

CASE STUDY

Barrel Pump Rerate Increases Refinery Production

A major refinery in Southern California asked Sulzer to explore the possibility of rerating a large barrel pump to 43,000 bpd at 1,798 m (5,900 ft), while not exceeding the maximum rating of the existing motor. In addition to the rerate, the customer requested that the pump be upgraded to API 610 8th edition from API 610 6th edition to ensure compliance with current industry standards. The customer also specified a keyless hydraulic fit coupling for ease of installation and removal. This was to eliminate the use of torches to heat the coupling hub, a particularly important safety consideration in a refinery.



The rerated pump with increased performance operating on site

The challenge

The refinery operator is in a continuous process of evaluating and debottlenecking one of its units to increase throughput. One of several factors limiting the production rate was an 11-stage, double casing barrel pump. The pumps original inner case had been retrofitted in 1998 with maximum diameter impellers to increase the flow from 32,500 bpd at 1,420 m (4,660 ft) to 35,000 bpd. Following this, other areas of the refinery were debottlenecked to increase the potential production rate to over 38,000 bpd.

As the pump was already operating at the maximum flow and head available with the existing inner case and impeller hydraulic design, the customer opted for the retrofit solution as a less expensive and faster way to achieve the desired production rate 43,000 bpd.

The solution

After a thorough analysis by Sulzer hydraulics experts, Sulzer retrofit specialists replaced the low capacity inner case and impellers with high capacity components while retaining the original barrel. At the same time, the retrofit covered upgrading the pump to API 610 8th edition and included the necessary changes to add the hydraulic fit coupling requested by the customer.

Customer benefit

A replacement of the larger barrel pump would be expensive and would require a new baseplate, as well as modification to high pressure suction and discharge piping. Rerating the existing barrel pump was less expensive than purchasing new equipment and would not impact the systems around the pump. The rerate also significantly reduced the time required to complete the project.

The Sulzer difference

Sulzer's effective retrofit solution allowed the refinery to expand throughput without major disruption to existing infrastructure in a shorter time and at lower cost than installing a new pump.

Contact

retrofit@sulzer.com

Applicable markets

PRN, HPI

Applicable products

Retrofit

www.sulzer.com

A10005 en (12.2014), Copyright © SULZER Ltd. 2015

This study is a general product presentation. It does not provide a warranty or guarantee of any kind. Please, contact us for a description of the warranties and guarantees offered with our products. Directions for use and safety will be given separately. All information herein is subject to change without notice.