

Oceanus ROV System – Accessories

360° Rotating Manipulator Arm with Pincer Jaws

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manufactured
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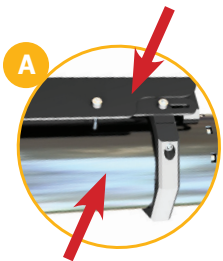
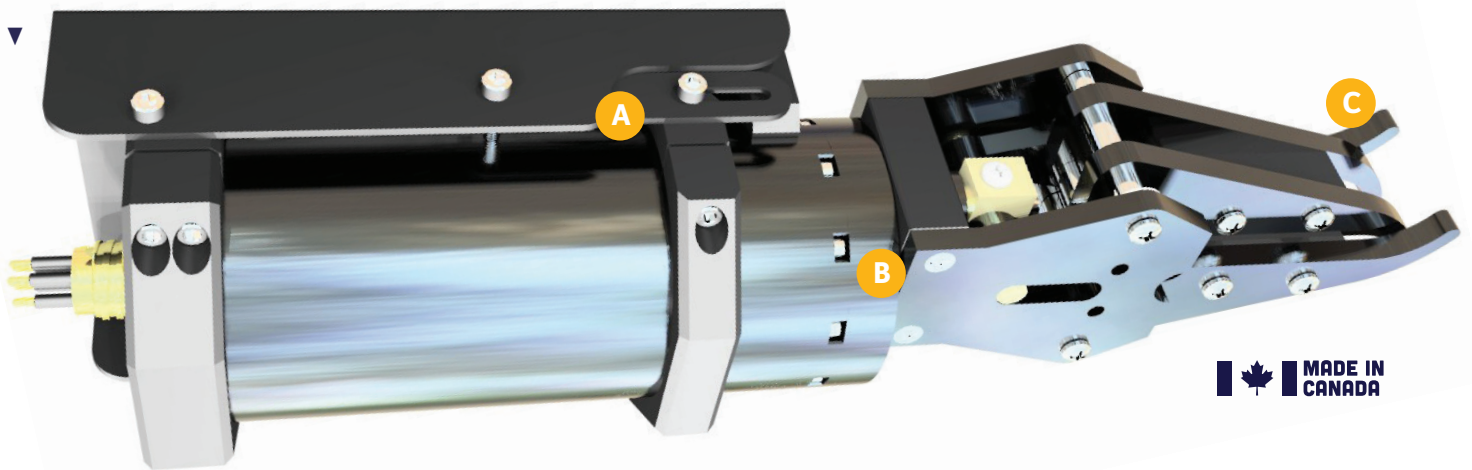
A00159 Oceanus ROV System Accessory -Rotating Manipulator-December 2022-PR10

MarineNav's 360° rotating manipulator arm is an essential ROV accessory, providing the power and precision required to perform complex gripping and recovery maneuvers to a maximum depth of 300 meters.

Constructed of marine-grade materials, including an aluminum mount and acetal housing, MarineNav's rotating manipulator is designed to withstand rugged environments. Four swappable unique jaw head attachments, each made from carbon fibre reinforced composite material, are designed to work with the manipulator's open and close motions and 360° continuous rotational movement. The manipulator arm is a front-facing accessory, visible through the ROV's front camera's field of view, controlled through the ROV's topside touch-sensitive Flight Control Software, or by using button commands on the Oceanus hand-held controller.

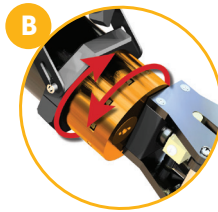
▼ Illustration depicts MarineNav rotating manipulator arm with standard pincer head attachment. Contact a MarineNav representative for additional accessory heads, or bespoke attachments.

Part #: ROV-ACC-ARM-ROT



FABRICATED ON-SITE

Designed, fabricated and manufactured on-site from marine-grade materials including an aluminum mount and acetal housing.



360° HEAD ROTATION

Quick change manipulator arm head attachments are designed to provide full 360° rotation for greater maneuverability to complete complex gripping and retrieval tasks on the fly.



TOTAL ROV INTEGRATION

Designed integration with MarineNav ROV systems. Control arm functions by button commands using the Oceanus hand controller or commands through ROV touch-sensitive Flight Control Software.

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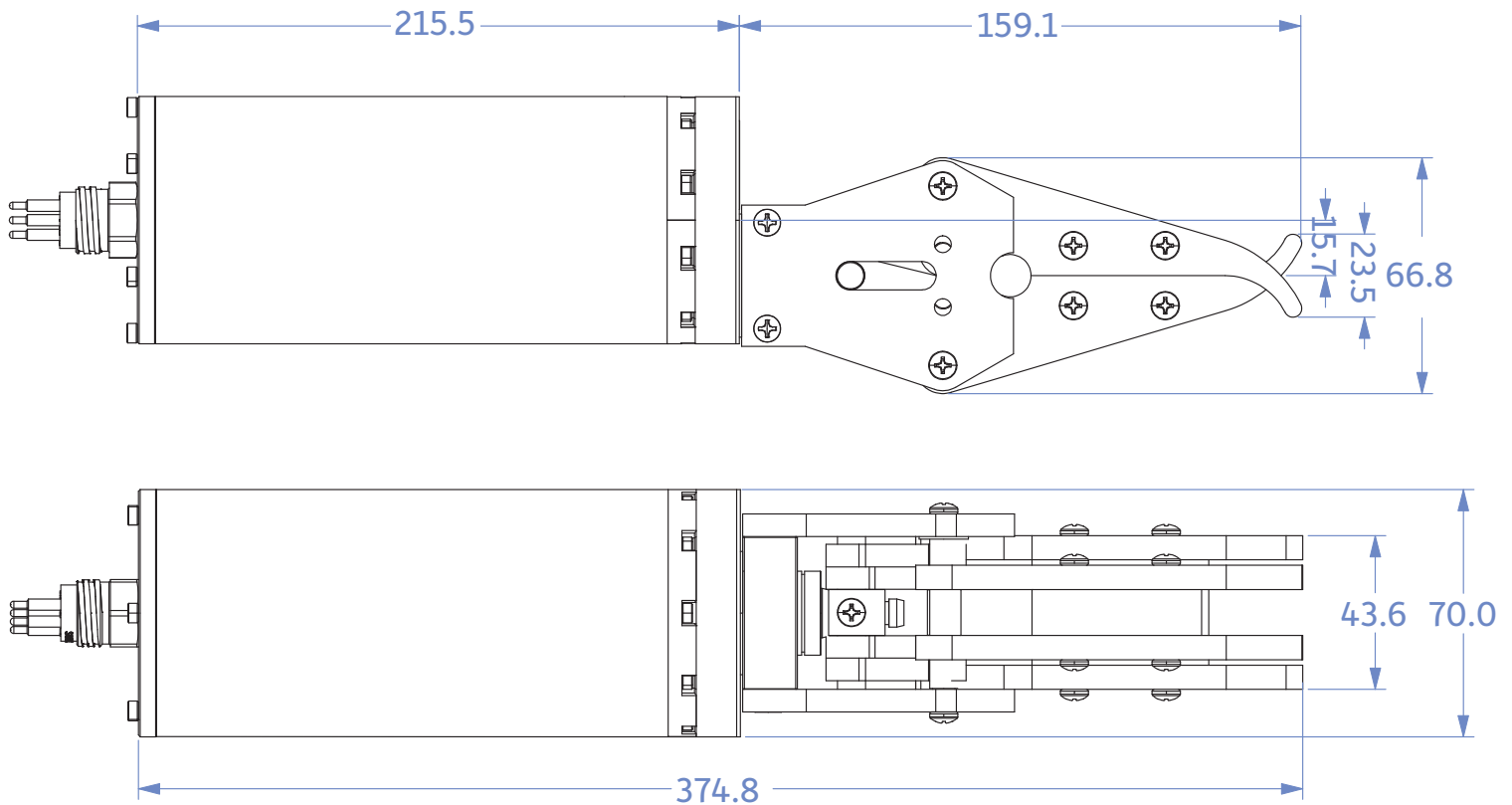
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Dimensions*



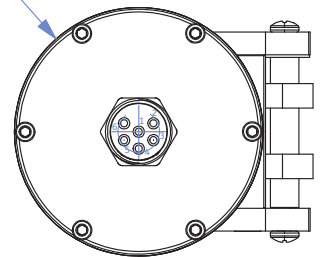
Overview*

Length (Rotating Arm)	215.5 mm
Length (Arm with Jaw)	374.8 mm
Length (Arm, Jaw & ROV Mount)	374.8 mm
Diameter (Rotating Arm)	70 mm
Width (Pincer Jaw Attachment)	66.8 mm
Width (Arm, Jaw & ROV Mount)	96 mm
Weight (Arm, Jaw & ROV Mount)	1665g

Mechanical Specifications*

Bite Force	300N (approx)
360° Jaw Rotation (No Load)	7.5 seconds
Jaw Opening	177.3 mm
Pincer Jaw Weight	290g
Time to Open/Close	14.2 seconds

Ø70.0



Electrical Specifications*

Supply Voltage (V_{in})	10 - 15VDC
Peak Current	3 amps

* Specifications, options, and availability subject to change with out notice. Errors and omissions excepted. We reserve the right to limit quantities. Revised September 15, 2021.

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Oceanus ROV System – Accessories

Manipulator Arm – Head Attachments

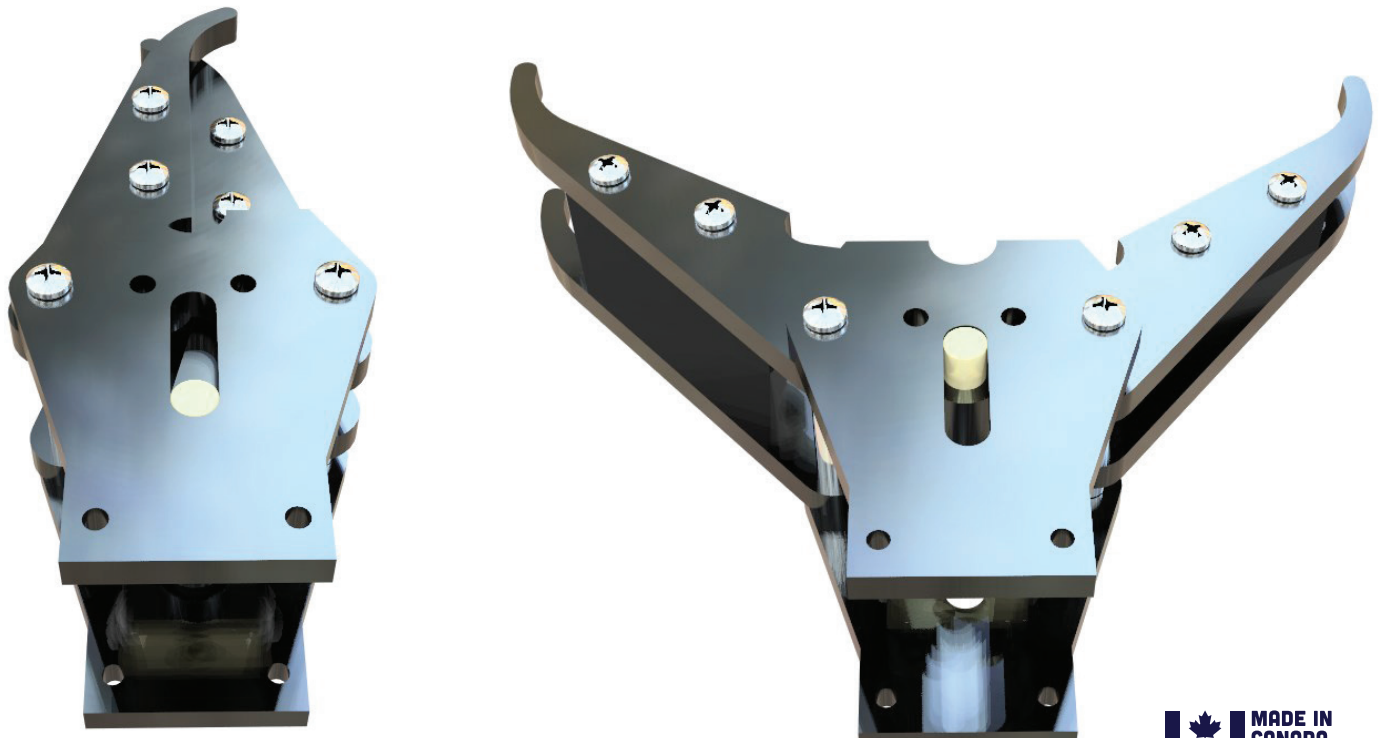
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A00159 Oceanus ROV System Accessory -Head Attachments-Pincer Jaws-December 2022-PR10

Pincer Jaws

Designed, manufactured and constructed in-house, the pincer jaws head attachment is one of four available attachment heads that can easily be swapped out to fit the MarineNav ROV rotating manipulator arm. Constructed of 3D printed carbon fibre-filled reinforced nylon composite and marine-grade components, the attachment is a multi-purpose jaw designed to perform a wide range of tasks. The width of the fully open jaw measures 177.3 mm (an angle of 116.0°), providing users with a wide range of movement when aligning to underwater objects, and the intersecting jaw tips with serrated ridges ensure that target items will be held firm when jaws are closed. Ideal for retrieval missions, this jaw can capture irregular-shaped items or items constructed of pliable materials. Ideal uses include retrieval of rope, ghost gear, tether or smaller objects.

Part #: ROV-ACC-ARM-ROT-JAW



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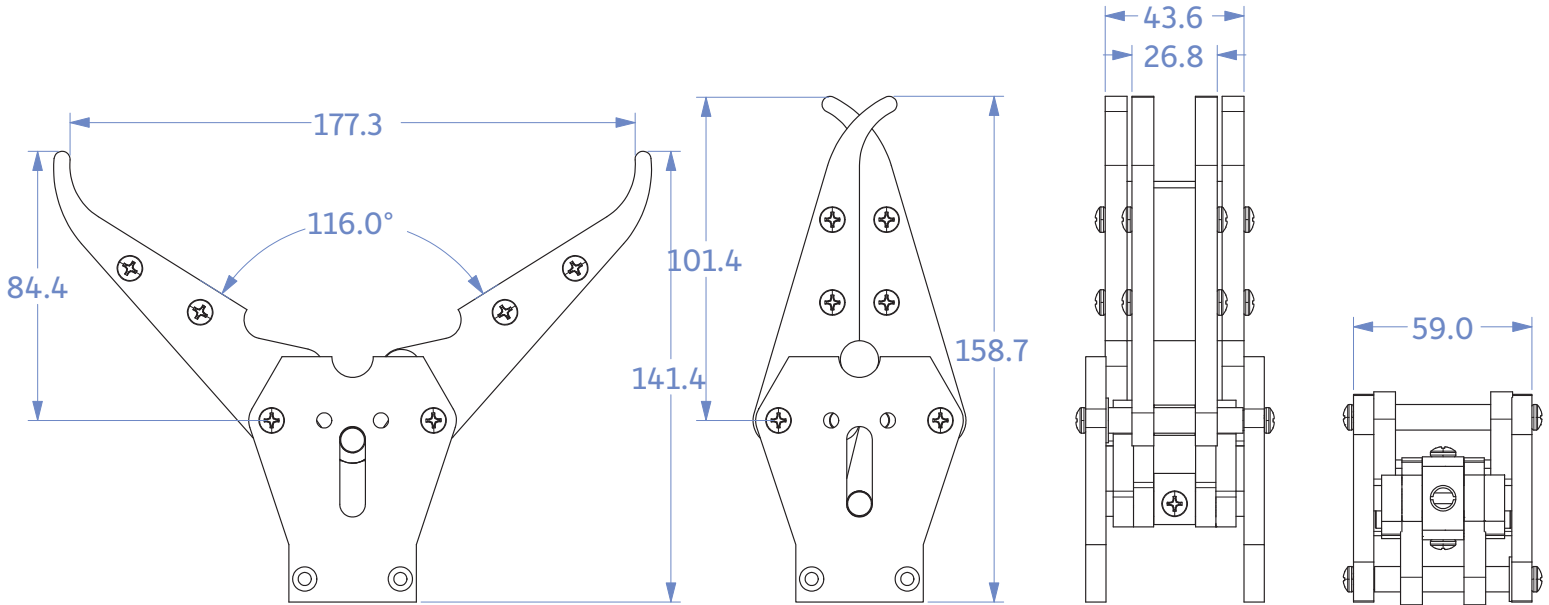
Oceanus ROV System – Accessories

Manipulator Arm – Head Attachments

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Dimensions - Pincer Jaws*



Mechanical Specifications*

Bite Force	300N (approx)
360° Jaw Rotation (No Load)	7.5 seconds
Jaw Opening	177.3 mm
Pincer Jaw Weight	290g
Angle of Open Jaw	116.0°
Time to Open/Close	14.2 seconds

Electrical Specifications*

Supply Voltage (V_{in})	10 - 15VDC
Peak Current	3 amps

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The MarineNav Advantage

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Oceanus ROV System – Accessories

Manipulator Arm – Head Attachments

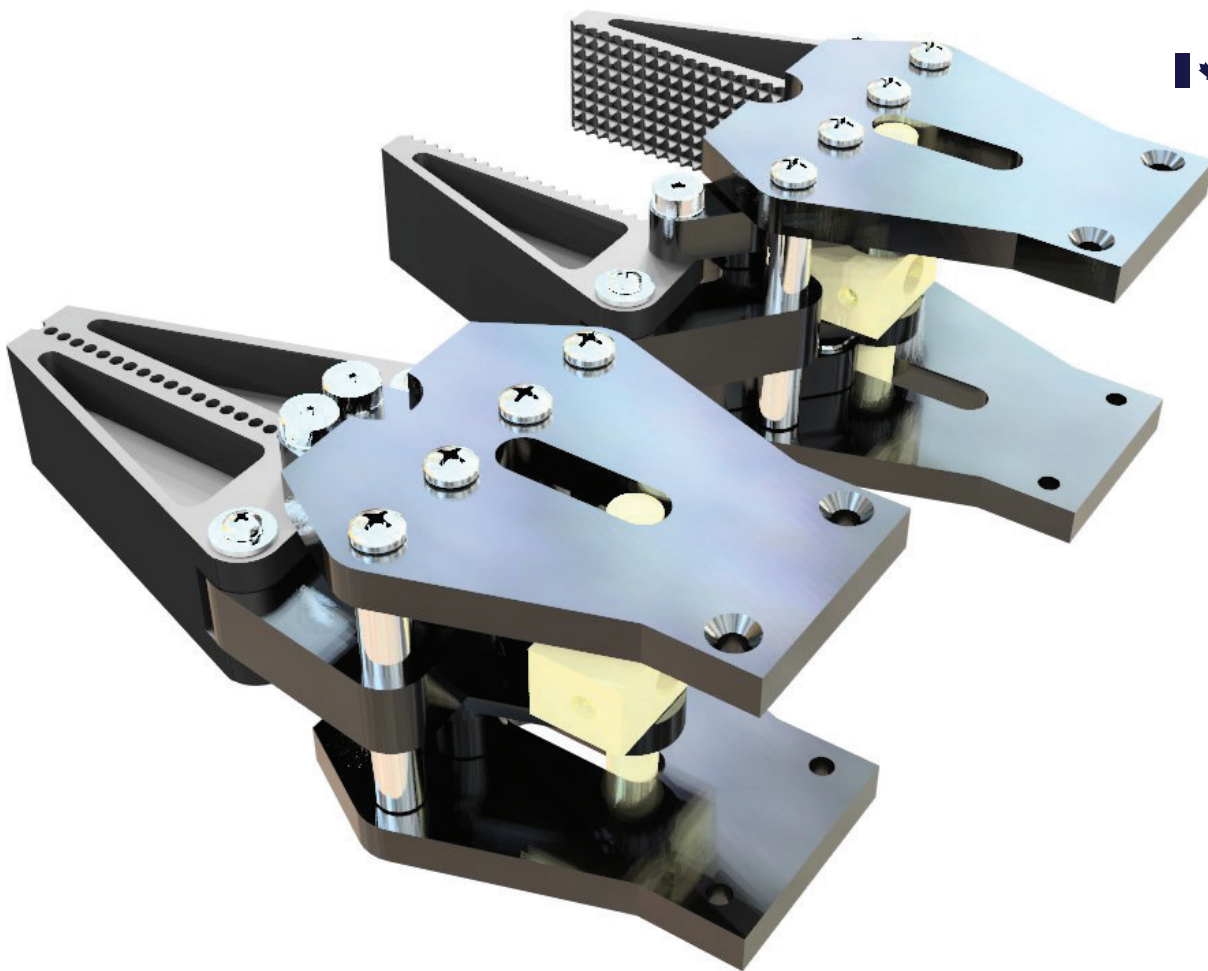
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A00159 Oceanus ROV System Accessory -Head Attachments-Parallel Jaws-December 2022-PR10

Parallel Jaws

Designed, manufactured and constructed in-house, the parallel jaw head attachment is one of four available attachment heads that can easily be swapped out to fit with the MarineNav ROV rotating manipulator arm. Manufactured using 3D printed carbon fibre-filled reinforced nylon composite and marine-grade components, the attachment is a multi-purpose jaw designed to perform retrieval and manipulation maneuvers. Jaws feature flattened head tips and interior serrated grips particularly useful when making contact against hard flat surfaces. Vice-like jaw closures provide precision when closing on hard-edged objects. Use the rotational arm function to manipulate (pull, turn, lift) grasped objects.

Part #: ROV-ACC-ARM-ROT-PJ



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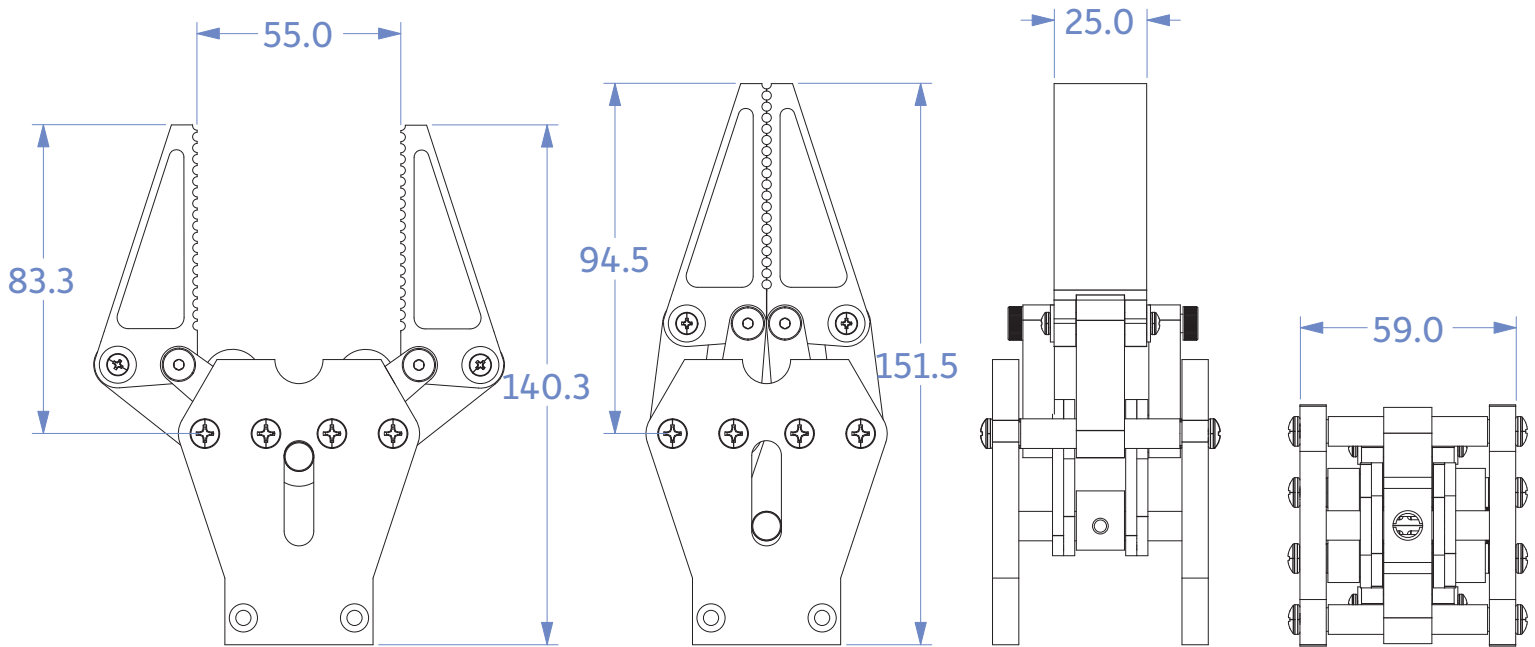
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Dimensions - Parallel Jaws*



Mechanical Specifications*

Bite Force	300N (approx)
360° Jaw Rotation (No Load)	7.5 seconds
Jaw Opening	55.0 mm
Parallel Jaw Weight	275g
Angle of Open Jaw	90.0°
Time to Open/Close	14.2 seconds

Electrical Specifications*

Supply Voltage (V_{in})	10 - 15VDC
Peak Current	3 amps

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Oceanus ROV System – Accessories

Manipulator Arm – Head Attachments

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A00159 Oceanus ROV System Accessory -Head Attachments-Sediment Scoop-December 2022-PR10

Sediment Scoop

Designed, manufactured and constructed in-house from 3D printed carbon fibre-filled reinforced nylon composite components, the sediment scoop head attachment is one of four available attachment heads that can easily be swapped out to fit with the MarineNav ROV rotating manipulator arm and is designed to perform organic sample retrieval to a depth of 300m. The scoop head measures 70mm x 90mm and can hold 135 cubic centimeters of sediment. A shovel-shaped head and a maximum jaw opening angle of 116° enable the scoop to dig in and retrieve samples with ease. Fast closure speed and interlocking shovel head enclosures ensure gathered sample remains locked in the shovel head as the ROV is brought to the surface.

Part #: ROV-ACC-ARM-ROT-SCOOP



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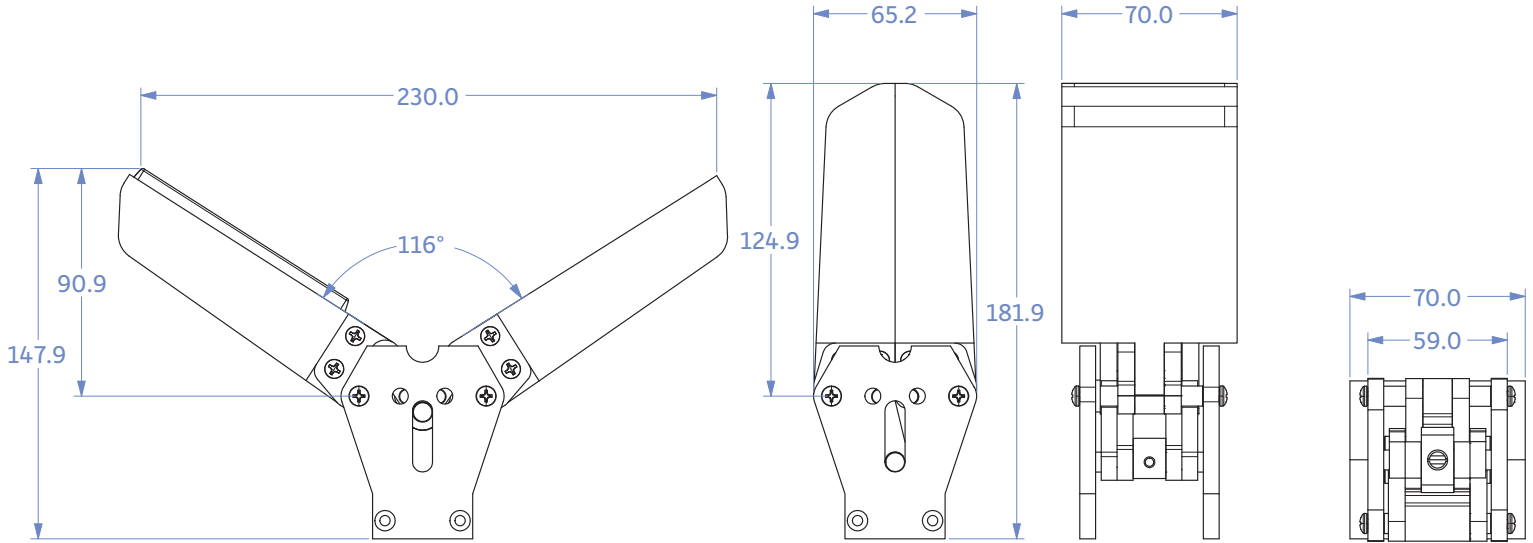
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Dimensions - Sediment Scoop*



Mechanical Specifications*

Bite Force	300N (approx)
360° Jaw Rotation (No Load)	7.5 seconds
Jaw Opening	230.0 mm
Sediment Scoop Weight	385g
Angle of Open Jaw	116.0°
Time to Open/Close	14.2 seconds

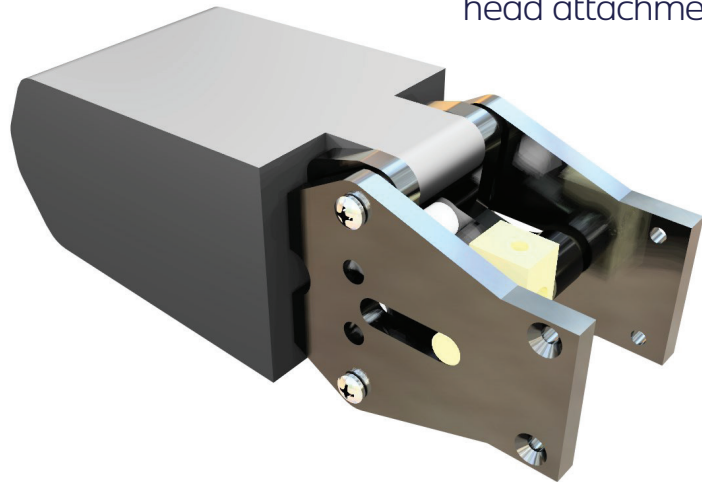
Electrical Specifications*

Supply Voltage (V_{in})	10 - 15VDC
Peak Current	3 amps

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Manipulator Arm – Head Attachments

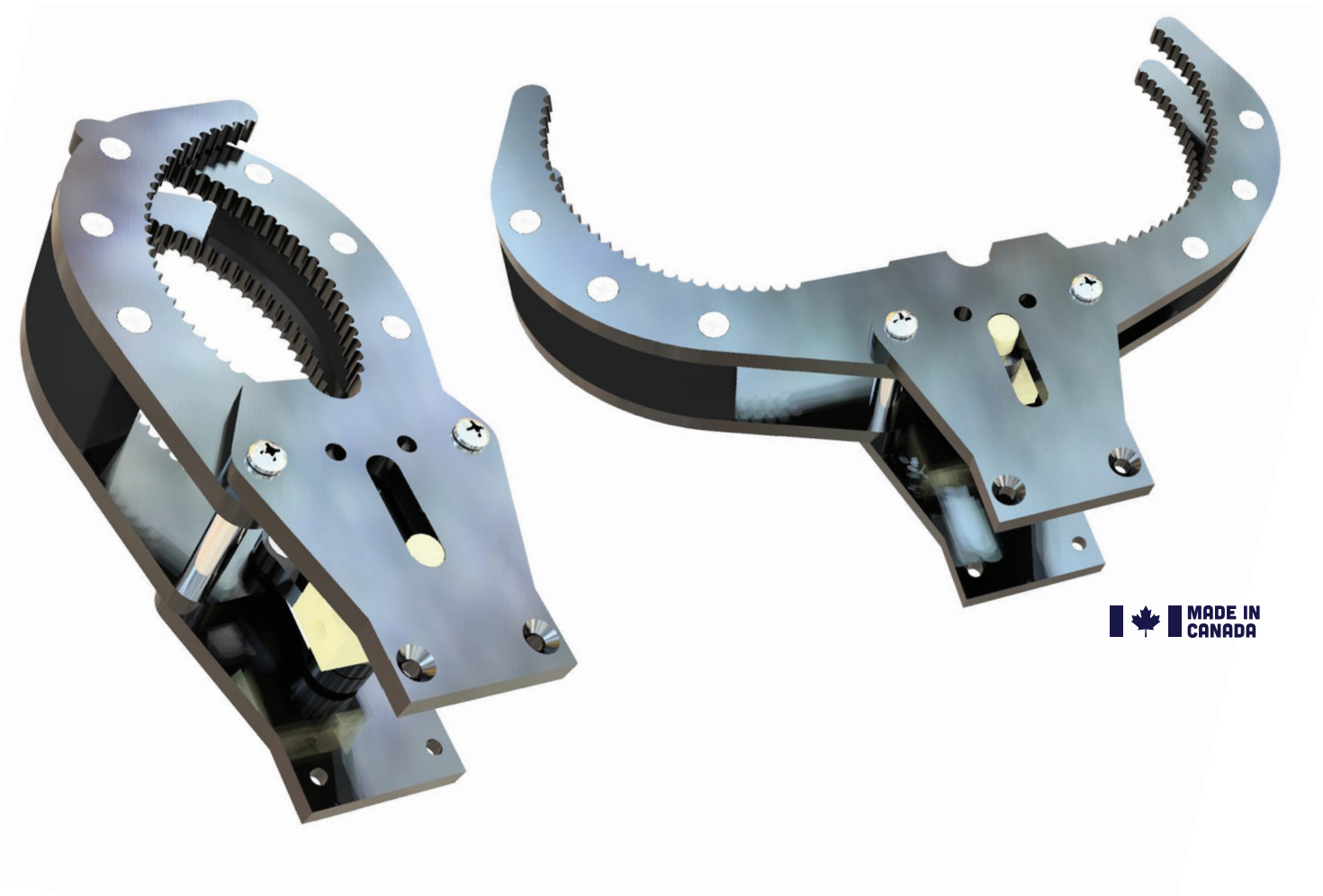
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A00159 Oceanus ROV System Accessory -Head Attachments-Claw Jaws-December 2022-PR10

Claw Jaws

Designed, manufactured and constructed in-house, the claw jaws head attachment is one of four available attachment heads that can easily be swapped out to fit with the MarineNav ROV rotating manipulator arm. Constructed of 3D printed carbon fibre-filled nylon and marine-grade components, the claw jaw head attachment is designed to perform as a retrieval tool. When fully opened, a wide jaw profile measurement of 189.2 mm provides users greater ease when aligning to objects, and intersecting jaw tips with serrated ridges ensures that target items will be locked within the grasp when jaws are closed. This jaw attachment is ideal for snagging larger items, search and rescue use and for the recovery of ghost gear and flotsam.

Part #: ROV-ACC-ARM-ROT-CLAW



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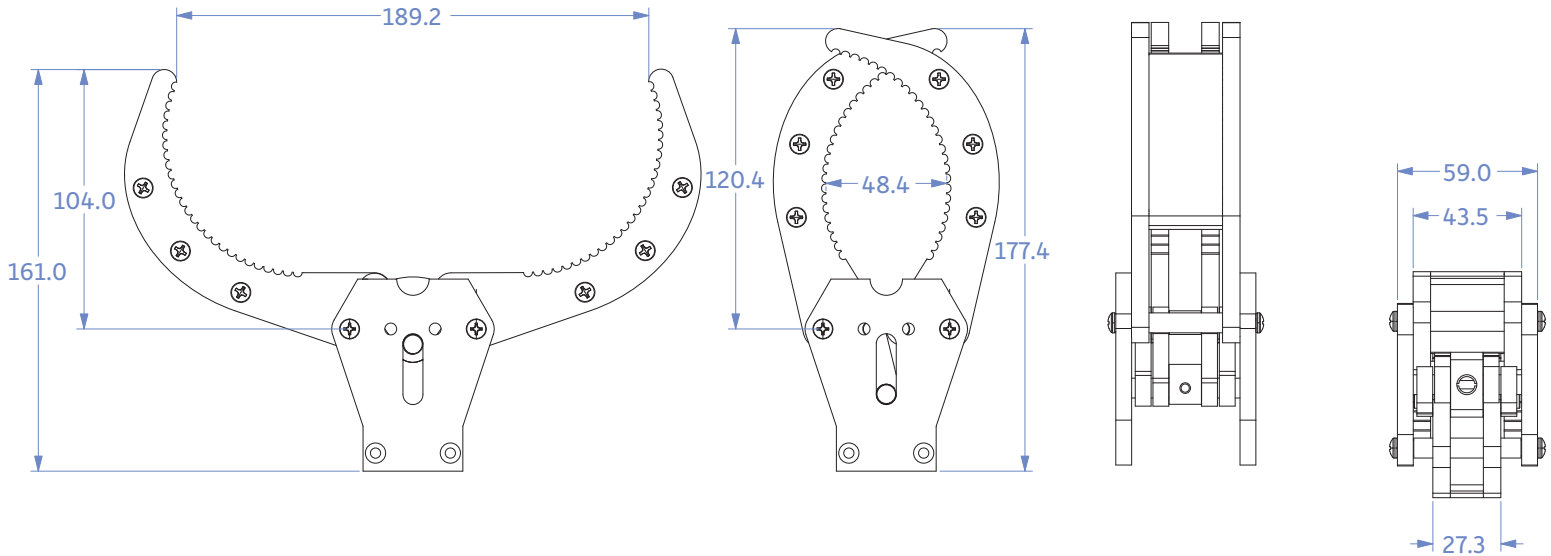
Oceanus ROV System – Accessories

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A00159 Oceanus ROV System Accessory -Head Attachments-Claw Jaws-December 2022-PR10

Dimensions - Claw Jaws*



Mechanical Specifications*

Bite Force	300N (approx)
360° Jaw Rotation (No Load)	7.5 seconds
Claw Jaw Weight	290g (approx)
Jaw Opening	189.2 mm
Time to Open/Close	14.2 seconds

Electrical Specifications*

Supply Voltage (V_{in})	10 - 15VDC
Peak Current	3 amps

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