

# CERTIFICATE OF CONFORMITY ZERTIFIKAT

**Product Verification (Module F) according to Directive 97/23/EC**  
*Prüfung des Produktes (Modul F) nach Richtlinie 97/23/EG*

**Certificate No.:** USA 05/04/14/005  
**Zertifikat-Nr.**

**Name and Address  
of the Manufacturer:**  
*Name und Anschrift  
des Herstellers*

CHART Heat Exchangers  
2191 Ward Ave.  
La Crosse, WI 54601, USA

**We herewith certify that the results of the examinations of the pressure equipment described below meet the requirements of Directive 97/23/EC. The pressure equipment complies with the EC Type-Examination and carries the mark as illustrated:**

*Hiermit wird bescheinigt, daß die Ergebnisse der an dem unten genannten Druckgerät vorgenommenen Prüfungen die Anforderungen der Richtlinie 97/23/EG erfüllen. Das Druckgerät entspricht dem Baumuster und ist mit dem abgebildeten Zeichen gekennzeichnet:*

**CE 0036**

**Final Assessment Report No.:**  
*Abnahmeprüfbericht Nr.*

P-USA-05-03-14-019

**EC Type Examination Certificate No.:**  
*Zertifikat Nummer der EG Baumusterprüfung*

USA 05/04/14/004

**Scope of Approval:**  
*Geltungsbereich*

Aluminum Plate Fin Heat Exchanger,  
Drawing No. 15774A  
Serial No. 509.5-6  
same as above

**Location of Manufacture:**  
*Fertigungsstätte*

Schaumburg, IL, April 29, 2005  
**Place, Date**

Please see remarks on second page.

TÜV America, Inc.  
Industry Service  
5 Cherry Hill Drive  
Danvers, MA 01923, USA

Phone: 978-739-7000  
Fax: 978-777-7634  
E-Mail: info\_ics@tuvam.com

TÜV Industrie Service GmbH  
TÜV SUD Gruppe  
TÜV CERT-Certification Body  
for Pressure Equipment  
*[Signature]*  
Notified Body ID No. 0036

Member of  
CONFÉDÉRATION EUROPÉEN  
**CEOC**  
D'ORGANISMES DE CONTRÔLE



Industrie Service

## **Information regarding the TÜV CERT Certificate**

This certificate is only valid for the referenced company and its facilities stated on the certificate. Only the Certification Body is allowed to transfer (assign) it to a third party.

The right to use the marking depicted on the certificate covers solely products, which match with the type approval and the specifications within the test report or within its complementary (additional) agreements.

Each product has to contain (be accompanied by) the necessary operating and assembly instructions.

Each product must bear the clearly visible identification of the manufacturer or importer as well as a type plate, in order to identify the compliance of the type approval with the product placed on the market.

The holder of the TÜV CERT certificate is obliged to continuously observe if the manufacture of the marked products complies with the test requirements; he is obliged to perform the control tests defined within the test requirements or by the Certification Body in an orderly manner.

Aside from the conditions referenced above, the conditions within the General Contract are effective for the TÜV CERT certificate. It is valid as long as the state of the art requirements on which the test (approval) was based, are effective, if it was not withdrawn prior on conditions within the General Contract.

If this certificate expires or is withdrawn it has to be returned to the Certification Body immediately.

2191 Ward Avenue  
La Crosse, WI 54601, USA  
Phone: 608.787.3333 Fax: 608.787.2141  
www.chart-ind.com**EC DECLARATION OF CONFORMITY**

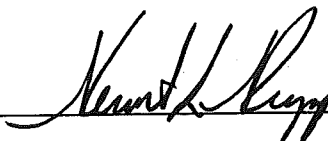
Issued in accordance with the

**PRESSURE EQUIPMENT DIRECTIVE (PED) 97/23/EC****Chart Heat Exchangers L.P.**  
2191 Ward Avenue  
La Crosse, WI 54601 USA

We hereby declare that in accordance with the above directive, the product detailed below has been manufactured in accordance with conformity assessment modules B and F "EC Type Examination and Product Verification" as approved by TÜV Industrie Service GmbH TÜV Süd Gruppe (Notified Body No. 0036) of Westendstrasse 199, 80686 München, Germany under EC Certificate of Conformity USA 05/04/14/005, and EC Design Examination Certificate USA 05/04/14/004.

<b>Product Description</b>	Aluminum Plate Fin Heat Exchanger
<b>Product Reference</b>	15774A
<b>Serial Number</b>	509.5-6
<b>Design Code</b>	ASME Section VIII, Division 1, 2001 Edition and 2003 Addenda
<b>Other Applied Standards</b>	EN 288, EN 287, ASME Section IX / PED 97/23/EC
<b>Other Applicable Directives</b>	None

Signed: \_\_\_\_\_



Name: \_\_\_\_\_

Kenneth L. Rupp

Position: \_\_\_\_\_

Senior Principal Quality Engineer &amp; Traffic Manager

Date: \_\_\_\_\_

April 21, 2005

**Reviewed**  
TÜV Süddeutschland Bau und Betrieb GmbH  
Notified Body No. 0036 acc. to Pressure  
Equipment Directive 97/23/EC  
-Testing Laboratory- MAR 31 2005

Anlage enclosure	2	zum Bericht to report
Prüf-Nr.	PUSA-05-03-10-05	
Inspect.-Nr.		
Blatt page	1	von 1 Blättern pages

# CERTIFICATE ZERTIFIKAT

**EC Type-Examination (Module B) according to Directive 97/23/EC**  
*EG-Baumusterprüfung (Modul B) nach Richtlinie 97/23/EG*

**Certificate No.:** USA 05/04/14/004  
*Zertifikat-Nr.*

**Name and Address  
of the Manufacturer:**  
*Name und Anschrift  
des Herstellers*

CHART Heat Exchangers  
2191 Ward Ave.  
La Crosse, WI 54601, USA

**We herewith certify that the type mentioned below meets the requirements of  
Directive 97/23/EC.**

*Hiermit wird bescheinigt, daß das unten genannte EG-Baumuster die Anforderungen der Richtlinie 97/23/EG erfüllt.*

**Final Assessment Report No.:**  
*Abnahmeprüfbericht Nr.*

P-USA-05-03-14-019

**EC Type Examination Report No.:**  
*EG-Baumusterprüfbericht Nr.*

P-USA-05-03-14-017

**Scope of Approval:**  
*Geltungsbereich*

Aluminum Plate Fin Heat Exchanger,  
Drawing No. 15774A

**Location of Manufacture:**  
*Fertigungsstätte*

same as above

**The Validity of this Certificate expires  
April 01, 2015.  
It may be extended upon request.**

Schaumburg, IL, April 04, 2005

Place, Date

Please see remarks on second page.

TÜV America, Inc.  
Industry Service  
5 Cherry Hill Drive  
Danvers, MA 01923, USA

Phone: 978-739-7000  
Fax: 978-777-7634  
E-Mail: info\_ics@tuvam.com

TÜV Industrie Service GmbH  
TÜV SUD Gruppe  
TÜV-CERT-Certification Body  
for Pressure Equipment

Notified Body, ID No. 0036

Member of  
CONFÉDÉRATION EUROPÉENNE  
**CEOC**  
D'ORGANISMES DE CONTRÔLE



Industrie Service

## **Information regarding the TÜV CERT Certificate**

This certificate is only valid for the referenced company and its facilities stated on the certificate. Only the Certification Body is allowed to transfer (assign) it to a third party.

The right to use the marking depicted on the certificate covers solely products, which match with the type approval and the specifications within the test report or within its complementary (additional) agreements.

Each product has to contain (be accompanied by) the necessary operating and assembly instructions.

Each product must bear the clearly visible identification of the manufacturer or importer as well as a type plate, in order to identify the compliance of the type approval with the product placed on the market.

The holder of the TÜV CERT certificate is obliged to continuously observe if the manufacture of the marked products complies with the test requirements; he is obliged to perform the control tests defined within the test requirements or by the Certification Body in an orderly manner.

Aside from the conditions referenced above, the conditions within the General Contract are effective for the TÜV CERT certificate. It is valid as long as the state of the art requirements on which the test (approval) was based, are effective, if it was not withdrawn prior on conditions within the General Contract.

If this certificate expires or is withdrawn it has to be returned to the Certification Body immediately.



# Test Plan for EC Type Examination of Pressure Equipment

<b>Module:</b> B	<b>Test plan No:</b> P-USA-05-03-14-024		
Manufacturer/Person responsible for putting the equipment on the market: CHART Heat Exchangers 2191 Ward Ave. La Crosse, WI 54601, USA		<b>Factory:</b>  same	
<b>Technical data of type/type family:</b>			
Category:	IV		
Description of type/typefamily:	Plate Fin Heat Exchanger, Drawing No. 15774A, Sales Order 509.5		
Intended use:	Cryogenic Gas Service		
Type identification:	serial no. 509.5-x (x tbd)		
Manufacturer logo:	CHART		
Service pressure (max) PS [bar]	Stream	A	B
	Pressure [bar]	7.5	5.0
Service temperature (min/max) TS [°C]	-196/+65		
Volume [L]	Stream	A	B
	Volume [L]	190	76
Test pressure PH [bar]	Stream	A	B
	Pressure [bar]	11.3	7.6
Identification:	serial no. 509.5-x (x tbd)		
<b>(Additional data relevant for the type/type family, add if needed)</b>			
Safety device: Set pressure [bar]	--		
Maximum filling mass [kg]	658 gross		
Tare mass [kg]	385		
<b>(delete non-applicable items)</b>			



## Test Plan for EC Type Examination of Pressure Equipment

### Testing based on:

Directive: EU Pressure Equipment Directive 97/23/EC (PED), Annex I

Standards: ASME Section VIII Div. 1, 2001 Edition, 2003 Addenda  
AD-2000 Guideline HP30

Deviations: --

### Intended tests and examinations:

1. Design examination: ☒
2. Final assessment: ☒
3. Proof test: ☒ Test pressure PT      see above      Fluid: Air/N<sub>2</sub>  
[bar]:
4. Tests according to checklist test report: ☒

Measurements/examinations and results (CHECKLIST)		
1.	Qualifications of personnel for permanent joining	X
2.	Qualifications of procedures	X
3.	Certificates for base metal and filler materials	X
4.	Traceability of materials	X
5.	Certificates for heat treatments	n/a
6.	Production tests	X
7.	Qualifications for NDT personnel	X
8.	Certificates for non-destructive tests	X
9.	Calibration of measuring and test equipment	X
10.	Visual inspections	X
11.	Dimensional inspections	X
12.	Identification	X
13.	Certificates for repair and deviations	X
14.	Hazard analysis	
15.	Drawing	X
16.	Operation manual	

5. Tests of safety devices : ☐
6. Validation of measurement criteria, calibration ☒

### Previously performed tests:

--



## Test Plan for EC Type Examination of Pressure Equipment

<b>Selection of test sample(s):</b>	
Quantity:	--
Type:	--
<b>Comments:</b>	--





## Test Plan for EC Type Examination of Pressure Equipment

The sample(s) is (are) representative for the type (type family). The tests listed above will be performed in compliance with the test requirements of the standards/regulations quoted in this test plan.

The tests will be performed to establish whether the solutions/standards adopted by the manufacturer meet the essential requirements of the Directive.

### Inspection Body

Location:	Date:	 TUV America, Inc. TUV Industrie Service Notified Body TUV SÜD Gruppe
Schaumburg, IL, USA	March 29, 2005	

### Manufacturer:

Location:	Date:	CHART Heat Exchangers
La Crosse, WI, USA		

### Certification Body for Pressure Equipment:

Location:	Date:	 TUV Industrie Service GmbH TUV SÜD Gruppe Notified Body TUV SÜD Gruppe
Schaumburg, IL, USA	March 29, 2005	

March 29, 2005

Pat Goethel  
CHART Heat Exchangers  
2191 Ward Ave.  
La Crosse, WI 54601, USA

**Report No. P-USA-05-03-14-017 on EC Type Examination (Module B) of:**  
Plate Fin Heat Exchanger, Sales Order 509.5, Drawing No. 15774A

Dear Mr. Goethel:

In accordance with your application from March 22, 2005 we have examined the submitted documentation according to Module B of the Pressure Equipment Directive 97/23/EC based on the code / standard ASME Section VIII Div. 1, 2001 Edition 2003 Addenda as specified in your submittal. The standards referred to in Article 5 of Directive 97/23/EC were not applied in full.  
Result of the Examination:

- No objections were noted.
- The comments made in the pertaining documentation have to be observed.
- A re-submittal of the documentation is not required.
- Materials of construction must comply with the the requirements of the Particular Material Appraisal P-USA-05-03-14-018
- Deviations from Particular Material Appraisals P-USA-05-03-14-018 should not occur.  
**All material documentation has to be submitted to TÜV prior to final assessment.**
- Suitable, non-standardized test processes and procedures that are used: none
- Suitable test / measurement results, and/or examinations and their results that are used: none

**Other Remarks:**

- The design / equipment for external fire was not part of this examination.
- Evidence of the approval of permanent joining procedures was submitted.
- Evidence of the approval of joining personnel was submitted.
- We have retained one copy each for our files.
- The examination results relate to the documents listed below only.
- A partial duplication of this report / approval without the written consent of the Notified Body is not permitted.

TÜV America Inc.  
1821 Walden Office Square  
Suite 316  
Schaumburg, IL 60173

Phone: (847) 397-9847  
Fax: (847) 397-9849  
E-mail: info@tuvam.com  
www.TUVamerica.com

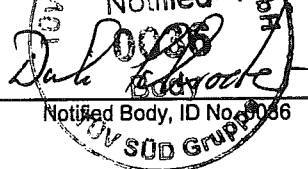


**Appeals Process:**

An appeal against the results of this design examination can be filed verbally or in writing any time with TÜV America Inc., Industry Service, at above address.

Sincerely,

TÜV Industrie Service GmbH  
TÜV SÜD Gruppe  
TÜV-CERT-Certification Body  
for Pressure Equipment



Notified Body, ID No. 0036

**Annex:**

Drawing Nos. 15774A Rev. A, 15774B Rev. 0, and 15774NPCE Rev. 0  
Design Calculations SDP54 ver. 2004.12.23 dated 30 Dec 04 drw 15774A  
Bill of Material Drw 15774A  
EC Type Examination Report P-USA-05-03-14-017  
Particular Material Appraisal P-USA-05-03-14-018



America

Inspection Body of TÜV Industrie Service  
GmbH TÜV Süd Gruppe  
Notified Body ID No. 0036,  
to Directive 97/23/EC



Industrie Service

**Report on the Final Assessment**  
**in accordance with Annex I, Section 3.2 of Directive 97/23/EC**

Customer:	Chart Heat Exchangers	Page:	1 of 3
Manufacturer:	Chart Heat Exchangers	Report No.:	P-USA-05-03-14-019
	2191 Ward Ave	Certificate No.:	USA 05/04/14/004
	La Crosse, WI 54601, USA		USA 05/04/14/005
Equipment Type:	Aluminum Plate Fin Heat Exchanger		

**Test / Inspection Specification:** Directive 97/23/EC for Pressure Equipment, Module B+F  
Applied code / standard: ASME Section VIII Div. 1, 2001 edition, 2003 addenda

**Marking / Labeling of the pressure equipment:**

Marking on: Nameplate

- Manufacturer's name and / or identification: Chart Heat Exchangers L. P.
- Year of manufacture: 2005
- Type / Serial number: 509.5-6
- Intended Use: Cryogenic Gas Service

**Other identification information:**

Chamber Designation:	A	B	--	--
Min./Max. allowable pressure PS [bar]:	7.5	5.0		
Min./Max. allowable temperature TS [°C]:	-196/65	-196/65		
Volume V [Liter]:	190	76		
Fluid:	Group 1	Group 1		

**EC-Type-examination on:** March 29, 2005

by: Inspection Body of TÜV Industrie Service GmbH TÜV Süd Gruppe, Report No. P-USA-05-03-14-017

Module: B

Drawing / Document number or similar designation: 15774A Rev. A  
15774B Rev. 0  
15774NPCE Rev. 0

The documents were presented and are valid.

**Final Assessments** in accordance with Annex I Section 3.2.1 of the Pressure Equipment Directive on:  
March 31, 2005

by: Inspection Body of TÜV Industrie Service GmbH TÜV Süd Gruppe.

**Inspections and examinations and their results:**

- The calibration labels showed that the inspection / measuring / test equipment used for the inspections was calibrated.
- The material certificates for the main pressure-bearing parts were presented and comply with the requirement.
- Evidence of the required qualifications of employed joining personnel and NDT-personnel was presented and is valid.
- Evidence of the required qualification of joining procedures was presented and is valid.



America

**Inspection Body of TÜV Industrie Service  
GmbH TÜV Süd Gruppe  
Notified Body ID No. 0036,  
to Directive 97/23/EC**



Industrie Service

Report No.:	P-USA-05-03-14-019	Page:	2 of 3	
-------------	--------------------	-------	--------	--

**Final Assessment** in accordance with Annex I Section 3.2.1 of the Pressure Equipment Directive (continued):

- Random visual inspection and dimensional checks were performed by the manufacturer and the Notified Body: Visual inspection of the main weld seams (e.g. header seams); dimensional check of the main components (core, heads). There were no objections.
- Implemented procedures to ensure traceability were reviewed and checked at random. There were no objections.
- Deviations from, amendments to or restrictions of the test / inspection specification: None
- Non-standardized test processes and procedures that were used: None
- Other documentation submitted by the manufacturer (title and/or unique identification): None

**Proof (Pressure) Tests** in accordance with Annex I Section 3.2.2  
on: March 31, 2005  
by: Inspection Body of TÜV Industrie Service GmbH TÜV Süd Gruppe

Chamber Designation:	A	B	--	--
Test Pressure (bar):	11.3	7.6		
Pressure Test Medium:	Air/N <sub>2</sub>	Air/N <sub>2</sub>		

**Conclusion:** The Final Assessment was performed in compliance with the requirements of the Directive. The performance of the inspections / tests and their results showed no deviations.

**Remarks:**

- The test results cover only the tested equipment described here.
- A partial duplication of the test results without the written consent of the Notified Body is not permitted.

**Based on the performed tests and inspections, and after approval by the Certification Body, there are no objections to affixing the CE marking and the identification number 0036.**

**Additional Notes:**

- The pressure equipment was tested and inspected without constituent parts. Therefore, the testing and inspection of the constituent parts is still necessary.
- The pressure equipment may be subject to inspections prior to putting into service, and to periodic in-service inspections in accordance with the locally applicable rules and regulations.

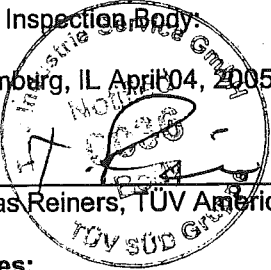


America

Inspection Body of TÜV Industrie Service  
GmbH TÜV Süd Gruppe  
Notified Body ID No. 0036,  
to Directive 97/23/EC



Industrie Service

Report No.:	P-USA-05-03-14-019	Page:	3 of 3
<p>TÜV Industrie Service GmbH TÜV Süd Gruppe Notified Body, ID No. 0036, to the Pressure Equipment Directive 97/23/EC</p> <p>For the Inspection Body: Schaumburg, IL April 04, 2005</p> <p> (Thomas Reiners, TÜV America Inc., Industry Service)</p> <p><b>Annexes:</b></p> <ul style="list-style-type: none"><li>• 1: Copy of the material certificates for the main pressure bearing parts</li><li>• 2: Copy of the manufacturer's Declaration of Conformity</li></ul>			

# CERTIFICATE OF CONFORMITY ZERTIFIKAT

**Product Verification (Module F) according to Directive 97/23/EC**

*Prüfung des Produktes (Modul F) nach Richtlinie 97/23/EG*

**Certificate No.:** USA 05/04/14/007  
*Zertifikat-Nr.*

**Name and Address  
of the Manufacturer:**  
*Name und Anschrift  
des Herstellers*

CHART Heat Exchangers  
2191 Ward Ave.  
La Crosse, WI 54601, USA

**We herewith certify that the results of the examinations of the pressure equipment described below meet the requirements of Directive 97/23/EC. The pressure equipment complies with the EC Type-Examination and carries the mark as illustrated:**

*Hiermit wird bescheinigt, daß die Ergebnisse der an dem unten genannten Druckgerät vorgenommenen Prüfungen die Anforderungen der Richtlinie 97/23/EG erfüllen. Das Druckgerät entspricht dem Baumuster und ist mit dem abgebildeten Zeichen gekennzeichnet:*

**CE 0036**

**Final Assessment Report No.:**

*Abnahmeprüfbericht Nr.*

P-USA-05-04-14-020

**EC Type Examination Certificate No.:**

*Zertifikat Nummer der EG Baumusterprüfung*

USA 05/04/14/006

**Scope of Approval:**

*Geltungsbereich*

Aluminum Plate Fin Heat Exchanger and Vertical Tank Assembly  
Drawing No. 15774Z  
Serial No. 509.6-7  
same as above

**Location of Manufacture:**

*Fertigungsstätte*

Schaumburg, IL, April 29, 2005

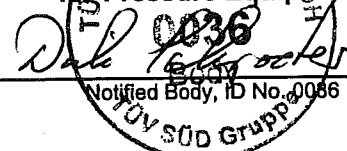
**Place, Date**

Please see remarks on second page.

TÜV America, Inc.  
Industrie Service  
5 Cherry Hill Drive  
Danvers, MA 01923, USA

Phone: 978-739-7000  
Fax: 978-777-7634  
E-Mail: info\_ics@tuvam.com

TÜV Industrie Service GmbH  
TÜV SÜD Gruppe  
TÜV-CERT-Certification Body  
for Pressure Equipment



Member of  
CONFÉDÉRATION EUROPÉEN  
**CEOC**  
D'ORGANISMES DE CONTRÔLE



## **Information regarding the TÜV CERT Certificate**

This certificate is only valid for the referenced company and its facilities stated on the certificate. Only the Certification Body is allowed to transfer (assign) it to a third party.

The right to use the marking depicted on the certificate covers solely products, which match with the type approval and the specifications within the test report or within its complementary (additional) agreements.

Each product has to contain (be accompanied by) the necessary operating and assembly instructions.

Each product must bear the clearly visible identification of the manufacturer or importer as well as a type plate, in order to identify the compliance of the type approval with the product placed on the market.

The holder of the TÜV CERT certificate is obliged to continuously observe if the manufacture of the marked products complies with the test requirements; he is obliged to perform the control tests defined within the test requirements or by the Certification Body in an orderly manner.

Aside from the conditions referenced above, the conditions within the General Contract are effective for the TÜV CERT certificate. It is valid as long as the state of the art requirements on which the test (approval) was based, are effective, if it was not withdrawn prior on conditions within the General Contract.

If this certificate expires or is withdrawn it has to be returned to the Certification Body immediately.





Energy & Chemicals  
Chart Industries, Inc.

2191 Ward Avenue  
La Crosse, WI 54601, USA  
Phone: 608.787.3333 Fax: 608.787.2141  
www.chart-ind.com

## EC DECLARATION OF CONFORMITY

Issued in accordance with the

### **PRESSURE EQUIPMENT DIRECTIVE (PED) 97/23/EC**

**Chart Heat Exchangers L.P.**  
2191 Ward Avenue  
La Crosse, WI 54601 USA

We hereby declare that in accordance with the above directive, the product detailed below has been manufactured in accordance with conformity assessment modules B and F "EC Type Examination and Product Verification" as approved by TÜV Industrie Service GmbH TÜV Süd Gruppe (Notified Body No. 0036) of Westendstrasse 199, 80686 München, Germany under EC Certificate of Conformity USA 05/04/14/007, and EC Type Examination Certificate USA 05/04/14/006.

<b>Product Description</b>	Aluminum Heat Exchanger and Tank Assembly
<b>Product Reference</b>	15774Z
<b>Serial Number</b>	509.6-7
<b>Design Code</b>	ASME Section VIII, Division 1, 2001 Edition and 2003 Addenda ASME B31.3, 2002 Edition
<b>Other Applied Standards</b>	EN 288, EN 287, ASME Section IX / PED 97/23/EC
<b>Other Applicable Directives</b>	None

Signed:

Name:

Kenneth L. Rupp

Position:

Senior Principal Quality Engineer & Traffic Manager

Date:

April 21, 2005

Reviewed

TÜV Süddeutschland Bau und Betrieb GmbH

Notified Body No. 0036 acc. to Pressure

Equipment Directive 97/23/EC

-Testing Laboratory-

APR 22 2005

Anlage enclosure	2	zum Bericht to report
Prüf-Nr.	P-USA-05-04-14-020	
Inspect.-Nr.		
Blatt page	1	von 1 Blättern pages

# CERTIFICATE ZERTIFIKAT

**EC Type-Examination (Module B) according to Directive 97/23/EC**  
*EG-Baumusterprüfung (Modul B) nach Richtlinie 97/23/EG*

**Certificate No.:** USA 05/04/14/006  
*Zertifikat-Nr.*

**Name and Address  
of the Manufacturer:**  
*Name und Anschrift  
des Herstellers*

CHART Heat Exchangers  
2191 Ward Ave.  
La Crosse, WI 54601, USA

**We herewith certify that the type mentioned below meets the requirements of  
Directive 97/23/EC.**

*Hiermit wird bescheinigt, daß das unten genannte EG-Baumuster die Anforderungen der Richtlinie 97/23/EG erfüllt.*

**Final Assessment Report No.:**  
*Abnahmeprüfbericht Nr.*

P-USA-05-04-14-020

**EC Type Examination Report No.:**  
*EG-Baumusterprüfbericht Nr.*

P-USA-05-04-14-004

**Scope of Approval:**  
*Geltungsbereich*

Aluminum Plate Fin Heat Exchanger and Vertical Tank Assembly  
Drawing No. 15774Z

**Location of Manufacture:**  
*Fertigungsstätte*

same as above

**The Validity of this Certificate expires  
April 01, 2015.**

**It may be extended upon request.**

Schaumburg, IL, April 22, 2005

Place, Date

Please see remarks on second page.

TÜV America, Inc.  
Industry Service  
5 Cherry Hill Drive  
Danvers, MA 01923, USA

Phone: 978-739-7000  
Fax: 978-777-7634  
E-Mail: info\_ics@tuvam.com

TÜV Industrie Service GmbH  
TÜV Süd Gruppe  
TÜV-CERT Certification Body  
for Pressure Equipment

*[Signature]*  
Notified Body, ID No. 0086

Member of  
CONFÉDÉRATION EUROPÉEN

**CEOC**

D'ORGANISMES DE CONTRÔLE



## **Information regarding the TÜV CERT Certificate**

This certificate is only valid for the referenced company and its facilities stated on the certificate. Only the Certification Body is allowed to transfer (assign) it to a third party.

The right to use the marking depicted on the certificate covers solely products, which match with the type approval and the specifications within the test report or within its complementary (additional) agreements.

Each product has to contain (be accompanied by) the necessary operating and assembly instructions.

Each product must bear the clearly visible identification of the manufacturer or importer as well as a type plate, in order to identify the compliance of the type approval with the product placed on the market.

The holder of the TÜV CERT certificate is obliged to continuously observe if the manufacture of the marked products complies with the test requirements; he is obliged to perform the control tests defined within the test requirements or by the Certification Body in an orderly manner.

Aside from the conditions referenced above, the conditions within the General Contract are effective for the TÜV CERT certificate. It is valid as long as the state of the art requirements on which the test (approval) was based, are effective, if it was not withdrawn prior on conditions within the General Contract.

If this certificate expires or is withdrawn it has to be returned to the Certification Body immediately.



# Test Plan for EC Type Examination of Pressure Equipment

<b>Module:</b> B	<b>Test plan No:</b> P-USA-05-04-14-015																										
Manufacturer/Person responsible for putting the equipment on the market: CHART Heat Exchangers 2191 Ward Ave. La Crosse, WI 54601, USA		Factory:  same																									
<b>Technical data of type/type family:</b> Category: IV Description of type/typefamily: Plate Fin Heat Exchanger and Aluminum Vertical Tank Assembly, Drawing No. 15774Z, Sales Order 509.6 Intended use: Cryogenic Gas Service Type identification: serial no. 509.6-x (x tbd) Manufacturer logo: CHART <table border="1"> <tr> <td>Service pressure (max) PS [bar]</td> <td>Stream</td> <td>A</td> <td>B</td> </tr> <tr> <td></td> <td>Pressure [bar]</td> <td>7.5</td> <td>5.0</td> </tr> </table> Service temperature (min/max) TS [°C] -196/+65 <table border="1"> <tr> <td>Volume [L]</td> <td>Stream</td> <td>A</td> <td>B</td> </tr> <tr> <td></td> <td>Volume [L]</td> <td>425</td> <td>76</td> </tr> </table> Test pressure PH [bar] <table border="1"> <tr> <td></td> <td>Stream</td> <td>A</td> <td>B</td> </tr> <tr> <td></td> <td>Pressure [bar]</td> <td>8.3</td> <td>7.6</td> </tr> </table> Identification: serial no. 509.6-x (x tbd)				Service pressure (max) PS [bar]	Stream	A	B		Pressure [bar]	7.5	5.0	Volume [L]	Stream	A	B		Volume [L]	425	76		Stream	A	B		Pressure [bar]	8.3	7.6
Service pressure (max) PS [bar]	Stream	A	B																								
	Pressure [bar]	7.5	5.0																								
Volume [L]	Stream	A	B																								
	Volume [L]	425	76																								
	Stream	A	B																								
	Pressure [bar]	8.3	7.6																								
<b>(Additional data relevant for the type/type family, add if needed)</b> Safety device: Set pressure [bar] -- Maximum filling mass [kg] 2200 gross Tare mass [kg] 1100 <b>(delete non-applicable items)</b>																											



# Test Plan for EC Type Examination of Pressure Equipment

## Testing based on:

Directive: EU Pressure Equipment Directive 97/23/EC (PED), Annex I

Standards: ASME Section VIII Div. 1, 2001 Edition, 2003 Addenda  
ASME B31.3 2002 Edition  
AD-2000 Guideline HP30

Deviations: --

## Intended tests and examinations:

1. Design examination: ☒
2. Final assessment: ☒
3. Proof test: ☒ Test pressure PT see above Fluid: Air/N<sub>2</sub>  
[bar]:
4. Tests according to checklist test report: ☒

Measurements/examinations and results (CHECKLIST)		
1.	Qualifications of personnel for permanent joining	X
2.	Qualifications of procedures	X
3.	Certificates for base metal and filler materials	X
4.	Traceability of materials	X
5.	Certificates for heat treatments	n/a
6.	Production tests	X
7.	Qualifications for NDT personnel	X
8.	Certificates for non-destructive tests	X
9.	Calibration of measuring and test equipment	X
10.	Visual inspections	X
11.	Dimensional inspections	X
12.	Identification	X
13.	Certificates for repair and deviations	X
14.	Hazard analysis	
15.	Drawing	X
16.	Operation manual	

5. Tests of safety devices : ☐
6. Validation of measurement criteria, calibration ☒

## Previously performed tests:



## Test Plan for EC Type Examination of Pressure Equipment

--	
<b>Selection of test sample(s):</b>	
Quantity:	--
Type:	--
<b>Comments:</b>	--



# Test Plan for EC Type Examination of Pressure Equipment

The sample(s) is (are) representative for the type (type family). The tests listed above will be performed in compliance with the test requirements of the standards/regulations quoted in this test plan.

The tests will be performed to establish whether the solutions/standards adopted by the manufacturer meet the essential requirements of the Directive.

## Inspection Body

Location:	Date:	
Schaumburg, IL, USA	March 29, 2005	

## Manufacturer:

Location:	Date:	CHART Heat Exchangers
La Crosse, WI, USA		

## Certification Body for Pressure Equipment:

Location:	Date:	
Schaumburg, IL, USA	March 29, 2005	

March 29, 2005

Pat Goethel  
CHART Heat Exchangers  
2191 Ward Ave.  
La Crosse, WI 54601, USA

**Report No. P-USA-05-04-14-004 on EC Type Examination (Module B) of:**  
Plate Fin Heat Exchanger and Aluminum Vertical Tank Assembly, Sales Order 509.6, Drawing No.  
15774Z

Dear Mr. Goethel:

In accordance with your application from March 22, 2005 we have examined the submitted documentation according to Module B of the Pressure Equipment Directive 97/23/EC based on the code / standard ASME Section VIII Div. 1, 2001 Edition 2003 Addenda and ASME B31.3, 2002 Edition as specified in your submittal. The standards referred to in Article 5 of Directive 97/23/EC were not applied in full.

**Result of the Examination:**

- No objections were noted.
- The comments made in the pertaining documentation have to be observed.
- A re-submittal of the documentation is not required.
- Materials of construction must comply with the the requirements of the Particular Material Appraisal P-USA-05-04-14-005
- Deviations from Particular Material Appraisals P-USA-05-04-14-005 should not occur.  
**All material documentation has to be submitted to TÜV prior to final assessment.**
- Suitable, non-standardized test processes and procedures that are used: none
- Suitable test / measurement results, and/or examinations and their results that are used: none

**Other Remarks:**

- The design / equipment for external fire was not part of this examination.
- Evidence of the approval of permanent joining procedures was submitted.
- Evidence of the approval of joining personnel was submitted.
- We have retained one copy each for our files.
- The examination results relate to the documents listed below only.
- A partial duplication of this report / approval without the written consent of the Notified Body is not permitted.

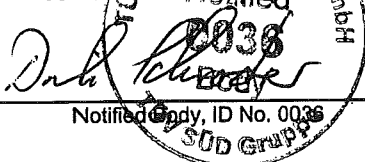


**Appeals Process:**

An appeal against the results of this design examination can be filed verbally or in writing any time with TÜV America Inc., Industry Service, at above address.

Sincerely,

TÜV Industrie Service GmbH  
TÜV SÜD Gruppe  
TÜV-CERT Certification Body  
for Pressure Equipment



Notified Body, ID No. 0036  
TÜV SÜD Gruppe

**Annex:**

Drawing Nos. 15774Z Rev. A, 15774C Rev. 0, and 15774NPZCE Rev. 0  
Bill of Material Drw 15774Z  
"Manifold and Nozzle wall thickness calculations per ASME B31.3" and  
"Wall thickness calculations for additional piping per ASME B31.3"  
both dated 27 Jan 05 drw 15774Z  
EC Type Examination Report P-USA-05-04-14-004  
Particular Material Appraisal P-USA-05-04-14-005  
EC Design Examination Certificates USA 05/03/14/004, USA 05/04/14/008



America



Industrie Service

**Report on the Final Assessment  
in accordance with Annex I, Section 3.2 of Directive 97/23/EC**

Customer:	Chart Heat Exchangers	Page:	1 of 3
Manufacturer:	Chart Heat Exchangers	Report No.:	P-USA-05-04-14-020
	2191 Ward Ave	Certificate No.:	USA 05/04/14/006
	La Crosse, WI 54601, USA		USA 05/04/14/007
Equipment Type:	Aluminum Plate Fin Heat Exchanger and Vertical Tank Assembly		

**Test / Inspection Specification:** Directive 97/23/EC for Pressure Equipment, Module B+F  
Applied code / standard: ASME Section VIII Div. 1, 2001 edition, 2003 addenda, B31.3, 2002 Edition

**Marking / Labeling of the pressure equipment:**

- Marking on: Nameplate
- Manufacturer's name and / or identification: Chart Heat Exchangers L. P.
  - Year of manufacture: 2005
  - Type / Serial number: 509.6-7 (assembly of 509.5-6, 509.7-8 and piping)
  - Intended Use: Cryogenic Gas Service

**Other identification information:**

Chamber Designation:	A	B (see remarks below)	--	--
Min./Max. allowable pressure PS [bar]:	7.5	5.0		
Min./Max. allowable temperature TS [°C]:	-196/65	-196/65		
Volume V [Liter]:	425	76		
Fluid:	Group 1	Group 1		

**EC-Type-examination on:** March 29, 2005

by: Inspection Body of TÜV Industrie Service GmbH TÜV Süd Gruppe, Report No. P-USA-05-04-14-004

Module: B

Drawing / Document number or similar designation: 15774Y Rev. A  
15774Z Rev. A  
15774NPCE Rev. 0

The documents were presented and are valid.

**Final Assessments** in accordance with Annex I Section 3.2.1 of the Pressure Equipment Directive on:  
April 21, 2005

by: Inspection Body of TÜV Industrie Service GmbH TÜV Süd Gruppe.

**Inspections and examinations and their results:**

- The calibration labels showed that the inspection / measuring / test equipment used for the inspections was calibrated.
- The material certificates for the main pressure-bearing parts were presented and comply with the requirement.
- Evidence of the required qualifications of employed joining personnel and NDT-personnel was presented and is valid.
- Evidence of the required qualification of joining procedures was presented and is valid.



America

Inspection Body of TÜV Industrie Service  
GmbH TÜV Süd Gruppe  
Notified Body ID No. 0036,  
to Directive 97/23/EC



Industrie Service

Report No.:	P-USA-05-04-14-020	Page:	2 of 3
-------------	--------------------	-------	--------

**Final Assessment** in accordance with Annex I Section 3.2.1 of the Pressure Equipment Directive (continued):

- Random visual inspection and dimensional checks were performed by the manufacturer and the Notified Body: Visual inspection of the main weld seams (e.g. header seams); dimensional check of the main components (core, heads). There were no objections.
- Implemented procedures to ensure traceability were reviewed and checked at random. There were no objections.
- Deviations from, amendments to or restrictions of the test / inspection specification: None
- Non-standardized test processes and procedures that were used: None
- Other documentation submitted by the manufacturer (title and/or unique identification): None

**Proof (Pressure) Tests** in accordance with Annex I Section 3.2.2  
on: April 21, 2005  
by: Inspection Body of TÜV Industrie Service GmbH TÜV Süd Gruppe

Chamber Designation:	A	B	--	--
Test Pressure (bar):	8.3	7.6		
Pressure Test Medium:	Air/N <sub>2</sub>	Air/N <sub>2</sub>		

**Conclusion:** The Final Assessment was performed in compliance with the requirements of the Directive. The performance of the inspections / tests and their results showed no deviations.

**Remarks:**

- The test results cover only the tested equipment described here.
- Stream B is not part of the Vertical Tank and its connecting Piping. Pressure Test of Stream B was conducted on unit 509.5-6 only (see report P-USA-05-03-14-019). The listing of the pressures for Stream B is for informational purpose.
- A partial duplication of the test results without the written consent of the Notified Body is not permitted.

**Based on the performed tests and inspections, and after approval by the Certification Body, there are no objections to affixing the CE marking and the identification number 0036.**

**Additional Notes:**

- The pressure equipment was tested and inspected without constituent parts. Therefore, the testing and inspection of the constituent parts is still necessary.
- The pressure equipment may be subject to inspections prior to putting into service, and to periodic in-service inspections in accordance with the locally applicable rules and regulations.



America

Inspection Body of TÜV Industrie Service  
GmbH TÜV Süd Gruppe  
Notified Body ID No. 0036,  
to Directive 97/23/EC



Industrie Service

Report No.:	P-USA-05-04-14-020	Page:	3 of 3
<p>TÜV Industrie Service GmbH TÜV Süd Gruppe Notified Body, ID No. 0036, to the Pressure Equipment Directive 97/23/EC</p> <p>For the Inspection Body Schaumburg, IL April 29, 2005</p> <p>(Thomas Reiners, TÜV America Inc., Industry Service)</p> <p><b>Annexes:</b></p> <ul style="list-style-type: none"><li>• 1: Copy of the material certificates for the main pressure bearing parts</li><li>• 2: Copy of the manufacturer's Declaration of Conformity</li></ul>			

# CERTIFICATE OF CONFORMITY ZERTIFIKAT

**Product Verification (Module F) according to Directive 97/23/EC**  
*Prüfung des Produktes (Modul F) nach Richtlinie 97/23/EG*

**Certificate No.:** USA 05/04/14/009  
*Zertifikat-Nr.*

**Name and Address  
of the Manufacturer:**  
*Name und Anschrift  
des Herstellers*

CHART Heat Exchangers  
2191 Ward Ave.  
La Crosse, WI 54601, USA

**We herewith certify that the results of the examinations of the pressure equipment described below meet the requirements of Directive 97/23/EC. The pressure equipment complies with the EC Type-Examination and carries the mark as illustrated:**

*Hiermit wird bescheinigt, daß die Ergebnisse der an dem unten genannten Druckgerät vorgenommenen Prüfungen die Anforderungen der Richtlinie 97/23/EG erfüllen. Das Druckgerät entspricht dem Baumuster und ist mit dem abgebildeten Zeichen gekennzeichnet:*

CE 0036

**Final Assessment Report No.:**  
*Abnahmeprüfbericht Nr.*

P-USA-05-04-14-020

**EC Type Examination Certificate No.:**  
*Zertifikat Nummer der EG Baumusterprüfung*

USA 05/04/14/008

**Scope of Approval:**  
*Geltungsbereich*

Aluminum Vertical Tank  
Drawing No. 15774Y  
Serial No. 509.7-8  
same as above

**Location of Manufacture:**  
*Fertigungsstätte*

Schaumburg, IL, April 29, 2005  
**Place, Date**

Please see remarks on second page.

TÜV America, Inc.  
Industry Service  
5 Cherry Hill Drive  
Danvers, MA 01923, USA

Phone: 978-739-7000  
Fax: 978-777-7634  
E-Mail: info\_ics@tuvam.com

TÜV Industrie Service GmbH  
TÜV SÜD Gruppe  
TÜV-CERT-Certification Body  
for Pressure Equipment  
Notified Body No. 0036

Member of  
CONFÉDÉRATION EUROPÉENNE

**CEOC**

D'ORGANISMES DE CONTRÔLE



## **Information regarding the TÜV CERT Certificate**

This certificate is only valid for the referenced company and its facilities stated on the certificate. Only the Certification Body is allowed to transfer (assign) it to a third party.

The right to use the marking depicted on the certificate covers solely products, which match with the type approval and the specifications within the test report or within its complementary (additional) agreements.

Each product has to contain (be accompanied by) the necessary operating and assembly instructions.

Each product must bear the clearly visible identification of the manufacturer or importer as well as a type plate, in order to identify the compliance of the type approval with the product placed on the market.

The holder of the TÜV CERT certificate is obliged to continuously observe if the manufacture of the marked products complies with the test requirements; he is obliged to perform the control tests defined within the test requirements or by the Certification Body in an orderly manner.

Aside from the conditions referenced above, the conditions within the General Contract are effective for the TÜV CERT certificate. It is valid as long as the state of the art requirements on which the test (approval) was based, are effective, if it was not withdrawn prior on conditions within the General Contract.

If this certificate expires or is withdrawn it has to be returned to the Certification Body immediately.

2191 Ward Avenue  
La Crosse, WI 54601, USA  
Phone: 608.787.3333 Fax: 608.787.2141  
www.chart-ind.com

## EC DECLARATION OF CONFORMITY

Issued in accordance with the

### **PRESSURE EQUIPMENT DIRECTIVE (PED) 97/23/EC**

**Chart Heat Exchangers L.P.**  
**2191 Ward Avenue**  
**La Crosse, WI 54601 USA**

We hereby declare that in accordance with the above directive, the product detailed below has been manufactured in accordance with conformity assessment modules B and F "EC Type Examination and Product Verification" as approved by TÜV Industrie Service GmbH TÜV Süd Gruppe (Notified Body No. 0036) of Westendstrasse 199, 80686 München, Germany under EC Certificate of Conformity USA 05/04/14/009, and EC Design Examination Certificate USA 05/04/14/008.

<b>Product Description</b>	Vertical Aluminum Tank
<b>Product Reference</b>	15774Y
<b>Serial Number</b>	509.7-8
<b>Design Code</b>	ASME Section VIII, Division 1, 2001 Edition and 2003 Addenda
<b>Other Applied Standards</b>	EN 288, EN 287, ASME Section IX
<b>Other Applicable Directives</b>	None

Signed: \_\_\_\_\_

Name: \_\_\_\_\_

Kenneth L. Rupp

Position: \_\_\_\_\_

Senior Principal Quality Engineer & Traffic Manager

Date: \_\_\_\_\_

April 21, 2005

**Reviewed**

**TÜV SÜDDEUTSCHLAND Bau und Betrieb GmbH**

Notified Body No. 0036 acc. to Pressure

Equipment Directive 97/23/EC

-Testing Laboratory-

APR 22 2005

Anlage enclosure	2	zum Bericht to report
Prüf-Nr.	P-USA-05-04-14-017	
Inspect.-Nr.		
Blatt page	1 von 1	Blättern pages

# CERTIFICATE ZERTIFIKAT

**EC Type-Examination (Module B) according to Directive 97/23/EC**  
*EG-Baumusterprüfung (Modul B) nach Richtlinie 97/23/EG*

**Certificate No.:** USA 05/04/14/008  
*Zertifikat-Nr.*

**Name and Address  
of the Manufacturer:**  
*Name und Anschrift  
des Herstellers*

CHART Heat Exchangers  
2191 Ward Ave.  
La Crosse, WI 54601, USA

**We herewith certify that the type mentioned below meets the requirements of  
Directive 97/23/EC.**

*Hiermit wird bescheinigt, daß das unten genannte EG-Baumuster die Anforderungen der Richtlinie 97/23/EG erfüllt.*

**Final Assessment Report No.:** P-USA-05-04-14-020  
*Abnahmeprüfbericht Nr.*

**EC Type Examination Report No.:** P-USA-05-04-14-008  
*EG-Baumusterprüfbericht Nr.*

**Scope of Approval:** Aluminum Vertical Tank  
*Geltungsbereich* Drawing No. 15774Y

**Location of Manufacture:** same as above  
*Fertigungsstätte*

**The Validity of this Certificate expires  
April 01, 2015.  
It may be extended upon request.**

Schaumburg, IL, April 29, 2005

Place, Date

Please see remarks on second page.

TÜV America, Inc.  
Industry Service  
5 Cherry Hill Drive  
Danvers, MA 01923, USA

Phone: 978-739-7000  
Fax: 978-777-7634  
E-Mail: info\_ics@tuvam.com

TÜV Industrie Service GmbH  
TÜV SUD Gruppe  
TÜV-CERT-Certification Body  
for Pressure Equipment

Notified Body ID No. 0036

Member of  
CONFÉDÉRATION EUROPÉEN

**CEOC**  
D'ORGANISMES DE CONTROLE





## **Information regarding the TÜV CERT Certificate**

This certificate is only valid for the referenced company and its facilities stated on the certificate. Only the Certification Body is allowed to transfer (assign) it to a third party.

The right to use the marking depicted on the certificate covers solely products, which match with the type approval and the specifications within the test report or within its complementary (additional) agreements.

Each product has to contain (be accompanied by) the necessary operating and assembly instructions.

Each product must bear the clearly visible identification of the manufacturer or importer as well as a type plate, in order to identify the compliance of the type approval with the product placed on the market.

The holder of the TÜV CERT certificate is obliged to continuously observe if the manufacture of the marked products complies with the test requirements; he is obliged to perform the control tests defined within the test requirements or by the Certification Body in an orderly manner.

Aside from the conditions referenced above, the conditions within the General Contract are effective for the TÜV CERT certificate. It is valid as long as the state of the art requirements on which the test (approval) was based, are effective, if it was not withdrawn prior on conditions within the General Contract.

If this certificate expires or is withdrawn it has to be returned to the Certification Body immediately.



# Test Plan for EC Type Examination of Pressure Equipment

<b>Module:</b> B	<b>Test plan No:</b> P-USA-05-04-14-014		
Manufacturer/Person responsible for putting the equipment on the market: CHART Heat Exchangers 2191 Ward Ave. La Crosse, WI 54601, USA	Factory:  same		
<b>Technical data of type/type family:</b>			
Category:	IV		
Description of type/typefamily:	Aluminum Vertical tank, Drawing No. 15774Y, Sales Order 509.7		
Intended use:	Cryogenic Gas Service		
Type identification:	serial no. 509.7-x (x tbd)		
Manufacturer logo:	CHART		
Service pressure (max) PS [bar]	Stream	A	--
	Pressure [bar]	7.5	
Service temperature (min/max) TS [°C]	-196/+65		
Volume [L]	Stream	A	--
	Volume [L]	227	
Test pressure PH [bar]	Stream	A	--
	Pressure [bar]	8.3	
Identification:	serial no. 509.7-x (x tbd)		
<b>(Additional data relevant for the type/type family, add if needed)</b>			
Safety device: Set pressure [bar]	--		
Maximum filling mass [kg]	317 gross		
Tare mass [kg]	91		
<b>(delete non-applicable items)</b>			



# Test Plan for EC Type Examination of Pressure Equipment

## Testing based on:

Directive: EU Pressure Equipment Directive 97/23/EC (PED), Annex I

Standards: ASME Section VIII Div. 1, 2001 Edition, 2003 Addenda  
AD-2000 Guideline HP30

Deviations: --

## Intended tests and examinations:

1. Design examination: ☒
2. Final assessment: ☒
3. Proof test: ☒ Test pressure PT      see above      Fluid: Air/N<sub>2</sub>  
[bar]:
4. Tests according to checklist test report: ☒

### Measurements/examinations and results (CHECKLIST)

1.	Qualifications of personnel for permanent joining	X
2.	Qualifications of procedures	X
3.	Certificates for base metal and filler materials	X
4.	Traceability of materials	X
5.	Certificates for heat treatments	n/a
6.	Production tests	X
7.	Qualifications for NDT personnel	X
8.	Certificates for non-destructive tests	X
9.	Calibration of measuring and test equipment	X
10.	Visual inspections	X
11.	Dimensional inspections	X
12.	Identification	X
13.	Certificates for repair and deviations	X
14.	Hazard analysis	
15.	Drawing	X
16.	Operation manual	

5. Tests of safety devices : ☐
6. Validation of measurement criteria, calibration ☒

## Previously performed tests:

--



## Test Plan for EC Type Examination of Pressure Equipment

--

### Selection of test sample(s):

Quantity: --

Type: --

<b>Comments:</b>	--
------------------	----



# Test Plan for EC Type Examination of Pressure Equipment

The sample(s) is (are) representative for the type (type family). The tests listed above will be performed in compliance with the test requirements of the standards/regulations quoted in this test plan.

The tests will be performed to establish whether the solutions/standards adopted by the manufacturer meet the essential requirements of the Directive.

## Inspection Body

Location:	Date:	TUV America, Inc. TUV Industrie Service Notified 0036 Body TUV SUD Gruppe
Schaumburg, IL, USA	March 29, 2005	

## Manufacturer:

Location:	Date:	CHART Heat Exchangers
La Crosse, WI, USA		

## Certification Body for Pressure Equipment:

Location:	Date:	TÜV Industrie Service GmbH TÜV SÜD Gruppe Notified 0036 Body TÜV SÜD Gruppe
Schaumburg, IL, USA	March 29, 2005	

March 29, 2005

Pat Goethel  
CHART Heat Exchangers  
2191 Ward Ave.  
La Crosse, WI 54601, USA.

**Report No. P-USA-05-04-14-008 on EC Type Examination (Module B) of:**  
Aluminum Vertical Tank, Sales Order 509.7, Drawing No. 15774Y

Dear Mr. Goethel:

In accordance with your application from March 22, 2005 we have examined the submitted documentation according to Module B of the Pressure Equipment Directive 97/23/EC based on the code / standard ASME Section VIII Div. 1, 2001 Edition 2003 Addenda as specified in your submittal. The standards referred to in Article 5 of Directive 97/23/EC were not applied in full.  
Result of the Examination:

- No objections were noted.
- The comments made in the pertaining documentation have to be observed.
- A re-submittal of the documentation is not required.
- Materials of construction must comply with the the requirements of the Particular Material Appraisal P-USA-05-04-14-007
- Deviations from Particular Material Appraisals P-USA-05-04-14-007 should not occur.  
**All material documentation has to be submitted to TÜV prior to final assessment.**
- Suitable, non-standardized test processes and procedures that are used: none
- Suitable test / measurement results, and/or examinations and their results that are used: none

**Other Remarks:**

- The design / equipment for external fire was not part of this examination.
- Evidence of the approval of permanent joining procedures was submitted.
- Evidence of the approval of joining personnel was submitted.
- We have retained one copy each for our files.
- The examination results relate to the documents listed below only.
- A partial duplication of this report / approval without the written consent of the Notified Body is not permitted.

TÜV America Inc.  
1821 Walden Office Square  
Suite 316  
Schaumburg, IL 60173

Phone: (847) 397-9847  
Fax: (847) 397-9849  
E-mail: [info@tuvam.com](mailto:info@tuvam.com)  
[www.TUVamerica.com](http://www.TUVamerica.com)

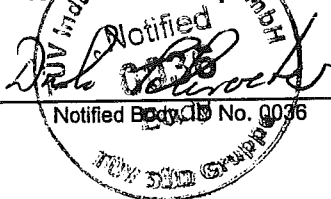


**Appeals Process:**

An appeal against the results of this design examination can be filed verbally or in writing any time with TÜV America Inc., Industry Service, at above address.

Sincerely,

**TÜV Industrie Service GmbH  
TÜV Süd Gruppe  
TÜV-CERT Certification Body  
for Pressure Equipment**



**Annex:**

Drawing Nos. 15774Y Rev. A, and 15774NPTCE Rev. 0  
Design Calculations SDP54 ver. 2004.05.06 dated 13 Jan 05 drw 15774Y  
Bill of Material Drw 15774Y  
EC Type Examination Report P-USA-05-04-14-008  
Particular Material Appraisal P-USA-05-04-14-007



America

Inspection Body of TÜV Industrie Service  
 GmbH TÜV Süd Gruppe  
 Notified Body ID No. 0036,  
 to Directive 97/23/EC



Industrie Service

**Report on the Final Assessment**  
**in accordance with Annex I, Section 3.2 of Directive 97/23/EC**

Customer:	Chart Heat Exchangers	Page:	1 of 3
Manufacturer:	Chart Heat Exchangers	Report No.:	P-USA-05-04-14-017
	2191 Ward Ave	Certificate No.:	USA 05/04/14/008
	La Crosse, WI 54601, USA		USA 05/04/14/009
Equipment Type:	Aluminum Vertical Tank		

**Test / Inspection Specification:** Directive 97/23/EC for Pressure Equipment, Module B+F  
 Applied code / standard: ASME Section VIII Div. 1, 2001 edition, 2003 addenda

**Marking / Labeling of the pressure equipment:**

- Marking on: Nameplate
- Manufacturer's name and / or identification: Chart Heat Exchangers L. P.
  - Year of manufacture: 2005
  - Type / Serial number: 509.7-8
  - Intended Use: Cryogenic Gas Service

**Other identification information:**

Chamber Designation:	A	--	--	--
Min./Max. allowable pressure PS [bar]:	7.5			
Min./Max. allowable temperature TS [°C]:	-196/65			
Volume V [Liter]:	227			
Fluid:	Group 1			

**EC-Type-examination on:** March 29, 2005

by: Inspection Body of TÜV Industrie Service GmbH TÜV Süd Gruppe, Report No. P-USA-05-04-14-008

Module: B

Drawing / Document number or similar designation: 15774Y Rev. A  
 15774NPCE Rev. 0

The documents were presented and are valid.

**Final Assessment** in accordance with Annex I Section 3.2.1 of the Pressure Equipment Directive on:  
 April 21, 2005

by: Inspection Body of TÜV Industrie Service GmbH TÜV Süd Gruppe.

**Inspections and examinations and their results:**

- The calibration labels showed that the inspection / measuring / test equipment used for the inspections was calibrated.
- The material certificates for the main pressure-bearing parts were presented and comply with the requirement.
- Evidence of the required qualifications of employed joining personnel and NDT-personnel was presented and is valid.
- Evidence of the required qualification of joining procedures was presented and is valid.





America

Inspection Body of TÜV Industrie Service  
**GmbH TÜV Süd Gruppe**  
**Notified Body ID No. 0036,**  
**to Directive 97/23/EC**



Industrie Service

Report No.:	P-USA-05-04-14-017	Page:	2 of 3	
-------------	--------------------	-------	--------	--

**Final Assessment** in accordance with Annex I Section 3.2.1 of the Pressure Equipment Directive (continued):

- Random visual inspection and dimensional checks were performed by the manufacturer and the Notified Body: Visual inspection of the main weld seams (e.g. header seams); dimensional check of the main components (core, heads). There were no objections.
- Implemented procedures to ensure traceability were reviewed and checked at random. There were no objections.
- Deviations from, amendments to or restrictions of the test / inspection specification: None
- Non-standardized test processes and procedures that were used: None
- Other documentation submitted by the manufacturer (title and/or unique identification): None

**Proof (Pressure) Test** in accordance with Annex I Section 3.2.2  
on: April 21, 2005  
by: Inspection Body of TÜV Industrie Service GmbH TÜV Süd Gruppe

Chamber Designation:	A	--	--	--
Test Pressure (bar):	8.3			
Pressure Test Medium:	Air/N <sub>2</sub>			

**Conclusion:** The Final Assessment was performed in compliance with the requirements of the Directive. The performance of the inspections / tests and their results showed no deviations.

**Remarks:**

- The test results cover only the tested equipment described here.
- A partial duplication of the test results without the written consent of the Notified Body is not permitted.

**Based on the performed tests and inspections, and after approval by the Certification Body, there are no objections to affixing the CE marking and the identification number 0036.**

**Additional Notes:**

- The pressure equipment was tested and inspected without constituent parts. Therefore, the testing and inspection of the constituent parts is still necessary.
- The pressure equipment may be subject to inspections prior to putting into service, and to periodic in-service inspections in accordance with the locally applicable rules and regulations.



America

Inspection Body of TÜV Industrie Service  
GmbH TÜV Süd Gruppe  
Notified Body ID No. 0036,  
to Directive 97/23/EC



Industrie Service

Report No.:	P-USA-05-04-14-017	Page:	3 of 3
<p>TÜV Industrie Service GmbH TÜV Süd Gruppe Notified Body, ID No. 0036, to the Pressure Equipment Directive 97/23/EC</p> <p>For the Inspection Body:</p> <p>Schaumburg, IL - April 29, 2005</p> <p>(Thomas Reiners, TÜV America Inc., Industry Service)</p> <p><b>Annexes:</b></p> <ul style="list-style-type: none"><li>• 1: Copy of the material certificates for the main pressure bearing parts</li><li>• 2: Copy of the manufacturer's Declaration of Conformity</li></ul>			