Increased Performance for Turbo Gears
BHS AeroMaXX

0.2–0.5%
Higher Operating Efficiency

30%
Less Power Loss

30%
Less Oil Required

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Increased Performance for Turbo Gears
BHS AeroMaXX
The BHS AeroMaXX technology from Voith is a simple and reliable solution that considerably increases efficiency while reducing oil consumption. It is possible to reduce both the power loss and the previous lubrication and cooling oil volume by 30%.

The BHS AeroMaXX can be installed in a new gear unit or provided as a simple retrofit (easy on-site upgrade). In general, the technology is suitable for use in applications with turbo parallel shaft gear units where high pitch line velocities occur in conjunction with medium and high power outputs. These include, for example, gas turbines on generators, gas turbines on compressors, steam turbines on generators or electric motors on compressors.

Inner housing encapsulated around the gear set
The BHS AeroMaXX technology is distinguished by its modular inner housing that fits optimally into the gear unit housing. The steel-welded inner housing fits closely to the gear set and effects a separation between the minimum lubrication oil volume required and dissipation of the generated thermal energy. The low volume of lubrication oil reduces the windage losses due to the swirled oil-air mixture and as a result of oil squeezing in the gear mesh. The cooling oil volume that is applied to the external surface of the BHS AeroMaXX inner housing dissipates the heat transferred to the bottom of the gear unit in a controlled manner.

Optimized BHS EcoMax bearing
Apart from the inner housing, BHS AeroMaXX technology comprises the Voith optimized BHS EcoMax bearing for the high-speed shaft. The basis of the BHS EcoMax sleeve bearing is formed by the specially-contoured offset sleeve bearings. The running geometry has been modified to reduce oil volume with identical operational behavior. BHS EcoMax sleeve bearings can simply replace the existing ones. They are produced individually for the specific application and can be tested under load conditions on Voith’s own bearing test rig before actual installation.

The potential savings are considerable, starting at a pitch line velocity of approximately 120 m/s, and grow exponentially with increasing speed. Furthermore, it is possible to implement both components separately from one another.

A Purely Passive-Mechanical Solution
BHS AeroMaXX – Efficiency Meets Reliability

Adaptive inner housing reduces windage losses
1. Improved heat dissipation through inner housing surface
2. BHS EcoMax bearings for less oil required and lower power loss
3. Simple visual inspection of gears
4. Efficient lubrication

Calculation Example
Utilization of the BHS AeroMaXX with a gas turbine for a power station with identical fuel consumption
- 54 000 kW power output
- 8 000 operating hours p.a.
- Energy cost 0.05 EUR / kWh

Find out quickly if your application or project is suitable in principle to the BHS AeroMaXX with our suitability indicator. Find out at www.voith.com/bhsaeromaxx

Efficiency 98.70 % 99.17 %
Power loss 700 kW 450 kW
Loss saving 250 kW (35 %)
Oil consumption 860 liters 560 liters
Oil saving 300 liters (35 %)
Savings in energy costs per year:
8 000 hours x 0.05 EUR / kWh x 250 kW = 100 000 EUR
This calculation supports amortization within one year.

Easy assembly and disassembly
- in new equipment
- in already installed equipment, even on-site
- for Voith and non-Voith gear units

Separation of Lubrication and Cooling

Optimized BHS EcoMax bearing
In addition to the inner housing, BHS AeroMaXX technology comprises the Voith optimized BHS EcoMax bearing for the high-speed shaft. The basis of the BHS EcoMax sleeve bearing is formed by the specially-contoured offset sleeve bearings. The running geometry has been modified to reduce oil volume with identical operational behavior.

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**Inner housing encapsulated around the gear set**

The BHS AeroMaXX technology is distinguished by its modular inner housing that fits optimally into the gear unit housing. The steel-welded inner housing fits closely to the gear set and effects a separation between the minimum lubrication oil volume required and dissipation of the generated thermal energy. The low volume of lubrication oil reduces the windage losses due to the swirled oil-air mixture and as a result of oil squeezing in the gear mesh. The cooling oil volume that is applied to the external surface of the BHS AeroMaXX inner housing dissipates the heat transferred to the bottom of the gear unit in a controlled manner.

In each case, two components are equally important with respect to this considerable energy gain:

- Inner housing encapsulated around the gear set
- Optimized sleeve bearings on the pinion shaft

The potential savings are considerable, starting at a pitch line velocity of approximately 120 m/s, and grow exponentially with increasing speed. Furthermore, it is possible to implement both components separately from one another.

**Optimized BHS EcoMax bearing**

In addition to the inner housing, BHS AeroMaXX technology comprises the Voith optimized BHS EcoMax bearing for the high-speed shaft. The basis of the BHS EcoMax sleeve bearing is formed by the specially-contoured offset sleeve bearings. The running geometry has been modified to reduce oil volume with identical operational behavior.

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In each case, two components are equally important with respect to this considerable energy gain:

1. Inner housing encapsulated around the gear set
2. Optimized sleeve bearings on the pinion shaft

The potential savings are considerable, starting at a pitch line velocity of approximately 120 m/s, and grow exponentially with increasing speed. Furthermore, it is possible to implement both components separately from one another.

Optimized BHS EcoMax bearing
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Saving in energy costs per year:
8 000 hours x 0.05 EUR / kWh x 250 kW = 100 000 EUR

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A Purely Passive-Mechanical Solution
BHS AeroMaXX – Efficiency Meets Reliability

Separation of Lubrication and Cooling
Optimized inner housing

1. Improved heat dissipation through inner housing surface
2. BHS EcoMax bearings for less oil required and lower power loss
3. Simple visual inspection of gears
4. Efficient lubrication

A new equipment
- in new equipment
- in already installed equipment, even on-site
- for Voith and non-Voith gear units

Calculation Example
Utilization of the BHS AeroMaXX with a gas turbine for a power station with identical fuel consumption

- 54 000 kW power output
- 8 000 operating hours p.a.
- Energy cost 0.05 EUR / kWh

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