

For submerged arc strip cladding with all types of austenitic stainless steel strip such as:

Avesta Welding
EQ 308L, 347, 316L, 309L and 309LNb

CHARACTERISTICS

AVESTA STRIP WELDING FLUX 301 is an agglomerated, slightly basic flux designed for submerged arc strip cladding. It offers excellent welding properties and easy slag removal. The flux has a composition that gives a weld metal with a ferrite level exceeding 4 FN (acc. to DeLong) when welding the first layer with strip EQ309L.

- Bulk density: 0.8 kg/dm³
- Basicity index: 1.1 (acc. to Boniszewski)
- Flux consumption: 0.7 kg flux/kg strip (750V, 28V)

APPLICATION

AVESTA STRIP WELDING FLUX 301 is designed for submerged arc strip cladding with all types of austenitic stainless strips: EQ 308L, EQ 347, EQ 316L, EQ 309L and EQ 309LNb.

FLUX CARE

AVESTA STRIP WELDING FLUX 301 is supplied in plastic-lined paper bags containing 20 kg. The flux should be stored indoors in a dry place. Moist flux can be redried at 250-350°C for 2 hours. Both heating and cooling must be carried out slowly.

Standard designation

EN 760 SA Z 2 DC

Welding directions for 60 mm strip

Normal welding parameters for a 60 x 0,5 mm strip are: current 730-770 A, voltage 26-28 V and travel-speed 120-150 mm/min. The stick-out is typically about 30 mm. These welding parameters give a bead thickness of 3-5 mm.

Increased current increases the deposition rate, penetration, dilution and weld metal temperature considerably. To minimise the dilution within a certain current range, the travel speed should be held at a reasonably low level, <150 mm/min. Within this range the deposition rate is 12-15 kg/h and dilution is 10-20%. Normal penetration is about 1 mm, differing only slightly with travel speed.

Direct current, positive polarity gives a smooth overlapping and the best bead appearance. Negative polarity is also possible and gives an increased deposition rate and less penetration but at the expense of an inferior bead appearance.

Since strip surfacing requires high heat input (typically 6-30 kJ/mm) the parent metal must be reasonably thick to ensure dimensional stability during welding. A thickness of 100 mm or more is often required, but thinner material can also be used. When surfacing curved objects, care must be taken to prevent the melt pool and flux from running.

Approvals: -

Chemical composition, all weld metal, 60 mm strip (typical values, %)

Strip, 60 mm	C	Si	Mn	Cr	Ni	Mo	Nb	FN ⁽¹⁾	% ⁽²⁾
AVESTA 309L strip	0.01	0.3	1.8	23.5	13.0	-	-	15	-
AVESTA 309L first layer	0.03	0.5	1.2	19.0	10.5	-	-	5	5
AVESTA 347 strip	0.01	0.2	1.8	19.5	10.5	-	0.5	9	-
AVESTA 347 second layer	0.02	0.5	1.2	19.0	11.0	-	0.35	7	6
AVESTA 316L strip	0.01	0.3	1.8	18.5	12.5	2.9	-	6	-
AVESTA 316L second layer	0.02	0.5	1.2	18.0	12.0	2.3	-	6	5

Welding parameters: 750 A, voltage 28 V, 130 mm/min

Deposition rate: 14 kg/h

Weld overlay thickness: 3.5 - 4.0 mm

Penetration: 1 mm

1) According to DeLong

2) Measured by Fischer Feritescope® MP-3