Ellingsøy, Norway: Sperre Industri AS. The Norwegian family-run business was started over 60 years ago as a small start-up company. Today, Sperre is one of the world market leaders for starting air compressors. For some 50 years, HOERBIGER compressor valves have been part of the Sperre Industri AS success story. The valves in the new X-Range compressors are also made by HOERBIGER. (Page 16)
The beginnings on the Sunnmøre coast in Norway were modest: when Ole Sperre gave up his job as a sailor in 1937 to take over his father’s estate on Ellingsøy in the municipality of Ålesund, he was not content to live out his life working in agriculture and fishing. Ole Sperre was interested in technology and experimented with a wide range of machines. Just one year after taking over the farm, he had built a technical workshop on the grounds next to the farm buildings. One of his new machines was the “Sperre replacement starting pump,” which he built in 1941. It is the forerunner to the starting air compressors, for which Sperre would later become world-renowned.

Ship diesel engines can hardly be compared with “normal” engines like those used in passenger cars or trucks. They are gigantic power packs with components that weigh tons. These mammoths can’t be started with a simple electrical starter. They need special ignition systems and starting air compressors. Sperre Industri AS, a family-run business from Norway, is one of the world market leaders in starting air compressors: for over 60 years. Every second cruise liner crossing today’s seven seas, three out of every four offshore ships, and every fifth cargo ship use Sperre starting air compressors. Pioneering spirit, innovation, and product excellence: the impressive story of how Sperre Industri grew to become one of the leading manufacturers on the global market.

Ole Sperre saw this gap in the market and in 1947, presented the K-1 single-cylinder compressor. This was followed by the 2-cylinder K-2, and later the K-9 with various variants. The foundations for success had been laid. The company grew: as the work and production volumes increased, new buildings had to be built. The plant was constantly expanding. Early on, Ole Sperre focused on automation and became a pioneer.

With the outstanding quality of his starting air compressors, Ole Sperre quickly gained a good reputation with the shipyards and shipowners. In the mid-1950s, Sperre entered into collaboration with shipping company Fred Olsen & Co og Aker Mek Verksted in Oslo. The new liners urgently needed compressors. These were the company’s first steps beyond its immediate surroundings. And in 1956, the company received its first export order from France.

It was at this time that contact was made with HOERBIGER. Ole Sperre was still manufacturing his own valves for the compressors, but Ole Sperre soon realized he could gain a competitive advantage by procuring these key components from a specialist. The pragmatic engineer and entrepreneur understood that his name stood for the special quality of his compressors and wanted...
to ensure that this remained the case right down to the finest detail. “The key factor in the decision to use HOERBIGER valves was and is their high quality as well as HOERBIGER’s continued commitment to work with us in driving forward research and development”, according to Ole Kristian Sper- re, Managing Director of Sperre Industri AS and grandson of the founder, and Group Director Erik Langseth.

With the increasing export and order volumes, demand for quick delivery of replacement parts soon grew. Although meeting this demand proved to be initially difficult from an island off the coast of Norway, the situation changed in 1958 with the opening of Ålesund airport, Vigra. Sperre came up with a masterstroke: “Any part to any place within 48 hours.” Once again, he became a pioneer in the industry.

Groundbreaking innovations
So what’s so new about the current compressor generation? Above all, the X-shape, which gave the series its name. It ensures much better channeling of air. The principle is used both in the air-cooled and water-cooled compressors.

But it doesn’t stop there. The engineers have developed multi-functional components for the new compressor. On average, one component is used where three were used in the previous series. This means up to 40 percent less weight and 25 percent fewer wearing parts, which translates into significantly lower operating costs.

All the components are tested on the test bench before the start of production—the housing, all cast parts, air filter, vibration insulators, fans and water separators. Other new developments include external tests and an integrated starter and the “X-control system”. This will replace the pressure switch and thermostats of the previous control system, which will therefore improve monitoring and make servicing easier than before.

Installed in a comparable arena to that of the previous product, capacity with the X-Range has been increased from 160 to 320 cubic meters per hour for the air-cooled series and from 400 to 540 for the water-cooled series. While this is a major step forward for the air-cooled compressors, it is an absolute quantum leap for the water-cooled compressors.

Particularly noticeable is the newly developed steel casing of the compressor. Not only does it look good, it also has an important structural purpose. It prevents burning even when the compression temperature reaches 250 degrees Celsius. In the event of unexpected damage, it protects the environment and prevents oil vapors escaping.

Tested Reliability
When the first new starting air compressors are delivered in 2010 to be used in cruise liners, offshore ships and cargo ships, they need to operate perfectly under all conceivable conditions from day one. The prototypes of the 21 models making up the X-Range were therefore subjected to extreme tests over a period of four years simulating the worst possible operating conditions: air temperatures in the test hall of between five and 50 degrees Celsius, and coolant temperatures of between four and 45 degrees Celsius. Using wall-mounted water jets, humidity can be regulated and raised to 80 percent. In addition, the compressors were started and stopped around 560,000 times in the period between 2005 and August 2009. Up until this point, they ran for 105,000 hours.

With the X-Range, the new valves specially designed for Sperre Industri AS by HOERBIGER were also sent to the test bench. They were designed for 1,800 revolutions per minute—an unmatched performance, but the standard for the new series. The valves have to open and close 3,600 times per minute: at a compression temperature of 250 degrees Celsius. “We don’t think other suppliers can match these precision demands,” says Ole Kristian Sperre. “And even if they could, they wouldn’t be able to deliver with the same precision. This is why we are, almost, ‘married’ to HOERBIGER, and very satisfied with those years.”

PART
Even before their first delivery in 2010, the X-Range compressors have caused great excitement in the trade. The new starting air compressors once again cement the reputation of Sperre Industri AS as an innovation leader. HOERBIGER has delivered outstanding high-performance valves for this new generation of compressors that are such a radical break from previous design principles. The valves have stood up to the challenging tests of the client under the most extreme conditions.

PART OF
Sperre Industri AS has developed from a small family business into the leading manufacturer in the field of starting air compressors for ships. The current market share is 19 percent (2009). This success has been built on the high standards demanded by the customer. The performance requirements set for the new X-Range aim to offer a product technically designed to allow customers to carry out maintenance and some repairs themselves. Since the 1950s, Sperre Industri AS has placed great importance on automation in its own factories. Operational Excellence that allows the company to implement an excellent cost-benefit ratio and drive itself forward as one of the leading manufacturers in the interna- tional competition despite the high salary levels in Norway.

PARTNERSHIP
Company founder Ole Sperre and HOERBIGER compression technology first started working with each other as early as the 1950s. Since this time, the HOERBIGER valve plant in Vienna, Austria, has been supplying parts to Norway. Several new developments at Sperre Industri AS have been accompanied by HOERBIGER and its own innovations. Cooperation between the two companies has grown over stronger over the years. For 20 years, Sperre has sourced its valves exclusively from HOERBIGER Ventilwerke GmbH & Co KG in Vienna, Austria, the leading factory of the OEM Division in the Strategic Business Unit Compression Technology.

Sperre Industri AS has patented both the X-Drive mechanism and the cooling system. In 2009, the Norwegian design council recognized the X-Range compressors with a design award. “Sperre has developed a completely new generation of revolutionary starting air compressors that set them apart from the competition both in terms of aesthetics and function,” proclaimed the judging panel.

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