

Structural and General Fastening

Dimensions and Mechanical Properties of Strong-Drive® and Deck-Drive™ Screws for Wood and Engineered Wood

Model No.	Dimensions ^a (in.)						Strengths		
	Length	Thread Length	D	D _r	D _s	D _h	Bend Yield, F _{yb} (ksi)	Tension (lb.)	Shear (lb.)
DSV212/CSV212	2.5	1.5	0.183	0.126	0.135	0.333	170	—	—
DSV3/CSV3	3	1.5							
DSV312	3.5	2							
DSV4	4	2.5							
T12300WP	3	2.2	0.224 ^b	0.152	0.167	0.440	80°	605	—
T12350WP	3.5	2.5							
T12400WP	4	2.8							
T12450WP	4.5	3.2							
T12500WP	5	3.5							
T12600WP	6	4							
T14300WP	3	2.1	0.25 ^b	0.173	0.187	0.460	80°	775	—
T14350WP	3.5	2.3							
T14400WP	4	2.8							
T14500WP	5	3.5							
T14600WP	6	4.2							
ER-262									
SDWC15450	4.5	4.25	0.235	0.152	—	0.327	195	1,160	815
SDWC15600	6	5.75							
SWD18212DBB	2.5	1.125	0.256	0.157	0.180	0.315	180	965	680
SWD18312DBB	3.5	1.625							
SWD18614DBB	6.25	2.5							
SWD22812DBB	8.5	3.75	0.307	0.213	0.235	0.394	180	1,840	1,240
SWD221034DBB	10.75	4.25							

See footnotes on p. 34.

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	Length	Thread Length	D	D _r	D _s	D _h	Bend Yield, F _{yb} (ksi)	Tension (lb.)	Shear (lb.)
ER-192									
SDW22300	2.94	1.438	0.315	0.203	0.221	0.750	180	1,550	1,125
SDW22338	3.34	1.563							
SDW22438	4.375	1.438							
SDW22458	4.585	1.438							
SDW22500	5.04	1.563							
SDW22600	5.94	1.438							
SDW22638	6.315	1.438							
SDW22634	6.74	1.563							
SDWS22300DB	3	1.5	0.315	0.203	0.221	0.750	160	1,505	910
SDWS22300DBB	3	1.5							
SDWS22312DBB	3.5	2							
SDWS22400DB	4	2.375							
SDWS22400DBB	4	2.375							
SDWS22500DB	5	3							
SDWS22500DBB	5	3							
SDWS22512DBB	5.5	3							

See footnotes on p. 34.

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Model No.	Dimensions ^a (in.)						Strengths		
	Length	Thread Length	D	D _r	D _s	D _h	Bend Yield, F _{yb} (ksi)	Tension (lb.)	Shear (lb.)
ER-192 (cont.)									
SDWS22600DB	6	3	0.315	0.203	0.221	0.75	175	1,575	1,055
SDWS22600DBB	6	3							
SDWS22800DB	8	3							
SDWS22800DBB	8	3							
SDWS221000DB	10	3							
SDWS221000DBB	10	3							
SDWH19300DB	3	1.5	0.275	0.182	0.199	0.64	165	1,210	770
SDWH19400DB	4	2.375							
SDWH19600DB	6	2.77					175	1,245	780
SDWH19800DB	8	2.77							
SDWH191000DB	10	2.77							
SDWS22400	4	2.375	0.315	0.203	0.221	0.75	160	1,505	910
SDWS22500	5	3							
SDWS22512	5.5	3							
SDWS22600	6	3	0.315	0.203	0.221	0.75	175	1,575	1,055
SDWS22800	8	3							
SDWS22900	9	3							
SDWS221000	10	3							
SDWS221100	11	3							
SDWS221200	12	3							
SDWS221500	15	3							

See footnotes on p. 34.

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Dimensions and Mechanical Properties of Strong-Drive® and Deck-Drive™ Screws for Wood and Engineered Wood (cont.)

Model No.	Dimensions ^a (in.)						Strengths		
	Length	Thread Length	D	D _r	D _s	D _h	Bend Yield, F _{yb} (ksi)	Tension (lb.)	Shear (lb.)
ER-192 (cont.)									
SDWS19600	6	3	0.275	0.182	0.199	0.640	175	1,245	780
SDWS19712	7.5	3							
SDWH27400G	4	3	0.398	0.245	0.276	0.910	146	2,050	1,465
SDWH27600G	6	3							
SDWH27800G	8	3							
SDWH271000G	10	3							
SDWH271200G	12	3							
SDWH271500G	15	3							
SDWS14350	3.5	2	0.204	0.124	0.142	0.550	200	690	475
SDWS14500	5	2							
SDWS16212	2.4	1.125	0.216	0.145	0.159	0.435	175	920	570
SDWS16300	2.9	1.625							
SDWS16312	3.5	2.0							
SDWS16400	4.0	2.5							
SDWS25200DBB	2	1.25	0.256	0.188	0.239	0.750	200	1,665	1,055

See footnotes on p. 34.

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Model No.	Dimensions ^a (in.)						Strengths			
	Length	Thread Length	D	D _r	D _s	D _h	Bend Yield, F _{yb} (ksi)	Tension (lb.)	Shear (lb.)	
ESR-3046										
SDHR27400	3.94	2.17	0.394	0.242	0.28	0.587	190	2,500	1,680	
SDHR27614	6.3	4.33								
SDHR31400	3.94	2.17	0.472	0.264	0.319	0.665	200	3,075	2,150	
SDHR31614	6.3	4.33								
SDCP22318	3.15	1.97	0.309	0.208	0.228	0.577	185	2,045	1,335	
SDCP22434	4.72	3.15								
SDCP22512	5.51									
SDCP22614	6.3									
SDCP22700	7.09									
SDCP22858	8.66									
SDCP22912	9.45									
SDCP221100	11.02									
SDCP221134	11.81									
SDCP27400	3.94									1.97
SDCP27614	6.3		3.15							
SDCP27778	7.87									
SDCP27912	9.45									
SDCP271100	11.02									
SDCP271212	12.6									
SDCP271400	14.17									
SDCF22434	4.72	4.29		0.315	0.205	—	0.591	180	2,000	1,400
SDCF22512	5.51	5.08								
SDCF22614	6.3	5.87								
SDCF22700	7.09	6.65								
SDCF22858	8.66	8.23								
SDCF221014	10.24	9.8								
SDCF221134	11.81	11.38								
SDCF221334	13.78	13.35								

See footnotes on p. 34.

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Dimensions and Mechanical Properties of Strong-Drive® and Deck-Drive™ Screws for Wood and Engineered Wood (cont.)

Model No.	Dimensions ^a (in.)						Strengths		
	Length	Thread Length	D	D _r	D _s	D _h	Bend Yield, F _{yb} (ksi)	Tension (lb.)	Shear (lb.)
ESR-3046 (cont.)									
SDCF27400	3.94	3.66	0.394	0.24	—	0.728	200	3,200	2,300
SDCF27614	6.3	6.02							
SDCF27778	7.87	7.6							
SDCF27912	9.45	9.17							
SDCF271100	11.02	10.75							
SDCF271958	19.69	19.41							
SDCF272358	23.62	23.35							
SDCFC271958	19.69	18.38	0.394	0.245	—	0.528	200	3,200	2,300
SDCFC272358	23.62	22.32							
SDCFC273112	31.5	30.19							
SDCFC273938	39.37	38.07							
SD9112	1.5	1	0.177	0.113	0.132	0.378	188	510	425
SD9212	2.5	1							
SD9112SS	1.5	1	0.169	0.121	0.139	0.378	155 ^c	530	440
SD9212SS	2.5	1							
SD10112/SD10112DBB	1.5	1	0.2	0.126	0.161	0.378	188	555	445
SD10212	2.5	1							
SDWF2716	16	5	0.323	0.245	0.274	0.75	—	2,685	—
SDWF2720	20								
SDWF2724	24								
SDWF2726	26								
SDWF2730	30								

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Dimensions and Mechanical Properties of Strong-Drive® and Deck-Drive™ Screws for Wood and Engineered Wood (cont.)

Model No.	Dimensions ^a (in.)						Strengths		
	Length	Thread Length	D	D _r	D _s	D _h	Bend Yield, F _{yb} (ksi)	Tension (lb.)	Shear (lb.)
ESR-2236									
SDS25112	1.5	1	0.256	0.188	0.239	0.503	172	1,430	800
SDS25134	1.75	1.25							
SDS25200	2	1.25							
SDS25212	2.5	1.5							
SDS25300	3	2							
SDS25312	3.5	2.25							
SDS25412	4.5	2.75							
SDS25500	5	2.75							
SDS25600	6	3.25							
SDS25800	8	3.25							
SDS25112SS	1.5	1	0.256	0.188	0.239	0.503	164 ^c	1,430	800
SDS25200SS	2	1.25							
SDS25212SS	2.5	1.5							
SDS25300SS	3	2							
SDS25312SS	3.5	2.25							
ESR-1472									
WSV134	1.75	1.2	0.182	0.121	0.132	0.333	200	710	460
WSV200	2	1.45							
WSVF200	2	1.45							
WSV212	2.5	1.95							
WSVF212	2.5	1.95							
WSV300	3	2.17							
WSVF300	3	2.17							

a: Notation

D Major diameter

D_r Minor (root) diameterD_s Diameter of shankD_h Diameter of headF_{yb} Specified bending yield strength based on minor diameter and testing per ASTM F1575

Tension and Shear Tested per AISI S904, calculation is average divided by safety factor of 3.0

b: square thread Major diameter is diagonal across corners

c: F_{yb} Types 305 and 316

d: These values reflect information at the time of publication. For the most current dimensions and properties, see the published evaluation reports.

The dimensions and properties shown in this table are intended for circumstances where a high degree of precision is needed, such as engineering calculations.
In other published materials for product identification, commercial dimensions are used for clarity of communication.

Structural and General Fastening

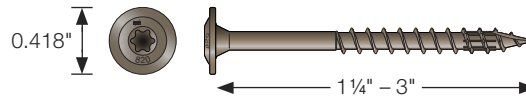
Wafer-Head Construction Screw

Cabinet Assembly and Installation; Multipurpose Wood-to-Wood

The Wafer-Head Construction screw is a versatile, multipurpose fastening solution for a variety of interior or exterior applications, such as cabinet installation and wood-to-wood applications where high pull-through capacity is required. With its low torque threads and fast-start point, the Wafer-Head Construction screw drives effortlessly and is ideally suited to drive into today's wood or engineered wood materials. Available in convenient quantities, Wafer-Head Construction screws are offered in select sizes for fastening a variety of projects.

US Patent: 9,523,383

For more information: see p. 84, C-F-2025 Fastening Systems catalog



Wafer-Head Construction Screw

Size x Length (in.)	Model No.	Thread Length (in.)	Reference Allowable Withdrawal Value, W (lb./in.)		Reference Allowable Pull-Through Value (lb.)	
			Side Member Thickness $\geq \frac{3}{4}$ in.			
			DFL/SP	SPF/HF	DFL/SP	SPF/HF
#8 x 1 1/4	CBT08114	0.80	108	62	194	147
#8 x 1 1/2	CBT08112	1.50				
#8 x 2	CBT08200	1.25				
#8 x 2 1/2	CBT08212	1.25				
#8 x 3	CBT08300	1.50				

1. Tabulated allowable values are shown at the wood load duration factor of $C_D = 1.0$. Loads may be increased for load duration up to $C_D = 1.6$.
2. Tabulated reference allowable withdrawal values, W, are in pounds per inch of the thread penetration into the side grain of the main member.
3. Tabulated reference allowable pull-through values are the allowable load for the fastener head pull-through for a minimum $\frac{3}{4}$ " thick side member.
4. Use the lower of the withdrawal or pull-through values to determine axial design value.
5. Screws must be installed normal to the side grain of the wood main member with the screw axis at a 90° angle to the wood fibers.

Structural and General Fastening

Finish Trim Screw

Multipurpose Screw for Trim, Cladding, Fascia and Other Wood-to-Wood Fastening

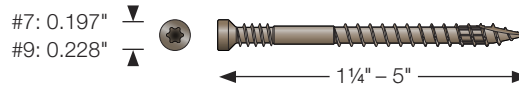
The Finish Trim screw is a versatile, multipurpose fastening solution for a variety of interior and exterior applications, such as the installation of trim, cladding and fascia. With its low-torque threads and fast-start point, the Finish Trim screw drives effortlessly and is ideally suited to be countersunk into sawn lumber or engineered wood materials. Its mini trim head provides minimal screw head visibility. Available in convenient quantities, Finish Trim screws are offered in select sizes for fastening a variety of projects.

Codes/Standards: N/A

US Patent: 9,523,383

For more information: see p. 85, C-F-2025 *Fastening Systems* catalog

For use in elevated or ocean/water front, it is recommended to use Type 316 stainless steel screws that are available. The values in the table below are applicable for both Quik Guard® coating (tan or white) and stainless steel screws.



Finish Trim Screw

Size x Length (in.)	Model No.	Thread Length (in.)	Reference Allowable Withdrawal Value, W (lb./in.)		Reference Allowable Pull-Through Value, (lb.)	
			DFL/SP	SPF/HF	Side Member Thickness $\geq \frac{3}{4}$ in.	
					DFL/SP	SPF/HF
#7 x 1 1/4	FT07114	0.75	115	87	63	25
#7 x 1 1/2	FT07112	1.00				
#7 x 2	FT07200	1.25				
#7 x 2 1/2	FT07212	1.50				
#7 x 3	FT07300	1.50				
#9 x 4	FT09400	2.00	185	137	78	45
#9 x 5	FT09500	2.00				

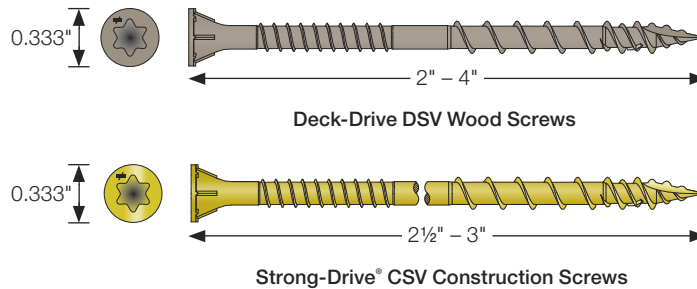
1. Tabulated allowable values are shown at the wood load duration factor of $C_D = 1.0$. Loads may be increased for load duration up to $C_D = 1.6$.
2. Tabulated reference allowable withdrawal values, W, are in pounds per inch of the thread penetration into the side grain of the main member.
3. Tabulated reference allowable pull-through values are the allowable load for the fastener head pull-through for a minimum $\frac{3}{4}$ " thick side member.
4. Use the lower of the withdrawal or pull-through values to determine axial design value.
5. Screws must be installed normal to the side grain of the wood main member with the screw axis at a 90° angle to the wood fibers.

Structural and General Fastening

Deck-Drive™ DSV WOOD and CSV CONSTRUCTION Screws

Multipurpose deck and other wood-to-wood or applications

Simpson Strong-Tie #10 Deck-Drive DSV Wood screws are designed for preservative-treated decking applications and can also be used for general framing and construction with wood and engineered wood products. Quik Guard® coating on the DSV screws provides corrosion resistance for exterior and certain preservative-treated wood applications. The CSV Construction screws have the same features and properties as the DSV screws and are intended to be used only in dry service, low-corrosion applications. The CSV screws have an electroplated yellow-zinc coating that provides corrosion resistance for interior applications. The DSV and CSV screws have a 6-lobe drive with flat head and do not require predrilling for softer woods. The screws have been tested and evaluated in accordance with ICC-ES Acceptance Criteria AC233 (*Acceptance Criteria for Dowel-type Threaded Fasteners Used in Wood*), and are load rated for shear, pull-through and withdrawal resistance. The tables below provide load information for the DSV and CSV screws.



Allowable Shear Loads

Size x Length (in.)	Model No.	Thread Length (in.)	SP Reference Allowable Shear Load (lb.)				DFL Reference Allowable Shear Load (lb.)				SPF/HF Reference Allowable Shear Load (lb.)			
			Side Member Thickness (in.)				Side Member Thickness (in.)				Side Member Thickness (in.)			
			1.5	2	2.5	3	1.5	2	2.5	3	1.5	2	2.5	3
#10 x 2½	DSV212 CSV212	1½	125	—	—	—	106	—	—	—	83	—	—	—
#10 x 3	DSV3 CSV3	1½	206	115	—	—	173	99	—	—	131	80	—	—
#10 x 3½	DSV312	2	206	206	115	—	173	173	99	—	131	131	80	—
#10 x 4	DSV4	2½	206	206	206	115	173	173	173	99	131	131	131	80

1. Allowable loads are based on full penetration into the main member. Full penetration is the screw length minus the side member thickness.
2. Allowable loads are shown at the wood load duration factor of $C_D = 1.0$. Loads may be increased for load duration per the building code up to a $C_D = 1.6$. Tabulated values must be multiplied by all applicable adjustment factors per the NDS. For in-service moisture content greater than 19%, use $C_M = 0.62$.
3. Loads are based on installation into the side grain of the wood with the screw axis perpendicular to the face of the member.
4. Loads are based on tests of connections made with same species as main and side members.
5. Engineered wood must have a minimum grade of modulus of elasticity value of 0.80E and a minimum equivalent specific gravity of at least 0.55 to use the SP values, 0.50 to use the DFL values, or 0.42 to use the SPF/HF values.

Structural and General Fastening

Deck-Drive™

DSV WOOD and CSV CONSTRUCTION Screws (cont.)

Allowable Withdrawal and Pull-Through Loads

Size x Length (in.)	Model No.	Thread Length (in.)	Reference Allowable Withdrawal, W (lb./in.)			Reference Maximum Withdrawal, W _{max} (lb.)			Reference Pull-Through (lb.)		
			SP	DFL	SPF/HF	SP	DFL	SPF/HF	SP	DFL	SPF/HF
#10 x 2	DSV2	1¼	132	121	94	165	150	115	213	174	154
#10 x 2½	DSV212 CSV212	1½				195	180	140			
#10 x 3	DSV3 CSV3	1½				195	180	140			
#10 x 3½	DSV312	2				260	240	190			
#10 x 4	DSV4	2½				330	300	235			

- The tabulated Reference Allowable Withdrawal design value, W, is in pounds per inch of the thread penetration into the side grain of the main member.
- The tabulated Reference Maximum Withdrawal design value, W_{max}, is in pounds where the entire end thread length is embedded into the side grain of the main member.
- Reference withdrawal design values, W and W_{max}, are shown at C_D = 1.0. Loads may be increased for load duration per the building code up to C_D = 1.6. Tabulated values must be multiplied by all applicable adjustment factors from the NDS. For in-service moisture content greater than 19%, use C_M = 0.70.
- Embedded thread length is that portion of the end threads in the main member including the screw tip.
- Reference Pull-Through values are based on pull-through of a 1½"-thick side member.
- Engineered wood must have a minimum grade of modulus of elasticity value of 1.55E and a minimum equivalent main member specific gravity of at least 0.55 to use the SP values, 0.50 to use the DFL values, or 0.42 to use the SPF/HF values.

Connection Geometry

Condition		Minimum Distance or Spacing (in.)	Reduction Factor	
Edge Distance	Perpendicular to grain loading	¾	0.91	
	Parallel to grain loading	½	1.00	
End Distance	Perpendicular to grain loading	4	0.91	
	Parallel to grain loading	4	1.00	
Spacing Between Fasteners in a Row	Perpendicular to grain loading	2	0.75	
	Parallel to grain loading	2	1.00	
Spacing Between Row	Perpendicular to grain loading	Non-staggered row	1	0.75
		Staggered rows	1	1.00
	Parallel to grain loading	Non-staggered row	1	0.88
		Staggered rows	1	1.00

- Edge distances, end distances, and spacing of the screws must be sufficient to prevent splitting of the wood, or as required by this table, or when applicable as recommended by the structural composite lumber manufacturer, whichever is the most restrictive.
- Allowable shear loads shall be multiplied by the applicable tabulated reduction factors when used in the corresponding geometry.

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Strong-Drive® SWD DOUBLE-THREADED™ Screw

Structural Wood and Engineered Wood Connections

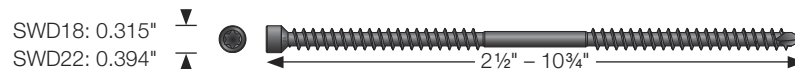
Code listed for structural applications, the SWD™ has a low-profile head and exterior-grade coating for corrosion resistance. Like other solutions from Simpson Strong-Tie, the SWD is widely available and backed by our expert service and support.

Designed for strength and speed, the Strong-Drive SWD Double-Threaded screw ideal for securing two wood members together on exterior, structural jobs. Fasten a variety of connections, such as: beam to post, beam to joist, knee bracing, guardrail to post, roof to wall, purlin to truss and pole barn configurations with ease.

Codes/Standards: IAPMO UES ER-262

For more information: see p. 65, C-F-2025 *Fastening Systems* catalog

Double-barrier coating provides corrosion resistance equivalent to hot-dip galvanization, making it suitable for certain exterior and preservative-treated wood applications, as described in the evaluation report.



Allowable Shear Loads

Model No.	Thread Length (in.)	DFL/SP Allowable Shear Loads (lb.)					SPF/HF Allowable Shear Loads (lb.)				
		Wood Side Member Thickness (in.)					Wood Side Member Thickness (in.)				
		3/4	1 1/2	3 1/2	5 1/2	7 1/2	3/4	1 1/2	3 1/2	5 1/2	7 1/2
SWD18212DBB	1 1/4	134	156	—	—	—	109	103	—	—	—
SWD18312DBB	1 5/8	134	220	—	—	—	109	159	—	—	—
SWD18614DBB	2 1/2	134	220	325	—	—	109	159	225	—	—
SWD22812DBB	3 3/4	163	220	325	450	—	112	155	225	290	—
SWD221034DBB	4 1/4	163	220	325	430	300	112	155	225	330	275

- Screws shall be installed straight into the side grain of the wood main member with the screw axis at a 90° angle to the wood fibers.
- Tabulated lateral design values are shown at a $C_D = 1.0$. Loads may be increased for load duration per the building code up to a $C_D = 1.6$. Tabulated values shall be multiplied by all applicable adjustment factors from the NDS as referenced in the IBC or IRC. For in-service moisture content greater than 19%, use $C_M = 0.70$ for DFL/SP and $C_M = 0.58$ for SPF/HF.
- Minimum main member thickness shall be equal to the screw length minus the side member thickness.

Structural and General Fastening

Strong-Drive® SWD DOUBLE-THREADED™ Screw (cont.)

Allowable Withdrawal Loads – HF/SPF/DFL/SP

Model No.	Fastener Length (in.)	Thread Length (in.)	Reference Withdrawal Design Value W (lb./in.)		Max. Reference Withdrawal Design Value W _{max} (lb.)	
			DFL/SP	SPF/HF	DFL/SP	SPF/HF
SWD18212DBB	2.50	1½	148	117	165	130
SWD18312DBB	3.50	1½	148	117	240	190
SWD18614DBB	6.25	2½	190	178	475	445
SWD22812DBB	8.50	3¾	194	194	695	695
SWD221034DBB	10.75	4¼	194	194	695	695

1. Tabulated reference withdrawal design values, W, is in pounds per inch of the thread penetration into the main member.
2. Tabulated reference withdrawal design values is in pounds where the entire thread length shall penetrate into the main member.
3. Tabulated max. reference withdrawal design values, W_{max} shown at a C_D = 1.0. Loads may be increased for load duration per the building code up to a C_D = 1.6. Tabulated values shall be multiplied by all applicable adjustment factors from the NDS as referenced in the IBC or IRC. For in-service moisture content greater than 19 percent use C_M = 0.70.
4. Screws shall be installed through the side member straight into the side grain of the wood main member with the screw axis at a 90° angle to the wood fibers.
5. End-grain factor of 0.65 shall be applied when installed into the end grain of the member.

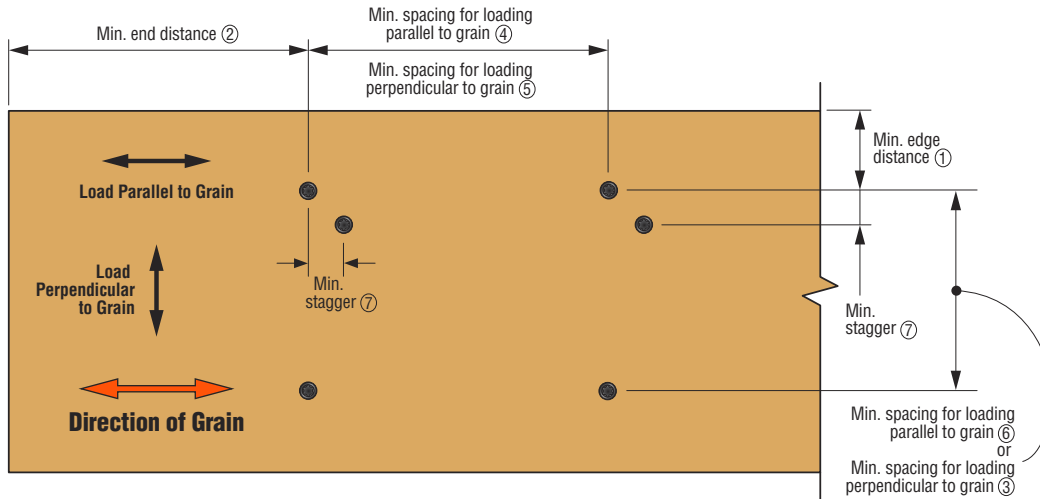
Allowable Pull-Through Loads – HF/SPF/DFL/SP

Model No.	Fastener Length (in.)	Thread Length (in.)	Max. Reference Pull-Through Design Value, (lb.)					
			2x Side		4x Side		6x Side	
			DFL/SP	SPF/HF	DFL/SP	SPF/HF	DFL/SP	SPF/HF
SWD18212DBB	2.50	1½	175	175	—	—	—	—
SWD18312DBB	3.50	1½	175	175	—	—	—	—
SWD18614DBB	6.25	2½	175	175	540	—	—	—
SWD22812DBB	8.50	3¾	260	260	590	—	—	—
SWD221034DBB	10.75	4¼	260	260	590	—	695	695

1. Tabulated maximum reference design values is in pounds into the side member.
2. Tabulated maximum reference pull-through design values are shown at a C_D = 1.0. Loads may be increased for load duration per the building code up to a C_D = 1.6. Tabulated values shall be multiplied by all applicable adjustment factors from the NDS as referenced in the IBC or IRC. For in-service moisture content greater than 19 percent use C_M = 0.70.
3. Screws shall be installed through the side member straight into the side grain of the wood main member with the screw axis at a 90° angle to the wood fibers.

Structural and General Fastening

Strong-Drive® SWD DOUBLE-THREADED™ Screw (cont.)



SWD Screw Spacing Requirements

SWD DOUBLED-THREADED Fastener Spacing Requirements

Condition	Direction of Load to Grain	ID	Minimum Distance or Spacing (in.)	
			SWD18	SWD22
Edge Distance	Perpendicular	①	1	1 ¼
	Parallel	①	1 ¼	1 ¼
End Distance	Perpendicular	②	4	5
	Parallel	②	4	5
Spacing Between Fasteners in a Row	Perpendicular	③	4	5
	Parallel	④	4	5
Spacing Between Rows of Fasteners	Perpendicular	⑤	1 ½	1 ¼
	Parallel	⑥	1 ½	1 ¼
Spacing Between Staggered Rows	Perpendicular or Parallel	⑦	¾	¾

1. For axial loading only, use the following minimum dimensions; for SWD18: end distance = 2.5", edge distance = 1.0", spacing parallel to grain = 1 ¼", spacing perpendicular to grain = 1.0"; SWD22: end distance = 3.0", edge distance = 1 ¼", spacing parallel to grain = 2", spacing perpendicular to grain = 1 ¼".

Structural and General Fastening

Strong-Drive® SDWS™ TIMBER Screw (Exterior Grade)

Structural Wood-to-Wood Connections Including Ledgers, Indoor/Outdoor Projects

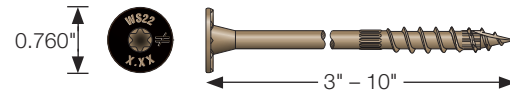
Designed to provide an easy-to-install, high-strength alternative to through-bolting and traditional lag screws. The Strong-Drive SDWS Timber screws are ideal for the contractor and do-it-yourselfer alike. Model numbers with SDWS22xxxxDB indicate tan double-barrier coating; SDWS22xxxxDBB indicate black double-barrier coating.

Codes/Standards: IAPMO UES ER-192, State of Florida FL13975

US Patent: 9,523,383

For more information: see p. 59, C-F-2025 Fastening Systems catalog

Double-barrier coating provides corrosion resistance equivalent to hot-dip galvanization, making it suitable for certain exterior and preservative-treated wood applications, as described in the evaluation report.



SDWS Timber Screw — Allowable Shear Loads — Douglas Fir–Larch and Southern Pine Lumber

Fastener Length (in.)	Model No.	Thread Length (in.)	Reference DFL/SP Allowable Shear Loads (lb.)								
			Wood Side Member Thickness (in.)								
			1.5	2	2.5	3	3.5	4	4.5	6	8
3	SDWS22300DB SDWS22300DBB	1½	255	—	—	—	—	—	—	—	—
4	SDWS22400DB SDWS22400DBB	2%	405	405	305	—	—	—	—	—	—
5	SDWS22500DB SDWS22500DBB	3	405	405	360	360	325	—	—	—	—
6	SDWS22600DB SDWS22600DBB	3	405	405	405	405	365	365	355	—	—
8	SDWS22800DB SDWS22800DBB	3	405	405	405	405	395	395	395	395	—
10	SDWS221000DB SDWS221000DBB	3	405	405	405	405	395	395	395	395	395

See footnotes below.

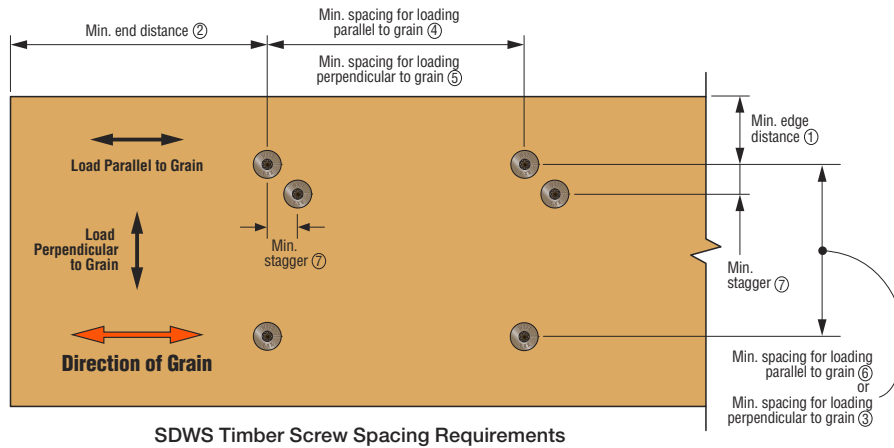
SDWS Timber Screw — Allowable Shear Loads — Spruce-Pine-Fir and Hem-Fir Lumber

Fastener Length (in.)	Model No.	Thread Length (in.)	Reference SPF/HF Allowable Shear Loads (lb.)								
			Wood Side Member Thickness (in.)								
			1.5	2	2.5	3	3.5	4	4.5	6	8
3	SDWS22300DB SDWS22300DBB	1½	190	—	—	—	—	—	—	—	—
4	SDWS22400DB SDWS22400DBB	2%	385	285	215	—	—	—	—	—	—
5	SDWS22500DB SDWS22500DBB	3	405	290	290	290	195	—	—	—	—
6	SDWS22600DB SDWS22600DBB	3	405	365	365	365	310	310	210	—	—
8	SDWS22800DB SDWS22800DBB	3	405	365	365	365	310	310	280	280	—
10	SDWS221000DB SDWS221000DBB	3	405	365	365	365	310	310	280	280	280

- All applications are based on full penetration into the main member. Full penetration is the screw length minus the side member thickness.
- Allowable loads are shown at the wood load duration factor of $C_D = 1.0$. Loads may be increased for load duration per the building code up to a $C_D = 1.6$. Tabulated values must be multiplied by all applicable adjustment factors per the NDS.
- For minimum fastener spacing requirements for both side and main members, see the Spacing Requirements Figure and Table on the next page.
- For in-service moisture content greater than 19%, use $C_M = 0.7$.
- Loads are based on installation into the side grain of the wood with the screw axis perpendicular to the face of the member.

Structural and General Fastening

Strong-Drive® SDWS™ TIMBER Screw (Exterior Grade) (cont.)



SDWS Timber Screw Spacing Requirements

SDWS Timber Screw Spacing Requirements

Condition	Direction of Load to Grain	ID	Minimum Distance or Spacing (in.)
Edge Distance	Perpendicular	①	1 7/16
	Parallel	①	1 7/16
End Distance	Perpendicular	②	6
	Parallel	②	6
Spacing Between Fasteners in a Row	Perpendicular	③	4
	Parallel	④	8
Spacing Between Rows of Fasteners	Perpendicular	⑤	4
	Parallel	⑥	4
Spacing Between Staggered Rows	Perpendicular or Parallel	⑦	5/8

1. For axial loading only, use the following minimum dimensions: end distance = 3 1/4", edge distance = 1 3/8", spacing parallel to grain = 2 1/4", spacing perpendicular to grain = 1 3/8".

SDWS Timber Screw — Reference Allowable Withdrawal Loads — Douglas Fir-Larch, Southern Pine, Spruce-Pine-Fir and Hem-Fir Lumber

Model No.	Fastener Length (in.)	Thread Length (in.)	Reference Allowable Withdrawal Loads, W (lb./in.)		Max. Reference Allowable Withdrawal Loads, W _{max} (lb.)	
			DFL and SP Main Member	HF and SPF Main Member	DFL and SP Main Member	HF and SPF Main Member
SDWS22300DB SDWS22300DBB	3	1 1/2	164	151	245	225
SDWS22400DB SDWS22400DBB	4	2 3/8	179	160	425	380
SDWS22500DB SDWS22500DBB	5	3	214	187	590	495
SDWS22600DB SDWS22600DBB	6	3	214	187	590	495
SDWS22800DB SDWS22800DBB	8	3	214	187	590	495
SDWS221000DB SDWS221000DBB	10	3	214	187	590	495

- The tabulated reference withdrawal design value, W, is in pounds per inch of the thread penetration into the side grain of the main member.
- The tabulated reference withdrawal design value, W_{max}, is in pounds where the entire thread length must penetrate into the side grain of the main member.
- The tabulated reference withdrawal design values, W and W_{max}, are shown at a C_D = 1.0. For end-grain withdrawal, C_{eg} = 0.65. Tabulated values must be multiplied by all applicable adjustment factors from the NDS as referenced in the IBC or IRC.
- Embedded thread length is that portion held in the main member including the screw tip.
- Values are based on the lesser of withdrawal from the main member or pull-through of a 1 1/2" side member.
- For in-service moisture content greater than 19%, use C_M = 0.7.

Structural and General Fastening

Strong-Drive® SDWS™ TIMBER Screw (Exterior Grade) with Gypsum Board Interlayer(s)

The Strong-Drive SDWS Timber screw may be installed with one or two layers of 5/8" gypsum board. This layer of gypsum is to be located between the side member and main member for a standard connection. See the tables below for the required screw lengths and allowable loads for these applications. Loads are derived from assembly testing based on ICC-ES AC233.

SDWS Timber Screw — Douglas Fir–Larch and Southern Pine Lumber Allowable Single Shear Loads with One Layer of 5/8" Gypsum Board

Length (in.)	Model No.	Thread Length (in.)	Reference DFL/SP Allowable Shear Loads (lb.)								
			Wood Side Member Thickness (in.)								
			1.5	2.0	2.5	3.0	3.5	4.0	4.5	6.0	8.0
4	SDWS22400DB SDWS22400DBB	2.375	265	—	—	—	—	—	—	—	—
5	SDWS22500DB SDWS22500DBB	3	265	265	235	—	—	—	—	—	—
6	SDWS22600DB SDWS22600DBB	3	265	265	265	265	235	—	—	—	—
8	SDWS22800DB SDWS22800DBB	3	265	265	265	265	255	255	255	—	—
10	SDWS221000DB SDWS221000DBB	3	265	265	265	265	255	255	255	255	—

See footnotes on next page.

SDWS Timber Screw — Douglas Fir–Larch and Southern Pine Lumber Allowable Single Shear Loads with Two Layers of 5/8" Gypsum Board

Length (in.)	Model No.	Thread Length (in.)	Reference DFL/SP Allowable Shear Loads (lb.)								
			Wood Side Member Thickness (in.)								
			1.5	2.0	2.5	3.0	3.5	4.0	4.5	6.0	8.0
4	SDWS22400DB SDWS22400DBB	2.375	—	—	—	—	—	—	—	—	—
5	SDWS22500DB SDWS22500DBB	3	265	265	—	—	—	—	—	—	—
6	SDWS22600DB SDWS22600DBB	3	265	265	265	265	—	—	—	—	—
8	SDWS22800DB SDWS22800DBB	3	265	265	265	265	255	255	255	—	—
10	SDWS221000DB SDWS221000DBB	3	265	265	265	265	255	255	255	255	—

See footnotes on next page.

Structural and General Fastening

Strong-Drive® SDWS™ TIMBER Screw (Exterior Grade) with Gypsum Board Interlayer(s) (cont.)

SDWS Timber Screw — Spruce-Pine-Fir and Hem-Fir Lumber
Allowable Single Shear Loads with One Layer of 5/8" Gypsum Board

Length (in.)	Model No.	Thread Length (in.)	Reference SPF/HF Allowable Shear Loads (lb.)									
			Wood Side Member Thickness (in.)									
			1.5	2.0	2.5	3.0	3.5	4.0	4.5	6.0	8.0	
4	SDWS22400DB SDWS22400DBB	2.375	250	—	—	—	—	—	—	—	—	—
5	SDWS22500DB SDWS22500DBB	3	260	190	190	—	—	—	—	—	—	—
6	SDWS22600DB SDWS22600DBB	3	260	235	235	235	200	—	—	—	—	—
8	SDWS22800DB SDWS22800DBB	3	260	235	235	235	200	200	180	—	—	—
10	SDWS221000DB SDWS221000DBB	3	260	235	235	235	200	200	180	180	—	—

See footnotes below.

SDWS Timber Screw — Spruce-Pine-Fir and Hem-Fir Lumber
Allowable Single Shear Loads with Two Layers of 5/8" Gypsum Board

Length (in.)	Model No.	Thread Length (in.)	Reference SPF/HF Allowable Shear Loads (lb.)									
			Wood Side Member Thickness (in.)									
			1.5	2.0	2.5	3.0	3.5	4.0	4.5	6.0	8.0	
4	SDWS22400DB SDWS22400DBB	2.375	—	—	—	—	—	—	—	—	—	—
5	SDWS22500DB SDWS22500DBB	3	260	190	—	—	—	—	—	—	—	—
6	SDWS22600DB SDWS22600DBB	3	260	235	235	235	—	—	—	—	—	—
8	SDWS22800DB SDWS22800DBB	3	260	235	235	235	200	200	180	—	—	—
10	SDWS221000DB SDWS221000DBB	3	260	235	235	235	200	200	180	180	—	—

1. All applications are based on full penetration which equals fastener length minus side member thickness and gypsum board thickness.
2. Allowable loads are shown at the wood load duration factor of $C_D = 1.0$. Loads may be increased for load duration per the building code up to a $C_D = 1.6$. Tabulated values must be multiplied by all applicable adjustment factors per the NDS.
3. For minimum fastener spacing requirements for both side and main members, see the Spacing Requirements Figure and Table on p. 38.
4. For in-service moisture content greater than 19%, use $C_M = 0.7$.
5. Gypsum board must be attached as required per the building code.

Structural and General Fastening

Strong-Drive® SDWS™ FRAMING Screw

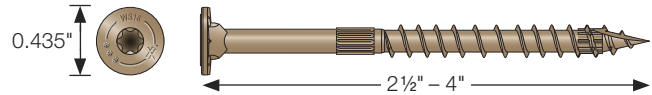
Multipurpose Wood-to-Wood Including Framing, Indoor/Outdoor Projects

The framing connections with the SDWS FRAMING screws are designed for common framing connections, per the 2024, 2021, and 2018 IRC and IBC code requirements, and are based on engineering analysis.

Codes/Standards: IAPMO UES ER-192, State of Florida FL13975

US Patent: 9,523,383

For more information: see p. 58, C-F-2025 Fastening Systems catalog



SDWS Framing Screw — Allowable Shear Loads for Sawn Lumber

Fastener Length (in.)	Model No.	Side Member Thickness (in.)	Main Member Penetration (in.)	Reference Allowable Shear Loads (lb.)		
				SP	DFL	SPF/HF
2½	SDWS16212	1½	0.90	131	106	99
3	SDWS16300	1½	1.40	229	150	150
		2	0.90	129	129	89
3½	SDWS16312	1½	2.0	254	254	199
4	SDWS16400	1½	2.5	254	254	199
		2	2.0	262	262	199

- All applications are based on full penetration into the main member. Full penetration is the screw length minus the side member thickness.
- Allowable loads are shown at the wood load duration factor of $C_D = 1.0$. Loads may be increased for load duration per the building code up to a $C_D = 1.6$. Tabulated values must be multiplied by all applicable adjustment factors per the NDS.
- For minimum fastener spacing requirements for both side and main members, see the Spacing Requirements Figure and Table on the next page.
- For in-service moisture content greater than 19%, use $C_M = 0.70$.
- Screws must be installed straight into the side grain of the wood main member with the screw axis at a 90° angle to the wood fibers.

SDWS Framing Screw — Allowable Withdrawal Load in Sawn Lumber

Model No.	Fastener Length (in.)	Thread Length (in.)	Reference Withdrawal Loads, W (lb./in.)			Max. Reference Withdrawal Loads, W_{max} (lb.)		
			SP	DFL	SPF/HF	SP	DFL	SPF/HF
SDWS16212	2.40	1.125	177	132	103	199	149	116
SDWS16300	2.90	1.625	192	127	122	310	205	200
SDWS16312	3.50	2.000	181	169	127	345	300	200
SDWS16400	4.00	2.500	181	169	127	345	300	200

- The tabulated reference withdrawal values (W) are in pounds per inch of the thread penetration into the main member.
- The tabulated reference withdrawal values (W_{max}) are in pounds where the entire thread length must penetrate into the main member.
- Tabulated reference withdrawal values (W) and (W_{max}) are shown at a $C_D = 1.0$. Loads may be increased for load duration per the building code up to a $C_D = 1.6$. Tabulated values must be multiplied by all applicable adjustment factors from the NDS as referenced in the IBC or IRC.
- Values are based on the lesser of withdrawal from the main member or pull-through of a 1½" side member. For in-service moisture content greater than 19%, use $C_M = 0.65$.

SDWS Framing Screw — Allowable Shear Loads for Wood Structural Panel Side Member

Model No.	Side Member Thickness (in.)	Min. Main Member Penetration (in.)	Reference Allowable Shear Loads (lb.)		
			SP	DFL	SPF/HF
SDWS16	1½	1.93	143	143	143
	2¾	1.68	200	187	138

- Allowable loads are shown at the wood load duration factor of $C_D = 1.0$. Loads may be increased for load duration per the building code up to a $C_D = 1.6$. Tabulated loads must be multiplied by all applicable adjustment factors per the NDS.
- WSP side members for tests were oriented strand board (equivalent specific gravity = 0.50).
- All applications are based on full penetration into the main member. Full penetration is the screw length minus the side member thickness.
- Screws must be installed straight into the side grain of the wood main member with the screw axis at a 90° angle to the wood fibers.

SDWS Framing Screw — Allowable Pull-Through Loads for Wood Structural Panel Side Member

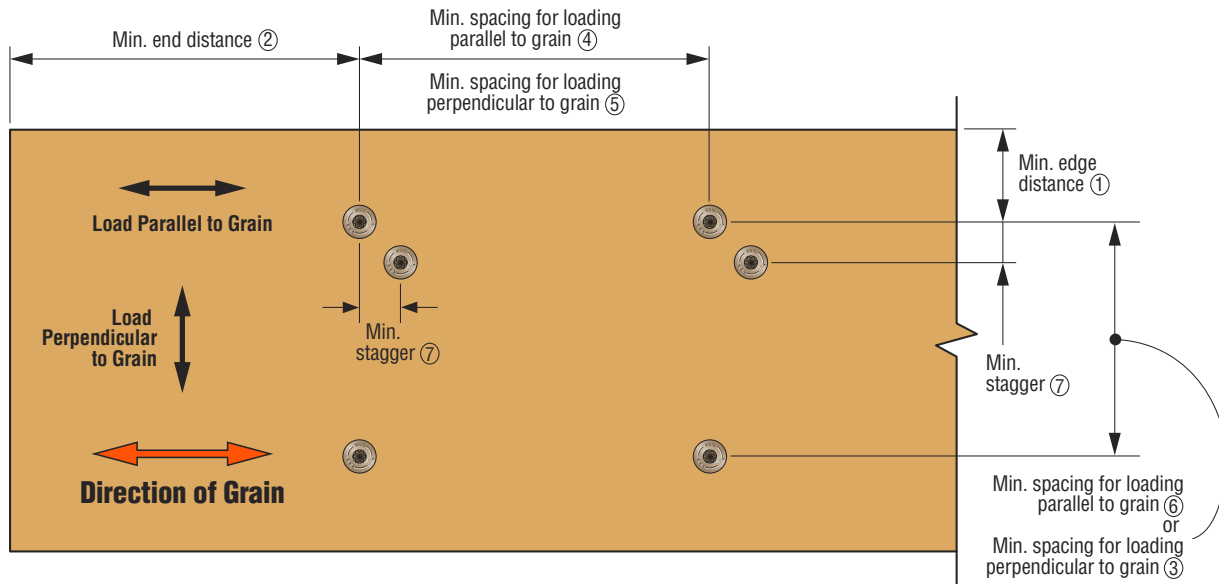
Model No.	Side Member Thickness (in.)	Reference Allowable Pull-Through Loads (lb.)
SDWS16	1½	84
	2¾	169

- Allowable loads are shown at the wood load duration factor of $C_D = 1.0$. Loads may be increased for load duration per the building code up to a $C_D = 1.6$. Tabulated loads must be multiplied by all applicable adjustment factors per the NDS.
- WSP side members for tests were oriented strand board (equivalent specific gravity = 0.50).
- For connections with 1½" and 2¾" thick OSB side members, the lesser of withdrawal loads from the main and pull-through loads from WSP side member shall be used in design.

Structural and General Fastening

Strong-Drive® SDWS™ FRAMING Screw (cont.)

Strong-Drive SDWS Framing Screw Spacing Requirements for Non-Prescriptive Construction

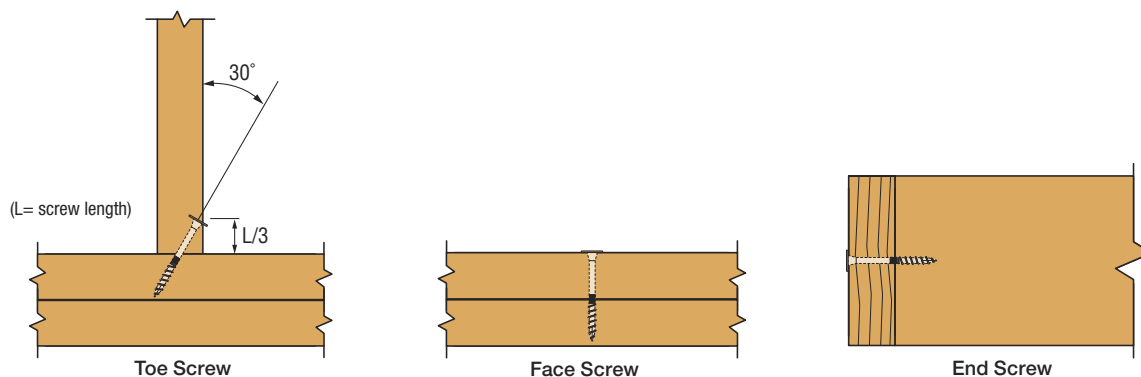


SDWS Framing Screw Spacing Requirements

Condition	Direction of Load to Grain	ID	Minimum Distance or Spacing (in.)	
			SDWS16212	SDWS16300 SDWS16312 SDWS16400
Edge Distance	Perpendicular	①	1	1
	Parallel	①	½	1
End Distance	Perpendicular	②	3½	4
	Parallel	②	2	3
Spacing Between Fasteners in a Row	Perpendicular	③	2	2
	Parallel	④	2	2
Spacing Between Rows of Fasteners	Perpendicular	⑤	1¹	1²
	Parallel	⑥	1¹	1²
Spacing Between Staggered Rows	Perpendicular or Parallel	⑦	¾	¾

1. Table loads must be multiplied by adjustment factor of 0.93.
2. Table loads must be multiplied by adjustment factor of 0.91.
3. For axial loading only, use the following minimum dimensions: end distance = 2¼", edge distance = ¾", spacing parallel to grain = 1%", spacing perpendicular to grain = ¾".

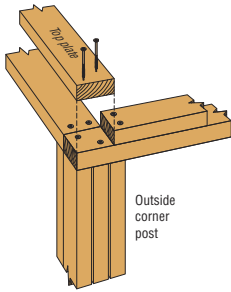
Typical Conventional Framing Connections



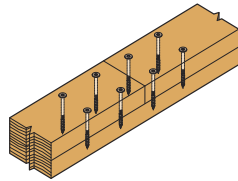
Structural and General Fastening

Strong-Drive® SDWS™ FRAMING Screw (cont.)

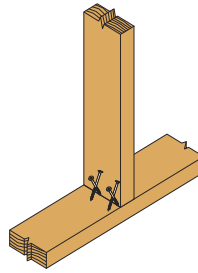
Walls



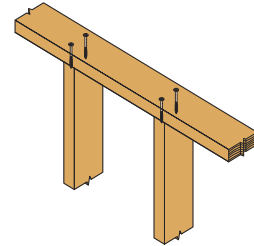
Double Top Plate at Corners
at Corners



Double Top Plate Laps
(Face Screw)



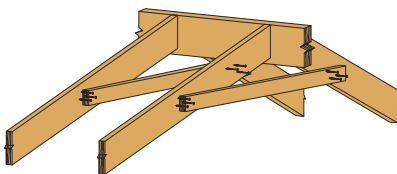
Stud to Sole Plate
(Toe Screw)



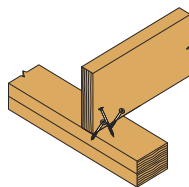
Top or Sole Plate to Stud
(End Screw)

Connection Application	Fastening Schedule				Location
	2024 IRC		2024 IBC		
	Table R602.3 (1) Item	Equivalent SDWS Framing Screws	Table 2304.10.2 Item	Equivalent SDWS Framing Screws	
Top or bottom plate to stud	17	(2) SDWS16300	16	(2) SDWS16300	End screw
Stud to sole plate	17	(4) SDWS16212	16	(4) SDWS16212	Toe screw
Double top-plate splice	14	(8) SDWS16300	13	(8) SDWS16300	Face screw
Top plates, laps at corners and intersections	18	(2) SDWS16300	17	(2) SDWS16300	Face screw
Stud to stud (not at braced wall panels)	8	SDWS16300 24" o.c.	8	SDWS16300 24" o.c.	Face screw

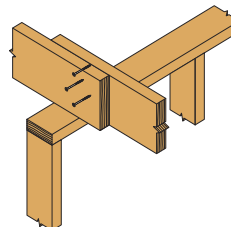
Ceiling



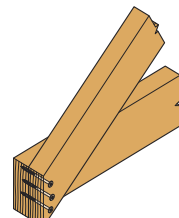
Collar Tie to Rafter
(Face Screw)



Ceiling Joist to Plate
(Toe Screw)



Ceiling Joist, Laps Over Partitions
(Face Screw)



Ceiling Joist to Parallel Rafter
(Face Screw)

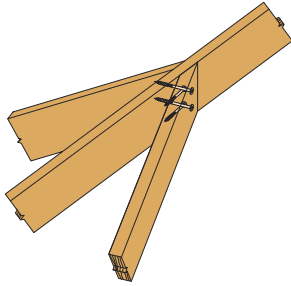
Connection Application	Fastening Schedule				Location
	2024 IRC		2024 IBC		
	Table R602.3 (1) Item	Equivalent SDWS Framing Screws	Table 2304.10.2 Item	Equivalent SDWS Framing Screws	
Ceiling joist to top plate	2	(3) SDWS16212	2	(3) SDWS16212	Toe screw
Ceiling joist not attached to parallel rafter, laps over partitions	3	(3 min.*) SDWS16300	3	(3) SDWS16300	Face screw
Collar tie to rafter	5	(3) SDWS16300	5	(3) SDWS16300	Face screw
Ceiling joist attached to parallel rafter (heel joint)	4	(3 min.*) SDWS16300	4	(3 min.*) SDWS16300	Face screw

*Quantities vary based on project conditions. Refer to the IRC or IBC for additional information. The SDWS16212 is a 1-for-1 replacement for 8d common nails and SDWS16300 is a 1-for-1 replacement for 10d and 16d common nails.

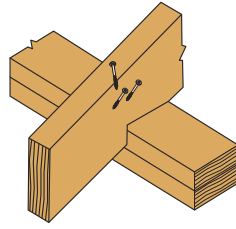
Structural and General Fastening

Strong-Drive® SDWS™ FRAMING Screw (cont.)

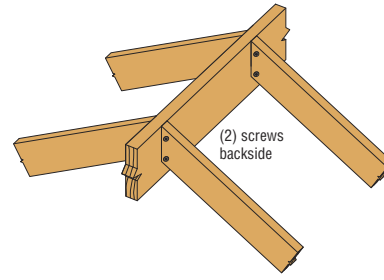
Roof



Jack Rafter to Hip
(Toe Screw)



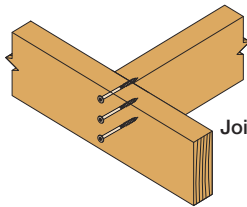
Roof Rafter to Plate
(Toe Screw)



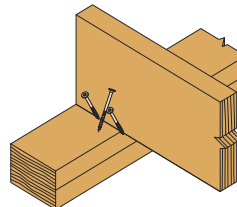
Roof Rafter to 2x Ridge Board
(Toe Screw)

Connection Application	Fastening Schedule				Location
	2024 IRC		2024 IBC		
	Table R602.3 (1) Item	Equivalent SDWS Framing Screws	Table 2304.10.2 Item	Equivalent SDWS Framing Screws	
Rafter or roof truss to plate	6	(3) SDWS16300	6	(3) SDWS16300	Toe screw
Roof rafter to 2x ridge beam	7	(3) SDWS16300	7	(3) SDWS16300	Toe screw
Jack rafter to hip	7	(3) SDWS16300	7	(3) SDWS16300	Toe screw

Floor



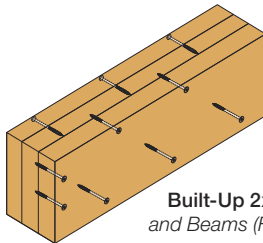
Joist to Rim Board (End Screw)



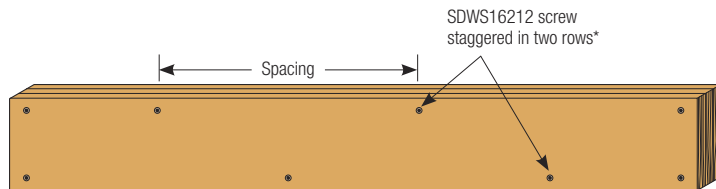
Joist to Sill or Girder
(Toe Screw)

Connection Application	Fastening Schedule				Location
	2024 IRC		2024 IBC		
	Table R602.3 (1) Item	Equivalent SDWS Framing Screws	Table 2304.10.2 Item	Equivalent SDWS Framing Screws	
Band or rim joist to joist	27	(3) SDWS16300	28	(3) SDWS16300	End screw
Joist to sill, top plate or girder	22	(3) SDWS16212	21	(3) SDWS16212	Toe screw

Beam



Built-Up 2x Girders and Beams
(Face Screw)



Beam Assembly Detail*

Connection Application	Fastening Schedule				Location
	2024 IRC		2024 IBC		
	Table R602.3 (1) Item	Equivalent SDWS Framing Screws	Table 2304.10.2 Item	Equivalent SDWS Framing Screws	
Built-up 2x girders and beams	28	SDWS16212 24" o.c. staggered and (3) SDWS16212 at ends and splice	26	SDWS16212 24" o.c. staggered and (3) SDWS16212 at ends and splice	Face screw

*Fastening pattern shown applies to each ply of the built-up 2x beam.

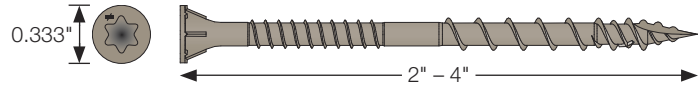
Structural and General Fastening

Deck-Drive™ DSV WOOD Screw

Multipurpose deck and other wood-to-wood or applications

Simpson Strong-Tie #10 Deck-Drive DSV Wood screws are designed for preservative-treated decking applications and can also be used for general framing and construction with wood and engineered wood products. Quik Guard® coating on the DSV screws provides corrosion resistance for exterior and certain preservative-treated wood applications. The DSV screws have a 6-lobe drive with flat head and do not require predrilling for softer woods. The screws have been tested and evaluated in accordance with ICC-ES Acceptance Criteria AC233 (*Acceptance Criteria for Dowel-type Threaded Fasteners Used in Wood*), and are load rated for shear, pull-through and withdrawal resistance. The tables below provide load information for the DSV screws.

For more information: see p. 77, C-F-2025 Fastening Systems catalog.



Allowable Shear Loads

Size x Length (in.)	Model No.	Thread Length (in.)	SP Reference Allowable Shear Load (lb.)				DF Reference Allowable Shear Load (lb.)				SPF/HF Reference Allowable Shear Load (lb.)			
			Side Member Thickness (in.)				Side Member Thickness (in.)				Side Member Thickness (in.)			
			1.5	2	2.5	3	1.5	2	2.5	3	1.5	2	2.5	3
#10 x 2½	DSV212	1½	125	—	—	—	106	—	—	—	83	—	—	—
#10 x 3	DSV3	1½	206	115	—	—	173	99	—	—	131	80	—	—
#10 x 3½	DSV312	2	206	206	115	—	173	173	99	—	131	131	80	—
#10 x 4	DSV4	2½	206	206	206	115	173	173	173	99	131	131	131	80

1. Allowable loads are based on full penetration into the main member. Full penetration is the screw length minus the side member thickness.
2. Allowable loads are shown at the wood load duration factor of $C_D = 1.0$. Loads may be increased for load duration per the building code up to a $C_D = 1.6$. Tabulated values must be multiplied by all applicable adjustment factors per the NDS. For in-service moisture content greater than 19%, use $C_M = 0.62$.
3. Loads are based on installation into the side grain of the wood with the screw axis perpendicular to the face of the member.
4. Loads are based on tests of connections made with same species as main and side members.
5. Engineered wood must have a minimum grade of modulus of elasticity value of 0.80E and a minimum equivalent specific gravity of at least 0.55 to use the SP values, 0.50 to use the DF values, or 0.42 to use the SPF/HF values.

Allowable Withdrawal and Pull-Through Loads

Size x Length (in.)	Model No.	Thread Length (in.)	Reference Allowable Withdrawal, W (lb./in.)			Reference Maximum Withdrawal, W_{max} (lb.)			Reference Pull-Through (lb.)		
			SP	DF	SPF/HF	SP	DF	SPF/HF	SP	DF	SPF/HF
#10 x 2	DSV2	1¼	132	121	94	165	150	115	213	174	154
#10 x 2½	DSV212	1½				195	180	140			
#10 x 3	DSV3	1½				195	180	140			
#10 x 3½	DSV312	2				260	240	190			
#10 x 4	DSV4	2½				330	300	235			

1. The tabulated Reference Allowable Withdrawal design value, W, is in pounds per inch of the thread penetration into the side grain of the main member.
2. The tabulated Reference Maximum Withdrawal design value, W_{max} , is in pounds where the entire end thread length is embedded into the side grain of the main member.
3. Reference withdrawal design values, W and W_{max} , are shown at $C_D = 1.0$. Loads may be increased for load duration per the building code up to $C_D = 1.6$. Tabulated values must be multiplied by all applicable adjustment factors from the NDS. For in-service moisture content greater than 19%, use $C_M = 0.70$.
4. Embedded thread length is that portion of the end threads in the main member including the screw tip.
5. Reference Pull-Through values are based on pull-through of a 1½"-thick side member.
6. Engineered wood must have a minimum grade of modulus of elasticity value of 1.55E and a minimum equivalent main member specific gravity of at least 0.55 to use the SP values, 0.50 to use the DF values, or 0.42 to use the SPF/HF values.

DSV Wood Screw — Connection Geometry

Condition		Minimum Distance or Spacing (in.)	Reduction Factor	
Edge Distance	Perpendicular to grain loading	¾	0.91	
	Parallel to grain loading	½	1.00	
End Distance	Perpendicular to grain loading	4	0.91	
	Parallel to grain loading	4	1.00	
Spacing Between Fasteners in a Row	Perpendicular to grain loading	2	0.75	
	Parallel to grain loading	2	1.00	
Spacing Between Row	Perpendicular to grain loading	Non-staggered row	1	0.75
		Staggered rows	1	1.00
	Parallel to grain loading	Non-staggered row	1	0.88
		Staggered rows	1	1.00

1. Edge distances, end distances, and spacing of the screws must be sufficient to prevent splitting of the wood, or as required by this table, or when applicable as recommended by the structural composite lumber manufacturer, whichever is the most restrictive.
2. Allowable shear loads shall be multiplied by the applicable tabulated reduction factors when used in the corresponding geometry.
3. For axial loading only, use the following minimum dimensions: end distance = 2", edge distance = ¾", spacing parallel to grain = 1¾", spacing perpendicular to grain = ¾".

Structural and General Fastening

Strong-Drive® SDWV SOLE-TO-RIM Screw

Structural Wood-to-Wood Connections Including Sole-to-Rim Attachments

The Simpson Strong-Tie SDWV Sole-to-Rim structural wood screws may be used to attach wood members in lateral and withdrawal connections according to the following tables. The SDWV Sole-to-Rim screw coating is intended for dry service, low-corrosion applications and is suitable for use with FRT in dry-service conditions.

Features:

- Large 0.400"-diameter head for increased holding power
- Fast start point with helical ridge for fast, easy, low-torque installation
- Variable thread design, optimized for 2x nominal dimension lumber

Code/Standards: IAPMO UES ER-192 (including City of LA Supplement), State of Florida FL13975

For more information: see p. 107, C-F-2025 *Fastening Systems* catalog



SDWV Sole-to-Rim Wood Screw — Allowable Shear Loads

Model No.	Fastener Length (in.)	Thread Length (in.)	Allowable Shear Loads (lb.)	
			DFL/SP	SPF/HF
SDWV13400	4	1.5	205	195

1. All applications are based on full penetration into the main member. Full penetration is the screw length minus the side member thickness.
2. Allowable loads are shown at the wood load duration factor of $C_D = 1.0$. Loads may be increased for load duration per the building code up to a $C_D = 1.6$. Tabulated values must be multiplied by all applicable adjustment factors per the NDS.
3. For minimum fastener spacing requirements, see the Spacing Requirements Figure and Table on next page.
4. For in-service moisture content greater than 19%, use $C_M = 0.7$.

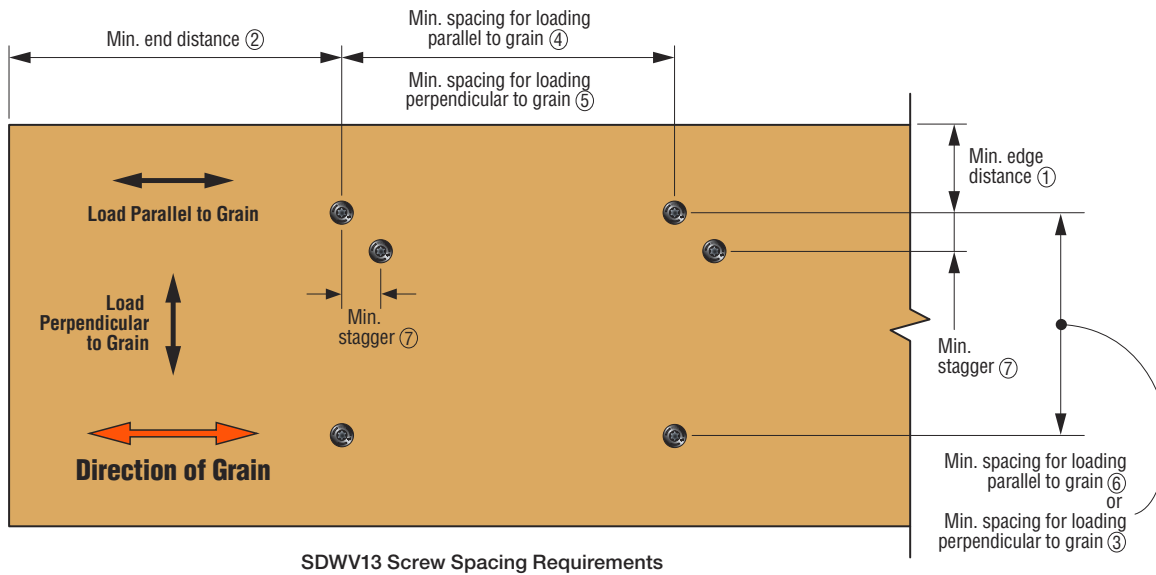
SDWV Sole-to-Rim Wood Screw — Allowable Withdrawal Design Values

Model No.	Fastener Length (in.)	Thread Length (in.)	Reference Withdrawal Design Value, W (lb./in.)		Maximum Reference Withdrawal Design Value, W_{max} (lb.)	
			DFL/SP	SPF/HF	DFL/SP	SPF/HF
SDWV13400	4	1.5	120	107	180	160

1. Loads are based on installation into the side grain of the wood with the screw axis perpendicular to the face of the member.
2. Allowable loads are shown at the wood load duration factor of $C_D = 1.0$. Loads may be increased for load duration per the building code up to a $C_D = 1.6$. Tabulated values must be multiplied by all applicable adjustment factors per the NDS.
3. For in-service moisture content greater than 19%, use $C_M = 0.6$.
4. The tabulated reference withdrawal design value, W , is in pounds per inch of the thread penetration into the side grain of the main member.
5. The tabulated reference withdrawal design value, W_{max} , is in pounds where the entire thread length must penetrate into the side grain of the main member.
6. Embedded thread length is that portion held in the main member including the screw point.
7. Values are based on the lesser of withdrawal from the main member or pull-through of a 1½" side member.

Structural and General Fastening

Strong-Drive® SDWV SOLE-TO-RIM Screw (cont.)



SDWV Sole-to-Rim Screw Spacing Requirements

Condition	Direction of Load to Grain	ID	Minimum Distance or Spacing (in.)
Edge Distance	Perpendicular	①	1/2
	Parallel	①	1/2
End Distance	Perpendicular	②	4
	Parallel	②	4
Spacing Between Fasteners in a Row	Perpendicular	③	2
	Parallel	④	2
Spacing Between Rows of Fasteners	Perpendicular	⑤	1
	Parallel	⑥	1
Spacing Between Staggered Rows	Perpendicular or Parallel	⑦	1/2 ¹

1. Table loads must be multiplied by adjustment factor of 0.91.
 2. For axial loading only, use the following minimum dimensions: end distance = 2", edge distance = 7/8", spacing parallel to grain = 1 3/8", spacing perpendicular to grain = 7/8".

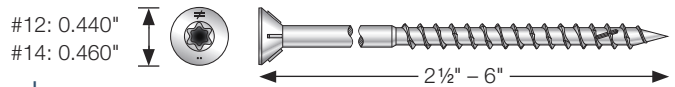
Structural and General Fastening

Strong-Drive® DWP WOOD SS Screw

High- to Severe-Exposure Wood Decking Applications, Indoor/Outdoor Projects

The #12 and #14 Strong-Drive DWP Wood SS flat-head screws are structural fasteners that have been tested in accordance with ICC-ES Acceptance Criteria AC233 and are load rated for shear, pull-through and withdrawal resistance. They are a great solution for exterior structural connections, such as on docks, boardwalks and decks near water or where they will be exposed to high or severe corrosion.

For more information: see p. 73, C-F-2025 Fastening Systems catalog



DWP Wood SS Screw — Allowable Shear Loads

Size x Length (in.)	Model No.	Thread Length (in.)	Reference DFL/SP Allowable Shear Loads (lb.)							Reference SPF/HF Allowable Shear Loads (lb.)						
			Side Member Thickness (in.)							Side Member Thickness (in.)						
			1.5	2	2.5	3	3.5	4	4.5	1.5	2	2.5	3	3.5	4	4.5
#12 x 2½	T12250WP, S12250WP	2.00	140	—	—	—	—	—	—	105	—	—	—	—	—	—
#12 x 3	T12300WP, S12300WP	2.16	185	—	—	—	—	—	—	135	—	—	—	—	—	—
#12 x 3½	T12350WP, S12350WP	2.49	205	190	—	—	—	—	—	160	160	—	—	—	—	—
#12 x 4	T12400WP, S12400WP	2.83	205	205	205	—	—	—	—	160	160	160	—	—	—	—
#12 x 4½	T12450WP, S12450WP	3.16	205	205	205	205	—	—	—	160	160	160	160	—	—	—
#12 x 5	T12500WP, S12500WP	3.49	205	205	205	205	205	—	—	160	160	160	160	160	—	—
#12 x 6	T12600WP	4.00	205	205	205	205	205	180	180	160	160	160	160	160	150	150
#14 x 3	T14300WP	2.05	220	—	—	—	—	—	—	170	—	—	—	—	—	—
#14 x 3½	T14350WP, S14350WP	2.25	230	220	—	—	—	—	—	180	180	—	—	—	—	—
#14 x 4	T14400WP, S14400WP	2.83	230	220	220	—	—	—	—	180	180	175	—	—	—	—
#14 x 5	T14500WP	3.49	230	220	220	220	220	—	—	180	180	175	175	165	—	—
#14 x 6	T14600WP	4.16	230	220	220	220	210	210	210	180	180	175	175	165	165	165

1. All applications are based on full penetration into the main member. Full penetration is the screw length minus the side member thickness.
2. Allowable loads are shown at the wood load duration factor of $C_D = 1.0$. Loads may be increased for load duration per the building code up to a $C_D = 1.6$.
3. Tabulated values must be multiplied by all applicable adjustment factors per the NDS.
4. For in-service moisture content greater than 19%, use $C_M = 0.7$.
5. The tabulated loads are applicable to Type 305 and Type 316 stainless-steel flat-head screw model numbers.
6. Loads are based on installation into the side grain of the wood with the screw axis perpendicular to the face of the member.
7. Minimum fastener spacing requirements to achieve loads: 6" end distance, 1 7/8" edge distance.
8. The above loads are based on tests of connections with main and side members of the same species.

Structural and General Fastening

Strong-Drive® DWP WOOD SS Screw (cont.)

DWP WOOD SS Screw — Allowable Withdrawal and Pull-Through Loads

Size x Length (in.)	Model No.	Thread Length (in.)	Allowable Screw Tension Loads (lb.)	Reference Withdrawal Loads, W (lb./in.)		Reference Pull-Through Loads for 1½" Side Member, W _H (lb.)	
				DFL/SP	SPF/HF	DFL/SP	SPF/HF
#12 x 2½	T12250WP, S12250WP	2.00	605	130	100	180	150
#12 x 3	T12300WP, S12300WP	2.16					
#12 x 3½	T12350WP, S12350WP	2.49					
#12 x 4	T12400WP, S12400WP	2.83					
#12 x 4½	T12450WP, S12450WP	3.16					
#12 x 5	T12500WP, S12500WP	3.49					
#12 x 6	T12600WP	4.00					
#14 x 3	T14300WP	2.05	775	145	100	200	155
#14 x 3½	T14350WP, S14350WP	2.25					
#14 x 4	T14400WP, S14400WP	2.83					
#14 x 5	T14500WP	3.49					
#14 x 6	T14600WP	4.16					

1. The tabulated allowable screw tension value is the tensile strength of the steel screw and may not be multiplied by any adjustment factors.
2. The tabulated reference withdrawal design value, W, is in pounds per inch of the thread penetration into the side grain of the main member.
3. The tabulated reference pull-through design value, P, is the allowable load for the fastener head pull-through for a minimum 1½"-thick side member.
4. Tabulated reference withdrawal and pull-through design values, W and W_H, are shown at a load duration factor, C_D = 1.0 and a wet service factor, C_M = 1.0. Loads may be increased for load duration per the building code up to a C_D = 1.6. Tabulated values must be multiplied by all applicable adjustment factors from the NDS as referenced in the IBC or IRC.
5. Embedded thread length is that portion held in the main member including the screw point.
6. For in-service moisture content greater than 19%, use C_M = 0.7.
7. For #12 screws subject to axial loading only, use the following minimum dimensions: end distance = 2¾", edge distance = 1", spacing parallel to grain = 1½", spacing perpendicular to grain = 1".
8. For #14 screws subject to axial loading only, use the following minimum dimensions: end distance = 2¾", edge distance = 1½", spacing parallel to grain = 2", spacing perpendicular to grain = 1½".

Structural and General Fastening

Strong-Drive® SDWS™ TIMBER SS Screw

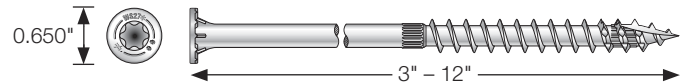
Structural Wood and Engineered Wood Connections Including Docks, Piers, Boardwalks and Ledgers, Applications Requiring High to Severe Corrosion Resistance

Designed to provide an easy-to-install, low-torque driving, high-strength, severe-corrosion-resistant alternative to through bolting, traditional lags and spikes. The Strong-Drive SDWS Timber SS screw is a premium solution for heavy-duty structural applications. Type 316 stainless steel provides severe corrosion resistance, making it suitable for exterior and preservative-treated wood applications.

Codes/Standards: IAPMO UES ER-192 (including City of LA Supplement), State of Florida FL13975

US Patent: 9,523,383

For more information: see p. 61, C-F-2025 Fastening Systems catalog



SDWS Timber SS — Allowable Shear Loads — Douglas Fir-Larch, Southern Pine Lumber

Fastener Length (in.)	Model No.	Thread Length (in.)	Reference DFL/SP Allowable Shear Loads (lb.)								Reference Withdrawal Design Value, W (lb./in.)	Max. Reference Withdrawal Design Value, W _{max} (lb.)
			Wood Side Member Thickness (in.)									
			1.5	2.5	3	3.5	4.5	6	8	10		
4	SDWS27300SS	2	225	—	—	—	—	—	—	—	222	410
4	SDWS27400SS	3	375	225	—	—	—	—	—	—	204	410
5	SDWS27500SS	3	375	335	310	210	—	—	—	—	204	410
6	SDWS27600SS	3	375	335	335	335	210	—	—	—	204	410
8	SDWS27800SS	3	375	415	485	440	335	275	—	—	204	410
10	SDWS271000SS	3	375	415	485	440	335	275	275	—	204	410
12	SDWS271200SS	3	375	415	485	440	335	275	275	275	204	410

See footnotes below.

SDWS Timber SS — Allowable Shear Loads — Hem-Fir, Spruce-Pine-Fir Lumber

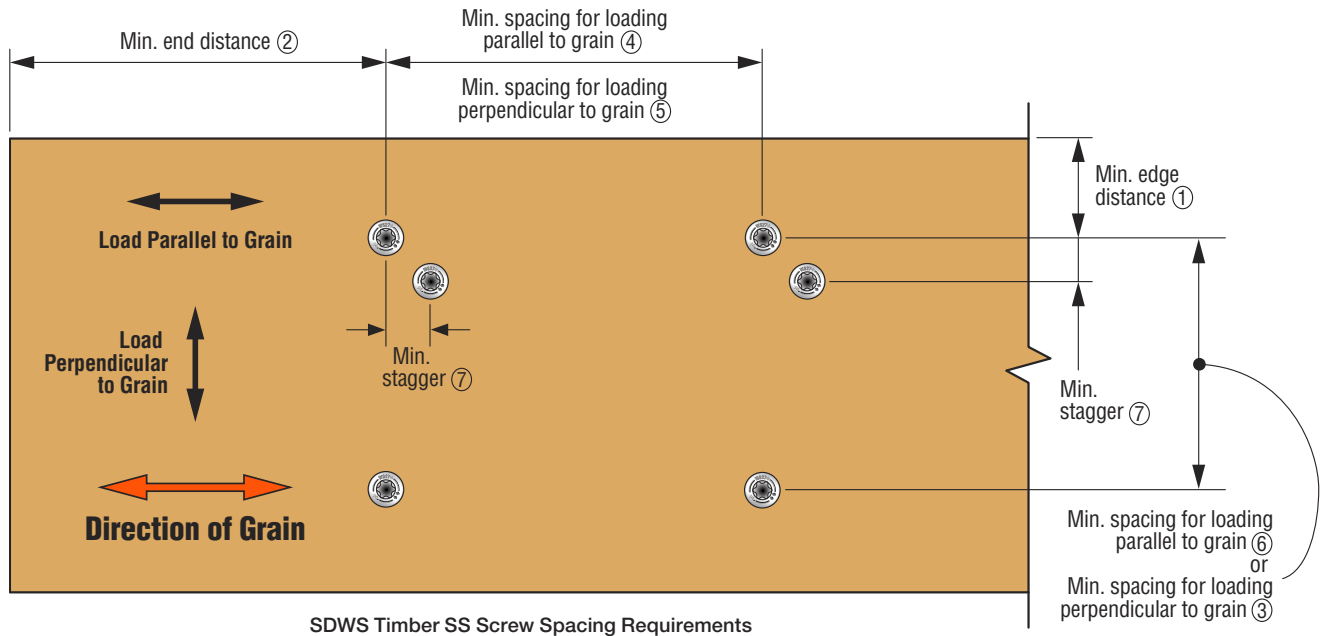
Fastener Length (in.)	Model No.	Thread Length (in.)	Reference HF/SPF Allowable Shear Loads (lb.)								Reference Withdrawal Design Value, W (lb./in.)	Max. Reference Withdrawal Design Value, W _{max} (lb.)
			Wood Side Member Thickness (in.)									
			1.5	2.5	3	3.5	4.5	6	8	10		
3	SDWS27300SS	2	210	—	—	—	—	—	—	—	182	365
4	SDWS27400SS	3	325	180	—	—	—	—	—	—	200	385
5	SDWS27500SS	3	325	285	235	175	—	—	—	—	200	385
6	SDWS27600SS	3	325	285	285	285	175	—	—	—	200	385
8	SDWS27800SS	3	325	350	390	465	280	240	—	—	200	385
10	SDWS271000SS	3	325	350	390	465	280	240	240	—	200	385
12	SDWS271200SS	3	325	350	390	465	280	240	240	240	200	385

- All applications are based on full penetration into the main member. Full penetration is the screw length minus the side member thickness.
- Allowable loads are shown at the wood load duration factor of C_D = 1.0. Loads may be increased for load duration per the building code up to a C_D = 1.6. Tabulated values must be multiplied by all applicable adjustment factors per the NDS.
- For minimum fastener spacing requirements for both side and main members, see the Spacing Requirements Figure and Table on next page.
- For in-service moisture content greater than 19%, use C_M = 0.7.
- Loads are based on installation into the side grain of the wood with the screw axis perpendicular to the face of the member.
- The tabulated reference withdrawal design value, W, is in pounds per inch of the thread penetration into the side grain of the main member.
- The tabulated reference withdrawal design value, W_{max}, is in pounds where the entire thread length must penetrate into the side grain of the main member.
- Embedded thread length is that portion held in the main member, including the screw point.
- Values are based on the lesser of withdrawal from the main member or pull-through of a 1½" side member.

Structural and General Fastening

Strong-Drive® SDWS™ TIMBER SS Screw (cont.)

Wood and Engineered
Wood Fastening



SDWS Timber SS Screw Spacing Requirements

Condition	Direction of Load to Grain	ID	Minimum Distance or Spacing (in.)
Edge Distance	Perpendicular	①	1½
	Parallel	①	1½
End Distance	Perpendicular	②	6
	Parallel	②	6
Spacing Between Fasteners in a Row	Perpendicular	③	4
	Parallel	④	8
Spacing Between Rows of Fasteners	Perpendicular	⑤	4
	Parallel	⑥	4
Spacing Between Staggered Rows	Perpendicular or Parallel	⑦	¾

1. For axial loading only, use the following minimum dimensions: end distance = 4", edge distance = 1 5/8", spacing parallel to grain = 2 7/8", spacing perpendicular to grain = 2".

Structural and General Fastening

Strong-Drive® SDWS™ TIMBER Screw (Interior Grade)

Mass Timber, Log Building Construction and General Interior Applications

Codes/Standards: IAPMO UES ER-192 (including City of LA Supplement), State of Florida FL13975

US Patent: 9,523,383

For more information: see p. 103, C-F-2025 Fastening Systems catalog



SDWS Timber Screw (Interior Grade) – Allowable Shear Loads – Douglas Fir–Larch and Southern Pine

Fastener Length (in.)	Model No.	Thread Length (in.)	Reference DFL/SP Allowable Shear Loads (lb.)														
			Wood Side Member Thickness (in.)														
			1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	7	8	9	10	13
6	SDWS19600	3	370	265	265	265	265	245	245	—	—	—	—	—	—	—	—
7½	SDWS19712	3	370	265	265	265	265	265	265	265	245	245	—	—	—	—	—
4	SDWS22400	2.375	405	405	305	—	—	—	—	—	—	—	—	—	—	—	—
5	SDWS22500	3	405	405	360	360	325	—	—	—	—	—	—	—	—	—	—
5½	SDWS22512	3	405	405	405	360	360	325	—	—	—	—	—	—	—	—	—
6	SDWS22600	3	405	405	405	405	365	365	355	—	—	—	—	—	—	—	—
8	SDWS22800	3	405	405	405	405	395	395	395	395	395	395	—	—	—	—	—
9	SDWS22900	3	405	405	405	405	395	395	395	395	395	395	395	—	—	—	—
10	SDWS221000	3	405	405	405	405	395	395	395	395	395	395	395	395	—	—	—
11	SDWS221100	3	405	405	405	405	395	395	395	395	395	395	395	395	395	—	—
12	SDWS221200	3	405	405	405	405	395	395	395	395	395	395	395	395	395	395	—
15	SDWS221500	3	405	405	405	405	395	395	395	395	395	395	395	395	395	395	395

See footnotes below.

SDWS Timber Screw (Interior Grade) – Allowable Shear Loads – Spruce-Pine-Fir and Hem-Fir

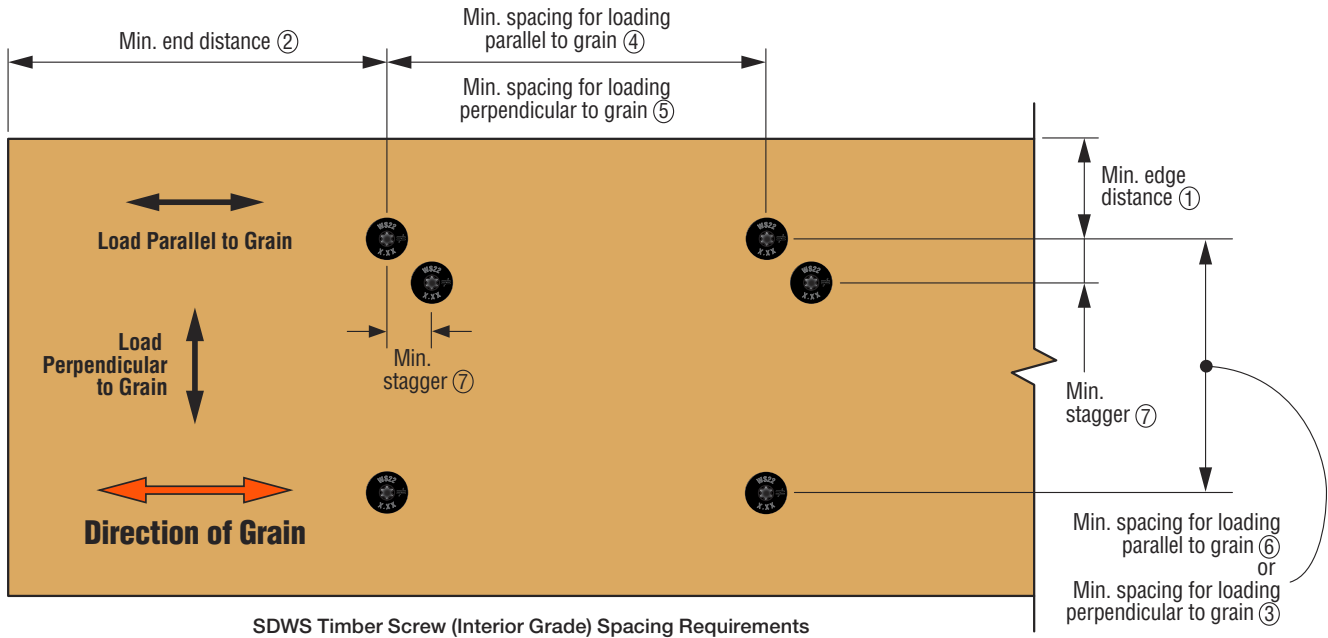
Fastener Length (in.)	Model No.	Thread Length (in.)	Reference SPF/HF Allowable Shear Loads (lb.)														
			Wood Side Member Thickness (in.)														
			1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	7	8	9	10	13
6	SDWS19600	3	350	265	265	265	265	215	180	—	—	—	—	—	—	—	—
7½	SDWS19712	3	350	265	265	265	265	265	265	265	215	180	—	—	—	—	—
4	SDWS22400	2.375	385	285	215	—	—	—	—	—	—	—	—	—	—	—	—
5	SDWS22500	3	400	290	290	290	195	—	—	—	—	—	—	—	—	—	—
5½	SDWS22512	3	400	290	290	290	290	195	—	—	—	—	—	—	—	—	—
6	SDWS22600	3	400	365	365	365	310	310	210	—	—	—	—	—	—	—	—
8	SDWS22800	3	400	365	365	365	310	310	280	280	280	280	—	—	—	—	—
9	SDWS22900	3	400	365	365	365	310	310	280	280	280	280	280	—	—	—	—
10	SDWS221000	3	400	365	365	365	310	310	280	280	280	280	280	280	—	—	—
11	SDWS221100	3	400	365	365	365	310	310	280	280	280	280	280	280	280	—	—
12	SDWS221200	3	400	365	365	365	310	310	280	280	280	280	280	280	280	280	—
15	SDWS221500	3	400	365	365	365	310	310	280	280	280	280	280	280	280	280	280

1. Design values are based on full fastener embedment and the adjacent members are in contact with each other.
2. Allowable loads are shown at the wood load duration factor of $C_D = 1.0$. Loads may be increased for load duration up to a $C_D = 1.6$.
3. Tabulated values must be multiplied by all applicable adjustment factors per the NDS.
4. For minimum fastener spacing requirements for both side and main members, see the Spacing Requirements Figure and Table on next page.
5. Loads are for in-service moisture content less than or equal to 19% ($C_M = 1.0$).
6. Loads are based on installation into the side grain of the wood member with the screw axis perpendicular to the face of the wood member.

Structural and General Fastening

Strong-Drive® SDWS™ TIMBER Screw (Interior Grade) (cont.)

Wood and Engineered
Wood Fastening



SDWS Timber Screw (Interior Grade) Spacing Requirements

Condition	Direction of Load to Grain	ID	Minimum Distance or Spacing (in.)
Edge Distance	Perpendicular	①	1 7/16
	Parallel	①	1 7/16
End Distance	Perpendicular	②	6
	Parallel	②	6
Spacing Between Fasteners in a Row	Perpendicular	③	4
	Parallel	④	8
Spacing Between Rows of Fasteners	Perpendicular	⑤	4
	Parallel	⑥	4
Spacing Between Staggered Rows	Perpendicular or Parallel	⑦	5/8

1. For SDWS19 screws subject to axial loading only, use the following minimum dimensions: end distance = 2 3/4", edge distance = 1 1/8", spacing parallel to grain = 2", spacing perpendicular to grain = 1 1/8".
 2. For SDWS22 screws subject to axial loading only, use the following minimum dimensions: end distance = 3 1/4", edge distance = 1 3/8", spacing parallel to grain = 2 1/4", spacing perpendicular to grain = 1 3/8".

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Structural and General Fastening

Strong-Drive® SDWS™ TIMBER Screw (Interior Grade) (cont.)

SDWS Timber Screw (Interior Grade) — Allowable Withdrawal Loads
Douglas Fir-Larch, Southern Pine, Spruce-Pine-Fir and Hem-Fir Lumber

Fastener Length (in.)	Model No.	Thread Length (in.)	Reference Withdrawal Design Value, W (lb./in.)		Max. Reference Withdrawal Design Value, W _{max} (lb.)	
			DFL/SP Main Member	SPF/HF Main Member	DFL/SP Main Member	SPF/HF Main Member
6	SDWS19600	3	197	164	545	395
7½	SDWS19712	3	197	164	545	395
4	SDWS22400	2.375	179	160	425	380
5	SDWS22500	3	214	187	590	495
5½	SDWS22512	3	214	187	590	495
6	SDWS22600	3	214	187	590	495
8	SDWS22800	3	214	187	590	495
9	SDWS22900	3	214	187	590	495
10	SDWS221000	3	214	187	590	495
11	SDWS221100	3	214	187	590	495
12	SDWS221200	3	214	187	590	495
15	SDWS221500	3	214	187	590	495

1. The tabulated reference withdrawal design value, W, is in pounds per inch of the thread penetration into the side grain of the main member.
2. The tabulated reference withdrawal design value, W_{max}, is in pounds where the entire thread must penetrate into the side grain of the main member.
3. Tabulated reference withdrawal design values (C_D = 1.0), W and W_{max}, must be multiplied by all applicable adjustment factors from the NDS as referenced in the IBC or IRC.
4. Embedded thread length is that portion held in the main member, including the screw point.
5. Values are based on the lesser of withdrawal from the main member or pull-through of a 1.5" side member.
6. Loads are for in-service moisture content less than or equal to 19% (C_M = 1.0).

Allowable Loads for Strong-Drive SDWS TIMBER Screw (Interior Grade) with Expanded Specific Gravity Options

Allowable load tables on the following pages provide shear and withdrawal capacities for wood species with an assigned specific gravity of 0.35 to 0.41. Wood species with a specific gravity within this range are provided below.

Wood Species Combinations in the Specific Gravity Range 0.35 to 0.41

Wood Species	Specific Gravity ¹
Alaska Spruce	0.41
Aspen	0.39
Balsam Fir	0.36
Coast Sitka Spruce	0.39
Cottonwood	0.41
Eastern Hemlock	0.41
Eastern Hemlock-Balsam Fir	0.36
Eastern Hemlock-Tamarack	0.41
Eastern Softwoods	0.36
Eastern Spruce	0.41
Eastern White Pine	0.36
Engelmann Spruce-Lodgepole Pine	0.38
Northern Species	0.35
Redwood, open grain	0.37
Spruce-Pine-Fir (South)	0.36
Western Cedars	0.36
Western Cedars (North)	0.35
Western White Pine	0.40
Western Woods	0.36

1. Specific gravity as assigned in NDS-18 Table 12.3.3A.

Structural and General Fastening

Strong-Drive® SDWS™ TIMBER Screw (Interior Grade) (cont.)

SDWS Timber Screw (Interior Grade) —
Allowable Lateral Loads in the Specific Gravity Range 0.35 to 0.41

Fastener Length (in.)	Model No.	Thread Length (in.)	Reference Allowable Lateral Design Value (lb.)													
			Wood Side Member Thickness (in.)													
			1.5	2	2.5	3	3.5	4	5	5.5	6	7	8	9	10	13
6	SDWS19600	3	330	230	230	230	230	230	—	—	—	—	—	—	—	—
7½	SDWS19712	3	330	230	230	230	230	230	230	—	—	—	—	—	—	—
4	SDWS22400	2.375	350	240	—	—	—	—	—	—	—	—	—	—	—	—
5	SDWS22500	3	350	240	240	240	—	—	—	—	—	—	—	—	—	—
5½	SDWS22512	3	350	240	240	240	240	—	—	—	—	—	—	—	—	—
6	SDWS22600	3	350	240	240	240	240	240	—	—	—	—	—	—	—	—
8	SDWS22800	3	350	240	240	240	240	240	240	240	240	—	—	—	—	—
9	SDWS22900	3	350	240	240	240	240	240	240	240	240	240	—	—	—	—
10	SDWS221000	3	350	240	240	240	240	240	240	240	240	240	240	—	—	—
11	SDWS221100	3	350	240	240	240	240	240	240	240	240	240	240	240	—	—
12	SDWS221200	3	350	240	240	240	240	240	240	240	240	240	240	240	240	—
15	SDWS221500	3	350	240	240	240	240	240	240	240	240	240	240	240	240	240

1. Design values are based on full fastener embedment and the adjacent members are in contact with each other.

2. Allowable loads are shown at the wood load duration factor of $C_D = 1.0$. Loads may be increased for load duration per the building code up to a $C_D = 1.6$. Tabulated values must be multiplied by all applicable adjustment factors per the NDS.

3. For minimum fastener spacing requirements for both side and main members, see the Spacing Requirements Figure and Table on p. 58.

4. For in-service moisture content less than or equal to 19%, $C_M = 1.0$.

Structural and General Fastening

Strong-Drive® SDWS™ TIMBER Screw (Interior Grade) (cont.)

SDWS Timber Screw (Interior Grade) —
Allowable Withdrawal Loads in the Specific Gravity Range 0.35 to 0.41

Fastener Length (in.)	Model No.	Thread Length (in.)	Reference Withdrawal Design Value, W (lb./in.)	Max. Reference Withdrawal Design Value, W_{max} (lb.) ⁵
6	SDWS19600	3	100	280
7½	SDWS19712	3	100	280
4	SDWS22400	2.375	130	310
5	SDWS22500	3	130	360
5½	SDWS22512	3	130	360
6	SDWS22600	3	130	360
8	SDWS22800	3	130	360
9	SDWS22900	3	130	360
10	SDWS221000	3	130	360
11	SDWS221100	3	130	360
12	SDWS221200	3	130	360
15	SDWS221500	3	130	360

1. The tabulated reference withdrawal design value, W, is in pounds per inch of the thread penetration into the side grain of the main member.
2. The tabulated reference withdrawal design value, W_{max} , is in pounds where the entire thread must penetrate into the side grain of the main member.
3. Tabulated reference withdrawal design values, W and W_{max} , are shown at the wood load duration factor of $C_D = 1.0$. Loads may be increased for load duration per the building code up to a $C_D = 1.6$. Tabulated values must be multiplied by all applicable adjustment factors per the NDS as referenced in the IBC or IRC.
4. Embedded thread length is that portion held in the main member including the screw point.
5. Values are based on the lesser of withdrawal from the main member or pull-through of a 1.5" side member.
6. For in-service moisture content less than or equal to 19% ($C_M = 1.0$).
7. The load tables are based on testing in accordance with ICC-ES AC233, with an applied factor of safety of 5.0.

Structural and General Fastening

Strong-Drive® SDWH™ TIMBER-HEX Screw

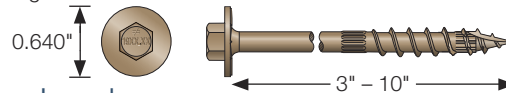
Structural Wood-to-Wood Connections Including Ledgers, Indoor/Outdoor Projects

Double-barrier coating provides corrosion resistance equivalent to hot-dip galvanization, making it suitable for certain exterior and preservative-treated wood applications, as described in the evaluation report.

Codes/Standards: IAPMO UES ER-192 (including City of LA Supplement), State of Florida FL13975

US Patent: 9,523,383

For more information: see p. 62, C-F-2025 Fastening Systems catalog



SDWH Timber-Hex Screw — Allowable Shear Loads — Douglas Fir–Larch and Southern Pine Lumber

Fastener Length (in.)	Model No.	Thread Length (in.)	Reference DFL/SP Allowable Shear Loads (lb.)									
			Wood Side Member Thickness (in.)									
			1.5	2	2.5	3	3.5	4	4.5	6	8	
3	SDWH19300DB	1½	285	—	—	—	—	—	—	—	—	—
4	SDWH19400DB	2%	370	300	300	—	—	—	—	—	—	—
6	SDWH19600DB	2¾	370	265	265	265	265	245	245	—	—	—
8	SDWH19800DB	2¾	370	265	265	265	265	265	260	245	—	—
10	SDWH191000DB	2¾	370	265	265	265	265	265	260	260	245	—

See footnotes below.

SDWH Timber-Hex Screw — Allowable Shear Loads — Spruce-Pine-Fir and Hem-Fir Lumber

Fastener Length (in.)	Model No.	Thread Length (in.)	Reference SPF/HF Allowable Shear Loads (lb.)									
			Wood Side Member Thickness (in.)									
			1.5	2	2.5	3	3.5	4	4.5	6	8	
3	SDWH19300DB	1½	230	—	—	—	—	—	—	—	—	—
4	SDWH19400DB	2%	330	235	195	—	—	—	—	—	—	—
6	SDWH19600DB	2¾	350	265	265	265	265	215	180	—	—	—
8	SDWH19800DB	2¾	350	265	265	265	265	265	215	215	—	—
10	SDWH191000DB	2¾	350	265	265	265	265	265	250	250	215	—

- All applications are based on full penetration into the main member. Full penetration is the screw length minus the side member thickness.
- Allowable loads are shown at the wood load duration factor of $C_D = 1.0$. Loads may be increased for load duration per the building code up to a $C_D = 1.6$. Tabulated values must be multiplied by all applicable adjustment factors per the NDS.
- For minimum fastener spacing requirements for both side and main members, see the Spacing Requirements Figure and Table on the next page.
- For in-service moisture content greater than 19%, use $C_M = 0.7$.
- Loads are based on installation into the side grain of the wood with the screw axis perpendicular to the face of the member.

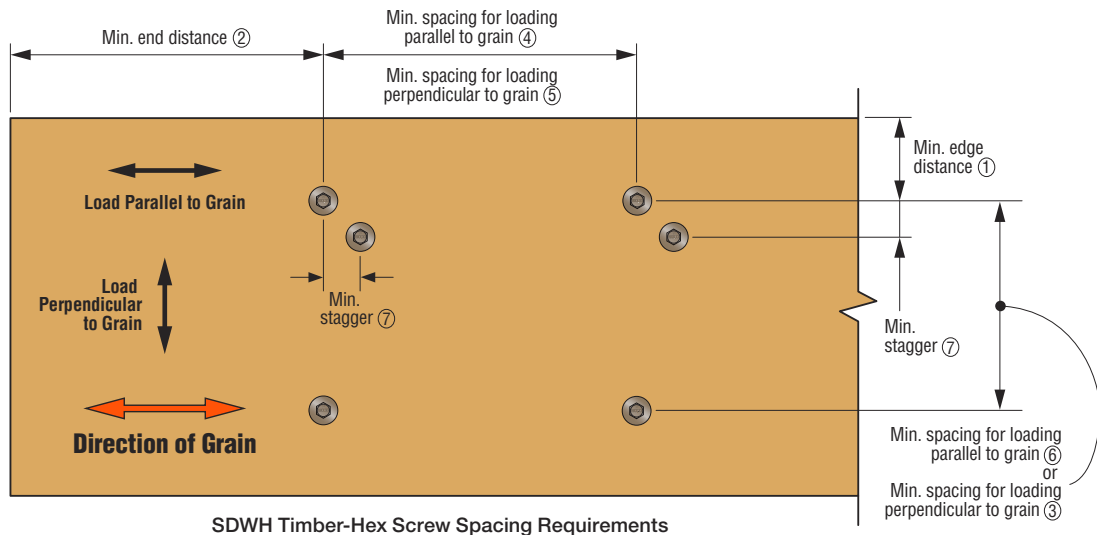
Structural and General Fastening

Strong-Drive® SDWH™ TIMBER-HEX Screw (cont.)

SDWH Timber-Hex Screw — Allowable Withdrawal Loads —
Douglas Fir-Larch, Southern Pine, Spruce-Pine-Fir and Hem-Fir Lumber

Fastener Length (in.)	Model No.	Thread Length (in.)	Reference Withdrawal Design Value, W (lb./in.)		Max. Reference Withdrawal Design Value, W _{max} (lb.)	
			DFL and SP Main Member	HF and SPF Main Member	DFL and SP Main Member	HF and SPF Main Member
3	SDWH19300DB	1½	177	120	265	180
4	SDWH19400DB	2¾	192	147	455	350
6	SDWH19600DB	2¾	197	164	545	445
8	SDWH19800DB	2¾	197	164	545	445
10	SDWH191000DB	2¾	197	164	545	445

1. The tabulated reference withdrawal design value, W, is in pounds per inch of the thread penetration into the side grain of the main member.
2. The tabulated reference withdrawal design value, W_{max}, is in pounds where the entire thread length must penetrate into the side grain of the main member.
3. Tabulated reference withdrawal design values, W and W_{max}, are shown at a C_D = 1.0. Loads may be increased for load duration per the building code up to a C_D = 1.6. Tabulated values must be multiplied by all applicable adjustment factors from the NDS as referenced in the IBC or IRC.
4. Embedded thread length is that portion held in the main member, including the screw point.
5. Values are based on the lesser of withdrawal from the main member or pull-through of a 1½" side member.
6. For in-service moisture content greater than 19%, use C_M = 0.7.



SDWH Timber-Hex Screw Spacing Requirements

SDWH Timber-Hex Screw Spacing Requirements

Condition	Direction of Load to Grain	ID	Minimum Distance or Spacing (in.)
Edge Distance	Perpendicular	①	1½
	Parallel	①	1½
End Distance	Perpendicular	②	6
	Parallel	②	6
Spacing Between Fasteners in a Row	Perpendicular	③	4
	Parallel	④	8
Spacing Between Rows of Fasteners	Perpendicular	⑤	4
	Parallel	⑥	4
Spacing Between Staggered Rows	Perpendicular or Parallel	⑦	5/8

1. For axial loading only, use the following minimum dimensions: end distance = 2¾", edge distance = 1½", spacing parallel to grain = 2", spacing perpendicular to grain = 1½".

Structural and General Fastening

Strong-Drive® SDWH™ TIMBER-HEX Screw with Gypsum Board Interlayer(s)

The Strong-Drive SDWH Timber-Hex screw may be installed with one or two layers of 5/8" gypsum board. This layer of gypsum is to be located between the side member and the main member for a standard connection. See table for the required screw lengths and allowable loads for these applications. Loads are derived from assembly testing based on ICC-ES AC233.

SDWH Timber-Hex Screw — Douglas Fir–Larch and Southern Pine Lumber Allowable Single Shear Loads with One Layer of 5/8" Gypsum Board

Fastener Length (in.)	Model No.	Thread Length (in.)	Reference DFL/SP Allowable Shear Loads (lb.)								
			Wood Side Member Thickness (in.)								
			1.5	2.0	2.5	3.0	3.5	4.0	4.5	6.0	8.0
4	SDWH19400DB	2.375	240	—	—	—	—	—	—	—	—
6	SDWH19600DB	2.77	240	170	170	170	170	—	—	—	—
8	SDWH19800DB	2.77	240	170	170	170	170	170	170	—	—
10	SDWH191000DB	2.77	240	170	170	170	170	170	170	170	—

See notes on following page.

SDWH Timber-Hex Screw — Douglas Fir–Larch and Southern Pine Lumber Allowable Single Shear Loads with Two Layers of 5/8" Gypsum Board

Fastener Length (in.)	Model No.	Thread Length (in.)	Reference DFL/SP Allowable Shear Loads (lb.)								
			Wood Side Member Thickness (in.)								
			1.5	2.0	2.5	3.0	3.5	4.0	4.5	6.0	8.0
4	SDWH19400DB	2.375	—	—	—	—	—	—	—	—	—
6	SDWH19600DB	2.77	240	170	170	170	—	—	—	—	—
8	SDWH19800DB	2.77	240	170	170	170	170	170	170	—	—
10	SDWH191000DB	2.77	240	170	170	170	170	170	170	170	—

See notes on following page.

SDWH Timber-Hex Screw — Spruce-Pine-Fir and Hem-Fir Lumber Allowable Single Shear Loads with One Layer of 5/8" Gypsum Board

Fastener Length (in.)	Model No.	Thread Length (in.)	Reference SPF/HF Allowable Shear Loads (lb.)								
			Wood Side Member Thickness (in.)								
			1.5	2.0	2.5	3.0	3.5	4.0	4.5	6.0	8.0
4	SDWH19400DB	2.375	215	—	—	—	—	—	—	—	—
6	SDWH19600DB	2.77	230	170	170	170	170	—	—	—	—
8	SDWH19800DB	2.77	230	170	170	170	170	170	140	—	—
10	SDWH191000DB	2.77	230	170	170	170	170	170	165	165	—

See notes on following page.

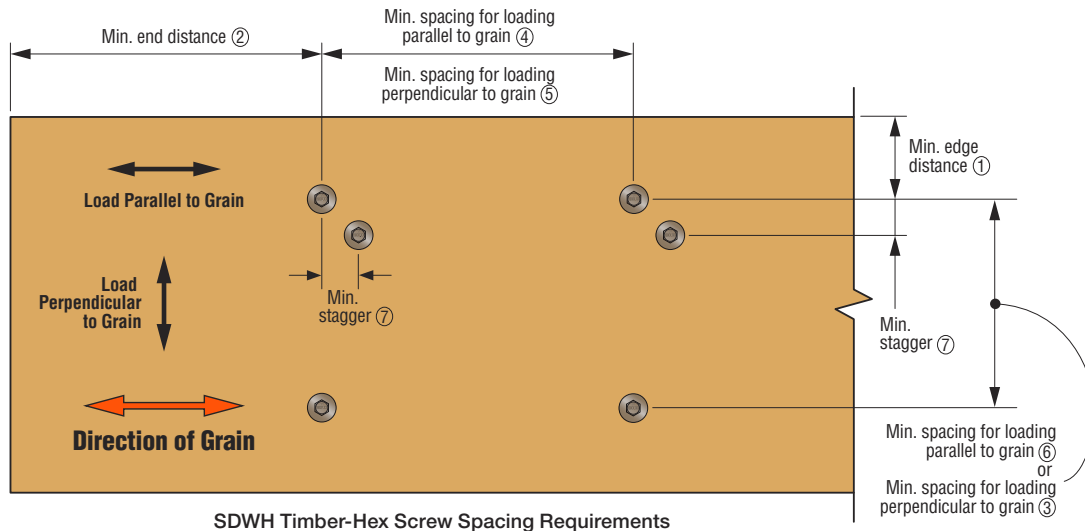
Structural and General Fastening

Strong-Drive® SDWH™ TIMBER-HEX Screw with Gypsum Board Interlayer(s) (cont.)

SDWH Timber-Hex Screw — Spruce-Pine-Fir and Hem-Fir Lumber
Allowable Single Shear Loads with Two Layers of 5/8" Gypsum Board

Fastener Length (in.)	Model No.	Thread Length (in.)	Reference SPF/HF Allowable Shear Loads (lb.)								
			Wood Side Member Thickness (in.)								
			1.5	2.0	2.5	3.0	3.5	4.0	4.5	6.0	8.0
4	SDWH19400DB	2.375	215	—	—	—	—	—	—	—	—
6	SDWH19600DB	2.77	230	170	170	170	—	—	—	—	—
8	SDWH19800DB	2.77	230	170	170	170	170	170	140	—	—
10	SDWH19100DB	2.77	230	170	170	170	170	170	165	165	—

- All applications are based on full penetration which equals fastener length minus side member thickness.
- Allowable loads are shown at the wood load duration factor of $C_D = 1.0$. Loads may be increased for load duration per the building code up to a $C_D = 1.6$. Tabulated values must be multiplied by all applicable adjustment factors per the NDS.
- For minimum fastener spacing requirements for both side and main members, see the Spacing Requirements Figure and Table below.
- For in-service moisture content greater than 19%, use $C_M = 0.7$.
- Gypsum board must be attached as required per the building code.



SDWH Timber-Hex Screw Spacing Requirements

Condition	Direction of Load to Grain	ID	Minimum Distance or Spacing (in.)
Edge Distance	Perpendicular	①	1 1/16
	Parallel	①	1 1/16
End Distance	Perpendicular	②	6
	Parallel	②	6
Spacing Between Fasteners in a Row	Perpendicular	③	4
	Parallel	④	8
Spacing Between Rows of Fasteners	Perpendicular	⑤	4
	Parallel	⑥	4
Spacing Between Staggered Rows	Perpendicular or Parallel	⑦	5/8

- For axial loading only, use the following minimum dimensions: end distance = 2 3/4", edge distance = 1 1/8", spacing parallel to grain = 2", spacing perpendicular to grain = 1 1/8".

Structural and General Fastening

Strong-Drive® SDWH™ TIMBER-HEX HDG Screw

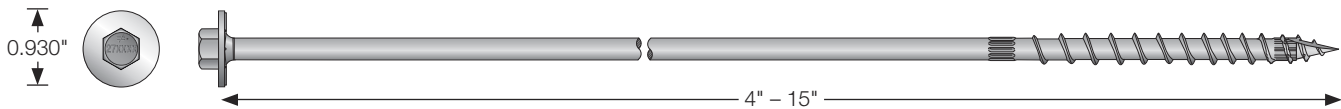
Structural Wood-to-Wood Connections, Indoor/Outdoor Projects,
Applications Requiring High to Severe Corrosion Resistance

The Strong-Drive line of structural screws includes a 0.276"-diameter ASTM A153, Class C hot-dip galvanized screw suitable for heavy-duty marine and coastal applications. The SDWH Timber-Hex HDG screw has a SawTooth® point and oversized integral washer that makes for fast installations; no predrilling or separate washer needed.

Codes/Standards: IAPMO UES ER-192 (including City of LA Supplement), State of Florida FL13975

US Patent: 9,523,383

For more information: see p. 64, C-F-2025 Fastening Systems catalog



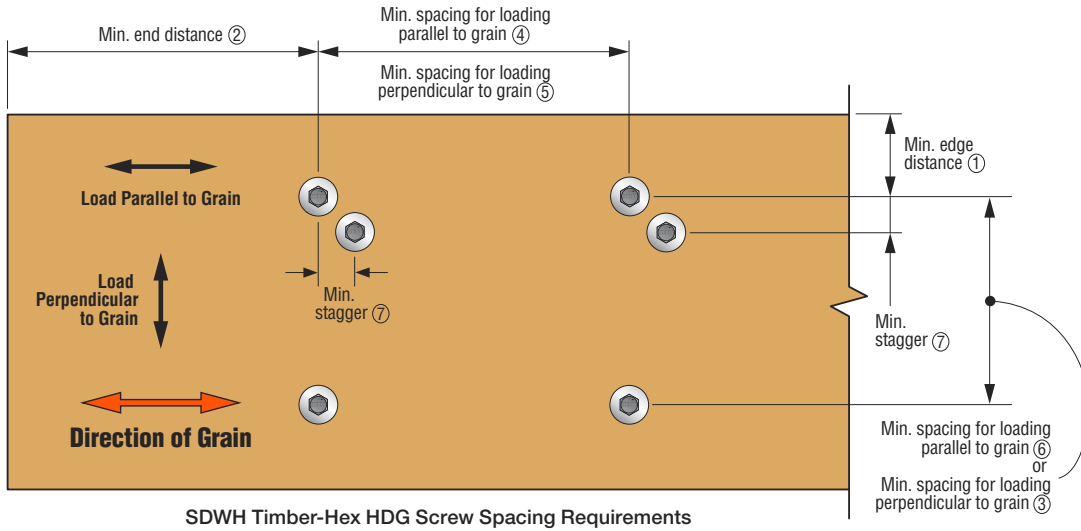
SDWH Timber-Hex HDG Screw — Allowable Single Shear and Withdrawal Loads

Fastener Length (in.)	Model No.	Thread Length (in.)	Reference Allowable Shear Loads (lb.)						Reference Allowable Withdrawal Loads, W (lb./in.)			Max. Withdrawal Loads, W _{max} (lb.)		
			Wood Side Member Thickness (in.)						SP	DFL	SPF/HF	SP	DFL	SPF/HF
			SP		DFL		SPF/HF							
			1.5	3	1.5	3	1.5	3						
4	SDWH27400G	3	505	—	440	—	400	—	287	255	212	860	765	635
6	SDWH27600G	3	505	545	440	545	400	450						
8	SDWH27800G	3	570	675	430	675	430	595						
10	SDWH271000G	3	570	675	430	675	430	595						
12	SDWH271200G	3	570	675	430	675	430	595						
15	SDWH271500G	3	570	675	430	675	430	595						

- All shear loads are based on full penetration into the main member. Full penetration is the screw length minus the side member thickness.
- Allowable loads are shown at the wood load duration factor of $C_D = 1.0$. Loads may be increased for load duration per the building code up to a $C_D = 1.6$. Tabulated values must be multiplied by all applicable adjustment factors per the NDS.
- For in-service moisture content greater than 19%: withdrawal $C_M = 0.65$; shear $C_M = 0.70$.
- For minimum fastener spacing requirements for both side and main members, see the Spacing Requirements Figure and Table on next page.
- Tabulated loads are for both parallel- and perpendicular-to-grain loading.
- Maximum withdrawal loads are based on full thread length penetration in the main member.

Structural and General Fastening

Strong-Drive® SDWH™ TIMBER-HEX HDG Screw (cont.)



SDWH Timber-Hex HDG Screw Spacing Requirements

Condition	Direction of Load to Grain	ID	Minimum Distance or Spacing (in.)
Edge Distance	Perpendicular	①	1 $\frac{1}{16}$
	Parallel	①	1 $\frac{1}{2}$
End Distance	Perpendicular	②	6
	Parallel	②	8
Spacing Between Fasteners in a Row	Perpendicular	③	4
	Parallel	④	8 ¹
Spacing Between Rows of Fasteners	Perpendicular	⑤	4 ²
	Parallel	⑥	4 ²
Spacing Between Staggered Rows	Perpendicular or Parallel	⑦	5 $\frac{1}{8}$ ³

1. Table loads must be multiplied by adjustment factor of 0.80.
2. Table loads must be multiplied by adjustment factor of 0.89.
3. Table loads must be multiplied by adjustment factor of 0.78.
4. For axial loading only, use the following minimum dimensions: end distance = 4", edge distance = 1 $\frac{1}{4}$ ", spacing parallel to grain = 2 $\frac{1}{8}$ ", spacing perpendicular to grain = 2".

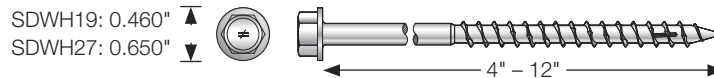
Structural and General Fastening

Strong-Drive® SDWH™ TIMBER-HEX SS Screw

Structural Wood-to-Wood Connections Including Ledgers, Indoor/Outdoor Projects, Applications Requiring High to Severe Corrosion Resistance

Type 316 stainless steel provides severe corrosion resistance, making it suitable for exterior and preservative-treated wood applications.

For more information: see p. 63, C-F-2025 Fastening Systems catalog



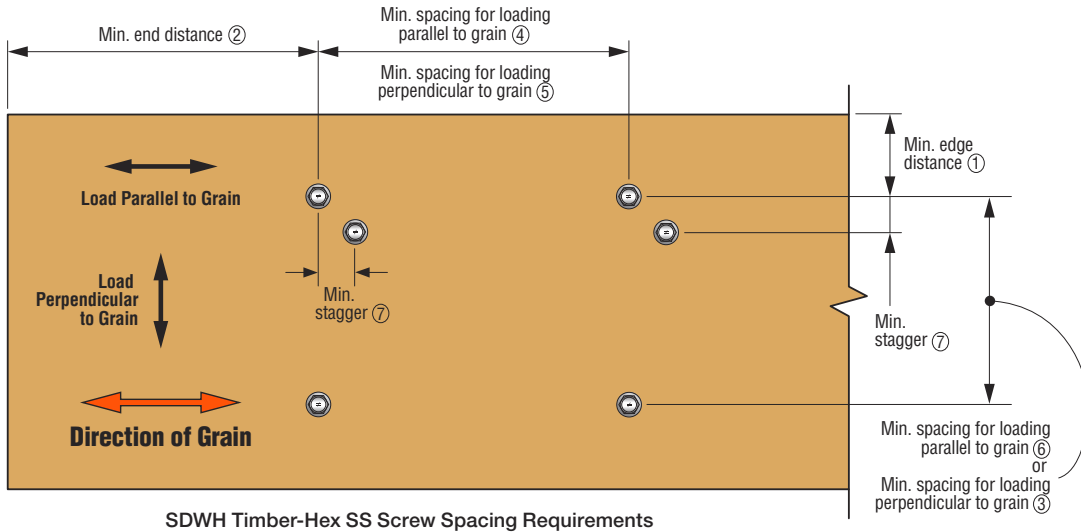
SDWH Timber Hex SS Screw — Allowable Shear Loads — Douglas Fir-Larch, Southern Pine, Spruce-Pine-Fir, Hem-Fir

Fastener Length (in.)	Model No.	Thread Length (in.)	Reference Allowable Shear Loads (lb.)		
			Wood Side Member Thickness (in.)		
			1½	3	3½
4	SDWH19400SS	2.40	177	—	—
4½	SDWH19450SS	2.75	177	177	—
5	SDWH19500SS	2.40	177	177	177
6	SDWH19600SS	2.40	177	177	177
8	SDWH19800SS	2.40	177	177	177
4	SDWH27400SS	3.00	235	—	—
5	SDWH27500SS	3.00	235	235	235
6	SDWH27600SS	3.00	235	235	235
8	SDWH27800SS	3.00	235	235	235
10	SDWH271000SS	3.00	235	235	235
12	SDWH271200SS	3.00	235	235	235

- All applications are based on full penetration into the main member. Full penetration is the screw length minus the side member thickness.
- Allowable loads are shown at the load duration factor of $C_D = 1.0$. Loads may be increased for load duration per the building code up to a $C_D = 1.6$. Tabulated values must be multiplied by all applicable adjustment factors per the NDS.
- Table values based on testing in SPF lumber.
- Design values include NDS wet service factor; no adjustment required for in-service moisture content greater than 19%.
- Allowable loads are perpendicular or parallel to grain.
- Installs best with 18V high-torque cordless or ½" low speed drill. If splitting occurs predrill with ⅝" drill bit for SDWH19 screws and ⅜" drill bit for SDWH27 screws.
- Allowable withdrawal load for the SDWH19 screw for DFL/SP is 155 lb./in. and for SPF/HF is 108 lb./in. Allowable load is based on inches of thread penetration into the main member.
- Allowable withdrawal load for the SDWH27 screw for DFL/SP is 260 lb./in. and for SPF/HF is 160 lb./in. Allowable load is based on inches of thread penetration into the main member.
- For LRFD values, the reference connection design values shall be adjusted in accordance with NDS-24, section 11.3.

Structural and General Fastening

Strong-Drive® SDWH™ TIMBER-HEX SS Screw (cont.)



SDWH Timber-Hex SS Screw Spacing Requirements

Condition	Direction of Load to Grain	ID	Minimum Distance or Spacing (in.)
Edge Distance	Perpendicular	①	1 7/16
	Parallel	①	1 7/16
End Distance	Perpendicular	②	3
	Parallel	②	3
Spacing Between Fasteners in a Row	Perpendicular	③	3
	Parallel	④	3
Spacing Between Rows of Fasteners	Perpendicular	⑤	3
	Parallel	⑥	3
Spacing Between Staggered Rows	Perpendicular or Parallel	⑦	1 1/2

1. For SDWH19 screws subject to axial loading only, use the following minimum dimensions: end distance = 2 3/8", edge distance = 1", spacing parallel to grain = 1 3/8", spacing perpendicular to grain = 1".
2. For SDWH27 screws subject to axial loading only, use the following minimum dimensions: end distance = 3 1/4", edge distance = 1 3/8", spacing parallel to grain = 2 3/8", spacing perpendicular to grain = 1 3/8".

Structural and General Fastening

Strong-Drive® SD CONNECTOR Screw

Simpson Strong-Tie Connectors, Indoor/Outdoor Projects

Codes/Standards: ICC-ES ESR-3046 (including City of LA Supplement), State of Florida FL 9589

For more information: see p. 71, C-F-2025 *Fastening Systems* catalog



SD Connector Screw — Allowable Shear Loads for Wood Connections

Size x Length (in.)	Model No.	Thread Length (in.)	Reference DFL/SP Allowable Shear Loads (lb.)			Reference SPF/HF Allowable Shear Loads (lb.)		
			Wood Side Plate Thickness (in.)			Wood Side Plate Thickness (in.)		
			1 ⁵ / ₃₂ – 1/2	2 ³ / ₃₂ – 3/4	1 1/2	1 ⁵ / ₃₂ – 1/2	2 ³ / ₃₂ – 3/4	1 1/2
#9 x 1 1/2	SD9112	1	105	—	—	93	—	—
#9 x 2 1/2	SD9212	1	118	133	130	99	94	109
#10 x 1 1/2	SD10112	1	127	—	—	102	—	—
#10 x 2 1/2	SD10212	1	147	168	152	106	126	123

- Allowable loads are shown at the wood load duration factor of $C_D = 1.00$. Loads may be increased for load duration per the building code up to a $C_D = 1.60$.
- The 1⁵/₃₂" and 2³/₃₂" side members must be plywood or OSB with minimum equivalent specific gravities of 0.50 for DFL and SP design values, and 0.42 for SPF and HF design values. See NDS, Table 12.3.3B for specific WSP grades and associated equivalent specific gravities.
- Loads are based on connections with main members of DFL/SP or SPF/HF and side members as shown and described in table note 2. Screws shall be installed normal to the surface of the wood members.
- For minimum fastener spacing requirements for both side and main members, see the Spacing Requirements Figure and Table on next page.

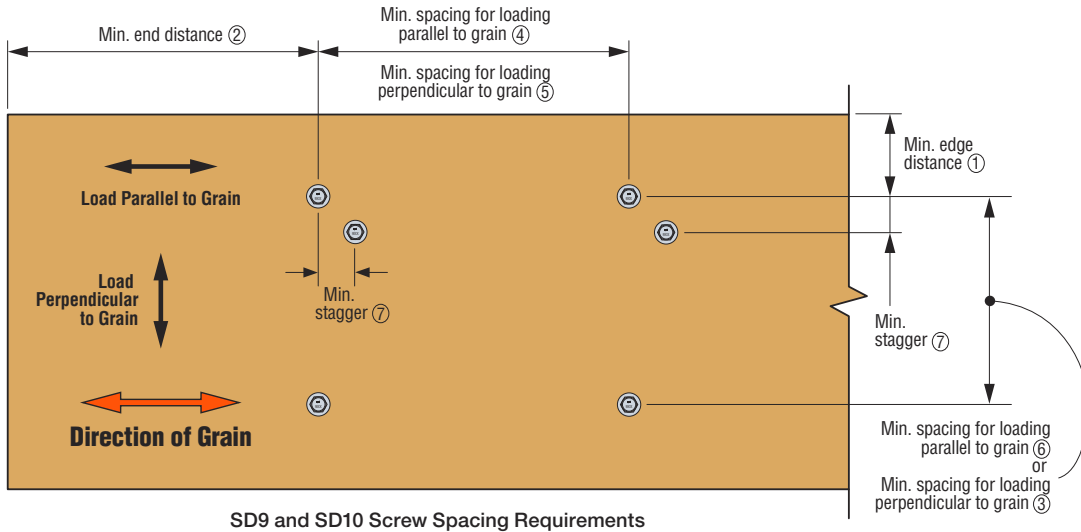
SD Connector Screw — Allowable Withdrawal Loads

Size x Length (in.)	Model No.	Thread Length (in.)	Reference Allowable Withdrawal Loads, W (lb./in.)	
			DFL/SP Main Member	SPF/HF Main Member
#9 x 1 1/2	SD9112	1	173	122
#9 x 2 1/2	SD9212			
#10 x 1 1/2	SD10112		173	122
#10 x 2 1/2	SD10212			

- The tabulated reference allowable withdrawal value, W, is in pounds per inch of the thread penetration into the side grain of the main member.
- Tabulated reference allowable withdrawal value, W, must be multiplied by all applicable adjustment factors from the NDS as referenced in the IBC or IRC.
- Embedded thread length is that portion held in the main member including the screw tip.
- For connections with 1⁵/₃₂" thick plywood or OSB side members, allowable withdrawal loads, W, must be limited by the head pull-through design value of 130 lb.

Structural and General Fastening

Strong-Drive® SD CONNECTOR Screw (cont.)



SD9 and SD10 Screw Spacing Requirements

SD Connector Screw Spacing Requirements

Condition	Direction of Load to Grain	ID	Minimum Distance or Spacing (in.)	
			Main Member	Wood Side Member
Edge Distance	Perpendicular	①	1	1
	Parallel	①	1/2	1/2
End Distance	Perpendicular	②	2	2 7/16
	Parallel	②	2	2 7/16
Spacing Between Fasteners in a Row	Perpendicular	③	2	2 7/16
	Parallel	④	2	2 7/16
Spacing Between Rows of Fasteners	Perpendicular	⑤	1/2	1 3/16
	Parallel	⑥	1/2	1 3/16
Spacing Between Staggered Rows	Perpendicular or Parallel	⑦	1/2	1/2

1. For SD9 screws subject to axial loading only, use the following minimum dimensions: end distance = 1 7/8", edge distance = 3/4", spacing parallel to grain = 1 1/4", spacing perpendicular to grain = 3/4".
2. For SD10 screws subject to axial loading only, use the following minimum dimensions: end distance = 2", edge distance = 7/8", spacing parallel to grain = 1 1/2", spacing perpendicular to grain = 7/8".

Structural and General Fastening

Strong-Drive® SD CONNECTOR SS Screw

For Simpson Strong-Tie Stainless-Steel Connectors

Codes/Standards: ICC-ES ESR-3046 (including City of LA Supplement); State of Florida FL9589

For more information: see p. 72, C-F-2025 Fastening Systems catalog

SD Connector SS Screw — Allowable Shear Loads for Wood Connections



Size x Length (in.)	Model No.	Thread Length (in.)	Reference DFL/SP Allowable Shear Loads (lb.)			Reference SPF/HF Allowable Shear Loads (lb.)		
			Wood Side Plate Thickness (in.)			Wood Side Plate Thickness (in.)		
			1 ⁵ / ₃₂ –1 ¹ / ₂	2 ³ / ₃₂ –3 ³ / ₄	1 ¹ / ₂	1 ⁵ / ₃₂ –1 ¹ / ₂	2 ³ / ₃₂ –3 ³ / ₄	1 ¹ / ₂
#9 x 1 ¹ / ₂	SD9112SS	1	105	—	—	93	—	—
#9 x 2 ¹ / ₂	SD9212SS		118	133	130	99	94	109

1. Allowable loads are shown at the wood load duration factor of $C_D = 1.00$. Loads may be increased for load duration per the building code up to a $C_D = 1.60$.

2. The 1⁵/₃₂" and 2³/₃₂" side members must be plywood or OSB with minimum equivalent specific gravities of 0.50 for DFL and SP design values, and 0.42 for SPF and HF design values. See NDS, Table 12.3.3B for specific WSP grades and associated equivalent specific gravities.

3. Loads are based on connections with main members of DFL/SP or SPF/HF and side members as shown and described in table note 2. Screws shall be installed normal to the surface of the wood members.

4. For minimum fastener spacing requirements for both side and main members, see the Spacing Requirements Figure and Table on next page.

SD Connector SS Screw — Allowable Withdrawal Loads

Size x Length (in.)	Model No.	Thread Length (in.)	Reference Allowable Withdrawal Loads, W (lb./in.)	
			DFL/SP Main Member	SPF/HF Main Member
#9 x 1 ¹ / ₂	SD9112SS	1	173	122
#9 x 2 ¹ / ₂	SD9212SS			

1. The tabulated reference allowable withdrawal value, W, is in pounds per inch of the thread penetration into the side grain of the main member.

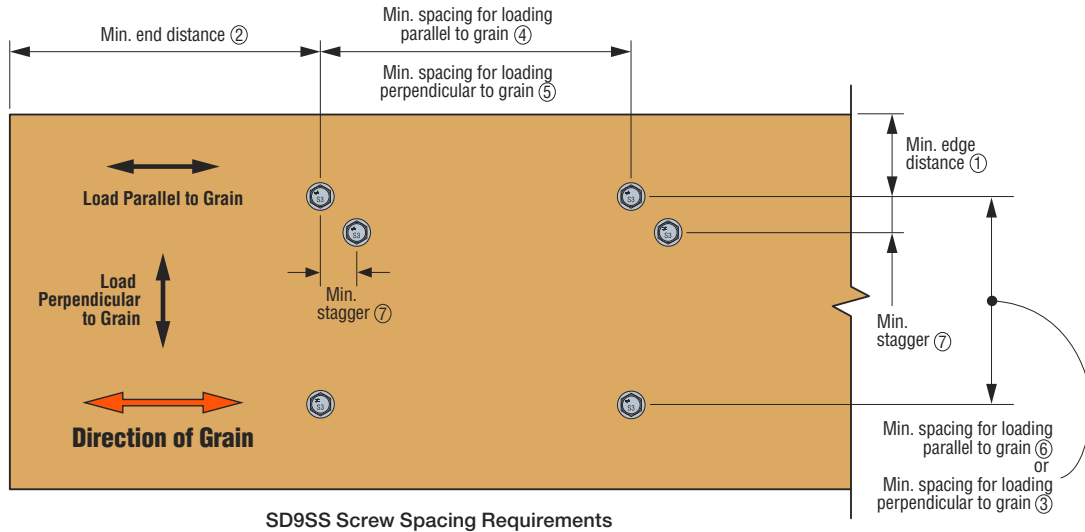
2. Tabulated reference allowable withdrawal value, W, must be multiplied by all applicable adjustment factors from the NDS as referenced in the IBC or IRC.

3. Thread penetration length is that portion held in the main member, including the screw tip.

4. For connections with 1⁵/₃₂" thick plywood or OSB side members, allowable withdrawal design values, W, must be limited by the head pull-through design value of 130 lb.

Structural and General Fastening

Strong-Drive® SD CONNECTOR SS Screw (cont.)



SD Connector SS Screw Spacing Requirements

Condition	Direction of Load to Grain	ID	Minimum Distance or Spacing (in.)	
			Main Member	Wood Side Member
Edge Distance	Perpendicular	①	1	1
	Parallel	①	1/2	1/2
End Distance	Perpendicular	②	2	2 7/16
	Parallel	②	2	2 7/16
Spacing Between Fasteners in a Row	Perpendicular	③	2	2 7/16
	Parallel	④	2	2 7/16
Spacing Between Rows of Fasteners	Perpendicular	⑤	1/2	1 3/16
	Parallel	⑥	1/2	1 3/16
Spacing Between Staggered Rows	Perpendicular or Parallel	⑦	1/2	1/2

1. For SD9SS screws subject to axial loading only, use the following minimum dimensions: end distance = 1 3/4", edge distance = 3/4", spacing parallel to grain = 1 1/4", spacing perpendicular to grain = 3/4".

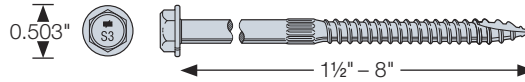
Structural and General Fastening

Strong-Drive® SDS HEAVY-DUTY CONNECTOR Screw

Heavy-Duty Simpson Strong-Tie Connectors, Indoor/Outdoor Projects

Codes/Standards: ICC-ES ESR-2236 (including City of LA Supplement), State of Florida FL9589

For more information: see p. 70, C-F-2025 Fastening Systems catalog



SDS Heavy-Duty Connector Screw — Allowable Shear Loads — Douglas Fir-Larch and Southern Pine Lumber

Fastener Length (in.)	Model No.	Reference DFL/SP Allowable Shear Loads (lb.)													
		Wood Side Plate Thickness (in.)													
		1/2	5/8	3/4	1	1 1/8	1 1/4	1 1/2	1 3/4	2 1/2	3	3 1/2	4	4 1/2	
2	SDS25200	145	—	—	—	—	—	—	—	—	—	—	—	—	
2 1/2	SDS25212	165	165	170	165	—	—	190 ¹	—	—	—	—	—	—	
3	SDS25300	165	165	170	185	195	205	280 ¹	—	—	—	—	—	—	
3 1/2	SDS25312	165	165	170	185	195	205	340 ¹	340 ¹	—	—	—	—	—	
4 1/2	SDS25412	165	165	170	185	195	205	350 ¹	340 ¹	230	200	—	—	—	
5	SDS25500	165	165	170	185	195	205	350 ¹	340 ¹	230	230	200	—	—	
6	SDS25600	165	165	170	185	195	205	350 ¹	340 ¹	340 ¹	340 ¹	340 ¹	230	200	
8	SDS25800	165	165	170	185	195	205	350 ¹	340 ¹	340 ¹	340 ¹	340 ¹	230	230	

See footnotes below.

SDS Heavy-Duty Connector Screw — Allowable Shear Loads — Spruce-Pine-Fir and Hem-Fir

Fastener Length (in.)	Model No.	Reference SPF/HF Allowable Shear Loads (lb.)													
		Wood Side Plate Thickness (in.)													
		1/2	5/8	3/4	1	1 1/8	1 1/4	1 1/2	1 3/4	2 1/2	3	3 1/2	4	4 1/2	
2	SDS25200	105	—	—	—	—	—	—	—	—	—	—	—	—	
2 1/2	SDS25212	130	135	130	120	—	—	135 ¹	—	—	—	—	—	—	
3	SDS25300	130	140	140	150	150	145	200 ¹	—	—	—	—	—	—	
3 1/2	SDS25312	130	140	140	150	155	165	245 ¹	245 ¹	—	—	—	—	—	
4 1/2	SDS25412	130	140	140	150	155	165	250 ¹	245 ¹	190	160	—	—	—	
5	SDS25500	130	140	140	150	155	165	250 ¹	245 ¹	190	190	160	—	—	
6	SDS25600	130	140	140	150	155	165	250 ¹	245 ¹	245 ¹	245 ¹	245 ¹	190	160	
8	SDS25800	130	140	140	150	155	165	250 ¹	245 ¹	245 ¹	245 ¹	245 ¹	195	195	

- Noted loads are based on testing per ICC-ES AC233 and assume a minimum main member thickness of the screw length minus the side member thickness. All other allowable loads are based on the NDS and a minimum penetration of $6D = 1.5"$ into the main member.
- Values are valid for a connection involving only two members. Where the side and main members have different specific gravities, the lower specific gravity shall be used.
- Allowable loads are also applicable to structural composite lumber (e.g., LVL, PSL, and LSL) having an equivalent specific gravity of 0.50 or greater.
- Allowable loads are shown at the wood load duration factor of $C_D = 1.00$. Loads may be increased for load duration by the building code up to a $C_D = 1.60$. The designer shall apply all adjustment factors required per NDS.
- Loads are based on perpendicular installation into the side grain of the wood members.
- Loads apply to corresponding stainless-steel models.
- For in-service moisture greater than 19%, use $C_M = 0.7$.

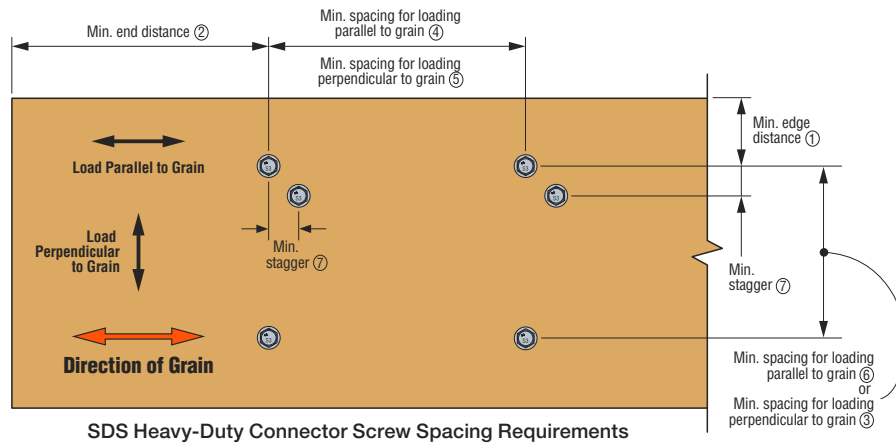
Structural and General Fastening

Strong-Drive® SDS HEAVY-DUTY CONNECTOR Screw (cont.)

SDS Heavy-Duty Connector Screw — Reference Allowable Withdrawal Loads — Douglas Fir-Larch, Southern Pine, Spruce-Pine-Fir and Hem-Fir Lumber

Model No.	Fastener Length (in.)	Thread Length (in.)	Reference Allowable Withdrawal Loads, W (lb./in.)		Max. Reference Allowable Withdrawal Loads, W _{max} (lb.)	
			DFL and SP Main Member	HF and SPF Main Member	DFL and SP Main Member	HF and SPF Main Member
SDS25112	1.5	1	172	121	170	120
SDS25200	2	1.25	172	121	215	150
SDS25212	2.5	1.5	172	121	255	180
SDS25300	3	2	172	121	345	240
SDS25312	3.5	2.25	172	121	345	240
SDS25412	4.5	2.75	172	121	345	240
SDS25500	5	2.75	172	121	345	240
SDS25600	6	3.25	172	121	345	240
SDS25800	8	3.25	172 </td <td>121</td> <td>345</td> <td>240</td>	121	345	240

1. The tabulated reference withdrawal design value, W, is in pounds per inch of the thread penetration into the side grain of the main member.
2. The tabulated reference withdrawal design value, W_{max}, is in pounds where the entire thread length must penetrate into the side grain of the main member.
3. The tabulated reference withdrawal design values, W and W_{max}, are shown at a C_D = 1.0. For end-grain withdrawal, use C_{eg} = 0.65. Tabulated values must be multiplied by all applicable adjustment factors from the NDS as referenced in the IBC or IRC.
4. Embedded thread length is that portion held in the main member including the screw tip.
5. Values are based on the lesser of withdrawal from the main member or pull-through of a 1½" side member.
6. For in-service moisture content greater than 19%, use C_M = 0.7.



SDS Heavy-Duty Connector Screw Spacing Requirements

SDS Heavy-Duty Connector Screw Spacing Requirements

Condition	Direction of Load to Grain	ID	Minimum Distance or Spacing (in.)
Edge Distance	Perpendicular	①	1½
	Parallel	①	1
End Distance	Perpendicular	②	4
	Parallel	②	3
Spacing Between Fasteners in a Row	Perpendicular	③	3
	Parallel	④	3
Spacing Between Rows of Fasteners	Perpendicular	⑤	3
	Parallel	⑥	3
Spacing Between Staggered Rows	Perpendicular or Parallel	⑦	1½

1. For axial loading only, use the following minimum dimensions: end distance = 3¼", edge distance = 1½", spacing parallel to grain = 2¼", spacing perpendicular to grain = 1½".