CERAFIL®

MINIATURE CERAMIC INSULATION CONDUCTOR WIRE FOR VERY HIGH TEMPERATURES

-90°C TO +800°C, PEAK +1 000°C



WEIGHING FAR LESS
MINIATURE SIZE
VERY HIGH TEMPERATURES

CERAFIL®

Ceramic insulation conductor wire for very high temperatures designed for highly-technical markets such as the aerospace, space and nuclear industries to:

- ✔ **Special winding of motors or sensors** operating at very low voltages in extreme use conditions over +800°C
- ✔ **Safety components** capable of withstanding a thermal incident
- ✔ **Measuring temperature** in a confined environment subject to extreme heat



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PRODUCT DESCRIPTION

Conductor	Copper/Nickel support
Diameter range	Ø = 0.07 mm to 1 mm
Insulation	Ceramic 5 to 20 µm thick
Nickel migration	At temperature > +315°C after prolonged use, the **CERAFIL®** can be subject to nickel migration that may cause an increase in its max. resistivity*

ELECTRICAL CHARACTERISTICS

Test voltage (1 min)	150 V AC/212 V DC
Insulation resistance	75 000 MΩ.m at +25°C 22 MΩ.m at +800°C

THERMAL CHARACTERISTICS

Operating temperature	-90°C at +800°C (in continuous operation)
Peak temperature	+1 000°C

FIRE RESISTANCE

Totally non-combustible: at temperature > +1 000°C the **CERAFIL®** may melt but cannot ignite

CHEMICAL CHARACTERISTICS

Chemical resistance	Inert to normal and organic solvents
Hydrophilic	Product sensitive to moisture

RADIATION RESISTANCE

Withstands prolonged exposure to neutrons and gamma rays without altering the mechanical resistance of the insulating material. Contact us.

MECHANICAL CHARACTERISTICS

Minimum bending radius	5 x external diameter of the **CERAFIL®**
Breaking load	23.9 daN/mm²

VACUUM RESISTANCE

No outgassing

REACH / ROHS COMPLIANCE

Upon request

A FEW USE PRECAUTIONS

Ceramic is very different from traditional insulating materials. This material is rigid and hydrophilic and therefore special care must be taken when using it.
CERAFIL® must be stored in a dry environment and must be handled with care, with no mechanical abuse (folding, pulling, etc.). It must be stripped using fine grain sandpaper. Please contact us if you need further information.

CERAFIL®, a ceramic insulation conductor wire for very high temperatures, is the result of several years of research in our laboratory. Our team of engineers has developed an innovative technology that deposits ceramic on a very small diameter conductor wire (from 0.07 mm). This very high temperature miniature wire has been designed to constitute extremely reliable windings capable of withstanding any thermal overloads (mechanical heating, short-circuit, location with thermal risk, etc.).

These outstanding advantages - miniature size, weighing far less and extreme temperature resistance - mean that the **CERAFIL®** is nowadays used in many highly technical applications and research projects in such areas as the aerospace, space and nuclear industries.

We also produce on request thermocouple cables with **CERAFIL®** ceramic insulation to measure temperatures in a confined environment subject to extreme heat.



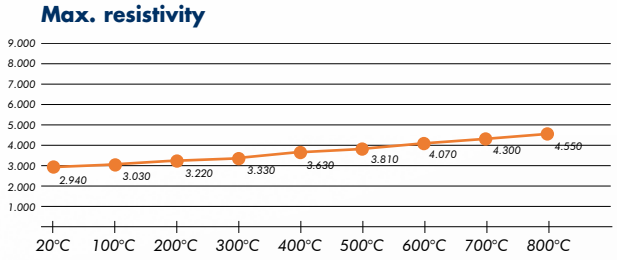
CONSTRUCTION AND MAIN PROPERTIES OF THE CERAFIL®

Core diameter (mm)	AWG	Nominal outer diameter (mm)	Tolerance (mm)	Linear weight (g / km)	Lenght (m / kg)	Tensile strenght (N) Reco.*	Tensile strenght (N) Max.	Minimum bending radius (mm)	Maximum linear resistance at 20°C (Ω / m)
07/100	41	0.091	+/- 0.009	36	29 150	0.15	0.22	0.50	8.261
10/100	38	0.118	+/- 0.008	74	14 280	0.30	0.44	0.63	4.060
12/100	36	0.138	+/- 0.008	105	9 920	0.43	0.65	0.73	2.790
15/100	34	0.168	+/- 0.008	163	6 340	0.68	1.02	0.88	1.768
17/100	34	0.188	+/- 0.008	209	4 940	0.88	1.31	0.98	1.370
20/100	32	0.218	+/- 0.008	288	3 570	1.22	1.83	1.13	0.984
25/100	30	0.268	+/- 0.008	448	2 280	1.92	2.87	1.38	0.626
30/100	28	0.319	+/- 0.009	646	1 580	2.75	4.13	1.64	0.436
35/100	27	0.369	+/- 0.009	877	1 160	3.76	5.64	1.89	0.319
40/100	26	0.419	+/- 0.009	1 142	890	4.93	7.39	2.14	0.244
45/100	25	0.469	+/- 0.009	1 449	700	6.22	9.33	2.39	0.193
50/100	24	0.519	+/- 0.009	1 785	570	7.70	11.50	2.64	0.156
55/100	23	0.569	+/- 0.009	2 163	470	9.30	13.90	2.89	0.129
60/100	22	0.619	+/- 0.009	2 570	390	11.1	16.60	3.14	0.108
65/100	22	0.669	+/- 0.009	3 021	330	13.0	19.50	3.39	0.092
70/100	21	0.719	+/- 0.009	3 498	290	15.10	22.60	3.64	0.080
75/100	20	0.770	+/- 0.010	4 021	250	17.30	25.90	3.90	0.069
80/100	20	0.820	+/- 0.010	4 570	220	19.70	29.60	4.15	0.061
95/100	19	0.920	+/- 0.010	5 783	170	24.90	37.40	4.65	0.048
100/100	18	1.020	+/- 0.010	7 140	140	30.80	46.20	5.15	0.039
120/100	16	1.321	+/- 0.011	10 282	90	44.30	66.50	6.66	0.027

*Recommended winding tension.

CHANGES IN THE ELECTRICAL PROPERTIES OF THE CERAFIL® DEPENDING ON THE TEMPERATURE

Temperature (°C)	Max. resistivity (µΩ.cm)
20°C	2.940
100°C	3.030
200°C	3.220
300°C	3.330
400°C	3.630
500°C	3.810
600°C	4.070
700°C	4.300
800°C	4.550



CGP SAS
62 route du coin - 42400 Saint-Chamond - FRANCE
Phone: +33 **(0)4 77 31 02 54** Fax: +33 (0)4 77 31 02 35
www.omerin.com

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www.omerin.com