



In focus... Cylinder filling equipment

By Stuart Radnedge

Summer 2014 saw *In Focus...* analyse the trends in the cylinder filling sector and found automation to be the driving force in this business of late. So, nine months on, and looking at the equipment used to fill cylinders, we look at what has changed in this sector – and what the future may hold.

From our responses, it seems that automation is still very much the hot topic in cylinder filling, and will remain so for the foreseeable future. But it is clear that a number of other technological advancements are also influencing cylinder filling practices and trends, as iGas Managing Director Rob Lee explained, “The level of technology being used across the world generally falls into two categories: those markets with higher labour costs; and those markets with lower labour costs. However, in each case iGAS has seen a trend towards the use of higher quality equipment. Over the last year iGAS has been busy working on both.”

“Looking at the higher labour cost

markets (typically Europe and Australia for iGAS), we have been developing our suite of standard technologies in line with client demands over the last year or so. This has included: productivity improvements; advanced methods for mixtures filling; methods for reduction in heat of compression at the point of fill, to reduced filling times in the warmer months and climates; increased focus on automatic report generation/gathering and integration into client business systems; reduction in commissioning time on-site; and new valve and package development. The success of these developments has been a win-win for iGAS and its clients.”

“Looking at the lower labour cost markets (typically the Middle East and South East Asia for iGAS) we have been offering quality, cost-effective equipment packages,” Lee continued. “The benefits of which are: a major reduction in installation and commissioning time; and significantly lower lifetime costs.”

“In summary, we clearly see a trend for more advanced and innovative solutions

and for both types of markets, the option for a fully mobile system.”

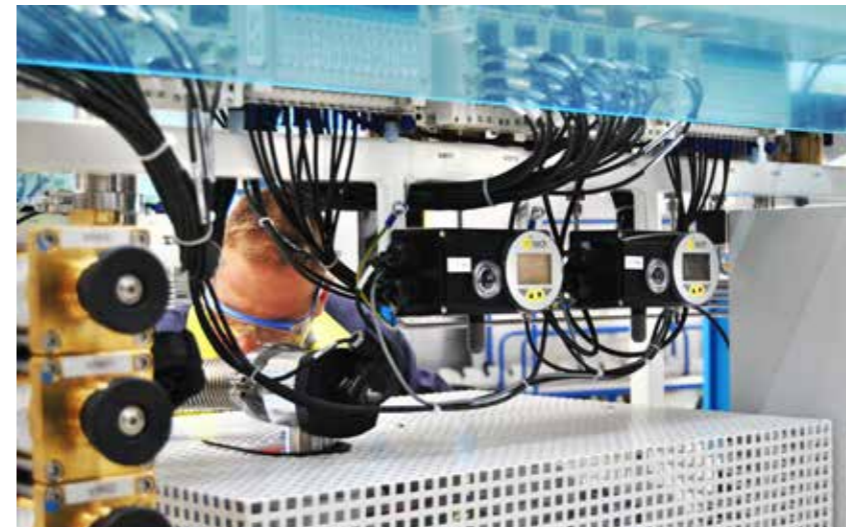
These opinions were shared by m-tech gmbh Managing Director Carlos Riveros, who also noted the trend for customers seeking a standardisation of the complete filling system – but experienced these requests from the larger gas companies like Air Liquide, Praxair and Air Products. He added, “When it comes to the cylinder filling equipment sector, m-tech sees two basic trends at the moment.”

“The first trend is a standardisation of complete filling system solutions at the big gas suppliers such as Air Liquide, Air Products, Linde-BOC and Praxair. This filling equipment is based on clearly defined guidelines and specified standards to be implemented on a worldwide basis in the future. In close cooperation, m-tech assists in defining and finally implementing these standards. In most cases, this refers to fully automated filling systems with periphery elements, electrical components and PLC.”

“The second trend we see is decentralised filling technologies for gas suppliers who mainly operate on a regional basis or those who have smaller production volumes and look for simpler and more cost-effective filling options. This technology comprises stand-alone solutions in various configurations, often these are semi-automated systems such as valve manifolds without a large number of electrical components and filling software.”

“We also realise that the awareness for a safe handling of oxygen operations is growing,” Riveros added. “This results in stricter purity specifications and an increasing demand for safe and reliable high-quality equipment. By launching the Class ISO 7 clean room and constantly developing in the field of oxygen filling, m-tech is well prepared for the future and able to meet these requirements. Another focus for us is the extension of our worldwide service concept.”

A more holistic response was provided by Michael Peine when he stated the trends his company, Filltech GmbH, was experiencing – suggesting a general all-inclusive improvement to operations



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when filling a cylinder. He said, “After some successful projects last year we see still an increasing demand for general process improvements; more and more for the operations around the filling, and especially for the handling and movement of the cylinder.”

“Most of the customers are looking for an improvement of the production flow, away from batch and queue towards a one-piece flow. We at Filltech like this specific challenge to find bespoke solutions, for example, for integrated valving units, automatic cylinder adaption, leak detection and other quality protection measures around the filling process.”

“Automatic filling of small cylinders and cartridges with high volumes is another issue we are witnessing. The demand comes across the A to Z range of industrial gases – with requests from A for argon to X for xenon. Filltech will soon come up with new solutions for this kind of filling system. Manual handling will be reduced, massflow controllers will improve gravimetric processes, and cost-effective modules with high productivity are the goal.”

Peine added, “Driven by another big topic in the future, we are currently optimising our software packages and developing new modules. Parallel to the growing trend for automation exists an increasing demand for all kind of data acquisition from the filling process.”

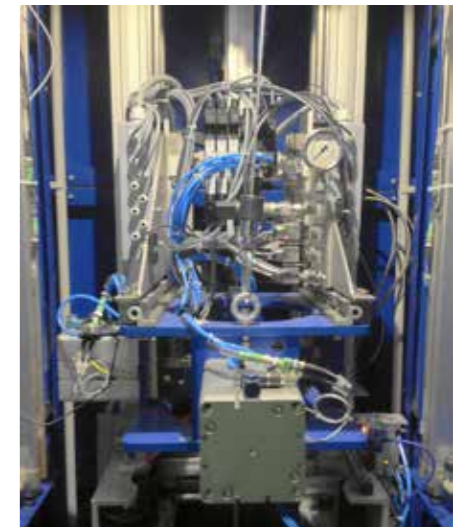
“This ‘big data’ can be used, for

example, for supervision, preventive maintenance, and track and trace systems with barcode or RFID units. It can also be used to support the system operator with his operational duties, documentation of operator training, regular inspections, quality checks and much more – imagination is the only limit.”

Reaffirming the trends highlighted at the beginning of this feature, Weldcoa’s Hector Villarreal stated that automation is not only the way the market is going, but is also key to companies unlocking the future demands of their customers.

“From Weldcoa’s point of view the demand for automation continues to increase,” Villarreal confirmed, adding, “the reasons behind the trend originate across a broad spectrum of corporate best practices decisions. Those in charge of safety want to create a process where the established Standard Operating Procedures (SOPs) are religiously followed. The executive office wants to eliminate waste in order to maximise profits. Operations want to increase production while providing the best possible product, and the sales team wants to differentiate themselves from the competition in order to gain market share. All of these ‘wants’ can and are being obtained through automation.”

Weldcoa operates a specialty gas school in Illinois and Villarreal drew upon attendance at this workshop in recent years as he described the trends in cylinder



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filling equipment on a more regional level. “In regards to the demand for higher filling pressures in the North American market, the demand remains steady. It has not increased, nor has it decreased,” he explained. “The tipping point for us would be when our clients start to demand new cylinder filling facilities that are piped for the 4,500 or 6,000 PSI service. To date we have not received any such requests. However, the demand for our 6k Booster Fill System remains popular among forward thinking clients seeking a market edge. The ability to fill on demand to those higher pressures remains a profitable niche market in North America.”

“By far the greatest demand from our clients globally is in the arena of filling capabilities for specialty and calibration gases. Clients are seeking far more than just products from us, they are looking for the training and long-term technical support that is required to help them grow and support this growing sector. Our specialty gas division, Precision, has experienced clients travelling to our specialty gas school in Aurora, Illinois, from all over the world in the past three years.”

So higher pressures and automation continue to dominate the future growth of the cylinder filling equipment sector – for the reasons of safety, uniformity (of the fill) and cost savings, a trio of factors likely to influence any business in decision making if it allows growth at the same time. 