

## Stainless steel electrode

### Classification

AWS A5.4 : E307-16\*  
EN 1600 : E 18 8 Mn R 12

### Temperature range

pressurized parts : -60 ... +350°C  
scaling resistance : n.a.

\*: Deviation, see remarks

### General description

A rutile- basic all position 5%Mn-alloyed stainless steel electrode  
Especially developed for steels difficult to weld, such as armour plates, austenitic high Mn-steels  
Often used as a buffer layer in hardfacing applications  
Weldable on AC and DC+ polarity

### Welding positions



ISO/ASME PA/1G PB/2F PC/2G PF/3Gup PE/4G PF/5Gup

### Current type

AC / DC +

### Approvals

TÜV

+

### Chemical composition (w%), typical, all weld metal

C	Mn	Si	Cr	Ni
0.09	5.0	0.6	18.5	8.5

### Mechanical properties, all weld metal

	Condition	0.2% Proof strength (N/mm <sup>2</sup> )	Tensile strength (N/mm <sup>2</sup> )	Elongation (%)	Impact ISO-V(J)	
					+20°C	-60°C
Required: AWS A5.4		not required	min. 590	min. 30	not required	
EN 1600		min. 350	min. 500	min. 25	not required	
Typical values	AW	450	650	35	110	75

### Packaging and available sizes

	Diameter (mm)	2.5	3.2	4.0
	Length (mm)	350	350	350
Unit: Box	Pieces / unit	125	135	85
	Net weight/unit (kg)	2.6	4.7	4.6

### Identification

Imprint: AROSTA 307

Tip Color: dark blue

Arosta® 307: rev. EN 21

**Materials to be welded**

Various steel grades, such as:

- Armour plate
- Hardenable steels including steels difficult to weld
- Non-magnetic austenitic steels
- Work hardening austenitic manganese steels
- Dissimilar steel grades (CMn-steels to stainless steel) up to max. thickness of 12 mm
- Problem steels

**Calculation data**

Sizes Diam. x length (mm)	Current range (A)	Current type	Arc time - per electrode at (s)*	Energy - at max. current - E(kJ)	Dep.rate - H(kg/h)	Weight/ 1000 pcs. (kg)	Electrodes/ kg weldmetal B	kg Electrodes/ kg weldmetal 1/N
2.5 x 350	70 - 80	DC+	52	108	0.74	20.4	94	1.92
3.2 x 350	90 - 120	DC+	56	148	1.2	34.7	54	1.87
4.0 x 350	110 - 140	DC+	84	251	1.3	53.6	33	1.77

\* stub end 35 mm

**Welding parameters, optimum fill passes**

Welding positions Diameter (mm)	PA/1G	PB/2F	PC/2G	PF/3G up	PE/4G	PF/5G up
2.5	80A	80A	80A	80A	80A	80A
3.2	100A	100A	100A	90A		
4.0	140A	115A	130A	110A		

**Remarks/ Application advice**

Deviations: chemical composition

Mn = 4.5 - 6.0%

AWS: Mn = 3.30 - 4.75%