

Flexure Gauges

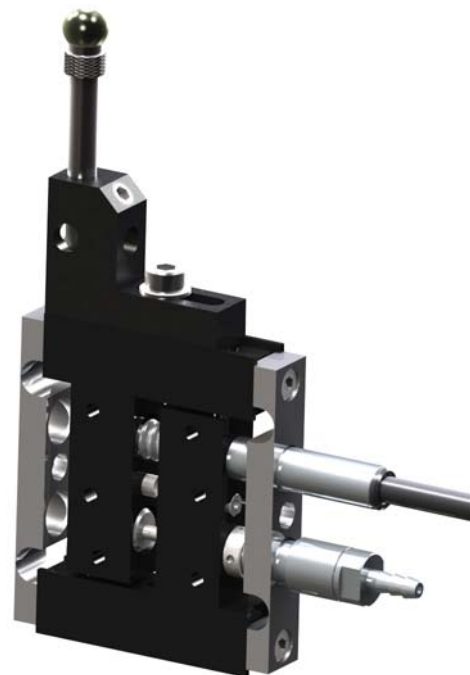
A compact measuring device





The Metro Flexure Gauge is a compact measuring device, which is based on a parallelogram for the ultimate in precision and long life. Motion is achieved without any friction parts, resulting in exceptional repeatability and minimal hysteresis. Under normal operating conditions the gauge has an expected life in excess of 25 million cycles.

The Flexure Gauge is available with both forward and reverse spring action. A pneumatically actuated version is available. Range stops are provided to prevent over stressing the flexure and the high stiffness in the plane normal to the measurement axis means that repeatability and life are maintained in the presence of side loads.



Spring Push or Pneumatic actuation

In a conventional ‘pencil’ probe the tip pushes outwards under the influence of an internal spring. When installed in a fixture it is frequently required to design a mechanism to bring the probe into contact with the piece part being gauged.

In contrast, pneumatic operation allows the number of moving parts in a fixture to be reduced, resulting in improved reliability and reduced fixture costs. It also enables fast and safe automatic loading of components into a gauge when required.

Environmental protection

The integral transducer is fitted with a Viton® gaiter, to achieve IP65 rating . Viton® is chemically inert and does not degrade when subjected to cutting fluids.

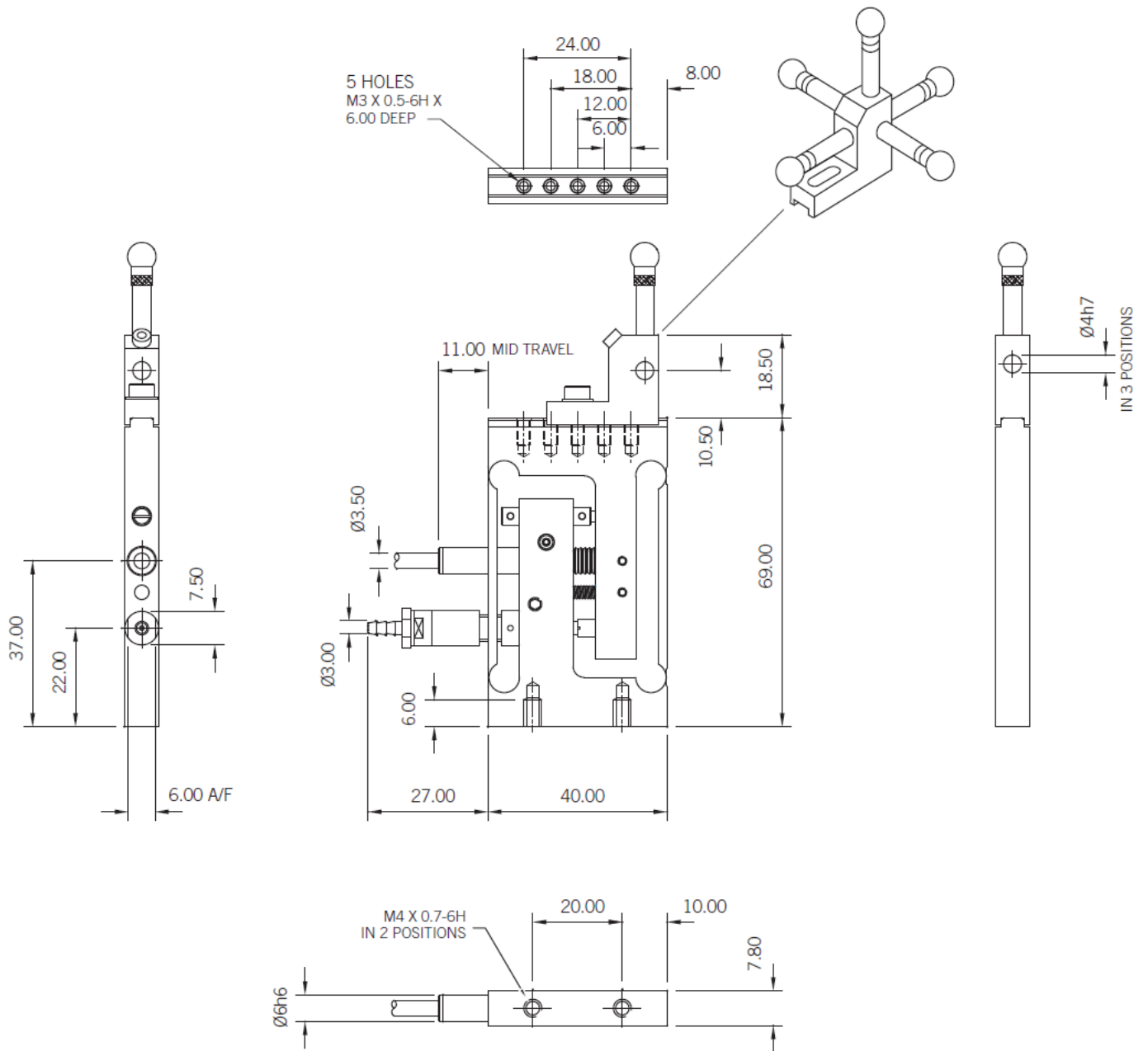
The absence of bearings makes the Flexure Gauge naturally immune from contamination and humidity.

All gauging transducer cables feature a 2m polyurethane (PUR) sheath with a foil screen layer for better electrical screening. Improved mechanical properties include reduced ‘memory’ effect and superior resistance to scuffs and cuts.

Characteristics

| | <i>AU / 0.5</i> | <i>AU / 1.0</i> |
|--|--------------------------------|--------------------------------|
| Mechanical travel (mm) | 1.7 | 2.5 |
| Measuring range (mm) | 1.0 | 2.0 |
| Precision | 0.1 | 0.1 |
| Repeatability | < 0.1 µm | < 0.1 µm |
| Tip force, spring push | 1.5N @ center travel | 1.5N @ center travel |
| Tip force, pneumatic | 1N à mi course @ 2 bar | 1N à mi course @ 2 bar |
| Temperature coefficient | < 0,01 % from full scale by °C | < 0,01 % from full scale by °C |
| Mass (including tool holder, 20mm tip holder and ball tip exluding PIE/ cable) | < 60g | < 70g |
| Mass tool holder | 12g | 12g |
| Materials | Aluminium and stainless steel | Aluminium and stainless steel |
| Pneumatic operation pressure | 1.5 Bar to 2.5 Bar | 1.5 Bar to 2.5 Bar |
| Operating temperature | 5°C to +85°C | 5°C to +85°C |

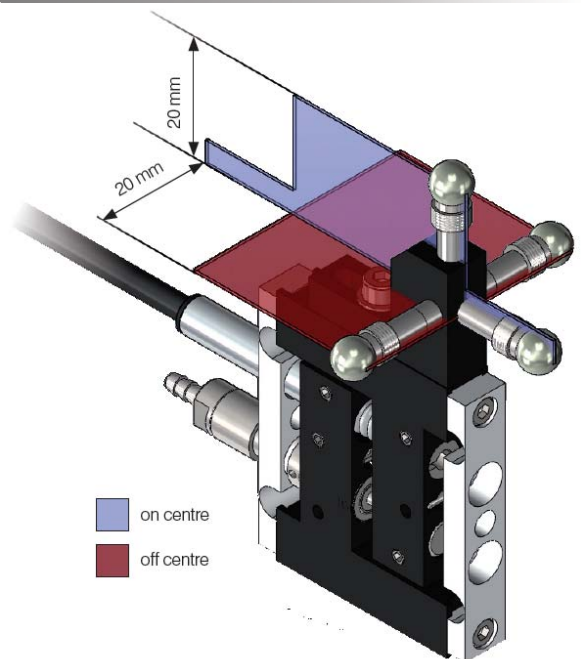
Mechanical dimensions



Zonal repeatability

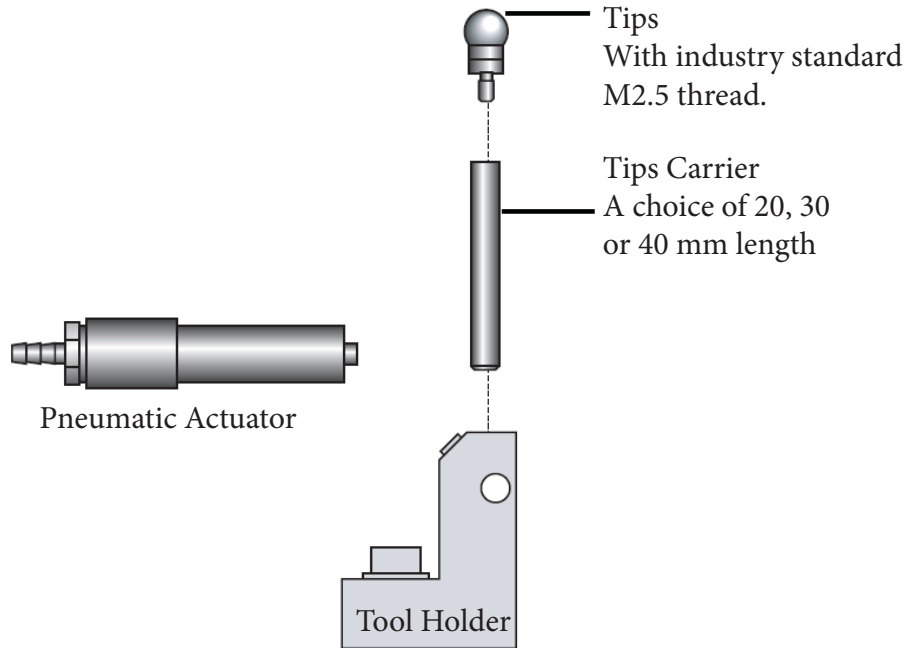
For optimal gauging performance the recommended operation is on centre. The specification is valid when using Metro standard tool holder, tip holder and tip. (Tip used is 6.35 mm TC Ball Tip)

- Repeatability on centre : $< 0.1\mu\text{m}$
- Repeatability off centre : $< 0.5\mu\text{m}$

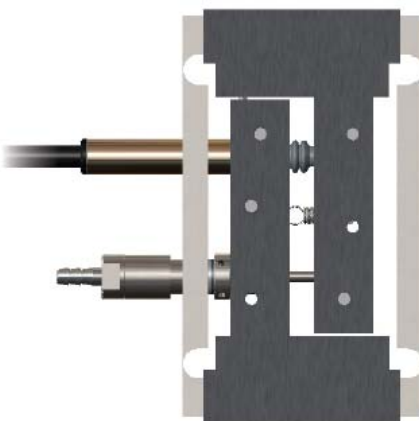
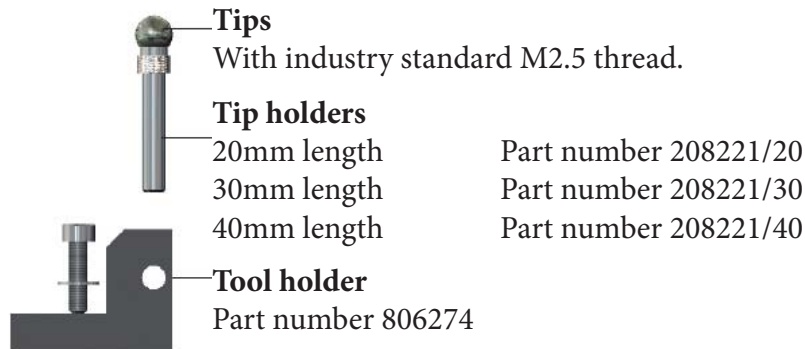


Accessories

The Flexure Gauge is supplied without the pneumatic actuator as standard. If pneumatic operation is required, the actuator must be ordered separately.



References



| <i>Product type</i> | <i>Analogue</i> | <i>Digital</i> | <i>Analogue</i> | <i>Digital</i> |
|--------------------------|-----------------|----------------|-----------------|----------------|
| Axial cable outlet | +/- 5mm | 1mm | +/- 1mm | 2mm |
| Forward spring | AU/0.5/SH | DU/1/S | AU/1.0/SH | DU/2/S |
| Reverse spring | AU/0.5/RH | DU/1/R | AU/1.0/RH | DU/2/R |
| Reverse spring pneumatic | AU/0.5/PH | DU/1/P | AU/1.0/PH | DU/2/P |
| Radial cable outlet | | | | |
| Forward spring | AUR/0.5/SH | DUR/1/S | AUR/1.0/SH | DUR/2/S |
| Reverse spring | AUR/0.5/RH | DUR/1/R | AUR/1.0/RH | DUR/2/R |
| Reverse spring pneumatic | AUR/0.5/PH | DUR/1/P | AUR/1.0/PH | DUR/2/P |



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