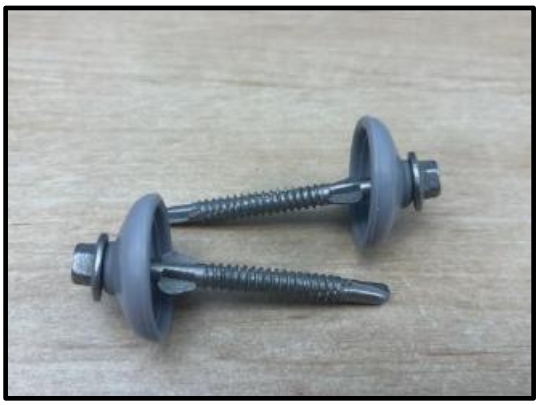
SURE-FAST
INDUSTRIAL FASTENERS

Mechanical Testing

Fibre-Fast Self Drilling screws were tested for determination of withdrawal properties in accordance with *AS 3566.1-2002 (R2015) Self-Drilling Screws for the Building and Construction Industries – Part 1: General Requirements and Mechanical Properties*.

The test procedure included being driven into G450 1.5mm thick steel purlin.



Screw Type:	Fibre-Fast Self Drilling (SD) – 14-14 x 65mm long
Screw Designation:	ST 6.3 (No. 12/14)
Head Type:	Hexagon Head 5/16
Coating Type:	Zinc
Application:	For Fibreglass sheeting into metal purlin

Screws were driven into galvanized steel substrate of 1.5mm thickness.

For all testing into steel substrates, several full pitch threads were protruding from the underside of the test plate. Axial withdrawal force was then applied individually to the screw head until the screws achieved the peak tensile force and withdrew from the test plate.

Table 1: Withdrawal Test Data for 14-14 x 65mm Long; 1.5mm Thick Steel (Purlin)

Sample ID	Test Number	Peak Force (kN)	Mode of Failure
14 - 14 x 65 mm	1	4.7	Withdrawal from steel purlin. No damage to threads
	2	5.1	Withdrawal from steel purlin. No damage to threads
	3	4.3	Withdrawal from steel purlin. No damage to threads
	4	4.3	Withdrawal from steel purlin. No damage to threads
	5	4.9	Withdrawal from steel purlin. No damage to threads
	6	4.9	Withdrawal from steel purlin. No damage to threads
	7	4.0	Withdrawal from steel purlin. No damage to threads
	8	4.3	Withdrawal from steel purlin. No damage to threads
	9	4.4	Withdrawal from steel purlin. No damage to threads
	10	4.3	Withdrawal from steel purlin. No damage to threads
Statistics			
Mean		4.5	
Maximum Value		5.1	
Minimum Value		4.0	
Standard Deviation		0.4	
Coefficient of Variation		0.08	
AS 3566.1-Table 3.3 Withdrawal Strength Requirements			
Screw Designation		14G BSD	
Minimum Permissible Value		3.1	

Table 2: Shear Test Data for 14-14 x 65mm Long; 1.5mm Thick Steel (Purlin)

Sample ID	Test Number	Double Plane Shear Force (kN)	Single Plane Shear Force (kN)	Mode of Failure
14 - 14 x 65 mm	1	26.2	13.1	Double plane shear
	2	28.9	14.4	Double plane shear
	3	29.2	14.6	Double plane shear
	4	28.4	14.2	Double plane shear
	5	26.1	13.1	Double plane shear
	6	30.3	15.1	Double plane shear
	7	25.8	12.9	Double plane shear
	8	25.8	12.9	Double plane shear
	9	23.6	11.8	Double plane shear
	10	27.3	13.6	Double plane shear
Statistics				
Mean		27.2	13.6	
Maximum Value		30.3	15.1	
Minimum Value		23.6	11.8	
Standard Deviation		2.0	1.0	
Coefficient of Variation		0.07	0.07	
AS 3566.1-Shear Strength Requirements				
Minimum Permissible Value		N/A	N/A	
Test Comment		**N/A**	**N/A**	

Installation Guide:

- Use drill/driver with clutch at RPM 1,800-2,500.
- Drill at low speed initially to allow wings to cut expansion hole in fibreglass sheeting.
- Drill through metal substrate and slowly drive until seal forms watertight seal over fibreglass.
- Do not over-drill screw to avoid crushing fibreglass sheeting or compressing seal which may cause gaps.