

## Automotive / Appliance control

# 6 mm carbon potentiometer PS-6



## Mechanical specifications

Mechanical rotation angle	235° ± 5°
Electrical rotation angle	200° ± 20°
Torque	0.2 to 2 Ncm. (0.3 to 2.7 in - oz)
Stop torque	> 4 Ncm. (>7 in-oz)
Life*	1K cycles

## Electrical specifications

Range of values *	1KΩ ≤ Rn ≤ 1.5MΩ (Decad. 1.0 - 2.0 - 2.2 - 2.5 - 4.7 - 5.0)
Tolerance *	1KΩ ≤ Rn ≤ 500KΩ ----- ±30% 500KΩ < Rn ≤ 1.5MΩ ----- +50% / -30%
Nominal power @ 50°C (122°F)	0.1 W
Taper *	Linear
Residual resistance	≤ 5 · 10 <sup>-3</sup> Rn
Operating temperature	- 40°C to +85°C

\* Others: upon request

## Main features

- Specifically designed for leadfree reflow soldering processes (excellent performance)
- Carbon resistive element
- IP54 protection according to IEC 60529
- Moisture sensitivity level 1
- Embossed tape according to IEC 60286-3:2007
- Wiped positioned at initial, 50% or fully clockwise
- Full traceability
- Stop positions
- Self extinguishable plastic UL 94V-0
- Also upon request:
  - Long life model for low cost control potentiometer applications.
  - Shaft - knob.

## Description

The PS-6 potentiometer offers control where frequent adjustment is required. The shaftless design allows for employment of different engagement mechanisms, such as a customized shaft, a motor control or a human interface adjustment.

This potentiometer can also control variable outputs including frequency, change in motor speed or volume.

Typical applications include white goods, motor control, timer relays, power supply, appliance panel control, and automotive sensing applications, now offer product designers the full features of PIHER larger products in a miniature control / trimmer package.

This datasheet shows you the basics of the PS-6 potentiometer that is quite versatile and easy to tailor. Do not hesitate to contact Piher for advice.

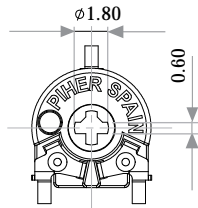


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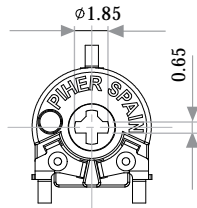
# 6 mm carbon potentiometer PS-6

Rotors (Default delivery is at initial position. Wipers are shown positioned at 50% for the picture)

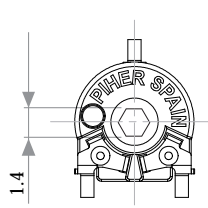
K= Cross slot through hole



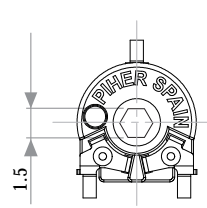
Q= Cross slot through hole  
Available in white color only



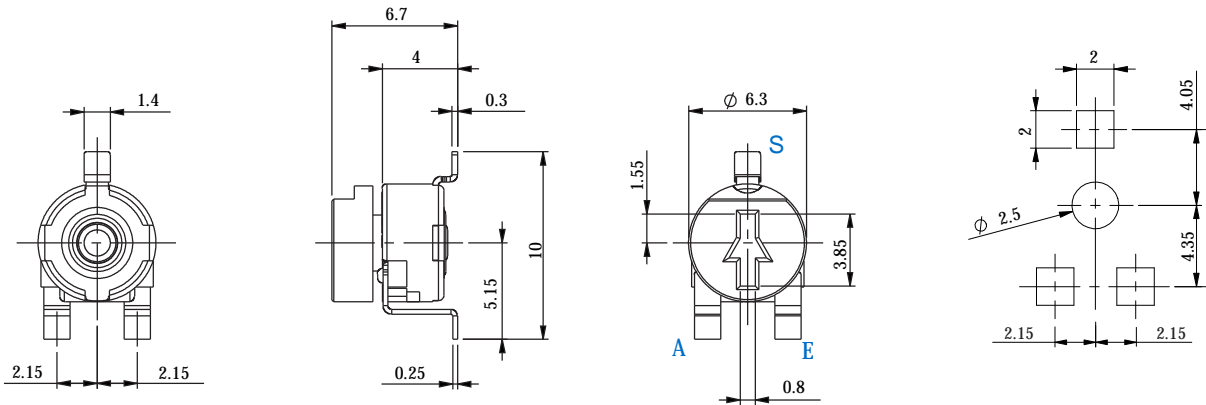
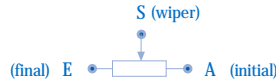
M= Hexagonal through hole



A= Hexagonal through hole  
Available in white color only



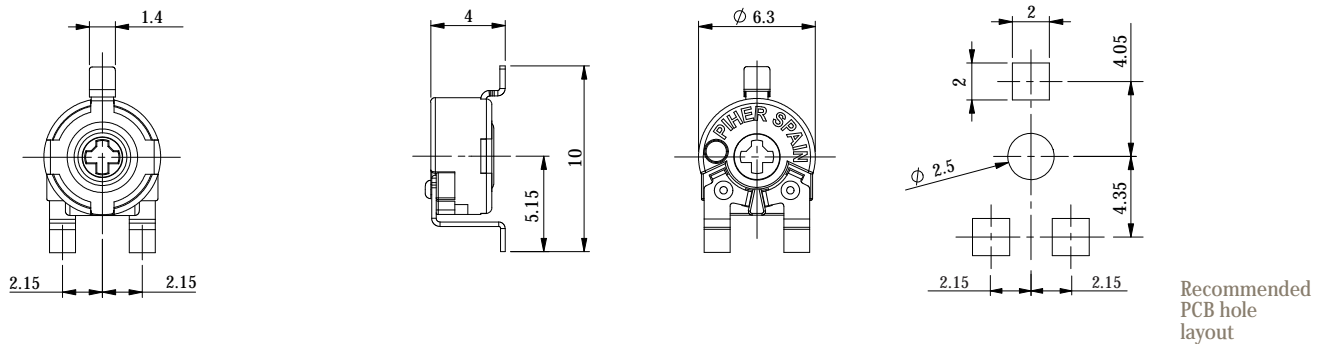
W = with inserted knob. Default color of the knob: cream.  
Drawing example, W V40 with knob ref 6:



Recommended  
PCB hole  
layout

## Mounting methods

### Dimensions - V40



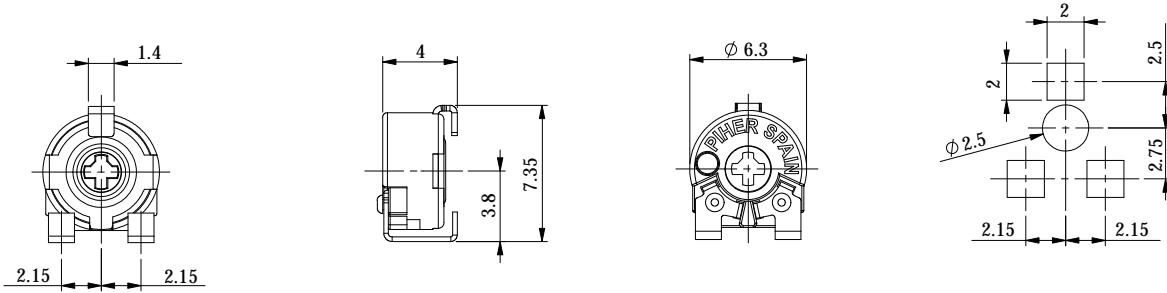
Recommended  
PCB hole  
layout

Automotive / Appliance control

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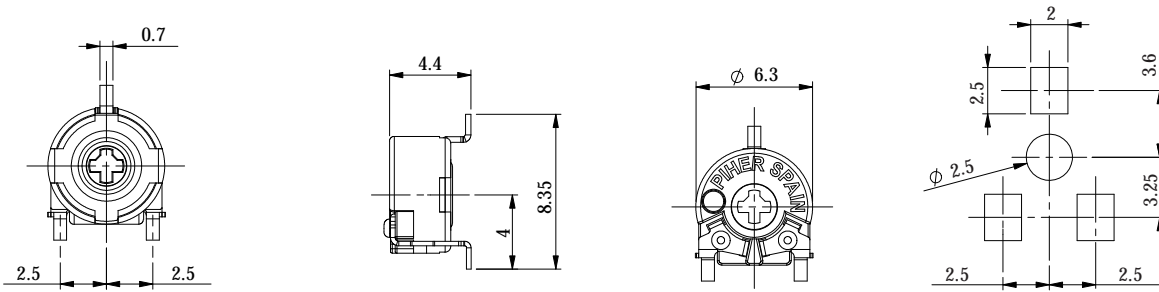
## Mounting methods

### Dimensions - V45



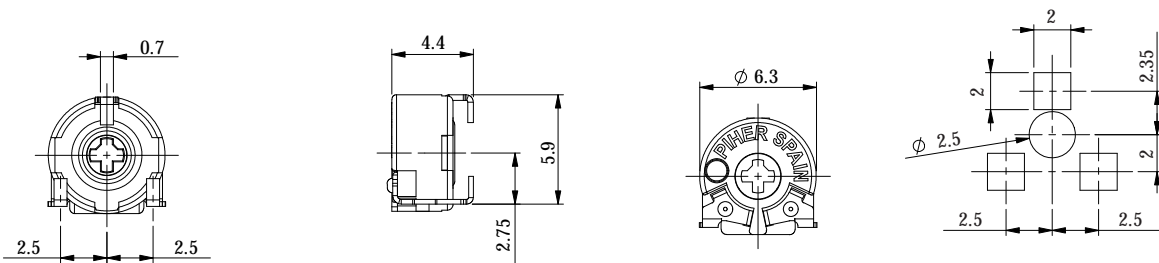
Recommended  
PCB hole  
layout

### Dimensions - V50



Recommended  
PCB hole  
layout

### Dimensions - V55



Recommended  
PCB hole  
layout



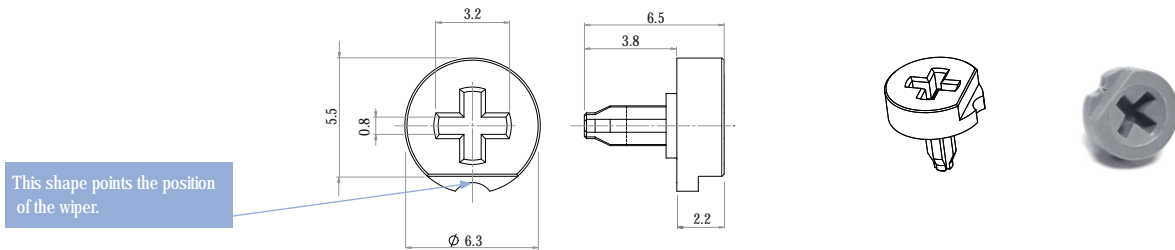
Download STEP files here:  
<https://piher.net/piher/?p=897>

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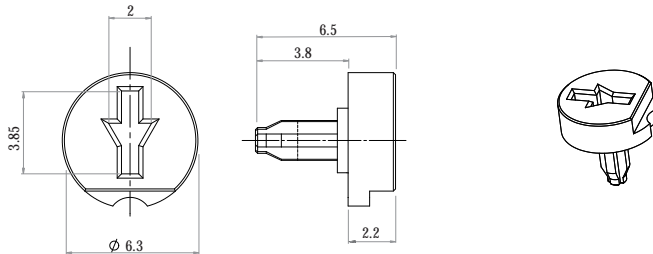
# 6 mm carbon potentiometer PS-6

### Shaft / Knob

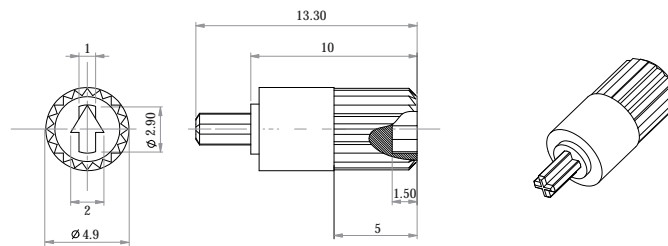
If you wish to use your own plastic shaft/knob/actuator please contact Piher for advice about compatible materials.



Ref.: 6148 / Fig. 5



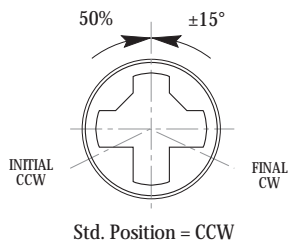
Ref.: 6160 / Fig. 6



Color: black, others check availability. Please order this shaft separately as it is not provided-factory assembled to the potentiometer

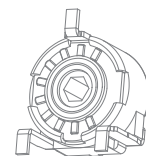
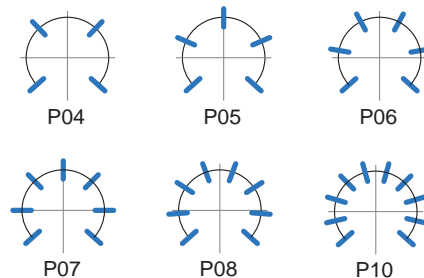
Ref.: 6144

### Positioning



### Detents - stop positions

Note: the standard mechanical life for PS6 with detents is 100 cycles.



— Relative detent positions along the total mechanical travel.

# 6 mm carbon potentiometer PS-6

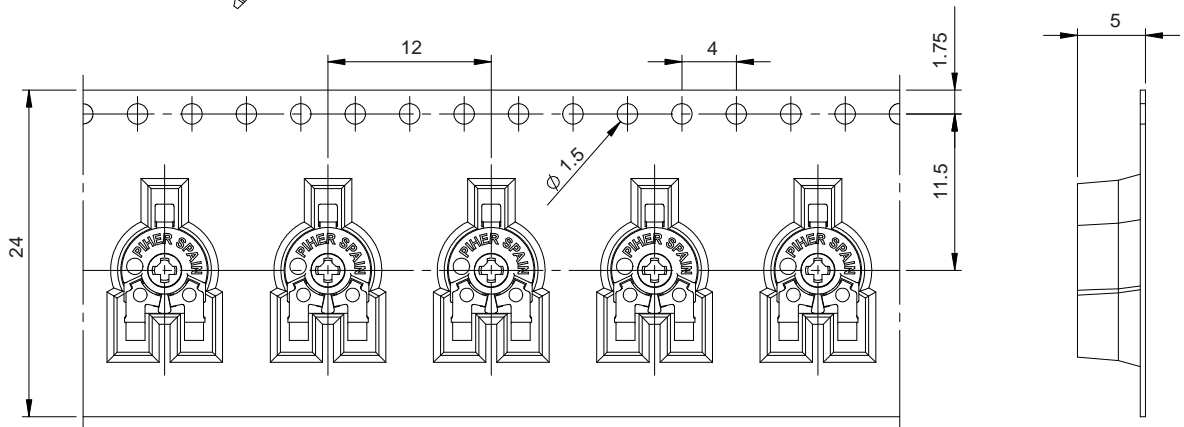
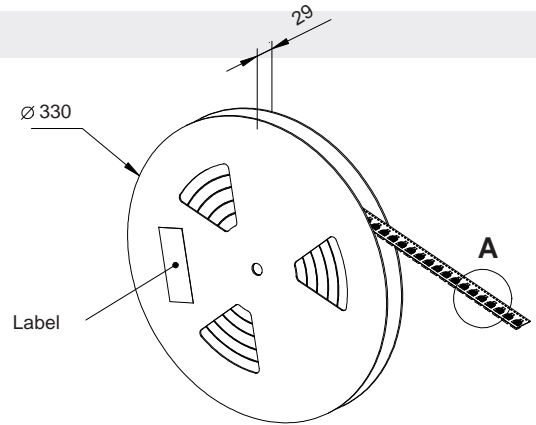
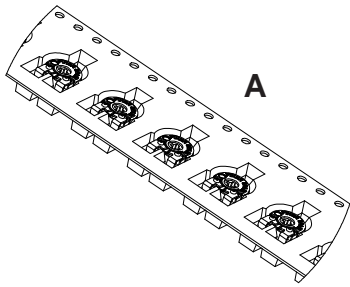
## Packaging

### V40 and V45 models

BULK (1000pcs / Box)

EMBOSED TAPE (1000pcs / Reel)

Models with factory-assembled knob will use a reel of 380mm diameter.

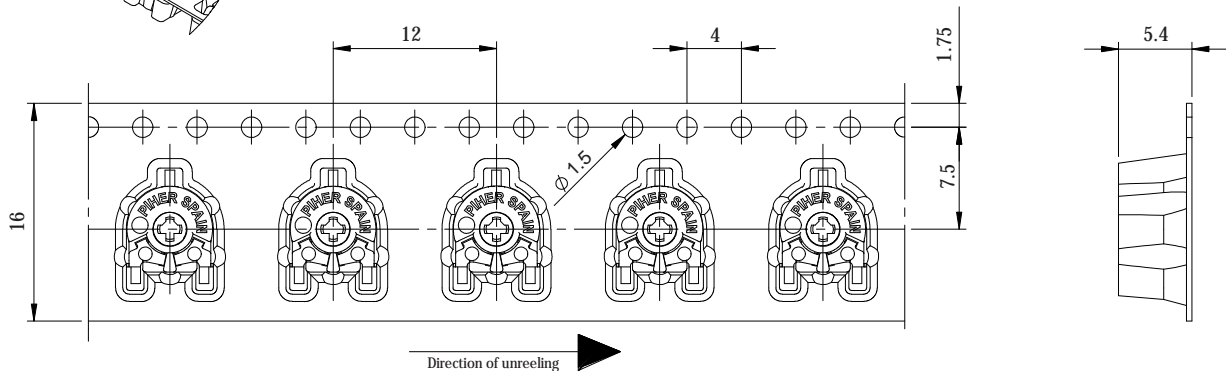
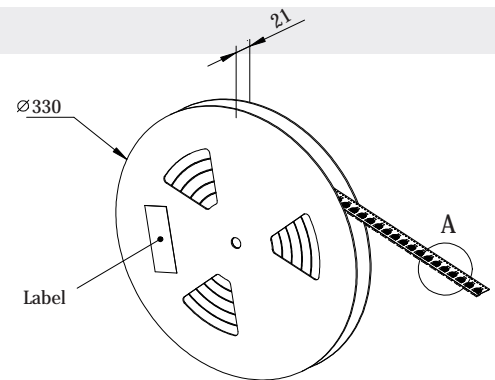
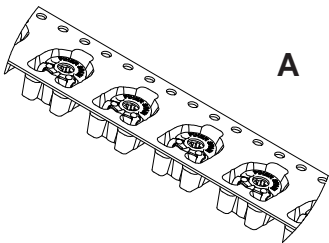


### V50 and V55 models

BULK (1000pcs / Box)

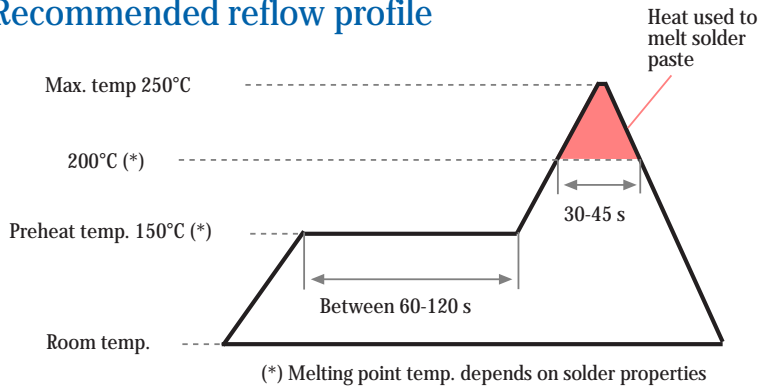
EMBOSED TAPE (1000pcs / Reel)

Models with factory-assembled knob will use a reel of 380mm diameter.



# 6mm carbon potentiometer PS-6

## Recommended reflow profile



The recommended reflow profile is provided as a guideline. Optimal profile may differ due to oven type, assembly layout or other design or process variables. Customers should verify actual device performance in their specific application and reflow process. Please contact Piher if you require additional support.

## Tests

		Typical variations
Electrical life	1.000 h. @ 50°C; 0.10 W	±10%
Mechanical life (cycles)*	1000 @ 10 CPM ...15 CPM	±10 %
Temperature coefficient	-40°C; +85°C	±1500 ppm
Thermal cycling	16 h. @ 90°C; 2h. @ -40°C	±5 %
Damp heat	500 h. @ 40°C @ 95% HR	±15 %
Vibration (for each plane X,Y,Z)	2 h. @ 10 Hz. ... 55 Hz.	±3 %

\* Tests at room temperature. Other life cycles upon request. The mechanical life for detented versions is 100 cycles.  
Out of range values may not comply these results. Please confirm with the factory all the information before designing in.

## Disclaimer

The product information in this catalogue is for reference purposes. Please consult for the most up to date and accurate design information.

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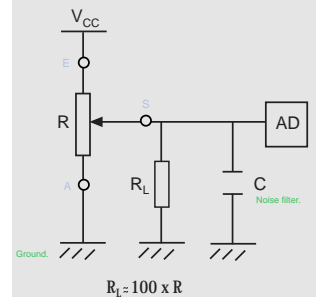
Due to continuous process improvement, specifications are subject to change without notice.

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## Recommended connections

Piher potentiometer's recommended connection circuit for a position sensor or control application. (voltage divider circuit electronic design)



## Contact

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