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DURANICKEL®
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Nickel Alloy Welding **PRODUCT CATALOGUE**

www.specialmetalswelding.com



Special Metals Welding Products Company

is the world's leading developer and manufacturer of nickel based welding consumables for joining nickel alloys, high performance steels, cast irons and dissimilar metals as well as overlaying on steel for corrosion or erosion protection. It offers the industry the widest range of welding consumables, supported by over 100 years experience in nickel alloy technology. Product trademarks such as MONEL, INCO-WELD, NI-ROD, INCONEL, INCOLOY, NILO, and INCOFLUX have earned worldwide recognition as the standard for quality and product performance.

Special Metals Welding Products Company operates a fully integrated manufacturing facility that encompasses every step from acquisition of raw materials to packaging of the finished products.

This melting-pot-to-weld-puddle control provides complete traceability and control of product quality. Rigorous quality control is applied at every production step with all products manufactured in accordance with the ISO 9001:2015 quality system. Manufacture to ASME III NCA-3800, TUV, military and other specifications is undertaken upon specific request.

Support of this comprehensive product line is provided through a tradition of first class technical service and customer support made available through our extensive global distribution network. Direct access to additional information is available through our websites **www.pccenergy.com** and **www.specialmetals.com**.





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Data contained in this publication are typical of the products and properties described, but are not suitable for specifications.
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MONEL® Welding Electrode 190



MONEL Welding Electrode 190 is used for shielded-metal-arc welding of MONEL alloys 400, R-405, and K-500. It is also used for surfacing of steel. The weld metal is resistant to corrosion by sea water, salts, and reducing acids. The electrode is capable of producing weld deposits that meet stringent radiographic requirements. Although the electrode produces sound joints in MONEL alloy K-500, the weld metal has lower strength since, unlike the base metal, it is not age hardenable. Dissimilar-welding applications for MONEL Welding Electrode 190 include joints between MONEL nickel-copper alloys and carbon steel, low-alloy carbon steel, copper, and copper-nickel alloys.

The electrodes provide excellent operability for groove and fillet welding in the downhand position and the smaller diameter electrodes are also suitable for all position welding. Power supply: direct current, electrode positive.

Specifications

AWS A5.11 ENiCu-7 (UNS W84190)
 ASME II, Part C, SFA-5.11, ENiCu-7 (UNS W84190)
 ASME IX, F-No.42
 *DIN 1736 EL-NiCu30Mn (2.4366)
 *(EN) ISO 14172 – ENi4060 (NiCu30Mn3Ti)
 *Supply to these specifications available upon request
 For manufacture to ASME III (NCA-3800, NB-2400), MIL and other specifications please refer your inquiry to the Technical Department prior to order placement.

Approvals

VdTUV 2106.01
 Other approvals may be applicable. Please confirm details of current scope of approvals with the Technical Department prior to order placement.

Limiting Chemical Composition

Ni+Co.....	62.0-69.0	Cu.....	Remainder
C.....	0.15 max.	Al.....	0.75 max.
Mn.....	4.0 max.	Ti.....	1.0 max.
Fe.....	2.5 max.	P.....	0.02 max.
S.....	0.015 max.	Others.....	0.50 max.
Si.....	1.0 max.		

Typical Mechanical Properties

Tensile Strength, psi	70,000
MPa	480
Elongation, (4d) %	30

Available Product Forms – Supplied in 10lbs (4.54kg) hermetically sealed containers

Diameter	mm in	2.4 3/32	3.2 1/8	4.0 5/32	4.8 3/16
Length	mm in	305 12	356 14	356 14	356 14
Current (DC+)	A	55-75	75-110	110-150	150-190

Cu-Ni Welding Electrode

MONEL® Welding Electrode 187

MONEL Welding Electrode 187 is used for shielded-metal-arc welding of wrought or cast 70/30, 80/20, and 90/10 copper-nickel alloys. Like the base metals with which it is used, the weld metal resists fouling and corrosion in sea water and is useful for many marine and desalination applications. Dissimilar joints welded with the electrode include those between copper-nickel alloys and MONEL alloy 400 or Nickel 200.

The electrodes provide excellent operability for groove and fillet welding in the downhand position and the smaller diameter electrodes are also suitable for all position welding. Power supply: direct current, electrode positive.

Specifications

AWS A5.6 ECuNi (UNS W60715)
 ASME II, Part C, SFA-5.6, ECuNi (UNS W60715)
 ASME IX, F-No.34
 *DIN 1733 S CuNi30Mn (2.0838)
 *(EN) ISO ECu 7158 (CuNi30)
 *Supply to these specifications available upon request
 For manufacture to ASME III (NCA-3800, NB-2400), MIL and other specifications please refer your inquiry to the Technical Department prior to order placement.

Approvals

VdTUV 4530.01
 Other approvals may be applicable. Please confirm details of current scope of approvals with the Technical Department prior to order placement.

Limiting Chemical Composition	Ni+Co..... 29.0-33.0		Si..... 0.50 max.	
	C..... 0.05 max.	Mn..... 1.0-2.50		Cu..... Remainder
Fe..... 0.40-0.75	S..... 0.015 max.		Ti..... 0.50 max.	
			P..... 0.020 max.	
			Others..... 0.50 max.	

Typical Mechanical Properties	Tensile Strength, psi	
		50,000
	MPa	345
	Elongation, (4d) %	30

Available Product Forms – Supplied in 10lbs (4.54kg) hermetically sealed containers

Diameter	mm in	2.4 3/32	3.2 1/8	4.0 5/32	4.8 3/16
Length	mm in	305 12	356 14	356 14	356 14
Current (DC+)	A	60-85	70-120	100-145	130-190

Ni-Cr-Fe Welding Electrode

INCO-WELD® A Welding Electrode



INCO-WELD A Welding Electrode is used for shielded-metal-arc welding of INCOLOY alloys 800 and 800HT, INCONEL alloys 600 and 601, and nickel steels. The weld metal has excellent strength and oxidation resistance at high temperatures and retains impact resistance at cryogenic temperatures. The electrode is an exceptionally versatile product for dissimilar welding. It can be used on a variety of austenitic and ferritic steels and nickel alloys. Examples are combinations of stainless steels, carbon steels, INCONEL alloys, INCOLOY alloys, MONEL alloys, and copper-nickel alloys. Because of its versatility, INCO-WELD A Welding Electrode is especially useful for general maintenance welding of equipment exposed to strenuous service conditions.

The electrodes provide excellent operability for groove and fillet welding in the downhand position and the smaller diameter electrodes are also suitable for all position welding. Power supply: direct current, electrode positive.

Specifications

AWS A5.11 ENiCrFe-2 (UNS W86133)
 ASME II, Part C, SFA-5.11, ENiCrFe-2 (UNS W86133)
 ASME IX, F-No.43
 *DIN 1736 EL-NiCr15FeNb (2.4805)
 *(EN) ISO 14172 – ENi6092 (NiCr16Fe9NbMo)
 *Supply to these specifications available upon request
 For manufacture to ASME III (NCA-3800, NB-2400), MIL and other specifications please refer your inquiry to the Technical Department prior to order placement.

Approvals

VdTUV 2104.00
 Other approvals may be applicable. Please confirm details of current scope of approvals with the Technical Department prior to order placement.

Limiting Chemical Composition

Ni+Co.....	62.0 min.	Cu.....	0.50 max.
C.....	0.10 max.	Cr.....	13.0-17.0
Mn.....	1.0-3.5	Nb+Ta.....	0.5-3.0
Fe.....	12.0 max.	Mo.....	0.5-2.5
S.....	0.02 max.	P.....	0.03 max.
Si.....	0.75 max.	Others.....	0.50 max.

Typical Mechanical Properties

Tensile Strength, psi	80,000
MPa	350
Elongation, (4d) %	30

Available Product Forms – Supplied in 10lbs (4.54kg) hermetically sealed containers

Diameter	mm in	2.4 3/32	3.2 1/8	4.0 5/32	4.8 3/16
Length	mm in	229 12	356 14	356 14	356 14
Current (DC+)	A	45-70	65-95	95-130	125-165

INCO-WELD® A Welding Electrode

Ni-Cr-Fe Welding Electrode

INCONEL® Welding Electrode 152

INCONEL Welding Electrode 152 is used for shielded-metal-arc welding of INCONEL alloy 690. It has a higher chromium content which improves resistance to stress-corrosion cracking in the nuclear, pure water environment. It was designed to produce high quality welds in all positions. This electrode also produces corrosion-resistant overlays on most low-alloy and stainless steels. Other uses include applications requiring INCONEL alloy 690 "glass melters" used for the disposal of nuclear waste. It is also useful for dissimilar joints involving INCONEL and INCOLOY alloys, and stainless, low-alloy and carbon steels.

The electrodes provide excellent operability for groove and fillet welding in the downhand position and the smaller diameter electrodes are also suitable for all position welding. Power supply: direct current, electrode positive.

Specifications

AWS A5.11 ENiCrFe-7 (UNS W86152)

ASME II, Part C, SFA-5.11, ENiCrFe-7 (UNS W86152)

ASME IX, F-No.43

*(EN) ISO 14172 – ENi6152 (NiCr30Fe9Nb)

*Supply to these specifications available upon request

For manufacture to ASME III (NCA-3800, NB-2400), and other specifications please refer your inquiry to the Technical Department prior to order placement.

Approvals

Please confirm details of current scope of approvals with the Technical Department prior to order placement.

Limiting Chemical Composition	Ni+Co..... Remainder		Cu..... 0.50 max.
	C..... 0.05 max.		Cr..... 28.0-31.5
Mn..... 5.0 max.		Ti..... 0.50 max.	
Fe..... 7.0-12.0		Al..... 0.50 max.	
S..... 0.015 max.		P..... 0.03 max.	
Si..... 0.75 max.		Nb+Ta..... 1.0-2.5	
Mo..... 0.50 max.		Others..... 0.50 max.	

Typical Mechanical Properties	Tensile Strength, psi	80,000
	MPa	550
	Elongation, (4d) %	30

Available Product Forms – Supplied in 10lbs (4.54kg) hermetically sealed containers

Diameter	mm in	2.4 3/32	3.2 1/8	4.0 5/32	4.8 3/16
Length	mm in	229 12	356 14	356 14	356 14
Current (DC+)	A	45-65	75-100	95-130	125-165

Ni-Cr-Fe Welding Electrode

INCONEL® Welding Electrode 152M



INCONEL Welding Electrode 152M is used for the shielded-metal-arc welding of INCONEL alloy 690, and the overlaying of carbon steels and stainless steels to provide a nickel-chromium alloy corrosion resistant surface. The high chromium level provides excellent resistance to stress corrosion cracking in the nuclear, pure water environment. The product can also be used in applications requiring resistance to oxidizing acids. It is useful for dissimilar joints involving INCONEL and INCOLOY alloys. This product contains Boron and Zirconium to minimize the tendency for ductility-dip cracking.

Specifications

AWS A5.11 ENiCrFe-7 (UNS W86152)
Other specifications to follow.

Approvals

Please confirm details of current scope of approvals with the Technical Department prior to order placement.

Limiting Chemical Composition

Ni.....	Remainder	Co.....	0.12 max.
C.....	0.05 max.	Nb.....	1.0 to 2.5
Mn.....	5.0 max.	P.....	0.03 max.
Fe.....	7.0 to 12.0	Zr.....	0.02 max.
S.....	0.015 max.	B.....	0.005 max.
Si.....	0.75 max.	Mo.....	0.50 max.
Cu.....	0.50 max.	Others.....	0.50 max.
Cr.....	28.0 to 31.5		

Typical Mechanical Properties

Tensile Strength, psi	80,000
MPa	550
Elongation, (4d) %	30

Available Product Forms – Supplied in 10lbs (4.54kg) hermetically sealed containers

Diameter	mm in	2.4 3/32	3.2 1/8	4.0 5/32	4.8 3/16
Length	mm in	229 12	356 14	356 14	356 14
Current (DC+)	A	45-70	75-110	95-130	125-165

INCONEL® Welding Electrode 152M

Ni-Cr-Fe Welding Electrode

INCONEL® Welding Electrode 152MSS

INCONEL Welding Electrode 152MSS is used for the shielded-metal-arc welding of INCONEL alloy 690, and the overlaying of carbon steels and stainless steels to provide a nickel-chromium alloy corrosion resistant surface. The high chromium level provides excellent resistance to stress corrosion cracking in the nuclear, pure water environment. The 152MSS composition provides improved resistance to ductility dip cracking under conditions of high restraint over other similar products. The product can also be used in applications requiring resistance to oxidizing acids. It is useful for dissimilar joints involving INCONEL and INCOLOY alloys.

Specifications

The product is listed in AWS A5.11 as ENiCrFe-13. Other specifications will follow.
UNS No. W86155

Approvals

Please confirm details of current scope of approvals with the Technical Department prior to order placement.

Limiting Chemical Composition	Ni.....52.0 to 62.0		Nb.....2.1 to 4.0	
	Mn.....1.0 max.	Fe.....Remainder	P.....0.020 max.	Zr.....0.020 max.
S.....0.015 max	Si.....0.75 max	Mo.....3.0 to 5.0	Al.....0.50 max.	Ti.....0.50 max.
Cu.....0.30 max	Cr.....28.5 to 31.0	Others.....0.50 max.		
Co.....0.05 max.				
Co.....0.12 max.				

Typical Mechanical Properties	Tensile Strength, psi		80,000
		MPa	
	Elongation, (4d) %		30

Available Product Forms – Supplied in 10lbs (4.54kg) hermetically sealed containers

Diameter	mm in	2.4 3/32	3.2 1/8	4.0 5/32	4.8 3/16
Length	mm in	229 12	356 14	356 14	356 14
Current (DC+)	A	45-65	75-100	95-130	125-165





INCONEL® Welding Electrode 182

INCONEL Welding Electrode 182 is used for shielded-metal-arc welding of INCONEL alloys 600 and 601. The weld metal has excellent high-temperature strength and oxidation resistance and can meet stringent radiographic requirements.

Dissimilar welds for which the electrode are used include INCONEL alloys and INCOLOY alloys joined to carbon steels, stainless steels, nickel and MONEL alloys, MONEL alloys joined to carbon steels; nickel joined to stainless steels; and stainless steels joined to carbon steels.

The electrodes provide excellent operability for groove and fillet welding in the downhand position and the smaller diameter electrodes are also suitable for all position welding. Power supply: direct current, electrode positive.

Specifications

AWS A5.11 ENiCrFe-3 (UNS W86182)

ASME II, Part C, SFA-5.11, ENiCrFe-3 (UNS W86182)

ASME IX, F-No.43

*DIN 1736 EL-NiCr15FeMn (2.4807)

*(EN) ISO 14172 – ENi6182 (NiCr15Fe6Mn)

*Supply to these specifications available upon request

For manufacture to ASME III (NCA-3800, NB-2400), MIL, and other specifications please refer your inquiry to the Technical Department prior to order placement.

Approvals

VdTUV 2105.01

Other approvals may be applicable. Please confirm details of current scope of approvals with the Technical Department prior to order placement.

Limiting Chemical Composition

Ni+Co.....	59.0 min.	Cu.....	0.50 max.
C.....	0.10 max.	Cr.....	13.0-17.0
Mn.....	5.0-9.5	Ti.....	1.0 max.
Fe.....	10.0 max.	Nb+Ta.....	1.0-2.5
S.....	0.015 max.	P.....	0.030 max.
Si.....	1.0 max.	Others.....	0.50 max.

Typical Mechanical Properties

Tensile Strength, psi	80,000
MPa	550
Elongation, (4d) %	30

Available Product Forms – Supplied in 10lbs (4.54kg) hermetically sealed containers

Diameter	mm in	2.4 3/32	3.2 1/8	4.0 5/32	4.8 3/16
Length	mm in	229 12	356 14	356 14	356 14
Current (DC+)	A	40-65	65-95	95-125	125-165

Ni-Cr-Mo Welding Electrode

INCONEL® Welding Electrode 112

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INCONEL Welding Electrode 112 is used for shielded-metal-arc welding of INCONEL alloy 625, INCOLOY alloy 825, INCOLOY alloy 25-6MO, and other molybdenum-containing stainless steels. It is also used for surfacing of steel and for welding various corrosion-resistant alloys such as alloy 20. The weld metal has high strength at room and elevated temperatures and has exceptional corrosion resistance, including resistance to pitting, crevice corrosion, and polythionic acid stress-corrosion cracking. INCONEL Welding Electrode 112 is useful for many dissimilar joints involving INCONEL alloys, INCOLOY alloys, stainless steels, low-alloy steels, and carbon steels.

The electrodes provide excellent operability for groove and fillet welding in the downhand position and the smaller diameter electrodes are also suitable for all position welding. Power supply: direct current, electrode positive.

Specifications

AWS A5.11 ENiCrMo-3 (UNS W86112)

ASME II, Part C, SFA-5.11, ENiCrMo-3 (UNS W86112)

ASME IX, F-No.43

*DIN 1736 EL-NiCr20Mo9Nb (2.4621)

*(EN) ISO 14172 – ENi6625 (NiCr22Mo9Nb)

*Supply to these specifications available upon request

For manufacture to ASME III (NCA-3800, NB-2400), MIL and other specifications please refer your inquiry to the Technical Department prior to order placement.

Approvals

VdTUV 4450.00

Other approvals may be applicable. Please confirm details of current scope of approvals with the Technical Department prior to order placement.

Limiting Chemical Composition	Ni+Co		Si	
	55.0 min.	0.75 max.	0.75 max.	0.75 max.
C	0.10 max.	Cr	20.0-23.0	
Mn	1.0 max.	Nb+Ta	3.15-4.15	
Fe	7.0 max.	Mo	8.0-10.0	
S	0.02 max.	P	0.03 max.	
Cu	0.50 max.	Others	0.50 max.	

Typical Mechanical Properties	Tensile Strength, psi		110,000
			MPa
	Elongation, (4d) %		30

Available Product Forms – Supplied in 10lbs (4.54kg) hermetically sealed containers

Diameter	mm in	2.4 3/32	3.2 1/8	4.0 5/32	4.8 3/16
Length	mm in	229 12	356 14	356 14	356 14
Current (DC+)	A	40-65	65-90	90-125	125-160

Ni-Cr-Mo Welding Electrode

INCONEL® Welding Electrode 122



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INCONEL Welding Electrode 122 is used for shielded-metal-arc welding of INCONEL alloys 622 and 625, INCOLOY alloy 25-6MO, and INCOLOY alloy 825. This is an excellent dissimilar metal welding electrode that offers protection against preferential weld metal corrosion when used for joining molybdenum-containing stainless steels, INCONEL alloy C-276, and INCONEL alloy 625. It is a versatile welding product for the chemical, power, petroleum, and marine industries.

The electrodes provide excellent operability for groove and fillet welding in the downhand position and the smaller diameter electrodes are also suitable for all position welding. Power supply: direct current, electrode positive.

Specifications

AWS A5.11 ENiCrMo-10 (UNS W86022)
 ASME II, Part C, SFA-5.11, ENiCrMo-10 (UNS W86022)
 ASME IX, F-No.43
 *(EN) ISO 14172 – ENi6022 (NiCr21Mo13W3)
 *Supply to these specifications available upon request
 For manufacture to ASME III (NCA-3800, NB-2400), and other specifications please refer your inquiry to the Technical Department prior to order placement.

Approvals

Please confirm details of current scope of approvals with the Technical Department prior to order placement.

Limiting Chemical Composition

Ni	Remainder	Cu	0.50 max.
C	0.02 max.	Co	2.5 max.
Mn.....	1.0 max.	Cr	20.0-22.5
Fe.....	2.0-6.0	Mo	12.5-14.5
P	0.03 max.	V	0.35 max.
S.....	0.015 max.	W	2.5-3.5
Si	0.20 max.	Others	0.50 max.

Typical Mechanical Properties

Tensile Strength, psi	112,300
MPa	774
Elongation, (4d) %	39

Available Product Forms – Supplied in 10lbs (4.54kg) hermetically sealed containers

Diameter	mm in	2.4 3/32	3.2 1/8	4.0 5/32	4.8 3/16
Length	mm in	229 12	356 14	356 14	356 14
Current (DC+)	A	50-70	75-100	80-140	125-150

INCONEL® Welding Electrode 122

Ni-Cr-Mo Welding Electrode

INCO-WELD® C-276 Welding Electrode

INCO-WELD C-276 Welding Electrode is used for shielded-metal-arc welding of INCONEL alloy C-276 and other nickel-chromium-molybdenum alloys. It is also used for surfacing of steel. The weld metal has excellent corrosion resistance in many media and is especially resistant to pitting and crevice corrosion. INCO-WELD C-276 Welding Electrode is useful for various dissimilar joints involving nickel alloys, stainless steels, and low-alloy steels.

The electrodes provide excellent operability for groove and fillet welding in the downhand position and the smaller diameter electrodes are also suitable for all position welding. Power supply: direct current, electrode positive.

Specifications

AWS A5.11 ENiCrMo-4 (UNS W80276)

ASME II, Part C, SFA-5.11, ENiCrMo-4 (UNS W80276)

ASME IX, F-No.43

*DIN 1736 EL-NiMo15Cr15W (2.4887)

*(EN) ISO 14172 – ENi6276 (NiCr15Mo15Fe6W)

*Supply to these specifications available upon request

For manufacture to ASME III (NCA-3800, NB-2400), and other specifications please refer your inquiry to the Technical Department prior to order placement.

Approvals

Please confirm details of current scope of approvals with the Technical Department prior to order placement.

Limiting Chemical Composition	Ni+Co Remainder		Cu 0.50 max.
	C 0.02 max.		Co 2.5 max.
Mn 1.0 max.		Cr 14.5-16.5	
Fe 4.0-7.0		Mo 15.0-17.0	
P 0.04 max.		V 0.35 max.	
S 0.03 max.		W 3.0-4.5	
Si 0.2 max.		Others 0.50 max.	

Typical Mechanical Properties	Tensile Strength, psi	100,000
	MPa	690
	Elongation, (4d) %	25

Available Product Forms – Supplied in 10lbs (4.54kg) hermetically sealed containers

Diameter	mm in	2.4 3/32	3.2 1/8	4.0 5/32	4.8 3/16
Length	mm in	229 12	356 14	356 14	356 14
Current (DC+)	A	40-65	60-90	90-125	125-150





INCO-WELD® 686CPT® Welding Electrode

INCO-WELD 686CPT Welding Electrode is an all-position shielded-metal-arc welding electrode used to join duplex, super-duplex and super-austenitic stainless steels, as well as nickel alloys such as UNS N06059 and N06022, INCONEL alloy C-276, and INCONEL alloys 622, 625 and 686. INCO-WELD 686CPT Welding Electrode offers a level of corrosion-resistance attractive for welding operations in pollution control engineering as well as the chemical, process, petrochemical, oil and gas, and marine industries.

The electrodes provide excellent operability for groove and fillet welding in the downhand position and the smaller diameter electrodes are also suitable for all position welding. Power supply: direct current, electrode positive.

Specifications

AWS A5.11 ENiCrMo-14 (UNS W86686)
 ASME II, Part C, SFA-5.11, ENiCrMo-14 (UNS W86686)
 ASME IX, F-No.43
 *(EN) ISO 14172 – ENi6686 (NiCr21Mo16W4)
 *Supply to these specifications available upon request
 For manufacture to ASME III (NCA-3800, NB-2400), and other specifications please refer your inquiry to the Technical Department prior to order placement.

Approvals

Please confirm details of current scope of approvals with the Technical Department prior to order placement.

Limiting Chemical Composition

Nickel	Remainder	Si	0.25 max.
C	0.02 max.	Ti	0.25 max.
Mn.....	1.0 max.	Cr	19.0-23.0
Fe.....	5.0 max.	Mo	15.0-17.0
P	0.02 max.	W	3.0-4.4
S	0.02 max.	Others	0.50 max.
Cu.....	0.50 max.		

Typical Mechanical Properties

Tensile Strength, psi	110,000
MPa	760
Elongation, (4d) %	30

Available Product Forms – Supplied in 10lbs (4.54kg) hermetically sealed containers

Diameter	mm in	2.4 3/32	3.2 1/8	4.0 5/32	4.8 3/16
Length	mm in	229 12	356 14	356 14	356 14
Current (DC+)	A	40-65	65-95	95-125	125-165

Ni-Cr-Co-Mo Welding Electrode

INCONEL® Welding Electrode 117

INCONEL Welding Electrode 117 is used for shielded-metal-arc welding of INCONEL alloy 617. The weld metal has high strength, good metallurgical stability and excellent resistance to corrosion and high-temperature oxidation. INCONEL Welding Electrode 117 also gives good results in welding many dissimilar materials, especially for high-temperature applications. Examples are INCONEL alloys 600 and 601, INCOLOY alloys 800HT and 803, and cast alloys such as HK-40, HP and HP-45 Modified.

The electrodes provide excellent operability for groove and fillet welding in the downhand position and the smaller diameter electrodes are also suitable for all position welding. Power supply: direct current, electrode positive.

Specifications

AWS A5.11 ENiCrCoMo-1 (UNS W86117)
 ASME II, Part C, SFA-5.11, ENiCrCoMo-1 (UNS W86117)
 ASME IX, F-No.43
 *DIN 1736 EL-NiCr21Co12Mo (2.4628)
 *(EN) ISO 14172 – ENi6617 (NiCr22Co12Mo)
 *Supply to these specifications available upon request
 For manufacture to ASME III (NCA-3800, NB-2400), and other specifications please refer your inquiry to the Technical Department prior to order placement.

Approvals

VdTUV 926/012178
 Other approvals may be applicable. Please confirm details of current scope of approvals with the Technical Department prior to order placement.

Limiting Chemical Composition	Ni Remainder		Nb+Ta 1.0 max.	
	Cr	21.0-26.0	S	0.015 max.
Co.....	9.0-15.0	Si	0.75 max.	
Mo.....	8.0-10.0	Cu	0.50 max.	
C	0.05-0.15	P.....	0.03 max.	
Fe.....	5.0 max.	Others	0.50 max.	
Mn	0.30-2.5			

Typical Mechanical Properties	Tensile Strength, psi	90,000
		MPa
	Elongation, (4d) %	25

Available Product Forms – Supplied in 10lbs (4.54kg) hermetically sealed containers

Diameter	mm in	2.4 3/32	3.2 1/8	4.0 5/32	4.8 3/16
Length	mm in	229 12	356 14	356 14	356 14
Current (DC+)	A	40-60	75-100	90-130	125-150

Cast Iron Nickel Welding Electrode

NI-ROD® Welding Electrode



NI-ROD Welding Electrode is used for shielded-metal-arc welding of gray, ductile, and malleable cast irons. It is also used for joints between cast irons and carbon steel or low-alloy steel. The electrode is particularly useful for thin sections and for joints to be machined.

The electrodes provide excellent operability for groove and fillet welding in the downhand position and the smaller diameter electrodes are also suitable for all position welding. Power supply: direct current, electrode positive, or alternating current.

Specifications

AWS A5.15 ENi-CI (UNS W82001)

ASME II, Part C, SFA-5.15, ENi-CI (UNS W82001)

*(EN) ISO 1071 – E C Ni-CI

*Supply to these specifications available upon request

For manufacture to ASME III (NCA-3800, NB-2400), and other specifications please refer your inquiry to the Technical Department prior to order placement.

Approvals

Please confirm details of current scope of approvals with the Technical Department prior to order placement.

Typical Chemical Composition	Ni+Co	95.0	S	0.005
	C	1.0	Si	0.70
	Mn.....	0.20	Cu	0.10
	Fe.....	3.0		

Typical Mechanical Properties	Tensile Strength, psi	40,000
	MPa	275
	Elongation, (4d) %	4

Available Product Forms – Supplied in 10lbs (4.54kg) hermetically sealed containers

Diameter	mm in	2.4 3/32	3.2 1/8	4.0 5/32	4.8 3/16
Length	mm in	305 12	356 14	356 14	356 14
Current	A DC+ AC	50-80 60-90	80-130 90-140	100-170 140-190	120-190 150-200

NI-ROD® Welding Electrode



Cast Iron Nickel Welding Electrode

NI-ROD® 99X Welding Electrode

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NI-ROD® 99X Welding Electrode

NI-ROD 99X Welding Electrode is a premium quality consumable for cast iron, offering true out-of-position welding capability with an ease of operation rivalling carbon steel electrodes. 99X Electrode has a commercially pure nickel core, and is recommended for welding thin cast iron sections and for where optimum machinability of single-pass or single-layer weldments is required.

NI-ROD 99X Welding Electrode is used for joining gray iron, ductile iron, compacted graphite iron, malleable iron and various alloyed irons to themselves, to each other, to steels, to stainless steels, and to nickel alloys.

The electrodes provide excellent operability for groove and fillet welding in the downhand position and the smaller diameter electrodes are also suitable for all position welding. Power supply: direct current, electrode positive, or alternating current.

Specifications

For manufacture to ASME III (NCA-3800, NB-2400), and other specifications please refer your inquiry to the Technical Department prior to order placement.

Approvals

Please confirm details of current scope of approvals with the Technical Department prior to order placement.

Limiting Chemical Composition	Ni	85.0 min.	S.....	0.03 max.
	C	2.0 max.	Si	2.0 max.
	Mn.....	2.5 max.	Cu	2.5 max.
	Fe.....	8.0 max.		

Typical Mechanical Properties	Tensile Strength, psi	55,000
	MPa	380
	Elongation, (4d) %	8

Available Product Forms – Supplied in 10lbs (4.54kg) hermetically sealed containers

Diameter	mm in	2.4 3/32	3.2 1/8	4.0 5/32	4.8 3/16
Length	mm in	305 12	356 14	356 14	356 14
Current	A DC+ AC	50-80 60-90	80-130 90-140	100-170 140-190	120-190 150-200

Cast Iron Ni-Fe Welding Electrode

NI-ROD® 55 Welding Electrode



NI-ROD 55 Welding Electrode is used for shielded-metal-arc welding of gray, ductile, malleable, and Ni-Resist cast irons. It is also used for welding cast irons to various wrought materials, including carbon steels, low-alloy steels, and nickel alloys. The electrode is especially useful for welding heavy sections and high-phosphorus irons.

The electrodes provide excellent operability for groove and fillet welding in the downhand position and the smaller diameter electrodes are also suitable for all position welding. Power supply: direct current, electrode positive, or alternating current.

Specifications

AWS A5.15 ENiFe-C1 (UNS W82002)
 ASME II, Part C, SFA-5.15, ENiFe-C1 (UNS W82002)
 *(EN) ISO 1071 – E C NiFe-C1
 *Supply to these specifications available upon request

Approvals

Please confirm details of current scope of approvals with the Technical Department prior to order placement.

Typical Chemical Composition

Ni+Co.....	53.0	S.....	0.005
C.....	1.20	Si	0.70
Mn.....	0.30	Cu.....	0.10
Fe.....	45.0		

Typical Mechanical Properties

Tensile Strength, psi	57,000-84,000
MPa	390-580
Elongation, (4d) %	6-13

Available Product Forms – Supplied in 10lbs (4.54kg) hermetically sealed containers

Diameter	mm in	2.4 3/32	3.2 1/8	4.0 5/32	4.8 3/16
Length	mm in	305 12	356 14	356 14	356 14
Current	A DC+ AC	50-70 55-65	75-95 70-85	110-130 110-125	135-170 135-150

NI-ROD® 55 Welding Electrode



Cast Iron Ni-Fe Welding Electrode

NI-ROD® 55X Welding Electrode

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NI-ROD® 55X Welding Electrode

NI-ROD 55X Welding Electrode is a premium quality consumable for cast iron, offering true out-of-position welding capability with an ease of operation rivalling carbon steel electrodes. NI-ROD 55X Electrode has a nickel-iron core wire to produce strong welds with low residual shrinkage stresses, and is well suited for welding thick sections. It has high tolerance for phosphorus and other contaminants in the base metal, so high strength, good ductile welds can be made in low-grade cast irons.

NI-ROD 55X Welding Electrode is used for joining gray iron, ductile iron, compacted graphite iron, malleable iron and various alloyed irons to themselves, to each other, to steels, to stainless steels, and to nickel alloys.

The electrodes provide excellent operability for groove and fillet welding in the downhand position and the smaller diameter electrodes are also suitable for all position welding. Power supply: direct current, electrode positive, or alternating current.

Specifications

For manufacture to ASME III (NCA-3800, NB-2400), and other specifications please refer your inquiry to the Technical Department prior to order placement.

Approvals

Please confirm details of current scope of approvals with the Technical Department prior to order placement.

Limiting Chemical Composition	Ni	45-60	S	0.30 max.
	C	2.0 max.	Si	2.0 max.
	Mn	2.5 max.	Cu.....	2.5 max.
	Fe.....	Remainder		

Typical Mechanical Properties	Tensile Strength, psi	50,000-80,000
	MPa	340-550
	Elongation, (4d) %	15-20

Available Product Forms – Supplied in 10lbs (4.54kg) hermetically sealed containers

Diameter	mm in	2.4 3/32	3.2 1/8	4.0 5/32	4.8 3/16
Length	mm in	356 14	356 14	356 14	356 14
Current	A DC+ AC	45-70 50-65	75-95 70-85	110-130 110-125	135-170 135-150



Nickel Filler Metal 61

Nickel Filler Metal 61 is used for gas-tungsten-arc, gas-metal-arc, and submerged-arc welding of Nickel 200 and 201. It is also used for surfacing of steel. INCOFLUX NT100 Submerged Arc Flux is used with the submerged-arc process. The reaction of titanium with carbon maintains a low level of free carbon and enables the filler metal to be used with Nickel 201. The weld metal has good corrosion resistance, particularly in alkalis.

Dissimilar-welding applications for Nickel Filler Metal 61 include joining Nickel 200 and 201 to stainless steels, carbon steels, INCONEL alloys, INCOLOY alloys, copper-nickel alloys, and MONEL alloys. It is also used for joining MONEL alloys and copper-nickel alloys to carbon steels, and for joining copper-nickel alloys to INCONEL and INCOLOY alloys.

Specifications

- AWS A5.14 ERNi-1 (UNS N02061)
- ASME II, Part C, SFA-5.14, ERNi-1 (UNS N02061)
- ASME IX, F-No.41
- *BS 2901 Part 5 (NA32)
- *DIN 1736 SG-NiTi4 (2.4155)
- *(EN) ISO 18274 – SNi2061 (NiTi3)

*Supply to these specifications available upon request
 For manufacture to ASME III (NCA-3800, NB-2400), MIL, Rolls Royce, AMS and other specifications please refer your inquiry to the Technical Department prior to order placement.

Approvals

VdTUV 1284: 2108.01
 Other approvals may be applicable. Please confirm details of current scope of approvals with the Technical Department prior to order placement.

Limiting Chemical Composition

Ni+Co.....	93.0 min.	Si	0.75 max.
C.....	0.15 max.	Al	1.5 max.
Mn.....	1.0 max.	Ti	2.0-3.5
Fe.....	1.0 max.	P.....	0.030 max.
S.....	0.015 max.	Others	0.50 max.
Cu.....	0.25 max.		

Typical Mechanical Properties

Tensile Strength, psi	55,000
MPa	380
Elongation, (4d) %	20

Filler metals available on spool and in cut straight lengths in a variety of sizes selected from the following diameters:

Available Product Forms

mm in	0.8 0.030	0.9 0.035	1.0 0.040	1.14 0.045	1.2 0.047	1.6 0.062	2.4 0.093	3.2 0.125
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Straight Lengths - 915 mm (36 in.) or 1000 mm (39 in.)

MONEL® Filler Metal 60

MONEL Filler Metal 60 is used for gas-tungsten-arc, gas-metal-arc, and submerged-arc welding of MONEL alloys 400, R404, and K-500. It is also used for surfacing of steel by the gas-metal-arc or submerged-arc processes. For certain gas-metal-arc conditions, a barrier layer of Nickel Filler Metal 61 is recommended. Submerged-arc welding with MONEL Filler Metal 60 is done with INCOFLUX NT110 Submerged Arc Flux.

Weld metal deposited by MONEL Filler Metal 60 has properties similar to those of MONEL alloy 400. It has good strength and resists corrosion in many media, including sea water, salts, and reducing acids. The weld metal is not age hardenable and when used to join MONEL alloy K-500 has lower strength than the base metal.

Specifications

AWS A5.14 ERNiCu-7 (UNS N04060)
 ASME II, Part C, SFA-5.14, ERNiCu-7 (UNS N04060)
 ASME IX, F-No.42
 *BS 2901 (NA33)
 *DIN 1736 SG-NiCu30MnTi (2.4377)
 *(EN) ISO 18274 – SNi4060 (NiCu30Mn3Ti)
 *Supply to these specifications available upon request
 For manufacture to ASME III (NCA-3800, NB-2400), MIL and other specifications please refer your inquiry to the Technical Department prior to order placement.

Approvals

VdTUV 2114.01; 2165.01
 Other approvals may be applicable. Please confirm details of current scope of approvals with the Technical Department prior to order placement.

Limiting Chemical Composition	Ni+Co..... 62.0-69.0		Cu..... Remainder	
	C.....	0.15 max.	Al.....	1.25 max.
Mn.....	4.0 max.	Ti.....	1.5-3.0	
Fe.....	2.5 max.	P.....	0.020 max.	
S.....	0.015 max.	Others.....	0.50 max.	
Si.....	1.25 max.			

Typical Mechanical Properties	Tensile Strength, psi	
		70,000
	MPa	480
	Elongation, (4d) %	
	30	

Filler metals available on spool and in cut straight lengths in a variety of sizes selected from the following diameters:

Available Product Forms

mm in	0.8 0.030	0.9 0.035	1.0 0.040	1.14 0.045	1.2 0.047	1.6 0.062	2.4 0.093	3.2 0.125
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Straight Lengths - 915 mm (36 in.) or 1000 mm (39 in.)





MONEL® Filler Metal 67

MONEL Filler Metal 67 is used for oxyacetylene, gas-tungsten-arc, gas-metal-arc, and submerged-arc welding of MONEL alloy 450 (70/30 Copper-Nickel) and other copper-nickel alloys. It is used for surfacing of steel if a barrier layer of Nickel Filler Metal 61 is first applied. If applied by the submerged-arc process, MONEL Filler Metal 60 can be used for the barrier layer. Submerged-arc welding with MONEL Filler Metal 67 is done with INCOFLUX NT110 Submerged Arc Flux.

The copper-nickel weld metal has excellent resistance to corrosion in sea water, and is widely used for marine and desalination applications.

Dissimilar-welding applications for MONEL Filler Metal 67 are joints between MONEL alloys or Nickel 200 and copper-nickel alloys.

Specifications

AWS A5.7 ERCuNi (UNS C71581)

ASME II, Part C, SFA-5.7, ERCuNi (UNS C71581)

ASME IX, F-No.34

*BS 2901 (C18)

*DIN 1733 SG-CuNi30Fe (2.0837)

*(EN) ISO SCu 7158 (CuNi30)

*Supply to these specifications available upon request

For manufacture to ASME III (NCA-3800, NB-2400), MIL, and other specifications please refer your inquiry to the Technical Department prior to order placement.

Approvals

VdTUV 4528.00; 4529.00

Other approvals may be applicable. Please confirm details of current scope of approvals with the Technical Department prior to order placement.

Limiting Chemical Composition

Ni+Co.....	29.0-32.0	Si	0.25 max.
C.....	0.04 max.	Ti	0.20-0.50
Mn.....	1.0 max.	P.....	0.02 max.
Fe.....	0.40-0.75	Pb.....	0.02 max.
S.....	0.01 max.	Others	0.50 max.
Cu.....	Remainder		

Typical Mechanical Properties

Tensile Strength, psi	50,000
MPa	345
Elongation, (4d) %	30

Filler metals available on spool and in cut straight lengths in a variety of sizes selected from the following diameters:

Available Product Forms

mm	0.8	0.9	1.0	1.14	1.2	1.6	2.4	3.2
in	0.030	0.035	0.040	0.045	0.047	0.062	0.093	0.125

Straight Lengths - 915 mm (36 in.) or 1000 mm (39 in.)



Ni-Cr Filler Metal

INCONEL® Filler Metal 72

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INCONEL® Filler Metal 72

INCONEL Filler Metal 72 is typically used for the gas-tungsten-arc welding of INCONEL alloy 671 cladding on INCO-CLAD® 671/800HT Clad Tubing. INCONEL Filler Metal 72 is also used for the overlaying of carbon steels and stainless steels to provide a nickel-chromium alloy corrosion resistant surface. The high chromium level provides excellent resistance to high temperature corrosion, including fuel-ash atmospheres containing sulfur and vanadium.

Specifications

AWS A5.14 ERNiCr-4 (UNS N06072)

ASME II, PART C, SFA-5.14, ERNiCr-4 (UNS N06072)

ASME IX, F-No.43

*(EN) ISO 18274 – SNi6072 (NiCr44Ti)

*Supply to these specification available upon request

For manufacture to ASME III (NCA-3800, NB-2400), and other specifications

please refer your inquiry to the Technical Department prior to order placement.

Approvals

Approvals may be applicable. Please confirm details of current scope of approvals with the Technical Department prior to order placement.

Typical Chemical Composition (%)	Ni.....	55	S.....	0.008
	Cr.....	44	Si.....	0.1
	Ti.....	0.6	Cu.....	0.2
	Mn.....	0.1	C.....	0.01
	Fe.....	0.2		

Typical Mechanical Properties	Tensile Strength, psi	100,000
	MPa	690
	Elongation, (4d) %	30

Filler metals available on spool and in cut straight lengths in a variety of sizes selected from the following diameters:

Available Product Forms

mm	0.8	0.9	1.0	1.14	1.2	1.6	2.4	3.2
in	0.030	0.035	0.040	0.045	0.047	0.062	0.093	0.125

Straight Lengths - 915 mm (36 in.) or 1000 mm (39 in.)



INCONEL® Filler Metal 72M

INCONEL Filler Metal 72M is used for the overlay cladding of ferrous materials used in high temperature applications, and the welding of nickel-chromium-iron alloy (ASTM B163, B166, B167, and B168 having UNS number N06690) to itself, and to steels, and for welding IN657 and INCO clad 671/800H, using the GTAW, GMAW, and PAW processes. Welds made with this composition are particularly resistant to high temperature oxidation, carburization, and sulfidation, and to reducing-sulfidizing and metal dusting environments.

Specifications

AWS A5.14 ERNiCr-7 (UNS N06073)
 ASME II, PART C, SFA5.14, ERNiCr-7 (UNS N06073)

Approvals

Please confirm details of current scope of approvals with the technical Department prior to order placement.

Typical Chemical Composition (%)

Ni.....	55	Ti.....	0.25 - 0.75
Cr.....	36.0 - 39.0	Nb + Ta.....	0.25 - 1.0
Co.....	1.0	B.....	0.003
Mn.....	0.50	C.....	0.03
Fe.....	1.0	P.....	0.02
Si.....	0.30	S.....	0.015
Mo.....	0.50	Cu.....	0.30
Al.....	0.75 - 1.20	Zr.....	0.02
Others.....	0.50		

Typical Mechanical Properties

Tensile Strength, psi	100,000
MPa	690
Elongation, (4d) %	30

Filler metals available on spool and in cut straight lengths in a variety of sizes selected from the following diameters:

Available Product Forms

mm	0.8	0.9	1.0	1.14	1.2	1.6	2.4	3.2
in	0.030	0.035	0.040	0.045	0.047	0.062	0.093	0.125

Straight Lengths - 915 mm (36 in.) or 1000 mm (39 in.) • Spool weight - 13.6 kg (30lb)

INCONEL® Filler Metal 72M

INCONEL® Filler Metal 82

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INCONEL® Filler Metal 82

INCONEL Filler Metal 82 is used for gas-tungsten-arc, gas-metal-arc and submerged-arc welding of INCONEL alloys 600, 601 and 690, INCOLOY alloys 800 and 800HT, and INCOLOY alloy 330. It is also used for surfacing of steel. INCOFLUX NT100 is used for submerged arc groove welding with this wire. For submerged-arc surfacing INCOFLUX NT100 is suitable.

Weld metal deposited by INCONEL Filler Metal 82 has high strength and good corrosion resistance, including oxidation resistance and creep-rupture strength at elevated temperatures.

Dissimilar-welding applications include joining INCONEL alloys, INCOLOY alloys and INCOLOY alloy 330 to nickel, MONEL alloys, stainless steels, and carbon steels. It is also used to join stainless steels to nickel alloys and carbon steels.

Specifications

AWS A5.14 ERNiCr-3 (UNS N06082)

ASME II, Part C, SFA-5.14, ERNiCr-3 (UNS N06082)

ASME IX, F-No.43

*BS 2901 (NA35)

*DIN 1736 SG-NiCr20Nb (2.4806)

*(EN) ISO 18274 – S Ni6082 (NiCr20Mn3Nb)

*Supply to these specifications available upon request

For manufacture to ASME III (NCA-3800, NB-2400), MIL, Rolls Royce, AMS and other specifications please refer your inquiry to the Technical Department prior to order placement.

Approvals

VdTUV 2110.01; 2111.01; 2117.01; 2118.01

Other approvals may be applicable. Please confirm details of current scope of approvals with the Technical Department prior to order placement.

Limiting Chemical Composition (%)	Ni+Co..... 67.0 min.		Si..... 0.50 max.	
	C..... 0.10 max.	Mn..... 2.5-3.5		Cr..... 18.0-22.0
Fe..... 3.0 max.	S..... 0.015 max.		Ti..... 0.75 max.	
Cu..... 0.50 max.	Nb+Ta..... 2.0-3.0		P..... 0.030 max.	
	Others..... 0.50 max.			

Typical Mechanical Properties	Tensile Strength, psi		80,000	
		MPa		550
	Elongation, (4d) %		30	

Filler metals available on spool and in cut straight lengths in a variety of sizes selected from the following diameters:

Available Product Forms

mm in	0.8 0.030	0.9 0.035	1.0 0.040	1.14 0.045	1.2 0.047	1.6 0.062	2.4 0.093	3.2 0.125
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Straight Lengths - 915 mm (36 in.) or 1000 mm (39 in.)



INCONEL® Filler Metal 740H

INCONEL® Filler Metal 740H is used for the Gas-Metal-Arc and Gas-Tungsten-Arc welding of INCONEL alloy 740 and 740H. Filler Metal 740H (a Ni-Cr-Co alloy) is age-hardenable by the precipitation of a gamma prime second phase. The alloy is intended for service in high temperature applications for the ultra-supercritical power boilers and diesel engine exhaust valve markets. The alloy has excellent resistance to coal ash corrosion.

Specifications

AWS A5.14, ERNiCrCo-1 (Proposed)
 ASME II, SFA5.14, ERNiCrCo-1 (Proposed)
 UNS N07740

Approvals

Approvals may be applicable. Please confirm details of current scope of approvals with the Technical Department prior to order placement.

Limiting

Chemical Composition

Ni.....	Remainder	Fe.....	0.5 max.
Cr.....	23.5 to 25.5	Si.....	1.0 max
Co.....	15.0 to 22.0	Ti.....	0.2 to 2.0
C.....	0.005 to 0.080	Cu.....	0.50 max
Mn.....	1.0 max.	Al.....	0.5 to 2.5
Fe.....	3.0 max.	Nb.....	0.50 to 2.5
P.....	0.03 max.	Mo.....	2.0 max
Others.....	0.50 max.		

Typical Mechanical Properties

Tensile Strength, psi	160,000
MPa	1100
Elongation, (4d) %	25

Solution Anneal at 2100 F/30 minutes, Water Quench and Aged at 1472 F/16 hours, air cooled

Filler metals available on spool and in cut straight lengths in a variety of sizes selected from the following diameters:

Available Product Forms

mm in	0.8 0.030	0.9 0.035	1.0 0.040	1.14 0.045	1.2 0.047	1.6 0.062	2.4 0.093	3.2 0.125
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Straight Lengths - 915 mm (36 in.) or 1000 mm (39 in.)

INCONEL® Filler Metal 740H

INCONEL® Filler Metal 622

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INCONEL® Filler Metal 622

INCONEL Filler Metal 622 is used for gas-tungsten-arc and gas-metal-arc welding of INCONEL alloys 22 and 625, INCOLOY alloy 25-6MO, and INCOLOY alloy 825. This is also an excellent dissimilar metal welding product that offers protection against preferential weld metal corrosion when used for joining molybdenum-containing stainless steels, INCONEL alloy C-276, and INCONEL alloy 625. The high chromium content, along with the tungsten and molybdenum, give good resistance to pitting and crevice corrosion. INCONEL Filler Metal 622 is useful for many dissimilar joints involving INCONEL and INCOLOY alloys, and carbon, low-alloy and stainless steels. Submerged arc welding and overlaying can be done with INCOFLUX NT120 Submerged Arc Flux.

Specifications

AWS A5.14 ERNiCrMo-10 (UNS N06022)
 ASME II, Part C, SFA-5.14, ERNiCrMo-10 (UNS N06022)
 ASME IX, F-No.43
 *(EN) ISO 1827 4 – SNi6022 (NiCr21Mo13Fe4W3)
 *Supply to these specifications available upon request
 For manufacture to ASME III (NCA-3800, NB-2400), and other specifications please refer your inquiry to the Technical Department prior to order placement.

Approvals

VdTUV - 926/032088
 Other approvals may be applicable. Please confirm details of current scope of approvals with the Technical Department prior to order placement.

Limiting Chemical Composition

Ni	Remainder	Cu	0.50 max.
C	0.015 max.	Co	2.5 max.
Mn.....	0.50 max.	Cr.....	20.0-22.5
Fe.....	2.0-6.0	Mo.....	12.5-14.5
P	0.02 max.	V.....	0.35 max.
S.....	0.01 max.	W.....	2.5-3.5
Si.....	0.08 max.	Others.....	0.50 max.

Typical Mechanical Properties

Tensile Strength, psi	100,000
MPa	690
Elongation, (4d) %	40

Filler metals available on spool and in cut straight lengths in a variety of sizes selected from the following diameters:

Available Product Forms

mm in	0.8 0.030	0.9 0.035	1.0 0.040	1.14 0.045	1.2 0.047	1.6 0.062	2.4 0.093	3.2 0.125
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Straight Lengths - 915 mm (36 in.) or 1000 mm (39 in.)



INCONEL® Filler Metal 625

INCONEL Filler Metal 625 is used for gas-metal-arc and gas-tungsten-arc welding of INCONEL alloy 625, INCOLOY alloy 825, INCOLOY alloy 25-6MO, and a range of high alloy austenitic and super austenitic stainless steels. It is also used for surfacing of steel, for welding 9% Ni steels, and for welding various corrosion-resistant alloys such as alloy 20. INCONEL Filler Metal 625 can be used for joining and overlaying with INCOFLUX NT100 Submerged Arc Flux. The weld metal has high strength over a broad temperature range and has resistance to localized attack such as pitting and crevice corrosion.

INCONEL Filler Metal 625 is useful for many dissimilar joints involving INCONEL and INCOLOY alloys, carbon steels, low-alloy steels, and stainless steels.

Specifications

AWS A5.14 ERNiCrMo-3 (UNS N06625)
 ASME II, Part C, SFA-5.14, ERNiCrMo-3 (UNS N06625)
 ASME IX, F-No.43
 *BS 2901NA43
 *DIN 1736 SG-NiCr21Mo9Nb (2.4831)
 *(EN) ISO 18274 – SNi6625 (NiCr22Mo9Nb)
 *Supply to these specifications available upon request
 For manufacture to ASME III NCA-3800, NB-2400, MIL, Rolls Royce, AMS and other specifications please refer your inquiry to the Technical Department prior to order placement.

Approvals

VdTUV 2854.01; 2855.01
 Other approvals may be applicable. Please confirm details of current scope of approvals with the Technical Department prior to order placement.

Limiting Chemical Composition

Ni+Co.....	58.0 min.	Al.....	0.40 max.
C.....	0.10 max.	Ti.....	0.40 max.
Mn.....	0.50 max.	Cr.....	20.0-23.0
Fe.....	1.0 max.	Nb+Ta.....	3.15-4.15
S.....	0.015 max.	Mo.....	8.0-10.0
Cu.....	0.50 max.	P.....	0.02 max.
Si.....	0.50 max.	Others.....	0.50 max.

Typical Mechanical Properties

Tensile Strength, psi	110,000
MPa	760
Elongation, (4d) %	30

Filler metals available on spool and in cut straight lengths in a variety of sizes selected from the following diameters:

Available Product Forms

mm	0.8	0.9	1.0	1.14	1.2	1.6	2.4	3.2
in	0.030	0.035	0.040	0.045	0.047	0.062	0.093	0.125

Straight Lengths - 915 mm (36 in.) or 1000 mm (39 in.)

INCONEL® Filler Metal 680

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INCONEL Filler Metal 680 is used for gas-tungsten-arc and gas-metal-arc welding of high strength steel tubing such as X65, X70, and X-80 to themselves and to each other often using narrow groove joint preparations. It can also be used for generating high yield strength in the as-welded condition wherever those properties are needed. Iron dilution must be kept below 5% for the highest possible strength levels. Weld deposits exhibit better general corrosion resistance than that of alloy 625 welds as well as superior critical pitting and critical crevice temperatures. It can also be used to produce 100% joint efficiency welds in the 120,000psi minimum tensile strength specification of INCONEL alloy 625.

Specifications

AWS A5.14 ERNiCrMoWNb-1 (UNS N06680)

ASME II, Part C, SFA-5.14 Pending

ASME IX, F-No.43 Pending

(EN) ISO 18274 Pending

*Supply to these specifications available upon request

For manufacture to ASME III, and other specifications NCA-3800, NB-2400 please refer your inquiry to the Technical Department prior to order placement.

Approvals

Please confirm details of current scope of approvals with the Technical Department prior to order placement.

Limiting Chemical Composition

Ni	56-65	Si	0.1 max.
C	0.03 max.	Ti	1.2-3.0
Fe.....	0.5 max.	Cr.....	17.0-23.0
P	0.02 max.	Mo	5.0-8.0
S.....	0.05 max.	W	4.0-8.0
Al.....	0.5 max.	Others.....	0.50 max.

Typical Mechanical Properties

Tensile Strength, psi	130,000
MPa	900
Elongation, (4d) %	35

Filler metals available on spool and in cut straight lengths in a variety of sizes selected from the following diameters:

Available Product Forms

mm in	0.8 0.030	0.9 0.035	1.0 0.040	1.14 0.045	1.2 0.047	1.6 0.062	2.4 0.093	3.2 0.125
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Straight Lengths - 915 mm (36 in.) or 1000 mm (39 in.)





INCO-WELD® 686CPT® Filler Metal

INCO-WELD 686CPT Filler Metal is used for gas-tungsten-arc and gas-metal-arc welding of duplex, super-duplex and super-austenitic stainless steels, as well as nickel alloys such as UNS N06059 and N06022, INCONEL alloy C-276, and INCONEL alloys 22, 625, and 686. It is also capable of being used to deposit overlays of outstanding corrosion-resistance onto a range of steels. The high alloy levels (of Cr + Mo + W) result in increased resistance to pitting, crevice and general corrosion. INCO-WELD 686CPT Filler Metal is of great value for service environments requiring general corrosion-resistance in HCl or sulfuric acid; for resistance to crevice corrosion in hot, concentrated acid chloride solutions such as sulfur dioxide, saturated NaCl solutions and oxidizing chloride solutions; and for resistance to intergranular attack, after sensitization, in highly oxidizing environments. Submerged arc welding can be done with INCOFLUX NT120 Submerged Arc Flux.

Specifications

AWS A5.14 ERNiCrMo-14 (UNS N06686)
 ASME II, Part C, SFA-5.14, ERNiCrMo-14 (UNS N06686)
 ASME IX, F-No.43
 *(EN) ISO 18274 – SNi6686 (NiCr21Mo16W4)
 *Supply to these specifications available upon request
 For manufacture to ASME III (NCA-3800, NB-2400), and other specifications please refer your inquiry to the Technical Department prior to order placement.

Approvals

VdTUV 06808.00; 06809.00
 Other approvals may be applicable. Please confirm details of current scope of approvals with the Technical Department prior to order placement.

Limiting Chemical Composition

Ni+Co.....	Remainder	Cu.....	0.5 max.
C.....	0.01 max.	Si.....	0.08 max.
Mn.....	1.0 max.	Ti.....	0.25 max.
Fe.....	5.0 max.	Cr.....	19.0-23.0
P.....	0.02 max.	Mo.....	15.0-17.0
S.....	0.02 max.	W.....	3.0-4.4
Al.....	0.5 max.	Others.....	0.50 max.

Typical Mechanical Properties

Tensile Strength, psi	110,000
MPa	760
Elongation, (4d) %	35

Filler metals available on spool and in cut straight lengths in a variety of sizes selected from the following diameters:

Available Product Forms

mm	0.8	0.9	1.0	1.14	1.2	1.6	2.4	3.2
in	0.030	0.035	0.040	0.045	0.047	0.062	0.093	0.125

Straight Lengths - 915 mm (36 in.) or 1000 mm (39 in.)

Ni-Cr-Mo Filler Metal

INCO-WELD® 725NDUR Filler Metal

INCO-WELD 725NDUR Filler Metal is an age hardenable version of INCONEL Filler Metal 625. After post-weld heat treatment it combines the excellent corrosion resistance of INCONEL Filler Metal 625 with higher strength and hardness. Oil patch applications require the same temperature ranges for stress relieving of low alloy steels (such as AISI 4130) as the temperature range required for age hardening INCO-WELD 725NDUR Filler Metal. If post-weld annealing is followed by the aging treatment, even higher strength and hardness values are obtained.

The filler metal can be used with both the gas metal arc and gas tungsten arc processes.

Specifications

AWS A5.14 ERNiCrMo-15 (UNS N07725)

ASME II, Part C, SFA-5.14, ERNiCrMo-15 (UNS N07725)

*(EN) ISO 18274 – SNi7725 (NiCr21Mo8Nb3Ti)

*Supply to these specifications available upon request

For manufacture to ASME III (NCA-3800, NB-2400), and other specifications please refer your inquiry to the Technical Department prior to order placement.

Approvals

Please confirm details of current scope of approvals with the Technical Department prior to order placement.

Limiting Chemical Composition

Ni+Co.....	55.0 to 59.0	Ti.....	1.0 to 1.7
C.....	0.03 max.	Cr.....	19.0 to 22.5
Mn.....	0.35 max.	Nb+Ta.....	2.75 to 4.00
Fe.....	Remainder	Mo.....	7.0 to 9.5
S.....	0.01 max.	P.....	0.015 max.
Si.....	0.20 max.	Others.....	0.50 max.
Al.....	0.35 max.		

Typical Mechanical Properties

Tensile Strength, psi	174,000
MPa	1200

(Age hardened condition: 1900°F (1038°C) /1 hour plus 1350°F (732°C) /8 hours, Furnace Cool to 1150°F (621°C) /8 hours, Air Cool)

Filler metals available on spool and in cut straight lengths in a variety of sizes selected from the following diameters:

Available Product Forms

mm in	0.8 0.030	0.9 0.035	1.0 0.040	1.14 0.045	1.2 0.047	1.6 0.062	2.4 0.093	3.2 0.125
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Straight Lengths - 915 mm (36 in.) or 1000 mm (39 in.)





INCO-WELD® C-276 Filler Metal

INCO-WELD C-276 Filler Metal is used for gas-tungsten-arc and gas-metal-arc welding of INCONEL alloy C-276 and other nickel-chromium-molybdenum alloys. It is also used for surfacing of steel. The weld metal has excellent corrosion resistance in many aggressive media and is especially resistant to pitting and crevice corrosion.

Dissimilar-welding applications include welding INCONEL alloy C-276 to other nickel alloys, to stainless steels, and to low-alloy steels. Submerged arc welding can be done with INCOFLUX NT120 Submerged Arc Flux and for welding 9% Ni steels INCOFLUX 9 is preferred.

Specifications

AWS A5.14 ERNiCrMo-4 (UNS N10276)
 ASME II, Part C, SFA-5.14, ERNiCrMo-4 (UNS N10276)
 ASME IX, F-No.43
 2.4886
 *BS 2901 NA48
 *DIN 1736 SG-NiMo16Cr16W (2.4886)
 *(EN) ISO 18274 – SNi6276 (NiCr15Mo16Fe6W4)
 *Supply to these specifications available upon request
 For manufacture to ASME III (NCA-3800, NB-2400), and other specifications please refer your inquiry to the Technical Department prior to order placement.

Approvals

Please confirm details of current scope of approvals with the Technical Department prior to order placement.

Limiting Chemical Composition

Ni+Co.....	Remainder	Cu.....	0.50 max.
C.....	0.02 max.	Co.....	2.50 max.
Mn.....	1.0 max.	Cr.....	14.5-16.5
Fe.....	4.0-7.0	Mo.....	15.0-17.0
P.....	0.04 max.	V.....	0.35 max.
S.....	0.03 max.	W.....	3.0-4.5
Si.....	0.08 max.	Others.....	0.50 max.

Typical Mechanical Properties

Tensile Strength, psi	100,000
MPa	690
Elongation, (4d) %	30

Filler metals available on spool and in cut straight lengths in a variety of sizes selected from the following diameters:

Available Product Forms

mm in	0.8 0.030	0.9 0.035	1.0 0.040	1.14 0.045	1.2 0.047	1.6 0.062	2.4 0.093	3.2 0.125
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Straight Lengths - 915 mm (36 in.) or 1000 mm (39 in.)

INCONEL® Filler Metal 52

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INCONEL® Filler Metal 52

INCONEL Filler Metal 52 is used for gas-tungsten-arc and gas-metal-arc welding of INCONEL alloy 690. This NiCrFe welding product was developed to meet the changing needs of the nuclear industry, the higher chromium level providing greater resistance to stress-corrosion cracking in the nuclear, pure water environment. INCONEL Filler Metal 52 produces corrosion-resistant overlays on most low-alloy and stainless steels. It can also be used in applications requiring resistance to oxidizing acids. It is useful for dissimilar joints involving INCONEL and INCOLOY alloys, and carbon, low-alloy and stainless steels and for overlaying on to steel.

Specifications

AWS A5.14 ERNiCrFe-7 (UNS N06052)

ASME II, Part C, SFA-5.14, ERNiCrFe-7 (UNS N06052)

ASME IX, F-No.43

*(EN) ISO 18274 – SNi6052 (NiCr30Fe9)

*Supply to these specifications available upon request

For manufacture to ASME III (NCA-3800, NB-2400), and other specifications please refer your inquiry to the Technical Department prior to order placement.

Approvals

Please confirm details of current scope of approvals with the Technical Department prior to order placement.

Limiting Chemical Composition	Ni+Co..... Remainder		Cr..... 28.0-31.5
	C..... 0.04 max.		Ti..... 1.0 max.
Mn..... 1.0 max.		Al..... 1.10 max.	
Fe..... 7.0-11.0		P..... 0.02 max.	
S..... 0.015 max.		Nb+Ta..... 0.10 max.	
Si..... 0.50 max.		Al+Ti..... 1.5 max.	
Mo..... 0.50 max.		Others..... 0.50 max.	
Cu..... 0.30 max.			

Typical Mechanical Properties	Tensile Strength, psi	80,000
		MPa
	Elongation, (4d) %	30

Filler metals available on spool and in cut straight lengths in a variety of sizes selected from the following diameters:

Available Product Forms

mm in	0.8 0.030	0.9 0.035	1.0 0.040	1.14 0.045	1.2 0.047	1.6 0.062	2.4 0.093	3.2 0.125
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Straight Lengths - 915 mm (36 in.) or 1000 mm (39 in.)



INCONEL® Filler Metal 52M

INCONEL Filler Metal 52M is used for the gas-tungsten-arc and gas-metal-arc welding of INCONEL alloy 690, and the overlaying of carbon steels and stainless steels to provide a nickel-chromium alloy corrosion resistant surface. The high chromium level provides excellent resistance to stress corrosion cracking in the nuclear, pure water environment. The product can also be used in applications requiring resistance to oxidizing acids. It is useful for dissimilar joints involving INCONEL and INCOLOY alloys.

This product contains Boron and Zirconium to minimize the tendency for ductility-dip cracking, while it is especially resistant to oxide "floaters" and inclusions.

Specifications

AWS A5.14 ERNiCrFe-7A (UNS N06054)
ASME II, Part C, SFA-5.14, ERNiCrFe-7A
ASME IX, F-No.43

Approvals

Please confirm details of current scope of approvals with the Technical Department prior to order placement.

Limiting Chemical Composition (%)

Ni.....	Remainder	Ti.....	1.0 max.
C.....	0.04 max.	Co.....	0.12 max.
Mn.....	1.0 max.	Nb.....	0.50 to 1.0
Fe.....	7.0 to 11.0	P.....	0.02 max.
S.....	0.015 max.	Zr.....	0.02 max.
Si.....	0.50 max.	B.....	0.005 max.
Cu.....	0.30 max.	Mo.....	0.50 max.
Cr.....	28.0 to 31.5	Others.....	0.50 max.
Al.....	1.10 max.		

Typical Mechanical Properties

Tensile Strength, psi	85,000
MPa	590
Elongation, (4d) %	30

Filler metals available on spool and in cut straight lengths in a variety of sizes selected from the following diameters:

Available Product Forms

mm in	0.8 0.030	0.9 0.035	1.0 0.040	1.14 0.045	1.2 0.047	1.6 0.062	2.4 0.093	3.2 0.125
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Straight Lengths - 915 mm (36 in.) or 1000 mm (39 in.)

INCONEL® Filler Metal 52M



Ni-Cr-Fe Filler Metal

INCONEL® Filler Metal 52MSS

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INCONEL® Filler Metal 52MSS

INCONEL Filler Metal 52MSS is the third generation 30% chromium INCONEL welding product designed to resist nuclear pure water intergranular stress corrosion cracking. The addition of 4% molybdenum and an increased level of niobium up to 2.5% brings INCONEL Filler Metal 52MSS excellent resistance to ductility-dip cracking (DDC) or cold cracking during fabrication. Because of the low levels of aluminum and titanium, it provides remarkably "clean" weld deposits that tend to be free of inclusions, oxides, and porosity. INCONEL Filler Metal 52MSS is used for fabrication and repair of nuclear components and also exhibits good resistance to root-cracking. The good wetting and clean welds make INCONEL Filler Metal 52MSS ideal for remote-controlled multi-pass welds in radioactively "hot" repair situations.

Specifications

AWS A5.14 ERNiCrFe-13 (UNS N06055)

ASME II, Part C, SFA-5.14, ERNiCrFe-13 (UNS N06055)

ASME IX, F-No.43

*Supply to these specifications available upon request

For manufacture to ASME III (NCA-3800, NB-2400), and other specifications please refer your inquiry to the Technical Department prior to order placement.

Approvals

Please confirm details of current scope of approvals with the Technical Department prior to order placement.

Typical Chemical Composition	Ni+Co..... 54.0-62.0		Cr..... 28.0-31.5	
	C..... 0.03 max.		Ti..... 0.50 max	
Mn..... 1.0 max.		Al..... 0.50 max		
Fe..... balance		P..... 0.02 max.		
S..... 0.015 max.		Nb+Ta..... 1.5 - 3.5		
Si..... 0.50 max.		Al+Ti..... 1.5 max.		
Mo..... 3.0 - 5.0.		Others..... 0.50 max.		
Cu..... 0.30 max.				

Typical Mechanical Properties	Tensile Strength, psi	
		94,000
	MPa	650
	Elongation, (4d) %	
	40	

Filler metals available on spool and in cut straight lengths in a variety of sizes selected from the following diameters:

Available Product Forms

mm	0.8	0.9	1.0	1.14	1.2	1.6	2.4	3.2
in	0.030	0.035	0.040	0.045	0.047	0.062	0.093	0.125

Straight length – 915 mm (36 in.) or 1000 mm (39 in.); Spool weight-13.6 kg (30lb)
Other European spools sizes EN759 – S100, S200, S300, BS300, S350



INCONEL® Filler Metal 53MD

INCONEL Filler Metal 53MD is used for the gas-tungsten-arc and gas-metal-arc welding of INCONEL alloy 693, and the overlaying of carbon steels and stainless steels to provide a nickel-chromium-aluminum alloy corrosion resistant surface. The high chromium and aluminum levels provide excellent resistance to metal dusting in chemical and petrochemical applications. The product also provides excellent resistance to carburization, sulfidation, and other high temperature corrosion forms.

Specifications

AWS A5.14 as classification ERNiCrFeAl-1 (UNS N06693)

Approvals

Please confirm details of current scope of approvals with the Technical Department prior to order placement.

Limiting Chemical Composition (%)

Ni.....	Remainder	Cr.....	27.0 to 31.0
C.....	0.15 max.	Al.....	2.5 to 4.0 max.
Mn.....	1.0 max.	Ti.....	1.0 max.
Fe.....	2.5 to 6.0	Co.....	0.12 max.
S.....	0.01 max.	Nb+Ta.....	0.50 to 2.5
Si.....	0.50 max.	P.....	0.03 max.
Cu.....	0.30 max.	Others.....	0.50 max.

Typical Mechanical Properties

Tensile Strength, psi	85,000
MPa	590
Elongation, (4d) %	45

Filler metals available on spool and in cut straight lengths in a variety of sizes selected from the following diameters:

Available Product Forms

mm	0.8	0.9	1.0	1.14	1.2	1.6	2.4	3.2
in	0.030	0.035	0.040	0.045	0.047	0.062	0.093	0.125

Straight Lengths - 915 mm (36 in.) or 1000 mm (39 in.)

INCONEL® Filler Metal 53MD

Ni-Cr-Fe Filler Metal

INCONEL® Filler Metal 601

INCONEL Filler Metal 601 is used for gas-tungsten-arc welding of INCONEL alloy 601. It is the preferred welding product for all gas-tungsten-arc welding of INCONEL alloy 601. The GTAW process with INCONEL Filler Metal 601 is the only recommended joining method for applications involving temperatures over 2100°F (1150°C) or for applications at lower temperatures involving exposure to hydrogen sulfide or sulfur dioxide. The weld metal is comparable to the base metal in resistance to corrosion and oxidation.

Specifications

AWS A5.14 ERNiCrFe-11 (UNS N06601)

ASME II, Part C, SFA-5.14, ERNiCrFe-11 (UNS N06601)

ASME IX, F-No.43

*BS2901NA 49

*DIN 1736 SG-NiCr23Al (2.4626)

*(EN) ISO 18274 – SNi6601 (NiCr23Fe15Al)

*Supply to these specifications available upon request

For manufacture to ASME III (NCA-3800, NB-2400), AMS and other specifications please refer your inquiry to the Technical Department prior to order placement.

Approvals

Please confirm details of current scope of approvals with the Technical Department prior to order placement.

Limiting Chemical Composition (%)	Ni+Co..... 58.0-63.0		Mn..... 1.0 max.	
	Cr..... 21.0-25.0		S..... 0.015 max.	
Fe..... Remainder		Si..... 0.50 max.		
Al..... 1.0-1.7		Cu..... 1.0 max.		
C..... 0.10 max.		Others..... 0.50 max.		
P..... 0.03 max.				

Typical Mechanical Properties	Tensile Strength, psi		94,000
		MPa	650
	Elongation, (4d) %		42

Filler metals available on spool and in cut straight lengths in a variety of sizes selected from the following diameters:

Available Product Forms

mm in	0.8 0.030	0.9 0.035	1.0 0.040	1.14 0.045	1.2 0.047	1.6 0.062	2.4 0.093	3.2 0.125
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Straight Lengths - 915 mm (36 in.) or 1000 mm (39 in.)



INCONEL® Filler Metal 617



INCONEL Filler Metal 617 is used for gas-tungsten-arc and gas-metal-arc welding of INCONEL alloy 617. Because of the weld metal's high temperature strength, oxidation resistance, and metallurgical stability, the filler metal is also used for joining various dissimilar high-temperature alloys. Examples are INCOLOY alloys 800HT and 803 and cast alloys such as HK-40, HP, and HP-45 Modified.

Specifications

AWS A5.14 ERNiCrCoMo-1 (UNS N06617)

ASME II, Part C, SFA-5.14, ASME IX, F-No. 43, ERNiCrCoMo-1 (UNS N06617)

*BS 2901NA 50

*DIN 1736 SG-NiCr22Co12Mo (2.4627)

*(EN) ISO 18274 – SNi 6617 (NiCr22Co12Mo9)

*Supply to these specifications available upon request

For manufacture to ASME III (NCA-3800, NB-2400), Rolls Royce, AMS and other specifications please refer your inquiry to the Technical Department prior to order placement.

Approvals

Please confirm details of current scope of approvals with the Technical Department prior to order placement.

Limiting Chemical Composition

Ni.....	Remainder	Mn.....	1.0 max.
Cr.....	20.0-24.0	Si.....	1.0 max.
Co.....	10.0-15.0	S.....	0.015 max.
Mo.....	8.0-10.0	Ti.....	0.60 max.
Al.....	0.80-1.50	Cu.....	0.50 max.
C.....	0.05-0.15	P.....	0.03 max.
Fe.....	3.0 max.	Others.....	0.50 max.

Typical Mechanical Properties

Tensile Strength, psi	90,000
MPa	620
Elongation, (4d) %	25

Filler metals available on spool and in cut straight lengths in a variety of sizes selected from the following diameters:

Available Product Forms

mm in	0.8 0.030	0.9 0.035	1.0 0.040	1.14 0.045	1.2 0.047	1.6 0.062	2.4 0.093	3.2 0.125
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Straight Lengths - 915 mm (36 in.) or 1000 mm (39 in.)

Ni-Fe Filler Metal

NILO[®] Filler Metal CF36

NILO Filler Metal CF36 is used for the gas-metal-arc, gas-tungsten-arc, and submerged-arc welding of NILO alloy 36. Filler Metal CF36 is formulated to have low thermal expansion characteristics similar to NILO alloy 36, while providing freedom from solidification and reheat cracking. Argon is recommended for the GMAW-Spray process, Argon/25% helium for the GMAW-Pulsed Arc and Short-Arc processes, and INCOFLUX NT100 for the SAW process.

Specifications none

Approvals

Please confirm details of current scope of approvals with the Technical Department prior to order placement.

Typical Chemical Composition	Ni.....	36
	Fe.....	62
	C.....	0.2
	Mn.....	0.4
	Nb.....	1.6

Typical Mechanical Properties	Tensile Strength, psi	80,000
	MPa	550
	Elongation, (4d) %	25

Filler metals available on spool and in cut straight lengths in a variety of sizes selected from the following diameters:

Available Product Forms

mm	0.8	0.9	1.0	1.14	1.2	1.6	2.4	3.2
in	0.030	0.035	0.040	0.045	0.047	0.062	0.093	0.125

Straight Lengths - 915 mm (36 in.) or 1000 mm (39 in.)



INCOLOY® Filler Metal 65



INCOLOY Filler Metal 65 is used for gas-tungsten-arc welding of INCOLOY alloy 825 and other nickel-iron-chromium-molybdenum-copper alloys of similar composition. The weld metal is highly corrosion resistant, particularly in reducing chemicals such as sulphuric and phosphoric acids. INCOLOY Filler Metal 65 can also be used for depositing overlays on carbon and low alloys steels.

Specifications

AWS A5.14 ERNiFeCr-1 (UNS N08065)

ASME II, Part C, SFA-5.14, ERNiFeCr-1 (UNS N08065)

ASME IX, F-No.45

*BS 2901NA41

*(EN) ISO 18274 – SNi8065 (NiFe30Cr21Mo3)

*Supply to these specifications available upon request

For manufacture to ASME III (NCA-3800, NB-2400), Rolls Royce, AMS and other specifications please refer your inquiry to the Technical Department prior to order placement.

Approvals

Please confirm details of current scope of approvals with the Technical Department prior to order placement.

Limiting Chemical Composition

Ni+Co.....	38.0-46.0	Cr.....	19.5-23.5
C.....	0.05 max.	Al.....	0.20 max.
Mn.....	1.0 max.	Ti.....	0.60-1.20
Fe.....	22.0 min.	Mo.....	2.50-3.50
S.....	0.03 max.	P.....	0.03 max.
Si.....	0.50 max.	Others.....	0.50 max.
Cu.....	1.5-3.0		

Typical Mechanical Properties

Tensile Strength, psi	80,000
MPa	550
Elongation, (4d) %	25

Filler metals available on spool and in cut straight lengths in a variety of sizes selected from the following diameters:

Available Product Forms

mm	0.8	0.9	1.0	1.14	1.2	1.6	2.4	3.2
in	0.030	0.035	0.040	0.045	0.047	0.062	0.093	0.125

Straight Lengths - 915 mm (36 in.) or 1000 mm (39 in.)



Ni-Fe-Cr Filler Metal

INCONEL® Filler Metal 718

INCONEL Filler Metal 718 is used for gas-tungsten-arc welding of INCONEL alloys 718, 706 and X-750. The weld metal is age hardenable and has mechanical properties comparable to those of the base metals.

Specifications

AWS A5.14 ERNiFeCr-2 (UNS N07718)

ASME II, Part C, SFA-5.14, ERNiFeCr-2 (UNS N07718)

*BS2901NA 51

*DIN 1736 SG-NiCr19NbMoTi (2.4667)

*(EN) ISO 18274 – SNi7718 (NiFe19Cr19Nb5Mo3)

*Supply to these specifications available upon request

For manufacture to ASME III (NCA-3800, NB-2400), Rolls Royce, AMS and other specifications please refer your inquiry to the Technical Department prior to order placement.

Approvals

Please confirm details of current scope of approvals with the Technical Department prior to order placement.

Limiting Chemical Composition

Ni.....	50.0-55.0	Al.....	0.20-0.80
C.....	0.08 max.	Ti.....	0.65-1.15
Mn.....	0.35 max.	Nb+Ta.....	4.75-5.50
Fe.....	Remainder	Mo.....	2.80-3.30
S.....	0.015 max.	P.....	0.015 max.
Si.....	0.35 max.	B.....	0.006 max.
Cu.....	0.30 max.	Co.....	1.0 max.
Cr.....	17.0-21.0		

Typical Mechanical Properties

Tensile Strength, psi	165,000
MPa	1140

(Age hardened condition: 1325°F (720°C)/8 hours, Furnace Cool 100°F (55°C)/hour to 1150°F (620°C)/8 hours, Air Cool)

Filler metals available on spool and in cut straight lengths in a variety of sizes selected from the following diameters:

Available Product Forms

mm in	0.8 0.030	0.9 0.035	1.0 0.040	1.14 0.045	1.2 0.047	1.6 0.062	2.4 0.093	3.2 0.125
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Straight Lengths - 915 mm (36 in.) or 1000 mm (39 in.)



NI-ROD® 44 Filler Metal

NI-ROD 44 Filler Metal is a solid, nickel-iron-manganese wire designed for automatic and semi-automatic welding of ductile, malleable and gray cast irons in all positions. Submerged-arc welding is done with INCOFLUX NT100 Submerged Arc Flux.

NI-ROD 44 Filler Metal offers high-speed, high-quality welds, and can be used with all robotics, automatic and semi-automatics processes, and in all positions. It provides the wetting and crack-resistant weldability that allows steel forgings and castings to be re-designed in less expensive ductile iron and welded automatically.

Pre- and post-weld heat treatments are not usually required but may be advantageous for heavy section, fully restrained joints in low ductility castings.

Specifications

AWS A5.15 ERNiFeMn-CI (UNS N02216)

ASME II, Part C, SFA5.15 ERNiFeMn-CI (UNS N02216)

*(EN) ISO 1071 – S CI 6002 (S C NiFeMn-CI)

*Supply to these specifications available upon request

For manufacture to ASME III (NCA-3800, NB-2400), and other specifications please refer your inquiry to the Technical Department prior to order placement.

Approvals

Please confirm details of current scope of approvals with the Technical Department prior to order placement.

Typical Chemical Composition

Ni.....	44	Mn.....	11
C.....	0.25	Fe.....	45

Typical Mechanical Properties

Tensile Strength, psi	100,000
MPa	690
Elongation, (4d) %	35

Filler metals available on spool and in cut straight lengths in a variety of sizes selected from the following diameters:

Available Product Forms

mm in	0.8 0.030	0.9 0.035	1.0 0.040	1.14 0.045	1.2 0.047	1.6 0.062	2.4 0.093	3.2 0.125
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Straight Lengths - 915 mm (36 in.) or 1000 mm (39 in.)



Cast Iron Filler Metal

NI-ROD® 44HT Filler Metal

44

NI-ROD® 44HT Filler Metal

NI-ROD 44HT Filler Metal is a bare solid wire for MIG (GMAW) and TIG (GTAW) welding. It was developed, following the success of NI-ROD Filler Metal 44, for use in automotive exhaust systems, principally in joining catalytic converters to ductile iron exhaust manifolds.

NI-ROD 44HT Filler Metal provides the dissimilar metal properties required for the welding of 400 series stainless steel to silicon-molybdenum alloyed ductile cast irons. The composition imparts excellent elevated temperature performance. Special attention has been given to providing optimized resistance to stress induced oxidation cracking through the control of graphite formation in the fusion zone and heat affected-zone, while offering increased general corrosion resistance.

Specifications

For manufacture to automotive and other specifications please refer your inquiry to the Technical Department prior to order placement.

Approvals

Please confirm details of current scope of approvals with the Technical Department prior to order placement.

Typical Chemical Composition	Ni.....	44	Fe.....	36
	C.....	0.02	Cr.....	7
	Si.....	0.08	Nb.....	1
	Mn.....	11		

Typical Mechanical Properties	Tensile Strength, psi	95,000
	MPa	655
	Elongation, (4d) %	20

Filler metals available on spool and in cut straight lengths in a variety of sizes selected from the following diameters:

Available Product Forms

mm in	0.8 0.030	0.9 0.035	1.0 0.040	1.14 0.045	1.2 0.047	1.6 0.062	2.4 0.093	3.2 0.125
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Straight Lengths - 915 mm (36 in.) or 1000 mm (39 in.)



NI-ROD® 99 Filler Metal

NI-ROD 99 Filler Metal is used for gas-metal-arc, gas-tungsten-arc and submerged-arc welding of ductile, malleable, and gray cast irons. It is a solid nickel alloy wire designed for making easily machined welds by automatic and semi-automatic processes. In highly diluted, single-layer deposits, pure nickel weld metal has better machinability than other welding products for cast irons. Submerged-arc welding is done with INCOFLUX NT100 Submerged Arc Flux.

Disimilar-welding applications include gas-metal-arc welding of cast irons to low-alloy and carbon steels.

Specifications

AWS A5.15 ERNi-CI (UNS N02215)

ASME II, Part C, SFA-5.15, ERNi-CI(UNS N02215)

*BS 2901NA46

*(EN) ISO 1071 S CI 4003 (S C Ni-CI)

*Supply to these specifications available upon request

For manufacture to ASME III (NCA-3800, NB-2400), and other specifications please refer your inquiry to the Technical Department prior to order placement.

Approvals

Please confirm details of current scope of approvals with the Technical Department prior to order placement.

Limiting Chemical Composition	Ni+Co..... 99.0 min.		Cu..... 0.25 max.	
	Fe..... 0.40 max.		C..... 0.15 max.	
Mn..... 0.35 max.		S..... 0.01 max.		
Si..... 0.35 max.		Others..... 1.00 max.		

Typical Mechanical Properties	Tensile Strength, psi	71,000
	MPa	490
	Elongation, (4d) %	12

Filler metals available on spool and in cut straight lengths in a variety of sizes selected from the following diameters:

Available Product Forms

mm in	0.8 0.030	0.9 0.035	1.0 0.040	1.14 0.045	1.2 0.047	1.6 0.062	2.4 0.093	3.2 0.125
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Straight Lengths - 915 mm (36 in.) or 1000 mm (39 in.)

NI-ROD® 99 Filler Metal

INCOFLUX® 9 Submerged Arc Flux

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INCOFLUX 9 is a fused Submerged Arc Welding (SAW) Flux designed for wire welding with INCONEL Filler Metal 625 and INCO-WELD C276 Filler Metal corrosion resistant nickel-chromium-molybdenum alloys. The main application for this flux is for the groove welding of 9% Ni steels used in the production of LNG storage tanks. The flux provides optimum operability and weld bead profile in the horizontal (2G) and flat (1G) positions. The flux can also be used for the groove and overlay welding using austenitic stainless steel alloy filler metals.

Welding Parameters: Groove and Overlay Welding using DCEP current and Stringer beads.

Diameter	Amperes	Volts	Travel Speed	Extension Stick-Out	Flux Depth
0.062 in. 1.6 mm	240-290	30-33	8-11 in./min. 200-280 mm/min.	3/4-7/8 in. 19-22 mm	3/4-1 in. 19-25 mm
0.093 in. 2.4 mm	250-300	30-33	8-11 in./min. 200-280 mm/min.	7/8-1 in. 22-25 mm	3/4-1 in. 19-25 mm

Overlay Welding with Oscillation: Use DCEN current and Oscillation Frequency of 50-70 cycles/min for 0.062 in. and 35-60 for 0.093 in.

0.062 in. 1.6 mm	240-260	32-34	4 in./min. 100 mm/min.	7/8-1 in. 22-25 mm	3/4-1 in. 19-25 mm
0.093 in. 2.4 mm	300-400	34-37	4 in./min. 100 mm/min.	7/8-1 in. 22-25 mm	3/4-1 1/4 in. 19-32 mm

Specification
EN ISO 14174 - S F CS2

Particle Size
Tyler Mesh: 10 x 150 Mesh (0.11 mm x 2.0 mm), EN 760 1-20

Packaging
44 pound (20.00 kg) Polyethylene Bags.



INCOFLUX[®] ESS2 Electroslag Strip Flux

INCOFLUX ESS2 Electroslag Strip Welding (ESSW) Flux is designed for strip welding with INCONEL Weldstrip 52M and 52MSS. It is used for overlaying carbon steels with these two alloys. The agglomerated, neutral flux provides the ability to achieve a chemical composition nearly matching the Weldstrip in the second layer. The smooth, tight ripples and excellent wetting provide the ability to make flat overlays that may be used in the as-welded condition.

Welding Parameters: Overlay Welding using DCEP current.

Strip Size	Amperes	Volts	Travel Speed	Extension Stick-Out	Flux Depth
0.5 mm x 60 mm 0.02 in. x 2.36 in.	1100-1300	24-26	6-10 in./min. 15-25 cm/min.	3/4-1 in. 19-25 mm	3/4-1 1/2 in. 19-38 mm
0.5 mm x 30 mm 0.02 in. x 1.18 in.	400-600	24-26	6-10 in./min. 15-25 cm/min.	3/4-1 in. 19-25 mm	3/4-1 1/2 in. 19-38 mm

Specification

EN ISO 14174 - S A AF2

Particle Size

Tyler Sieves: 10 x 60 Mesh (0.25 mm x 2.0 mm), EN 760 2-20

Packaging

60 pound (27.22 kg) Polyethylene Bucket with a hermetically sealed lid that has a rubber gasket seal.

INCOFLUX[®] ESS3 Electroslag Strip Flux

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INCOFLUX ESS3 Electroslag Strip Welding (ESSW) Flux is designed for strip welding with the INCONEL Weldstrips 622 and 625, and INCO-WELD C-276 and 686CPT. It is used for electroslag overlaying of carbon steels with these alloys. The agglomerated, neutral flux and the electroslag process provide the ability to achieve a low dilution composition nearly matching the Weldstrip in the second layer. The smooth, tight ripples and excellent wetting provide the ability to make flat overlays that may be used in the as-welded condition.

Welding Parameters: Overlay Welding using DCEP current.

Strip Size	Amperes	Volts	Travel Speed	Extension Stick-Out	Flux Depth
0.5 mm x 60 mm 0.02 in. x 2.36 in.	1100-1300	24-26	6-10 in./min. 15-25 cm/min.	3/4-1 in. 19-25 mm	3/4-1 1/2 in. 19-38 mm
0.5 mm x 30 mm 0.02 in. x 1.18 in.	600-700	24-26	6-10 in./min. 15-25 cm/min.	3/4-1 in. 19-25 mm	3/4-1 1/2 in. 19-38 mm

Specification

EN ISO 14174 - S A FB2

Particle Size

Tyler Mesh: 12 x 68 Mesh (0.2 mm x 1.7 mm), EN 760 2-16

Packaging

55 pound (25 kg) Polyethylene Bucket with a hermetically sealed lid that has a rubber gasket seal.



INCOFLUX® NT100 Submerged Arc Welding Flux

INCOFLUX NT100 Submerged Arc Flux is a neutral, agglomerated flux designed for wire welding with Nickel Filler Metal 61, INCONEL Filler Metals 52M, 82 and 625, NI-ROD 44 Filler Metal and NILO Filler Metals CF36 and CF42. Typical applications are groove welding Nickel 200 alloy to itself and to steels, and overlaying carbon steels with the Nickel 61 filler metal. The flux is also suitable to use with INCONEL Filler Metals 82 and 625 for overlaying and multi-pass welding. NI-ROD 44 Filler Metal and INCOFLUX NT100 are used to submerged arc weld cast irons to themselves and to steels. INCOFLUX NT100 is also used with NILO Filler Metal CF36 and CF42 to join Invar, NILO 36 and NILO 42.

Welding Parameters: Groove and Overlay Welding using DCEP current and Stringer beads.

Diameter	Amperes	Volts	Travel Speed	Extension Stick-Out	Flux Depth
0.062 in. 1.6 mm	250-280	28-30	10-12 in./min. 250-305 mm/min.	7/8-1 in. 22-25 mm	3/4-1 in. 19-25 mm
0.093 in. 2.4 mm	300-350	30-33	10-12 in./min. 250-305 mm/min.	7/8-1 in. 22-25 mm	3/4-1 1/4 in. 19-32 mm

Overlay Welding with Oscillation: Use DCEN current and Oscillation Frequency of 50-70 cycles / min for 0.062 in. and 35-50 for 0.093 in.

0.062 in. 1.6 mm	240-260	32-34	4 in./min. 100 mm/min.	7/8-1 in. 22-25 mm	3/4-1 in. 19-25 mm
0.093 in. 2.4 mm	300-400	34-37	4 in./min. 100 mm/min.	7/8-1 in. 22-25 mm	3/4-1 1/4 in. 19-32 mm

Specification

EN ISO 14174 - S A AF2

Particle Size

Tyler Sieves: 10 x 60 Mesh (0.25 mm x 2.0 mm), EN 760 2-20

Packaging

50 pound (22.68 kg) Polyethylene Bucket with a hermetically sealed lid that has a rubber gasket seal.

INCOFLUX® NT110 Submerged Arc Welding Flux

INCOFLUX NT110 is an agglomerated Submerged Arc Welding (SAW) Flux for wire welding with MONEL Filler Metal 60 (70% Ni, 30% Cu) and MONEL Filler Metal 67 (70% Cu, 30% Ni). Typical applications with MONEL Filler Metal 60 are groove welding MONEL alloy 400 to itself and to ferritic materials. A major application is for overlaying carbon steels with the corrosion resistant MONEL Filler Metal 60.

The flux is used with MONEL Filler Metal 67 to join Copper-Nickel alloys (90/10, 80/20 and 70/30). Overlays on ferritic steels require a buffer layer of Nickel 61 or MONEL 60.

Welding Parameters: Groove and Overlay Welding using DCEP current and Stringer beads.

Diameter	Amperes	Volts	Travel Speed	Extension Stick-Out	Flux Depth
0.062 in. 1.6 mm	260-280	30-33	8-11 in./min. 200-280 mm/min.	7/8-1 in. 22-25 mm	3/4-1 1/2 in. 19-25 mm
0.093 in. 2.4 mm	300-350	32-35	8-11 in./min. 200-280 mm/min.	7/8-1 in. 22-25 mm	3/4-1 1/4 in. 19-32 mm

Overlay Welding with Oscillation: Use DCEN current and Oscillation Frequency of 50-70 cycles/min for 0.062 in. and 35-50 for 0.093 in.

0.062 in. 1.6 mm	260-280	32-35	4 in./min. 100 mm/min.	7/8-1 in. 22-25 mm	1/2-1 in. 19-25 mm
0.093 in. 2.4 mm	300-400	34-37	4 in./min. 100 mm/min.	7/8-1 in. 22-25 mm	3/4-1 1/4 in. 19-32 mm

Specification

EN ISO 14174 - S A FB2

Particle Size

Tyler Sieves: 10 x 60 Mesh (0.25 mm x 2.0 mm), EN 760 2-20

Packaging

60 pound (27.22 kg) Polyethylene Bucket with a hermetically sealed lid that has a rubber gasket seal.



INCOFLUX® NT120 Submerged Arc Welding Flux

INCOFLUX NT120 is an agglomerated Submerged Arc Welding (SAW) Flux for wire welding with the corrosion resistant nickel-chromium-molybdenum-tungsten alloys such as INCONEL Filler Metal 622, INCO-WELD C-276 Filler Metal, and INCO-WELD 686CPT Filler Metal. Typical applications are the groove welding of nickel alloys of a similar composition (eg. C-22, C-276, 686). The flux and wire combinations are also for welding stainless steels (eg. 6% Mo and duplex stainless steels, etc.) and nickel alloys where enhanced weld metal corrosion properties are required through the Ni-Cr-Mo-W filler metals.

Welding Parameters: Groove and Overlay Welding using DCEP current and Stringer beads.

Diameter	Amperes	Volts	Travel Speed	Extension Stick-Out	Flux Depth
0.062 in. 1.6 mm	240-290	30-33	8-11 in./min. 200-280 mm/min.	7/8-1 in. 22-25 mm	3/4-1 in. 19-25 mm
0.093 in. 2.4 mm	250-300	30-33	8-11 in./min. 200-280 mm/min.	7/8-1 in. 22-25 mm	3/4-1 1/4 in. 19-32 mm

Overlay Welding with Oscillation: Use DCEN current and Oscillation Frequency of 50-70 cycles/min for 0.062 in. and 35-50 for 0.093 in.

0.062 in. 1.6 mm	240-260	32-34	4 in./min. 100 mm/min.	7/8-1 in. 22-25 mm	3/4-1 in. 19-25 mm
0.093 in. 2.4 mm	300-400	34-37	4 in./min. 100 mm/min.	7/8-1 in. 22-25 mm	3/4-1 1/4 in. 19-32 mm

Specification

EN ISO 14174 - S A AF2

Particle Size

Tyler Sieves: 10 x 60 Mesh (0.25 mm x 2.0 mm), EN 760 2-20

Packaging

60 pound (27.22 kg) Polyethylene Bucket with a hermetically sealed lid that has a rubber gasket seal.



INCOFLUX® SASI Submerged Arc Strip Flux

INCOFLUX SASI Submerged Arc Strip Welding (SASW) Flux is designed for strip welding with INCONEL Weldstrip 82. It is used for overlaying carbon steels with the alloy. The agglomerated, neutral flux provides the ability to achieve a chemical composition nearly matching the Weldstrip in the second layer. The smooth, tight ripples and excellent wetting provide the ability to make flat overlays that may be used in the as-welded condition.

Welding Parameters: Overlay Welding using DCEP current.

Strip Size	Amperes	Volts	Travel Speed	Extension Stick-Out	Flux Depth
0.5 mm x 60 mm 0.02 in. x 2.36 in.	700-900	25-28	6-10 in./min. 15-25 cm/min.	3/4-1 in. 19-25 mm	3/4-1 1/2 in. 19-38 mm
0.5 mm x 30 mm 0.02 in. x 1.18 in.	300-450	25-28	6-10 in./min. 15-25 cm/min.	3/4-1 in. 19-25 mm	3/4-1 1/2 in. 19-38 mm

Specification
EN ISO 14174 - S A AF2

Particle Size
Tyler Sieves: 10 x 60 Mesh (0.25 mm x 2.0 mm), EN 760 2-20

Packaging
50 pound (22.68 kg) Polyethylene Bucket with a hermetically sealed lid that has a rubber gasket seal.



INCOFLUX® SAS2 Submerged Arc Strip Flux

INCOFLUX SAS2 Submerged Arc Strip Welding (SASW) Flux is designed for strip welding with INCONEL Weldstrips 52, 52M and 52MSS. It is used for overlaying carbon steels with the two alloys. The agglomerated, neutral flux provides the ability to achieve a chemical composition nearly matching the Weldstrip in the second layer. The smooth, tight ripples and excellent wetting provide the ability to make flat overlays that may be used in the as-welded condition.

Welding Parameters: Overlay Welding using DCEP current.

Strip Size	Amperes	Volts	Travel Speed	Extension Stick-Out	Flux Depth
0.5 mm x 60 mm 0.02 in. x 2.36 in.	700-900	25-28	6-10 in./min. 15-25 cm/min.	3/4-1 in. 19-25 mm	3/4-1 1/2 in. 19-38 mm
0.5 mm x 30 mm 0.02 in. x 1.18 in.	400-600	25-28	6-10 in./min. 15-25 cm/min.	3/4-1 in. 19-25 mm	3/4-1 1/2 in. 19-38 mm

Specification

EN ISO 14174 - S A AF2

Particle Size

Tyler Sieves: 10 x 60 Mesh (0.25 mm x 2.0 mm), EN 760 2-20

Packaging

50 pound (22.68 kg) Polyethylene Bucket with a hermetically sealed lid that has a rubber gasket seal.



INCOFLUX® SAS3 Submerged Arc Strip Flux

INCOFLUX® SAS3 Submerged Arc Strip Flux

INCOFLUX SAS3 Submerged Arc Strip Welding (SASW) Flux is designed for strip welding with INCONEL Weldstrip 625. It is used for overlaying carbon steels with the two alloys. The agglomerated, neutral flux provides the ability to achieve a chemical composition nearly matching the Weldstrip in the second layer. The smooth, tight ripples and excellent wetting provide the ability to make flat overlays that may be used in the as-welded condition.

Welding Parameters: Overlay Welding using DCEP current.

Strip Size	Amperes	Volts	Travel Speed	Extension Stick-Out	Flux Depth
0.5 mm x 60 mm 0.02 in. x 2.36 in.	700-900	25-28	6-10 in./min. 15-25 cm/min.	3/4-1 in. 19-25 mm	3/4-1 1/2 in. 19-38 mm
0.5 mm x 30 mm 0.02 in. x 1.18 in.	400-600	25-28	6-10 in./min. 15-25 cm/min.	3/4-1 in. 19-25 mm	3/4-1 1/2 in. 19-38 mm

Specification
EN ISO 14174 - S A AF2

Particle Size
Tyler Sieves: 10 x 60 Mesh (0.25 mm x 2.0 mm), EN 760 2-20

Packaging
50 pound (22.68 kg) Polyethylene Bucket with a hermetically sealed lid that has a rubber gasket seal.



INCOFLUX® SAS7 Submerged Arc Strip Flux

INCOFLUX SAS7 Submerged Arc Strip Welding (SASW) Flux is designed for strip welding with INCONEL Weldstrip 52MSS. It is used for overlaying carbon steels with the two alloys. The agglomerated, neutral flux provides the ability to achieve a chemical composition nearly matching the Weldstrip in the second layer. The smooth, finely rippled beads and excellent wetting provide the ability to make flat overlays that may be used in the as-welded condition.

Welding Parameters: Overlay Welding using DCEP current.

Strip Size	Amperes	Volts	Travel Speed	Extension Stick-Out	Flux Depth
0.5 mm x 60 mm 0.02 in. x 2.36 in.	700-900	28-30	6-10 in./min. 15-25 cm/min.	3/4-1 in. 19-25 mm	3/4-1 1/2 in. 19-38 mm
0.5 mm x 30 mm 0.02 in. x 1.18 in.	450-550	28-30	6-10 in./min. 15-25 cm/min.	3/4-1 in. 19-25 mm	3/4-1 1/2 in. 19-38 mm

Specification

EN ISO 14174 - S A AF2

Particle Size

Tyler Sieves: 14 x 60 Mesh (0.25 mm x 2.0 mm), EN 760 2-20

Packaging

50 pound (22.68 kg) Polyethylene Bucket with a hermetically sealed lid that has a rubber gasket seal.

Weldstrip & Flux Reference Chart

A range of nickel alloy welding strips are manufactured by Special Metals Welding Products Company for use with the submerged arc and electroslag cladding processes. These strips are available in a range of sizes including 30 mm, 60 mm, 90 mm and 120 mm. A list of nickel alloys available as weldstrip includes:

AWS Class	Special Metals Welding Products Designations
EQNi-1	Nickel Weldstrip 61*
EQNiCu-7	MONEL® Weldstrip 60*
EQCuNi	MONEL® Weldstrip 67*
EQNiCrFe-7A	INCONEL® Weldstrip 52M
EQNiCrFe-13	INCONEL® Weldstrip 52MSS
EQNiCr-3	INCONEL® Weldstrip 82
EQNiCrMo-3	INCONEL® Weldstrip 625
EQNiCrMo-14	INCO-WELD® 686CPT Weldstrip*
EQNiCrMo-4	INCO-WELD® C276 Weldstrip*

*minimum quantities apply

Packaging

12 in. (305 mm) ID, 60 lb (27.22 kg) coil
Other coil sizes are available upon request.

Flux Reference Chart

PRODUCT	SUBMERGED ARC WIRE	ELECTROSLAG STRIP	SUBMERGED ARC STRIP
INCONEL 52MSS	*	*	INCOFLUX SAS7
INCONEL 52M	INCOFLUX NT100	INCOFLUX ESS2	INCOFLUX SAS2
INCONEL 82	INCOFLUX NT100	INCOFLUX ESS1	INCOFLUX SAS1
INCONEL 625	INCOFLUX NT100	INCOFLUX ESS3	INCOFLUX SAS3
INCO-WELD 686	INCOFLUX NT120	INCOFLUX ESS3	*
INCONEL 622	INCOFLUX NT120	INCOFLUX ESS3	*
INCO-WELD C-276	INCOFLUX 120 and 9	INCOFLUX ESS3	*
NICKEL 61	INCOFLUX NT100	*	*
MONEL 60	INCOFLUX NT110	*	*
MONEL 67	INCOFLUX NT110	*	*

* Contact sales for recommendation





Thermal Spray Wires

A list of nickel-base alloy wire manufactured by Special Metals Welding Products Company for use with the thermal spray process includes:

Special Metals Welding Products Designations	AWS Class	Nominal Composition
DURANICKEL® Thermal Spray 30ITSW*	—	95 Ni - 5-Al
INCONEL® Thermal Spray 622TSW	A5.14 ERNiCrMo-10	Ni21CrMoW
INCONEL® Thermal Spray 625TSW	A5.14 ERNiCrMo-3	NiCrMoNb
INCONEL® Thermal Spray 72TSW	A5.14 ERNiCr-4	Ni-43Cr
INCONEL® Thermal Spray 72MTSW	A5.14 ERNiCr-7	Ni - 38Cr
INCO-WELD® Thermal Spray C276TSW	A5.14 ERNiCrMo-4	NiCrMoW
INCO-WELD® Thermal Spray 686CPTTSW	A5.14 ERNiCrMo-14	NiCrMoW

* Pratt & Whitney Specification for 30ITSW-PWA 36937

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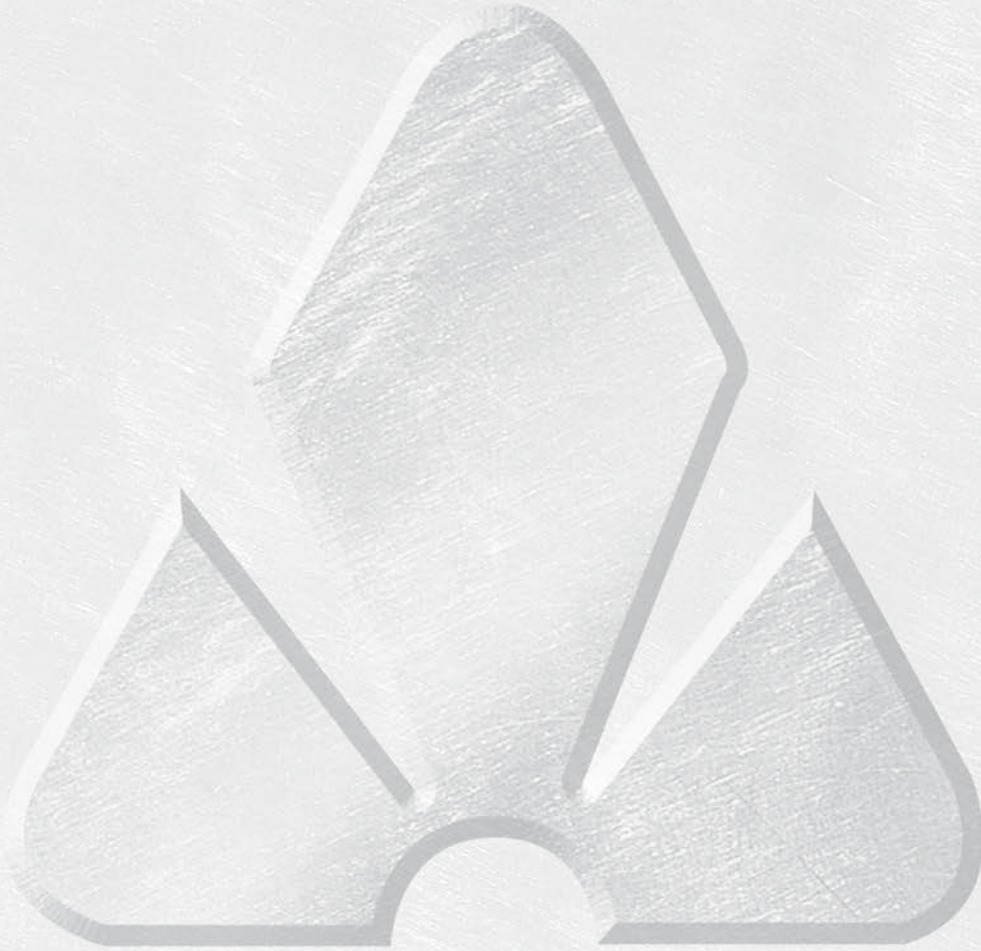


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Welding Products Selector Chart

Welding Products Selector Chart

Nickel Alloy Welding Consumables SUGGESTED SELECTIONS

	Nickel 200	MONEL alloy 400	INCONEL alloy 600	INCONEL alloy 625	INCONEL alloy 686	INCOLOY alloys 803, 800 and 800H/HT
Nickel 200	Nickel 61	MONEL 60 Nickel 61	INCONEL 82 Nickel 61 Nickel 61	INCONEL 625 INCONEL 82 INCONEL 82	I-W 686CPT INCONEL 625 Nickel 61	INCONEL 82 Nickel 61 Nickel 61
MONEL alloy 400	MONEL 190 Nickel 61	MONEL 60 INCONEL 625 INCONEL 112 MONEL 190	INCONEL 625 INCONEL 82	INCONEL 625 INCONEL 82 Nickel 61	I-W 686CPT INCONEL 625 INCONEL 82	INCONEL 625 INCONEL 82
INCONEL alloy 600	INCO-WELD A INCONEL 112 INCONEL 182 Nickel 141	INCO-WELD A INCONEL 112 INCONEL 182	INCONEL 82 INCO-WELD A INCONEL 182	INCONEL 625 INCONEL 82	I-W 686CPT INCONEL 625 INCONEL 82	INCONEL 617 INCONEL 625 INCONEL 82
INCONEL alloy 625	INCO-WELD A INCONEL 112 INCONEL 182 Nickel 141	INCO-WELD A INCONEL 112 Nickel 61	INCO-WELD A INCONEL 82 INCONEL 182	INCONEL 625 INCONEL 112	I-W 686CPT INCONEL 625	INCONEL 617 INCONEL 625 INCONEL 82
INCONEL alloy 686	INCO-WELD A I-W 686CPT Nickel 61	I-W 686CPT INCO-WELD A INCONEL 112	INCO-WELD A INCONEL 82 I-W 686CPT	I-W 686CPT INCONEL 112	I-W 686CPT I-W 686CPT	I-W 686CPT INCONEL 617 INCONEL 625 INCONEL 82
INCOLOY alloys 800, 803 and 800H/HT	INCO-WELD A INCONEL 112 INCONEL 182 Nickel 61	INCO-WELD A INCONEL 112 INCONEL 182	INCO-WELD A INCONEL 112 INCONEL 117	INCO-WELD A INCONEL 112 INCONEL 117 INCONEL 182	INCO-WELD A I-W 686CPT	INCONEL 617 INCONEL 82 INCO-WELD A INCONEL 117
INCOLOY alloy 825 & Super Austenitic Stainless Steel	INCO-WELD A Nickel 61	INCO-WELD A INCONEL 112 INCONEL 182	INCO-WELD A INCONEL 112 INCONEL 182	INCONEL 112 INCONEL 122 I-W 686CPT	I-W 686CPT INCONEL 112 INCONEL 122	INCO-WELD A INCONEL 112
Carbon, Low alloy & Nickel Steels	INCO-WELD A INCONEL 112 INCONEL 182 Nickel 61	INCO-WELD A INCONEL 112 INCONEL 182 MONEL 190	INCO-WELD A INCONEL 112 INCONEL 182	INCONEL 112 INCO-WELD A	INCO-WELD A I-W 686CPT INCONEL 112 INCONEL 182	INCO-WELD A INCONEL 117
3 - 30% Chromium Steels	INCO-WELD A INCONEL 112 INCONEL 182 Nickel 61	INCO-WELD A INCONEL 112 INCONEL 182	INCO-WELD A INCONEL 112 INCONEL 117	INCONEL 112 INCO-WELD A	INCO-WELD A I-W 686CPT INCONEL 112 INCONEL 182	INCO-WELD A INCONEL 117
Austenitic Stainless Steels	INCO-WELD A INCONEL 112 INCONEL 182 Nickel 61	INCO-WELD A INCONEL 112 INCONEL 182 MONEL 190	INCO-WELD A INCONEL 112 INCONEL 117 INCONEL 182	I-W 686CPT INCONEL 112	INCO-WELD A I-W 686CPT INCONEL 112 INCONEL 182	INCO-WELD A INCONEL 112 INCONEL 117
Duplex and Super Duplex Stainless Steels	I-W 686CPT INCO-WELD A Nickel 61	I-W 686CPT INCO-WELD A	I-W 686CPT INCO-WELD A	I-W 686CPT INCONEL 112	I-W 686CPT	I-W 686CPT INCO-WELD A
Cast high-temperature alloys	INCO-WELD A INCONEL 112 INCONEL 182 Nickel 61	INCO-WELD A INCONEL 112 INCONEL 182 MONEL 190	INCO-WELD A INCONEL 117	INCO-WELD A INCONEL 117	I-W 686CPT INCONEL 117	INCO-WELD A INCONEL 117
Copper-Nickel alloys	MONEL 187 MONEL 190 Nickel 61	MONEL 187 MONEL 190 Nickel 61	INCO-WELD A INCONEL 182 Nickel 61	INCO-WELD A INCONEL 112 Nickel 61	I-W 686CPT Nickel 61	INCO-WELD A INCONEL 182 Nickel 61

Electrodes For Shielded Metal Arc Welding



Welding Products Selector Chart

INCOLOY alloy 825	Carbon, Low alloy & Nickel Steels	3 - 30% Chromium Steels	Austenitic Stainless Steels	Duplex and Super Duplex Stainless Steels	Cast high-temperature alloys	Copper-Nickel alloys
INCONEL 625 INCONEL 82	INCONEL 82 Nickel 61	INCONEL 82 Nickel 61	INCONEL 82 Nickel 61	I-W 686CPT INCONEL 82	INCONEL 82 Nickel 61 Nickel 61	MONEL 60 MONEL 67
INCONEL 625 INCONEL 82	INCONEL 625 INCONEL 82 MONEL 60	INCONEL 625 INCONEL 82 MONEL 60	INCONEL 625 INCONEL 82	I-W 686CPT INCONEL 625 INCONEL 82	INCONEL 625 INCONEL 82	MONEL 60 MONEL 67 Nickel 61
INCONEL 625 INCONEL 82	INCONEL 625 INCONEL 82	INCONEL 625 INCONEL 82	INCONEL 617 INCONEL 625 INCONEL 82	I-W 686CPT INCONEL 82	INCONEL 617 INCONEL 625 INCONEL 82	INCONEL 82 Nickel 61
INCONEL 625	INCONEL 625 INCONEL 82	I-W 686CPT INCONEL 625 INCONEL 82	I-W 686CPT INCONEL 625 INCONEL 82	I-W 686CPT INCONEL 625	INCONEL 617 INCONEL 625 INCONEL 82	INCONEL 625 INCONEL 82 Nickel 61
I-W 686CPT INCONEL 625	I-W 686CPT INCONEL 625 INCONEL 82	I-W 686CPT INCONEL 625 INCONEL 82	I-W 686CPT INCONEL 625 INCONEL 82	I-W 686CPT	I-W 686CPT INCONEL 617 INCONEL 82	I-W 686CPT INCONEL 625 Nickel 61
INCONEL 625 INCONEL 82	INCONEL 625 INCONEL 82	INCONEL 625 INCONEL 82	INCONEL 617 INCONEL 625 INCONEL 82	I-W 686CPT INCONEL 82	INCONEL 617 INCONEL 625 INCONEL 82	INCONEL 82 Nickel 61
INCONEL 625 I-W 686CPT	INCONEL 625 INCONEL 82	INCONEL 625 INCONEL 82	INCONEL 625 INCONEL 82	I-W 686CPT INCONEL 625 INCONEL 622	INCONEL 625 INCONEL 82	INCONEL 82 Nickel 61
INCONEL 112 I-W 686CPT						
INCO-WELD A INCONEL 112 INCONEL 182	INCONEL 625 INCONEL 82 INCO-WELD A INCONEL 112	INCONEL 625 INCONEL 82	INCONEL 625 INCONEL 82	I-W 686CPT INCONEL 82	INCONEL 625 INCONEL 82	INCONEL 82 Nickel 61
INCO-WELD A INCONEL 112 INCONEL 182	INCO-WELD A INCO-WELD 112	INCONEL 625/52 INCONEL 82 INCO-WELD A INCONEL 112/152	INCONEL 625 INCONEL 82	I-W 686CPT INCONEL 625 INCONEL 82	INCONEL 625 INCONEL 82 INCONEL 617	INCONEL 82 Nickel 61
INCO-WELD A INCONEL 112 INCONEL 182	INCO-WELD A INCONEL 112 INCONEL 182	INCO-WELD A INCONEL 112 INCONEL 182	I-W 686CPT INCONEL 82/625 I-W A/686CPT INCONEL 112	I-W 686CPT INCONEL 82	INCONEL 82	INCONEL 82 Nickel 61
I-W 686CPT INCONEL 112	I-W 686CPT INCO-WELD A	I-W 686CPT INCO-WELD A	I-W 686CPT INCO-WELD A	INCONEL 622 INCONEL 622	I-W 686CPT INCONEL 82	I-W 686CPT INCONEL 82
INCO-WELD A INCONEL 112	INCO-WELD A INCONEL 112 INCONEL 182	INCO-WELD A INCONEL 112 INCONEL 117	INCO-WELD A INCONEL 112 INCONEL 117	I-W 686CPT INCO-WELD A	INCONEL 617 INCONEL 82 INCO-WELD A INCONEL 117	INCONEL 82 Nickel 61
INCO-WELD A INCONEL 182 Nickel 61	INCO-WELD A INCONEL 182 MONEL 190 Nickel 141	INCO-WELD A INCONEL 182 Nickel 61	INCO-WELD A INCONEL 182 Nickel 61	I-W 686CPT INCO-WELD A	INCO-WELD A INCONEL 182 Nickel 61	MONEL 67 MONEL 187

Filler Metals For Gas Metal Arc, Gas Tungsten Arc and Submerged-Arc Welding

Welding Products Selector Chart

Data contained in this chart is for information only and should not be used for specification purposes.







Comparisons of Gauges & Standard Pipe Sizes



STORAGE & HANDLING CONDITIONS FOR SPECIAL METALS WELDING CONSUMABLES

Shielded Metal Arc Welding Electrode.

The flux coating on Shielded Metal Arc Welding (SMAW) electrodes is hygroscopic or moisture absorbing. The amount of moisture absorbed is dependent on the atmospheric conditions of temperature and humidity experienced by the electrode after the packaging has been opened. The amount of moisture which is absorbed increases with time of exposure.

During the manufacturing process SMAW electrodes are baked at a high temperature and following manufacture the flux coating has a low moisture content. Prior to use, electrodes should be left in their unopened original moisture proof hermetically sealed containers and stored in a dry area. Once the container is opened, the deep seating lid should be replaced as the lid provides an effective barrier to moisture ingress. Once the container is opened, the electrodes should be stored in a cabinet equipped with either a desiccant or heated to 10- 15°F (6-8°C) above the highest expected ambient temperature or both.

Electrodes which have absorbed excessive moisture should be re-baked in a vented oven at 600°F ±25°F (315°C±15°C) for one hour or 500°F±25°F (260°C±15°C) for two hours. Electrodes must be removed from their original containers during this re-baking operation. Electrodes should not be stacked more than 6 layers deep on shelves within the oven. Most electrodes can be re-baked at least 2-3 times without substantially affecting both the integrity of the flux coating and their welding performance. Following the re-baking operation the electrodes should be allowed to cool to room temperature prior to use.

A common problem that may occur is the uneven absorption of moisture by the electrodes. For example, electrodes exposed overnight may exhibit "fingernailing" (uneven burn-off on one side of the electrode) problems during welding when used the next day. In this instance the reason that "fingernailing" occurs is due to moisture being absorbed by only one side of the electrode causing that side to burn off more slowly and unevenly. Correct storage conditions will prevent this type of "fingernailing" problem.

Submerged Arc Welding Fluxes.

Agglomerated submerged arc welding (SAW) fluxes are manufactured using minerals and metallic powders held together by silicate binders. Fused fluxes are manufactured using minerals, which are melted to form a glass, which is subsequently crushed to form the flux particles. Submerged arc welding fluxes absorb moisture with the amount of moisture absorbed being dependent upon the atmospheric conditions and time of exposure. Most of the Special Metals fluxes are supplied in air tight 90 mil plastic buckets with an 'O' ring seal in the lid. The 'O' ring seal is an effective moisture barrier that works when the bucket is both opened and re-sealed correctly to allow the 'O' ring to seat properly. To open the bucket of flux, the embossed tab on the lid must be pulled, or cut free, and then peeled loose from the lid. This removes a thin ring of plastic from the circumference of the lid. Once this ring of plastic is removed, the lid is quickly and easily opened and resealed. Properly seating the 'O' ring is necessary in order to prevent any flux that remains in the bucket from absorbing moisture. INCOFLUX 9 is supplied in heavy duty plastic sacks. Fluxes should be stored in a dry area and labels should never be removed from the packaging.

Submerged arc welding fluxes can be re-baked if it is suspected that the flux has absorbed excessive moisture. Re-baking should be performed at 700-900°F (375-480°C) for two hours in a vented oven for all INCOFLUX fluxes except INCOFLUX 9. For INCOFLUX 9 re-baking should be conducted at 300-480°F (150- 250°C) in a vented oven. Flux should be placed on metal trays with a maximum flux depth on the tray of 2" (50mm). The plastic buckets and plastic sacks should not be baked.



Flux re-cycling.

- Flux can be re-cycled successfully and the following guidelines should be adopted for flux re-cycling: During continuous welding operations unfused flux can be recycled and returned to the flux hopper for re-use.
- Slag and metallic particles should be removed from the recycled flux and discarded prior to using recycled flux.
- Fines should be removed from recycled flux. Excessive levels of fines will impair the welding performance of the flux and degrade the weld bead appearance.
- Re-crushed slag should not be used as flux for welding operations.
- Following a break in welding operations any unused flux should be removed from the welding machine hopper and stored in a heated hopper (250-300°F, 120-150°C). This flux should then be mixed with twice its volume of new flux prior to reuse.
- Care should be taken when using forced air recycling systems to ensure that such systems use only dry air and that the flux particles are not damaged or degraded by using high air flow rates (which can result in the formation of large quantities of dust). Only dry air must be used in forced air recycling systems to prevent moisture pick up by the flux. Compressed air systems used for operating power tools should not be used for flux recovery as they may contain oil lubricant.

Bare Wire.

Bare wire products used for GMAW (MIG), GTAW (TIG) and SAW welding should be kept in a dry store prior to use. Containers should be kept closed when not in use. Spooled wire is supplied packed in plastic bags and used spools should be replaced into a plastic bag for storage to prevent surface contamination. Wire should be stored at ambient conditions of temperature and humidity, and dusty areas should be avoided when wire is not enclosed in some type of dust-protecting container. Cut-length wire used for GTAW welding should be protected from dust and airborne contamination after removal from the packaging. All bare wire should be protected from surface contamination (dust, grinding particles etc.) when in use and during storage.

Flux Cored Wire.

Flux cored wire storage conditions are similar to those for SMAW electrodes. Flux cored wires are packaged in plastic bags containing desiccant which protects the wire from moisture pick up. Cartons should be protected from water damage and the labels should never be removed. Used coils of wire should be stored in a sealed cabinet equipped with desiccant or heated to a temperature 10-15°F (6-8°C) above ambient or both. If the flux-cored wire is suspected of picking up excessive levels of moisture please contact the Technical Department at Special Metals Welding Products Company for advice on potential re-baking of the wire.

WARNING: POSSIBLE CANCER HAZARD OR LUNG DAMAGE IF INHALED - MAY CAUSE ALLERGIC REACTION - MAY CONTAIN FLUORIDES.

PROTECT YOURSELF AND OTHERS - TAKE PRECAUTIONS WHEN WELDING. BEFORE USE, READ AND UNDERSTAND THIS INFORMATION AND YOUR EMPLOYER'S SAFETY PRACTICES. OBTAIN SPECIAL INSTRUCTIONS BEFORE USE. DO NOT BREATHE DUST. DO NOT HANDLE UNTIL ALL SAFETY PRECAUTIONS HAVE BEEN READ AND UNDERSTOOD. SEE AMERICAN NATIONAL STANDARD Z49.1, SAFETY IN WELDING AND CUTTING AND 29 CFR 1910. UNDERSTAND THE MANUFACTURER'S SDS AND STATE OF CALIFORNIA BEFORE USE. DO NOT EAT, DRINK OR SMOKE WHILE USING THIS PRODUCT. USE ONLY OUTDOORS OR IN A WELL-VENTILATED AREA. WEAR PROTECTIVE GLOVES, CLOTHING, AND EYE/FACE PROTECTIONS. IN CASE OF INADEQUATE VENTILATION WEAR RESPIRATORY PROTECTION. THIS PRODUCT CONTAINS A CHEMICAL KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER.

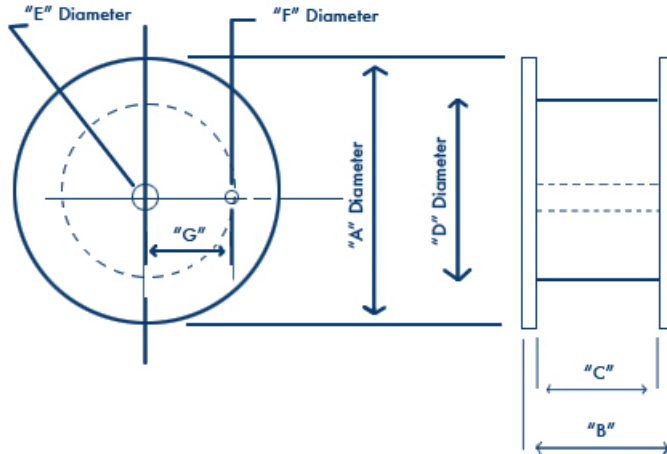
FUMES AND GASES CAN BE HAZARDOUS TO YOUR HEALTH, SKIN SENSITIZATION, IRRITATION OF SKIN, EYE, AND RESPIRATORY TRACT, NEUROLOGICAL DAMAGE OR DEATH CAN RESULT FROM OVER-EXPOSURE. KEEP YOUR HEAD OUT OF THE FUME. USE VENTILATION, PREFERABLY LOCAL EXHAUST VENTILATION, ADEQUATE TO KEEP THE CONCENTRATION OF FUMES AND GASES BELOW THE EXPOSURE LIMITS, AWAY FROM YOUR BREATHING ZONE AND THE GENERAL AREA. SPECIAL ATTENTION TO VENTILATION IS REQUIRED IN CONFINED, SMALL OR CROWDED SPACES. IF ADEQUATE VENTILATION IS NOT AVAILABLE, WEAR APPROPRIATE RESPIRATORY PROTECTION. WASH SKIN AFTER CONTACT WITH DUST OR FUME.

AS SHIPPED, THESE COMPLEX ALLOYS IN MASSIVE FORM HAVE NO KNOWN TOXICOLOGICAL PROPERTIES OTHER THAN CAUSING ALLERGIC REACTIONS IN INDIVIDUALS SENSITIVE TO THE METALS CONTAINED IN THE ALLOYS. HAZARDOUS FUME OR DUST EMISSIONS MAY BE RELEASED DURING REMELTING, GRINDING, CUTTING OR WELDING. THE CLASSIFICATIONS BELOW ARE RELATED TO EXPOSURE TO THE HAZARDOUS FUME OR DUST EMISSIONS GENERATED REMELTING, GRINDING, CUTTING OR WELDING. HEATING ABOVE THE MELTING POINT RELEASES METALLIC OXIDES WHICH MAY CAUSE METAL FUME FEVER BY INHALATION.







MAY CAUSE AN ALLERGIC SKIN REACTION, SERIOUS EYE IRRITATION, ALLERGY OR ASTHMA SYMPTOMS OR BREATHING DIFFICULTIES IF INHALED. MAY CAUSE CANCER OR DAMAGE TO ORGANS THROUGH PROLONGED OR REPEATED EXPOSURE.

ARC RAYS CAN INJURE EYE AND BURN SKIN. ELECTRIC SHOCK CAN KILL. DO NOT TOUCH LIVE ELECTRICAL PARTS, WEAR CORRECT EYE, EAR AND BODY PROTECTION.

DISPOSE OF CONTENT AND/OR CONTAINER IN ACCORDANCE WITH LOCAL, REGIONAL, NATIONAL AND/OR INTERNATIONAL REGULATIONS.



Minimum order quantities may apply in certain diameter - capacity combinations.

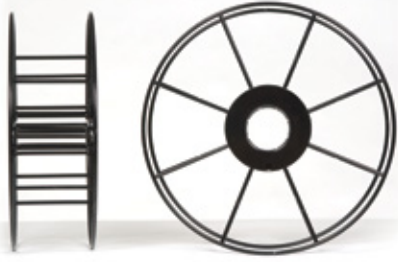
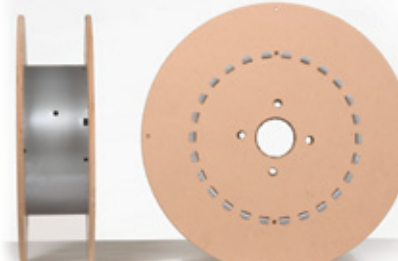
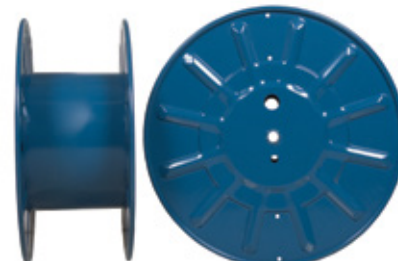
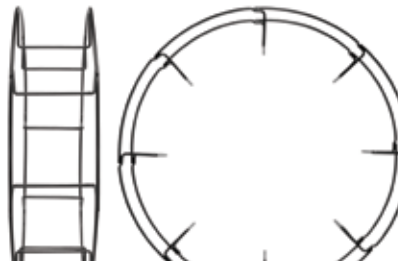
		Dimensions		Available Diameters	
		Imperial	Metric	Imperial	Metric
2 Pound Spool *not a stock item minimums apply					
		Capacity: 2 lb Material: Plastic "A" 4" "B" 1-3/4" "C" 1-1/2" "D" 2-3/4" "E" 5/8" "F" - "G" -	Capacity: .9 kg Material: Plastic "A" 10.2 cm "B" 4.5 cm "C" 3.8 cm "D" 6.9 cm "E" 1.6 cm "F" - "G" -	.030" .035" .039" .045" .047"	.8 mm .9 mm 1.0 mm 1.14 mm 1.2 mm
10 Pound Spool *not a stock item minimums apply					
		Capacity: 10 lb Material: Plastic "A" 7-7/8" "B" 2-1/8" "C" 1-3/4" "D" 3-3/4" "E" 2.035" min. "F" 3/8" x .130" "G" 1-3/4"	Capacity: 4.54 kg Material: Plastic "A" 20.0 cm "B" 5.4 cm "C" 4.5 cm "D" 9.5 cm "E" 5.2 cm "F" .9 cm x .3 cm "G" 4.5 cm	.030" .035" .039" .047"	.8 mm .9 mm 1.0 mm 1.14 mm 1.2 mm
30 Pound Spool					
		Capacity: 33 lb Material: Plastic "A" 11-7/8" "B" 4" "C" 3-1/2" "D" 8" "E" 2.035" min. "F" 3/8" "G" 1-3/4"	Capacity: 15.0 kg Material: Plastic "A" 30.0 cm "B" 10.2 cm "C" 8.9 cm "D" 20.3 cm "E" 5.2 cm "F" .9 cm "G" 4.5 cm	.030" .035" .039" .045" .047" .062"	.8 mm .9 mm 1.0 mm 1.14 mm 1.2 mm 1.6 mm

Spooled Wire Packaging

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Spooled Wire Packaging

Wire Basket	Dimensions		Available Diameters	
	Imperial	Metric	Imperial	Metric
	Capacity: 44 lb Material: Steel Wire "A" 11-3/4" "B" 4" "C" 3-5/8" "D" 7-3/8" "E" 2.035" min. "F" 3/8" "G" 1-3/4"	Capacity: 20.0 kg Material: Steel Wire "A" 30.0 cm "B" 10.16 cm "C" 9.21 cm "D" 18.73 cm "E" 5.2 cm "F" .95 cm "G" 4.45 cm	.030" .035" .045" .047" .062"	8 mm .9 mm 1.14 mm 1.2 mm 1.6 mm
Fiberboard Spool	Imperial	Metric	Imperial	Metric
	Capacity: 60 lb Material: Fiberboard "A" 13-13/16" "B" 4" "C" 3-3/8" "D" 8-1/4" "E" 2.035" min. "F" 3/8" "G" 1-3/4"	Capacity: 27.22 kg Material: Fiberboard "A" 13.81 cm "B" 10.16 cm "C" 8.57 cm "D" 20.96 cm "E" 5.2 cm "F" .9 cm "G" 4.5 cm	.045" .047" .062" .078" .093" .125"	1.14 mm 1.2 mm 1.6 mm 2.0 mm 2.4 mm 3.2 mm
500 Pound Reel	Imperial	Metric	Imperial	Metric
	Capacity: 500 lb Material: Steel "A" 30.0" "B" 11-12-3/4" "C" 9-5/8 - 11-5/8" "D" 17" "E" 1-1/4" "F" 7/8 - 1-3/4" "G" 2-1/2 - 4"	Capacity: 227 kg Material: Steel "A" 76.0 cm "B" 27.94-32.39 cm "C" 24.45-29.53 cm "D" 46.18 cm "E" 31.75 cm "F" 2.22-4.44 cm "G" 6.35-10.16 cm	.062" .078" .093" .125"	1.6 mm 2.0 mm 2.4 mm 3.2 mm
Coil Carrier Wire Basket	Imperial	Metric	Imperial	Metric
	Capacity: 60 lb Material: Steel "A" 16-3/8" "B" 4-1/16" "C" 3-3/4" "D" — "E" 12" "F" — "G" —	Capacity: 27.22 kg Material: Steel "A" 41.5 cm "B" 10.3 cm "C" 9.5 cm "D" — "E" 30.48 cm "F" — "G" —	.062" .078" .093" .125"	1.6 mm 2.0 mm 2.4 mm 3.2 mm

SPECIAL METALS

Welding Products Company
A PCC Company

MONEL FM 67
MONEL WE 187

NI-ROD FM 44

NI-ROD FM 44HT

MONEL FM 60
MONEL WE 190

NICKEL
Nickel FM 61

NI-ROD FM 99
NI-ROD WE 99X

NILO FM CF36

INCONEL FM 72
INCONEL FM 72M

INCONEL FM 52
INCONEL FM 52M
INCONEL WS 52M
INCONEL WE 152
INCONEL WE 152M
INCONEL WE 152MSS
INCONEL FM 53MD

FM NC-80/20
INCONEL FM 82
INCONEL WE 182
INCO-WELD A WE

NIMONIC FM 90
NIMONIC FM 263
INCONEL FM 718

INCONEL FM 601

INCONEL FM 617
INCONEL WE 117
INCONEL FM 740H

INCONEL FM 625
INCONEL WE 112
INCONEL WE 116

INCO-WELD FM 725DUR

INCO-WELD FM C-276
INCO-WELD WE C-276

INCONEL FM 622
INCONEL FM 680
INCONEL WE 122
INCO WELD FM 686CPT
INCO WELD WE 686CPT

INCONEL
INCOLOY
INCOFLUX
NILO
INCO-WELD
MONEL
NI-ROD
NIMONIC
DURANICKEL
686CPT
725NDUR

FM = Filler Metal
WE = Welding Electrode
WS = Weldstrip

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