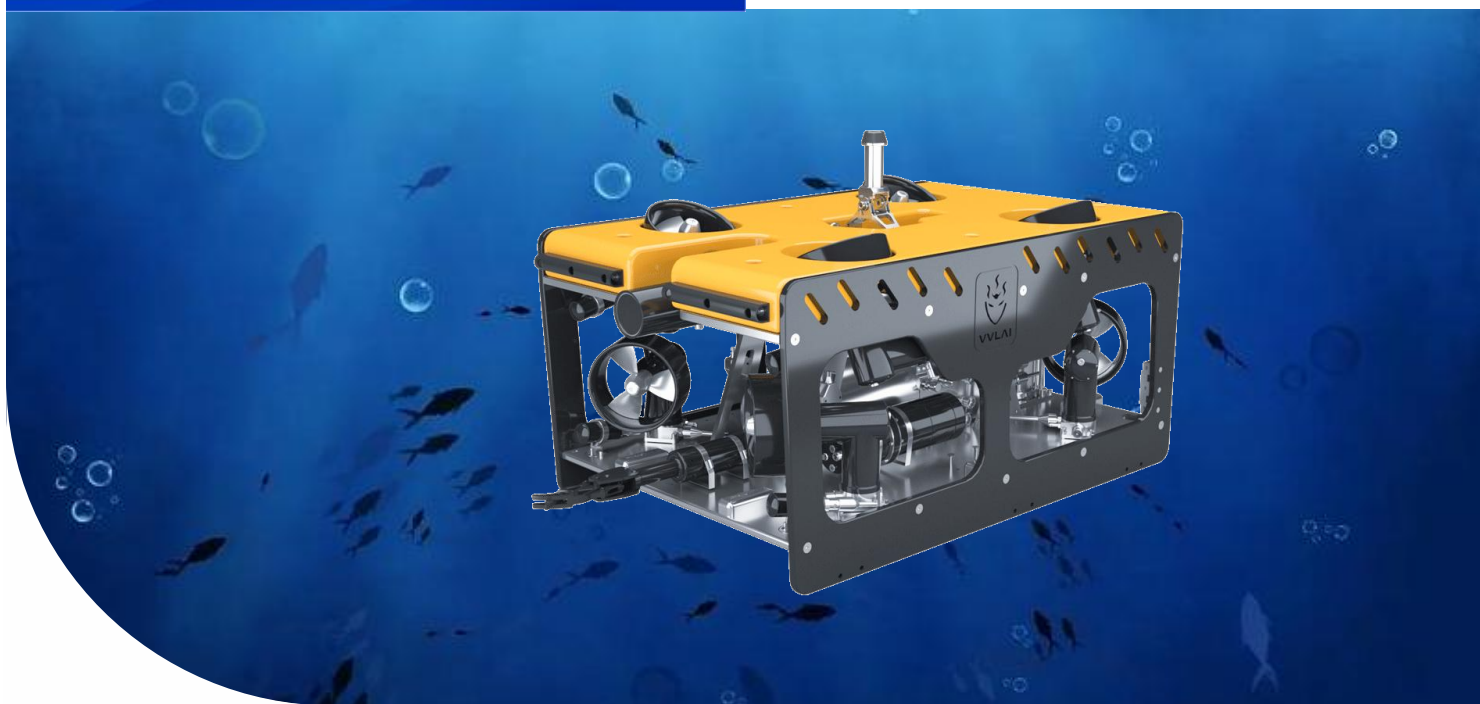


TOP NOTCH DEEP-SEA EQUIPMENT



X12 ROV

Technical Specifications

Technical Specifications

1.Product Overview

The X12 is a compact work-class ROV independently R&D and manufactured by Shandong Future Robot, with its core components achieving 100% domestic substitution. Equipped with technologies such as high-efficiency operation, precise navigation and positioning, lightweight power matching and flexible scenario adaptation, it enables reliable operation under complex working conditions in medium and shallow waters.



Fig. 1:X12 Axonometric Drawing

2. Technical Parameters

2.1 Robot System

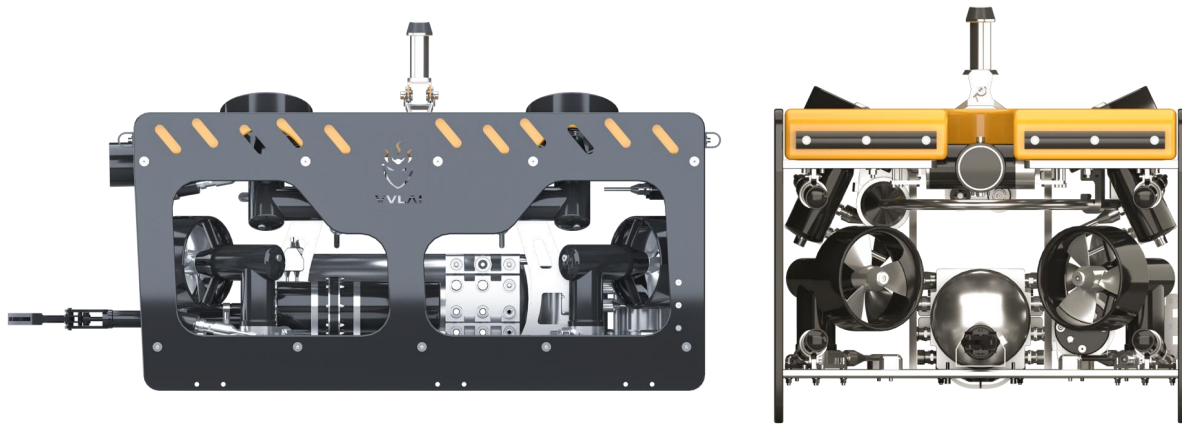


Fig.2:X12 Side View / Front View

Robot System	
Basic Parameters	
Dimensions (L×W×H)	1200mm×700mm×600mm
Weight	120kg
Payload	10kg
Depth rating(Up to)	350msw
Auto function	Automatic depth, heading, and speed keeping
Manipulator	Dual axis manipulator arm (rotation, grasping)
Self decoupling	Automatic laying and decoupling
Robot Performance	
Thruster Performance	8 thrusters (4 horizontal, 4 vertical) with 20kg thrust each, capable of forward/backward movement, lateral translation, ascent/descent, tilting, heading rotation, depth keeping, and direction keeping.

	Design thrust (subject to actual specifications) as follows: Forward thrust: 61 kgf Lateral thrust: 51 kgf Vertical thrust: 71 kgf
Horizontal max.speed	2knots
Vertical max.speed	0.7knots
Lighting, Camera & PTZ	
Lighting	4sets, 50 W
Cameras	1 x Underwater Full HD Video Camera with Wide Angle camera Light sensitivity of 1 lux Fixed focal length Fixed focus H. 264 video format 1 x Full HD video camera with fast zoom lens Light sensitivity 0.02 lux Zoom Manual focusing H. 264 video format
PTZ (Pan-Tilt-Zoom)	Positioning accuracy 1° Rotation angle: vertical $\pm 90^\circ$ adjustment Rotation speed of 15 degrees per second Working torque 10 N/m ROV operation interface can provide parameter feedback
Control unit	
Electrical control unit	Durable anodized aluminum casing Temperature and leakage sensors Quick access for repair and maintenance Interface for connecting devices 8 x propulsion control channel 4 x Light Control Channel 2 channels for connecting camera modules 1 x Communication channel with optoelectronic separation chamber 1 x Channel for connecting altimeter module

	1 x Depth gauge embedded in electrical compartment 1 x reserved channel for USBL module 1 channel for connecting the compass module 1 channel for connecting the PTZ module 1 x Channel connecting the robotic arm module 1 channel for connecting sonar modules 1 x Power channel with photoelectric separation chamber
Optoelectronic separation unit	Durable anodized aluminum casing Temperature and leakage sensors Quick access for repair and maintenance Interface for connecting devices: 1 x Connection channel with winch cable 1 communication channel with the electrical compartment 1 x Power channel with electrical compartment
Expandability	
INS	Digitization, measurement error not exceeding 1° Heading accuracy: 0.5° Pitch and roll accuracy: 0.1°
Altimeter	Type Trittech PA500 Frequency 500 kHz Range of 50 meters Resolution of 1mm RS-232 interface
Depth sensor	Measurement error 0.25%
Sonar	Frequency 700kHz Range of 0.3/75 meters The resolution is 7.5 millimeters
Transport box	Flight Case

2.2 Deck Support Unit



Fig.3: Deck Support Unit

Deck Support Unit	
Control Box	1920×1080 CPU: Intel Core I7-8700T six core twelve thread, with a main frequency of 2.4GHz and a turbo frequency of 4.0GHz Memory: 32GB, DDR4-2666 16GB * 2 dual channel Hard drive: 128G SSD+1T mechanical drive Graphics card: discrete graphics card, professional Nvidia GPU graphics card P1000, 4GB of video memory LCD screen: Three 17.3-inch IPS industrial LCD screens with a resolution of 1920×1080
Software system	Monitoring and data acquisition system Equipment health status and condition Alarm status Data storage records

2.3 Winch & Umbilical Cable



Fig.4:Cable Winch

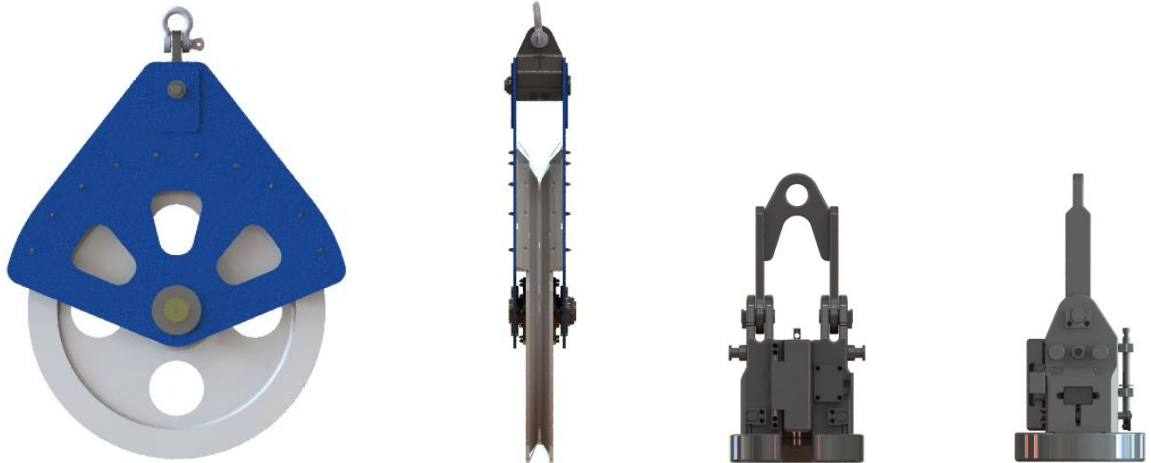


Fig.5:component

Winch & Umbilical Cable**Winch**

Cable	400 meter Kevlar neutral buoyancy cable with a tensile strength of 300kg
Slip ring	Use electric slip rings
Power supply	Voltage is 230V, frequency is 50Hz
Pulley	A set of cable pulleys from winch to ship LARS



Provide World-class
Integrated Solutions for Deep-sea Equipment

山东未来机器人股份有限公司
SHANDONG FUTURE ROBOT CO., LTD

Add: No.52,Chuangye Rd,Hi-tech Zone,Weihai,China
Tel: 0631-5326187 Mob: 13082680120 Fax: 0631-5326187
Email: robot2@vvlai.com www.vvlai.cn www.vvlai.com



WeChat



WeChat Channels