

Towards uninterrupted production processes

This article summarises the comprehensive range of hydraulic analysis, diagnosis, repair, refurbishment, testing and certification services available across Africa from Bosch Rexroth South Africa Group Companies, Hytec South Africa and Hytec Engineering.

Unscheduled and extended downtime are two setbacks that production managers do their best to avoid. To help facilitate increased uptime in all hydraulic equipment, machinery and applications, Group Companies Hytec South Africa and Hytec Engineering offer comprehensive hydraulic repair services for the Group's entire hydraulics range. These are done out of Bosch Rexroth SA's new-world class facility in Kempton Park

Repair services for hydraulic pumps, motors, gearboxes and valves fall within the scope of Hytec South Africa, while Hytec Engineering, as Group specialist in hydraulic cylinders, repairs and refurbishes all OEM cylinders distributed by Bosch Rexroth South Africa. All repairs and refurbishments are according to Bosch Rexroth specifications, which include OEM specifications, with all work and componentry warrantied for 12 months.

"Our hydraulic repair services are all ISO-accredited and cater to any application," points out Ian Kidson, repairs manager, Hytec South Africa. "From highly complex hydraulic systems specifically designed to meet stringent requirements of local and international

customers, to simple componentry that is fit for purpose, our service and hydraulic repair offering is always OEM-compliant."

In addition to ISO compliance, Hytec South Africa and Hytec Engineering are Bosch Rexroth-Certified Service Centres of Competence. This certification, renewable every four years, certifies that these two Group companies have the processes, infrastructure, qualification and management abilities to perform service work to quality standards specified by the worldwide Bosch Rexroth Service Centre grades. These two companies, along with Group Company Tectra Automation, are the only Bosch Rexroth-Certified Service Centres of Competence in Africa.

Repair capabilities

All hydraulic equipment undergoing repair or refurbishment is subjected to calibration, analysis and fault-finding, with engineers and technicians accessing all specifications including OEM specifications from Bosch Rexroth's SAP system. "The information includes parts lists, repair procedures and e-learning, which provides specifics on methods to repair units

to OEM standards," Kidson explains.

All parts are inspected for wear and damage and affected components replaced with new ones, while all seals, bearings and bolts are mandatory replacements, regardless of condition. The hydraulic equipment receives OEM replacement parts, manufactured by Bosch Rexroth Germany. Exchange units for all of these applications, barring hydraulic valves, are on-hand for qualifying customers, significantly decreasing any downtime caused by critical faulty equipment.

The gearbox repairs facility carries out repairs to Bosch Rexroth gearboxes and other mobile shovel gearboxes, including ZF, O&K, Stiebel, Siebenaar and Zollern brands. "Only original parts are used for replacement," Kidson points out. "Although, on the rare occasion and only in consultation with the customer, parts can be repaired or manufactured using reputable gear manufacturing companies."



Hytec Engineering retains an extensive and comprehensive stockholding of refurbished cylinders, which facilitates its cylinder exchange programme. "Under this offering we are in a position to immediately replace damaged or worn cylinders so clients avoid waiting for lengthy repair procedures," points out Andre Lindeque, General Manager Hytec Engineering.

Hydraulic cylinder test benches

Hytec Engineering has three hydraulic cylinder test benches, ensuring its cylinder repair and refurbishment capacity and capabilities cater to the requirements of numerous cylinder types and sizes. The smallest of the three test benches is for high flow and low pressure testing, capable of 102 l/min at a maximum pressure of 10 MPa, after which high pressure testing up to 55 MPa can be done, along with end-of-stroke and mid-stroke testing.

A fully automated test bench that tests up to 42 MPa is also used, and cylinder specifications are selected via software for this method, with each cylinder individually tested. A laser guided system records closed centres, stroke and open centres, with mid- and end of stroke tests also conducted. All recordings and values are included in the client report.

"The most recent addition to our test bench range is the Micron technologies stripping bench," Lindeque says. "It has been designed for stripping and reassembling larger cylinders and, using Hytec technology, it performs autonomous testing." Designed by Group Company Tectra Automation, the stripping bench incorporates a laser creep measurement function, which ensures zero by-pass

in the mid-stroke position pressure test. Both single- and double-acting cylinders can be tested on this bench.

Hytec Engineering recently acquired a Hydrotechnik data logger, allowing the company to precisely measure movement, pressure deviations, cushioning functions and the performance of all cylinder functions during testing.

Comprehensive hydraulic pump and motor testing

Four pump and motor test stations, from 90 kW to 600 kW, are used on the pumps and motors. Each test station is connected to data recording stations, including CADASYs, a Bosch Rexroth data acquisition system to which Bosch Rexroth South Africa has access. All results are saved to the Bosch Rexroth server for easy retrieval worldwide.

Two valve test stations are used for this service offering, one for standard valves and the other to test proportional and servo valves. The proportional and servo test station is also connected to a Bosch Rexroth data acquisition system where test data is acquired and reports compiled and stored.

Catering to onsite hydraulic repair requirements, Hytec South Africa operates a fleet of service vehicles equipped to conduct onsite services, as well as to analyse, fault-find, repair, and to carry out hydraulic system installations. "Our onsite service and repair offering is augmented by containerised hose workshops, primarily aimed at the mining industry," says



Piet Knoesen, service manager for Hytec South Africa.

Developed and implemented by Group Company Hytec Services Africa (HSA), containerised hose workshops provide a comprehensive mine site hose and fittings service to Bosch Rexroth's mining customers across Africa. Its focus goes beyond hydraulic hose and fittings, it acts as an onsite branch that helps facilitate onsite hydraulic repairs at mine sites too," Kidson elaborates.

Workshop services include the hydraulic cylinder service exchange programme and the supply of new pumps, filtration systems, drives, valves, piston motors and hydraulic maintenance tools, or providing services for them.

The Bosch Rexroth South Africa Group of Companies, previously the Hytec Group, is Africa's largest fluid power and automation company. Collectively, the Group sources, markets and distributes over 30 international hydraulic, pneumatic and automation brands via a network of 40 sales and service branches across sub-Saharan Africa.

www.boschrexroth.africa



Bosch Rexroth pump and motor test stations, from 90 kW to 600 kW, are connected to CADASYs, Bosch Rexroth's data acquisition and recording system.

SMC launches LSP1 liquid dispensing pump

SMC Corporation is excited to announce the addition of the LSP1 solenoid-type diaphragm pump to its range of automation products. This compact liquid dispensing pump can dispense stable and repeatable volumes of liquid in very small quantities per shot – down to as little as 5.0 µl.

The product has been introduced in response to market demand for an accurate, low flow rate dispensing pump, mainly for use in medical and analytical devices.

The pumps' solenoids operate on 12 Vdc or 24 Vdc and are available in three freely adjustable dispensing ranges: 5.0 to 50 µl, 50 to 100 µl, and 100 to 200 µl, all with a ±1% repeatability. "Being able to adjust the dispensing volume is important for designers faced with many operating conditions, such as differences in suction height and pipe size used, for example," says SMC South Africa product manager, Ernst Smith.

Water, deionised water, reagents or cleaning liquids can all be dispensed with SMC's LSP1 dispensing pump, since the fluid contact materials are resistant to these fluids.

Depending on the type of liquid pumped, the pump body material selected can be either polyether ether ketone (PEEK) or polypropylene (PP), while the built-in check valves and diaphragms are available in ethylene propylene diene (EPDM) or fluoroelastomer (FKM) rubber for maximum resistance to reagents.

"Selecting the best-suited body material for the pump and making use of a special diaphragm support mechanism will also ensure a long trouble-free service life for these units," says Smith.

The LSP1 liquid pump is self-priming, meaning it can suck liquid up to 1.5 m from a dry pipe condition at the start of the process.

Once the pump is filled with liquid, the suction height can be extended to 3.5 m.

The unit's physical size of around 70 mm has a space saving benefit, making it possible to be installed in very compact spaces.

Possible applications include: very accurately dispensing small amounts of product in a sample analyser; for cleaning processes such as clean-in-place (CIP), where individual lines can be cleaned with accurately measured amounts of fluid instead of having to use a bigger pump and trying to control the fluid volume by switching 2-port process valves.

"For any small volume liquid dispensing application that has to be very accurate, adjustable, resistant to several different chemicals, and offers a long service life, SMC's new LSP1 liquid dispensing pump is probably the best solution on offer," Smith concludes. □