

## OUR EXPERIENCE IN THE MARINE INDUSTRY

Hutchinson Worldwide companies, including Barry Controls, Paulstra, Stop-Choc, Techlam and Vibrachoc, have, over the years, developed noise, vibration and shock protection systems for the marine and offshore industries as well as other demanding markets such as defense and aerospace.

We offer a large catalogue of products including seals, metal and elastomer mounts, couplings, bushings, fire resistant and acoustic materials, exhaust silencers, active systems specially designed for the marine environment.

Our wide range of products and our engineering strength enable us to offer turn key systems to customers worldwide.

We cooperate with our customers to design solutions to their requirements and offer them the right product and engineering support.

**We provide complete packages for :**

- **Exhaust systems including silencers, expansion bellows, stabilizers, mounts, deck penetration, ducts.**
- **Anti-vibration mounting systems for Genset and propulsion systems.**
- **Overall noise reduction through a combination of products (trim panels, foam, low signature rubber mounts, active systems)**

Our goal is to fulfill your expectations.

## ASK FOR OUR CATALOGS :



## OUR ENGINEERING AND MANUFACTURING CAPABILITIES :

- Modern Research Center
- Project management and engineering
- System analysis (Abaqus, ARC3D, Sysnoise, Paulstrasoft...)
- Dedicated technical assistance
- Integrated electronic, acoustics, mechanical and material engineering skills
- Dynamic testing facilities (multi-axes test rigs, electrodynamic and hydraulic shakers...)
- Wire mesh production and assembly lines.
- Actuators, sensors and controllers for active systems.
- Mixing of specialty elastomers
- Wide range of molding presses up to 4000 ton capacity
- In house manufacturing of cable mounts.
- Field assistance (testing, installation, survey)
- Expertise in acoustics

## WORLDWIDE LOCATIONS

### Paulstra - France

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### Stop-choc / Barry Controls - UK

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### Vibrachoc - Spain

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### Hutchinson Stop-Choc GmbH & Co. KG Germany

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### Techlam - France

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We make it **possible**

## YACHTS

Noise and Vibration Control



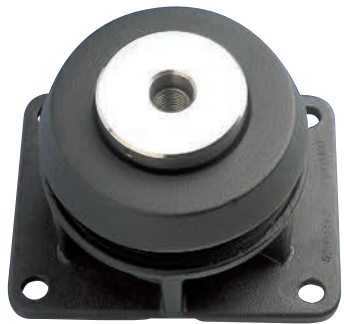


# PROPULSION

Passive mounts reduce the transmission of structure-borne noise coming from the rotating machines to the ship structure.

Different designs offer high thrust load, adjustable height, locking feature, high shock load, low profile, high frequency acoustics, low natural frequency, captive design, built in snubbers, harsh environment...

Solutions for complete propulsion systems include engine, alternator and skid mounts as well as couplings, silencers, expansion bellows and sound absorbing materials.



Marine engine mount



Paulstra float



Marine mount VIBHD56



High thrust marine mount

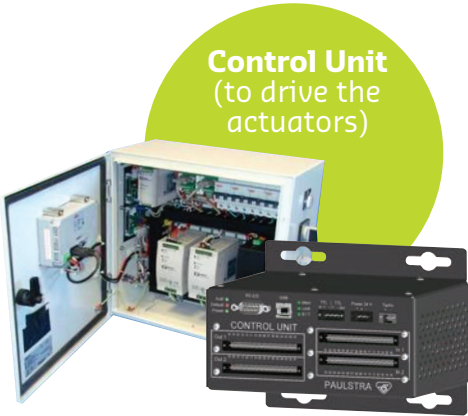
# ACTIVE TECHNOLOGY

Our active vibration isolation system provides a better isolation performance than the passive system and can reduce the dominating engine orders in the 3 directions by up to 30 dB.

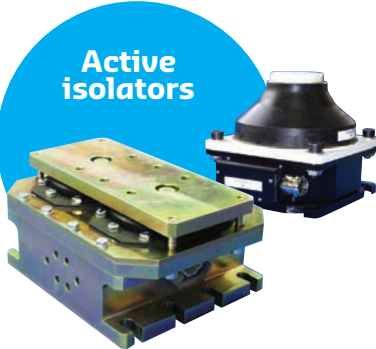
The active system performs better than a passive double stage suspension with reduced weight and space.

Most noise and vibration signals on a ship are tonal. Our control technology is specially designed to cope with such disturbances.

Improvement in suspension isolation : 12 to 30 dB for multiple tones.  
Reduction in structure borne noise : 12 to 30 dB for multiple tones.  
Typically, a 7Hz natural frequency active mount outperforms a 5 Hz natural frequency passive mount by 12 to 24 dB at 30Hz and above.



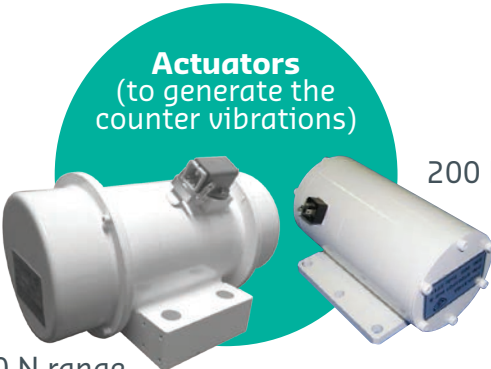
Control Unit  
(to drive the actuators)



Active isolators



Sensors  
(to monitor the residual vibrations)



Actuators  
(to generate the counter vibrations)

600 / 1 000 N range

200 N range

# SOUND PROOFING AND FIRE PROTECTION

Yacht and Super-Yachts suffer from noise and vibration generated by their powerful drive-trains. The current demand for high speed powerful low weight engines exacerbates the noise problems on this particular class of ships where quietness and passenger comfort is a must.

The primary sources of the hull vibration excitation are the seaway motion, the engine vibrations and the propeller induced vibrations.

Floating floors, soft mass blankets, skin damping and composite panels in combination with noise reduction techniques at the source offer a wide range of solutions, fully compliant with fire regulations, to improve the overall comfort and safety at sea.

We can simulate the on-board acoustic performance, offer optimized systems and work with the shipyards engineering offices to address the overall ship noise requirement.



Multilayered composite panel



Sound proofing blanket



Acoustic insulation material