

Fixed Wirewound High Power Vitreous Resistors with Terminal Collars or Bands



The RW wirewound power resistors are extremely well suited to professional applications, where high power and excellent endurance are required. They meet all requirements of NF C 93-214 specifications and five sizes cover the power range from 10 W to 80 W. Non inductive types are available, by using the special RWNI winding. For higher power or extremely severe conditions of use, see the RWST series.

NF F 16101, 10/1988 and 16102, 04/1992: Not applicable (our parts are made of metallic and refractory materials).
NF C 93-214. Performances according to NF C 93-214.

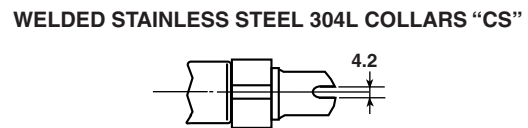
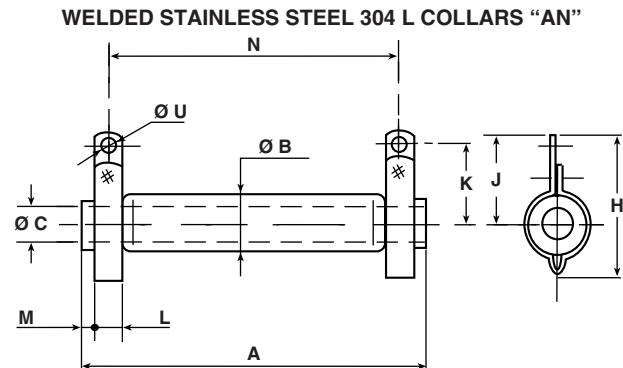
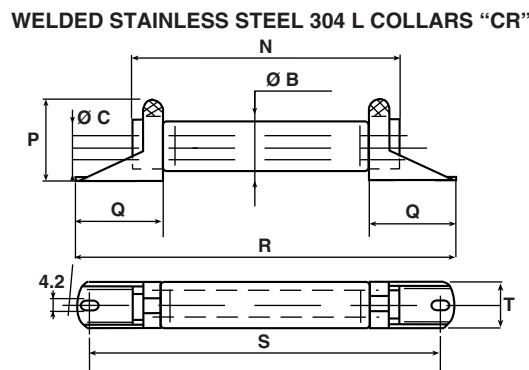
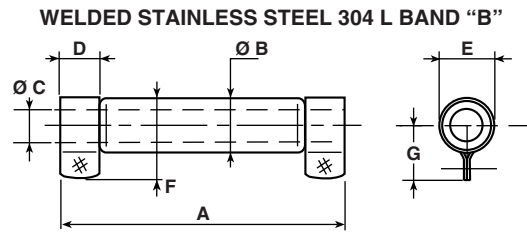
FEATURES

- 10 W to 80 W at 25 °C
- NF C 93-214
- RB 13 x 70 RB 20 x 117
- High power up to 80 W at 25 °C
- High long term stability drift < 2.5 % after 5000 h
- Great mechanical strength
- Fire proof
- Environmental performance
- Thermal shock strength 0.5 % (100 % h at -25 °C)
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT

DIMENSIONS in millimeters



| SERIES | CONNECTIONS | | | | A ± 2 | Ø B MAX. | Ø C MIN. | D + 0.5 + 0 | E | F MAX. | G | H | J | K |
|-------------|-------------|--------|--------|------|-------|----------|----------|-------------|----------|--------|----------|----------|------------|----------|
| | COLLAR | COLLAR | COLLAR | BAND | | | | | | | | | | |
| RW 8 x 34 | AN | - | - | - | 34 | 11.5 | 4.1 | - | - | - | - | 28 ± 1.0 | 19.5 ± 0.5 | 16 ± 0.5 |
| RW 10 x 50 | AN | CR | - | B | 50 | 13 | 5 | 8 | 11 ± 0.5 | 21 | 14 ± 0.5 | 31 ± 1.0 | 22 ± 0.5 | 18 ± 0.5 |
| RW 13 x 70 | AN | CR | CS | B | 70 | 16 | 5 | 10.5 | 14 ± 0.5 | 24.5 | 16 ± 0.5 | 34 ± 1.0 | 24 ± 0.5 | 20 ± 0.5 |
| RW 16 x 94 | AN | - | - | B | 94 | 19.5 | 9 | 12 | 17 ± 0.5 | 28 | 18 ± 0.5 | 38 ± 1.0 | 25 ± 0.5 | 21 ± 0.5 |
| RW 20 x 117 | AN | - | - | B | 117 | 23 | 9 | 14 | 21 ± 0.7 | 33 | 21 ± 0.7 | 42 ± 1.5 | 28 ± 0.7 | 24 ± 0.7 |



| DIMENSIONS in millimeters | | | | | | | | | | | | | |
|---------------------------|-------------|--------|--------|------|----------------|---------|-------|-------|---------|-------|-------|----|-----|
| SERIES | CONNECTIONS | | | | L + 0.5 + 0 | M ± 1.5 | N ± 2 | P ± 1 | Q ± 0.5 | R ± 2 | S ± 2 | T | Ø U |
| | COLLAR | COLLAR | COLLAR | BAND | | | | | | | | | |
| RW 8 x 34 | AN | - | - | - | 5 | 1 | 27 | - | - | - | - | - | 3.2 |
| RW 10 x 50 | AN | CR | - | B | 6.35 | 1.5 | 40 | 19.5 | 19.5 | 72 | 62 | 12 | 4.2 |
| RW 13 x 70 | AN | CR | CS | B | 0.6 | 3.5 | 56 | 22.5 | 20.5 | 91 | 81 | 15 | 4.2 |
| RW 16 x 94 | AN | - | - | B | 0.6 | 4 | 78 | - | - | - | - | - | 4.2 |
| RW 20 x 117 | AN | - | - | B | 0.8 | 6 | 98 | - | - | - | - | - | 4.2 |

| STANDARD ELECTRICAL SPECIFICATIONS | | | | |
|------------------------------------|-------|-----------------------|--|------------------|
| MODEL | SIZE | RESISTANCE RANGE Ω | RATED POWER $P_{25^{\circ}\text{C}}$ W | TOLERANCE ± % |
| RW 8 x 34 | 0834 | 1 to 10K | 10 | 5 |
| RW 10 x 50 | 1050 | 1 to 27K | 17 | 5 |
| RW 13 x 70 | 1370 | 2.2 to 56K | 28 | 5 |
| RW 16 x 94 | 1694 | 2.2 to 56K | 44 | 5 |
| RW 20 x 117 | 20117 | 2.7 to 68K | 72 | 5 |

| MECHANICAL SPECIFICATIONS | |
|---------------------------|--------------------------------|
| Mechanical Protection | Enamel |
| Resistive Element | Ni-Cr wire |
| Connections | B band AN - CR - CS collars |
| Average Unit Weight | 10 g to 100 g |

| ENVIRONMENTAL SPECIFICATIONS | |
|------------------------------|----------------------------|
| Temperature Range | -55 °C, +450 °C |
| Climatic Category | -55 °C / +200 °C / 56 days |

| TECHNICAL SPECIFICATIONS | |
|--------------------------|--|
| Resistance Range | 1 Ω to 68 kΩ (E12 preferred series value) |
| Power Rating | 10 W to 80 W at 25 °C |
| Temperature Coefficient | 75 ppm/°C (typical) |
| Dielectric Strength | 1000 V _{RMS} (AN collars) |
| Insulation Resistance | 100 MΩ (500 V _{DC}) AN collars |
| Shelf Life | 0.1 % year (typical) |

| PERFORMANCE | | | |
|----------------------------|--|---|---------------------------|
| TESTS | CONDITIONS | REQUIREMENTS | TYPICAL VALUES AND DRIFTS |
| Short Time Overload | 10 P_r during 5 s voltage limited at < 5000 V current limited at 5 A | 2 % or 0.05 Ω | 0.5 % |
| Climatic Sequence | -55 °C, +200 °C 5 cycles | 3 % or 0.05 Ω Insulation resistance > 100 MΩ | 0.5 % |
| Humidity (Steady State) | 56 days 95 % relative humidity | 2 % or 0.05 Ω Insulation resistance > 100 MΩ | 0.5 % |
| Thermal Shock | Load at 100 % P_r followed by cold temp. exposure at -55 °C | 2 % or 0.05 Ω | 1 % |
| Shock | Severity 50, 9 shocks/each side | 1 % or 0.05 Ω | 0.25 % |
| Vibration | Severity 55B | 1 % or 0.05 Ω | 0.25 % |
| Terminal Strength | Collar AN traction 40 N band B torque 60 Ncm | 1 % or 0.05 Ω | 0.5 % |
| Load Life | 90' / 30' cycle 1000 h at P_r 25 °C | 5 % | 1000 h 5 % |

| SPECIAL FEATURES | | | | | |
|-------------------------------|--------------|--------------|----------------|----------------|----------------|
| RW STYLE | 8 x 34 | 10 x 50 | 13 x 70 | 16 x 94 | 20 x 117 |
| Designation NF C 93-214 | - | - | RB 13 x 70 | - | RB 20 x 117 |
| Maximum Power Rating at 25 °C | 13 W | 20 W | 32 W | 50 W | 80 W |
| Ohmic Range (E12, E24 series) | 1 Ω to 10 kΩ | 1 Ω to 27 kΩ | 2.2 Ω to 56 kΩ | 2.2 Ω to 56 kΩ | 2.7 Ω to 68 kΩ |
| Limiting Element Voltage | 300 V | 450 V | 650 V | 900 V | 1100 V |
| Critical Resistance | 6.9 kΩ | 10 kΩ | 13.2 kΩ | 16 kΩ | 15.1 kΩ |

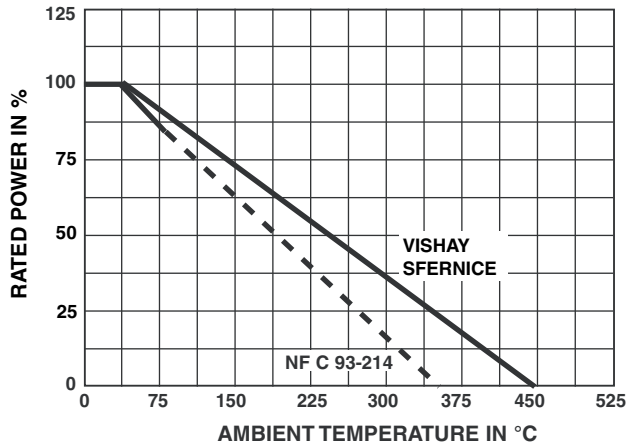


NON INDUCTIVE WINDING

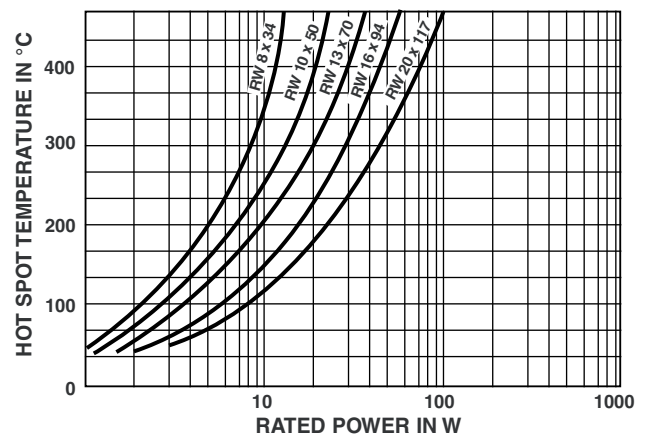
For high frequencies, low self induction resistors are available with special windings. RWNI designation.

| MODEL AND STYLE | RWNI 8 x 34 | RWNI 10 x 50 | RWNI 13 x 70 | RWNI 16 x 94 | RWNI 20 x 117 |
|-----------------|----------------|----------------|----------------|----------------|----------------|
| Ohmic Range | 4.7 Ω 100 Ω | 4.7 Ω 220 Ω | 4.7 Ω 620 Ω | 10 Ω 1.2 kΩ | 10 Ω 2.2 kΩ |

POWER RATING



TEMPERATURE RISE



MARKING

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

| ORDERING INFORMATION | | | | | | | |
|----------------------|----------|-----------------------------------|----------------------------|-------------|---|-----------|-----------------------------|
| RW | 20 x 117 | NI | AN | 68 Ω | ± 5 % | B020 | e |
| MODEL | STYLE | NON-INDUCTIVE WINDING Optional | SPECIAL DESIGN Optional | CONNECTIONS | OHMIC VALUE Custom items are subject to extra-charge and min. order. Please see price list. | TOLERANCE | PACKAGING LEAD (Pb)-FREE |

| GLOBAL PART NUMBER INFORMATION | | | | | | | | | | | | | | | | | | |
|--------------------------------|---|-------------------------------------|---------------------------|--|-----------|---|--------------------------------|--|---|---|---|---|---|---|---|--|--|--|
| R | W | 1 | 6 | X | 9 | 4 | A | | 2 | 0 | 3 | J | B | 0 | 0 | | | |
| GLOBAL MODEL | SIZE | LEADS | OPTION | OHMIC VALUE | TOLERANCE | PACKAGING | SPECIAL | | | | | | | | | | | |
| RW | 8 x 34 10 x 50 13 x 70 16 x 94 20 x 117 | A = AN B = B C = CS D = CR | N = Non inductive winding | The first two digits are significant figures and the last digit specifies the number of zeros to follow. R designates decimal point. 203 = 20 kΩ 471 = 470 Ω 48R = 48.7 Ω R01 = 0.01 Ω | J = 5.0 % | Box: BBOxxNA (variable qty.) = B00 BAxxNA (variable qty.) = S00 BA25 = S06 BO20 = B15 B040 = B23 BO50 = B25 | As applicable. Example: BC1 | | | | | | | | | | | |

| RELATED DOCUMENTS | |
|---|--|
| APPLICATION NOTES | |
| Potentiometers and Trimmers | www.vishay.com/doc?51001 |
| Guidelines for Vishay Sfernice Resistive and Inductive Components | www.vishay.com/doc?52029 |



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.