

Lower stocks, faster lead times

Fluctuations and variations in demand and the need for short cycles and lead times are putting pressure on the valve and actuator industry. What should suppliers do? Increasing stocks impact the bottom line. The way out of this dilemma is to invest in supply chain management and engage both the internal and external supply bases.

By Lucien Joppen



Valve and actuation industry still relies too much on paper and side systems. Digitalisation across the supply chain is needed to streamline product flow.

First of all, the supply chain as discussed in this article is the line from raw materials to end products. It would take up far too much space to discuss every part of the chain and every kind of player (1st tier, 2nd tier etc.). As for the valve and actuator industry, this sector has become increasingly global over the years, with established manufacturers exporting and setting up production facilities abroad, while businesses in emerging economies are increasingly exporting as well as serving their domestic markets. "This development has made our sector increasingly dynamic", consultant Stephen Cherlet says. Cherlet, former COO at Velan and president of FarStar Consulting, starts off by giving some historical perspective of the sector, albeit from a North-American viewpoint.

Global supply chain

Cherlet: "From the 1950s to the 1970s, the North-American supply chain was almost entirely served by North-American suppliers. Valve manufacturers did not see the need to shop around for other suppliers. This changed in the 1980s when international sourcing became popular and Europe and Japan became interested in serving US projects from a price-quality perspective. Standardisation and the rise of the quality movement - see ISO 9001 - in the 1990s further opened the doors for suppliers from other geographical regions. This development was fostered even more in the 2000s when end users tended to focus more on cost, resulting in low cost country sourcing: finding the best quality-price ratio."

Since then, the end-to-end supply chain has become truly global, Cherlet says. "There is a tendency to acquire products where they will be used and installed. For manufacturers, the ability to compete on price-quality has become limited over the years, due to standardisation and sort of levelling in production costs as wages in some emerging economies have grown fast and still are rising. Therefore, the emphasis is more on other cost factors, such as energy and transportation, and - of course - lead times."

Major league

According to Cherlet, the aforementioned mix - internationalisation/globalisation, cost and time pressures - should push the sector into the major league of supply chain management.

Room for improvement

As Cherlet has stated, the valve & actuator sector has ample room for improvement in optimizing its supply chain. "To be fair, some aspects have been mastered over the years, such as MRP1, ABC inventory Classification or Long Term Agreements. Other aspects, however, should be addressed with more urgency. Supply chain risk management, EDI, sales & operations planning or lean manufacturing - all these aspects need improvement. I understand that for SME's these investments can be quite challenging. It might be worthwhile for these companies to seek out third party suppliers (hard- and software, logistical providers, web-based platforms such as e-Ventus or Arviem) that are able to reduce initial investments."

Unfortunately, many companies still need to win several championships before joining the big league. “My job requires me to visit many companies in the Americas and overseas and - while some are quite advanced - I have the impression that the valve and actuation sector is getting the basics under control. We are the laggards compared to other sectors, such as high-tech, automotive and retailing, which are frontrunners in supply chain management. One of the reasons these industries are leading the pack is the dynamic nature of their business. Millions of consumers, an endless variety of product/service options, increasingly faster launch rates, online commerce - all these variables require advanced automation in all relevant domains of supply chain management: sourcing, production, shipping, etc. The V&A sector is far less dynamic (B2B instead of B2C, ed.) than the aforementioned sectors. However, this doesn't mean that we can't take some valuable lessons from the front runners in supply chain management.”

Paperwork

One of the main lessons is investing in digitalization and systems integration. “It starts with a plan: a strategy to plan a transition to a more advanced supply chain approach. First of all, define the playing field by considering processes, products and services and select one or more that could be improved by digitalization. Then select a specific project, for example supply chain collaboration, and the relevant technologies that are needed to improve. My advice would be: think big, start small. This especially rings true for SME's

Supply Chain Management 4.0

SCM 4.0 is a term often used by consultancies such as McKinsey. Derived from the Industry 4.0-concept, SCM 4.0 focusses on optimizing the entire route from raw materials/suppliers to the end customer.

The enabler for this development is digitalization which allows companies to track and communicate about products and components throughout the supply chain. It also enables companies to make more accurate predictions regarding demand and to incorporate these predictions into their operational planning (sourcing, production, logistics), reducing response times. In various sectors, these processes have been increasingly automated, for example EDI (electronic data interchange) which enables automatic ordering and invoicing.

Apart from the technical side, SCM 4.0 also requires an organisational change in which various departments (planning, administration, production etc.) work together to make joint decisions on cost, inventory and service levels.



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which in general don't have the required budgets for major overhauls. On the other hand, there are still many companies around that still rely heavily on paper documentation which slows down response times, causes mistakes/miscommunication and makes the internal organisation more sluggish. It still baffles me how many companies, including the larger ones, still rely heavily on paperwork and side systems such as MS-Excel. Digitalization is not a luxury but a prerequisite for making your supply chain more efficient and effective.”

Product variability

In Europe, AUMA has taken this lesson to heart. The German-based actuation company has invested in supply chain management capabilities with focus on the customer in mind. “We need maximum flexibility and availability of parts to be able to deliver to the customer as fast as possible and keep lead times to a minimum”, Thomas von Bobrucki, Director of Production at AUMA, says. “At the

same time we don't want to waste resources and we therefore try to keep stock to a minimum. Having large stocks is not economical and ties up a lot of capital.”

As von Bobrucki indicates, the latter is quite a challenge for AUMA since the potential product portfolio is enormous. “Most of our actuators are not produced for stock, but are tailored to customer-specific requirements. This means there are roughly 10 to the power of 10 possible combinations, depending on variables such as torque, temperature range, interface to the DCS, power supply etc.”

Timing is crucial

In the quest for adequate delivery times while minimizing stocks, timing is of the utmost importance. Von Bobrucki's colleague Michael Merz, Director of Corporate Procurement at AUMA, says: “To deliver in time, all parts have to be available at the right time when we start final assembly for a customer order. We try to shift the customisation to a point in time as close to the

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delivery as possible. Despite the high number of product options we nevertheless strive to standardise and use identical parts wherever possible. This starts with individual parts such as screws and extends to complex sub-assemblies into modules, such as the electrical connection with standardised plug/socket connectors. Supply management for parts needed to make to stock is easier as it is decoupled from customer orders.”

Shifting assembly closer towards delivery

Shifting final assembly as close as possible to delivery seems logical. However, there is also the issue of lead times for parts. For a lot of these, AUMA relies on in-house manufacturing. However, the company also relies on external suppliers.

“Some parts have very long delivery times, sometimes 25 weeks or more”, says Merz. “Our lead times are considerably tighter: usually only 6 to 8 weeks. So such long lead-time items can endanger our in-time delivery to our customers. Examples for long lead-time items are electronic components such as ICs and cast iron parts for housings. At the time of ordering we don’t know yet exactly how many parts we will need in 25 weeks. We have solved this issue by no longer placing fixed orders with our suppliers, but using techniques such as forecasting, long-term planning and short-term adaptations to the forecasts.”

Pull instead of push

Von Bobrucki says this *modus operandi* required a thorough supply chain management approach for three ‘routes’: to the internal and external suppliers, and to the end customer. “We have established so-called electronic kanban systems which are integrated in our ERP system for several hundreds of



Focusing on optimum supply chain management and minimum lead times to customers: (from left) Michael Merz, Director of Corporate Procurement, and Thomas von Bobrucki, Director of Production at AUMA.

thousands of release order parts. These parts are synchronised with our production processes. This improves internal logistics within the ‘in-house supply chain’ for the manufacturing processes, and also improves logistics with external suppliers. All inventory is marked with barcodes, which workers scan as parts move through the manufacturing process. Twice a day, the system updates our suppliers automatically so they can ensure that parts are restocked as necessary. This pull instead of push mechanism ensures timely restocking without compromising customer satisfaction.”

Closer collaboration with suppliers

This linkage between various information systems and various actors in the supply chain implies a closer cooperation. Merz nods: “We have established very close cooperation with

our suppliers. They have access to our ERP system, which they can log into via a web-based application and access our forecasts and our actual consumption of parts. E-kanban can be easily integrated into ERP systems, as AUMA and our suppliers have done.”

Supplier consolidation allows AUMA to intensify its cooperation with suppliers and build reliable relationships based on mutual trust, Merz states. “We establish framework contracts that clearly define responsibilities. We measure and track the delivery reliability and adherence to quantity stipulations of our suppliers, and we communicate the results to them.”

The third ‘route’ relates to optimizing shipment processes to customers. AUMA also has set up a transportation management system (TMS) to optimise physical logistics. Von Bobrucki says: “We have a broad national and international freight forwarding network to ensure minimum delivery times, including road, railway, ships and air freight. We are in the process of consolidating our transportation network to ensure even shorter delivery times in the future.”



Intelligent supply solutions including electronic kanban systems and automated small parts storage ensure timely restocking of parts at AUMA’s manufacturing plants.

Kanban

The kanban system, which has been developed by Toyota, initially was a paper inside an empty parts container, sent back to the suppliers that were located close to the assembly plant. At the beginning of this century, Toyota introduced e-kanban for geographic regions in which its suppliers were not around the corner. The Japanese car manufacturer was inspired by the logistics from food retail business, in which the customer - the purchase of the desired item - is the starting point and not the number of processes leading up to the purchase.