

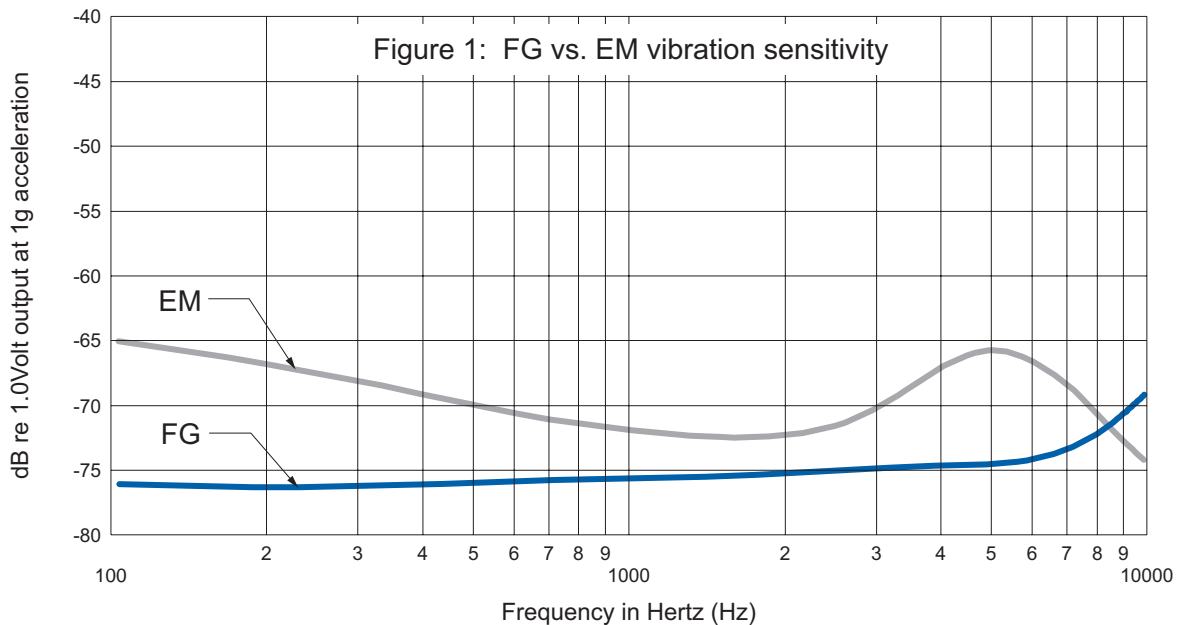


APPLICATION NOTE AN-2

Direct Mounting Considerations for FG Series Cylindrical Microphone

The extremely small size and shape of the FG series microphone make it well suited for CIC (Completely In Canal) hearing instruments. The cylindrical shape also allows for easy mounting of the transducer directly to the instrument faceplate. Although use of a tubed port is a reasonable option, the FG microphone is designed for direct mounting to the faceplate where space considerations do not allow for the additional tube, thereby maximizing the size advantage of the FG microphone.

For direct mounting to be practical, it is important that the microphone have very low vibration sensitivity, an important design consideration during the development of the FG microphone. As seen in figure 1, below, the FG microphone has notably lower vibration sensitivity than a typical hearing aid microphone. This reduced vibration sensitivity is particularly beneficial at low frequencies where more of the vibration energy is concentrated and also at typical peak resonance frequencies (~2.7kHz) where microphone acoustic sensitivity is often the greatest. The FG microphone provides less opportunity for mechanical feedback due to vibration without the need for additional mechanical isolation.



Simple, round holes only are necessary for mounting the FG microphone directly to the faceplate. As always, the microphone should be properly heat sunk to prevent damage while leads are being soldered. All faces of contact between the microphone and faceplate should be cemented, taking special care to keep adhesive away from the FG microphone screen. Once the microphone is mounted, a fillet of adhesive should be formed around the entire circumference of the FG microphone against the inside of the faceplate. This will help ensure a good acoustic seal.

Three options for direct mounting are shown below. Note that mounting the FG microphone flush with the outside of the faceplate, as in Figure 4, offers the flattest frequency response, strongest construction, and occupies the least amount of space in the hearing instrument case. However, this option provides the least protection from the environment versus the options shown in Figures 2 and 3.

Flush to inside of faceplate

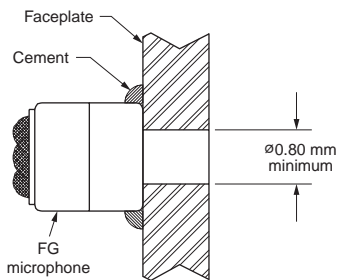


Figure 2

Recessed (molded insert)

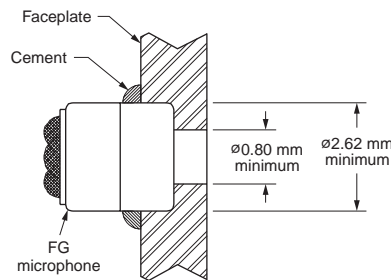


Figure 3

Flush to outside of faceplate

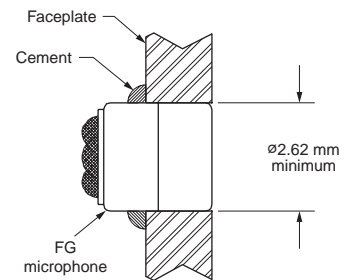


Figure 4

Recommended drill bit sizes: 1/32" (0.8mm) or #37 drill

NOTE: Do not use adhesives containing cyanoacrylate (Super Glue) as fumes from this adhesive can damage the microphone diaphragm

Knowles Electronics, Inc.
1151 Maplewood Drive
Itasca, Illinois 60143
Phone: (630) 250-5100
Fax: (630) 250-0575
www.knowles.com

Knowles Europe
York Road, Burgess Hill
West Sussex, RH15 9TT, England
Phone: (44) 1444 235432
Fax: (44) 1444 248724

Knowles Electronics Taiwan, Ltd.
53 Pao Hsing Road
Hsin Tien City, Taipei, Taiwan
Republic of China
Phone: (886) 2 2911 4931
Fax: (886) 2 2918 6868

Knowles Electronics Japan KK
Kyodo Bloom Building
19-1 Miyasaka 2-Chome
Setagaya-Ku, Tokyo 156-0051, Japan
Phone: (81) 3 3439 1151
Fax: (81) 3 3439 8822

Micromax Pty. Ltd.
P.O. Box 1238
Wollongong N.S.W.
2500, Australia
Phone: (61) 2 4226 6777
Fax: (61) 2 4226 6602

NOTE: Specifications are subject to change without notice. The information on this Data Sheet reflects typical applications. Specific test specifications defining each model are available by requesting Outline Drawing Sheets 1.1 and Performance Specifications Sheets 2.1 of that model number. Knowles' responsibility is limited to compliance with the Outline Drawing and the Performance Specification application to the subject model at time of manufacture.