

Agglomerated Welding Flux BF 4

Flux type: Aluminate-Basic

Classification: ISO 14174 – S A AB 1 76 AC

Characteristics:

Versatile flux for joint welding and surfacing with wire or strip electrodes. BF 4 is suitable for high-speed welding of butt and fillet welds with single and multi-wire processes. Smooth weld bead appearance with flat weld interfaces free from undercut, self de-slagging without any slag residuals, high current carrying capacity and low flux consumption (wire/flux ratio 1:0,9) are other special features of BF 4. Uniform mechanical property performance and low diffusible hydrogen levels make BF 4 flux suitable

for most of the SAW processes with its wide range of applications.

Application:

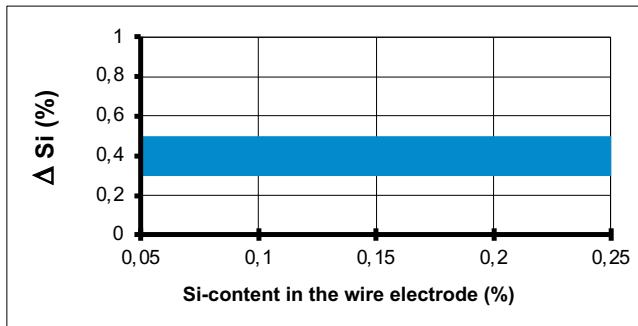
Joint welding of non-alloy and low alloy structural steels such as S 355 J2 G3 (St 52-3N) acc. to EN 10025, boiler steels such as P265GH (H II) and 16Mo3/A335 Gr. P1, as well as fine-grain structural steels with yield strength up to 420 MPa (t < 50 mm) in combination with compatible wires such as S2 or S2Mo. Surfacing with special hard facing wires and strips, including metal powder-cored wires (MPCW)

Characteristic chemical Constituents:

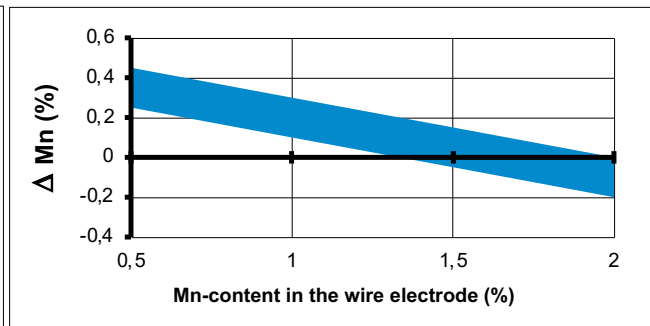
SiO ₂ + TiO ₂	Al ₂ O ₃ + MnO	CaO + MgO	CaF ₂
30 %	30 %	25 %	12 %
Basicity according to Boniszewski: ~1.1			

Metallurgical behaviour acc. to ISO 14174 type of current DC:

Pick-up Silicon



Pick-up/Burn-out Manganese



Flux density: 1 kg/dm³ (l)

Grain size acc. to ISO 14174: 2–20 (Tyler 8 × 65)

Current-carrying capacity: up to 1,500 A (DC or AC) using one wire



BF 4 with tubular wire \varnothing 4.00 type 18.8.6 L



Excellent weld bead appearance, also in rail crossings and bends

All-weld metal multiple pass classification of wire-flux combinations:

Wire electrode		Test assembly ISO 15792-1: type 1.3	AWS A5.17M/5.23M	AWS A5.17/5.23
ISO 14171-A	AWS A5.17/.23			
BA-S2	EM12(K)	ISO 14171-A: S 42 3 AB S2	F48A3-EM12(K)	F7A2-EM12(K)
BA-S2Mo	EA2	ISO 14171-A: S 46 3 AB S2Mo	F55A3-EA2-A2	F8A2-EA2-A2

Two-run classification of wire-flux combinations:

Wire electrode		Two-run/ISO 15792-2: type 2.5	AWS A5.17M/5.23M	AWS A5.17/5.23
ISO 14171-A	AWS A5.17/.23			
BA-S2	EM12(K)	ISO 14171-A: S 3T 2 AB S2	F43TA2-EM12(K)	F6TA0-EM12(K)
BA-S2Mo	EA2	ISO 14171-A: S 4T 2 AB S2Mo	F49TA2-EA2	F7TA0-EA2

Chemical composition of all-weld metal acc. to EN ISO 15792-1 and AWS A5.17/5.23:

(characteristical values in wt. %)

Wire electrode		C	Si	Mn	Mo	Ni	Cr
BA-S2	EM12(K)	0.04–0.8	0.4–0.8	1.0–1.4			
BA-S2Mo	EA2	0.04–0.08	0.4–0.8	1.0–1.4	0.4–0.6		

Mechanical properties of all-weld metal acc. to EN ISO 15792-1 and AWS A5.17/5.23:

(characteristical values)

Wire electrode		Heat treatment	YS MPa	UTS MPa	Elong. %	Impact ISO-V (J)			
						RT	± 0 °C +32 °F	-20 °C -4 °F	-30 °C -22 °F
BA-S2	EM12(K)	AW	>400	>510	>24	>80	>60	>50	>30
		S*	>360	>480	>25	>90	>70	>60	>40
BA-S2Mo	EA2	AW	>470	>570	>20	>80	>60	>50	>30
		S**	>440	>540	>22	>90	>70	>60	>40

Post Weld Heat Treatment: * 580 °C/15 h; ** 620 °C/15 h

Packaging: 25 kg PE-Bags or 500–1,250 kg Big Bags

Storage and redrying: Unopened originally packed flux bags can be stored up to one year in dry storage rooms after date of delivery ex-factory.

Redrying conditions specific to the flux:

200–250 °C effective flux temperature