Certificate of Inspection

HI-TECH
Manufacturing, Inc.
ISO 9001:2000 certified

This certificate is presented to

Argonne National Laboratory

Per PO # 7A-08189, part ##
L1430401-100103 (PF-381-000-15) *quantity of* ***16pcs***
L1430401-100303 (PF-381-002-15) *quantity of* ***4pcs***
Have been inspected and met all drawing requirements.

Q.C. Supervisor _____ 09-07-07
Date

Certificate of Inspection

HI-TECH
Manufacturing, Inc.
ISO 9001:2000 certified

This certificate is presented to

Argonne National Laboratory

Per PO # 7A-08189, part ##
L1430401-100101 (PF-381-000-13) *quantity of* ***114****pcs*
L1430401-100201 (PF-381-000-23) *quantity of* ***38****pcs*
Have been inspected and met all drawing requirements.

Q.C. Supervisor Muelazo

09-07-07
Date

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR AS-BUILT DRAWINGS

VENDOR: **METALEX, INC.**

PART NAME: **UNDULATOR GIRDER ASSY**

DRAWING #: **L1430401-100400 (05)**

SERIAL #: 16

P.O. #: **7A-08189**

DATE: 11-26-07

ACCEPTANCE CRITERIA

1. Visually inspect for damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Perpendicularity of Datum B to C	<=.025	<=.025	<=.025	Accept/Reject
Perpendicularity of Datum A to C	<=.025	<=.025	<=.025	Accept/Reject
True position of 2 D2 hole to 2 D3 holes	<=.03	<=.03	<=.03	Accept/Reject
Parallelism of support pad surface to Datum C	<=.07	<=.07	#1 <=.07 #2 <=.07 #3 <=.07 #4 <=.07	Accept/Reject
Distance from Datum C to support pad surface	109.50	+.2/-.2	#1 109.50 #2 109.52 #3 109.51 #4 109.49	Accept/Reject

INSPECTOR: Simon

QA Supervisor: Mirelez

TEST EQUIPMENT USED: feeler gage, dial indicator, micrometer, precision square.

COMMENTS:

Metalex Manufacturing Inc.
5750 Cornell Road · Cincinnati, OH 45242
Phone (513) 489-0507 · Fax (513) 489-1020
EMAIL: metalex@metalexmfg.com

Metalex
Customized Machinery and Parts
ISO 9001:2000 and AS9100 CERTIFIED
Veteran Owned Business 30 Plus Years

CERTIFICATE OF CONFORMANCE

Date: 11/19/2007
Customer: Hi-Tech Manufacturing, Inc.
4637 N. 25th Ave.
Schiller Park, IL 60176

Attention: Simon Sorsher

Metalex Job# 2007-7558
Purchase Order # 16185
MX Packing List # 41402

Metalex certifies that all material, processes, procedures, and dimensions are as called for on the purchase order, drawings, and/or amendments supplied by you.
All information concerning this part or parts, units and/or assemblies are on file at Metalex Manufacturing, Inc.

ITEM	QTY	PART NUMBER	REV	PART NAME	ID # *
001	4	L1430401-100400	6	Support Girder	See Below

*IDENTIFICATION NUMBER INCLUDES SERIAL #, HEAT #, AND/OR LOT #.

COMMENTS: "FIRST ARTICLE" submitted on Metalex Shipper # 408586, dated 08/13/07 (S/N: 7A-08198-01).

Applicable serial numbers of this shipment are 7A-08198-16 thru 7A-08198-19.

Some internal documents in this quality package may contain documents certfiying to revision level "5" or "5V". Metalex certifies these documents and processes conform to the rev 6 revision level and the parts conform to revision level "6".

Metalex is in compliance with Statement of Workscope Document No. L143-00093, Revision New, dated 12/12/06.

Manufactured from Metalex purchased material. Reference heat numbers: T7257, T7232, T7130, T7141, U9728, 0129862, X25899, J62810, JF6843, J70358, and 478765.

Metalex Representative Signature | Thomas Clark Print Name | 11/19/07 Date

MX1011 (05/05)

Metalex
Manufacturing
Inc.

Metalex
Certified ISO 9001 Quality Management
Veteran Owned Business 30 Plus Years

#1-- INSIDE Pkg - Cust Copy

Packing List# 41402 Rel# 5 PAGE 1
Metalex Job# 2007-7558

Ship To: HI-TECH MANUFACTURING, INC
4637 N. 25TH AVE
SCHILLER PARK IL 60176

Date: 11/19/07
Ship Via:
PTA# _____
(prepaid shipments only)
BOL/Air Bill#
Prepaid: Collect: XXXXXXX
Weight: Ctns: Zone:
Dimensions:

Attn:
Customer PO: 16185

P.O. Item No.	Qty Ordered	Qty Shipped	Qty Back Ordered	Description
001	38	4	19	ANL PART L1430401-100400 REV. 6 S/N(S): 7A-08198-16 THRU 7A-08198-19 -CERTIFICATE OF CONFORMANCE, INSPECTION DATA, AND CERTIFICATIONS ENCLOSED.

Received By:

Printed Name _____ Signature _____ Date _____

MX3006 (10/02)

Metalex Customized Machinery and Parts CERTIFIED ISO 9001 QUALITY MANAGEMENT	INSPECTION PLANNING & REPORT FORM Metalex Mfg. 5750 Cornell Rd ! Cincinnati, OH 45242 ! (513) 489-0507	Job No. 2007-7558	Qty 1

Inspection Origin	Vendor (Sub-Tier Source) Identification		Customer Identification		
☐ Receiving ☐ In-Process x Final ☐ Rework/Repair ☐ First Article	Vendor Name N/A		Part No. L1430401-100400	REV 6	P.O. Number 16185
	Date Rec'd N/A	P.O. No. N/A	Part Name Undulator Support Girder		
At Oper. 170	Serial Numbers: 16		Customer Name Hi-Tech Manufacturing		

SPECIFICATION	B/P ZONE	INSPECTION METHOD / GAGE NO.	ACTUAL DIMENSION / GAGE VERIFICATION (Range of Readings or Accept Status)	QTY ACC	QTY REJ
**** ALL DIMENSIONS TO BE RECORDED IN MILLIMETERS ** ** ALL TEMPERATURES TO BE RECORDED IN CELSIUS ****					
ALL DIMENSIONS APPLY AT A TEMPERATURE OF 20 DEGREES CELSIUS. PART MUST BE IN THERMAL EQUILIBRIUM DURING MEASUREMENTS AND AT THE SAME TEMPERATURE AT THE BEGINNING AND CONCLUSION OF THE MEASUREMENTS WITHIN +/-2 DEG. CELSIUS.					
PART TEMPERATURE ***BEFORE*** INSPECTION (Record in Celsius)	SOW 4.5.4	CONTACT THERMOMETER MX1794	20.40°C	MTX QC 8	
PART TEMPERATURE ***DURING*** INSPECTION (Record in Celsius)	SOW 4.5.4	CONTACT THERMOMETER MX1794	20.40°C	MTX QC 8	
PART TEMPERATURE ***AFTER*** INSPECTION (Record in Celsius)	SOW 4.5.4	CONTACT THERMOMETER MX1794	20.38°C	MTX QC 8	
CRITICAL DIMENSIONS PER SECTION 4.5.2.2 OF DOC. # L143-00093					
SHEET 2 – TOP VIEW					
A) Flatness of Datum B of .030 [.001]	N/A	CMM MX1269	.012	MTX QC 8	
B) *Perpendicularity of Datum B to Datum C* | | .25 [.010]|A|C	E8	CMM MX1269	.014	MTX QC 8	
C) Flatness of datum A of .030 [.001]	N/A	CMM MX1269	.023	MTX QC 8	
D) *Perpendicularity of Datum A to Datum C* | | .25 [.010]|C	D8	CMM MX1269	.023	MTX QC 8	
E) 9X ∅ 6.338 – 6.350 *marked "D1", "D2" & "D3"*	E7 E6 E3	CMM MX1269	6.340 – 6.350 ∅	MTX QC 8	
F) *True position of "D3" holes* 2X ⌖ | .1 [.004]|A|B|C ⌖ | .03 [.0012]B|C	E3	CMM MX1269	.050 .043 .029	MTX QC 8	
F) *True position of "D2" holes* 2X ⌖ | .1 [.004]|A|B|C ⌖ | .03 [.0012]B|C	E6	CMM MX1269	.052 .032 .006	MTX QC 8	
F) *Locations of "D1" holes* 444.50 [17.500]	E7	CMM MX1269	444.485	MTX QC 8	

STAMP	INSPECTED BY	DATE	PAGE	QTY ACC	QTY REJ
MTX QC 8	THOMAS G COOK	11/14/07	1 OF 2	1	0

MX1010 (7/98)

Metalex Customized Machinery and Parts CERTIFIED ISO 9001 QUALITY MANAGEMENT	INSPECTION PLANNING & REPORT FORM Metalex Mfg. 5750 Cornell Rd ! Cincinnati, OH 45242 ! (513) 489-0507	Job No. 2007-7558	Qty 1

Inspection Origin	Vendor (Sub-Tier Source) Identification		Customer Identification		
☐ Receiving ☐ In-Process x Final ☐ Rework/Repair ☐ First Article	Vendor Name N/A		Part No. L1430401-100400	REV 6	P.O. Number 16185
	Date Rec'd N/A	P.O. No. N/A	Part Name Undulator Support Girder		
At Oper. 170	Serial Numbers: 16		Customer Name Hi-Tech Manufacturing		

SPECIFICATION	B/P ZONE	INSPECTION METHOD / GAGE NO.	ACTUAL DIMENSION / GAGE VERIFICATION (Range of Readings or Accept Status)	QTY ACC	QTY REJ
1968.50 [77.500]	E4	CMM MX1269	1968.461	MTX QC 8	
3492.50 [137.500]	E2	CMM MX1269	3492.463	MTX QC 8	
2X 523.6 [20.61]	E1	CMM MX1269	523.572 523.570 523.556	MTX QC 8	
3185.26 [125.404]	D2	CMM MX1269	3185.234	MTX QC 8	
845.29 [33.179]	D6	CMM MX1269	845.264	MTX QC 8	
2X 95.10 [3.744]	D8	CMM MX1269	95.091 95.100	MTX QC 8	
SHEET 2 – SIDE VIEW					
A) -C- / /| .030 [.0012] 2X Surface "J"	C8	CMM MX1269	.016	MTX QC 8	
B) -C- / /| .05 [.002]	C8	CMM MX1269	.030	MTX QC 8	
SHEET 2 – BOTTOM VIEW					
A) 2X 749.78 + .15	C7	CMM MX1269	749.776 749.797	MTX QC 8	
B) 2X 2340.00 + .15	C5	CMM MX1269	2339.944 2339.945	MTX QC 8	
C) 4X //| .05 [.002]|B	B2	CMM MX1269	.007 .005 .007 .001	MTX QC 8	
D) 4X //| .030 [.0012]|A	B7	CMM MX1269	.004 .004 .001 .003	MTX QC 8	
SHEET 3 – SECTION B-B					
E) //| .07 [.003]|C	C2	CMM MX1269	.060	MTX QC 8	
F) 4X 109.47 + .08	C2	CMM MX1269	109.460 - 109.520	MTX QC 8	
ALL OTHER FEATURES ARE ACCEPTED PER METALEX OPERATOR ACCEPTANCE PROGRAM (OAP) MXWI17001 & OPERATOR SIGNOFF OF ROUTER OPERATIONS FOR COMPLIANCE TO ALL DRAWING FEATURES GENERATED WITHIN THAT DEFINED OPERATION.		ROUTER SIGNOFF MX5009	CONFORMS	MTX QC 8	

STAMP	INSPECTED BY	DATE	PAGE 2 OF 2	QTY ACC	QTY REJ
MTX QC 8	THOMAS G COOK	11/14/07		1	0

MX1010 (7/98)

SHERWIN-WILLIAMS

SHERWIN-WILLIAMS
3143 E KEMPER RD
SHARONVILLE OH 45241

Visit www.sherwin-williams.com
Store 1246 ANDREW
(513)771-8572
Fax - (513)771-8590

PACKING
SLIP
No. 5888-8

ACCOUNT: **6538-0111-8** JOB 01 METALEX MFG

PO:7126 JG

METALEX MFG
5750 CORNELL RD
CINCINNATI OH 45242 2010

DATE: 06/20/07
TIME: 8:30 AM

E23/13651 **11**

(513)489-0507

SALES NUMBER	SIZE	PRODUCT	DESCRIPTION		QUANTITY
630-4240	GALLON	B67H5	RCT EPX PR BUFF A		5
630-4265	GALLON	B67V5	RCT EPX PR HARD B		5
			TOTAL LINES	2	10

METALEX
Q. A. DEPT
ACCEPTED
DATE 6/29/07
BY TC
MTX DC 28

Job 7558

RECEIVED
MXT
JUN 20 2007
METALEX MFG.
BY CO

MERCHANDISE RECEIVED IN GOOD ORDER BY:

BILLY DATE **(CENTRALIZED INVOICE)**

The Sherwin–Williams Co.
3143 EAST KEMPER RD
CINCINNATI,OHIO 45241

METALEX
Q. A. DEPT
ACCEPTED
DATE 6/29/07
BY TC
MTX QC 28

Job 7558

CERTIFICATE OF COMPLIANCE
STATEMENT OF QUALITY

METALEX

PURCHASE ORDER 71261-JG
DATE OF MFG
SHELF LIFE
PART

QUANTITY
BATCH

IT IS HEREBY CERTIFIED THAT ALL MATERIAL USED IN THE MANUFACTURE OF PARTS IN THE QUALITY CALLED FOR ON THE SUBJECT PURCHASE ORDER, CONFORM TO THE MATERIALS AND/OR MANUFACTURING SPECIFICATIONS INDICATED IN DRAWINGS OF SPECIFICATIONS AS CALLED FOR ON SAID PURCHASE ORDER.

THE SHERWIN–WILLIAMS CO
3143 EAST KEMPER RD
CINCINNATI OHIO 45241

AUTHORIZED SIGNATURE
CUSTOMER SERVICE ADM

Shelf life 36 months
0X26965
0X2716S
batch date 0X2785S B67VS
0X0275C B67HS
0X2005Z

SHERWIN-WILLIAMS

SHERWIN-WILLIAMS
3143 E KEMPER RD
SHARONVILLE OH 45241

Visit www.sherwin-williams.com
Store 1246 KEVIN
(513)771-8572
Fax - (513)771-8590

PACKING
SLIP
No. 7233-5

ACCOUNT: **6538-0111-8** JOB 01 METALEX MFG

PO:71829-BL-7558
ORDER:OE002500701246
DATE: 07/16/07
TIME: 8:08 AM

METALEX MFG
5750 CORNELL RD
CINCINNATI OH 45242 2010

METALEX
Q. A. DEPT
ACCEPTED
DATE 7/16/07
BY TC

E16/13651 **11**

SALES NUMBER	SIZE	PRODUCT	DESCRIPTION	QUANTITY
6405-18999	GALLON	B62WZ111	TC HS EX WHT A	5

Color: SW4026 SLATE GRAY

BAC	Blend-a-Color	OZ	32	64	128
B1	Black	2	16	1	1
G2	New Green	-	3	-	-
Y3	Deep Gold	-	2	-	-

Sher-Color Formula

TOTAL LINES 1 5

RECEIVED
JUL 16 2007
METALEX MFG.
BY CD

OE16376

MERCHANDISE RECEIVED IN GOOD ORDER BY:

BILLY BLANTON DATE **(CENTRALIZED INVOICE)**

Metalex PO# 71829-BL-7558

Certificate of Conformance

Customer: Metalex Mfg. Inc.
Address: 5750 Cornell Rd.
Cincinnati, Oh. 45242
Attention: Quality Engineering Dept.

METALEX Q. A. DEPT ACCEPTED DATE 7/16/07 BY TC MTX QC 20

Item	Qty.	Part Number	Rev.	Part Name	Job #
1	5	B62WZ11		BATCH# OE 16376 TILECIAD H.S. SW4026 Shelf life 36 months	7558

SHERWIN WILLIAMS certifies that all materials, processes, etc. furnished to
Supplier Name

Metalex, for the purchase order number stated above, comply with all conditions stated in the P.O. for the items shown.

Signed/Dated: 7-16-07
Supplier Quality Rep.

cc: Hardcopy P.O. Books
MX4012 (5/95)

FROM :SW 1246 FAX NO. :5137718590 Jun. 05 2007 07:36AM P1
06/04/2007 20:19 15137712667 SW CINCI CC PAGE 21

Jan. 30 2006 10:07AM P1
FROM : METALEX PURCHASING PHONE NO. : 513+489 8484

ATTN.: JAMES GRIFFIN

Metalex PO# 70772-JG-7558

Certificate of Conformance

Hi-Tech Job#7558

METALEX Q.A. DEPT ACCEPTED DATE 6/5/07 BY KKB MTX QC 19

Customer: Metalex Mfg. Inc.
Address: 5750 Cornell Rd.
Cincinnati, Oh. 45242
Attention: Quality Engineering Dept.

KKB 6/5/07 MTX QC 19

Shelf Life ID# 2835 thru 2839

Item	Qty.	Part Number	Rev.	Part Name	Job #
1.	5	B62W211		TILECLAD H.S. EW. MC-56	SHELF LIFE 36 MONTH ON OPENI
2.	5	B60V270		TILECLAD H.S. HARDNER	36 MONTH ON OPE
3.	1	R7K54		SI REDUCER	3 YEARS

Shelf Life ID# 2834

KKB 6/5/07 MTX QC 19

mx Shelf Life ID# 2841 thru 2844 KKB 6/5/07 MTX QC 19

S HERWIN WILLIAMS certifies that all materials, processes, etc. furnished to
Supplier Name

Metalex, for the purchase order number stated above, comply with all conditions stated in the P.O. for the items shown.

Signed/Dated: _____
Vendor Quality Rep.

cc: Handcopy P.O. Books

MX4012 (9/95)

Metalex Manufacturing Inc.
5750 Cornell Road • Cincinnati, OH 45242
Phone (513) 489-0507 • Fax (513) 489-1020
EMAIL: metalex@metalexmfg.com

Metalex
Customized Machinery and Parts
ISO 9001:2000 and AS9100 CERTIFIED
Veteran Owned Business 30 Plus Years

METALEX WELD CERTIFICATION

MX JOB #: 07-7558 QTY 4 CUSTOMER: Hi-Tech Manufacturing, Inc.

PART NAME: Support Girder

PART NUMBER: L1430401-100400 REVISION: 6

S/N: (if applicable) 7A-08198-16 thru
7A-08198-19

METALEX PROCEDURE # WPS 146 (K. Ballard)

CUST. SPECIFICATION # AWS D1.1

WELD WIRE SPEC AWS A5.20

TYPE E71T-1

HEAT 81192

DIAMETER 1/16"

SERIAL NUMBER	WELDER
7A-08198-16	Ken Ballard
7A-08198-17	Ken Ballard
7A-08198-18	Ken Ballard
7A-08198-19	Ken Ballard

THE ABOVE PARTS LISTED WERE WELDED IN ACCORDANCE WITH THE REFERENCED WELDING SPECIFICATION.

Metalex Quality Control

11/19/07
Date

MX1025 (9/98)

The Cincinnati Steel Treating Co
5701 Mariemont Ave.
Cincinnati, Ohio 45227 (513) 271-3173

Certification ID
36538

Order ID
96993

CERTIFICATION OF COMPLIANCE

CUSTOMER

Metalex Mfg., Inc.
5750 Cornell Road

Cincinnati OH
Blkt Ord # 45242

Purchase Order 71679 **Customer Cust**

Qty	Part No / Description	Material
4	L1430401-100400 SUPPORT GIRDER	A36

REV.#5 S/N 7A-08198-13, 7A-08198-14, 7A-08198-15, 7A-08198-16

METALEX Q. A. DEPT ACCEPTED DATE 8/1/07 BY TC MTX QC 20

STRESS RELIEVE PER AWS D1.1 REV. 2004.
NOTE: SUPPORT TO PREVENT DISTORTION.
HEAT TREAT CHARTS REQUIRED.
CERTIFICATIONS REQUIRED.

RESULTS

THE ABOVE PARTS HAVE BEEN HEAT TREATED TO THE FOLLOWING:

HEAT TREATMENT CYCLE STRESS RELIEVED PER AWS D1.1 REV 2004

WE HEREBY CERTIFY THAT THE ABOVE PARTS WERE PROCESSED IN ACCORDANCE WITH THE SPECIFICATIONS AND INSTRUCTIONS SPECIFIED ON THE ABOVE PURCHASE ORDER AND THAT THE RESULTS AND REPORT THEREOF ARE AS STATED. ALL TESTING AND INSPECTION PROCEDURES EMPLOYED WERE IN ACCORDANCE WITH THE APPLICABLE SPECIFICATIONS AND THE RESULTS THEREOF ARE ON FILE.

James M Hunt
NAME JAMES M. HUNT
TITLE QA MANAGER
DATE 7/30/2007

07-31-07 A08:48 IN

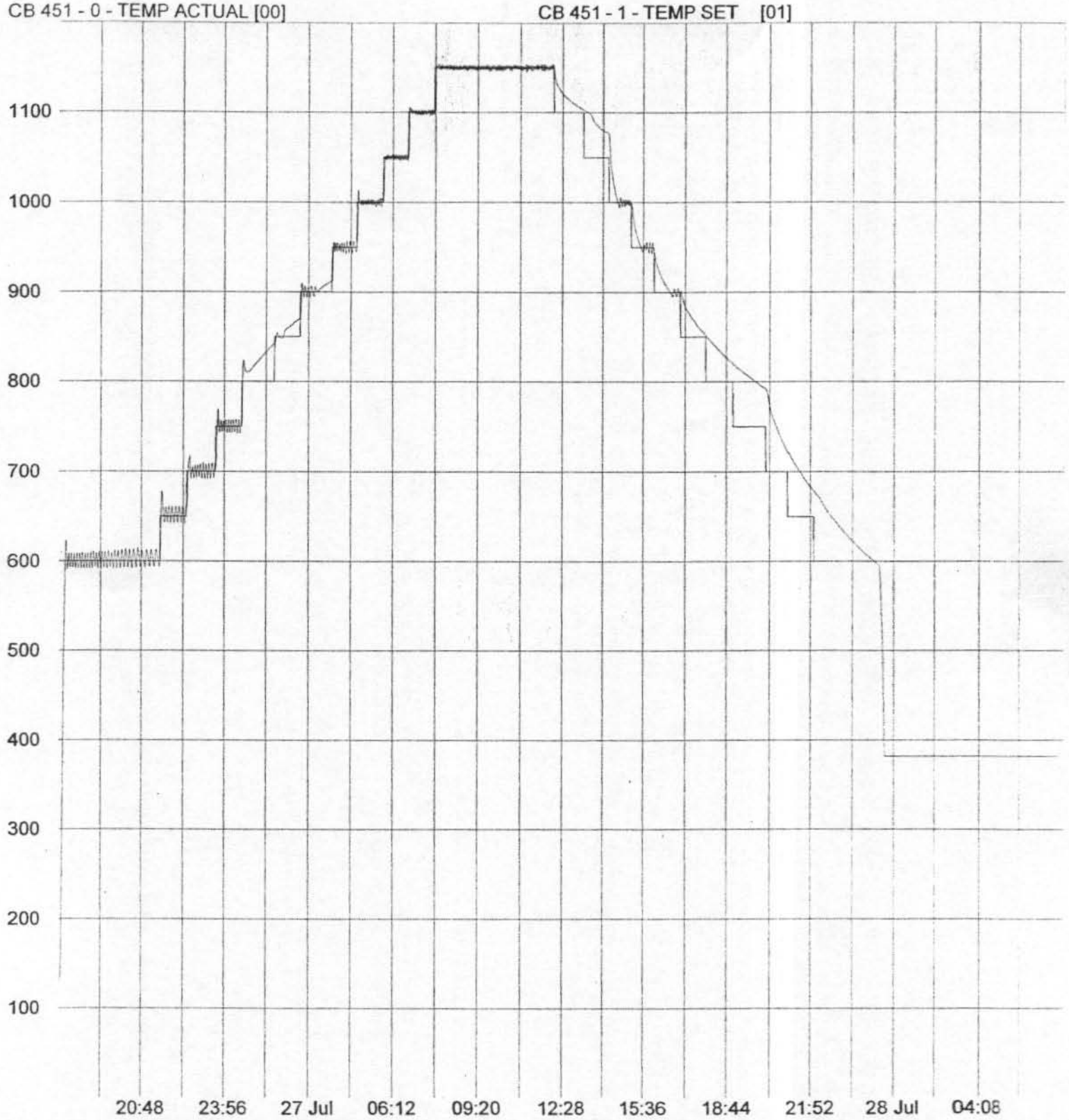
07-31-07 A09:07 OUT

07-31-07

Datalog Report

Start: 7/26/2007 5:40:00 PM
End: 7/28/2007 7:05:00 AM
Sample every 1 minute(s)
Printed 7/30/2007 9:25:49 AM

METALEX Mfg. Inc. STRESS RELIEVE
L1430401-100400 REV#05
SN# 7A-08198-13,14,15,16
PO# 71679
CST ORDER# 96993



LCLS Linac Coherent Light Source Stanford Synchrotron Radiation Laboratory Stanford Linear Accelerator Center

Procedure Number: L143-00093
Revision: 01
Issue Date: February 13, 2007

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR AS-BUILT DRAWINGS

VENDOR: **HI-TECH MANUFACTURING, INC.**

PART NAME: **INTERFACE PLATE (SINGLE CAM)**

DRAWING #: **L1430802-200021 (03)**

SERIAL #: 16

P.O. #: **7A-08189**

DATE: 08-17-07

ACCEPTANCE CRITERIA

1. Visually inspect for damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Flatness of Datum A	<=.02	<=.02	<=.01	Accept/Reject
Perpendicularity of Datum B to A	<=.02	<=.02	<=.02	Accept/Reject
Parallelism of upper edge on lower Cam Block C to B	<=.02	<=.02	<=.01	Accept/Reject
Parallelism of lower edge on upper Cam Block C to B	<=.02	<=.02	<=.01	Accept/Reject
Parallelism of upper edge on upper Cam Block C to B	<=.02	<=.02	<=.01	Accept/Reject
Width of mounting surface on lower Cam Block	142.01	+.02/-.0	142.02	Accept/Reject
Width of mounting surface on upper Cam Block	142.01	+.02/-.0	142.02	Accept/Reject
Separation of inner edges of Cam Bocks	457.43	+0.08/-.08	457.47	Accept/Reject

INSPECTOR: Simon

QA Supervisor: Muelaza

TEST EQUIPMENT USED: CMM, gage blocks, dial indicator.

COMMENTS:

LCLS Linac Coherent Light Source Stanford Synchrotron Radiation Laboratory Stanford Linear Accelerator Center

Procedure Number: L143-00093
Revision: 01
Issue Date: February 13, 2007

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR AS-BUILT DRAWINGS

VENDOR: **HI-TECH MANUFACTURING, INC.**

PART NAME: **INTERFACE PLATE (DOUBLE CAM)**

DRAWING #: **L1430802-200011 (03)**

SERIAL #: 16

P.O. #: **7A-08189**

DATE: 08-17-07

ACCEPTANCE CRITERIA

1. Visually inspect for damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Flatness of Datum A	</=.02	</=.02	<=.01	Accept/Reject
Perpendicularity of Datum B to A	</=.02	</=.02	<=.02	Accept/Reject
Parallelism of inner edge on Cam Block A to B	</=.02	</=.02	<=.01	Accept/Reject
Parallelism of inner edge on Cam Block B to B	</=.02	</=.02	<=.01	Accept/Reject
Parallelism of outer edge on Cam Block B to B	</=.02	</=.02	<=.01	Accept/Reject
Width of mounting surface on Cam Block B	142.01	+.02/-.0	142.02	Accept/Reject
Width of mounting surface on Cam Block A	254.00	+.02/-.0	254.01	Accept/Reject
Separation of outer edges of Cam Bocks	685.42	+0.08/-.08	685.43	Accept/Reject

INSPECTOR: Simon

QA Supervisor: Muelaza

TEST EQUIPMENT USED: CMM, gage blocks, dial indicator.

COMMENTS:

LCLS UNDULATOR SUPPORT CAM TEST DATA
ADVANCED PHOTON SOURCE
ARGONNE NATIONAL LAB

16-1
TIME OF TEST: 10/15/2007 2:29:34 PM

POS#1 FWD
CAM ECCEN R (MICRONS) = 2179.28
ROTARY POT GAIN = 348.15
POT OFFSET (DEG) = 61.98
DEVIATION RMS (MICRONS) = 11.96
DEVIATION MAX (MICRONS) = 32.65
DEVIATION MIN (MICRONS) = -28.67

POS#1 BWD
CAM ECCEN R (MICRONS) = 2179.28
ROTARY POT GAIN = 348.15
POT OFFSET (DEG) = 61.98
DEVIATION RMS (MICRONS) = 10.35
DEVIATION MAX (MICRONS) = 25.76
DEVIATION MIN (MICRONS) = -29.91

POS#2 FWD
CAM ECCEN R (MICRONS) = 2177.82
ROTARY POT GAIN = 348.15
POT OFFSET (DEG) = 61.98
DEVIATION RMS (MICRONS) = 12.22
DEVIATION MAX (MICRONS) = 34.34
DEVIATION MIN (MICRONS) = -25.46

POS#2 BWD
CAM ECCEN R (MICRONS) = 2180.28
ROTARY POT GAIN = 348.15
POT OFFSET (DEG) = 61.98
DEVIATION RMS (MICRONS) = 10.77
DEVIATION MAX (MICRONS) = 26.45
DEVIATION MIN (MICRONS) = -36.78

POS#3 FWD
CAM ECCEN R (MICRONS) = 2176.56
ROTARY POT GAIN = 348.15
POT OFFSET (DEG) = 61.98
DEVIATION RMS (MICRONS) = 11.80
DEVIATION MAX (MICRONS) = 32.13
DEVIATION MIN (MICRONS) = -26.91

POS#3 BWD
CAM ECCEN R (MICRONS) = 2179.60
ROTARY POT GAIN = 348.15
POT OFFSET (DEG) = 61.98
DEVIATION RMS (MICRONS) = 10.35
DEVIATION MAX (MICRONS) = 25.72
DEVIATION MIN (MICRONS) = -32.18

=== TEST PASS! ===
--- END OF TEST ---

LCLS UNDULATOR SUPPORT CAM TEST DATA
ADVANCED PHOTON SOURCE
ARGONNE NATIONAL LAB

16-2
TIME OF TEST: 10/15/2007 11:06:29 AM

POS#1 FWD
CAM ECCEN R (MICRONS) = 1516.09
ROTARY POT GAIN = 347.08
POT OFFSET (DEG) = 61.16
DEVIATION RMS (MICRONS) = 5.83
DEVIATION MAX (MICRONS) = 18.22
DEVIATION MIN (MICRONS) = -14.48

POS#1 BWD
CAM ECCEN R (MICRONS) = 1517.88
ROTARY POT GAIN = 347.08
POT OFFSET (DEG) = 61.16
DEVIATION RMS (MICRONS) = 6.01
DEVIATION MAX (MICRONS) = 17.31
DEVIATION MIN (MICRONS) = -19.72

POS#2 FWD
CAM ECCEN R (MICRONS) = 1516.46
ROTARY POT GAIN = 347.08
POT OFFSET (DEG) = 61.16
DEVIATION RMS (MICRONS) = 5.93
DEVIATION MAX (MICRONS) = 19.01
DEVIATION MIN (MICRONS) = -16.87

POS#2 BWD
CAM ECCEN R (MICRONS) = 1517.67
ROTARY POT GAIN = 347.08
POT OFFSET (DEG) = 61.16
DEVIATION RMS (MICRONS) = 5.76
DEVIATION MAX (MICRONS) = 17.04
DEVIATION MIN (MICRONS) = -19.52

POS#3 FWD
CAM ECCEN R (MICRONS) = 1516.57
ROTARY POT GAIN = 347.08
POT OFFSET (DEG) = 61.16
DEVIATION RMS (MICRONS) = 6.17
DEVIATION MAX (MICRONS) = 18.27
DEVIATION MIN (MICRONS) = -15.35

POS#3 BWD
CAM ECCEN R (MICRONS) = 1517.47
ROTARY POT GAIN = 347.08
POT OFFSET (DEG) = 61.16
DEVIATION RMS (MICRONS) = 5.90
DEVIATION MAX (MICRONS) = 16.28
DEVIATION MIN (MICRONS) = -20.58

=== TEST PASS! ===
--- END OF TEST ---

LCLS UNDULATOR SUPPORT CAM TEST DATA
ADVANCED PHOTON SOURCE
ARGONNE NATIONAL LAB

16-3
TIME OF TEST: 10/15/2007 10:49:47 AM

POS#1 FWD
CAM ECCEN R (MICRONS) = 1585.61
ROTARY POT GAIN = 344.66
POT OFFSET (DEG) = 60.93
DEVIATION RMS (MICRONS) = 7.23
DEVIATION MAX (MICRONS) = 22.02
DEVIATION MIN (MICRONS) = -19.04

POS#1 BWD
CAM ECCEN R (MICRONS) = 1584.36
ROTARY POT GAIN = 344.66
POT OFFSET (DEG) = 60.93
DEVIATION RMS (MICRONS) = 6.90
DEVIATION MAX (MICRONS) = 18.71
DEVIATION MIN (MICRONS) = -15.54

POS#2 FWD
CAM ECCEN R (MICRONS) = 1587.24
ROTARY POT GAIN = 344.66
POT OFFSET (DEG) = 60.93
DEVIATION RMS (MICRONS) = 7.00
DEVIATION MAX (MICRONS) = 18.38
DEVIATION MIN (MICRONS) = -16.90

POS#2 BWD
CAM ECCEN R (MICRONS) = 1584.99
ROTARY POT GAIN = 344.66
POT OFFSET (DEG) = 60.93
DEVIATION RMS (MICRONS) = 6.87
DEVIATION MAX (MICRONS) = 20.89
DEVIATION MIN (MICRONS) = -16.72

POS#3 FWD
CAM ECCEN R (MICRONS) = 1587.29
ROTARY POT GAIN = 344.66
POT OFFSET (DEG) = 60.93
DEVIATION RMS (MICRONS) = 7.10
DEVIATION MAX (MICRONS) = 19.34
DEVIATION MIN (MICRONS) = -15.33

POS#3 BWD
CAM ECCEN R (MICRONS) = 1584.33
ROTARY POT GAIN = 344.66
POT OFFSET (DEG) = 60.93
DEVIATION RMS (MICRONS) = 6.66
DEVIATION MAX (MICRONS) = 19.81
DEVIATION MIN (MICRONS) = -17.62

=== TEST PASS! ===
--- END OF TEST ---

LCLS UNDULATOR SUPPORT CAM TEST DATA
ADVANCED PHOTON SOURCE
ARGONNE NATIONAL LAB

16-4
TIME OF TEST: 10/15/2007 3:11:49 PM

POS#1 FWD
CAM ECCEN R (MICRONS) = 1551.65
ROTARY POT GAIN = 346.01
POT OFFSET (DEG) = 55.43
DEVIATION RMS (MICRONS) = 5.30
DEVIATION MAX (MICRONS) = 18.37
DEVIATION MIN (MICRONS) = -15.88

POS#1 BWD
CAM ECCEN R (MICRONS) = 1552.47
ROTARY POT GAIN = 346.01
POT OFFSET (DEG) = 55.43
DEVIATION RMS (MICRONS) = 7.23
DEVIATION MAX (MICRONS) = 20.39
DEVIATION MIN (MICRONS) = -21.66

POS#2 FWD
CAM ECCEN R (MICRONS) = 1551.15
ROTARY POT GAIN = 346.01
POT OFFSET (DEG) = 55.43
DEVIATION RMS (MICRONS) = 5.56
DEVIATION MAX (MICRONS) = 19.89
DEVIATION MIN (MICRONS) = -14.01

POS#2 BWD
CAM ECCEN R (MICRONS) = 1552.41
ROTARY POT GAIN = 346.01
POT OFFSET (DEG) = 55.43
DEVIATION RMS (MICRONS) = 7.27
DEVIATION MAX (MICRONS) = 19.84
DEVIATION MIN (MICRONS) = -20.93

POS#3 FWD
CAM ECCEN R (MICRONS) = 1550.12
ROTARY POT GAIN = 346.01
POT OFFSET (DEG) = 55.43
DEVIATION RMS (MICRONS) = 5.95
DEVIATION MAX (MICRONS) = 19.04
DEVIATION MIN (MICRONS) = -17.98

POS#3 BWD
CAM ECCEN R (MICRONS) = 1552.44
ROTARY POT GAIN = 346.01
POT OFFSET (DEG) = 55.43
DEVIATION RMS (MICRONS) = 7.24
DEVIATION MAX (MICRONS) = 19.39
DEVIATION MIN (MICRONS) = -21.43

=== TEST PASS! ===
--- END OF TEST ---

LCLS UNDULATOR SUPPORT CAM TEST DATA
ADVANCED PHOTON SOURCE
ARGONNE NATIONAL LAB

16-5
TIME OF TEST: 10/15/2007 3:38:13 PM

POS#1 FWD
CAM ECCEN R (MICRONS) = 1584.98
ROTARY POT GAIN = 346.13
POT OFFSET (DEG) = 59.38
DEVIATION RMS (MICRONS) = 6.26
DEVIATION MAX (MICRONS) = 15.63
DEVIATION MIN (MICRONS) = -18.63

POS#1 BWD
CAM ECCEN R (MICRONS) = 1587.04
ROTARY POT GAIN = 346.13
POT OFFSET (DEG) = 59.38
DEVIATION RMS (MICRONS) = 7.23
DEVIATION MAX (MICRONS) = 21.31
DEVIATION MIN (MICRONS) = -19.59

POS#2 FWD
CAM ECCEN R (MICRONS) = 1584.75
ROTARY POT GAIN = 346.13
POT OFFSET (DEG) = 59.38
DEVIATION RMS (MICRONS) = 6.97
DEVIATION MAX (MICRONS) = 15.40
DEVIATION MIN (MICRONS) = -20.01

POS#2 BWD
CAM ECCEN R (MICRONS) = 1586.88
ROTARY POT GAIN = 346.13
POT OFFSET (DEG) = 59.38
DEVIATION RMS (MICRONS) = 7.82
DEVIATION MAX (MICRONS) = 22.94
DEVIATION MIN (MICRONS) = -20.75

POS#3 FWD
CAM ECCEN R (MICRONS) = 1584.58
ROTARY POT GAIN = 346.13
POT OFFSET (DEG) = 59.38
DEVIATION RMS (MICRONS) = 6.88
DEVIATION MAX (MICRONS) = 16.44
DEVIATION MIN (MICRONS) = -20.04

POS#3 BWD
CAM ECCEN R (MICRONS) = 1587.03
ROTARY POT GAIN = 346.13
POT OFFSET (DEG) = 59.38
DEVIATION RMS (MICRONS) = 7.58
DEVIATION MAX (MICRONS) = 23.16
DEVIATION MIN (MICRONS) = -22.02

=== TEST PASS! ===
--- END OF TEST ---