

Wirewound Resistors, Industrial Power, Vitreous Coated, Adjustable Edgewound Tubular



FEATURES

- High temperature vitreous coating
- Complete welded construction
- Tight tolerance of 5 % for values above 1 Ω
- Excellent stability in operation (< 3 % change in resistance)
- Material categorization:
for definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT
HALOGEN
FREE
GREEN
(5-2008)

STANDARD ELECTRICAL SPECIFICATIONS

| GLOBAL MODEL | HISTORICAL MODEL | POWER RATING $P_{25^\circ\text{C}}$ W | RESISTANCE RANGE Ω $\pm 5\%$ | RESISTANCE RANGE Ω $\pm 10\%$ | WEIGHT (typical) g |
|--------------|------------------|---------------------------------------------|-------------------------------------------|--------------------------------------------|-----------------------|
| AVE0050 | AVE-50 | 50 | 1.0 to 3.8 | 1.0 to 3.8 | 18 |
| AVE0090 | AVE-90 | 90 | 0.10 to 5.7 | 0.10 to 5.7 | 36 |
| AVE0100 | AVE-100 | 100 | 1.0 to 6.1 | 0.15 to 6.1 | 41 |
| AVE0110 | AVE-110 | 110 | 1.0 to 7.4 | 0.20 to 7.4 | 49 |
| AVE0120 | AVE-120 | 120 | 1.0 to 8.6 | 0.1 to 8.6 | 54 |
| AVE0140 | HLZ-140 | 140 | 0.08 to 9.0 | 0.08 to 9.0 | 109 |
| AVE0155 | AVE-155 | 155 | 1.0 to 12.5 | 0.1 to 12.5 | 129 |
| AVE0165 | HLZ-165 | 165 | 0.35 to 13.0 | 0.35 to 13.0 | 91 |
| AVE0180 | HLZ-165 | 165 | 0.35 to 13.0 | 0.35 to 13.0 | 91 |
| AVE0240 | AVE-240 | 240 | 1.0 to 18 | 0.1 to 18 | 186 |
| AVE0300 | AVE-300 | 300 | 1.0 to 25 | 0.15 to 25 | 236 |
| AVE0375 | AVE-375 | 375 | 1.0 to 32 | 0.20 to 32 | 286 |
| AVE0420 | AVE-420 | 420 | 1.0 to 35.8 | 0.25 to 35.8 | 320 |

GLOBAL PART NUMBER INFORMATION

Global Part Numbering example: AVE030020E15R0KE92 (visit www.vishay.net SAP parts manual for all options)

A **V** **E** **0** **3** **0** **0** **2** **0** **E** **1** **5** **R** **0** **K** **E** **9** **2**

| GLOBAL MODEL (7 digits) | TERMINAL DESIGNATION (2 digits) | TERMINAL FINISH (1 digit) | VALUE (4 digits) | TOLERANCE (1 digit) | PACKAGING CODE (1 digit) | SPECIAL (up to 2 digits) |
|--------------------------------------------------------------------------|-------------------------------------|------------------------------|---------------------------------------------------------------------------------------------------------|-----------------------------------------------|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (see Standard Electrical Specifications Global Model column for options) | 06 15 20 | E = lead (Pb)-free | R = decimal K = thousand 1R50 = 1.5 Ω 1K50 = 1.5 k Ω | J = $\pm 5\%$ K = $\pm 10\%$ | E = lead (Pb)-free cell and bulk pack | (dash number) from 1 to 99 as applicable 91 = 100 style horizontal thru-bolt bracket 92 = 200 style push-in bracket 93 = 300 style vertical thru-bolt bracket |

Historical Part Number example: AVE-300-15-10%-BKTS

| | | | |
|------------------|-------------------------------|-------------|-------------|
| AVE-300 | 15 Ω | 10 % | BKTS |
| HISTORICAL MODEL | RESISTANCE VALUE | TOLERANCE | SPECIAL |

DIMENSIONS in inches [millimeters]


| MODEL | CORE DIMENSIONS | | | TERMINAL SETBACK | DISTANCE CENTER TO CENTER (REF.) | TERMINAL DESIGNATION | | SLIDER MODEL NUMBER |
|--------------------|--------------------|-----------------------------|-----------------------------|------------------|----------------------------------|----------------------|--------------------------|---------------------|
| | LENGTH | O.D. ± 0.031 [± 0.79] | I.D. ± 0.031 [± 0.79] | | | STANDARD | OPTIONAL (QUICK CONNECT) | |
| AVE0050 | 2.000 [50.8] | 0.750 [19.05] | 0.500 [12.70] | 0.094 [2.18] | 1.562 [39.67] | 06 | 15 | 71 |
| AVE0090 | 4.000 [101.6] | 0.563 [14.30] | 0.312 [7.95] | 0.094 [2.39] | 3.562 [90.47] | 06 | 15 | 71 |
| AVE0100 | 3.500 [88.90] | 0.750 [19.05] | 0.500 [12.70] | 0.079 [2.39] | 3.092 [78.54] | 06 | 15 | 74 |
| AVE0110 | 4.000 [101.6] | 0.750 [19.05] | 0.500 [12.70] | 0.125 [2.01] | 3.500 [88.90] | 06 | 15 | 74 |
| AVE0120 | 4.500 [114.3] | 0.750 [19.05] | 0.547 [13.89] | 0.125 [3.18] | 3.400 [101.60] | 06 | 15 | 74 |
| AVE0140 | 4.000 [101.6] | 1.125 [28.58] | 0.750 [19.05] | 0.219 [5.56] | 2.812 [71.42] | 20 | 15 | 74 |
| AVE0155 | 4.250 [107.95] | 1.125 [28.58] | 0.750 [19.05] | 0.282 [7.16] | 3.311 [84.10] | 20 | 15 | 74 |
| AVE0165 AVE0180 | 6.500 [165.1] | 0.750 [19.05] | 0.750 [19.05] | 0.125 [3.18] | 5.75 [146.05] | 20 | 15 | 74 |
| AVE0240 | 6.500 [165.1] | 1.125 [28.58] | 0.750 [19.05] | 0.282 [7.16] | 5.625 [142.88] | 20 | 15 | 75 |
| AVE0300 | 8.500 [215.9] | 1.125 [28.58] | 0.750 [19.05] | 0.267 [6.78] | 7.591 [192.81] | 20 | 15 | 75 |
| AVE0375 | 10.500 [266.7] | 1.125 [28.58] | 0.750 [19.05] | 0.266 [6.76] | 9.593 [243.66] | 20 | 15 | 75 |
| AVE0420 | 11.750 [298.45] | 1.125 [28.58] | 0.750 [19.05] | 0.266 [6.76] | 10.843 [275.41] | 20 | 15 | 76 |

TERMINAL DIMENSIONS in inches [millimeters]

| DIMENSIONS | TERMINAL STYLE | | |
|-------------------|------------------|------------------|-------------------|
| | 06 | 15 | 20 |
| A | 0.250 [6.35] | 0.250 [6.35] | 0.375 [9.53] |
| B | 0.500 [12.70] | 0.594 [15.08] | 0.5625 [14.28] |
| C (HOLE DIAMETER) | 0.173 [4.39] | 0.065 [1.65] | 0.204 [5.18] |
| D | 0.020 [0.51] | 0.031 [0.79] | 0.032 [0.812] |


AVE SLIDERS-DIMENSIONS in inches [millimeters]

| Hole Dia. | WIDTH | HEIGHT | GLOBAL PART NUMBER ⁽¹⁾ (RoHS COMPLIANT) | GLOBAL MODEL (OF RESISTOR) | SLIDER MODEL NUMBER | DIMENSIONS | | |
|-----------|-------|--------|-------------------------------------------------------|---------------------------------------|---------------------|---------------|---------------|---------------|
| | | | | | | WIDTH | HEIGHT | HOLE DIAMETER |
| | | | 75008603E29 | ASE0050, ASE0090 | 71 | 0.250 [6.35] | 0.719 [18.26] | 0.141 [3.58] |
| | | | 75025201E29 | ASE0100, ASE0110, ASE0120, ASE0155 | 74 | 0.312 [7.92] | 0.891 [22.63] | 0.196 [4.98] |
| | | | 75025203E29 | ASE0240, ASE0300, ASE0375 | 75 | 0.500 [12.70] | 0.891 [22.63] | 0.265 [6.73] |
| | | | 75025206E29 | ASE0420 | 76 | 0.312 [7.92] | 0.891 [22.63] | 0.196 [4.98] |

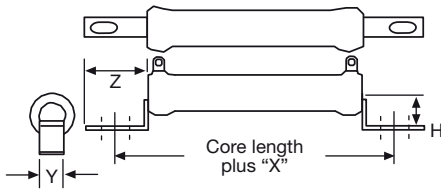
Note

⁽¹⁾ Order HEI slider with global part number.

MOUNTING HARDWARE FOR AVE PRODUCTS - Dimensions in inches (millimeters)

91 = 100 Style Horizontal 1 High Bracket


| BRACKET TYPE | X | Y | Z | H | MOUNTING SLOT | C | B |
|--------------|------------------|------------------|------------------|------------------|---------------------------------|------------------|------------------|
| 102 | 1.063 (26.99) | 0.750 (19.05) | 0.859 (21.83) | 1.250 (31.75) | 0.219 x 0.438 (5.56 x 11.11) | 0.750 (19.05) | 1.750 (44.75) |
| 103 | 1.063 (26.99) | 1.250 (31.75) | 1.000 (25.40) | 1.500 (38.10) | 0.281 x 0.563 (7.14 x 14.29) | 0.927 (23.55) | 2.125 (53.98) |

92 = 200 Style Push-In Bracket


| BRACKET TYPE | X | H | Y | Z | HOLE (DIA.) |
|--------------|------------------|------------------|------------------|------------------|--------------------------------|
| 204 | 0.700 (17.78) | 0.578 (14.68) | 0.250 (6.35) | 0.500 (12.70) | 0.156 (3.96) |
| 206 | 0.846 (21.49) | 0.800 (20.62) | 0.375 (9.53) | 0.600 (15.24) | 0.343 x 0.213 (8.71 x 5.46) |
| 207 | 0.700 (17.78) | 1.125 (28.58) | 0.500 (12.70) | 0.687 (17.45) | 0.250 x 0.188 (6.35 x 4.78) |

93 = 300 Style Thru-Bolt Bracket


| BRACKET TYPE | X (APPROXIMATE) | THREAD |
|--------------|-----------------|--------|
| 302 | 0.271 (6.88) | 10-32 |
| 303 | 0.463 (11.76) | 1/4-20 |

| MOUNTING HARDWARE | | | |
|-------------------|------------------------------------------|--------------------------------|----------------------------------|
| GLOBAL MODEL | AVAILABLE BRACKET TYPES BY MODEL | | |
| | 91 = 100 STYLE HORIZONTAL 1 HIGH BRACKET | 92 = 200 STYLE PUSH-IN BRACKET | 93 = 300 STYLE THRU-BOLT BRACKET |
| AVE0050 | 102 | 206 | 302 |
| AVE0090 | 102 | 204 | 302 |
| AVE0100 | 102 | 206 | 302 |
| AVE0110 | 102 | 206 | 302 |
| AVE0120 | 102 | 206 | 302 |
| AVE0140 | 103 | 205 | 303 |
| AVE0155 | 103 | 207 | 302 |
| AVE0165 | 102 | 206 | 303 |
| AVE0180 | 102 | 206 | 303 |
| AVE0240 | 103 | 207 | 302 |
| AVE0300 | 103 | 207 | 303 |
| AVE0375 | 103 | 207 | 303 |
| AVE0420 | 103 | 207 | 303 |
| AVE0500 | 103 | - | 302 |



| TECHNICAL SPECIFICATIONS | | |
|----------------------------------------|-------------------|-----------------------------------------------------------------------------------------|
| PARAMETER | UNIT | RESISTOR CHARACTERISTICS |
| Power Rating | W | 50 to 420 |
| Resistance Range | Ω | 0.10 to 35.8 |
| Resistance Tolerance | % | 10 |
| Temperature Coefficient | ppm/ $^{\circ}$ C | ± 260 for 20 Ω and above, ± 400 for 1 Ω to 19.99 Ω |
| Operating Temperature | $^{\circ}$ C | -55 $^{\circ}$ C to 350 $^{\circ}$ C |
| Temperature Rise | $^{\circ}$ C | 325 $^{\circ}$ C above an ambient of 25 $^{\circ}$ C |
| Maximum Altitude | f.a.s.l. | 10 000 |
| Short-Term Overload | - | 10x rated power for 5 s |
| Surge Windings | - | Available |
| Maximum Working Voltage | - | $(P \times R)^{0.5}$ |
| Insulation Resistance | Ω | 1M |
| Dielectric Voltage | V _{RMS} | 1000 V _{AC} |
| Creepage | - | Varies by wattage, see "Terminal Setback" in Dimensions table |
| Terminal Sleeves | - | n/a |
| Inductance | μ H | Varies by wattage and resistance |
| Non-Inductive Winding | - | n/a |
| Terminal Strength | lb | 10 lbs |
| Electrical or Mechanical Customization | - | Contact factory: ww2dresistors@vishay.com |

| MATERIAL SPECIFICATIONS | |
|-------------------------|---------------------------------------------------------------------------|
| Element | Copper-nickel alloy or nickel-chrome alloy, depending on resistance value |
| Core | Cordierite, steatite |
| Coating | Special high temperature vitreous enamel |
| Standard Terminals | Tinned alloy 42 |
| Optional Terminals | Alloy 42 |
| Terminal Bands | Alloy 42 |
| Part Marking | HEI, model, wattage, value, tolerance, date code |





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