

Compressed Time for Compressor Repair

Imagine that the future of your company is up in the air. For your manufacturing process, you need compressed air, but the compressor is out of order. In just eight weeks, the compressor of a blue chip company was back in operation — repaired by the experienced Sulzer engineers in the service center in Leeds.

Reliability and high availability of the installed manufacturing equipment is an important part of the value a blue-chip company provides to its customers. Compressors play a significant role in many of their manufacturing processes.

Call for more air

More air pressure was required; unfortunately, the compressor operator believed that closing the surge valve delivers more air to the system. The consequence of this action was disastrous.

Blue chip companies are nationally recognized, well-established, and financially sound enterprises. They sell high-quality, widely accepted products and services and have stable and reliable growth. The name “blue chip” came about because in the game of poker the blue chips have the highest value.

More information about poker rules:
<https://en.wikipedia.org/wiki/Poker>



1 Final inspection of the repaired compressor in Leeds.

“Following the original failure, our engineers recommended to the client that the bearings in the gearbox should also be checked for damage. Since this drivetrain was already out of operation, the client agreed, and the subsequent inspection highlighted a need to replace the bearings. By looking at the bigger picture, we were able to deliver a more reliable solution without adding to the overall downtime of the project.”

Dale Jarvis, Business Development Engineer for turbomachinery at Sulzer’s Leeds Service Center

The rotor became unbalanced and hit the top diaphragm, resulting in damage to the impellers and all of the labyrinth seals.

The customer made two calls with a view to having the equipment repaired: One call to the local Sulzer service center — since Sulzer originally manufactured the compressor — and the other to an alternative compressor manufacturer. The Sulzer service engineer was on-site the next day to inspect the damage and offer a proposal for the repair. Because time was a crucial element in this project, the customer contracted Sulzer to complete the repair.

Job sharing for a fast repair

The initial inspection took place at the customer’s site. It was immediately apparent that, of the three stages, the second stage had suffered catastrophic damage. The labyrinth seals were damaged as well (Fig. 2). The customer decided to send the complete compressor to the Leeds Service Center for turbomachinery repair.

To accelerate the repair time, Sulzer decided to divide the repair among its service centers. The Sulzer

engineers from Leeds sent the damaged rotor to Sulzer’s Rotterdam Service Center, which is equipped with specialist facilities for remanufacturing rotors. There, the service team manufactured a new impeller for the second stage along with new labyrinth seals and sleeves, while the remaining impellers were refurbished (Fig. 3). Meanwhile, the operators in the Leeds facility manufactured and installed a new diaphragm for the second stage.

Communication is essential

Projects involving complex equipment may need to involve the expertise and manufacturing tools of several Sulzer service centers. However, Sulzer presents a single point of contact to its customers. As the local point of contact for the client, the Leeds Service Center coordinated the project. As the project progressed, the Leeds Service Center updated the client regarding progress and timing.

Increased service lifetime

Having completed the rebuild of the compressor in Leeds (Fig. 1), the Sulzer field service team and the client’s maintenance team reinstalled it. In total, the whole compressor repair took only eight weeks, a timeframe that the client agreed on at the start of the project.

Another advantage for the customer is the significantly increased service lifetime of refurbished compressor. In addition, the company benefits from the deep look into all parts of the compressor during repair. The maintenance engineers will now check the gearbox bearings of all similar compressor drive trains with special attention because they might also be reaching the end of their service lives.

Author: Bret Hardacre
sulzertechnicalreview@sulzer.com



2 Severe damage to the second-stage impeller and labyrinth seals.



3 The new impeller before being precision balanced.