SECAN 3.0
DETAILED DESIGN NOTES

FAIRLIGHT

DESIGN IS A CARE GAME.
CONSIDER EVERY DETAIL.
BE TRUE TO YOUR VALUES.
GIVE YOURSELF TO IT.
BE RELENTLESS.

Dom Thomas
Co-Founder and Bike Designer

The Secan 2.5 has become our best-selling bike, so I didn't take the development of its successor lightly.

With the Secan 3.0, the focus has been on careful, thoughtful evolution - refining ride quality, enhancing real-world functionality, and improving utility. Every decision has been made with intention, treading carefully to ensure meaningful progress.

The bicycle industry often gets caught up in box-ticking - designing only to meet the latest trends or standards. It's easy to tick all the boxes, but that doesn't always result in a great product. True design is found in the details: the nuance, the compromise, the collaboration, and the hard work at the edges. It's about using scale, skill sets, and hard-earned knowledge to push boundaries, making genuine improvements - even if they're subtle.

Words are easy, but it's the execution that matters. To create something authentic, you have to be willing to scrutinize every detail and put in the hard work. Ultimately, good design is about how a product makes you feel when you use it. I hope that, in some small way, you'll feel the effort we've put into creating something we believe is better.

Thanks for your interest in our bikes and thank you for reading.

Dom

SECAN 3.0 UPDATES

Careful, considered refinement and evolution. Refining ride quality, improving real-world function and utility. Increasing elegance.

- New chain stays and seat stays. Using technology first introduced on the Strael 3.0, we have heavily curved and flattened the stays to maximize compliance. Unique to Fairlight. Post-forming heat treatment adds strength.
- Increased tyre clearance. Now compatible with up to 700 x 53mm and up to 62mm in 650B/27.5".
- Fairlight x Bentley Mk3 dropouts featuring a removable cable stop - so whether you are using mechanical, Di2 or AXS gearing, the frame looks like it was designed specifically for the groupset. Direct mount, standard hanger and T-Type inserts. The disc side insert is now 160/180mm.
- New Cempa 3.0 fork. 160/180mm brake mount. The fork is now rando rack compatible and we have designed a load bearing machined aluminium insert that is bonded into the crown. The fork layup has been updated to provide 10% more compliance vs the Cempa 2.0. The side cage mounts have been raised by 0.5mm to provide a raised surface for cages and rack legs.
- The downtube brake hose clips are now CNC-machined modular parts. Designed in-house; as elegant and light as we could possibly make them. Featuring a beveled cut-out which matches the new cut-out details on the disc side dropout washer.
- Dropper post compatible for 1x set-ups. We do a double-hose version of our new CNC downtube clips. There is a dropper exit port on the back of the seat tube.
- New 3D printed downtube cable guide - available in 1x and 2x versions. The brake hose now routes through the part for a more elegant aesthetic.
- All new 3D-printed bottom bracket cable guide for mechanical gear set-ups. We have made one part do several jobs; as well as guiding the front and rear derailleur cables, it also acts as a guide for the brake hose, dropper post hose and the dynamo rear light wire. Ultra utility - everything in its place.
- Specific 3D printed bottom bracket guide for Di2 and AXS set-ups. Guides the brake hose, dropper post hose and dynamo rear light wire.
- Geometry - Small refinements. The chain stay length has increased by 2mm (430mm to 432mm) to add space for the larger 700c tyres. Head angles have slackened by 0.5-0.75 degrees - in line with the larger tyres, but still very much at the conservative end of the gravel sector. Stack and Reach remain largely unchanged.
- New data engineered top tube pattern. Inspired by mid-century poster art; contemporary and graphical. Seamless design that is designed to look different from every viewing angle. As interesting underneath the top tube as it is on top.

Secan - Concept

The concept of the Secan has not changed; it is our gravel bike. The design of the Secan revolves around the simple idea that you can transition between road and off-road, and ride fast everywhere. It can transform your local riding, as you begin to link up all the best lanes with byways, farm tracks, bridleways and even woodland single track. To us, this is what gravel bikes are all about. An area that you think you knew, suddenly becomes a world of unexplored tracks and bridleways; you see and experience the landscape differently. A local loop in even the most ordinary of landscapes can become so much more. This idea of real-world riding drives the design of the bike. A performance tube set that feels lively and eager, not over-built. A lightweight and confidence-inspiring carbon fork. A geometry and ride position that feels familiar on the road but stable and predictable off-road. A more sloping top tube to aid manoeuvrability and increase comfort when things get rough. Huge tyre clearance, but chain stays only 13mm longer than the Strael. The frame features modular dropouts, ports for dynamo rear lighting, and clever solutions for every type of build configuration; representing a level of care and detailing that we pride ourselves on.

SECAN 3.0 - Tech & Specs overview

Place of Manufacture:

- Handmade in Taiwan.

Dimensions:

- Bottom bracket - BSA 68mm.
- Seat clamp - 29.8mm or 30.0mm.
- Seat post - 27.2mm.
- Front derailleur band - 28.6mm
- Headset specification – ZS44/28.6 | EC44/40
- Rear Axle/hub standard - 142x12mm.
- Axle length - 168mm x 12mm with 1.5mm pitch.

Brake/dropout Standards:

- Flat mount 160mm direct.
- Max 180mm rear rotor.
- Replaceable derailleur hanger - modular inserts.

Tyre Clearances:

- 1x - 650x62 or 700x53
- 1x with fenders - 650x55 or 700x47
- 2x - 650x58 or 700x48
- 2x with fenders - 650x50 or 700x45

Chainset:

- Single ring - 42T max ring (minimum chainline of 47mm). Larger may fit but depends on specific spec of crank & chainring.
- Double ring - 48-31T max (minimum chainline of 46.9mm)
- Triple ring - email for info.

Fork:

- Axle to crown - 398mm
- Rake - 50mm
- Tyre clearance - same as frame.
- Axle length - 130.5mm x 12mm with 1.5mm pitch.
- Internal dynamo sleeve.
- Crown light mount.

Cages & Racks - Frame:

- 2 x sets of bottle mounts in main triangle.
- 1 x triple cargo cage mount on bottom of downtube.
- Rear rack mounts.
- Mudguard mounts.

Cages & Racks - Fork:

- 3 x cargo cage bosses each leg.
- Mudguard mounts on dropout and back of crown.
- Light/rando rack mount on front of crown.

Gearing & Wiring:

- External cable routing.
- 1x and 2x guide options.
- Shimano Di2 compatible and SRAM AXS compatible.
- Rear dynamo lighting compatible.

Torque Settings:

- Brake mount - 8Nm.
- Axles - 12Nm.
- Derailleur hanger - 8Nm.
- For components please refer to manufacturers guidelines.

Weight:

- Frame - painted 56R frame - without bolts, axle or brake mount = 1,987g
- Frame - Bolts, rear axle, brake mount, derailleur hanger & washer plates = 215g
- Fork - painted - without bolts or axle = 495g
- Fork - 8 x steel bolts & alloy axle = 55g

Weight Limits:

- Rider weight limit = 115Kg
- Fork legs = 3kG per side.
- Fork rando rack = 8Kg.
- Total fork limit (legs + rack) = 10kg.
- Rear rack limit = 25kg.
- Combined max luggage limit = 25Kg.
- Total weight limit (rider + luggage) = 115Kg.


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TUBING

Reynolds 853 Top Tube - Custom for Fairlight
853 - 25.4mm - 20/30 oval - 0.8/0.5/0.8

The tube starts life as a 25.4mm round tube and is fully ovalized to 20 x 30mm. This tube is critical in providing the excellent comfort of our frames. The stiffness in the horizontal plane is equivalent to that of a 30mm tube, while the narrow 20mm tube in the vertical plane means it provides excellent comfort, effectively flexing as the wheels try to move away from each other under load. A more standard round 28.6mm or 31.8mm top tube would be torsionally (twisting forces) stiffer, but we design the downtube and top tube to work together in how they deal with the various loads/forces. The tube is butted at 0.8/0.5/0.8.

SIZE 61R & 61T

Reynolds 853 Top Tube - Custom for Fairlight
853 - 28.6mm - 25/32 oval - 0.8/0.5/0.8

On the 61s we use a 28.6mm tube formed into a 25 x 32mm oval.

Reynolds 853 DZB Down Tube - Custom for Fairlight
853 DZB - 34.9mm - 30/40 opposed oval - 1.0/0.8/0.5/0.8

The tube starts life as 34.9mm round tube but is ovalized at both ends to become 30 x 40mm. The ovals oppose eachother; the 40mm horizontal oval at the BB shell adds lateral stiffness, where as the vertical 40mm vertical oval at the headtube resists the braking and ground forces from the most highly stressed area of the bike.

The tube has double zonal butting, which means an extra butt at the headtube end for strength. The butt profile is 1.0/0.8/0.5/0.8.

Reynolds 853 Seat Tube
853 - 28.6mm/29.8mm - 0.9/0.6/1.2

We use a standard butted seat tube designed for a 27.2mm seat post. The majority of the tube is 28.6mm in diameter, where as the top section is externally butted to 29.8mm to give the correct inner dimension for the seat post and to provide extra surface area for the top tube and seat stay welds. The tube is butted 0.9/0.6/1.2.

68mm BSA BB Shell

Tried, tested, proven. We are huge advocates of the standard 68mm threaded BB shell.

4130 CHROMOLY

4130 Machined and Relieved Head Tube

The headtubes actually start off as solid billet and are turned into tubes on a CNC lathe. The headtube is 46.5mm in diameter, apart from at the ends where it is 47.8mm to provide sufficient wall thickness for fitting of the headset cups. The internal measurement is 43.95mm and is designed to accept a 1.5”-1.1/8” steerer tube using a ZS44/28.6 top cup and a EC44/40 bottom cup. The wall thickness of the headtube is 1.275mm. On a full carbon steerer tube, the tapered steerer really does make a difference to how the bike rides, especially under hard braking and high-speed cornering. The headtubes are made to order for our R and T frame sizes.

New - Chain Stays & Seat Stays

For the Secan 3.0 we have adopted technology first used on the Strael 3.0, and heavily formed the rear triangle. Both the chain stays and seat stays are flat ovalized in the centre sections and also curved as much as possible; doing all we can to promote displacement (compliance) in the rear triangle under load. At the same time we have taken the opportunity to further increase tyre clearance. There is literally not a single mm of space that hasn't been accounted for and that we don't control with tolerances.

The new rear triangle required a significant investment in tooling and process. We think it is a substantial evolution for the latest generation of Secan.

4130
CHROMOLY

14mm 4130 Non-Taper Seat Stays - flat ovalized & s-bend.
4130 heat treated - 14mm No Taper - 0.8mm wall.

The relatively small diameter 14mm seat stays have always been an important feature on Fairlight frames. The seat stays on the Secan 3.0 are the first where we have added flat ovalizing to the already small diameter tubes. In the centre of the seat stay, there is now an ovalized section - measuring 11 x 17mm. We also heavily s-bend the stays, which combined with the ovalization promotes flex (displacement), meaning increased comfort, especially over rough terrain. After the multi-stage forming processes, we heat treat the seat stays to add strength. The wall thickness of the tubes is 0.8mm and is sufficient to cope with luggage loads if using a rear rack.


FAIRLIGHT

SECAN 2.5

SECAN 3.0

Here you can see how much we have increased the s-bend shaping on the seat stays. You can also see the extra width created by the flat ovalized centre section.

A pair of the new seat stays after forming, heat treatment, slotting and drilling.

4130 CHROMOLY

19mm 4130 Flat Ovalized Chain Stays
4130 heat treated - 19mm - 0.9mm.

As mentioned in the previous pages, for the v3.0 we have added the Strael 3.0 treatment to the chain stays - but for a gravel bike application. That means smaller diameter tubes (for the tyre and chainring clearance) and thicker walls (for strength and fatigue resistance).

The chain stays are extremely wide in the horizontal plane while narrow and flat in the vertical plane. Pedaling forces are horizontal and ground/rider weight forces are vertical so the shaping of the chain stays provides good power transfer but also high levels of comfort; especially when combined with the new flat ovalized seat stays.

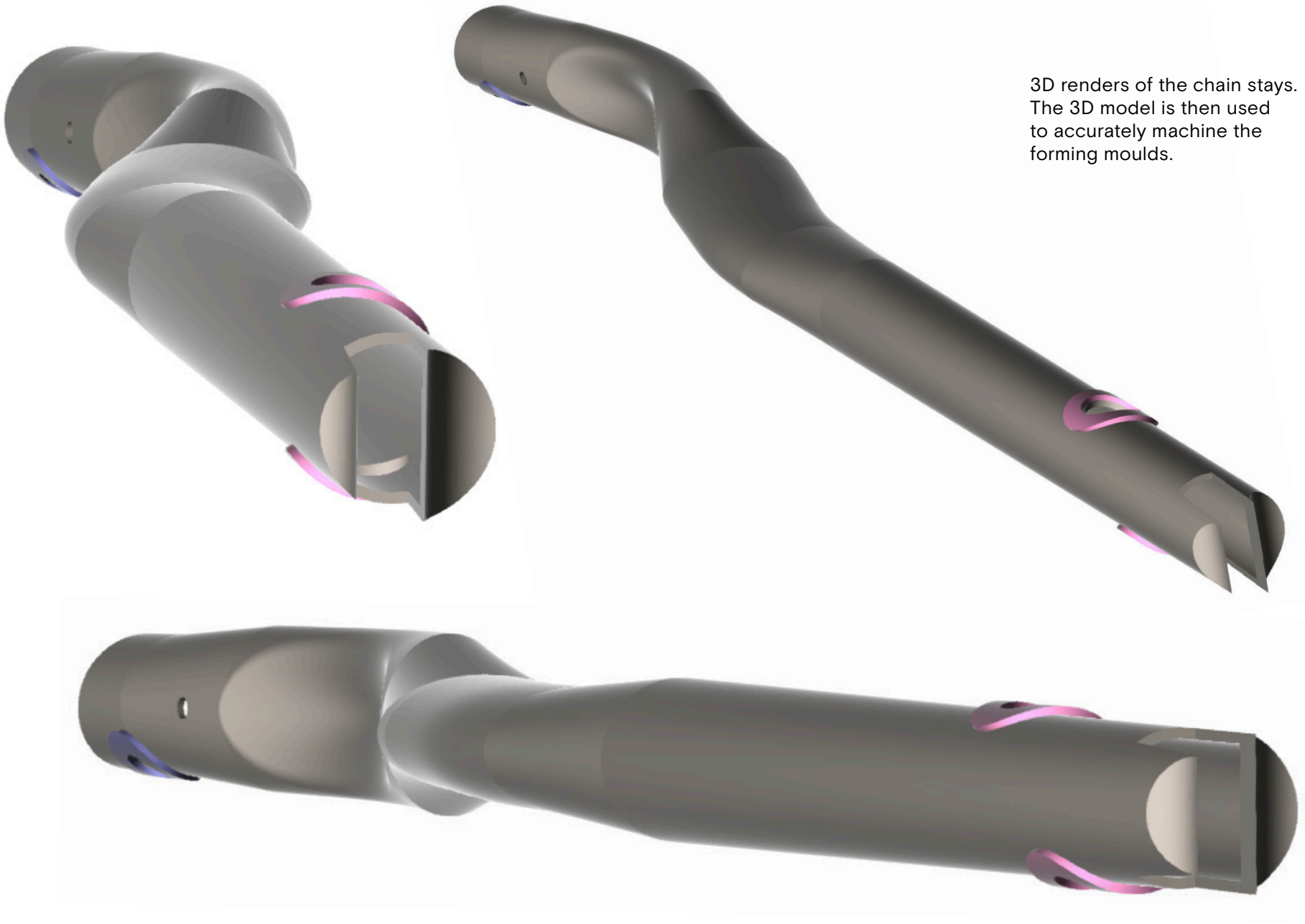
The stays are formed in the same as the Strael 3.0 chain stays. The shaping of the tubes is so complex that we can't make them using traditional tube bending dies, so we worked with our manufacturing partner to create CNC moulds for them. By using this method, the forming is accurate and highly repeatable.

For 700c tyres we recommend a maximum of 700 x 53mm for a 1x chainset and 700 x 48mm with a 2x chainset. The seat tube is also a factor with 700c tyre clearance - see later pages.

For 650B/27.5" tyres we recommend a maximum of 650 x 62mm for a 1x chainset and 650 x 58mm with a 2x chainset.

The frame is designed to use Gravel chainline chainsets such as Shimano GRX and SRAM Road WIDE. See later pages for more detailed chainset information.


M2



3D renders of the chain stays. The 3D model is then used to accurately machine the forming moulds.

A pair of the new chain stays after forming, heat treatment, slotting and drilling.


FAIRLIGHT

Clearance with a 700 x 45mm Panaracer Gravel King X1 on a DT Swiss G1800 rim.

The tyre measures up at 46.05mm.


Panaracer
MADE IN JAPAN
TLR
45C
GRAVELKING | X1
DT SWISS
G 1800
52

Clearance with a 29” x 2.0” Continental Race King on a DT Swiss G1800 rim.

The tyre measures up at 51.63mm.

Clearance with a 700 x 50mm Panaracer Gravel King SK on a DT Swiss G1800 rim.

The tyre measures up at 51.24mm.

Clearance with a 700 x 50mm Pirelli Cinturato Gravel M on a DT Swiss G1800 rim.

The tyre measures up at 53.06mm.

The maximum 53mm tyre (with a 1x chainset) gives 7mm between the tyre and the seat tube with the slackest seat angle. The chain stay length is 432mm, just a 2mm increase versus the Mk2.5.

Chainset compatibilty - Single chainring / 1x

The Secan 3.0 can run any single ring chainset on a gravel chainline. That is a chainline of **47.0mm minimum**.

42T chainring is guaranteed to fit. A larger chainring may fit but depends on the specific crank and chainring.

Most chainset manufacturers offer chainsets that meet this standard.

Examples of compatible 1x chainsets:

- Shimano GRX 11-speed and 12-speed.
- All SRAM Road WIDE.
- Ingrid (with 131 spindle).
- Hope RX (with 133.5mm axle).
- White Industries R30 & G30 with Boost chainring.
- Appleman 2XR with Adventure spindle.
- Garbaruk Gravel chainset.
- Microshift Sword.
- Praxis Zayante Carbon GR & Alba GR.
- Easton EC90 with direct mount chainring.
- eeWings All Road with 3mm offset chainring.
- Campag Ekar GT.

Clearance with a Shimano RX820 40T. (GRX 12-speed)

Chainset compatibilty - Double chainring / 2x

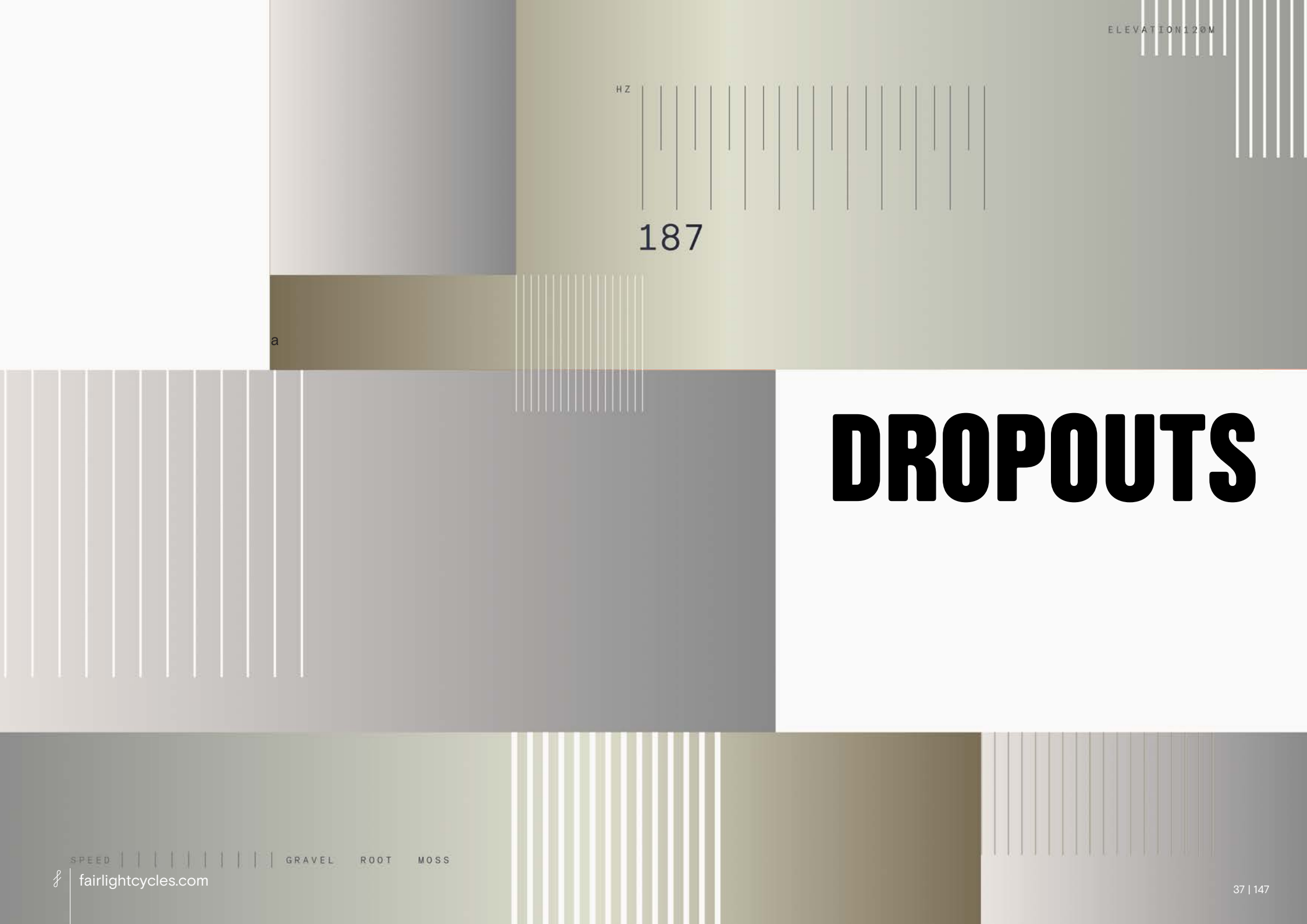
The Secan 3.0 can run any double ring chainset on a gravel chainline. That is a chainline of **46.9mm minimum**.

Most chainset manufacturers offer chainsets that meet this standard.

Examples of compatible 2x chainsets:

- Shimano GRX 11-speed and 12-speed.
- All SRAM Road WIDE.
- Ingrid (with 136 spindle).
- Hope RX (with 133.5mm axle).
- White Industries Square taper with 121mm BB spindle.
- Appleman 2XR with Adventure spindle.
- Garbaruk Gravel chainset.
- Microshift Sword.
- Praxis Zayante Carbon GR & Alba GR.

Clearance with a Shimano RX820 48-31. (GRX 12-speed)



DROPOUTS

Mark Bentley is the man (and moustache) behind Bentley Components. By day, he's an engineer dedicated to supporting scientists, and by night, he's a creator of exquisite bike parts. My journey with Mark began 18 years ago when we both worked together at the legendary British MTB and suspension brand, Pace. Over the years, he's become not only a great friend but also an incredibly skilled designer, tool maker, and CNC engineer. I'm fortunate to collaborate with him regularly on designs for Fairlight.

Mark has an innate understanding of materials - knowing their limits and, crucially, how to machine them with precision. His approach is simple: there's only one way to do things, and that's to do them to the highest standard, every time. The depth of his hands-on experience is invaluable. We're incredibly proud to have the Bentley logo on our products; it's a true mark of quality and craftsmanship. Thank you Mark!

Dom

MK III

Fairlight x Bentley Mk III Dropouts

The Secan 3.0 features our new Fairlight x Bentley Mk III dropouts. The modular concept remains the same as the Mk II, but we have completely remodeled them. We still use CNC machining to make all of the aluminium inserts; whilst expensive (vs cheaper mass production method of 'casting'), it allows us to create exceptional quality parts. The level of machining detail from CNC really says everything about how much care we put into our products. Tooling paths and processes are carefully & skillfully programmed to produce beautiful aesthetic detailing. For the Mk III we have introduced a particularly elegant new into the driveside dropout; a CNC'd removable cable stop. It makes a big difference to the specificity of each build type and it means that whether you are running mechanical, Di2 or AXS gearing, the frame looks like it was designed specifically for it. We still use the same construction method for the dropouts. The steel parts of the dropouts are fillet-brazed together and the ends of the stays are ground and hand-filed to give a seamless transition between the tubes and the plate; these techniques are usually only reserved for the custom world. It is labour intensive, expensive and requires a high skill level from the fabricator. We are proud to be able to show you what is beneath the paint and the anodising.

The Mk III dropouts on the Secan 3.0 feature a 160/180mm flat mount. We recommend using a 160mm rotor. You can now mount the caliper without the adaptor.

The new laser-cut washer plate features cut-out detailing that matches the new CNC brake clips - see later in document.

The Mk III drive side dropout featuring the new CNC modular cable stop.


8 NM
GRX

When running Di2 there is no cable stop, for a super clean aesthetic.


8 NM
GRX
RD-RX825 VIA

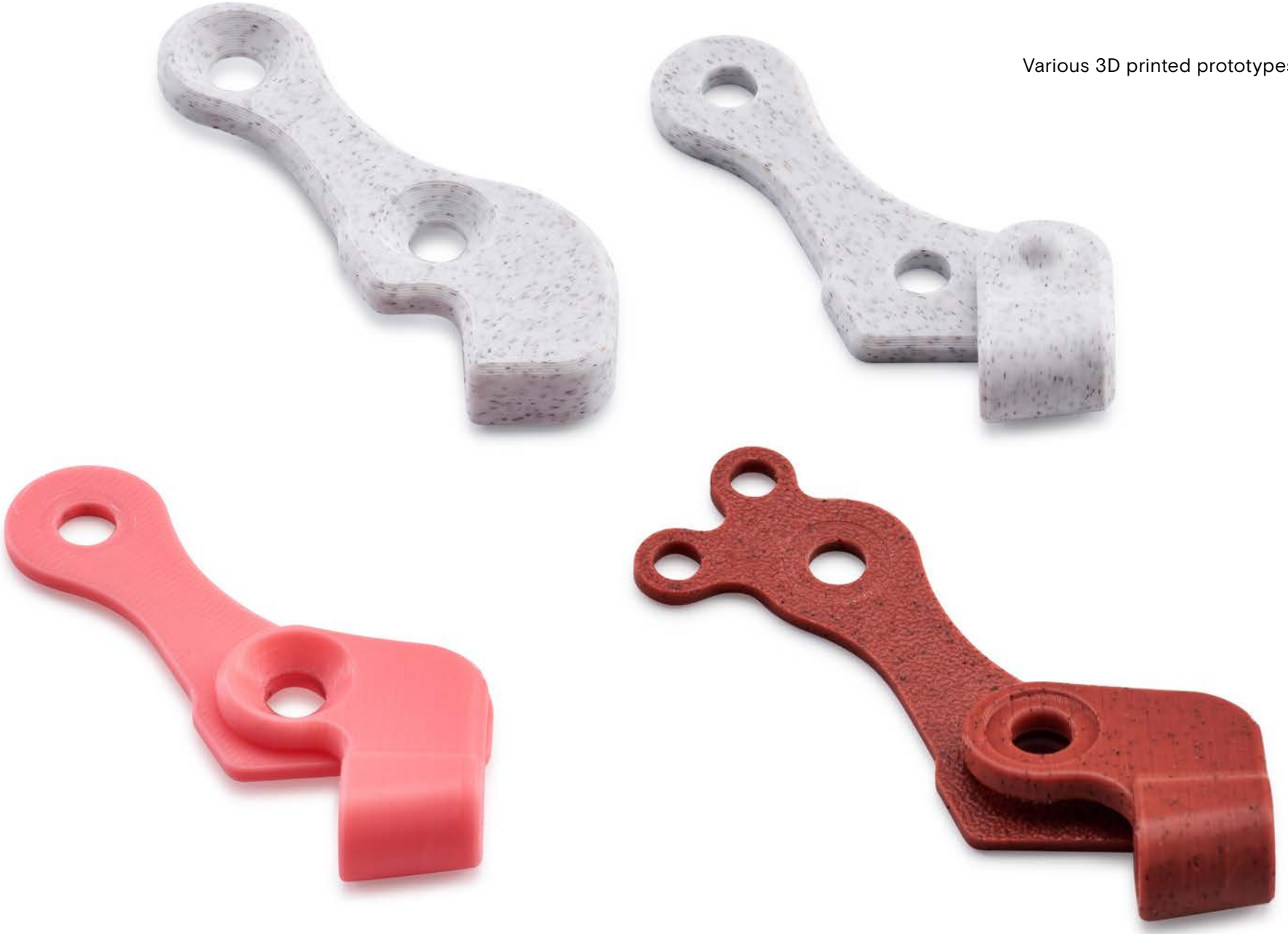
When running SRAM T-type, the modular insert attaches to the outside of the dropout face.

Whether running mechanical gears, Di2 or SRAM AXS, the frame looks like it was made specifically for the groupset.


8 NM

The cable stop has a specific washer plate that it is paired with. The stop features a small, machined pin that locates in the hole in the plate. Notice the little Bentley ‘makers mark’ on the inside face of the part – you’ll never actually see it when the part is fitted, but it’s nice to know it is there.


8 NM



Various 3D printed prototypes.

Drive-side Insert Option 1 – Standard Derailleur Hanger

This insert is compatible with all rear derailleurs except SRAM Transmission (T-Type).


8 NM
GRX
SHIMANO

Drive-side Insert Option 2 - Shimano Direct Mount

This insert can be used with all Shimano Direct Mount compatible rear derailleurs.

Compatible rear derailleurs include:

- **105**: R7000 11-speed, R7100 12-speed.
- **105 Di2:** R7150 12-speed.
- **Ultegra**: R8000 11-spped.
- **Ultegra Di2**: R8050 11-speed, R8150 12-speed.
- **Dura Ace**: R9100 11-speed.
- **Dura Ace Di2**: R9150 11-speed, R9250 12-speed.
- **GRX**: RX810 2x 11-speed, RX812 1x 11-speed, RX820 2x 12-speed.
- **GRX Di2**: RX815 2x 11-speed, RX817 1x 11-speed, RX825 2x 12-speed.

Note: GRX 12-speed 1x does not use the Direct Mount standard.

Drive-side Insert Option 3 - SRAM T-type

This insert is compatible with all SRAM Transmission (T-Type) derailleurs, including Red XPLR AXS 13-speed.

‘A Trojan Horse’ – Our thoughts on SRAM UDH

SRAM pitched UDH as a Universal Derailleur Hanger system to make life easier for consumers and dealers. However, in large part it was a ‘trojan horse’ designed to get frame makers to build in the required interface dimensions for installation of their Transmission (T-Type) rear derailleurs.

The important thing from our perspective, is to give ourselves the best possible chance of designing around any future standards; so that we can hopefully continue to provide compatibility solutions for our customers. Our fully modular dropout system allows us the best chance to do that.

The T-Type insert is mounted to the outside face of the dropout. The bolts are fitted from the outside and screw into the stainless threaded plate which is mounted to the inside face.


SRAM
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The T-Type insert is supplied with 4 x stand-off washers, in case mudguard stays or rack feet need spacing away from the dropout. The 2 x black nylon versions are for use with mudguards, where as the 2 x metal versions are for use with rear racks. Some mudgaurds/racks will not require use of the spacers. The spacers also work well for spacing a rear dynamo mount - see example later in document.

The Mk III 160/180mm brake insert is longer than the Mk II 140/160mm version so we machined a radius on to this corner, to keep the dropout plate as short as possible.

Please note: Threaded hole on the base of the disc side insert is for routing of a rear dynamo wire. More info later in the document.


MK III DM

DAYLIGHT

VERY DARK DAY

107.53 LUX

NIGHTTIME

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MODULAR CABLE GUIDES

EMERALD BLEACHED CEDAR BRONZE

Modular Cable Guides

Some thoughts on integrated cables [and minimalism in general]: Just because something looks minimal and simple, it does not mean it is; the aesthetics of simplicity often cloak artifice and complexity.

We still firmly believe in keeping cables and hoses on the outside of the frame. It allows us to build a lighter frame and of course, it makes building and servicing more straightforward.

We have re-designed our 3D-printed modular cable guides for the Secan 3.0. The main design evolution is that the brake hose now runs through the guide, rather than on top. When combined with our new CNC brake hose clips (see next section in the document) it means the hose sits much closer to the frame and is less visible. To achieve this, we have made the cable stops slightly wider and introduced two channels into the underside of the part. It means that you can run the brake hose on either side of the headtube. It also means that the empty channel can be used for routing a dropper post.

The guides are made from MJF Nylon which is strong and smooth. It has good chemical resistance and there is no strength degradation from UV exposure. The nylon has just the right level of malleability so that the surfaces fit together well with no risk of creaking. It is a great material for this application.

The part is beautifully simple, and it only requires a single M5 threaded boss to secure it. It then utilizes an integrated pin which inserts into the Di2 hole to locate the part and stop it from rotating. In the centre of the location pin is a 4mm hole which allows dynamo rear lights to be routed internally. A grub screw keeps the hole sealed when not in use. More on this feature in the dynamo section of the document.

There are still specific guides for 1x and 2x. For Di2 and SRAM AXS a 6mm rubber bung is provided to cover the Di2 hole and the frame is supplied with an additional CNC hose clip.

2x guide

1x guide

On the underside of the parts, you can see the new channels we have added for the brake hose and dropper post (if using).

1x guide

2x guide

Di2 semi-wireless 12-speed and SRAM AXS wireless. The photo in the top left corner of the page shows how it can be used with earlier generations of Di2.

1x cable guide with the rear brake hose routed on the drive side – for UK / Aus / NZ / Jpn (rear brake on left side of handlebar). Image on the right with a dropper post routed in the other channel.

2x cable guide with the rear brake hose routed on the disc side – for EU / USA / RoW (rear brake on right side of handlebar). Image on the right with a dropper post routed in the other channel.

HZ

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CNC HOSE CLIPS

SPEED SHINGLE BUSH GRASS

CNC Hose Clips

The downtube brake hose clips are now CNC-machined modular parts; replacing the previous braze-on guides with plastic clips. We have designed these parts to be as elegant and light as we could make them. They feature a beveled cut-out detail which matches the new cut-outs on the disc side dropout washer. Pictured is the 1x version - for routing the brake hose only. The main design challenge was that our bi-oval down tube does not have a consistent radius and we didn't want to make four parts, each with a specific radius. Our solution for this was for the hose to securely clip into the part, therefore negating the need for it to sit directly against the tube. Additionally, the hose is still able to slide back and forth within the clip, making assembly and adjustment straightforward.

The clip can be orientated to run the brake hose on either side of the frame.

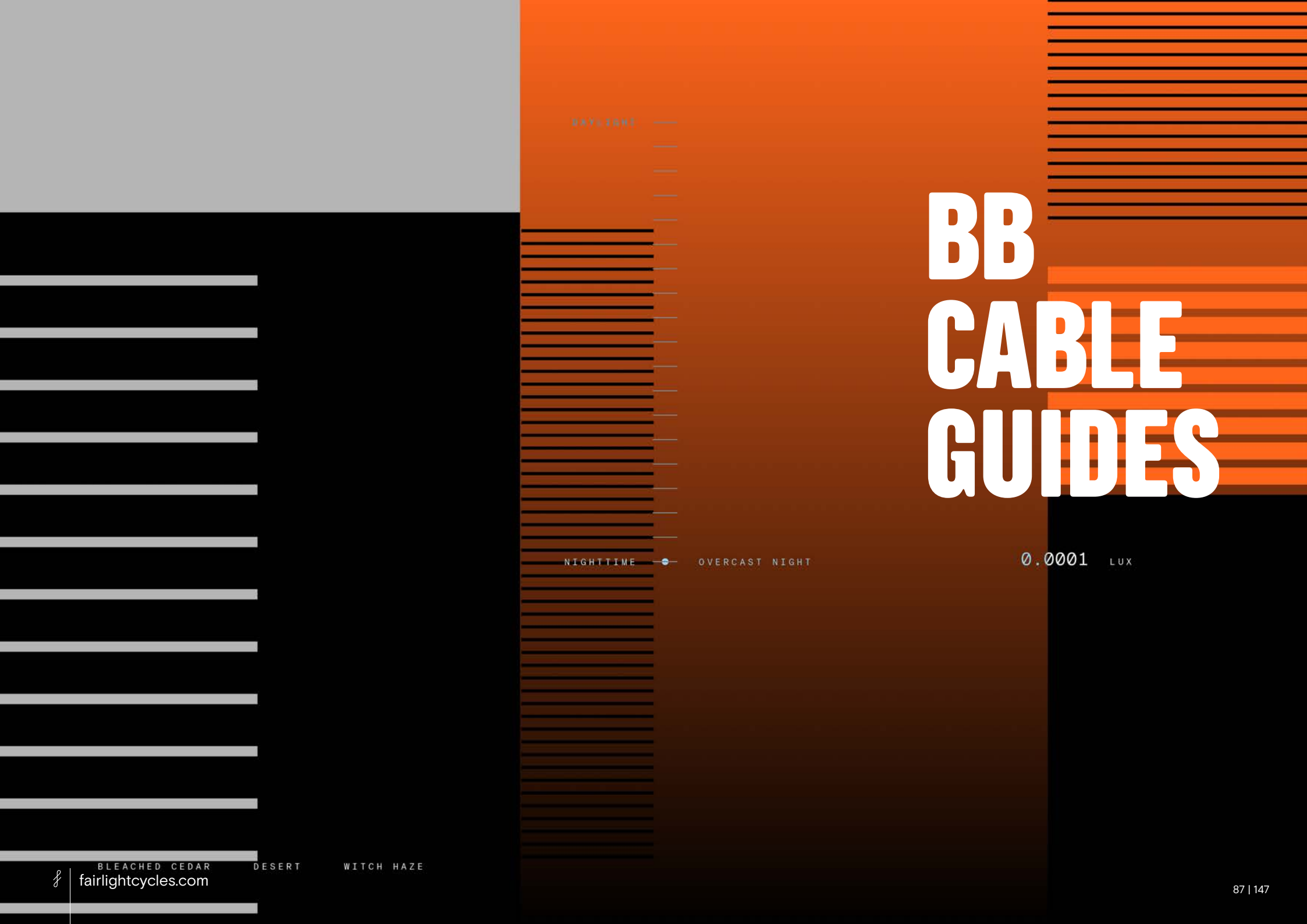
We also offer a 2x version of the modular clips. This version allows you to route a dropper hose, as well as the brake hose.


SN-56T

The top of the clip features a 0.5mm deep bore. A 1mm tall washer sits in the bore and therefore protrudes 0.5mm above the clip. This allows a cage to be installed directly on top without damaging the anodising. See the ‘bottles & cages’ section later in the document.

Here you can see a cargo cage sitting directly on the washer.

Various prototypes. Mainly trying to find the correct radius to work with our bi-oval down tube.



BB CABLE GUIDES

EVERYTHING IN ITS PLACE. A COMMITMENT TO KEEPING THINGS ON THE OUTSIDE.

Mechanical Cable Guide

A new 3D-printed bottom bracket cable guide for mechanical gearing set-ups. The design objective was to make a single part do several jobs. Firstly, as per a traditional BB guide, it guides the inner cables for the front and rear derailleurs. So, what else does it do? It also acts as a guide for the rear brake hose, dropper post hose, and the dynamo rear light wire. Ultra utility - everything in its place.


M24090

The brake hose securely clips into the top of the guide.

Alternative orientation for UK / Aus / NZ / Jpn. Rear brake on left side of handlebar.

If running a dropper post, the cable passes through the channel and then neatly locates into a clip between the two dynamo guide holes.

Alternative orientation for UK / Aus / NZ / Jpn. Rear brake on left side of handlebar.

Here you can see the clip that is located between the two dynamo wire guide holes.

If running a rear dynamo light, the wire exits at the base of the down tube, passes through the guide holes and then re-enters either the drive side or disc side chain stay. We recommend that all dynamo installations are now routed through the guide. It makes BB and chainset servicing/replacement more straightforward - as the wire does not pass through the BB shell.

Alternative orientation for UK / Aus / NZ / Jpn. Rear brake on left side of handlebar. Rear light on drive side dropout.

Di2 / AXS Cable Guide

We have also designed a guide specifically for Di2 and AXS set-ups. Obviously the guide doesn't need the gear cable channels, but it retains the brake hose clip, dropper hose clip and the dynamo wire holes.

The brake hose securely clips into the top of the guide.

Alternative orientation for EU / USA / RoW.
Rear brake on right side of handlebar.

As per the mechanical guide, the dropper post cable clips bewteen the dynamo wire holes.

Alternative orientation for EU / USA / RoW.
Rear brake on right side of handlebar.

For this UK / Aus / NZ / Jpn set-up (rear brake on left side of handlebar) the rear light wire passes into the drive side chainstay.

Alternative orientation for EU / USA / RoW. Rear brake on right side of handlebar. Rear light on disc side dropout.

The guides are 3D-printed from MJF nylon. It has good chemical resistance and there is no strength degradation from UV exposure. The nylon is self-lubricating and we shot peen the mechanical guide to make it scratch resistant.

Design is process and perseverance.

CEMPA 3.0 FORK

Cempa 3.0 Fork

The Cempa 3.0 fork uses the same mould that we created for the Cempa 2.0. However, we have made the following updates:

- **New fork layup. We have increased forward and rearward displacement (compliance) by approximately 10%. We have reduced side-to-side displacement by 7%. That means the fork flexes more from front and rear loading but it is stiffer when side-loading. i.e. hard cornering on descents.**
- **The brake mount is now flat mount 160/180mm.**
- **The fork is now compatible with randonneur style racks. With the help of our vendors, we have designed a load-bearing aluminium insert which is bonded into the crown.**
- **Bottle/adventure cage mounts on the legs have been raised by 0.5mm to give a better surface for mounting cages and rack legs.**

Fork specs:

- Axle to crown length of 398mm with 50mm offset.
- 1.5”-1.1/8” tapered carbon steerer tube. 330mm long.
- 100 x 12mm thru axle dropouts. Supplied with axle. Axle length is 130.5mm and thread pitch is M12x1.5.
- Dropouts have ‘proper’ rack mount eyelets on the rear so no bending of the mudguard stays needed.
- Front and rear M5 threaded mounts in the crown. Front for light mount and rando rack. Rear for mudguards.
- Fully sleeved internal routing for a dynamo wire. Designed around a 3.5mm SON co-axial wire, but also compatible with a 3x4mm Supernova wire.
- 3 x bottle/adventure cages mounts on each leg. All 3 mounting points are joined by a single CNC’d piece of aluminium that is bonded to the inside of each leg. This spreads the load evenly across the leg and provides great strength. Each leg is rated up to 3Kg.
- Rando rack compatible. Max load: 8Kg. Max combined load on fork: 10Kg.
- Tyre clearance: Same as frame.
- Weight: 495g with paint but without axle. 550g with paint, 8 x bolts and axle.


FAIRLIGHT

The Cempa 3.0 features the 160/180mm flat mount standard.


KING
KING
FAIRLIGHT

New Carbon Layup.

Subtle improvements. We have increased forward and rearward displacement (compliance) by approximately 10%. We have reduced side-to-side displacement by 7%. That means the fork flexes more from front and rear loading but it is stiffer when side-loading. i.e. hard cornering on descents.

Load: 20Kg
Displacement: 2.42mm average.
New stiffness: 81.2 N/mm
Cempa 2.0 stiffness: 89.9 N/mm.
Increase in compliance: 10.7% under the specific test conditions.

Load: 20Kg
Displacement: 2.45mm average.
New stiffness: 80.1 N/mm
Cempa 2.0 stiffness: 88.7 N/mm.
Increase in compliance: 10.7% under the specific test conditions.

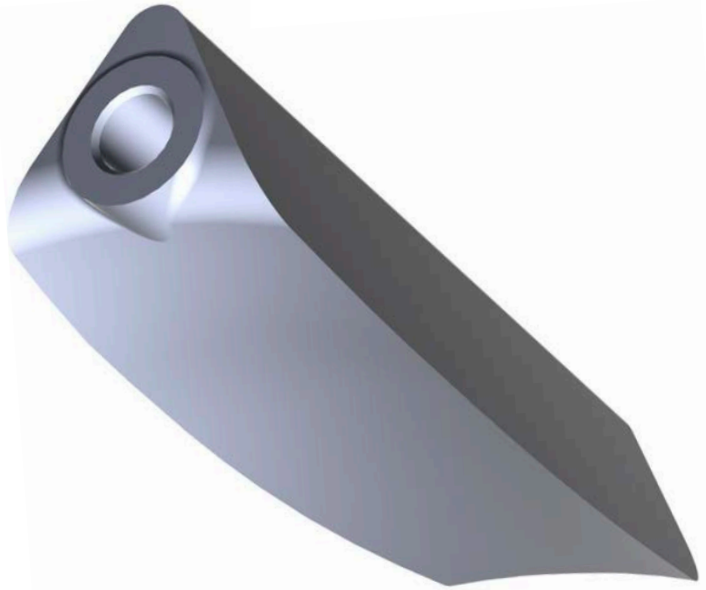
Load: 20Kg
Displacement: 4.1mm average.
New stiffness: 47.8 N/mm
Cempa 2.0 stiffness: 44.6 N/mm.
Increase in stiffness: 6.7% under the specific test conditions

The Cempa 3.0 is rando rack compatible. Max load of 8Kg.

Working with our vendor we have developed an aluminium insert that is bonded into the fork lay-up. It weighs just 14g and due to its shape it can't be pulled out of the crown. After the fork lay-up is complete the ends of the insert are machined back [to leave 1mm protruding at each end] and then holes are drilled and tapped.

The 3D render to the left shows what the crown looks like after the insert has been faced, drilled and tapped.

The 3D renders to the right show the shape of the insert. The part is essentially a triangle, which is why it can't be pulled out of the crown. The bottom of the insert is designed to exactly match the curve on the bottom of the crown.



This is how the insert sits within the fork crown.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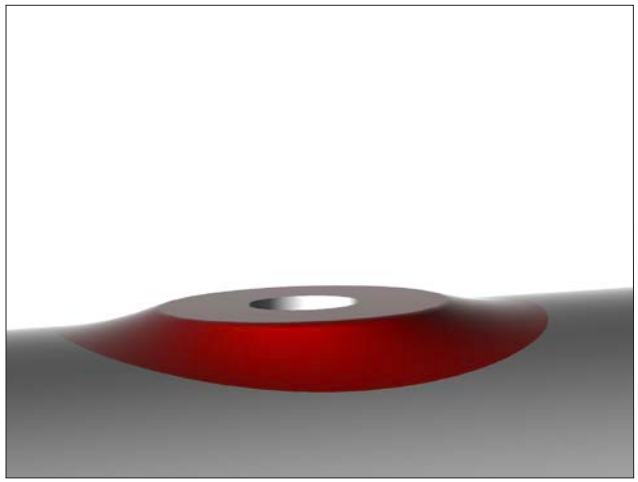
The machined and masked surfaces at the front and back of the crown are the ends of the insert.

The side cage mounts have been raised by 0.5mm to provide a better surface for cages and rack legs.



Clearance with a 700 x 50mm Pirelli Cinturato Gravel M on a DT Swiss G1800 rim.

The tyre measures up at 53.16mm.

The fork still features fully-sleeved internal dynamo routing. Pictured with a SON Edelux 2 lamp with co-axial port for charging a battery pack. This is our standard front lamp offering on framesets and full builds.

The internal dynamo wire routing is fully sleeved. Simply push the wire in by hand and it will exit at the bottom of the leg.

The fork is supplied with 6 x nylon washers. When fitting a cargo cage or rando rack to the fork blades, put the nylon washers between the cage/legs and the fork. They protect the paint and also add damping to reduce the risk of rattling.

Installed cage with the nylon washers fitteed.

REAR LIGHT ROUTING

SCARLETT TANGERINE AZURE BLUE

Rear Light with Mechanical Gears

As already mentioned in the cable guides section, our modular 1x and 2x cable guides are fully dynamo compatible. Simply remove the grub screw to reveal a 4mm hole for the wire to be routed through. The hole size is compatible with SON and Supernova wires.

Rear Light with Di2 12-speed & SRAM AXS

For Di2 12-speed & AXS the wire enters the frame using 6mm hole. An additonal CNC hose clip routes the brake hose [and dropper if using].

Routing Around the BB Shell

As already listed in the BB cable guides section, we now recommend that all dynamo installations are routed through the BB guide. It makes BB and chainset servicing/replacement more straightforward - as the wire does not pass through the BB shell. For example, if you are changing from a 24mm axle (Shimano) to a 29/30mm axle (SRAM DUB OR BB30) then it means you do not have to re-wire your dynamo.

Dropout Mounted Lamp on Drive Side.

In choosing locations to mount a rear dynamo light, our preference is to mount it on the dropout. Alternatively on the back of a rack or the back of the mudguards, but only if either is planned to be permanent. Rear lights mounted on the back of the seat tube or back of the seat post can be obstructed by saddle packs, especially on smaller frames. We like this dropout location as other parts can be fitted or removed without it affecting the light, apart from maybe having to space it out or change eyelet. The other benefit is that the light marks the edge of the bike and thus a driver is likely to give you more space.

If you ride on the left hand side of the road (UK, Aus, NZ, Jpn) then we recommend that you mount the light on the drive side.

Grommets are supplied with the frameset/bike.

Dropout Mounted Lamp on Drive Side with SRAM T-Type insert.

If you are using the T-Type dropout insert, then you will need to use one of the supplied spacers (supplied with all T-Type builds/kits) to space the light mount away from the insert.

Dropout Mounted Lamp on Disc Side

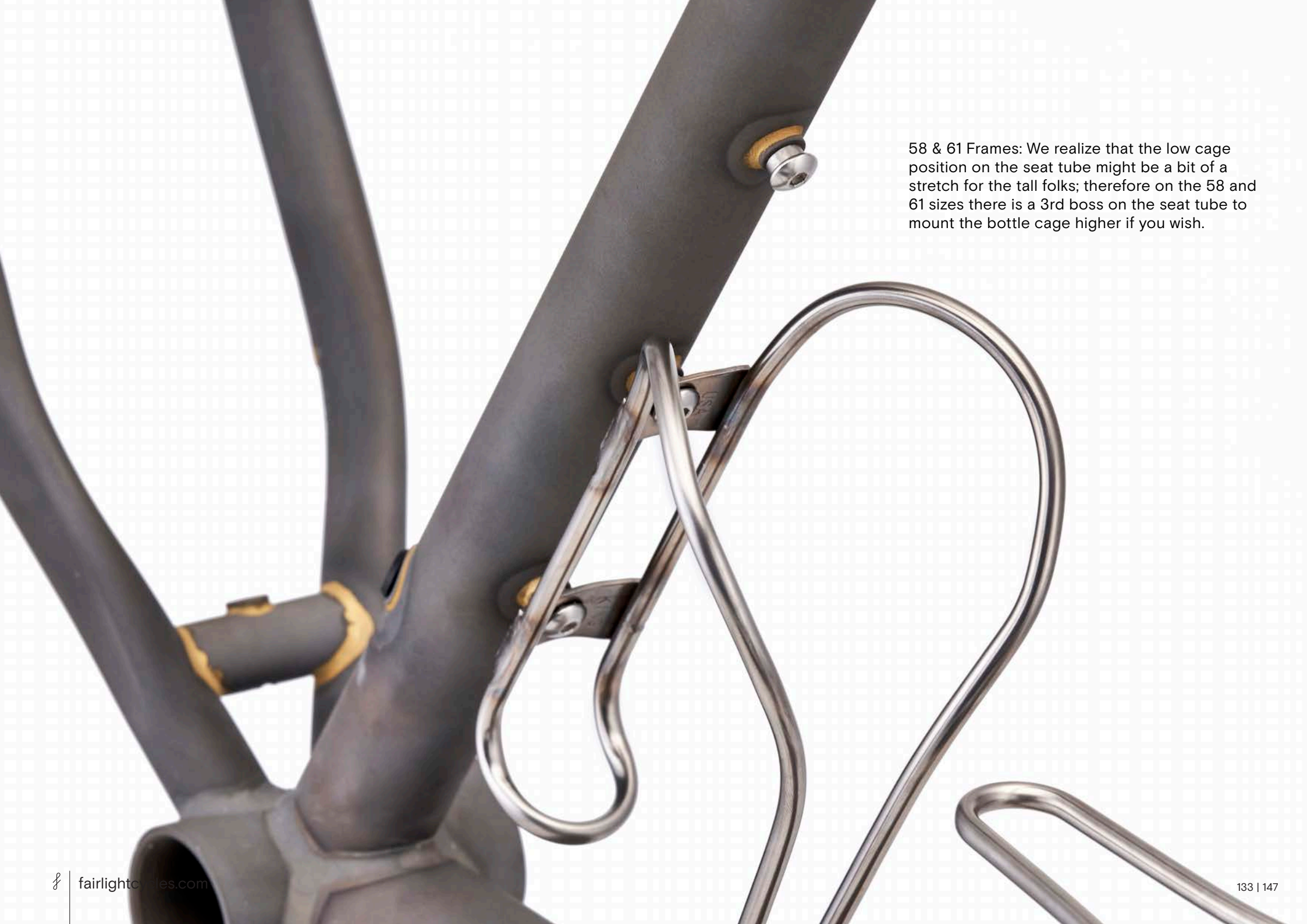
If you ride on the right hand side of the road (most of Europe and the US) then we recommend that you mount the light on the disc side. There is a 6mm port on the underside of the chain stay and there is an M5 thread on the bottom of the dropout insert to guide the wire. The result is super clean routing of the wire. The additional wire routing clip is supplied with the frameset/bike.


SON

BOTTLES & CAGES

The Secan 3.0 frame has three bottle mounts. The mounts on the seat tube are supplied with 3mm standoff washers so that a front derailleur band can be installed beneath the bottle cage. The mounts on the underside of the down tube are triple cage mounts; they are supplied with a 4 x 3mm and 3 x 8mm nylon standoff washers so that cages can be spaced to clear gear cables.

The seat tube and downtube bosses are positioned as low as possible to give room for a half-frame bag.



58 & 61 Frames: We realize that the low cage position on the seat tube might be a bit of a stretch for the tall folks; therefore on the 58 and 61 sizes there is a 3rd boss on the seat tube to mount the bottle cage higher if you wish.

The frameset/bike is supplied with a 3mm nylon spacer fitted to the centre boss on the underside of the down tube. That means that the boss is level with the CNC hose clips.

Additionally, the following spacers are supplied: 3 x 3mm, 3 x 8mm.

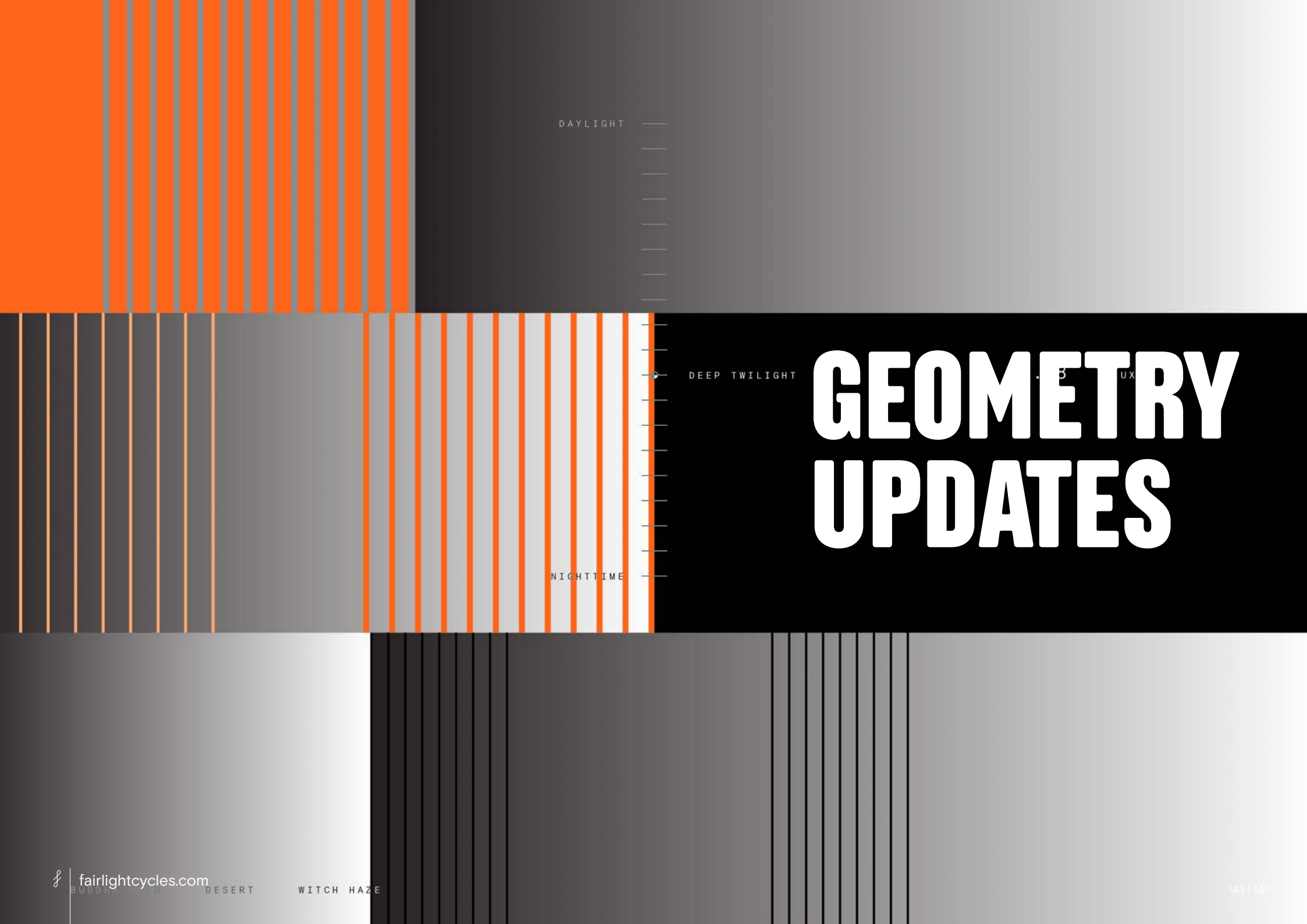
If running Di2 or AXS you can fit a cage (brand dependent) directly to the CNC hose clips.

As outlined in the CNC Hose Clips section of the document, the washer sits 0.5mm proud of the surface of the part; so fitting a cage directly will not damage the anodising.

If running Di2 or AXS and you are using a Tailfin cargo cage, we recommend fitting an additional 3mm nylon spacer to each boss. The bottom of the Tailfin cage feet have a radius and do not fit well against the flat surface of the CNC hose clip.

If running mechanical gears, then you will need to use the additional nylon spacers to space the cage away from the cables. In this example, a King Cage Many Things cage is fitted, and it requires an additional 3mm spacer on each boss.

In this example, a Tailfin cargo cage is fitted, and it requires an additional 8mm spacer on each boss.



GEOMETRY UPDATES

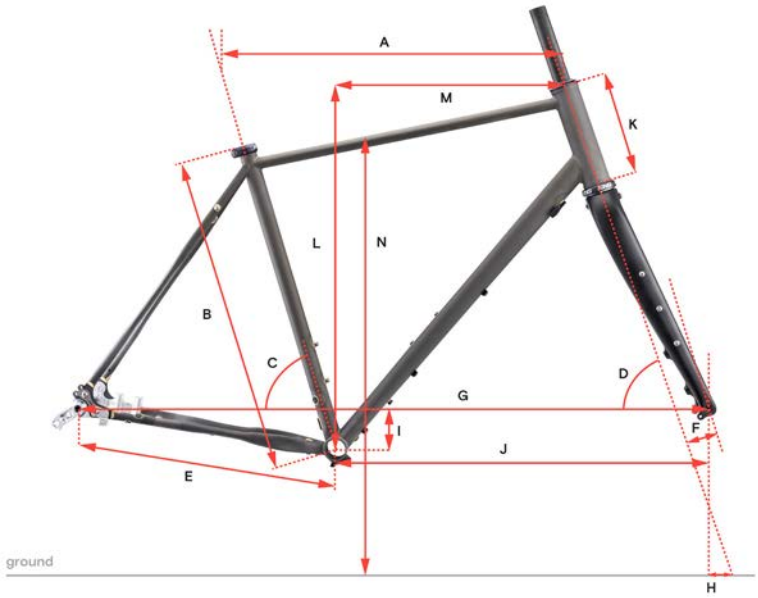
Secan 3.0 Geometry

The Secan geometry hasn't changed since we first introduced the model in 2019, so the small refinements for the Mk 3.0 have been very carefully considered.

The chain stay length has increased by 2mm (from 430mm to 432mm) to accommodate larger 700c tyres. Head angles have been slackened by 0.5 to 0.75 degrees (also in line with the larger tyres) to create a longer front-centre measurement. Despite these adjustments, the frame remains at the more conservative end of the gravel spectrum.

It's also important to note that, aside from slackening the head angle, the other way to achieve a longer front-centre is by increasing Reach and using a shorter stem. We analysed our customer fit data, and increasing Reach wasn't a viable option—it would compromise our ability to provide optimal fits. **Fit, Function, Form** - in that order.

Stack and Reach remain largely unchanged; however, we've made slight adjustments—about 2mm on average—to refine the fit curve. For more details, see the next page.



	Size	51R	51T	54R	54T	56R	56T	58R	58T	61R	61T
A	Top Tube Horizontal	537	535	550	549	568	568	581	581	594	595
B	Seat Tube (BB to top ST)	490	495	510	515	520	535	540	555	560	575
C	Seat Tube Angle	74	74	74	74	73.5	73.5	73.5	73.5	73.5	73.5
D	Head Tube Angle	70	70	70.5	70.5	71.25	71.25	71.75	71.75	71.75	71.75
E	Chainstay Length	432	432	432	432	432	432	432	432	432	432
F	Fork Rake	50	50	50	50	50	50	50	50	50	50
G	Wheelbase	1027	1028	1036	1038	1044	1046	1053	1055	1067	1070
H	Trail - 650 x 47 = 685mm	71.5	71.5	68.2	68.2	63.5	63.5	60.3	60.3	60.3	60.3
	Trail - 700 x 38 = 697mm	73.6	73.6	70.4	70.4	65.5	65.5	62.3	62.3	62.3	62.3
	Trail - 650 x 2.2" = 702mm	74.5	74.5	71.3	71.3	66.3	66.3	63.1	63.1	63.1	63.1
	Trail - 700 x 45 = 707mm	75.5	75.5	72.1	72.1	67.2	67.2	63.9	63.9	63.9	63.9
I	Bottom Bracket Drop	77	77	77	77	75	75	75	75	75	75
J	Front Center Distance	607	608	616	618	623	625	632	634	646	649
K	Head Tube Length	104	136	121	155	139	175	156	194	175	215
L	Stack	540	570	558	590	576	610	594	630	612	650
M	Reach	380	370	388	378	396	386	404	394	412	402
N	Standover height (@ 697mm wheel)	758	776	777	795	792	816	811	836	830	856
	Fork Length - Axle to Crown	398	398	398	398	398	398	398	398	398	398

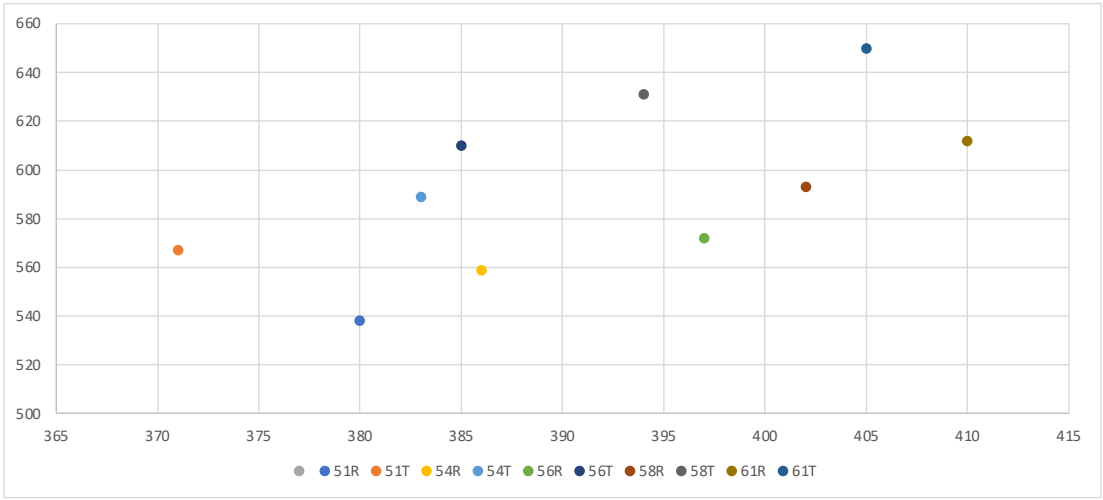
Stack and Reach - Smoothing Out The Curve.

Many of our customers share their bike fit information with us, and it's reinforced our confidence that our Proportional Geometry sizing provides a great fit for a wide variety of heights and body proportions.

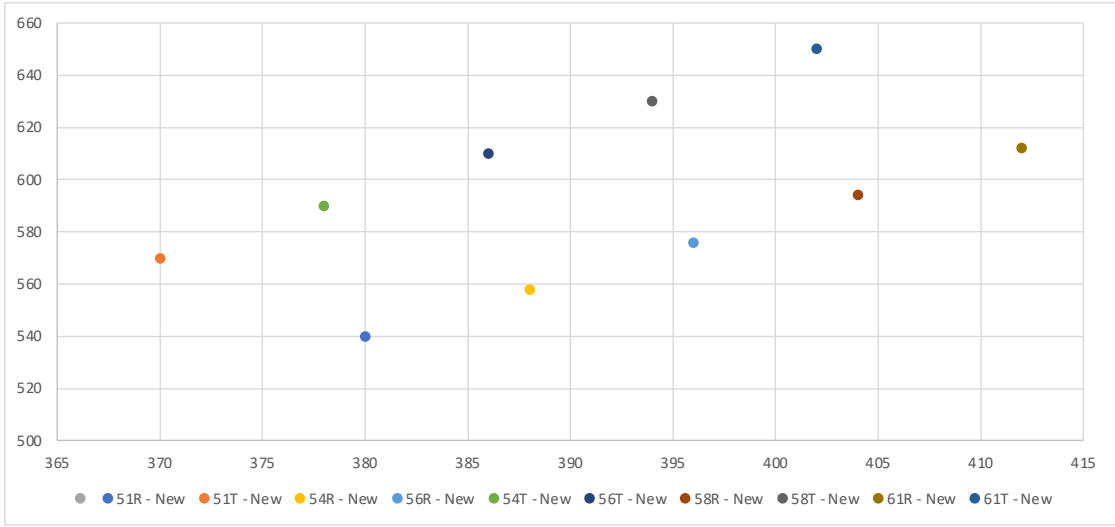
When developing the Secan 3.0, we took the opportunity to revisit our Stack and Reach data. As a result, we've made slight adjustments (about 2mm on average) to refine the fit curve. We've been able to do this because our scale and sourcing mean we are no longer limited to 10mm increments on our head tubes. We can now make them in very specific sizes.

While these changes may seem small, they reflect our commitment to continuous improvement, both in our products and in the service we provide.

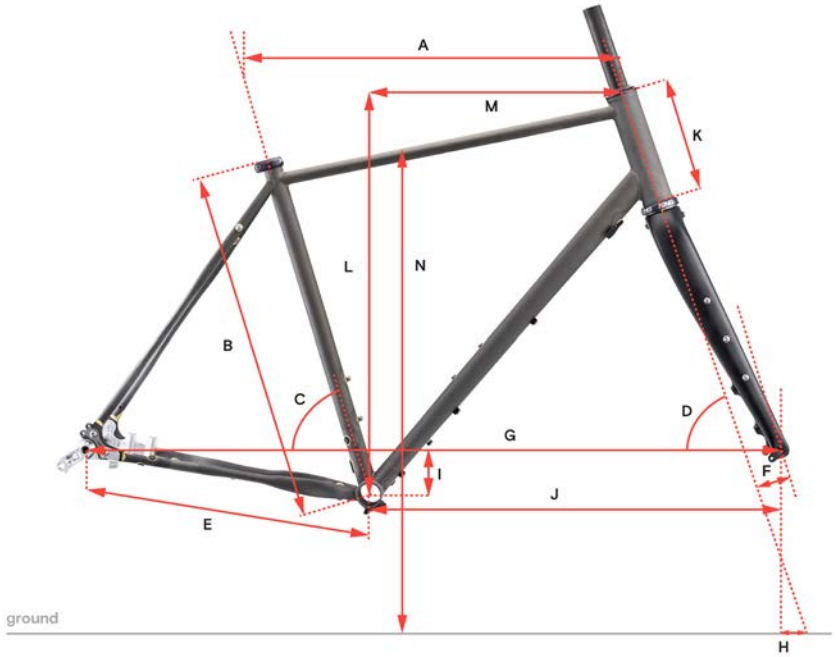
Secan 2.5 - Stack vs Reach:



Secan 3.0 - Stack vs Reach:



Secan 2.5 vs Secan 3.0 - Geometry Comparison



		51R		51T		54R		54T		56R		56T		58R		58T		61R		61T	
	Size	v2.5	v3.0	v2.5	v3.0	v2.5	v3.0	v2.5	v3.0	v2.5	v3.0	v2.5	v3.0	v2.5	v3.0	v2.5	v3.0	v2.5	v3.0	v2.5	v3.0
A	Top Tube Horizontal	536	537	535	535	553	550	553	549	567	568	566	568	584	581	581	581	597	594	598	595
B	Seat Tube (BB to top ST)	490	490	495	495	510	510	515	515	520	520	535	535	540	540	555	555	560	560	575	575
C	Seat Tube Angle	74	74	74	74	73.5	74	74	74	73.5	73.5	73.5	73.5	73	73.5	73.5	73.5	73	73.5	73.5	73.5
D	Head Tube Angle	70.5	70	70.5	70	71	70.5	71.5	70.5	72	71.25	72	71.25	72.5	71.75	72.5	71.75	72.5	71.75	72.5	71.75
E	Chainstay Length	430	432	430	432	430	432	430	432	430	432	430	432	430	432	430	432	430	432	430	432
F	Fork Rake	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
G	Wheelbase	1021	1027	1022	1028	1029	1036	1030	1038	1034	1044	1034	1046	1041	1053	1045	1055	1054	1067	1062	1070
H	Trail - 650 x 47 = 685mm	68.2	71.5	68.2	71.5	65.1	68.2	61.9	68.2	58.7	63.5	58.7	63.5	55.6	60.3	55.6	60.3	55.6	60.3	55.6	60.3
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I	Bottom Bracket Drop	77	77	77	77	77	77	77	77	77	75	77	75	77	75	77	75	77	75	77	75
J	Front Center Distance	603	607	604	608	611	616	611	618	616	623	616	625	622	632	626	634	635	646	644	649
K	Head Tube Length	100	104	130	136	120	121	150	155	130	139	170	175	150	156	190	194	170	175	210	215
L	Stack	538	540	567	570	559	558	589	590	572	576	610	610	593	594	631	630	612	612	650	650
M	Reach	380	380	371	370	386	388	383	378	397	396	385	386	402	404	394	394	410	412	405	402
N	Standover height (with 650x47 tyre)	751	758	768	776	771	777	789	795	782	792	809	816	802	811	829	836	821	830	848	856
	Fork Length - Axle to Crown	398	398	398	398	398	398	398	398	398	398	398	398	398	398	398	398	398	398	398	398

FIT FUNCTION FORM

FAIRLIGHT

Photogrpahy: Nick Hill @ NMDesign