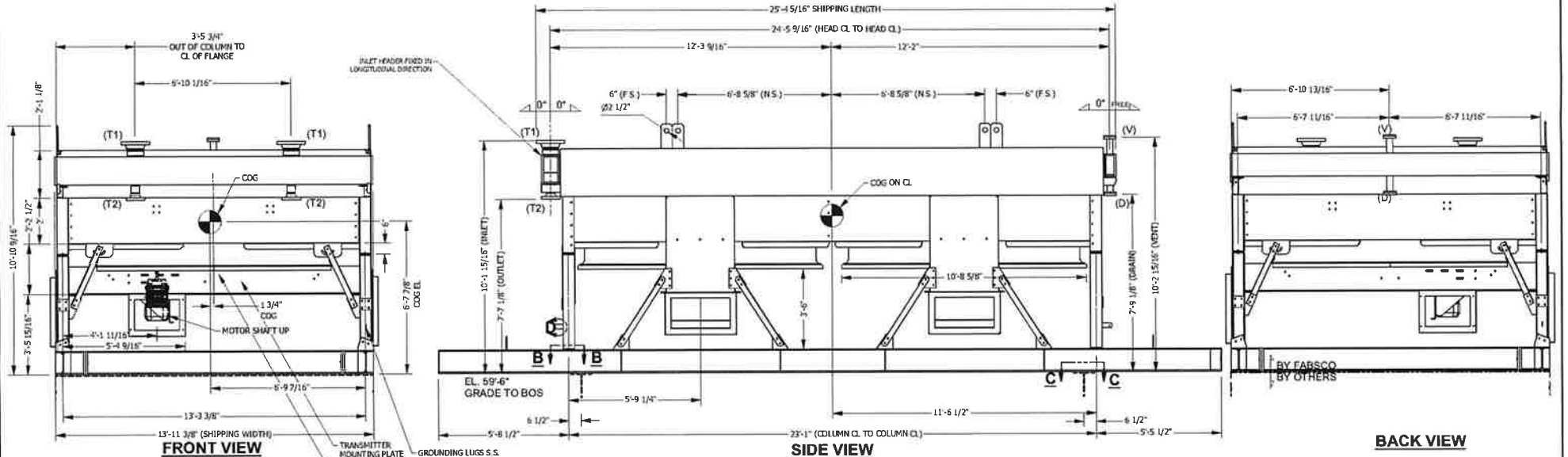
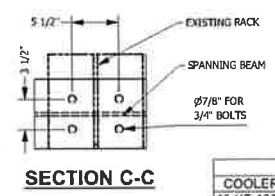
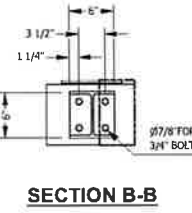


SECTION / DESCRIPTION	MAWP	TEST PRESS	DESIGN TEMP	MDMT	CONN NPS	RATING	BUNDLE VOL	BUNDLE WT	LOUVER	HAILScreens	MOTOR HP:	FAN MFGR:	MOORE	DIAM (FT):	SPECIFICATION NOTES:	COOLER WT #:
UNITS	PSIG	PSIG	DEG F	DEG F	INCH	SEE TABLE	CU FT	LBS	NONE	NONE	15	MOORE	10			
EXCESS MP STEAM CONDENSER	232/FV	302	430	32	SEE TABLE	SEE TABLE	42	23333			TYPE: TFC	CLASS: 10000	ACFM/FAN: 91408	VIB. TRANSMITTER: WILCOXON	STRUCTURE FINISH: PER AHM PP-000-000343 A	
18-XF-1801											RPM: 1800	BLADES: 4	HP@DES.: 10.27	VIB. TRANS. MODEL NO.:	GALVANIZED	
											VAC: 460/3/60	PITCH: 3.78	786A-D2	HEADER FINISH: PER AHM PP-000-000329 A		
											FRAME: 2547	RPM: 313	DRIVE: HTD	QTY: 2 PER BAY	SYSTEM 2 AFTER HYDRO	
											SHAFT: 1.625	SERIES: 30	RATIO: 5.75:1			
											MOTOR WT: 289 lbs	TYPE: EC	DRIVE WIDTH: 36			
											QTY: 2 PER BAY	TIP: VE	AIR BRAKE: YES			



- NOTE: 1. (1) BAYS REQUIRED  
 2. SPANNING BEAMS, STUB COLUMNS, TRANSV & LOVL DIAG BRACES REMOVED FOR SHIPPING.  
 3. ALL MOTORS ARE VFD COMPATIBLE, NO SPACE HEATER.  
 4. MOTOR REMOVAL BEAM PROVIDED  
 5. MOTORS SHALL BE RATED FOR CLASS 1, DIV. 2, GROUPS B,C,D AND A T3C TEMPERATURE CODE  
 6. "COOLER WEIGHT" LISTED ABOVE INCLUDES BUNDLE, FANS, MOTORS, STUB COLUMNS, AND BRACING, ALL PER BAY.



APPROVED BY: \_\_\_\_\_  
 DATE: \_\_\_\_\_

NOZZLE SCHEDULE			
LABEL	ITEM	QTY	FLANGE
T1	PROCESS INLET	2	8\" 300# RFWW
T2	PROCESS OUTLET	2	4\" 300# RFWW
V	VENT	1	2\" 300# RFLWN/BLD
D	DRAIN	1	2\" 300# RFLWN/BLD

EQ. TAGS #S		
COOLER	EQUIPMENT	TAG #
18-XF-1801	MOTOR	18-XF-1801M1
18-XF-1801	MOTOR	18-XF-1801M2
18-XF-1801	FAN	18-XF-1801-F01
18-XF-1801	FAN	18-XF-1801-F02
18-XF-1801	VIB SENSOR	UT-VT-XF1801A
18-XF-1801	VIB SENSOR	UT-VT-XF1801B

PROJECT NAME:	World Energy Renewables Project
PROJECT NO./UNIT:	EH-20-7123 / Utilities
CUSTOMER/CLIENT:	World Energy Paramount
EQUIPMENT OWNER:	Air Products Manufacturing LLC
ITEM NO.:	18-XF-1801
SERVICE:	Excess MP Steam Condenser
LOCATION:	World Energy, Paramount, CA, USA
PO NO.:	4505606039 / A8KM-4-406-PO-5
FABSCO JOB NO.:	A22-13316-1

NOZZLE LOADS							
FRONT HEAD	QTY/HEAD	SIZE	CLASS	#	2 XAP151		
DATE	FX	FV	F2	H4	MV	H2	
	LBS	LBS	LBS	FT LB	FT LB	FT LB	
0	2560	6000	3600	4500	3000	3300	
4	8160	19200	11600	14500	9000	10000	
COMPENED	6120	14400	8360	10400	6900	7600	
MAX.APA	3250	4500	3750	4500	3000	3000	
DESIGN LOAD	2250	4500	3750	4500	3000	3000	

DRY HEADER WEIGHT	
HEADER	WEIGHT (LBS)
INLET/OUTLET	2400
RETURN	1500
WEIGHTS PER BAY (LBS)	
ITEM	WEIGHT
COOLER	29664
SPAN BEAMS	7137
LOUVER	0
WALKWAY	3494
H2O	2615
PROCESS FLUID	2455
TOTAL DRY	40295
TOTAL FULL H2O	42910
TOTAL OPERATING	42750

REFERENCE DOCUMENTS	
FABSCO DOC. #	APCI DOC. #
A22-13316-1A-300	EN207123-FAB-9V3-00012
A22-13316-1A-ASME	EN207123-FAB-9V3-00031
A22-13316-1LL	EN207123-FAB-9V3-00047
A22-13316-1 NOTES	EN207123-FAB-9V3-00070
A22-13315-1-2&13316-1&133	EN207123-FAB-9V3-00126
16-2-3-LAYOUTOUT	EN207123-FAB-9V3-00201

GENERAL ARRANGEMENT		
REV.	DATE	DESCRIPTION
0	4/6/2022	FOR APPROVAL
1	9/16/2022	PER CUST. COMM.
2	1/17/2023	PER CUST. COMM.
3	2/23/2023	PER CUST. COMM.

DRAWING PROPRIETARY TO FABSCO, LLC AND IS NOT TO BE RELEASED TO ANY THIRD PARTY, EXCEPT WITH NOTIFICATION AND APPROVAL IN WRITING OF FABSCO, LLC OFFICER.

DRAWN BY: \_\_\_\_\_  
 BH

DATE: 4/6/2022

CHECKED BY: \_\_\_\_\_

DRAWING NO: **A22-13316-1-100**

REV: **3**

**Item Note**  
**PURCHASING NOTES (REF: SPEC-ENG-MQ042; MATERIAL ORIGIN VERIFICATION PER APPENDIX B FOR HAZARDOUS SERVICE)**

- Minimum material certification requirement shall be either:
  - A mill certificate (for material originating within the USA) -OR-
  - An EN 10204 Type 3.1 certificate (for material originating outside the USA)

Applicable to:

- Pressure containing parts, attachment to header and auxiliary connection bolting
- Weld consumables – must be EN 10204 Type 3.1 cert
- P1 -Load-bearing structural members (all Wide-flange beams, angles braces, splice plates)
- Load-bearing structural bolt assemblies
- Lifting Lugs

Countries of origin currently "qualified" by Air Products are; Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Luxembourg, Liechtenstein, The Netherlands, Norway, Mexico, Poland, Spain, South Korea, South Africa, Sweden, Switzerland, Taiwan, the United Kingdom, and the United States of America.

**WELDING NOTES (REF: A8KM-PP-000-500560-A AND 4WEQ-1051)**

- W1 Structure weld per AWS D1.1
- W2 Pressure weld per API RP582
- W3 Welder ID map required for pressure welds

**BUNDLE NOTES (REF: A8KM-PP-000-500730-A)**

- B1 Special Service None
- B2 All pass/stay plates to include 1/4" hole for drainage and venting
- B3 Slide plates shall be stainless steel or PTFE
- B4 Lateral movement 0.75" in both directions or 1.5" in one direction
- B5 For PWHT thermocouple shall be attached to each header box
- B6 All PWHT exchangers shall have the following stenciled in 3" letters on both sideframes: POSTWELD HEAT TREATED-DO NOT WELD OR BURN
- B7 Auxiliary connections: To include spiral wound gasket 304SS w/ flexible graphite filler, w/ 304SS inner ring and CS outer ring. Flexitallic CGI brand.
- B8 Auxiliary Connections: Bolts SA-193-B7; Nuts SA-194-2H. Two nuts (and hardened washer) shall be provided for each end of the studs for blind flanges (i.e., total of four nuts and two washers)

**STRUCTURE NOTES (REF: A8KM-PP-000-400002-A; A8KM-PP-000-400004-A; A8KM-PP-000-400005-A; A8KM-PP-000-430000-A)**

- ST1 California PE stamp required for structural steel design
- ST2 Space between adjacent bays shall be 12" to include air seal to avoid hot air recirculation
- ST3 Motor removal beams
- ST4 Motors mounted vertical shaft up and shall be rotated up for shipment
- ST5 The motors will have a 1.15 SF on sine-wave power (constant frequency/speed) and will have a 1.0 SF at variable frequency.
- ST6 Columns and beams shall be ASTM A992. Baseplates, column splice plates, clips shall be ASTM A572/A572A Grade 50. Angles shall be ASTM A36/A36M.
- ST7 Ladder and grating fabrication per A8KM-PP-000-400006/7-A
- ST8 For high strength connections (knee braces, columns splices, walkway support beam), high strength bolt assembly required: 3/4" A325 bolt + F436 washer + F959 DTI washer (galv) + A563 nut (wax dip). All other standard bolt assemblies shall be A325 bolt + F436 washer + A563 nut.
- ST9 Structural welding in accordance with AWS D1.1
- ST10 PT or MT lifting lug welds
- ST11 MT 5% structure welds (clips, baseplates, gussets)
- ST12 Header walkways shall be grated up to plenum. Pipe penetrations by others

**HEADER BOX TESTING NOTES (REF: A8KM-PP-000-500550-A)**

- H1 Prior to fit up (CS): PT or WFMT plate edges for thickness less than 1"; WFMT plate edges for thicknesses 1" and greater. Defects shall not be greater than the limits shown in ASME SA-20.
- H2 MT or PT nozzle cutout prior to nozzle attachment
- H3 NDE performed after PWHT (CS)
- H4 PT extertor welds
- H5 PT nozzle attachment root pass
- H6 100% visual inspection of pass/stay plate welds
- H7 Spot RT per API 661
- H8 Hardness testing per API 661

**COATING NOTES (REF: A8KM-PP-000-500520-A; A8KM-PP-000-500540-A)**

- C1 Headers: Paint tubesheet prior to hydro; remainder of header box (including welds) to be coated after hydrotest. When a split header design is used, the top or bottom of the split will be painted prior to hydro due to inaccessibility after hydro. Paint report required.
- System 2:
- Surface Prep: SSPC-SP1 / SSPC-SP10
- C2 Coat 1: Inorganic Zinc (2.5-4.0 mil DFT)
- Coat 2: Silicone Acrylic (1.5-2.0 mil DFT)
- Coat 3: Silicone Acrylic (1.5-2.0 mil DFT)
- Final Color: RAL 7035 Light Gray
- C3 Structural Steel to be hot dipped galvanized per A8KM-PP-000-500540-A.
- C4 Damage to galvanize shall be repaired per ASTM A780/A780M and PIP STS05120 Para 4.7.4
- C5 Damage to header coating shall be repaired A8KM-PP-000-500520-A

**ASSEMBLY NOTES**

- A1 Tube-tubesheet joint expansion rolled only
- A2 Complete test erection of each bay
- A3 Fan shaft slinger EDPM x 0.125" thk
- A4 Rotate motors up for shipment
- A5 Antirotation device
- A6 Grounding lug per PIP VEFV1103

**BUNDLE/UNIT TESTING NOTES (REF: A8KM-PP-000-500730-A)**

- BU1 Hydrotest for 1 hour minimum with chart
- Shop run-in test (motor, drive and fan assembly for minimum 30 minutes), test includes the follows as a minimum:
  - Check fan tip clearance
  - Set fan pitch to design angle
- BU2
  - Perform functioning test on assembled louvers with stops as required for loss of instrument air
  - Vibration levels shall be measured and reported
  - Noise emission levels shall be measured and reported
- BU3 Noise requirement 85 dBA overall. Noise test to include breakdown per octave and shall be measured at the centerline of the fan 3-ft below the inlet of the fan. Noise datasheet "A8KM-16-Noise DS" shall be completed with noise measurements. Where multiple bays are provided per tag, test is only required for one bay per design

**SHIPMENT PREP NOTES (REF: 4WGN-10001)**

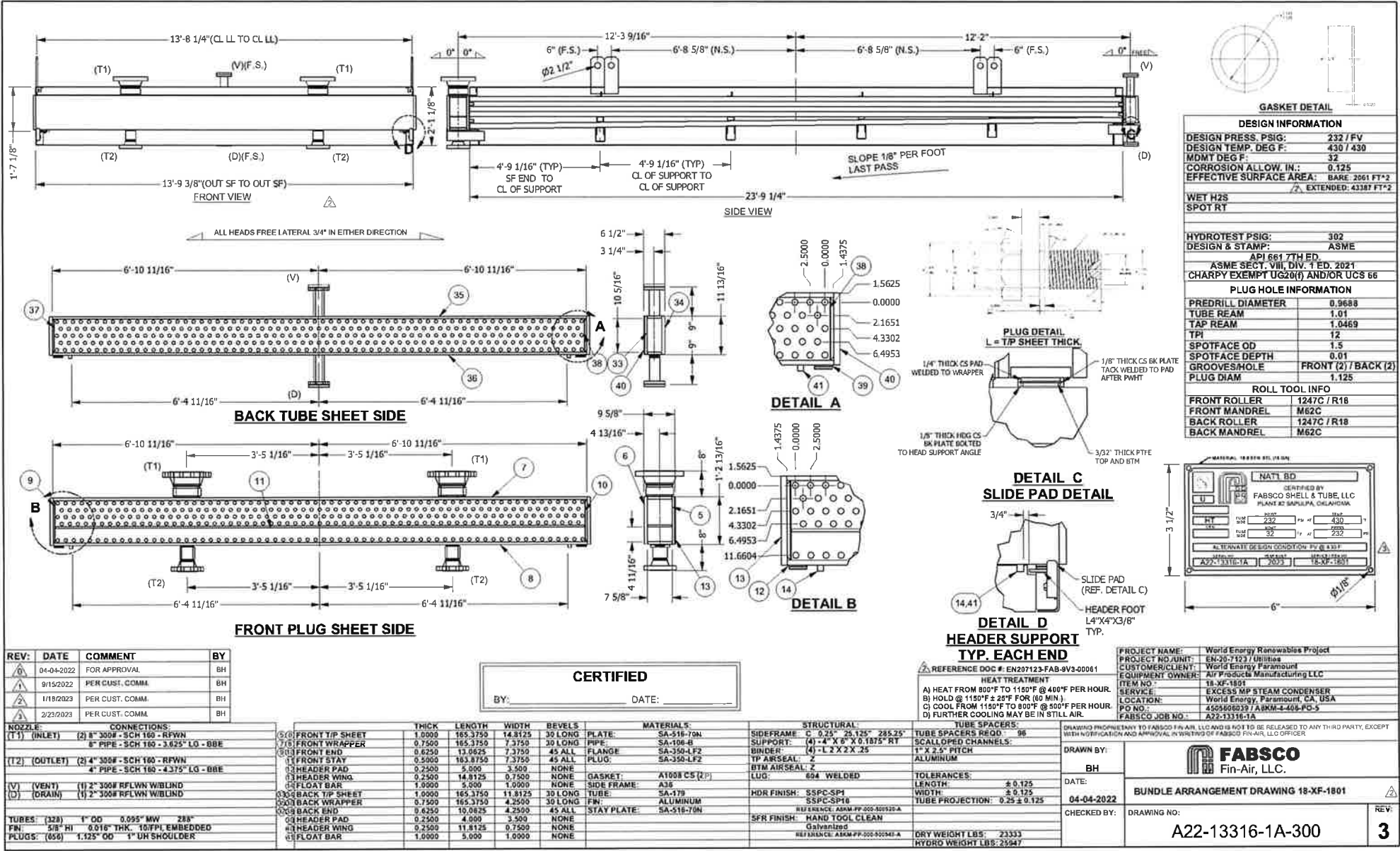
- SH1 10% spare plugs and gaskets to be packaged/sealed in waterproof container per Tag number
- Vacuum dry bundle to 1 Torr followed by nitrogen purge. Mark each connection "Warning: Contents Under Nitrogen Pressure". Pressure gauge should be protected to avoid damage during shipment, but still accessible.
- SH2 Under Nitrogen Pressure. Pressure gauge should be protected to avoid damage during shipment, but still accessible.
- SH3 Plywood cover over top of bundle. Timber per ISPM15
- SH4 Motors and vibration monitor shall be shrink wrapped and packed with desiccant.
- SH5 All pieces shall be clearly marked with field erection mark number
- SH6 Ship loose bolt assemblies shall be packaged in weatherproof containers
- SH7 Supply documents certifying measured equipment weight along with crane calibration cert.
- SH8 Service/ process gasket shipped separately



DRAWING PROPRIETARY TO FABSCO FIN-AIR, LLC AND IS NOT TO BE RELEASED TO ANY THIRD PARTY, EXCEPT WITH NOTIFICATION AND APPROVAL IN WRITING OF FABSCO FIN-AIR, LLC OFFICER

DRAWN BY:	<b>FABSCO</b> Fin-Air, LLC.	
DATE:	04-04-2022	
CHECKED BY:	DRAWING NO:	REV:
	A22-13316-1A-NOTES	3

PROJECT NAME:	World Energy Renewables Project
PROJECT NO./UNIT:	EN-26-7123 / Utilities
CUSTOMER/CLIENT:	World Energy Paramount
EQUIPMENT OWNER:	Air Products Manufacturing LLC
ITEM NO.:	18-XF-1801
SERVICE:	EXCESS MP STEAM CONDENSER
LOCATION:	World Energy, Paramount, CA, USA
PO NO.:	4505606039 / A8KM-4-406-PO-5
FABSCO JOB NO.:	A22-13316-1A



**GASKET DETAIL**

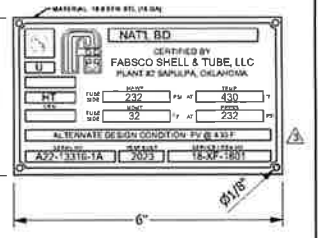
**DESIGN INFORMATION**  
 DESIGN PRESS. PSIG: 232 / FV  
 DESIGN TEMP. DEG F: 430 / 430  
 MDMY DEG F: 32  
 CORROSION ALLOW. IN.: 0.125  
 EFFECTIVE SURFACE AREA: BARE: 2061 FT<sup>2</sup>  
 EXTENDED: 43887 FT<sup>2</sup>

**WET H2S**  
 SPOT RT

**HYDROTEST PSIG: 302**  
**DESIGN & STAMP: ASME**  
 API 661 7TH ED.  
 ASME SECT. VIII, DIV. 1 ED. 2021  
 CHARPY EXEMPT UG20(f) AND/OR UCS 66

**PLUG HOLE INFORMATION**  
 PREDRILL DIAMETER 0.9688  
 TUBE REAM 1.01  
 TAP REAM 1.0469  
 TPI 12  
 SPOTFACE OD 1.5  
 SPOTFACE DEPTH 0.01  
 GROOVE/HOLE FRONT (2) / BACK (2)  
 PLUG DIAM 1.125

**ROLL TOOL INFO**  
 FRONT ROLLER 1247C / R18  
 FRONT MANDREL M62C  
 BACK ROLLER 1247C / R18  
 BACK MANDREL M62C

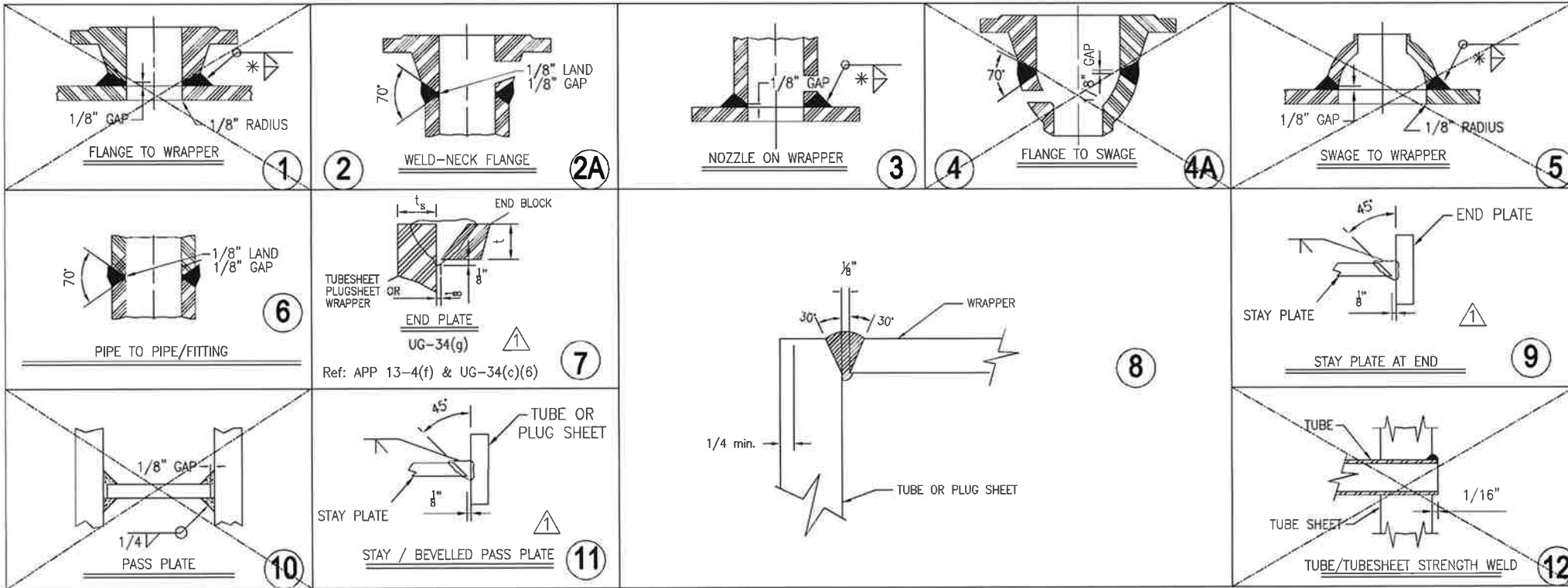


REV:	DATE	COMMENT	BY:
04-04-2022	04-04-2022	FOR APPROVAL	BH
9/15/2022	9/15/2022	PER CUST. COMM.	BH
1/18/2023	1/18/2023	PER CUST. COMM.	BH
2/23/2023	2/23/2023	PER CUST. COMM.	BH

**CERTIFIED**  
 BY: \_\_\_\_\_ DATE: \_\_\_\_\_

<b>PROJECT NAME:</b> World Energy Renewables Project	<b>PROJECT NO./UNIT:</b> EN-26-7123 / Utilitas
<b>CUSTOMER/CLIENT:</b> World Energy Paramount	<b>EQUIPMENT OWNER:</b> Air Products Manufacturing LLC
<b>ITEM NO.:</b> 18-XF-1801	<b>SERVICE:</b> EXCESS MP STEAM CONDENSER
<b>LOCATION:</b> World Energy Paramount, CA, USA	<b>PO NO.:</b> 450560039 / A&M-4-408-PD-5
<b>FABSCO JOB NO.:</b> A22-13316-1A	

**DRAWN BY:** BH  
**DATE:** 04-04-2022  
**CHECKED BY:** [Signature]  
**DRAWING NO.:** A22-13316-1A-300  
**REV:** 3



JOINT DESIGNATION	1	2	2A	3	4	5	6	7	8	9	10	11	12
APPLICABLE PROCEDURES:	M-138 GTAW-SMAW	M-138 GTAW-SMAW	SEE NOTE 4 A-352 SMAW-SAW	M-138 GTAW-SMAW	M-138 GTAW-SMAW	M-138 GTAW-SMAW	M-138 GTAW-SMAW	M-138 GTAW-SMAW	A-352 SMAW-SAW M-101-1 GTAW F-148-2 FCAW M-138 GTAW-SMAW GP-1 GMAW-P/FCAW	M-138 GTAW-SMAW	M-138 GTAW-SMAW	M-138 GTAW-SMAW	LATER GTAW
	F-141-3 GMAW-FCAW	M-101-1 GTAW	M-101-1 GTAW	M-101-1 GTAW	F-141-3 GMAW-FCAW	F-141-3 GMAW-FCAW	M-101-1 GTAW	M-101-1 GTAW	F-148-2 FCAW GP-1 GMAW-P/FCAW	M-101-1 GTAW	F-148-2 FCAW GP-1 GMAW-P/FCAW	M-101-1 GTAW	F-148-2 FCAW GP-1 GMAW-P/FCAW

- NOTES:**
- ALL WELDING TO BE IN ACCORDANCE WITH ASME CODE ( SECTION IX )
  - GRIND ALL INTERNAL NOZZLE WELDS SMOOTH.
  - ALL FILLET WELDS 3/8"(MIN.) - UNLESS OTHERWISE SPECIFIED ON DETAILS
  - 2A, 4A ONLY APPLIES TO PIPE, SWAGE DIAM. 6" AND LARGER

PROJECT NAME:	World Energy Renewables Project
PROJECT NO./UNIT:	EN-28-7123 / Utilities
CUSTOMER/CLIENT:	World Energy Paramount
EQUIPMENT OWNER:	Air Products Manufacturing LLC
ITEM NO.:	18-XF-1801
SERVICE:	Excess MP Steam Condenser
LOCATION:	World Energy, Paramount, CA, USA
PO NO.:	459506039 / A&KM-4-465-PO-5
FABSCO JOB NO.:	A22-13316-1

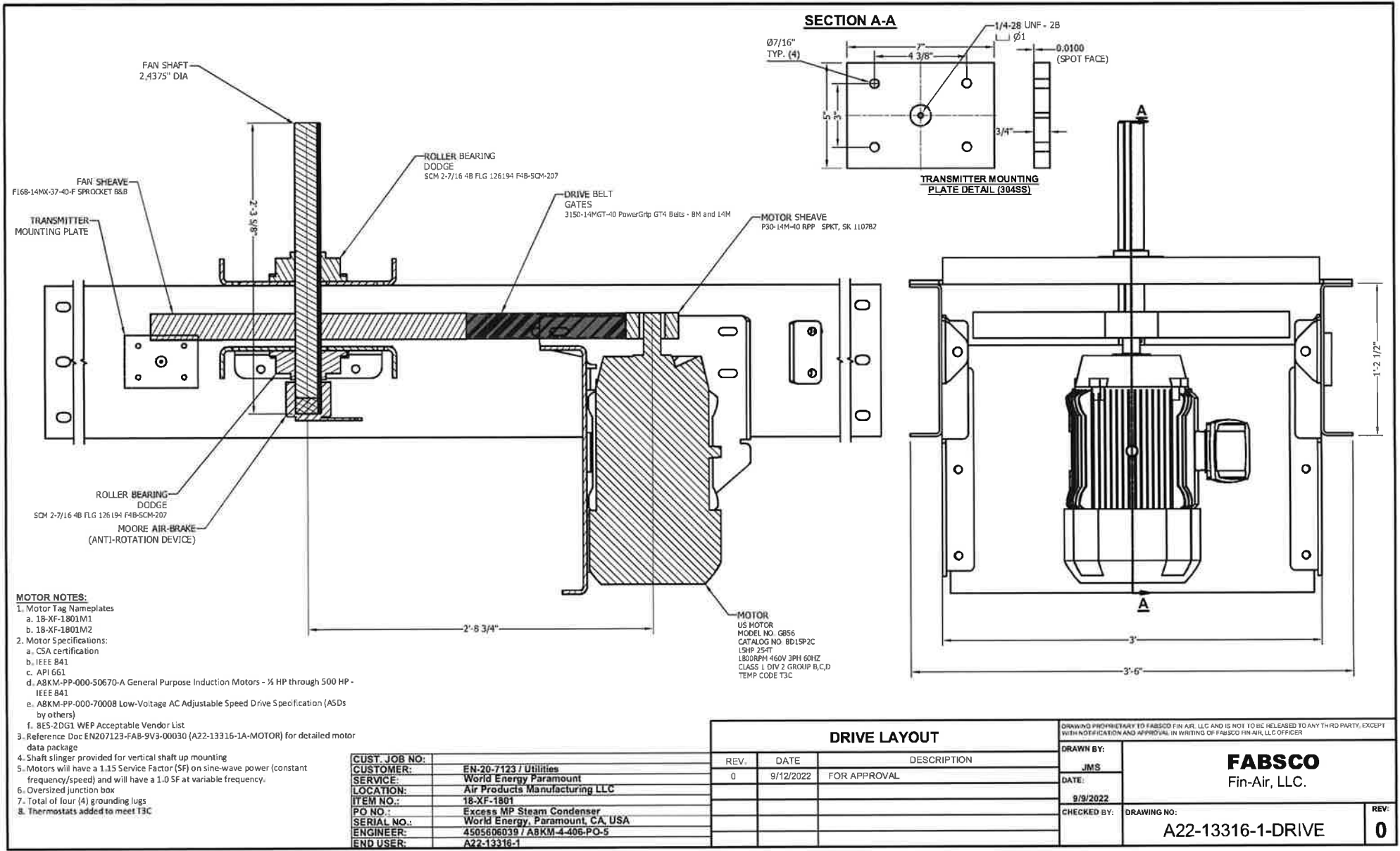
A.S.M.E. CODE WELD MAP - 18-XF-1801		
CARBON - HEAT TREATED		
REV.	DATE	DESCRIPTION
0	4/7/22	FOR APPROVAL
1	5/26/22	ADD TITLE BLOCK, DETAILS BLOCKS 7, 9, 11

DWG. BY:	BMH
DATE:	3/8/2022
CHK'D BY:	

**Fabsco**

DRAWING NO.: A22-13316-1 WM HT

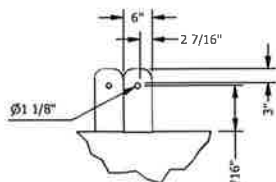
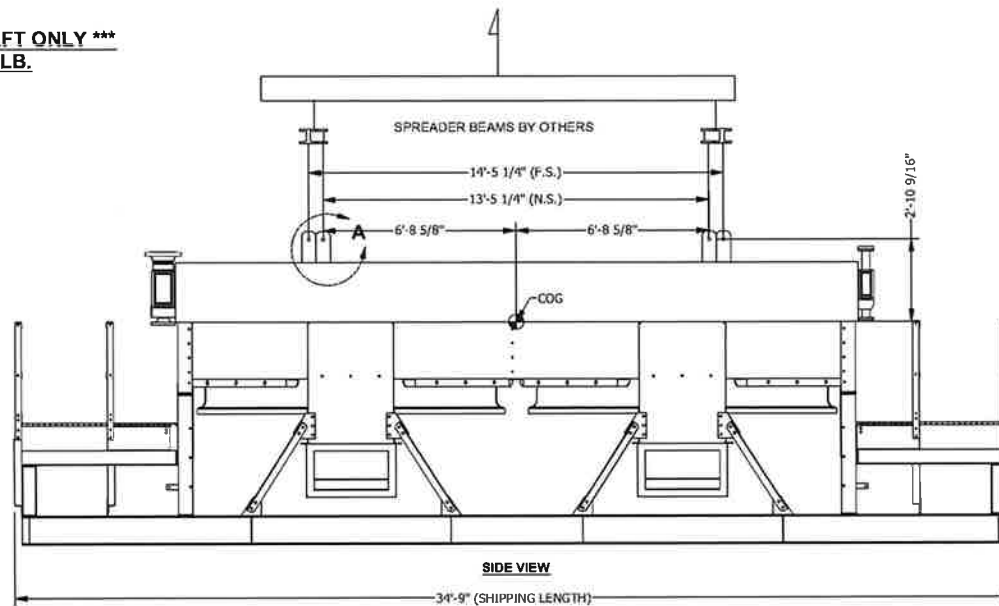
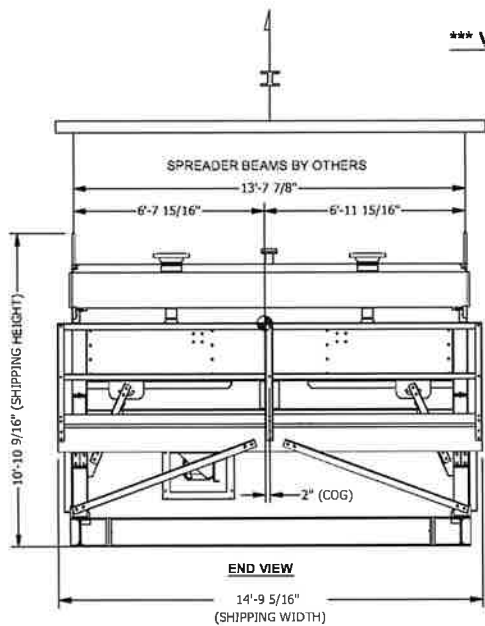
REV. 1



DRIVE LAYOUT		
REV.	DATE	DESCRIPTION
0	9/12/2022	FOR APPROVAL

DRAWING PROPRIETARY TO FABSCO FIN AIR, LLC AND IS NOT TO BE RELEASED TO ANY THIRD PARTY, EXCEPT WITH NOTIFICATION AND APPROVAL IN WRITING OF FABSCO FIN AIR, LLC OFFICER	
<b>DRAWN BY:</b> JMS	<b>FABSCO</b> Fin-Air, LLC.
<b>DATE:</b> 9/9/2022	
<b>CHECKED BY:</b>	<b>DRAWING NO:</b> A22-13316-1-DRIVE
	<b>REV:</b> 0

**\*\*\* VERTICAL LIFT ONLY \*\*\*  
42,000 LB.**



**DETAIL A  
1" THICK LIFTING LUG**

WEIGHTS PER BAY(LBS)	
ITEM	WEIGHT
COOLER	29684
SPAN BEAMS	7137
LOUVER	0
WALKWAY	3494
H2O	2615
PROCESS FLUID	2455
TOTAL DRY	40295
TOTAL FULL H2O	42910
TOTAL OPERATING	42750

PROJECT NAME:	World Energy Renewables Project
PROJECT NO./UNIT:	EN-20-7123 / Utilities
CUSTOMER/CLIENT:	World Energy Paramount
EQUIPMENT OWNER:	Air Products Manufacturing LLC
ITEM NO.:	18-XF-1801
SERVICE:	Excess MP Steam Condenser
LOCATION:	World Energy, Paramount, CA, USA
PO NO.:	4505606039 / A8KM-4-406-PO-5
FABSCO JOB NO.:	A22-13316-1

LIFT DIAGRAM		
REV.	DATE	DESCRIPTION
0	10/25/2023	FOR APPROVAL
1	12/22/2023	CUST. COMM.

DRAWING PROPRIETARY TO FABSCO FIN-AIR, LLC AND IS NOT TO BE RELEASED TO ANY THIRD PARTY, EXCEPT WITH NOTIFICATION AND APPROVAL IN WRITING OF FABSCO FIN-AIR, LLC OFFICER

DRAWN BY:  
BH  
DATE:  
4/6/2022



CHECKED BY:

DRAWING NO:

A22-13316-1-LIFT

REV:

1