Agglomerated Welding Flux BF 8.5

BF 8.5

Flux type: **F**luoride–**B**asic

Classification: ISO 14174: **S A FB 1 65 AC**
(EN 760: **SA FB 1 65 AC**)

Characteristics:
A semi–basic, agglomerated, flux for shape–and overlay welding with single or multiwire (TWIN–ARC) submerged-arc processes. BF 8.5 shows stable metallurgical reactions and constant operating characteristics over a wide current range, also when AC-power is applied. Low flux consumption, high resistance to porosity as well as low hydrogen potential and low sensitivity to arc–blow are typical for this flux.
The weld deposits exhibit smooth surface, good wetting and self-lifting slag detachability without “tiger-tracks”, even at high welding temperature (> 300°C).
BF 8.5 is a non-alloyed, neutral flux with little pick–up of silicon and neutral manganese reactions (see chemical composition of weld pads).

Application:
The flux can be welded DC (electrode positive or negative) or AC in combination with appropriate solid or, especially, metal-powder cored wires as commonly used for hardfacing.
BF 8.5 is formulated specifically for build-up or shape-welding (in combination with standard CMn-/ CMo-/ CCr-Mo-wires) to restore worn surface to proper dimensions, or to profile the shape of a section.
This flux is not formulated for joining or groove welding. For these applications the basic fluxes BF 5.1,
B F 1 0 , B F 1 0 M W , BF 16 or WP 380 (>5%Cr-alloys) are recommended.

Remarks:
All factors affecting the microstructure and chemistry during build-up and surfacing/hardfacing operations should be considered, such as:
- Substrate metal: affects the choice of build-up wire / flux–combination and thermal treatment
- Surface requirement: considerations in selecting the final hard layer(s)
- Welding technology: influences dilution, chemistry and structure of the deposit.

Characteristic chemical Constituents:

$SiO_2 + TiO_2$	$Al_2O_3 + MnO$	CaO + MgO	CaF_2
20 %	25 %	35 %	15 %
Basicity according to Boniszewski: ~2,0			

Flux density: 0,95 kg / dm3 (l)

Grain size acc.to ISO 14174: 2 - 20

Current–carrying capacity: up to 1000 A (DC or AC) using one wire

Packaging: 25 kg PE-bags or 500-1250 kg Big-Bags

Storage and redrying:
Unopened originally packed flux bags can be stored up to 1 years in dry storage rooms after date of delivery ex factory.
Redrying conditions specific to the flux: 200 ± 50°C effective flux temperature.

Metallurgical reaction acc. to ISO 14174: **(580 ± 20 A [DC], 29 ± 1 V, 550 ± 50 mm/min, TA 150 ± 50 °C)**

Wire BA-S2 (ISO 14171-A) similar EM12K (4 mm Ø)	Si = 0,07%	Mn = 1,05%
All-Weld Metal (8 – layers pad)	Si = 0,23%	Mn = 0,96%
Pick-up / Burn-out of BF 8.5	Si = + 0,16%	Mn = - 0,09%

Recommendations for hardfacing:

- **Cleaning** remove rust, grease, oil and dirt before welding.
- **Surface preparation** emove cracked, deformed and hardened surfaces by grinding or machining.
- **Deposit thickness** avoids excessive build-up of hardfacing materials. Use buttering layer materials before applying hardfacing deposits.
- **Thermal history** select appropriate preheat / interpass / soaking / PWHT according to the requirements.
- **Welding procedure** Use appropriate amperage (typical 130-140 A / per mm wire diameter) and voltage 27-30 V at travel speed about 40 ± 5 cm / min and preheat / interpass temperature according to the substrate material requirement. Low but appropriate heat input keeps dilution rate low and improves hardfacing deposits.