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OSG Phoenix PD indexable drill provides needed solution to manufacturer of large cast pumps

The mining and dredging industries are known for the harsh conditions that man and machine must endure. These industries require the extraction and transport of large volumes of materials from one site to another using large diameter slurry pumps. A slurry pump is a centrifugal pump that suspends solids in water, creating a mixture referred to as slurry. Slurry pumps are widely used to transport abrasive solids and are engineered to withstand extremely abrasive materials such as phosphate rock and tar sands. It is critical to have a dependable and well-designed pump that expels large quantities of corrosive materials in a safe manner.

GIW Industries, Inc. is a world leader in slurry and process pump solutions. Founded in 1891 in Augusta, Georgia, United States, GIW has been manufacturing slurry pumps for over 100 years. The company moved to their current location in Grovetown, Georgia in 1964 and is currently undergoing a multi-million dollar expansion. In 1996, GIW became a full subsidiary of KSB Inc., one of the world's leading manufacturers of pumps and industrial valves. In 2014, the GIW[®] Minerals product brand was established aiming to provide the best and longest-wearing slurry solutions in the industry.

GIW's Grovetown plant currently employs approximately 650 staff members and produces around 200 parts per week in batches of one to 10. GIW is continuously looking for ways to improve quality and productivity through their partnership with Fastenal, the company's onsite distributor. It was through this partnership that GIW began to look to OSG for solutions to their large diameter drilling issues.



OSG's Phoenix PD indexable drill

GIW and Fastenal were experiencing problems with stock outages and discontinued competitor items that interrupted the manufacturing of GIW's slurry pumps. Because GIW is an existing user of OSG HY-PRO taps and has had positive experiences with OSG tooling, they were willing to test the OSG Phoenix P5D indexable drill on the pump bodies.

The OSG Phoenix PD indexable drill series is engineered for efficient and stable hole-making up to 5xD. The PD drill features a unique flute design with high precision finish and integrated chip breaker. This series offers a broad insert lineup to accommodate a wide range of work materials, such as steels, stainless steels, cast irons, aluminum alloys and nonferrous metals.

GIW's pump bodies are made of cast steel or ductile iron. The parts are machined on very large vertical and horizontal boring mills, such as its newest Giddings & Lewis floor type horizontal boring mill, using CAT50 tool holders. The number of holes and the depth varies dependent on the application of the pump. The competitor drill requires two different grades of inserts, whereas the OSG Phoenix P5D indexable drill (EDP# 7802794) utilizes the same insert inboard and outboard, which has the potential to reduce insert inventory by 50 percent. Moreover, the competitor tool was drilling +0.006 $\frac{1}{16}$ oversize. Tool life was measured at 30 to 40 holes at a speed of 1,500 rpm and 0.005 ipr using CIMTECH 285 coolant.

By utilizing the OSG Phoenix P5D with the insert grade XP1010 optimal for cast iron, the hole diameter was improved to less than 0.006 $\frac{1}{16}$ oversize, which is within GIW's tolerance. The hole finish also improved, all while maintaining identical speeds, feeds and tool life as the previous tool. The insert grades, speeds and feeds can be adjusted to further optimize the performance of the Phoenix PD drill. Through the strong partnership between GIW, Fastenal and OSG, insert inventory and the number of vendors required can be reduced, thereby greatly minimizing GIW's overall costs. GIW currently spends over \$400,000 on tool bodies, inserts and hardware. Savings in inventory reduction alone is estimated around \$1,200 USD per month. With a strong partnership, innovative tooling solutions and a model to excel by continuous process improvements, GIW is pumped for success for years to come.

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