



Send to Printer



Close Window

**McGraw Hill
CONSTRUCTION ENR**

equipment tracks & trends

Engineers Develop Tiny Hydraulic Cylinders That Give Small Hand Tools A Stronger Grip (5/31/2004 Issue)

A group of entrepreneurial engineers based in Colorado Springs, Colo., has designed a new type of self-enclosed, hydraulic pump and cylinder that is showing much promise for use on small hand tools where hydraulic fluid power could outperform a simple mechanical connection.

**GALLENLINE**

*(Photos courtesy of
LatchTool Group)*

Logger-turned-inventor Bill Gallentine leads the 15-member group. Its engineers recently tested a prototype cylinder that weighs 12 oz and costs about \$8 to buy. With a 50-lb squeeze of a makeshift handle, the tiny unit's piston produces 1.5 tons of force on the business end, an advantage of 60:1. The group so far has invested \$350,000 and currently holds four patents on the system.

The inventors see potential for their miniature circuit on planes and common hand tools that use levers, such as pliers, crimpers and clamps, says Robert McPherson, president of LatchTool Group. He calls the new hydraulic system "disruptive technology" because it is scalable and portable, has no external hoses and requires no maintenance.

The secret is in high-flow check valves that draw in and push sealed hydraulic oil against a small ram, giving "a grandmother the grip of a gorilla," the company says. It has tested cylinders for 35,000 cycles, twice the duty life of a typical hand tool. Already having limited success licensing patents to tool designers, McPherson says the group now is looking for another \$3 million to produce its own line of the mini-cylinders.

advertisement

...

<http://enr.construction.com/products/equipTrackTrends/archives/040531b.asp>