

PS-6

6-mm carbon SMD trimmer potentiometer



KEY FEATURES

- ▶ Designed for lead-free reflow soldering processes
- ▶ Excellent performance
- ▶ Carbon resistive element
- ▶ Up to 10 mechanical detents
- ▶ 1.000 life cycles
- ▶ IP54 protection
- ▶ Moisture sensitivity level 1
- ▶ Embossed tape packaging
- ▶ Wiper positioned at initial, 50% or fully clockwise
- ▶ Loose and assembled knobs, shafts available separately
- ▶ Self extinguishable plastic UL 94V-0



The **only 6 mm miniature trimmer** potentiometer with optional **stop positions** for haptic feedback.

ELECTRICAL SPECIFICATIONS

| | |
|-----------------------------|--|
| Taper* | Linear |
| Range of values* | 1KΩ ≤ Rn ≤ 1.5MΩ Decad. 1.0-2.0-2.2-2.5-4.7-5.0 |
| Tolerance* | ± 30% + 50% / - 30% |
| Max voltage | 100 VDC |
| Nominal power @ 50°C | 0.1 W |
| Residual resistance | ≤ 0.5% Rn |
| Equivalent noise resistance | ≤ 4.5% Rn |
| Operating temperature | -40°C to +85°C |

* Others available on request

APPLICATIONS

- ▶ Appliance program selection
- ▶ Thermostat adjustment
- ▶ Timer and control relays
- ▶ Consumer electronics
- ▶ Power tool controls
- ▶ Test and measurement equipment

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MECHANICAL SPECIFICATIONS

| | |
|--------------------------------|---|
| Mechanical rotation angle | 235° ± 5° |
| Electrical rotation angle* | 200° ± 20° |
| Torque Rotational Stop | 0.2 to 2 Ncm (0.3 to 2.7 in-oz) > 4 Ncm (>7 in-oz) |
| Push-pull force over the rotor | > 5 N |
| Life** | 1k cycles |

*Increased rotational angle of 215°± 20° available upon request ** Others available on request

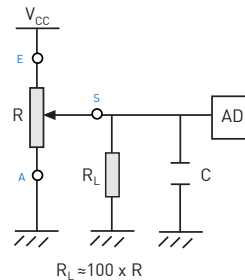
ENVIRONMENTAL TESTING

| | Test conditions (CEI 393-1) | ΔR(%) - Typical test results |
|-------------------------|---|------------------------------|
| Electrical life | 1.000h at 50°C; 0.10 W | ±10% |
| Mechanical life | 1000 cycles at 10 to 15 cpm | ±10% |
| Temperature coefficient | -40° C; +85° C | ±1.500 ppm/°C |
| Thermal cycling | 16h at 90°C and 2h at -40°C | ±5% |
| Damp heat | 500h at 40°C and 95% relative humidity (RH) | ±15% |
| Vibration | 2h each plane at 10Hz - 55Hz | ±3% |
| Storage | 6 month at 23°C ±2°C and 50% RH | ±5% |

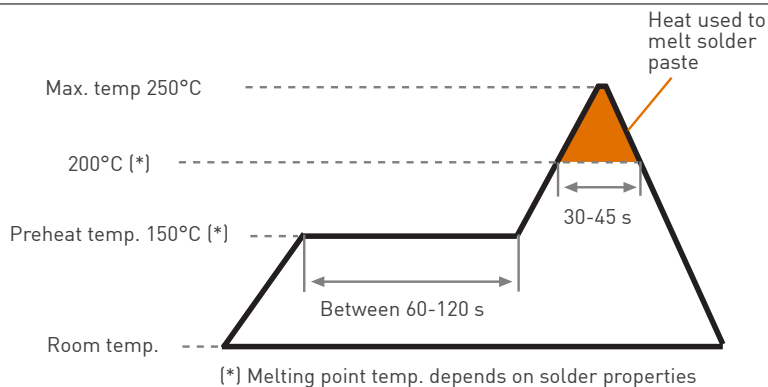
Out of range values may not comply with these results. Standard test conditions: temperature:23°C ±2°C and 45% to 70% RH. Mechanical life of detented versions is 100 cycles

RECOMMENDED CONNECTIONS

Recommended connection circuit for a position sensor or control application (voltage divider circuit electronic design).



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.

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HOW TO ORDER

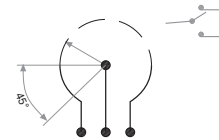
Vertical Adjustment - Horizontal mount: PS6KV50-102A3030

| PS6 | - | V__ | - | --- | A | - | --- | - | --- | - | --- | - | --- |
|--------|---------------------------------------|--------------------------|---|------------|---|---|--|---|-------------------------------------|----------------------------|-----|---|-----|
| Series | Rotors | Mounting method | Ω-Value ¹ | Taper | Tolerance ² | Detents ³ | Knob ⁴ | Wiper position | Knob color | Packaging | | | |
| | A K M Q W inserted knob | V40 V45 V50 V55 | 102 = 1KΩ 202 = 2KΩ ... 105 = 1MΩ 155 = 1.5MΩ 000 = CM | A = linear | 2525 = ±25% 3030 = ±30% 5030 = +50/-30% | [empty] P04 P05 P06 P07 P08 P10 | [empty] = none 05 = Fig.5 06 = Fig.6 | [empty] = initial PM = 50% PF = final | [empty] CR = cream NE = black | [empty] = reel B = bulk | | | |

Horizontal adjustment - Vertical mount: PS6H40-120A3030

| PS6 | - | H40 | - | --- | A | - | --- | - | --- | - | --- |
|--------|------------------|-----------------|---|------------|---|---|---|----------------------------|-----|---|-----|
| Series | Rotors | Mounting method | Ω-Value ¹ | Taper | Tolerance ² | Detents ³ | Wiper position | Packaging | | | |
| | A K M Q | H40 | 102 = 1KΩ 202 = 2KΩ ... 105 = 1MΩ 155 = 1.5MΩ 000 = CM | A = linear | 2525 = ±25% 3030 = ±30% 5030 = +50/-30% | [empty] P04 P05 P06 P07 P08 P10 | [empty] = initial PM = 50% PF = final | [empty] = reel B = bulk | | | |

1. Ω- Value: XXX - First two digits of Ω-value
XXX - Number of zeros
 000 = CM = switch SPDT version:



2. Tolerance: for custom tolerance please check availability
 3. Detents: Available for K and M rotor type. Rotor color: brown. Others available on request.
 4. Knobs also made of self-extinguishable plastic. Shaft available to order separately.

STANDARD CONFIGURATION

| PS-6 | |
|------------------------|--|
| Life | 1.000 cycles / detented versions: 100 cycles |
| Detents | none |
| Non-flammable material | yes |
| Housing color | grey |
| Wiper Position | initial |
| Packaging | reel |

ORDER CODE EXAMPLES

PS6KV50-103A3030

PS6 model with K rotor; V50 mounting type; 10K ohm resistive value; linear taper and 30% resistive tolerance

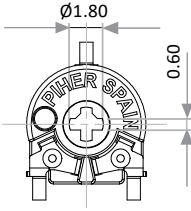
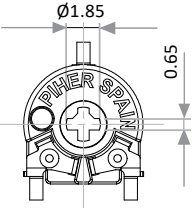
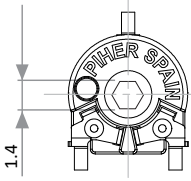
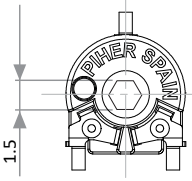
PS6WV40-502A2525-06NE-PF

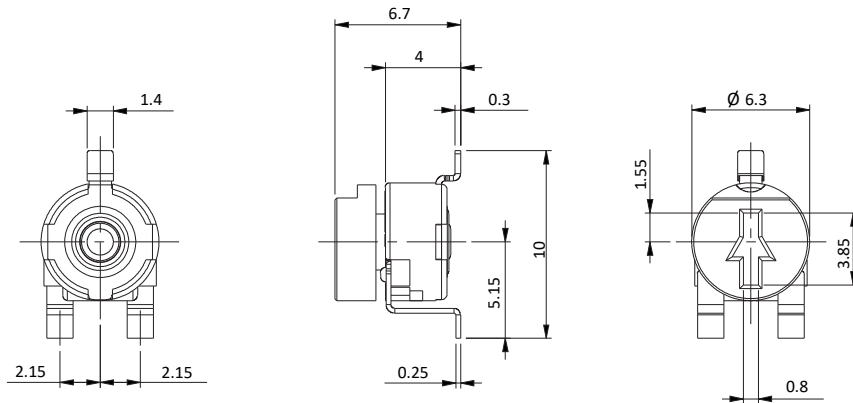
PS6 model with inserted knob fig. 6; 5K ohm resistive value; linear taper; 25% resistive tolerance; color of the knob: black; wiper positioned at the end of the travel

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ROTORS

| K Cross slot through hole | Q Cross slot through hole Available in white only | M Hexagonal through hole | A Hexagonal through hole Available in white only |
|---|---|--|---|
|  |  |  |  |
| <p style="text-align: center;">W With inserted knob (Standard knob: Ref. 6, cream color)</p> | | | |



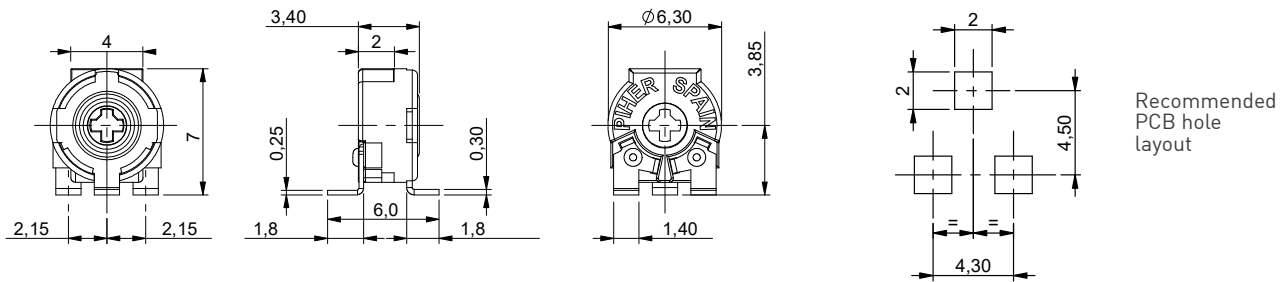
Drawing example W V40 with knob Ref. 6

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

MOUNTING METHOD - DIMENSIONS

Horizontal Adjustment / Vertical Mounting

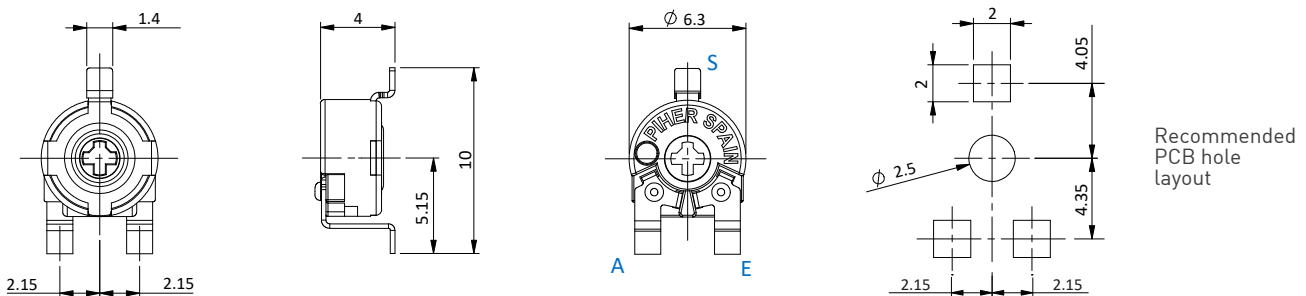
H40



Recommended PCB hole layout

Vertical Adjustment / Horizontal Mounting

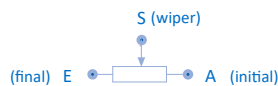
V40



Recommended PCB hole layout



Download STEP files here:
www.pihher.net



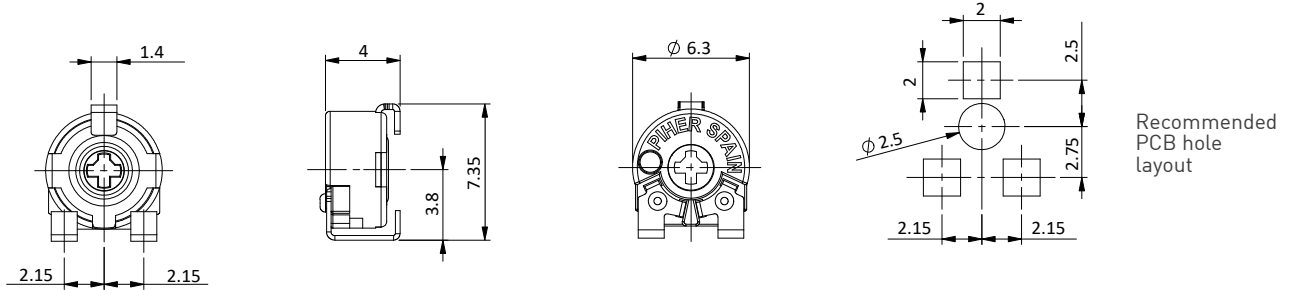
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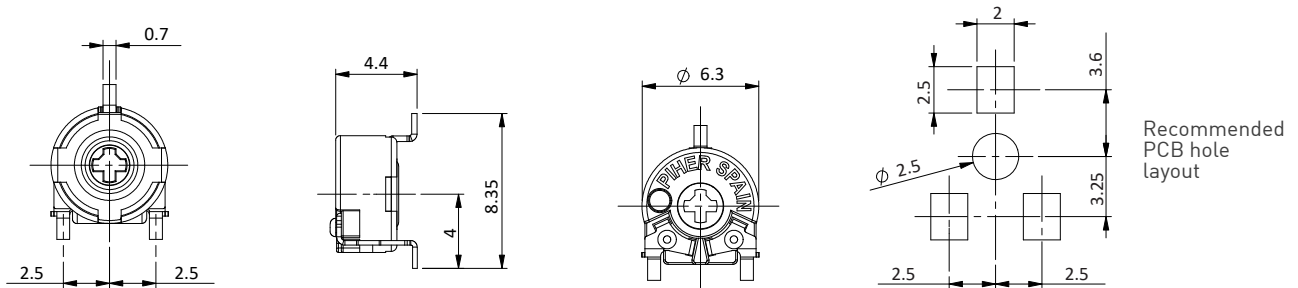
MOUNTING METHOD - DIMENSIONS

Vertical Adjustment / Horizontal Mounting

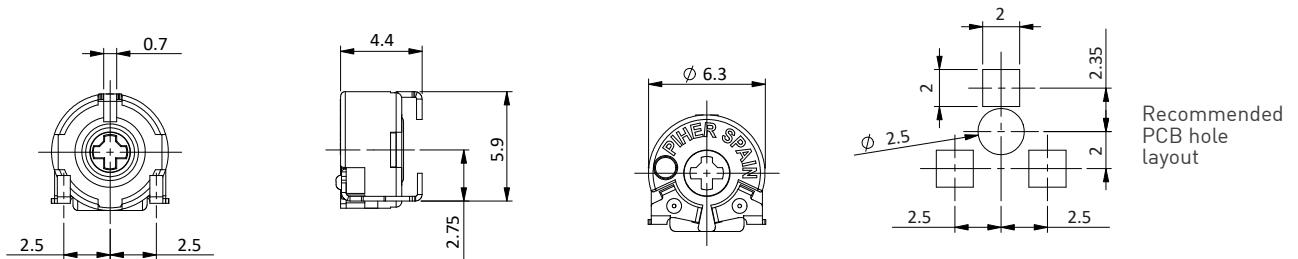
V45



V50



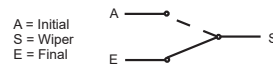
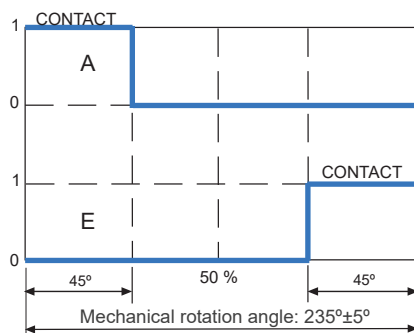
V55



STANDARD RESISTANCE-VALUES AND TOLERANCES

| Resistance Ω | 1K | 2K | 2.2K | 2.5K | 4.7K | 5K | 10K | 20K | 22K | 25K | 47K | 50K | 100K | 200K | 220K | 250K | 470K | 500K | 1M | 1.5M |
|---------------------|------------|-----|------|------|------|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|-----------|------|
| Order Code | 102 | 202 | 222 | 252 | 472 | 502 | 103 | 203 | 223 | 253 | 473 | 503 | 104 | 204 | 224 | 254 | 474 | 504 | 105 | 155 |
| Tolerance | $\pm 30\%$ | | | | | | | | | | | | | | | | | | +50%/-30% | |

SWITCH VERSION



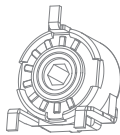
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DETENTS / STOP POSITIONS

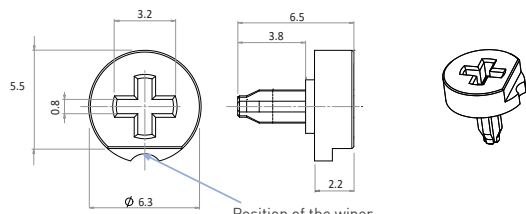
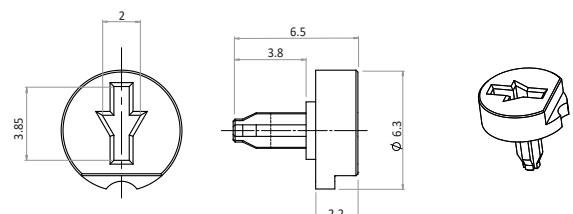
| P04 | P05 | P06 |
|-----|-----|-----|
| | | |
| P07 | P08 | P10 |
| | | |

• Relative detent positions along total mechanical travel



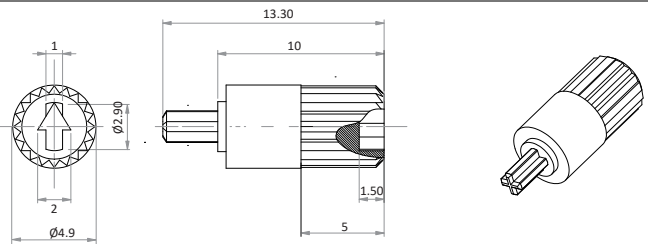
Unless otherwise specified the detents are evenly spaced (using the end points as reference). Rotor color of detented versions is brown. Standard mechanical life for PS-6 with detents: 100 cycles. Long life versions are available on request.

KNOBS / SHAFTS

| Fig. 5 - Ref.: 6148 For W rotors only. | Fig. 6 - Ref.: 6160 For W rotors only. |
|---|--|
|  <p>Position of the wiper.</p> |  |

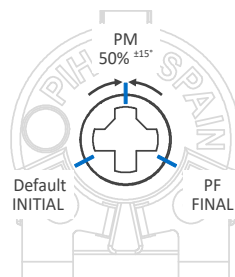
Ref.: 6144
For K or Q rotor.

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



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

WIPER POSITION



Wiper positioning on initial position is standard. Special delivery positions available on request.

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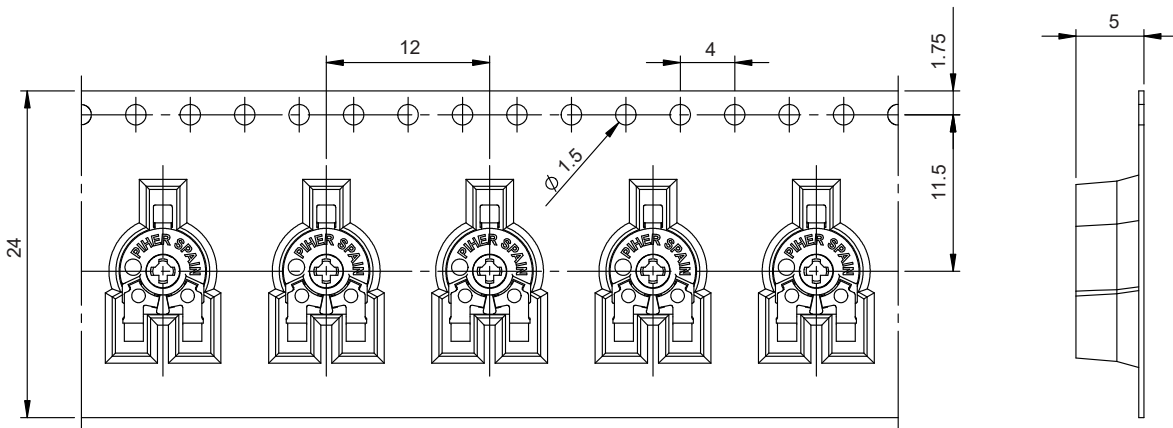
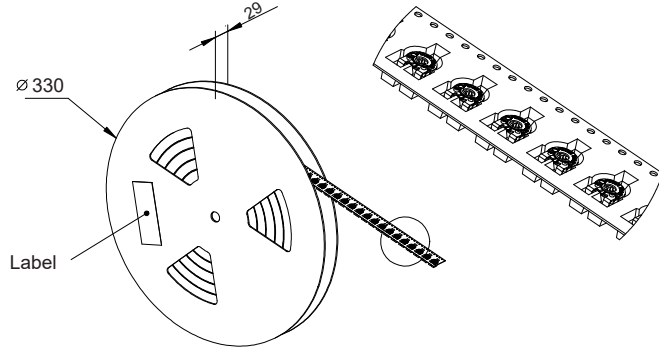
PACKAGING

V40 and V45 models

Bulk (1.000 pcs/box)



Reel - embossed tape (1.000 pcs/reel)

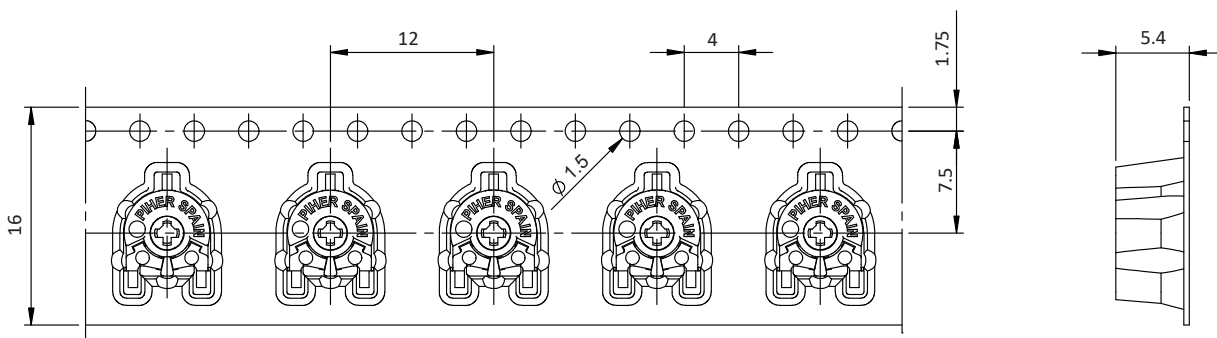
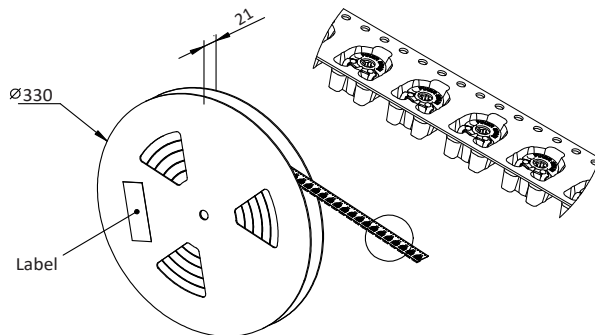


V50 and V55 models

Bulk (1.000 pcs/box)



Embossed tape (1.000 pcs/reel)



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