05122

PETROBRAS	DATA SHEET	Nº	I-FD-5250.00-2316-311-DRD-001
	CLIENT: AB-RE-/UN-REGAP		SHEET 1 of 6
	JOB: CARTEIRA DE GASOLINA		
	AREA: U-0206 UNIDADE DE HIDRODESSULFURIZAÇÃO DE NAFTA CRAQUEADA		
ENGENHARIA IEABAST/IERG	TITLE: HYDROGEN MAKE-UP COMPRESSORS- 206-K-02A/B AUXILLARY OIL PUMP (206-P-16 A/B) DATA SHEET		
DRESSER-RAND	DIGITAL FILE: I-FD-5250.00-2316-311-DRD-001=0.DOC	CONTR NR: 4502086923	NAME: ANAND
	TECH RESPONSIBLE: ANAND	REG CREA: CREA	RM Nº: I-RM-5250.00-2316-322-PEI-001

REVISION INDEX

REV	DESCRIPTION AND/OR AFFECTED SHEETS
0	ORIGINAL ISSUE
A	AS CERTIFIED

H2 SERVICE

REV. A
07 AGO 2009
Consórcio CAMK

MENDES JÚNIOR KTY
CONSÓRCIO ARGENTINO-BRASILEIRO MENDES JÚNIOR - KTY

A	WITHOUT COMMENTS - To send certified copy. To continue fabrication.
B	WITH COMMENTS - To send certified copy. To continue fabrication.
C	WITH COMMENTS. Reissue for comments. TO NOT START FABRICATION.
D	REJECTED - Reissue for comments. DO NOT CONTINUE FABRICATION.
E	CERTIFIED. APPROVED DOCUMENT. TO CONCLUDE THE FABRICATION.
F	FOR INFORMATION.

Ass. ..... Date 20/04/10

THE COMMENTS MARKED IN THIS DOCUMENT DON'T EXEMPT THE MANUFACTURER OF THE RESPONSIBILITY ON THE PROJECT AND FABRICATION, AS WELL AS ABOUT THE PERFORMANCE OF THE EQUIPMENT OR SYSTEM.

	REV. 0	REV. A	REV. B	REV. C	REV. D	REV. E	REV. F	REV. G	REV. H
DATE	17/04/2009	03.08.2009							
DESIGN	DRD	DRD							
EXECUTION	SAGAR	SAGAR							
CHECK	SUYOG	SUYOG							
APPROVAL	ANAND	ANAND							

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PETROBRAS

DATA SHEET | NO I-FD-5250.00-2316-311-DRD-001
JOB: CARTEIRA DE GASOLINA | SHEET 2 of 6

TITLE: HYDROGEN MAKE-UP COMPRESSORS- 206-K-02A/B
AUXILLARY OIL PUMP (206-P-16 A/B) DATA SHEET

APPLICABLE TO: ○ PROPOSAL ● PURCHASE ○ AS BUILT
FOR DRESSER-RAND — UNIT 206
SITE REGAP REFINARY, BRAZIL — NO. OF PUMPS REQUIRED :2 (2W + 0S)
SERVICE AUXILLARY OIL PUMP — SIZE AND TYPE K4123A / GEAR PUMP
MANUFACTURER VIKING PUMPS INC, USA — SERIAL NO. * LATER
NOTE : ○ INDICATES INFORMATION COMPLETED BY PURCHASER ☑ MANUFACTUER

GENERAL

NO. MOTOR DRIVEN TWO — OTHER DRIVER TYPE -
PUMP ITEM NO. 206-P-16 A , 206-P-16 B — PUMP ITEM NO.____ PUMP ITEM NO.____
MOTOR ITEM NOS - — DRIVER ITEM NOS.____ GEAR ITEM NOS____ SIZE 31
MOTOR PROVIDED BY DRESSER-RAND — DRIVER PROVIDED BY DRESSER GEAR PROVIDED BY____ VIKING USA
MOTOR MOUNTED BY DRESSER-RAND — DRIVER MOUNTED BY___ ENPRO GEAR MOUNTED BY____ ENPRO
MOTOR DATA SHEET NO. - — DRIVER DATA SHEET NO.____ GEAR DATA SHEET NO.____

● OPERATING CONDITIONS

● CAPACITY@ PT (m³/h) 2.9
@MAXIMUM VISCOSITY : 60 Cp @MINIMUM VISCOSITY____
● DISCHARGE PRESSURE kg/cm²(g)
MAXIMUM 6.533 MINIMUM
● SUCTION PRESSURE kg/cm²(g)
MAXIMUM 1.07 MINIMUM
● DIFFERENTIAL PRESSURE kg/cm²
MAXUMUM 5.46 MINIMUM --
● NPSH AVAILALE (m) 10.0 MLC (AT SUCT. FLG)
○ HYDRAULIC Kw

● LIQUID

● TYPE OR NAME OF LIQUID LUBE OIL ISO VG 220
● PUMPING TEMPERATURE (°C)
NORMAL - 60 MAXIMUM MINIMUM
● SPECIFI GRAVITY____MAXIMUM 0.876 MINIMUM
○ SPECIFIC HEAT,____Cp(kj/KG °c)
● VISCOSITY (Cp) MINMUM MAXIMUM 60
○ CORROSIVE/EROSIVE AGENTS____
○ CHLORIDE CONCENTRATION (PPM)____ --
○ H2S CONCENTRATION (PM) --
LIQUID ○ TOXIC ○ FLAMMABLE ○ OTHER____

☐ PERFORMANCE

■ RATED CAPACITY (m³/h)__ 3.0 - 3.6
■ NPSH REQUIRED (m³/h)__ 4 Mtr
■ RATED SPEED (RPM)____ 188
■ DISPLACEMENT (m³/h)____ 4.5
■ VOLUMETRIC EFFICIENCY (%)___80____
■ MECHANICAL EFICIENCY (%)____ 45
■ Kw @MAXIMUM VISCOSITY____ 1.26
■ Kw @RELIEF VALVE SETTING___ 1.41
■ MAXIMUM ALLOABLE SPEED (RPM)____ 650
■ MINIMUM ALLOWABLE SPEED (RPM) 90

● SITE AND UTILITY DATA (Ref Project Design Basis)

LOCATION ○ INDOOR ● OUTDOOR
○ HEATED ○ UNHEATED ○ UNDER ROOF
● ELECTRICAL AREA CLASS _IEC_____GROUIP II A/B/C DIV ZONE II, T3
○ WINTERIZATION REQD ○ TROPICALIZATION REQD
SITE DATA
○ RANGE OF AMBIENT TEMOPS : MIN/MAX _____/_____°C
UNUSUAL CONDITIONS
○ DUST ○ FUMES ○ SALT ATMOSPHERE
● OTHER : CORROSIVE INDUSTRIAL ENVIRONMENT
○ UTILITY CONDITIONS

☐ CONSTRUCTION

	SIZE	ANSI RATING	FACING	POSITION
CONNECTIONS				
SUCTION	2'	150#	Rf	LH
DISCHARGE	2'	150#	RF	TOP
GLAND FLUSH				
DRAINS				
VENTS				
JACKET				

PUMP TYPE
■ INTERNAL GEAR ☐ TWIN SCREW ☐ VANE
☐ EXTERNAL GEAR ☐ THREE SCREW ☐ PROGRESSING CAVITY
GEAR TYPE
☐ SPUR ☐ HELICAL
■ OTHER__INTERNAL + SPUR

ELECTRICITY DRIVERS HEATING CONTROL SHUTDOWN
VOLTAGE 440 VAC+/-10%
HERTZ 60 Hz+/-5%
PHASE 3
COOLING WATER INLET RETURN DESIGN MAX Δ
TEMP (°C)_____ MAX_____
PRESS (Kg/ CM2.G)) ____ MIN_____
SOURCE _____
INSTRUMENT AIR MAX MIN
PRESSURE (kPa)_____

APPLICABLE SPECIFICATION

API 676 POSITIVE DISPLACEMENT PUMPS - ROTARY
○ GOVERNING SPECIFICATION (IF DIFFERENT)_____
REMARKS :_____

PETROBRAS

DATA SHEET | NO I-FD-5250.00-2316-311-DRD-001
JOB: CARTEIRA DE GASOLINA | SHEET 2 of 6

TITLE: HYDROGEN MAKE-UP COMPRESSORS- 206-K-02A/B
AUXILLARY OIL PUMP (206-P-16 A/B) DATA SHEET

__CONSTRUCTION (CONTINUED)

CASING
- ■ MAXIMUM ALLOWABLE PRESSURE :__ 140 psi @ 60 Dg c
- ■ HYDROSTATIC TEST PRESSURE :_____250 Psi
- ■ STEAM JACKET PRESSURE:_____NA_____(kPa) @____°C

ROTOR MOUNT ☐ BETWEEN BEARINGS ■ OVERHUNG
TIMING GEARS ☐ YES ■ NO
BEARING TYPE ■ RADIAL_____ ■ THRUST_____
LUBRICATEION TYPE ● CONSTANT LEVEL OILERS
■ PUMPED FLUID ☐ RING OIL ☐ OILMIST
☐ EXTERNAL ☐ OIL FLOOD ☐ GREASE

- ☐ LUBRICTION TYPE_____
- ● MECHANICAL SEALS NOTE-8
  - ■ MANUFACTUERER AND MODEL___ FLOWSERVE - 84
  - ☐ MANUFACTURER CODE_____
- ● API 610 SEAL FLUSH PLAN
- ☐ API 610 SEAL CODE _____
- ☐ PACKING ○ LANTERN RING
  - ☐ MANUFACURER AND TYPE_____NO OF RINGS_____

DRIVE MECHANISM

○ DIRECT COUPLED ○ V-BELT ■ GEAR
☐ COUPLING MANUFACTURER_____

DRIVERS

- ● MOTOR_____
- ☐ MANUFACTURER_____WEG BRASIL_____
- ☐ TYPE_____Three Phase P. Eff. Non Sparking Motor_____
- ☐ FRAME NO._____100 L_____
- ● CONSTANT SPEED_____
- ○ VARIABLE SPEED_____
- ☐ Kw_____22_____RPM____1690_____
- ● VOLTS 440 VAC+/-10% PHASE 3
- ● HERTZ 60 Hz+/-5%
- ● ENCLOSURE FLP, WEATHER PROOF
- ● _____TEFC IPW55_____
- ○ STEAM TURBINE
- ○ OTHER (SEE SEPARATE DATA SHEETS_____)

OTHER PURCHASE REQUIREMENTS

NAME PLATE UNITS ○ CUSTOMARY ○ SI NOTE-12
● RELIEF VALVES BY PUMP MFGR ● INTERNAL ● EXTERNAL
PIPING FOR SEAL FLUSH FURNISHED BY:
● PUMP VENDOR ○ OTHERS
PIPING FOR COOLING/HEATING FURNISHED BY
● PUMPVENDOR ○ OTHERS
○ PROVIDE TECHNICAL DATA MANUAL

MATERIALS SS-316

- ■ CASING ___ A216 - 74 WCB
- ☐ STATOR ___ NA
- ■ END PALTES___ A216 - 74 WCB
- ■ ROTORS(S) ___ A-48-6435B
- ☐ VANES ___ NA
- ■ SHAFT ___ ASTM A 108
- ■ SLEEVE(S) ___ CG Bushings
- ☐ GLAND(S) ___ NA ___
- ■ BEARING HOUSING A216 - 74 WCB
- ☐ TIMING GEARS NA
- ○ SPECIAL MATERIAL TESTS (2.9.1.3)_____
- ○ LOW AMBIENT TEMP.MAERIALS TESTS (2.9.5)

QA INSPECTION AND TEST

- ● COMPLIANCE WITH INSPECTORS CHECK LIST
- ● CERTIFICATION OF MATEIRALS
- ● FINAL ASSEMBLY CLEARNACES
- ○ SURFACE AND SUBSTANCE EXAMINATIONS
  - ○ RADIOGRAPHY_____
  - ○ ULTRASONIC_____
  - ○ MAGNETIC PARTICLE_____
  - ○ LIQUID PENETRANT_____
- ● CLEANLINESS PRIOR TO FINAL ASSEMBLY
- ○ HARDNESS OF PARTSD, WELDS & HEAT AFFECTED ZONES
- ○ FURNISH PROCEDURES FOR OPTIONAL TESTS

TESTS	REQD	WT	OBS
HYDROSTASTIC	●	●	○
MECHANICAL RUN	●	●	○
PERFORMANCE	●	●	○
NPSH	○	○	○

PREPARATION FOR SHIPMENT

● DOMESTIC ○ EXPORT ○ EXPORT BOXING REQD
● OUTDOOR STORAGE MORE THAN 6 MONTHS

WEIGHTS (LBS)

■ PUMP 55 Kg ☐ BASE ■ GEAR 11 ☐ DRIVER

BASE PLATE

○ BY PUMP MANUFACTURER ● SUITABLE FOR EPOXY GROUT
○ EXTENDED FOR_____
● SUBSOLE PLATES BY PUMP MANUFACTURER
○ DRAIN-RIM ● DRAIN-PAN

HYDROGEN MAKE-UP COMPRESSORS- 206-K-02A/B
AUXILLARY OIL PUMP (206-P-16 A/b) DATA SHEET

NOTES

1. PUMP DESIGN , MATERIAL, MANUFACTURE, INSPECTION, TESTING, AND SUPPLY OF THE PUMP SHALL BE IN ACCORDANCE WITH API-676 2nd EDITION .
2. PUMPS SHALL BE SUITABLE FOR AUTO START.
3. VENDOR SHALL PROVIDE METTING (COUNTER) FLANGES ALONG WITH GASKETS AND FASTENERS.
4. NAME PLATE TO INCLUDE TAG NO, CAPACITY, HEAD, RPM etc.

STANDARD FORM OF PETROBRAS N-553 - APPENDIX B - SHEET 7/7

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PETROBRAS

DATA SHEET | NO. I-FD-5250.00-2316-311-DRD-001

JOB: CARTEIRA DE GASOLINA | SHEET 5 of 6

HYDROGEN MAKE-UP COMPRESSORS- 206-K-02A/B
AUXILLARY OIL PUMP (206-P-16 A/b) DATA SHEET

01	APPLICABLE TO ○ PROPOSAL ● PURCHASE ○ AS BUILT	
02	FOR: DRESSER - RAND	UNIT: U - 206
03	SITE: REGAP REFINERY , BRAZIL	NO REQUIRED: TWO
04	SERVICE: AUXILLARY OIL PUMP	PUMP SIZE, TYPE @ NO STAGES: GEAR PUMP
05	MANUFACTURER: VIKING USA	MODEL: K-4123A SERIAL NO.: *
06	NOTE: ○ INDICATES INFORMATION COMPLETED BY PURCHASER	☐ BY MANUFACTURER ☐ BY MANUFACTURER OR PURCHASER
07	○ PUMP DATA	○ LIQUID
08	● SPEED: 188 rpm:	● TYPE OR NAME OF LIQUID: LUBE OIL ISO VG 220
09	● SHAFT / SLEEVE DIAMETER AT SEAL: 136.5 mm	○ CONCENTRATION:
10	● STEPPED SLEEVE MINIMUM DIAMETER: NA mm	● PUMPING TEMPERATURE:
11	● STUFFING BOX I D.: 58.7 mm	NORMAL: 60 °C MAX.: °C MIN.: 20 °C
12	● STUFFING BOX DEPTH: 79.5 mm	● SPECIFIC GRAVITY:
13	CASE MOUNT	@ NORMAL TEMP.: @ MAX. TEMP.: 0.876
14	○ CENTERLINE ○ NEAR CENTERLINE ● FOOT	○ SPECIFIC HEAT: (kJ/kg °C)
15	○ VERTICAL ○ SEPARATE MOUNTING PLATE	VAPOR PRESSURE
16	○ IN-LINE ○ SUMP	○ @ NORMAL TEMP.: (kPa abs)
17	CASING SPLIT	○ @ MAX. TEMP.: (kPa)
18	○ AXIAL ○ RADIAL	VISCOSITY
19	GEAR	● @ NORMAL TEMP.: 69 Cst
20	○ BETWEEN BEARINGS ● OVERHUNG	● @ MIN. TEMP.: 360 Cst
21	PUMP MATERIALS	○ MELTING POINT (OR POUR POINT): °C
22	○ TABLE H-1 CLASS:	○ CORROSIVE/EROSIVED AGENT:
23	● SHAFT: A-48-6435B	○ CONCENTRATION (% OR PPM):
24	● SLEEVE: CG Bushing	○ CHLORIDE CONCENTRATION (PPM):
25	○ GLAND: N.A	○ H_2S CONCENTRATION (PPM):
26		SOLIDS CONTENT
27	○ SITE AND UTILITY DATA	○ NAME OF SOLIDS PRESENTS:
28	UNUSUAL CONDITIONS	○ CONCENTRATION (PPM OR % WT):
29	○ DUST ○ FUMES	○ PARTICLE SIZE:
30	● OTHER: CORROSIVE INDUSTRIAL (REFINERY) ENVIRONMENT	○ TOXIC ● FLAMMABLE ○ OTHER
31	○ UTILITY CONDITIONS	○ OPERATING CONDITIONS
32	STEAM DRIVERS HEATING	● PUMP CAPACITY: 3.6 m3/hr m³/h
33	MIN. (kPa) °C (kPa) °C	● SUCTION PRESSURE
34	MAX. (kPa) °C (kPa) °C	MINIMUM: (kPa)
35	ELECTRICITY: DRIVERS HEATING CONTROL SHUTDOWN	RATED: 1.07 kg/cm2 A
36	VOLTAGE: 440 V AC +/- 10%	MAXIMUM: (kPa)
37	HERTZ: 60 Hz +/- 5%	● DISCHARGE PRESSURE: 6.533 kg/cm2
38	PHASE: 3	DIFFERENTIAL PRESSURE: 5.463 kg/cm2
39	COOLING WATER:	NPSH: 4 m
40	TEMP. INLET: °C MAX. RETURN: °C	☐ SEALING PRESSURE (kPa) PRESSURE @ THROAT
41	PRESS. NORM: (kPa) DESIGN: (kPa)	SERVICE ● CONTINUOUS ○ INTERMITTENT (STARTS/DAY)
42	MIN.RETURN: (kPa) MAX. ALLOW △ p: (kPa)	CYCLING ○ TEMPERATURE ○ PRESSURE ○ FREQUENCY
43	WATER SOURCE: -	
44	INSTRUMENT AIR MAX. /MIN. PRESS: / (kPa)	
45	REMARKS:	
46		
47		
48		
49		
50		
51		
52		

STANDARD FORM OF PETROBRAS N-553 - APPENDIX B - SHEET 1/2

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PETROBRAS

DATA SHEET | NO. I-FD-5250.00-2316-311-DRD-001

JOB: CARTEIRA DE GASOLINA | SHEET 6 of 6

HYDROGEN MAKE-UP COMPRESSORS- 206-K-02A/B
AUXILLARY OIL PUMP (206-P-16 A/b) DATA SHEET

	MECHANICAL SEAL OR PACKING			
SEAL DATA				
○ API CLASS CODE (SEE APPENDIX H):				
☐ SEAL TYPE: CARTRIDGE				
☐ SEAL SIZE: 36.5 mm				
☐ MANUFACTURER CODE: 84-125w				
☐ SEAL DRAWING NUMBER: S X 0814				
SEAL CONSTRUCTION				
☐ MOUNTING				
● CARTRIDGE				
○ HOOKED SLEEVE OR NON-CARTRIDGE				
○ NO SLEEVE				
○ PUMPING RING REQUIRED				
○ AUX. SEAL DEVICE:				
GLAND TAPS:				
● FLUSH (F)	☐ DRAIN (D)			
☐ VENT (V)	☐ COOLING (C)			
☐ QUENCH (Q)	☐ HEATING (H)			
☐ BARRIER (B)				
SEAL DESIGN DATA:				
SEAL MOUNTING	● ROTATING	☐ STATIONARY		
	● SINGLE SEAL	DOUBLE OR TANDEM SEAL		
		INBOARD	OUTBOARD	
● BALANCE: *	%	%	%	
☐ FACE WIDTH:	mm	mm	mm	
MAX. PRESSURE RATING				
● DYNAMIC: 2859.22	(kPa)	(kPa)	(kPa)	
● STATIC: 4238.17	(kPa)	(kPa)	(kPa)	
MIN. PRESSURE RATING				
☐ DYNAMIC:	(kPa)	(kPa)	(kPa)	
☐ STATIC:	(kPa)	(kPa)	(kPa)	
TEMPERATURE RATING				
MINIMUM: 40	°C	°C	°C	
MAXIMUM: 204	°C	°C	°C	
SEAL FLUIDS REQUIREMENT				
FLUSH LIQUID				
● FLUSH PIPING PLAN (FIG. D-2): API PLAN -13				
○ NAME OF FLUID: PUMPING FLUID				
○ TEMPERATURE MIN. / MAX.: 20/60			°C	
○ SPECIFIC GRAVITY: 0.876 @ 60			°C	
○ SPECIFIC HEAT:			Cp(kJ/kg °C	
○ VAPOR PRESSURE:	(kPa abs)		°C	
○ TOXIC ● FLAMMABLE ○ OTHER:				
☐ SEAL HEAT GENERATED:			J/s	
☐ FLOW RATE MAX./MIN.:	/		m³/h	
☐ PRESSURE REQUIRED MAX./ MIN.:	/		(kpa)	
☐ TEMPERATURE REQUIRED MAX./ MIN.:	/		°C	
REMARKS:				

	BARRIER FLUID
○ BARRIER PIPING PLAN (FIG. D-3) NOT APPLICABLE	
○ NAME OF FLUID:	
○ TEMP. MIN./ MAX.: / °C	
○ SPECIFIC GRAVITY: @ °C	
○ VAPOR PRESSURE: (kPa abs) °C	
○ TOXIC ○ FLAMMABLE ○ OTHER:	
☐ FLOW RATE MAX. / MIN.: / m³/h	
☐ PRESSURE REQUIRED MAX./ MIN.: / (kPa)	
☐ TEMPERATURE REQUIRED MAX./ MIN.: / °C	
QUENCH FLUID NOT APPLICABLE	
○ QUENCH PIPING PLAN (FIG. D-3):	
○ NAME OF LIQUID:	
○ FLOW RATE: m³/h	
REQUIRED ACCESSORIES	
☐ RESERVOIR	
☐ PRESSURE GAUGE	
MANUFACTURER:	
☐ PRESSURE SWITCH	
MANUFACTURER:	
☐ HEAT EXCHANGER	
TYPE:	
☐ CYCLONE SEPARATOR	
☐ LEVEL GAUGE	
MANUFACTURER:	
☐ OTHER:	
REMARKS:	
* IT IS A PROPRITORY OF SEAL MANUFACTURER	

STANDARD FORM OF PETROBRAS N-553 - APPENDIX B - SHEET 2/2

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