PROCESS DATA SHEET FOR SEA WATER PUMPS TO WATER TREATMENT PACKAGE

PROCESS DATA SHEET FOR CENTRIFUGAL PUMP

1	**DESIGN DATA**										
2	ITEM	149-P-106 A/B			NO. OF MAIN / STAND-BY UNITS			1	/	1	
3	SERVICE	SEA WATER PUMPS			INSTALLATION	indoor-outdoor-other		OUTDOOR			
4	OPERATION:	Continuous-Discontinuous-Other	Continuous		Parallel-Single-Other	Parallel					
5	TYPE OF DRIVER	Electrical Motor	FOR UNITS	149-P-106 A/B	DATA SHEET NO.						
6	TYPE OF DRIVER		FOR UNITS		DATA SHEET NO.						
7	ELECTRICAL SUPPLY:		VOLTAGE	V	FREQUENCY		**Hz**	PHASE NO.			
8	**CHARACTERISTICS OF HANDLED LIQUID**										
9	TYPE OF HANDLED LIQUID							SEA WATER			
10	PUMPING TEMPERATURE	(2) MIN / NORM / MAX	/	/	**°C**	13	/	20	/	35	
11	DENSITY AT TEMPERATURE MIN / NORM / MAX		/	/	**kg/m³**		/		/	1034	
12	VISCOSITY AT TEMPERATURE MIN / NORM / MAX		/	/	**mPa.s**	1.3	/	1.05	/		
13	VAPOUR PRESSURE AT MAX PUMPING TEMPERATURE				**bar a**			0.05			
14	FREEZING POINT / POUR POINT			/	**°C**			/			
15	DISSOLVED GAS				(yes-no)			No			
16	CORROSIVE / EROSIVE / HAZARDOUS AGENTS				(yes-no)	YES (4)	/	No	/	N.A.	
17	SUSPENDED SOLIDS:	TYPE / DIMENSIONS / VOLUME %			**mm**			/	/		
18	**OPERATING CONDITIONS (8)**										
19	SUCTION PRESSURE	MIN / NORM / MAX	/	/	(5) (9) **barg**	0.15	/	0.5	/	0.8	
20	DISCHARGE PRESSURE AT RATED CAPACITY				**barg**			5 (6)			
21	DIFFERENTIAL PRESSURE AT RATED CAPACITY				**bar**			4.85			
22	CAPACITY	MIN / NORM / RATED	/	/	**m³/h**	40	/	120	/	132	
23	HEAD AT RATED CAPACITY			(1)	**m**			47.9			
24	NPSH AVAILABLE			(3)	**m**			> 7			
25	MAX ALLOWABLE PRESSURE AT SHUT-OFF				**barg**			6.67			
26	ESTIMATED ABSORBED POWER AT PUMP SHAFT				**KW**			19.1			
27	FLOW CONTROLLED BY:	Pressure Controller - Level Controller - Flow Controller - other						Flow Controller			
28	REACCELERATION / AUTOMATIC START-UP				(yes-no)	NO	/	NO			
29	START-UP WITH DELIVERY VALVE:	OPEN - CLOSED						CLOSED			
30											
31											
32											
33	**MECHANICAL DATA**										
34	SEALING TYPE										
35	CONTAMINATION OF LIQUID HANDLED ALLOWED				(yes-no)			NO			
36	AIR ENTRAINMENT ALLOWED				(yes-no)			NO			
37	LEAKS ALLOWED				(yes-no)			YES			
38	ANTI FREEZING PROTECTION				(yes-no)			NO			
39											
40											
41											
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PROCESS DATA SHEET FOR CENTRIFUGAL PUMP

1	**MECHANICAL DATA (7)**						
2	SUCTION LINE:	DIAMETER / RATING / FACING	ANSI	**NPS**	BELLTYPE (8)	150#	
3	DISCHARGE LINE:	DIAMETER / RATING / FACING	ANSI	**NPS**	4" (8)	150#	RF
4	VENT / DRAIN REQUIRED			(yes-no)	YES	/	YES
5	MATERIAL IN CONTACT WITH LIQUID HANDLED (minimum requirement)					DUPLEX	
6	PUMP CASING MATERIAL (minimum requirement)					DUPLEX	
7	PUMP IMPELLER MATERIAL (minimum requirement)						
8	PUMP INTERNAL PARTS MATERIAL (minimum requirement)						
9	CASING CORROSION ALLOWANCE			**mm**			
10	MINIMUM DESIGN METAL TEMP. / AT A PRESSURE OF			**°C / barg**		/	
11	COOLING FLUID:	TYPE / DESIGN PRESS. / OPERATING TEMP.		**barg / °C**		/	/
12	HEATING FLUID:	TYPE / DESIGN PRESS. / OPERATING TEMP.		**barg / °C**		/	/
13							
14	**FLUSHING FLUID**						
15	TYPE						
16	PRESSURE	MIN / NORM /MAX		**barg**	/		**/**
17	TEMPERATURE	MIN / NORM /MAX		**°C**	/		**/**
18	DENSITY AT TEMPERATURE	MIN / NORM /MAX		**kg/m^3**	/		**/**
19	VAPOR PRESSURE AT MAX TEMPERATURE			**bara**			
20	FREEZING POINT / POUR POINT			**°C**		/	
21	HAZADOUS AGENTS			(yes-no)			
22							
23							
24							
25							
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PROCESS DATA SHEET FOR CENTRIFUGAL PUMP

1	MFR		MODEL	
2	PURCHASE ORDER	NO.	REV.	DATE
3	OFFER	NO.	REV.	DATE
4	CODS AND STANDARD FOR CONSTRUCTION			

	PERFORMANCES		REQUIRED DATA	SUPPLIER DATA
5				
6	CHARACTERISTIC CURVE NO.			
7	RATED CAPACITY (LINE 22SH.)	**m^3/h**		
8	CAPACITY AT BEST EFFICIENCY POINT	**m^3/h**		
9	MINIMUM CONTINUOUS CAPACITY	**m^3/h**		
10	HEAD AT RATED CAPACITY (LINE 23 SH.)	**m**		
11	MAXIMUM HEAD	**m**		
12	HEAD WITH MAXIMUM IMPELLER DIAMETER	**m**		
13				
14				
15	PUMP SPEED	**RPM**		
16	NPSH REQUIREMENT AT RATED CAPACITY	**m**		
17	EFFICIENCY AT RATED CAPACITY	%		
18	ELECTERICAL POWER	**KW**		
19	MAX ABSORBED POWER WITH IMPELLER DESIGN / MAX DIAMETER	**KW**	**/**	**/**
20	ABSORBED POWER BY OIL PUMP / HEATER	**KW**	**/**	**/**
21	DIFFERENCE:(NPSH AVAILABLE - NPSH REQUIRED)	**m**		
22	MAX OPERATION TIME AT SHUT - OFF	**S**		
23	RATIO: IMPELLER DIAMETER / IMPELLER EYE AREA			
24	SPECIFIC SPEED			
25	SUCTION SPECIFIC SPEED			
26	CAPACITY RATIO: RATED / AT B.E.P.			
27	HEAD RATIO:MAX / AT RATED CAPACITY			
28	HEAD RATIO: WITH MAX/ WITH DESIGN DIAMETER OF IMPELLER			
29	**CONSTRUCTION FEATURES**			
30	MAX ALLOWABLE TEMPERATURE	**°C**		
31	MAX ALLOWABLE PRESSURE AT MAX ALLOWABLE TEMPERATURE	**barg**		
32	HYDROSTATIC TEST PRESSURE	**barg**		
33	ALLOWABLE LOADS ON FLANGES AS PER API 610	(yes-no)		
34	30/11/2017	**RPM**		
35	MOMENT OF INERTIA	**$kg.m^2$**		
36	AXIAL THRUST ON SHAFT (+ = to driver; - = opposite to driver)	**N**		
37	MAX TORQUE AT 100% OF PUMP SPEED	**N.m**		
38	MASSES: PUMP / 1GEARBOX / BASEPLATE	**kg**		
39	DRIVER / TOTAL	**kg**	**/**	**/**
40	OUTLINE DIMENSIONS OF UNIT LENGTH / WIDTH / HEIGHT	**m**		
41	NOISE LEVEL OF COMPLETE UNIT: SPL AT 1m / PWL	**dB(A)**	85 **/**	**/**
42				
43				
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PROCESS DATA SHEET FOR CENTRIFUGAL PUMP

	CONSTRUCTION FEATURES			REQUIRED DATA	SUPPLIER DATA
2	CASING	MOUNTING:	Centerline - Foot - Near Centerline		
3		SPLIT:	Axial - Radial - Barrel		
4		TYPE:	Single Volute -Double Volute - Diffuser		
5		THICKNESS / CORROSION ALLOWANCE	**mm**	/	/
6	IMPELLER:	NUMBER			
7		TYPE:	open - closed		
8		DIAMETER:	MIN / DESIGN / MAX **mm**		
9		MOUNTING:	overhung -between bearings		
10		CONFIGURATION:	one way - opposed		
11		1 st STAGE SUCTION:	single - double		
12	ROTATION VIEWED FROM COUPLING END		**(CW-CCW)**		
13	CASING WEAR RINGS:		SUCTION / REAR (yes-no)	/	/
14	IMPELLER WEAR RINGS:		SUCTION / REAR (yes-no)	/	/
15	RADIAL / THRUST BEARING TYPE			/	/
16	LUBRICATION TYPE:		grease - oil ring - forced		
17	SUCTION NOZZLE:		SIZE / RATING / FACING **NPS**		
18			FINISHING / LOCATION	/	/
19	DISCHARGE NOZZLE:		SIZE / RATING / FACING **NPS**		
20			FINISHING / LOCATION	/	/
21	SEAL:	TYPE			
22		MANUFACTURER / MODEL		/	/
23		API CODE			
24		API FLUSHING PLAN			
25		STUFFING BOX PRESSURE	**bar**		
26		SHAFT DIAMETER AT SEAL	**mm**		
27	EXTERNAL FLUSHING CONSUMPTION		**m^3/h**		
28	PUMP COOLING API PLAN / CONSUMPTION		**m^3/h**	/	/
29	HEATING FLUID CONSUMPTION		**kg/h**		
30	COUPLING MANUFACTURER / MODEL			/	/
31	GEARBOX:	TYPE / MANUFACTURER		/	/
32		AGMA SERVICE FACTOR			
33		INLET / OUTLET ROTATIONAL SPEED	**RPM**	/	/
34		DATA SHEET NO.			
35	**MATERIALS(7)**				
36	API 610 CODE				
37	CASING / BARREL			/	/
38	IMPELLER				
39	SHAFT SLEEVE				
40	SHAFT				
41	CASING / IMPELLER WEAR RINGS			/	/
42	INTERNAL PARTS				
43	FLUSHING / COOLING / OIL PIPING				
44	BASEPLATE				
45					

PROCESS DATA SHEET FOR CENTRIFUGAL PUMP

EXTENSION OF SUPPLY (☒ INCLUSIONS)

☐	DRIVERS	☐	GEARBOXES			☐	COMMON BASEPLATES FOR PUMP / DRIVER / GEARBOX	
☐	COUPLINGS	☐	COUPLING GUARDS	☐	NOT-SPARKING	☐	FOUNDATION BOLTS	☐ BOLTS FOR DRIVERS AND GEARBOXES
☐	UNITS ASSEMBLY AT FACTORY					☐	CASING DRAINS	☐ WITH VALVES
☐	MECHANICAL SEALS					☐	CASING VENTS	☐ WITH VALVES
☐	MECHANICAL SEAL ACCESSORIES					☐	SHOP TESTS	
☐	COOLING AND FLUSHING PIPING					☐	SPARE PARTS FOR START-UP	
☐	LUBRICATION SYSTEM					☐	SPARE PARTS FOR 2 YEARS OF OPERATION	
☐	SHOP FABRICATION OF PIPING FROM OIL CONSOLE TO PUMP					☐	SPECIAL TOOLS AND WRENCHES	
☐						☐	INSTRUCTION MANUALS NO.	COPIES(IN ENGLISH)
☐						☐		
☐						☐		
☐						☐		

PROCESS DATA SHEET FOR CENTRIFUGAL PUMP

NOTES

1) The choice of pump having a max. head more than 1.2 times the design head shall be subjected to the Process Dept approval.
2) Pump Design Temperature for solar radiation: 85°C
3) Referenced at grade.
4) Total dissolved solid (TDS) < 45560 mg/l; pH = 8.2; CI2 = 2 to 5 mg/l (CHLORINATION).
5) Design Suction Pressure: 2 bar g
6) Discharge pressure will be finalized later in detail design.
7) To be confirmed by mechanical department.
8) Will be finalized after receiving vendor's data.
9) For calculating the suction pressure, it is supposed that the sea water will be taken from intake and the suction side was located under sea water surface (-8 m Max.).
   This will be finalized after finalizing the water source.