

**TOP NOTCH
DEEP-SEA
EQUIPMENT**



7-axis Manipulator-NOVA 1

Technical Specifications

Technical Specifications

1.Product Overview

1.1Introduction

The main structure of the NOVA 1 7-axis manipulator is made of titanium alloy, which features light weight, corrosion resistance, wear resistance, and high lifting capacity. It adopts closed-loop control with a hydraulic servo valve for more precise operation, and is mainly applied to the operations of heavy-duty work-class ROVs.

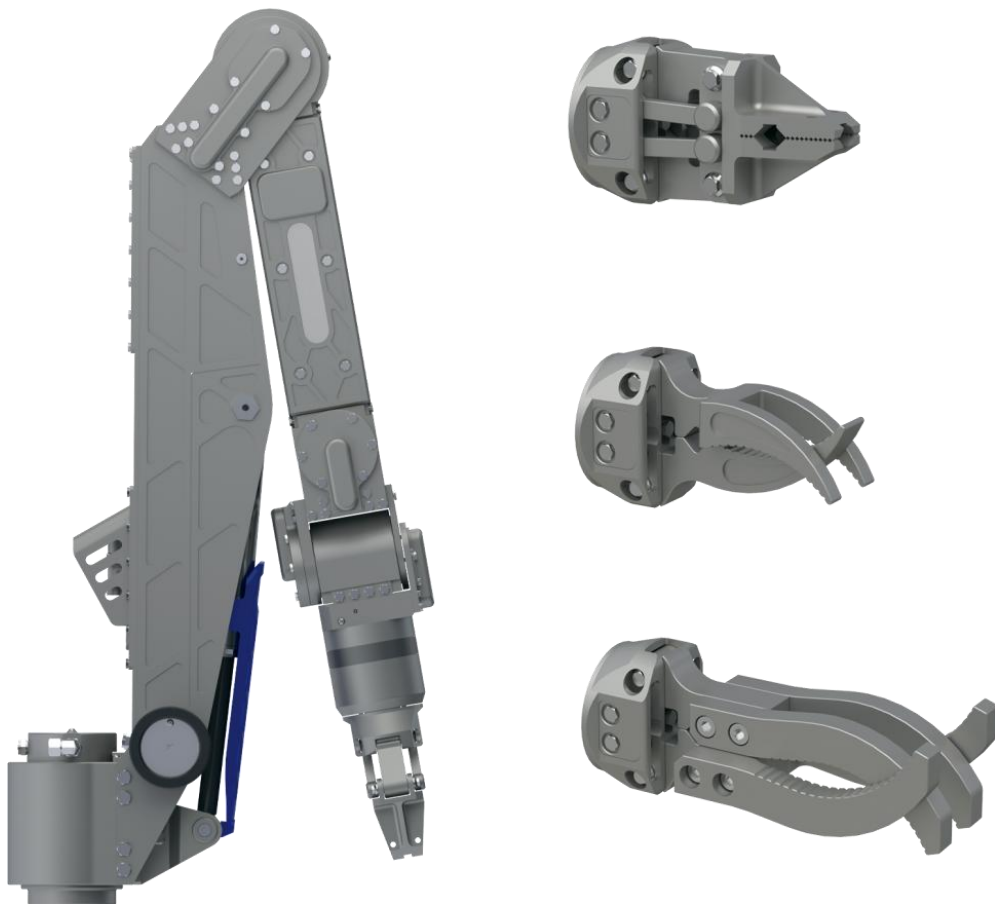


Fig. 1:NOVA 1 7-axis manipulator

1.2 Technical Advantages of the NOVA 1 7-axis Manipulator

- Durable and highly reliable under harsh conditions;
- Main body made of titanium alloy, featuring light weight and corrosion resistance;
- High lifting capacity;
- No exposed pipelines, resistant to scratches, and suitable for complex operating environments;
- Servo valve closed-loop control for more precise operation & smoother movement;
- Adopting a swing cylinder structure, enabling a larger range of motion and higher flexibility;
- 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。

2. Technical Specifications

2.1 The main body of the manipulator

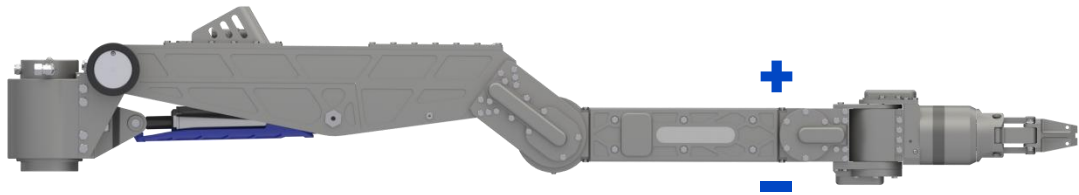


Fig. 2: Horizontal Deployment Position Diagram (Direction: Upward is Positive, Downward is Negative)

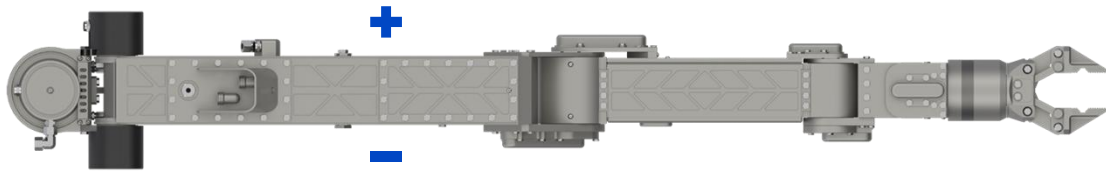


Fig. 3: Top View (Direction: Left Swing is Positive, Right Swing is Negative)

Main Technical Parameters

Control Mode	Closed-Loop Position Control / Master-Slave Control / Non-Force Feedback / Hydraulic Drive
Number of axes	6 Axes + 1 Opening-Closing Function
Communication Protocol	Ethernet (RS232 or RS485 customizable)
Power Supply	DC24V
Camera	Network Lens (Analog Lens customizable)
Main Material	Titanium Alloy + Stainless Steel
System Pressure	21MPa
Rated Flow	20Lpm
Weight	Weight in air 100kg, in water 78kg

Main Technical Parameters

Operation Parameters

Depth Rating	3000msw (option up to 6000msw)
Maximum Arm Span	1922mm
Lifting Capacity at Full Arm Span	122kg
Maximum-Lift,-Nominal	454kg
Gripping Force	4092N
Wrist Rotation Torque	170Nm
Wrist Rotation Speed	6-35rpm
Gripper Opening	99mm (Standard Pincer Gripper; 3-Finger and 4-Finger Grippers Available as Options)

Rotation Angle

Azimuth Joint	240° Swing
Shoulder Joint	120° Pitch
Elbow Joint	270° Pitch
Pitch Joint	180° Pitch
Swing Joint	180° 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° .

2.2 Active Joystick



Fig.4:Active Joystick

Main Technical Parameters	
Control Mode	Closed-Loop Position Control / Master-Slave Control / Non-Force Feedback
Power	10W
Number of Axes	6 Axes + 1 Opening-Closing Function
Dimension（L×W×H）	470x177x67mm
Weight	3.7kg
Main Material	Corrosion-Resistant Aluminum Alloy
Power Supply Voltage	DC12V (90-260VAC customizable)
Communication Protocol	Ethernet (RS232 or RS485 customizable)
Safety Protection	- Joystick Anti-Misoperation Protection - Screen Anti-Misoperation Protection - Emergency Stop Function (Stops Hydraulic System)

3. Manipulator Dimensions&Workspace

3.1 Manipulator Dimensions

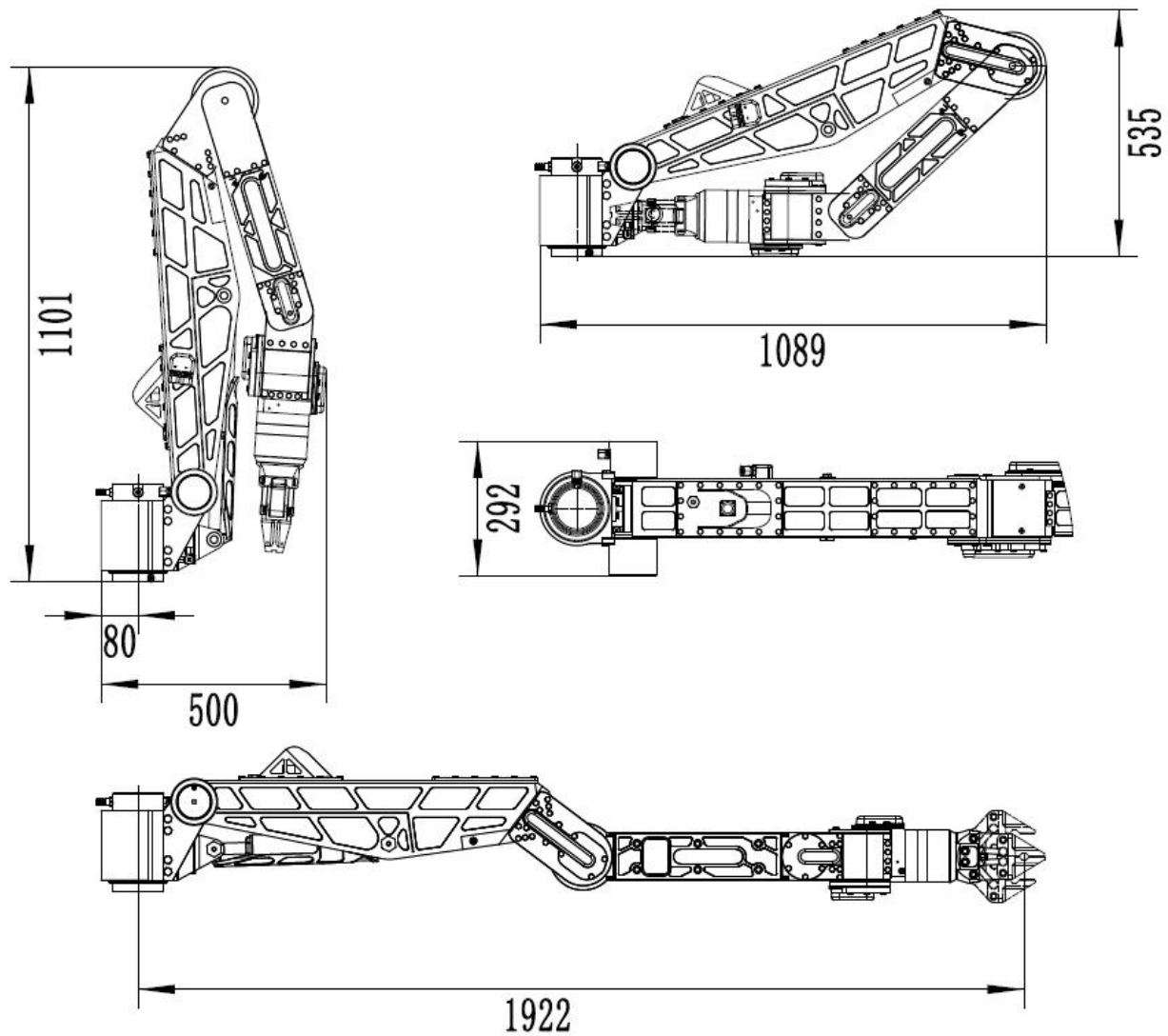


Fig.5: Dimensions (Unit: mm)

3.2 Manipulator Workspace

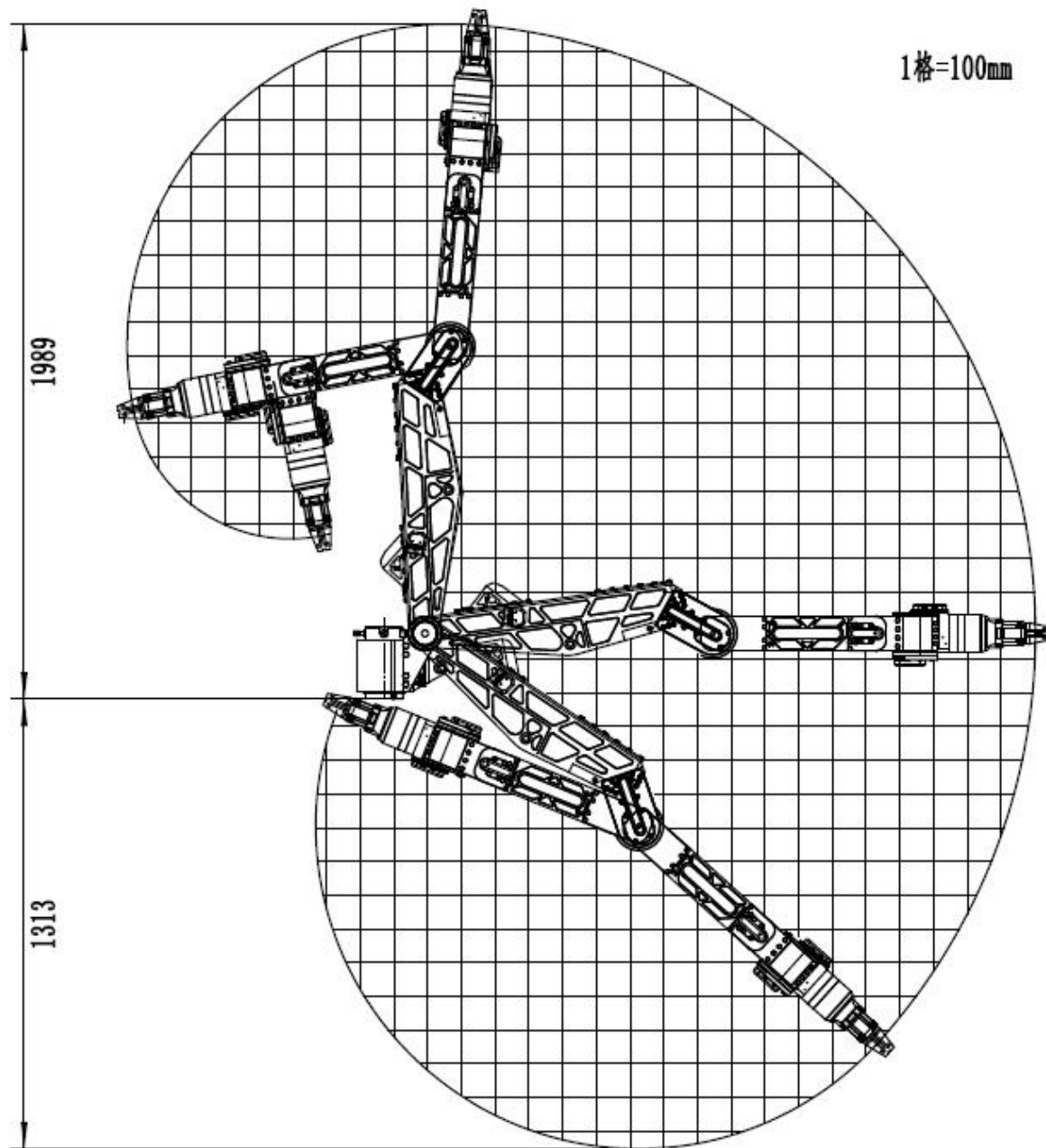


Fig. 6: Side View (Unit: mm)

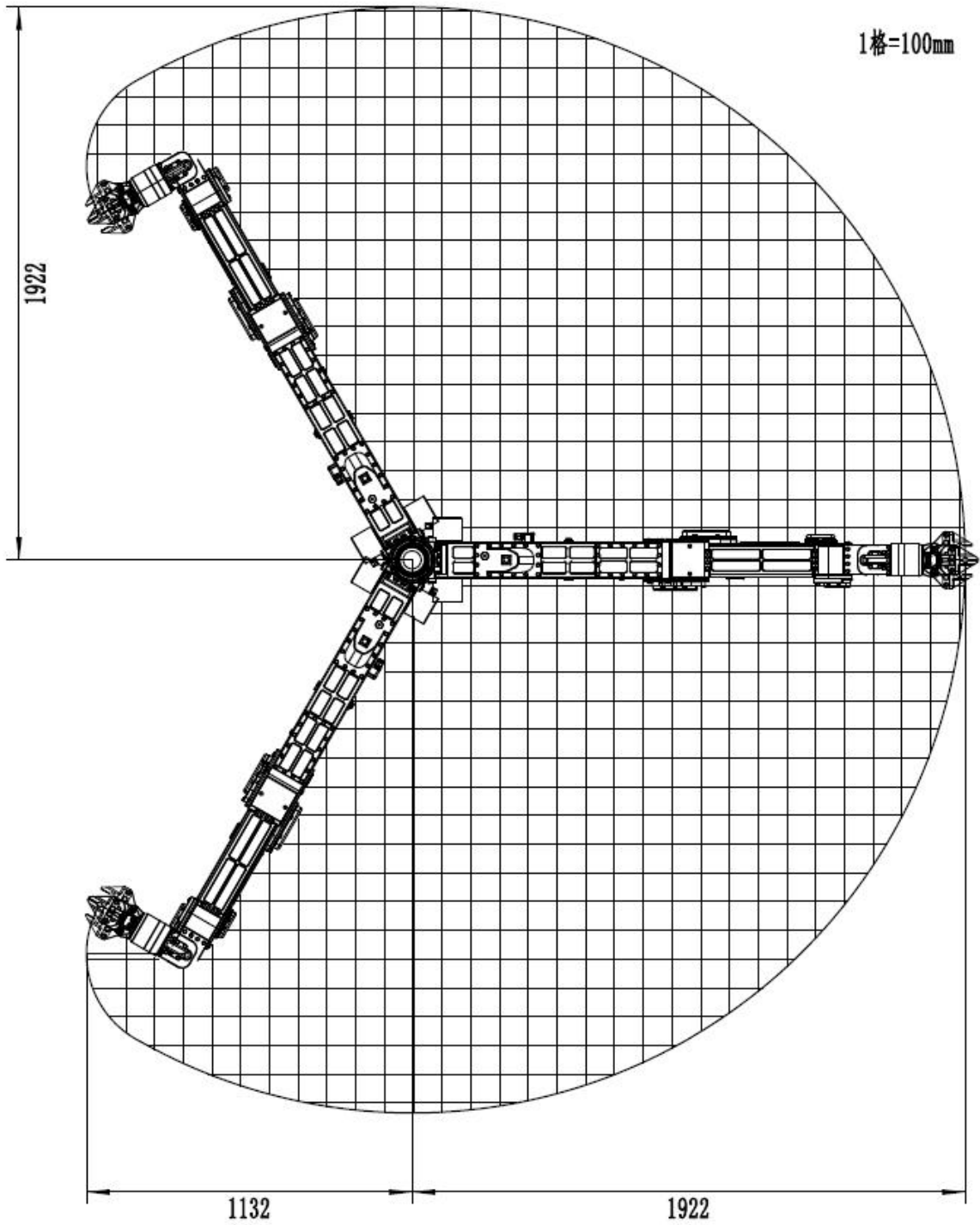


Fig. 7: Top View (Unit: mm)



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