

API 610 11th Edition Data Sheets

Customary and SI units are selected by the user, at the 'Project Units' selection on page 1. This will automatically change all the units displayed on the data sheet to the units selected. Note however that this Excel data sheet contains no in-built calculations for unit conversion therefore changing the displayed units will not impact any data entered onto the data sheet, except for those listed below.

Note that on page 2 the following fields are calculated based on the units selected.

Differential Pressure

Differential Head

NPSHa

Hydraulic Power

Therefore whilst the values entered into Flow, Suction pressure and Discharge pressure will not be converted the calculations based on these values will be in accordance with the units chosen.

This data sheet is intended to be used in its Excel format. As such there are numerous cells which contain drop-down selections.

As these selections are not presented to the user until the cursor is on the cell, the cells which contain a drop-down selection have been identified by colouring the cell Light Green.

In addition if the selected cell has a cross reference in the specification, a pop-up box will appear indicating the reference paragraph and some or all of the content of the referenced paragraph. These cells are coloured Light Grey

User should use 'Page Setup' to ensure printing is on the correct paper size.

CLIENT: PDVSA CRP AMUAY REFINERY

PROJECT TITLE: CATALYTIC CRACKING

JOB NUMBER: _____

EQUIPMENT NUMBER: _____

EQUIPMENT SERVICE: BOTTOMS PRODUCT

SERIAL NUMBER: 15PP0503-504

REQ / SPEC NO. : _____ / _____

PURCH ORDER NO. _____

- Cells coloured thus contain drop-down options
- contain calculated values based on input data do not change.
- identifies a cross referenced paragraph in the document
note may also contain a drop down list

When you have completed the DS highlight the whole page format cells pattern none
Delete these notes on completion

COMMENTS: _____

DATA SHEETS						
	ITEM No.	ATT	ITEM No.	ATT	ITEM No.	ATT
PUMP						
MOTOR						
GEAR						
TURBINE						

APPLICABLE OVERLAY STANDARDS _____

B	05/23/17	ISSUED FOR APPROVAL	MS	OV			
A	05/01/17	ISSUED FOR APPROVAL	MS	OV			
Ø	02/17/17	ISSUED FOR APPROVAL	MS	OV			
Rev	Date	Description	By	Checked			
CENTRIFUGAL PUMP DATA SHEET			DATA SHEET No.				
			26615PP0503-504				
			Sheet	1 of 8			



CENTRIFUGAL PUMP DATA SHEET

1	Note	APPLICABLE TO: PROPOSAL	APPLICABLE NTL/INTNTL STANDARD: API-610			Rev												
2		FOR PDVSA CRP AMUAY REFINERY	UNIT CATALYTIC CRACKING															
3		SITE JUDIBANA EDO FALCON-VENEZUELA	SERVICE BOTTOMS PRODUCT H.C															
4		NO. REQ 2 PUMP SIZE 3X4X10.5	TYPE HORIZONTAL	No. STAGES 1														
5		MANUFACTURER FLOWSERVE	MODEL SJA	SERIAL NO. 15PP0503-504														
LIQUID CHARACTERISTICS																		
7		Units	Maximum	Minimum	Note													
8	LIQUID TYPE OR NAME :	BOTTOMS PRODUCT H.C			Max & min values refer only to the property listed													
9	VAPOR PRESSURE :	psia	16.6															
10	RELATIVE DENSITY :		0.86															
11	SPECIFIC HEAT :	Btu/(lbm-°F)																
12	VISCOSITY :	Cp	0.7															
OPERATING CONDITIONS (6.1.2)																		
14		Units	Maximum	Rated	Normal	Minimum												
15	NPSHa Datum:	C.L. Impeller																
16	PUMPING TEMPERATURE :	°F	625		568	568												
17	FLOW :	gpm		368														
18	DISCHARGE PRESSURE : (6.3.2)	psig		173														
19	SUCTION PRESSURE :	psig	180	87														
20	DIFFERENTIAL PRESSURE :	psi		86														
21	DIFFERENTIAL HEAD :	ft		231.00														
22	NPSH _A :	ft		25.00														
23	HYDRAULIC POWER :	HP		38.20														
SITE AND UTILITY DATA																		
25	LOCATION:			COOLING WATER :														
26	OUTDOOR			INLET RETURN DESIGN														
27	MOUNTED AT :			TEMP °F MAX MIN														
28	ELECTRIC AREA CLASSIFICATION: 6.1.22 DIVISION 2			PRESS. psig MIN														
29	Class 1 Group: B.C.&D TEMP CLASS			SOURCE														
30	SITE DATA :			COOLING WATER CHLORIDE CONCENTRATION: _____ ppm														
31	ELEVATION (MSL) : 78 ft BAROMETER : _____ in Hg			INSTRUMENT AIR : MAX _____ psig MIN _____ psig														
32	RANGE OF AMBIENT TEMPS: MIN / MAX 80 / 95 °F			STEAM														
33	RELATIVE HUMIDITY: MIN / MAX _____ / _____ %			TEMP °F Max Min														
34	UNUSUAL CONDITIONS:			PRESS. psig Max Min														
35				<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td>DRIVERS</td> <td>HEATING</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>				DRIVERS	HEATING									
	DRIVERS	HEATING																
36	UTILITY CONDITIONS :																	
37	ELECTRICITY :																	
38	VOLTAGE	460																
39	PHASE	3																
40	HERTZ	60																
PERFORMANCE						DRIVER (7.1.5)												
42	PROPOSAL CURVE NO. R-2629 RPM 3570			Driver Type MOTOR														
43	As Tested Curve No. _____			GEAR _____														
44	IMPELLER DIA.: RATED 10.5 MAX. 10.656 MIN. _____ in.			VARIABLE SPEED REQUIRED _____														
45	RATED POWER 38.2 HP EFFICIENCY 70 (%)			SOURCE OF VARIABLE SPEED _____														
46	RATED CURVE BEP FLOW (at rated impeller dia) _____ gpm			OTHER _____														
47	MIN FLOW : THERMAL _____ gpm STABLE 50 gpm			MANUFACTURER WEG														
48	PREFERRED OPERATING REGION (6.1.11) _____ to _____ gpm			NAMEPLATE POWER 50 HP														
49	ALLOWABLE OPERATING REGION _____ to _____ gpm			Nominal RPM 3600														
50	MAX HEAD @ RATED IMPELLER _____ ft			RATED LOAD RPM 3550														
51	MAX POWER @ RATED IMPELLER (6.8.9) _____ HP			FRAME OR MODEL 326TS														
52	NPSH ₃ AT RATED FLOW : _____ ft			ORIENTATION HORIZONTAL														
53	CL PUMP TO U/S BASEPLATE _____ ft			LUBE GRASE														
54	NPSH MARGIN AT RATED FLOW : _____ ft			BEARING TYPE: BALL														
55	SPECIFIC SPEED (6.1.9) _____ gpm,rpm,ft			RADIAL 6312-C3														
56	SUCTION SPECIFIC SPEED LIMIT _____			THRUST 6212-C3														
57	SUCTION SPECIFIC SPEED _____ gpm,rpm,ft			STARTING METHOD _____														
58	MAX. ALLOW. SOUND PRESS. LEVEL REQD (6.1.14) _____ (dBA)			SEE DRIVER DATA SHEET														
59	EST MAX SOUND PRESS. LEVEL _____ (dBA)																	
60	MAX. SOUND POWER LEVEL REQ'D (6.1.14) _____																	
61	EST MAX SOUND POWER LEVEL _____																	
DATA SHEET No. 26615PP0503-504						Rev: B SHEET 2 of 8												



CENTRIFUGAL PUMP DATA SHEET

1	Note	CONSTRUCTION	Rev
2	API PUMP TYPE:	OH2 [Based on API 610 definitions]	
3			
4	NOZZLE CONNECTIONS:	(6.5.5)	
5			
6	SUCTION	Size: 4 Facing: RF Rating: 300 Position: END	
7	DISCHARGE	Size: 3 Facing: RF Rating: 300 Position: TOP	
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Drain Valve Supplied By

DRAINS MANIFOLDED **NO**

VENT Valve Supplied By

VENTS MANIFOLDED **NO**

THREADED CONS FOR PIPELINE SERVICE & < 50°C (6.4.3.2) **NO**

SPECIAL FITTINGS FOR TRANSITIONING (6.4.3.3) **NO**

CYLINDRICAL THREADS REQUIRED (6.4.3.8) **NO**

GUSSET SUPPORT REQUIRED **NO**

MACHINED AND STUDDED CONNECTIONS (6.4.3.12) **NO**

VS 6 DRAIN

DRAIN TO SKID EDGE

MATERIAL (6.12.1.1)

APPENDIX H CLASS **C-6**

MIN DESIGN METAL TEMP (6.12.4.1) °F

REDUCED-HARDNESS MATERIALS REQ'D (6.12.1.12.1) **NO**

Applicable Hardness Standard (6.12.1.12.3)

BARREL :

CASE : A487 Gr CA6NM Cl A

DIFFUSERS

IMPELLER : A487 Gr CA6NM Cl A

IMPELLER WEAR RING : A426 Gr CPCA15

CASE WEAR RING : A426 Gr CPCA15

SHAFT: A276 Type 410

Bowl (if VS-type)

Inspection Class

BEARINGS AND LUBRICATION (6.10.1.1)

BEARING (TYPE / NUMBER): (6.11.4)

RADIAL **BALL** /

THRUST **BALL** / **BALL**

REVIEW AND APPROVE THRUST BEARING SIZE : (9.2.5.2.4) **N / A**

LUBRICATION : (6.10.2.2) (6.11.3) (9.6.1) PURE OIL MIST

PRESSURE LUBE SYSTEM TO ISO 10438- (9.2.6.5)

ISO 10438 DATA SHEETS ATTACHED

Pressurized Lube Oil System mtd on pump baseplate **N / A**

Location of Pressurized Lube Oil System mounted on baseplate :

INTERCONNECTING PIPING PROVIDED BY

OIL VISC. ISO GRADE VG **32**

CONSTANT LEVEL OILER : **NOT REQUIRED**

CASING MOUNTING: **CENTERLINE**

CASING TYPE: (6.3.10) **OVERHUNG**

OH3 BACKPULLOUT LIFTING DEVICE REQD. (9.1.2.6)

CASE PRESSURE RATING:

MAWP : (6.3.6) **666.66** psig @ °F

HYDROTEST : **1000** psig @ °F

HYDROTEST OH PUMP AS ASSEMBLY

SUCT'N PRESS. REGIONS DESIGNED FOR MAWP

ROTATION: (VIEWED FROM COUPLING END) **CCW**

- IMPELLERS INDIVIDUALLY SECURED : **YES**
- BOLT OH 3/4/5 PUMP TO PAD / FOUNDATION : **NO**
- PROVIDE SOLEPLATE FOR OH 3/4/5 PUMPS **NO**

ROTOR:

SHAFT FLEXIBILITY INDEX (SFI) (9.1.1.3)

First Critical Speed Wet (Multi stage pumps only)

COMPONENT BALANCE PER API (4WN) **YES**

SHRINK FIT -LIMITED MOVEMENT IMPELLERS (9.2.2.3) **YES**

COUPLING:(7.2.3) (7.2.13.f)

MANUFACTURER **JOHN CRANE**

MODEL **TSCS**

RATING (POWER/100 RPM)

SPACER LENGTH **5.5** in.

SERVICE FACTOR **1.5**

RIGID **NO** B

COUPLING WITH HYDRAULIC FIT (7.2.10) **NO**

COUPLING BALANCED TO ISO 1940-1 G6.3 (7.2.3) **YES**

COUPLING WITH PROPRIETARY CLAMPING DEVICE (7.2.11)

COUPLING IN COMPLIANCE WITH (7.2.4)

COUPLING GUARD STANDARD PER (7.2.13.a)

Window on Coupling Guard

BASEPLATE

API BASEPLATE NUMBER :

BASEPLATE CONSTRUCTION (7.3.14) **FULL TOP DECKING**

BASEPLATE DRAINAGE (7.3.1) **Entire Baseplate Drain Rim**

MOUNTING : **GROUTED**

NON-GROUT CONSTRUCTION : (7.3.13)

VERTICAL LEVELING SCREWS :

LONGITUDINAL DRIVER POSITIONING SCREWS :

SUPPLIED WITH : ● GROUT AND VENT HOLES

● DRAIN CONNECTION **YES**

MOUNTING PADS SIZED FOR BASEPLATE LEVELING (7.3.5) **YES**

MOUNTING PADS TO BE MACHINED (7.3.6) **YES**

PROVIDE SPACER PLATE UNDER ALL EQUIPMENT FEET

OTHER B

REMARKS :

DATA SHEET No. **26615PP0503-504** Rev: **B** SHEET **3** of **8**



CENTRIFUGAL PUMP DATA SHEET

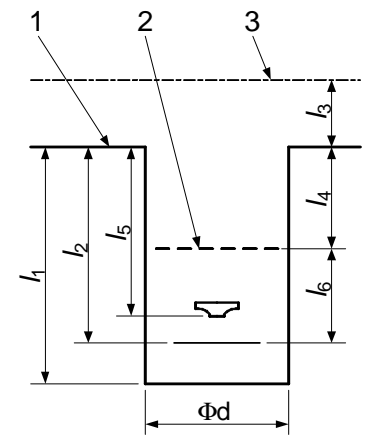
1	Note	INSTRUMENTATION	SEAL SUPPORT SYSTEM MOUNTING	Rev
2		SEE ATTACHED API-670 DATA SHEET	SEAL SUPPORT SYSTEM MOUNTED ON PUMP BASEPLATE	
3		ACCELEROMETER (7.4.2.1)	(7.5.1.4)	
4		Number of Accelerometers	IDENTIFY LOCATION ON BASEPLATE	
5		Mounting Location of Accelerometers	INTERCONNECTING PIPING BY	
6				
7		PROVISION FOR MTG ONLY (6.10.2.10)		
8		Number of Accelerometers	MECHANICAL SEAL (6.8.1)	
9		Mounting Location of Accelerometers	SEE ATTACHED ISO 21049/API 682 DATA SHEET	
10			ADDITIONAL CENTRAL FLUSH PORT (6.8.9)	
11		FLAT SURFACE REQUIRED (6.10.2.11)	HEATING JACKET REQ'D. (6.8.11)	
12		Number of Accelerometers		
13		Mounting Location of Accelerometers	HEATING AND COOLING (6.1.17)	
14			COOLING REQ'D	
15		VIBRATION PROBES (7.4.2.2)	COOLING WATER PIPING PLAN	
16		PROVISIONS FOR VIB. PROBES	COOLING WATER PIPING	
17		NUMBER PER RADIAL BEARING	FITTINGS	
18		NUMBER PER AXIAL BEARING	COOLING WATER PIPING MATERIALS	
19		MONITORS AND CABLES SUPPLIED BY (7.4.2.4)	COOLING WATER REQUIREMENTS:	
20			BEARING HOUSING	gpm
21		TEMPERATURE (7.4.2.3)	HEAT EXCHANGER	gpm
22		PROVISIONS FOR TEMP PROBES	TOTAL COOLING WATER	gpm
23		RADIAL BEARING TEMP.	HEATING MEDIUM	
24		NUMBER PER RADIAL BEARING	OTHER	
25		THRUST BEARING TEMP.	HEATING PIPING	
26		NUMBER PER THRUST BEARING ACTIVE SIDE	PIPING & APPURTENANCES	
27		NUMBER PER THRUST BEARING INACTIVE SIDE	MANIFOLD PIPING FOR PURCHASER CONNECTION (7.5.1.6)	
28		TEMP. GAUGES (WITH THERMOWELLS) (9.1.3.6)	VENT	
29		PRESSURE GAUGE TYPE	DRAIN	
30		Remarks	COOLING WATER	
31			TAG ALL ORIFICES (7.5.2.4)	
32			SOCKET WELD CONN ON SEAL GLAND (7.5.2.8)	
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CENTRIFUGAL PUMP DATA SHEET

1	Note	SURFACE PREPARATION AND PAINT					TEST		Rev
2	MANUFACTURER'S STANDARD						SHOP INSPECTION (8.1.1)		
3	OTHER (SEE BELOW)						PERFORMANCE CURVE		
4	SPECIFICATION NO. _____						& DATA APPROVAL PRIOR TO SHIPMENT.		
5							TEST WITH SUBSTITUTE SEAL (8.3.3.2.b)		
6	PUMP:						MATERIAL CERTIFICATION REQUIRED	CASING	YES
7	PUMP SURFACE PREPARATION		SSPC-SP6				(6.12.1.8) IMPELLER	YES	
8	PRIMER		-				SHAFT	YES	
9	FINISH COAT		HEAT-FLEX				OTHER		
10							CASTING REPAIR WELD PROCEDURE APPR REQD		YES
11	BASEPLATE:						(6.12.2.5) (6.12.3.1)		
12	BASEPLATE SURFACE PREPARATION		SSPC-SP 10 / NACE2				INSPECTION REQUIRED FOR CONNECTION WELDS (6.12.3.4.d)		
13	PRIMER:		-				(6.12.3.4.e) MAG PARTICLE		
14	FINISH COAT		MACROPOXY				RADIOGRAPHY		
15	DETAILS OF LIFTING DEVICES						LIQUID PENETRANT	YES	
16							ULTRASONIC		
17	SHIPMENT: (8.4.1)		EXPORT				INSPECTION REQUIRED FOR CASTINGS		
18	EXPORT BOXING REQUIRED		YES				MAG PARTICLE	NO	
19	OUTDOOR STORAGE MORE THAN 6 MONTHS						RADIOGRAPHY		
20	SPARE ROTOR ASSEMBLY PACKAGED FOR:						LIQUID PENETRANT	YES	
21	ROTOR STORAGE ORIENTATION (9.2.8.2)		HORIZONTAL				ULTRASONIC		
22	SHIPPING & STORAGE CONTAINER FOR VERT STORAGE (9.2.8.3)						HARDNESS TEST REQUIRED (8.2.2.7)	NO	
23	N2 PURGE (9.2.8.4)						ADDNL SUBSURFACE EXAMINATION (6.12.1.5) (8.2.1.3)		
24	SPARE PARTS						FOR		
25	START-UP						METHOD		
26	NORMAL MAINTENANCE						PMI TESTING REQUIRED (8.2.2.8)		
27							COMPONENTS TO BE TESTED		
28	WEIGHTS lb						RESIDUAL UNBALANCE TEST (J.4.1.2)		
29	ITEM No	PUMP	DRIVER	GEAR	BASE	TOTAL	NOTIFICATION OF SUCCESSFUL SHOP		
30	P2552A/B	487.0	584.0		1807.1	2878.1	PERFORMANCE TEST (8.1.1.c) (8.3.3.5)	YES	
31							BASEPLATE TEST (7.3.21)	NO	
32							HYDROSTATIC	NON-WIT	
33	OTHER PURCHASER REQUIREMENTS						HYDROSTATIC TEST OF BOWLS & COLUMN (9.3.13.2)		
34	COORDINATION MEETING REQUIRED (10.1.3)						PERFORMANCE TEST	NON-WIT	
35	MAXIMUM DISCHARGE PRESSURE TO INCLUDE						TEST IN COMPLIANCE WITH (8.3.3.2)		
36	MAX RELATIVE DENSITY						TEST DATA POINTS TO (8.3.3.3)		
37	OPERATION TO TRIP SPEED						TEST TOLERANCES TO (8.3.3.4)		
38	MAX DIA. IMPELLERS AND/OR NO OF STAGES						NPSH (8.3.4.3.1) (8.3.4.3.4)	NON-WIT	
39	CONNECTION DESIGN APPROVAL (9.2.1.4)						NPSH-1ST STG ONLY (8.3.4.3.2)		
40	TORSIONAL ANALYSIS / REPORT (6.9.2.10)		NO				NPSH TESTING TO HI 1.6 OR ISO 9906 (8.3.4.3.3)		
41	PROGRESS REPORTS		YES				TEST NPSHA LIMITED TO 110% SITE NPSHA (8.3.3.6)		
42	OUTLINE OF PROC FOR OPTIONAL TESTS (10.2.5)						RETEST ON SEAL LEAKAGE (8.3.3.2.d)		A
43	ADDITIONAL DATA REQUIRING 20 YEARS RETENTION (8.2.1.1)						RETEST REQUIRED AFTER FINAL HEAD ADJ (8.3.3.7.b)		
44							COMPLETE UNIT TEST (8.3.4.4.1)		
45	LATERAL ANALYSIS REQUIRED (9.1.3.4) (9.2.4.1.3)		NO				SOUND LEVEL TEST (8.3.4.5)		
46	MODAL ANALYSIS REQUIRED (9.3.9.2)		NO				CLEANLINESS PRIOR TO FINAL ASSEMBLY (8.2.2.6)		
47	DYNAMIC BALANCE ROTOR (6.9.4.4)			IMPELLER ONLY			LOCATION OF CLEANLINESS INSPECTION		
48	INSTALLATION LIST IN PROPOSAL (10.2.3.1)		NO				NOZZLE LOAD TEST		
49	VFD STEADY STATE DAMPED RESPONSE ANALYSIS (6.9.2.3)						CHECK FOR CO-PLANAR MOUNTING PAD SURFACES		
50							MECHANICAL RUN TEST UNTIL OIL TEMP STABLE		
51	TRANSIENT TORSIONAL RESPONSE (6.9.2.4)		NO				4 HR. MECH RUN AFTER OIL TEMP STABLE (8.3.4.2.1)		
52	BEARING LIFE CALCULATIONS REQUIRED (6.10.1.6)						4 HR. MECH RUN TEST (8.3.4.2.2)		
53	IGNITION HAZARD ASSMT TO EN 13463-1 (7.2.13.e)						BRG HSG RESONANCE TEST (8.3.4.7)		
54	CASING RETIREMENT THICKNESS DRAWING (10.3.2.3)						STRUCTURAL RESONANCE TEST (9.3.9.2)		
55	FLANGES RQD IN PLACE OF SKT WELD UNIONS (7.5.2.8)		YES				REMOVE / INSPECT HYDRODYNAMIC BEARINGS AFTER TEST		
56	INCLUDE PLOTTED VIBRATION SPECTRA (6.9.3.3)						(9.2.7.5)		
57	CONNECTION BOLTING (7.5.1.7)						AUXILIARY EQUIPMENT TEST (8.3.4.6)		
58	CADMIUM PLATED BOLTS PROHIBITED						EQUIPMENT TO BE INCLUDED IN AUXILLIARY TESTS		
59	VENDOR TO KEEP REPAIR AND HT RCDS (8.2.1.1.c)						LOCATION OF AUXILIARY EQUIPMENT TEST		
60	VENDOR SUBMIT TEST PROCEDURES (8.3.1.1)								
61	SUBMIT INSPECTION CHECK LIST (8.1.5)						IMPACT TEST (6.12.4.3) PER EN 13445		
62							PER ASME SECTION VIII		
							REMOVE CASING AFTER TEST		

1	Note	VERTICAL TYPE (FIG 1.1) 		Rev
2	REMARKS			
3				
4				
5				
6	VERTICAL PUMPS		VERTICAL PUMPS (CONT'D)	
7	PUMP THRUST:	(+) UP	(-) DOWN	LINE SHAFT:
8	STATIC THRUST	_____ lbf	_____ lbf	LINE SHAFT DIAMETER _____ in.
9	AT MIN FLOW	_____ lbf	_____ lbf	TUBE DIAMETER _____ in.
10	AT RATED FLOW	_____ lbf	_____ lbf	LINE SHAFT COUPLING:
11	AT MAX FLOW	_____ lbf	_____ lbf	LINESHAFT CONNECTION
12	MAX THRUST	_____ lbf	_____ lbf	
13	SOLEPLATE REQUIRED			<ul style="list-style-type: none"> SUCTION STRAINER TYPE LEVEL CONTROL
14	SOLEPLATE Length x Width	_____ ft	X _____ ft	IMPELLER COLLETS ACCEPTABLE
15	SOLEPLATE THICKNESS		_____ in.	HARDENED SLEEVES UNDER BEARINGS (9.3.10.5)
16	MOUNTING FLANGE REQUIRED			RESONANCE TEST
17	COLUMN PIPE:			STRUCTURAL ANALYSIS (9.3.5)
18	DIAMETER		_____ in.	DRIVER ALIGNMENT SCREWS
19	LENGTH		_____ ft	SUCTION CAN
20	NUMBER		_____	SUCTION CAN THICKNESS _____ in.
21	SPACING		_____ ft	LENGTH _____ ft
22	GUIDE BUSHINGS:			DIAMETER _____ in.
23	NUMBER		_____	SEPARTATE MOUNTING PLATE (9.3.8.3.1)
24	LINE SHAFT BEARING SPACING		_____ in.	PROVIDE SEPARATE SOLEPLATE (9.3.8.3.3)
25	GUIDE BUSHING LUBE:			DRAIN PIPED TO SURFACE (9.3.13.5)
26				BOWL HEAD CALCULATION REQUIRED
27				
28				
29	MATERIALS (additional)			
30	SUCTION CAN / BARREL:	_____	LINESHAFT SLEEVES :	_____
31	DISCHARGE HEAD • 	_____	BEARING RETAINER :	_____
32	BOWL SHAFT :	_____	SHAFT ENCLOSING TUBE :	_____
33	LINESHAFT :	_____	DISCHARGE COLUMN :	_____
34	LINESHAFT HARDFACING :	_____	PRESSURE RATING:	MAWP HYDRO
35	BELLMOUTH :	_____	HEAD	_____
36	BOWL BEARING :	_____	COLUMN PIPE	_____
37	LINESHAFT BEARING :	_____	BOWL	_____
38	SUMP ARRANGEMENT			
39	SUMP DIMENSIONS :			
40	GRADE ELEVATION	1	_____	ft
41	LOW LIQUID LEVEL	2	_____	ft
42	C.L. OF DISCHARGE	3	_____	ft
43	SUMP DEPTH	l_1	_____	ft
44	PUMP LENGTH	l_2	_____	ft
45	GRADE TO DISCH.	l_3	_____	ft
46	GRADE TO LOW LIQUID LVL	l_4	_____	ft
47	GRADE TO 1ST STG IMPL'R.	l_5	_____	ft
48	SUBMERGENCE REQ'D	l_6	_____	ft
49	SUMP DIAMETER	Φd	_____	ft
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CENTRIFUGAL PUMP DATA SHEET

1	Note	PRESSURE VESSEL DESIGN CODE REFERENCES	Rev																								
2		THESE REFERENCES MUST BE LISTED BY THE MANUFACTURER																									
3		CASTING FACTORS USED IN DESIGN (TABLE 3)																									
4		SOURCE OF MATERIAL PROPERTIES																									
5																											
6		WELDING AND REPAIRS																									
7		THESE REFERENCES MUST BE LISTED BY THE PURCHASER. (DEFAULT TO TABLE 10 IF NO PURCHASER PREFERENCE IS STATED)																									
8		ALTERNATE WELDING CODES AND STANDARDS																									
9		WELDING REQUIREMENT (APPLICABLE CODE OR STANDARD)																									
10		WELDER/OPERATOR QUALIFICATION																									
11		WELDING PROCEDURE QUALIFICATION																									
12		NON-PRESSURE RETAINING STRUCTURAL WELDING SUCH AS BASEPLATES OR SUPPORTS																									
13		MAGNETIC PARTICLE OR LIQUID PENETRANT EXAMINATION OF PLATE EDGES																									
14		POSTWELD HEAT TREATMENT																									
15		POSTWELD HEAT TREATMENT OF CASING FABRICATION WELDS																									
16																											
17		MATERIAL INSPECTION																									
18		THESE REFERENCES MUST BE LISTED BY THE PURCHASER DEFAULT TO TABLE 14																									
19		ALTERNATIVE MATERIAL INSPECTIONS AND ACCEPTANCE CRITERIA (SEE TABLE 14) (8.2.2.5)																									
20		<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:35%;">TYPE OF INSPECTION</th> <th style="width:20%;">METHOD</th> <th style="width:20%;">FOR FABRICATIONS</th> <th style="width:25%;">FOR CASTINGS</th> </tr> </thead> <tbody> <tr> <td>RADIOGRAPHY</td> <td></td> <td></td> <td></td> </tr> <tr> <td>ULTRASONIC INSPECTION</td> <td></td> <td></td> <td></td> </tr> <tr> <td>MAGNETIC PARTICLE INSPECTION</td> <td></td> <td></td> <td></td> </tr> <tr> <td>LIQUID PENETRANT INSPECTION</td> <td></td> <td></td> <td></td> </tr> <tr> <td>VISUAL INSPECTION (all surfaces)</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	TYPE OF INSPECTION	METHOD	FOR FABRICATIONS	FOR CASTINGS	RADIOGRAPHY				ULTRASONIC INSPECTION				MAGNETIC PARTICLE INSPECTION				LIQUID PENETRANT INSPECTION				VISUAL INSPECTION (all surfaces)				
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NOTES

1	Note	Rev
2	1.- IF THE CUSTOMER WANTS TO USE FOG OIL REMOVE PLAN A AND REMOVE CONSTANT OIL LEVEL	
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