

## STUD WELDING BASICS - REDUCED BASE STUDS

The following summarises the scope of stud welding services provided by DGC AFRICA.

### STANDARDS

The applicable standard for stud welding carried out ECI is AS/NZS 1554:2:2003.

### STUD TYPE

Reduced base studs, complete with flux, with ceramic ferrule, applied by drawn-arc stud welding.

### STUD MATERIAL GRADE

Studs are made from cold drawn stock complying with requirements of AS 1443, Grades 1010 through to 1020, either semi-killed or fully killed steel.

Stainless steel studs are also available to be welded by the drawn-arc welding process.

### MECHANICAL PROPERTIES OF STUDS (Extract from table 2.1 in standard)

PROPERTY	OTHER THAN SHEAR CONNECTORS
Tensile strength (Min)	380 MPa
Minimum yield strength (0.2% proof stress)	Not Applicable
Minimum elongation on $5.65 \sqrt{S_0}$ (Where $S_0$ = the original cross-sectional area within the gauge length) (Note 3)	10%
Minimum reduction in area	50%

DGC AFRICA undertake stud welding by the drawn-arc welding method with studs that are covered by AS/NZS 1554.2:2003 only. Hand welded studs, although covered by AS/NZS 1554.2:2003 are not included unless specifically quoted.

**Note 3** – If the elongation is measured on a 50mm gauge length, it shall comply with the following values:

STUD (SHAFT) DIAMETER (mm)	STUD DIAMETER	MINIMUM ELONGATION, %
2.7	M16	11
15.9	M20	12
22.2	M24	14



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# DGC TECHNICAL SUPPORT STUD WELDING BASICS

REDUCED  
BASE STUDS

## STUD SIZES AVAILABLE

The table below summarises the common stud sizes readily available for the Australian market.

STUD LENGTH	25	30	35	40	45	50	55	60	65	70	75	80	90	100
M10	N	Y	N	Y	X	Y	N	X	N	X	X	X	X	X
M12	N	Y	Y	Y	Y	Y	N	N	N	N	N	N	X	N
M16	N	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
M20	X	Y	Y	Y	Y	Y	Y	Y	Y	N	N	X	N	N
M24	X	X	X	X	X	X	N	N	X	N	X	N	X	N

### Notes:

Y – Stock item for DGC AFRICA & Suppliers

N – Not typically available/ limited stock in Perth, quantities may be available ex-east, lead times to be confirmed

X – Not a stock item from approved suppliers, will need to be manufactured to order. Stock levels may change without notice.

### Alternative – “High Tensile / Gr 8.8” Studs

High tensile “studs” are NOT covered by AS/NZS 1554.2:2003.

Where application/ installation requires these are applied by manually welding application, such as MIG, TIG, MMA, etc.

by welding machined threaded Grade 8.8 bar into position are typically covered by AS/NZS 1554.4, and require approved weld procedures.



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