

Memo to:

Offshore container and Portable offshore unit manufacturers and owners

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From:

Container governance unit

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Prep. By:

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Copied to:

DNV GL Offshore container and portable offshore unit certification offices

Certification of Offshore containers (DNVGL 2.7-1) and Portable offshore units (DNVGL 2.7-3).

The interpretation of the above standards has been somewhat inconsistent since the publication of DNVGL 2.7-3 in 2006. The frequency of internal and external enquiries has grown, since DNVGL 2.7-3 was re-written in 2011. Manufacturer's expectations and/or project specifications placed upon them can be such that business is affected, when delays and/or difficulties caused by misunderstandings are experienced during Certification.

This memo defines Offshore Containers (OC) and Portable Offshore Units (POU), explains the origin of these issues and provides further guidance, in terms of defining and certifying both OC and POU appropriately. Reference is made to IMO and other International guidelines or requirements as applicable - quotes in parentheses are taken directly from the standards.

Definitions: Offshore containers

Ref. [2] 1.5.1 Offshore container

“An offshore container is a portable unit with a maximum gross mass not exceeding 25000 kg, for repeated use in the transport of goods or equipment, handled in open seas, to, from or between fixed and/or floating installations and ships.”

“Units for offshore lifting that are intended for installation and not for repeated transport are not considered to be containers. Likewise, units that do not have an outer framework with pad eyes are not considered to be containers. Hence, these units are not covered by this standard. (See however the definition of waste skip in [1.2.2]). Many such portable units may be eligible for certification according to DNVGL-ST-E273 Portable Offshore Units.”

Offshore containers may be divided into 3 main categories:

- Offshore freight container, used for the transport of goods.
- Offshore service container, equipped for a specific service / operation.
- Offshore waste skip, used for the storage and removal of waste.

Ref. [3] 1.4.4 Offshore container

“An offshore container is.... Offshore containers are also defined by the requirements given in DNV 2.7-1 which includes the requirement that they must have an outer framework with padeyes.”

Ref. [3] 1.1.1

Guidance note 1:

“Offshore containers according to the definition in [1.4.4] should always be certified according to DNV 2.7-1.

Units which are neither portable offshore units nor offshore containers accordingly will not be certified to these standards. In cases where it is not obvious if a design is a portable offshore unit or an offshore container DNV GL will decide whether the design can be certified to DNV 2.7-1 or DNVGL-ST-E273 or neither of these.”

The definitions in DNVGL 2.7-1 and DNVGL 2.7-3 and the intent of / requirements for OC are aligned with Ref. [1]. The requirements contained in the IMO circular are considered in some cases irrelevant to and therefore not compulsory for the purposes of POU.

Definitions: Portable offshore units

DNVGL 2.7-3 (originally published in June 2006) was developed in response to market feedback and customer demand for the Certification of units transported offshore that cannot be defined and designed as OC (as per IMO MSC/Circ.860 and DNVGL 2.7-1), in essence units:

- With a Rating in excess of 25 tonnes.
- Without a continuous external structural framework, and where the addition of such would jeopardise safety during transport or operations.
- Used for the purposes of a single event / operation.

DNVGL 2.7-3 was extensively re-written in 2011 and revised again in 2016, adopting a risk-based approach and including provisions / requirements for different design classes (i.e. R60, 45, 30 and 00), subsea operations, lifting gear and possible type 'E' units. A maximum Gross Weight of 100 tonnes was introduced in 2011, higher Ratings may be considered after special consideration.

Ref. [3] 1.4.3 Portable offshore unit

"A POU (portable offshore unit) is a package or unit intended for repeated or single offshore transport and installation/lifting which may also be designed for subsea lifting."

Guidance note 1:

"POUs typically carry equipment (or any kind of installation) intended for a service function offshore. The equipment could be an integrated part of the POU or detachable. Typical examples of POU's are given in [1.1.6].

Note that POU's are not intended to carry goods (general cargo) as their primary function but may be used for goods that is not possible/impractical or too heavy (MGW > 25 tonnes) to transport in offshore containers. Units intended for subsea application may be designed/used to carry general cargo."

Ref. [2] 1.5.3 Units for transportation offshore

"Portable unit or package with a maximum gross mass not exceeding 50000 kg, for repeated or single use with a primary service function, handled in open seas, to, from or between fixed and/or floating offshore installations and ships. Units of this type are not considered to be offshore containers."

DNVGL 2.7-1 or DNVGL 2.7-3?

At first glance, DNVGL 2.7-3 might seem to offer some apparent and attractive relaxation in terms of design, manufacturing and test requirements, otherwise compulsory in IMO MSC/Circ.860 and DNVGL 2.7-1. Hypothetically speaking (maximum Rating being ignored), a unit may be certified by DNV GL in accordance with DNVGL 2.7-3 without a continuous outer framework, without welded (full penetration) padeyes, without top protection, with protruding parts, manufactured using fillet welds and subject to an all point lifting test only.

The design approach, test requirements, defined operational limitations, markings and procedures implemented would of course be such that an appropriate level of safety is still ensured during all relevant handling, transportation and lifting phases associated with that POU.

Figures 1-1 and 1-2 in DNVGL 2.7-3 attempt to clarify how OC and POU should be defined; they do not however cover all possibilities. It's not uncommon for Designers and Approval Engineers to lose sight of the requirements in IMO MSC/Circ.860, the intent of the standards or interpret the definitions / flowcharts incorrectly. There have been some attempts by manufacturers / designers to take advantage of the less prescriptive, risk-based approach of DNVGL 2.7-3, to avoid some of the requirements in DNVGL 2.7-1 - there are no known cases of DNVGL 2.7-1 being specified in preference of DNVGL 2.7-3.

The design classes in DNVGL 2.7-3 are considered operational limitations for units that can be defined as POU, they shall not be used to invoke DNVGL 2.7-3 in the first instance.

Further external guidance can be found in Ref. [4] which states "...where the design and use of a portable offshore unit does not make full compliance with the standards for offshore containers possible, they shall instead comply with DNV Standard for Certification 2.7-3" e.g.:

- Box-shaped unit (MGW<25t) for multiple transport of equipment offshore without an outer frame (i.e. formed from plate) - should be re-designed to incorporate an external load carrying frame;
- Unit with equipment for regular transport, lacking a continuous outer framework to permit access during operations - should be re-designed having removable, hinged beams or otherwise to form outer frame;
- Large flat-bed 'pancake' with sensitive equipment (e.g. solar panels) for temporary use offshore could be DNVGL 2.7-3, since an outer frame with top protection would make operations impossible and removing the top-outer frame would need extensive deck space and/or involve additional operational risk.

Conclusion

If a unit (including those deployed subsea*) has:

- a Maximum Gross Weight / Rating of less than or equal to 25000 kg;
- an external structural framework;
- and will be transported / lifted offshore more than once;

then IMO Circular MSC/Circ.860 is relevant and DNVGL 2.7-1 shall be considered the default Standard for Certification.

*[additional requirements in section 3 of DNVGL 2.7-3 should be considered].

Our position is that DNVGL 2.7-1 should always be the default standard, however if a unit cannot be defined, designed or easily modified to be an OC, Certification in accordance with DNVGL 2.7-3 may be considered a suitable alternative.

There will always be unique designs and project specific requirements that drive what is possible or not in terms of design - interpretations will always be necessary. DNV GL shall always strive toward a consistent approach and share best-practises through our internal network and experience exchanges.

References

1. International Maritime Organisation Circular MSC/Circ.860, 22nd May 1998.
2. DNVGL-ST-E271 2.7-1 Offshore containers, August 2017.
3. DNVGL-ST-E273 2.7-3 Portable offshore units, December 2016.
4. Danish Maritime Authority Order on the Approval of Offshore Containers and Portable Units handled in open Seas, Order 1141, September 2013.

If you have any further questions or comments on this, please do not hesitate to contact us at: container@dnvgl.com.