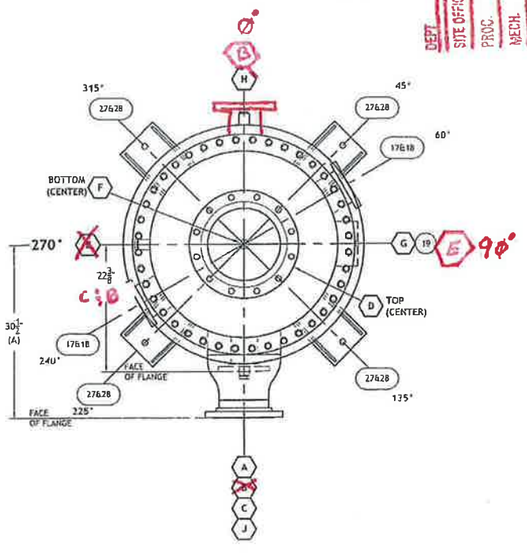
- NEED ANCHOR BOLT PATTERN

| DEPT | INITIALS | DATE |
|---|---|---|
| SITE OFFICE | | |
| PROC. | EC | 8-24-11 |
| MECH. | AB | 8-17-11 |
| PIPING | | |
| STRUC. | JMS | 8/17 |
| ELEC. | | |
| INSTR. | | |

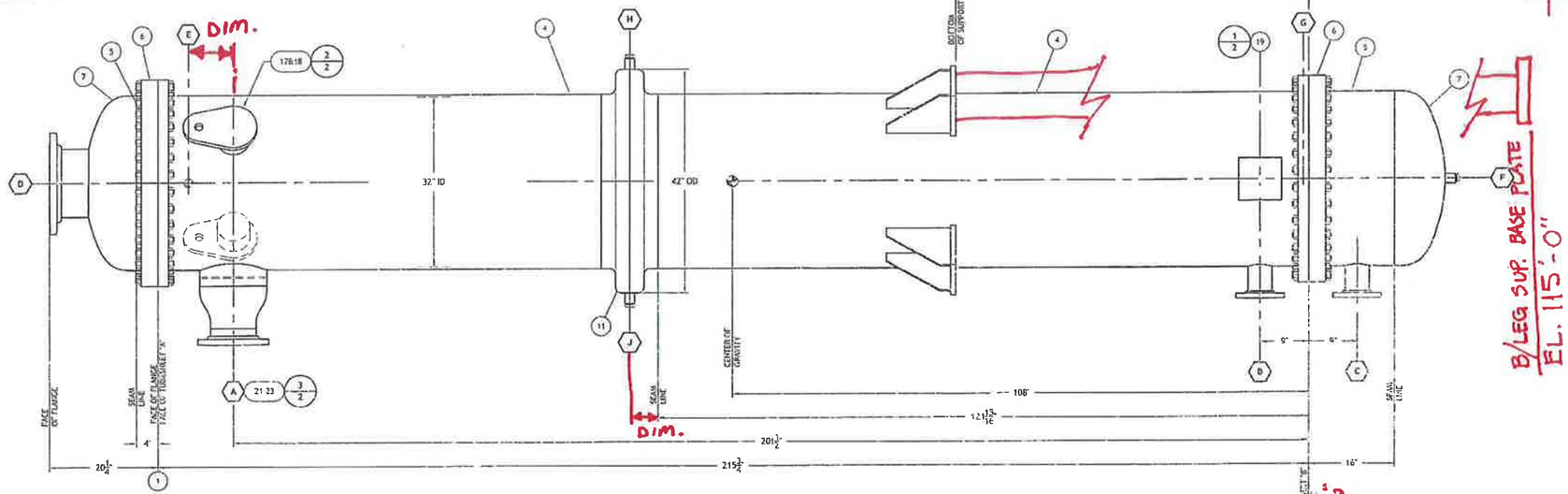
APPROVED
APPROVED AS NOTED
NOT APPROVED

DOCUMENTS ARE REVIEWED FOR GENERAL COMPLIANCE WITH RESPECT TO BID SPECIFICATIONS ONLY. HARRIS IS NOT RESPONSIBLE FOR THE DESIGN INTEGRITY OF THIS SUBMITTAL




ORIENTATION VIEW

E-4205




ELEVATION VIEW

| Item | Designation | Qty. | Heat No. | Material | Item Description |
|---|---|---|---|---|---|
| 1 | TUBESHEET | 2 | | SA-240 304L | 2" THK X 38-3/4" DD |
| 2 | TUBE | 940 | | SA-249 316 | 3/4" OD X 0.065" AVG WALL X 216' LG |
| 3 | BAFFLE | 9 | | SA-36 | 3/8" THK X 31-13/16" OD |
| 4 | SHELL | 2 | | SA-516 Gr70 | 3/8" THK X 32" ID (101-11/16" SO) X (1) @ 120° LG & (1) @ APPROX. 91-5/8" LG |
| 5 | CHANNEL | 2 | | SA-516 Gr70 | 3/8" THK X 32" ID (101-11/16" SO) X (1) @ 15-1/2" LG & (1) @ 3-1/2" LG |
| 6 | BODY FLG | 2 | | SA-105 | 3-1/8" THK X 38-3/4" OD X 32-7/8" ID |
| 7 | HEADS | 2 | | SA-516 Gr70 | 3/8" NOM (.3188" MIN) THK X 32" ID 2:1 SEMI ELLIPTICAL HEAD w/ 1-1/2" S.F. |
| 8 | GASKET | 2 | | FLEXITALLIC | 1/8" THK X 34-3/4" OD X 32-3/4" ID 304SS "CGI" SPIRAL WOUND |
| 9 | STUD | 80 | | SA-193 B7 | 7/8"-9UNC X 7-1/2" LG, ZINC PLATED |
| 10 | NUT | 160 | | SA-194 2H | 7/8"-9UNC HEAVY HEX, ZINC PLATED |
| 11 | EXPANSION JOINT | 1 | | SA-516 Gr70 | 3/8" NOM (.3125" MIN) THK X 32" ID X 42" OD F&F EXP. JNT. w/ 1-1/2" S.F. |
| 12 | | | | | |
| 13 | TIE ROD | 8 | | SA-36 | Ø1/2" ROD X 182-1/4" LG |
| 14 | SPACER | 56 | | SA-53B | 1/2" SCH STD (40) @ 19-5/8" & (16) @ 39-5/8" |
| 15 | NUT | 16 | | SA-194 2H | 1/2"-13UNC HEAVY HEX |
| 16 | | | | | |
| 17 | TRUNNION LUG | 2 | | SA-516 Gr70 | 3/4" THK |
| 18 | TRUNNION PIPE | 2 | | SA-53B | 6" SCH 40 X 4-5/16" |
| 19 | NAME PL BRKT | 1 | | SS | 10GA. X 8" X 16" |
| 20 | | | | | |
| 21 | NOZ (A) REDUCER | 1 | | SA-234 WPB | 12" X 8" SCH STD B.W. CONCENTRIC REDUCER |
| 22 | NOZ (A) EXTENSION | 1 | | SA-53B | 12" SCH XH (.500" WALL) X 4-3/4" LG |
| 23 | NOZ (A) IMP PLATE | 1 | | SA-36 | 3/8" THK |
| 24 | | | | | |
| 25 | | | | | |

| Item | Designation | Qty. | Heat No. | Material | Item Description |
|---|---|---|---|---|---|
| 26 | | | | | |
| 27 | SUPPORT BASE | 4 | | SA-516 Gr70 | 1" THK |
| 28 | SUPPORT GUSSET | 8 | | SA-516 Gr70 | 3/8" THK |
| 29 | | | | | |
| 30 | | | | | |
| 31 | | | | | |
| 32 | | | | | |
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| 50 | | | | | |

CONNECTION SCHEDULE

| Item | Size | Nozz Order Length | Material Neck | Material Flg/Cplg | Heat No. | Thickness Neck | Thickness Flg/Cplg | Flg Type | Description | Repad Item |
|---|---|---|---|---|---|---|---|---|---|---|
| A | 8" IPS | 2-3/4" | SA-53b | SA-105 | | SCH 40 | 150# | RFSO | STEAM INLET | - |
| B | 4" IPS | 6-3/4 | SA-53B | SA-105 | | SCH 80 | 150# | RFSO | CONDENSATE OUTLET | - |
| C | 4" IPS | 6-3/4" | SA-53B | SA-105 | | SCH 40 | 150# | RFSO | LOW PROOF | - |
| D | 12" IPS | 9" | SA-53B | SA-105 | | SCH STD | 150# | RFSO | SIEVE FEED | - |
| E | 1" NPT | - | - | SA-105 | | - | 3000# | FULL | VENT CPLG w/HEX PLUG | - |
| F | 1" NPT | - | - | SA-105 | | - | 3000# | FULL | DRAIN CPLG w/HEX PLUG | - |
| G | 3/8" NPT | - | - | - | | - | - | - | TUBESHEET DRAIN w/HEX PLUG | - |
| H | 1" NPT | - | - | SA-105 | | - | 3000# | FULL | HYDRO TEST VENT CPLG w/HEX PLUG | - |
| J | 1" NPT | - | - | SA-105 | | - | 3000# | FULL | HYDRO TEST DRAIN CPLG w/HEX PLUG | - |

U LATER
CERTIFIED BY HARRIS THERMAL TRANSFER PRODUCTS NEWBERG, OREGON

W
SHELL
MAWP INT 100 PSIG AT 360 °F
MAWP EXT 15 PSIG AT 360 °F
MDMT -20 °F AT 100 PSIG

TUBESIDE
MAWP INT 35 PSIG AT 360 °F
MAWP EXT 15 PSIG AT 360 °F
MDMT -20 °F AT 35 PSIG

SERIAL NO. 25944 YEAR 2011

DESIGN DATA

| Code | ASME SECTION VIII, DIVISION 1, 2010; TEMA C | |
|---|---|---|
| Design Conditions | Shellside | Tubeside |
| Design Pressure | 100 PSIG & FV | 35 PSIG & FV |
| Design Temperature | 360 °F | 360 °F |
| MDMT | -20 °F | -20 °F |
| Hydrotest | 138 PSIG | 55 PSIG |
| Corrosion Allowance | 1/16" | 1/16" (ON C.S.) |
| Other NDE | EXP. JOINT LPT | NONE |
| Radiography | NONE | NONE |
| Insulation: | - | - |
| Gasket Material: | 1/8" THK 304SS CGI SPIRAL WOUND | 1/8" THK 304SS CGI SPIRAL WOUND |
| Fasteners: | SA193 B7 STUDS & SA194 2H NUTS, ALL ZINC PLATED | |

NOTES

1. UNLESS OTHERWISE NOTED ON THE DRAWING, STANDARD FABRICATING TOLERANCES SHALL CONFORM TO "TEMA STANDARDS" AS SHOWN IN TEMA FIGURES F1, F2 & F3.
2. ALL FLANGE BOLT HOLES TO STRADDLE MAJOR VESSEL CENTERLINES.
3. ALL WELDS TO BE CONTINUOUS UNLESS OTHERWISE SPECIFIED.
4. CLEAN HEAT TINT AREA WITH FLAPPER WHEEL.
5. ALL WELDS TO BE CLEANED INSIDE AND OUTSIDE WITH SS POWER WIRE BRUSH.
6. APPLY "NEVER-SEEZ" OR EQUAL TO ALL EXTERNAL FLANGE FASTENERS.
7. IMMEDIATELY PRIOR TO SHIPMENT CLEAN ALL INNER SURFACES OF DIRT, PAINT, SCALE, WELD SMUT, OXIDE AND GREASE.
8. COVER AND PROTECT ALL NOZZLES AND OPENINGS w/HARDBOARD OR EQUAL FOR SHIPMENT.
9. OVERPRESSURE PROTECTION SHALL BE PROVIDED BY THE CUSTOMER PRIOR TO PLACING VESSEL IN SERVICE.

SPECIAL NOTES

1. FOR 304L TO 304L USE PROCEDURE GMDB-F6O OR GT05-F6M OR S40S-F6 WITH ER308L FILLER. FOR 5.5 TO C.S. USE PROCEDURE GMDB01-F6O OR GT0D1-F6 WITH ER308L FILLER. FOR C.S. TO C.S. USE PROCEDURE GMD1-F6 OR GT01-F6 OR S401-F6 WITH ER70S6 FILLER.
2. VESSEL WEIGHTS
   EXCHANGER EMPTY----------14,500 LBS.
   FULL OF WATER----------21,775 LBS.
   BUNDLE----------9,875 LBS.
3. ALL FABRICATED GASKET SURFACES TO BE PHONO-SERRATED 16-32 CUTS PER INCH ON FACE WITH APPROXIMATELY 250 MICRO-INCH ROUGHNESS.
4. REMOVE ALL RUST, MILL SCALE, ETC., & APPLY ONE COAT OF RED OXIDE PRIMER TO ALL EXPOSED C.S. SURFACES.

REVISIONS

| Rev. | Date | Drawn/Checked By | Description |
|---|---|---|---|
| | | | |

Do Not Scale Drawing
Shop Tolerance
Fractional - ±1/8"
Angular - 1°
Circumference - ±1/16"
Mach. Surface - ±1/64"

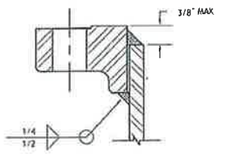
| | |
|---|---|
| Drawn | DKM |
| Checked | JAA |
| Approved | BDS |
| Quote No. | 13420 |
| Job No. | 25944 |
| P.O. No. | 3017316-07 |

HARRIS Thermal Transfer Products
615 S. Springbrook Rd., Newberg, OR 97132
Phone (503)538-1260 / Fax (503)538-4281

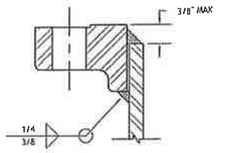
| | |
|---|---|
| Title: | 32" ID VAPORIZER TAG # E-4205 |
| Customer: | BUNGE-ERGON VICKSBURG |
| Destination: | VICKSBURG, MISSISSIPPI |

| Date | Size | Engineering No. | Rev. |
|---|---|---|---|
| 8/5/11 | D | 25944 | 0 |

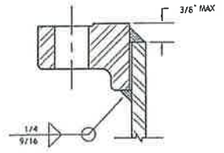
Scale: 1" = 1" Sheet 1 Of 3




UW-21 (A)




UW-21 (B C)

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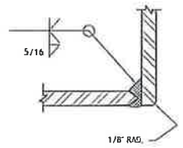
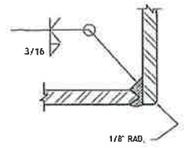
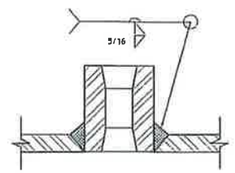


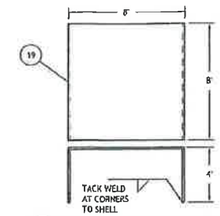

UW-16.1e WELD DETAIL (A B D)



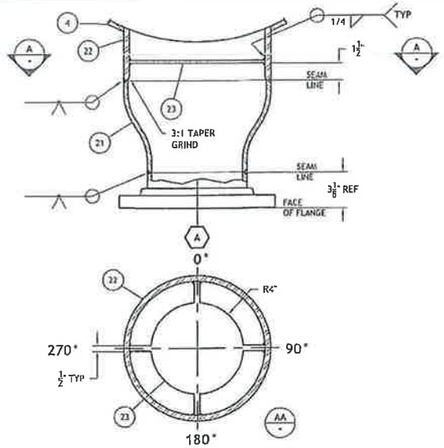

UW-16.1e WELD DETAIL (C)



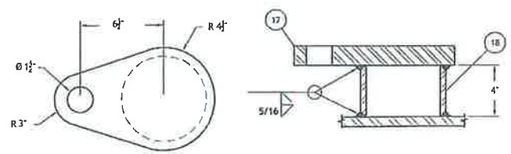

UW 16.1 (z-1) WELD DETAIL (E F H J)



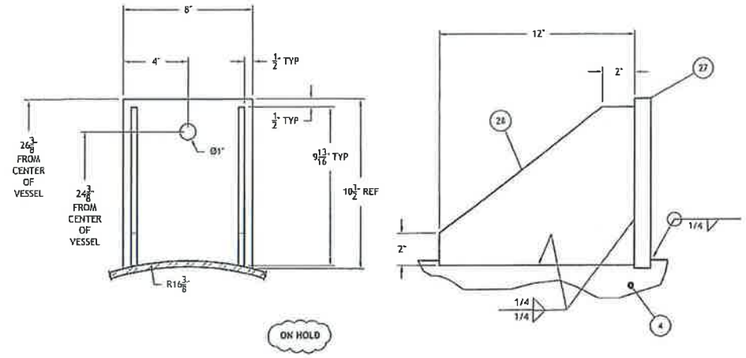

1/1 TYP NAME PL BRACKET




3/1 STEAM INLET/IMP PL ASSEMBLY DETAIL




2/1 LIFT LUG DETAIL



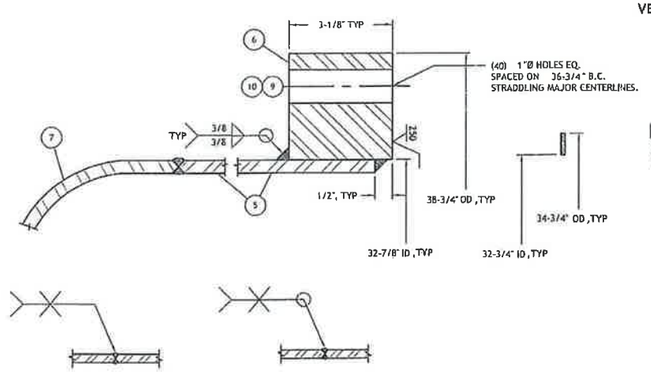

4/1 SUPPORT DETAIL

APPROVED
APPROVED AS NOTED
NOT APPROVED

| DEPT | | INITIALS | DATE |
|---|---|---|---|
| SITE OFFICE | | | |
| PROC. | X | EC | 8-24-11 |
| MECH. | X | A.B. | 8-17-11 |
| PIPING | | | |
| STRUC. | X | JVB | 8/17 |
| ELEC. | | | |
| INSTR. | | | |

DOCUMENTS ARE REVIEWED FOR GENERAL COMPLIANCE WITH RESPECT TO BID SPECIFICATIONS AND AMG INC. IS NOT RESPONSIBLE FOR THE DESIGN INTEGRITY OF THIS SUBMITTAL

LPT OUTSIDE: _____ BY _____ DATE _____
LPT INSIDE: _____ BY RECORD ON ITP DATE _____

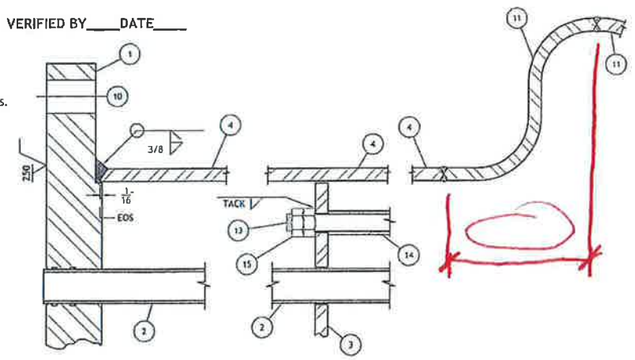



TYPICAL LONG SEAM WELD



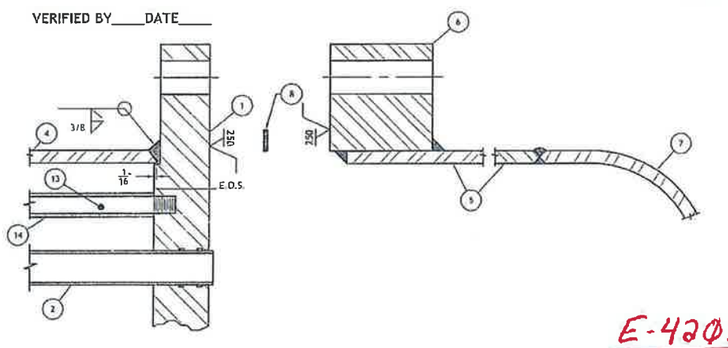
TYPICAL CIRC SEAM WELD

VERIFIED BY____DATE____




VESSEL ARRANGEMENT

VERIFIED BY____DATE____




E-4205

| REVISIONS | | | | |
|---|---|---|---|---|
| Rev. | Date | Drawn By | Checked By | Description |

Do Not Scale Drawing
Shop Tolerance
Fractional - ±1/8"
Angular - 1°
Circumference - ±1/16"
Mach. Surface - ±1/64"

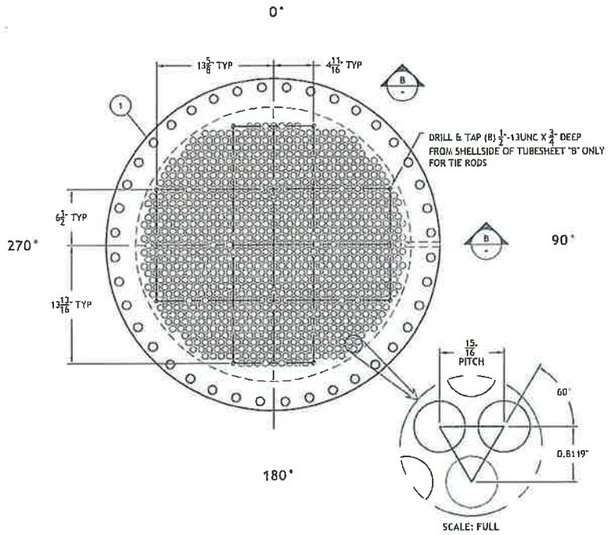
HARRIS Thermal Transfer Products
615 S. Springbrook Rd., Newberg, OR 97132
Phone (503)538-1260 / Fax (503)538-4261

| | |
|---|---|
| Drawn | DKM |
| Checked | JAA |
| Approved | BDS |
| Quote No. | 13420 |
| Job No. | 25944 |
| P.O. No. | 3017316-07 |

Title: FABRICATION DETAILS & VESSEL ARRANGEMENT
Customer: BUNGE-ERGON VICKSBURG
Destination: VICKSBURG, MISSISSIPPI

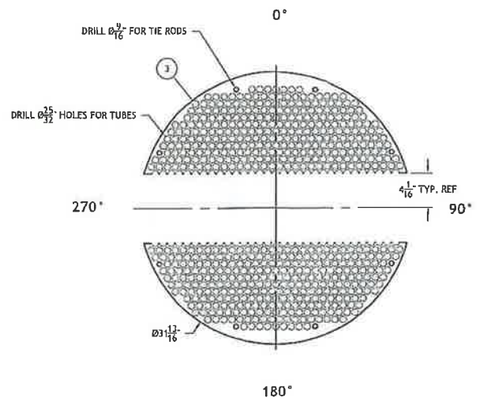
| Date | Size | Drawing No. | Rev. |
|---|---|---|---|
| 8/5/11 | D | 25944 | 0 |

Scale: AS SHOWN Sheet 2 Of 3



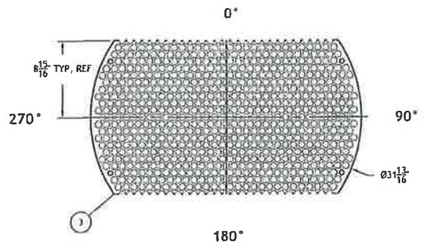

TUBESHEET LAYOUT

SCALE: 1½ = 1"



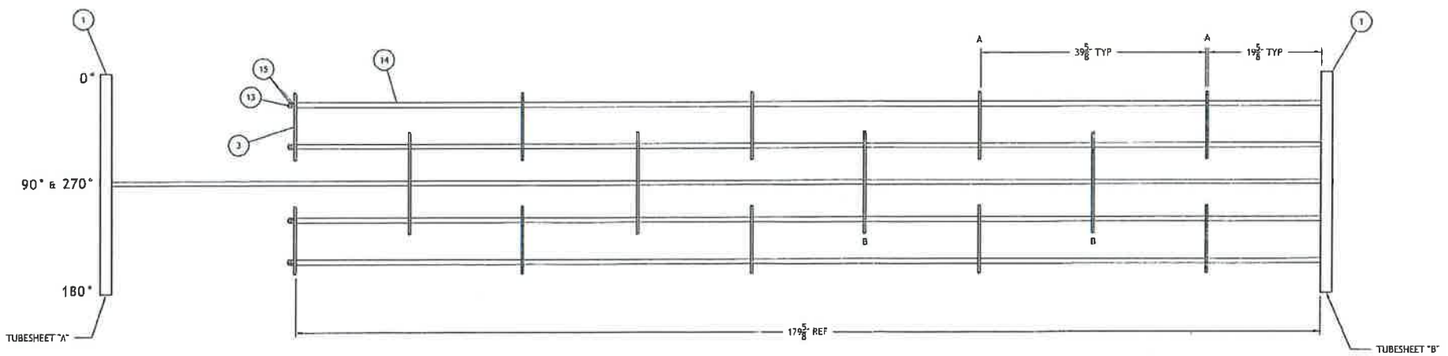

BAFFLE "A" LAYOUT

*(5 REQ'D)*




BAFFLE "B" LAYOUT

*(4 REQ'D)*




BUNDLE LAYOUT

SCALE: 1" = 1"

APPROVED

APPROVED AS NOTED

NOT APPROVED

| DEPT | | | INITIALS | DATE |
|---|---|---|---|---|
| SITE OFFICE | | | | |
| PROC. | X | | EC | 8-24-11 |
| MECH. | X | | A.B. | 8-17-11 |
| PIPING | | | | |
| STRUC. | | | | |
| ELEC. | | | | |
| INSTR. | | | | |

DOCUMENTS ARE REVIEWED FOR GENERAL COMPLIANCE WITH RESPECT TO BID SPECIFICATIONS AND AMG INC. IS NOT RESPONSIBLE FOR THE DESIGN INTEGRITY OF THIS SUBMITTAL.

ROLLER SET-UP BY: _____ DATE: _____

ROLLER SET-UP VERIFIED BY: RECORD ON TP6 DATE: _____

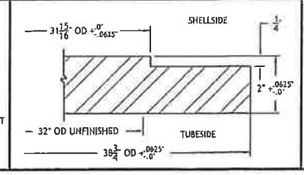
ROLLING COMPLETED BY: _____ DATE: _____

E-4205

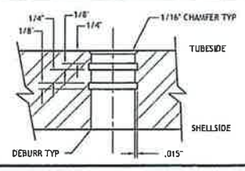
### TUBESHEET NOTES

1. TUBES TO PROJECT 1/8" ABOVE TUBESHEET "A".
2. TOTAL TUBES REQUIRED ---------- 940
3. TUBE SIZE ---------- 3/4" OD x 0.065" AVG. WALL
4. TUBE HOLE PITCH ---------- 15/16 TRIANGULAR @ 60°
5. TUBE MATERIAL ---------- SA-249 TP316
6. TUBE HOLE (TEMA CLOSE FIT) ---------- .758" DIA. ±.002"
7. NUMBER OF PASSES ---------- 1
8. NUMBER OF TUBES PER PASS ---------- 940
9. DEBURR ALL HOLES.
10. ALL TUBES TO BE ROLLER EXPANDED USING CONTROLLED TORQUE EQUIPMENT NOT TO EXCEED 1½" FROM TUBESIDE FACE OF EACH TUBESHEET. DO NOT ROLL TUBES BEHIND SHELLSIDE FACE OF TUBESHEET.

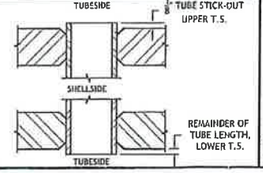
### TUBESHEET MACHINING DETAIL

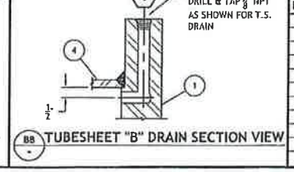



### TUBESHEET GROOVING DETAIL




### TUBE TO TUBESHEET STICK-OUT DETAIL




### REVISIONS

| Rev. | Date | Drawn By | Checked By | Description |
|---|---|---|---|---|
| | | | | |

| Do Not Scale Drawing | |
|---|---|
| Shop Tolerance | |
| Fractional | ±1/8" |
| Angular | 1° |
| Circumference | ±1/16" |
| Mach. Surface | ±1/64" |
| Drawn | DKM |
| Checked | JAA |
| Approved | BDS |
| Quote No. | 13420 |
| Job No. | 25944 |
| P.O. No. | 3017316-07 |

HARRIS Thermal Transfer Products

615 S. Springbrook Rd., Newberg, OR 97132
Phone (503)538-1260 / Fax (503)538-4281

| | |
|---|---|
| Title: | TUBESHEET, BAFFLE & BUNDLE LAYOUT |
| Customer: | BUNGE-ERGON VICKSBURG |
| Destination: | VICKSBURG, MISSISSIPPI |

| Date | Size | Drawing No. | Rev. |
|---|---|---|---|
| 8/5/11 | D | 25944 | 0 |

Scale: NONE Sheet 3 Of 3