Elex® R 6013 Extra

Rutile electrode

Classification

AWS A5.1	:E6013
ISO 2560-A	:E 38 0 R 12

General description

Rutile general purpose, all positions electrode (except vertical down)
Excellent for pipe welding and construction work
Smooth side wall wetting
Good X-ray soundness

Welding positions

ISO/ASME	PA/1G	PB/2F	PC/2G	PF/3G up	PE/4G	PF/5Gup

Current type

AC/DC electr.-

Approvals

ABS	BV	DNV	GL	LR	TÜV
2	2	2	2	2,2Y	+

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

C	Mn	Si
0.1	0.5	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.380	470-600	min.20	min.47
Typical values after welding		AW	500	540	25	55

Packaging,available sizes and identification

	Diameter (mm)	2.0	2.5	3.2	4.0
	Length (mm)	300	350	350	350
Unit:	Pieces / unit (nominal)	230	150	175	115
Box	Net weight/unit (kg)	2.3	2.9	5.2	5.3

Identification Imprint: **Elex® R 6013 Extra** Tip colour:white

Elex® R 6013 Extra :rev. EN 20

Materials to be welded

Steel	Code	Type
General structural steel	EN 10025	S185, S235, S275
Ship plates	ASTM A131	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 (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	50-60	AC	43	57	0.5	11.4	154	1.68
2.5x350	70-90	AC	68	134	0.6	19.2	84	1.60
3.2x350	90-125	AC	80	220	0.9	30.3	50	1.51
3.2x450	100-135	AC	102	303	0.9	41.3	38	1.56
4.0x350	140-190	AC	74	323	1.5	45.5	33	1.49
4.0x450	150-200	AC	95	456	1.5	62.1	26	1.58
5.0x450	180-240	AC	115	662	1.8	105.5	17	1.75

* stub end = 35 mm

Welding parameters,optimum fill passes

Welding position Diameter (mm)	PA/1G Current (A)	PB/2F	PC/2G	PC/3G up	PG/3G down	PE/4G	PF/5G up	PG/5G down
2.0	55	55	55	50	55		50	55
2.5	80	85	85	80	85	85	80	85
3.2	110	115	115	110	115	110	110	115
4.0	170	175	175	175	180	175	175	180
5.0	220	230		230				