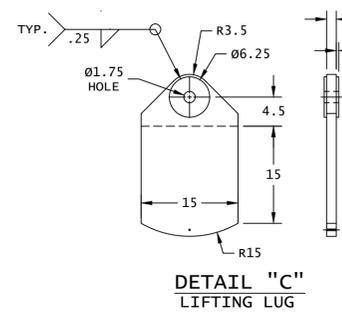
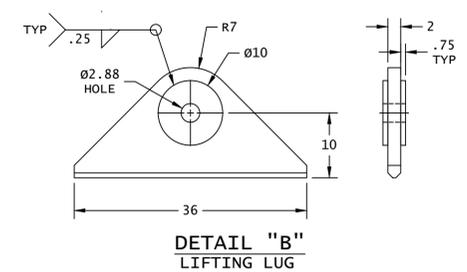
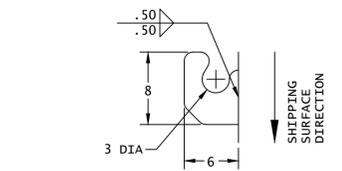
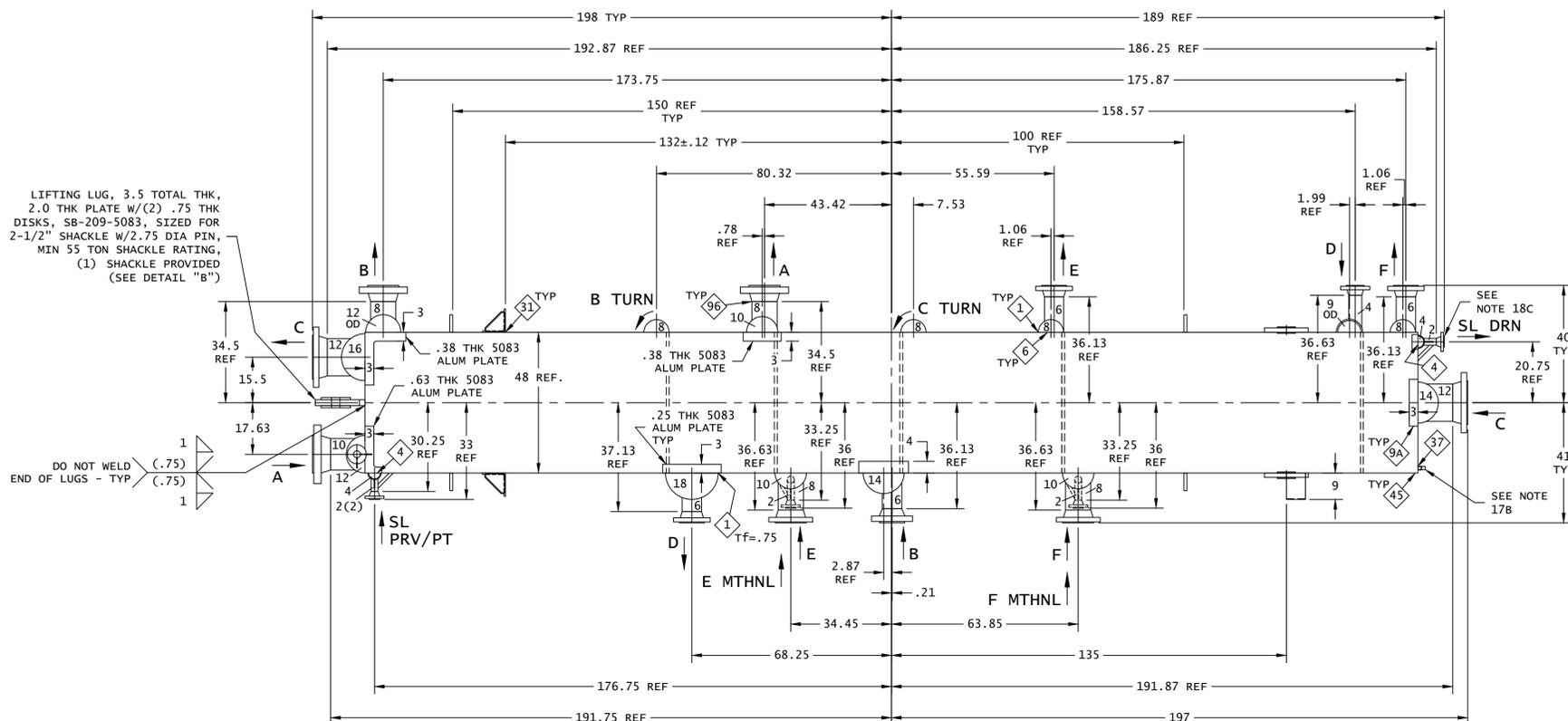
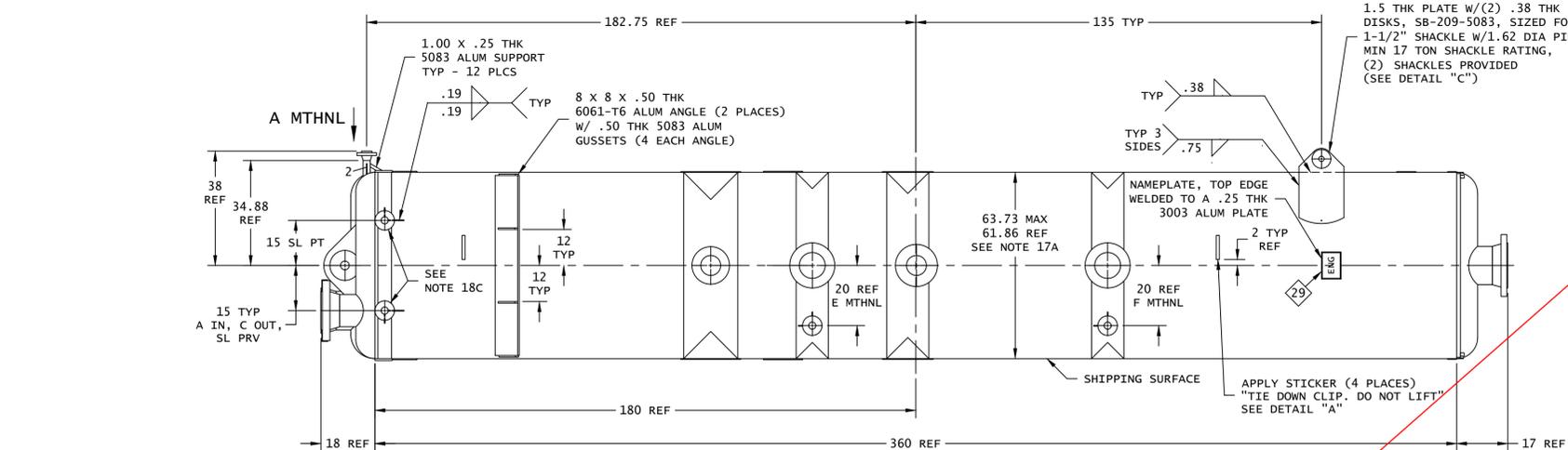


← OPERATIONAL  
TOP END



LIFTING LUG, 3.5 TOTAL THK, 2.0 THK PLATE W/(2) .75 THK DISKS, SB-209-5083, SIZED FOR 2-1/2" SHACKLE W/2.75 DIA PIN, MIN 55 TON SHACKLE RATING, (1) SHACKLE PROVIDED (SEE DETAIL "B")

LIFTING LUG, 2.25 TOTAL THK, 1.5 THK PLATE W/(2) .38 THK DISKS, SB-209-5083, SIZED FOR 1-1/2" SHACKLE W/1.62 DIA PIN, MIN 17 TON SHACKLE RATING, (2) SHACKLES PROVIDED (SEE DETAIL "C")



HEADER / NOZZLE CHART				
STREAM ID	HEADER OD X WALL	END PIECE STYLE / THK	NOZZLE OD X WALL	FLANGE CLASS
A IN (A)	12.750 X 1.250	MITER/1.250	10.750 X 0.750	CL600
A MTHNL (A)	COMMON W/ A IN	COMMON W/ A IN	2.375 X 0.218	CL600
A OUT (A)	10.750 X 1.000	MITER/1.000	8.625 X 0.719	CL600
B IN (B)	14.000 X 1.250	MITER/1.250	6.625 X 0.432	CL600
B OUT (B)	12.000 X 1.000	MITER/1.000	8.625 X 0.719	CL600
B TURN (B)	8.625 X 0.750	MITER/0.750	----	---
C IN (C)	14.000 X 0.625	MITER/0.625	12.750 X 0.687	CL300
C OUT (C)	16.000 X 0.750	MITER/0.750	12.750 X 0.687	CL300
C TURN (C)	8.625 X 0.375	MITER/0.375	----	CL300
D IN (D)	9.000 X 0.500	FLAT/1.000	4.500 X 0.237	CL300
D OUT (D)	18.000 X 1.000	MITER/1.000	6.625 X 0.280	CL300
E IN (E)	10.750 X 0.500	MITER/0.500	8.625 X 0.500	CL300
E MTHNL (E)	COMMON W/ E IN	COMMON W/ E IN	2.375 X 0.218	CL300
E OUT (E)	8.625 X 0.375	MITER/0.375	6.625 X 0.432	CL300
F IN (F)	10.750 X 0.500	MITER/0.500	8.625 X 0.500	CL300
F MTHNL (F)	COMMON W/ F IN	COMMON W/ F IN	2.375 X 0.218	CL300
F OUT (F)	8.625 X 0.375	MITER/0.375	6.625 X 0.432	CL300
SL PRV/PT (SMART LAYER)	4.500 X 0.250	FLAT/0.500	(2) 2.375 X 0.218	CL300
SL DRN (SMART LAYER)	4.500 X 0.250	FLAT/0.500	2.375 X 0.218	CL300

ALL MATERIAL IN TABLE ABOVE IS 5083 ALUMINUM

- NOTES:
- REFER TO BAHX-IOM FOR INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS. ASSURE COMPLIANCE WITH REQUIREMENTS PARTICULARLY OPERATING CONDITIONS TO PREVENT OVER PRESSURIZATION, THERMAL SHOCK, PLUGGING/FOULING AND OPERATION OUTSIDE DESIGN TEMPERATURE RANGE. REFER TO DRAWING 20894L FOR UNCRATED HEAT EXCHANGER LIFTING INSTRUCTIONS AND DRAWING 918-6671 FOR INSTRUCTIONS ON ROLLING HEAT EXCHANGER TO SIDE OTHER THAN SHIPPING SURFACE.
  - CUSTOMER TO DRILL APPROPRIATE HOLES OR SLOTS IN SUPPORT ANGLES FOR MOUNTING HEAT EXCHANGER AS DESCRIBED IN BAHX-IOM.
  - HEAT EXCHANGER DESIGNED, CONSTRUCTED, AND STAMPED PER THE 2023 EDITION OF THE ASME PRESSURE VESSEL CODE; SECTION VIII, DIV. 1 AND REGISTERED WITH THE NATIONAL BOARD. CODE JURISDICTION ENDS AT THE NOZZLE TRIM LINE OR FIRST WELD PREP. IN PROCESS EXAMINATION PER PARAGRAPH 344.7 IS CONDUCTED ON CIRCUMFERENTIAL PIPE WELDS UNDER ASME B31.3 JURISDICTION. CODE CASES 2351-1 & 2774 APPLY.
  - ALL FLANGES ARE RAISED FACE WELD NECK 6061-T6 ALUMINUM. FLANGES THROUGH 24 NPS ARE PER ASME B31.3 APPENDIX L WITH GEOMETRY EQUIVALENT TO ASME B16.5. BOLT HOLE PATTERN TO STRADDLE CENTERLINE. MAXIMUM ROTATION OF BOLT HOLE PATTERN OFF CENTERLINE IS 1 DEGREE BUT NOT MORE THAN .19 INCH AT BOLT CIRCLE.  
C,D,E,F,SL STREAM FLANGES ARE CLASS 300  
A,B STREAM FLANGES ARE CLASS 600  
FLANGE FACING 125 TO 250 µIN RMS
  - CORROSION ALLOWANCE: ALUMINUM = 0.0000 INCHES
  - SEE DRAWING 20894C FOR MAXIMUM ALLOWABLE PIPE LOADS.
  - THE HEADERS AND NOZZLES ARE LABELED ON THE DRAWING WITH THEIR NOMINAL PIPE SIZE (NPS). IF A STANDARD SIZE IS NOT USED THE PIPING IS LISTED AT ITS ACTUAL OUTSIDE DIAMETER AND LABELED "OD". UNLESS SHOWN OTHERWISE ALL NOZZLES ARE ON THE HEAT EXCHANGER CENTERLINE.
  - TOLERANCE ON ALL DIMENSIONS IS +/- .25 INCH UNLESS OTHERWISE NOTED. ANGULAR TOLERANCE ON FLANGE FACES TO DESIGN PLANE IS +/- .06 INCH/FOOT, MAXIMUM OF .19 INCH AT FLANGE PERIPHERY.
  - STREAM: MAWP (PSIG) A 1200 B 1200 C 550 D 650 E 550 F 550 SL 550  
DESIGN TEMP DEG. F +150 MAX. -320 MIN.
  - TESTING INFORMATION:

INACTIVE AREAS - 15 PSIG							
STREAM	A	B	C	D	E	F	SL
FIRST AIR (PSIG)	30	30	30	30	30	30	30
PRETEST W/WATER (PSIG)	1560	1560	715	845	715	715	715
PNEU (PSIG)	1320	1320	605	715	605	605	605
LEAK (PSIG)	1200	1200	550	650	550	550	550

HELIUM VACUUM LEAK TEST							
STREAMS	MAX. ALLOW. LEAKAGE						
SL-A	1E-5 STD CC/SEC.						
SL-B	1E-5 STD CC/SEC.						
SL-C	1E-5 STD CC/SEC.						
SL-D	1E-5 STD CC/SEC.						
SL-E	1E-5 STD CC/SEC.						
SL-F	1E-5 STD CC/SEC.						
SL-EXT	1E-5 STD CC/SEC.						

- ALL STREAMS ARE CONSTRUCTED WITH MERCURY TOLERANT FEATURES.
- CHART TO INSTALL PRESSURE RELIEF DISK (P/N 15000016-01) IN "SL PRV" TEMPORARY BLIND AFTER TESTING AND PRIOR TO SHIPMENT.
- UNIT TO SHIP WITH DRY AIR AT 15 PSIG IN ALL STREAMS. GAUGES ARE PROVIDED.
- ESTIMATED WEIGHT = 62,600 LBS. (DRY)  
68,100 LBS. (OPERATING)  
82,000 LBS. (FILLED WITH WATER)  
(WARNING: DO NOT HYDRO TEST IN FIELD WITH WATER)
- STREAM VOLUME:  
STREAM CU.-FT. A 49.0 B 28.5 C 122.6 D 26.3 E 35.9 F 43.3 SL 4.1
- DYE PENETRANT EXAMINE ALL LIFTING LUG WELDS.
- CUSTOMER NOTE:  
A. ESTIMATED BRAZE HEIGHT. ACTUAL BRAZE HEIGHT MAY VARY +/- .12 PER FOOT OF BRAZE HEIGHT. MAX DIMENSION INCLUDES TOLERANCE ON BRAZE HEIGHT PLUS HEADER ATTACHMENT PLATES.  
B. CUSTOMER TO REMOVE PLASTIC PLUS(S) FOLLOWING INSTALLATION AND JUST PRIOR TO INSULATING UNIT.
- SMART LAYER® NOTES:  
A. THIS EXCHANGER IS EQUIPPED WITH SMART LAYERS. SMART LAYERS MUST BE PROTECTED AGAINST OVER PRESSURIZATION. REFERENCE BAHX-IOM FOR SMART LAYER INSTRUCTIONS.  
B. SMART LAYER INSTRUMENTATION AND OPERATIONAL COMPONENTS TO BE SUPPLIED BY OTHERS.  
C. TEMPORARY CARBON STEEL SHIPPING BLINDS TO BE REMOVED BEFORE OPERATING  
D. REFER TO THE BAHX-IOM SMART LAYER® SECTION FOR INSTALLATION AND SETUP INSTRUCTIONS. STREAM "C" SHALL BE CONSIDERED FOR THE HIGH LEVEL ALARM SETPOINT.

1. Approved (Work May Proceed)

2. Approved with Comments - Work May Proceed (Revise and Resubmit)

3. Not Approved (Stop Work per Attached Instructions)

4. Information Only

AUTHORIZATION TO PROCEED DOES NOT WAIVE SUPPLIER'S RESPONSIBILITY OR LIABILITY UNDER THE CONTRACT / PURCHASE ORDER FOR COMPLIANCE WITH THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS

*Signature* 25/02/03  
Signature YY/MM/DD

**PROPAK** ENGINEERS, FABRICATORS & CONSTRUCTORS FOR OIL & GAS PROCESSING

Please add methanol injection nozzles to B, C, and D passes

please add a column to show the ANSI ratings of nozzles in the table

Doc #	W222910-PRJ-VEN-P571752-001
Rev	B
Tag #	E-882020

4246.1 (1) 10/24

REVISION RECORD	<table border="1"> <tr> <th>A</th> <th>B</th> </tr> <tr> <td>DRAWING ISSUED</td> <td>BHK WOOLLE</td> </tr> <tr> <td>10-14-24</td> <td>1-8-25</td> </tr> <tr> <td>ADDED NAMEPLATE BRACKET, MOVED TO SIDE. ADDED FLANGE CLASS TO HDR/NOZ CHART. UPDATED NOTE 3.</td> <td></td> </tr> </table>	A	B	DRAWING ISSUED	BHK WOOLLE	10-14-24	1-8-25	ADDED NAMEPLATE BRACKET, MOVED TO SIDE. ADDED FLANGE CLASS TO HDR/NOZ CHART. UPDATED NOTE 3.		DR DATE: 10-14-24 FOHT: 10-14-24 STD ENGR SPEC: 11-6-00 NOTE 10: SES 9-8-01 PARA 1, 2.1, 3.1, 3.2 & 4.1 MFG ENG DATE: 10-23-24 WELD ENG DATE:	PROPRIETARY AND CONFIDENTIAL THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION BELONGING TO CHART ENERGY & CHEMICALS, INC. AND SHALL BE USED ONLY FOR THE PURPOSE FOR WHICH IT WAS SUPPLIED. IT SHALL NOT BE COPIED, REPRODUCED, OR OTHERWISE USED, NOR SHALL SUCH INFORMATION BE FURNISHED IN WHOLE OR IN PART TO OTHERS EXCEPT IN ACCORDANCE WITH THE TERMS OF ANY AGREEMENT UNDER WHICH IT WAS SUPPLIED OR WITH THE PRIOR WRITTEN CONSENT OF CHART ENERGY & CHEMICALS, INC. AND SHALL BE RETURNED UPON REQUEST. UNLESS NOTED: DIMENSIONS IN INCHES OR INCHES (MM) LEGEND PART NUMBER (PRODUCTION USE ONLY) JOINT DETAIL-REF. (PRODUCTION USE ONLY) FIN DATA INFORMATION DIMENSIONAL REVISION SPECIAL NOTATION THIRD ANGLE PROJECTION	<b>Chart Energy &amp; Chemicals, Inc.</b> BRAZED ALUMINUM HEAT EXCHANGER 7 STREAM PLATE/FIN ITEM NO.: HX1 SIZE DWG NO.: 20894A REV. B
A	B											
DRAWING ISSUED	BHK WOOLLE											
10-14-24	1-8-25											
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