

Type WR Wirewound Resistors - 1 to 32 Amps

APPLICATION

Powerohm's Type WR Wirewound Resistors are designed for low current applications ranging from 1.0 to 32.0 amps continuous, and resistance values ranging between 250.0 and 0.25 ohms, respectively. Units have a rated temperature rise of 375°C above ambient temperature, which is in accordance with NEMA standards.

These units can be used for any type of AC or DC power application, including motor control, dynamic braking, neutral grounding and load testing. The corrosion resistant Type WR resistor will withstand considerable shock and vibration, qualifying it for use in most harsh environments.

BASIC CONSTRUCTION

The Type WR resistor unit consists of a high quality alloy wire coil supported by a spirally-grooved insulating core. The spring-shaped element is attached to either end of the core by rigid stainless steel terminals. This design offers sound mechanical strength, and the ability to package a large amount of active element in a small area.

The open-type construction is the key to the efficient cooling ability of the unit. Unlike enamel or ceramic coated resistors which tend to "trap" the heat, the Type WR resistor allows the element to come in direct contact with the cool ambient air. This unique design allows rapid, natural convection cooling of the resistive element.

Our resistors feature stainless steel element and terminals. The terminals are designed to allow the use of flat bus bars for coil-to-coil connections when the resistors are mounted in our standard selection of enclosures. Our terminals and bus bars are fabricated from rolled stainless steel strip which insures smooth, rounded edges and eliminates any personnel hazard caused from sharp burrs.

The insulating core is produced from a porcelain-type ceramic material which offers good mechanical strength and excellent thermal shock resistance.

Type WR Wirewound Resistor



ELECTRICAL CHARACTERISTICS

VOLTAGE INSULATION: A standard coil is insulated for 1000 volts. Standard resistor assemblies are also insulated for 1000 volts. Additional stages of insulation can be added to cater for applications exceeding 5000 volts.

RESISTANCE TOLERANCE: The standard tolerance for a type WR unit is + 10%. Tolerances as low as + 3% are available.

COEFFICIENT OF RESISTIVITY: Depending on the specific unit, the resistance will increase between 3% and 6% after reaching the maximum operating temperature of 375°C above a 40°C ambient.

AMBIENT TEMPERATURE: Standard ratings are based on maximum ambient temperatures of 40°C. Derate current rating 95% for 50°C ambient, 90% for 75°C ambient and 85% for 100°C ambient.

EFFECTS OF ALTITUDE: The published electrical ratings are applicable for altitudes of 6000 feet or less. Contact factory for deration factors above 6000 feet.

CUSTOM DESIGNS

Powerohm offers a complete selection of standard size coils with various resistance and current ratings. We specialize in custom sizes, and can manufacture coils with any resistance rating ranging between 0.25 and 250.0 ohms at no additional charge.

Type WR Electrical Ratings of Standard Size Coils

RATINGS: The electrical ratings below are the maximum for coils mounted in free air. The maximum power rating will be reduced if multiple coils are installed close together or in an enclosure that restricts ventilation. It is recommended that the factory assist you with such applications, but for approximation purposes, resistor coils mounted in a well ventilated enclosure can be rated at 90% and in an unventilated enclosure at about 80% of their continuous amp rating.

CUSTOM SIZES: Please note that this table contains only the most common size resistor coils. Any resistance value between 0.25 and 250.0 ohms is available.

FIXED TAPS: For design versatility, individual units are available with multiple fixed taps.

ELECTRICAL RATINGS FOR CONTINUOUS AND INTERMITTANT DUTY CYCLES

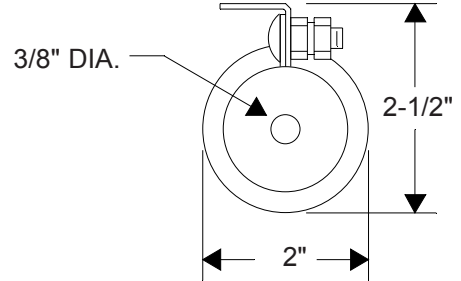
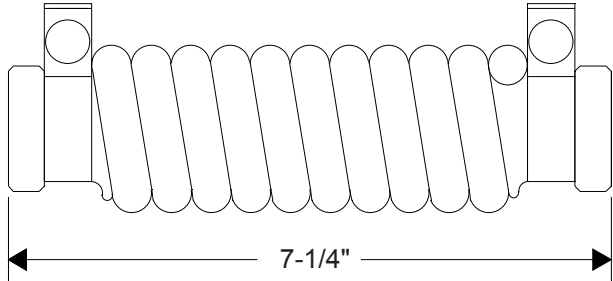
PART NUMBER	RESISTANCE OHMS	WATTS	AMP RATINGS BASED ON NEMA CLASSIFICATION NUMBERS				
			CLASS 90 CONTINUOUS	CLASS 170 ON 15 SEC. OFF 15 SEC.	CLASS 160 ON 15 SEC. OFF 30 SEC.	CLASS 150 ON 15 SEC. OFF 45 SEC.	CLASS 130 ON 10 SEC. OFF 70 SEC.
WR25	0.25	256	32.0	39.0	45.0	51.0	76.0
WR30	0.30	288	31.0	37.0	43.0	49.0	74.0
WR35	0.35	294	29.0	35.0	40.0	46.0	69.0
WR50	0.50	365	27.0	33.0	38.0	43.0	65.0
WR70	0.70	339	22.0	27.0	31.0	35.0	53.0
WR100	1.00	324	18.0	22.0	25.0	29.0	44.0
WR150	1.50	338	15.0	18.0	21.0	24.0	34.0
WR200	2.00	338	13.0	15.9	18.9	20.9	29.5
WR250	2.50	360	12.0	14.2	16.2	19.1	27.5
WR350	3.50	386	10.5	12.1	13.9	16.2	22.0
WR400	4.00	400	10.0	11.5	13.2	15.4	21.0
WR450	4.50	381	9.2	10.7	12.3	13.5	20.0
WR500	5.00	361	8.5	10.4	12.4	13.0	19.3
WR550	5.50	352	8.0	10.2	11.6	12.7	17.5
WR600	6.00	347	7.6	9.8	10.8	11.9	16.7
WR700	7.00	373	7.3	8.9	9.8	10.5	15.0
WR850	8.50	417	7.0	8.2	9.2	9.7	14.2
WR1000	10.00	384	6.2	7.2	7.7	8.1	11.9
WR1200	12.00	404	5.8	7.1	7.4	7.7	11.4
WR1500	15.00	421	5.3	5.9	6.2	6.9	9.8
WR2000	20.00	423	4.6	5.4	5.8	5.7	8.1
WR2700	27.00	350	3.6	4.4	4.4	5.0	6.5
WR3600	36.00	324	3.0	3.7	4.1	4.4	5.9
WR4500	45.00	281	2.5	3.2	3.3	3.6	4.6
WR6200	62.00	248	2.0	2.5	2.7	2.9	3.7
WR8000	80.00	259	1.8	2.2	2.4	2.5	3.3
WR10000	100.00	256	1.6	2.0	2.1	2.2	2.9
WR12500	125.00	245	1.4	1.7	1.8	1.9	2.5
WR15000	150.00	254	1.3	1.6	1.7	1.8	2.3
WR17500	175.00	252	1.2	1.5	1.6	1.7	2.1
WR20000	200.00	242	1.1	1.3	1.4	1.5	1.9
WR25000	250.00	250	1.0	1.2	1.3	1.4	1.8

Type WR Coil Dimensions & Tap Options

DIMENSIONS AND WEIGHT OF STANDARD SIZE COILS

AVERAGE WEIGHT: 1.1 lbs per single coil

DIMENSIONS:

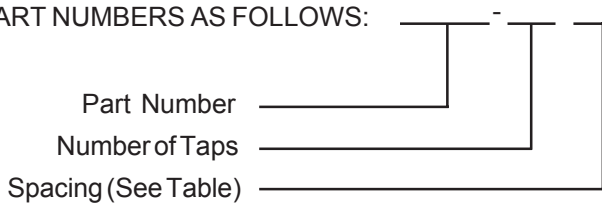


Note: Terminals are supplied with 10-24 stainless steel hardware.

ADDING FIXED TERMINALS TO TYPE WR WIREWOUND RESISTORS

Type WR Wirewound Resistors are furnished with two rigid end terminals which are clamped at either end on the ceramic core. Additional fixed taps consist of a steel band clamped directly around the coiled element. Numerous tap configurations are available, however, fixed terminals are limited to a spacing no closer than every two turns and a maximum of four fixed taps per coil.

SPECIFY PART NUMBERS AS FOLLOWS:

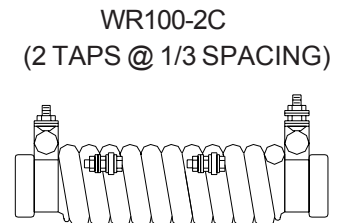
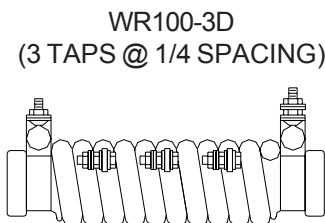
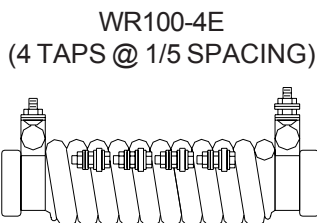
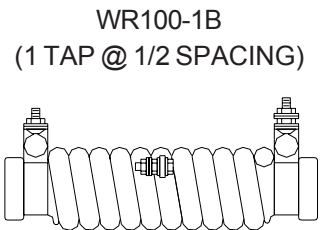


For example, the part number for a 373 watt, 7.0 ohm coil with 2 taps at 1/5 spacing is WR700-2E.

ADDITIONAL TAPS & SPACING CHART

FRACTIONAL SPACING	SUFFIX LETTER
1/2	B
1/3	C
1/4	D
1/5	E

Examples of WR wirewound Resistors with additional taps:



Type WR Mounting Bracket Options and Dimensions

Type WR Wirewound Resistors are available fully assembled on open-style brackets. This open-style construction consists of resistors installed on mill galvanized brackets complete with stainless steel bus bars.

SPECIFY PART NUMBERS AS FOLLOWS:

Number of Coils in Assembly

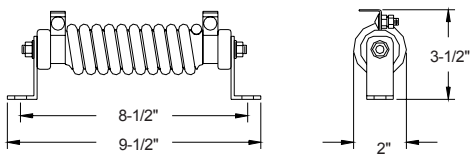
Part Number

Bracket Identification

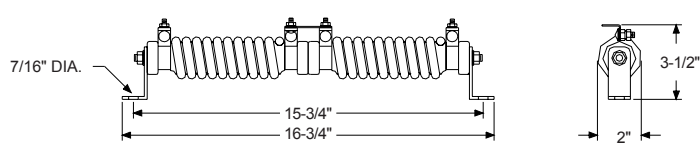
For example, the part number for a 373 watt, 7.0 ohm coil mounted on brackets is 1WR700-B1. Standard assemblies of 2 or more coils include series jumpers. Add "-N" to eliminate jumpers and "-P" for parallel jumpers.

B1 BRACKET ASSEMBLY OPTIONS AND DIMENSIONS

1 Coil - B1 Bracket Assembly
Example Part Number: 1WR700-B1

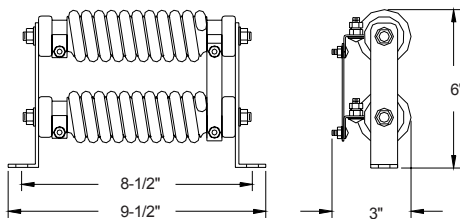


2 Coil - B1 Bracket Assembly
Example Part Number: 2WR700-B1

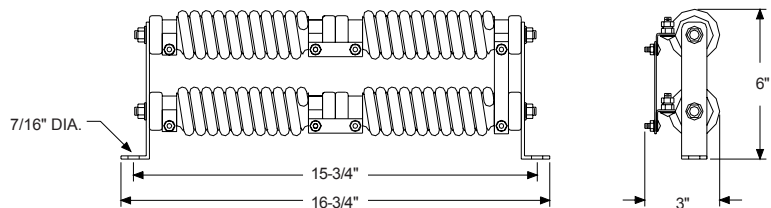


B2 BRACKET ASSEMBLY OPTIONS AND DIMENSIONS

2 Coil - B2 Bracket Assembly
Example Part Number: 2WR700-B2

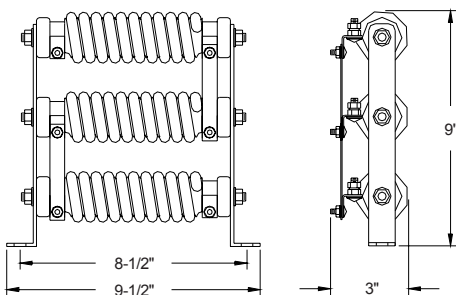


4 Coil - B2 Bracket Assembly
Example Part Number: 4WR700-B2



B3 BRACKET ASSEMBLY OPTIONS AND DIMENSIONS

3 Coil - B3 Bracket Assembly
Example Part Number: 3WR700-B3



6 Coil - B3 Bracket Assembly
Example Part Number: 6WR700-B3

