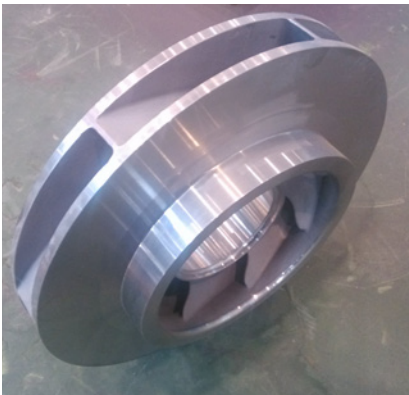


CASE STUDY

Vertical Can Pump Upgrade to Match New Performance Requirement and Solve Cavitation Problem

BASF-YPC Company Limited requested that Sulzer upgrade the vertical can pump type TTMC50A-13S, used in the HPI industry. The pump performance needed to be increased to fit new process requirements. The pump was used to transport C4 fraction at ambient temperature.



The new first impeller

“ *These upgraded pumps have now been operating for three years, and they are still running smoothly.* ”

Li Tao, project leader

The Sulzer difference

Sulzer is the world's leading manufacturer of engineered pumps. Customers can save money by putting our engineering experience to work. We have the ability to retrofit and upgrade existing pump systems no matter who the original supplier is. We will provide optimal solutions to correct pump system design problems and improve reliability.

The challenge

The original pump flow and head needed to be increased due to new process requirements. The power of the original motor, however, was sufficient. Sulzer provided large-diameter impellers. To prevent cavitation from the increased flow, the first impeller also had to be redesigned. The Net Positive Suction Head required (NPSHR) value decreased by 0.5m compared to the original NPSHR. Tests proved that, as a result, the margin (NPSHA - NPSHR) rose to 0.9m. Sulzer provided advanced surface coatings with excellent wear characteristics for the wear rings and balance drum. These coatings extended the component life and reduced routine maintenance.

The solution

Sulzer provided impellers to fit the original pump and motor. The first impeller was redesigned to reduce the risk of cavitation based on the higher flow rates. The surface coating reduced wear and routine maintenance.

Prior to the retrofit, the wear rings and balance drum had been replaced every year. Now, their life has been extended to 3 years. This reduces routine maintenance load and costs.

Customer benefit

Sulzer designed an effective way of increasing production at minimal costs. The solution was integrated into the existing settings, such as pipeline inlet and outlet, baseplate, and motor. The routine maintenance load and costs were reduced and the flow rate increased by 40%.



The vertical can pump after the retrofit

Product data

	Flow rate	Head	NPSHR	NPSHA
Before retrofit	30 m ³ /h	700 m	1.7 m	2.4
After retrofit	42 m ³ /h	710 m	1.5 m (new design impeller)	–

Contact

pump.retrofit@sulzer.com

Applicable markets

HPI

Applicable products

Retrofit