

Description

A specially developed semi-basic submerged-arc welding flux with a basicity index of B.I 1.8 for use in combination with a range of stainless steel wires. **OP33** is designed for both butt and fillet welding applications. **OP33** behaves neutrally with regard to carbon content in the filler wire and therefore low carbon stainless steels can be welded successfully using the appropriate grades of wire. Using **OP33** flux there is minimal chromium loss in the deposit. The metallurgical behaviour of the flux in respect to silicon and manganese is neutral and as a result there is no burn out or pick up of these elements.

Weld deposits exhibit a fine smooth rippled appearance with even blending at the weld toes. The slag is self-releasing and the resultant weld bead is free from slag residue and requires little or no post weld dressing. The flux is ideal for both butt and fillet welds where an excellent weld bead profile results. Suitable for use with single wires welding on DC positive up to 800A.

Flux Analysis

SiO ₂ + TiO ₂	Al ₂ O ₃ + MnO	CaF ₂
10%	35%	50%

All-Weld Metal Composition [typical, wt%]

Wire	C	Mn	Si	S	P	Cr	Ni	Mo	Others
Silverfil 308L	0.016	1.23	0.51	0.014	0.014	19.6	9.7	0.16	Nb <0.01
Silverfil 316L	0.010	1.31	0.69	0.011	0.014	18.3	11.9	2.23	Nb <0.01
Silverfil 347	0.023	1.09	0.60	0.007	0.015	19.2	9.7	0.25	Nb 0.36
Silverfil 22.8.3L	0.020	1.25	0.53	<0.003	0.021	22.9	8.91	3.33	Cu 1.12, N 0.14

All-Weld Metal Mechanical Properties [typical]

Wire	0.2% Proof Stress N/mm ²	Tensile Strength N/mm ²	Elongation %	Charpy V-notch Joules @	
				85 @ 20°C	48 @ -100°C
Silverfil 308L	365	550	40	85 @ 20°C	48 @ -100°C
Silverfil 316L	360	550	45	100 @ 20°C	65 @ -100°C
Silverfil 347	380	590	42	105 @ 20°C	60 @ -100°C
Silverfil 22.8.3L	645	830	27	58 @ -40°C	50 @ -50°C

Typical Applications

For single and multi-pass welding of plate, pipework and vessels in the chemical, petrochemical and power generation industries. Typical stainless steel grades are listed in the table below.

Wire	Product	Grade
Silverfil 308L	Pressure Vessel	BS1501:Pt.3:1990 Grades 304S11,304S31
	Plate	BS970:Pt.1:1991 Grades 304S11, 304S15, 304S31 BS1501:Pt.3:1990 Grades 304S11, 304S31
	Forgings	BS1503:1989 Grades 304S11, 304S31
	Castings	BS3100:1991 Grades 304C12, 304C15
	ASTM Castings	ASTM A351 Grades CF3, CF3A

Wire	Product	Grade
Silverfil 316L	Pressure Vessel Plate	BS1501:Pt.3:1990 Grades 316S11,316S31
		BS970:Pt.1:1991 Grades 316S11, 316S13, 316S31
	Forgings Castings ASTM Castings	BS1449:Pt.2:1983 Grades 316S11, 316S13, 316S31
		BS1503:1989 Grades 316S11, 316S13, 316S31
		BS3100:1991 Grades 316C12, 316C16
ASTM A351 Grades CF3M, CF3MA		
Silverfil 347	Pressure Vessel Plate	BS1501:Pt.3:1990 Grades 321S17, 347S67
		BS970:Pt.1:1991 Grades 321S13, 347S31
	Forgings Castings ASTM Castings	BS1449:Pt.2:1983 Grades 321S31, 347S31
		BS1501:Pt.3:1990 Grades 321S31, 347S31
		BS1503:1989 Grades 321S31, 347S31
BS3100:1991 Grades 347C17		
ASTM A336 Grades F321, F347		
Silverfil 22.8.3L	German Werkstoff Grades	1.4417, 1.4460, 1.4462
		Sandvik SAF 2205
		Mannesman AF22
		Thyssen Remanit 4462
		Uranus 45N
		SS 744LN
		ALX 4462
		Hysesist 25/5
		ASTM Steel

Packaging

For standard delivery, **OP33** is packed in 35kg heavy-duty polythene sacks. Other forms of packaging are available to special order.