

HMD Kontro Sealless Pumps

Handheld XRF Analyser used for PMI
(Positive Material Identification)
at HMD Kontro - The Originator of the
Sealless Pump



An increasing requirement within the process oil and gas industries is for equipment and component parts being supplied to plants and facilities to have been PMI (positive material identification) checked to ensure that they are of the correct specified metal / alloy. HMD Kontro, the company that originally designed and developed the sealless magnetic drive pump, use a Niton handheld XRF analyser to both confirm that the materials and components they are building their pumps with is to specification and also to witness this important fact to customers when they visit their factory to inspect the pumps before shipment to site.

With so many safety-critical component parts on any process plant, it only takes just one to be of the wrong material to pose a potential hazard and serious risk. Items such as valves and flanges, pipes and pumps, even fasteners need to be made of the correct material, and not be substituted, even accidentally, to maintain the integrity of the plant installation.

PMI (Positive Material Identification) is the most effective way to ensure that the components installed are to the correct specification, so eliminating any danger for the facility, personnel or the environment. >>



HMD Kontro CASE STUDY

The latest hand held XRF analysers from Niton make inspection of complete systems and individual parts faster, safer and more accurate.

In the USA, the Chemical Safety and Hazard Identification Board recommends that PMI testing is used to prevent improper material substitutions. The recommendations followed a major fire at the BP Texas City refinery where it was found that a carbon steel elbow had been installed, rather than the required alloy steel version, resulting in the material being processed rupturing the alloy steel elbow after only three months, and the escaping hydrogen gas quickly igniting.

As a result, suppliers to the oil & gas and process industries have to ensure that the materials of equipment and components supplied must conform to the specification. This is vital where hazardous or harmful liquids are being pumped around a plant, often at high pressure, high temperature or similar.

The magnetic drive pumps manufactured by HMD Kontro at their factory in Eastbourne, East Sussex, UK, are ideal for use in these hazardous process applications as they completely contain the liquid. This has significant environmental, health and safety benefits, which are also being recognised for other applications where a traditional sealed pump may have previously been utilised.

At HMD Kontro the Niton XRF analyser is used to control the verification and segregation of materials throughout the manufacturing cycle. This includes goods inwards, in process and final inspection. Commented Mark Medhurst, HMD Kontro's Projects and Business Planning Manager, "We verify the material using calibration blocks which are traceable to national standards along with the BS EN 10204 3.1 certificate supplied by our vendors for all material within the liquid contact area of the pumps. The Niton analyser is also used for materials elsewhere on the pump".

Because equipment being used to pump hazardous liquids is safety critical, and because of the highly publicised failures on some process plants, as mentioned above, the need for PMI has significantly increased.



Mark Medhurst of HMD Kontro confirmed this fact when he said, "We have seen an increase in the requirement for positive material identification over the last two to three years as environmental, health and safety issues drive safer controls of material use in corrosive and hazardous areas".

The Niton handheld XRF analysers are compact and lightweight allowing operators and inspectors to carry and utilise them in almost all situations, including when working at height or similar. Their operation is fast, providing a laboratory quality chemical analysis and a positive identification in only 2-5 seconds.

The Niton XRF analysers make 100% PMI testing really feasible. The latest models have the ability to provide analysis of light element content such as silicon, aluminium, sulphur and phosphorous, without the need for helium or vacuum purging. They incorporate a touch screen for immediate viewing of the sample results.

The instruments are also provided with a suite of data management software that allows users to customise their instrument, set permissions, generate reports and print certificates, plus remotely monitor and operate the instrument from PCs or PDAs, sending data in an encrypted format. Meanwhile, integrated USB and Bluetooth provides direct data transfer to a PC or network storage device.

An API (American Petroleum Institute) standard, RP-578, has been produced for PMI testing, outlining the use of handheld XRF analysers and including relevant guidelines and procedures. The standard also covers the training of operatives in using XRF analysis equipment for the purpose. Niton UK has published a white paper providing further details and referencing the API standard.

Contact us using the details below to receive a free copy of the white paper.

