NEMO® Dry Running Protection System
Stator Protector – STP 3

NETZSCH

Introduction

The pump operating without media is known as "DRY RUNNING". The pumped media actually lubricates and dissipates heat generated from friction between rotor and stator. Under dry running conditions, the elastomer's temperature increases, and eventually exceeds the maximum temperature the elastomer can withstand, permanently damaging the stator. Dry running protection is fundamental to prevent the elastomer applied on the stator to exceed the maximum temperature it is able to withstand. When this temperature is exceeded, the stator is permanently deformed (Fig. 01), its surface may eventually carbonize which alters elastomer's properties and the pump fails.

Fig. 01 - Stator damaged due to dry running

Dry running protection for NEMOLAST® Stators

A dry running protection unit (STP 3) continuously monitors the inner surface temperature of the stator during operation (Fig. 2). If the operating temperature rises over a predetermined set point, due to an increase in friction caused by dry running, a signal is sent to the motor control unit and the pump shuts down. This prevents any damage to stator and rotor.

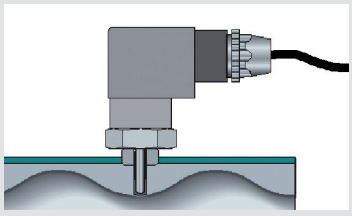

Fig. 02 - Continuous monitoring of the temperature of the inner stator surface.

Dry running protection system components

Resistance Temperature Sensor, STP 3

- Power input: 85 - 250 VAC, 50-60 Hz
- Controller for detector type PT-100 (2 or 3 wires, according to electric connection)
- Output: 01 relay output NO/NC 5A - 220 VAC

Technical Features of the INV 34104 Digital Temperature Controller

- Power Input: 85 - 250 VAC, 50-60 Hz
- Controller for STP 3 sensor
- Temperature measurement and control range from -310° F to 1562° F
- Output: 01 relay output NO/NC 5A – 220 VAC
- Panel mount installation

Technical Features of the Omron E5CSV Digital Temperature Controller

- UL Listed
- Power Input: 100 - 240 VAC, 50-60 Hz
- Controller for STP 3 sensor
- Output: SPST-NO, 250 VAC, 3A
- Panel mount installation
- Also available with DIN mount socket

Temperature Sensor Installation

The head should be installed on the stator so that the sensor will stay close to the stator's inner surface as in Fig. 03. The dimension "L" is determined by measuring the stator hole depth where the head with the STP 3 Sensor will be installed.

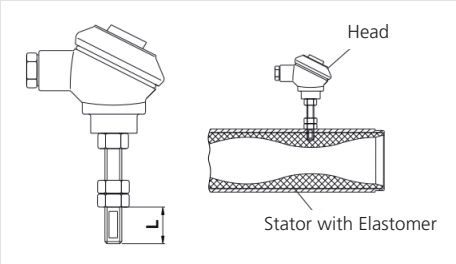

Fig. 03 - Installation of the STP 3 Sensor

If depth ("L") is exceeded, the detector may be damaged and the stator may be punctured causing leakage. *Be sure to secure nut and locknut to prevent loosening.*

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