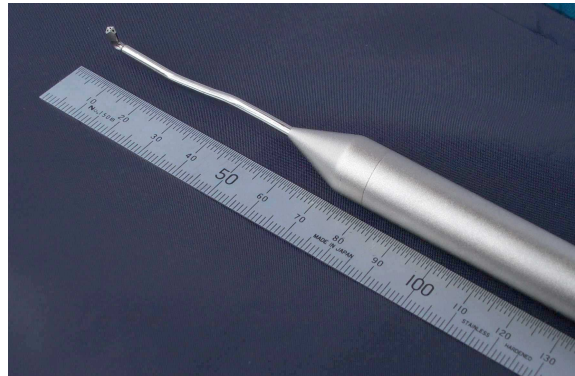


COBRA PROBE

The Cobra Probe is a dynamic multi-hole pressure probe for measuring mean and fluctuating 3-component velocities and static pressure.

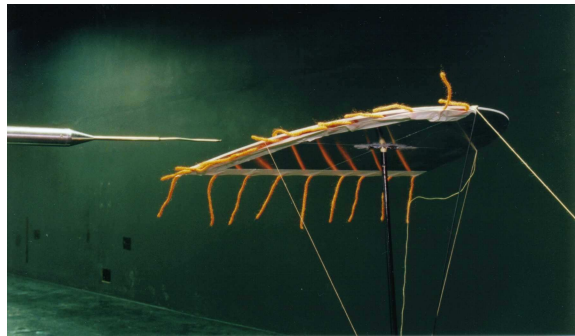
What does it provide?

- 3-component velocity & static pressure measurement
- Frequency response: 0 Hz (mean value) to more than 2 kHz
- Measurement of all 6 Reynolds stresses
- Calculation of higher order terms
- Real-time data processing and display
- Real-time frequency analysis
- Use of multiple Probes simultaneously



What is it used for?

- Time-averaged flow measurement
- Time-varying flow measurement
- Can be hand-held or traverse mounted
- Replacement of hot-wire and other types of anemometers
- Measurements for CFD validation
- Flow mapping in wind tunnels and around model- or full-scale objects
- Industrial and vehicle aerodynamics
- On-site measurements in commercial or industrial facilities



Advantages over hot-wires

The Cobra Probe is robust and withstands moderate knocks and contaminated flow. It comes fully calibrated and does not need recalibrating other than occasional checking of the voltage-to-pressure scaling (static calibration). It not only measures the 3 components of velocity, but also the local static pressure, is very simple to use and easily portable for measurements in the field.

Disadvantages relative to hot-wires

The Cobra Probe has a lower potential frequency response (0 to > 2 kHz) than that of hot-wires, and is limited to flow speeds that are greater than 2 m/s.

What do you need to use it?

The Cobra Probe only requires a Windows-based desktop or laptop computer and a supported A/D card or other suitable data acquisition system in order to operate.

COBRA PROBE DETAILS

How it works



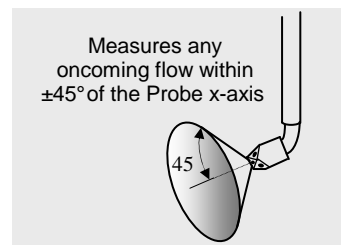
- Relates pressure field at Probe head to velocity vector and static pressure
- Head has four faceted faces, each with a 0.5 mm pressure tap
- Pressure taps are connected via tubing to pressure transducers
- Fluctuating pressures are measured and linearised to correct for amplitude and phase distortions caused by tubing
- Ratios of pressures provide non-dimensional coefficients to compare with calibration lookup tables, thus determining instantaneous velocity, pitch, yaw and static pressure

Dimensions

- Maximum head width of 2.6 mm (1.4 mm version available)
- Body diameter of 14 mm
- Overall length of 155 mm + 30 mm for connector and cable

Performance

- Flow speeds from 2 to 100 m/s
- Measures flow angles within a $\pm 45^\circ$ cone
- Velocity typically accurate to ± 0.5 m/s
- Pitch and yaw typically accurate to $\pm 1.0^\circ$



Calibration

- Probes are supplied fully calibrated and ready to use
- Head re-calibration not required unless the Probe is damaged
- Dynamic (frequency response) re-calibration not required
- Static (transducer) calibration requires occasional checking (easily performed by the user)

Items supplied when you purchase a Cobra Probe

- Probe
- Software
- Cabling
- Technical support

Other items required to operate a Cobra Probe

- Laptop or desktop computer (200 MHz processor minimum)
- A supported A/D card (4-channel, 16-bit, 5 kHz/channel minimum)
 - Data Translation USB cards for desktop or laptop computers
 - IOtech DaqBoard/2000 series for desktop computers
 - National Instruments M- and E-series for desktop or laptop computers
 - Quatech DAQP-16, or SuperLogics PCM16, for laptop computers
- Or other suitable data acquisition system (contact TFI)

For further information

- Visit the TFI website at www.turbulentflow.com.au
- Contact Peter Mousley on (61 2) 6020 9250 or mousley@turbulentflow.com.au

