

## Fixed Wirewound High Power Vitreous Resistors with Terminal Collars or Bands



### FEATURES

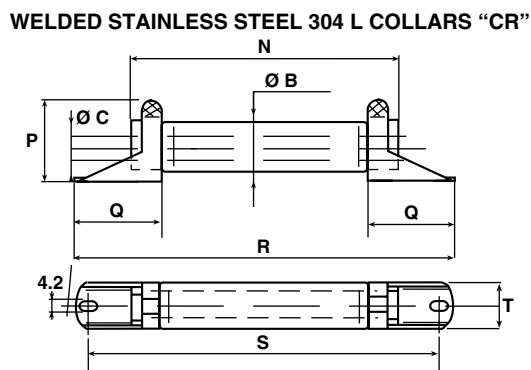
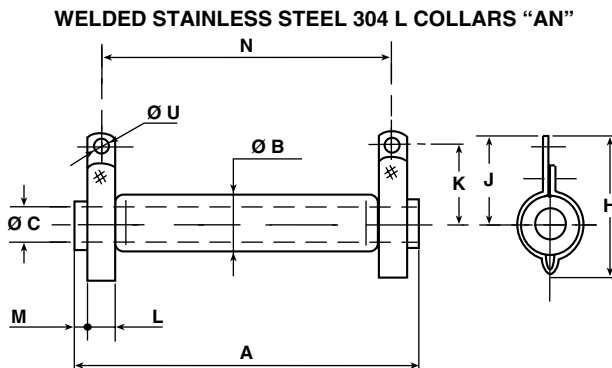
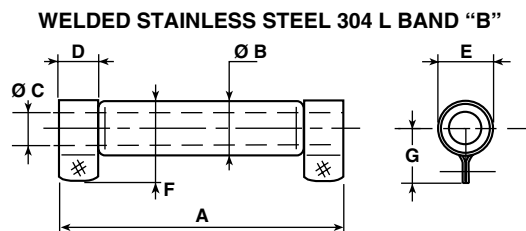
- 10 W to 80 W at 25 °C
- NF C 93-214
- RB 13 x 70 RB 20 x 117
- High power up to 80 W at 25 °C
- High long term stability drift < 2.5 % after 5000 h
- Great mechanical strength
- Fire proof
- Environmental performance
- Thermal shock strength 0.5 % (100 % h at - 25 °C)
- Compliant to RoHS directive 2002/95/EC



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.

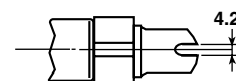
NF F 16101, 10/1988 and 16102, 04/1992: Not applicable (our parts are made of metallic and refractory materials).  
NF C 93-214. Performances according to NF C 93-214.

### DIMENSIONS in millimeters



| RW STYLE     | 8 x 34     | 10 x 50  | 13 x 70  | 16 x 94    | 20 x 117 |
|--------------|------------|----------|----------|------------|----------|
| CONNECTIONS  | Collar AN  | AN       | AN       | AN         | AN       |
|              | Collar CR  | CR       | CR       | -          | -        |
|              | Collar CS  | -        | CS       | -          | -        |
|              | Band B     | -        | B        | B          | B        |
| A ±2         | 34         | 50       | 70       | 94         | 117      |
| Ø B max.     | 11.5       | 13       | 16       | 19.5       | 23       |
| Ø C min.     | 4.1        | 5        | 5        | 9          | 9        |
| D +0.5<br>+0 | -          | 8        | 10.5     | 12         | 14       |
| E            | -          | 11 ± 0.5 | 14 ± 0.5 | 17.5 ± 0.5 | 21 ± 0.7 |
| F max.       | -          | 21       | 24.5     | 28         | 33       |
| G            | -          | 14 ± 0.5 | 16 ± 0.5 | 18 ± 0.5   | 21 ± 0.7 |
| H            | 28 ± 1.0   | 31 ± 1.0 | 34 ± 1.0 | 38 ± 1.0   | 42 ± 1.5 |
| J            | 19.5 ± 0.5 | 22 ± 0.5 | 24 ± 0.5 | 25 ± 0.5   | 28 ± 0.7 |
| K            | 16 ± 0.5   | 18 ± 0.5 | 20 ± 0.5 | 21 ± 0.5   | 24 ± 0.7 |
| L +0.5<br>+0 | 5          | 6.35     | 0.6      | 0.6        | 0.8      |
| M ± 1.5      | 1          | 1.5      | 3.5      | 4          | 6        |
| N ± 2        | 27         | 40       | 56       | 78         | 98       |
| P ± 1        | -          | 19.5     | 22.5     | -          | -        |
| Q ± 0.5      | -          | 19.5     | 20.5     | -          | -        |
| R ± 2        | -          | 72       | 91       | -          | -        |
| S ± 2        | -          | 62       | 81       | -          | -        |
| T            | -          | 12       | 15       | -          | -        |
| Ø U          | 3.2        | 4.2      | 4.2      | 4.2        | 4.2      |

### WELDED STAINLESS STEEL 304L COLLARS "CS"





**Fixed Wirewound High Power Vitreous Resistors  
with Terminal Collars or Bands**

**Vishay Sfernice**

**MECHANICAL SPECIFICATIONS**

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

**ENVIRONMENTAL SPECIFICATIONS**

|                           |                          |
|---------------------------|--------------------------|
| <b>Temperature Limits</b> | - 55 °C + 450 °C         |
| <b>Climatic Category</b>  | - 55 °C/+ 200 °C/56 days |

**ELECTRICAL SPECIFICATIONS**

|  |  |
|--|--|
| <b>Resistance Range</b>                  | 1 Ω to 68 kΩ<br>(E12 preferred series value) |
| <b>Resistance Tolerances</b><br>Standard | ± 5 %  |
| <b>Power Rating</b>                      | 10 W to 80 W at 25 °C                        |
| <b>Temperature Coefficient</b>           | 75 ppm/°C (typical)                          |
| <b>Dielectric Strength</b>               | 1000 V <sub>RMS</sub> (AN collars)           |
| <b>Insulation Resistance</b>             | 100 MΩ (500 V <sub>DC</sub> )<br>AN collars  |
| <b>Shelf Life</b>                        | 0.1 % year (typical)                         |

**PERFORMANCE**

| TESTS                      | CONDITIONS  | REQUIREMENTS                                    | TYPICAL VALUES AND DRIFTS |
|----------------------------|---|---|---------------------------|
| Short Time Overload        | 10 Pr during 5 s<br>Voltage limited at < 5000 V<br>current limited at 5 A | 2 % or 0.05 Ω                                   | 0.5 %                     |
| Climatic Sequence          | - 55 °C + 200 °C<br>5 cycles  | 3 % or 0.05 Ω<br>Insulation resistance > 100 MΩ | 0.5 %                     |
| Humidity<br>(Steady State) | 56 days<br>95 % relative humidity   | 2 % or 0.05 Ω<br>Insulation resistance > 100 MΩ | 0.5 %                     |
| Thermal Shock              | Load at 100 % Pr followed by cold<br>temp. exposure at - 55 °C            | 2 % or 0.05 Ω                                   | 0.5 %                     |
| Shock                      | Severity 50<br>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<br>Band B Torque 60 Ncm                           | 1 % or 0.05 Ω                                   | 0.5 %                     |
| Load Life                  | 90'/30' cycle<br>1000 h at Pr 25 °C                                       | 5 %   | 1000 h 1.5 %              |
|                            |   |   | 5000 h 2.5 %              |

**SPECIAL FEATURES**

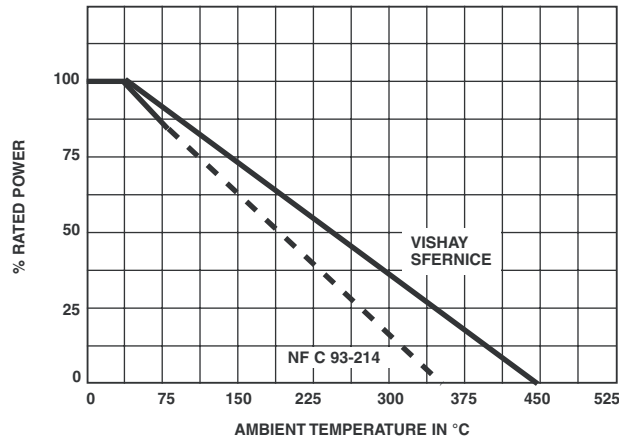
| RW STYLE                         | 8 x 34    | 10 x 50   | 13 x 70     | 16 x 94     | 20 x 117    |
|----------------------------------|-----------|-----------|-------------|-------------|-------------|
| Designation NF C 93-214          | -         | -         | RB 13 x 70  | -           | RB 20 x 117 |
| Power Rating at 25 °C            | 10 W      | 17 W      | 28 W        | 44 W        | 72 W        |
| Maximum Power<br>Rating at 25 °C | 13 W      | 20 W      | 32 W        | 50 W        | 80 W        |
| Ohmic Range<br>(E12, E24 series) | 1 Ω 10 kΩ | 1 Ω 27 kΩ | 2.2 Ω 56 kΩ | 2.2 Ω 56 kΩ | 2.7 Ω 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**

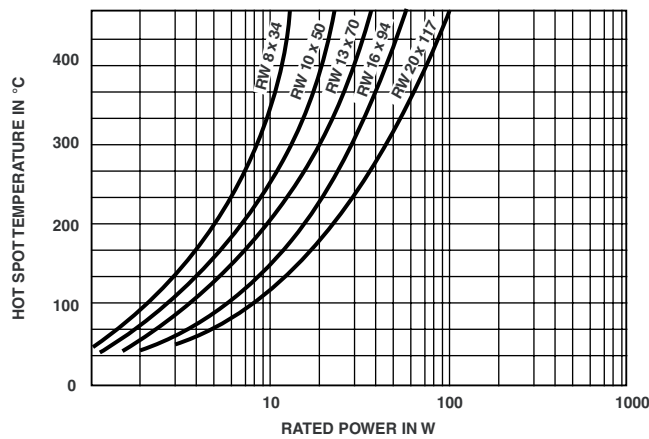
For high frequencies, low self induction resistors are available with special windings.  
RWNI designation.

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

**POWER RATING CHART**



**TEMPERATURE RISE**



**MARKING**

SFERNICE trademark, model, style, NF style (if applicable) nominal resistance (in  $\Omega$ ), tolerance (in %), manufacturing date.

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



| 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                             | 8X34<br>10X50<br>13X70<br>16X94<br>20117 | A = AN<br>B = B<br>C = CS<br>D = CR | N = Non inductive winding | <p>The first two digits are significant figures and the last digit specifies the number of zeros to follow. R designates decimal point.</p> <p><b>203</b> = 20 kΩ<br/> <b>471</b> = 470 Ω<br/> <b>48R</b> = 48.7 Ω<br/> <b>R01</b> = 0.01 Ω</p> |   |   |   | J = 5.0 % | <p><b>Box:</b><br/>           BA25<br/>           BA25NA<br/>           BO20<br/>           BO20NA<br/>           BO30<br/>           BO30NA<br/>           BO40<br/>           BO40NA<br/>           BO50<br/>           BO50NA</p> | As applicable.<br>Example: <b>BC1</b> |   |   |   |   |   |  |  |  |



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