TIG-Tectic 680

High strength filler rod for TIG.

Description:
TIG 680 is particularly suitable for the welding of difficult to weld steels.
Two characteristics are decisive: The very high mechanical strength of the joint. The two-phase structure of the deposit. The ferritic-austenitic type deposit with a delta ferrite phase distribution of approximately 70% ensures excellent resistance to cracking even for applications on base metals with high sulphur, phosphorous and lead contents. The high chrome content (29%) gives it excellent oxidation resistance up to service temperatures of 1150ºC; however, service temperatures between 500 & 800 ºC are not recommended.

Technical Data:
Standards

DIN 8556:	SG X 10 CrNi 30 9
W.Nr	1.4337
AWS A5.9	ER 312

Mechanical Properties:
(On test pieces prepared at 20ºC without annealing treatment)

	Minimum	*Typical*
Tensile Strength	650 N/mm²	730 N/mm²
Yield strength	450 N/mm²	520 N/mm²
Elongation	15%	25%
Hardness		225 HV.30

Shielding Gas:
Recommended gas: 100% argon

Applications:
TIG 680 is especially recommended for the joining of highly stressed work pieces, joints of dissimilar metals, high strength steels which on account of their hardening treatment are difficult to weld, high-chromium steels, tool steels.
TIG 680 is also suitable for buttering layers before deposition of an anti-wear coating. Because of its increased elongation ands its high resistance to cracking the buttering layer can neutralise the stresses caused by the differences in the elongation between the base metal and the coating. TIG 680 has demonstrated very good performance characteristics for the coating of cold forming tools.

Procedure for use:
Preparation:
The surfaces of the joint preparation and the adjoining arrears have to be clean, i.e. no oxidation, grease, paint, etc.
Preheating:
Preheating depends on the type and dimensions of the work-piece and on the carbon equivalent of the base metal. Preheating of 200-400ºC is recommended for large section work pieces with high carbon content.
Welding:
Polarity = (-) negative polarity
Angle between torch and work piece for a flat joint: 70-80º. Angle between rod & work piece 15-30º.
When welding the root pass, check the wetting by the molten pool and that the penetration is geometrically perfect. The inter-pass temperature of the joint must not exceed 150ºC. Use a stainless steel wire brush for subsequent cleaning.

Welding Positions:
PA, PB, PC, PE, PF, PD according to ISO 6946

Recommended welding current:

Electrode Diameter mm	***Welding Current DC***
1.6mm	0-150
2.4mm	110-180

Machining: The TIG deposit can be machined with standard cutting tools & can also be cut by the plasma cutting process.

Rod Diameter: 1.6mm 2.4mm

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