

THE LINDE GROUP

Linde

Linde electrodes

Linde Basic 7018

Classification

AWS A5.1: E 7018

ISO 2560-A: E 42 4 B 42 H5

General description

Low hydrogen basic electrode designed for producing crack-free and X-ray quality of welded joints. Weld metal exhibits good toughness properties down to -40°C. Good operating characteristics and gap bridging, also in positional welding. Smooth and clean welds blending into base metal without undercut. Suitable for buffer layers on steels having a higher carbon content. Weld metal recovery approx. 115%.

Welding positions

ISO/ASME



PA/1G



PB/2F



PC/2G



PF/3Gup



PE/4G



PF/6Gup

Current type

DC +

Approvals

TÜV	DB	BV	GL	LR
+	+	3YH5	3YH5	3YH5



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

C	Mn	Si	HDM
0,05	1,3	0,4	<5ml/100g

Mechanical properties, typical, all weld metal

	Condition	Yield strength	Tensile strength	Elongation	Impact ISO-V(J)	
		(N/mm ²)	(N/mm ²)	(%)	- 460C	- 400C
Required:	AWS A5.1	min. 399	min. 482	min. 22	min. 27	
	EN ISO 2560	min. 420	500-640	min. 20		min. 47
Typical values		480	560	28		100

Packaging and available sizes

	2.5	3.2	4.0
Diameter (mm)			
Length (mm)	350	350	350
Pieces / unit	205	125	85
Weight of box (kg)	4,6	4,5	4,6



Linde Rutile 6013

Materials to be welded

Steel	Code	Type
General structural steel	EN 10025	S185, S235, S275, S355
Ship plates	EN 10213-2	GP240R
Pipe material	EN 10208-1	L210, L240, L290, L360
	EN 10208-2	L240, L290, L360, 415, L445
	API 5LX	X42, X46, X52, X60
	EN 10216-1/ EN10217-1	P235T1, P235T2, P275T1 P275T2, P355N
	Boiler & pressure vessel steel	EN 10028-2
Fine grained steel	EN 10113-2	S275, S355, S420
	EN 10113-3	S275, S355, S420

Welding parameters, optimum fill passes

Welding positions	PA/1G	PB/2F	PC/2G	PF/3G up	PE/4G	PG/5G up
Diameter (mm)						
2,5	95	95	90	90	85	90
3,2	140	130	130	125	120	125
4,0	180	180	180	160		

Application Advice

Electrodes after removal from cardboard boxes redry 2-3 h at 250-300°C.

Classification

AWS A5.1 : E6013

ISO 2560-A : E 42 0 RC 11

General description

Rutile general purpose, all positions electrode

Applicable for "clean" structural steel (2.5, 3.2, 4.0 mm)

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/3Gup

PG/3Gdown

PE/4G

PF/5Gup

PG/5Gdown

Current type

AC / DC -

Approvals

ABS	BV	DNV	GL	LR	TÜV
2	2	2	2	2	+

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

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)	2.5	3.2	4.0
Unit: box	Length (mm)	350	350	350
	Pieces / unit	250	175	110
	Net weight/unit (kg)	4.8	5.3	5.0
Unit: Linc Pack	Pieces / unit	54	33	22
	Net weight/unit (kg)	1.0	1.0	1.0

Materials to be welded

Steel grades	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/	P235, P275
	EN 10217-1	
Boiler & pressure vessel steel	EN 10028-2	P235, P265, P295
Fine grained steel	EN 10025 part 3	S275
	EN 10025 part 4	S275

Calculation data

Diam. x length	(mm)	2.5x350	3.2x350	4.0x350
Current range	(A)	70-90	90-125	140-190
Current type		AC	AC	AC
Arc time per electrode	(s)*	68	80	74
Energy at max.	E(kJ)	134	220	323
Dep.rate current	H(kg/h)	0.6	0.9	1.5
Weight/1000 pcs.	(kg)	19.2	30.3	45.5
Electrodes/kg weldmetal	B	84	50	33
kg Electrodes/kg weldmetal	1/N	1.60	1.51	1.49

* stub end 35 mm

Welding parameters, optimum fill passes

Welding positions	PA/1G	PB/2F	PC/2G	PF/3G	PG/3G	PE/4G	PF/5G	PG/5G
				up	down		up	down
Diameter (mm)								
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

Liability: All information in this data sheet is based on the best available knowledge, is subject to change without notice and can only be considered as suitable for general guidance.

Fumes: Consult information on Welding Safety Sheet, available upon request.

