

Basic electrode

Classification

AWS A5.1 : E7016-1 H4R
ISO 2560-A : E 42 4 B 12 H5

General description

Basic extremely low hydrogen electrode
Good impact values at -40 °C
Good CTOD at -10°C, meets offshore requirements
Excellent root pass electrode (diam. 2.5 and 3.2 mm)
Also available in vacuum sealed Sahara ReadyPack® (SRP): H_{DM} < 3 ml/100g

Welding positions



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

Current type

AC / DC + / -

Approvals

ABS	BV	DNV	FORCE	GL	LR	TÜV
3H,3Y	3,3YHH	3YH5	+	3YH10	3,3YH5	+

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

C	Mn	Si	P	S	H _{DM}
0.06	1.4	0.5	0.015	0.010	2 ml/100 g

Mechanical properties, all weld metal

	Condition	Yield strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J)		
					-20°C	-40°C	-46°C
Required: AWS A5.1		min. 400	min. 483	min. 22			min. 27
ISO 2560-A		min. 420	500-640	min. 20		min. 47	
Typical values	AW	520	575	28	115		
CTOD value at -10°C > 0.25 mm							

Packaging and available sizes

	Diameter (mm)	2.5	3.2	3.2	4.0	4.0	5.0
	Length (mm)	350	350	450	350	450	450
Unit: box	Pieces / unit	135	150	151	100	96	55
	Net weight/unit (kg)	2.7	4.7	6.0	4.6	6.0	6.0
Unit: SRP	Pieces / unit	70	56	56	30	30	23
	Net weight/unit (kg)	1.4	1.8	2.3	1.4	1.8	2.6

Identification

Imprint: 7016-1 / CONARC 51

Tip Color: gold

Conarc® 51: rev. EN 21

Materials to be welded

Steel grades/Code	Type
General structural steel	
EN 10025	S185, S235, S275, S355
Ship plates	
ASTM A131	Grade A, B, D, AH32 to EH40
Cast steel	
EN 10213-2	GP240R
Pipe material	
EN 10208-1	L210, L240, L290, L360
EN 10208-2	L240, L290, L360, L415, L445
API 5LX	X42, X46, X52, X60
EN 10216-1/	P235T1, P235T2, P275T1
EN 10217-1	P275T2, P355N
Boiler & pressure vessel steel	
EN 10028-2	P235GH, P265GH, P295GH, P355GH
Fine grained steel	
EN 10113-2	S275, S275, S355, S420
EN 10113-3	S275, S355, S420

Calculation data

Sizes Diam. x length (mm)	Current range (A)	Current type	Arc time - per electrode at max. (s)*	Energy E(kJ)	Dep.rate - H(kg/h)	Weight/ 1000 pcs. (kg)	Electrodes/ kg weldmetal B	kg Electrodes/ kg weldmetal 1/N
2.5 x 350	40 - 80	DC+	53	123	0.8	19.6	86	1.68
3.2 x 350	70 - 120	DC+	62	178	1.0	30.8	57	1.74
3.2 x 450	70 - 120							
4.0 x 350	100 - 160	DC+	71	306	1.4	48.0	37	1.78
4.0 x 450	100 - 160							
5.0 x 450	180 - 240	DC+	104	702	2.6	103.0	13	1.36

* stub end 35 mm

Welding parameters, optimum fill passes

Welding positions Diameter (mm)	PA/1G	PC/2G	PF/3G up	PE/4G	PF/5G up
2.5	75A	70A	75A	70A	75A
3.2	100A	110A	100A	100A	100A
4.0	150A	140A	130A	125A	125A
5.0	220A	220A	180A		

Remarks/ Application advice

Electrodes after removal from cardboard boxes redry 2-4h 350 ± 25°C