

CHASING



CHASING Underwater ROV Solutions for
Hull Inspection



About CHASING Innovation

Shenzhen CHASING Innovation Technology Co., Ltd. is a national high-tech enterprise focusing on R&D, production and global sales of consumer grade underwater drone, light industrial grade professional underwater ROV and portable water intelligent unmanned equipment. The company has 3 self-built factories, among which Ganzhou base is the largest production and manufacturing base of portable underwater ROV in the world.

Since its establishment in 2016, the company has produced and manufactured 7 generations of products and completed 4 rounds of financing. It is a leading enterprise in underwater science and technology industry, awarded as "Top 50 Enterprises with the Most Investment Value in Shenzhen in 2020" and won over 100 awards at all levels. Characterized by low cost, high performance, easy to operate and prominent portability, its series products have been widely used in underwater observation and photography, fisheries aquaculture, underwater emergency rescue, hull inspection, scientific exploration, environmental inspection and water conservancy and hydropower, and been sold in more than 80 countries and regions around the world.

The company is headquartered in Shenzhen and has offices or subsidiaries in Beijing, Chengdu, Kunming, Ningbo, Qingdao, Hainan, Ganzhou and Seattle. With strong strength, its R&D team has reached the international first-class level in many technical fields such as underwater communication, overall design of underwater vehicle, electric power and propulsion systems and navigation control. Our vision is to "Make underwater exploration easier", and our mission is to "Become the best underwater solution expert and provide customers with the most intelligent underwater products and services". We have obtained over 100 inventions, PCT international patents, utility models and design patents, and we will keep building our own technical barriers.

Hull Inspection

Hull inspection is to verify that the ship technically meets the requirements of relevant laws, regulations and specifications so as to guarantee the safety of ship operation and prevent against possible damage to the marine ecosystem. In order to maintain the awarded classification society certification, the ship shall be subject to the following series of inspections as required: annual inspection, intermediate inspection, in-dock inspection, special inspection, etc. In general, the most difficult, time-consuming and expensive inspections are conducted on the underwater parts of the ship, for example, check whether the propeller blades are damaged, the marine organisms attached to the hull, the hull corrosion, and damage to the anti-fouling coating.

Detection Operation Challenges in Hull Inspection Industry



Limited diving depth for artificial inspection and insufficient coverage area



Limited diving time for artificial inspection (30 minutes a time)

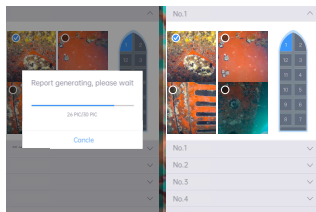


Long waiting time, high cost and low efficiency of a commercial diving team



Failure to respond to emergency by artificial inspection

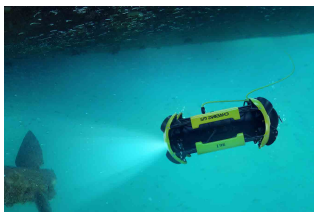
CHASING Hull Inspection Industry Application



Precise inspection Hull inspection report output by one click



Up to 100-200m of depth
200-400m of working radius large coverage area



24/7 operation
continuous inspection without power off

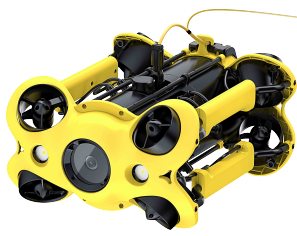


Rapid deployment by a single person
in three minutes easy to operate
inspection at all times efficient and reliable

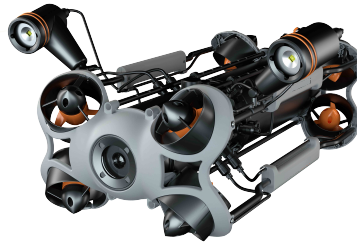


Easy to carry and safe to store

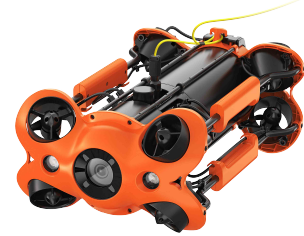
CHASING M series solutions



CHASING M2



CHASING M2 PRO MAX



CHASING M2 PRO

ROV Performance Characteristic

8 vectored thrusters, 360° eddy current resistance, maximum navigating speed up to 3 knots (1.5m/s), and compact body	Enter the area with longitudinal and horizontal stands
Replaceable battery, E-Reel vehicle, CHASING AC Power Supply System, CHASING Shore-Based Power Supply System (C-SPSS)	Satisfaction of 24/7 working need
CHASING M2 and CHASING M2 PRO are equipped with 4000 lumens floodlight, while CHASING M2 PRO MAX is equipped with 8000 lumens floodlight	Clear underwater inspection images even in turbid waters
Remote control, real-time image transmission	The staff are allowed to understand the hull situation the first time
Connection to 3 viewing devices simultaneously	Allowing more people to view the real-time underwater inspection images at the same time
100—150m diving depth, 200—300m working radius	Satisfy the needs of inspection in wide area
Mounting by one personnel, easy to operate	Remarkably improve inspection efficiency
ROV supports a variety of accessories	Optionally configured based on actual need

Comparison of ROV Parameters

	CHASING M2	CHASING M2 PRO	CHASING M2 PRO MAX
ROV Size	380×267×165mm	480×267×165mm	608×294×196mm
ROV Weight	5kg	5.7kg	8kg
Max diving depth	100m	150m	200m
Thruster	8	8	8
CMOS	1/2.3	1/2.3	1/2.3
Aperture	F1.8	F1.8	F1.8
Equivalent focal distance	18.18mm	18.18mm	18.18mm
Focal distance	0.3m ~ ∞	0.3m ~ ∞	0.3m ~ ∞
ISO range	100-6400	100-6400	100-6400
Visual field	152°	152°	152°
Max image resolution	12 mega-pixels	12 mega-pixels	12 mega-pixels
Image format	JPEG/DNG	JPEG/DNG	JPEG/DNG
Max video stream	60M	60M	60M
Video format	MP4	MP4	MP4
SD card	64G	128G	128G
Brightness	2 X 2000LM	2 X 2000LM	2 X 4000LM
Color temperature	5000K~5500K	5000K~5500K	5000K~5500K
CRI	85	85	85
Dimming	Adjustable	Adjustable	Adjustable

Accessory Solution for Hull Inspection of Chasing Innovation



CHASING E-Reel

It can electrically reel in 200 m cables within 200 sec by one key. Automatically release and align the cable.

The ROV is equipped with a CHASING E-Reel to reel in and release the tether cable in an orderly manner, preventing the cable from mess-up, and enhancing the efficiency of detection.



CHASING Laser Scaler

Red laser beam with spacing of 10CM, easy to use and precise to measure.

ROV, together with CHASING laser scaler, is able to precisely record the dimension of coating and hull.



CHASING Floodlight 2

With 4000 lumens external light source and 0-360° angle adjustable, it can reduce the impact of underwater floating objects to a great extent and improve the clarity of underwater observation images in turbid waters.

ROV, together with CHASING floodlight 2, is able to provide clear images in turbid waters.



CHASING Distance Lock Sonar

4 directions (front, left, right, bottom) of ROV can be measured with only one sonar to achieve ranging inspection and automatic collision avoidance.

ROV, together with CHASING ranging sonar, is able to avoid automatically to achieve automatic hull inspection.



CHASING Shore-Based Power Supply System (C-SPSS)

CHASING Shore-Based Power Supply System is featured by battery compartment design, easy installation and a maximum output power of 1,500W, ensuring that the ROV can work 24/7 at full power without power outage.

ROV, together with the C-SPSS, is able to enable the demand of 24/7 detection, without time-consuming operation such as battery replacement, saving time.

Accessories

	CHASING M2	CHASING M2 PRO	CHASING M2 PRO MAX
CHASING E-Reel	●	●	Standard
CHASING Laser Scaler	●	●	●
CHASING Floodlight 2	●	●	×
CHASING Shore-Based Power Supply System (C-SPSS)	×	●	●
CHASING Distance Lock Sonar	●	●	●

Note: Support ●

Not support ×

01 A chemical company in Hong Kong uses CHASING M2 to conduct periodical hull inspection on its freight vessels

Most of the company's customers are in Singapore, Brazil, America, Turkey and Egypt. Its vessels are constantly operated all over the world. To ensure the safety and reduce the fuel consumption, the company decides to use CHASING M2 to conduct periodical inspection on its freight vessels.

Solutions

- CHASING M2
- CHASING Floodlight 2
- CHASING 200Wh backup battery



Operation Challenges

Traditional inspection requires long stays in port, so that the efficiency of vessel transport is reduced. A commercial inspection team requires high cost, so that the overall profits of the company is reduced.



Client Values

1. When equipped with a 4K EIS camera and a CHASING Floodlight 2, CHASING M2 is able to provide clear image data for hull inspection even in turbid waters. CHASING M2 is characterized by high inspection efficiency and wide coverage area. To avoid inspection blind area, single inspection is usually completed in 4-6 hours.
2. CHASING M2 is characterized by 3 knots of maximum navigating speed, 100m of depth, 200m of maximum horizontal radius, 8 vectored thrusters, 360° stable moving, and stable shooting inspection in depth lock mode. Rapid deployment by a single person, easy to operate. With compact machine body, it is allowed to easily conduct complete inspection on narrow areas, such as sea chest, air inlets and outlets.



02 A shipowner in Singapore uses CHASING M2 PRO to periodical inspection on his commercial ships

This shipowner used to invite a commercial diving team for hull inspection, which however took much work, long time and high cost to make an appointment. Therefore, he has been looking for a hull inspection solution with better quality and higher cost performance. The moment he gets to know CHASING M2 PRO he decides to buy it and starts the periodical hull inspection work

Solutions

- CHASING M2 PRO
- CHASING Floodlight 2
- CHASING E-Reel
- CHASING Shore-Based Power Supply System (C-SPSS)



Operation Challenges

In terms of 330m large merchant ship, a single commercial inspection is very expensive. And there are great safety risks for a commercial diving team conducting inspections in narrow areas, such as ballast tank and propeller.



Client Values

1. CHASING M2 PRO replaces diver operation, effectively reducing inspection costs. 150m diving depth, 300m working radius, and large operation coverage. Its coverage is 5 times that of artificial operation with the same operation time.
2. With CHASING M2 PRO internal 4K/12 mega-pixel EIS camera and the 4000 lumens LED light, the real-time image of the hull can be clearly photographed for observation and judgment by the staff.
3. CHASING M2 PRO, equipped with CHASING shore-based power supply system, is able to meet the demand of 24/7 inspection and greatly improve the efficiency of inspection.



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