TIG F691

Old reference: TIG 90SB9

Classification

AWS A5.28 : ER90S-B9 ISO 21952-A : W CrMo91

Description & Applications

GTAW rods for welding creep resisting steels of similar chemical composition (known as P91) used at service temperatures up to 650°C. Deposit resisting to temperature and creep up to 650°C. Highly resistant to hot gas and overheated steam.

Main applications: For power plants, heat exchangers, tubes, steam boilers...

Base materials

Plates and pipes for boiler and pressure vessels

Mat. N°	EN	ASTM
1.7386	X12CrMo9-1	A187 Gr F9; A336 Gr F9; A335 Gr P9
1.4903	X10CrMoVNb9-1	Â199 gr. T91; A335 gr. P91; A213 gr T91

Typical Chemical Composition (%)

C	Si	Mn	Cr	Ni	Mo	Cu	V	Nb	N	P	S
0.09	0.25	0.6	8.8	0.65	0.95	0.03	0.2	0.06	0.05	0.002	0.007

All Weld Metal Mechanical Properties

$R_{p0,2}$ (MPa)	R_m (MPa)	A_5 (%)
650	750	18

After PWHT 760°C / 2h

Welding Current & Instructions

Welding mode	Shielding Gas
TIG = -	Ar : 6-12 l/min Back shielding : Nitrogen /H_2 : 3 - 6 l/min

Preheating and interpass temperature: 200-300°C. post weld heat treatment is advised at 760°C/2h, slow cooling (80°C/h) up to 300°C. Then, slow cooling at still air.

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