

Case story | Beijing New Biolink

## Danfoss **APP pumps** to **comply with China's strict wastewater treatment rules** – and fit within existing facility

### Compact

pumps with a small footprint and high efficiency and reliability

[hpp.danfoss.com](http://hpp.danfoss.com)

### **Fast and reliable compliance** with new **ZLD legislation** is important

In 2018, Shenhua Ningxia Coal Group, located in northwestern Ningxia Hui Autonomous Region, was required to retrofit its coal liquification plant to comply with China's strict zero liquid discharge (ZLD) legislation.

As the wastewater treatment facility featured four different systems and had to be located within the existing facility, footprint was an especially critical consideration for Beijing New Biolink Technology Development Co., Ltd., the OEM that designed, built and installed the wastewater treatment system. But fast and reliable compliance with new legislation was an equally important reason to select 10 Danfoss APP pumps for the project.

### The challenge:

Retrofit a large coal liquification plant with wastewater treatment to ensure **ZLD compliance quickly and reliably**

China's recently-enacted ZLD laws demanded fast action from Shenhua Ningxia Coal Group managers. To be in compliance, they had to cease all wastewater discharge from their coal liquification plant, and they had to do it quickly.

To complicate matters, the wastewater treatment plant would have to consist of a range of systems for different treatment purposes and be housed within existing premises. This meant that the treatment plant had to be as small as possible in order to fit inside a building already in use.



### The solution:

## Ten **compact** Danfoss APP pumps in **four separate systems**

To maximize filtration efficacy and energy efficiency, Beijing New Biolink's engineers designed an array of four systems: two to purify NaCl wastewater, a third to purify Na<sub>2</sub>SO<sub>4</sub> wastewater, and a fourth for nanofiltration. Each system had its own requirements for pump quantity, flow, and pressure.

Although engineers considered a variety of pump technologies, including plunger pumps, they chose APP pumps from Danfoss for multiple reasons.

"Since we had to fit the entire wastewater treatment system inside an existing building which was designed for something else, the footprint of plunger pumps was problematical," says the Chief Engineer from Beijing New Biolink. "Furthermore, the low pulsation of the Danfoss pumps significantly reduces vibration, plant complexity, and costs. But delivery time and reliability were also very important. The Chinese government demands full compliance with the new ZLD legislation, so we had to make a tight deadline and ensure ongoing pump performance, without which the entire plant would have to shut down. Danfoss APP pumps were the logical choice for all of these reasons."

### The results:

## **Compact, reliable** wastewater treatment

The new wastewater treatment facility went online in March 2019. As expected, it has run without incident since.

"The reliability of these APP pumps is high, and service intervals are long," explains the Chief Engineer. "Staff at Shenhua Ningxia Coal Group were pleasantly surprised at the system's compact footprint, and managers are happy that everything came together on time and on budget."



### **About Beijing New Biolink Technology Development Company, Ltd.:**

*Established in 2001, Beijing New Biolink is one of China's leading experts in seawater desalination and difficult wastewater treatment. Areas of expertise include environmental engineering consultation, engineering design, EPC projects, R&D, and the manufacture of environmental engineering equipment.*

*For more information, visit <http://www.newbiolink.com/en>*

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