Part II : TIG rods

OK Tigrod 12.60

GTAW
ER70S-3

Description

A copper-coated, manganese-silicon bearing rod for the GTAW of unalloyed steels e.g. general structural steels as well as for fine-grained, carbon-manganese steels with a minimum yield strength of 380 MPa. OK Tigrod 12.60 is normally welded with pure Argon as the shielding gas.

Welding current

DC (-)

Classifications

SFA/AWS A5.18	ER70S-3
EN 1668	W2Si

Typical all weld metal composition, %

C	Si	Mn	P	S
0.1	0.72	1.11	0.013	0.012

Typical properties of all weld metal

Yield stress, Mpa	420
Tensile strength, MPa	515
Elongation, %	26

Charpy V

Test temps, ˚C	Impact values, J
-30	90

Approval

Sepros	UNA 485178

Packing/Ordering Information

Part Number	Dia mm	Per Pack (kg)	Pallet Weight (kg)
126016R150	1.6	5	840
126020R150	2.0	5	840
126024R150	2.4	5	840
126032R150	3.2	5	840

OK Tigrod 12.64

GTAW
ER70S-6

Description

OK Tigrod 12.64 is a copper-coated Mn-Si-alloyed W4Si1/ER70S-6 solid rod for the GTAW of non-alloyed steels, as used in general construction, pressure vessel fabrication and shipbuilding. It has a slightly higher manganese and silicon content than OK Tigrod 12.61 to increase the weld metal strength. This also promotes low sensitivity to surface impurities and contributes to smooth, sound welds.

Welding current

DC (-)

Classifications

SFA/AWS A5.18	ER70S-6
EN 1668	W4Si1

Typical all weld metal composition, %

C	Si	Mn
0.09	1.0	1.7

Typical properties of all weld metal

Yield stress, Mpa	525
Tensile strength, MPa	595
Elongation, %	26

Charpy V

Test temps, ˚C	Impact values, J
-30	70

Approval

ABS	3, 3Y
DNV	III YM (I1)
GL	3Y
LR	3 3Y
VdTüV	05260

Packing/Ordering Information

Part Number	Dia mm	Per Pack (kg)	Pallet Weight (kg)
126416R150	1.6	5	900
126420R150	2.0	5	900
126424R150	2.4	5	900
126432R150	3.2	5	900

OK Tigrod 13.08

GTAW
ER80S-D2

Description

OK Tigrod 13.08 is a 1.5%Mn-0.4%Mo-alloyed (ER80S-D2), copper-coated rod for the GTAW of creep-resistant steels of the same type, such as pipes in pressure vessels and boilers with a working temperature of up to about 500˚C. The rod can also be used for welding low-alloyed, high tensile strength steels.

Welding current

DC (-)

Classifications

SFA/AWS A5.28	ER80S-D2
BS 2901 part 1	A31
EN 1668	W 46 2 W4Mo

Typical all weld metal composition, %

C	Si	Mn	Mo
0.07	0.44	1.5	0.4

Typical properties of all weld metal

Yield stress, Mpa	520
Tensile strength, MPa	615
Elongation, %	28

Charpy V

Test temps, ˚C	Impact values, J
-29	200

Packing/Ordering Information

Part Number	Dia mm	Per Pack (kg)	Pallet Weight (kg)
130824R150	2.4	5	900

OK Tigrod 13.09

GTAW
ER80S-G

Description

OK Tigrod 13.09 is a 0.5%Mo-alloyed, copper-coated rod for the GTAW of creep-resistant steels of the same type, such as pipes in pressure vessels and boilers with a working temperature of up to about 500˚C.

Welding current

DC (-)

Classifications

SFA/AWS A5.28	ER80S-G
EN 1668	W2Mo
EN 12070	W MoSi

Typical all weld metal composition, %

C	Si	Mn	Mo
0.1	0.7	1.1	0.5

Typical properties of all weld metal

Yield stress, Mpa	540
Tensile strength, MPa	630
Elongation, %	25

Charpy V

Test temps, ˚C	Impact values, J
+20	180
-20	130
-40	90

Approval

DB	42.039.08
DNV	III YMS
VdTüV	04950

Packing/Ordering Information

Part Number	Dia mm	Per Pack (kg)	Pallet Weight (kg)
130916R150	1.6	5	840
130920R150	2.0	5	900
130924R150	2.4	5	900
130932R150	3.2	5	840

OK Tigrod 13.12

GTAW
ER80S-G

Description

OK Tigrod 13.12 is a 1.0%Cr-0.5%Mo-alloyed, copper-coated rod for the GTAW of creep-resistant steels of the same type, such as pipes in pressure vessels and boilers. The rod can also be used for welding low-alloyed, high strength steels with a minimum tensile strength of 550 MPa.

Welding current

DC (-)

Classifications

SFA/AWS A5.28	ER80S-G
DIN 8575	W.nr.1.7339
EN 12070	W CrMo1Si

Typical all weld metal composition, %

C	Si	Mn	Cr	Mo
0.1	0.7	1.0	1.1	0.5

Typical properties of all weld metal

Yield stress, Mpa	560
Tensile strength, MPa	720
Elongation, %	24

Charpy V

Test temps, ˚C	Impact values, J
+20	120
-20	50
-30	40
-40	20

Approval

UDT	DIN 8575
VdTüV	4952

Packing/Ordering Information

Part Number	Dia mm	Per Pack (kg)	Pallet Weight (kg)
131216R150	1.6	5	840
131220R150	2.0	5	900
131224R150	2.4	5	840
131232R150	3.2	5	840

OK Tigrod 13.13

GTAW
ER100S-G

Description

OK Tigrod 13.13 is a 0.5%Cr-0.5%Ni-0.2%Mo-alloyed, copper-coated rod for the GTAW of high strength steels with a minimum tensile strength of 690 MPa. The rod is also suitable for welding steels where good impact strength at low temperatures is required.

Welding current

DC (-)

Classifications

SFA/AWS A5.28	ER100S-G
EN 12534	Mn3NiCrMo

Typical all weld metal composition, %

C	Si	Mn	Cr	Ni	Mo
0.1	0.7	1.4	0.5	0.5	0.2

Typical properties of all weld metal

Yield stress, Mpa	585
Tensile strength, MPa	750
Elongation, %	27

Charpy V

Test temps, ˚C	Impact values, J
0	150
-20	85
-40	69

Packing/Ordering Information

Part Number	Dia mm	Per Pack (kg)	Pallet Weight (kg)
131320R150	2.0	5	840
131324R150	2.4	5	840
131332R150	3.2	5	840

OK Tigrod 13.16

GTAW
ER80S-B2

Description

OK Tigrod 13.16 is a 1.3%Cr-0.5%Mo-alloyed (ER80S-B2), copper-coated rod for the GTAW of creep-resistant steels like SA-387 Grade 11, A 335 Grade P11 or similar materials. The rod has a high purity chemistry with a guaranteed Bruscato factor X<15.

Welding current

DC (-)

Classifications

SFA/AWS A5.28	ER80S-B2

Typical all weld metal composition, %

C	Si	Mn	Cr	Mo
0.08	0.5	0.5	1.3	0.5

Typical properties of all weld metal

Yield stress, Mpa	640
Tensile strength, MPa	730
Elongation, %	24

Charpy V

Test temps, ˚C	Impact values, J
-40	>47

Packing/Ordering Information

Part Number	Dia mm	Per Pack (kg)	Pallet Weight (kg)
131620R150	2.0	5	1200
131624R150	2.4	5	1200

OK Tigrod 13.17

GTAW
ER90S-B3

Description

OK Tigrod 13.17 is a 2.5%Cr-1.1%Mo-alloyed (ER90S-B3), copper-coated rod for the GTAW of creep-resistant steels like SA-387 Grade 22, A335 Grade P22 or similar materials. The rod has a high purity chemistry with a guaranteed Bruscato factor X<15.

Welding current

DC (-)

Classifications

SFA/AWS A5.28 ER90S-B3

Typical all weld metal composition, %

C	Si	Mn	Cr	Mo
0.08	0.5	0.5	2.4	1.0

Typical properties of all weld metal

Yield stress, Mpa	620
Tensile strength, MPa	730
Elongation, %	22

Charpy V

Test temps, ˚C	Impact values, J
-40	>47

Packing/Ordering Information

Part Number	Dia mm	Per Pack (kg)	Pallet Weight (kg)
131720R150	2.0	5	1200
131724R150	2.4	5	1200
131732R150	3.2	5	1040

OK Tigrod 13.22

GTAW
ER90S-G

Description

OK Tigrod 13.22 is an 2.5%Cr-1.1%Mo-alloyed, copper-coated rod for the GTAW of creep-resistant steels such as pipes in pressure vessels and boilers of similar composition, with service temperatures of up to 600˚C, but it is also suitable for welding high strength steels.

Welding current

DC (-)

Classifications

SFA/AWS A5.28	ER90S-G
DIN 8575	W.nr 1.7384
EN 12070	W CrMo2Si

Typical all weld metal composition, %

C	Si	Mn	Cr	Mo
0.06	0.6	1.0	2.5	1.0

Typical properties of all weld metal

	SR 750˚C/0.5h
Yield stress, Mpa	>400
Tensile strength, MPa	>500
Elongation, %	>18

Charpy V

Test temps, ˚C	Impact values, J
+20	200

Approval

Sepros	UNA 046731
UDT	EN 12070
VdTüV	02416 (LU)

Packing/Ordering Information

Part Number	Dia mm	Per Pack (kg)	Pallet Weight (kg)
132220R150	2.0	5	1200
132224R150	2.4	5	840
132230R150	3.0	5	1200

OK Tigrod 13.23

GTAW
ER80S-Ni1

Description

OK Tigrod 13.23 is a 0.9%Ni-alloyed (ER80S-Ni1), copper-coated rod for the GTAW of low-temperature, fine-grained steels. The wire provides good impact toughness down to -50˚C and is especially suitable for use in the offshore industry.

Welding current

DC (-)

Classifications

SFA/AWS A5.28 ER80S-Ni1

Typical all weld metal composition, %

C	Si	Mn	Ni	Mo
0.08	0.7	1.0	0.9	0.25

Typical properties of all weld metal

Yield stress, Mpa	500
Tensile strength, MPa	600
Elongation, %	25

Charpy V

Test temps, ˚C	Impact values, J
0	230
-20	200
-46	140
-60	90

Packing/Ordering Information

Part Number	Dia mm	Per Pack (kg)	Pallet Weight (kg)
132316R150	1.6	5	1040
132320R150	2.0	5	1040
132324R150	2.4	5	1040

OK Tigrod 13.26

GTAW
ER80S-G

Description

OK Tigrod 13.26 is a 0.8%Ni-0.3%Cu-alloyed, copper-coated solid rod for the GTAW of weathering steels such as COR-TEN, Patinax, Dillicor and so on. It is also suitable for high strength steels with yield strength of up to 470MPa.

Welding current

DC (-)

Classifications

SFA/AWS A5.28 ER80S-G

Typical all weld metal composition, %

C	Si	Mn	Ni	Cu
0.07	0.7	1.3	0.8	0.35

Typical properties of all weld metal

Yield stress, Mpa	480
Tensile strength, MPa	580
Elongation, %	30

Charpy V

Test temps, ˚C	Impact values, J
+20	110
-20	70
-40	60

Approval

DNV IV YM

Packing/Ordering Information

Part Number	Dia mm	Per Pack (kg)	Pallet Weight (kg)
132616R150	1.6	5	840
132620R150	2.0	5	900
132624R150	2.4	5	840

OK Tigrod 13.28

GTAW
ER80S-Ni2

Description

OK Tigrod 13.28 is a 2.4%Ni-alloyed (ER80S-Ni2), copper-coated rod for the GTAW of low-temperature, fine-grained steels in applications such as pressure vessels, pipes and the offshore industry, with a minimum yield strength of up to 470 MPa. The wire provides good impact toughness down to -60˚C.

Welding current

DC (-)

Classifications

SFA/AWS A5.28	ER80S-Ni2
EN 1668	W2Ni2

Typical all weld metal composition, %

C	Si	Mn	Ni
0.1	0.6	1.1	2.4

Typical properties of all weld metal

Yield stress, Mpa	540
Tensile strength, MPa	630
Elongation, %	30

Charpy V

Test temps, ˚C	Impact values, J
-20	200
-40	180
-60	150

Approval

UDT	EN 440
VdTüV	

Packing/Ordering Information

Part Number	Dia mm	Per Pack (kg)	Pallet Weight (kg)
132816R15K	1.6	5	1200
132820R15K	2.0	5	1200
132824R15K	2.4	5	1200
132830R15K	3.0	5	1200

OK Tigrod 13.32

GTAW
ER80S-B6

Description

OK Tigrod 13.32 is a 5Cr-0.5Mo-alloyed (ER80S-B6), copper-coated rod for the GTAW of creep-resistant steels of similar composition. The rod is also suitable for welding high strength steels with minimum yield strength of up to 730 MPa. AWS has changed the classification for this product. The previous classification was A5.9 ER502.

Welding current

DC (-)

Classifications

SFA/AWS A5.28	ER80S-B6
DIN 8575	W.nr.1.7373
EN 12070	WCrMo5

Typical all weld metal composition, %

C	Si	Mn	Cr	Ni	Mo	Cu
0.07	0.4	0.6	5.8	<0.3	0.6	<0.4

Typical properties of all weld metal

Stress relieved 745˚C 1hr

Yield stress, Mpa	580
Tensile strength, MPa	680
Elongation, %	22

Charpy V

Test temps, ˚C	Impact values, J
+20	230
-20	200
-29	200

Welding Parameters

	Welding Current, A	
Dia mm	min	max
1.6	40	180
2.0	60	220
2.4	100	220
3.2	130	250

Packing/Ordering Information

Part Number	Dia mm	Per Pack (kg)	Pallet Weight (kg)
133216R150	1.6	5	1200
133220R150	2.0	5	1200
133224R150	2.4	5	1200
133230R150	3.0	5	1200

OK Tigrod 13.37

GTAW
ER80S-B8

Description

OK Tigrod 13.37 is a 9Cr-1Mo-alloyed, copper-coated rod for the GTAW of high temperature steels and steels for hot hydrogen service, especially in oil refineries. The electrode is a plain ER505 type.

Welding current

DC (-)

Classifications

SFA/AWS A5.28	ER80S-B8
EN 12070	W CrMo9

Typical all weld metal composition, %

C	Si	Mn	Cr	Mo
0.10	0.4	0.5	8.6	0.9

Typical properties of all weld metal

Stress relieved 760˚C 2hr	
Yield stress, Mpa	540
Tensile strength, MPa	660
Elongation, %	26

Charpy V

Test temps, ˚C	Impact values, J
-20	140
-40	120
-60	90

Welding Parameters

	Welding Current, A	
Dia mm	min	max
1.6	40	180
2.0	60	200
2.4	100	220
3.2	130	250

Packing/Ordering Information

Part Number	Dia mm	Per Pack (kg)	Pallet Weight (kg)
133716R150	1.6	5	1040
133720R150	2.0	5	1040
133724R150	2.4	5	1040
133732R150	3.0	5	1040

OK Tigrod 13.38

GTAW
ER90S-B9

Description

OK Tigrod 13.38 is a 9CrMoVN-alloyed rod for the GTAW of high-temperature steels and steels for hot hydrogen service, especially in oil refineries. It should preferably be used for 9% Cr steels, such as P 91/T 91 steels. The alloy is modified in terms of the limits for impurity elements and is extremely "clean". This produces improved strength levels both at room temperature and at higher temperatures. AWS has changed the classification for this product. The previous classification was A5.9 ER505.

Welding current

DC (-)

Welding Parameters

	Welding Current, A	
Dia mm	min	max
1.6	40	180
2.0	60	200
2.4	100	220
3.2	130	250

Classifications

SFA/AWS A5.28	ER90S-B9
EN 12070	W CrMo91

Typical all weld metal composition, %

C	Si	Mn	Cr	Ni	Mo	V	N
0.1	0.3	0.5	8.7	0.8	0.9	0.2	0.04

Typical properties of all weld metal

Stress relieved 760˚C 2hr

Yield stress, Mpa	690
Tensile strength, MPa	785
Elongation, %	20

Charpy V

Test temps, ˚C	Impact values, J
+20	200
0	180
-20	150
-40	90
-60	70

Approval

UDT	DIN 8575
VdTüV	07686

Packing/Ordering Information

Part Number	Dia mm	Per Pack (kg)	Pallet Weight (kg)
133816R150	1.6	5	600
133820R150	2.0	5	600
133824R150	2.4	5	600
133832R150	3.2	5	600

OK Tigrod 308L

GTAW
ER308L

Description

Bare, corrosion-resistant, chromium-nickel TIG rod. OK Tigrod 308L has good general corrosion resistance. The alloy has a low carbon content which makes it particularly recommended when there is a risk of intergranular corrosion.
The alloy is widely used in the chemical and food-processing industries, as well as for pipes, tubes and boilers. Suitable for the joining of stainless steels of the 18% Cr-8% Ni type with a low carbon content and Nb-stabilised steels of the same type if the service temperature does not exceed 350˚C. It can also be used for welding Cr steels, except in sulphur-rich environments.

Welding current

DC (-)

Classifications

SFA/AWS A5.9	ER308L
EN 12072	W 19 9 L
Werkstoffnummer	~1.4316

Typical all weld metal composition, %

C	Si	Mn	Cr	Ni	Mo	Cu
<0.03	0.5	1.8	20.3	10.0	<0.3	<0.3

Typical properties of all weld metal

Yield stress, Mpa	450
Tensile strength, MPa	645
Elongation, %	36

Charpy V

Test temps, ˚C	Impact values, J
+20	170
-80	135
-196	90

Approval

DNV	308L (-60ºC)
VdTüV	0.4269

Packing/Ordering Information

Part Number	Dia mm	Per Pack (kg)	Pallet Weight (kg)
161010R150	1.0	5	840
161012R150	1.2	5	840
161016R150	1.6	5	840
161020R150	2.0	5	840
161024R150	2.4	5	840
161032R150	3.2	5	840
161040R150	4.0	5	840

OK Tigrod 309L

GTAW
ER309L

Description

Bare, corrosion-resistant, chromium-nickel welding rod for welding the 24%Cr, 13%Ni alloyed types of steel. The alloy is also used for welding buffer layers on CMn steels and for welding dissimilar joints. When using the wire for buffer layers and dissimilar joints, it is necessary to control the dilution of the weld. OK Tigrod 309L has good general corrosion resistance. When used for joining dissimilar materials, the corrosion resistance is of secondary importance.

Welding current

DC (-)

Classifications

SFA/AWS A5.9	ER309L
EN 12072	W 23 12 L
Werkstoffnummer	~1.4332

Typical all weld metal composition, %

C	Si	Mn	Cr	Ni	Mo	Cu
<0.03	0.5	1.8	24.0	13.0	<0.3	<0.3

Typical properties of all weld metal

Yield stress, Mpa	430
Tensile strength, MPa	590
Elongation, %	40

Charpy V

Test temps, ˚C	Impact values, J
+20	160
-60	130
-110	90

Approval

VdTüV	10021

Packing/Ordering Information

Part Number	Dia mm	Per Pack (kg)	Pallet Weight (kg)
165312R150	1.2	5	840
165316R150	1.6	5	840
165320R150	2.0	5	840
165324R150	2.4	5	840
165332R150	3.2	5	840
165340R150	4.0	5	840

OK Tigrod 309MoL

GTAW
W 23 12 2 L

Description

Bare, corrosion-resistant rod of the “309MoL” type. OK Tigrod 309MoL is used for the overlay welding of unalloyed and low-alloyed steels and for welding dissimilar steels such as 316L to unalloyed and low-alloyed steels when Mo is essential.

Welding current

DC (-)

Classifications

EN 12072	W 23 12 2 L

Typical all weld metal composition, %

C	Si	Mn	Cr	Ni	Mo	Cu
<0.03	0.5	1.6	22.0	14.8	2.7	<0.2

Typical properties of all weld metal

Yield stress, Mpa	400
Tensile strength, MPa	600
Elongation, %	40

Charpy V

Test temps, ˚C	Impact values, J
+20	140

Approval

DNV	For C- & C/Mn – steels to 316L

Packing/Ordering Information

Part Number	Dia mm	Per Pack (kg)	Pallet Weight (kg)
165416R150	1.6	5	1000
165420R150	2.0	5	1000
165424R150	2.4	5	1000
165432R150	3.2	5	1000

OK Tigrod 310

GTAW
ER310

Description

Bare, corrosion-resistant, chromium-nickel welding rod for welding heat-resistant austenitic steels of the 25Cr-20Ni type. The wire has a high Cr content and provides good oxidation resistance at high temperatures. Common applications include industrial furnaces and boiler parts, as well as heat exchangers.

Welding current

DC (-)

Classifications

SFA/AWS A5.9	ER310
EN 12072	W 25 20

Typical all weld metal composition, %

C	Si	Mn	Cr	Ni	Mo	Cu
0.1	0.4	1.7	25	20	<0.3	<0.3

Typical properties of all weld metal

Yield stress, Mpa	390
Tensile strength, MPa	590
Elongation, %	43

Charpy V

Test temps, ˚C	Impact values, J
+20	175
-196	60

Packing/Ordering Information

Part Number	Dia mm	Per Pack (kg)	Pallet Weight (kg)
167012R150	1.2	5	1000
167016R150	1.6	5	1000
167020R150	2.0	5	1000
167024R150	2.4	5	1000
167032R150	3.2	5	1000

OK Tigrod 316L

GTAW
ER316L

Description

Bare, corrosion-resistant, chromium-nickel-molybdenum rods for welding austenitic stainless alloys of the 18% Cr-8% Ni and 18% Cr-10% Ni-3% Mo types. OK Tigrod 316L has good general corrosion resistance, particularly to corrosion in acid and chlorinated environments. The alloy has a low carbon content, which makes it particularly recommended when there is risk of intergranular corrosion. The alloy is widely used in the chemical and food-processing industries, as well as in shipbuilding and various types of architectural structure.

Welding current

DC (-)

Classifications

SFA/AWS A5.9	ER316L
EN 12072	W 19 12 3 L
Werkstoffnummer	~1.4430

Typical all weld metal composition, %

C	Si	Mn	Cr	Ni	Mo	Cu
0.01	0.4	1.8	19	12	2.6	<0.3

Typical properties of all weld metal

Yield stress, Mpa	470
Tensile strength, MPa	650
Elongation, %	32

Charpy V

Test temps, ˚C	Impact values, J
+20	175
-60	150
-196	75

Approval

DNV	316L (-60˚C)
VdTüV	04270

Packing/Ordering Information

Part Number	Dia mm	Per Pack (kg)	Pallet Weight (kg)
163010R150	1.0	5	840
163012R150	1.2	5	840
163016R150	1.6	5	840
163020R150	2.0	5	840
163024R150	2.4	5	840
163032R150	3.2	5	840
163040R150	4.0	5	840

OK Tigrod 347

GTAW
ER347

Description

OK Tigrod 347 is a bare, corrosion resistant Chromium-nickel rod for welding of stabilized austenitic chromium nickel alloys of 18% Cr – 8% Ni-type. The rods are stabilised with Niobium, which gives a good resistance to inter-granular corrosion of the weld metal and are recommended for use at higher temperatures.

Welding current

DC (-)

Classifications

SFA/AWS A5.9	ER347
EN 12072	W 19 9 Nb
Werkstoffnummer	~1.4551

Typical all weld metal composition, %

C	Si	Mn	Cr	Ni	Mo	Nb
0.04	0.475	1.4	20	10	0.15	0.5

Typical properties of all weld metal

	As welded min
Yield stress, Mpa	>350
Tensile strength, MPa	>550
Elongation, %	>25

Charpy V

Test temps, ˚C	Impact values, J
-20	90

Packing/Ordering Information

Part Number	Dia mm	Per Pack (kg)	Pallet Weight (kg)
162116R150	1.6	5	840
162120R150	2.0	5	840
162124R150	2.4	5	840

OK Tigrod 385

GTAW
ER 385

Description

Bare corrosion-resistant welding rods for welding austenitic stainless steels of the 20Cr-25Ni-4.5Mo-1.5Cu type. The weld metal has good resistance to stress corrosion and intergranular corrosion and shows very good resistance to attack by non-oxidising acids. The resistance to pitting and crevice corrosion is better than that of ordinary 18Cr-8Ni-Mo steels.

Welding current

DC (-)

Classifications

SFA/AWS A5.9	ER 385
EN 12072	W 20 25 5 CuL

Typical all weld metal composition, %

C	Si	Mn	Cr	Ni	Mo	Cu
<0.03	<0.5	1.8	20.5	25.0	4.7	1.6

Typical properties of all weld metal

Yield stress, Mpa	340
Tensile strength, MPa	540
Elongation, %	37

Charpy V

Test temps, ˚C	Impact values, J
+20	120

Approval

VdTüV	05444 (IT)

Packing/Ordering Information

Part Number	Dia mm	Per Pack (kg)	Pallet Weight (kg)
165516R150	1.6	5	1000
165520R150	2.0	5	1000
165524R150	2.4	5	1000
165532R150	3.2	5	1000

OK Tigrod 410NiMo GTAW
W 13 4

Description

Bare welding rods of the 420NiMo type alloyed with 13% Cr, 4.5% Ni and 0.5% Mo. This alloy is used for welding similar composition martensitic and martensitic-ferritic steels in different applications, such as hydroturbines.

Welding current

DC (-)

Classifications

EN 12072	W 13 4

Typical all weld metal composition, %

C	Si	Mn	Cr	Ni	Mo	Cu
0.01	0.3	0.7	12.3	4.5	0.5	<0.3

Typical properties of all weld metal

Stress relieved 600˚C 2hrs	
Yield stress, Mpa	600
Tensile strength, MPa	800
Elongation, %	17

Packing/Ordering Information

Part Number	Dia mm	Per Pack (kg)	Pallet Weight (kg)
167912R150	1.2	5	1000
167916R150	1.6	5	1000
167920R150	2.0	5	1000
167924R150	2.4	5	1000
167932R150	3.2	5	1000

OK Tigrod 16.95

GTAW
W 18 8 Mn

Description

Bare, corrosion-resistant, chromium-nickel-manganese welding rods for welding austenitic stainless alloys of the 18% Cr, 8% Ni, 7% Mn types. OK Tigrod 16.95 has general corrosion resistance similar to that of the corresponding parent metal. The higher silicon content improves the welding properties such as wetting. When used for joining dissimilar materials, the corrosion resistance is of secondary importance. The alloy is used in a wide range of applications across the industry, such as the joining of austenitic, manganese, work-hardenable steels, as well as armour plate and heat-resistant steels.

Welding current

DC (-)

Classifications

EN 12072	W 18 8 Mn
Werkstoffnummer	Appr. 1.4370

Typical all weld metal composition, %

C	Si	Mn	Cr	Ni
<0.2	<1.2	6.5	18.5	8.5

Typical properties of all weld metal

Yield stress, Mpa	450
Tensile strength, MPa	640
Elongation, %	41

Charpy V

Test temps, ˚C	Impact values, J
+20	130

Approval

DB	43.039.12
UDT	DIN 8556
VdTüV	05421
U	43.039/1

Packing/Ordering Information

Part Number	Dia mm	Per Pack (kg)	Pallet Weight (kg)
169512R150	1.2	5	840
169516R150	1.6	5	840
169520R150	2.0	5	840
169524R150	2.4	5	840

OK Tigrod 2209

GTAW
ER2209

Description

Bare, corrosion-resistant, duplex welding rods for welding austenitic-ferritic stainless alloys of the 22% Cr, 5% Ni, 3% Mo types. OK Tigrod 2209 has high general corrosion resistance. In media containing chloride and hydrogen sulphide, the alloy has high resistance against intergranular corrosion, pitting and especially stress corrosion. The alloy is used in a variety of applications across all industrial segments.

Welding current

DC (-)

Classifications

SFA/AWS A5.9	ER2209
EN 12072	W 22 9 3 NL

Typical all weld metal composition, %

C	Si	Mn	Cr	Ni
<0.025	0.5	1.7	22.5	8.5

Mo	Cu	N
3.3	<0.3	0.15

Typical properties of all weld metal

Yield stress, Mpa	600
Tensile strength, MPa	765
Elongation, %	28

Charpy V

Test temps, ˚C	Impact values, J
+20	100
-20	85
-60	60

Approval

VdTüV	05519 (IT)

Packing/Ordering Information

Part Number	Dia mm	Per Pack (kg)	Pallet Weight (kg)
168612R150	1.2	5	1000
168616R150	1.6	5	1000
168620R150	2.0	5	1000
168624R150	2.4	5	1000

OK Tigrod 2509

GTAW
W 25 9 4 NL

Description

Bare, corrosion-resistant, “Super Duplex” rods for welding austenitic-ferritic stainless alloys of the 25% Cr, 7% Ni, 4% Mo, low C types. OK Autrod 2509 has high intergranular-corrosion, pitting and stress-corrosion resistance. The alloy is widely used in applications where corrosion resistance is of the utmost importance.
The pulp & paper industry, offshore and gas industry are areas of interest.

Welding current

DC (-)

Classifications

EN 12072	W 25 9 4 NL

Typical all weld metal composition, %

C	Si	Mn	Cr	Ni
<0.02	0.4	0.4	25.0	9.8

Mo	W	Cu	N
4.0	<1.0	<0.3	0.25

Typical properties of all weld metal

Yield stress, Mpa	670
Tensile strength, MPa	850
Elongation, %	30

Charpy V

Test temps, ˚C	Impact values, J
+20	150
-40	115

Approval

VdTüV	06593 (IT)

Packing/Ordering Information

Part Number	Dia mm	Per Pack (kg)	Pallet Weight (kg)
168816R150	1.6	5	500
168820R150	2.0	5	500
168824R150	2.4	5	500
168832R150	3.2	5	500

OK Tigrod 1100

GTAW
R1100

Description

Alloy 1100 is highly resistant to chemical attack and weathering. It is a relatively soft alloy that is very formable and is used extensively in thin gauge and foil products. It has good welding characteristics and is also used as filler for welding purposes. A desirable characteristic of the alloy is the bright finishes obtained by anodising. Non-heat treatable.

Welding current

AC

Classifications

SFA/AWS A5.10	R 1100
EN ISO 18273	SAl 1100
	Al 99.0Cu

Typical all weld metal composition, %

Si	Fe	Cu	Mn	Zn	Al
0.475	0.475	0.075	0.025	0.05	99

Typical properties of all weld metal

	As welded
Tig wire	
Yield stress, Mpa	30
Tensile strength, MPa	75
Elongation, %	33

Packing/Ordering Information

Part Number	Dia mm	Per Pack (kg)	Pallet Weight (kg)
180216R150	1.6	5	1020
180220R150	2.0	5	1020
180224R150	2.4	5	1020
180232R150	3.2	5	1020
180240R150	4.0	5	1020
180247R150	4.7	5	1020

OK Tigrod 4043

GTAW
R4043

Description

Alloy 4043 is one of the oldest and most widely used welding and brazing alloys. 4043 can be classified as a general-purpose type filler alloy. The silicon additions result in improved fluidity (wetting action) to make the alloy a preferred choice by welders. The alloy is less sensitive to weld cracking and produces brighter, almost smut free welds. Non-heat treatable.

Welding current

AC

Classifications

SFA/AWS A5.10	R 4043
EN ISO 18273	SAl 4043 (AlSi5)

Typical all weld metal composition, %

Si	Fe	Cu	Mn	Mg
<5.5	<0.61	<0.05	<0.05	<0.05

Zn	Ti	Other	Al
<0.1	<0.15	<0.15	Bal

Typical properties of all weld metal

	As welded
Tig wire	
Yield stress, Mpa	55
Tensile strength, MPa	165
Elongation, %	18

Approval

Ü	61.039
DB	61.039.06

Packing/Ordering Information

Part Number	Dia mm	Per Pack (kg)	Pallet Weight (kg)
180416R150	1.6	5	1020
180420R150	2.0	5	1020
180424R150	2.4	5	1020
180432R150	3.2	5	1020
180440R150	4.0	5	1020
180447R150	4.7	5	1020

OK Tigrod 4047

GTAW
R4047

Description

Alloy 4047 was originally developed as a brazing alloy to take advantage of its low melting point and narrow freezing range. In addition, it has a higher silicon content than 4043, which provides for increased fluidity and reduced shrinkage. The alloy produce bright and almost smut free welds. Hot cracking is significantly reduced when 4047 is used as a filler alloy. The alloy may be used in applications of sustained elevated temperatures.
Non-heat treatable.

Welding current

AC

Classifications

SFA/AWS A5.10	R 4047
EN ISO 18273	SAl 4047 (AlSi12)

Typical all weld metal composition, %

Si	Fe	Cu	Mn	Ti
12	<0.6	<0.05	<0.15	<0.15

Mg	Zn	Other	Al
<0.1	<0.2	<0.15	Bal

Typical properties of all weld metal

	As welded
Tig wire	
Yield stress, Mpa	80
Tensile strength, MPa	170
Elongation, %	12

Packing/Ordering Information

Part Number	Dia mm	Per Pack (kg)	Pallet Weight (kg)
180516R150	1.6	5	1020
180520R150	2.0	5	1020
180524R150	2.4	5	1020
180532R150	3.2	5	1020
180540R150	4.0	5	1020
180547R150	4.7	5	1020

OK Tigrod 5087

GTAW
S Al 5087 (AlMg4,5MnZr)

Description

Bare welding rod suitable for welding aluminium alloys with up to 5% Mg and alloys where a higher tensile strength is required. The alloying element Zr produces improved resistance to hot cracking during solidification.

Welding current

AC

Classifications

EN ISO 18273	S Al 5087 (AlMg 4.5 MnZr)

Typical all weld metal composition, %

Si	Mn	Cr	Cu	Ti
<0.25	0.9	0.15	<0.05	<0.15

Zr	Zn	Fe	Mg
0.15	<0.25	<0.40	4.9

Typical properties of all weld metal

Yield stress, Mpa	130
Tensile strength, MPa	280
Elongation, %	30

Charpy V

Test temps, ˚C	Impact values
+20	35

Approval

Ü	61.039
DB	61.039.08
VdTüV	05796

Packing/Ordering Information

Part Number	Dia mm	Per Pack (kg)	Pallet Weight (kg)
181716R150	1.6	5	1020
181720R150	2.0	5	1020
181724R150	2.4	5	1020
181732R150	3.2	5	1020
181740R150	4.0	5	1020
181747R150	4.7	5	1020

OK Tigrod 5183

GTAW
R5183

Description

Alloy 5183 was developed to provide the highest strengths possible in the as-welded condition of alloy 5083 and other similar high magnesium alloys. The more common filler alloy 5356, will typically fail to meet the as-welded tensile strength specification requirements of alloy 5083. The alloy is typically used in marine and structural applications where high strengths, high fracture toughness for impact resistance and exposure to corrosive elements are important. The alloy is not recommended for elevated temperature applications due to its susceptibility to stress corrosion cracking. Non-heat treatable.

Welding current

AC

Classifications

SFA/AWS A5.10	R 5183
EN ISO 18273	SAl 5183(AlMg4.5 Mn0.7(A))

Typical all weld metal composition, %

Si	Fe	Cu	Mn	Mg
<0.25	<0.40	<0.10	0.75	4.75

Cr	Zn	Ti	Other	Al
0.15	<0.25	<0.15	<0.15	Bal

Typical properties of all weld metal

	As welded
Tig wire	
Yield stress, Mpa	140
Tensile strength, MPa	290
Elongation, %	25

Charpy V

Test temps, ˚C	Impact values, J
20	30

Approval

DB	61.039.04
VdTüV	04667
U	62.039

Packing/Ordering Information

Part Number	Dia mm	Per Pack (kg)	Pallet Weight (kg)
181616R150	1.6	5	1020
181620R150	2.0	5	1020
181624R150	2.4	5	1020
181632R150	3.2	5	1020
181640R150	4.0	5	1020
181647R150	4.7	5	1020

OK Tigrod 5356

GTAW
R5356

Description

Alloy 5356 is the most widely used welding alloy and can be classified as a general-purpose type filler alloy. Alloy 5356 is typically chosen because of its relatively high shear strength. The 5XXX alloy base material, welded with 5356, with weld pool chemistry greater than 3% Mg and service temperatures in excess of 65˚C are susceptible to stress corrosion cracking. Non-heat treatable.

Welding current

AC

Classifications

SFA/AWS A5.10	R 5356
EN ISO 18273	SAl 5183(AlMg5Cr(A))

Typical all weld metal composition, %

Si	Fe	Cu	Mn	Mg
<0.25	<0.40	<0.10	0.15	5.0

Cr	Zn	Ti	Other	Al
0.125	<0.10	0.13	<0.15	Bal

Typical properties of all weld metal

	As welded
Tig wire	
Yield stress, Mpa	120
Tensile strength, MPa	265
Elongation, %	26

Approval

DB	61.039.04
VdTüV	04667
U	62.039

Packing/Ordering Information

Part Number	Dia mm	Per Pack (kg)	Pallet Weight (kg)
181516R150	1.6	5	1020
181520R150	2.0	5	1020
181524R150	2.4	5	1020
181532R150	3.2	5	1020
181540R150	4.0	5	1020
181547R150	4.7	5	1020

OK Tigrod 5554

GTAW
R5554

Description

Alloy 5554 was developed as a filler alloy, primarily for alloy 5454 that is widely used in the manufacture of chemical storage tanks, automotive wheels, and in particular, those applications that may be subjected to temperatures in excess of 65°C. This combination of alloys does not become sensitive to stress corrosion cracking at elevated temperatures. Non-heat treatable.

Welding current

AC

Classifications

SFA/AWS A5.10	R 5554
EN ISO 18273	S Al 5554 (AlMg2.7Mn)

Typical all weld metal composition, %

Si	Fe	Cu	Mn	Mg
<0.25	<0.40	<0.10	0.75	2.7

Cr	Zn	Ti	Other	Al
0.125	<0.25	0.125	<0.15	Bal

Typical properties of all weld metal

	As welded
Yield stress, Mpa	110
Tensile strength, MPa	230
Elongation, %	17

Packing/Ordering Information

Part Number	Dia mm	Per Pack (kg)	Pallet Weight (kg)
181216R150	1.6	5	1020
181220R150	2.0	5	1020
181224R150	2.4	5	1020
181232R150	3.2	5	1020
181240R150	4.0	5	1020
181247R150	4.7	5	1020

OK Tigrod 5556

GTAW
R5556

Description

Alloy 5556 develop the highest as-welded strengths in fillet welds, nearly double that of 4043. The 5XXX series of alloys offer an excellent combination of corrosion resistance, strength, toughness, workability, and weldability. As a result, they are used in a wide variety of applications. However, this series of alloy is susceptible to stress corrosion cracking when the weld pool chemistry is greater than 3% Mg and when there is exposure to prolonged temperatures in excess of 65°C. Special alloys and temperatures are often required to overcome this problem. This is non-heat treatable.

Welding current

AC

Classifications

SFA/AWS A5.10	R 5556
EN ISO 18273	S Al 5556A (AlMg5Mn)

Typical all weld metal composition, %

Si	Fe	Cu	Mn	Mg
0.125	0.2	0.05	0.8	5.25

Cr	Zn	Ti	Other	Al
0.125	0.1	0.125	0.075	Bal.

Typical properties of all weld metal

	As welded
Yield stress, Mpa	145
Tensile strength, MPa	295
Elongation, %	25

Approval

CWB	AWS A5.10 (item no. ending with A)
VdTüV	05795

Packing/Ordering Information

Part Number	Dia mm	Per Pack (kg)	Pallet Weight (kg)
182016R150	1.6	5	1020
182020R150	2.0	5	1020
182024R150	2.4	5	1020
182032R150	3.2	5	1020
182040R150	4.0	5	1020
182047R150	4.7	5	1020

OK Tigrod 19.49

GTAW
ERCuNi

Description

A solid, Cu-Ni rods for welding similar alloys like 90Cu10Ni, 80Cu20Ni and 70Cu30Ni alloys. The addition of nickel strengthens the weld metal and improves the corrosion resistance, particularly in the case of salt water. The alloy is used for the overlay welding of steels and is widely used for welding Cu-Ni components for desalination plants.

Welding current

DC (-)

Classifications

SFA/AWS A5.7	ERCuNi
EN 14640	S Cu 7158 (CuNi30)

Typical all weld metal composition, %

C	Si	Mn	Fe
<0.05	<0.1	0.8	0.6

Ni	Ti	Cu
31.0	0.3	Bal.

Typical properties of all weld metal

Yield stress, Mpa	180
Tensile strength, MPa	350
Elongation, %	40

Packing/Ordering Information

Part Number	Dia mm	Per Pack (kg)	Pallet Weight (kg)
194916R150	1.6	5	700
194920R150	2.0	5	700
194924R150	2.4	5	700

OK Tigrod 19.81

GTAW
ERNiCrMo-13

Description

Bare Ni-Cr-Mo rod for welding high-alloyed materials of the 20Cr-25Ni type with 4-6% Mo and Ni based alloys of a similar type. It can also be welded in combination with carbon steels. The weld metal has very good corrosion resistance over a wide range of applications in oxidising and reducing media.

Welding current

DC (-)

Classifications

SFA/AWS A5.14	ERNiCrMo-13
EN ISO 18274	S Ni 6059 (NiCr23Mo16)

Typical all weld metal composition, %

C	Si	Mn	Cr	Ni	Mo
0.002	0.03	0.15	23.0	Bal	15.7

Typical properties of all weld metal

Yield stress, Mpa	550
Tensile strength, MPa	800
Elongation, %	45

Charpy V

Test temps, ˚C	Impact values, J
-110	120

Approval

VdTüV	07768(MV)

Packing/Ordering Information

Part Number	Dia mm	Per Pack (kg)	Pallet Weight (kg)
198116R150	1.6	5	500
198120R150	2.0	5	500
198124R150	2.4	5	500

OK Tigrod 19.82

GTAW
ERNiCrMo-3

Description

A nickel-based, corrosion and heat-resistant, 22% Cr, 9% Mo, 3.5% Nb rod for the GTAW of high-alloyed steel, heat-resistant steel, corrosion-resistant steel, 9% Ni steels and similar steel with high notch toughness at low temperatures. It is also suitable for joining dissimilar metals of the types mentioned above. OK Tigrod 19.82 is normally welded with pure Ar as the shielding gas.

Welding current

DC (-)

Classifications

SFA/AWS A5.14	ERNiCrMo-3
EN ISO 18274	S Ni 6625 (NiCr22Mo9Nb)

Typical all weld metal composition, %

C	Si	Mn	Cr	Ni
<0.1	<0.5	<0.5	21.5	>60.0

Mo	Cu	Ti	Al	Fe
9.0	<0.5	<0.4	<0.4	<2.0

Typical properties of all weld metal

Yield stress, Mpa	550
Tensile strength, MPa	780
Elongation, %	40

Charpy V

Test temps, ˚C	Impact values, J
-196	130

Approval

UDT	DIN 1736
VdTüV	06272(FP)/05697(MV)

Packing/Ordering Information

Part Number	Dia mm	Per Pack (kg)	Pallet Weight (kg)
198216R150	1.6	5	1000
198220R150	2.0	5	1000
198224R150	2.4	5	1000
198232R150	3.2	5	1000

OK Tigrod 19.85

GTAW
ERNiCr-3

Description

A nickel-based, corrosion and heat-resistant, 20% Cr, 3% Mn, 2.5% Nb rod for the GTAW of high-alloyed steel, heat-resistant steel, corrosion-resistant steel, 9% Ni steels and similar steels with high notch toughness at low temperatures. It is also suitable for joining dissimilar metals of the types mentioned above. OK Tigrod 19.85 is usually welded with pure Ar as the shielding gas.

Welding current

DC (-)

Classifications

SFA/AWS A5.14	ERNiCr-3
EN ISO 18274	S Ni 6082 (NiCr20Mn3Nb)

Typical all weld metal composition, %

C	Si	Mn	Cr
<0.01	<0.5	3.0	20.0

Ni	Cu	Ti	Fe
>67.0	<0.5	<0.7	<3.0

Typical properties of all weld metal

Yield stress, Mpa	440
Tensile strength, MPa	670
Elongation, %	40

Charpy V

Test temps, ˚C	Impact values, J
+20	150
-196	100

Approval

UDT	DIN 1736
VdTüV	06274(FP)/04075(MV)

Packing/Ordering Information

Part Number	Dia mm	Per Pack (kg)	Pallet Weight (kg)
198516R150	1.6	5	1000
198520R150	2.0	5	1000
198524R150	2.4	5	1000
198532R150	3.2	5	1000

OK Tigrod 19.92

GTAW
ERNi-1

Description

A nickel-based rod alloyed with 3% Ti for the GTAW of high-purity nickel (min. 99.6% Ni), ordinary wrought nickel and nickel with a reduced carbon content. OK Tigrod 19.92 is normally welded with pure Ar as the shielding gas.

Welding current

DC (-)

Classifications

SFA/AWS A5.14	ERNi-1
EN ISO 18274	SNi2061(NiTi3)

Typical all weld metal composition, %

C	Si	Mn	Ti	Ni
0.02	0.3	0.4	3.0	Bal

Typical properties of all weld metal

Yield stress, Mpa	300
Tensile strength, MPa	500
Elongation, %	27

Charpy V

Test temps, ˚C	Impact values, J
+20	130

Approval

UDT	DIN1736
VdTüV	06280(FP)/02787(MV)

Packing/Ordering Information

Part Number	Dia mm	Per Pack (kg)	Pallet Weight (kg)
199216R150	1.6	5	1000
199220R150	2.0	5	1000
199224R150	2.4	5	1000

OK Tigrod 19.93

GTAW
ERNiCu-7

Description

A nickel-based rod alloyed with about 30% Cu, 2% Ti and 1% Fe for the GTAW of base materials of the same type. It can also be used for joining these alloys to steel. OK Tigrod 19.93 is normally welded with pure Ar as the shielding gas.

Welding current

DC (-)

Classifications

SFA/AWS A5.14	ERNiCu-7
DIN 1736	SG-NiCu30MnTi
Werkstoff Nr.	2.4377

Typical all weld metal composition, %

C	Si	Mn	Ni
0.03	0.3	3.0	64

Nb	Cu	Ti	Fe
0.1	28	2	2

Typical properties of all weld metal

Yield stress, Mpa	300
Tensile strength, MPa	530
Elongation, %	45

Approval

UDT	DIN 1736
VdTüV	06275(FP)/04076(MV)

Packing/Ordering Information

Part Number	Dia mm	Per Pack (kg)	Pallet Weight (kg)
199316R150	1.6	5	1000
199320R150	2.0	5	1000
199324R150	2.4	5	1000