



# MASTERWELD

## Masterweld 2594 Super Duplex Welding wire.

### Description

Masterweld 2594 is a super duplex stainless steel wire based on the 25%Cr-3.5%Mo-9%Ni chemistry with additions of Cu, W and N. The addition of W and N provides increased resistance to pitting corrosion and the wire is supplied with a PREN value of  $\geq 40$ . The as deposited weld metal microstructure consists of a mixture of austenite and ferrite with a ferrite content typically in the range 35-65% dependent upon heat input and cooling rates. The wire is suitable for use with the GTAW, GMAW and SAW welding processes. The resultant weld deposit exhibits high levels of strength in combination with good toughness down to -50°C.

### Applications

The wire is widely used for the manufacture of oil and gas production equipment for process pipework, risers, manifolds, pressure vessels pumps and valves. Other applications include chemical processing and desalination equipment.

The wire is used for welding super duplex stainless steels and can also be used for welding super martensitic stainless steels. Typical steel grades include:

Sandvik										2507
UNS		S32750,						UNS		S32760
Forgings:		ASTM		A182					F53,	F55
Castings:	ASTM	A995	Gr. 5A	(UNS J93404),	Gr. 6A	(UNS J93380)				
	ASTM	A890	Gr. 5A	(UNS J93404),	Gr. 6A	(UNS J93380)				

### Classification

**AWSA5.9ER2594**

**ASME SFA5.9 ER2594**

**Wire Analysis** (typical wt. %)

C	Mn	Si	S	P	Ni	Cr	Mo	W	Cu	N
0.010	0.68	0.31	0.001	0.025	9.24	25.09	3.61	0.62	0.61	0.23

PREN = %cr + 3.3(%mo) + 16(%n) = 40.68

### Mechanical Properties

Typical mechanical properties for welds completed using the GTAW process are:

Condition	0.2% Proof Strength (N/mm <sup>2</sup> )	Tensile Strength (N/mm <sup>2</sup> )	El. (%)	R of A (%)	Charpy V-Notch (J)
					-50°C
As welded	695	900	27	43	135

### Packaging

GTAW (TIG) wire is supplied in 1.60mm, 2.0mm, 2.4mm and 3.2mm diameters in 5kg tubes. Other sizes are available subject to special order. GMAW (MIG) wire is available in 0.9mm, 1.0mm & 1.20mm on 15kg coils with other sizes available to special order. Submerged arc wire is available to special order in the sizes 1.60mm, 2.00mm and 2.4mm.

### Storage and Handling

The wire should be stored in a dry room protected from moisture and other contamination.

Quality Assured Welding Wires to the Welding Industry

