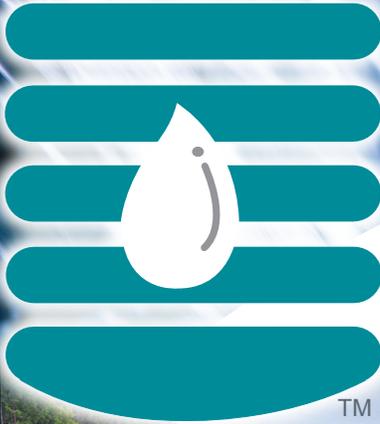


LIQUID LINE



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**Liquid Handling Equipment's
After-Hours Emergency Phone Number
980-402-8079**

Here's the Latest from Liquid Handling Equipment

Liquid Handling Equipment is excited to introduce and welcome two new team members that will enhance our ability to continue to meet and exceed our customers' expectations and needs.

Drake Blalock became a Liquid Handling Equipment employee as the new year began. Serving as an inside Sales Engineer, Drake is a recent graduate of the University of North Carolina-Charlotte with a degree in Mechanical Engineering. With the growth Liquid Handling has experienced in the past two years, we found it necessary to add another engineer to our inside group in an effort to better serve our customers. On a personal note, Drake is a proud cat owner. He also enjoys painting and playing puzzle and strategy games.

On January 17, **Kyle Nyman** joined the Liquid Handling Equipment team as Sales Representative for Eastern South Carolina. He is a 2018 graduate of the University of Mississippi. Located in Columbia, South Carolina, Kyle will train in our Charlotte office for the first part of the year, after which he will transition to his assigned SC territory in the second half. In his personal life, Kyle is a sports fan who enjoys Charlotte sports, SEC Football, and golfing.

We are fortunate to have both Drake and Kyle as members of the Liquid Handling Equipment 2022 team!



Drake Blalock
Inside Sales
Engineer



Kyle Nyman
Sales Representative
Eastern South Carolina



As a result of the excellent turnout for the **10th Annual John Connor Golf Tournament**, Liquid Handling Equipment is extremely proud to announce a \$15,000+ donation to the *Connor Charitable Foundation*. The continued support of participants has made the annual golf outing a favorite event hosted by Liquid Handling. To those who have participated in the past...THANK YOU!!! To those who would like to be included in this year's September tournament, please let us know at lhe@liquidhandlingequip.com.

Liquid Handling Is Ready to Serve You in 2022

With our experienced team, we are able to provide timely solutions to all your fluid process needs. In conjunction with our suppliers, we offer top-of-the-line equipment to solve problems and ensure more efficient operations. In addition, we bring added support via our machine shop for repairs and custom engineering & fabrication. To better serve you, we warehouse multi-million-dollar inventory and maintain an emergency after-hours phone number. The Liquid Handling Equipment promise is immediate, knowledgeable service, whatever the application, to keep you running smoothly.



Technical Spotlight on: The Effect of Abrasion on Diaphragm Pumps

By Eric Sant



Eric Sant
Vice President
of Marketing

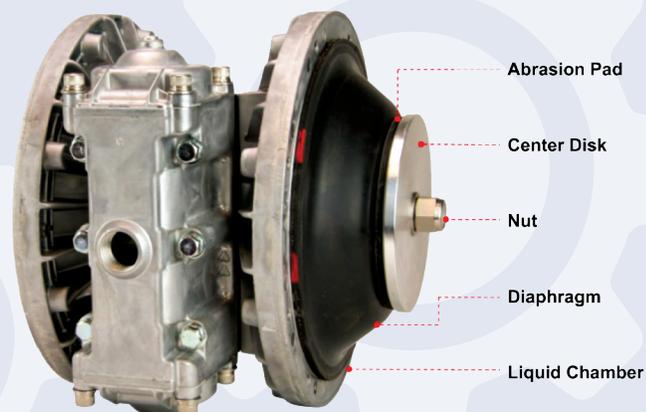
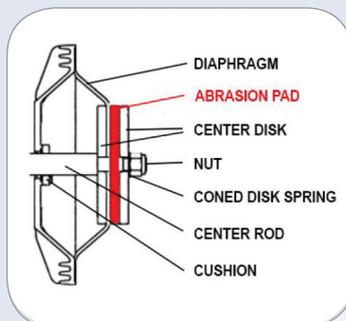
Air Operated Double Diaphragm Pumps are considered to be one of the most versatile kinds of pumps on the market. They can be used in many different types of applications...too many to list. Diaphragm pumps are most effective and best used in abrasive applications.

Abrasion can affect many different areas of a pump, including the valve seats and ball checks. One of the most common areas of concern when pumping abrasives is the diaphragm. Abrasives being pumped can get trapped in-between the diaphragm and the center disk on the liquid side of the pump. When this happens, you will notice a worn abrasion wear ring where the diaphragm meets the outer disk. This is the most common type of failure due to abrasion wear and it is a big problem!

Most AODD pumps are rated for up to 40% solids, but when the solids are sharp and/or exceed the amount of solids the pump can handle, the tendency is premature failure of the diaphragms. An example of a sharp solid is Silica Slurry that can cause pump failure after a few hours in operation. Note that failure time depends on operating factors.

Often these failures can be prevented by maintaining a good flushing system, paying attention to the percentage of solids present, decreasing the pump's speed and over sizing it. By reducing the speed of the pump and over sizing it, velocities are minimized, slowing down the wear process.

There are some manufacturers of AODD pumps that offer another solution to abrasion. Depending on the design of the outer center disk and diaphragm, an **Abrasion Pad** is an option. The abrasion pad is fitted between the diaphragm and the center disk to basically act as a spacer so that particulate cannot collect in the area and the outer plate does not rub against the diaphragm. Liquid Handling Equipment in partnership with Yamada Pumps offers quality abrasion pads.



***If you are experiencing abrasion issues with your current pumps,
please contact your local Liquid Handling Equipment representative
for reliable solutions to your abrasive concerns.***



Spotlight on:
Yamada Pumps
The Proof Is in the Pump

The Yamada Corporation has been a leading producer of industrial equipment since 1905 and of fluid handling products for over 60 years. As a leader in pneumatic pumping technology, Yamada is recognized in many industries worldwide for its innovative products, superior quality, and unmatched reliability. Other companies may claim to be innovators, but an impressive history of delivering new products and solving customer problems confirms Yamada's position as an industry leader.



Yamada America, Inc., a wholly owned subsidiary of Yamada Corporation, was established in 1986 to provide service and support for the North, Central, and South American markets. Since then, they have become a force to be reckoned with in the AODD market.



Yamada offers a complete line of pumps, including 1/4" sizes all the way up to 3". It offers pumps in Aluminum, Stainless Steel, Polypropylene, Kynar and Cast Iron. It also has elastomers to fit any application. All Yamada Pumps provide the following:

- Rugged, All-bolted Construction - No clamp bands!!!
- Outside Accessible Air Valve - Very easy to repair; the quality design remains the same since first introduced 18 years ago.
- Diaphragm Dynamics - Yamada pumps take shorter strokes, maximizing the diaphragm life and performance while minimizing downtime.
- Pilot Valve - Unique to the Yamada design, an individual modular pilot valve actuates the air valve. It is maintenance free with no snap-rings or lubricated dynamic o-rings.
- ABRASION PADS that help to extend the pump's life in abrasive applications.

Consult with your local area Liquid Handling Equipment sales representative to discover Yamada solutions to problematic abrasive applications. We offer FREE TRIALS!

www.yamadapump.com



A Liquid Handling Equipment Success Story

by Ed Moser



Ed Moser
Outside Sales

A customer in the Piedmont Triad area of North Carolina complained that he was having problems drumming silicone in a timely manner. Seeking a solution, he carefully explained the process as he demonstrated the application.

First there was a portable open-top tank that could be moved via a forklift around the plant. The tank held silicone with a viscosity of 100,000 centipoise. One end of a hose attached to a bottom fitting on the tank and the other end of the hose attached to a piston pump. After pumping, a filter housing helped to clean up any solids, followed by a hose with a wand that a technician used to drum 55-gallon drums. It inconveniently took eight plus hours to fill 10 drums, along with the fact that the product was "shear" sensitive, constantly causing concern about unwanted air bubbles.

Liquid Handling Equipment came to the rescue with the promise of improving the fill time without shearing or adding air bubbles to the end product in doing so. Our recommendation was to use a Watson-Marlow CERTA200 Pump that ran at a lower RPM. However, the most important feature of the CERTA200 Pump was the sinusoidal rotor that easily moved the product through the pump. The rotor provided almost zero pulsation while displacing a constant flow of product through the pump.

A "trial" pump was provided to ensure that the pump would successfully perform the high-viscose application. The flow rate was 6-8 GPM running at 420 RPM. The pump worked so well that another Watson-Marlow CERTA200 pump was purchased for a different application in the plant.

When the pump arrived, the customer built a pushcart, mounted the pump to it and installed a hopper on the suction side of the pump. The pump is pushed under the tank to let the product freely flow into the suction side of the pump.

Since installing this pump for drumming, the plant has reduced the fill time from plus eight excruciating hours to less than four! The customer is delighted with the improved efficiency of the application process, as well as enjoying a very gratifying return-on-investment.

***The Liquid Handling Equipment promise is to provide solutions that streamline problematic applications for gratifying ROI!
Give us a call so we can get to work for you!***



Meeting Your Process Needs

Liquid Handling Equipment carries a full line of products to meet all of your process needs.

Tanks & Heat Exchangers

- Allen Industries, LLC
- Bendel Tank & Heat Exchanger
- Modern Welding
- Poly Processing Company
- Sharpsville Container

Pumps

- Boerger Pumps
- Crane Pumps - Barnes / Burks / Crown / Deming / Weinman
- DESMI / Rotan
- Ebara
- Flux Pumps
- HMD Kontro / Sundyne
- Iwaki-America
- LC Thomsen
- Price
- Roper
- Rotech
- Walchem
- Watson-Marlow / MasoSine Pump
- Watson-Marlow Sanitary Process Pumps
- Yamada America
- Zoeller Pump Company

Agitators

- MixMor Corporation

Filtration

- Eaton / Hayward MFG
- Harmsco
- Pentair
- Strainrite

Flow & Liquid Level Management

- FLOWLINE
- ICON Process Controls, Ltd.
- Red Seal Measurement

Accessory Equipment

- Blaich Fluid Products
- Dixon
- Garlock Sealing Technologies
- Novaflex
- OPW / Civacon Corp.