Guidance for Initial and Periodic Examination, Testing and Certification of ROV Launch and Recovery Systems

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1 Scope

This guidance addresses the initial and periodic examination, testing and certification of unmanned remotely operated vehicle (ROV) launch and recovery systems (LARS).

It does not address:

- Manned vehicles
- Design criteria
  - It does, however, assume compliance with the responsibility placed on all manufacturers and users of such equipment to ensure that it is designed in accordance with any national codes or standards which may apply to ensure its fitness for purpose in the environment in which it is to be used;
- The testing and examination that should be carried out on the lifting points of items such as winches, A-frames or other deck equipment which have been designed to a lifting standard such as, for example, DNV GL ST 0378 or EN 12079.
  - It is the responsibility of the ROV owner/contractor to have a clearly defined policy to ensure equipment suitability when lifting equipment to and from a vessel in accordance with national codes or standards.
- The testing and examination carried out on the lifting frames or points of ROVs, tether management systems (TMSs) or tooling skids.
  - It is the responsibility of the ROV owner/contractor to have a clearly defined policy to ensure equipment compliance with International Labour Organization (ILO) No. 152 – Register of lifting appliances and items of loose gear – or other national codes, manufacturers' guidelines or standards which may apply (see IMCA R021 *Guidance for remotely operated vehicle load testing and inspection*).

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2 Glossary of Terms and Abbreviations

Confidence test	Static pull test normally carried out with W_{DRY} after having completed an umbilical re-termination. This test is outwith the periodic testing requirements.
DAF	Dynamic amplification factor
Design Certification	The documentary portfolio which normally includes a Certificate of Conformity, Compliance or other type of approval statement and is accompanied by supporting documentation such as authority release note, original load testing certification or any other supporting the compliance statements is collectively known for the purposes of this document as the 'Design Certification'.
Function test	A test used to check the operation of the LARS including tightness of operating valves, mechanical joints/seals and functioning of moving parts through the full cycle of its operation. This test should be within the limitations of the LARS and the physical dimensions of the test load. Using the equipment's emergency stop, a test should be performed as part of this procedure without the test load.
HSE	Health, safety and environment
LARS	Launch and recovery system – a lifting device that can be used to deploy the ROV, with or without a TMS, from the support vessel or installation overboard into the water and lower it to the working depth, or recover the ROV from depth and transfer it from the surface of the water back to the support vessel or installation. LARS may be a combination of winches, cranes, A-frames, etc., and may be hydraulically or electrically powered.
MRT	Magnetic rope testing – the form of non-destructive examination most commonly used to assess lengths of steel wire rope. During MRT, sections of the wire rope will be progressively magnetically saturated by the relative movement of a magnet along its length. Measurement of variations in the axial magnetic flux can reveal the presence of variations or anomalies within the wire rope.
NDE	Non-destructive examination
PMS	Planned maintenance system
PPE	Personal protective equipment
PTW	Permit to work
ROV	Remotely operated vehicle – the common term for an unmanned, underwater vehicle that is controlled from the surface by a pilot via a cable and is, in itself, a collection of equipment used in water with an ability to observe the surroundings and, in certain circumstances, intervene/interact with underwater infrastructure
ROV system	The collection of equipment that comprises, but is not limited to, the ROV, the launch and recovery system, the surface control system and all associated peripheral equipment

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Static load test	A load test conducted to verify the structural integrity of the equipment, including associated attachment arrangements of the equipment to the host platform/vessel
SWL	Safe working load – the maximum load that the LARS is certified to withstand under normal use and in a given configuration
TMS	Tether management system – may be described as a 'cage' or a 'top hat', but both types essentially house a submersible winch that controls the deployment of a neutrally buoyant cable, or tether, connected to the ROV
W_{DRY}	The total in-air weight of the suspended load, including ROV, TMS, attached tooling and skids and, where applicable, the unassisted weight of the cursor
WLL	Working load limit – the maximum load that lifting equipment is designed to withstand under normal use

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