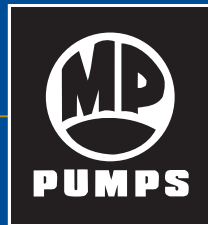


# the Primer



FALL ISSUE 2006

From **BILL PETERSEN:**

Most people are in favor of progress – it's the change they don't like so much. At MP Pumps, we know the two go hand in hand: We can't move forward without making a few changes here and there.

In this issue of the Primer, you'll get a glimpse of some of the changes we're making to ensure continuous improvements in customer service and the highest quality products. For starters, our new catalog is out and available in hard copy and online for your convenience. Completely revised, the new catalog makes it easy to find exactly what you need when you need it.



When you see the new catalog, you'll see that we've continued to keep busy adding new products to meet new market needs.

We've also increased sourcing solutions to meet on-time delivery with shipment from stock; improved quality assurance programs such as ISO 9001-2001 and 14000 to provide consistently reliable products; and, we've kept our priorities in tact with continuous training for and by knowledgeable personnel.

All of this adds up to the best expertise, options, and solutions you'll find in the pump industry. Our ultimate goal, of course, is to make doing business with MP Pumps easier than ever. We hope you'll find that to be the case. And if not, you know where to reach us.

William Petersen  
Vice President, Sales and Marketing

## A Thirst Quenching Pump

When it was first introduced, it seemed like a crazy notion: I mean, who's going to buy water in a bottle when you can get it out of your own tap? As you know, it didn't turn out to be so crazy after all. In 2004, global consumption of bottled water reached 41 billion gallons. People are even willing to pay as much as \$2.50 per liter (\$10 per gallon.)

Of course, good old tap water isn't as cheap as it used to be either. And the costs add up: According to the American Water Works Association, the average household uses 350 gallons of water a day or approximately 127,400 gallons a year. Some people, however, have found a way to beat the system by drilling their own wells.

In fact, more and more people are turning to the fresh, clean-tasting pure water from a water well instead of the chemical-tasting city water which is costing more each day. And since 1962, Deep Rock Manufacturing has been there to help them along the way.

"Today's commercially drilled home water wells can cost as much as \$8000 or higher," said Dan Wright, Deep Rock president. "We built the Hydra-Drill to make the home water well affordable, economical and easy. One person using the Hydra-Drill can drill through almost anything a crew operated, truck mounted rig can drill. And once you drill your own well, you can pump all the water you need for only a few cents a day. It pays for itself very quickly."

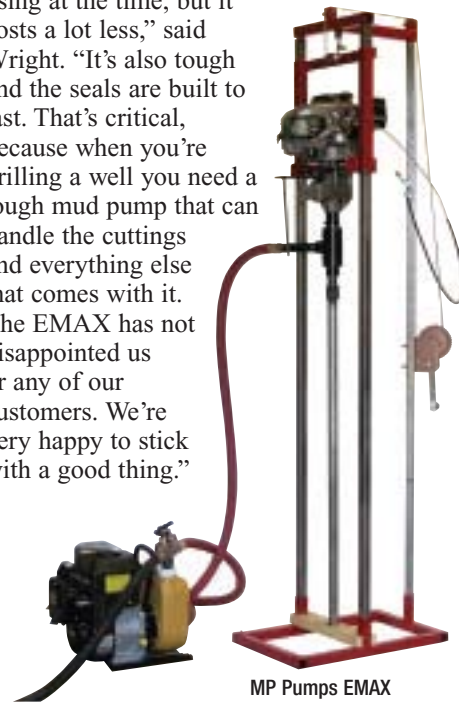
That's one reason why Deep Rock sells about 1,800 Hydra-Drills each year. Another reason is its quality and ease of

use. Year after year, Deep Rock ensures this level of excellence by using only the best materials and working with suppliers that match their commitment to quality. In 2004, that's how



Deep Rock discovered MP Pumps and the EMAX pump - an economical, 2" self priming, portable pump powered by a 5 HP Tecumseh gas engine.

"We started working with MP Pumps in 2004 when we discovered the EMAX performed as well as the pump we were using at the time, but it costs a lot less," said Wright. "It's also tough and the seals are built to last. That's critical, because when you're drilling a well you need a tough mud pump that can handle the cuttings and everything else that comes with it. The EMAX has not disappointed us or any of our customers. We're very happy to stick with a good thing."



MP Pumps EMAX

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# As Alternative Fuels Grow, So Do We

Rising oil prices, the war in Iraq, global warming – no doubt, the pressure is on to pursue alternative fuels and reduce global dependence on fossil fuels and its emissions of carbon dioxide—a key greenhouse gas. The sense of urgency increases with a continuously growing demand: Global petroleum demand grew by 3.2 percent in 2004 – or by more than 100 million gallons a day – and continued climbing in 2005 and 2006. U.S. gasoline consumption alone reached a record high last August, averaging nearly 400 million gallons a day.

Fortunately, the ball is already rolling. Alternative fuels such as biodiesel, electricity, ethanol, hydrogen, natural gas, and propane are currently being used worldwide in a variety of vehicle applications. All of these renewable fuel

sources help reduce pollutants and exhaust emissions and all can be domestically produced. But so far, ethanol is leading the pack. This year the U.S. ethanol industry will grow to provide more than five billion gallons of clean burning, renewable fuel to the U.S. supply.

No matter the fuel source, the rapidly growing alternative fuels market has a place for everyone who is willing to work hard for the cause. One such company is Total Control Systems in Fort Wayne, Indiana – a manufacturer of fluid handling equipment and precise measurement devices.

“Petroleum products, chemicals, alternative fuels – they all need to be measured accurately and that’s what our meters are built to do,” said Steve Murray, president of Murray Equipment, the parent company to Total Control Systems. “Murray Equipment has been working with MP Pumps for more than 45 years in the agricultural industry and with the push for alternative fuels growing, we knew they could provide the right pump for that



market as well. They carry a broad line of pumps, they know pumps and they can design them to meet any requirements.”

To assist its distributors in using and selling these innovative products, Total Control Systems matches up the pumps that work best with each of its meters. MP Pumps Flomax 8, Flomax 15, 700 Series and 300 Series all made the list.

“MP offers a good product, good price and dependable delivery,” said Murray. “There’s a big alternative fuels market out there and MP Pumps has the potential to take a nice chunk of it. It’s really a great opportunity for all of us.”



## Ring in 2007 with the New FRX

With every New Year comes the promise of something new. MP Pumps will deliver on that promise in January 2007 with the introduction of its new line of stainless steel pumps. Named the FRX Series, a surname for fractional horsepower, the series will consist of five sizes ranging from 1/2” NPT to 1-1/4” NPT intake.

The series will be supplied with both DC and AC motors in the FRX 50 and FRX 75 sizes and AC 56J frame in the FRX 100 and FRX 125 sizes. AC motor sizes are 1/2 thru 1 1/2 HP. DC motors are offered in both 12 and 24 volts.

The FRX series features all investment cast 316 stainless steel construction with a polyphenylene sulfide (PPS) offering in the 1/2” size. The FRX 75 consists of the former, renamed Li'l Squirt, and a new self-priming offering.

Numerous industry applications will be found in marine, industrial and agricultural.

The FRX is available in six (6) models:

- FRX 50
- FRX 50-R
- FRX 75 (formerly the Li'l Squirt).
- FRX 75-SP
- FRX 100
- FRX 125

*“We are very optimistic and excited about capitalizing on MP’s stainless steel manufacturing expertise and taking it to the fractional HP arena where we have not previously competed.”*

MP Pumps Marketing Manager  
David Lewandowski



## Website Updates

At MP Pumps our goal is to make doing business with us easier than ever. To meet that goal, we have to really know our customers and their needs. And most importantly, we have to be willing to constantly make changes and improvements to meet those needs.

If you take a look at our website, you’ll see just how willing we are. Mppumps.com is undergoing major reconstruction to make it easier for you to find the pump you need. By January 2007, when the work is complete, all product listings will be categorized by MP’s major markets: industrial, marine, agriculture and transportation. The industrial catalog is new and is available in print and on the web. In addition, the Sales Brochure section is continuously being updated with the addition of several new brochures as they become available.

As always, you’ll still have access to the pricing, installation/service bulletins, contact information and the customer survey. See you online!



# No Customer Challenges Us More Than We Challenge Ourselves

You can't run a successful business without putting the customer first. It's always been that way and it always will be that way. Since its inception in 1942, MP Pumps has made this a priority, expanding its product offerings and earning a reputation for superior design, engineering and manufacture of centrifugal pumps for a wide variety of applications.

Most of this you already know. What you may not know is many of the improvements we make are behind the scenes. Most recently we came across a difficult challenge to reduce tooling costs and downtime when making tough interrupted cuts in stainless steel. Our solution was to test a variety of insert grades to find an optimal tool for the application. And, the end result of our continuous improvement efforts – we can keep costs competitive while maintaining the premium quality of our products. That's good news for our end users.

## *So, how did we do it? Here are the details:*

When applications require handling abrasive or corrosive materials, MP Pumps employs stainless steel for key components such as the pump's impeller. Depending on the particular alloy, stainless steel can be difficult to cut. In addition, an impeller is not an easy part to machine; it features a series of fluid-handling blades around its periphery, and machining the blades requires the cutting tool to perform an interrupted cut.

The combination of a tough workpiece material with a difficult part configuration creates a machining challenge. Day shift shop supervisor Bob Navarro said tool life was short when rough and finish turning the sides and ends of a five-bladed, 3 1/2"-dia., 4"-long, 316 stainless steel impeller casting. "The inserts just heated up," he

said, "a couple of them chipped in the interrupted cut, but mostly they were melting right down and we'd have no edge at all." When machining 316 stainless steel, maintaining tool edge integrity is necessary to avoid workhardening of the material. Insert corners lasted was only two or three parts when roughing, and five parts when finishing. Navarro said, "the inserts took quite the beating."

He pointed out that high tool cost is not the sole negative effect of short tool life.

"When you are changing an insert every part, it's not only the corner of the insert costing you, it's also the machine being down for a minute for every part," he said. "It's the cost per corner plus the cost of downtime." He added that the features of this impeller required two different roughing inserts; "Every two or three parts, my operator was changing two inserts."

Seeking to improve insert life, Navarro undertook tests with inserts from a number of manufacturers. He evaluated more than a dozen different tools, including different chip-control geometries as well as CVD and MTCVD coatings. The basic parameters for the roughing tests were a 500 sfm cutting speed, a feed rate of 0.008 ipr, and a 0.025" DOC. Throughout the tests, one tool produced significantly better performance: a CNMG HM PC9030 grade insert from the Bison/TMX division of Toolmex Corporation, Natick, Mass. Bison/TMX says the grade is engineered for medium to low speed turning of stainless steels; it features a micrograin carbide substrate for toughness, a PVD TiAlN coating to help reduce chipping, and an HM chipbreaker designed for stainless steel applications.

According to Navarro, initial results with the Bison/TMX tool were remarkable. An insert corner roughed 19 parts before wear made indexing the tool necessary. However, the severe cutting conditions apparently had wide-ranging effects on



the tool overall. When the insert was indexed to a new corner after machining 19 parts, the second corner wore out after completing only a few impellers.

Navarro said he believes that the intense heating that occurred on the first edge radiated through the insert and created residual effects in the other corner. A more moderate approach — changing the insert corner after 12 pieces — enabled the second corner to last as long as the first.

Performance in the finishing cuts, run at 0.012" DOC, also improved. Tool life increased from approximately 5 pieces to about 20.

In addition to producing savings in tool costs, the switch also resulted in reduced machine downtime. "During roughing, the operator now was changing inserts every twelve parts, which keeps the machine running," Navarro said.

Fine-tuning of machining parameters further improved machine utilization. To speed production, Navarro increased DOC from 0.025" to 0.046", and boosted feed to 0.010" ipr. The roughing operation originally incorporated five passes; the parameter changes permitted the elimination of one pass and a resultant reduction in machining time of about 10 percent.

The following companies contributed to this report:

**MP Pumps** – 800-563-8006 • [www.mppumps.com](http://www.mppumps.com)

**Bison-TMX** – 800-992-4766 • [www.bisontmx.com](http://www.bisontmx.com)

**Did You KNOW?**

**Give Blood, Give Life.**

Every year, your heart pumps 2,625,000 pints of blood. Every two seconds someone in America needs blood. 1-800-733-3767

# This Isn't Your Dad's Hydraulic Motor



Dave DeClerk

MP Pumps has been manufacturing pumps that are driven by hydraulic motors since the mid 1960's. We started out with MTE hydraulic motors which were fixed clearance gear-type with a shaft in shaft key drive. The next variation used a motor out of Italy (Marzocchi). This motor had pressure balanced thrust plates for high efficiency and an improved tang drive shaft in shaft design. High efficiency comes with complexity where the rebuilding aspects can be challenging.

Motor displacements were also added to help give better application coverage.

After that, MP Pumps introduced its first Gerotor drive (Hyspeed Hydraulic) that used proven gerotor drive components with a robust bearing frame around a single shaft design. Speeds of up to 6,000 rpm are possible.

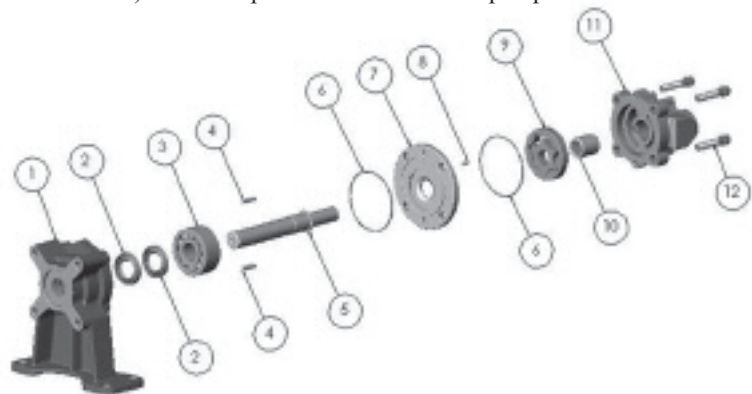
Our new generation hydraulic, introduced as G-3, is based upon the third generation design. It is a simple design that has all of

the robust features used on the Hyspeed with gerotor hydraulic power. Features added for rebuilding aspects allow rebuilding when solids have damaged the gerotor and hydraulic housing. Most hydraulic drives are not rebuildable after solids have entered into the motor.

The motor is right hand rotation only instead of bi-rotational. Bi-rotational motors have an advantage where if the motor is connected backwards the seal will not be damaged. Care should be exercised to make the proper connections. If the direction is unknown the pump can be run for a short time (less than a minute) without liquid in it

to determine rotation. The hydraulic pressure will be very low and not exceed the rating of the seal. For those that cannot control the direction, a full flow check valve can be installed on the outlet of the motor.

The G-3 design has two-lip seals mounted in tandem to allow short term back pressure up to 500 psi. The bearing system is a combination of needle and double row ball that is lubricated by the oil supplied to the motor. Open center hydraulic systems are recommended because the flow is controlled and thereby the shaft speed is controlled as well. Closed center systems can over speed when the pump load is low.



ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	34627	BODY - CAST IRON	1
2	33718	LIP SEAL - .75 DIA.	2
3	34591	BEARING - 5304	1
4	33740	DOWEL - 3/16 DIA. X 3/4 LG. - STEEL	2
5	34601	SHAFT - STEEL	1
6	34054	QUAD RING - VITON	2
7	34598	THRUST PLATE - STEEL	1
8	29044	DOWEL - 1/8 DIA. X 3/8 LG. - STEEL	1
9	29045	GEROTOR ASSEMBLY - .37 - STEEL	1
10	29046	NEEDLE BEARING - STEEL	1
11	29043	HYD. MTR. HSG. - .37 - ALUMINUM	1
12	30356	FASTENER 5/16-24 X 1.50 LG. - STEEL	4

## What's Your STORY?

**Our Pumps Don't Need A Break!  
But You Do!**

Most of us learned how to share at the innocent age of two years old. By the time we were three, we were swapping toys and candy. Well, it's time to put these lessons to good use. Share with us how your MP Pump product solved a unique problem and we'll give you an even better swap. If we publish it, you'll also receive a \$250 gift certificate from Marriott hotels.

*Now that's worth sharing!*

Send your favorite MP Pumps success story to William Petersen, MP Pumps, 34800 Bennett Drive, Fraser, MI 48026-1686.



*It is the policy of MP Pumps to satisfy customers by consistently supplying them with products that fully meet their requirements.*

*Customer Satisfaction Today, Tomorrow, Always.*

*Go to [www.mppumps.com](http://www.mppumps.com) and take the Customer Survey to become eligible to Win Starbucks Gift Certificates.*



For more information in the United States,

**call 800-563-8006**

Outside the United States, call 586-293-8240



**MP PUMPS, INC.**

34800 BENNETT • FRASER, MI 48026-1686

(586) 293-8240 • FAX (586) 293-8469

(800) 563-8006 • [www.mppumps.com](http://www.mppumps.com)