



An introduction to:

**UNIVERSAL 130/135MM ROAD DISC HUBS**



## **ABOUT US:**

Since 1995 Halo has become one of the market leading brands of wheel products in the UK.

Halo have always been right at the forefront of the 4X and Dirt Jump markets and over the years have expanded the range to include quality products for the DH, XC, Trail, Enduro, Fixed Gear, BMX and Road markets to this list.

Halo introduced one of the first wide DH/Jump specific rims to satisfy riders needs before the millennium and continues to develop new products to cater for all sectors of the bicycle wheel market.

The Halo range includes wheels, rims, hubs, spokes, nipples, tyres, cogs, rim tapes, freewheels, skewers and tubes.

Halo's product Manager, Lloyd Townsend, has over 30 years' experience of working in the bicycle industry and continues to produce innovative ideas using his technical knowledge. Working closely together with our vendor factories and the small product design team of Richard Roland and Dave Cole, we don't claim to have invented the wheel but, we feel we often achieve some useful evolutions and innovations that benefit riders.

## **VISION STATEMENT:**

At Halo we are all cyclists (in many varied disciplines and genres) which allows us to empathise with riders needs and expectations. This is evident in the ranges we produce. Creating better products to enhance rider experience whether racing, competing or just riding for enjoyment is at the core of our values.

We put the same quality and performance values into the design process of all our products that have seen riders reach World Champion status in their chosen discipline.

**“We didn't invent the wheel, we simply make it better”.**

## **ROAD PRODUCTS:**

We are expanding our road product range to meet the varying demands from the amateur club rider and dedicated enthusiast all the way up to pro rider level. Some of these products are inspired by market trends and defined by technology whilst others are driven by a focus on developing products to enhance the rider experience.

We continue to embrace advances in technology for road cycling products including revised spoking patterns and wider rim options.

In addition, using our extensive knowledge gained from years of producing disc wheels in the MTB market, we are introducing new disc brake hubs and wheels to meet the growing demand for road use disc brakes.

### 135mm Road Disc hub spacing:

The main manufacturers seem to agree on using 135mm but appear to differ in their logic and reasoning about perfect chainlines. (It seems at least one road brand has also figured a problem is arising and appear to have gone the route of retaining the 130 chainline on a special 135mm hub.)

Getting to grips with the issues involved was more tricky than it first seemed. So here is my attempt to try and explain how I understand things:

130mm is the modern Road Standard.

130mm rear Road dropout spacing allows for the front chainset and front gear mech location to be the "standard" road set up.

(I believe that Shimano typically use a chainline of 43.5mm and Sram use 45mm but the difference is generally ignored)

This "standard" is established and works pretty very well on all existing modern road groupsets from the main components manufacturers.

i.e. the Q factor of the cranks is low, the frames with brazed-on or bonded direct mounts for front mechs are all designed to work with this standard and the FD (braze on location) is set at a nominal offset of 25mm.

Short chainstay lengths also are well established and function well in the 130mm standard.

Hub/frame centre to the inside of the dropout face is 65mm (i.e. 1/2 of 130mm)

The space from the dropout face to the cassette lockring is an accepted standard and the cassette cogs follow inwards from that.

It's pretty safe to say that the tried and tested 130mm spacing for ALL road products works very well.

So if you add 5mm to the O.L.D. of the frame then you add 2.5mm per side of the centre line. If the hub is set up normally to run ONLY on 135mm then the cassette lockring and all the cogs following it also move out by 2.5mm further to the right.

135mm is, of course, the Mountain bike standard. (To be clear 142mm is actually still set up on 135mm chainlines, it just has a recessed location for the extended hub ends of 3.5mm per side).

135mm spacing works very well for many bikes.

In fact it can be said that with a derailleur gear system that chainline is almost by definition a variable factor because the physical chainline that runs at any given moment changes every time the rider switches to a different gear combination.

(e.g. Shimano and Sram standards differ anyway).

So where is there a potential problem in using 135mm for Road anyway?

It comes down to the fact that the variable "line" the chain can function effectively in from the chainring to the selected rear sprocket has a limit (and also an incremental reduction in desirability as the angle becomes more and more acute).

That physical limit isn't exceeded where the chainstays are long enough because the angle that the chain runs at becomes less acute as the chainstays get longer. Hence mountain bikes (and CX bikes) with relatively long chainstays can effectively get away with small variances in chainline without any major issues. After all, several MTB frames and gearsets/cranksets have different quoted chainlines anyway.

But once you start getting to very short chainstays the angles involved for the chain becomes more acute and then the physical limits of what can actually run or can't run start to become an issue.

SRAM have opted to offer specific longer axle chainsets and also altered FD mounting positions (by +2.5mm) to adjust the front ends to match the back and retain the original designed-in ratio of front to back chainlines (if that description that I've offered here makes sense ?).

i.e.

SRAM Standard double 130mm O.L.D. frame chainline is 45mm and their REVISED 135mm type is 47.5mm. SRAM have effectively pushed out the front set up by 2.5mm to match the rear push-out (when going to 135mm i/o 130mm).

This then keeps the original and proven chainline on 135mm set up exactly as though it was still running on a 130mm - which stacks up pretty well to my logic, when running a complete new bike set-up.

Shimano do not currently have this same option and so far are not offering revised front end set ups. My understanding of Shimano's current position is that to avoid chain function problems a Road 135mm Disc brake set up should not be used on a frame with a chainstay below 415mm.

The alleged overriding logic being that Disc brakes are more of a leisure (Sportive) type option and therefore the chainstays are likely not to be below 415mm and so in most cases it will work just fine.

Whether we all agree with the various logics and positions or not I think that staying with 130mm back end for ROAD (if it can be done) is probably the most desirable option. Because 130mm (without Disc brakes) works, we know it works, and everything is cross compatible including cranks, front mechs, braze-on locations, alternative non disc hubs. Basically everything all bar the disc brakes.

This is especially an issue for anyone upgrading their existing 130mm road bike.

As all of the running gear, front mech, cranks etc, will have been designed to suit 130mm.

So it's no surprise that Halo have 130mm O.L.D. road disc hubs and matching wheels. So that's all great and about as ideal as it gets really if you want a new road frame and wheels with Disc brake set up (and already have a decent 130mm bike for the rest of the kit).

Which is fine if you are only using a 130mm Road Disc frame (such as the Identiti Initial-D) with Halo wheels but what about if you've got your eyes on an alternative frame or you simply haven't even looked yet? Surely the Halo Disc wheels set at 130mm are a major problem if most of the market ends up with 135mm.

So we now offer adaptors to make a UNIVERSAL Road Disc rear hub that can be adjusted to do whatever you need it to.

Halo now offer a Patent Pending solution to something that is a potential problem for most road cyclists considering running discs.

A truly universal Road Disc rear hub (Straight pull 24H).



It can be run with or without discs as it only adds the weight of the 6 alloy rotor bolt mounts.

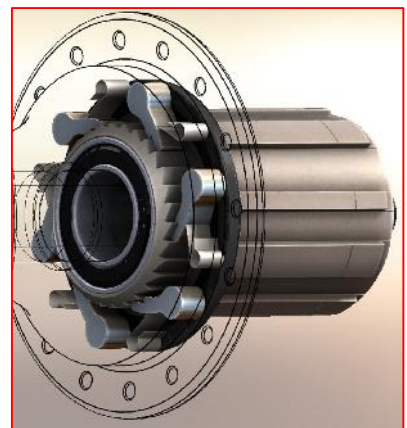
11spd Shimano/Sram compatible Freehub which can fit 9 or 10spd with spacers or optional Campy compatible freehub and even SRAM XD.

Features:

6 Drive reversed 6 pawl drive system.

Forged and CNC machined Straight Pull 24H body.

Interchangeable Freehub bodies for Shimano or Campag splines.



However the really UNIVERSAL part is that it can be used to fit:

130mm Standard - non-disc.

or

130mm 6 bolt IS Disc.

or

135mm 6 bolt IS Disc with regular MTB chainline (FD +2.5mm).

or

135mm 6 bolt IS Disc with classic 130mm chainline.



All with Shimano/Sram or Campag compatible formats (9,10 or 11Spd -or EVEN SRAM XD).

We believe no other hub can fit with ALL of these options:

9,10 or 11spd, Shimano, SRAM XD or Campagnolo.

130mm, 135mm or 135/130mm chainlines .

IS 6 bolt disc mount for 135 or 130mm frames.

If you as a rider wants a new pair of wheels and aren't sure whether to go to discs now or later (or indeed 11spd shifting, or even switching from Shimano compatible systems to Campy or vice versa, or even might consider a 1X XD system etc..) then this hub is THE future proof all-options solution.

#### How is it future proof?

- Because it can fit straight into a 9/10spd equipped "regular" 130mm spaced bike so it is fully compatible with whatever is being run now (assuming that the rims selected in the wheel build are also caliper brake compatible, if retaining caliper brakes)
- The set can be future compatible with everything that the cyclist might want to change to (in the current market\*) be that 11spd, Shimano, SRAM or Campagnolo, Discs or no discs, 130 or 135mm.
- With this Halo hub - it can be made to work !

(\*The ONLY thing it cannot cope with is non 6 bolt rotors.)

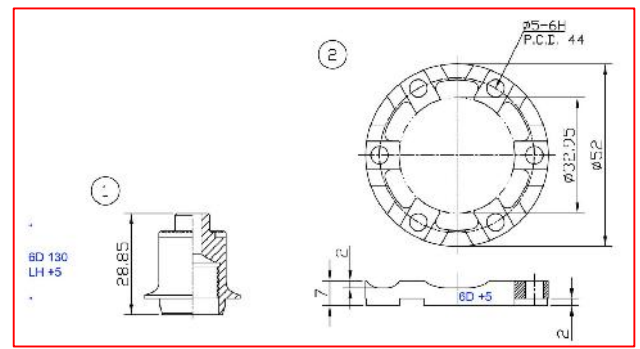
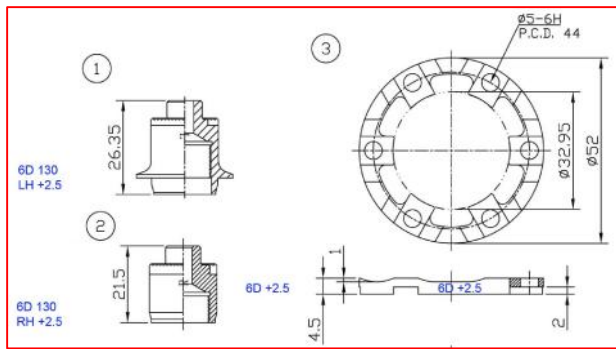
#### HALO 6D Road Disc Hub:

At Halo we believe it's better for customers to retain the choice!

#### Adaptors:

The key is the patent pending interlocking disc rotor spacers combined with axle ends that shift the whole hub body over. The interlocking disc rotor spacers give the hub the necessary variable rotor positions. Precision CNC alloy, the interlocking spacers weigh very little and are almost unnoticeable once in position behind most rotors.





**To use the hub to fit a 130mm regular frame with caliper brakes.**

- Select the required Freehub option.
- Select a universal use rim that can accept caliper brakes.
- The straight pull hub functions just like any other hub and has 6 tiny extra alloy bumps that are the rotor mounts that weigh virtually nothing.

**To use the hub to fit a 130mm Disc frame.**

- Select the required Freehub option.
- Select your choice of suitable disc only or universal rim.
- Mount an appropriate IS disc rotor.

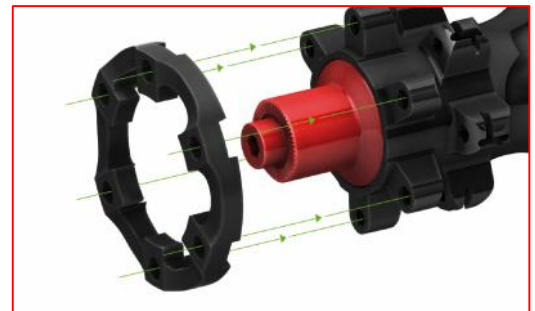
**To use the hub to fit a 135mm Disc frame with 130mm front components.**

- Select the required Freehub option.
- Select your choice of suitable disc only or universal rim.
- Select the +2.5mm symmetrical adaptor kit.
- Mount an appropriate IS disc rotor.



**To use the hub to fit a 135mm Disc frame with 135mm specific front components.**

- Select the required Freehub option.
- Select your choice of suitable disc only or universal rim.
- Select the +5mm asymmetrical adaptor kit.  
(Note: this option does require the wheel to be re-dished 2.5mm towards the drive side - which provides more equalised spoke tension)
- Mount an appropriate IS disc rotor.



Lloyd Townsend, Ison Distribution MD.

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**Note:**

In some circumstances, if using an MTB specific 10spd cassette in conjunction with a 135mm frame and a 130mm front set-up (using the 2.5mm symmetric adaptor set) it is possible that you may encounter running difficulties in large sprocket to large chainwheel. This is due to difference in cassette offset between Shimano MTB and Road 10spd sprockets. Fitting a Road-specific cassette will often solve the issue, or alternatively, switch to the asymmetric +5mm adaptor set and re-dish the wheel.



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