ENERGY

WE ENERGIZE
THE WORLD

MOTION CONTROL SYSTEMS

FOR THE BEST PROTECTION AGAINST WINDINDUCED CONDUCTOR MOVEMENT

MOSDORFER
KNILL GRUPPE

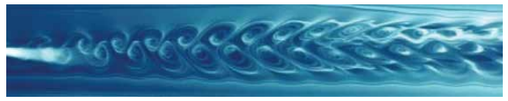
PROTECTING OVERHEAD LINES

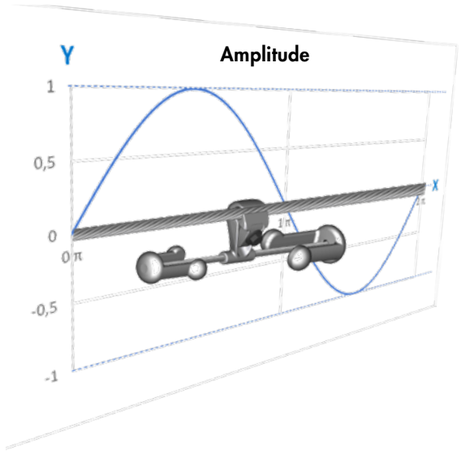
AGAINST DAMAGES DUE TO WIND INDUCED MOTIONS

CONTROL

Stockbridge dampers and spacer dampers protect your network from wind induced damage.

Ensuring sustainable and reliable transmission lines is essential for uninterrupted energy supply. Minimising the risk of damage and maintenance costs is key. Wind induced conductor oscillations pose a significant threat to fittings and conductors. Motion control hardware, such as that offered by Mosdorfer and Damp, provides state-of-the-art solutions to protect these assets, increase efficiency and reduce costs.





Aeolean Vibrations
On tensioned overhead lines, wind flow causes high-frequency vibrations with amplitudes in the magnitude of a conductor diameter.

Aeolian vibrations occur at wind speeds of approximately 1–7 m/s and cause vibration frequencies of 5–100 Hz, depending on conductor diameter and tension. These vibrations cause internal conductor fatigue stresses at suspension and tension fittings, and compressive and bending loass at conductor support points.

The higher the tensile load, the greater the vibration. Line routes along flat terrain or across valleys require higher levels of protection, particularly where prevailing wind directions are perpendicular to the line route.

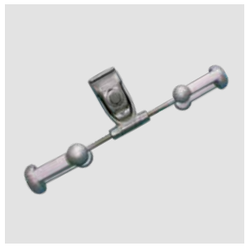
Fatigue stresses will damage the conductor, resulting in strand breakage and cable failure. Insulator string ball fittings and turnbuckles are particularly vulnerable due to their specific shapes.

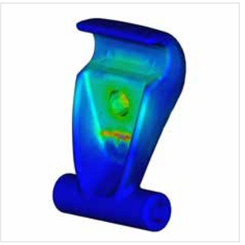
STOCKBRIDGE DAMPERS

MOST EFFECTIVE TYPE OF DAMPER

Combined energy absorbing type

Ever since the first overhead lines were built, there have been problems with vibration. The Stockbridge vibration damper (named after its inventor) soon proved to be the most effective type of damper.





These dampers are a combined energy absorbing resonance type that damp all frequencies that occur as part of an energy balanced system. Mosdorfer dampers work particularly well where part of the wind energy is absorbed by the conductor and the remaining major part is absorbed by the damper.

Types of Stockbridge damper

- Standard Stockbridge dampers have open weights cast onto the messenger cable.
- Conductor clamps are manufactured from aluminium, either forged or cast.
- Messenger wires are manufactured from high tensile hot dip galvanised steel or stainless steel wires, designed to provide good energy dissipation and damping properties.
- Screws and nuts for cast clamps are hot dip galvanised. Stainless steel screws are used for forged clamps.

MOSDORFER
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SPACER DAMPER

PROTECTING CONDUCTORS OF BUNDLED LINES

765 KV

Bundle configurations

Our damping systems are essential for protecting the line from the effects of conductor vibration. Spacer dampers and vibration dampers are the key components of these systems, which we customize to meet specific line design request.

The primary function of the spacer damper is to preserve the configuration of conductor bundles within the design limits under normal operating conditions. These are spacing devices with inertial, elastic, and damping properties that are specifically designed and coordinated to reduce aeolian vibrations. Correctly positioned along the span, it keeps the wake induced oscillation (Sub-span) under control. We provide tailored damping solutions for **twin (2), triple (3), quad (4) and hexa (6) bundle configurations**.

765 kV AC and DC proven systems

Our quad and hexa configurations are specifically engineered to maintain stable bundle geometry and effectively reduce aeolian and sub-span oscillations on extra-high-voltage lines.

These configurations are fully field-proven for 765 kV corridors and represent a core part of our U.S. focused high-voltage offering. To ensure safe, long-term and reliable operation, all components are designed and validated for both AC and DC applications, with proven performance in severe electrical, mechanical and environmental conditions

TYPES OF CLAMPS

AS VARIED AS YOUR REQUIREMENTS

VARIETY

Metal-to-metal bolted clamp cantilever
to exactly accommodate the specified conductor size, not for a range of diameters. The nut is captive in the clamp.

High mechanical stability

Bolted clamp cantilever with Rubber lined clamp
with an added rubber line placed between the clamp cap and body, ensuring the conductor does not directly contact them, providing extra safeguarding.

Reduced contact pressure stability

Helical fixation (with armour rods)
clamp eliminates the need for screws. The connection is made with armour rods, a rubber liner in the clamp body prevents direct cable contact on metal clamp.

Boltless armour rod system

Nutcracker rubber lined with latch (boltless)
clamp eliminates the need for screws and can be tightened on conductor turning 90° a latch.

Easy lock boltless tightening system

HV special clamps
for a voltage range between

400–765 kV

MOSDORFER KNILL GRUPPE

DAMP KNILL GRUPPE

DETAILS AND ADVANTAGES

PROTECTING CONDUCTORS
OF BUNDLED LINES

Conductor range

Our spacer dampers are fully certified for a conductor range between **18–47.5 mm [0.7087"–1.8701"]**

Frame spacings

381 mm – 6-bundle USA
450 mm – Standard Quad
457 mm – 18" US spacing
600 mm

Key advantages

- HIGH DAMPING PERFORMANCE
- SUITABLE FOR AC/DC 110–765 KV
- COMPATIBLE WITH 2–6 BUNDLE SYSTEMS
- MODULAR COMPONENT DESIGN
- CORONA-OPTIMISED CLAMP GEOMETRIES

VIBRATION STUDIES

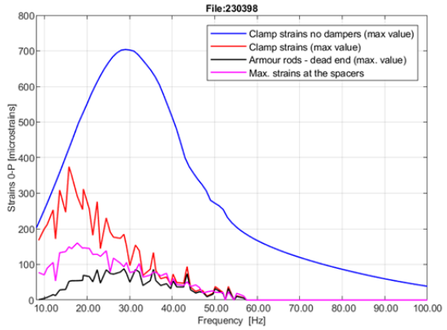
SOFTWARE SIMULATIONS
AND VIBRATION TEST SPANS

EXPERTISE

We select the most suitable damper type, recommend quantity and location within the span.

For an energy balanced system, it is necessary to ensure that the dampers are 'tuned' and compatible with the conductor system. A vibration study considers the line route terrain, climatic conditions, conductor data (conductor data sheet), line tension, configuration, span lengths, system voltage and self-damping characteristics of the conductor if known.

Data from existing lines, suspension and tension arrangements are also required if available. This data enables Mosdorfer to carry out vibration studies, select the most suitable damper type and recommend both quantity and location within the span to protect the system.



In addition to software simulations, Mosdorfer also uses a vibration test span to test, optimise and verify damping systems. Dampers must be matched to the conductor in order to work efficiently and provide long term, safe protection against conductor vibration.

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