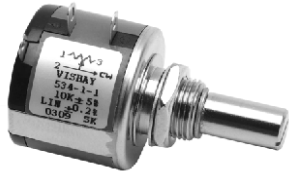


### 7/8" (22.2 mm) Multiturn Wirewound 533: 3 Turns/534: 10 Turns/535: 5 Turns



#### Note

- The color of this product may either be black (US market) or blue (other regions)

#### FEATURES

- Bushing and servo mount designs available
- Special resistance tolerances to 1 %
- Rear shaft extensions and support bearing
- Metric shaft available
- Dual gang configuration and concentric shafts
- High torque, center tap, slipping clutch on request
- Special markings and front shaft extensions



#### ELECTRICAL SPECIFICATIONS

| PARAMETER                            | MODEL 533                                                                       | MODEL 534                      | MODEL 535                    |
|--------------------------------------|---------------------------------------------------------------------------------|--------------------------------|------------------------------|
| Resistance Range - Standard Values   | 50 $\Omega$ to 20 k $\Omega$                                                    | 100 $\Omega$ to 100 k $\Omega$ | 50 $\Omega$ to 50 k $\Omega$ |
| Capability Range                     | 5 $\Omega$ to 60 k $\Omega$                                                     | 10 $\Omega$ to 200 k $\Omega$  | 5 $\Omega$ to 100 k $\Omega$ |
| Standard Tolerance                   | $\pm 5 \%$                                                                      | $\pm 5 \%$                     | $\pm 5 \%$                   |
| Linearity (Independent)              | $\pm 0.25 \%$                                                                   | $\pm 0.25 \%$                  | $\pm 0.25 \%$                |
| Noise                                | 100 $\Omega$ ENR                                                                | 100 $\Omega$ ENR               | 100 $\Omega$ ENR             |
| Rotation (Electrical and Mechanical) | 1080° $\pm 10^\circ$<br>- 0°                                                    | 3600° $\pm 10^\circ$<br>- 0°   | 1800° $\pm 10^\circ$<br>- 0° |
| Power Rating (at 70 °C)              | 1.0 W                                                                           | 2.0 W                          | 1.5 W                        |
| Insulation Resistance                | 1000 M $\Omega$ minimum 500 V <sub>DC</sub>                                     |                                |                              |
| Dielectric Strength                  | 1000 V <sub>RMS</sub> minimum 60 Hz                                             |                                |                              |
| Absolute Minimum Resistance          | Not to exceed linearity x total resistance or 1 $\Omega$ , whichever is greater |                                |                              |
| Temperature Coefficient              | 20 ppm/°C (standard values, wire only)                                          |                                |                              |
| End Voltage                          | 0.25 % of total applied voltage, maximum                                        |                                |                              |
| Phasing                              | CCW end points - section 2 phased to section 1 within $\pm 2^\circ$             |                                |                              |
| Taps                                 | Center tap only                                                                 |                                |                              |

#### MARKING

|                            |                                                                                                                                     |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| <b>Unit Identification</b> | Manufacturer's name and model number, resistance value and tolerance, linearity specification date code and terminal identification |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------|

#### RESISTANCE VALUES

|             |                                                   |
|-------------|---------------------------------------------------|
| <b>Ohms</b> | 50R, 100R, 200R, 500R, 1K, 2K, 5K, 10K, 20K       |
| <b>533:</b> | 100R, 200R, 500R, 1K, 2K, 5K, 10K, 20K, 50K, 100K |
| <b>535:</b> | 50R, 100R, 200R, 500R, 1K, 2K, 5K, 10K, 20K, 50K  |

#### ORDERING INFORMATION/DESCRIPTION

The Models 533 (3 turns), 534 (10 turns) and 535 (5 turns) can be ordered by stating

| 534   | B                      | 2                  | 10K                      | 20K                      | 5 %                      | C                             | BO10                       | e4          |
|-------|------------------------|--------------------|--------------------------|--------------------------|--------------------------|-------------------------------|----------------------------|-------------|
| MODEL | MOUNTING               | NUMBER OF SECTIONS | OHMIC VALUE SECTION N° 1 | OHMIC VALUE SECTION N° 2 | TOLERANCE ON OHMIC VALUE | LINEARITY $\pm 0.25 \%$ (STD) | PACKAGING Box of 10 pieces | LEAD FINISH |
|       | B: Bushing<br>S: Servo |                    |                          |                          |                          |                               |                            |             |

#### SAP PART NUMBERING GUIDELINES

| 534   | B                      | 2                  | 103                      | 203                      | J                              | C                                                                  | B10              |
|-------|------------------------|--------------------|--------------------------|--------------------------|--------------------------------|--------------------------------------------------------------------|------------------|
| MODEL | STYLE                  | NUMBER OF SECTIONS | OHMIC VALUE SECTION N° 1 | OHMIC VALUE SECTION N° 2 | TOLERANCE ON OHMIC VALUE       | LINEARITY                                                          | PACKAGING        |
|       | B: Bushing<br>S: Servo |                    | 103 = 10K                | 203 = 20K                | J: $\pm 5 \%$<br>F: $\pm 1 \%$ | C: $\pm 0.25 \%$<br>CUSTOM:<br>L: $\pm 0.20 \%$<br>D: $\pm 0.1 \%$ | Box of 10 pieces |

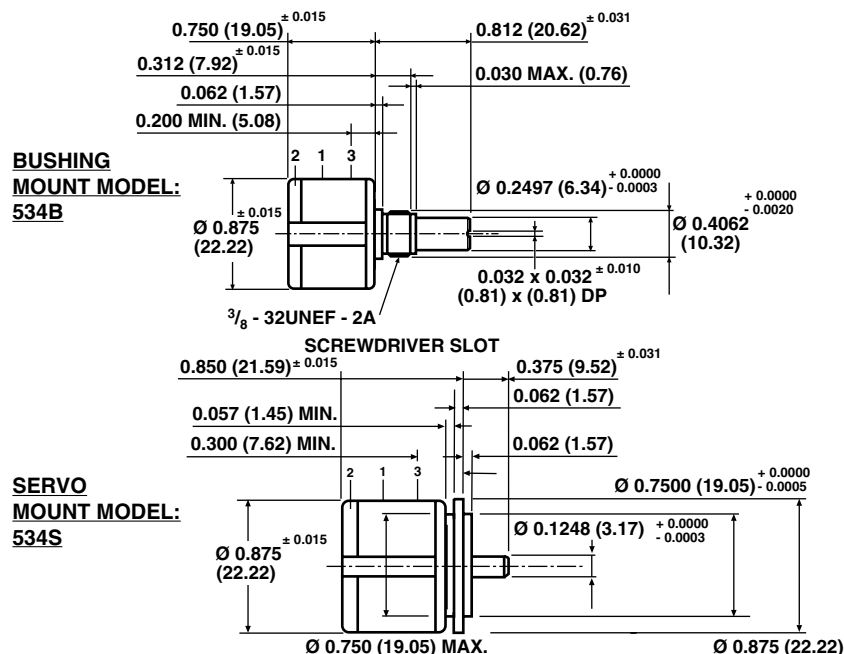
# Model 533, 534, 535

Vishay Spectrol

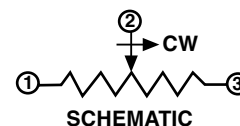
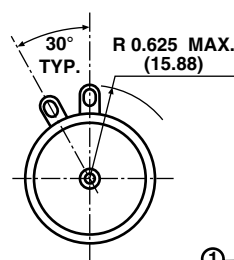
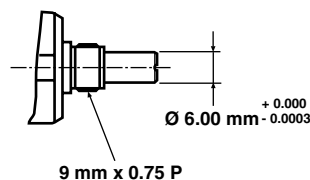
$\frac{7}{8}$ " (22.2 mm) Multiturn Wirewound  
533: 3 Turns/534: 10 Turns/535: 5 Turns



## SINGLE SECTION DIMENSIONS in inches (millimeters)



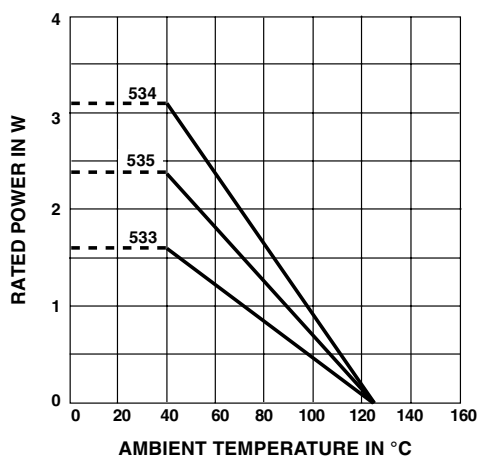
### METRIC SHAFT: 534B...8872



Mounting hardware, washer and panel nut, nickel plated

| MECHANICAL SPECIFICATIONS   |                                           |                                               |
|-----------------------------|-------------------------------------------|-----------------------------------------------|
| PARAMETER                   |                                           |                                               |
| Bearing Type                | Bushing: Sleeve bearing                   | Servo: Ball bearing                           |
| Torque (Maximums): Starting |                                           |                                               |
| Section 1                   | <b>534</b><br>0.5 oz. - in (36 g - cm)    | <b>533/535</b><br>0.7 oz. - in (50 g - cm)    |
| Section 2                   | 0.9 oz. - in (65 g - cm)                  | 1.1 oz. - in (79 g - cm)                      |
| Torque (Maximums): Running  |                                           |                                               |
| Section 1                   | <b>534</b><br>0.4 oz. - in (28.80 g - cm) | <b>533/535</b><br>0.6 oz. - in (43.20 g - cm) |
| Section 2                   | 0.7 oz. - in (50.40 g - cm)               | 0.9 oz. - in (64.8 g - cm)                    |
| Weight (Maximums)           |                                           |                                               |
| Section 1                   | 0.75 oz. (21.26 g)                        |                                               |
| Section 2                   | 1.25 oz. (35.44 g)                        |                                               |
| Stop Strength               | 75 oz. - in (static) (5.4 kg - cm)        |                                               |
| Ganging                     | 2 sections maximum                        |                                               |

## POWER RATING CHART



## ENVIRONMENTAL SPECIFICATIONS

|                                    |                     |
|------------------------------------|---------------------|
| Vibration                          | 15 g thru 2000 Hz   |
| Shock                              | 50 g                |
| Rotational Life (Shaft Revolution) |                     |
| 533                                | 300 000             |
| 534                                | 1 000 000           |
| 534 (Servo)                        | > 1 000 000         |
| 535                                | 500 000             |
| Load Life                          | 900 h               |
| Temperature Range                  | - 55 °C to + 125 °C |



| RESISTANCE ELEMENT DATA          |      |     |                 |       |       |               |        |        |                                             |       |       |                                       |       |       |
|----------------------------------|------|-----|-----------------|-------|-------|---------------|--------|--------|---------------------------------------------|-------|-------|---------------------------------------|-------|-------|
| RESISTANCE VALUE<br>( $\Omega$ ) |      |     | RESOLUTION<br>% |       |       | OHMS PER TURN |        |        | MAXIMUM CURRENT<br>AT 70 °C AMBIENT<br>(mA) |       |       | MAXIMUM VOLTAGE<br>ACROSS COIL<br>(V) |       |       |
| 533                              | 534  | 535 | 533             | 534   | 535   | 533           | 534    | 535    | 533                                         | 534   | 535   | 533                                   | 534   | 535   |
| 50                               | -    | 50  | 0.149           | -     | 0.120 | 0.0746        | -      | 0.0603 | 141.0                                       | -     | 173.0 | 7.07                                  | -     | 8.66  |
| 100                              | 100  | 100 | 0.111           | 0.060 | 0.075 | 0.1114        | 0.0603 | 0.0746 | 100.0                                       | 141.0 | 122.0 | 10.0                                  | 14.1  | 12.2  |
| 200                              | 200  | 200 | 0.097           | 0.037 | 0.061 | 0.1954        | 0.0746 | 0.1220 | 70.7                                        | 100.0 | 86.6  | 14.1                                  | 20.0  | 17.3  |
| 500                              | 500  | 500 | 0.069           | 0.031 | 0.049 | 0.3424        | 0.1520 | 0.2459 | 44.7                                        | 63.2  | 54.7  | 22.4                                  | 31.6  | 27.4  |
| 1K                               | 1K   | 1K  | 0.063           | 0.025 | 0.041 | 0.6331        | 0.2459 | 0.4113 | 31.6                                        | 44.7  | 38.7  | 31.6                                  | 44.7  | 38.7  |
| 2K                               | 2K   | 2K  | 0.041           | 0.021 | 0.031 | 0.8206        | 0.4113 | 0.6331 | 22.4                                        | 31.6  | 27.4  | 44.7                                  | 63.2  | 54.8  |
| 5K                               | 5K   | 5K  | 0.044           | 0.016 | 0.034 | 2.2330        | 0.8206 | 1.7230 | 14.1                                        | 20.0  | 17.3  | 70.7                                  | 100.0 | 86.6  |
| 10K                              | 10K  | 10K | 0.034           | 0.017 | 0.030 | 3.4510        | 1.7230 | 3.0160 | 10.0                                        | 14.1  | 12.2  | 100.0                                 | 141.0 | 122.0 |
| 20K                              | 20K  | 20K | 0.031           | 0.015 | 0.020 | 6.1790        | 3.0160 | 3.9910 | 7.07                                        | 10.0  | 8.66  | 141.0                                 | 200.0 | 173.0 |
| -                                | 50K  | 50K | -               | 0.009 | 0.015 | -             | 4.6690 | 7.4560 | -                                           | 6.32  | 5.47  | -                                     | 316.0 | 274.0 |
| -                                | 100K | -   | -               | 0.007 | -     | -             | 7.4560 | -      | -                                           | 4.47  | -     | -                                     | 447.0 | -     |
| -                                | -    | -   | -               | -     | -     | -             | -      | -      | -                                           | -     | -     | -                                     | -     | -     |
| -                                | -    | -   | -               | -     | -     | -             | -      | -      | -                                           | -     | -     | -                                     | -     | -     |



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