

Service Insights

Turbogears | Petrochemicals & Chemicals | Internal Workshop Service | EMEA

Application

Product

Country

Operator

Compressor – Process gas

Mitsubishi Planetary Gear, Type MIS 32/36X

Russia

Russian plastic processing Company

Quick help with new wheel-set in old Mitsubishi gear housing

After a suspected operating error in a Russian plant for plastics processing, a serious plant failure of a compressor train occurred. Since the customer received no support from the original Japanese manufacturer of the gearbox, Voith was contacted. A repair was not possible, but an unconventional new design idea from Voith brought a quick solution to the problem.



Condition of the planetary gear after delivery to Voith

Viewpoint of customer: After the incident mid of 2015, plant operation could only be maintained with one of the two process gas compressor trains. Therefore, rapid assistance was needed for the damaged Mitsubishi planetary gear built in 1970. After the customer contacted the original manufacturer but did not receive any support, some employees of the Russian service

company Neva Turbo recommended that the plant operator should contact the Russian Voith service team. They had already had a positive business experience with Voith in their previous work for a compressor manufacturer.

Order: In the Mitsubishi gearbox, toothed parts were destroyed and thrown against the housing, which also damaged it. The inspection revealed a degree of damage that no longer allowed the wheel-set to be repaired. A new planetary gear had to be designed. In addition to restoring the system's functionality, it was also important for the plant operator to reduce the noise emission of the new gearbox.

Insights: The customer placed a great deal of trust in Voith for the external gearbox. This trust was based on his experience with 43 Voith bevel gearboxes and 43 hydrodynamic variable-speed couplings (Voith S type), which have been installed in his plants for more than 30 years and perform their work with high reliability.

In Germany, the old gearbox housing was 3-D measured in July 2015 in order to fit the Voith gear-set into the old Mitsubishi housing. The use of the old housing was also advantageous in order to be able to deliver the transmission to the customer in Russia through customs

as quickly as possible. The Mitsubishi housing was therefore repaired and overhauled.



Damaged intermediate reduction gearing of the rotor turning gear

Technical Details: During the diagnosis, a defect in a tooth of a planetary gear was detected. The Voith service team identified this tooth fracture as a probable cause of the plant's uneven running.

What led to the total loss can only be assumed in the aftermath: It is highly probable that the screw connection has come loose from the countershaft of the rotor turning device. Thus the wheel fell on the fast shaft and shifted it axially.

The newly manufactured wheel-set was based on Voith's own high quality standard. Here, the set of wheels is case-hardened and can therefore withstand higher loads than the original nitrided material from Mitsubishi.

At 85 dBA, the maximum permissible noise level of 92 dBA specified by the customer was considerably undercut.

How we make the difference...

Thanks to the 3-D measurement of the housing, this original part could be re-

used and the planetary gear unit repaired, overhauled and equipped with a new gear set by Voith could be quickly sent back through customs to the customer in Russia end of 2015.

More about the Voith product at:

www.voith.com/BHS-Turbogears

More about Voith Service at:

www.voith.com/turbo-industry-service

//