

From the Regional Editors

Drum Pump Moves Fluids Without Moving Parts

Plastic pump design cuts unit cost, greatly reduces required maintenance

William Leventon, Eastern Technical Editor

Lumberton, NJ—Drum pumps move hazardous liquids such as oils, fuels and solvents out of drums. Nearly all of these pumps do their job with moving parts which—to the annoyance of users—often need purging, oiling and calibration. This need for maintenance got a Frenchman named Guy Ducros interested in designing a

different kind of drum pump—one that moves fluids without employing any moving parts.

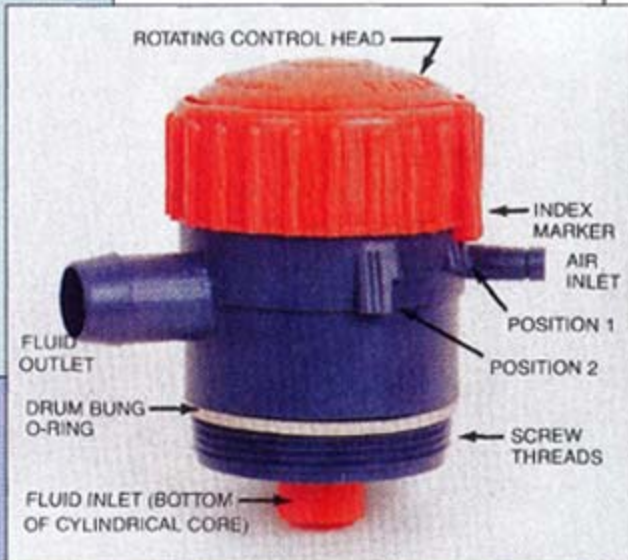
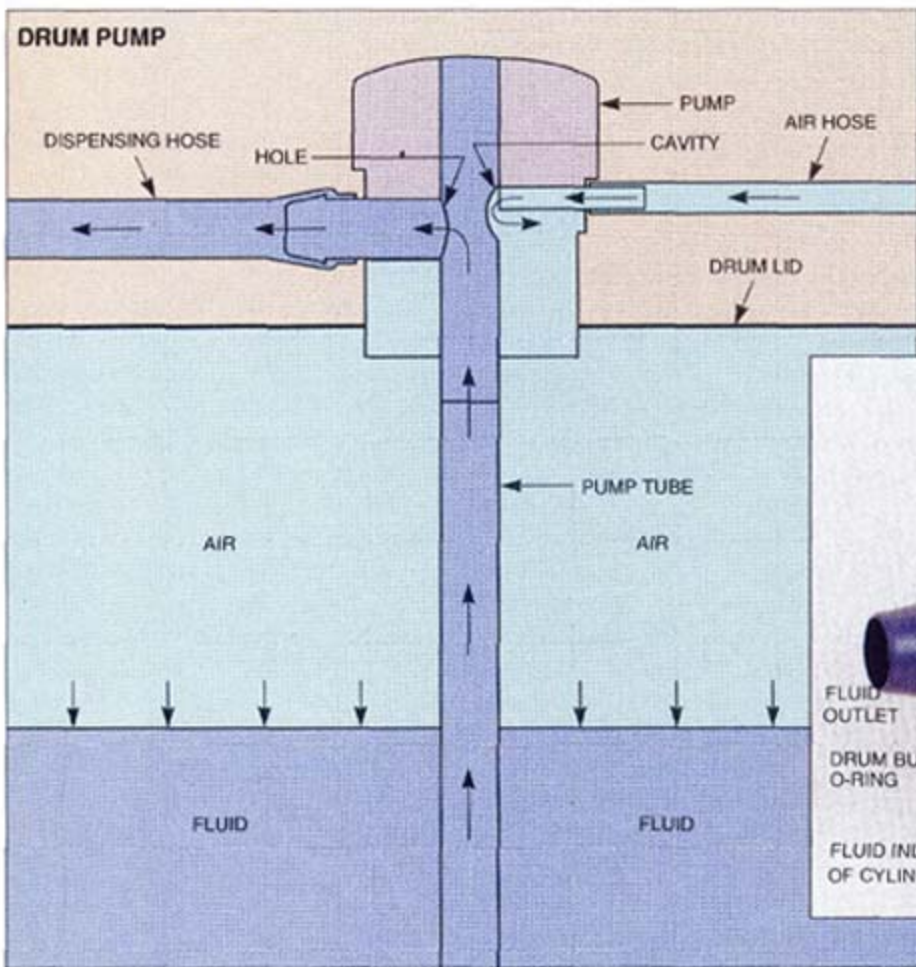
Recently, Ducros hit the target. The only moving parts in his invention, the DM-85DGP Economy Drum Pump, are an internal safety valve and a head the operator rotates to change pump function.

Users control the pump by rotating a head index marker to one of four positions. The head piece includes a cylindrical core with a hole

and two cavities in it. Depending on the position of the hole and cavities, the pump's air and fluid ports are either open or closed.

During pump operation, air flows through a hose and into the pump's air inlet. When one of the core's indentations opposes the inlet hole, air flows out of the inlet, into the bottom of the pump (which remains open to the drum), and then into the drum. The air pressurizes any fluid in the drum, forcing

Economy drum pump from Drum-Mates is made of polypropylene rather than steel. To pressurize a drum, the user rotates the index marker to position 1. To trap air inside the drum, the user rotates the marker to position 2. To dispense fluid, the marker is moved to position 3 (not shown). And to empty the drum quickly, the user rotates the marker to position 4 (not shown). A user can depressurize the drum by unhooking the air hose and moving the index marker back to position 1.



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it up the pump tube, into the pump's core, through the core hole, into the fluid outlet, and thence into the dispensing hose.

The pump is matched with an air source pressurized to between 7.5 and 200 psi. Prior to opening the air line, the user screws the pump into the drum bung and rotates the head index marker to position 1. Then the user opens the line and air flows through the pump and into the drum. Using 7 to 12 cubic feet of air per minute, the pump pressurizes the drum to between 4 and 7.5 psi.

Rotating the index marker to position 2 blocks the air port, trapping the air in the drum. A user can then unhook the air hose and move the drum elsewhere for dispensing.

With the drum at the desired location, the user moves the index marker to position 3, opening the pump's dispensing port. Under

This drum pump is virtually maintenance-free.

—Dave Marcmann

pressure, liquid in the drum flows up the pump tube, which is attached to the pump at one end and extends to the bottom of the drum. Fluid then moves through the pump and out via a dispensing hose. The pump handles thin to medium-thick liquids to 810 centipoise (3,700 SSU, 50 SAE) at rates ranging from drip-feed to 16 gpm.

To empty a drum quickly, the user reconnects the air hose to the pump and moves the index marker to position 4. Air flows into the drum, and the pump maintains a constant maximum pressure that keeps fluid flow rate at a maximum.

A user can reduce or stop the

flow either with the flow nozzle at the end of the dispensing hose or by moving the index marker back to position 2. In the latter case, as the head rotates, the fluid outlet opening closes.

With no moving parts in the pump chamber, Ducros' pump "is virtually maintenance-free," says Dave Marcmann, president of Drum-Mates Inc., which markets the pump. "People don't have to keep doing things to it to make it work, and managers don't have to worry about downtime."

As the name suggests, the economy drum pump is inexpensive. Simply designed and made of plastic rather than steel, it comes to market at a tenth the price of the most expensive drum pumps available, according to Marcmann.

When Ducros approached OSHA for guidelines for the pump, the organization insisted on features to prevent overpressurization. So Ducros designed his pump with tight tolerances and orifices large enough to allow abundant flow of both air and liquid. His pump also features an internal safety valve, which vents air if the pressure exceeds a preset limit (between 6.375 and 7.5 psi) that depends upon the liquid level in the drum.

The pump is made of polypropylene, which Ducros chose because it resists most chemicals—some that even steel can't handle. On the other hand, Marcmann notes, there are chemicals that attack polypropylene but not steel. Marcmann keeps a chemical-resistance chart available so he can tell customers what chemicals should not be used with the pump.

Though some steel pumps are more capable than the plastic drum pump (some pump fluids faster and handle more viscous substances, for



Drum pump dispenses hazardous liquids from steel drums used for storage and transport.

example), the new pump offers a number of advantages. For one thing, Marcmann points out, it's compact—just 3 inches in diameter at its widest point and 4 inches from top to bottom. Weighing just 4 ounces, the unit is considerably lighter than any of its competitors, Marcmann claims.

Most important of all, he says, the pump saves people money—sometimes lots of money. While steel drum pumps can cost \$1,000 or more, the cost of the economy drum pump and its accessories—a 1/4-inch air hose, a 3/4-inch dispensing hose, a 35-inch pump tube and a bung O-ring—is just \$99.

Additional details... Contact Dave Marcmann, DRUM-MATES, Inc., Box 636, Lumberton, NJ 08048, (609) 261-1033. □

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