Engineering & Technology Solutions, Inc.

Conductor Galloping

Aeolian Vibration

Sub-Span Oscillation

Conductor Motion Control Solutions

ETS

World's Leading Expert in Conductor Motion Control

THE INDUSTRIES WE SERVE

- UTILITIES
- ENGINEERING CONSULTING AND DESIGN FIRMS
- EPC CONTRACTORS
- HARDWARE AND CONDUCTOR MANUFACTURERS

About Us

Founded in 2002, Engineering and Technology Solutions, Inc. is a leading provider of specialized services and solutions for the electric power transmission and distribution industry. Our advanced technology and expertise in conductor motion control enhance overhead line performance, strengthening power grid reliability and resilience.

We developed the most advanced mathematical model for conductor galloping studies. Our groundbreaking technology mitigates overhead line galloping and vibration at the design stage, reducing dependence on mechanical damping devices. Additionally, we pioneered an innovative and highly effective solution to prevent bundle conductor collapse during the line design phase. To further improve transmission line performance, we introduced Optimized Conductor Motion Management™ (OCMM™), a practical and cost-effective program for transmission line asset management.

As the world's leading expert in conductor motion control, we provide specialty consulting services and innovative solutions to utilities, T&D engineering consulting and design firms, EPC contractors, hardware and conductor manufacturers, and electric power research institutions. Our expertise has contributed to numerous high-profile transmission projects worldwide, delivering reliable, cost-effective, and cutting-edge solutions. We are proud to be the trusted conductor motion control consultant for some of the industry's most significant projects, including the world’s highest-voltage 1,000 kV transmission lines, North America's longest 6,240 ft river-crossing span, and the Midwest’s largest $2 billion new transmission development project.

With the advanced technology and expertise, we continue to be the leading authority in mitigating conductor galloping, Aeolian vibration and sub-span oscillations across the U.S.

Our Specialty Services

- Galloping analysis and mitigation solutions
- Aeolian vibration analysis and mitigation solutions
- Sub-span oscillation analysis and mitigation solutions
- Optimized Conductor Motion Management™ (OCMM™) - A strategic approach to line asset management
- Preventive solutions at the line design stage - Integrate proactive motion control measures into new transmission line designs
- Conductor fatigue and pre-mature aging mitigation
- Bundle line collapse analysis and mitigation solutions
- Prevent bundle collapse at the line design stage™
- Vibration and galloping control for HTLS conductors (ACCC, ACCR, TS, INVAR, GAP)

Improving Reliability and Resilience of Electric Power Grid

VIBRATION & GALLOPING STUDIES

FAILURE ANALYSIS

DESIGN REVIEW

ASSESSMENT OF VENDORS' DAMPER RECOMMENDATIONS

VIBRATION & GALLOPING STAND-ARDS DEVELOPMENT FOR UTILITIES

DAMPER & SPACER DAMPER TESTING

RIVER CROSSING MOTION CONTROL

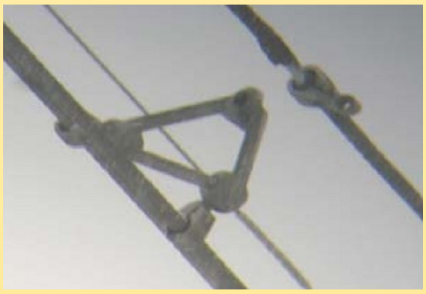
T2 OR TP CONDUCTOR TWISTING VIBRATION CONTROL

ACCC, ACCR, TS CONDUCTOR GALLOPING CONTROL

SOLUTIONS TO MARKER BALL CAUSED MOTION PROBLEMS

IN-HOUSE TRAINING

- Long river-crossing span conductor motion control
- Assessment of market available vibration dampers, spacers, and spacer dampers - Expert guidance for the best selection and optimal procurement
- Analysis and protection recommendations on overhead line failures caused by icing storms, ice-shedding and high winds
- Motion control for OPGW, ADSS, and OPPC cables
- Motion control for T2 or TP, and OVAL conductors
- Mitigation of vibration and galloping caused by airway marker balls
- Conductor vibration monitoring and testing
- Figure-8 cable galloping control
- Vibration control for tall telecommunication towers



Comprehensive Solutions for All Conductor Motion and Related Challenges

Principal: Dr. Jeff Wang

Dr. Wang is a world-leading expert in conductor galloping and vibration control, with over 35 years of experience in engineering, R&D, consulting, and manufacturing. He is a lead author of the EPRI Orange Book (Wind-Induced Conductor Motion) and the EPRI Blue Book (Compact Line Design). Dr. Wang conducted his PhD research in galloping studies and developed a pioneering and widely respected mathematical model for conductor galloping studies.

Dr. Wang is the inventor of a new technology that provides cost-effective preventive solutions for conductor galloping control at the line design stage. Since the 1990s, his technology and expertise have been successfully applied to the U.S. utilities to mitigate conductor galloping. He has consulted extensively for utilities, engineering design firms, EPC contractors, and manufacturers on conductor galloping and vibration control. Dr. Wang has conducted numerous high-profile consulting projects and provided innovative, reliable, and cost-effective solutions. He is the conductor motion control consultant for the America's longest river-crossing span (the 6,240 ft Tacoma Narrows Crossing span), and the galloping control consultant for Midwest's largest new transmission line project (the $2 billion CapX2020 project), and the consultant for vibration mitigation & spacer damper procurement for the Ten West Link 500 kV transmission line project. He also served as consultant for the development of galloping and Aeolian vibration control standards for major U.S. utilities.

He serves as Vice Chair of the IEEE Overhead Conductors & Accessories Working Group and holds a U.S. patent in conductor galloping control. With a career dedicated to enhancing transmission line reliability through conductor motion control, Dr. Wang remains a driving force and worldwide leading authority in conductor galloping mitigations.

World's Leading Expert in Conductor Motion Control

Engineering & Technology Solutions, Inc.

Serving clients worldwide from Quincy, Massachusetts, USA

617.785.7816
info@etscentral.com
etscentral.com