DRAWING No.	ISSUE
GA-277387-1	**D**

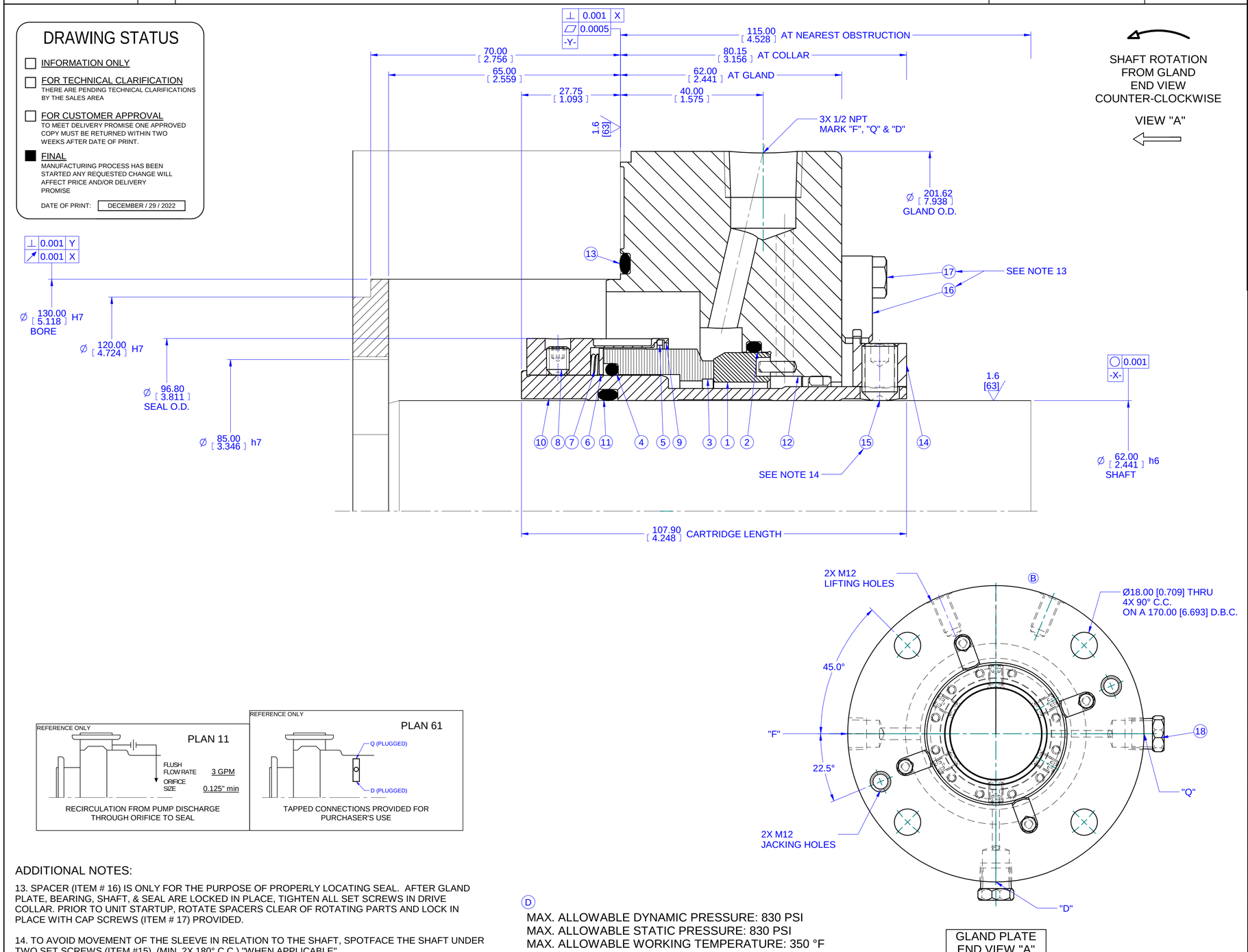
REVISIONS: -A- ORIGINAL ISSUE B.- END VIEW A UPDATED -NCV- 12/08/22 C.- FINAL -NCV- 12/29/22 D.- COMMENTS ADDED -NCV- 09/05/23

THESE COMMODITIES, TECHNOLOGY OR SOFTWARE ARE EXPORTED FROM THE UNITED STATES IN ACCORDANCE WITH THE EXPORT ADMINISTRATION REGULATIONS. DIVERSION CONTRARY TO THE U.S. LAW PROHIBITED.

DRAWING STATUS

- ☐ INFORMATION ONLY
- ☐ FOR TECHNICAL CLARIFICATION
  THERE ARE PENDING TECHNICAL CLARIFICATIONS BY THE SALES AREA
- ☐ FOR CUSTOMER APPROVAL
  TO MEET DELIVERY PROMISE ONE APPROVED COPY MUST BE RETURNED WITHIN TWO WEEKS AFTER DATE OF PRINT.
- ■ FINAL
  MANUFACTURING PROCESS HAS BEEN STARTED ANY REQUESTED CHANGE WILL AFFECT PRICE AND/OR DELIVERY PROMISE

DATE OF PRINT: DECEMBER / 29 / 2022



GLAND PLATE END VIEW "A" SCALE: NONE

ADDITIONAL NOTES:

13. SPACER (ITEM # 16) IS ONLY FOR THE PURPOSE OF PROPERLY LOCATING SEAL. AFTER GLAND PLATE, BEARING, SHAFT, & SEAL ARE LOCKED IN PLACE, TIGHTEN ALL SET SCREWS IN DRIVE COLLAR. PRIOR TO UNIT STARTUP, ROTATE SPACERS CLEAR OF ROTATING PARTS AND LOCK IN PLACE WITH CAP SCREWS (ITEM # 17) PROVIDED.

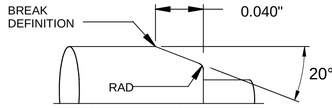
14. TO AVOID MOVEMENT OF THE SLEEVE IN RELATION TO THE SHAFT, SPOTFACE THE SHAFT UNDER TWO SET SCREWS (ITEM #15). (MIN. 2X 180° C.C.) "WHEN APPLICABLE"

15. GLAND PLATE MUST BE IN CONTACT WITH HOUSING. DO NOT OVERSTRESS.

Ⓓ
MAX. ALLOWABLE DYNAMIC PRESSURE: 830 PSI
MAX. ALLOWABLE STATIC PRESSURE: 830 PSI
MAX. ALLOWABLE WORKING TEMPERATURE: 350 °F
MDMT: -20°F

THE FOLLOWING NOTES ARE IMPORTANT AND MUST BE OBSERVED FOR CORRECT SEAL INSTALLATION AND OPERATION

1. REMOVE ALL SHARP EDGES ON SHAFT & / OR SLEEVE BEFORE INSTALLATION OF SEAL.
2. ALL SURFACES OF SHAFTS, SLEEVES OR PUMP CASES IN CONTACT WITH O-RINGS OR PACKINGS MUST BE MACHINED TO 63 RA FINISH OR BETTER.
3. LUBRICATE SHAFT/SLEEVE & SEAL WEDGE RING/O-RING/BELLOW TO ASSIST INSTALLATION OF SEAL WITH LUBE OIL.
4. FOR NON-CARTRIDGE SEALS, LUBRICATE MATING RING(SEAT), SEALING MEMBER, AND HOUSING TO ASSIST INSTALLATION.
5. PROCESS FLUID MUST BE CIRCULATED AROUND PRIMARY RING (SEAL)/THROUGH MATING RING (SEAT) (AT NOT LESS THAN 3 GPM) IN ORDER TO REMOVE HEAT GENERATED, OR SEAL FAILURE MAY OCCUR.
6. WHEN SHAFT IS SLEEVED THROUGH STUFFING BOX, SLEEVE MUST BE LIQUID TIGHT THROUGH BORE.
7. SHAFT OR SLEEVE MUST BE CORROSION RESISTANT MATERIAL WITH A HARDNESS OF 125 BRINELL MINIMUM & BE MACHINED TO DIMENSIONS & TOLERANCES STATED.
8. END OF SEAL CHAMBER & AXIS OF SHAFT MUST BE AT 90° TO EACH OTHER WITHIN 0.002" F.I.M.
9. PRESSURE IN SEAL CHAMBER MUST BE 30% GREATER THAN VAPOUR PRESSURE AS MINIMUM.
10. FOR NON-CARTRIDGE SEALS, PRIOR TO COMPLETING SEAL INSTALLATION, WIPE LAPPED SURFACES OF MATING RING (SEAT) & PRIMARY RING (SEAL FACE) PERFECTLY CLEAN.
11. VENT GAS ENTRAPMENT BEFORE STARTUP.
12. ALL SHOULDERS OVER WHICH SEAL MUST PASS WHEN FITTING, TO BE PREPARED AS DIAGRAM BELOW.



ALL DIMENSIONS ARE IN mm [in].

ITEM	DRAWING No.	MAT'L	DESCRIPTION	MATERIAL	QTY	SPARES
1	TAB-2033-0698	1903	MATING RING, SQ	SILICON CARBIDE	1	X
2	0000238	9549	O RING	FLUOROELASTOMER	1	X
3	C48-3000-001	8270	PRIMARY RING	CARBON	1	X
4	0000234	9549	O RING	FLUOROELASTOMER	1	X
5	A9-2875-043	0550	SNAP RING	316 SS	1	
6	A9-3000-012	0550	DISC	316 SS	1	
7	0539	0690	SPRING	ALLOY C-276	12	X
8	11252005000	0550	SET SCREW CUP POINT	316 SS	3	X
9	A9-3000-022	0550	STANDARD RETAINER	316 SS	1	
10	H-3000-7873	0654	SLEEVE	316 SS*	1	
11	0000230	9549	O RING	FLUOROELASTOMER	1	X
12	H-2750-7557	2386	GLAND PLATE ASSY	316 SS / CARBON *	1	
13	0000252	9549	O RING	FLUOROELASTOMER	1	X
14	TAB-3370-0762	0550	DRIVE COLLAR	316 SS	1	
15	61101500016	0236	SET SCREW CUP POINT	ALLOY STEEL	6	X
16	H-0000-5249	0550	SPACER, ECCENTRIC	316 SS	4	X
17	72061000020	0550	CAP SCREW HEX. HEAD	316 SS	4	X
18	TAB-1081-0127	0550	PLUG	316 SS	2	X

*MATERIAL WITH CMTR & PMI

SERVICE:	RJFU-B STARTUP OIL PUMP
PURCHASER:	AIR PRODUCTS MANUFACTURING LLC
P.O. NO.:	SM00001022
JOB/PROJECT:	WORLD ENERGY PARAMOUNT BIODIESEL PROJECT
END USER:	WORLD ENERGY PARAMOUNT
INSTALLATION:	PARAMOUNT, CA
PUMP TAG NO.:	18-P-1812
SULZER ORDER NO.:	100488873-0020
SULZER SERIAL NO.:	656619

SEAL ASS'Y NO.
IN : A48-3000-001
OUT:

	BILL OF MATERIALS NUMBER	
ASSEMBLY		
SEAL HEAD		
SPARES KIT		
DESCRIPTION	ITEMS	NUMBER

EQUIPMENT REFERENCE	SEAL DATA
OEM: **SULZER**	API PLAN: **11/61** / API CODE: **21A-FFN-062-11/61**
EQUIPMENT TYPE: **PUMP**	INSTRUCTION MANUAL REF.: **I-1648/2648/3648**
MODEL, FRAME / SIZE: **OHH, 3X4X13-1**	MATERIAL CODE: **X P147 1 X D81 H 316/HC**
SERIAL / DRAWING No.: **656619**	
CUSTOMER INFORMATION	Ⓓ SERVICE DATA
CUSTOMER: **AIR PRODUCTS MANUFACTURING LLC**	FLUID: **DIESEL**
P.O. NUMBER: **SM00001022** / PLANT ITEM NO: **18-P-1812**	BARRIER FLUID: **N/A**
END USER: **WORLD ENERGY PARAMOUNT**	CHAMBER PRESSURE: **76.9 NORM / 87.3 MAX PSIG**
LOCATION: **PARAMOUNT, CA**	SUCTION PRESSURE: **-0.4 NORM / 10 MAX PSIG**
PLANT:	DISCHARGE PRESSURE: **163.9 PSIG**
REFERENCE DATA: OV015902 / OV49011 P30 & P40 /// 2-204500892 REV G	PROCESS TEMPERATURE: **110 NORM / 160 MAX °F**
IPROJECT: 490162-MX01EN	SHAFT SPEED: **3570 RPM** / VAPOR PRESSURE: **0.01 PSIA**
	SPECIFIC GRAVITY: **0.79** / VISCOSITY: **2.70 CP**
SEAL SIZE: **Ø3.000"**	DE / NDE DRG NO:
SEAL TYPE: **1648 SINGLE CARTRIDGE**	

SCALE	DATE	DRAWN	CHECKED	APPROVED	DESIGN AUTH.
2.5:1	04/11/22	NCV	LJM	JRMB	MX01EN

john crane

DRAWING No.	ISSUE
GA-277387-1	**D**

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