



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

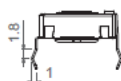
Series	Rotor	Model	Taper	Resistance Value	Tol.	Terminal Material	Packg.	Special Request*	
14TR	01	A	A	101	A	P	R	Extra Features	Assembled Accessories
↓		↓	↓		↓	↓	↓	↓	↓
Rotor type (Page 4)		Model type (Page 4-8)	Resistance Value			Terminal Material		Extra Features	
01: B-type		A: H0	101:100Ω			P: Tinned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

* Please contact CTS representatives for the special requests.

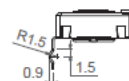
Standard Configuration:	Through-hole	SMD
Dimensions:	14mm	
Protection:	IP 54 (high level of protection against dust and also against water splashing) On request: Self-extinguishable, to meet UL 94 V-0	
Substrate:	Carbon technology	Carbon technology, special for high temperature
Color:	Blue housing + white rotor	Brown housing + grey rotor
Packaging:	Bulk or Tape & Reel	
Wiper position:	at 50% $\pm 15^\circ$	
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)	$100\Omega \leq R_n \leq 5M\Omega$	$100\Omega \leq R_n \leq 1M\Omega$
Log (B) Antilog (C)	$1K\Omega \leq R_n \leq 2M2\Omega$	$1K\Omega \leq R_n \leq 1M\Omega$
Tolerance		
$R_n < 100\Omega$:	+50%, -30% (out of range)	-
$100\Omega \leq R_n \leq 100K\Omega$:	$\pm 20\%$	$\pm 30\%$
$100K\Omega < R_n \leq 1M\Omega$:	$\pm 20\%$	$\pm 40\%$
$1M\Omega < R_n \leq 5M\Omega$:	$\pm 30\%$	$\pm 50\%$
$R_n > 5M\Omega$:	+50%, -30% (out of range)	-
Variation laws	Lin (A), Log (B), Antilog (C). Other tapers available on request	
Residual Resistance	$R_n \leq 400\Omega \leq 2\Omega$; $R_n > 400\Omega$ $5 \cdot 10^{-3} \cdot R_n$	
CRV - Contact Resistance Variation (dynamic)	Lin (A) Electrical Angle $245^\circ \pm 20^\circ \leq 3\% R_n$. Other tapers, please inquire	
Max. Power Dissipation	at 50°C 0.25W Lin (A) 0.13W Log (B) Antilog (C)	
Max. Voltage	250VDC Lin (A) 200VDC Log (B) Antilog (C)	
Operating temperature	$-25^\circ\text{C} \dots +70^\circ\text{C}$ (+85°C on request)	
Temperature Coefficient		
$100\Omega \leq R_n \leq 10K\Omega$	+200 / -300 ppm	+200 / -500 ppm
$10K\Omega \leq R_n \leq 5M\Omega$	+200 / -500 ppm	+200 / -1000 ppm

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

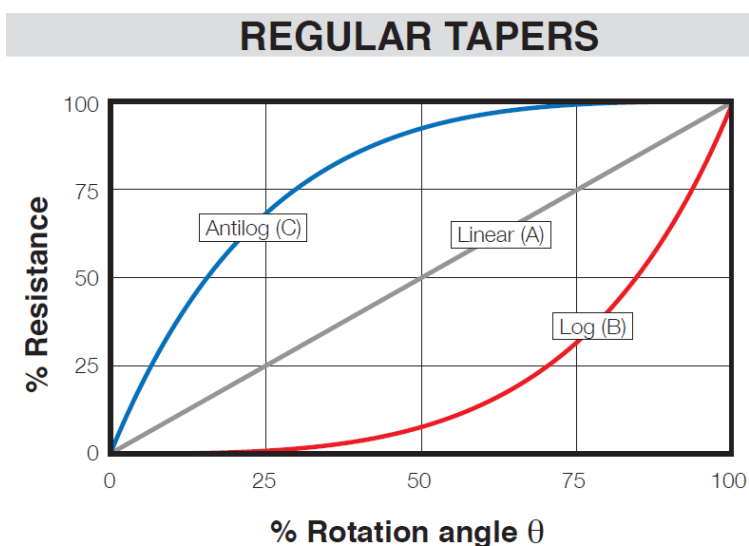
Mechanical and Environmental

Actuation Life	1,000 cycles. On Request: Long Life
Angle of rotation (mechanical)	$265^{\circ} \pm 5^{\circ}$
Angle of rotation (electrical)	$245^{\circ} \pm 20^{\circ}$
Wiper standard delivery position	$50\% \pm 15^{\circ}$
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.

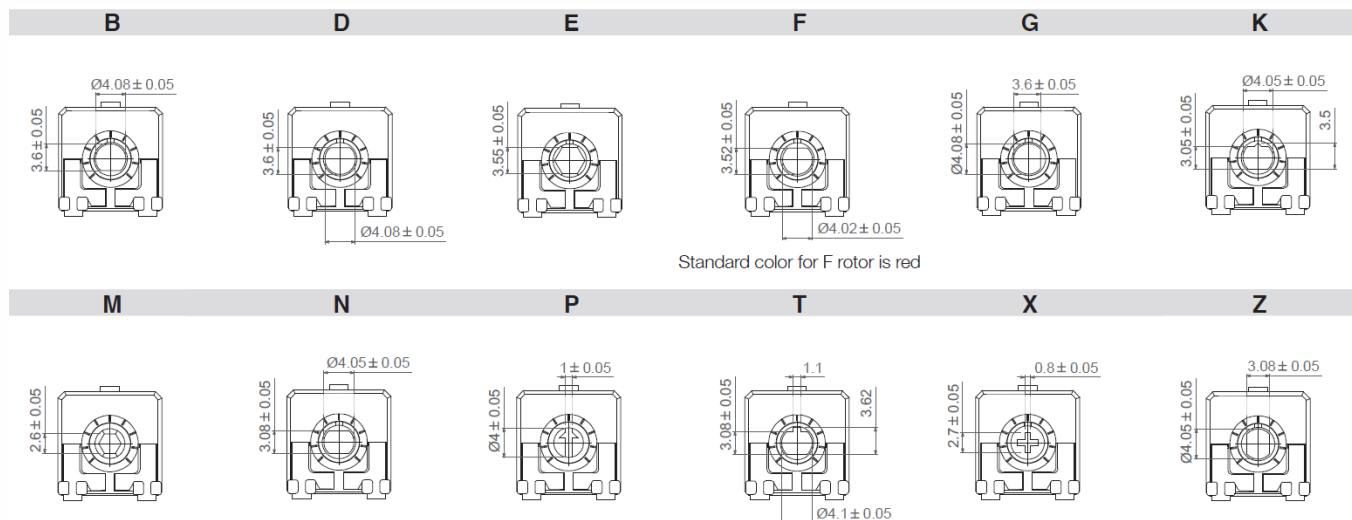
Tapers



Mechanical Specifications

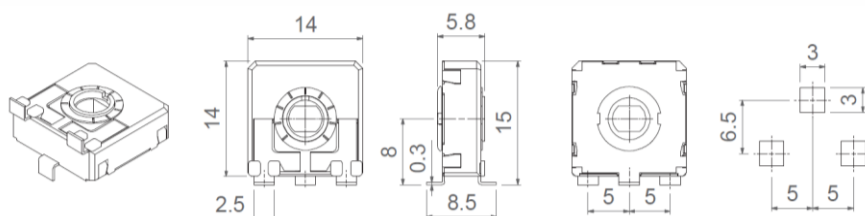
Rotor

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.



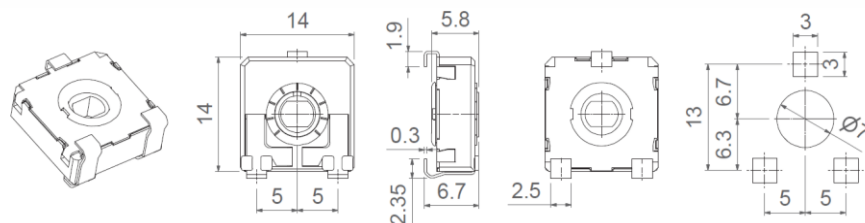
Surface Mount Gull wing Terminal

HSMD

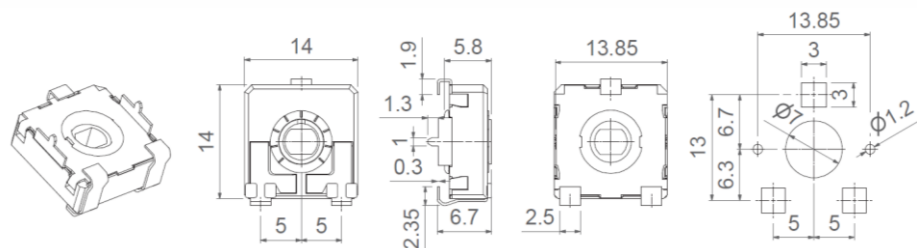


Surface Mount J-bend Terminal

VSMD

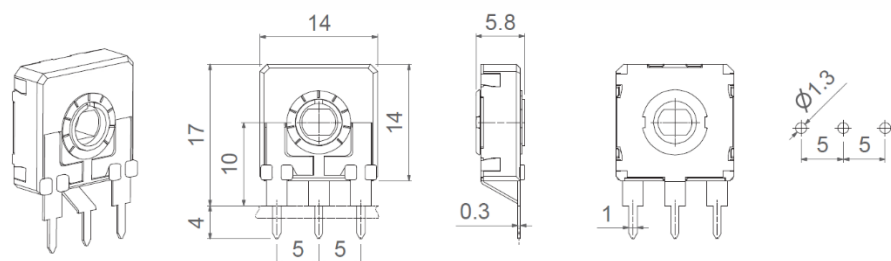


VSMD...CY

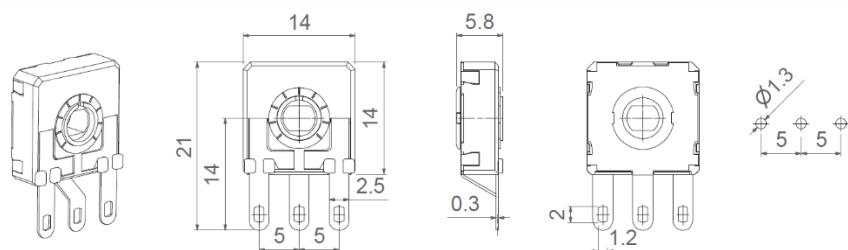


Through-hole Terminal

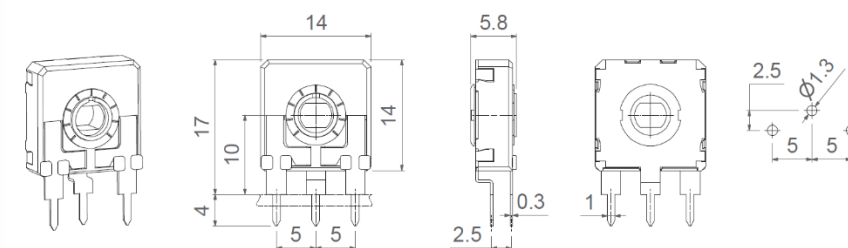
H0



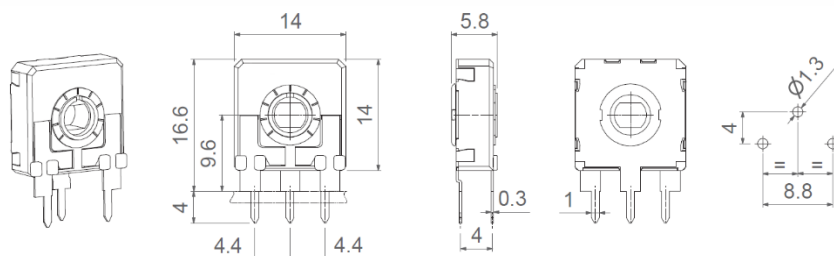
HCO



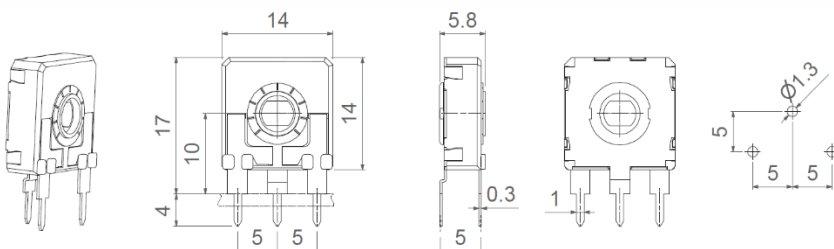
H2.5



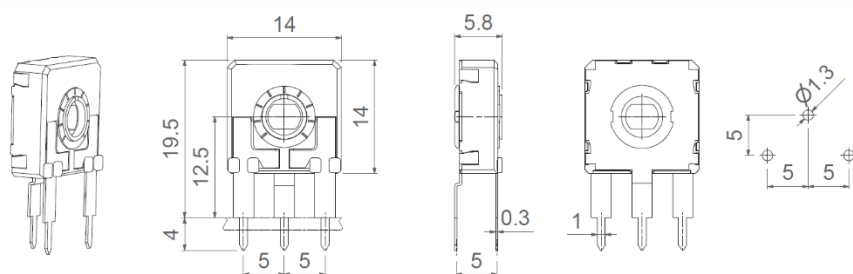
H4



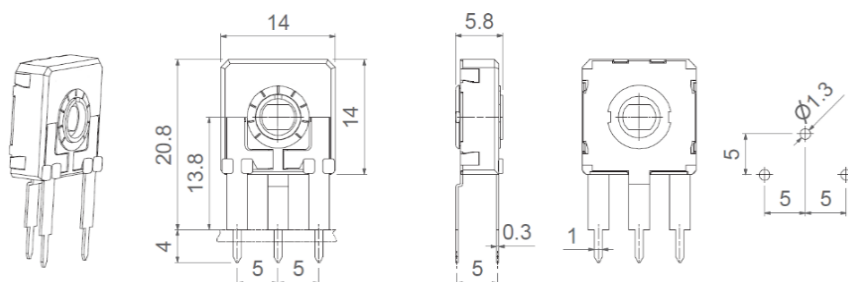
H5



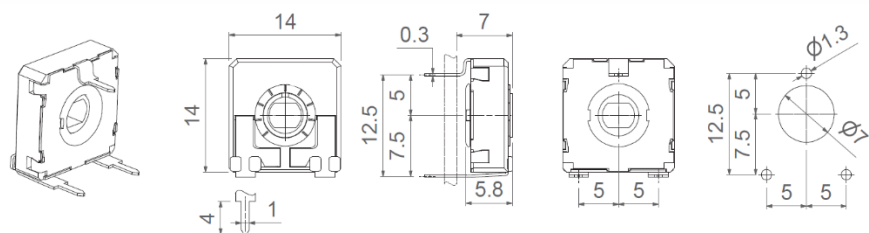
HA5



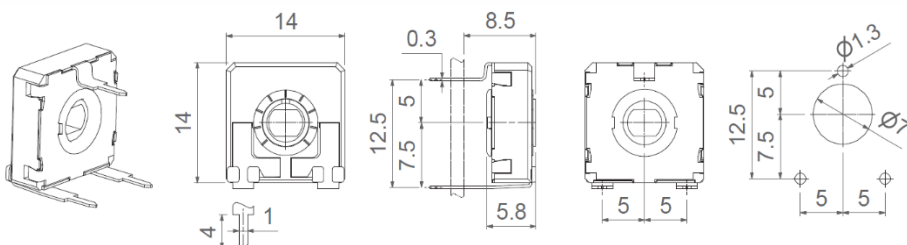
HL5



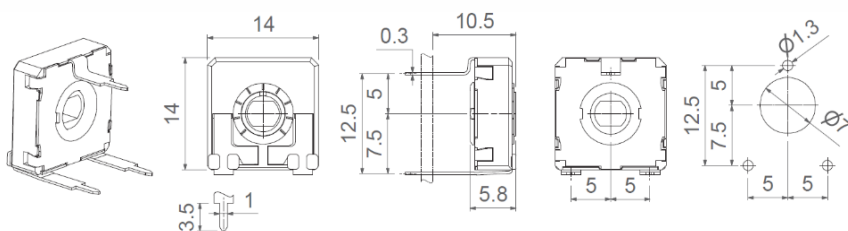
V12.5



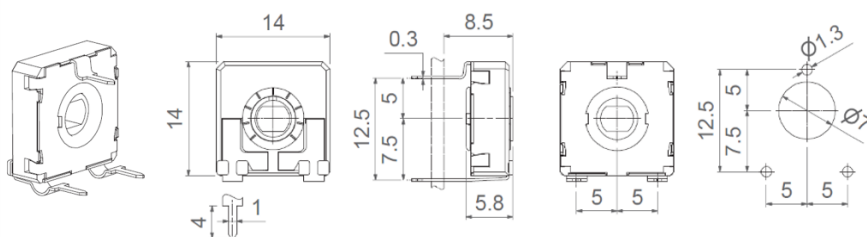
VA12.5



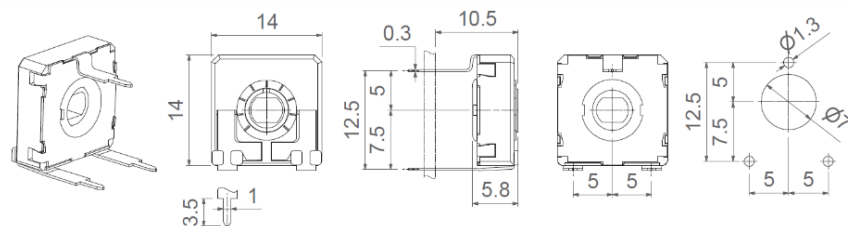
VL12.5



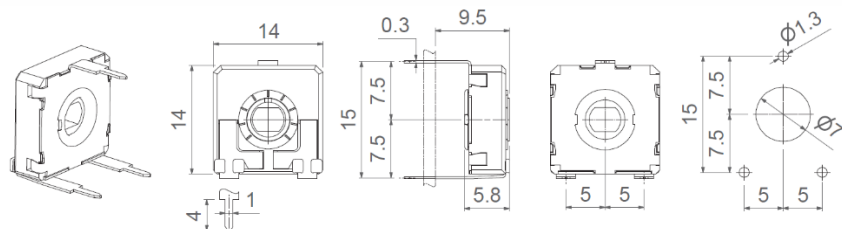
VR12.5



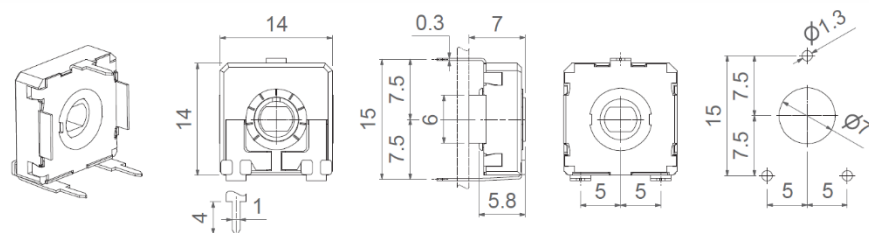
V15



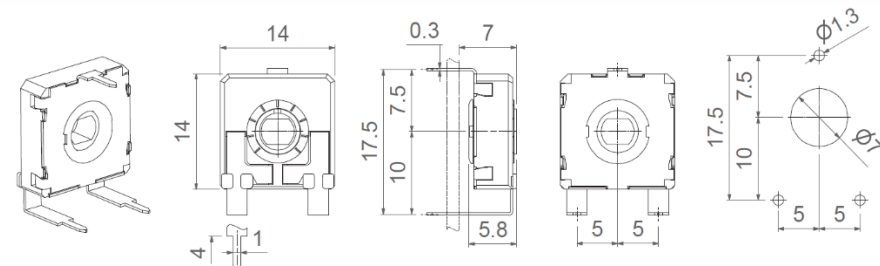
VJ15



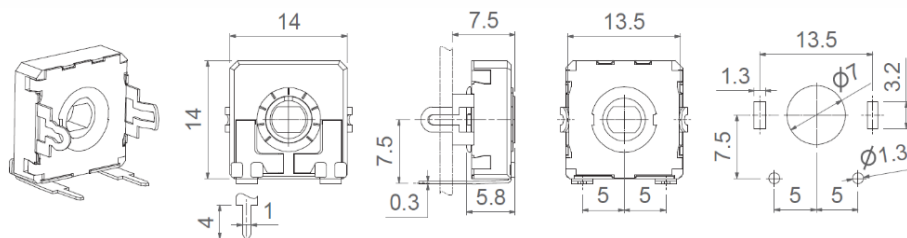
V15...CFF



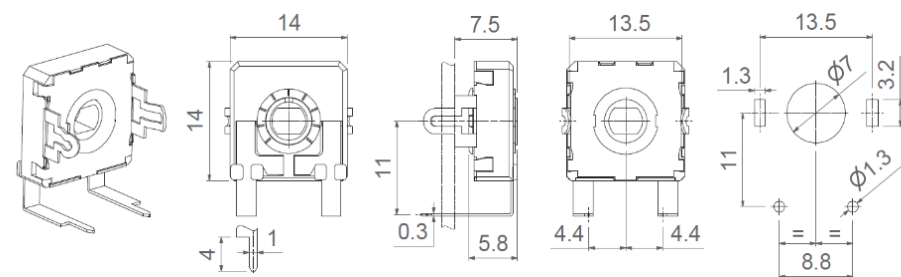
V17.5



VD7.5



VD11



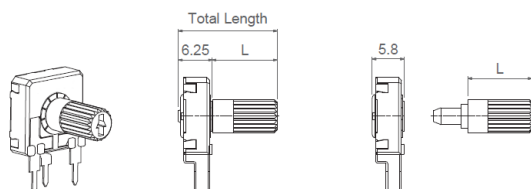
Shaft

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.

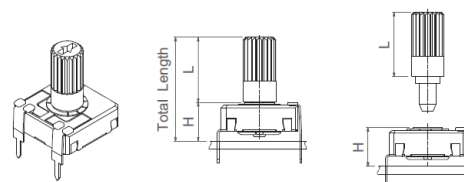
Shafts can be sold separately or delivered already mounted on the potentiometer at CTS.

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

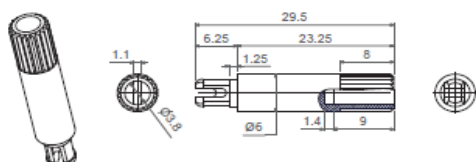


V potentiometer + shaft

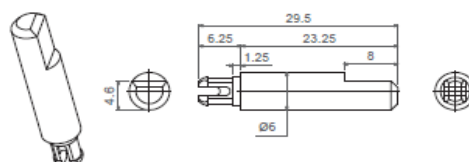


Shaft	14042	14065 (For E rotor)	14117	14056	14081	14187	14251	14067	14008	14015	14066	14084	14250	14072	14073
L Dimension	7.05	11.50	11.70	12.25	18.25	18.75	18.75	27.75	23.25	23.25	23.50	23.50	25.00	31.75	38.50

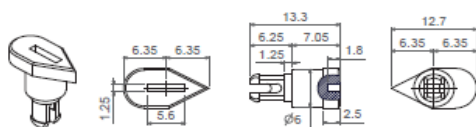
14008



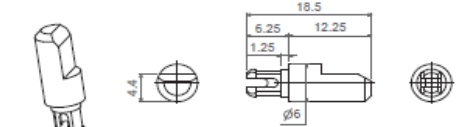
14015



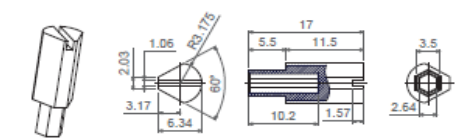
14042



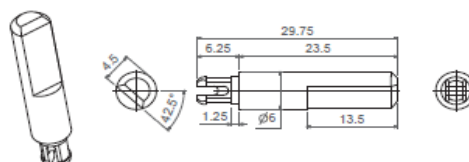
14056



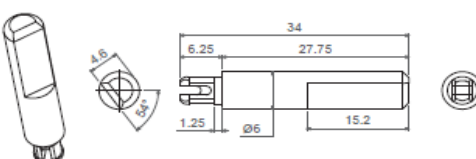
14065 (Designed for E rotor)



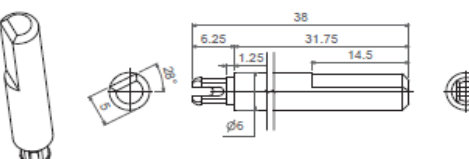
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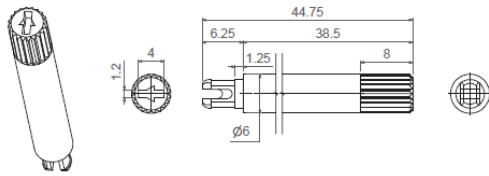
14067



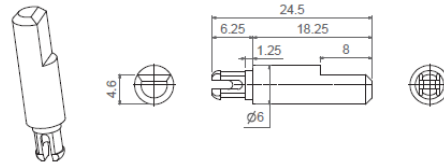
14072



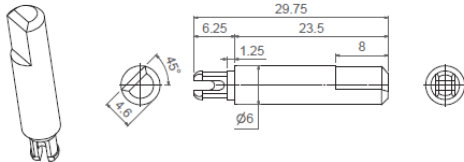
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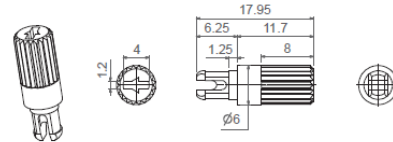
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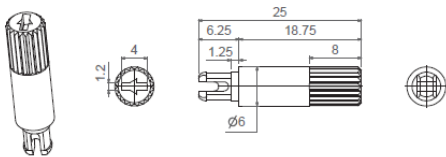
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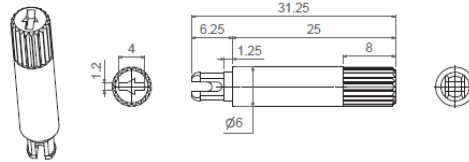
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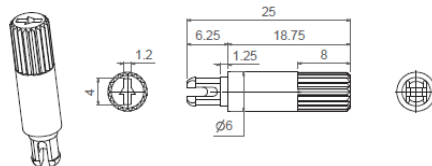
14187



14250



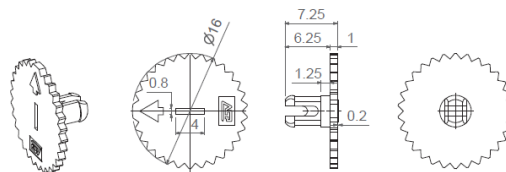
14251



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

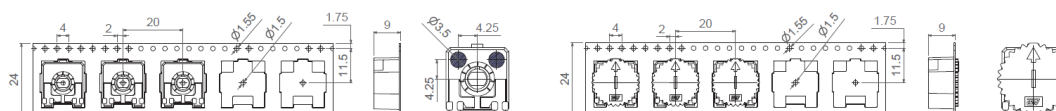
VSMD-T&R

VSMD-T&R...WT-14003



VSMD-T&R ... CY

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



13" Reel

