WIND POWER

DIRECT DRIVE
MEDIUM SPEED
HIGH SPEED

GEISLINGER®
COUPLINGS AND DAMPERS. BUILT TO LAST.
For more than 60 years, Geislinger has been driven by its inventive spirit to develop innovative, individually customized coupling, damper, and shaft solutions for large engines and all kinds of diversities.

Geislinger is not only the expert in torsional vibration solutions, but also has more than 25 years of experience in manufacturing products made from fiber composites. The Gesilco® product group underlines the innovative spirit of the company.

Reliable wind turbine drive systems demand sophisticated solutions. Geislinger offers tailor-made coupling and shaft solutions for your drivetrain system. The Geislinger CompoWind® Coupling is ideally suited for medium- and high-speed wind turbines as well as for direct-drive technologies. Low reaction forces virtually eliminate non-torque loads and lead to a significant improvement in the dynamic drivetrain behavior.

Wind drivetrains at onshore sites not only need to be reliable but also silent. With increasing rotor diameters, reduced rotational speeds, lighter structures of towers and particularly the reduction of the masking energy of future drivetrains even higher noise levels and more sophisticated solutions need to be put into consideration. Geislinger products such as the Geislinger coupling or the Geislinger torsional spring type damper have been used successfully for more than 40 years to reduce structure borne noise. Moreover, CompoWind® bears the potential to reduce wind turbine noise by attenuating the sound path from the gearbox to the rotor blades and to the tower.

The intense collaboration and exchange between the Geislinger R&D department, the production team, and our focus on tailor-made solutions gives Geislinger products a unique advantage.

At Geislinger, we believe that the secret to creating the best product solution for our customers is to precisely design and craft every key element. With more than 60 years of experience in manufacturing tailor-made product solutions, we have learned how to get it exactly right.
The Geislinger Compowind® coupling is based on more than 25 years of experience in developing fatigue-resistant, maintenance-free and weight-saving couplings and shaft lines. Installed between the rotor and the gearbox, the low-speed shaft coupling is made from advanced fibre composites which enable the gearbox to be mounted rigidly onto the main frame. Additionally, the Compowind® Coupling facilitates highly integrated next-generation drivetrain architectures. Thanks to its low and almost linear restoring forces, virtually all occurring non-torque loads are effectively absorbed by the composite membranes.

The Compowind® protects the gearbox and the whole drivetrain by significantly reducing non-torque loads. It allows the gearbox to be rigidly attached to the main frame, for which reason drivetrain bending eigenmodes are virtually eliminated and the dynamic behavior is improved beyond comparison. This is not only important under severe load conditions but also after the occurrence of special events, as the low and almost linear restoring forces of the Compowind® reduce the sound propagation within the drivetrain. This ensures a good attenuation of non-torque loads, which is why the gearbox housing, the gearbox supports, and the tower are acoustically isolated. This gives an additional customer value and a clear competitive advantage for onshore applications.

The technical data includes:

- **Torque & Misalignment**: Customized to your requirements
- **Ambient Temperature**: -45°C to 100°C
- **Advantages**:
  - Fatigue resistant
  - Maintenance-free
  - Low restoring forces
  - Sound insulation
  - Weight saving design
  - Electric Insulation (optional)
  - No aging, no wear, resistant to heat, frost, weather etc.
  - Geislinger monitoring system GMS is available

Geislinger Compowind® coupling containing four membranes and an intermediate tube.
**FUNCTIONALITY OF THE COUPLING**

Conventional drivetrain with the gearbox elastically mounted and hydraulic torque supports

Static and dynamic deflections transfer bending moments from the rotor to the gearbox and its components. These moments cause uneven, unrepeatable loads to the drivetrain components and affect the reliability and lifespan of wind turbines significantly. The elastically mounted gearbox produces Eigenmodes (mainly drivetrain bending modes), resulting in an unfavorable dynamic system behavior and increased fatigue load (see example of dynamic load study).

Drivetrain with Geislinger Compowind® and the gearbox rigidly mounted

The Geislinger Compowind® is the first coupling of its kind to enhance the reliability of your wind turbine’s drivetrain. The coupling protects the drivetrain through a significant reduction of non-torque loads and a clear enhancement of the dynamic system behavior. Thanks to the low restoring forces of the low-speed coupling, gearbox loads are independent from the wind turbine conditions (see example of dynamic load study).

**COMPONENTS OF THE COMPOWIND® COUPLING**

- Fatigue-resistant dual membrane technology for high misalignment capacity
- Thin-walled, high-strength intermediate shaft
- Special fitted bolts to connect composites to steel structure
INTEGRATED MEDIUM SPEED DRIVETRAIN

Low speed shaft coupling
Geislinger Compowind®

High speed shaft coupling
Geislinger® Disc

INTEGRATED MEDIUM SPEED DRIVETRAIN

Low speed shaft coupling
Gesilco® Disc

High speed shaft coupling
Gesilco® Disc
DIRECT DRIVE WIND TURBINE
OUTER ROTOR

Low speed shaft coupling
Geislinger Compowind®

DIRECT DRIVE WIND TURBINE
INNER ROTOR

Low speed shaft coupling
Geislinger Compowind®
DRIVE TRAINE WITH 4-POINT OR 3-POINT SUPPORT

Standard coupling solution
Unnecessarily increased drivetrain length

High speed shaft coupling
for the shortest possible installation length
Gesilco® Butterfly

DRIVE TRAINE WITH 3-POINT SUPPORT

Low speed shaft coupling
Gesilco® Disc

High speed shaft coupling
Gesilco® Butterfly
INTEGRATED DRIVETRAIN WITH 3-POINT SUPPORT

- Low speed shaft coupling
  
  Gesilco® Disc

- High speed shaft coupling
  
  Gesilco® Disc

DRIVETRAIN WITH 3-POINT SUPPORT

- Flexible gearbox support
  
  Gesilco® Disc

- High speed shaft coupling
  
  Gesilco® Butterfly
GEISLINGER.
ONE CENTER. SEVEN BENEFITS.

MAINTENANCE-FREE
Our Gesilco® product range is maintenance-free and “built to last”. The use of advanced materials and our state-of-the-art manufacturing methods give customers a competitive edge and lead to the lowest cost of ownership (TCO).

LOWEST, ALMOST LINEAR
Restoring forces
Wind drive systems benefit from low, almost linear restoring forces as well as from the highest torque transmission with best dynamic behavior.

TAILORED-MADE
SOLUTION
Gesilco® products are characterized by their lightweight and compact design. This results in a weight reduction of up to 90% compared to standard solutions and leads to a significant improvement in the dynamic drivetrain behavior.

LIGHTWEIGHT AND
COMPACT DESIGN
Even under extreme conditions, the highest shock resistance of our products is a great benefit. Additionally, Gesilco® products are resistant in hot and cold ambient temperatures.

EXTREME ROBUST
PRODUCT PROPERTIES
Gesilco® products offer electrical insulation as an option.

ELECTRICAL INSULATION
Acoustically optimized product solutions are possible as well. The acoustic competence of Geislinger is underlined by its worldwide unique Geislinger Acoustics Test Bed.

OPTIMIZED-ACOUSTIC
ATTENUATION
Gesilco® products are individually customized coupling, damper and shaft solutions for your drive system. The design, use, function, and fibre-orientation of your Gesilco® products are adapted to the specific requirements of your application.

GEISLINGER.
ONE CENTER. SEVEN BENEFITS.

Flexible gearbox support Gesilco® Disc
High-speed shaft coupling Gesilco® Disc

Flexible gearbox support

High-speed shaft coupling

Gesilco® Disc

Gesilco® Disc

Gesilco® Disc

Gesilco® Disc

Gesilco® Disc
FURTHER GEISLINGER PRODUCTS FOR WIND POWER APPLICATIONS:

**Geislinger Compound®** Lightweight, maintenance-free coupling for double digit MNm class

The Compound® is based on an innovative concept of lightweight and maintenance-free flow composite materials which deliver a torque box to be mounted rigidly onto the main frame, without wear and with low friction. An inner, bending torsion mode and dynamic effects are virtually eliminated. The viability of the drivetrain increases noticeably, resulting in reduced installation costs.

**Geislinger Gesilco® Shaft**

Lightweight, maintenance-free shaft coupling

The Gesilco® shaft lines are made of advanced composite material and are characterized by their light weight, high stiffness and good acoustic attenuation. The Gesilco® shafts are suitable for use in engines with high engine speeds. The Gesilco® shafts can be adapted to your requirements. Complete assemblies with couplings, adapters, bearings, ballkold shafts and Gesilco® composite installation sleeves are possible.

**Geislinger Gesilco® Disc**

Robust torsional elastic, high-damping shaft coupling

High reliability, long intervals between overhauls, and low operating costs are some of the main features of the coupling integrated to a wind turbine. The Gesilco® coupling bears the potential of structural damage and enables fatigue-free operation over a wide range of frequencies. The flat membrane allows the transmission of high torques. Because of its low weight, it is ideally suited to reduce structure borne noise at low frequencies. The Gesilco® disc is also suitable for bearing axial loads of a certain magnitude.

**Geislinger Damper**

Tuned torsional vibration steel spring damper

Various design options, and hydrodynamic damping, allow the torsional spring type damper to be adapted to many engine applications. The Gesilger Damper type is an air-type damper which can be considered as an alternative to a Geislinger type damper in wind gearboxes to reduce structural borne noise. Since a Gesilco® or a Vdamp® is a closed system without the need for greases or oil, it offers electrical insulation as an option. The Gesilger Damper type is especially suited to reduce structure borne noise in large combustion engines.

**Geislinger Vdamp®**

Broadband torsional vibration steel spring damper

The Gesilger Vdamp® viscous type damper is a broadband torsional damper which can be considered as an alternative to a Geislinger spring type damper in wind gearboxes to reduce structure borne noise. Since a Gesilco® or a Vdamp® is a closed system without the need for greases or oil, it offers electrical insulation as an option. The Gesilger Vdamp® is a broad-band viscous type damper which can be considered as an alternative to a Geislinger type damper in wind gearboxes to reduce structure borne noise. Since a Gesilco® or a Vdamp® is a closed system without the need for greases or oil, it offers electrical insulation as an option. The Gesilger Vdamp® is a broad-band viscous type damper which can be considered as an alternative to a Geislinger type damper in wind gearboxes to reduce structure borne noise. Since a Gesilco® or a Vdamp® is a closed system without the need for greases or oil, it offers electrical insulation as an option.