

Wirewound Resistor, Industrial High Power, Enamelled Tubular, Adjustable



"B" Ring

FEATURES

- 21 W to 180 W at 25 °C
- NF C 93-214
 - RBA 13 x 70
 - RBA 20 x 117
 - RBA 25 x 168
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

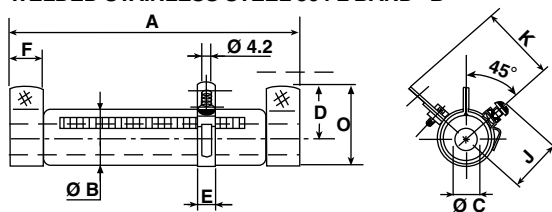


RoHS
COMPLIANT

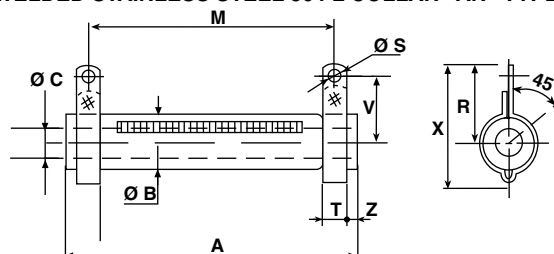
The ceramic tubular core ensures high dissipation capacity and excellent resistance to thermal shock and overload. The resistor winding is evenly coiled on the core and protected by an enamel coating. A longitudinal opening provides for one or more electrical connections by means of sliding collars equipped with a tongued connector.

DIMENSIONS in millimeters

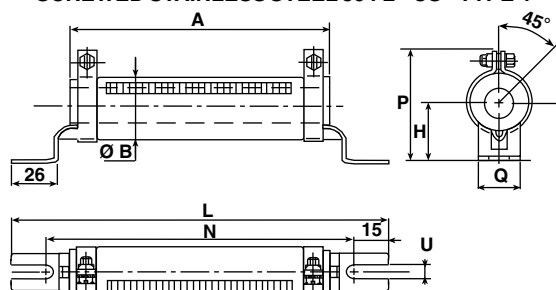
WELDED STAINLESS STEEL 304 L BAND "B"



WELDED STAINLESS STEEL 304 L COLLAR "AN" TYPE 1



SCREWED STAINLESS STEEL 304 L "CS" TYPE 1



RA SERIES	CONNECTION	A ± 2	Ø B MAX.	Ø C MIN.	D	E + 0.5 + 0	F + 0.5 + 0	H ± 1	J MAX.	K MAX.	L - 0 - 4	M	N - 0 - 4
13 x 70	AN-B ⁽¹⁾	70	16	5	16 ± 0.5	7	10.5	-	19.5	24	-	56 ± 2	-
16 x 94	AN-B	94	19.5	9	17.5 ± 0.5	8	12	-	23	29.5	-	78 ± 2	-
20 x 117	AN-B	117	23	9	21 ± 0.7	8	14	-	25	31.5	-	98 ± 2	-
25 x 138	AN-B-CS	138	28	12	23.5 ± 1	8	15	27	27.5	34	199	117 ± 2	169
25 x 168	AN-B-CS	168	28	12	23.5 ± 1	8	15	27	27.5	34	229	147 ± 2	199
30 x 250	AN-B-CS	250	33	17	26 ± 1	8	18	30	30	36.5	317	227 ± 2.5	287
RA SERIES	CONNECTION	O MAX.	P ± 1.5	Q ± 0.5	R	S	T	U	V	X	Z	AVERAGE UNIT WEIGHT IN g	
13 x 70	AN-B ⁽¹⁾	24.5	-	-	24 ± 0.5	4.2	6.35	-	20 ± 0.5	34.5 ± 1	3.5	40	
16 x 94	AN-B	28	-	-	26.5 ± 0.5	4.2	6.35	-	21 ± 0.5	38 ± 1	5	70	
20 x 117	AN-B	33	-	-	31 ± 0.7	4.2	6.35	-	24 ± 0.7	42 ± 1	6	116	
25 x 138	AN-B-CS	38.5	50	24	33.5 ± 1	5.7	9	6.5	28 ± 1	51 ± 1.5	6	200	
25 x 168	AN-B-CS	38.5	50	24	33.5 ± 1	5.7	9	6.5	28 ± 1	51 ± 1.5	6	225	
30 x 250	AN-B-CS	43.5	60	25	36 ± 1	5.7	13	9	33 ± 1	55 ± 1.5	5	415	

Note

⁽¹⁾ Also with CS and CR collars; see RW datasheet.

STANDARD ELECTRICAL SPECIFICATIONS

MODEL	SIZE	RESISTANCE RANGE Ω	RATED POWER $P_{25^\circ\text{C}}$ W	TOLERANCE $\pm \%$
RA 13 x 70	1370	33 to 3.9K	21	10
RA 16 x 94	1694	68 to 3.9K	35	10
RA 20 x 117	20117	100 to 4.7K	50	10
RA 25 x 138	25138	150 to 6.8K	75	10
RA 25 x 168	25168	220 to 10K	120	10
RA 30 x 250	30250	330 to 22K	180	10

MECHANICAL SPECIFICATIONS

Mechanical Protection	Vitreous enamel
Resistive Element	Ni-Cr wire
Connections	B band AN or CS collar
Average Unit Weight	40 g to 415 g

TECHNICAL SPECIFICATIONS

Resistance Range	33 to 22K (E6 series)
Tolerance Standard	$\pm 10 \%$
Power Rating	21 W to 180 W at 25 °C

ENVIRONMENTAL SPECIFICATIONS

Temperature Range	-55 °C, +350 °C
Climatic Category	-55 °C / +200 °C / 56 days

PERFORMANCE

TESTS	CONDITIONS	REQUIREMENTS	TYPICAL VALUES AND DRIFTS
Short Time Overload	10 P_r 5 s Voltage < 6000 V	2 % or 0.05	0.5 %
Climatic Sequence	-55 °C +200 °C 5 cycles	3 % or 0.05 Insulation resistance > 100M	1 %
Humidity (Steady State)	56 days 95 % RH	2 % or 0.05 Insulation resistance > 100M	0.5 %
Thermal Shock	Load at P_r followed by exposure at -55 °C / 15	2 % or 0.05	0.5 %
Resistor Strength	200 N $\pm$ 10 N	2 % or 0.05	0.25 %
Vibration	55/10	1 % ⁽¹⁾ or 0.05	0.5 %
Terminal Strength AN B	Traction 40 Ncm Torque 60 Ncm	1 % or 0.05	0.25 %
Load Life	1000 h at P_r , 25 °C, 90' / 30'	5 %	1.5 %

Note
⁽¹⁾ 1 % of total resistance and 2 % between sliding collar and fixed connection.

SPECIAL FEATURES

RA STYLE	13 x 70	16 x 94	20 x 117	25 x 138	25 x 168	30 x 250
Designation NF C 93-214	RBA 13 x 70	-	RBA 20 x 117	-	RBA 25 x 168	-
Power Rating NF C 93-214 at 25 °C	13 W	-	25 W	-	50 W	-
Maximum Power Rating at 25 °C	21 W	35 W	50 W	75 W	120 W	180 W
Ohmic Range (E6, E24 series)	33 to 3.9K	68 to 3.9K	100 to 4.7K	150 to 6.8K	220 to 10K	330 to 22K

ADMISSIBLE RATED AMPERAGE

This must in all cases be less than:

$$I_n = \sqrt{\frac{P_n(W)}{R_n(\Omega)}}$$

**SLIDING COLLAR**

Resistors are normally supplied with 1 sliding collar fitted and locked in a specific position.

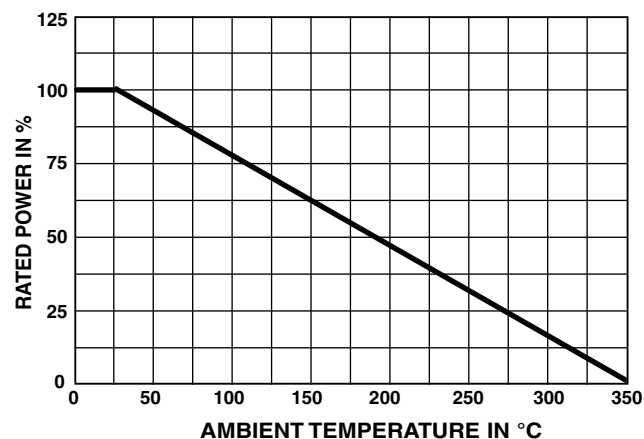
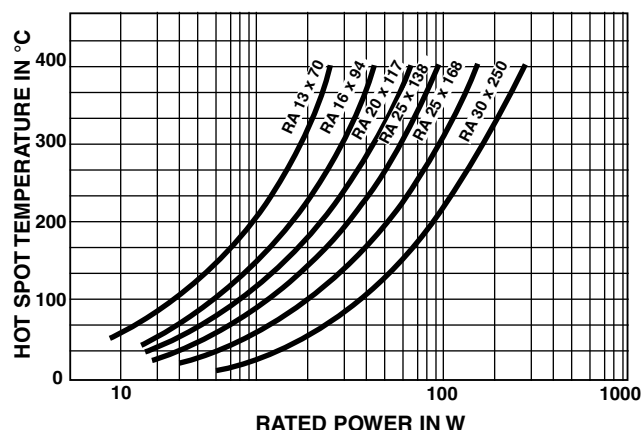
Additional collars can be supplied and adjusted at the factory to special order (on request). ⁽¹⁾

Note

⁽¹⁾ Quote ohmic value and tolerance of each resistance section, and Rn value.

MAXIMUM ADDITIONAL COLLARS

MODEL AND TYPE	RA 13 x 70	RA 16 x 94	RA 20 x 117	RA 25 x 138	RA 25 x 168	RA 30 x 250
Additional Sliding Collar	1	1	1	2	3	4

POWER RATING**TEMPERATURE RISE****MARKING**

Vishay Sfernice trademark, model, style, NF style (if applicable) ohmic value (in Ω), tolerance (in %), manufacturing date.

ORDERING INFORMATION

RA	13 x 70		AN	470U	± 10 %	1 C. SUP.	BO10^FIO	e
MODEL	STYLE	SPECIAL DESIGN	CONNECTIONS	OHMIC VALUE	TOLERANCE	ADDITIONAL SLIDING COLLAR	PACKAGING	LEAD (Pb)-FREE
		In option	Custom items are subject to extra-charge and min. order. Please see price list.					

GLOBAL PART NUMBER INFORMATION

R	A	3	0	2	5	0	A	6	8	0	R	0	K	B	0	3			
GLOBAL MODEL		SIZE		LEADS		OHMIC VALUE		TOLERANCE		PACKAGING		SPECIAL							
RA		13 x 70 16 x 94 20 x 117 25 x 138 25 x 168 30 x 250		A = AN B = B C = CS D = CR		The first four digits are significant figures and the last digit specifies the number of zeros to follow. R designates decimal point. 680R0 = 630 Ω 20301 = 20.3 kΩ 88R88 = 88.88 Ω		K = 10 %		Box: BO10 BO10NA BO20 BO30 BO30NA BO40 BO40NA		As applicable. Example: BA7							



RELATED DOCUMENTS	
APPLICATION NOTES	
Packaging Information	www.vishay.com/doc?50033
Accessories (Fixing)	www.vishay.com/doc?50021
Accessories (Mounting)	www.vishay.com/doc?50023



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.

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.

Material Category Policy

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.

Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as Halogen-Free follow Halogen-Free requirements as per JEDEC JS709A standards. Please note that some Vishay documentation may still make reference to the IEC 61249-2-21 definition. We confirm that all the products identified as being compliant to IEC 61249-2-21 conform to JEDEC JS709A standards.