

GENERAL INFORMATION

Alloy Nico®29 – is special alloy of iron, nickel and cobalt with small coefficient of expansion and accurately controlled chemical composition. Alloy is characterized by almost linear variation of coefficient of thermal expansion between the room temperature and Curie's temperature. Characteristics of expansion are comparable with characteristics of many medium-hard borosilicate glasses and ceramics.

Scope of application includes glass-to-metal seal in the products demanding high reliability or thermal stability, for example, in high-power generating lamps, transistor contacts, heaters and photographic lamps flashes.

Alloy Nico®29 is characterized by:

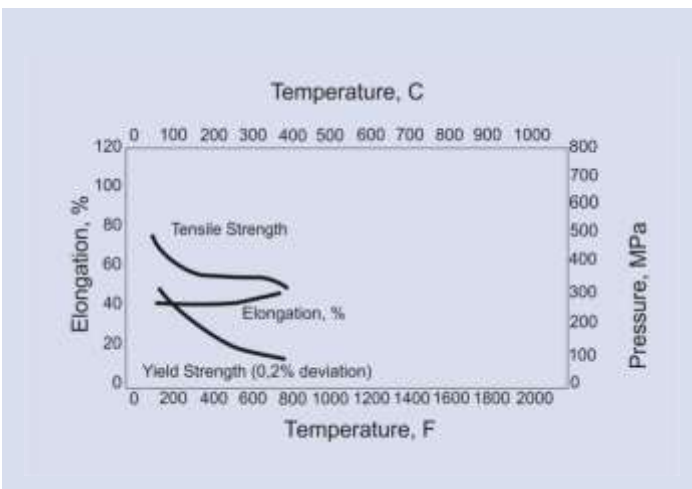
- very low coefficient of thermal expansion between -100°C and +450°C;
- good plasticity and suitability to deformation.

Classification	
DIN	1.3981
UNS	K94610

Chemical composition, %			
Ni	Co	Fe	C
29-30	16-18	rest	≤0.05
Mn	Si	Al	Ti
≤0.50	≤0.30	≤0.10	≤0.10

MECHANICAL PROPERTIES AT 20°C IN ANNEALED CONDITION	
Tensile strength, MPa	520
Yield strength (0.2%), MPa	340
Elongation, %	42

PROCESSING PROPERTIES	
Density, g/cm ³	8,16
Melting range, °C	1390-1397
Heat conductivity, W/(m·°C)	16,7
Specific heat, J/kg·°C	500
TCLE, mm/m·°C (from 20° to 100°C)	6,0
Elastic modulus, KN/mm ²	160
Electrical resistance, μΩ·m	0,43



Pic. Properties of annealed alloy Nico®29 at high temperature

RECOMMENDED WELDING MATERIALS

Electrodes	Elecor®R383
Wire	Fenicro®31

MAIN DELIVERY CONDITIONS

Bars and rods

Forged, rolled, draw, with heat treatment, pickled, repeatedly peeled, machined or polished

Item	Forged, mm	Forge-rolled, mm
Round bar	≤200	8-100
Square bar	40-200	15-280
Flat bar	on request	on request
Hexagonal bar	40-80	13-41

Strip

Cold-rolled, with thermal treatment and pickled or with bright annealing.

Thickness, mm	Width, mm	Coils (ID), mm		
0,02≤0,10	4-200	300	400	
>0,10≤0,2	4-350	300	400	500
>0,2≤0,25	4-750		400	500 600
>0,25≤0,6	5-750		400	500 600
>0,60≤1,0	8-750		400	500 600
>1,0≤2,0	15-750		400	500 600
>2,0<3,0	25-750		400	500 600

Wire

Dry or wet drawing (depends on sizes), from ¼ hardness up to hard, after bright annealing.

Sizes: diameter 0,01 – 12,0 mm, in coils, in drums, on spools and cross-pieces.

Sheets/plates

Hot or cold rolled (Hot-rolled, Cold-rolled), heat treatment and pickling

Thickness, mm		Width, mm	Length, mm
1.10 < 1.50	Cold-rolled	2000	8000
1.50 < 3.0	Cold-rolled	2500	8000
3.0 < 7.5	Cold-rolled, Hot-rolled	2500	8000
7.5 < 25.0	Hot-rolled	2500	8000
≥25.0	Hot-rolled	2500	8000

It is possible to order production of items with other sizes on request.