

CHROMET 933

MMA (SMAW)

MMA ALL-POSITIONAL ELECTRODE FOR JOINING MARBN/P93 CREEP RESISTING STEELS

PRODUCT DESCRIPTION

Basic coated MMA electrode made on alloyed core wire.
Moisture resistant coatings giving very low weld metal hydrogen levels.
Recovery is approx. 120% with respect to core wire, 65% with respect to whole electrode.

CLASSIFICATIONS

AWS A5.5M	E9015-G(93) H4
EN ISO 3580-A	E ZCrWCoNb 9 3 3 B 3 2 H5

ASME IX QUALIFICATION

QW422	P-No 15E group 1
QW432	F-No 4
QW442	A-No 5

WELDING POSITIONS (ISO/ASME)



CHEMICAL COMPOSITION (WELD METAL WT %)

	C	Mn	Si	S	P	Cr	Ni	Mo	W	Co	Nb	V	N	B	Al
min.	0.08	0.50	0.15	--	--	8.5	0.30	--	2.5	2.8	0.05	0.18	0.03	0.008	--
max.	0.12	0.70	0.25	0.01	0.01	9.5	0.50	0.50	3.2	3.5	0.07	0.25	0.06	0.013	0.03
Typical	0.10	0.6	0.2	0.008	0.008	9	0.4	0.4	2.7	3.2	0.06	0.23	0.04	0.010	<0.005

ALL-WELD MECHANICAL PROPERTIES

PWHT	Min.	Typical 775°C/4h	High Temperature		
			+550°C	+600°C	+650°C
Tensile strength (MPa)	620	750	517	454	407
0.2% proof strength (MPa)	530	620	454	382	286
Elongation (%) 4d	17	22	18	25	35
5d	16	18	15	21	17
Reduction of area %	--	60	61	71	70
Impact ISO-V(J) +20°C	--	35	--	--	--
Hardness (HV)	--	240-260	--	--	--

OPERATING PARAMETERS, DC +VE OR AC (OCV: 70V MIN)

Diameter (mm)	2.5	3.2	4.0
min. A	60	80	100
max. A	90	120	160

PACKAGING DATA

	Diameter (mm)	Length (mm)	Item number	No of pieces		Weight (kg)	
				can	box	can	box
METAL CAN	2.5	300	CHROMET933-25-1	117	351	3.9	11.7
	3.2	350	CHROMET933-32-1	129	387	4.3	12.9
	4.0	350	CHROMET933-40-1	135	405	4.5	13.5

Redrying : 250 – 300°C/1-2h to ensure H₂ < 10ml/100g, 300 – 350°C/1-2h to ensure H₂ < 5ml/100g. Maximum 420°C, 3 cycles, 10h total.

FUME DATA (WT % TYPICAL)

Fe	Mn	Ni	Cr	Cu	Pb	F	OES (mg/m ³)
15	5	< 0.1	< 3	< 0.1	< 0.1	18	1.7