

Basic electrode

Classification

AWS A5.1-91 : E7018-1 H4R
EN 499-94 : E 46 4 B 32 H5

General description

Basic extremely low hydrogen electrode $H_{DM} < 3\text{ ml}/100\text{ g}$ (SRP)

Reliable impact toughness at -40°C , good CTOD-values at -10°C

The off-shore electrode when Ni-alloying is not allowed

100 - 120% recovery

Good pipe welding properties

Excellent X-ray soundness

Also available in vacuum sealed Sahara ReadyPack® (SRP) $H_{DM} < 3\text{ ml}/100\text{g}$

Welding positions



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

Current type

AC / DC electr. + / -

Approvals

ABS	BV	CTL	DB	DNV	FORCE	GL	LR	RMRS	TÜV
3H,3Y	3YHH	+	+	3YH5	+	3YH10	3,3YH5	3-3YH5	+

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

C	Mn	Si	P	S	H_{DM}
0.06	1.4	0.3	0.015	0.01	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 A5.1-91		min. 399	min. 482	min. 22			min. 27
EN 499-94		min. 460	530-680	min. 20		min. 47	
Typical values	AW	480	580	28	200	170	

Packaging, available sizes and identification

	Diameter (mm)	2.5	3.0	3.2	4.0	4.0	5.0	6.0
Length (mm)		350	350	350	450	350	450	450
Unit: box	Pieces / unit (nominal)	135	80	120	120	85	85	45
	Net weight/unit (kg)	2.7	2.4	4.2	5.8	4.5	5.7	6.3
Unit: SRP	Pieces / unit	70	54	50	50	28	28	21
	Net weight/unit (kg)	1.4	1.5	1.9	2.4	1.6	2.0	2.9

Identification Imprint: 7018-1/Conarc49C Tip colour: grey

Conarc® 49C: rev. EN 15

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 EH40
Cast steel	EN 10213-2	GP240R
Pipe material	EN 10208-1	L210, L240, L290, L360
	EN 10208-2	L240, L290, L360, L415
	API 5LX	X42, X46, X52, X60
	EN 10216-1/ EN 10217-1	P235T1, P235T2, P275T1 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. current - (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	55 - 80	DC+	55	99	0.78	19.6	84	1.65
3.0 x 350	70 - 110	DC+	53	193	1.2	30.4	58	1.77
3.2 x 350	80 - 130	DC+	65	217	1.2	37.9	45	1.69
4.0 x 350	120 - 160	DC+	75	348	1.6	54.2	30	1.61
4.0 x 450	120 - 160	DC+	100	444	1.7	70.4	21	1.47
5.0 x 450	180 - 240	DC+	90	632	2.6	105.6	15	1.60
6.0 x 450	250 - 330	DC+	106	976	3.5	136.9	10	1.33

* stub end 35 mm

Welding parameters, optimum fill passes

Welding position Diameter (mm)	PA/1G Current (A)	PB/2F	PC/2G	PF/3G up	PE/4G	PF/5G up
2.5	80	80	80	85	80	80
3.0	110	110	115	110	105	110
3.2	140	120	145	120	120	120
4.0	150	140	150	140	135	140
5.0	220	210	210	170		
6.0	300	290				

Application Advice

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

Best choice: 3.0 x 350 mm for rootlayer welding in pipes

Best choice: 3.2 x 350 mm for pipewelding