



ROTH Mions S.A.S.
43, rue des Broses
F – 69780 - MIONS

Instructions Manual for pressure vessels

NIT PED v05
English version

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Indice	Libellé	Date
00	Created by NB	12/04/2013
01	Add rule CLP 1272/2008	30/10/2015
02	Modif 97/23/CE into 2014/68/UE	14/09/2016
03	Clear use of fluids §1 – modifications in italic	29/11/2016
04	Following BV email on 11/01/2017 – modifications in italic	12/01/2017
05	Integration of NIT PED v0 – modifications in italic	13/04/2017

Be careful, this shell is a pressure vessel. Failure to follow instructions may result a danger for the security of people and goods.

To preserve the quality of your product from delivery and throughout its use in the best conditions of security, it is recommended that you read this manual carefully and strictly follow the instructions it contains.

1. Description

Use :

The vessel function is to store pressurized fluids.

The vessel itself cannot store fluid under pressure. It has to be equipped with suitable pieces defined by the manufacturer of those pieces.

The vessel can store different fluids, depending of its application :

- Hydraulic oil and Nitrogen for bladder accumulator (fluids of group 2).
- Hydrogen. Hydrogen gives fragility to the steel. Declaration of conformity mentions “Hydrogen” and marking indicates “H2”.
- Compressed air *for diving bottle for example*, Water (fluids of group 2).
- Compressed oxygen. Combustion fluid. (fluid of group 1).
- For the other applications or particular fluids, ROTH has to be informed by the fitter, before filling the vessel.

The vessel cannot store corrosive fluids.

The vessel is not defined for Transportation of Fluids.

Regulation :

The vessel is conforming to European Directive 2014/68/UE concerning Equipments under pressure.

It is a vessel homologated under Category IV. Therefore, the vessel is approved following conformity evaluation procedure module B+D ; this conformity evaluation procedure allows the vessel to be homologated for lower categories.

The vessel is able to store fluids of group 1 and/or group 2 as defined in the European rule CLP 1272/2008 and following above restrictions (see fluid group mentioned in UE Declaration of conformity).

Fabrication :

The vessel is manufactured in seamless steel, forged at each ends.

2. Technical feature

Some technical features are mentioned in the Conformity Declaration or may be stamped on the product (see §4).

Storing Temperature (vessel without pressure)	-60°C to +350°C
Maxi Temperature for applying coating	350°C
Weight depending on model	4 kg to 150 kg
Standard delivery conditions (except specific request) – Internal protection	Dessicant bag or oil spread inside the vessel. Cap at each end.
Standard delivery conditions (except specific request) – External protection	Primary coating or finishing paint or anticorrosive protection <i>or without</i> . <i>Anticorrosive protection + finishing paint for diving bottles.</i>
Fatigue calculation is done following recognized Code. Cycle numbers is depending on the vessel delta pressure of use (see cycles number on Declaration of Conformity). <i>For diving bottles, cycle number is defined in Manufacturing standard.</i>	

3. Instructions

Instructions shall be considered during all the life of the vessel, it means for the shell alone, for the shell equipped, before and during use, and at the end of its life.

It concerns handling, storing, installation, fixing, commissioning, use, maintenance, removal, disposal or recycling.

3.1 Handling, storage, installation

Handling :

The vessel shall be handled with care to save it against shocks or stresses which can deform, scratch, crack or create metal wrenching.

Once installed, if necessary, protection around the vessel shall be provided.

For heavy vessel, a magnet, belt or other suitable means may be used for handling.

During transportation, the vessel shall be packed in suitable packaging : carton, container, plastic coated pieces secured on pallets... Packaging shall be done with a limited number of levels depending on the size of the vessels.

During handling, the vessel weight shall be well considered.

Storage :

Storage shall be made out of the weather, moisture, runoff, condensation. Storage temperature : see §2. The vessel shall be protected with same means than delivery : see §2.

Protection :

The vessel shall be protected against anything which may cause a corrosive action, whether inside or outside.



Depending on the conditions of use and location, the vessel can be coated with a protective paint or other coating. The compatibility of the coating and application temperature shall be checked to be in conformance with requirements of §2.

Installation :

During installation and before the first pressurization, the fitter shall visually check that the vessel has suffered no damage.

If the manufacturer ROTH has not stamped the group of fluid (and its possible nature if necessary) in the initial marking of the vessel, the fluid is from group 2 and non corrosive for the tube walls.

The vessel shall be equipped at ends with connecting pieces designed and manufactured in conformance with the design of the vessel.

It is recommended to fix the vessel using suitable clamps adapted to the diameter of the vessel, and suitable supports for the hemispherical part.

It is forbidden to carry out a repair by welding, drilling, riveting or any operation creating a removal of material, or a rise in temperature.

Compatibility of the fluid with steel and with possible internal and external protection elements shall be checked.

A pressure relief system on the equipment or installation shall be fitted to avoid the system pressure becomes over the maximum allowable pressure of the vessel.

The filled fluid shall not increase the internal defined pressure at temperature of use.

Regulations in force shall be followed during installation.

Additional recommendations :

The vessel shall not be exposed to the action of flame or sparks.

The vessel shall not be exposed to the effect of electric and magnetic fields which could create sparks or overheating.

The vessel shall be protected against the effects of lightning.

The vessel shall not be installed and used as a structural component and shall not be used to support other components or assemblies.

The vessel shall not be exposed to external loads.

3.2 Use

Temperature and pressure phenomena :

In use, an increase of temperature involves an increase of pressure ; likewise a pressure variation generates a temperature change (an increase of pressure generates an increase of temperature, and a relaxation of the pressure generates a temperature decrease). The user shall ensure these behaviors to avoid exceeding the vessel limits of use.

Inspection and periodical follow up :

The user is responsible of following up periodical inspections according to regulatory requirements.

In addition and depending on use, the user shall regularly check that the vessel does not show evidence of deterioration such as corrosion, deformation, shock, leak, crack...

Wear and fatigue phenomena :

In case of use with abrasive fluid, a filter shall be fitted on the installation.



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Depending on the conditions of use, fatigue phenomena may occur.
The user shall regularly proceed to inspection of the general condition of the vessel.

3.3 Maintenance, dismantling, destruction, recycling

Before any maintenance or disassembly on the vessel equipped with connecting pieces, the pressure lines shall be purged, and the absence of residual pressure inside the vessel shall be ensured.

Before destruction or recycling, the pressure lines shall be purged, and the absence of residual pressure inside the vessel shall be ensured.

If necessary, the remaining gas shall be removed using a neutral gas.

3.4 For other situations, please ask to ROTH.

4. Marking

The vessel is marked with the following non-exhaustive information in a reinforced area so as not to weaken the part.

ROTH	Name or brandt symbol of the manufacturer
ZZZZZ	Name or brandt symbol of the customer, if any
AAAA	Manufacturing year
XXXX	Serial number of the vessel
PS ____ BAR	Maximum allowable working pressure, in bar
TS __/__ °C	Temperature of use, in degree Celsius
V XX L	Capacity, in litre
XXXX	Use (<i>ACCU for example</i>)
PT ____ BAR	Test pressure, in bar
AAAA / MM	Date of test pressure, year/month
CE XXXX	CE mark <i>followed by notified body N°</i>
XXXX	Notified body n°
XXXX	Group (<i>preceded by G or GROUP</i>) or nature of the allowed fluid, if any
XXXX	<i>Diving bottle : thread information</i>
XXXX KG/L	<i>Maxi filling rate, if any</i>
CH XX KG	<i>Filling mass, if any</i>
XXXX KG	<i>Mass of the vessel (with accessory), if any</i>

The user shall not change the marking unless having ROTH authorization.

In case of additional marking (specific instructions, re-testing during inspections...), it shall be done in the reinforced hemispherical area, and it shall not be confused with the initial marking.

No writing or marking insculcation is allowed on the cylindrical area of the vessel.

The marking operation shall not cause temperature rise beyond the temperature of use.

The marking shall not generate excessive stresses on the vessel.