



Predictive maintenance tool for high-speed nozzle separators

Alnoz II nozzle monitoring

Nozzles – a critical wear area

High-speed nozzle separators are exposed to different types of wear and tear depending on the application and operating conditions.

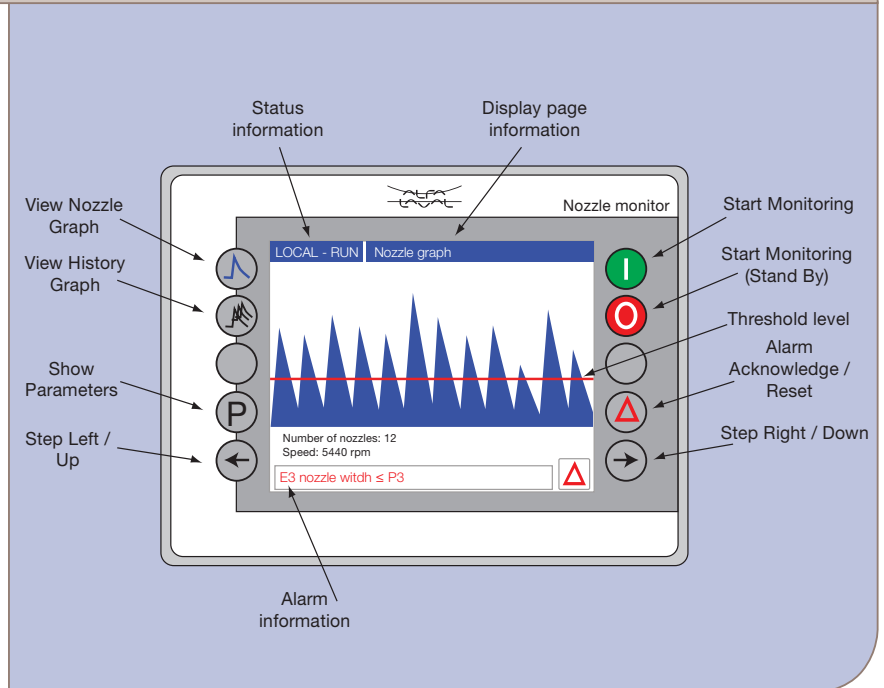
A critical wear area is the nozzles themselves. Exposure to a constant flow of harsh, heavy phase liquids can cause damage to the nozzle surface and shorten the lifetime of the nozzle. Worn nozzles not only reduce separation efficiency, they also represent a risk in terms of damaging the bowl itself if it goes out of control.

Another aspect when operating a nozzle separator is the risk of the nozzles clogging and creating a heavy side in the machine. This situation can become very serious if the imbalance is not handled in the correct manner.

Avoid unplanned maintenance stops

Now available in an updated and improved version, the Alfa Laval Alnoz II nozzle monitoring system provides continuous information on the condition of the nozzles inside your Alfa Laval high speed separator. This is achieved by monitoring the flow through the nozzles. Slower flow than normal indicates a nozzle is clogged, faster flow indicates wear.

A particularly valuable tool if your separators are handling harsh liquids, the Alnoz II system provides “in-situ” as well as historical nozzle data, enabling you to adopt a predictive approach to separator maintenance. Since Alnoz II informs you of nozzle wear or clogging before problems arise, you can plan your maintenance stops accordingly.



Operator's Interface, display and keys



Clogged nozzles, jeopardizing the machine safety and calling for an opening of the machine for manual cleaning.

Features

The Alnoz II system is capable of monitoring up to 18 nozzles at the same time. Individual nozzle performance is logged and followed continuously. Alarms are generated when the wear exceeds established tolerances and when a nozzle is becoming clogged. Monitoring data for each nozzle is logged over time and displayed as a graph on the HMI.

The current nozzle monitor is not designed for use in explosion-proof environments.

Benefits

Keeping the nozzles in your high speed separators under continuous supervision via the Alnoz II monitoring system offers a number of benefits, all of which contribute to reducing the total cost of operation:

- Planned maintenance stops
- Increased operating hours
- Less machine wear caused by bowl imbalance due to clogged nozzles
- Increased process stability
- Lower power consumption

Principle of operation

Alnoz II comprises a nozzle sensor and the nozzle monitor. The nozzle sensor is mounted on the separator frame and consists of a holder (housing a cable) with a microphone mounted on top.

During every revolution of the bowl the sensor is hit by sediment jets from each nozzle. These jets cause shock vibrations in the sensor. The vibrations are converted to electric signals which are transferred to, and evaluated by the nozzle monitor. A magnet fitted in the bowl body gives a signal at each bowl revolution. This signal is necessary for synchronization of the nozzles in relation to the magnet.

The monitor unit continuously monitors the status of all nozzles. The display presents a bar graph indicating the condition of each nozzle. A smaller peak than normal indicates a nozzle is clogged and a wider peak indicates wear.

Set parameters to meet your process conditions

The fault parameters and alarms, such as the number of permissible clogged nozzles, can be set to meet process conditions. If the condition of the separator is critical it is possible to relay a signal for an automatic shut-down.

Basic components come in kit form

The Alnoz II nozzle monitoring system consists of two main parts: a nozzle sensor mounted in the separator and the nozzle monitor. However many nozzles there are in the bowl, one nozzle monitor will supervise them all.

The nozzle monitor is sold as a kit comprising:

- Sensor (including wear hat) mounted on microphone arm, magnet, cable and contact (30m)

- Monitor
- Manual and CE-certificate
- Applicable machine types

Applicable machine types and applications

The new Alnoz II nozzle monitoring system can be installed on the following machine types (Nozzle monitor kits):

586292-01 – CHSX/FESX/SPSX/STSX 512S, CHQX/SPQX/ STQX 512S

586292-02 – FESX/ STSX 320S, TX 320S, FESX/STQX 320S, CHSX 320B, CHQX 320B, FESX/QX 520S, STSX/QX 520S, TX 520S, CHSX/QX 520B, MISX 520B

586292-03 – TX 612S

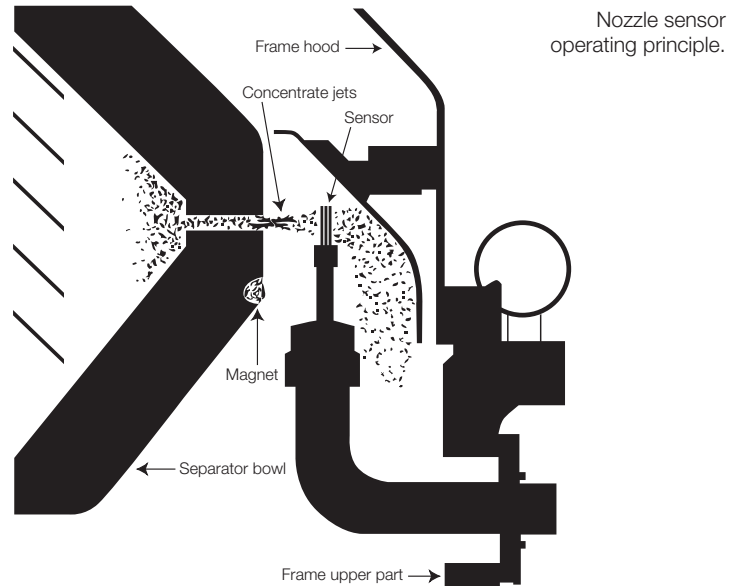
586292-05 – CHSX/FESX 512B, CHQX 512B

586292-06 – FVSX 510X

586292-07 – CX 610S (FESX, CHSX, TX)

586292-08 – STCX 217S (SX, TX, QX)

Typical applications are abrasive and high solid content applications like kaoline, woolwax, oil sand, starch etc. Please contact Alfa Laval and discuss your need for nozzle monitoring base on your specific process and application.



How to contact Alfa Laval

Up-to-date Alfa Laval contact details for all countries are always available on our website at www.alfalaval.com.