



The logical consequence: Premium welding filler materials from EWM

The best results require an integrated consideration of the welding process

With solid and cored wire electrodes, stick electrodes and welding rods, we cover everything that a welder needs to do his work. All filler materials are optimally coordinated with the EWM welding machines and torches, and therefore contribute to achieving a perfect welding result. Perfect quality is a matter of course as far as we are concerned. The filler materials are manufactured according to defined specifications and are subject to stringent quality assurance. Each individual batch is thoroughly analysed and examined in detail in sample weldings.





Overview

Low alloy wires

The low alloy EWM wires have a layer wound, copper plated premium quality and they guarantee low spatter and the highest level of current carrying capacity. From heat reduced coldArc arc to root welding up to forceArc process with high energy density, you always have the right wire for your complete spectrum of use.



Medium alloy steel

Medium alloy wires and rods are suitable for welding creep resistant or high strength steels. Certified and approved materials from EWM give you a secure feeling and help you to produce the highest quality every day.

High alloy wires and rods

In the area of high alloy MAG wires EWM also provides the highest quality. The matted surface leads to faultless wire feeding and safe current transfer during MAG welding.



Aluminium materials

The double skinned wires with top surface quality made of high grade aluminium materials guarantee a problem free solution. At the same time the reduced oxide layer minimises the development of smoke while welding. Quality without compromises for your success.

Copper materials

Universal wire electrodes are suitable for soldering galvanised, high strength or alloyed panels and GMA surfacing of friction bearings and surfaces. EWM guarantees the highest chemical purity and optimum flow characteristics through the exclusive use of new metals.

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THE LOGICAL CONSEQUENCE: PREMIUM WELDING FILLER MATERIALS FROM EWM

THE BEST RESULTS REQUIRE
AN INTEGRATED CONSIDERATION
OF THE WELDING PROCESS

Medium alloy steel

Medium alloy wires and rods for welding creep resistant and high strength steels. Certified and approved materials from EWM give you a secure feeling and help you to produce the highest quality for your customers every day.

Low alloy wires and rods

Layer wound, copper plated premium quality. Low level of spatter and the highest level of current carrying capacity. From heat reduced coldArc arc to root welding up to forceArc process with high energy density. Always the right wire for your whole spectrum of use.



Aluminium materials

Aluminium materials of particular quality. Double skinned wires and rods with the highest surface quality guarantee problem free wire feeding. At the same time the reduced oxide layer minimises the development of smoke while welding. Quality without compromises for your success.

High alloy wires and rods

EWM also makes the difference in the area of high alloy MAG wires and TIG rods. The matted surface results in better handling when TIG welding, problem free wire feeding and a safe current transfer when MAG welding.

Copper materials

Universal wire electrodes and rods for soldering galvanised, high strength or alloyed panels and GMA surfacing of friction bearings and surfaces. The highest level of chemical purity through exclusive use of new metals for optimum flow characteristics.



Low and medium alloy stick electrodes

Always the right electrode for all welding tasks. Whether basic, rutile, with cellulose portion or double coat. Mechanical qualities, handling, slag removal characteristics and low spatter; EWM stick electrodes for low and medium alloy steels will impress you.

High alloy stick electrodes

All high alloy EWM stick electrodes are supplied in re-sealable tin plate boxes. Sealed air tight and protected against damp until first use. Incomparable welding characteristics, self-releasing slag and extremely low spatter make these high end electrodes stand out.



Delivery forms for wire electrodes

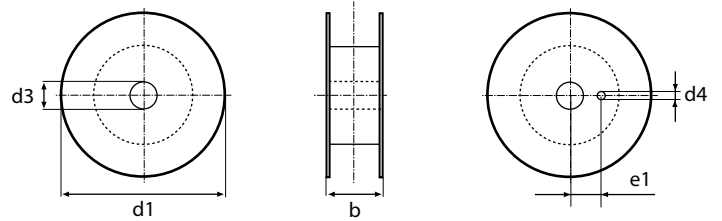
D 200

DIN 8559 D 200
EN 759 S 200
EN ISO 544 S 200



D 300

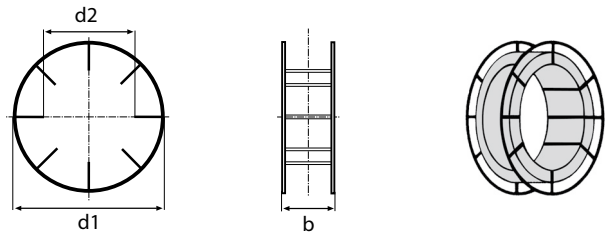
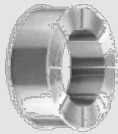
DIN 8559 D 300
EN 759 S 300
EN ISO 544 S 300



EWM (DIN 8559)	d1	d3	b	Turning hole	
				d4	e1
D 200	200	50,5	55	10	44,5
D 300	300	51,5	103	10	44,5

K 300

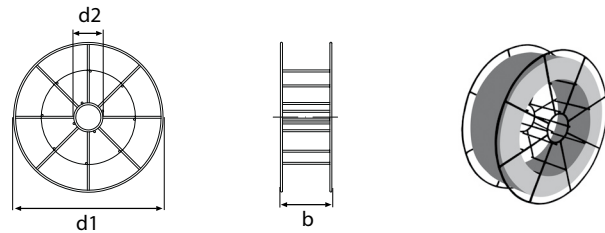
DIN 8559 K 300
EN 759 B 300
EN ISO 544 B 300



EWM (DIN 8559)	d1	d2	b
K 300	300	180	103

BS 300

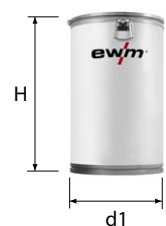
DIN 8559 K 300 without adapter
EN 759 BS 300
EN ISO 544 BS 300



EWM (EN ISO 544)	d1	d2	b
BS 300	300	50.5	103

Drum

Drum 250



	d1	H
Drum 250	520	780



■ Symbols for suitable current

The correct type of current and correct polarity for direct current are important for the welding of filler materials suitable for electric welding. They are indicated by code numbers in the respective DIN abbreviations which are replaced by compound symbols here. From the four symbols known in electrical engineering

~ for alternating current + for plus pole
= for direct current - for minus pole

seven possibilities for the suitable current of the welding filler materials emerge:

\sim	=	Alternating current		
$= +$	=	Direct current (plus pole)	$= + \sim$	= Direct current (plus pole) or alternating current
$= -$	=	Direct current (minus pole)	$= - \sim$	= Direct current (minus pole) or alternating current
$= \pm$	=	Direct current (plus pole or minus pole)	$= \pm \sim$	= Direct current (plus pole or minus pole) or alternating current

■ Delivery times

A	=	Delivery ex stock
B	=	Delivery time on request

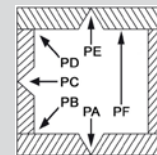


low-alloy

SW 70S G3



- Low-alloy MAG solid wire electrode
- Copper-plated, layer wound
- Low-spatter thanks to high chemical purity
- Suitable for EWM forceArc and coldArc
- For industry, trade and repair shops



Standards

DIN EN 14341-A

AWS A5.18

Material number

Chemical analysis

Shielding gas

Elastic limit, Rp 0.2%

Expansion, A5

Impact energy, Av

Approvals

G 42 3M G3Si1

ER70S-2

1.5125

C	Si	Mn	P	S
0.06	0.41	1.1	0.012	0.011

CO₂ M21

>430

>28

>70 J (-30 °C)

TÜV / DB / GL / LR

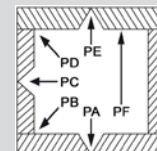
Type	Designation	Packing drum	Wire Ø	Weight	Item no.	P	Price	LB
			mm	kg			per kg	
SW 70S G3	Wire electrode	D200	0.8	2	097-003450-20208	Z3	€ 2.42	A
		D200	0.8	5	097-003450-20008	Z3	€ 2.80	
		D200	1	5	097-003450-20010	Z3	€ 2.65	
		D200	1.2	5	097-003450-20010	Z3	€ 2.65	
		K300	0.8	15	097-003450-30008	Z3	€ 2.29	
		K300	1	15	097-003450-30010	Z3	€ 2.13	
		K300	1.2	15	097-003450-30012	Z3	€ 2.00	
		K300	1.6	15	097-003450-30016	Z3	€ 2.00	
		F250	0.8	250	097-003450-25008	Z3	€ 2.36	
		F250	1	250	097-003450-25010	Z3	€ 2.17	
F250	1.2	250	097-003450-25012	Z3	€ 2.06			

► 2 kg reels specially developed for Picomig. You will find more welding filler materials in the main EWM catalogue!

SW 70S G3 Ti



- Low-alloy MAG solid wire electrode
- Bronze plated, layer wound
- Excellent for rusty, primed, contaminated and galvanised surfaces



Standards

EN ISO 14341-B

EN 440

AWS A5.18

Chemical analysis

Shielding gas

Elastic limit, Rp 0.2%

Expansion, A5

Impact energy, Av

Approvals

G 49A 2 M/A/C G11

G 42 2 C/M G3Si1+Ti

ER70S-2

C	Si	Mn	Ti
0.06	0.8	1.5	0.12

CO₂ M21

>440

>20

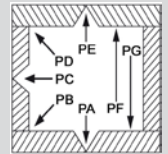
>47 J (-20 °C)

TÜV

Type	Designation	Packing drum	Wire Ø	Weight	Item no.	P	Price	LB
			mm	kg			per kg	
SW 70S G3 Ti	Wire electrode	D200	0.8	5	097-003535-20008	Z3	€ 7.03	A
		D200	1	5	097-003535-20010	Z3	€ 6.63	
		D200	1.2	5	097-003535-20012	Z3	on demand	
		K300	0.8	15	097-003535-30008	Z3	€ 6.53	
		K300	1	15	097-003535-30010	Z3	€ 6.12	
		K300	1.2	15	097-003535-30012	Z3	€ 6.00	


SW 70S G4


- Low-alloy MAG solid wire electrode
- Copper-plated, layer wound
- Low-spatter thanks to high chemical purity
- Suitable for EWM forceArc and coldArc
- For industry, trade and repair shops


Standards
DIN EN 14341-A
AWS A5.18
Material number
Chemical analysis
Shielding gas
Elastic limit, Rp 0.2%
Expansion, A5
Impact energy, Av
Approvals

G 42 2C G4Si1, G 46 4M G4Si1

ER70S-6

1.5130

C	Si	Mn	P	S
0.076	0.95	1.65	0.019	0.015

 CO₂ M21

>460

A529

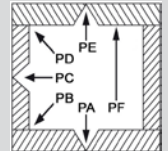
>95 J (-20 °C)

TÜV / DB / LR / GL

Type	Designation	Packing drum	Wire Ø	Weight	Item no.	P	Price	LB
			mm	kg			per kg	
SW 70S G4	Wire electrode	D200	0.8	5	097-003451-20008	Z3	€ 2.95	A
		D200	1	5	097-003451-20010	Z3	€ 2.80	
		K300	0.8	15	097-003451-30008	Z3	€ 2.42	
		K300	1	15	097-003451-30010	Z3	€ 2.16	
		K300	1.2	15	097-003451-30012	Z3	€ 2.08	
		K300	1.6	15	097-003451-30016	Z3	€ 2.08	
		F250	1	250	097-003451-25010	Z3	€ 2.24	
		F250	1.2	250	097-003451-25012	Z3	€ 2.13	

SW 80S NiCu


- Low-alloy MAG solid wire electrode
- Copper-plated, layer wound
- For welding weatherproof steels


Standards
EN ISO 14341-A
AWS A5.28
Chemical analysis
Shielding gas
Elastic limit, Rp 0.2%
Impact energy, Av
Approvals
Packing drum

G0

ER80S-G

C	Si	Mn	Ni	Cu
0.08	0.8	1.4	0.8	0.4

 CO₂ M21

>450

≥80 J (20 °C) / ≥47 J (-20 °C)

DB / CE

K300

Type	Designation	Packing drum	Wire Ø	Weight	Item no.	P	Price	LB
			mm	kg			per kg	
SW 80S NiCu	Wire electrode	K300	0.8	15	097-003524-30008	Z4	€ 10.07	B
			1	15	097-003524-30010	Z4	€ 7.29	A
			1.2	15	097-003524-30012	Z4	€ 7.11	B

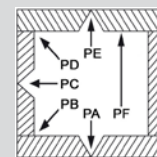


■ medium-alloy ■ higher strength

■ SW 100S NiMo



- Medium-alloy MAG solid wire electrode
- Copper-plated, layer wound
- For wall thicknesses up to a maximum of 15 mm and fillet welds
- Suitable for EWM forceArc and coldArc
- High strength welding filler material for vehicle construction



Standards

DIN EN 16834-A:2007

AWS A5.28

Chemical analysis

Elastic limit, Rp 0.2%

Expansion, A5

Impact energy, Av

Approvals

Packing drum

%

MPa

%

GZMn3Ni1Mo

ER100S-G

C	Si	Mn	Ni	Mo	Ti
0.08	0.57	1.77	1	0.38	0.15

≥690

>18

≥100 J (20 °C) / ≥47 J (-40 °C)

TÜV / DB / CE

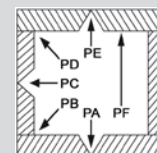
K300

Type	Designation	Packing drum	Wire Ø	Weight	Item no.	P	Price	LB
			mm	kg			per kg	
SW 100S NiMo	Wire electrode	K300	1	15	097-003525-30010	Z4	€ 7.45	B
			1.2	15	097-003525-30012	Z4	€ 6.84	

■ SW 100S NiMoCr



- Medium-alloy MAG solid wire electrode
- Copper-plated, layer wound
- High-strength welding filler material for vehicle and crane construction
- Low-spatter thanks to high chemical purity
- suitable for EWM forceArc
- For steels with a yield point of up to 690 MPa (N/mm²).



Standards

EN ISO 16834-A:2007

AWS A5.28

Chemical analysis

Elastic limit, Rp 0.2%

Expansion, A5

Impact energy, Av

Approvals

Packing drum

%

MPa

%

G 69 5 M Mn 3 Ni1Cr Mo

ER 100S-G

C	Si	Mn	Cr	Ni	Mo	Mn	V
0.09	0.52	1.57	0.3	1.4	0.25	1.57	0.09

≥690

>22

>80 J (20 °C) / >47 J (-50 °C)

TÜV / DB / CE

K300

Type	Designation	Packing drum	Wire Ø	Weight	Item no.	P	Price	LB
			mm	kg			per kg	
SW 100S NiMoCr	Wire electrode	K300	1	15	097-003548-30010	Z4	€ 7.41	A
			1.2	15	097-003548-30012	Z4	€ 6.80	

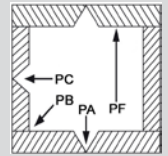


medium-alloy ■ creep resistant

SW 80S Mo



- Medium-alloy MAG solid wire electrode
- Copper-plated, layer wound
- Creep resistant filler for pipe and container construction
- Low-spatter thanks to high chemical purity
- Suitable for EWM forceArc and coldArc
- Maximum operating temperature of the end product: 500 °C



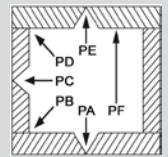
Standards		G Mo Si								
EN 12070:1999		ER80S-G								
AWS A5.28		1.5424								
Material number										
Chemical analysis	%	<table border="1"> <tr> <td>C</td> <td>Si</td> <td>Mn</td> <td>Mo</td> </tr> <tr> <td>0.1</td> <td>0.6</td> <td>1.15</td> <td>0.52</td> </tr> </table>	C	Si	Mn	Mo	0.1	0.6	1.15	0.52
C	Si	Mn	Mo							
0.1	0.6	1.15	0.52							
Elastic limit, Rp 0.2%	MPa	460								
Expansion, A5	%	22								
Impact energy, Av		>60 J (20 °C) / >47 J (-20 °C)								
Approvals		TÜV / DB								
Packing drum		K300								

Type	Designation	Packing drum	Wire Ø	Weight	Item no.	P	Price	LB
			mm	kg			per kg	
SW 80S Mo	Wire electrode	K300	1	15	097-003547-30010	Z4	€ 7.05	A
			1.2	15	097-003547-30012	Z4	€ 6.68	
			1.6	15	097-003547-30016	Z4	€ 6.68	

SW 80S CrMo1



- Medium-alloy MAG solid wire electrode
- Copper-plated, layer wound
- Creep resistant filler for pipe and container construction
- Low-spatter thanks to high chemical purity
- Suitable for EWM forceArc and coldArc
- Maximum operating temperature 550 °C



Standards		G CrMo 1 Si										
EN 12070:1999		ER80S-B2										
AWS A5.28		1.7339										
Material number												
Chemical analysis	%	<table border="1"> <tr> <td>C</td> <td>Si</td> <td>Mn</td> <td>Cr</td> <td>Mo</td> </tr> <tr> <td>0.1</td> <td>0.6</td> <td>1</td> <td>1.2</td> <td>0.52</td> </tr> </table>	C	Si	Mn	Cr	Mo	0.1	0.6	1	1.2	0.52
C	Si	Mn	Cr	Mo								
0.1	0.6	1	1.2	0.52								
Elastic limit, Rp 0.2%	MPa	≥305										
Expansion, A5	%	>20										
Impact energy, Av		>100 J (20 °C) / >47 J (-10 °C)										
Approvals		TÜV / DB / CE										
Packing drum		K300										

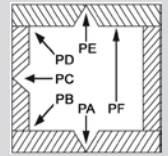
Type	Designation	Packing drum	Wire Ø	Weight	Item no.	P	Price	LB
			mm	kg			per kg	
SW 80S CrMo1	Wire electrode	K300	1	15	097-003546-30010	Z4	€ 8.02	A
			1.2	15	097-003546-30012	Z4	€ 7.29	



SW 90S CrMo2



- Medium-alloy MAG solid wire electrode
- Copper-plated, layer wound
- Creep resistant filler for pipe and container construction
- Low-spatter thanks to high chemical purity
- Maximum operating temperature of the components 600°
- For industry, trade and repair shops



Standards

EN 21952 - A

AWS A5.28

Material number

Chemical analysis

Elastic limit, Rp 0.2%

Expansion, A5

Impact energy, Av

Approvals

Packing drum

%

MPa

%

G CrMo 2 Si

ER90S-G

1.7384

C	Si	Mn	Cr	Mo
0.08	0.6	0.92	2.45	1

>355

>22

≥80 J (20 °C)

TÜV / DB

K300

Type	Designation	Packing drum	Wire Ø	Weight	Item no.	P	Price	LB
			mm	kg			per kg	
SW 90S CrMo2	Wire electrode	K300	1	15	097-003526-30010	Z4	€ 11.19	A
			1.2	15	097-003526-30012	Z4	€ 10.52	
			1.2	15	097-003526-30016	Z4	€ 10.52	

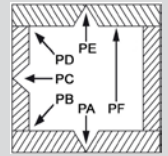


■ medium-alloy ■ hard coating

■ SW Hard 600



- Medium-alloy MAG solid wire electrode
- Copper-plated, layer wound
- For impact loading and mineral abrasion
- High chromium content - good with aggressive media
- Up to 60 HRC



Standards

EN 14700

Material number

Chemical analysis

%

Packing drum

S Fe8

1.4718

C	Si	Cr
0.45	3	9.5

K300

Type	Designation	Packing drum	Wire Ø	Weight	Item no.	P	Price	LB
			mm	kg			per kg	
SW Hard 600	Wire electrode	K300	1.2	15	097-003549-30012	Z4	€ 23.70	A
			1.6	15	097-003549-30016	Z4	€ 25.41	

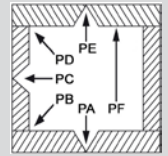


high-alloy

SW 307 Si



- High-alloy MAG solid wire electrode
- Annealed and layer wound
- Excellent welding characteristics thanks to high Si content
- Suitable for black/white joints (austenite-ferrite), buffer layers
- Strain-hardening



Standards

EN ISO 14343-A:2007

AWS 5.9

Material number

Chemical analysis

Elastic limit, Rp 0.2%

Expansion, A5

Impact energy, Av

Approvals

%

MPa

%

G 18 8 Mn

ER 307 L

1.4370

C	Si	Mn	Cr	Ni
0.08	0.85	7	19	9

380

>40

>100 J (20 °C) / >32 J (-196 °C)

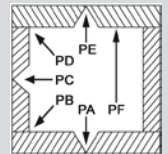
TÜV / DB / CE

Type	Designation	Packing drum	Wire Ø	Weight	Item no.	P	Price	LB
			mm	kg			per kg	
SW 307 Si	Wire electrode	D200	0.8	5	097-003473-20008	Z5	€ 12.15	A
		D200	1	5	097-003473-20010	Z5	€ 11.03	
		BS300	0.8	15	097-003473-30008	Z5	€ 10.67	
		BS300	1	15	097-003473-30010	Z5	€ 9.68	
		BS300	1.2	15	097-003473-30012	Z5	€ 9.48	
		BS300	1.6	15	097-003473-30016	Z5	€ 9.41	

SW 308 LSi



- High-alloy MAG solid wire electrode
- Annealed and layer wound
- Excellent welding characteristics thanks to high Si content
- For non-rusting Cr-Ni steels with low C content
- Maximum operating temperature 350
- Can be used for stabilised and non-stabilised Cr-Ni steels



Standards

EN ISO 14343-A:2007

AWS 5.9

Material number

Chemical analysis

Elastic limit, Rp 0.2%

Expansion, A5

Impact energy, Av

Approvals

%

MPa

%

G 19 9 L Si

ER 308 L Si

1.4316

C	Si	Mn	Cr	Ni
0.02	0.8	1.75	20	10

400

>40

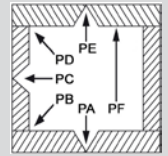
>50 J (-196 °C)

TÜV / DB / CE

Type	Designation	Packing drum	Wire Ø	Weight	Item no.	P	Price	LB
			mm	kg			per kg	
SW 308 LSi	Wire electrode	D200	0.8	5	097-003544-20008	Z5	€ 11.48	A
		D200	1	5	097-003544-20010	Z5	€ 10.58	A
		BS300	0.8	15	097-003544-30008	Z5	€ 10.08	A
		BS300	1	15	097-003544-30010	Z5	€ 9.29	A
		BS300	1.2	15	097-003544-30012	Z5	€ 9.09	A
		BS300	1.6	15	097-003544-30016	Z5	€ 9.01	B


SW 309 LSi


- High-alloy MAG solid wire electrode
- Annealed and layer wound
- Excellent welding characteristics thanks to high Si content
- Suitable for black/white joints (austenite-ferrite), buffer layers
- Maximum operating temperature 300

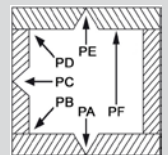


Standards		G 23 12 L Si										
EN ISO 14343-A:2007		ER 309 L Si										
AWS 5.9		1.4332										
Material number												
Chemical analysis	%	<table border="1"> <tr> <td>C</td> <td>Si</td> <td>Mn</td> <td>Cr</td> <td>Ni</td> </tr> <tr> <td>0.02</td> <td>0.8</td> <td>1.8</td> <td>23.5</td> <td>13.5</td> </tr> </table>	C	Si	Mn	Cr	Ni	0.02	0.8	1.8	23.5	13.5
C	Si	Mn	Cr	Ni								
0.02	0.8	1.8	23.5	13.5								
Elastic limit, Rp 0.2%	MPa	>450										
Expansion, A5	%	>35										
Impact energy, Av		>60 J (-120 °C)										
Approvals		TÜV / CE										
Packing drum		BS300										

Type	Designation	Packing drum	Wire Ø	Weight	Item no.	P	Price	LB
			mm	kg			per kg	
SW 309 LSi	Wire electrode	BS300	0.8	15	097-003554-30008	Z5	€ 12.84	B
			1	15	097-003554-30010	Z5	€ 12.05	A
			1.2	15	097-003554-30012	Z5	€ 11.85	A
			1.6	15	097-003554-30016	Z5	€ 11.46	B

SW 310


- High-alloy MAG solid wire electrode
- Welding material made of fully austenitic chrome nickel steel
- For welding heatproof steels
- Scale resistant up to 1150
- Not resistant in gases containing sulphur



Standards		G 25 20										
EN ISO 14343-A:2007		ER310										
AWS 5.9		1.4842										
Material number												
Chemical analysis	%	<table border="1"> <tr> <td>C</td> <td>Si</td> <td>Mn</td> <td>Cr</td> <td>Ni</td> </tr> <tr> <td>0.01</td> <td>0.4</td> <td>1.5</td> <td>25</td> <td>20</td> </tr> </table>	C	Si	Mn	Cr	Ni	0.01	0.4	1.5	25	20
C	Si	Mn	Cr	Ni								
0.01	0.4	1.5	25	20								
Elastic limit, Rp 0.2%	MPa	>390										
Expansion, A5	%	>40										
Impact energy, Av		>170 J (20 °C) / ≥60 J (-196 °C)										
Approvals		CE										
Packing drum		BS300										

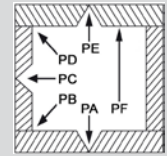
Type	Designation	Wire Ø	Weight	Item no.	P	Price	LB
		mm	kg			per kg	
SW 310	Wire electrode	0.8	15	097-003513-30008	Z5	€ 15.80	A
		1	15	097-003513-30010	Z5	€ 14.82	A
		1.2	15	097-003513-30012	Z5	€ 14.42	A
		1.6	15	097-003513-30016	Z5	€ 13.83	B



SW 312



- High-alloy MAG solid wire electrode
- The welding material features a ferrite-austenite structure
- Suitable for black/white joints (austenite-ferrite), buffer layers
- Scale resistant up to 1100
- Suitable for transformer



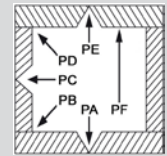
Standards		G 29 9										
EN ISO 14343-A:2007		ER 312										
AWS 5.9		1.4337										
Material number												
Chemical analysis	%	<table border="1"> <tr> <td>C</td> <td>Si</td> <td>Mn</td> <td>Cr</td> <td>Ni</td> </tr> <tr> <td>0.1</td> <td>0.5</td> <td>1.9</td> <td>30</td> <td>9</td> </tr> </table>	C	Si	Mn	Cr	Ni	0.1	0.5	1.9	30	9
C	Si	Mn	Cr	Ni								
0.1	0.5	1.9	30	9								
Elastic limit, Rp 0.2%	MPa	>600										
Expansion, A5	%	>25										
Impact energy, Av		≥50 J (20 °C)										
Approvals		CE										
Packing drum		BS300										

Type	Designation	Wire Ø	Weight	Item no.	P	Price	LB
		mm	kg			per kg	
SW 312	Wire electrode	0.8	15	097-003514-30008	Z5	€ 17.98	A
		1	15	097-003514-30010	Z5	€ 17.38	A
		1.2	15	097-003514-30012	Z5	€ 16.79	A
		1.6	15	097-003514-30016	Z5	€ 16.40	B

SW 316 LSi



- High-alloy MAG solid wire electrode
- Annealed and layer wound
- Excellent welding characteristics thanks to high Si content
- For non-rusting Cr-Ni steels with low C content
- Maximum operating temperature 400
- Can be used for stabilised and non-stabilised Cr-Ni steels

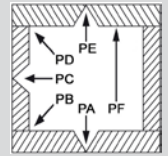


Standards		G 19 12 3 L Si												
EN ISO 14343-A:2007		ER 316 L Si												
AWS 5.9		1.4430												
Material number														
Chemical analysis	%	<table border="1"> <tr> <td>C</td> <td>Si</td> <td>Mn</td> <td>Cr</td> <td>Mo</td> <td>Ni</td> </tr> <tr> <td>0.02</td> <td>0.85</td> <td>18.5</td> <td>12</td> <td>2.7</td> <td>12</td> </tr> </table>	C	Si	Mn	Cr	Mo	Ni	0.02	0.85	18.5	12	2.7	12
C	Si	Mn	Cr	Mo	Ni									
0.02	0.85	18.5	12	2.7	12									
Elastic limit, Rp 0.2%	MPa	>400												
Expansion, A5	%	>40												
Impact energy, Av		>120 J (-60 °C)												
Approvals		TÜV / DB / CE												

Type	Designation	Packing drum	Wire Ø	Weight	Item no.	P	Price	LB
			mm	kg			per kg	
SW 316 LSi	Wire electrode	D200	0.8	5	097-003545-20008	Z5	€ 13.28	A
		D200	1	5	097-003545-20010	Z5	€ 11.93	A
		BS300	0.8	15	097-003545-30008	Z5	€ 11.66	A
		BS300	1	15	097-003545-30010	Z5	€ 10.47	A
		BS300	1.2	15	097-003545-30012	Z5	€ 10.39	A
		BS300	1.6	15	097-003545-30016	Z5	€ 10.27	B


SW 318 Si


- High-alloy MAG solid wire electrode
- Annealed and layer wound
- Excellent welding characteristics thanks to high Si content
- Can be used for welding stabilised Cr-Ni steels
- Maximum operating temperature 400


Standards
EN ISO 14343-A:2007
AWS 5.9
Material number
Chemical analysis
Elastic limit, Rp 0.2%
Expansion, A5
Impact energy, Av
Approvals

%

MPa

%

G 19 12 3 Nb Si

ER 318 Si

1.4576

C	Si	Mn	Cr	Mo	Nb
0.04	0.8	1.8	19.5	2.7	0.5

>400

>34

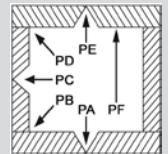
>90 J (20 °C)

TÜV / DB / CE

Type	Designation	Packing drum	Wire Ø	Weight	Item no.	P	Price	LB
			mm	kg			per kg	
SW 318 Si	Wire electrode	D200	0.8	5	097-003476-20008	Z5	€ 14.63	A
		D200	1	5	097-003476-20010	Z5	€ 13.28	
		BS300	0.8	15	097-003476-30008	Z5	€ 12.84	
		BS300	1	15	097-003476-30010	Z5	€ 11.66	
		BS300	1.2	15	097-003476-30012	Z5	€ 11.26	
		BS300	1.6	15	097-003476-30016	Z5	€ 11.06	

SW 625


- High-alloy MAG solid wire electrode
- Maximum operating temperature of the components 1000
- Scale resistant up to 1100
- Cold resistant up to 196


Standards
EN ISO 18274
AWS 5.14
Material number
Chemical analysis
Elastic limit, Rp 0.2%
Expansion, A5
Impact energy, Av
Approvals
Packing drum

%

MPa

%

S Ni 6625

ERNiCrMo3

2.4831

C	Si	Mn	Cr	Ni	Mo	Nb
0.01	0.1	0.05	22	64	9	3.6

>480

>35

≥60 J (-196 °C)

TÜV / CE

BS300

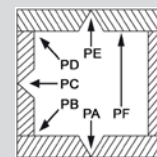
Type	Designation	Packing drum	Wire Ø	Weight	Item no.	P	Price	LB
			mm	kg			per kg	
SW 625	Wire electrode	BS300	0.8	15	097-003515-30008	Z5	€ 106.65	A
			1	15	097-003515-30010	Z5	€ 106.65	
			1.2	15	097-003515-30012	Z5	€ 106.65	



SW 2209 Duplex



- High-alloy MAG solid wire electrode
- For ferrite-austenite chromium-nickel-molybdenum steel
- Use in offshore technology e.g. in pipe construction
- Resistant to products containing chloride and acid gases
- Maximum operating temperature of the end product: 250 °C



Standards

EN ISO 14343-A:2007

AWS 5.9

Material number

Chemical analysis

Elastic limit, Rp 0.2%

Expansion, A5

Impact energy, Av

Approvals

Packing drum

G 22 9 3 LN

ER 2209

1.4462

C	Si	Mn	Cr	Ni	Mo	N
0.015	0.4	1.8	22.5	9	3	0.15

810

>30

≥65 J (-60 °C) / ≥120 J (20 °C)

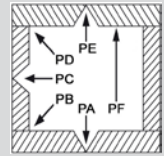
TÜV / CE / DB

BS300

Type	Designation	Wire Ø	Weight	Item no.	P	Price	LB
		mm	kg				
SW 2209 Duplex	Wire electrode	0.8	15	097-003516-30008	Z5	€ 19.56	A
		1	15	097-003516-30010	Z5	€ 19.36	
		1.2	15	097-003516-30012	Z5	€ 19.16	
		1.6	15	097-003516-30016	Z5	€ 18.96	


Aluminium
SW 1450 99,5 Ti


- MIG solid wire electrode, aluminium
- Triple skinned quality
- Titanium forms fine grains and increases the mechanical qualities
- More resistant to heat cracks than pure aluminium

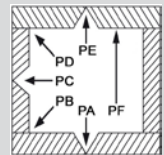


Standards			
DIN EN 18273			S AL 1450
AWS A5.10			ER 1450
Chemical analysis	%		Ti Al
			0.15 99.5
Elastic limit, Rp 0.2%	MPa		20
Expansion, A5	%		>35
Approvals			TÜV / DB
Packing drum			BS300

Type	Designation	Wire Ø	Weight	Item no.	P	Price	LB
		mm	kg			per kg	
SW 1450 99,5Ti	Wire electrode	0.8	7.5	097-003523-30008	Z8	€ 11.82	A
		1	7.5	097-003523-30010	Z8	€ 9.34	
		1.2	7.5	097-003523-30012	Z8	€ 7.97	
		1.6	7.5	097-003523-30016	Z8	€ 6.76	

SW 3103 Mn1


- MIG solid wire electrode, aluminium
- Triple skinned quality
- 0.3% Manganese



Standards			
EN ISO 18273			S AL 3103
AWS 5.10			ER 3103
Chemical analysis	%		Mn Al
			0.3 Rest
Elastic limit, Rp 0.2%	MPa		35
Expansion, A5	%		>24

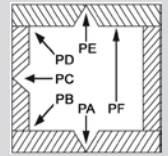
Type	Designation	Packing drum	Wire Ø	Weight	Item no.	P	Price	LB
			mm	kg			per kg	
SW 3103 Mn1	Wire electrode	BS300	0.8	7.5	097-003509-30008	Z8	€ 15.44	A
		BS300	1	7.5	097-003509-30010	Z8	€ 12.90	
		BS300	1.2	7.5	097-003509-30012	Z8	€ 11.38	
		BS300	1.6	7.5	097-003509-30016	Z8	€ 10.67	
		F100	1	100	097-003509-10010	Z8	€ 13.46	
		F100	1.2	100	097-003509-10012	Z8	€ 11.94	



SW 4043 Si5



- MIG solid wire electrode, aluminium
- Triple skinned quality
- 5% silicon
- Untreated low strength values
- Suitable for subsequent anodisation
- Main areas of use are welds on cast aluminium



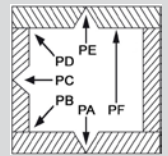
Standards		
EN ISO 18273		S AL 4043A
AWS 5.10		ER 4043
Material number		3.2245
Chemical analysis	%	Si Al 5 Rest
Elastic limit, Rp 0.2%	MPa	40
Expansion, A5	%	>8
Approvals		DB / CE

Type	Designation	Packing drum	Wire Ø	Weight	Item no.	P	Price	LB
			mm	kg			per kg	
SW 4043 Si5	Wire electrode	D200	0.8	2	097-003553-20008	Z8	€ 19.13	A
		D200	1	2	097-003553-20010	Z8	€ 16.87	
		BS300	0.8	7.5	097-003553-30008	Z8	€ 12.93	
		BS300	1	7.5	097-003553-30010	Z8	€ 10.67	
		BS300	1.2	7.5	097-003553-30012	Z8	€ 9.15	

SW 4047 Si12



- MIG solid wire electrode, aluminium
- Triple skinned quality
- Untreated low strength values
- Not suitable for subsequent anodisation



Standards		
EN ISO 18273		S AL 4047A
AWS 5.10		ER 4047
Chemical analysis	%	Si Al 12 Rest
Elastic limit, Rp 0.2%	MPa	60
Expansion, A5	%	>5
Approvals		DB / CE
Packing drum		BS300

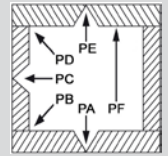
Type	Designation	Wire Ø	Weight	Item no.	P	Price	LB
		mm	kg			per kg	
SW 4047 Si12	Wire electrode	0.8	7.5	097-003522-30008	Z8	€ 17.40	A
		1	7.5	097-003522-30010	Z8	€ 13.80	
		1.2	7.5	097-003522-30012	Z8	€ 12.19	
		1.6	7.5	097-003522-30016	Z8	€ 10.30	



SW 5087 Mg_{4,5} MnZr



- MIG solid wire electrode, aluminium
- Triple skinned quality
- High strength, extremely resistant to corrosion, resistant to sea water
- Very good mechanical quality values



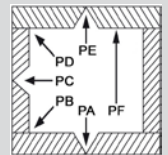
EN ISO 18273		S AL 5087				
AWS 5.10		ER 5087				
Chemical analysis	%	Mg	Mn	Cr	Zr	Al
		4.5	1	0.15	0.15	Rest
Elastic limit, Rp 0.2%	MPa	125				
Expansion, A5	%	>17				
Approvals		TÜV / DB / GL / CE				
Packing drum		BS300				

Type	Designation	Wire Ø	Weight	Item no.	P	Price	LB
		mm	kg			per kg	
SW 5087 Mg _{4,5} MnZr	Wire electrode	0.8	7.5	097-003521-30008	Z8	€ 16.00	A
		1	7.5	097-003521-30010	Z8	€ 13.46	
		1.2	7.5	097-003521-30012	Z8	€ 11.32	
		1.6	7.5	097-003521-30016	Z8	€ 10.58	

SW 5183 Mg_{4,5} Mn



- MIG solid wire electrode, aluminium
- Triple skinned quality
- 4.5% magnesium, 0.7% manganese
- High strength, extremely resistant to corrosion, resistant to sea water
- Suitable for subsequent anodisation



Standards		S AL 5183				
EN ISO 18273		ER 5183				
AWS 5.10		3.3548				
Material number						
Chemical analysis	%	Mg	Mn	Cr	Al	
		4.5	0.7	0.15	Rest	
Elastic limit, Rp 0.2%	MPa	125				
Expansion, A5	%	>17				
Approvals		TÜV / DB / GL / LR / CE				
Packing drum		BS300				

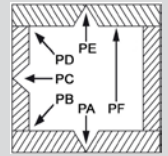
Type	Designation	Wire Ø	Weight	Item no.	P	Price	LB
		mm	kg			per kg	
SW 5183 Mg _{4,5} Mn	Wire electrode	0.8	7.5	097-003551-30008	Z8	€ 15.41	A
		1	7.5	097-003551-30010	Z8	€ 12.87	
		1.2	7.5	097-003551-30012	Z8	€ 10.73	
		1.6	7.5	097-003551-30016	Z8	€ 10.30	



SW 5356 Mg5



- MIG solid wire electrode, aluminium
- Triple skinned quality
- 5% magnesium
- High strength, extremely resistant to corrosion, resistant to sea water
- Suitable for subsequent anodisation



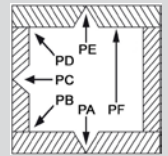
Standards		
EN ISO 18273		S AL 5356
AWS 5.10		ER 5356
Material number		3.3556
Chemical analysis	%	Mg Al
		5 Rest
Elastic limit, Rp 0.2%	MPa	120
Expansion, A5	%	>8
Approvals		TÜV / DB / GL / LR / CE

Type	Designation	Packing drum	Wire Ø	Weight	Item no.	P	Price	LB
			mm	kg			per kg	
SW 5356 Mg5	Wire electrode	D200	0.8	2	097-003552-20008	Z8	€ 19.50	A
		D200	1	2	097-003552-20010	Z8	€ 16.96	
		BS300	0.8	7.5	097-003552-30008	Z8	€ 13.30	
		BS300	1	7.5	097-003552-30010	Z8	€ 10.76	
		BS300	1.2	7.5	097-003552-30012	Z8	€ 9.24	
		BS300	1.6	7.5	097-003552-30016	Z8	€ 8.72	

SW 5754 Mg3



- MIG solid wire electrode, aluminium
- Triple skinned quality
- 3% magnesium
- Medium strength, corrosion resistant
- Suitable for subsequent anodisation



Standards		
EN ISO 18273		S AL 5754
AWS 5.10		ER 5754
Material number		3.3536
Chemical analysis	%	Mg Mn Cr Al
		3 0.5 0.3 Rest
Elastic limit, Rp 0.2%	MPa	80
Expansion, A5	%	>22
Approvals		TÜV / DB / GL / CE

Type	Designation	Packing drum	Wire Ø	Weight	Item no.	P	Price	LB
			mm	kg			per kg	
SW 5754 Mg3	Wire electrode	D200	0.8	2	097-003550-20008	Z8	€ 19.26	A
		D200	1	2	097-003550-20010	Z8	€ 16.68	
		BS300	0.8	7.5	097-003550-30008	Z8	€ 13.06	
		BS300	1	7.5	097-003550-30010	Z8	€ 10.48	
		BS300	1.2	7.5	097-003550-30012	Z8	€ 9.24	
		BS300	1.6	7.5	097-003550-30016	Z8	€ 8.31	

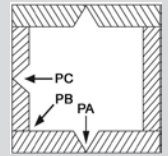


Copper-based

SW CuSi3



- Copper-based, MIG/MAG solid wire electrode
- Low interference due to observation of the smallest dimensional tolerances, layer wound
- Joint welding of Cu materials and various steel sheets
- GMA-surfacing on steel
- Resistant to high temperatures and corrosion
- Pulse arc recommended, approved for coldArc



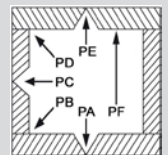
Standards		S Cu 6560 (CuSi 3 Mn 1)
EN ISO 24373		C 9
BS 2901P.3		ER Cu Si - A
AWS 5.7		2.1461
Material number		
Chemical analysis	%	Mn Si Cu 0.5 2.8 Rest
Expansion, A5	%	>40
Impact energy, Av		≥60 J (20 °C)

Type	Designation	Packing drum	Wire Ø	Weight	Item no.	P	Price	LB
			mm	kg			per kg	
SW CuSi3	Wire electrode	D200	0.8	5	097-003485-20008	Z7	€ 14.30	A
		D200	1	5	097-003485-20010	Z7	€ 12.40	
		K300	0.8	15	097-003485-30008	Z7	€ 12.59	
		K300	1	15	097-003485-30010	Z7	€ 10.67	
		F200	1	200	097-003485-25010	Z7	€ 10.67	

SW CuAl8



- Copper-based, MIG/MAG solid wire electrode
- Low interference due to observation of the smallest dimensional tolerances, layer wound
- Joint welding of Cu materials and various steel sheets
- Wear-resistant GMA-surfacing on steel
- Resistant to high temperatures and corrosion, seawater resistant
- Pulse arc recommended, approved for coldArc



Standards		CuAl8
EN 14640		ER Cu Al - A1
AWS 5.7		C12
BS 2901P.3		2.0921
Material number		
Chemical analysis	%	Al Mn Ni Cu 8 0.5 0.3 Rest
Expansion, A5	%	>40
Impact energy, Av		≥100 J (20 °C)

Type	Designation	Packing drum	Wire Ø	Weight	Item no.	P	Price	LB
			mm	kg			per kg	
SW CuAl8	Wire electrode	D200	0.8	5	097-003486-20008	Z7	€ 16.03	A
		D200	1	5	097-003486-20010	Z7	€ 14.14	
		K300	0.8	15	097-003486-30008	Z7	€ 14.30	
		K300	1	15	097-003486-30010	Z7	€ 12.40	
		K300	1.6	15	097-003486-30016	Z7	€ 13.02	

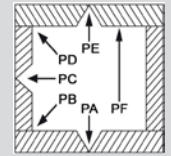


low-alloy

FCW 70TC Metal



- Low-alloy, metal powder MAG cored wire electrode
- Bright, layer wound
- Excellent fissure bridging and edge formation
- Notch-free seam transitions
- Very high current carrying capacity and yield



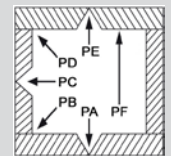
Standards		T 42 2 M M/C 1 H5										
DIN EN ISO 17632-A		E 70C - 6 M/ -6 C										
AWS A5.18												
Chemical analysis	%	<table border="1"> <tr> <th>C</th> <th>Si</th> <th>Mn</th> <th>P</th> <th>S</th> </tr> <tr> <td>0.08</td> <td>0.49</td> <td>1.53</td> <td>0.013</td> <td>0.015</td> </tr> </table>	C	Si	Mn	P	S	0.08	0.49	1.53	0.013	0.015
C	Si	Mn	P	S								
0.08	0.49	1.53	0.013	0.015								
Shielding gas		CO ₂ M21 Ar-CO ₂										
Elastic limit, Rp 0.2%	MPa	>480										
Expansion, A5	%	>31										
Impact energy, Av		≥60 J (-30 °C)										
Approvals		TÜV / DB / LR / CE										

Type	Designation	Packing drum	Wire Ø	Weight	Item no.	P	Price	LB
			mm	kg			per kg	
FCW 70TC Metal	Cored wire electrodes	D200	1.2	5	097-003453-20012	Z6	€ 6.36	A
		BS300	1.2	15	097-003453-30012	Z6	€ 5.74	
		BS300	1.6	15	097-003453-30016	Z6	€ 5.58	
		F250	1.2	250	097-003453-25012	Z6	€ 6.05	

FCW 71T Basic



- Low-alloy, basic MAG cored wire electrode
- Bright, layer wound
- Very strong and highly resistant to cracking
- Ideal for thick metal sheets and rigidly clamped constructions
- Hydrogen content < 5% in the welding material

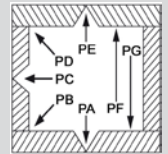


Standards		T 42 2 B M 1 H5										
DIN EN ISO 17632-A		E71T-5M-J										
AWS A5.20												
Coating type		Basic										
Wire Ø	mm	1.2										
Chemical analysis	%	<table border="1"> <tr> <th>C</th> <th>Si</th> <th>Mn</th> <th>P</th> <th>S</th> </tr> <tr> <td>0.07</td> <td>0.45</td> <td>1.75</td> <td>0.014</td> <td>0.009</td> </tr> </table>	C	Si	Mn	P	S	0.07	0.45	1.75	0.014	0.009
C	Si	Mn	P	S								
0.07	0.45	1.75	0.014	0.009								
Shielding gas		CO ₂ M21										
Elastic limit, Rp 0.2%	MPa	>480										
Expansion, A5	%	>22										
Impact energy, Av		≥27 J (-40 °C)										
Approvals		TÜV / DB / GL / CE										
Packing drum		BS300										

Type	Designation	Weight	Item no.	P	Price	LB
		kg			per kg	
FCW 71T Basic	Cored wire electrodes	15	097-003452-30012	Z6	€ 6.20	A


FCW 71T Rutile


- Low-alloy, rutile, MAG cored wire electrode
- Bright, layer wound
- Quick solidifying slag
- Welding is possible in any position with one machine setting
- Very easy handling and controllability
- Preferred application on pipe and steel constructions, in ship construction, on ceramic

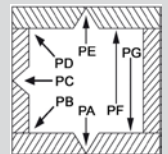


Standards		T 42 2 P M 1 H5										
DIN EN ISO 17632-A		E71T-1M										
AWS A5.20		Rutile										
Coating type												
Chemical analysis	%	<table border="1"> <tr> <th>C</th> <th>Si</th> <th>Mn</th> <th>P</th> <th>S</th> </tr> <tr> <td>0.05</td> <td>0.48</td> <td>1.22</td> <td>0.013</td> <td>0.009</td> </tr> </table>	C	Si	Mn	P	S	0.05	0.48	1.22	0.013	0.009
C	Si	Mn	P	S								
0.05	0.48	1.22	0.013	0.009								
Shielding gas		CO ₂ M21										
Elastic limit, Rp 0.2%	MPa	>510										
Expansion, A5	%	>30										
Impact energy, Av		>110 J (-18 °C)										
Approvals		TÜV / DB / GL / LR / CE										

Type	Designation	Packing drum	Wire Ø	Weight	Item no.	P	Price	LB
			mm	kg			per kg	
FCW 71T Rutile	Cored wire electrodes	D200	1.2	5	097-003454-30012	Z6	€ 5.74	A
		BS300	1.2	15	097-003454-30012	Z6	€ 5.74	
		BS300	1.6	15	097-003454-30016	Z6	€ 5.58	

FCW 71T Rutile CO₂


- Low-alloy, rutile, MAG cored wire electrode
- Bright, layer wound
- Quick solidifying slag
- Welding is possible in any position with one machine setting
- Optimised for welding using CO₂
- Very easy handling and controllability
- Preferred application on pipe and steel constructions, in ship construction, on ceramic



Standards		T 42 2 P M/C H5										
EN ISO 17632-A		E71T-1M/-1C										
AWS A5.20		Rutile										
Coating type												
Chemical analysis	%	<table border="1"> <tr> <th>C</th> <th>Si</th> <th>Mn</th> <th>P</th> <th>S</th> </tr> <tr> <td>0.4</td> <td>0.67</td> <td>1.29</td> <td>0.011</td> <td>0.008</td> </tr> </table>	C	Si	Mn	P	S	0.4	0.67	1.29	0.011	0.008
C	Si	Mn	P	S								
0.4	0.67	1.29	0.011	0.008								
Shielding gas		CO ₂ M21										
Elastic limit, Rp 0.2%	MPa	>510										
Expansion, A5	%	>31										
Impact energy, Av		≥108 J (-18 °C)										
Approvals		GL / LR / CE										

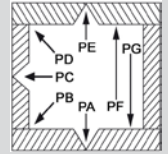
Type	Designation	Packing drum	Wire Ø	Weight	Item no.	P	Price	LB
			mm	kg			per kg	
FCW 71T Rutile CO ₂	Cored wire electrodes	D200	1.2	5	097-003517-20012	Z6	€ 6.36	A
		BS300	1.2	15	097-003517-30012	Z6	€ 5.74	
		BS300	1.6	15	097-003517-30016	Z6	€ 5.58	



FCW 71T Selfshield



- Low-alloy, self-shielding cored wire electrode
- Bright, layer wound
- Can be welded in any position, including vertically down
- Very easy handling and controllability
- High current carrying capacity and low spatter
- Reduced barium proportion, observe safety instructions



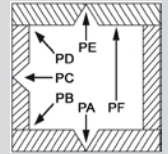
Standards		T 42 2 P M 1 H5					
EN ISO 17632-A		E71T-11					
AWS A5.20							
Chemical analysis	%	C	Si	Mn	P	S	Al
		0.19	0.35	0.6	0.011	0.006	1.2
Shielding gas		CO ₂					
Elastic limit, Rp 0.2%	MPa	520					
Expansion, A5	%	>21					

Type	Designation	Packing drum	Wire Ø	Weight	Item no.	P	Price	LB
			mm	kg			per kg	
FCW 71T Selfshield	Cored wire electrodes	D200	0.9	2	097-003455-20209	Z6	€ 13,75	A
		D200	0.9	5	097-003455-20009	Z6	€ 12,00	
		D200	1.2	5	097-003455-20012	Z6	€ 9,50	
		K300	1.2	15	097-003455-30012	Z6	€ 9,50	
		K300	1.6	15	097-003455-30016	Z6	€ 9,00	

FCW 81T Rutile Ni1



- Low-alloy, rutile, MAG cored wire electrode
- Can be welded in any position except vertical down
- Bright, layer wound
- Quick solidifying slag
- Very easy handling and controllability
- High impact values up to -60 °C

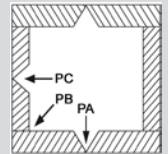


Standards		T 46 6 1Ni P M 2 H5					
EN ISO 758		E81T1-Ni1M-J					
AWS A5.29							
Chemical analysis	%	C	Si	Mn	P	S	Ni
		0.05	0.32	1.26	0.006	0.006	0.95
Shielding gas		CO ₂					
Elastic limit, Rp 0.2%	MPa	520					
Expansion, A5	%	>29					
Impact energy, Av		≥142 J (-60 °C)					
Approvals		LR / CE					
Packing drum		BS300					

Type	Designation	Wire Ø	Weight	Item no.	P	Price	LB
		mm	kg			per kg	
FCW 81T Rutile Ni1	Cored wire electrodes	1.2	15	097-003518-30012	Z6	€ 9,30	A
		1.6	15	097-003518-30016	Z6	on demand	


high-alloy
FCW 309 Rutile


- High-alloy, rutile MAG cored wire electrode
- Excellent weldability, low spatter formation
- Quick solidifying and very easy to remove slag
- For black/white joints and buffer layers
- Operating temperature with mixed joints 300


Standards
DIN EN ISO 17633-A:2006
AWS A5.22
Material number
Coating type
Chemical analysis

%

Shielding gas
Elastic limit, Rp 0.2%

MPa

Expansion, A5

%

Approvals
Packing drum

T 23 12 L R C/M 3

E309LT0-1/4

1.4330

Rutile

C	Si	Mn	P	S	Ni	Cr	Mo	Cu
0.028	0.61	1.24	0.019	0.01	12.58	24.17	0.05	0.03

 CO₂ M21

>450

>33

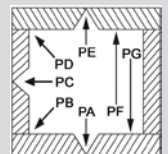
TÜV / DB / GL / LR / CE

BS300

Type	Designation	Wire Ø	Weight	Item no.	P	Price	LB
		mm	kg			per kg	
FCW 309 Rutile	Cored wire electrodes	0.9	12.5	097-003456-30009	Z6	€ 39.19	A
		1	15	097-003456-30010	Z6	€ 39.18	
		1.2	15	097-003456-30012	Z6	€ 28.65	

FCW 309 LP Rutile


- High-alloy, rutile MAG cored wire electrode
- Can be welded in any position, including vertically down
- Excellent weldability, low spatter formation
- Quick solidifying and very easy to remove slag
- For black/white joints and buffer layers
- Operating temperature with mixed joints 300


Standards
EN ISO 17633-A
AWS A5.22
Material number
Coating type
Chemical analysis

%

Shielding gas
Elastic limit, Rp 0.2%

MPa

Expansion, A5

%

Impact energy, Av
Approvals

T 23 12 L P C/M 1

E309LT1-1/-4

1.4332

Rutile

C	Si	Mn	P	S	Ni	Cr	Mo	Cu
0.027	0.56	1.21	0.023	0.009	12.45	23.55	0.04	0.06

 CO₂ M21

>430

>38

≥54 J (0 °C)

TÜV / DB / CE

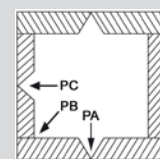
Type	Designation	Packing drum	Wire Ø	Weight	Item no.	P	Price	LB
			mm	kg			per kg	
FCW 309 LP Rutile	Cored wire electrodes	D200	1.2	5	097-003519-20012	Z6	€ 32.05	A
		BS300	1.2	15	097-003519-30012	Z6	€ 28.96	



FCW 316 Rutile



- High-alloy, rutile MAG cored wire electrode
- Excellent weldability, low spatter formation
- Quick solidifying and very easy to remove slag
- For non-rusting Cr-Ni-Mo steels with low carbon content
- Operating temperature up to 400



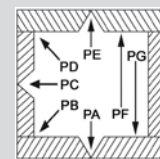
Standards		E316LT0-1/4																		
AWS A5.22		T 19 12 3 L R C/M 3																		
EN ISO 17633-A:2006		1.4430																		
Material number		Rutile																		
Coating type																				
Chemical analysis	%	<table border="1"> <tr> <th>C</th> <th>Si</th> <th>Mn</th> <th>P</th> <th>S</th> <th>Ni</th> <th>Cr</th> <th>Mo</th> <th>Cu</th> </tr> <tr> <td>0.026</td> <td>0.59</td> <td>1.43</td> <td>0.02</td> <td>0.01</td> <td>12.02</td> <td>18.95</td> <td>2.54</td> <td>0.06</td> </tr> </table>	C	Si	Mn	P	S	Ni	Cr	Mo	Cu	0.026	0.59	1.43	0.02	0.01	12.02	18.95	2.54	0.06
C	Si	Mn	P	S	Ni	Cr	Mo	Cu												
0.026	0.59	1.43	0.02	0.01	12.02	18.95	2.54	0.06												
Shielding gas		CO ₂ M21																		
Elastic limit, Rp 0.2%	MPa	>380																		
Expansion, A5	%	>41																		
Impact energy, Av		≥44 J (0 °C)																		
Approvals		TÜV / DB / GL / LR / CE																		
Packing drum		BS300																		

Type	Designation	Wire Ø	Weight	Item no.	P	Price	LB
		mm	kg			per kg	
FCW 316 Rutile	Cored wire electrodes	0.9	12.5	097-003457-30009	Z6	€ 39.06	A
		1.2	15	097-003457-30012	Z6	€ 29.67	

FCW 316 LP Rutile



- High-alloy, rutile MAG cored wire electrode
- Can be welded in any position, including vertically down
- Excellent weldability, low spatter formation
- Quick solidifying and very easy to remove slag
- For non-rusting Cr-Ni-Mo steels with low carbon content
- Operating temperature up to 400



Standards		E316LT1-1/-4																
AWS A5.22		T 19 12 3 L P C/M 1																
EN ISO 17633-A		1.4430																
Material number		Rutile																
Coating type																		
Wire Ø	mm	1.2																
Chemical analysis	%	<table border="1"> <tr> <th>C</th> <th>Si</th> <th>Mn</th> <th>P</th> <th>S</th> <th>Ni</th> <th>Cr</th> <th>Mo</th> </tr> <tr> <td>0.028</td> <td>0.6</td> <td>1.5</td> <td>0.021</td> <td>0.008</td> <td>12.65</td> <td>18.5</td> <td>2.68</td> </tr> </table>	C	Si	Mn	P	S	Ni	Cr	Mo	0.028	0.6	1.5	0.021	0.008	12.65	18.5	2.68
C	Si	Mn	P	S	Ni	Cr	Mo											
0.028	0.6	1.5	0.021	0.008	12.65	18.5	2.68											
Shielding gas		CO ₂ M21																
Elastic limit, Rp 0.2%	MPa	>370																
Expansion, A5	%	>29																
Impact energy, Av		≥54 J (-20 °C)																
Approvals		TÜV / CE																
Packing drum		BS300																

Type	Designation	Weight	Item no.	P	Price	LB
		kg			per kg	
FCW 316 LP Rutile	Cored wire electrodes	15	097-003520-30012	Z6	€ 30.38	A



Overview

Low-alloy steels

The copper plated premium quality leads to low spatter and the highest level of current carrying capacity. We therefore provide you with the correct welding rod for your full spectrum of use.

Medium alloy steel

Medium alloy rods are suitable for welding creep resistant or high strength steels. The certified and approved EWM materials provide you with the security to attain a high quality welding result.

High-alloy rods

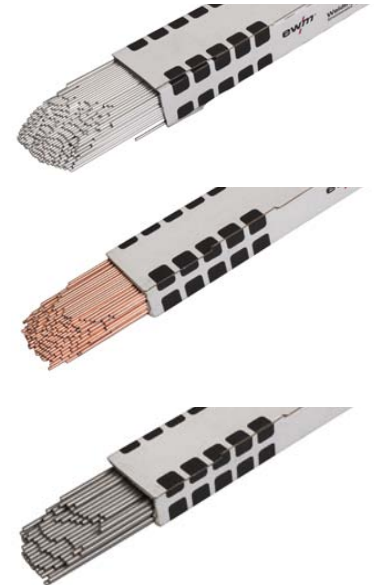
EWM also makes a fine difference in the area of high alloy TIG rods. The matted surface makes better handling possible during TIG welding and thus makes work easier for you.

Aluminium materials

EWM provides you with aluminium materials of outstanding quality. The double skinned rods with the highest surface quality guarantee problem free processing. The reduced oxide layer ensures a minimisation of smoke formation during welding.

Copper materials

You can solder galvanised, high strength or alloy panels and also GMA surface friction bearings and surfaces with the universal copper based rods. We provide you with the highest chemical purity and optimum flow characteristics through the exclusive use of new metals.



Welding filler materials			Page
TIG welding rods	low-alloy		166
	medium-alloy	creep resistant	167
	high-alloy		169
	Aluminium		174
	Copper-based		178
	Oxyacetylene welding rods	low-alloy	179

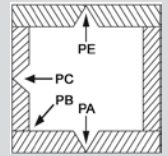


low-alloy

TR 70S G3



- Low-alloy TIG welding rod
- Copper-plated and stamped
- Semi-fluid molten pool, good controllability

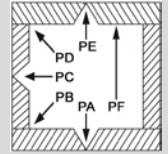


Standards		W46 5 W3 Si1
EN ISO 636-A		ER70S-6
AWS A5.18		1.5125
Material number		
Chemical analysis	%	
Welding current		DC-
Elastic limit, Rp 0.2%	MPa	>420
Expansion, A5	%	>22
Impact energy, Av		≥47 J (-50 °C)
Approvals		TÜV / DB / CE
Packing drum		Box
Length	mm	1000

Type	Designation	Ø electrode	Weight	Item no.	P	Price	LB
		mm	kg			per kg	
TR 70S G3	TIG welding rods	1.6	5	097-003489-10016	Z9	€ 5.24	A
		2	5	097-003489-10020	Z9	€ 5.05	A
		2.4	5	097-003489-10024	Z9	€ 4.90	A
		3	5	097-003489-10030	Z9	€ 4.77	A
		4	5	097-003489-10040	Z9	on demand	B
		5	5	097-003489-10050	Z9	on demand	B


medium-alloy ■ creep resistant
TR 80S NiCu


- Medium-alloy TIG welding rod
- Copper-plated and stamped
- For welding weatherproof steels


Standards
EN ISO 16834-A:2007
AWS A5.28
Chemical analysis

%

Welding current
Elastic limit, Rp 0.2%

MPa

Expansion, A5

%

Impact energy, Av
Approvals
Packing drum
Length

mm

WZMn3N1Cu

ER80S-G

C	Si	Mn	Ni	Cu
0.08	0.8	1.4	0.8	0.4

DC-

>450

>22

≥47 J (-20 °C) / ≥80 J (20 °C)

DB

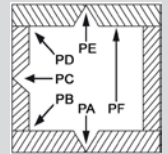
Box

1000

Type	Designation	Ø electrode	Weight	Item no.	P	Price	LB
		mm	kg			per kg	
TR 80 S NiCu	TIG welding rods	1,6	5	097-003555-10016	Z9	€ 8,28	A
		2	5	097-003555-10020	Z9	€ 8,06	
		2,4	5	097-003555-10024	Z9	€ 7,94	
		3	5	097-003555-10030	Z9	€ 7,84	

TR 80S Mo


- Medium-alloy TIG welding rod
- Copper-plated and stamped
- Creep resistant filler for pipe and container construction
- Maximum operating temperature of the end product: 500 °C


EN ISO 21952-A
AWS A5.28
Material number
Chemical analysis

%

Welding current
Elastic limit, Rp 0.2%

MPa

Expansion, A5

%

Impact energy, Av
Approvals
Packing drum
Length

mm

W Mo Si

ER70S-A1 (ER80S-G)

1.5424

C	Si	Mn	Mo
0.1	0.6	1.15	0.52

DC-

>460

>22

≥60 J (20 °C) / >47 J (-20 °C)

TÜV / DB / CE

Box

1000

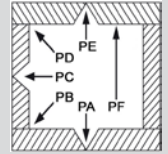
Type	Designation	Ø electrode	Weight	Item no.	P	Price	LB
		mm	kg			per kg	
TR 80S Mo	TIG welding rods	2	5	097-003487-10020	Z9	€ 7,84	A
		2,4	5	097-003487-10024	Z9	€ 7,75	
		3	5	097-003487-10030	Z9	€ 7,60	



TR 80S CrMo1



- Medium-alloy TIG welding rod
- Copper-plated and stamped
- Creep resistant filler for pipe and container construction
- Maximum operating temperature 550 °C



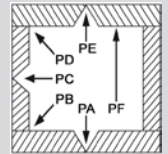
Standards		W CrMo 1 Si										
EN ISO 21952-A		ER80S-G										
AWS A5.28		1.7339										
Material number												
Chemical analysis	%	<table border="1"> <tr> <th>C</th> <th>Si</th> <th>Mn</th> <th>Mo</th> <th>Cr</th> </tr> <tr> <td>0.1</td> <td>0.6</td> <td>1</td> <td>0.5</td> <td>1.2</td> </tr> </table>	C	Si	Mn	Mo	Cr	0.1	0.6	1	0.5	1.2
C	Si	Mn	Mo	Cr								
0.1	0.6	1	0.5	1.2								
Welding current		DC-										
Elastic limit, Rp 0.2%	MPa	>305										
Expansion, A5	%	>22										
Impact energy, Av		≥100 J (20 °C) / ≥47 J (-10 °C)										
Approvals		TÜV / DB / CE										
Packing drum		Box										
Length	mm	1000										

Type	Designation	Ø electrode	Weight	Item no.	P	Price	LB
		mm	kg			per kg	
TR 80S CrMo1	TIG welding rods	2	5	097-003500-10020	Z9	€ 8.00	A
		2.4	5	097-003500-10024	Z9	€ 7.91	
		3	5	097-003500-10030	Z9	€ 7.75	

TR 90S CrMo2



- Medium-alloy TIG welding rod
- Copper-plated and stamped
- Creep resistant filler for pipe and container construction
- Maximum operating temperature of the components 600°



Standards		W CrMo2 Si										
EN ISO 21952-A		ER90S-G										
AWS A5.28		1.7384										
Material number												
Chemical analysis	%	<table border="1"> <tr> <th>C</th> <th>Si</th> <th>Mn</th> <th>Mo</th> <th>Cr</th> </tr> <tr> <td>0.08</td> <td>0.6</td> <td>0.92</td> <td>1</td> <td>2.45</td> </tr> </table>	C	Si	Mn	Mo	Cr	0.08	0.6	0.92	1	2.45
C	Si	Mn	Mo	Cr								
0.08	0.6	0.92	1	2.45								
Welding current		DC-										
Elastic limit, Rp 0.2%	MPa	>355										
Expansion, A5	%	>22										
Impact energy, Av		>100 J (20 °C) / >47 J (-10 °C)										
Packing drum		Box										
Length	mm	1000										

Type	Designation	Ø electrode	Weight	Item no.	P	Price	LB
		mm	kg			per kg	
TR 90S CrMo2	TIG welding rods	2	5	097-003541-10020	Z4	€ 13.18	A
		2.4	5	097-003541-10024	Z4	€ 12.87	
		3	5	097-003541-10030	Z4	€ 12.71	

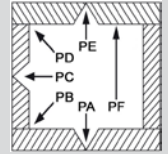


high-alloy

TR 307 Si



- High-alloy TIG welding rod
- Stamped
- Excellent welding characteristics thanks to high Si content
- Suitable for black/white joints (austenite-ferrite), buffer layers
- Strain-hardening



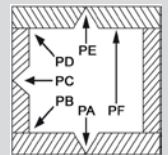
Standards		W 18 8 Mn Si										
DIN EN 1600:1997		ER 307 Si										
AWS 5.9		SG X 8 CrNiMn 18 8										
DIN		1.4370										
Material number												
Chemical analysis	%	<table border="1"> <tr> <th>C</th> <th>Si</th> <th>Mn</th> <th>Ni</th> <th>Cr</th> </tr> <tr> <td>0.08</td> <td>0.85</td> <td>7</td> <td>9</td> <td>19</td> </tr> </table>	C	Si	Mn	Ni	Cr	0.08	0.85	7	9	19
C	Si	Mn	Ni	Cr								
0.08	0.85	7	9	19								
Welding current	A	DC- 50 - 250										
Elastic limit, Rp 0.2%	MPa	>450										
Expansion, A5	%	>42										
Impact energy, Av		≥120 J (20 °C) / ≥60 J (-80 °C)										
Packing drum		Box										
Length	mm	1000										

Type	Designation	Ø electrode	Weight	Item no.	P	Price	LB
		mm	kg			per kg	
TR 307 Si	TIG welding rods	1	5	097-003490-10010	Z10	€ 13.43	A
		1.2	5	097-003490-10012	Z10	€ 13.15	
		1.6	5	097-003490-10016	Z10	€ 10.39	
		2	5	097-003490-10020	Z10	€ 9.72	
		2.4	5	097-003490-10024	Z10	€ 8.93	
		3.2	5	097-003490-10032	Z10	€ 8.93	

TR 308 LSi



- High-alloy TIG welding rod
- Stamped
- Excellent welding characteristics thanks to high Si content
- For non-rusting Cr-Ni steels with low C content
- Maximum operating temperature 350



Standards		W 19 9 L Si										
DIN EN 14343-A:2007		ER 308 L Si										
AWS 5.9		1.4316										
Material number												
Chemical analysis	%	<table border="1"> <tr> <th>C</th> <th>Si</th> <th>Mn</th> <th>Cr</th> <th>Ni</th> </tr> <tr> <td>0.02</td> <td>0.8</td> <td>1.75</td> <td>20</td> <td>10</td> </tr> </table>	C	Si	Mn	Cr	Ni	0.02	0.8	1.75	20	10
C	Si	Mn	Cr	Ni								
0.02	0.8	1.75	20	10								
Welding current	A	DC- 50 - 250										
Elastic limit, Rp 0.2%	MPa	>400										
Expansion, A5	%	40										
Impact energy, Av		≥120 J (20 °C) / ≥60 J (-196 °C)										
Approvals		TÜV / DB / CE										
Packing drum		Box										
Length	mm	1000										

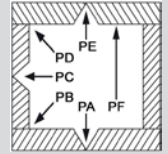
Type	Designation	Ø electrode	Weight	Item no.	P	Price	LB
		mm	kg			per kg	
TR 308 LSi	TIG welding rods	1	5	097-003491-10010	Z10	€ 13.43	A
		1.2	5	097-003491-10012	Z10	€ 12.94	
		1.6	5	097-003491-10016	Z10	€ 10.39	
		2	5	097-003491-10020	Z10	€ 9.72	
		2.4	5	097-003491-10024	Z10	€ 8.93	
		3.2	5	097-003491-10032	Z10	€ 8.93	



TR 309 LSi



- High-alloy TIG welding rod
- Stamped
- Excellent welding characteristics thanks to high Si content
- Suitable for black/white joints (austenite-ferrite), buffer layers
- Maximum operating temperature 300



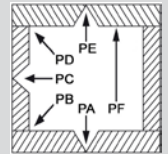
Standards		W 23 12 L Si										
EN ISO 14343-A:2007		ER309LSi										
AWS 5.9		1.4332										
Material number												
Chemical analysis	%	<table border="1"> <tr> <th>C</th> <th>Si</th> <th>Mn</th> <th>Cr</th> <th>Ni</th> </tr> <tr> <td>0.02</td> <td>0.8</td> <td>1.8</td> <td>23.5</td> <td>13.5</td> </tr> </table>	C	Si	Mn	Cr	Ni	0.02	0.8	1.8	23.5	13.5
C	Si	Mn	Cr	Ni								
0.02	0.8	1.8	23.5	13.5								
Welding current	A	DC- 50 - 250										
Elastic limit, Rp 0.2%	MPa	>450										
Expansion, A5	%	>35										
Impact energy, Av		>130 J (20 °C) / >65 J (-120 °C)										
Packing drum		Box										
Length	mm	1000										

Type	Designation	Ø electrode	Weight	Item no.	P	Price	LB
		mm	kg			per kg	
TR 309 LSi	TIG welding rods	1	5	097-003539-10010	Z10	€ 15.13	A
		1.2	5	097-003539-10012	Z10	on demand	
		1.6	5	097-003539-10016	Z10	€ 12.37	
		2	5	097-003539-10020	Z10	€ 11.46	
		2.4	5	097-003539-10024	Z10	€ 10.83	
		3.2	5	097-003539-10032	Z10	€ 10.83	

TR 310



- High-alloy TIG welding rod
- Welding material made of fully austenitic chrome nickel steel
- Stamped
- For welding heatproof steels
- Scale resistant up to 1100
- Not resistant in gases containing sulphur

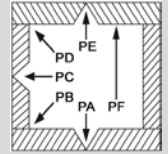


Standards		W 25 20										
EN ISO 14343-A:2007		ER310										
AWS 5.9		1.4842										
Material number												
Chemical analysis	%	<table border="1"> <tr> <th>C</th> <th>Si</th> <th>Mn</th> <th>Cr</th> <th>Ni</th> </tr> <tr> <td>0.1</td> <td>0.4</td> <td>1.5</td> <td>25</td> <td>20</td> </tr> </table>	C	Si	Mn	Cr	Ni	0.1	0.4	1.5	25	20
C	Si	Mn	Cr	Ni								
0.1	0.4	1.5	25	20								
Welding current	A	DC- 50 - 250										
Elastic limit, Rp 0.2%	MPa	>390										
Expansion, A5	%	>40										
Impact energy, Av		>170 J (20 °C) / >60 J (-196 °C)										
Packing drum		Box										
Length	mm	1000										

Type	Designation	Ø electrode	Weight	Item no.	P	Price	LB
		mm	kg			per kg	
TR 310	TIG welding rods	1	5	097-003536-10010	Z10	€ 19.51	A
		1.2	5	097-003536-10012	Z10	€ 19.43	
		1.6	5	097-003536-10016	Z10	€ 18.41	
		2	5	097-003536-10020	Z10	€ 17.46	
		2.4	5	097-003536-10024	Z10	€ 15.80	
		3.2	5	097-003536-10032	Z10	€ 15.80	


TR 312


- High-alloy TIG welding rod
- Stamped
- GMA-surfacing on steel
- For black/white joints and buffer layers


Standards
EN ISO 14343-A:2007

W 29 9

AWS 5.9

ER 312

Material number

1.4337

Chemical analysis

%

C	Si	Mn	Cr	Ni
0.1	0.5	1.9	29	9

Welding current

A

DC- 50 - 250

Elastic limit, Rp 0.2%

MPa

>600

Expansion, A5

%

>25

Impact energy, Av

%

>50 J (20 °C)

Packing drum

Box

Length

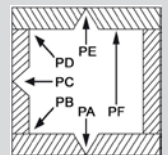
mm

1000

Type	Designation	Ø electrode	Weight	Item no.	P	Price	LB
		mm	kg			per kg	
TR 312	TIG welding rods	1	5	097-003538-10010	Z10	€ 22.04	A
		1.2	5	097-003538-10012	Z10	€ 21.88	
		1.6	5	097-003538-10016	Z10	€ 19.60	
		2	5	097-003538-10020	Z10	€ 19.48	
		2.4	5	097-003538-10024	Z10	€ 15.49	
		3.2	5	097-003538-10032	Z10	€ 15.49	

TR 316 LSi


- High-alloy TIG welding rod
- Stamped
- Excellent welding characteristics thanks to high Si content
- For non-rusting Cr-Ni steels with low C content
- Maximum operating temperature 400


Standards
EN ISO 14343-A:2007

W 19 12 3 L Si

AWS 5.9

ER 316 L Si

Material number

1.4430

Chemical analysis

%

C	Si	Mn	Cr	Mo	Ni
0.02	0.85	1.75	18.5	2.7	12

Welding current

A

DC- 50 - 250

Elastic limit, Rp 0.2%

MPa

>400

Expansion, A5

%

>40

Impact energy, Av

%

≥120 J (20 °C) / ≥50 J (-196 °C)

Approvals

TÜV / DB / CE

Packing drum

Box

Length

mm

1000

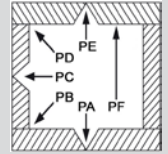
Type	Designation	Ø electrode	Weight	Item no.	P	Price	LB
		mm	kg			per kg	
TR 316 LSi	TIG welding rods	1	5	097-003492-10010	Z10	€ 13.43	A
		1.2	5	097-003492-10012	Z10	€ 13.04	
		1.6	5	097-003492-10016	Z10	€ 10.95	
		2	5	097-003492-10020	Z10	€ 10.59	
		2.4	5	097-003492-10024	Z10	€ 10.08	
		3.2	5	097-003492-10032	Z10	€ 10.08	



TR 318 Si



- High-alloy TIG welding rod
- Stamped
- Excellent welding characteristics thanks to high Si content
- Can be used for welding stabilised Cr-Ni steels
- Maximum operating temperature 400



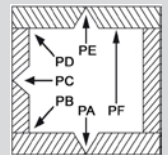
Standards		W 19 12 3 Nb Si														
EN ISO 14343-A:2007		ER 318 Si														
AWS 5.9		1.4576														
Material number																
Chemical analysis	%	<table border="1"> <tr> <th>C</th> <th>Si</th> <th>Mn</th> <th>Cr</th> <th>Mo</th> <th>Ni</th> <th>Nb</th> </tr> <tr> <td>0.04</td> <td>0.8</td> <td>1.8</td> <td>19</td> <td>2.5</td> <td>11</td> <td>0.5</td> </tr> </table>	C	Si	Mn	Cr	Mo	Ni	Nb	0.04	0.8	1.8	19	2.5	11	0.5
C	Si	Mn	Cr	Mo	Ni	Nb										
0.04	0.8	1.8	19	2.5	11	0.5										
Welding current	A	DC- 50 - 250														
Elastic limit, Rp 0.2%	MPa	>400														
Expansion, A5	%	>34														
Impact energy, Av		≥90 J (20 °C) / ≥40 J (-120 °C)														
Approvals		TÜV / DB / CE														
Packing drum		Box														
Length	mm	1000														

Type	Designation	Ø electrode	Weight	Item no.	P	Price	LB
		mm	kg			per kg	
TR 318 Si	TIG welding rods	1	5	097-003493-10010	Z10	€ 15.80	A
		1.2	5	097-003493-10012	Z10	€ 15.56	
		1.6	5	097-003493-10016	Z10	€ 13.51	
		2	5	097-003493-10020	Z10	€ 11.58	
		2.4	5	097-003493-10024	Z10	€ 11.06	
		3.2	5	097-003493-10032	Z10	€ 11.06	

TR 625



- High-alloy TIG welding rod
- Stamped
- For austenite ferrite joints above 300 °C



Standards		W Ni 6625 (NiCr22Mo9Nb)														
EN ISO 18274		ERNiCrMo3														
AWS 5.14		2.4831														
Material number																
Chemical analysis	%	<table border="1"> <tr> <th>C</th> <th>Si</th> <th>Mn</th> <th>Cr</th> <th>Mo</th> <th>Nb</th> <th>Ni</th> </tr> <tr> <td>0.01</td> <td>0.12</td> <td>0.05</td> <td>22</td> <td>9</td> <td>3.5</td> <td>Rest</td> </tr> </table>	C	Si	Mn	Cr	Mo	Nb	Ni	0.01	0.12	0.05	22	9	3.5	Rest
C	Si	Mn	Cr	Mo	Nb	Ni										
0.01	0.12	0.05	22	9	3.5	Rest										
Welding current	A	DC- 50 - 250														
Elastic limit, Rp 0.2%	MPa	>480														
Expansion, A5	%	>35														
Impact energy, Av		>80 J (-196 °C)														
Packing drum		Box														
Length	mm	1000														

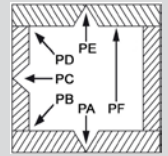
Type	Designation	Ø electrode	Weight	Item no.	P	Price	LB
		mm	kg			per kg	
TR 625	TIG welding rods	1.6	5	097-003537-10016	Z10	on demand	A
		2	5	097-003537-10020	Z10	on demand	
		2.4	5	097-003537-10024	Z10	on demand	
		3.2	5	097-003537-10032	Z10	on demand	



TR 2209 Duplex



- High-alloy TIG welding rod
- Stamped
- For ferrite-austenite chromium-nickel-molybdenum steel
- Use in offshore technology, e.g. in pipe construction
- Resistant to products containing chloride and acid gases
- Maximum operating temperature of the end product: 250 °C



Standards		W 22 9 3 N L														
EN ISO 14343-A:2007		ER 2209														
AWS 5.14		1.4462														
Material number																
Chemical analysis	%	<table border="1"> <tr> <td>C</td> <td>Si</td> <td>Mn</td> <td>Cr</td> <td>Mo</td> <td>Ni</td> <td>N</td> </tr> <tr> <td>0.02</td> <td>0.4</td> <td>1.7</td> <td>22.5</td> <td>3</td> <td>9</td> <td>0.18</td> </tr> </table>	C	Si	Mn	Cr	Mo	Ni	N	0.02	0.4	1.7	22.5	3	9	0.18
C	Si	Mn	Cr	Mo	Ni	N										
0.02	0.4	1.7	22.5	3	9	0.18										
Welding current	A	DC- 100 - 200														
Elastic limit, Rp 0.2%	MPa	>620														
Expansion, A5	%	>30														
Impact energy, Av		≥100 J (-46 °C) / ≥85 J (-60 °C)														
Approvals		TÜV / DB / CE														
Packing drum		Box														
Length	mm	1000														

Type	Designation	Ø electrode	Weight	Item no.	P	Price	LB
		mm	kg				
TR 2209 Duplex	TIG welding rods	1	5	097-003499-10010	Z10	€ 20.15	A
		1.2	5	097-003499-10012	Z10	€ 19.95	
		1.6	5	097-003499-10016	Z10	€ 19.75	
		2	5	097-003499-10020	Z10	€ 19.56	
		2.4	5	097-003499-10024	Z10	€ 19.36	
		3.2	5	097-003499-10032	Z10	€ 19.16	

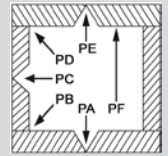


Aluminium

TR 1450 99,5 Ti



- TIG welding rod, aluminium
- Triple skinned quality
- Titanium forms fine grains and increases the mechanical qualities
- More resistant to heat cracks than pure aluminium



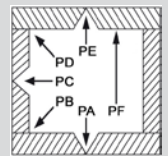
Standards		S AL 1450
EN ISO 18273		
Chemical analysis	%	Zr Al 0.15 Rest
Welding current		AC
Elastic limit, Rp 0.2%	MPa	>20
Expansion, A5	%	>35
Approvals		TÜV / DB / CE
Packing drum		Box
Length	mm	1000

Type	Designation	Ø electrode	Weight	Item no.	P	Price	LB
		mm	kg				
TR 1450 99,5 Ti	TIG welding rods	1.6	2.5	097-003512-10016	Z11	€ 9.49	A
		2.4	2.5	097-003512-10020	Z11	€ 8.03	
		2	2.5	097-003512-10024	Z11	€ 8.16	
		3.2	2.5	097-003512-10032	Z11	€ 7.91	
		4	2.5	097-003512-10040	Z11	€ 7.38	

TR 4043 Si5



- TIG welding rod, aluminium
- Triple skinned quality
- 5% silicon
- Untreated low strength values
- Not suitable for subsequent anodisation

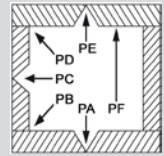


Standards		S AL 4043A
EN ISO 18273		
AWS 5.10		ER 4043
Material number		3.2245
Chemical analysis	%	Si Al 5 Rest
Welding current		AC
Elastic limit, Rp 0.2%	MPa	>40
Expansion, A5	%	>8
Approvals		DB
Packing drum		Box
Length	mm	1000

Type	Designation	Ø electrode	Weight	Item no.	P	Price	LB
		mm	kg				
TR 4043 Si5	TIG welding rods	1.6	2.5	097-003497-10016	Z11	€ 10.76	A
		2	2.5	097-003497-10020	Z11	€ 9.21	
		2.4	2.5	097-003497-10024	Z11	€ 8.31	
		3.2	2.5	097-003497-10032	Z11	€ 8.09	
		4	2.5	097-003497-10040	Z11	€ 7.50	


TR 4047 Si12


- TIG welding rod, aluminium
- Triple skinned quality
- 12% silicon
- Untreated low strength values
- Not suitable for subsequent anodisation
- Main areas of use are welds on cast aluminium

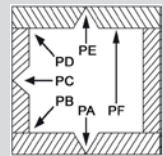


Standards		S AL 4047A				
EN ISO 18273		ER 4047				
AWS A5.10						
Chemical analysis	%	<table border="1"> <tr> <td>Si</td> <td>Al</td> </tr> <tr> <td>12</td> <td>Rest</td> </tr> </table>	Si	Al	12	Rest
Si	Al					
12	Rest					
Welding current		AC				
Elastic limit, Rp 0.2%	MPa	>60				
Expansion, A5	%	>5				
Approvals		DB				
Packing drum		Box				
Length	mm	1000				

Type	Designation	Ø electrode	Weight	Item no.	P	Price	LB
		mm	kg				
TR 4047 Si12	TIG welding rods	1.6	2.5	097-003510-10016	Z11	€ 14.11	A
		2	2.5	097-003510-10020	Z11	€ 10.73	
		2.4	2.5	097-003510-10024	Z11	€ 10.42	
		3.2	2.5	097-003510-10032	Z11	€ 9.61	
		4	2.5	097-003510-10040	Z11	€ 9.15	

TR 5087 Mg4,5 MnZr


- TIG welding rod, aluminium
- Triple skinned quality
- High strength, extremely resistant to corrosion, resistant to sea water
- Very good mechanical quality values



EN ISO 18273		S AL 5087										
AWS A5.10		ER 5183										
Chemical analysis	%	<table border="1"> <tr> <td>Mg</td> <td>Mn</td> <td>Cr</td> <td>Zr</td> <td>Al</td> </tr> <tr> <td>4.5</td> <td>1</td> <td>0.15</td> <td>0.15</td> <td>Rest</td> </tr> </table>	Mg	Mn	Cr	Zr	Al	4.5	1	0.15	0.15	Rest
Mg	Mn	Cr	Zr	Al								
4.5	1	0.15	0.15	Rest								
Welding current		AC										
Elastic limit, Rp 0.2%	MPa	>125										
Expansion, A5	%	>17										
Approvals		TÜV / DB / GL										
Packing drum		Box										
Length	mm	1000										

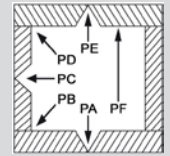
Type	Designation	Ø electrode	Weight	Item no.	P	Price	LB
		mm	kg				
TR 5087 Mg4,5 MnZr	TIG welding rods	1.6	2.5	097-003511-10016	Z11	€ 13.37	A
		2.4	2.5	097-003511-10020	Z11	€ 11.13	
		2	2.5	097-003511-10024	Z11	€ 10.48	
		3.2	2.5	097-003511-10032	Z11	€ 10.79	
		4	2.5	097-003511-10040	Z11	€ 9.95	



TR 5183 Mg4,5 Mn



- TIG welding rod, aluminium
- Triple skinned quality
- 4.5% magnesium, 0.7% manganese
- High strength, extremely resistant to corrosion, resistant to sea water
- Suitable for subsequent anodisation



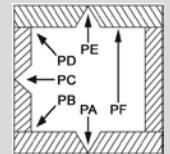
Standards		S AL 5183										
DIN EN 18273		ER 5183										
AWS A5.10		3.3548										
Material number												
Chemical analysis	%	<table border="1"> <tr> <td>Si</td> <td>Fe</td> <td>Cu</td> <td>Zn</td> <td>Ti</td> </tr> <tr> <td>0.4</td> <td>0.4</td> <td>0.1</td> <td>0.25</td> <td>0.15</td> </tr> </table>	Si	Fe	Cu	Zn	Ti	0.4	0.4	0.1	0.25	0.15
Si	Fe	Cu	Zn	Ti								
0.4	0.4	0.1	0.25	0.15								
Welding current		AC										
Elastic limit, Rp 0.2%	MPa	>125										
Expansion, A5	%	>17										
Approvals		TÜV / DB / GL / LR										
Packing drum		Box										
Length	mm	1000										

Type	Designation	Ø electrode	Weight	Item no.	P	Price	LB
		mm	kg			per kg	
TR 5183 Mg4,5 Mn	TIG welding rods	1.6	2.5	097-003495-10016	Z11	€ 12.78	A
		2	2.5	097-003495-10020	Z11	€ 10.51	
		2.4	2.5	097-003495-10024	Z11	€ 9.89	
		3.2	2.5	097-003495-10032	Z11	€ 10.20	
		4	2.5	097-003495-10040	Z11	€ 9.33	

TR 5356 Mg5



- TIG welding rod, aluminium
- Triple skinned quality
- 5% magnesium
- High strength, extremely resistant to corrosion, resistant to sea water
- Suitable for subsequent anodisation



Standards		S AL 5356								
DIN EN 18273		ER 5356								
AWS A5.10		3.3556								
Material number										
Chemical analysis	%	<table border="1"> <tr> <td>Si</td> <td>Fe</td> <td>Cu</td> <td>Zn</td> </tr> <tr> <td>0.25</td> <td>0.25</td> <td>0.4</td> <td>0.1</td> </tr> </table>	Si	Fe	Cu	Zn	0.25	0.25	0.4	0.1
Si	Fe	Cu	Zn							
0.25	0.25	0.4	0.1							
Welding current		AC								
Elastic limit, Rp 0.2%	MPa	>120								
Expansion, A5	%	>8								
Approvals		TÜV / DB / GL / LR								
Packing drum		Box								
Length	mm	1000								

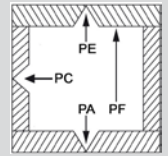
Type	Designation	Ø electrode	Weight	Item no.	P	Price	LB
		mm	kg			per kg	
TR 5356 Mg5	TIG welding rods	1.6	2.5	097-003496-10016	Z11	€ 11.26	A
		2	2.5	097-003496-10020	Z11	€ 9.24	
		2.4	2.5	097-003496-10024	Z11	€ 8.78	
		3.2	2.5	097-003496-10032	Z11	€ 8.71	
		4	2.5	097-003496-10040	Z11	€ 8.09	



TR 5754 Mg3



- TIG welding rod, aluminium
- Triple skinned quality
- 3% magnesium
- Medium strength, corrosion resistant
- Suitable for subsequent anodisation



Standards

DIN EN 18273

AWS A5.10

Material number

Chemical analysis

%

Welding current

Elastic limit, Rp 0.2%

MPa

Expansion, A5

%

Approvals

Packing drum

Length

mm

S AL 5754

ER 5754

3.3536

Si	Fe	Cu	Mn	Cr	Zn	Ti
0.4	0.4	0.1	0.5	0.3	0.2	0.15

AC

>80

>20

TÜV / DB / GL

Box

1000

Type	Designation	Ø electrode	Weight	Item no.	P	Price	LB
		mm	kg			per kg	
TR 5754 Mg3	TIG welding rods	1.6	2.5	097-003494-10016	Z11	€ 11.10	A
		2	2.5	097-003494-10020	Z11	€ 9.03	
		2.4	2.5	097-003494-10024	Z11	€ 8.68	
		3.2	2.5	097-003494-10032	Z11	€ 8.37	
		4	2.5	097-003494-10040	Z11	€ 8.03	

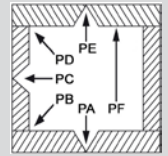


Copper-based

TR CuSi3



- TIG welding rod, copper-based
- For heavy-duty, corrosion resistant GMA-surfacing on steel
- Joint welding of Cu materials and various steel sheets



Standards		S Cu 6560 (CuSi 3 Mn 1)			
EN 14640		ER Cu Si - A			
AWS 5.7		2.1461			
Material number					
Chemical analysis	%	Ni	Mn	Fe	Ti
		31.3	1	0.7	0.5
Welding current		DC-			
Expansion, A5	%	>36			
Packing drum		Box			
Length	mm	1000			

Type	Designation	Ø electrode	Weight	Item no.	P	Price	LB
		mm	kg			per kg	
TR CuSi3	TIG welding rods	1.6	5	097-003540-10016	Z12	€ 14.62	A
		2	5	097-003540-10020	Z12	€ 12.38	
		2.4	5	097-003540-10024	Z12	€ 12.16	
		3.2	5	097-003540-10032	Z12	on demand	
		4	5	097-003540-10040	Z12	€ 11.40	

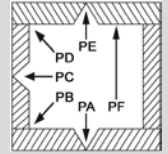


Oxyacetylene welding rods low-alloy

GFR R60



- Low-alloy oxyacetylene welding rod
- Copper-plated and stamped
- Semi-fluid molten pool, good controllability
- Recommended for seal welds



Standards					
DIN EN 12536					O III
AWS A5.2					R60
Material number					1.6215
Chemical analysis	%				
		C	Si	Mn	Ni
		0.08	0.1	1.1	0.4
Welding current					DC-
Elastic limit, Rp 0.2%	MPa				>310
Expansion, A5	%				>22
Impact energy, Av					≥50 J (20 °C)
Approvals					TÜV
Packing drum					Box
Length	mm				1000

Type	Designation	Wire Ø	Weight	Item no.	P	Price	LB
		mm	kg			per kg	
GFR R60	Gas welding rod	2	5	097-003488-10020	Z9	€ 6.17	A
		2.4	5	097-003488-10024	Z9	€ 6.08	
		3	5	097-003488-10030	Z9	€ 5.55	
		4	5	097-003488-10040	Z9	€ 5.43	





Overview

Low and medium alloy stick electrodes

With these EWM stick electrodes (basic, rutile, with cellulose portion or double coat) you are well equipped for all welding tasks. For low and medium alloy steels they stand out because of their mechanical characteristics, slag removal characteristics and low spatter and also their good handling.

High alloy stick electrodes

EWM supplies all high alloy stick electrodes in resealable tin plate boxes. They are sealed air tight and protected against damp until first use. Incomparable welding characteristics, self-releasing slag and extremely low spatter make these high end electrodes stand out.

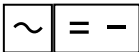


Welding filler materials			Page
Stick electrodes	non alloy		182
	medium-alloy	creep resistant	186
		hard coating	188
	high-alloy		189

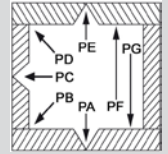


non alloy

SE 6013 RC



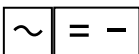
- Rutile/cellulose coated stick electrode
- Can be welded in any position, including vertically down
- Good slag removal characteristics, medium spatter tendency
- Very good ignition and reignition characteristics
- Perfect for roots
- High mechanical quality



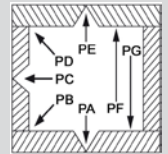
Standards		E 38 0 RC 11						
DIN EN ISO 2560-A:2005		E 6012						
AWS A5.1		Cellulose rutile						
Coating type		not necessary 120 °C 1 h possible						
Drying								
Chemical analysis	%	<table border="1"> <tr> <td>C</td> <td>Si</td> <td>Mn</td> </tr> <tr> <td>0.06</td> <td>0.3</td> <td>0.4</td> </tr> </table>	C	Si	Mn	0.06	0.3	0.4
C	Si	Mn						
0.06	0.3	0.4						
Welding current		AC DC-						
Elastic limit, Rp 0.2%	MPa	>360						
Expansion, A5	%	>22						
Impact energy, Av		>47 J (20 °C)						
Approvals		TÜV / DB / LR						
Packing drum		Box						

Type	Designation	Welding current	Ø electrode	Length	Weight	VPE	Item no.	P	Price	LB
		A	mm	mm	kg	Pc..			per kg	
SE 6013 RC	Stick electrodes	55 - 70	2	300	4	419	097-003461-20300	Z1	€ 13.78	A
		55 - 85	2.5	350	4.4	250	097-003461-25350	Z1	€ 13.20	
		115 - 145	3.25	350	5	169	097-003461-32350	Z1	€ 11.09	
		145 - 190	4	350	4.4	98	097-003461-40350	Z1	€ 10.70	
		200 - 250	5	450	6	65	097-003461-50450	Z1	€ 10.86	

SE 6013 RC Blau

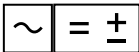


- Thick rutile/cellulose coated stick electrode
- Can be welded in any position, including vertically down
- Excellent ignition and reignition characteristics
- Even with rusty, primed and galvanised workpieces thanks to the aggressive arc
- Very good mechanical quality values

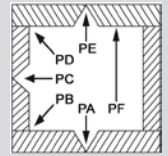


Standards		E 42 0 RC11						
DIN EN ISO 2560-A:2005		E 6013						
AWS A5.1		Cellulose rutile						
Coating type		not necessary 120 °C 1 h possible						
Drying								
Chemical analysis	%	<table border="1"> <tr> <td>C</td> <td>Si</td> <td>Mn</td> </tr> <tr> <td>0.06</td> <td>0.3</td> <td>0.4</td> </tr> </table>	C	Si	Mn	0.06	0.3	0.4
C	Si	Mn						
0.06	0.3	0.4						
Welding current		AC DC-						
Elastic limit, Rp 0.2%	MPa	>420						
Expansion, A5	%	>22						
Impact energy, Av		≥47 J (0 °C)						
Approvals		TÜV / DB / GL						
Packing drum		Box						

Type	Designation	Ø electrode	Length	Weight	VPE	Item no.	P	Price	LB
		mm	mm	kg	Pc..			per kg	
SE 6013 RC Blau	Stick electrodes	2	300	4	380	097-003530-20300	Z1	€ 16.63	A
		2.5	350	4.4	230	097-003530-25350	Z1	€ 15.58	
		3.2	350	4.4	136	097-003530-32350	Z1	€ 12.53	
		4	350	4.4	91	097-003530-40350	Z1	€ 12.29	
		5	450	5.4	64	097-003530-50450	Z1	€ 12.21	


SE 6013 RR


- Thick rutile-coated stick electrode
- Can be welded in any position except vertical down
- Self-removing slag, very low spatter tendency
- Excellent ignition and reignition characteristics
- Very homogeneous seam finish
- Excellent mechanical quality values


Standards
DIN EN ISO 2560-A:2005
AWS A5.1
Coating type
Drying
Chemical analysis
Welding current
Elastic limit, Rp 0.2%
Expansion, A5
Impact energy, Av
Approvals
Packing drum

E 42 0 RR 12

E 6013

Rutile

not necessary 140 °C 1 h possible

C	Si	Mn
0.09	0.5	0.7

AC DC-/+

>420

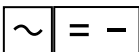
>22

>47 J (0 °C)

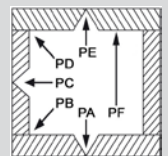
TÜV / DB

Box

Type	Designation	Welding current	Ø electrode	Length	Weight	VPE	Item no.	P	Price	LB
		A	mm	mm	kg	Pc..			per kg	
SE 6013 RR	Stick electrodes	50 - 70	2	300	4	340	097-003459-20300	Z1	€ 14.97	A
		55 - 85	2.5	350	4.4	205	097-003459-25350	Z1	€ 14.02	
		90 - 135	3.25	350	4.4	122	097-003459-32350	Z1	€ 12.36	
		130 - 170	4	450	5.4	80	097-003459-40450	Z1	€ 12.12	
		175 - 220	5	450	5.4	50	097-003459-50450	Z1	€ 12.04	
		220 - 270	6	450	5.4	42	097-003459-60450	Z1	€ 12.99	

SE 6013 RRB


- Thick rutile/basic coated stick electrode
- Can be welded in any position except vertical down
- Good slag removal characteristics, medium spatter tendency
- Very good ignition and reignition characteristics
- Even with rusty, primed and galvanised workpieces thanks to the aggressive arc
- Satisfactory mechanical quality values


Standards
DIN EN ISO 2560-A:2005
AWS A5.1
Coating type
Drying
Chemical analysis
Welding current
Elastic limit, Rp 0.2%
Expansion, A5
Impact energy, Av
Approvals
Packing drum

E 35 2 RB 12

E 6013

Basic/rutile

not necessary 140 °C 1 h possible

C	Si	Mn
0.1	0.2	0.55

AC DC-

360

>24

>47 J (-20 °C)

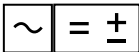
TÜV / DB / GL / LR

Box

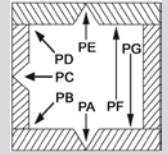
Type	Designation	Welding current	Ø electrode	Length	Weight	VPE	Item no.	P	Price	LB
		A	mm	mm	kg	Pc..			per kg	
SE 6013 RRB	Stick electrodes	70 - 90	2.5	350	4.4	230	097-003460-25350	Z1	€ 13.61	A
		115 - 145	3.25	350	4.4	134	097-003460-32350	Z1	€ 11.55	
		145 - 190	4	350	5.4	80	097-003460-40350	Z1	€ 11.30	
		200 - 250	5	450	5.4	54	097-003460-50450	Z1	€ 11.14	



SE 6013 RRC



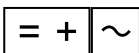
- Thick rutile/cellulose coated stick electrode
- Can be welded in any position except vertical down
- Good slag removal characteristics, low spatter tendency
- Very good ignition and reignition characteristics
- Even with rusty, primed and galvanised workpieces thanks to the aggressive arc
- Satisfactory mechanical quality values



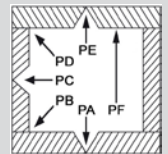
Standards		E 42 0 RC11						
DIN EN ISO 2560-A:2005		E 6013						
AWS A5.1		Cellulose rutile						
Coating type		not necessary 140 °C 1 h possible						
Drying								
Chemical analysis	%	<table border="1"> <tr> <td>C</td> <td>Si</td> <td>Mn</td> </tr> <tr> <td>0.08</td> <td>0.4</td> <td>0.6</td> </tr> </table>	C	Si	Mn	0.08	0.4	0.6
C	Si	Mn						
0.08	0.4	0.6						
Welding current		AC DC-/+						
Elastic limit, Rp 0.2%	MPa	>420						
Expansion, A5	%	>22						
Impact energy, Av		>47 J (22 °C)						
Approvals		TÜV / DB						
Packing drum		Box						

Type	Designation	Welding current	Ø electrode	Length	Weight	VPE	Item no.	P	Price	LB
		A	mm	mm	kg	Pc..			per kg	
SE 6013 RRC	Stick electrodes	40 - 55	2	300	4	370	097-003462-20300	Z1	€ 14.57	B
		55 - 85	2.5	350	4.4	218	097-003462-25350	Z1	€ 13.54	A
		90 - 135	3.25	350	4	118	097-003462-32350	Z1	€ 12.04	A
		130 - 170	4	350	4	77	097-003462-40350	Z1	€ 11.32	A

SE 7016 BR

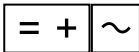


- Basic coated, reduced hydrogen stick electrode
- Can be welded in any position except vertical down
- Good slag removal characteristics, low spatter tendency
- Very good ignition characteristics
- Excellent for out-of-position welding
- Very good mechanical quality values
- CTOD tested welding material

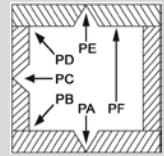


Standards		E 42 2 B 12 H 10						
DIN EN ISO 2560-A:2005		E 7016						
AWS A5.1		Rutile/basic						
Coating type		380 °C 1 h						
Drying								
Chemical analysis	%	<table border="1"> <tr> <td>C</td> <td>Si</td> <td>Mn</td> </tr> <tr> <td>0.05</td> <td>0.65</td> <td>1</td> </tr> </table>	C	Si	Mn	0.05	0.65	1
C	Si	Mn						
0.05	0.65	1						
Welding current		DC+ AC						
Elastic limit, Rp 0.2%	MPa	>420						
Expansion, A5	%	>22						
Impact energy, Av		>47 J (-20 °C)						
Approvals		TÜV / DB						
Packing drum		Box						

Type	Designation	Welding current	Ø electrode	Length	Weight	VPE	Item no.	P	Price	LB
		A	mm	mm	kg	Pc..			per kg	
SE 7016 BR	Stick electrodes	60 - 90	2.5	350	4	202	097-003464-25350	Z1	€ 15.92	A
		90 - 140	3.25	350	4	122	097-003464-32350	Z1	€ 14.49	A
		140 - 190	4	450	5	75	097-003464-40450	Z1	€ 13.38	A
		190 - 250	5	450	5	50	097-003464-50450	Z1	€ 13.15	B


SE 7018 BH5


- Basic coated, reduced hydrogen stick electrode
- Can be welded in any position except vertical down
- Good slag removal characteristics, low spatter tendency
- Very good ignition characteristics
- Excellent for out-of-position welding
- Very good mechanical quality values
- CTOD tested welding material
- Hydrogen content under 5%


Standards
DIN EN ISO 2560-A:2005

E 42 4B 32 H5

AWS A5.1

E 7018

Coating type

Basic

Drying

400 °C 1 h

Chemical analysis

%

C	Si	Mn
0.07	0.6	1

Welding current

DC+ AC

Elastic limit, Rp 0.2%

MPa

>440

Expansion, A5

%

>24

Impact energy, Av

>47 J (-40 °C)

Approvals

TÜV / DB / GL / LR

Packing drum

Box

Type	Designation	Welding current	Ø electrode	Length	Weight	VPE	Item no.	P	Price	LB
		A	mm	mm	kg	Pc..			per kg	
SE 7018 BH5	Stick electrodes	50 - 70	2	300	4	270	097-003463-20300	Z1	€ 15.14	A
		65 - 90	2.5	350	4	171	097-003463-25350	Z1	€ 14.08	
		110 - 140	3.25	350	4	110	097-003463-32350	Z1	€ 12.50	
		140 - 180	4	350	4	78	097-003463-40350	Z1	€ 11.26	
		180 - 230	5	450	5.4	53	097-003463-50450	Z1	€ 11.18	

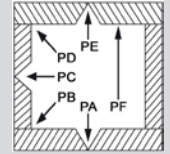


medium-alloy ■ creep resistant

SE 7018 Mo



- Basic coated, reduced hydrogen stick electrode
- Can be welded in any position except vertical down
- Good slag removal characteristics, low spatter tendency
- Very good ignition characteristics
- Excellent for out-of-position welding
- Excellent mechanical quality values
- Creep resistant and super strength characteristics



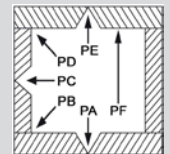
Standards		E Mo B 52
EN 1599:1997		E 7018-A1
AWS A5.5		E Mo B 26
ISO 3580		1.5424
Material number		Basic
Coating type		400 °C 1 h
Drying		
Chemical analysis	%	
		C Si Mn Mo
		0.05 0.6 0.95 0.5
Welding current		DC+
Elastic limit, Rp 0.2%	MPa	>460
Expansion, A5	%	>20
Impact energy, Av		>47 J (-20 °C) / >47 J (-40 °C)
Approvals		TÜV
Packing drum		Box

Type	Designation	Welding current	Ø electrode	Length	Weight	VPE	Item no.	P	Price	LB
		A	mm	mm	kg	Pc..			per kg	
SE 7018 Mo	Stick electrodes	65 - 95	2.5	350	4	183	097-003472-25350	Z1	€ 27.72	A
		110 - 140	3.25	350	4	110	097-003472-32350	Z1	€ 24.36	
		140 - 180	4	450	5.4	79	097-003472-40450	Z1	€ 22.56	

SE 8018 CrMo1



- Basic coated, reduced hydrogen stick electrode
- Can be welded in any position except vertical down
- Good slag removal characteristics, low spatter tendency
- Very good ignition characteristics
- Excellent for out-of-position welding
- Excellent mechanical quality values
- Creep resistant characteristics
- Hydrogen content under 5%



Standards		E CrMo1 B 42 H 5
EN 1599:1997		E 8018-B2
AWS A5.5		1.7346
Material number		Basic
Coating type		400 °C 1 h
Drying		
Chemical analysis	%	
		C Si Mn Cr Mo
		0.06 0.6 0.95 1.1 0.5
Welding current		DC+
Elastic limit, Rp 0.2%	MPa	>470
Expansion, A5	%	>20
Impact energy, Av		>95 J (20 °C)
Approvals		TÜV / DB
Packing drum		Box

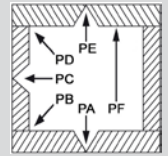
Type	Designation	Welding current	Ø electrode	Length	Weight	VPE	Item no.	P	Price	LB
		A	mm	mm	kg	Pc..			per kg	
SE 8018 CrMo1	Stick electrodes	65 - 95	2.5	300	3.4	171	097-003471-25300	Z1	€ 27.30	A
		100 - 130	3.25	350	4	110	097-003471-32350	Z1	€ 24.30	
		140 - 180	4	450	5.4	81	097-003471-40450	Z1	€ 22.20	



SE 9018 CrMo2



- Basic coated, reduced hydrogen stick electrode
- Can be welded in any position except vertical down
- Good slag removal characteristics, low spatter tendency
- Very good ignition characteristics
- Maximum operating temperature of the components 600°
- Excellent mechanical quality values
- Hydrogen content under 5%



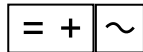
Standards		E CrMo2 B 42 H 5										
DIN EN ISO 3580-A		E 9018-B3										
AWS A5.5		1.7384										
Material number		Basic										
Coating type		400 °C 1 h										
Drying												
Chemical analysis	%	<table border="1"> <tr> <td>C</td> <td>Si</td> <td>Mn</td> <td>Cr</td> <td>Mo</td> </tr> <tr> <td>0.06</td> <td>0.6</td> <td>0.9</td> <td>2.4</td> <td>1</td> </tr> </table>	C	Si	Mn	Cr	Mo	0.06	0.6	0.9	2.4	1
C	Si	Mn	Cr	Mo								
0.06	0.6	0.9	2.4	1								
Welding current		DC+										
Elastic limit, Rp 0.2%	MPa	>470										
Expansion, A5	%	>20										
Impact energy, Av		>95 J (20 °C)										
Approvals		TÜV / DB										
Packing drum		Box										

Type	Designation	Welding current	Ø electrode	Length	Weight	VPE	Item no.	P	Price	LB
		A	mm	mm	kg	Pc..			per kg	
SE 9018 CrMo2	Stick electrodes	65 - 95	2.5	300	3.4	171	097-003542-25300	Z1	€ 28.20	A
		100 - 130	3.25	350	4	110	097-003542-32350	Z1	€ 25.40	
		140 - 180	4	450	5.4	81	097-003542-40450	Z1	€ 23.40	

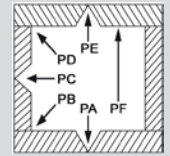


medium-alloy ■ hard coating

SE Hard 600



- Basic coated stick electrode
- For very hard GMA welds under grinding-impact wear
- Broad range of applications with problem free processing at the same time
- Welding material can be processed exclusively by grinding
- Suitable for transformer



Standards

EN 14700

Material number

Chemical analysis

%

Welding current

Packing drum

E FE 8

1.4718

C	Cr	Mn	Mo	V
0.8	10	0.7	1.2	2

DC+ AC

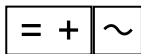
Socket

Designation	Welding current	Ø electrode	Length	Weight	VPE	Item no.	P	Price	LB
	A	mm	mm	kg	Pc..			per kg	
Stick electrodes	100 - 160	3.25	350	3.5	166	097-003534-25350	Z1	€ 29.09	A
	100 - 160	3.25	350	3.5	98	097-003534-32350	Z1	€ 28.78	
	160 - 220	4	450	6	89	097-003534-40450	Z1	€ 27.92	
	190 - 260	5	450	6	55	097-003534-50450	Z1	€ 27.30	

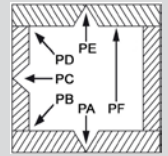


high-alloy

SE Ni



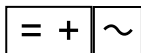
- Basic graphite coated stick electrode
- Nickel core wire for cast welding
- Good slag removal characteristics, low spatter tendency
- Soft, low spatter arc
- Optimal for repair and maintenance



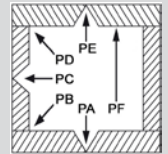
Standards								
DIN EN 1071		ECNiC/1						
AWS		ENi-CI						
Material number		1.4316						
Coating type		Rutile/basic						
Drying		seldom necessary 300 °C 2 h						
Chemical analysis	%	<table border="1"> <tr> <td>C</td> <td>Cr</td> <td>Ni</td> </tr> <tr> <td>0.03</td> <td>20</td> <td>11</td> </tr> </table>	C	Cr	Ni	0.03	20	11
C	Cr	Ni						
0.03	20	11						
Welding current		DC+ AC						
Packing drum		Socket						
Length	mm	350						

Type	Designation	Welding current	Ø electrode	Weight	VPE	Item no.	P	Price	LB
		A	mm	kg	Pc..			per kg	
SE Ni	Stick electrodes	60 - 90	2.5	4.5	230	097-003532-25350	Z2	€ 120.62	A
		90 - 120	3.25	4.5	98	097-003532-32350	Z2	€ 118.75	
		110 - 150	4	5	100	097-003532-40350	Z2	€ 118.75	

SE NiFe



- Basic graphite coated stick electrode
- Iron-nickel-core wire for cast welding
- Good slag removal characteristics, low spatter tendency
- Excellent mechanical quality values
- Optimal for repair and maintenance

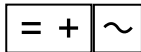


Standards								
DIN EN 1071		ECNiFE 1 1						
AWS		ENiFECI						
Material number		1.4316						
Coating type		Rutile/basic						
Drying		seldom necessary 300 °C 2 h						
Chemical analysis	%	<table border="1"> <tr> <td>C</td> <td>Ni</td> <td>Fe</td> </tr> <tr> <td>1.5</td> <td>55</td> <td>43.5</td> </tr> </table>	C	Ni	Fe	1.5	55	43.5
C	Ni	Fe						
1.5	55	43.5						
Welding current		DC+ AC						
Packing drum		Socket						

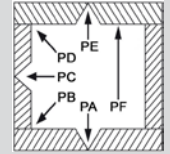
Type	Designation	Welding current	Ø electrode	Length	Weight	VPE	Item no.	P	Price	LB
		A	mm	mm	kg	Pc..			per kg	
SE NiFe	Stick electrodes	60 - 90	2.5	300	3.5	212	097-003533-25300	Z2	€ 120.15	A
		90 - 120	3.25	350	4	124	097-003533-32350	Z2	€ 115.49	
		110 - 150	4	350	5	101	097-003533-40350	Z2	€ 115.49	



SE 307



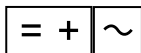
- Rutile basic coated, high-alloy stick electrode
- Self-removing slag, very low spatter tendency
- Suitable for black/white joints (austenite-ferrite), buffer layers
- Excellent ignition and reignition characteristics
- Maximum operating temperature 300
- Strain-hardening
- Welding material made of austenitic chrome-nickel-manganese steel



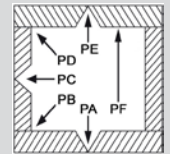
Standards		E 18 8 Mn R12								
DIN EN 1600:1997		E 307 L -16								
AWS A5.4		1.4370								
Material number		Rutile/basic								
Coating type		seldom necessary 300 °C 2 h								
Drying										
Chemical analysis	%	<table border="1"> <tr> <td>C</td> <td>Cr</td> <td>Ni</td> <td>Mn</td> </tr> <tr> <td>0.1</td> <td>19</td> <td>9</td> <td>7</td> </tr> </table>	C	Cr	Ni	Mn	0.1	19	9	7
C	Cr	Ni	Mn							
0.1	19	9	7							
Welding current		DC+ AC								
Elastic limit, Rp 0.2%	MPa	>350								
Expansion, A5	%	>40								
Impact energy, Av		≥70 J (20 °C)								
Packing drum		Socket								

Type	Designation	Welding current	Ø electrode	Length	Weight	VPE	Item no.	P	Price	LB
		A	mm	mm	kg	Pc..			per kg	
SE 307	Stick electrodes	60 - 90	2.5	300	3	174	097-003527-25300	Z2	€ 58.18	A
		80 - 110	3.25	350	3.5	106	097-003527-32350	Z2	€ 55.63	
		100 - 150	4	350	4.5	89	097-003527-40350	Z2	€ 52.83	

SE 308 L

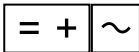


- Rutile coated, high-alloy stick electrode
- Can be welded in any position except vertical down
- Self-removing slag, very low spatter tendency
- Excellent ignition and reignition characteristics
- Can be used for stabilised and non-stabilised Cr-Ni steels
- Very homogeneous seam finish
- Cold resistant up to 196

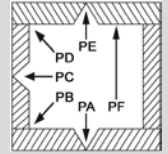


Standards		E 19 9 LR 12						
DIN EN 1600:1997		E 308 L -16						
AWS A5.4		1.4316						
Material number		Rutile/basic						
Coating type		seldom necessary 300 °C 2 h						
Drying								
Chemical analysis	%	<table border="1"> <tr> <td>C</td> <td>Cr</td> <td>Ni</td> </tr> <tr> <td>0.03</td> <td>20</td> <td>11</td> </tr> </table>	C	Cr	Ni	0.03	20	11
C	Cr	Ni						
0.03	20	11						
Welding current		DC+ AC						
Elastic limit, Rp 0.2%	MPa	>320						
Expansion, A5	%	>35						
Impact energy, Av		>70 J (20 °C)						
Approvals		TÜV / DB						
Packing drum		Socket						

Type	Designation	Welding current	Ø electrode	Length	Weight	VPE	Item no.	P	Price	LB
		A	mm	mm	kg	Pc..			per kg	
SE 308 L	Stick electrodes	50 - 90	2.5	300	3	164	097-003465-25300	Z2	€ 54.24	A
		80 - 110	3.25	350	3.2	88	097-003465-32350	Z2	€ 51.84	
		100 - 150	4	350	4.3	78	097-003465-40350	Z2	€ 48.14	
		150 - 200	5	450	5.4	49	097-003465-50450	Z2	€ 47.68	

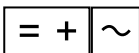

SE 309 MoL


- Rutile coated, high-alloy stick electrode
- Can be welded in any position except vertical down
- Self-removing slag, very low spatter tendency
- Excellent ignition and reignition characteristics
- Maximum operating temperature 300
- Very homogeneous seam finish
- Suitable for black/white joints

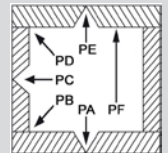


Standards		E 23 12 2 LR 32								
DIN EN 1600:1997		E 309 Mo - 26								
AWS A5.4		1.4459								
Material number		Rutile/basic								
Coating type		seldom necessary 300 °C 2 h								
Drying										
Chemical analysis	%	<table border="1"> <tr> <td>C</td> <td>Cr</td> <td>Ni</td> <td>Mo</td> </tr> <tr> <td>0.03</td> <td>24</td> <td>13</td> <td>3.5</td> </tr> </table>	C	Cr	Ni	Mo	0.03	24	13	3.5
C	Cr	Ni	Mo							
0.03	24	13	3.5							
Welding current		DC+ AC								
Elastic limit, Rp 0.2%	MPa	>460								
Expansion, A5	%	>30								
Impact energy, Av		>5 J (20 °C)								
Approvals		TÜV / DB								
Packing drum		Socket								

Type	Designation	Welding current	Ø electrode	Length	Weight	VPE	Item no.	P	Price	LB
		A	mm	mm	kg	Pc..			per kg	
SE 309 MoL	Stick electrodes	60 - 90	2.5	300	3	162	097-003466-25300	Z2	€ 68.44	A
		80 - 110	3.25	350	3.2	87	097-003466-32350	Z2	€ 66.01	
		100 - 150	4	350	4.3	78	097-003466-40350	Z2	€ 63.21	
		150 - 200	5	450	5.4	49	097-003466-50450	Z2	€ 62.74	

SE 310


- Rutile basic coated, high-alloy stick electrode
- Welding material made of fully austenitic chrome nickel steel
- For welding heatproof steels
- Self-removing slag, very low spatter tendency
- Scale resistant up to 1150
- Excellent ignition and reignition characteristics
- Not resistant in gases containing sulphur

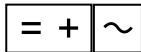


Standards		E 25 20 LR 12								
DIN EN 1600:1997		E 310 - 16								
AWS A5.4		1.4842								
Material number		Rutile/basic								
Coating type		seldom necessary 300 °C 2 h								
Drying										
Chemical analysis	%	<table border="1"> <tr> <td>C</td> <td>Cr</td> <td>Ni</td> <td>Mn</td> </tr> <tr> <td>0.1</td> <td>26</td> <td>21</td> <td>3</td> </tr> </table>	C	Cr	Ni	Mn	0.1	26	21	3
C	Cr	Ni	Mn							
0.1	26	21	3							
Welding current		DC+ AC								
Elastic limit, Rp 0.2%	MPa	>380								
Expansion, A5	%	>35								
Impact energy, Av		≥70 J (20 °C)								
Packing drum		Socket								

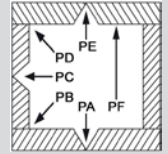
Type	Designation	Welding current	Ø electrode	Length	Weight	VPE	Item no.	P	Price	LB
		A	mm	mm	kg	Pc..			per kg	
SE 310	Stick electrodes	80 - 110	2.5	300	3.2	181	097-003529-25300	Z2	€ 90.82	A
		100 - 150	3.25	350	3.5	99	097-003529-32350	Z2	€ 86.65	
		150 - 190	4	350	4.5	83	097-003529-40350	Z2	€ 84.38	
		160 - 210	5	350	4.5	53	097-003529-50350	Z2	€ 83.91	



SE 312



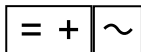
- Rutile coated, high-alloy stick electrode
- Can be welded in any position except vertical down
- Self-removing slag, very low spatter tendency
- Suitable for black/white joints (austenite-ferrite), buffer layers
- Excellent ignition and reignition characteristics
- Very homogeneous seam finish
- Scale resistant up to 1100



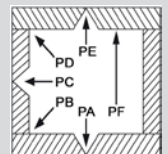
Standards		E 29 9 R 32								
DIN EN 1600:1997										
AWS A5.4		E 312 - 16								
Material number		1.4337								
Coating type		Rutile								
Drying		seldom necessary 300 °C 2 h								
Chemical analysis	%	<table border="1"> <tr> <td>C</td> <td>Cr</td> <td>Ni</td> <td>Fe</td> </tr> <tr> <td>0.1</td> <td>30</td> <td>10</td> <td>Rest</td> </tr> </table>	C	Cr	Ni	Fe	0.1	30	10	Rest
C	Cr	Ni	Fe							
0.1	30	10	Rest							
Welding current		DC+ AC								
Elastic limit, Rp 0.2%	MPa	>500								
Expansion, A5	%	>40								
Impact energy, Av		>54 J (0 °C)								
Approvals		DB								
Packing drum		Socket								

Type	Designation	Welding current	Ø electrode	Length	Weight	VPE	Item no.	P	Price	LB
		A	mm	mm	kg	Pc..			per kg	
SE 312	Stick electrodes	40 - 60	2	300	3	249	097-003467-20300	Z2	€ 119.36	A
		60 - 90	2.5	300	3	162	097-003467-25300	Z2	€ 83.87	
		80 - 100	3.25	350	3.2	89	097-003467-32350	Z2	€ 81.91	
		100 - 150	4	350	4.3	80	097-003467-40350	Z2	€ 79.57	
		150 - 200	5	350	4.2	49	097-003467-50350	Z2	€ 79.66	

SE 316 L

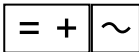


- Rutile coated, high-alloy stick electrode
- Can be welded in any position except vertical down
- Self-removing slag, very low spatter tendency
- Excellent ignition and reignition characteristics
- Maximum operating temperature 400
- Can be used for stabilised and non-stabilised Cr-Ni steels
- Very homogeneous seam finish

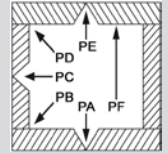


Standards		E 19 12 3 LR 12								
DIN EN 1600:1997										
AWS A5.4		E 316 L - 16								
Material number		1.4430								
Coating type		Rutile/basic								
Drying		seldom necessary 300 °C 2 h								
Chemical analysis	%	<table border="1"> <tr> <td>C</td> <td>Cr</td> <td>Ni</td> <td>Mo</td> </tr> <tr> <td>0.03</td> <td>20</td> <td>13</td> <td>3</td> </tr> </table>	C	Cr	Ni	Mo	0.03	20	13	3
C	Cr	Ni	Mo							
0.03	20	13	3							
Welding current		DC+ AC								
Elastic limit, Rp 0.2%	MPa	>320								
Expansion, A5	%	>35								
Impact energy, Av		>70 J (20 °C)								
Approvals		TÜV / DB								
Packing drum		Socket								

Type	Designation	Welding current	Ø electrode	Length	Weight	VPE	Item no.	P	Price	LB
		A	mm	mm	kg	Pc..			per kg	
SE 316 L	Stick electrodes	40 - 60	2	300	3	260	097-003468-20300	Z2	€ 65.64	A
		60 - 90	2.5	300	3	164	097-003468-25300	Z2	€ 62.36	
		80 - 110	3.25	350	3.2	89	097-003468-32350	Z2	€ 58.52	
		80 - 110	3.25	450	3.2	116	097-003468-32450	Z2	€ 58.52	
		100 - 150	4	350	4.3	80	097-003468-40350	Z2	€ 54.87	
		150 - 200	5	450	5.4	50	097-003468-50450	Z2	€ 54.41	

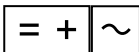

SE 318


- Rutile coated, high-alloy stick electrode
- Can be welded in any position except vertical down
- Self-removing slag, very low spatter tendency
- Excellent ignition and reignition characteristics
- Maximum operating temperature 400
- Very homogeneous seam finish
- Can be used for welding non stabilised Cr-Ni steels

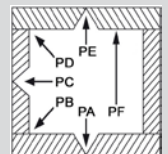


Standards		E 19 12 3 Nb R 12										
DIN EN 1600:1997												
AWS A5.4		E 318 - 16										
Material number		1.4576										
Coating type		Rutile/basic										
Drying		seldom necessary 300 °C 2 h										
Chemical analysis	%	<table border="1"> <tr> <td>C</td> <td>Cr</td> <td>Ni</td> <td>Mo</td> <td>Nb</td> </tr> <tr> <td>0.03</td> <td>20</td> <td>13</td> <td>3</td> <td>0.3</td> </tr> </table>	C	Cr	Ni	Mo	Nb	0.03	20	13	3	0.3
C	Cr	Ni	Mo	Nb								
0.03	20	13	3	0.3								
Welding current		DC+ AC										
Elastic limit, Rp 0.2%	MPa	>440										
Expansion, A5	%	>30										
Impact energy, Av		>70 J (20 °C)										
Approvals		TÜV / DB										
Packing drum		Socket										

Type	Designation	Welding current	Ø electrode	Length	Weight	VPE	Item no.	P	Price	LB
		A	mm	mm	kg	Pc..			per kg	
SE 318	Stick electrodes	40 - 60	2	300	3	249	097-003469-20300	Z2	€ 67.51	A
		50 - 90	2.5	300	3	162	097-003469-25300	Z2	€ 64.23	
		80 - 110	3.25	350	3.2	89	097-003469-32350	Z2	€ 62.18	
		100 - 150	4	350	4.3	80	097-003469-40350	Z2	€ 58.06	
		150 - 200	5	450	5.4	49	097-003469-50450	Z2	€ 57.60	

SE 625


- Basic coated, high alloy nickel based stick electrode
- Self-removing slag, very low spatter tendency
- Excellent ignition and reignition characteristics
- Maximum operating temperature of the components 1000
- Scale resistant up to 1100
- Cold resistant up to 196
- Suitable for transformer
- Alloy core rod

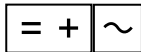


Standards		E Ni6625 (NiCr22Mo9NB)								
DIN EN 14172										
AWS A5.11		E NiCrMo3								
Material number		2.4621								
Coating type		Rutile/basic								
Drying		seldom necessary 300 °C 2 h								
Chemical analysis	%	<table border="1"> <tr> <td>C</td> <td>Cr</td> <td>Mo</td> <td>Nb</td> </tr> <tr> <td>0.03</td> <td>22</td> <td>11</td> <td>4</td> </tr> </table>	C	Cr	Mo	Nb	0.03	22	11	4
C	Cr	Mo	Nb							
0.03	22	11	4							
Welding current		DC+ AC								
Elastic limit, Rp 0.2%	MPa	>450								
Expansion, A5	%	>30								
Impact energy, Av		≥75 J (20 °C) / ≥60 J (-196 °C)								
Packing drum		Socket								

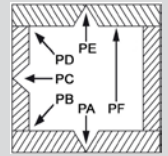
Type	Designation	Welding current	Ø electrode	Length	Weight	VPE	Item no.	P	Price	LB
		A	mm	mm	kg	Pc..			per kg	
SE 625	Stick electrodes	60 - 90	2.5	300	3.2	170	097-003531-25300	Z2	on demand	A
		80 - 110	3.25	350	3.5	96	097-003531-32350	Z2	on demand	
		100 - 150	4	350	4.5	91	097-003531-40350	Z2	on demand	
		150 - 200	5	350	4.5	53	097-003531-50350	Z2	on demand	



SE 2209 Duplex



- Rutile coated, high-alloy stick electrode
- For ferrite-austenite chromium-nickel-molybdenum steel
- Self-removing slag, very low spatter tendency
- Use in offshore technology e.g. in pipe construction
- Excellent ignition and reignition characteristics
- Resistant to products containing chloride and acid gases
- Maximum operating temperature of the end product: 250 °C



Standards		E 22 93 R 32										
DIN EN 1600:1997		E 2209L-16										
AWS A5.4		1.4462										
Material number		Rutile/basic										
Coating type		seldom necessary 300 °C 2 h										
Drying												
Chemical analysis	%	<table border="1"> <tr> <td>C</td> <td>Cr</td> <td>Ni</td> <td>Mo</td> <td>N</td> </tr> <tr> <td>0.03</td> <td>22</td> <td>10</td> <td>3.3</td> <td>0.15</td> </tr> </table>	C	Cr	Ni	Mo	N	0.03	22	10	3.3	0.15
C	Cr	Ni	Mo	N								
0.03	22	10	3.3	0.15								
Welding current		DC+ AC										
Elastic limit, Rp 0.2%	MPa	>480										
Expansion, A5	%	>25										
Impact energy, Av		≥50 J (20 °C)										
Packing drum		Socket										

Type	Designation	Welding current	Ø electrode	Length	Weight	VPE	Item no.	P	Price	LB
		A	mm	mm	kg	Pc..			per kg	
SE 2209 Duplex	Stick electrodes	60 - 90	2.5	300	3.2	181	097-003528-25300	Z2	€ 78.05	A
		80 - 120	3.25	350	3.5	99	097-003528-32350	Z2	€ 76.20	
		110 - 170	4	350	4.5	83	097-003528-40350	Z2	€ 74.33	