|  |  |  |  |
| --- | --- | --- | --- |
| Example:  Shure SM58  Users:paul.clifford:Desktop:SM_58_6_cols.jpg | Dynamic | Cardioid | 50Hz-15kHz |
| AKG C414 | Condenser | Multiple | 20Hz-20kHz |
| AKG D112 | Dynamic | Cardioid | 20-17kHz |
| AKG C1000S | Condenser | Cardioid | 50Hz-20kHz |
| Neumann TLM 102 | Condenser | Cardioid | 20Hz-20kHz |
| Shure SM57 | Dynamic | Cardioid | 40Hz-15kHz |
| Rode NT2-AUsers:paul.clifford:Desktop:Rode-NT2-Aa.jpg | Condenser | Multiple | 20Hz-20kHz |
| Rode NT5 | Condenser | Cardioid | 20Hz-20kHz |

**Description of a microphone**

A microphone is a transducer (1) that converts sound energy into electrical energy (1). The sensitive transducer element of a microphones called its *element* or *capsule* (1). The signal needs a pre-amp (1) to convert it to a workable (line) level/impedance (1).

Any discussion of polar response, e.g. omni / cardioids. Credit accurate

diagrams. Max 1.

**Dynamic microphone**

Dynamic microphones are sometimes called moving coil microphones (1).

Dynamic microphones function in the same way as a loud speaker, only reversed (1).

A movable coil (1) which is positioned in a magnetic field (1) is attached to the diaphragm (1). When sound enters the microphone the membrane / diaphragm vibrates (1). Consequently, the coil moves in the magnetic field and a varying (1) electrical current is induced (1) in the coil, in line with the rising/falling air pressure (1). This process is called electromagnetic induction (1).

**Benefits of dynamic microphones**

Generally inexpensive (1) Robust (1)

Can withstand high SPL (allow volume) (1)

Resistant to moisture (1)

Lack of sensitivity reduces feedback (1)

Good for live use (1)

Does not require (phantom) power (1).

Limited HF response makes them suitable for bass instruments (1)

Slow transient response introduces a form of acoustic compression (1)

**Condenser microphone**

The diaphragm (1) (don’t award diaphragm buzzword twice if mentioned

for dynamic microphone) forms one (1) plate (1) of a capacitor (1).

When the diaphragm vibrates, the distance of the plates changes (1)

thus changing the capacitance (1). From this a varying voltage (1) is

produced.

Phantom power (1) 48V (1) is required to charge the capacitor (1).

Some condenser microphones can be powered by a battery (1).

Polar response / pick-up pattern switch (1) that selects between

different / combinations of capsules (1). Some microphones have

interchangeable capsules (1).

Power switch (1).

Pad switch (1) usually -10 dB (1)

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High pass filter (1) to eliminate rumble/low frequencies (1)

Usually has cradle/shock mount (1)

**Benefits of condenser microphones**

Sensitive / pick up quiet sounds (1)

Flat frequency response (1)

Good high frequency response / wide frequency range / brighter than

dynamics (1)

Good signal to noise ratio / low noise / wide dynamic range (1)

Fast transient response (1)