

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 $P_{25\text{ }^\circ\text{C}}$ 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: **AVE030020E15R0K E 9 2** (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]

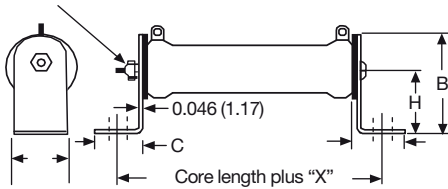

AVE SLIDERS-DIMENSIONS in inches [millimeters]

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]

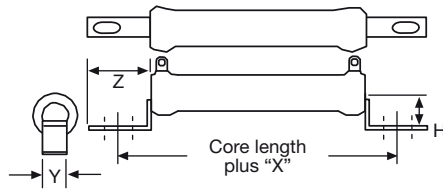
Note

⁽¹⁾ Order HEI slider with global part number.

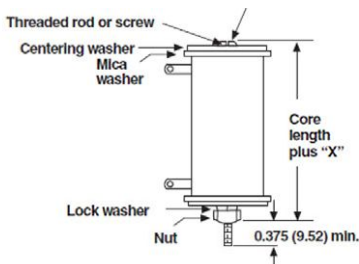
MOUNTING HARDWARE FOR AVE PRODUCTS - Dimensions in inches (millimeters)

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





Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.