

Video Gear: Microphones

Microphones are transducers. They convert energy from one form, sound, to another, an electrical signal. There are different types of microphone designs. Microphone pickup patterns also vary. When choosing a microphone, we need to consider the audio source, its location, and the environment we will record in.

The most common types of microphones used today are Ribbon, Dynamic, and Condenser. Ribbon mics are radio-style mics. They sound great, but are very expensive. They are easy to damage, so they are almost always used in studios.

Dynamic microphones are a very durable design. They usually hand-held and are what you see when you watch live performances. They work like a loudspeaker, but in reverse. A diaphragm captures the sound energy and moves and electronic coil in a magnetic field. This produces electricity. Dynamic mics sound great and do not capture all extra noise around them.

Condenser microphones have thin metal strips next to a charged electrical plate. When the diaphragm moves in and out, capturing sound, it changes the electrical charge across the charged electrical plate. These microphones always need a power source for their charged plates. They are sensitive, accurate, but easily distort when sounds are very loud. The microphones built into smartphones and cameras are all condenser microphones.

Some microphones have a pickup pattern that only records sounds directly in front of the mic. This is a mono directional pickup pattern. Other microphones pick up equally well front-to-back or left-to-right. These are bidirectional pickup patterns.

Some microphones pickup sounds in front, off to the side, and even a little towards the back. These are cardioid patterns. Other microphones can pickup sound all around them. These are called omni-directional pickup patterns.

In video production, we often use a long tubular microphone to capture sound about 5 feet away. These are condenser microphones and have a directional pickup pattern, very narrow and to the front. These types of microphones are called “shotgun” microphones. Sometimes they are mounted on cameras. In professional productions, they are often mounted on booms and are positioned above the sound source, but always positioned so that you do not see them on-camera.

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