RBC SERVICES UPDATE

RBC Services **Phone: 630-264-5241 Fax: 630-892-7951**
Division of McNish Corporation

ENHANCE OPERATIONS OF AIR DRIVEN RBCs

Issue 1, 2004

On occasion, air driven RBCs experience loping or may nearly come to a stop for no apparent reason. While the main shaft bearings are the only mechanical items on those air drive units that require maintenance, there are other items which are of major concern and should be inspected.

The main source for air drive RBC operations are the blowers, in-tank air headers and diffusers. The O&M Manual for the blowers should indicate a regular maintenance schedule. There is however, little or no information regarding the in-tank headers or diffusers.

Calls from a number of air drive RBC facilities explained that rotational control was being lost. Even though an additional blower was put on line in some cases, it didn't seem to help. Upon performing an inspection, we determined only minor problems which were the cause of the difficulties.

Inspections of hundreds of air drive RBCs revealed similar situations - an excess build-up of solids at the bottom of the tank, cracked in-tank air headers and failed diffusers. Cracked pipes and failed diffusers are what waste air. Instead of an even distribution, most of the air escapes from only a few areas which adversely affects rotational control.

In some cases, a build-up of solids restricted air flow from the diffusers - robbing the source of rotation which will cause problems. In other cases as a remedy, the diffusers were removed altogether, and instead, new piping was installed with a series of 3/8" holes drilled every several inches. However, a loss of efficiency for proper air distribution should be considered.

The coarse bubble diffuser was chosen for the application of air drive RBCs due to the air pattern produced, which is more efficient in filling the cavities of the air cups, thereby creating higher torque capabilities for rotation. There are just a few things to cover to make sure the air supply system for the RBC is functioning properly.

First of all, the RBC tanks should be drained and cleaned of solids about every two years. This eliminates the possibility of under-layer solids becoming septic, which not only decreases oxygen in the tank, but also increases the biological load to the RBC. (Why treat more than you have to?)

Next, when the tanks are empty and solids have been cleaned away, carefully inspect the in-tank piping, joints and the condition of the diffusers – particularly the rubber diaphragms. As with any maintenance, problems caught early will save you headaches later.

Some of the coarse bubble diffusers supplied originally are not as efficient as those provided today. The old diffusers experienced problems with the diaphragm becoming brittle, causing severe cracks, or blowing off - again, wasting air and decreasing rotational control.

The diffuser of choice today, the FLEXCAP Coarse Bubble Diffuser, is a far superior product and has been recognized as such since 1986. It successfully passed rigorous testing to provide trouble free operations, produces a well defined pattern of bubbles and is virtually self cleaning.

On rare occasions, the buried air supply piping running from the blower room to the RBCs have experienced problems. After a heavy rain occurrence, bubbles could be seen coming up from the ground over the path of the buried pipe. This is also something that should be inspected from time to time.

Tank cleaning, along with thorough inspections of the in-tank piping and diffusers will help maintain the rotational control required for air driven RBCs. A sound air supply system will also help to save energy and money.

If you find you have a need for new diffusers, we supply the FLEXCAP at the best price available. Should you be interested in the FLEXCAP Diffuser, we'll be glad to provide you with additional information.

As always, if you ever have any questions or need assistance with your RBC operations, please don't hesitate to give me a call. We have more experience with RBCs than any other company… just ask around. We're here to serve you.