

Report about the supervision of manufacture and initial inspection and test of transportable pressure equipment

No.: 84952375/438

Applicant:

VÍTKOVICE CYLINDERS a.s.
Vitkovice 3041
703 00 Ostrava, Czech Republic

Manufacturer:

VÍTKOVICE CYLINDERS a.s.
Vitkovice 3041
703 00 Ostrava, Czech Republic

Information about the order processing:

Client-No.:	1553988
TÜV Location:	TÜV Rheinland Polska Sp. z o. o. Ul. Wolności 347, 41-800 Zabrze

Information about the inspection:

Date of inspection:	16 ÷ 19.08.2022
Type of inspection:	Supervision of manufacture and initial inspection and test of transportable pressure equipment
Legal basics:	Dir. 2010/35/EU, ADR/RID/ADN 2021
Technical basics:	EN ISO 9809-2:2019
Serial number:	16325084 - 16325183

Information about the manufacturing process:

Type of equipment	Seamless steel gas cylinders
Intended use	Carriage of dangerous goods
Manufacturer	see applicant
Place of inspection	see production facility
Scope of applicability	Capacity: 40L / Ø204; Weight [kg]: 39; Wall thk. [mm]: 3,8, Drg. No. LA4-0344 Rev.3; Max. working pressure PW [bar]: - ; Test pressure PH [bar]: 300; Date of manufacture: 08/2022; Type of gas / UN-no: CO ₂ ; Quantity [pcs]: 100; Batch: ML/1. Manuf. Ref. No.: OL220906.

Scope of Inspection:

acc. to Dir. 2010/35/EU in conjunction with ADR/RID 2021 – Supervision of manufacture Visit of inspection of the production site and assessment of the manufacturing process			
Scope of Inspection:	fulfilled	not fulfilled	annex / remarks
All documentation required for type approval*	☒	☐	OK
Certification of type approval**	☒	☐	TÜV SÜD 07.088.732, dated 17.04.2014
Manufacturing procedures including test procedures*	☒	☐	OK
Manufacturing records*	☒	☐	OK
Documentation of the approved qualifications of personnel for permanent joining**	☐	☐	N/A
Documentation of the approved qualifications of personnel for non-destructive test**	☒	☐	Annex 2
Reports of destructive and non-destructive tests**	☒	☐	Annex 3
Heat treatment records**	☒	☐	Annex 4
Calibration records**	☒	☐	Annex 1
Traceability of materials, material certificates, etc.**	☒	☐	Annex 5

* review / ** review and archive

acc. to Dir. 2010/35/EU in conjunction with ADR/RID 2021 – Initial inspection and tests Visit of inspection of the production site and assessment of the manufacturing process			
Scope of Inspection:	fulfilled	not fulfilled	annex / remarks
Check of all necessary documents for type approval and supervision of manufacture	☒	☐	OK
Check of the material certificates of the product and any sub-parts	☒	☐	OK
Check of service equipment certificates in conjunction with the check of the service equipment itself	☒	☐	OK
Check of the declaration of conformity including the description of the product and all variations adopted from the type approval	☒	☐	OK

Reference	Specific Requirements	fulfilled	not fulfilled	result / remarks
EN ISO 9809-2: 2019				
1	Review of: materials certificates and conformity statements required	☒	☐	ok
2	Review of: heat treatment records	☒	☐	ok
3	Verification of min. wall thickness	☒	☐	ok
4	Internal and external condition of pressure equipment	☒	☐	ok
5	UT Records	☒	☐	ok
6	Verification of the conformance with the design standard and type approval certificate	☒	☐	ok
7	Verification of ovality, diameter and straightness of cylinders	☒	☐	ok
8	inspection of neck thread	☒	☐	ok
9	Mechanical / destructive tests	☒	☐	ok
10	Bursting test	☒	☐	ok
11	Hydraulic pressure test	☒	☐	ok
12	Inspection of the marking	☒	☐	ok

Deviations / Remarks / Measures:

Gas cylinders are intended for company IKAROS S.r.l. (Order no. 5836).

Marking:

After successful completion of the supervision of manufacture, initial inspection and test, the pressure equipment may be marked as follows:

TT 0035

25E CZ ☺C /Serial No. UT
3,8MM XX,XKG 40L PH300BAR
TT 0035 -40°C EN ISO 9809-2 D ☺ 2022/08 32

2A
TARE XX,XKG 30KG CO2

Results of inspection:

The fabrication process is in line with the provisions of ADR/RID and delivers products that satisfy the requirements specified in the type approval.

Assessment:

This is to certify conformity with the requirements of the inspection specification

General Information:

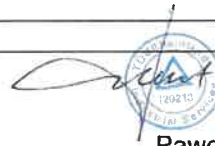
This report is valid only if all relevant annexes are attached.

For order processing, we have stored essential object data and the address. The protection of the data is guaranteed. The test results relate exclusively to the described test object. Partial copies of the test report without a written authorization by the Notified Body is not permitted.

The technical expert is not the designer, manufacturer, supplier, installer, purchaser, owner, user or maintainer of the pressure equipment that the technical expert assesses, nor the representative of any of those parties. Any case, which can be understood as conflict of interest, was not defined.

Place, Date

Zabrze 29.08.2022



Pawel Hafat

Inspector

Notified Body for transportable pressure equipment

Annex:

☒ Calibration record(s) of the test manometer(s) used
(calibrated by an accredited laboratory according to ISO 17025)

☐

☐

Order number	Customer	Cylinder type
OL220906	Ikaros S.r.l.	40 L CO2
Pieces	Test pressure	Year / Month
100	300,00 bar	2022 / 8

Production number	Prefix	Customer number	Testing group	Cylinder weight	Capacity
16325084			ML/1	36,4	40,0
16325085			ML/1	36,1	40,0
16325086			ML/1	36,6	40,0
16325087			ML/1	36,6	40,0
16325088			ML/1	36,7	40,0
16325089			ML/1	36,8	40,0
16325090			ML/1	36,8	40,0
16325091			ML/1	36,4	40,0
16325092			ML/1	36,8	40,0
16325093			ML/1	36,8	40,0
16325094			ML/1	36,7	40,0
16325095			ML/1	36,5	40,0
16325096			ML/1	36,1	40,0
16325097			ML/1	36,3	40,0
16325098			ML/1	36,9	40,0
16325099			ML/1	36,2	40,0
16325100			ML/1	36,6	40,0
16325101			ML/1	36,3	40,0
16325102			ML/1	36,3	40,0
16325103			ML/1	37,3	40,0
16325104			ML/1	36,2	40,0
16325105			ML/1	37,2	40,0
16325106			ML/1	36,9	40,0
16325107			ML/1	36,7	40,0
16325108			ML/1	37,4	40,0
16325109			ML/1	36,6	40,0
16325110			ML/1	36,8	40,0
16325111			ML/1	36,9	40,0
16325112			ML/1	36,6	40,0
16325113			ML/1	36,7	40,0
16325114			ML/1	36,8	40,0
16325115			ML/1	36,8	40,0
16325116			ML/1	36,7	40,0
16325117			ML/1	36,7	40,0
16325118			ML/1	36,7	40,0
16325119			ML/1	36,8	40,0
16325120			ML/1	37,1	40,0
16325121			ML/1	36,6	40,0
16325122			ML/1	36,8	40,0
16325123			ML/1	36,8	40,0
16325124			ML/1	36,8	40,0
16325125			ML/1	37,2	40,0
16325126			ML/1	36,8	40,0
16325127			ML/1	36,8	40,0
16325128			ML/1	37,2	40,0
16325129			ML/1	37,0	40,0
16325130			ML/1	36,8	40,0
16325131			ML/1	37,1	40,0
16325132			ML/1	36,8	40,0
16325133			ML/1	36,8	40,0
16325134			ML/1	37,0	40,0
16325135			ML/1	36,9	40,0
16325136			ML/1	37,0	40,0
16325137			ML/1	36,8	40,0
16325138			ML/1	37,1	40,0

Order number	Customer	Cylinder type
OL220906	Ikaros S.r.l.	40 L CO2
Pieces	Test pressure	Year / Month
100	300,00 bar	2022 / 8

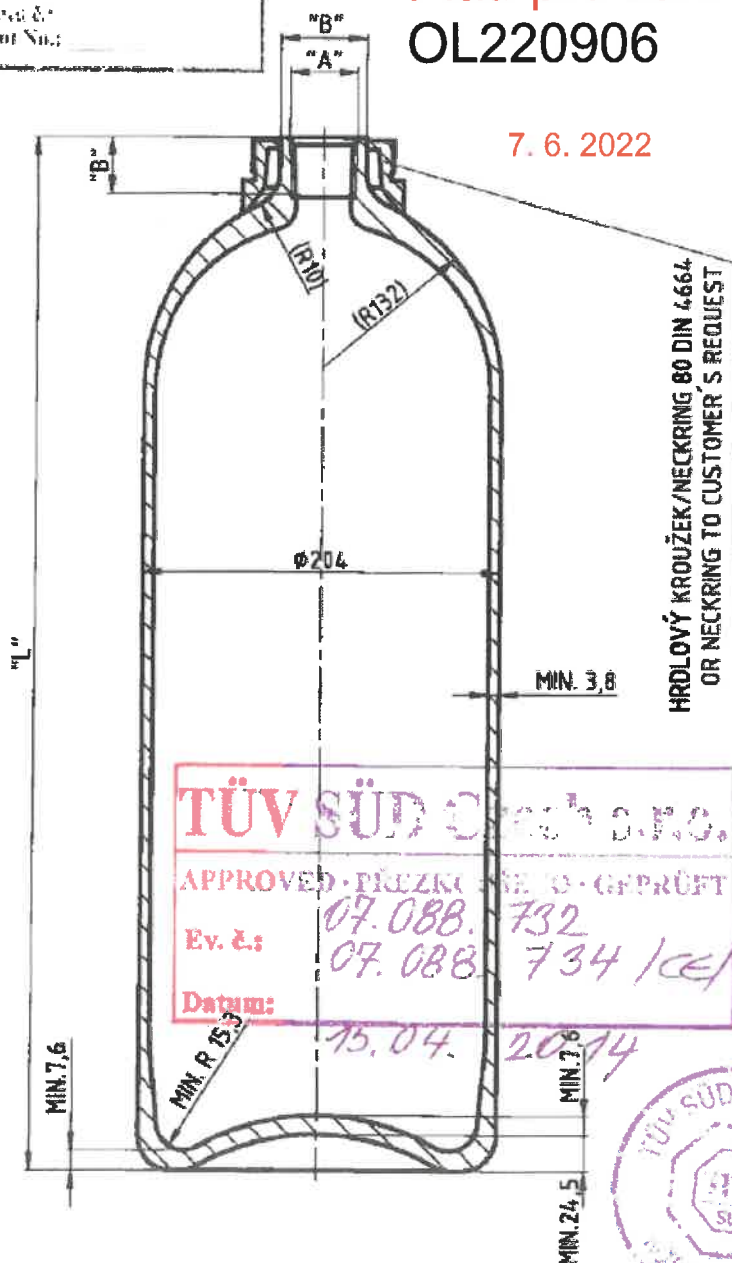
Production number Prefix	Customer number	Testing group	Cylinder weight	Capacity
16325139		ML/1	36,9	40,0
16325140		ML/1	37,1	40,0
16325141		ML/1	37,0	40,0
16325142		ML/1	37,0	40,0
16325143		ML/1	36,9	40,0
16325144		ML/1	36,9	40,0
16325145		ML/1	37,0	40,0
16325146		ML/1	37,1	40,0
16325147		ML/1	36,9	40,0
16325148		ML/1	37,2	40,0
16325149		ML/1	36,9	40,0
16325150		ML/1	36,9	40,0
16325151		ML/1	36,7	40,0
16325152		ML/1	36,9	40,0
16325153		ML/1	36,9	40,0
16325154		ML/1	36,8	40,0
16325155		ML/1	36,7	40,0
16325156		ML/1	37,0	40,0
16325157		ML/1	37,0	40,0
16325158		ML/1	37,3	40,0
16325159		ML/1	37,0	40,0
16325160		ML/1	37,2	40,0
16325161		ML/1	37,5	40,0
16325162		ML/1	37,0	40,0
16325163		ML/1	37,0	40,0
16325164		ML/1	37,1	40,0
16325165		ML/1	37,0	40,0
16325166		ML/1	37,3	40,0
16325167		ML/1	37,1	40,0
16325168		ML/1	37,1	40,0
16325169		ML/1	37,2	40,0
16325170		ML/1	36,9	40,0
16325171		ML/1	37,3	40,0
16325172		ML/1	37,0	40,0
16325173		ML/1	37,4	40,0
16325174		ML/1	37,5	40,0
16325175		ML/1	37,1	40,0
16325176		ML/1	37,1	40,0
16325177		ML/1	37,4	40,0
16325178		ML/1	37,0	40,0
16325179		ML/1	37,1	40,0
16325180		ML/1	36,9	40,0
16325181		ML/1	36,6	40,0
16325182		ML/1	36,4	40,0
16325183		ML/1	37,0	40,0

"A"	"ØD"	"B"
25E EN ISO 11 363-1	Ø36h11	min.22
W31.3x17/14" keg DIN 477	Ø41h11	min.22
OR THREAD TO CUSTOMER'S REQUEST		

Příloha č.: 4
 Annex No.: 4
 Dokumentace č.:
 n document No.:

Platí pro zak.:
 OL220906

7. 6. 2022



MATERIAL : 34CrMo4 EN 10 083

Rmg=1100-1220 MPa

Reg ≥ 950 MPa

A₅ ≥ 12% (rectangular specimen)

A₅ ≥ 14% (round specimen)

KCV = J/cm² (-50°C)

příčná/trans. ≥ A- 30 B- 40

CHEMICKÉ SLOŽENÍ
 CHEMICAL ANALYSIS (%)

	CHEM. AN. no. 1	CHEM. AN. no. 2
C	0,34-0,37	0,33-0,37
Si	0,20-0,35	0,20-0,35
Mn	0,70-0,90	0,70-0,90
Cr	1,00-1,20	0,95-1,15
Mo	0,20-0,30	0,18-0,28
Ni	0,00-0,30	0,00-0,30
P	max. 0,015	max. 0,015
S	max. 0,005	max. 0,005
P+S	max. 0,020	max. 0,020

KONSTRUKCE A PŘÍKLADY DLE
 DESIGN AND WORKMANSHIP IN ACC TO
 EN 1964-2:2001 and ISO 9809-2:2000
 and EN ISO 9809-2:2010

Rodina lahví/Cylinders family

Objem/Volume +5%(-) -0	"L" ca (mm)	Hmotnost/Weight ca (kg)
V min.	13,4	(565)
V max.	45	(1615)

příklady zástupců/ typical representants

Objem/Volume +5%(-) -0	"L" ca (mm)	Hmotnost/Weight ca (kg)
15	(620)	19
20	(780)	22
ref. cylinder 30	(1115)	31
ref. cylinder 40	(1450)	39

PRACOVNÍ TLAK DO:
 WORKING PRESSURE UP TO: 200 bar

ZKUŠEBNÍ TLAK DO:
 TEST PRESSURE UP TO: 300 bar

MIN. DESTRUKČNÍ TLAK
 MIN. BURST PRESSURE: 480 bar

TEPELNÉ ZPRACOVÁNÍ/HEAT TREATMENT:
 KALENÍ/QUENCHING
 POPOUŠTENÍ/TEMPERING

VÍTKOVICE CYLINDERS a.s.

706 00, OSTRAVA-VÍTKOVICE, Ruská 83
 Výkres je naším duševním a průmyslovým vlastnictvím

Název/Name

Seamless steel cylinder for gas

These steel cylinders are ultrasonic tested after heat treatment.
 We guarantee $\sum V, Nb, B, Ti, Zr \leq 0,15\%$

Značka změny mark of change	Popis změny /description of change	Datum /date	Vypracoval /designed by	Kontroloval /checked by	Schválil /approved by
		25.3.02	PIJANOWSKI		
Rev.1	Rozšíření o ISO 9809-2	8.9.06	PIJANOWSKI		
(2850) Rev.2	Rozšíření o ISO 9809-2:2010	29.11.11	PIJANOWSKI	ing.Hofřík	ing.Pavlas
(3305) Rev.3	change of heat treatment change of chem. analysis change of volume range	17.6.13	PIJANOWSKI	ing.Hofřík	ing.Pavlas

List č./Počet listů
 Page no./of:

1/2

Polotovár/semi-product
 billet

Formát/size
 A4

LA4-0344

Rev.
 3

Rev.1

Thickness of cylindrical shell according to EN 1964-2:2001 and ISO 9809-2:2000 and EN ISO 9809-2:2010

Wall stress calculation :

$$a = D/2 \left(1 - \sqrt{\frac{10.F.Reg \cdot \sqrt{3} \cdot p_h}{10.F.Reg}} \right)$$

Where :

D - outside diameter.....204(mm)

p_h - test pressure.....300 (bar)

Reg - min.yield stress.....950 (MPa)

Rmg - min.tensile strength.....1100 (MPa)

F - design stress factor.....

$$\frac{0,65}{Reg/Rmg} = \frac{0,65}{950/1100} = 0,753$$

$$a = 204/2 \left(1 - \sqrt{\frac{10 \cdot 0,753 \cdot 950 \cdot \sqrt{3} \cdot 300}{10 \cdot 0,753 \cdot 950}} \right) = 3,78 \text{ (mm)}$$

We selected min. wall thickness 3,8 (mm)

(3305)
Rev.3

HEAT TREATMENT for CHEM. AN. no. 1

Quenching

Heating up to 830-890°C, delay 20 minutes, cooling in POLYDUR to max. 50°C.

Tempering

Heating up to 590°C±30°C, delay min.30 minutes, cooling in air.

HEAT TREATMENT FOR CHEM. AN. no. 2

Quenching

Heating up to 830-890°C, delay min. 15 minutes, cooling in POLYDUR to max. 50°C.

Tempering

Heating up to 510°C±30°C, delay min. 30 minutes, cooling in air.



Značka změny /mark of change	Popis změny /description of change	Datum /date	Vypracoval /designed by	Kontroloval /checked by	Schválil /approved by	VÍTKOVICE CYLINDERS a.s. 706 00, OSTRAVA-VÍTKOVICE, Ručká 83 Výkres je naším duševním a průmyslovým vlastnictvím
		25.3.02	PIJANOWSKI			Název/Name Seamless steel cylinder for gas
Rev.1	Rozšíření o ISO 9809-2	8.9.06	PIJANOWSKI			
(2850) Rev.2	Rozšíření o ISO 9809-2:2010	29.11.11	PIJANOWSKI	ing.Hofřík	ing.Pawlas	
(3305) Rev.3	change of heat treatment change of chem. analysis change of volume range	17.6.13	PIJANOWSKI	ing.Hofřík	ing.Pawlas	
List č./Počet listů Page no./of : 2/2		Polotovár/semi-product billet		Formát/size A4		LA 4-0344
						Rev. 3

Hmotnost prázdné láhve
+ hmotnost ventilu+nátěru
V místech XX X nechat volné místo

Strana 1/1
Page

Hmotnost náplně
Weight of filling

Weight of empty cylinder +weight
of walve + weight of painting

Ultrazvuková kontrola
Ultrasonic inspection

Rok první
periodické zkoušky
Year of first
period. test

Zkušební tlak
Test pressure

Rok/měsíc první zkoušky
Test date (year/month)

Znak přejímací společnosti
Stamp of notified body

Značka závitů
Mark of thread

Minimální výpočtová
tloušťka stěny v mm

Minimum wall
Thickness in mm

číslo schvalující
organizace

Conformity mark

Hmotnost prázdné láhve
Weight of empty cylinder

Norma
Norm

Min. zaručený vodní objem
exact water capacity

Výrobní číslo a označení zkušební skupiny
(krycí znak tavby/číslo dávky TZ)

Serial number and marking of test group (letter or
number of heat/batch number of heat treatment)

Výška vyražených značek **8 mm**
Height of stamped letters

Platí pro zak.: OL220906

Koutný

7. 6. 2022

Změna Change	Datum Date	Jméno Name		Datum Date	Jméno Name	VÍTKOVICE CYLINDERS a.s.
			VYPRACOVAL DESIGNED BY	6.3.2020	Koutný	Značení ražením. CZ-115A LA4-0344 CO ₂
			KONTRLOVAL CHECKED BY	6.3.2020	Koutný	
			SCHVÁLIL APPROVED BY	6.3.2020	Ing. Kučera	



Czech

CERTIFICATE

Registration number 07.088.732

on the approval of construction type,

issued pursuant to Directive 2010/35/EU (Government Executive Order No. 208/2011 Sb. (Coll.), as amended) and agreement ADR/RID:2013

for the applicant:

VÍTKOVICE CYLINDERS a.s.**Ruská 24/83****CZ - 706 00 Ostrava - Vítkovice**

Company Registration No.: 25849026

for transportable pressure equipment:

Name: _____

UN pressure vessels and Pressure vessels non-corresponding UN

Manufacturer:

see applicant

Drawing No.:

LA 4 – 0344 Rev.3

Construction standard:

EN 1964 - 2:2001, ISO 9809 - 2:2000, EN ISO 9809 - 2:2010

Test pressure PH:

300 bar

Working pressure PW:

200 bar

Modification:

13.4 L - 45 L

Place of manufacture:

VÍTKOVICE CYLINDERS a.s.

Ruská 24/83, CZ - 706 00 Ostrava - Vítkovice

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:2013

Validity period: 17.04.2024

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 on evaluation – certification of construction type No. 07.089,270, which is an integral part hereof.

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

Prague, on 17.04.2014



On behalf of Notified Body 1017
Jana Bačinová
Head of Certification Department

1. Validity conditions

This certificate is renewable upon request. The renewal is possible after the full revision and examination of conformity with the ADR/RID provisions applicable as of the date of renewal. The renewal is not permitted after the type approval is cancelled. 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 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 cancelled, 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 (approval number at tanks) to enable to identify the tested type with products put into circulation.

2. 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.

3. List of relevant parts of technical documentation:

Drawing No. LA4-0344 Rev.3
Evaluation report No. 07.089.270

This language version of the certificate is a translation of a Czech official version No. 07.088.732 issued on 17.04.2014, which is deemed the only one applicable in the event of legal disputes and was printed on 17.04.2014.



VÍTKOVICE CYLINDERS a.s.

Ruská 24/83,
706 00 Ostrava - Vítkovice
Czech Republic
Fax.: 00420/596 664 642
IČ : 25849026



DECLARATION OF CONFORMITY No.: 344/3-ZP-1

PROHLÁŠENÍ O SHODĚ č. 344/3-ZP-1

According to Annex 2 NV ČR No. 208/2011 Sb.

podle přílohy 2 NV ČR č. 208/2011 Sb. v platném znění

Product /Výrobek

Transportable seamless steel cylinders for transportation and storage of liquefied gasses of class 2 according to the agreement ADR/RID

Převážitelné bezešvé ocelové lahve pro přepravu a skladování zkapalněných plynů třídy 2 dle dohody ADR/RID

Drawing No. /Výkres č.

LA 4 – 0344 Rev. 3

Outside diameter/min. wall thickness /vnější průměr /min tl stěny

D 204/3,8 mm

Working pressure/Test pressure/Pracovní přetlak/Zkušební přetlak

- / 300 bar

Water capacity/Vodní objem

13,4 - 45L

Technical standard /Technická norma

**ISO 9809-2;EN 1964-2;
EN ISO 9809-2: 2010;**

Compliance Assessment is carried out according to ADR/RID: as amended (1.8.7)

Posouzení shody se provádí v souladu s ADR/RID: v platném znění (1.8.7)

- **Type approval (ADR/RID: as amended, 1.8.7.2)**
Typového schválení (ADR/RID: v platném znění, 1.8.7.2)
- **Supervision of manufacture (ADR/RID: as amended, 1.8.7.3)**
Dohled nad výrobou (ADR/RID: v platném znění, 1.8.7.3)
- **Initial inspection and tests (ADR/RID: as amended, 1.8.7.4)**
První inspekce a zkoušky (ADR/RID: v platném znění, 1.8.7.4)

Notified body: TÜV SÜD Czech s.r.o., Novodvorská 994, 142 21 Praha 4, Czech Republic

Notifikovaná osoba:

Identification No.: 1017/Identifikační číslo: 1017

We declare that the above mentioned cylinders are in conformity with the type described in the type certificate for UN and π cylinders no. 07.088.732 and meet the requirements of the agreement ADR/RID: as amended, Directive 2010/35/EU and Regulation of the Czech Republic Government no. 208/2011 and above mentioned technical standards.

Prohlašujeme, že výše uvedené lahve se shodují s typem popsáním v certifikátu příslušného typu pro UN a π lahve 07.088.732 a splňují požadavky dohody ADR/RID: v platném znění, směrnice 2010/35/EU a NV ČR č. 208/2011 a výše uvedených technických norem.

This declaration of conformity is valid for approved cylinders which were stamped with certification mark



(The United Nations packaging symbol acc. to ADR/RID: as amended) and/or π (mark of conformity acc. to 2010/35/EU).

Toto prohlášení o shodě je platné pro schválené lahve, které byly označeny certifikačním značkou  (znak Spojených národů pro obaly podle ADR/RID: v platném znění) a/nebo π (značka shody podle 2010/35/EU).

V Ostravě dne: 24. 06. 2014

Authorized representative of producer:
Oprávněný zástupce výrobce:

mgr inž. Jerzy Kościelniak

General director – Generální ředitel

136/22

A04 HUTA BANKOWA Spółka z o.o. ul. Sobieskiego 24 41-300 Dąbrowa Górnicza		A02 Świadectwo odbioru 3.1 Nr 07986/22 Inspection certificate 3.1 Abnahmeprüfzeugnis 3.1 Certificat de réception 3.1 Свидетельство приемки 3.1 PN-EN 10204											
A06 Zamawiający Ordered by - Besteller ul. Vítkovice 3041 , 703 00 OSTRAVA		Czechy VAT reg.nr CZ25849026											
A06 Adres wysyłkowy Address - Versandadresse ul. Vítkovice 3041 , 703 00 OSTRAVA													
A07 Nr i data zamówienia klienta Order No and date Nr und Datum der Bestellung OSTRAVA MA03412 z dnia 22/06/24 LOT:	A08 Zlecenie Manuf. Order No Auftrag Nr Hb/6205713/06/22 S2200974 order: Number of dispatch:	Wykonano wg norm Produced according to Herstell gemäß Norm TP VC 2007/2 wyd. 4 TP VC 2007/2 wyd. 4	Wagon Car No Wagen Nr SM96626/ ZGL1RS4										
B01 Przedmiot i wykonanie Item and specification (Heat and mechanical treatment etc.) Gegenstand und Ausführung (therm. und mechan. Bearbeitung usw.) Round bars as-rolled Condition. for the production of cylinder gases.	B09 Wymiar lub rysunek Dimension or drawing Abmessung oder Zeichnung 180 mm dł. 4000-8000 mm	B02 Gatunek Steel grade Güte 34CrMo4-SP	B07 Wytóp Heat Schmelze A212239	B08 Sztuk Pieces Stück 18	B14 Wiazki Bundles Bündel 6	B12 kg 22870							
B15 Reduction ratio 4,4 x. Heat from convectory furnace. Vacuum degassed steel. 100% steel grade control. Fully killed steel. Heat treatment of the sample: Tempered temperature 860 [C]. Tempering temperature 535 [C].													
C71 1. SKŁAD CHEMICZNY - CHEMICAL COMPOSITION - CHEMISCHE ZUSAMMENSETZUNG %													
B02 Wytóp Heat Schmelze A212239	C	Mn	Si	P	S	Cu	Cr	Ni	Mo	V	Sn	As	Ti
	0,35	0,79	0,247	0,010	0,004	0,05	1,04	0,026	0,195	0,003	0,002	0,001	0,002
	Al	Al met	Nb	N	H ₂	O ₂	B	Ca	Zr	-	CEV[%]	Ceq[%]	X [%]
	0,031	0,029	0,001	0,0049	1,7ppm	-	0,0005	0,0009	0,0013	-	0,7343	-	-
Analiza kontrolna Control analysis Stückanalyse													
	C	Mn	Si	P	S	Cu	Cr	Ni	Mo	V	Sn	As	Ti
	Al	Al met	Nb	N	H ₂	O ₂					CEV[%]	Ceq[%]	X [%]
D51 2. BADANIA MECHANICZNE - MECHANICAL TEST - MECHANISCHE UNTERSUCHUNGEN													
C01 Próba Nr Tests No Probe Nr 169/T 169/T 170/T 170/T 2253/22	B05 Rodzaj obróbki termicznej prób Heat treatment of the sample. Metallurgischer Zustand der Probe. QT QT QT QT Sample in the delivery condition	C11 Re [MPa] 997 1001	C12 Rm [MPa] 1145 1158	C13 A₅ [%] 14,8 14,4	C14 Z [%] 65,2 65,2	Udarność temp°C Impact test probe Middle value, Mittelwert C40 KV ₂ C40 KCV ₂ C40 KCV ₂ [J] [J/cm ²] [J/cm ²] - (W)63,62,62/-20C (W)30,28,27/-50C - - (P)41,38,39/-20C - - - (W)64,61,60/-20C (W)28,28,27/-50C - - (P)40,42,38/-20C - - - -				C31 Twardość Hardness Härte HB 193-216			
D52 3. BADANIA TECHNOLOGICZNE - TECHNOLOGICAL TESTS - TECHNOLOGISCHE UNTERSUCHUNGEN Ultrasonic testing SEP 1920-1 kl. B gr. 3.													
D53 4. BADANIA METALOGRAFICZNE - METALLOGRAPHIC TESTS - METALLOGRAPHISCHE UNTERSUCHUNGEN													
B02 Wytóp Nr Heat No Schmelze A212239	D54 Zanieczyszczenia niemetaliczne Nonmetallic impurities Nichtmetallische Verunreinigungen K3 - 15,3 - DIN 50602.	D55 Struktura Structure Struktur Deep etch test according to PN-57/H-04501 - macro-patterns in accordance with PN-H-93011:1996 standard.											
Powierzchnię i wymiary zbadano przez wydz. prod. w 100% -Surface and dimension tested by Dept.al 100% -Oberfläche und Abmessungen geprüft von Prod.Abt. zu 100%													
Z01 We declare that the final product comply with the order confirmation. Wir bestätigen, dass der Auftrag gemäß der Auftragsbestätigungsbedingungen gefertigt ist.													
D01 Materiał oznaczono Material marked Das Material wurde gekennzeichnet Steel grade, Nr heat, "Hb" mark, "JK" mark, "ZR" mark. Das Material weist keine Radioaktivität. The material has not displayed any radiation The radioactivity: < 100 Bq/kg													
B15													
Z04	Z02 Kontrola jakości Control of Manufacture Fertigungskontrolle Data: 28.07.2022 KIEROWNIK DZIAŁU KONTROLI JAKOŚCI Gerard Kulej Podpis: ZR-6 21-07-2022												

Producent uznany wg AD-2000-Merkblatt W0 przez TÜV NORD Systems GmbH & Co. KG. Certyfikowany zgodnie z PED, zał. I, pkt. 4.3 przez jednostkę certyfikującą dla urządzeń ciśnieniowych

TÜV NORD Systems GmbH & Co. KG, jednostka notyfikowana 0045, nr certyfikatu 07/202/9120/WZ/1000/19, 07/203/9120/WP/1000/19 - 2014/68/EU

Approved acc. to AD2000-Merkblatt W0 by TÜV NORD Systems GmbH & Co. KG. Certified acc. to PED annex I, sec 4.3 by the Certification body for pressure equipment of the TÜV NORD Systems GmbH & Co. KG., reg.-no. 0045, certificate no. 07/202/9120/WZ/1000/19, 07/203/9120/WP/1000/19 - 2014/68/EU

Überprüft nach AD2000-Merkblatt W0 durch den TÜV NORD Systems GmbH & Co. KG. Zertifiziert nach PED, Anh. I, Kap. 4.3 durch die Zertifizierungsstelle für Druckgeräte der TÜV NORD Systems GmbH & Co. KG, Benannte Stelle, Kenn-Nr. 0045, Zertifikat Nr. 07/202/9120/WZ/1000/19, 07/203/9120/WP/1000/19 - 2014/68/EU

Kontrola Jakości Control of Manufacture - Fabrikationskontrolle

KIEROWNIK DZIAŁU
KONTROLI JAKOŚCI

Gerard Kulej

Data28.07.2022.....

[illegible]



to testing form No.: 348/22

Specimen No.	Sampling point	Grain orientation	Heat No.	Steel process	Type of product	Thickness		Test temperature °C	Grade	Heat treatment	Dimensions of specimens				Type of test specimen	BEND TEST				Elongation %	Type and size of defects												
						mm	mm				Before testing		After testing			Diameter of bending pin mm	Distance between supporting rollers mm	Bending angle °	Gauge length before testing mm														
											Thickness	Width	Thickness	Width								Area mm ²	Length mm										
1742	9	2	M/L1 A212239	26	S320		4,5	25,0		20	34CrMo4	7	4,5	25,0			Bend Test	36	50	180		Without Crack											
"	"	"	"	"	"		4,5	25,0		"	"	"	4,5	25,0			Bend Test	36	50	180		Without Crack											
1743	"	"	M/L2 A212239	"	"		4,6	25,0		"	"	"	4,6	25,0			Bend Test	36	50	180		Without Crack											
"	"	"	"	"	"		4,6	25,0		"	"	"	4,6	25,0			Bend Test	36	50	180		Without Crack											
1744	"	"	M/L3 A212239	"	"		4,7	25,0		"	"	"	4,7	25,0			Bend Test	38	52	180		Without Crack											
"	"	"	"	"	"		4,7	25,0		"	"	"	4,7	25,0			Bend Test	38	52	180		Without Crack											
1745	"	"	M/L4 A212239	"	"		4,5	25,0		"	"	"	4,5	25,0			Bend Test	36	50	180		Without Crack											
"	"	"	"	"	"		4,5	25,0		"	"	"	4,5	25,0			Bend Test	36	50	180		Without Crack											
1746	"	"	M/L5 A212239	"	"		4,5	25,0		"	"	"	4,5	25,0			Bend Test	36	50	180		Without Crack											
"	"	"	"	"	"		4,5	25,0		"	"	"	4,5	25,0			Bend Test	36	50	180		Without Crack											
COMMENTS																																	
Grain orientation 1 (L) - long 2 (Q) - cross 3 (T) - tang. 9 (N) - other cases												 End of test report										Position		Name		Signature		Year	Month	Day			
																						TESTED BY		Ing. Dušan Samek				22	08	19			
																						ISSUED BY		Ing. Dušan Samek				22	08	19			
																						CHECKED AND APPROVED BY		Ing. Eva Vysocká				22	08	19			
																						STATEMENT:		Obtained results related only to the item being tested, ie the sign given as received. The laboratory does not take responsibility for sampling and data provided by the customer. The test report shall not be reproduced except in full without the written approval of the laboratory.									



Protokol o destrukční zkoušce láhve č.:

Cylinder Burst Test Certificate No.

DP1 –348/22

Zakázka č. / Shop order No.		min. tlak na mezi kluzu / min. Observed Yield Pressure $p_y \geq (1/F) \cdot p_h = 399,- \text{ bar}$ min. požadovaný destrukční tlak / min. Desired Burst Pressure $p_b \geq 1,6 \cdot p_h = 480,- \text{ bar}$
Objem láhve / Water Capacity of Cylinder	40 ltr.	
Výkres č. / Drawing No.	LA4-0344 rev.3, ,	
Vnější průměr / min. tl. stěny / Outsider Diameter / min. Wall Thickness	Ø 204 /min. 3,80 mm	
Tavba č. – krycí znak / Heat No. – Heat Code	<u>A212239 - ML</u>	
Zkušební tlak / Test Pressure : p_h	300 bar	
Norma / Standard	(EN) ISO 9809-1	X
	(EN) ISO 9809-2	

- Nesmí se jednat o křehký lom / shall not be brittle
- U lahví s tl. stěny < 7,5 mm nesmí větvení trhliny dosáhnout:
/ For cylinders with a guaranteed minimum wall thickness less than 7,5 mm, mustn't a side branching extend:

(EN) ISO 9809-1 $C_d, C_h < \pi D/4$

(EN) ISO 9809-2 $C_d, C_h < \pi D/3$

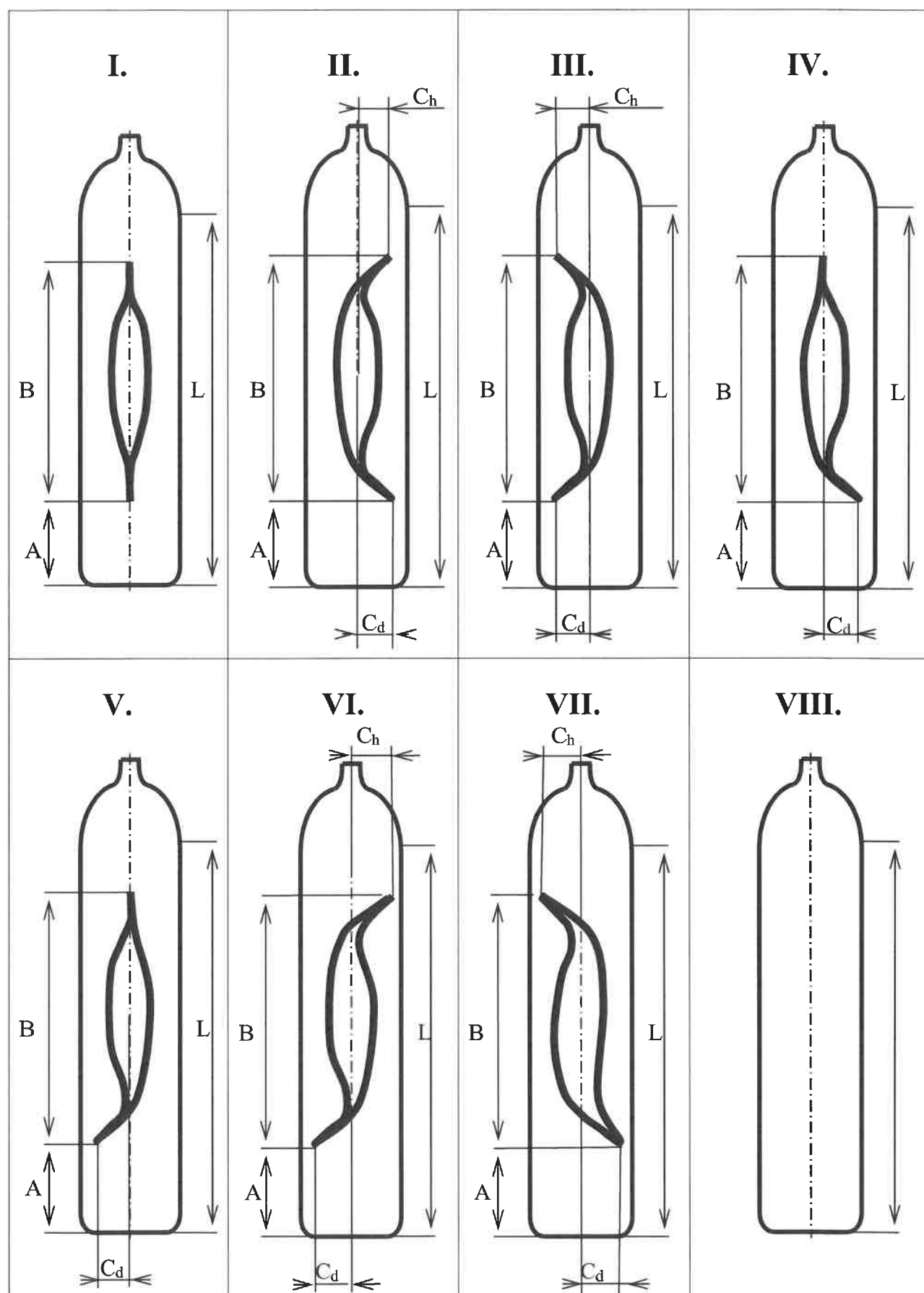
Zkušební skupina / Test Lot/Batch :		ML/1	ML/2	ML/3	ML/4	ML/5
Konfigurace trhliny / Fracture Configuration	Type acc. to page No. 2/2	III.	II.	III.	II.	I.
	L /mm/	1290	1290	1290	1290	1290
	A /mm/	310	500	210	370	470
	B /mm/	640	560	700	640	610
	C_d /mm/	60	60	80	80	70
	C_h /mm/	140	140	110	–	110
Tlak na mezi kluzu / Observed Yield Pressure : p_y		525 bar	543 bar	543 bar	540 bar	545 bar
Naměřený destrukční tlak / Measured Burst Pressure : p_b		538 bar	558 bar	558 bar	550 bar	554 bar
Vyhodnocení včetně kontroly trhliny při porušení a tvar jejích okrajů / Evaluation including examination of the burst tear and of the shape of its edges (9809-1,2:2010 acc. To 10.5.3.4, 10.5.3.5) (9809-1:2019 acc. To 10.4.3.4, 10.4.4) (9809-2:2019 acc. To 10.4.3.4, 10.4.3.5)		O.K.	O.K.	O.K.	O.K.	O.K.

J. Slečka

18.8.2022

Vystavil/made	Datum / Date	Osobní razítko / Personal Stamp	Podpis / Signature
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Typ konfigurace trhliny / Type of fracture configuration



VÍTKOVICE CYLINDERS a.s.

Vítkovice 3041
703 00 Ostrava
Czech Republic
Fax.: 00420/596 664 642
IČ : 25849026

**Vítkovice
Cylinders****CERTIFICATE of ultrasonic inspection No.: 220906/1****OSVĚDČENÍ o ultrazvukové kontrole**

Article of inspection / Předmět kontroly:

Production numbers / Výrobní čísla:

Order Number / Číslo objednávky:

Customer / Zákazník:

Quantity / Množství:

Wallthickness / Tloušťka stěny:

Inspection acc. / Kontrola podle:

Instrument type / Typ přístroje:

Reference standard / Srovnávací etalon:

Name of responsible technician /

Jméno odpovědného technika LEVEL II: UT EN 473
ISO 9712

Licence number / Číslo průkazu:

Steel cylinders capacity 40 Litres**Drawing No. LA 4 – 0344, Rev. 3****Dia 204/3,8 mm****Heat Nr.: A212239****Testing group : ML/1****16325084-16325183****5836****Ikaros S.r.l.****100 pcs****min. 3,8 mm****EN ISO 9809-2****Echograph 1155****KD-28****Petr Sobek****3197-CERT-NDT-0012-19**

Inspection result / Výsledek kontroly:

SATISFACTORY

Method and range US inspection was carried out in accordance with the prescribed standards and was satisfactory. / UZ kontrola byla provedena v souladu s předepsanými normami a byla vyhovující.

**VÍTKOVICE CYLINDERS a.s.**

Vítkovice 3041
703 00 Ostrava
(8)

Ing. Barbora Matznerová

19. 08. 2022

Authorized representative /

Date / Datum

Zplnomocněný zástupce –

Name / Jméno

Signature / Podpis

Stamping / Razítko