Vysus Group

Fact sheet

Marine - noise and vibration

Eliminating noise and vibration problems requires careful engineering and proper attention. Since 1980, Vysus Group's Engineering Dynamics experts have served owners, yards and designers; today we have clients in more than 30 countries. We have developed state-of-the-art computational tools, test methods and measurement techniques taking noise and vibration control engineering to new heights.

Areas of expertise

- Drafting of specifications
- Noise analysis
- Room acoustics
- Environmental noise analysis
- Vibration analysis
- Underwater noise analysis
- Propeller and machinery noise and vibration control
- Inspections and assistance in negotiations
- Sound insulation and impact noise
- Sea trial assistance, measurement surveys, investigative measurements and troubleshooting

Drafting of specifications

Detailed specifications may prevent many problems during the later stages of a shipbuilding project. We can assist in the preparation of specifications and advise the industry on required precautions in order to comply with contract specifications.

Noise analysis

Using our SHIPNOISE software, noise levels are predicted in all relevant spaces. Based on this prediction, it is possible to select the most appropriate measures for the comfort and privacy of the passengers and/or the crew members:

- Sound insulation
- Viscoelastic damping layers
- Floating floors
- Silencers
- Resilient mountings

Room acoustics

The acoustics of rooms can be modelled with dedicated software. As a first criterion, a suitable reverberation time should be aimed for. This may vary depending on the volume and purpose of the room. Recommendations of measures on the room acoustics will be given depending on the calculation results. Other criteria may be used depending on the rooms purpose.

Environmental noise analysis

Harbour areas can be attractive residential areas and noise regulations are depending on local legislation. We help to ensure that the vessels are meeting requirements by conducting environmental outdoor noise predictions and propose additional noise reducing measures if needed. Calculations are taking exterior sources of the vessel as well as the geographic features of the harbour area into account.

Vibration analysis

For vibration analyses, we apply the finite element method. The purpose of this is to avoid resonances and associated vibration problems. Local structures, substructures and global hulls can be analysed. Vibration reducing stiffening may be simulated in order to verify the improvement and to identify the minimum necessary measures.

Underwater noise

Through a rare combination of short notice site investigation capabilities and advanced modelling and analysis skill, we can help to control the noise radiation from a vessel, thus reducing environmental impact and ensuring contractual compliance.

Propellers

Excessive propeller induced vibration is a frequent cause for reliability and comfort problems, and may put limitations on the speed. We have extensive experience in propeller analysis at the design stage. Through specialist troubleshooting, we have successfully cured a very wide variety of propeller induced noise and vibration problems.

Inspections

During building process we conduct on-site inspections to ensure correct installation of components relevant to noise and vibration items. During this phase we can assist in negotiations between the yard and the owner.

Measurements and troubleshooting

Measurements are necessary to verify noise and vibration levels during sea trials, but also to solve problems. Troubleshooting requires advanced equipment and experienced measurement engineers.

Comfort problems, structure, machinery and equipment

We investigate comfort problems, cracks, damages and reported high noise or vibration levels, e.g.:

- Noise from activities on board
- Noise in crew and passenger areas
- Hull vibration
- Machinery vibration
- Ventilation noise

We base our assessment of the measurement results on more than four decades of experience, supported by calculations of structure, shafting etc.

We have worked for a wide range of ship owners and yards within the field of cruise vessels, mega yachts, ro-ro vessels and merchant vessels. We also support suppliers within the marine industry.

Why Vysus Group

- World-leading discipline expertise and personnel
- Global presence and fast response time
- Resources and personnel to manage your asset through design, commissioning, and operation
- Commercial independence from vendors and contractors
- State-of-the-art numerical and analytical tools
- Purpose built methods
- Worldwide technical network

Vysus Group

Get in touch

Industriparken 44B, 2750 Ballerup, Copenhagen, Denmark
+45 3531 1000 | engineering.dynamics@vysusgroup.com | www.vysusgroup.com