PRODUCT SUBMITTAL

STAINLESS STEEL

JOB NAME:	
CONTRACTOR:	DATE:
NOTES:	

ALTENLOH, BRINCK & CO. US, INC. 2105 County Road 12C • Bryan, OH 43506 • 419-630-2490 • info@spax.us • www.spax.us

304 STAINLESS STEEL FASTENERS

SPAX® 304 series stainless steel screws offer premium corrosion resistance and long-term aesthetics in wood deck/railing, fencing and other exterior wood applications. When premium corrosion resistance is desired, SPAX 304 Series is the best exterior screw option.

FEATURES:

- IRC/IBC Code Compliant
- Patented thread serrations reduce driving torque to prolong power tool battery life
- Unique *4CUT*™ Point prevents splitting and requires no pre-drilling in wood

SCREW HEAD OPTIONS:

- T-STAR *plus* flat head style
- T-STAR *plus* trim head style

COATING OPTIONS:

- Stainless steel for exterior applications

CODE / TECHNICAL REPORTS:

- IRC/IBC Code Compliant DrJ TER No. 2010-02 Properties Report

INSTALLATION NOTES:

- Use in wood-to-wood connections and not recommended for use in contact with any dissimilar metals

ORIGINS:

- Manufactured in Germany

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MATERIALS & COATINGS:

STAINLESS STEEL:

Cold-rolled 304 stainless steel wire, with a passivated surface to provide corrosion protection. “Stainless steel” is code compliant for use in ground contact pressure treated and fire-retardant-treated[1] lumber for exterior, coastal general construction applications (e.g. AWPA UC1-UC4B, UCFA and UCFB).

USE CATEGORY	BRIEF DESCRIPTION
UC1	Interior Dry
UC2	Interior Damp
UC3A	Exterior Above Ground, Coated with Rapid Water Runoff
UC3B	Exterior Above Ground, Uncoated or Poor Water Runoff
UC4A	Ground Contact, General Use
UC4B	Ground Contact, Heavy Duty
UC4C	Ground Contact, Extreme Duty
UC5A	Marine Use, Northern Waters (Salt or Brackish Water)
UC5B	Marine Use, Central Waters (Salt or Brackish Water)
UC5C	Marine Use, Southern Waters (Salt or Brackish Water)
UCFA	Interior Above Ground Fire Protection
UCFB	Exterior Above Ground Fire Protection

Information referenced from the AWPA site: https://awpa.com/info/technical/codes

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PRODUCT SUBMITTAL

STAINLESS STEEL

CHECK ALL THAT APPLY FOR SUBMITTAL

HEAD TYPE:

- ○ Flat Head
- ○ Trim Head

SIZE:

- ○ #8
- ○ #9
- ○ #10

COATING TYPE:

- ○ 304 Stainless Steel (Exterior)

LENGTH:

- ○ 1-1/2"
- ○ 1-5/8"
- ○ 2"
- ○ 2-1/2"
- ○ 3"
- ○ 3-1/2"

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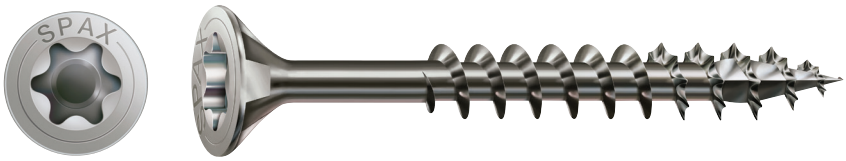
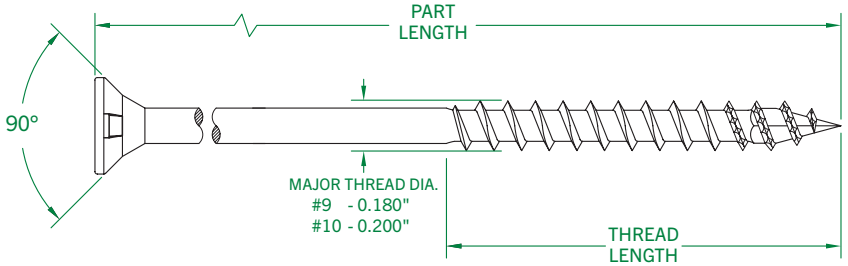
PRODUCT SUBMITTAL

T-STAR *plus* FLAT HEAD STAINLESS STEEL



T-STAR *plus* FLAT HEAD STAINLESS STEEL

SPAX® T-STAR *plus* Flat Head fasteners made of 304 stainless steel are designed for use in exterior wood connections often found outside residential domains. These "work horse" construction fasteners are designed to countersink in treated lumber for a clean-flush finish. 304 stainless steel fasteners are well suited for cedar and redwood decking materials and use in coastal environments. Cold-rolled 304 stainless steel wire, with a passivated surface to provide corrosion protection. "Stainless steel" is code compliant for use in ground contact pressure treated and fire-retardant-treated[1] lumber for exterior, coastal general construction applications (e.g. AWPA UC1-UC4B, UCFA and UCFB).



PRODUCT SELECTION

PART LENGTH	THREAD LENGTH		HEAD SIZE	DRIVE/BIT SIZE	APPROX. QTY.	PKG. TYPE	MASTER QTY.	PART NO.
	FULL	PARTIAL						
#9 x 1-1/2"	N/A	1.000"	0.340"	T20+	155	1 lb. Box	5	4197000450404
					2000	Bulk Pail	N/A	3197000450400
#9 x 2"	N/A	1.280"	0.340"	T20+	125	1 lb. Box	5	4197000450504
					1500	Bulk Pail	N/A	3197000450500
#10 x 2-1/2"	2.275"	1.450"	0.390"	T20+	83	1 lb. Box	5	4197000500604
					1500	Bulk Pail	N/A	3197000500600
#10 x 3"	2.375"	1.600"	0.390"	T20+	68	1 lb. Box	5	4197000500754
					205	3 lb. Box	3	41970005007545
					340	5 lb. Box	3	4197000500757
					1500	Bulk Pail	N/A	3197000500750

NOTE: Only sold in master cartons.

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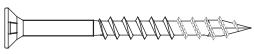
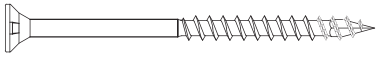
PRODUCT SUBMITTAL

T-STAR *plus* FLAT HEAD STAINLESS STEEL

FASTENER LENGTHS

Not actual size.

PART LENGTH	HEAD	FASTENER	PART LENGTH	HEAD	FASTENER
#9 x 1-1/2"			#10 x 2-1/2"		
#9 x 2"			#10 x 3"		

PERFORMANCE SPECIFICATIONS

DrJ TER No. 2010-02
Construction Screw Properties

DIAMETER	ALLOWABLE WITHDRAWAL (W) AND HEAD PULL-THROUGH (W_H)[1,2,3,4]					
	SOUTHERN PINE (SG=0.55)		DOUGLAS-FIR (SG=0.50)		HEM FIR & SPRUCE-PINE-FIR (SG=0.42)	
	WITHDRAWAL W (lbs./inch)	HEAD PULL-THROUGH W_H (lbs.)	WITHDRAWAL W (lbs./inch)	HEAD PULL-THROUGH W_H (lbs.)	WITHDRAWAL W (lbs./inch)	HEAD PULL-THROUGH W_H (lbs.)
#9	190	168	146	143	132	118
#10	190	168	176	143	144	118

DIAMETER	ALLOWABLE WITHDRAWAL (W) AND HEAD PULL-THROUGH (W_H)[1,2]											
	PLYWOOD 15/32" (0.39)		PLYWOOD 19/32" (0.39)		PLYWOOD 23/32" (0.50)		OSB 15/32" (0.50)		OSB 19/32" (0.50)		OSB 23/32" (0.50)	
	WITHDRAWAL W (lbs./inch)	HEAD PULL-THROUGH W_H (lbs.)	WITHDRAWAL W (lbs./inch)	HEAD PULL-THROUGH W_H (lbs.)	WITHDRAWAL W (lbs./inch)	HEAD PULL-THROUGH W_H (lbs.)	WITHDRAWAL W (lbs./inch)	HEAD PULL-THROUGH W_H (lbs.)	WITHDRAWAL W (lbs./inch)	HEAD PULL-THROUGH W_H (lbs.)	WITHDRAWAL W (lbs./inch)	HEAD PULL-THROUGH W_H (lbs.)
#9	51	78	92	130	186	145	54	77	54	91	66	103
#10	90	78	92	130	186	145	54	77	54	91	66	103

1. Tabulated withdrawal and head pull-through design values (W) and (W_H) are shown at a C_D = 1.0. Tabulated withdrawal and head pull-through values shall be adjusted by all applicable adjustment factors per *NDS Table 11.3.1*.
2. Full withdrawal strength is calculated by multiplying the length of thread embedded in the main member by the tabulated reference withdrawal values.
3. Head pull-through values for #8 diameter and larger in Southern Pine, Douglas-Fir, Hem-Fir and Spruce-Pine-Fir are minimum 1.5" side member thickness.
4. For wood species with an assigned specific gravity between 0.42 and 0.50, use the tabulated values for specific gravity of 0.42. For wood species with an assigned specific gravity between 0.50 and 0.55, use the tabulated values for specific gravity of 0.50. For wood species with an assigned specific gravity greater than or equal to 0.55, use the tabulated values for specific gravity of 0.55.

DIAMETER	BENDING YIELD STRENGTH[1] , f_{yb} (psi)	ALLOWABLE STEEL STRENGTH (lbs)	
		TENSILE	SHEAR[2]
#9	129,000	395	380
#10	126,000	480	440

1. Bending yield strength, f_{yb}, is determined in accordance with *ASTM F1575* using minor thread diameter when fastener is tested in thread section.
2. Shear strength is determined in accordance with *AISI S904* using minor thread diameter when fastener is tested in threaded section.

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DIAMETER	REFERENCE LATERAL SHEAR VALUE[4,5,6], Z (lbf)				
	MINIMUM MAIN MEMBER PENETRATION[1] (in)	MINIMUM SIDE MEMBER THICKNESS (in)	WOOD SPECIES (SPECIFIC GRAVITY[2,3])		
			SP (0.55)	DF-L (0.50)	SPF/HF (0.42)
#9 x 1-1/2"	3/4"	3/4"	49	67	78
#9 x 2"	1-1/4"	3/4"	62	79	91
#10 x 2-1/2"	1"	1-1/2"	72	92	106
#10 x 3"	1-1/2"	1-1/2"	84	99	108

SI: 1 in = 25.4 mm, 1 lbf = 4.45 N
1. Penetration depth includes the length of tapered tip.
2. The species applies to both the main and the side members. Where the Members are different specific gravities, use the lower of the two.
3. For wood species with an assigned specific gravity between 0.42 and 0.50, use the tabulated values for specific gravity of 0.42. For wood species with an assigned specific gravity between 0.50 and 0.55, use the tabulated values for specific gravity of 0.50. For wood species with an assigned specific gravity greater than or equal to 0.55, use the tabulated values for specific gravity of 0.55.
4. The fastener orientation shall be perpendicular to the grain, and the underside of the fastener head shall be installed flush with the surface of the side member.
5. Lateral design values apply to both perpendicular grain ($Z_{\perp}$) and parallel to grain ($Z_{\parallel}$) orientations.
6. Tabulated lateral design values shall be adjusted by all applicable adjustment factors per *NDS 11.3.1.*

DIAMETER	REFERENCE LATERAL SHEAR VALUE, Z (lbf)			
	MINIMUM MAIN MEMBER PENETRATION[1] (in)	MINIMUM SIDE MEMBER THICKNESS (in)	REFERENCE LATERAL SHEAR VALUE[1,3,4], Z (lbf)	
			OSB[5] (0.50)	PLYWOOD[5] (0.39)
#9 x 1-1/2"	1-1/16"	7/16"	57	-
#9 x 1-1/2"	1-1/32"	15/32"	57	50
#9 x 1-1/2"	29/32"	19/32"	56	46
#9 x 1-1/2"	25/32"	23/32"	59	45
#9 x 2"	1-9/16"	7/16"	59	-
#9 x 2"	1-17/32"	15/32"	60	51
#9 x2 "	1-13/32"	19/32"	66	53
#9 x 2"	1-9/32"	23/32"	72	57
#10 x 2-1/2"	2-1/16"	7/16"	68	-
#10 x 2-1/2"	2-1/32"	15/32"	69	59
#10 x 2-1/2"	1-29/32"	19/32"	74	61
#10 x 2-1/2"	1-25/32"	23/32"	81	64
#10 x 3"	2-1/16"	7/16"	68	-
#10 x 3"	2-1/32"	15/32"	69	59
#10 x 3"	1-29/32"	19/32"	74	61
#10 x 3"	1-25/32"	23/32"	81	64

SI: 1 in = 25.4 mm, 1 lbf = 4.45 N
1. Reference lateral design values apply to two-member single shear connections where the side member is OSB or plywood, the main member is SPF (SG = 0.42), and the fastener is installed in the face of the member and oriented perpendicular to the grain. The underside of the fastener head shall be installed flush with the surface of the side member.
2. Penetration depth includes the length of the tapered tip.
3. Lateral design values apply to both perpendicular to grain ($Z_{\perp}$) and parallel to grain ($Z_{\parallel}$) orientations.
4. Tabulated lateral design values shall be adjusted by all appplicable adjustment factors per *NDS Table 11.3.1.*
5. OSB shall comply with *DOC PS 2* and have a minimum specific gravity of 0.50. Plywood shall comply with *DOC PS 1* and have a minimum specific gravity of 0.39.

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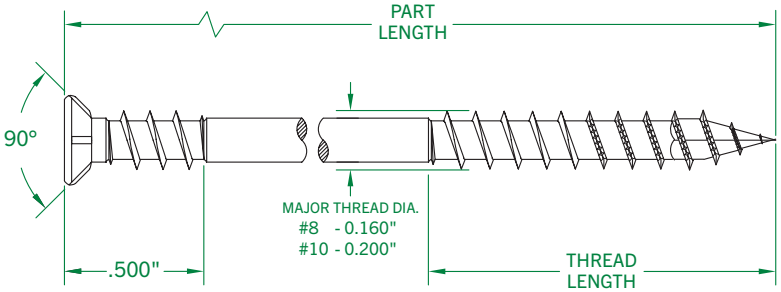
PRODUCT SUBMITTAL

T-STAR *plus* TRIM HEAD POWERDECK® STAINLESS STEEL

T-STAR *plus* TRIM HEAD POWERDECK® STAINLESS STEEL

SPAX® T-STAR *plus* Trim Head fasteners made of 304 stainless steel are designed for use in exterior wood connections often found outside residential domains. These "work horse" construction fasteners are designed to countersink in treated lumber for a clean-flush finish. 304 stainless steel fasteners are well suited for cedar and redwood decking materials and use in coastal environments. Cold-rolled 304 stainless steel wire, with a passivated surface to provide corrosion protection. "Stainless steel" is code compliant for use in ground contact pressure treated and fire-retardant-treated[1] lumber for exterior, coastal general construction applications (e.g. AWPA UC1-UC4B, UCFA and UCFB).



PRODUCT SELECTION

PART LENGTH	THREAD LENGTH		HEAD SIZE	DRIVE/BIT SIZE	APPROX. QTY.	PKG. TYPE	MASTER QTY.	PART NO.
	FULL	PARTIAL						
#8 x 1-5/8"	N/A	0.700"	0.305"	T20+	170	1 lb. Box	5	45704015401004
					2000	Bulk Pail	N/A	35704015401000
#10 x 2-1/2"	N/A	1.260"	0.310"	T20+	83	1 lb. Box	5	45705008401004
					250	3 lb. Box	3	45705008401045
					415	5 lb. Box	3	45705008401007
					1500	Bulk Pail	N/A	35705008401000
#10 x 3"	N/A	1.540"	0.310"	T20+	66	1 lb. Box	5	45705008402004
					200	3 lb. Box	3	45705008402045
					330	5 lb. Box	3	45705008402007
					1500	Bulk Pail	N/A	35705008402000
#10 x 3-1/2"	N/A	1.610"	0.310"	T20+	57	1 lb. Box	5	45705008403004
					175	3 lb. Box	3	45705008403045
					285	5 lb. Box	3	45705008403007
					1500	Bulk Pail	N/A	35705008403000

NOTE: Only sold in master cartons.

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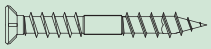
PRODUCT SUBMITTAL

T-STAR *plus* TRIM HEAD POWERDECK® STAINLESS STEEL

FASTENER LENGTHS

Not actual size.

PART LENGTH	HEAD	FASTENER	PART LENGTH	HEAD	FASTENER
#8 x 1-5/8"			#10 x 3"		
#10 x 2-1/2"			#10 x 3-1/2"		

PERFORMANCE SPECIFICATIONS

TER No. 2010-02
Construction Screw Properties

DIAMETER	ALLOWABLE WITHDRAWAL (W) AND HEAD PULL-THROUGH (W_H)[1,2,3,4]					
	SOUTHERN PINE (SG=0.55)		DOUGLAS-FIR (SG=0.50)		HEM FIR & SPRUCE-PINE-FIR (SG=0.42)	
	WITHDRAWAL W (lbs./inch)	HEAD PULL-THROUGH W_H (lbs.)	WITHDRAWAL W (lbs./inch)	HEAD PULL-THROUGH W_H (lbs.)	WITHDRAWAL W (lbs./inch)	HEAD PULL-THROUGH W_H (lbs.)
#8	106	168	114	143	124	118
#10	144	231	176	165	190	153

DIAMETER	ALLOWABLE WITHDRAWAL (W) AND HEAD PULL-THROUGH (W_H)[1,2]											
	PLYWOOD 15/32" (0.39)		PLYWOOD 19/32" (0.39)		PLYWOOD 23/32" (0.50)		OSB 15/32" (0.50)		OSB 19/32" (0.50)		OSB 23/32" (0.50)	
	WITHDRAWAL W (lbs./inch)	HEAD PULL-THROUGH W_H (lbs.)	WITHDRAWAL W (lbs./inch)	HEAD PULL-THROUGH W_H (lbs.)	WITHDRAWAL W (lbs./inch)	HEAD PULL-THROUGH W_H (lbs.)	WITHDRAWAL W (lbs./inch)	HEAD PULL-THROUGH W_H (lbs.)	WITHDRAWAL W (lbs./inch)	HEAD PULL-THROUGH W_H (lbs.)	WITHDRAWAL W (lbs./inch)	HEAD PULL-THROUGH W_H (lbs.)
#8	68	78	75	130	179	145	37	77	41	91	64	103
#10	90	78	92	126	186	145	54	68	54	81	66	88

1. Tabulated withdrawal and head pull-through design values (W) and (W_H) are shown at a C_D = 1.0. Tabulated withdrawal and head pull-through values shall be adjusted by all applicable adjustment factors per *NDS Table 11.3.1*.
2. Full withdrawal strength is calculated by multiplying the length of thread embedded in the main member by the tabulated reference withdrawal values.
3. Head pull-through values for #8 diameter and larger in Southern Pine, Douglas-Fir, Hem-Fir and Spruce-Pine-Fir are minimum 1.5" side member thickness.
4. For wood species with an assigned specific gravity between 0.42 and 0.50, use the tabulated values for specific gravity of 0.42. For wood species with an assigned specific gravity between 0.50 and 0.55, use the tabulated values for specific gravity of 0.50. For wood species with an assigned specific gravity greater than or equal to 0.55, use the tabulated values for specific gravity of 0.55.

DIAMETER	BENDING YIELD STRENGTH[1] , f_{yb} (psi)	ALLOWABLE STEEL STRENGTH (lbs)	
		TENSILE	SHEAR[2]
#8	110,000	355	340
#10	129,000	485	455

1. Bending yield strength, f_{yb}, is determined in accordance with *ASTM F1575* using minor thread diameter when fastener is tested in thread section.
2. Shear strength is determined in accordance with *AISI S904* using minor thread diameter when fastener is tested in threaded section.

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PRODUCT SUBMITTAL

T-STAR *plus* TRIM HEAD POWERDECK® STAINLESS STEEL

DIAMETER	REFERENCE LATERAL SHEAR VALUE[4,5,6], Z (lbf)				
	MINIMUM MAIN MEMBER PENETRATION[1] (in)	MINIMUM SIDE MEMBER THICKNESS (in)	WOOD SPECIES (SPECIFIC GRAVITY[2,3])		
			SP (0.55)	DF-L (0.50)	SPF/HF (0.42)
#8 x 1-5/8"	7/8"	3/4"	49	65	71
#10 x 2-1/2"	1"	1-1/2"	82	103	118
#10 x 3"	1-1/2"	1-1/2"	100	117	128
#10 x 3-1/2"	1-1/2"	1-1/2"	100	117	128

SI: 1 in = 25.4 mm, 1 lbf = 4.45 N

1. Penetration depth includes the length of tapered tip.
2. The species applies to both the main and the side members. Where the Members are different specific gravities, use the lower of the two.
3. For wood species with an assigned specific gravity between 0.42 and 0.50, use the tabulated values for specific gravity of 0.42. For wood species with an assigned specific gravity between 0.50 and 0.55, use the tabulated values for specific gravity of 0.50. For wood species with an assigned specific gravity greater than or equal to 0.55, use the tabulated values for specific gravity of 0.55.
4. The fastener orientation shall be perpendicular to the grain, and the underside of the fastener head shall be installed flush with the surface of the side member.
5. Lateral design values apply to both perpendicular grain ($Z_{\perp}$) and parallel to grain ($Z_{\parallel}$) orientations.
6. Tabulated lateral design values shall be adjusted by all applicable adjustment factors per *NDS 11.3.1.*

DIAMETER	REFERENCE LATERAL SHEAR VALUE, Z (lbf)			
	MINIMUM MAIN MEMBER PENETRATION[1] (in)	MINIMUM SIDE MEMBER THICKNESS (in)	REFERENCE LATERAL SHEAR VALUE[1,3,4], Z (lbf)	
			OSB[5] (0.50)	PLYWOOD[5] (0.39)
#8 x 1-5/8"	1-3/16"	7/16"	48	-
#8 x 1-5/8"	1-5/32"	15/32"	49	40
#8 x 1-5/8"	1-1/32"	19/32"	55	43
#8 x 1-5/8"	29/32"	23/32"	55	46
#10 x 2-1/2"	2-1/16"	7/16"	79	-
#10 x 2-1/2"	2-1/32"	15/32"	80	69
#10 x 2-1/2"	1-29/32"	19/32"	85	71
#10 x 2-1/2"	1-25/32"	23/32"	92	74
#10 x 3"	2-1/16"	7/16"	79	-
#10 x 3"	2-1/32"	15/32"	80	69
#10 x 3"	1-29/32"	19/32"	85	71
#10 x 3"	1-25/32"	23/32"	92	74
#10 x 3-1/2"	2-1/16"	7/16"	79	-
#10 x 3-1/2"	2-1/32"	15/32"	80	69
#10 x 3-1/2"	1-29/32"	19/32"	85	71
#10 x 3-1/2"	1-25/32"	23/32"	92	74

SI: 1 in = 25.4 mm, 1 lbf = 4.45 N

1. Reference lateral design values apply to two-member single shear connections where the side member is OSB or plywood, the main member is SPF (SG = 0.42), and the fastener is installed in the face of the member and oriented perpendicular to the grain. The underside of the fastener head shall be installed flush with the surface of the side member.
2. Penetration depth includes the length of the tapered tip.
3. Lateral design values apply to both perpendicular to grain ($Z_{\perp}$) and parallel to grain ($Z_{\parallel}$) orientations.
4. Tabulated lateral design values shall be adjusted by all appplicable adjustment factors per *NDS Table 11.3.1.*
5. OSB shall comply with *DOC PS 2* and have a minimum specific gravity of 0.50. Plywood shall comply with *DOC PS 1* and have a minimum specific gravity of 0.39.

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