

Pipe-joining technology can help address welder shortage

By [Barry van Jaarsveld](#)

26 Apr 2017

The South African economy is hampered by a tragic irony. The country suffers from extremely high levels of unemployment, yet many industries cannot find the workers it needs. A shortage of skills means most workers simply cannot do the jobs the economy needs them to do.



Barry van Jaarsveld is regional manager for Africa at Victaulic.

The lack of skilled welders in the construction industry provides a perfect example. The demand for skilled welders in South Africa is much higher than the number of welders who are available and this often forces the industry to make use of foreigners. The shortage also continues to hamper large-scale capital expansion projects like Eskom's Medupi power station. The poor quality of specialised welding on Medupi's boilers was one of the biggest causes in the delays in getting the station onto the national grid and increasing the cost of the project.

Local training lacking

Yet, despite the negative impact of the shortage of welders, local training to produce skilled welders is lacking. Further education and training (FET) colleges still only focus on equipping learners with basic welding skills. While skills development is crucial, these challenges should also encourage innovation in the nature of work the construction industry needs welders to do. If we cannot find the right person for the job, perhaps it is necessary to change the job.

Boiler piping is very specialised and we need to use the best boiler makers to do those welding jobs, but new technology means that welders are not always needed to work on utility piping anymore. Victaulic trains workers in joining utility piping, which cuts out the need for welding through the use of joining pipes with bolted mechanical couplings.

Several drawbacks

Welding has been one of the surest processes for securing pipes for many years, but it does have several drawbacks. Aside from requiring skilled and often highly paid technicians who are difficult to find and retain, welding is also time consuming. It requires several costly and time consuming quality control procedures.

Then there is the issue of heat. The heat generated by welding can significantly reduce the strength of the metals being joined and damage critical surface coatings. In addition, welding dissimilar metals or pieces of varying sizes can be a challenge. Experienced welders also know that removing and reworking a weld can be problematic.

Finally, welding is dangerous and dirty. Safety is critical on any construction site and when welding, one spark can start a deadly fire. Equally important, spent rods and other remnants of the welding process must be handled properly to keep the work area and plant safe and clean.

No hot works required

Mechanical pipe-joining was born from the idea to replace flames and fumes with a cleaner and safer alternative. Most demanding industries still hold the perception that pipe-coupling technology can be used only on a temporary basis, but this is not the case. Victaulic offers a permanent, safe, and cost-effective alternative to using flanges or welding with no hot works required. The systems are accessible simply by removing two bolts from a coupling, making it easier to maintain efficient system performance. This reduces labour costs, pollution, energy usage, potential health and safety risks, as well as drastically reducing the time necessary to install and maintain these connections.

Further, the design allows for controlled pipe movement within the couplings while maintaining a positive seal and a self-restrained joint. The design allows for expansion, contraction and deflection generated by thermal changes, building or ground settlement and seismic activity.

Minimised noise

Additionally, since Victaulic couplings are designed to provide engineered movement at the joint, unlike welded, flanged or threaded joints, the couplings minimise noise and vibration transmission generated by pumps or other equipment to the piping system.

The Victaulic system allows for training and up-skilling to the extent that these skills in local workers could eventually satisfy local demand and even be exported. When compared to the current era where we need to import skills, this is a significant upgrade. In an era when skills development and job creation remain of crucial importance to our economy, we need to start thinking innovatively and challenge old mindsets if we want to succeed in genuine empowerment and job creation.

ABOUT THE AUTHOR

Barry van Jaarsveld has extensive experience in the mining industry in South Africa, having worked for several leading regional firms and in the process building up considerable technical expertise, particularly in piping and valves. His extensive experience includes roles with a pioneering hydropower design and engineering company and his current position is regional manager for Africa with Victaulic, the global manufacturer of mechanical pipe-joining systems.