

Rutile electrode

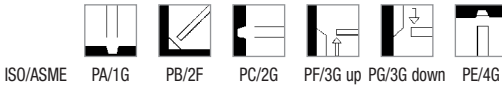
Classification

AWS A5.1-91 : E6013
 EN 499-94 : E 42 0 RC 11

General description

Rutile general purpose, all position electrode, including vertical down
 Applicable for "clean" structural steel
 Smaller diameters excellent for hobby market
 Very suitable for low Open Circuit Voltage transformers (min. OCV 42V)

Welding positions



ISO/ASME PA/1G PB/2F PC/2G PF/3G up PG/3G down PE/4G

Current type

AC / DC elektr. -

Approvals

ABS	BV	CTL	DNV	GL	LR	RMRS
2	2	+	2	2	2	2

Chemical composition (w%), typical, all weld metal

C	Mn	Si
0.07	0.5	0.5

Mechanical properties, all weld metal

	Condition	Yield strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J) 0°C
Required: AWS A5.1-91		min. 331	min. 414	min. 17	not required
EN 499-94		min. 420	500-640	min. 20	min. 47
Typical values	AW	520	550	26	60

Packaging, available sizes and identification

	Diameter (mm)	1.8	2.5	3.2	4.0	5.0
	Length (mm)	300	350	350	350	450
Unit: box	Pieces / unit (nominal)	270	155	155	120	70
	Net weight/unit (kg)	2.3	2.9	4.8	5.4	6.4

Identification Imprint: 6013/Omnia Tip colour: dark blue

Omnia®. rev. EN 15

Materials to be welded

Steel	Code	Type
General structural steel	EN 10025	S185, S235, S275
Ship plates	ASTM A 131	Grade A, B, D
Cast steel	EN 10213-2	G P 240R
Pipe material	EN 10208-1	L210, L240, L290
	EN 10208-2	L240, L290
	API 5LX	X42, X46
	EN 10216-1/ EN 10217-1	P235, P275
Boiler & pressure vessel steel	EN 10028-2	P235, P265, P295
Fine grained steel	EN 10113-2	S275
	EN 10113-3	S275

Calculation data

Sizes Diam. x length (mm)	Current range (A)	Current type	Arc time - per electrode at max. current - (s)*	Energy E(kJ)	Dep.rate H(kg/h)	Weight/ 1000 pcs. (kg)	Electrodes/ kg weldmetal B	kg Electrodes/ kg weldmetal 1/N
1.8 x 300	40 - 60	AC	40	38	0.43	8.4	210	1.75
2.5 x 350	65 - 90	AC	52	108	0.81	18.5	85	1.59
3.2 x 350	95 - 130	AC	65	229	1.0	31.1	53	1.67
4.0 x 350	130 - 160	AC	72	333	1.3	43.6	37	1.61
5.0 x 450	170 - 240	AC	106	740	2.1	92.2	16	1.47

*stub end 35 mm

Welding parameters, optimum fill passes

Welding position Diameter (mm)	PA/1G Current (A)	PB/2F	PC/2G	PF/3G up	PG/3G down	PE/4G
1.8					45	
2.5	80	75	75	75	75	75
3.2	120	115	125	115	125	115
4.0	175	165	160	160	170	160
5.0	240	240			250	

Application advice

Vertical down only applicable for "clean" structural steel