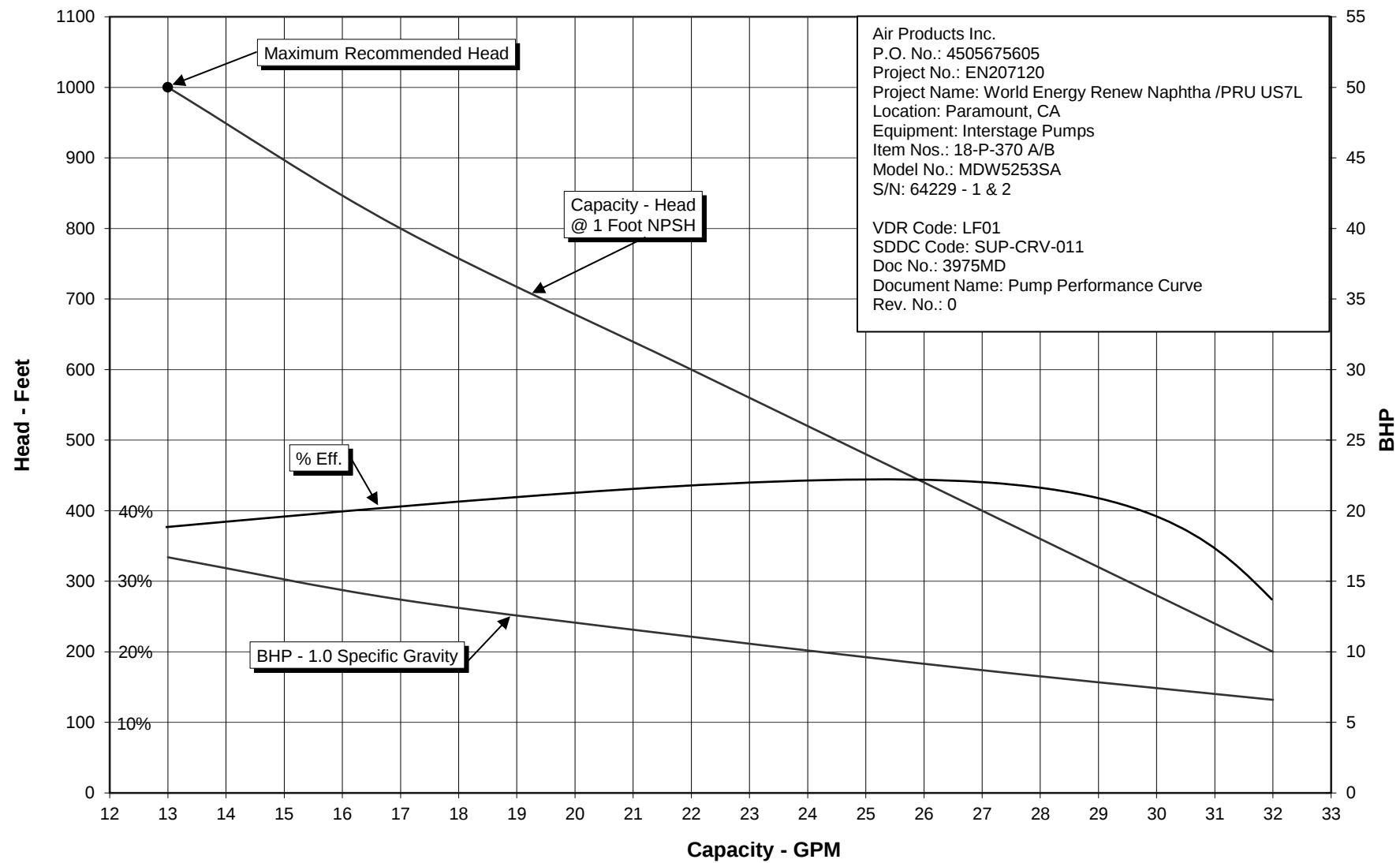


**Roth Pump Company
Model MD5253 @ 3500 RPM**





WORLD ENERGY PARAMOUNT
World Energy Renewables Project
Paramount, California

MECHANICAL EQUIPMENT DATASHEET
Document Number A8KM-18-070-540062-A
Rev. D, 23-Feb-2022
EN203076-FLUOR-LD1-00148



WORLD ENERGY RENEWABLES PROJECT

MECHANICAL EQUIPMENT DATA SHEET FOR 18-P-370A/B

INTERSTAGE PUMP

Document Number A8KM-18-070-540062-A

Fluor Project No: A8KM

D	23-Feb-2022	Issued for Purchase	10	NKP	JPK AD SK	BT	
C1	18-Oct-2021	Re-Issued for Quotation	7	JPK	JF AD SK	BT	
C	23-Mar-2021	Issued for Quotation	10	LV	JDM AD SK	BT	
B	25-Feb-2021	Issued for Client Review	10	JDM	JK AD SK	BT	
A1	18-Feb-2021	Re-Issued for Internal Review	10	JDM			
A	24-Nov-2020	Issued for Internal Review	10	JDM			
REV	DATE	DESCRIPTION	PAGES	ORIG	CHK'D	APPV'D	CLIENT

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**SEALLESS REGENERATIVE
TURBINE PUMP
DATA SHEET**Note: This Data Sheet has been modified from that in Annex
R of API 685, Second Edition.

Contract: **A8KM**
Item No: **18-P-370A/B**
Revision: **D** Date: **23-Feb-22**
Unit: **Propane Recovery Unit**
Doc. No.: **A8KM-18-070-540062-A**
Inquiry No.: **A8KM-4-619**
Sheet **3** of **10**

PERFORMANCE

PROPOSAL CURVE NO.: N/A RPM 2000-3500
As Tested Curve No.: _____
IMPELLER DIA.: RATED: 5.5" MAX: N/A MIN: N/A in
HYDRAULIC EFFICIENCY AT RATED POINT: _____ %
HYSTERESIS & MECHANICAL LOSSES: _____ HP
RATED POWER: Note 3.2 HP EFFICIENCY: Note 3.3 %
RATED CURVE BEP FLOW (at rated impeller dia.): N/A gpm
MIN. FLOW THERMAL: _____ gpm STABLE: Note 3.2 gpm
PREFERRED OPERATING REGION: (6.1.11) N/A to _____ gpm
ALLOWABLE OPERATING REGION: (@3500 rpm) 13 to 32 gpm
MAX. HEAD @ RATED IMPELLER: 1000 (@ 3500 rpm) ft
MAX. POWER @ RATED IMPELLER: Note 3.2 HP
PERCENT RISE TO SHUTOFF: 19 %
ORIFICE USED TO STEEPEN CURVE OR GIVE CONT. RISE? NO
NPSH3 at RATED FLOW: 1 ft
CL PUMP TO U/S BASEPLATE: _____ ft
NPSH MARGIN at RATED FLOW: 5.8 ft
SPECIFIC SPEED: (6.1.16) _____ gpm,rpm,ft N/A
SUCTION SPECIFIC SPEED LIMIT: _____ N/A
SUCTION SPECIFIC SPEED: _____ gpm,rpm,ft N/A

ROTOR CHAMBER TEMP RISE OPERATING:

AT RATED CONDITIONS _____ °F
AT MAXIMUM PUMP FLOW _____ °F
ROTOR CHAMBER TEMP RISE ON SHUTDOWN: _____ °F

SOUND LEVELS (AT 3 FT)

MAX ALLOWABLE SOUND PRESSURE LEVEL 85 dBA
ESTIMATED MAX SOUND PRESSURE LEVEL _____ dBA

SYSTEM DESCRIPTION

SUCTION VESSEL: CLOSED
PUMP LOCATION: BELOW LIQUID LEVEL
SUCTION VESSEL ON LEVEL CONTROL? YES
PRESSURE SENSOR ON SUCTION VESSEL? NO
SUCTION VESSEL PRESSURE MAINTAINED BY LIQUID LEVEL PLUS
FLUID VAPOR PRESSURE _____
IF FLUID LEVEL OR TANK PRESSURE DROPS TOO LOW, WILL
SYSTEM AUTOMATICALLY STOP THE PUMP? YES
WILL THE PUMP RUN DRY IN NORMAL OPERATION? NO
REMARKS: _____

CONSTRUCTIONAPI PUMP TYPE: OH1 [Based on API 610 Definitions]**NOZZLE CONNECTIONS: (6.4.5)**

	SIZE	FACING	RATING	POSITION
SUCTION	2"	RF	300	END
DISCHARGE	1-1/2"	RF	300	TOP

FLANGE THICKNESS REQ'S NON-STD BOLT LENGTH _____

PRESSURE CASING AUXILIARY CONNECTIONS: (6.3.3)

	NO.	SIZE	TYPE	FACING	RATING	POSITION
PURGE/FLUSH OUT	1	1/2"	SWF	RF	300	TOP
DRAIN	2	1/2"	SWF	RF	300	BOTTOM
VENT	1	1/2"	SWF	RF	300	TOP
PRESSURE SENSOR						
TEMP SENSOR						
WARM-UP LINE						
EXTERNAL						
2ND DRAIN						

GUSSET SUPPORT REQUIRED (6.3.3.5): FOR DRAIN ONLY YES
DRAIN CONNECTION FOR SECONDARY CASING _____
ROTOR CAVITY DRAINABLE THROUGH 2ND DRAIN: N/A
DRAIN VALVE SUPPLIED BY: PURCHASER
VENT VALVE SUPPLIED BY: PURCHASER
NO THREAD CONS TO SECONDARY CASING: _____
SPECIAL FITTINGS FOR TRANSITIONING (6.3.3.2): _____
CYLINDRICAL THREADS REQUIRED (6.3.3.11.3): _____
MACHINED AND STUDDERED CONNECTIONS (6.3.3.7): _____

CASING MOUNTING: FOOT

CASING TYPE: (6.3.10) _____

ROTATION: (VIEWED FROM COUPLING END) CCW**CASE PRESSURE RATING:**

MAWP: (6.2.2) 720 psig @ 170 °F
HYDROTEST: 1100 psig @ 100 °F

TYPE BOLTING USED ON PUMP (6.1.31.1): _____

AUXILIARY CIRCULATION PIPING PLAN

PIPING FORM: _____
PIPING MATERIAL: _____
PIPING ASSEMBLY: _____
IF FLANGED: _____

COOLING WATER REQUIREMENTS:COOLING WATER PIPING PLAN NOT APPLICABLE

PIPING FORM: _____
PIPING MATERIAL: _____
PIPING ASSEMBLY: _____
IF FLANGED: _____

FOR: JACKET _____ gpm
HEAT EXCHANGER _____ gpm
TOTAL COOLING WATER _____ gpm

HEATING REQUIREMENTS:

HEATING MEDIUM _____ gpm
HEATING PIPING _____ MATERIAL: _____

ROTOR:

IMPELLER TYPE _____
RENEWABLE IMPELLER WEAR RINGS REQUIRED NO
RENEWABLE CASE WEAR RINGS REQUIRED NO
COMPONENT BALANCE TO ISO 1940 G1.0 N/A

NOTES

3.1 Flanges for spiral wound gaskets shall have flange surface finish of 125 μ in Ra to 250 μ in Ra maximum. Finishes shall be judged by visual comparison with surface roughness standards conforming to ASME B46.1

3.2 Rated Power : 7.5 HP(HC) @ 3400 rpm / 7.0 HP(Water) @ 2900 rpm, Max. Power: 16.7 HP (Water at 1000 ft TDH at 3500 rpm);

MCSF : 9 gpm (@2500 rpm), 13 gpm (@3500 rpm) and 7.2 gpm (@2000 rpm)

3.3 Efficiency of HC rated condition is 23.9%, Efficiency of Water rated condition is 26.5%.

SEALLESS REGENERATIVE TURBINE PUMP DATA SHEET

Note: This Data Sheet has been modified from that in
Annex R of API 685, Second Edition.

Contract: A8KM
Item No: 18-P-370A/B
Revision: 0 Date: 23-Feb-22
Unit: Propane Recovery Unit
Doc. No.: A8KM-18-070-540062-A
Inquiry No.: A8KM-4-619
Sheet 4 of 10

REV

CONSTRUCTION (CONT'D)			
MATERIAL (6.10.1.1)		MAGNETIC DRIVEN PUMP SPECIFIC (9.1)	
APPENDIX H CLASS: A-8: 316 SS / 316 SS		DRIVER TYPE MOTOR GEAR NO	
MINIMUM DESIGN METAL TEMP (6.10.4.1) psig @ 32 °F		CLOSE COUPLED DESIGN APPROVED (9.1.1.2):	
IMPACT TEST SPECIFICATION		DESIGN FOR REMOVAL OF DRIVE END WITHOUT DISTURBING THE	
REDUCED HARDNESS MATERIALS REQ'D (6.10.1.11) NO		PRESSURE CASING OR DRIVER (9.1.1.4): YES	
APPLICABLE HARDNESS STANDARD (6.10.1.11) NA		DESIGN CONTAINMENT SHELL FOR VACUUM (6.2.4):	
COPPER IN CONTACT W/ PROCESS FLUIDS NOT ALLOWED		CONTAINMENT SHELL VACUUM DESIGN: psig	
CASING & COVER: 316L SS		MAGNETIC COUPLING TYPE: SYNCHRONOUS	
IMPELLER: 316L SS		MAGNETS:	
SHAFT: 316L SS		MAGNETIC MATERIAL	
WEAR RINGS: NA		MOUNTING METHOD	
CONTAINMENT SHELL/STATOR LINER: Hastalloy C		TEMP. LIMIT °F	
INNER MAG SHEATH/ROTOR LINER:		HERMETIC SEALED	
BEARING SLEEVE:		NO. OF MAGNETS	
BEARING BRUSHING: Silicon Carbide		PROTECTION OF OUTER MAG RING (9.1.3.5):	
STATOR HOUSING/FRAME: Iron		STARTING REQUIREMENT: ACROSS-THE-LINE	
INSPECTION CLASS LEVEL 2		TORQUE RATING (DECOUPLING) ft-lb	
PRESSURE VESSEL DESIGN CODE REFERENCES		MAX TORQUE REQ'D ON STARTING (9.1.3.7a) ft-lb	
THESE REFERENCES MUST BE LISTED BY THE MANUFACTURER:		PUMP TORQUE AT RATED (+5%) (9.1.3.7b) ft-lb	
SOURCE OF MATERIAL PROPERTIES ASTM		DESIGN FOR FULL CURVE TORQUE REQUIREMENTS (9.1.3.7c)	
CASTING FACTORS USED IN DESIGN (TABLE 3)		TORQUE REQ'D FOR FULL CURVE (120% BEP) (9.1.3.7c) ft-lb	
WELDING AND REPAIRS		REQUIRED/ACTUAL SERVICE FACTOR (9.1.3.8) /	
ALTERNATE WELDING CODES AND STANDARDS		SUBMIT MAG-COUPLING TORQUE VS TEMP CURVE YES	
WELDER QUALIFICATION		SUBMIT SPEED VS TORQUE CURVE (9.1.3.10) YES	
WELD PROCEDURE QUALIFICATION		BEARINGS AND LUBRICATION (9.1.4)	
MP OR LP EXAM OF PLATE EDGE		DRIVE MAGNET BEARING (TYPE / NUMBER): See Note 6.6 for additional requirements	
POST WELD HEAT TREAT		RADIAL SINGLE ROW BALL /	
POST WELD HEAT TREAT OF CASING		THRUST DOUBLE ROW BALL /	
ALTERNATE STD/ACCEPT CRITERIA APPLIES		LUBRICATION METHOD: FLINGER	
INSPECTION METHOD CASTINGS FABRICATIONS		OIL VISC. ISO GRADE VG 32	
RADIOGRAPH		CONSTANT LEVEL OILER (9.1.4.2.1)	
ULTRASONIC		PREFERENCE	
MAG PARTICLE		HOUSING VENT Note 5.2	
LIQ PENETRATE		SUMP COLLECTOR REQUIRED (9.1.4.2.2) Required	
VISUAL		BEARING HOUSING END SEALS Inpro or Equal	
MOTOR REQUIREMENTS APPLICABLE TO ALL (7.1.2), See Sheet 7		SHAFT COUPLING & GUARD: (9.1.5.2)	
MANUFACTURER: ABB Baldor		COUPLING MANUFACTURER: TB Woods	
FRAME OR MODEL: 256 TC		MODEL Elastomeric Spacer - Type S SPACER LENGTH in	
ORIENTATION: HORIZONTAL		RATING (POWER / 100 RPM) SERVICE FACTOR min. 1.5	
NAMEPLATE POWER HP 20		COUPLING BALANCED TO ISO 1940-1G6.3 (9.1.5.2.3) G2.5	
SERVICE FACTOR 1.15		COUPLING TO ISO 14691 (9.1.5.2.9)	
NOMINAL RPM 3600		COUPLING GUARD STANDARD (9.1.5.2.11) ANSI B15.1	
RATED LOAD RPM		IGNITION HAZARD ASSESSMENT REQUIRED (9.1.5.2.11.5) N/A	
VARIABLE SPEED REQUIRED YES		SPARK RESISTANT MATERIAL (9.1.5.2.11.6) YES	
SOURCE OF VARIABLE SPEED VFD		BASEPLATE (9.1.5.3)	
VOLTAGE 460		API BASEPLATE NUMBER (9.1.5.3.3):	
PHASE 3		BASEPLATE CONSTRUCTION (9.1.5.3.1.1): FULL TOP DECKING	
HERTZ 60		BASEPLATE DRAINAGE (7.3.1) DRAIN RIM	
MINIMUM STARTING VOLTAGE 80%		MOUNTING: EPOXY GROUTED	
INSULATION CLASS F		NON-GROUT CONSTRUCTION (9.1.5.3.13) NOT REQUIRED	
FULL LOAD AMPS 22.5		OPEN DECK DESIGN (9.1.5.3.14):	
LOCKED MOTOR AMPS 145		PROVIDE STAINLESS SPACER PLATE UNDER ALL EQUIP. FEET (9.1.5.3.6):	
START CONDITION OPEN VALVE (FULLY-LOADED)		OTHER Furnish two (2) diagonally opposed grounding provisions, Note 6.3	
		SEPARATE MOTOR DRIVER, See Sheet 10	
		APPLICABLE SPEC: ENCLOSURE:	
		INCLUDE: SPACE HEATER VIB SENSOR	
		LUBRICATION:	
		DRIVER MOTOR BEARING (TYPE / NUMBER):	
		RADIAL /	
		THRUST /	

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SEALLESS REGENERATIVE TURBINE PUMP DATA SHEET

Note: This Data Sheet has been modified from that in Annex
R of API 685, Second Edition.

Contract: A8KM
Item No: 18-P-370A/B
Revision: D Date: 23-Feb-22
Unit: Propane Recovery Unit
Doc. No.: A8KM-18-070-540082-A
Inquiry No.: A8KM-4-619
Sheet 5 of 10

REV

CANNED MOTOR PUMP SPECIFIC (9.2)

MOTOR WINDING INSULATION CLASS (9.2.2.8) _____
SOLID OR LIQUID HEAT TRANS. MEDIA ALLOWED IN STATOR? _____
DESIGN MOTOR FOR FREQUENT STARTS (9.2.2.9) _____
STARTS PER _____
IMPACT ON LIFE: _____
DESIGN MOTOR FOR (9.2.2.9): _____
UL, FM, ATEX OR EQUIVALENT REQUIRED (9.2.2.10) _____
CERTIFICATION OF IEEE 252 TEST REQUIRED (5.2.7.1) _____
DESIGN STATOR LINE FOR VACUUM (6.2.4) _____
STATOR LINER VACUUM DESIGN: _____ psig
DECONTAMINATION CONNECTION ON STATOR (9.2.2.11) _____

SECONDARY CONTROL / CONTAINMENT

NFPA RATING: _____
HEALTH: _____ FLAMMABILITY: _____ INSTABILITY: _____
USE ANNEX B HAZARD BASED PROCEDURE
HAZARD STATEMENT _____
RISK PHRASE _____
HAZARD GROUP _____
REQUIRED MEASURE: _____ SECONDARY CONTAINMENT SYSTEM

SECONDARY CONTROL (3.87)

MAX LEAKAGE ON PRIMARY FAILURE: _____ gpm
FLOW RESTRICTION: _____
DEVICE MANUFACTURER: _____ Flowserve
MATERIAL: _____ 316 SS / C vs SIC
ELASTOMERS: _____ Viton
MANUFACTURER CODE: _____

SECONDARY CONTAINMENT (3.65)

SECONDARY SEAL: _____
DESIGN PRESSURE: _____ psig

INSTRUMENTATION (7.4.2)

DETECT OPER. OUTSIDE ACCEPT. RANGE OR DECOUPLE (7.4.2.1)
REQUIRED METHOD: POWER MONITOR
LOCATION: _____ IN PURCHASER MCC
IF LOCAL PROVIDED BY: _____ PURCHASER
USE FOR: _____ ALARM & TRIP
MONITOR LEAKAGE INTO SECOND CASING: _____ YES
METHOD: _____ PRESSURE
SENSOR BY: _____ SUPPLIER
TYPE: _____ TRANSMITTER
USE FOR: _____ ALARM
MONITOR VIBRATION: _____ NOT REQUIRED
METHOD: FLAT SURFACE
PROVISION REQUIRED: _____
SENSOR BY: _____
IF FULL TIME, USE FOR: _____
MONITOR FLOW OF MAG DRIVE FLUSH LINE: _____ REQUIRED
METHOD: _____ FLOW
SENSOR BY: _____ PURCHASER
TYPE: _____ TRANSMITTER
USE FOR: _____ ALARM

PREPARATION FOR SHIPMENT (8.4.1)

TYPE OF SHIPMENT (8.4.1): _____ DOMESTIC
EXPORT BOXING _____ EXPORT REQ'D IF OVERSEAS
N2 PURGE DURING SHIPPING (9.2.8.4) _____
OUTDOOR STORAGE MORE THAN 12 MONTHS _____ YES
PURGE DURING STORAGE (9.2.8.4) _____ NO
DETAILS OF LIFTING DEVICES _____

SPARE PARTS (Include cost & details w/ proposal)

START - UP _____ YES
NORMAL MAINTANANCE _____ YES
SPARE ASSEMBLY: _____
OTHER: _____

WEIGHTS lb

ITEM NO	PUMP	DRIVER	GEAR	BASE	TOTAL
18-P-370A	230	330	NA	450	1010
18-P-370B	230	330	NA	450	1010

OTHER PURCHASER REQUIREMENTS

COORDINATION MEETING REQUIRED (10.1.3) _____ YES
CASTING REPAIR WELD PROCEDURE APPR REQ'D (6.10.2.5) _____ Note 5.1
MAXIMUM DISCHARGE PRESSURE TO INCLUDE (6.2.3): _____
MAX RELATIVE DENSITY _____ YES
OPERATION TO TRIP SPEED _____
MAX DIAM. IMPELLERS _____ NO
CONNECTION DESIGN APPROVAL (6.10.3.4.4) _____
DEMONSTRATE CO-PLANAR MOUNTING PAD SURFACES _____
IN PUMP VENDOR SHOP (9.1.5.3.5) _____ NONE
DYNAMIC BALANCE TO ISO 1940-1 gr. G1.0 (6.8.4.2) _____
INSTALLATION LIST IN PROPOSAL (10.2.3.1) _____
INCLUDE VIBRATION SPECTRAS (6.8.3.2.1) - Tabular form _____ YES
CONNECTION BOLTING COATING _____ PAINTED
SUBMIT EST. SPL BY OCTAVE BAND _____ REQUIRED
MATERIAL CERTIFICATION REQUIRED (6.10.1.7)
CASING _____ YES
IMPELLER _____ YES
SHAFT _____ YES
OTHER: All wetted pressure containing components and wear rings
VENDOR SUBMIT TEST PROCEDURES (8.3.1.1) _____ YES
ADDITIONAL DATA REQUIRING 20 YEARS RETENTION (8.2.1.1G) _____

SURFACE PREPARATION AND PAINT

MANUFACTURER'S STANDARD _____ YES
MFR STD per A8KM-PP-000-500520-A
PUMP:
PUMP SURFACE PREPARATION _____ MFR STD Per A8KM-PP-000-500520-A
PRIMER _____ MFR std in compliance or exceed ISO 12944-C4
FINISH COAT _____ Same as above
BASEPLATE:
BASEPLATE SURFACE PREPARATION _____ MFR STD Per A8KM-PP-000-500520-A
PRIMER _____ MFR std in compliance or exceed ISO 12944-C4
FINISH COAT _____ No finish coat on underside. Epoxy grout compatible

NOTES

- 5.1 Minor defects of a surface nature in the pressure casting (amounting to less than 20% of the wall thickness and less than 10 in² in total area) may be repaired without Buyer's approval
5.2 Bearing housing oilers shall be Oil-Rite make with sight plug.
5.3 Pump Vendor shall provide the coupling from the OEM of their choice. If Rexnord is not Vendor's standard, then Vendor shall provide an optional quote for a Rexnord coupling. Magnetic Coupling Make : Burgmann Model: MAK67, Shaft Coupling Make : TB Woods



SEALLESS REGENERATIVE TURBINE PUMP DATA SHEET

Note: This Data Sheet has been modified from that in
Annex R of API 685, Second Edition.

Contract: A8KM
Item No: 18-P-370A/B
Revision: D Date: 23-Feb-22
Unit: Propane Recovery Unit
Doc. No.: A8KM-18-070-540062-A
Inquiry No.: A8KM-4-619
Sheet 6 of 10

REV

INSPECTION AND TESTING		TESTING (8.3)	
GENERAL (8.1)		HARDNESS TEST REQUIRED (8.2.3.2)	
DAYS IN ADVANCE NOTIFICATION OF WITNESSED OR OBSERVED		FOR	
TESTS AND INSPECTIONS		METHOD	
NOTIFICATION OF SUCCESSFUL PRELIMINARY SHOP		COMPONENTS TO BE TESTED	
PERFORMANCE TEST (8.1.1.3)		IMPACT TEST - TO	
SUBMIT INSPECTION CHECKLIST (8.1.6)		HYDROSTATIC TEST (8.3.2)	
		WETTING AGENT INCLUDED (8.3.2.7)	
		PERFORMANCE TEST (8.3.3)	
		TEST DATA POINTS	
		PERFORMANCE CURVE & DATA APPROVAL PRIOR	
		TO SHIPMENT (8.3.3.5)	
		TEST W/ NPSHA LIMITED TO 110% SITE NPSHA	
		RUN UNTIL TEMP STABILIZATION ACHIEVED	
		1 HR. MECH RUN TEST (8.3.4.2.2)	
		THRUST BEARING LOAD TEST (8.3.4.3)	
		NPSH3 TEST (8.3.4.4.1)	
		COMPLETE UNIT TEST (8.3.4.5)	
		SOUND LEVEL TEST (8.3.4.6) FOR INFORMATION ONLY	
		AUXILIARY EQUIPMENT TEST (8.3.4.7)	
		SECONDARY CONTROL SYSTEM HYDRO	
		SECONDARY CONTAINMENT / CONTROL SYSTEM	
		INSTRUMENT TEST (8.3.4.9)	
		STATIC TORQUE TEST (9.1.6.1)	
		RUN UNTIL OIL TEMPERATURE STABILIZED (9.1.6.3)	
		RESIDUAL UNBALANCE TEST (J.4.1.2)	
		OTHER:	
PMI TESTING REQUIRED (8.2.1.4)			
PARTS TO BE TESTED: Per A8KM-PP-000-500512-A			
INSPECTION REQUIRED FOR CASTINGS (8.2.2.1)			
MAG PARTICLE			
LIQUID PENTRANT			
RADIOGRAPHY			
ULTRASONIC			
INSPECTION REQUIRED FOR CONNECTION WELDS (6.10.3.4.5)			
MAG PARTICLE			
LIQUID PENTRANT			
RADIOGRAPHY			
ULTRASONIC			
CLEANLINESS PRIOR TO FINAL ASSEMBLY (8.2.3.1)			

NOTES

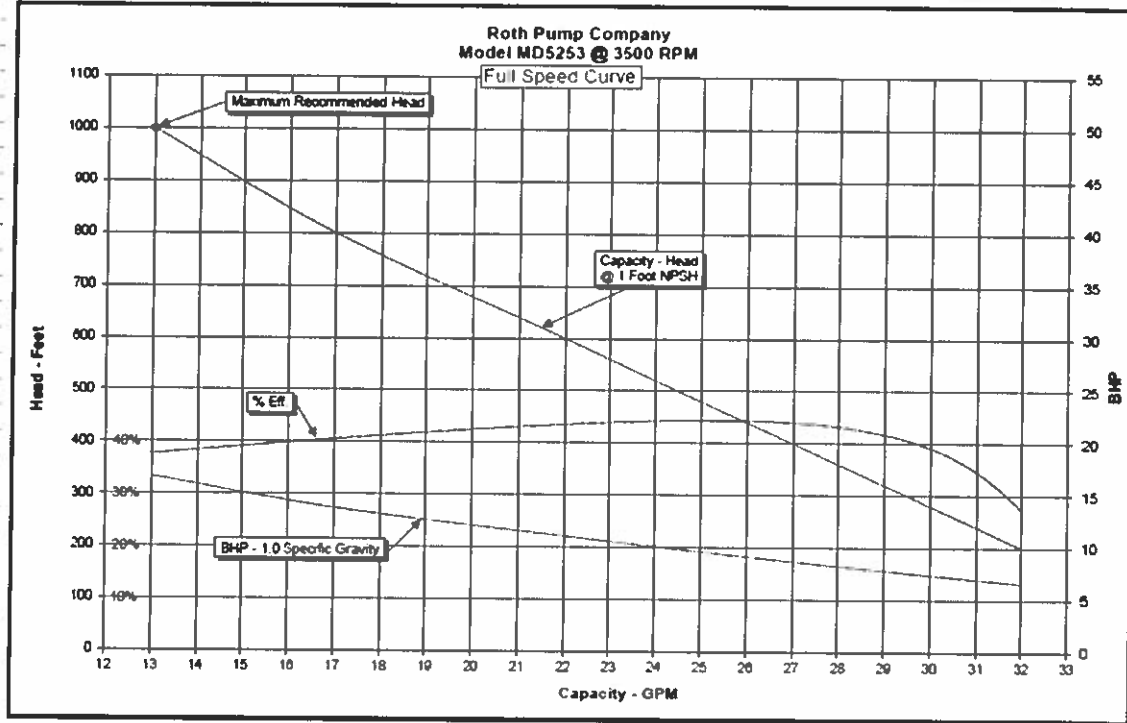
- 6.1 PMI of alloy pressure containment parts, including pipes & valves, is required per Project Specification A8KM-PP-000-500512-A Positive Material Identification (PMI).
- 6.2 Pressure containing parts including auxiliaries shall be tested hydrostatically with liquid at a minimum 1.5 times the maximum allowable working pressure.
- 6.3 Baseplate grounding tabs shall be 1/4" thick steel with at least (1) 9/16" diameter hole provided. If two (2) are provided, they shall be 9/16" dia. spaced 1-3/4" on center. Where stainless steel grounding tabs are required, they shall be threaded with one (1) 1/2" - 13 hole, or either two (2), or four (4), 1/2" - 13 holes all spaced 1-3/4" on center.
- 6.4 Baseplate shall be constructed with top plate decking and a drain rim. The baseplate shall be epoxy grouted. Jacking screws by Vendor. Baseplate shall be rigid constructed to accommodate 2 X Allowable Nozzle Loads & Moments in API 685, 2nd Edition. Size: 17"(W) x 66"(L)
- 6.5 Motor requires oversized terminal box.
- 6.6 An ESCO single piece sight glass is required for the oil drain. A magnetic drain plug in housing is also required.
- 6.7 Provide a Start-up Spare Parts List and 2-ys. Operating Spares List, inclusive of coupling and motor parts.
- 6.8 Pump Supplier shall provide pump performance curves, General Arrangement drawing sized for the driver, completed data sheets & Bill of Material, and un-priced Sub-Supplier buyouts with the Proposal.
- 6.9 Mechanical run testing is required for each pump. Mechanical run test shall be until oil temperature stabilization at Rated point, for at least one (1) hour for single-stage pumps, with vibration recordings at 10-minute intervals.
- 6.10 Flow Transmitter on Flush Line to be provided by Purchaser
- 6.11 Vendor to confirm requirement of suction strainer mesh size and dirt leg requirement during detail design.



SEALLESS REGENERATIVE TURBINE PUMP DATA SHEET

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Contract: A8KM
Item No: 18-P-370A/B
Revision: D Date: 23-Feb-22
Unit: Propane Recovery Unit
Doc. No.: A8KM-18-070-5-40062-A
Inquiry No.: A8KM-4-619
Sheet 7 of 10



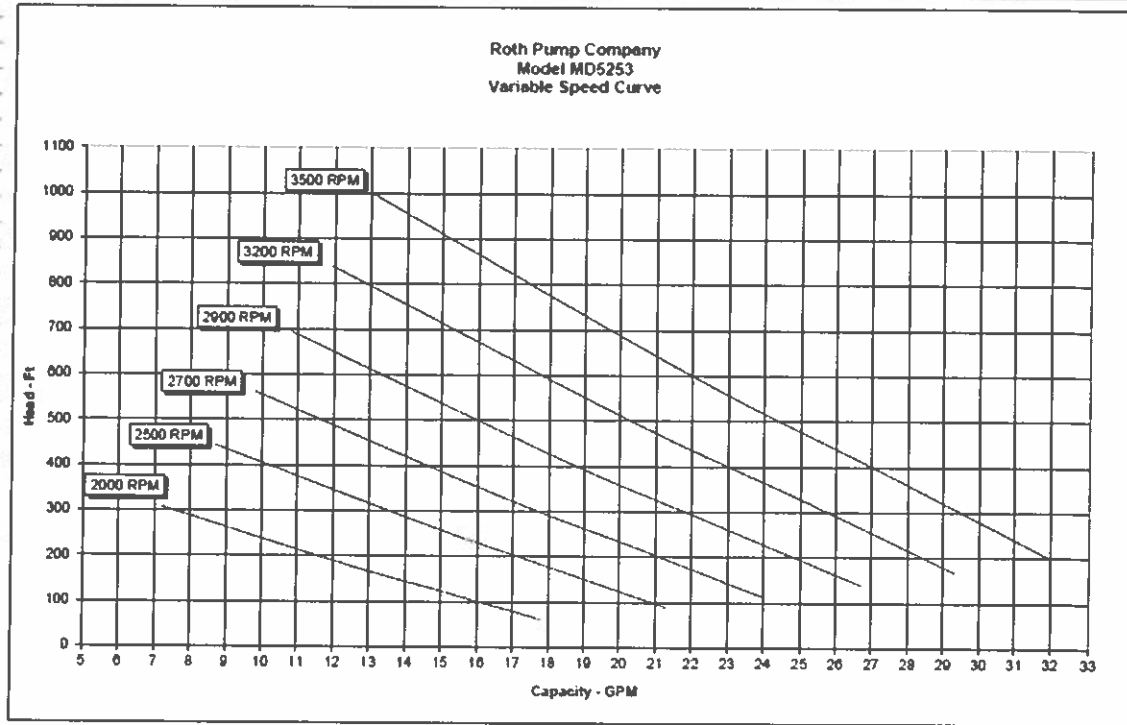


SEALLESS REGENERATIVE TURBINE PUMP DATA SHEET

Note: This Data Sheet has been modified from that in
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Contract:	A8KM		
Item No:	18-P-370A/B		
Revision:	D	Date:	23-Feb-22
Unit:	Propane Recovery Unit		
Doc. No.:	A8KM-18-070-540062-A		
Inquiry No.:	A8KM-4-619		
Sheet	8	of	10

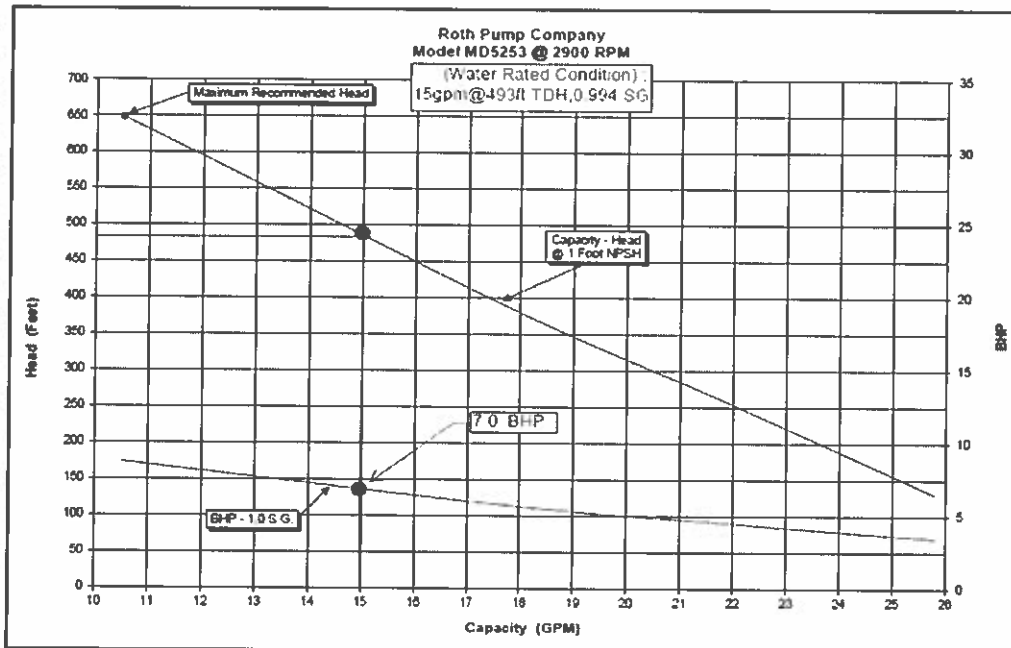
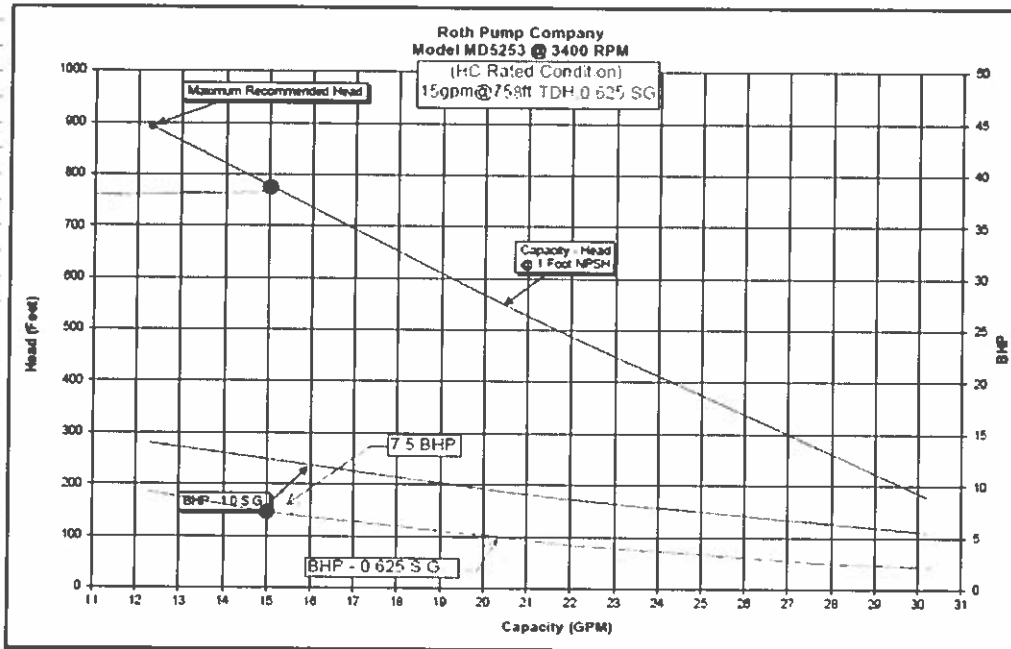
REV



**SEALLESS REGENERATIVE
TURBINE PUMP
DATA SHEET**

Note: This Data Sheet has been modified from that in
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Contract: A8KM
Item No.: 18-P-370A/B
Revision: D Date: 23-Feb-22
Unit: Propane Recovery Unit
Doc. No.: A8KM-18-070-540062-A
Inquiry No.: A8KM-4-619
Sheet 9 of 10



FLUOR. world energy	LOW VOLTAGE MOTOR (IEEE 841) DATA SHEET U.S. CUSTOMARY UNITS		Contract: A8KM Item No: 18-P-370A/B Revision: D Date: 23-Feb-22 Unit: Propane Recovery Unit RFQ / P.O. No.: A8KM-4-619 Sheet 10 of 10		Rev
	APPLICABLE MOTOR SPECIFICATION A8KM-PP-000-50670-A				
	Doc. No.: A8KM-18-070-540062-A				

1	APPLICABLE TO	☐ PROPOSAL ☒ PURCHASE ☐ AS BUILT	
2	CLIENT:	World Energy Paramount SERVICE: Interstage Pumps	
3	PLANT:	World Energy Renewables Project MOTOR TAG NO / NO REQ'D: 18-P-370AM/BM / Two (2)	
4	SITE:	Paramount, CA DRIVEN EQUIPMENT TYPE / TAG NO.: Regen. Turbine Pump / 18-P-370A/B	

DESIGN DATA AND ACCESSORY EQUIPMENT									
6	NAMEPLATE	20 HP	1.15 S.F.	3600 RPM	POWER (VOLTAGE/PHASE/HERTZ)	460 / 3 / 60			
7	ROTATION (WHEN FACING MOTOR OPPOSITE DRIVE END):	☐ CW ☐ CCW Fans shall be bi-directional							
8	INSULATION CLASS.	☐ B ☒ F ☐ H ☐ VPI	TEMP. RISE	CLASS B / °C over 40 °C AMBIENT					
9	AREA CLASSIFICATION:	CLASS I GROUP B/C/D DIV. 2 T-RATING T3C / °F							
10		☐ UNCLASSIFIED							
11	LOCATION:	☐ INDOOR ☒ OUTDOOR ☐ SHELTERED	UNUSUAL CONDITIONS:	☐ DUST ☐ OTHER					
12		AMBIENT TEMPERATURE: MAX 104 °F / MIN. 35 °F		ALTITUDE	69 ft				
13	ENCLOSURE:	☒ TOTALLY-ENCLOSED FAN-COOLED ☐ TOTALLY-ENCLOSED NONVENTILATED ☐ EXPLOSION PROOF							
14	MOUNTING METHOD:	☒ FOOT ☐ FLANGE, TYPE:							
15	MOUNTING ARRANGEMENT:	☒ HORIZONTAL ☐ VERTICAL SHAFT DOWN ☐ VERTICAL SHAFT UP							
16	BEARING TYPE:	☒ BALL ☐ ROLLER	BEARING LUBRICATION:	☒ GREASE ☐ OIL ☐ PURE OIL MIST					
17	CONNECTION TO LOAD:	☒ DIRECT CONNECTED ☐ V-BELT ☐ THROUGH GEAR ☐ CLOSE COUPLED							
18	EQUIPMENT OPERATION:	☒ CONTINUOUS ☐ SPARED CONTINUOUS ☐ INTERMITTENT-CYCLES / DAY							
19	SOUND PRESSURE LEVEL REQUIREMENTS:	85 dBA @ 3 FEET							
20	STARTING:	☒ FULL VOLTAGE ☐ REDUCED VOLTAGE, 60 % OF VOLTAGE Starting Voltage Dip Allowance							
21		☐ UNLOADED ☒ LOADED ☐ CAPACITORS FOR POWER FACTOR CORRECTION							
22	☒ SPACE HEATERS Note 10.2 V	1	PHASE	320 °F MAX. TEMP					
23	☒ OVERSIZE TERMINAL BOX ☒ DRAIN PLUGS	Terminal Box shall be the largest feasible for the motor frame.							
24	☒ SS NAMEPLATE ☐ AUXILIARY NAMEPLATE								
25	TEST	☒ ROUTINE ☐ COMPLETE ☒ VIBRATION ☒ REPORT ☒ FOOT FLATNESS							
26	REMARKS:	10.1) This data sheet applies to motors 1/2 hp through 500 hp with anti-friction bearings. 10.2) Space heaters are required for 100 hp and above. Preferred option: 240 Vac rated space heating element(s) operated at 120 Vac. Alternative option when Preferred option isn't possible: 120 Vac rated space heating element(s) operated at 120 Vac. 10.3) IP55 min degree of protection is required. 10.4) Average relative humidity is 54%.							

INFORMATION BELOW TO BE COMPLETED BY VENDOR										
31	MOTOR MFR.	ABB / Baldor		MODEL	CECP84106T-4		SERIAL NO.			
32	NAMEPLATE HP	20	FULL LOAD RPM	3514	FRAME	256 TC	WEIGHT	330	LB	
33	MOTOR OUTLINE DRAWING NO.									
34	ROTOR CAGE MATERIAL OF CONSTRUCTION									
35	BEARING MANUFACTURER									
36	VERTICAL MOTOR THRUST BEARING:	TYPE			CAPACITY: UP	LBS	DOWN	LBS	LOCATION	
37										
38	LOAD	FULL	3/4	1/2	OTHER	LOCKED ROTOR AMPS*	145 @ 460V	AMPS		
39	AMPERES	22.4	16.7	11.8		FULL LOAD TORQUE*	30.1 @ 460V	FT-LB		
40	EFFICIENCY, %	92.0	93.0	93.3		LOCKED ROTOR TORQUE*	43.9 LB-FT @ 460V	%		
41	POWER FACTOR	91.0	91.0	87.0		PULL UP TORQUE*	33.7 LB-FT @ 460V	%		
42	SPEED, RPM	3514	3538	3560		BREAKDOWN TORQUE*	101 LB-FT @ 460V	%		
43										
44	SOUND LEVEL: GUARANTEED	dBA /	EXPECTED	dBA	ACCEL. TIME W/ LOAD (0 TO FULL SPEED)*					SEC.
45	FAN MATERIAL	(NON-SPARKING)			STALL TIMES AT ZERO RPM* - HOT / COLD					SEC.
46		NUMBER OF CONSECUTIVE STARTS*								
47		* INDICATED AT RATED VOLTAGE								

INFORMATION BELOW TO BE PROVIDED BY VENDOR AFTER PURCHASE (REFER TO RFQ/PO DOCUMENTS)										
48	☒ SAFE TIME - CURRENT CURVE		MAX. SURFACE TEMP. DURING NORMAL STARTING OR OPERATION OF:							
49	☒ SPEED - TORQUE CURVE		☐ ROTOR °F ☐ STATOR °F ☐ ENCLOSURE °F							
50	☒ SAFE LOCKED ROTOR TIME HOT COLD									
51	NOTES:									
52	10.5 Motor nameplate shall indicate service factor, area classification and T-rating. T-rating relates to both external and internal components.									
53	10.6 Provide accessory loads on submittal documents, e.g. Volts, HP, kVA, etc.									
54	10.7 All motors shall be rated for Cl. I, Div. 2, Gr. B,C,D and a T3C temperature code for project uniformity.									
55	10.8 Oversized conduit box is rotatable 90 deg increment, F-1 mounted.									
56	10.9 Grounding provisions are required for inside and outside the motor connection box.									
57	10.10 Motor shall be Inverter Duty rated with 1.0 S.F per NEMA MG-1, para 31.3.7 and noted on the nameplate along with 1.15 S.F.									