As-Built

POSITIVE DISPLACEMENT PUMP - CONTROLLED VOLUME API 675 DATA SHEET

Note: This data sheet has been modified from Appendix A of API Standard 675, Third Edition

Contract:	A8KM
Item Tag(s):	18-J-351 A/B
Revision:	D1
Unit:	Renewable Jet Fuel Unit B
P.O. No.:	
Inquiry No.:	4-604
Sheet	1 of 3

REV

Applicable To : ○ Proposals ● Purchase ○ As Built

Client:	WORLD ENERGY PARAMOUNT	Unit:	RENEWABLE JET FUEL UNIT B
Site:	PARAMOUNT, CA	No. Required:	2 X 100% (Note 2.1)
Service:	DMDS INJECTION PUMP	Size & Type:	
Manufacturer:	Milton Roy	Model:	PNH41-32F1 Serial No.:

Notes : Information Below To Be Completed : ○ By Purchaser ☐ By Supplier ◙ By Supplier Or Purchaser

GENERAL

No. Motor Driven :	Two (2)	Other Driver Type :			
Pump Item No's.:	18-J-351A/B	Pump Item No's.:			
Motor Item No's.:	18-J-351AM/BM	Driver Item No's.:		Gear Item No's.:	
Motor Provided By :	Pump Supplier	Driver Provided By :		Gear Provided By :	
Motor Mounted By :	Supplier	Driver Mounted By :		Gear Mounted By :	
Motor Data Sheet No. :	Sheet 4	Driver Data Sh. No. :		Gear Data Sheet No. :	

● Operating Conditions

- ● Capacity @ PT gpm — Norm. 0.76 Min. 0.10 Rated 1.0
- ● Discharge Pressure psig **(Note 2.4)** — Max 1604 Min. 1361.8 (min flow case) Rated 1296.2
- ● Suction Pressure psig — Max 85 Min. 11.7 Rated 11.7
- ● Differential Pressure psi — Max 1592.3 Min. 1211.2 Rated 1284.5
- ● NPIP Available 25.6 psig (without acceleration loss & no margin) (Including acceleration losses) 23.6
- ● Turndown Ratio 10:1

Liquid

- ● Type of Liquid DMDS Solution
- ● Pumping Temperature °F — Normal 90 Max. 105 Min. 35
- ● Specific Gravity Max. 1.08 Min. 1.06
- ○ Specific Heat Cp BTU/lb°F
- ● Viscosity cP 0.47 Min. 0.82 Max.
- ○ Corrosive Agents :
- ○ Erosive Agents :
- ○ H_2S Concentration (ppm) :
- ○ Chloride Concentration (ppm) :
- Liquid : ● Toxic ● Flammable ● Hazardous ○ Other :

APPLICABLE SPECIFICATIONS :

- ● API 675 Positive Displacement Pumps- Controlled Volume
- ● Governing Specification **(UOP 5-13-9, Proportioning Pumps)**
- ○ NACE MR-0103(6.14.2.13)
- ○ NACE MR-0175(6.14.2.13)
- ○ Other

● SITE AND UTILITY DATA

Location : ● Outdoor ● Unheated ● Unroofed ● Hazardous

- ● Elevation (MSL) : 69 ft
- ● Barometer : 14.7 psia
- ● Electrical Area Classification : ○ Non-Classified **(Note 2.2)**
  Class: I Group: B,C,D Division: 2
  Ignition Temp. : T3C °F
- ○ Winterization Required ○ Tropicalization Required

Site Data

- ● Range of Ambient Temp. (Min / Max): 35 / 105 °F

Unusual Conditions

- ○ Dust ○ Fumes ○ Salt Atmosphere
- ○ Other :

Utility Conditions

Cooling Water Source : Cooling Tower

Supply Temp 80 °F Max Return Temp 120 °F
Norm. Press 45 psig Design Press 120 psig
Min. Return Press 35 psig Max Allow ΔP psig
Instrument Air
Pressure (Max / Min) : / psig

Electricity

	Drivers	Heating	Control	Instruments
Voltage :	460	120	120	24 V
Hertz :	60	60	60	
Phase :	3	1	1	

☐ PERFORMANCE

- ☐ No. of Feeds : 1 Rated Capacity : 0.105-1.05 gpm
- ☐ NPIP Required : 3 PSIA ft (Including Accel. Losses)
- ☐ Rated Power : 3.69 BHP at Relief Setting : 4.24 BHP
- ☐ Plunger Speed : 94 (strokes/min) Design Max : 145
- ☐ Diameter : in Length of Stroke 2.48 in
  Pump Head : ft
  Max. Pressure : 2162 psig
- ☐ Hydro Test Press. : 3243 psig **(1.5 X MAWP)**
- ☐ Max. Discharge Pressure w/ Job Driver : 2162 psig
- ☐ Max Power Basis Gear Strength : BHP

☐ CONSTRUCTION

Connections	Size	ANSI Rating	Facing	Position
Suction :	1/2"	900#	RF	Bottom
Discharge :	1/2"	900#	RF	Top
Flush :				

Liquid End : ○ Jacket Required
Type : ● Diaphram
■ Diaphragm Dia. : 6.61 in No. Req'd. : Dual
■ Valves / Feed

	Suction	Discharge
Type	BALL CHECK	BALL CHECK
Number	2	2

Notes:

2.1 2 X 100% pumps. One (1) operating & one (1) spare. Operating pump can be continouous or intermittent depending on injection load requirement. DMDS Injection rate is variable during operation.

2.2 Motor shall be rated for Class I, Div 2, Gr B,C,D and Temperature Code T3C regardless of site location.

2.3 MAWP shall be @ 155 °F design temperature.

2.4 Discharge pressure at minimum to rated on line Item 17 corresponds to flow cases. Pump can operate between minimum and rated flow at full range of discharge pressure.

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REV

MATERIALS

Liquid End	316 SS
Contour Plate	
Hydraulic Diaphragm	PTFE
Process Diaphragm	PTFE
Plunger	316 SS
Lantern Ring	
Packing Gland	
Packing	
Valve	316 SS
Valve Seat	PER UOP 5-13-9, Proportioning Pumps
Valve Guide	316 SS
Valve Body	316 SS
Valve Gasket	PTFE
Frame	316 SS
Special Material Tests (6.14.2.5)	
○ Low Ambient Temp. Materials Tests (6.14.6)	

QA INSPECTION AND TESTS

- ● Compliance with Inspector's Check List
- ● Certification of Materials(All wetted pressure containing parts)
- ○ Final Assembly Clearances(user to define in remarks)
- ● Surface and Subsurface Examinations
  - ○ Radiography
  - ○ Ultrasonic
  - ○ Magnetic Particle
  - ● Liquid Penetrant — Case attachment welds
- ○ Cleanliness Prior to Final Assembly
- ○ Hardness of Parts, Welds & Heat Affected Zones
- ● Furnish Procedures for Optional Tests (PMI per A8KM-PP-000-500512-A, PMI Spec.)

Tests	Required	Witness	Observed
Hydrostatic (8.3.2)	●	○	○
Steady State Accuracy	●	○	○
Repeatability	●	○	○
Linearity	●	○	○
Performance (8.3.4)	●	○	○
Mechanical Run (8.3.5) 1 hr	●	○	○
NPIP (8.3.7.1)	○	○	○
Complete Unit (8.3.7.2)	○	●	○
Sound Level (8.3.7.3)	●	○	○
High Discharge Pres (8.3.7.4)	○	○	○
Factory Acceptance (8.3.8)	○	○	○

LUBRICATION FLUID

☐ Crankcase ☐ Intermediate

■ Hydraulic Fluid

ACCESSORIES

- ☐ Speed Reducer Supplier :
- ○
- Model :
- Ratio :
- ■ Baseplate Under : Pump/Motor assembly
- ■ Coupling Supplier :
- ☐ Type :

CONTROLS

Type : ● Manual ● Local ○ Signal :

Stoke Control :

Pneumatic : psig
Minimum : Maximum :
Electronic : (mA)
Minimum : Maximum :

OTHER PURCHASE REQUIREMENTS

Nameplate Units : ● US Customary

- ○ Supplier Furnished Process Piping :
- ○ Supplier Review Piping Drawings
- ● Supplier Furnished Pulsation Suppression Devices
- ● Supplier Furnished Relief Valve :
  - ● Internal (External by Others)
- ■ Relief Valve Setting : 1850 psig (for internal)
- ○ Supplier Furnished Back-Pressure Valve
- ● Double Check Valves Required (Note 3.1)
- ○ Oil-Filled Pressure Gauges Required
- ○ Calibration Column
- ○ Supplier Furnished Control Panel
- ● Baseplate Prepared For Epoxy Grout
- ● Provide Technical Data Manual
- ● Diaphragm leakage detection system - Pressure Transmitter
- ○

PREPARATION FOR SHIPMENT

● Domestic ○ Export Boxing
○ Outdoor Storage More Than 6 Months
*Export boxing required if overseas shipment.

MASSES AND DIMENSIONS

Pump / Gear /
Base / Driver /
Total: / lb / in

DRIVERS

- ● Motor :
- ☐ Supplier :
- ☐ Type :
- ☐ Frame No. :
- ● Constant Speed :
- ☐ Variable Speed :

☐ HP RPM :
● Volts : 460 Phase : 3
● Hertz 60 Service Factor : 1.15

- ● Enclosure : TEFC
- ○ Gas Driven
- ○ Steam Turbine
- ● Other (See Separate Data Sheets) : See Sht 5

NOTES

3.1 Balls shall have minimum hardness of 400 Brinell. Seats shall have a maximum hardness of 200 Brinell. Valve shall be flanged check valve gasketed or o-ring static seal type. The check valve cartridge shall not be screwed with metal to metal seal fit. Seal welding these connections is also not acceptable because it prohibits maintenance of these components.

3.2 Refer to 8ES-2DG1 - "WEP Instrumentation & Electrical Standard Vendor List," for Instrumentation & Electrical Items.

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			REV
1	**4.1**	Steady state flow accuracy shall be within ± 1% of actual set flow rate.	
2	**4.2**	Diaphragms shall be hydraulically operated. Mechanically driven diaphragms are not acceptable.	
3	**4.3**	0-100% stroke adjustment capability shall be per UOP specification 5-13-9, Proportioning Pumps.	
4	**4.4**	Structural steel base plate and support shall meet design load requirements per Project Spec. A8KM-PP-000-400002-A, Structural	
5		Data for Mechanical Equipment, and A8KM-PP-000-200001-A, Plant Site Data Sheet.	
	4.5	Pump will be cycled on/off as needed to achieve required flow rate. Controls by others.	

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