Evanohm®

		EN	UNS (ASTM)	AISI	JGHD
Designation	**NiCr20Al2.5Cu2Mn1Si1**	2.4872	N10276	-	**A101**

Chemical composition

Ni	Cr	Mn	Si	Al	C	S	P
Balance	18.0 - 22.0	0.5 - 2.0	0.5 - 2.0	2.0 - 4.0	0.20 max.	0.05 max.	0.05 max.

Values (Weight %). In order to achieve maximum homogeneity and consistent quality, the actual manufacturing tolerances are tighter and more precisely than the composition indicated.

Main technical properties and features

Evanohm® is a nickel-chromium alloy whose main characteristic is its excellent electrical resistivity, very low temperature coefficient of resistance (TCR) of ± 10 ppm / ºC and very low thermal electromotive force (EMF) vs. copper of 1.0 microvolts / ºC. The resistivity of Evanohm® alloy increases during heat treatment, but hardly varies even at working temperatures up to 204 ºC.

The alloy has good corrosion resistance to mineral acids (nitric, phosphoric, sulfuric), moderate resistance to seawater and excellent corrosion resistance in humid environments. In addition, Evanohm® alloy has good mechanical strength and is non-magnetic.

Typical uses

Evanohm® is the material of choice for strain gauges and electrical resistors, thanks to the combination of low temperature coefficient of resistivity (TCR) and excellent corrosion resistance.

Typical manufacturing range

		Thickness (mm)	Width (mm)	Length (mm)
Rolled products	Strip in coils [1]	0.0025 - 0.10	1.5 - 200.0	-
	Strip as sheets [1]	0.011 - 0.500	10.0 - 200.0	100 - 3000

[1] Not all our production possibilities are presented here. Other dimensions or product forms available upon request. Some combinations of thicknesses and widths are not possible.

Mechanical properties of strips

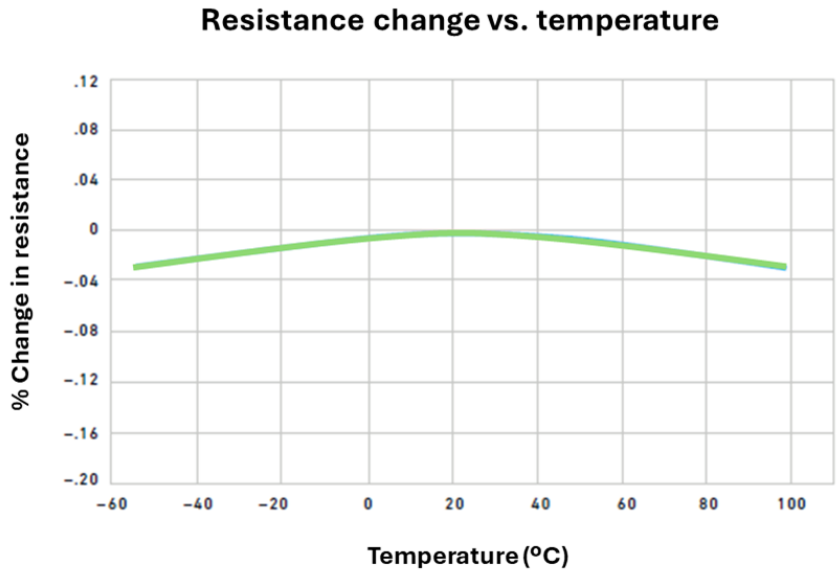
Temper	R_m (N/mm²)	$Rp_{0.2}$ (N/mm²)	A_{50mm} (%)	Hardness HV
annealed	650 - 900	300 min.	30 min.	160 - 280
hard	1200 min.	900 min.	-	350 min.

Physical properties

Density	g/cm^3	8.10
Melting point / Melting range	ºC	1350
Linear dilatation coefficient at 100 ºC	10^{-6}·/ ºC	13
Thermal conductivity at 20 ºC	W/m °K	14.6
Specific heat at 20 ºC	J/(kg. K)	435
Electrical resistivity at 20 ºC	μΩcm	133
Temperature Coefficient of Resistance (TCR)	ppm/ºC	TCR -65 to +125ºC : ± 10 TCR -55 to +25ºC : + 5.0 TCR 0 to +25 ºC : - 2.5 TCR +25 to +125ºC : - 5.0
Thermal EMF versus pure copper from 0 to 100 ºC	Microvolts/ºC.	1.0
Magnetic properties		Nonmagnetic

Heat treatment

Annealing is generally carried out at a temperature of between 400 and 600ºC.



Tolerances (strip and foil)

Thickness

The table shown is an outline of our typical thickness tolerances available. They are tighter than industry standards.

Our "JGHD Precision" and "JGHD Extreme" tolerances are available upon request.

Thickness (mm)		Lamineries MATTHEY		
≥	<	LMSA Standard	LMSA Precision	LMSA Extreme
-	0.025	-	-	± 0.001
0.025	0.050	± 0.003	± 0.002	± 0.0015
0.050	0.065	± 0.004	± 0.003	± 0.002
0.065	0.100	± 0.006	± 0.004	± 0.003
0.100	0.125	± 0.008	± 0.006	± 0.003
0.125	0.150	± 0.008	± 0.006	± 0.004
0.150	0.250	± 0.010	± 0.008	± 0.004
0.250	0.300	± 0.012	± 0.008	± 0.005
0.300	0.400	± 0.012	± 0.009	± 0.005
0.400	0.500	± 0.015	± 0.010	± 0.006
0.500	0.600	± 0.020	± 0.012	± 0.007
0.600	0.800	± 0.020	± 0.014	± 0.007
0.800	1.000	± 0.025	± 0.015	± 0.009
1.000	1.200	± 0.025	± 0.018	± 0.012
1.200	1.250	± 0.030	± 0.020	± 0.012
1.250	1.500	± 0.035	± 0.025	± 0.014

Width

Our width tolerances "Standard" is +0.2, -0.0 (or ± 0.1 mm upon request). They are available for slit widths < 125 mm and thicknesses < 1.00 mm. Special tolerances upon request.

Camber

Our tolerance "JGHD Standard" respects the EN Standard 1654 (Length of measurement 1000 mm). Other tolerances upon request.

Width (mm)		Camber max. (mm/m)			
		LMSA standard		LMSA extreme	
>	≤	≤ 0.5 mm	> 0.5 mm	≤ 0.5 mm	> 0.5 mm
3	6	12	-	6	-
6	10	8	10	4	5
10	20	4	6	2	3
20	250	2	3	1	1.5

Surface

Special surface qualities upon request

Flatness

Special requirement on the longitudinal or transversal flatness upon request

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