

Type MG Precision High Voltage Resistors

Now with Extended Resistance Range to 10,000 Megohms and Additional Models

Temperature Coefficient as tight as 80 ppm/°C, Combined with Excellent Long-Term Stability, and Precision Tolerances.

Caddock's Micronox® resistance films are the source of the Type MG Precision High Voltage Resistors' outstanding combination of performance features:

- Single-resistor values as high as 10,000 Megohms.
- Maximum continuous operating voltages as high as 48,000 volts ("-15" Ratings).
- Overvoltage capabilities of 150% of standard working voltages for all models and values, (except "-15" ratings).
- Resistance Tolerances from ±1.0% to ±0.1%.
- Temperature Coefficient, for standard resistance range, of 80 ppm/°C in combination with resistance tolerances as tight as ±0.1%.
- Typical extended life stability of 0.02% per 1,000 hours for standard resistance range as demonstrated by reliability testing.

This exceptional performance has been proven through many years of use in equipment that demands the highest reliability and stability, including TWT amplifiers, X-ray systems, geophysical instruments and medical electronics.

Preconditioning for Power and Voltage Ratings

All power ratings and maximum operating voltage ratings are for continuous duty. These ratings are based on pre-stress voltage levels applied during the manufacturing process to provide for stable resistor performance even under momentary overload conditions.

Maximum operating voltages 60% higher than the values listed in the table may be specified by adding "-15" to the model number (Example: MG750-15). Note that overload and overvoltage ratings do not apply to the "-15" resistors. Resistance ranges for "-15" resistors shown in the table are from "-15 Min." to "Standard Max."

Non-Inductive Performance

Most models are manufactured with Caddock's Non-Inductive Design which uses a serpentine resistive pattern that provides for neighboring lines to carry current in opposite directions, thereby achieving maximum cancellation of flux fields over the entire length of the resistor. This efficient non-inductive construction is accomplished without derating of any performance advantages.

Model No.	Watt-age	Max. Continuous Oper. Volt.	Dielect. Strength	Resistance				Dimensions in inches and (millimeters)		
				Min.	-15 Min.	Standard Max.	Extended Max.	A	B	C
MG 650	.5	600	750	200 Ω	N/A	5 Meg	N/A	.313 ±.020 (7.95 ±.51)	.094 ±.015 (2.39 ±.38)	.025 ±.002 (.64 ±.05)
MG 655	.5	600	750	200 Ω	N/A	8 Meg	N/A	.313 ±.030 (7.95 ±.76)	.109 ±.015 (2.77 ±.38)	.025 ±.002 (.64 ±.05)
MG 660	.6	1,000	750	400 Ω	N/A	10 Meg	N/A	.500 ±.030 (12.70 ±.76)	.094 ±.015 (2.39 ±.38)	.025 ±.002 (.64 ±.05)
MG 680	.8	2,000	750	600 Ω	N/A	20 Meg	N/A	.750 ±.030 (19.05 ±.76)	.094 ±.015 (2.39 ±.38)	.025 ±.002 (.64 ±.05)
MG 710	1.0	4,000	750	800 Ω	N/A	50 Meg	N/A	1.000 ±.040 (25.40 ±1.02)	.094 ±.015 (2.39 ±.38)	.025 ±.002 (.64 ±.05)
MG 712	.6	1,000	750	800 Ω	N/A	20 Meg	N/A	.400 ±.060 (10.16 ±1.52)	.140 ±.030 (3.56 ±.76)	.025 ±.002 (.64 ±.05)
MG 714	1.0	1,000	750	200 Ω	6.5 Meg	20 Meg	N/A	.562 ±.060 (14.27 ±1.52)	.150 ±.030 (3.81 ±.76)	.032 ±.002 (.81 ±.05)
MG 715	1.0	2,000	750	400 Ω	26 Meg	50 Meg	N/A	.750 ±.060 (19.05 ±1.52)	.140 ±.030 (3.56 ±.76)	.025 ±.002 (.64 ±.05)
MG 716	1.5	4,000	750	600 Ω	70 Meg	75 Meg	N/A	1.000 ±.060 (25.40 ±1.52)	.140 ±.030 (3.56 ±.76)	.025 ±.002 (.64 ±.05)
MG 717	1.5	2,000	750	600 Ω	17 Meg	75 Meg	225 M	.710 ±.050 (18.03 ±1.27)	.240 ±.030 (6.10 ±.76)	.040 ±.002 (1.02 ±.05)
MG 720	2.0	6,000	750	1 K	N/A	150 Meg	N/A	1.500 ±.080 (38.10 ±2.03)	.140 ±.030 (3.56 ±.76)	.025 ±.002 (.64 ±.05)
MG 721	2.0	4,000	750	200 Ω	51 Meg	100 Meg	300 M	1.000 ±.050 (25.40 ±1.27)	.240 ±.030 (6.10 ±.76)	.040 ±.002 (1.02 ±.05)
MG 725	2.5	10,000	750	1.5 K	N/A	200 Meg	N/A	2.000 ±.080 (50.80 ±2.03)	.140 ±.030 (3.56 ±.76)	.025 ±.002 (.64 ±.05)
MG 730	3.0	6,000	1,000	500 Ω	77 Meg	250 Meg	750 M	1.500 ±.080 (38.10 ±2.03)	.240 ±.030 (6.10 ±.76)	.040 ±.002 (1.02 ±.05)
MG 731	2.6	4,000	1,000	200 Ω	40 Meg	150 Meg	750 M	1.000 ±.060 (25.40 ±1.52)	.315 ±.030 (8.00 ±.76)	.040 ±.002 (1.02 ±.05)
MG 735	3.6	10,000	1,000	750 Ω	178 Meg	300 Meg	1,000 M	2.000 ±.080 (50.80 ±2.03)	.240 ±.030 (6.10 ±.76)	.040 ±.002 (1.02 ±.05)
MG 740	3.6	6,000	1,000	300 Ω	64 Meg	300 Meg	1,500 M	1.500 ±.060 (38.10 ±1.52)	.315 ±.030 (8.00 ±.76)	.040 ±.002 (1.02 ±.05)
MG 745	5.0	15,000	1,000	1 K	288 Meg	500 Meg	1,500 M	3.000 ±.100 (76.20 ±2.54)	.240 ±.030 (6.10 ±.76)	.040 ±.002 (1.02 ±.05)
MG 750	5.0	10,000	1,000	400 Ω	128 Meg	500 Meg	2,500 M	2.125 ±.060 (53.98 ±1.52)	.315 ±.030 (8.00 ±.76)	.040 ±.002 (1.02 ±.05)
MG 780	7.5	15,000	1,000	600 Ω	192 Meg	750 Meg	3,750 M	3.125 ±.060 (79.38 ±1.52)	.315 ±.030 (8.00 ±.76)	.040 ±.002 (1.02 ±.05)
MG 785	8.0	20,000	1,000	800 Ω	320 Meg	1,000 Meg	5,000 M	4.000 ±.120 (101.60 ±3.05)	.315 ±.030 (8.00 ±.76)	.040 ±.002 (1.02 ±.05)
MG 810	10.0	25,000	1,000	1 K	400 Meg	1,250 Meg	6,250 M	5.000 ±.120 (127.00 ±3.05)	.315 ±.030 (8.00 ±.76)	.040 ±.002 (1.02 ±.05)
MG 815	15.0	30,000	1,000	1 K	384 Meg	2,000 Meg	10,000 M	6.000 ±.120 (152.40 ±3.05)	.350 ±.040 (8.89 ±1.02)	.040 ±.002 (1.02 ±.05)

Models with low inductance construction are in shaded areas.

Models with Caddock's Non-Inductive Resistance Pattern are in non-shaded areas.

Specifications:

Resistance Tolerance:

Resistance Range	Tolerance
Standard	±1%, ±0.5%, ±0.25%, ±0.1%
St'd with "-15" rating	±1%
Extended Range	±1%

Temperature Coefficient:

Resistance Range	TC Specifications
Standard and St'd with "-15" rating	±80 ppm/°C from -15°C to +105°C, referenced to +25°C.
Extended Range	±80 ppm/°C from +25°C to +105°C, -200 ppm/°C to +50 ppm/°C from -15°C to +25°C.

Insulation Resistance: 10,000 Megohms, min.

Overload/Overvoltage: 5 times rated power with applied voltage not to exceed 1.5 times maximum continuous operating voltage for 5 seconds.

Resistance Range	Overload/Overvoltage, ΔR
Standard	0.5% max.
St'd with "-15" rating	N/A
Extended Range	0.8% max.

Thermal Shock: Mil-Std-202, Method 107, Cond. C, ΔR 0.25% max.

Moisture Resistance: Mil-Std-202, Method 106, ΔR 0.4% max.

Load Life: 1,000 hours at +125°C at rated voltage, not to exceed rated power.

Resistance Range	Load Life, ΔR
Standard	0.5% max.
St'd with "-15" rating	0.8% max.
Extended Range	0.8% max.

Solderable Leads

Encapsulation: High Temperature Silicone Conformal.

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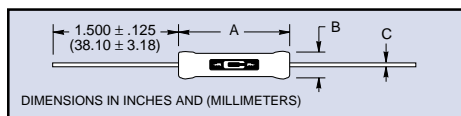
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Type MG Precision High Voltage Resistors

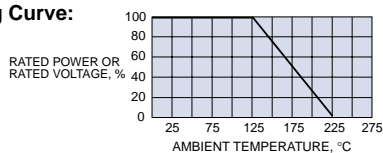
N Non-inductive performance with Caddock's exclusive design

Most models are available with Caddock's Non-inductive Serpentine Pattern

Certain products shown in this catalog are covered by one or more patents, there are also patents pending.



Derating Curve:



Design Assistance in Developing High Voltage Resistor Sets with Low TC Tracking.

For immediate engineering assistance in developing Low Ratio TC matched high voltage resistor sets, call or write our Applications Engineering and we will be pleased to offer the best solution from our high voltage resistor product capabilities.

Ordering Information:

Model Number: MG750 - 100M - 1% Tolerance
 Resistor Value: _____

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