

Conductive Plastic Potentiometer

Special Version

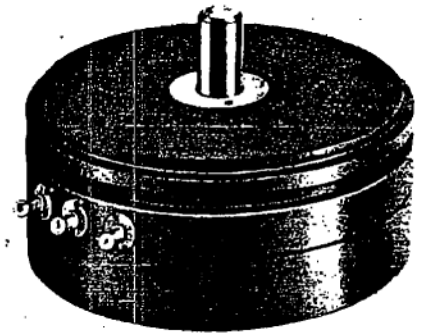
Dinopot Servo Size 20

Model P 6501-4007

- Triangulated Function
- Long Life - 50×10^6 revolutions
- High Resolution
- Continuous Rotation
- Electrical Function $2 \times 180^\circ$

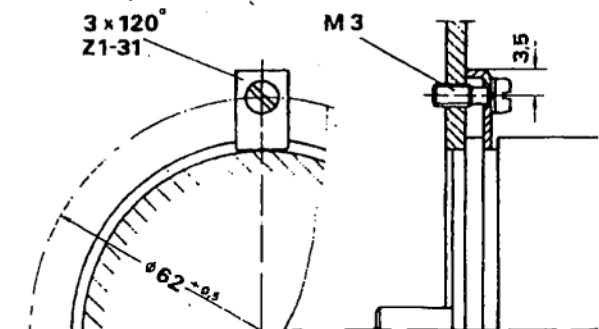
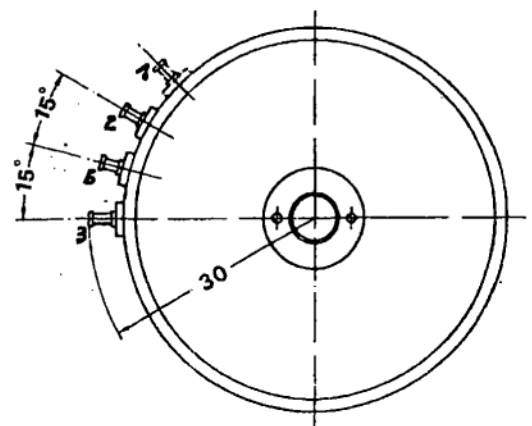
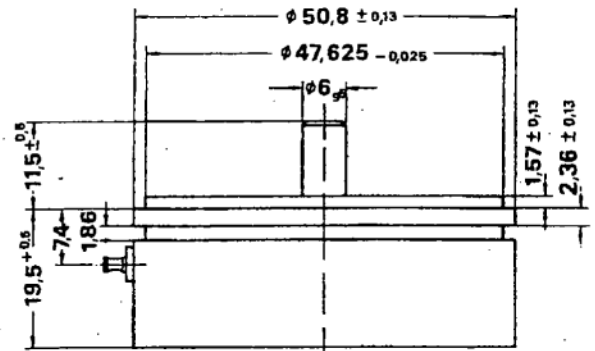
This precision potentiometer, which employs co-moulded conductive plastic technology, can be used in a wide variety of measuring and control applications.

The resistance element takes the form of an enclosed ring which is supplied with voltage onto two diametrically opposed points. Both of the units wipers, which are offset from each other by 90° degrees, produce a triangulated output voltage the value of which is proportional to the shaft position. A logic decoupling circuit can be employed to take both voltage values and evaluate the unique shaft position.



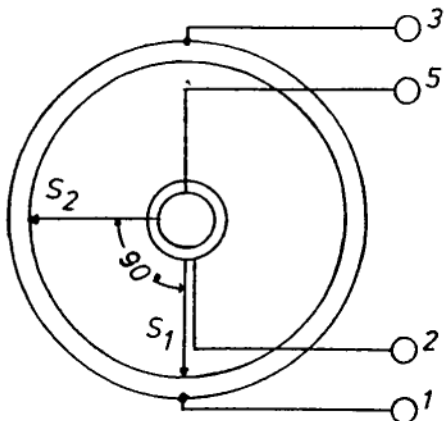
Description

| | |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------|
| Size | servo size 20 |
| Housing | 2 piece, fixing flange and cover fabricated in black anodised aluminium |
| Shaft | stainless steel |
| Bearings | stainless steel ball bearings |
| Resistance Element | conductive plastic co-moulded into glass reinforced Duroplast base |
| Collector | High conductivity conductive plastic |
| Wiper | Precious metal, elastomer damped, multifingered wipers are used on the resistance and collector tracks |
| Electrical Terminals | brass, gold plated, insert-moulded |
| Terminal to resistive connections | strain relieved, flexible Teflon insulated track conductors mechanically fixed and soldered to the terminal pins |



Mechanical data

| | | |
|----------------------------------------|---------------------------|----------------|
| Dimensions | see dimensioned drawing | |
| Fixing | With 3 clamps type Z 1-31 | |
| Tolerances | | |
| end play | mm | 0.05 |
| radial play | mm | 0.05 |
| shaft runout | mm/mm | 0.003 |
| pilot diameter runout | mm | 0.04 |
| lateral runout | mm/mm | 0.005 |
| Mechanical angle | ° | 360 continuous |
| Starting torque | Ncm | 0.25 (25 cmp) |
| Maximum permitted running speed | r.p.m. | 10000 |
| Maximum permitted angular acceleration | rad/s ² | 50000 max. |
| Weight | g | 80 |



Electrical data

| | | |
|---------------------------------------------------------------------------------------|------------|----------------|
| Electrical Function | | |
| Angle | ° | 360 (2x180) |
| Nominal Resistance value | K Ω | 2.5 |
| Resistance Tolerance | % | \pm 20 |
| Resolution | % | 0.002 (0.007°) |
| Smoothness | % | 0.01 |
| Temperature co-efficient of resistance | | |
| - 55 ... + 75 C | ppm/°C | \pm 200 |
| + 75 ... + 100 C | ppm/°C | \pm 300 |
| Effective temperature co-efficient of output voltage when used as a potential divider | ppm/°C | < 2 |
| Independent linearity | % | \pm 0.075 |
| Recommended Wiper Current | μ A | < 1 |
| Insulation resistance | M Ω | > 100 |
| Dielectric Strength | 500 | |

Operating Conditions

| | |
|-------------------|------------------------------------------------------------------------|
| Temperature range | -55 ... +100°C |
| Power rating | 2.5W derating to 0 at 110°C |
| Vibration | 5 ... 2000 Hz A _{max} = 0.75 mm a _{max} = 20 g |
| Shock | 50 g, 11 ms |
| Life Expectancy | 100.10 ⁶ operations at \leq 1500 r.p.m. |

Accessories

- 3 fixing clamps Z 1-31
(delivered with potentiometer)
- Fork Coupling Z 105 g 6
(Backlash-free)