



# HIGH PURITY STRIP

## FOR WELD WIRE

AMETEK Specialty Metal Products manufactures strip specifically developed to act as an outer sheathing layer for powder-filled hard-facing and thermal spray weld wire.

- Very high ductility
- Tight and repeatable chemistry control
- Availability of unique and custom chemistries
- High purity material for improved tool and die life
- Corrosion, wear and high temperature resistant

## MANUFACTURING CAPABILITIES

### FUNCTIONAL WELDS

We produce oscillated wound strip with fully functional welds that match the strength of the surrounding material. These welds are engineered to form similarly to the rest of the base material. The product is then fully annealed to eliminate cold working of slit edges and then traverse-wound on standard reels for continuous pay-off. These large oscillated coils of up to 450 kg save set-up times versus threading smaller coils individually. The product is also available as Pancake Coils.

### CHEMISTRY CONTROL

Our strip for weld wire is produced via proprietary wrought powder metallurgy and maintains very tight chemistry controls. These controls are matched to specification and are reproduced from lot to lot. We tightly control the chemistry of the incoming raw materials to ensure that trace elements are kept to a very low level and that the bulk chemistry is consistent across all manufacturing lots.

### UNIQUE CHEMISTRIES

Our unique process for consolidating materials allows for elemental additions to produce unique chemistries such as Low Iron Cobalt for hard-facing valve seats in the oil and gas industry. Our 5% maximum Iron content in our sheathing leads to low Iron content in the finished wire. This means that fewer applications reach the maximum Iron content in the finished product.

### NEW ALLOYS

The Nickel Chrome product line has been extended with the innovative 35% Chrome alloy. This new product allows wire manufactures to push the boundaries of Chrome content in the final wire products used in Thermal Spray operations, specifically in coating boiler tubes during power plant maintenance. As a complementary project, Silicon is now available in addition to our sheathing materials to aid in thermal spray applications.

### SHORT LEAD TIMES

AMETEK SMP strip products are manufactured from raw materials at our mill in Wallingford in the United States. Our process of generating strip at near finish size allows us to produce and ship quickly with lead times of 4-6 weeks for standard chemistry products. This flexibility allows our customers to react quickly to the ever-changing market forces that impact their business. These short lead times help keep inventories low and predictable.

### ALLOYS OFFERED:

- Ductile Cobalt
- High Purity Nickel
- Nickel-Iron
- Nickel-Chrome
- Custom and Unique Chemistries
- Tolling Services are available

## DUCTILE HIGH PURITY COBALT STRIP, MECHANICAL PROPERTIES, ANNEALED

	<b>580 Alloy</b>	<b>591 Alloy</b>	<b>595 Alloy</b>	<b>595G Alloy</b>
<b>Cobalt (Co)</b>	80.0%	91.0%	94.0%	95.0%
<b>Iron (Fe)</b>	5.0%	5.0%	6.0%	5.0%
<b>Nickel (Ni)</b>	15.0%	4.0%	0.0%	Trace
<b>Tensile Strength (ksi)</b>	80 ksi (552 MPa)	78 ksi (537 MPa)	80 ksi (552 MPa)	75 ksi (517 MPa)
<b>Yield Strength (ksi)</b>	20 ksi (138 MPa)	30 ksi (207 MPa)	35 ksi (241 MPa)	22 ksi (152 MPa)
<b>Elongation</b>	50%	75%	75%	40%
<b>Hardness</b>	145 VHN	125 VHN	125 VHN	150 VHN

## HIGH PURITY NICKEL AND NICKEL CHROME STRIP, MECHANICAL PROPERTIES, ANNEALED

	<b>899 Alloy</b>	<b>8020 Alloy</b>	<b>7030 Alloy</b>	<b>6535 Alloy</b>
<b>Nickel (Ni)</b>	99.8%	80.0%	70.0%	64.0%
<b>Chrome (Cr)</b>	<0.05%	20.0%	30.0%	34.5%
<b>Silicon (Si)</b>	0.0%	0.0%	0.0%	1.50%
<b>Tensile Strength (ksi)</b>	56.6 ksi (390 MPa)	85 ksi (586 MPa)	90 ksi (620 MPa)	95 ksi (655 MPa)
<b>Yield Strength (ksi)</b>	19.6 ksi (135 MPa)	30 ksi (207 MPa)	35 ksi (241 MPa)	45 ksi (310 MPa)
<b>Elongation</b>	40%	35%	45%	50%
<b>Hardness</b>	100 VHN	150 VHN	145 VHN	160 VHN

Other chemistries available (90Ni10Cr, 65Ni35Cr) as well as Silicon additions.

## HIGH PURITY NICKEL IRON STRIP, MECHANICAL PROPERTIES, ANNEALED

	<b>936 Alloy</b>	<b>942 Alloy</b>	<b>946 Alloy</b>	<b>948 Alloy</b>	<b>952 Alloy</b>
<b>Nickel (Ni)</b>	36%	42%	46%	48%	51%
<b>Manganese (Mn)</b>	0.20%	0.20%	0.20%	0.20%	0.20%
<b>Iron (Fe)</b>	Balance	Balance	Balance	Balance	Balance
<b>Tensile Strength (ksi)</b>	65.0 ksi (450 MPa)	68.0 ksi (470 MPa)	70.0 ksi (480 MPa)	72.0 ksi (495 MPa)	74.0 ksi (510 MPa)
<b>Yield Strength (ksi)</b>	37.7 ksi (260 MPa)	36.2 ksi (250 MPa)	36.0 ksi (245 MPa)	34.0 ksi (235 MPa)	32.0 ksi (220 MPa)
<b>Elongation</b>	30%	35%	35%	35%	35%
<b>Hardness</b>	145 VHN	145 VHN	145 VHN	145 VHN	145 VHN

All datasheet values are nominal except where noted.



## ABOUT AMETEK SPECIALTY METAL PRODUCTS

AMETEK Specialty Metal Products (SMP) is a business unit of AMETEK, Inc. a leading global manufacturer of electronic instruments and electromechanical devices with annualized sales of approximately \$5.5 billion.

The Specialty Metals business unit consists of five brands and operating facilities in the United States and the United Kingdom. All are proven experts in the manufacture of advanced metallurgical products including precision metal strip, ultra-thin foil, specialty shaped wire, engineered components, thermal management materials, water atomized powders, precision tube and roll-bonded clad plate.

These high performance metal products are used around the world for critical applications in a range of industries including aerospace, automotive, defense, electronics, industrial, medical, nuclear, and oil and gas.



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