

## RANGER CLASS DEMONSTRATION

RANGER class companies that are determined to be prohibitively far from a regional event are required to submit a video that:

- Demonstrates the ability of their vehicle to perform specific tasks;
- Shows compliance with MATE's design and build specifications.

Video specifications: The video MUST show the following ROV features for the specified amount of time. Companies can choose to narrate the video to help explain how their vehicle meets these required specifications. Alternatively, a MATE official may schedule a Skype, Google Hangout, GoToMeeting, Zoom, Webex or other type of video conferencing session with the company. During the session, companies must visually show, and answer questions about, the following ROV features.

1. 15 seconds (or more) showing a properly sized fuse. The company MUST use a ruler to show that this fuse is within 30 cm of Anderson Powerpole connectors. **(ELEC-008R, ELEC-010R).**
2. 30 seconds (or more) of the inside of the control box showing the wiring and components. MATE will be looking for:
  - No exposed wiring **(ELEC-017R).**
  - That the control box is neatly laid out with attention to workmanship. **(ELEC-022R).**
  - Separation and identification of 120VAC wiring from DC and control voltages. **(ELEC-023R).** If 120VAC is not used in the control box, you should video a slide stating that AC power is not used in the control box.
3. 15 seconds (or more) showing wires and tether entering and leaving the ROV and strain reliefs for the tether or wires. **(ELEC-024R)**
4. 30 seconds (or more) showing any hydraulic/pneumatic systems including a pressure release valve and regulator in the system **(FLUID-007, FLUID-011)**, and that any pressurized cylinder, pressure storage device meets the MATE specifications of **(FLUID-012, FLUID-013)**. In addition, the type of fluid should be clearly stated in the video **(FLUID-002, FLUID-003, FLUID-004)** If the vehicle does not use fluid power, **you should video a slide stating that Fluid Power is not used on this ROV for 10 seconds.**
5. 60 seconds (or more) total, 10 seconds (or more) per side of the ROV (4 sides plus top and bottom) showing that all motors are waterproofed and propellers are shrouded and protected with guards. There are no sharp edges or elements of the ROV that could cause damage **(MECH-006, ELEC-017R).**

Video demonstrating specific tasks: Following those requirements, the video must demonstrate that the ROV can complete the following product demonstration task. The ROV must complete the entire task within 15 minutes.

The UNCUT video must show the vehicle:

1. Launching safely from the side of the pool and maneuvering to the task area.  
See specifications (**MECH-004 & MECH-005**).
2. Completing the required tasks. This includes:
  - a. **Task 1:** The Ubiquitous Problem of Plastic Pollution
    - i. Removing a ghost net from midwater
      1. Pulling a pin to simulate cutting the ghost net free
      2. Removing the ghost net from the water
  - b. **Task 2:** The Catastrophic Impact of Climate Change on Coral Reefs
    - i. Propagating corals onto the reef
      1. Removing one coral fragment from the nursery structure
      2. Outplanting one coral fragment to the designated location on the reef
  - c. **Task 3:** Maintaining Healthy Waterways II: Delaware River and Bay.
    - i. Creating a photomosaic of a subway car submerged to create an artificial reef
      1. Position your ROV at five locations around the subway car

**Task 1:** The pin on the ghost net must be positioned in the midwater, at least 50 cm above the bottom of the pool.

**Task 2:** Companies only need to remove and outplant one coral fragment. Companies may choose to use either design (branched or unbranched) of coral fragment.

**Task 3:** Companies do not need to create a photomosaic for the video demonstration. To complete this demonstration, the ROV must position itself with the front of the ROV facing each side of the subway car and also position itself directly above the subway car.

The camera angle must demonstrate that the ROV is under its own power and not assisted by humans when in the water. The MATE ROV Competition requires that the camera show the complete ROV in the field of view at all times. A video that cuts between camera angles will not pass the demonstration requirement of “uncut” footage. The video is permitted to show a split screen or may incorporate a separate window showing the ROV camera or other footage. However, the video **MUST** show an uncut view of the vehicle from launch to completion of the tasks. The tasks must be completed within 15 minutes.

Companies may complete the tasks in any order they wish.

Companies are allowed to make minor changes to their ROV after their video demonstration, but the overall systems should be the same. Minor changes include adding/removing buoyancy, adding tools/sensors that were not used for the demonstration, etc.

Videos must be submitted or video conferencing sessions completed no later than 11:59 PM, Hawaii time, May 2<sup>nd</sup>, 2021. Videos must be submitted via the form located here –

<https://www.emailmeform.com/builder/form/cU50v6e90Xd2G6FEOaec8P>, using the following naming convention: School or organization name\_company name\_video demonstration\_2020.

Videos must be submitted as links to a YouTube or Vimeo post. Companies may submit the specification and product demonstration as two separate videos. Note that the product demonstration portion must be a complete, uncut video.

MATE competition organizers will review the videos and respond by May 7<sup>th</sup>. Video submissions will NOT be accepted after May 2<sup>nd</sup>. Video conferences will not be scheduled after May 2<sup>nd</sup>. If the video does not clearly demonstrate that the company's vehicle meets the specifications and accomplishes the tasks, the company is not eligible to participate in the World Championship. No extensions past the due date will be given for any reason.

**MATE strongly encourages companies to submit their videos or arrange for a video conference with a MATE official well before May 2<sup>nd</sup>.** That way, if an issue is found, companies will have the opportunity to address the issue and submit an updated video, or schedule another video conference, before the May 2<sup>nd</sup> deadline. **Note that it may take MATE up to 5 working days to evaluate a video submission or respond to a request to schedule a video conference.**

***NOTE FOR 2021!!!***

Upon submitting your video files, you will receive a confirmation email noting all of the attachments that were successfully uploaded and submitted. **Check this notification carefully to verify that all of your videos were properly uploaded and submitted!** If there was an error while submitting your videos, contact the MATE ROV Competition and upload **ALL** submissions again.