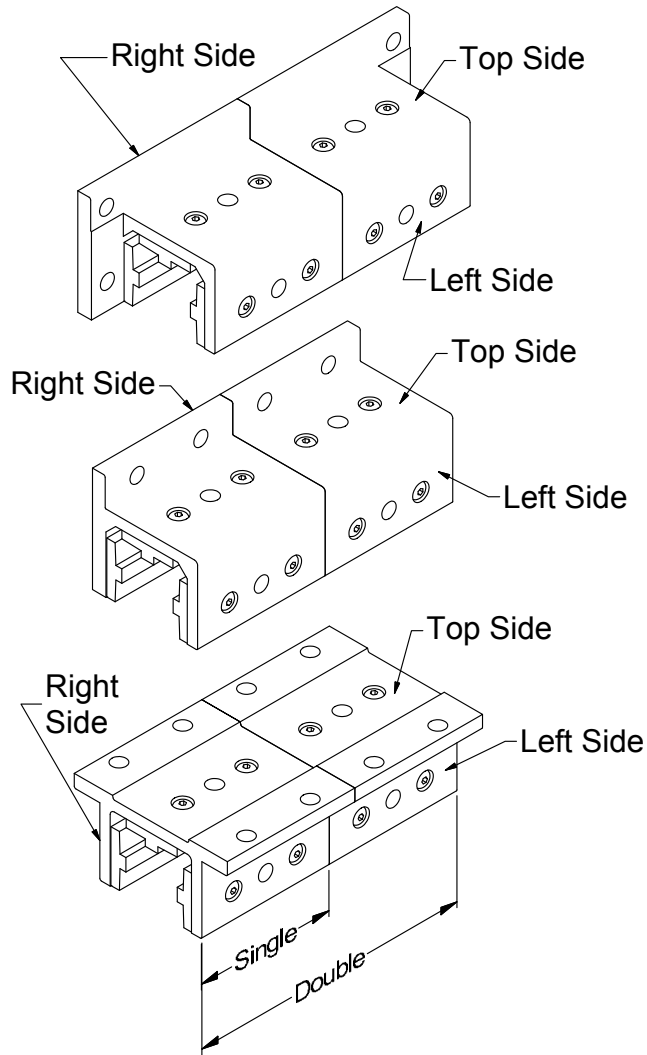
30-4008 w/19-140 @ RS1 and LS1

Guide drilled for one clamp on the top:

30-8008 w/19-140 @ TS1



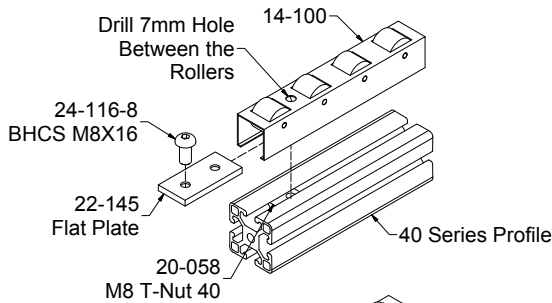
Clamp Machining



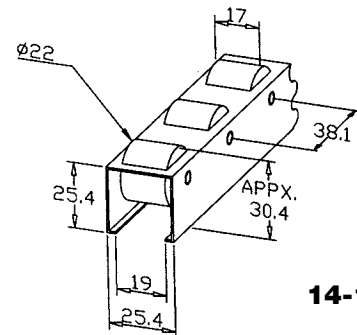
Linear Applications

Roller Track

Roller Track



Slide the Flat Plate (22-145) with the 24-116-8 (BHCS M8X16) and 20-058 (M8 T-Nut 40) into the bottom of the 14-100. Use the 7mm hole drilled into the 14-100 to tighten the 24-116-8.



14-100

Application

Economical track for flow rack system. Usually use two tracks per runway but three or four may be used with heavy or wide loads. Can be attached to 40, 30 or 28 Series profiles.

Technical Data

Channel: Rolled Steel, Galvanized (0.028")
 Roller: PE, White
 Load: 2.3 kg (5 lbs) per roller
 Weight: 0.47 kg/m

Ordering Information

Description	Max. Length	Part #
Roller Track	3 meter	14-100
Cut to Length Service Number		19-007

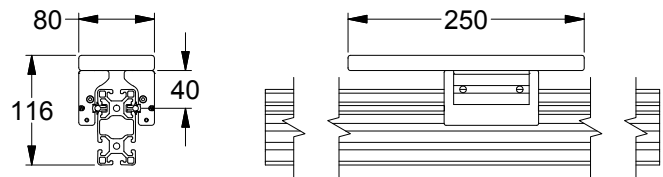
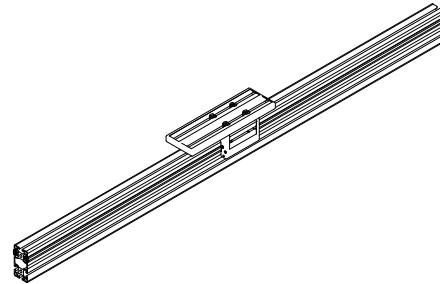
The LR Series Linear Roller System

Linear Roller Series products provide a high level of accuracy, load-bearing strength, and flexibility in a modular, low-cost package. These products use standard components and can adapt to a wide range of applications.

The foundation of the LR product line is in the 40 Series of structural profiles that offer numerous mounting configurations. Profiles allowing maximum unsupported spans can be selected, saving valuable space and reducing overall system costs. Standard lengths of 6 meters and the ability to splice multiple selections allow configuration of nearly infinite stroke.

LR roller bearings are made of 100 Cr6 ground and hardened steel and provide low friction, long life, high speed, and heavy load capabilities. Bearing units are available as single and double roller types. Custom carriage configurations using multiple bearing units can be set up to meet off-the-shelf lead times.

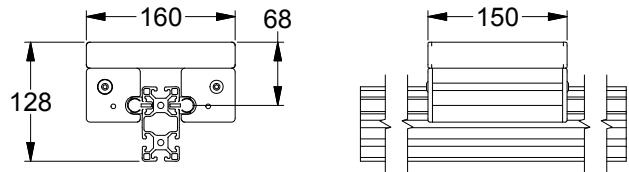
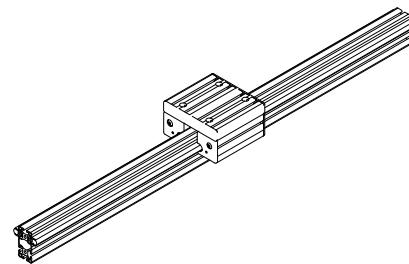
The modular design allows for easy assembly, fast engineering, and a flexible platform capable of meeting even the most demanding application.



- **Carriage Loads up to 753 lbs**
- **Custom Carriage Options**
- **Stroke Lengths over 6 Meters**

Market applications:

- **Material Handling**
- **Gantry Systems**
- **Visual Inspection**
- **Assembly and Transfer Lines**



Linear Applications

Performance Overview

	LR 6	LR14	LR14HD
Maximum carriage load - kg (lbs)	66 (146)	272 (600)	341 (753)
Maximum travel without splice - mm*	5900	5850	5840
Minimum travel - mm	300	250	240

*Consult factory for long travel lengths

Order Example

LR | B | 5 | 2 | S0150 | M | 2000

System Size

- LR 6
- LR 14
- LR 14HD

Extrusion Selection*

- 40x80 Standard
- 40x80 Heavy
- 80x80 Standard
- 80x80 Heavy
- 80x80 Super Heavy
- 80x160 Standard
- 80x160 Heavy
- 80x120 Heavy

Profile Orientation

- Tall Side (see example figures)
- Narrow Side (see example figures)

Bearing Configuration

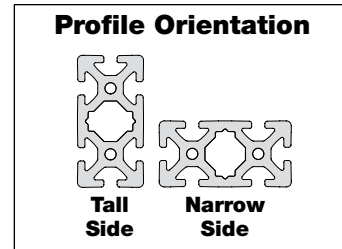
- Double Bearing
 (xxxx is standard carriage length)
- Single Bearing (see page 200 for min.)
 (enter total carriage length in mm)

Type

- Manual

Travel

- Travel Length (mm)

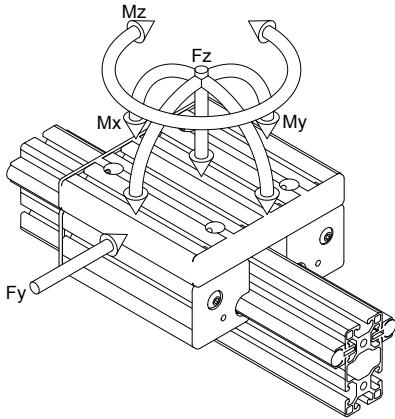


* All profiles do not fit with all system sizes.
 Contact factory for application assistance.

Loading Capacity

Static Moment Loads

Determine which moment loads are induced by the static load. Locate the center of gravity of the load and the length of the moment arm.



Moment Arm Lengths

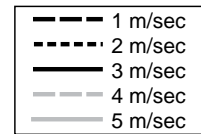
Determine the moment arm lengths associated with each moment load by measuring the distance from the center of the load to the center of the carriage in each moment load direction.

Pitch Moment

When determining the pitch moment arm, it is necessary to consider the distance from the top of the load attachment plate to the center of the carriage bearings.

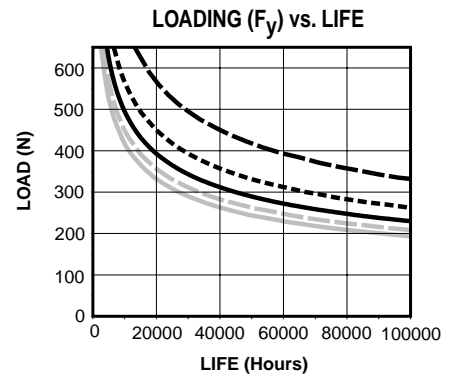
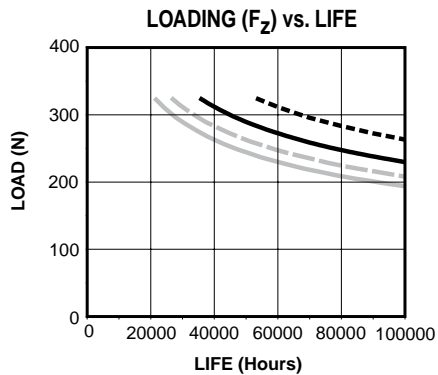
Operating Condition	Load Factor
Steady Load	1
Fluctuating Load	-
Low	1.4
Average	1.7
High	2

Load Capacity = Load * Load Factor

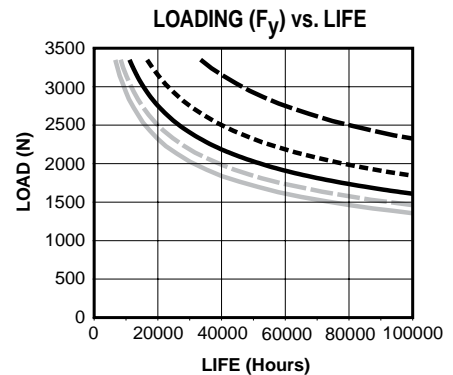
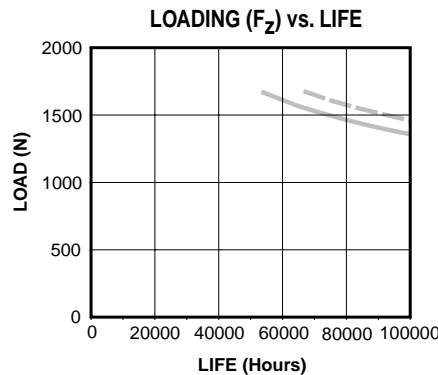


Key for charts on pages 213 and 214

LR6 Series



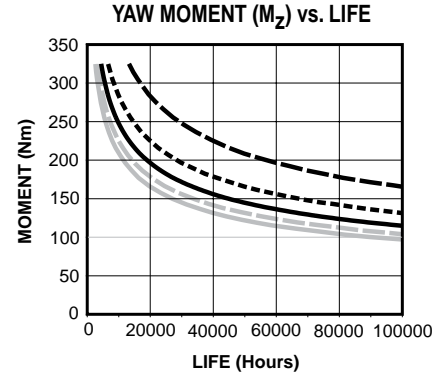
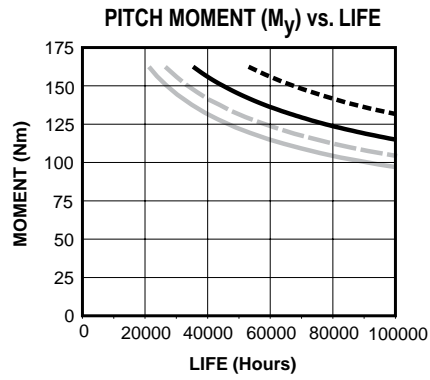
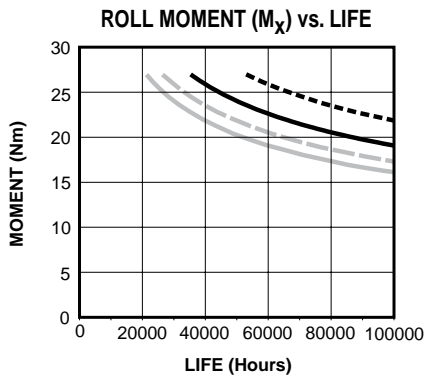
LR14/14HD Series



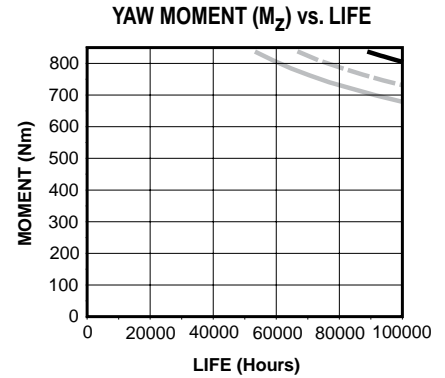
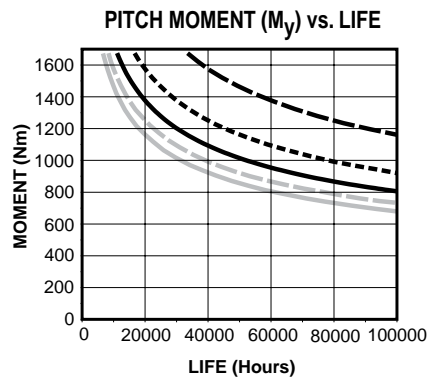
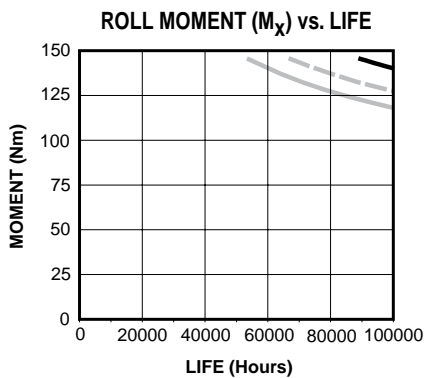
Linear Applications

Loading Capacity

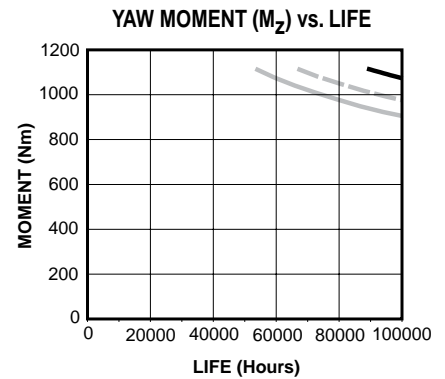
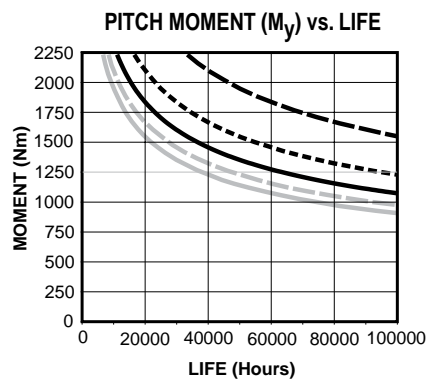
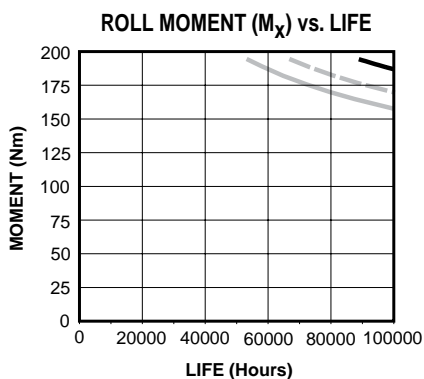
LR6 Series



LR14 Series



LR14HD Series



Carriage Information

Carriage Mounting Detail

LR Series actuators offer unmatched carriage flexibility. Available in fixed length double bearing units or adjustable length single bearing units, the carriage can be tailored to meet specific load requirements.

Series	Carriage	Width A	Length B	Thickness C	T-Slot D	Weight (g)
LR6*	Single	80	300**	16	39	Variable
	Double	80	242	16	39	80
LR14*	Single	160	140**	28	40	Variable
	Double	160	141.6	28	40	3240
LR14HD*	Single	159.5	160**	28	40	Variable

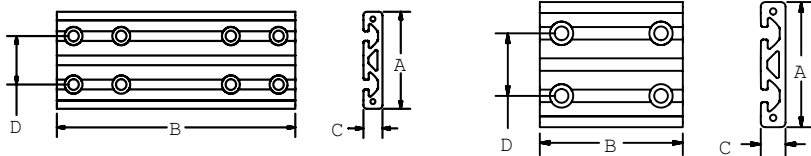
* Based on 40 mm Profile Width for LR6, LR14, and LR14HD

** Minimum length

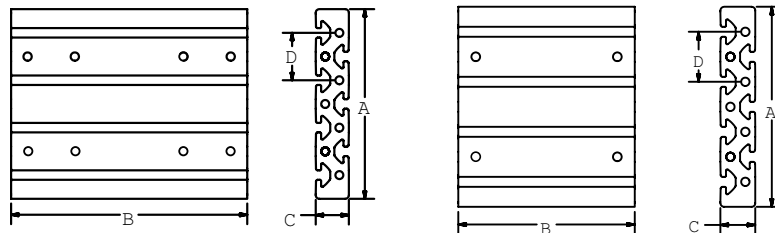
Single Bearing Carriage

Double Bearing Carriage

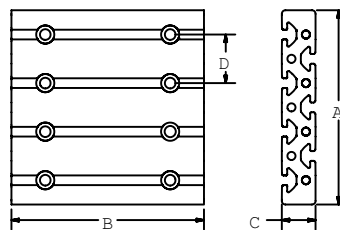
LR6 Series



LR14 Series



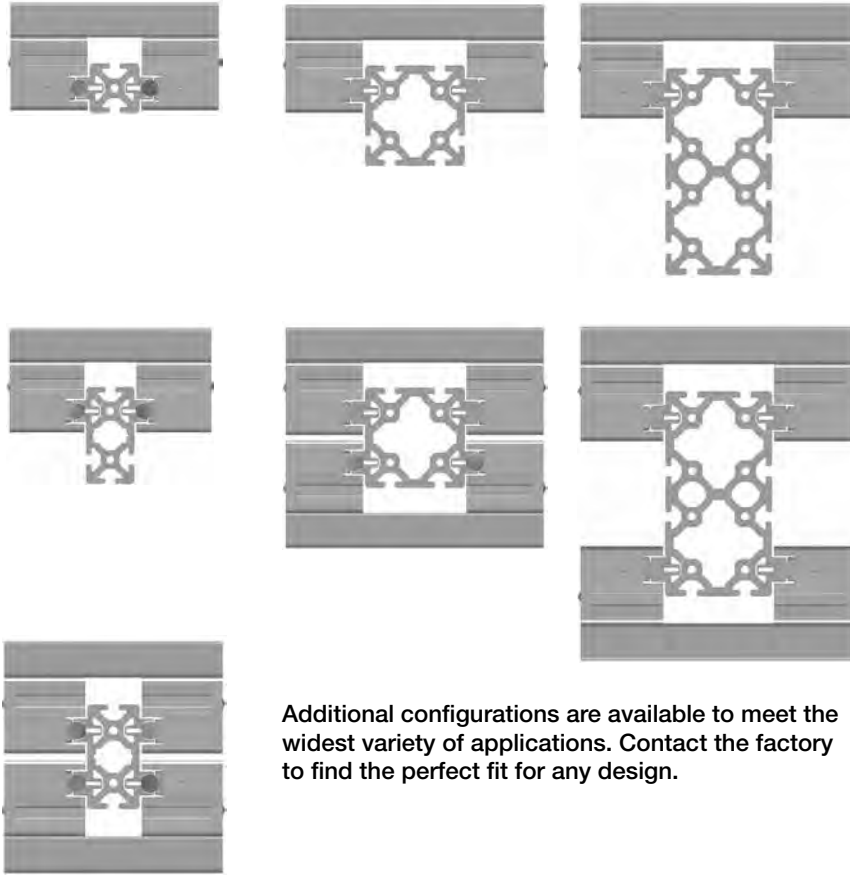
LR14HD Series



Consult Factory

Linear Applications

Carriage Information



Carriage Orientation

A variety of carriage orientations are available due to the LR Series' modular design.

Options include multiple linked and multiple independent carriages on a single actuator and custom carriage lengths.

Selecting the proper profile for load support, and configuring the carriage to suit the specific load and application provides the benefits of a custom product without the additional costs and lead times.

Additional configurations are available to meet the widest variety of applications. Contact the factory to find the perfect fit for any design.

Inertia Values

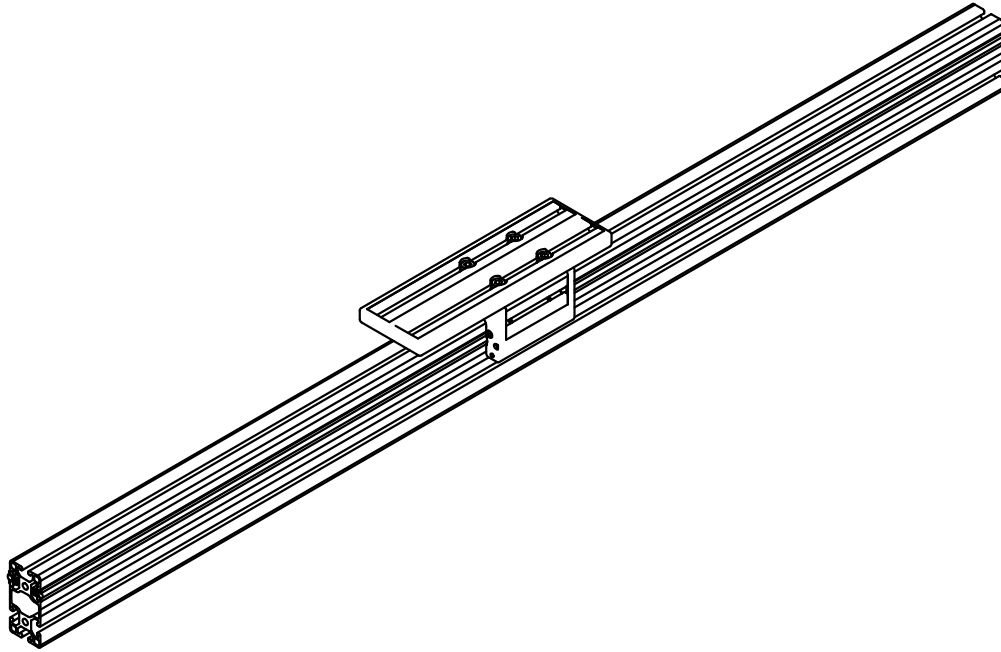
Linear Inertia (oz-in²) vs Stroke (mm)

Series	100	200	300	500	750	1000	1500	3000	4000	6000
6	25.87	26.12	26.38	26.89	27.53	28.17	29.45	33.29	35.85	40.96
14	63.95	64.20	64.46	64.97	65.61	66.25	67.53	71.37	73.93	79.04
14HD	73.09	73.35	73.60	74.12	74.76	75.40	76.68	80.51	83.07	88.19

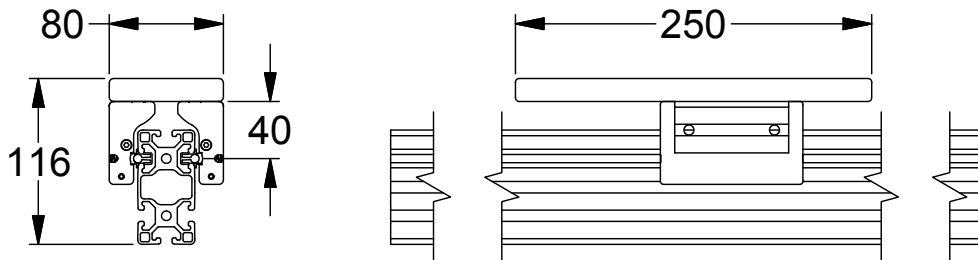
Linear Inertia (kg-cm²) vs Stroke (mm)

Series	100	200	300	500	750	1000	1500	3000	4000	6000
6	4.73	4.78	4.82	4.92	5.04	5.15	5.39	6.09	6.56	7.49
14	11.70	11.74	11.79	11.88	12.00	12.12	12.35	13.05	13.52	14.46
14HD	13.37	13.42	13.46	13.56	13.67	13.79	14.02	14.73	15.19	16.13

Roller System 6



Note:
Configuration shown: Double bearing carriage (30-402 and 30-404) on 40x80 extrusion (10-080) with 16x80 extrusion (10-081) for the carriage plate.



Roller System 6

Application

Components for constructing Roller System 6 for light duty applications

Technical Data

Linear Shaft: Cf53 high grade carbon steel (AISI 1050)

Precision ground to ISO h6 tolerance $^{+0}_{-.8}$ μm

Roundness: 4 μm

Parallelism: 5 $\mu\text{m}/1000\text{mm}$

Surface quality: Ra 0.3 μm (Rz 1.6 μm)

Hardness depth: minimum 0.4 mm

Surface hardness: 670 to 840 HV (RC 59 to 65)

Shaft clamp: Aluminum, Anodized

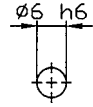
Bearing Units: Aluminum Anodized Housing, Roller 6 (30-008), Bolt 6 Centric (30-006) or Eccentric (30-007), and M6x8 cone point set screw

Preload range for eccentric bearing units ± 0.45 mm

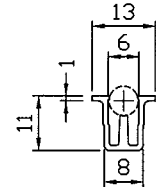
End Cap/ Lubricating System (set of left and right):
 Glass-Filled Nylon, Black; includes felt, spring and M4x10 SHCS

Ordering Information

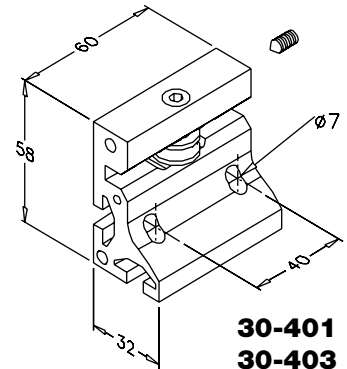
Description	Unit	Weight (g)	Part #
Linear Shaft 6, Hard Chrome Coated	6 meters	0.22 kg/m	13-505
Cut to Length Service Number			19-007
Shaft Clamp 6	3 meters	0.12 kg/m	13-106
Cut to Length Service Number			19-001
Single Bearing Unit 6, Centric	Each	180	30-401
Single Bearing Unit 6, Eccentric	Each	180	30-403
Double Bearing Unit 6, Centric	Each	220	30-402
Double Bearing Unit 6, Eccentric	Each	220	30-404
End Cap/ Lubricating System 6	Set	20	30-407
Replacement Felt 6	Each	0.1	30-407Z5



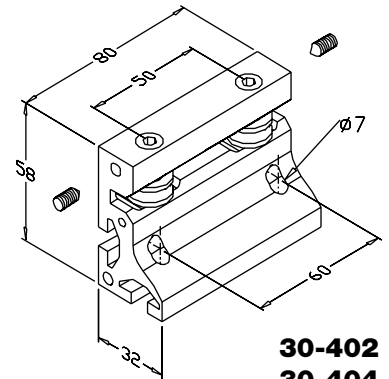
13-505



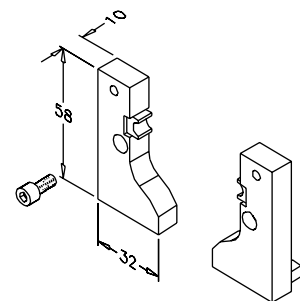
13-106



30-401
30-403

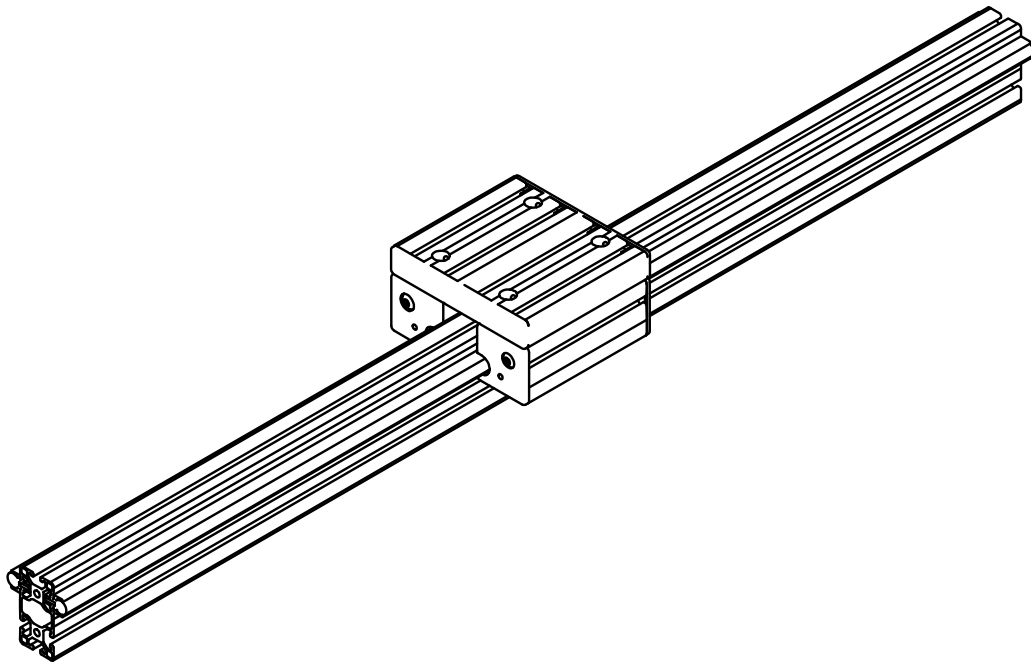


30-402
30-404

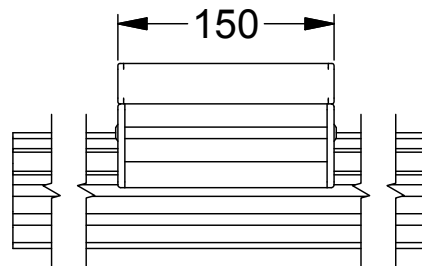
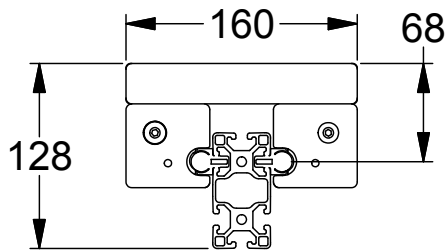


30-407

Roller System 14



Note:
Configuration shown: Double bearing carriage (30-102 and 30-104) on 40x80 extrusion (10-080) with 28x160 extrusion (11-128) for the carriage plate.



Linear Applications

Roller System 14

Application

Components for constructing Roller System 14 for medium duty applications

Technical Data

Linear Shaft: Cf53 high grade carbon steel (AISI 1050)

Precision ground to ISO h6 tolerance $^{+0}_{-11} \mu\text{m}$

Roundness: 5 μm

Parallelism: 8 $\mu\text{m}/1000\text{mm}$

Surface quality: Ra 0.3 μm (Rz 1.6 μm)

Hardness depth: minimum 0.6 mm

Surface hardness: 670 to 840 HV (RC 59 to 65)

Shaft Clamp: Aluminum, Anodized

Bearing Units:

Aluminum, Anodized Housing, Roller 14 (30-108), Bolt 14 Centric (30-105) or Eccentric (30-106), and spacer (30-108z1)

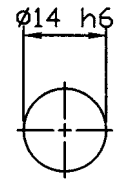
Preload range for eccentric bearing units $\pm 1.0 \text{ mm}$

End Cap/ Lubricating System (set of left and right):

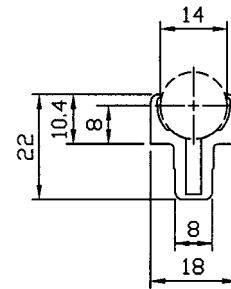
Glass-Filled Nylon, Black; includes felt, spring, M8x10 BHCS

Ordering Information

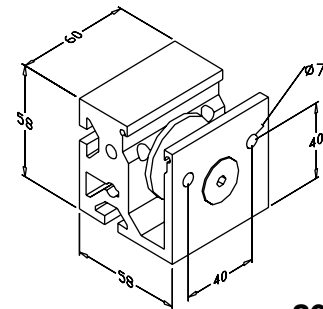
Description	Unit	Weight (g)	Part #
Linear Shaft 14, (Hard chrome coated)	6 meters	1.21 kg/m	13-513
Cut to Length Service Number			19-007
Shaft Clamp 14	3 meters	0.26 kg/m	13-114
Cut to Length Service Number			19-001
Single Bearing Unit 14, Centric	Each	400	30-101
Single Bearing Unit 14, Eccentric	Each	400	30-103
Double Bearing Unit 14, Centric	Each	880	30-102
Double Bearing Unit 14, Eccentric	Each	880	30-104
End Cap/ Lubricating System 14	Set	50	30-107
Replacement Felt 14	Each	0.2	30-107Z1



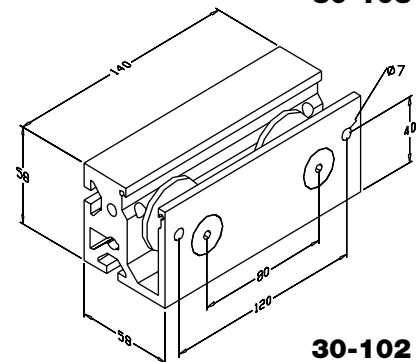
13-513



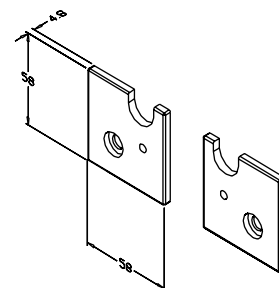
13-114



**30-101
30-103**

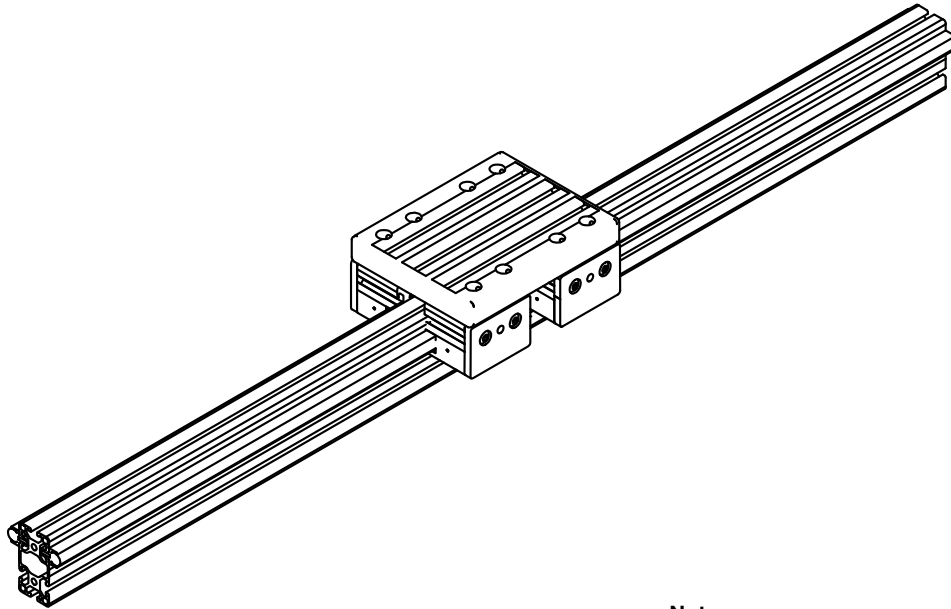


**30-102
30-104**



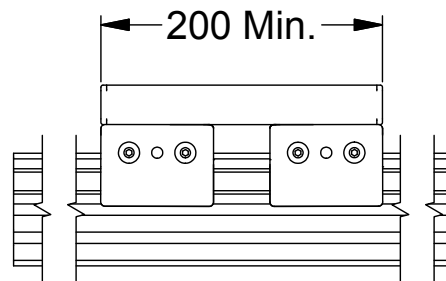
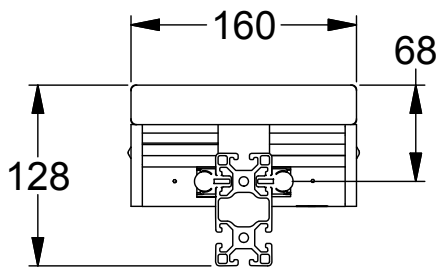
30-107

Roller System 14 HD



Note:
Configuration shown: Single bearing carriage (30-111 and 30-113) on 40x80 extrusion (10-080) with 28x160 extrusion (11-128) for the carriage plate.

The LR14HD only has single bearing blocks. The minimum length of the carriage is 200mm, but it can be made longer.



Roller System 14 HD

Application

Components for constructing Roller System 14 HD for medium and heavy duty applications

Technical Data

Linear Shaft: Cf53 high grade carbon steel (AISI 1050)

Precision ground to ISO h6 tolerance $^{+0}_{-11} \mu\text{m}$

Roundness: 5 μm

Parallelism: 8 $\mu\text{m}/1000\text{mm}$

Surface quality: Ra 0.3 μm (Rz 1.6 μm)

Hardness depth: minimum 0.6 mm

Surface hardness: 670 to 840 HV (RC 59 to 65)

Shaft Clamp: Aluminum, Anodized

Bearing Units:

Aluminum, Anodized Housing, Roller 14 (30-108),

Bolt 14 Centric (30-105) or Eccentric (30-106),

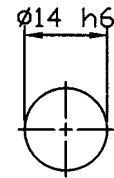
one spacer per roller (30-114z3), M8x12 nylon tipped set screw (24-689) for eccentric only, End Cap/ Lubricating System

Preload range for eccentric bearing units $\pm 1.0 \text{ mm}$

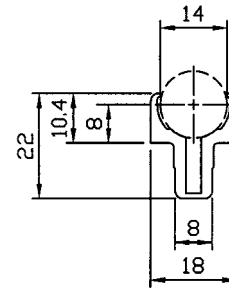
End Cap/ Lubricating System: Trespa Cap with Pin, Felt, Spring, M8x10 BHCS, M4x10 Set Screw, and Access Plug

Ordering Information

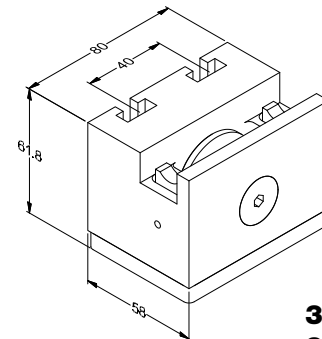
Description	Unit	Weight (g)	Part #
Linear Shaft 14, Hard Chrome Coated	6 meters	1.21 kg/m	13-513
Cut to Length Service Number			19-007
Shaft Clamp 14	3 meters	0.25 kg/m	13-114
Cut to Length Service Number			19-001
Single Bearing Unit 14 HD, Centric	Each	580	30-111
Single Bearing Unit 14 HD, Eccentric	Each	580	30-113
End Cap, LR14 HD, Single	Each	52	30-503Z6
Replacement Felt 14HD	Each	2	30-114Z5



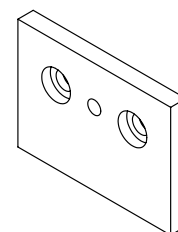
13-513



13-114

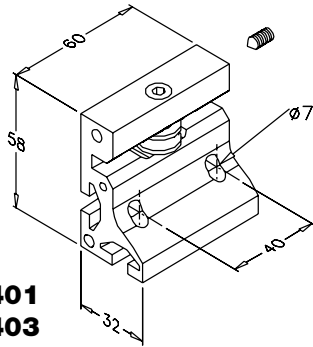


30-111
30-113

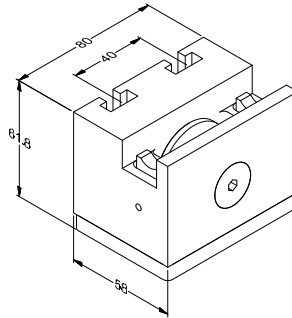


30-503Z6

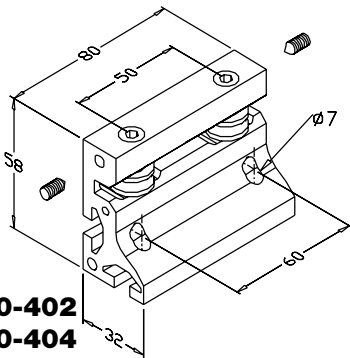
Bearing Unit



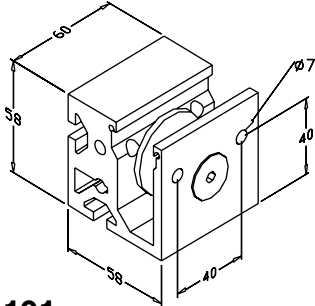
30-401
30-403



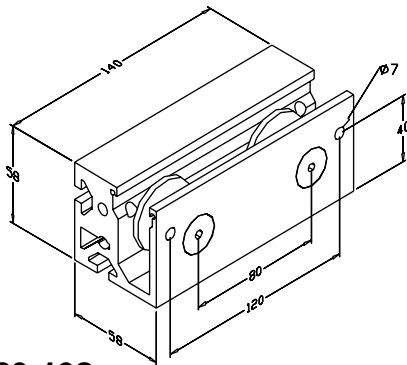
30-111
30-113



30-402
30-404



30-101
30-103



30-102
30-104

Ordering Information

Description	Unit	Weight (g)	Part #
Bearing Unit, Double 6, Centric	Each	220	30-402
Bearing Unit, Double 6, Eccentric	Each	220	30-404
Bearing Unit, Single 6, Centric	Each	180	30-401
Bearing Unit, Single 6, Eccentric	Each	180	30-403
Bearing Unit, Double 14, Centric	Each	880	30-102
Bearing Unit, Double 14, Eccentric	Each	880	30-104
Bearing Unit, Single 14, Centric	Each	400	30-101
Bearing Unit, Single 14, Eccentric	Each	400	30-103
Bearing Unit, Single 14HD, Centric	Each	580	30-111
Bearing Unit, Single 14HD, Eccentric	Each	580	30-113

Linear Applications

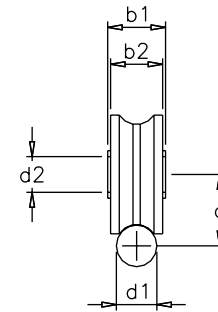
Components for Bearing Units

Technical Data

Steel, 100 Cr6, ground and hardened, double ball bearing with two shields, maintenance free

Ordering Information

Shaft Dia	Dimensions				Weight (g)	Part #
	d2	a	b1	b2		
6	5	10.5	8	7	7	30-008
14	12	24	20	18	88	30-108

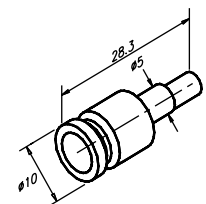


Technical Data

Steel, Black Oxide

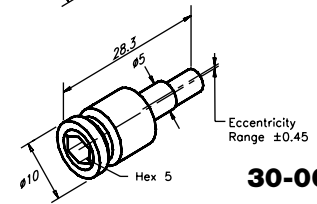
Ordering Information

Type	Eccentricity	Used in Bearing Units	Weight (g)	Part #
6-Centric	N/A	30-401, 30-402	6	30-006
6-Eccentric	0.45	30-403, 30-404	6	30-007
14-Centric	N/A	30-101, 30-102, 30-111	48	30-105
14-Eccentric	1.0	30-103, 30-104, 30-113	46	30-106

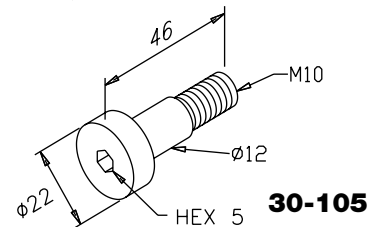


Bolts

30-006



30-007



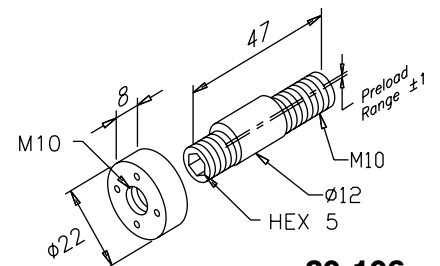
30-105

Technical Data

Steel, Black Oxide

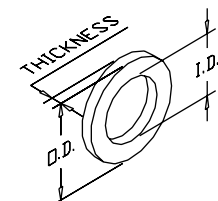
Ordering Information

Dimensions			Used in Bearing Units	Qty Required per Roller	Part #
I.D.	O.D.	Thickness			
12	18	1.0	30-101,30-102, 30-103, 30-104	1	30-108Z1
10.2	19	1.1	30-111, 30-112	1	30-114Z3

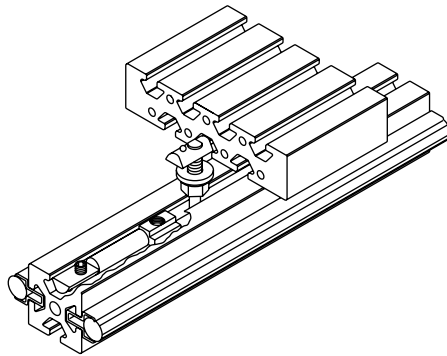


30-106

Spacers



Limit Stop



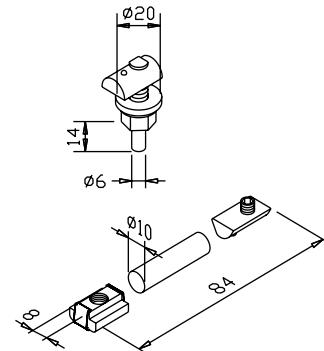
Application

To define mechanically the limits of travel. The rubber shock absorber provides for a cushioned end stop.

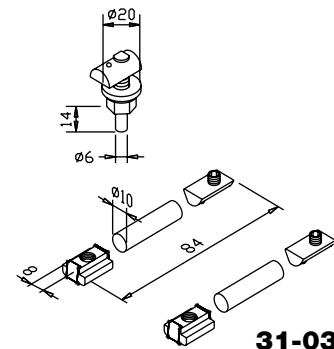
Technical Data

31-037:
 M8 T-slot nut HD w/retainer spring, M8x8 cup point set screw, rubber shock absorber, two M8 T-slot nuts, M8x44 set screw, M8 washer, M8 flange nut

31-038:
 Two M8 T-slot nuts HD w/retainer spring, two M8x8 cup point set screws, two rubber shock absorbers, three M8 T-slot nuts, M8x44 set screw, M8 washer, M8 flange nut



31-037

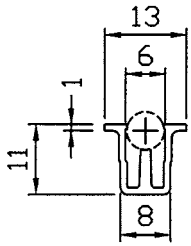


31-038

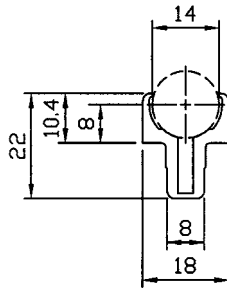
Ordering Information

Description	Unit	Weight (g)	Part #
Limit Stop - One Direction	Set	65	31-037
Limit Stop Bi-Directional	Set	93	31-038
Rubber Shock Absorber (40mm Long)	Each		31-037Z3A

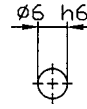
Shafts & Clamp



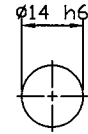
13-106



13-114



13-505



13-513

Technical Data

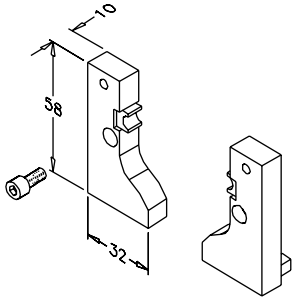
Linear shaft: Cf53 high-grade carbon steel (A151 1050)

Shaft clamp: Aluminum, clear anodized

Ordering Information

Description	Unit	Weight (g)	Part #
Shaft Clamp Profile 6	6 meters	120	13-106
Shaft Clamp Profile 14	6 meters	260	13-114
Cut To Length Service Number	Each		19-001
Linear Shaft 6	3 meters	220	13-505
Linear Shaft 14	3 meters	1210	13-513
Cut To Length Service Number	Each		19-007

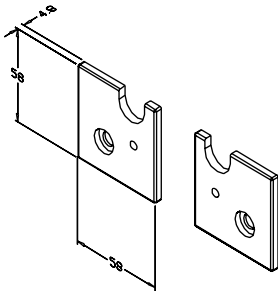
End Caps



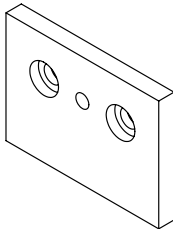
30-407

Ordering Information

Description	Unit	Weight (g)	Part #
End Cap, Lubricating System 6	Set	20	30-407
End Cap, Lubricating System 14	Set	50	30-107
End Cap, 14 HD	Each	52	30-503Z6
Replacement Felt Insert 6	Each	0.1	30-407Z5
Replacement Felt Insert 14	Each	0.2	30-107Z1
Replacement Felt Insert 14HD	Each	2	30-114Z5



30-107



30-503Z6

Section 9

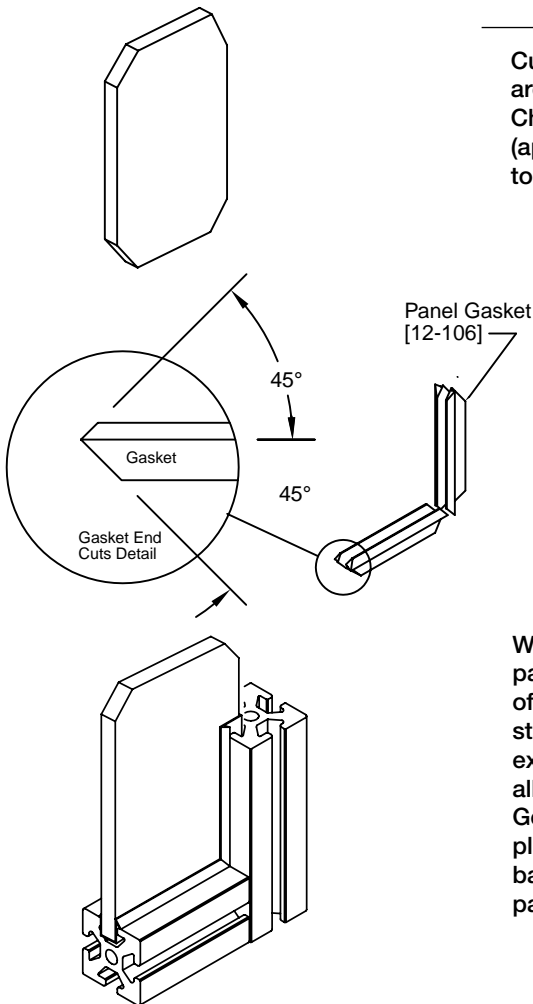
Lean, Services, Tips, & Tools

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Tips

1. Upon receipt of your order, check to see that you have received a complete kit with numbered components. All extrusions are clearly marked with a number designation. Sort all the extrusions according to these designations. If a drawing was supplied, these numbers will correspond with the numbers shown on the drawing.
2. Assembly should be performed on a flat surface as this helps insure proper alignment and perpendicularity of the frame.
3. Thread all end fasteners into tapped ends of extrusions but do not tighten the bolts.
4. Pre-assemble all joiner plates, gussets, brackets, wire mesh clamps and anchor fastener assemblies but do not tighten the bolts.
5. If economy T-nuts are being used on joiner plates, gussets, brackets and any accessories which are to be mounted between end fastenings of the main assembly, then these systems of the T-nut should be installed in the proper T-slot at this time.
6. Install all wheels, leveling feet, hinges, handles and end caps after the main frame is constructed.
7. If solid panels are part of the installation, they should be installed in the T-slot after two sides of its frame have been formed. If panel gasket [12-106] is being used, it should be wrapped around the panel, notched at each corner and then slid into the extrusion's "L-shaped" frame.
8. Use a rubber mallet when installing panels and tap panels evenly to insure that they seat to depth within the T-slot.

Pre-Assembly Instructions and Tips



Cut chamfers at panel corners that are adjacent to standard fasteners. Chamfer should be at 45° angle (approx.) and should be cut according to detail on page 235.

Measure the length of each side of the panel and cut the gasket to those lengths. Then cut each end of the gasket as shown above. Two 45° angle cuts will insure proper fit. Then slide the cut gasketing onto the side of the panel.

With the gasketing mounted on the panel, insert the panel into the slot of the extrusion. By loosening the standard fasteners that hold the extrusions together, the panel will be allowed to slide more freely into place. Gently tapping the extrusion into place and tightening the extrusions back together will insure a tight fitting panel.

Panel and Wire Mesh Gasket Cutting and Installation

Description	Part Number
Saw Cuts	
Saw Cut Extrusion up to 40X80/1.5"X3"	19-001
Saw Cut Extrusion up to 80X80/3"X3"	19-002
Saw Cut Extrusion over 80X80/3"X3"	19-003
Saw Cut for Steel Shafts and Roller Track	19-007
Miter Saw Cut Extrusion Different from 45 Degrees	19-104
Miter Saw Cut Extrusion up to 80X80/3"X3" at 45 Degrees	19-105
Miter Saw Cut Extrusion over 80X80/3"X3" at 45 Degrees	19-106
End Taps	
End Tap M5 for 20 Series Profile	19-005
End Tap M5 20mm Deep for Leveling Foot on 20 Series Profile	19-043
End Tap 1/4-20 1" Series Profile	19-008
End Tap 1/4-20 1" Deep for Leveling Foot on 1" Series Profile	19-044
End Tap 5/16-18 for 1.5" or 40 Series Profile	19-009
End Tap 5/16-18 1.25" Deep for Leveling Foot on 1.5" Series Profile	19-045
End Tap M8 for 40 Series Profile	19-010
End Tap M8 35mm Deep for Leveling Foot	19-016
End Drill and Tap M10 45mm Deep for Leveling Foot	19-017
End Tap 3/8-16 1.25" Deep for Leveling Foot on 1.5" Series Profile	19-046
Universal Fastener Machining	
Universal Fastener Machining for 40 Series Profile	19-015
Universal Fastener Machining for 30 and 28 Series Profile	19-034
Universal Fastener Machining for 20 Series Profile	19-035
Universal Fastener Machining for 1.5" Series Profile	19-039
Universal Fastener Machining for 1" Series Profile	19-036
Universal Fastener Machining for Pneumatic Fasteners 20-011 and 20-012	19-020
Machining for Fasteners	
Mill Slot with 7mm Access Hole for 20-132 on Extrusion 12-032	19-024
Machining for Central Connector 20-704 and 20-705	19-037
Machining for Miter Connector 27-022 and 27-024	19-038
Machining for Miter Connector 27-023	19-040

Services

Description	Part Number
Machining for the Side of Extrusion	
Along T-Slot Drill and Counterbore BHCS or SHCS	19-004
Along T-Slot Drill and Countersink for FHCS	19-006
Along T-Slot Drill Thru 7mm Access Hole	19-011
Along T-Slot Drill and Tap M3-M4 or #8-32-#10-32	19-013
Along T-Slot Drill and Tap M5-M10 or 1/4-20-3/8-16	19-012
Along T-Slot Drill and Tap M12 or 1/2-13 and Over	19-014
Along T-Slot Drill 7mm Access Hole Thru 160mm or 11-089	19-025
Along T-Slot Drill Thru 5mm Access Hole (20 Series)	19-041
Along T-Slot Drill Thru 7mm Access Hole (1" Series)	19-042
Drill Thru for Side Mounting Leveling Feet and Casters in Base Plates	19-023
Machining for Parts	
Drill Thru 22.5mm for Quarter Turn Latches	19-018
Drill and Ream for Ball Plunger 23-129	19-022A
Drill and Ream for Ball Plunger 23-128	19-022B
Drill, Tap, and Mill Pocket for Roller 21-069	19-103
Drill Thru for Brake Option on Slide Block	19-140
Panel Machining	
Drill Thru Hole up to 10mm or 3/8"	19-027
Panel or Wire Mesh Corner Notch for Universal Fastener (T-Slot Mounted)	19-028
Panel or Wire Mesh Corner Chamfer for Standard Fastener (T-Slot Mounted)	19-029
Panel Corner Notch Around Extrusion (Flush Mounted)	19-030
Cut Panel or Shear Wire Mesh Each Cut	19-032
Drill Thru and Countersink Hole up to 10mm	19-033
Special Machining	
Special Machining Required for Extrusion	19-210
Special Machining or Cutting Required for Panels or Wire Mesh	19-031

Saw Profile to Length

A cut-to-length extrusion profile can be ordered by specifying the appropriate machining service.
Tolerances: Length = ± 0.04 mm (± 0.015 in)

Maximum Length*: 6000 mm (240 in) for all profiles, except as noted otherwise

Ordering Note:

Saw cut requirements should be described by specifying the machining service number and length of cut required, in millimeters.

Example:

A project requires 4 pieces of the 80x80 profile, saw cut to a length of 1500 mm each. These profiles would be ordered as follows:

Line 1 – Specify the total quantity required:

Part No. = 10-088, Quantity = 4@1500mm

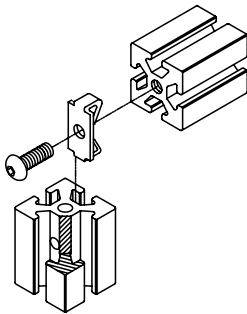
Line 2 – Specify machining services required:

Machining Service No. = 19-002

Quantity = 4

Tap Profile End

This machining service provides one or more tapped holes at the end of an extrusion profile.



Ordering Note:

Profile end tapping requirements should be described by specifying the machining service number and the end(s) at which the tapped hole is required. See pages 233-234 for locator drawings of the extrusion ends.

Example:

A length of 11-040 profile requires tapping at each end for attachment of the M8 End Fastener Assembly. This machining service would be ordered as follows:

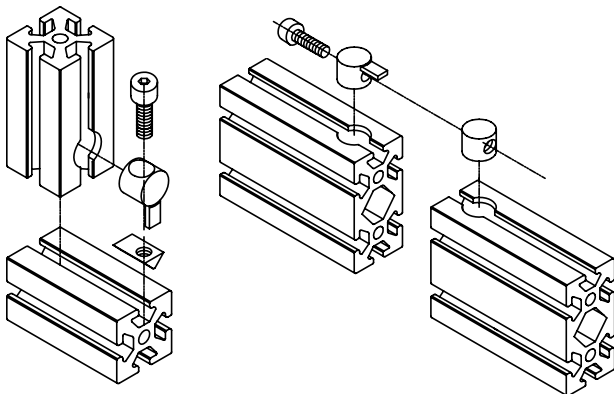
Machining Service No. = 19-010@A, 19-010@B

In this example, there would be charges for two profile end tapping services:

19-010, Quantity = 2

Step Drill

This service provides one or more counterbored holes on the profile T-slot. These holes can accommodate the Universal or Butt Fasteners for both metric or inch extrusions.



Ordering Note:

Profile step drill requirements should be described by specifying the machining service number and the end(s) at which the drill is required. See pages 233-234 for locator drawings of the extrusion ends.

Example:

Two lengths of 11-080 profile require Butt Fasteners to connect to each other. This machining service would be ordered as follows:

Machining Service No. = 19-015@A3, A6

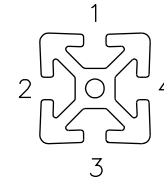
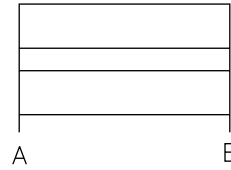
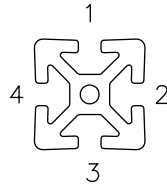
19-015@B3, B6

In this example, there would be charges for step drill services:

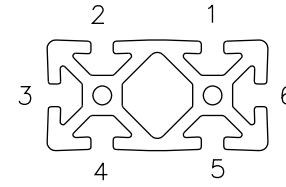
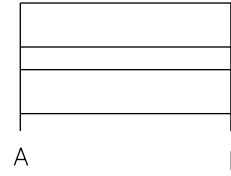
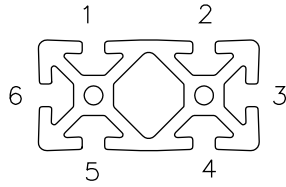
19-015, Quantity = 4

Surface Locations

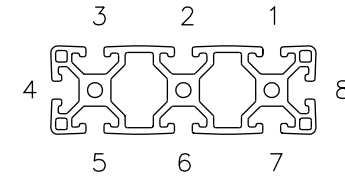
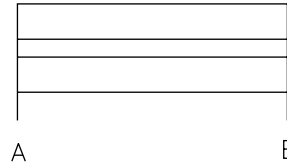
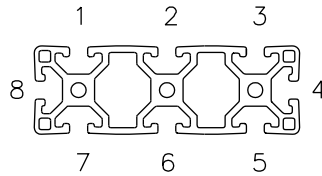
20 x 20 Profiles
 28 x 28 Profiles
 30 x 30 Profiles
 40 x 40 Profiles
 1" x 1" Profiles
 1.5" x 1.5" Profiles



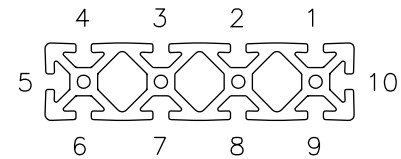
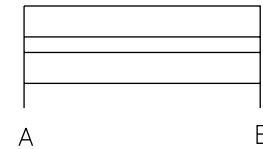
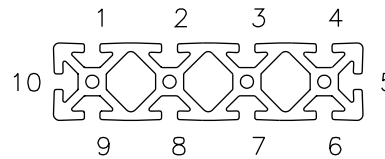
20 x 40 Profiles
 28 x 56 Profiles
 30 x 60 Profiles
 40 x 80 Profiles
 40 x 100 Profiles
 1" x 2" Profiles
 1.5" x 3.0" Profiles



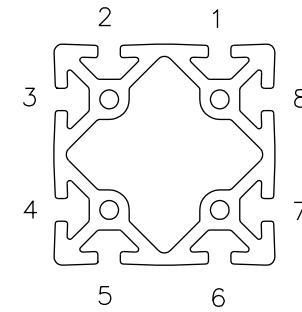
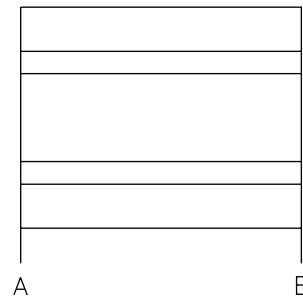
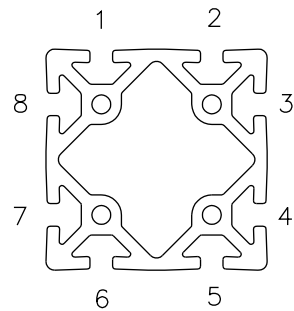
40 x 120 Profiles



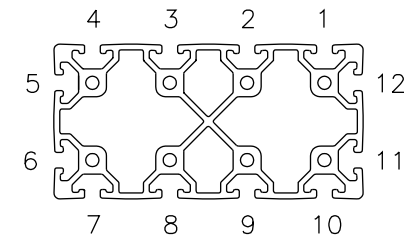
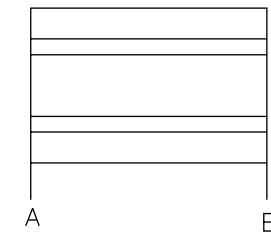
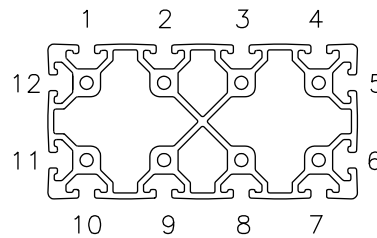
40 x 160 Profiles



40 x 40 Profiles
 56 x 56 Profiles
 80 x 80 Profiles
 3.0" x 3.0" Profiles

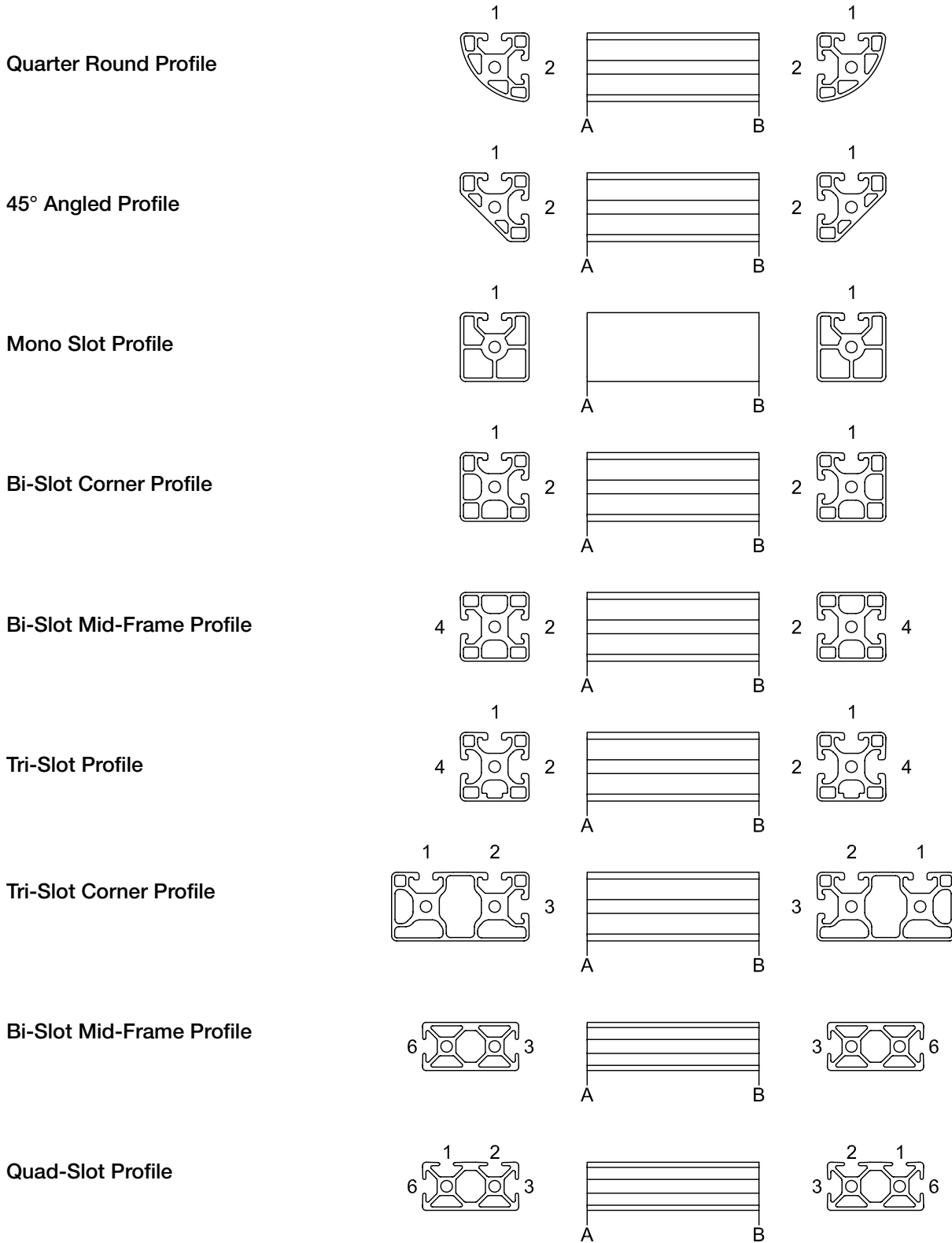


80 x 160 Profiles



**Lean, Services,
 Tips, & Tools**

Surface Locations



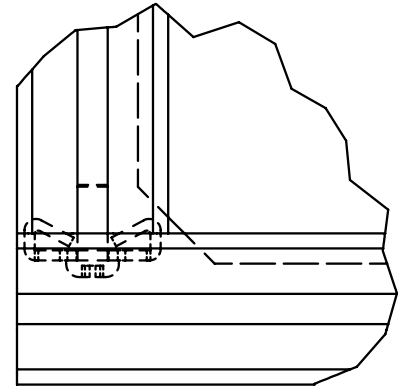
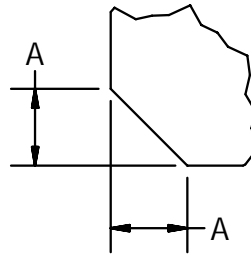
Chamfer Corner for Standard Fastener Clearance

Chamfer gives clearance for standard fastener. This service is needed only when panels or wire mesh are installed in T-slots.

Service 19-029

Dimensions

Profile	A
40	19 (.75")
30	17 (.67")
28	17 (.67")
20	12 (.47")
1.5"	19 (.75")
1"	17 (.67")



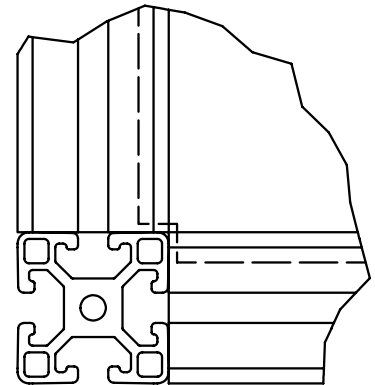
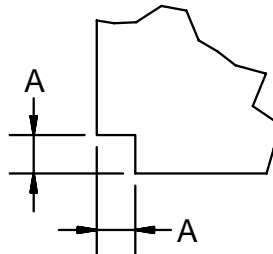
Notch Corner for Extrusion Clearance

Notch gives clearance for perpendicularly mounted extrusions. This service is needed when panels or wire mesh are installed in T-slots or flush mounted.

Service 19-030

Dimensions

Profile	A
40	9 (.35")
30	9 (.35")
28	9 (.35")
20	6.40 (0.250")
1.5"	9 (.35")
1"	9 (.35")



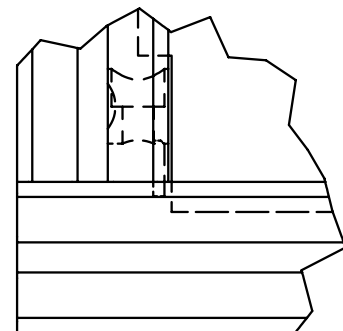
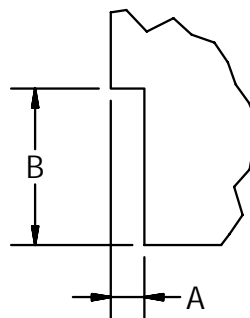
Notch Corner for Universal Fastener Clearance

Notch gives clearance for universal fastener. This service is needed only when panels or wire mesh are installed in T-slots.

Service 19-028

Dimensions

Profile	A	B
40	10 (.39")	41 (1.61")
30	10 (.39")	39 (1.54")
28	9 (.35")	39 (1.54")
20	6.4 (.25")	22.2 (.87")
1.5"	10 (.39")	41 (1.61)
1"	8 (.55")	28 (1.10")



Drilling Jigs Std. Connection

Application

For precise location of 7mm access hole for standard fasteners.

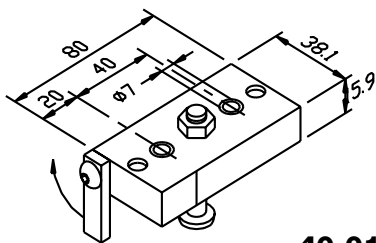
Technical Data

Aluminum, Clear Anodized

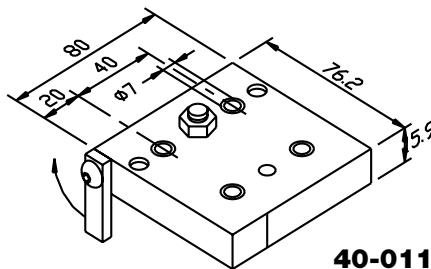
Ground and hardened drill bushings with locations 28 and 40mm between access holes. Clamping "T" bolt for firm attachment.

Ordering Information

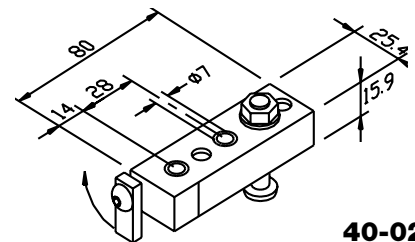
Description	Unit	Weight (g)	Part #
Drilling Jig 40, Std. Connection	Each	190	40-010
Drilling Jig 80, Std. Connection	Each	360	40-011
Drilling Jig 28, Std. Connection	Each	120	40-027



40-010

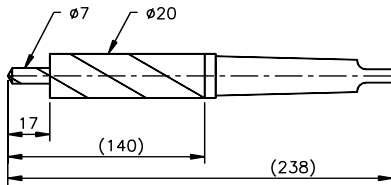


40-011

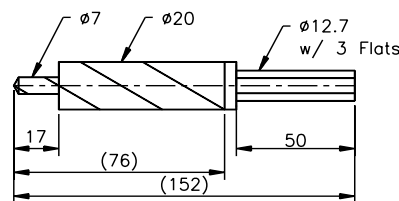


40-027

Step Drill 7x20 Univ. Connection



40-023



40-024

Application

Used for drilling 20 mm diameter step bore for universal or butt fastener with 40, 30, 28, or 1.5" series profiles.

Technical Data

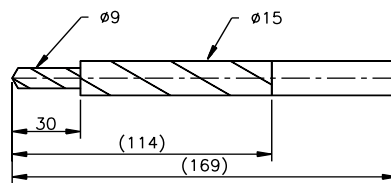
High Performance, High Speed Steel, nitrated.

#2 Morse Taper or 0.5" diameter with three flats.

Ordering Information

Description	Unit	Weight (g)	Part #
Step Drill 7x20, #2 Morse Taper	Each	260	40-023
Step Drill 7x20 with 3 Flats	Each	190	40-024

Step Drill 9x15



40-025

Application

Used for drilling and counter boring profile for M8 or 5/16-18" BHCS or SHCS.

Technical Data

High Performance, High Speed Steel, Nitrated.

Straight shank.

Ordering Information

Description	Unit	Weight (g)	Part #
Step Drill 9x15	Each	150	40-025

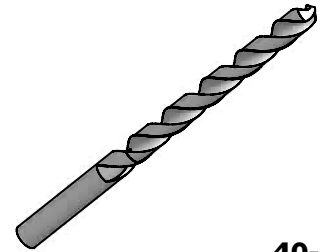
6.8mm Drill Bit

Application

Tap drill size for M8x1.25 and drill size for standard fastener access hole.

Technical Data

High Speed Steel
6.8mm drill, right hand, jobbers length



Ordering Information

Description	Unit	Weight (g)	Part #
6.8mm Drill Bit	Each	20	40-018

40-018

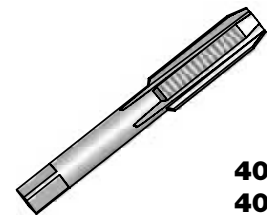
Tap

Application

Tooling to provide M8 tap in profile end holes for standard fastening set. Not to be used on light profiles: 10-540, 10-680, 12-1515 & 12-1530.

Technical Data

High Speed Steel
M8x1.25 tap, right hand



Ordering Information

Description	Unit	Weight (g)	Part #
M8x1.25 Tap	Each	25	40-016
5/16-18 Tap	Each	25	40-516

40-016

40-516

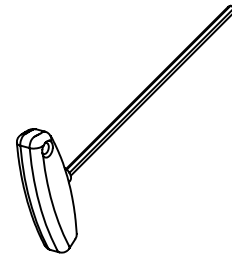
T-Handle Wrench

Application

For tightening of standard and universal connections.

Technical Data

Chrome Vanadium Steel, Nickel Plated
Handle: Acetate



Ordering Information

Description	Unit	Weight (g)	Part #
Hex 5 Wrench with T-Handle	Each	26	40-012
3/16" Wrench with T-Handle	Each	26	40-044
1/4" Wrench with T-Handle	Each	26	40-046

40-012

40-044

40-046

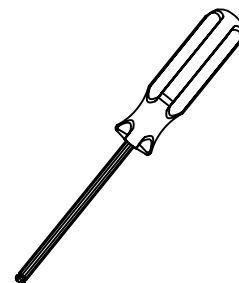
Ball-Headed Wrench

Application

For tightening of standard and universal connections.

Technical Data

Chrome Vanadium Steel, Nickel Plated
Handle: Plastic



Ordering Information

Description	Unit	Weight (g)	Part #
5mm Wrench with Ball Head	Each	50	40-013
6mm Wrench with Ball Head	Each	50	40-022
3/16" Wrench with Ball Head	Each	50	40-047
1/4" Wrench with Ball Head	Each	50	40-048

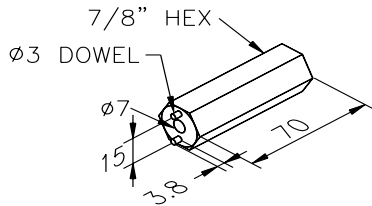
40-013

40-022

40-047

40-048

Spanner Wrenches



40-029

Application

Designed for tightening spanner nuts on linear guide system 14.

Technical Data

Steel, Black or Brown Finish
 Tempered with Spot Welded Pins
 40-029: Aluminum, Black Anodized
 Steel Pins

Description

Pin Socket Wrench
 Spanner Wrench for Linear 14

Unit	Weight (g)	Part #
Each	80	40-029
Each	40	40-032-14



40-032-14

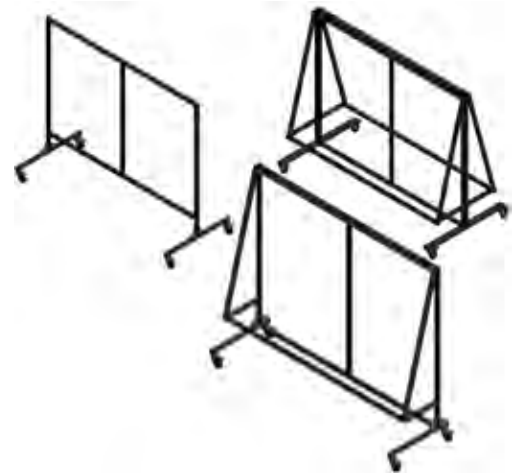
Modular Lean Solutions

Versatile Display Stands for Lean
Team Tracking and Communication Boards

Communicate. Analyze. Execute.

Visual management and team improvement boards are lean fundamentals and should be deployed across all levels and processes of an organization to maximize customer satisfaction, efficiency, effectiveness and safety.

In a lean workplace environment, visual management and team improvement boards make the status of the current condition obvious at a glance. Utilizing visual information helps us to run our businesses by creating rapid recognition of problems (waste).



Analysis of displayed data intuitively accelerates and supports the problem-solving. Visual representation of the

PDCA cycle guides teams through effective execution to eliminate *muda* and generate improvements.

Effortless, Mobile, Modular...

Implementing a visual workplace requires a significant time and effort investment to setup and to maintain.

To simplify your lean and quality journey, Parker has created a series of standard, mobile communication board stands using our modular Industrial Profile System (IPS) T-slot aluminum framing system.

These pre-configured designs simplify your implementation by providing a single part number to order your board and mobile stand. Units can be provided either fully assembled or as fully machined kits for easy on-site assembly.

Choose the configuration tailored to the specific needs of your application:

- **Vertical, angled and double angled display styles**
- **Two sizes: 3 x 4 or 4 x 6 feet**
- **Choice of white magnetic dry erase, black push pin, or mount your own board**

With Parker Modular Lean Solutions, there's no need to spend time designing your tracking centers or communication boards. Simply order for quick delivery and start using immediately to uncover problems and drive solutions.

Modular Lean Solutions

Team Tracking and Communication Boards and Stands

With Parker Modular Lean Solutions, there's no need to spend time designing your team tracking and communication boards and stands. Simply order for quick delivery and start using immediately to uncover problems and drive solutions.

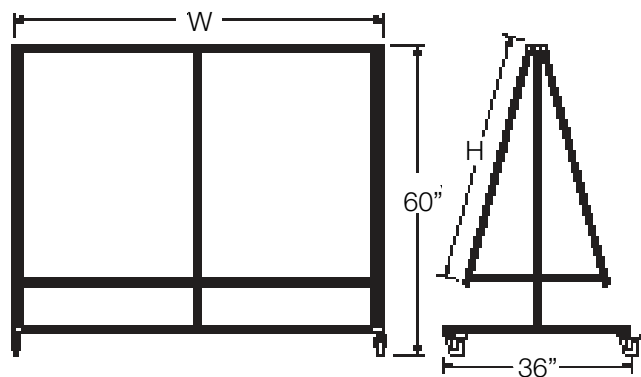
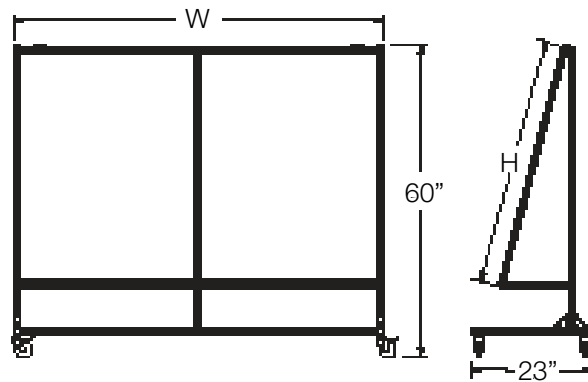
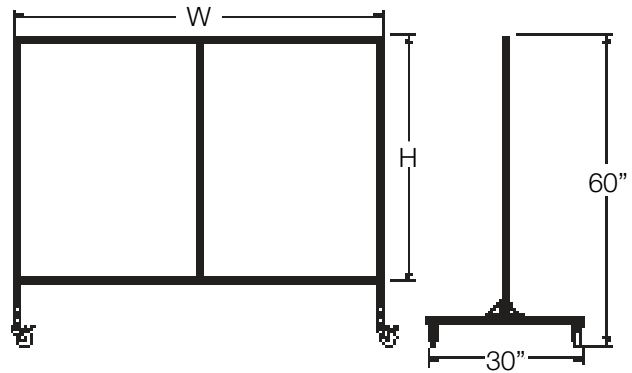
Ordering Information

Fill in an order code from each of the numbered fields to create a complete model order code.

1 **2** **3** **4** **5**

Order Example: 70 - 2 46 - N K

- 1 Display Stand Series**
70 Team Tracking and Communication Boards
- 2 Display Stand Type**
 - 1 Vertical
 - 2 Angled
 - 3 Double Angled
- 3 Display Size**
 - 34 3' x 4'
 - 46 4' x 6'
- 4 Display Stand Type**
 - W White Magnetic
 - P Black Push Pin
 - N No Board
- 5 Package**
 - K Kit
 - A Assembly



Lean, Services, Tips, & Tools

Modular Lean Solutions

Display Stands for Day by the Hour Tracking

Track. Audit. Execute.

Visual management and day by the hour tracking boards are lean fundamentals and should be deployed across all key processes of an organization to maximize customer satisfaction, efficiency, effectiveness and safety.

Using simple visual devices in the workplace, as simple as the color of a plastic cup, can make all the difference in helping key personnel across an entire shop floor keep track of ongoing operation status, trends and goals.



Track... In a lean workplace environment, visual management and team improvement boards make the tracking of the current condition obvious at a glance. Utilizing visual information helps us to run our businesses by creating rapid recognition of problems (waste).

Audit... Displayed data allows live auditing and enables quick reaction to abnormal situations.

Execute... Day by the hour tracking ensures visual data to support problem-solving activities and the PDCA cycle. Effective execution of the PDCA cycle results in waste elimination and continuous improvement.

Convenient, Standard, Modular...

Implementing a visual workplace requires a significant time and effort investment to setup and to maintain.

To simplify your lean and quality journey, Parker has created a series of standard, day by the hour boards using our modular T-slot aluminum framing system, also known as IPS.

These pre-configured designs simplify your implementation by providing a single part number to order your day by the hour board. Units can be provided either fully assembled or as fully machined kits for easy on-site assembly.

Modular Lean Solutions

Display Stands for Day by the Hour Tracking

Choose the configuration tailored to the specific needs of your application:

- **Floor mount, rolling mobile unit, or wall mount display styles**
- **Available with Andon Post Option for ahead or behind indication or without option**
- **Choice of polycarbonate or black Trespa® backboard**

With Parker Modular Lean Solutions, there's no need to spend time designing your day by the hour boards. Simply order for quick delivery and start using immediately to uncover problems and drive solutions.

Ordering Information

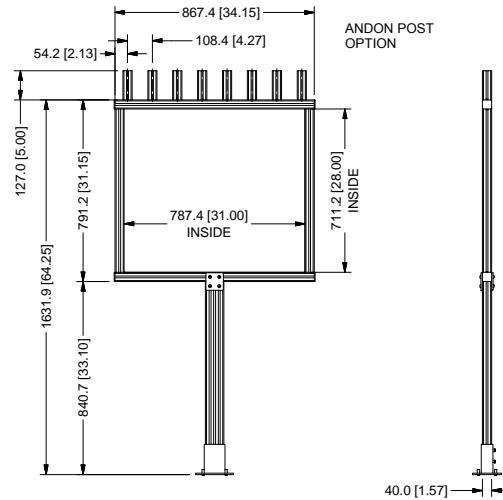
Fill in an order code from each of the numbered fields to create a complete model order code.

1 2 3 4 5 6

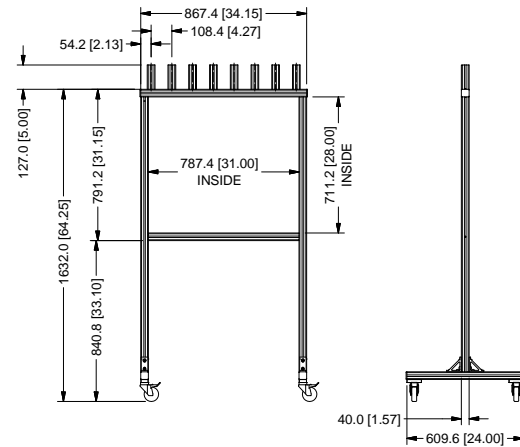
Order Example: 71 - 1 1 3 - P K

- Display Stand Series**
71 Day by the Hour Tracking Display Stands
- Board Orientation**
1 Floor Mount
2 Mobile
3 Wall Mount
- Andon Post Option**
1 Andon Post Option (8 total)
2 No Andon Post Option
- Board Size**
3 3' x 3' (approximate)
- Board Type**
P Clear Poly Board for Easel Pad
B Black Trespa Board for Easel Pad
N Ready for Special Board
- Package**
K Kit
A Shipped pre-assembled (except caster sub assemblies, which customer will have to mount to the unit)

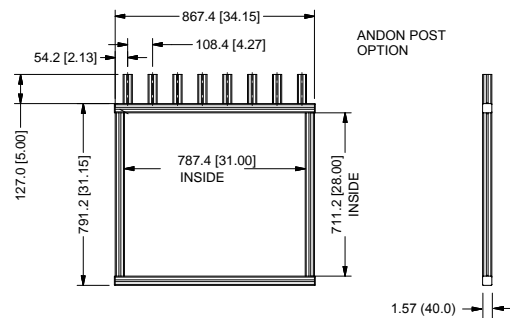
Floor Mount



Mobile



Wall Mount



Lean, Services, Tips, & Tools

Part Number

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6. **Changes, Reschedules and Cancellations:** Buyers may request to modify the designs or specifications for the items sold hereunder as well as the quantities and delivery dates thereof, or may request to cancel all or part of this order, however, no such requested modification or cancellation shall become part of the contract between Buyer and Seller unless accepted by Seller in a written amendment to this Agreement. Acceptance of any such requested modification of cancellation shall be at Seller's discretion, and shall be upon such terms and conditions as Seller may require.

7. **Special Tooling:** A tooling charge may be imposed for any special tooling, including without limitation, dies, fixtures, molds and patterns, acquired to manufacture items sold pursuant to this contract. Such special tooling shall be and remain Seller's property notwithstanding payment of any charges by Buyer. In no event will Buyer acquire any interest in apparatus belonging to Seller which is utilized in the manufacture of the items sold hereunder, even if such apparatus has been specially converted or adapted for such manufacture

and not withstanding any charges paid by Buyer. Unless otherwise agreed, Seller shall have the right to alter, discard or otherwise dispose of any special tooling or other property in its sole discretion at any time.

8. **Buyer's Property:** Any designs, tools, patterns, materials, drawings confidential information or equipment furnished by Buyer, or any other items which become Buyer's property, may be considered obsolete and may be destroyed by Seller after two (2) consecutive years have elapsed without Buyer placing an order for the items which are manufactured using such property. Seller shall not be responsible for any loss or damage to such property while it is in Seller's possession or control.

9. **Taxes:** Unless otherwise indicated on the face hereof, all prices and charges are exclusive of excise, sales, use, property, occupational or like taxes which may be imposed by any taxing authority upon the manufacture, sale or delivery of the items sold hereunder. If any such taxes must be paid by Seller or if Seller is liable for the collection of such tax, the amount thereof shall be in addition to the amounts for the items sold. Buyer agrees to pay all such taxes or to reimburse Seller therefore upon receipt of its invoice. If Buyer claims exemption from any sales, use or other tax imposed by any taxing authority, Buyer shall save Seller harmless from and against any such tax, together with any interest or penalties thereon which may be assessed if the items are held to be taxable.

10. **Indemnity For Infringement of Intellectual Property Rights:** Seller shall have no liability for infringement of any patents, trademarks, copyrights, trade dress, trade secrets or similar rights except as provided in this Part 10. Seller will defend and indemnify Buyer against allegations of infringement of U.S. patents, U.S. trademarks, copyrights, trade dress and trade secrets (hereinafter "Intellectual Property Rights"). Seller will defend at its expense and will pay the cost of any settlement or damages awarded in an action brought against Buyer based on an allegation that an item sold pursuant to this contract infringes the Intellectual Property Rights of a third party. Seller's obligation to defend and indemnify Buyer is contingent on Buyer notifying Seller within ten (10) days after Buyer becomes aware of such allegations of infringement, and Seller having sole control over the defense of any allegations or actions including all negotiations for settlement or compromise. If an item sold hereunder is subject to a claim that it infringes the Intellectual Property Rights of a third party, Seller may, at its sole expense and option, procure for Buyer the right to continue using said item, replace or modify said item so as to make it non infringing, or offer to accept return of said item and return the purchase price less a reasonable allowance for depreciation. Notwithstanding the foregoing, Seller shall have no liability for claims of infringement based on information provided by Buyer, or directed to items delivered hereunder for which the designs are specified in whole or part by Buyer, or infringements resulting from the modification, combination or use in a system of any item sold hereunder. The foregoing provisions of this Part 10 shall constitute Seller's sole and exclusive liability and Buyer's sole and exclusive remedy for infringement of Intellectual Property Right. If a claim is based on information provided by Buyer or if the design for an item delivered hereunder is specified in whole or in part by Buyer, Buyer shall defend and indemnify Seller for all costs, expenses or judgments resulting from any claim that such item infringes any patent, trademark, copyright, trade dress, trade secret or any similar right.

11. **Force Majeure:** Seller does not assume the risk of and shall not be liable for delay or failure to perform any of Seller's obligations by reason of circumstances beyond the reasonable control of Seller (hereinafter "Events of Force Majeure"). Events of Force Majeure shall include without limitation, accidents, acts of God, strikes or labor disputes, acts, laws, rules or regulations of any government or government agency, fires, floods, delays or failures in delivery of carriers or suppliers, shortages of materials and any other cause beyond Seller's control.

12. **Entire Agreement/Governing Law:** The terms and conditions set forth herein, together with any amendments, modifications and any different terms or conditions expressly accepted by Seller in writing, shall constitute the entire Agreement concerning the items sold, and there are no oral or other representations or agreements which pertain thereto. This Agreement shall be governed in all respects by the law of the State of Ohio. No actions arising out of the sale of the items sold hereunder of this Agreement may be brought by either party more than two (2) years after the cause of action accrues.

WARNING

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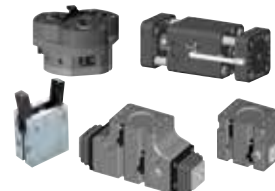
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