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Industrial Molds Group



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Molds: You Get What You Pay For

By Tim Peterson, Vice President of Industrial Molds Group

With any piece of machinery or equipment, you generally get what you pay for. You can pay less up front but over the long term it may cost you more in upkeep, productivity and efficiency. Or you can pay more for a piece of equipment up front and spend less money over the life of the product. Molds are machines, and just as most molders buy high-quality molding presses because over the long term they last longer and provide good service, a high-quality mold also provides optimum production over the life of the product.

If a molder buys a high-quality, high-speed molding press and hangs a mold in it that isn't designed

Engineering Corner

Mold Maintenance

Like any piece of machinery or equipment, maintaining a mold is critical to the life of the tool and the quality of the parts it produces. It's also critical to the mold's productivity and efficiency. No matter how much you pay for the mold up front, if you do not maintain the mold properly, it won't give you a good return on your investment.

The major issue, is having to replace the mold before the end of the product life. Putting off mold maintenance is very short-sighted. Compare it to your vehicle. If you don't change the oil, perform regularly scheduled maintenance as recommended by the vehicle maker, and generally maintain the vehicle, it will wear out quicker.

It's the same in the tool industry. If you don't take the time to perform regularly scheduled maintenance on the mold, it won't last. There are many reasons why mold maintenance is delayed or in some cases, not done at all. Some molds are put into a dedicated press and that is where they run 24/7 for a year or more, and nobody wants to take the time to pull the mold and interrupt the production run. However, if you don't take the one shift or so to pull the mold for maintenance, you'll be down a lot longer. By waiting until the mold breaks down due to lack of maintenance you keep losing more time. This is particularly true with high-volume molds, or molds that run filled

and built for optimum production (think cycle time and "down" time) you won't get the true value out of the molding press. A high-quality, high-speed injection mold will help a molder get the most out of their molding press investment.

So, what is the true cost of the molds you purchase? The cost of the mold is more than just the purchase price. Like buying a car, the initial price is only the beginning. There is the "cost of ownership" which includes maintenance, repair costs and the cost of replacement parts.

There is also the total "cost to manufacture" which means that a high-quality mold designed and built for optimum manufacturing will reduce your total cost to produce product. A key component would be optimum cycle time. For molders, it's all about cycle time because seconds lost mean money lost (in productivity), and seconds gained in cycle time adds profitability to the bottom line.

Recently, the plastics industry held its triennial international plastics show, known as Kunststoffe 2010 in Dusseldorf, Germany. Moldmakers from around the world teamed up with molding machinery manufacturers to showcase their products - molds and molding machines running some of the most phenomenal cycle times I've ever seen or heard of. One 72-cavity thin-wall cap mold was running a 2.0-second cycle. Not only was it raining caps, it was pouring profits!

engineering-grade materials.

Mold maintenance is something that needs to be considered up front and needs to be built into your capacity planning. Regularly scheduled mold maintenance means you will get longer life out of the mold, and you will maintain your productivity and efficiency. You can't keep running the mold without preventative maintenance. It looks good on paper, but just isn't possible.

If you are a large supplier on any scale, you need some type of Enterprise Resource Planning (ERP) software to schedule maintenance, and alert you when a mold needs to be pulled for maintenance. Many of these computer programs send an automatic notice when a specific mold needs maintenance. These are programs that work with the machine. Many production scheduling programs allow you to see the machines running in real time, and built-in modules that tell you when it's time to take the mold out for maintenance. Sometimes it's done by the number of cycles. Some people might ignore those signals, but they run the risk of bigger problems if they do.

Another problem is looking at every tool as being the same. Even if you have mold maintenance software you can't schedule every mold for preventative maintenance at the same shot count. The type of material is one major factor. You can get more cycles between maintenance on a mold running polypropylene than you can with one running glass-filled nylon. Mold operating temperature is another factor. Molds running extremely high-heat engineering grade materials such as Torlon, and using hot oil requires that maintenance be scheduled more often. If you're using ERP software, you have to set each mold up on a separate schedule according to that particular mold's requirements.

Most molding operations have a mold maintenance and repair department that can perform routine maintenance and small repairs, such as broken core pins or ejector pins. For repairs beyond the scope of the molder's maintenance and repair department, the mold may need to be returned to the mold manufacturer for repair.

There are many simple and easy maintenance steps that you can take. A buildup of gas or resin in certain areas

For one of these molds to be shut down even for a minute means lost productivity and lost profits. That's why it's critical that molds be purchased from reliable sources with a proven track record for designing and building molds that provide optimum productivity at reduced cycle times, and built to last over the life of the product.

A mold manufacturer is more than "just a moldmaker" in today's manufacturing climate. We are solutions providers that can help you achieve your manufacturing goals and provide long-term support. Our job requires looking at your components, finding the most cost-effective yet optimum way to manufacture those plastic components, and providing a mold that lasts with maximum up-time.

While U.S. mold manufacturers may not be the least expensive, we always try to be the most cost effective and give you a good return on your investment. The true cost of your molds will never be known until the product has reached the end of its life and you retire the mold. The cost of a problem-free mold that provides optimum productivity and keeps making you money throughout the life of the product is a lot less than a bargain mold that comes from a source that doesn't have a proven track record, can't provide support after the sale, and doesn't offer optimum design for manufacturability.

can easily be wiped down. Don't let build-up occur until you eventually crash something.

One big issue high-cavitation tools is the tendency to block off one or cavities if there's a problem or if those particularly cavities quit making conforming parts. This is a huge deal with the scientific molding process which many molders use in today's production environment. It wasn't such a problem in the days when molding was a "black art" and the process technician could simply turn some knobs and alter the process.

Today, shutting off cavities means you're changing your process considerably, i.e. changing pressures, everything. With scientific molding, shutting off cavities isn't accepted the way it used to be. Additionally, you're reducing your output and not getting the productivity you need, and all this as the result of poor planning in the beginning and failing to take it out and maintain the mold. Blocking off cavities means you cut your production, then for sure there's no way you'll have time to pull the mold for maintenance or repairs. You need to see the value in every part that you mold, which makes maintenance a necessity.

For a company that does shorter production runs, and thus a lot of mold changeovers, one of the big problems is not preparing the mold properly for putting it back on the shelf until it's next run. There a huge shift in volumes in the automotive industry. Many vehicle makers are using the same parts on all platforms, and a lot of custom parts run fewer parts, so molders for that industry are doing more changeovers and keeping molds on the shelf longer.

You need to take the time to blow out the water lines, spray it with rust preventative and make sure it's production ready before you store it. If there is a broken core pin or ejector pin, fix it when the mold comes out, don't wait until you have to run it again. Have a system in place that a mold doesn't go on the shelf until it's production ready. Don't think, "Well, we made it through this run, why spend the money to fix it now."

At Industrial Molds, we'll get a mold back when it's so bad their own in house shop can't fix it. Many

One of Industrial Molds' customers recently retired two molds we built for them several years ago after 16 million shots! According to them the molds ran flawlessly throughout the life of the product, and he commended us for the excellent job our company does in providing tooling that lasts and makes money. A production manager with another customer recently told us that our tooling for a program went into "mothballs" after several years of continuous production with no unnecessary repairs during the life of the program.

We may not supply the least expensive tooling initially - there are no "blue-light specials" here at Industrial Molds. But we can promise you that we will provide you with the best mold for your money; one that will run optimum cycle times, produce high-quality parts, and need only the recommended regular maintenance to keep it in good running order.

companies just don't want to spend the money on preventative maintenance. As OEMs try to get their molds cheaper and cheaper, they also want the moldmakers to throw in maintenance as part of the mold build.

Another thing to consider is the service that your local mold manufacturer can provide. If you keep sending your tool builds to China, you won't have the shops here to do your maintenance. If you do have a problem where do you go? We spend a lot of time - and some of our customers spend a lot of money - fixing offshore tooling.

In conclusion, proper maintenance is important. With the evolution of all the new engineered plastic materials, you can't just throw grease on a mold anymore and call it good to go. You have to pay attention to the temperature specs. We're not running tools the way we used to. The maintenance has to be more tool specific in today's molding world. Products are more temperature sensitive - and as temperatures get higher and we have to explore the proper lubricants that can be used on a mold. "*Proper*" maintenance is as important as just maintenance.

Industrial Molds can provide a CD with every mold it builds that gives you tips on proper preventative maintenance, a suggest PM schedule, and other tips for keeping the molds we build in tip-top shape for a long, productive life. For more information, call us at 815-397-2971.

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