

ELECTRIC & HYBRID APPLICATION GUIDE

MARINE
POWER GENERATION
RENEWABLE ENERGY
RAIL

GEISLINGER[®] 
POWERTRAIN SOLUTIONS. BUILT TO LAST.

BUILT TO LAST.

GEISLINGER COUPLINGS, DAMPERS, AND SHAFTLINES ARE THE BACKBONE OF MODERN HYBRID POWERTRAINS.

For more than 60 years, Geislinger has been driven by its inventive spirit to develop innovative, individually customized coupling, damper, and powertrain solutions.

Every Geislinger product is tailor-made and thus perfectly suited to the application it is designed for. Minimal cost of ownership, outstanding service life, and a very high level of reliability are the most important features of our products. The corporate slogan “built to last” symbolizes these attributes.

On the road to hybridization, the transportation and shipping industry is facing new challenges every day. Here at Geislinger, we are ready to take on all of them. Global decarbonization has picked up speed and authorities are tightening regulations day by day. Marine hybridization offers a wide range of possibilities not only to comply with those directives, but also to bring further benefits such as cutting down on fuel costs and prolonging service intervals. Engineering the most lightweight powertrains is one of our solutions to overcome the challenges of hybridization.

We see our part in this process in supporting our customers by taking care of their powertrain requirements, and thus taking care of all of our environment. The quality and variety of Geislinger products relies on our 60 years of experience with powertrain solutions. With our portfolio of couplings, dampers, shaftlines, and monitoring equipment, we provide tailor-made solutions for any application. Whatever your requirements are – lightweight, low maintenance, electrically insulating materials, low reaction forces, or high torsional flexibility – Geislinger provides your customized solution.



ONE CENTER. EIGHT BENEFITS.



TAILOR-MADE SOLUTION

Geislinger offers innovative, individually customized coupling, damper, and shaft solutions for your drive system. The design, size, and function of your Geislinger product can be adapted to the specific requirements of your application.



LIGHTWEIGHT AND COMPACT DESIGN

Geislinger 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.



LOWEST, ALMOST LINEAR RESTORING FORCES

Electric and hybrid drive systems benefit from low, almost linear restoring forces as well as from the highest torque transmission with best dynamic behavior.



OPTIMIZED ACOUSTIC ATTENUATION

Our acoustically optimized product solutions eliminate noise being transmitted through the powertrain and help to create extra silent ship designs. The acoustic competence of Geislinger is underlined by its worldwide unique Geislinger Acoustic Test Bed.



LOWEST COST OF OWNERSHIP

Our GESILCO® product range is maintenance-free and designed according to our company motto: "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.



EXTREMELY ROBUST PRODUCT PROPERTIES

Even under extreme conditions, the highest shock resistance of our products is a great benefit. Additionally, GESILCO® products are resistant in hot ambient temperatures.



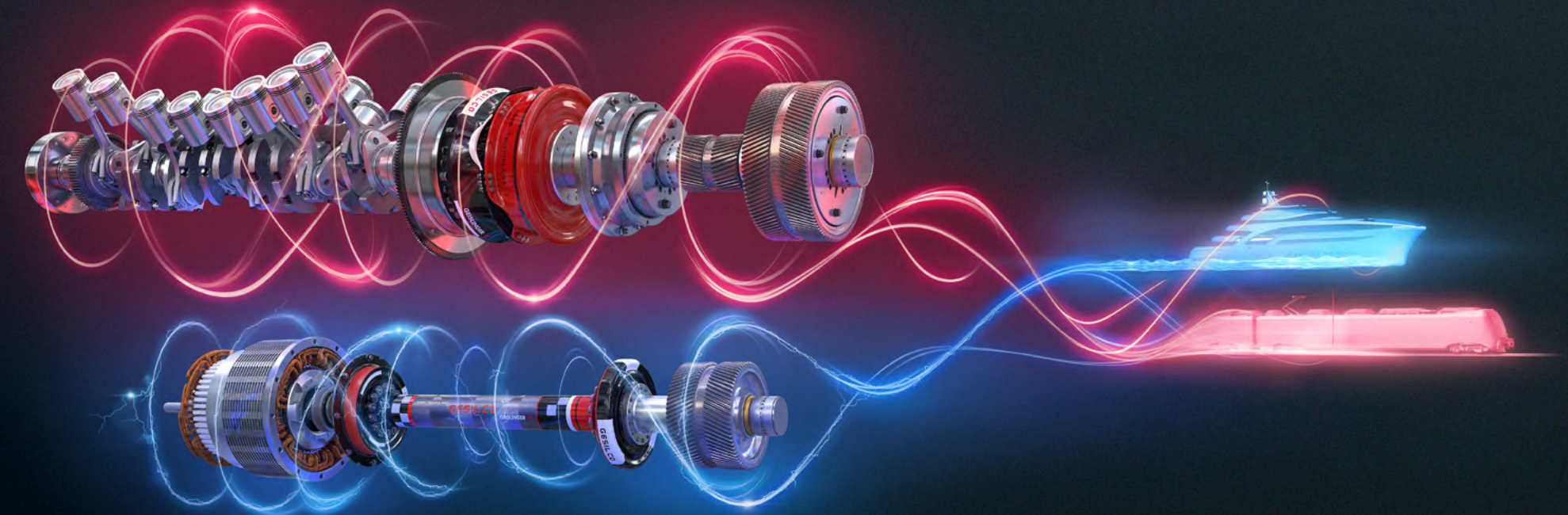
ELECTRICAL INSULATION AND NON-MAGNETIC PROPERTIES

GESILCO® products offer electrical insulation and non-magnetic properties as an option, which is extremely important for many electric and hybrid drive systems.

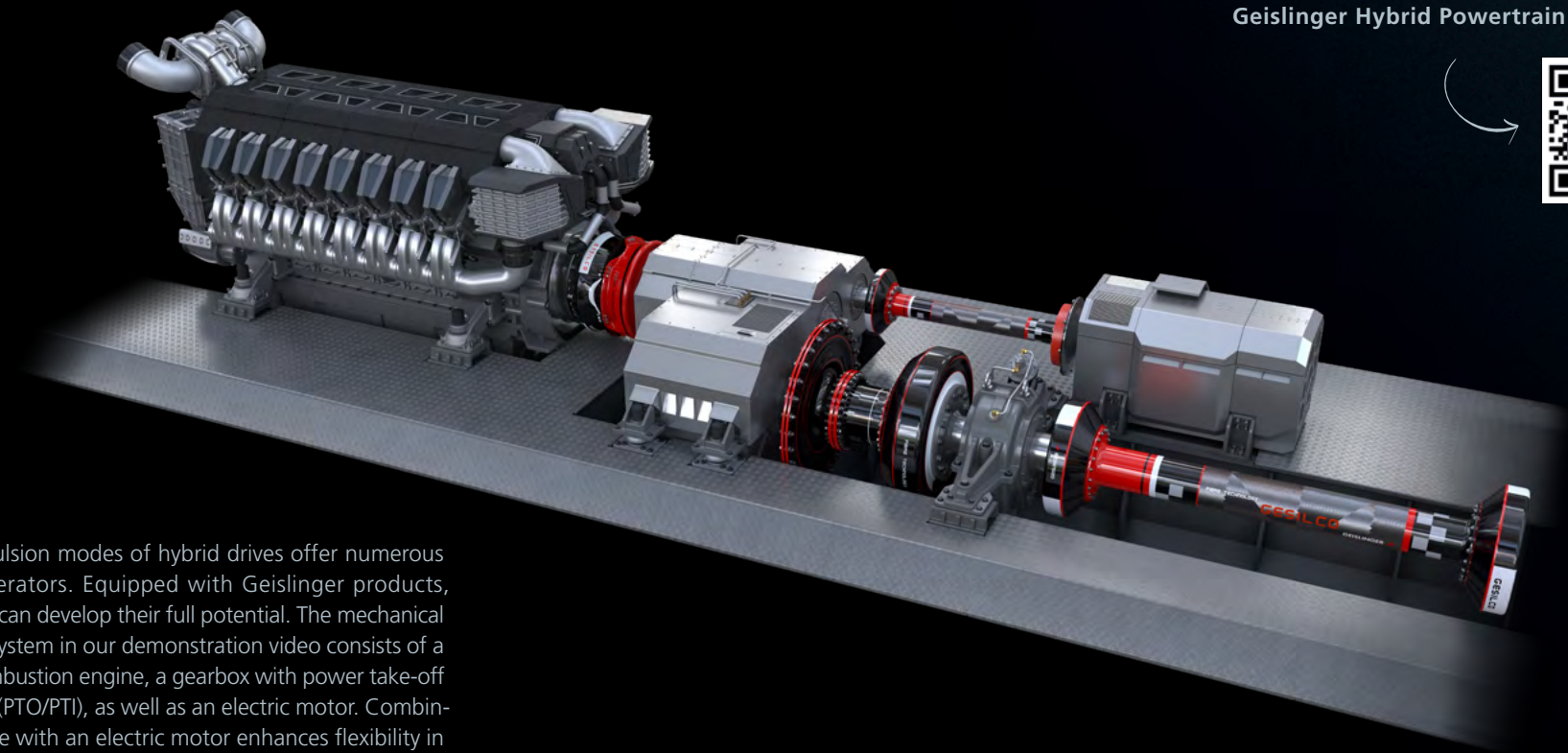


WORLDWIDE NETWORK

To improve customer service and shorten delivery times, Geislinger locations and partners are based in our major markets worldwide.



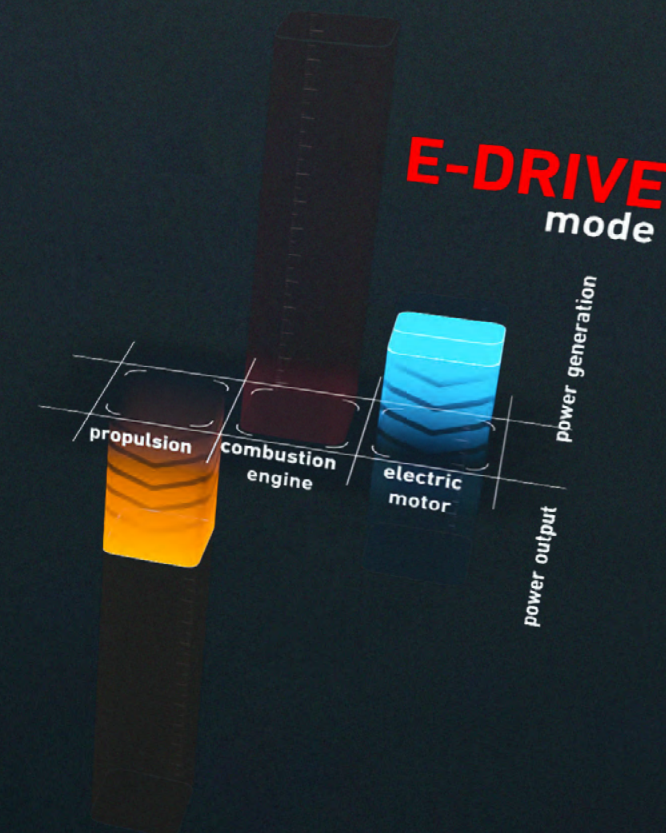
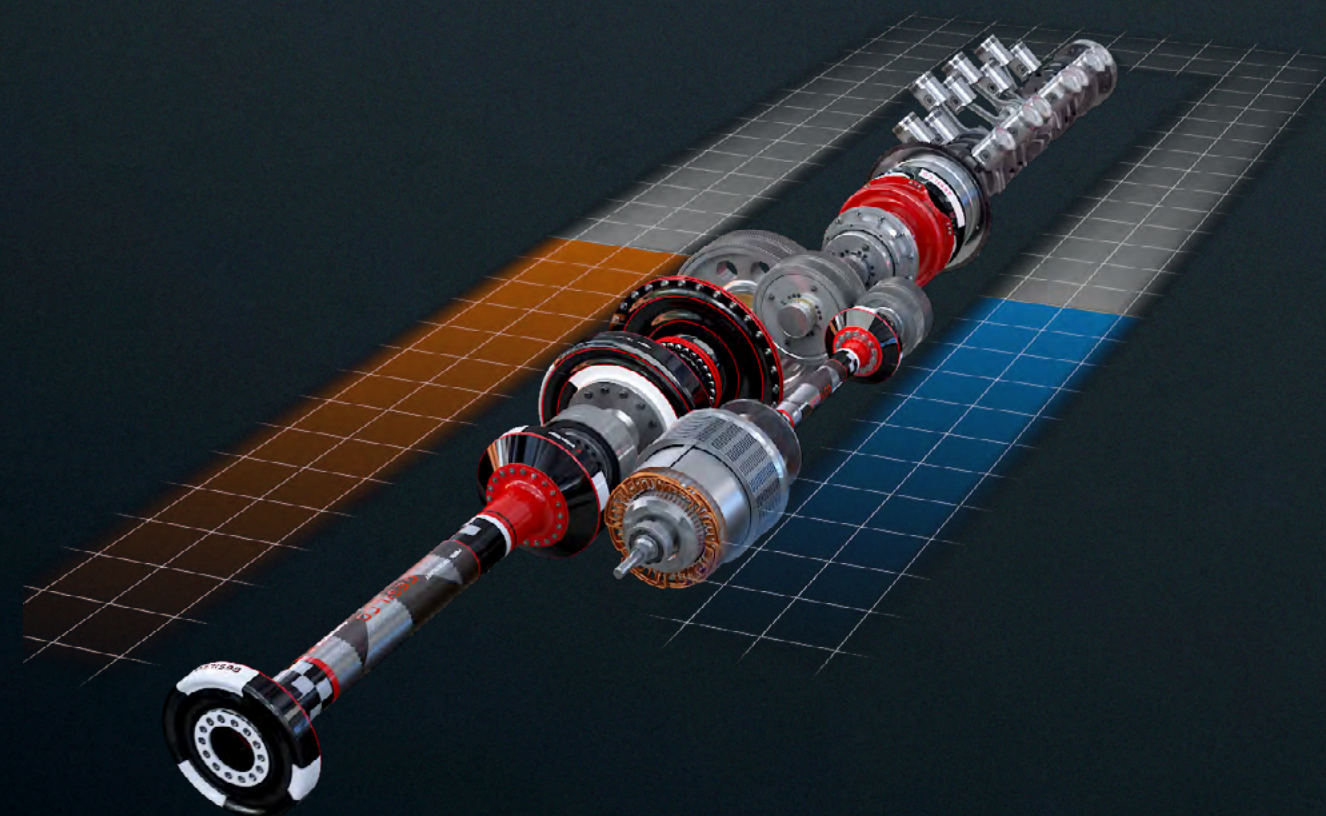
ELECTRIC AND HYBRID POWERTRAIN SOLUTIONS. PROPULSION MODES.



Watch the video and learn about the working principle of Geislinger Hybrid Powertrain Solutions.



The different propulsion modes of hybrid drives offer numerous advantages to operators. Equipped with Geislinger products, hybrid powertrains can develop their full potential. The mechanical hybrid propulsion system in our demonstration video consists of a medium-speed combustion engine, a gearbox with power take-off and power take-in (PTO/PTI), as well as an electric motor. Combining the main engine with an electric motor enhances flexibility in operation and unlocks increased overall efficiency. The mechanical hybrid propulsion layout, furthermore, offers acoustic benefits that are of special interest for vessels operating in sensitive areas.



Cruise mode

The cruise mode is comparable to a conventional propulsion with the medium-speed engine and the gearbox in active operation. The electric motor is disabled by a clutch. The Geislinger coupling reduces torsional vibration coming from the main engine. Furthermore, our Geislinger GESILCO® Butterfly compensates for misalignment when the main engine is mounted elastically in order to reduce structure-borne noise.

Boost mode

As more propulsion power is needed, e.g. when running in heavy seas, the clutch of the electric motor is engaged, and the electric motor provides extra torque to the powertrain. Even when the combustion engine is active, our Geislinger SILENCO® coupling for acoustic requirements limits structure-borne noise in relevant frequency spectra to a minimum.

Charge mode

While running at lower speeds, not all of the main engine's torque is needed at the propeller shaft. In this case, the electric motor acts as a generator and takes on any excess power allowing the main engine to operate at maximum efficiency. Our lightweight Geislinger GESILCO® Shaftline connects the electric motor to the gearbox keeping the inertia in the side branch of the powertrain at a minimum.

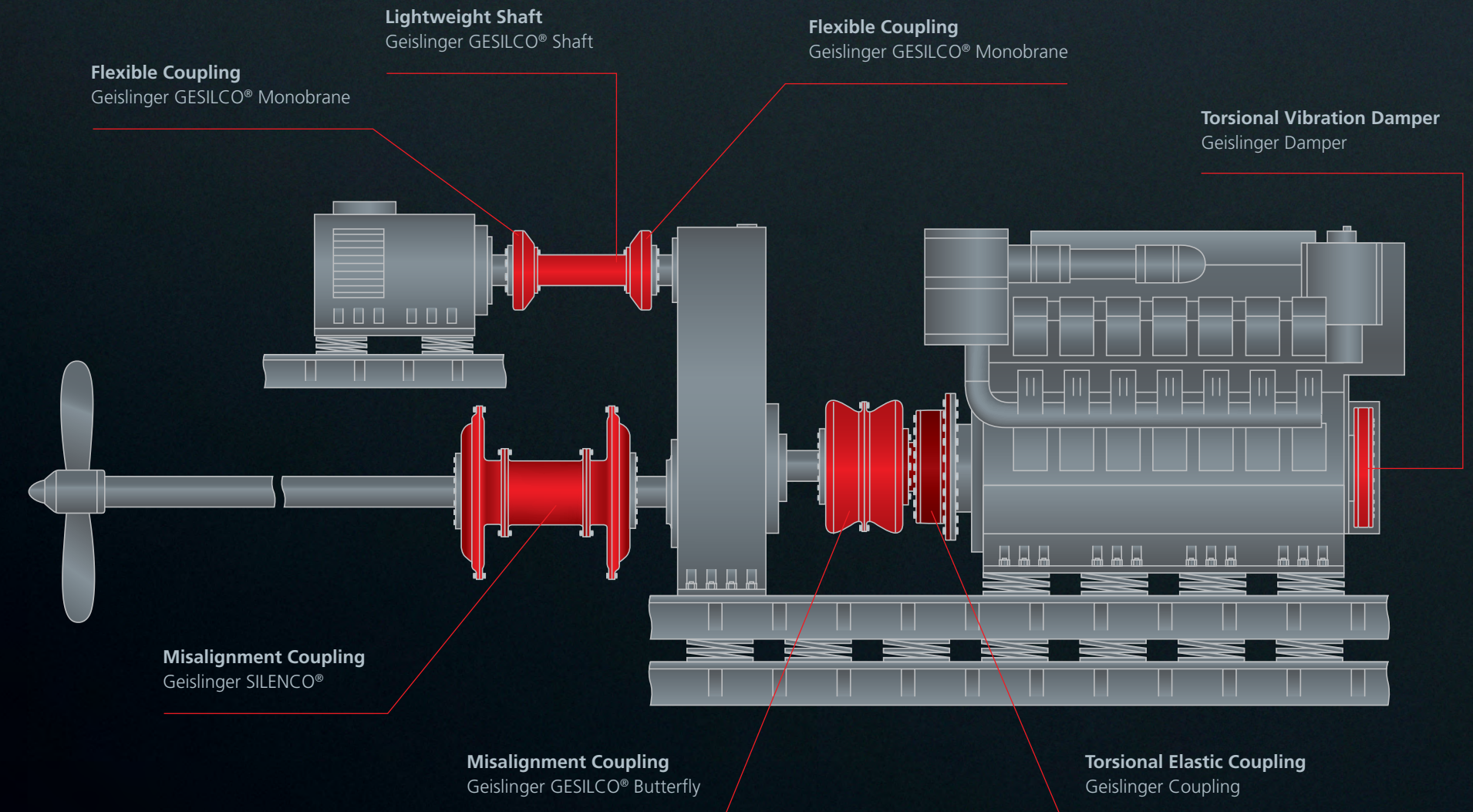
E-Drive mode

The E-Drive mode allows vessels to navigate in environmentally sensible areas, such as the Norwegian fjords. In this mode, all propulsive torque comes from the electric motor while the main engine's clutch is disengaged. For providing electric insulation to the electric motor, the Geislinger CARBOTORQ® is an optimal solution that also offers torsional elasticity as well as misalignment capabilities.



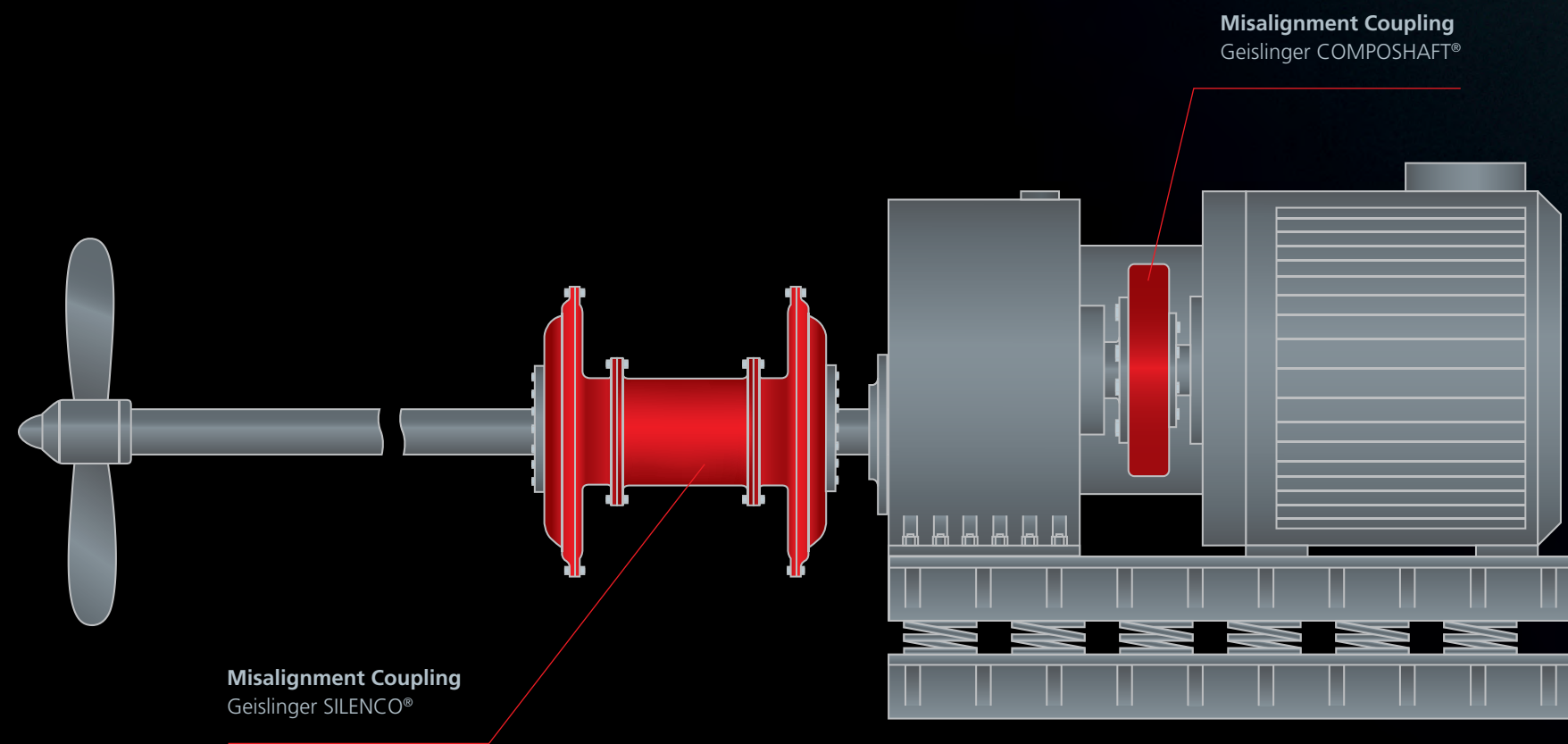
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ELASTICALLY MOUNTED HYBRID MARINE POWERTRAIN



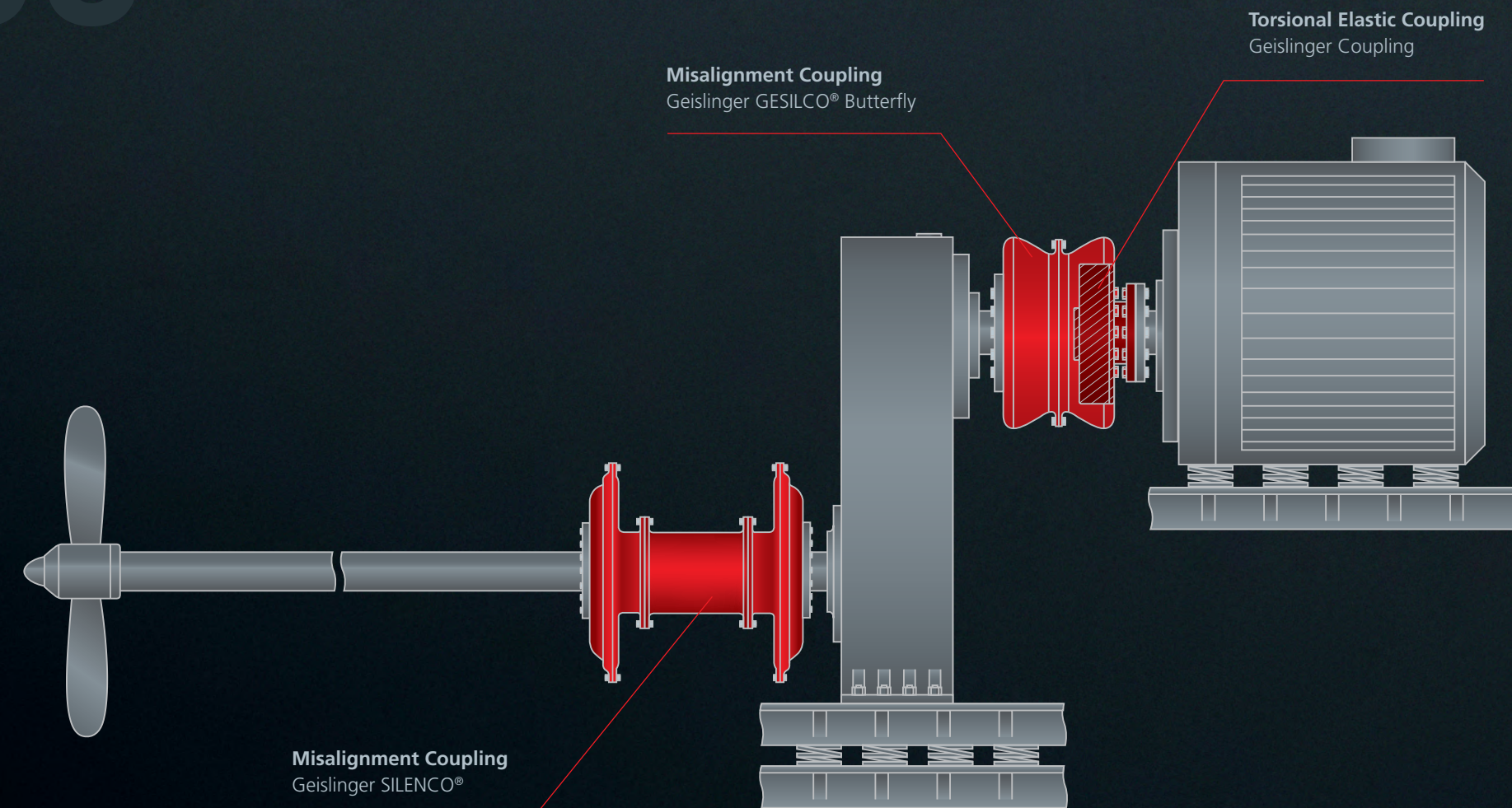
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HIGH ACOUSTIC SOUND INSULATION FOR AN ELASTICALLY MOUNTED ELECTRIC PROPULSION SYSTEM



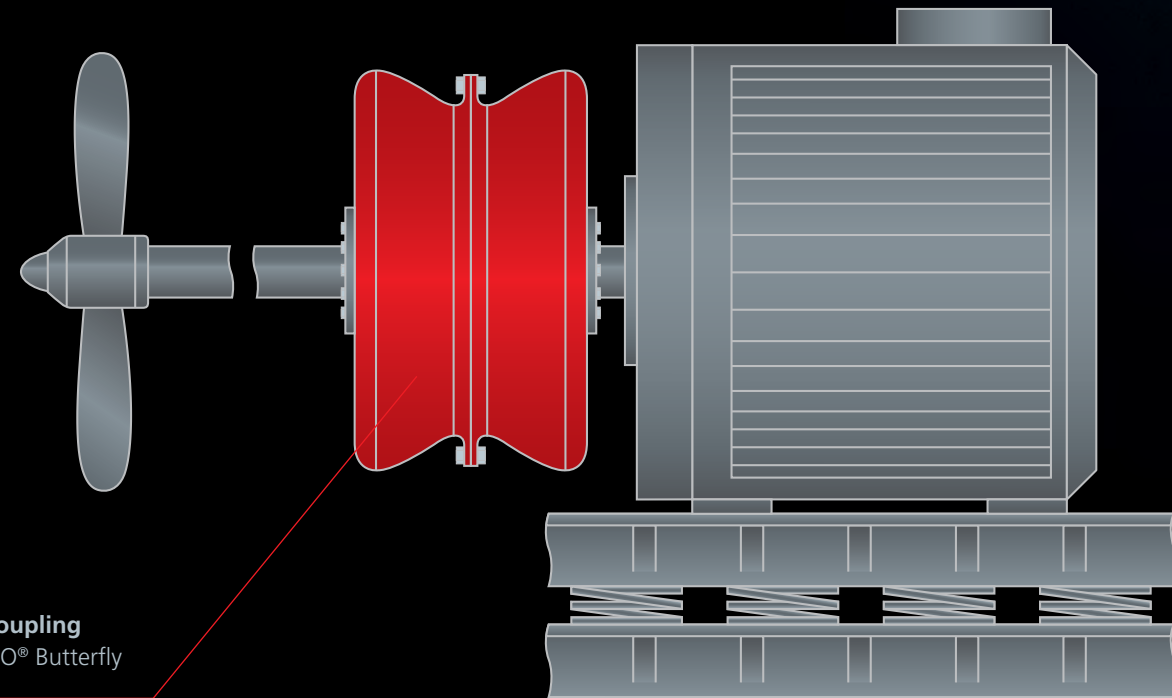
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ACOUSTICALLY OPTIMIZED ELECTRIC DRIVELINE



04

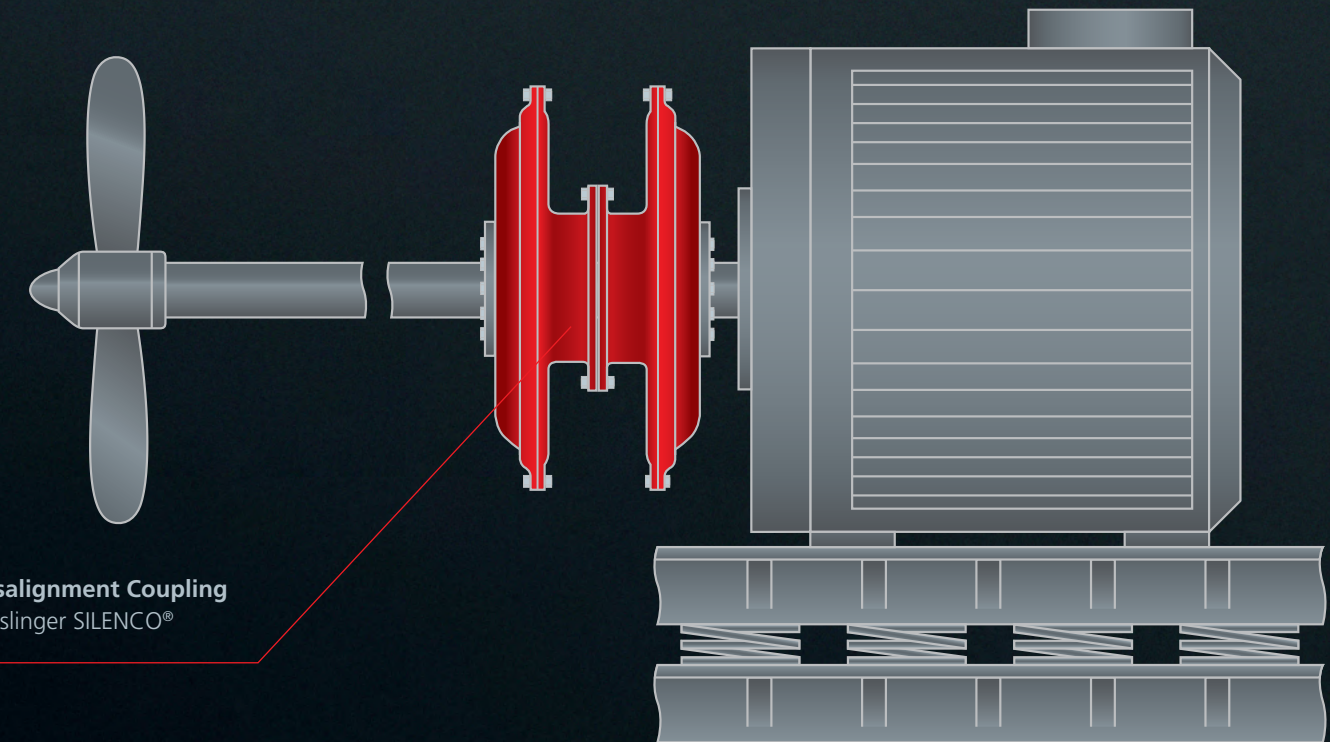
ELASTICALLY MOUNTED ELECTRIC MOTOR
WITH A DIRECT DRIVEN PROPELLER SYSTEM



Misalignment Coupling
Geislinger GESILCO® Butterfly

05

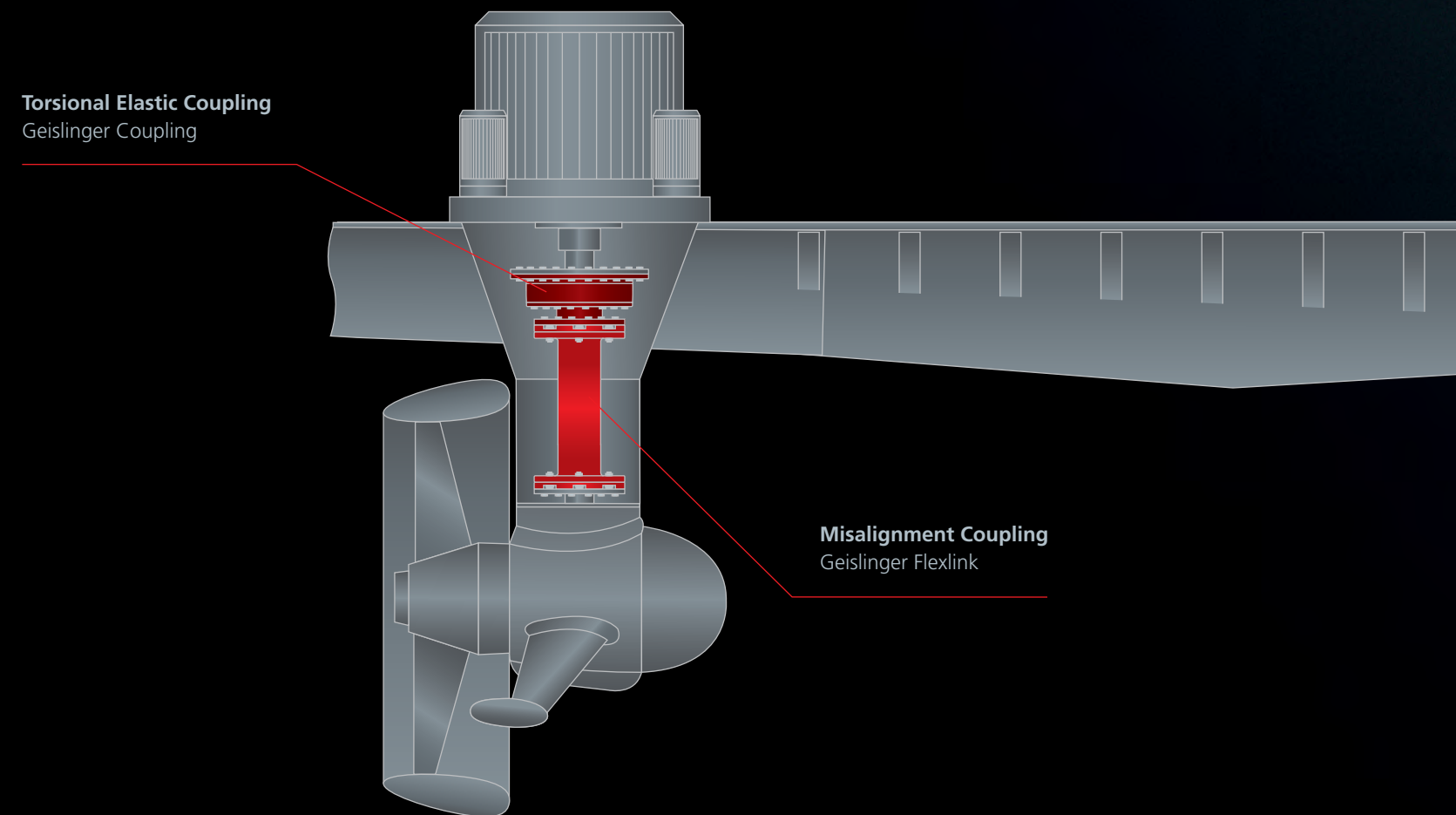
ELASTICALLY MOUNTED ELECTRIC MOTOR
WITH A HIGH ACOUSTIC SOUND INSULATION



Misalignment Coupling
Geislinger SILENCO®

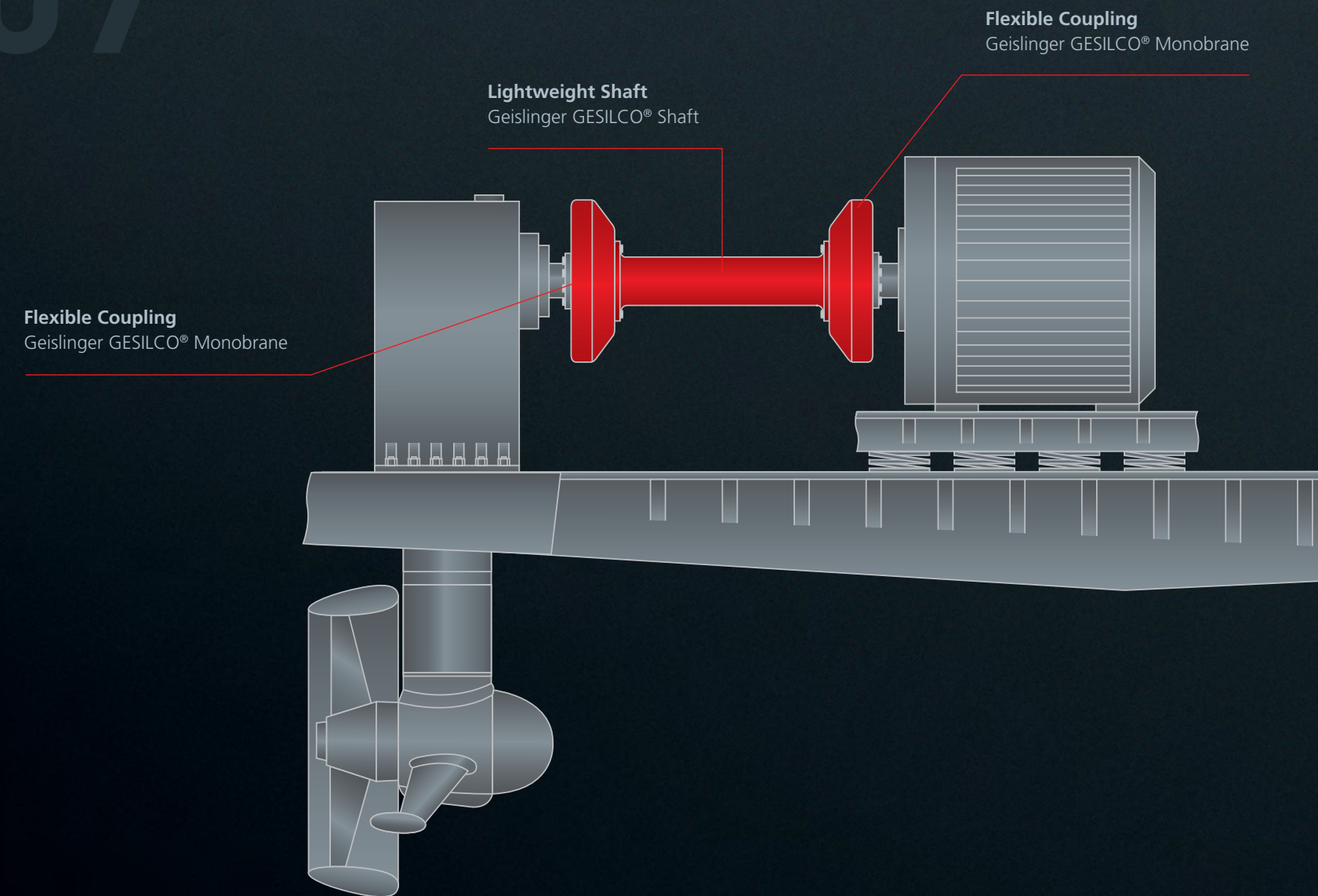
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AZIMUTH THRUSTER DRIVEN BY AN ELECTRIC MOTOR



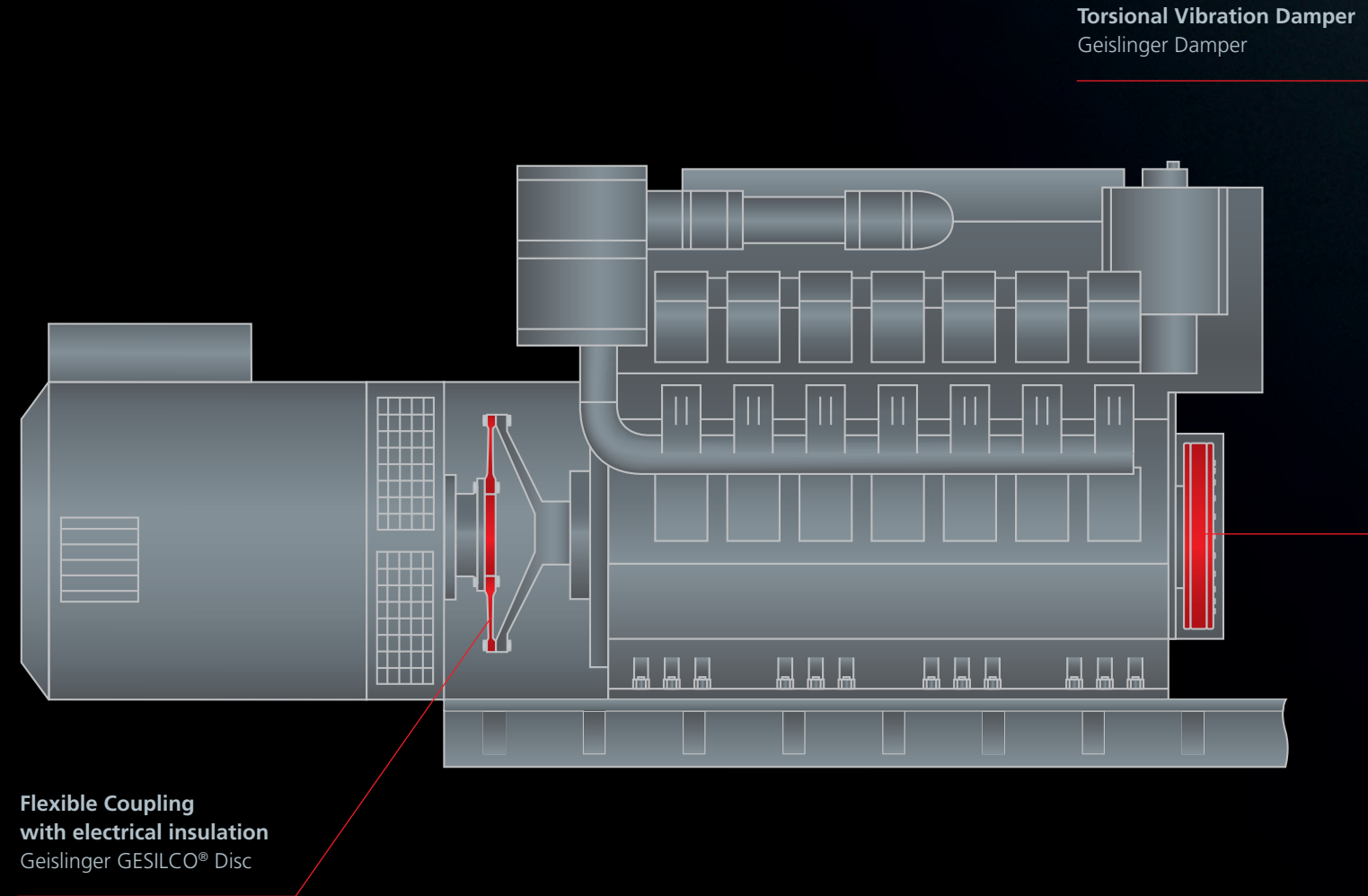
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MECHANICAL AZIMUTH THRUSTER WITH AN ELASTICALLY MOUNTED ELECTRIC MOTOR



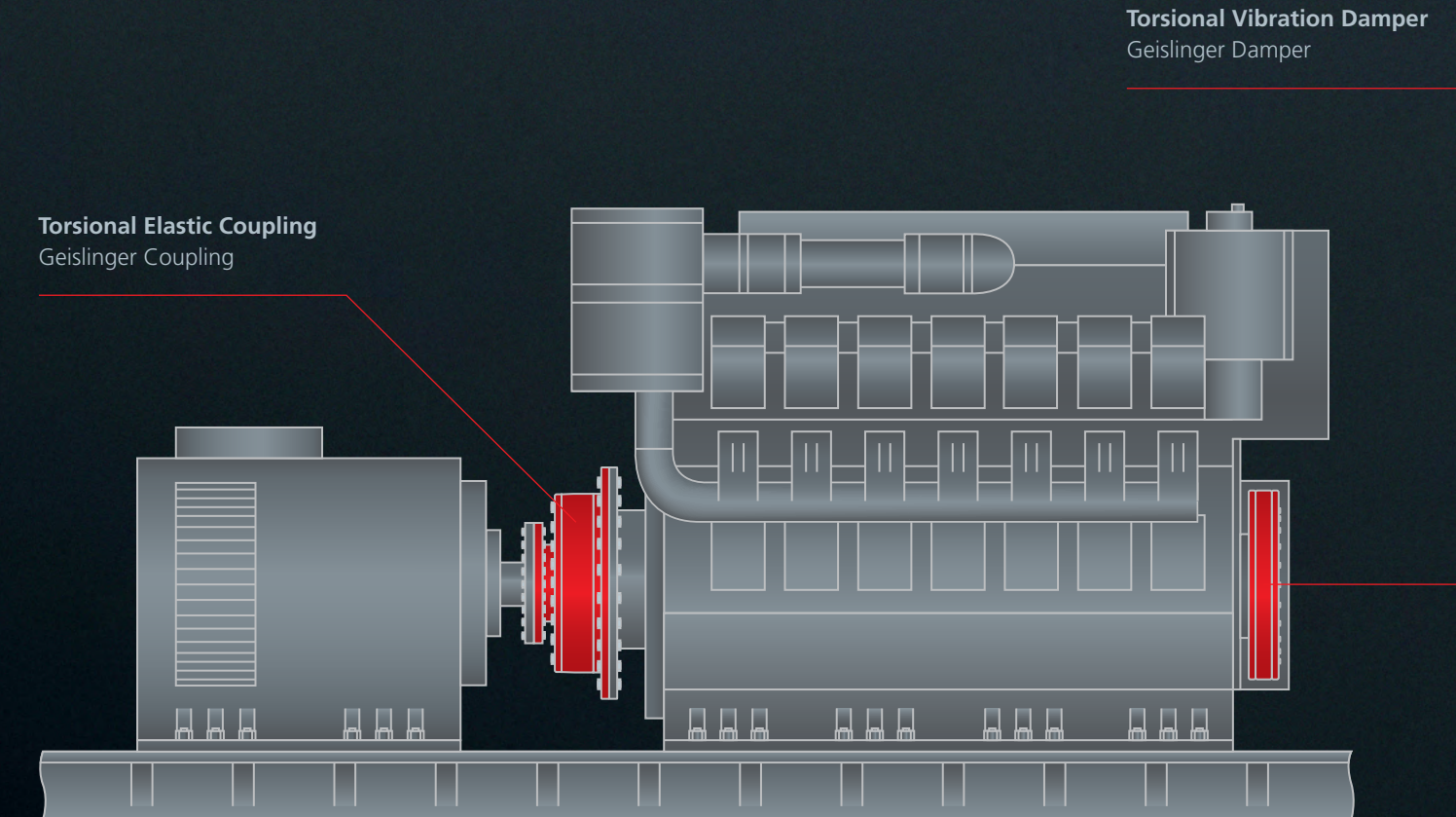
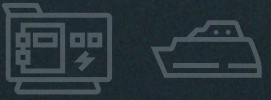
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RIGIDLY MOUNTED SINGLE BEARING GENSET



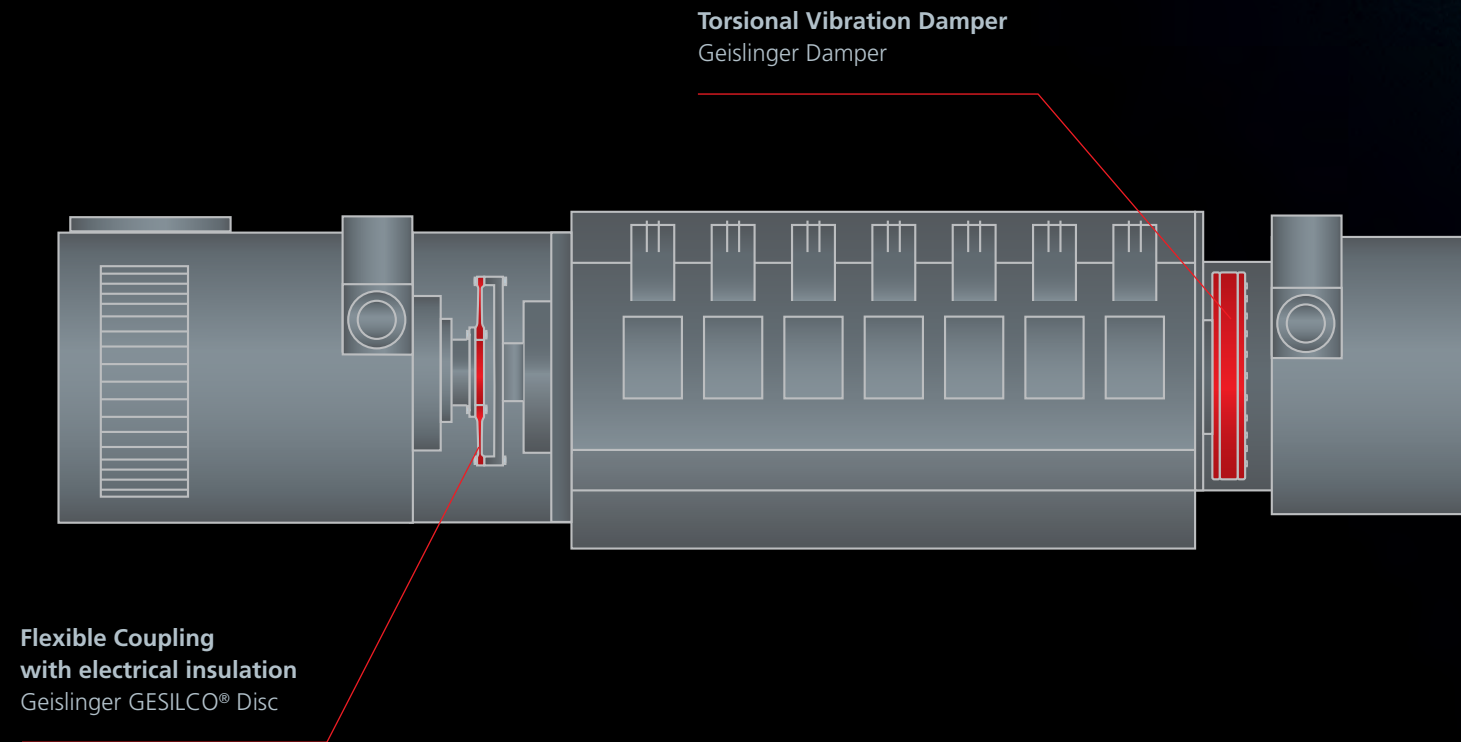
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RIGIDLY MOUNTED GENSET



10

GENSET FOR UNDERFLOOR RAIL APPLICATIONS

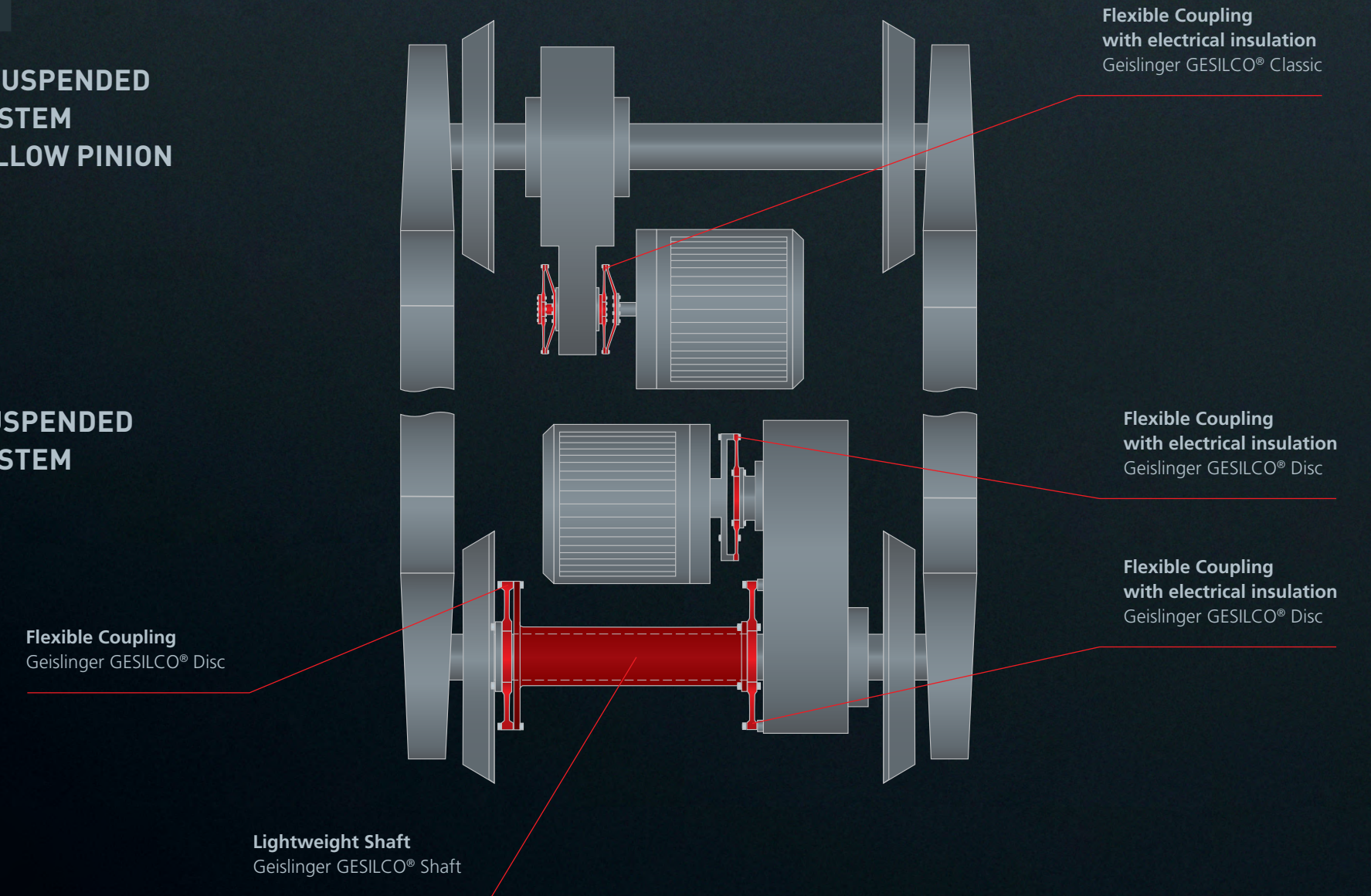


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ELECTRIC MOTOR FOR RAIL TRACTION

PARTLY SUSPENDED DRIVE SYSTEM WITH HOLLOW PINION

FULLY SUSPENDED DRIVE SYSTEM



ENHANCE YOUR POWERTRAIN. GEISLINGER DIGITAL SOLUTIONS.

Geislinger Digital Solutions combine excellent product performance with world-class engineering to provide additional operational reliability, reduced costs, and optimized performance for your powertrain.

Geislinger Digital Solutions' two core units, the Geislinger Analytics Platform and the Geislinger Monitoring System are our industry-leading software and hardware solutions that work together to provide continuous measurement of your dynamic system behavior and a cloud-based data push.

With Geislinger Digital Solutions, our products became intelligent to get even more out of them. We monitor them, provide insights, and all this helps us optimize our customer's operations. In addition, collaboration and sharing of data with partners provide further opportunities.

With the increasing complexity of modern powertrains, the monitoring of driveline components is becoming more and more important. The Geislinger Monitoring System Mk6 is a solution that not only provides monitoring of key compo-

nents such as couplings and dampers, but also monitors the proper operation of the powertrain in any situation. The data from the powertrain is then processed and anomalies in operation are quickly displayed in the cloud-based Geislinger Analytics Platform.

Using the Geislinger Analytics front end, users can manage information from any location. The platform enables easy comparison of powertrains, real-time access to alerts and alarms, and the ability to download reports. These features make it easy for users to stay informed and effectively manage their entire fleet.

AI-powered anomaly detection, trend analysis, rapid troubleshooting, data analysis, reporting, and predictive maintenance are just some of the features of Geislinger Digital Solutions.

Monitoring your drivetrain with Geislinger Digital Solutions ensures maximum safety, prevents downtime, mitigates overall operational risk, and leads to the lowest total cost of ownership.



Scan the QR code to learn more about
Geislinger Digital Solutions.



Watch the video and learn more
about Geislinger Digital Solutions.



ADVANTAGES

- Cloud-based Analytics Platform
- AI-based predictive maintenance
- Remote fleet management
- Additional operational safety and risk reduction
- Lowest total cost of ownership
- Increase in uptime
- Data exchange with third-party systems

GEISLINGER PRODUCT LINE.



**Geislinger
Damper**

Tuned torsional vibration steel spring damper

The Geislinger Damper is a tuned torsional vibration damper. The steel springs optimize the natural frequency of a system in order to eliminate the critical resonance. The Geislinger Damper is specifically designed for large engine applications. It provides constant stiffness and high damping throughout its service life. The Geislinger Damper is often used in combination with a Geislinger Monitoring System, which enables an early detection of critical loads.

Applications: Marine, Power Generation, Mining, Oil & Gas, Digital Solutions, Rail, Racing



**Geislinger
Coupling**

Torsional elastic, high-damping steel spring coupling

The Geislinger Coupling is a torsional elastic high-damping steel spring coupling with hydrodynamic damping properties. High reliability, long intervals between overhauls, and low operating costs are the main features of this ATEX certified coupling. The Geislinger Coupling is perfectly suited for all types of drivetrains where outstanding reliability is essential.

Applications: Marine, Power Generation, Off-Highway, Wind Power & Renewables, Industrial Applications, Digital Solutions, Rail, Racing



**Geislinger
GESILCO® Butterfly**

Lightweight, maintenance-free coupling for short installation lengths

The Geislinger GESILCO® Butterfly is a maintenance-free misalignment coupling. The membranes of the coupling are made of lightweight and highly flexible composite materials to achieve the lowest reaction force possible, which increases the system's reliability by protecting the driveline and bearings from possible overloads. This unique coupling is suitable for a wide range of applications. Its multiple designs make it compatible with a variety of connection interfaces.

Applications: Marine, Power Generation, Off-Highway, Wind Power & Renewables, Industrial Applications, Digital Solutions, Rail



**Geislinger
COMPOSHAFT®**

Lightweight, maintenance-free coupling with modular installation concept

The Geislinger COMPOSHAFT® misalignment coupling consists of two double membranes and an intermediate shaft made of advanced composite materials. The membranes are corrugated with a decreasing wall thickness, as the diameter increases. The superior advantages of the corrugated membrane design, in comparison to a flat membrane, are a higher deflection capacity and lower, almost linear reaction forces.

Applications: Marine, Power Generation, Off-Highway, Wind Power & Renewables, Industrial Applications, Digital Solutions, Rail



**Geislinger
SILENCO®**

Lightweight, maintenance-free coupling with high acoustic sound attenuation

The Geislinger SILENCO® is an acoustically optimized misalignment coupling. It consists of flanges, maintenance-free composite membranes with increased damping properties, composite shafts, and steel spacers. The coupling provides resistance to oil and offers electrical insulation as an option. Depending on the acoustical needs and the required torque, different versions of flanges, membranes and shafts are available. The Geislinger SILENCO® coupling ensures an extensive reduction in the transfer of structure-borne noise and is our powertrain solution for the most silent ships on the market.

Applications: Marine

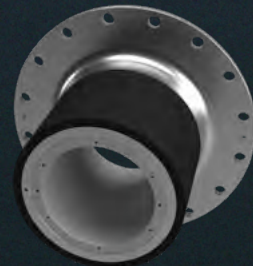


**Geislinger
GESILCO® Shaft**

Lightweight, maintenance-free, carbon fiber technology with integrated flange connection

The Geislinger GESILCO® shaftlines are made of advanced composite materials. Their one-piece manufacturing technology with an integrated fiber flange connection makes them the most lightweight shaftlines available on the market. The GESILCO® shafts can easily be adapted to your requirements. Complete shaftline packages with bearings, bulkhead seals, and GESILCO® composite misalignment couplings are possible. Outstanding shock capabilities underline the use of Geislinger shafts for vessels running at high speeds.

Applications: Marine, Power Generation, Off-Highway, Wind Power & Renewables, Industrial Applications, Digital Solutions, Rail



**Geislinger
Hub**

Fiber-reinforced composite shaft coupling

The use of fiber-reinforced composite shafts is a major benefit for lightweight powertrains due to their low mass. The innovative Geislinger Hub connects a cylindrical solid shaft by means of a bolted flange and helps to further reduce the weight of the whole driveline. The resulting weight savings lead to better overall system efficiency. Compared to conventional hub designs, the Geislinger Hub also facilitates the design of shaftlines that are much more compact due to higher torque transmission within the same installation space.

Applications: Marine, Power Generation, Industrial Applications



**Geislinger
GESILCO® Disc**

Lightweight, electrically insulating coupling solution

The GESILCO® Disc Coupling is specifically designed for closed coupled generator sets and highly integrated wind turbine powertrains. The flat membrane allows the transmission of high torsional vibratory torques and radial forces at high engine speeds. The GESILCO® Disc with its homokinetic, non-magnetic and non-conductive properties, is a maintenance-free coupling solution, which can even be used in rough environmental conditions.

Applications: Marine, Power Generation, Off-Highway, Wind Power & Renewables, Industrial Applications, Rail

DISCOVER THE WORLD OF GEISLINGER



[geislinger.com](https://www.geislinger.com)

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