Safe journey

ZF gearboxes for ropeways
Reliable gearboxes for ropeway systems

Ropeways have to provide their service reliably and above all safely. The operators expect high performance and availability throughout the complete operating time. Thus, the quality of the drivetrain is a decisive part of the total system. The low-maintenance, service-friendly and efficient ZF gearboxes fulfil these requirements.

ZF gearboxes are reliable drive components, proven and tested in rope-guided transport systems under various operational conditions: no matter if under icy temperatures during ski lift operation or in tropical heat inside urban shuttle systems. Due to a flexible modular system a wide range of transmission and dimensional variants as well as torque classes is available and ideally suited for a large number of different ropeway systems.

ZF gearboxes for ropeways are extremely compact, noise-optimised and combine longevity with a low maintenance effort. All gearboxes are characterized by silent operation and high robustness. The high quality of the individual components ensures a long life cycle with the highest possible operating reliability.

Smart into the future

The new generation of ZF planetary gearboxes is “smart”. Their reliability and robustness have been further increased. The sensors and software of the ZF ProVID system enable a permanent condition analysis and a significant extension of service life through preventive maintenance measures.
ZF gearboxes for ropeways

- Gearboxes for a large number of different rope-guided transport tasks
- Various sizes based on one standard product range and high flexibility due to a modular system with more than 100 variation possibilities
- Designed for all installation positions
- Version as two-stage planetary gearbox with pre bevel gear stage (GPW) or in coaxial design (GPC)
- Preparation for direct connection of electric motors (GPC)
- Operation with or without oil cooling (thermal balance calculation)
- Integrated heating systems for extreme conditions
- Optional auxiliary drive for GPW (can also be retrofitted)

Operating figures

<table>
<thead>
<tr>
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<th>from</th>
<th>up to</th>
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<tbody>
<tr>
<td>Operating torque $T_2$</td>
<td>kNm</td>
<td>98</td>
</tr>
<tr>
<td>Starting torque $T_2$</td>
<td>kNm</td>
<td>137</td>
</tr>
<tr>
<td>Adm. drive speed $n_1$</td>
<td>min⁻¹</td>
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Gearbox actual ratios

<table>
<thead>
<tr>
<th></th>
<th>from</th>
<th>up to</th>
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<tbody>
<tr>
<td>28</td>
<td></td>
<td>132</td>
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</table>
ZF ProVID® is the innovative performance management system for the entire driveline. Based on many years of application experience and expertise in the field of vibration measurement and analysis, ZF develops customer-specific algorithms as the prerequisite for a qualified evaluation of operating conditions.

ZF ProVID offers real benefit. In conjunction with variable sensor technology based on tested industry standards as well as a cloud-based ZF solution, a multitude of relevant data can be generated:

- Vibration engineering data on gearing and bearings from gearboxes and other elements
- Oil properties in relation to the service life of the driveline

An evaluation of the condition of the installation and a status report including a recommended course of action for the operator are generated from these data using ZF algorithms.

ProVID provides a number of advantages for the operation and maintenance of your ropeway system:

- Monitoring of bearings, teeth and oil quality with the aim of reducing operating costs by reducing chemical analyses of oil and oil changes as well as by early detection of potential failures
- Reduction of total costs of ownership (TCO) by specific preventive maintenance actions
- Scheduling of maintenance works as needed (reduction of downtimes, consideration of seasonal factors) through permanent status documentation and recommendations for auditing work actions
- Prevention of secondary damages and reduction of repair costs

Furthermore, as proof of regular system maintenance, all service reports (oil analysis, repairs, annual reports) can be made available online in the dashboard.
All processed information is displayed on a user-friendly dashboard. The generated condition evaluation is then used to create a report including recommended courses of action for the further operation of the system.
Excellent service worldwide

ZF offers professional service for ropeways in almost every region of the world. For customers this means short distances, fast reaction times, the right experts on short notice, and thus, a trouble-free ropeway operation.

Complete customer satisfaction is one of the top objectives which ZF wants to achieve with its products and services. This goal determines the quality of all the services linked to our products, starting with development and consultancy through to after-sales service.

ZF supports you as a reliable partner over the whole life cycle of your ropeway. The core activities in the service of large gearboxes are co-ordinated by the Witten location and carried out on-site – including the whole spectrum of after-sales services from consultancy to training sessions, from product selection to commissioning, from quality optimisation to documentation.

Furthermore, with the division ZF Aftermarket the group has established a global service organisation which ensures that ZF products operate reliably over the whole life cycle. 33 ZF service companies and over 650 service partners in all the important markets ensure customer proximity and global deployment, combined with regional approaches which take into account the specific requirements of individual markets and applications.
Our services

**Gearbox inspection and early damage detection**
Predictive maintenance of the gearbox increases the availability of your machine or plant and improves the efficiency in operation. Our qualified service technicians possess extensive experience in detecting damage at an early stage with the assistance of proven inspection programmes and modern measuring- and testing equipment.

**Repair**
Our thorough knowledge of gearbox designs ensures a flawless and cost-optimised repair. Overhaul and new production of single parts as well as regrinding of gear teeth are carried out by us according to the original drawings. Prior to shipment, repaired gearboxes are tested according to strictest quality standards on our test benches and all results are recorded in a test protocol.

**Spare parts**
This service is characterized by speed, competence and worldwide efficient logistics. We supply original manufacturers’ spare parts — even after the end of series production — as well as spare part kits and conversion kits for existing equipment.

**Documentation and support**
Technical information and documentation sustainably ensure that all service activities are carried out with utmost care and competence. Spare-parts catalogues, operating instructions, repair manuals and diagnostic documentation are available.

**Field Service**
Our qualified and experienced service technicians provide fast support on the spot worldwide, ranging from visual inspection and endoscopy through to structure-borne sound measurement, repair and oil analysis.

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**Service locations – worldwide availability**

- **Vernon Hills, USA**
- **Witten, Headquarters, Germany**
- **Beijing, China**
- **Santiago de Chile, Chile**