

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 RWN1 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.

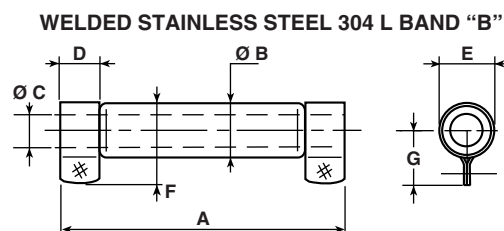
FEATURES

- 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/doc299912

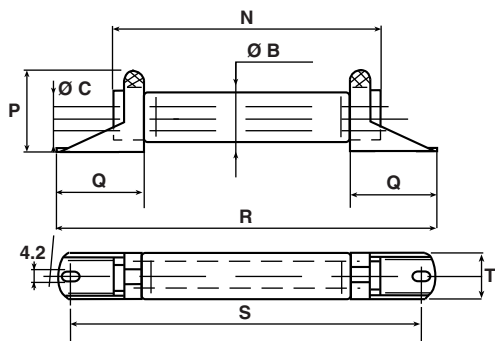


RoHS
COMPLIANT

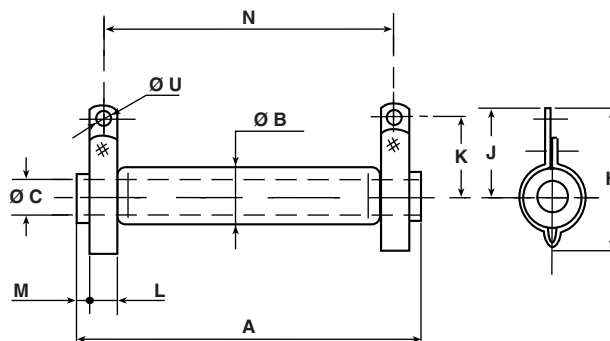
DIMENSIONS in millimeters



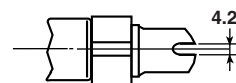
WELDED STAINLESS STEEL 304 L COLLARS "CR"



WELDED STAINLESS STEEL 304 L COLLARS "AN"



WELDED STAINLESS STEEL 304L COLLARS "CS"



| 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 % |

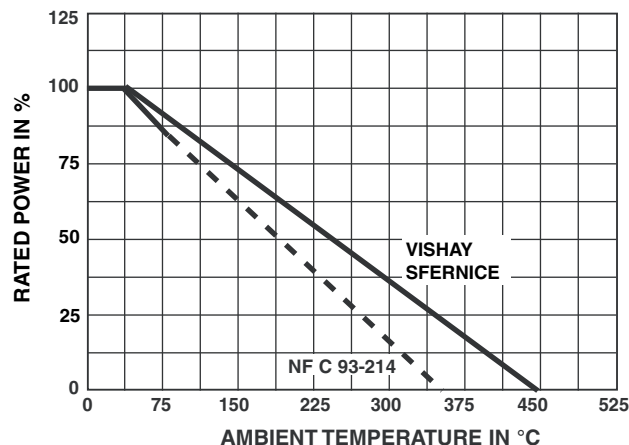
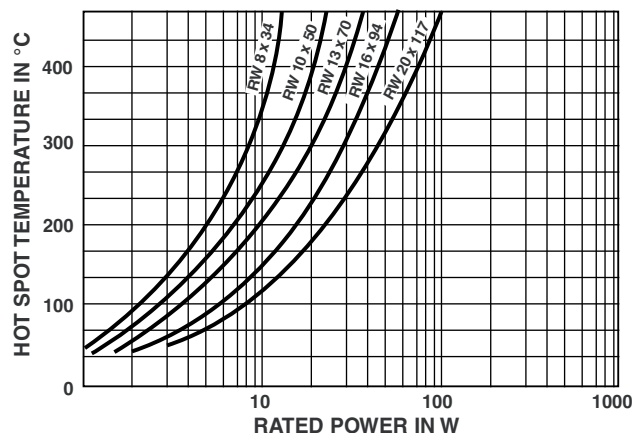
SPECIAL FEATURES

| 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 k Ω | 10 Ω 2.2 k Ω |

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 | $\pm 5\%$ | 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 k Ω 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 BO40 = 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 |



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