

## Stainless steel electrode

### Classification

AWS A5.4-92 : E310Mo-15\*  
EN 1600-97 : E 25 22 2 N L B 22\*

\* Deviation: see remarks

### Temperature Range

pressure parts: -40 ... +400°C  
oxidation resistance: n.a.

### General description

A basic high CrNiMo-alloyed fully austenitic all position electrode  
Excellent corrosion resistance in strong oxidizing and slightly reducing media  
Especially developed for urea and nitric acid plants  
High resistance to intergranular corrosion  
Excellent performance in the Huey-test  
Weldable on DC+ polarity

### Welding positions



### Current type

DC electr. +

### Approvals

TÜV

+

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

C	Mn	Si	Cr	Ni	Mo	N	FN
0.03	4.5	0.4	25.0	22.0	2.2	0.13	0.6

### 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	-196°C
Required: AWS A5.4-92		not required	min. 550	min. 30	not required	
EN 1600-97		min. 320	min. 510	min. 25	not required	
Typical values	AW	400	620	35	90	50

### Packaging, available sizes and identification

	Diameter (mm)	2.5	3.2	4.0
	Length (mm)	350	350	350
Unit: Box	Pieces / unit (nominal)	135	150	100
	Net weight/unit (kg)	2.8	4.8	4.9

Identification Imprint: 310Mo-15/Jungo 4465 Tip colour: yellow

Jungo® 4465: rev. EN 15

## Materials to be welded

Steel grades	EN 10088-1/-2	W.Nr.	ASTM / ACI A240/A312/A351	UNS
Fully austenitic corrosion resistant	X1 CrNiMoN 25-25-2 X3 CrNiMoTi 25-25 X2 CrNi 19-11	1.4465 1.4577 1.4306	(TP)304L CF-3	S30403 J92500
CrNiMo-steel	X2 CrNiN 18-10	1.4311	(TP)304LN 310S	S30453 S31008

Also very well applicable for build-up welding on low alloyed steel, such as pipe plates  
Bufferlayers for applications from -196°C to +350°C

## Calculation data

Sizes Diam. x length (mm)	Current range type (A)	Current	Arc time - per electrode at max. current - (s)*	Energy 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	50 - 75	DC+	50	86	0.82	21.5	88	1.89
3.2 x 350	70 - 105	DC+	51	135	1.3	32.5	53	1.72
4.0 x 350	100 - 135	DC+	66	206	1.7	48.5	32	1.56

\* stub end 35mm

## Welding parameters, optimum fill passes

Welding positions Diameter (mm)	PA/1G Current (A)	PB/2F	PC/2G	PF/3G up	PE/4G	PF/5G up
2.5	60	60	60	60	60	60
3.2	95	90	90	75	75	75
4.0	125	110	125	100	100	100

## Remarks

Deviations: chemical composition:

Cr = 24.5 - 26.0%

AWS: Cr = 25.0 - 28.0%

Ni = 21.5 - 22.5%

AWS: Ni = 20.0 - 22.0%

Mn = 4.5 - 5.3%

AWS: Mn = 1.0 - 2.5%

EN: Mn = 1.0 - 5.0%

## Application advice

Welding with heat input max. 1.5 kJ/mm

Interpass temperature max. 150°C