Technical Data Sheet for Fuel Oil Stripping Pump (P-106)

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Document Revision

Consultant:	BANDAR ABBAS OIL STORAGE TERMINAL	Landlord: Port & Maritime Organization P.M.O
SCETIRAN	Technical Data Sheet for Fuel Oil Stripping Pump (P-106))	Employer: B.G.K

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APPLICABLE TO: (•) PROPOSAL ( ) PURCHASE ( ) AS BUILT — PO NO.

FOR: Bana Gostar Karaneh (BGK) — UNIT

SITE: Bandar Shahid Rajaee — NO. OF PUMPS REQUIRED: 1

SERVICE: Fuel Oil Stripping Pump — SIZE AND TYPE

MANUFACTURER — SERIAL NO.

STANDARD: API 676

NOTE: ○ INDICATES INFORMATION TO BE COMPLETED BY PURCHASER ☐ BY MANUFACTURER ◎ BY MANUFACTURER OR PURCHASER

GENERAL

NO. MOTORS DRIVEN	1	OTHER DRIVER TYPE			
PUMP ITEM NO'S	P-106	PUMP ITEM NO'S			
MOTOR ITEM NO'S	MP-106	DRIVER ITEM NO'S		GEAR ITEM NO'S	
MOTOR PROVIDED BY	Pump vendor	DRIVER PROVIDED BY		GEAR PROVIDED BY	
MOTOR MOUNTED BY	Pump vendor	DRIVER MOUNTED BY		GEAR MOUNTED BY	
MOTOR DATA SHEET NO.	.....	DRIVER DATA SHEET NO.	.....	GEAR DATA SHEET NO.	.....

○ OPERATING CONDITIONS

	MIN	NORMAL	RATED (2)	MAX (1)
○ CAPACITY: (m3/h)			500	
○ OTHER OPER CONDITIONS:				
○ DISCHARGE PRESSURE: (bara)			5.6	
○ SUCTION PRESSURE : (bara)			0.6	
○ DIFFERENTIAL PRESSURE: bara			5	

○ NPSH AVAILABLE 6 (m)

○ NPIP AVAILABLE (barA)

(•) NPSHAa / NPIP DATUM: ○ C.L. SUCTION NOZZLE (•) TOP OF FOUNDATION

○ DUTY CYCLE ○ CONTINUOUS (•) INTERMITTENT

HYDRAULIC POWER: (kW) ABSORBED POWER: (Bkw)

☐ PERFORMANCE

☐ RATED CAPACITY	(m3/h)	
☐ NPSHa / NPIP REQUIRED	(m)	
☐ RATED SPEED	(rpm)	
☐ RATED VOLUMETRIC EFFICIENCY	(%)	
☐ RATED PUMP EFFICIENCY	(%)	
☐ REQUIRED POWER @ MAXIMUM VISCOSITY	(Bkw)	
☐ REQUIRED POWER @ PRESSURE LIMITING VALVE	(Bkw)	
☐ REQUIRED POWER @ RATED CONDITION	(Bkw)	
☐ MAXIMUM ALLOWABLE SPEED	(rpm)	

☐ CONSTRUCTION

	SIZE	ANSI RATING	FACING	POSITION
CONNECTIONS				
SUCTION			RF	
DISCHARGE			RF	
GLAND FLUSH				
DRAINS *				
VENTS *				
JACKET				

* PIPE VENTS & DRAINS TO EDGE OF BASEPLATE

(•) PUMP TYPE

(•) INTERNAL GEAR (•) TWIN-SCREW (•) VANE ○ LOBE

(•) EXTERNAL GEAR (•) 3-SCREW (•) PROGRESSING CAVITY

(•) ROTARY GEAR TYPE

REMARKS:

(•) PUMPED FLUID

○ TYPE OR NAME OF PUMPED FLUID: Fuel Oil

	MIN	NORMAL	RATED
○ TEMPERATURE: (°C)			50
○ VAPOR PRESS.: (barA)			0.1
○ RELATIVE DENSITY (SG):			0.958
○ VISCOSITY: (mpa-s)			380

○ SPECIFIC HEAT 1.843

○ CORROSIVE/EROSIVE AGENTS DESCRIPTION

○ EROSIVE ○ CORROSIVE

○ CHLORIDE CONCENTRATION (ppm)

○ H_2S CONCENTRATION (ppm)

FLUID ○ HAZARDOUS (•) FLAMMABLE ○ OTHER

○ GAS ○ ENTRAINED ○ SLUG FLOW % BY VOLUME or GVF

○ SOLIDS PARTICLE SIZE DISTRIBUTION & MIN/MAX (μ)

○ SHAPE ○ CONCENTRATION ○ HARDNESS

○ SITE AND UTILITY DATA

LOCATION ○ INDOOR (•) OUTDOOR

○ HEATED (•) UNHEATED (•) UNDER ROOF

○ ELECTRICAL AREA CLASS GROUP DIV

ZONE 2 GROUP Group IIB TEMP CLASS T3

○ WINTERIZATION REQD (•) TROPICALIZATION REQD

SITE DATA ○ ELEVATION 5.5 (m) ○ BAROMETER 1.013 (barA)

(•) RANGE OF AMBIENT TEMPS:MIN/MAX 3.9 / 47.6 (°C)

UNUSUAL CONDITIONS

(•) DUST ○ FUMES (•) SALT ATMOSPHERE

(•) OTHER RELATIVE HUMIDITY: MIN / MAX 39 / 83 %

○ UTILITY CONDITIONS

ELECTRICITY	DRIVERS	HEATING	CONTROL	SHUTDOWN
VOLTAGE	6000	230	110 DC	
HERTZ	50	50		
PHASE	3	1		

COOLING WATER	INLET	RETURN	DESIGN	MAX Δ
TEMP (°C)		MAX		
PRESS. (barG)		MIN		
SOURCE				

INSTRUMENT AIR — MAX — MIN

PRESSURE (barG)

APPLICABLE SPECIFICATIONS:

API-676 POSITIVE DISPLACEMENT PUMPS - ROTARY

○ GOVERNING SPECIFICATION (IF DIFFERENT)

○ NACE MR0103 (6.13.2.13) ○ NACE MR0175

○ OTHER

CONSTRUCTION

CASING

- ☐ MAX. ALLOWABLE CASING PRESS. (6.3.1): ____ (barG) @ ____ (°C)
- ☐ MAXIMUM ALLOWABLE SUCTION PRESSURE: ____ (barG) @ ____ (°C)
- ■ HYDROSTATIC TEST PRESSURE - Suct / Disch: 1.5 x MAWP (barG)

ROTATING ELEMENTS

- ROTOR MOUNT ■ BTWN. BEARINGS ☐ OVERHUNG
- TIMING GEARS ■ YES ☐ NO ☐ TYPE ____
- BEARING TYPE: ☐ RADIAL ____ ☐ THRUST ____
- BEARING NUMBER: ☐ RADIAL ____ ☐ THRUST ____
- LUBRICATION TYPE: ● CONSTANT LEVEL OILERS
  - ○ PUMPED FLUID ☒ RING OIL ☒ OIL MIST
  - ○ EXTERNAL ○ OIL FLOOD ○ GREASE
- ☐ LUBRICANT Info (Visc, etc) ____
- ● **MECHANICAL SEALS** (Note 1)
  - ☐ MANUFACTURER AND MODEL ____
  - ☐ MANUFACTURER CODE ____
  - ● API 682 AND DATA SHEETS ____
- ● API 682 SEAL FLUSH PLAN ____
- ☐ API 682 SEAL CODE ____

DRIVER TYPE

● INDUCTION MOTOR ○ STEAM TURBINE ○ GEAR ○ OTHER

DRIVE MECHANISM

- ● DIRECT-COUPLED ○ ASD ○ OTHER ____
- ☒ COUPLING MANUFACTURER ____
- ☒ COUPLING TYPE ____
- ☐ RATING (MAX TORQUE) ____ ☒ MODEL ____
- ☒ SPACER LENGTH Min 150 mm (IN) ☒ S.F. 3
- ● COUPLING BALANCED ○ MANF STD ○ AGMA 9000 CLASS 10 (7.2.3)
- ● COUPLING PER API 671 (7.2.4)
- ● COUPLING HUB ATTACHMENT
  - ○ STRAIGHT ○ KEYED ○ TAPERED

COUPLING GUARD TYPE

- ○ STEEL ○ BRASS ○ NON-METALLIC ○ OTHER
- ● NON SPARK COUPLING GUARD (7.2.15) ____

○ MOTOR DRIVER

- ○ IEEE 841 ○ API 541 ○ API 546 ○ OTHER
- ○ ASD SUPPLIED BY ○ PURCHASER ○ MOTOR SUPPLIER
- ☐ MANUFACTURER ____ ☐ TYPE ____
- ☐ FRAME ____ ☒ ENCLOSURE **TEFC, EExd, IP 65**
- ☒ HORIZONTAL ☒ VERTICAL
- ☐ (KW) ____ ____ (rpm) ____
- ○ VOLTS **6000** PHASE **3** HERTZ **50** SERVICE FACTOR ____
- ○ VARIABLE SPEED RANGE ____ (rpm)
- ○ MINIMUM STARTING VOLTAGE (7.1.2.2) ____
- ☒ INSULATION ____ ○ TEMP. RISE ____
- ☒ FULL LOAD AMPS ____
- ☒ LOCKED ROTOR AMPS ____
- ☒ STARTING METHOD ____
- ☒ LUBE ____

BEARINGS (TYPE/NUMBER):

- ☐ RADIAL ____ /
- ☐ THRUST ____ /

MATERIALS (Note 3)

- ○ MIN DESIGN METAL TEMP **0** (°C)
- ☐ CASING ____
- ☐ STATOR / LINER ____
- ☐ END PLATES ____
- ☐ ROTOR (S) ____
- ☐ VANES ____
- ☐ SHAFT ____
- ☐ SLEEVE (S) ____
- ☐ GLAND (S) ____
- ☐ BEARING HOUSING ____
- ☐ TIMING GEARS ____
- ☐ ELASTOMERS / GASKETS ____

QA INSPECTION AND TEST

- ○ SPECIAL MATERIAL TESTS (See design codes + weld + inspection sheet)
- ○ LOW AMBIENT TEMP. MATERIALS TESTS (6.13.6.5)
- ● COMPLIANCE WITH INSPECTORS CHECK LIST
- ● CERTIFICATION OF MATERIALS
- ● SURFACE / SUBSURFACE EXAM'S
  - ○ RADIOGRAPHY ____
  - ● ULTRASONIC ____
  - ● MAGNETIC PARTICLE ____
  - ○ LIQUID PENETRANT ____
  - ○ COMPONENT PMI ____
- ○ HARDNESS OF PARTS, WELDS & HEAT AFFECTED ZONES
- ● VENDOR SUBMIT TEST PROCEDURES (8.3.1.2)
- ● SUPPLIER TO KEEP REPAIR AND HT RECORDS (8.2.1.1)

	NON-WIT	WIT	OBSERV
○ SHOP INSPECTION (8.1)	○	○	○
○ HYDROSTATIC (8.3.2)	○	●	○
WITH WETTING AGENT	○	○	○
○ PERFORMANCE (8.3.4)	○	●	○
○ RETEST ON SEAL LEAKAGE	○	○	○
○ NPSH / NPIP (8.3.7.1)	○	○	○
○ TRUE PEAK VELOCITY DATA	○	○	○
○ COMPLETE UNIT TEST (8.3.7.2)	○	○	○
○ SOUND LEVEL TEST (8.3.7.3)	○	●	○
○ CLEANLINESS PRIOR TO FINAL ASSEMBLY (8.2.3.3)	○	○	○
○ HIGH DISCHARGE PRESSURE @ PLV	○	○	○
○ CHECK FOR CO-PLANAR AT MOUNTING PAD SURFACES (7.4.7)	○	○	○
○ 1 HR MECHANICAL RUN TEST AFTER OIL TEMP STABLE (8.3.5.1)	○	○	○
○ 4 HR. MECH RUN AFTER OIL TEMP STABLE(8.3.5.2)	○	●	○
○ AUXILIARY EQUIPMENT TEST (8.3.4.3)	○	○	○
○ OTHER ____	○	○	○

- ○ TEST WITH SUBSTITUTE SEAL (8.3.5.3)
- ○ SUPPLIER SUBMIT TEST DATA WITHIN 24 HOURS
- ○ INCLUDE PLOTTED VIBRATION SPECTRA
- ○ RECORD FINAL ASSEMBLY RUNNING CLEARANCES (8.2.1.1f)
- ○ PERFORMANCE CURVE & DATA APPROVAL PRIOR TO SHIPMENT (8.3.9)

PIPING & APPURTENANCES

MANIFOLD PIPING FOR PURCHASER CONNECTION
- ☒ VENT ☒ DRAIN ☒ STEAM / COOLING WATER
- ○ HEATING JACKET REQ'D. (6.3.6) ☒ COOLING REQ'D
- ☒ PIPE ☒ TUBING; FITTINGS ____
- ☒ C.S. ☒ GALVANIZED ☒ S. STEEL
- ☒ VALVES: ☒ CARBON STEEL ☒ S. STEEL
- ● FLANGES REQUIRED IN PLACE OF SOCKET WELD UNIONS
- ● MOUNT SEAL POT OFF BASEPLATE

CONNECTION BOLTING ● CADMIUM PLATED BOLTS PROHIBITED
- ● PTFE COATING ○ ASTM A153 GALVANIZED
- ○ PAINTED ○ SS

HEATING AND COOLING

HEATING MEDIUM: ○ STEAM ○ OTHER

☒ STEAM JACKET/COOLING WATER PRES: ____ (barG) @ ____ (℃)

COOLING WATER REQUIREMENTS:
- ☐ BEARING HOUSING ____ (m3/h) @ ____ (barG)
- ☐ LUBE OIL COOLER ____ (m3/h) @ ____ (barG)
- ☐ SEAL OIL COOLER ____ (m3/h) @ ____ (barG)
- ☐ OTHER ____ ____ (m3/h) @ ____ (barG)

TOTAL COOLING WATER ____ (m3/h) @ ____ (barG)

INSTRUMENTATION

- ○ ACCELEROMETER ____
- ○ PROVISION FOR MTG ONLY
- ○ FLAT SURFACE REQUIRED
- ○ RADIAL BEARING TEMP. ○ THRUST BEARING TEMP.
- ○ TEMP. GAUGES (WITH THERMOWELLS) ____
- ○ PRESSURE GAUGE TYPE ____ ○ OTHER ____

REMARKS:

PREPARATION FOR SHIPMENT

○ DOMESTIC ○ EXPORT ● EXPORT BOXING REQ'D

● OUTDOOR STORAGE MORE THAN 6 MONTHS

SURFACE PREPARATION AND PAINT

● MANUFACTURER'S STANDARD ○ OTHER (SEE BELOW)

○ SPECIFICATION NO. ____

PUMP: (8.4.3.1)
- ● PRIMER ____
- ● FINISH COAT ____

BASEPLATE: (8.4.3.1)
- ● PRIMER ____
- ● FINISH COAT ____

WEIGHTS (kg)

☐ PUMP ____ ☐ BASE ____ ☐ GEAR ____ ☐ DRIVER ____

TOTAL WEIGHT ____

BASEPLATE

- ● BY PUMP MANUFACTURER ○ SUITABLE FOR EPOXY GROUT
- ● EXTENDED FOR PUMP, ELECTRO MOTOR AND ACCESSORY
- ● DRAIN-RIM ○ DRAIN-PAN
- ○ NON-GROUT CONSTRUCTION (7.4.2)

OTHER PURCHASER REQUIREMENTS

NAMEPLATE UNITS ○ U.S. CUSTOMARY ● SI

● RELIEF VALVES BY PUMP MFRG ● INTERNAL ○ EXTRNL.

PIPING FOR SEAL FLUSH FURNISHED BY:
- ● PUMP VENDOR ○ OTHERS

PIPING FOR COOLING/HEATING FURNISHED BY:
- ○ PUMP VENDOR ○ OTHERS
- ○ PROVIDE TECHNICAL DATA MANUAL
- ☒ INSTALLATION LIST IN PROPOSAL (9.2.3.l)

REMARKS: ____

Notes

1	N1	To be advised by vendor.
2	N2	Cooling water is not available at site.
3	N3	Material to be advised by vendor.
4	N4	Performance and mechanical running tests shall be carried out according to project's ITP.
5	N5	Noise level : max. 85 db(a) at 1 m distance from noise source.
6	N6	For site data refer to "utility and site condition" of project.
7	N7	Mechanical seal data sheet shall be submitted by vendor as per API 682.
8	N8	Rotary pump design, construction, material, testing, performance during FAT shall strictly be in line with API 676, any deviation
9		shall be notified to the Employer during proposal stage.
10	N9	Please refer to spec. for Induction Motor : MUCME-146101-ELC-TS-011_Rev.C
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