



# 1-5/16" (33.3mm) Low Cost Industrial Single Turn Wirewound, Conductive Plastic, Cermet



### FEATURES

- Choice of Three Elements for Broad Resistance Range
- Center Tap Available
- Continuous Rotation & Mechanical Stops Both Standard
- High Power Rating (139)

ELECTRICAL SPECIFICATIONS			
PARAMETER	MIL-PRF-12934/MIL-PRF-39023 TEST PROCEDURES APPLY		
	STANDARD	SPECIAL	
Total Resistance: Model 132 Wirewound Tolerance: 50Ω and above Below 50Ω Model 138 Conductive Plastic Tolerance: Model 139 Cermet Tolerance:	5Ω to 20KΩ ± 3% ± 5% 1KΩ to 50KΩ ± 10% 500Ω to 2MΩ ± 20%	to 35KΩ ± 1% ± 3% - ± 5% - ± 5%	
Linearity (Independent) Total Resistance (132) 5Ω to 20Ω 20Ω to 200Ω 200Ω and above 138/139	<b>STANDARD</b> ± 1.0% ± 1.0% ± 0.5% ± 0.5%	<b>BEST PRACTICAL</b> ± 0.75% ± 0.50% ± 0.25% ± 0.25%	
Noise (132)	100Ω ENR		
Output Smoothness (138 & 139)	0.1% maximum		
Power Rating Model 132 Model 138 Model 139	40°C Ambient 2.75 watts 2 watts 5 watts All Models derated to zero at 125°C		
Electrical Rotation Continuous Stops	<b>MODEL 132</b> 352° ± 2° 336° ± 2°	<b>MODEL 138</b> 345° ± 4° 336° ± 4°	<b>MODEL 139</b> 345° ± 4° 336° ± 4°
Insulation Resistance	1000MΩ minimum at 500VDC		
Dielectric Strength	1000V <sub>RMS</sub> , 60Hz		
Absolute Minimum Resistance	1.0% of total resistance or 0.5Ω whichever is greater (132 only)		
Minimum Voltage	0.5% maximum		
Temperature Coefficient of Resistance 132 138 139	Refer to standard resistance element data ± 500ppm/°C maximum ± 100ppm/°C maximum		

MATERIAL SPECIFICATIONS	
Housing	Molded glass filled thermoplastic
Rear Lid	Glass filled thermoset plastic
Shaft	Stainless steel, non-magnetic
Terminals	Brass, plated for solderability, Non-passivated
Mount Hardware Lockwasher Internal Tooth: Panel nut:	Steel, nickel plated Brass, nickel plated

ENVIRONMENTAL SPECIFICATIONS	
Vibration	15Gs thru 2000 Hz
Shock	50g
Salt Spray	48 Hours
Rotational Life Shaft Revolutions Model 132 Model 138 Model 139	500,000 2 million 2 million
Operating Temperature Range	- 55°C to + 125°C
Moisture Resistance	-

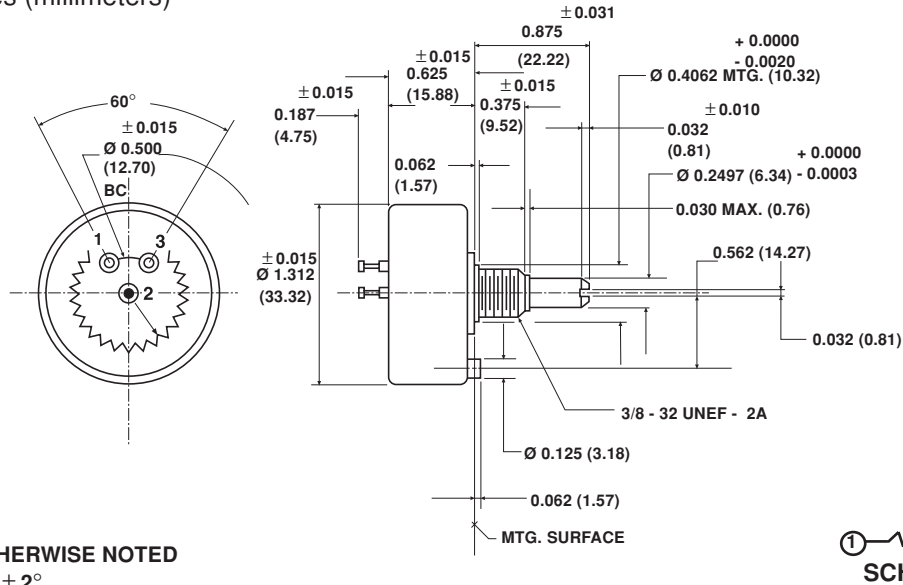
ORDERING INFORMATION			
The Models 132, 138 and 139 can be ordered from this specification sheet by stating. Example: <b>139 - 0 - 0 - 203</b>			
<b>139</b>	<b>0</b>	<b>0</b>	<b>203</b>
MODEL	MECHANICAL OPTIONS	OTHER OPTIONAL FEATURES	RESISTANCE CODE
132, 138 or 139	0. Continuous 2. Stops	0. Standard (End Taps) 1. Center Tap (Within 5° of Electrical Center)	2: 1st Significant digit 0: 2nd significant digit 3: Number of Zero's
Other characteristics will be standard as described on this specification sheet. If special characteristics are required such as special linearity tolerance, special resistance tolerance, non-linear functions, etc., please state these on your order			

# Model 132, 138, 139

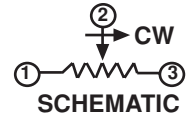


Vishay Spectrol 1 - 5/16" (33.3mm) Low Cost Industrial Single Turn Wirewound-, Conductive Plastic, Cermet

**DIMENSIONS** in inches (millimeters)

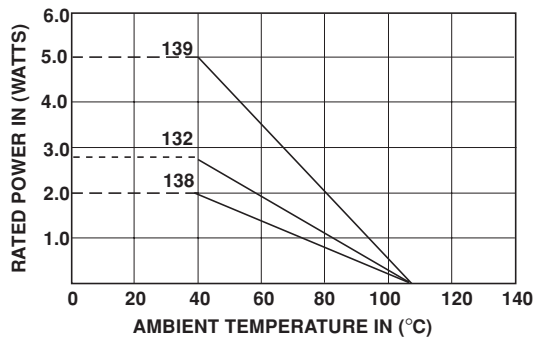


**TOLERANCES: UNLESS OTHERWISE NOTED**  
DECIMALS  $\pm 0.005$  ANGLES  $\pm 2^\circ$



MECHANICAL SPECIFICATIONS		
PARAMETER		
Rotation	360° (continuous) 340° $\pm 5^\circ$ stops	
Bearing Type	Sleeve	
Torque (Maximums)	<b>STARTING</b> 1.0 oz - in (72gm - cm)	<b>RUNNING</b> 0.7 oz - in (50, 40gm - cm)
Runouts (Maximums)		
Shaft Runout (TIR)	0.002 in (0.05mm)	
Pilot Dia. Runout (TIR)	0.003 in (0.08mm)	
Lateral Runout (TIR)	0.005 in (0.13mm)	
Shaft End Play	0.008 in (0.20mm)	
Shaft Radial Play	0.003 in (0.08mm)	
Weight	1.0 oz maximum (28,35gm)	
Stop Strength	8.0 in - lbs (9.21 Kgm - cm) (Stops Version Only)	

## POWER RATING CHART



## RESISTANCE ELEMENT DATA

RESISTANCE VALUES ( $\Omega$ )	RESOLUTION (%)	OHMS PER TURN	MAXIMUM CURRENT AT 40°C AMBIENT (mA)	MAXIMUM VOLTAGE ACROSS COIL (V)	WIRE TEMP. COEF. (ppm/°C)
5	0.419	0.021	742	3.71	800
10	0.327	0.032	524	5.24	800
20	0.280	0.056	371	7.42	800
50	0.290	0.145	234	11.7	20
100	0.251	0.251	166	16.6	20
200	0.212	0.424	122	24.4	20
500	0.161	0.806	74.2	37.1	20
1K	0.150	1.50	52.4	52.4	20
2K	0.132	2.64	37.1	74.2	20
5K	0.107	5.34	23.4	117	20
10K	0.080	7.98	16.6	166	20
20K	0.067	13.4	12.2	244	20
35K	0.057	20.0	8.88	311	20

## MARKING

Unit Identification	Units shall be marked with Spectrol name, model number, resistance and tolerance, linearity, terminal identification, and data code Applicable test procedures: Model 132, MIL-R-12934; Model 138 & 139, MIL-R-39023
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