



Microphones

Microphones measure sound pressure. Inside a Knowles microphone is a thin flexible diaphragm, an electrically charged plate, and an amplifier (Fig. 1.). The output voltage is proportional to changes in the small separation between the diaphragm and the charged plate (Fig. 2).

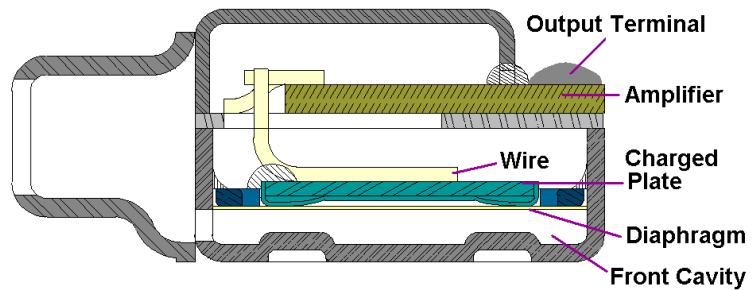


FIG. 1.: Cross section of a Knowles EM microphone.

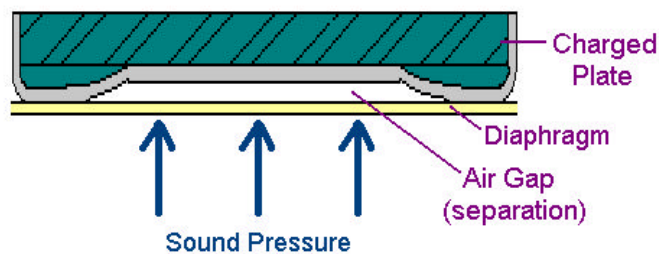


FIG. 2.: EM diaphragm and electret.

As sound pressure inside the front cavity increases, the diaphragm is pushed closer to the plate. As the pressure decreases, it moves further away. The motion of the diaphragm produces a small electrical signal that is amplified by a miniature circuit inside the microphone.

The sensitivity of a typical Knowles' microphone is shown in Fig. 3. in units of dB relative to 1 Volt per 0.1 Pascal. The microphone components can be modified to make it more or less sensitive at lower frequencies or to reduce, increase, or shift the peak at higher frequencies.

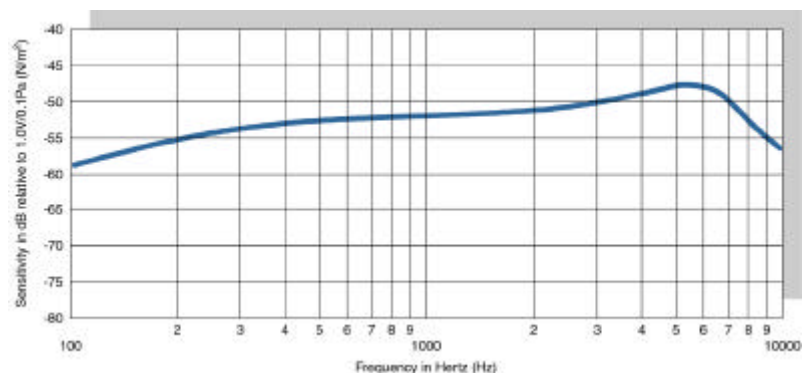


FIG. 3.: EM sensitivity in dB relative to 1 volt per 0.1 Pa.