Numal

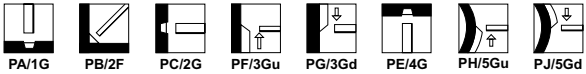
CLASSIFICATION

AWS A5.1	E6013	**A-Nr**	1
ISO 2560-A	E 38 0 R 11	**F-Nr**	2
		9606 FM	1

GENERAL DESCRIPTION

Rutile general purpose, all positions electrode
Applicable for "clean" structural steel
Smaller diameters excellent for hobby market
Very suitable for low open circuit voltage transformers (min. OCV 42 V)

WELDING POSITIONS (ISO/ASME)



PA/1G **PB/2F** **PC/2G** **PF/3Gu** **PG/3Gd** **PE/4G** **PH/5Gu** **PJ/5Gd**

CURRENT TYPE

AC / DC -

APPROVALS

ABS	BV	DNV	GL	LR	TÜV
2	2	2	2	2	+

CHEMICAL COMPOSITION (W%), TYPICAL, ALL WELD METAL

C	Mn	Si
0.06	0.5	0.45

MECHANICAL PROPERTIES, TYPICAL, 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		min. 331	min. 414	min. 17	not required
ISO 2560-A		min. 420	500-640	min. 20	min. 47
Typical values	AW	430	480	26	60

PACKAGING AND AVAILABLE SIZES

	Diameter (mm)	2.0	2.5	3.2	4.0
	Length (mm)	300	350	350	350
Carton + PE foil	**Pieces / unit**	400	255	181	111
	Net weight/unit (kg)	4.2	4.8	5.3	5.0

Identification Imprint: 6013-NUMAL Tip Color: yellow

Numal: rev. C-EN05-04/04/18

Numal

MATERIALS TO BE WELDED

Steel grades/Code	Type
General structural steels	
EN 10025	S185, S235, S275
Ship plates	
ASTM A 131	Grade A, B, D
Cast steels	
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/EN10217-1	P235, P275
Boiler & pressure vessel steels	
EN 10028-2	P235, P265, P295
Fine grained steels	
EN 10025 part 3	S275
EN 10025 part 4	S275

CALCULATION DATA

Sizes Diam. x length (mm)	Current range (A)	Current type	Arc time - per electrode at max. current - (S)*	Energy - per electrode at max. current - E(kJ)	Dep. rate - per electrode at max. current - H(kg/h)	Weight/ 1000 pcs (kg)	Electrodes/ kg weldmetal B	kg electrodes/ kg weldmetal 1/N
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
4.0x350	140-190	AC	74	323	1.5	45.5	33	1.49

*Stub end 35mm

WELDING PARAMETERS, OPTIMUM FILL PASSES

Diameter (mm)	Welding positions PA/1G	PB/2F	PC/2G	PF/3Gup	PG/3Gdown	PE/4G	PH/5Gup	PJ/5Gdown
2.5	80A	85A	85A	80A	85A	85A	80A	85A
3.2	110A	115A	115A	110A	115A	110A	110A	115A
4.0	170A	175A	175A	175A	180A	175A	175A	180A