

**3" (76.2mm) Single Turn Wirewound Precision Potentiometer**



**FEATURES**

- 10Ω to 100KΩ
- Bushing Mount or Servo Mount

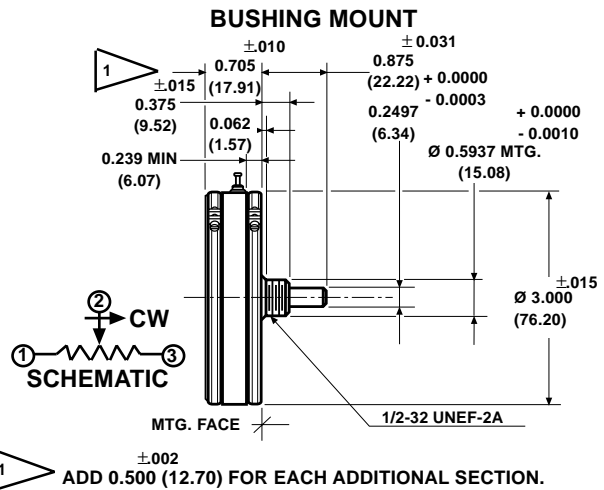
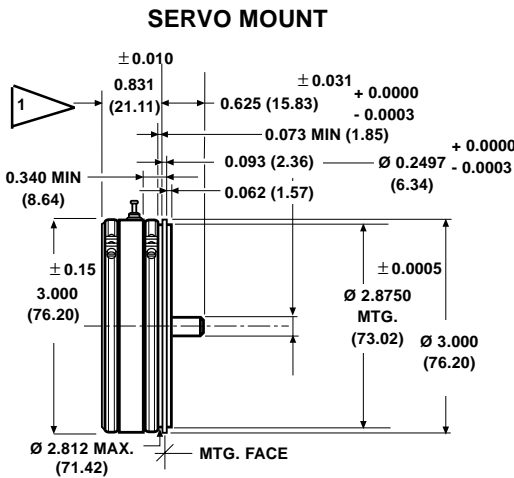
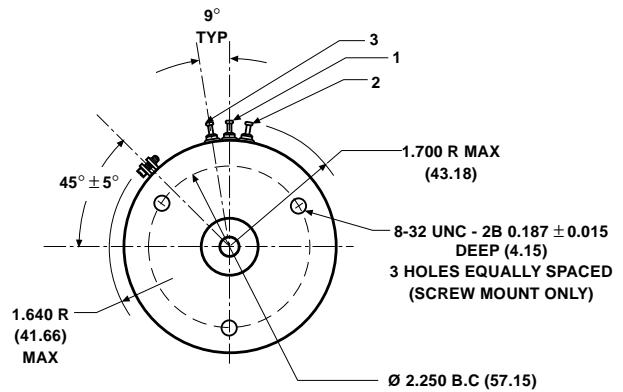
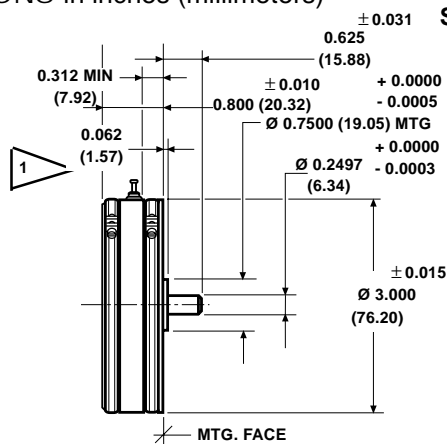
ELECTRICAL SPECIFICATIONS		
PARAMETER	STANDARD	SPECIAL
Total Resistance Tolerance: 100Ω and above Below 100Ω:	10Ω to 100KΩ ± 3% ± 5%	150KΩ ± 1% ± 3%
Absolute Minimum Resistance	Linearity x total resistance or 0.5Ω whichever is greater	
End Voltage	Linearity x total applied voltage for total resistance above 20Ω, 2.0% of total applied voltage for 20Ω and below	
Linearity (Independent) Total Resistance 10Ω to 200Ω 200Ω to 2KΩ 2KΩ to 10KΩ 10KΩ and above	<b>STANDARD</b>  ± 0.50% ± 0.25% ± 0.25% ± 0.25%	<b>BEST PRACTICAL</b>  ± 0.25% ± 0.15% ± 0.10% ± 0.075%
Noise	100Ω ENR	
Rotation	350° ± 2°	
Power Rating Section 1: Additional Sections:	6.0 watts at 70°C ambient derated to zero at 125°C 75% of the rating of section 1, (4.5 watts at 70°C)	
Insulation Resistance	1000MΩ minimum, 500 VDC	
Dielectric Strength	1000V <sub>RMS</sub> , 60Hz	
Taps (Extra)	37 available as special, standard tolerance ± 1°	
Phasing (CCW end points)	Additional sections phased to section 1 within ± 1°	

ORDERING INFORMATION			
The model 402 can be ordered from this specification sheet with a variety of alternate characteristics, are shown above. for most rapid service on your order, please state:			
<b>402</b> MODEL	<b>1</b> MOUNTING	<b>3</b> TOTAL RESISTANCE OF EACH SECTION	<b>10K</b> NUMBER OF SECTIONS IN GANG
	1, Servo 2, Screw or Brushing	Beginning with the section nearest the mounting end	
Example: Model 402, Screw, 15K/1500Ω/5Ω, 3 section			
Example: Model 402, Bushing, 10K, single section			
Example: <b>402 - 1 - 3 - 10K</b>			

# Model 402

## Spectrol 3" (76.2mm) Single Turn Wirewound Precision Potentiometer

DIMENSIONS in inches (millimeters)



MECHANICAL SPECIFICATIONS		
<b>PARAMETER</b>		
Rotation	360° (continuous)	
Bearing Type Servo & Screw Mount: Bushing Mount	Ball bearing Sleeve bearing	
Ganging	6 sections maximum Terminal alignment, added sections, within ± 10° of section 1 terminals	
Torque (Maximum) Mounting: Servo or Screw 1 Section Bushing 1 Section Each additional Section	<b>STARTING</b>  1.1 oz - in (79.21gm - cm) 1.9 oz - in (136.82gm - cm) 0.8 oz - in (57.61gm - cm)	<b>RUNNING</b>  0.6 oz - in (43.20gm - cm) 1.1 oz - in (79.21gm - cm) 0.5 oz - in (36.00gm - cm)
Runouts (Maximums) Shaft (TIR/In) Pilot dia (TIR) Lateral (TIR) Shaft End Play Shaft Radial Play	<b>SERVO</b>  0.002 in (0.05cm) 0.002 in (0.05cm) 0.004 in (0.10cm) 0.005 in (0.13cm) 0.002 in (0.05cm)	<b>BUSHING</b>  0.002 in (0.05cm) 0.002 in (0.05cm) 0.005 in (0.13cm) 0.005 in (0.13cm) 0.003 in (0.08cm)
Moment of Inertia	4.0gm - cm <sup>2</sup> per section maximum	
Weight (Maximums) Each Additional Section:	Single section: 7.0 oz (198,45gm) 2.0 oz (56,70gm)	

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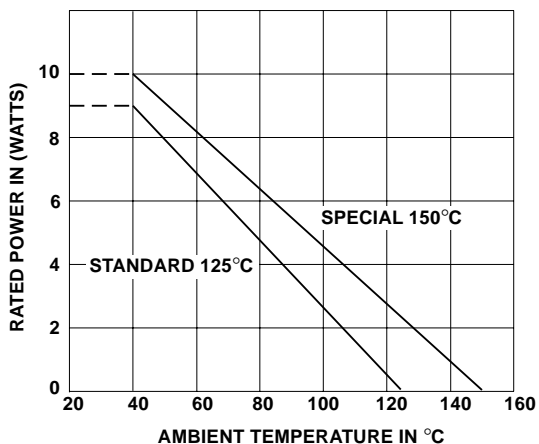
Spectrol

MATERIALS	
Housing and Lids	Aluminum, anodized
Shaft and clamp rings	Stainless steel, non-magnetic, non-passivated
Terminals	Brass, plated for solderability
Brushing mount hardware Lockwasher Internal Tooth: Panel nut:	Steel, nickel plated Brass, nickel plated

ENVIRONMENTAL	
Vibration	15G Thru 2000 CPS
Shock	50G
Salt Spray	96 hours
Rotational Life	1 million shaft revolutions
Load Life	900 hours
Temperature Range	-55°C + 125°C
Moisture Resistant	-

MARKING	
<b>Unit Identification</b>	Units shall be marked with Spectrol name, model no, data code and on each section, resistance, resistance tolerance, linearity and terminal identification

**POWER RATING CHART**  
(Ratings for cup No. 1.  
Additional cups 75% of values shown)



RESISTANCE ELEMENT DATA					
RESISTANCE VALUES (Ω)	RESOLUTION (%)	OHMS PER TURN	MAXIMUM CURRENT AT 70°C AMBIENT (mA)	MAXIMUM VOLTAGE ACROSS COIL (V)	WIRE TEMP. COEF. (ppm/°C)
10	0.160	0.016	775	7.74	800
20	0.120	0.024	548	10.9	800
50	0.094	0.047	347	17.3	800
100	0.106	0.106	245	24.5	20
200	0.091	0.181	173	34.7	20
500	0.072	0.361	110	54.5	20
1K	0.057	0.575	77.5	77.4	20
2K	0.056	1.12	54.8	109	20
5K	0.042	2.09	34.6	173	20
10K	0.034	3.42	24.5	245	20
20K	0.025	5.07	17.3	347	20
50K	0.019	9.41	11.0	545	20
100K	0.018	18.0	7.74	775	20
150K	0.023	34.4	6.32	949	20