

RESISTOHM 80



Nominal composition (%)

Ni	Cr	Fe	Cu	Others
80	20	-	-	Si +

Major specification: our alloy is in conformity with ASTM B 344 and Werkstoff Nr. 2.4869

Physical properties

- Resistivity ($\Omega \text{ mm}^2/\text{m}$) : 1.08
- Temperature coefficient ($\text{K} \times 10^{-6}/^\circ\text{C}$) : 60 from 20 to 1000 °C
- Thermal conductivity at 120 °C ($\text{Wm}^{-1} \text{ }^\circ\text{C}^{-1}$) : 15.0
- Coefficient of linear expansion (coeff $10^{-6}/^\circ\text{C}$) : 17.50 from 20 to 1000 °C
- Density : 8.35
- Creeping point in
 - at 800 ° : 15
 - at 1 000° : 4
- Melting point : 1400 °C
- Maximal operating temperature : 1200 °C

Standard mechanical properties

- Tensile Strength daN/mm² : 76.0
- Yield Strength : 33.0
- Elongation A% on 100 mm : ≥ 30
- Hardness HV : 220

Typical Application

Chemical composition of 80% Nickel and 20% Chromium makes of him the most well-known resistive alloy. It contains rare-earth additions for increased oxidation resistance, especially under conditions of frequent switching or wide temperature fluctuations.

Resistohm 80 gives extraordinary performances at temperatures up to 1200°C and will be operational at those high temperatures under the most exacting conditions.

It is the first choice for all heating elements operating at high temperatures or for each element subject to important heating and cooling cycles, as well in the domestic as in the industrial applications.

Electric furnaces, high temperature elements, heating batteries are among others typical applications of this alloy.

This nuance presents an excellent resistance to hot flow and a very good dimensional stability of the spirals with successive heating cycles.

In an alternated oxidising/reducing atmosphere, Resistohm 80 can be subject to the "green rot".

2.4869	RESISTOHM 80										NiCr 80/20	1,08	
°C	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300
Ct	1,01	1,02	1,03	1,035	1,045	1,05	1,045	1,04	1,045	1,05	1,06	1,07	
Alloy mm	mm ²		Ohm/m		g/m		m/Kg		Ohm/Kg bei 20°C			cm ² /m	
0,10	0,0079		137,58		0,0655		15256,11		2 098 930				3,141
0,11	0,0095		113,70		0,0793		12608,36		1 433 597				3,455
0,12	0,0113		95,54		0,0944		10594,52		1 012 215				3,769
0,13	0,0133		81,41		0,1108		9027,29		734 894				4,084
0,14	0,0154		70,19		0,1285		7783,73		546 369				4,398
0,15	0,0177		61,15		0,1475		6780,49		414 603				4,712
0,16	0,0201		53,74		0,1678		5959,42		320 271				5,026
0,17	0,0227		47,61		0,1894		5278,93		251 306				5,340
0,18	0,0254		42,46		0,2124		4708,68		199 944				5,654
0,19	0,0283		38,11		0,2366		4226,07		161 058				5,968
0,20	0,0314		34,39		0,2622		3814,03		131 183				6,282
0,22	0,0380		28,43		0,3172		3152,09		89 600				6,911
0,25	0,0491		22,01		0,4097		2440,98		53 733				7,853
0,28	0,0615		17,55		0,5139		1945,93		34 148				8,795
0,30	0,0707		15,29		0,5899		1695,12		25 913				9,423
0,32	0,0804		13,44		0,6712		1489,85		20 017				10,052
0,35	0,0962		11,23		0,8030		1245,40		13 987				10,994
0,38	0,1134		9,53		0,9465		1056,52		10 066				11,936
0,40	0,1256		8,60		1,0488		953,51		8 199				12,565
0,42	0,1385		7,80		1,1563		864,86		6 745				13,193
0,45	0,1590		6,79		1,3273		753,39		5 119				14,135
0,48	0,1809		5,97		1,5102		662,16		3 954				15,078
0,50	0,1963		5,50		1,6387		610,24		3 358				15,706
0,55	0,2375		4,55		1,9828		504,33		2 294				17,276
0,60	0,2826		3,82		2,3597		423,78		1 620				18,847
0,65	0,3317		3,26		2,7694		361,09		1 176				20,418
0,70	0,3847		2,81		3,2118		311,35		874,19				21,988
0,75	0,4416		2,45		3,6870		271,22		663,37				23,559
0,80	0,5024		2,15		4,1950		238,38		512,43				25,129
0,85	0,5672		1,90		4,7358		211,16		402,09				26,700
0,90	0,6359		1,70		5,3093		188,35		319,91				28,270
0,95	0,7085		1,52		5,9157		169,04		257,69				29,841
1,00	0,7850		1,38		6,5548		152,56		209,89				31,412
1,10	0,9499		1,14		7,9312		126,08		143,36				34,553
1,20	1,1304		0,96		9,4388		105,95		101,22				37,694
1,30	1,3267		0,81		11,0775		90,27		73,49				40,835
1,40	1,5386		0,70		12,8473		77,84		54,64				43,976
1,50	1,7663		0,61		14,7482		67,80		41,46				47,117
1,60	2,0096		0,54		16,7802		59,59		32,03				50,259
1,70	2,2687		0,48		18,9432		52,79		25,13				53,400
1,80	2,5434		0,42		21,2374		47,09		19,99				56,541
1,90	2,8339		0,38		23,6626		42,26		16,11				59,682
2,00	3,1400		0,34		26,2190		38,14		13,12				62,823
2,25	3,9741		0,27		33,1834		30,14		8,1897				70,676
2,50	4,9063		0,22		40,9672		24,41		5,3733				78,529
2,80	6,1544		0,18		51,3892		19,46		3,4148				87,952
3,00	7,0650		0,15		58,9928		16,95		2,5913				94,235
3,25	8,2916		0,13		69,2345		14,44		1,8813				102,088
3,50	9,6163		0,11		80,2957		12,45		1,3987				109,941
3,80	11,3354		0,10		94,6506		10,57		1,0066				119,364
4,00	12,5600		0,09		104,8760		9,535		0,8199				125,646
4,50	15,8963		0,07		132,7337		7,534		0,5119				141,352
5,00	19,6250		0,06		163,8688		6,102		0,3358				157,058
5,50	23,7463		0,05		198,2812		5,043		0,2294				172,764
6,00	28,2600		0,04		235,9710		4,238		0,1620				188,470