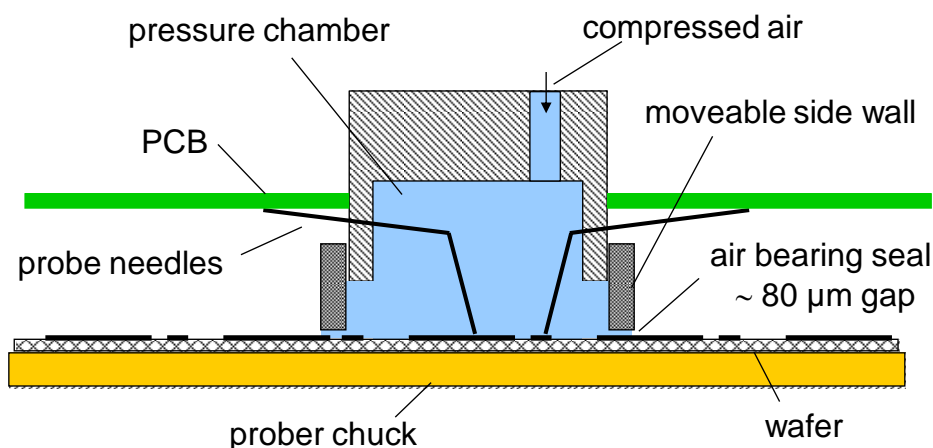


## Probe Cards for Sensor Devices (MEMS Pressure, Magnetics, X-Ray...)

T.I.P.S. provides combinations of state of the art probe cards (e.g. ShortScrub, NoScrub, Vertical probes) with additional components to stimulate sensor structures (MEMS membranes, magnetic Hall elements, GMR and AMR structures, light and radiation sensitive structures...) for electrical wafer test of sensor devices:

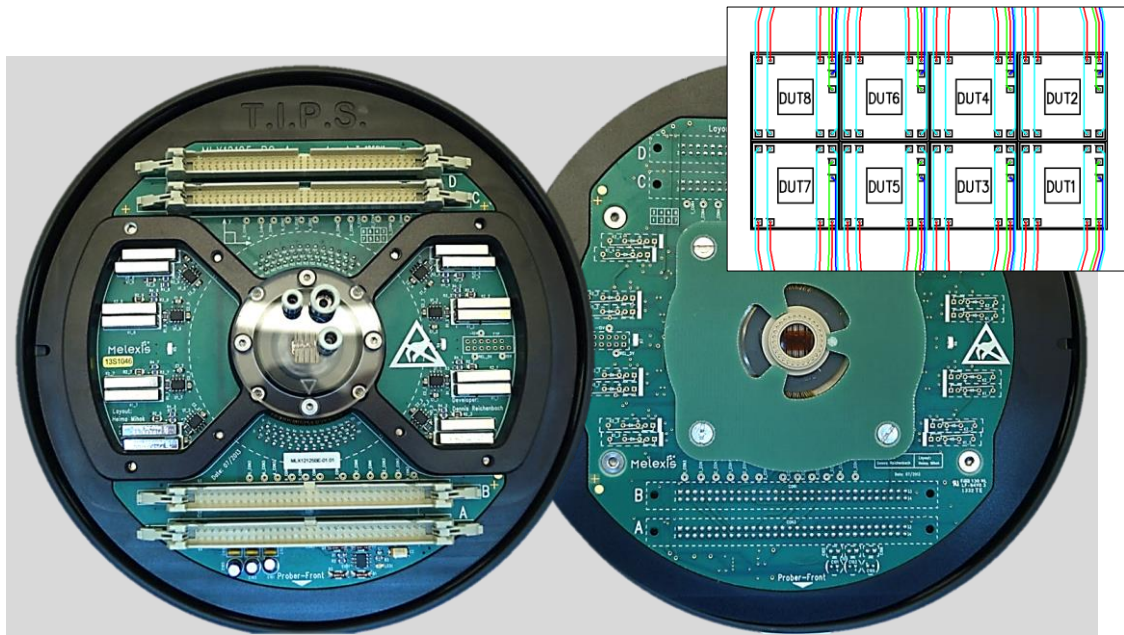
- **MEMS Pressure Sensors:** a chip scale pressure chamber allows to stimulate MEMS pressure sensor membranes during electrical test of pressure sensors. A proprietary auto-aligning chamber seal hovers over the wafer surface thus creating a micro gap seal not touching the wafer surface – TIPS "LuPo" Air Bearing Seal technology – in combination with advanced cantilever probes and buckling beam vertical technology.
- **Wafer probing for:** magnetic field sensors, radio-active radiation sensors, CMOS imaging sensors, humidity sensors, electro-optical devices.



Principle setup for MEMS pressure sensor wafer probing

- **Cantilever Probe Cards for Pressure Sensors**

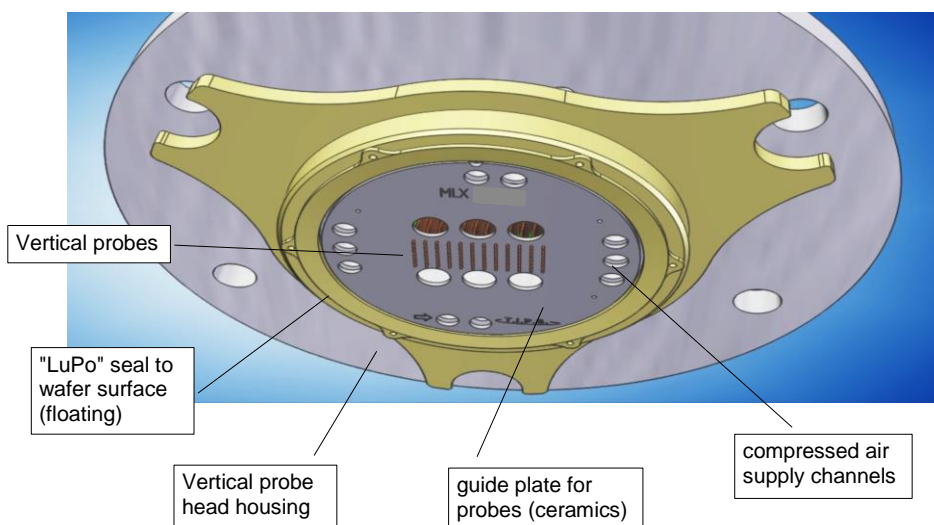
- high precision: wafer-level sensor calibration
- cost effective for laboratory use / small scale production
- robust and well proven contact technology



Probe card for MEMS pressure sensor test  
8x parallel probing

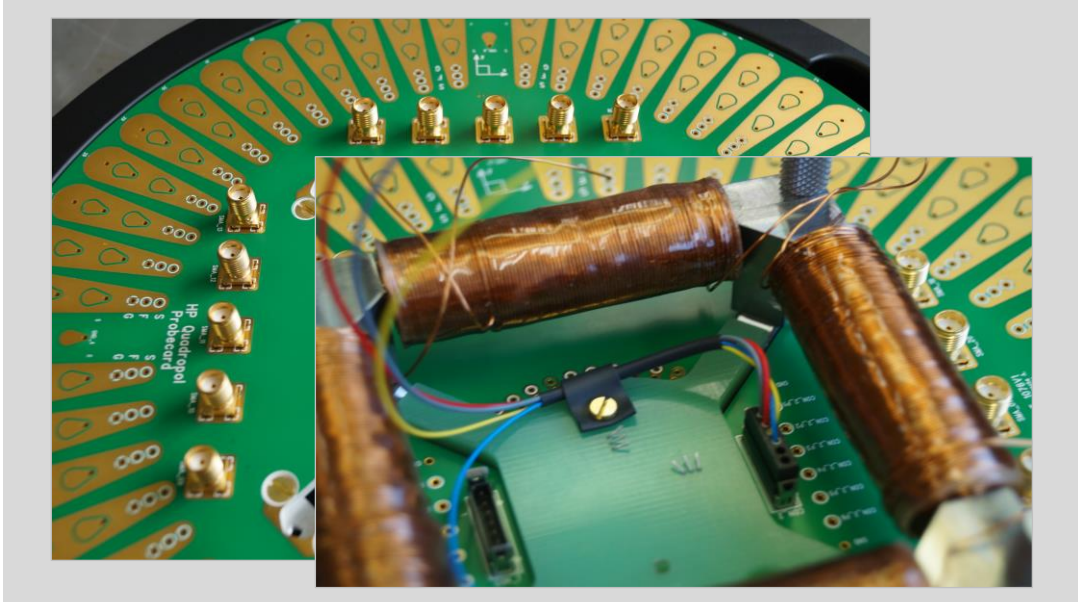
- **Vertical Probe Cards for Pressure Sensors**

- excellent contact performance
- very high positional accuracy for probe tip
- cost effective for high volume test
- high precision: sensor calibration on wafer-level



Vertical probe head for MEMS pressure sensor probing

- **Cantilever and Vertical Probe Cards for Magnetic Sensors**
  - Hall, GMR, AMR sensing technology
  - single- and multi-axis configurations (e.g. magnetic angle sensors)
  - magnetic simulation and design
  - laboratory and high volume production probing solutions



Quadrupole magnetic yoke on Agilent 4080 parametric probe card

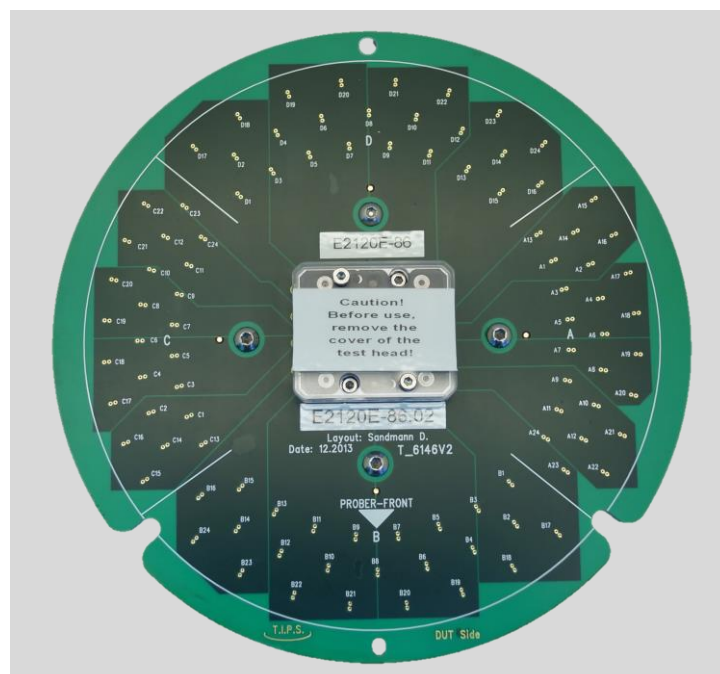


Rotary magnetic unit integrated into Teradyne FLEX probe card:  
0.1 ° angular precision, 50 mTesla at device under test

- Probe Cards for Sensors and more...
  - X-Ray imaging sensor with high-voltage bias
  - Humidity sensors
  - MEMS microphones
  - ...



X-ray imaging sensor probe card with HV-bias



24-DUT low force vertical probe card for MEMS microphone