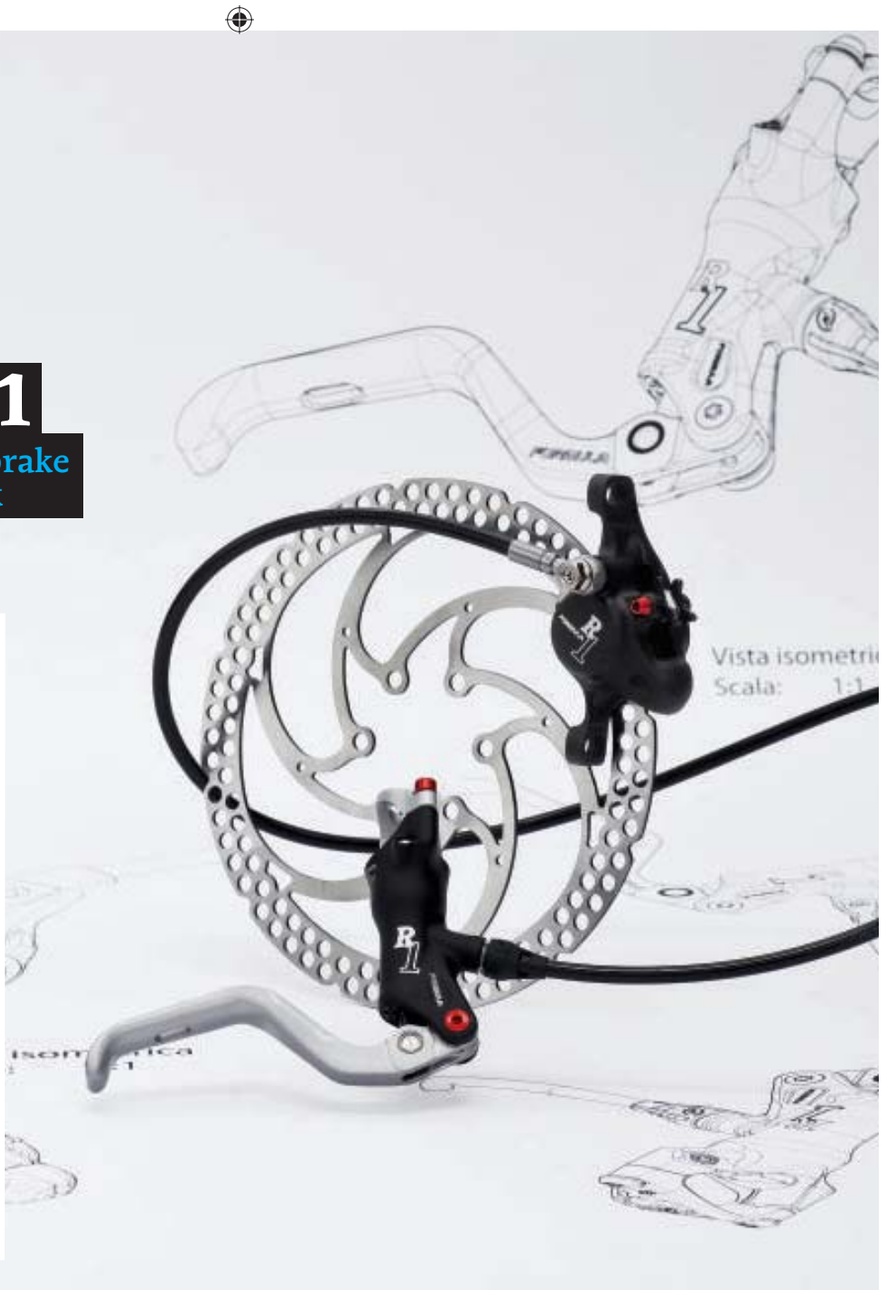
BLUEPRINT

BY CHRIS LESSER

formula's R1

The new featherweight brake with a heavyweight hook



FORMULA HAS BEEN MAKING DISC brakes longer than most of its competitors, and while the brand still has room to grow in the United States, it has been gaining momentum in Europe for years.

Every brake that Formula produces is still assembled in Italy, where the manufacturer's two-decade-long pedigree is rooted in trials motorcycles. Today, motor sports accounts for only a fifth of Formula's business—and its bike division is continuing to build steam.

On the heels of its auspiciously named downhill brake, The One, Formula this year is introducing the R1. The little sibling to the successful DH brake packs a heavyweight punch, despite its featherweight looks. The two brakes share a patented one-piece caliper design, and even use the same size brake pads. And because the R1 has the greater mechanical advantage of a radial master cylinder, the two brakes are closer in power than you'd expect.

Before joining Formula, Giancarlo Vezzoli worked in Brembo's racing department designing hydraulic clutch and brake systems for MotoGP and Supermoto bikes. Since turning to mountain bikes, he has wrenched for Honda's secretive g-boxx team and designed The One and R1 brakes.

How long has the R1 been in the works, and what's its reason for being?
In 2007 we agreed we needed a really good XC and enduro brake. The principal target was weight, which we wanted to keep below 300 grams. The second part was to avoid any special materials, and we wanted it to be at least as powerful as the Oro [Formula's stalwart do-all brake platform].

And did you hit all those goals?
We got to the projected 288 grams without any special materials, and it's 15 percent more powerful than the Oro. And if you add carbon and Ti or magnesium you save 30 grams more.

Did you benchmark your competitors?
In our opinion, the best brake for XC at that time was the [Magura] Marta. It's really light and very stable. It's not the most powerful, but all in all it was the best choice. Now we think our brake is better. For sure in terms of weight—it's 50 grams lighter. But we think it looks better too, and the power is there.

Aside from the caliper design, what sets the R1 apart from the competition?
In the master cylinder, multiple holes allow a very fast fluid flow between the reservoir and the main chamber. That's one of the reasons the R1 is thermally super-stable—even under extra stress, the pressure point [at the lever] never changes. The master cylinder of an Avid brake has two small holes. Magura, Shimano and Hayes all have one 0.5-millimeter hole. Ours has eight holes.

Is this a strictly cross-country brake?
Due to the weight of the brake and the very small layout—the master cylinder and caliper are really compact—it looks like an XC brake only. But when you test it, you immediately understand it can be used on an enduro bike with 160- and 180-millimeter rotors.

How does designing mountain bike parts compare to performance motorcycles?
With moto, you have to create a larger, easy-to-machine brake, and you're working really closely with the customer—with the Honda CBR, for example, we'd meet at Honda and then decide to integrate the master cylinder into the handlebar. With mountain bikes, you have to accommodate everything everyone is doing. It's a completely different world. It's twice as difficult. ▶

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