



Aluminum T-Slotted Rail

10 Series Fractional T-Slotted Aluminum Rail

SureFrame™ T-slotted aluminum rails are extruded exclusively for AutomationDirect, with features, quality, and performance you expect. SureFrame T-slotted rails are compatible with other popular brands.

- Cut to length in 0.001 inch increments
- Minimum cut length: 6"
- Maximum cut length: 90"
- Cut accuracy: +/- 0.006"
- Corrosion and UV resistant



Properties	
Material	Aluminum 6063-T6
Finish	Clear or Black Anodize
Hardness	Webster Model B 11-12
Straightness	0.0125 inch/ft [1.042 mm/m]
Twist	0.25°/ft [0.25°/305mm]



10 Series (inch)								
Slot Size 		Core Hole Ø 0.20"	10 Series (inch)  1x11x22x2			 Drop Lock T-Slot Drop Lock feature improves connection strength and vibration resistance		
Part Number	Part Image	Price per inch	Profile Size	Weight Class	Weight lbs/ft [kg/m]	Moment of Inertia Lx (in ⁴ [cm ⁴])	Moment of Inertia Ly (in ⁴ [cm ⁴])	Drawing Link
1010C		\$0.24	1 x 1in	Standard	0.529 [0.787]	0.045 [1.872]	0.045 [1.872]	PDF
1010B		\$0.49						PDF
1020C		\$0.41	1 x 2in		0.952 [1.417]	0.084 [3.494]	0.308 [12.813]	PDF
1020B		\$0.75						PDF
2020C		\$0.61	2 x 2in		1.482 [2.205]	0.543 [22.589]	0.543 [22.589]	PDF
2020B		\$0.99						PDF

Extruded T-slotted rails have a thru Core Hole feature that can be used to attach various components to the end of the profile using:

- Self-tapping / thread-forming screws (no tapping needed)
- A tap to thread the core hole for a threaded fastener



Please Note: Prices on aluminum are closely tied to the market price. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.



Aluminum T-Slotted Rail

Deflection Calculations

Using the calculations below, find your approximate deflection* for a specific extrusion.
See table below for variations.

As always when calculating, use diligence and work only in either imperial or metric units at one time.

"E" = Modulus of Elasticity

"F" = Force

"I" = Moment of Inertia

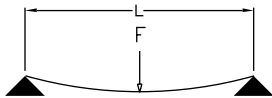
"L" = Length

"W" = Weight

**for reference only*

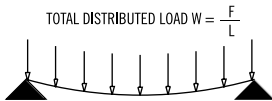
Supported Loads

CONCENTRATED LOAD AT CENTER (simply supported)



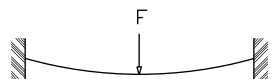
$$\text{MAX DEFLECTION} = \frac{FL^3}{48 EI}$$

UNIFORMLY DISTRIBUTED LOAD (simply supported)



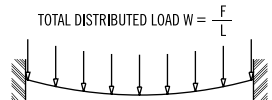
$$\text{MAX DEFLECTION} = \frac{5}{84} \frac{WL^4}{EI}$$

CONCENTRATED LOAD AT CENTER (between fixed supports)



$$\text{MAX DEFLECTION} = \frac{FL^3}{192 EI}$$

UNIFORMLY DISTRIBUTED LOAD (between fixed supports)



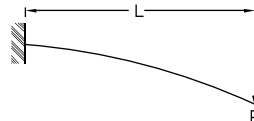
$$\text{MAX DEFLECTION} = \frac{WL^4}{384 EI}$$

Aluminum 6063-T6 Properties

Yield Strength	29,007 psi [200 MPa]
Tensile Strength	33,359 psi [230 MPa]
Modulus of Elasticity	10,000,000 psi [68.9 GPa]

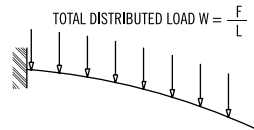
Cantilever Loads

CONCENTRATED LOAD AT CENTER (simply supported)



$$\text{MAX DEFLECTION} = \frac{FL^3}{3 EI}$$

UNIFORMLY DISTRIBUTED LOAD (simply supported)

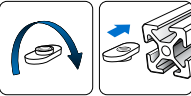


$$\text{MAX DEFLECTION} = \frac{WL^4}{8 EI}$$

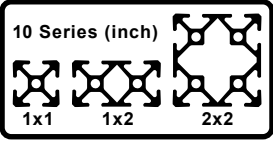
FATH® T-Slotted Rail Accessories

T-Slot Nuts

- Designed to fit into the T-slot cavity of extruded aluminum rails.
- Hammer nuts provide safe electrostatic discharging (ESD) connection.
- No machining required.
- Material: zinc plated steel

T-Slot Nuts Selection					
Part Image	Nut Type	Installation	Holds Position Without Screw	ESD Connection	
	Double Economy T-Nut			No	
	Economy T-Nut				
	Hammer Nut		No	Yes	
	Slide-In Nut			No	
	Roll-In Nut with Leaf Spring		Yes		
	Roll-In Nut with Spring Loaded Ball				



10 Series T-Slot Nuts						
Fits		Slot Size 				
Part Number	Part Image	Price	Nut Type	Thread Size	Pack Quantity	Drawing Link
161113		\$13.00	Roll-In Nut	8-32 UNF	10	PDF
161124		\$9.50	Hammer Nut			PDF
161112		\$13.00	Roll-In Nut	10-32 UNF		PDF
151038		\$11.00	Hammer Nut	10-32 UNF		PDF
148804		\$4.00	Double Economy T-Nut	1/4-20 UNC	4	PDF
151037		\$5.50	Economy T-Nut			PDF
151039		\$15.00	Roll-In Nut			PDF

FATH® T-Slotted Rail Accessories

Fasteners

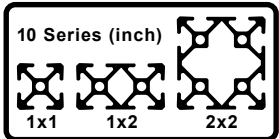
- Choose from 4 Head types in numerous lengths
- Hex socket head
- Select desired T-Slot nut style with corresponding thread size.
- Material: Black zinc plated or bright zinc plated steel, prevents corrosion better than typical black oxide coatings



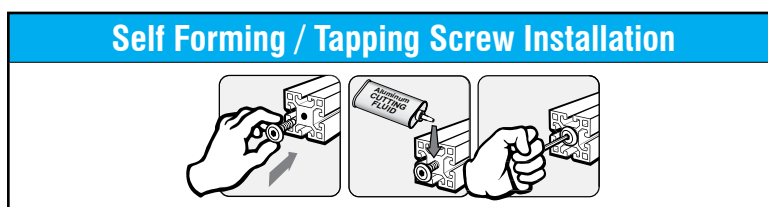
10 Series Fasteners								
Fits		Slot Size 6	10 Series (inch) 1x1 1x2 2x2					
Part Number	Part Image	Price	Thread	Screw Length	Head Type	Color	Pack Quantity	Drawing Link
162994		\$8.00	#8-32 UNF	3/8 in	Button head socket cap screw	Flat black	10	PDF
161073		\$7.75		1/2 in	Flat head socket cap screw			PDF
162993		\$7.50	#10-32 UNF	3/8 in	Button head socket cap screw			PDF
162995		\$7.75		1/2 in	Socket head cap screw			PDF
161046		\$4.75			5/8 in			Button head socket cap screw
161047		\$5.00		PDF				
161048		\$5.75		3/4 in				
161074		\$6.25		1/2 in	Flat head socket cap screw			PDF
151040		\$4.25	Button head socket cap screw		PDF			
151041		\$5.25	Flanged button head socket cap screw		Gloss black	PDF		
161049		\$4.50	1/4-20 UNC	9/16 in	Button head socket cap screw	Flat black		PDF
161075		\$6.25		5/8 in	Flat head socket cap screw			PDF
161050		\$4.75			Button head socket cap screw			PDF
161087		\$4.00			Socket head cap screw			PDF

FATH® T-Slotted Rail Accessories

Fasteners - Continued

10 Series Fasteners								
Fits		Slot Size 	10 Series (inch) 					
Part Number	Part Image	Price	Thread	Screw Length	Head Type	Color	Pack Quantity	Drawing Link
161051		\$4.75	1/4-20 UNC	3/4 in	Button head socket cap screw	Flat black	10	PDF
161052		\$5.25	1/4-20 UNC	1in				PDF

10 Series Self Forming / Tapping Screw								
Fits 10 Series  Core Hole		10 Series (inch) 1x1 1x2 2x2			Works with Aluminum with hole diameter 0.197" - 0.216" [5.0 - 5.5 mm]			
Part Number	Part Image	Price	Thread	Screw Length	Head Type	Color	Pack Quantity	Drawing Link
161103		\$8.75	S6	16mm	Self-Tapping Screw Button head socket cap T-25 Torx	Bright zinc	10	PDF



FATH® T-Slotted Rail Accessories

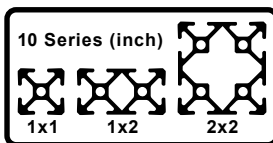
Connecting Components

- Connects two or three T-slot rails together
- Recommended ADC Fastener based on part feature, slot depth and core hole
- Material: varies by part



10 Series Connecting Components

Fits  Slot Size 6



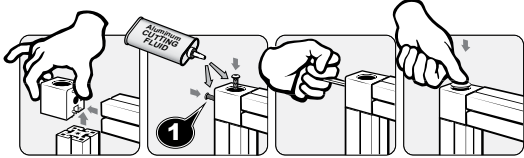
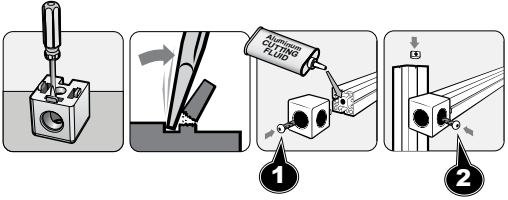
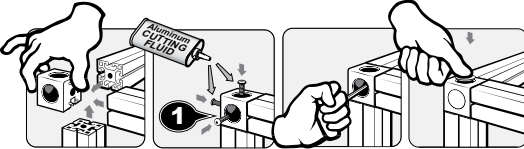
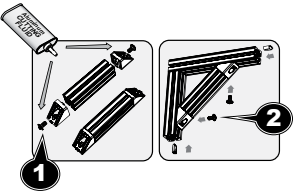
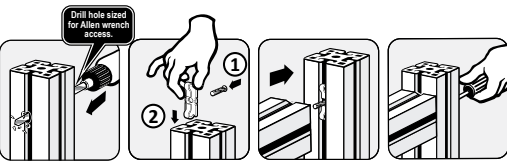
Part Number	Part Image	Price	Description	Fits Profile	Material	Recommended Screw Fastener (ADC Part Number)		Pack Quantity	Drawing Link
						Core Hole Attachment 1	*T-Slot Attachment 2		
148953		\$8.25	2d Cube Connector	1 x 1in	Die-cast aluminum	161103	Socket Head Cap Screw 1/4-20 x 7/16" **	1	PDF
166230		\$10.00				Fasteners Included (161103)			PDF
148956		\$10.50	3d Cube Connector			161103	n/a		PDF
166231		\$12.00					PDF		
151042		\$4.25	Angle Connector	1 x 2in		Fasteners Included (161103)	Fasteners Included (151040 & 151039)		PDF
166232		\$4.75					PDF		
151043		\$7.50				161103	151040		PDF
166233		\$8.00					PDF		
163007		\$10.50	Screw Connector	1 x 1in	Zinc plated steel	Designer's choice	n/a	10	PDF

*T-Slot Nut also required.

** Recommended fastener not available from AutomationDirect.com

FATH® T-Slotted Rail Accessories

Connecting Components - Continued

Connecting Components Installation	
Core Hole Installation	T-Slot Installation
2D Cube Connector 	
3D Cube Connector 	n/a
Angle Connector 	
Screw Connector 	

FATH® T-Slotted Rail Accessories

Joining Plates

- Connects two or more T-slot rails together
- Recommended ADC Fastener based on plate thickness and slot depth
- Material: Anodized aluminum



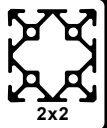
10 Series Joining Plates						
Fits		Slot Size 6	10 Series (inch) 1x11x22x2			
Part Number	Part Image	Price	Description	Recommended Screw Fastener *T-Slot Attachment (ADC Part Number)	Pack Quantity	Drawing Link
151044		\$2.50	Straight Flat Plate	151040 or 151041	1	PDF
166234		\$3.00				PDF
151045		\$3.75				PDF
166235		\$4.00				PDF
151046		\$4.50				PDF
166236		\$5.00				PDF
151047		\$4.25				PDF
166237		\$5.00				PDF
151048		\$6.50	Rectangular Flat Plate			PDF
166238		\$7.00				PDF
151049		\$5.50				PDF
166239		\$6.00				PDF
151050		\$6.25	Flat Plate			PDF
166240		\$7.00				PDF

*T-Slot Nut also required

*T-Slot Nut also required

FATH® T-Slotted Rail Accessories

Joining Plates - Continued

10 Series Joining Plates - Cont'd						
Fits Slot Size 6 10 Series (inch)    1x1 1x2 2x2						
Part Number	Part Image	Price	Description	Recommended Screw Fastener *T-Slot Attachment (ADC Part Number)	Pack Quantity	Drawing Link
151051		\$6.50	Flat Plate	151040 or 151041	1	PDF
166241		\$7.00				PDF
151052		\$6.50	T-Shaped Flat Plate			PDF
166242		\$7.00				PDF
151053		\$7.25				PDF
166243		\$8.00				PDF
151054		\$10.50				PDF
166244		\$12.00				PDF
151055		\$9.50	Cross Flat Plate			PDF
166245		\$11.00				PDF
151056		\$8.00	L-Shaped Flat Plate			PDF
166246		\$9.00				PDF
151057		\$10.50	T-Shaped Flat Plate			PDF
166247		\$12.00				PDF

*T-Slot Nut also required

*T-Slot Nut also required

FATH® T-Slotted Rail Accessories

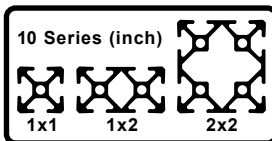
Brackets

- Connects two T-slot rails together at a 90° angle
- Recommended ADC Fastener based on part features and slot depth
- Material: varies by part



10 Series Brackets

Fits  Slot Size 6



Part Number	Part Image	Price	Description	Recommended Screw Fastener (ADC Part Number)		Pack Quantity	Material	Drawing Link			
				Core Hole Attachment 1	*T-Slot Attachment 2						
148915		\$1.50	Angle Bracket	n/a	162994	1	Die-cast aluminum	PDF			
166249		\$1.50						PDF			
151059		\$4.00			162993		Die-cast zinc	PDF			
166250		\$4.00						PDF			
151058		\$2.50	Inside Corner Bracket					Anodized aluminum	PDF		
166248		\$3.00							PDF		
151061		\$4.75	Tall Inside Corner Bracket						151040		PDF
166252		\$5.00									PDF
151060		\$4.75	Wide Inside Corner Bracket								PDF
166251		\$5.00									PDF
151062		\$6.75	Inside Corner Bracket								PDF
166253		\$8.00									PDF

*T-Slot Nut also required.

** Recommended fastener not available from AutomationDirect.com

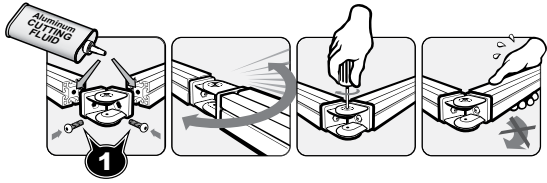
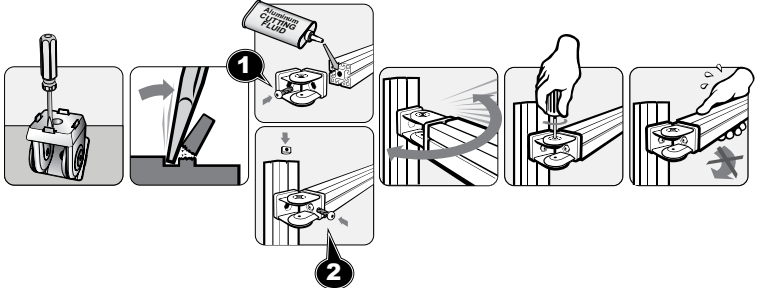
FATH® T-Slotted Rail Accessories

Brackets - Continued

10 Series Brackets - Cont'd								
Fits		Slot Size 6	10 Series (inch)    1x11x22x2					
Part Number	Part Image	Price	Description	Recommended Screw Fastener (ADC Part Number)		Pack Quantity	Material	Drawing Link
				Core Hole Attachment 1	*T-Slot Attachment 2			
151063		\$3.00	Gusseted Inside Corner Bracket	n/a	151040	1	Anodized aluminum	PDF
166254		\$3.00						PDF
151064		\$5.25	Tall Gusseted Inside Corner Bracket					PDF
166255		\$6.00						PDF
151065		\$5.75	Wide Gusseted Inside Corner Bracket					PDF
166256		\$6.00						PDF
151066		\$10.50	Gusseted Inside Corner Bracket					PDF
166257		\$12.00						PDF
151067		\$30.50	Pivot Joint	161103	161049		Die-cast zinc	PDF
166258		\$36.00						PDF
148932		\$39.50	Pivot Joint With Locking Handle					PDF
166259		\$47.00						PDF
*T-Slot Nut also required. ** Recommended fastener not available from AutomationDirect.com								

FATH® T-Slotted Rail Accessories

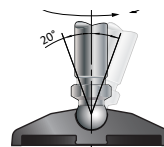
Brackets - Continued

Brackets Installation	
Core Hole Installation	T-Slot Installation
Pivot Joint	
	

FATH® T-Slotted Rail Accessories

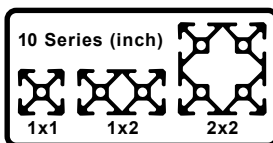
Bases

- Recommended ADC Fastener based on part features and extrusion core hole
- Material: varies by part



10 Series Bases

Fits Slot Size
6



Part Number	Part Image	Price	Diameter	Description	Fits	Load Rating kg [lb]	Recommended Screw Fastener (ADC Part Number)		Pack Quantity	Material	Drawing Link										
							Core Hole Attachment 1	T-Slot Attachment 2													
118356		\$16.00	n/a	1/4-20 UNC Transport/Base Plate	1 x 2in	n/a	161103 (2) included with kit		1	Die-cast zinc	PDF										
146399		\$16.00		3/8-16 UNC Transport/Base Plate							PDF										
151074		\$7.25		1/4-20 UNC x 1-1/2in Swivel Foot Threaded Rod with 15 mm ball	Transport/ Base Plate 118356	210 [463]*	n/a			Zinc plated steel	PDF										
151075		\$4.50		3/8-16 UNC x 1-1/2in Swivel Foot Threaded Rod with 15 mm ball	Transport/ Base Plate 146399	470 [1036]*				Zinc plated steel	PDF										
151068		\$4.00	1.57 in [39.0 mm]	Swivel Base With Anti-Slip Plate	Any 15mm ball Threaded Rod	900 [1984]				Nylon	PDF										
151071		\$9.50				3000 [6614]				Die-cast zinc	PDF										
151072		\$17.00	3.11 in [79.0 mm]								PDF										
151073		\$17.00									PDF										
151069		\$6.00	900 [1984]							Nylon	PDF										
151070		\$6.00									PDF										
151255		\$10.00	3.90 in [99.0 mm]			900 [1984]					PDF										
151256		\$10.00									PDF										

*Based on installation with Transport / Base Plate

Load rating of a swivel foot assembly is based on the part with the lowest load rating, typically the threaded rod.

Example:

Threaded rod load rating = 210kg [463lb]

Swivel base load rating = 3000kg [6614lb]

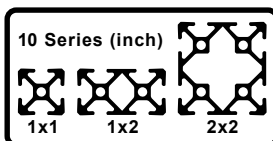
Swivel foot assembly load rating = 210kg [463lb]

FATH® T-Slotted Rail Accessories

Bases - Continued

10 Series Bases - continued

Fits 



Part Number	Part Image	Price	Diameter	Description	Fits	Load Rating kg [lb]	Recommended Screw Fastener (ADC Part Number)		Pack Quantity	Material	Drawing Link
							Core Hole Attachment 1	**T-Slot Attachment 2			
151257		\$24.00	3.90 in [99.0 mm]	Swivel Base With Anti-Slip Plate	Any 15mm ball Threaded Rod	3500 [7716]	n/a	n/a	1	Die-cast zinc	PDF
151258		\$24.00									PDF
162933		\$12.50	See Drawing Link	Extended Swivel Base	Any 15mm ball Threaded Rod	1000 [2204]				Nylon	PDF
162934		\$27.00				3000 [6613]				Die-cast zinc	PDF
162955		\$10.00	n/a	Floor Bracket	1 x 1in, 1 x 2in, 2 x 2in	n/a		151040		Anodized aluminum	PDF

*Based on installation with Transport / Base Plate

Load rating of a swivel foot assembly is based on the part with the lowest load rating, typically the threaded rod.

Example:

Threaded rod load rating = 210kg [463lb]

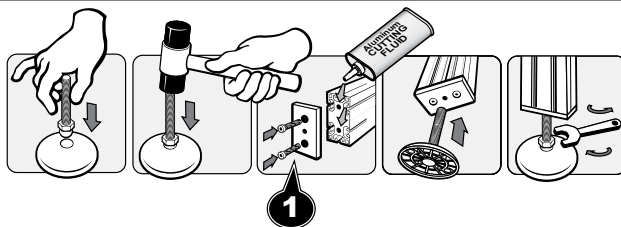
Swivel base load rating = 3000kg [6614lb]

Swivel foot assembly load rating = 210kg [463lb]

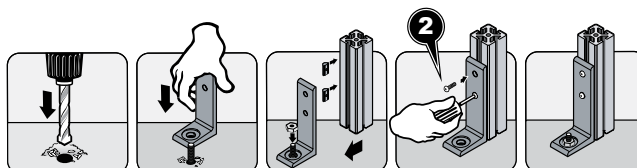
**T-Slot nut also required

Bases Installation

Swivel Foot



Floor Bracket



FATH® T-Slotted Rail Accessories

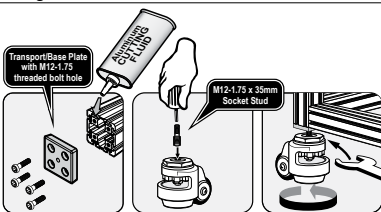
Casters

- Recommended ADC Fastener based on part feature and attachment type
- Material: varies by part

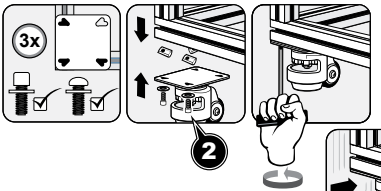
10 Series Casters									
Fits		Slot Size 6	10 Series (Inch) 1x1 1x2 2x2						
Part Number	Part Image	Price	Description	Load Rating kg [lb]	Requires	Recommended Screw Fastener *T-Slot Attachment 2 (ADC Part Number)	Pack Quantity	Material	Drawing Link
163010		\$40.00	Leveling Caster with M12-1.75 x 35mm threaded stud (included)	250 [551]	Transport / Base Plate with M12-1.75 threaded hole	n/a	1	Die-cast aluminum/ steel/nylon/ rubber	PDF
163011		\$52.00		500 [1102]					PDF
163012		\$41.00	Leveling Caster With Mounting Plate	250 [551]	n/a	BHCS 1/4-20x7/16" (not sold by ADC)			PDF
163013		\$56.00		500 [1102]					PDF
*T-Slot Nut with 1/4 washer also required.									

Caster Installation

Leveling Caster with M12-1.75 x 35mm threaded stud




Leveling Caster with mounting plate




FATH® T-Slotted Rail Accessories

Hinges

- Recommended ADC Fastener based on part feature and slot depth
- Material: varies by part



10 Series Hinges							
Fits		Slot Size 	10 Series (inch)  1x1 1x2 2x2				
Part Number	Part Image	Price	Description	Recommended Screw Fastener *T-Slot Attachment (ADC Part Number)	Pack Quantity	Material	Drawing Link
151076		\$6.00	Left-Hand Detachable Combination Hinge	161074	1	Fiberglass reinforced plastic	PDF
151077		\$6.00	Right-Hand Detachable Combination Hinge				PDF
151078		\$6.00	Non-Detachable Combination Hinge				PDF
151079		\$11.50	Non-Detachable Combination Hinge With Locking Lever				PDF
151080		\$17.00	Left-Hand Detachable Combination Hinge			Die-cast aluminum	PDF
151081		\$17.00	Right-Hand Detachable Combination Hinge				PDF
151082		\$17.00	Non-Detachable Combination Hinge				PDF
*T-Slot Nut also required							

FATH® T-Slotted Rail Accessories

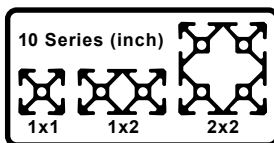
Panel and Door Elements

- Recommended ADC Fastener based on part feature and slot depth
- Material: varies by part



10 Series Panel and Door Elements

Fits  Slot Size 6



Part Number	Part Image	Price	Description	Recommended Screw Fastener *T-Slot Attachment 2 (ADC Part Number)	Pack Quantity	Material	Drawing Link
151083		\$4.25	Bridge Handle	162995	1	Fiberglass reinforced plastic	PDF
151084		\$6.50	Cover Cap 3	n/a			PDF
151085		\$4.50	Comfort Handle	161087			PDF
151086		\$4.00	Cover Cap 3	n/a			PDF
151149		\$6.50	Comfort Handle	151050			PDF
162910		\$3.00	Panel Holder	151040		Anodized aluminum	PDF
162915		\$5.25					PDF
162920		\$5.25	Panel Mount Block	Fasteners included		Lacquered aluminum	PDF
162921		\$5.25				Powder-coated aluminum black	PDF
162963		\$8.50	Magnetic Catch	161047		Nylon/steel	PDF
162977		\$8.50	Hanger	151040		Die-cast zinc	PDF
151087		\$110.00	Cover And Reduction Profile, 2000mm long per piece	n/a	25	Polypropylene	PDF

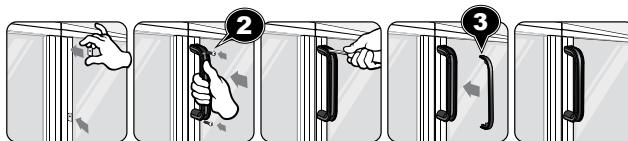
*T-Slot Nut also required

FATH® T-Slotted Rail Accessories

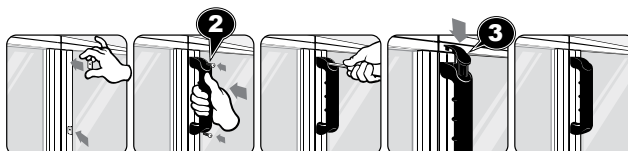
Panel and Door Elements - Continued

Panel and Door Elements Installation

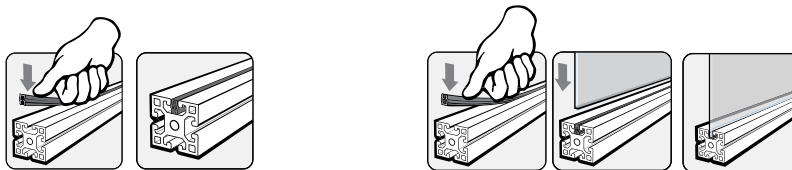
Bridge Handle and Cover Cap



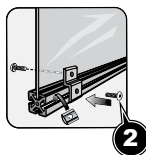
Comfort Handle and Cover Cap



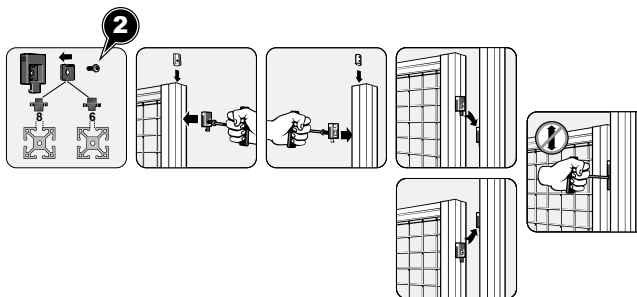
Cover and Reduction Profile



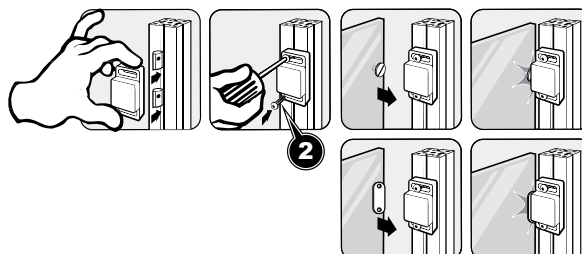
Panel Holder



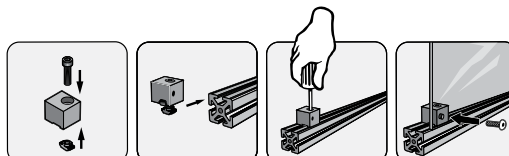
Hanger



Magnetic Catch



Panel Mount Block



FATH® T-Slotted Rail Accessories

Slides and Rollers



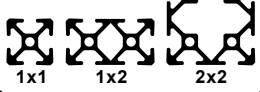
10 Series Slides and Rollers

Fits

Slot Size



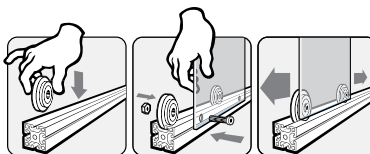
10 Series (inch)



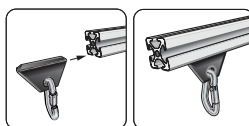
Part Number	Part Image	Price	Description	Fits	Pack Quantity	Material	Drawing Link
<u>151090</u>		\$7.25	Roller	All 10 Series	1	Glass-filled nylon	<u>PDF</u>
<u>151088</u>		\$4.50	Slider			Glass-filled nylon	<u>PDF</u>
<u>151089</u>		\$4.50	Snap Hook	Slider <u>151088</u>		Zinc plated steel	<u>PDF</u>

Slides and Rollers Installation

Roller



Slider and Snap Hook



FATH® T-Slotted Rail Accessories

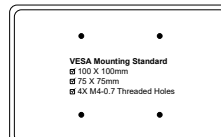
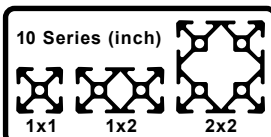
Monitor Mounts



10 Series Monitor Mounts

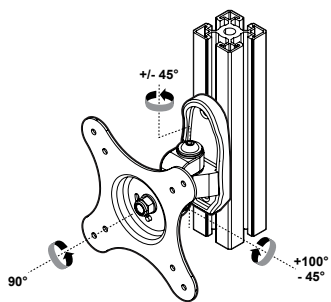
- Fits monitors with VESA mounting standard
- Durable steel construction
- Powder coat finish
- Mounting hardware included for several mounting locations

Fits

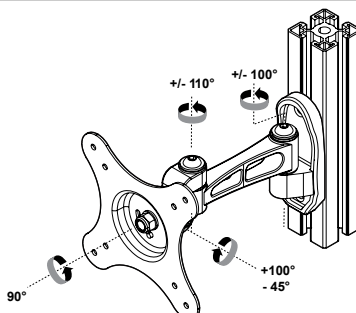
Slot Size
6

Part Number	Part Image	Price	Description	Load Rating kg [lb]	Pack Quantity	Installation Instructions Link	Drawing Link
162893		\$42.00	Swivel Monitor Mount	15 [33.1]	1	PDF	PDF
162894		\$50.00				PDF	PDF
162895		\$58.00				PDF	PDF

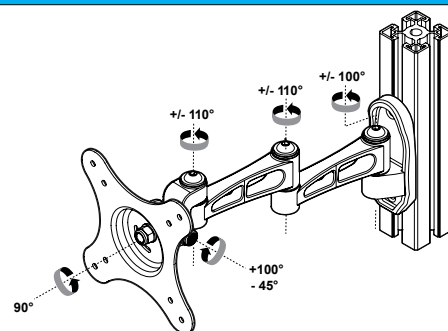
Monitor Mounts Adjustments



162893



162894

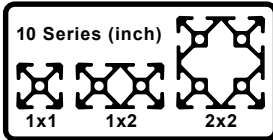


162895

FATH® T-Slotted Rail Accessories

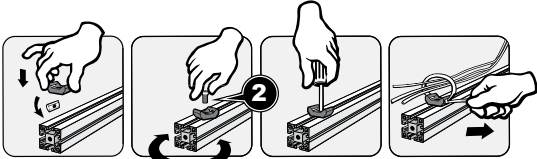
Wire Management



10 Series Wire Management							
Fits  							
Part Number	Part Image	Price	Description	Pack Quantity	Recommended Screw Fastener *T-Slot Attachment 2 (ADC Part Number)	Material	Drawing Link
151095		\$44.00	Clip Cable Binder With Hammer	10	n/a	Nylon/rubber	PDF
162982		\$7.50	Universal Cable Binder Block		162993	Nylon	PDF
*T-Slot Nut also required							

Wire Management Installation

Universal Cable Binder Block



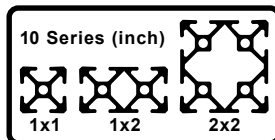
FATH® T-Slotted Rail Accessories

Miscellaneous Accessories



10 Series Miscellaneous Accessories

Fits  Slot Size 6



Part Number	Part Image	Price	Description	Fits Profile	Recommended Screw Fastener *T-Slot Attachment (ADC Part Number)	Pack Quantity	Material	Drawing Link
151092		\$10.00	End Cap	1 x 1in	n/a	10	Glass-filled nylon	PDF
151093		\$14.50		1 x 2in				PDF
151094		\$19.00		2 x 2in				PDF
162973		\$3.25	Sensor Mounting Block for 8mm diameter proximity sensor	All 10 Series	BHCS 8-32 x 3/4" (not sold by ADC)	1	Nylon	PDF
162974		\$3.25	Sensor Mounting Block for 12mm diameter proximity sensor					PDF

*T-Slot Nut also required

Miscellaneous Accessories Installation

Sensor Mounting Block

