



# Series 14TR

## 14 mm Trimmer Potentiometer

- Terminals: tinned brass or tinned steel.
- Flexible gull-wing / through hole / "J" bend terminal configurations
- Various rotor types and with optional shaft & Wheel configurations
- IP 54 according to IEC 60529



### Description

14mm carbon potentiometers with plastic housing. Plastic materials can be self-extinguishable according to UL 94 V-0 upon request. This product is ideal for dimmers, volume/lighting regulation, timers and relays in industrial, electronics and automotive applications.

### Ordering Information

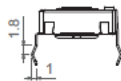
Series	Rotor	Model	Taper	Resistance Value	Tol.	Terminal Material	Packg.	Special Request*			
14TR	01	A	A	101	A	P	R	Extra Features	Assembled Accessories		
<b>Rotor type (Page 4)</b> 01: B-type 02: D-type 03: E-type 04: F-type 05: G-type 06: K-type 07: M-type 08: N-type 09: P-type 10: T-type 11: X-type 12: Z-type		<b>Model type (Page 4-8)</b> A: H0 B: HC C: H2.5 D: H4 E: H5 F: HA5 G: HL5 H: HSMD J: V12.5 K: VA12.5 M: VL12.5 N: VR12.5 P: V15 Q: VJ15 R: V15...CFF S: V17.5 T: VD7.5 U: VD11 V: VSMD W: VSMD...CY		<b>Resistance Value</b> 101:100Ω 201:200Ω ... 505:5MΩ		<b>Terminal Material</b> P: Tinned brass S: Tinned steel (Only available for Through-hole models)		<b>Extra Features</b> Life (standard 1,000 cycles) Track Detents Housing Rotor Wiper Terminal Type: SNP or SNR.		<b>Assembled Accessories</b> Assembly (Shaft & Wheel) Ref# Color Flam Connect Operating temperature	
			<b>Taper</b> A: Linear B: Logarithmic C: Antilogarithmic		<b>Tol.</b> A: ±5% B: ±10% C: ±20% D: ±30% E: +50%/-30%		<b>Packaging</b> Blank: Bulk R: Tape & Reel				

\* Please contact CTS representatives for the special requests.

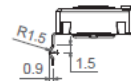
Standard Configuration:	Through-hole	SMD
Dimensions:	14mm	
Protection:	IP 54 (high level of protection against dust and also against water splashing) On request: Self-extinguishable, to meet UL 94 V-0	
Substrate:	Carbon technology	Carbon technology, special for high temperature
Color:	Blue housing + white rotor	Brown housing + grey rotor
Packaging:	Bulk or Tape & Reel	
Wiper position:	at 50% ±15°	
Terminals: *	Straight, without crimping.	
Marking:	Resistive value marked on housing. Others on request.	

\* By default, terminals are always straight. CTS can provide crimped terminals (with snap in, “SNP” or “SNR”) to better hold the component to the PCB during the soldering operation.

SNP



SNR



## Electrical Specifications

	Through-hole	SMD
Range of resistance values		
Lin (A)	100Ω ≤ Rn ≤ 5MΩ	100Ω ≤ Rn ≤ 1MΩ
Log (B) Antilog (C)	1KΩ ≤ Rn ≤ 2M2Ω	1KΩ ≤ Rn ≤ 1MΩ
Tolerance		
Rn < 100Ω:	+50%, -30% (out of range)	-
100Ω ≤ Rn ≤ 100KΩ:	±20%	±30%
100K < Rn ≤ 1MΩ:	±20%	±40%
1MΩ < Rn ≤ 5MΩ:	±30%	±50%
Rn > 5MΩ:	+50%, -30% (out of range)	-
Variation laws	Lin (A), Log (B), Antilog (C). Other tapers available on request	
Residual Resistance	Rn ≤ 400Ω ≤ 2Ω; Rn > 400Ω 5*10 <sup>-3</sup> * Rn	
CRV - Contact Resistance Variation (dynamic)	Lin (A) Electrical Angle 245° ± 20° ≤ 3%Rn. Other tapers, please inquire at 50°C	
Max. Power Dissipation	0.25W Lin (A) 0.13W Log (B) Antilog (C)	
Max. Voltage	250VDC Lin (A) 200VDC Log (B) Antilog (C)	
Operating temperature	-25°C ... +70°C (+85°C on request)	
Temperature Coefficient		
100Ω ≤ Rn ≤ 10KΩ	+200 / -300 ppm	+200 / -500 ppm
10KΩ ≤ Rn ≤ 5MΩ	+200 / -500 ppm	+200 / -1000 ppm

\* Out of range ohm values and tolerances are available on request.

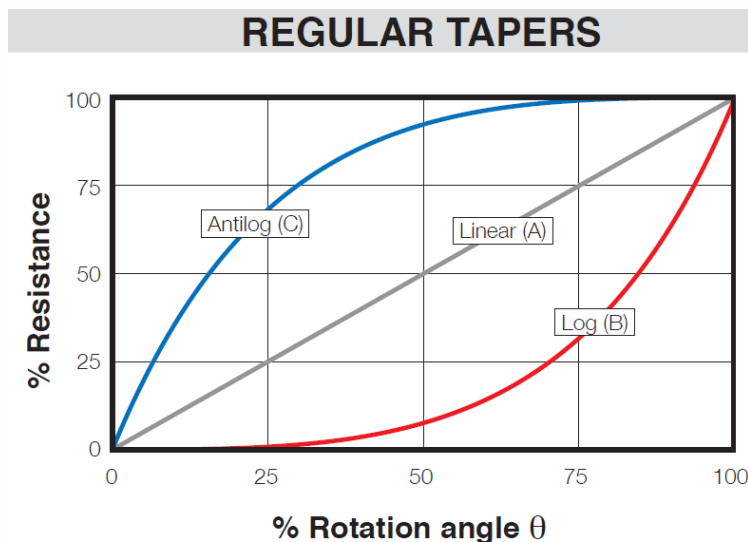
## Mechanical and Environmental

Actuation Life	1,000 cycles. On Request: Long Life
Angle of rotation (mechanical)	265° ± 5°
Angle of rotation (electrical)	245° ± 20°
Wiper standard delivery position	50% ± 15°
Max. stop torque	10 Ncm
Max. push/pull on rotor	50 N
Wiper Torque	< 2.5Ncm Potentiometer with detents: < 3.5 Ncm

## Recommended Soldering Conditions (Lead free, RoHS compliant)

Manual soldering	Reflow soldering SMD	Flow (wave) soldering
Soldering tools of 20W max.	Preheating temperature: Max 150°C; 60-90 s	Recommended Alloy: SnAgCu
Maximum temperature of soldering tools: 280°C	Temperature Ramp-up: 2-3°C / s.	Preheating stage: Max 100°C; 30-60 s.
Time: 3 s. max.	Over 220°C:<40 s.	Temperature Ramp-up:1.2-2.5°C/s.
	Solder temperature: 240°C for 5 ± 1 s.	Max. wave temp.: 260°C for 4s., (245°C recommended)
		Time within +0°-10°C of peak: 10s.
		Cooling rate: 5°C/s.

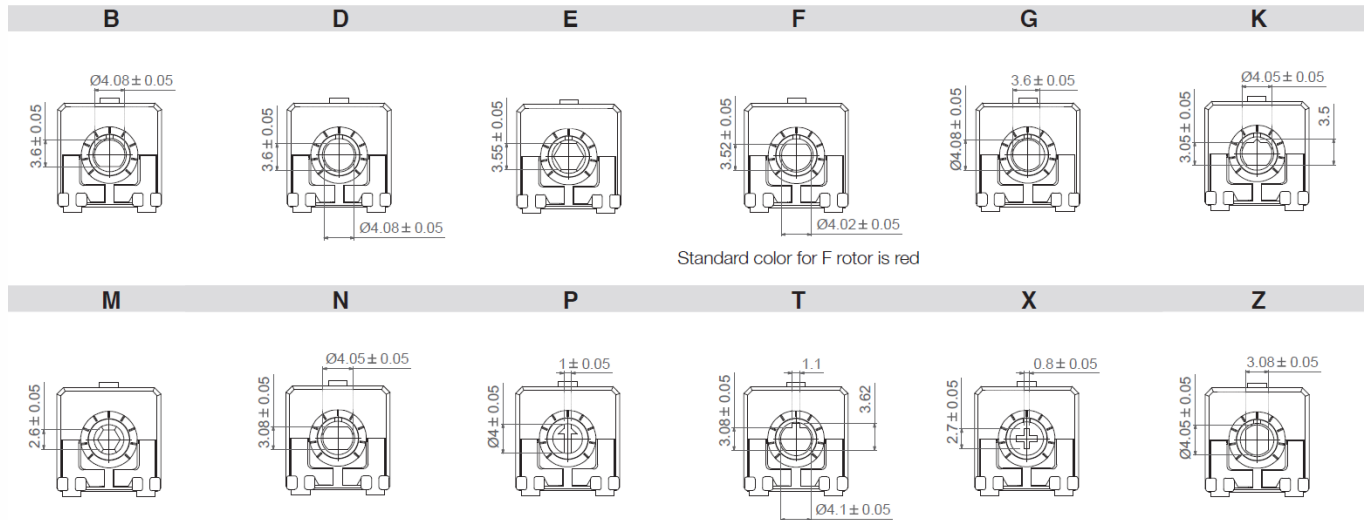
## Tapers



## Mechanical Specifications

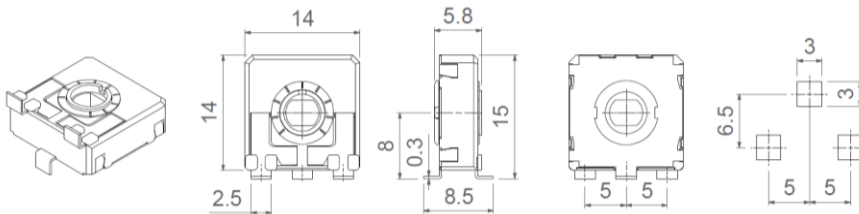
### Rotor

Rotors are drawn in their standard positioning, 50% of rotation. Alternative delivery positioning can be requested. Accessories in this catalogue are designed for the N, Z and T rotors, unless otherwise stated.



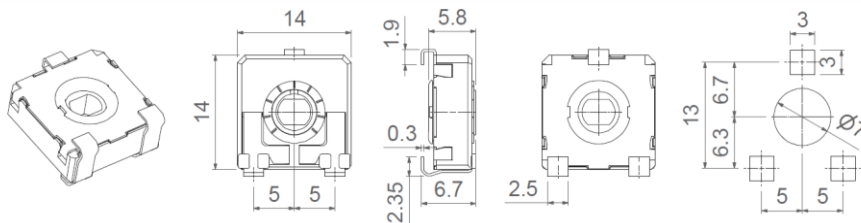
## Surface Mount Gull wing Terminal

HSMD

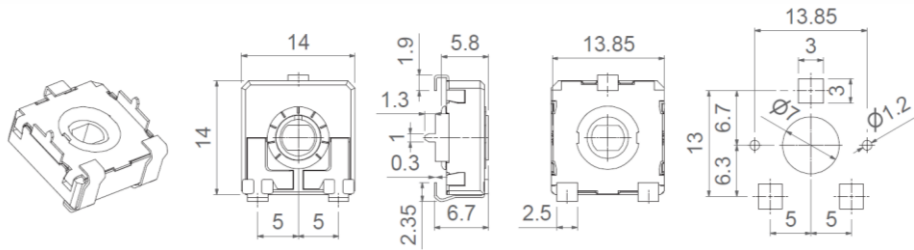


## Surface Mount J-bend Terminal

VSMD

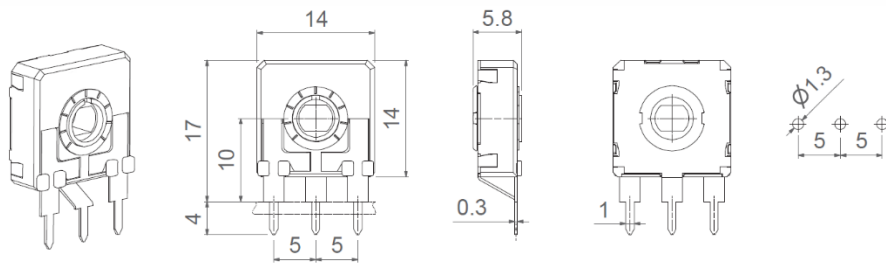


VSMD...CY

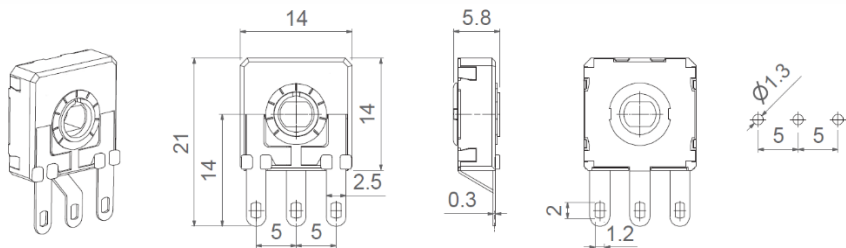


### Through-hole Terminal

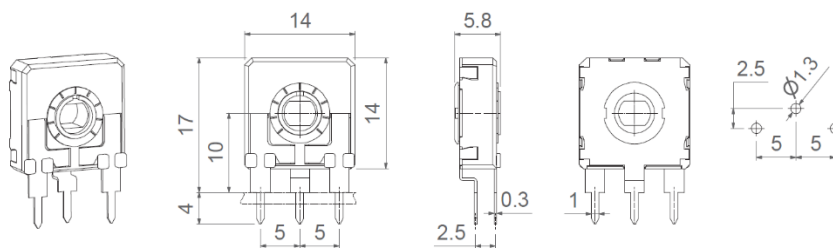
H0



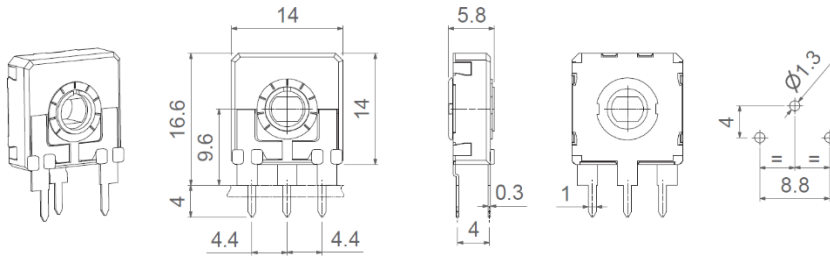
HCO



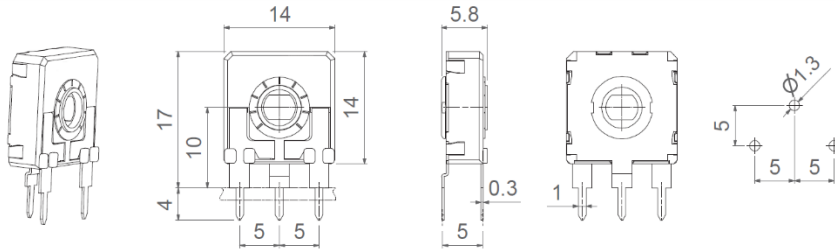
H2.5



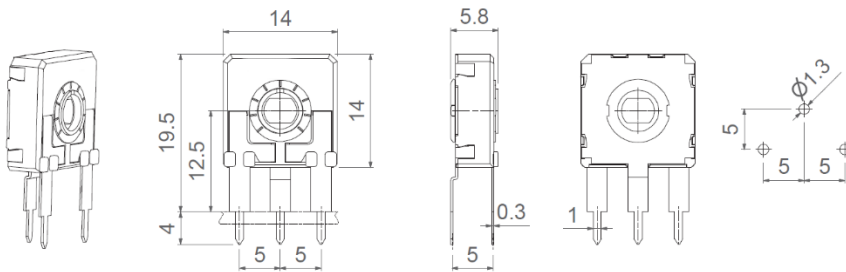
H4



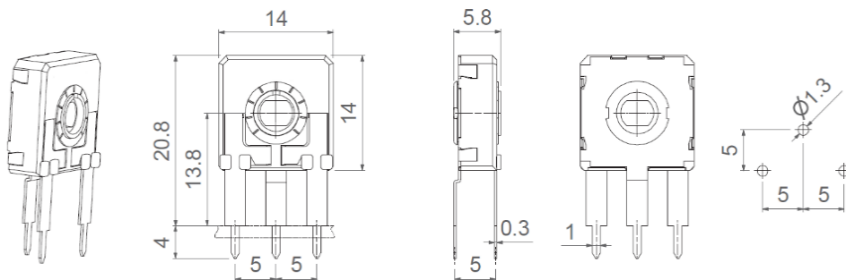
H5



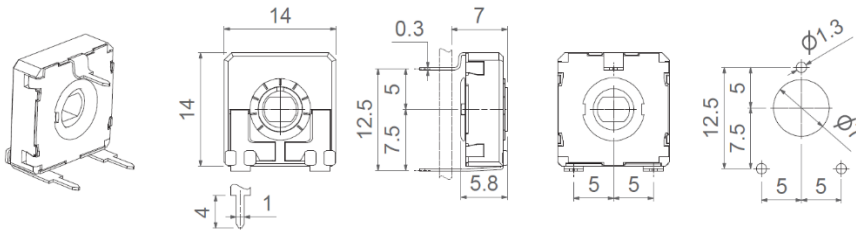
HA5



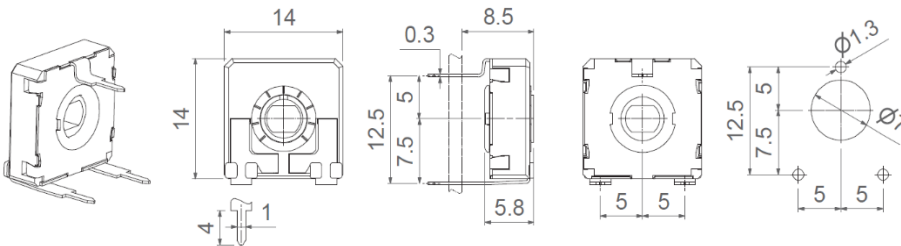
HL5



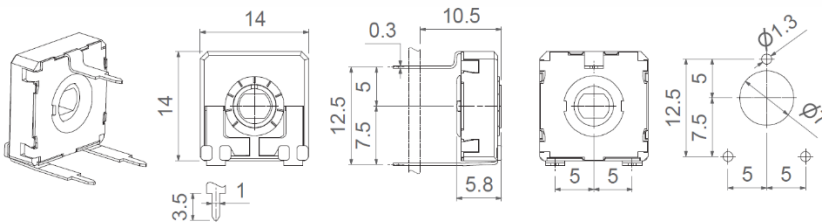
V12.5



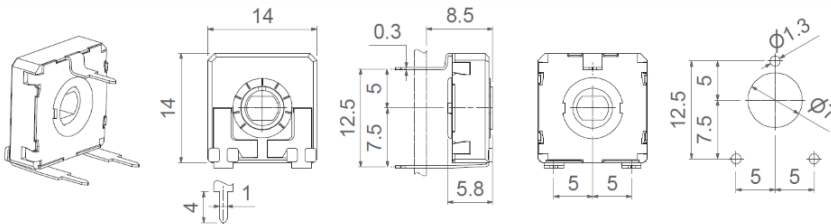
VR12.5



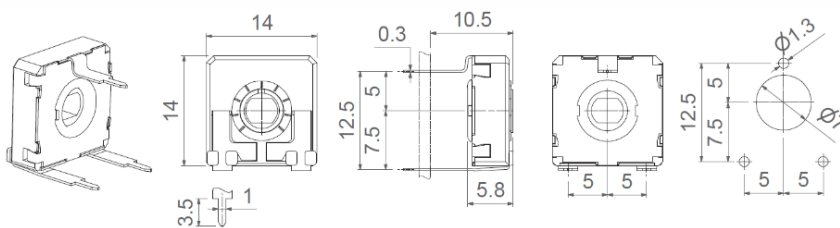
VL12.5



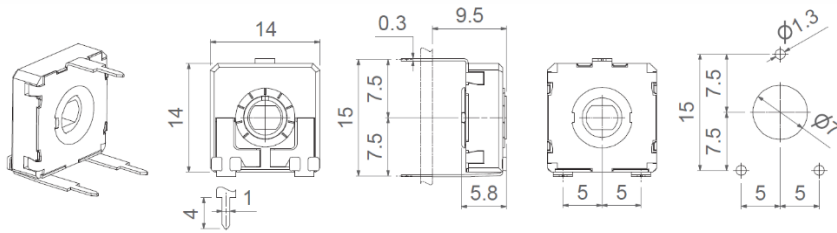
VR12.5



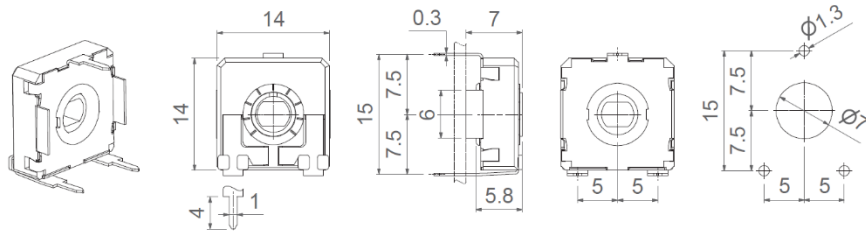
V15



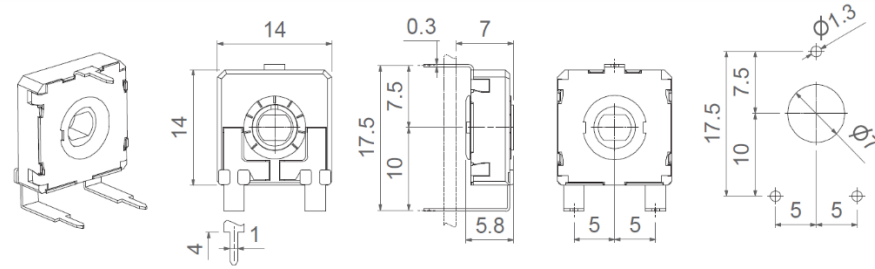
VJ15



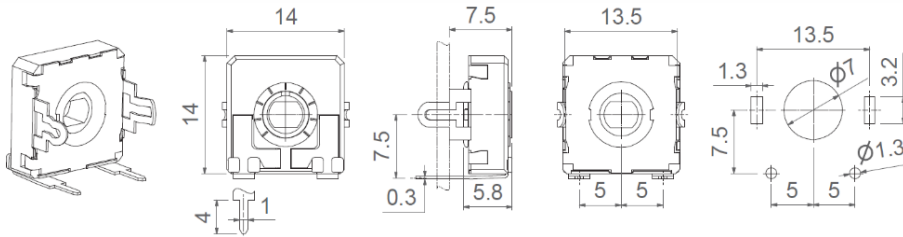
V15...CFF



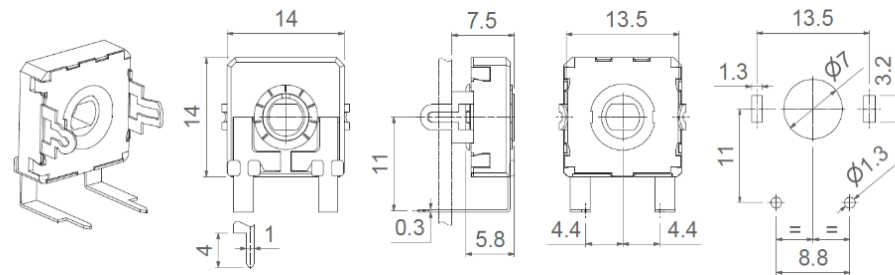
V17.5



VD7.5



VD11





### Shaft

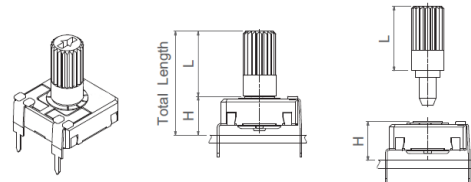
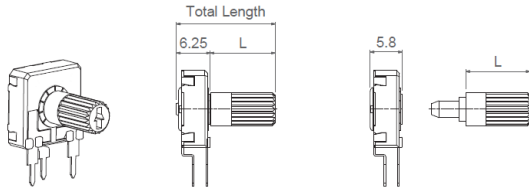
Shafts are available in different colors and with self-extinguishable property, according to UL 94 V-0, under request. CTS can study special shaft designs.

Shafts can be sold separately or delivered already mounted on the potentiometer at CTS.

When a shaft is mounted, the distance from the top of the potentiometer to the top of the shaft is marked with “L” in the table below, as shown in the drawings:

H potentiometer + shaft

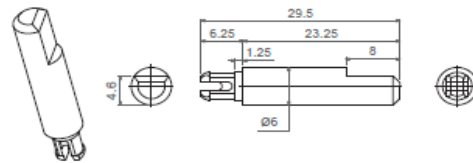
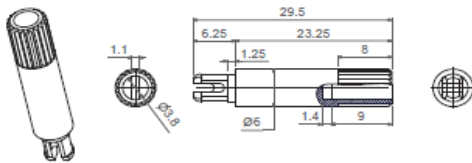
V potentiometer + shaft



Shaft	14042	14065 (For E rotor)	14117	14056	14081	14187	14251	14067	14008	14015	14066	14084	14250	14072	14073
L Dimension	7.05	11.50	11.70	12.25	18.25	18.75	18.75	27.75	23.25	23.25	23.50	23.50	25.00	31.75	38.50

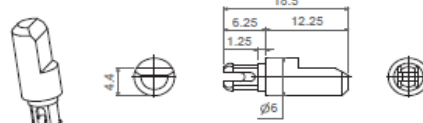
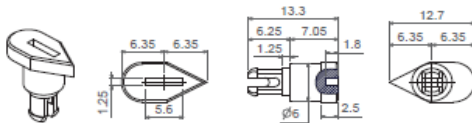
14008

14015



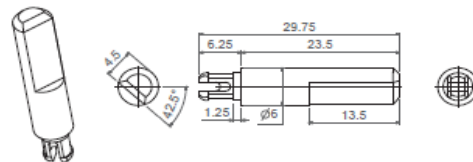
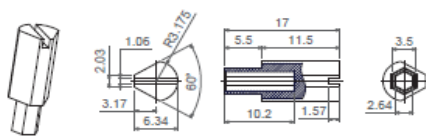
14042

14056



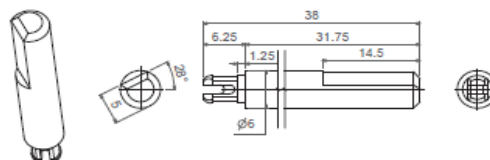
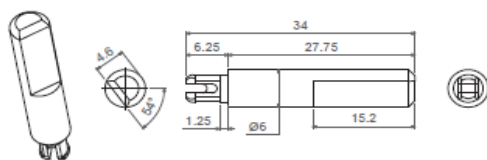
14065 (Designed for E rotor)

14066

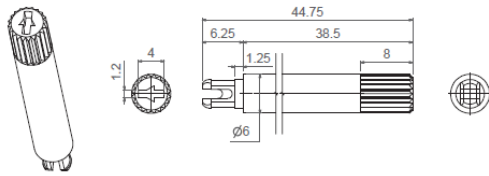


14067

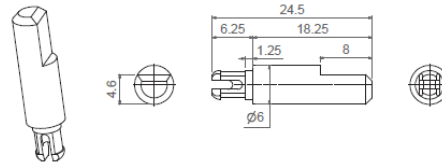
14072



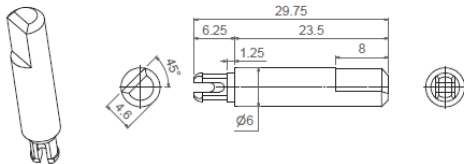
14073



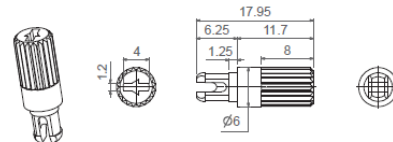
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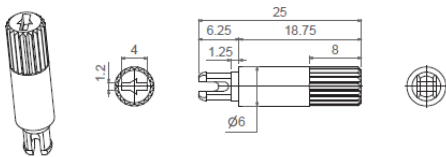
14084



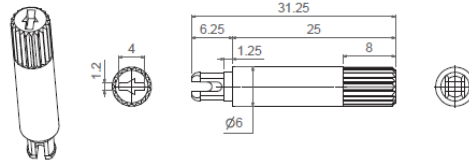
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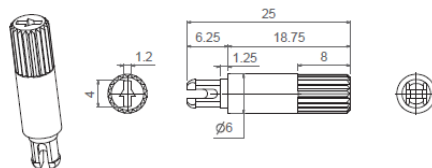
14187



14250



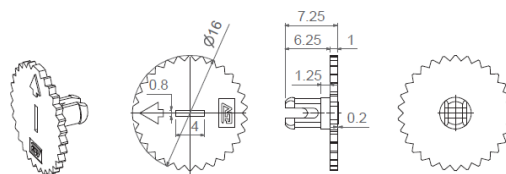
14251



## Wheel

Thumbwheels are available in different colors and with self-extinguishable property according to UL 94 V-0, under request. Thumbwheels can be mounted on the potentiometers at CTS or sold separately. CTS can study special thumbwheel designs.

14003



## Packaging

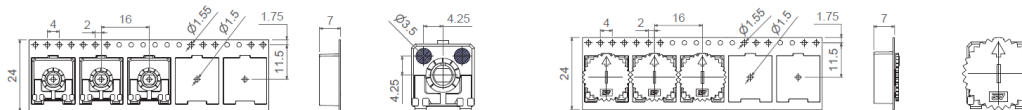
Bulk packaging:	With shaft or thumbwheel inserted	Pieces per box
H2.5- H4- H5- HA5- HL5- H0 HC0- V12.5- V15- VA12.5 VL12.5- VR12.5 -VJ15	None, only potentiometers.	400
	14003, 14117, 14042, 14056, 14065	300
	14008, 14015, 14066, 14067, 14072, 14073, 14081, 14084, 14187, 14250.	100
V17.5 - VD7.5	None, only potentiometers.	350
	14003, 14117, 14042, 14056, 14065	300
	14008, 14015, 14066, 14067, 14072, 14073, 14081, 14084, 14187, 14250.	100
V17.5 - VD7.5	None, only potentiometers.	300
	14003, 14117, 14042, 14056, 14065	300
	14008, 14015, 14066, 14067, 14072, 14073, 14081, 14084, 14187, 14250.	100
V15...CFF	None, only potentiometers.	400

Tape & Reel packaging:	With thumbwheel inserted?	13" Reel (Standard), with 24mm width tape
VSMD	None, only potentiometers.	500 pcs per reel, 16 mm step between cavities
	14003	450 pcs per reel, 16 mm step between cavities
VSMD...CY	None, only potentiometers.	350 pcs per reel, 20 mm step between cavities
	14003	350 pcs per reel, 20 mm step between cavities
HSMD		To be determined

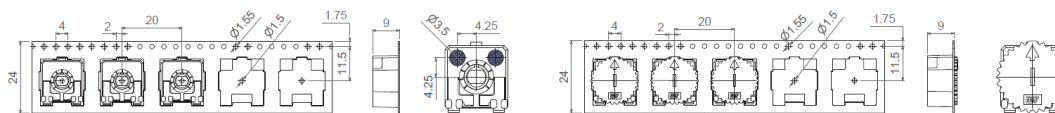
VSMD-T&R

VSMD-T&R...WT-14003



VSMD-T&R ... CY

VSMD-T&R...CY WT-14003



13" Reel

