

Martek Marine: Operations of drones from ships

Martek Marine offers disruptive innovation to improve safety, welfare and performance on superyachts and commercial ships. Founded in 2000, the Martek Group is now a global business with over 70 staff in the UK and Singapore supplying services to more than 80 countries. Martek Aviation are pioneering Best in World Unmanned Maritime Aviation Services. With 25 years maritime experience and over 43,000 flying hours they are upholding manned aviation quality culture, standards and procedures.

In what situations might a drone be operated from a vessel?

Drones can carry out a wide range of commercial and leisure functions, but their primary advantages are just like any other mode of air transport, they provide height, speed and reach.

- They are often used for leisure purposes on board yachts, such as photography and/or videography of people, scenery or other vessels in the vicinity.
- They can also be used in a maritime surveillance role as a fast-moving, responsive camera, easily able to position and identify points of interest or potential risks and threats.
- By covering distance quickly, they can be used to move equipment, spares, documents and other materials from ship to shore and vice versa, at significantly lower cost and in less time compared to traditional waterborne transport.
- In search and rescue efforts, they can be fitted with an array of modern payloads which can considerably increase the likelihood of finding and rescuing personnel in a 'man overboard' situation. The drone can even deliver lifesaving equipment to the person in the water well before the main vessel has even slowed to a stop.
- Costs and labour hours can be reduced when deploying drones for inspections as they limit the need for complex rig setups, extensive safety equipment or launch boats.
- They can also be used in variety of situations providing real time data via live stream or recorded video for playback soon after filming.

What specific risks are present when operating a drone from a vessel?

Drones are advanced pieces of technology, creating an array of new challenges. Lithium polymer battery technology is sensitive and needs to be maintained carefully and frequently, to ensure maximum lifespan and safety. The aircraft themselves, especially higher-power variants, can cause severe injury if they are not operated with due care, but this could be considered as no different from other high-powered tools that may be used on board.

Due to the expense of the equipment, drones require a trained drone pilot who is well versed in safe drone operation as well as aware of the hazards which may be present in the surrounding environment.

What industry standards apply to the operation of drones?

The International Organization for Standardization (ISO) has released a global standard for unmanned aircraft systems (UAS) operations titled 'Draft International Standard for Unmanned Aircraft Systems Operations' aiming to standardize UAS (which include drones) operations around the world. This draft standard is the first of a four-part series and addresses the safe operational procedures for UAS and drones including safety management and data protection. The other three draft standards will address design and manufacturing specifications as well as unmanned traffic management.

Whilst these standards are not mandatory, they do make reference to applicable statutory regulations and it is hoped that operators will voluntarily comply with these standards to encourage consistency in safety standards within the sector. Progress with the development of these standards can be found at the [ISO website](#).

What should a vessel operator do to prepare for drone operations from their vessel?

Before a drone can even become airborne, it is imperative that any necessary regulatory and site permissions are in place for the area of usage. For example, there are restrictions on operating drones near airports, at certain altitudes and, if above a certain size, they will require a licence in addition to any governmental/air traffic permission. In some areas such as wind farms, ports and oil fields, the property owner's permission also needs to be obtained, and any conditions need to be complied with (e.g. notice provided, distance from structures, hours of operation etc.). Failing to adhere to either governmental or site-specific rules could lead to fines and or claims.

Before operating the drone, the vessel operator should consult an experienced aviation team. This team will have significant knowledge of the underpinning aviation constructs that need supporting and will help implement effective safeguards into the vessel's existing systems. Introducing simple health and safety procedures can aid safe operation of the aircraft, but it will still require effort to ensure they work in tandem with existing policies and procedures. The key to success is ensuring that the aviation team fully understand what the vessel operator wants the drone to achieve - they are fundamentally just data gathering tools, so can be integrated into a variety of existing procedural systems.

Working with the aviation team, vessel operators should draw up a detailed risk assessment, conducting a thorough analysis of the potential risks which may be present and apply the necessary controls to mitigate the risk, as far as is practical.

What safety measures are required by personnel, such as ship's crew not operating the drone but in the vicinity/assisting with the activity?

As long as the operation duties have been designed appropriately with adequate training provided, other personnel not involved with flying the drones should not see any impact on their work. Existing health and safety procedures can be expanded to include handling of all equipment and interaction with the aircraft, but when under the control of a trained operator, there should be no reason for other personnel to unintentionally encounter the drone while in use. General awareness is enough in most cases, especially when the drone is landing and taking off from the vessel. However, where risks are identified, specific emergency contingency plans should be drawn up with emergency response drills routinely carried out.

What preparation does the drone operator make, before operating in the marine environment?

Flight planning and a thorough risk assessment will account for the majority of preparation. From an operational perspective, the aviation team will focus on understanding the needs of the operation and what other processes and systems already exist or need to be in place before flight. They will then be able to design corresponding drone operating procedures that serve the appropriate needs with minimal disruption to any existing vessel operations.

What coverage considerations apply to the use of drones from the vessel?

Drone usage is not excluded from P&I Cover with the Club. However, as we have seen above, there are many different types of drones which can be operated, performing a variety of functions, which would each require different contractual arrangements. In some circumstances additional cover may be required. Therefore, we would ask Members considering drone operations to discuss the position of their cover with the relevant Underwriter for their account.