

# PTC-15 15 mm Cermet Potentiometer

## FEATURES

- Cermet resistive element.
- Plastic material according to UL94V-0..
- Alumina substrate
- Dust proof enclosure.
- Also upon request:
  - Wiper positioned at 50% or fully clockwise.
  - Long life model for low cost control pot. applications
  - Supplied in magazines for automatic insertion.
  - Low torque option
  - Available as SPDT switch
  - Laser trimming for tighter tolerances
  - Mechanical detents
  - Special tapers

## MECHANICAL SPECIFICATIONS

- 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)

## ELECTRICAL SPECIFICATIONS

- Range of values (\*)  
 $100\Omega \leq R_n \leq 5\text{ M}$  (Decad. 1.0 - 2.0 - 2.2 - 2.5 - 4.7 - 5.0)
- Tolerance (\*):  $100\Omega \leq R_n \leq 1\text{M}\Omega$  .....  $\pm 20\%$   
 $1\text{M}\Omega < R_n \leq 5\text{M}\Omega$  .....  $\pm 30\%$
- Max. Voltage: 250 VDC (lin) 125 VDC (no lin)
- Nominal Power  $70^\circ\text{C}$  ( $158^\circ\text{F}$ ) (see power rating curve)  
0.50 W (lin) 0.25 W (no lin)
- Taper (\*) (Log. & Alog. only  $R_n \geq 1\text{K}$ ) Lin ; Log; Alog.
- Residual resistance(\*):  $\leq 0.5\%$   $R_n$  (5  $\Omega$  min.)
- Equivalent Noise Resistance:  $\leq 3\%$   $R_n$  (3  $\Omega$  min.)
- Operating temperature:  $-40^\circ\text{C}$  +  $90^\circ\text{C}$  ( $-40^\circ\text{F}$  +  $194^\circ\text{F}$ )

(\*) Others upon request

## HOW TO ORDER

PTC-15		L	H01	223	A	2020	OPTIONAL EXTRAS				
<b>Series</b>	PTC-15		<b>Code</b>	<b>Mounting Method</b>	<b>Taper</b>	<b>Long Life</b>	<b>Shaft Thum.</b>		<b>Wiper position</b>		<b>Magazine</b>
<b>Rotors</b>	C F G L M N R T X W Y Z		H01 H2.5 H05 H5 H15 HA5 H06 B H02 H2.5P H10 H5P V02 V12.5 V12 VA V15 V15 V17 V17.5 V18 D V21 V12.5P V22 VAP V23 V15P		A = Lin. B = Log. C = Alog.	E = Long life (See note 5)	01 – Fig. 1 28 – Fig. 28 (See note 9)		PM = 50% PF = Final		T (See note 8)
				<b>Value</b>		<b>Tolerance</b>		<b>Detent</b>		<b>Shaft/rotor colour</b>	<b>Torque</b>
				101 = 100 $\Omega$ 223 = 22 K 504 = 500 K 505 = 5 M 000 = C M		2020 = $\pm 20\%$ 3030 = $\pm 30\%$ (See note 4)	See PT's with detents data sheet		RO= Red NE= Black VE= Green AM= Yellow AZ= Blue MA= Brown GR= Grey NA= Orange (See note 6)	– = Standard L= Low (See note 7)	

## NOTES:

- (1) "Z" adjustment only available on "H" versions. Standard colour for the "T" rotor: Orange
- (2) Terminals styles: "P" are crimped terminals. V=Vertical adjust; H=Horizontal Adjust
- (3) Value Example: Code: 10 1 100  $\Omega$   
Numb of zeros  
First two digits of the value. 000 = CM: SPDT switch  $45^\circ$
- (4) Non standard tolerance, upon request. Example: +7% Code: 07 05  
-5% negative tolerance  
positive tolerance
- (5) Life • Standard 100 cycles  
• Long life 10000 cycles
- (6) Colour shaft/rotor: • Potentiometer without shaft: only rotor  
• Potentiometer with shaft: only shaft
- (7) Low Torque:  $\leq 1.5\text{Ncm}$ . No detent option available for low torque models
- (8) Magazines (35 pcs/mag): available for VA (12.5), V (12.5), V (12.5P), V (15), V15 (P) and H models.  
For more information please contact your nearest Piher supplier.
- (9) If you wish to use your own custom plastic shaft/knob/actuator please contact Piher for advice about compatible materials.

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

## HOW TO ORDER CUSTOM DRAWING

PTC-15 LH 01 + DRAWING NUMBER (Max. 16 digits)

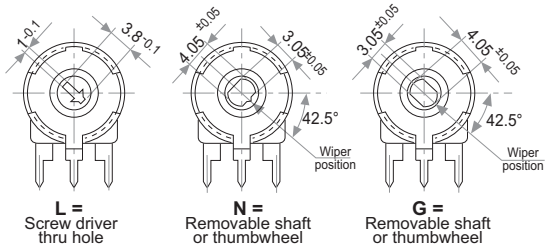
This way of ordering should be used for options which are not included in the "How to order" standard and optional extras.

## STANDARD OPTIONS

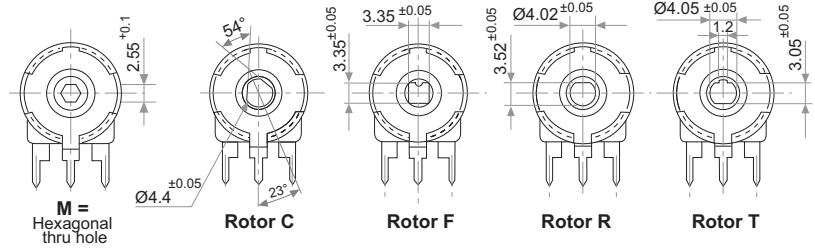
Detents	.....	None
Rotor colour	.....	Natural
Shaft colour	.....	Natural
Wiper position	.....	Initial
Torque	.....	Standard

## ROTORS

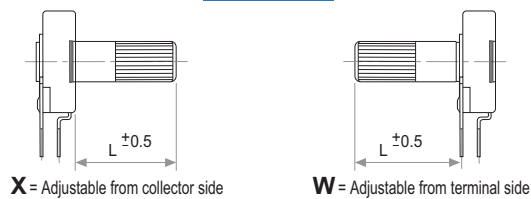
Wipers positioned at initial (without shaft)



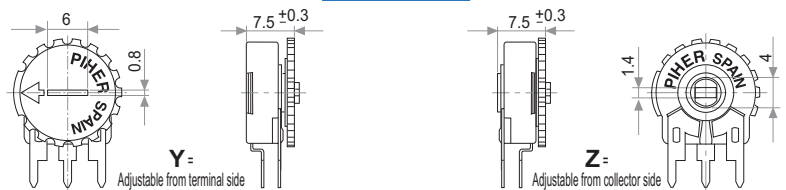
Wipers positioned at 50% (without shaft)



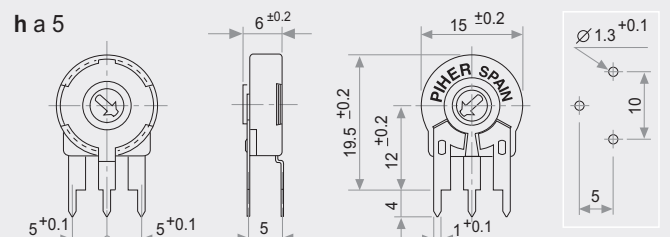
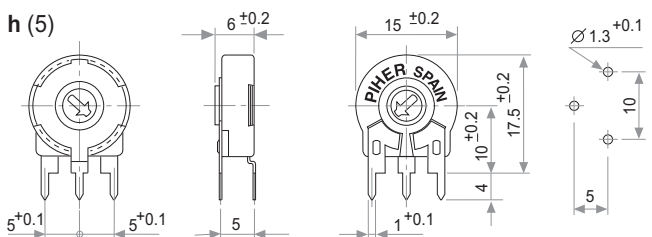
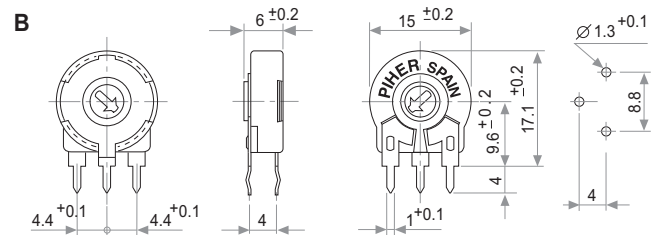
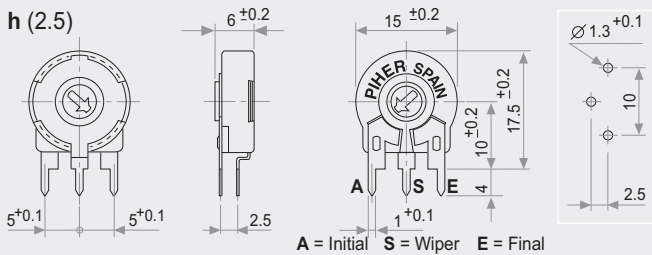
With shaft



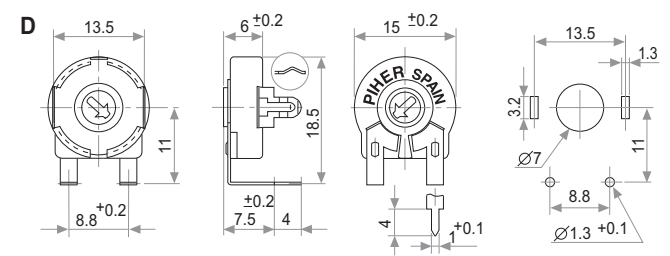
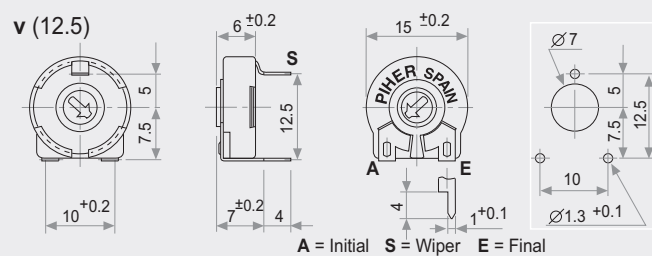
With thumbwheel



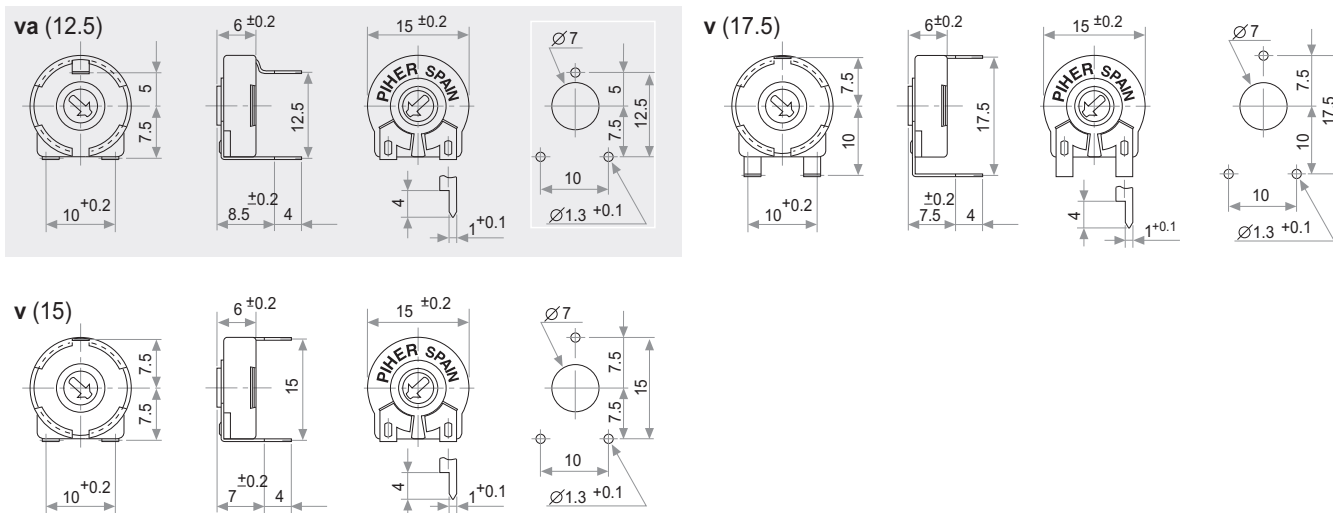
## VERTICAL MOUNTING – HORIZONTAL ADJUSTMENT



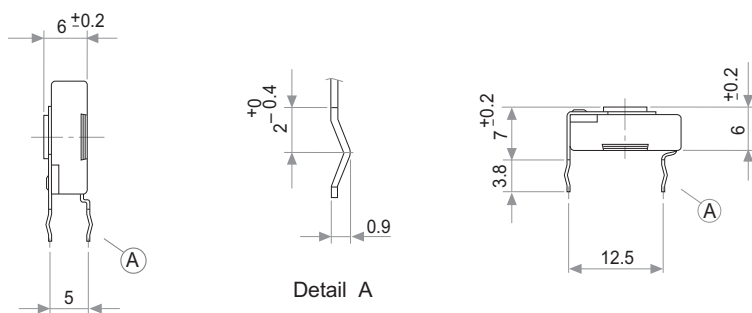
## HORIZONTAL MOUNTING – VERTICAL ADJUSTMENT



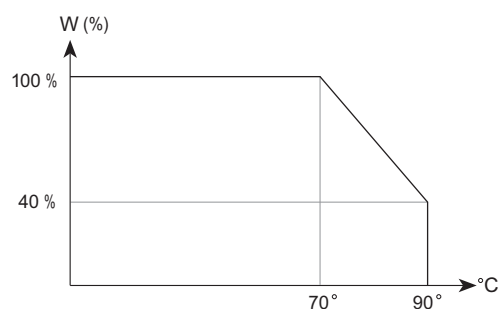
## HORIZONTAL MOUNTING – VERTICAL ADJUSTMENT



## CRIMPED TERMINALS (DETAIL)



## POWER RATING CURVE

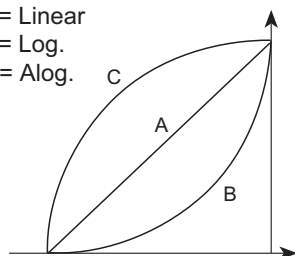


## TAPER

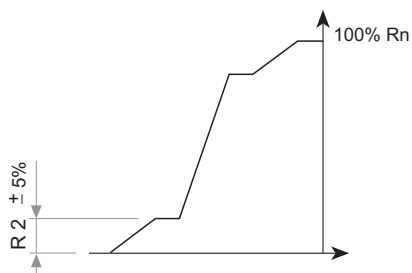
## POSITIONING

Please note relative terminal positions when ordering non linear tapers.

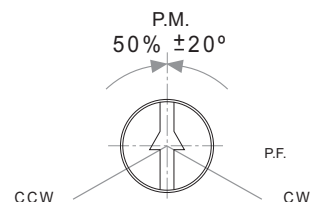
A = Linear  
B = Log.  
C = Alog.



Standard



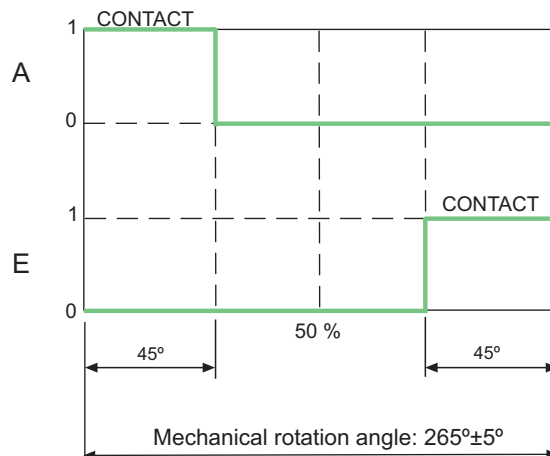
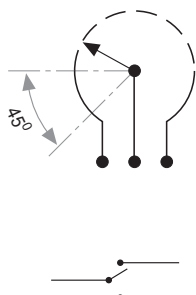
Special curve example



Std. Position = CCW

## STANDARD SWITCH VERSION

SPDT Switch



### SW Standard specs.

Power Rating:  
24V / 15mA

ON position resistance:  
≤ 5 Ω

Insulation Resistance:  
≥ 30 MΩ

Please contact Piher  
for ordering information.

## TESTS

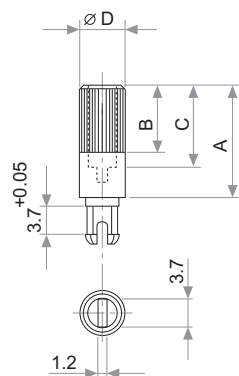
## TYPICAL VARIATIONS

ELECTRICAL LIFE	1.000 h. @ 70°C; 0.5 W	± 5 %
MECHANICAL LIFE (CYCLES)	100 @ 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.

## 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	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

### Solid model shafts

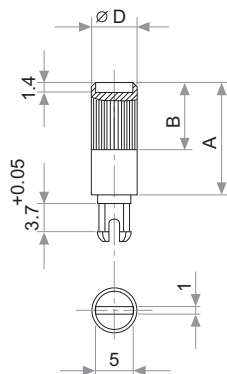
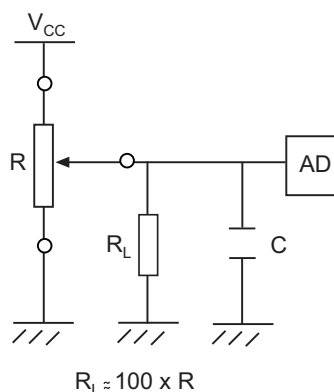


FIG.	A	B	D	Ref.
6	15	9	6	5219
7	16.8	9	6	5220
8	25.3	9	6	5207
12	46	5	6	5227

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

## RECOMMENDED CONNECTIONS

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



## SHAFTS

By default shafts, knobs & thumbwheels are delivered unassembled.

Mounted shafts, knobs & thumbwheels are delivered at random position. Positioning available upon request.

If you wish to use your own plastic shaft/knob/actuator please contact Piher for advice about compatible materials.

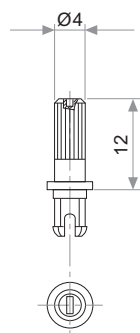


Fig. 3 / Ref. 5372

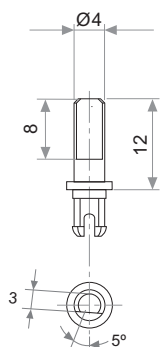


Fig. 15 / Ref. 5217

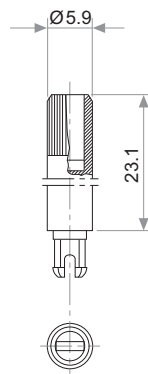


Fig. 17 / Ref. 5210

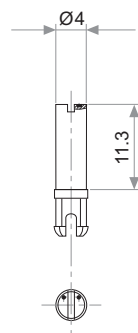


Fig. 18 / Ref. 5271

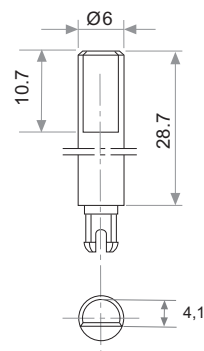


Fig. 19 / Ref. 6032\*

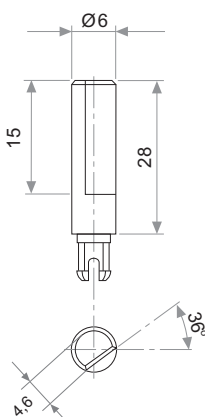


Fig. 20 / Ref. 5369\*

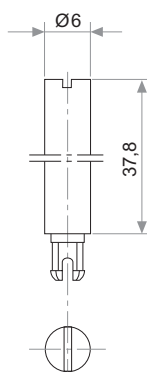


Fig. 21 / Ref. 6031\*

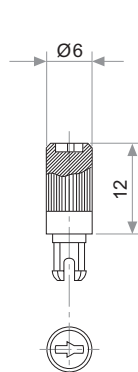


Fig. 22 / Ref. 6029

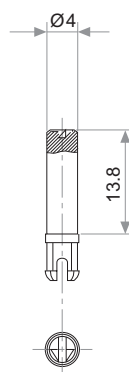


Fig. 23 / Ref. 6022

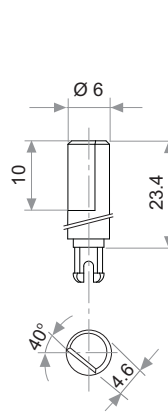


Fig. 29 / Ref. 6162

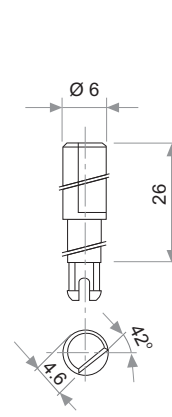


Fig. 25 / Ref. 6059

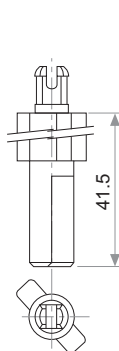


Fig. 27 / Ref. 5268\*

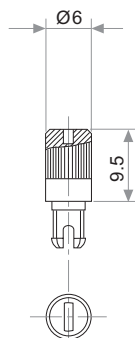


Fig. 28 / Ref. 6055

\* Not available in self extinguishable plastic

## THUMBWHEEL

By default shafts, knobs & thumbwheels are delivered unassembled.

Mounted shafts, knobs & thumbwheels are delivered at random position. Positioning available upon request.

If you wish to use your own plastic shaft/knob/actuator please contact Piher for advice about compatible materials.

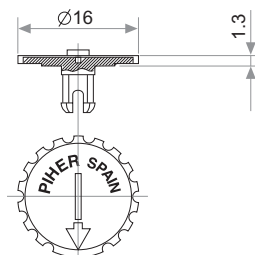


Fig. 4 / Ref. 5371



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[PTC15-X-V15-100K-A](#)