

## CHAPTER 3: The Beginner's Guide to Recording Studio Microphones

Take a look at any online music superstore, and what do you see?

Thousands upon thousands of microphones.

And as any recording engineer will tell you...

If you don't know your stuff...

Finding the good ones is NO easy task.

As beginners...most of us make some pretty stupid mistakes.

To spare you the same headaches...

I've assembled this handy little post, which I call:

**The Beginner's Guide to Recording Studio Microphones.**

First up...

### The 2 "Umbrella" Categories

One of the first things beginners learn...

Is that the two "umbrella" categories of studio microphones are:

1. **Condenser Mics**
2. **Dynamic Mics**

95% of all the mics you will ever use...

Will fit into 1 of these 2 categories. That part's simple.

The harder part is understanding the **8 KEY WAYS** in which they compare.

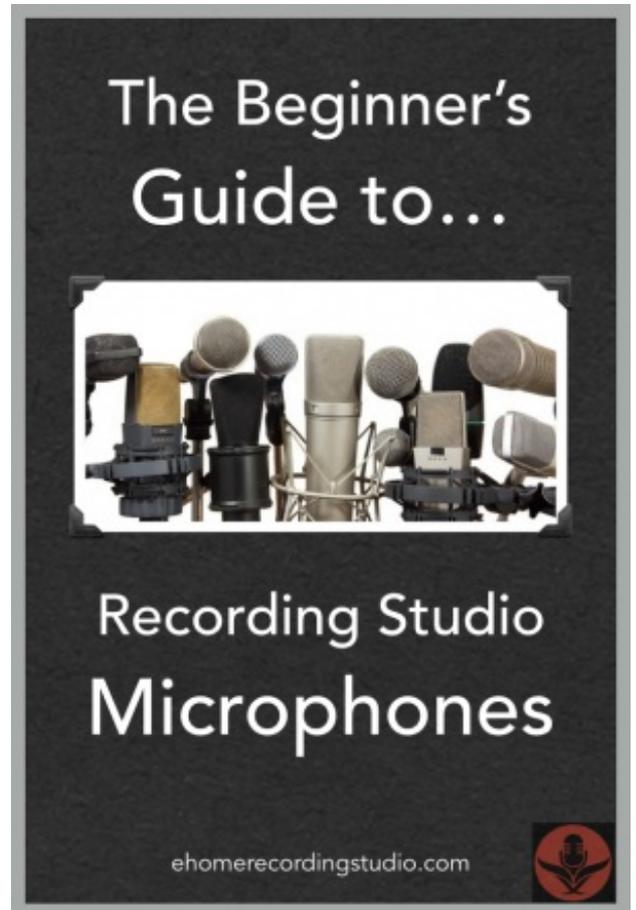
So let's cover them now. Starting with...

### 1. Frequency Response

The **Beginner's Rule of Thumb** states:

**Condenser mics** work better on high frequency instruments...such as:

- **acoustic guitar**
- **cymbals**
- **piano**



And **dynamic mics** work better on low-mid frequency instruments...such as:

- **drums**
- **electric guitar cabs**

While the truth of the matter is far more complex, it's a good rule to start with.

## 2. Diaphragm Size and Weight

The reason condenser mics work better with high frequencies is...

They use a smaller, lighter diaphragm to capture sound.

Since **high frequencies** contain LESS energy than **low frequencies**, they don't have as much power to move **mass**.

That is why the heavier diaphragms of dynamic mics are far less responsive to them.

## 3. Internal Circuitry

The upside of a heavier diaphragm is...

The larger mass generates enough voltage through movement, to eliminate the need for an external power source. That is why dynamic mics are known as "**passive**".

Condenser mics however, which are "**active**", required "**phantom power**" to amplify the weaker voltage.

But this is by no means a disadvantage.

With phantom power, condenser mics can achieve **higher gain**, and **record softer sounds**.

## 4. Diaphragm Durability

Unfortunately, the lighter diaphragms in condenser mics are also **more fragile**.

At higher **Sound Pressure Levels** (SPL), they can potentially be damaged.

That is why the stronger diaphragms of dynamic mics are better for **louder instruments** like drums.

## 5. General Durability

Not only are their diaphragms stronger...the **overall design** of dynamic mics is stronger as well.

Drop a dynamic mic on the ground, and it will likely survive. Drop a condenser mic on the ground, and your chances aren't nearly as good.

That's one reason dynamic mics are great **on-stage**.

## 6. Resistance to Moisture

**Another reason** dynamic mics are great on-stage is...

They're highly resistant to environmental changes such as humidity.

Condenser mics however, can suffer performance problems under extreme humidity changes.

## 7. Gain before Feedback

A **third reason** dynamic mics are great on-stage is...

They allow for **higher gain before feedback**.

In live environments, where many microphones record many sounds in close proximity....**feedback** is a common problem.

But since dynamic mics are generally “less-sensitive” than condenser mics, they’re also better at resisting feedback.

## 8. Price Tag

When comparing the [best dynamic mics](#) to the [best condenser mics](#)...

- **Dynamic mics max out at a mere \$400-\$500 a piece. However...**
- **Condenser mics can cost as much as \$5-10 grand EACH.**

While that might seem terrifying to some...

Don't worry, because there are plenty of [affordable options](#) as well for budget studios.

Up next...

## Which One is Better for Studio Recording?

Many beginners INCORRECTLY conclude that **condenser mics** are somehow “better” than **dynamic mics** for studio recording.

And from what we've covered so far, it's not hard to see why.

But the truth is...NEITHER mic is better overall...and NO mic on the planet is good for EVERYTHING.

That is why, more than just these two umbrella categories....

Recording studios use a WIDE range of mics, each one tailored for specific tasks.

In this next section, we'll cover each of them in more detail...

## The 9 Sub-categories of Mics

Here are the 9 sub-categories of microphones you should know:

1. **Large Diaphragm Condenser Mics**
2. **Small Diaphragm Condenser Mics**
3. **Dynamic “Utility” Mics**
4. **Bass Mics**
5. **Ribbon Mics**
6. **Multi-Pattern Mics**
7. **USB Mics**
8. **Boundary Mics**
9. **Shotgun Mics**

Now here's a little more on each one. Starting with...

## 1. Large Diaphragm Condenser Mics

You've seen them countless times in movies and television.

You know that cliché scenario?...

With the young beautiful pop star recording her debut album in the studio?

Well the microphone you see is ALWAYS a large diaphragm condenser.

Because not only does it look great on camera...It's also the **standard mic for recording vocals**.

And since it sounds great on many other instruments as well...

It's usually the first microphone on a new studio's shopping list.

Here are the ones I recommend:

- [The 7 Best Large Diaphragm Condenser Mics: under \\$500](#)

Next up...



## 2. Small Diaphragm Condenser Mics

Also commonly known as a “pencil microphone“...

The **small diaphragm condenser mic** specializes in recording instruments rich in high frequency detail, such as cymbals and acoustic guitar.

Just as **large diaphragm condensers** use smaller diaphragms than **dynamic mics**...

Small diaphragm condensers use diaphragms that are **even smaller**.

The result is a microphone that is the best in the world at capturing that beautiful high-end shimmer.

In home studios, they're perfect for singer/songwriters.

If you sing and play acoustic guitar, a pair of small diaphragm condensers provides the perfect companion your vocal mic.

Here are the ones I recommend:

- [The Best Small Diaphragm Condenser Mics: under \\$500](#)

Next up...



## 3. Dynamic “Utility” Mics

While **dynamic utility mics** is not an “official” category of microphones...

For this article, let’s pretend it is.

Because among the many dynamic mics which specialize in one specific task...

There are a select few, recognized as “**the classics**“, which are SO versatile, they work on almost anything.

For example, they’re among the **industry standards** for recording:

- **electric guitar**
- **drums**
- **rock vocals**

And they’re also great as talkback mics for communicating with the talent.

That is why...pro studios typically carry a dozen of more of these mics in their locker.

For home studios, any one of them would be a great addition to a modest mic collection.

Here are the ones I recommend:

- [The 6 Best Dynamic Microphones of All Time](#)

Up next...

## 4. Bass Mics

While your **average dynamic mic** does okay on bass instruments...

To capture, that REALLY low end...

Most engineers prefer a specific kind of mic designed for just that purpose.

Commonly known as either a **bass mic**, or **kick drum mic**...

These mics feature a unique frequency response characterized by:

- **a low end boost**
- **a small scoop in the mids**
- **and a presence boost around 4k**

On **kick drums**, they capture both the low end thump, as well as the attack of the beater.

They also work well on **bass cabinets**, and just about any other low frequency instrument imaginable.

In a home studio, it’s always smart to **keep at least one** around, for obvious reasons.

Here are the ones I recommend:

- [The Best Mics for Recording Bass Guitar and Kick Drums](#)



Next up...

## 5. Multi-Pattern Mics

Normally seen in the form of a large diaphragm condenser...

**Multi-pattern mics** feature a unique dual-capsule design...

Which allows you to switch between the **3 common polar patterns**:

- **Cardioid**
- **Omnidirectional**
- **Figure-8**

This makes them highly versatile tools, especially for **stereo recording**.

While NOT a high priority for beginners...

The sooner you get familiar with **multi-pattern mics**, [microphone polar patterns](#), and [stereo recording](#), the quicker your recordings will improve.

Once that happens...

You'll make frequent use of **this next mic** as well:



## 6. Ribbon Mics

Of all the microphones on this list, **ribbon mics** are the ONLY ones that are neither dynamic nor condenser.

They get their OWN special category because:

Rather than using a diaphragm, they use a **thin aluminum ribbon** to capture sound.

Other notable features of these mics include:

- **Durability comparable to dynamic mics**
- **High-frequency sensitivity comparable to condenser mics**
- **A standard figure-8 polar pattern**

While highly-prized by professionals for their unique sound...their high cost makes them rare in home studios.

But if you'd like to try one...

- [The Best Ribbon Mics for Home Recording](#)

Up next...

## 7. USB Mics



You won't see them in pro studios...and until around 2005, they didn't even exist.

But with the recent rise of **bedroom studios**, and **podcasting**...

**USB mics** are NOW more popular than ever.

Compared to standard mics which require preamps, interfaces, etc...

USB mics plug straight into your laptop, no other gear required. And some even work with tablets!

This **ease-of-use** makes them ideal for anyone looking to dabble in home recording...without investing in a "real" studio.

Here are the ones I recommend:

- [The Best USB Microphones for Home Recording](#)

Moving on...

## 8. Boundary Mics

You rarely see them used in home studios...

And some studio owners have never even heard of them.

But to many professionals, **boundary mics** (aka PZM mics) are essential tools in their recording arsenal.

Here's how they work:

Rather than using a mic stand, boundary mics mount against a flat surface in the room, such as the floor or wall.

While other mics suffer from **comb filtering**, (when direct and reflected sound combines out-of-phase)...

Boundary mics are **immune**...because up against a wall, the two automatically align.

**Outside the studio**, they're used in:

- **Conference rooms** – by laying it on the table
- **Theatre performances** – by laying it on the stage

**Inside the studio**, they're used as:

- **Room mics** – by mounting it on the wall
- **Kick drum mics** – by laying it within the shell

Once you already own a solid mic collection, I highly recommend you check one out.

Last on the list...

## 9. Shotgun Mics



While not commonly used in the recording studio...

**Shotguns mics** are seen so often in movies and tv, people often wonder what they're for.

Normally used for outdoor tasks such as news reporting and wildlife documentation...

These mics are known for their unique ability to isolate sound.

They do so, using a design known as an **interference tube**, which features a series of slots designed to reject off-axis noise. The longer the tube, the narrower the pickup angle.

Using these mics, you can record **further** from the sound source, in much **noisier environments**.

And while advanced sound engineers might use them in the studio occasionally, most of US never will.

But at least now, you know what they are.

