

microS™

A Micro-Optical Shear Stress Sensor

The microS is the only optical shear stress sensor that directly measures the wall velocity gradient with no calibration required on the part of the user.

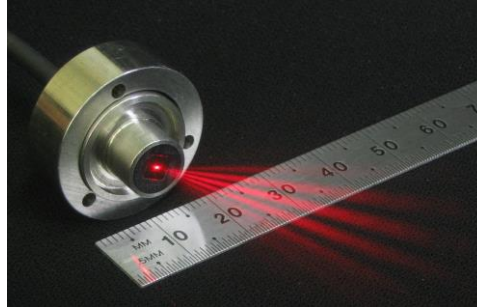
The microS is well suited for applications in liquid and gas fluidics. Its compact size (especially its length) allows it to be mounted where other sensors simply will not fit.

ADVANTAGES OF THE MICRO S:

- Highly accurate up to $Re_x=2 \times 10^6$
- Extremely compact and rugged
- No alignment needed
- No calibration needed
- Makes accurate measurement of fluids of varying temperature, pressure, and density
- Can measure wall shear stress magnitude and flow direction
- Battery operated option

APPLICATIONS INCLUDE:

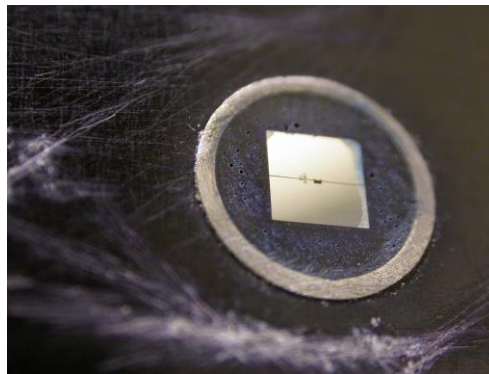
- Wall shear stress measurements
- Drag reduction
- Turbulence mixing
- Marine full-scale and model-scale vessel performance measurements
- Flow quality diagnostics
- Micro channels
- Wind, water, and oil tunnels and channels
- Boundary layer studies



The microS probe is shown here with the included mounting flange. Combined with a microV or a miniLDV, the set can measure the full profile of a boundary layer.



The microS system includes a microS probe, microS Driver, and BP-microS acquisition hardware and processing software (computer is optional).



The microS probe is mounted flush with the surface of the model or flow channel to perform measurements within the boundary sublayer.

MEASUREMENT SPECIFICATIONS	
Shear stress range	0.7 to 6500 Pa (water) 0.015 to 140 Pa (air)
Repeatability	99%
Accuracy	95% typical

PROBE VOLUME	
PV dimensions (x by y by z)	15 x 30 x 30 μm
Standoff distances (air / water)	75 / 100 or 135/180 μm

PROBE SPECIFICATIONS	
Probe weight	40 g
Dimensions	9.5 (dia) x 30 mm 0.38 (dia) x 1.2 inches

LASER SPECIFICATIONS	
Laser power	110 mW
Wave length	658 nm
Laser type	Class IIIb

OPERATING PARAMETERS	
Temperature	0 to 55°C
Pressure	Up to 3 bar
PC requirements	Laptop or PC

OPTIONAL FEATURES	
High pressure sensor (please specify maximum pressure)	
Steel-jacketed cable	

POWER SUPPLY	
12 VDC Universal	

One or more of the following U.S. Patents apply: No. 6,654,102, 6,580,503, 6,608,668, 6,717,172, 6,956,230

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