DNV·GL

Certificate No:
TAS000019E

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Offshore Container

with type designation(s)
PB9278G - 16 Gas Cylinder Bundle - Oxygen, Inert Gas and CO2
PB9278GDA - 16 Gas Cylinder Bundle - Acetylene

Issued to
David Ritchie (Implements) Ltd.
Forfar, Angus, United Kingdom

is found to comply with
DNV GL standard DNVGL-ST-E271 – 2.7-1 Offshore containers, August 2017
ISO 10855:2018 Offshore containers and associated liftings sets – Design, manufacture, testing, inspection and marking
ISO 10961 - Gas cylinders-Cylinder bundles-Design, manufacture, testing and inspection
International Maritime Dangerous Goods Code (IMDG)
European Agreement Concerning the International Carriage of Dangerous Goods by Road (ADR)
Regulations Concerning the International Carriage of Dangerous Goods by Rail (RID)
IMO/MSC Circular 860

Application :

Type	Max. gross mass (kg)	Max. payload (kg)	Max. sling leg angle	Enhancement factor
PB9278G - 16 Gas Cylinder Bundle - Oxygen, Inert Gas and CO2	**2300**	**600**	**45°**	**3.128**
PB9278GDA - 16 Gas Cylinder Bundle - Acetylene	**2300**	**350**	**45°**	**3.128**

Issued at **Høvik** on **2018-12-06**
This Certificate is valid until **2020-12-30**.
DNV GL local station: **Aberdeen**

for **DNV GL**

Approval Engineer: **Nina Thorvaldsen Moberg**

Inger-Helene Hals
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

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Manufactured by

Offshore frame produced and assembled by:

Local office: DNV GL Aberdeen.

Manifold manufactured by:

David Ritchie Ltd. takes responsibility that both design and production are in compliance with the Standards and/or Regulations listed on page 1 of this Type Approval Certificate.

Product description

This type approval certificate replaces S-7499.

This offshore container is a gas cylinder bundle according to IMDG/ADR Code Chapter 6.2, with cylinders connected through a manifold. The container is approved for transport of gases as specified under Application/Limitation.

Max. external dimensions (LxWxH)	: 1100 x 1100 x 2020 mm
Tare mass Oxygen, Inert Gas and CO2 [1)]	: 1700 kg
Tare mass Acetylene [1)]	: 1950 kg

[1)] tare mass has to be confirmed by weighing. The sum of the tare mass and the payload shall never exceed the max. gross mass as stated on the front page of this certificate.

Air Liquide Oil & Gas Services SA is the owner of the design.

Application/Limitation

Products accepted for carriage	: Oxygen	UN number 1072
	Argon	UN number 1006
	Nitrogen	UN number 1066
	Helium	UN number 1046
	Carbon Dioxide	UN number 1013
	Compressed Gas	UN number 1956
	Acetylene	UN number 1001

Design temperature	: -20 °C
Min. shackle bolt diameter	: 22.1 mm
MAWP/test pr. (bar) [2)]	: 300 / 450
	: 25 / 300 (for acetylene)

[2)]maximum allowable working pressure for the cylinder bundle shall not be higher than the maximum allowable working pressure for the cylinders.

This frame has been approved with fork pocket inner dimensions of 188 mm by 88 mm and has been accepted by Air Liquide as suitable for their needs.

The DNV GL surveyor to witness important production and test events and issue Form no. 71.08a "Certificate for Offshore Container" for each container, and any additional certificate as required by the competent authority.

Production strength tests (All point lifting) to be carried out according to DNV GL 2.7-1 and after agreement with the DNV GL surveyor.

Each manifold shall be proof pressure tested, each bundle should be leak tested, according to ISO 10961:2012 Section. 7.3.

The certificates are only valid when the containers are fitted with a lifting set certified according to DNV GL 2.7-1 and the gas bottles are certified by authorised body.

Only certified gas bottles of the proper size and type are to be use in this frame.

Service equipment shall be type approved according to one of the referenced standards in ADR/RID section 6.2.4.1, and bear the Π mark.

Only one of the following Certification marks[3] to be marked on each bundle, David Ritchie is responsible for proper use of these:

ISO 10961/N-NV/YYYY/MM[4]

ISO 10961/GB-DNV/YYYY/MM[4]

[4] Year and month of initial inspection of each bundle.

Type Approval documentation

Tests carried out

Prototype tested according to DNV GL 2.7-1, IMDG Ch. 6.2 and ISO 10961.

Marking of product

Each container to be marked according to approved drawings:

- Data plates according to DNV GL and IMDG / ISO requirements
- Container marking according to DNV GL / ISO requirements
- Bundle marking according to ISO 10961, Chapter 6 and IMDG Code ref. 6.2.2.10 (certification marks, operational marks and manufacturing marks)
- DNV GL decal for offshore containers
- ℒ mark to be hard stamped on frame
- Manufacturer's Serial Number to be welded on frame

Periodical assessment

In order to maintain the validity of the type approval certificate, periodical assessments should be carried out according to DNVGL-CP-0338 at 2 and 3.5 year intervals. Periodical assessments will, when possible, be harmonised with other surveys and audits carried out.

END OF CERTIFICATE