



### FEATURES

- Conceived and designed for customisation
- SMD or Through-hole Mount
- Endless Rotation (360°)
- Wide Electrical Angle (340° ± 10°)
- Extended Mechanical Life (100k cycles)
- Working Temperature Range (-40°C to +120°C)
- Low Profile (4.4 mm)
- Linearity ± 3% (standard)
- Embossed Tape or Bulk packaging
- Reflow Soldering capability
- Shaft insertable from both sides
- Polarised "T" rotor (European Home Appliance standard)

### STANDARD SPECIFICATIONS

|                       |                 |
|-----------------------|-----------------|
| Resistance values:    | 5k, 10k, 100k   |
| Tolerance:            | ± 30%           |
| Nominal Power:        | 0.15 W @ 50°C   |
| Linearity (absolute): | ± 3%            |
| Taper:                | Linear          |
| Mechanical Life:      | 100,000 cycles  |
| Temperature Range:    | -40°C to +120°C |
| Mechanical Angle:     | 360°            |
| Electrical Angle:     | 340° ± 10°      |
| Rotational Torque:    | ≤ 20 mN.m       |
| Max. Voltage:         | 250 VDC         |

Others upon request

### TYPICAL APPLICATIONS

- The N15 series offers an SMD and Through Hole mount solution for the majority of **Position/Rotary Sensor** and **multi-purpose Control** applications such as:
- Automotive HVAC, Seat, Rear-view mirror actuator feedback sensors and HVAC Controls
  - Temperature Control for Boilers, Wall Heaters, Showers, Radiators, Conventional and Microwave Ovens, Freezers...
  - Timer & Function/Programme Select for Washing Machines, Dishwashers and all White Goods in general.
  - Size and Position detectors

### HOW TO ORDER

|                                     |          |                             |  |   |   |
|-------------------------------------|----------|-----------------------------|--|---|---|
| <b>N-15</b>                         | <b>T</b> | <b>S</b>                    | <b>103</b>                             | <b>A</b>                                | <b>3030</b>                                 |
| Series                              | Rotors   | Mounting Method             | Value                                  | Taper                                   | Tolerance                                   |
| N-15<br><small>(See note 1)</small> | T        | V = Through Hole<br>S = SMD | 502 = 5 K<br>103 = 10 K<br>104 = 100 K | A = Lin.<br><small>(See note 2)</small> | 3030 = ± 30%<br><small>(See note 3)</small> |

#### NOTES:

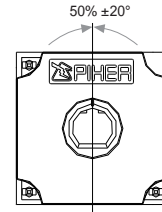
- (1) A wide variety of custom substrates available
  - (2) Availability of a wide range of customised tapers and step curves
  - (3) Optional precision laser-trimmed voltage divider calibration
- Shafts are not available mounted to the potentiometer and should be ordered separately

NOTE: The information contained here should be used for reference purposes only.

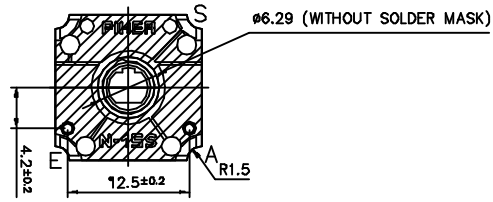
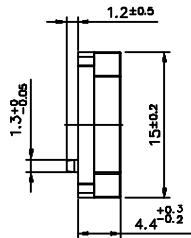
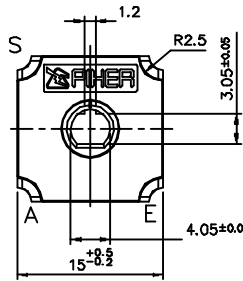
N-15 T S + DRAWING NUMBER (Max. 16 digits)

This way of ordering should be used for options which are not included in the "How to order" standard and optional extras.

Wiper positioned at 50 % of the electrical angle.

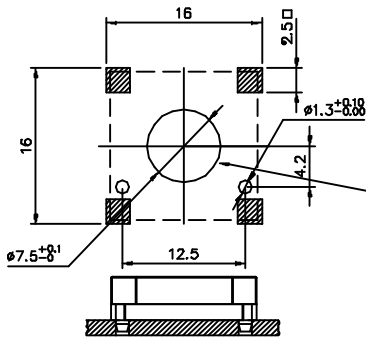


SMD MOUNT

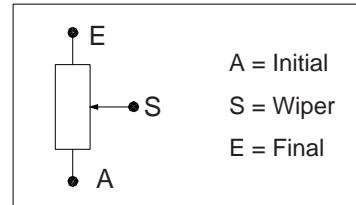


▨ SOLDER MASK

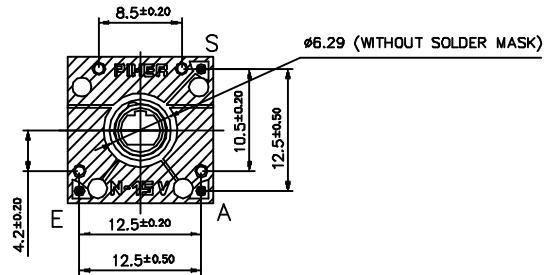
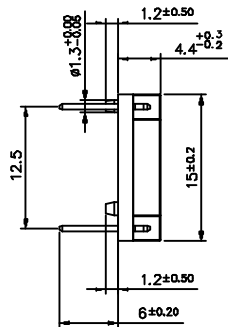
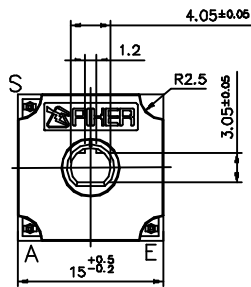
FOOT - PRINT



Recommended PCB hole diameter when using listed Piher shafts

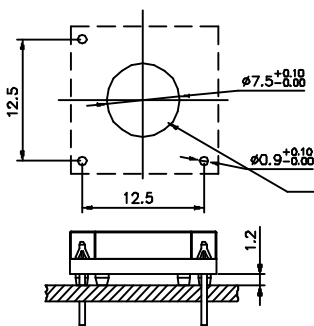


THROUGH HOLE MOUNT

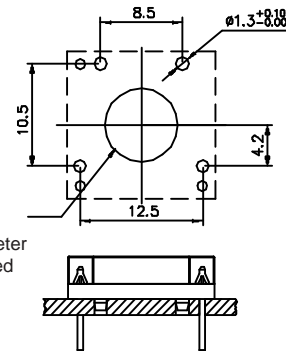


▨ SOLDER MASK

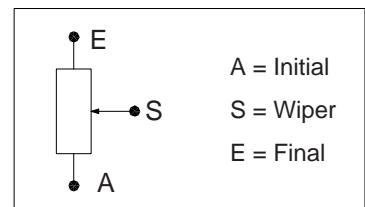
PCB HOLE LAYOUT 1



PCB HOLE LAYOUT 2



Recommended PCB hole diameter when using listed Piher shafts



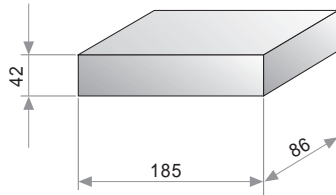
## TESTS

## TYPICAL VARIATIONS

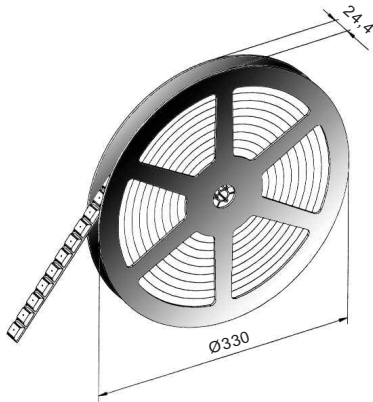
|                          |                            |                       |
|--------------------------|----------------------------|-----------------------|
| ELECTRICAL LIFE          | 1.000 h. @ 50°C; 0.15 W    | ±40 %                 |
| MECHANICAL LIFE (CYCLES) | 100,000 @ 20 CPM           | ±40 % (Rn < 100 K)    |
| TEMPERATURE COEFFICIENT  | -40°C to +120°C            | ±300 ppm (Rn < 100 K) |
| THERMAL CYCLING          | 10h. @ 120°C; 10h. @ -40°C | ±40 %                 |
| DAMP HEAT                | 500 h. @ 40°C @ 95% HR     | ±40 %                 |

NOTE : Out of range values may not comply these results.

## PACKAGING

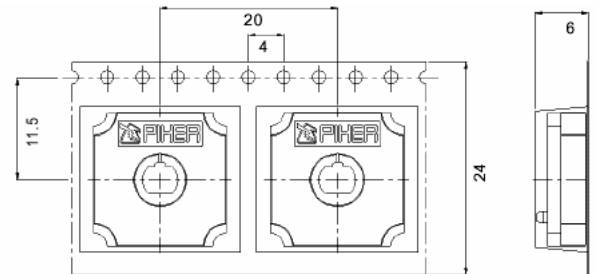
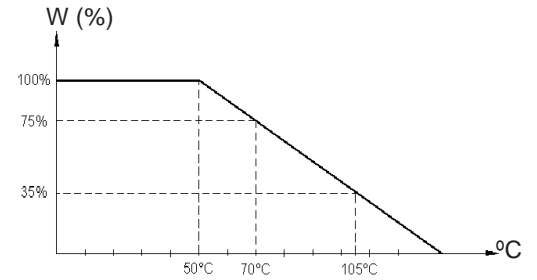


**BULK**  
200 Units per box.  
Through hole version only



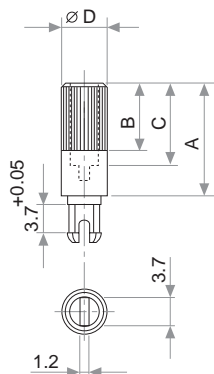
**EMBOSSSED TAPE**  
500 Units per Reel  
SMD version only

## POWER RATING CURVE



## SHAFTS

Hollow model shafts



A = Length (FRS)  
B = Knurling length  
C = Hollow depth  
D = Shaft diameter  
FRS = From rotor surface

| FIG. | A    | B   | C    | D | Ref. |
|------|------|-----|------|---|------|
| 1    | 12   | 9   | 8    | 6 | 5272 |
| 2    | 19   | 9   | 15   | 6 | 5214 |
| 5    | 9.5  | 6.5 | 5.5  | 6 | 5208 |
| 9    | 35   | 9   | 15   | 6 | 5216 |
| 10   | 37.8 | 9   | 33.8 | 6 | 5218 |
| 11   | 35   | 25  | 15   | 6 | 5209 |
| 13   | 7.8  | 4.8 | 3.8  | 6 | 5265 |

# SHAFTS

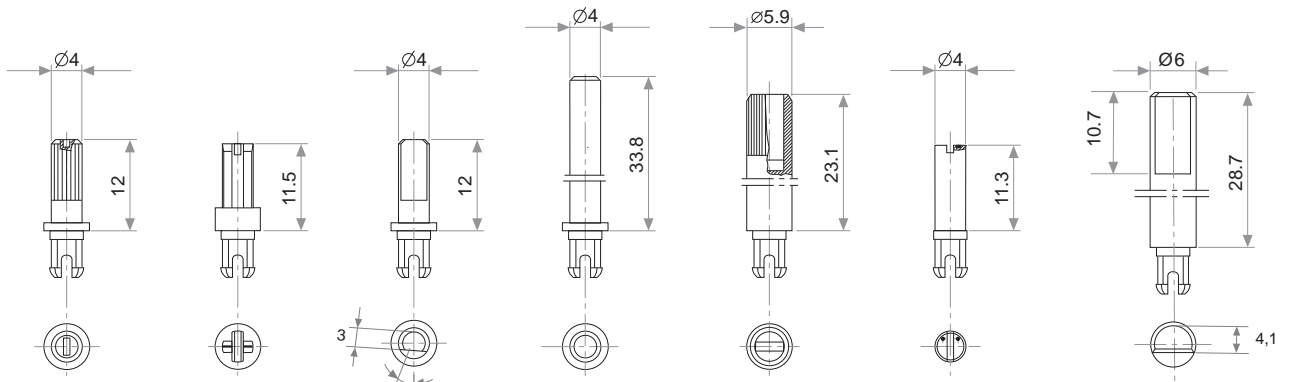


Fig. 3 / Ref. 5372    Fig. 14 / Ref. 5248    Fig. 15 / Ref. 5217    Fig. 16 / Ref. 5262\*    Fig. 17 / Ref. 5210    Fig. 18 / Ref. 5271    Fig. 19 / Ref. 6032\*

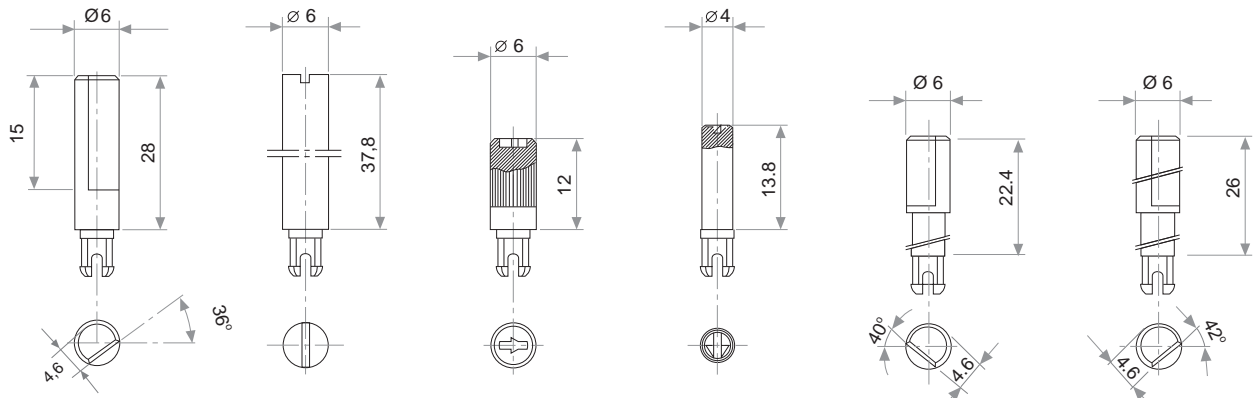


Fig. 20 / Ref. 5369\*    Fig. 21 / Ref. 6031\*    Fig. 22 / Ref. 6029    Fig. 23 / Ref. 6022    Fig. 24 / Ref. 6058    Fig. 25 / Ref. 6059

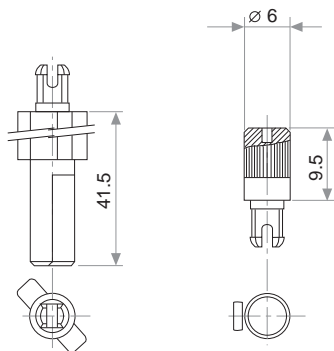


Fig. 27 / Ref. 5268\*    Fig. 28 / Ref. 6055

\* Not available in self extinguishable plastic

# THUMBWHEEL

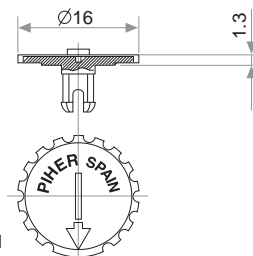


Fig. 4 / Ref. 5371