

# CFS PRODUCT GUIDE



**MiTek**<sup>®</sup>

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## Product Notes

- 1) This guide reflects the most current information available at the time of printing. However, we are continually improving our products through better engineering design and development and recommend visiting our website for the latest on-line version of the catalog at MiTek-US.com. MiTek reserves the right to change specifications, designs, and models at any time without notice and liability for such changes. This catalog may not be reproduced in whole or in part without the prior written approval of MiTek.
- 2) This guide reflects changes to product design and allowable loads to some MiTek USP products. The information presented in this publication supersedes all previously published guides.
- 3) This guide was designed as a general reference for the MiTek CFS Product Line. Various specialized publications have also been developed for design professionals, truss manufacturers, contractors, and building material distributors. Consequently, product information may vary from one publication to another due to product development testing and revisions to code evaluation report upgrades. We recommend visiting our website for the latest on-line version of these specialized publications.
- 4) The type and quantity of used to install MiTek USP products is critical to connector performance. To achieve the allowable loads presented in this catalog, all specified must be used and proper installation procedures observed. Verify that the dimensions of the supporting members are sufficient to receive the specified . All product modifications will void the warranty unless prior written consent from MiTek has been obtained.
- 5) Some connector models are listed more than once to indicate installation and/or fastener options.
- 6) Throughout this guide, dimensions are expressed in inches and loads in pounds unless specifically noted otherwise.
- 7) Some MiTek USP products show both nail fastening and bolt schedules. In those cases, specific loads for each has been identified. Nail and bolt values cannot be combined unless noted otherwise.
- 8) Bolts specified in this catalog are through-bolts and must conform to requirements for ASTM A 307 Grade A, or ASME SAE Grade 2, or better unless noted otherwise.
- 9) Anchor Bolts must conform to ASTM F 1554.
- 10) Unless otherwise noted, MiTek USP products may not be bent or cut for any reason unless prior written consent from MiTek has been obtained. **Field alterations may significantly reduce the published allowable load values in this catalog.**

## Design Notes

- 1) Allowable loads are determined per the AISI S100 noted otherwise.
- 2) The allowable loads in this guide are determined following AISI100. Design values are typically limited to an average test load producing 1/8" deflection, an average ultimate test load adjusted with a safety factor, or a calculated value.
- 3) The Designer must verify that the self-drilling screws used have values greater than or equal to the values given in the table.
- 4) Unless otherwise noted, the allowable loads shown in this catalog are based on Allowable Stress Design methodology. Multiply seismic and wind ASD load values by 1.4 or 1.6 respectively to obtain LRFD values.
- 5) Verify that the size of the supporting member can accommodate the connector's specified .
- 6) All steel-to-steel connector screws must comply with ASTM C1513.
- 7) When attaching multiple CFS members of different thickness, the thinner member should be used to determine allowable design loads.

## Installation Notes

- 1) Use proper safety equipment during connector installations. Always wear gloves when handling connectors.
- 2) All welding should be done in accordance with the American Welding Society (AWS) Standard by a certified welder. **Caution: Welding galvanized steel may produce harmful fumes and should only be performed in well-ventilated environments.**
- 3) The proper type and quantity of must be used to install MiTek products. To achieve the published allowable loads, install with the specified for that particular product.
- 4) Washers should always be used under the head or nut of a bolt when not in contact with the connector unless noted otherwise.
- 5) Multiple-ply members must be properly fastened together to distribute loads as a single member.
- 6) Top mount hangers installed in floor systems may produce unevenness. This will vary based on thickness of the top flange and nail heads. **If a problem is anticipated, the effects can be mitigated by dapping or notching the beam or cutting the subfloor at hanger locations. Face mount hangers will eliminate this problem.**

### WARRANTY

MiTek USA, Inc. ("MiTek") warrants its MiTek catalog Products to be free from material defects in manufacture and design, and further warrants that they will perform within the design limitations of its published building code approvals for the applications described, when properly installed and maintained. These warranties do not cover Product deterioration due to environmental conditions, Products that have been modified or damaged, improperly installed or used outside of published design limitations or for other applications. In the event any Product is shown to not conform to these warranties, MiTek's sole obligation, and Customer's sole and exclusive remedy, shall be, at MiTek's option, to replace the non-conforming product or refund the full purchase price paid by Customer to MiTek therefor. MITEK MAKES NO OTHER PRODUCT WARRANTIES, EXPRESS OR IMPLIED, OF ANY KIND, AND

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**⚠ THIS IS A REQUIREMENT ONLY FOR THE STATE OF CALIFORNIA.**

Based on our experience, we do not believe that our products when used as intended present an exposure risk of ingestion, inhalation or by absorption through the skin to any of Prop 65's current list of chemicals. Nonetheless, out of an abundance of caution, and in the event our MiTek products are misused or used in ways we do not foresee, we are taking the precaution of placing a short-form Prop 65 warning on the labels of our retail packaged products, and in some instances, on signs posted in the California retail locations where our products are sold to consumers without labels.

MiTek manufactures and supplies some products that are not intended as consumer products, and are sold through professional construction supply channels and/or delivered directly to job sites. These products will not carry the Prop 65 warning. To learn more about the California Proposition 65, visit [www.P65Warning.ca.gov](http://www.P65Warning.ca.gov). For MiTek specific questions please contact MiTek Customer Service at 800-328-5934 with any questions or visit our website, [www.MiTek-US.com](http://www.MiTek-US.com).

MiTek recommends the use of hex head metal screws with a self-drilling tip, for ease of installation and strength. Screw diameter ranges from 0.190" to 0.250" and is specified for each connector in their corresponding load table.

An important factor to consider when selecting a self-drilling screw is the material thickness specifically the combined side and main member thickness. Care should be taken by the designer to verify that the drill point and thread length are long enough to appropriately fasten the members per the fasteners manufacturers specifications.

The drill point is the unthreaded section from the drill point to the first thread. This length must be long enough to completely drill through the material before the threads engage. If the threads engage too early, they can cause the fastener to bind and break.



## Specification Table

Screw Size	Nominal Diameter d (in)	Washer Diameter d <sub>w</sub> (in)	Allowable Screw Shear Strength (P <sub>ss</sub> /Ω)	Allowable Shear Connection Strength (P <sub>ns</sub> /Ω, P <sub>ss</sub> /Ω)					Allowable Screw Tension Strength (P <sub>ts</sub> /Ω)	Allowable Tensile Pull-Out Strength (P <sub>not</sub> /Ω, P <sub>ts</sub> /Ω)				
				Steel Thickness mil (gauge)						Steel Thickness mil (gauge)				
				33–33	43–43	54–54	68–68	97–97		33	43	54	68	97
				(20–20)	(18–18)	(16–16)	(14–14)	(12–12)		(20)	(18)	(16)	(14)	(12)
#10 x 1-1/2"	0.190	0.375	573	188	289	404	564	573	885	87	116	145	182	254
#12 x 3/4"	0.216	0.375	724	200	308	430	601	724	1184	99	132	165	207	289
#14 x 3/4"	0.250	0.500	990	215	331	463	647	990	1605	115	153	191	239	335

- 1) Allowable loads are per AISI S-100 and are for use when utilizing the traditional Allowable Stress Design methodology. The tabulated loads may be multiplied by a Factor of Safety (Ω) of 3 to determine the screw nominal strength. The LRFD load may be determined by multiplying the allowable screw load by the ASD safety factor of 3 then by Resistance Factor (φ) of 0.50.
- 2) Allowable loads may not be increased for wind or seismic load unless otherwise noted.
- 3) Allowable loads are based on cold-formed steel members with a minimum yield strength, F<sub>y</sub>, of 33 ksi and tensile strength, with an F<sub>u</sub>, of 45 ksi.
- 4) Allowable loads are based on design steel thickness for 33 mil = 0.036", 43 mil = 0.048", 54 mil = 0.060", 68 mil = 0.075", and 97 mil = 0.105" per ITW Buildex ESR-1976.
- 5) Self-drilling tapping screw fasteners for steel-to-steel connections used for connectors in this catalog shall be in compliance with ASTM C1513.
- 7) Screw diameters used in the calculation of shear loads per ANSI/ASME standard.

Screw Point Type	Screw Size	Maximum Material Thickness <sup>1,2</sup>	
		(in)	(mm)
TEKS/1	#10	0.095	2.41
	#12	0.095	2.41
	#14	0.095	2.41
TEKS/3	#10	0.175	4.45
	#12	0.210	5.33
	#14	0.210	5.33
TEKS/4	#12	0.250	6.35
TEKS/4.5	#14	0.375	9.53
TEKS/5	#12	0.500	12.70
	#14	0.500	12.70

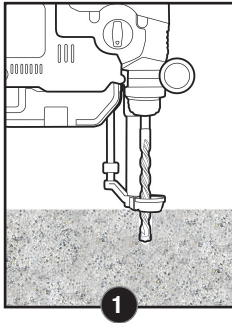
- 1) Total thickness of all steel, including any spacing between steel layers.
- 2) Drill and tap capacities may vary.
- 3) Table is guideline only; see individual product for specific maximum material thickness.

Screw-Bolt+ anchors are a one-piece, heavy duty screw anchor with a finished hex head. The patented thread design, designed for use with standard ANSI drill bits, reduces installation torque and enhances productivity. The steel threads along the anchor body tap into the hole during installation to provide keyed engagement and allow for reduced edge and spacing distances.

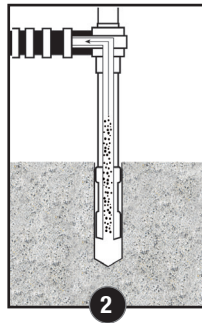
**Finish:** Zinc Plated or Mechanically Galvanized

**Codes:** ESR-3889, ESR-4042

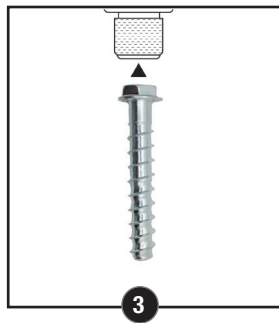
**Installation:**



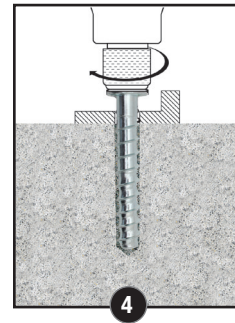
Using the proper drill bit size, drill a hole into the base material to the required depth. The tolerances of the drill bit used should meet the requirements of ANSI standard B212.15



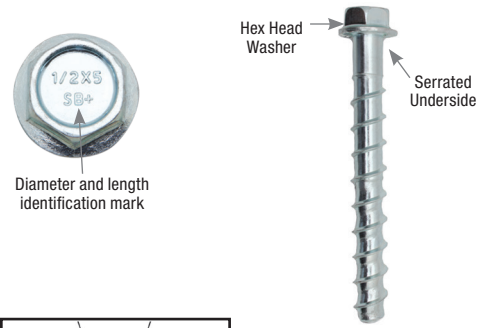
Remove dust and debris from hole during drilling (e.g. dust extractor, hollow bit) or following drilling (e.g. suction, forced air) to extract loose particles created during drilling.



Select a torque wrench or powered impact wrench and do not exceed the maximum torque, Tinst, max or Timpact, max respectively for the selected anchor diameter and embedment. Attach an appropriate sized hex socket/driver to the impact wrench. Mount the screw anchor head into the socket.

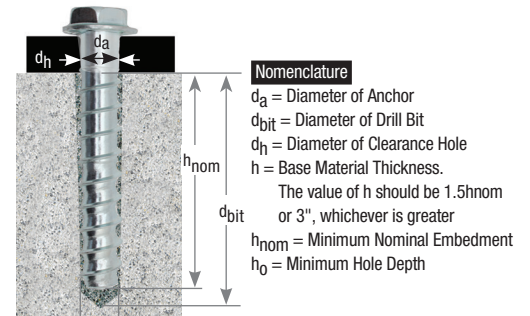


Drive the anchor into the hole until the head of the anchor comes into contact with the fixture. The anchor must be snug after installation. Do not spin the hex socket off the anchor to disengage.



**Screw-Bolt™ +**  
(zinc plated)

Zinc Plated Finish		Galvanized Finish		Anchor Size (in) <sup>1</sup>	Hole Size (in)	Socket Size (in)
USP Stock No. <sup>2</sup>	Ref. No.	USP Stock No. <sup>2</sup>	Ref. No.			
PFM1411000	THDB25178H	--	--	1/4 x 1-1/4	1/4	7/16
PFM1411020	THD25134H	--	--	1/4 x 1-3/4		
PFM1411060	THD25214H	--	--	1/4 x 2-1/4		
PFM1411100	THDB25300H	--	--	1/4 x 3		
PFM1411160	THD37134H	--	--	3/8 x 1-3/4	3/8	9/16
PFM1411220	THD37212H	--	--	3/8 x 2-1/2		
PFM1411240	THD37300H	--	--	3/8 x 3		
PFM1411280	THD37400H	PFM1461280	THD37400HMG	3/8 x 4		
PFM1411300	THD37500H	PFM1461300	THD37500HMG	3/8 x 5		
PFM1411320	THD37600H	PFM1461320	THD37600HMG	3/8 x 6		
PFM1411340	--	--	--	1/2 x 2	1/2	3/4
PFM1411360	--	--	--	1/2 x 2-1/2		
PFM1411380	THD50300H	--	--	1/2 x 3		
PFM1411420	THD50400H	PFM1461420	THD50400HMG	1/2 x 4		
PFM1411460	THD50500H	PFM1461460	THD50500HMG	1/2 x 5		
PFM1411480	THD50600H	PFM1461480	THD50600HMG	1/2 x 6		
PFM1411520	THD50800H	PFM1461520	THD50800HMG	1/2 x 8	5/8	15/16
PFM1411540	--	--	--	5/8 x 3		
PFM1411580	THD62400H	--	--	5/8 x 4		
PFM1411600	THD62500H	PFM1461600	THD62500HMG	5/8 x 5		
PFM1411640	THD62600H	PFM1461640	THD62600HMG	5/8 x 6		
PFM1411680	THD62800H	PFM1461680	THD62800HMG	5/8 x 8		
PFM1411700	--	--	--	3/4 x 3	3/4	1-1/8
PFM1411720	THD75400H	--	--	3/4 x 4		
PFM1411760	THD75500H	--	--	3/4 x 5		
PFM1411800	THD75600H	PFM1461800	THD75600HMG	3/4 x 6		
PFM1411840	THD75812H	--	--	3/4 x 8		
--	--	PFM1461850	THD75812HMG	3/4 x 8-1/2		
PFM1411880	THD75100H	--	--	3/4 x 10		



**Screw-Bolt™ + anchor detail**

**Nomenclature**  
 $d_a$  = Diameter of Anchor  
 $d_{bit}$  = Diameter of Drill Bit  
 $d_h$  = Diameter of Clearance Hole  
 $h$  = Base Material Thickness.  
 The value of  $h$  should be  $1.5h_{nom}$  or  $3"$ , whichever is greater  
 $h_{nom}$  = Minimum Nominal Embedment  
 $h_0$  = Minimum Hole Depth

1) The anchor size includes the diameter and length of the anchor measured from under the head.

The S/PHD holdowns are high performance ductile holdowns used for providing a tension connection between CFS framing members and the foundation or other structural members. The pre-deflected design keeps deflection low. The S/PHD holdowns attach with #14 self-drilling screws making installation an ease, saving time and labor.

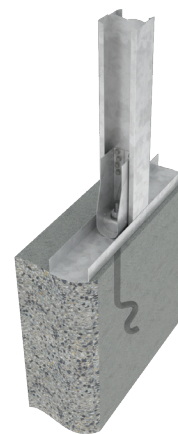
**Materials:** S/PHD4, S/PHD6 – 14 gauge; S/PHD9 – 12 gauge

**Finish:** G90 galvanizing

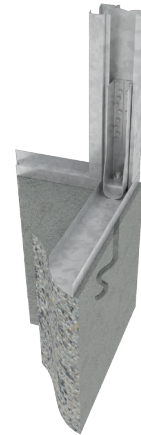
**Codes:** ER-0566

**Installation:**

- Use all specified .
- Place the S/PHD over the anchor bolt. No washer is required.
- Install with standard #14 self-drilling (tapping) screws to fasten to CFS framing members.
- Tighten anchor bolt nuts finger tight to base plus 1/3 to 1/2 additional turns with a wrench.
- S/PHD Holdowns installed elevated more than 4" off the base track may have higher deflection values.
- The design engineer may specify any alternate anchorage calculated to resist the tension load for a specific application. Anchor rod exposure length should take the bearing plate height of 1-5/8" into account, anchor bolt thread should visibly extend above nut.
- The built up studs shall be designed to act as a single unit. Holdown specified shall not be considered to attach multiple CFS members together.
- For anchorage options see STBL Anchor Bolt series or ATR threaded rod series products epoxied into place at required depth.



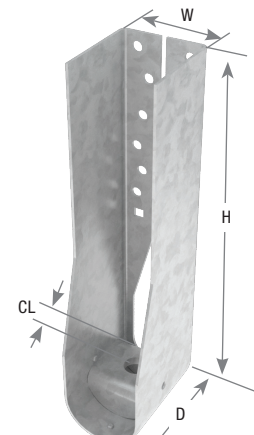
Typical S/PHD installation



Typical S/PHD Corner installation



S/PHD4



S/PHD6

USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)				Fastener Schedule				Metal Stud Member <sup>4</sup> Mils (Gauge)	ASD (Lbs.)		LRFD (Lbs.)					
			W	H	D	CL	Anchor Bolt <sup>1</sup>		Stud			Tension Load	Deflection at ASD Load (in)	Tension Load	Deflection at LRFD Load (in)				
							Qty	Dia (in)	Min/Max	Qty						Type <sup>3</sup>			
S/PHD4	S/HDU4	14	2-3/8	7-3/4	3-1/4	1-3/8	1	5/8	Min	6	#14	2-33 (20Ga)	2255	0.080	3605	0.118			
												2-43 (18Ga)	3145	0.103	5035	0.148			
												2-54 (16Ga)	4355	0.140	6970	0.205			
												Max	8	#14	2-33 (20Ga)	2960	0.088	4740	0.133
															2-43 (18Ga)	4345	0.076	6950	0.131
															2-54 (16Ga)	5385	0.138	8620	0.216
S/PHD6	S/HDU6	14	2-3/8	10-3/8	3-1/4	1-3/8	1	5/8	Min	12	#14	2-33 (20Ga)	4965	0.102	7945	0.177			
												2-43 (18Ga)	5490	0.104	8785	0.160			
												2-54 (16Ga)	7345	0.120	11750	0.214			
												Max	14	#14	2-33 (20Ga)	5440	0.088	8700	0.168
															2-43 (18Ga)	6275	0.096	10040	0.156
															2-54 (16Ga)	7350	0.127	11755	0.218
S/PHD9	S/HDU9	12	2-3/8	12-3/4	3-1/4	1-3/8	1	7/8	--	18	#14	2-33 (20Ga)	6495	0.096	10390	0.154			
												2-43 (18Ga)	8875	0.112	14195	0.191			
												2-54 (16Ga)	10850	0.103	17365	0.165			

1) The designer must specify the anchor bolt type, length and embedment.  
 2) Deflections are derived from static, monotonic load tests of device connected to a 2-ply cold formed steel stud and include fastener slip, holdown elongation and anchor bolt elongation (L = 4").  
 3) #14 designates ASTM C1513 compliant self-tapping screws that are 0.242" dia. with a minimum 0.5" diameter head and must fully penetrate all CFS steel members.  
 4) The designer must specify the metal stud size and mil thickness.

The **LTS20B** and the **HTT14S** tension ties are designed for both new construction and retrofit applications for concrete-to-steel connections and do not require an additional washer.

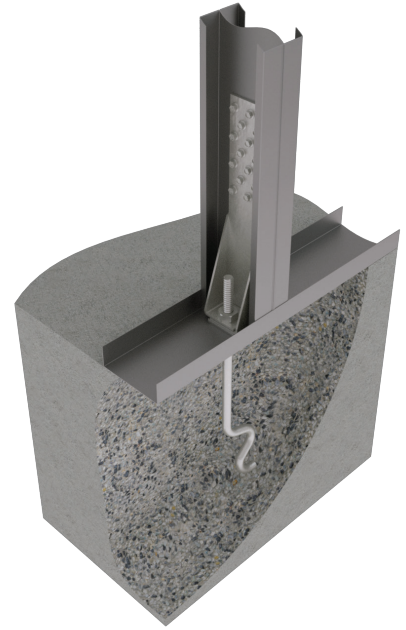
**LTS20B** is a light capacity tension tie strap with a 1/4" load transfer plate.

**Materials:** See chart

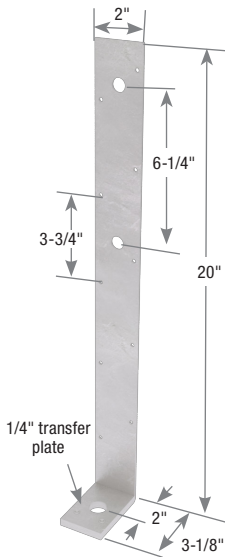
**Finish:** G90 galvanizing

**Installation:**

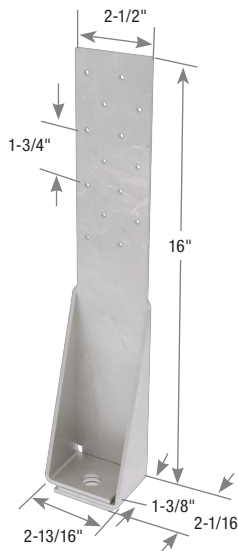
- Use all specified .
- Attach the strap portion of the connector to the steel stud. Secure the base to the foundation or wall with specified anchor bolt. A design professional shall specify the type, length, and embedment of the anchor bolt. No washers are required.



**Typical HTT14S installation**



**LTS20B**



**HTT14S**

USP Stock No.	Ref. No.	Steel Thickness		Fastener Schedule				Allowable Tension Loads (Lbs.) <sup>1,2,4</sup>					
		Strap Gauge	Base (in)	To Sill Plate		To Stud		2-33 mil (2-20ga) Back-to-Back Studs		2-43 mil (2-18ga) Back-to-Back Studs		2-54 mil (2-16ga) Back-to-Back Studs	
				Anchor Bolt <sup>3</sup>	Screws <sup>5</sup>	100%	160%	100%	160%	100%	160%		
LTS20B	S/LTT20	12	1/4	1	3/4	5	#10	885	1140	1090	1090	1210	1210
HTT14S	S/HTT14	10	--	1	5/8	14	#10	2480	3290	3680	4425	4825	4825

- 1) Back-to-back stud members are required unless otherwise noted.
- 2) The allowable loads at 160% can only be used with codes that permit the use of alternate basic load combinations and when the referenced materials standard permits it.
- 3) Designer shall specify anchor embedment and configuration.
- 4) Designer shall verify the adequacy of the steel studs to transfer the required load.
- 5) #10 designates ASTM C1513 compliant self-tapping screws that are 0.190" dia. with a minimum 0.340" diameter head and must fully penetrate all CFS steel members.

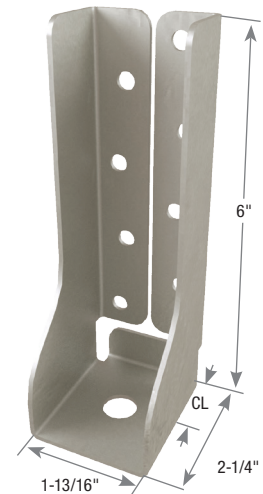
The DTB/S-TZ may be used to resist tension loads between CFS members.

**Materials:** 14 gauge

**Finish:** G-185 galvanizing

**Installation:**

- Use all specified fasteners.
- Install screws to attach DTB/S-TZ to framing member first.
- Install with MiTek's THR 1/2" threaded rod or equivalent.
- Tighten anchor bolt nuts finger tight to base plus 1/3 to 1/2 additional turns with wrench.



**DTB/S-TZ**

USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)				Fastener Schedule <sup>5</sup>				CFS Stud (Minimum) <sup>6</sup>	Allowable Tension Loads (Lbs.) <sup>3,4</sup>	
			W	L	D	CL	Anchor Bolt <sup>1</sup>		Screws <sup>2,7</sup>			100%	160%
							Qty	Type	Qty	Type			
DTB/S-TZ	S/DTT2Z	14	1-13/16	6	2-1/4	1-1/8	1	1/2"	8	#14	18 Ga	1655	1655

- 1) Use ASTM A307 bolt or threaded rod with cut washer and nut.
- 2) Designer shall specify steel-to-steel self-tapping screw with a minimum nominal shear strength 2,600 lbs.
- 3) Allowable loads include a 60% increase for wind or seismic load conditions. No further increase shall be permitted.
- 4) Allowable load values of the holddown (tie-down) device are a measure of the strength of the assembly with a safety factor of 3.0 applied to the lowest maximum test load.
- 5) Fasteners shall be specified and installed per manufacturer's specifications.
- 6) CFS stud must be a minimum 18 Ga and Grade 33.
- 7) #14 designates ASTM C1513 compliant self-tapping screws that are 0.242" dia. with a minimum 0.5" diameter head and must fully penetrate all CFS steel members.

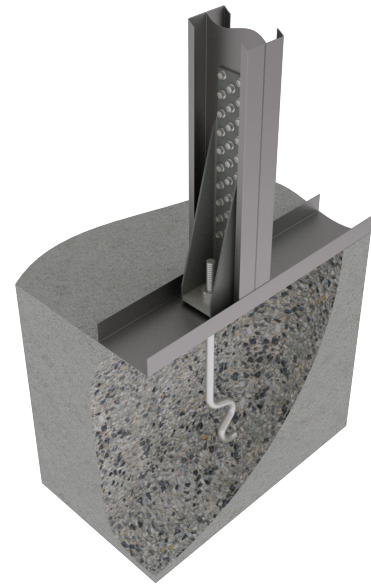


The **TD8S**, **TD10S**, and **TD15S** are high capacity holdowns which are designed for attachment to cold formed steel (CFS) framing members. Holdowns are secured at the base by attachment to an anchor bolt.

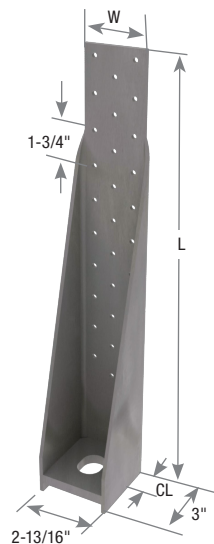
**Materials:** See chart  
**Finish:** Primer

**Installation:**

- Use #10 self-tapping screws to attach the back or strap portion of the holddown to a steel stud. Install nut to secure the base of holddown to foundation with anchor bolt of specified diameter.
- A design professional shall specify the type, length, and embedment depth of the anchor bolt.
- Install anchor bolt nut to base of holddown until finger tight, then tighten an additional 1/3 to 1/2 turns with a wrench.



Typical TD10S installation



TD10S

USP Stock No.	Ref No.	Steel Thickness		Dimensions (in)			Fastener Schedule			CFS Member			ASD		LRFD		Nominal Tension Load <sup>6</sup> (lbs)
		Body	Base	W	L	CL	Anchor Bolt <sup>2</sup> Dia. (in)	Stud Screws <sup>4</sup>		Stud <sup>1,3</sup>			Tension Load (lbs)	Deflection at ASD Load <sup>5</sup> (in)	Tension Load (lbs)	Deflection at LRFD Load <sup>5</sup> (in)	
								Qty	Type	Plies	Mills	Gr					
TD8S	S/HD8S	10	3/8	2-1/2	13-7/8	1-5/8	7/8	24	#10	2	33	33	8250	0.074	13200	0.164	22325
										2	43	33	10115	0.109	16350	0.242	27650
										2	54	50	10900	0.091	17435	0.205	29485
TD10S	S/HD10S	10	3/8	2-1/2	16-1/8	1-5/8	7/8	30	#10	2	33	33	8690	0.071	13900	0.159	24575
										2	43	33	9310	0.076	14900	0.195	26335
										2	54	50	9985	0.058	15975	0.146	28235
TD15S	S/HD15S	7	1/2	2-5/8	21-1/2	1-11/16	1	48	#10	2	33	33	11780	0.075	18845	0.146	33410
										2	43	33	13770	0.100	22035	0.192	39065
										2	54	50	15920	0.096	25475	0.144	45160

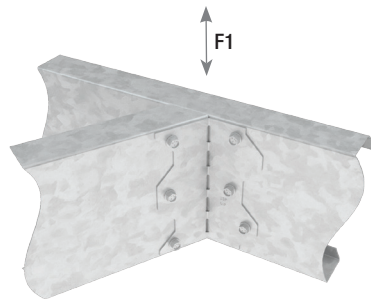
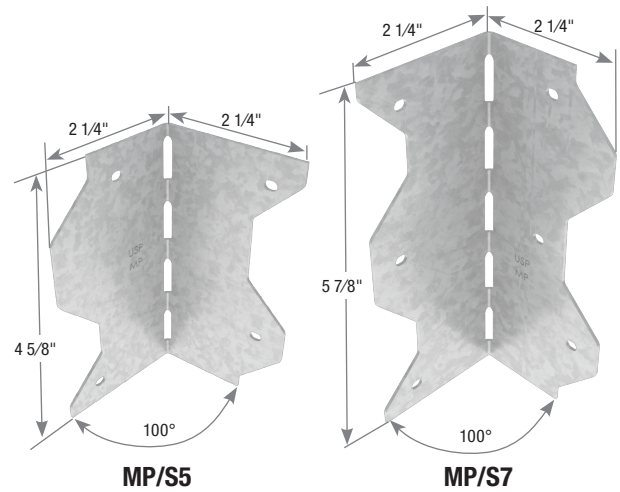
1) Back-to-back stud members are required.  
 2) The designer must specify anchor bolt type, length, and embedment.  
 3) Designer shall verify the adequacy of the steel studs to transfer the required load.  
 4) #10 designates ASTM C1513 compliant self-tapping screws that are 0.190" dia. with a minimum 0.340" diameter head and must fully penetrate all CFS steel members.  
 5) Holdown deflection at ASD and LRFD static test load includes fastener slip, holdown deflection, and anchor bolt elongation.  
 6) The nominal tension load is based on the average of the ultimate tested values.

MP/S angles are field-adjustable to attach members intersecting at angles. MP/S angles are load rated and provide adequate thickness and fastener quantity to the field fabricated clip angles.

**Materials:** 18 gauge  
**Finish:** G90 galvanizing

**Installation:**

- Use all specified fasteners.
- Field-adjustable from 45°-180° (flat). Bend angle only once.
- Joist must be constrained from rotation.



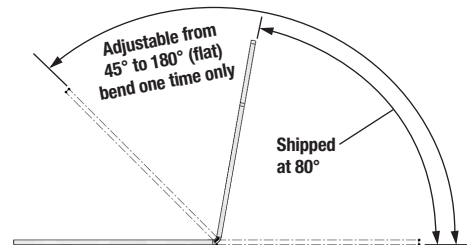
Typical MP/S7 installation  
(MP/S5 similar)



Typical MP/S7 skew installation  
(MP/S5 similar)

USP Stock No.	Ref. No.	Steel Gauge	Fastener Schedule		Allowable Loads (Lbs.) <sup>1</sup>		
			Qty	Type <sup>3</sup>	33 mil <sup>2</sup> (20ga)	43 mil <sup>2</sup> (18ga)	54 mil <sup>2</sup> (16ga)
					F1	F1	F1
MP/S5	S/LS50	18	4	#10	310	410	480
MP/S7	S/LS70	18	6	#10	405	640	745

1) Allowable loads are for one part only.  
 2) Member mils (33, 43, 54) has been considered as Grade 33.  
 3) #10 designates ASTM C1513 compliant self-tapping screws that are 0.190" dia. with a minimum 0.340" diameter head and must fully penetrate all CFS steel members.



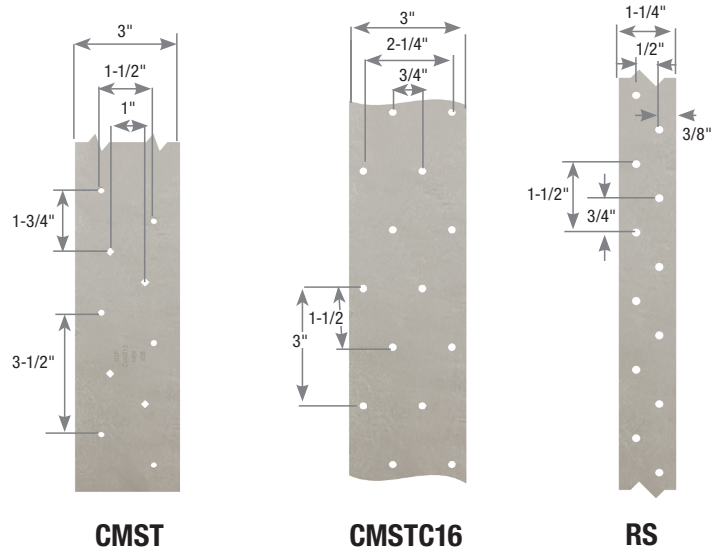
MP/S Top View

MiTek straps may be used to create a tension connection between multiple CFS members with the use of self-tapping screws.

**Materials:** See chart  
**Finish:** G90 galvanizing

**Installation:**

- Install equal amount of screws on each end of tension connection.
- Use all specified fasteners.



USP Stock No.	Ref. No.	Steel Gauge	Dimensions		Fastener O.C. Spacing	Fastener Type <sup>2,5</sup>	Fastener Schedule			Allowable Shear Loads (Lbs.)			Allowable Tension Loads (Lbs.) <sup>1</sup>		
			W (in)	Coil Length (ft)			Min Qty <sup>3,4</sup>			33 mil (20ga)	43 mil (18ga)	54 mil (16ga)	33 mil (20ga) 43 mil (18ga) 54 mil (16ga)		
							33 mil (20ga)	43 mil (18ga)	54 mil (16ga)						
CMST12	CMST12	12	3	40'	1-3/4"	#10	106	72	36	177	263	534	9318		
CMST14	CMST14	14	3	52-1/2'	1-3/4"	#10	76	52	26	177	263	534	6630		
CMSTC16	CMSTC16	16	3	54'	1-1/2"	#10	54	36	18	177	263	534	4715		
RS20-R	CS20-R	20	1-1/4	25'	1-1/2"	#10	12	8	8	177	276	329	1045		
RS250	CS20			250'											
RS18-R	CS18-R	18	1-1/4	25'	1-1/2"	#10	16	12	8	177	263	433	1375		
RS100	--			100'											
RS200	CS18			200'											
RS16-R	CS16-R	16	1-1/4	25'	1-1/2"	#10	20	14	8	177	263	534	1732		
RS150	CS16			150'											
RS14-R	CS14-R	14	1-1/4	25'	1-1/2"	#10	30	20	10	177	263	534	2612		
RS14-100	CS14			100'											

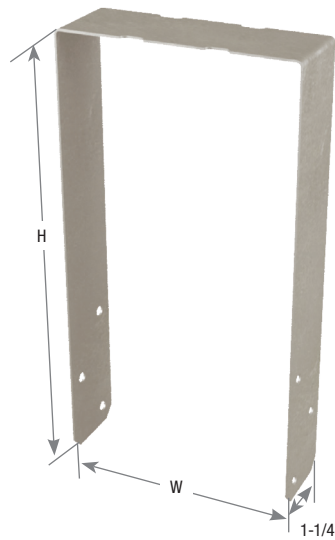
1) Allowable load is tension capacity of the strap based on the total quantity of screws installed in the strap to develop full tension strength.  
 2) Allowable loads are based on Grade 33 steel for 43 mil (18 ga) and thinner CFS members and Grade 50 steel for 54 mil (16 ga) and thicker CFS members.  
 3) Install half the total quantity of fasteners on each end of the strap to achieve full tension load of strap.  
 4) Minimum quantity of fasteners to be installed with equal fasteners at each end of the connection. Product may have additional holes not needed to meet the published allowable load of the strap.  
 5) #10 designates ASTM C1513 compliant self-tapping screws that are 0.190" dia. with a minimum 0.340" diameter head and must fully penetrate all CFS steel members.

MiTek SPT4 and SPT6 Stud Plate Ties may be used to create a tension and bearing connection between multiple CFS members with self-tapping screws.

**Materials:** 20 gauge  
**Finish:** G90 galvanizing

**Installation:**

- Wrap SPT tie around top or bottom track.
- Use all specified fasteners.



SPT

USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)		Fastener Schedule		Allowable Uplift Loads 100% (Lbs.) <sup>1</sup>		
			W	H	Qty	Type <sup>2</sup>	33 mil (20 ga)	43 mil (18 ga)	54 mil (16 ga)
SPT4	SP4	20	3-9/16	6-7/8	6	#10	495	845	830
SPT6	SP6	20	5-9/16	7-5/8	6	#10	495	845	830

1) Allowable loads are based on Grade 33 steel for 43 mil (18 ga) or thinner CFS members and Grade 50 steel for 54 mil (16 ga) or thicker CFS members.  
 2) #10 designates ASTM C1513 compliant self-tapping screws that are 0.190" dia. with a minimum 0.340" diameter head and must fully penetrate all CFS steel members.



HDOL/S (14 ga) and HDO/S (12 ga) top mount bridle hangers are available in a wide variety of stock sizes to match the most common framing needs with economical solutions where custom or special order hangers were required before. The revolutionary design utilizes shear lag slots designed to maximize the capacity of the hangers while providing a safe and ductile connection.

The HDOL/S and HDO/S hangers may be installed with screws, powder actuated, or welded to the header.

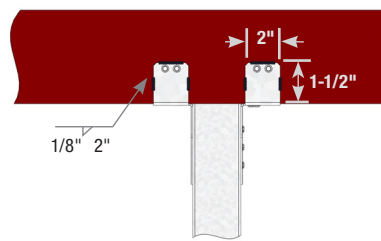
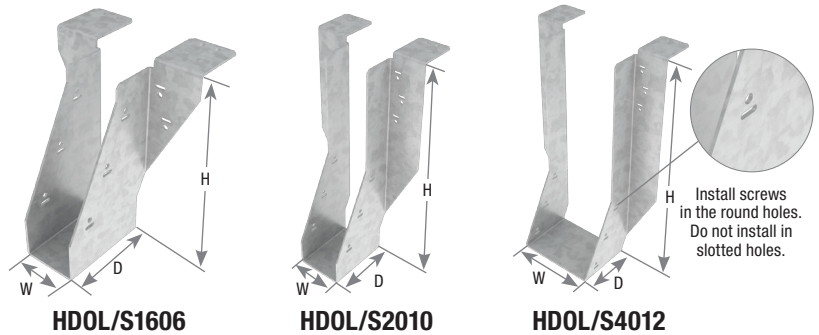
**Materials:** HDOL/S 68mil (14 gauge), HDO/S 97mil (12 gauge)

**Finish:** G90 galvanizing

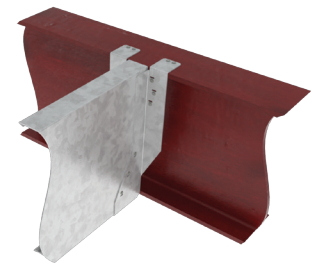
**Patents:** US Patent No. 10,072,412

**Installation:**

- Install prescribed type and number of self-drilling screws in to the round holes of the hangers. Do not install screws in the shear lag slots.
- Welding of the hangers is permitted. Place a minimum 1/8" x 2" fillet weld on each top flange of the hanger welding should be performed by a qualified welder using a qualified welding procedure while distributing the weld evenly across both flanges.
- Powder actuated are permitted.



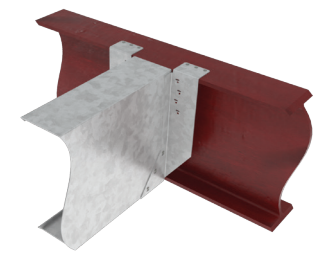
Top view detail of welds



Typical HDOL/S1616 (I-beam) installation



Typical HDOL/S2010 (CFS Header) installation



Typical HDOL/S4012 (I-beam) installation

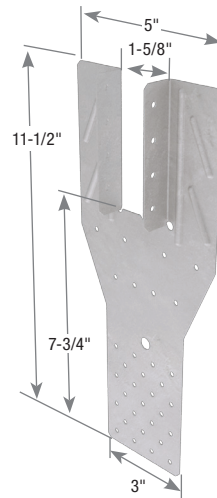
USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)			Fastener Schedule					Allowable Loads <sup>1,2,3</sup>
			W	H	D	Header		Joist		Down 100%	
						Top Qty	Face Qty	Type <sup>4</sup>	Qty		
HDOL/S1606	S/LBV1.68/6	14	1-5/8	6	3	4	6	#10	3	#10	2950
HDO/S1606	S/B1.68/6	12			3-1/2	6	8		6140		
HDOL/S1608	S/LBV1.68/8	14	1-5/8	8	3	4	6	#10	3	#10	2950
HDO/S1608	S/B1.68/8	12			3-1/2	6	8		6140		
HDOL/S1610	S/LBV1.68/10	14	1-5/8	10	3	4	6	#10	3	#10	2950
HDO/S1610	S/B1.68/10	12			3-1/2	6	8		6140		
HDOL/S1612	S/LBV1.68/12	14	1-5/8	12	3	4	6	#10	3	#10	2950
HDO/S1612	S/B1.68/12	12			3-1/2	6	8		6140		
HDOL/S2006	S/LBV2.06/6	14	2	6	3	4	6	#10	3	#10	2950
HDO/S2006	S/B2.06/6	12			3-1/2	6	8		6140		
HDOL/S2008	S/LBV2.06/8	14	2	8	3	4	6	#10	3	#10	2950
HDO/S2008	S/B2.06/8	12			3-1/2	6	8		6140		
HDOL/S2010	S/LBV2.06/10	14	2	10	3	4	6	#10	3	#10	2950
HDO/S2010	S/B2.06/10	12			3-1/2	6	8		6140		
HDOL/S2012	S/LBV2.06/12	14	2	12	3	4	6	#10	3	#10	2950
HDO/S2012	S/B2.06/12	12			3-1/2	6	8		6140		
HDOL/S4006	S/LBV4.06/6	14	4	6	3	4	6	#10	3	#10	2950
HDO/S4006	S/B4.06/6	12			3-1/2	6	8		6140		
HDOL/S4008	S/LBV4.06/8	14	4	8	3	4	6	#10	3	#10	2950
HDO/S4008	S/B4.06/8	12			3-1/2	6	8		6140		
HDOL/S4010	S/LBV4.06/10	14	4	10	3	4	6	#10	3	#10	2950
HDO/S4010	S/B4.06/10	12			3-1/2	6	8		6140		
HDOL/S4012	S/LBV4.06/12	14	4	12	3	4	6	#10	3	#10	2950
HDO/S4012	S/B4.06/12	12			3-1/2	6	8		6140		

1) Testing of HDOL/S and HDO/S hangers was performed with framing members with minimum steel yield strengths of Fy=50 ksi.  
 2) Qualified designer shall design connection to ensure the header is designed to carry the load and the joist member is sufficient to transfer load to hanger.  
 3) Allowable loads based on testing with 68mil (14ga) CFS members for the HDOL/S hanger and 97mil (12ga) CFS members for the HDO/S hanger.  
 4) #10 designates ASTM C1513 compliant self-tapping screws that are 0.190" dia. with a minimum 0.340" diameter head and must fully penetrate all CFS steel members.

The LUGT is designed to transfer uplift loads from roof framing members to the wall studs.

**Materials:** 20 gauge  
**Finish:** G90 galvanizing

**Installation:**  
 • Use all specified fasteners.



**LUGT1**

USP Stock No.	Steel Gauge	Fastener Type <sup>1,4,5</sup>	Fastener Schedule			Allowable Shear Loads (Lbs.)			Allowable Tension Loads (Lbs.) <sup>2</sup>
			Min Qty <sup>3</sup>			33 mil (20ga)	43 mil (18ga)	54 mil (16ga)	
			33 mil (20ga)	43 mil (18ga)	54 mil (16ga)				
LUGT1	18	#10	6	4	4	177	263	433	1045

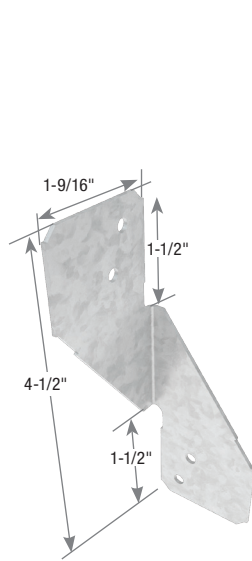
- 1) Install self-tapping screws symmetrically into CFS stud to prevent any eccentricity
- 2) Allowable load is based on allowable tension capacity of truss to connector. Be sure to install all prescribed nails.
- 3) Minimum quantity of fasteners to be installed. Product may have additional holes not needed to meet the published allowable load.
- 4) #10 designates ASTM C1513 compliant self-tapping screws that are 0.190" dia. with a minimum 0.340" diameter head and must fully penetrate all CFS steel members.
- 5) Allowable loads are based on Grade 33 steel for 43 mil (18 ga) and thinner CFS members and Grade 50 steel for 54 mil (16 ga) and thicker CFS members.

RT/S are designed to tie trusses and rafter to wall systems. RT/S are to resist uplift and lateral forces between framing members.

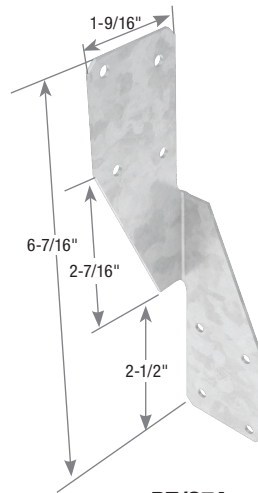
**Materials:** 20 gauge  
**Finish:** G90 galvanizing

**Installation:**

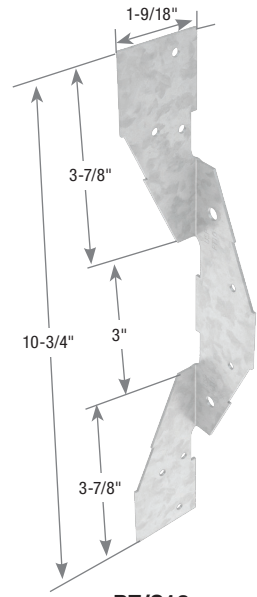
- Use all specified fasteners.
- Designer shall determine if solid blocking is required.



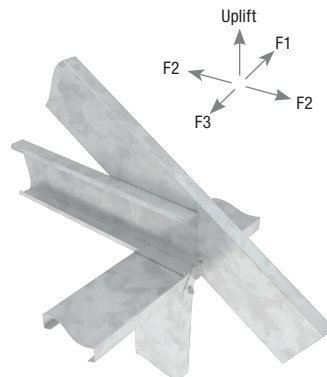
**RT/S3A**



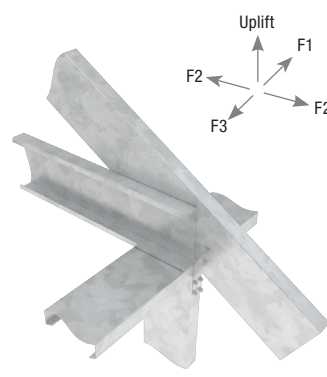
**RT/S7A**



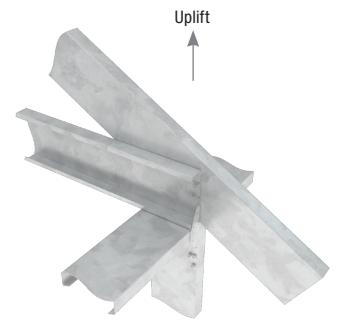
**RT/S10**



**Typical RT/S3A installation**



**Typical RT/S7A installation**



**Typical RT/S10 installation**

USP Stock No.	Ref. No.	Steel Gauge	Fastener Schedule				Allowable Loads (Lbs.) <sup>1,2</sup>			
			Truss/Rafter <sup>3</sup>		Stud/Track <sup>3</sup>		33 mil (20 ga)			
			Qty	Type <sup>4</sup>	Qty	Type <sup>4</sup>	Uplift	Lateral		
						F1	F2	F3		
RT/S3A	S/H3	18	2	#10	2	#10	355	85	185	230
RT/S7A	S/H2.5	18	4	#10	4	#10	465	115	160	145
RT/S10	S/H2	18	3	#10	3	#10	455	--	--	--

1) Allowable loads are for one part only.  
 2) Allowable uplift loads for the RT/S3A may be increased up to 375 lbs when GR50 members are used.  
 3) Member Mills (33) has been considered as Grade 33.  
 4) #10 designates ASTM C1513 compliant self-tapping screws that are 0.190" dia. with a minimum 0.340" diameter head and must fully penetrate all CFS steel members.

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