



LAWRENCE LABORATORY BERKELEY

Mr. Derek Shuman
Mail Stop 46R0125
1 Cyclotron Road
Berkeley, CA. 94720

06/23/2010
Laboratory No: B427
Client No.: New
PO No.: 450824
Page 1 of 1

Mr. Shuman:

SUBJECT: Hydrostatic test on a stainless steel octagon chamber.

TEST: At your request Testing Engineers Inc. has conducted Hydrostatic Pressure Test on one (1) MFC6DO-S0200 800 Octagon Chamber. Utilizing a Richard Dudgeon Test Pump (Model 7-TSS.1 6000 PSI capacity s/n 5453), and a calibrated pressure gage (s/n 7624 0 to 600 PSI).

PROCEDURE: The chamber was placed on a table attached to the hydrostatic pump. The chamber was then filled with water and pressurized until a pressure of 525 PSI was obtained. The test pressure was held for a minimum of five (5) minutes.

RESULTS: No leaks or loss of pressure were observed during the test. The chamber was then visually examined for sign of distress, none were apparent.

NOTE: Testing was witnessed by Mr. Derek Shuman and Mr. Tom Miller of Advanced Light Sources, Lawrence Laboratory Berkeley.

If you should have any questions concerning this test or if we may assist you in any other way please call at 1-510-835-3142 ext. 106.

TESTING ENGINEERS, INC.

By

Jack A. Snow
Materials Testing Technician

Attachments:

The results presented in this report relate only to the item(s) tested.
This report can be reproduced only in its entirety unless written permission from TEI is obtained



2900 Main St Alameda CA 94501 Phone (510)522-8326 Fax (510)522-3136

Certificate of Calibration

TESTING ENGINEER, INC.
2811 TEAGARDEN ST
SAN LEANDRO
CALIFORNIA 94577

Customer ID # **2103**

Rated Accuracy **1%**

File # **321**

Pass/Fail as Found **PASS**

Instrument Type **PRESSURE GAUGE**

Pass/Fail as Left **PASS**

1st (Mfg) S/N **7624**

Range **0-600**

Units **PSIG**

Resolution **20**

2nd S/N **N/A**

Mfg. **CPI**

Model **2.5-600**

Cal Date **6/21/2010**

Cal By **R.K. STRAHL**

Cal Due **6/21/2011**

Notes

Curent Cal Cycle (Months) **12**

Previous Cal Cycle **12**

Standards Used **AMETEK PK-654WC S/N**
73272 DUE 1/28/2012 NIST#
35817.001

**TECHNICAL SERVICES GROUP CERTIFIES THAT THIS INSTRUMENT
HAS BEEN CALIBRATED TRACEABLE TO THE NATIONAL INSTITUTE
OF STANDARDS AND TECHNOLOGY AND CONFORMS TO ISO 10012
AND ANSI / NCSL Z-540. UNLESS OTHERWISE SPECIFIED
MEASURMENT UNCERTAINTIES ARE LESS THAN 1/4 OF TOLERANCE
OR 1 MINOR DIVISION.**



Heat Exchangers, ASME Pressure Vessels & Tanks

HYDROSTATIC TEST CERTIFICATION

DATE: 6/30/2010

The following reference pressure vessel(s) were successfully hydrostatically tested in accordance with the ASME Code Section VIII, Section 1.

JOHANSING JOB #: 6528

CUSTOMER: UC Lawrence Berkeley National Lab.

PURCHASE ORDER #: 6926046

NATIONAL BOARD #: N/A

VESSEL SERIAL #: N/A

GAUGE #: 4096

GAUGE RANGE: 0-1000 psi

GAUGE CALIBRATION DATE: 5/8/10

HYDROSTATIC TEST PRESSURE: 550 psi

VESSEL DESCRIPTION: 1/2" S/S x 15" Long

OTHER: _____

2955 Ford St.
Oakland, CA 94601

(510) 261-1800
FAX (510) 261-1870

CERTIFIED BY: _____

Quality Control Manager, Johansing Iron Works, Inc.

WITNESS BY: Tom Miller Name: Tom Miller

signature

print name

TITLE: _____

PICK LIST

Location Group: MDCP			Description: MDC PICKING						
Pos	Del Warehouse Lot/Batch No	Part Number	Bay	Eng Revision Row Pallet Id	Tier	Description Bin Serial No	Package Part Wanted Delivery EC	Delivery Date Quantity	Expiration Date Unit Qty p
1	1	110008		C		REF# F275000			
	Building 3		Main	C	09	AE	06/10/2010	06/24/2010 12.0	
	*			*		*	1	1.00	EACH

End of Report:**Return Policy:**

- Unused standard catalog items may be returned within 60 days of the date the item was shipped, provided the item is properly packaged and shipping charges are pre-paid.
- Special order items may not be returned without specific, pre-approval from MDC.
- All returns must have a RMA number assigned by Customer Service.
- Returned items will not be accepted if the revision has changed or the material is now obsolete. Please check with Customer Service prior to returning items.
- Installed, used or damaged items are not eligible for reprocessing and will be returned with no credit applied.
- A minimum of 25% restocking fee applies.
- Items should be returned freight prepaid as collect shipments will not be accepted.

NOTE:

There will be up to a \$500.00 evaluation charge for non-warranty repairs. This evaluation fee will be credited to the repair cost if the repair is ordered.

The evaluation fee plus applicable return shipping charges will be assessed for any returned item you elect not to repair.

A \$50 fee will be applied to any returned item requested to be scrapped.

ORDER INFORMATION

Delivery Address: JOHANSING IRON WORKS
2955 FORD ST
OAKLAND, CA 94601
UNITED STATES

Delivery Site: MDC VACUUM PRODUCTS
Terms of Delivery: SHIPPING POINT
Ship Via: FED EX GROUND
PO Number: 011349
Route Id:
Forward Agent:
Label Note:
Our Reference: CUSTOMER SERVICE

TELEPHONE: 2611800 FAX: 261 1870

Certificate of Conformance

This is to certify that the material referenced on the above PO and listed on the attached pick list were manufactured to the customer's requirements or to MDC's internal drawing and specifications.

Materials used in the production of this order are certified as new and not counterfeit. Any deviation to specifications has been authorized by the customer.

MDC Vacuum Products is an ISO 9001:2008 registered company. Key elements of our fully implemented Quality Management System include our Quality Manual, Quality Policy, Product Objectives, Process Measurements, Design Capability and Validation, detailed production Process Travelers, Corrective / Preventive Action System, Nonconforming Material System, Calibration, First Article / First Piece / CNC Program Qualification Process, Internal Audits, and Sub-Supplier Program.

Quality Management Contacts:

MDC, VPD, Hayward, CA (510) 265-3500
MDC, ISI, Sarasota, FL (941) 751-2880
MDC, SSD, San Jose, CA (408) 350-0244



MILL TEST REPORT

RM ID NUMBER

103309

SALES ORDER / RLS

004752 / 2

CERT ID / REV

00030402 / 01

SOLD TO

SOUTHWEST STAINLESS
8505 MONROE RD
HOUSTON, TX 77061
USA

CUSTOMER P.O. 199262	CUSTOMER PART	HEAT NO. 975688
DESCRIPTION: 300501003120100 .5" WELDED PIPE SCHED 10S TP304/TP304L (UNS# S30400/S30403) A312		
CERTIFICATION REQUIREMENTS		
ENGINEERING ASTM A312-08a ASME SA312-07, 08 ADD.		
HYDRO PRESSURE 2,500 PSI		
HEAT TREAT Annealed at 1900 Deg F. and water quenched to below 800 Deg. F. in less than 3 minutes.		
Chemical		
C .013	Cr 18.2	Mn 1.5
Ni 8.07	N .06	P .033
Si .44	S .013	
Mechanical		
TEST	UNITS	RESULTS
Tensile PSI	PSI	91500
Yield PSI	PSI	40400
Elong %		55
Hardness		
RB81		
TEST	RESULT	
Flattening	Pass	

This test report represents the actual attributes of the items furnished and all items were manufactured, sampled, inspected, and tested in full compliance with applicable specifications and your purchase order.
 Certification is in accordance with EN10204:2004 type 3.1.
 Chemical content is % by weight. Mechanical test results are in English units (inches and pounds).
 No weld repairs have been performed on the base material.
 Hardness in accordance with NACE MR0175 and MR0103 and material is free of cold work to enhance mechanical properties.
 Pipe is Pickled and Passivated in accordance with ASTM A380.
 Bristol Metals has a Quality Management System in place that is in compliance with ISO 9001:2000.
 Bristol Metals does not add mercury during any manufacturing process.
 NAFTA country of origin: USA
 Raw Material Melt Source USA
 FAR BAA - Complies, DFARS BAA - Complies, FAR TAA - Complies

Rick Duncan
Rick Duncan - Quality Assurance Mgr

MILL TEST REPORT
TA CHEN INTERNATIONAL CORPORATION
 www.tachen.com

This MTR contains 1 page (Page: 1)

MTR#: TCFB02590 Customer#: ESC900 PO#: 0425-6777435 SO#: LAA825
 Item#: G6L00120116 Bundle#: HG0256-069 Heat#: 148763A

TCFB02590

Mill Test Report

EN 10204-3.1 / DIN 50049-3.1B

Commodity : STAINLESS STEEL PLATE CUT STRIP

Customer : TA CHEN INTERNATIONAL, INC.

TA CHEN STAINLESS PIPE CO., LTD.

NO. 125 HSIN-TIEN 2ND ST.,

JENG-TEH, TAINAN, TAIWAN

TEL: (06)2793254 FAX: (06)2701382

COUNTRY ORIGIN: TAIWAN

Specification : ASTM A240/A480-01, ASME SA240/SA480-95

Shipper : TA CHEN STAINLESS PIPE CO., LTD.

ASTM A276-01 Chem/Mech. only

Destination : LOS ANGELES

ASTM A479-01/ASME SA479-95 Chem/Mech. only

ASTM A484-01 Chem/Mech. only

Customer's PO# : L21603

Certificate NO : HG0256002

QQS-763-F Chem only

Factory O/N : QA02HA059

Date : 2007/10/11 INVOICE NO : QA02HG0256

Item No.	Case No. (Crate No.)	Heat No.	Supplier	Size	Quantity Pcs	Weight Kgs	Chemical Composition in %								
							C	Si	Mn	P	S	Ni	Cr	Mo	N
01	068,069,070,071	148763A	YUSCO	.187 X 1.250 X 144 316/316L		923	0.017	0.540	1.040	0.030	0.004	10.09	16.74	2.070	0.023
02	023,024,025,026	147462D	YUSCO	.250 X 4.000 X 144 316/316L		961	0.017	0.530	1.080	0.029	0.005	10.17	16.78	2.160	0.021
03	063	147462D	YUSCO	.250 X 6.000 X 144 316/316L		249	0.017	0.530	1.080	0.029	0.005	10.17	16.78	2.160	0.021
04	003,004,005,006,007,058,059,060	A2701669	TISCO	.500 X 6.000 X 144 316/316L		2311	0.021	0.441	1.257	0.030	0.002	10.26	16.88	2.007	0.039
Total					0	4444									

Item No.	Tensile Test				Hardness Test HRB	Bend Test	Heat Treatment TEMP. o F	Dimension And Surface Condition
	0.2% Yield Strength PSI	Tensile Strength PSI	Elongation %	Reduction of Area %				
01	44800	84200	52.00	62.00	78.00	OK	1960	OK
02	43600	85800	50.00	60.00	83.00	OK	1960	OK
03	43600	85800	50.00	60.00	83.00	OK	1960	OK
04	42000	84100	59.00	65.00	83.00	OK	1960	OK

We hereby certify the above statement to be true and correct every detail

TA CHEN has established a QMS according to ISO 9001, which is certified by LRQA (cert. no TWN0936925)

Remarks
1. NO WELD REPAIR PERFORMED 2. FREE OF MERCURY CONTAMINATION 3. ASTM A262-01 PRAC. E OK 4. MECHANICAL PROPERTIES ARE MEASURED FROM SHEET COIL BEFORE CUTTING. 5. NACE MRO175-03

QC ACCEPTED

DATE 5-9-08
INTL*George Yang*

Manager of Inspection Section/George Yang

LAWRENCE BERKELEY NATIONAL LABORATORY

PRESSURE-TEST RECORD

Date: 8/17/10Location of vessel (or system): Build. 70A Rm. 2263Description: Xenon TPCReclamation Subsystem
(1 of 3 subsystems to test)

LBL	PRESSURE	TESTED
DWG. NO.		
SAFETY NOTE		
WORKING PRESS.		PSI
WORKING FLUID		
WORKING TEMP		°F
REMARKS		
TEST NUMBER		
DV	ID	TR

Pressure Vessel ☐ Pressure System ☒ (check box)"Pressure-Tested" Label attached ☐

TEST INFORMATION:

1. Test pressure 1500 ^(MAWP) psig $\times 1.25 =$ Pa 1.875 (kpsi)2. Testing Fluid (oil, He, etc.) Ar gas3. Test Temperature room temp °C (°F)4. Design Temperature room temp °C (°F)

5. Safety Case _____

6. Responsible Designer Tom Miller Name: _____7. Responsible User Helmuth Spieler Name: _____Dept. D. Shuman 8/17/10Divn: Russell Wells 8/17/10Russell Wells

8. Diameter measurements (for pressure-vessel tests only)

Location (marked) Before testing After testing Difference (+ or -)

Remarks: _____

Test by: T. Miller

M&O, Mech. Shop

CERTIFICATION:

The vessel identified above has been pressure tested and is approved for operation within these test conditions.

Certified by: Russell Wells 8/17/10

LAWRENCE BERKELEY NATIONAL LABORATORY

PRESSURE-TEST RECORD

Date: 8/25/2010Location of vessel (or system): Build. 70A Rm. 2263Description: Xenon TPC Pressure Vessel
and Gas System check (1.25x MAWP)
subsections 2+3 (of 3)

LBL	PRESSURE	TESTED
DWG. NO.		
SAFETY NOTE		
WORKING PRESS.		PSI
WORKING FLUID		
WORKING TEMP.		°F
REMARKS		
TEST NUMBER		
BY		DATE

Pressure Vessel ☒ Pressure System ☒ (check box)"Pressure-Tested" Label attached ☐TEST INFORMATION: 570/3201. Test pressure 563 / 313 psig Pa () kpsi)2. Testing Fluid (oil, He, etc.) Argon gas3. Test Temperature 74 °C () °F4. Design Temperature room temp. °C () °F

5. Safety Case

6. Responsible Designer Tom Miller Name: 7. Responsible User Helmut Spieler Name: Dept. Derek ShumanDivn: Ken Chow

8. Diameter measurements (for pressure-vessel tests only)

Location (marked) Before testing After testing Difference (+ or -)

Remarks:

Test by:

M&O, Mach. Shop

CERTIFICATION:

The vessel identified above has been pressure tested and is approved for operation within these test conditions.

Certified by: [Signature] Aug. 25, 2010