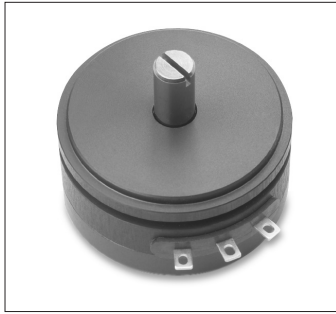


## Standard Potentiometers

### P4500 Series



Precision potentiometer with conductive plastic resistance track for measuring, control and instrumentation applications.

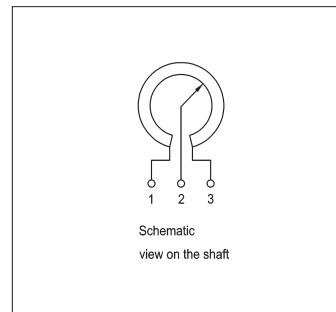
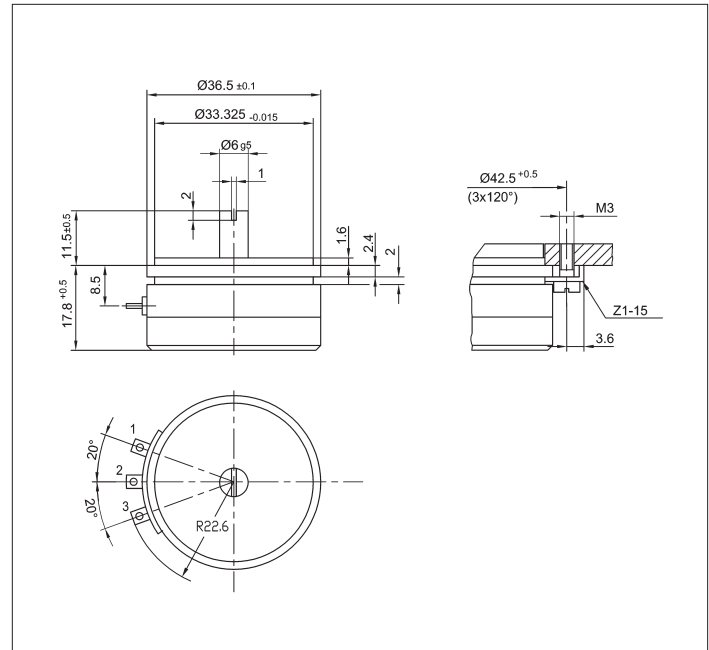
The distinguishing features of the P4500 include an all metal case, ball bearings and conductive plastic collector track.

Because of its reliability, long life, good linearity, high resolution, high operational speed and corrosion resistance, this component opens applications hitherto closed to conventional potentiometers.

Special versions with different electrical travels and shaft dimensions are available.

#### Special features

- industry standard size offering top performance at reasonable cost
- very long life –  $100 \times 10^6$  movements
- very good linearity – standard  $\pm 0.075\%$
- very high resolution – better than  $0.008^\circ$
- high admissible operating speed: 10,000 RPM
- unrestricted continuous rotation



#### Description

Size	servo size 13
Case	two part, anodized aluminum case and cover
Shaft	stainless steel
Bearings	stainless steel ball bearings
Resistance element	conductive plastic
Wiper assembly	precious metal multi-finger wipers
Electrical connections	gold-plated brass terminals

<b>Mechanical Data</b>		
Dimensions	see drawing	
Mounting	with 3 clamps Z 1-15	
Mechanical travel	360, continuous	°
Permitted shaft loading (axial and radial) static or dynamic force	45	N
Torque	≤ 0.1	Ncm
Maximum operational speed	10,000	RPM
Weight	45	g
<b>Electrical Data</b>		
Actual electrical travel	350 ±2	°
Available resistance values	1; 2; 5	kΩ
Resistance tolerance	±20	%
Repeatability	0.002 ( Δ 0.007°)	%
Effective temperature coefficient of the output-to-applied voltage ratio	5 (typical)	ppm/K
Independent linearity	±0.075	%
Max. permissible applied voltage	42	V
Recommended operating wiper current	≤ 1	μA
Max. wiper current in case of malfunction	10	mA
Insulation resistance (500 VDC, 1 bar, 2 s)	≥ 10	MΩ
Dielectric strength (50 Hz, 2 s, 1 bar, 500 VAC )	≤ 100	μA

<b>Environmental Data</b>		
Temperature range	-40...+100	°C
Vibration	5...2000 A <sub>max</sub> = 0.75 a <sub>max</sub> = 20	Hz mm g
Shock	50 11	g ms
Life	100 x 10 <sup>6</sup>	movem.
Protection class	IP 40 (DIN 400 50 / IEC 529)	

<b>Order designations</b>		
Type	Art. no.	R in kΩ
P4501 A102	006201	1
P4501 A202	006202	2
P4501 A502	006203	5

Type designations for non-standard models will be specified upon receipt of order.

#### Included in delivery

3 mounting clamps Z 1-15

#### Recommended accessories

Fork coupling Z 104 G 6,  
 Fork coupling Z 105 G 6  
 (backlash-free),  
 Process-controlled indicators  
 MAP...with display,  
 Signal conditioner MUP.../MUK  
 ...for standardized output signals

#### Important

All values given for this series – including linearity, lifetime, micro-linearity, resistance to external disturbances and temperature coefficient in voltage dividing mode – are quoted for the device operating with the wiper voltage driving an operational amplifier working as a voltage follower where virtually no load is applied to the wiper (I<sub>e</sub> ≤ 1 μA).