Accessories

Air-Bearing C-LVDT: Capacitive LVDT-Type Contact Sensor

The Air-Bearing C-LVDT converts a capacitive sensor into to high-precision contact displacement sensor similar to an LVDT. The capacitive sensor is installed in the top of the C-LVDT body where it measures the location of a target connected on the inside end of the stylus. The C-LVDT uses a linear air-bearing for nearly friction-free movement of the stylus, and the porous carbon air bearing is square to prevent stylus rotation. Adjustable air pressure for extending the stylus provides for contact forces less than one gram, and the C-LVDT features a retraction port through which application of air pressure will retract the stylus.

The C-LVDT uses an interchangeable diamond tip. Diamond has been selected over ruby for the following reasons:

- 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.

Contact Force Adjustment

There is a contact force adjustment screw located on the end of the probe body near the cable exit. Use a 1/16" hex key to turn the adjustment clockwise to increase the contact force or counter clockwise to decrease it. Contact force is also a function of the air pressure applied to the C-LVDT. To maintain constant contact force, supplied air pressure must be held constant.

Air Exhaust

The 0.1" slot around the body near the top of the C-LVDT is where air is exhausted. Do not clamp the C-LVDT over this ring. The ring must remain at least partially clear at all times for proper operation of the C-LVDT.

Specifications

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

Mechanical Detail