

# ENERGY INDUSTRIES OF OHIO

Purchase Order Number:

S005242-F

Part Number:

SE141-116

Part Name:

MCWF C-2

MODULAR COIL WINDING FORM

MTM Work Order Number:

65707/2.0



*Major*

Tool & Machine, Inc.

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 Quality Assurance Documents For  
 Workorder: 65707/2.0

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 User ID: GRIFFIT#

**Customer: 8909 - ENERGY INDUSTRIES OF OHIO**  
**Customer P.O.: S005242-F**  
**Customer Part ID: SE141-116 - MCWF C-2**

Item#	Document Description / Material Description / File Name / Heat Lot
1	CERTIFICATE OF CONFORMANCE
2	COMPLETED SHOP TRAVELERS: - 65707-2 completed shop travelers.xls
3	NC18022 DISPOSITIONED: - NC-18022.pdf
4	NC18715 DISPOSITIONED: - NC18715_C2LinearIndications_121305.pdf
5	NC18812 DISPOSITIONED: - S52421 2-07-06 NCR 18812.pdf
6	NC18853 DISPOSITIONED: - NC18853_MetrologyDataGaps_121305.pdf
7	NC18864 DISPOSITIONED: - NC-18864 approval.pdf
8	RFD 14-011: - S52421 12-21-05 RFD 14-011.pdf

**DS141-036 - STUD**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
9	4	10	30	Material Certification: TEST REPORTS / DS141-036 - STUD - mc108260.tif / 8969595

**DS141-060 - NUT**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
10	4	10	50	Material Certification: / DS141-060 - NUT - mc108258.tif / 8977349

**SE141-078 - POLOIDAL BREAK SHIM ASSEMBLY**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
11	2	30	20	Certificate of Conformance: POWDER CERT / LOCTITE 411 - LOCKING COMPOUND - mc106141.tif / CERTIFIED

**SE141-078-03 - INSULATING SLEEVE**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
12	3	10	10	Certificate of Conformance: / G11CR_1 - ROUND, BAR, 1.75 DIA - mc108545.tif / CERTIFIED

**SE141-103-1 - MOD COIL WINDING FORM ASSEMBLY TYPE-C**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
13	0	10	10	Material Certification: TRACE ID: 113686 / ER316MNNF_093_GTAW - WELD WIRE,GTAW .093 DIA - MC106164.PDF / W020132 / WO20132
14	0	10	10	Material Certification: TRACE ID: 116254 / ER316MNNF_093_GTAW - WELD WIRE,GTAW .093 DIA - MC106579.TIF / W020132 / WO20132

**SE141-103-4 - INSULATING SHEET**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
15	7	10	10	Certificate of Conformance: G11CR / G11CR_3 - SHEET, FLAT - mc107081.tif / CERTIFIED

**SE141-116 - MODULAR COIL WINDING FORM TYPE-C Qty: 1**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
16	1	20		Non-Conformance: 18022 Customer document: CUSTOMER DISPOSITIONED NCR - car04980.pdf
17	1	40		Inspection Data Checklist: 1 steps
18	1	100		Nondestructive Liquid Penetrant Test Certification #14648
19	1	110		Certification: RT INSPECTION (FILM MAILED) - MC114459.TIF

Customer: 8909 - ENERGY INDUSTRIES OF OHIO  
 Customer P.O.: S005242-F  
 Customer Part ID: SE141-116 - MCWF C-2

20	1	121	Inspection Data Checklist: 4 steps
21	1	134	Inspection Data Checklist: 132 steps
22	1	140	Inspection Data Checklist: 2 steps
23	16	20	Nondestructive Liquid Penetrant Test Certification #14900
24	14	10	Inspection Data Checklist: 3 steps
25	14	10	Photographs: PERMEABILITY MAP - MC114460.JPG
26	14	10	Photographs: PERMEABILITY MAP - MC114461.JPG
27	14	10	Photographs: PERMEABILITY MAP - MC114462.JPG
28	14	10	Photographs: PERMEABILITY MAP - MC114463.JPG

**SE141-137 - BEARING PLATE**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
29	12	10	10	Material Certification: / 316_17 - BAR, FLAT, 1"X3", 316 SST - mc113978.tif / M11443
30	12	40		Inspection Data Checklist: 1 steps

**SE141-138 - BEARING PLATE**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
31	13	10	10	Material Certification: / 316_17 - BAR, FLAT, 1"X3", 316 SST - Same as Item #29 / M11443
32	13	40		Inspection Data Checklist: 1 steps



TO: ENERGY INDUSTRIES OF OHIO

DATE: 12/07/2005

ATTENTION: Receiving Department

**Seller certifies that:**

Part Number: SE141-116	Purchase Order: S005242-F
Part Name: MCWF C-2	Workorder: 65707/2.0
Part Serial Number: 65707/ Lot 2.0	Quantity: 1

1. These materials and/or parts were produced in conformance with all contractually applicable Government and/or Customer specifications referred in, or furnished with, the above Purchase Order.
2. The materials and/or parts furnished under the above Purchase Order were produced:
  - From materials furnished by Customer for the production of such parts.
  - From materials for which the seller has available for examination chemical and/or physical test reports or other evidence of conformance to applicable specifications.
3. All processes required in the production of these part and/or materials are listed below and were performed by a facility or personnel approved or certified by the Seller and the customer when such approval or certification is required by contract.

**Certifications are on file at this plant.**

**Other Requirements:**

ALL REQUIRED CORRECTIONS  
COMPLETED 12-12-05. *B. S. Kelly*  
S1501A  
37 510-2058



Signature: *[Handwritten Signature]*

Title: *Quality Man.*

Date: *12/12/05*



*Major*

Tool & Machine, Inc.

Activity	Visual Mfg Ref.	Op Status	Close Date	Emp ID
Final inspection---Prepare part for source inspection.----Review and complete QA data package per QAP and the requirements of the product specification NCSX-CSPEC-141-03-05 September 23- 2004.--Contact CFT to review data package prior to notifying source inspection.	65707/2.0 -Sub:0 Op#:20	Closed	12/13/2005	840-G.Masood
Package and Ship---Build a box/crate suitable for protecting the part from the environment.---Weigh the finished part and metal stamp the value in pounds on the casting in the area marked on the customer drawing.----Part must be protected and wrapped in plastic prior to inserting into the crate. Refer to PS583.---Part is to be shipped to PPPL in Princeton- NJ per QAP shipping address.----Crate must be marked/stenciled per the MTM drawing.	65707/2.0 -Sub:0 Op#:40	Closed	12/14/2005	169-S.Williams
Receive customer supplied material. --Verify the receipt of quality documentation for the casting.--Check off IDC noting receipt of material and receipt of quality documentation.----Part Number: SE141-116 Rev: 7--Part Description: PRODUCTION WINDING FORM TYPE-C	65707/2.0 -Sub:1 Op#:10	Closed	12/12/2005	840-G.Masood
Setup the machining fixture on the rotary table. Load casting into the machining fixture with the initial pickup pads facing up. Indicate the pickup pads and orient the casting for machining. ---Rough machine the top flange face and the outer periphery leaving .25- +.060/- .000-. The outside surfaces of the flange will serve as qualifiers for the next operation. Record the qualifier dimensions on the IDC.---Install the lifting holes per the MTM drawing.----Rough machine the top side of the - T- section leaving .25- +.060/- .000-.----Remove the casting from the machining fixture and flip over with the bottom flange facing up. Re-load into the machining fixture. Pickup the qualifiers and orient the casting for machining.----Rough machine the bottom flange face leaving .25- +.060/- .000-. ----Rough machine the poloidal break leaving a minimum of .25- of stock per side.----Install temporary shim filling in the poloidal break and hold together with temporary c-clamps. Tack weld in place.----Rough machine the bottom side of the - T- section leaving .25- +.060/- .000-.----Finish machine both sides of the entire casting with the	65707/2.0 -Sub:1 Op#:20	Closed	10/3/2005	713-M.Smith
Perform an in-process inspection of the magnetic permeability of the material using the Severn Permeability Indicator Gage. Inspect a minimum of (8) points on the rough machined flange face and an additional (8) points on the rough machined -T- section. Record the upper and lower range values on the IDC's. Values that exceed 1.02 must be documented with a non-conformance record and dispositioned prior to continuing.	65707/2.0 -Sub:1 Op#:40	Closed	12/12/2005	840-G.Masood



*Major*

**Tool & Machine, Inc.**

Activity	Visual Mfg Ref.	Op Status	Close Date	Emp ID
<p>Finish machine the -T- section and wings. Run a probe pass to inspect the surface for stock.----Remove the casting from the machining fixture and flip over with the bottom flange facing up. Re-load the casting into the machining fixture. Pickup the qualifiers and orient the casting for machining.----Finish machine the -T- section and wings. Run a probe pass to inspect the surface for stock.---- Obtain sketches SE141-116 FLATNESS D and SE141-116 FLATNESS E from the team leader. Use this sketch as a map and record indicator readings at each tooling ball location and near each point. Record information on the IDC prior to moving the part to the next workcenter.</p>	65707/2.0 -Sub:1 Op#:70	Closed	12/14/2005	591-C.Pritchett
<p>Setup the machining fixture with the casting installed. Machine the inspection fiducials per the MTM drawing. Finish machine the poloidal break to drawing requirements. Remove the casting from the machining fixture.----Install temporary shims in the poloidal break. Use the temporary shim 1.75 thick with additional shims as necessary and C-clamp before moving the part.</p>	65707/2.0 -Sub:1 Op#:80	Closed	12/14/2005	591-C.Pritchett
<p>Protect part from metal contamination due to contact with iron- specifically when rigging part for movement.----ALL GRINDING WHEELS AND DISKS MUST BE VIRGIN MATERIAL NOT PREVIOUSLY USED ON ANY MATERIAL TO AVOID MATERIAL CONTAMINATION.----Finish hand tapping of 3/8-16 holes using tap guide (if required)--Check spherical radius. Deburr as needed. See sheet 4-zn H-7--Start blending T-section--Hand grind 1/16 chamfer on all split line edges of poloidal break and on all thru holes at poloidal break.--Machinist to hand drill 1 cooling hole thru. See sheet 9 zone F-3. --Machinist to open up two 5/8 dia. holes to 1- dia. (see Carl Pritchett)--Hand grind VPI groove where required.-- Deburr wing areas to remove any roughness from machining (scallops do not need to be removed).--Check all accessible T clearances using MTMFX-3367 checking fixture--Hand grind 1/16 to 3/32 chamfer on outer edge of T in all accessible areas.--Grind plugs flush on back side of datum -E- flange.--Finish all other required deburring prior to flipping over part.--Move part to plant 2. Flip part and set up on datum -D.--Check spherical radius. Deburr as needed. See sheet</p>	65707/2.0 -Sub:1 Op#:85	Closed	11/23/2005	445-J.Purkhiser



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Tool & Machine, Inc.

Activity	Visual Mfg Ref.	Op Status	Close Date	Emp ID
Protect part from metal contamination due to contact with iron- specifically when rigging part for movement.--Move part into wash booth. --Thoroughly clean and dry all surfaces and holes per section 9 of PS583. --Parts to be washed using heated- de-mineralized water- and if necessary- a mild non-chlorinated cleaning solution (e.g. Simple Green®- or authorized equivalent)- using MTM's high pressure washer. The spray pressure at the nozzle will be approximately 1-000 to 1-500 psi and the cleaning solution temperature will be approximately 150°F.	65707/2.0 -Sub:1 Op#:90	Closed	11/23/2005	219-T.Laird
PT 100% of the part as-cast surfaces as well as finished machine surfaces. See PS582 for processing instructions. During the inspection also perform a visual inspection of the casting surface per ASTM A802/A802M and accept per the same. Include reference to ASTM A802 on the certification.----Specification: ASTM A903/A903M----Method: ASTM E165----Acceptance Criteria: ASTM A903/A903M Level II for as cast surfaces----Acceptance Criteria: ASTM A903/A903M Level I for machined surfaces including the entire - T- section (high stress areas)----Certification: MTM certification to include the information per Supplementary Requirements S1 of ASTM A903/A903M--MTM NDT Cert: LPI CERTIFICATION	65707/2.0 -Sub:1 Op#:100 65707/2.0 -Sub:1 Op#:101	Closed Closed	12/12/2005 12/12/2005	840-G.Masood 840-G.Masood
The -T- areas defined as -High Stress- are to be RT 100%. See PS581 for process instructions.----Hand sketch a layout of all film locations on sheet (1) of the customer drawing SE141-116 rev. 2 to maintain shot and film traceability.----All film is to be doubled up in order to supply the customer with a complete set of film.----Specifications: ASTM A703/A703M Supplementary Requirement S5----Procedure/Method: ASTM E94 and ASTM E142 (use of a wire penetrometer may be necessary instead of the hole type to ensure objective 2% of thickness resolution/sensitivity)----Acceptance Criteria: No defect larger than .080- major dimension is allowed.----Scan RT certification- and hand sketched map and link in QAP to this operation.----Certification: RADIOGRAPHIC INSPECTION--Map(s): CUSTOMER DRAWING Rev: --Part Number: SE141-116 Rev: 7 --Part Description: WINDING FORM TYPE-C--Material Type: 316 SST--Material Thickness: VARIES--Serial Number: C-2	65707/2.0 -Sub:1 Op#:110 65707/2.0 -Sub:1 Op#:111	Closed Closed	12/13/2005 12/12/2005	933-D.Leapley 840-G.Masood
SOURCE FOR RT				



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Activity	Visual Mfg Ref.	Op Status	Close Date	Emp ID
Protect part from metal contamination due to contact with iron- specifically when rigging part for movement.--Load part on CMM table and move into quality lab. See quality personnel for setup information.	65707/2.0 -Sub:1 Op#:115	Closed	11/28/2005	219-T.Laird
Inspect poloidal break features and complete IDC's.	65707/2.0 -Sub:1 Op#:121	Closed	11/22/2005	212-J.Lehr
Install the poloidal break shim assembly and accompanying hardware and insulation per the assembly drawing.-- Torque hardware to 500 ft-lbs.	65707/2.0 -Sub:1 Op#:130	Closed	11/25/2005	219-T.Laird
Inspect the part 100% per the drawing requirements. Refer to PS593.--Surface profile dimensions are to be taken on a 2- x 2- grid for machined surfaces and 4- x 4- grid for as cast surfaces.--Inspect fiducials that are located around the periphery of both flanges. --Record dimensions as required per the IDC's.--If surface finish is rejected- the nonconforming areas must be mapped on a drawing for submittal to the customer.--Forward and IGES file of the 2 x 2 and 4 x 4 grid points as well as points representing the locations of the inspection fiducials to Kevin Bowling for reporting to the customer.	65707/2.0 -Sub:1 Op#:134	Closed	12/12/2005	840-G.Masood
<b>SOURCE FOR DIMENSIONAL</b>	65707/2.0 -Sub:1 Op#:138	Closed	12/12/2005	840-G.Masood
Perform electrical resistance test.----Wire all of the bolts together. Set one jumper directly on casting flange and one on the bolts. Record resistance between the bolt and casting combination and the mid-plane shim in kohms on IDC.----Set a jumper between the poloidal joint midplane and the casting. Set one jumper on the poloidal joint midplane and one on each of the bolts. Record range of resistance in kohms on IDC.	65707/2.0 -Sub:1 Op#:140	Closed	12/12/2005	840-G.Masood
<b>SOURCE FOR ELECTRICAL TEST</b>	65707/2.0 -Sub:1 Op#:150	Closed	12/12/2005	840-G.Masood
<b>WELD REPAIR TOOL GOUGE.--PERFORM LOCAL DYE CHECK. FORMAL PT WILL BE DONE ON THE FULL PART LATER.--</b>	65707/2.0 -Sub:8 Op#:10	Closed	9/24/2005	352-J.Spencer
See sheet 5- Zone E8; 1.375-6 UNC and 1.88 diameter thru holes.--Indicate in the 1.375-6 tapped hole and bore out to 1.500 +.000/--.001-. Bore hole to a depth of 1.850- +/- .005 from datum -E- flange. Machine a .060- chamfer to be used as a wled prep. ----Indicate in the 1.88 diameter hole and bore to 1.900- +.000/--.001-. Machine a .060- chamfer to be used as a wled prep.	65707/2.0 -Sub:10 Op#:10	Closed	11/14/2005	591-C.Pritchett





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Activity	Visual Mfg Ref.	Op Status	Close Date	Emp ID
Freeze each plug and insert into hole. --The 1.5 diameter plug should bottom out in bored hole leaving approx. .050- above the flange.--Install the 1.9- diameter plug flush against the bottom of the flange. There should be at least .050- beyond the top surface of the flange in order to have machining stock to ensure a full clean up.--Grind prep on each plug to achieve an 1/8- - 3/16- fillet. Weld complete.	65707/2.0 -Sub:10 Op#:20	Closed	11/14/2005	352-J.Spencer
Skim datum -E- flange to blend reworked areas.---Machine 1.375-6 UNC tapped hole per location on drawing. Drill hole to achieve an 1.25- tap depth. NOTE: Hole will no be thru as indicated on the drawing.----Bore 1.88 thru as indicated on drawing.	65707/2.0 -Sub:10 Op#:30	Closed	11/14/2005	591-C.Pritchett
SAW 2 PLUGS FROM CUSTOMER SUPPLIED MATERIAL (300 SERIES STAINLESS).--SEE ROB BACHEK OR DAN EDWARDS FOR SPECIFIC SIZES AND METHOD.--PLUGS SHOULD BE APPROXIMATELY 2.2- SQUARE BY 4- LONG.	65707/2.0 -Sub:11 Op#:10	Closed	11/8/2005	227-D.Bockover
Machine plugs to the following:--1st piece:--Turn/Mill O.D. to 1.501 +.001/--.000. Length of plug to be 1.910- +/- .010. ----2nd piece:--Turn/Mill O.D. to 1.901 +.001/--.000. Length of plug to be 1.600- +/- .010.	65707/2.0 -Sub:11 Op#:20	Closed	11/13/2005	565-S.Woods
RECEIVE CUSTOMER SUPPLIED CASTING	65707/2.0 -Sub:2 Op#:10	Closed	10/3/2005	437-J.Hiatt
DO NOT MACHINE...UNRELEASED DUE TO PART GEOMETRY CHANGES.--MACHINE THE SHIM COMPLETE PER THE DRAWING AND CNC PROGRAMS.	65707/2.0 -Sub:2 Op#:20	Closed	10/6/2005	506-R.Liston
ASSEMBLE (5) OF THE INSULATING SLEEVES INTO THE SHIM AND BOND USING LOCTITE 411. DO NOT INSTALL THE BUSHINGS IN THE OUTSIDE HOLES. THEY WILL BE INSTALLED LATER.	65707/2.0 -Sub:2 Op#:30	Closed	11/25/2005	219-T.Laird
SAW OFF 16- AND MOVE TO NEXT WORK CENTER.	65707/2.0 -Sub:3 Op#:10	Closed	6/1/2005	227-D.Bockover
MACHINE PER THE DRAWING FOR A SLIP FIT WITH MATING DETAIL. OBTAIN FINISHED MACHINED CASTING SHIM BEFORE FINAL SIZING THE O.D. OF THE SLEEVE.	65707/2.0 -Sub:3 Op#:20	Closed	11/22/2005	821-J.Leggins
RECEIVE MATERIAL--NOTIFY CFT AND FORWARD MATERIAL STORES.	65707/2.0 -Sub:4 Op#:10	Closed	5/19/2005	825-B.Jarrett
SAW OFF 30- LENGTH AND MOVE TO NEXT WORK CENTER.	65707/2.0 -Sub:5 Op#:10	Closed	6/1/2005	227-D.Bockover
MACHINE PER THE DRAWING FOR A SLIP FIT WITH MATING DETAIL. CHECK FINISHED MACHINED CASTING BEFORE FINAL SIZING THE O.D. OF THE SLEEVE.	65707/2.0 -Sub:5 Op#:20	Closed	11/23/2005	565-S.Woods
SAW 13- LENGTH AND MOVE TO NEXT WORK CENTER.	65707/2.0 -Sub:6 Op#:10	Closed	6/1/2005	227-D.Bockover



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Activity	Visual Mfg Ref.	Op Status	Close Date	Emp ID
UNRELEASED DO NOT PERFORM THIS OPERATION DUE TO PRODUCT CHANGES THIS PART HAS BEEN ELIMINATED FROM THE ASSEMBLY. RECEIVE MATERIAL	65707/2.0 -Sub:6 Op#:20 65707/2.0 -Sub:7 Op#:10	Closed Closed	4/5/2005	131-W.Allen
MACHINE THE PROFILE LEAVING STOCK PER PROGRAM.---ALSO MACHINE OUT FLAT STOCK PIECES FOR SHIMS BEHIND THE OUTSIDE OF POLOIDAL BREAK FLANGE PER CNC PROGRAM.	65707/2.0 -Sub:7 Op#:20	Closed	9/14/2005	129-E.Taina
PERFORM A MAGNETIC PERMEABILITY CHECK ON THE RAW MATERIAL USING A SEVERN PERMEABILITY INDICATOR GAGE. PERMEABILITY SHOULD BE LESS THAN 1.02µ.	65707/2.0 -Sub:12 Op#:10	Closed	11/21/2005	503-B.Houk
SAW TO A LENGTH OF 6.75.	65707/2.0 -Sub:12 Op#:20	Closed	11/21/2005	261-T.Dunn
MACHINE COMPLETE PER PRINT.	65707/2.0 -Sub:12 Op#:30	Closed	11/22/2005	296-D.Stallsworth
PER DRAWING NOTE 5:--PERFORM A MAGNETIC PERMEABILITY CHECK USING A SEVERN PERMEABILITY INDICATOR GAGE. PERMEABILITY SHOULD BE LESS THAN 1.02µ.--Part Number: SE141-137--Part Description: BEARING PLATE DETAIL	65707/2.0 -Sub:12 Op#:40	Closed	11/23/2005	503-B.Houk
PERFORM A MAGNETIC PERMEABILITY CHECK ON THE RAW MATERIAL USING A SEVERN PERMEABILITY INDICATOR GAGE. PERMEABILITY SHOULD BE LESS THAN 1.02µ.	65707/2.0 -Sub:13 Op#:10	Closed	11/21/2005	503-B.Houk
SAW TO A LENGTH OF 10.5.	65707/2.0 -Sub:13 Op#:20	Closed	11/21/2005	261-T.Dunn
MACHINE COMPLETE PER PRINT	65707/2.0 -Sub:13 Op#:30	Closed	11/23/2005	502-D.Larsen
PER DRAWING NOTE 5:--PERFORM A MAGNETIC PERMEABILITY CHECK USING A SEVERN PERMEABILITY INDICATOR GAGE. PERMEABILITY SHOULD BE LESS THAN 1.02µ.--Part Number: SE141-138--Part Description: BEARING PLATE DETAIL	65707/2.0 -Sub:13 Op#:40	Closed	12/14/2005	840-G.Masood



*Major*

Tool & Machine, Inc.

Activity	Visual Mfg Ref.	Op Status	Close Date	Emp ID
<p>This operation is to be performed concurrent to the CMM inspection.--Inspect the magnetic permeability of the entire casting using the Severn Permeability Indicator Gage. Refer to PS584. All as cast surfaces must be inspected on a 6- x 6- grid. Record range of actual values on IDC. All machined surfaces must be inspected on a 2- x 2- grid. Record range of actual values on IDC. Permeability measurements shall be per supplementary requirements S24 of ASTM A703/A703M and S1 of ASTM A800/800M except the results will be expressed as relative permeability (<math>\mu</math>) rather than ferrite content (FN). Values that exceed 1.02 must be documented with a non-conformance record and dispositioned prior to continuing.-- Take digital photos of the grid layout on part for customer data package. Link photos to QAP and also forward photos to engineering.--Part Number: SE141-116 Rev: 7--Part Description: MODULAR COIL WINDING FORM --Photographs: PERMEABILITY MAP--Photographs: PERMEABILITY MAP MAP--Photographs: PERMEABILITY MAP--Photographs: PERMEABILITY MAP SOURCE FOR MAG PERMEABILITY</p>	<p>65707/2.0 -Sub:14 Op#:10 65707/2.0 -Sub:14 Op#:20</p>	<p>Closed Closed</p>	<p>12/12/2005 12/12/2005</p>	<p>840-G.Masood 840-G.Masood</p>
<p>PERFORM A LOCAL LPI CHECK OF THE 3 PREVIOUSLY REJECTED AREAS. THERE WAS 1 REJECTION ON THE MACHINED T AND 2 REJECTIONS IN THE AS-CAST REGION.----Specification: ASTM A903/A903M- ---Method: ASTM E165----Acceptance Criteria: ASTM A903/A903M Level II for as cast surfaces----Acceptance Criteria: ASTM A903/A903M Level I for machined surfaces including the entire -T- section (high stress areas)---- Certification: MTM certification to include the information per Supplementary Requirements S1 of ASTM A903/A903M--MTM NDT Cert: LPI</p>	<p>65707/2.0 -Sub:16 Op#:20</p>	<p>Closed</p>	<p>12/12/2005</p>	<p>840-G.Masood</p>

Major Tool & Machine, Inc.  
1458 East 19th Street  
Indianapolis, IN 46218-4289

MTM N/C: 18022

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Date: 08/30/05  
User ID: BOWLING

Customer: ENERGY INDUSTRIES OF OHIO  
Contact: NANCY HORTON  
E-Mail: NKHFlowen@aol.com

Telephone: 216-496-2314  
Fax: 216-328-2001

Part: /  
Drawing ID: SE141-116

Revision: 6

Customer P.O.: S005242-F/Ln:2  
Serial No./Qty: C2

Reported By: KEVIN BOWLING  
E-Mail: kBowling@MajorTool.com

Telephone: 317-636-6433  
Fax: 317-634-9420

Problem: 1. Tool gouge in T-Section. See photograph for location. 2. Hole is oversize at the outside face approx. .125" deep.

**Proposed Disposition:**

1. Weld build up tool gouged area and re-machine. 2. Install .18 x 45° chamfer on the hole.

Number of additional pages: \_\_\_\_\_


Customer Disposition:     Use As Is     Rework     Repair     Scrap     Replace

Agree with proposed disposition.

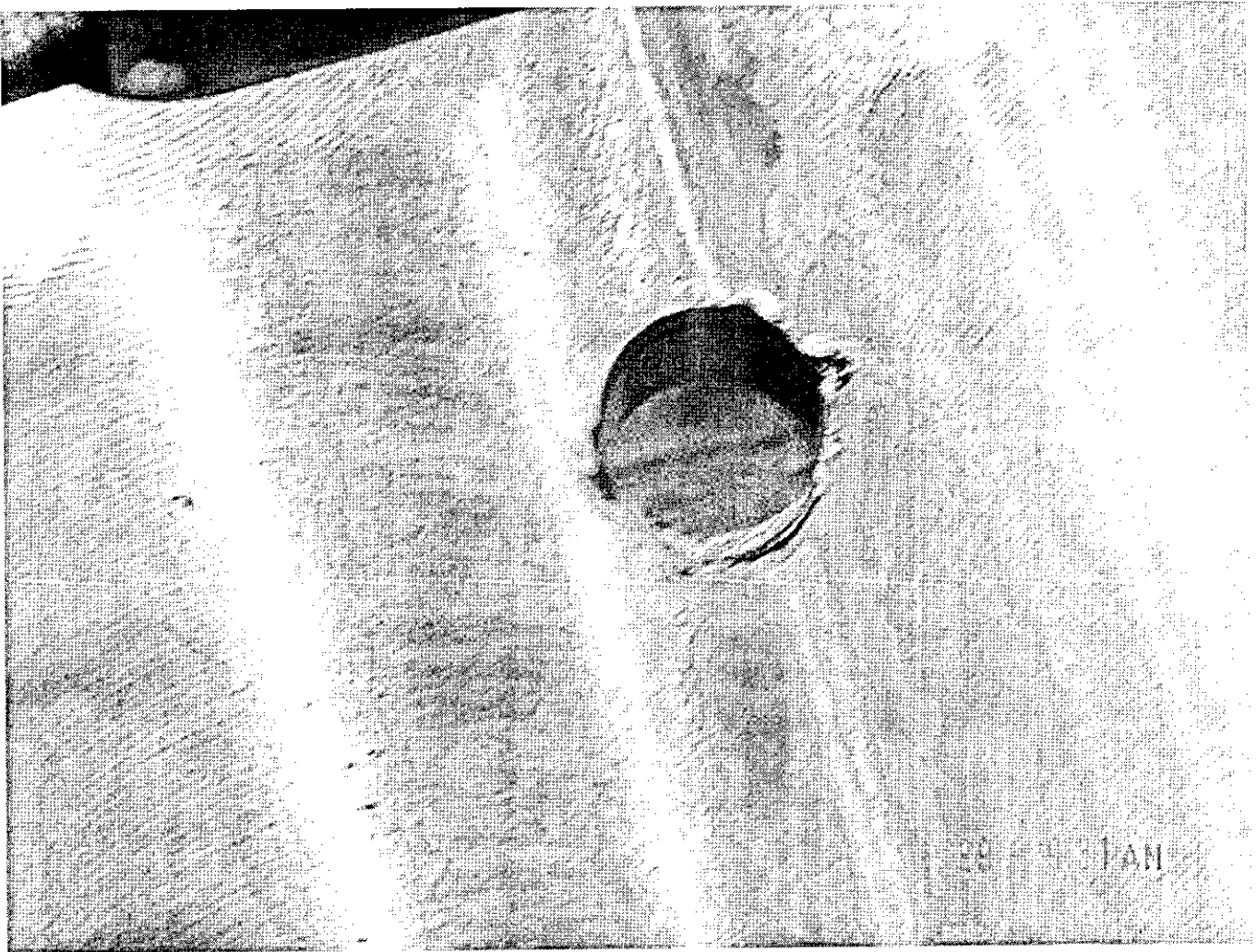
Approved:

~~PPPL Tech. Representative~~  
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PPPL Tech. Representative

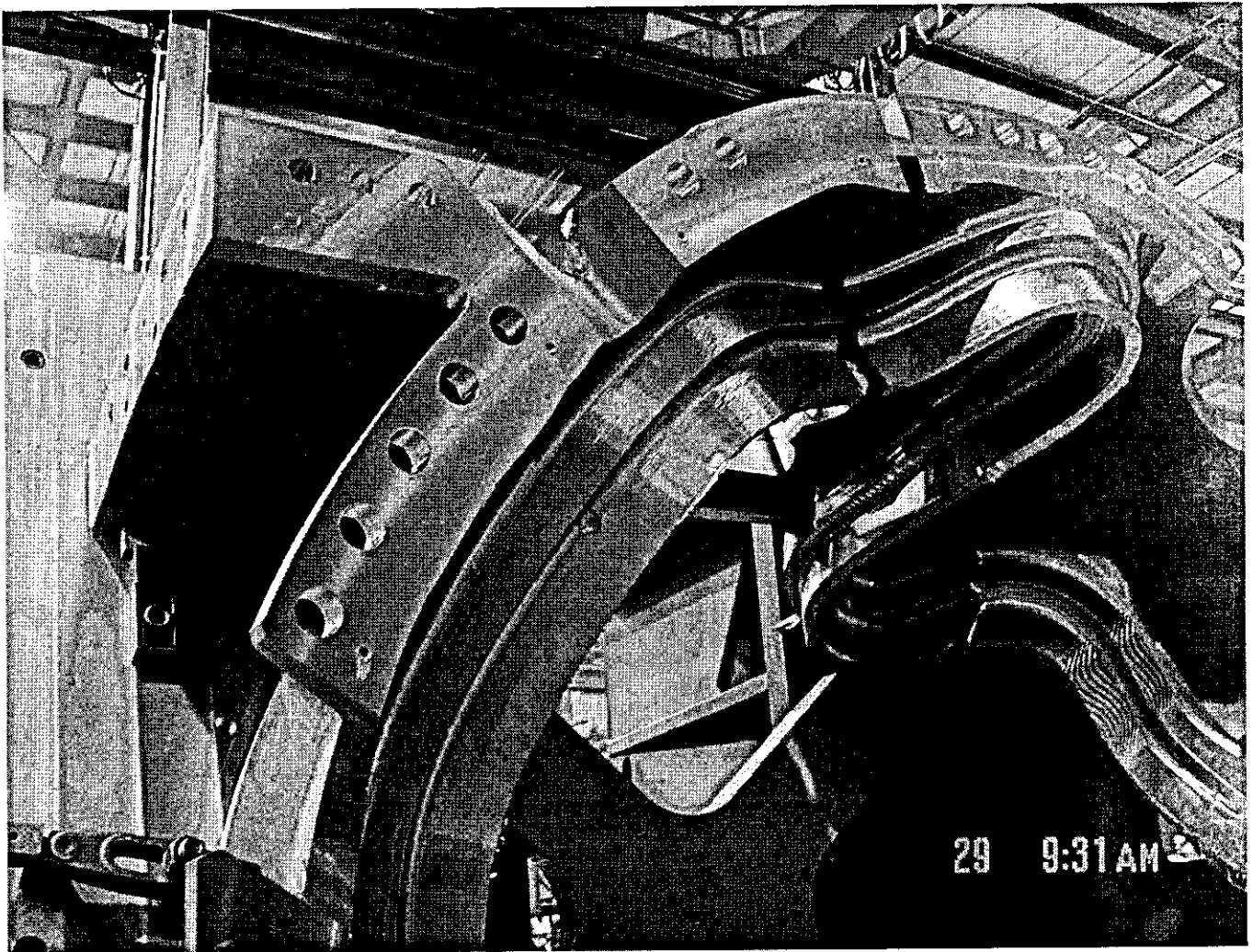
Digitally signed by Brad Nelson  
DN: cn=Brad Nelson, o=Major Tool & Machine, c=US,  
email=brad@mtm.com, serial=14406  
Date: 2005.09.12 11:44:06 -04'00'  
**Brad Nelson**  
Responsible Line Manager

Major Tool Implemented By: 

Title: Process Engineer Date: 12/2/05







Complete signed copy of NCI8715 is on file with PPPL

Major Tool & Machine, Inc.  
1458 East 19th Street  
Indianapolis, IN 46218-4289

MTM N/C: 18715

Page: 1  
Date: 12/13/05  
User ID: BOWLING

Customer: ENERGY INDUSTRIES OF OHIO

Contact: NANCY HORTON  
E-Mail: NKHFlowen@aol.com

Telephone: 216-496-2314  
Fax: 216-328-2091

Part: SE141-116/MODULAR COIL WINDING FORM TYPE  
Drawing ID: SE141-116 Revision: 6

Customer P.O.: S005242-F Lot 2  
Serial No. Qty: C2

Reported By: MIKE GRIFFITH  
E-Mail: mGriffith@MajorTool.com

Telephone: 317-636-6433  
Fax: 317-634-9426

Problem: NON-CONFORMANCE 1

PART IS REJECTED PER ASTM A903/A903M Level I. INDICATION IS V-SHAPED AND IS APPROXIMATELY .450" IN LENGTH ON THE LONGEST LEG (SEE PICTURES). INDICATION IS ON THE THIN SECTION OF THE T, LOCATED BETWEEN HOLES 84 AND 85. SEE ACCOMPANYING PHOTOS.

NON-CONFORMANCE 2

PART IS ALSO REJECTED PER ASTM A903/A903M LEVEL II. INDICATIONS ARE JUST OVER THE ACCEPTABLE SIZE RANGE. SEE ACCOMPANYING PHOTOS.

Proposed Disposition:

CUSTOMER TO ADVISE.

Number of additional pages: \_\_\_\_\_

Customer Disposition:  Use As Is  Rework  Repair  Scrap  Replace

This NCR refers to MCWF C2. Please see Attachment I for backup data for this disposition.

Tech. Rep. Approval:

Phil  
Heitzenroeder

Digitally signed by Phil Heitzenroeder  
DN: cn=Phil Heitzenroeder, o=US,  
ou=PPPL, ou=Mech. Eng. Division  
Reason: I agree to the terms defined  
by the placement of my signature on  
this document.  
Date: 2005.12.13 12:09:08 -0500

RLM Approval:

Brad  
Nelson

Digitally signed by Brad Nelson  
DN: cn=Brad Nelson, o=US,  
ou=ORNL, ou=FED,  
email=nelsonbs@ornl.gov  
Date: 2005.12.13 12:32:16  
-0500

Non-conformance 1

Major Tool Implemented By: \_\_\_\_\_ Title: \_\_\_\_\_ Date: \_\_\_\_\_

mtmncap@msc.com

Major Tool and Machine, Inc. 1458 East 19th Street, Indianapolis, IN 46218-4289 Tel: 317-636-6433 Fax: 317-634-9426



Customer: ENERGY INDUSTRIES OF OHIO

Contact: NANCY HORTON  
E-Mail: NKHFlowen@aol.com

Telephone: 216-496-2314  
Fax: 216-328-2001

Part: /  
Drawing ID: SE141-116

Revision: 7

Customer P.O.: S005242-F/Ln:2  
Serial No./Qty: C2

Reported By: MIKE GRIFFITH  
E-Mail: mGriffith@MajorTool.com

Telephone: 317-636-6433  
Fax: 317-634-9420

Problem: Workorder: 65707/2.0 Sub:1 Op:134

- Inspection Test #: 140 rejected: P TO M: {g|.1|R|S|T}: REFERENCE IGES DATA
- Inspection Test #: 180 rejected: M TO N: {g|.02|R|S|T}: REFERENCE IGES DATA
- Inspection Test #: 190 rejected: 96X  
Ø.375-16 UNC .188 DEEP  
C'BORE Ø.625 AS SHOWN: {#|.01|R|S|T}: .077 POSITION / ACCEPT THREAD / .624 CBORE
- Inspection Test #: 210 rejected: 8X Ø1-8 UNC THRU: {#|.01|A|B|C}: .038
- Inspection Test #: 230 rejected: : {f|.01}: 0.020
- Inspection Test #: 250 rejected: : {f|.01}: 0.016
- Inspection Test #: 260 rejected: : R76.00: 75.750 - 75.925
- Inspection Test #: 270 rejected: : R73.70: 73.723
- Inspection Test #: 280 rejected: 8X  
Ø1.13 THRU  
BACK SPOT FACE Ø2.38  
MIN DEPTH FOR C'UP: {#|.01|A|B|C}: .027 / 1.12 - 1.13 / ACCEPT SPOT
- Inspection Test #: 290 rejected: 3X Ø1.88 THRU  
Ø3.00 BACK SPOTFACE  
MIN TO CLEANUP: {#|.010|D|A|N}: .027 / 1.87 - 1.88 / ACCEPT CLEAN UP
- Inspection Test #: 295 rejected: 3 X SPHERICAL R.750 +.002 / -.003  
TOLERANCE CHANGE PER  
RFD 14-009 ITEM 5.  
DATUM -D- FLANGE.: : .753 / .764 / .763
- Inspection Test #: 300 rejected: 3X SPH R.75 TO .75 DEEP: {#|d.01|D|A|N}: TP .020 / .74 DEEP
- Inspection Test #: 310 rejected: 17X Ø1.88 THRU  
Ø3.00 BACK SPOTFACE  
MIN TO CLEANUP: {#|d.01|D|A|N}: 0.102 / 1.87 - 1.88 / 3.00 CLEAN UP
- Inspection Test #: 320 rejected: 3X Ø1.13  
Ø2.38 BACK SPOTFACE  
MIN TO CLEANUP: {#|d.01|D|A|N}: 0.041 / 1.12 - 1.13 / 3.2 CLEAN UP
- Inspection Test #: 340 rejected: 3X Ø1.375-6 UNC THRU: {#|d.01|D|A|N}: .038 / ACCEPT THREADS
- Inspection Test #: 350 rejected: 5X Ø1.88 THRU  
Ø3.00 BACK SPOTFACE  
MIN TO CLEANUP: {#|d.01|D|A|N}: .0182 / 1.87 - 1.88 / 2.98 - 2.99
- Inspection Test #: 360 rejected: Ø1.88 THRU  
Ø3.00 BACK SPOTFACE  
MIN TO CLEANUP: {#|d.01|D|A|N}: .0184 / 1.88 / 2.99
- Inspection Test #: 370 rejected: 3X Ø1.13  
Ø2.38 BACK SPOTFACE  
MIN TO CLEANUP: {#|d.01|D|A|N}: .028 / 1.13 - 1.27 / 3.2 CLEAN UP
- Inspection Test #: 380 rejected: Ø1.88 THRU  
Ø3.00 BACK SPOTFACE  
MIN TO CLEANUP: {#|d.01|E|A|J}: .015
- Inspection Test #: 410 rejected: 3X SPH R.75 TO .75 DEEP  
: {#|d.01|E|A|J}: TP .0172
- Inspection Test #: 430 rejected: 24X Ø1.88 THRU  
Ø3.00 BACK SPOTFACE

MIN TO CLEANUP: {#|d.01|E|A|J}: .070 / 3.00 CLEANUP  
Inspection Test #: 440 rejected: 3X Ø1.5 TO 2.00 DEEP  
Ø3.00 TO 1.00 DEEP: {#|d.01|E|A|J}: .051 / 2.99 / 1.00 DEEP  
Inspection Test #: 630 rejected: : R4.00 ~ .010: 3.90  
Inspection Test #: 650 rejected: : 4.00 ~ .010: 3.97  
Inspection Test #: 670 rejected: : R4.00 ~ .010: 3.98  
Inspection Test #: 710 rejected: : d8.00 ~ .010: 7.990-8.265 (0.275 OOR)  
Inspection Test #: 760 rejected: : 13.6 ~ 13.20  
Inspection Test #: 770 rejected: : 5.88 ~ .010: PAD BLENDS INTO CAST SUFACE  
Inspection Test #: 780 rejected: : 2.19 ~ .010: 2.1  
Inspection Test #: 790 rejected: : 2.19 ~ .010: 2.17  
Inspection Test #: 800 rejected: : 4X R.50: BOTTOM RADII BLEND INTO CAST SURFACE  
Inspection Test #: 880 rejected: : d8.00 ~ .010: 7.980-8.265 0.075 OOR  
Inspection Test #: 990 rejected: : {g|.5|A|B|C}: REFERENCE IGES DATA  
Inspection Test #: 1000 rejected: : {g|.02|R|T|S}: REFERENCE IGES DATA  
Inspection Test #: 1020 rejected: : {g|.02|R|T|S}: REFERENCE IGES DATA  
Inspection Test #: 1030 rejected: : {g|.5|A|B|C}: REFERENCE IGES DATA  
Inspection Test #: 1070 rejected: : 47.79 ~ .010: 47.776  
Inspection Test #: 1100 rejected: : 80.49: 80.469  
Inspection Test #: 1110 rejected: : 87.87 ~ .010: 87.838  
Inspection Test #: 1120 rejected: : 89.64 ~ .010: 89.584  
Inspection Test #: 1150 rejected: : 11.48 ~ .010: 11.463  
Inspection Test #: 1290 rejected: : 88.39 ~ .010: 88.371  
Inspection Test #: 1320 rejected: : 28.71 ~ .010: 28.721  
Inspection Test #: 1340 rejected: : 22.117 ~ .005: 22.109  
Inspection Test #: 1350 rejected: : 38.14 ~ .010: 38.152  
Inspection Test #: 1380 rejected: : 7.53 ~ .010: 7.555  
Inspection Test #: 1390 rejected: : 4.91 ~ .010: 4.879

Proposed Disposition:  
CUSTOMER TO ADVISE ON ACCEPTABILITY OF DIMENSIONAL INSPECTION.

Number of additional pages: \_\_\_\_\_

Customer Disposition:  Use As Is     Rework     Repair     Scrap     Replace

Dimensional discrepancies were evaluated per attached list and found to be acceptable.

Technical Rep. Approval:

Phil  
Heitzenroeder

Digitally signed by Phil Heitzenroeder  
DN: cn = Phil Heitzenroeder, c = US, o =  
PPPL, ou = Mech. Eng. Division  
Reason: I agree to the terms defined by  
the placement of my signature on this  
document.  
Date: 2005.12.13 14:36:31 -0500

RLM Approval: Brad  
Nelson

Digitally signed by Brad Nelson  
DN: cn=Brad Nelson, c=US,  
o=ORNL, ou=FED,  
email=nelsonbe@ornl.gov  
Date: 2005.12.14 09:24:26  
-0500

Major Tool Implemented By: \_\_\_\_\_

Title: \_\_\_\_\_

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

Inspection Test #: 140 rejected: P TO M: {g|.1|R|S|T}: REFERENCE IGES DATA  
 OK PER EVALUATION BY T. BROWN / S. RAFTOPOLOUS  
 Inspection Test #: 180 rejected: M TO N: {g|.02|R|S|T}: REFERENCE IGES DATA  
 OK PER EVALUATION BY T. BROWN / S. RAFTOPOLOUS  
 Inspection Test #: 190 rejected: 96X Ø.375-16 UNC .188 DEEP C'BORE Ø.625 AS SHOWN: {#|.01|R|S|T}: .077 POSITION /  
 ACCEPT THREAD / .624 CBORE  
 OK, C2 TEE HOLE POSITION IS OUT .077 MAX, BETTER THAN C1 (.165 MAX)  
 Inspection Test #: 210 rejected: 8X Ø1-8 UNC THRU: {#|.01|A|B|C}: .038  
 OK, POSITION TOLERANCE SIMILAR TO C1, THIS IS A CLEARANCE HOLE W/ BUSHING  
 Inspection Test #: 230 rejected: : {f|.01}: 0.020  
 OK, FLATNESS TOL FOR FLANGE DATUM-E SIMILAR TO C1  
 Inspection Test #: 250 rejected: : {f|.01}: 0.016  
 OK, FLATNESS TOL FOR FLANGE DATUM-D SIMILAR TO C1  
 Inspection Test #: 260 rejected: : R76.00: 75.750 - 75.925  
 OK, INNER RADIUS OF OUTER TF SHELF, INTERFACE NOT CRITICAL  
 Inspection Test #: 270 rejected: : R73.70: 73.723  
 OK, OUTER RADIUS OF OUTER TF SHELF, INTERFACE NOT CRITICAL  
 Inspection Test #: 280 rejected: 8X Ø1.13 THRU BACK SPOT FACE Ø2.38 MIN DEPTH FOR C'UP: {#|.01|A|B|C}: .027 / 1.12 -  
 1.13 / ACCEPT SPOT  
 OK, C2 HOLE POSITION IS OUT .027 MAX, BETTER THAN C1 (.054 MAX)  
 Inspection Test #: 290 rejected: 3X Ø1.88 THRU Ø3.00 BACK SPOTFACE MIN TO CLEANUP: {#|.010|D|A|N}: .027 / 1.87 - 1.88  
 / ACCEPT CLEAN UP  
 OK, THIS IS A CLEARANCE HOLE W/ BUSHING  
 Inspection Test #: 295 rejected: 3 X SPHERICAL R.750 +.002 / -.003 TOLERANCE CHANGE PER RFD 14-009 ITEM 5. DATUM  
 -D- FLANGE.: : .753 / .764 / .763  
 DISCUSS WITH PPPL, NUMBERS ARE DIFFERENT ON CHECKLIST (.758/.752/.750)  
 Inspection Test #: 300 rejected: 3X SPH R.75 TO .75 DEEP: {#|d.01|D|A|N}: TP .020 / .74 DEEP  
 DISCUSS WITH PPPL  
 Inspection Test #: 310 rejected: 17X Ø1.88 THRU Ø3.00 BACK SPOTFACE MIN TO CLEANUP: {#|d.01|D|A|N}: 0.102 / 1.87 -  
 1.88 / 3.00 CLEAN UP  
 LARGEST POSITIONAL ERROR, CHECK IGES DATA FOR LOCATION, NUMBER, DISCUSS  
 Inspection Test #: 320 rejected: 3X Ø1.13 Ø2.38 BACK SPOTFACE MIN TO CLEANUP: {#|d.01|D|A|N}: 0.041 / 1.12 - 1.13 / 3.2  
 CLEAN UP  
 OK, C2 HOLE POSITION IS OUT .041 MAX, BETTER THAN C1 (.054 MAX)  
 Inspection Test #: 340 rejected: 3X Ø1.375-6 UNC THRU: {#|d.01|D|A|N}: .038 / ACCEPT THREADS  
 OK, SAME POSITION ERROR AS THRU HOLES, MATES CLEARANCE HOLE W/ BUSHING  
 Inspection Test #: 350 rejected: 5X Ø1.88 THRU Ø3.00 BACK SPOTFACE MIN TO CLEANUP: {#|d.01|D|A|N}: .0182 / 1.87 -  
 1.88 / 2.98 - 2.99  
 OK, THIS IS A CLEARANCE HOLE W/ BUSHING  
 Inspection Test #: 360 rejected: Ø1.88 THRU Ø3.00 BACK SPOTFACE MIN TO CLEANUP: {#|d.01|D|A|N}: .0184 / 1.88 / 2.99  
 OK, THIS IS A CLEARANCE HOLE W/ BUSHING  
 Inspection Test #: 370 rejected: 3X Ø1.13 Ø2.38 BACK SPOTFACE MIN TO CLEANUP: {#|d.01|D|A|N}: .028 / 1.13 - 1.27 / 3.2  
 CLEAN UP  
 OK, C2 HOLE POSITION IS OUT .028 MAX, BETTER THAN C1 (.054 MAX)  
 Inspection Test #: 380 rejected: Ø1.88 THRU Ø3.00 BACK SPOTFACE MIN TO CLEANUP: {#|d.01|E|A|J}: .015 (positional  
 error)  
 OK, THIS IS A CLEARANCE HOLE W/ BUSHING  
 Inspection Test #: 410 rejected: 3X SPH R.75 TO .75 DEEP : {#|d.01|E|A|J}: TP .0172  
 OK, FEATURE LOCATION ESTABLISHED BY ROMER PRIOR TO ASSEMBLY  
 Inspection Test #: 430 rejected: 24X Ø1.88 THRU Ø3.00 BACK SPOTFACE MIN TO CLEANUP: {#|d.01|E|A|J}: .070 / 3.00  
 CLEANUP  
 OK, THIS IS A CLEARANCE HOLE W/ BUSHING  
 Inspection Test #: 440 rejected: 3X Ø1.5 TO 2.00 DEEP Ø3.00 TO 1.00 DEEP: {#|d.01|E|A|J}: .051 / 2.99 / 1.00 DEEP  
 OK, FEATURE LOCATION ESTABLISHED BY ROMER PRIOR TO ASSEMBLY  
 Inspection Test #: 630 rejected: : R4.00 ~ .010: 3.90  
 OK, DIM REFERENCES PORT OPENING, LARGE CLEARANCE  
 Inspection Test #: 650 rejected: : 4.00 ~ .010: 3.97  
 OK, DIM REFERENCES PORT OPENING, LARGE CLEARANCE  
 Inspection Test #: 670 rejected: : R4.00 ~ .010: 3.98  
 OK, DIM REFERENCES PORT OPENING, LARGE CLEARANCE  
 Inspection Test #: 710 rejected: : d8.00 ~ .010: 7.990-8.265 (0.275 OOR)  
 OK, DIM REFERENCES PORT OPENING, LARGE CLEARANCE

Consider changing tolerance

Inspection Test #: 760 rejected: : 13.6 ~ 13.20  
OK, DIM REFERENCES LEADS AREA  
Inspection Test #: 770 rejected: : 5.88 ~ .010: PAD BLENDS INTO CAST SUFACE  
OK, DIM REFERENCES LEADS AREA  
Inspection Test #: 780 rejected: : 2.19 ~ .010: 2.1  
OK, DIM REFERENCES LEADS AREA  
Inspection Test #: 790 rejected: : 2.19 ~ .010: 2.17  
OK, DIM REFERENCES LEADS AREA  
Inspection Test #: 800 rejected: : 4X R.50: BOTTOM RADII BLEND INTO CAST SURFACE  
OK, DIM REFERENCES LEADS AREA  
Inspection Test #: 880 rejected: : d8.00 ~ .010: 7.980-8.265 0.075 OOR  
OK, DIM REFERENCES PORT OPENING, LARGE CLEARANCE  
Inspection Test #: 990 rejected: : {gl.5|A|B|C}: REFERENCE IGES DATA  
OK PER EVALUATION BY T. BROWN / S. RAFTOPOLOUS  
Inspection Test #: 1000 rejected: : {gl.02|R|T|S}: REFERENCE IGES DATA  
OK PER EVALUATION BY T. BROWN / S. RAFTOPOLOUS  
Inspection Test #: 1020 rejected: : {gl.02|R|T|S}: REFERENCE IGES DATA  
OK PER EVALUATION BY T. BROWN / S. RAFTOPOLOUS  
Inspection Test #: 1030 rejected: : {gl.5|A|B|C}: REFERENCE IGES DATA  
OK PER EVALUATION BY T. BROWN / S. RAFTOPOLOUS  
Inspection Test #: 1070 rejected: : 47.79 ~ .010: 47.776  
OK, DIM REFERENCES ¼-20 HOLES FOR SHIM ATTACH  
Inspection Test #: 1100 rejected: : 80.49: 80.469  
OK, DIM REFERENCES ¼-20 HOLES FOR SHIM ATTACH  
Inspection Test #: 1110 rejected: : 87.87 ~ .010: 87.838  
OK, DIM REFERENCES ¼-20 HOLES FOR SHIM ATTACH  
Inspection Test #: 1120 rejected: : 89.64 ~ .010: 89.584  
OK, DIM REFERENCES ¼-20 HOLES FOR SHIM ATTACH  
Inspection Test #: 1150 rejected: : 11.48 ~ .010: 11.463  
OK, DIM REFERENCES ¼-20 HOLES FOR SHIM ATTACH  
Inspection Test #: 1290 rejected: : 88.39 ~ .010: 88.371  
OK, DIM REFERENCES ¼-20 HOLES FOR SHIM ATTACH  
Inspection Test #: 1320 rejected: : 28.71 ~ .010: 28.721  
OK, DIM REFERENCES ¼-20 HOLES FOR SHIM ATTACH  
Inspection Test #: 1340 rejected: : 22.117 ~ .005: 22.109  
OK, DIM REFERENCES ¼-20 HOLES FOR SHIM ATTACH  
Inspection Test #: 1350 rejected: : 38.14 ~ .010: 38.152  
OK, DIM REFERENCES ¼-20 HOLES FOR SHIM ATTACH  
Inspection Test #: 1380 rejected: : 7.53 ~ .010: 7.555  
OK, DIM REFERENCES ¼-20 HOLES FOR SHIM ATTACH  
Inspection Test #: 1390 rejected: : 4.91 ~ .010: 4.879  
OK, DIM REFERENCES ¼-20 HOLES FOR SHIM ATTACH

MTM is requested to add Visual Manufacturing references on data lists.

**Customer: ENERGY INDUSTRIES OF OHIO**

Contact: NANCY HORTON  
E-Mail: NKHFlowen@aol.com

Telephone: 216-496-2314  
Fax: 216-328-2001

**Part: SE141-116 / MODULAR COIL WINDING FORM TYPE**  
Drawing ID: SE141-116                      Revision: 7

Customer P.O.: S005242-F/Ln:2  
Serial No./Qty: C2

Reported By: MIKE GRIFFITH  
E-Mail: mGriffith@MajorTool.com

Telephone: 317-636-6433  
Fax: 317-634-9420

Problem: THERE ARE NOT ENOUGH DATA POINTS IN THE POINT CLOUD SURFACES TO MATCH THE REQUIREMENT OF 4" X 4" ON AS-CAST SURFACES.

**Proposed Disposition:**

CUSTOMER TO ADVISE THE ACCEPTABILITY OF NOT HAVING ENOUGH DATA POINTS.

Number of additional pages: \_\_\_\_\_

**Customer Disposition:**     Use As Is     Rework     Repair     Scrap     Replace

This data will be accepted for C2. PPPL will take additional measurements upon receipt to fill in the gaps in the data provided. However, EIO is requested to take corrective actions to assure that the metrology data on all future winding forms comply with the specified requirements.

**Tech. Rep. Approval:**


**Phil  
Heitzenroeder**

Digitally signed by Phil Heitzenroeder  
DN: CN = Phil Heitzenroeder, C = US,  
O = PPPL, OU = Mech. Eng. Division  
Reason: I agree to 'specified' portions  
of this document  
Date: 2005.12.13 13:04:15 -05'00'

**RLM Approval:**

**Brad  
Nelson**

Digitally signed by Brad Nelson  
DN: cn=Brad Nelson, c=US,  
o=ORNL, ou=FED,  
email=nelsonbe@ornl.gov  
Date: 2005.12.13 13:30:17  
-05'00'

Major Tool Implemented By: 

Title: CFT ENGINEER

Date: 12/22/05

Customer: ENERGY INDUSTRIES OF OHIO

Contact: NANCY HORTON  
E-Mail: NKHFlowen@aol.com

Telephone: 216-496-2314  
Fax: 216-328-2001

Part: SE141-116 / MODULAR COIL WINDING FORM TYPE

Customer P.O.: S005242-F/Ln:2  
Serial No./Qty: C2

Drawing ID:

Revision:

Reported By: MIKE GRIFFITH  
E-Mail: mGriffith@MajorTool.com

Telephone: 317-636-6433  
Fax: 317-634-9420

Problem: NC18022 was dispositioned by PPPL to perform a weld repair. Weld repairs require LPI (CSPEC par 3.1.1.6) & RT (CSPEC par 3.1.1.7) inspection per 3.2.3.2.2, as well as magnetic permeability checking per 3.1.1.5. LPI and Mag Permeability were performed during the post machining inspection operations. The RT inspection of this specific repair was not completed.

Proposed Disposition:

Recommend to accept as is.

Number of additional pages: \_\_\_\_\_

Customer Disposition:  Use As Is     Rework     Repair     Scrap     Replace

*this repair is in a low stress area.*

Technical Contact Approval: *P. Reitzner*

Title: *Tech. Rep.*

Date: *12/14/05*

Buyer Approval: \_\_\_\_\_

Title: \_\_\_\_\_

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

Major Tool Implemented By: *[Signature]*

Title: *CFT ENGINEER*

Date: *12/14/05*

Princeton University    Plasma Physics Laboratory  
James Forrestal Campus  
P.O. Box CN17  
Princeton, N.J. 08543

21 December 2005

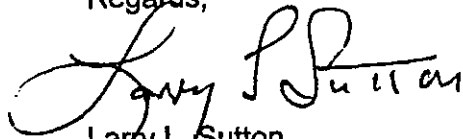
Ms. Nancy Horton  
Energy Industries of Ohio  
6100 Oak Tree Boulevard, Suite 200  
Independence, Ohio 44131

SUBJECT:    Dispositioned Request for Deviation (RFD) 14-011  
                 Subcontract S005242-F

Dear Ms. Horton:

Attached for appropriate action is NCSX dispositioned Request for Deviation 14-011, Subject: Change in Magnetic Permeability Requirements, initiated by Kevin Bowling on 23 November 2005.

Regards,



Larry L. Sutton  
Senior Subcontract Administrator

Attachment: As stated

<b>NCSX RFD</b> <i>Part III</i>	Number: 14-011	RFD Description: Change in Magnetic Permeability Requirements
RLM: Brad Nelson		Organization: ORNL
Impact on Interfaces with Other WBS Elements/Items: (If none, so state): NONE, WBS 14 only		
<p><b>RLM Recommendation:</b></p> <p><input checked="" type="checkbox"/> Approve   <input type="checkbox"/> Do Not Approve</p> <p><b>Additional remarks:</b></p> <p>No impact on quality will result from using this material. Analysis shows that if material used at all six locations on each Type C casting, the resultant field errors will be negligible. It is anticipated that analysis of Type A and Type B castings will show similar results.</p> <p>Does this Change Impact Material Already Procured or Parts/Assemblies Already Assembled/Manufactured using this Material: <input checked="" type="checkbox"/> Yes   <input type="checkbox"/> No</p> <p>If "Yes", what is the recommended disposition of this material/part/assembly?</p> <p>Accept as is for the Type C castings. Analysis at PPPL has confirmed that the effects of using this 1.03μ material will have a negligible impact and that if similar results for Type A and Type B castings result, the effects will likewise be negligible.</p>		
RLM Signature: <u>Brad Nelson</u>		<small>Digitally signed by Brad Nelson  DN: cn=Brad Nelson, ou=US, o=ORNL, ou=FED,  email=brnel@ornl.gov  Date: 2005.12.20 14:27:25 -0500</small>
<p><b>Project Disposition:</b></p> <p><input type="checkbox"/> Approved. No ECP required. _____  NCSX Systems Engineering Support Manager</p> <p><input checked="" type="checkbox"/> Approved. An ECP will be assigned when Section 3.1.1.5.2 is revised accordingly (by end of January).</p> <p><input type="checkbox"/> Not Approved. Reason(s) for disapproval:</p> <p style="text-align: right;"><b>Bob Simmons</b></p> <small>Digitally signed by Bob Simmons  DN: CN = Bob Simmons, C = US  Reason: I am approving this document  Date: 2005.12.20 12:43:29 -0500</small>		



<i>NCSX RFD</i> <i>Part I</i>	Number: 14-011	RFD Description: Change in Magnetic Permeability Requirements
Initiator: Kevin Bowling		Organization: Major Tool
List of Impacted Documents: <i>(Specification, MIT/QA Plan, SOW, drawing, etc.)</i> NCSX-CSPEC-141-3, MTM MIT/QA Plan, SE141-103		
Cost Impact: <i>(If none, so state):</i> NONE		
Schedule Impact: <i>(If none, so state):</i> NONE		
Quality Impact: <i>(If none, so state) :</i> Unknown to MTM.		
State Requirement Deviation is Requested For: <i>(Specification, MIT/QA Plan, SOW, drawing, etc.):</i> MTM requests permission to change the CSPEC section 3.1.1.5.2 magnetic permeability requirements for all remaining MCWF bearing plates from 1.02 $\mu$ to 1.03 $\mu$ .		
Full Description of the Deviation Requested: <i>(Use continuation pages, e-mails, letter, sketches, etc. as needed and include amplifying information as appropriate to support deviation request):</i> MTM ordered the material for several C castings, but receipt tests revealed that the 316ST annealed hot rolled bar from supplier did not meet the CSPEC Section 3.1.1.5.2 requirements. The entire material lot received from the supplier did meet the suggested permeability requirements of this RFD. It is anticipated that follow-on orders will made to the same supplier and that similar magnetic permeability results can be expected.		
Attachments: MTM-RFD-003 dated November 23, 2005		
Initiator Signature: <u>Kevin Bowling</u> Date: <u>November 23, 2005</u>		

**Request for Deviation**

**MCWF Type A, B, and C**

**Serial Number:** All remaining MCWF winding form parts

**Number:** MTM-RFD-003

**RFD Description:**

1. MTM requests permission to change the magnetic permeability requirement for the Bearing Plate details to be less than or equal to 1.03 $\mu$ .

**Initiator:** Kevin Bowling

**Organization:** Major Tool and Machine, Inc.

**List of Impacted Documents:**

NCSX-CSPEC-141-03, MTM MIT/QA Plan, SE141-103.

**Quality Impact:** Unknown to MTM. 316SST annealed hot rolled bar from supplier meets the requirements listed in the RFD description above.

**Customer Approval**

**Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

EASTWOOD MANUFACTURING  
CERTIFICATION OF COMPLIANCE

CUSTOMER : MAJOR TOOL AND MACHINE  
ORDER # : P05-01160

DATE : 5-16-05  
OUR NUMBER 32984

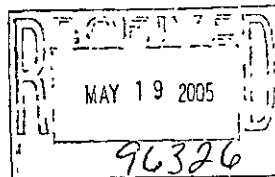
WE CERTIFY THAT THE MATERIALS SUPPLIED ON YOUR ORDER  
LISTED ABOVE COMPLIES WITH THE REQUIREMENTS OF YOUR ORDER  
AND OF THE SPECIFICATIONS LISTED BELOW

DESCRIPTION .

Lot No., 32984-1	28 PIECES	Part . DS141-036 ASTM A286 Silver plated Per AMS2410	Heat No., 8969595	1 7/16 Round, machined to size Heat Treat. 36891 Silver plate. IMF 00132583 Post plate bake. SEI 37905 Tensile test. WH 05-0420-01
---------------------	-----------	--	-------------------	--

TENSILE KSI	YIELD KSI	ELONGATION	REDUCTION	HARDNESS
150	120	14	35	
PASS	PASS	PASS	PASS	PASS

DALE STARK  
EASTWOOD MANUFACTURING



1-4  
B-1

studs

NTM  
09 5/19/05



401 ROSE AVE S E  
MASSILLON, OH 44646

FAX 330-837-7017

CERTIFICATE OF TESTS REPUBLIC ENGINEERED PRODUCTS

JANUARY 26, 2005  
PAGE: 1 OF 3

PURCHASE ORDER: 42904-3  
PART NUMBER : SN 47870  
ORDER NUMBER: 12-52585-06 821  
HEAT : 8969595

PURCHASE ORDER DATE: 05/24/04  
ACCOUNT NUMBER : 27759001  
SCHEDULE : 88828-

CHARGE ADDRESS

SHIP TO

5456068

FRY STEEL COMPANY  
BUNNIE ISAKA  
13325 MOLETTE ST  
SANTA FE SPRINGS CA 90670

FRY STEEL COMPANY  
BUNNIE ISAKA  
C/O CMT  
4201 W 36TH ST  
CHICAGO IL 60623

MATERIAL DESCRIPTION  
COLD FINISHED STEEL BARS ALLOY DOUGLAS SPEC DMS-1555H GRADE B DTD 07/02/91 EXC  
MARK & PARA 3.4 OIL TEMP & 3.5 BOEING SPEC BMS 7-280 ASTM A 331-95 ASTM A  
108-03 LEVEL 1 MIL S 5000E COND E-4 EXC MARK AMS 6415R EXC BHN AMS 6409B AMS  
2310E AMS 2301J AMS 2304A AMS 6484B AMS -S- 5000 ISS 3/99 COND E-4 EXC MARK &  
PARA 4.3 EF-AISI-E-4340 AIRCRAFT Q DEL TRANSV MECH PROP COLD DRAWN NOR  
M & SUBCRITICAL ANN BEFORE CD REST CHEM

SIZE: RDS 1.4375 X 11 /13FT

LADLE CHEMISTRY %

C	MN	P	S	SI	CU	NI	CR	MO	AL
0.42	00.75	.007	.002	0.22	0.10	01.70	00.84	0.21	00.028
N	CB	SN	SEMI-FINISH RESULTS						
0.005	.0064	0.002	.007	AUSTENITIC GRAIN SIZE					
				AUST GRAIN SZ 7.					

DEVELOPED TENS TRANS NORMALIZE DEG F 1650.	ASTM E8 AUSTENITIZE DEG F 1550.	ASTM A370 QUENCHANT OIL	TEMPER 1 DEG F 900.
TEMP 1 TIME HOURS 2.0			

	TENSILE PSI	REDUCTION AREA PERCENT
PC	10102 185010.	45.5
FC	10302 180280.	45.5
FC	10503 185540.	45.7
FC	30102 180570.	43.4
FC	30302 193790.	43.0
FC	30504 185240.	46.3

DEVELOPED TRANS TENSILE NORMALIZE DEG F 1650.	ASTM E8 AUSTENITIZE DEG F 1500.	ASTM A370 QUENCHANT OIL	TEMPER 1 DEG F 475.
TEMPER 2/SR DEG F 475.	TEMP 1 TIME HOURS 2.0	TEMP 2 TIME HOURS 2.0	

	TENSILE PSI	YIELD (.26) PSI	REDUCTION AREA PERCENT	ELONGATION PERCENT
PC	10102 222320.	223800.	47.0	10.4
FC	10302 224250.	222910.	44.6	11.4
FC	10503 222170.	225100.	44.6	14.3
FC	30102 221840.	218860.	43.8	11.4
FC	30302 221160.	222160.	49.3	11.4
FC	30504 221050.	225230.	48.2	12.9

11111

32984

AMAN BHATIA  
GEN MGR COLD FINISH OPERATIONS

*Aman Bhatia*

MTM  
DS 5/19/05



401 ROSE AVE S E  
MASSILLON, OH 44646

FAX 330-837-7017

CERTIFICATE OF TESTS REPUBLIC ENGINEERED PRODUCTS

JANUARY 26, 2005

PAGE: 2 OF 3

PURCHASE ORDER: 42904-3  
PART NUMBER: 84 47670  
ORDER NUMBER: 12-52585-06 821  
HEAT: 8969595

PURCHASE ORDER DATE: 05/24/04  
ACCOUNT NUMBER: 27759001  
SCHEDULE: 58828-

SEMI-FINISH RESULTS (CONTINUED)

DEVELOPED TRANS TENSILE  
NORMALIZE  
DEG F  
1650.  
TEMPER 2/SR  
DEG F  
475.  
ASTM E8  
AUSTENITIZE  
DEG F  
1500.  
TEMP 1 TIME  
HOURS  
2.0  
ASTM A370  
QUENCHANT  
OIL  
TEMPER 1  
DEG F  
475.  
TEMP 2 TIME  
HOURS  
12.0

PCE	ITEM	TENSILE		YIELD (.2%)		REDUCTION AREA		ELONGATION	
		PSI	MPA	PSI	MPA	PERCENT	PERCENT	PERCENT	PERCENT
PC	10102	256220.	1778.0	218900.	1530.0	35.8	8.7		
PC	10302	260560.	1870.0	221410.	1600.0	46.3	10.6		
PC	10503	254270.	1820.0	220610.	1590.0	14.6	7.6		
PC	30102	263550.	1900.0	222210.	1620.0	35.4	11.0		
PC	30302	261190.	1890.0	223640.	1640.0	46.8	12.3		
PC	30504	258710.	1860.0	221100.	1610.0	44.3	11.8		

JOMINY STD SAE J406 ASTM A255  
58 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 18 20 22 24 26 28 30 32  
58 58 57 57 57 57 56 56 56 56 56 55 55 55 55 54 53 52 51 51 50 49 49

MACROETCH SRC ASTM E361 MIL STD 430  
AVG SURFACE 1. RANDOM 1. CENTER 1.

MAG PARTICLE 2301 AMS 2301  
AVG AVG FREQ 0.00 AVG SEV 0.00

MAG PARTICLE 2304 AMS 2304  
AVG AVG FREQ 0.00 AVG SEV 0.00

FINISH SIZE RESULTS SCHEDULE: 58828  
DECARBURIZATION SAE J419 ASTM E1077

TOTAL DEPTH  
INCHES  
PCE 01 .015

HBW SURFACE (LAB) ASTM E10 ASTM A370  
PCE 01 HBW 217.  
PCE 02 HBW 217.  
PCE 03 HBW 217.  
PCE 04 HBW 217.  
PCE 05 HBW 221.

MATERIAL SOURCES  
RED. RATIO  
TO 1  
73.6

TENSILE HT TRTD ASTM E8 ASTM A370  
NORMALIZE  
DEG F  
PCE 01 1625.

NOTES

THE MATERIAL WAS NOT EXPOSED TO MERCURY OR ANY METAL ALLOY THAT IS LIQUID AT AMBIENT TEMPERATURE DURING PROCESSING OR WHILE IN OUR POSSESSION.

CHEMICAL ANALYSIS CONFORMS TO APPLICABLE SPECS: ASTM E415, ASTM E1019, AND ASTM E1085.

AMAN BHATIA  
GEN MGR COLD FINISH OPERATIONS

*Amn Bhatia*

MTM 05 5/19/05

*32084*



401 ROSE AVE S E  
MASSILLON, OH 44646

FAX 330-837-7017

CERTIFICATE OF TESTS REPUBLIC ENGINEERED PRODUCTS

JANUARY 26, 2005  
PAGE: 3 OF 3

PURCHASE ORDER: 42904-3  
PART NUMBER : SN 47670  
ORDER NUMBER: 12-52585-06 821  
HEAT : 8969595  
PURCHASE ORDER DATE: 05/24/04  
ACCOUNT NUMBER : 27759001  
SCHEDULE : 58828-

NOTES (CONTINUED)  
NO WELDING OR WELD REPAIR WAS PERFORMED ON THIS MATERIAL.

RECORDING OF FALSE, PICTITIOUS OR FRAUDULENT STATEMENT OR ENTRIES ON THIS DOCUMENT MAY BE PUNISHED AS A FELONY UNDER FED STATUES TITLE 18 CHAPTER 47.

I HEREBY CERTIFY THAT THE MATERIAL LISTED HEREIN HAS BEEN INSPECTED AND TESTED IN ACCORDANCE WITH THE METHODS PRESCRIBED IN THE GOVERNING SPECIFICATIONS AND BASED UPON THE RESULTS OF SUCH INSPECTION AND TESTING HAS BEEN APPROVED FOR CONFORMANCE TO THE SPECIFICATIONS.

CERTIFICATE OF TESTS SHALL NOT BE REPRODUCED EXCEPT IN FULL.

WHEN EVALUATED, MACRO ETCHES WERE VISUALLY RATED ON SAMPLES ETCHED USING HYDROCHLORIC ACID AT A TEMPERATURE 170 DEGREES(F) (+/- 10 DEGREES F)

ALL TESTING HAS BEEN PERFORMED USING THE CURRENT REVISION OF THE TESTING SPECIFICATIONS.

MFG IN THE U.S.A.

ALISON J. BLONDHEIM  
NOTARY PUBLIC, STATE OF OHIO  
MY COMMISSION EXPIRES MARCH 10, 2009

END OF DATA  
FAX SHIP TO 1 COPY ATTENTION BUNNIE ISAKA  
MAIL SOLD TO 1 COPY ATTENTION BUNNIE ISAKA  
FILE 1 COPY  
WITH SHIPMENT 1 COPY

END OF DATA  
562-802-7481

SHIPPING AREA:

32984

PRY STEEL CO. CERTIFIES THAT THIS IS  
A TRUE COPY OF THE ORIGINAL MILL TEST  
REPORT NOW ON FILE.  
RECEIVED AND INSPECTED

FEB 14 2005

Bunnie Isaka

AMAN BHATIA  
GEN MGR COLD FINISH OPERATIONS  
Aman Bhatia

MM 09 5/19/05

84/22/2005 12:14

7138958905

WH LABORATORIES

PAGE 02

**Tensile Test Report**

Company: Eastwood Mfg. Date: 4/22/2005  
 Lab Report #: 05-0420-01  
 Attention: Dele Stark P.O. #: 32984  
 Identification: AISI 4340  
 Procedure: \_\_\_\_\_ 1-3/8" O.D.  
 Process: \_\_\_\_\_  
 Filter: \_\_\_\_\_ Heat#8969585  
 Qualification: \_\_\_\_\_  
 Welder: \_\_\_\_\_

32984

32984

**TENSILE TEST**

Lab ID	Dimensions	Area	Yield Lbs	Ultimate Load Lbs	Yield P.S.I.	Tensile P.S.I.
C	.504 round	.1995	31,880	34,700	159,700	174,000

Elongation	Reduction of Area	Fracture	Comments
18.2%	52.3%	Ductile	

Tests performed in accordance with ASTM A370, E8, and WH Laboratories, LLC Quality Assurance Manual.  
 2% Offset Yield - Gage Length 2.000" for .500", and 1.000" for .350" tensile per ASTM A370.  
 Test specimens retained for one (1) week maximum; unused material is retained for one (1) month.

Approved by: Robert French  
 Robert French

MTM 09 5/19/05

MAY-13-2005 12:55 FROM:

TO:2814470098

P:2/2

### SEI HEAT TREAT

PO BOX 16339 HOUSTON, TX 77222  
PHONE (713) 694-3882 FAX (713) 694-0891

<b>CUSTOMER:</b> EASTWOOD MANUFACTURING	<b>CERTIFICATION DATE:</b> MAY 11, 2005
<b>CERTIFICATION/SO NUMBER:</b> 37905	<b>CUSTOMER ORDER NUMBER:</b> 32984

<b>MATERIAL:</b> 4340	<b>NUMBER OF PIECES:</b> 28
<b>DESCRIPTION:</b> 1-3/8" X 6" STUDS SILVER PLATED	<b>PART NUMBER(S):</b> N/A
<b>SPECIFICATION NUMBER:</b> EASTWOOD MANUFACTURING	<b>REFERENCE:</b> N/A

32984

HEAT TREAT PROCESS	TIME AT HEAT	COOLANT
Bake	950'	45 min AIR

32984

<b>HARDNESS TEST:</b>	<b>NUMBER OF PIECES TESTED:</b>
-----------------------	---------------------------------

<b>WE HEREBY CERTIFY THAT THE SERVICE FURNISHED ON THE ABOVE PURCHASE ORDER IS PROVIDED IN ACCORDANCE WITH OUR QUALITY CONTROL MANUAL, REVISION B, DATED JANUARY 21, 2001</b>	<b>QUALITY CONTROL:</b> <i>Sam</i>
---	---------------------------------------

MTM 09 5/19/05



Part Number (Detail / Sub-Assy / Assy)	Rev.	Page	of
DS141-036		1	1
Part Name (Detail / Sub-Assy / Assy)			
Stud, 1.375-6 2A x .9 1g			
MATERIAL:			
WORK ORDER #			Quantity
32984			126

INSPECTION DATA CHECK LIST FOR Major Tool & Machine Inc.

Eastwood Manufacturing  
 6825 Breen Rd.  
 Houston, Texas 77066  
 (281) 447-0081 fax (281) 447-0098  
 P.O. P05-01160

P.O. - DRAWING - SPECIFICATION DESCRIPTION		INSPECTION INSTRUCTIONS			INSPECTION RESULTS			
SHT	ZONE	GAGE/EQUIP.	BY	SAMPLE	DATA, CAR NO., REMARKS	MFG	QA	DATE
		Length 9.00 +.25 -.00	Caliper #201	ns	25	9.025 - 9.317	NS	5-5-05
		4.50	Caliper #200	ns	28	4.50	NS	5-5-05
		Pitch Dia. 1.2643 - 1.2563	Mic 1-2	ns	28	1.261 - 1.257	NS	5-5-05
		Body Dia. 1.375 +0.000 -.0012	Mic 1-2	ns	25	1.3748 - 1.3749	NS	5-5-05
		Thread 1.375-6 UN-2A	Gage #G017 #G017N	ns	25	ok	NS	5-5-05

COMMENTS: RECORD ALL DIMENSIONS THAT CARRIES A TOLERANCE OF (+) .25mm OR LESS

ATM 09 5/19/05

INDUSTRIAL METAL FINISHING

CERTIFICATE OF COMPLIANCE

TO: EASTWOOD MFG. 5/86  
P.O. BOX 41447  
HOUSTON, TX 77241

THIS IS TO CERTIFY THAT THE METAL FINISHING SERVICE RENDERED ON ITEM(S)

126 EA. - 1.375 X 9 DE STUDS

252 EA. - 2.75 OD WASHERS

252 EA. - 1.375 12PT NUTS

ON PURCHASE ORDER 32984 LISTED ON OUR INVOICE #00132583

MEETS OR EXCEEDS THE REQUIREMENTS OF SPECIFICATION NUMBER

CERT: SILVER PLATE PER ANS 2410

NO BAKE REQUIRED

QUALITY PROGRAM DATED: 05/01/93 REVISION: 1 DATED: 04/01/94

NAME:

Tair McPherson

TITLE

QC Manager

5/10/05

DATE

32984



5/19/05

EASTWOOD MANUFACTURING  
CERTIFICATION OF COMPLIANCE

CUSTOMER : MAJOR TOOL AND MACHINE  
ORDER # : P05-01168

DATE : 5-16-05  
OUR NUMBER 32982

WE CERTIFY THAT THE MATERIALS SUPPLIED ON YOUR ORDER  
LISTED ABOVE COMPLIES WITH THE REQUIREMENTS OF YOUR ORDER  
AND OF THE SPECIFICATIONS LISTED BELOW

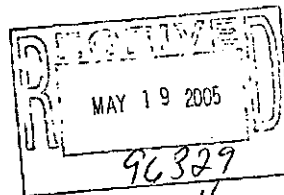
DESCRIPTION :

Lot No.:	Part :	Heat No.:	
32982-1	DS141-060	8977349	1 5/8 Round, forged and machined to size
56 PIECES	ASTM A286		Heat Treat: 36891
	Silver plated		Silver plate: IMF 00132583
	Per AMS2410		Post plate bake: none
			Tensile test: WH 05-0426-20

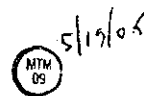
TENSILE KSI	YIELD KSI	ELONGATION	REDUCTION	HARDNESS
150	120	14	35	
PASS	PASS	PASS	PASS	PASS



DALE STARK  
EASTWOOD MANUFACTURING



1-4  
B.7



Washers nuts



GARY COLD FINISHED BAR PLANTS  
PHONE: 219-886-8129 FAX: 219-886-8123

CERTIFICATE OF TESTS REPUBLIC ENGINEERED PRODUCTS

SEPTEMBER 27, 2004  
PAGE: 1 OF 2

PURCHASE ORDER: 4271475  
PART NUMBER : S# 31250  
ORDER NUMBER : 12-31689-04 823  
HEAT : 8977349

PURCHASE ORDER DATE: 03/11/04  
ACCOUNT NUMBER : 27759001  
SCHEDULE : 54199-

CHARGE ADDRESS

SHIP TO

6/11/05

FRY STEEL COMPANY  
BUNNIE ISAKA  
13325 MOLETTE ST  
SANTA FE SPRINGS CA 90670

FRY STEEL COMPANY  
BUNNIE ISAKA  
C/O CMI  
4201 W 36TH ST  
CHICAGO IL 60623

MATERIAL DESCRIPTION

COLD FINISHED STEEL BARS ALLOY ASTM A 331-95 ASTM A 108-03 LEVEL 2 MIL 8 5626C  
E1000 1 COND C-4 EXC MARK & PARA 4.3.1 & 4.12.1 WAIVED AMS 6382M AMS 2304A AMS  
6349C EXC THERMAL TREATMENT AMS 2301J AMS - S - 5626 ISS 12/98 EXC PARA 4.3.1 &  
4.12.1 EF-AISI-4140 AIRCRAFT Q TURNED & POLISHED ANN BEFORE TURN

SIZE: RDS 1.6250 X 11.713FT

LADLE CHEMISTRY

C	MN	P	S	SI	CU	NI	CR	MO	AL
0.42	00.90	.011	.020	0.24	0.18	00.16	00.97	0.21	00.027
V	N	CB	SN						
0.004	0.0067	0.002	0.009						

SEMI-FINISH RESULTS

AUSTENITIC GRAIN SIZE  
AUST GRXIN SZ 7

JOMINY STD	SAE J406	ASTM A255
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 18 20 22 24 26 28 30 32	56 57 57 56 56 55 55 55 53 52 50 48 47 45 44 43 40 39 38 38 38 37 38 37	

MACROETCH SRC SURFACE 1. RANDOM 1. CENTER 1. ASTM E381 MIL STD 430

MAG PARTICLE 2301 AMS 2301 AVG FREQ 0.00 AVG SEV 0.00

MAG PARTICLE 2304 AMS 2304 AVG FREQ 0.00 AVG SEV 0.00

FINISH SIZE RESULTS

SCHEDULE: 54199  
ASTM E10 ASTM A370

BHN	HT	TRTD (LAB)
PCE 01		SURFACE 187
PCE 02		SURFACE 187
PCE 03		SURFACE 187
PCE 04		SURFACE 187
PCE 05		SURFACE 187

MATERIAL SOURCES  
RED. RATIO  
TO 1  
58.2

5/18/05

NOTES

DECARB NIL

THE MATERIAL WAS NOT EXPOSED TO MERCURY OR ANY METAL ALLOY THAT IS LIQUID AT AMBIENT TEMPERATURE DURING PROCESSING OR WHILE IN OUR POSSESSION.

CHEMICAL ANALYSIS CONFORMS TO APPLICABLE SPECS:  
ASTM E 327 ASTM E 1086 ASTM E 415 ASTM E 1019 ASTM E 1085 ASTM E572.

NO WELDING OR WELD REPAIR WAS PERFORMED ON THIS MATERIAL

5/19/05  
MTM 05

AMAN BHATIA  
GEN MGR COLD FINISH OPERATIONS

*Aman Bhatia*



GARY COLD FINISHED BAR PLANTS  
PHONE: 319-886-8129 FAX: 219-886-8123

CERTIFICATE OF TESTS REPUBLIC ENGINEERED PRODUCTS

SEPTEMBER 27, 2004  
PAGE: 2 OF 2

PURCHASE ORDER: 42714-5  
PART NUMBER : 54-51250  
ORDER NUMBER: 12-51689-04 823  
HEAT : 8977349

PURCHASE ORDER DATE: 03/11/04  
ACCOUNT NUMBER : 27759001  
SCHEDULE : 54199-

NOTES (CONTINUED)

I HEREBY CERTIFY THAT THE MATERIAL HEREIN HAS BEEN INSPECTED AND TESTED IN ACCORDANCE WITH THE METHODS PRESCRIBED IN THE GOVERNING SPECIFICATIONS AND BASED UPON THE INSPECTION AND TESTING HAS BEEN APPROVED FOR CONFORMANCE TO THE SPECIFICATIONS

CERTIFICATE OF TESTS SHALL NOT BE REPRODUCED EXCEPT IN FULL.

ALL TESTING HAS BEEN PERFORMED USING THE CURRENT REVISION OF THE TESTING SPECIFICATION.

MFG IN THE U.S.A.

EVELYN GREENE  
NOTARY PUBLIC, STATE OF INDIANA  
MY COMMISSION EXPIRES OCTOBER 10, 2009

END OF DATA CC END OF DATA  
FAX BY FAX PC 1 COPY ATTENTION BUNNIE ISAKA 562-802-7481  
MAIL SOLD TO 1 COPY ATTENTION BUNNIE ISAKA  
FILE 1 COPY  
WITH SHIPMENT 1 COPY PRINTED AT SHIPPING AREA

REPUBLIC CO CERTIFIES THAT THIS IS A TRUE COPY OF THE ORIGINAL MILL TEST REPORT NOW ON FILE

OCT 05 2004

*Bunnie Isaka*  
BUNNIE ISAKA - Q.C. MANAGER

AMAN BHATIA  
GEN MGR. COLD FINISH OPERATIONS  
*Aman Bhatia*

5/19/05  
NTM  
09

04/27/2005 07:39

7138959986

WM LABORATORIES

PAGE 02

**Tensile Test Report**

Company: Eastwood Mfg. Date: 4/27/2005  
 Attention: Dale Stark Lab Report #: 06-0428-20  
 Identification: AISI 4140 P.O. #: 32882  
 Procedure: \_\_\_\_\_ 1-5/8" Diameter Bar  
 Process: \_\_\_\_\_  
 Filler: \_\_\_\_\_  
 Qualification: \_\_\_\_\_  
 Welder: \_\_\_\_\_

**TENSILE TEST**

Lab ID	Dimensions	Area	Yield Lbs	Ultimate Load Lbs	Yield P.S.I.	Tensile P.S.I.
E	.252 round	.0499	7,140	8,000	143,100	180,400

Elongation	Reduction of Area	Fracture	Comments
18.8%	61.2%	Ductile	

Tests performed in accordance with ASTM A370, E8, and WM Laboratories, LLC Quality Assurance Manual.  
 2% Offset Yield - Gage Length 2.000" for .500", and 1.400" for .360" rods per ASTM A370.  
 Test specimens retained for one (1) week maximum; unused material is retained for one (1) month.

Approved by: Robert French  
 Robert French

5/19/05  


Part Number (Detail / Sub-Asy / Assy)	Rev.	Page of
DS141-060		1
Part Name (Detail / Sub-Asy / Assy)		
Nut, 12 pt 1.375-6 UNC-2B		
MATERIAL:	WORK ORDER #	Quantity
	32982	252

INSPECTION DATA CHECKLIST

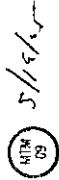
FOR  
Major Tool & Machine Inc.

Eastwood Manufacturing  
9825 Green Rd.  
Houston, Texas 77086  
(281) 447-0088 fax (281) 447-0098

F P05-01161

P.O. NO.	DRAWING - SPECIFICATION DESCRIPTION	INSPECTION INSTRUCTIONS			INSPECTION RESULTS			INSPECTED BY		
		GAGE/EQUIP.	BY	SAMPLE	DATA	CAR NO.	REMARKS	MFG	QA	DATE
	1.375 Maximum	Caliper #200	ns	25	1.375	- 1.370		NS		5-5-05
	2.216 Maximum	Caliper #200	ns	25	2.210	- 2.205		NS		5-5-05
	1.00	Caliper #200	ns	25	1.010	- 1.000		NS		5-5-05
	Minor Dia. 1.195	Caliper #200	ns	25	1.210	- 1.205		NS		5-5-05
	Thread GO - NOGO	gage 243 gage 244	ns	25	ok			NS		5-5-05
	Across Flat 1.62	Caliper #200	ns	25	1.62			NS		5-5-05

COMMENT: RECORD ALL DIMENSIONS THAT CARRIES A TOLERANCE OF (+/-) .25mm OR LESS



INDUSTRIAL METAL FINISHING

CERTIFICATE OF COMPLIANCE

TO: EASTWOOD MFG. 5/86  
P.O. BOX 41447  
HOUSTON, TX 77241

THIS IS TO CERTIFY THAT THE METAL FINISHING SERVICE RENDERED ON ITEM(S)

126 EA. - 1.375 X 9 DE STUDS  
252 EA. - 2.75 OD WASHERS  
252 EA. - 1.375 12PT NUTS

ON PURCHASE ORDER 12984 LISTED ON OUR INVOICE #00132583

MEETS OR EXCEEDS THE REQUIREMENTS OF SPECIFICATION NUMBER

CERT: SILVER PLATE PER AMS 2410  
NO BAKE REQUIRED

QUALITY PROGRAM DATED: 05/01/93 REVISION: 1 DATED: 04/01/94

*Tai McPhilly*  
NAME:

*QC Manager* *5/10/05*  
TITLE DATE

12984

5/19/05  
MTH  
05



03/04/05 13:38 FAX 830 834 9427  
 MAJOR TOOL & MACHINE INC  
 1458 E 19TH ST  
 INDIANAPOLIS IN 46218

MCMASTER CARR SUPPLY #3  
**YOUR PURCHASE ORDER NUMBER**  
 P05-01260  
 Today's Date:

MCMASTER-CARR  
 680 COUNTY LINE ROAD  
 ELMHURST IL 60126-2061  
 IF THERE ARE ANY QUESTIONS ABOUT THIS SHIPMENT CONTACT OUR SALES DEPARTMENT (630)833-0300

002  
**PAGE**  
 1  
**MCM NUMBER**  
 6148181-01

Warehouse Location	McMaster Carr Part Number	Qty	Item Description	Your Line	Your Order	This Shipment
<b>PACKING EXTRA LIST</b>	74765 A86	1 EA	LOCTITE PRISM SUPER GLUE TOUGHENED, NUMBER 411, 1-POUND BOTTLE, CLEAR 1	1	1 EA	1
	74765 A86	1 EA	LOCTITE PRISM SUPER GLUE TOUGHENED, NUMBER 411, 1-POUND BOTTLE, CLEAR 1	2	1 EA	1
		XXXXX	Information about the rest of your order		XXXXX	
	74765 A86		LOCTITE PRISM SUPER GLUE Balance of 1 EA expected to ship by 3/7/2005	3	1 EA	
	74765 A86		LOCTITE PRISM SUPER GLUE Balance of 1 EA expected to ship by 3/7/2005	4	1 EA	
	74765 A86		LOCTITE PRISM SUPER GLUE Balance of 1 EA expected to ship by 3/7/2005	5	1 EA	
	74765 A86		LOCTITE PRISM SUPER GLUE Balance of 1 EA expected to ship by 3/7/2005	6	1 EA	

REFER TO: 6148181-01  
 MAJOR TOOL & MACHINE INC

**Certificate of Compliance**  
 This is to certify that according to our records, the material furnished on this purchase order was supplied in compliance to the description listed, and as illustrated in our catalog.

*Nancy Lancaster*  
 Quality Control

PACKER	NUMBER OF CARTONS	FILLER

LNS: 2

**TAG CCP**

CYCLE

MCM NO. 6148181-01 04

**PURCHASE ORDER**  
 P05-01260

FROM:  
 MCMASTER-CARR  
 680 COUNTY LINE ROAD  
 ELMHURST IL 60126-2061 USA

SHIP TO:  
 MAJOR TOOL & MACHINE INC  
 1458 E 19TH ST  
 INDIANAPOLIS IN 46218

CCP

MAR - 4 2005  
 93966  
 112 B-1

3/4/05

2002

T3CE0



Shipping List 072435  
Customer No 101193  
Sales Order Shipper

Sold to : STANDARD GRINDING & MFG CO  
3721 W. CHASE AVENUE  
SKOKIE, IL 60076  
United States

Ship to : STANDARD GRINDING & MFG CO  
3721 W. CHASE AVENUE  
SKOKIE, IL 60076  
United States

Ship Date	Customer PO	Sales Order	# of Boxes	Weight	Ship VIA	Bill of Lading	F O B
05/17/2005	60624	085171-00	1	0	YELLOW	072435	DE
Item	Part / Description / Details				Order Quantity	Ship Qty	
000001	39GTCNT73125NMWLF U/M SHT SO Item 4				1.00000		
	G-11-CR 48" untrimmed X 36" untrimmed Thickness: 3.125" +/- .110"  PLEASE NOTE THAT THERE IS NO NEMA STANDARD FOR G-11 CR SHEET  SPAULDING C OF C TO G-11 CR SHEET NO TESTING REQUIRED AT TIME OF ORDER  <i>Sheet has 3.550 TC</i>					1.00000	

### CERTIFICATE of CONFORMANCE

WE HEREBY CERTIFY THAT THE MATERIAL SUPPLIED ON THIS ORDER WAS MADE IN ACCORDANCE WITH THE STANDARDS AND PROCESSES ESTABLISHED BY SPAULDING COMPOSITES COMPANY FOR THE REQUIREMENTS OF MATERIAL DESCRIBED ABOVE.

LOT# \_\_\_\_\_ DOM \_\_\_\_\_  
 Authorized By: Mark L. Candillo Date: 05/17/2005

Customer Copy

Page # 1

Form: SCSHIP Rev: 8/99

000/200

ATLAS FIBRE CO.

8647 674 1723

05/28/05 13:00



**Spaulding**  
COMPOSITES

55 Nadeau Drive  
Rochester, NH 03867  
Ph: (603) 332-0555 Fax: (603) 332-5357  
www.spauldingcom.com

Shipping List 072434

Customer No 101193  
Sales Order Shipper

Sold to : STANDARD GRINDING & MFG CO  
3721 W. CHASE AVENUE  
SKOKIE, IL 60076  
United States

Ship to : STANDARD GRINDING & MFG CO  
3721 W. CHASE AVENUE  
SKOKIE, IL 60076  
United States

Ship Date	Customer PO	Sales Order	# of Boxes	Weight	Ship VIA	Bill of Lading	FOB
05/17/2005	60624	063189-00	1	716	YELLOW	072434	DE
Item	Part / Description / Details					Order Quantity	Ship Qty
000001	39G1CNT71850NMWLF U/M SH7 SO Item 5					1.00000	
	G-11CR 48" *UNTRIMMED X 36" *UNTRIMMED THK: 1.850" +/- .070"  PLEASE NOTE THAT THERE IS NO NEMA STANDARD FOR G-11 CR SHEET  SPAULDING C OF C TO G-11 CR SHEET NO TESTING REQUIRED AT TIME OF ORDER						1.00000

**RECEIVED**  
MAY 19 2005  
By: *[Signature]*

5/31/05  
MTH 05

**CERTIFICATE of CONFORMANCE**

WE HEREBY CERTIFY THAT THE MATERIAL SUPPLIED ON THIS ORDER WAS MADE IN ACCORDANCE WITH THE STANDARDS AND PROCESSES ESTABLISHED BY SPAULDING COMPOSITES COMPANY FOR THE REQUIREMENTS OF MATERIAL DESCRIBED ABOVE.

LOT #

DOM.

Authorized By: Mark Li Caudillo Date: 05/17/2005

Customer Copy

Page # 1

Form: SCSHIP Rev: 8/99

0003/003

ATLAS FIBRE CO.

8447 674 1723

05/28/05 13:00

METRODE PRODUCTS LIMITED  
HANWORTH LANE, CHERTSEY

SURREY, UK, KT16 9LL

Tel: +44 (0) 1832 566721

Fax: +44 (0) 1832 565188

Email: info@metrode.com

Website: www.metrode.com

# CERTIFIED MATERIAL TEST REPORT

THIS PRODUCT HAS BEEN MANUFACTURED  
AND SUPPLIED THROUGH A SYSTEM  
APPROVED TO ISO 9001 & 2 OR EQUIVALENT



## TEST CERTIFICATE NUMBER

193695

INVOICE TO
EUROWELD LTD
255 ROLLING HILLS ROAD
MOORESVILLE
NC 28117
USA

DESPATCHED TO
EUROWELD LTD
255 ROLLING HILLS ROAD
MOORESVILLE
NC 28117
USA

CUSTOMER ORDER NUMBER	N.05-34
DELIVERY NOTE DOCUMENT NUMBER	DN0105859
QUANTITY (KG)	15.0000
OUR ORDER REFERENCE	SO1787730 / 1
DATE	02/03/05

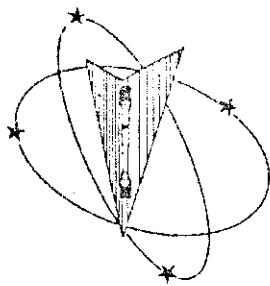
METRODE WELDING CONSUMABLE	ER316MNNF TIG 2.4mm
FORM	TIG WIRE
BATCH NUMBER	W020132
SPECIFICATION	BS EN 12072:2000 W 20 16 3 Mn L

Chemical Analysis (Weight %)										Type: BS EN 10204: 3.1.B / ASME SFA-5.01: Sch. H	
C	Mn	Si	S	P	Cr	Ni	Mo	N	Cu		
0.015	7.43	0.42	0.008	0.014	19.9	15.4	2.62	0.14	0.20		

--	--	--	--	--	--	--	--	--	--	--	--

Mechanical Tests								Type: BS EN 10204: 2.2 / ASME SFA-5.01: Sch. G			
Tensile Tests						Impact Energies					
Condition	Test Temperature	R <sub>p0.2</sub> (MPa)	R <sub>m</sub> (MPa)	A <sub>4</sub> (%)	Z (%)	Temperature (°C)	Impact Energy (J)	Lateral Expansion (mm)			
AS-WELDED	ROOM	>400	>600	40	-	-196	70	-			
Metrode Products Limited certifies that the above material conforms to the indicated specifications.		ASME SFA-5.01; Lot classification 54						3/3/05 93911 Linc 1 B.1			
This document is produced electronically and is valid without signature.		IMPORTANT: Any liability arising from either reliance on this certificate, or use of our products, is strictly limited and governed by our conditions of business.						Notes: % In includes treatment of Cu unless otherwise specified. % Mn (Cu) includes treatment of Ni unless otherwise specified. Partic is given as FN (Particle number) and measured on standard pad using instrument calibrated against NBS-related secondary standards (see ASTM Std 3-97) unless otherwise specified.			
Barrie Kyjet - Q.A. Manager											

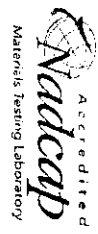
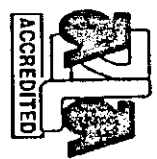
MTH  
E9  
3/7/05



# Westmoreland Mechanical Testing & Research, Inc.

P.O. Box 388  
Westmoreland Drive  
Youngstown, Pa. 15696-0388 U.S.A.  
Telephone: 724-537-3131 Fax: 724-537-3151  
Website: www.wmtr.com

WMT&R is a technical leader in the material testing industry.



April 22, 2005

Major Tool & Machine Inc.  
1458 East 19th Street  
Indianapolis, IN 46218

## CERTIFICATION

Corrected Date  
May 4, 2005

Page IM1 of 1

WMT&R Report No. 5-25008  
P.O. No. P05-01764  
PQR No. 434  
Welder Jason Bever #465

Attention: Josh Mayne

Subject: All processes, performed upon the material as received, were conducted at WMT&R, Inc. in accordance with the WMT&R Quality Assurance Manual, Rev. 9, dated 4/1/2000.  
The following tests were performed on this order: IMPACT and TENSILE

IMPACT RESULTS: ASME Section IX and AWS B2.1, ASTM E23-02

No Requirements

MATERIAL: Metalek CF8MNMN MOD

SAMPLE TYPE: Charpy V-Notch

DISPOSITION: Report

Specimen ID	TestLog Number	Sample Size	Temp. °F/°C	Energy ft-lbs	Energy Joules	Mils Lat Exp	AUI/R
Weld-1	B65835	Standard	68/20	173	234.6	84	Report
Weld-2	B65836	Standard	68/20	160	216.9	68	Report
Weld-3	B65837	Standard	68/20	157	212.9	81	Report

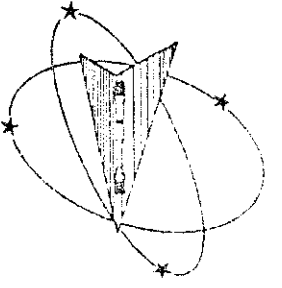
AUI/R: A=ACCEPTABLE, U=UNACCEPTABLE, R=REPORT

KNOWING OR WILLFULLY FAILING OR CONCEALING A MATERIAL FACT ON THIS FORM OR MAKING FALSE STATEMENTS OR FAKING TEST STATISTICS OR REPRESENTATIONS HEREIN COULD CONSTITUTE A FELONY VIOLATING FEDERAL CRIMINAL STATUTES. THIS CERTIFICATE OR REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL, WITHOUT THE WRITTEN APPROVAL OF WMT&R, INC.

Testing Specialists for Aerospace, Automotive, and Material Testing Fields  
Locations in Youngstown, PA U.S.A. ~ Tel: (724) 537-3131 and  
Barbury U.K. ~ Tel: +44 (0) 1295 261211

Richard G. Parks  
Project Manager/Industrial Technology Engineer

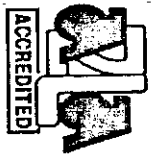
5/4/05  
May 4, 2005



**Westmoreland Mechanical Testing & Research, Inc.**

P.O. Box 388  
 Westmoreland Drive  
 Youngstown, Pa. 15696-0388 U.S.A.  
 Telephone: 724-537-3131 Fax: 724-537-3151  
 Website: [www.wmt&r.com](http://www.wmt&r.com)  
 WMT&R is a technical leader in the material testing industry.

**CERTIFICATION**



621-01-8-021-02



Section 1 of 2  
 WMT&R Report No. 5-25008  
 P.O. No. P05-01764  
 POR No. 434  
 Welder Jason Beyer #465

April 20, 2005  
 Major Tool & Machine Inc.  
 1458 East 19th Street  
 Indianapolis, IN 46218

Attention: Josh Mayne

Subject: All processes, performed upon the material as received, were conducted at WMT&R, Inc. in accordance with the WMT&R Quality Assurance Manual, Rev. 9, dated 4/1/2000.  
 The following tests were performed on this order: IMPACT and TENSILE

**TENSILE RESULTS: ASME Section IX and AWS B2.1, ASTM E21-03a**

**SOAK TIME: 5 Minutes**

**SPEED OF TESTING: 0.0050 in./in./min., 0.0500 in./min./in.**

**MATERIAL: Metrode ER316Mnnt**

**DISPOSITION: Report**

AU/R: A=ACCEPTABLE, U=UNACCEPTABLE, R=REPORT

Specimen ID	Testlog Number	Temp. °F/°C	UTS KSI/MPA	0.2% YS KSI/MPA	Elong %	RA %	Modulus MSI/GPA	Ult. Load LBS/NEWTONS	0.2% YLD. LBS/NEWTONS
T1	B65833	-320/-196	191.8/1320	148.7/1030	27	39	28.7/198	2630/11699	2039/9071

**DISPOSITION: Report**

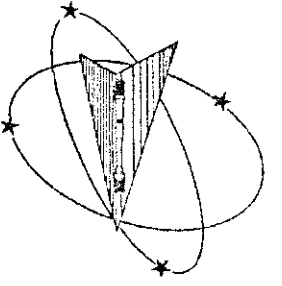
AU/R: A=ACCEPTABLE, U=UNACCEPTABLE, R=REPORT

Specimen ID	Testlog Number	Orig. Width (in./mm)	Final Width (in./mm)	Orig. Thick (in./mm)		Final Thick (in./mm)		Orig. Dia. (in./mm)	4D Orig GL (in./mm)	4D Final GL (in./mm)	Orig. Area (Sq. In./Sq. mm)	Failure Location/Type	Machine Number	AU/R
				Thick (in./mm)	Thick (in./mm)	Thick (in./mm)	Thick (in./mm)							
T1	B65833	0.1802/4.57708	0.1437/3.650	0.076/1.933	0.0582/1.478	0.251/6.378	0.70/17.78	0.89/22.61	0.041838/626.992307	WELD/DUCTILE	M9	R		

Roy E. Starr/Matt Wojton  
 Technical Services Manager / Tensile Supervisor  
 April 20, 2005

Testing Specialists for Aerospace, Automotive, and Material Testing Fields  
 Locations in Youngstown, PA U.S.A. ~ Tel. (724) 537-3131 and  
 Danbury, Vt. ~ Tel. +44 (0) 1295 261211

KNOWINGLY OR UNWITTINGLY FALSIFYING OR CONCEALING MATERIAL FACT ON THIS FORM OR MAKING FALSE, FICTITIOUS OR FRAUDULENT STATEMENTS OR REPRESENTATIONS HEREIN COULD CONSTITUTE A FELONY PUNISHABLE UNDER FEDERAL STATUTES. THIS CERTIFICATE OR REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL, WITHOUT THE WRITTEN APPROVAL OF WMT&R, INC.



April 20, 2005

Major Tool & Machine Inc.

Westmoreland Mechanical Testing & Research, Inc.

P.O. Box 388

Westmoreland Office

Youngstown, Pa. 15696-0388 U.S.A.

Telephone: 724-537-3151

Fax: 724-537-3151

Website: www.wmtr.com

WMTR is a technical leader in the material testing industry.

CERTIFICATION

TENSILE RESULTS: ASME Section IX and AWS B2.1, ASTM E21-03a

SOAK TIME: 5 Minutes

SPEED OF TESTING: 0.0050 in./in./min., 0.0500 in./in./min.

MATERIAL: Metrode ER316Mnrf

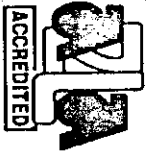
DISPOSITION: Report

Specimen ID	Testlog Number	Temp. *F/C	UTS KSI/MPA	0.2% YS KSI/MPA	Elong %	RA %	Modulus MSI/GPA	Ult. Load LBS/NEWTONS	0.2% YLD. LBS/NEWTONS
T2	B65834	-320/-196	204.7/1410	156.5/1080	29	34	29.9/206	5095/22664	3894/17323

AU/R: A=ACCEPTABLE, U=UNACCEPTABLE, R=REPORT

Specimen ID	Testlog Number	Orig. Dia. (in./mm)	Final Dia. (in./mm)	4D Orig. GL (in./mm)	4D Final GL (in./mm)	Orig. Area (Sq. In./Sq. mm)	Failure Location/Type	Machine Number	AU/R
T2	B65834	0.1780/4.521	0.1444/3.668	0.70/17.78	0.90/22.86	0.02488456/16.054520	WELD/DUCTILE	M9	R

AU/R: A=ACCEPTABLE, U=UNACCEPTABLE, R=REPORT



621-01 & 621-02



Section 2 of 2

WMT&R Report No. 5-25008

P.O. No. P05-01764

Technical Services Manager

April 20, 2005

*Matthew Weston*  
Roy E. Starr/Matt Weston  
Tensile Supervisor

KNOWNLY OR WILLFULLY FALSIFYING OR CONCEALING A MATERIAL FACT ON THIS FORM OR MAKING FALSE, FICTITIOUS OR FRAUDULENT STATEMENTS OR REPRESENTATIONS HEREIN COULD CONSTITUTE A FELONY PUNISHABLE UNDER FEDERAL STATUTES. THIS CERTIFICATE OR REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL, WITHOUT THE WRITTEN APPROVAL OF WMTR, INC.

Testing Specialists for Aerospace, Automotive, and Material Testing Fields  
Locations in Youngstown, PA U.S.A. ~ TEL (724) 537-3151 and  
Danbury, CT ~ TEL +44 (0) 1295 261211

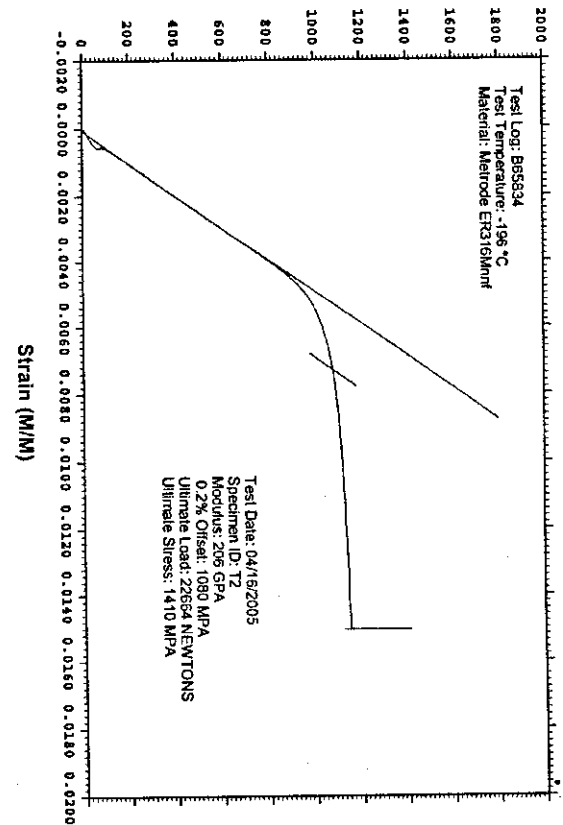
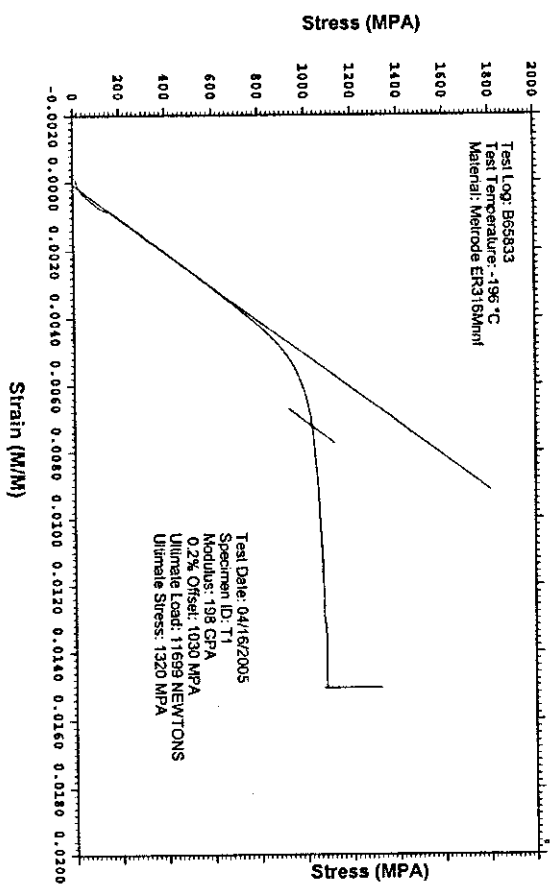
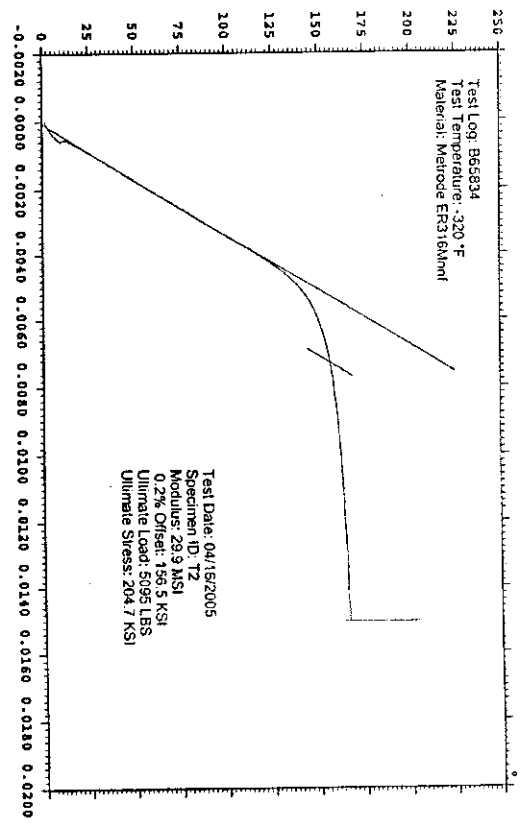
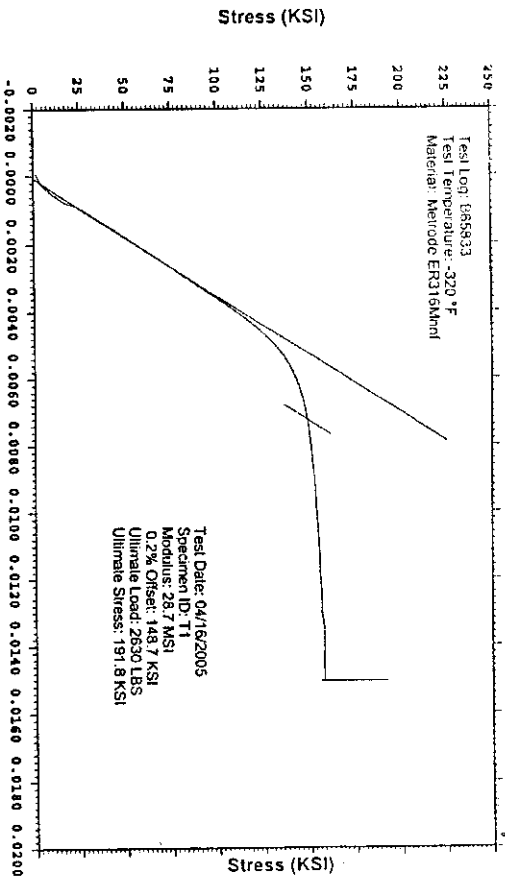
**WESTMORELAND MECHANICAL TESTING & RESEARCH, Inc**

Stress vs. Strain

Phone: (724)537-3131

Customer: Major Tool & Machine Inc.  
WMT&R Report: 5-25008

P.O. No.: P05-01764  
PQR No.: 434  
Welder: Jason Bayer #465



KNOWINGLY OR WILLFULLY FALSIFYING OR CONCEALING A MATERIAL FACT ON THIS FORM OR MAKING FALSE, FICTITIOUS OR FRAUDULENT STATEMENTS OR REPRESENTATIONS HEREIN COULD CONSTITUTE A FELONY PUNISHABLE UNDER FEDERAL STATUTES.







INSPECTION DATA CHECKLIST

Quality Assurance Documentation for Part ID: SE141-116 - Item: 17

Workorder: 65707/2-0 Sub:1 Op:40

Part: SE141-116 - MODULAR COIL WINDING FORM TYPE-C - PRODUCTION MODULAR COIL WINDING FORM TYPE-C

Drawing ID: SE141-116 Rev: 7		INSPECTION INSTRUCTIONS		RESULTS		INSPECTED BY	
SHEET ZONE	CHARACTERISTIC	GAGE/EQUIP	BY SAMPLE	SER#	DATA/REMARKS	INSP	VERFD AUDIT
*	RECORD MAG PERMEABILITY RANGE OF ROUGH MACHINED CASTING. (IN-PROCESS INSPECTION AFTER ROUGH MACHINING OPERATION)	MASTER GAGE	QA	J-1270	16 PLACES TOTAL. CHECKS LESS THAN 1.0 2	854-R.U	
(10)						12-12-05	A

# Nondestructive Test Certification for Liquid Penetrant Examination

Quality Assurance Documentation for Part ID: SE141-116 - Item: 18

1458 E. 19th Street, Indianapolis, In 46218  
TEL:(317)636-6433 FAX:(317)634-9420

**Date of Inspection:** 11/25/2005      **Type of Material:** CAST STAINLESS      **NDT#:** 14648

<b>Stage of Inspection:</b> <input type="checkbox"/> Incoming Inspection <input type="checkbox"/> In-Process Inspection <input type="checkbox"/> After Repair <input checked="" type="checkbox"/> Final Inspection	<b>Manufacturing Process:</b> <input type="checkbox"/> Weldment <input checked="" type="checkbox"/> Casting <input type="checkbox"/> Bar Stock <input type="checkbox"/> Plate <input type="checkbox"/> Forging <input type="checkbox"/> Other	<b>Surface Condition:</b> <input checked="" type="checkbox"/> Machined <input type="checkbox"/> Rough <input checked="" type="checkbox"/> Other CLEANED & DEBURRED	<b>Test Being Run to:</b> <input checked="" type="checkbox"/> Router Instructions <input checked="" type="checkbox"/> Drawing <input type="checkbox"/> Test Plan <input type="checkbox"/> Technique Card SEE NOTES	<b>Heat Treated:</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
--	--	--	---	--

<b>Part Information:</b> MTM Job Number: 65707/2.0 -Sub:1 -Op:100 Resource ID: 810-LIQUID PENETRANT INSPE Part ID: SE141-116 Part Name: MODULAR COIL WINDING FOR Serial Number: Customer P.O.: S005242-F Customer Unit/Plant:	<b>Test Results:</b> Quantity Inspected: 1 Quantity Accepted: 0 Quantity Rejected: 1  Run Hours: 0.0	<b>Inspection Results:</b> Customer N/C #: <input type="checkbox"/> Accepted <input checked="" type="checkbox"/> Rejected <input type="checkbox"/> N/C-Report <input type="checkbox"/> Rework MTM N/C #: 18715
--	---	--

<b>Customer Inspection Plan:</b> SEE NOTES <b>Test Step:</b> <b>Revision:</b> <b>Material Test Number:</b>	<b>Inspection Criteria:</b> <b>Customer Specification:</b> ASTM A903/A903M <b>MTM Spec Number:</b> PS582 (REF NDT-WI-09) <b>Acceptance Standard:</b> ASTM A903 (SEE NOTES)
---	---

<b>Inspection Materials Used:</b> <b>Manufacturer:</b> SHERWIN <b>Type of Penetrant:</b> DP-51 <b>Batch Number:</b> 41-E47 <b>Developer:</b> D-100 <b>Batch Number:</b> 520-H6	<b>Penetrant Examination Processes:</b> <b>Type:</b> II (Visible) / Dwell Time: 15 Minutes <b>Method:</b> A (Water Wash) <b>Method of Drying:</b> Normal Evaporation <b>Form:</b> e (nonaqueous for Type II visible dye) / Dwell Time: 12 Min
---	---

**Inspection Requirements:**

100 % of all accessible surfaces     Joint Preps     Root Pass     Back Gouge     Cover Pass     Other  
 SEE NOTES

**Notes:**

PT 100% of the part as-cast surfaces as well as finished machine surfaces.  
 PART IS REJECTED PER ASTM A903/A903M Level II for as cast surfaces  
 ASTM A903/A903M Level I for machined surfaces including the entire "T" section (high stress areas)  
 Please reference MTM NC 18715 for additional information.

This is to certify that the pieces specified have been inspected in accordance with the specifications shown.

**Inspector:** 674-S.WILLIAMS

**Date:** 11/25/2005

*Sylvester Williams Level II* P-1

4959

10520 Chester Road  
Woodlawn, Ohio 45215



CLIENT Major Tool & Machine	DATE 11/26/05	PO. NO. N/A	DATE 11/26/05
COOPERHEAT IR 192	OPERATOR Robert Weaver	OR. NO. 13850291	FILM TECHNIQUE PB SCREENS
FIELD PROCESS N/A	TIME 2:30	FILM PROCESSING Kodak AA Double	ACCEPTANCE STANDARD No defects > .080"
DESCRIPTION 65707/20/1/110/88 SE 141-116 rev. 6 Page 1 of 2	FOCAL SPOT SIZE .160"	MATERIAL THICKNESS N/A	PERMEAMETER ASTM B
	MATERIAL DIAMETER 316 SS	MATERIAL THICKNESS .75"	REMARKS Densitometer-12105 cal due 2/2/06

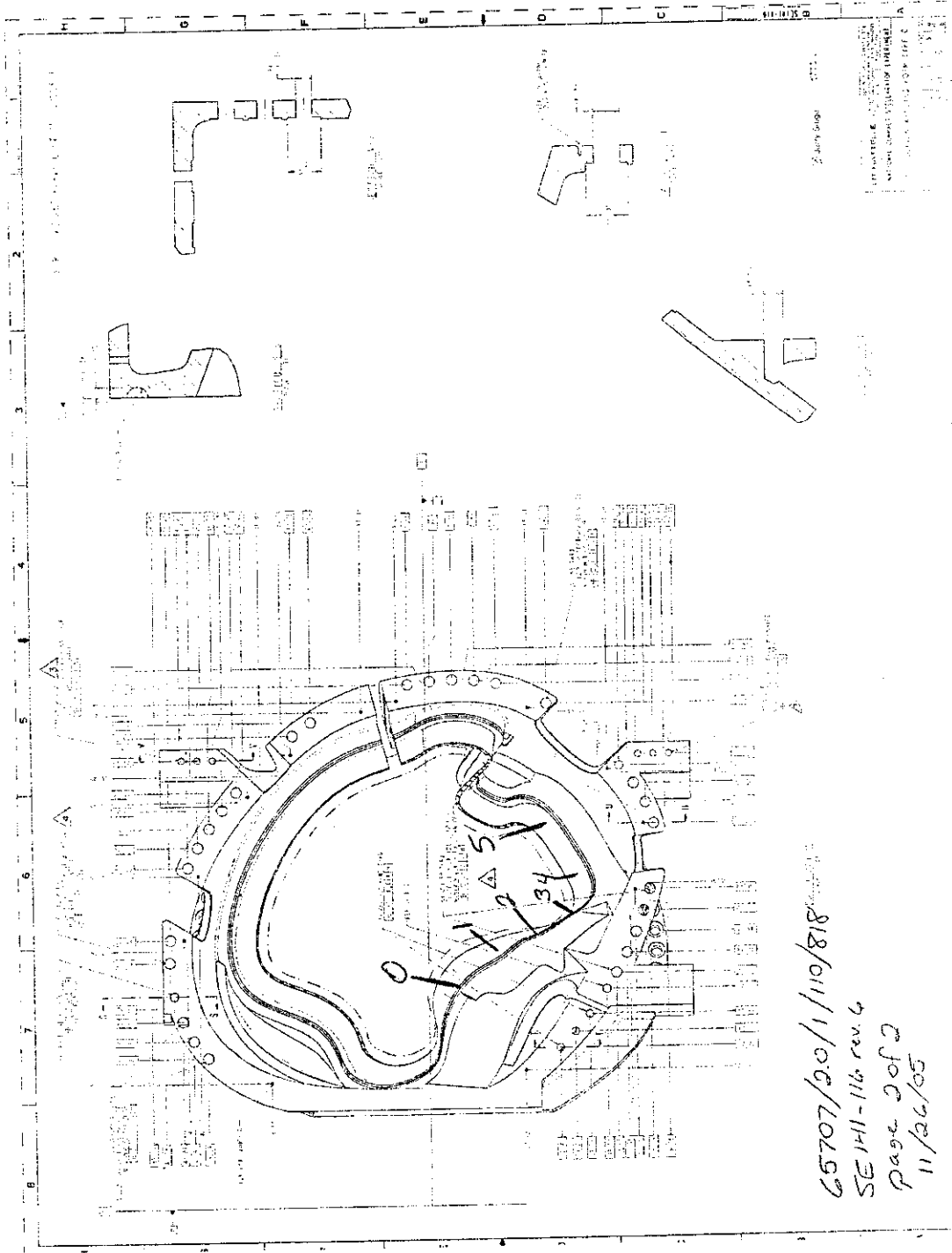
FITTING, SEAM OR FITTING	FILM INTERVAL NUMBER	WELDER IDENTIFICATION	PERMEAMETER		SLAG	POROSITY	POROSITY WITH TAP	CRACK	LACK OF PEN	LACK OF FUSION	INTERNAL CAVITY	INTERNAL CONVEXITY	INTERNAL UNDERCUT	EXTERNAL UNDERCUT	ALIGNED INDICATIONS	WELD CONTOUR	MISALIGN	FILM ATTACK	VISUAL CONCERNS	FILM DENSITY	SEE REMARKS	ACCEPT	REJECT		
			SIZE	QUALITY LEVEL																					
T500	0-1	N/A	1B	.016"	✓	✓																			
	1-2																								
	2-3																								
	3-4																								
	4-5																								

11/26/05

Robert Weaver

Customer Representative Signature

Cooperheat's Signature



65707/20/1/110/818  
SE 1/11-116 rev. 4  
Page 2 of 2  
11/26/05



**Major**  
Tool & Machine, Inc.

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE141-116 - Item: 20

Workorder: 65707/2-0 Sub:1 Op:121

Part: SE141-116 - MODULAR COIL WINDING FORM TYPE-C - PRODUCTION MODULAR COIL WINDING FORM TYPE-C

SHEET	ZONE	CHARACTERISTIC	INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
			GAGE/EQUIP	BY SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
6*	F2	$\square$ .02	CMM	QA	00064	.003		339-E.R		A
(510)								11-25-05		
6*	F2	1.125 ± .010	CMM	QA	00064	1.126 - 1.135		339-E.R		A
(520)								11-25-05		
6*	F2	2.250 ± .010	CMM	QA	00064	2.240 - 2.252		339-E.R		A
(530)								11-25-05		
6*	E2	$\Phi$ .001 F P V	CMM	QA	00064	0.01		339-E.R		A
(540)		7X Ø1.625 THRU BOTH SIDES						11-25-05		



**Major**  
Tool & Machine, Inc.

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE141-116 - Item: 21

Workorder: 65707/2-0 Sub:1 Op:134

**Part: SE141-116 - MODULAR COIL WINDING FORM TYPE-C - PRODUCTION MODULAR COIL WINDING FORM TYPE-C**

SHEET		ZONE	CHARACTERISTIC	INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
1*	(10)			GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
1*	(10)	E8	47.19 ± .03	CMM	QA		00064	47.178 - 47.183	339-E.R	12-07-05	A
1*	(11)	G8	R17.00 +.25 -.00	CMM	QA		00064	17.035 - 17.070	339-E.R	12-07-05	A
1*	(20)	B8	47.19 ± .03	CMM	QA		00064	47.187 - 47.191	339-E.R	12-07-05	A
1*	(30)	D6	47.19 ± .03	CMM	QA		00064	47.192 - 47.195	339-E.R	12-07-05	A
1*	(40)	C6	47.19 ± .03	CMM	QA		00064	47.186 - 47.191	339-E.R	12-07-05	A
1*	(50)		// .02 A	CMM	QA		00064	.005	339-E.R	12-07-05	A
1*	(60)	B6	// .02 A	CMM	QA		00064	.006	339-E.R	12-07-05	A
1*	(70)	F3	☐.5 A B C	CMM	QA		00064	REFERENCE IGES DAT	339-E.R	12-12-05	A
2*	(80)	H6	2X R.187 +.025 -.005	INDICATOR	QA		J-651	.185 - .187	339-E.R	12-07-05	A
2*	(90)	G8	2X .03 X 45°		QA		VISUAL	ACCEPT	339-E.R	12-12-05	A
2*	(100)	G8	.40 ± .010	CALIPER	QA		J-707	0.40 - 0.41	339-E.R	12-07-05	A
2*	(110)	G8	2X .030 X 45°		QA		VISUAL	ACCEPT	339-E.R	12-12-05	A
2*	(120)	F7	2X .32	CALIPER	QA		J-707	.32 - .33	339-E.R	12-07-05	A
2*	(130)	F7	2X R.11	RADIUS GAGE	QA		R-25	.12	339-E.R	12-07-05	A
2*	(140)	G6	☐.1 R S T P.T.O.M	CMM	QA		00064	REFERENCE IGES DAT	339-E.R	12-12-05	R
2*		G6	4.790 ± .005		QA		VISUAL	ACCEPT	339-E.R		A







**Major**  
Tool & Machine, Inc.

**INSPECTION DATA CHECKLIST**

4*	H7	3 X SPHERICAL R.750 +.002 / -.003 TOLERANCE CHANGE PER RFD 14-009 ITEM 5. DATUM -D- FLANGE.	CMM	QA	00064	.753 / .764 / .763	339-E.R	R
(295)	H7	Φ   Ø.01   D   A   N	CMM DEPTH MICROMET	QA	00064 J-1024	TP .020 / .74 DEEP	12-12-05	R
(300)	H6	Φ   Ø.01   D   A   N 17X Ø1.88 THRU Ø3.00 BACK SPOTFACE MIN TO CLEANUP	CMM	QA	00064	0.102 / 1.87 - 1.88 / 3.00 CLEAN UP	339-E.R 12-12-05	R
(310)	H5	Φ   Ø.01   D   A   N 3X Ø1.13 Ø2.38 BACK SPOTFACE MIN TO CLEANUP	CMM	QA	00064	0.041 / 1.12 - 1.13 / 3.2 CLEAN UP	12-07-05 339-E.R	R
(320)	E6	Φ   Ø.01   D   A   N 3X Ø1.375-6 UNC THRU	CMM THREAD PLUG GA	QA	00064 A-375	.038 / ACCEPT THREA DS	339-E.R 12-07-05	R
(340)	E6	Φ   Ø.01   D   A   N 5X Ø1.88 THRU Ø3.00 BACK SPOTFACE MIN TO CLEANUP	CMM	QA	00064	.0182 / 1.87 - 1.88 / 2.98 - 2.99	339-E.R	R
(350)	D4	Φ   Ø.01   D   A   N Ø1.88 THRU Ø3.00 BACK SPOTFACE MIN TO CLEANUP	CALIPER CMM	QA	J-707 00064	.0184 / 1.88 / 2.99	12-07-05 339-E.R	R
(360)	B5	Φ   Ø.01   D   A   N 3X Ø1.13 Ø2.38 BACK SPOTFACE MIN TO CLEANUP	CALIPER CMM	QA	J-707 00064	.028 / 1.13 - 1.27 / 3.2 CLEAN UP	12-07-05 339-E.R	R
(370)	E8	Φ   Ø.01   E   A   J Ø1.88 THRU Ø3.00 BACK SPOTFACE MIN TO CLEANUP	SCALE CMM	QA	J-922 00064	.015	12-07-05 339-E.R	R
(380)	F6	3X Ø1.375-6 UNC √1.25	THREAD PLUG GA	QA	A-375	ACCEPT	12-07-05 339-E.R	A
(400)	F6	3 X SPHERICAL R.750 +.002 / -.003 TOLERANCE CHANGE PER	CMM	QA	00064	.758 / .752 / .750	339-E.R	A



Major  
Tool & Machine, Inc.

INSPECTION DATA CHECKLIST

Item #	Description	Method	QA	Notes	Date	Req
(405)	RFD 14-009 ITEM 5.				12-12-05	
5*	DATUM -E- FLANGE.	CMM	QA		339-E.R	R
(410)	Φ   Ø.01   E   A   J 3X SPH R.75 TO .75 DEEP			00064	12-12-05	
5*	7X .25-20 UNC -2B	THREAD PLUG GA	QA	A-236	339-E.R	A
(420)					12-07-05	
5*	Φ   Ø.01   E   A   J 24X Ø1.88 THRU Ø3.00 BACK SPOTFACE MIN TO CLEANUP	CMM	QA	00064	339-E.R	R
(430)					12-07-05	
5*	Φ   Ø.01   E   A   J 3X Ø1.5 TO 2.00 DEEP Ø3.00 TO 1.00 DEEP	CMM	QA	00064	339-E.R	R
(440)		CALIPER		J-707	12-07-05	
5*	3X Ø1.88 THRU Ø3.00 BACK SPOTFACE MIN TO CLEANUP	CMM	QA	00064	339-E.R	A
(450)		CALIPER		J-707	12-07-05	
5*	SPH R.75 TO .75 DEEP	CMM	QA	00064	339-E.R	A
(460)		DEPTH MICROMET		J-1024	12-07-05	
7*	R7.00	CMM	QA	00064	339-E.R	A
(550)					12-07-05	
7*	2X R1.50	CMM	QA	00064	339-E.R	A
(560)					12-07-05	
7*	2.52 ± .010	CMM	QA	00064	339-E.R	A
(570)					12-07-05	
7*	90°	CMM	QA	00064	339-E.R	A
(580)					12-07-05	
7*	2.0°	CMM	QA	00064	339-E.R	A
(590)					12-07-05	
7*	2.64 ± .010	CMM	QA	00064	339-E.R	A
(600)					12-07-05	
7*	6.50 ± .010	CMM	QA	00064	339-E.R	A
(610)					12-07-05	
7*	3.06 ± .010	CMM	QA	00064	339-E.R	A
(620)					12-07-05	
7*	R4.00 ± .010	CMM	QA	00064	339-E.R	R

INSPECTION DATA CHECKLIST



(630)																
7*	D3	2.10 ± .010														
(640)			CMM	QA						00064			REFERENCE IGES DAT	339-E.R		A
8*	G7	4.00 ± .010														
(650)			CMM	QA						00064			3.97	339-E.R		R
8*	G7	R4.00 ± .010														
(670)			CMM	QA						00064			3.98	339-E.R		R
8*	F7	2.00 ± .010														
(680)			CMM	QA						00064			2.00	339-E.R		A
8*	E3	9.38 ± .010														
(690)			CMM	QA						00064			REFERENCE IGES DAT	339-E.R		A
8*	E2	6.0°														
(700)			CMM	QA						00064			REFERENCE IGES DAT	339-E.R		A
8*	C2	Ø8.00 ± .010														
(710)			CMM	QA						00064			7.990-8.265 (0.275 OOR)	212-J.L.F		R
8*	B3	5.9°														
(720)			CMM	QA						00064			REFERENCE IGES DAT	339-E.R		A
8*	B3	7.81 ± .010														
(730)			CMM	QA						00064			REFERENCE IGES DAT	339-E.R		A
8*	C6	7.25 ± .010														
(740)			CMM	QA						00064			REFERENCE IGES DAT	339-E.R		A
8*	D7	6X Ø.375-16 UNC TO .75 DEEP .03 X 45° CHAMFER														
(750)			THREAD PLUG GA	MFG						A-275			ACCEPT / 0.75 / .03	339-E.R		A
8*	D7	13.6°														
(760)			CALIPER	MFG						J-707			X 45	12-07-05		R
8*	D7	5.88 ± .010														
(770)			CMM	QA						00064			13.20	339-E.R		R
8*	D7	2.19 ± .010														
(780)			CMM	QA						00064			2.1	12-07-05		R
8*	D7	2.19 ± .010														
(790)			CMM	QA						00064			2.17	12-07-05		R
8*	B7	4X R.50														
(800)			RADIUS GAGE	QA						R-25			BOTTOM RADII BLEN INTO CAST SURFACE	339-E.R		R
8*	B7	3.50 ± .010														
(810)			CMM	QA						00064			ACCEPT	212-J.L.F.		A
8*	B7	1.75 ± .010														
			CMM	QA						00064			ACCEPT	212-J.L.F.		A



### INSPECTION DATA CHECKLIST

(820)	C8	2X 1.56 ± .010 THRU	CALIPER	QA	J-707	1.558	12-07-05	A
(830)	C8	3.75 ± .010	CMM	QA	00064	ACCEPT	212-J.LE 12-07-05	A
(840)	C8	2X 7.50 ± .010 THRU	CMM	QA	00064	ACCEPT	212-J.LE 12-07-05	A
(850)	C8	8X R.25	RADIUS GAGE	QA	R-25	0.260	212-J.LE 12-07-05	A
(860)	C8	2X 2.52 ± .010	CMM	QA	00064	ACCEPT	212-J.LE 12-07-05	A
(870)	E2	Ø8.00 ± .010	CALIPER	QA	J-707	7.980-8.265 0.075 O OR	212-J.LE 12-07-05	R
(880)	E7	2.54 ± .010	CALIPER	QA	J-707	2.54	212-J.LE 12-07-05	A
(900)	E7	5.08 ± .010	CALIPER	QA	J-707	5.08	212-J.LE 12-07-05	A
(910)	F3	4X Ø1.0 THRU	CALIPER	QA	J-707	.999 - 1.004	212-J.LE 12-07-05	A
(920)	F3	2X Ø .50 ± .010 THRU	CALIPER	MFG	J-707	.500 - .502	321-C.L 12-07-05	A
(930)	E3	2.44 ± .010	CALIPER	QA	J-707	2.450	212-J.LE 12-07-05	A
(940)	E3	1.22 ± .010	CALIPER	QA	J-707	1.22	212-J.LE 12-07-05	A
(950)	C7	4X Ø1.0 THRU	CALIPER	QA	J-707	1.003-1.016	339-E.R 12-12-05	A
(960)	C6	2X Ø .25 T.C. HOLE TO 2.5 DEEP	CALIPER	QA	J-707	0.25	339-E.R 12-12-05	A
(970)	C8	<input type="checkbox"/> .125 <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C	CMM	QA	00064	REFERENCE IGES DAT	339-E.R 12-12-05	A
(980)	D6	<input type="checkbox"/> .5 <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C	CMM	QA	00064	REFERENCE IGES DAT	339-E.R 12-12-05	R
(990)	C5	<input type="checkbox"/> .02 <input type="checkbox"/> R <input type="checkbox"/> T <input type="checkbox"/> S	CMM	QA	00064	REFERENCE IGES DAT	339-E.R 12-12-05	R
(1000)	C4	<input type="checkbox"/> .125 <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C	CMM	QA	00064	REFERENCE IGES DAT	339-E.R 12-12-05	A

INSPECTION DATA CHECKLIST



SHEET ZONE	CHARACTERISTIC	GAGE/EQUIP	BY SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	A
10* (1020)	G1	0.02 R T S	QA	00064	REFERENCE IGES DAT	339-E.R	12-12-05	R
10* (1030)	E1	0.5 A B C	QA	00064	REFERENCE IGES DAT	339-E.R	12-12-05	R
Drawing ID: NCSX-CSPEC-141-03 Rev: 10								
4* (1040)	3.1.1.	UOS ALL MACHINED SURFACES TO BE 250 RMS SURFACE FINISH RECORD RANGE	PROFILOMETER	QA	J-1152	85 - 230	339-E.R	A
Drawing ID: SE141-116 Rev: 7								
1*		RECORD THE WEIGHT OF THE PART 6000LBS MAX		QA		5620 LBS	242-M.G	A
4* (1050)	H7	22.13 ± .010	QA	00064	22.12	12-15-05		A
4* (1060)	H7	47.79 ± .010	QA	00064	47.776	12-07-05		R
4* (1070)	H6	59.18 ± .010	QA	00064	59.176	12-07-05		A
4* (1080)	H6	73.27 ± .010	QA	00064	73.265	12-07-05		A
4* (1090)	H5	80.49	QA	00064	80.469	12-07-05		R
4* (1100)	H5	87.87 ± .010	QA	00064	87.838	12-07-05		R
4* (1110)	H5	89.64 ± .010	QA	00064	89.584	339-E.R		R
4* (1120)	G4	31.83 ± .010	QA	00064	31.827	12-12-05		A
4* (1130)	F4	24.10 ± .010	QA	00064	24.097	12-07-05		A
4* (1140)	F4	11.48 ± .010	QA	00064	11.463	339-E.R		R
4* (1150)	E4	5.20 ± .010	QA	00064	5.201	12-12-05		A



INSPECTION DATA CHECKLIST

Page: 10  
Date: 02/04/06  
User ID: GRIFFIT#

Table with columns for part numbers (e.g., D4, C5, B7, C7, D8, F8, G8, D1, H8, H7, H6, H5, G5, D4), dimensions (e.g., 18.31 ± .010, 32.50 ± .010), inspection methods (CMM, QA), and dates (12-07-05).



**INSPECTION DATA CHECKLIST**

(1340)												12-07-05
5*	D4	38.14 ± .010										212-JLE
(1350)												12-07-05
5*	D5	21.33 ± .010										212-JLE
(1360)												12-07-05
5*	D7	87.62 ± .010										212-JLE
(1370)												12-07-05
5*	E8	7.53 ± .010										212-JLE
(1380)												12-07-05
5*	E8	4.91 ± .010										212-JLE
(1390)												12-07-05
5*	G8	36.13 ± .010										212-JLE
(1400)												12-07-05
7*	D4	2.1°										212-JLE
(1410)												12-07-05
8*	D8	2.63 ± .010										212-JLE
(1420)												12-07-05





**Major**  
Tool & Machine, Inc.

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE141-116 - Item: 22

Workorder: 65707/2-0 Sub:1 Op:140

Part: SE141-116 - MODULAR COIL WINDING FORM TYPE-C - PRODUCTION MODULAR COIL WINDING FORM TYPE-C

Drawing ID: SE141-103 Rev: 2		INSPECTION INSTRUCTIONS		RESULTS		INSPECTED BY				
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*		INSPECT AND RECORD RESISTANCE ACROSS BOLT INSUL. VALUE TO BE >500 KOHM'S		QA			110 MEGA OHMS	840-G.M		
(10)								12-12-05		
*		INSPECT AND RECORD RANGE OF RESISTANCE ACROSS POLOIDAL BREAK MIDPLANE AND BOLTS VALUE TO BE >500 KOHM'S		QA			110 MEGA OHMS	840-G.M		
(20)								12-12-05		



1458 E. 19th Street, Indianapolis, In 46218  
 TEL:(317)636-6433 FAX:(317)634-9420

# Nondestructive Test Certification for Liquid Penetrant Examination

Quality Assurance Documentation for Part ID: SE141-116 - Item: 23

**Date of Inspection:** 12/12/2005      **Type of Material:** CAST STAINLESS      **NDT#:** 14900

<b>Stage of Inspection:</b> <input type="checkbox"/> Incoming Inspection <input type="checkbox"/> In-Process Inspection <input checked="" type="checkbox"/> After Repair <input type="checkbox"/> Final Inspection	<b>Manufacturing Process:</b> <input type="checkbox"/> Weldment <input checked="" type="checkbox"/> Casting <input type="checkbox"/> Bar Stock <input type="checkbox"/> Plate <input type="checkbox"/> Forging <input type="checkbox"/> Other	<b>Surface Condition:</b> <input checked="" type="checkbox"/> Machined <input type="checkbox"/> Rough <input checked="" type="checkbox"/> Other CLEANED & DEBURRED	<b>Test Being Run to:</b> <input checked="" type="checkbox"/> Router Instructions <input checked="" type="checkbox"/> Drawing <input type="checkbox"/> Test Plan <input type="checkbox"/> Technique Card SEE NOTES	<b>Heat Treated:</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
--	--	--	---	--

<b>Part Information:</b> MTM Job Number: 65707/2.0 -Sub:16 -Op:20 Resource ID: 810-LIQUID PENETRANT INSPE Part ID: SE141-116 Part Name: MODULAR COIL WINDING FOR Serial Number: Customer P.O.: S005242-F Customer Unit/Plant:	<b>Test Results:</b> Quantity Inspected: 1 Quantity Accepted: 0 Quantity Rejected: 1  Run Hours: 0.0	<b>Inspection Results:</b> Customer N/C #: <input type="checkbox"/> Accepted <input checked="" type="checkbox"/> Rejected <input type="checkbox"/> N/C-Report <input type="checkbox"/> Rework MTM N/C #: 18715
--	---	--

<b>Customer Inspection Plan:</b> SEE NOTES <b>Test Step:</b> <b>Revision:</b> <b>Material Test Number:</b>	<b>Inspection Criteria:</b> <b>Customer Specification:</b> ASTM A903/A903M <b>MTM Spec Number:</b> PS582 (REF NDT-WI-09) <b>Acceptance Standard:</b> ASTM A903 (SEE NOTES)
---	---

<b>Inspection Materials Used:</b> <b>Manufacturer:</b> SHERWIN <b>Type of Penetrant:</b> DP-51 <b>Batch Number:</b> 41-E47 <b>Developer:</b> D-100 <b>Batch Number:</b> 520-H6	<b>Penetrant Examination Processes:</b> <b>Type:</b> II (Visible) / Dwell Time: 15 Minutes <b>Method:</b> A (Water Wash) <b>Method of Drying:</b> Normal Evaporation <b>Form:</b> e (nonaqueous for Type II visible dye) / Dwell Time: 12 Min
---	---

**Inspection Requirements:**

% of all accessible surfaces   
  Joint Preps   
  Root Pass   
  Back Gouge   
  Cover Pass   
  Other  
 SEE NOTES

**Notes:**  
 PERFORM A LOCAL LPI CHECK OF THE 3 PREVIOUSLY REJECTED AREAS. THERE WAS 1 REJECTION ON THE MACHINED T AND 2 REJECTIONS IN THE AS-CAST REGION.

Please reference MTM NC 18715 for additional information.

Specification: ASTM A903/A903M  
 Method: ASTM E165  
 Acceptance Criteria: ASTM A903/A903M Level II for as cast surfaces  
 Acceptance Criteria: ASTM A903/A903M Level I for machined surfaces including the entire "T" section (high stress areas)

2 indications remain after excavation, one on the finished machine area, and one in the as cast surface.

This is to certify that the pieces specified have been inspected in accordance with the specifications shown.

**Inspector:** 581-D.EDWARDS

**Date:** 12/12/2005

*Douglas D. Edwards* Level II





**INSPECTION DATA CHECKLIST**

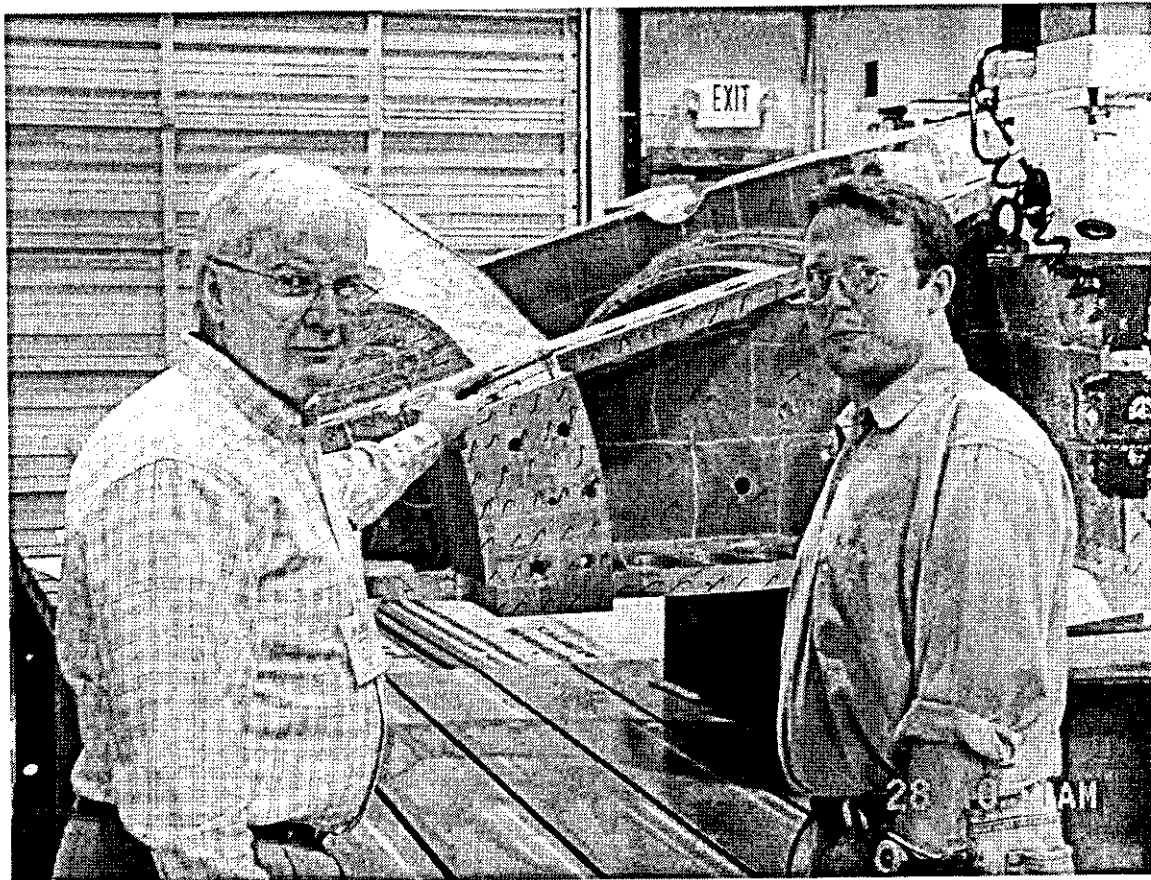
Quality Assurance Documentation for Part ID: SE141-116 - Item: 24

Workorder: 65707/2-0 Sub:14 Op:10

Part: SE141-116 - -

SHEET	ZONE	DRAWING ID: SE141-116 Rev: 7 CHARACTERISTIC	INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
			GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		RECORD RANGE UPPER AND LOWER LIMITS OF MAG PERMEABILITY READI (Mu) FOR THE AS CAST SURFACES	MASTER GAGE	QA		J-1270	ALL CAST SURFACES HECK LESS THAN 1.02	854-R.U			A
(10)	*	RECORD RANGE UPPER AND LOWER LIMITS OF MAG PERMEABILITY READI (Mu) FOR THE MACHINED SURFACES	MASTER GAGE	QA		J-1270	< 1.02	854-R.U			A
(20)	*	MAG PERMEABILITY WAS PERFORMED USING A 6" X 6" GRID ON ALL CAST SURFACES AND A 2"X2" GRID ON ALL MACHINED SURFACES. PICTURES OF GRID HAVE BEEN SUPPLIED.	MASTER GAGE	QA		J-1270	< 1.02	854-R.U			A
(30)	*										

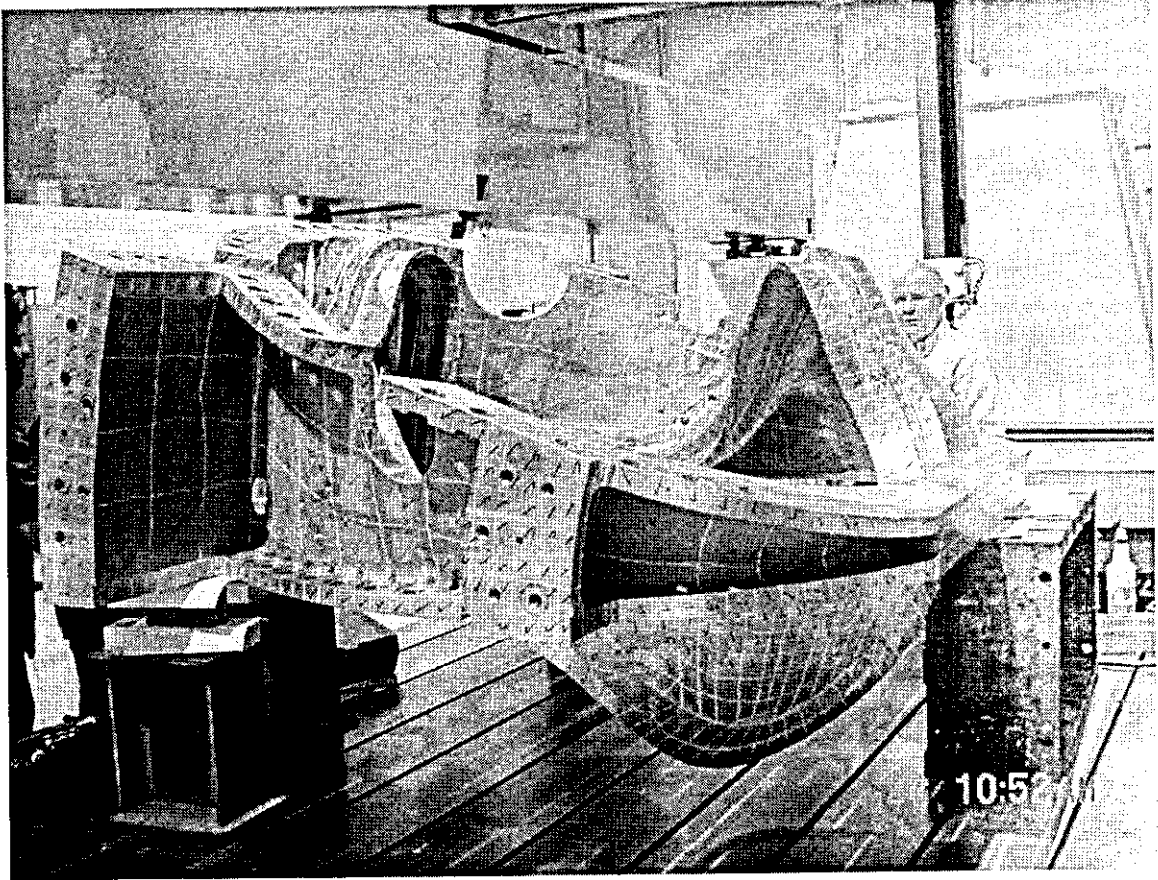
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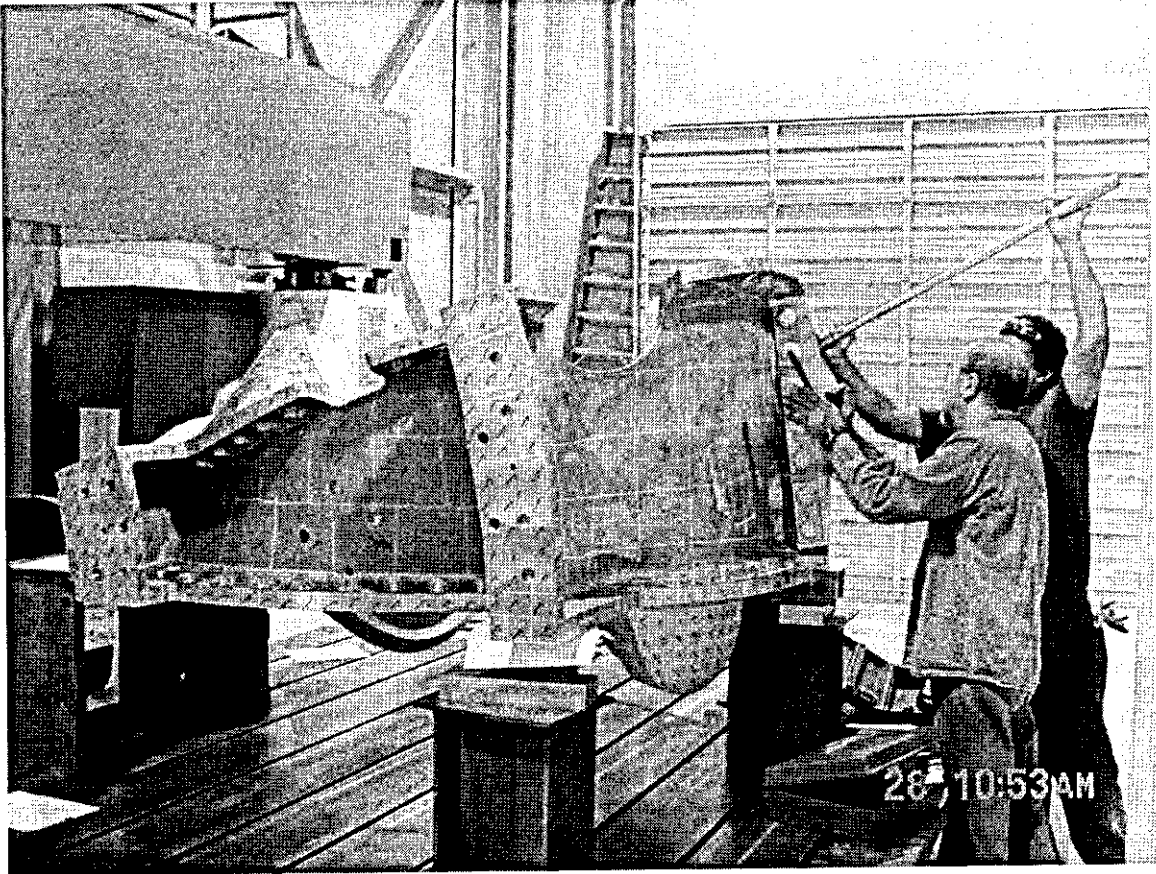
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mc114463.JPG (1024x768x16M jpeg)





**CERTIFICATE OF TEST**

Page 01 of 02

Certification Date  
21-NOV-2005

**CUSTOMER ORDER NUMBER**  
P05-06516  
**CUSTOMER PART NUMBER**  
522335

EARLE M. JORGENSEN COMPANY  
2301 AIRWEST BLVD  
PLAINFIELD IN 46168

Invoice Number  
T474338

**SOLD TO:** MAJOR TOOL & MACHINE INC    **SHIP TO:** MAJOR TOOL & MACHINE INC  
1458 E 19TH ST    29267  
INDIANAPOLIS IN 46218    1458 EAST 19TH STREET  
INDIANAPOLIS IN 46218

Description: 316/316L HRAP BAR    ASTM A479  
1 X 3 X 12' R/L    Line Total: 135 LB  
HEAT: M11443    ITEM: 522335

Specifications:  
ASTM A479 03    ASTM A276 03    ASME SA479 01  
QQ S 763 98    AMS 5648 K02    AMS 5653 F02  
AS TM A4    AMS QQ S 763 98    ASTM A182 03  
ASTM A193 03    SATM A322 03    ASME SB182 00B

CHEMICAL ANALYSIS

C	SI	MN	P	S	CR	MO	NI
0.03	0.57	1.25	0.037	0.024	16.84	2.0	10.63
V	W	CO	TI	AL	NB	N	CU
0.03	0.07	0.057	3.05	0.059	0.01	0.04	0.27

RCPT: R534135    COUNTRY OF ORIGIN : AUSTRIA  
MILL : AMS SPECIALTY STEEL

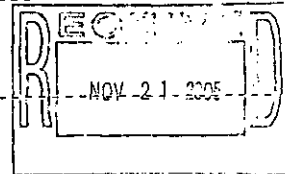
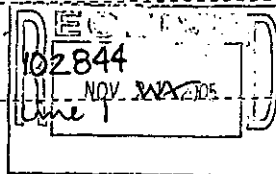
MECHANICAL PROPERTIES

DESCRIPTION	YLD STR	ULT TEN	%ELONG	%RED	HARDNESS
	KSI	KSI	IN 02 IN	IN AREA	BHN
	58.0	91.0	44.0	71.0	194

GRAIN SIZE : 10



NOV 28 2005



The above data were transcribed from the manufacturer's Certificate of Test after verification for completeness and specification requirements of the information on the certificate. All test results remain on file subject to examination.

We hereby certify that the material covered by this report will meet the applicable requirements described herein, including any specification forming a part of the description.

The willful recording of false, fictitious, or fraudulent statements in connection with test results may be punishable as a felony under federal statutes.

Material did not come in contact with mercury while in our possession.

DAMIAN GURRI

MANAGER, QUALITY ASSURANCE





# CERTIFICATE OF TEST

Page 02 of 02

Certification Date  
21-NOV-2005

**CUSTOMER ORDER NUMBER**  
P05-06516  
**CUSTOMER PART NUMBER**  
522335

EARLE M. JORGENSEN COMPANY  
2301 AIRWEST BLVD  
PLAINFIELD IN 46168

Invoice Number  
T474338

**SOLD TO:** MAJOR TOOL & MACHINE INC  
1458 E 19TH ST  
INDIANAPOLIS IN 46218

**SHIP TO:**

MAJOR TOOL & MACHINE INC  
29267  
1458 EAST 19TH STREET  
INDIANAPOLIS IN 46218

Description: 316/316L HRAP BAR  
1 X 3 X 12' R/L  
HEAT: M11443

ITEM: 522335

ASTM A479  
Line Total: 135 LB

THERMAL TREATMENT: OK  
HT TRT QUENCHED 1040 DEG C 30 MIN WATER  
CORROSION: OK  
MACRO: OK  
MICRO1: OK



NOV 28 2005

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DAMIAN GURRI

MANAGER, QUALITY ASSURANCE



Major  
Tool & Machine, Inc.

### INSPECTION DATA CHECKLIST

Quality Assurance Documentation for Part ID: SE141-137 - Item: 30

Workorder: 65707/2-0 Sub:12 Op:40

Part: SE141-137 - -

Drawing ID: SE141-137 Rev: 0

SHEET	ZONE	CHARACTERISTIC	INSPECTION INSTRUCTIONS		RESULTS	INSPECTED BY		
			GAGE/EQUIP	BY SAMPLE		INSP	VERFD	AUDIT
1*	G2	VERIFY MAGNETIC PERMEABILITY IS LESS THAN 1.02μ PER DRAWING NOTE 5.	MASTER GAGE	QA	BETWEEN 1.02 AND 1.03 (REFERENCE RFD14-011 FOR ACCEPTANCE)	503-B.H		242-M.G.R
(10)						11-23-05		02-04-06



Major

Tool & Machine, Inc.

INSPECTION DATA CHECKLIST

Quality Assurance Documentation for Part ID: SE141-138 - Item: 32

Workorder: 65707/2-0 Sub:13 Op:40

Part: SE141-138 - -

Drawing ID: SE141-138 Rev: 0

SHEET	ZONE	CHARACTERISTIC	INSPECTION INSTRUCTIONS		RESULTS	INSPECTED BY	
			GAGE/EQUIP	BY SAMPLE		INSP	VERFD / AUDIT
1*	G2	VERIFY MAGNETIC PERMEABILITY IS LESS THAN 1.02μ PER DRAWING NOTE 5.	MASTER GAGE	QA	GREATER THAN 1.02 A ND LESS THAN 1.03 ( CHANGED FROM 1.05 O 1.03) (REFERENCE RFD14-011 FOR ACCEP TANCE)	242-M.G	242-M.G R
(10)						02-04-06	02-04-06

Employees: 212-J.Lehr / 242-M.Griffith / 321-C.Lonaker / 339-E.Root / 503-B.Houk / 840-G.Masood / 854-R.Upchurch