

Analog Rectilinear Displacement Sensor



FEATURES

- Conductive plastic potentiometer technology.
Infinite resolution
- Anodized light alloy housing
- Precious metal multi-contact wiper
- Stainless steel floating shaft
- Collar mounting
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



QUICK REFERENCE DATA

Sensor type	LINEAR, conductive plastic
Output type	Output by wires
Market appliance	Avionics, industrial
Dimensions	Diameter 1/2" (12.7 mm)

ELECTRICAL SPECIFICATIONS

PARAMETER					
Total electrical travel (TET)	UET - 0 + 0.3 mm				
Independent linearity standard	± 1 %				
Independent linearity optional	± 3 %, ± 1 %, ± 0.1 %, ± 0.25 %, ± 0.4 %, ± 0.5 %				
Tolerance on R_n	± 10 % (± 20 % on request)				
Temperature coefficient	-300 ppm/°C ± 300 ppm/°C				
Power rating at +70 °C	0.2 W/cm of travel (see Power Rating Chart)				
Wiper current	≤ 1 mA				
Recommended load impedance	≥ 1000 R_n				
Dielectric strength	500 V _{RMS} , 50 Hz, 1 min				
Insulation resistance	≥ 10 GΩ at 500 V _{DC}				
Useful electrical travel (UET)	10 mm	25 mm	50 mm	75 mm	100 mm
Total resistance R_n	2.2 kΩ	1 kΩ to 22 kΩ	1 kΩ to 47 kΩ	2.2 kΩ to 47 kΩ	4.7 kΩ to 100 kΩ
Output smoothness	≤ 0.1 %	≤ 0.1 %	≤ 0.1 %	≤ 0.1 %	≤ 0.1 %

MECHANICAL SPECIFICATIONS

PARAMETER					
Mechanical travel	UET - 0 + 3 mm				
Driving force	≤ 2 N (≤ 1.5 N on request)				
Driving force with probe (optional)	≤ 3 N to 7 N				
Backlash	< 10 μm				
Protection class	IP 50				
Maximum displacement speed	1.5 m/s				
Maximum misalignment	± 0.2 mm				
Useful electrical travel (UET)	10 mm ⁽¹⁾	25 mm	50 mm	75 mm	100 mm
Total weight	13 g	18 g	23 g	28 g	33 g
Weight of moving part	3 g	4.5 g	6 g	7.5 g	9 g

Note

⁽¹⁾ Tolerances: - 2 mm, + 0 mm

PERFORMANCE

PARAMETER	
Operating temperature range	-55 °C to +125 °C
Life	10M cycles

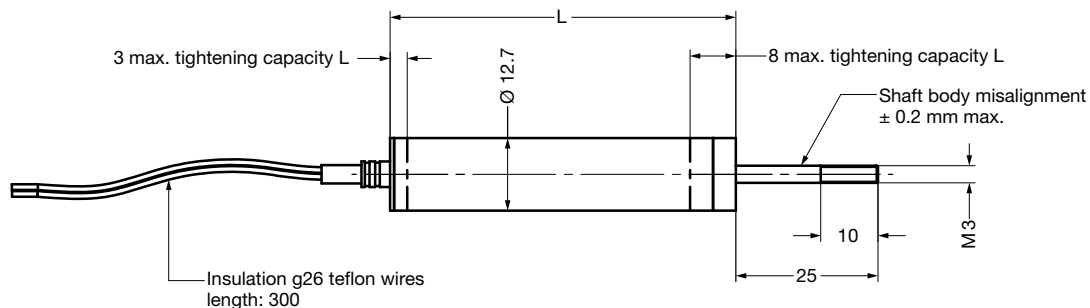
Note

- Nothing stated herein shall be construed as a guarantee of quality or durability.

SAP PART NUMBERING GUIDELINES - PORH12

MODEL	TYPE	DIAMETER	LENGTH (mm)	SHAFT VERSION	VALUE	LINEARITY	PACKAGING
POR	H	12	010 025 050 075 100	F = floating shaft	Manual transducers 102 = 01K 472 = 4K7 103 = 10K 223 = 22K 473 = 47K 104 = 100K In accordance with UET, see “Electrical Specifications”	A = 1 % D = 0.1 %	B = box

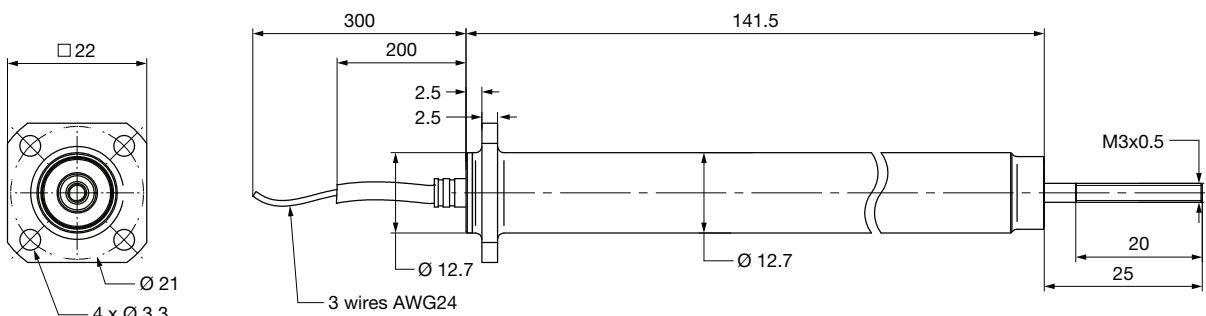
DIMENSIONS in millimeters



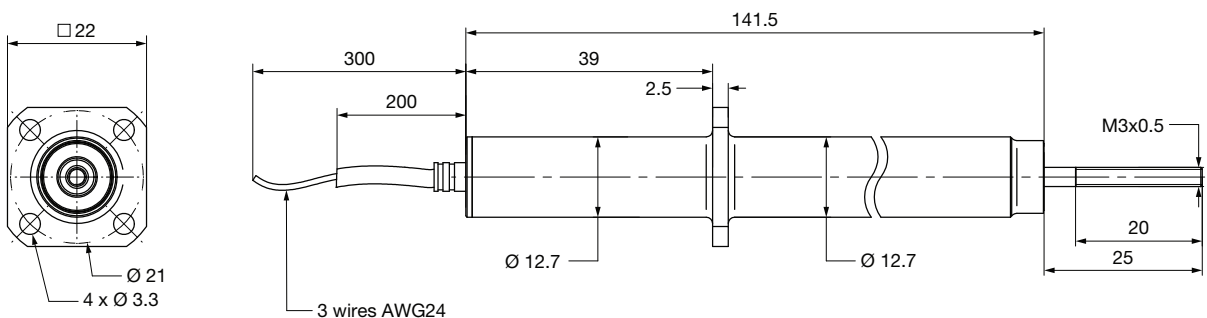
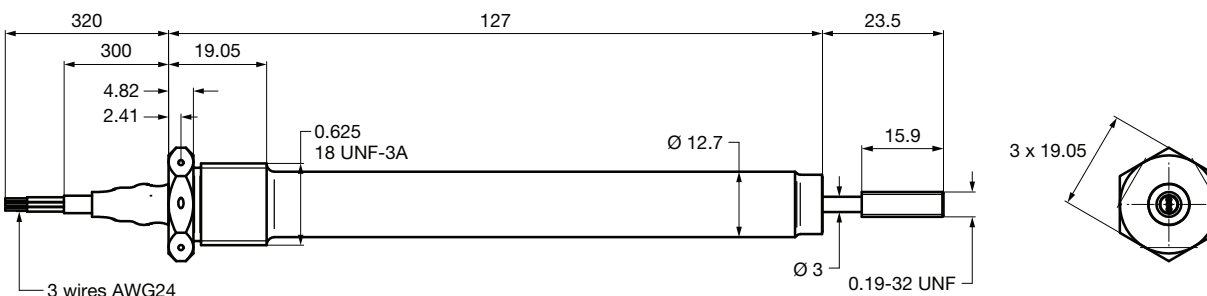
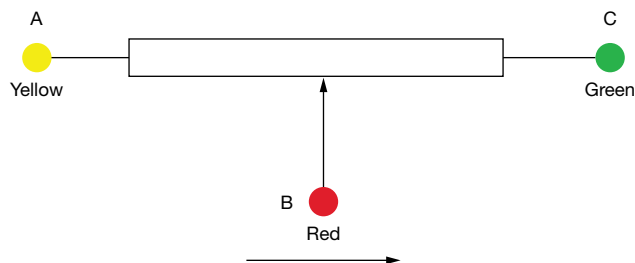
Useful electrical travel	10	25	50	75	100
L ± 0.5 mm	45.5	60.5	85.5	110.5	135.5

DESIGNS ON REQUEST (FOR VERSION PORR12)

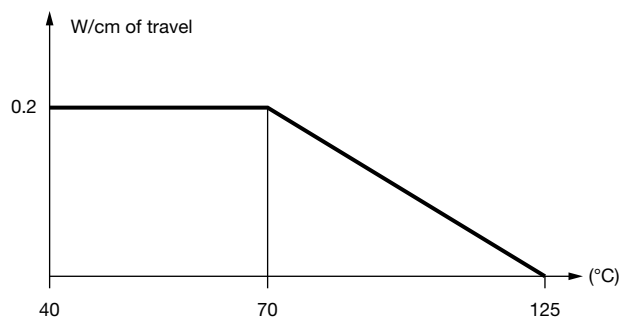
OPTION 1



DIMENSIONS in millimeters

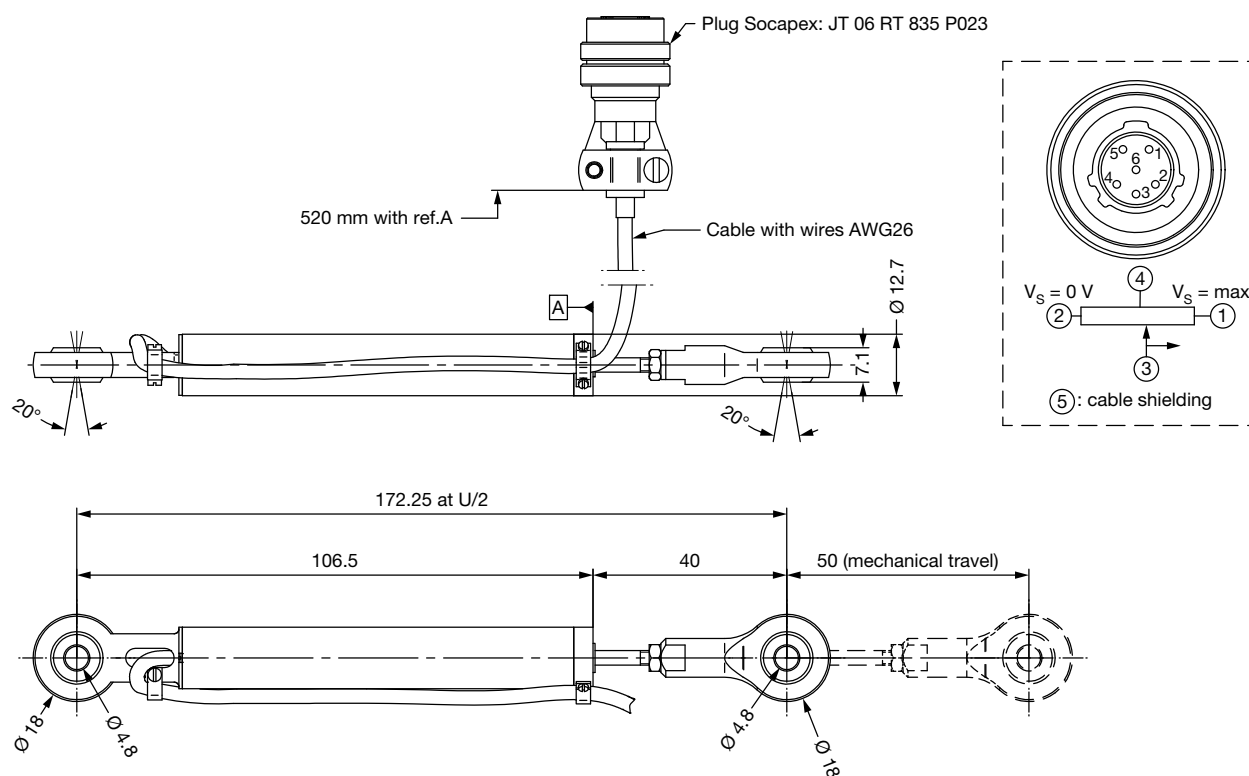
OPTION 2

OPTION 3

ELECTRICAL DIAGRAM


Direction of wiper displacement with shaft extended

POWER RATING CHART

OPTIONS (on request)

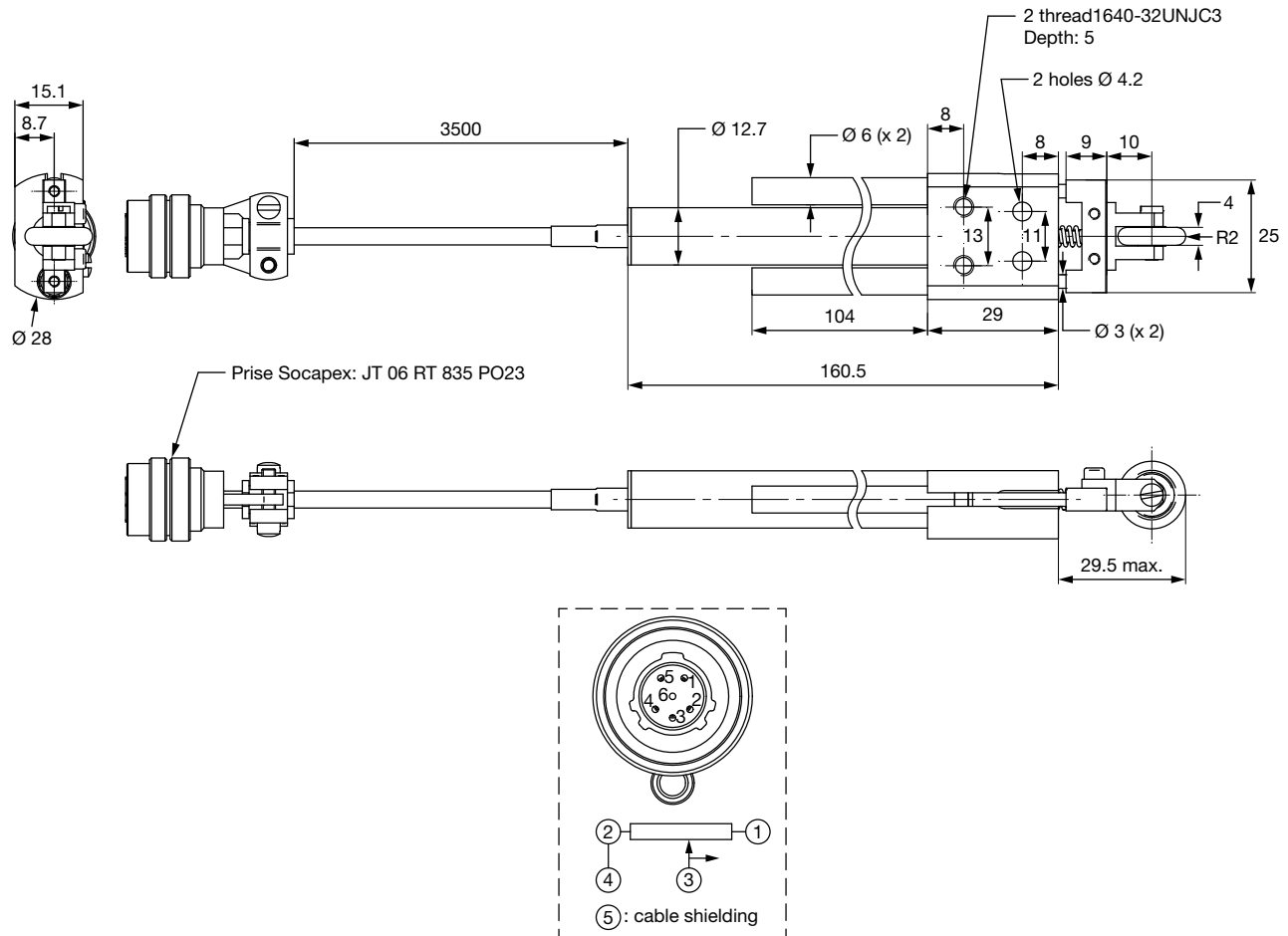
- Other travels: UET = 72 mm with TET = 75.2 mm and mechanical travel = 81 mm
- Other ohmic value (R_n): 2.2 k Ω ; 5 k Ω , 6.5 k Ω
- Other linearity
- Electrically independent double track (= redundancy)
- Middle tap
- Electrical phasing (for double track) at U/2:
0.5 U $\pm$ 0.7 % U (for PORR12 shaft output at 75.5 mm $\pm$ 1 mm),
or 0.5 U $\pm$ 0.5 % U (for PORR12),
or up to $\pm$ 0.13 % (track 1 / track 2) (for PORH12)
- Electrical bonding: $\leq$ 0.05 Ω

- Electrical output by connector:
plug Socapex: JT 06 RT 835 P023 (or equivalent) with cable length 300 mm, 500 mm, or 750 mm
- Specific design to support temperature pic of 200 °C
- Other length of shaft: 12 mm (pushed shaft)
- Guided shaft
- Probe with return spring and tip on request
- Other design including diameter 9.5 mm: version RH9.5
- Specific reinforced version for hard environment conditions (vibrations, shocks, temperature): version RR12
- Other wire lengths: 330 mm; 355 mm; 380 mm, and 1 m
- Temperature coefficient: $-200 \text{ ppm}/^{\circ}\text{C} \pm 200 \text{ ppm}/^{\circ}\text{C}$ (in function of ohmic value)
- Smaller length: 5 mm; 10 mm; 15 mm; 17 mm (UET = 16 mm)
- Variant with additional requirement of microlinearity (example $\pm 0.1 \text{ mm}$ over UET)
- Option RH12050 with front pivot and rear pivot

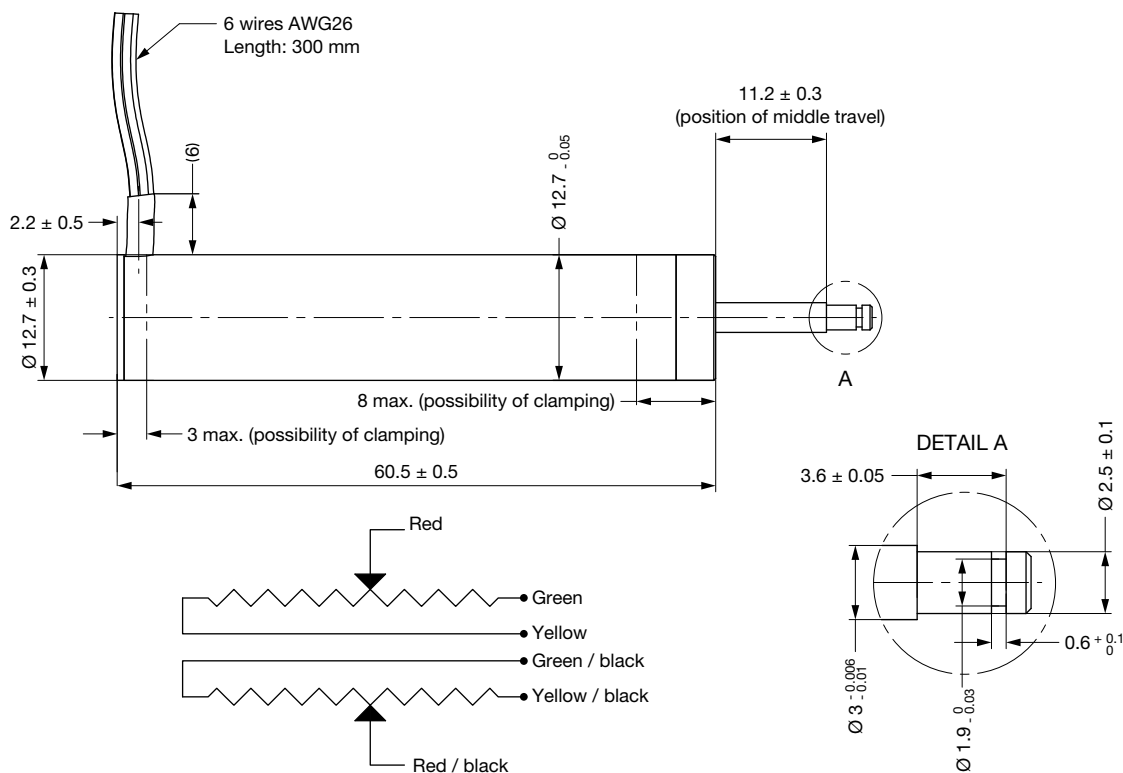
DIMENSIONS in millimeters

- Option RH12100 with roller pivot

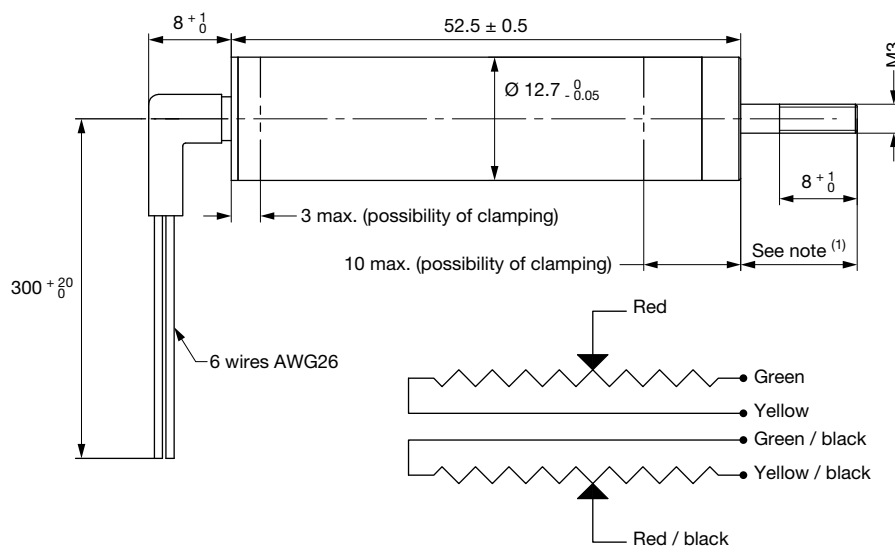
DIMENSIONS in millimeters



- Option RH12025 with radial output

DIMENSIONS in millimeters


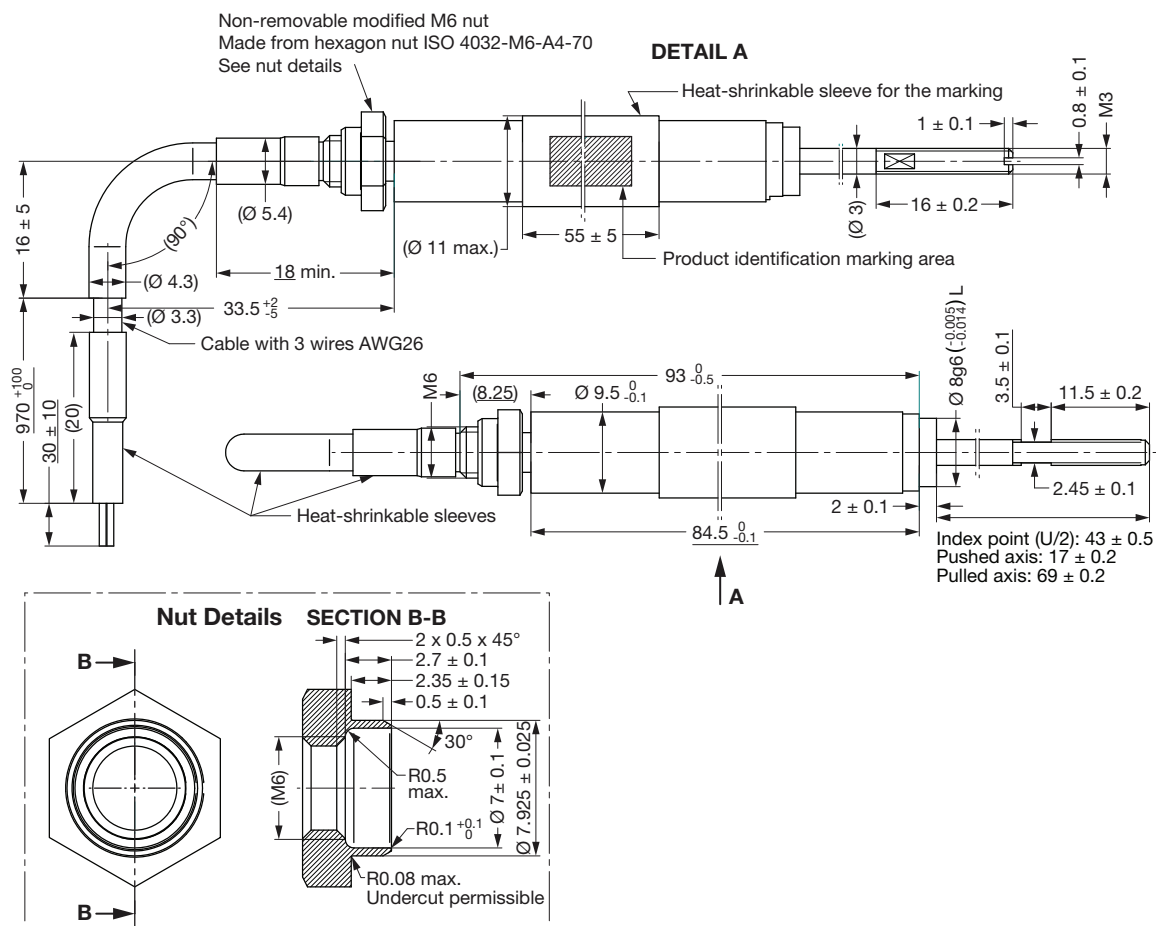
- Option with bent sheath

DIMENSIONS in millimeters (TET = 17 mm)

Note

(1) When the shaft is completely pushed, the length exceeds 8 mm (+ 1 mm / 0 mm)

- Option of PORR09 with bent sheath

DIMENSIONS in millimeters





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