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# APCA-45
# APCS-45



| | | |
|---|---|---|
| **Variant** | APCA | Air extension and air retraction |
| | APCS | Air extension and spring retraction |
| **Principal application** | Tool setting probe with automatic protection cover for lathes and multi-tasking machines. Contamination management available with air bleed. | |
| **Transmission type** | Hard-wired transmission | |
| **Compatible interfaces** | HSI or HSI-C | |
| **Weight** | 1200 g (42.33 oz) with 0.5 m (1.64 ft) cable and connector. | |
| **Cable** | 0.5 m (1.6 ft) minimum, M12 connector IEC 61076-2-101.<br>A-standard male *(see note 1)*. | |
| **Sense directions** | ±X, ±Y, +Z | |
| **Unidirectional repeatability** | 1.50 µm (59 µin) 2σ *(see note 2)* | |
| **Stylus trigger force**<br>*(see note 3)* | XY plane (low force)<br>XY plane (high force)<br>+Z direction | 0.49 N, 50.25 gf (1.77 ozf)<br>0.90 N, 92.21 gf (3.25 ozf)<br>6.79 N, 692.88 gf (24.44 ozf) |
| **Supply voltage** | 12 Vdc to 30 Vdc | |
| **Supply current** | HSI | 40 mA @ 12 Vdc, 23 mA @ 24 Vdc |
| | HSI-C | 110 mA @ 12 Vdc, 80 mA @ 24 Vdc |
| **Pneumatic supply** | Supply must conform to BS ISO 8573-1: Class 4.6.3. Maximum operating pressure 6.5 bar (94.27 psi), minimum operating pressure 4.5 bar (65.27 psi). | |
| **Input pneumatic connections** | Three push fit fittings for Ø4 mm (0.16 in) tubing (ISO/TS 11619:2014). Extend, Retract and Air blast stalk *(see note 4)*. | |
| **Output connection** | Blanked DIN EN ISO 228–G 1/8 outlet for customer configurable “air blast stalk”. | |
| **Mounting** | M4 × 50 mm (1.97 in) long (ISO 4762 grade 12.9) or equivalent × 4 | |
| **Retract confirm sensor** | Operating voltage 12 Vdc to 30 Vdc, no load current 3 mA, rated operating current 150 mA, output resistance open collector, switching output PNP normally open (NO). When the cover is extended, the output is LOW. When the cover is retracted it is HIGH. (12 Vdc to 30 Vdc). | |
| **Sealing** | IPX6 and IPX8, BS EN 60529:1992+A2:2013 (IEC 60529:1989+A1:1999+A2:2013)<br>Connector sealed to IP67 when mated | |
| **Storage temperature** | –25 °C to +70 °C (–13 °F to +158 °F) | |
| **Operating temperature** | +5 °C to +55 °C (+41 °F to +131 °F) | |

Note 1 When wiring the APC to the machine control the installer should ensure the screen is connected.

Note 2 Performance specification is tested at a standard test velocity of 480 mm/min (18.9 in/min). Significantly higher velocity is possible depending on application requirements.

Note 3 Using a 60 mm stylus.

Note 4 Connections:

| **Product** | **Port 1** | **Port 2** ***(see note 5)*** | **Port 3** |
|---|---|---|---|
| APCA with or without “air bleed” | Retract and “air bleed” | Air blast | Extend |
| APCS | Exhaust | Air blast | Extend |
| APCS with “air bleed” | “Air bleed” | Air blast | Extend |

Note 5 Can be configured by customer to provide air blast functionality.

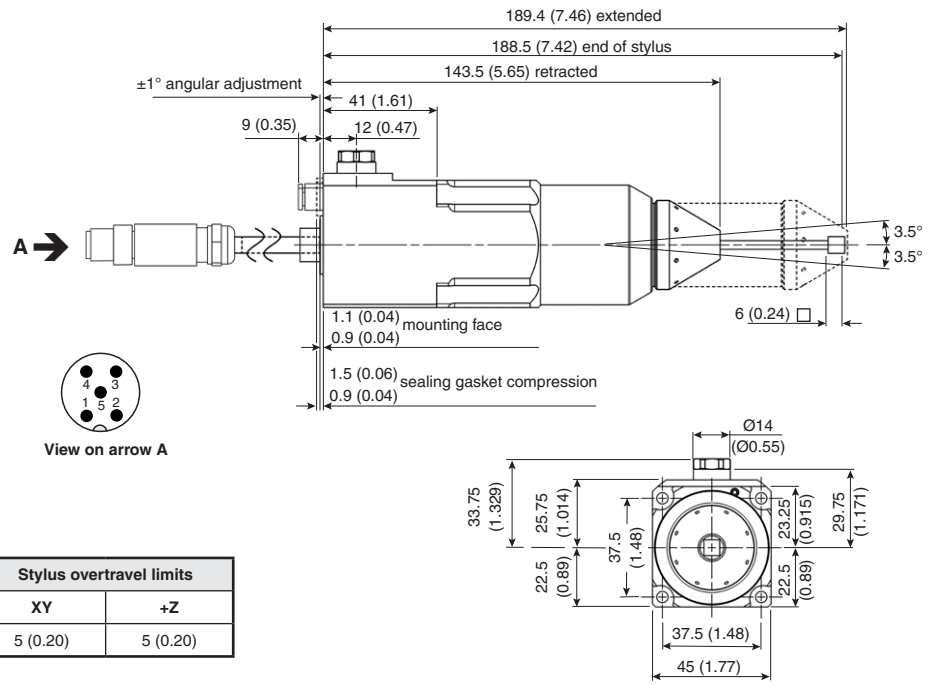
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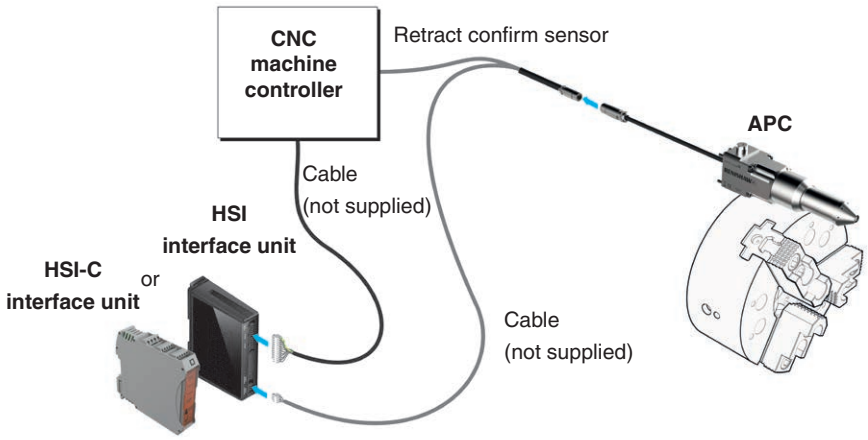
## APC dimensions




| Stylus overtravel limits | |
|---|---|
| XY | +Z |
| 5 (0.20) | 5 (0.20) |

Dimensions given in mm (in)

## Typical installation




## Spare parts and accessories

A full range of spare parts and accessories is available. Please contact Renishaw for a full list.

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# APCA-45 / APCS-45 tool setting probes with automatic protection covers




## Robustly engineered to measure tools in even the harshest environments

The APCA-45 and APCS-45 are compact and robust tool setting probes, specifically engineered for the harshest environments found in lathes and multi-tasking machines. A range of innovative design features ensures accurate and reliable tool measurement, delivering reduced scrap, improved quality and increased throughput.

### Product features

- Rapid measurement of turning, parting, grooving, threading and boring tools.
- Pneumatic cover ensures the stylus is fully protected when not in use.
- Cover is extended using air and retracted using either air (APCA-45) or a spring (APCS-45). Spring retraction requires one less M-code on the CNC control.
- Robust and compact stainless-steel body provides installation flexibility, enabling fitment in areas of the machine previously unsuitable for tool setters.
- Integrated air-bleed helps the stylus remain free of debris, for accurate and reliable measurement (includes air blast port for customers who require tool cleaning).

### Product benefits

- Reduced human error and scrap through increased measurement automation.
- Increased throughput and reduced downtime through rapid in-process control (measurement can take place with the part still in the chuck).
- Improved product quality through the compensation of tool wear and thermal effects.

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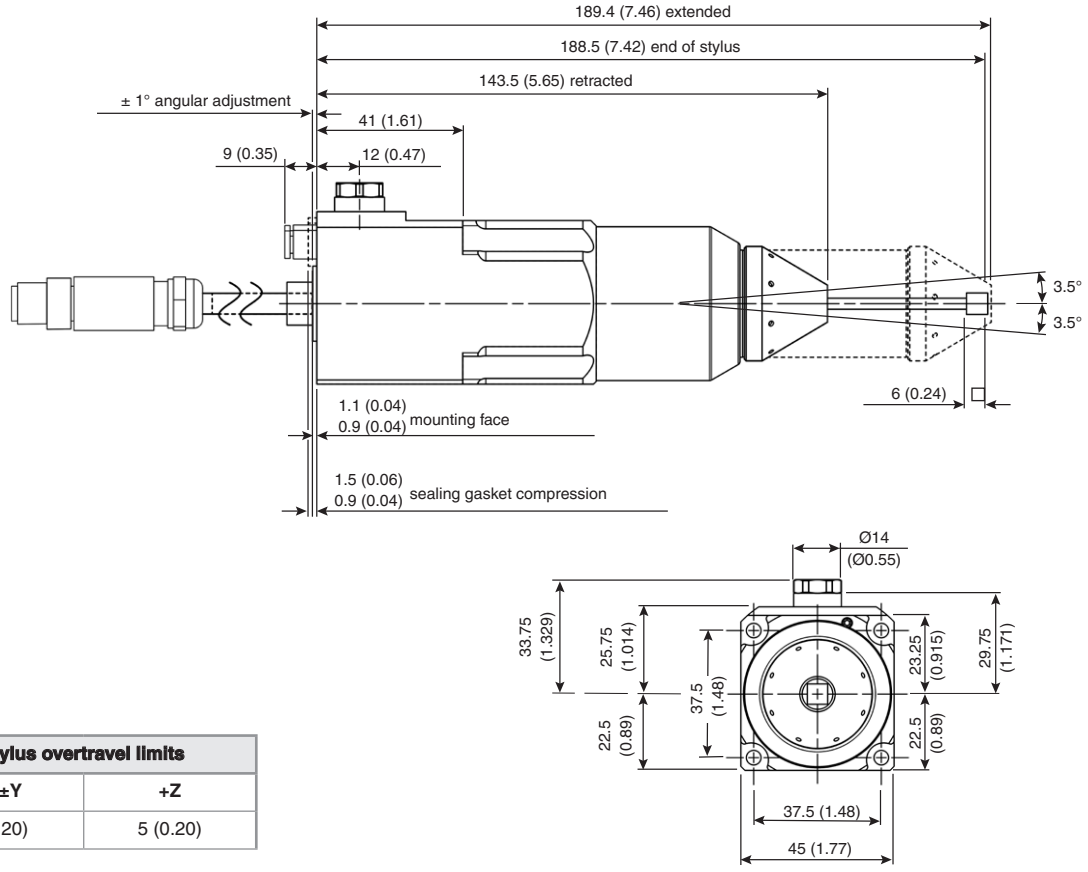
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## Technical highlights

| | | |
|---|---|---|
| **Transmission type** | Hard-wired | |
| **Compatible interfaces** | HSI or HSI-C | |
| **Weight** | 1200 g (42.33 oz) | |
| **Cable length** | 0.5 m (1.64 ft) | |
| **Sense directions** | ±X, ±Y, +Z | |
| **Unidirectional repeatability** | 1.50 µm (59 µin) 2σ *(see note)* | |
| **Stylus trigger force** | XY plane (low force)<br>XY plane (high force)<br>+Z direction | 0.49 N, 50.25 gf (1.77 ozf)<br>0.90 N, 92.21 gf (3.25 ozf)<br>6.79 N, 692.88 gf (24.44 ozf) |
| **Pneumatic air supply (operating pressure)** | Max 6.5 bar (94.27 psi)<br>Min 4.5 bar (65.27 psi) | |
| **Pneumatic connections** | 3 off (extend, retract and optional air-blast). | |
| **Mounting** | M4 x 50 mm (1.97 in) long | |
| **Sealing** | IPx6 and IPx8 | |

Note: Performance specification is tested at a standard test velocity of 480 mm/min (18.9 in/min). Significantly higher velocity is possible depending on application requirements.

## Dimensions




| Stylus overtravel limits | |
|---|---|
| ±X/±Y | +Z |
| 5 (0.20) | 5 (0.20) |

Dimensions in mm (in)

## For worldwide contact details, visit www.renishaw.com/contact

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