



An ISO 9001:2015 Certified Company

[www.ruscavi.com](http://www.ruscavi.com)



# Ruscavi

Marine Services Private Limited





## About Us

**Ruscavi**  
Marine Services Private Limited

### Get to know us better



**RUSCAVI MARINE SERVICES PRIVATE LIMITED** which has been in the business of providing Under water services like hull cleaning, polishing of properellers, video graphy of vessels, Oxy-Arc Gas Cutting ,Arc Welding, Salvage Survey, De-sitting, Pipe Laying, Hydro & Thermal Power Stations maintenance jobs, Photography and Dam Site Works and all kinds of under water Services based at Vizag and all our India, to large business organization for convenient price. We execute works to the utmost satisfaction of our Clients. Our equipments and services are in tune with the Indian Government's new mission of "**Make In India**" and skill development programs.

We are team of young and energetic self employed group fully established with modern equipment, techniques, implements and expertise in the field of Underwater diving jobs .Our company has made significant strides in this field, and we are proud to have brought our latest **Cavitation-Based Technology** to the market. Our team of experienced engineers is committed to achieving the best results in underwater cleaning, while strictly adhering to international safety and environmental norms. Our company has also been **approved by Indian Register of Shipping as IRClass Approved Service Supplier.**

## Mission

Our mission is to rule the Underwater Cavitation Cleaning Services Industry by applying our potential and knowledge as best as we can do.



## Vision

Our Vision to provide Best quality services to our clients and enhance the exponential growth of their business and shining like a star together.



Our company, a pioneering leader in **underwater cavitation technology services**. With a commitment to innovation and excellence, we specialize in providing cutting-edge solutions for various industries through advanced cavitation techniques. **Our dedicated team of experts combines extensive knowledge with state-of-the-art equipment to deliver superior results, ensuring efficiency, reliability, and environmental sustainability.** Whether it's cleaning, maintenance, or specialized applications, we tailor our services to meet the unique needs of each client, striving to exceed expectations and set new standards in underwater cavitation technology. Join us in exploring the limitless possibilities beneath the surface with confidence and precision.

- ▶ Underwater cleaning of ship surfaces and hydraulic structures
- ▶ Underwater cleaning of propellers;
- ▶ Underwater polishing of propellers;
- ▶ Underwater painting;
- ▶ Underwater repair of ships and hydraulic engineering structures;
- ▶ Underwater welding;
- ▶ Underwater thickness measurement and defectoscopy;
- ▶ Underwater examination of the vessel's hull condition;
- ▶ Underwater video survey; -R&D on the creation of robotic tools for cleaning surfaces underwater





Vessels that partially reside below the surface of seawater are subjected to various levels of **Overgrowth** or fouling by marine organisms. At the base of the fouling mechanism for vessels and structures residing in sea are biofilms formed on such structures, which constitute the glue between marine organisms and the actual structure. The biofilms form and the fouling organisms attach to all subsurface structures, such as propellers, rudders, inlet and outlet ports, sonar housings, and protective grills. The consequences of a seaweed hull and propellers fouling are the dramatical speed dropping (up to 2 knots) and significant growth of fuel consumption (up to 30%). Hull fouling on the vessels is a major problem that leads to higher fuel consumption and consequently increased air pollution.



Various methods are currently being used to rid vessel hulls of biofouling through cleaning and to monitor the structural integrity of the hull. **The most common methods used for bio fouling removal are dry-docking cleaning**, antifouling paint, and periodic underwater cleaning. In the dry-dock cleaning method, ship owners accept the increased sailing cost and wait to have a complete hull cleaning and repainting in the dock. The method requires the ship to enter the dock and leave the water entirely, and then clean the surface of the ship through high-intensity manpower. **Dry-dock cleaning has the shortcomings of long operation cycles, high labor intensity, and high cleaning costs.**

The initial cleaning work is performed by workers to remove biofouling by hand. Manual scrubbing or wiping is widely used in cleaning. With the development progress, various new cleaning tools have been manufactured to increase the efficiency of cleaning operations and greatly reduce the labor intensity of cleaning operations.

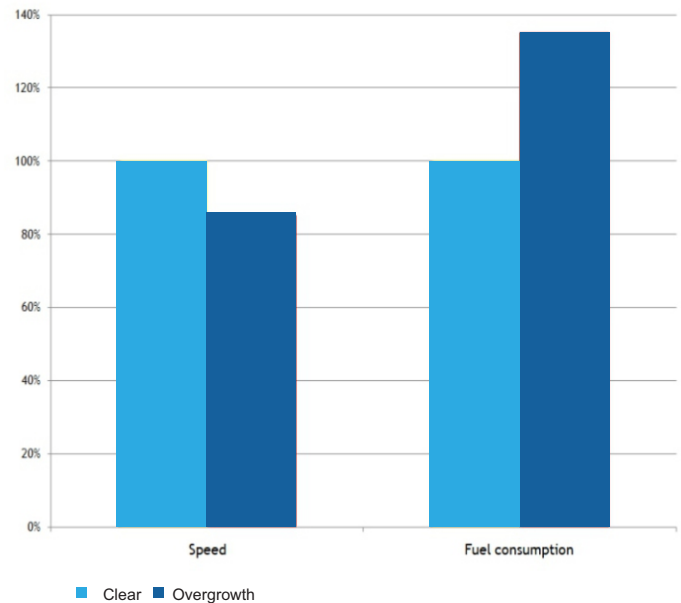




## EFFECT OF OVERGROWTH

According to research, overgrowth can cause an 8-15% loss in speed and an increase in fuel consumption of up to 20-35% in an inter-docking period. In conditions favourable for sea-life, their weight on the body of a ship can reach 200 tons in two months.

Because of biological overgrowth on its body, one large tanker can increase its expenditure on operations by up to a million Euros a year or more. Regular underwater cleaning of the ship allows a ship to regain 95-98% of its original speed, correspondingly decreasing spending on fuel, which as a rule accounts for almost half of operational costs.



## So Can we tackle the Overgrowth?



**Today we can pick out basic and well known methods - cleaning down to the metal using high pressure with a raised vessel in a dry dock and cleaning using a Brush-Kart system.**

This is what a boat in a **Dry dock** looks like. This method takes a lot of time and energy. This method of cleaning demands lots of resources. The productivity of this method is not high, which means it is expensive. Apart from that, in most cases, such a process in many cases leads to the removal of paintwork. The paint used to paint the sides of a ship is toxic. Therefore its spillage into the sea seriously damages the ecology of underwater life, naturally worrying ecologists and environmentalists across the globe. Such a method of cleaning also requires the boat to be put in a dry dock. This takes away precious time and incurs serious expenses, and also limits the location of cleaning to only adequately equipped docks.

For these reasons, it is neither beneficial nor convenient to use this method very often.



The other method of cleaning uses the **Brush-Kart system**. Brush-Kart is a large piece of equipment (weighing 150kg or more) with drivers powering brushes. It mechanically cleans the overgrowth from the surface of the boat with its spinning brushes.

Unfortunately, the effectiveness of this method is not great enough for the good-quality removal of all types of overgrowth. In comparison with sand-jet cleaning systems.

While **Brushkart Technology** offers a method for relatively frequent hull cleaning without dry-docking, it comes with significant drawbacks related to hull integrity, environmental impact, operational costs, and regulatory compliance. Therefore, it's essential to weigh these disadvantages against the benefits when considering underwater cleaning methods for vessels.

Using brushkart technology for underwater hull cleaning of vessels has several disadvantages:

**Potential Damage to Hull** : Brushes cause abrasions or scratches on the hull surface, damages Costly Paint and coatings. **Environmental Impact** : Brushing dislodge and release anti-fouling paint particles into the sea water, which may contain toxic substances harmful to marine life and ecosystems. This contributes to marine pollution.

To overcome these problems, we have come up with the latest technology i.e **Cavitation Technology**, which represents a significant improvement in underwater hull cleaning methods, offering **enhanced efficiency, reduced environmental impact, and better overall performance compared to brushkart technology**. As the maritime industry continues to prioritize sustainability and operational efficiency, cavitation technology is increasingly favored for its comprehensive benefits in vessel maintenance.





## What is Cavitation ?

In the broad sense of the word, cavitation is the mix of streams of water with water vapour evaporated within it. Cavitation's strength is that it is a high-pressure method, completely distinct from power-driven action. At the same time, its effect works exclusively on the organic matter, covering the surface.

When used on a surface being cleaned, dispersed air bubbles, turned into steam, strike the surface and burst, creating an uninterrupted series of micro-explosions on the surface. With the help of energy released during this process, it has the effect of non-destructive cleaning.

## Why Cavitation ?

Firstly, thanks to the use of its specially developed modern tooling, it achieves a very high level of cavitation cleaning. Secondly, cavitation cleaning does not damage surface paintwork at all. Thirdly, given the fact that cleaning using the cavitation method does not ruin paintwork surfaces and it does not use any poisonous substances, this method is absolutely safe for the environment and the operator. Fourthly, thanks to the distinctive features of the technology, it is possible to do this cleaning underwater. And thanks to the use of an auxiliary vessel, cleaning can take place in any suitable body of water.



**1. Efficiency :** Cavitation technology is highly efficient in removing marine growth, biofouling, and other debris from the hull of ships. The microscopic bubbles created during the process implode near the hull surface, dislodging and cleaning fouling effectively.

**2. Reduced Damage :** Traditional methods such as scraping or brush cart can cause damage to the hull's protective coatings and underlying metal. Cavitation technology, however, is non-invasive and gentle on the hull, minimizing the risk of surface abrasion or corrosion.

**3. Preservation of Hull Coatings:** Unlike dry docking, which may involve abrasive methods that can damage hull coatings, cavitation technology-based cleaning is gentle on the hull surface, preserving protective coatings and reducing the need for costly repairs or replacements.

**4. Environmental Friendliness :** Unlike chemical treatments or abrasive cleaning methods, cavitation technology-based cleaning does not introduce harmful chemicals or particles into the marine environment. It's a more environment friendly option, aligning with sustainable maritime practices.

**5. Time-Saving :** Cavitation technology allows for quicker cleaning processes compared to traditional methods. This reduces the downtime required for maintenance, enabling naval vessels to return to operational duties more rapidly.

**6. Cost-Effectiveness :** While cavitation technology may require an initial investment in equipment and training, it often proves to be more cost-effective in the long run due to reduced labor costs, decreased maintenance downtime, and lower requirements for costly antifouling coatings.

**7. Safety :** Manual hull cleaning methods can pose safety risks to personnel working underwater. Cavitation technology reduces the need for divers to perform cleaning tasks, thus minimizing the potential for accidents and injuries.

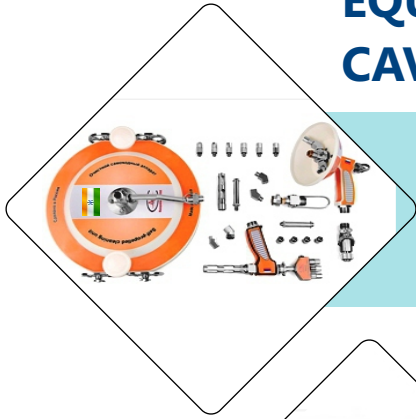
**8. Consistency :** The automated nature of cavitation technology ensures consistent cleaning results across the entire hull surface. This helps maintain the hydrodynamic efficiency of the vessel and ensures uniform performance over time.

**9. Accessibility :** Cavitation technology can reach areas of the hull that may be difficult or impossible to access using traditional cleaning methods, such as tight spaces or complex geometries.





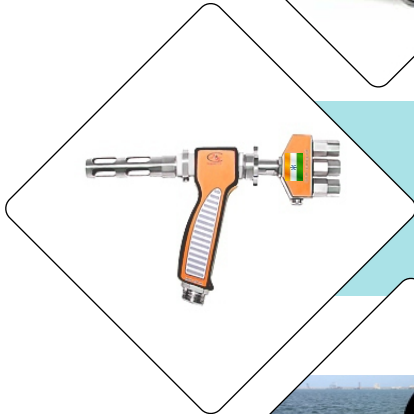
## EQUIPMENTS FOR CAVITATION CLEANING



Effectiveness is achieved thanks to our proprietary tools, developed especially for such cleaning. There are jets for fine and broad-brush cleaning, a cleaning rotary head and also a basis tool — a self-propelled operational device.



In contrast to the cavitation jet, which is unmatched for cleaning complicated structures, the main tool for cleaning large areas — for example, the hull of a ship — is the self-propelled cleaning device (Self-propelled Cleaning Device, SCD). It has a wide working area and moves at high speed on cleaning surfaces; it allows you to clean even large areas to a high quality in a very short time.



This is the cavitation jet. Its great advantage is its ease of use. With its help it is possible to clean those areas, which other cleaning methods find hard to reach, without a problem. For example, sea grilles or complex details of a ship's propeller and steering mechanisms.



The pump we use looks just like this. In the photograph, it is housed on an auxiliary vessel, which means the technology is highly manoeuvrable. This pump is made in India.



Apart from this, in a standard set of our equipment there is a detachable sanding machine, which you can use for many different underwater jobs — for example, buffing the propellers of a ship so they can become as hydro-dynamic as possible.



Also, the technology of the cavitation method brings the following evident advantage for the end user — it is very convenient and mobile. Time and place are not tied to the dock.

Cavitation equipment works at lower operating pressure than traditional cleaning methods. In addition, the structure of the cavitation jet itself is very soft so it is much safer for personnel.

Even direct contact of the cavitation jet with unprotected parts of an operator's body will not cause trauma or injury.

Whilst using the jet, no chemicals or reagents are used, all that is needed is outside water. Thanks to this, and also thanks the protection of the paintwork, this is the most ecological and safe of all existing methods to tackle overgrowth.

The unique technique of cavitation cleaning allows it to be used directly underwater. As a result, there is no need to spend time and money on putting the vessel in a dry dock.

Also, this allows the work to take place in almost any body of water. All of the work is completed by divers with a special auxiliary vessel, which houses the pumping unit and all other necessary equipment.

We can note the following main economic advantages to the cavitation method of cleaning:

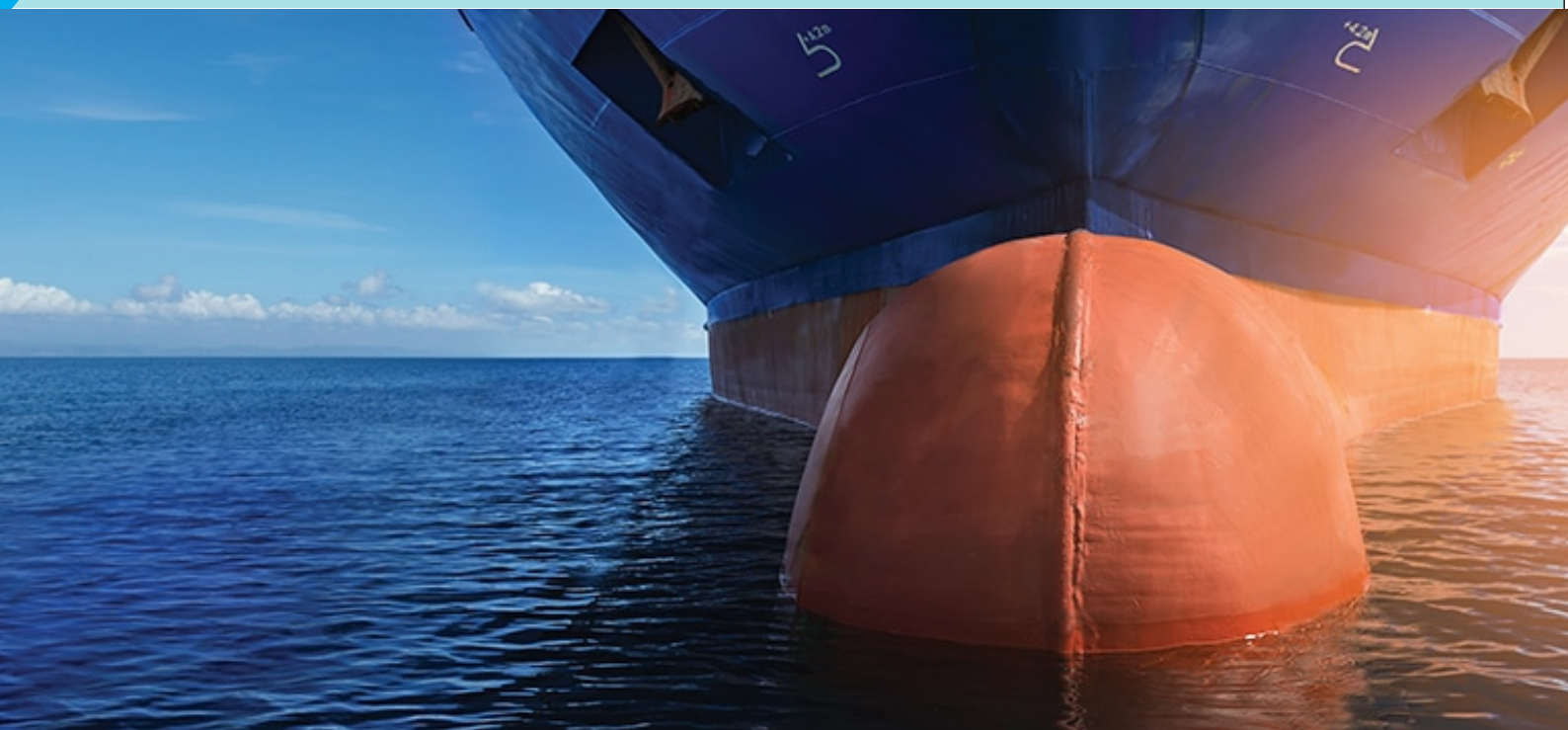
### It is Economical In

**Reducing the Vessels Fuel Consumption**

**Removing the need to use a Dry Dock**

**Protecting the Vessel's Paintwork**

**Reducing the work time**







# Certificate

This is to Certify that  
**M/S. RUS CAVI MARINE SERVICES  
PRIVATE LIMITED**  
Office No. 202, E-21, Mahesh Bawan,  
Laxmi Nagar, Delhi - 110092, India

has been found in Compliance with requirements of  
**Quality Management System**  
**ISO 9001:2015**  
for the following scope:

**Underwater Cleaning of Ship Surfaces and Hydraulic Structures, Underwater Cleaning of Propellers, Underwater Polishing of Propellers, Underwater Painting, Underwater Repair of Ships and Hydraulic Engineering Structures, Underwater Welding, Underwater Thickness Measurement and Defectoscopy, Underwater Examination of the Vessel's Hull Condition, Underwater Video Survey, R&D on the Creation of Robotic Tools for Cleaning Surfaces Underwater**

Certificate No. : QMS/028877/0722  
Original Certificate Date: 13-July-2022  
Issue Date : 13-July-2022  
Expiry Date : 12-July-2025

Authorized Signature  
**Quality Control Certification**  
UK Office: 1929, Chynoweth House,  
Trevissome Park, Truro-TR46LN, Cornwall, UK  
India Office: 2nd Floor, Arjun Market,  
Narela Mandi, Delhi - 110 040, India


To check this certificate status visit:  
"http://uasl.uk.com/certifiedorganization.html"








\*Quality Control Certification (QCC) accredited by "UASL, England, UK". This certificate remains the property of "QCC" to whom it must be returned on request.



भारत सरकार  
Government of India  
सूक्ष्म, लघु एवं मध्यम उद्यम मंत्रालय  
Ministry of Micro, Small and Medium Enterprises



## UDYAM REGISTRATION CERTIFICATE

**UDYAM REGISTRATION NUMBER** UDYAM-DL-02-0031004

**NAME OF ENTERPRISE** M/S RUS CAVI MARINE SERVICES PRIVATE LIMITED

**TYPE OF ENTERPRISE \***

S.No.	Data Year	Classification Year	Enterprise Type	Classification Date
1	2020-21	2022-23	Micro	25/06/2022

**MAJOR ACTIVITY** SERVICES

**SOCIAL CATEGORY OF ENTREPRENEUR** GENERAL

**NAME OF UNIT(S)**

S.No.	Name of Unit(s)
1	Office No 202 E-21 Mahesh Bawan Laxmi Nagar Delhi East Delhi DL 110092 IN
2	GF-1Sri Santha Complex,SRINAGAR, Dwaraka Nagar, Vishakhapatnam-530016, Andhra Pradesh

**OFFICAL ADDRESS OF ENTERPRISE**


Flat/Door/Block No.	Office No	Name of Premises/ Building	E-21 Mahesh Bawan
Village/Town	Laxmi Nagar	Block	E Block
Road/Street/Lane	Jawahar Park	City	Delhi
State	DELHI	District	EAST , Pin 110092
Mobile	9811372045	Email:	nazirra@gmail.com

**DATE OF UDYAM REGISTRATION** 25/06/2022

\* In case of graduation (upward/reverse) of status of an enterprise, the benefit of the Government Schemes will be availed as per the provisions of Notification No. S.O. 2119(E) dated 26.06.2020 issued by the M/o MSME.  
Disclaimer: This is computer generated statement, no signature required. Printed from <https://udyamregistration.gov.in> & Date of printing- 28/12/2022

**For any assistance, you may contact:**  
1. District Industries Centre: DELHI ( DELHI )  
2. MSME-DFO: DELHI ( DELHI )

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Certificate No.: VKM22A013



## Indian Register of Shipping

CERTIFICATE OF APPROVAL FOR SERVICE SUPPLIERS

This is to certify that, based upon satisfactory audit and witnessing the service carried out by the firm in accordance with IRS procedures

**Ruscavi Marine Services Pvt. Ltd.**  
GF-1, Sri Santa Complex, Dwarakanagar, Srinagar,  
VISAKHAPATNAM 530003  
INDIA

*has been approved for*  
*- carrying out In-water Survey of Ships by diver.*

Completion date of verification on which this certificate is based **11/01/2023**  
This certificate is valid upto **10/01/2026**

- The approval is subject to the terms and conditions as specified in Annexure I to this certificate.  
- List of Supervisors / Divers as specified in Annexure II to this certificate.

Issued at: **MUMBAI** on **18/01/2023**



Official Seal



T. Ghosh


Head of Department  
Ships and Technical Services  
Indian Register of Shipping


See overleaf for conditions of issue of this certificate



# Ruscavi

## Marine Services Private Limited

 GF-1, Sri Santa Complex, Srinagar,  
Dwarakanagar, Visakhapatnam-530016 (AP)

 +91 98113 72045  
+91 92466 22633

 [www.ruscavi.com](http://www.ruscavi.com)  
 [info@ruscavi.com](mailto:info@ruscavi.com)