Brand Name	**ISA®-CHROM 60[1)]**
Material Code	**2.4867**
Abbreviation	**NiCr6015**

Chemical Composition (mass components) in %.
Average values of alloy components

Ni	Fe	Cr			
Rem.	20	15			

Features and Application Notes

ISA®-CHROM 60 is especially characterized by high resistivity and high resistance to oxidation and chemical corrosion. The alloy is suitable for high-value electrical resistors and for heating wires for any application, also for heating cords and cables. The maximum working temperature in air is +600 °C when used for resistance wires and +1,150 °C when used for heating wires.

Form of Delivery

ISA®-CHROM 60 is supplied in the form of round wires in the range 0.01 to 1.00 mm Ø in bare, oxideinsulated or enamelled condition, flat wires and stranded wires are also manufactured.

Electrical Resistance in Annealed Condition

Temperature coefficient[2)] of electrical resistance between		Electrical resistivity[3)] in: µΩ x cm (first line) and Ω/CMF (second line) Reference Values				
+20 °C and +105 °C 10^{-6}/K	+20 °C tolerance ±5 %	+100 °C	+200 °C	+300 °C	+400 °C	+500 °C
+100 to +200	**111**	**112**	**114**	**116**	**118**	**122**
	668	**674**	**686**	**698**	**710**	**734**

Physical Characteristics (Reference Values)

Density at +20 °C		Melting point	Specific heat at +20 °C	Thermal conductivity at +20 °C	Average linear thermal expansion coefficient between +20 °C and		Thermal EMF against copper at
					+100 °C	+400 °C	+20 °C
g/cm³	**lb/cub in**	**°C**	**J/g K**	**W/m K**	**10^{-6}/K**	**10^{-6}/K**	**µV/K**
8.20	**0.30**	**+1,390**	**0.46**	**13.00**	**13.50**	**15.00**	**+1.00**

Mechanical Properties at +20 °C in Annealed Condition

Tensile Strength[4)]		Elongation (L_0 = 100 mm) % at nominal diameter in mm				
MPa	**psi**	0.020 to 0.063	> 0.063 to 0.125	> 0.125 to 0.50	> 0.50 to 1.00	> 1.00
600	**87,000**	**≈ 8**	**≈ 14**	**≈ 18**	**≥ 18**	**≥ 25**

Notes on Treatment // ISA®-CHROM 60 can easily be spot-welded. Under certain conditions brazing and soldering is possible (see Technical Information).

1) ISA®-CHROM 60 is a registered trademark of Isabellenhütte Heusler GmbH & Co. KG.
2) These values apply to the state after rapid cooling.
3) The resistivity of nickel-chromium Alloys can be modified by special heat treatment (see Technical information).
4) This value applies to wires of 2.0 mm Ø. For thinner wires the minimum values will substantially increase, depending on the dimension.

Issue 29-March-2014

Nominal Diameter	Cross Section	Weight per 1.000 m	DC Resistance Referred to Length at +20 °C Ω/m			
mm	mm²	g	Nominal Value	Tolerance	Minimum Value	Maximum Value
0.010	0.00007854	0.644	14,133		12,720	15,546
0.011	0.00009503	0.779	11,680		10,512	12.,848
0.013	0.0001327	1.09	8,363		7,526	9,199
0.014	0.0001539	1.26	7,211	±10 %	6,490	7,932
0.016	0.0002011	1.65	5,521		4,969	6,073
0.018	0.0002545	2.09	4,362		3,926	4,798
0.020	0.0003142	2.58	3,533		3,251	3,816
0.022	0.0003801	3.12	2,920		2,686	3,154
0.025	0.0004909	4.03	2,261		2,080	2,442
0.028	0.0006158	5.05	1,803		1,659	1,947
0.030	0.0007069	5.80	1,570		1,445	1,696
0.032	0.0008042	6.59	1,380		1,270	1,491
0.036	0.001018	8.35	1,091		1.,003	1,178
0.040	0.001257	10.30	883		813	954
0.045	0.001590	13.00	698		642	754
0.050	0.001963	16.10	565	±8 %	520	611
0.056	0.002463	20.20	451		415	487
0.060	0.002827	23.20	393		361	424
0.063	0.003117	25.60	356		328	385
0.070	0.003848	31.60	288		265	312
0.071	0.003959	32.50	280		258	303
0.080	0.005027	41.20	221		203	239
0.090	0.006362	52.20	175		161	188
0.100	0.007854	64.40	141		130	153
0.110	0.009503	77.90	117		111	123
0.112	0.009852	80.80	113		107	118
0.120	0.01131	92.70	98.1		93.2	103
0.125	0.01227	101.00	90.5		85.9	95.0
0.130	0.01327	109.00	83.6		79.4	87.8
0.140	0.01539	126.00	72.1		68.5	75.7
0.150	0.01767	145.00	62.8		59.7	66.0
0.160	0.02011	165.00	55.2		52.4	58.0
0.180	0.02545	209.00	43.6		41.4	45.8
0.200	0.03142	258.00	35.3		33.6	37.1
0.220	0.03801	312.00	29.2		27.7	30.7
0.224	0.03941	323.00	28.2		26.8	29.6
0.250	0.04909	403.00	22.6		21.5	23.7
0.280	0.06158	505.00	18.0		17.1	18.9
0.300	0.07069	580.00	15.7		14.9	16.5
0.315	0.07793	639.00	14.2	±5 %	13.5	15.0
0.350	0.09621	789.00	11.5		11.0	12.1
0.355	0.09898	812.00	11.2		10.7	11.8
0.400	0.1257	1,030.00	8.83		8.39	9.27
0.450	0.1590	1,300.00	6.98		6.63	7.33
0.500	0.1963	1,610.00	5.65		5.37	5.94
0.550	0.2376	1,950.00	4.67		4.44	4.91
0.560	0.2463	2,020.00	4.51		4.28	4.73
0.600	0.2827	2,320.00	3.93		3.73	4.12
0.630	0.3117	2,560.00	3.56		3.38	3.74
0.650	0.3318	2,720.00	3.35		3.18	3.51
0.700	0.3848	3,160.00	2.88		2.74	3.03
0.710	0.3959	3,250.00	2.80		2.66	2.94
0.800	0.5027	4,120.00	2.21		2.01	2.32
0.900	0.6362	5,220.00	1.74		1.66	1.83
1.000	0.7854	6,440.00	1.41		1.34	1.48