

Safety Unites showcases safety and innovation

An innovative leak-proof oxyfuel gas shut off system was showcased at the joint Safety Unites: Compressed Gas Safety Conference held in Johannesburg during the last week of June. *African Fusion* talks to Ian McCrystal of First Cut, and Peter Rohlssen and Robert Lawrence of Gas Safety International (GSI).

Hosted by a collaboration between Bolt and Engineering Distributors (B.E.D.) Group; First Cut; Gas Safety International (GSI); and Germany's Messer Cutting Systems, the Safety Unites Gas Safety Conference reminded stakeholders across the compressed gas value chain of the critical need to improve and advance safety procedures and systems.

"The collaboration between our four companies began when First Cut entered into an agreement with Messer Cutting Systems approximately three years ago when, for a number of reasons, Messer Cutting decided to exit South Africa," says the CEO of First Cut, Ian McCrystal. "We were looking for an opportunity on the machine side of the oxyfuel cutting space, so we sat around the table with Messer to talk about how we could enter this market," he tells *African Fusion*.

"At First Cut, we are strong in the general industrial markets, but relatively weak in the mining sector, so it made sense for us to team up with Bolt and Engineering Distributors (B.E.D.) as a strategic

partner for the Messer Cutting brand.

"Then we started looking for something that would differentiate Messer Cutting products in this crowded market. Having quickly recognised the role of the safety aspects involved in this technology, we came across Peter Rohlssen and his company, Gas Safety International (GSI), who added genius to the equation in the form of his leak-proof oxyfuel gas shut-off system," McCrystal relates.

"We have since developed a very nice synergy between the four parties, at an IP level and as equipment distributors – and the development of the safety system that Peter invented was very much a joint effort between South Africa and Germany," he adds.

Safety Advanced Technology (S.A.T.) and leak-proof oxyfuel cutting

Peter Rohlssen, the MD of GSI, describes the innovation: "Our Safety Advanced Technology, which we launched at the conference, is – we believe – the world's first patented leak-proof oxyfuel system specifically



Peter Rohlssen, GSI's Managing Director and founder presents at the Safety Unites: Compressed Gas Safety Conference.

developed for the safety-critical industrial and mining sectors. We think this system will revolutionise compressed gas safety," he notes.

S.A.T. involves three newly-patented components, a process change for oxyfuel gas cutting, along with a new shut-off valve on the fuel line and a redesigned cutting torch. This new safety system massively reduces the consequences of hose damage and gas leakage accidents when using oxyfuel equipment.

During a demonstration of how the S.A.T. system works, Rohlssen starts by clamping a conventional oxyfuel torch without the new safety device into a vice. He opens the oxygen and fuel lines and lights the flame. Then he takes a knife and a gas lighter to the fuel line a metre or so back from the torch. As soon as the hose is perforated, flame starts to pour out of the hose, while the torch flame diminishes but remains alight. The fire and explosion risks are clearly highlighted – and these risks are equally likely due to leaky connections or damaged hoses.

Moving on to demonstrate the S.A.T. system, he clamps the newly developed torch and connects the associated safety valve onto the fuel line. He again opens the valves and lights the torch. But when he cuts the hose, as soon as it is perforated and the fuel gas begins to escape, the torch extinguishes and, even though the gas lighter is held over the cut hose, no gas or flame escapes.

He then repeats the experiment using a small section of transparent PVC hose in the fuel line. Instead of cutting this hose,

he holds the gas flame underneath the PVC hose to burn it. Again, the torch shuts off the instant the hose burns through.

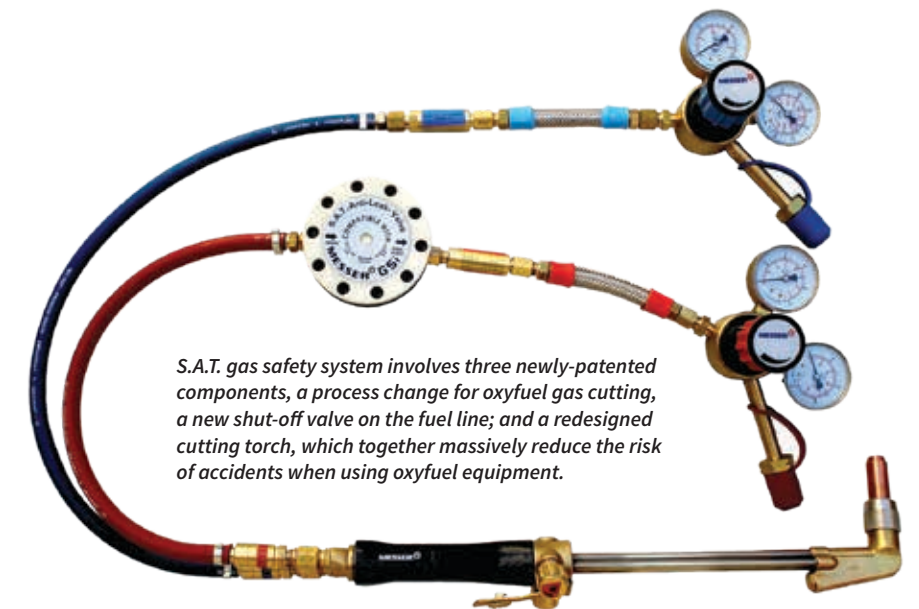
Describing how the new process works, he says the system comprises a demand valve on the fuel side of the torch that shuts off in the event of a leak anywhere between the cylinder regulator and the insides of the torch. Effectively what happens is, instead of these leaks filling the workspace and creating the fire and explosion risks that we all understand, the leak causes the whole system to shut down.

"The valve does not work on its own, though, it works hand in hand with a new process innovation that involves the torch design – and all of these three innovations have been patented," he reveals.

Describing what happens, he says that the new S.A.T. cutting torch has a special injector built into it that creates suction or negative pressure; using the venturi effect by funnelling or constricting the flow of oxygen. "So when you open the oxygen gas valve and put your finger on the fuel gas nozzle, you can feel suction. This suction is then transferred through the hose to a diaphragm, which opens a fuel-gas valve and allows the fuel gas to flow through the hose to the torch at low pressure," Rohlssen explains.

"The moment suction is somewhat impaired, owing to, let's say, a loose connection or a damaged hose or a hose bend, this suction loss causes the valve to close. The operator then has look for the damage before the system can be used, and for the duration of this time, there will be no gas leaking out into the atmosphere," he informs *African Fusion*.

As well as this innovation, Robert Lawrence says that there is a whole welding and cutting technology side to the GSI, First Cut and B.E.D. partnership that goes well beyond oxyfuel cutting systems. "We're actually changing the way our own people



S.A.T. gas safety system involves three newly-patented components, a process change for oxyfuel gas cutting, a new shut-off valve on the fuel line; and a redesigned cutting torch, which together massively reduce the risk of accidents when using oxyfuel equipment.

think about safety for all of the welding and cutting processes," he notes. "We go into fabrication workshops and, as well as introducing the S.A.T. system, we do safety audits, looking at how the welding electrodes are being used, how the welding gas cylinders and regulators are being handled and maintained, and a host of other safety related practices," he says.

"There are really three components to our market offering at GSI. The first is safety training that ranges from one or two day to five day seminars approved by the Engineering Council of South Africa, and that come with CPD points towards professional development requirements. The second is risk audits at a company's premises; and the third is forensic investigations following an accident or incident. "We are well respected in markets all around the world, particularly with respect to gas safety and safety equipment, whether it's from Messer Cutting Systems, GSI, First Cut, B.E.D. or anyone else - we are here to teach people about safety," Lawrence says.

During the con-

ference, Rohlssen cited one of the worst compressed gas safety incidents South Africa has ever seen when, on 16 September 1986, an oxy/acetylene-related incident claimed the lives of 177 people at the Kinross Mine.

"This infamous tragedy highlights the dangerous consequences of not following the prescribed compressed gas safety procedures and protocols and the critical importance of compressed gas safety awareness and training," he points out. "Together with our colleagues and fellow conference partners – the B.E.D. Group, First Cut and Messer Cutting Systems – GSI is strongly advocating for industry to be more aware and proactive regarding compressed gas safety," he says.

These four companies have therefore come together to underscore the importance of awareness, knowledge and training across all sectors of the local compressed gas value chain – and, in a global first, to introduce a revolutionary patented oxyfuel system to the market.

www.firstcut.co.za: www.bolteng.co.za
www.gas-safety.co.za: uk.messer-cutting.com



Partners in gas safety, from left: Ian McCrystal, CEO of First Cut; Peter Rohlssen, MD of GSI, Mike Giltrow, CEO of the B.E.D. Group; John Emholz, Global CEO and President of Messer Cutting Systems; Martin Zeller, division manager Sales: Oxyfuel Business Unit at Messer Cutting Systems.

The S.A.T. safety system is ideal for incorporation into CNC-controlled oxyfuel cutting tables.

