

For welding steel such as:

Outokumpu	EN	ASTM	SS*	BS*	NF*
4301	1.4301	304	2333	304S31	Z7 CN 18-09
4307	1.4307	304L	2352	304S11	Z3 CN 18-10
4311	1.4311	304LN	2371	304S61	Z3 CN 18-10 Az
4541	1.4541	321	2337	321S31	Z6 CNT 18-10

\* Obsolete national standards, replaced by EN 10088.

#### Characteristics

AVESTA 308L/MVR rutile has a rutile-basic type coating, which gives the electrode similar reliability and position welding properties as basic type electrodes in cases where high X-ray requirements are stipulated.

AVESTA 308L/MVR rutile is primarily designed for welding austenitic stainless steel of the ASTM 304 and 304L type and offers maximum resistance to intergranular corrosion. It can also be used with good results for welding titanium and niobium stabilised steels, such as ASTM 321 and 347, in cases where the welded component will be operating at temperatures not exceeding 752°F (400°C). For higher temperatures, a stabilised welding consumable (AVESTA 347/MVNb) should be used.

#### Welding directions

AVESTA 308L/MVR rutile should be welded using a short arc and DC (positive polarity) but welding with AC is also possible. High amperages causing overheating of the electrode should be avoided. To avoid large weld pools, it is important to choose the proper amperage and welding speed.

#### Packaging data

Diam. inch	Diam. mm	Length mm/inch	Weight/capsule, lbs	Electrodes/capsule, approx.	Weight/carton, lbs
3/32	2.5	300 / 12		205	
1/8	3.25	350 / 14		125	
5/32	4.0	350 / 14		95	

#### Approvals

CWB, DNV, ABS

#### Standard designations

AWS A5.4 E 308L-16

#### Typical analysis % (All weld metal)

C	Si	Mn	Cr	Ni
0.03	0.6	1.7	19.5	10.0
Ferrite		8 FN DeLong		

#### Mechanical properties

	Typical values (IIW)	
Yield strength, R <sub>p0.2</sub>	440 N/mm <sup>2</sup>	64 ksi
Tensile strength, R <sub>m</sub>	590 N/mm <sup>2</sup>	86 ksi
Elongation, A <sub>5</sub>	42 %	42 %
Impact strength, KV +68°F	70 J	51 ft-lb
Hardness approx.	200 Brinell	

#### Welding data

DC+ or AC	Diam. inch	Current, A
	3/32	60 – 80
	1/8	80 – 110
	5/32	120 – 150

**Interpass temperature:** Max. 300°F (150°C).

**Heat input:** Max. 51 kJ/inch (2.0 kJ/mm).

**Heat treatment:** Generally none. In special cases quench annealing at 1922°F (1050°C).

**Structure:** Austenite with 5- 10% ferrite.

**Scaling temperature:** Approx. 1562°F (850°C) (air).

**Corrosion resistance:** Very good under fairly severe conditions, e.g. in oxidising acids and cold or dilute reducing acids.

#### Welding positions

