

The world's smallest measurement microphone set



- Scale models
- Building Acoustics



- Explosions
- Impulsive noise measurements
- Gunshot noise



- Scale models
- Wind Turbine Testing
- Flow Measurements



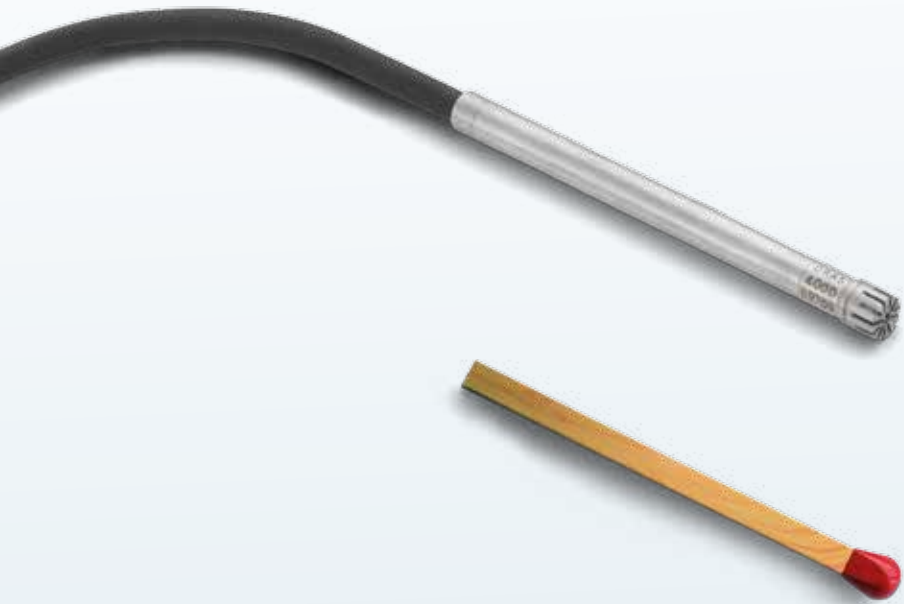
- Leading and Trailing edge noise
- Jet noise
- Scale models
- Wind tunnel

46DE 1/8" CCP Pressure Measurement Microphone Set

G.R.A.S.
SOUND & VIBRATION

Unique

- and world's smallest



Made for versatility

G.R.A.S. is proud to present the 46DE, the smallest measurement microphone set in the world - the only microphone set where no parts are larger than 1/8".

Because of its small size and low sensitivity, it is ideal for measuring high frequencies and high sound pressure levels, and additionally it can be used where you previously could not get access. For example in very small scale models or in applications where your measurement challenge calls for a very small microphone or where several microphones must be mounted in close proximity to each other for higher resolution.

46DE is a 1/8" Constant Current Power (CCP) pressure microphone set with a nominal sensitivity of 0.8 mV/Pa and has TEDS.

46DE is compatible with all modern analyzer systems that support IEPE and ICP.





46DE's low sensitivity and small size makes it ideal for measuring high levels and high frequencies.

Breaking a size barrier

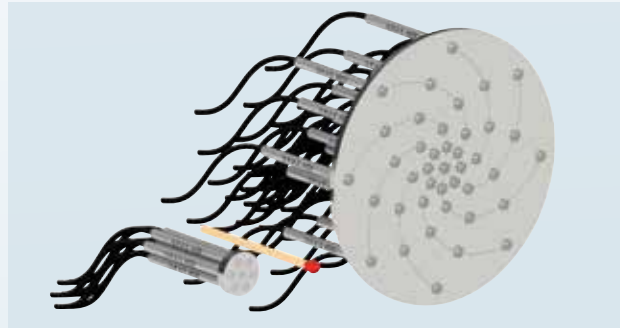
How did we manage to make the 46DE so small? We have developed a 1/8" preamplifier consisting of a very small input section, 1/8" in diameter, which is attached to the microphone, with the larger (Ø 5.5 mm.) output section at the other end of the specially designed cable.

In this way, the section of the preamplifier that is close to the microphone is kept very small while the more space-demanding electronics in the output stage are located at the other end of a long cable*. However, customized lengths are available.

*The cable is 1 m.



Because of its size, it is also useful for high frequency free-field measurements or it can be used as a handheld probe microphone in confined spaces.



Large numbers of 46DE microphone sets can be mounted closely together for very high spatial resolution - the possibilities are endless.

Ideal for many different applications

The 46DE is a pressure microphone set and as such optimized for acoustic measurements of sound pressure at a boundary or a wall. Because of the microphone set being 1/8" it is also useful for up to at least 40 kHz free-field measurements without any compensation.

The microphone set can be used for a wide range of applications including impulsive noise measurements (like gunshot and airbag), aircraft turbulence, flow measurements or scale model measurements.

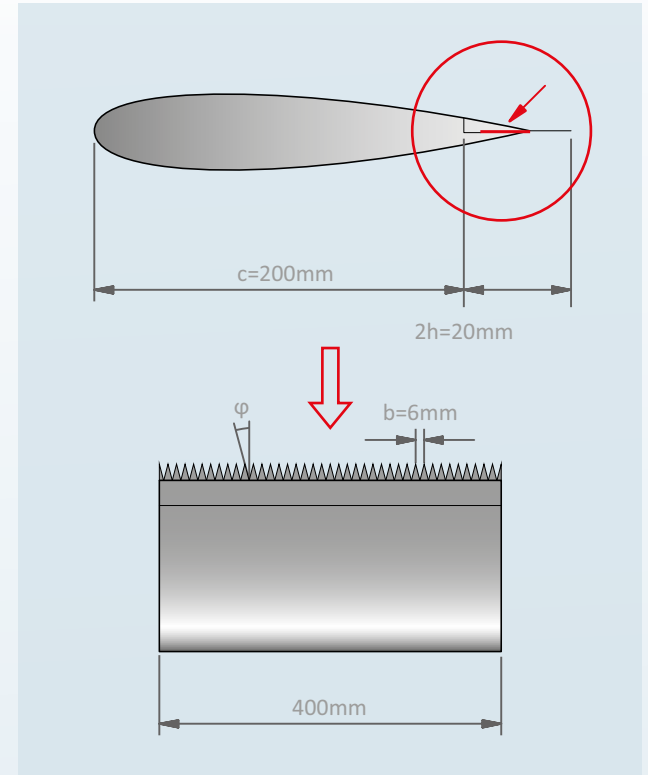


Illustration of airfoil side (top) and top (bottom) views. The red mark shows where 46DE will be mounted.

Exploring new ways to measure

Reducing trailing edge noise emitted by wind turbines and aircraft on approach represents a special design challenge for developers. Because of the turbulent nature of this noise, it is difficult to predict the effects of noise reduction measures based on numerical simulations, and therefore measurements are essential.

In collaboration with the internationally recognized Delft University of Technology, G.R.A.S. is testing how 46DE can contribute to the analysis of trailing noise reduction measures such as serrated edges and meshes. 46DE's small size means that it will unprecedented allow for analysis of pressure fluctuations at trailing edges of geometries of the order of 1 mm as well in fully porous configurations.

Specifications 46DE

See 46DE Specifications

For complete specs. Visit gras.dk/46de.html

Frequency range (± 1 dB)	Hz	10 to 25 k
Frequency range (± 2 dB)	Hz	6.5 to 70 k
Frequency range (± 3 dB)	Hz.	6.5 to 140 k
Dynamic range (at nominal sensitivity)	dB(A)	47 to 174
Set sensitivity @ 250 Hz (± 3 dB)	mV/Pa	0.8
Output Voltage Swing, min. @ 24-28 V CCP voltage supply	Vp	8
Power supply min. to max.	mA	2 to 20
Microphone venting		Rear
Temperature range, operation	$^{\circ}\text{C} / ^{\circ}\text{F}$	-30 to 70 / -22 to 158
Temperature coefficient @250 Hz	dB/ $^{\circ}\text{C}$ / dB/ $^{\circ}\text{F}$	-0.01 / -0.006
Static pressure coefficient @250 Hz	dB/kPa	-0.014
Humidity range non condensing	% RH	0 to 95
Influence of axial vibration @1 m/s ²	dB re 20 μPa	59
TEDS UTID (IEEE 1451.4)		27-0-0-0U
Connector type		Microdot 10/32
Weight	g / oz	7 / 0.247

See 1/8" flush-mount 47DX Specifications (Included 1.5 m Microdot cable)



Frequency range	10 Hz - 100 kHz
Dynamic range	52 dB(A) - 173 dB
Sensitivity	0.9 mV/Pa

See 1/8" Pressure 46DD Specifications



Frequency range	6.5 Hz - 140 kHz
Dynamic range	47 dB(A) - 174 dB
Sensitivity	0.8 mV/Pa



Ask the experts

The 46DE is the latest in a long line of innovative and advanced microphone measuring products and comes with the G.R.A.S. proven seal of quality.

With more than 20 years of experience with measurement microphones and related acoustic equipment, we are ready to guide you with your measurement challenges. Depending on your measurement needs, we have other 1/8" measurement microphone sets, including a 1/4" preamplifier, which might be relevant for you.

Contact us at gras@gras.dk and together we will find the best solution for your demand.

Calibration:

All microphone sets from GRAS are delivered as a unit with traceable calibration. 46DE is also available with accredited calibration.

At G.R.A.S. we ensure that our microphones live up to the high quality and precision that our customers have come to expect and trust.

- 5 year warranty
- Repairable diaphragms

Gras.dk/smallest-measurement-microphone-set