Performance Enhancements for Mass Flow Controllers

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Derby, UK (RPRN) 05/24/13 — Digital Mass Flow Controllers (MFC's), as typically used in the semiconductor, chemical processing, food and pharmaceutical industries, are designed to both measure and control the flow of various gases and liquids. Applications also occur where MFC's are used in analytical laboratories for High Pressure Liquid Chromatography. In many applications the gases and fluids are operating at modest temperatures up to 80°C, but can include aggressive media flows which necessitate the use of specialised chemical-resistant elastomer seals.

Most gas flow meters are equipped with seals made of DuPont™ Viton® fluoroelastomer. However MFC's need O-ring seals and other custom parts that do not swell in the presence of more aggressive chemicals utilised within their wide range of industrial applications. The sealing specialist Dichtomatik Ltd, is an authorised distributor for the DuPont™ Kalrez® range of sealing products, designed to give extended performance when operating with the widest range of chemicals, even incorporating elevated temperature conditions. Tests undertaken with an MFC, fitted with DuPont™ Kalrez® Spectrum™ 6375 O-rings and custom parts, increased reliability of operation and the overall Meantime Between Failures (MTBF) of the equipment.

This increased reliability ensured a competitive advantage for the MFC manufacturer and a commercial advantage for the equipment user, as it reduced production down-times. A logistics saving was also achieved as the standardisation on Kalrez® parts for all the site modules led to a reduction in the worldwide inventory of different elastomer seals types for the company. A typical selection of specialised Kalrez® Spectrum™ seals and their particular qualities are detailed, offering minimal swell in various liquids, together with extended lifetime and performance characteristics:

Ref 6375 - for broadest chemical resistance
Ref 7075 - for highest service temperature (up to 327°C) and lowest compression set
Ref 7090 - for high hardness/higher module properties
Ref 3018 - general use in the chemical process and oil exploration industries
Ref 8085 - excellent mechanical strength, very low particle generation and longer seal life
Ref 9100 - for PECVD and HDPCVD processes, offering thermal stability, low erosion, good mechanical strength and excellent elastic recovery
Ref 6230 - superior chemical resistance and low contamination from extractables where FDA compliance is required

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