



## MECHANICAL SPECIFICATIONS

- Mechanical life\*: up to 10k cycles
- Mechanical rotation angle:  $265^\circ \pm 5^\circ$
- Electrical rotation angle:  $240^\circ \pm 20^\circ$
- Torque: 0.5 to 2.5 Ncm.  
(0.7 to 3.4 in-oz)
- Stop torque:  $> 10$  Ncm. ( $>14$  in-oz)

## MAIN FEATURES

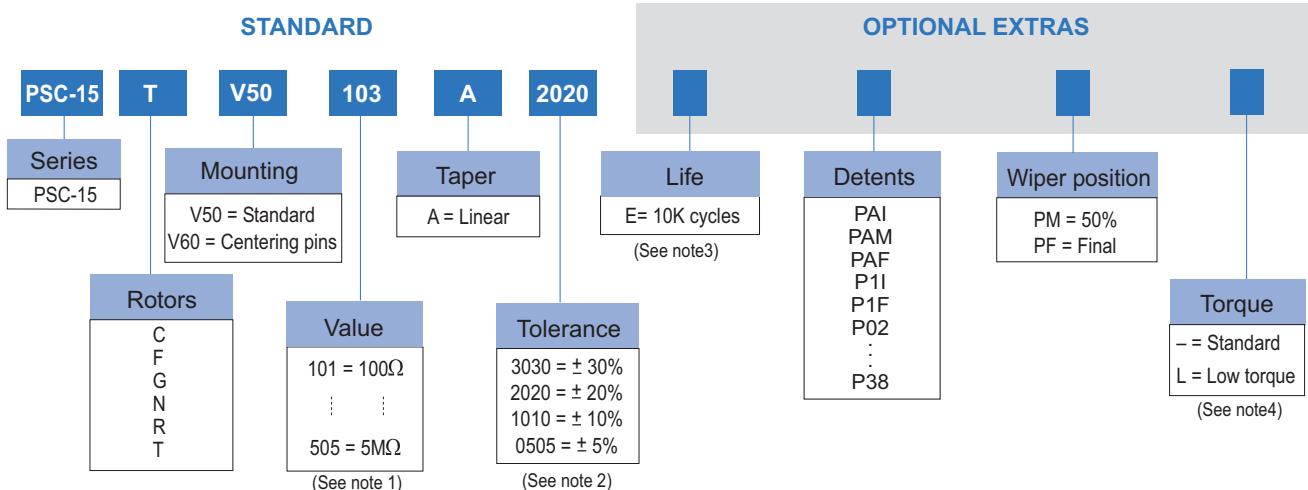
- Specifically designed for leadfree reflow soldering processes (excellent performance).
- Up to 10K cycles mechanical life.
- Cermet resistive element.
- Dust proof enclosure.
- Alumina substrate.
- 10mm version available (PSC-10).
- Full traceability.
- Also upon request:
  - Long life model for low cost control potentiometer applications.
  - Mechanical detents.
  - Low torque version.
  - Centering pins.
  - Wiper positioned at initial, 50% or fully clockwise.

## ELECTRICAL SPECIFICATIONS

- Range of values\*:  
 $100\Omega \leq R_n \leq 5\text{ M}\Omega$  (Decad. 1.0 - 2.0 - 2.2 - 2.5 - 4.7 - 5.0)
- Tolerance\*:  $100\Omega \leq R_n \leq 1\text{ M}\Omega$   $\pm 20\%$   
 $1\text{ M}\Omega < R_n \leq 5\text{ M}\Omega$   $\pm 30\%$
- Taper\*: Linear
- Nominal Power: 0.50W @  $70^\circ\text{C}$  ( $158^\circ\text{F}$ )
- Operating temperature\*:  $-40^\circ\text{C} + 90^\circ\text{C}$
- Residual resistance:  $\leq 0.5\% R_n$
- Equivalent Noise Resistance:  $\leq 3\% R_n$
- Max. Voltage: 250 VDC

\* Others upon request

## HOW TO ORDER



## NOTES:

(1) Value Example:

(2) Non standard tolerance, upon request. Example: +7%  
-5%

(3) 100k cycles version available (to be studied case by case)

(4) Low Torque:  $\leq 1.5\text{Ncm}$ . No detent option available for low torque models

Shafts are not available mounted to the potentiometer and should be ordered separately

## HOW TO ORDER CUSTOM DRAWING

PSC15 TV50 + DRAWING NUMBER (Max. 16 digits)

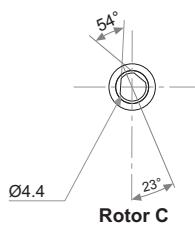
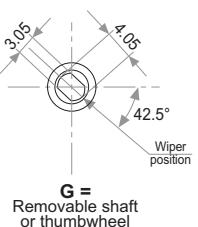
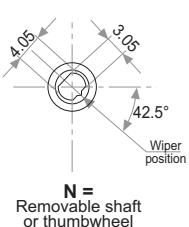
This way of ordering should be used for options which are not included in the "How to order" standard and optional extras.

## STANDARD OPTIONS

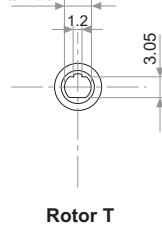
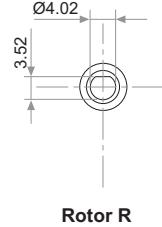
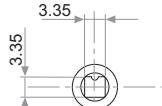
Mechanical Life.....	1000 cycles
Detents .....	None
Rotor colour .....	Brown
Housing colour .....	Brown
Wiper position .....	Initial
Torque .....	Standard
Packaging .....	Reel

## ROTORS (collector side view)

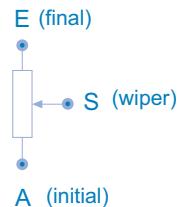
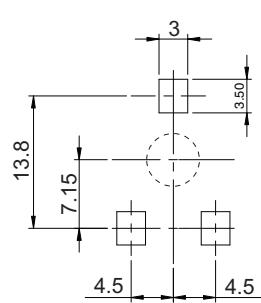
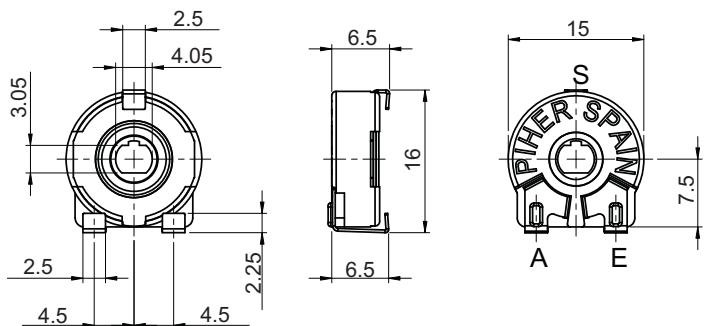
Wipers positioned at initial



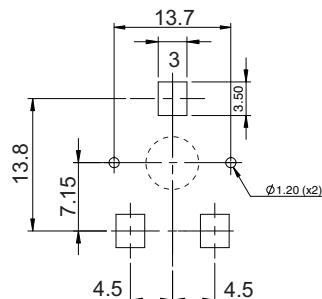
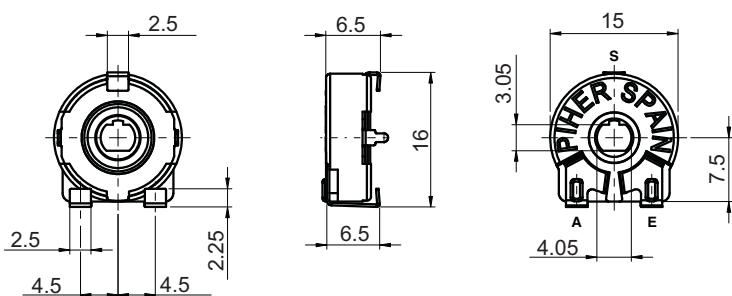
Wipers positioned at 50%



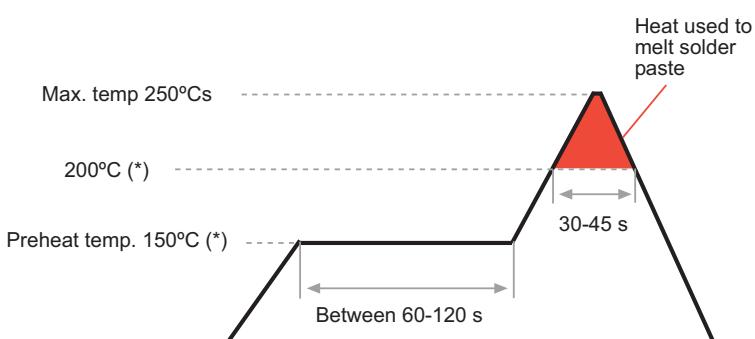
## DIMENSIONS (V50 version)



## DIMENSIONS (V60 version - with centering pins)



## RECOMMENDED REFLOW PROFILE



(\*) Melting point temp. depends on solder properties

## TESTS

## TYPICAL VARIATIONS

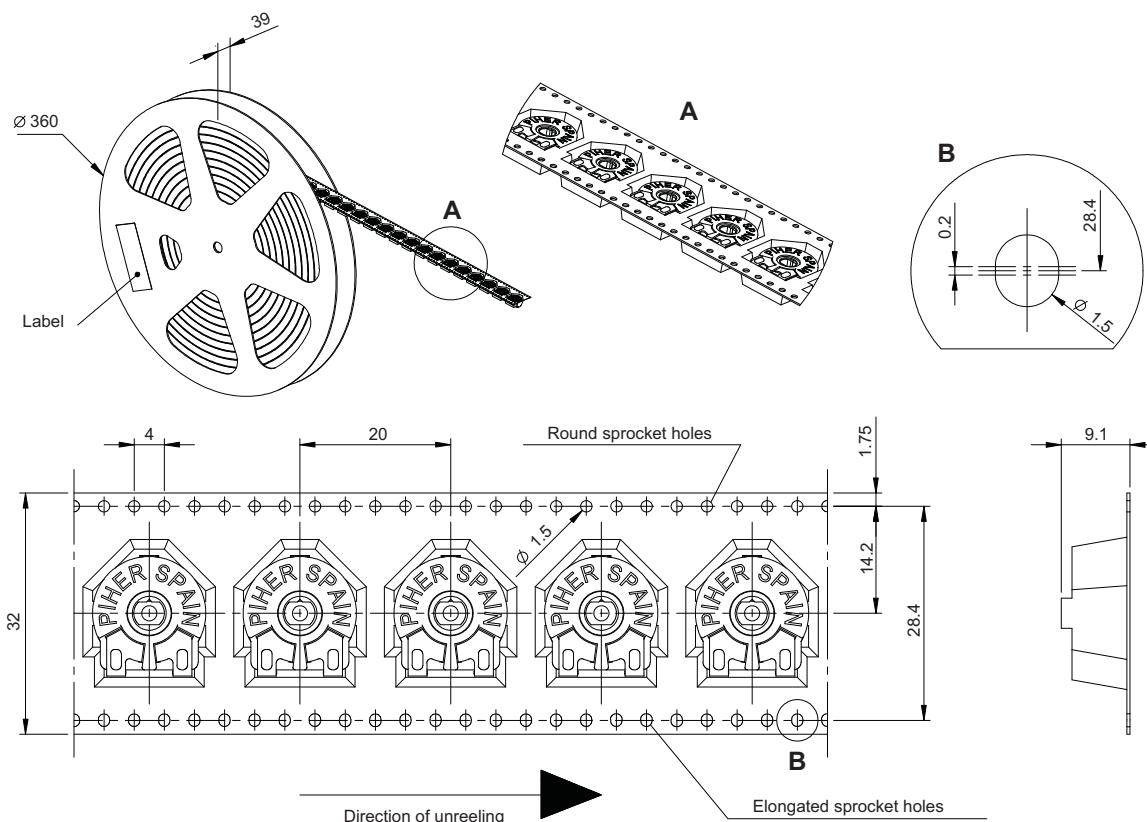
ELECTRICAL LIFE	1.000 h. @ 70°C; 0.5 W	± 5 %
MECHANICAL LIFE (CYCLES)	1000 @ 10 CPM ... 15 CPM	± 3 % (Rn < 1 MΩ)
TEMPERATURE COEFFICIENT	-40° C; +90° C	± 100 ppm (Rn < 100 K)
THERMAL CYCLING	16 h. @ 90° C; 2h. @ -40° C	± 2.5 %
DAMP HEAT	500 h. @ 40° C @ 95% HR	± 5 %
VIBRATION (for each plane X,Y,Z)	2 h. @ 10 Hz ... 55 Hz.	± 2 %

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

## PACKAGING

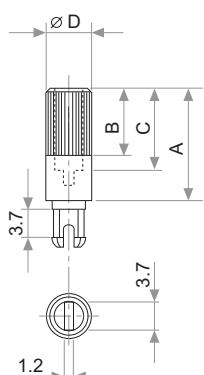
BULK: 500pcs per box (80 x 85 x 185 mm.).

EMBOSSED TAPE: 400pcs per reel.



## SHAFTS (for N, G and T rotor types, top view)

Hollow model shafts



Solid model shafts

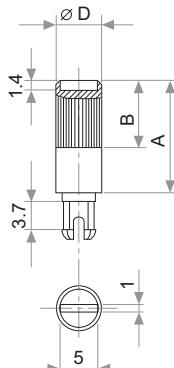


FIG.	A	B	C	D	Ref.
1	12	9	8	6	5272
2	19	9	15	6	5214
5	9.5	6.5	5.5	6	5208
9	35	9	31	6	5216
10	37.8	9	33.8	6	5218
11	35	25	15	6	5209
13	7.8	4.8	3.8	6	5265

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

FIG.	A	B	D	Ref.
6	15	9	6	5219
7	16.8	9	6	5220
8	25.3	9	6	5207
12	46	5	6	5227

Slot (1 x 1.4) perpendicular to wiper position. Fig. 12 slot is in line with wiper position.

Shafts, knobs & & thumweels are delivered unassembled.

## SHAFTS (for N, G and T rotor types, top view)

If you wish to use your own custom plastic shaft/knob/actuator please contact Piher for advice about compatible materials.  
Shafts, knobs & & thumwheels are delivered unassembled.

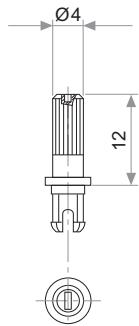


Fig. 3 / Ref. 5372

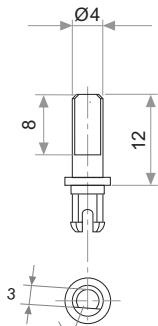


Fig. 15 / Ref. 5217

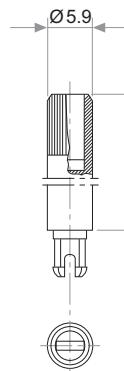


Fig. 17 / Ref. 5210

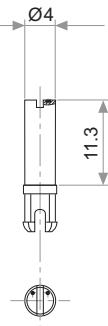


Fig. 18 / Ref. 5271

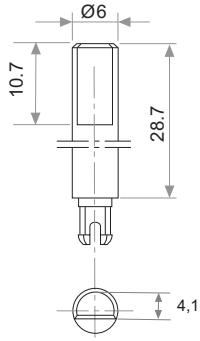


Fig. 19 / Ref. 6032\*

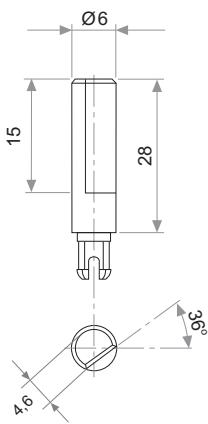


Fig. 20 / Ref. 5369\*

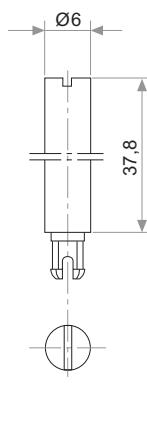


Fig. 21 / Ref. 6031\*

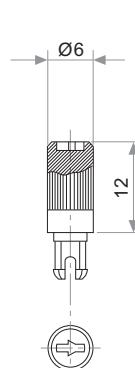


Fig. 22 / Ref. 6029

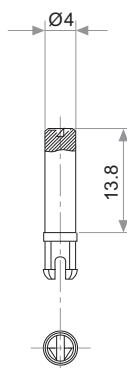


Fig. 23 / Ref. 6022

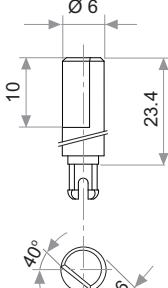


Fig. 29 / Ref. 6162

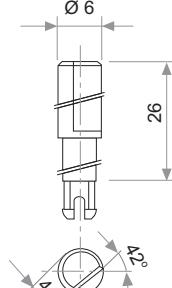


Fig. 25 / Ref. 6059

\* Not available in self extinguishable plastic

## THUMBWHEEL (for N, G and T rotor types, top view)

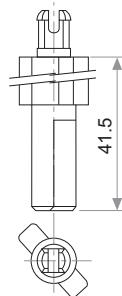


Fig. 27 / Ref. 5268\*

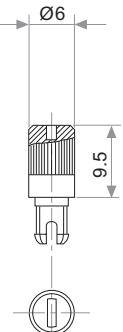


Fig. 28 / Ref. 6055

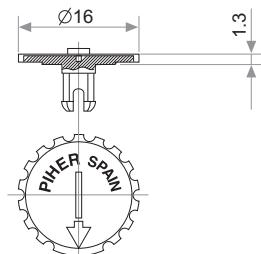
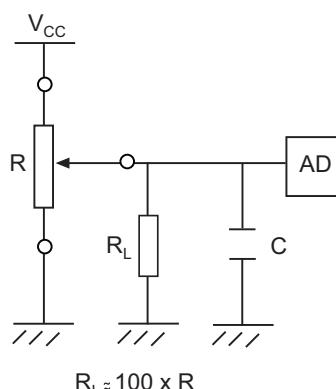


Fig. 4 / Ref. 5371

\* Not available in self extinguishable plastic

## RECOMMENDED CONNECTIONS

Recommended connection scheme for Piher's position sensors (voltage divider)



## DETENT CONFIGURATIONS EXAMPLES

This innovative PT's with detents family has been specifically developed to allow the integration of otherwise large and expensive external mechanisms into the body of the potentiometer thus allowing a high range of configurations: special tapers, torque, tolerances, linearity, cut track, etc.

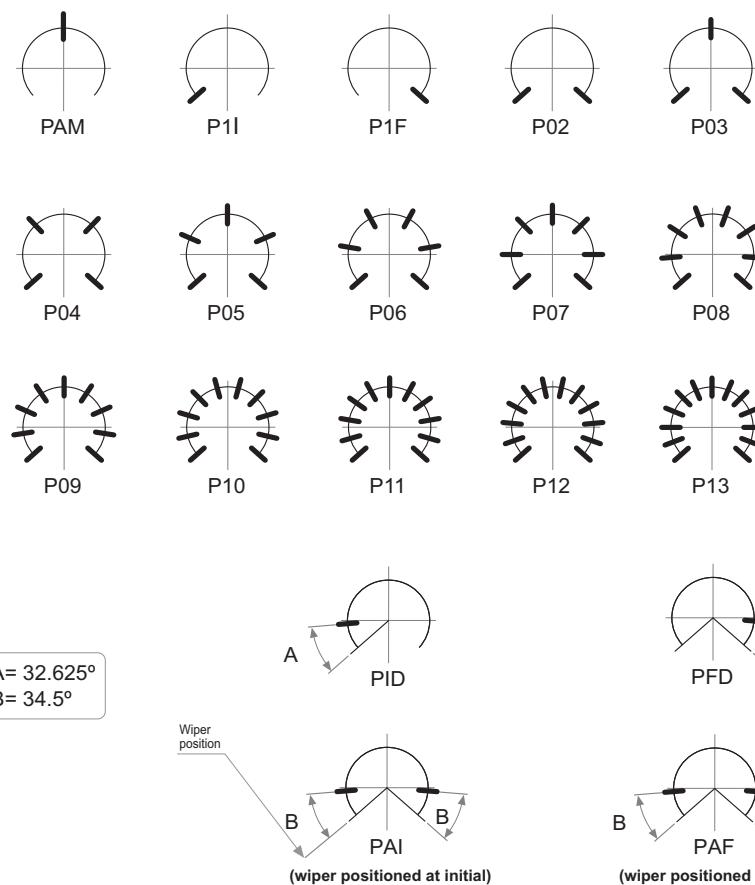
This detent design not only adds a "click" sensation of position, but also offers enormous savings in both cost and space for any given application.

Strong and weak detents can be mixed as per customer's request.

Detent number and positions can be made or fitted to the customer needs or preferences.

- Relative detent positions along the total mechanical travel.  
Unless otherwise specified the detents are evenly spaced (using the end points as reference)

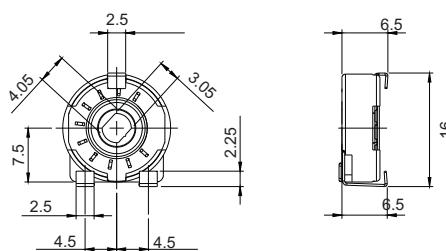
\*For more than 13 detents versions please contact your nearest Piher distributor. Mechanical and/or electrical features may be affected by detents. Detents may not be available for all mounting methods. Please see our separate PTs with detents datasheet at [www.piher.net](http://www.piher.net)



### NOTES FOR DETENTED VERSIONS:

- (1) Some configurations may have a longer leadtime.
- (2) Standard mechanical life is 500 cycles.
- (3) Long life versions are available under request and have the following characteristics at  $T_a$ :
  - Potentiometers with 1 to 3 detents: up to 10K cycles
  - Potentiometers with 4 and more detents: up to 5K cycles
- (4) Detent torque can vary from 1.2 to 2.5 times the standard potentiometer torque.
- (5) Please consult your nearest Piher supplier if unique non-overlapping values at each detent position or LOG/ANALOG tapers are required.
- (6) Different output voltage values can be matched at each detent position (under request).

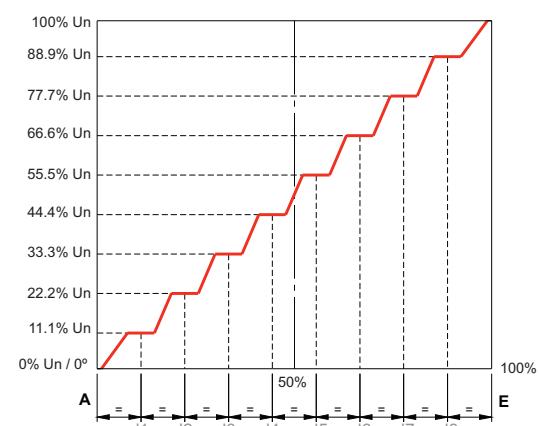
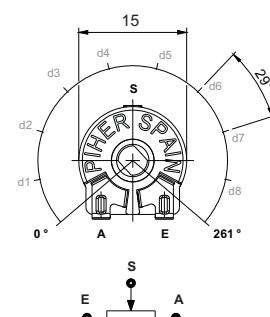
## DETENT DETAILS



## DETENTS & STEPPED OUTPUTS

10 detents example

Our potentiometers can feature flattened regions in its output curve. This allows engineers to precisely control constant voltage outputs within the normal rotational range of their potentiometer. These regions can be combined with Piher's detent feature providing a positive mechanical action when rotating the potentiometer into these constant voltage zones.



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