AS 589

SAW Fluxes

SAW Basic and Semi-basic Fluxes

AS 589 is a fully basic agglomerated submerged-arc welding flux that is widely used for the welding of structural and fine grained low alloy steels requiring high integrity welds with low temperature impact and CTOD fracture toughness properties. AS 589 flux, in combination with a range of Oerlikon submerged-arc wires, in particular with AS 37LN, is established for the welding of offshore structures such as oil platform jackets, piles, decks and modules giving a high level of consistency and mechanical property performance. The flux is widely used for the welding of thick section components in the offshore, nuclear and pressure vessel industries. The flux exhibits a low hydrogen content in the as manufactured condition and gives a high resistance to moisture pick up during exposure under workshop conditions. The flux promotes a very stable arc characteristic during use with excellent slag detachment. The weld is of a uniform even profile with regular fine ripple formation and smooth toe blending. AS 589 flux is suitable for use with DC+ or AC and is ideal for single wire, twin wire, tandem arc [DC+/AC] and other multi-arc systems using up to 1000A with single wire welding. Grain size according to EN-ISO 14174: 2-20.

Classification		
	EN ISO	14174: SA FB 1 55 AC H5
AS 35	AWS	A5.17: F6P8-EM12K
AS 35	AWS	A5.17: F7A6-EM12K
AS 35Ni2	AWS	A5.23: F7A10-ENi2-Ni2
AS 37LN	AWS	A5.17: F7A8-EH12K
AS 37LN	AWS	A5.17: F7P8-EH12K
AS 40A	AWS	A5.23: F8A4-EA2-A2
AS 40A	AWS	A5.23: F8P4-EA2-A2
AS 66	AWS	A5.23: F9A8-EF3-F3
AS 66	AWS	A5.23: F9P8-EF3/EG-F3
AS 67	AWS	A5.23: F8A10-EG-G
AS 67	AWS	A5.23: F8P10-EG-G
AS Cr1Mo	AWS	A5.23: F8P4-EB2R-B2
AS Cr2Mo	AWS	A5.23: F8P2-EB3-B3

Approvals	ABS	DB	TÜV
AS 37LN	5YQ420 H5	●	●
AS 40A		●	

Flux Main Components	
CaO + MgO	40 %
CaF2	25 %
Al2O3 + MnO	20 %
SiO2 + TiO2	15 %

Boniszewski Basicity	3.1

Chemical analysis (Typical values in %)

		C	Mn	Si	Cr	Ni	Mo
All weld metal	AS 35	0.07	0.9	0.2	-	-	-
All weld metal	AS 35Ni2	0.07	0.9	0.3	-	2.3	-
All weld metal	AS 35Ni3	0.06	0.9	0.2	-	3.3	-
All weld metal	AS 37LN	0.07	1.6	0.3	-	-	-
All weld metal	AS 40A	0.07	0.9	0.2	-	-	0.5
All weld metal	AS 66	0.07	1.5	0.3	-	0.95	0.5
All weld metal	AS 67	0.07	1.3	0.3	-	0.9	0.2
All weld metal	AS Cr1Mo	0.07	0.9	0.3	1	-	0.5
All weld metal	AS Cr2Mo	0.08	0.6	0.3	2.2	-	1

All-weld metal Mechanical Properties

	Heat Treatment	Yield Strength (N/mm²)	Tensile Strength (N/mm²)	Elongation A5 (%)
AS 35	As Welded	≥ 360	450-550	≥ 28
AS 35Ni2	As Welded	≥ 450	550-600	≥ 24
AS 37LN	As Welded	≥ 450	530-630	≥ 25
AS 40A	As Welded	≥ 470	550-680	≥ 24
AS 66	As Welded	≥ 550	650-750	≥ 20
AS 66	600°Cx2h	≥ 540	630-730	≥ 22
AS 67	As Welded	≥ 500	560-680	≥ 22
AS 67	600°Cx2h	≥ 470	540-660	≥ 24

All-weld metal Mechanical Properties - CV

	Heat Treatment	Impact Energy (J)				
		0 °C	-20 °C	-40 °C	-60 °C	-80 °C
AS 35	As Welded	≥ 160	≥ 100	≥ 50		
AS 35Ni2	As Welded	≥ 140	≥ 120	≥ 100	≥ 70	≥ 50
AS 37LN	As Welded	≥ 180		≥ 100	≥ 70	
AS 40A	As Welded	≥ 120	≥ 100	≥ 50		
AS 66	As Welded	≥ 120	≥ 90	≥ 70	≥ 47	
AS 66	600°Cx2h	≥ 140	≥ 120	≥ 90	≥ 70	
AS 67	As Welded			≥ 145	≥ 70	
AS 67	600°Cx2h			≥ 160	≥ 70	

Redrying
300-350°Cx2-4h

Current Conditions
AC; DC+

Packaging data

Packaging Type	PE
Weight (kg)	25
-	●