

Weldability

Short Cycle "SC"

Weldability

The general welding properties of Studfast "SC" weld studs are given in the table below. Select from the 1st column in the table your product parent material. Read across to the column corresponding to the weld stud material. The general welding properties of the 2 materials is then given to enable you to evaluate the compatibility of your selection.

Parent Material Condition

The welding properties of Studfast weld studs is dependant upon the condition of the parent material. The best quality parent material should be used wherever possible to eliminate the possibility of weld failures. When welding Mild Steel studs cold rolled material should ideally be used. The use of hot rolled Mild Steel should be avoided if possible but "SC" Studwelding is more tolerant to material in this condition and burns through any laminations that may be present in the parent material.

Parent Material	Stud Material		
	Mild Steel	Stainless Steel	Zinc Plated Mild Steel
Low Carbon Mild Steel	Good	Good	Fair
Steel up to 0.6% carbon	Fair	Good	Fair
Austenitic Stainless Steel	Good	Good	Fair
Zinc Coated Steel	Fair	Fair	Fair
Electro Galvanised Steel	Fair	Fair	Fair
Hot Rolled Structural Steel	Fair	Fair	Fair

Parent Material Condition

Studfast "SC" weld studs are designed for use on thicker material than "CD" and may (Dependant upon stud diameter) be welded to materials of 1.5mm thickness upwards.

	Capacitor Discharge "CD" Studs	Drawn Arc "DA" Studs
Mild Steel	BS3111 1979 type 0 DIN ISO898 pt 1 ST 37-3	BS 970 Pt 1 040A04 (Restricted Specification)
Stainless Steel	304Cu to BS3111 1979 Type 2	BS 970 type 304S11

Weld Testing

The strength of a "SC" weld on your material can be determined by the use of destructive and non destructive tests. These are detailed in the appropriate data sheet but comprise of bend tests, visual tests and torque testing.

Stud Diameter	Mild Steel CD Stud	Stainless Steel CD Stud	Aluminium Alloy CD Stud	Brass CD Stud
M3	2.00 kN	3.25 kN	0.75 kN	1.40 kN
M4	4.00 kN	5.50 kN	1.00 kN	2.20 kN
M5	6.25 kN	8.25 kN	1.75 kN	4.00 kN
M6	10.00 kN	13.00 kN	3.15 kN	6.50 kN
M8	14.00 kN	18.80 kN	5.50 kN	9.25 kN

Reverse Marking

With "SC" Studwelding reverse marking may be evident but this is normally of less importance than with "CD". The extent of any marking is proportional to stud diameter, parent material thickness, type and/or condition. Should you have any concerns regarding the extent of this marking Studfast would be pleased to carry out weld tests on sample material.

Studfast studs with or without pip's and/or "DA" weld studs may be used with "SC" Studwelding. Studs of a consistent length should must be used as inconsistent lengths will give inconsistent welds.

All Studfast Weld studs are manufactured to the latest specifications and to the materials shown in the table.

Stud Location

"SC" Studwelding is more tolerant than "CD" of uneven and/or dirty surfaces and tends to burn through any laminations in the parent material, therefore location of "SC" weld studs by means of a centre pop mark is possible without significant weld degradation. For more accurate location the use of templates is recommended. Advice on the manufacture of these templates is available upon request.

Shrouding Gas

If during welding the weld pool is exposed to the atmosphere it absorbs a combination of Oxygen, Hydrogen and Nitrogen. Small amounts of these gasses can be tolerated but they do cause porosity in the weld. To prevent the absorption of these gasses an inert shielding gas may be used thus preventing atmospheric contamination and weld porosity

Stud Diameter	Mild Steel DA Stud	Stainless Steel DA Stud
M5		
M6	6.70 kN	6.94 kN
M8	12.30 kN	12.75 kN

