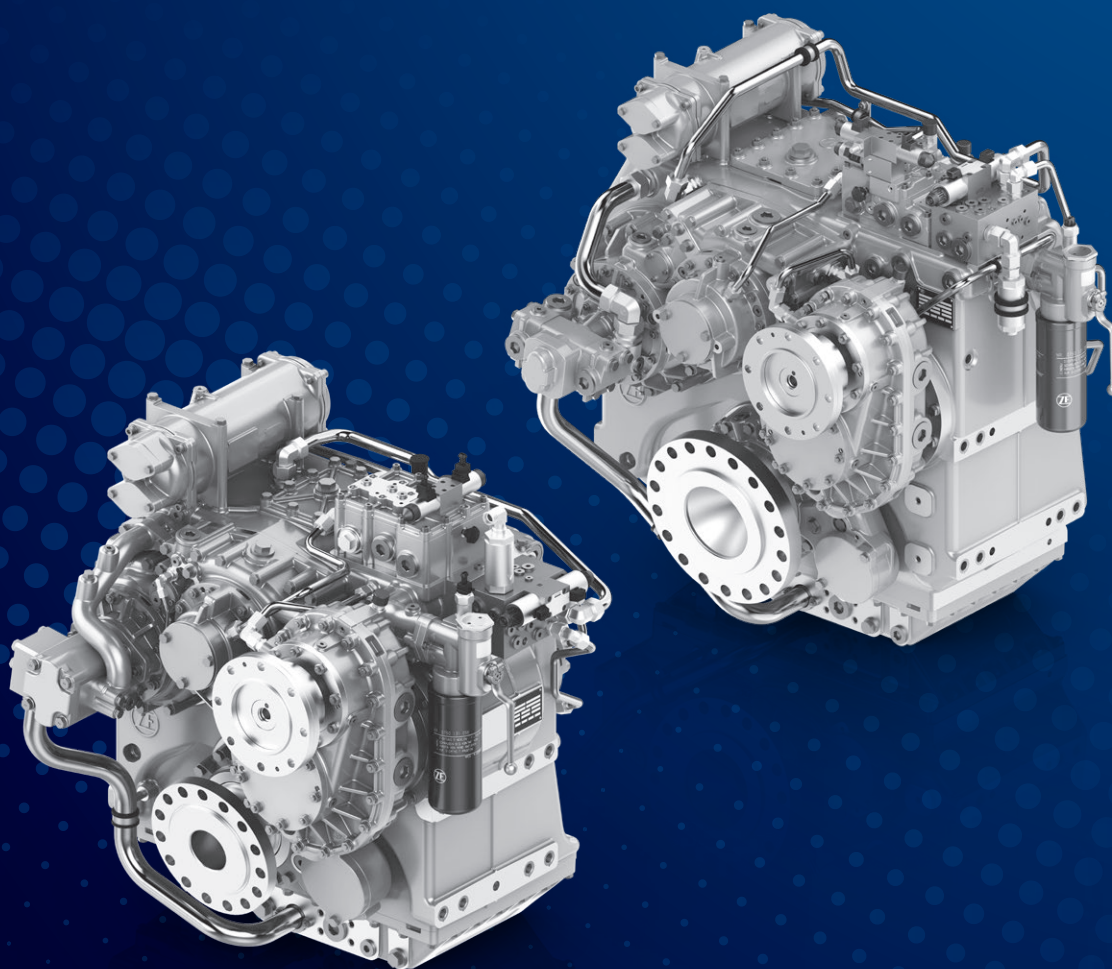




Down-Angle Transmissions for Hybrid Applications

Electrified solutions even with
limited installation space



Compact All-Rounder Enhances Product Family

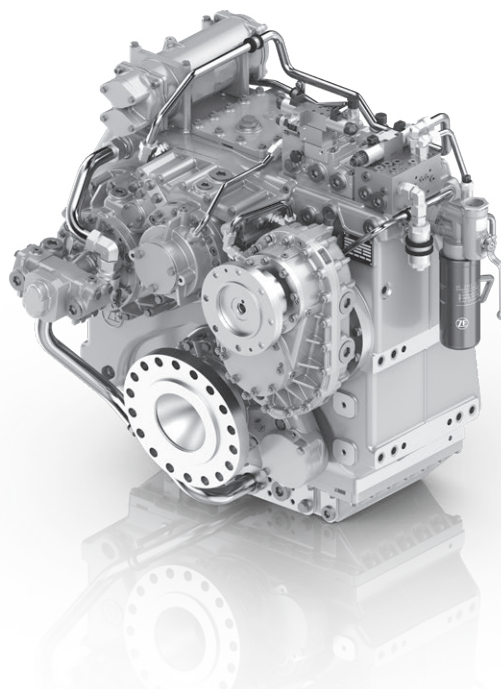
ZF is expanding its portfolio of hybrid down-angle transmissions with the new ZF 3200 A PTI that is also available in a v-drive configuration. Like all hybrid transmissions in down-angle or v-drive configuration, they have a power take-in and a wide range of transmission ratios.

High performance and comfortable propulsion with low emissions, robustness and flexibility – these are the characteristics of ZF down-angle hybrid transmissions. In addition to the already well-known ZF 5200 A/V PTI transmission, ZF now offers a down-angle and v-drive solution from the ZF 3000 series.

This system offers an enormous variety of drive variants, as both the down-angle and the v-drive configuration can be optionally extended by an electric power take-in. Thanks to ZF's many years of expertise in gear design, an additional drive unit, usually an electric motor, can be integrated compactly into the transmission via a separate drive shaft. In addition to the size advantage, the approved maximum power of the main drive does not have to be reduced in most variants in order to absorb the additional power of the electric motor. This solution for down-angle transmission is unique on the market.

During development, ZF ensured that many existing components were utilized. The modular construction, compact design and lightweight construction with aluminium housing make ZF's down-angle transmissions the ideal choice for fast vessels with limited installation space, such as leisure boats like charter yachts, commercial vessels like ferries or even government vessels like patrol boats.

In all-electric operation, the focus is not only on performance development but also on noise optimisation. With this in mind, ZF optimised the gearing and housing properties, including relevant test validation. In addition, ZF uses a newly developed clutch that eliminates torsional vibrations in all-electric operation.



ZF Down-Angle Transmission Portfolio for Hybrid Applications

Parameter and Specification:

| | | ZF 3200 A/V PTI | ZF 5200 A/V PTI |
|---------------------|---------------------|--------------------|--------------------|
| Max. input power | Main drive | 1,940 kW | 2,463 kW |
| | Power-take-in drive | 500 kW | 500 kW |
| Ratio range | Main drive | 1.892 to 4.240 | 2.588 to 4.250 |
| | Power-take-in drive | 1.646 to 13.780 | 2.252 to 13.813 |

Lightweight construction with aluminium housing
and a compact design

Allows unrestricted classification by all classification societies

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