
**Ships and marine technology —
Service personnel for the
maintenance, thorough examination,
operational testing, overhaul and
repair of lifeboats and rescue boats,
launching appliances and release
gear —**

Part 2:

Service personnel initial training

[ISO 23678-2:2022](https://standards.iteh.ai/catalog/standards/iso/23678-2:2022)

<https://standards.iteh.ai/catalog/standards/iso/23678-2:2022> *Navires et technologie maritime — Personnel de maintenance pour l'entretien, l'examen approfondi, la mise à l'essai en cours d'exploitation, la révision et la réparation des embarcations de sauvetage et des canots de secours, des engins de mise à l'eau et des dispositifs de largage —*

Partie 2: Formation initiale du personnel de maintenance



iTeh STANDARD PREVIEW
(standards.iteh.ai)

ISO 23678-2:2022

<https://standards.iteh.ai/catalog/standards/sist/406a41df-4a80-41ea-865d-74beaa38e0eb/iso-23678-2-2022>



COPYRIGHT PROTECTED DOCUMENT

© ISO 2022

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

	Page
Foreword	v
Introduction	vi
1 Scope	1
2 Normative references	2
3 Terms and definitions	3
4 Initial service technician training	3
4.1 General.....	3
4.2 Candidate pre-requisites.....	3
4.3 Aims and objectives.....	3
4.3.1 Aim.....	3
4.3.2 Key objectives.....	3
5 Learning outcomes of initial service technician training	4
5.1 General.....	4
5.2 Theory learning outcomes.....	4
5.2.1 Module 1 — Service technician general industry knowledge.....	4
5.2.2 Module 2 — Basic safety at work.....	4
5.2.3 Module 3 — Risk management.....	5
5.3 Practical learning outcomes.....	5
5.3.1 Module 1 — Service technician general industry knowledge.....	5
5.3.2 Module 2 — Basic safety at work.....	5
5.3.3 Module 3 — Risk management.....	5
6 Initial service technician training — Candidate performance assessment	6
6.1 General.....	6
7 Duration and timing of initial service technician training	6
7.1 General.....	6
7.2 Contact time.....	6
8 Initial service technician training programme	7
8.1 General.....	7
8.2 Overview of training modules.....	7
8.2.1 Module 1 — Service technician general industry knowledge.....	7
8.2.2 Module 2 — Basic safety at work.....	7
8.2.3 Module 3 — Risk management.....	7
8.3 Module 1 — Service technician general industry knowledge.....	8
8.3.1 Element 1.1 — Manufacturer/ASP operations.....	8
8.3.2 Element 1.2 — Industry guidelines, rules, regulations and conventions applicable to manufacturer/ASP operations.....	8
8.3.3 Element 1.3 — Types, design and construction of lifeboats, rescue boats and fast rescue boats, their launching appliances and release gear within the offshore and maritime industry.....	9
8.3.4 Element 1.4 — The causes of lifeboat and rescue boat accidents.....	11
8.3.5 Element 1.5 — The procedures for inspection maintenance thorough examination, operational testing, overhaul and repair of lifeboats and rescue boats, launching appliances and release gear.....	12
8.4 Module 2 — Basic safety at work.....	12
8.4.1 Element 2.1 — General health and safety legislative requirements.....	12
8.4.2 Element 2.2 — Workplace hazards.....	12
8.4.3 Element 2.3 — Lifesaving rules.....	13
8.4.4 Module 2 — Practical exercise.....	13
8.4.5 Module 2 — Written test.....	13
8.5 Module 3 — Risk management.....	13
8.5.1 Element 3.1 — Risk assessment.....	13

8.5.2	Element 3.2 — Risk intervention systems	14
8.5.3	Module 3 — Practical exercises	14
8.5.4	Module 3 — Written test	14
9	Initial service technician refresher training	15
9.1	General	15
9.2	Candidate pre-requisites	15
9.3	Aims and objectives	15
9.3.1	Aim	15
9.3.2	Objectives	15
9.4	Learning outcomes	15
9.4.1	General	15
9.4.2	Module 4 — Service technician general industry knowledge	15
9.5	Candidate assessment	16
9.6	Duration and timing of initial ASP service technician refresher training	16
10	Initial service technician refresher training programme	16
10.1	General	16
10.2	Module 4 — Service technician general industry knowledge	16
10.2.1	Element 4.1 — Legislative framework, industry guidelines, rules, regulations, and conventions applicable to manufacturers and ASPs	16
10.2.2	Element 4.2 — The procedures for thorough examination, operational testing, overhaul and repair of lifeboats and rescue boats, launching appliances and release gear	17
10.3	Module 5 — Basic safety at work	17
10.3.1	Element 5.1 — General health and safety legislative requirements	17
	Annex A (informative) Assessors checklists	18
	Bibliography	23

[ISO 23678-2:2022](https://standards.iteh.ai/catalog/standards/sist/406a41df-4a80-41ea-865d-74beaa38e0eb/iso-23678-2-2022)

<https://standards.iteh.ai/catalog/standards/sist/406a41df-4a80-41ea-865d-74beaa38e0eb/iso-23678-2-2022>

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 8, *Ships and marine technology*, Subcommittee SC 1, *Maritime safety*.

This first edition cancels and replaces ISO/PAS 23678-2:2020, which has been technically revised.

The main changes are as follows:

- text has been editorially revised in accordance with the ISO/IEC Directives, Part 2, 2021.

A list of all parts in the ISO 23678 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

A major objective of the maritime industry is to prevent accidents and incidents from occurring. A global network of competent personnel employed by authorized service providers is vital for lifesaving appliances to remain fit for purpose, sustaining crew confidence and contributing to the prevention of incidents and accidents.

The need to develop an International Standard for this objective is evident from the new requirements in IMO Resolution MSC.402 (96)^[5], entitled “requirements for maintenance, thorough examination, operational testing, overhaul and repair of lifeboats and rescue boats, launching appliances, and release gear” (henceforth referred to as the “IMO Requirements”) adopted 19 May 2016 and entering into force 1 January 2020. This necessity is based on the IMO Requirements, paragraph 7.1.1.

This document and associated documents ISO 23678-1, ISO 23678-3 and ISO 23678-4 have been developed to achieve three key objectives:

- develop training documents that would support the IMO Requirements, section 7, paragraph 7.1.1.
- provide a consistent, reliable, and standardised approach to training and provide a clear auditable trail for interested parties to grant authorization supporting the IMO Requirements, section 3, to service providers.
- establish a competency framework that would enable personnel certified by service providers to develop and maintain competencies identified by industry experts to a level that enables them to competently work unsupervised on equipment covered by this document.

This document has been developed by identifying common training objectives in relation to survival craft, davits, winches and release gear makes and types for which service is to be provided. This has been achieved by conducting professional discussions with disciplined experts, to obtain the appropriate information to develop a training programme that is fit for purpose. Successfully completing the service technician training in ISO 23678-2, ISO 23678-3 and ISO 23678-4 enables personnel certified by an authorized service provider to meet the IMO requirements, section 7, paragraph 7.1.1, and section 8.

23678-2-2022

Ships and marine technology — Service personnel for the maintenance, thorough examination, operational testing, overhaul and repair of lifeboats and rescue boats, launching appliances and release gear —

Part 2: Service personnel initial training

1 Scope

This document establishes a uniform, safe and consistent approach to training and assessment of personnel to enable them to establish and maintain the required competencies in relation to maintenance, thorough examination, operational testing, overhaul and repair of lifeboats, rescue boats, launching appliances and release gear.

It also provides the necessary information for interested parties to grant authorization and effectively evaluate and audit training, supporting the IMO Requirements, section 3.

It specifies the initial training programme for personnel certified by a manufacturer or by an authorized service provider to carry out maintenance, thorough examination, operational testing, overhaul and repair of lifeboats (including free-fall lifeboats) and rescue boats (including fast rescue boats), launching appliances and release gear. This document specifies the training requirements for initial service technician training only.

This document is intended to be used in conjunction with ISO 23678-1, ISO 23678-3 and ISO 23678-4.

This document is applicable to the following types of lifeboats (including free-fall lifeboats), rescue boats (including fast rescue boats), launching appliances and release gear.

— Survival craft types:

- a) single fall totally enclosed lifeboats with sprinkler and air systems;
- b) twin fall totally enclosed lifeboats with sprinkler and air systems;
- c) partially enclosed lifeboats;
- d) tender lifeboats;
- e) freefall lifeboats;
- f) open lifeboat;
- g) inflatable rescue boats;
- h) rigid rescue boats;
- i) semi-ridged inflatable rescue boats;
- j) rigid fast rescue boats;
- k) rigid inflatable fast rescue boats.

— Survival craft propulsion system types:

- a) inboard diesel engines;
- b) outboard engines;
- c) propeller drives;
- d) jet drives.
 - Davit types:
 - a) gravity single and twin fall outrigger;
 - b) hydraulic single pivoting/luffing;
 - c) hydraulic multi pivot/luffing;
 - d) telescopic;
 - e) gravity roller track;
 - f) gravity free fall primary;
 - g) free fall hydraulic secondary;
 - h) A-frame hydraulic;
 - i) single arm slewing (manual, electric);
 - j) davits with stored power systems.

— Winch types:

- a) twin drum;
- b) single drum;
- c) gravity lowering, electric hoisting;
- d) gravity lowering, hydraulic hoisting;
- e) hydraulic hoisting and lowering.

— Hook release system types:

- a) on-load/off load (load not over centre);
- b) on-load/offload (load over centre);
- c) off load;
- d) freefall hydraulic;
- e) automatic off load.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 23678-1, *Service personnel for the maintenance, thorough examination, operational testing, overhaul and repair of lifeboats and rescue boats, launching appliances and release gear — General requirements for training providers*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 23678-1 apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

4 Initial service technician training

4.1 General

This programme is designed to meet the initial training and assessment requirements for all prospective service technicians. The initial service technician training explains how competence shall be assessed and certified.

4.2 Candidate pre-requisites

Candidates shall hold or be working towards a nationally recognized qualification in engineering or mechanics, but not unduly excluding similar qualifications.

4.3 Aims and objectives

4.3.1 Aim

The aim of this programme is to give individuals who have little or no experience as a service technician the theoretical and practical knowledge of the operations of the manufacturer or the authorized service provider (ASP) at an entry level that enables them to progress through the level 1 and level 2 service technician training.

4.3.2 Key objectives

The key objectives are to ensure candidates:

- a) have been introduced to and are familiarized with the terminology and equipment;
- b) have an awareness of the functions and roles of the various organizations within the maritime and offshore industry, in relation to manufacturer/ASP operations;
- c) can identify the types, components, role, function, design and construction requirements for lifeboats (including free-fall lifeboats), rescue boats and fast rescue boats, including on-load release gear and launching appliances;
- d) can identify and explain the key causes of lifeboat and rescue boat accidents;
- e) understand the roles and responsibilities of a manufacturer/ASP service technician;
- f) can identify, interpret and apply to their role key legislation, industry guidelines, rules, regulations and conventions applicable to ASP/manufacturer operations;
- g) can identify the procedures for maintenance thorough examination, operational testing, repair and overhaul of lifeboat (including free-fall lifeboats), rescue boats and fast rescue boats, launching appliances and on-load release gear, as applicable;
- h) can identify the requirements for reports and records;
- i) understand and can demonstrate in their working environment basic safety and awareness.

5 Learning outcomes of initial service technician training

5.1 General

During the training programme, candidates shall be required to demonstrate they have the skills and understanding required to be deemed competent in relation to the learning outcomes.

5.2 Theory learning outcomes

5.2.1 Module 1 — Service technician general industry knowledge

To successfully complete the initial service technician training programme, candidates shall be able to:

- a) identify the organizations and regulatory bodies associated with the maritime and oil and gas industry, and their roles and functions;
- b) understand the legislative framework and industry guidelines applicable to manufacturers and ASPs;
- c) identify and interpret the relevant rules and regulations, including international conventions related to the maintenance, thorough examination, operational testing, overhaul and repair of lifeboats and rescue boats, launching appliances and release gear;
- d) explain the key roles and responsibilities of a service technician;
- e) identify the different types of lifeboats, rescue boats, fast rescue boats and davit-launched life rafts, and explain their key roles and functions;
- f) identify and interpret the design and construction requirements for lifeboats (including free-fall lifeboats), rescue boats and fast rescue boats and davit-launched life rafts;
- g) identify the various types of launching appliances for lifeboats, rescue boats and davit-launched life rafts;
- h) identify the individual components that make the various types of launching appliances for lifeboats, rescue boats, fast rescue boats and davit-launched life raft, and explain their role and how they function;
- i) identify the characteristics of mechanical restraints, and explain their function;
- j) identify the various types of on-load release gear, and interpret their design and construction requirements;
- k) identify the common causes of lifeboat and rescue boat accidents, and the measures to mitigate risks and to stop accidents from occurring;
- l) identify and interpret procedures for the inspection, maintenance, thorough examination, operational testing, overhaul and repair of lifeboats, rescue boats, launching appliances and release gear;
- m) identify and interpret procedures for issuing a report of service and statement of fitness for purpose.

5.2.2 Module 2 — Basic safety at work

To successfully complete the initial service technician training programme, candidates shall be able to:

- a) identify and explain health and safety legislation in the work environment, including specific requirements while conducting activities on-board;
- b) identify diverse types and uses of personal protective equipment (PPE);

- c) explain the basic principles of manual handling techniques;
- d) explain the requirements of the control of substances hazardous to health (COSHH) and its application in the workplace;
- e) identify typical workplace hazards, including pressure systems in lifeboats;
- f) explain procedures to follow and identify the equipment required for working at height;
- g) identify and explain relevant lifesaving rules associated with the typical workplace hazards;
- h) identify and explain company specific lifesaving/golden rules;
- i) explain basic lifesaving appliance safety.

5.2.3 Module 3 — Risk management

To successfully complete the initial service technician training programme, candidates shall be able to:

- a) explain the difference between hazard, risk and control;
- b) explain the concepts of risk assessment and techniques used;
- c) explain the risk assessment process and the use of a risk matrix;
- d) explain how to apply control to bring the risk down to “as low as reasonably practicable” (ALARP);
- e) identify the need for dynamic risk assessment;
- f) explain the function of a risk intervention system and how to carry out an intervention.

5.3 Practical learning outcomes

5.3.1 Module 1 — Service technician general industry knowledge

To successfully complete the initial ASP service technician training programme, candidates shall be able to demonstrate:

- a) ability to identify and interpret the relevant information in relation to the rules, regulations and international conventions in relation to manufacturer/ASP operations;
- b) safe operation of on-load release gear.

5.3.2 Module 2 — Basic safety at work

To successfully complete the initial ASP service technician training programme, candidates shall be able to demonstrate the elements of a good individual lift, a team lift with appropriate communications, and correct loading/unloading methods for using a trolley.

5.3.3 Module 3 — Risk management

To successfully complete the initial ASP service technician training programme, candidates shall be able to demonstrate how to:

- a) conduct an effective risk assessment using a risk matrix;
- b) participate in an effective toolbox talk;
- c) conduct an effective risk intervention and complete a risk intervention card.

6 Initial service technician training — Candidate performance assessment

6.1 General

6.1.1 Candidates attending initial service technician training shall be given a series of explanations and demonstrations identifying what they are expected to know and to do. Candidates shall have a 100 % course attendance of the recommended contact time (see 7.2). The training provider shall ensure they have procedures within their quality management system to deal with absence and demonstration of competence.

6.1.2 At the end of each module, candidates shall be given a short test allowing them to demonstrate their knowledge and understanding of the course content. A pass mark of 80 % is required for each test.

6.1.3 Two modules also have practical components in which the candidates shall take an active part. These exercises shall be checked for accuracy by the trainer/assessor, and the results shall be fed back to the candidates. (These exercises form an integral part of the modules and shall be reviewed/corrected by the trainer/assessor where required).

6.1.4 Any candidate failing to meet the training outcomes during the course can be given additional training. Candidates shall show, through repeating tests and practice sessions, that they have bridged the gap in their knowledge and understanding and can demonstrate competence.

6.1.5 If a candidate is deemed “not yet competent” (NYC) in the opinion of the trainer/assessor after reasonable tuition, and is unable to meet the learning outcomes of any individual module, only the training outcomes that the candidate has not been able to achieve competence in shall be repeated.

6.1.6 All candidate assessment forms (see [Table A.1](#) to [Table A.3](#)) and test documentation shall be retained for audit purposes.

7 Duration and timing of initial service technician training

7.1 General

The modules can be delivered individually, if necessary, in which case the training programme shall be completed in full within 30 days of commencement.

7.2 Contact time

7.2.1 The optimum recommended minimum contact time for the complete training programme is 30 h. Contact time includes instruction and assessment activities. Contact time does not include course administration, lunch and refreshment breaks.

7.2.2 The optimum recommended minimum contact time for the individual modules are as follows:

- a) module 1: 18,75 h;
- b) module 2: 7,5 h;
- c) module 3: 3,75 h.

7.2.3 It is suggested that a ratio of 80 % theory to 20 % practical is appropriate.