

Spoolarc 65 Tigrod

Spoolarc 65 is a triple deoxidized (Aluminum, Titanium, Zirconium) welding wire designed for welding over rust and mill scale. The less fluid weld puddle of Spoolarc 65 makes it easy to control when used out of position. Spoolarc 65 is the preferred wire for all position welding of small diameter pipe.

Classifications:	AWS A5.18:ER70S-2 H4
Approvals:	MIL-E-23765/1 70S-2, CWB CSA W48:CAN/CSA-ISO14341, B-G 49A 3C G2 (ER49S-2)
Industry or Segmentation:	Military Applications, Power Generation, Pipeline, Ship/Barge Building

Approvals are based on factory location. Please contact ESAB for more information.

Wire Composition %

C	Mn	Si	S	P	Ni	Cr	Mo	V	Al	Cu	Ti	Zr
0.06	1.14	0.50	0.006	0.004	0.03	0.06	0.01	0.01	0.08	0.06	0.10	0.04

Spoolarc 83 Tigrod

Spoolarc 83 contains 0.5% Mo to provide higher deposit strength in both the as welded and stress relieved conditions. It contains high levels of Manganese and Silicon to provide good wetting and good rust and scale tolerance. Spoolarc 83 is also used for all-position welding of high tensile pipe and tubing commonly found in earthmoving and construction equipment.

Classifications:	AWS A5.28:ER80S-D2/ER90S-D2, AWS A5.23:EA3K
Approvals:	MIL-E-23765/2 80S-3, CWB CSA W48, CSA CAN/CSA-ISO14341, B-G 55A 3 G4M31 (ER80S-3)
Industry or Segmentation:	Industrial and General Fabrication, Automotive, Mobile Equipment, Ship/Barge Building

Approvals are based on factory location. Please contact ESAB for more information.

Wire Composition %

C	Mn	Si	S	P	Ni	Mo	Cu
0.08	1.69	0.63	0.011	0.01	0.09	0.4	0.17

Spoolarc 82 Tigrod

Spoolarc 82 is a premium quality, general purpose TIG rod subjected to stringent quality control procedures required for certification to Military, Lloyds, and ABS specifications. Spoolarc 82 is recommended for pressure vessel and pipe fabrication, HVAC duct work, and general carbon steel structural welding.

Classifications:	AWS A5.18:ER70S-3 H4
Approvals:	CWB CSA W48, ABS AWS A5.18: ER70S-3 H4, LR 3S,3YS(H15), MIL-E-23765/1 70S-3, CSA CAN/CSA-ISO14341, B-G 49A 2C G3 (ER49S-3)
Industry or Segmentation:	Automotive, Industrial and General Fabrication, Pipeline, Mobile Equipment, HVAC

Approvals are based on factory location. Please contact ESAB for more information.

Wire Composition %									
C	Mn	Si	S	P	Ni	Cr	Mo	V	Cu
0.09	1.18	0.58	0.007	0.011	0.02	0.03	0.01	0.004	0.16

Spoolarc 86 Tigrod

Spoolarc 86 is a copper-coated TIG rod containing high levels of manganese and silicon. Spoolarc 86 is suitable for many carbon steel welding applications. The high levels of deoxidizers in Spoolarc 86 provide excellent tolerance of rust and mill scale. The high levels of manganese and silicon also provide excellent wetting action and a highly fluid weld puddle. Spoolarc 86 excels in HVAC duct work, heavy equipment fabrication, structural, and other general steel fabrication.

Classifications:	AWS A5.18:ER70S-6, AWS A5.17:EH11K
Approvals:	CWB CSA W48, ABS AWS A5.18: ER70S-6 H4, LR 3S,3YS(H15), CSA CAN/CSA-ISO14341, B-G 49A 3C G6 (ER49S-6), MIL-E-23765/1 70S-6
Industry or Segmentation:	Automotive, HVAC, Industrial and General Fabrication, Mobile Equipment, Ship/Barge Building

Approvals are based on factory location. Please contact ESAB for more information.

Wire Composition %									
C	Mn	Si	S	P	Ni	Cr	Mo		Cu
0.08	1.51	0.01	0.01	0.008	0.01	0.02	0.01		0.11

Spoolarc 95 Tigrod

Spoolarc 95 is Military grade high strength TIG rod used to weld HY-80 steels. Applications for Spoolarc 95 include military tanks, ships and submarines.

Classifications:	AWS A5.28:ER100S-1, AWS A5.23 :EM2
Approvals:	CWB CSA W48, MIL-E-23765/2 100S-1
Industry or Segmentation:	Heavy Fabrication, Military Applications, Mining, Ship/Barge Building

Approvals are based on factory location. Please contact ESAB for more information.

Wire Composition %								
C	Mn	Si	S	P	Ni	Cr	Mo	V
0.06	1.35	0.33	0.008	0.004	1.75	0.1	0.34	0.001

Tigrod ER80S-B2

Tigrod ER80S-B2 is a chrome-moly TIG rod used for joining creep resistant steels of the 0.5% Cr - 0.5% Mo, 1% Cr - 0.5% Mo, and 1.25% Cr - 0.5% Mo grades. These non-copper-coated rods are primarily used to fabricate and repair power piping and boilers in the power generation industry.

Classifications:	AWS A5.28:ER80S-B2
Industry or Segmentation:	Process, Petrochemical

Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Elongation
Stress Relieved 1 hr 746 °C (1375 °F)	552 MPa (80 ksi)	642 MPa (93 ksi)	26 %
Stress Relieved 1 hr 620 °C (1150 °F)	559 MPa (81 ksi)	655 MPa (95 ksi)	29 %
Stress Relieved 1 hr 732 °C (1350 °F)	566 MPa (82 ksi)	655 MPa (95 ksi)	24 %

Wire Composition %

C	Mn	Si	S	P	Ni	Cr	Mo	V	Cu	X-Factor
0.07-0.012	0.40-0.70	0.40-0.70	max 0.025	max 0.012	max 0.20	1.20-1.50	0.40-0.65	max 0.03	max 0.20	max 12

Tigrod ER80S-B6

Tigrod ER80S-B6 is a Chrome-Moly TIG rod for joining 5% Cr - 0.5% Mo steels such as ASTM A200-T5, A335-P5 and A387-Gr5. These non-copper-coated rods are primarily used to fabricate and repair power piping, pressure vessels, heat exchangers, and boilers used in the power generation industry. All ESAB ER80S-B6 tigrod is embossed on both ends with the alloy identification. This grade of rod was previously classified as ER502.

Classifications:	AWS A5.28:ER80S-B6, ASME SFA 5.28:
Industry or Segmentation:	Process, Petrochemical

Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Elongation
Stress Relieved 1 hr 732 °C (1350 °F)	566 MPa (82 ksi)	656 MPa (95 ksi)	24 %
Stress Relieved 1 hr 746 °C (1375 °F)	552 MPa (80 ksi)	642 MPa (93 ksi)	26 %

Typical Weld Metal Analysis %

C	Mn	Si	S	P	Cr	Mo	X-Factor
0.08	0.50	0.40	0.01	0.007	5.80	0.50	< 15

Wire Composition %

C	Mn	Si	S	P	Ni	Cr	Mo	V	Cu	X-Factor
0.05-0.10	0.40-0.70	0.15-0.50	max 0.025	max 0.012	max 0.3	4.5-6.0	0.45-0.65	max 0.03	max 0.20	max 12

Tigrod ER80S-B8

Tigrod ER80S-B8 is a non-copper-coated solid wire for TIG welding requiring creep strength. This 9% Chromium - 1% Molybdenum TIG rod is used to weld 9% Chromium - 1% Molybdenum steels (ASTM Section IX, P No 5B, Group 1) such as ASTM A335 Grade P9 or ASTM A213 Grade T9. Tigrod products are embossed on opposite ends with the alloy identification.

Classifications:	AWS A5.28:ER80S-B8, ASME SFA 5.28
Industry or Segmentation:	Power Generation

Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Elongation
Stress Relieved 1 hr 746 °C (1375 °F)	538 MPa (78 ksi)	670 MPa (97 ksi)	24 %

Typical Weld Metal Analysis %

C	Mn	Si	S	P	Cr	Mo	X-Factor
0.07	0.50	0.40	0.003	0.005	9.00	1.00	< 15

Wire Composition %

C	Mn	Si	S	P	Ni	Cr	Mo	Cu	X-Factor
0.5-0.10	0.40-0.70	0.50	max 0.025	max 0.025	max 0.50	8.0-10.5	0.8-1.2	max 0.20	max 12

Tigrod ER90S-B3

Tigrod ER90S-B3 is a Chrome-Moly TIG rod used for joining 2.5% Cr - 1% Mo creep resistant steels. These non-copper-coated rods are primarily used to fabricate and repair power piping, pressure vessels, heat exchangers and boilers in the power generation industry.

Classifications:	AWS A5.28:ER90S-B3, ASME SFA 5.28
Industry or Segmentation:	Process, Petrochemical, Power Generation

Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Elongation
Stress Relieved 1 hr 690 °C (1275 °F)	545 MPa (79 ksi)	649 MPa (94 ksi)	27 %
Stress Relieved 1 hr 705 °C (1300 °F)	524 MPa (76 ksi)	642 MPa (93 ksi)	25 %

Typical Weld Metal Analysis %

C	Mn	Si	S	P	Cr	Mo	X-Factor
0.08	0.60	0.50	0.009	0.009	2.40	0.90	< 15

Wire Composition %

C	Mn	Si	S	P	Ni	Cr	Mo	V	Cu	X-Factor
0.07-0.12	0.40-0.70	0.40-0.70	max 0.025	max 0.012	max 0.20	2.30-2.70	0.90-1.20	max 0.03	max 0.20	max 12

Tigrod ER90S-B9

Tigrod ER90S-B9 is a solid wire for TIG welding of creep resisting, modified 9% chromium steels, such as ASTM A335 Grade P91 or ASTM A213 T91. Tigrod products are embossed on opposite ends (E2) with the alloy identification.

Classifications:	AWS A5.28:ER90S-B9, ASME SFA 5.28
Industry or Segmentation:	Pipeline, Power Generation, Process, Petrochemical

Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Elongation
Stress Relieved 1 hr 705 °C (1300 °F)	524 MPa (76 ksi)	642 MPa (93 ksi)	25 %
Stress Relieved 1 hr 690 °C (1275 °F)	552 MPa (80 ksi)	649 MPa (94 ksi)	27 %

Typical Weld Metal Analysis %

C	Mn	Si	S	P	Cr	Mo	X-Factor
0.10	0.60	0.50	0.01	0.01	2.40	0.90	< 15

Wire Composition %

C	Mn	Si	S	P	Ni	Cr	Mo	V	Cu	X-Factor
0.08-0.12	0.35-1.20	0.15-0.30	0.15-0.30	max 0.010	max 0.80	8.25-9.35	0.85-1.15	0.18-0.25	max 0.10	max 12

OK Tigrod 1070

OK Tigrod 1070 is highly resistant to chemical attack and weathering. It is a relatively soft alloy that is very formable and it is used extensively in thin-gauge and foil products. It has good welding characteristics. One characteristic feature of the alloy is the bright finish obtained by anodising. Non-heat treatable.

Classifications Wire Electrode:	EN ISO 18273:S Al 1070 (Al99,7)
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Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Elongation
As welded	35 MPa (5 ksi)	75 MPa (11 ksi)	33 %

Typical Wire Composition %

Mn	Si	V	Al	Cu	Fe
0.01	0.02	0.01	99.80	0.01	0.13

OK Tigrod 1100

OK Tigrod 1100 is highly resistant to chemical attack and weathering. It is a relatively soft alloy that is very formable and it is used extensively in thin-gauge and foil products. It has good welding characteristics. One desirable characteristic of the alloy is the bright finish obtained by anodising. Non-heat treatable.

Classifications Wire Electrode:	EN ISO 18273:S Al 1100 (Al99,0Cu), SFA/AWS A5.10:R1100
Approvals:	CWB AWS A5.10/A5.10M:2012 (ER1100)

Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Elongation
As welded	30 MPa (4 ksi)	75 MPa (11 ksi)	35 %

Typical Wire Composition %

Cu	Be	Si+Fe	Zn
0.07	0.0001	0.55	0.01

OK Tigrod 1450

OK Tigrod 1450 is highly resistant to chemical attack and weathering. The alloy has a small addition of titanium, which has a grain-refining effect, which reduces cracking susceptibility. It has good welding characteristics. One characteristic feature of the alloy is the bright finishes obtained by anodising. Non-heat treatable.

Classifications Wire Electrode:	EN ISO 18273:S Al 1450 (Al99,5Ti)
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Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Elongation
As welded	40 MPa (6 ksi)	90 MPa (13 ksi)	35 %

Typical Wire Composition %

Mn	Si	Al	Cu	Fe	Ti	Zn
0.02	0.02	99.8	0.01	0.16	0.12	0.01

OK Tigrod 18.22

OK Tigrod 18.22 is suitable for welding aluminium alloys with a magnesium content of more than 3% where high strength is required. The alloy has a small addition of zirconium that has a fine graining effect that makes it less sensitive to hot cracking during solidification. Non-heat treatable.

Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Elongation
As welded	160 MPa (23 ksi)	330 MPa (48 ksi)	25 %

Typical Charpy V-Notch Properties

Condition	Testing Temperature	Impact Value
As welded	20 °C (68 °F)	26 J (19 ft-lb)

Typical Wire Composition %

Mn	Si	Al	Cu	Mg	Ti	Zr
0.8	0.06	92.93	0.03	5.8	0.03	0.1

OK Tigrod 4008

Alloy 4008 has controlled lower levels of impurities than those present in alloys 4010 and 356.0. It is a product that meets the chemistry requirements of AMS 4181. Alloys 356.0, A356.0 and A357.0 are typically used to manufacture sand and permanent mold castings. Alloy 4008 is excellent choice to join or repair these castings, and if needed, it can be heat treated to increased mechanical properties.

Classifications Wire Electrode:	EN ISO 18273:S Al Z (AlSi7MgTi)
Approvals:	CE EN 13479, DB 61.039.10, VdTÜV 12188

Approvals are based on factory location. Please contact ESAB for more information.

Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Elongation
As welded	55 MPa (8 ksi)	165 MPa (24 ksi)	18 %

Typical Wire Composition %

Mn	Si	Al	Cu	Fe	Mg	Ti	Zn
0.01	7.0	Rem	0.02	0.06	0.4	0.1	0.01

OK Tigrod 4043

OK Tigrod 4043 is one of the most widely used welding alloys. The alloy is used for welding AlMgSi - types and AlSi - alloys with up to 7% Silicon. Not recommended for anodizing. Non-heat treatable.

Classifications Wire Electrode:	EN ISO 18273:S Al 4043 (AlSi5), JIS Z 3232:A4043, SFA/AWS A5.10:R4043
Approvals:	CE EN 13479, DB 61.039.06, JIS JIS Z 3232, CWB AWS A5.10/A5.10M:2012 (ER4043)

Approvals are based on factory location. Please contact ESAB for more information.

Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Elongation
As welded	55 MPa (8 ksi)	124 MPa (18 ksi)	18 %

Typical Wire Composition %

Mn	Si	Al	Cu	Fe	Ti	Zn
0.01	5.00	Rem	0.02	0.14	0.01	0.01

OK Tigrod 4047

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

Classifications Wire Electrode:	EN ISO 18273:S Al 4047 (AlSi12), SFA/AWS A5.10:R4047
Approvals:	CWB AWS A5.10

Approvals are based on factory location. Please contact ESAB for more information.

Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Elongation
As welded	55 MPa (8 ksi)	124 MPa (18 ksi)	12 %

Typical Wire Composition %

Mn	Si	Al	Cu	Fe	Zn
0.01	11.5	Rem	0.01	0.18	0.01

OK Tigrod 5087

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.

Classifications Wire Electrode:	EN ISO 18273:S Al 5087 (AlMg4.5MnZr), SFA/AWS A5.10:R5087
Approvals:	CE EN 13479, DB 61.039.08, VdTÜV 05796

Approvals are based on factory location. Please contact ESAB for more information.

Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Elongation
As welded	130 MPa (19 ksi)	280 MPa (41 ksi)	30 %

Typical Charpy V-Notch Properties

Condition	Testing Temperature	Impact Value
As welded	20 °C (68 °F)	35 J (26 ft-lb)

Typical Wire Composition %

Mn	Si	Cr	Al	Cu	Fe	Mg	Ti	Zn	Zr
0.8	0.04	0.08	Rem	0.01	0.12	4.7	0.08	0.01	0.11

OK Tigrod 5183

OK Tigrod 5183 was developed to provide the highest strengths possible in the as welded condition of alloy AA 5083 and other similar high magnesium alloys. The more common OK Tigrod 5356 will typically fail to meet the as-welded tensile requirements of AA 5083. The alloy is typically utilised 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. The alloy is non-heat treatable.

Classifications Wire Electrode:	EN ISO 18273:S Al 5183 (AlMg4,5Mn0,7(A)), JIS Z 3232:A5183, SFA/AWS A5.10:R5183
Approvals:	CE EN 13479, JIS JIS Z 3232, DB 61.039.04, VdTÜV 04667, CWB A5.10/A5.10M:2012 ER5183, ABS R 5183, NAKS/HAKC 3.2MM

Approvals are based on factory location. Please contact ESAB for more information.

Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Elongation
As welded	140 MPa (20 ksi)	290 MPa (42 ksi)	25 %

Typical Charpy V-Notch Properties

Condition	Testing Temperature	Impact Value
As welded	20 °C (68 °F)	90 J (66 ft-lb)

Typical Wire Composition %

Mn	Si	Cr	Al	Cu	Fe	Mg	Ti	Zn
0.65	0.04	0.08	94.200	0.01	0.13	4.9	0.100	0.01

OK Tigrod 5356

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

Classifications Wire Electrode:	EN ISO 18273:S Al 5356 (AlMg5Cr(A)), JIS Z 3232:A5356, SFA/AWS A5.10:R5356
Approvals:	CE EN 13479, JIS JIS Z 3232, DB 61.039.02, VdTÜV 04665, CWB A5.10/A5.10M:2012 ER5356, ABS R 5356

Approvals are based on factory location. Please contact ESAB for more information.

Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Elongation
As welded	110 MPa (16 ksi)	235 MPa (34 ksi)	17 %

Typical Wire Composition %

Mn	Si	Cr	Al	Cu	Fe	Mg	Zn
0.13	0.05	0.12	94.560	0.01	0.13	4.9	0.01

OK Tigrod 5554

OK Tigrod 5554 is a solid aluminium rod with a content of 2.7% Mg. It is recommended for the welding of AlMg alloys like 5454. Typical applications include chemical storage tanks, automotive components like wheels and frame sections. The weld metal is not sensitive to stress corrosion cracking at elevated temperatures.

Classifications Wire Electrode:	EN ISO 18273:S Al 5554 (AlMg2,7Mn), SFA/AWS A5.10:R5554
Approvals:	CWB A5.10/A5.10:2012 ER5554

Approvals are based on factory location. Please contact ESAB for more information.

Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Elongation
As welded	110 MPa (16 ksi)	230 MPa (33 ksi)	17 %

Typical Wire Composition %

Mn	Si	Cr	Al	Cu	Fe	Mg	Ti	Zn
0.7	0.1	0.1	96	0.01	0.1	2.7	0.15	0.01

OK Tigrod 5556A

Bare welding rod suitable for welding aluminium alloys with up to approx. 5% Mg that are not age hardenable and alloys where a higher tensile strength is required. The corrosion resistance in a marine atmosphere is very good.

Classifications:	SFA/AWS A5.10:R5556, EN ISO 18273:S Al 5556A (AlMg5Mn)
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Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Elongation
As Welded	145 MPa (21 ksi)	295 MPa (43 ksi)	25 %

Typical Charpy V-Notch Properties

Condition	Testing Temperature	Impact Value
As Welded	20 °C (68 °F)	25 J (18 ft-lb)

OK Tigrod 5754

OK Tigrod 5754 is a solid aluminium rod with a content of 3% Mg. It is recommended for welding of Al-Mg alloys with less than 3% magnesium. The alloy has a relatively high strength and corrosion resistance.

Classifications Wire Electrode:	EN ISO 18273:S Al 5754 (AlMg3), SFA/AWS A5.10:R5754
Approvals:	VdTÜV 04759

Approvals are based on factory location. Please contact ESAB for more information.

Typical Tensile Properties			
Condition	Yield Strength	Tensile Strength	Elongation
As welded	110 MPa (16 ksi)	230 MPa (33 ksi)	23 %

Typical Wire Composition %								
Mn	Si	Cr	Al	Cu	Fe	Mg	Ti	Zn
0.26	0.03	0.15	96.19	0.01	0.09	3.1	0.13	0.01

OK Tigrod 16.95

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.

Classifications Wire Electrode:	SFA/AWS A5.9:ER307 mod, Werkstoffnummer :~1.4370, EN ISO 14343-A:W 18 8 Mn
Approvals:	CE EN 13479, DB 43.039.12, VdTÜV 05421

Approvals are based on factory location. Please contact ESAB for more information.

Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Elongation
As welded	450 MPa (65 ksi)	640 MPa (93 ksi)	41 %

Typical Charpy V-Notch Properties

Condition	Testing Temperature	Impact Value
As welded	20 °C (68 °F)	130 J (96 ft-lb)
As welded	-60 °C (-76 °F)	56 J (41 ft-lb)

Typical Wire Composition %

C	Mn	Si	Ni	Cr	Mo	Cu
0.08	7.0	0.9	8.1	18.7	0.20	0.10

OK Tigrod 308L

OK Tigrod 308L has a good general corrosion resistance. It also has a low carbon content which makes this alloy particularly recommended where 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. For joining of stainless steels of 18% Cr - 8% Ni-type with low carbon content and Nb-stabilized steels of the same type if the service temperature will not exceed 350°C. OK Tigrod 308L can also be used for welding of Cr-steels except in sulphur rich environments.

Classifications Wire Electrode:	Werkstoffnummer : ~1.4316, SFA/AWS A5.9:ER308L, EN ISO 14343-A:W 19 9 L
Approvals:	CE EN 13479, NAKS/HAKC 1.6MM-2.4MM, CWB: AWS A5.9 ER308L, DNV 308L (-60°C), VdTÜV 04269

Approvals are based on factory location. Please contact ESAB for more information.

Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Elongation
As welded	480 MPa (70 ksi)	610 MPa (88.5 ksi)	36 %

Typical Charpy V-Notch Properties

Condition	Testing Temperature	Impact Value
As welded	20 °C (68 °F)	170 J (125 ft-lb)
As welded	-80 °C (-112 °F)	135 J (99.5 ft-lb)
As welded	-196 °C (-321 °F)	80 J (59 ft-lb)

Typical Wire Composition %

C	Mn	Si	Ni	Cr	Mo	Cu	N	Ferrite FN
0.02	1.9	0.4	9.8	19.8	0.20	0.15	0.05	9

OK Tigrod 308LSi

Bare, corrosion-resistant, chromium-nickel rods for welding austenitic chromium-nickel alloys of the 18% Cr-8% Ni type. OK Tigrod 308LSi 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 higher silicon content improves the welding properties such as wetting. The alloy is widely used in the chemical and food-processing industries, as well as for pipes, tubes and boilers.

Classifications Wire Electrode:	SFA/AWS A5.9:ER308LSi, Werkstoffnummer :~1.4316, EN ISO 14343-A:W 19 9 L Si
Approvals:	CE EN 13479, NAKS/HAKC 2.0MM-3.2MM, BV 308L BT, DB 43.039.11, DNV 308L M, VdTÜV 05335

Approvals are based on factory location. Please contact ESAB for more information.

Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Elongation
As welded	480 MPa (70 ksi)	625 MPa (91 ksi)	37 %

Typical Charpy V-Notch Properties

Condition	Testing Temperature	Impact Value
As welded	20 °C (68 °F)	170 J (125 ft-lb)
As welded	-60 °C (-76 °F)	150 J (111 ft-lb)
As welded	-110 °C (-166 °F)	140 J (103 ft-lb)
As welded	-196 °C (-321 °F)	75 J (55 ft-lb)

Typical Wire Composition %

C	Mn	Si	Ni	Cr	Mo	Cu	Ferrite FN
0.01	1.8	0.9	10.5	19.9	0.15	0.10	9

OK Tigrod 308H

Bare, corrosion-resistant, chromium-nickel rods for welding austenitic chromium-nickel alloys of the 18% Cr-8% Ni type. OK Tigrod 308H has good general corrosion resistance. The alloy has a high carbon content, which makes it suitable for applications at higher temperatures. The alloy is used in the chemical and petrochemical industries for the welding of tubes, cyclones and boilers.

Classifications Wire Electrode:	SFA/AWS A5.9:ER308H, EN ISO 14343-A:W 19 9 H
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Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Elongation
As welded	350 MPa (51 ksi)	550 MPa (80 ksi)	30 %

Typical Wire Composition %

C	Mn	Si	Ni	Cr	Mo	Cu
0.05	1.9	0.5	9.2	19.8	0.15	0.1

OK Tigrod 309L

Bare corrosion resisting chromium-nickel welding rod for welding of similar steels of 244% Cr, 13% Ni types. The alloy is also used for welding of buffer layers on CMn steels and welding of 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 a good general corrosion resistance. When used for joining dissimilar materials the corrosion resistance is of secondary importance.

Classifications Wire Electrode:	Werkstoffnummer :~1.4332, SFA/AWS A5.9:ER309L, EN ISO 14343-A:W 23 12 L
Approvals:	CE EN 13479, CWB: AWS A5.9 ER309L, NAKS/HAKC 1.6MM, VdTÜV 10021

Approvals are based on factory location. Please contact ESAB for more information.

Typical Tensile Properties			
Condition	Yield Strength	Tensile Strength	Elongation
As welded	430 MPa (62 ksi)	590 MPa (85.5 ksi)	40 %

Typical Charpy V-Notch Properties		
Condition	Testing Temperature	Impact Value
As welded	20 °C (68 °F)	160 J (118 ft-lb)
As welded	-60 °C (-76 °F)	130 J (96 ft-lb)
As welded	-110 °C (-166 °F)	90 J (66 ft-lb)

Typical Wire Composition %								
C	Mn	Si	Ni	Cr	Mo	Cu	N	Ferrite FN
0.02	1.8	0.4	13.4	23.2	0.10	0.08	0.05	9

OK Tigrod 309LSi

Bare, corrosion-resistant, chromium-nickel welding rod for welding steels with similar composition, wrought and cast steels of the 23% Cr-12% Ni types. 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 309LSi has good general corrosion resistance. The higher silicon content improves the welding properties such as wetting.

Classifications Wire Electrode:	SFA/AWS A5.9:ER309LSi, Werkstoffnummer :~1.4332, EN ISO 14343-A:W 23 12 L Si
Approvals:	CE EN 13479, NAKS/HAKC 2.4mm, DB 43.039.17, VdTÜV 12489

Approvals are based on factory location. Please contact ESAB for more information.

Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Elongation
As welded	475 MPa (69 ksi)	635 MPa (92 ksi)	32 %

Typical Charpy V-Notch Properties

Condition	Testing Temperature	Impact Value
As welded	20 °C (68 °F)	150 J (111 ft-lb)
As welded	0 °C (32 °F)	150 J (111 ft-lb)
As welded	-60 °C (-76 °F)	150 J (111 ft-lb)
As welded	-110 °C (-166 °F)	130 J (96 ft-lb)

Typical Wire Composition %

C	Mn	Si	Ni	Cr	Mo	Cu	Ferrite FN
0.02	1.7	0.9	13.5	23.4	0.15	0.12	9

OK Tigrod 309MoL

Bare, corrosion-resistant rod of "309LMo" 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.

Classifications Wire Electrode:	SFA/AWS A5.9:ER309LMo (mod), EN ISO 14343-A:W 23 12 2 L
Approvals:	DNV 309MoL

Approvals are based on factory location. Please contact ESAB for more information.

Typical Tensile Properties			
Condition	Yield Strength	Tensile Strength	Elongation
As welded	500 MPa (72.5 ksi)	610 MPa (88.5 ksi)	30 %

Typical Charpy V-Notch Properties		
Condition	Testing Temperature	Impact Value
As welded	20 °C (68 °F)	130 J (96 ft-lb)
As welded	-60 °C (-76 °F)	65 J (48 ft-lb)

Typical Wire Composition %						
C	Mn	Si	Ni	Cr	Mo	Cu
0.01	1.5	0.4	14.6	21.4	2.5	0.12

OK Tigrod 310

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.

Classifications Wire Electrode:	SFA/AWS A5.9:ER310, EN ISO 14343-A:W 25 20
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Typical Tensile Properties			
Condition	Yield Strength	Tensile Strength	Elongation
As welded	390 MPa (56.5 ksi)	590 MPa (85.5 ksi)	43 %

Typical Charpy V-Notch Properties		
Condition	Testing Temperature	Impact Value
As welded	20 °C (68 °F)	175 J (129 ft-lb)
As welded	-196 °C (-321 °F)	60 J (44 ft-lb)

Typical Wire Composition %						
C	Mn	Si	Ni	Cr	Mo	Cu
0.10	1.6	0.4	20.7	25.8	0.10	0.05

OK Tigrod 312

Bare, corrosion-resistant, chromium-nickel welding rods for welding materials of the 29% Cr, 9% Ni types. OK Tigrod 312 has good oxidation resistance at high temperatures due to its high content of Cr. The alloy is widely used for joining dissimilar steels, especially if one of the components is fully austenitic, and for steels that are difficult to weld, i.e. machine components, tools and austenitic-manganese steels.

Classifications Wire Electrode:	SFA/AWS A5.9:ER312, EN ISO 14343-A:W 29 9
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Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Elongation
As welded	610 MPa (88.5 ksi)	770 MPa (112 ksi)	20 %

Typical Charpy V-Notch Properties

Condition	Testing Temperature	Impact Value
As welded	20 °C (68 °F)	50 J (37 ft-lb)

Typical Wire Composition %

C	Mn	Si	Ni	Cr	Mo	Cu
0.10	1.6	0.4	8.8	30.7	0.20	0.14

OK Tigrod 316L

Bare corrosion resisting chromium-nickel-molybdenum welding rods for welding of austenitic stainless alloys of 18% Cr - 8% Ni and 18% Cr - 10% Ni - 3% Mo-types. OK Tigrod 316L has a good general corrosion resistance, particularly against corrosion in acid and chlorinated environments. The alloy has a low carbon content which makes it particularly recommended where there is a 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 structures.

Classifications Wire Electrode:	Werkstoffnummer : ~1.4430, SFA/AWS A5.9:ER316L, EN ISO 14343-A:W 19 12 3 L
Approvals:	CE EN 13479, ABS ER 316L, NAKS/HAKC 2.0MM-3.2MM, BV 316L BT, CWB: AWS A5.9 ER316L, DNV 316L (-60 °C), VdTÜV 04270

Approvals are based on factory location. Please contact ESAB for more information.

Typical Tensile Properties			
Condition	Yield Strength	Tensile Strength	Elongation
As welded	470 MPa (68 ksi)	600 MPa (87 ksi)	32 %

Typical Charpy V-Notch Properties		
Condition	Testing Temperature	Impact Value
As welded	20 °C (68 °F)	175 J (129 ft-lb)
As welded	-60 °C (-76 °F)	130 J (96 ft-lb)
As welded	-110 °C (-166 °F)	120 J (88.5 ft-lb)
As welded	-196 °C (-321 °F)	75 J (55 ft-lb)

Typical Wire Composition %								
C	Mn	Si	Ni	Cr	Mo	Cu	N	Ferrite FN
0.01	1.7	0.4	12.0	18.2	2.6	0.10	0.04	7

OK Tigrod 316LSi

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 316LSi 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 a risk of intergranular corrosion. The higher silicon content improves the welding properties such as wetting. The alloy is widely used in the chemical and food-processing industries, as well as in shipbuilding and various types of architectural structure.

Classifications Wire Electrode:	SFA/AWS A5.9:ER316LSi, Werkstoffnummer :~1.4430, EN ISO 14343-A:W 19 12 3 L Si
Approvals:	CE EN 13479, NAKS/HAKC 2.0MM-2.4MM, BV 316L BT, DB 43.039.06, DNV 316L (-196°C), GL 4429 (I1), VdTÜV 05336

Approvals are based on factory location. Please contact ESAB for more information.

Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Elongation
As welded	500 MPa (72.5 ksi)	630 MPa (91 ksi)	33 %

Typical Charpy V-Notch Properties

Condition	Testing Temperature	Impact Value
As welded	20 °C (68 °F)	175 J (129 ft-lb)
As welded	-110 °C (-166 °F)	110 J (81 ft-lb)
As welded	-196 °C (-321 °F)	90 J (66 ft-lb)

Typical Wire Composition %

C	Mn	Si	Ni	Cr	Mo	Cu	Ferrite FN
0.01	1.8	0.9	12.2	18.4	2.60	0.12	7

OK Tigrod 317L

Bare, corrosion-resistant, chromium-nickel-molybdenum welding rods for welding austenitic stainless alloys of the 19% Cr, 9% Ni, 3% Mo types. OK Tigrod 317L has good resistance to general corrosion and pitting due to its high content of molybdenum. The alloy has a low carbon content which makes it particularly recommended when there is a risk of intergranular corrosion. The alloy is used in severe corrosion conditions such as in the petrochemical, pulp and paper industries.

Classifications Wire Electrode:	SFA/AWS A5.9:ER317L, EN ISO 14343-A:W18 15 3 L
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Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Elongation
As welded	390 MPa (56.5 ksi)	600 MPa (87 ksi)	45 %

Typical Charpy V-Notch Properties

Condition	Testing Temperature	Impact Value
As welded	20 °C (68 °F)	135 J (99.5 ft-lb)
As welded	-196 °C (-321 °F)	55 J (40.5 ft-lb)

Typical Wire Composition %

C	Mn	Si	Ni	Cr	Mo	Cu	N	Ferrite FN
0.01	1.4	0.4	13.6	18.9	3.6	0.05	0.05	7

OK Tigrod 318Si

Bare, corrosion-resistant, stabilised, chromium-nickel-molybdenum wire for welding Cr-Ni-Mo and Cr-Ni stabilised or non-stabilised steels. OK Tigrod 318Si has good general corrosion resistance. The alloy is stabilised with niobium to improve resistance to the intergranular corrosion of the weld metal. The higher silicon content improves the welding properties such as wetting. Due to stabilisation by niobium, this alloy is recommended for service temperatures up to 400°C.

Classifications Wire Electrode:	Werkstoffnummer :-1.4576, EN ISO 14343-A:W 19 12 3 Nb Si
Approvals:	CE EN 13479, DB 43.039.15, VdTÜV 09737

Approvals are based on factory location. Please contact ESAB for more information.

Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Elongation
As welded	460 MPa (67 ksi)	615 MPa (89 ksi)	35 %

Typical Charpy V-Notch Properties

Condition	Testing Temperature	Impact Value
As welded	20 °C (68 °F)	40 J (29.5 ft-lb)
As welded	-60 °C (-76 °F)	70 J (52 ft-lb)

Typical Wire Composition %

C	Mn	Si	Ni	Cr	Mo	Cu	Nb	Ferrite FN
0.05	1.7	0.8	11.9	18.8	2.60	0.10	0.50	6

OK Tigrod 347

Bare, corrosion-resistant, chromium-nickel rods for welding stabilised austenitic chromium-nickel alloys of the 18% Cr-8% Ni type. The rods are stabilised with niobium, which provides good resistance to the intergranular corrosion of the weld metal. Due to the niobium content, this alloy is recommended for use at higher temperatures.

Classifications Wire Electrode:	Werkstoffnummer : ~1.4551, SFA/AWS A5.9:ER347, EN ISO 14343-A:W 19 9 Nb
Approvals:	NAKS/HAKC 2.4mm

Approvals are based on factory location. Please contact ESAB for more information.

Typical Tensile Properties			
Condition	Yield Strength	Tensile Strength	Elongation
As welded	510 MPa (94 ksi)	655 MPa (95 ksi)	35 %

Typical Charpy V-Notch Properties		
Condition	Testing Temperature	Impact Value
As welded	20 °C (68 °F)	130 J (96 ft-lb)

Typical Wire Composition %								
C	Mn	Si	Ni	Cr	Mo	Cu	Nb	Ferrite FN
0.04	1.4	0.4	9.5	19.3	0.10	0.05	0.50	7

OK Tigrod 347Si

Bare, corrosion-resistant, chromium-nickel rods for welding austenitic chromium nickel alloys of the 18% Cr-8% Ni type. OK Tigrod 347Si has good general corrosion resistance. The alloy is stabilised with niobium to improve resistance to the intergranular corrosion of the weld metal. The higher silicon content improves the welding properties such as wetting. Due to the niobium content, this alloy is recommended for use at higher temperatures.

Classifications Wire Electrode:	SFA/AWS A5.9:ER347Si, Werkstoffnummer :-1.4551, EN ISO 14343-A:W 19 9 Nb Si
Approvals:	NAKS/HAKC 1.6MM-2.4MM, VdTÜV 09736

Approvals are based on factory location. Please contact ESAB for more information.

Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Elongation
As welded	440 MPa (64 ksi)	640 MPa (93 ksi)	35 %

Typical Charpy V-Notch Properties

Condition	Testing Temperature	Impact Value
As welded	20 °C (68 °F)	90 J (66 ft-lb)
As welded	-60 °C (-76 °F)	75 J (55 ft-lb)

Typical Wire Composition %

C	Mn	Si	Ni	Cr	Mo	Cu	Nb	Ferrite FN
0.04	1.7	0.7	9.8	19	0.1	0.10	0.60	7

OK Tigrod 385

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 in non-oxidising acids. The resistance to pitting and crevice corrosion is better than that of ordinary 18Cr-8Ni-Mo steels.

Classifications Wire Electrode:	SFA/AWS A5.9:ER385, EN ISO 14343-A:W 20 25 5 Cu L
Approvals:	VdTUV 05444 (IT)

Approvals are based on factory location. Please contact ESAB for more information.

Typical Tensile Properties			
Condition	Yield Strength	Tensile Strength	Elongation
As welded	340 MPa (49 ksi)	540 MPa (78 ksi)	37 %

Typical Charpy V-Notch Properties		
Condition	Testing Temperature	Impact Value
As welded	20 °C (68 °F)	120 J (88.5 ft-lb)

Typical Wire Composition %							
C	Mn	Si	Ni	Cr	Mo	Cu	N
0.01	1.7	0.4	25.0	20.0	4.4	1.5	0.05

OK Tigrod 2209

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 to intergranular corrosion, pitting and especially to stress corrosion. The alloy is used in a variety of applications across all industrial segments.

Classifications Wire Electrode:	SFA/AWS A5.9:ER2209, EN ISO 14343-A:W 22 9 3 N L
Approvals:	CE EN 13479, VdTÜV 05519, VdTÜV 06282, NAKS/HAKC 2.0MM-3.2MM, DB 43.039.19, VdTÜV 13010

Approvals are based on factory location. Please contact ESAB for more information.

Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Elongation
As welded	600 MPa (87 ksi)	765 MPa (111 ksi)	28 %
SHT 1050°C (1922°F) 0.5h	450 MPa (65 ksi)	730 MPa (106 ksi)	34 %

Typical Charpy V-Notch Properties

Condition	Testing Temperature	Impact Value
As welded	20 °C (68 °F)	100 J (74 ft-lb)
As welded	-10 °C (14 °F)	32 J (24 ft-lb)
As welded	-20 °C (-4 °F)	85 J (63 ft-lb)
As welded	-60 °C (-76 °F)	60 J (44 ft-lb)
SHT 1050°C (1922°F) 0.5h	20 °C (68 °F)	130 J (96 ft-lb)
SHT 1050°C (1922°F) 0.5h	-20 °C (-4 °F)	110 J (81 ft-lb)
SHT 1050°C (1922°F) 0.5h	-60 °C (-76 °F)	90 J (66 ft-lb)

Typical Wire Composition %

C	Mn	Si	Ni	Cr	Mo	N
0.01	1.5	0.5	8.5	22.7	3.2	0.17

OK Tigrod 2307

A continuous, solid, corrosion-resistant duplex wire for welding austenitic-ferritic stainless alloys of the 21% Cr-1% Ni or 23% Cr-4% Ni type. Lean duplex types are used for civil engineering, storage tanks, containers, etc. The welding should be done as for ordinary austenitic steels, but high amperages should be avoided and the interpass temperature should be maximum 150°C.

Classifications Wire Electrode:	EN ISO 14343-A:W 23 7 N L
Approvals:	CE EN 13479

Approvals are based on factory location. Please contact ESAB for more information.

Typical Tensile Properties			
Condition	Yield Strength	Tensile Strength	Elongation
As welded	560 MPa (81 ksi)	730 MPa (106 ksi)	32 %

Typical Charpy V-Notch Properties		
Condition	Testing Temperature	Impact Value
As welded	20 °C (68 °F)	160 J (118 ft-lb)
As welded	-60 °C (-76 °F)	60 J (44 ft-lb)

Typical Wire Composition %							
C	Mn	Si	Ni	Cr	Mo	Cu	N
0.01	1.4	0.5	7.1	23.2	3.20	0.2	0.15

OK Tigrod 2509

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 and paper industry, offshore and gas industry are areas of interest.

Classifications:	EN ISO 14343:W 25 9 4 NL
Approvals:	UDT DIN 8556 , VdTÜV 06593 (IT)

Approvals are based on factory location. Please contact ESAB for more information.

Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Elongation
As welded	660 MPa (96 ksi)	835 MPa (121 ksi)	37 %

Typical Charpy V-Notch Properties

Condition	Testing Temperature	Impact Value
As welded	-20 °C (-4 °F)	200 J (147.5 ft-lb)
As welded	-50 °C (-58 °F)	180 J (133 ft-lb)

Typical Wire Composition %

C	Mn	Si	Ni	Cr	Mo	N
0.01	0.4	0.4	9.4	25.2	3.9	0.24

OK Tigrod 410NiMo

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.

Classifications Wire Electrode:	EN ISO 14343-A:W 13 4
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Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Elongation
Stress relieved 2 hr 600 °C (1112 °F)	930 MPa (135 ksi)	1000 MPa (145 ksi)	17 %
Stress relieved 8 hr 600 °C (1112 °F)	770 MPa (112 ksi)	870 MPa (126 ksi)	22 %

Typical Charpy V-Notch Properties

Condition	Testing Temperature	Impact Value
Stress relieved 2 hr 600 °C (1112 °F)	0 °C (32 °F)	120 J (88.5 ft-lb)
Stress relieved 8 hr 600 °C (1112 °F)	0 °C (32 °F)	175 J (129 ft-lb)
Stress relieved 2 hr 600 °C (1112 °F)	-20 °C (-4 °F)	120 J (88.5 ft-lb)
Stress relieved 8 hr 600 °C (1112 °F)	-20 °C (-4 °F)	165 J (122 ft-lb)

Typical Wire Composition %

C	Mn	Si	Ni	Cr	Mo	Cu
0.02	0.5	0.4	4.2	12.4	0.6	0.1

OK Tigrod 430LNbTi

A ferritic stainless solid wire with low carbon content and excellent welding properties, 18 % Cr and stabilized with Nb and Ti, for welding similar and matching steels. OK Tigrod 430LNbTi is developed and designed for the automotive industry and used for production of exhaust systems. The wire should be used when there is a need for very good resistance to corrosion and thermal fatigue.

Classifications Wire Electrode:	Werkstoffnummer :1.4509 mod, EN ISO 14343-A:W Z 18 L Nb Ti
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Typical Wire Composition %

C	Mn	Si	Ni	Cr	Mo	Cu	Ti
0.01	0.5	0.5	0.2	18.5	0.06	0.10	0.20

OK Tigrod Ni-1

A bare nickel based rod alloyed with about 3% Ti for welding of high purity nickel (min 99.6 %Ni), ordinary wrought nickel and nickel with reduced C content. The weld metal can be used in a wide range of applications were the construction is working with corrosive media.

Classifications Wire Electrode:	SFA/AWS A5.14:ERNi-1, EN ISO 18274:S Ni 2061 (NiTi3)
Approvals:	VdTÜV 12659, VdTÜV 12665

Approvals are based on factory location. Please contact ESAB for more information.

Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Elongation
As welded	200 MPa (29 ksi)	410 MPa (59.5 ksi)	25 %

Typical Charpy V-Notch Properties

Condition	Testing Temperature	Impact Value
As welded	20 °C (68 °F)	130 J (96 ft-lb)

Typical Wire Composition %

C	Mn	Si	Ni	Al	Cu	Fe	Ti
0.01	0.4	0.5	96	0.06	0.01	0.04	3.1

OK Tigrod NiCr-3

Bare corrosion and heat-resisting Ni-Cr-Mo rods for welding of high alloyed heat-resisting and corrosion resisting materials, 9%Ni-steels and similar steels with high notch toughness at low temperatures. Also for joining of dissimilar metals of the types mentioned. The weld metal has very good mechanical properties at high and low temperatures. Good resistance to pitting and stress corrosion.

Classifications Wire Electrode:	SFA/AWS A5.14:ERNiCr-3, EN ISO 18274:S Ni 6082 (NiCr20Mn3Nb)
Approvals:	VdTÜV 12657, VdTÜV 12667

Approvals are based on factory location. Please contact ESAB for more information.

Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Elongation
As welded	400 MPa (58 ksi)	650 MPa (94 ksi)	40 %

Typical Charpy V-Notch Properties

Condition	Testing Temperature	Impact Value
As welded	20 °C (68 °F)	150 J (111 ft-lb)

Typical Wire Composition %

C	Mn	Si	Ni	Cr	Cu	Fe	Nb+Ta	Ti
0.04	3.0	0.2	72.50	20.0	0.01	1.3	2.5	0.35

OK Tigrod NiCrMo-3

Bare corrosion and heat-resisting Ni-Cr-Mo rods for welding of high alloyed heat-resisting and corrosion resisting materials, 9%Ni-steels and similar steels with high notch toughness at low temperatures. Also for joining of dissimilar metals of the types mentioned. The weld metal has very good mechanical properties at high and low temperatures. Good resistance to pitting and stress corrosion.

Classifications Wire Electrode:	SFA/AWS A5.14:ERNiCrMo-3, EN ISO 18274:S Ni 6625
Approvals:	DNV For NV1.5Ni up to NV9Ni, VdTÜV 12460

Approvals are based on factory location. Please contact ESAB for more information.

Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Elongation
As welded	550 MPa (80 ksi)	780 MPa (113 ksi)	40 %

Typical Charpy V-Notch Properties

Condition	Testing Temperature	Impact Value
As welded	-196 °C (-321 °F)	100 J (74 ft-lb)

Typical Wire Composition %

C	Mn	Si	Ni	Cr	Mo	Fe	Nb+Ta
0.02	0.04	0.06	64.8	22.7	8.6	0.3	3.5

OK Tigrod NiCrMo-4

OK Tigrod NiCrMo-4 is a corrosion and heat resistant, nickel-chromium rod for TIG welding of high alloyed steel, heat resistant steel, corrosion resistant steel, 9Ni steels and similar steels with high notch toughness at low temperatures. Good resistance to stress corrosion.

Classifications Wire Electrode:	SFA/AWS A5.14:ERNiCrMo-4, EN ISO 18274:S Ni 6276 (NiCr15Mo16Fe6W4)
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Typical Wire Composition %							
C	Mn	Si	Ni	Cr	Mo	Fe	W
0.01	0.45	0.05	Bal.	15.5	16.1	5.8	3.5

OK Tigrod NiCrMo-13

Bare Ni-Cr-Mo rods for welding of high alloyed Ni-base materials, 9% Ni steel and super austenitic steels of type 20Cr-25Ni with 4-6% Mo. Can also be used for welding carbon steel to Ni base steel. The weld metal has a very good toughness and is corrosion resistant over a wide range of applications in oxidizing and reducing media.

Classifications Wire Electrode:	SFA/AWS A5.14:ERNiCrMo-13, EN ISO 18274:S Ni 6059 (NiCr23Mo16)
Approvals:	VdTUV 12663 (MV)

Approvals are based on factory location. Please contact ESAB for more information.

Typical Tensile Properties			
Condition	Yield Strength	Tensile Strength	Elongation
As welded	500 MPa (72.5 ksi)	750 MPa (109 ksi)	40 %

Typical Charpy V-Notch Properties		
Condition	Testing Temperature	Impact Value
As welded	-110 °C (-166 °F)	120 J (88.5 ft-lb)

Typical Wire Composition %							
C	Mn	Si	Ni	Cr	Mo	Al	Fe
0.01	0.2	0.1	61.0	23.0	16.0	0.3	1.0

OK Tigrod NiCu-7

Bare nickel based welding rods alloyed with 30% Cu for welding of base materials of the same type. Can also be used to join these alloys to steel. The weld metal has good resistance to flowing seawater and has high strength and toughness over a rather wide temperature range. Has also good resistance to hydrofluoric acid, sulfuric acid, alkalis etc. Can be used for welding of similar types of base materials which are age-hardenable with small additions of Ti and Al.

Classifications Wire Electrode:	SFA/AWS A5.14:ERNiCu-7, EN ISO 18274:S Ni 4060 (NiCu30Mn3Ti)
Approvals:	VdTÜV 12661 (MV), VdTÜV 12669 (FP)

Approvals are based on factory location. Please contact ESAB for more information.

Typical Wire Composition %

C	Mn	Si	Ni	Al	Cu	Fe	Nb+Ta	Ti
0.03	3	0.3	64	0.03	28	2	< 0.5	2