

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 Teams, Zoom, Skype, Google Hangout, GoToMeeting, 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) showing the control system:
If the company uses a control box, 30 seconds showing the inside of the control box including the wiring and the 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.If the company does not use a control box, 15 seconds (or more) showing the entire control system (controller, laptop/computer, etc.).
3. 15 seconds (or more) showing the top-side strain relief. The video must show the tether and wires, with strain relief, entering the control station or topside controller **(ELEC-024R).**
4. 15 seconds (or more) showing the bottom-side strain relief. The video must show the tether entering the ROV and strain reliefs for the tether or wires. **(ELEC-024R).**
5. 30 seconds (or more) showing any hydraulic/pneumatic systems including a pressure release valve and regulator in the system and that any pressurized cylinder, pressure storage device meets the MATE specifications of **(FLUID-004, FLUID-008).** **Note for 2025,** 15 seconds (or more) showing the specifications for pneumatic components, including the pressure rating of any tubing used. In addition, the type of fluid should be clearly stated in the video **(FLUID-002, FLUID-003, FLUID-006, FLUID-007).** 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.**
6. 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 tasks. The ROV must complete all the tasks within 15 minutes.

The UNCUT video must show the vehicle:

1. Launching safely from the side of the pool and maneuvering to tasks.
 - a. See specifications (**MECH-004 & MECH-005**).
2. Completing the required tasks. This includes:
 - a. **Task 1.1: Shipwrecks – Determine the cargo that the ship carried**
 - i. Remove the cover
 - ii. Replace the cover
 - b. **Task 2.1 Produce Power**
 - i. Disconnect the old sacrificial anode from the base
 - ii. Connect the new sacrificial anode onto the base
 - c. **Task 2.2: Monitoring Environmental Impact**
 - i. Place a hydrophone in the designated area
 1. Place the hydrophone in the designated area
 2. Pull the pin to release the hydrophone from the base

NOTE: For this demonstration, actual cargo does not need to be included in the container; companies must remove the cargo cover for at least 10 seconds before replacing it. Companies may use the same anode as both the sacrificial and new anode for this demonstration. Companies are not required to remove the hydrophone from the platform; companies should carry the hydrophone down from the surface.

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.

See [Documentation Submissions Guidelines](#) for submission information. Additional submission information can be found in the [competition manual](#), see **PART 6: SUBMISSIONS GUIDELINES AND KEY DEADLINES**. MATE competition organizers will review the videos and respond by May 19th. Video submissions will NOT be accepted after May 15th. 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 well before May 15th. That way, if an issue is found, there is the opportunity to address the issue and submit an updated video before the May 15th deadline. **Note that it may take MATE up to 5 working days to evaluate a video submission.**

Companies are allowed to make minor changes to their ROV after their video demonstration, but the overall systems must be the same. Minor changes include adding/removing buoyancy, adding tools/sensors that were not used for the demonstration, etc. The frame, motor configuration, and the control system must be the same for the video demonstration and the World Championship competition. Safety inspectors will refer to images of the ROV and control system taken from the demonstration video. Vehicles with different systems will not pass the safety inspection.