¼-inch High-pressure Microphone Type 40BH

Product Data and Specifications

Typical applications

- ***Sound pressure measurements***
- ***Impulse-sound measurements***
- ***Very high level measurements***

The G.R.A.S. Microphone Type 40BH is a ¼-inch high-pressure microphone with a flat pressure-frequency response from 10 Hz to 20 kHz (see Fig. 2). Apart from its frequency response and lower sensitivity, it is similar to the Type 40BP (see separate product-data sheet).

Its low sensitivity and wide frequency response make it ideal for measuring acoustic impulses and very high sound-pressure levels (up to 194 dB re. 20 µ Pa).

As a pressure microphone, the Type 40BH measures the sound pressure at the location of its diaphragm. In an open sound field, a pressure microphone will also include the disturbing effects of its presence in the sound field. These are minimal for most of its frequency range because of its small dimensions (see Fig. 1 inset). At higher frequencies, the effects of reflections and diffractions must be accounted for. Generally, they lead to an increase in the measured sound pressure and corrections have to be made. Fig. 3 shows what these corrections are in a free field for various angles of incidence.

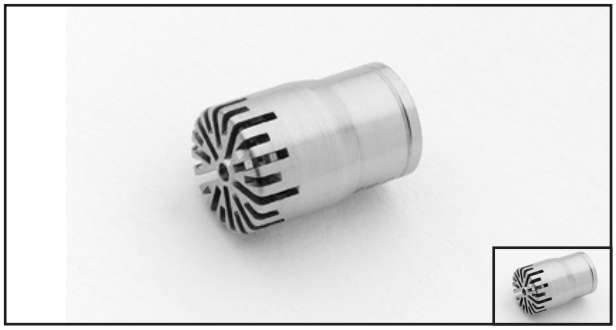

Fig. 1 ¼-inch High-pressure Microphone Type 40BH (inset shows true size)

G.R.A.S. ¼-inch preamplifiers (see data sheet for Types 26AA, 26AB, 26AC and 26AL) are also available for use with the Type 40BH. The mounting thread (5.7 mm - 60 UNS-2) is compatible with other available makes of similar microphone preamplifiers.

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 rugged 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:
10 Hz - 20 kHz . . . . . ± 2.0 dB
Nominal Sensitivity:
0.4 mV/Pa
Polarization Voltage:
200 V

Dynamic range:
Upper limit (3% distortion): 194 dB re. 20 µ Pa
Microphone thermal noise: 60 dB re. 20 µ Pa
Capacitance:
6 pF
Temperature:
Range:. . . . . −40 °C to +150 °C

...continued overleaf

Ver 06_Aug_2010

G.R.A.S.
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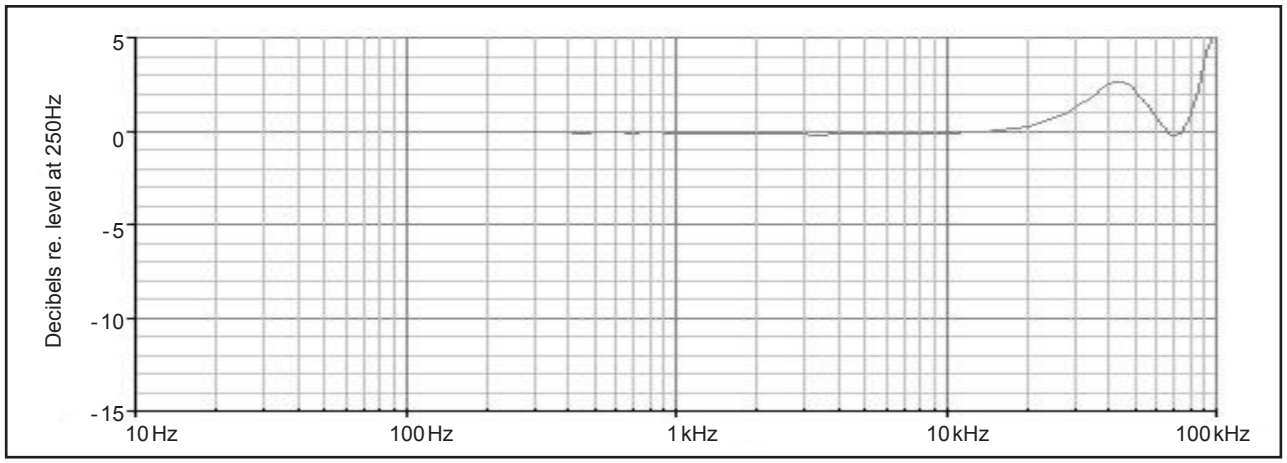

Fig. 2 Typical frequency response for Type 40BH (without protection grid)

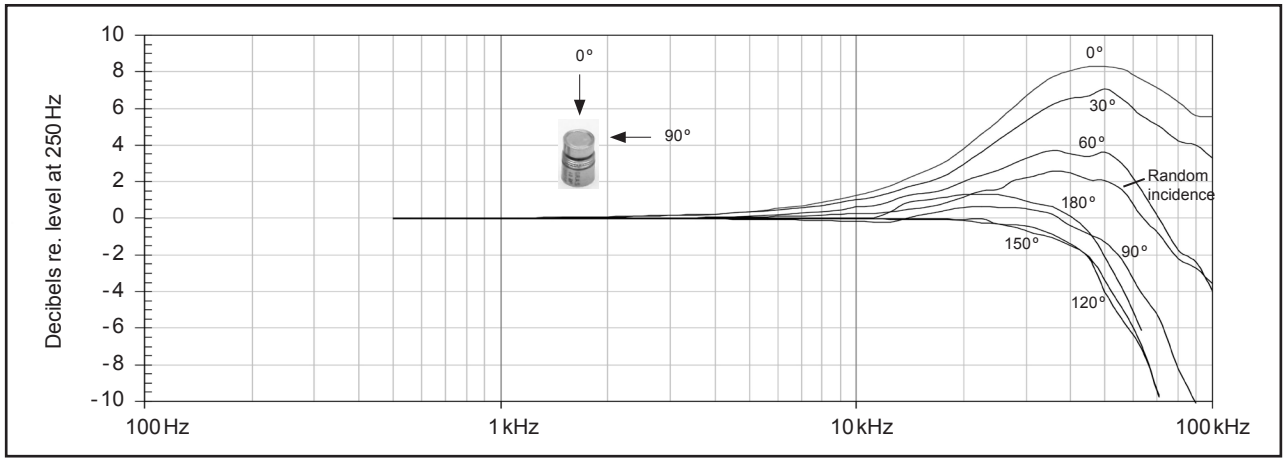

Fig. 3 Free-field corrections for various angles of incidence (without protection grid). Note: for free-field measurements, use 90° incidence (also known as grazing incidence)

Specifications (continued)

Coeff. (250 Hz): . . . . . .–0.01 dB / °C

Static-pressure coefficient:
-0.004 dB / k Pa

Humidity range:
0 - 100 % (non-condensing)

Influence of humidity (250 Hz):
< 0.1 dB (0 - 100 % RH)

Influence of axial vibration, 1 m/s²:
69 dB re. 20 µ Pa

Venting:
Rear vented

Note: for most applications, rear venting is more advantageous particularly where phase response is critical. If front venting is preferred, please add "front venting" to the Type number of the microphone when ordering.

Dimensions (with protection grid):
Length/Diameter: . . . . . 10.5 mm/6.9 mm

(without protection grid):
Length/Diameter: . . . . . 9.1 mm /6.3 mm

Diameter (diaphragm ring):
6.0 mm

Threads:
Protection Grid: . . . . . 6.35 mm - 60 UNS
Preamplifier Mounting: . . . . . 5.7 mm - 60 UNS

Weight:
2g

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