



## In Stock Fe-Ni-Co Constant-Expansion Sealing Kovar Alloy 4j29 Bar

Our Product Introduction

for more products please visit us on [victory-alloy.com](http://victory-alloy.com)

### Basic Information

- Place of Origin: China
- Brand Name: Victory
- Certification: CE,ROHS,ISO 9001
- Model Number: Kovar 4J29
- Minimum Order Quantity: 5 Kg
- Price: 10 - 499 kilograms \$35.00
- Packaging Details: Plastic film or waterproof woven bag inside, wire packed in spool put into carton, coil wire or strip wire put into wooden case
- Delivery Time: 7-21 days
- Payment Terms: L/C, T/T, Western Union, MoneyGram
- Supply Ability: 300 tons per month



### Product Specification

- Product Name: Kovar Bar
- Material: Nickel Base Alloy
- Ni (Min): 35%
- Resistance ( $\mu\Omega.m$ ): Stable
- Powder Or Not: Not Powder
- Ultimate Strength ( $\geq$  MPa): 690
- Elongation ( $\geq$  %): 35%
- Application: Aerospace Industry, Chemical Industry, Marine Industry
- Chemical Composition: Fe, Ni, Co, Al, Si, Mn Etc.
- Size: Customized Size
- Highlight: Controlled Expansion Kovar Alloy, 1.3981 Kovar Alloy, 4J29 Precision Alloy



### More Images



### Product Description

Our Product Introduction



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## KOVAR ALLOY BAR

ASTM F15, Nilo-K, UNS K94610, 4J29

Customized service available

### ASTM F15 precision alloy kovar material 4J29 round bar rod price per kg

Glass sealed and controlled expansion Kovar alloys

\* kovar alloy, ASTM F15, Nilo-K, UNS K94610 (FeNi29Co17), Chinese 4J29

\*Specifications: ASTM F15; DIN 17745; S.E.W. 385; Werkstoff Nr. 1.3981; AFNOR NF A54-301

Kovar Alloy, also know as ASTM F-15, NILO K, Pernifer 2918, Rodar, and Dilvar P1 is Nickel-Iron-Cobalt, controlled expansion alloy containing 29% Nickel.

It's coefficient of expansion (which decreases with rising temperature to the inflection point), matches the expansion rate of borosilicate glasses and alumina ceramics.

Applications include glass to metal seals in applications requiring high reliability or resistance to thermal shock, ie. high-power transmitting valves, transistor leads and heaters and photography flash bulbs.

Alloy Type	Trade Name	UNS No.	Specifications	Forms Of Supply			
				Rod	Strip		Wire
Ni29Co17	Kovar	K94610	ASTM F15	√	√		√
FeNi36	Invar 36	K93603	ASTM 1684	√	√		
FeNi32Co5	Super Invar 32-5	KI93500	ASTMF1684	√	√		
FeNi27Co25	Ceramvar	F1466	ASTMF1466	√	√		√
FeNi42	Alloy 42	K94100	ASTM F30	√	√		
FeNi46	Alloy 46	K94600	ASTM F30	√	√		
FeNi48	Alloy 48	K94800	ASTMF30	√	√		
FeNi50	Alloy 52	K95050	ASTM F30	√	√		√

Item	1J33	3J01	3J9	4J29	4J32	4J33	4J45	FeNi50
C	≤0.05	≤0.05	0.22-0.26	≤0.03	≤0.05	≤0.03	≤0.05	≤0.05
Mn	≤0.05	≤1.00	1.80-2.20	≤0.5	0.2-0.6	≤0.5	≤0.8	≤0.8
Fe	Rest							
P	≤0.020	≤0.020	≤0.03	≤0.02	≤0.02	≤0.02	≤0.02	≤0.02
S	≤0.020	≤0.020	≤0.020	≤0.02	≤0.02	≤0.02	≤0.02	≤0.02
Si	0.30-0.6	≤0.80	1.30-1.70	≤0.3	≤0.2	≤0.3	≤0.3	≤0.3
Ni	32.8-33.8	34.5-36.5	9.0-10.5	28.5-29.5	31.5-33	28.5-29.5	44.5-45.5	49.5-50.5
Al	1.0-2.0	1.00-1.80	--	--	--	--	≤0.1	≤0.1
Co	--	--	--	16.8-17.8	3.2-4.2	16.8-17.8	-	-
Ti	-	2.70-3.20	-	-	-	-	-	-
Cu	-	--	--	--	≤0.2	0.4-0.8	≤0.2	--
Cr	--	11.5-13.0	19.0-20.5	≤0.2	--	≤0.2	--	--
Mo	--	--	1.60-1.85	≤0.2	--	≤0.2	--	--

**Table 1 Grade & Chemical Composition of kovar alloy 4J29**

Kovar alloy is a vacuum melted, Iron-nickel-cobalt, low expansion alloy whose chemical composition is controlled within narrow limits to assure precise uniform thermal expansion properties.

Grade	Chemical Composition (%)									Ni	Co	Fe
	C	P	S	Mn	Si	Cu	Cr	Mo				
4J29 Kovar	≤											
	0.03	0.020	0.020	0.5	0.30	0.20	0.20	0.20	28.5~29.5	16.8~17.8	Bal.	

**4J29 Kovar alloy Similar Grades just for customers' reference**

Russia	U.S.A.	U.K.	France	Germany
29HK	Kovar	Nilo K	Dilver P0	Vacon 12

**4J29 Kovar alloy Physical Property (see Table 2 & Table 3)**

**Table 2 Coefficient of Linear Expansion**

Note: Kovar alloy is a Glass and Ceramic sealing alloy (Glass to metal sealing and Ceramic to metal sealing).

Grade	Heat Treatment of the Samples	Average Coefficient of Linear Expansion		
		20~300°C	20~400°C	20~450°C
4J29 Kovar	Heat to temperature of 900±20°C in the hydrogen, hold for 1h; re-heat to 1100±20°C, hold for 15 min.; cooled to 200°C at a rate less than 5°C/min		4.6~5.2	5.1~5.5

**Table 3: 4J29 Kovar alloy Typical Coefficient of Linear Expansion**

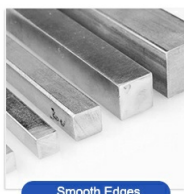
Grade	Average Coefficient of Linear Expansion							
	20~200°C	20~300°C	20~400°C	20~450°C	20~500°C	20~600°C	20~700°C	20~800°C
4J29 Kovar	5.9	5.3	5.1	5.3	6.2	7.8	9.2	10.2

## Product Details

High-quality materials and surface treatment technology



Metallic Luster



Smooth Edges



## Product Comparison

The quality of our products has been strictly tested and guaranteed



OTHERS



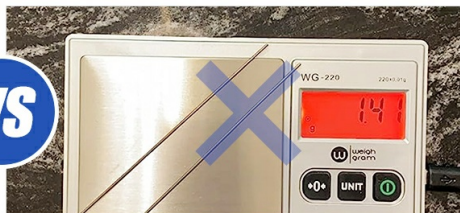
Smooth And Shiny Surface



Product Surface Rust



Product Quality Strict Inspection



Product Weight Does Not Match

## Application Field

Kovar alloy bars are widely used in many fields

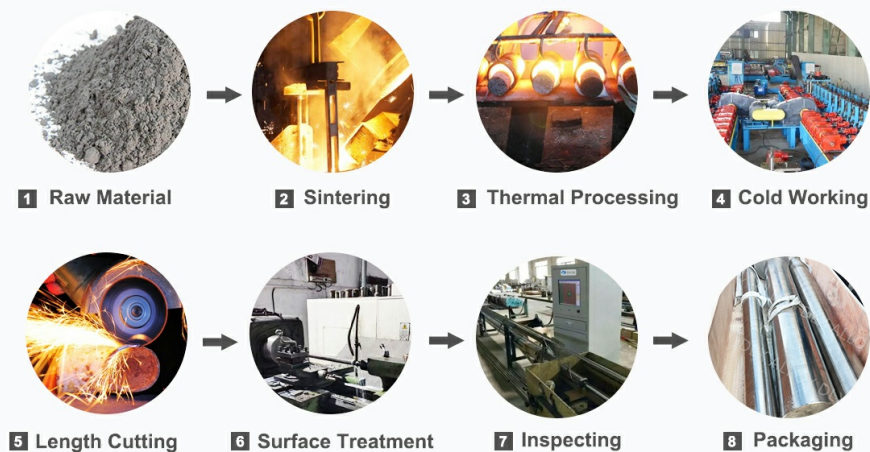


**Kovar (also known as KV-1 or ASTM F15) is a nickel-iron alloy that finds wide applications in the field of electronics due to its thermal expansion coefficient that matches that of borosilicate glass. Here are some of the application areas of Kovar:**

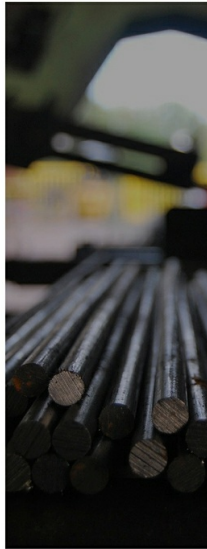
1. Electronic device packaging: Kovar is widely used in the packaging of semiconductor devices, integrated circuits, and other electronic components to provide stable packaging and protect electronic components from environmental influences.
  2. Optoelectronics: Kovar finds widespread application in lasers, photodetectors, and other optical components due to its excellent thermal expansion coefficient and stability.
  3. Aerospace: Kovar is widely used in guidance systems, navigation systems, and other devices in the aerospace field due to its high strength, corrosion resistance, and high-temperature resistance.
- In summary, Kovar finds wide applications in the packaging of electronic components or protection of optoelectronic components due to its thermal expansion coefficient that matches that of borosilicate glass.

## Product Process

The production process and technology used in the product







## Product Comparison

The quality of our products has been strictly tested and guaranteed



Composition Detection



Composition Detection



Measuring Instrument



Micro Hardness Tester



Micro Hardness Tester



Tensile Test Equipment

## OEM Services

We can provide customized services for customers

### Product Customization

**Size:8.0-200mm**

We can customize kovar alloy bars of different size for customers.



### Label Customization



We can provide label customization service for customers' products.

## Recommended Products

Click to learn more about related products



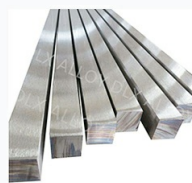
Nickel Strip



Nickel Wire



Monel Bar



Inconel Bar



Incoloy Tube



Nickel Tube

# 20+

Industry Experience

# 50+

Certifications

# 1000+

Metal Products

# 2000+

Cooperative Business

## Company Profile

We are a leading alloy metal manufacturer founded in 2002, providing high-quality and high-performance alloy products and services to our customers. Our company is dedicated to becoming the industry leader in the alloy field, and we have received multiple industry certifications and awards, including the ISO9001 International Quality Management System Certificate and the SGS Certificate.

Over the past 18 years, we have focused on the resistance alloy business and continuously innovated and explored, ultimately developing new nickel-based alloy products such as chromium-nickel-iron alloy, Monel alloy, Hastelloy alloy, high-temperature alloy, and more.



## Our Advantages

Our advantages can provide customers with better service



HIGH QUALITY



SUPER ELASTICITY



HIGH STRENGTH



BRAND EFFECT



PROFESSIONAL FACTORY



TECHNICAL SUPPORT



R&D INNOVATION SERVICES



AFTER-SALES SERVICE



ISO CERTIFICATION



EFFICIENT LOGISTICS SERVICE

## Our Certifications

Our products have obtained national standard certification





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