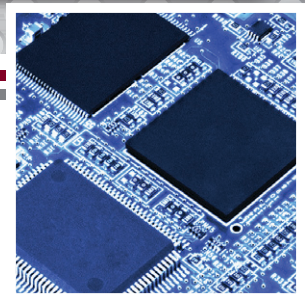
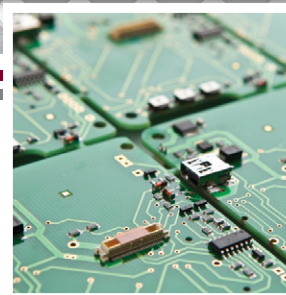


F15 ALLOY (Kovar)



CHEMICAL COMPOSITION %	
Chemical Element	ASTM F15 Alloy (Kovar)
Iron	Bal
Nickel	29
Cobalt	17
Manganese	0.50
Silicon	0.20
Carbon	0.04
Aluminum	0.10
Magnesium	0.10
Zirconium	0.10
Titanium	0.10
Copper	0.20
Chromium	0.20
Molybdenum	0.20
PHYSICAL PROPERTIES	
Property	ASTM F15 Alloy (Kovar)
Density	0.302
Specific Gravity	8.36
Curie Temperature	815
Melting Point	2640
Electrical Resistivity	294
Thermal Conductivity	120
Linear coefficient of thermal expansion cm. per cm. per °C x 10 ⁻⁶	
Temp. range – °C	ASTM F15 Alloy (Kovar)
30-400	4.6 - 5.2
30-450	5.1 - 5.5

Certified to ASTM F15,
AMS I 23011 Class 1

For High Integrity Glass & Ceramic To Metal Seals

ASTM F15 alloy (Kovar®) is a *controlled expansion alloy* most commonly used for high integrity glass and ceramic to metal seals, lids, lead frames and electronic package base. Comprised of Nickel, Cobalt and Iron, ASTM F15 alloy (Kovar®) is designed to cope with computer, microwave, hybrid, semiconductor and space age technology demands, making them extremely valuable to the Defense, Telecommunications and Aerospace Industries.

National Electronic Alloys requires stringent vacuum melting processes that yield the highest level of cleanliness and a more homogenous alloy. We source our products from only the top quality mills and require they test the material to exceed industry standards.

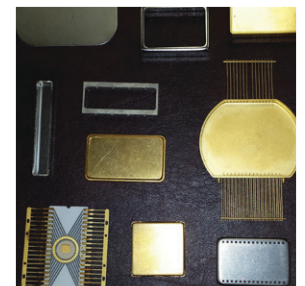
Our ASTM F15 alloy (Kovar®) is extremely stable, passing standard Phase transformation tests of –80°C, and remain stable down to –196°C.

Your *ASTM F15 alloy (Kovar®) supplier* is just as important as the product and our experience on both the procurement side and supply side give us a unique insight into each customer's specific needs.

We are an ISO Certified Corporation. All ASTM F15 alloy (Kovar®) products are *DFARS Compliant* and also in conformance with Section 1502 of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010.

If our products meet or exceed the standards of our nation's Department of Defense, we're confident that they'll meet your standards, too. Why take a chance on second rate material from another Kovar supplier when you can get the highest rated material in the industry from National Electronic Alloys?

ASTM F15 alloy (Kovar®) is available in rods, sheets, coils and other forms.



NEA ISO 9001: 2015
Specialty Metal Service Center
Dedicated to Customer Service & Quality

NATIONAL ELECTRONIC ALLOYS
www.nealloys.com

EAST COAST

3 Fir Court, Oakland, NJ 07436
201-337-9400 • Fax: 201-337-9698
Toll Free: 800-524-4309
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1847 W. Business Center Dr., Orange, CA 92867
714-556-5561 • Fax: 714-556-5562
Toll Free: 877-632-9378
Email: Sales@nealloyswest.com

F15 ALLOY (Kovar) FROM STOCK

WE SELL F15 ALLOY THAT IS CERTIFIED TO NO TRANSFORMATION AT -196°C • BEST QUALITY IN THE INDUSTRY

NICKEL IRON COBALT GLASS & CERAMIC SEALING ALLOY

AMS I 23011 CLASS 1 FOR HIGH INTEGRITY GLASS & CERAMIC TO METAL SEALS

ASTM F15 Alloy

(KOVAR)

COIL THICKNESSES

.004	.010	.025	.050
.0045	.012	.030	.059
.005	.0123	.035	.060
.006	.0142	.040	.082
.008	.015	.042	
.0095	.020	.045	

ALL COIL SLIT TO YOUR WIDTH

ASTM F15 Alloy

(KOVAR)

AMS I 23011 CLASS 1
PLATE - HOT ROLLED

.160 X 15 X 72	.437 X 15 X 72
.180 X 15 X 72	.500 X 15 X 72
.187 X 15 X 72	.515 X 15 X 72
.250 X 15 X 72	.625 X 15 X 72
.260 X 15 X 72	.750 X 15 X 72
.281 X 15 X 72	.875 X 15 X 48
.312 X 15 X 72	1.00 X 15 X 31
.375 X 15 X 72	1.25 X 15 X 31
.390 X 15 X 72	2.00 X 15 X 24

OTHER SIZES ALSO AVAILABLE
SAW CUTTING AVAILABLE

ASTM F15 Alloy

(KOVAR)

SHEET COLD ROLLED, BRIGHT ANNEALED
AMS I 23011 CLASS 1

TK		WIDTHS		LENGTH
.010	x	12"	x	72
.015	x	12, 13"	x	72
.020	x	12, 13, 24"	x	72
.025	x	12, 13, 24"	x	72
.030	x	12, 13, 24"	x	72
.035	x	12, 13, 24"	x	72
.040	x	12, 13, 24"	x	72
.050	x	12, 13, 24"	x	72
.060	x	12, 13, 24"	x	72
.062	x	12, 24"	x	72
.065	x	12, 24"	x	72
.070	x	12, 24"	x	72
.072	x	12, 24"	x	72
.082	x	12, 24"	x	72
.089	x	12, 24"	x	72
.090	x	12, 24"	x	72
.100	x	12, 13, 24"	x	72
.115	x	12, 13, 24"	x	72
.125	x	12, 13, 24"	x	72

SHEARING TO YOUR SIZE

**CUSTOM SIZES
AVAILABLE UPON
REQUEST**

ASTM F15 Alloy

(KOVAR)

AMS I 23011 CLASS 1
CHEMICAL MILLING GRADE
ETCHING QUALITY
COIL OR SHEET

.004 x 12 x COIL	.012 x 12 x COIL
.0045 x 12 x COIL	.0125 x 12 x COIL
.005 x 12 x COIL	.0142 x 12 x COIL
.006 x 12 x COIL	.015 x 12 x COIL
.008 x 12 x COIL	.020 x 12 x 72
.0095 x 12 x COIL	.025 x 12 x 72
.010 x 12 x COIL	.030 x 12 x 72

BEST QUALITY IN THE INDUSTRY

ROD (KOVAR)

ASTM F15 Alloy

DIAMETERS

.030	.125	.625	1.625
.040	.156	.700	1.750
.050	.187	.750	2.0
.060	.200	.875	2.125
.062	.250	1.0	2.5
.066	.312	1.250	3.0
.086	.375	1.375	3.366
.093	.500	1.500	3.5



ISO 9001: 2015

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