OP 132

OERLIKON

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

OP 132 is an agglomerated aluminate-basic type flux for welding line pipe using the SAW technique.
OP 132 is used with currents up to 1500A on the lead wire in multi-wire welding. Even at very high currents the welding process remains stable, smooth and straight. The cap of the weld is very smooth and shows good wetting of the base material.
OP 132 contains specific components which decompose during welding and create protective gases. This feature prohibits the access of atmospheric nitrogen to the weld pool and thus guarantees optimum toughness particularly with Tibor 33 wire in DSAW welds.
The slag is self-releasing and detaches in long pieces. Damp flux should be re-dried at 300-350°C. Grain size according to EN 760: 2-20.

Wire	Classification	
OE-S1	AWS	5.17: F6A2-EL12
OE-S2	AWS	5.17: F7A5-EM12K
OE-S4	AWS	5.17: F8A5-EH14
OE-SD3	AWS	5.17: F7A5-EH12K
OE-S2Mo	AWS	5.23: F8A5-EA2-A2
OE-SD3Mo	AWS	5.23 F9A6-EA4-A4
	EN	760: SA AB 67 AC H5

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

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

Flux Analysis	
Al2O3 + MnO	35 %
SiO2 + TiO2	20 %
CaF2	15 %
CaO + MgO	25 %

Basicity to Boniszewski 1,5

Typical Applications

Wire	Materials
OE-S1	ASME: ASTM A131 Grades A, B, D, DS; A253 All grades; A529 Grades 42, 50; A570 All grades; A572 Grades 42, 50; A709 Grades 36, 50 EN: 'S(P)235-S(P)355; L245-L360
OE-S2	ASME: ASTM A131 Grades A, B, D, DS; A253 All grades; A529 Grades 42, 50; A570 All grades; A572 Grades 42, 50; A709 Grades 36, 50 EN: 'S(P)235-S(P)355; L245-L360
OE-S4	ASME: EN S(P)355-S(P)460
OE-SD3	ASME: EN S(P)235-S(P)420
OE-S2Mo	ASME: X 60, X 65 EN:16 Mo 3, S(P)355-S(P)460, L245-L450
OE-SD3Mo	ASME: ASTM A204 Grades A, B, C; A355 Grade P1; A209 Grades T1, T1A, T1B EN: S(P)355-S(P)460, L245-L450
TIBOR 33	ASME: X60, X65, X70, X80 EN: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-S1	0.06	0.80	0.15	-	-	-	-	-	-
OE-S2	0.07	1.30	0.20	-	-	-	-	-	-
OE-S4	0.07	1.80	0.30	-	-	-	-	-	-
OE-SD3	0.07	1.80	0.40	-	-	-	-	-	-
OE-S2Mo	0.07	1.30	0.20	-	-	0.50	-	-	-
OE-SD3Mo	0.05	1.70	0.40	-	-	0.40	-	-	-
TIBOR 33	0.05	1.60	0.40	-	-	0.40	-	-	-

All-weld metal Mechanical Properties

Wire	Heat Treatment	Yield Strength N/mm^2	Tensile Strength N/mm^2	Elongation A5 (%)
OE-S1	As Welded	≥ 360	460 - 500	≥ 27
OE-S2	As Welded	≥ 400	480 - 510	≥ 27
OE-S4	As Welded	≥ 480	560 -600	≥ 25
OE-SD3	As Welded	≥ 470	530 - 580	≥ 25
OE-S2Mo	As Welded	≥ 510	570 - 630	≥ 21
OE-SD3Mo	As Welded	≥ 520	620 - 660	≥ 23

All-weld metal Mechanical Properties - Cv

Wire	Heat Treatment	Charpy V Notch Impact Toughness (J)							
		+20	0	- 20	- 30	- 40	-50	- 60	- 80
OE-S1	As Welded	-	150 min	80 min	40 min	-	-	-	-
OE-S2	As Welded	-	-	140 min	100 min	40 min	-	-	-
OE-S4	As Welded	-	-	100 min	-	60 min	-	-	-
OE-SD3	As Welded	-	-	-	-	70 min	40 min	-	-
OE-S2Mo	As Welded	-	-	110 min	-	80 min	50 min	-	-
OE-SD3Mo	As Welded	-	-	-	-	60 min	50 min	40 min	-

Packaging data

25kg heavy duty sealed polythene sacks
25kg & 500kg Dry Bag packaging on demand

Further forms of delivery on request.

Current condition
AC; DC+