



## Newton Subsea Gripper

\$590.00

The Newton Gripper provides the [BlueROV2](#) and other subsea vehicles with the ability to interact with the subsea environment to retrieve objects, attach recovery lines, or free a snagged tether! Includes everything needed for installation on the [BlueROV2](#).

[Technical Details](#)[User Guides](#)

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Price	\$590.00	\$560.50	\$531.00	\$501.50	\$472.00

SKU: NEWTON-GRIPPER-ASM-R3-RP

HS Code: 8501.10.60

4 interest-free payments of \$147.50 with **Klarna**. [Learn More](#)

## Product Description

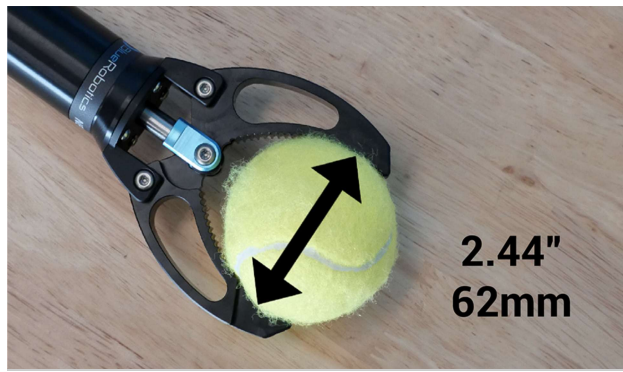
The Newton Subsea Gripper is a single function manipulator for the [BlueROV2](#) and other subsea vehicles. It's the result of several years of effort starting with a senior project in 2016 and evolving into the current design over several iterations. Each element was carefully designed and combined to create an awesome ROV tool.

The gripper has jaws that open to grab objects up to 2.44" or 6.2cm in diameter. The plastic jaws are mounted with custom aluminum screws to create a corrosion resistant mechanism that doesn't need any lubrication. The jaws are driven by a linear actuator that uses a geared brushed motor and lead screw. The main body is air-filled and sealed with O-rings. We've spent a lot of time testing it at pressure and it's rated to 300m depth with plenty of safety factor.

### New Product: The Newton Subsea Gripper!



The motor inside is controlled by a purpose-built brushed motor controller that accepts a standard servo-style PWM signal so that the gripper can be controlled just like our thrusters and lights. Power can be provided by the same battery that drives the thrusters as the gripper is compatible with 9-18v input and draws up to 6A current. It automatically detects motor stall conditions and stops the motor so that the gripper will always stop at the right moment. Check out the launch video to see that in action!



The gripper comes with everything needed to use it on the [BlueROV2](#), including an anodized aluminum mount that uses a thumbscrew for quick retraction and rotation in the field. The mount attaches with two included M5 screws. You will have to drill mounting holes into the [BlueROV2](#) bottom panel, but we've got clear instructions on how to do that in the documentation.

## Contents

- 1 x Newton Gripper with Pre-installed [WetLink Penetrator](#)
- 1 x Penetrator Nut
- 1 x Penetrator O-ring
- 1 x Newton Gripper Mounting Clamps and Thumbscrew
- 2 x M5x16 button head cap screws

## Technical Details

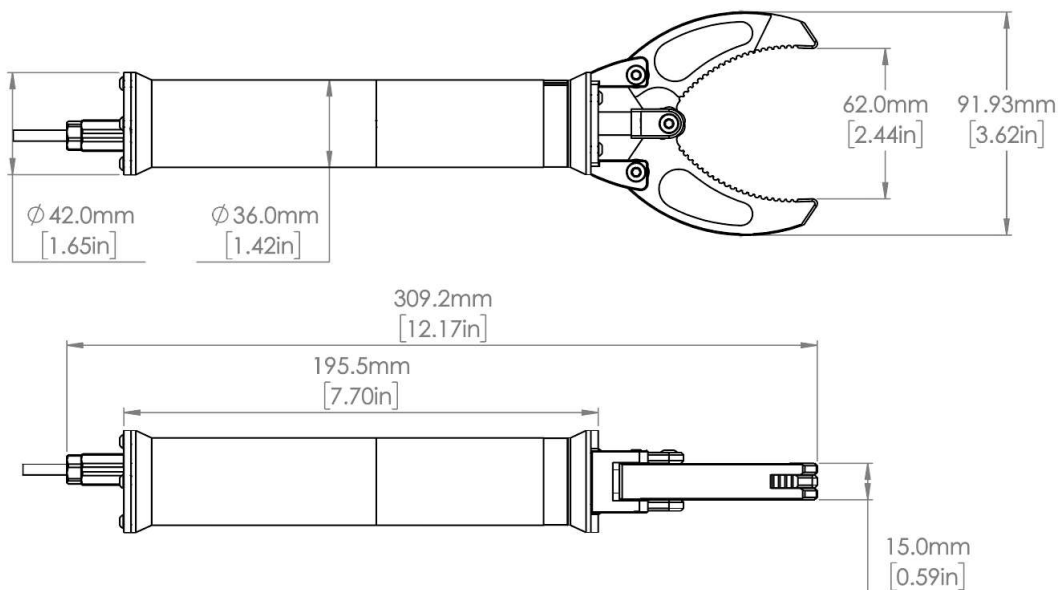
### Specifications

Parameter	Value	
Electrical		
Supply Voltage	9 - 18 volts	
PWM Logic Voltage	3.3 volts	
PWM Neutral Signal	1500 μs	
PWM Open Signal	>1530 μs-1900 μs	
PWM Close Signal	<1470 μs-1100 μs	
Peak Current	6 amps	
Mechanical		
Grip Force (at tip)	97N	22lbf
Grip Force (in middle)	124N	28lbf
Push-rod Axial Load Rating	3 kg	6.6 lb
Minimum Linear Piston Travel	13.5 mm	0.53 in
Jaw Opening	62 mm	2.44 in
Time to Open/Close	1.6 secs	
Cable		
Cable Used	<a href="#">CAB-A-3-22AWG</a>	
Cable Length	635 mm	25 in
Conductor Gauge	22 AWG	
Wires	Black - Ground	
	Red - Power	
	Yellow - Signal	

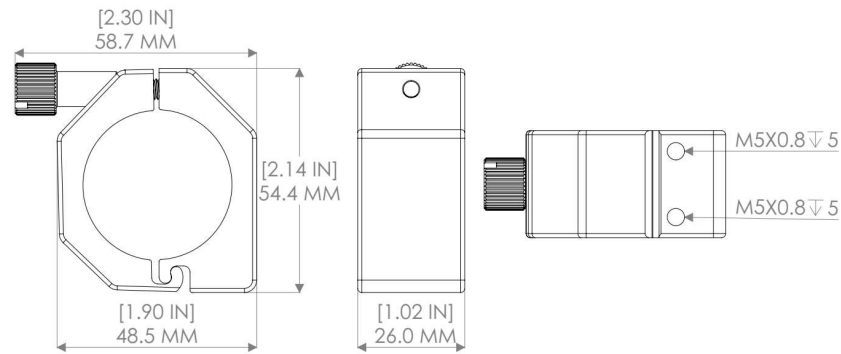
Parameter	Value	
Installed Penetrators		
Device Side	<a href="#">WLP-M06-4.5MM-LC</a>	
Cable End	<a href="#">WLP-M10-4.5MM-LC</a>	
Internals		
Flange Cap Seal	(2x) O-ring Buna-N-021 -70A	
Jaw Side Seal	X-ring Buna-N-204 -70A	
Insertion Tool for Insulation Displacement Connector	<a href="#">Kyocera AVX - 067000773001000 - Hand Tool</a> (Digi-Key) <a href="#">Kyocera AVX - 069176701602000 - Tool Bit</a> (Digi-Key)	
Physical		
Housing Material	Aluminum 6061-T6	
Pressure Rating	300 m	984 ft
Overall Length (Closed)	303.2 mm	11.94 in
Overall Length (Open)	309.2 mm	12.17 in
Body Primary Diameter	36 mm	1.42 in
Bracket Mounting Hole Spacing	16 mm	0.63 in
Bracket Screw Size	M5x0.8	
Weight in Air (w/ cable)	524 g	18.5 oz
Weight in Water (w/ cable)	267 g	9.4 oz
Functionality		
Firmware Source	<a href="#">Newton Gripper</a>	

## 2D Drawings

### Newton Gripper Assembly



## Newton Gripper Mount



### 3D Models

📄 [NEWTON-GRIPPER-ASM-R3-PUBLIC](#) (.zip)

📄 [NEWTON-MOUNT-ASM-R1-PUBLIC](#) (.zip)

### Documents

📄 [Newton Gripper Mount Drilling Template](#) (.pdf)

📄 [Brushed ESC Schematic](#) (.pdf)

### Revision History

21 September 2021

- R3 – Initial release
- Updated pre-installed penetrators to [WetLink Penetrators](#)

20 April 2021

- R2 – Initial release
- Improvements to firmware and electronics for increased reliability

20 May 2018

- R1 – Initial release

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## Guides

### Warnings

⚠️ **\*\*Keep fingers and other body parts away from the gripper when operating!\*\*** It's strong and has the potential to do some damage. Notify other crew members to do the same.

⚠️ If the gripper is continuously cycled rapidly for over a minute, the motor may overheat and melt the rotor frame. Please do not cycle open and close for over a minute and allow for a proper cool-down between quick cycles.

### Quick Start

1. Connect the signal wire to a signal source such as the Pixhawk on the *BlueROV2* or a 3.3v microcontroller.

⚠️ Arduino microcontrollers have a 5V DC PWM Output. This is listed as "operating voltage" on the [specification table](#). If using the Newton Subsea Gripper with an Arduino, you will need a [Logic Level Converter](#).

- Yellow: PWM (3.3 volts only)

2. Connect the power wires to a power source.

- Red: +9-18 volts
- Black: Ground

3. Provide a servo PWM pulse at 1500  $\mu$ s for no movement. Provide a servo PWM pulse greater than 1530  $\mu$ s to open gripper. Provide a servo PWM pulse less than 1470  $\mu$ s to close gripper.



### Newton Subsea Gripper Installation on a BlueROV2

Learn how to install a *Newton Subsea Gripper* onto your *BlueROV2*!

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## Community



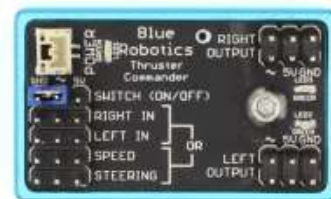
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### BlueROV2 Machined Buoyancy Foam

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