

FR Valve prides itself on the quality of the engineered ball valves it designs and manufactures. “For me, it begins and ends with my people on the work floor and the connection between the product and its role in the field.”

Lucien Joppen



FR Valve specializes in the design and production of forged steel ball valves for the oil and gas industry, in accordance with International Standards such as API 6D and API 6A.

FR Valve’s focus on the shop

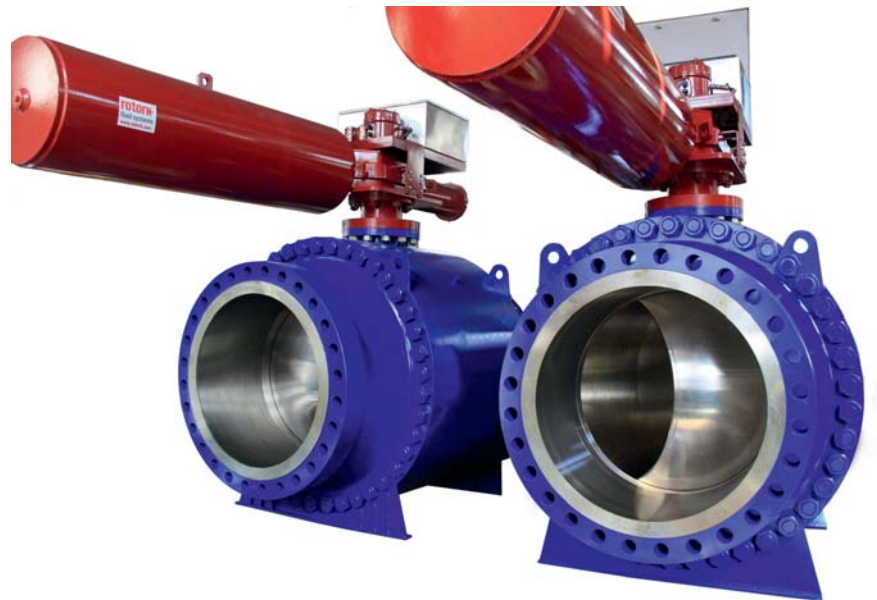
Mr. Guohong Zhang is without doubt a valve enthusiast and a genuine ‘man of the workforce’. Celebrating the 20th anniversary of his company FR Valve, he has more than 30 years of hands-on experience in the valve sector.

He came into contact with valves during his time at university where he gained an engineering degree. “During my education, I had the opportunity to specialize in hydraulically-operated valve control systems. When I left university I immediately went to work at a valve company as an engineer. So I was very fortunate that I could put my knowledge and skills to good use. At this company, I also became accustomed to pneumatic and electrically-operated valves. One of the traits

that set me apart from other graduates was that I liked to work in the shop and not so much in the office.”

Brought to life

When Mr. Zhang started his career, he was the only one amongst his class of 31 graduates that wanted to work in a valve production shop. “I guess many of my fellow students weren’t keen on getting their hands dirty. They preferred the order and quietness of the office atmosphere, I assume. For me, there was so much to be learned: all the different aspects of the valve design and how this design is brought to life. These insights into the design and manufacturing process are critical in communicating



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communicate with the end user, the people on site, valve engineers, operators etc., explaining how to install, operate and maintain the valve."

Knowledge transfer

Mr. Zhang mentions that paperwork, which is sent along with the valve, often does not suffice. Many times, he says, he found out that drawings or manuals weren't properly understood by the people that have to work with and maintain the valves.

"Therefore, we are keen to transfer our knowledge and expertise to our

customers. For example, the implementation of API standards into our product design requires detailed insight into how this standard affects the design and material use. We communicate these insights to our customers, not on paper as a dry manual but in face-to-face discussions. This added benefit increases the quality of our products when in use, because our customers know exactly what they are working with."

Disconnect

This connection between what goes on in the workshop and the field cannot be

requirements and demands from end users to the shop floor so that the end product should do what it is required to do. Reversely, it also important to

20 year jubilee

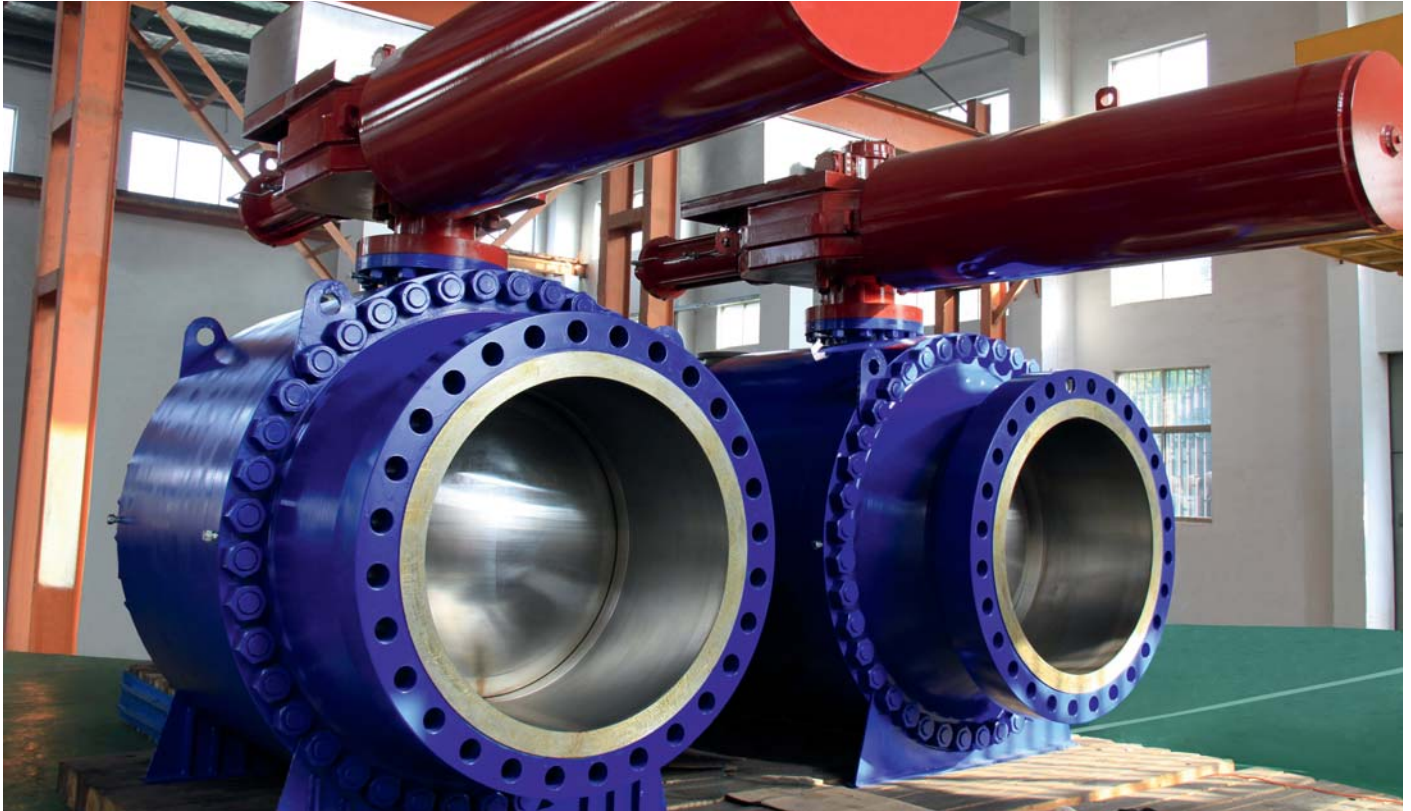
Established in 1999, FR Valve specializes in the design and production of forged steel ball valves for the oil and gas industry, in accordance with International Standards such as API 6D and API 6A.

Located in a modern 500,000 square foot manufacturing facility in the city of Suzhou, China, FR Valve provides its customers with a wide array of specialized ball valves, including sizes ranging from 2" to 52" and Classes X to Y.

FR Valve is a family-owned company employing around 100 staff members. Many of these highly qualified people have twenty to thirty years of experience in the valve industry under their belt.



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FR Valve is located in the city of Suzhou, roughly 100 kilometers west of Shanghai and in the heart of China's 'Valve Valley'.

emphasized enough, Mr. Zhang stresses. "There are plenty of companies, some of them being my direct competitors, that employ a hundred-plus engineers. In huge departments these engineers sit high and dry in their offices. And why would they leave their desks? In the summer the workshop is uncomfortably hot and in the winter stone cold. There is also a disconnect between these engineering departments and the job site, a phenomenon I have mentioned earlier. That's why I tell my engineers to move around: within FR Valve to our workshop but also to visit our customers to explain to them all relevant issues regarding our valves. In return, they gain valuable insights

from our clients that we can use to improve the functionalities and overall quality of our products."

Focus on ball valve technology

This strategy has put FR Valve on the global map. Twenty years earlier, Mr. Zhang established his company in the city of Suzhou, roughly 100 kilometers west of Shanghai and situated in the heart of China's 'Valve Valley'.

Back then, Mr. Zhang left his steady job with a valve company to realise his own vision and mission. "At the time, there were only two Chinese valve companies that were focussing on quality products. One of these

companies was the one I was working for at the time. Despite this quality focus, I recognised that further quality improvements were needed to compete directly with European and American products. To do this, I needed a single focus, and so chose to concentrate on ball valves. As I understood the technology behind ball valves and had the necessary contacts in the industry, FR Valve was able to hit the ground running."

Need for Chinese products

Soon after its inception, FR Valve's portfolio quickly filled up. Initially, the company focussed almost exclusively on contract manufacturing for European (Italian, Spanish) and American valve manufacturers. "At the end of last century, there was a growing need among some manufacturers to source valves and parts from low-cost countries because of higher labour costs. I was able to convince these companies that we were able to produce the same quality but against lower costs. Admittedly, the quality image of Chinese products was far from high at the time but the proof of the pudding is in the eating and we were able to deliver the goods. Our customers could witness first-hand our manufacturing and testing capabilities and see for themselves that we had set a new benchmark in terms of quality."

Partnership attitude

FR Valve aims to design and manufacture high quality, high performance and competitively-priced ball valves. According to Mr. Zhang, reliability and safety are key. Furthermore, he states that his products are price-competitive compared to similar products that are manufactured in Europe or the US. "We also pride ourselves on our on-time delivery," he says. "Time is money. This is especially the case in the industry in which delays in project development or on-site operations (shutdowns, turn arounds etc.) are extremely costly. Furthermore, as I have mentioned earlier, FR Valve's pre- and after-sales technical support is second to none. We value long-lasting relationships with our customers, a feat that only can be realised in a partnership and not in a pure supplier-client relationship. FR Valve's technical and quality department is focused on the integrity, performance and quality of our products, allowing for our production to steadily increase and for FR Valve to become one of the most highly recognized ball valve manufacturers in the world."

Testing capabilities

Mr. Zhang says that FR Valve guarantees the performance and reliability of its products through rigorous and systematic testing.

"All the tests are conducted in-house in dedicated testing areas by means of multiple and specifically designed (and certified) test benches that are used to control the output of the production line. Testing procedures that some companies deem too risky, such as high-pressure gas testing, are carried out here on a regular basis. Extensive testing capabilities also enable us to develop and test material properties, the quality of materials and changes in valve design."

Focus on global market

Fast forward 20 years and many things have changed, both for the Chinese valve sector and for FR Valve, says Mr. Zhang. "From being a contract manufacturer in its infancy, FR Valve has evolved into a company that designs and manufactures a comprehensive portfolio of ball valves for various applications, including severe service. The Chinese valve sector in general also has evolved and brought forward a number of companies that have made great strides in terms of economies-of-scale and product quality. Given the huge domestic demand in various sectors (power generation, oil and gas, petrochemicals etc.) the Chinese valve industry as a whole has become more professional. However for our company, the Chinese market is not interesting. It has never been for various reasons I cannot reveal in public. Let's say I prefer to deal with private companies as my experiences working with them have been and still are very good."

No race to the bottom

As Mr. Zhang explains, the global market place is where FR Valve belongs. Over the years, the company has established working relations with major players and EPCs in the oil and gas industry. Its focus is not on interchangeable products but on bespoke or engineered valves.

"In terms of production costs, the Chinese industry is roughly the same as the US or Europe. Other countries, such as India, have become the 'new China' and are able to compete on cost. We have never been interested in joining this race to the bottom. Our focus is on added-value product solutions for a wide range of applications, ranging from heavy duty, sour service to subsea



FR Valve's technology ensures zero leakage rates across a temperature spectrum ranging from minus 195 degrees Celsius to 575 degrees Celsius.

(topsides, ed.) and cryogenic applications. As such we are able to cover the entire spectrum for ball valves in various configurations (floating seat, trunnion-mounted) and body designs (split body, top entry or fully-welded)."

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Mr. Guohong Zhang, FR Valve.

HVOF

Over the years, FR Valve has developed customer-specific solutions for various applications. For example, in metal-seated ball valves the company has developed the so-called M-type. "We manufacture these valves by means of a state-of-the-art hard-facing technology, namely HVOF (High Velocity Oxygen Fuel). By using this process, we are able to produce dense coatings at relatively low temperatures. This method guarantees the best performance in terms of hardness and the lowest required torques after an intensive lapping process carried out using special designed equipment. You need a well-equipped workshop to do this. FR Valve has the necessary tools and expertise in-house."

Mr. Zhang explains that the need for high-performance valves has increased due to exploration in more demanding environments (arctic, subsea, more abrasive media etc).

Secret recipe

"That's why our R&D-department has worked incessantly to achieve the highest level of design and best performance in the trim arrangement of metal-to-metal ball valves," comments Mr. Zhang.

"We are able to deliver metal-seated ball valves that deliver "zero leakage" rates without using lip seals. For cryogenic service, we don't use lip seals. Our technology ensures zero leakage rates across a temperature spectrum ranging from minus 195 degrees Celsius to 575 degrees Celsius. It's quite a unique technology we have developed but unfortunately I can't disclose our 'secret recipe' as we haven't patented it. An auditor once told me I should patent it but I wasn't interested. I'll send you a picture if you like!"

Mr. Zhang states that his company continually aims to improve aspects such as design, material selection and machining. "The same applies to how we are working as a company. We are ISO 9001-certified which means we operate via strict protocols regarding our working processes but it also applies to the way we function. In essence, it ensures the continuation of FR Valve and the ingraining of the company's values for present and future employees."

Valve World Asia 2019

FR Valve will also exhibit at the Valve World Expo 2019 in Shanghai, the premier valve show in Asia