

Type ER and ERB Edgewound Resistors - 16 to 100 Amps

APPLICATION

Powerohm's Type ER and ERB Edgewound Resistors can be used for any AC or DC power application. Units are most commonly used for VFD braking, motor control, load banks and neutral grounding applications.

The Type ER and ERB resistors are suitable for continuous duty applications where low resistance and high current are required. The high element mass allows these units to withstand high current, intermittent duty applications. This characteristic, combined with the high-temperature ceramic insulation, makes the edgewound ideal for neutral grounding applications, which reach temperatures as high as 800°C.

BASIC CONSTRUCTION

Powerohm's Type ER and ERB resistors are lightweight, heavy-duty units consisting of a non-corrodible, high quality stainless steel alloy. The ribbon-like element is wound on edge in the form of a helix, and then spun onto a ceramic core. Type ER resistors are supported by a threaded rod passing through the center of the ceramic core. Type ERB resistors are supported by a mounting bar which is slotted at either end. Fixed terminations are made by welding stainless steel tabs to either end of the element, or at various points for multiple connections. This unit includes fixed terminals, through-rods, through-bars, hardware and stainless steel element.

Our ceramic insulating cores are manufactured in-house to maintain total control over production and quality standards. Powerohm is the only domestic resistor manufacturer with this added advantage.

OPTIONS

COIL SIZES: Type ER and ERB resistors are available in (6) standard lengths, all having the same, approximate diameter of 2 inches. Wattage values vary from 400 to 2300 watts per coil. These units are available in (15) different current ratings ranging from 16 to 100 amps continuous, and resistance values between 6.2 and .06 ohms, respectively.

ADJUSTABLE TERMINALS: Adjustable terminals, which can be clamped to the element, are available for certain size units; add "-A" to the part number.

ENCLOSURES: Powerohm Type ER resistors can be packaged in our standard line of enclosures. See the Enclosure Catalog Section for details.

Type ER Edgewound Resistor



ELECTRICAL CHARACTERISTICS

VOLTAGE INSULATION: A standard Type ER and ERB resistor is insulated for up to 1000 volts. Standard enclosures are insulated for up to 1000 volts and by adding further stages of insulation, an assembly of units can be used for applications exceeding 15 kV.

RESISTANCE TOLERANCE: + 10% for all units; as low as + 3% if required.

COEFFICIENT OF RESISTIVITY: Resistance values will increase as the element temperature rises. Expect an approximate increase of 5% in resistance after the unit reaches an operating temperature of 375°C above ambient. Contact the factory for more specific information if needed.

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 the factory for deration factors above 6000 feet.

CUSTOM DESIGNS

Powerohm offers a complete selection of standard size coils on the following page. These coils cover a wide range of resistance and current values. Numerous variations are available for special applications or replacement of other manufacturers. Powerohm can match the electrical ratings of any edgewound product available. Please contact the factory for assistance.

Type ER Electrical Ratings & Coils Dimensions

SPECIFY PART NUMBERS AS FOLLOWS: ER or ERB - Length - Amp Rating

For example, the part number of a Type ER, 50 amp, 0.51 ohm coil is ER5-50.

RATINGS: The continuous current ratings are based on a 375°C temperature rise. The resistance values are measured at 25°C and have a + 10% tolerance.

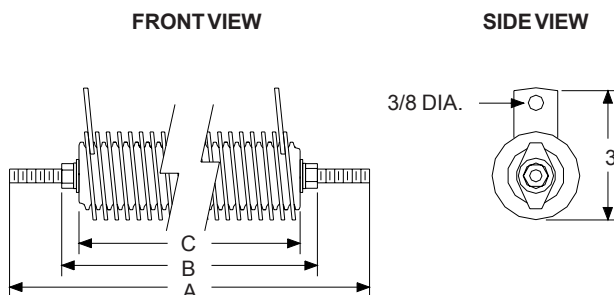
ELECTRICAL RATINGS OF STANDARD SIZE COILS

| CONTINUOUS AMP RATING | RESISTANCE IN OHMS | | | | | |
|-----------------------|--------------------|----------|----------|----------|----------|----------|
| | LENGTH 2 | LENGTH 3 | LENGTH 4 | LENGTH 5 | LENGTH 6 | LENGTH 7 |
| 15 | 1.90 | 3.00 | 4.10 | 5.10 | 6.20 | 7.20 |
| 16 | 1.70 | 2.60 | 3.50 | 4.40 | 5.30 | 6.20 |
| 18 | 1.30 | 2.0 | 2.7 | 3.5 | 4.2 | 4.90 |
| 20 | 1.20 | 1.80 | 2.4 | 3.1 | 3.7 | 4.3 |
| 23 | .89 | 1.37 | 1.85 | 2.3 | 2.8 | 3.3 |
| 26 | .69 | 1.06 | 1.44 | 1.81 | 2.2 | 2.6 |
| 29 | .49 | .75 | 1.02 | 1.29 | 1.55 | 1.82 |
| 32 | .43 | .66 | .90 | 1.13 | 1.37 | 1.60 |
| 36 | .35 | .54 | .73 | .92 | 1.11 | 1.30 |
| 40 | .27 | .41 | .56 | .70 | .85 | .99 |
| 45 | .25 | .38 | .52 | .65 | .78 | .92 |
| 50 | .19 | .30 | .40 | .51 | .62 | .72 |
| 60 | .15 | .23 | .32 | .40 | .48 | .57 |
| 70 | .12 | .19 | .26 | .33 | .39 | .46 |
| 85 | .07 | .11 | .15 | .19 | .23 | .27 |
| 100 | .06 | .10 | .13 | .16 | .20 | .23 |

TYPE ER DIMENSIONS: The coil dimensions are for standard size units. Coil and threaded rod length can be varied per customer request. All units have the same approximate diameter of 2 inches. Units are furnished with 5/16"-18 through rods and terminal hardware.

STANDARD COIL DIMENSIONS

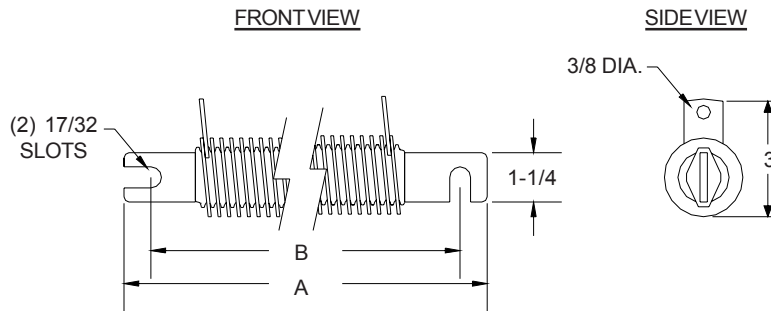
| LENGTH | A | B | C |
|--------|--------|----|--------|
| 2 | 9-3/8 | 7 | 6-1/8 |
| 3 | 12-3/8 | 10 | 9-1/8 |
| 4 | 15-3/8 | 13 | 12-1/8 |
| 5 | 18-3/8 | 16 | 15-1/8 |
| 6 | 21-3/8 | 19 | 18-1/8 |
| 7 | 24-3/8 | 22 | 21-1/8 |



Type ERB Coil Dimensions & Tap Options

TYPE ERB (BAR-MOUNT) EDGEWOUND DIMENSIONS

TYPE ERB EDGEWOUND: Type ERB bar-mounted edgewounds are available with the same electrical ratings as the Type ER edgewounds. All units have the same approximate diameter of 2 inches. Units are furnished with a through-bar and terminal hardware.



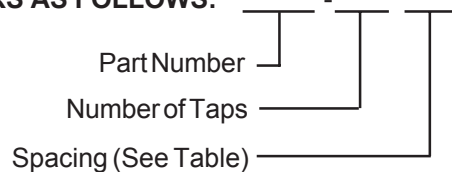
STANDARD COIL DIMENSIONS

| LENGTH | A | B |
|--------|--------|--------|
| 2 | 9-1/4 | 7-7/8 |
| 3 | 12-1/4 | 10-7/8 |
| 4 | 15-1/4 | 13-7/8 |
| 5 | 18-1/4 | 16-7/8 |
| 6 | 21-1/4 | 19-7/8 |
| 7 | 24-1/4 | 22-7/8 |

ADDITIONAL TAPS

Type ER resistors are furnished with two stainless steel terminals at either end of the ceramic core. Additional fixed taps consist of a stainless steel terminal welded in place at various intervals. Numerous tap configurations are available, but limited to a spacing no closer than 1-1/4 inches.

SPECIFY PART NUMBERS AS FOLLOWS:

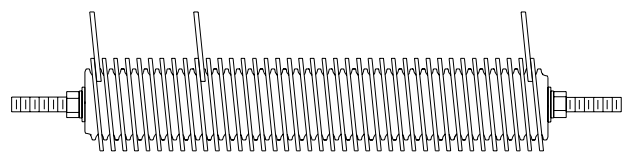


For example, the part number of a Type ER, 50 amp, 0.51 ohm coil with 2 taps at 1/3 spacing is ER5-50-2C. See below for additional part number examples.

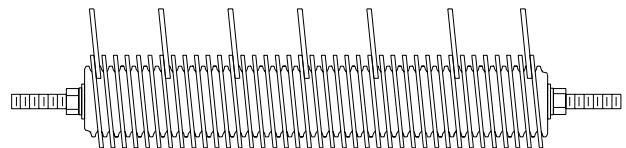
ADDITIONAL TAPS & SPACING CHART

| FRACTIONAL SPACING | SUFFIX LETTER |
|--------------------|---------------|
| 1/2 | B |
| 1/3 | C |
| 1/4 | D |
| 1/5 | E |
| 1/6 | F |
| 1/7 | G |
| 1/8 | H |
| 1/9 | J |
| 1/10 | K |
| 1/11 | L |
| 1/12 | M |
| 1/13 | N |
| 1/14 | P |
| 1/15 | R |
| 1/16 | S |
| 1/17 | T |

Other examples of ER Edgewound Resistors with additional taps.



ER3-50-1D
(1 TAP @ 1/4 SPACING)

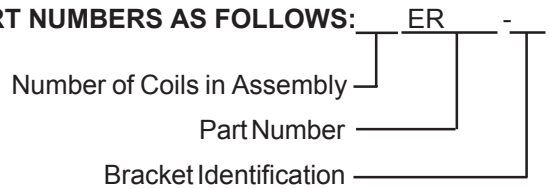


ER3-50-5F
(5 TAP @ 1/6 SPACING)

Type ER Mounting Bracket Options & Dimensions

Type ER Edgewound Resistors are available fully assembled on open-style brackets. This open-style construction consists of resistors installed on mill galvanized brackets complete with all hardware and stainless steel bus bars.

SPECIFY PART NUMBERS AS FOLLOWS:

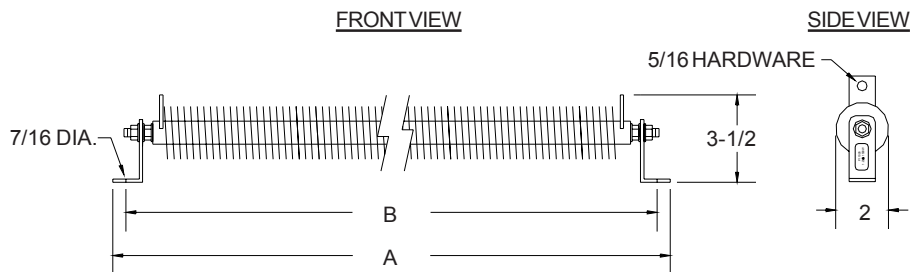


For example, the part number of a Type ER, 50 amp, 0.51 ohm coil mounted on B1 Brackets is 1ER5-50-B1. Standard assemblies of 2 or more coils include series jumpers. Add "-N" to eliminate jumpers and "-P" for parallel jumpers.

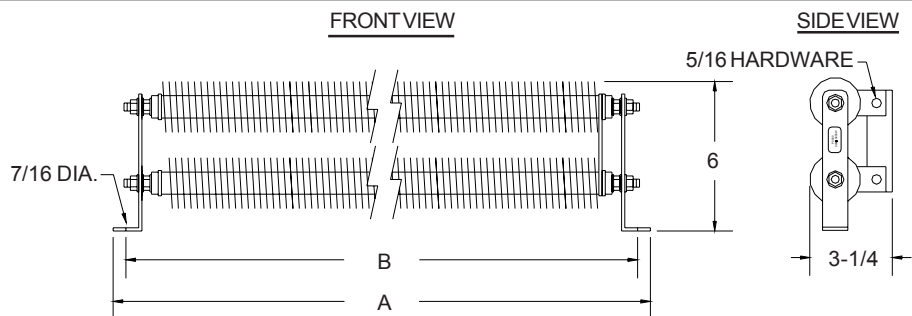
STANDARD BRACKET DIMENSIONS

| DIMENSION | SIZE 2 | SIZE 3 | SIZE 4 | SIZE 5 | SIZE 6 | SIZE 7 |
|-----------|--------|--------|--------|--------|--------|--------|
| A | 9 | 12 | 15 | 18 | 21 | 24 |
| B | 8 | 11 | 14 | 17 | 20 | 23 |

B1 BRACKET ASSEMBLY OPTIONS & DIMENSIONS



B2 BRACKET ASSEMBLY OPTIONS & DIMENSIONS



B3 BRACKET ASSEMBLY OPTIONS & DIMENSIONS

