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

Table of Contents for QA Records Packages

The purpose of this form is to verify the presence of the appropriate quality assurance records for hardware shipments being installed at SLAC. This form is required to be completed by ANL LCLS project personnel prior to authorizing shipments to SLAC.

System or Component Name: LCLS Fixed Support Assembly

Date: Jan 15, 2008

Part/Drawing Number: L143-143080-200000

Serial Numbers: 10

Supplier Name: Hi-Tech Manufacturing Inc

PO Number: 7A-08189

Responsible LCLS Technical Lead: M. White

Reponsible Engineer(s): E. Trakhtenberg

No.	Record Name	Document number	Origin	Comments	√ Present?
1.	ANL Component Acceptance Record	LCLS	ANL	ANL Acceptance record of ANL acceptance date and applicable drawing revisions.	**Present**
2.	Dynamic CAM test results		ANL		**Present**
3.	Certificates of Conformance for Vibratory Stress Relief	NA	American Grinding	L1430802-200030, L1430802-200021, L1430802-200011	**Present**
4.	Certificates of Inspection	NA	Hi-Tech	L1430401-100101, L1430401-100201,	**Present**
5.	Certificates of Inspection	NA	Hi-Tech	L1430401-100103, L1430401-100303,	**Present**
6.	Copies of the ANL Inspection/Acceptance Report of Components for As-Built Drawings	L143-00093	Hi-Tech	Undulator Girder	**Present**
7.	Copies of the ANL Inspection/Acceptance Report of Components for As-Built Drawings	L143-00093	Hi-Tech	Interface Plate (Double CAM)	**Present**
8.	Copies of the ANL Inspection/Acceptance Report of Components for As-Built Drawings	L143-00093	Hi-Tech	Interface Plate (Single CAM)	**Present**
9.	Weld Certification	NA	Hi-Tech	Support Girder (L1430401-10040)	**Present**
10.	Inspection Planning & Report Form	NA	Metalex	Undulator Support Girder	**Present**
11.	Certificate of compliance – Stress Test	NA	Cincinnati Steel Treating Co.	Support Girder	**Present**
12.	Certificate of Conformance	NA	Metalex	Support Girder	**Present**
13.	Calibration Certificate – CMM metric & inches	TG13480 & TG13482	American Calibration Inc.	Unit is in working condition	**Present in SM #1 QA**
14.	Various MSDS for Paint & Oil and Concrete Epoxy Grease	NA	NA	MSDS for chemicals used.	**Present**
15.	Welding Operator Qualification Test Record	NA	Bodycote Taussig Inc.	Welders qualifications	**Present**
16.	Certificates of Conformance for Support Girder raw materials	NA	Metalex	Precision Steel Services Inc., Frederick Steel Co., CMC Steel	**Present in SM #1 QA**
17.	Certificate of Compliance /Statement of Quality	NA	The Sherwin-Williams Co.		**Present**
18.	Visual Weld Inspection Report	NA	Metalex	Girder Support	**Present**
19.	Visual Weld Inspection Report	NA	HiTech	Girder Support	**Present**
20.	Gearhead Inspection Report		GAM	In Folder	**Present**

No.	Record Name	Document number	Origin	Comments	√ Present?
21.	Certification of Single Axis Table		Lintech		**Present in SM #1 QA**
22.	Certificate of Conformance for CAM Motors		Animatics	Motors – In Folder	**Present**
23.	Shipping Crate Design Approval Record	NA	Hi-Tech		**Present**
24.	Misc. Photographs	NA	Hi-Tech		

Optional notes or Comments:

The Mill Certificates for the steel dimensions, chemical composition, and tensile properties are present for Girder serial number 1 only because the material for all of the girder assemblies was purchased at one time.

Signature of person that completed this table of contents: John F. Schrock Date: 3/20/08

Concurrence signatures of this table of contents contents:

Responsible ANL LCLS Engineer: _____ Date: 03/21/08

Responsible ANL QA Coordinator: Yulder Romero Date: 3/21/08

Responsible ANL LCLS Technical Lead: _____ Date: 21 March 08

ANL LCLS Project Manager: _____ Date: 3/24/08

Distribute this completed form to: ANL Records package. ANL LCLS QA. ANL LCLS Technical Lead

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 136pcs
L1430401-100303 (PF-381-002-15) quantity of 34pcs
Have been inspected and met all drawing requirements.

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

Certificate of Inspection

EL-TECH
Manufacturer
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 114pcs
L1430401-100201 (PF-381-000-23) quantity of 38pcs
Have been inspected and met all drawing requirements.

Q.C. Supervisor Muelaza

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 ##
L1430401-100103 (PF-381-000-15) *quantity of 136pcs*
L1430401-100303 (PF-381-002-15) *quantity of 34pcs*
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 114pcs
L1430401-100201 (PF-381-000-23) quantity of 38pcs
Have been inspected and met all drawing requirements.

Q.C. Supervisor Muelaza

09-07-07
Date

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

10-1
TIME OF TEST: 10/2/2007 11:28:08 AM

POS#1 FWD
CAM ECCEN R (MICRONS) = 2178.52
ROTARY POT GAIN = 348.15
POT OFFSET (DEG) = 61.21
DEVIATION RMS (MICRONS) = 7.86
DEVIATION MAX (MICRONS) = 27.63
DEVIATION MIN (MICRONS) = -18.47

POS#1 BWD
CAM ECCEN R (MICRONS) = 2179.10
ROTARY POT GAIN = 348.15
POT OFFSET (DEG) = 61.21
DEVIATION RMS (MICRONS) = 7.27
DEVIATION MAX (MICRONS) = 18.74
DEVIATION MIN (MICRONS) = -18.98

POS#2 FWD
CAM ECCEN R (MICRONS) = 2177.25
ROTARY POT GAIN = 348.15
POT OFFSET (DEG) = 61.21
DEVIATION RMS (MICRONS) = 7.01
DEVIATION MAX (MICRONS) = 15.92
DEVIATION MIN (MICRONS) = -19.70

POS#2 BWD
CAM ECCEN R (MICRONS) = 2180.04
ROTARY POT GAIN = 348.15
POT OFFSET (DEG) = 61.21
DEVIATION RMS (MICRONS) = 6.84
DEVIATION MAX (MICRONS) = 14.88
DEVIATION MIN (MICRONS) = -18.38

POS#3 FWD
CAM ECCEN R (MICRONS) = 2178.44
ROTARY POT GAIN = 348.15
POT OFFSET (DEG) = 61.21
DEVIATION RMS (MICRONS) = 7.07
DEVIATION MAX (MICRONS) = 18.13
DEVIATION MIN (MICRONS) = -19.75

POS#3 BWD
CAM ECCEN R (MICRONS) = 2180.38
ROTARY POT GAIN = 348.15
POT OFFSET (DEG) = 61.21
DEVIATION RMS (MICRONS) = 6.86
DEVIATION MAX (MICRONS) = 15.93
DEVIATION MIN (MICRONS) = -18.69

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

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

10-2
TIME OF TEST: 10/2/2007 2:15:09 PM

POS#1 FWD
CAM ECCEN R (MICRONS) = 1550.84
ROTARY POT GAIN = 345.96
POT OFFSET (DEG) = 60.87
DEVIATION RMS (MICRONS) = 5.86
DEVIATION MAX (MICRONS) = 22.26
DEVIATION MIN (MICRONS) = -16.93

POS#1 BWD
CAM ECCEN R (MICRONS) = 1552.25
ROTARY POT GAIN = 345.96
POT OFFSET (DEG) = 60.87
DEVIATION RMS (MICRONS) = 5.61
DEVIATION MAX (MICRONS) = 21.19
DEVIATION MIN (MICRONS) = -13.42

POS#2 FWD
CAM ECCEN R (MICRONS) = 1550.89
ROTARY POT GAIN = 345.96
POT OFFSET (DEG) = 60.87
DEVIATION RMS (MICRONS) = 5.48
DEVIATION MAX (MICRONS) = 19.64
DEVIATION MIN (MICRONS) = -16.69

POS#2 BWD
CAM ECCEN R (MICRONS) = 1553.13
ROTARY POT GAIN = 345.96
POT OFFSET (DEG) = 60.87
DEVIATION RMS (MICRONS) = 5.54
DEVIATION MAX (MICRONS) = 20.87
DEVIATION MIN (MICRONS) = -14.23

POS#3 FWD
CAM ECCEN R (MICRONS) = 1550.27
ROTARY POT GAIN = 345.96
POT OFFSET (DEG) = 60.87
DEVIATION RMS (MICRONS) = 5.47
DEVIATION MAX (MICRONS) = 21.74
DEVIATION MIN (MICRONS) = -17.70

POS#3 BWD
CAM ECCEN R (MICRONS) = 1552.40
ROTARY POT GAIN = 345.96
POT OFFSET (DEG) = 60.87
DEVIATION RMS (MICRONS) = 5.60
DEVIATION MAX (MICRONS) = 17.05
DEVIATION MIN (MICRONS) = -15.72

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

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

10-3
TIME OF TEST: 10/2/2007 1:58:57 PM

POS#1 FWD
CAM ECCEN R (MICRONS) = 1572.45
ROTARY POT GAIN = 348.29
POT OFFSET (DEG) = 59.65
DEVIATION RMS (MICRONS) = 12.30
DEVIATION MAX (MICRONS) = 29.46
DEVIATION MIN (MICRONS) = -29.83

POS#1 BWD
CAM ECCEN R (MICRONS) = 1570.81
ROTARY POT GAIN = 348.29
POT OFFSET (DEG) = 59.66
DEVIATION RMS (MICRONS) = 12.11
DEVIATION MAX (MICRONS) = 29.88
DEVIATION MIN (MICRONS) = -33.00

POS#2 FWD
CAM ECCEN R (MICRONS) = 1573.02
ROTARY POT GAIN = 348.29
POT OFFSET (DEG) = 59.65
DEVIATION RMS (MICRONS) = 12.53
DEVIATION MAX (MICRONS) = 31.05
DEVIATION MIN (MICRONS) = -31.27

POS#2 BWD
CAM ECCEN R (MICRONS) = 1570.72
ROTARY POT GAIN = 348.29
POT OFFSET (DEG) = 59.66
DEVIATION RMS (MICRONS) = 11.78
DEVIATION MAX (MICRONS) = 30.42
DEVIATION MIN (MICRONS) = -32.08

POS#3 FWD
CAM ECCEN R (MICRONS) = 1572.69
ROTARY POT GAIN = 348.29
POT OFFSET (DEG) = 59.65
DEVIATION RMS (MICRONS) = 12.51
DEVIATION MAX (MICRONS) = 30.68
DEVIATION MIN (MICRONS) = -29.71

POS#3 BWD
CAM ECCEN R (MICRONS) = 1569.94
ROTARY POT GAIN = 348.29
POT OFFSET (DEG) = 59.66
DEVIATION RMS (MICRONS) = 11.86
DEVIATION MAX (MICRONS) = 30.77
DEVIATION MIN (MICRONS) = -31.31

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

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

10-4
TIME OF TEST: 10/2/2007 11:45:20 AM

POS#1 FWD
CAM ECCEN R (MICRONS) = 1592.93
ROTARY POT GAIN = 344.93
POT OFFSET (DEG) = 58.94
DEVIATION RMS (MICRONS) = 6.67
DEVIATION MAX (MICRONS) = 17.23
DEVIATION MIN (MICRONS) = -18.35

POS#1 BWD
CAM ECCEN R (MICRONS) = 1595.88
ROTARY POT GAIN = 344.93
POT OFFSET (DEG) = 58.94
DEVIATION RMS (MICRONS) = 6.77
DEVIATION MAX (MICRONS) = 18.37
DEVIATION MIN (MICRONS) = -17.98

POS#2 FWD
CAM ECCEN R (MICRONS) = 1595.11
ROTARY POT GAIN = 344.93
POT OFFSET (DEG) = 58.94
DEVIATION RMS (MICRONS) = 6.39
DEVIATION MAX (MICRONS) = 13.79
DEVIATION MIN (MICRONS) = -18.32

POS#2 BWD
CAM ECCEN R (MICRONS) = 1596.18
ROTARY POT GAIN = 344.93
POT OFFSET (DEG) = 58.94
DEVIATION RMS (MICRONS) = 6.79
DEVIATION MAX (MICRONS) = 17.78
DEVIATION MIN (MICRONS) = -17.39

POS#3 FWD
CAM ECCEN R (MICRONS) = 1593.96
ROTARY POT GAIN = 344.93
POT OFFSET (DEG) = 58.94
DEVIATION RMS (MICRONS) = 6.77
DEVIATION MAX (MICRONS) = 17.07
DEVIATION MIN (MICRONS) = -22.71

POS#3 BWD
CAM ECCEN R (MICRONS) = 1595.51
ROTARY POT GAIN = 344.93
POT OFFSET (DEG) = 58.94
DEVIATION RMS (MICRONS) = 7.12
DEVIATION MAX (MICRONS) = 17.86
DEVIATION MIN (MICRONS) = -18.81

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

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

10-5
TIME OF TEST: 10/2/2007 12:32:31 PM

POS#1 FWD
CAM ECCEN R (MICRONS) = 1569.36
ROTARY POT GAIN = 345.15
POT OFFSET (DEG) = 59.68
DEVIATION RMS (MICRONS) = 9.37
DEVIATION MAX (MICRONS) = 22.24
DEVIATION MIN (MICRONS) = -22.75

POS#1 BWD
CAM ECCEN R (MICRONS) = 1572.86
ROTARY POT GAIN = 345.15
POT OFFSET (DEG) = 59.68
DEVIATION RMS (MICRONS) = 8.97
DEVIATION MAX (MICRONS) = 20.23
DEVIATION MIN (MICRONS) = -24.28

POS#2 FWD
CAM ECCEN R (MICRONS) = 1572.72
ROTARY POT GAIN = 345.15
POT OFFSET (DEG) = 59.68
DEVIATION RMS (MICRONS) = 9.06
DEVIATION MAX (MICRONS) = 22.45
DEVIATION MIN (MICRONS) = -21.82

POS#2 BWD
CAM ECCEN R (MICRONS) = 1574.15
ROTARY POT GAIN = 345.15
POT OFFSET (DEG) = 59.68
DEVIATION RMS (MICRONS) = 8.74
DEVIATION MAX (MICRONS) = 19.69
DEVIATION MIN (MICRONS) = -21.64

POS#3 FWD
CAM ECCEN R (MICRONS) = 1570.47
ROTARY POT GAIN = 345.15
POT OFFSET (DEG) = 59.68
DEVIATION RMS (MICRONS) = 8.66
DEVIATION MAX (MICRONS) = 20.71
DEVIATION MIN (MICRONS) = -20.87

POS#3 BWD
CAM ECCEN R (MICRONS) = 1573.72
ROTARY POT GAIN = 345.15
POT OFFSET (DEG) = 59.68
DEVIATION RMS (MICRONS) = 9.27
DEVIATION MAX (MICRONS) = 20.61
DEVIATION MIN (MICRONS) = -24.50

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

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
DC 28

Item	Qty.	Part Number	Rev.	Part Name	Job #
				BATCH# OE 16376	
1	5	B62WZ111		TILECIAD H.S. SW4026	7558
				Shelf life 36 months	

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: 7-16-0
Supplier Quality Rep.

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

SHERWIN-WILLIAMS

SHERWIN-WILLIAMS
3149 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-7553
ORDER:CE0025007Q1246
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
NTX
JUL 20

E16/13651 11

SALES NUMBER	SIZE	PRODUCT	DESCRIPTION	QUANTITY
6405-18999	GALLON	B62W2111	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

MXT
RECEIVED
JUL 16 2007
METALEX MFG.
BY CD

OE16371

MERCHANDISE RECEIVED IN GOOD ORDER BY:

BILLY BLANTON DATE (CENTRALIZED INVOICE)

GAM Inpsection Form

Record No. QRO-005-02
Revised: 09/29/05

Order #: 206059 **Customer:** IMAC Motion Cont **Serial #'s** G45630-G45655

Part Number: 701058 **Type Code:** EPL-N34-490G-[N23-B01] **Qty:** 26

Verify mounting dimensions

Motor Mfg: NEMA Standard **Model:** N23 - 3/8"

- ☑ Check Pilot Diameter = 1.5
  ** Check for EVERY adapter **
- ☑ Check pilot height > 0.06
- ☑ Check bolt circle = 2.625
- ☑ Check hole size fits for: .205
- ☑ Check hole depth for flange thickness: 0.25
- ☑ Check shaft diameter = 0.375
  ** Check for EVERY gearbox **
- ☑ Check shaft engagement > 0.82
- ☑ Verify ratio and "smoothness" of gearbox by spinning input
- ☑ Verify mounting bolts are correct qty and type of for all applicable adapters.
- ☑ Verify access hole plug is present and clamping ring bolt is accessible.
- ☑ Place bolts, plugs, and loose gears in a bag and wire to each individual gearbox.
- ☑ Verify key and keyways, if applicable
- ☑ Verify output coupling bore size, if applicable
- ☑ Verify shrink disc is present, if applicable
- ☑ Verify order is complete.

Assemble gearbox / verify appearence and label

- ☑ Clean gearbox and paint if necessary
- ☑ Mount input coupling to gearbox if applicable.
- ☑ Mount input adapter / lantern to gearbox if applicable.
- ☑ Verify label is correct to order
- ☑ Apply label to gearbox on a flat surface on gearbox.
- ☑ Apply clear plastic overlay label to top of original label.

Customer Specific Notes (Inspection)

None

Verify special options

☐ **Notes:**

Give copy of Inspection sheet to shipping for IMAC orders.

Shipping Special Instruction

Packaged By:_____ Date:_____

Inspected By: [signature] Date: 8/31/07

GAM Inpsection Form

Record No. QRO-005-02
Revised: 09/29/05

Order #: 206059 **Customer:** IMAC Motion Cont **Serial #'s** G46012-G46026
Part Number: 701058 **Type Code:** EPL-N34-490G-[N23-B01] **Qty:** 15

Verify mounting dimensions

Motor Mfg: NEMA Standard **Model:** N23 - 3/8"

- ☑ Check Pilot Diameter = 1.5
  ** Check for EVERY adapter **
- ☑ Check pilot height > 0.06
- ☑ Check bolt circle = 2.625
- ☑ Check hole size fits for: .205
- ☑ Check hole depth for flange thickness: 0.25
- ☑ Check shaft diameter = 0.375
  ** Check for EVERY gearbox **
- ☑ Check shaft engagement >. 0.82
- ☑ Verify ratio and "smoothness" of gearbox by spinning input
- ☑ Verify mounting bolts are correct qty and type of for all applicable adapters.
- ☑ Verify access hole plug is present and clamping ring bolt is accessible.
- ☑ Place bolts, plugs, and loose gears in a bag and wire to each individual gearbox.
- ☑ Verify key and keyways, if applicable
- ☑ Verify output coupling bore size, if applicable
- ☑ Verify shrink disc is present, if applicable
- ☑ Verify order is complete.

Shipping Special Instruction

Assemble gearbox / verify appearence and label

- ☑ Clean gearbox and paint if necessary
- ☑ Mount input coupling to gearbox if applicable.
- ☑ Mount input adapter / lantern to gearbox if applicable.
- ☑ Verify label is correct to order
- ☑ Apply label to gearbox on a flat surface on gearbox.
- ☑ Apply clear plastic overlay label to top of original label.

Customer Specific Notes (Inspection)

None

Verify special options

☑ **Notes:**

If order is for IMAC, make a copy of the inspection sheet and send in box for customer.

Packaged By:_____ Date:_____ Inspected By: RJK Date: 9.24.07

LINTECH
1845 Enterprise Way
Monrovia, CA 91016-4272
Phone: 626.358.0110 - Fax: 626.303.2035

CERTIFICATION

Date: 08/15/2007
Sales Order No.: 42873
Pick List No.: 52559

Sold To:
IMAC
1301-A Bowes Road
Elgin, IL 30123

Order No.: 7396

Ship To:
Hi-Tech Manufacturing
4637 No. 25th Ave.
Schiller Park, IL 60176

Order No.: None

Seller hereby certifies as follows - that all materials, parts and processes furnished against the above referenced purchase order were produced in conformance with all applicable specifications as referenced therein, and are on file subject to examination.

Quantity Shipped	Part Number/Description	Serial Number
(10)	206821 Rev."F" Single Axis Table	AA00733003 AA00733004 AA00733005 AA00733006 AA00733007 AA00733008 AA00733009 AA00733010 AA00733011 AA00733012

By: _____
Q.C. Manager

LINTECH
1845 Enterprise Way
Monrovia, CA 91016-4272
Phone: 626.358.0110 – Fax: 626.303.2035

CERTIFICATION

Date: 08/22/2007
Sales Order No.: 42873
Pick List No.: 52621

Sold To:
IMAC
1301-A Bowes Road
Elgin, IL 30123

Order No.: 7396

Ship To:
Hi-Tech Manufacturing
4637 No. 25th Ave.
Schiller Park, IL 60176

Order No.: None

Seller hereby certifies as follows - that all materials, parts and processes furnished against the above referenced purchase order were produced in conformance with all applicable specifications as referenced therein, and are on file subject to examination.

Quantity Shipped	Part Number/Description	Serial Number
(10)	206821 Rev."F" Single Axis Table	AA00734009 AA00734010 AA00734011 AA00734012 AA00734013 AA00734014 AA00734015 AA00734016 AA00734017 AA00734018

By: _____
Q.C. Manager

HI-TECH
Manufacturing, Inc.
CNC Milling & Turning
Prototypes & Special Machinery
4637 N. 25th Ave.
Schiller Park, IL 60176

Hi-Tech Manufacturing, Inc.
4637 N. 25th Ave.
Schiller Park, IL 60176
USA

Ph: (847) 678-1616
Fax: (847) 678-1617

Purchase Order

Number: 17338 Date: 20-Aug-07

To

American [illegible]ding & Machine Co
2000 N. M[illegible]o Ave.
Chicago, I[illegible]0639-2899
USA

Ph: (773) 889-4343 Fax: (773) 889-3781

Ship To

Aamro Corp.
3110 S. 26th Ave.
Broadview, IL 60155
USA

Ph: (708) 343-5543 Fax: (708) 343-5547

Terms	Ship Via	FOB	Issued By
	Deliver	Destination	JOE

Quantity	Description	Unit Price	Amount
	1. P[illegible]ase enter this order in accordance with prices, delivery and specifications shown bel[illegible] 2. P[illegible]se notify us immediately if you are unable to ship as specified. 3. C[illegible]rshipment of product will not be accepted without prior approval form Hi-Tech. 4. U[illegible]S Ground shipments must be shipped COLLECT. Use account # 6E1-000. 5. [illegible]eclared value charges will be accepted without prior approval by Hi-Tech.		
12 ea —/ 11 Line: ~~8~~ 3	L1[illegible]302-200030 Rev: 01 P[illegible]STAL WELDMENT Due: 24-Aug-07 V[illegible]atory Stress Relieve Job: 55420B030 C[illegible]ate required	$0.00 ea	$0.00
		Total:	$0.00

AMERICAN GRINDING & MACHINE CO.

2000 N. MANGO AVE. CHICAGO, IL 60639
773-889-4343 toll free: 877-988-4343
FAX 773-889-3781

CERTIFICATE OF COMPLIANCE

Customer: Hi-Tech Mfg PHONE: (847) 678-1616

4637 N. 25th Ave. FAX: (847) 678-1716

Schiller Park, IL

60176

RE: PURCHASE ORDER 17338

PRINT NUMBER(S) (if applicable) L143 0802-200030

8 pcs.

This is to certify that the services and /or material furnished by American Grinding & Machine Company on this order meets the requirements of listed purchase order and any prints furnished to us for that purchase order.

Signature of American Grinding Representative

08/31/07
Date

AMERICAN GRINDING & MACHINE CO.

2000 N. MANGO AVE. CHICAGO, IL 60639
773-889-4343 toll free: 877-988-4343
FAX 773-889-3781

CERTIFICATE OF COMPLIANCE

Customer: Hi-Tech Mfg PHONE: (847) 678-1616

4637 N. 25th Ave. FAX: (847) 678-1716

Schiller Park, IL

60176

RE: PURCHASE ORDER 17213/17309

PRINT NUMBER(S) (if applicable) L1430802-200021 — 4 PCS.

4 PCS/4 PCS. L1430802-200011 — 4 PCS

This is to certify that the services and /or material furnished by American Grinding & Machine Company on this order meets the requirements of listed purchase order and any prints furnished to us for that purchase order.

Signature of American Grinding Representative

08/31/07
Date

HI-TECH
Manufacturing, Inc.
CNC Milling & Turning
Prototypes & Special Machinery
4637 N. 25th Ave.
Schiller Park, IL 60176

Hi-Tech Manufacturing, Inc.
4637 N. 25th Ave.
Schiller Park, IL 60176
USA

Ph: (847) 678-1616
Fax: (847) 678-1617

Purchase Order

Number: 17213 Date: 09-Aug-07

To

American Grinding & Machine Co
2000 N. Mango Ave.
Chicago, IL 60639-2899
USA

Ph: (773) 889-4343 Fax: (773) 889-3781

Ship To

Hi-Tech Manufacturing, Inc.
4637 N. 25th Ave.
Schiller Park, IL 60176
USA

Ph: (847) 678-1616 Fax: (847) 678-1617

Terms	Ship Via	FOB	Issued By
	Deliver	Destination	JOE

Quantity	Description	Unit Price	Amount
	1. Please enter this order in accordance with prices, delivery and specifications shown below. 2. Please notify us immediately if you are unable to ship as specified. 3. Overshipment of product will not be accepted without prior approval form Hi-Tech. 4. UPS Ground shipments must be shipped COLLECT. Use account # 6E1-000. 5. No declared value charges will be accepted without prior approval by Hi-Tech.		
18 ea -8 10 Line	L1430802-200011 Rev: 03 INTERFACE PLATE (DOUBLE CAM) Due: 09-Aug-07 Vibratory Stress Relieve Job: 55420B011 Certifiate required	$0.00 ea	$0.00
2 ea Line: 002	L1430802-200021 Rev: 03 INTERFACE PLATE (SINGLE CAM) Due: 16-Aug-07 Vibratory Stress Relieve Job: 55420B021 Certifiate required	$0.00 ea	$0.00
		Total:	$0.00

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

Certification ID
36508

Order ID
96899

CERTIFICATION OF COMPLIANCE

CUSTOMER

Metalex Mfg., Inc.
5750 Cornell Road

Cincinnati OH
Blkt Ord # 45242

Purchase Order 71673 **Customer Cust**

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

REV. # 05, S/N 7A-08198-09, 7A-08198-10, 7A-08198-11, 7A-08198-12

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 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 7/26/2007

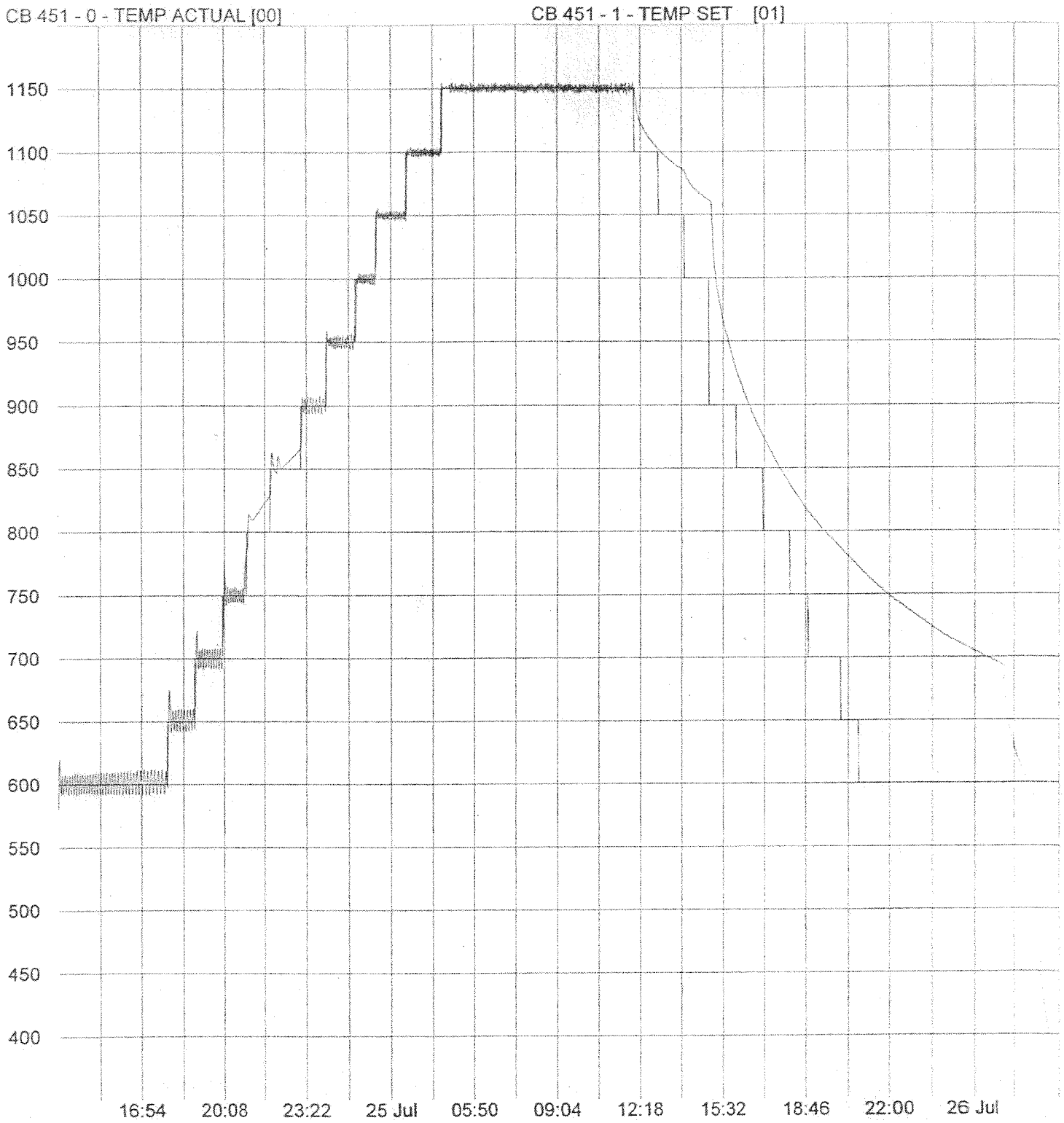
METALEX
Q. A. DEPT
ACCEPTED
DATE 7/27/07
BY TC
MTX
IC 28

LM 7558

Datalog Report

Start: 7/24/2007 1:40:00 PM
End: 7/26/2007 4:05:00 AM
Sample every 1 minute(s)
Printed 7/26/2007 8:58:29 AM

METALEX Mfg. Inc. STRESS RELIEVE
L1430401-100400 REV#05
SN# 7A-08198-09,10,11,12
PO# 71673
CST ORDER# 96899



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 #: 10

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

DATE: 08-15-07

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	<=.01	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	457.46	Accept/Reject

INSPECTOR: Simod

QA Supervisor: Muelaza

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

COMMENTS:

LCLS

Procedure Number: 1.143-00093
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 #: 10

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

DATE: 08-16-07

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	<=.01	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	685.45	Accept/Reject

INSPECTOR: Smod

QA Supervisor: Mulaza

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

COMMENTS:

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: 10		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	20.32° C	MTX QC 8	
PART TEMPERATURE *DURING* INSPECTION (Record in Celsius)	SOW 4.5.4	CONTACT THERMOMETER MX1794	20.33° C	MTX QC 8	
PART TEMPERATURE *AFTER* INSPECTION (Record in Celsius)	SOW 4.5.4	CONTACT THERMOMETER MX1794	20.35°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	.010	MTX QC 8	
B) *Perpendicularity of Datum B to Datum C* ⊥ | .25 [.010]|A|C	E8	CMM MX1269	.011	MTX QC 8	
C) Flatness of datum A of .030 [.001]	N/A	CMM MX1269	.019	MTX QC 8	
D) *Perpendicularity of Datum A to Datum C* ⊥ | .25 [.010]|C	D8	CMM MX1269	.019	MTX QC 8	
E) 9X ∅ 6.338 – 6.350 *marked "D1", "D2" & "D3"*	E7 E6 E3	CMM MX1269	6.339 - 6.350	MTX QC 8	
F) *True position of "D3" holes* 2X ⌖ | .1 [.004]|A|B|C ⌖ | .03 [.0012]B|C	E3	CMM MX1269	.023 AND .100 .022	MTX QC 8	
F) *True position of "D2" holes* 2X ⌖ | .1 [.004]|A|B|C ⌖ | .03 [.0012]B|C	E6	CMM MX1269	.021 AND .027 .009	MTX QC 8	
F) *Locations of "D1" holes* 444.50 [17.500]	E7	CMM MX1269	444.561	MTX QC 8	

STAMP	INSPECTED BY	DATE	PAGE 1 OF 2	QTY ACC	QTY REJ
MTX QC 8	THOMAS G COOK	10/17/07		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: 10		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	1968.477	MTX QC 8	
3492.50 [137.500]	E2	CMM MX1269	3492.433	MTX QC 8	
2X 523.6 [20.61]	E1	CMM MX1269	523.600 523.617 523.608	MTX QC 8	
3185.26 [125.404]	D2	CMM MX1269	3185.192	MTX QC 8	
845.29 [33.179]	D6	CMM MX1269	845.280	MTX QC 8	
2X 95.10 [3.744]	D8	CMM MX1269	95.111 95.113	MTX QC 8	
SHEET 2 – SIDE VIEW					
A) -C- / /| .030 [.0012] 2X Surface "J"	C8	CMM MX1269	.027	MTX QC 8	
B) -C- / /| .05 [.002]	C8	CMM MX1269	.044	MTX QC 8	
SHEET 2 – BOTTOM VIEW					
A) 2X 749.78 ± .15	C7	CMM MX1269	749.710 749.723	MTX QC 8	
B) 2X 2340.00 ± .15	C5	CMM MX1269	2340.039 2340.032	MTX QC 8	
C) 4X //| .05 [.002]|B	B2	CMM MX1269	.006 .004 .002 .002	MTX QC 8	
D) 4X //| .030 [.0012]|A	B7	CMM MX1269	.003 .002 .003 .000	MTX QC 8	
SHEET 3 – SECTION B-B					
E) //| .07 [.003]|C	C2	CMM MX1269	.025	MTX QC 8	
F) 4X 109.47 ± .08	C2	CMM MX1269	109.487 109.512	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	10/17/07		1	0

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: 10/26/2007
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 # 41293

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	7	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-08198-10 thru 7A-08198-13, 7A-08198-14, and 7A-08198-15.

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	Print Name	Date
	Thomas Clark	10/26/07

MX1011 (05/05)

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 B67US
0X0275C B67HS
0X2005Z

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-08198-10,
7A-08198-13 thru -12

METALEX PROCEDURE # WPS 146 (K. Ballard), WPS 194-1 (G. Black)

CUST. SPECIFICATION # AWS D1.1

WELD WIRE SPEC AWS A5.20

TYPE E71T-1

HEAT 81869, 81192

DIAMETER 1/16"

SERIAL NUMBER	WELDER
7A-08198-10	Ken Ballard
7A-08198-13	Ken Ballard
7A-08198-14	Ken Ballard
7A-08198-15	Ken Ballard

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

Metalex Quality Control

10/26/07
Date

MX1025 (9/98)

NTI

ZERUST® Material Safety Data Sheet

Z-Maxx Lube – Heavy Duty Grease

SECTION 1

MSDS# 4-4.3-12-1-180 Rev A

Technical Phone: 651-784-1250 Date Prepared 6 July 2004

SECTION 2 - INGREDIENTS

Complex Mixture – Petroleum Hydrocarbons Plus Additives. This material is not known to contain greater than 0.1% of any carcinogen required to be listed under the OSHA Hazard Communication Standard (29CRF 1910.1200).

This product is considered non-hazardous when handled properly and used for intended purpose.

*This product does not contain any chemical subject to the reporting requirements of the Superfund Amendments and Reauthorization Act of 1986 (SARA), Title III, Section 313 and 40 CFR Part 372.

SECTION 3 – PHYSICAL DATA

Appearance and Odor:	Amber grease, mild mineral odor
Boiling Point:	N/A
Specific Gravity:	.945
Vapor Pressure (mm Hg):	N/A
Vapor Density (air = 1)	N/A
Water Solubility:	Nil

SECTION 4 – FIRE AND EXPLOSION DATA

Flash Point	Method used	LEL%	UEL%
>200°C (392°F)	Cleveland open cup	Unknown	Unknown

Extinguisher Media:	CO^2 Dry chemical, Foam or Sand/Earth
Fire Fighting:	NIOSH/MSHA approved, self-contained, pressure demand respirator recommended: water may spread fire.
Fire and Explosion Hazards:	Containers not on fire may be cooled with water.

SECTION 5 – REACTIVITY DATA

Material is:	Stable
Hazardous polymerization:	Will not occur.
Conditions to avoid:	Strong acids and direct open flames.
Incompatibility:	Excessive heat. Avoid conditions that could generate an oil mist.
Hazardous decomposition product:	Oxides of Carbon, Sulphur, Nitrogen

SECTION 6 – HEALTH HAZARDS

Acute:	Unknown.
Chronic:	May cause eye or skin irritation.
Signs and symptoms of exposure:	Eye, skin irritation.
Medical conditions generally aggravated by exposure:	Unknown

Carcinogenic status: **OSHA:** N/A **I.A.R.C.** N/A **N.T.P.** N/A

Emergency and first aid procedures:

Inhalation:	Move to fresh air.
Eyes:	Flush with water for 15 minutes, if film or irritation persists, seek medical attention.
Skin:	Wipe off excess and wash with soap and water.
Ingestion:	Do not induce vomiting. Consult physician.

SECTION 7 – SPECIAL PRECAUTIONS AND SPILL/LEAK PROCEDURES

Handling and storage:	Store in a dry, cool environment.
Other precautions:	Keep away from open flames.
Spill or release:	Scoop up and place in metal container. Use inert absorbent to clean residue and place in metal container. U.S. Coast Guard 1-800-424-8802.
Disposal methods:	Dispose of in accordance with all applicable federal, state and local regulations.
Emergency Phone:	Chemtrec 1-800-424-9300

SECTION 8 – EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory protection:	Not required at normal use termperatures.
Ventilation Procedures:	Local exhaust: recommended to maintain oil mist below TLV limit. Mechanical: to maintain below TLV limits. Special: N/A Other: N/A
Protective gloves:	Oil resistant gloves.
Eye protection:	Safety glasses (goggles).
Other protective equipment:	N/A
Work/hygienic practices:	Practice good housekeeping.

N/A = Not Applicable

(May be used to comply with OSHA's Hazard Communications Standard, 29CFR 1910.1200. Standard must be consulted for specific requirements.)

NORTHERN TECHNOLOGIES INTERNATIONAL CORPORATION

6680 North Highway 49 * Lino Lakes MN 55014

Toll Free: 800-328-2433 * Phone: 651-784-1250 * Fax: 651-784-2902

URL: www.ntic.com * American Stock Exchange Symbol: NTI

AMERICAN GRINDING & MACHINE CO.

2000 N. MANGO AVE. CHICAGO, IL 60639
773-889-4343 toll free: 877-988-4343
FAX 773-889-3781

CERTIFICATE OF COMPLIANCE

Customer: Hi-Tech Mfg PHONE: (847) 678-1616

4637 N. 25th Ave. FAX: (847) 678-1716

Schiller Park, IL

60176

RE: PURCHASE ORDER 16845

PRINT NUMBER(S) (if applicable) L143 0802-200030

This is to certify that the services and /or material furnished by American Grinding & Machine Company on this order meets the requirements of listed purchase order and any prints furnished to us for that purchase order.

Signature of American Grinding Representative

7/19/07
Date

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: **METALEX, INC.**

PART NAME: **UNDULATOR GIRDER ASSY**

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

SERIAL #: 10

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

DATE: 10-29-07

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	#1 109.5 #2 109.53 #3 109.49 #4 109.53	Accept/Reject

INSPECTOR: Simon.

QA Supervisor: Huelaza

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

COMMENTS:

From: Simon Sorsher
Date: 1/17/2008 9:04:40 AM
To: Simon Sorsher
Subject: Fw: Re: FW: Argonne Exploded View

-------Original Message-------

From: Emil Trakhtenberg
Date: 1/17/2008 8:52:44 AM
To: Simon Sorsher; Marion M. White
Subject: Re: FW: Argonne Exploded View

Simon,
Design of the crate for the SMS pedestal is approved.
Thank you,
Emil

Hi-Tech Manufacturing, Inc.
CNC Milling & Turning
Prototypes & Special Machinery
General Machining & Heliarc Welding Facilities
ISO 9002 Registered
4637 N. 25th Ave., Schiller Park, IL 60176
Phone (847) 678-1616, Fax (847) 678-1617

Visual Weld Inspection Report.

Per Statement of Work # L143-00093 Section 4.1.4.2, Motion System Assembly ## L1430401-100396 and L1430802-200000, contract # 7A-08189, for all welded parts, the welding practice shall conform to the Structural Welding Code, ANSI/AWS D1.1-D1.1 M:2004.

Part Print L1430802-200030 sheet 1 of 2. **Quantity: 76 pcs**

Fabrication Stage #1

Features: # 1, 4, 2, 3

Acceptable (Y/N) Y **Initials:** S. S. **Date:** 11-16-07

Verification of completeon of weld visual inspection:

Completed by: Sandeep Sood **Date:** 11-17-07

Weld Certificate

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

This certificate is presented to

Argonne National Laboratory

Per PO # 7A-08189, part # ***L1430802-200030*** *quantity of* ***76****pcs*

Procedure: #PQR101
Customer Specification: #AWS D1.1
Weld wire Spec: #AWS A5.28, Type: ER80S-D2, Heat: 83479, Dia: .045
Welder: Tadeusz Sutowski

Have been welded in accordance with the referenced welding specification.

Q.C. Supervisor Mustafa A. Farooqi 11-17-07
Date

Bodycote Taussig Inc.
Metallurgical & Materials Engineers

AWS WELDER AND WELDING OPERATOR QUALIFICATION TEST RECORD

WELDER OR WELDING OPERATOR'S NAME: Tadeusz Sutowski I.D. #39
WELDING PROCESS: GMAW MANUAL _____ SEMIAUTO XXX MACHINE _____
POSITION: 4G - Overhead PROGRESSION: N/A
WPS NO.: AWS Prequalified TYPE OF JOINT TESTED: Single V Groove
BASE METAL SPECIFICATION: ASTM A36, Qualifies All Groups
PIPE DIAMETER: N/A JOINT THICKNESS: 3/8"
QUALIFICATION RANGES: 3/4" Max. Groove/Unlimited Fillet, Flat, Horiz., Overhead

FILLER METAL

SPECIFICATION NO.: AWS A5.18 CLASSIFICATION: ER80S-D2 F NO.: N/A
DIAMETER: .035" FLUX/SHIELDING GAS: AR/O_2 - 92/8 FLOW RATE: 25 cfh
BACKING OR BACK GOUGING METHOD: None

VISUAL INSPECTION RESULTS

APPEARANCE: Satisfactory UNDERCUT: None POROSITY: None

GUIDED BEND TEST RESULTS

TYPE	RESULTS	TYPE	RESULTS
FACE	PASS	ROOT	PASS

FILLET TEST RESULTS

SIZE: N/A FRACTURE TEST: N/A MACROETCH: N/A
LOCATION, NATURE, SIZE OF DISCONTINUITIES NOTED: N/A

TEST CONDUCTED BY: **BODYCOTE TAUSSIG, INC.** LABORATORY NO.: 134477
PER: _____ TEST DATE: March 20, 1997
Lawrence E. Smetana, CWI

AWS QC1 LAWRENCE E. SMETANA 79080061 CWI

WE, THE UNDERSIGNED, CERTIFY THAT THIS RECORD IS CORRECT AND THAT THE WELDS WERE PREPARED AND TESTED IN ACCORDANCE WITH AWS D1.1- 1996

MANUFACTURER OR CONTRACTOR: Hi-Tech Manufacturing
AUTHORIZED BY/DATE: _____

THIS CERTIFICATE OR REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE WRITTEN APPROVAL OF BODYCOTE TAUSSIG, INC.

Metalex Manufacturing
L1430401-100400 Girder Support
Hi-Tech Purchase Order No. 16185

Visual Weld Inspection Report

Metalex Job: 2007-7558 Serial Number: 7A-08198- (01)

Welding and Visual Welding Inspection Requirements:

Per SOW L143-00093 Section 4.1.4.2: For all welded parts, the welding practice shall conform to the Structural Welding Code, ANSI/AWS D1.1-D1.1M:2004..

Per SOW L143-00093 Section 4.1.4.2.2: All structural welds shall be visually inspected as defined in section 6.9 of the Structural Welding Code. The contractor shall certify that the welds were inspected and were acceptable.

Part Print L1430401-100400 sheet 1 of 3.

Fabrication Stage#1

Features: W1 and W2

Acceptable (Y/N) YES Initial: B.H. MTX QC 16 Date: 6/5/07

Fabrication Stage#2

Features: W3, W4 and W5

Acceptable (Y/N) YES Initial: B.H. MTX QC 16 Date: 6/8/07

B.H. 6/18/07

Fabrication Stage#3

Features: W6, W7, W8, W9, W10, W11 and W12

Acceptable (Y/N) YES Initial: B.H. MTX QC 16 Date: 6/9/07

Verification of completion of weld visual inspection:

Completed By: MTX QC 16 Date: 6/9/07

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Metalex Manufacturing
L1430401-100400 Girder Support
Hi-Tech Purchase Order No. 16185

Visual Weld Inspection Report

Metalex Job: 2007-7558 Serial Number: 7A-08198- (02)

Welding and Visual Welding Inspection Requirements:

Per SOW L143-00093 Section 4.1.4.2: For all welded parts, the welding practice shall conform to the Structural Welding Code, ANSI/AWS D1.1-D1.1M:2004..

Per SOW L143-00093 Section 4.1.4.2.2: All structural welds shall be visually inspected as defined in section 6.9 of the Structural Welding Code. The contractor shall certify that the welds were inspected and were acceptable.

Part Print L1430401-100400 sheet 1 of 3.

Fabrication Stage#1

Features: W1 and W2

Acceptable (Y/N) YES Initial: B.H. MTX QC 16 Date: 6/5/07.

Fabrication Stage#2

Features: W3, W4 and W5

Acceptable (Y/N) YES Initial: B.H. MTX QC 16 Date: 6/7/07.

Fabrication Stage#3 6/7/07

Features: W6, W7, W8, W9, W10, W11 and W12

Acceptable (Y/N) YES Initial: B.H. MTX QC 16 Date: 6/8/07.

Verification of completion of weld visual inspection:

Completed By: [signature] MTX QC 16 Date: 6/8/07

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Metalex Manufacturing
L1430401-100400 Girder Support
Hi-Tech Purchase Order No. 16185

Visual Weld Inspection Report

Metalex Job: 2007-7558 Serial Number: 7A-08198- (03)

Welding and Visual Welding Inspection Requirements:

Per SOW L143-00093 Section 4.1.4.2: For all welded parts, the welding practice shall conform to the Structural Welding Code, ANSI/AWS D1.1-D1.1M:2004..

Per SOW L143-00093 Section 4.1.4.2.2: All structural welds shall be visually inspected as defined in section 6.9 of the Structural Welding Code. The contractor shall certify that the welds were inspected and were acceptable.

Part Print L1430401-100400 sheet 1 of 3.

Fabrication Stage#1

Features: W1 and W2

Acceptable (Y/N) YES Initial: B.H. MTX QC 16 Date: 6/20/07

Fabrication Stage#2

Features: W3, W4 and W5

Acceptable (Y/N) YES Initial: B.H. MTX QC 16 Date: 6/21/07

Fabrication Stage#3

Features: W6, W7, W8, W9, W10, W11 and W12

Acceptable (Y/N) YES Initial: B.H. MTX QC 16 Date: 6/22/07

Verification of completion of weld visual inspection:

Completed By: [signature] MTX QC 16 Date: 6/22/07

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Metalex Manufacturing
L1430401-100400 Girder Support
Hi-Tech Purchase Order No. 16185

Visual Weld Inspection Report

Metalex Job: 2007-7558 Serial Number: 7A-08198- (04)

Welding and Visual Welding Inspection Requirements:

Per SOW L143-00093 Section 4.1.4.2: For all welded parts, the welding practice shall conform to the Structural Welding Code, ANSI/AWS D1.1-D1.1M:2004..

Per SOW L143-00093 Section 4.1.4.2.2: All structural welds shall be visually inspected as defined in section 6.9 of the Structural Welding Code. The contractor shall certify that the welds were inspected and were acceptable.

Part Print L1430401-100400 sheet 1 of 3.

Fabrication Stage#1

Features: W1 and W2

Acceptable (Y/N) YES Initial: B.H. MTX QC 16 Date: 6/22/07

Fabrication Stage#2

Features: W3, W4 and W5

Acceptable (Y/N) YES Initial: B.H. MTX QC 16 Date: 6/23/07

Fabrication Stage#3

Features: W6, W7, W8, W9, W10, W11 and W12

Acceptable (Y/N) YES Initial: B.H. MTX QC 16 Date: 6/25/07

Verification of completion of weld visual inspection:

Completed By: MTX QC 16 Date: 6/25/07

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Phone (513) 489-0507 • Fax (513) 489-1020

Metalex Manufacturing
L1430401-100400 Girder Support
Hi-Tech Purchase Order No. 16185

Visual Weld Inspection Report

Metalex Job: 2007-7558 Serial Number: 7A-08198- (05)

Welding and Visual Welding Inspection Requirements:

Per SOW L143-00093 Section 4.1.4.2: For all welded parts, the welding practice shall conform to the Structural Welding Code, ANSI/AWS D1.1-D1.1M:2004..

Per SOW L143-00093 Section 4.1.4.2.2: All structural welds shall be visually inspected as defined in section 6.9 of the Structural Welding Code. The contractor shall certify that the welds were inspected and were acceptable.

Part Print L1430401-100400 sheet 1 of 3.

Fabrication Stage#1

Features: W1 and W2

Acceptable (Y/N) YES Initial: B.H. MTX QC 16 Date: 6/27/07

Fabrication Stage#2

Features: W3, W4 and W5

Acceptable (Y/N) YES Initial: B.H. MTX QC 16 Date: 6/28/07

Fabrication Stage#3

Features: W6, W7, W8, W9, W10, W11 and W12

Acceptable (Y/N) YES Initial: B.H. MTX QC 16 Date: 7/2/07

Verification of completion of weld visual inspection:

Completed By: [signature] MTX QC 16 Date: 7/2/07

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Metalex Manufacturing
L1430401-100400 Girder Support
Hi-Tech Purchase Order No. 16185

Visual Weld Inspection Report

Metalex Job: 2007-7558 Serial Number: 7A-08198- (06)

Welding and Visual Welding Inspection Requirements:

Per SOW L143-00093 Section 4.1.4.2: For all welded parts, the welding practice shall conform to the Structural Welding Code, ANSI/AWS D1.1-D1.1M:2004..

Per SOW L143-00093 Section 4.1.4.2.2: All structural welds shall be visually inspected as defined in section 6.9 of the Structural Welding Code. The contractor shall certify that the welds were inspected and were acceptable.

Part Print L1430401-100400 sheet 1 of 3.

Fabrication Stage#1

Features: W1 and W2

Acceptable (Y/N) YES Initial: B.H. MTX QC 16 Date: 6/27/07.

Fabrication Stage#2

Features: W3, W4 and W5

Acceptable (Y/N) YES Initial: B.H. MTX QC 16 Date: 6/28/07.

Fabrication Stage#3

Features: W6, W7, W8, W9, W10, W11 and W12

Acceptable (Y/N) YES Initial: B.H. MTX QC 16 Date: 7/2/07.

Verification of completion of weld visual inspection:

Completed By: MTX QC 16 Date: 7/2/07

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Metalex Manufacturing
L1430401-100400 Girder Support
Hi-Tech Purchase Order No. 16185

Visual Weld Inspection Report

Metalex Job: 2007-7558 Serial Number: 7A-08198- (07)

Welding and Visual Welding Inspection Requirements:

Per SOW L143-00093 Section 4.1.4.2: For all welded parts, the welding practice shall conform to the Structural Welding Code, ANSI/AWS D1.1-D1.1M:2004..

Per SOW L143-00093 Section 4.1.4.2.2: All structural welds shall be visually inspected as defined in section 6.9 of the Structural Welding Code. The contractor shall certify that the welds were inspected and were acceptable.

Part Print L1430401-100400 sheet 1 of 3.

Fabrication Stage#1

Features: W1 and W2

Acceptable (Y/N) YES Initial: B.H. Date: 6/27/07.

Fabrication Stage#2

Features: W3, W4 and W5

Acceptable (Y/N) YES Initial: B.H. Date: 7/2/07.

Fabrication Stage#3

Features: W6, W7, W8, W9, W10, W11 and W12

Acceptable (Y/N) YES Initial: B.H. Date: 7/3/07.

Verification of completion of weld visual inspection:

Completed By: MTX QC 16 Date: 7/3/07

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Metalex Manufacturing
L1430401-100400 Girder Support
Hi-Tech Purchase Order No. 16185

Visual Weld Inspection Report

Metalex Job: 2007-7558 Serial Number: 7A-08198- (08)

Welding and Visual Welding Inspection Requirements:

Per SOW L143-00093 Section 4.1.4.2: For all welded parts, the welding practice shall conform to the Structural Welding Code, ANSI/AWS D1.1-D1.1M:2004..

Per SOW L143-00093 Section 4.1.4.2.2: All structural welds shall be visually inspected as defined in section 6.9 of the Structural Welding Code. The contractor shall certify that the welds were inspected and were acceptable.

Part Print L1430401-100400 sheet 1 of 3.

Fabrication Stage#1

Features: W1 and W2

Acceptable (Y/N) YES Initial: B.H. Date: 6/28/07.

Fabrication Stage#2

Features: W3, W4 and W5

Acceptable (Y/N) YES Initial: B.H. Date: 7/2/07.

Fabrication Stage#3

Features: W6, W7, W8, W9, W10, W11 and W12

Acceptable (Y/N) YES Initial: B.H. Date: 7/3/07.

Verification of completion of weld visual inspection:

Completed By: MTX QC 16 Date: 7/3/07

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Metalex Manufacturing
L1430401-100400 Girder Support
Hi-Tech Purchase Order No. 16185

Visual Weld Inspection Report

Metalex Job: 2007-7558 Serial Number: 7A-08198- (09)

Welding and Visual Welding Inspection Requirements:

Per SOW L143-00093 Section 4.1.4.2: For all welded parts, the welding practice shall conform to the Structural Welding Code, ANSI/AWS D1.1-D1.1M:2004..

Per SOW L143-00093 Section 4.1.4.2.2: All structural welds shall be visually inspected as defined in section 6.9 of the Structural Welding Code. The contractor shall certify that the welds were inspected and were acceptable.

Part Print L1430401-100400 sheet 1 of 3.

Fabrication Stage#1

Features: W1 and W2

Acceptable (Y/N) CONFORMS Initial: MTX QC 16 B.H. Date: 7/19/07.

Fabrication Stage#2

Features: W3, W4 and W5

Acceptable (Y/N) CONFORMS Initial: MTX QC 16 B.H. Date: 7/20/07.

Fabrication Stage#3

Features: W6, W7, W8, W9, W10, W11 and W12

Acceptable (Y/N) CONFORMS Initial: MTX QC 16 B.H. Date: 7/23/07.

Verification of completion of weld visual inspection:

Completed By: [signature] MTX QC 16 Date: 7/23/07

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Metalex
Manufacturing
Inc.

Metalex
Customized Machinery and Parts
CERTIFIED ISO 9001 QUALITY MANAGEMENT

Metalex Manufacturing
L1430401-100400 Girder Support
Hi-Tech Purchase Order No. 16185

Visual Weld Inspection Report

Metalex Job: 2007-7558 Serial Number: 7A-08198- (10)

Welding and Visual Welding Inspection Requirements:

Per SOW L143-00093 Section 4.1.4.2: For all welded parts, the welding practice shall conform to the Structural Welding Code, ANSI/AWS D1.1-D1.1M:2004..

Per SOW L143-00093 Section 4.1.4.2.2: All structural welds shall be visually inspected as defined in section 6.9 of the Structural Welding Code. The contractor shall certify that the welds were inspected and were acceptable.

Part Print L1430401-100400 sheet 1 of 3.

Fabrication Stage#1

Features: W1 and W2

Acceptable (Y/N) CONFORMS Initial: MTX QC 16 BH. Date: 7/19/07.

Fabrication Stage#2

Features: W3, W4 and W5

Acceptable (Y/N) CONFORMS Initial: MTX QC 16 BH. Date: 7/20/07.

Fabrication Stage#3

Features: W6, W7, W8, W9, W10, W11 and W12

Acceptable (Y/N) CONFORMS Initial: MTX QC 16 BH. Date: 7/23/07.

Verification of completion of weld visual inspection:

Completed By: MTX QC 16 Date: 7/23/07

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CERTIFIED ISO 9001 QUALITY MANAGEMENT

Metalex Manufacturing
L1430401-100400 Girder Support
Hi-Tech Purchase Order No. 16185

Visual Weld Inspection Report

Metalex Job: 2007-7558 Serial Number: 7A-08198- (11)

Welding and Visual Welding Inspection Requirements:

Per SOW L143-00093 Section 4.1.4.2: For all welded parts, the welding practice shall conform to the Structural Welding Code, ANSI/AWS D1.1-D1.1M:2004..

Per SOW L143-00093 Section 4.1.4.2.2: All structural welds shall be visually inspected as defined in section 6.9 of the Structural Welding Code. The contractor shall certify that the welds were inspected and were acceptable.

Part Print L1430401-100400 sheet 1 of 3.

Fabrication Stage#1

Features: W1 and W2

Acceptable (Y/N) Conforms Initial: MTX QC 16 B.H. Date: 7/19/07.

Fabrication Stage#2

Features: W3, W4 and W5

Acceptable (Y/N) Conforms Initial: MTX QC 16 B.H. Date: 7/20/07.

Fabrication Stage#3

Features: W6, W7, W8, W9, W10, W11 and W12

Acceptable (Y/N) Conforms Initial: MTX QC 16 B.H. Date: 7/23/07.

Verification of completion of weld visual inspection:

Completed By: MTX QC 16 Date: 7/23/07

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