

## Repair electrode

### Classification

AWS A5.4 :E312-17  
 ISO 1600 :E 29 9 R 12

### General Description

A rutile-basic coated high CrNi-alloyed all position electrode  
 Most versatile electrode for repair welding  
 Specially developed for welding steels difficult to weld such as:

- armour plate
- austenitic Mn-steel
- high C-steel

Excellent weldability and self releasing slag  
 Weldable on AC and DC+ polarity  
 Not sensitive for porosity

### Welding positions



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

### Current type

AC/DC electr. +

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

C	Mn	Si	Cr	Ni
0.11	0.9	0.95	29.0	9.0

### Mechanical properties, all weld metal

	Shielding gas	Condition	Yield Strength 0,2 % (N/mm <sup>2</sup> )	Tensile Strength (N/mm <sup>2</sup> )	Elongation (%)	Impact (ISO), J	
						+20°C	-196°C
Required	AWS A5.4		not required	min 660	min 22	not required	
	ISO 1600		min 450	min 650	min 15	not required	
Typical values after welding		AW	700	800	20	20	

### Packaging, available sizes and identification

	Diameter (mm)	2.0	2.5	3.2	4.0	5.0
	Length (mm)	300	350	350	350	350
Unit:	Pieces / unit (nominal)	196	176	122	82	56
Box	Net weight (kg)	2.5	3.7	4.0	4.0	4.0

Identification

Imprint: Elerep<sup>®</sup>312

Tip colour: red

Elerep<sup>®</sup>312: rev.EN 20

## Materials to be welded

Various steels 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

## Calculation data

Sizes Diam.x length (mm)	Range of current (A)	Type of current	Arc time - per electrode at max. current - (s)*	Energy E (kJ)	Dep. rate H (kg/h)	Weight/ 1000 pcs. (kg)	Electrodes/ kg weldmetal (pcs)	kg Electrodes/ kg weldmetal (1/N)
2.0x300	40-55	DC+	41	45	0.59	12.0	150	1.80
2.5x350	50-70	DC+	57	91	0.73	20.7	87	1.79
3.2x350	70-100	DC+	60	126	1.1	33.0	52	1.72
4.0x350	100-130	DC+	72	273	1.4	49.7	35	1.72
5.0x350	130-140	DC+	79	313	2.4	71.5	19	1.36

\*stub end = 35 mm

## 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
2.5	70	70	70	60	60	60
3.2	100	90	100	65	65	65
4.0	130	125	130	80		