

1 - 7/16" (36.5mm) Single Turn Wirewound Precision Potentiometer



FEATURES

- Bushing or Servo
- 5Ω to 40KΩ

| ELECTRICAL SPECIFICATIONS | | |
|-----------------------------|------------------------------------------------------------------------------------------------------------------|---------|
| PARAMETER | STANDARD | SPECIAL |
| Total Resistance | 5Ω to 40KΩ | - |
| Tolerance: 50Ω and above | ± 3% | ± 1% |
| Below 50Ω | ± 5% | ± 3% |
| Absolute Minimum Resistance | Linearity x total resistance or 0.5Ω, whichever is greater | |
| End Voltage | Linearity x total applied voltage for total resistance above 20Ω, 2.0% of total applied voltage for 20 and below | |
| Linearity (Independent) | | |
| 5Ω to 200Ω | ± 1.00% | |
| 200Ω to 2KΩ | ± 0.50% | |
| 2KΩ and above | ± 0.25% | |
| Noise | 100Ω ENR | |
| Rotation | 350° ± 2° | |
| Power Rating: | | |
| Section 1: 2.0 watts | 70°C ambient derated to zero @ 125°C | |
| Additional Sections | 75% of rating of sections 1 (1.5 watts @ 70°C) | |
| Insulation Resistance | 1000MΩ minimum, 500VDC | |
| Dielectric Strength | 1000V _{RMS} , 60Hz | |
| Taps (Extra) | 15 available as special, standard tolerance ± 1° | |
| Phasing (CCW End Points) | Additional sections phased to section 1 within ± 1° | |

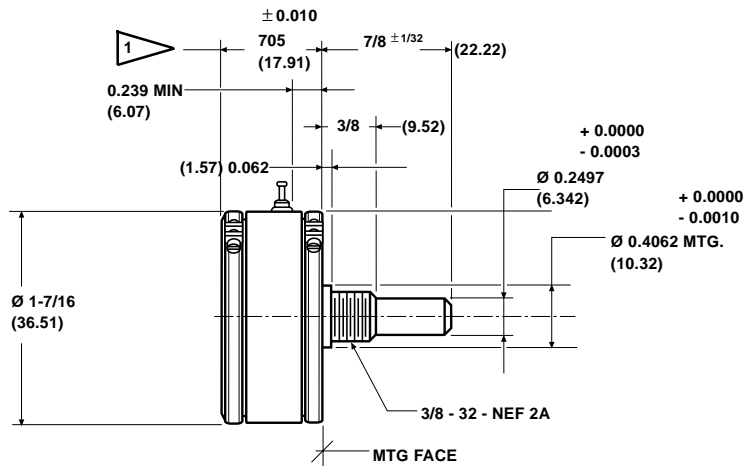
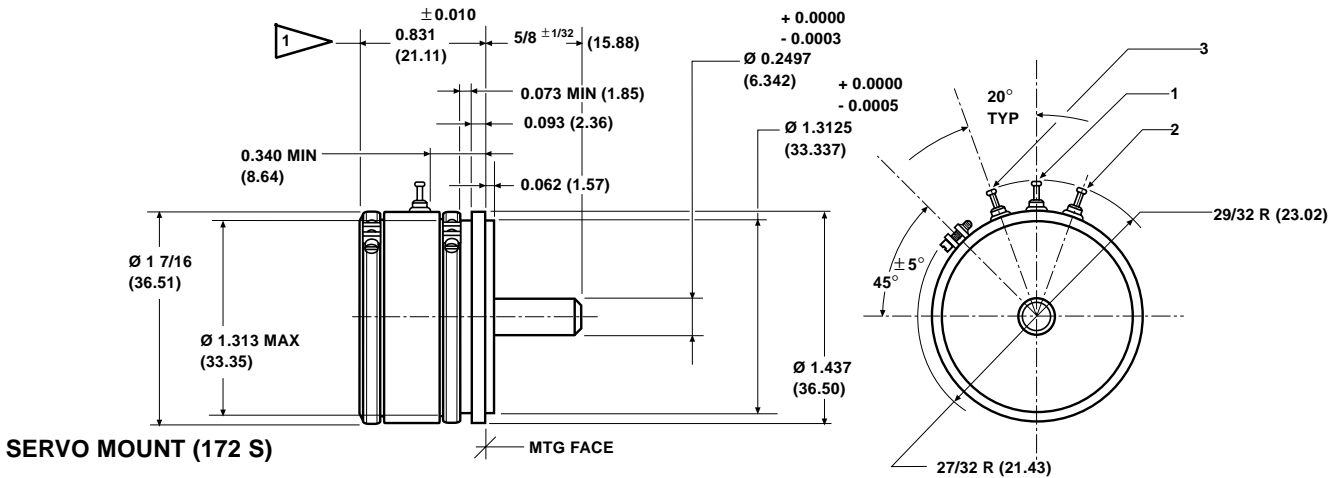
| ORDERING INFORMATION | | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-----------------------------------------------------|---------------------------|
| The Model 172 can be ordered from this data sheet with a variety of alternate characteristics, as shown above. For most rapid service on your order, please state: | | | |
| 172 | 1 | 3 | XXX |
| MODEL | MOUNTING | TOTAL RESISTANCE OF EACH SECTION | NUMBER OF SECTION IN GANG |
| | 1. Servo 2. Bushing | Beginning with the section nearest the mounting end | |
| Example: Model 172, Servo, 15K/1500Ω/5Ω 3 section | | | |
| Example: Model 172, Bushing, 10K, single section | | | |
| Example: 172 - 1 - 3 - XXX | | | |
| Other characteristics will be standard as described on this data sheet. If special characteristics are required, such as: special linearity tolerance, special resistance tolerance, extra taps, non-linear functions, etc., please state these on your order and allow additional lead time for delivery. | | | |
| NOTE: Specifications subject to change without notice | | | |

Model 172

Spectrol

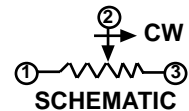
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DIMENSIONS in inches (millimeters)



BUSHING MOUNT (172 B)

1 ADD 0.500 ± 002 (12.70) FOR EACH ADDITIONAL SECTIONALS + 0.005 ANGLES + 2°



| MECHANICAL SPECIFICATIONS | | |
|--------------------------------|--------------------------------------------------------------------------------------------|-----------------------------|
| PARAMETER | | |
| Mechanical Rotation | 360° (continuous) | |
| Bearing Type | Servo mount: ball bearing Bushing mount: sleeve bearing | |
| Ganging | 6 sections maximum terminal alignment, added sections, within ± 10° of section 1 terminals | |
| Torque (Maximums) | STARTING | RUNNING |
| Servo section 1 | 0.6 oz - in (43.20gm - cm) | 0.35 oz - in (25.20gm - cm) |
| Bushing section 1 | 5.8 oz - in (57.60gm - cm) | 0.55 oz - in (39.60gm - cm) |
| Each Additional Section | 0.35 oz - in (25.20gm - cm) | 0.3 oz - in (21.60gm - cm) |
| Mechanical Runouts (Maximums): | SERVO | BUSHING |
| Shaft Runout (TIR) | 0.002 in (0.05cm) | 0.002 in (0.05cm) |
| Pilot Dia. Runout (TIR) | 0.002 in (0.05cm) | 0.002 in (0.05cm) |
| Lateral Runout (TIR) | 0.002 in (0.05cm) | 0.002 in (0.13cm) |
| Shaft End Play | 0.005 in (0.13cm) | 0.005 in (0.13cm) |
| Shaft Radial Play | 0.002 in (0.05cm) | 0.004 in (0.10cm) |
| Moment of Inertia | 2.0gm - cm ² per section maximum | |
| Weight (Maximums) | | |
| Single Section | 2.5 oz (70.90gm) | |
| Each Additional Section | 1.4 oz (39.70gm) | |

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Spectrol

| MATERIAL SPECIFICATIONS | |
|--------------------------------------------------------------------|----------------------------------------------|
| Housing and Lids | Aluminum, anodized |
| Shaft And Clamp Rings | Stainless steel, non-magnetic non-passivated |
| Bushing Mount Hardware Lockwasher Internal Tooth: Panel Nut: | Steel, nickel plated Brass, nickel plated |
| Terminals | |

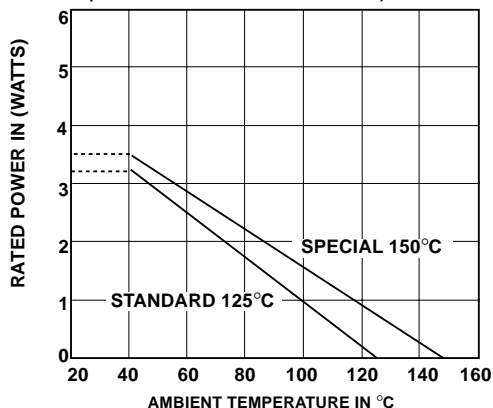
| MARKING | |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Unit Identification | Units shall be marked with Mfgr, name, model no & date code, and on each section, resistance & tolerance, linearity, and terminal identification |

| ENVIRONMENTAL SPECIFICATIONS | |
|------------------------------|-----------------------------|
| Vibration | 15g thru 2000Hz |
| Shock | 50g |
| Salt Spray | 96 Hours |
| Rotational Life | 1 million shaft revolutions |
| Load Life | 900 Hours |
| Operating Temperature | - 65°C to + 125°C |
| Humidity Cycling | 120 Hours |

POWER RATING CHART

(Ratings for cup No. 1.

Additional cups 75% of values shown)



| RESISTANCE ELEMENT DATA | | | | | |
|--------------------------------|----------------|---------------|--------------------------------------|---------------------------------|---------------------------|
| STANDARD RESISTANCE VALUES (Ω) | RESOLUTION (%) | OHMS PER TURN | MAXIMUM CURRENT AT 70°C AMBIENT (mA) | MAXIMUM VOLTAGE ACROSS COIL (V) | WIRE TEMP. COEF. (ppm/°C) |
| 5 | 0.340 | 0.017 | 632 | 3.16 | 800 |
| 10 | 0.290 | 0.029 | 447 | 4.47 | 800 |
| 20 | 0.235 | 0.047 | 315 | 6.32 | 800 |
| 50 | 0.244 | 0.122 | 200 | 10.0 | 20 |
| 100 | 0.221 | 0.221 | 141 | 14.1 | 20 |
| 200 | 0.180 | 0.360 | 100 | 20.0 | 20 |
| 500 | 0.141 | 0.706 | 63.2 | 31.6 | 20 |
| 1K | 0.130 | 1.300 | 44.7 | 44.7 | 20 |
| 2K | 0.104 | 2.091 | 31.6 | 63.2 | 20 |
| 5K | 0.085 | 4.253 | 20.0 | 100 | 20 |
| 10K | 0.066 | 6.603 | 14.1 | 141 | 20 |
| 20K | 0.057 | 11.498 | 10.0 | 200 | 20 |