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RH19 1RJ
Registration No. 600441

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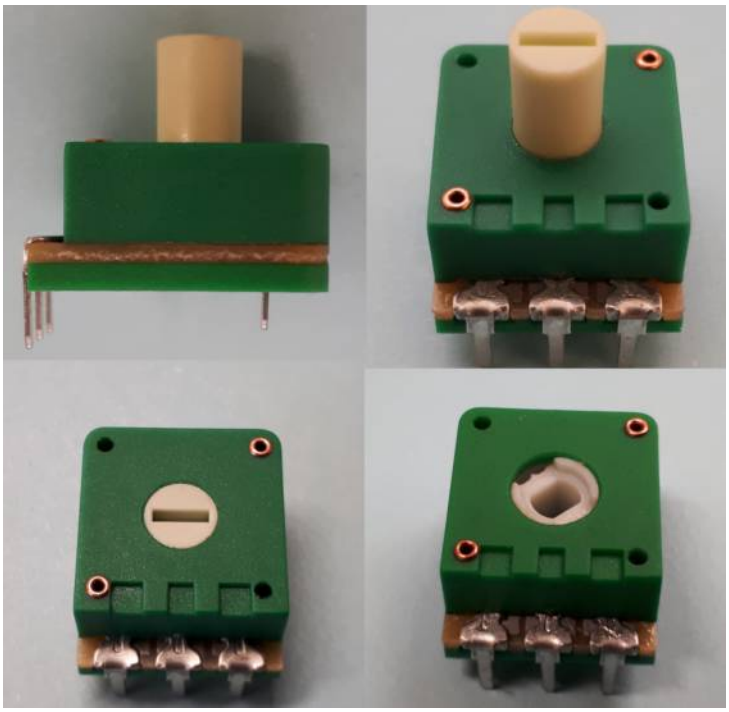
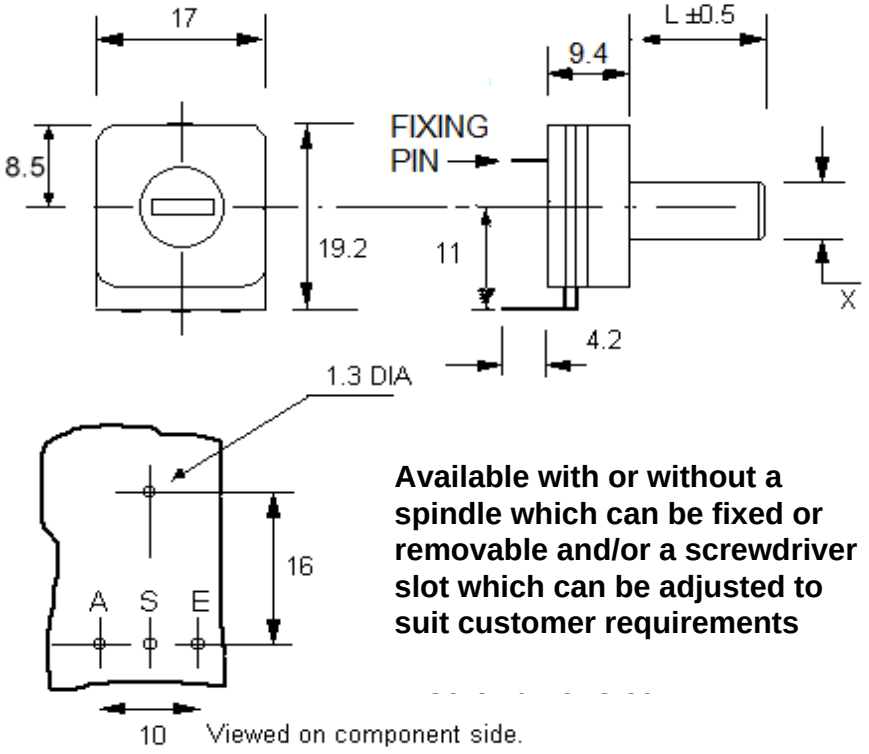
THIN PROFILE ECO

0 - 25mm





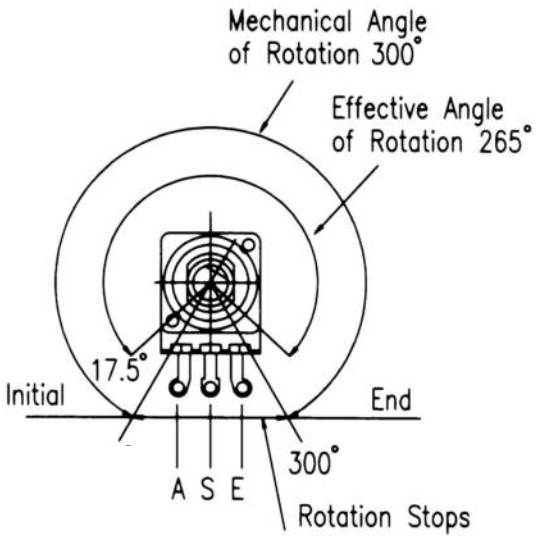
Available with or without a spindle which can be fixed or removable and/or a screwdriver slot which can be adjusted to suit customer requirements

Single gang shown, Multi gang versions available

- X Spindle Diameter
- L Spindle Length

- A Initial Termination
- S Wiper (or moving contact) termination
- E End Termination

SPINDLE END VIEW



Total mechanical and effective electrical angles of rotation of potentiometers without rotary switch

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Technical Data

Rated Power Dissipation @40°C for ECO potentiometers:
0.25W linear law
0.12W nonlinear law
Conductive polymer (plastic) track (over twice the life of carbon tracks)
Effective rotation: 265° nominal
Operating Torque: 0.4 – 1.5 cN.m

Permissible Axial Spindle Load: 50 N (5 Sec. maximum)
Permissible Torque at End Stop: 35 cN.m
Rotation angle: 300° ±5°
Optional Click stop (indents) for rotational tactile feedback
Rotational torque of spindle can be made high or low

Life Expectancy of >20,000 cycles (tested at 30 times per minute)

Insulation Resistance: >= 4 Gohms

Rated Resistance: E3 Series

Optional: E6 Series
Linear Law: 1K – 1M
Nonlinear Law: 4K7 – 470K

ELECTRICAL SPECIFICATION COMMON TO ALL POTENTIOMETERS

Conductive polymer (plastic) track (over twice the life of carbon tracks)
Life Expectancy of >20,000 cycles (tested at 30 times per minute)
Insulation Resistance: >= 4 Gohms
Rated Resistance: E3 Series

- Optional: E6 Series
- Linear Law: 1K - 1M
- Nonlinear Law: 4K7 - 470K

Tolerance on Rated Resistance: ± 20%

- Optional Tolerance on 1K - 1M: ± 10%

Resistance Laws (Taper):

- Linear: A
- Nonlinear: B - Log (Audio) or C - Antilog (Reverse Audio)
- Other laws: Please refer to Sales office

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ELECTRICAL SPECIFICATION
UNIQUE TO ECO POTENTIOMETERS

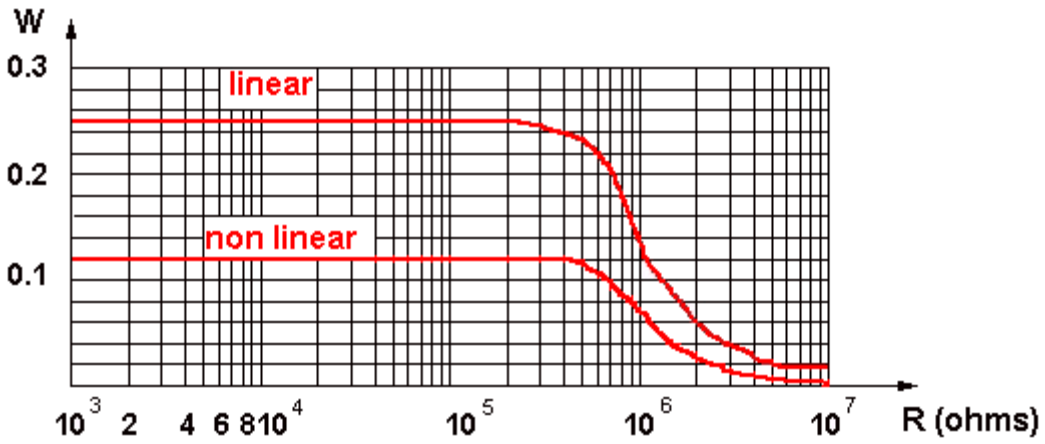
Effective rotation:

- Without a switch: 265° nominal
- With push push switch (/10APP, /MS): 265° nominal
- With rotary switch: 242° nominal

Rated Power Dissipation @40°C for ECO potentiometers:

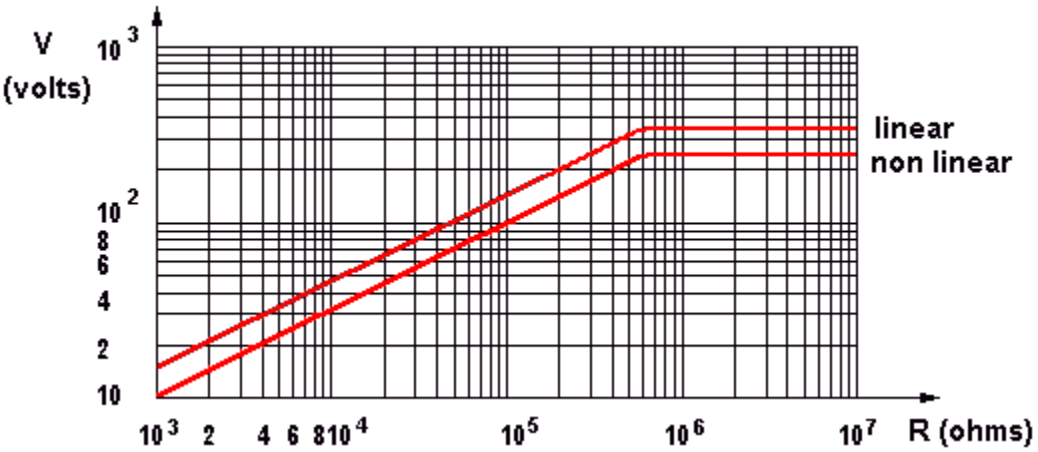
- 0.25W linear law
- 0.12W nonlinear law

ECO, P16 power dissipating curve



Limiting Element Voltage: 350 V DC for 16mm potentiometers

ECO, P16 maximum working voltage curve



Insulating (Breakdown) Voltage: 2,500 V AC for ECO Potentiometers

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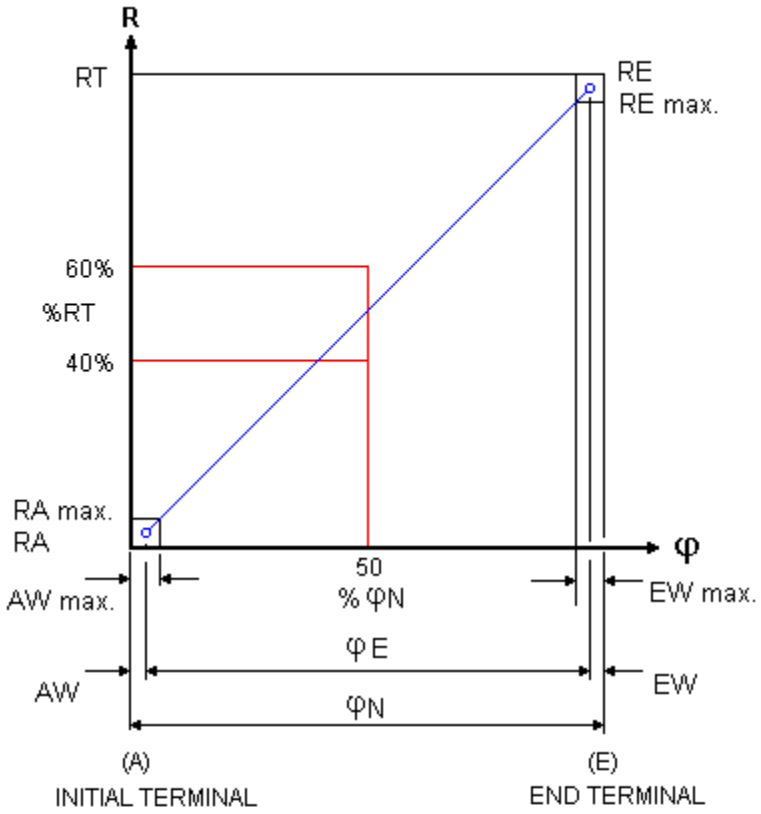
Resistance law A - Linear



AW ..... Initial Path ..... AW max. 12% φN
EW ..... Final Path ..... EW max. 12% φN
Ra ..... Initial Stop Value ..... ≤ 1. 10^{-3}RN (Minimum 2 ohms)
RA ..... Hop-on Resistance ..... ≤ 1% RN
Re ..... End Stop Value ..... ≤ 1.10^{-3}RN (Minimum 2 ohms)
RE ..... Hop-off Resistance ..... ≤ 1% RN
RN ..... Rated Resistance
RT ..... Effective Resistance
φ ..... Rotation Angle
φE ..... Effective Electrical Angle of Rotation
φN ..... Effective Mechanical Angle of Rotation

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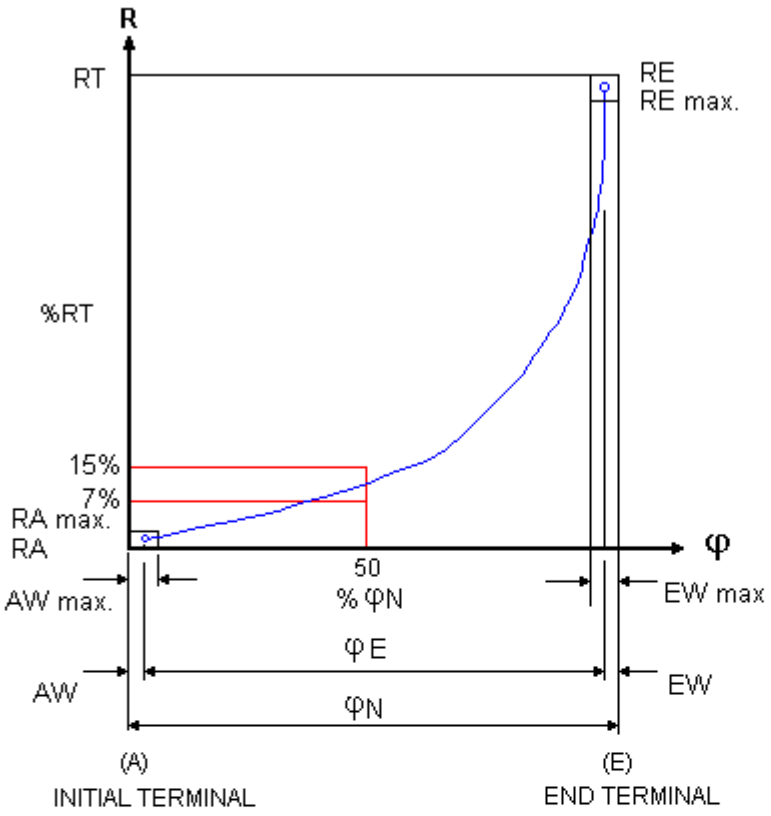
Resistance law B – Log (Audio)



AW	Initial Path	AW max. 10% φN
EW	Final Path	EW max. 10% φN
Ra	Initial Stop Value	RN ≤10K ≤ 1.10^{-3}RN (Minimum 2 ohms) RN >10K ≤ 2.10^{-4}RN (Minimum 10 ohms)
RA	Hop-on Resistance	RN ≤10K 5% RN RN >10K 0.15% RN
Re	End Stop Value	RN ≤100K ≤ 2.10^{-2}RN RN >100K ≤ 1.10^{-2}RN
RE	Hop-off Resistance	RN ≤10K <1% RN RN >10K 0.5% RN
RN	Rated Resistance	
RT	Effective Resistance	
φ	Rotation Angle	
φ E	Effective Electrical Angle of Rotation	
φN	Effective Mechanical Angle of Rotation	

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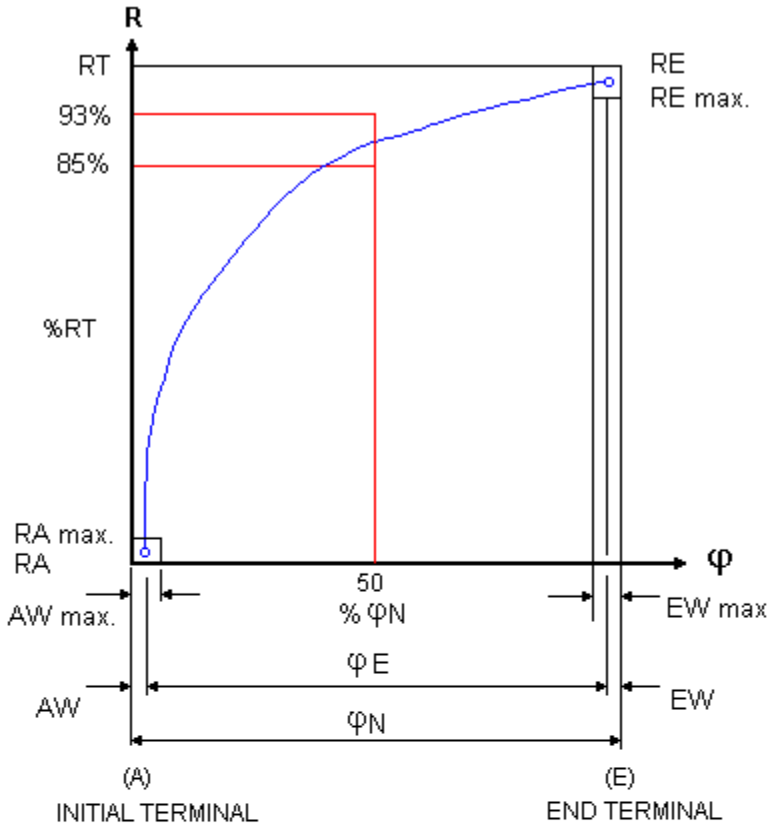
Resistance law C – Antilog (Reverse Audio)



AW	Initial Path	AW max. 10% φN
EW	Final Path	EW max. 10% φN
Ra	Initial Stop Value	RN ≤100K ≤ 2.10^{-2} RN
		RN >100K ≤ 1.10^{-2} RN
RA	Hop-on Resistance	RN ≤10K <1% RN
		RN >10K 0.5% RN
Re	End Stop Value	RN ≤10K ≤ 1.10^{-3} RN (Minimum 2 ohms)
		RN >10K ≤ 2.10^{-4} RN (Minimum 10 ohms)
RE	Hop-off Resistance	RN ≤10K 5% RN
		RN >10K 0.15% RN

RN ..... Rated Resistance

RT ..... Effective Resistance

φ ..... Rotation Angle

φ E ..... Effective Electrical Angle of Rotation

φN ..... Effective Mechanical Angle of Rotation

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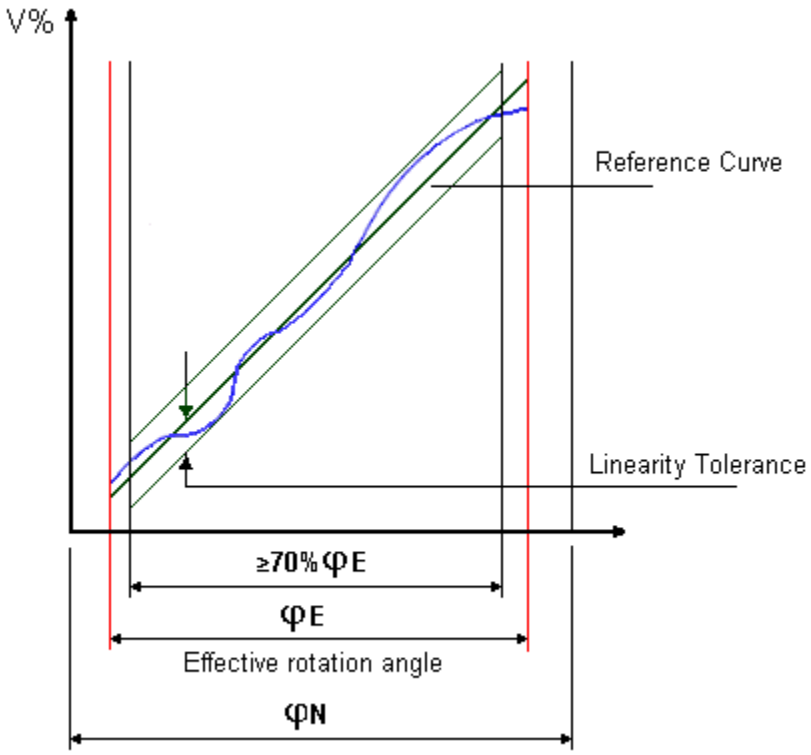
Linearity

As a basis of assessing Linearity Tolerance the independent method is the most practical, permitting as it does, the reference curve to be aligned as near as possible to the actual output curve. This avoids the use of the theoretical starting and finishing points, it is normal for the customer to realign the achieved curve with series trimmers at each end of the device if required.

Linearity Tolerance is 4% over the Nominal Resistance range of 1K0 to 1M0. The Linearity Tolerance is measured on at least 70% of the effective rotation range.
Note. In the case of Terminal and Zero-based linearity, both present constraints which increase the manufacturing difficulty and in consequence have an adverse effect on the product's price and availability.

Potentiometer linearity



Matching Tolerance (For Tandem Stereo Potentiometers)
Tandem Potentiometers have two identical resistor units with the same variation law. The mismatching of the two resistor units, expressed in dB, is measured by the difference between the attenuations introduced by each resistor unit at various points of travel.

- Law A: 4 dB at Attenuation range 0 - 20 dB
- Law B and C: 3 dB at Attenuation range 0 - 20 dB

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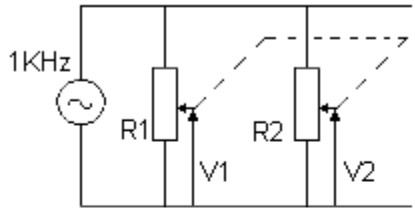
Matched Tolerance for Stereo

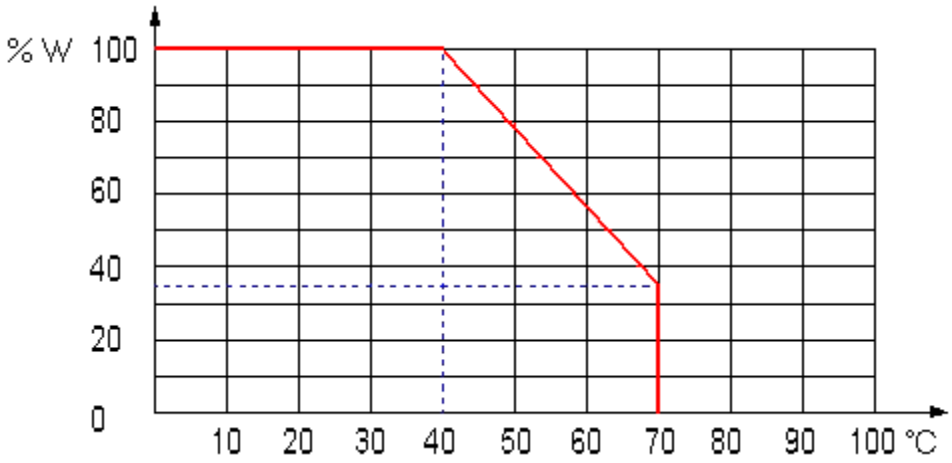


LAW	ATTENUATION RANGE	MATCHING TOLERANCE *
A	0 - 20dB	4dB
B & C	0 - 20dB	3dB

*Matching Tolerance = 20 Log $\frac{V1}{V2}$

Operating Temperature: -25°C to +70°C

Temperature Derating Curve



Temperature Coefficient of Resistance: +300 -500 ppm

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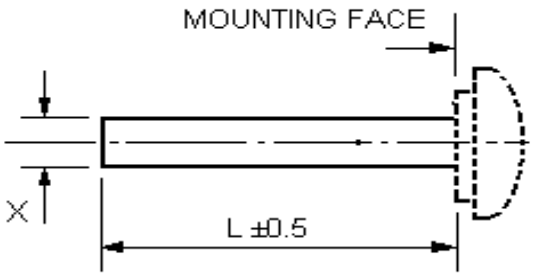
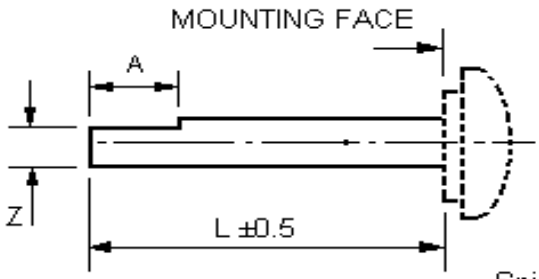
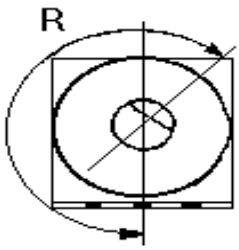
Cylindrical and Flatted Spindles



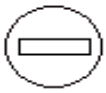




Spindle in full CCW position

TYPE	DESC. (X)	L (mm)
F1	6 mm Dia Plastic	0 - 25
F41	6.35mm Dia Plastic	0 - 25

All spindles fixed.



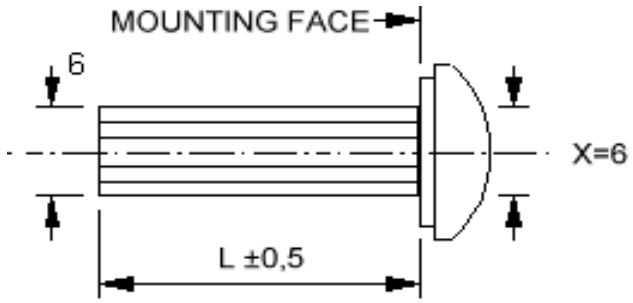
Screwdriver slot
Angle can be adjusted to customer requirement

TYPE	DESC. (X)	L (mm)	Flat (ZxA)
F13 F2	6 mm Dia Plastic	0 - 25	4 x 8 4 x 12
F14 F4 F3	6 mm Dia Plastic	0 - 25	5 x 8 5 x 10 5 x 15
F11	6 mm Dia Plastic	0 - 25	4.6 x 15
F42	6.35mm Dia Plastic	0 - 25	5.5 x 10

Standard flat angle
R = 210°

Splined Spindle (6.0mm diameter)
Available for Special Order

SPINDLE CAN BE FIXED OR REMOVABLE



TYPE	DESC.	L (mm)
F5	Plastic Fixed	0 - 25