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		

DERECHOS RESERVADOS

Este documento es propiedad de PSSA. No se permite la divulgación u otro uso de este documento sin la previa autorización escrita de PSSA.

No. Documento HQCEC	5083E-03-0000-M10-420-005
Archivo Electrónico:	PMJ-D-178-00-2212-S205-0

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

N° Documento PSSA :	N° Proyecto :	Página :	N° Proyecto ICHQ:	Fase del Proyecto	N° Documento ICHQ :	Rev.
PMJ-D-178-00-2212-S205	178	2 of 4	5083E	Fase Basica	5083E-2-PMJ-D-1131-M1D-HDE-0001	0

SCREW PUMP DATA SHEET

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

LEYEND: ○ INDICATES INFORMATION TO BE COMPLETED BY PURCHASER ☐ BY MANUFACTURER

GENERAL

NO. MOTORS DRIVEN:		OTHER DRIVER TYPE			
PUMP ITEM NO'S:	P-1330003A/B/C	PUMP ITEM NO'S			
MOTOR ITEM NO'S:		DRIVER ITEM NO'S		GEAR ITEM NO'S	
MOTOR PROVIDED BY:		DRIVER PROVIDED BY		GEAR PROVIDED BY	
MOTOR MOUNTED BY:		DRIVER MOUNTED BY		GEAR MOUNTED BY	
MOTOR DATA SHEET NO.:		DRIVER DATA SHEET NO.		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 ○ 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
- ○ CORROSIVE/EROSIVE AGENTS:
- CHLORIDE CONCENTRATION (PTB) 20 (POUND PER THOUSAND BARRELS)
- H_2S CONCENTRATION (PPM) MAX. 10 PPM

LIQUID: ○ TOXIC ● FLAMMABLE ○ 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: ○ INDOOR ● OUTDOOR ● SUN
○ HEATED ● UNHEATED ○ UNDER ROOF
● ELECTRICAL AREA CLASS 1 GROUP D DIV : 2
○ WINTERIZATION REQD ● TROPICALIZATION REQD

SITE DATA :
○ RANGE OF AMBIENT TEMPS:MIN/MAX : 58 / 98 °F

UNUSUAL CONDITIONS
○ DUST ● FUMES ● SALTY ATMOSPHERE
● OTHER REFINERY, TROPICAL ATMOSPHERE
● UTILITY CONDITIONS

ELECTRICITY	DRIVERS	HEATING	CONTROL	SHUTDOWN
VOLTAGE	4160			
HERTZ	60			
PHASE	3			

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

INSTRUMENT AIR PRESSURE (psig): MAX — MIN

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

APPLICABLE SPECIFICATIONS:

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

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

N° Documento PSSA :	N° Proyecto :	Página :	N° Proyecto ICHQ:	Fase del Proyecto	N° Documento ICHQ :	Rev.
PMJ-D-178-00-2212-S205	178	3 of 4	5083E	Fase Basica	5083E-2-PMJ-D-1131-M1D-HDE-0001	0

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

N° Documento PSSA :	N° Proyecto :	Página :	N° Proyecto ICHQ:	Fase del Proyecto	N° Documento ICHQ :	Rev.
PMJ-D-178-00-2212-S205	178	4 of 4	5083E	Fase Basica	5083E-2-PMJ-D-1131-M1D-HDE-0001	0

PROGRESSIVE CAVITY PUMP DATA SHEET

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.