

Arosta® 309Mo

EMR
SAHARA®

CLASSIFICATION

AWS A5.4	E309LMo-16	A-Nr	8	Mat-Nr	1.4459
ISO 3581-A	E 23 12 2 L R 3 2	F-Nr	5		
		9606 FM	5		

TEMPERATURE RANGE

Pressurized parts: -60...+300°C
Oxidation resistance: n.a

GENERAL DESCRIPTION

A high CrNiMo alloyed all position rutile-basic electrode
High corrosion resistance
Specially developed for welding stainless steel to mild steel and root runs in cladding
max. plate thickness in butt welds ~ 12mm
Suitable for repair welding in dissimilar joints and steels difficult to weld
Weldable on AC and DC+ polarity

WELDING POSITIONS (ISO/ASME)



CURRENT TYPE

AC/DC +

APPROVALS

ABS	BV	DNV	GL	LR	RINA	RMRS	TÜV	DB
+	309Mo	309Mo	4459	SS/CMn	309Mo	SS/CMn	+	+

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

C	Mn	Si	Cr	Ni	Mo	FN (acc.WRC 1992)
0.02	0.8	0.8	23.0	12.5	2.7	15-25

MECHANICAL PROPERTIES, TYPICAL, ALL WELD METAL

Condition	0.2% Proof strength [N/mm ²]	Tensile strength [N/mm ²]	Elongation [%]	Impact ISO-V[J]		
				+20°C	-20°C	-60°C
Required: AWS A5.4 ISO 3581-A Typical values	not required min. 350 580	min. 520 min. 550 700	min. 30 min. 25 30	not required not required 57	50	45

PACKAGING AND AVAILABLE SIZES

Carton + PE foil	Diameter (mm)	2.0	2.5	3.2	4.0	5.0
	Length (mm)	300	350	350	350	450
Pieces / unit	Net weight/unit (kg)	180	110	120	85	55
		2.4	2.6	4.7	4.8	5.4

Identification Imprint: 309LMo-16 / AROSTA 309 Mo Tip Color: light blue

Arosta® 309Mo: rev. C-EN23-01/02/16-01/02/16

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EXAMPLES OF MATERIALS TO BE WELDED

Steel grades	EN 10088-1/-2	EN 10213-4	Mat. Nr	ASTM/AISI A240/A312/A351	UNS
First layer in CrNiMo claddings					
	X2CrNiMo17-12-2		1.4404	(TP)316L CF-3M	S31603 J92800
	X2CrNiMo18-14-3		1.4435	(TP)316L	S31603
	X2CrNiMoN17-11-2		1.4406	(TP)316LN	S31653
	X2CrNiMoN17-13-3		1.4429		
	X4CrNiMo17-12-2		1.4401	(TP)316	S31600
	X4CrNiMo17-13-3		1.4436		
	X6CrNiMoTi17-12-2		1.4571	316Ti	S31635
	X10CrNiMoTi17-3		1.4573	316Ti	S31635
	X6CrNiMoNb17-12-2		1.4580	316Cb	S31640
		GX5CrNiMo19-11	1.4408		

Welding dissimilar metals: mild steel or low alloy steel to stainless CrNiMo-steel up to max. thickness of 12 mm.

Build-up welding on mild and low alloy steel

CALCULATION DATA

Sizes Diam. x length (mm)	Current range (A)	Current type	Arc time	Energy	Dep. rate	Weight/ 1000 pcs (kg)	Electrodes/ kg weldmetal B	kg electrodes/ kg weldmetal 1/N
			- per electrode at max. current - (S)*	E(kJ)	H(kg/h)			
2.0 x 300	30 - 60	DC+	44	46	0.54	10.8	149	1.61
2.5 x 350	40 - 80	DC+	52	90	0.91	20.4	76	1.54
3.2 x 350	60 - 80	DC+	58	122	1.4	33.2	45	1.49
4.0 x 350	80 - 150	DC+	64	259	1.9	51.6	30	1.54
5.0 x 450	140 - 190	DC+	99	549	2.6	98.7	14	1.38

*Stub end 35mm

WELDING PARAMETERS, OPTIMUM FILL PASSES

Diameter (mm)	Welding positions					
	PA/1G	PB/2F	PC/2G	PF/3Gup	PE/4G	PH/5Gup
2.0		45A	45A	40A	40A	40A
2.5	70A	70A	70A	60A	60A	60A
3.2	100A	100A	100A	70A	70A	70A
4.0	140A	140A	140A	80A		
5.0	180A	180A	180A			