Kiel Probes

Total pressure probe

- Additive manufacturing allows for almost any geometry
- Stainless steel, Titanium, Inconel
- One-piece, robust design
- Measurement angles of >60°

Kiel Pressure Probes	
Geometry	Straight, L-shaped, Cobra, custom
Number of holes	1
Max. length	Up to 100 mm (one part) (>100 mm for multipart designs)
Min. tip diameter	1.6 mm (Standard 5 mm)
Tip geometry	Kiel head shape
Material	Stainless steel, Titanium, Inconel
Fastening	None, Square, hexagonal, one-sided flattened cylinder or custom
Connections	Standard 1 mm or 1,6mm pressure tubes
Temperature range	Up to 800°C
Angular range	Up to ±60°
Velocity range	3 m/s to > Mach 1

Tabelle 1 General Data

Figure 1 Kiel Probes (side view)

General

Vectoflow's Kiel probes are optimized to achieve the highest possible angle of attack, while offering all advantages of additive manufacturing, like geometric flexibility and robustness. Vectoflow cannot only build single Kiel probes but also Kiel probe rakes with several heads.

Figure 2 Kiel probes (front view)

Threaded variant

Vectoflow's kiel probes may be customized in many ways. For instance they can be equipped with a threaded end to allow for easy installation.

Figure 3 Threaded kiel probe

Figure 4 Threaded kiel probe with spanner flats

Micro Kiel Probes

Vectoflow offers a variety of micro kiel probes with several different diameters, covering all types of uses cases where the size of the probe needs to be minimal.

These probes can be configured with head diameters from 1,6mm to 6mm. The diameter of the tube extension may be chosen from 1,6mm up to 8mm matching the required probe stiffness. Necessary calculations to determine the optimal sizes can be offered as well.

Figure 5 Micro kiel probe (D=1.6mm) - not extended

Figure 6 Extended micro kiel probe (D=5mm)

Dependency of Angle of attack

The Kiel probes allow a wide angular range without significant error of the dynamic pressure measurement.

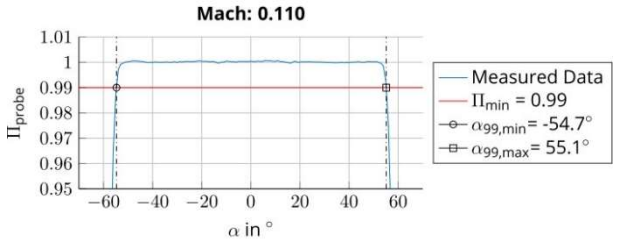

Figure 7 Kiel Probe calibration curve