

1-inch Pressure Microphone Type 40EN

Product Data and Specifications

Typical applications

- **Coupler measurements and precision acoustic measurements**
- **Flush (boundary) measurements**

The G.R.A.S. Microphone Type 40EN (Fig. 1) is a 1-inch pressure microphone ideal for measurements in couplers, e.g. the G.R.A.S. RA0075 NBS 9A 6 cm³ Coupler used for testing earphones according to ANSI S 3.7 – 1995. It can also be flush-mounted to measure sound pressures at walls and boundaries as well as be used as a laboratory-standard microphone.

The Type 40EN is normally front vented (as on delivery) but can be changed to rear vented or, for very low-frequency measurements, non vented. A special tool, GR0603, is provided for use when changing O-rings in order to change the venting.

As a pressure microphone, the Type 40EN has a flat pressure-frequency response over its entire working frequency range (see Fig. 2).

In an open sound field, measurements will also include the disturbing effects of the microphone's presence in the sound field. These are minimal at low frequencies (large wavelengths compared with microphone size). At higher frequencies, corrections for the effects of reflections and diffractions must be



Fig. 1 Pressure Microphone Type 40EN.
Left: with protection grid Right: 64-AA configuration for NBS 9-A couplers

made. Fig. 3 shows what these corrections are in a free field for various angles of incidence.

1-inch to ½-inch Adapters (RA0017, RA0073) are available for using Type 40EN with G.R.A.S. ½-inch preamplifiers (see separate data sheets for Types 26AG, 26AH, 26AJ, 26AK and 26AM).

All G.R.A.S. microphones comply with the specifications of IEC 1094: *Measurement Microphones, Part 4: Specifications for working standard microphones.*

Non-corrosive, stainless materials are used in manufacturing these microphones to enable them to withstand rough handling and corrosive environments.

All G.R.A.S. microphones are guaranteed for 5 years and are individually checked and calibrated before leaving the factory. An individual calibration chart is supplied with each microphone.

Specifications

Frequency response: 2.6 Hz - 8 kHz	±2.0 dB	Upper limit (3 % distortion):	146 dB re. 20 µ Pa
Nominal sensitivity:	50 mV/Pa	Microphone thermal noise:	9.6 dBA re. 20 µ Pa
Polarization voltage:	200 V	Nominal capacitance:	56 pF
		Temperature range:	-40 °C to +150 °C ...continued overleaf

G.R.A.S.
Sound & Vibration

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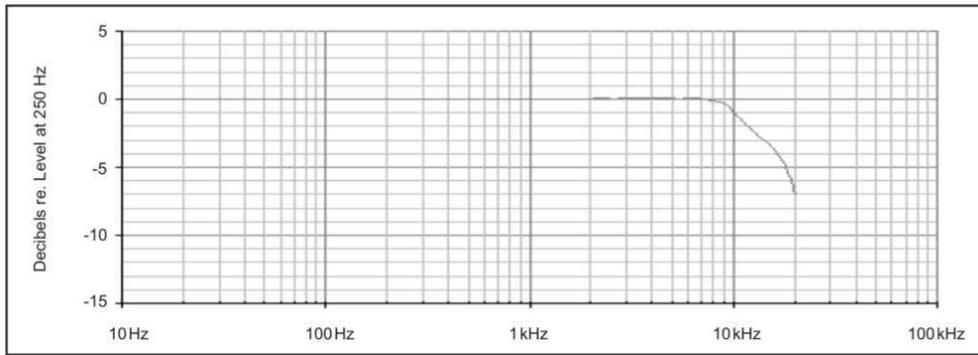
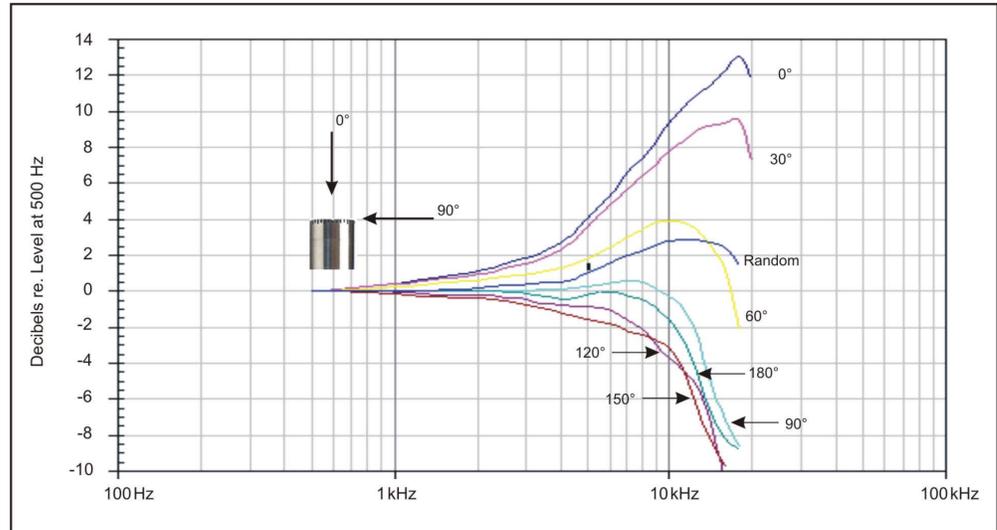


Fig. 2 Typical frequency response for Type 40EN

Fig. 3 Free-field corrections for various angles of incidence



Specifications (continued)

Temperature coefficient (250 Hz): -10 °C to +50 °C	0.003 dB/°C	Dimensions (with protection grid):	Length: 19.0 mm
Static-pressure coefficient (250 Hz, 25 °C):	-0.016 dB/k Pa	Diameter: 23.77 mm	
Humidity range:	0 - 100% (non-condensing)	(without protection grid):	Length: 17.1 mm
Influence of humidity (250 Hz):	<0.1 dB (0 - 100% RH)	Diameter: 23.77 mm	
Influence of axial vibration, 1 m/s²:	67 dB re. 20 μ Pa	Diameter (diaphragm ring):	22.05 mm
Venting (for O-rings fitted):		Threads:	Protection Grid: 23.11 mm - 60 UNS
OR0774 Front vented		Preamplifier Mounting: 23.11 mm - 60 UNS	
OR5003 Rear vented		Weight:	32 g
OR0774 + OR5003 Non vented		Accessories included:	
IEC 1094-4 type designation:	W1SP	O-ring OR5003	
		Key (for changing O-rings) GR0603	

G.R.A.S. Sound & Vibration reserves the right to change specifications and accessories without notice

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