

Low temperature basic electrode

Classification

AWS A5.5-96 : E7018-G H4R (meet also AWS A5.5-96: E 8018-G H4R)
EN 499-94 : E 50 6 Mn1Ni B 32 H5

General description

The basic all position offshore electrode with max. 1% Ni
Excellent mechanical properties (impact at -60°C)
Good CTOD at -10°C
Extremely low hydrogen $H_{DM} < 3\text{ ml}/100\text{g}$ (SRP)
110-120% recovery
Weldable on AC and DC
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	GL	LR	RINA	RMRS	TÜV
3Y	UP	+	+	5Y46H5	6Y46H10	5Y40H5	4YH5	3-3YH5	+

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

C	Mn	Si	P	S	Ni	H_{DM}
0.05	1.5	0.4	0.01	0.01	0.9	2 ml/100g

Mechanical properties, all weld metal

	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J)		
					-20°C	-40°C	-60°C
Required: AWS5.5-96		min. 390	min. 480	min. 25	not required		
EN 499-94		min. 500	560-720	min. 18			min. 47
Typical values	AW	550	640	24	150		90

CTOD-value at -10°C > 0.25 mm

Packaging, available sizes and identification

	Diameter (mm)	2.5	3.0	3.2	3.2	4.0	4.0	5.0
	Length (mm)	350	350	350	450	350	450	450
Unit: Box	Pieces / unit (nominal)	135	90	120	120	85	85	55
	Net weight/unit (kg)	2.7	2.8	4.7	5.8	4.4	5.9	5.7
Unit: SRP	Pieces / unit	70	54	50	50	28	28	23
	Net weight/unit (kg)	1.4	1.5	1.9	2.4	1.5	2.0	2.5

Identification Imprint: 7018-G/Kryo1

Tip colour: purple

Kryo® 1: rev. EN 15

Materials to be welded

Steel	Code	Type
General structural steel	EN 10025	S275, S355
Ship plates	ASTM A131	Grade A, B, D, AH32 to EH40
Cast steel	EN 10213-2	GP 240R
Pipe material	EN 10208-1	L290 GA, L360 GA
	EN 10208-2	L290, L360, L415, L445
	API 5LX	X42, X46, X52, X60, X65
	EN 10216-1	P275 T1
	EN 10217-1	P275 T2, P355 N
Fine grained steel	EN 10113-2	S275, S355, S420, S460
	EN 10113-3	S275, S355, S420, S460
	EN 10137-2	S460

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+	59	85	0.72	19.3	86	1.65
3.0 x 350	70 - 110	DC+	74	256	0.93	30.2	52	1.58
3.2 x 350	80 - 140	DC+	66	220	1.2	37.7	48	1.79
3.2 x 450	80 - 140	DC+	78	259	1.3	48.7	35	1.72
4.0 x 350	120 - 170	DC+	77	355	1.6	54.1	29	1.59
4.0 x 450	120 - 170	DC+	90	450	1.8	68.4	23	1.56
5.0 x 450	180 - 240	DC+	104	784	2.4	105.2	15	1.53

* stub end 35mm

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	80	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		

Application Advice

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