HOJA DE DATOS PARA BOMBA DE TORNILLO DOBLE (JOSE)

REV.	FECHA	PÁG	DESCRIPCIÓN	ELAB	REV. / APROB.	APROB. ICHQ	APROB. PSSA
0	06/11/2012	4	EMISIÓN FINAL	GXD	ZYB/XGK		
B	16/08/2012	4	INCORPORACIÓN DE COMENTARIOS	GXD	ZYB/XGK		
A	24/05/2012	4	EMISIÓN PARA COMENTARIOS	GXD	ZYB/XGK		

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PDVSA PETROLERA SINOVENSA	DESARROLLO DE LA INGENIERÍA CONCEPTUAL Y BÁSICA DEL PROYECTO DE EXPANSIÓN DE PRODUCCIÓN DE 105 MBD A 160 MBD	PDVSA INGENIERÍA Y CONSTRUCCIÓN HQCEC

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SCREW PUMP DATA SHEET

APPLICABLE TO: O PROPOSAL • PURCHASE O AS BUILT
CLIENT: PSSA
SITE: JOSE
SERVICE: DILUENT EXTRA HEAVY OIL FEED PUMP
MANUFACTURER:
ITEM TAG: P-1330003A/B/C
PLANT: SHARE FACILITIES
NO. OF PUMPS REQUIRED: TWO (2) OPERATING AND ONE (1) SPARE
SIZE AND TYPE: HORIZONTAL TWIN-SCREW PUMP
SERIAL NO.

LEYEND: O INDICATES INFORMATION TO BE COMPLETED BY PURCHASER □ BY MANUFACTURER

GENERAL

NO. MOTORS DRIVEN:
PUMP ITEM NO'S: P-1330003A/B/C
MOTOR ITEM NO'S:
MOTOR PROVIDED BY:
MOTOR MOUNTED BY:
MOTOR DATA SHEET NO.:
OTHER DRIVER TYPE
PUMP ITEM NO'S
DRIVER ITEM NO'S
DRIVER PROVIDED BY
DRIVER MOUNTED BY
DRIVER DATA SHEET NO.
GEAR ITEM NO'S
GEAR PROVIDED BY
GEAR MOUNTED BY
GEAR DATA SHEET NO.

OPERATING CONDITIONS

• CAPACITY @ PT (GPM US):
RANGE NORMAL RATED 2001
• DISCHARGE PRESSURE (psig):
MAXIMUM: NORMAL 460.8
• SUCTION PRESSURE (psig):
MAXIMUM: 31.9 NORMAL -0.44
• DIFFERENTIAL PRESSURE (psi):
MAXIMUM: NORMAL 461.24
• NPSH AVAILABLE (ft.) 14.40
• SERVICE • CONTINUOUS O INTERMITTENT

LIQUID

• TYPE OR NAME OF LIQUID: DILUENT EXTRA HEAVY OIL
• PUMPING TEMPERATURE (°F):
NORMAL: 91 MAX: 100 MIN: 80
• SPECIFIC GRAVITY: NORMAL MAXIMUM 0.942 MINIMUM
• SPECIFIC HEAT 0.42 Btu/lb °F
• VISCOSITY (cP): 498.90 MINIMUM 511 MAXIMUM
• VAPOR PRESSURE@ P.T. (psia) 8.0
O CORROSIVE/EROSIVE AGENTS:
• CHLORIDE CONCENTRATION (PTB) 20 (POUND PER THOUSAND BARRELS)
• H_2S CONCENTRATION (PPM) MAX. 10 PPM
LIQUID: O TOXIC • FLAMMABLE O OTHER

PERFORMANCE

□ RATED CAPACITY (GPM US)
□ NPSH REQUIRED (ft.)
□ RATED SPEED (RPM)
□ DISPLACEMENT (GPM)
□ VOLUMETRIC EFFICIENCY (%)
□ MECHANICAL EFFICIENCY (%)
□ BHP @ MAXIMUM VISCOSITY
□ BHP @ RELIEF VALVE SETTING
□ MAXIMUM ALLOWABLE SPEED (RPM)
□ MINIMUM ALLOWABLE SPEED (RPM)

SITE AND UTILITY DATA (NOTE 1)

LOCATION: O INDOOR • OUTDOOR • SUN
O HEATED • UNHEATED O UNDER ROOF
• ELECTRICAL AREA CLASS I GROUP D DIV : 2
O WINTERIZATION REQD • TROPICALIZATION REQD
SITE DATA :
O RANGE OF AMBIENT TEMPS:MIN/MAX : 58 / 98 °F
UNUSUAL CONDITIONS
O DUST • FUMES • SALTY ATMOSPHERE
• OTHER REFINERY, TROPICAL ATMOSPHERE
• UTILITY CONDITIONS

CONSTRUCTION

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

PUMP TYPE:
□ INTRN'L GEAR ■ TWIN-SCREW □ VANE
□ EXTRN'L GEAR □ 3-SCREW □ PROGRESSING CAVITY
GEAR TYPE
□ SPUR ■ HELICAL
□ OTHER

ELECTRICITY	DRIVERS	HEATING	CONTROL	SHUTDOWN
VOLTAGE	4160			
HERTZ	60			
PHASE	3			

0

COOLING WATER	INLET	RETURN	DESIGN	MAX Δ
TEMP °F			MAX	
PRESS. (psig)			MIN	
SOURCE				

INSTRUMENT AIR PRESSURE (psig) MAX MIN

APPLICABLE SPECIFICATIONS:

• API 676 POSITIVE DISPLACEMENT PUMPS - ROTARY
• PDVSA GA-202
• OTHERS SPECIFIED IN THE MATERIAL REQUISITION

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PROGRESSIVE CAVITY PUMP DATA SHEET

CONSTRUCTION (CONTINUED)

CASING (NOTE5)

- ☐ MAXIMUM ALLOWABLE PRESSURE: _____ kPa @ ___ °F
- ☐ HYDROSTATIC TEST PRESSURE: _____ kPa @
- ☐ STEAM JACKET PRESSURE: _____ kPa @ ___ °C

ROTOR MOUNT: ☐ BTWN. BEARINGS ☐ OVERHUNG

TIMING GEARS ☐ YES ☐ NO

BEARING TYPE: ☐ RADIAL _____ ☐ THRUST ____

LUBRICATION TYPE: ■ CONSTANT LEVEL OILERS

- ☐ PUMPED FLUID ☐ RING OIL ☐ OIL MIST
- ☐ EXTERNAL ■ OIL FLOOD ☐ GREASE

☐ LUBRICANT TYPE: _____

● MECHANICAL SEALS: SINGLE MECHANICAL SEAL

- ☐ MANUFACTURER AND MODEL _____
- ☐ MANUFACTURER CODE _____

■ API 610 SEAL FLUSH PLAN 02+52 (NOTE4)

☐ API 610 SEAL CODE _____

○ PACKING: ☐ LANTERN RING

○ MFR. AND TYPE _____ ○ NO. OF RINGS ____

DRIVE MECHANISM

■ DIRECT-COUPLED (NOTE6) ☐ V-BELT ☐ GEAR

☐ COUPLING MANUFACTURER _____

DRIVERS

MOTOR :

- ☐ MANUFACTURER _____
- ☐ TYPE _____
- ☐ FRAME NO. _____
- ☐ NEMA DESIGN _____
- ☐ APPROVAL, LISTED OR CERTIFIED BY: _____
- ○ CONSTANT SPEED _____
- ○ VARIABLE SPEED _____
- ☐ HP _____ RPM _____
- ● VOLTS 4000 PHASE 3
- ● HERTZ 60 SERVICE FACTOR _____
- ● ENCLOSURE TEFC
- ○ MINIMUM STARTING VOLTAGE _____
- ● STARTING METHOD MANUAL
- ○ INSULATION _____ ○ TEMPERATURE CLASS _____
- ☐ CONSECUTIVE STARTS _____
- ☐ MOTOR WINDING MATERIAL _____

MAIN JUNCTION BOX:

- ○ CONDUIT INPUT _____ ☐ QUANTITY _____
- ☐ SIZE _____

SPACE HEATERS JUNCTION BOX:

- ○ CONDUIT INPUT _____ ☐ QUANTITY _____
- ☐ SIZE _____
- ○ STEAM TURBINE

REMARKS _____

OTHER PURCHASER REQUIREMENTS

NAMEPLATE UNITS ● ENGLISH ○ SI

● RELIEF VALVES BY PUMP MFRG ○ INTERNAL ● EXTRNL (NOTE2)

PIPING FOR SEAL FLUSH FURNISHED BY:

● PUMP VENDOR ○ OTHERS

PIPING FOR COOLING/HEATING FURNISHED BY:

○ PUMP VENDOR ○ OTHERS

○ PROVIDE TECHNICAL DATA MANUAL

MATERIALS (NOTE3)

- ☐ CASING Carbon Steel
- ☐ STATOR _____
- ☐ COMMON BASE PLATES Carbon Steel
- ☐ ROTOR (S) SS
- ☐ VANES _____
- ☐ SHAFT SAE 4140
- ☐ SLEEVE (S) 316 SS
- ☐ GLAND (S) _____
- ☐ BEARING HOUSING _____
- ☐ TIMING GEARS _____
- ○ SPECIAL MATERIAL TESTS (2.9.1.3) _____
- ○ LOW AMBIENT TEMP. MATERIALS TESTS (2.9.5)

QA INSPECTION AND TEST

- ● COMPLIANCE WITH INSPECTORS & TEST PLAN
- ○ CERTIFICATION OF MATERIALS
- ○ FINAL ASSEMBLY CLEARANCES
- ○ SURFACE AND SUBSURFACE EXAMINATIONS
  - ○ RADIOGRAPHY _____
  - ○ ULTRASONIC _____
  - ○ MAGNETIC PARTICLE _____
  - ○ LIQUID PENETRANT _____
- ○ CLEANLINESS PRIOR TO FINAL ASSEMBLY
- ○ HARDNESS OF PARTS, WELDS & HEAT AFFECTED ZONES
- ○ FURNISH PROCEDURES FOR OPTIONAL TESTS

TESTS	REQ'D	WIT	OBS
HYDROSTATIC	○	○	○
MECHANICAL RUN	○	○	○
PERFORMANCE	○	○	○
NPSH	○	○	○

PREPARATION FOR SHIPMENT

○ DOMESTIC ● EXPORT

● OUTDOOR STORAGE MORE THAN 6 MONTHS

WEIGHTS (kg)

☐ PUMP _____ ☐ BASE _____ ☐ DRIVER _____

☐ COUPLING ☐ ACCESSORIES

BASEPLATE

● BY PUMP MANUFACTURER ○ SUITABLE FOR EPOXY GROUT

○ EXTENDED FOR _____

● COMMON PLATES BY PUMP MANUFACTURER

○ DRAIN ☐ DRAIN-RIM

■ DRAIN-PAN

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NOTES

1 See Document "PROCESS DESIGN BASIS FOR JOSE" for detail.
Tropicalization is required.
2 External safety valves are not in vendor's scope of supply.
3 The material shall be confirmed by vendor.
4 Single mechancial seal with subsequent lip seals to build up flushing chamber. The flushing plan shall be confirmed by vendor.
5 Pump casing drain shall be connected to the edge of baseplate with block valve.
6 No sparkling type flexible coupling with spacer shall be supplied by vendor.
7 Design condition: design temperature 350°F.