Tips for Maintaining High- and Low-Pressure Concrete Pumps

By Tripp Farrell

Cleaning and maintenance is one of those "necessary evils." It takes time away from shotcrete placement on the project but skipping it can be even more time consuming, as well as costly. Concrete pumps are no exception. Consider these tips for cleaning and maintaining high- and low-pressure concrete pumps.

Hydraulic hopper lifts provide easy access to the pump kit for maintenance

Cup seals, or piston cups, attach to the end of the hydraulic rams and are the most common wear parts on swing tube piston pumps

HIGH-PRESSURE HYDRAULIC SWING TUBE PISTON PUMPS

It's essential that hydraulic swing tube pumps are kept in working order at all times. These pumps, commonly used for low-slump concrete and pumping mixtures extreme distances, can generate more than 2000 psi (14 MPa) of line pressure for working in the most demanding concrete pumping and shotcrete applications.

Keeping the hydraulic pumping pressure as low as possible can help to prevent premature wear. Routinely conduct preventative maintenance on the primary wear parts. Cup seals, or piston cups, attach to the end of the pump's hydraulic rams and are the most common wear parts on swing tube piston pumps. Also, regularly check poly packs, the wear plate, and wear ring.

Clean the pumping system properly after each use to avoid premature wear on the cup seals and material pumping cylinders. A swing out or hydraulic lift hopper offers easy and quick access for cleaning and maintenance.

Generously grease the outgoing housing, swing tube shaft, and swing tube cylinders each hour during operation. Consider automatic lubrication systems for swing tube pumps, as this drastically reduces maintenance costs and as a result increases return on investment.

Swing-out hoppers give users easy access to the pump kit for maintenance

LOW-PRESSURE PERISTALTIC (SQUEEZE) PUMPS

Hydraulic peristaltic pumps are used for lower-pressure concrete pumping, grouting, shotcrete, plastering, and cellular concrete applications. These pumps generate in excess of 450 psi (3.10 MPa) of line pressure and cannot pump material extremely long distances. However, they have a niche when pumping materials within 250 ft (76 m) horizontally and 50 ft (15 m) vertically. Peristaltic pumps are extremely simple and safe to operate. These units can run in reverse to remove blockages or obstructions without damaging the pump. They also can be operated as a skidsteer work tool or by other equipment equipped with auxiliary hydraulics.

There's only one wear part on these squeeze pumps: the rubber pumping tube, which makes them an economical concrete pump. Maintenance costs are typically less than $1 per yd^3 (m^3) of pumped material. To ensure maximum longevity of the pumping tube and reduce maintenance costs, keep a log of the amount of material pumped through each pumping tube. After noticeable wear, remove the tube, flip it 180 degrees and install it back inthe pump.

Operators can easily clean peristaltic pumps with a round sponge ball because no concrete comes in contact with the pump's moving parts. Concrete is pumped out of the hopper and the sponge ball is sucked into the pump's inlet pipe. Next, flood the hopper with clean water. The sponge serves as a dam between the concrete being pumped and the cleanup water. Engage the pump in forward and the water pushes the ball through the pump and delivery system for a quick and simple cleanup.

Both high- and low-pressure concrete pumps have advantages and disadvantages. Work with an experienced pump manufacturer to help determine the best pump for the application. This ensures minimal maintenance and downtime.

Consider automatic lubrication systems for swing tube pumps, as these drastically reduce maintenance costs and increase return on investment

There's only one primary wear part on peristaltic pumps—the rubber pumping tube—which makes these the most simple/ economical concrete pumps to own

Tripp Farrell *joined Blastcrete Equipment, LLC, in 2000 and serves as President. In addition to his responsibilities in sales, he works in product design and conducts product demonstrations and training. He is also involved in advertising and marketing of the Blastcrete product line, as well as research and development and, most importantly, customer service.*