

PK Valves has something

The oldest and largest of the Korean industrial valve manufacturers, PK Valves traces its origins back to 1946. Since then the company has developed and now manufactures a full range of cast industrial valves for the oil and gas industries, power generation sector and general industry. As Valve World discovered during a visit to PK Valves' headquarters in Changwon City, Korea, the company's philosophy of completely integrated yet flexible production gives it quite a unique edge.

By David Sear and Michael van Wijngaarden

To spot what makes PK Valves stand out you only have to take a quick tour around their production facilities. For certain the valves that are made here can also be found elsewhere and the CNC machines, whilst modern, are nothing unique for a valvemaking anymore. What is special though, is that PK Valves has developed a very flexible manufacturing base. It is neither a highly automated plant for high volume output nor is it a job shop for one-off specials, but rather a facility that is capable of producing both small and fairly large quantities of valves in a wide range and on very short delivery schedules.

PK Valves' Business Division Executive Director Mr H.S.Yoon explains why the company has implemented this arrangement. "From the very start, PK Valves' philosophy has been to serve its customers, whatever their needs. In the modern, fast-paced business climate the client may ask for a large number of valves for a project one week and then come back the week after looking for a one-off special as



a replacement for an existing, critical valve. So we set out to meet those varied demands, and be there for the client when he needs us. So we are most definitely not just another commodity valve manufacturer, but focus on depth of design and breadth of product range."

In addition, PK Valves is fully integrated, from R&D, engineering, pattern making and casting, right through to machining, assembly, testing and even painting and packing. This gives PK Valves complete control over the entire manufacturing chain, helping the company to manufacture valves to high and consistent quality standards. "This philosophy explains why PK Valves has such a blue-chip customer base, including engineering contractors such as Fluor Daniel, JGC, ABB, Bechtel, Brown & Root as well as end users like ExxonMobil, Aramco, Shell, Total,

Petronas, Pertamina, BP, etc.," states Mr H.S.Yoon.

Casting is critical

PK Valves is truly self-sufficient," continues Overseas Sales Team Leader General Manager Mr Son. "At the start of the chain we have invested in finite element analysis software and sophisticated CAD systems. But we also make our own casting patterns, for example. And of course we run two foundries, one for carbon and alloy steels and one for stainless steels." Further, PK Valves has a modern machine shop with numerous CNC equipment, a well-equipped assembly area and a whole range of test and inspection facilities, including non-destructive tests such as radiography, MPI, LPI, etc. At all stages it is apparent just how much pride PK Valves' employees take in their work, to ensure valves reach the customer facilities in perfect condition. Asked which element of the manufacturing chain was the most crucial to the entire production process Mr Son gave an imme-

unique to offer



PK Valves flexible manufacturing base can produce both small and fairly large quantities of valves in a wide range and on very short delivery schedules.



Not afraid to make bold investments in fundamental research as well as manufacturing technology, PK Valves now has production capabilities in parallel slide gate valves, metal-seated triple-offset butterfly valves, high-pressure Y-type globe valves and tilting-disc check valves.



diate reply: the casting. "Casting quality is fundamental and the necessary foundation for the production of quality valves. However, the consistent production of high quality valve castings is not easy and in fact requires enormous knowledge, some of which is quite subtle and can only be gained from decades of experience. That is why we believe having our own facilities gives PK Valves a clear advantage: not only can we ensure the quality of our castings, but we can also produce more or less on demand, so keeping lead times to an absolute minimum."

It is well-known that some manufacturers now buy castings at general foundries that make all kinds of components and are also turning to the new foundries that are being established in low cost countries. However, Mr Son stresses that these foundries lack the long experience in designing and manufacturing valve castings that PK Valves can offer. "When big end user companies make huge investments in process facilities that by their very nature

involve a risk to human life, the environment and property, it is surely absolutely vital that they can have real confidence in the quality of all their equipment. That is why serious end users make the effort and investments to assure the quality of the valve castings and finished valves used in their plants. Indeed, many end users, such as ExxonMobil, Saudi Aramco, Shell (USA), ChevronTexaco and others have formal programmes to approve valve manufacturers. I am proud to say that PK Valves is on all of these Approved Vendor Lists and many others. As plant processes become more severe, so the significance of procuring only the top quality valves will increase."

Global service

In order to get its products to the marketplace PK Valves has a mature, world-wide network of highly qualified representatives and distributors, says Overseas Sales Team Assistant Manager Mr S.K. Yoon. "Many keep stocks of valves for immediate deliv-

ery and provide essential local expertise and service capabilities. In short, they are not just supply houses but are valve consultants, with technical libraries and proprietary information relating specifically to PK Valves. They are therefore fully able to understand user specifications and to respond with appropriate quotations, drawings and technical information in a timely manner."

In the European market, for example, PK Valves has enjoyed a long relationship with Prometal, a member of the FCX Group. Mr S.K. Yoon: "Authorised as exclusive PK Valves agents for the Benelux and France, Prometal's efforts in promoting PK Valves has lead to approvals from the European oil majors such as Atofina, Total, Basf and Tractebel to name just a few."

Whilst these and other end users may have been relying on PK Valves for many years, the company has in fact had a relatively low profile until quite recently. That is because for decades PK Valves has been producing valves under private labels for



PK Valves provides exactly what its customers want: valve quality, reliability and low maintenance costs.



With full manufacturing facilities, PK Valves has two foundries, one for carbon and alloy steels and one for stainless steels. The company also has a very impressive range of patterns

many of the world's leading valvemakers. In fact, PK Valves' immense production range, its large capacity, its proven quality standards and its competitive pricing has for years made it a natural source for production or supplementary supply for other manufacturers looking to meet large project orders in particular. More recently, though, PK Valves has started marketing its own brand valves through its representative and stockist in North America, The Newdell Company. Slowly but surely, PK Valves is gaining recognition for its long-standing but often hidden contribution to the needs of valve users.

Whatever the marketing route, PK Valves' repair and maintenance teams are on hand to give prompt service in the event customers experience problems during or after installation and commissioning. The feedback that accrues from this work is highly valued by PK Valves, as accumulated technologies and experiences provides a solid basis for on-going product optimisation, indicates Mr S.K. Yoon.

Bold investments

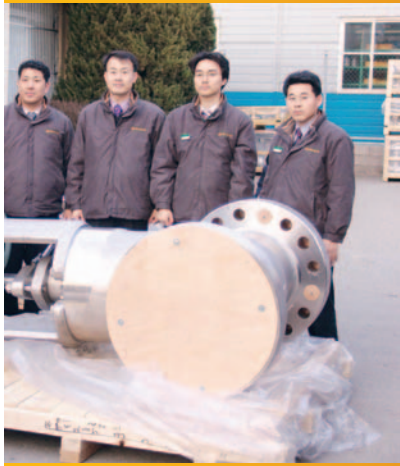
Of course, every company is only as good as its next order. In order to remain competitive, PK Valves therefore takes trouble to identify customers' future needs and to ensure those needs are met. In doing so, it is not afraid to make bold investments in fundamental research as well as manufacturing technology. This has led, for example, to production capabilities in parallel slide gate valves, metal-seated triple-offset butterfly valves, high-pressure Y-type globe valves and tilting-disc check valves. This latter valve features a line contacting mechanism that compensates for the weak points associated with the swing-type check valve.

Similarly, PK Valves has also been very active in developing valves with optimum emissions performance. Mr H.S. Yoon: "In the chemical process industries, leaks of volatile organic compounds have been identified as a serious environmental problem. It is expected that many national authorities, such as the EPA, will extend and

strengthen the regulations against external leakages. That is why we have developed LFE (Low Fugitive Emission) valves which we fit with our own, patented packing. We have also established our own standard based on long duration cycle tests using methane to achieve sub 500 ppm performance at 1000 cycles of operation. Making valves with superior low emissions performance requires attention to detail at all stages; during manufacturing the roughness of the stem and packing seal should be carefully monitored whilst the torque applied to tighten nuts and bolts during the assembly stage is also critical."

In addition to low fugitive emission valves, PK Valves can also offer so called zero emission valves. Mr H.S. Yoon: "When working with some fluids, such as acids or toxic gases that may be hazardous to the environment and human health, leakages are simply not tolerated. In these instances, the bellows valves from PK Valves are the perfect solution."

Asked about other trends in the valve user



FACTS & FIGURES

Official Name:	Pan Korea Metal Industrial Co. Ltd
Abbreviation:	PK Valves
Sales:	Private labels, PK Valves own brand
Major Customers:	Contractors and end users
Locations:	Changwon City (headquarters and production) Seoul (office)
Factory site:	Land 99,888m ² ; floor space 28,026m ² , employees 300
Production range:	Gate, globe, angle, Y-globe, check (swing, lift, tilt), bellows sealed, butterfly valves
Key applications:	Oil & gas, petrochemicals, power plants (thermal and nuclear), offshore, desalination
Quality approvals:	ISO 9001, BVQ1, API6D, Lloyd, KEPIC, DNV, BV, NK, CE (PED/23/ec), etc
Major equipment:	Induction furnaces (1 and 3 tons), heat treatment furnace, spectrometer, spectroport, helium detector, cryogenic pressure tester, fire-safe testing, NDT (RT, MT, PT, etc).



market, Mr H.S. Yoon touches on the gradual change from multi-turn valves such as gates and globes to the quarter-turn variants, such as ball and butterfly valves. "Triple offset butterfly valves are especially growing in popularity as they are comparatively easy to handle, compact and lightweight. However, the limitation of soft seats means their use is restricted to temperatures below 80°C. As a complement, PK Valves has developed a metal seat version which can be used at high temperatures whilst a cryogenic model is

also available for temperatures down to -196°C. This makes the cryogenic butterfly valve ideal for the LNG sector which has recently come to prominence given the explosive energy demand caused by the rapid development of industrial societies "

Long-term value

At the end of Valve World's visit to Changwon City we were keen to learn more about PK Valve's philosophy for the future. When answering, Mr H.S. Yoon stresses that the client's needs were central. "Our customers tell us that life-cycle costs are a very important factor. Certainly we will never be the cheapest manufacturer but we offer the ideal balance between cost and performance. That's what PK Valves' customers want: valve quality, reliability and low maintenance costs. Our objective is to provide our customers with an excellent, long-term value, whether they want standard or special valves."

Agreeing that there was an increasing challenge from the low cost countries for com-

modity valves, Mr H.S. Yoon says that PK Valves was more than up to the challenge and would find ways to maintain and increase its full line of products, consistently engineered and produced to the highest standards. "Clients are not just looking at prices. On-time deliveries and proper documentation are also important selling points that our clients can rely on," he says. According to the Business Division Executive Director, PK Valves will continue to enhance its reputation as a specialty valve-maker, with products for high temperatures and pressures. Its skills in working with special alloys such as stainless steels, Alloy 20, Hastelloy, Inconel, Monel and duplexes would underpin that goal, he indicated. "We will try and maintain the good reputation that our valves enjoy. Our valves are not just sold as products, but in fact serve a complete function. That's why we have been able to successfully conclude several supply agreements with major engineering companies. As I said, PK Valves has something unique to offer."