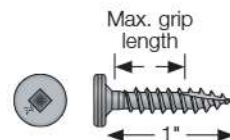


CFS Connections

PC Screws

For more information, see p. 233, C-F-2023 Fastening Systems catalog



Cold-Formed Steel (CFS) Member Connection Loads

Size-TPI x Length	Model No.	Nominal Dia. ⁷ (in.)	Load Description	Reference Shear (lb.)						Reference Pullover (lb.)						Reference Pullout (lb.)						
				Steel Thickness: [mil (ga.)]						Steel Thickness: [mil (ga.)]						Steel Thickness: [mil (ga.)]						
				27	33	43	54	68	97	27	33	43	54	68	97	22	27	33	43	54	68	97
				(22)	(20)	(18)	(16)	(14)	(12)	(22)	(20)	(18)	(16)	(14)	(12)	(24)	(22)	(20)	(18)	(16)	(14)	(12)
Pancake-Head Screw — Metal Roofing to Wood (or light-gauge CFS)																						
#10-12 x 1	PC1BS1012	0.190	ASD ²	290	345	—	—	—	—	170	255	475	—	—	—	—	—	106	136	—	—	—
			Nominal load ⁴	660	785					475	765	1,195							265	335		

- Screws and screw connections have been tested per AISI Standard Test Method S904 and S905.
- The tabulated ASD loads for cold-formed steel (CFS) members are based on the lower of the screw strength or the strength of the screw in the connected members per AISI S100.
- The safety factor is based on AISI S100 for tested connections.
- The nominal load values listed are achieved under laboratory conditions and should not be used for design loads.
- Values are based on CFS members with a minimum yield strength of $F_y = 33$ ksi and tensile strength of $F_u = 45$ ksi for 43 mil (18 ga.) to 27 mil (22 ga.), minimum yield strength of $F_y = 50$ ksi and tensile strength of $F_u = 65$ ksi for 22 mil (24 ga.), and a minimum yield strength of $F_y = 50$ ksi and $F_u = 65$ ksi for 54 mil (16 ga.) and thicker.
- For design purposes, steel sheet thicknesses are 0.0227" for 22 mil, 0.283" for 27 mil, 0.0346" for 33 mil, 0.0451" for 43 mil, 0.0566" for 54 mil, 0.0713" for 68 mil, and 0.1017" for 97 mil. The actual sheet thickness shall not be less than 95% of these design thicknesses as specified in AISI S100.
- Screw diameters per AISI S200 General Provision Commentary Table D1.1.
- Minimum required screw length is the lesser of $\frac{3}{4}$ " or the minimum length required for the screw to extend through the steel connection a minimum of three exposed threads per AISI S200 General Provisions Standard Section D1.3.
- Maximum grip length for the PC1BS1012 is 0.46". Grip length is the total connection thickness plus three protruding threads.
- Larger of screw head or washer diameter, d_w , for #10 and #12 screws is 0.375".
- The allowable load (ASD) values shown are not permitted to be increased for short-duration loads such as wind or earthquake loads.
- The lower of the pullover and pullout allowable load should be used for tension design.
- The tabulated shear values are based on the thinner steel member in connection. Steel thickness for both members must be in the range of 12–22 gauge.

Wood Member Connection Withdrawal Loads

Size-TPI x Length	Model No.	Nominal Diameter ⁴ (in.)	Load Description	Reference Withdrawal (lb.)					
				Plywood			OSB		SYP
				½"	⅝"	¾"	⅞"	¾"	2x
Pancake Head Screw — Metal Roofing to Wood									
#10-12 x 1	PC1BS1012	0.190	Allowable load ^{1,2}	55	55	60	33	51	117
			Average ultimate load ³	275	275	300	165	255	585

- Values based on the lower screw strength or strength of the screw in the connected members.
- The tabulated allowable loads for wood members are based on factor of safety of 5 as specified in AC233, and $C_D = 1.0$. Withdrawal may be increased for load duration per the building code up to $C_D = 1.6$.
- The average ultimate loads are achieved under laboratory conditions and should not be used for design purposes.
- Screw diameters per AISI S200 General Provisions Commentary Table D1-1.
- See p. 22 for information on screw strength.