



EXPERTISE, INNOVATION, AND SOLUTIONS
SHOCK AND VIBRATION

www.socitec.com

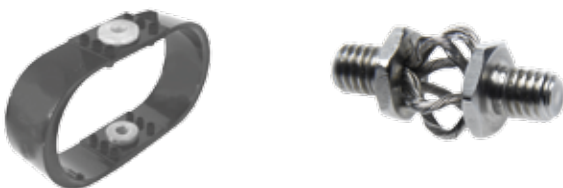
EXPERTISE AND AUTHORITY WIRE ROPE AND ELASTOMER

A PRODUCT LINE FROM STANDARD TO CUSTOM

The wire rope isolator spring function is created by flexing of the cable that is wound and clamped into a loop. The damping function is the result of friction between the cable wires as the cable flexes.

The wire rope isolator is preferred for combined isolation against shock and vibration, as well as exposure to extreme temperatures or harsh chemicals. Elastomeric isolators are preferred whenever vibration and noise are the primary concern.

SOCITEC offers a wide range of isolators utilizing wire rope and elastomeric compounds, which are tested and validated in our laboratory, meeting international standards.



WIRE ROPE ISOLATORS EXCEPTIONAL PERFORMANCES

- ▶ Rugged, all-metal construction
- ▶ Isolation and restraint in all axes
- ▶ High inherent damping
- ▶ Predictable and repeatable performance
- ▶ Wide temperature range, from -200°C to 350°C
- ▶ Long product lifetime with no maintenance
- ▶ No creeping or aging
- ▶ Excellent resistance to chemicals, seawater, ozone, radioactivity, and UV light
- ▶ Unique mounting versatility, plus fast and inexpensive prototyping
- ▶ Socitec has the widest range in the industry, from 0.04" to 2" diameter cable

CABLE OR ELASTOMER CHOOSING THE OPTIMUM SOLUTION

SOCITEC is in the position of selecting the best of these complementary technologies for any application by using a virtually unlimited combination of materials, arrangements, and interfacing.

NORMES CERTIFICATIONS



GAM EG13A
SEFT001
AIR7306
MIL-E-5400
MIL-C-172
MIL-STD-810
GAM EG13C
FINABEL2C
GAM EMBT4

MIL-S-167
MIL-DTL901E
STANAG042
BV043.73
BV044
GAM EMB1
DEF STAN 07-55 IEC571
MIL-STD-810 VG95332
IT25-21/96-31/15-86

FROM ANALYSIS TO DEVELOPMENT FROM DESIGN TO VALIDATION

Solving a shock and vibration or earthquake problem requires an analysis of the behavior of the entire dynamic system, as well as an understanding of all inputs and reactions of the system to reach the optimal solution.

A GLOBAL APPROACH

This global approach, from the beginning of the Socitec Group, has developed into an advanced process using modern design tools on both a technical level (numerical simulations validated experimentally) and quality level (ISO 9001 procedures).

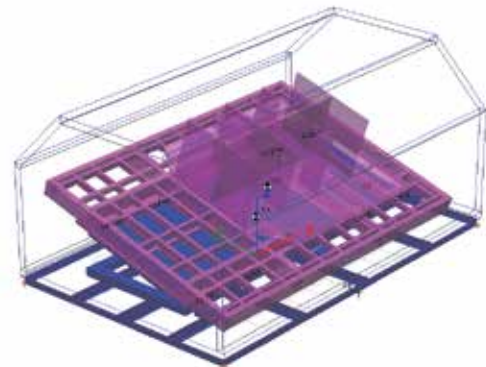
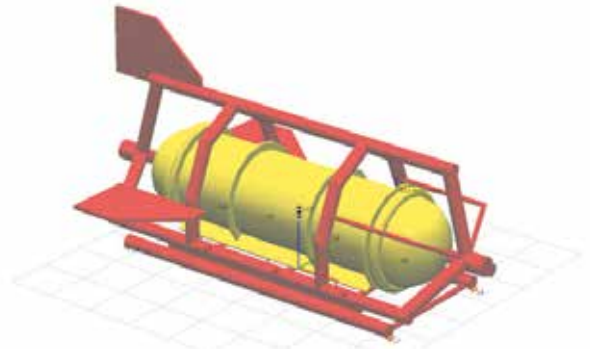
The process is carried out in the following stages.

- ▶ Extensive analysis and simulation of the structural behavior
- ▶ Establishment of the shock and vibration requirements specifications
- ▶ Completion of a feasibility study
- ▶ Selection of the most suitable technology, mounting attitude, and a standard or custom model
- ▶ Final simulation of the proposed solution
- ▶ Verification of simulations with prototype testing
- ▶ Performance of qualification tests per commercial and military standards
- ▶ Validation of installed performance using a wide range of test instrumentation

ENGINEERING MODELLING SIMULATION

KNOW-HOW MAKES ALL THE DIFFERENCE

- ▶ **SOLIDWORKS** : Mechanical design (custom products, equipment racks, elastic flooring, etc.)
- ▶ **ANSYS** : Static and dynamic finite element analysis of structures (Containers, cabinets, shelters, etc.)
- ▶ **SYMOS** : Numerical simulation of non-linear mechanical systems submitted to shock and vibration inputs.
- ▶ **TESTS** : Drop/Shock tests, vibration tests, experimental modal analysis, fatigue testing, etc.



RELIABLE AND INNOVATIVE SOLUTIONS

60 years of control
at the highest level

EXPERTISE EXPERIENCE

By virtue of the expertise and experience of our team of engineers, plus the compiled database of thousands of successful cases, SOCITEC proposes and delivers the best suited product for the job, meeting the environmental requirements. (Shock, Vibration, Noise).

MULTIPLES SOLUTIONS

- ▶ Heavy-duty steel, stainless steel, and enhanced damping cable options
- ▶ Treated aluminum alloy, passivated stainless steel, and non-magnetic retainer bar options
- ▶ Optimized shape, number, and size of cable loops
- ▶ Elastomeric solutions with various compounds and geometry
- ▶ Hybrid solutions incorporating cable and elastomers, or even cable and coil steel springs
- ▶ Design and delivery of interfacing for integration in assemblies such as racks, cabinets, etc.



ENERGY
SPACE
TRANSPORT
NUCLEAR
DEFENSE
RAILWAYS
SHIPBUILDING
OIL RESEARCH
AEROSPACE

APPLICATIONS EXAMPLES

- ▶ Sensitive equipment such as electronics onboard ships and vehicles, as well as protection of mobile shelters from explosive blasts
- ▶ Seismic protection of a storage pool of nuclear fuel rods
- ▶ Protection of mobile ground support equipment for transporting and handling jet engines, satellites, and spacecraft
- ▶ Shipping containers for missiles and torpedoes
- ▶ Generator, pump, and compressor isolation
- ▶ Chimneys using tuned mass damper to avoid wind-induced resonance
- ▶ Air conditioning unit isolation in the international space station
- ▶ Large electric transformers structural vibration and noise isolation
- ▶ Seismic protection of surge arresters, circuit breakers, and other substation equipment



FROM EXPERIENCE TO CONFIDENCE

OUR CUSTOMERS

Over 60 years of experience in protection against shock and vibration, with solutions in multiple fields proven by the world's largest contractors.

ABB
AIRBUS
ALSTOM
ARIANEGROUP
ASELSAN
ASML
BAE Systems
BEL
BHEL
BLOHM & VOSS
BOMBARDIER
CEGELEC
CGG
DAHER

DASSAULT
DENEL
EDF
ELBIT SYSTEMS
ELGI
EQUANS
ESTERLINE
FINCANTIERI
GENERAL DYNAMICS
GENERAL ELECTRIC
HANWHA
HITACHI RAIL
HYUNDAI
IAI

KNORR-BREMSE
LOCKHEED MARTIN
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MTU
NAVAL GROUP
NAVANTIA
NEXTER
NIDEC
ORANO
PHILIPS
RAFAEL
RAYTHEON

RHEINMETALL
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