

DATA SHEET

FOR

**DISPLACEMENT PROPYLENE PUMPS
(10P008A/B)**

1	Note	APPLICABLE TO:	PROPOSAL	APPLICABLE NTL/INTNTL STANDARD:		API-610		Rev	
2		FOR			UNIT	10			
3		SITE			SERVICE	Displacement Propylene Pumps			
4		NO. REQ	2	PUMP SIZE	TYPE	OH6	No. STAGES	1	
5		MANUFACTURER			MODEL	SERIAL NO.			
6		LIQUID CHARACTERISTICS							
7			Units	Maximum	Normal	Minimum	Note	SERVICE : CONTINUOUS	
8		LIQUID TYPE OR NAME :	Hydrocarbon				Max & min values refer only to the property listed	PUMPS OPERATE IN: CORROSION DUE TO : (6.12.1.9) EROSION DUE TO : (6.12.1.9) H2S CONCENTRATION (ppm) : (6.12.1.12) CHLORIDE CONCENTRATION (ppm) : PARTICULATE SIZE (DIA IN MICRONS) PARTICULATE CONCENTRATION (PPM)	
9		VAPOR PRESSURE :	bar a		14.64				
10		RELATIVE DENSITY :			0.491				
11		SPECIFIC HEAT :	kJ/(kg-K)		2.72				
12		VISCOSITY :	cP		0.06				
13	4	OPERATING CONDITIONS (6.1.2)							
14			Units	Maximum	Rated	Normal	Minimum		
15		NPSHa Datum:		C.L. Impeller					
16		PUMPING TEMPERATURE :	°C			36			
17		FLOW :	m³/h		12.6	11.4			
18		DISCHARGE PRESSURE:(6.3.2)	bar a		47.74				
19		SUCTION PRESSURE :	bar a	34.29	14.78				
20		DIFFERENTIAL PRESSURE :	bar		32.96				
21		DIFFERENTIAL HEAD :	m		685.40				
22		NPSH _A :	m		2.40				
23		HYDRAULIC POWER :	kW						
24	1	SITE AND UTILITY DATA							
25		LOCATION:				COOLING WATER :			
26		OUTDOOR UNHEATED				INLET RETURN DESIGN			
27		MOUNTED AT : GRADE TROPICALISATION REQD				TEMP °C MAX			
28		ELECTRIC AREA CLASSIFICATION: 6.1.22 ZONE				PRESS. bar g MIN			
29		GROUP TEMP CLASS				SOURCE CIRCULATION COOLING WATER SYSTEM			
30		SITE DATA :				COOLING WATER CHLORIDE CONCENTRATION: ppm			
31		ELEVATION (MSL) : m BAROMETER : bar				INSTRUMENT AIR : MAX bar g MIN bar g			
32		RANGE OF AMBIENT TEMPS:MIN / MAX / °C				STEAM			
33		RELATIVE HUMIDITY: MIN / MAX / %				DRIVERS HEATING			
34		UNUSUAL CONDITIONS: DUST & FUMES				TEMP °C Max			
35		SANDSTORM,TUNDER & LIGHTENING				Min			
36		UTILITY CONDITIONS :				PRESS. bar g Max			
37		ELECTRICITY : DRIVERS HEATING CONTROL SHUTDOWN				Min			
38		VOLTAGE 400							
39		PHASE 3							
40		HERTZ 50							
41		PERFORMANCE				DRIVER (7.1.5)			
42	5	PROPOSAL CURVE NO. RPM				Driver Type MOTOR			
43		As Tested Curve No.				GEAR NO			
44		IMPELLER DIA.: RATED MAX. MIN. mm				VARIABLE SPEED REQUIRED NO			
45		RATED POWER kW EFFICIENCY (%)				SOURCE OF VARIABLE SPEED			
46		RATED CURVE BEP FLOW (at rated impeller dia) m³/h				OTHER SQUIRREL CAGE, DIRECT ONLINE, TEFC, INSULATION CLASS F/B			
47		MIN FLOW : THERMAL m³/h STABLE m³/h				MANUFACTURER			
48		PREFERRED OPERATING REGION (6.1.11) to m³/h				NAMEPLATE POWER kW			
49		ALLOWABLE OPERATING REGION to m³/h				NOMINAL RPM			
50		MAX HEAD @ RATED IMPELLER m				RATED LOAD RPM			
51		MAX POWER @ RATED IMPELLER (6.8.9) kW				FRAME OR MODEL			
52		NPSH3 AT RATED FLOW : m				ORIENTATION HORIZONTAL			
53		CL PUMP TO U/S BASEPLATE m				LUBE			
54		NPSH MARGIN AT RATED FLOW : m				BEARING TYPE:			
55		SPECIFIC SPEED (6.1.9) m3/h, rpm, m				RADIAL			
56		SUCTION SPECIFIC SPEED LIMIT				THRUST			
57		SUCTION SPECIFIC SPEED m3/h, rpm, m				STARTING METHOD			
58		MAX. ALLOW. SOUND PRESS. LEVEL REQD (6.1.14) 85 (dBA)				SEE DRIVER DATA SHEET			
59		EST MAX SOUND PRESS. LEVEL (dBA)				FOR STARTING METHOD SEE DOC. NO. 1229-00-EL-MSS-521 ITEM 4.5			
60		MAX. SOUND POWER LEVEL REQ'D (6.1.14)							
61		EST MAX SOUND POWER LEVEL							

1	Note	CONSTRUCTION				Rev																																																	
2	6	API PUMP TYPE: OH6 [Based on API 610 definitions]				CASING MOUNTING: IN-LINE																																																	
3						CASING TYPE: (6.3.10)																																																	
4	7	NOZZLE CONNECTIONS: (6.5.5)				OH3 BACKPULLOUT LIFTING DEVICE REQD. (9.1.2.6)																																																	
5		<table><tr><th>Size</th><th>Facing</th><th>Rating</th><th>Position</th></tr><tr><td></td><td>RF</td><td>600</td><td>IN-LINE</td></tr><tr><td></td><td>RF</td><td>600</td><td>IN-LINE</td></tr></table>				Size	Facing	Rating	Position		RF	600	IN-LINE		RF	600	IN-LINE	CASE PRESSURE RATING:																																					
Size	Facing	Rating	Position																																																				
	RF	600	IN-LINE																																																				
	RF	600	IN-LINE																																																				
6		SUCTION				MAWP : (6.3.6) bar g @ °C																																																	
7		DISCHARGE				HYDROTEST : bar g @ °C																																																	
8		PRESSURE CASING AUX. CONNECTIONS: (6.4.3.2)																																																					
9		<table><tr><th>No.</th><th>Size</th><th>Type</th><th>Facing</th><th>Rating</th><th>Posn.</th></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>				No.	Size	Type	Facing	Rating	Posn.																																											HYDROTEST OH PUMP AS ASSEMBLY	
No.	Size	Type	Facing	Rating	Posn.																																																		
10		BALANCE/LEAK OFF				SUCT'N PRESS. REGIONS DESIGNED FOR MAWP YES																																																	
11		DRAIN				ROTATION: (VIEWED FROM COUPLING END)																																																	
12		VENT				• IMPELLERS INDIVIDUALLY SECURED :																																																	
13		PRESSURE GAGE				• BOLT OH 3/4/5 PUMP TO PAD / FOUNDATION :																																																	
14		TEMP GAGE				• PROVIDE SOLEPLATE FOR OH 3/4/5 PUMPS																																																	
15		WARM-UP LINE				ROTOR:																																																	
16						SHAFT FLEXIBILITY INDEX (SFI) (9.1.1.3)																																																	
17		Drain Valve Supplied By SUPPLIER				First Critical Speed Wet (Multi stage pumps only)																																																	
18		DRAINS MANIFOLDED YES				COMPONENT BALANCE TO ISO 1940 G1.0 YES																																																	
19		VENT Valve Supplied By SUPPLIER				SHRINK FIT -LIMITED MOVEMENT IMPELLERS (9.2.2.3) YES																																																	
20		VENTS MANIFOLDED YES																																																					
21		THREADED CONS FOR PIPELINE SERVICE & < 50°C (6.4.3.2) NO				COUPLING:(7.2.3) (7.2.13.f)																																																	
22		SPECIAL FITTINGS FOR TRANSITIONING (6.4.3.3) NO				MANUFACTURER																																																	
23		CYLINDRICAL THREADS REQUIRED (6.4.3.8)				MODEL																																																	
24		GUSSET SUPPORT REQUIRED				RATING (POWER/100 RPM)																																																	
25		MACHINED AND STUDDED CONNECTIONS (6.4.3.12)				SPACER LENGTH mm																																																	
26		VS 6 DRAIN				SERVICE FACTOR																																																	
27		DRAIN TO SKID EDGE YES				RIGID NO																																																	
28						COUPLING WITH HYDRAULIC FIT (7.2.10) NO																																																	
29		MATERIAL (6.12.1.1)				COUPLING BALANCED TO ISO 1940-1 G6.3 (7.2.3)																																																	
30		APPENDIX H CLASS				COUPLING WITH PROPRIETARY CLAMPING DEVICE (7.2.11)																																																	
31		MIN DESIGN METAL TEMP (6.12.4.1) -48 °C				COUPLING IN COMPLIANCE WITH (7.2.4)																																																	
32		REDUCED-HARDNESS MATERIALS REQ'D (6.12.1.12.1)				COUPLING GUARD STANDARD PER (7.2.13.a)																																																	
33		Applicable Hardness Standard (6.12.1.12.3)				Window on Coupling Guard																																																	
34		BARREL : 316 SS				NON SPARK COUPLING GUARD TO BE USED																																																	
35		CASE : 316 SS				BASEPLATE																																																	
36		DIFFUSERS				API BASEPLATE NUMBER :																																																	
37		IMPELLER : 316 SS				BASEPLATE CONSTRUCTION (7.3.14)																																																	
38		IMPELLER WEAR RING :				BASEPLATE DRAINAGE (7.3.1) Partial Drain Pan																																																	
39		CASE WEAR RING :				MOUNTING : GROUTED																																																	
40		SHAFT:				NON-GROUT CONSTRUCTION : (7.3.13) NOT REQUIRED																																																	
41		Bowl (if VS-type)				VERTICAL LEVELING SCREWS : REQUIRED																																																	
42		Inspection Class Level 3				LONGITUDINAL DRIVER POSITIONING SCREWS : REQUIRED																																																	
43		BEARINGS AND LUBRICATION (6.10.1.1)				SUPPLIED WITH : • GROUT AND VENT HOLES YES																																																	
44		BEARING (TYPE / NUMBER): (6.11.4)				• DRAIN CONNECTION YES																																																	
45		RADIAL SLEEVE /				MOUNTING PADS SIZED FOR BASEPLATE LEVELING (7.3.5) YES																																																	
46		THRUST SLEEVE /				MOUNTING PADS TO BE MACHINED (7.3.6) YES																																																	
47		REVIEW AND APPROVE THRUST BEARING SIZE : (9.2.5.2.4)				PROVIDE SPACER PLATE UNDER ALL EQUIPMENT FEET YES																																																	
48						OTHER																																																	
49	3	LUBRICATION : (6.10.2.2) (6.11.3) (9.6.1) PURGE OIL MIST																																																					
50		PRESSURE LUBE SYSTEM TO ISO 10438- (9.2.6.5)																																																					
50		ISO 10438 DATA SHEETS ATTACHED																																																					
51		Pressurized Lube Oil System mtd on pump baseplate																																																					
52		Location of Pressurized Lube Oil System mounted on baseplate :																																																					
53																																																							
54		INTERCONNECTING PIPING PROVIDED BY Supplier				REMARKS :																																																	
55																																																							
56		OIL VISC. ISO GRADE VG																																																					
57		CONSTANT LEVEL OILER : REQUIRED																																																					

1	Note	INSTRUMENTATION		SEAL SUPPORT SYSTEM MOUNTING		Rev
2		SEE ATTACHED API-670 DATA SHEET	NO	SEAL SUPPORT SYSTEM MOUNTED ON PUMP BASEPLATE		
3		ACCELEROMETER (7.4.2.1)		(7.5.1.4)	YES	
4		Number of Accelerometers		IDENTIFY LOCATION ON BASEPLATE		
5		Mounting Location of Accelerometers				
6				INTERCONNECTING PIPING BY	Supplier	
7		PROVISION FOR MTG ONLY (6.10.2.10)		MECHANICAL SEAL (6.8.1)		
8	8-11	Number of Accelerometers		SEE ATTACHED ISO 21049/API 682 DATA SHEET		
9		Mounting Location of Accelerometers		ADDITIONAL CENTRAL FLUSH PORT (6.8.9)		
10				HEATING JACKET REQ'D. (6.8.11)		
11		FLAT SURFACE REQUIRED (6.10.2.11)		HEATING AND COOLING (6.1.17)		
12		Number of Accelerometers		COOLING REQ'D		
13		Mounting Location of Accelerometers		COOLING WATER PIPING PLAN		
14	12			COOLING WATER PIPING		
15		VIBRATION PROBES (7.4.2.2)		FITTINGS		
16		PROVISIONS FOR VIB. PROBES		COOLING WATER PIPING MATERIALS		
17		NUMBER PER RADIAL BEARING		COOLING WATER REQUIREMENTS:		
18		NUMBER PER AXIAL BEARING		BEARING HOUSING		m³/h
19				HEAT EXCHANGER		m³/h
20		MONITORS AND CABLES SUPPLIED BY (7.4.2.4)		TOTAL COOLING WATER		m³/h
21				HEATING MEDIUM		
22		TEMPERATURE (7.4.2.3)		OTHER		
23		PROVISIONS FOR TEMP PROBES		HEATING PIPING		
24		RADIAL BEARING TEMP.		PIPING & APPURTENANCES		
25		NUMBER PER RADIAL BEARING		MANIFOLD PIPING FOR PURCHASER CONNECTION (7.5.1.6)		
26		THRUST BEARING TEMP.		VENT		YES
27		NUMBER PER THRUST BEARING ACTIVE SIDE		DRAIN		YES
28		NUMBER PER THRUST BEARING INACTIVE SIDE		COOLING WATER		YES
29		TEMP. GAUGES (WITH THERMOWELLS) (9.1.3.6)		TAG ALL ORIFICES (7.5.2.4)		YES
30		PRESSURE GAUGE TYPE		SOCKET WELD CONN ON SEAL GLAND (7.5.2.8)		NO
31		Remarks				
32						
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1	Note	SURFACE PREPARATION AND PAINT					TEST			Rev
2		MANUFACTURER'S STANDARD				NO	SHOP INSPECTION (8.1.1)			Yes
3		OTHER (SEE BELOW)				YES	PERFORMANCE CURVE			
4		SPECIFICATION NO. 1229-00-PI-ESS-406					& DATA APPROVAL PRIOR TO SHIPMENT.			YES
5							TEST WITH SUBSTITUTE SEAL (8.3.3.2.b)			
6		PUMP:					MATERIAL CERTIFICATION REQUIRED (6.12.1.8)	CASING	YES	
7		PUMP SURFACE PREPARATION						IMPELLER	YES	
8		PRIMER						SHAFT	YES	
9		FINISH COAT				RAL 7038		OTHER		
10		For motor RAL 5010 to be used					CASTING REPAIR WELD PROCEDURE APPR REQD (6.12.2.5) (6.12.3.1)			YES
11		BASEPLATE:					INSPECTION REQUIRED FOR CONNECTION WELDS (6.12.3.4.d)			
12		BASEPLATE SURFACE PREPARATION					(6.12.3.4.e)	MAG PARTICLE	YES	
13		PRIMER:						RADIOGRAPHY	YES	
14		FINISH COAT				RAL 7038		LIQUID PENETRANT	YES	
15		DETAILS OF LIFTING DEVICES						ULTRASONIC	YES	
16							INSPECTION REQUIRED FOR CASTINGS			
17		SHIPMENT: (8.4.1)				EXPORT		MAG PARTICLE	YES	
18		EXPORT BOXING REQUIRED				YES		RADIOGRAPHY	YES	
19		OUTDOOR STORAGE MORE THAN 12 MONTHS				YES		LIQUID PENETRANT	YES	
20								ULTRASONIC	YES	
21		SPARE ROTOR ASSEMBLY PACKAGED FOR:					HARDNESS TEST REQUIRED (8.2.2.7)			
22		ROTOR STORAGE ORIENTATION (9.2.8.2)					ADDNL SUBSURFACE EXAMINATION (6.12.1.5) (8.2.1.3)			
23		SHIPPING & STORAGE CONTAINER FOR VERT STORAGE (9.2.8.3)						FOR		
24								METHOD		
25		N2 PURGE (9.2.8.4)				NO	PMI TESTING REQUIRED (8.2.2.8)			YES
26		SPARE PARTS					COMPONENTS TO BE TESTED			
27		START-UP				YES				
28		NORMAL MAINTENANCE				YES				
29		WEIGHTS kg					RESIDUAL UNBALANCE TEST (J.4.1.2)			
30		ITEM No	PUMP	DRIVER	GEAR	BASE	TOTAL	NOTIFICATION OF SUCCESSFUL SHOP		
31								PERFORMANCE TEST (8.1.1.c) (8.3.3.5)	YES	
32										
33								BASEPLATE TEST (7.3.21)		
34							HYDROSTATIC			OBSERVE
35		OTHER PURCHASER REQUIREMENTS					HYDROSTATIC TEST OF BOWLS & COLUMN (9.3.13.2)			OBSERVE
36		COORDINATION MEETING REQUIRED (10.1.3)				YES	PERFORMANCE TEST			OBSERVE
37		MAXIMUM DISCHARGE PRESSURE TO INCLUDE					TEST IN COMPLIANCE WITH (8.3.3.2)			8.3.3.2
38		MAX RELATIVE DENSITY				YES	TEST DATA POINTS TO (8.3.3.3)			8.3.3.3
39		OPERATION TO TRIP SPEED				NO	TEST TOLERANCES TO (8.3.3.4)			TABLE 15
40		MAX DIA. IMPELLERS AND/OR NO OF STAGES				NO	NPSH (8.3.4.3.1) (8.3.4.3.4)			OBSERVE
41		CONNECTION DESIGN APPROVAL (9.2.1.4)				NO	NPSH-1ST STG ONLY (8.3.4.3.2)			OBSERVE
42		TORSIONAL ANALYSIS / REPORT (6.9.2.10)				NO	NPSH TESTING TO HI 1.6 OR ISO 9906 (8.3.4.3.3)			OBSERVE
43		PROGRESS REPORTS				YES	TEST NPSHA LIMITED TO 110% SITE NPSHA (8.3.3.6)			YES
44		OUTLINE OF PROC FOR OPTIONAL TESTS (10.2.5)				YES	RETEST ON SEAL LEAKAGE (8.3.3.2.d)			OBSERVE
45		ADDITIONNAL DATA REQUIRING 20 YEARS RETENTION (8.2.1.1)					RETEST REQUIRED AFTER FINAL HEAD ADJ (8.3.3.7.b)			OBSERVE
46						YES	COMPLETE UNIT TEST (8.3.4.4.1)			OBSERVE
47		LATERAL ANALYSIS REQUIRED (9.1.3.4) (9.2.4.1.3)					SOUND LEVEL TEST (8.3.4.5)			OBSERVE
48		MODAL ANALYSIS REQUIRED (9.3.9.2)				NO	CLEANLINESS PRIOR TO FINAL ASSEMBLY (8.2.2.6)			OBSERVE
49		DYNAMIC BALANCE ROTOR (6.9.4.4)				YES	LOCATION OF CLEANLINESS INSPECTION @ SUPPLIER'S			
50		INSTALLATION LIST IN PROPOSAL (10.2.3.I)				YES	NOZZLE LOAD TEST			OBSERVE
51		VFD STEADY STATE DAMPED RESPONSE ANALYSIS (6.9.2.3)					CHECK FOR CO-PLANAR MOUNTING PAD SURFACES			OBSERVE
52						NO	MECHANICAL RUN TEST UNTIL OIL TEMP STABLE			OBSERVE
53		TRANSIENT TORSIONAL RESPONSE (6.9.2.4)				NO	4 HR. MECH RUN AFTER OIL TEMP STABLE (8.3.4.2.1)			
54		BEARING LIFE CALCULATIONS REQUIRED (6.10.1.6)				YES	4 HR. MECH RUN TEST (8.3.4.2.2)			OBSERVE
55		IGNITION HAZARD ASSMT TO EN 13463-1 (7.2.13.e)					BRG HSG RESONANCE TEST (8.3.4.7)			OBSERVE
56		CASING RETIREMENT THICKNESS DRAWING (10.3.2.3)				YES	STRUCTURAL RESONANCE TEST (9.3.9.2)			
57		FLANGES RQD IN PLACE OF SKT WELD UNIONS (7.5.2.8)					REMOVE / INSPECT HYDRODYNAMIC BEARINGS AFTER TEST			
58		INCLUDE PLOTTED VIBRATION SPECTRA (6.9.3.3)				YES	(9.2.7.5)			OBSERVE
59		CONNECTION BOLTING (7.5.1.7)					AUXILIARY EQUIPMENT TEST (8.3.4.6)			OBSERVE
60		CADMIUM PLATED BOLTS PROHIBITED					EQUIPMENT TO BE INCLUDED IN AUXILIARY TESTS			
61		VENDOR TO KEEP REPAIR AND HT RCDS (8.2.1.1.c)				YES	Motor			
62		VENDOR SUBMIT TEST PROCEDURES (8.3.1.1)				YES	LOCATION OF AUXILIARY EQUIPENT TEST			
63		SUBMIT INSPECTION CHECK LIST (8.1.5)				YES	SEE DOC. NO. 1229-00-EL-MSS-521 ITEM 14			
64							IMPACT TEST (6.12.4.3)	PER EN 13445		
65								PER ASME SECTION VIII		
66							REMOVE CASING AFTER TEST			

1	Note	PRESSURE VESSEL DESIGN CODE REFERENCES				Rev																								
2		THESE REFERENCES MUST BE LISTED BY THE MANUFACTURER CASTING FACTORS USED IN DESIGN (TABLE 3) SOURCE OF MATERIAL PROPERTIES																												
3						YES																								
4						YES																								
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)		DEFAULT PER TABLE 10																										
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 ALTERNATIVE MATERIAL INSPECTIONS AND ACCEPTANCE CRITERIA (SEE TABLE 14) (8.2.2.5)																												
19		<table><tr><td>TYPE OF INSPECTION</td><td>METHOD</td><td>FOR FABRICATIONS</td><td>FOR CASTINGS</td></tr><tr><td>RADIOGRAPHY</td><td></td><td>YES</td><td>YES</td></tr><tr><td>ULTRASONIC INSPECTION</td><td></td><td>YES</td><td>YES</td></tr><tr><td>MAGNETIC PARTICLE INSPECTION</td><td></td><td>YES</td><td>YES</td></tr><tr><td>LIQUID PENETRANT INSPECTION</td><td></td><td>YES</td><td>YES</td></tr><tr><td>VISUAL INSPECTION (all surfaces)</td><td></td><td>YES</td><td>YES</td></tr></table>				TYPE OF INSPECTION	METHOD	FOR FABRICATIONS	FOR CASTINGS	RADIOGRAPHY		YES	YES	ULTRASONIC INSPECTION		YES	YES	MAGNETIC PARTICLE INSPECTION		YES	YES	LIQUID PENETRANT INSPECTION		YES	YES	VISUAL INSPECTION (all surfaces)		YES	YES	
TYPE OF INSPECTION	METHOD	FOR FABRICATIONS	FOR CASTINGS																											
RADIOGRAPHY		YES	YES																											
ULTRASONIC INSPECTION		YES	YES																											
MAGNETIC PARTICLE INSPECTION		YES	YES																											
LIQUID PENETRANT INSPECTION		YES	YES																											
VISUAL INSPECTION (all surfaces)		YES	YES																											
25		REMARKS :																												
27		(1) See Basic Engineering Design Questionnaire (BEDQ), Engineering Design Information (EDI) Project 9018716-A4, Sections 3 and 4.																												
28		(2) Pumps shall comply with UOP Standard Specifications 5-11 and 7-12.																												
29		(3) See Project Specification 533.																												
30		(4) A spillback to suction source will be provided to insure satisfactory pump operation at minimum continuous flow.																												
31		Pump vendor to advise minimum continuous capacity. Estimated minimum flow 6.9 m3/hr.																												
32		(5) Motor bearings shall be lubricated with a pure (dry sump) oil mist system.																												
33		(6) Pump Design Pressure and Temperature is 74.5 barg and 120 °C.																												
34		(7) Studded connections are not acceptable.																												
35		(8) See Basic Engineering Design Questionnaire 9018716-A4 for Mechanical Seal design.																												
36		(9) Seal construction: Sleeve material: 316 Austenitic Stainless Steel, Gland material: 316 Austenitic Stainless Steel,																												
37		Aux seal device: Non-Sparking Fixed Throttle Bushing. See UOP Standard Specification 5-11 Section 6.8.4.																												
38		(10) Unpressurized Dual type Mechanical Seal. Seal flush piping plan: API Plan 13. Auxiliary flush plan: API Plan 52.																												
39		(11) Buffer Fluid: Clean, Light Oil.																												
40		(12) Sight Flow Indicators shall be provided.																												
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