AIR-BEARING C-LVDT

This device uses a standard capacitive sensor to create a high-performance, LVDT-like contact measurement system. The noncontact capacitive sensor measures position changes of a target on the internal end of the plunger. Internal air pressure is adjustable to control contact force as low as 0.2 g.

Air-Bearing Precision

The air-bearing of the C-LVDT is the key to providing incredibly high-resolution contact measurements.

A porous carbon bearing flows air around the probe’s plunger. The air cushion provides friction-free movement and radial stiffness that minimizes side-loading effects when scanning a moving target.

Diamond Tips

Each Lion Precision C-LVDT comes complete with an interchangeable diamond tip. The high-precision measurements performed by the C-LVDT demand the highest quality contact interface.

Diamond is Superior to Ruby:

Low Friction - Side forces cause less lateral deflection from moving targets and less hysteresis on direction reversal.

Highly Polished Surface - Diamond accepts and holds a high polish, minimizing the possibility of scratching the measured surface.

Minimal Wear - Increased accuracy and longer life.

Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
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<tbody>
<tr>
<td>Measurement Range</td>
<td>0.5 mm, 0.020”</td>
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<tr>
<td>Contact Force</td>
<td>0.2 g to 100 g</td>
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<tr>
<td>Radial Stiffness</td>
<td>&lt; 0.25 µm/g</td>
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<tr>
<td>Bearing</td>
<td>Linear, porous air bearing</td>
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<tr>
<td>Diamond Tip</td>
<td>Radius: 3.175 mm, 0.125”, Mount: 4-48AGD Thread</td>
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<tr>
<td>Weight of Moving Mass</td>
<td>4.2 g</td>
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<tr>
<td>Air Connection</td>
<td>1/16” ID flexible tubing</td>
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<tr>
<td>Air Consumption</td>
<td>3-7 lpm, 0.10 - 0.25 cfm</td>
</tr>
<tr>
<td>Operating Air Pressure</td>
<td>420-480 kPa, 60-70 psi</td>
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<tr>
<td>Air Filter Requirement</td>
<td>5 µm particle size</td>
</tr>
</tbody>
</table>

Stylus pressure adjustment
1/16” Hex Wrench
Capacitive Probe
Air Supply
(3-56 x 1.16 hose barb)
0.68” (17.3 mm)
0.1” (2.5 mm)
exhaust slot must be partially clear when mounted
2.00” (50.8 mm)
0.24” (6.1 mm)
0.18” - 0.38” (4.6 mm - 9.7 mm)
4-48 Threaded Tip
Clamping Surface
(Ø 0.75”, 19.05 mm)
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