

## Stainless steel electrode

## Classification

AWS A5.4-92 : E310-16  
EN 1600-97 : E 25 20 R 12

## Temperature Range

pressurized parts: -20 ... +400°C  
scaling resistance: 1100°C

## General description

Rutile basic electrode for all position welding except vertical down  
Fully austenitic weld metal with high Cr and Ni content for very high service temperature  
High resistance against oxidation and scaling up to 1100°C  
Avoid service temperatures between 650 - 850°C  
Weldable on AC and DC

## Welding positions



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

## Current type

AC / DC electr. +

## Approvals

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

C	Mn	Si	Cr	Ni
0.12	2.5	0.5	26.0	20.5

## 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	
Required: AWS A5.4-92	not required	min. 550	min. 30	not required	
EN 1600-97	min. 350	min. 550	min. 20	not required	
Typical values	AW	440	600	30	80

## Packaging, available sizes and identification

	Diameter (mm)	2.5	3.2	4.0	5.0
	Length (mm)	350	350	350	350
Unit: Box	Pieces / unit (nominal)	145	150	100	62
	Net weight/unit (kg)	3.0	5.1	5.1	5.0

Identification Imprint: 310-16 /Intherma 310

Tip colour: dark green

Intherma® 310: rev. EN 15

**Materials to be welded**

	EN 10088-1/-2	EN 102 13-4	W.Nr.	ASTM/ACI A240/A351	UNS
Heat resisting steel	X10 CrAl 24		1.4762		
		GX25 CrNiSi 18-9	1.4825		
		GX40 CrNiSi 22-9	1.4826		
	X15 CrNiSi 20-12		1.4828		
		GX25 CrNiSi 20-14	1.4832		
	X15 CrNiSi 25-20		1.4841	310S CK20	S31008 J94202
	X12 CrNi 25-21		1.4845		
GX40 CrNiSi 25-20		1.4848	HK40		

**Calculation data**

Sizes Diam. x length (mm)	Current range type (A)	Current	Arc time (s)*	Energy - per electrode at max. current - E(kJ)	Dep.rate H(kg/h)	Weight/ 1000 pcs. (kg)	Electrodes/ kg weldmetal B	kg Electrodes/ kg weldmetal 1/N
3.2 x 350	90 - 140	DC+	56	155	1.31	31.8	49	1.56
4.0 x 350	130 - 175	DC+	72	233	1.55	50.7	32	1.64
5.0 x 350	165 - 200							

\* stub end 35mm

**Welding parameters, optimum fill passes**

Welding position: Diameter (mm)	PA/1G Current (A)	PB/2F	PC/2G	PF/3G up	PE/4G	PF/5G up
3.2	130	120	130	110	110	110
4.0	160	160	160	140		

**Application advice**

Welding with heat input max. 1.5 kJ/mm  
Interpass temperature max. 100°C