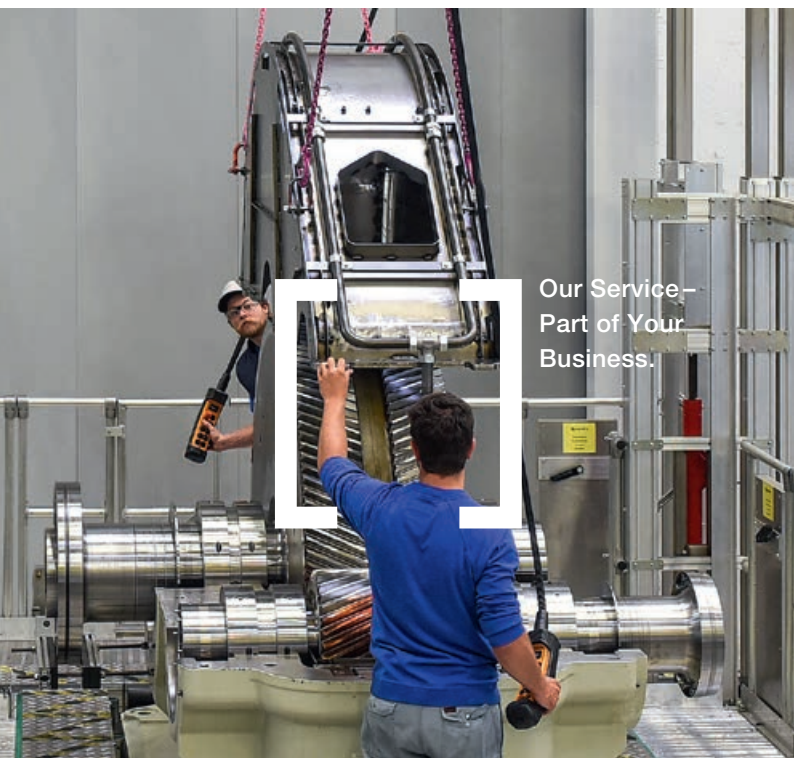


Efficiency improvement made simple Retrofit with the BHS AeroMaXX



Our Service—
Part of Your
Business.

Reliable technology for increased efficiency

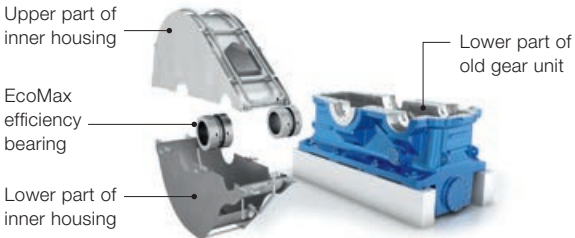
There are various options available on the market which allow you, as a system operator, to increase the efficiency of your gear unit within the drive train. All drive train efficiency increasing solutions have certain aspects in common: they are complicated, expensive and are often unreliable. Voith is different!

What is the BHS AeroMaXX?

The Voith BHS AeroMaXX is a purely passive mechanical solution comprising of optimized sleeve bearings as well as an inner housing for the gear set which separates the oil for heat dissipation from the lube oil for the gearing. This makes it possible to achieve a total reduction in efficiency losses of up to 30 % and oil requirements can also be brought down by 30 %.

This option is not only available for new gear units, but also as a retrofit solution for turbo gear units already in operation. Also it is simple, fast and reliable! Externally, a gear unit that has been retrofitted does not change in appearance – the connection dimensions, as well as operating behavior, remain verifiably unchanged.

Design of AeroMaXX



Advantages and benefits of a retrofit with the BHS AeroMaXX

+ Attractive prices and a short payback period

In combination with a pending standard overhaul of your turbo gear unit it is now possible for you, as a system operator, to obtain this technology and the required labor at particularly attractive prices. The break-even point can be reached in as little as two to three years.

+ A short time period is required

Thanks to thorough preparation, well-coordinated procedures and a generally low scope of effort, a complete retrofit of the gear unit can be achieved within the timeframe of a regular drive line maintenance shut down.

+ Warranty

Since Voith provides the entire scope of services from a single source, you can count on receiving the highest level of quality. We offer the user a warranty period of 12 months on functionality and materials, starting from the time of commissioning. In the unlikely event of a problem, please contact us.

When is a BHS AeroMaXX retrofit recommendable and feasible?

- **High circumferential speeds and transmission performance**

In general, installation is recommendable for gear units with a pitch line velocity at the gearing of more than 80 m/s or a bearing circumferential speed in excess of 50 m/s. In these cases, the power should be at least 10 MW in order to ensure economic efficiency and achieve a short payback period.

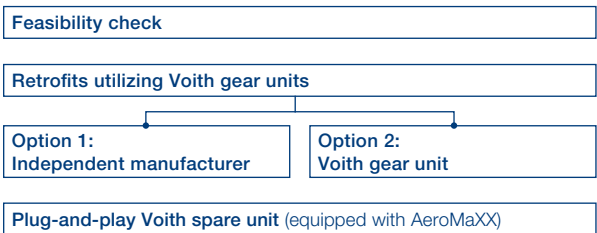
- **Suitable applications**

The above parameters apply primarily to gear unit applications for power generation, using gas or steam turbines. Parameters also apply to gas or steam turbine-driven compressors and, to a lesser degree, to electrically-driven compressors.

- **Sufficient installation space**

To install the inner housing, a minimum lateral clearance of 60 mm from the gearing to the internal edge of the housing is required. It should be noted that amended regulations (for example, previously AGMA421 and now AGMA6011) or improved material properties can make it possible to use a narrower gear train.

Fig. 1: Retrofit concepts



Which retrofit options are available?

Two basic options are available for retrofitting with BHS AeroMaXX technology. In both cases, we aim to keep expenses for the system operator as low as possible (refer to Fig. 1). Ideally a 90 day period of time is needed from the starting point of the engineering process through to completion of the retrofit (refer to Fig. 2).

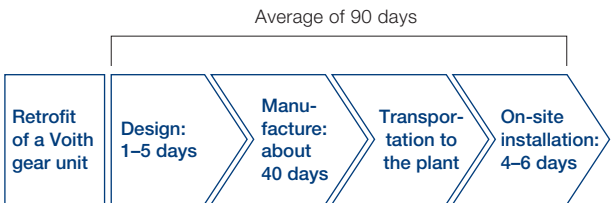
Retrofits utilizing Voith gear units

Voith equips the gear unit with the optimized bearings and the inner housing. During the course of this process, the gear unit remains in the drive line, option 1. In addition to this, a spare parts package can be delivered optionally. If combined with an overhaul, the drive train shut down can be reduced to a minimum time period.

Retrofits utilizing gear units from independent manufacturers.

A feasibility check will indicate whether the gearbox can be equipped with AeroMaXX technology. Voith qualified personnel implement the retrofit during a regular shutdown of the drive (refer to Fig. 1, option 1). This can also be combined with an overhaul of the gearbox, thus making the most of the stand still. Should the AeroMaXX not fit into the gearbox, a high efficiency plug-and-play Voith gearbox, containing the AeroMaXX, can be installed (refer to Fig. 1, option 2). In this case, the reconstruction time is reduced further and the old gearbox can be used as spare.

Fig. 2: Time required for a retrofit



To further access your needs, we would be happy to visit you directly on site.

You can also find more information in the separate BHS AeroMaXX brochure and at:

www.voith.com/bhsaeromaxx

An approximate calculation can be made there to calculate your efficiency gain and savings.



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