International Standard

ISO 10855-3

Second edition
2024-11

Offshore containers and associated lifting sets —

Part 3: Periodic inspection, examination and testing

Conteneurs pour une utilisation en mer et dispositifs de levage associés —

Partie 3: Contrôle périodique, inspection et essais

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Foreword

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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 document 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).

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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 67, *Oil and gas industries including lower carbon energy*, Subcommittee SC 7, *Offshore structures*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 12, *Oil and gas industries including lower carbon energy,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 10855-3:2018), which has been technically revised.

The main changes are as follows:

— recommended inspection and acceptance criteria for periodic inspection of offshore containers, lifting sets and lifting set components have been included.

A list of all parts in the ISO 10855 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

The ISO 10855 series meets the requirements of IMO MSC/Circular 860 (1998) for the design, construction, inspection, testing and in-service examination of offshore containers and associated lifting sets which are handled in open seas.

The ISO 10855 series does not cover operational use or maintenance.

Under conditions in which offshore containers are often transported and handled, the 'normal' rate of wear and tear is high, and damage necessitating repair can occur. However, containers designed and manufactured according to the ISO 10855 series have sufficient strength to withstand the normal forces encountered in offshore operations and to not suffer from complete failure even if subject to extreme loads.

Offshore containers and associated lifting sets —

Part 3:
Periodic inspection, examination and testing

1 Scope

This document specifies requirements for the periodic inspection, examination and testing of offshore containers, built in accordance with ISO 10855-1 and with a maximum gross mass not exceeding 25 000 kg, and their associated lifting sets, intended for repeated use to, from and between offshore installations and ships. Inspection requirements following damage and repair of offshore containers are also included.

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 3452-1, *Non-destructive testing — Penetrant testing — Part 1: General principles*

ISO 5817, *Welding — Fusion-welded joints in steel, nickel, titanium and their alloys (beam welding excluded) — Quality levels for imperfections*

ISO 9712, *Non-destructive testing — Qualification and certification of NDT personnel*

ISO 10675-1, *Non-destructive testing of welds — Acceptance levels for radiographic testing — Part 1: Steel, nickel, titanium and their alloys*

ISO 10675-2, *Non-destructive testing of welds — Acceptance levels for radiographic testing — Part 2: Aluminium and its alloys*

ISO 10855-1, *Offshore containers and associated lifting sets — Part 1: Design, manufacture and marking of offshore containers*

ISO 10855-2, *Offshore containers and associated lifting sets — Part 2: Design, manufacture and marking of lifting sets*

ISO 11666, *Non-destructive testing of welds — Ultrasonic testing — Acceptance levels*

ISO/IEC 17020, *Conformity assessment — Requirements for the operation of various types of bodies performing inspection*

ISO 17637, *Non-destructive testing of welds — Visual testing of fusion-welded joints*

ISO 17643, *Non-destructive testing of welds — Eddy current testing of welds by complex-plane analysis*

ISO 17636-1, *Non-destructive testing of welds — Radiographic testing — Part 1: X- and gamma-ray techniques with film*

ISO 17636-2, *Non-destructive testing of welds — Radiographic testing — Part 2: X- and gamma-ray techniques with digital detectors*

ISO 17638, *Non-destructive testing of welds — Magnetic particle testing*

ISO 17640, *Non-destructive testing of welds — Ultrasonic testing — Techniques, testing levels, and assessment*

ISO 23277, *Non-destructive testing of welds — Penetrant testing — Acceptance levels*

ISO 23278, *Non-destructive testing of welds — Magnetic particle testing — Acceptance levels*

EN 818-4:1996, *Short link chain for lifting purposes — Safety — Part 4: Chain slings – Grade 8*

EN 818-6, *Short link chain for lifting purposes — Safety — Part 6: Chain slings — Specification for information for use and maintenance to be provided by the manufacturer*

EN 13414-2, *Steel wire rope slings — Safety — Part 2: Specification for information for use and maintenance to be provided by the manufacturer*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 10855-1, ISO 10855-2 and the following 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/

3.1
inspection body
body that performs periodic inspection or examination

4 Symbols and abbreviated terms

$m_{WLL,s}$	minimum working load limit of each shackle, in t
$m_{WLL,off}$	maximum lifting capacity of a lifting set to be used on an offshore container, in t
m_R	rating, i.e. the maximum gross mass, MGM, of the container including permanent equipment and its cargo, but excluding the lifting set, in kg
m_T	tare mass, i.e. the mass of an empty container including any permanent equipment excluding cargo and lifting set, in kg
m_P	payload, i.e. the maximum permissible mass of cargo which may be safely transported by the container, in kg

NOTE 1 $m_P = m_R - m_T$

NOTE 2 m_R, m_T and m_P are expressed in kg. Where design requirements are based on the gravitational forces derived from these values, those forces are indicated thus as $m_R g$ $m_T g$ and $m_P g$, expressed in N.

5 Container inspection plate

5.1 General

Containers shall be fitted with a plate carrying the information specified in 5.2.

The plate shall be made of corrosion-resistant material securely attached externally in a manner designed to avoid unauthorized or accidental removal. The plates shall be fitted to a door, or on containers with no doors, in a prominent position.

Aluminium rivets have been found to be unsuitable as a fixing method in the offshore environment and shall not be used. The information on the plate shall be in the English language.

NOTE Provision for an additional language can be made.

The text shall be permanently and legibly marked on the plates in characters not less than 4 mm high.

5.2 Contents of inspection plate

The plate shall be headed 'OFFSHORE CONTAINER INSPECTION PLATE - ISO 10855-3'.

The plate shall contain the following information:

a) owner's container number;

b) owner's name;

c) date of last inspection.

The date of last inspection shall be the date on which the most recent inspection was carried out to the satisfaction of the competent person.

To avoid confusion, the plate shall not carry the date of the next inspection. Provision shall be made on the plate to facilitate permanent marking to record a minimum of nine inspections.

NOTE 1 For marking of the inspection plate, see Clause 10.

NOTE 2 In some markets it is common practice to mark an initial inspection date on the inspection plate before the container is taken into use.

The format in Figure 1 should be followed.

OFFSHORE CONTAINER INSPECTION PLATE - ISO 10855-3		
Container no.: Owner: Inspections:		
1		
2		
3		
4		
10		

Figure 1 — Example of inspection plate

The inspection plate may be combined with the data plate by including the additional information specified in ISO 10855-1:2024, 10.2.

6 Schedule of periodic inspection/examination and test — Containers

Containers shall be periodically inspected, examined and, if necessary, tested in accordance with the schedule listed in Table 1.

Inspection bodies performing such inspections should ensure the quality of the inspection work through meeting the requirements for type A or B inspection bodies in ISO/IEC 17020.

NOTE 1 It is not necessary for inspection bodies to obtain accreditation in accordance with ISO/IEC 17020 from an accreditation body.

NOTE 2 Guidance as to the recommended knowledge and experience of staff responsible for inspections for the purposes of ISO/IEC 17020 is given in Annexes B and C. Guidance for inspection and acceptance criteria for offshore containers, lifting sets and lifting set components is given in Annexes D and E.

When the schedule includes a lifting test, the non-destructive examination and visual inspection shall both be carried out after the lifting test.

Table 1 — Schedule of periodic inspection, examination and testing of containers

Time or interval	Inspection/examination/test			
	Lifting test	**Non-destructive examination (NDE)**	**Visual inspection**	**Suffix to be marked on plate** See Clause 10
Initial certification	As required by ISO 10855-1			
At intervals not exceeding 12 months	Not applicable[b]	Not applicable[b]	Yes	V
At intervals not exceeding 48 months	Not applicable[b]	Yes	Yes	VN
After substantial repair or alteration[a]	Yes	Yes	Yes	T

[a] A substantial repair or alteration means any repair and/or alteration carried out, which can, in the opinion of an inspection body, affect the primary elements of the offshore container, or elements which contribute directly to its structural integrity.
[b] The inspection body may require other or additional inspections, examinations and or tests.

7 Container lifting test

7.1 General

The container shall be loaded to give a total mass of 2,5 *R* and lifted using all the pad eyes.

NOTE This total mass can be obtained by putting in an internal test mass of 2,5 *R*–*T*.

The test masses/test load should normally be evenly distributed inside the container. If it is not possible to place all the test mass inside the container, the remaining mass shall be placed outside or under the container, provided that this gives a loading on the structure similar to the distribution of the container loading in operating condition.

If the container has an additional cargo deck, the test mass or test load shall be evenly divided between the floor and the additional deck. If the additional deck is removable, the test shall be performed with the test mass or test load divided between the additional deck and the floor, as well as with the whole test mass or test load on the floor.

The container shall be lifted by a lifting set with an angle to the vertical equal to the design angle and shall be held, clear of the ground, throughout the test.

Where the lifting set, intended for use with the container, is used for the lifting test, care should be taken to ensure that no overloading, deformation or distortion is induced in the lifting set. Should the lifting set normally fitted to the container be used for the lifting test, it shall be visually examined after the load test by an inspection body as per the requirements of this document.

The container shall be lifted in such a way that no significant acceleration forces occur. It shall be held for 5 min before measurements are taken.

No deflections during testing shall be greater than $\frac{1}{300}$ of the span of the member. The offshore container shall show no permanent deformation or other damage after testing.

7.2 Test equipment and calibration

The force shall be applied using calibrated weights and lifting the container by a lifting appliance or by means of a suitable test rig (see ISO 10855-1:2024, 7.3.2). The pressure gauge or loadcells used shall be in calibration.

8 Non-destructive examination (NDE) of welds

8.1 General

The NDE of welds on pad eyes and adjoining structures shall be carried out in accordance with the schedule of examination and tests specified in Table 1.

8.2 NDE methods

NDE methods in accordance with Table 2 shall be chosen with due regard to the conditions influencing the sensitivity of the methods. Structural welds shall be examined as stipulated in columns I to IV of ISO 10855-1:2024, Table 7 with the method in columns III or IV being employed in the event that such is relevant.

Table 2 — Standards relevant to NDE methods

Visual	Magnetic particle	Dye penetrant	Ultrasonic	Radiography	Eddy current[b]
ISO 17637	ISO 17638	ISO 3452-1	ISO 17640	ISO 17636-1 and ISO 17636-2[a]	ISO 17643

[a] Class B Improved radiographic techniques shall be used.

[b] Eddy Current testing may only be used for periodic inspections

Table 3 — NDE acceptance criteria

Visual	Magnetic particle	Dye penetrant	Ultrasonic	Radiography
ISO 5817[a]	ISO 23278	ISO 23277	ISO 11666	ISO 10675-1[b]
Level B	Level 1	Level 1	Level 2	Level 1

[a] For aluminium ISO 10042.

[b] For aluminium ISO 10675-2.

8.3 Use of Eddy current testing at periodic inspections

For periodic inspections, Eddy current testing (ET) can be accepted. ET can only be used on painted surfaces provided the surface to be investigated is free from damage. Structures with very rough and/or damaged surfaces shall not be inspected by ET.

ET is a recognized NDE method that has the advantage that it can be performed without stripping off the paint on a welded connection. Since no acceptance criteria are specified for ET, only experienced and competent operators should perform such inspections.

If indications are found in the ET inspection, the paint shall be removed and the weld shall be inspected by means of the relevant NDE techniques in Table 2 and acceptance criteria in Table 3.

8.4 NDE operators

NDE operators shall be qualified, in accordance with ISO 9712, to a minimum of level 2.

NDE operators shall undertake non-destructive examination in accordance with Table 2 and issue reports describing quality, containing the following information as a minimum:

— number of repairs carried out to meet the specified acceptance standard;

— NDE methods and procedures used;

— NDE-parameters necessary for a proper assessment;

— confirmation of acceptance or rejection.

9 Visual inspection

9.1 General

The visual inspection shall carried out on the exterior and the interior of the container without cargo to ensure that the container is fit for its intended use. All load bearing parts, especially the base structure, shall be inspected. For containers with fixed equipment, the inspection body shall determine whether access to load bearing parts is adequate.

Sufficient lighting and other facilities necessary should be provided to allow the inspection to be carried out safely and effectively. The facility should include suitable means of lifting and supporting the container for the purposes of inspecting the underside.

9.2 Markings

The markings and plates shall be checked to ensure that they meet the requirements of ISO 10855-1 and Clause 5.

9.3 Welds

Welds in the primary structure shall be visually examined to ensure freedom from visible defects.

9.4 Pad eyes and lashing points

All pad eyes and lashing points shall be visually examined for distortion, mechanical damage or any other sign of distress or overload.

9.5 Structure

The structure shall be visually examined for corrosion, mechanical damage or injurious deformation.

9.6 Door closures

Doors, frames, seals, hinges, locks, etc. shall be visually examined and functionality checked to ensure that they operate in a satisfactory manner without undue force being required.

9.7 Floor

The floor shall be visually examined to check that it is not deformed and that it shows no signs of distress or overload. Drainage facilities, where fitted, shall be inspected; for example, drain holes shall be clear of debris.

10 Marking of the inspection plate

On satisfactory completion of the inspection, examination and when applicable, test(s), the plate shall be permanently marked, in accordance with Table 1, as follows:

— the date (YYYY-MM-DD) of the inspection, examination and when applicable, test(s) together with the unique identification mark of the inspection body together with either:

  — suffix T, indicating proof load test, non-destructive examination, and visual inspection, or

  — suffix VN, indicating non-destructive examination and visual inspection, or

  — suffix V, indicating visual inspection only.

11 Inspection report

When, in the opinion of the inspector, a container is suitable for service, a report shall be issued to the owner. This report shall contain the following information (as a minimum):

— container identification (including owner's container number);

— name of owner or delegated nominee;

— report number;

— statement that the container is suitable for service;

— total gross mass in kg, applicable to the all points lifting test and the method of test (where relevant);

— details of NDE carried out (where relevant);

— statement that the container described was inspected/examined and or tested and that the particulars are correct;

— reference, where appropriate, to any report issued to the owner arising from the process;

— confirmation that the inspection plate was marked; date of examination (date of signature or report also to be shown if different from date of examination);

— name of organization, name of the person and authentication by the person carrying out the inspection/examination or test either by signature or other secure means;

— comments on any limits to the scope of inspection.

NOTE 1 Details of the examination of the lifting set can also be given on the inspection report for the container.

NOTE 2 This report can be combined with the initial statement of conformity.

12 Record keeping

The owner shall retain the current certificate for each container, record substantial repairs, modifications or changes in identification etc., and maintain adequate records to ensure traceability.

13 Damage and repair procedures

The owner shall ensure that:

— containers are maintained in accordance with this document;

— if a container is damaged such that it does not conform to this document, it is not used until it is repaired and inspected by an inspection body;

— repairs are carried out in accordance with the requirements for design and manufacture of containers set out in ISO 10855-1;

— repair facilities used are able to ensure the quality of the procedures and facilities (e.g. by a quality management system such as ISO 9001);

— following repair, the container is inspected and, where relevant, tested by the inspection body in accordance with Table 1; to this end, the owner shall provide the inspection body with full details of the repairs that have been carried out;

— following modification, the container is submitted for re-certification.

If the user or any of his agents detects any structural damage or corrosion which may affect the load bearing integrity of the container, they should advise the owner as soon as practicable.

Where a need for repair is identified, adequate arrangements should be made for the safe transportation of the damaged container, to the location specified by the owner.

14 Schedule of inspection/examination and test — Lifting sets

14.1 Lifting sets shall be periodically inspected, examined and tested in accordance with the schedule detailed in Table 4 by an inspection body at least meeting the requirements for type B inspection bodies in ISO/IEC 17020.

14.2 When the schedule requires a load test, any non-destructive examination and visual inspection shall both be carried out after the load test.

NOTE 1 It is not necessary for inspection bodies to obtain accreditation in accordance with ISO/IEC 17020 from an accreditation body.

NOTE 2 Guidance as to the recommended knowledge and experience of staff responsible for inspections is given in Annex C.

Table 4 — Schedule of periodic inspection, examination and testing of lifting sets

Time or interval	Applicable to	Inspection/examination/test			
		Load test	Non-destructive examination	Visual inspection	Suffix marked on sling tag
Initial certification	Complete lifting set	As required by ISO 10855–2			
Interval not exceeding 12 months	Complete lifting set	N/A	N/A	Yes	V
Interval not exceeding 48 months	Sling components and joining links excluding legs	N/A	Yes[b]	Yes	VN
	Chain sling legs	N/A	Yes[b c]	Yes	VN
	Shackles	N/A	N/A	Yes	N/A
	Wire rope legs	N/A	N/A	Yes	N/A
After substantial repair or alteration[a]	Chain lifting set	Yes In accordance with applicable standard [d]	Yes In accordance with applicable standard [d]	Yes	T

[a] A substantial repair or alteration means any repair and/or alteration carried out, which can, in the opinion of an inspection body, affect integrity of the lifting set.

[b] The inspection body may require other or additional inspections, examinations and or tests.

[c] NDE to be performed on the end links of each leg +10 % of the leg length. The location of the 10 % to be based on the visual inspection.

[d] Applicable standards include EN 818-6.

14.3 Load testing of chain sling legs

A test force equal to 2,5 × $m_{WLL,s}$ of a single leg rated in accordance with EN 818-4:1996, Table 3, ±2 %, shall be applied to each leg without shock. The load shall be applied for a minimum of 5 min before measurements are taken.

14.4 Non-destructive examination of sling components except wire rope legs

Magnetic particle examination shall be undertaken as specified in 8.2.

14.5 Visual inspection of the lifting set

14.5.1 General

The inspection shall be carried out with normally corrected vision. Sufficient lighting and other facilities necessary should be provided to allow the inspection to be carried out safely and effectively.

14.5.2 Chain and wire rope slings and components

Inspection of chain and wire rope slings and components shall be carried out in accordance with EN 818-6 and EN 13414-2, as applicable.

14.5.3 Shackles

Shackles shall be visually inspected.

14.6 Marking of the lifting set

On satisfactory completion of inspection/examination/test, as applicable, the lifting set inspection shall be marked on the sling in accordance with ISO 10855-2. Lifting sets may be marked either with an identification tag, or alternatively by one of the marking methods described in ISO 10855-2:2024, 7.3.

Marking shall be in accordance with Table 4 as follows:

— the date YY-MM of the inspection/examination/test as applicable, together with the unique identification mark of the inspection body together with either:

  — suffix T, indicating load test; non-destructive examination, and visual inspection, or

  — suffix V, indicating visual inspection only, or

  — suffix VN, indicating NDE and visual inspection.

This marking shall be placed on the identification tag or on the ferrule as applicable. For slings marked according to method 2, as described in ISO 10855-2:2024, 7.3, with only a small numbered tag, the inspection information shall be recorded electronically or by other means.

14.7 Inspection report

A report shall be issued to the owner, when the lifting set is deemed suitable for service, and it shall contain the following information (as a minimum):

— sling and shackle identification numbers;

— owner's name;

— report number;

— statement that the lifting equipment described was thoroughly inspected, examined and tested, is safe to operate and that the particulars are correct;

— details of any NDE carried out;

— confirmation that the sling identification tag was marked; date of inspection (date of signature or report also to be shown if different from date of inspection);

— name of organization, name of the person and authentication by the person carrying out the inspection/examination or test either by signature or other secure means.

NOTE Details of the inspection of the container can also be given on the inspection report for the lifting set.

14.8 Record keeping

The owner shall retain the current certification for each lifting set and maintain adequate records to ensure traceability.

14.9 Damage and repair procedures

The owner shall ensure that:

— the lifting set is maintained in accordance with this document;

— if the lifting set is damaged, it shall not be used until it is repaired or replaced, and inspected by an inspection body;

— lifting set repairs shall be carried out in accordance with the requirements of ISO 10855-2;

— repair facilities used are able to ensure the quality of the procedures and facilities (e.g. by a quality management system such as ISO 9001);

— following repair, the lifting set is inspected and, where relevant, tested by an inspection body in accordance with Table 4. The repairer shall provide the inspection body with full details of the repairs that have been carried out. Any modifications require re-certification of the lifting set by an inspection body.

If the user or any of his agents detects any damage or corrosion which can affect the integrity of the lifting set, they should advise the owner as soon as practicable.

15 Inspection of attachment of lifting set to an offshore container

15.1 Attachment

A suitably trained person shall ensure that the lifting set has been correctly attached to the container. This shall include:

— check that the $m_{WLL,off}$ of the lifting set attached to an offshore container is as specified in ISO 10855-2;

— legs of multi-leg slings are attached to the container pad eyes without twisting of the legs at the master link.

15.2 Inspection report

When, in the opinion of the inspector, the correct lifting set has been properly attached to the container, a report shall be issued containing the following information (as a minimum):

— container identification (including owner's container number);

— sling and shackle identification numbers;

— name of owner;

— report number;

— rating (R) of the container;

— $m_{WLL,off}$ of the lifting set;

— $m_{WLL,s}$ of the shackles;

— statement that the lifting set has been selected in accordance with this document, and is installed correctly;

— name of organization, name of the person and authentication by the person carrying out the inspection/examination or test either by signature or other secure means;

— date of report.

NOTE This report can be combined with the container inspection report and/or the lifting set examination report.

15.3 Record keeping

The report shall be retained until the lifting set is removed or replaced.

16 Pre-trip inspections

16.1 General

Immediately before transporting a container offshore, and before its return trip, the container shall be inspected by a person appointed by the user. The user shall ensure that the person appointed is competent for this purpose.

The appointed person shall check the validity of the certification by reference to the inspection plate, and verify that the container, including its lifting set, is free from obvious defects rendering it unfit for use.

The appointed person shall confirm, by signature and date, that the inspection has been carried out in accordance with the requirements given in 16.2 and that the container and lifting set conform to all elements before being released for shipment. This confirmation of inspection shall be retained at least until the end of the trip, or, in the event that the container has been involved in an incident, until the completion of any related investigation.

16.2 Pre-trip inspection

The following checks are required:

— inspection plate(s) to ensure that inspection dates are current;

— container for obvious signs of excessive corrosion or damage;

— lifting set for obvious signs of damage;

— lifting set to establish that all parts are present, correct, properly connected and secure;

— container roof, forklift pockets (and frames on open frame containers) for potential dropped objects;

— container door(s) are closed, and the locking mechanism secured.

Annex A
(informative)

Regulations for offshore containers

A.1 General

This annex contains information about various regulatory requirements which apply for offshore containers. Designers, manufacturers and users of offshore containers must be aware of these requirements.

Several international and national certification schemes are applicable for various categories of portable containers. Several of these certification schemes are applicable for offshore containers as defined in this document.

A.2 General certification requirements for offshore containers

The International Maritime Organization (IMO) has issued guidelines for certification of offshore containers, in circular MSC/Circ.860.

The circular is intended to guide national authorities ("the Administration") in developing approval and certification requirements for offshore containers. The circular recommends that offshore containers be approved, prototype tested, certified and periodically inspected by duly authorized bodies ("the Approving Competent Authority").

A.3 International requirements for freight containers

IMO's International Convention for Safe Containers (CSC) requires freight containers, as defined in that Convention, to be certified to CSC. Offshore containers, as defined in MSC/Circ.860, are not covered by the CSC. However, some offshore containers which are used internationally for transport of cargo, also fall within the definition of a container in the CSC. For such offshore containers the requirements of both MSC/Circ.860 and the CSC are applicable.

A.4 Tank containers for dangerous goods

All tank containers intended for marine transport of dangerous goods must be certified to the International Maritime Dangerous Goods Code (the IMDG Code). The IMDG Code is a mandatory code under IMO's SOLAS Convention.

A.5 Gas Cylinder Bundles

Gas Cylinder Bundles, as defined in Chapter 6.2 in the IMDG Code, may be designed as offshore containers. The IMDG Code requires such offshore gas cylinder bundles to be approved, tested and certified to Chapter 6.2 in the IMDG Code, and to ISO 10961 and to the requirements in this document.

NOTE Local regulations that apply to Gas Cylinder Bundles can apply, e.g. European ADR/RID regulations.

A.6 Additional requirements for offshore service containers

In addition to the transport related requirements covered by the ISO 10855 series and the regulations referred to above, offshore containers may be designed or equipped for special service tasks, e.g. laboratories, control stations, workshop, accommodation, stores, power plants, process units.

Such service containers can be subject to safety regulations applicable on the offshore installations where they are used. The safety regulations can apply for various types of installations, systems and equipment in the container. This can include, but is not restricted to:

— fire protection;

— electrical equipment;

— gas detection systems;

— ventilation systems;

— alarms and PA systems;

— noise and vibration;

— pressurized equipment;

— emergency exits.

A.7 ATEX (EC Directive 2014/34/EU)

This European Directive addresses safety of equipment and protective systems to be used in potentially explosive atmospheres that can be applicable to offshore containers.

Annex B
(informative)

Recommended knowledge and experience of staff responsible for inspection of offshore containers

With respect to containers, the inspector should have, as a minimum, a knowledge and adequate practical experience of:

a) the statutory requirements relating to offshore containers;

b) the provisions of this document;

c) the various types of offshore containers in service;

d) the correct methods of slinging and handling offshore containers;

e) the loads, stresses and strains affecting containers when handled under adverse offshore conditions, particularly those affecting lifting points;

f) methods of testing offshore containers;

g) defects likely to be found in offshore containers and acceptable levels of wear, distortion and deterioration in relation to safety in use;

h) welding methods and procedures and qualifications of welders;

i) the various methods of NDE and a good understanding of how they work and their limitations;

j) the visual inspection as required by this document and the signs of weakness and defects to look for.

Annex C
(informative)

Recommended knowledge and experience of staff responsible for inspection of lifting sets intended for use with offshore containers

With respect to lifting sets, the inspector should have as a minimum, a knowledge and adequate practical experience of:

a) statutory requirements relating to lifting sets;

b) provisions of this document;

c) various types of offshore containers in service;

d) correct methods of slinging and handling offshore containers;

e) loads, stresses and strains affecting the lifting sets when used for lifting offshore containers in adverse offshore conditions;

f) methods of testing offshore container lifting sets;

g) defects likely to be found in lifting sets and acceptable levels of wear, distortion and deterioration in relation to safety in use;

h) various methods of NDE and a good understanding of how they work and their limitations;

i) visual inspection as required by this document and the signs of weakness and defects to look for.

Annex D
(informative)

Recommended inspection and acceptance criteria for offshore containers

D.1 General

An offshore container can come in different shapes, sizes, and configurations and not all the elements listed in this annex are included in every design.

The primary structure (structurally sensitive components) of an offshore container should be examined for deficiencies:

a) top end rail;

b) bottom end rail;

c) top side rail (header);

d) bottom side rail (sill);

e) corner posts;

f) intermediate pad eye posts (if pad eyes are located);

g) corner and intermediate fittings (castings);

h) pad eyes;

i) forklift pockets;

j) floor plates and members.

D.2 Visual inspection

Inspection shall be carried out by a competent person in accordance with the schedule stated in Table 1. Inspection should be carried out in accordance with a comprehensive inspection procedure.

See 9.1.

D.3 Condition assessment

D.3.1 Primary structure

D.3.1.1 Top, bottom, end and side rails.

The following conditions are not acceptable:

— cuts, holes, gouges, cracks, or splits;

— dent, bent or bowed > 25 mm;

— corrosion holes or deep-seated corrosion;

— if CSC, deformation outside ISO-dimensions which can cause snagging or damage to adjacent equipment should be repaired.

The following conditions are acceptable:

— dent, bent or bowed ≤ 25 mm;

— dents in bottom face of bottom rails that do not affect the formed edge.

If a dent or bent is close or adjacent to corner fitting, pad eye assembly or other primary connection, the weld should be inspected by NDE (e.g. magnetic particle).

D.3.1.2 Corner posts (including intermediate pad eye posts).

The following conditions are not acceptable:

— cuts, holes, gouges, cracks or split;

— dents on a formed edge or face > 15 mm;

— dent, bent or bowed > 13 mm extending over a length > 500 mm;

— cracks or improper welds to corner fittings;

— corrosion affecting the structural strength;

— improper repairs;

— if container also has CSC conformity, deformation outside ISO-dimensions which can cause snagging or damage to adjacent equipment should be repaired.

The following conditions are acceptable:

— dent, bent or bowed ≤ 15 mm depth except as qualified above.

If a dent or bend is close to or adjacent to corner fitting, pad eye assembly or other primary connection, the weld should be inspected by NDE (e.g., Magnetic particle).

D.3.1.3 Corner and intermediate fittings (castings).

The following conditions are not acceptable:

— cracked, loose, torn, broken, missing corner fittings;

— any deformation of the fitting that precludes or compromises full engagement of the securing or, in case of CSC, lifting of the fitting;

— any deformation that alters the aperture size or shape such that a twist lock cannot enter the corner fitting;

— any deformation that reduces the amount of material in the load bearing area of the twist lock;

— any damage that affects the integrity of the corner fitting welds to any adjacent component;

— any damage that compromises the corner fitting strength in the load path between the twist lock bearing area, corner post, side, or end rail welds;

— any attempted repair performed to the corner fitting other than replacement or re-welding to the adjacent components.

D.3.1.4 Pad eyes.

The following conditions are not acceptable:

— cuts, gouges, or cracks;

— internal wear ≥ 7 % (maximum clearance at centreline of pad eye thickness);

— rounding of pad eye hole ≥ 8 % (maximum clearance at edges, measured at 10 % of the total pad eye thickness in from the outer surface of the pad eye);

— bent or bowed;

— excessive corrosion causing thickness reduction;

— visible weld defects (including cracks);

— improper repairs.

D.3.1.5 Fork lift pockets.

The following conditions are not acceptable:

— cuts, holes, gouges, cracks or split;

— visible weld defects (including cracks);

— excessive corrosion causing thickness reduction;

— improper repairs.

D.3.1.6 Floor plates and members.

The following conditions are not acceptable:

— cuts, holes, cracks or split;

— excessive corrosion causing thickness reduction;

— loose or damaged floor plates or grating;

— improper repairs.

D.3.2 Secondary structure

D.3.2.1 An offshore container may have protective sacrificial plates or profiles fitted to protect the primary parts of the container (e.g. for door fittings). These should not be mistaken for primary structure.

The following conditions are applicable to the secondary structures listed in D.3.2.2 to D.3.2.11.

The following conditions are not acceptable:

— loose or damaged parts;

— cuts, holes, cracks or split;

— excessive corrosion causing thickness reduction;

— visible weld defects (including cracks);

— improper repairs.

D.3.2.2 Doors and hatches.

D.3.2.3 Side and roof panels (including panel stiffeners and corrugations).

D.3.2.4 Internal lashing points.

D.3.2.5 Intermediate cargo decks.

D.3.2.6 Top protection.

D.3.2.7 Driving ramps.

D.3.2.8 Equipment supports and protection.

D.3.2.9 Tank impact protection.

D.3.2.10 Tank supports.

D.3.2.11 Tank vessel and (service) equipment.

NOTE Offshore tank containers for the carriage of dangerous goods are required under the IMDG Code to undergo a 2,5-year (intermediate) or 5-year (periodic) inspection and test.

D.3.2.12 Markings (regulatory and operational).

The following conditions are not acceptable:

— loose;

— missing or not legible;

— foreign marks.

The following conditions are acceptable:

— abrasions not affecting legibility.

D.3.2.13 Cargo markings and placards.

The following conditions are not acceptable:

— remnants of placards, labels, or marks;

— non-specified owner marks;

— insecure label holders.

The following conditions are acceptable:

— isolated remnants of marks or adhesive not affecting operations.

D.3.2.14 Data plate(s).

The following conditions are not acceptable:

— loose or corroded fasteners;

— missing or not legible;

— dent or bent affecting use;

— improper repairs.

The following conditions are acceptable:

— corrosion and abrasions not affecting legibility.

D.3.2.15 Coating and corrosion protection.

The following conditions are not acceptable:

— paint or coating failure;

— contamination and damage by cargo;

— paint degradation greater than Ri4;

— flake rust or blisters.

The following conditions are acceptable:

— faded, discoloured;

— abrasions.

ISO 4628-3 which specifies assessment of degree of rusting, provides more information on Ri4. ISO 4628-3 identifies degradation by categorizing in six conditions Ri0 to Ri5. Paint and coating damage and corrosion should be repaired as part of routine maintenance. Repair paint colour should be the same as the original i.e. like for like.