



USP

STRUCTURAL CONNECTORS®

A MiTek® Company

Manufactured Housing Catalog

www.USPconnectors.com



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General Notes

- 1) This catalog reflects the most current information regarding USP product line. However, product revisions and new product additions occur on an on going basis. USP Structural Connectors® 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 USP Structural Connectors®.
- 2) This catalog reflects design changes and design load adjustments to some USP products. The information presented in this publication replaces all information published in previous documents, and is valid until December 31, 2014.
- 3) This catalog was designed as a general reference for the USP Product Line. Product load values may vary from one publication to another due to recent product testing, changes in regulatory criteria, or code evaluation updates. The most current product information is available on USP’s Web Site.
- 4) The type and quantity of fasteners used to install USP products is critical to connector performance. To achieve the allowable loads presented in this catalog, all specified fasteners must be used and proper installation procedures observed. Verify that the dimensions of supporting members are sufficient to receive specified fasteners. Any product modifications void the warranty unless prior written permission of USP Structural Connectors® is obtained.
- 5) Some connector models are listed more than once to indicate installation and/or fastener options.
- 6) Throughout this catalog, dimensions are expressed in inches and loads in pounds unless specifically noted otherwise.

- 7) Load values for 8d and 16d designations in the fastener schedules throughout this catalog refer to common wire nails unless noted otherwise. Nails shall conform to a recognized national standard, such as ASTM F1667, as prescribed by the model building codes.
- 8) Fastener installation may cause wood to split and reduce a fastener’s ability to carry a load. If wood splitting occurs, consider pre-drilling holes not exceeding 75% of the nail diameter (per the National Design Specification).
- 9) USP connectors listed in this catalog are manufactured for specific sizes of standard lumber, plated trusses, or composite lumber. For applications involving unusual supporting conditions environments, contact USP. Wood shrinkage or expansion, caused by lack of moisture or excessive moisture, may adversely affect connector installation. Evaluate potential shrinking or expanding to ensure proper connector installation and performance.
- 10) The load values listed in this catalog are based on installation to wood with a moisture content of less than 19%, and used in dry service conditions. Load reductions, in accordance with the code, shall be taken where wood moisture content greater than 19% at the time of installation or where used in wet service conditions.
- 11) Unless otherwise noted, USP products may not be bent or cut in the field to facilitate installation. Field alterations may weaken steel and cause connector failure at lower than published allowable loads.

Code Evaluation

Most USP structural products listed in this catalog have been evaluated or are in the submittal stage for evaluation from ICC-ES, IAPMO-ES, City of Los Angeles, California, State of Florida and Dade County, Florida.

Other code agencies may require specific reductions and limitations and may have different load values than those presented in this catalog. USP recommends consulting specific code evaluation or product acceptance criteria reports that govern in the applicable area. Any questions about current code listings should be directed to the Technical Assistance staff. USP continuously updates code reports to reflect new standards and requirements. Visit USP’s Web Site, www.USPconnectors.com/codereports.htm, or specific code agencies web sites for current listings.

WARRANTY

MiTek USA, Inc. (“MiTek”) warrants its USP 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, USP’s sole obligation, and Customer’s sole and exclusive remedy, shall be, at USP’s option, to replace the non-conforming product or refund the full purchase price paid by Customer to USP therefor. USP MAKES NO OTHER PRODUCT WARRANTIES, EXPRESS OR IMPLIED,

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The Original Connector Company!



United Steel Products (USP) is the leading manufacturer of structural connectors and hardware for the building industry. Our legacy of innovation dates back to 1933 when the original timber connectors were conceived and standardized. Over the years USP has grown by combining some of the most innovative and recognizable structural brands into one “UNITED” company that spans the world. Our lineage includes such brand names as **Teco**[®], **Silver**[™], **Lumberlok**[™], **Kant-Sag**[®], **Hughes**[™], **Covert**[™], and **Renown**[™].

As of March, 2011 USP has been a part of **MiTekUSA, Inc.**, which is a subsidiary of Warren Buffet’s Berkshire Hathaway. Since, USP has expanded its product offering to include the following leading brands: **Hardy Frame**[®] shear wall system, **Zone4**[®] Tie-down system, and **Sapphire**[™] software suite.

With our rich heritage and solid DNA combined with MiTek’s extensive resources and unmatched software expertise, USP has become **THE Connector of Choice**[™] for the building industry.



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Specify the Original - Specify USP!**

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The USP Specifier.™

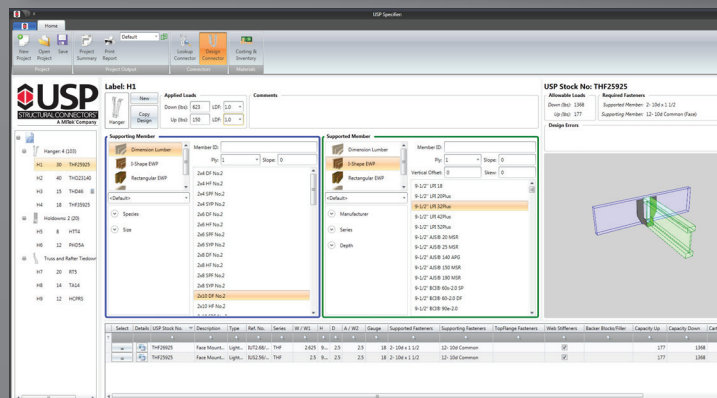
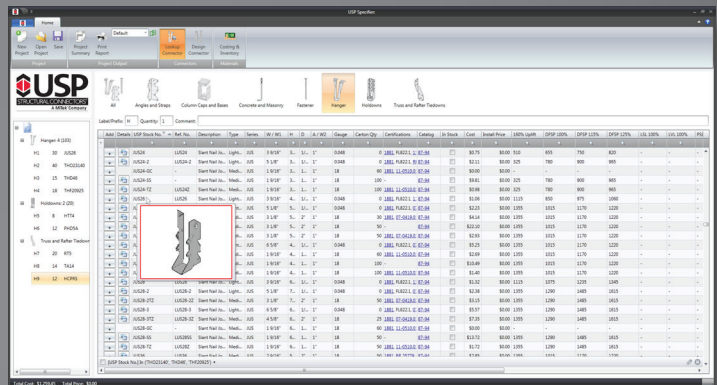
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Catalog installation notes should be followed when installing Power Nail Hangers using alternative nails. All fasteners should be installed into nailing zones and maintain minimum 1" center to center spacing. Alternative nail quantity required for installation of Power Nail Hangers can be determined using the table below.

Alternative Nails for Installation of Power Nail Hangers

Fastener Description	Dimensions (in)		Allowable Shear per Nail (Lbs) ^{1,2,3,4,5}					
	Diameter	Length	DF / SP (100%)			S-P-F (100%)		
			Steel Gauge					
			14	18	20	14	18	20
.131 x 1-1/2"	0.131	1 1/2	107	98	96	92	85	83
.148 x 1-1/2"	0.148	1 1/2	127	118	116	110	102	100
.113 x 2-3/8"	0.113	2 3/8	83	75	72	72	64	62
.131 x 3"	0.131	3	107	98	96	92	85	83
.105 x 1-1/2"	0.105	1 1/2	74	65	63	64	56	54
.099 x 1-1/2"	0.099	1 1/2	67	58	56	58	50	48
.100 x 1-3/8"	0.100	1 3/8	68	60	57	59	51	49

- 1) Nail allowable load values were calculated as specified by the American Forest and Paper Association's National Design Specification for Wood Construction (NDS), 2005 Edition; Sections 10 & 11, and Appendix I.
- 2) The nail lateral loads are adjusted by the Penetration depth factors, C_d , based on the length of the nails and thickness of the steel side members. However, this assumes sufficient wood thickness to receive the full length of the nail or at least ten times the diameter of the nail, whichever is less.
- 3) Adjustment factors for duration of load, service conditions and installation shall be applied to the nail values in accordance with the provisions of the NDS delineated in Sections 2, 10 and 11.
- 4) The allowable load for any connector shall not exceed the catalog value.
- 5) Fastener bending yield strength based on ASTM F1667-05 Table S1.1.
- 6) Quantity of fasteners must be used symmetrically in header flanges and into each side of joist.
- 7) Installation guidelines in USP's Product Catalog regarding Power Nail Hangers must be followed.

Example

JN28E (20 gauge) using .105 x 1-1/2" fasteners
 JN28E downward load at 115% = 1175 lbs.
 JN28E uplift load at 160% = 285 lbs.

Header material: S-P-F
 Joist material: S-P-F

Nail quantity required for downward load:

Allowable shear capacity at 100% load duration = 54 lbs.

$$54 \left(\frac{\text{lbs}}{\text{nail}} \right) \times 1.15 = 62.1 \left(\frac{\text{lbs}}{\text{nail}} \right)$$

$$\frac{1175 \text{ lbs}}{62.1 \left(\frac{\text{lbs}}{\text{nail}} \right)} = 19 \text{ nails}$$

Use equal amount of fasteners in each side so use 9 nails in each flange for a total of 18.

Nail quantity required for uplift:

$$54 \left(\frac{\text{lbs}}{\text{nail}} \right) \times 1.60 = 86.4 \left(\frac{\text{lbs}}{\text{nail}} \right)$$

$$\frac{285 \text{ lbs}}{86.4 \left(\frac{\text{lbs}}{\text{nail}} \right)} = 4 \text{ nails}$$

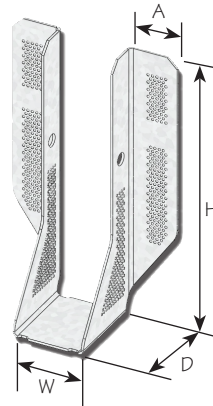
Use equal amount of fasteners per side of joist so use 2 in each side for a total of 4. Also make sure there are as many or more fasteners in the hanger to header connection. 20 nails in header ≥ 4 nails in joist.

USP's "no hole" connectors are engineered for wood frame structures built in a factory environment. These connectors feature embossed "nailing zones" for faster and safer fastener installation.

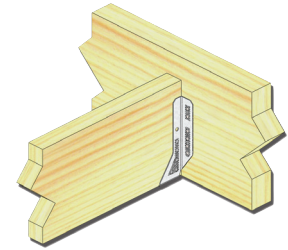
Materials: 18 or 20 gauge
Finish: G90 galvanizing
Codes: ESR-3445, FL817

Installation:

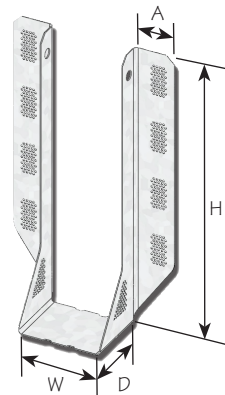
- Install all specified fasteners using a power nailer.
- Nailing zones are distinguished by embossed pattern.
- Install fasteners with care not to overdrive fastener causing indentation of connector.
- Fastener quantities shall be installed symmetrically on both sides of connector.
- Installer should reduce risk of injury from rebounding fasteners by using personal eye protection during fastener installation.
- Minimum center to center fastener spacing is 1".



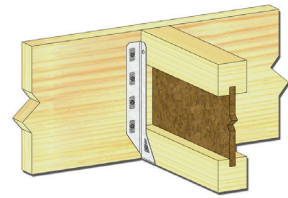
JN28E



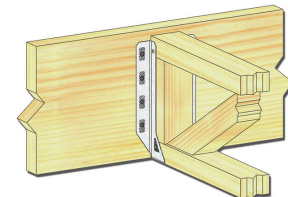
Typical JNE Installed on Solid Sawn Lumber



MTHF25925
(MTHF25112 Similar)



Typical MTHF Installed on Engineered I-Joist



Typical MTHF Installed on an Open Web Joist

Joist Size	USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)				Fastener Schedule ^{1,2,3}			Allowable Loads (Lbs.)							
				W	H	D	A	Header	Joist	Type	DF-L / SP				S-PF			
								Qty	Qty		Floor	Roof	Uplift ⁴	Floor	Roof	Uplift ⁴		
				100%	115%	125%	160%	100%	115%	125%	160%							
2 x 6-8	JN26E	MMLU26	20	1-9/16	4-3/4	2	1-1/4	10	4	"P" or "T" nails	590	680	740	340	510	585	640	285
								16	4	"P" or "T" nails	945	1085	1180	340	815	940	1020	285
								20	4	"P" or "T" nails	1415	1430	1430	340	1020	1175	1205	285
2 x 8-10	JN28E	MMLU28	20	1-9/16	6-1/2	2	1-3/16	10	4	"P" or "T" nails	590	680	740	340	510	585	640	285
								16	4	"P" or "T" nails	945	1085	1180	340	815	940	1020	285
								20	4	"P" or "T" nails	1415	1430	1430	340	1020	1175	1205	285
2 x 10-12	JN210E	MMLU210	20	1-9/16	7-3/4	2	1-5/16	10	4	"P" or "T" nails	590	680	740	340	510	585	640	285
								16	4	"P" or "T" nails	945	1085	1180	340	815	940	1020	285
								20	4	"P" or "T" nails	1415	1430	1430	340	1020	1175	1205	285
(2) 2 x 6-8	JN26-2	MMLU26-2	18	3-1/8	5-3/8	2-1/8	1-1/4	10	6	"P" or "T" nails	600	690	750	575	520	600	650	500
								16	6	"P" or "T" nails	960	1105	1200	575	830	955	1040	500
								24	6	"P" or "T" nails	1440	1655	1800	575	1250	1435	1560	500
(2) 2 x 8-10	JN28-2	MMLU28-2	18	3-1/8	7-1/8	2-1/8	1-1/4	10	6	"P" or "T" nails	600	690	750	575	520	600	650	500
								16	6	"P" or "T" nails	960	1105	1200	575	830	955	1040	500
								24	6	"P" or "T" nails	1440	1655	1800	575	1250	1435	1560	500
1-1/2 x 11-7/8	JN210E	MMLU211	20	1-9/16	7-3/4	2	1-5/16	10	4	"P" or "T" nails	590	680	740	340	510	585	640	285
								16	4	"P" or "T" nails	945	1085	1180	340	815	940	1020	285
								20	4	"P" or "T" nails	1415	1430	1430	340	1020	1175	1205	285
2-1/2 x 9-1/4 - 9-1/2	MTHF25925	MMLU39	20	2-9/16	9-1/8	2	1-1/4	20	4	"P" or "T" nails	1415	1430	1430	340	1020	1175	1205	285
								16	4	"P" or "T" nails	945	1085	1180	380	815	940	1020	285
2-1/2 x 11-7/8	MTHF25112	MMLU311	20	2-9/16	11-1/8	2	1-1/4	10	4	"P" or "T" nails	590	680	740	380	510	585	640	285
								16	4	"P" or "T" nails	945	1085	1180	380	815	940	1020	285

1) "P" nails denotes fasteners designed specifically to be installed with a pneumatic-powered nailer. The fasteners shall be either of a type with round heads, 0.105" diameter and 1-3/8" long; or a "T" shaped head, 0.097" diameter, 1-1/4" long and hardened; or a similar but larger fastener.
 2) Fasteners shall be pneumatically driven in such a way as firmly seats the nail head against the hanger steel, without embedding the nail head completely through the plane of the metal surface, or otherwise punching through.
 3) The quantity of nails installed shall be equally distributed to both sides of the hanger. The nails shall be located at 1" spacing in a row, with the vertical rows spaced at 3/8"; also no less than 5/16" from a sheared edge and no less than 5/16" from a formed edge.
 4) Uplift loads have been increased 60% for wind or seismic load conditions; no further increase shall be permitted.

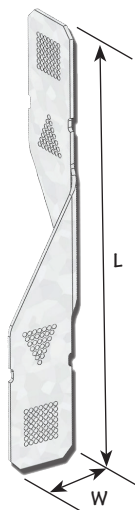
The MRT7 Rafter Tie is engineered for wood frame structures built in a factory environment. These connectors feature embossed "nailing zones" for faster and safer fastener installation.

Materials: 14 gauge

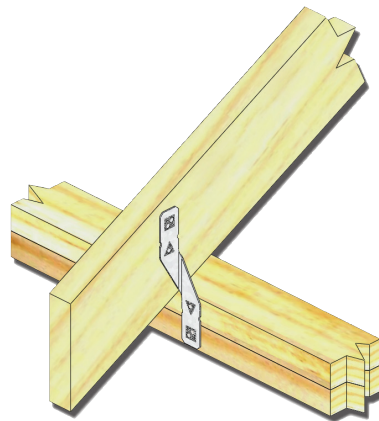
Finish: G90 galvanizing

Installation:

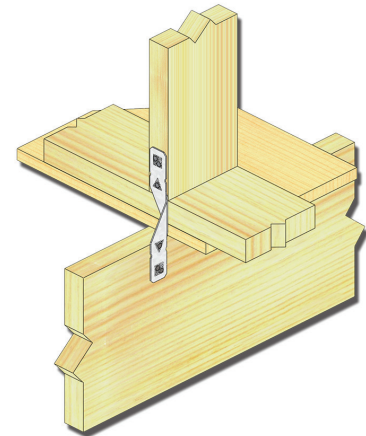
- Install all specified fasteners using a pneumatic nailer.
- Nailing zones are distinguished by embossed pattern.
- Install fasteners with care not to overdrive fastener causing indentation of connector.
- Fastener quantities shall be installed symmetrically on both sides of connector.
- Installer should reduce risk of injury from rebounding fasteners by using personal eye protection during fastener installation.
- Minimum center to center fastener spacing is 1".



MRT7



Typical MRT7 Installation



Knee Wall Set with MRT7

USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)		Fastener Schedule ^{1,2,3}				Allowable Loads (Lbs.)					
			W	L	Header		Joist		DF-L / SP			S-P-F		
					Qty	Type	Qty	Type	Uplift ⁴	F1	F2	Uplift ⁴	F1	F2
MRT7	MMH8	18	1-1/4	7-13/16	3	P or "T" nails	3	P or "T" nails	285	135	135	250	85	85
					4	P or "T" nails	4	P or "T" nails	380	180	180	335	115	115
					5	P or "T" nails	5	P or "T" nails	470	195	195	415	145	145
					6	P or "T" nails	6	P or "T" nails	565	195	195	495	160	160

- 1) "P" nails denotes fasteners designed specifically to be installed with a pneumatic-powered nailer. The fasteners shall be either of a type with round heads, 0.105" diameter and 1-3/8" long; or a "T" shaped head, 0.097" diameter, 1-1/4" long and hardened; or a similar but larger fastener.
- 2) Fasteners shall be pneumatically driven in such a way as firmly seats the nail head against the hanger steel, without embedding the nail head completely through the plane of the metal surface, or otherwise punching through.
- 3) The quantity of nails installed shall be equally distributed to both sides of the hanger. The nails shall be located at 1" spacing in a row, with the vertical rows spaced at 3/8"; also no less than 5/16" from a sheared edge and no less than 5/16" from a formed edge.
- 4) Uplift loads have been increased 60% for wind or seismic load conditions; no further increase shall be permitted.

The RST3 rafter tie is designed to anchor trusses and rafters directly to the stud below. The ability to field-bend the RST3 permits fastening to either the wide or narrow face of the stud.

Materials: 18 gauge
Finish: G90 galvanizing

Installation:

- Use all specified fasteners.
- If necessary, field bend the lower tab of the RST3 at 90° at the two bend slots.
- Not all fastener holes need to be filled.
- Fasteners in truss do not need to penetrate a nailing plate to achieve the uplift loads listed below.
- The RST3 can be installed in pairs (on opposite sides of the wall, to achieve twice the uplift load capacity.)



RST3

Figure 1

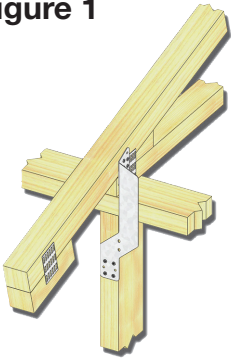


Figure 2

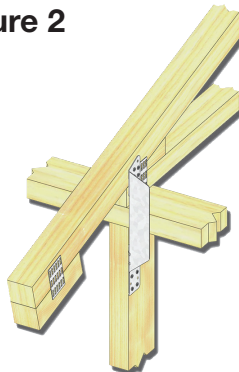


Figure 3

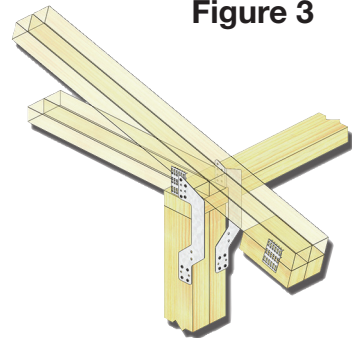


Figure 4

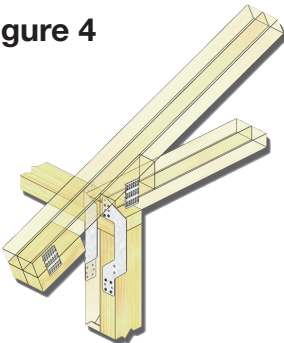


Figure 5

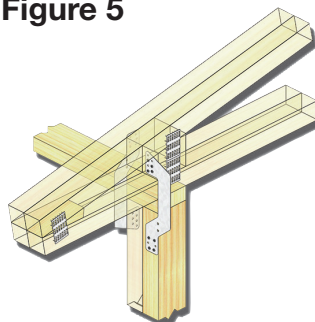
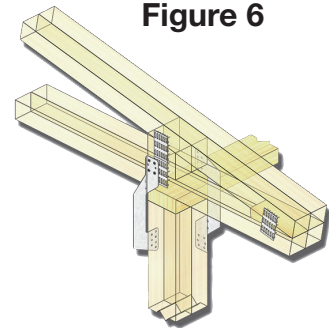


Figure 6

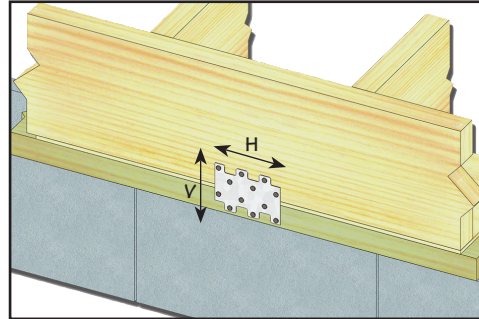
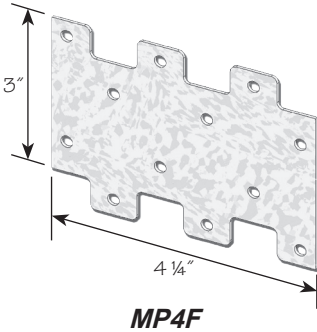


USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in.)		Installation Type	Fastener Schedule				Allowable Loads (Lbs.) ¹	
			W	L		Rafter/Truss		Stud		DF-L / SP	S-P-F
						Qty ³	Type ²	Qty ³	Type ²	Uplift 160%	Uplift 160%
RST3	RST-3	18	1-1/2	10-5/16	Figure 1	4	#8 x 1-1/2	4	#8 x 1-1/2	555	465
					Figure 2	4	#8 x 1-1/2	4	#8 x 1-1/2	555	465
					Figure 3	4	#8 x 1-1/2	4	#8 x 1-1/2	1110	930
					Figure 4	4	#8 x 1-1/2	4	#8 x 1-1/2	1110	930
					Figure 5	4	#8 x 1-1/2	4	#8 x 1-1/2	1110	930
					Figure 6	4	#8 x 1-1/2	4	#8 x 1-1/2	1110	930

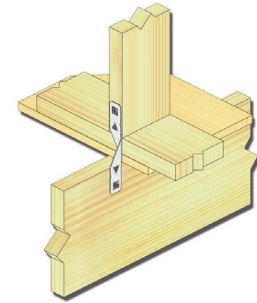
1) Allowable loads have been increased 60% for wind or seismic loads; no further increase shall be permitted.
 2) The #8 x 1-1/2 Wood Screw has a diameter of 0.164 inch and a length of 1-1/2 inches.
 3) Fastener quantities shown are the minimum number installed on each RST3 end.

Factory built structures are well-engineered for the environmental stresses anticipated at the final building site and the dynamic stresses the building experiences traveling to its final site. But for the building to perform as designed at its final site, it must be securely attached to its foundation. These USP connectors provide specific capacities for direct connection to perimeter foundations or piers.

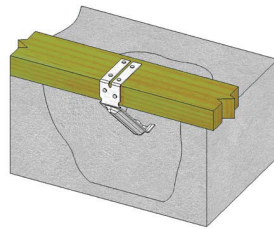
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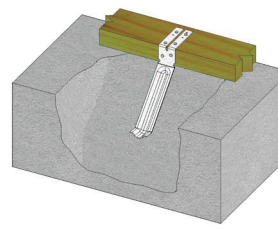
Typical MP4F Installation



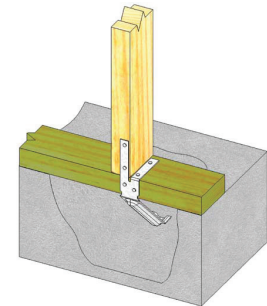
Knee Wall Set with MR7
(see page 7 for product details)



FA3 Installation



FA3 Installation



FA3 Installation

USP Stock No.	Ref. No.	Steel Gauge	Installation Type ^{2,4}	Fastener Schedule ^{5,6}				Direction of Load ²	Allowable Loads (Lbs.) ^{1,3,4}							
				Header or Stud		Joist or Plate			DF-L / SP				S-P-F			
				Qty	Type	Qty	Type		100%	115%	125%	160%	100%	115%	125%	160%
MP4F	LTP4	20	Type 1	6	8d x 1-1/2	6	8d x 1-1/2	V	565	650	705	845	485	560	610	710
				6	8d x 1-1/2	6	8d x 1-1/2	H	565	650	705	845	485	560	610	710
			Type 2	6	8d x 1-1/2	6	8d x 1-1/2	V	565	650	705	845	485	560	610	710
				6	8d x 1-1/2	6	8d x 1-1/2	H	565	650	660	660	485	555	555	555
			Type 1	6	8d	6	8d	V	565	650	705	845	485	560	610	710
				6	8d	6	8d	H	565	650	705	845	485	560	610	710
			Type 2	6	8d	6	8d	V	565	650	705	845	485	560	610	710
				6	8d	6	8d	H	565	650	660	660	485	555	555	555

- 1) Allowable loads have been increased 60% for wind or seismic loads; no further increase shall be permitted.
- 2) Refer to drawings for installation type and definition of the various load directions.
- 3) If installing MP4F, use 8d common nails for 100% of table load.
- 4) Loads are shown per angle. When using a single anchor, joist must be constrained from rotation.
- 5) Minimum nail embedment shall be 1-5/16" for 8d nails.
- 6) **NAILS:** 8d x 1-1/2 are 0.131" dia. x 1-1/2" long, 8d nails are 0.131 dia. x 2-1/2" long.

Plate Size	USP Stock No	Ref. No.	Steel Ga.	Dimensions (in)				Fastener Schedule ^{1,9}				Min Stemwall Thickness (in.)	Concrete ⁸	DF / SP Allowable Loads (Lbs.) ^{2,3,5,6,7}									
				W	L	I _E	D	Sill Plate		Stud				Wind and SDC A & B				SDC C-F					
								Side Qty	Top Qty	Type	Qty			Type	Uplift	F1	F2	Δ _{ASD} (in) ⁸	Uplift	F1	F2	Δ _{ASD} (in) ⁸	
				160%	160%	160%	(in) ⁸	160%	160%	160%	(in) ⁸												
2 x 4 or 2 x 6	FA3 Mudsill Only	MAS	16	1 1/2	4 5/8	4	1	2	4	10d x 1 1/2"	---	---	6	Uncracked	1010	625	735	0.066	1010	625	735	0.066	
															Cracked	985	545	735	0.064	845	470	645	0.055
	FA3 Mudsill & Stud							2	2	10d x 1 1/2"	2	10d x 1 1/2"		6	Uncracked	755	615	465	0.015	755	615	465	0.015
																Cracked	755	545	465	0.015	755	470	465

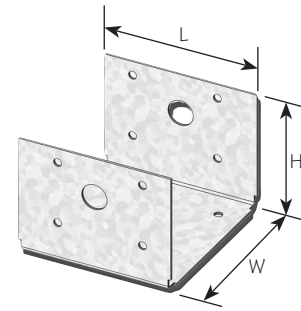
- 1) Predrilled holes are not required.
- 2) Allowable Stress Design (ASD) values have been adjusted for a load duration factor, CD, of 1.6 corresponding to a ten-minute load duration (i.e. wind or earthquake loading) in accordance with the NDS. The ASD loads do not apply to loads of other durations.
- 3) FA3 capacities are based on using a single-ply 2x sill plate.
- 4) Minimum distance of 1.5 x I_E (6 inches) is required to obtain the listed capacity.
- 5) Minimum anchor spacing for full capacity is 2 x I_E. For spacing less than that reduce capacity proportionally.
- 6) The allowable loads are based on lumber with a specific gravity of 0.50 and a moisture content of 19% or less.
- 7) Uplift deformation based on wood connection strength.
- 8) Minimum concrete strength f'c = 2500 psi
- 9) **NAILS:** 10d x 1-1/2" nails are 0.148" dia. x 1-1/2" long.

Porch design for any structure must account for the wind exposure. Porches do not weigh very much but they present lots of sail area to catch the wind. They can develop very high wind uplift in ordinary wind events. They must be securely tied to the foundation. USP engineers and manufactures a series of products intended to provide a load path from the porch components to the foundation.

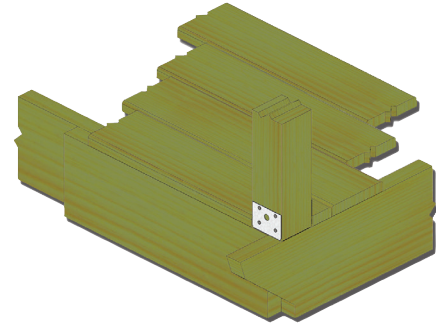
- Materials:** 18 gauge
- Finish:** G-185 galvanizing
- Codes:** ESR-3449, L.A. City RR 25749, FL11664

Installation:

- Use all specified fasteners.
- **Not recommended for fence posts or other unrestrained (not fixed or fastened at top) applications. These anchors are not designed to resist overturning (moment) loads.**
- D44-TZ offers some lateral and uplift resistance, However it is not recommended as a primary means of anchorage for posts in railings. It may be used only for intermediate posts between fully anchored corner / end posts in rail systems.



D44-TZ



Typical D44-TZ Installation

Post Size	USP Stock No.	Ref. No.	Steel Gauge	Dimensions (in)			Fastener Schedule ^{2,3}				Allowable Loads (Lbs.) ¹					
				W	H	L	Post		Beam		DF-L / SP			S-P-F		
							Qty	Nail	Qty	Nail	F1	F2	Uplift	F1	F2	Uplift
4 x 4	D44-TZ	BC40, BC40Z	18	3-9/16	2-1/2	3-3/8	8	16d HDG	4	16d HDG	875	875	715	750	750	565

1) Allowable loads have been increased 60% for wind or seismic loads; no further increase shall be permitted.
 2) Minimum nail embedment shall be 1-1/2" for 10d nails and 1-5/8" for 16d nails.
 3) **NAILS:** 16d nails are 0.162" dia. x 3-1/2" long.

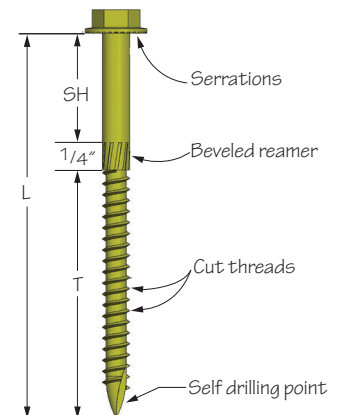
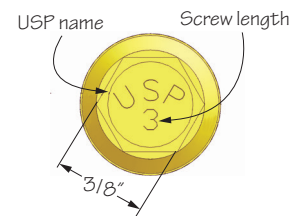
WS WOOD SCREWS

USP's WS Wood Screw is a self-drilling screw used for numerous framing applications, including laminating multi-ply girder trusses and beams, connecting the trusses together, connecting the frame to the chassis, and high load collar tie connections.

- Materials:** 1/4" diameter Grade 5 Steel
- Finish:** Zinc
- Codes:** ESR-2761, L.A. City RR 25850, FL16091

Installation:

- Screws are self-drilling.
- Install using a low speed clutch drill with 3/8" hex head driver. The washer head should be flat to the surface and the serrations will oppose turning and release the clutch. Do not over-tighten the screws.
- Installing the screw at an angle may introduce additional bending and tension forces into the fastener if the screw head is not flat on the bearing surface. Care should be given to ensure the fastener is installed perpendicular to the plane of the side plate.



USP Stock No.	Ref. No.	Description	Dimensions (in)			Finish	Shear Plane Location ³	Allowable Shear Loads (Lbs.) ^{1,2}								
			L	SH	T			Douglas Fir-Larch (G = 0.50)			Southern Pine (G = 0.55)			Spruce-Pine-Fir (G = 0.42)		
								Floor	Roof	125%	Floor	Roof	125%	Floor	Roof	125%
WS3	SDS25300	1/4" x 3"	3	3/4	2-1/4	Zinc	SH, T	227	261	284	266	306	333	164	189	205
WS45	SDS25412	1/4" x 4-1/2"	4-1/4	1-1/4	3-1/4	Zinc	SH, T	233	268	291	266	306	333	181	208	226
WS6	SDS25600	1/4" x 6"	6	1-3/4	4-1/4	Zinc	T	243	279	304	266	306	333	206	237	258
							SH	276	317	345	320	368	400	211	243	264

1) The Truss Engineer shall apply all adjustment factors required per the NDS®.
 2) Loads are based on 1-1/2" thick wood side members. Side and main members of same wood species.
 3) SH = screw shank; T = threads.

Easy-to-install plates protect plumbing and power/communication wiring from nail or screw penetration.

ICPL58 – Installs with nails.

KNS1 & PL4 – Prongs allow for quick installation.

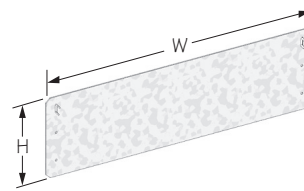
Materials: 16 gauge

Finish: ICPL516-TZ – G-185 galvanizing;
All other – G90 galvanizing.

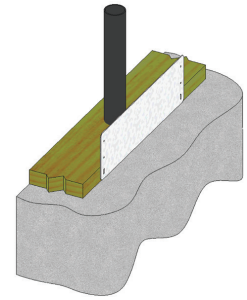
Options: ICPL58 is available in Triple Zinc.
To order, add TZ, to stock number, as in **ICPL58-TZ**.

Installation:

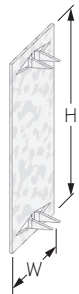
- Use all specified fasteners.
- 16 gauge steel conforms to protection shield plate requirements of the National Electrical Code and International Plumbing Code.



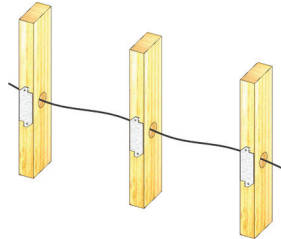
ICPL516-TZ



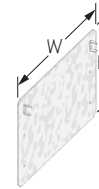
Typical ICPL516-TZ Installation



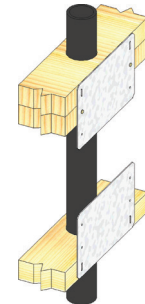
KNS1



Typical KNS1 Installation



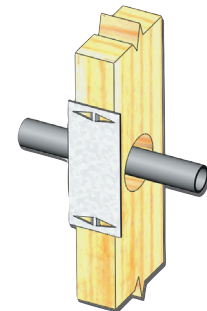
ICPL58



Typical ICPL58 Installation



PL4



Typical PL4 Installation

USP Stock No.	Ref. No.	Steel Thickness	Dimensions (in)		Fastener Schedule ¹	
			W	H	Qty	Type
ICPL58	S/PSPN58	1/16	8-1/16	5	4	8d or prongs
PL4	NS2	1/16	2	5	--	prongs
KNS1	NS1	1/16	1-1/2	3	--	prongs

1) **NAILS:** 8d nails are 0.131" dia. x 2-1/2" long.

USP Stock No.	Ref. No.	Steel Thickness	Dimensions (in)		Installation Type	Fastener Schedule ^{2,3}		Allowable Loads ¹	
			W	H		Qty	Type	DF-L / SP	S-P-F
								160%	160%
ICPL516-TZ	PSPN516Z, S/PSPN516, S/PSPN516Z	1/16	16-1/4	5	Sill Plate	12	16d HDG + prongs	1355	1160
					Double Top Plate	16	16d HDG + prongs	1805	1550

1) Allowable loads have been increased 60% for wind or seismic loads; no further increase shall be permitted.

2) Minimum nail penetration shall be 1-5/8" for 16d nails.

3) **NAILS:** 16d nails are 0.162" dia. x 3-1/2" long.

One Tool Does It All! Underlayment, Backer Board, Sub-Floor, Decks and Docks

The Speed Driver is a coil auto feed screw driving system. This tool can drive screws from 1" to 3" in length providing the versatility to meet all your construction fastening needs. This high performance and durable tool is the choice of professional contractors throughout the world.

- Drives screws 1" to 3" in length.
- Depth Adjustment – easy to set thumb wheel. Sink screw heads the same, every time.
- 150 screws per coil.
- Rubber nose piece, prevents damage to wood surfaces.
- Driver bits are double-ended, change bits in seconds without special tools.

FDVL41 Speed Driver

FDRH02 Tool Kit includes:

- FDVL41 Speed Driver
- VISRH902 Extension Handle

Tool Kits

USP Stock No.	Ref. No.	Tool Kit Description	Application	Screw Range
FDRH02	--	FDVL41 - Speeds of 2900 rpm General Purpose or 2400 rpm High Torque & Rod Handle	Underlayment, Backer Board, Sub-Floor, Decks & Docks	1" - 3"

Driver Bits

USP Stock No.	Ref. No.	Description
TX207114	--	Torx 20 Drive (7-1/4" long) Double-Ended Bit
PHL27114	--	#2 Phillips Drive (7-1/4" long) Double-Ended Bit
SQR27114	--	#2 Square Drive (7-1/4" long) Double-Ended Bit

Replacement Parts

USP Stock No.	Ref. No.	Description
VISRH902	--	Telescopic Extension Handle

Collated Screws

USP Stock No.	Ref. No.	Description	Size		Drive	Thread	Coating
			Dia	Length			
Drywall Screws (150 screws/coil)							
BH6114P	DWC114PS	Bugle Head	#6	1-1/4"	#2 Phillips	Coarse	Black Phosphate
BH6158P	DWC158PS		#6	1-5/8"			
BH6200PLP	DWC2PS		#6	2"		Hi-Low	
PH6178PLP	DWHL178PS		#6	1-7/8"			
BH8212PLP	DWC212PS		#8	2-1/2"		Coarse	
Sub-Floor and Underlayment Wood Screws - Wood to Wood (150 screws/coil)							
CS8112Y	WSC112S	Flat Head	#8	1-1/2"	#2 Square	Twin	Yellow Zinc
CS8134YLP	WSNTL134S		#8	1-3/4"			
CS8200YLP	WSNTL2LS		#8	2"			
Exterior Deck Screws - ACQ Approved (150 screws/coil)							
ES8200WLP-GY	WSNTLQ2S	Flat Head	#8	2"	#2 Square	Twin	Gray Epoxy
ES8212WLP-GY	WSNTLQ212S		#8	2-1/2"			
ES8300WEP-GY	WSNTLQ3S		#8	3"			
Trim Head Deck Screws - ACQ Approved (150 screws/coil)							
YS8200WLP-GY	DTHQ2S	Trim Head	#8	2"	#2 Square	Twin	Gray Epoxy
Stainless Steel Screws (150 screws/coil)							
CS0212SLP-T17	SS3DSC212BS	Bugle Head	10	2-1/2"	#2 Square	Coarse	Type 305 Stainless Steel
Composite Lumber - Shroom-less Screws (150 screws/coil)							
TX9212CLP-GY	DCLG212S	Shroomless Head	9	2-1/2"	Torx 20	Coarse	Gray
TX9212CLP-TN	DCLT212S		9	2-1/2"			Tan
TX9212CLP-BR	DCLB212S		9	2-1/2"			Brown
TX9300CEP-RD	DCLR3S		9	3"			Red



150 screws per coil

Lightweight and Versatile! Excellent performance for both vertical and horizontal fastening. The Ultra Driver series of tools provides the durability and ruggedness that professional contractors and serious do-it-yourselfers expect. Available in two models, choose CH7390 for general purpose sub floor and deck applications, or the CH7392SF (sub-floor) model specially designed for the flooring contractor. This model features short stroke action and non-slip nose-piece for high production fastening.

- CH7390 drives screws 1-1/2" to 3" in length/ CH7392SF drives screws 1-1/2" to 2" in length.
- Adjustable, accurate depth control for countersinking, no raised screw heads.
- 30 screws per strip, reload is quick and easy.
- Double-ended drive bits, change bits in seconds without special tools.

CH7390 Ultra Driver



Tool Kits

USP Stock No.	Ref. No.	Tool Kit Description	Application	Screw Range
CH7390CMK25	--	Makita FS2200 – 2500 rpm General Purpose	Underlayment, Sub-Floor, Decks, Docks, Framing, Roofing	1-1/2" - 3"
CH7390CDW25	--	DeWalt 276 – 2500 rpm General Purpose		
CH7392SFMK40	--	Makita FS4200 – 4000 rpm Flooring Tool	Underlayment, Sub-Floor	1-1/2" - 2"

Driver Bits

USP Stock No.	Ref. No.	Description
TX208118	--	Torx 20 Drive (8-1/8" long) Double-Ended Bit
PHL28118	--	#2 Phillips Drive (8-1/8" long) Double-Ended Bit
SQR28118	--	#2 Square Drive (8-1/8" long) Double-Ended Bit

Adaptors

USP Stock No.	Ref. No.	Description
170-70040 ¹	--	Dewalt Adapter Kit Models 255 / 274 / 276
170-70130 ¹	--	Makita Adapter Kit Models FS2200 / 4200
170-70010 ¹	--	Makita Adapter Kit Models 6823 / 6824 / 6825

1. Adapter kit includes adapter, socket assembly, and mounting instructions.

Replacement Parts

USP Stock No.	Ref. No.	Description
VISRH909	--	Telescopic Extension Handle

Collated Screws

USP Stock No.	Ref. No.	Description	Size		Drive	Thread	Coating
			Dia	Length			
Drywall Screws (30 screws/strip)							
BH6200PMSU	DWC2PS	Bugle Head	#6	2"	#2 Phillips	Coarse	Black Phosphate
PH6178PMSU	DWHL178PS		#6	1-7/8"		Hi-Low	
BH8212PMSU	DWC212PS		#8	2-1/2"		Coarse	
Sub-Floor and Underlayment Screws - Wood to Wood (30 screws/strip)							
CS8112YMSU	WSC112S	Flat Head	#8	1-1/2"	#2 Square	Twin	Yellow Zinc
CS8134YMSU	WSNTL134S		#8	1-3/4"			
CS8200YMSU	WSNTL2LS		#8	2"			
Exterior Deck Screws - ACQ Approved (30 screws/strip)							
ES8200WMSU-GY	WSNTLQ2S	Flat Head	#8	2"	#2 Square	Twin	Gray Epoxy
ES8212WMSU-GY	WSNTLQ212S		#8	2-1/2"			
ES8300WMSU-GY	WSNTLQ3S		#8	3"			
Trim Head Deck Screws - ACQ Approved (30 screws/strip)							
YS8200WMSU-GY	DTHQ2S	Trim Head	#8	2"	#2 Square	Twin	Gray Epoxy
Stainless Steel Screws (30 screws/strip)							
CS0212SMSU-T17	SS3DSC212BS	Bugle Head	10	2-1/2"	#2 Square	Coarse	Type 305 Stainless Steel
Composite Lumber - Shroom-less Screws (30 screws/strip)							
TX9212CMSU-GY	DCLG212S	Shroomless Head	9	2-1/2"	Torx 20	Coarse	Gray
TX9212CMSU-TN	DCLT212S		9	2-1/2"			Tan
TX9212CMSU-BR	DCLB212S		9	2-1/2"			Brown
TX9300CMSU-RD	DCLR3S		9	3"			Red

CH7390 Tool Kit



Includes:

- CH7390 Ultra Driver
- Adapter Kit
- Telescopic Extension Handle
- Carrying bag & screw pouch
- DeWalt or Makita motor



Stand-up operation for floors & decks

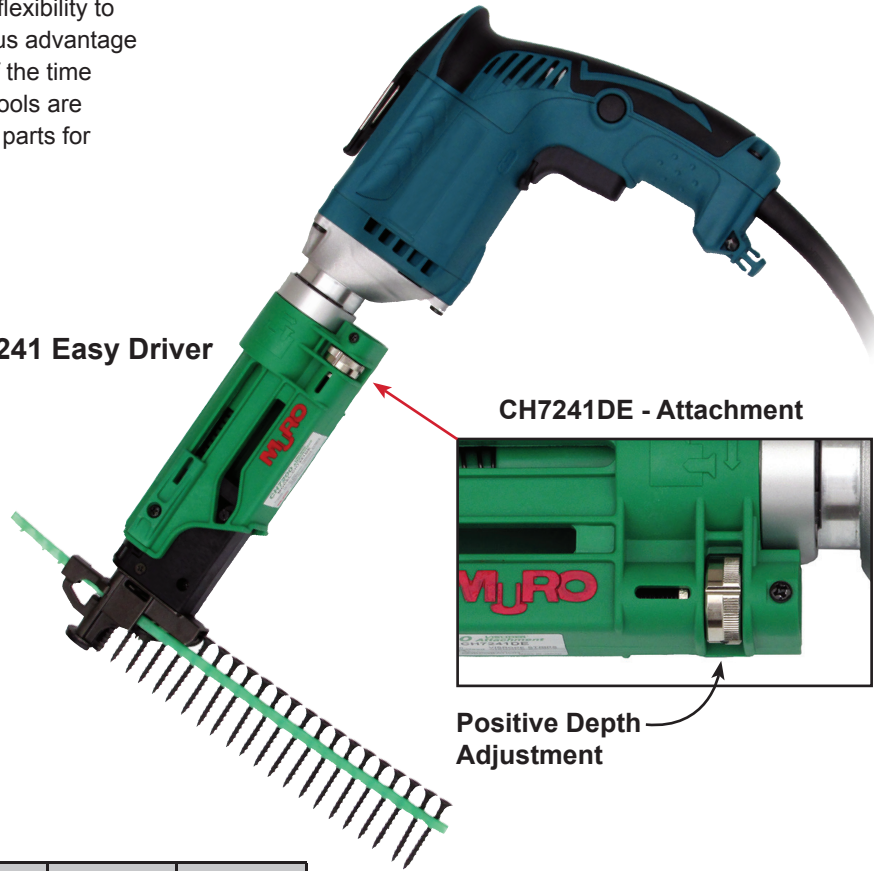
The Easy Driver family of tools provides you the flexibility to handle a variety of jobs and delivers a tremendous advantage in labor savings - get the job done in a fraction of the time compared to more traditional manual methods. Tools are made of durable reinforced nylon and cast metal parts for years of trouble free driving.

- Drives screws 3/4" to 1-5/8" in length.
- Adjustable depth control for consistent countersinking.
- Double ended bits - easily changes without tools.
- Rubber tipped nose to protect the work surface.

CH7241 Easy Driver

**CH7241DEMK40
Tool Kit Includes:**

- CH7241 Easy Driver
- Adapter Kit
- Screw pouch
- Makita motor



CH7241DE - Attachment



Positive Depth Adjustment

Tool Kits

USP Stock No.	Ref. No.	Tool Kit Description	Application	Screw Range
CH7241DEMK40	--	Makita FS4200 – 4000 rpm Drywall Tool	Drywall to Wood or Metal	3/4" - 1-5/8"

Driver Bits

USP Stock No.	Ref. No.	Description
SQR25118	--	#2 Square Drive (5-1/8" long) Double-Ended Bit
PHL25118	--	#2 Phillips Drive (5-1/8" long) Double-Ended Bit

Adaptors

USP Stock No.	Ref. No.	Description
170-70040 ¹	--	Dewalt Adapter Kit Models 255 / 274 / 276
170-70130 ¹	--	Makita Adapter Kit Models FS2200 / 4200
170-70010 ¹	--	Makita Adapter Kit Models 6823 / 6824 / 6825

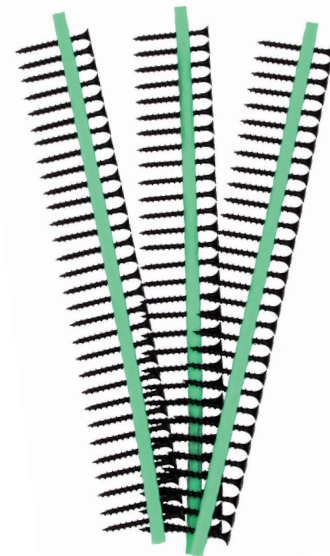
1. Adapter kit includes adapter, socket assembly, & mounting instructions.

Accessories

USP Stock No.	Ref. No.	Description
VISRH909	---	Telescopic Extension Handle



VISRH909 Telescopic Extension Handle



30 screws per easy load strip, no more dropped screws.

Collated Screws

USP Stock No.	Ref. No.	Description	Size		Drive	Thread	Coating
			Dia	Length			
Drywall Screws (30 screws/strip)							
AH6114PMS	DWF114PS	Bugle Head	# 6	1-1/4"	#2	Fine	Black Phosphate
AH6158PMS	DWF158PS		# 6	1-5/8"			
BH6114PMS	DWC114PS		# 6	1-1/4"	Phillips	Coarse	
BH6158PMS	DWC158PS		# 6	1-5/8"			

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The USP Deck Designer 2.0™

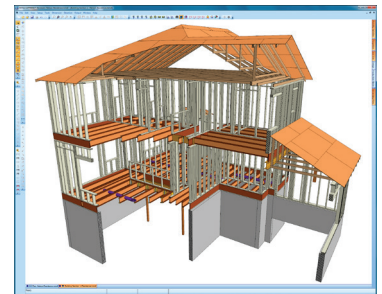
Online anytime. The easy yet comprehensive deck design tool helps you design the perfect deck, generate 3D views, specifications, materials list and building permit applications. You can find the link on our homepage at www.USPconnectors.com.

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MADE IN THE USA

A stylized map of the United States is overlaid on the background. The map is filled with the colors of the American flag (blue, white, and red). Three locations are marked with the USP logo and text: Livermore, CA in the western part of the map; Montgomery, MN in the central part; and Largo, FL in the southern part. The background of the entire advertisement is a grayscale image of a construction site with workers and structural steel beams.

MONTGOMERY, MN

LIVERMORE, CA

LARGO, FL

USP Structural Connectors is a metal fabricating manufacturer serving the residential and commercial building industries throughout the United States. USP's product line encompasses over 4,000 finished part numbers: standard construction hardware for the light construction and retail/do-it-yourself markets, and a complete line of connectors for the engineered lumber and plated truss industries. This full-range product line is supported by an in-house engineering staff, technical assistance team and customer service.

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www.USPconnectors.com