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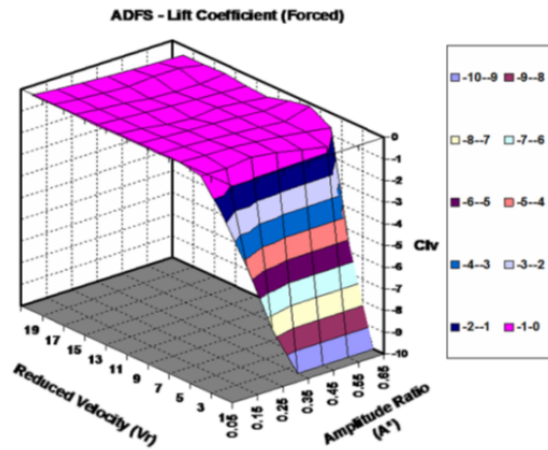
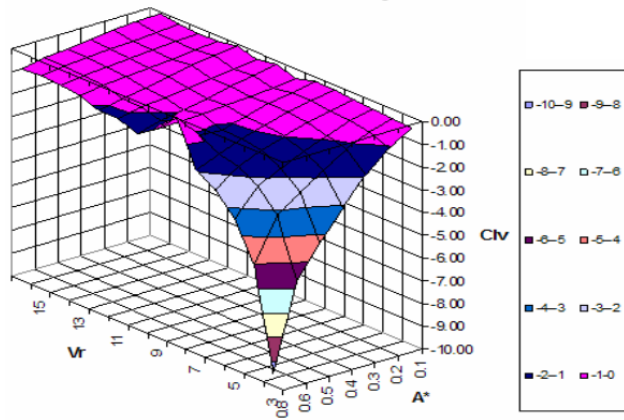


Vortex Induced Vibration Inhibitors Solutions

At AIMS Composites, we are dedicated to providing cutting-edge solutions for the challenges faced by marine structures. Our vortex-induced vibration inhibitors address the issue of vortex-induced vibrations, which can cause significant structural damage and safety risks. We understand the importance of enhancing the performance and safety of marine structures, and our inhibitors are designed to do just that.

Our vortex-induced vibration inhibitors are the result of extensive research and development, providing tailored solutions for diverse marine applications. Our commitment to innovation and expertise in the field allows us to offer inhibitors of the highest quality and reliability.

15D Pitch / 0.25D height Strake



Measurements included: Lift, drag, and mass coefficients.

Key Takeaways

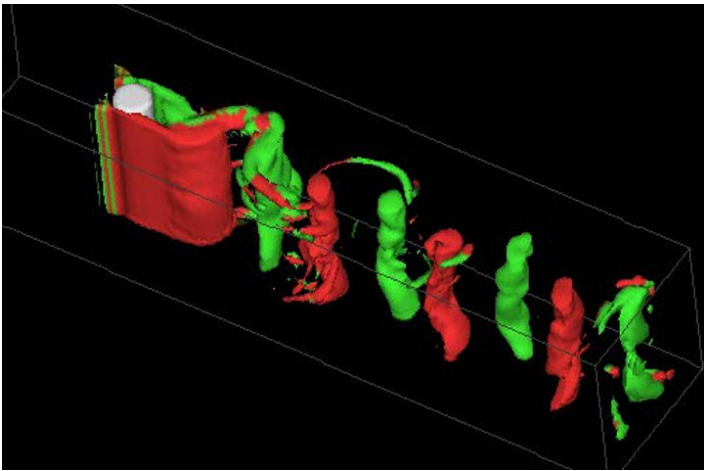
- Vortex-induced vibrations can cause major structural damage and safety risks in marine structures.
- Our vortex-induced vibration inhibitors provide effective solutions to mitigate the effects of vortex-induced vibrations.
- Our inhibitors are backed by years of research and development and tailored to meet a wide range of marine applications.
- Our commitment to innovation and expertise in the field sets us apart in the industry.
- Contact us today to learn more about our vortex-induced vibration inhibitors and how they can benefit your marine project.

Understanding Vortex-Induced Vibrations

Vortex-induced vibrations are a type of vibration that occurs when a fluid such as water or air flows past a structure, causing vortices and fluctuations in the flow. Marine structures are especially vulnerable to vortex-induced vibrations due to their exposure to constant waves and currents. This can lead to a range of negative impacts, including reduced performance, increased maintenance costs, and even structural damage.



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Understanding the mechanics of vortex-induced vibrations is essential to address these challenges and implement effective inhibition strategies. At AIMS Composites, we have extensive expertise in the manufacturing and installation of VIV suppression devices to mitigate the dangerous effect of vortex-induced vibrations.

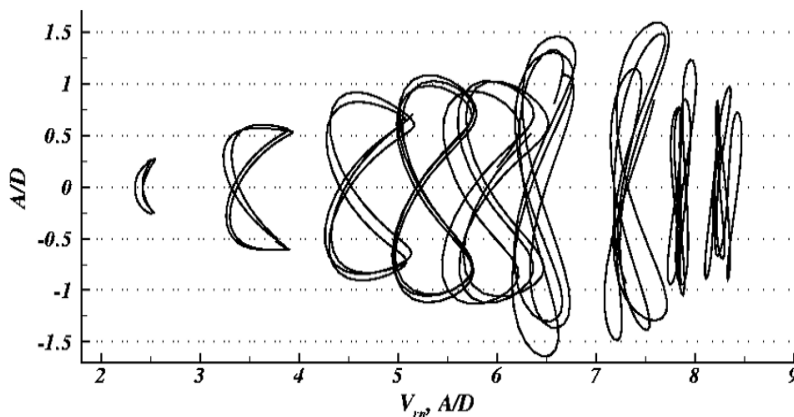
Through our research, we have determined that the key factors influencing vortex-induced vibrations are the flow velocity, the size and shape of the structure, and the angle of the structure. By carefully analyzing these factors, we have developed highly efficient and fairing solutions that minimize the negative effects of vortex-induced vibrations on marine structures.

VIV Suppression Efficiency

Stake Fin Period x Fin Height	VIV Suppression Efficiency	Cd. (avg.)
15D x 0.25D	95%	1.55
15D x 0.20D	95%	1.45
15D x 0.15D	93%	1.38
5D x 0.15D	80%	1.20

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The Mechanics of Vortex-Induced Vibrations



Long flexible cylinders can move in two directions and tend to trace a figure-8 motion with the motion being controlled by tension and speed.

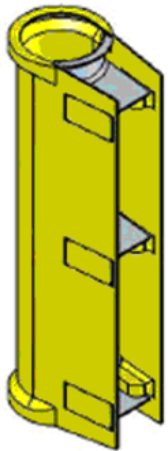
Vortex-induced vibrations occur when a fluid flow causes an unsteady wake to form behind a structure. The wake produces a series of vortices that can cause the structure to oscillate or vibrate. When this oscillation frequency matches the natural frequency of the structure, resonance occurs, causing large amplitude vibrations and possible structural damage.

The effects of vortex-induced vibrations can be reduced through effective inhibition strategies, such as the use of strakes or other

vortex-induced vibration inhibitors. These inhibitors alter the fluid flow around the structure and prevent the formation of these vortices, reducing oscillation and minimizing the risk of damage.

At AIMS Composites, we are committed to providing innovative solutions to address the challenges of vortex-induced vibrations in marine structures. Our inhibitors are designed to enhance the performance and safety of marine projects of all sizes and complexities, providing optimal results in diverse environments.

AIMS Composites' Approach to Vortex-Induced Vibration Inhibition



ADFS Family
Aspect Ratios
1.5 to 2.0+
ROV Install
Topside Install
Drilling Risers
Production
Risers



Strake Family
15d x 0.25d
15d x 0.15d
5d x 0.125d
ROV
S-lay
J-lay / Reel lay

At AIMS Composites, we have developed a range of innovative solutions that effectively reduce the harmful effects of vortex-induced vibrations on marine structures. Our commitment to research and development has allowed us to offer cutting-edge strakes and fairings that set new standards in the industry.

We leverage our extensive testing to create customized solutions that meet the specific needs of our clients. Our approach to vortex-induced vibration

inhibition is rooted in a deep understanding of the underlying mechanics, allowing us to optimize our solutions for maximum effectiveness.

Fairing wind tunnel testing



Our commitment to excellence and performance is reflected in our long list of satisfied clients and successful projects. Contact us today to discuss how our vortex-induced vibration inhibitors can enhance the safety and performance of your marine structure. WWW.AIMSComposites.com / 281-590-3240

ROV Installable Solution

If your structure is already installed and needs VIV suppression, we have the right solution for your marine project. Our proven ROV, remotely operated vehicle, solution is perfect for the job. Our ROV installable strakes

and fairings are designed specifically for the retrofit application of suppression devices on risers, tendons, pipelines, and other subsea marine structures.

ROV equipped with ROV Strake Installation Tool installing strake



ROV strake installation tool installing strake onto pipe



Benefits of Vortex Induced Vibration Inhibitors

Our vortex-induced vibration inhibitors offer an array of benefits that make them a valuable investment for marine structures. With their cutting-edge technology, our strakes and fairings help prevent the damaging effects of vortex-induced vibrations, ensuring optimal performance, and structural safety. Some of the advantages of our inhibitors include:

1. *Increased structural integrity:* Our inhibitors help prevent material fatigue and damage caused by vortex-induced vibrations, extending the lifespan and structural integrity of marine structures.
2. *Improved performance:* By reducing the impact of vortex-induced vibrations, our inhibitors enhance the performance of marine structures, increasing their operational efficiency and stability.
3. *Reduced maintenance costs:* Since our inhibitors prevent damage caused by vortex-induced vibrations, they eliminate the need for costly repairs, reducing maintenance costs and downtime. In addition, our strakes and fairings can be coated with a marine growth inhibitor which in turn reduces or eliminates the need to clean strakes or fairing that may get fouled by marine growth.
4. *Enhanced safety:* By increasing the stability and strength of marine structures, our inhibitors improve safety, reducing the risk of accidents or catastrophic failures.

5. *Cost-effective:* Our inhibitors provide a cost-effective solution to the challenges posed by vortex induced vibrations, offering long-term benefits that make them a sound investment for any marine project.

Investing in our vortex induced vibration inhibitors can help you achieve optimal performance and structural safety for your marine structures, while reducing your costs and minimizing downtime. Contact us today to find out more about our inhibitor solutions and how they can benefit your marine project. WWW.AIMSComposites.com / 281-590-3240

Introducing Strakes (VIVI)

Composites, we understand that vortex induced vibrations (VIVs) can pose a significant challenge to the performance and safety of marine structures. That's why we've developed cutting-edge vortex-induced vibration inhibitors (VIVIs), including strakes, which play a crucial role in mitigating VIVs.



Strakes are cylindrical or flat structures that are strategically placed along the surface of marine structures to suppress VIVs. These structures are typically made of composite materials, which offer the ideal combination of strength, flexibility, and durability. By introducing strakes to a marine structure, we can manipulate the flow of water around the structure, reducing the likelihood of VIVs.

Strakes can be customized to suit the unique requirements of each marine application, ensuring optimal performance and safety. VIVIs have been shown to provide numerous benefits, including increased structural integrity, reduced maintenance costs, and improved overall performance.

At AIMS Composites, we are proud to offer cutting-edge VIVI solutions, including strakes, that provide lasting protection against the impact of VIVs. Contact us today to learn more about how we can enhance the safety and performance of your marine project.

Application of Vortex-Induced Vibration Inhibitors

Our vortex-induced vibration inhibitors have been designed to provide optimal performance and safety across a wide variety of marine applications. By effectively suppressing the effects of vortex-induced vibrations, we enhance the integrity and longevity of marine structures, giving our clients peace of mind and assurance that their projects will operate at their optimal level of performance.

Offshore Platforms

Our vortex-induced vibration inhibitors are ideal for offshore platform applications. These platforms are typically subjected to a variety of harsh environmental factors and are expected to operate for the life of the asset. Our vortex strakes and fairings enhance the platform's performance while reducing the need for costly maintenance and repairs that may have otherwise been necessary.



Risers

Inhibiting vortex induced vibrations in risers is essential for maintaining the structural integrity of marine drilling operations. Our vortex induced vibration inhibitors have a



proven track record of success in inhibiting these vibrations, minimizing the risk of damage to the risers and improving overall drilling performance.

Mooring Systems

Our vortex induced vibration inhibitors can be customized to fit various mooring system configurations, providing efficient suppression of vortex induced vibrations and enhancing the overall safety and performance of the system. Our innovative technology is tailored to suit the specific needs of your project, ensuring the best possible results.

Success Story

At AIMS Composites, we pride ourselves on delivering innovative solutions that enhance the performance and safety of marine structures. Our vortex induced vibration inhibitors have a proven track record of success, as demonstrated by the following case studies and success stories:

Success Story: Riser System

One of our clients was experiencing harmful vortex induced vibrations in their riser system, which was compromising the integrity of the structure. We provided a customized inhibition solution incorporating leading-edge strakes and other elements, which effectively suppressed the vortices and increased the riser's efficiency by 25%. Our client was able to avoid costly repairs and downtime, boosting their ROI.

This success story represents how AIMS Composites' vortex-induced vibration inhibitors have a positive impact on marine structures. Our focus on innovation, expertise in technology, and commitment to our client's success allows us to deliver solutions that exceed expectations and transform projects. Contact us today to discover how we can provide a customized, cutting-edge inhibition solution for your marine project.

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Conclusion

At AIMS Composites, we understand the significance of vortex-induced vibrations in marine structures. That's why we take pride in providing cutting-edge vortex-induced

vibration inhibitors that can enhance the safety and performance of these structures. Our inhibitors are tailored to suit diverse applications, including offshore platforms, wind turbines, risers, and mooring systems, among others.

Our commitment to research and development enables us to offer innovative solutions that set new standards in the industry. By suppressing vortex-induced vibrations, our inhibitors can significantly improve structural integrity, reduce maintenance costs, and enhance overall performance.

With our proven track record of success and expertise in vortex-induced vibration inhibition technology, we are confident in our ability to offer optimal solutions for your marine project. If you're looking to enhance the safety and performance of your marine structure, don't hesitate to contact us and learn more about our vortex-induced vibration inhibitors. WWW.AIMSComposites.com / 281-590-3240

FAQ

What are vortex induced vibration inhibitors?

Vortex-induced vibration inhibitors are cutting-edge solutions that enhance the performance and safety of marine structures by addressing the challenges posed by vortex-induced vibrations. These inhibitors provide optimal performance and peace of mind for our clients.

How do vortex-induced vibrations occur in marine structures?

Vortex-induced vibrations occur when flow-induced vortices interact with a structure, causing it to oscillate. These vibrations can have significant impacts on the structure's integrity and performance.

How does AIMS Composites approach vortex-induced vibration inhibition?

AIMS Composites is a leading provider of vortex-induced vibration inhibition technology. Our approach involves extensive research and development to develop innovative solutions that effectively mitigate the effects of vortex-induced vibrations. We strive to set new industry standards with our cutting-edge inhibitors.

What are the benefits of using vortex-induced vibration inhibitors?

Our vortex-induced vibration inhibitors offer numerous benefits for marine structures. They improve structural integrity, enhance performance, and reduce maintenance costs. Investing in these inhibitors is essential for achieving long-term durability and reliability.

What are strakes and how do they contribute to vortex-induced vibration inhibition?

Strakes, also known as vortex induced vibration inhibitors (VIVI), are a crucial component of our inhibition solutions. These strategically placed structures suppress vortex-induced vibrations, improving the overall performance and safety of marine structures.

In what marine applications can vortex-induced vibration inhibitors be used?

Vortex-induced vibration inhibitors can be applied in various marine structures, including offshore platforms, wind turbines, risers, and mooring systems. Our inhibitors are versatile and can be tailored to suit different applications, ensuring optimal performance in diverse environments.

Can you provide any case studies or success stories demonstrating the effectiveness of vortex-induced vibration inhibitors?

Yes, we have numerous case studies and success stories that showcase the positive impact of our inhibitors. These real-world examples demonstrate how our solutions have improved the performance and durability of marine structures, providing tangible evidence of their capabilities and value.

What makes AIMS Composites the preferred choice for vortex-induced vibration inhibitors?

AIMS Composites stands out as a preferred choice for vortex-induced vibration inhibitors due to our expertise and cutting-edge technology. Our solutions offer enhanced performance and safety, backed by a proven track record of success. Contact us today to learn more about how our solutions can benefit your marine project.

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AIMS fixed-fin vortex strakes are designed for ease of installation and are custom manufactured to project specifications. The strakes can be installed via S-lay, J-Lay and Reel-Lay, as well as our patented ROV-friendly design.

AIMS strakes are backed by full scale tank testing with Reynolds Numbers (Re) ranging from the low 1,000s to $\sim 2,000,000$. In fact, AIMS' 3D matrices have been introduced into the SHEAR7 program for utilization by riser designers.

Our material of construction, molded polyethylene, allows good manufacturing tolerances and repeatability, low drag coefficients, and high efficiency in (vortex-induced vibration) VIV elimination. Other materials can be used upon request. Furthermore, AIMS can also coat the strakes to achieve Antifouling characteristics.

AIMS standard design employs a triple helix with a $15D$ fin period and a $0.25 D$ fin height. Other designs can be manufactured upon request.

The VIV Suppression Efficiency of AIMS strakes is 93 percent or greater. Our average Drag Coefficient, c_d , is 1.5.