

Industry: Vertical Pump
OEM: Jiangsu Aerospace Hydraulic Equipment Co., Ltd
End User: Yangtze-to-Huaihe Water Diversion, China
Application: Vertical Mixed Flow and Vertical Axial Flow Pumps
Thordon Grade: SXL
Date of Original Installation: 2021

About:

The Yangtze-to-Huaihe Water Diversion Project in China is one of the largest water diversion projects ever developed. The project involves drawing water from the Yangtze River and supplying it to Huaihe water supply system.

About the OEM:

Founded in 1956, Jiangsu Aerospace Hydraulic Equipment Co., Ltd., a national and provincial enterprise, is a multifaceted company with many divisions. One of the company's main divisions manufactures high-tech pumps, that provide public utilities, power plants and irrigation systems with innovative solutions to support their facilities. Such solutions include water supply, water irrigation, and cooling water, and their product lines include vertical pumps, horizontal pumps, inclined pumps, and hydro turbines.

Challenge:

The OEM was having delivery issues with the Japanese rubber bearings they were using, as this supplier frequently delivered rubber bearings behind schedule. These delays caused the OEM's production schedule to be delayed, leading to unnecessary and avoidable fines from the end user. The rubber bearings supplier was also not able to guarantee the close tolerances required for the ID of the bearings, which could affect the efficiency of the pump. Additionally, the end user stipulated that the bearings must be able to be replaced without shaft removal; a difficult task for rubber bearings.

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JIANGSU PUMPS was tasked by the end user to supply:

- **8 x Vertical Mixed Flow Pumps**
with a 500mm (19.7in) shaft diameter
to the Shushan Pumping Station
- **4 x Vertical Axial Flow Pump**
with a 400mm (15.7in) shaft diameter
to the Xifeihe Pumping Station
- **4 x Vertical Axial Flow Pump**
with a 400mm (15.7in) shaft diameter
to the Kantong Pumping Station
- **4 x Vertical Axial Flow Pump**
with a 294mm (11.6in) shaft diameter
to the Yuanqiao Pumping Station



Solution:

In their split carrier pump designs, Jiangsu Pumps determined that staves, rather than full form tubes, worked best with shaft diameters over 250mm (9.8in). Thordon's authorized distributor in China, CY Engineering, worked closely with the end user, the design house, and the pump manufacturer, to come up with the best solution. All three parties expressed their preference to work with Thordon's products based on previous positive past experiences.

CY Engineering proposed Thordon's SXL material in this application for its long wear life compared to competitors and excellent dry start-up capabilities. For 20 years, SXL has had a proven track record of success in many important projects including large pumps. By opting for SXL staves, the OEM would no longer have to worry about delayed deliveries or machining issues. The staves could be easily machined by OEM to match the shaft size for each pump.

Although this project had a tight budget, the strong relationship between Thordon's distributor, CY Engineering, and the customer, allowed them to identify a pricing level that ensured that SXL dovetail staves were installed, providing an optimal solution that satisfied the design requirements.

Result:

In late 2020, CY Engineering supplied a total of 140 SXL staves that are scheduled to be installed in 2021 and 2022 into a total of 20 pumps. Typically, SXL works very well with a life expectancy of 3-5 years in this application and this meets the requirements of both OEM and the end users.

