

How to Customize Your Mechanical Keyboard

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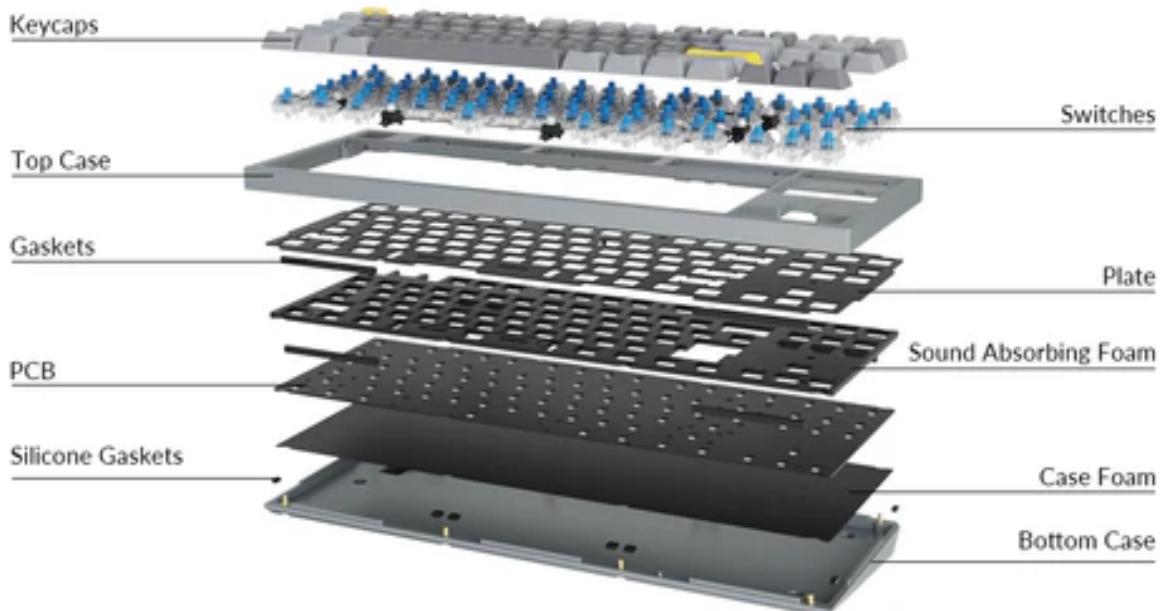
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1 Introduction

This document outlines the process of selecting components to customize your **hot-swappable** mechanical keyboard based on your individual needs and typing preferences. Hot-swappable refers to a keyboard with a PCB and plate designed for the replacement of key switches without the use of soldering. The primary focus will be on choosing the right parts—such as switches, keycaps, and layout—while also keeping compatibility in mind. Assembly techniques and advanced modifications are outside the scope of this guide, making it perfect for beginners and casual enthusiasts looking to craft a keyboard that feels uniquely their own.

Once you've finished reading through this guide and figured out what kind of typing experience you're aiming for, head back to [this video](#) for a step-by-step tutorial on how to put it all together!

Parts of Keyboard Breakdown



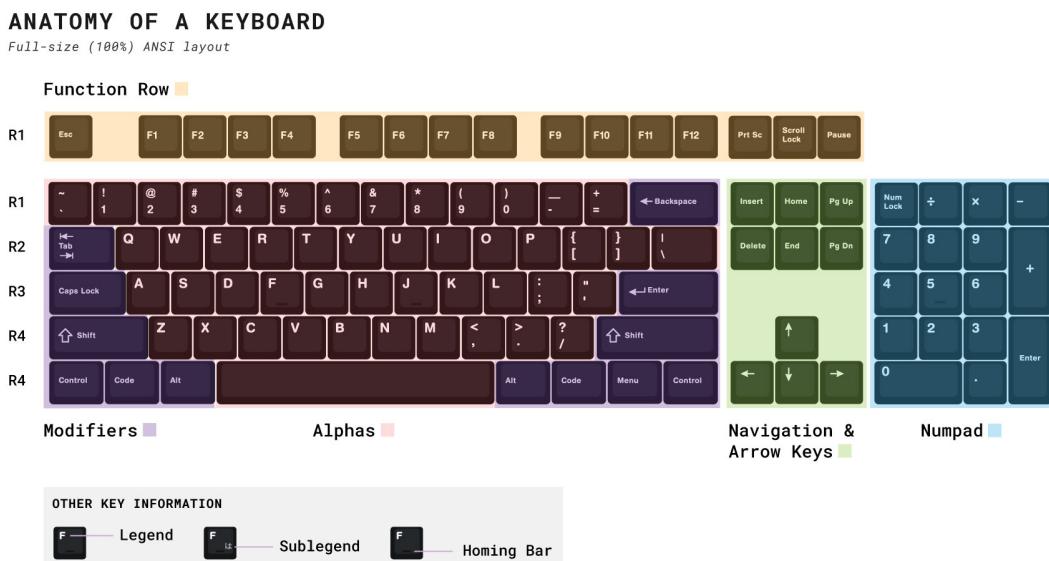
2 Base Keyboard

2.1 Overview

In order to customize your own keyboard, you must first purchase a suitable base keyboard. For this guide, we will primarily focus on using **hot-swappable** keyboards, as they are significantly easier (and often cheaper) to modify. A hot-swappable keyboard allows you to install or remove switches without the need for soldering. There are several factors to consider when selecting your base keyboard, but typically this decision has the least impact on the overall typing experience compared to other components, such as switches and keycaps.

2.2 Sizing

Choosing the right keyboard size depends on your workspace, typing preferences, and the functionalities you require. For example, someone who primarily types at a spacious desk will likely prefer a different size compared to someone who frequently works in coffee shops or travels often. Keyboard sizes are commonly described using percentages. Here are some of the most popular keyboard sizes available:



keyboard.university



Full-size (100%): The classic choice—this is the keyboard size most people picture first, especially common in traditional office settings. It has everything you could possibly want: function keys, a dedicated number pad, arrow keys, and a full navigation cluster. It's perfect for number-crunchers, spreadsheet enthusiasts, or anyone who loves having all possible keys within arm's reach. Just keep in mind, it's the largest option, so prepare your desk space!



Ten-keyless (TKL): Think of this as your trusty full-size keyboard, minus the number pad. It's a fan-favorite among gamers, programmers, and anyone craving extra desk room for their mouse or coffee mug. You still get dedicated arrow keys, function keys, and the navigation cluster—just a smaller footprint that's easier to manage.



75%: If TKL sounds appealing but still feels slightly bulky, meet the 75%—a cozy layout that brings keys closer together while maintaining most of your essential keys. You keep your function keys, arrow keys, and some navigation keys, just compressed into a friendly, compact package. It's a perfect balance between functionality and portability.



65%: Slightly smaller than the 75%, the 65% is popular among enthusiasts and minimalists who love a tidy workspace but still want arrow keys and a handful of navigation keys. Function keys are now available via secondary layers. It's compact, sleek, and still incredibly practical.



Compact (60%): The minimalist's dream! A 60% keyboard strips things down to the essentials, removing the number pad, dedicated arrow keys, navigation cluster, and function keys, cleverly assigning those functions to secondary layers. Ideal if you're always on the move, enjoy clean and clutter-free setups, or simply love the look of a sleek, compact keyboard.



40%: The daring minimalist's favorite—this ultra-compact size offers only the absolute essentials, significantly reducing the keyboard footprint. With numbers, function keys, navigation, and arrows all relocated to secondary layers, it's not for everyone, but it's perfect for those who love portability, customization, and a truly minimalist typing experience.

2.3 Peripheral Functionalities

Your base keyboard also determines what extra functionalities it can offer, such as wireless connectivity or dedicated macro keys. Love the idea of controlling your music with a volume knob? There's a keyboard for that! Prefer a clean, wireless setup so you can move your keyboard around freely? There's a keyboard for that too! These kinds of features vary from board to board, so don't hesitate to explore your options—chances are, whatever functionality you're looking for, there's a keyboard out there that has it.

2.4 Materials

The material of your keyboard plays a major role in the overall typing feel and the sounds it produces. Thankfully, choosing the right material doesn't have to be complicated, since most keyboard cases fall into a few clear categories. Here's a quick rundown of popular materials and how they influence your typing experience:

Plastic: The budget-friendly champion! Plastic cases, typically made from ABS or polycarbonate, are lightweight, affordable, and the most common choice you'll encounter. They produce a warmer, deeper, and often slightly muted typing sound, making them great if you're aiming for a quieter, less sharp click. Plastic boards also tend to absorb vibrations well, giving your keystrokes a softer, gentler feel.



Metal: When you're after something solid, substantial, and premium-feeling, metal cases (commonly aluminum, steel, or brass) have your back. These keyboards are heavier, sturdier, and give you that satisfying thocky or crisp sound coveted by keyboard enthusiasts. Aluminum is a popular choice for its balance between weight and sound, steel adds extra heft and a brighter, more resonant tone, and brass provides the ultimate luxurious feel with a deep, satisfying acoustic profile. Metal cases don't just feel great—they look sleek on any desk and provide durability to match their aesthetic appeal.

2.5 Mounting

The mounting style refers to how the keyboard's plate (where the switches sit) is connected to the keyboard's frame. Although it might seem like a subtle detail, the mounting style does influence the keyboard's sound, flexibility, and overall typing feel. Here's a fun breakdown of two popular mounting styles:

- **Plate-Mounted:** The straightforward and sturdy choice! In plate-mounted keyboards, the switch plate attaches directly to the frame. This style provides a firm, stable typing experience, making your keyboard feel consistent and solid under your fingers. It typically results in a sharper, clearer sound profile, and offers a typing experience that's reliable and predictable—perfect for those who prefer a no-fuss setup.
- **Gasket-Mounted:** The gentle, cushiony alternative! In gasket-mounted keyboards, the plate isn't directly bolted onto the frame; instead, it's suspended using soft gasket materials (usually silicone or foam strips). This method provides a noticeably softer typing feel, absorbing vibrations and producing a quieter, deeper, and more refined sound. If you're looking for a premium typing experience with a bit of "bounce" or softness, gasket-mounted keyboards are a delightful choice.

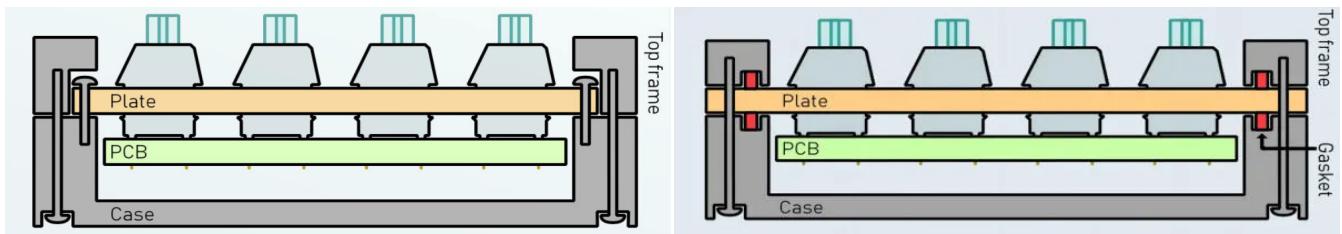


Plate-Mounted (left) vs. Gasket-Mounted (right)

2.6 Links

Below is a list including examples of what keyboards you could buy in order to base your customizations off of. These do not need to be your go-to selections, they are merely for examples to see what options you might come across.

- [Aluminum 75% Keyboard w/ Dial](#)
- [Plastic 100% keyboard](#)
- [Plastic 60% Keyboard](#)

3 Switches

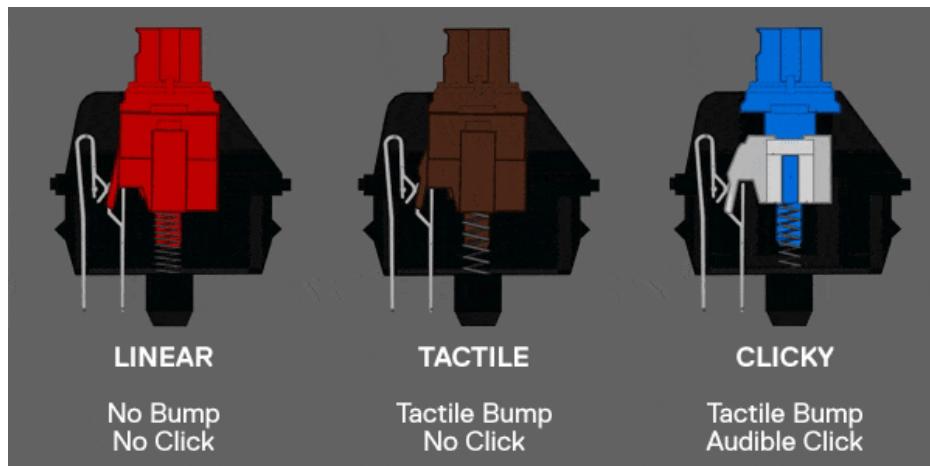
3.1 Overview

Switches are hands-down the most exciting and customizable part of any mechanical keyboard. They play the biggest role in determining how your keyboard feels and sounds. With countless brands, types, and variations out there, the possibilities are nearly endless—but don't worry! Here, we'll keep things simple by focusing on the most popular switch types and what makes each of them so beloved in the keyboard community.

3.2 Switch Types

When it comes to compatibility, switches are the component you'll want to pay the most attention to. The key detail to watch for is the difference between **3-pin** and **5-pin** switches. These pins are located on the bottom of each switch and are used to mount into the keyboard's PCB or plate. If your keyboard only supports 3-pin switches, 5-pin switches won't fit without modification (usually clipping off the extra two plastic legs). However, the reverse is not true—a 5-pin-compatible board can easily accept 3-pin switches without any issue. So when selecting switches, make sure they match your board's socket type to avoid compatibility headaches!

- **Linears:** Smooth and steady! Linear switches offer a consistent, uninterrupted keystroke with no tactile bump or audible click. They're loved for their buttery-smooth feel, making them ideal for gaming, fast typing, or anyone who prefers a quiet and fluid typing experience. If you're seeking smoothness, speed, and subtlety, linears are your go-to.
- **Tactile:** Get ready for that satisfying bump! Tactile switches give you a gentle, noticeable feedback mid-way through each keystroke—without the loud clicking noise. Perfect for typists who appreciate feeling exactly when a key actuates, tactiles help improve typing accuracy and add a bit of sensory delight to each press. They strike a perfect balance between quietness and responsiveness.
- **Clicky:** Loud, proud, and impossible to ignore! Clicky switches are famous (and sometimes infamous) for their audible click and tactile bump, clearly indicating each key press. They're great if you love a classic typewriter-style sound and want strong sensory feedback while typing. Be warned: they might not win you friends in quiet offices or libraries, but they make every keystroke feel like a satisfying event.



3.3 Switch Colors

Surprisingly, the color of a switch often gives you a good hint about how it feels and sounds. While not a universal standard, many brands follow similar naming conventions. Here's a quick guide to popular switch colors, categorized by type:



Linear Switches

- **Red:** Light and smooth with no tactile bump or click. A favorite for gaming due to the low actuation force (typically 45g).
- **Black:** Similar to reds but heavier (60g actuation). Great for those who prefer a more deliberate keypress.
- **Yellow:** Often marketed as a smooth, medium-weight linear switch with faster actuation—popular in speed-focused boards.
- **Silent Red / Silent Black:** Same feel as their standard counterparts, but with added dampening to reduce noise.

Tactile Switches

- **Brown:** Light tactile bump without a click. A great middle ground for those who want some feedback without too much noise (around 45–55g).
- **Clear:** Heavier tactile bump than browns, often with 65g actuation. Preferred by typists who like a more pronounced feedback.

Clicky Switches

- **Blue:** Classic clicky feel with a loud audible click and tactile bump. Medium weight (50–60g), great for typists who love strong feedback.
- **Green:** Like blues, but with a heavier actuation force (65g). Satisfying, but might not be quiet-office friendly.
- **White:** A softer or crisper variation depending on the manufacturer—typically clicky with moderate weight.

3.4 Lubing

Lubing isn't a required step in customizing your keyboard, but it's hands-down one of the most impactful upgrades you can make. Applying lubricant to your switches significantly changes how they feel and sound—reducing scratchiness, smoothing out keystrokes, and even dampening unwanted noise. While it takes time and patience to do properly, the end result is a dramatically more refined and satisfying typing experience. If you are looking to take your keyboard to the next level, lubing is absolutely worth considering. Although we are not going to discuss the process of lubing your switches, it is definitely worth noting when considering the feel of your keyboard. See the links below where we have provided a video guide to walk you through the lubing process.

3.5 Links

- [Gateron Oil King V2 Linear Switches](#)
- [Gazzew Boba U4T V2 Tactile Switches](#)
- [Gateron Blue Clicky Switches](#)
- [How to Lube Your Mechanical Switches](#)

4 Keycaps

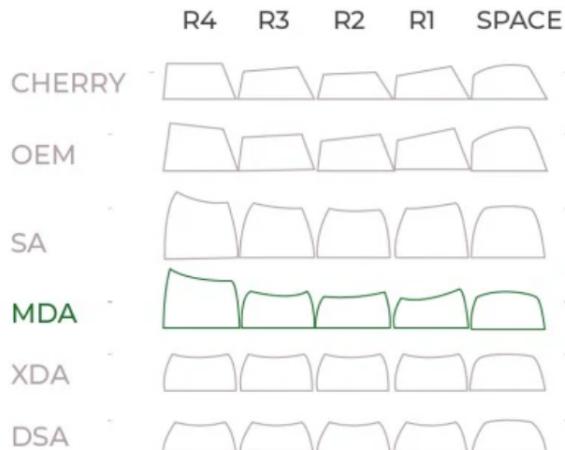
4.1 Overview

Keycaps are the heart of your keyboard's aesthetic—they define its personality and style at a glance. While it's totally valid (and fun!) to pick a set just because it looks cool, keycaps actually play a more important role than most people realize. The material, shape, and profile of your keycaps can noticeably affect both the feel and sound of your typing experience. So whether you're chasing a certain look, a satisfying *thock*, or a smoother keypress, keycaps deserve a closer look!

4.2 Profiles

The profile of a keycap set refers to the overall shape and height of the keycaps, which can significantly influence how comfortable or natural a keyboard feels to type on. While there are many unique keycap profiles out there, most of them fall under two broad categories: **sculpted** and **uniform**. Each has its own sub-styles, each offering a different typing experience.

Sculpted Profiles These profiles have rows of varying heights and angles to better match the natural curve of your fingers during typing.



- **Cherry:** A popular sculpted profile known for its medium height and gentle sculpting. Offers a comfortable, classic feel and a slightly quieter sound due to shorter keycaps.
- **OEM:** Slightly taller than Cherry with a more pronounced sculpt. Common on many prebuilt mechanical keyboards and a familiar starting point for most users.
- **SA:** Tall, retro-styled keycaps with deeply rounded tops and aggressive sculpting. Known for their satisfying *thock* and bold aesthetic, though they can feel bulky.
- **MT3:** A modern take on vintage keycaps with a deep, scooped top and a comfortable sculpt. Loved for its unique feel and bold appearance.
- **KAT:** Shorter than SA but still sculpted, with a smoother curve and a slightly wider key surface—great for a mix of style and comfort.

Uniform Profiles These profiles have the same height and angle across all rows, offering a flatter and often more minimalist look and feel.

- **DSA:** Low-profile, flat, and uniform across all rows. Easy to rearrange for custom layouts and preferred by fans of minimalist aesthetics.

- **XDA:** Similar to DSA but slightly taller and wider. Flat across all rows, offering a uniform feel and smooth transitions between keys.
- **MBK:** A low-profile uniform keycap commonly used on low-profile keyboards or split/ergonomic builds. Great for portability and comfort.

4.3 Materials

Keycap Materials

Keycap material plays a major role in how your keyboard feels, sounds, and even looks over time. Here are the most common materials used in keycap sets:

ABS

- **Feel:** Smooth and lightweight, with a slightly soft texture.
- **Sound:** Tends to produce a higher-pitched, “clacky” sound.
- **Pros:** Affordable, widely available, often used in colorful sets and novelty caps.
- **Cons:** Wears down over time—can develop a shiny, oily look with heavy use.

PBT

- **Feel:** Rougher, more textured surface with a solid, matte finish.
- **Sound:** Deeper and more muted than ABS—produces a satisfying *thock*.
- **Pros:** More durable, resistant to shine, and holds legends well over time.
- **Cons:** Slightly more expensive and can warp during manufacturing (especially in thicker sets).

PBT VS ABS



Other/Hybrid Materials

- **Keycap blends (e.g., ABS+PBT):** Some manufacturers combine materials to strike a balance between durability, texture, and cost. These blends aim to get the best of both worlds—PBT’s resilience with ABS’s vibrant colors or easier molding.
- **Metal/Wood/Ceramic:** These exotic materials make for stunning and unique keycaps. Metal keycaps offer a premium, cold-to-the-touch feel, while wood brings warmth and a natural aesthetic.

Ceramic provides a smooth, glossy finish. All are incredibly eye-catching—but they’re rare, pricey, and typically used for accent keys rather than full sets.

- **Resin/Artisan Caps:** These handcrafted beauties are usually reserved for single keys like Esc or Enter. They come in all sorts of creative designs—from miniature landscapes to glowing figures—and are a great way to add personality to your keyboard. While stunning, they’re not meant for full coverage due to their cost and varying shapes.



4.4 Links

- [MT3 Sculpted Keycap Set](#)
- [Cherry Laser Custom Keycap Set](#)
- [SA Carbon Custom Keycap Set](#)

5 Advanced Topics

While this guide covers the essentials for customizing a hot-swappable keyboard, some topics are intentionally left out to keep things beginner-friendly and focused. Here are a few areas we didn't dive into:

- **Frankenswitches:** Mixing parts from different switches to create custom *Frankenswitches* is a fun and creative venture for keyboard enthusiasts! However, it's a bit more advanced and beyond the scope of this guide.
- **Plates:** Plates, whether metal or plastic, provide crucial support for your switches. While they do influence the typing feel and sound, they're primarily something to consider when starting a build from scratch.
- **Wrist Rests:** Ergonomic and comfort-focused options are fantastic for enhancing your typing experience, but they're a bit beyond the main focus of keyboard customization here.
- **Stabilizers:** To ensure smooth functionality for larger keys such as the spacebar or tab, stabilizers are essential to minimize wobbling. However, compatibility can sometimes be a challenge, as the stabilizers might not perfectly fit your keyboard's plate or PCB. For the best results and a hassle-free experience, we recommend sticking with the stabilizers that come pre-installed on your keyboard.