Brand Name	CENTATHERM
Material Code	
Abbreviation	CuMn27Ni

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 up to 400 °C in non-oxidizing atmosphere.

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 electrical resistance between	Electrical resistivity in Ωxmm²/m at Reference Values					
+20 °C and +50 °C 10^{-6}/K		+20 °C Nom. value	+100 °C	+200 °C Reference values	+300 °C	+400 °C
±20	Ωxmm²/m	1.00	1.00	1.00	1.02	1.07
	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		Elongation (L_0 = 100 mm) % at nominal diameter in mm			
N/mm²	psi	> 0.063 to 0.125	> 0.125 to 0.50	> 0.50 to 1.00	
[min.]					
540	78000	≈ 18	≈ 20	≥ 20	