CORMET M91

FCAW

METAL CORED WIRE FOR T91/P91 CREEP RESISTING STEELS

PRODUCT DESCRIPTION

Metal cored wire designed to weld equivalent modified 9Cr-1Mo steels (P91). Metal powder system with a high purity strip producing weld metal recovery of about 96% with respect to the wire.

CLASSIFICATIONS

AWS A5.28M	E90C-B9
AWS A5.36M	E90T15-M12PZ-B91
ISO 17634-B	T69T15-0M-9C1MV

ASME IX QUALIFICATION

QW422	P-No 15E group 1
QW432	F-No 6
QW442	A-No 5

WELDING POSITIONS (ISO/ASME)

PA/1G

PB/2F

CHEMICAL COMPOSITION (WELD METAL WT %)

	C	Mn*	Si	S	P	Cr	Ni*	Mo	Nb	V	N	Cu	Al
Min.	0.08	0.60	--	--	--	8.0	--	0.85	0.03	0.18	0.03	--	--
Max.	0.13	1.20	0.50	0.015	0.020	10.0	0.80	1.20	0.07	0.25	0.07	0.15	0.04
Typical	0.1	1	0.3	0.01	0.01	9	0.3	1	0.05	0.2	0.05	0.05	0.03

* Ni + Mn ≤1.50%

OPERATING PARAMETERS

Operability is influenced by the type of shielding gas; higher CO_2 levels, up to 20%, give better arc characteristics but lower CO_2 and O_2 levels produce better impact properties. The best compromise is considered to be obtained from Ar-2½%CO_2 although if impact properties are not a major concern, higher CO_2 levels can be used to obtain optimum arc characteristics.

Diameter (mm)	Gas flow	Optimum	Stickout
1.2	15 – 25 l/min	DC+ 260A 28V	10 – 20mm
1.6	15 – 25 l/min	DC+ 330A 29V	15 – 25mm

ALL-WELD MECHANICAL PROPERTIES

Properties after PWHT	Min.	Typical (760°C 2 – 3h) Ar-2½%CO_2	Ar-20%CO_2	Ar-He-CO_2
Tensile strength (MPa)	690	780	780	780
0.2% proof strength (MPa)	565	650	650	650
Elongation (%) 4d	16	17	17	17
5d	14	16	16	16
Impact ISO-V(J) +20°C	--	30	25	35
Lateral expansion +20°C	--	0.30	0.28	0.45
Hardness (HV)	--	260	260	260

PACKAGING DATA

Diameter (mm)	Weight (kg)	Packaging	Item number
1.2	16	B300	CMM91-12N
1.6	16	B300	CMM91-16N

FUME DATA (WT % TYPICAL)

Fe	Mn	Ni	Cr^3	Mo	Cu	OES (mg/m³)
60	5	<0.5	5	< 0.1	< 0.1	5