

7 Key Considerations When Purchasing A Mini-ROV

With ever improving performance specs and the falling cost of mini-ROVs, many researchers and consultants are looking to add these versatile vehicles to their field tool kit. Before you “dive” into the market, make sure you check off these seven key considerations to make sure you get the right tool for you and your team.

1. Portability

Mini-ROVs are, by definition, small, however there can be a surprising amount of gear and accessories required to get many mini-ROVs into the water. While some of this equipment may add functionality to your setup, you should consider whether all that gear is required for your line of work. Depending on your vessel/deployment plans, an ROV system that incorporates a tether reel and topside electronics into a discrete unit is a feature worth considering.



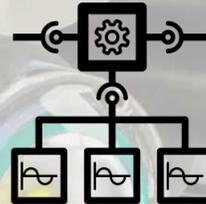
2. Power source

An important consideration is how difficult it is to travel with the ROV batteries. If you are using generic lithium batteries, you need to be very careful when you travel that all the [regulations as set out by IATA](#) are adhered to, which includes stringent packing and labelling requirements. Some batteries may not be allowed in checked baggage, some may not be allowed on a passenger plane, and some may not be allowed to fly at all.

Alternatively, battery packs that have been purposely built for a particular mini-ROV are going to be much more likely to be IATA compliant, which will make travel and freight of your unit to the job site much more straight forward.

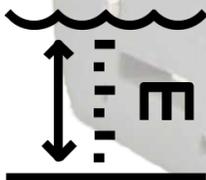
3. Expandability

Some mini-ROVs are built with minimal scope to expand the vehicle's capabilities. However, you'll find that the more professional units have blank ports, sufficient space, and software that enables vehicle upgrades. When choosing an ROV system, you should consider whether you will need optional sensors like sonar or GPS, now, or possibly in the future.



4. Depth range

Most mini-ROVs will be rated to at least 100m depth. There are several that can go deeper (100-150m), with a few that can explore down to 300m. Be mindful of what your expected depth range is likely to be, considering that at extended depths you may experience stronger currents and greater drag due to the amount of tether deployed, and so will require a more powerful vehicle.



5. Thrusters

The thrusters are the grunt for your mini-ROV. The thrusters need to have sufficient power to fight currents, as well as power to spare in case you need to increase the payload on-board or are working at depths when more deployed tether creates additional drag.



Although vehicle shape and tether diameter will affect how the unit will perform, the thruster specifications (specifically thrust force, measured in kgf) is a good place to start looking to make sure you have a vehicle with sufficient power to complete the tasks required in the expected environment.

The configuration of the thrusters is also important. Vected thrusters allow more directions of movement, for greater functionality and maneuverability, especially during fine scale movements. Look for at least 5 thrusters (but more is better!) to ensure you have enough degrees of freedom to carry out your work.

6. Cameras

The mini-ROV camera is both the eyes and, for most work, the primary data logger for your vehicle. Most cameras are at least 1080P HD quality, though this is not the only (and is probably the least important) determination of quality. Other important characteristics to look for are low light functionality, frame rate, custom settings, and quality/field of view of the lens.



7. Plug and Play

This is an important consideration for enterprise purchasers such as universities and government departments, where a number of individuals may be using the vehicle. By having a system with minimal gear/setup, the learning curve to fly is much easier, and ensures that you don't need to have an ROV expert with you on each outing.



Hopefully this article has helped to highlight some of the purchasing considerations when evaluating a mini-ROV to add to your field kit. If you have any questions, please don't hesitate to get in touch.

DATASHEET



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