

The Gradav Microphone Guide

Selecting a microphone for a particular task can be difficult. We have prepared this guide as an introduction to microphones currently available for Hire from us, with suggestions for use. As microphone choice can be a very personal matter, we recommend you use our guide as a starting point and develop your own preferences with experience. Please see over for more information.

		Speech	Lectern	Floor Mics	Fly Mics	Sung Vocals	Piano	Strings	Brass	Woodwind	Drums	Overheads	Kick Drum	Cabinet	Choir
Dynamic Microphones															
AKG	D112										♦		♦		
Beyer	M88	♦				♦									
	M201	♦								♦		♦			♦
	M400	♦								♦					
EV	RE20							♦					♦		
Sennheiser	MD409								♦		♦			♦	
	MD421								♦		♦			♦	
	MD431	♦		♦		♦									
Shure	55SH	♦				♦									
	SM57										♦			♦	
	SM58	♦				♦									

Condenser Microphones

AKG	C451		♦	♦			♦	♦							♦
	C747		♦												
	C3000B						♦	♦	♦	♦		♦		♦	♦
Amcron	PCC 160			♦											
Beyer	MC736			♦	♦										
Sennheiser	K3U/ME80			♦	♦										
	K6U/ME66			♦	♦										
	MKH 40	♦	♦	♦			♦					♦			♦
	MKH 50	♦	♦	♦			♦								♦
	MKH 60			♦	♦										
	MKH 416			♦	♦										

Legend

Float microphones	Placed across the front of stage
Fly microphones	Suspended (flown) over the performance area
Drums	To pickup individual drums in a kit eg snare, tom tom
Kick Drum	Bass Drum. Needs a microphone that can handle high sound levels
Overheads	Pickup over a drum kit, mainly for cymbals, hi-hat etc
Cabinet	Used in front of a loudspeaker cabinet
Choir	Above and/or in front of choral groups, for an ensemble sound



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Dynamic Microphones

Dynamic microphones create their signal by moving a coil of wire relative to a magnet. This signal goes through a transformer and emerge both balanced and at a useful impedance.

Capacitor (Condenser) Microphones

The field strength between 2 charged plates varies with the change in air pressure caused by sound waves. Once detected, a pre-amplifier boosts the voltage and alters the impedance to a usable value. The pre-amplifier can be powered by an internal battery and/or a 'phantom' feed. Phantom powering is fitted to most modern mixers.

Impedance

Impedance is the term used for the 'AC' resistance. This value is generally higher than the 'DC' resistance. Most modern microphones are designed to operate with an impedance around 200 ohms.

Balancing

An unbalanced signal uses only 2 conductors. One is for signal, the other is a ground reference (screen).

A balanced signal still needs an overall screen, but the signal is carried on 2 conductors working together in a push/pull arrangement. Noise eg hum, that is induced in the conductors are summed. The induced noise signals are equal but completely out of phase, and so they cancel.

To unbalance a balanced signal link the 'out of phase' (cold) signal to the screen.

Pickup Patterns

Most of the microphones we use are more sensitive in some directions than others. Select a microphone whose directional characteristics best suit the task in hand. Although discussed in 2 dimensions, you will need to remember that pickup patterns are 3 dimensional.

Below are listed the most popular pickup patterns we supply.

CARDIOID

Good rear rejection with a wide frontal pickup.

SUPER CARDIOID

This has a better rear rejection and a narrower frontal pickup with a 'reach' that is longer than the standard cardioid.

(SHORT) SHOTGUN

A still narrower frontal pickup, with an even longer reach. Beware of the significant rear sensitivity when placing near loud sources.

OMNI

Sensitive in all directions equally. We meet this pattern only with 'tie clip' microphones used with radio microphone belt packs.

What is a good vocal microphone?

Low handling noise, a 'pop' proof windshield, good directional characteristics, mechanically robust and comfortable to hold.

What is a good float microphone?

A float microphone is one placed at the very front of the stage to provide a general pickup of the on-stage sounds. Rejection of any orchestral noises, good sensitivity and a reluctance to feed back are required. Capacitor microphones tend to be more effective than dynamic types. PCC 160 microphones sit on the stage, and with a smooth surface are capable of some outstanding results.

What is a good microphone for over the stage?

Flown over the stage, these microphones need to be sensitive enough to pickup well at a distance, but not so directional that 'hot' and 'cold' spots appear. The capacitor Short Shotgun fills this role well.



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