

CLASSIFICATION

AWS A5.5	E9018-B3-H4	A-Nr	4
ISO 3580-A	E CrMo2 B 3 2 H5	F-Nr	4
		9606 FM	3

GENERAL DESCRIPTION

Basic very low hydrogen all position electrode (HDM< 5 ml/100g)

For welding creep and hydrogen resistant CrMo-steels

Maximum service temperature 600°C

DC-welding preferred

115 - 120% recovery

Also available in vacuum sealed Sahara ReadyPack<sup>®</sup> (SRP)

WELDING POSITIONS (ISO/ASME)



PA/1G

PB/2F

PC/2G

PF/3Gu

PE/4G

PH/5Gu

CURRENT TYPE

AC / DC +/-

APPROVALS

RINA TÜV

C2M1 +

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

C	Mn	Si	P	S	Cr	Mo	HDM
0.06	0.8	0.6	0.015	0.010	2.3	1.0	3 ml/100 g

MECHANICAL PROPERTIES, TYPICAL, ALL WELD METAL

Condition	0.2% Proof strength [N/mm <sup>2</sup> ]	Tensile strength [N/mm <sup>2</sup> ]	Elongation [%]	Impact ISO-V(J)	
				+20°C	-10°C
Required: AWS A5.5 ISO 3580-A Typical values	SR <sup>1</sup> SR <sup>2</sup> SR <sup>3</sup> min. 530 min. 400 530	min. 620 min. 500 650	min. 17 min. 18 22	not required min. 47 150	90

Stress relieved: SR<sup>1</sup> = 690±14°C/1h, SR<sup>2</sup> = 690-750°C/1h, SR<sup>3</sup> = 695°C/1h

PACKAGING AND AVAILABLE SIZES

	Diameter (mm)	2.5	3.2	4.0
	Carton + PE foil	Length (mm)	350	350
SRP	Pieces / unit	110	120	85
	Net weight/unit (kg)	2.6	4.7	4.8
SRP	Pieces / unit	67	50	28
	Net weight/unit (kg)	1.4	2.0	1.5

Identification Imprint: 9018-B3 / SL 20 G Tip Color: white

SL<sup>®</sup> 20G: rev. C-ENZ-12/05/16

# SL<sup>®</sup> 20G

## EXAMPLES OF MATERIALS TO BE WELDED

Steel grades/Standard	Type
<b>Creep resistant steels</b>	
EN 10028-2	10CrMo9-10 & similar alloys
EN 10222-2	12CrMo9-10 & similar alloys
ASTM A387	Grade 21 & 22
ASTM A182	Grade F22
ASTM A217	Grade WC9
ASTM A234	Grade WP22
ASTM A199/A200	Grade T21 & T22
ASTM A213	Grade T22
ASTM A335	Grade P22

## CREEP DATA

Test temperature °C	400	450	500	550	600
Yield strength Rp-0,2% [N/mm <sup>2</sup> ]	480	460	430	160	[100]
Creep strength Rm/1000 [N/mm <sup>2</sup> ]			240	210	[60]
Creep strength Rm/10.000 [N/mm <sup>2</sup> ]			210	110	[60]
Creep resistance Rp1%/10.000 [N/mm <sup>2</sup> ]			160	85	[45]

## CALCULATION DATA

Diam. x length [mm]	Current range [A]	Current type	Arc time	Energy	Dep. rate	Weight/ 1000 pcs [kg]	Electrodes/ kg weldmetal	kg electrodes/ kg weldmetal
			[S]*	- per electrode at max. current - E[kJ]	H[kg/h]		B	1/N
2.5x350	60-90	DC+	63	114	0.72	21.0	79	1.67
3.2x350	80-130	DC+	70	233	1.3	37.6	40	1.49
4.0x350	120-180	DC+	75	348	1.7	56.7	28	1.56

\*Stub end 35mm

## WELDING PARAMETERS, OPTIMUM FILL PASSES

Diameter [mm]	Welding positions					
	PA/1G	PB/2F	PC/2G	PF/3Gup	PE/4G	PH/5Gup
2.5	80A	85A	80A	85A	80A	80A
3.2	130A	120A	130A	120A	120A	120A
4.0	150A	145A	140A	140A	140A	140A

## REMARKS / APPLICATION ADVICE

Recommended preheat temperature:200 - 300°C

Recommended tempering heat treatment range:690 - 750°C (time depends on material thickness)

Redry electrodes 2-4h 350 ±25°C after removal from cardboard boxes