

# Changing gears

The hub-gear mountain bike: planets sweet or annulus horribilis?  
Dan Joyce tests the Rohloff-equipped Endorfin Speed-R Race

**H**ub gears again!? Bear with me. We have tested a few bikes with hub gears lately but never on a mountain bike – a concept that some are touting as the future of off-road riding.

Hub gears make a lot of sense off-road. The moving parts – small pinions that mesh together to rotate the rear wheel at a different speed from the sprocket – are enclosed in the hub shell, where they're protected from weather, mud and rock strikes. The rear wheel is stronger, because it doesn't need to be dished. The constant chainline leads to longer transmission life.

It's not all good news. Those whirring internals mean you get friction losses in any ratio except direct drive, and the further you get from direct drive the bigger the losses are. Some hub gears have a fairly small overall range and widely spaced steps within that range. Not the Speedhub.

The Endorfin Speed-R is made, like the hub, in Germany. It's designed as a minimum maintenance mountain bike. This is the 'Race' build. There's a slightly cheaper Speed-R Comp and a dearer Speed-R Ultimate.

## FRAME AND FORK

The Speed-R's down-tube and stays are fat even by the standards of aluminium tubing, which has to be oversized to stiffen it and prevent flexing. (Aluminium fatigues when flexed.) A box gusset replaces the chain-stay brace and adds even more stiffness at the bottom bracket. This solidity is reflected in the frame's warranty: 10 years rather than just five.

The sliding dropouts, which the Speed-R shares with Endorfin's Singlespeeder, resemble those of the venerable Orange P7. You can move the wheel back to tension the chain and as the disc mounts are on the slidey bit you don't have to adjust the

disc calliper when you do so. These dropouts are Rohloff-specific: the left is deeply socketed to accommodate a mini torque arm required by the gears.

The frame's seat-tube slot is at the side rather than the front or rear. The aim is to reduce stress at the top of the seat-tube caused by fore-aft loading. It sounds sensible enough, and it's better than facing backwards where it would collect mud. The head-tube has the hourglass shape of an integrated (or rather, semi-integrated) headset. It's odd that manufacturers are busy making headsets internal just when they're making bottom bracket bearings external, but if the frame suffers you've got the warranty.

The RockShox Reba SL is a decent 100mm cross-country fork. As it's an air fork, you can easily adjust it for rider weight or preference with a shock pump. Rebound is adjustable too and this one has a 'PopLoc' handlebar lockout. It's much handier than a dial





on the fork leg, although you need to keep it well lubed. If you'd expect an even better fork than the Reba SL for £2,400 mountain bike, blame the hub.

### THAT HUB

The Speedhub has 14 proportionately spaced gear ratios: 0.28, 0.32, 0.36, 0.41, 0.46, 0.53, 0.6, 0.68, 0.78, 0.88, 1, 1.14, 1.29, and 1.47. With a 40 x 16 drivetrain that yields gears of 18-95in. It looks fine for mountain biking.

There's a 'but' coming. What you've got, essentially, is a 7-speed hub (gears 8-14) with a reduction gear to give you those ratios again lower down (gears 1 to 7). That's why direct drive is 11th. The 'but' is that the reduction gear sounds and feels rough, even on a worn-in hub like this one. Gears 8-14 are quiet and efficient. Gears 1-7 are not, especially 7th.

How much of your energy goes into stirring the Speedhub's internals when you're climbing in 7th is hard to say. One of my riding buddies reckoned 25%. That's an exaggeration, but I'll bet it's around 10% and not a lot less in 1 through 6. At any rate, I was left watching my friends cycle away from me when the trail kicked upwards.

To get the most out of the Speedhub, you want gears 1-7 to be bail-out gears, with 8-14 your normal riding gears and 11th (direct drive) the one you use the most. That's easy to arrange on a town or touring bike. In fact, the 65in direct drive you get here is close to optimum on road. Off-road it's too high; something like 52in would be better. The problem is that Rohloff won't warranty the hub with a ratio smaller than 2.35 to 1. If you want to bring the most efficient gears into play off-road by running 34 x 17 (2:1), you do so at your own risk...

On the plus side, the Speedhub is reliable with a capital R. Rohloff claim no breakages in normal usage



– ever. It never mis-shifted on test either, although you do need to back off pedal pressure when changing, especially between 7th and 8th.

### THE RIDE

'Doesn't all that weight affect the handling?' Every mountain biker I met asked this, pointing at the hub. In short: not really. The Speedhub is one lump but it isn't that heavy and doesn't skew the weight balance of the bike – which tips the scales at 12kg (26.4lb) without pedals.

Riding downhill or cranking along the flat in 8th gear or higher, the Speed-R feels like the race-worthy cross-country hardtail that it is. There's no flex or shimmy even through choppy, downhill corners, and the reassurance of superb stoppers (Magura Louise hydraulic discs, with a 180mm rotor up front) means you can ride faster by braking later. I'd prefer wider rims than 19mm to support these chunky, 57mm tyres, however.

Uphill it lost its edge – and seconds to my riding companions – for which I blame gears 1 to 7. When you need every Watt of energy, and when you're used to a direct line from pedal input to wheel rotation, you're acutely aware of any inefficiencies. I felt robbed. I myself churning up climbs instead of attacking them. As a result, I abandoned plans to use the Speed-R in a cross-country race (Lightwater Laike, near Ripon) and rode my own bike instead.

### SUMMARY

A hub-gear mountain bike makes a lot of sense for British mud. Rohloff's Speedhub should be the top choice as it's virtually indestructible. But while it has the gear range on paper, the fact that the chainring-to-sprocket ratio can't be lower than 2.35 to 1 denies cross-country riders the most efficient gears (8-14) for much of the time.

If you can live with that limitation, and would rather save time on maintenance than on climbs, the Endorfin Speed-R is a very good hardtail indeed. If you like the look of the bike but not the hub, consider the Endorfin Speed II, which comes with XTR and a Fox F100 RLC fork for the same money. If you like the concept but not the outlay, keep your eye on Shimano's new Alfine 8-speed hub gear, which is already appearing on sub-£1,000 hardtails. The future off-road may well be epicyclic.

*Next issue: a classic derailleur-geared tourer!*



### ENDORFIN SPEED-R RACE

**PRICE:** £2399; frame only £649

**CONTACT:** Nomark Distribution,

[www.endorfinbikes.co.uk](http://www.endorfinbikes.co.uk)

**SIZES AVAILABLE:** S, M, L

**COLOURS:** black, grey, blue or yellow. Pink (or your choice from 199 other colours) is £50 extra.

**WEIGHT (size M):** 12kg (26.4lb) without pedals

**FRAME & FORK:** Butted 7020 aluminium alloy frame with sliding dropouts, Rohloff-specific cable guides, and two bottle mounts. RockShox Reba SL fork, 80/100mm travel, with PopLoc Motion Control

**WHEELS:** Schwalbe Nobby Nic 57-559 tyres on DT Swiss XR 4.2d 19mm rims, 32x2 spokes on Rohloff Speedhub (rear) and Edco Sprint hub (front)

**TRANSMISSION:** Race Face Evolve 175mm sprocket, 40T TA chainring, Sram PC971 chain, 16T sprocket on Rohloff Speedhub 500/14 14-speed hub gear, 18-95in range. No pedals.

**BRAKING:** Magura Louise hydraulic disc brakes

**STEERING & SEATING:** Lizard Skins Moab grips, Race Face Deus Riser bar, Race Face Deus threadless stem, Acros AI-03 semi-integrated headset. Fizik Gobi saddle on Race Face Deus Seatpost.

**ACCESSORIES:** none