

Chart heat Exchangers L.P.
Inspection & Test Report

Stacking & Brazing

Cell 4

Sales Order # 509.3-4 Module # 1 Manufacturing # 15773B-1

Operation	Instruction	Date & Operator Clock #	Date & Inspector Initials	W/H Points Int & Date
1. STACKING ASSEMBLY	WI9-040-002			
Layer #1 A	WI10-02	46337 46357 46437 77544	TL 1-26-05	
Layer #2 B	WI10-02	46339 46357 46439 77544	TD 1-26-05	
Layer	WI10-02			
Layer	WI10-02			
Layer	WI10-02			
Layer	WI10-02			
Layer	WI10-02			
Layer	WI10-02			
Layer	WI10-02			
Layer	WI10-02			
Half Primary Stacking & Squareness	WI10-02	46394 75403 46489	DE 1-26-05	
Primary Stacking & Squareness	WI10-02	46409 46469 77075 775343	WMA 1-28-05	
Compression & Dimensional Record		46463		
Braze Core / Module	Date <u>2-1-05</u>	46420		
Fixture Removal / Dimensional After Brazing	Date <u>2-2-05</u>	46442 775398		

Chart heat Exchangers L.P.
Inspection & Test Report

Stacking & Brazing

Cell 4

Sales Order # 509.3-4 Module # 2 Manufacturing # 15773B-2

Operation	Instruction	Date & Operator Clock #	Date & Inspector Initials	W/H Points Int & Date
1. STACKING ASSEMBLY	WI9-040-002			
# 1 Layer A	WI10-02	46426/72681 77075/75345	SV 1-27-05	
# 2 Layer B	WI10-02	46426/72681 77075/75345	SV 1-27-05	
Layer	WI10-02			
Layer	WI10-02			
Layer	WI10-02			
Layer	WI10-02			
Layer	WI10-02			
Layer	WI10-02			
Layer	WI10-02			
Layer	WI10-02			
Layer	WI10-02			
Half Primary Stacking & Squareness	WI10-02	1-27-05 46435/77544	PS 1-27-05	
Primary Stacking & Squareness	WI10-02	46439/46339 46418/77343 75403/46489	SE 1-27-05	
Compression & Dimensional Record		46463		
Braze Core / Module	Date 2-1-05	46420		
Fixture Removal / Dimensional After Brazing	Date 2-2-05	46442 75398		

Header Inspection Log									
			Sales Order #			509.3-4			
Header Assy. Item #	Stream Identification	Header Body Trace	End Piece Trace	Nozzle Trace	Misc. Material Trace	Final Insp. Initials & Date	X-Ray Initials & Date	X-Ray #	A.I. Review Initials & Date
5222	A-IN	S477C	S477C	S477C	S460C	JL 2-3-05	DS2-3-05ME	A821	HAL 2-3-05
5223	A-OUT	s468c	S468C	T096C T006C	S467C	JL 2-1-05	DS2-2-05ME SW	A815	HAL 2-2-05

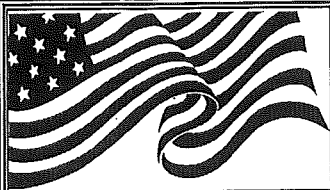


Chart Heat Exchangers

Post Braze Inspection and Test Report

National Board Number:

5105

Job Number/Serial Number 509.3-4

Drawing Number: 15773A

Mfg. Number: 15773B-102

Review of Design Calculations, Assembly Drawings and I&T Report

QC Review and approval of ITR:

KIR

Date:

1/12/05

AI Review and acceptance of ITR:

[Signature]

Date:

JAN 12 2005

General Documentation

Nameplate Verification

QC Inspection	Date	Authorized Inspector	Date
<u>SV</u>	<u>2/15/05</u>	<u>[Signature]</u>	<u>3-11-05</u>

General Operations

	Emp #	Date	QC Insp	Date	AI Init & Date
Centerline Layout	75519	2-2-05			
Module core fit-up	46324 46341	2-12-05			
SFT Test & AI Insp module welds under headers	ANA	2-12-05	UJA	2-12-05	11/2-12-05
Light Test			UJA	3-4-05	
Fin Measurements			UJA	3-4-05	
Port Measurements			UJA	2-15-05	

Header Fit-up and Inspection

Header	AI Hold (H)	Clean Check / Header Fit-up (Stamp # & Date)						
		Visual Inspection before fit up						
A-In	30	2-13-05						
A-Out	30	2-13-05						
A-Vent	65							

n¹ AI to review header welds prior to fit-up of inactive vent or pan headers. LPT header welds if specified on assembly drawings

Pre-hydro Inspection and Tests

	Emp #	Date	QC Insp	Date	AI Init & Date
1st Air Test	46327	2-14-05			
Support angle fit-up	35/16	2-14-05			
Visual Inspection, final welds (Weld Check)			SU	2-15-05	11/2-22-05
Dimension Check			UJA	2-15-05	
LPT complete per drawing requirement			RJ	2-21-05	
RT complete per drawing requirement			D.E.	3-4-05	

Pneumatic and Leak Test							
Stream Identification	Pneumatic Test Pressure (PSIG)	Leak Test Pressure (PSIG)	Testor Emp # and Date	Inspector or 2nd Testor Emp # and Date	Internal Leak Test Emp # and Date	External Leak Test Emp # and Date	AI Hold Point Init & Date
A	67	45	46353-222-05	REG 2-22-05	N/A	✓ VOL REG 2-22-05	TR 2-22-05
TUV							
A	67	45	46353-201-05	REG 3-01-05	N/A	✓ VOL REG 3-01-05	TR 03/01/05

Final Inspection				
	Emp #	Date	QC Insp	Date
Helium leak test	46416	2-22-05		
Header clean check inspection	46348	3/3/05	WA	3-3-05
External clean check (O ₂ Service)	46348	3/3/05	WA	3-3-05
Final inspection				3-3-05
Crate check (Tester)	75599	3/3/05		
Loose parts verification	46348	3/3/05		
ITR review and return to QC Office				

Liquid Penetrant Examination Report

Procedure: WI 10-26 (Revision 10/20/04) Liquid Penetrant Type: Visible Penetrant Type: Magnaflux SKL-WP or SKL-HF/SKL-6		Developer Type: Magnaflux SKD-S2 Cleaner: Spot Check: SKC-5 All Personnel Certified to ASME and SNT-TC-1A Level II		Lighting: General lighting assisted by portable lighting, 100 F.T.C. minimum			
Use the following abbreviations for Material Thickness of items tested: Mat'l Thickness: HB) Header Body EP) End Piece(s) N) Nozzle D) Disk PP) Perforated Plate SP) Splitter Plate MS) Mercury Strips G) Gusset(s) IN) Injection Nozzle TJ) Transition Joint E) Elbow SGP) Sparge Pipe							
Use the following abbreviations for Mapped Indications of items tested: If more than one indication of the same type is on the same weld joint use the following abbreviation: (#) (Where # is the number of indications) Material Description: 1) End Piece/Header Body Welds 2) Nozzle/Header Body Welds 3) Header Body Seam Welds 4) Nozzle Seam Welds 5) Perm. Disk 6) Perm Disk/Nozzle Weld 7) Pipe Seam Weld 8) Elbow Seam Weld 9) Transition Seam Weld 10) Mercury Strip Welds 11) Perforated Plate Welds 12) Splitter Plate 13) Sparge Pipe Welds 14) Header Body Material 15) Nozzle Material 16) Mitered End Piece Material Indication: 0) No Indications 1) Rounded 2) Linear 3) Porosity 4) Non-Fusion 5) Cold Roll 6) Splatter 7) Lamination Relevant Indications: N) Non-rejectable R) Rejectable (Must Repair)							
Use the following abbreviations for accepting/rejecting of item tested Results: A) Accepted R) Rejected AR) Accepted after Repair(s)							
Example of a Mapped Indication: A pipe seam weld with 4 relevant linear indications that needs repaired would be (4)7-2-R (if it were only 1 repair it would just be 7-2-R)							
		Sales Order #		509.3-4			
Item # (s)	Description of Weld Joint or Material LPT Examined	Material & Thickness	Map of Indications	Test Date	Test Time	Examiner	Results
5222	A-IN	(HB.500)(EP.500)(N.500) (D1.00)	6-1-N	2/3/2005	0900	P7	A
5223	A-OUT	(HB.375)(EP.375)(N.365) (N.133)(D.750)	1-1-N	2/1/2005	0830	P7	A
5259	PERM DISK	(D.750)	0	1/27/2005	0800	P7	A
5235	NOZZEL SEAM	(N.500)	0	1/30/2005	0730	P7	A
5236	PERM DISK	(D1.00)	0	1/31/2005	1300	P7	A

LIQUID PENETRANT EXAMINATION REPORT

Developer Type: Magnaflux SKD-S2
Cleaner: Spot Check: SKC-5
All Personnel Certified to ASME and SNT-TC-1A Level II
Lighting: General lighting assisted by portable lighting, 100 FTC minimum

Procedure: WI 10-26 (Revision 10/20/04)
Liquid Penetrant Type: Visible
Penetrant Type: Magnaflux SKL-WP or SKL-HF/SKL-6

[illegible]