Brand Name	**CENTATHERM®[1]**
Material Code	
Abbreviation	**CuMn27Ni5**

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

Cu	Ni	Mn	Al		
67	5	27	1		

Features and Application Notes
CENTATHERM® is especially characterized by a high resistivity, that is comparable to many Ni-based alloys. The material is non-magnetic, possesses a relatively low temperature coefficient. CENTATHERM® also shows better welding properties and workability than Ni-alloys. CENTATHERM® is suitable for heating wires of any application, also for heating cords and cables. The alloy is well known for heating elements with low conductor temperatures. The maximum working temperature in air is 400 °C.

Many applications can be found in the plastic sealing and cabling industry, where high-prized Ni-based alloys can be replaced.

Due to its low melting point, CENTATHERM® is also proved successfully in powder metallurgical manufacturing processes.

Form of Delivery
CENTATHERM® is supplied in the form of round wires in the range of 0.10 to 6 mm Ø in bare annealed condition. Also available on request are other Diameters, flat wires, stranded wires and rods.

Notes on Treatment
This alloy is in hard drawn condition subject to stress-corrosion-cracking and should be annealed immediately after being processed.

Electrical Resistance in Annealed Condition

Temperature coefficient of the electrical resistance at	Electrical resistivity tolerance ±5 %						
		+20 °C	+100 °C	+200 °C	+300 °C	+400 °C	
+20 °C and +50 °C 10^{-6}/K		Nom. value	Reference values				
±20	**µΩ x cm**	**100**	**100**	**100**	**102**	**107**	
	CMF	**602**	**602**	**602**	**614**	**644**	

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**
7.8	**0.324**	**+900**	**0.42**	**-**	**20**	**-**	**≤+3**

Strength Properties at +20 °C in Annealed Condition

Tensile Strength[2]		Elongation (L_0 = 100 mm) % at nominal diameter in mm			
MPa	**psi**	> 0.063 to 0.125	> 0.125 to 0.50	> 0.50 to 1.00	
540	**78,000**	**≈ 18**	**≈ 20**	**≥ 20**	

1) CENTATHERM® is a registered trademark of Isabellenhütte Heusler GmbH & Co. KG.
2) This value applies to wires of 1.0 mm diameter. For thinner wires the minimum values will substantially increase, depending on the dimensions.