

CHASING

A dark, textured tunnel with a bright light at the end, reflecting on a wet surface.

**Chasing Underwater ROV
Municipal Pipeline Inspection Solutions**



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.

Municipal pipeline inspection

Urban sewerage system is an important infrastructure to ensure urban operation and management, which plays a key role in keeping urban pipeline network unblocked, and conducting daily conservation and maintenance of drainage network. Applying pipeline equipment surveying and mapping, and mastering complete, accurate and real pipeline information are the basis and key of comprehensive urban governance and emergency management. When the pipeline is in the state of half water or full water, and without drainage condition, the traditional video inspection method cannot achieve a good effect.

Operation Difficulties in Municipal Pipeline Inspection Industry



Limited space, small pipe diameter
inspection is unavailable for personnel



Presence of harmful gases



The pipe is usually filled with water or
half water Time-consuming
and labor-consuming for
traditional inspection method



No visible light
Visibility is 0



Wireless signal
Difficult to transmit
over long distances

Industry Application of Chasing Innovation Municipal Pipeline Inspection



Inspect and record the deformation,
corrosion and other damages of pipes

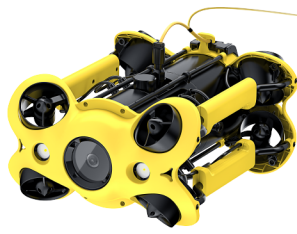


Find out defects and damages in the
pipe and understand the
danger degree of each pipe section

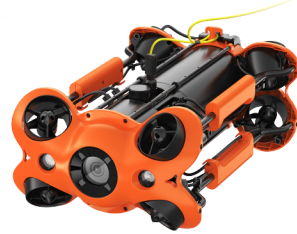


Locate risks in the pipe

CHASING P series solutions



CHASING M2



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)

Satisfy 24/7 pipeline inspection need

Remote control, real-time image transmission

Real-time developing of maintenance plan by inspection personnel

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
ROV Size	380×267×165mm	480×267×165mm
ROV Weight	5kg	5.7kg
Max. diving depth	100m	150m
Speed	1.5m/s	1.5m/s
Thruster	8	8
CMOS	1/2.3	1/2.3
Aperture	F1.8	F1.8
Equivalent focal distance	18.18mm	18.18mm
Focal distance	0.3m ~ ∞	0.3m ~ ∞
ISO range	100-6400	100-6400
Visual field	152°	152°
Max. image resolution	12 mega-pixels	1200万
Image format	JPEG/DNG	JPEG/DNG
Max. video stream	60M	60M
Video format	MP4	MP4
SD card	64G	128G
Brightness	2 X 2000LM	2 X 2000LM
Color temperature	5000K~5500K	5000K~5500K
CRI	85	85
Dimming	Adjustable	可调节

Accessory Solution for Chasing Innovation Municipal Pipeline Inspection



Pipeline Inspection Sonar

With various color plane display and multi-dimensional display, it is easy to analyze and observe, automatically grip the contour and calculate the silt deposit.

Equipped with pipeline inspection sonar, ROV can conduct pipeline network structure investigation on full / half water pipelines with zero visibility, find out defects, assess risks, quantitatively analyze pipeline silt, and generate inspection reports on site with one click.



E-Reel Vehicle

With motor driving automatic reeling in and releasing, it is designed with built-in Wi-Fi, power supply module and meter counting function.

ROV, together with E-Reel vehicle, can reel in and release the tether cable in an orderly manner to prevent the cable from mess-up, be connected to the built-in Wi-Fi of the vehicle to work, realize the long-time operation demand through vehicle power supply module, and judge the working position of ROV through vehicle meter counting function.



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 inspection.



CHASING Control Console

It is provided with a 13.3-inch screen which is clearly visible under strong light and allows even more people to view at the same time.

The ROV is equipped with CHASING High-brightness Screen Control Console, allowing multiple personnel to clearly view the real-time pictures in the pipeline at the same time, so as to determine the optimal maintenance strategy without missing any details in the pipeline.



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.

Equipped with the C-SPSS, the ROV can enable the demand of 24/7 inspection, without time-consuming operation such as battery replacement, saving time and effort in search and rescue.

Accessories

	CHASING M2	CHASING M2 PRO
Pipeline Inspection Sonar	●	●
E-Reel Vehicle	●	●
Chasing E-Reel	●	●
CHASING Control Console	●	●
CHASING Shore-Based Power Supply System (C-SPSS)	×	●

Note: Support ● Not support ×

In line with industry specifications:

Technical Specification for Inspection and Evaluation of Urban Sewer CJJ181-2012

Technical Specification for Inspection & Evaluation of Sewers with CCTV and Sonar DB31/T444-2009

Technical Specification for Inspection and Evaluation of Urban Public Sewer D644/T1025-2012

Function Grade Evaluation Standard for Municipal Sewers Q/BDGJS001-GW05-2012

Function Grade Evaluation Standard for Municipal Sewers Q/BDGJS002-GW05-2012

01 CHASING M2

Pipeline inspection project in Dongcheng District, Wuhan

A company in Dongguan took over a pipeline inspection project in Dongcheng District, Wuhan. The sewage pipeline with a diameter of 400mm and a length of 20km is made of concrete pipes. Considering that the pipeline construction is very early and the drawings are not accurate, the measuring rod is used to find that the pipeline is about 3m below the water surface and the buried depth of the pipeline is 5m.

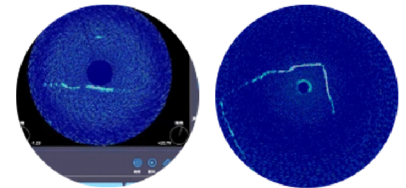
Solutions

- CHASING M2
- Pipeline Sonar
- E-Reel Vehicle



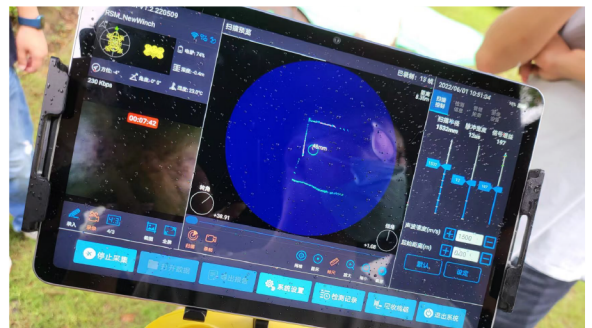
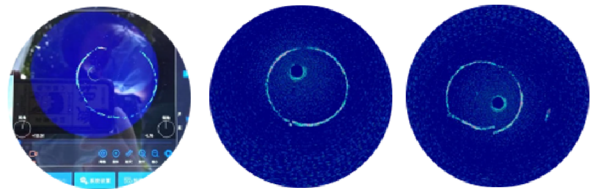
Operation Difficulties

This pipeline is located in urban residential areas, with full water coverage. It is difficult for air bag plugging pumping, CCTV and QV inspection. And the traditional sonar threading process is complicated and the cost is high. Therefore, based on comprehensive consideration, operators decided to use the CHASING M2 with pipeline sonar for inspection.



Customer Value

1. CHASING M2 is characterized by 3 knots of maximum navigating speed, 100m of depth, 200m of maximum horizontal radius, 8 vectored thrusters and 360° stable moving. Mounting by one personnel, easy to operate. With compact body, CHASING M2 can move easily in narrow pipelines.
2. CHASING M2, together with pipeline sonar, can quickly complete the pipeline inspection work and assist the personnel to develop maintenance plans. Compared with the traditional threading sonar inspection, it greatly improves the efficiency of pipeline inspection.



02 CHASING M2

Box culvert deposit inspection of Huangxiao River, Wuhan

The main purpose of this operation is to inspect the dredging effect of the construction unit on the box culvert, collect the contour map of the box culvert at equal intervals through the sonar system, and then evaluate the deposit thickness in the box culvert.

Solutions

- CHASING M2
- Pipeline Sonar
- E-Reel Vehicle



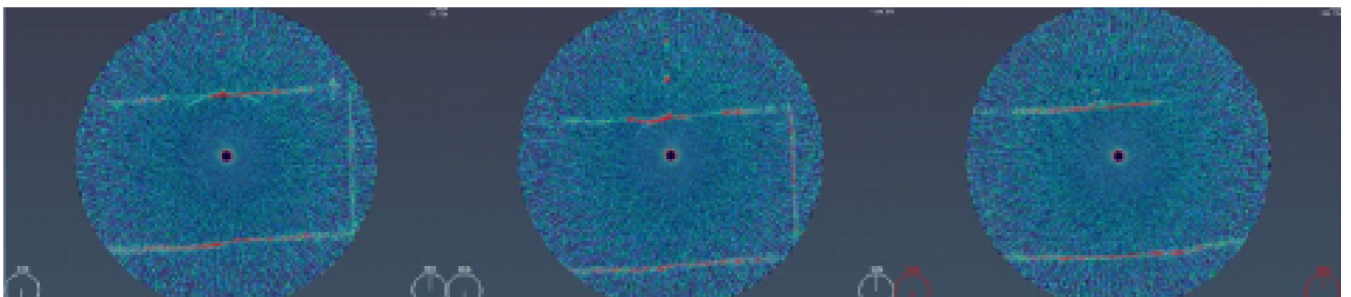
Inspection Difficulties

As the main sewage pipeline in Hankou District, Wuhan, the box culvert of Huangxiao River has high plugging cost and great difficulty. Therefore, the owner requires that data collection be completed without plugging. The water level on site is basically full, which is difficult for all terrain robots to enter, and the flow rate exceeds 0.2m/s.



Customer Value

1. With excellent movement ability and gesture control ability, CHASING M2 make it possible for the sonar probe to collect the contour signals of almost all boundaries of the whole full water box culvert, providing accurate data for subsequent analysis.
2. CHASING M2 has a 4K/12 mega-pixels EIS camera and a 4000 lumen LED light, which can clearly capture the corrosion of the pipeline and help the inspectors find the position of the pipe orifice in the full water well.



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