

Technical Data & Information

EXTRUSION SPECIFICATIONS

Alloy – 6560 or equivalent*, T6 Temper

Yield Strength (0.2% proof test) – 172 mpa = 25 ksi

Tensile Strength (.02% proof test) – 206 mpa = 30 ksi

Elasticity (E) – approximately 10,000 ksi

Hardness – 12+ Webster Model "B"

Flatness – .004" per inch of width

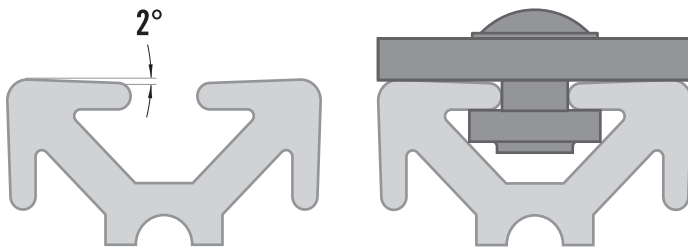
Straightness - .0125" per foot of length, not to exceed .120 inches over 20 feet of length

Twist – Twist per foot of length does not exceed .25° and total twist over 20 feet of length does not exceed 1.5°

**As an extruder, there are many other alloys that we can extrude. If your application calls for a different alloy, let us know and we can extrude it for you.*

SPRING LOCK FEATURE

Our Fractional and Metric TSLOTS structural extrusions have a 2° taper that spring locks fasteners as they are tightened. Fasteners will not loosen, even under heavy vibration.



FASTENER TORQUE SPECIFICATIONS

The table (below) indicates the amount of torque needed in foot lbs. to activate the 2° drop lock feature of the extrusion. The nut and bolt combination is pre-loaded when tightened to the minimum torque rating. The pre-loaded state makes a vibration proof connection.

FASTENER DESCRIPTION	TESTED EXTRUSION	MIN FT LBS TORQUE	MAX FT LBS TORQUE
5/16-18 FBHSCS or BHSCS & Economy T-Nut	1.5" x 1.5"	10	20
Economy T-Slot Stud, Washer & Hex Nut	1.5" x 1.5"	25	30
15s Anchor Fastener & Standard T-Nut	1.5" x 1.5"	15	20
15s End Fastener	1.5" x 1.5"	10	22
1/4-20 FBHSCS or BHSCS & Economy T-Nut	1" x 1"	5	10
10s End Fastener	1" x 1"	5	17
10s Anchor Fastener & Standard T-Nut	1" x 1"	5	17
10-32 SHCS or BHSCS	1" x 1"	9	13

**These fastener torque specifications are to be used as a guide only. The person using this content is to assume all risk. With the many factors that can affect the torque specifications, the only way to determine the correct information is through a series of tests under actual assembly conditions.*

ALUMINUM ALLOY

An aluminum extrusion alloy is a predetermined mixture of one or more elements together with aluminum to be heated and hydraulically pressed through an extrusion die. Some common elements alloyed with aluminum include copper, magnesium, manganese, chromium, silicon, iron, nickel and zinc.

TSLOTS extrusions use the 6560 or equivalent alloy. In addition to aluminum, the major alloying elements for this alloy include: Mg .25-.45% and Si .35-.8%.

ANODIZING

Anodizing is an electrochemical process that thickens and toughens the naturally occurring protective oxide. The resulting finish makes a corrosion resistant extrusion. TSLOTS extrusions have an acid etch anodize finish that is .4-.6 mil. thick. And the anodize is a Type 2 Sulfuric.

REMEMBER – WE CUSTOM EXTRUDE TOO!

TSLOTS can ship you a finished extrusion with your orders. TSLOTS provides the following operations:

- Extrusion
- Machining
- Heat treating
- Warehousing
- Cut to length
- Anodizing
- Painting
- Fabrication
- Engineering assistance
- Punch, slot, countersink

TSLOTS VS. WELDED STEEL

TSLOTS ADVANTAGES

- Linear adjustment in X, Y and Z axis
- No welding
- No painting (unless you want to)
- No rusting
- No cleanup
- No special tools
- No electricity
- Easy modifications
- Add on attachments
- Remove attachments
- Strong support ability
- Linear slide capability
- Comes packed ready to assemble or arrives assembled if desired
- Compatibility with competitors attachments
- Lower cost per project
- Lightweight and easy to use

WELDED STEEL DISADVANTAGES:

- Special equipment, welder
- Welding supplies
- Paint
- Cleaning supplies
- Fabricating equipment
- May rust

WELDED STEEL ADVANTAGES

- Permanent assembly

MAKING CHANGES TO YOUR DESIGN IS EASY!



BEFORE



AFTER

Technical Data & Information

DEFLECTION CALCULATIONS

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

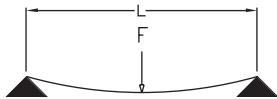
EQUATION VARIABLE UNITS RESPECTIVELY

- Max. Deflection is in inches
- "F" or Force is in pounds
- "L" or Length is in inches
- "E" or Modulus of elasticity is in pounds per inch squared
- "I" or Moment of Inertia is in inches⁴
- "W" or Weight is in pounds per inch

* For reference only.

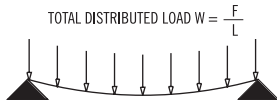
SUPPORTED LOADS

CONCENTRATED LOAD AT CENTER (*simply supported*)



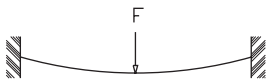
$$\text{MAX DEFLECTION} = \frac{FL^3}{48 EI}$$

UNIFORMLY DISTRIBUTED LOAD (*simply supported*)



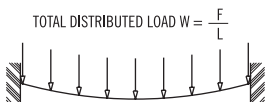
$$\text{MAX DEFLECTION} = \left(\frac{5}{384}\right) \left(\frac{WL^4}{EI}\right)$$

CONCENTRATED LOAD AT CENTER (*between fixed supports*)



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

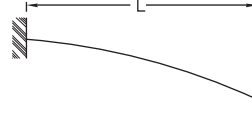
UNIFORMLY DISTRIBUTED LOAD (*between fixed supports*)



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

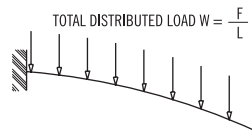
CANTILEVER LOADS

CONCENTRATED LOAD AT CENTER (*simply supported*)



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

UNIFORMLY DISTRIBUTED LOAD (*simply supported*)



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

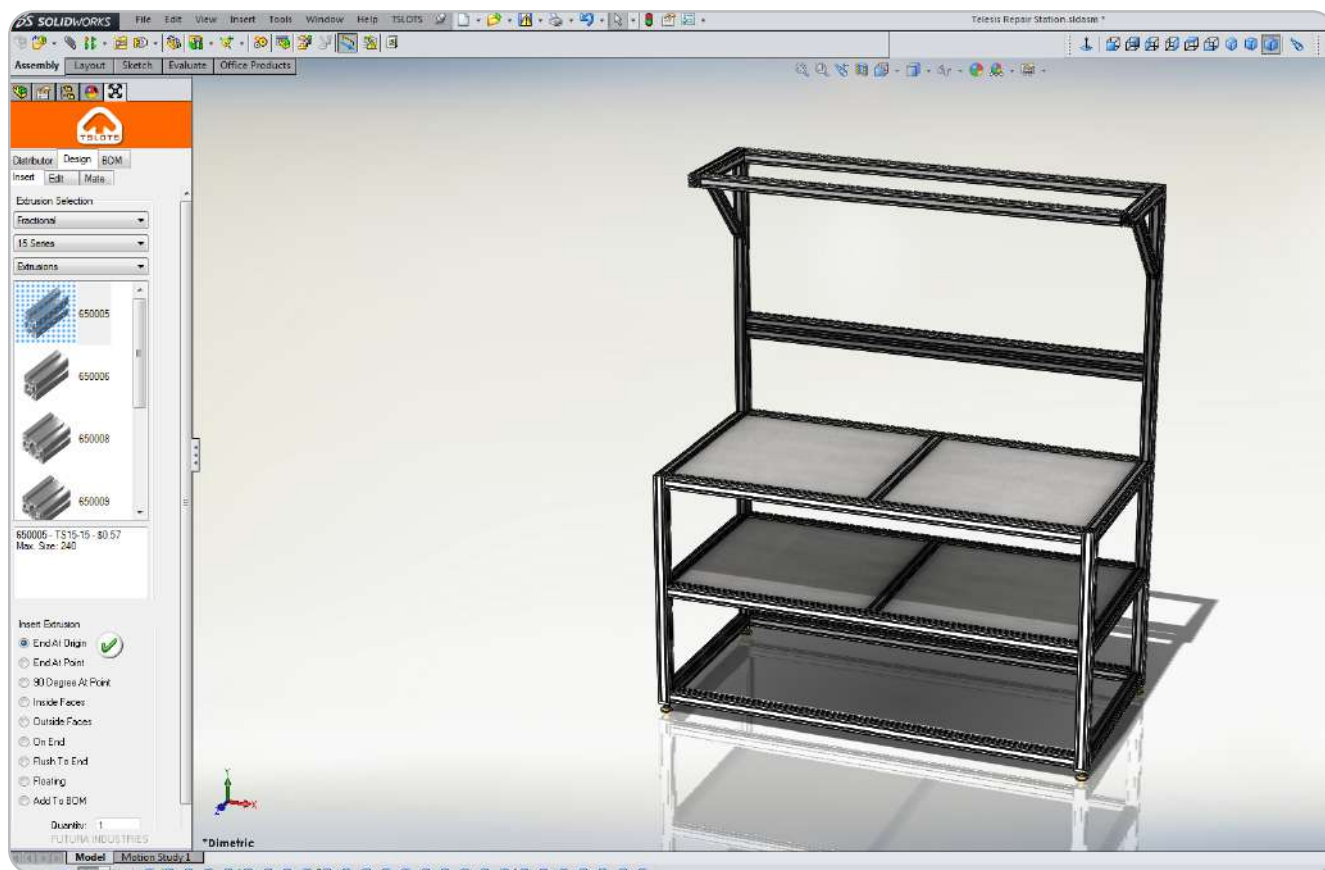
EXTRUSION	(E) MODULUS OF ELASTICITY	(Ix) MOMENT OF INERTIA	(Iy) MOMENT OF INERTIA
TS10-10	10,000,000 lbs/sq. in	.046 in ⁴	.046 in ⁴
TS10-10QR	10,000,000 lbs/sq. in	.0435 in ⁴	.0435 in ⁴
TS10-20	10,000,000 lbs/sq. in	.087 in ⁴	.321 in ⁴
TS20-20	10,000,000 lbs/sq. in	.578 in ⁴	.578 in ⁴
TS15-15	10,000,000 lbs/sq. in	.266 in ⁴	.266 in ⁴
TS15-15L	10,000,000 lbs/sq. in	.194 in ⁴	.194 in ⁴
TS15-15QR	10,000,000 lbs/sq. in	.172 in ⁴	.172 in ⁴
TS15-30	10,000,000 lbs/sq. in	.502 in ⁴	1.877 in ⁴
TS15-30L	10,000,000 lbs/sq. in	.408 in ⁴	1.431 in ⁴
TS15-45	10,000,000 lbs/sq. in	.739 in ⁴	5.913 in ⁴
TS30-30	10,000,000 lbs/sq. in	3.379 in ⁴	3.379 in ⁴
TS30-60	10,000,000 lbs/sq. in	6.430 in ⁴	21.856 in ⁴

» Deflection calculations are for reference only - they are only approximate.

TSLOTS DESIGNPRO™

Save Time and Money with TSLOTS Design Pro

TSLOTS Design Pro is an add-in for Solidworks 2011-Current that allows you to quickly take your ideas and to generate a realistic 3D representation.



BENEFITS OF TSLOTS DESIGNPRO™

- Reduces Modular Framing Design by over 50%
- Uses Solidworks Functionality to assist in the design
- Access to TSLOTS Library of Parts

DESIGNPRO™ TUTORIALS

Design Pro tutorials can be found inside the software, or from our website at www.tslots.com/designpro-tutorials/

If you have questions regarding Design Pro, contact our TSLOTS Design Dept. at saleseng@tslots.com

Technical Data & Information

WANT A QUICK QUOTE NOW?

We request that the applicable information below be included in the quote request. This will ensure that we have all the information we need to complete the quote quickly and accurately.

REQUEST TYPE	DIM./DETAILS	EXTRUSION	FASTENERS	PANELS	PANEL MOUNT
BOM (24 hrs)	Outside Dim.	10 Series	Joining Plate	Acrylic	In Slot
Budgetary (1-2d)	Inside Dim.	15 Series	Bracket/Gusset	Polycarbonate	Retainers
Quote (2-3d)	DWG/Model	40 Series	End Fastener	HDPE	Mount Blocks
		B Series	Anchor Fastener	Haircell	Surface Mount
			SHCS fastener	Expanded PVC	

DESIGN REQUIREMENTS

REQUEST TYPE

The quickest way to receive a quote is to provide us with a Bill of Materials. Detailed dimensioned drawings or solid models are preferred and can greatly decrease turnaround time. The complexity of the request is the main determining factor in regards to turnaround time.

DIMENSIONS/DETAILS

Please include as many critical dimensions as possible. The more details you can call out on a drawing, the better. If you don't have a drawing, please specify whether the dimensions you provided are inside critical or outside critical. Not having a drawing or model will increase lead time.

EXTRUSION SELECTION

Knowing this information is one of the quickest ways to get us started. Within each of the series, there are a number of extrusions to choose from. Using part numbers is preferred.

FASTENERS

It is important for us to know how we need to quote the connections. As with everything, the more specific you can be the better. Using part numbers is preferred.

PANELS

We have a variety of panels to choose from. When selecting panel, please specify material, thickness, and color.

PANEL MOUNTING

Panel mounting can be done in a few different ways as listed below. Please choose the best for your application.

ASSEMBLY/KIT

Please specify whether you would like us to assemble the quote or provide it as a kit. If left unspecified, the request will be quoted as a kit.