SAIW launches new technology centre

On Friday, 19 June 2013, the Southern African Institute of Welding (SAIW) launched a new metallurgical testing laboratory at the SAIW auditorium, in an effort to bring improved quality testing to the welding industry.

The laboratory is already operational, providing services to the industry as a whole. Whilst the technology centre will have a focus on improving the quality of welds throughout the industry, it will also be used for research and development. "There are two aspects to the centre," says Sean Blake, technical services manager at SAIW. "The laboratory will be used for in-house testing of welds where SAIW undertakes the testing and qualification of weld procedures and welders. SAIW will also offer the service to other qualification organisations and manufacturers for testing of welds. We will also use the laboratory to demonstrate testing of materials where this forms a part of the teaching curriculum."

High-tech equipment

Equipment is state-of-the-art and the newest technology is available. The tensile testing machine is a 300k machine; the machine can also do bend testing. Tensile testing is a fundamental materials science test in which a sample is subjected to a tensile force until failure. The test is commonly used to select a material for an application, for quality control or to predict how a material will react under other types of forces. Properties that are directly measured via a tensile test are ultimate tensile strength, yield strength, maximu elongation and reduction in area. The former two are measures of the strength of the material whilst the lat two measurements are measures of the ductility of the material.

Other equipment includes a 450 Joule Charpy impact machine for measuring the impact strength of materials, a spectrometer for chemical analysis, an XRF analyser for material sorting and chemical analysi as well as a micro-hardness tester for hardness testing and hardness traverses. There is also a hydrogen analyser for testing diffusible hydrogen in weld metal and a Nikon optical microscope together with various sample preparation and machining equipment for preparation of test specimens. This destructive testing centre will be managed by Sean Blake and Confidence Lakoane, both qualified metallurgists.

The project was started at the beginning of 2011 when the SAIW council realised the need for such a service in the market. During installation, a civil problem cropped up resulting in the floor of the laboratory having to be reconstructed. The launch of the centre was therefore delayed by a year, but the equipment was installed early 2013. "We have already conducted some failure analyses at the centre," says Blake. "I works well as the process is much simpler when the work is done in-house. There is more control and results can be analysed in order to establish the root cause of the problems, allowing accurate solutions to be sought. Industry members can now have tests done by welding specialists rather than testing specialis leading to far superior results for the evaluation of welds."

For more information, go to www.saiw.co.za.