

RELY ON EXCELLENCE

10 years ahead

EagleBurgmann delivers innovative seals and comprehensive services for a mega refinery complex

Between June 2017 and March 2019 the Hengli Group constructed an integrated refining and chemical complex in the Chinese harbor town Dalian where 20 million tons of crude oil are processed every year. The gigantic project was planned in compliance with highest safety and environmental standards. EagleBurgmann advised the company concerning the selection of mechanical seals and supply systems for the whole plant and supplied more than 95 % of the components in use. The innovative LY9 product line which was developed specifically according to the strict requirements of API 682 4th edition as well as a dedicated on-site service center guarantee a trouble-free operation for the customer.



EagleBurgmann is part of the API 682 Task Force and has been contributing actively to the development of API specifications for more than 20 years.

Hengli was one of the first privately owned enterprises in China which was granted a refining license. With high standards for planning, construction, commissioning and maintenance, the company adheres to the ideology of "moving ten years ahead". At the same time, the construction of the gigantic

complex was performed with record speed. The experts at EagleBurgmann thus had to fulfil the highest quality standards while providing the right solutions very quickly. A demand which can only be accomplished through a very direct and smooth communication with the customer.

About Hengli Group

While Chinese brands like Huawei, Alibaba or Lenovo are generally known by everyone, the Hengli Group will probably only ring a bell for insiders of the capital market. The company has been ranking within the "Fortune Global 500", the 500 highest-grossing enterprises of the world, for four years now. And it is constantly working its way upwards – from position 268 in 2017 to position 107 in the year 2020. Hengli was founded in the year 1994 as a small textile company with no more than 27 employees and has since gradually expanded its commercial activities to the upstream supply chain. With the start-up of the refinery, Hengli completed the "crude oil to textile fabric" vertical value chain expansion. Polyesters, chemical fibers and textiles produced by the company can be found in numerous products which are used in daily life – from tents to curtains and fake fur right up to raw materials for bridge construction.

Ideal project management through local presence and central guidance

A seven-member team was in charge on the customer premise in China. "Before the frame agreement was signed we gave a lot of advice to the customer about how to choose the right seals and supply systems for the different units. Especially for challenging conditions like extreme temperatures or high pressure", remembers Rocky Hu, sales manager of North area at EagleBurgmann in China. "During the whole project phase we drove the 140 km from our dependence in Dalian to the headquarter of Hengli Petrochemical at Liaodong bay two to three times a week." The high commitment as well as the technical knowledge of the local team convinced the customer to rely on EagleBurgmann as the main supplier for the equipment of the refinery. In total, 4,151 seals

and 4,907 supply systems were delivered to Dalian – the biggest project in the history of EagleBurgmann so far.

While the direct contact persons in China ensured a high response speed and maximum customer orientation, the Hengli Group also benefited from the global network of EagleBurgmann. In the EagleBurgmann headquarter in Wolfratshausen, Germany, the dedicated unit "International Projects" is responsible for large-scale projects like the one in Dalian, which require that hundreds to thousands of different products have to be designed simultaneously. This team, consisting of engineers and project managers, verifies product drawings, customer requirements and specifications. It also prepares offers and coordinates the delivery of the finished products. With this

unit EagleBurgmann guarantees that a direct contact person in the headquarter is always at the customer's disposal. Collaboration and coordination with additional stakeholders is facilitated significantly through the central communication hub.

"The customer used a lot of imported products like pumps and agitators as well as specialized devices and decided that all imported products should be equipped with imported mechanical seals. For locally produced equipment, locally produced mechanical seals had to be used. Good communication was thus a key success factor. "We constantly reconciled our work with different OEMs through weekly meetings", explains Hu.



A real greenfield project: Hengli Petrochemical needed less than two years to build the gigantic refinery complex.

An innovative metal bellow seal for challenging applications: the LY9

To comply with the company's policy concerning safety and reliability, EagleBurgmann recommended seals which meet the requirements of the demanding API 682 standard. The EagleBurgmann portfolio contains a wide range of components which comply with the newest edition of the guidelines for seals and supply systems for pumps in the oil and gas sector. Hengli thus was able to purchase all required products from a single source. The experts of EagleBurgmann then customized them for the different applications. Adaptions included among other things the choice of different materials.

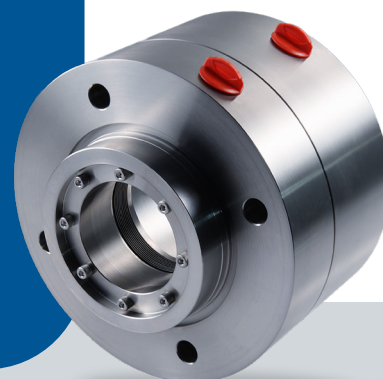
Applications with extremely high or low temperatures were covered by the innovative LY9 product line which was developed in close collaboration by experts of EagleBurgmann from Germany and Japan. "With the LY9 we've put a new generation of metal bellow seals on the market which has been specifically geared to the requirements of the API 682 4th edition", explains Jan König, product manager at EagleBurgmann. With the selection of a special material as well as an optimized design and manufacturing technique, a very high robustness was accomplished.

"The distinctive feature of the LY9 are the lamellas of the metal bellow", König elaborates. "They have a special innovative shape

and they are produced of inconel, a very strong material. Furthermore, the welding points are specialized for the material and the shape to reduce the forces inside the material which are caused by the constant movement of the bellow. Due to these factors the seal is very durable and the meantime between failure (MTBF) is prolonged." The special design of the LY9 is also an example of how EagleBurgmann creates a higher added value for the customer through standardization. "The same metal bellow unit can be used for all seal arrangements, whether it's single, tandem or face-to-face. Thereby, stock-keeping is facilitated and the end user saves costs through the whole life cycle of the seals", König explains.

API 682 4th edition

Since its introduction in 1994, API 682 has become the pioneering standard which sets the global tone for the procurement and operation of seal and supply systems for centrifugal pumps in the oil and gas sector as well as in (petro)chemistry. API 682 is a "living" standard which directly incorporates diverse practical experience in its regular updates. API is often considered a synonym for safety and reliability all around the globe. The seals must be tested using five different media and clearly defined operating conditions which are representative for the oil and gas industry. The required time per test and seal type can take up to 200 hours. The objective of API 682 is continuous operation of at least three years or 25,000 operating hours.



Trouble-free operation on the long run due to a dedicated on-site service center

The delivery of the components did only set the starting point for a close business relationship between EagleBurgmann and the Hengli Group. To ensure a trouble-free operation of the seals implemented at the refinery at any time, EagleBurgmann runs an on-site service center with a size of 240 square meters in Dalian. "A four-member team works in the service center and is available 24/7. Whenever problems with the mechanical seals occur – the ones produced by EagleBurgmann as well as some other brands – they are brought there, disassembled, cleaned, repaired, quality tested and sent back to the customer. Additionally, we assist the customer when, for example, a pump fails. We analyze the situation and try to provide a solution", Hu states.

Advantages of the LY9 product line

- Suitable for higher speeds
- Good setting and running behaviour at non-circular or misalignment shafts or vibrations
- Low heat generation and power consumption due to narrow seal face width
- Also available in double ply design
- Suited for applications with extreme high and low temperatures
- Absence of dynamic O-Ring eliminates/reduces seal face hang-up
- Bellows design minimizes variation in face load due to shaft expansion or face wear
- Resistant to abrasive particles in the medium, no shaft or sleeve fretting

"We are very satisfied with the collaboration. While planning our ethylene cracking unit, which was put into operation in February 2020, we quickly decided to mainly use seal

components produced by EagleBurgmann", Mr. Wu Yanzhi, procurement director at Hengli Petrochemical, declares.

EagleBurgmann – at the leading edge of industrial sealing technology

Our products are used wherever safety and reliability count: in the industries of oil & gas, refineries, petrochemicals, chemicals, pharmaceuticals, food, power, water and many more. About 6,000 employees contribute their ideas, solutions and dedication every day to ensure that customers around the globe can rely on our seals. With our modular TotalSealCare Service, we emphasize our strong customer orientation and offer custom-tailored services for every need. [Rely on excellence.](#)

eagleburgmann.com
info@eagleburgmann.com

