

## **LPGC24G1 UN composite cylinder handling manual**

### **1 Introduction**

This document is a part of the LPGC24G1 documentation. For detailed information on the cylinder's design, marking, etc. see other parts of the documentation.

### **2 Scope**

This document describes essential basic principles and rules which any user, owner and/or other personnel involved should follow for safe use of any LPGC24G1 type cylinders.

### **3 Product description**

LPGC24G1 is a composite cylinder with a non-load-sharing liner. Cylinders are intended for liquefied petroleum gas (LPG) use (including UN 1011, 1075, 1965, 1969, 1978) at temperatures from -40 °C to 65 °C. The nominal water capacity of a cylinder is 24.5 l and the weight of an empty cylinder is 5.0±0.1 kg (without a valve). The maximum pressure allowed is 30 bar at 65°C. The design life of the cylinder is unlimited. Cylinder is protected by casing, which made of impact proof plastic with antistatic additive. An appropriate conformity certificate, valid for the specific region of use, will be provided.

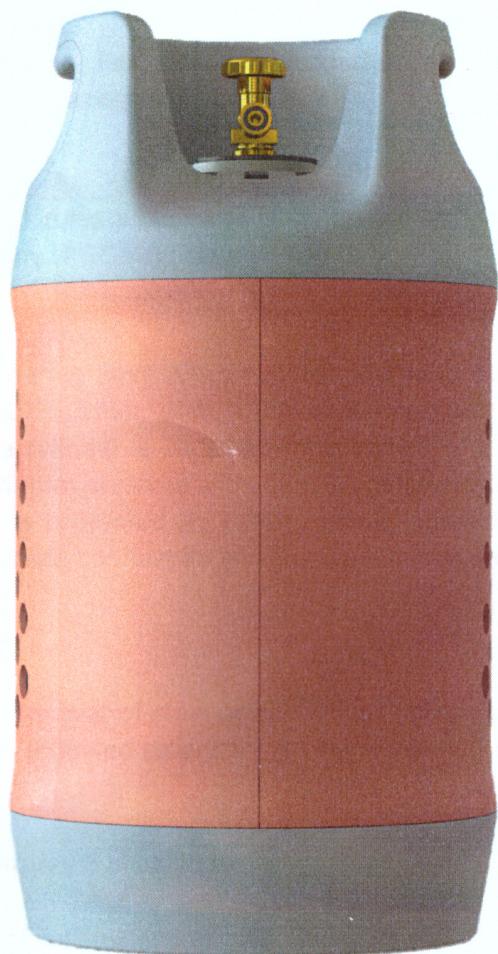
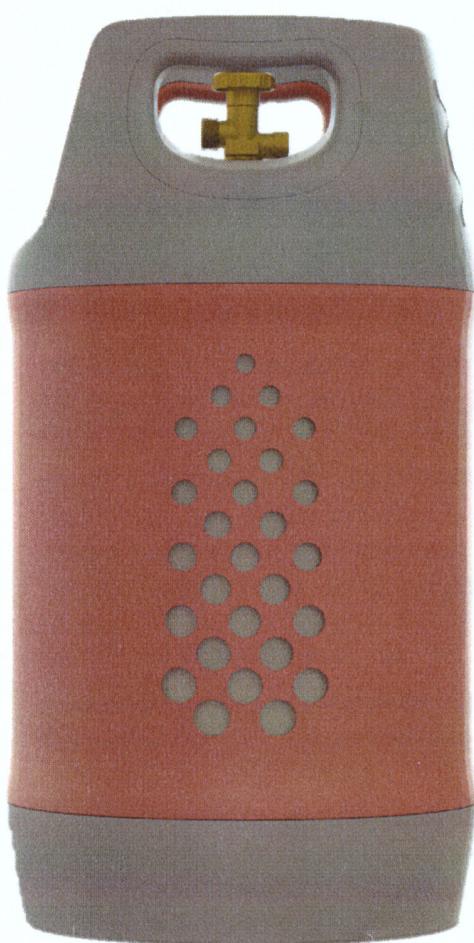
### **4 Care of the cylinders**

Care and handling of LPGC24G1 cylinders is different from that of steel or aluminium cylinders. The rules and recommendations listed below must be followed to ensure proper care of the cylinders:

- The vacuuming of cylinders is strictly prohibited.
- Intentional expose of cylinders to elevated temperatures is prohibited.
- Maximum working temperature is 65°C (149°F).
- Cylinders heated above 65°C (176°F) have to undergo full inspection.
- Disassembling of a cylinder or removing of any parts is strictly prohibited.
- Exposure of cylinders to a hot water or steam is strictly prohibited.
- Storage of unpressurised cylinders is not recommended.
- Storage of cylinders under direct sunlight is not recommended.
- If a cylinder is dropped from a height of 1.2 meters (four feet) or higher, a complete inspection must be carried out by authorised personnel.
- Wash cylinders with water.
- Tar oil, labels and other foreign matter may only be cleaned from the cylinder's surface manually or with the use of water-jet cleaning. Chemical cleaning, solvents and/or aggressive surfactants are prohibited.
- Cylinder should not be partially or completely submerged into water for a long time.
- Cylinders should not be stored mechanically squeezed by package or in any other manner for a long time.



HPC Research



Product: UN Composite Cylinder  
Type: LPGC24G1  
Order No. 18210009/18Zak00010  
Articles: 9504 LPGC24G1/STD/VAL.G.5/OPD  
9508 LPGC24G1/STD/VAL.G.7  
Color code: T-7011/M-3000/B-7011/H-7011  
Manufacturer: HPC Research s.r.o.,  
U Stadionu 615, Horní Bříza, 33012, Czech Republic  
Reg. No. 291 32 908  
Customer: Carbon Zorro Ltd.  
Unit 13, The Beaver Centre, Putney Road West,  
LE2 7TD Leicester, United Kingdom

## LPGC24G1 UN composite cylinder handling manual

### 1 Introduction

This document is a part of the LPGC24G1 documentation. For detailed information on the cylinder's design, marking, etc. see other parts of the documentation.

### 2 Scope

This document describes essential basic principles and rules which any user, owner and/or other personnel involved should follow for safe use of any LPGC24G1 type cylinders.

### 3 Product description

LPGC24G1 is a composite cylinder with a non-load-sharing liner. Cylinders are intended for liquefied petroleum gas (LPG) use (including UN 1011, 1075, 1965, 1969, 1978) at temperatures from -40 °C to 65 °C. The nominal water capacity of a cylinder is 24.5 l and the weight of an empty cylinder is 5.0±0.1 kg (without a valve). The maximum pressure allowed is 30 bar at 65°C. The design life of the cylinder is unlimited. Cylinder is protected by casing, which made of impact proof plastic with antistatic additive. An appropriate conformity certificate, valid for the specific region of use, will be provided.

### 4 Care of the cylinders

Care and handling of LPGC24G1 cylinders is different from that of steel or aluminium cylinders. The rules and recommendations listed below must be followed to ensure proper care of the cylinders:

- The vacuuming of cylinders is strictly prohibited.
- Intentional expose of cylinders to elevated temperatures is prohibited.
- Maximum working temperature is 65°C (149°F).
- Cylinders heated above 65°C (176°F) have to undergo full inspection.
- Disassembling of a cylinder or removing of any parts is strictly prohibited.
- Exposure of cylinders to a hot water or steam is strictly prohibited.
- Storage of unpressurised cylinders is not recommended.
- Storage of cylinders under direct sunlight is not recommended.
- If a cylinder is dropped from a height of 1.2 meters (four feet) or higher, a complete inspection must be carried out by authorised personnel.
- Wash cylinders with water.
- Tar oil, labels and other foreign matter may only be cleaned from the cylinder's surface manually or with the use of water-jet cleaning. Chemical cleaning, solvents and/or aggressive surfactants are prohibited.
- Cylinder should not be partially or completely submerged into water for a long time.
- Cylinders should not be stored mechanically squeezed by package or in any other manner for a long time.

## 5 Inspection of the cylinder before filling

The best approach is to follow the EN 1439:2008 "Procedure for checking LPG cylinders before, during and after filling", but at the very least the following steps and requirements must be fulfilled.

- Inspect the cylinder to ensure that the required permanent markings are on the cylinder.
- Check that the markings are complete and make sure that the latest test/inspection date is not more than ten years old (or less than the term prescribed by the regulations of the specific region of use).
- Check that the date of the next periodical control (if any) is not due.
- Inspect the cylinder visually according to Table 1 below for the criteria for acceptance/rejection.
- If any damage is observed that meets, or is more severe than, the rejection limits, the cylinder must be appropriately marked, permanently removed from service and passed for detailed analysis to the manufacturer or its authorized representative. Repair of the cylinder is not permitted.
- Personnel with the written authorization of the manufacturer can only perform removal or replacement of the outer casing.
- All new LPGC24G1 cylinders sent to customers are pressurised by air. The internal pressure should be checked before releasing the air and the first filling. The pressure level must not be less than 4.5 bar.

Table 1 – The criteria for acceptance/rejection based on visual inspection

Defect description	Criteria for allowance
Casing	
Scratches	Allowed, but not through scratches
Dents	Allowed after inspection of authorised person only
Cracks	Allowed after inspection of authorised person only
Damage to labelling	Not allowed, the information must be renewed
Sticker damage	Not allowed, must be renewed
Handle insert is absent	Allowed after inspection and repair of authorised person only
Any damage caused by fire	Not allowed
Any damages caused by aggressive substances	Not allowed
Composite overwrap	
Scratches of a depth greater than 0.5 mm and longer than 30 mm	Not allowed
Denting of outer surface or of composite material structure	Not allowed
Rupture of armouring fibre	Not allowed
Delaminating	Not allowed
Lines and sediments of resin	Allowed, maximum total area 100 cm <sup>2</sup>

Any damages caused by aggressive substances	Not allowed
Other	
Sign damaging	Allowed but the information must be renewed
Deformation which changes external look	Not allowed
Any damage caused by fire	Not allowed
Damage to neck thread	Allowed after repair by authorised person
Damage of neck assembly (cracks, deformation, etc.)	Not allowed
Scratches and small deformations of bottom flange	Allowed
Dirt and grease on the surface	Allowed after cleaning
Loss of liner shape in the empty cylinder	Allowed
Valve damage (any types)	Not allowed
Rotating of composite shell in casing	Allowed

## 6 The filling of cylinders

Cylinders should be filled according to the requirements of all local normative documents valid for the specific region of use. In addition to the requirements of the standards and regulations it is strongly recommended that the rules and recommendations bellow are followed:

- Cylinders should only be filled at specialised premises or filling stations according to safety regulations at gas facilities. Using of Auto LPG facilities is strictly prohibited.
- The relative humidity at the premises during filling must be no less than 65 %. If the humidity is lower or unknown, humidification of the upper part of the cylinders using water or a wet cloth is strongly recommended before filling.
- The air in cylinders must be released before filling.
- The vacuuming of cylinders is strictly prohibited.
- Valve installation and removal can only be performed by qualified personnel.
- Inspection (by weight or volume) of the quantity of gas filled must be carried out after filling to make sure that the maximum amount of gas has not been exceeded.
- If a cylinder has been overfilled, it is necessary to release the gas safely according to all rules and conditions defined by normative documents valid for the specific region. Cylinder must then be reinspected.
- The pressure while filling cannot be more than the cylinder's working pressure.
- A leak test must be performed on each cylinder after filling. Leaking cylinders must be separated from the others and marked with the appropriate marking.
- Air may escape from cavities under label ring or composite shell after cylinder filling and sometimes it looks like leakage. For quickest test and most reliable results, it is recommended to use gas analyser.
- Before storage or delivery of the filled cylinders, each valve must be reinspected for the presence of the safety cap and the proper marking.

## 7 Filling of cylinders used in countries which are members of the ADR

During filling all local regulations including ADR requirements should be followed. Cylinders are intended for liquefied petroleum gases. Filling parameters according to ADR requirements are

given in the Table 2. For additional information regarding filling, handling, transportation, storage etc. see the last valid version of the ADR (packing instruction P200, special provisions 274, 583, 639 and etc.), directives of the European Parliament and Council 2008/68/EC and 2010/35/EU or their latest versions.

Table 2 – Filling of the cylinders

UN	Name and description	Filling ratio		Maximum weight of gas allowed, kg
1011	BUTAN	0,52		12,68
1075	PETROLEUM GASES, LIQUEFIED	*)		*)
1965	HYDROCARBON GAS MIXTURE, LIQUEFIED, N.O.S	Mixture A	0,5	12,2
		Mixture A01	0,49	11,95
		Mixture A02	0,48	11,71
		Mixture A0	0,47	11,46
		Mixture A1	0,46	11,22
		Mixture B1	0,45	10,98
		Mixture B2	0,44	10,73
		Mixture B	0,43	10,49
		Mixture C	0,42	10,24
1969	ISOBUTAN	0,49		11,95
1978	PROPAN	0,43		10,49

\*) according to the ADR clause 2.2.2.3 "List of collective entries" this entry usually means mixtures of propane and butane. In this case UN 1965 filling ratios should be used. In case of use of any LPGs not mentioned in the Table 2 decision about such filling and filling ratios must be made relying on the maximum gas pressure at the temperature of 65°C, which in no cases can exceed 30 bar. Further instructions on calculation of filling ratios can be found in packing instruction P200 of the ADR.

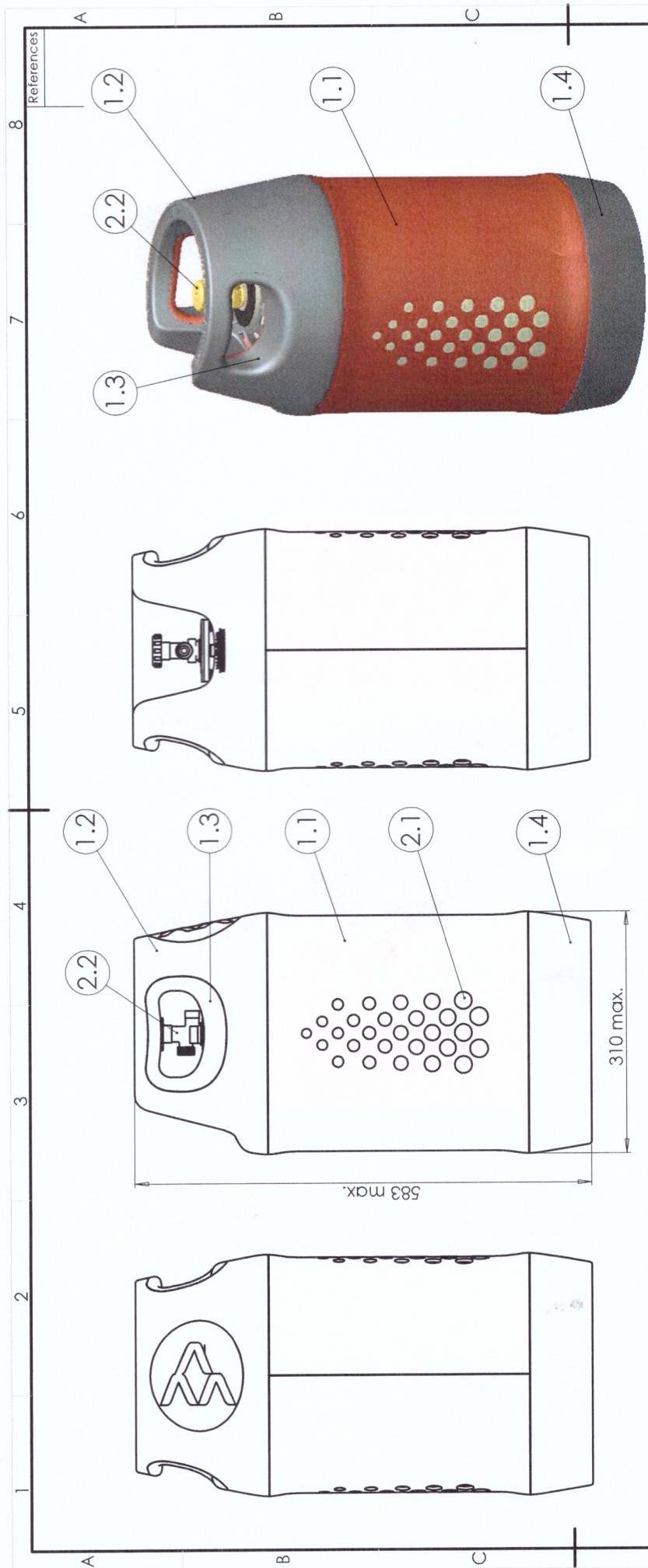
## 8 Storage and transportation

Cylinders should be stored in accordance with all local standards and regulations. In addition to the regulations it is strongly recommended that the rules and recommendations listed below are followed:

- Cylinders can be stacked during storage and transportation to a height of not more than four layers. Filled cylinders must be packed and transported maximally in two layers.
- Cylinder valves should be equipped with protective caps.
- Cylinders should not be stored in direct sunlight.
- Cylinders should be appropriately fixed during transportation.

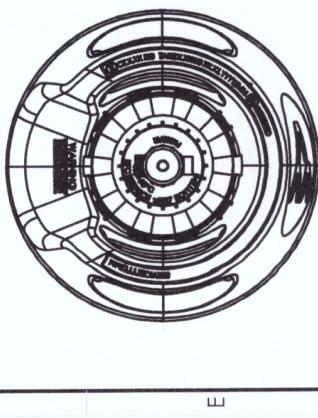
## 9 Periodic inspection and testing

For detailed instructions regarding inspection and testing of the cylinders, please see the appropriate normative documents valid for the specific region.



- Notes:
- Applicable standards: ISO 11119-3:2002, ADR 2015, Directive 2010/35/EU.
  - Design verified for test pressure:  $p_h = 30$  bar.
  - Minimum burst pressure:  $p_b = 72$  bar.
  - Approved for UN 1011, 1075, 1965, 1969, 1978.
  - Water capacity - 24.4 +0.1 L.
  - Container weight (excluding valve) -  $5.05 \pm 0.1$  kg.
  - Container weight (including valve) -  $5.40 \pm 0.1$  kg.
  - Valve inlet thread: 25E (W27.8).
  - Valve outlet connection: G 5 EN 15202:2012.
  - Valve features: PRV 26 bar, 80% OPD
  - Valve mounting torque: 170 Nm max.
  - Retest interval: 10 years.
  - Design life - not limited.
  - Warnings:
    - This cylinder must not be subjected to a vacuum!
    - Valve mounting torque: MAX. 170 Nm
    - To be filled by authorized personnel only.

ITEM NO.	PART NUMBER	DESCRIPTION	RAL	QTY.
1	9192	CASING 7011/3000/7011/7011		1
1.1	9181	CASING MIDDLE STD	3000	2
1.2	9180	CASING TOP STD	7011	1
1.3	9163	HANDLE INSERT	7011	2
1.4	9161	CASING BOTTOM	7011	1
2	9505	LPGC24G1/OMEGA 8067906018		1
2.1	9168	LPGC24G1/VESSEL 25E		1
2.2	SRG 457-011-1002	VALVE/25E/G.5/PRV26/OPD		1
Eng. Proj. No.: LPGC24G1 MATERIAL: MATERIAL STANDARD/TRADEMARK: FPC Research s.r.o. DWG SIE				
DOCUMENT TYPE Assembly drawing TITLE LPGC24G1/OPD SCALE 1:5				
DRAWN BY APPROVED DATE 12-Dec-2017 E-1-OPD	THE INFORMATION CONTAINED IN THIS DRAWING IS THE PROPERTY OF HPC RESEARCH S.R.O. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF HPC RESEARCH S.R.O. IS PROHIBITED.			
LAST MOD. 29.03.2018 14:31:25	WEIGHT 5.4 KG			
				SHEET 1 OF 1



HPC Research s.r.o.  
Vodkova 1847, Prague 5, Czech Republic  
All dimensions apply to the finished product including material surface projection.

5

4

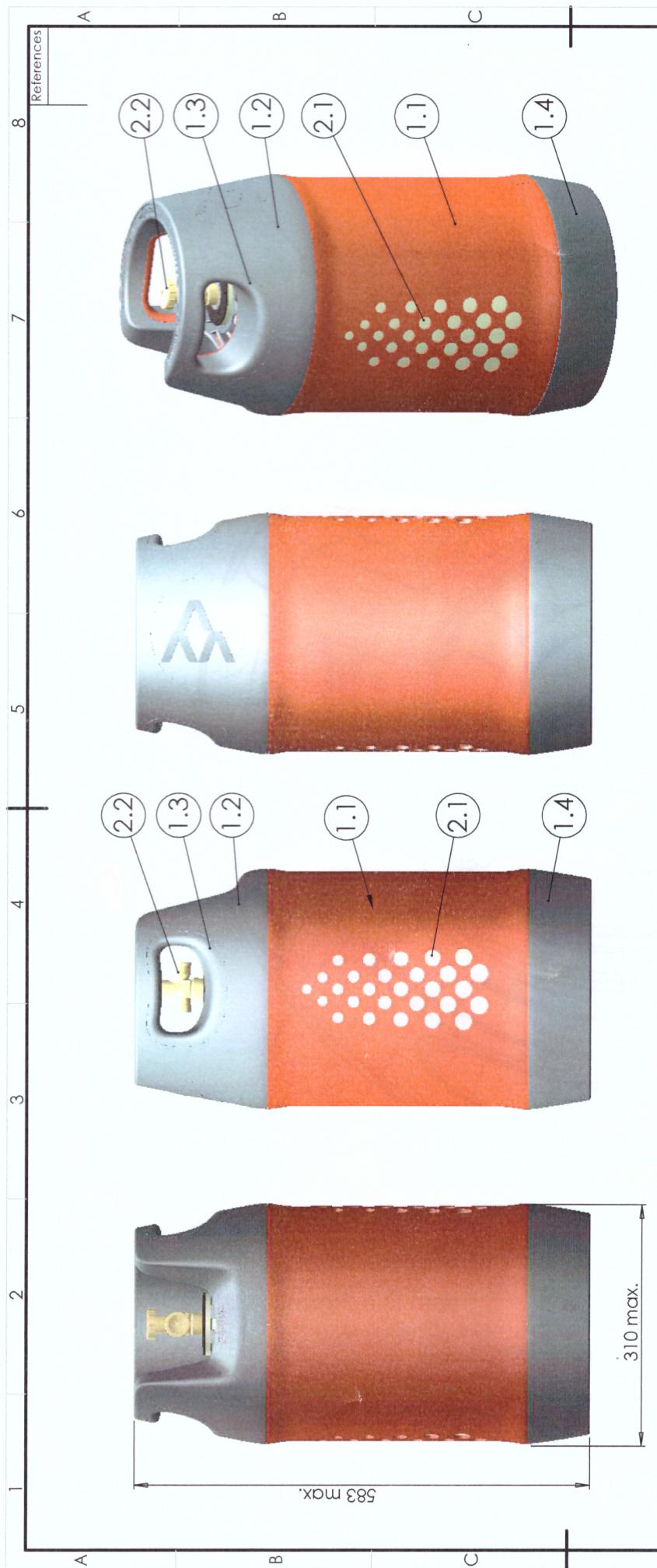
3

2

1

F

8

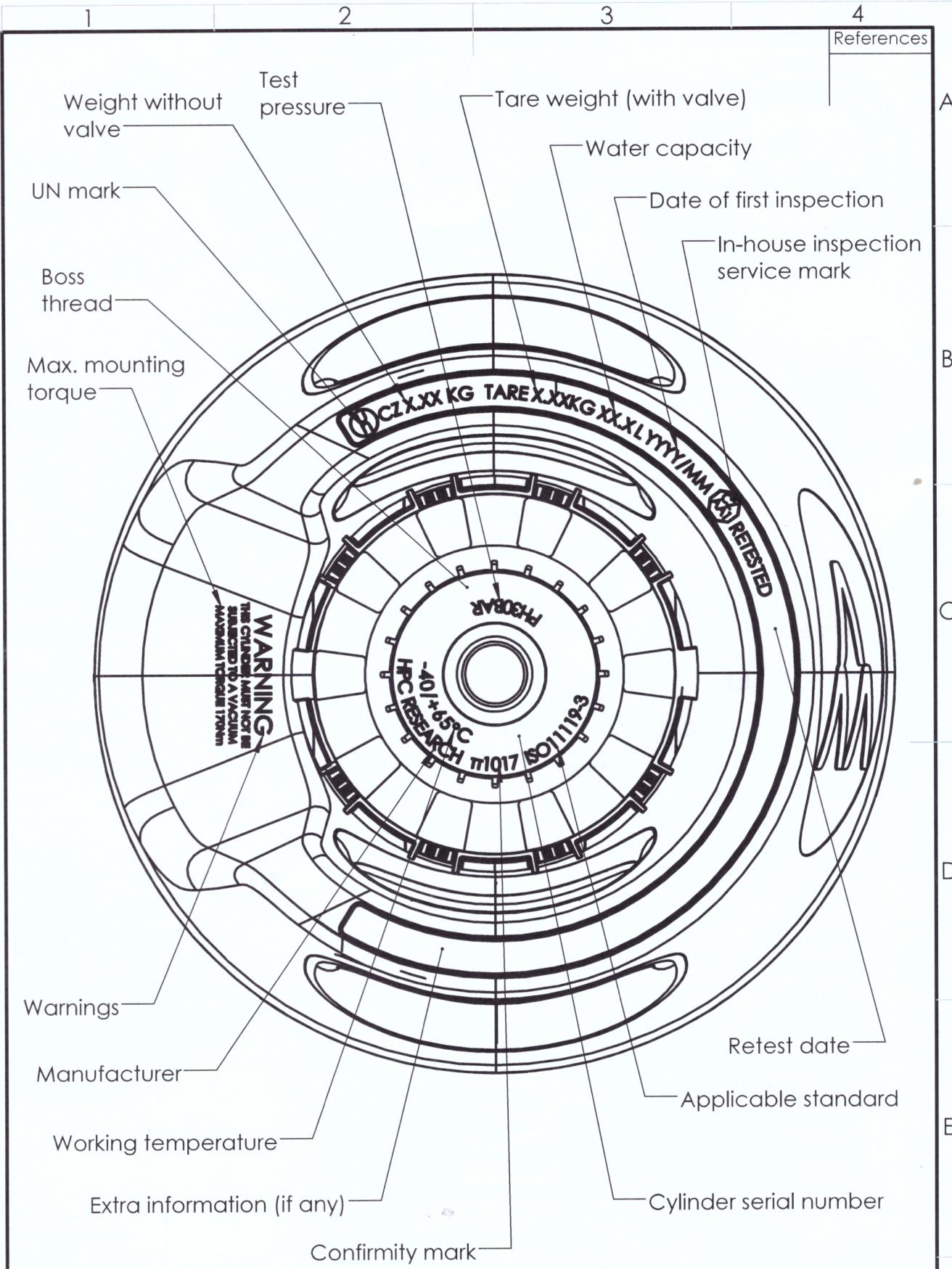


- Notes:
- Applicable standards: ISO 11119-3:2002, ADR 2015, Directive 2010/35/EU.

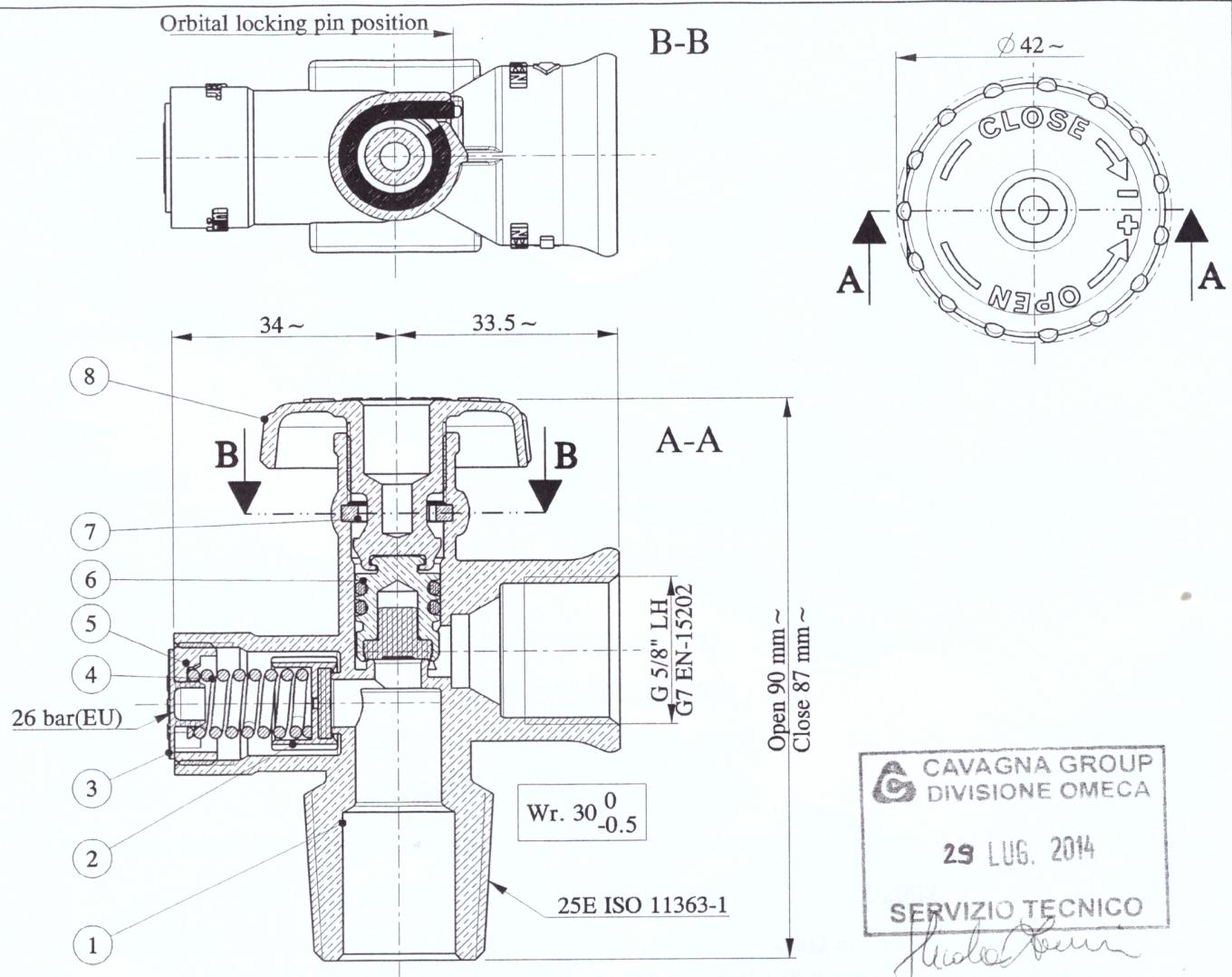
- Design verified for test pressure:  $p_h = 30$  bar.
- Minimum burst pressure:  $p_b = 72$  bar.
- Approved for UN 1011, 1075, 1965, 1978.
- Water capacity - 24.4±0.1 L.
- Container weight (excluding valve) - 5.05±0.15 kg.
- Container weight (including valve) - 5.4±0.15 kg.
- Valve inlet thread: 25E/W27.8/25T.
- Valve type: domestic use.
- Valve outlet connection: G.7 EN 15202:2012.
- Valve mounting torque: 170 Nm max.
- Retest interval: 10 years.
- Design life - not limited.
- This cylinder must not be subjected to air vacuum!

DOCUMENT TYPE		APPROVED	TOLERANCING ISO 80.5. GENERAL TOLERANCE ISO 2748- FINISH ISO 302. EDGE FINISH ISO 13715. Issue date	TIME	SCALE
Eng. Proj. No.	LPGC24G1				LPGC24G1/STD/VAG.G.7
DEA/N					MATERIAL STANDARD/TM
LAST MOD.	11.04.2018 10:03:44				WEIGHT 5.4 kg
F					SHEET 1 OF 1

HPC Research s.r.o.,  
Vodochádského 184/1, Příroze, Czech Republic  
ALL DIMENSIONS APPLY TO THE FINISHED PRODUCT INCLUDING MATERIAL SURFACE POSITION



Eng. Proj. No.		FINISHING	MATERIAL	MATERIAL STANDARD/TRADEMARK	
DOCUMENT TYPE	LPGC24G1	TOLERANCING ISO 8015. GENERAL TOLERANCE ISO 2768-. SURFACE FINISH ISO 1302. EDGE FINISH ISO13715.	TITLE		SCALE
DRAWN	APPROVED	Issue date	LPGC24G1 GENERIC		1:2
HPC Research s.r.o. Vodňanského 1184/1, Prague, Czech Republic ALL DIMENTIONS APPLY TO THE FINISHED PRODUCT INCLUDING MATERIAL SURFACE PROTECTION		THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF HPC RESEARCH S.R.O. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF HPC RESEARCH S.R.O. IS PROHIBITED.			
PART-NO.		9170	DWG-VER.	4	DWG SIZE A4
LAST MOD. 07.04.2017 09:06:22			WEIGHT 5.05 kg	SHEET 1 OF 1	



**CAVAGNA GROUP  
DIVISIONE OMECA**  
29 LUG. 2014  
**SERVIZIO TECNICO**  
*Michele Dein*

**Markings:**

- CAVAGNA GROUP Symbol
- TR0029 (logo as per draw 2001100042)
- DO NOT ADJUST
- 26 bar
- B5002
- LPG
- 10m³/min
- Month and two last figures of the year of construction
- TIGHTEN

8	Handwheel	1	02B1500001
7	Pin	1	0531100007
6	Assembled Piston	1	0339500015
5	Spring retainer	1	0801100004
4	Spring	1	0701100210
3	Sealing cap	1	1601101024
2	Assembled piston	1	0309500036
1	Machined Body	1	01B1500105
POS	DENOMINATION	Q.	DRAW NR.

DESCRIPTION	LPG cylinder valve									
	GEN. TOLL. ±		GEN. FILL. R		ANG. TOLL. ±	DRAFT	SCALE 1:1	SHEET 1 / 1		
RESPONS. DATE SIGNATURE ACTIVITY INDEX	DRAWN		ISSUE		MATERIAL					
	25-07-14		25-07-14		/					
	Zanni		Treccani		/					
	NUMBER	14070	PROJECT	14070	DRAW NUMBER					
SIGN.	Treccani	REFERENCE	/	80B6905002						
INDEX	A1	XXXXX	XXXXX							

## Declaration of conformity - No. POS-20180412-1

We, the undersigned      HPC Research s.r.o.,  
                                  U Stadionu 615, Horní Bráza, 33012, Czech Republic  
                                  IČ 291 32 908

confirm that the products manufactured by our company:

### UN composite cylinder with valve

Type	LPGC24G1
Description	Type 4 (according to ISO 11119-3) fully wrapped composite cylinder with non-load sharing PET liner intended for class 2 gasses (LPG).
Type drawing No.	9170R1
Article	9508 LPGC24G1/STD/VAL.G.7
Color code	T-7011/M-3000/B-7011/H-7011
Gases	UN 1011, 1075, 1965, 1969, 1978
Serial No.	013800-014200

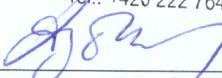
is manufactured according to all required normative documents, including:

Directive 2010/35/EU, ADR/RID 2015 and ISO 11119-3:2002

Notified body	NB No. 1017, inspection body No.: 4002 accredited by ČIA TÜV SÜD Czech s.r.o., Novodvorská 994, 142 21 Praha 4, Czech Republic
Certificate of type conformity No.	08.488.297
Certificate of in-house inspection service No.	08.318.447

We hereby declare the conformity of production of composite UN cylinder for LPG according to requirements of all standards and normative documents mentioned above and the design defined in design type approval mentioned above. All required tests have been conducted in accordance with above mentioned technical regulation with satisfactory result.

HPC Research s.r.o. ①  
U Stadionu 615, 330 12 Horní Bráza  
IČ: 29132908, DIČ:CZ29132908  
Tel.: +420 222 764 324

  
Pavel Dubinin, Director  
(name and signature of authorized person)

## Declaration of conformity - No. POS-20180412-2

We, the undersigned      HPC Research s.r.o.,  
                                  U Stadionu 615, Horní Bříza, 33012, Czech Republic  
                                  IČ 291 32 908

confirm that the products manufactured by our company:

### UN composite cylinder with valve

Type	LPGC24G1
Description	Type 4 (according to ISO 11119-3) fully wrapped composite cylinder with non-load sharing PET liner intended for class 2 gasses (LPG).
Type drawing No.	9170R1
Article	9504 LPGC24G1/STD/VAL.G.5/OPD
Color code	T-7011/M-3000/B-7011/H-7011
Gases	UN 1011, 1075, 1965, 1969, 1978
Serial No.	013800-014200

is manufactured according to all required normative documents, including:

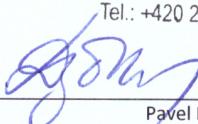
Directive 2010/35/EU, ADR/RID 2015 and ISO 11119-3:2002

Notified body	NB No. 1017, inspection body No.: 4002 accredited by ČIA TÜV SÜD Czech s.r.o., Novodvorská 994, 142 21 Praha 4, Czech Republic
Certificate of type conformity No.	08.488.297
Certificate of in-house inspection service No.	08.318.447

We hereby declare the conformity of production of composite UN cylinder for LPG according to requirements of all standards and normative documents mentioned above and the design defined in design type approval mentioned above. All required tests have been conducted in accordance with above mentioned technical regulation with satisfactory result.

HPC Research s.r.o. ①  
U Stadionu 615. 330 12 Horní Bříza  
IČ: 29132908. DIČ: CZ29132908  
Tel.: +420 222 764 324

Horní Bříza, 12.04.2018  
(date and place)

  
Pavel Dubinin, Director  
(name and signature of authorized person)

### CERTIFICATE / CERTIFIKÁT

Reg. No. / Evidenční č. QC-20180412-1

of conformity of the manufacture, supervision of manufacture, initial inspection and tests issued by In-house inspection service body identified as CZ AA certificate No. 08.318.447 and acting under supervision of TÜV SÜD Czech s.r.o. (NB No.: 1017, inspection body No.: 4002 accredited by ČIA)

Inspection of transportable pressure receptacles for substances of class 2 and substances according to Annex I of Directive 2010/35/EU

o shodě výroby, dohledu nad výrobou a první inspekci a zkouškách, vydaný vlastní inspekční službou, která má přidělenou zkušební značku CZ AA, certifikát VIS č.08.318.447 a vykonávající svoje činnost pod dozorem TÜV SÜD Czech s.r.o. (NB č.: 1017, inspekční organ č.: 4002 akreditován ČIA)

Inspekcí přepravitelných tlakových nádob pro látky třídy 2 a látky dle přílohy I, Směrnice 2010/35/EU.

Type of pressure receptacles / Druh tlakových nádob	UN composite cylinder / UN kompozitní lahev		
Serial Numbers / Výrobní čísla	013800-014200		
Type / Typ	LPGC24G1	No. of pcs / Počet ks	36

#### Applied normative documents and procedures. / Použité normy a postupy.

- ADR/RID 2015       TPED (Directive 2010/35/EU)       NV 208/2011  
 Regulations for UN pressure receptacles       Inspection procedures of HPC Research s.r.o.  
Applied standard / Použita norma      ISO 11119-3:2002

Manufacturer / Výrobce	HPC Research s.r.o.	Customer / Zákazník	Carbon Zorro Ltd
Production site / Místo výroby	Horní Bříza, Czech Republic		
Production Order No. / Zakázka výrobce	18Zak00010	Order No./ Objednávka č.	1820009

Type approval No. / Schválení typu č.	CZ-08.488.297	Drawing No. / Výkres č.	9170
Stock receptacle assembly No. / Skladové číslo sestavy	9508 LPGC24G1/STD/VAL.G.7		
Color code / Barevný kód	T-7011/M-3000/B-7011/H-7011		

#### Receptacle technical specifications / Základní technické údaje

Shell material / Materiál nádoby	Glass fibre reinforced plastic with PET lining / Sklolaminát s PET výstelkou
Country of manufacturing and approval / Stát výroby a první inspekce	CZ / Česká republika
Year of production / Rok výroby	2018
Working temperature / Pracovní teplota	min. -40 / max. 65 °C
Test pressure / Zkušební tlak	30 bar
Working pressure / Pracovní tlak	
Water capacity / Vodní objem	24,4 L
Filling ration/ Stupeň plnění	Instruction P200 clause 4.1.4.1 ADR 2015/ Instrukce P200 kapitola 4.1.4.1 ADR 2015
Minimum guaranteed wall thickness/Minimální garantovaná tloušťka stěny	
Boss thread / Zavít	25E ISO 11363-1
Design Life / Životnost	Non - limited
First inspection date / Datum první inspekce (MM/YYYY)	04/2018
Next inspection date / Datum příští inspekce (MM/YYYY)	04/2028

N/A – not applicable / nevztahuje se

#### Additional marking / Dodateční značení.

- TY1017       applied / použity       not applied / nepoužity             applied / použity       not applied / nepoužity  
-40 °C       applied / použity       not applied / nepoužity             applied / použity       not applied / nepoužity

Remark / Poznámka: Maximum torque 170 Nm. Cylinder must not be subjected to a vacuum. / Maximální krouticí moment 170 Nm. Nevakuovat.

The use for / Použití pro	gases class 2 / plyny třídy 2
---------------------------	-------------------------------

#### Vyhodnocení / Evaluation:

We hereby certify the conformity of manufacture and executed inspections and tests of the pressure vessels with the requirements of the above specifications and the type described in the Certificate of type approval.

At / V Horní Bříza, Czech Republic



Inspector / Inspektor  
Ing. Stanislav Dubinin PhD.

HPC Research s.r.o. ①

U Stadionu 615, 330 12 Horní Bříza  
IČ: 29132908, DIČ: CZ29132908  
Tel.: +420 222 764 324

12.04.2018

Stamp, date / Razítko, datum

Tímto osvědčujeme shodu výroby a provedených inspekci a zkoušek tlakových nádob s požadavky výše uvedených specifikací a typem popsaným v certifikátu typu.

  
In-house inspection service / Vlastní inspekční služba  
Pavel Dubinin

**Safety and pressure equipment. / Bezpečnostní a tlaková výstroj.**

	Cylinder valve Láhový ventil	Main shutoff valve Hl. uzavírací ventil	Relief valve Pojistný ventil	Rupture disc Průtržná membrána	Vacuum valve Podtlakový ventil
Manufacturer / Výrobce	Cavagna, Italy				
Type / Typ	80B6905002	n/a		n/a	n/a
Set pressure / Otevřací tlak			26 bar, 10 m3/min		

**Other provided documentation. / Ostatní předložená dokumentace.**

- Declaration of conformity including the description of the product and all modifications / Prohlášení o shodě včetně popisu výrobku a všech modifikací.
- Declaration of Conformity and Certificates of material of service equipment. / Prohlášení o shodě a certifikáty materiálu provozní výstroje.
- Certificates of materials of the product and all subgroups. / Certifikáty materiálu výrobku a všech podskupin.
- Other documentation required according to above specifications. / Další dokumentace požadovaná dle uvedených specifikací.

**Used control, measuring and test devices. / Použité kontrolní, měřící a zkušební zařízení.**

Manufacturer monitoring and measuring equipment with valid calibration. / Monitorovací a měřicí zařízení výrobce s platnou kalibraci.

**Performed inspections and tests. / Provedené inspekce a zkoušky.**

**Supervision of manufacture. / Dohled nad výrobou.**

- Verification of conformity with technical documentation: / Ověření shody s technickou dokumentací:
  - Verification of the validity of documentation provided for the type approval construction. / Ověření platnosti dokumentace poskytnuté pro schválení konstrukčního typu.
  - Verification of production and test procedures. / Ověření výrobních a zkušebních postupů.
  - Verification of production records. / Ověření výrobních záznamů.
  - Approved qualifications of workers performing permanent joints continue to be valid (if relevant). / Schválené kvalifikace pracovníků provádějících trvalá spojení jsou i nadále platná (pokud je to relevantní).
  - Approved qualifications of workers performing non-destructive tests continue to be valid (if relevant). / Schválené kvalifikace pracovníků provádějících nedestruktivní zkoušky jsou i nadále platná (pokud je to relevantní).
  - Protocols on destructive and non-destructive tests (if relevant). / Protokoly o destruktivních a nedestruktivních zkouškách (pokud je to relevantní).
  - Records on heat treatments (if relevant). / Záznamy o tepelném zpracování (pokud je to relevantní).
  - Calibration records. / Kalibrační záznamy.
- Verification that production process produces products which comply with the applicable regulations and documentation which applies to them. / Ověření, že výrobní proces produkuje výrobky, které odpovídají předpisům a dokumentaci, která se jich týká.
- Verification of material traceability and the check of material certificates with respect to specifications. / Ověření zpětné sledovatelnosti materiálů a kontrola certifikátů materiálů vzhledem ke specifikacím.
- If applicable, the verification that personnel performing permanent joints of construction parts and non-destructive tests are qualified or approved. / Pokud je to aplikovatelné, ověření, že personál provádějící trvalé spojení konstrukčních částí a nedestruktivní zkoušky je kvalifikovaný nebo schválený.

**Initial Inspection and tests: Batchtests. / První inspekce a zkouška: jednotlivých dávek.**

- Testing of the mechanical characteristics of the material. / Zkouška mechanických vlastností materiálů.
- Verification of the minimum wall thickness. / Ověření minimální tloušťky stěny.
- Verification of the homogeneity of the material for each manufacturing batch. / Ověření homogenity materiálu každé výrobní dávky.
- Inspection of the external and internal condition. / Inspekce vnějšího a vnitřního stavu.
- Inspection of the neck thread. / Inspekce závitů v hridle.
- Verification of the conformance with the design standard. / Ověření souladu s návrhovou normou.

**Initial Inspection and test of each vessel. / První inspekce a zkouška: každé nádoby.**

- Hydraulic pressure test (where applicable by gas pressure test). / Hydraulická tlaková zkouška (případně zkouška tlakem plynu).
- Inspection and assessment of manufacturing defects. / Inspekce a vyhodnocení výrobních vad.
- Inspection of the markings. / Inspekce značení.

**Evaluation of tests / Vyhodnocení zkoušek:** All prescribed tests complied. / Všechny předepsané zkoušky vyhověly.

The results of the inspection, submitted in this certificate, apply only to the evaluated equipment. Without the consent of HPC Research s.r.o. and the customer, the certificate cannot be reproduced other than in whole.

Výsledky inspekce podané v tomto certifikátu se vztahují pouze k posuzovanému zařízení. Certifikát nelze bez souhlasu HPC Research s.r.o. a zákazníka reprodukovat jinak než vcelku.



**CERTIFICATE / CERTIFIKÁT**  
Reg. No. / Evidenční č. QC-20180412-2

of conformity of the manufacture, supervision of manufacture, initial inspection and tests issued by In-house inspection service body identified as CZ AA certificate No. 08.318.447 and acting under supervision of TÜV SÜD Czech s.r.o. (NB No.: 1017, inspection body No.: 4002 accredited by ČIA)

Inspection of transportable pressure receptacles for substances of class 2 and substances according to Annex I of Directive 2010/35/EU

o shodě výroby, dohledu nad výrobou a první inspekci a zkouškách, vydaný vlastní inspekční službou, která má přidělenou zkušební značku CZ AA, certifikát VIS č.08.318.447 a vykonávající svoje činnost pod dozorem TÜV SÜD Czech s.r.o. (NB č.: 1017, inspekční organ č.: 4002 akreditován ČIA)

Inspekcí přepravitelných tlakových nádob pro látky třídy 2 a látky dle přílohy I, Směrnice 2010/35/EU.

Type of pressure receptacles / Druh tlakových nádob	UN composite cylinder / UN kompozitní lahev		
Serial Numbers / Výrobní čísla	013800-014200		
Type / Typ	LPGC24G1	No. of pcs / Počet ks	72

**Applied normative documents and procedures. / Použité normy a postupy.**

- |   |  |   |
|---|--|---|
| <input checked="" type="checkbox"/> ADR/RID 2015                            | <input checked="" type="checkbox"/> TPED (Directive 2010/35/EU)                  | <input checked="" type="checkbox"/> NV 208/2011 |
| <input checked="" type="checkbox"/> Regulations for UN pressure receptacles | <input checked="" type="checkbox"/> Inspection procedures of HPC Research s.r.o. |   |
| Applied standard / Použita norma  | ISO 11119-3:2002   |   |

Manufacturer / Výrobce	HPC Research s.r.o.	Customer / Zákazník	Carbon Zorro Ltd
Production site / Místo výroby	Horní Bříza, Czech Republic		
Production Order No. / Zakázka výrobce	18Zak00010	Order No./ Objednávka č.	1820009

Type approval No. / Schválení typu č.	CZ-08.488.297	Drawing No. / Výkres č.	9170
Stock receptacle assembly No. / Skladové číslo sestavy	9504 LPGC24G1/STD/VAL.G.5/OPD		
Color code / Barevný kód	T-7011/M-3000/B-7011/H-7011		

**Receptacle technical specifications / Základní technické údaje**

Shell material / Materiál nádoby	Glass fibre reinforced plastic with PET lining / Sklolaminát s PET výstelkou
Country of manufacturing and approval / Stát výroby a první inspekce	CZ / Česká republika
Year of production / Rok výroby	2018
Working temperature / Pracovní teplota	min. -40 / max. 65 °C
Test pressure / Zkušební tlak	30 bar
Working pressure / Pracovní tlak	<input checked="" type="checkbox"/> N/A
Water capacity / Vodní objem	<input type="checkbox"/> N/A
Filling ration/ Stupeň plnění	<input type="checkbox"/> N/A
Minimum guaranteed wall thickness/Minimální garantovaná tloušťka stěny	<input checked="" type="checkbox"/> N/A
Boss thread / Zavít	25E ISO 11363-1
Design Life / Životnost	Non - limited
First inspection date / Datum první inspekce (MM/YYYY)	04/2018
Next inspection date / Datum příští inspekce (MM/YYYY)	04/2028

N/A – not applicable / nevztahuje se

**Additional marking / Dodateční značení.**

- |        |   |  |   |  |
|--------|---|--|---|--|
| TY1017 | <input checked="" type="checkbox"/> applied / použitý | <input type="checkbox"/> not applied / nepoužitý | <input checked="" type="checkbox"/> applied / použitý | <input type="checkbox"/> not applied / nepoužitý |
| -40 °C | <input checked="" type="checkbox"/> applied / použitý | <input type="checkbox"/> not applied / nepoužitý | <input checked="" type="checkbox"/> applied / použitý | <input type="checkbox"/> not applied / nepoužitý |



**Remark / Poznámka:** Maximum torque 170 Nm. Cylinder must not be subjected to a vacuum. / Maximální krouticí moment 170 Nm. Nevakuovat.

The use for / Použití pro	gases class 2 / plyny třídy 2
---------------------------	-------------------------------

**Vyhodnocení / Evaluation:**

We hereby certify the conformity of manufacture and executed inspections and tests of the pressure vessels with the requirements of the above specifications and the type described in the Certificate of type approval.

At / V Horní Bříza, Czech Republic



Inspector / Inspektor  
Ing. Stanislav Dubinin PhD.

**HPC Research s.r.o. ①**

U Stadionu 615, 330 12 Horní Bříza

IČ: 29132908, DIČ: CZ29132908

Tel.: +420 222 764 324

12.04.2018

Stamp, date / Razítko, datum

Tímto osvědčujeme shodu výroby a provedených inspekcií a zkoušek tlakových nádob s požadavky výše uvedených specifikací a typem popsaným v certifikátu typu.

In-house inspection service / Vlastní inspekční služba  
Pavel Dubinin

**Safety and pressure equipment. / Bezpečnostní a tlaková výstroj.**

	Cylinder valve Láhvový ventil	Main shutoff valve Hl. uzavírací ventil	Relief valve Pojistný ventil	Rupture disc Průtržná membrána	Vacuum valve Podtlakový ventil
Manufacturer / Výrobce	SRG, Germany			n/a	n/a
Type / Typ	Type 457 OPD	n/a			
Set pressure / Otevírací tlak			28 bar, 10 m3/min		

**Other provided documentation. / Ostatní předložená dokumentace.**

- Declaration of conformity including the description of the product and all modifications / Prohlášení o shodě včetně popisu výrobku a všech modifikací.
- Declaration of Conformity and Certificates of material of service equipment. / Prohlášení o shodě a certifikáty materiálu provozní výstroje.
- Certificates of materials of the product and all subgroups. / Certifikáty materiálu výrobku a všech podskupin.
- Other documentation required according to above specifications. / Další dokumentace požadovaná dle uvedených specifikací.

**Used control, measuring and test devices. / Použité kontrolní, měřící a zkušební zařízení.**

Manufacturer monitoring and measuring equipment with valid calibration. / Monitorovací a měřící zařízení výrobce s platnou kalibraci.

**Performed inspections and tests. / Provedené inspekce a zkoušky.**

**Supervision of manufacture. / Dohled nad výrobou.**

- Verification of conformity with technical documentation: / Ověření shody s technickou dokumentací:
  - Verification of the validity of documentation provided for the type approval construction. / Ověření platnosti dokumentace poskytnuté pro schválení konstrukčního typu.
  - Verification of production and test procedures. / Ověření výrobních a zkušebních postupů.
  - Verification of production records. / Ověření výrobních záznamů.
  - Approved qualifications of workers performing permanent joints continue to be valid (if relevant). / Schválené kvalifikace pracovníků provádějících trvalá spojení jsou i nadále platná (pokud je to relevantní).
  - Approved qualifications of workers performing non-destructive tests continue to be valid (if relevant). / Schválené kvalifikace pracovníků provádějících nedestruktivní zkoušky jsou i nadále platná (pokud je to relevantní).
  - Protocols on destructive and non-destructive tests (if relevant). / Protokoly o destruktivních a nedestruktivních zkouškách (pokud je to relevantní).
  - Records on heat treatments (if relevant). / Záznamy o tepelném zpracování (pokud je to relevantní).
  - Calibration records. / Kalibrační záznamy.
- Verification that production process produces products which comply with the applicable regulations and documentation which applies to them. / Ověření, že výrobní proces produkuje výrobky, které odpovídají předpisům a dokumentaci, která se jich týká.
- Verification of material traceability and the check of material certificates with respect to specifications. / Ověření zpětné sledovatelnosti materiálů a kontrola certifikátů materiálů vzhledem ke specifikacím.
- If applicable, the verification that personnel performing permanent joints of construction parts and non-destructive tests are qualified or approved. / Pokud je to aplikovatelné, ověření, že personál provádějící trvalé spojení konstrukčních částí a nedestruktivní zkoušky je kvalifikovaný nebo schválený.

**Initial Inspection and tests: Batchtests. / První inspekce a zkouška: jednotlivých dávek.**

- Testing of the mechanical characteristics of the material. / Zkouška mechanických vlastností materiálů.
- Verification of the minimum wall thickness. / Ověření minimální tloušťky stěny.
- Verification of the homogeneity of the material for each manufacturing batch. / Ověření homogenity materiálu každé výrobní dávky.
- Inspection of the external and internal condition. / Inspekcí vnějšího a vnitřního stavu.
- Inspection of the neck thread. / Inspekcí závitů v hrdle.
- Verification of the conformance with the design standard. / Ověření souladu s návrhovou normou.

**Initial Inspection and test of each vessel. / První inspekce a zkouška: každé nádoby.**

- Hydraulic pressure test (where applicable by gas pressure test). / Hydraulická tlaková zkouška (případně zkouška tlakem plynu).
- Inspection and assessment of manufacturing defects. / Inspekcí a vyhodnocení výrobních vad.
- Inspection of the markings. / Inspekcí značení.

**Evaluation of tests / Vyhodnocení zkoušek:** All prescribed tests complied. / Všechny předepsané zkoušky vychověly.

The results of the inspection, submitted in this certificate, apply only to the evaluated equipment. Without the consent of HPC Research s.r.o. and the customer, the certificate cannot be reproduced other than in whole.

Výsledky inspekce podané v tomto certifikátu se vztahují pouze k posuzovanému zařízení. Certifikát nelze bez souhlasu HPC Research s.r.o. a zákazníka reprodukovat jinak než v celku.



ZERTIFIKAT ◆ CERTIFICATE ◆ CERTIFICADO ◆ CERTIFICAT ◆ СЕТИФИКАТ ◆ 証認書 ◆

# CERTIFICATE



Czech

Registration number 08.488.297, Revision No. 3

on the approval of construction type,

issued pursuant to Directive 2010/35/EU (Government Decree No. 208/2011 Sb. (Coll.), as amended) and agreement ADR/RID:2017

for the applicant:

**HPC Research s.r.o.**

**U Stadionu 615**

**CZ - 330 12 Horní Bříza**

**Company Registration No.: 29132908**

for transportable pressure equipment:

Name:	UN composite cylinder without valve
Type:	LPGC24G1
Manufacturer:	HPC Research s.r.o., Horní Bříza
Drawings No.:	9170, 9168, 9445, 9446
Construction standard:	ISO 11119-3:2002
Approval number:	CZ-08.488.297/Rev. 3
Volume:	24,4 L
Test pressure:	30 bar
Place of manufacture:	Tovární 736, 330 12 Horní Bříza

at which the construction type assessment has been performed pursuant to Directive 2010/35/EU (Government Decree No. 208/2011 Coll., as amended).

We hereby **certify the conformity** of properties of a sample of the product at stake with the basic requirements of

**Directive 2010/35/EU**

(Government Decree No. 208/2011 Sb. (Coll.), as amended)  
and agreement ADR/RID:2017

**Validity period: 29.10.2025**

This certificate is issued for the purpose of the issue of the Declaration of Conformity of the product with the above-mentioned technical regulation.

Details and list of important parts of the technical documentation are specified in the Report of construction type assessment No. 11.255.143 which is an integral part hereof.

Validity conditions and rules for manipulation with the certificate are specified on the second page hereof.

Prague, on 26.09.2017



*Nerandžičová*  
on behalf of Notified Body 101  
Pavla Nerandžičová  
Head of Certification Department

## 1. Range of validity

of the Certificate Reg. No. 08.488.297/Rev.3 issued on the basis of applying ISO 11119-3:2002 Gas cylinders of composite construction - Specification and test methods

Type of cylinder: LPGC24G1

Design life: Non limited life

Underwater: No

Pressure relief device: Recommended

Periodic inspection interval: 10 years (according to packing instructions P200, paragraph 9, ADR/RID:2017)

Finished cylinder		Liner	Composite material	
Capacity:	24,4 liter	Material:	PET	Fiber type: E-glass
Test pressure:	30 bar	Density:	1,32-1,4 g/cm <sup>3</sup>	Min. Dry Fiber Tensile strength: 0,35 N/tex
Diameter:		Melting Point:	245-250 °C	Fiber modulus: 68-72 GPa
Without outer case:	292 +/- 3 mm	Glass transition temperature:	74-80 °C	Matrix Components: Epoxy resin, Hardener, Accelerant, Diluent
With outer case:	310 +/- 3 mm	Auto ignition temperature:	440-460 °C	Min. Tensile strength: 1400 MPa
Length:		Min. thickness:	0,15 mm	Elongation: 2,5-5 %
Without outer case:	480 +3/-4 mm			Thickness: 1,5-4,5 mm
With outer case:	582,5 +/- 3 mm			
Empty weight	5,2 +0,3/-0,5 kg			
Thread	25E (W 28,8) or other			
Metal End Boss				
Material	Min. Yield Stress		Min. Tensile Strength	Min. Elongation
11SMn30+C EN 10227	245 MPa		360 MPa	6 %

## 2. Validity conditions

This certificate is renewable upon request. The renewal is possible after the full revision and examination of conformity with the ADR/RID:2017 provisions applicable as of the date of renewal. The renewal is not permitted after the type approval is canceled. Modifications of the existing type approval which appeared during the validity period (e.g. at pressure containers minor changes like adding other sizes and capacities which does not affect the conformity with regulations) do not extend or change the original validity of the certificate.

If the applicable ADR/RID:2017 technical requirements change during this period (including reference standards) and the approved type does not conform any more, the relevant organizations which issued the type approval shall terminate the approval and notify the type approval holder about the fact.

The TÜV SÜD Czech shall be immediately notified of any modifications of the pressure equipment compared to the certified design. This fact may cause the further continuation of the certificate dependent on an additional examination of conformity.

If the type approval expired or was canceled, the production of the equipment according to the type approval is not allowed any more.

Necessary instructions for use and assembly shall be supplemented to every product.

Every product shall bear a visible reference to the manufacturer or importer and the type label to enable to identify the tested type with products put into circulation.

## 3. Rules for the manipulation with the Certificate:

The Certificate may be used only as a certificate for products which are specified on the first page. It also applies for the use in advertising, promotional and commercial materials.

The certificate shall only be reproduced complete. It is forbidden to change, amend or rewrite data in the certificate.

An unauthorized and deceptive use of the certificate may be subject to sanctions (Section 19, Act No. 22/1997 Sb. (Coll.), as amended).

The Certificate shall not be used as a certificate for products at which a change affecting the conformity with used regulations has been done without being approved by the TÜV SÜD Czech.

The certificate shall only promote its holder, the product and production places mentioned herein.

The transmission of this certificate to third parties is inadmissible as well as its use by third parties. It may be transferred to a third party only by the TÜV SÜD Czech.

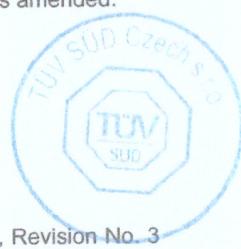
Not specified items are governed by the General Terms and Conditions for Product Certification, as amended.

## 4. List of relevant parts of technical documentation:

- Drawings No. 9170, 9168, 9445, 9446,
- Composite cylinder LPGC24G1 project documentation,
- Reports of tests according to ISO 11119-3:2002.

This certificate is a revision No. 3 of the Certificate No. 08.488.297, issued 29.10.2015.

This language version of the certificate is a translation of a Czech official version No. 08.488.297, Revision No. 3 issued on 26.09.2017, which is deemed the only one applicable in the event of legal disputes and was printed on 26.09.2017.



ZERTIFIKAT ◆ CERTIFICATE ◆ CERTIFICADO ◆ CERTIFICAT ◆ СЕРТИФИКАТ ◆ 認証書 ◆



# CERTIFICATE

registration number: **08.318.447, Rev. 2**

on Professional Qualification of applicant's in-house inspection service

issued based on the examination of professional qualification pursuant  
to clause 1.8.7.6 ADR/RID:2011 and Directive 2010/35/EU  
(Government Decree No. 208/2011 Coll., as amended).  
for the applicant:

**HPC Research s.r.o.**  
**U Stadionu 615**  
**CZ 330 12 Horní Bráza**  
**ID-No.: 29132908**

to perform supervision of manufacture, initial inspections and tests,  
periodical inspections of cylinders for transport of dangerous goods, class  
2 (gases) according to ADR/RID:2017 and Directive 2010/35/EU  
(Government Decree No. 208/2011 Coll., as amended)

In the scope: 1. Manufacture, initial inspections and tests of cylinders for  
transport of gases, class 2 acc. to article 1.8.7.3 and 1.8.7.4  
ADR/RID:2017  
2. Periodical inspections of cylinders for transport of gases,  
class 2 acc. to article 1.8.7.5 ADR/RID:2017

For vessels: Cylinders: transportable fully wrapped composite vessels with  
a maximum internal volume of 150 liters adequate and  
inadequate UN  
ad 1. according to ISO 11119-3, EN 12245 and EN 14427  
ad. 2 according to EN ISO 11623

## Validity conditions:

are mentioned in TÜV SÜD Czech Inspection Report no. 11.255.139 dated  
26.07.2017, which is an integral part of this Certificate.

**This Certificate is valid until: 31.07.2018**

This Certificate replaces Certificate Reg. No. 08.318.447, rev. 1 dated 31.07.2015.

In Prague, dated 07.08.2017

Annex



On behalf of Notified Body  
**Ing. Radovan Svoboda**

annex to Certificate registration No. 08.318.447, Rev. 2

**List of test engineers of in-house inspection service  
and their stamps of testing sites**

**Name of in-house inspection service:** HP Research s.r.o.

**Address of in-house inspection service:** U Stadionu 615,  
CZ 330 12 Horní Bříza

1) Mr. Stanislav Dubinin, date of birth 1.8.1974, test stamp

CZ  
AA1

2) Mr. Pavel Dubinin, date of birth 7.10.1984, test stamp

CZ  
AA2





**SRG Schulz + Rackow Gastechnik GmbH**  
POB 1260 · D-35068 Gladenbach

## Certificat of compliance with the order to EN 10204-2.1

Attestation de conformité à la commande suivant EN10204-2.1

Werksbescheinigung nach EN10204-2.1

Certificate no.:	DEL004457	Page Page: Seite:	1/1
N° de l'attestation:			
Zertifikat-Nr.:			
Customer:	HPC Research s.r.o.		
Client:			
Kunde:	203246		
N° et date du bordereau de livrai	DEL004457		
Nummer und Datum des Lieferscheins:	26/03/2018		
Number and date of delivery note:			
Order number: N° commande: Auftragsnummer:	Designation / Batch number Désignation / N° du lot Bezeichnung / Nummer des gelieferten Loses	Article no. N° article Artikel-Nr.	Customer reference Référence client Kundenspezifikation
* ORC28934 / 1 17200095	V 25E, W21,8LH-Nr.1, SV26/10, S W36, 80%OPD	457-011-1002	246

NO DANGEROUS GOODS / MARCHANDISE SANS DANGER/ MATERIAL OHNE RISIKO  
The cylinders included in DN referred above are new, empty and the assembled valves are in open position/ Les bouteilles incluses dans le BL reference ci-dessus sont neuves, vides et les vannes assemblées sont en position ouverte/ Die im Lieferschein und oben aufgeführten Zylinder sind neu, ungefüllt, und die montierten Ventile sind in geöffneter Stellung

Batch / Los / Lot : FA36006390/03\_18 / 246,00

We certify that the supplies detailed here were manufactured and checked in accordance with the technical specifications of the customer's order the relevant drawings and internal specifications in force

Nous certifions que la fourniture citée a été fabriquée et contrôlée conformément aux spécifications technique de la commande du client aux plans et spécifications techniques internes en vigueur

Wir bescheinigen dass die vorliegende Lieferung hergestellt und geprüft wurde entsprechend den technischen Forderungen des Kundenauftrages den aktuellen Zeichnungen und internen technischen Spezifikationen



Particular information to the delivered supplies  
Renseignements particuliers aux fournitures livrées:  
Spezielle Angaben zu den Lieferungen:

1135



[www.rotarex.com](http://www.rotarex.com)

VISA BEGLÄUBIGUNG SIGNATURE

**SRG Schulz + Rackow Gastechnik GmbH**

Industriestrasse 11 · 35075 Gladenbach · Germany

Commerzbank Gießen SWIFT COBADEF513 · IBAN DE63 5138 0040 0890 668300

VR Bank Gladenbach SWIFT GENODE51BIK · IBAN DE11 5176 2434 0090 623508

BGL BNP Paribas SWIFT BGLLULL · IBAN LU150030317058960000

Managing Director: Ingo Weinert

Amtsgericht Marburg HRB 3187

VAT Ident No. DE 813078428

VAT Ident No. CZ 6816116367

Steuerummer: 020 243 90 100



SRG Schulz + Rackow Gastechnik GmbH  
POB 1260 D-35068 Gladenbach

## Declaration of conformity (Déclaration UE de conformité / Konformitätserklärung)

We, Manufacturer / Nous, fabricant / Wir, der Hersteller

**SRG Schulz + Rackow Gastechnik GmbH**

declare that the product / déclarons que le produit / bestätigen dass das Produkt  
**V 25E.W21.8LH-Nr.1. SV26/10. SW36. 80%OPD**

Part number / Numéro d'article / Artikel Nummer: **457-011-1002**

Quantity / Quantité / Anzahl: **246**

Your purchase order / Votre commande / Ihre auftrag: **17200095**

Your designation - Type / Votre désignation/ Ihre Bezeichnung:

Your artikel reference / Votre référence article / Ihre Artikel Referenz:

Date of delivery / Date de livraison / Lieferungsdatum: **26/03/2018**

Delivery note / Bon de livraison/ Lieferschein: **DEL004457**

Batch number / N° Lot/ Losnummer: **FA36006390/03\_18**

to which this declaration is referring to, is in compliance with the directive /  
auquel cette déclaration se rapporte, est conforme à la législation d'harmonisation de l'Union  
auf welche sich diese Erklärung bezieht, ist in Einklang mit folgenden Richtlinien

Directive / Richtlinie	Module / Modul Richtlinie	The monitoring is performed by La surveillance est effectuée par Die Überwachung wird durchgeführt von	Nr
2010/35/EU (TPED) & ADR §1.8.7.3 + §1.8.7.4	/	APRAGAZ / Chaussée de Vilvoorde 156 / B-1120 Bruxelles	0029

Type approval certificate nr / Numéro du certificat / Nummer der  
Zulassungsbescheinigung:

«Surveillance of the applicant's in-house inspection service» certificate nr /  
Numéro du certificat / Zertifikatnummer der Überwachung des betriebseigenen

In witness where of these equipments bear the mark / Comme témoins ces produits portent le marquage /  
Als Erkennungszeichen tragen diese Produkte folgende Markierung  
**#0029 (conformity mark)**

[other Directive(s), Standard(s) / autre directive(s) norme(s)/ andere Richtlinien, Normen]:

This declaration of conformity is issued under the sole responsibility of the manufacturer.

/ La présente déclaration de conformité est établie sous la seule responsabilité du fabricant. / Die alleinige Verantwortung für die  
Ausstellung dieser Konformitätserklärung trägt der Hersteller. / Konformitätserklärung istig

Name/ Nom:

Place and date / Ort und Datum:

Signature / Unterschrift:

26/03/2018

**ROTAREX**  
**PRAHA, spol. s r.o.**  
Plzeňská 2085, 347 01 Tachov  
Firma je zapsána u Krajského soudu  
v Plzni - rejstříkový soud, v oddíle C  
vložka 5324, ze dne 29.6. 1994  
DIČ: CZ61169951 IČ: 611 69 951

Page 1/1

**ROTAREX**  
SINCE 1922

[www.rotarex.com](http://www.rotarex.com)

**SRG Schulz + Rackow Gastechnik GmbH**

Industriesstrasse 11 - 35075 Gladenbach · Germany  
Commerzbank Gießen SWIFT COBADEFF513 · IBAN DE63 5138 0040 0890 668300  
VR Bank Gladenbach SWIFT GENODE51BIK · IBAN DE11 5176 2434 0090 623508  
BGL BNP Paribas SWIFT BGLLLULL · IBAN LU150030317058960000

113

Managing Director: Ingo Weinert  
Amtsgericht Marburg HRB 3187  
VAT Ident No. DE 813078420  
VAT Ident No. CZ 6815116367  
Steuerummer 020 243 90 100



SRG Schulz + Rackow Gastechnik GmbH  
POB 1260 D-35068 Gladenbach

## Declaration of conformity (Déclaration UE de conformité / Konformitätserklärung)

We, Manufacturer / Nous, fabricant / Wir, der Hersteller

**SRG Schulz + Rackow Gastechnik GmbH**

declare that the product / déclarons que le produit / bestätigen dass das Produkt  
**V 25E.W21.8LH-Nr.1. SV26/10. SW36. 80%OPD**

Part number / Numéro d'article / Artikel Nummer: **457-011-1002**

Quantity / Quantité / Anzahl: **246**

Your purchase order / Votre commande / Ihre auftrag: **17200095**

Your designation - Type / Votre désignation/ Ihre Bezeichnung:

Your artikel reference / Votre référence article / Ihre Artikel Referenz:

Date of delivery / Date de livraison / Lieferungsdatum: **26/03/2018**

Delivery note / Bon de livraison/ Lieferschein: **DEL004457**

Batch number / N° Lot/ Losnummer: **FA36006390/03\_18**

to which this declaration is referring to, is in compliance with the directive /  
auquel cette déclaration se rapporte, est conforme à la législation d'harmonisation de l'Union  
auf welche sich diese Erklärung bezieht, ist in Einklang mit folgenden Richtlinien

Directive / Richtlinie	Module / Modul Richtlinie	The monitoring is performed by La surveillance est effectuée par Die Überwachung wird durchgeführt von	Nr
2010/35/EU (TPED) & ADR §1.8.7.3 + §1.8.7.4	/	APRAGAZ / Chaussée de Vilvoorde 156 / B-1120 Bruxelles	0029

Type approval certificate nr / Numéro du certificat / Nummer der  
Zulassungsbescheinigung: **04/DE/807**

«Surveillance of the applicant's in-house inspection service» certificate nr /  
Numéro du certificat / Zertifikatnummer der Überwachung des betriebseigenen

In witness where of these equipments bear the mark / Comme témoins ces produits portent le marquage /  
Als Erkennungszeichen tragen diese Produkte folgende Markierung  
**#0029 (conformity mark)**

[other Directive(s), Standard(s) / autre directive(s) norme(s)/ andere Richtlinien, Normen]:

This declaration of conformity is issued under the sole responsibility of the manufacturer.

La présente déclaration de conformité est établie sous la seule responsabilité du fabricant. Die alleinige Verantwortung für die  
Ausstellung dieser Konformitätserklärung trägt der Hersteller: **Konformitätserklärung unterzeichnet**

Name/ Nom:

Place and date / Ort und Datum:

Signature / Unterschrift:

26/03/2018

**ROTAREX**  
**PRAHA, spol. s r.o.**  
Plzeňská ul. 2085, 347 01 Tachov  
Firma je zapsána u Krajského soudu  
v Plzni - rejstříkový soud, v oddíle C  
vložka 5324, ze dne 29.6. 1994  
DIČ: CZ61169951 IČ: 611 69 951

Page 1/1

*SJ*  
113

**ROTAREX**  
SINCE 1922

[www.rotarex.com](http://www.rotarex.com)

**SRG Schulz + Rackow Gastechnik GmbH**

Industriestrasse 11 - 35075 Gladenbach · Germany  
Commerzbank Gießen SWIFT COBADEF513 · IBAN DE63 5138 0040 0890 668300  
VR Bank Gladenbach SWIFT GENODE51BIK · IBAN DE11 5176 2434 0090 623508  
BGL BNP Paribas SWIFT BGLLLULL · IBAN LU150030317058960000

Managing Director: Ingo Weinert  
Amtsgericht Marburg HRB 3187  
VAT Ident No. DE 813078420  
VAT Ident No. CZ 6816116367  
Steuernummer: 020 243 90 100

**SRG**Schulz + Rackow  
Gastechnik GmbH**ROTAREX GROUP****SPECIFICATION SHEET**  
**Cylinder Valve**  
**Type 457 OPD**  
(With safety relief valve)457-011-4001\_000gb  
Index-No.: 2477

Date: 22.08.2013

Page 1 of 4

**S U M M A R Y**

1. DESCRIPTION.....	1
2. GENERAL SAFETY INSTRUCTIONS .....	1/2
3. TECHNICAL DATA.....	2
4. INSTALLATION AND HANDLING INSTRUCTIONS .....	2/3
5. MAINTENANCE.....	3/4
6. GENERAL CONDITIONS.....	4

ONLY THOSE PERSONS WHO HAVE READ THESE TECHNICAL INSTRUCTIONS THOROUGHLY AND UNDERSTAND THEM COMPLETELY SHALL BE AUTHORIZED TO USE THIS PRODUCT.

**IMPORTANT NOTICE**

If this product is being purchased or used for incorporation into another product (for example, a compressed gas valve for incorporation into a compressed gas cylinder), then **SRG Schulz + Rackow Gastechnik GmbH** reminds the end product manufacturer that any and all product user warning, instructions or product labels are the responsibility of the end product manufacturer.

**C O N T E N T****1. DESCRIPTION**

The Cylinder valve type 457 OPD are intended and approved for installation in Propane/Butane cylinders. This PRODUCT is not intended for any other installation or purpose. If the product user has any question regarding this PRODUCT proper application or purpose, the product user should call \*49 6462 9392 0. Any non-approved use or application and/or any non-approved modification of the PRODUCT or its use or application may result in a serious accident or personal injury for which **SRG Schulz + Rackow Gastechnik GmbH** will not be responsible.

**2. GENERAL SAFETY REQUIREMENTS**

- All users must comply fully with all national or local laws, rules or regulations in force.
- Anyone using this product must be thoroughly familiar with these instructions and other applicable product instructions and manuals.



WARNING

This PRODUCT is a component part designed for use with Propane/Butane cylinders. The final manufacturer is responsible for preparing appropriate and adequate instructions and warnings for the ultimate product user.

- The maintenance instructions outlined below should be incorporated into any product manual or instruction label.
- Failure to follow any instruction or warning within this instruction manual or on any product label may result in a serious accident involving either personal injury, property damage or both.

- 2.1 Before every use, check the condition of the valve (cleanliness, condition of threads), inform yourself about standards and safety regulations for valves used with gases.
- 2.2 Respect given torques for assembling the valve to the cylinder

**SRG**Schulz + Rackow  
Gastechnik GmbH**ROTAREX GROUP**

# SPECIFICATION SHEET

## Cylinder Valve

### Type 457 OPD

(With safety relief valve)

457-011-4001\_000gb  
Index-No.: 2477  
Date: 22.08.2013

Page 2 of 4

- 2.3 This product is designed and approved for the use with LPG tanks. Any other use or application is not permitted without a written autorisation by our technical Department.
- 2.4 Never disassemble a OPD cylinder valve.
- 2.5 Never grease a OPD cylinder valve (especially the inlet thread).
- 2.6 Never disassemble OPD a cylinder valve from a cylinder under pressure.
- 2.7 Use only materials with cleanliness surfaces and compatible with the specified gaz, the specified pressures and the desired flow.
- 2.8 The manufacturer of the end product has to look after the cleanliness of the tank, which has to be free of grease and metallic, plastic or other particles.
- 2.9 The OPD cylinder valves have to be stored in a dry and well tempered environment in its original packaging without any influence of sun or ultraviolet radiation.
- 2.10 The devices should not be subjected to any clash or impact or deformation: It is not permitted to use a deformed or damaged OPD valve.
- 2.11 Never use a direct flame near the installation.
- 2.12 Never modify or remove the markings on the OPD Valve.
- 2.13 All users must strictly respect all national or local laws, rules or regulations in force.
- 2.14 The manufacturer of the end product is responsible for any personal injury, material or immaterial accident or damaging caused by a non-approved fitting or failure of maintenance.
- 2.15 The customer has to assure an appropriate transportation and handling of this product. **SRG Schulz + Rackow Gastechnik GmbH** is not responsible if the product has been transported or handled in an inappropriate way and especially when its specific original packaging looks damaged. In this case the customer has to inform the manufacturer **SRG Schulz + Rackow Gastechnik GmbH** immediately.

### 3. TECHNICAL DATA

Start to discharge Pressure (STD) of pressure relief device	In reference to customer request
Working temperature	- 20° C to +65° C (optional -40°C to +70°C)
Inlet connection	In reference to customers order (see table under point 4)
Outlet connection	In reference to customers order
Valve markings	3 stars, SRG, Type, Date of manufacture, PI0029, Start to discharge and flow capacity, optional -40°C
Application	Butane, Propane or mixture of both (LPG)

*Subject with modification without preliminary opinion*

### 4. INSTALLATION AND HANDLING INSTRUCTIONS

The fitting of the OPD Valve has to be done in the following order:

- 4.1 Check if the valve thread corresponds to the thread of the cylinder.
- 4.2 Check the property and the surface condition of the cylinder.
- 4.3 Check the presence of dust cap on pressure relief device.
- 4.4 Use an appropriate sealing product for the threads (if the valve is not delivered with Tenfil), which does not interfere with the correct function of the valve (Use Teflon tape or similar). Apply sealing on threads only.
- 4.5 Check if the coupling is free of any products (grease, painting color...).
- 4.6 Install the OPD valve one turn by hand. The valve has to turn freely inside the cylinder coupling.
- 4.7 For fitting the valve to the cylinder, use a special tool corresponding to the valve's wrench and which will not interfere with the pressure relief device to avoid any deformation.

**SRG**Schulz + Rackow  
Gastechnik GmbH**ROTAREX GROUP****SPECIFICATION SHEET**  
**Cylinder Valve**  
**Type 457 OPD**  
(With safety relief valve)457-011-4001\_000gb  
Index-No.: 2477  
Date: 22.08.2013

Page 3 of 4

**Fitting torques**

Inlet thread	Fitting torque with Teflon tape or Tenfil
25E (W28,8 x 1/14" con), 25T	160 Nm + orientation (max.200 Nm after orientation)
¾" – 14NGT – CGA V-1	100 Nm + orientation (max.130 Nm after orientation)

**These fitting torques have to be respected without exception; If there is still a leakage after assembling of the valve to the cylinder, check the thread of the cylinder coupling.**

**Moreover, after assembly of the OPD valve, the fitter will have to check that there remains at least one complete thread usable at the outside of the cylinder**

- 4.8 After fitting check the assembly for leaks (e.g. with a leak detecting spray). If you use a special leakage test make sure that the pressure is less than setting pressure of the pressure relief device.  
Any fire or direct flame is prohibited during this operation.

**WARNING**

The pressure relief device's outlet has to be orientated in such a way, that in case of discharge the flow will not interfere with elements causing LPG ignition (e.g. electrical components, exhaust pipe, etc)

**5. MAINTENANCE**

The warranty foreseen in our general conditions of sale does not cover the following:

- Repair or replacement due to normal wear or damage during routine maintenance.
- Damage to components whose fragility is for technical reasons unavoidable and determined by product design.
- Damage from not following recommended maintenance and procedures, as outlined in this instruction manual.
- Damage arising from modifications not included in the procedures in this instruction manual.
- Damage resulting from the use of an unauthorised part, supplied, manufactured or modified by procedures not included in this instruction manual.

**WARNING**

Failure to follow the installation instructions and handling instructions may cause an accident or personal injury, for which **SRG Schulz + Rackow Gastechnik GmbH** declines any responsibility.

Maintenance, repairs and reconditioning of the PRODUCT are under the responsibility of the user or the operator. Anyone attempting to maintain, repair or conditioning the PRODUCT must be thoroughly familiar with **Directive 2010/35/EU (European Agreement concerning the International Carriage of Dangerous Goods by Road, ADR)** and all other standards and regulations referenced therein.

According to this norm maintenance, repair and/or reconditioning shall be performed by properly trained personal.

In case of incident or complaint, the user has to send back the supposed defective product to the manufacturer **SRG Schulz + Rackow Gastechnik GmbH** securely packed. In order to preserve the warranty, the user will not execute any intervention on the product (disassembling, repair, modification...) without our written agreement.

**SRG**Schulz + Rackow  
Gastechnik GmbH**ROTAREX GROUP**

# SPECIFICATION SHEET

## Cylinder Valve

### Type 457 OPD

( With safety relief valve )

457-011-4001\_000gb  
Index-No.: 2477  
Date: 22.08.2013

Page 3 of 4

**Fitting torques**

Inlet thread	Fitting torque with Teflon tape or Tenfil
25E (W28,8 x 1/14" con), 25T	160 Nm + orientation (max.200 Nm after orientation)
3/4" – 14NGT – CGA V-1	100 Nm + orientation (max.130 Nm after orientation)

**These fitting torques have to be respected without exception; If there is still a leakage after assembling of the valve to the cylinder, check the thread of the cylinder coupling.**

**Moreover, after assembly of the OPD valve, the fitter will have to check that there remains at least one complete thread usable at the outside of the cylinder**

- 4.8 After fitting check the assembly for leaks (e.g. with a leak detecting spray). If you use a special leakage test make sure that the pressure is less than setting pressure of the pressure relief device.  
Any fire or direct flame is prohibited during this operation.

**WARNING**

The pressure relief device's outlet has to be orientated in such a way, that in case of discharge the flow will not interfere with elements causing LPG ignition (e.g. electrical components, exhaust pipe, etc)

**5. MAINTENANCE**

The warranty foreseen in our general conditions of sale does not cover the following:

- Repair or replacement due to normal wear or damage during routine maintenance.
- Damage to components whose fragility is for technical reasons unavoidable and determined by product design.
- Damage from not following recommended maintenance and procedures, as outlined in this instruction manual.
- Damage arising from modifications not included in the procedures in this instruction manual.
- Damage resulting from the use of an unauthorised part, supplied, manufactured or modified by procedures not included in this instruction manual.

**WARNING**

Failure to follow the installation instructions and handling instructions may cause an accident or personal injury, for which **SRG Schulz + Rackow Gastechnik GmbH** declines any responsibility.

Maintenance, repairs and reconditioning of the PRODUCT are under the responsibility of the user or the operator. Anyone attempting to maintain, repair or conditioning the PRODUCT must be thoroughly familiar with **Directive 2010/35/EU (European Agreement concerning the International Carriage of Dangerous Goods by Road, ADR)** and all other standards and regulations referenced therein.

According to this norm maintenance, repair and/or reconditioning shall be performed by properly trained personal.

In case of incident or complaint, the user has to send back the supposed defective product to the manufacturer **SRG Schulz + Rackow Gastechnik GmbH** securely packed. In order to preserve the warranty, the user will not execute any intervention on the product (disassembling, repair, modification...) without our written agreement.

**SRG**Schulz + Rackow  
Gastechnik GmbH**ROTAREX GROUP****SPECIFICATION SHEET**  
**Cylinder Valve**  
**Type 457 OPD**  
(With safety relief valve)

457-011-4001\_000gb  
Index-No.: 2477  
Date: 22.08.2013

Page 4 of 4

**6. GENERAL CONDITIONS**

- 6.1. Because of a policy of continuous product improvement, **SRG Schulz + Rackow Gastechnik GmbH** reserves the right to change designs and materials as well as specifications and product informations without notice.
- 6.2. **SRG Schulz + Rackow Gastechnik GmbH** preserves completely the intellectual property of their projects, studies and in general on all documents forwarded to their customers : it is not permitted to communicate, to execute or to use these documents in any way without their written authorisation.
- 6.3. This instruction manual is a part of the sales contract and is subject to the general terms of sale.