

SAW Basic and Semi-basic Fluxes C-Mn and low alloy steels

OP 139 is an agglomerated aluminate basic flux which has been designed for use with the high deposition rate submerged arc processes, such as twin-wire, tandem or multi-wire. It can be used for both longitudinal and circumferential seams. Even at high speeds the wetting at the toe of the weld remains smooth and straight. The slag detaches very easily in long pieces even in fillet welds.

OP 139 can be used for all structural, pipe and boiler steels and for fine grained steels. There is a slight donation of manganese and silicon. In multilayer welds OP 139 is used in conjunction with OE-S2 and in DSAW with OE-S2Mo. Damp flux should be re-dried at 300-350°C. Grain size according to EN 760: 2-20.

Wire	Classification
OE-S2	AWS 5.17 F7A5 EM12K
OE-S4	AWS 5.17 F8A5 EH 14
OE-S2Mo	AWS 5.23 F8A5 EA2-A2
	EN 760: SA AB 167 AC H5

Wire	Approvals	Grades
OE-S2	DB	
OE-S2	GL	
OE-S2	LRS	
OE-S2	TÜV	
OE-S2Mo	DB	
OE-S2Mo	TÜV	

see Appendix, Classification Society Approvals, for details pag. 521

Flux Analysis	
CaO + MgO	25 %
Al ₂ O ₃ + MnO	35 %
CaF ₂	15 %
SiO ₂ + TiO ₂	20 %

Basicity to Boniszewski 1,5

Typical Applications

Wire	Materials
OE-S2	ASME: EN: 'S(P)235-S(P)355; L245-L360
OE-S4	ASME: EN S(P)355-S(P)460
OE-S2Mo	ASME: ASTM A285 Grades A, B, C; A106 Grades A, B, C; X 60, X 65 EN:16 Mo 3, S(P)355-S(P)460, L245-L450

Analysis of all-weld metal (Typical values in %)

Wire	C	Mn	Si	Cr	Ni	Mo	Nb	N	Cu
OE-S2	0.06	1.30	0.30	-	-	-	-	-	-
OE-S4	0.07	1.80	0.40	-	-	-	-	-	-
OE-S2Mo	0.06	1.30	0.30	-	-	0.40	-	-	-

All-weld metal Mechanical Properties

Wire	Heat Treatment	Yield Strength N/mm ²	Tensile Strength N/mm ²	Elongation A5 (%)
OE-S2	As Welded	≥ 400	480 - 510	≥ 27
OE-S4	As Welded	≥ 480	560 - 600	≥ 25
OE-S2Mo	As Welded	≥ 510	570 - 630	≥ 21

All-weld metal Mechanical Properties - Cv

Wire	Heat Treatment	Charpy V Notch Impact Toughness (J)							
		+20	0	- 20	- 30	- 40	- 50	- 60	- 80
OE-S2	As Welded	-	-	140 min	100 min	40 min	-	-	-
OE-S4	As Welded	-	-	100 min	-	60 min	-	-	-
OE-S2Mo	As Welded	-	-	110 min	-	80 min	50 min	-	-

Packaging data

25kg heavy duty sealed polythene sacks

Further forms of delivery on request.

Current condition

AC; DC+