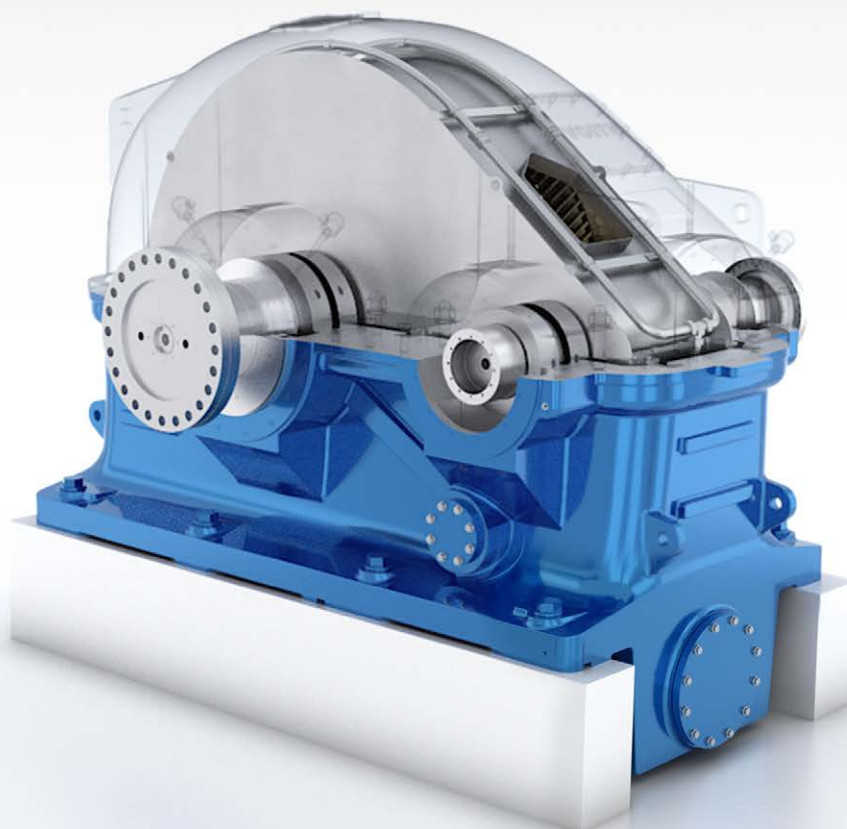


# Efficiency to the MaXX BHS AeroMaXX



# Efficiency meets reliability

In order to reduce power loss as well as the oil consumption, Voith has the perfect solution: BHS AeroMaXX.

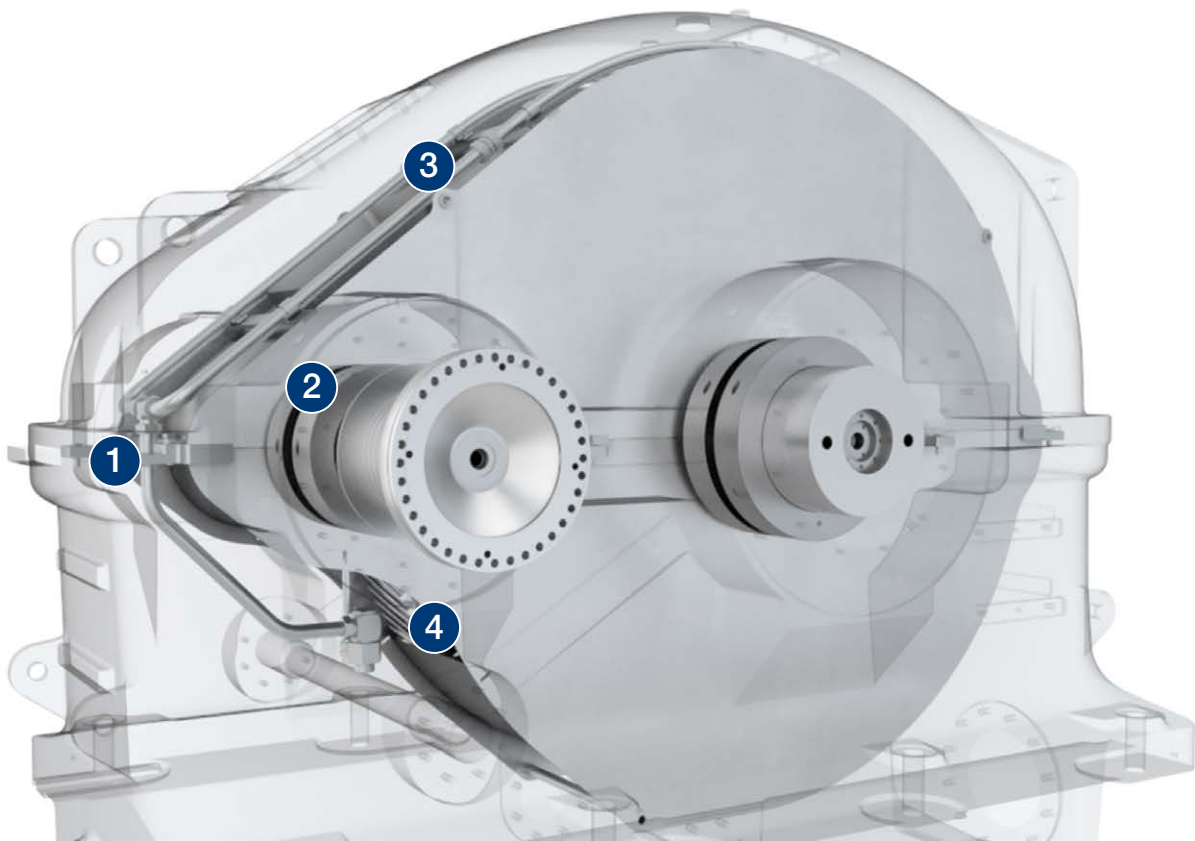
The BHS AeroMaXX can be installed in a new gear unit or provided as a simple retrofit, during an on-site upgrade. In general, the technology is suitable for use in applications with turbo parallel shaft gear units where high pitch line velocities occur in conjunction with medium and high power outputs. Potential applications include but are not limited to: gas turbines on compressors, steam turbines on generators or electric motors on compressors.

The potential saving in energy is considerable, starting at a pitch line velocity of approximately 120 m/s. With increasing speed, the savings potential increases exponentially. This is thanks to two equally important components:

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

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## Adaptive inner housing reduces windage losses



# A purely passive mechanical solution

## 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.

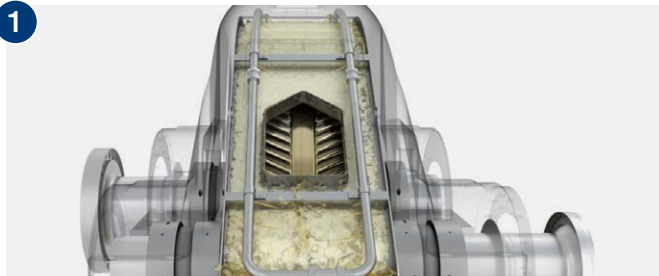
## Optimized bearings on the pinion shaft

In addition to the inner housing, BHS AeroMaXX technology comprises of the optimized high efficiency bearings for the high-speed shaft. The running geometry of these bearings has been modified to reduce oil volume with the identical operational behavior.

These optimized sleeve bearings are produced individually and can be tested under load conditions on Voith's own bearing test rig before the installation.

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## Improved heat dissipation through inner housing surface



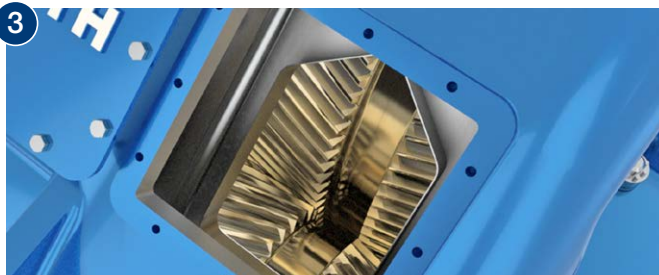
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## High efficiency bearings that require less oil and reduce power



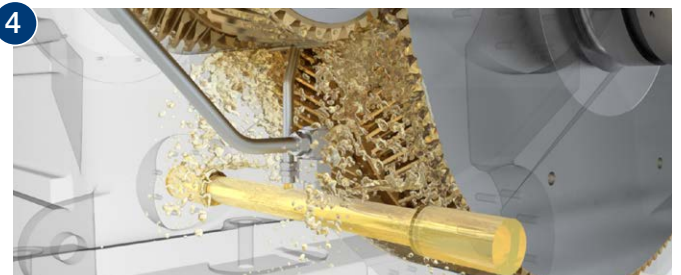
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## Simple visual inspection of gears



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## Efficient lubrication





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**0.2–0.5 %**  
Higher operating  
efficiency

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**30 %**  
Less power loss

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**30 %**  
Less oil required

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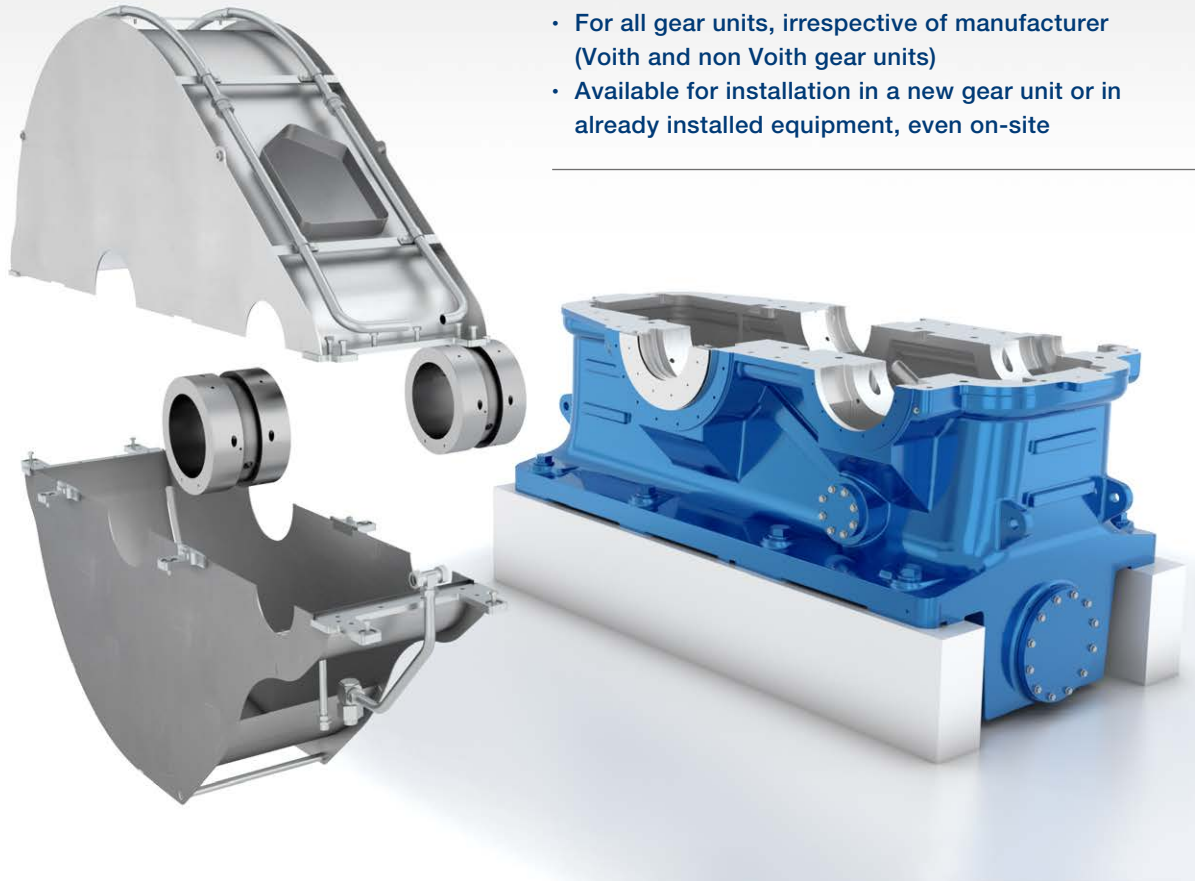


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Efficiency to the MaXX – Easy assembly and disassembly

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- For all gear units, irrespective of manufacturer (Voith and non Voith gear units)
  - Available for installation in a new gear unit or in already installed equipment, even on-site
- 



**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

$$8\,000 \text{ hours} \times 0.05 \text{ EUR/kWh} \times 250 \text{ kW} = 100\,000 \text{ EUR}$$

This calculation supports amortization within one year.

	without BHS AeroMaXX	with BHS AeroMaXX
<b>Efficiency</b>	98.70 %	99.17 %
<b>Power loss</b>	700 kW	450 kW
<b>Loss saving</b>		250 kW (35 %)
<b>Oil consumption</b>	860 liters	560 liters
<b>Oil saving</b>		300 liters (35 %)

For more information on how BHS AeroMaXX can add value to your installation: [www.voith.com/bhsaeromaxx](http://www.voith.com/bhsaeromaxx)





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