

Rutile electrode

Classification

AWS A5.1-91 : E6012
 EN 499-94 : E 38 2 RA 13

General description

Rutile coated electrode with brittle slag that releases easily
 Specially for narrow gaps, fillet welds and rusty materials
 Good X-ray soundness
 Excellent mechanical properties
 Class 3 approvals

Welding positions



ISO/ASME PA/1G PB/2F

Current type

AC / DC electr. -

Approvals

ABS	BV	CTL	DB	DNV	LR	TÜV
3	3	+	+	3	3	+

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

C	Mn	Si
0.09	0.6	0.3

Mechanical properties, all weld metal

	Condition	Yield strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J) -20°C
Required: AWS A5.1-91		min. 331	min. 414	min. 17	not required
EN 499-94		min. 380	470-600	min. 20	min. 47
Typical values	AW	420	530	25	65

Packaging, available sizes and identification

	Diameter (mm)	3.2	4.0	5.0
	Length (mm)	450	450	450
Unit: box	Pieces / unit (nominal)	130	90	60
	Net weight/unit (kg)	5.9	5.9	6.2

Identification

Imprint: 6012/Resistens 100

Tip colour: orange

Resistens® 100: rev. EN 15

Resistens® 100

Materials to be welded

Steel	Code	Type
General structural steel	EN 10025	S185, S255, S275, S355
Ship plates	ASTM A131	Grade A, B, D, AH32 to DH36
Cast steel	EN 10213-2	G P 240R
Pipe material	EN 10208-1	L210, L240, L290, L360
	EN 10208-2	L240, L290, L360.
	API 5LX	X42, X46, X52
Boiler & pressure vessel steel	EN 10028-2	P235, P265, P295
Fine grained steel	EN 10113-2	S275, S355,
	EN 10113-3	S275, S355

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
3.2 x 450	100 - 150	AC	68	286	1.4	45.6	38	1.72
4.0 x 450	160 - 180	AC	80	446	1.8	66.3	25	1.67
5.0 x 450	230 - 240	AC	78	658	2.8	104.8	16	1.69

*stub end 35 mm

Welding parameters, optimum fill passes

Welding position Diameter (mm)	PA/1G Current (A)	PB/2F
3.2	140	140
4.0	190	190
5.0	250	260

Application advice

For high yield strength steels such as S355, L360, P355 preheat according EN 1011-1