

TOP NOTCH DEEP-SEA EQUIPMENT



7-axis Manipulator-V7

Technical Specifications

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1. Product Overview

1.1 Introduction

The main structure of the V7 seven-axis Manipulator is made of aluminum alloy and undergoes special anodizing treatment. It features light weight, corrosion resistance, wear resistance and strong lifting capacity, and is mainly used for the operation of heavy-duty work-class remotely operated vehicles (ROVs).



Fig. 1: V7 7-axis manipulator

1.2 Technical Advantages of the V7 7-axis Manipulator

- Durable and highly reliable under harsh conditions;
- The main body is made of aluminum alloy, featuring lightweight construction;
- High lifting capacity;
- No exposed pipelines, resistant to scratches, and suitable for complex operating environments;
- Titanium alloy grippers with high clamping force, sturdy and durable;
- Compatible with a variety of grippers for flexible matching;
- Equipped with a deep-water camera and lighting, ensuring clear visibility;
- Installation orientation is customizable.

2. Technical Specifications

2.1 The main body of the manipulator

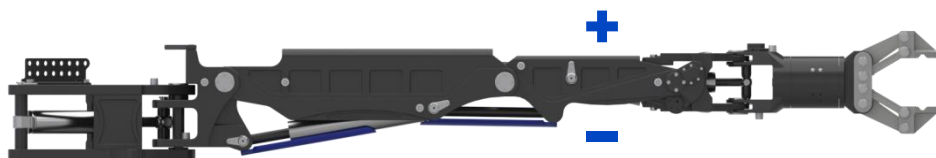


Fig. 2: Horizontal Deployment Position Diagram (Direction: Upward is Positive, Downward is Negative)

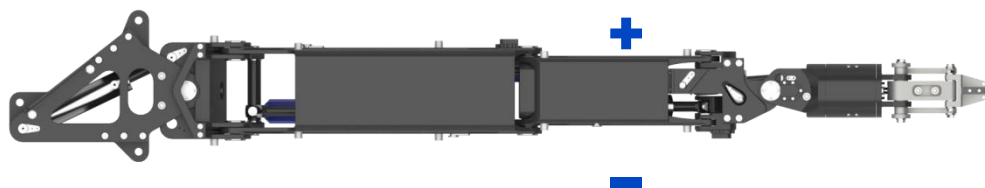


Fig. 3: Top View (Direction: Left Swing is Positive, Right Swing is Negative)

Main Technical Parameters	
Control Mode	Open-loop control/Non-force feedback/ Hydraulic Drive
Number of axes	6 Axes + 1 Opening-Closing Function
Communication Protocol	Ethernet (RS232 or RS485 customizable)
Main Material	Alumnnium alloy boom + Stainless Steel hydraulic cylinder
System Pressure	20MPa
Weight	Weight in air 85kg,in water 70kg
Operation Parameters	
Depth Rating	3000msw (option up to 6000msw)
Maximum Arm Span	1900mm
Lifting Capacity at Full	100kg

Arm Span	
Maximum-Lift, Nominal	240kg
Gripping Force	3900N
Wrist Rotation Torque	170Nm
Wrist Rotation Speed	6-35rpm
Gripper Opening	150mm (Standard Pincer Gripper; 3-Finger and 4-Finger Grippers Available as Options)
Rotation Angle	
Azimuth Joint	75° Swing
Shoulder Joint	111° Pitch
Elbow Joint	131° Pitch
Pitch Joint	120° Pitch
Swing Joint	120° Swing
Wrist Joint	N*360°
Remarks:When the manipulator is horizontally deployed with its maximum arm span, the angle of each joint is 0°;Left-right swing: Along the direction of the manipulator, left swing is positive;Pitch: Upward pitch is positive;The following parameters represent the mechanical limit dimensions. The normal working angle range should be reduced by approximately 5°.	

3. Manipulator Dimensions&Workspace

3.1 Manipulator Dimensions

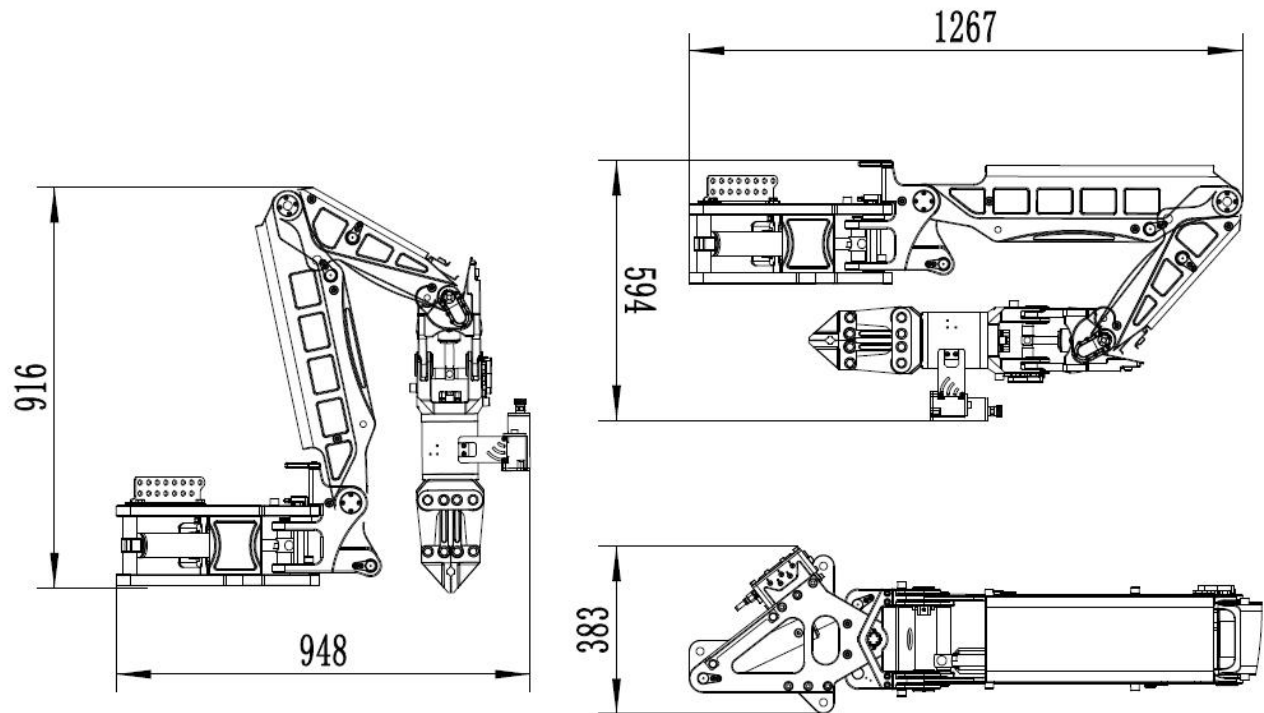


Fig.5: Overall Dimensions (Unit: mm)

3.2 Manipulator Workspace

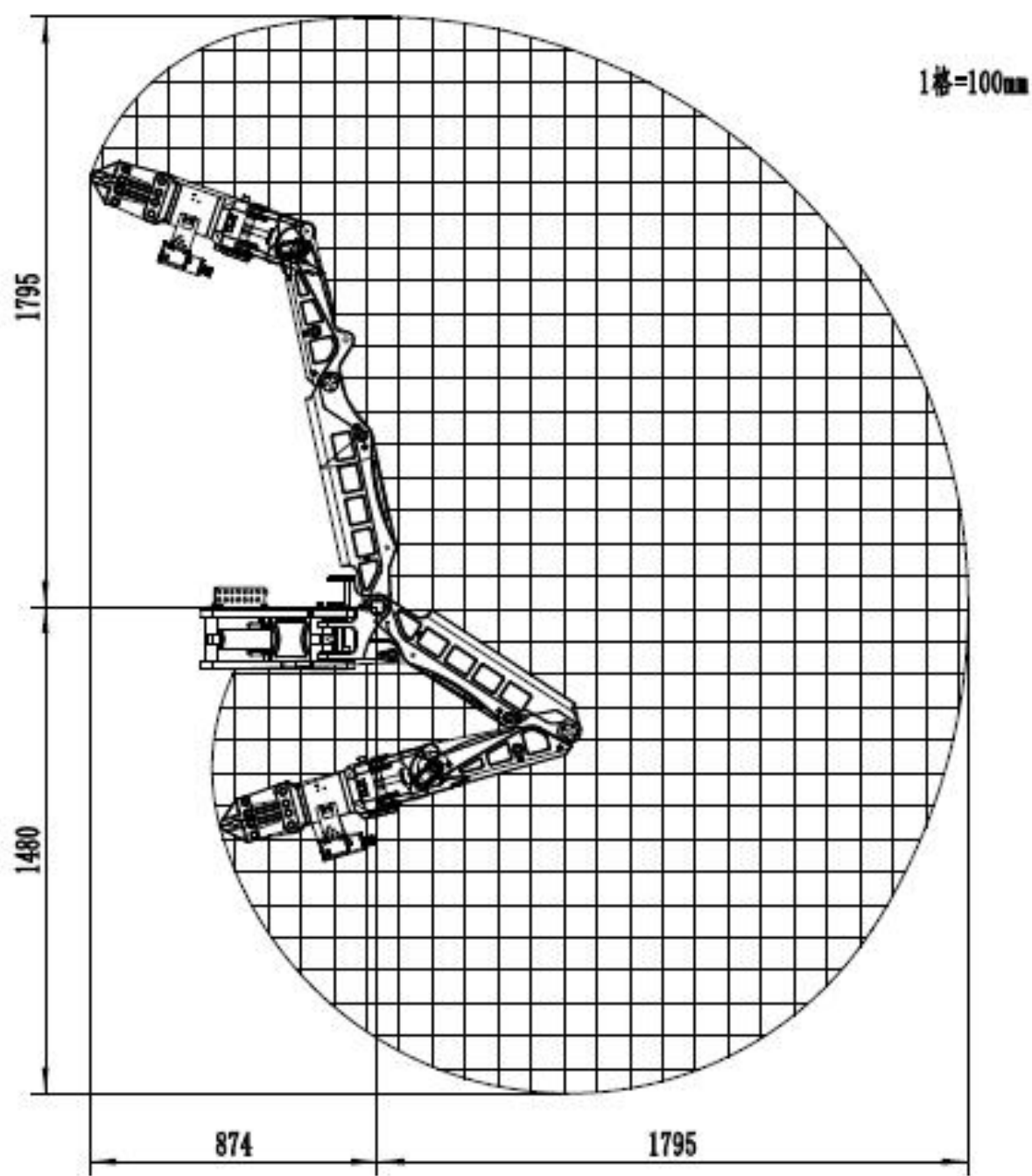


Fig. 6: Side View (Unit: mm)

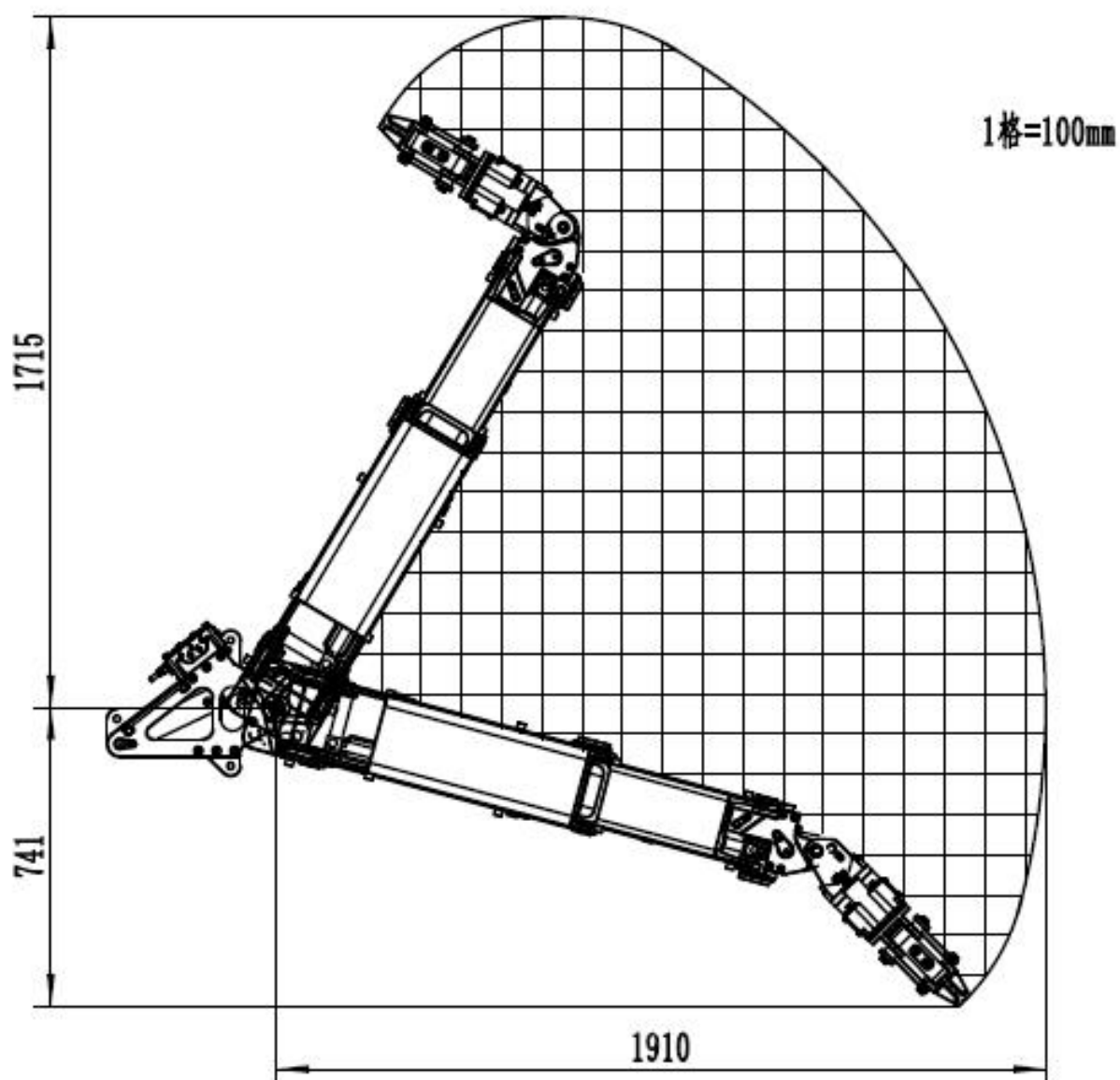


Fig. 7: Top View (Unit: mm)



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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



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