Elex® RR 6013

Rutile electrode

Classification

AWS A5.1	:E6013
ISO 2560-A	:E 42 0 RR 12

General description

Rutile electrode, especially for down hand welding in structural steel
Smaller sizes most versatile for thin plate material
Very smooth appearance
Self releasing slag

Welding positions

ISO/ASME	PA/1G	PB/2F	PC/2G	PE/4G

Current type

AC/DC electr.-

Approvals

ABS	BV	DNV	FORCE	GL	LR	TÜV
2	2	2	+	2	2	+

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

C	Mn	Si
0.1	0.6	0.4

Mechanical properties,all weld metal

		Condition	Yield strength, (N/mm^2)	Tensile strength (N/mm^2)	Elongation (%)	Impact (ISO), J 0^oC
Required	AWS A5.1		min.331	min.414	min.17	not required
	ISO 2560-A		min.420	500-640	min.20	min.47
Typical values after welding		AW	480	560	26	50

Packaging,available sizes and identification

	Diameter (mm)	2.0	2.5	3.2	3.2	4.0
	Length (mm)	300	350	350	450	450
Unit:	Pieces / unit (nominal)	200	130	140	125	80
Box	Net weight/unit (kg)	2.4	2.8	4.8	5.8	5.9

Identification Imprint: **Elex® RR 6013** Tip colour: red

Elex® RR 6013 :rev. EN 20

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Materials to be welded

Steel	Code	Type
General structural steel	EN 10025	S185, S235, 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, X60
	EN 10216-1/	P235, P275
	EN 10217-1	P355
Boiler & pressure vessel steel	EN 10028-2	P235, P265, P295, P355
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 (s)*	Energy at max.current - E(kJ)	Dep.rate H(kg/h)	Weight/ 1000 pcs. (kg)	Electrodes/ kg weldmetal B	kg Electrodes/ 1 kg weldmetal (1/N)
2.0x300	40-65	AC	41	58	0.5	11.4	178	2.00
2.5x350	70-100	AC	51	134	0.8	21.1	93	1.96
3.2x350	100-140	AC	57	281	1.3	39.3	47	1.85
3.2x450	100-140	AC	69	341	1.5	49.6	36	1.79
4.0x350	150-200	AC	55	399	2.0	56.3	33	1.85
4.0x450	150-200	AC	69	483	2.1	66.9	25	1.67
5.0x450	180-250	AC	83	882	2.9	112.0	15	1.69

*stub end = 35 mm

Welding parameters,optimum fill passes

Welding position Diameter (mm)	PA/1G Current (A)	PB/2F	PC/2G	PE/4G
2.0	50			
2.5	100	95	85	85
3.2	130	120	115	105
4.0	185	185	160	130
5.0	260	260		

Remarks

Best choice for welding thin plates

Application advice

High yield strength steels such as S355,L360,P355 and X60 preheat according EN 1011-1