

Agglomerated Welding Flux BF 38

Flux type: Aluminat-Fluoride-Basic

Classification: ISO 14174 – S A AF 2 5644 DC H5*

Characteristics:

Specially designed for welding austenitic and austenitic-ferritic stainless steels (Duplex). This basic, but neutral flux will produce outstanding results in the welding of the standard austenitic and heat-resisting stainless steels, when using the corresponding wire electrodes according to EN ISO 14343 or ASME II C: SFA-5.9. Due to the basic flux characteristics of BF 38 most grades of the 300-stainless steels can be welded using single or multiple wire submerged-arc processes. It is also suited for joint-and overlay welding of nickel alloys, together with corresponding Ni-base wire electrodes.

BF 38 produces smooth flat weld beads when fillet welding. If process characteristic welding parameters are applied a finely ribbed surface along with self-releasing slag is yielded as well as weld beads that are free of slag

inclusions. The metallurgical behavior of the flux is neutral (C-neutral, low Si pick-up and low Mn burn-out) without Cr- or other alloy compensation.

Application:

Joint welding and surfacing of:

- Austenitic-ferritic stainless steels (DSS) such as grade 2205 (Duplex S31805/S32205 = 1.4462)
- Austenitic CrNi(Mo)-steels (including Nb/Ti and ELC-grades); resistant against intergranular corrosion in both the as-welded and solution-treated condition
- High-alloy CrNi(Mo)-steels for use at low temperatures and heat resisting steels
- Nickel-base alloys using NiCr- and NiCrMo- wire electrodes acc. to AWS A5.14/EN ISO 18274
- Welding of dissimilar metals such as low alloy steel with stainless steel or special cryogenic steel (e.g. 9% Ni-steel) in flat or 2G-position

Characteristic chemical Constituents:

SiO ₂ + TiO ₂	Al ₂ O ₃ + MnO	CaO + MgO	CaF ₂
10 %	35 %	5 %	50 %
Basicity according to Boniszewski: ~1.9			

Flux density: 1.0 kg/dm³ (l)

Grain size acc. to ISO 14174: 2–16 (Tyler 10 × 65)

Current-carrying capacity: up to 900 A DC using one wire

* Diffusible hydrogen content H5: determined in deposited metal acc. to the method described in ISO 3690 Type of current DC; redrying conditions 300–350 °C

Chemical composition of all-weld metal acc. to EN ISO 15792-1 and AWS A5.9/5.14: (characteristical values in wt. %)

Wire electrode		C	Si	Mn	Cr	Ni	Mo	Others
BA-WIRE 308L	ER308L	< 0.03	0.3–0.65	1.0–2.5	19.5–22.0	9.0–11.0		
BA-WIRE 309L	ER309L	< 0.03	0.3–0.65	1.0–2.5	23.0–25.0	12.0–14.0		
BA-WIRE 316L	ER316L	< 0.03	0.3–0.65	1.0–2.5	18.0–20.0	11.0–14.0	2.0–3.0	
BA-WIRE 317L	ER317L	< 0.03	0.3–0.65	1.0–2.5	18.5–20.5	13.0–15.0	3.0–4.0	
BA-WIRE 318	ER318	< 0.08	0.3–0.65	1.0–2.5	18.0–20.0	11.0–14.0	Mo: 2.0 – 3.0	Nb: 8xC/ max 1.0
BA-WIRE 347	ER347	< 0.08	0.3–0.65	1.0–2.5	19.0 – 21.5	9.0–11.0		Nb: 10xC/ max 1.0
BA-WIRE 2209	ER2209	< 0.03	< 0.9	0.5–2.0	21.5–23.5	7.5–9.5	2.5–3.5	N: 0.08–0.2 Cu < 0.75

Mechanical properties of all-weld metal acc. to EN ISO 15792-1 and AWS A5.9/5.14:
(characteristical values)

Wire electrode		Heat treatment	YS MPa	UTS MPa	Elong. %	Impact ISO-V (J)				
						+20 °C	-40 °C	-60 °C	-120 °C	-196 °C
BA-WIRE 308L	ER308L	AW	> 370	> 560	> 35	> 80				> 40
BA-WIRE 309L	ER309L	AW	> 370	> 520	> 30	> 100				
BA-WIRE 316L	ER316L	AW	> 370	> 520	> 30	> 100				> 40
BA-WIRE 317L	ER317L	AW	> 400	> 600	> 30	> 100		> 60		> 40
BA-WIRE 318	ER318	AW	> 370	> 560	> 25	> 100				
BA-WIRE 347	ER347	AW	> 370	> 560	> 30	> 100				
BA-WIRE 2209	ER2209	AW	> 570	> 750	> 20	> 80		> 50		

Packaging: 20 kg Alpha Dry Alu-Bag

Storage: 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:

300–350°C effective flux temperature