

EQUIPMENT DATA SHEET (INCL. PREDICTED PERFORMANCE CURVE)

CLIENT : Air Products Manufacturing LLC

PROJECT NAME/NO. : WEP Renewables

CLIENT PO NO : 4505608736

HMD DOCUMENT NO : HMD-4505608737-C04-01

CLIENT DOCUMENT NO : FI01/LF01

HMD PUMP NO : 839915

EQUIPMENT TAG NO : 19-P-780

| 5 | 20/04/2023 | ISSUE FOR REVIEW | AFS | AFS | NW |
|-----|------------|------------------|-------------|------------|-------------|
| 4 | 23/03/2023 | ISSUE FOR REVIEW | GC | AFS | NW |
| 3 | 24/01/2023 | ISSUE FOR REVIEW | KW | AFS | NW |
| 2 | 12/12/2022 | ISSUE FOR REVIEW | KW | AFS | NW |
| 1 | 29/09/2022 | ISSUE FOR REVIEW | KW | AFS | NW |
| 0 | 17/02/2022 | ISSUE FOR REVIEW | AFS | AFS | NW |
| REV | DATE | DESCRIPTION | PREPARED BY | CHECKED BY | APPROVED BY |

NOTE:



RESOLUTION SHEET

| Comment Number | Document Name: Equipment Data Sheet | | | Comment Status: | |
|-------------------|---|-------------------|--------------|--------------------------|--|
| | CLIENT COMMENT | HMD RESPONSE | Current Rev: | (Date Closed:) | |
| 1 | Correct Rev No. and Date on all Pages. | Noted and updated | 4 | Closed - (20/04/2023) | |



WORLD ENERGY PARAMOUNT
World Energy Renewables Project
Paramount, California

MECHANICAL EQUIPMENT DATASHEET

Document Number: A8KM-19-074-540205-A

Rev. 5 20/04/2023

HMD-4505608737-C04-01



WORLD ENERGY RENEWABLES PROJECT

MECHANICAL EQUIPMENT DATA SHEET FOR 19-P-780 VENT GAS KO DRUM PUMP

Document No. HMD-4505608737-C04-01

Fluor Project No: A8KM

| REV | DATE | DESCRIPTION | PAGES | ORIG | CHK'D | APPV'D | CLIENT |
|-----|-----------|------------------|-------|------|-------|--------|--------|
| 0 | 17-Feb-22 | ISSUE FOR REVIEW | 5 | AFS | AFS | NW | |
| 1 | 29-Sep-22 | ISSUE FOR REVIEW | 5 | KW | AFS | NW | |
| 2 | 12-Dec-22 | ISSUE FOR REVIEW | 5 | KW | AFS | NW | |
| 3 | 24-Jan-23 | ISSUE FOR REVIEW | 5 | KW | AFS | NW | |
| 4 | 23-Mar-23 | ISSUE FOR REVIEW | 5 | KCM | AFS | NW | |
| 5 | 20-Apr-23 | ISSUE FOR REVIEW | 5 | AFS | AFS | NW | |

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ASME B73.3 SEALLESS PUMP DATA SHEET

| Contract: | A8KM | | |
|-------------|-------------|---|---|
| Item No.: | 19-P-780 | | |
| Revision: | 5 | | |
| Date: | 20-Apr-2023 | | |
| P.O No. | 4505608737 | | |
| Inquiry No. | 4-615 | | |
| Sheet | 2 of | 5 | R |

| EIIIA | D | | Inquiry No. 4-615 |
|---------------------------------|----------------------|---------------------------|--|
| FLUO | ™ ® | | Sheet 2 of 5 |
| ISSUED FOR: | ☐ PROPOSAL | PURCHA | E AS BUILT |
| SITE | | ewables Project / Paramou | |
| TEM NAME: Vent Gas | KO Drum Pump | | CLIENT World Energy Paramount |
| TEM TAG NO.: 19-P-780 | • | | PROJECT NO.: A8KM |
| SERVICE: Vent Gas | KO Drum Pump | | PURCHASER ORDER NO.: m |
| UNIT: Pretreat U | • | | SUPPLIER/LOCATION: Sundyne, HMD Kontro / Eastbourne, UK |
| | Drive Pump | | |
| | <u> </u> | | |
| DATA PROVIDED BY: | PURCHASE | RSUPPLIE | ◆ SUPPLIER IF NOT BY PURCHASER |
| GENERAL | | | |
| NO. REQ.: 1 x 100% | PUMP SIZE: | | MODEL GSA Frame 1 |
| NUMBER MOTOR DRIVEN: | One (1) | NUMBER TURBINE DR | |
| MOTOR ITEM NUMBER: | 19-P-780M | TURBINE ITEM NUMBE | N/A GEARBOX ITEM NUMBER: N/A |
| MOTOR PROVIDED BY: | Pump Supplier | TURBINE PROVIDED B | |
| MOTOR MOUNTED BY: | Pump Supplier | TURBINE MOUNTED B' | N/A GEARBOX MOUNTED BY: N/A |
| OPERATING CONDIT | IONS | | PERFORMANCE |
| | RATED MAX. | NORMAL MIN. | PERFORMANCE CURVE NO.: K6-13/60-4 |
| NPSHa Datum | | lmpeller | MEASURED AT CAPY.: RATED MAX. NORMAL MIN. |
| CAPACITY: | 5.5 | 5.0 | n NPSH REQ'D.: 0.84 |
| SUCTION PRESSURE: | -1.0 5.0 | F | |
| DISCHARGE PRESSURE: | 16.4 | F | |
| DIFFERENTIAL PRESSURE: | 17.4 | r | MINIMUM CONTINUOUS FLOW: |
| DIFFERENTIAL HEAD: | 44.3 | - | THERMAL: GPM STABLE: 2.7 GPM |
| HYDRAULIC POWER | 0.06 | | ALLOWABLE OPERATING REGION: 2.686 TO: 17.1 GPM |
| AT DESIGNATED CAPACITY: | RATED MAX. | | |
| OPERATING TIME: | | 9 | BEST EFFICIENCY POINT FOR RATED IMPELLER: 13 GPM |
| NPSH AVAILABLE: | 16.7 Exclu | ides Req'd 3ft Margin f | SUCTION SPECIFIC SPEED: 5899 |
| SYSTEM DESIGN: | | | IMPELLER DIA.: RATED: 7.25 MAX.: 8.15 MIN.: 5.51 |
| STAND ALONE OPER | | RALLEL OPERATION | PUMP RATED POWER: 1.39 BHP EFFICIENCY: 4.37 |
| | WITH ITEM NUMBER: | | MAXIMUM POWER @ RATED IMPELLER: 1.16 BHP |
| SUCTION PRESSURE M | IN/MAX: | /psig | CASE PRESSURE RATING: |
| SERVICE: | | | MAX. ALLOWABLE WORKING PRES.: 231 PSIG @ 228 °F |
| CONTINUOUS | ✓ INTERMITTENT: _ | STARTS/DAY | X HYDROSTATIC TEST PRESSURE: 346.5 PSIG |
| SYSTEM CONTROL METHOL | | | CONTAINMENT SHELL PRESSURE RATING: |
| | OW LEVEL | TEMPERATURE | X MAX. ALLOWABLE WORKING PRES.: 231 PSIG @ 228 °F |
| | PE FRICTION RESISTAN | ICE ONLY | X HYDROSTATIC TEST PRESSURE: 346.5 PSIG |
| PUMPED FLUID | | | SITE CONDITIONS |
| PUMPED FLUID: | Oil/Water | | LOCATION: UTILITY CONDITION: |
| | | NORMAL MIN. | INDOOR HEATED UNDER ROOF VOLTAGE: 460 |
| PUMPING TEMP.: | 178 | °F | OUTDOOR UNHEATED PARTIAL SIDES PHASE: 3 |
| AT DESIGNATED TEMP.: | 1 1 | _ | ALTITUDE: 69 ft HERTZ: 60 |
| SPECIFIC GRAVITY: | 0.904 | | RANGE OF AMBIENT TEMPS. MIN./MAX.: 35 / 105 °F |
| VAPOR PRESSURE: | 7.2 | psia | ELECTRICAL CLASSIFICATION: |
| VISCOSITY: | 25.14 | cP | CL.: I GR.: B/C/D DIV.: 2 TEMP: T3C |
| SPECIFIC HEAT: | 0.48 | btu/II | |
| | S TEMPERATURE CUR | | NOTES: |
| LIQŪĪD: HAZARDO | OUS FLAMM/ | ABLE | 2.1. Pump is in intermittent service. 2.2. Pump centerline is assumed to be 3'-0" above grade and 27" above top of |
| CORROSIVE / EROSIVE / | | | foundation. |
| | | | |
| CHLORIDE CONCENTRA | TION: | ppm | 2.3. Pump supports shall meet design load requirements per Project Spec. A8KM- |
| H ₂ S CONCENTRATION: | | ppm | PP-000-40002-A, Structural Data for Mechanical Equipment, and |
| OTHER: | | | A8KM-PP-000-200001-A, Plant Site Data Sheet. |
| % SOLIDS: | MAX. PARTICLE SI | ZE:in | |
| | | | |
| | | | |
| | | | |
| | | | rare provided under a Secrecy or Confidentiality Agreement with Fluor and are to be used solely in accordance with the |

| | world energy FLUOR | ASME B73.3 SEALLESS PUI DATA SHEE | MP | Contract: Item No.: Revision: Date: P.O No. Inquiry No. Sheet | A8KM 19-P-780 5 20-Apr-2023 4505608737 4-615 3 of 6 Re | | |
|----------|--|--|--|---|--|--|--|
| 1 | MAGNETIC DRIVE PUMPS | | ◆ MOTOR DRIVER | (See sheet 6) | | | |
| 2 | MAGNETIC COUPLING | | MANUFACTURER: | Ba | ldor | | |
| 3 | EDDY CURRENT | | HORSEPOWER: 7.5 | | | | |
| 4 | SOFT START REQUIRED | | FRAME: 213 T | ENCLOSURE: | - , , - , | | |
| 5 6 | MAGNET SIZED TO HANDLE: RATED CAPACITY BE | P FULL LOCKED MOTOR TORQUE | TYPE: | SERVICE FAC | TOR: | | |
| 7 | CONTAINMENT SHELL: | TOLL LOCKED MOTOR TORQUE | NOTE | | | | |
| 9 | RADIAL CLEARANCE TO OUTER MA | GNET RING: 0.036 in | ◆ MECHANICAL DA | TA | | | |
| 10 | RADIAL CLEARANCE TO INNER RO | | PUMP MUST MEET AS | SME B73.3 DIMENSIONAL R | EQUIREMENTS: | | |
| 11 | MAGNET & BEARING FLUSHING (IN | | | NO | | | |
| 12 | EDDY CURRENT LOSSES THROUGH | H SHELL: 1 KW | NOZZLE CONNECTIO | ONS: | | | |
| 13 | HEAT GENERATION IN THE SHELL: | | | SIZE RATING | FACING | | |
| 14 | DECOUPLE TORQUE: 30.979 | lb ft SAFETY FACTOR: | SUCTION: | 1.5 150# | RF | | |
| 15 | LOCKED ROTOR TORQUE: | lb ft | DISCHARGE: | 1 150# | RF | | |
| 17 | | OUTER INNER | VENT | | | | |
| 18 | MOUNTING METHOD: | Bonded Bonded/Potted | DRAIN: | 1/2 Threaded | Welded and Flanged | | |
| 19 | TEMP. LIMITATION: | 302 302 °F | IMPELLER TYPE: | | | | |
| 20 | HERMETICALLY SEALED: | No Yes | CLOSED | OPEN | SEMI-OPEN | | |
| 21 | NUMBER OF MAGNETS: P | ropietary Propietary | I □ OTHER: — | | | | |
| 22 | TOTAL TORQUE: | lb ft | CASING MOUNTING: | | | | |
| | EXTERNAL ROTOR BEARINGS: | | FOOT | CENTERLINE | VERTICAL IN-LINE | | |
| 24 | ◆ MANUFACTURER: N/A | _ | _CONTAINMENT S | HELL / STATOR LINER PRE | SSURE RATING 231 4 | | |
| 25 26 | COUPLING END BEARING TYPE / NO | D.: N/A | PAINT AND SHIPM | MENT PREPARATION | | | |
| 07 | IMPELLED END DEADING TYPE (NO | AV/A | DUIM 4D | DAOFF | N. A.T.F. | | |
| 27 | IMPELLER END BEARING TYPE / NO | | PUMP: | BASEF | | | |
| 28 29 | LUBRICATION: GREASE | FLINGER CONSTANT LEVEL OILER | MANUFACTUE | | NUFACTURER'S STD. | | |
| 30 | | YE SIGHT GLASS HOUSING VENT | OTHER: No | te 3.5 | HER: Note 3.5 | | |
| 31 | ` ' | RAIN PLUG IN HOUSING REQUIRED | DOMESTIC | □ EXPORT □ | EXPORT BOXING REQ'D. | | |
| 32 | BEARING ISOLATORS: OUTBOA | 1 7 1 | THS OF STORAGE: | 12 Months | | | |
| 33 | OIL VISCOSITY ISO GRADE: 68 | TOTAL WEIGH | | | | | |
| | COUPLING: | | INSPECTION AND | | | | |
| 36 | MANUFACTURER: John Cra | ne TYPE: Disc-type | | CTION REQUIRED | | | |
| 37 | SIZE: TSKS 0013 | MODEL: Metastream TSKS | DAYS NOTIFIC | CATION REQUIRED: 10 | | | |
| 38 | SPACER LENGTH: 100 | mm | TEST | NONWITNESSED WIT | NESSED CERTIFICATE | | |
| 39 | ◆ COUPLING GUARD: ☐ MA | NUFACTURER'S STANDARD | HYDROSTATIC: | ✓ | | | |
| 40 | □ NO | N-SPARK COUPLING GUARD REQUIRED | PERFORMANCE: | 7 | | | |
| 41 | MATERIAL IF NOT SPECIFIED BY PL | JRCHASER: | NPSHR: (Note 3 | 3.1) | | | |
| . • | CANNED MOTOR PUMPS | | VIBRATION: | 7 | | | |
| 44 45 | SOFT START REQ'D STATOR LINER: SECONDARY | CONTAINMENT TO FULL PRESSURE | OTHER: | ND INSPER ACTED TOO | | | |
| 45 46 | RATING REQU | | DISMANTLE AND INSPECT AFTER TEST CASTING REPAIR PROCEDURE APPROVAL REQUIRED | | | | |
| 46 | RATING REQU RADIAL CLEARANCE TO ROTOR | | MATERIAL CERTIFICATION REQUIRED: | | | | |
| 48 | ♦ LINER TO CASING SEALING METHO | / | CASING COVED IMPELLED SHAFT | | | | |
| 49 | SEAL WELDED OTHER | | OTHER: | ✓ ZZZZI | SHAFT | | |
| 50 | HEAT GENERATION IN THE LINER: | btu/hr | | RED FOR CONNECTION WE | LDS: | | |
| 51 | LOCKED ROTOR TORQUE: | lb ft | ☐ MANUFACTUE | RER'S STANDARD | NDT INSPECTION | | |
| 52 | ◆ STATOR CAVITY: | | INSPECTION REQUIRED FOR CASTINGS: | | | | |
| 53 | ☐ DRY ☐ OIL FILLED | OTHER: | MANUFACTUE | RER'S STANDARD | NDT INSPECTION | | |
| 54 | ROTOR BEARINGS: | _ | OTHER: | | | | |
| 56 | IMPELLER END BEARING TYPE: | | MANUFACTURER | DOCUMENTATION REQUIR | REMENTS | | |
| 57 | OUTBOARD END BEARING TYPE: | | FOR DATA REQUIRE | MENTS REFER TO: | ached SDDC form | | |
| 58 | NOTES: | | REMARKS: | | | | |
| 59 | | | 3.1. Deleted | al allegaball by To | ivelent. | | |
| 60 61 | | | | el oiler shall be Trico or equ tors shall be be Inpro or equ | | | |
| 62 | | | | aging sufficient for 12 mont | | | |
| 63 | | _ | | oment shipping from overse | | | |
| 64 | | | | 's standard paint in complia | | | |
| 65 | | | ISO 12944-5 C4 is | | | | |
| 66 | | | 3.6. The bulls eye | sight glass will be supplied | d in 3/4" size. | | |
| 67 | | | | | | | |
| 68 60 | | | | | | | |
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ASME B73.3 SEALLESS PUMP DATA SHEET

| Contract: | A8KM |
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| Item No.: | 19-P-780 |
| Revision: | 5 |
| Date: | 20-Apr-2023 |
| P.O No. | 4505608737 |
| Inquiry No. | 4-615 |
| 014 | 4 , 6 |

| FLUUR. | | | Sheet | 4 of | 6 | Rev |
|---|--|----------------------------------|---------------------------------------|------------------------|-------------|----------|
| 1 ♦ COOLING OR HEATING PIPING (I | N/A) | INSTRUMENTATION | | - | | 1 |
| 2 NAME OF FLUID: | , | | ONDARY CONTAINMENT BY | ': | | 1 |
| 3 SUPPLY TEMP. NORM: | °F | ☐ PURCHASER | SUPPLIER | (Note 4.1) | | |
| 4 ALLOWABLE TEMP. RISE: | *F | MAKE / MODEL: | | | | |
| 5 Cl ₂ | ppmw | VIBRATION MONITORIN | G BY: | | | |
| 6 SUPPLY PRESSURE: | psig | ☐ PURCHASER | SUPPLIER | | | |
| 7 MAX. ALLOWABLE ΔP: | psi | MAKE / MODEL: | | | | |
| 8 GALVANIZED PIPE | T STAINLESS STEEL TUBING | MOTOR LOAD PROTECT | ΓΙΟΝ BY: | | | |
| 9 SIGHT FLOW INDICATOR | _ | | SUPPLIER | | | |
| 10 OUTLET SHUT-OFF VALVE | | ☐ MAKE / MODEL: | | | | |
| 11 REMARKS: | | | BYPASS PROVIDED BY PUR | CHASER | | |
| 12 | | ◆ TEMPERATURE & PR | | | | |
| 13 | | TEMPERATURE | GAUGES | | | |
| 14 ◆ PIPING PLANS: ASME B73.3 15 HEATING AND COOLING PIPING PLAN: | | THERMOWELLS PRESSURE GAU | CES | | | |
| 16 PUMP FLUID CIRCULATION PLAN: | 101 or 111 | | GES SHELL TEMPERATURE PROF | RES -MDP CMP | | |
| 17 | 101 01 111 | | R WINDING THERMOSTATS | SEO WIDT, OWN | | |
| 18 • MATERIALS | | - | INDICATOR - CMP | | | |
| 19 MATERIAL CLASS CODE: | 316LSS | - | netrol liquid level probe to be | included for | | |
| 20 CASING: | 316LSS | leak detection. | - | | | |
| 21 IMPELLER: | 316LSS | | | | | |
| 22 CASE / IMPELLER WEAR RINGS: | 316LSS | | | | | |
| 23 SHAFT: | 316LSS | | | | | |
| 24 CONTAINMENT SHELL: | 316LSS / Alloy C 276 | | | | | |
| 25 STATOR LINER: | N/A | | | | | |
| 26 MAGNET (OUTER DRIVE RING): | Samarium Cobalt (Fully Encapsulated) | | | | | |
| 27 INNER ROTOR: | N/A | | | | | |
| 28 SLEEVE BEARING: | Silicon Carbide | | | | | |
| 29 THRUST BEARING: | Silicon Carbide | | | | | |
| 30 DRIVER BEARING HOUSING: | Carbon Steel | | | | | |
| 31 WETTED FASTENERS: | 316LSS | | | | | |
| 32 BASEPLATE: | Carbon Steel | | | | | |
| 33 COUPLING GUARD: | Non-Spark Brass | | | | | |
| 34 ELECTRICAL PENETRATION SEALANT: | | | | | | |
| 35 REMARKS: | | | | | | |
| 36 | _ | | | | | |
| 38 | | | | | | |
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