

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 | | | | | | | | | | | | | |
|--|---------------------|--------|----------|----------|------------|-------------|-------------|-------|----------|----------|-----------|--------------------------|-----------|
| <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>WELDED STAINLESS STEEL 304 L BAND "B"</p> </div> <div style="text-align: center;"> <p>WELDED STAINLESS STEEL 304 L COLLAR "AN" TYPE 1</p> </div> </div> | | | | | | | | | | | | | |
| <p>SCREWED STAINLESS STEEL 304 L "CS" TYPE 1</p> | | | | | | | | | | | | | |
| 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 $P_{25\text{ }^\circ\text{C}}$ 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.

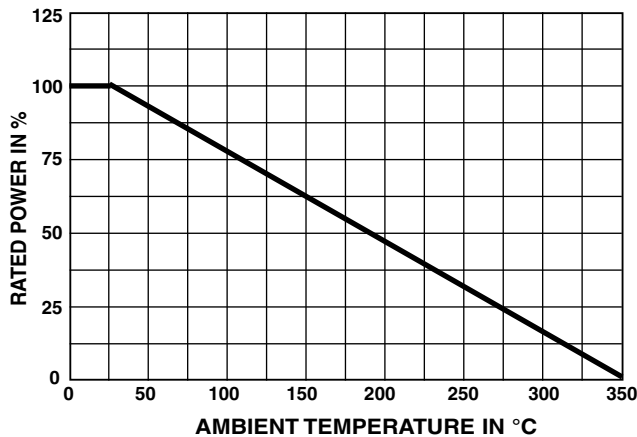
Additional collars can be supplied and adjusted at the factory to special order (on request). ⁽¹⁾

Note

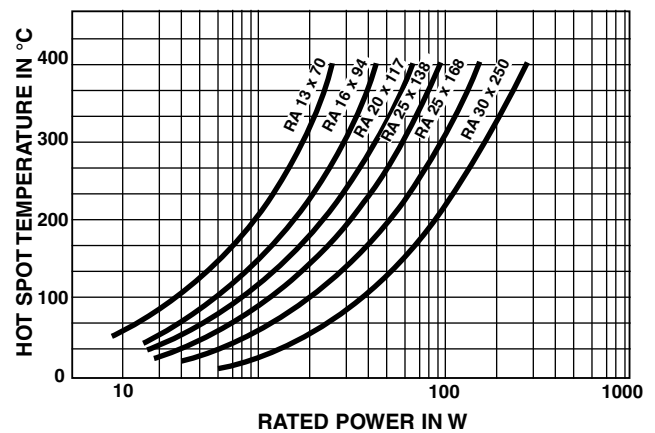
⁽¹⁾ Quote ohmic value and tolerance of each resistance section, and Rn value.

| 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 |



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