

## **Stromer ST7: the new flagship of the Swiss fleet.**

**On 12th July 2022 Swiss speedpedelec manufacturer Stromer introduced its latest model ST7 at the Eurobike event in Frankfurt: an upgrade in range, color, maintenance but also in weight and price. However a standstill in comfort.**

### **Battery and range**

In recent years Stromer faced fierce competition in (battery)range offered by competing brands, most of them using the mid-engine of Bosch who upgraded their Wh output of batteries from 300, to 400, to 500, to a standard 625 Wh, to be multiplied by 2 for brands using its Dual Battery technology. Whether Bosch's new 750 Wh battery will come in a two-pack only time will tell. Same applies for competitor Klever: from 570 to a standard 850 Wh and since 2020 even 1.200Wh.

Stromer sticks to its design feature of a single intube battery in the downtube (uppertube houses the display and ABS controlunit).

Combined with a very slow progress of energy density (Wh versus dimensions) in general, Stromer had to develop a bigger downtube to house a more powerful battery. Also Stromer had to fit the Pinion gearbox.

Both resulting in a new frame, hence the ST7. By the way, the battery cover on the left side is now made of aluminium and beautifully integrated in the downtube, which is an evolutionary step from the rubberlined one that was combined with a plastic cover below, which bulged in time and was not waterproof.



Immediately we see the bulky frame housing the new battery with 1.440 Wh of energy: according to our database resulting in a theoretical range of 91 Km. Still a few evolutionary steps behind the 5.000 Wh we deem necessary for a multiple day serious commuter, see our Dreamspeed 1.0 ideal speedpedelec as promoted on our website in 2020. But the battery itself has a first for Stromer: a charging display consisting of 4 tiny LED's, a feature electric supplier Bosch already introduced around 2010. But a must when checking your charging status when the battery isn't in the bicycle, for instance when in winterstorage.

The new BQ1440 battery weighs around 7 Kg, more than 2 Kg heavier than the former BQ983 (983 Wh, 4,8 Kg). This means that frame, lock, cover, contacts and ejection system must be sturdy while trying to keep the total weight of the bike down: a real conundrum. We think that a removable battery is a must: being it for winterstorage, to be able to transport the bike on a bike rack on Your car or simply to charge it apart from the bike.



Hail to Stromer in this respect as new competitor Opium's battery of 1.670 Wh (to be introduced in 2023 and weighing even more) can only be removed when the, yes as well, Pinion gearbox is removed.

Due to its dimensions the battery cannot be installed on the other Stromer models: the downside of an intube battery, a problem Klever never had to face with their ontube batteries.

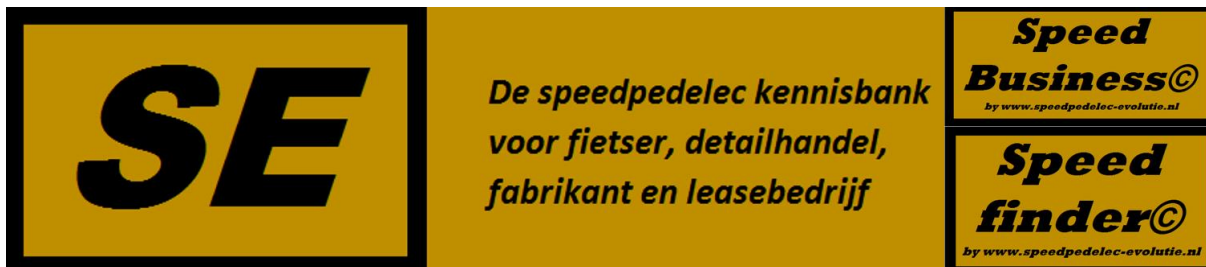
### Gears

The ST7 is the first bicycle ever to be equipped with the new Pinion C1.12i 12-speed gearbox with Smart Shift technology. Its dumb predecessor (introduced in 2016 on Grace's Urbanic series speedpedelecs), needs cables and a gripshift to shift. This gearbox, which even replaces the crankshaft in the middle of the bike, has now been upgraded with shift-by-wire technology operated via newly developed triggershifters: we find two ergonomically placed buttons under the rightside of the steeringbar. You can even choose which button shifts up and down. Pinion followed it's competitor Rohloff's E-14 Speedhub operating system which also automatically shifts down to a starting gear when the bike comes to a full standstill. The so-called Auto-Downshift which You can choose Yourself. Alas the Pinion can only shift one gear per push, the Rohloff however either 1 or 3 gears (Multishift) when the button is pushed longer. Pinion itself didn't know what happens when the juice runs out as the "i" feeds on the main battery. We guess the current gear will be finalized or it downshifts to the starting gear before dying. And maybe in the future the Pinion can be made full-automatic (both up- and downshifting) using the preferred cadence of the cyclist as main input, just like the Enviolo Automatiq. Another way for Stromer to get a better comfort rating.

We hope that the Pinion operating system (the gearbox itself requires only a yearly or 10.000 Km oilchange) will prove to be a reliable one as Pinion claims that it can be shifted even under load: a characteristic cyclists will surely test to the limit. In any case the Pinion gearbox offers a way to attain less unscheduled maintenance compared to a derailleur/chain system, a must for leasing companies which share of newly sold speedpedelecs is increasing year after year (Belgium 1<sup>st</sup> half 2022 at 35,6%, source Traxio).

### Motor

Again the output of the rear hub motor has been increased: 52 NewtonMeters and 940 Watt. We think this kind of power is a must when operating speedpedelecs between cars on streets where cycle paths are prohibited or simply not available. And thereby enabling speedpedelecs to be considered as a serious car-alternative in the challenges of mobility and climate change. But the power also reaches it limit as it has to be transferred to the road by a single wheel. Only the competing Belgian Ellio brand offers all-wheel drive (since 2020) possibly to be followed by Van Moof's model V which was scheduled for introduction end of 2022.



Between motor and gear a Gates beltdrive is fitted, the ideal solution in our view. Environmentally for its lack of lubrication and regarding operational reliability and financially for its lack of maintenance. Also no fragile derailleurs. A rather large extra wheelie under the belt brings it to the proper tension and prevents it from slipping over the sprockets' teeth when the cyclist accelerates with full force. Let's hope Stromer has chosen the steel instead of the aluminium beltsprockets, the first promising less wear (thus maintenance).

The wheelie itself is pushed against the belt by a spring which, due to its low position in front of the gearbox, catches all the dirt/water leaving the front wheel: it is prone to malfunction. On the rear right side of the frame 4 tiny black bolts betray the existence of the framebreak, needed to change the belt after 20.000 Km or more, as it cannot be divided like a chain.

### **Connectivity**

The Stromer brand defined connectivity and the ST7 is top notch in this respect. No surprise there. The features include GPS location which is part of the anti-theft measures like keyless and smartlock. Via an app You can personalize the motor settings or more important give your bike a name: we suggest "Lucky number 7". Software updates go "over the air" so no visit to the dealer is necessary. No search is needed for the display which is still integrated in the toptube: another design feature typical of Stromer all being it not an ergonomically one. You have to invest some time to study Your bikes' display and app to prevent a burn-out at Your dealer.

Few brands can afford to develop foolproof connectivity as the cost price per speedpedelec sold would be very high. Only brands manufacturing e-bikes (max 25 Km/H) as well could sell enough numbers for these investments. Competitors could use the latest Swiss FIT technology, which was also presented at Eurobike 2022, originating from Biketec AG (the Flyer brand). But the impact of connectivity in general is rising by the year.

### **Comfort**

As said before we rate the comfort of all Stromers low as their standard models lacks front suspension, and their frames aren't built for rear suspension. Currently only Klever's B series and the Belgian Aska bike provide rear suspension combined with a rear motor. However a Wren upside-down front suspension is optionally available just as the best in class Cirrus Kinect saddle suspension which makes You feel like Aladdin on his magic carpet. In any case comfort is standard derived from the fat Pirelli tyres with a width of 57 Mm which happens to be the average width of all tyres on speedpedelec models in 2020.

The ST7 is equipped with an ABS brakingsystem from the Italian Blubrake company and a Supernova headlight with a daytime runninglight, a low beam and a powerful highbeam: all necessary safety features, not only for speedpedelecs.

The steeringbar looks like an integral part of the bike with its thick stem. From the cyclists point of view no cables or wiring are visible. From below we see the wiring disappear in the stem, through the



frame, its exits only to be found by a trained eye. A clean look. We hope that the, midmounted, sidestand can handle all the weight.

The Launch Edition of this flagship comes in the color Solid Gold, undoubtedly a hint to its price of € 12.140,00 (Dutch price, with suspensions even € 13.375,00). In 2023 the “regular” ST7 will be available in only Dark Platinum. In this respect marketleader Stromer neglects the many colors competitors offer on their speedpedelecs where customization in all price ranges is common.

### Market

Stromer is the global marketleader in speedpedelecs. Currently 100.000 bicycles roam the streets and cyclepaths around the world according to Stromer. In The Netherlands the Speedpedelec Evolutie Marketanalyses shows a marketshare of 34% in the whole of registered speedpedelecs on Juli 9<sup>th</sup> 2022, being 10.101 speedpedelecs, amongst them 601 ST5’s, the former flagship of the fleet. Surely the ST7 wasn’t developed for a 6% marketshare of the Stromerfleet which supports the theory that, due to its high price, Stromer relies heavily on growing sales to the leasing world or other companies instead of private sales. And maybe future fiscal or financial incentives give this flagship an extra tailwind.

Overview of the competition with beltdrive (excl. ST2 and ST3, sorted by Price):

Speedpedelec	Front suspension	Rear suspension	Motor place	Max. Battery	Gears	Automatic gears?	Range max. battery	Price w. max. battery
	Ja/Nee?	Ja/Nee?		Wh				
Speedped-Full option-2022	Ja	Nee	Semi-achter	2.400	Rohloff Speed	Nee	160	€ 13.381,00
Stromer-ST7-Launch Edition-2022	Nee	Nee	Achter	1.440	Pinion C1.12i	Nee	91	€ 12.140,00
Opium-6.0--2023	Ja	Nee	Achter	2.140	Pinion C1.12	Nee	143	€ 11.990,00
Coleen-Modern DB--2021	Nee	Nee	Achter	522	(leeg)	Nee	35	€ 9.990,00
Aska---2022	Ja	Ja	Achter	950	Pinion C1.6	Nee	60	€ 8.999,00
Klever-X Speed-Alpha 45-2021	Ja	Nee	Achter	1.200	Pinion C1.12	Nee	80	€ 8.199,00
Ellio-Ellio-Elite-2022	Nee	Nee	Voor+Midden	1.150	Ellio CVT	Ja	54	€ 7.195,00
Stromer-ST2-Basismodel-2021	Nee	Nee	Achter	983	5-Speed by St	Nee	66	€ 6.928,00
Kettler-Velossi 2.0--2021	Ja	Nee	Achter	650	Pinion C1.9 XI	Nee	43	€ 5.899,00

Remarks:

Source: Speedpedelec Evolutie Database©

Klever X Speed Alpha 45 2022: with turning signals.

Opium 6.0 LR: expected intro 2023, main battery non-removable.

Ellio Elite: only CVT full-automatic all wheel drive on the market with cruise control and compact 20 Inch wheels.

Speedped: small Swiss “factory” of former co-founder of the Flyer brand.

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