

# Model 552

Spectrol

## 7/8" (22.2mm) Three Turn Wirewound Precision Potentiometer



### FEATURES

- 5Ω to 20KΩ
- Bushing Mount or Servo Mount

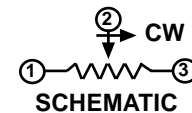
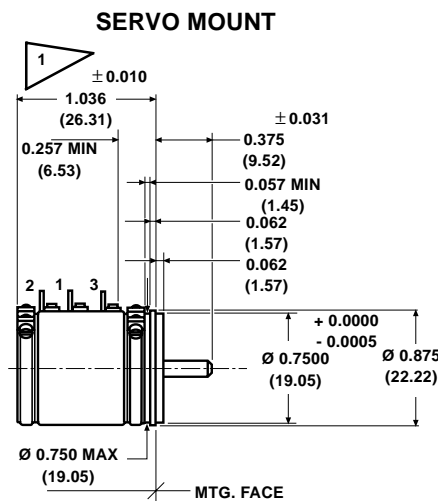
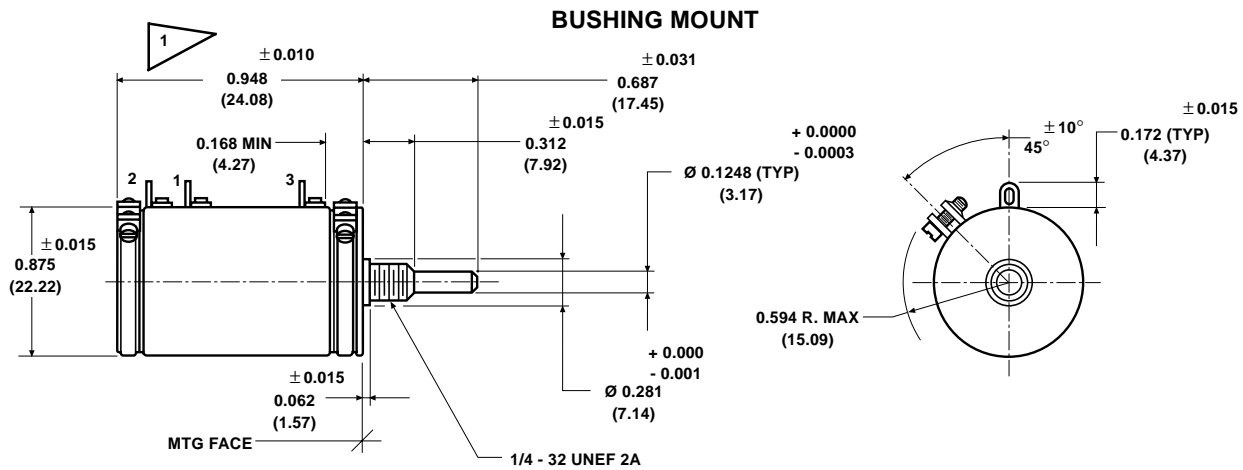
ELECTRICAL SPECIFICATIONS		
PARAMETER		
Total Resistance	<b>STANDARD RANGE</b> 5Ω to 20KΩ	<b>SPECIAL</b> 45K
Tolerance 50Ω and above	± 3%	± 1%
Below 50Ω	± 5%	± 3%
Linearity (Independent)	<b>STANDARD</b>	<b>BEST PRACTICAL</b>
Total Resistance Ω		
5 to 500	± 0.25%	± 0.25%
500 to 2K	± 0.25%	± 0.20%
2K	± 0.25%	± 0.125%
and above	± 0.25%	± 0.125%
Noise	100Ω ENR	
Electrical Rotation	1080° + 4° - 0°	
Power Rating	1.0 watt at 70°C ambient, derated to zero at 125°C	
Section 1	75% of the rating of section 1 (0.75 watt at 70°C)	
Additional Sections		
Insulation Resistance	1,000MΩ minimum, 500VDC	
Dielectric Strength	1,000V <sub>RMS</sub> minimum, 60Hz	
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	
Phasing (CCW End Points)	Additional sections phased to section 1 within ± 2°	
Taps (Extra)	16 available as special, standard tolerance ± 2°	

ORDERING INFORMATION			
The Model 552 can be ordered from this data sheet with a variety of alternate characteristics, as shown. For most rapid service on your order, please state:			
<b>552</b>	<b>1</b>	<b>3</b>	<b>XXX</b>
MODEL	MOUNTING	TOTAL RESISTANCE OF EACH SECTION	NUMBER OF SECTIONS IN GANG
	1. Servo 2. Bushing	Beginning with the section nearest the mounting end	
Example: Model 552, Servo, 10K/30K/100Ω, 3 section			
Examples: Model 552, Bushing, 5K, single section			
Example: <b>552 - 1 - 3 - XXX</b>			
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.			

**7/8" (22.2mm) Three Turn Wirewound Precision Potentiometer**

**Spectrol**

DIMENSIONS in inches (millimeters)



**TOLERANCES: UNLESS OTHERWISE NOTED**  
**DECIMALS ± 0.005 ANGLES ± 2°**

**ADD 0.782 ± 0.002 (19.86) FOR EACH ADDITIONAL SECTION**

MECHANICAL SPECIFICATIONS		
PARAMETER		
Mechanical Rotation	1080°, + 10° - 0°	
Bearing Type: Servo Mount	Ball bearing	
Bushing Mount	Sleeve bearing	
Torque (Maximums)	<b>STARTING</b>	<b>RUNNING</b>
Servo: 1 Section	0.4 oz - in (28.8gm - cm)	0.3 oz - in (21.6gm - cm)
Bushing: 1 Section	0.5 oz - in (36.0gm - cm)	0.4 oz - in (28.8gm - cm)
Each Additional Section	0.3 oz - in (21.6gm - cm)	0.2 oz - in (14.4gm - cm)
Mechanical Runouts (Maximum)	<b>SERVO</b>	<b>BUSHING</b>
Shaft Runout (TIR/in)	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)	0.005 in (0.13cm)
Shaft End Play	0.005 in (0.13cm)	0.005 in (0.13cm)
Shaft Radial Play	0.002 in (0.05cm)	0.003 in (0.08cm)
Weight (Maximums): Single Section	0.75 oz (21.7gm)	
Additional Section	0.60 oz (17.0gm)	
Stop Strength	100 oz - in static (7.2Kgm - cm)	
Ganging	3 sections maximum, terminal alignment added sections within ± 10° of section 1 terminals	
Moment of Inertia	0.30gm - cm <sup>2</sup> per section maximum	

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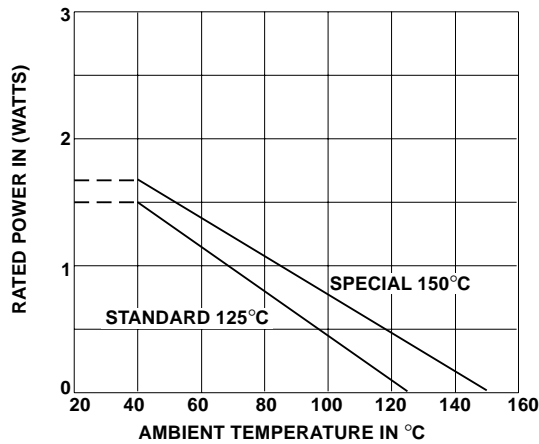
7/8" (22.2mm) Three Turn Wirewound  
Precision Potentiometer

MATERIAL SPECIFICATIONS	
Housing	Diallylphthalate
Lids	Aluminum, anodized
Shaft	Stainless steel, non-magnetic, non-passivated
Terminals	Brass, Gold plated
Clamp Ring	Stainless steel
Bushing Mount Hardware	Steel, nickel plated
Lockwasher Internal tooth:	
Panel Nut:	Brass, nickel plated

MARKING	
<b>Unit Identification</b>	Units shall be marked with Spectrol name and Model no, resistance and resistance tolerance, linearity, terminal identification, and date code

ENVIRONMENTAL SPECIFICATIONS	
Vibration	15g thru 2000Hz
Shock	50g
Salt Spray	96 Hours
Rotational Life	600,000 Shaft revolutions
Load Life	900 Hours
Operating Temperature Range	- 65°C to + 125°C
Moisture Resistant	-

**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	0.265	0.013	447	2.24	800
10	0.182	0.018	316	3.16	800
20	0.155	0.031	224	4.48	800
50	0.150	0.075	141	7.05	180
100	0.125	0.125	100	10.0	20
200	0.116	0.232	70.7	14.1	20
500	0.103	0.517	44.7	22.4	20
1K	0.089	0.886	31.6	31.6	20
2K	0.071	1.411	22.4	44.8	20
5K	0.057	2.828	14.1	70.5	20
10K	0.044	4.381	10.0	100	20
20K	0.036	7.199	7.07	141	20
45K	0.031	14.170	4.71	212	20