

## Balling on a Budget: Gateron Yellow Switch Review

-ThereminGoat, 07/25/2020

While I always feel inclined to point out that it has “been a bit” since my last review or document posting, regardless of how long it has been since I posted one, I can certainly say that this document has taken a bit longer to get out than I had hoped for. Aside the general day-to-day life stuff that keeps us all occupied, I’ve been especially busy over the last few weeks not only preparing for but beginning my internship that I had discussed in previous documents. With everything going as smoothly as possible, it has still been decently difficult to adjust to the extended hours of my work (84 hour weeks) and what that means with respect to work-life balance. As well, I’ve been strongly missing having my collection of switches with me, as it is currently a couple of states away and will be unable to join me due to the logistical nightmare that that would entail. That being said, I’ve not stopped collecting and am even in the process of getting switches delivered to the hotel that I am currently staying in just so I don’t have to miss out on the new and interesting stuff that is coming out in the meantime.

As could be inferred from my lack of immediate collection to reference, this document and others that I will be putting out in the next few months may be a bit different than the standard reviews which you all have come to know (and hopefully love). First of all, I will likely be publishing more documents surrounding stuff that isn’t direct reviews of switches – such as things like my Beginner’s Guide or my Switch Plastics Memo – as these don’t require me directly having switches in hand and yet are still extremely important and pertinent to switches as a whole. Secondly, and against wishes that I have stated prior, direct switch reviews such as this one are going to temporarily rely solely on a score system, rather than having the standard comparison pieces that I normally do. Do not be alarmed, though, as is it is my intent to go back and edit any direct switch reviews I write in the coming months to include comparison remarks once I am able to get ahold of my collection again. As well, I hope this will serve to help introduce the aforementioned system into my reviews such that they will stay for the foreseeable future. Thus, when this is all said and done and I am reunited with my collection, my reviews will now have *both* a scoring system and their comparison remarks.



**Figure 1:** "Cool, but when are you going to review Jailhouse Blues, Goat?"

Now, with all of the clerical changes and un-fun details out of the way, I’ll address the obvious. I can imagine that you saw the title to this and thought something to the effect of: “*Haven’t Gateron Yellows been reviewed a million times over, Goat?*” And to that I would say that you are absolutely right. However, I think it is important to sometimes review switches that are currently, and have always been, stocked as they serve not only as a litmus test for you to gauge how good I am as a reviewer against

something so commonly known and seen, but also for me to give my own take on the ever classic review. As well, with my site now having passed 50,000 page views in under 5 months of time, I have seen a greater influx of newer readers who are still trying to figure out whether they like linear or tactile switches more, much less what flavor of JWK linear switches they want to try this month. So, to cross the desires of helping introduce new people to a much more easily attainable switch and of reviewing an all-time classic my way, I present to you my take on Gateron Yellows. (I may have also snuck some into my suitcase before the internship trip to keep me company, as well.)

Visits	Pageviews
22.2k	50.9k
22,205	50,873

**Figure 2:** I'm honestly not much one for milestones, but it absolutely blows me away that this many people have stopped by the website. I appreciate it more than you could possibly know.

### Switch Background

I'm not going to lie – this was certainly one of the most difficult sections I've ever had to start out writing, or even plan out how I was going to go about it. Gateron Yellows are timeless. They're like the dust that was floating around billions of years ago that crashed together to eventually form our planet. Or at least, that is what they feel like given the stark contrast to the vast majority of modern switches in my collection that have existed for merely a few months or maybe even stayed in the public eye for an entire year, if they are that lucky.



**Figure 3:** They go back further than *and* are better than the worst Back to The Future movie. (Don't at me, you know I'm right.)

Cutting the hyperbole short of a dead horse paste, Gateron Yellow switches made their very first appearance all the way back sometime in 2014 with the Gateron KS-1 line of switches. Very few posts and accounts of these switches have survived from that timeframe, as 99% of people currently in this hobby weren't around or active enough to know of them then. Since their debut, Gateron Yellows have become a staple of the Gateron production line, and have seen reintroductions in the KS-3, KS-3-X1, KS-3-X47, KS-8, KS-9, and KS-15 lines of switches. While announced future lines of Gateron switches are starting to stray from their initial 'classic' color offerings, they do not appear to have slowed down on their production of the various KS lines which do feature Gateron Yellow switches in the slightest. As

well, Gateron's firm connection to the OEM market likely means that these switches will stay around for a very long time, even as they continue to produce various newer products.

As well, to not brush over the alphabet soup of part codes I just listed in the last paragraph, the following is a breakdown of each type of Gateron Yellow switch as well as some distinguishing features which make them recognizable:

### KS-1

Coming in both Clear and Milky top variants, Gateron KS1s featured a unique stem shape that haven't been seen in any other switch design since, nor in any variation save one OEM application for Rantopad that Gateron did back when the KS-1 switches were produced. Featuring a large, square stem with a round divet around the mounting post in the center of the stem, these switches otherwise appeared to be in the traditional MX, PCB mount style. From the only pictures that remain, the Yellow switches came only in clear top variants, as can be seen below.



**Figure 4:** One of the only photographs of a Gateron Yellow KS-1 online, from u/rklm on Reddit.

While not officially recognized on Gateron's website anymore, the one of two sources with photographs of these switches comes with a catalogue from Gateron verifying their existence. Other than that, extremely little information remains surrounding these switches, other than the fact that by coin test, the bottom out force of the Gateron Yellows was well over 100g at the time. These still stand as one of my most sought after switches for my collection, so if you, dear reader, happen to ever see any of these or have any lying around, I will pay quite well for even one to get to add to the collection.

### KS-3

Featuring entirely black housings, these are actually the least commonly seen of the KS-3 variants of Gateron switches that exist. The aftermarket for buying individual switches, for some reason, appears to support KS-3-X1 and KS-3-X47 much more than traditional KS-3 switches. These are still readily available, though, through Eastern markets such as TaoBao or AliExpress.

It should also be mentioned that a couple of variations of these switches do exist at an ultra-technical level with respect to orientation of the cross-points with leaves, a supposed all black variant that is otherwise unmentioned, etc. While I am not

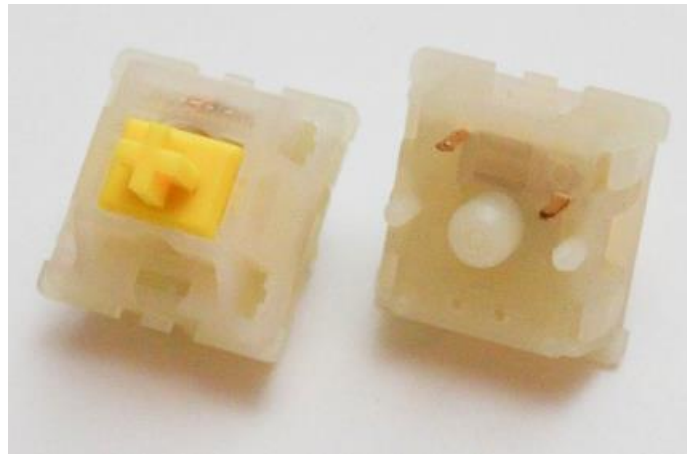


**Figure 5:** Example of Gateron KS-3 switches from Gateron's website catalogue.

normally one to shy away from the technicalities surrounding any switch, I'm choosing not to go into this pedantic level of detail surrounding these variants as I personally have not explored the details surrounding them to the depth that I want quite yet. The only detail I *will* mention, however, is that all three variants of the KS-3 switches were designed to specifically accept two-pin LEDs and only such.

### KS-3-X1

Gateron KS-3-X1s are actually quite well known within the community, but under the name of 'Milky Gateron switches'. Featuring a translucent whiteish-clear housing color, these have been extremely popular among many people in the community for their 'improved sound' over other stock Gateron options. In fact, the desire for Milky Gateron housings even stretched past the 'classic' line and saw usage for a short time in the bottom housings of some Zealios V1 switches, making them more desirable than regular Zealios V1 switches. (As well, for you historians out there, I am aware that Zealios V1 milky bottom housings were more likely introduced for a short while as a better heat-resistant bottom housing to allow for potential wave soldering of switches in OEM builds, though I still feel like their general desire among the community at the time was more based around a difference in switch sound.)



**Figure 6:** Pretty much the only time you want to hear 'yellow' and 'milk' in the same sentence.

### KS-3-X47

While I don't have a solid introduction timeline as to when the X47 line of KS-3 switches came out relative to the other two variants, I would imagine that these came last in the production history. The reason for this is because the housings on these switches were effectively just a combination of the previous two lines – with the X47 line featuring milky top housings and black bottom housings. This almost surely was done to offer a mid-ground in the sound profiles as well as potential differences in feel between the traditional KS-3 and KS-3-X1 switch lines.



**Figure 7:** Gateron Yellow KS-3-X47 from Gateron's online catalogue.

### KS-8

The KS-8 line of Gateron switches didn't really see a difference from the KS-3 line of switches when it comes down to the super technical level. The most noticeable difference that comes with the KS-8 line is that the switches are similar to the KS-3-X47 line in that they feature a black bottom housing, but instead of a translucent, 'milky' top housing, the KS-8s feature a completely transparent top housing. The

second change, which is much less noticeable, is that the KS-8 switches can support four-pin LEDs rather than the two-pin option seen in KS-3s.



**Figure 8:** Gateron Yellow KS-8 switch. (Not my favorites, but my among my first Gateron switches.)

### KS-9

The KS-9 line of Gateron switches are quite a bit different in this progression of changing appearances. Rather than changing just the bottom or top housing color/material, these feature a transparent top housing with an ‘RGB’ style bottom housing which are opaque white in appearance. These were developed in order to be more compatible with builds that featured SMD LEDs, rather than through-hole style ones.



**Figure 9:** Gateron Yellow KS-9 render from their online catalogue.

### KS-15

Featuring the same housing style as the KS-3-X47 line of switches, these were the first announced and produced optical switches from Gateron. While various switch lines have been announced in the future, which will explore things like magnetic and optical style switches rather than traditional, mechanical style, these are the last line of switches to feature a yellow stem as per Gateron’s website at the time of writing this document.



**Figure 10:** Gateron Optical Yellow KS-15s. Note the lack of pins on the switch in the top left.

## **Gateron Yellow Switch Performance**

While in a normal environment I would want to compare as many of the different variations as I possibly could in order to stretch my word count further, I am choosing to do the analysis in this section Gateron KS-8 Yellows.

### Appearance

After having gone through an entire section outlining the differences between the appearances of the different types of Gateron Yellow switches, I figured it seemed slightly redundant to go ahead and repeat this section to describe KS-8s. That being said, I tend to take a personal preference towards the look of either traditional, all-black KS-3s or the milky KS-3-X1s, as they are much more neutral with builds and have a much better color coordination in the case of stem swapping for frankenswitches.

### Push Feel

As for the push feel of these switches, this is honestly the main reason that Gateron Yellows have been so unanimously liked by community for such a long period of time. If you were testing these blindly next to several other, higher priced and more ‘fancy’ linear switch options, you would be impressed at how competitively smooth these switches are. Throughout the entirety of the stroke, the Gateron Yellows are consistent and produce a very nice linear feel with no changes in force or jumps in the stroke due to poor lubrication from the factory.

Additionally, the bottom out on these switches is solid and firm, without producing a plasticky or hollow bottom out feeling like many of its cheaper counterparts seem to. With a spring weight that bottoms out around 50g of force\*, as well, these serve as a nice, lightweight stock option that can easily be upgraded to higher spring weights without suffering in terms of smoothness. In fact, I’ve done exactly this before with Gateron Yellows, upgrading them all the way up to 78g springs, and would gladly use them again in a build in the future because of this performance and ability to move up in weight without losing that smoothness edge that they have.

*Note:* While there is likely *some* difference with respect to push feel between the different variations of KS-3 switches, as well as compared to the others listed above as a result of a slightly different housing material, this opinion on switch feel holds relatively true across all Gateron Yellow switches. There may of course be minor differences in things like scratch, though, for example.

### Sound

Much like with the feel of these switches, the sound is quite pleasant with respect to the fact that there is virtually no sound whatsoever from scratch during activation at any speeds. There is an ever so slight spring ping, however, that does become much more noticeable at higher activation speeds to detract from this point a bit. The bottoming out sound is quite solid and doesn’t have much of a hollow sound to it like many lighter spring linear switches tend to, though by no means is the noise that bass heavy. On the upstroke return, though, there is a bit more of that familiar ‘hollow’ noise that would be expected from lightweight, linear switches like this, almost similar to the sound of a suction cup attaching to an object but in a slightly higher pitched tone.

On no uncertain terms, the Gateron Yellow KS-8 sound profile is quite impressive for the price range it occupies as well as the fact that it is a ‘stock’ OEM option for any store worth its salt. However, it isn’t going to quite compare to absolute top of the line linear switches without some careful tuning or modification. Personally, if you are absolutely driven by the sound profiles of switches, I’d consider trying out one of the other variants of Gateron Yellows, such as KS-3-X1s, before these.

## Wobble

The stem wobble on Gateron stock switches, in general, has never been earth shatteringly good by any stretch of the imagination, but it has always been pretty on par with the price point and availability of them. With respect to the N/S direction, there is a slight amount of wobble in the stem that might be noticeable on taller profiles of keycaps, but otherwise is within an acceptable range for most people. The E/W direction wobble is even better in that respect, and say that it is near the same region that most standard Durock/JWK linears (from memory) that aren't made with specifically modified molds such as C3 Equalz Tangerine V2s occupy.

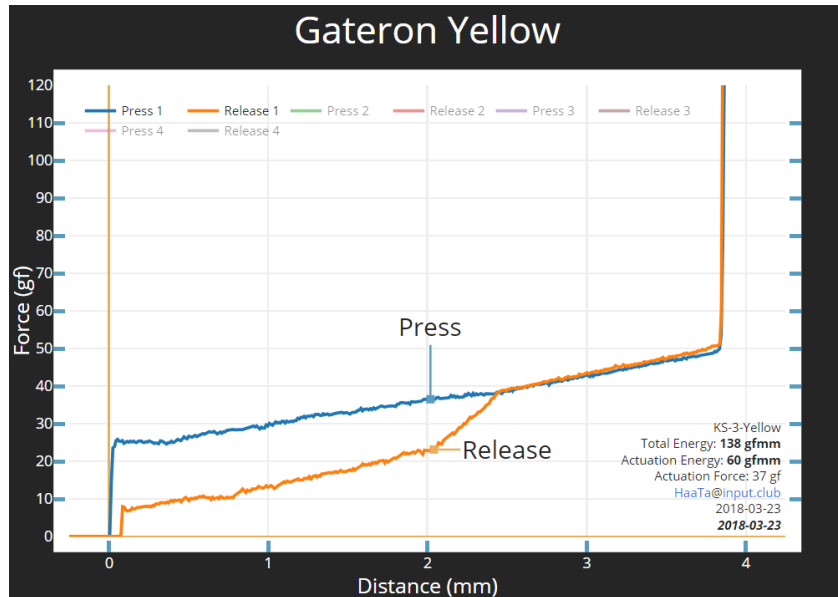
The top housing wobble is virtually non-existent in this switch as well, with maybe only 30-40% of switches per batch giving a slight indication that there may be an E-W direction wobble. When I say indication, I am referring to an ever so slight budge, but not a shift in the top housing that would be indicative of wobble. In fact, this may be preferable in the case of switch modifiers, as this means that there is enough of a tolerance there to allow the Gateron Yellow KS-8s to easily accept films in the case that they were desired for sound-based changes to the switches.

## Other

Normally, I tend to discuss both the price, as well as some of the pertinent details surrounding a switch in the background section rather than all the variations of it that exist. However, due to the sheer universality of Gateron Yellows across the community, it's extremely hard to narrow down on either of these points. This is especially relevant to the price, as nearly every single vendor sells Gateron Yellows for a slightly different price and the sheer range of values makes it hard to narrow down a good estimate. While I have seen these switches direct from China via way of Aliexpress as cheap as \$0.11 per switch, western facing markets will commonly price most variants of Gateron Yellows between \$0.20 and \$0.30 a switch due to associated costs of importation. Needless to say, these are most certainly a cornerstone of the 'budget' option, running often at half of the price of new, more 'hyped by streamer' linear releases.

Another area where this switch is hard to pin down the truth on is with respect to the weighting of the spring. As I have discussed previously in my Beginner's Guide, 'activation force' is a slight bit of a misnomer when it comes to springs, and I am much more a fan of using bottom out weight as being indicative of a switch's feel, and especially so with linear switches. Thus, with a wide range of information out there regarding the weighting of these switches, I am going to refer to HaaTa's force curve for Gateron Yellows. The reason that I am going to refer to this option, specifically, is that this is the most transparently built and precise force curve generator that the community has seen that does not have apparent influences from a vendor or manufacturer. I would highly recommend giving a read of his process of creating his force curve device in the Further Reading section, as it shows a deep level of technical work that few people would even want to attempt.

Thus, looking at HaaTa's force curve generator, below, for a KS-3 Gateron Yellow, I would say that the bottom out force of the Gateron Yellows is approximately 50g, while the listed 'actuation force' for most websites should be around 36g of force. This is not to say that this is the absolute truth of the matter, though these are the numbers that I am inclined to support the most. As well, while I realize his force curve is reading a KS-3, rather than the KS-8 which I am reviewing, there was no indication made with respect to changes in springs between variants of Gateron switches after KS-1s that would lead to a significantly different force curve than the one shown here.



**Figure 11:** HaaTa's Gateron Yellow KS-3 Force Curve.

### Comparison Notes to Other Notable Linear Switches

*Note* – These are not aimed at being comprehensive comparisons between all factors of these switches as this would simply be too long for this writeup. These are little notes of interest I generated when comparing these pieces to the Gateron Yellows side by side. (Edited in on 9/19/2020)



**Figure 12:** Switches for comparison. (L-R, Top-Bot: Novelkeys Cream, Gateron Ink V2, C3 Tangerine V2 (62g), Tealios V2, Cherry MX Black, Pinoko V2)



### Novelkeys Cream

- Fresh out of the box with no modifications made to them, the Cream switches have a similar feeling scratch to that of the Gateron Yellows, but a noticeably greater amount of it.
- While the Gateron Yellows and Creams share fairly similar E/W stem wobble, the N/S stem wobble on the Gateron Yellow is noticeably greater.
- Aside the scratch, the biggest difference in sound between these two comes in the spring ping that is heard from the Yellows at higher activation speeds.

### Gateron Ink V2

- While they are quite close in terms of overall smoothness in the push feel, the Gateron Ink V2s narrowly edge out the Gateron Yellows as being slightly smoother.
- The Ink V2 has a slightly deeper bottoming and topping out sound than the Gateron Yellows, though this could easily be chalked up to specifically the sound profile of the KS-8s, rather than another housing type.
- Much like the Cream switches, the Gateron Ink V2s have comparable E/W stem wobble to the Gateron Yellows but a bit less wobble in the N/S direction of the stem.

### C<sup>3</sup> Equalz Tangerine V2 (62g)

- To nobody's surprise, the Tangerine V2 has significantly less stem wobble in both the N/S and E/W directions compared to the moderately noticeable to noticeable stem wobble in the Gateron Yellows.
- While the topping out sound of the Tangerine V2s is slightly punchier and more solid, the topping out sound of the Gateron Yellow is slightly higher pitched and thin in sound. This, again, could easily just be chalked up to the KS-8 housings and may not be indicative of all Gateron Yellows.
- No noticeable spring ping in the Tangerine V2s at all, regardless of typing speed.

### Tealios V2

- Of all of the switches on this comparison list, the Tealios V2 have the most comparable spring ping at higher activation speeds to the Gateron Yellows.
- While having comparable E/W direction stem wobble to the Yellows, the Tealios V2 have a noticeably lesser N/S direction stem wobble.
- Likely due to the solid bottom housings on the Gateron Yellows, the Yellows have an ever so slightly deeper bottoming out sound than the Tealios V2.

### Cherry MX Black

- Of all of the switches on this list, the Cherry MX Blacks have the deepest bottoming out and topping out sound and are noticeably deeper pitched and more firm than the Gateron Yellows.
- Even though the sound may be different, the wobble of the MX Blacks is nearly identical to the Gateron Yellows.
- While the scratch in the Cherry MX Blacks is significantly more noticeable in terms of sound, it is only slightly more noticeable in terms of push feel as compared to the Gateron Yellows.

### Pinoko V2

- While there is scratch in the push feel of both the Pinoko V2s and Gateron Yellows, the scratch is slightly lesser and 'finer' feeling in the Pinoko V2s.
- As expected with any JWK property compared to any Gateron switch, there is significantly lesser stem wobble in both the N/S and E/W directions in the Pinoko V2s than the Gateron Yellows.
- While the topping out sound of the Gateron Yellows is quite thin and sharp, it at least does not carry the same 'plasticky' tone that the topping out of the Pinoko V2s does.

## Scores and Statistics

*Note* – These scores are not necessarily completely indicative of the nuanced review above. If you’ve skipped straight to this section I can only recommend that you at least glance at the other sections above in order to get a stronger idea of my opinion about these switches.

Gateron Yellow (KS-8)		
27	/35	Push Feel
15	/25	Wobble
6	/10	Sound
16	/20	Context
8	/10	Other
72	/100	<b>Total</b>

As you can see from the above chart, this is the new system through which I will aim to score switches for my review. A breakdown of each section, as well as a short, specific explanation for this rationale with respect to the Gateron Yellow KS-8s may be found below.

### Push Feel

The score for ‘Push Feel’ is effectively a combined, quantitative number to describe all of the things I look at during a normal, written review. Things such as smoothness of a stroke, consistency across various activation speeds, and any potential changes in feeling at upstroke and downstroke are considered when providing this score. As well, detractions are considered for things like bottoming out and topping out feeling, presence of scratch, spring and leaf ping, etc. This will be scored out of 35 points.

As a stock switch, the Gateron Yellows are honestly quite impressive in terms of stroke feeling, smoothness, and consistency. While I’ve discussed my appreciation for the switches above, they do suffer a bit in terms of the bottoming out and topping out feeling, as well as not quite being nearly as smooth as they *could* be.

### Wobble

The score for ‘Wobble’ is a combined score analyzing both stem and top housing wobble in the N/S and E/W directions. More points are awarded for tighter fitting top housings as well as an overall reduction in stem wobble. This will be scored out of 25 points.

While my opinion has been listed above for the wobble of the Gateron Yellow KS-8s, the biggest detractor from their score comes down to the stem wobble, with an emphasis on the wobble in the N/S direction in particular, as it is objectively not up to par with more recently released linear switches.

### Sound

The score for the ‘Sound’ section is a reflection of the qualities I normally explore in reviews, such as noises related to scratch, spring ping, leg-leaf interaction, bottoming out, and topping out noises. While sound is an extremely subjective measurement (and hence the lesser point weighting), this score will be based on objective deviance from what is commonly wanted in the switch analyzed. This will be scored out of 10 points.

Gateron Yellow KS-8s really do take a hit to the overall sound as a result of the relatively ‘odd’ sounding top out noise, as well as a spring ping that may be noticeable at faster typing speeds.

## Context

One of my biggest concerns when first developing this score system was trying to objectively quantify a switch both in terms of its performance *as well as* its community-wide reach. With an ever decreasing gap in differences between newer and newer switch releases, things like their contextual release can easily make the difference in how ‘good’ a switch is perceived as. This section will include considerations to price, design theme/execution, longevity within the community, accessibility, and potential for modification and use in frankenswitches. This will be scored out of 20 points.

Aside the slightly marred objective performance, Gateron Yellow KS-8s are truly one of the most accessible, affordable, and usable linear switches in this hobby whether they go straight into a board or are pieced into frankenswitches. They’ve been around for almost six years now in one form or another, and the acceptance of them into the community truly makes these a ‘balling on a budget’ option. The only real detractors from the KS-8s come with respect to their design, as other iterations such as the KS-3-X1 and X47 have seen even more desirability than the KS-8s.

## Other

The ‘Other’ section simply is my section to get to afford points that don’t necessarily fall within any of the above categories, or that escape a certain realm of objectivity. While I may easily get some shit that this inflects some level of subjectivity into my numerical rating, I have kept the points low in this section much like with the sound points. As well, I’d like to point out that regardless of how objective I *try* to be in my reviews and documents, there is and always will be some air of subjectivity about it.

Gateron Yellows, and KS-8s especially, were some of the first switches I ever encountered in this hobby, and they are absolutely classic cornerstones of the beginner and frankenswitch market. Whether or not you personally prefer them, they’ve had a large, inadvertent impact on how many of us see and judge both linear switches and ‘budget’ options within the community.

## **Final Conclusions**

I don’t really think that there is much to say here about these switches that I haven’t already clarified through both the writing and the scores above. While KS-8s are most certainly not my favorite of the Gateron Yellow switches that exist out there, they were among the very first switches I bought in build quantity and had plans to use in my, at the time, first real keyboard build to come. Unlike Cherry’s seemingly daily retooling which leads to variations and dips in quality over time, Gateron Yellows have seemed to always ubiquitously sit in a positive light within the community. As well, these are one of the extremely rare switches around that you will see somebody 5 days into the hobby and 5 years into the hobby willingly use in a keyboard build. If you are a beginner, veteran, or anywhere in the middle and want to use a truly good switch for about as cheap as they come price wise, I can not highly enough recommend Gateron Yellows.

## Further Reading

### Novelkeys Gateron Yellow Sales Page

Link: <https://novelkeys.xyz/products/gateron-switches>

Wayback: <https://web.archive.org/web/20200725072809/https://novelkeys.xyz/products/gateron-switches>

### Cannonkeys Gateron Yellow Sales Page

Link: <https://cannonkeys.com/products/gateron-yellow-10>

Wayback: <https://web.archive.org/web/20200725072849/https://cannonkeys.com/products/gateron-yellow-10>

### KBDFans Gateron Yellow Sales Page

Link: <https://kdbfans.com/products/smd-gateron-switch>

Wayback: <https://web.archive.org/web/20200725073030/https://kdbfans.com/products/smd-gateron-switch>

### Switches.mx Gateron Yellows

Link: <https://switches.mx/gateron-yellow>

Wayback: <https://web.archive.org/web/20200725073142/https://switches.mx/gateron-yellow>

### Glarses' Gateron Yellow Review

Link: <https://www.youtube.com/watch?v=oQBWfKC5nxU>

### Deadspirit's Gateron Yellow Sound Test

Link: <https://www.youtube.com/watch?v=7e3Ph4vQHME>

### u/Fitzva's Pretty Gateron Yellow Artwork

Link:

[https://www.reddit.com/r/MechanicalKeyboards/comments/cm1cc0/gateron\\_yellow\\_switch\\_illustration\\_messed\\_around/](https://www.reddit.com/r/MechanicalKeyboards/comments/cm1cc0/gateron_yellow_switch_illustration_messed_around/)

Wayback:

[https://web.archive.org/save/https://www.reddit.com/r/MechanicalKeyboards/comments/cm1cc0/gateron\\_yellow\\_switch\\_illustration\\_messed\\_around/](https://web.archive.org/save/https://www.reddit.com/r/MechanicalKeyboards/comments/cm1cc0/gateron_yellow_switch_illustration_messed_around/)

### HaaTa's "The Problem with Mechanical Switch Reviews"

Link: <https://deskthority.net/viewtopic.php?t=15133>

Wayback: <https://web.archive.org/web/20190414035038/https://deskthority.net/viewtopic.php?t=15133>

### Gateron's Website Catalogue

Link: <http://www.gateron.com/col/53504?categoryId=3009&lang=1>

Wayback:

<https://web.archive.org/web/20200725073252/http://www.gateron.com/col/53504?categoryId=3009&lang=1>