

 中海油石化工程有限公司 CNOOC Petrochemical Engineering Co., Ltd.	DATA SHEET FOR BOOSTER PUMP (P-282222A/B/C)	Owner Doc.No.		CMIT-240048-728-ROT-15.17-0002		
		Job's Doc. No.		253001D0728ME00D02		
		Phase		Detailed Design		
		Rev.		C	Page 1 of 7	
Company:		 CMIT CNOOC.MOC.IDC.IRAQ		CNOOC IRAQ LIMITED		
Project:		FQN NEW DEGASSING STATION UPGRADING PROJECT				
Unit:		FQN DEGASSING STATION				
Contract No.:		CMIT-PRT-10.53-240048				
Discipline: ROT Prepared by: Liu H.Q. Checked by: Xie Long Approved by: Huang J.D.						
C	ISSUED FOR APPROVAL	Liu Hanqi	Xie Long	Huang Jingdong		20250925
B	ISSUED FOR APPROVAL	Liu Hanqi	Xie Long	Huang Jingdong		20250907
A	ISSUED FOR REVIEW	Liu Hanqi	Xie Long	Huang Jingdong		20250720
Rev.	Description	Prepared	Checked	Approved		Date

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1	Note	APPLICABLE TO: PURCHASE				APPLICABLE NTL/INTNTL STANDARD: API610 12th Edition				Rev																
2		FOR: CNOOC IRAQ LIMITED				MANUFACTURER: *																				
3		SITE: MISSAN OIL FIELD, MISSAN PROVINCE, IRAQ				TYPE: CENTRIFUGAL PUMP																				
4		UNIT: FQN DEGASSING STATION		NO. REQ: 3(2W+1S)		MODEL: *		SERIAL NO.: *																		
5		SERVICE: BOOSTER PUMPS				NO. STAGES: *		PUMP SIZE: *																		
6		ITEM NO.: P-282222A/B/C				PID NO.: *																				
LIQUID CHARACTERISTICS																										
8			Units	Maximum	Minimum	Note Max/Min values referenced only to the operating conditions listed herein.		SERVICE : CONTINUOUS PUMPS OPERATE IN :(6.1.13) PARALLEL CORROSION DUE TO :(6.12.1.9) Cl⁻, Wet H₂S, CO₂ EROSION DUE TO :(6.12.1.9) * H ₂ S CONCENTRATION (ppm) :(6.12.1.13) 400 CHLORIDE CONCENTRATION (mg/l) : 147200 PARTICULATE SIZE (DIA IN MICRONS) * PARTICULATE CONCENTRATION (ppm) * OIL CONTENT(ppm) * CO ₂ CONCENTRATION (ppm) : 100 CORROSION ALLOWANCE :(6.3.10)(7.6.2.3) Note35																		
9	LIQUID TYPE OR NAME : Oil and Water																									
10	VAPOR PRESSURE : kPa(a) 1100																									
11	RELATIVE DENSITY : 0.95 0.915																									
12	SPECIFIC HEAT : kJ(kg-k) *																									
13	VISCOSITY : mPa-s 40 15.2																									
OPERATING CONDITIONS (6.1.3)																										
15		Units	Maximum	Rated	Normal	Minimum																				
16	NPSHa Datum:		C.L. Impeller																							
17	PUMPING TEMPERATURE :		°C				67~73																			
18	FLOW :		m ³ /hr	135	135																					
19	DISCHARGE PRESSURE : (6.3.2)		kPa(g)		2570	2570																				
20	SUCTION PRESSURE :		kPa(g)	1054	1044	1044																				
21	DIFFERENTIAL PRESSURE :		kPa		1526	1526																				
22	DIFFERENTIAL HEAD :		m		170	170																				
23	NPSH _A :		m		5	5																				
24	HYDRAULIC POWER :		kW		*																					
SITE AND UTILITY DATA																										
26	LOCATION: OUTDOOR UNHEATED UNDER ROOF MOUNTED AT : GROUND TROPICALISATION REQD					COOLING WATER : N/A <table border="1"> <tr> <td>INLET</td> <td>RETURN</td> <td>DESIGN</td> </tr> <tr> <td>TEMP °C</td> <td>MAX</td> <td></td> </tr> <tr> <td>PRESS. kPa</td> <td>MIN</td> <td></td> </tr> </table>					INLET	RETURN	DESIGN	TEMP °C	MAX		PRESS. kPa	MIN								
INLET	RETURN	DESIGN																								
TEMP °C	MAX																									
PRESS. kPa	MIN																									
29	ELECTRIC AREA CLASSIFICATION: (6.1.22) ZONE 2 GROUP IIB Class II /Group TEMP CLASS T4					SOURCE * COOLING WATER CHLORIDE CONCENTRATION: ppm																				
31	SITE DATA : ELEVATION (MSL) : 25 m BAROMETER : 750.43 mm Hg RANGE OF AMBIENT TEMPS:MIN / MAX -5 / 55 °C RELATIVE HUMIDITY: MIN / MAX 25 / 80 % UNUSUAL CONDITIONS: DUST					INSTRUMENT AIR : MAX kPa MIN kPa STEAM <table border="1"> <tr> <td></td> <td>DRIVERS</td> <td>HEATING</td> </tr> <tr> <td>TEMP °C</td> <td>Max</td> <td></td> </tr> <tr> <td></td> <td>Min</td> <td></td> </tr> <tr> <td>PRESS. kPa</td> <td>Max</td> <td></td> </tr> <tr> <td></td> <td>Min</td> <td></td> </tr> </table>						DRIVERS	HEATING	TEMP °C	Max			Min		PRESS. kPa	Max			Min		
	DRIVERS	HEATING																								
TEMP °C	Max																									
	Min																									
PRESS. kPa	Max																									
	Min																									
37	UTILITY CONDITIONS : ELECTRICITY : <table border="1"> <tr> <td>DRIVERS</td> <td>HEATING</td> <td>CONTROL</td> <td>SHUTDOWN</td> </tr> <tr> <td>VOLTAGE 400V</td> <td></td> <td>230V</td> <td></td> </tr> <tr> <td>PHASE 3</td> <td></td> <td>1</td> <td></td> </tr> <tr> <td>HERTZ 50</td> <td></td> <td>50</td> <td></td> </tr> </table>					DRIVERS	HEATING	CONTROL	SHUTDOWN	VOLTAGE 400V		230V		PHASE 3		1		HERTZ 50		50						
DRIVERS	HEATING	CONTROL	SHUTDOWN																							
VOLTAGE 400V		230V																								
PHASE 3		1																								
HERTZ 50		50																								
PERFORMANCE																										
43	PROPOSAL CURVE NO. * RPM * As Tested Curve No. *					DRIVER TYPE MOTOR																				
45	IMPELLER DIA.:(NOTE13) RATED * MAX. * MIN. * mm RATED POWER * kW EFFICIENCY * (%)					GEAR NO VARIABLE SPEED REQUIRED NO SOURCE OF VARIABLE SPEED																				
47	RATED CURVE BEP FLOW (at rated impeller dia) (6.1.16) * m ³ /hr MIN FLOW : THERMAL * m ³ /hr STABLE * m ³ /hr PREFERRED OPERATING REGION (6.1.16) * to * m ³ /hr ALLOWABLE OPERATING REGION (6.9.4.1) * to * m ³ /hr					OTHER * MANUFACTURER * NAMEPLATE POWER (7.1.5) * kW NOMINAL RPM * RATED LOAD RPM * FRAME OR MODEL * ORIENTATION HORIZONTAL LUBRICATION GREASE BEARING TYPE :(7.1.9) Anti-Friction																				
51	MAX HEAD @ RATED IMPELLER * m MAX POWER @ RATED IMPELLER * kW NPSH3 AT RATED FLOW (6.1.9) : * m CENTERLINE OF PUMP TO NPSHA DATUM * m NPSH MARGIN AT RATED FLOW (6.1.10) : * m					THRUST * / * STARTING METHOD Closed-Valve (Unloaded) Start DRIVER DATASHEET NUMBER * SERVICE FACTOR / EXPLOSION PROOF: * / Ex(d) IIB T4 DRIVER DESIGN STANDARD *																				
56	SPECIFIC SPEED (6.1.17) m³/hr,m * SUCTION SPECIFIC SPEED LIMIT (6.1.11) m³/hr,m * SUCTION SPECIFIC SPEED (6.1.11) m³/hr,m *					RADIAL * / * ENCLOSURE: IP55 for motor, IP65 for junction box. INSULATION CLASS: F TEMPERATURE RISE: B																				
59	MAX. ALLOW. SOUND PRESSURE LEVEL (6.1.19) 85@1m (dBA) ESTIMATED MAX SOUND PRESSURE LEVEL (dBA) MAX. ALLOWABLE SOUND POWER LEVEL (6.1.19) * ESTIMATED MAX SOUND POWER LEVEL																									
* To be filled and confirmed by the Vendor.																										



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Note		CONSTRUCTION	
API PUMP TYPE:	OH2 [Based on API 610 definitions]		
NOZZLE CONNECTIONS(6.4.2):			
	Size	Facing	Rating
SUCTION	VTA	RF	300
DISCHARGE	VTA	RF	300
			Position
			END
			TOP
PRESSURE CASING AUX. CONNECTIONS: (6.4.3) (7.6.2.2)			
	No.	Size	Type
BALANCE/LEAK OFF			Facing
DRAIN		VTA	*
VENT			RF
PRESSURE GAUGE			300
TEMP GAUGE			BOTTOM
WARM-UP LINE			
SKID DRAIN		VTA	
DRAIN VALVE SUPPLIED BY(7.6.2.5)	SUPPLIER		
DRAINS MANIFOLDED (7.6.2.5)	YES		
VENT VALVE SUPPLIED BY	SUPPLIER		
VENTS MANIFOLDED			
THREADED CONS FOR PIPELINE SERVICE & <55°C (6.4.3.2)	NO		
SPECIAL FITTINGS FOR TRANSITIONING (6.4.3.3)			
CYLINDRICAL THREADS REQUIRED (6.4.3.2)			
GUSSET SUPPORT REQUIRED			
MACHINED AND STUDDED CONNECTIONS (6.4.3.6)			
ROUTE DRAIN TO SKID EDGE	YES		
MATERIAL (6.12.1.1)			
APPENDIX H CLASS	D-2		
MINIMUM DESIGN METAL TEMPERATURE (6.12.4.1)	-5 °C		
MAXIMUM ALLOWABLE TEMPERATURE(3.1.20)	101 °C		
REDUCED-HARDNESS MATERIALS REQ'D (6.12.1.14)	YES		
APPLICABLE HARDNESS STANDARD(6.12.1.14)	MR0175		
BARREL :	N/A		
CASE :	ASTM A995 Gr.5A		
DIFFUSERS :			
IMPELLER :	ASTM A890 Gr.5A		
IMPELLER WEAR RING :	*		
CASE WEAR RING :	*		
SHAFT:	ASTM A276 - UNS S32760		
BOWL (IF VS-TYPE)	N/A		
COUPLING / COUPLING GUARD :	* / *		
INSPECTION CLASS	Level 3		
BEARINGS AND LUBRICATION (6.10.1)			
BEARING (TYPE / NUMBER): (6.10.1.1) (6.10.1.11)			
RADIAL	*	/	*
THRUST	*	/	*
REVIEW AND APPROVE THRUST BEARING SIZE : (9.2.5.2.6)			
BEARING HOUSING (6.10.2.1,9,12,13,14)	YES		
LUBRICATION (6.11.3) (6.11.4) (9.3.12.4) :	RING OIL		
PRESSURE LUBE SYSTEM TO API-614, CHAPTER:			
API-614 DATA SHEETS ATTACHED (9.2.6.4)			
PRESSURIZED LUBE OIL SYSTEM MOUNTED ON BASEPLATE:			
LOCATION OF PRESSURIZED LUBE OIL SYSTEM:			
INTERCONNECTING PIPING PROVIDED BY	SUPPLIER		
OIL VISC. ISO GRADE	VG 46		
VENT-TO-HOUSING CONSTANT LEVEL OILER(6.10.2.4):	REQUIRED		
OIL MIST PROVISIONS(6.11.3)	*		
GREASE LUBRICATION(6.11.4)	*		
CASING MOUNTING(6.3.14, 9.3.8.3):	CENTERLINE		
CASING TYPE:	MULTIPLE VOLUTE		
OH3 BACK-PULLOUT LIFTING DEVICE REQD. (9.1.2.6)			
CASE PRESSURE RATING:			
MAWP(6.3.6) :	*	bar g	@ DESIGN °C
HYDROTEST (8.3.2)(8.3.2.2,5,6,8,11) : 1.5*MAWP		bar g	@ AMBIENT °C
WETTING AGENT REQUIRED FOR HYDROTEST(8.3.2.7) :			
HYDROTEST OH PUMP AS ASSEMBLY (8.3.2.14) :	YES		
SUCT'N PRESS. REGIONS DESIGNED FOR MAWP (6.3.8) :	YES		
ROTOR:			
SHAFT FLEXIBILITY INDEX (SFI) (9.1.1.3)	YES		
FIRST CRITICAL SPEED WET (MULTISTAGE PUMPS ONLY)	N / A		

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1	Note	INSTRUMENTATION	SEAL SUPPORT SYSTEM MOUNTING	Rev
2		INSTRUMENTATION PER API-670 (7.5.2)	SEAL SUPPORT SYSTEM MOUNTED ON PUMP BASEPLATE	
3		ACCELEROMETER (7.5.2.1)	(7.6.1.4) YES	
4		NUMBER OF ACCELEROMETERS	LOCATION ON OR OFF BASEPLATE (7.4.6) :	
5		MOUNTING LOCATION OF ACCELEROMETERS	ON BASEPLATE	
6			INTERCONNECTING PIPING BY VENDOR	
7		PROVISION FOR MTG ONLY (6.10.2.13)		
8		FLAT SURFACE REQUIRED (6.10.2.14) YES	MECHANICAL SEAL (6.8.1)	
9			API 682 DATA SHEET ATTACHED : VENDOR PROVIDE	
10		VIBRATION PROBES (7.5.2.2) (REMARK 6, REMARK 8)	ADDITIONAL CENTRAL FLUSH PORT (6.8.9) *	
11		VIBRATION PROBES REQUIRED (7.5.2.2) : VTC	HEATING JACKET REQ'D. (6.8.11)	
12		NUMBER PER RADIAL BEARING	FLUSH PLAN (REMARK 2,3,4) PLAN11+53B	
13		NUMBER PER AXIAL BEARING		
14		THREADED PROVISION FOR MTG ONLY (6.10.2.13; 6.6.12)	HEATING AND COOLING (6.1.22)	
15		FLAT SURFACE PROVISION ONLY (6.10.2.14)	COOLING REQ'D. (REMARK 7) YES	
16		MONITORS AND CABLES SUPPLIED BY (7.5.2.6)(7.5.2.7)	COOLING WATER PIPING PLAN (7.6.3.1) (7.6.3.3)	
17			COOLING WATER PIPING (7.6.2.7)	
18		TEMPERATURE (7.5.2.3) (REMARK 1)	FITTINGS	
19		TEMPERATURE PROBES REQUIRED (7.5.2.3) (7.5.2.5) : VTC	COOLING WATER PIPING MATERIALS	
20		PROVISIONS FOR MOUNTING ONLY (6.10.2.2)	COOLING WATER REQUIREMENTS: SUPPLY PRESSURE kPag	
21		RADIAL BEARING TEMPERATURE :	BEARING HOUSING m³/hr	
22		NUMBER PER RADIAL BEARING :	HEAT EXCHANGER m³/hr	
23		THRUST BEARING TEMPERATURE :	TOTAL COOLING WATER m³/hr	
24		NUMBER PER THRUST BEARING ACTIVE SIDE :		
25		NUMBER PER THRUST BEARING INACTIVE SIDE :	HEATING MEDIUM	
26		TEMP. GAUGES (WITH THERMOWELLS) (9.1.3.5)	OTHER	
27		TEMP. GAUGE LOCATION :	HEATING PIPING (7.6.2.7)	
28		SUPPLY UPPER/LOWER CASING RTD'S FOR WARMUP	PIPING & APPURTENANCES (7.6.1.1)(8.3.2.13,15,16)	
29			TAG ALL OPIFICES (7.6.2.4) YES	
30		PRESSURE GAUGE TYPE (7.6.2.10)	SOCKET WELD UNION ON 1st SEAL GLAND NIPPLE (7.6.2.8) NO	
31		PRESSURE GAUGE LOCATION :	MANIFOLD AUX PIPING SYSTEMS AT SKID EDGE (7.6.1.6) :	
32			VENT : (REMARK 5) N / A	
33		Remarks	DRAIN : YES	
34		1. In Between Seals, PI and TI shall be established on the Seal Plan Supply and	COOLING WATER : *	
35		Return Lines.	AUXILIARY SYSTEM MATERIALS (7.6.1.2) : TABLE H.4	
36		2.. The API Seal Code, Seal Drawing, and Seal Manufacturers recommendation for	THREADED PIPING JOINTS ALLOWED (7.6.2.9) : NO	
37		the selected seal shall be furnished along with the Bid.		
38		3. The Wetted Parts Material of Cartridge Seal shall be compatible with the Pumping		
39		Fluid and the Material of Seal Flush Systems shall be compatible with the Barrier Fluid.		
40		4. In case Plan 53B selected, Nitrogen Charging Kit and Manual Makeup System		
41		(Portable Trolley with Hand Pump) shall be provided by the Vendor.		
42		5. Pump shall be Self-Venting.		
43		6.Probes Provision Supply shall be verified based on the Final Bearing		
44		Selection stated on Page 3 of 6.		
45		7. Fan Cooling should be the 1st choice. If Fan Cooling is inadequate, one of		
46		Annex B Plans shall be selected.		
47		8.If the booster pump provided by the Vendor is equipped with rolling bearings,		
48		an accelerometer must be installed at the bearing housing.		
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58		* To be filled and confirmed by the Vendor.		

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1	Note	SURFACE PREPARATION, PAINT & SPARES					TEST					Rev	
2		MANUFACTURER'S STANDARD (8.4.3.4) YES					SHOP INSPECTION (8.1.1) Yes						
3		OTHER (SEE BELOW) _____					PERFORMANCE CURVE & DATA APPROVAL PRIOR TO SHIPMENT (8.3.3.4.6) YES						
4		SPECIFICATION NO. _____					TEST WITH SUBSTITUTE SEAL (8.3.3.3.1) NO						
5							MATERIAL CERTIFICATION REQUIRED (6.12.1.8): CASING YES						
6		PUMP:					IMPELLER YES						
7		PUMP SURFACE PREPARATION REQUIRED					SHAFT YES						
8		PRIMER _____ *					OTHER(AUXILIARY PIPING & PIPING COMPONENTS) YES						
9		FINISH COAT _____ *					CASTING REPAIR WELD PROCEDURE APPR REQD (6.12.2.5) : YES						
10							INSPECTION REQUIRED FOR CONNECTION WELDS (6.12.3.4)						
11		BASEPLATE:					MAG PARTICLE _____						
12		BASEPLATE SURFACE PREPARATION REQUIRED					RADIOGRAPHY YES						
13		PRIMER: _____ *					LIQUID PENETRANT YES						
14		FINISH COAT _____ *					ULTRASONIC _____						
15		UNDERSIDE _____ *					INSPECTION REQUIRED FOR CASTINGS (8.2.2.3.2) (8.2.2.4)						
16							MAG PARTICLE _____						
17		SHIPMENT: (8.4.1) EXPORT					RADIOGRAPHY YES						
18		EXPORT BOXING REQUIRED YES					LIQUID PENETRANT YES						
19		OUTDOOR STORAGE MORE THAN 12 MONTHS YES					ULTRASONIC _____						
20							HARDNESS TEST REQUIRED (6.12.1.14; 8.2.2.7) YES						
21		SPARE ROTOR ASSEMBLY PACKAGED FOR:					ADDNL SUBSURFACE EXAMINATION (6.12.1.6) (8.2.1.3) YES						
22		ROTOR STORAGE ORIENTATION (9.2.8.2) _____					FOR SHAFT/IMPELLER						
23		SHIPPING & STORAGE CONTAINER FOR VERTICAL STORAGE (9.2.8.3) _____					METHOD ULTRASONIC						
24							PMI TESTING REQUIRED (8.2.2.8) YES						
25		N2 PURGE REQUIRED (9.2.8.4) _____					COMPONENTS TO BE TESTED						
26		SPARE PARTS (L.3.4)					ALL PRESSURE BOUNDARY PARTS OF ALLOY MATERIALS						
27		START-UP YES					RESIDUAL UNBALANCE TEST (J.4.1.2) YES						
28		NORMAL MAINTENANCE YES					NOTIFICATION OF SUCCESSFUL PERFORMANCE TEST (8.1.1.3) (8.3.3.4.6) YES						
29							BASEPLATE (NOZZLE LOAD) TEST (7.4.24) _____						
30		WEIGHTS kg (7.1.3)					HYDROSTATIC TEST (8.3.2) WIT						
31		ITEM No	PUMP	DRIVER	GEAR	BASE	TOTAL	HYDROSTATIC TEST OF BOWLS & COLUMN (9.3.13.1) _____					
32		*	*	*	*	*	*	PERFORMANCE TEST (8.3.3)					
33								TEST IN COMPLIANCE WITH (8.3.3.2) YES 8.3.3.2					
34		DIMENSION mm					TEST DATA POINTS TO (8.3.3.4) YES 8.3.3.4						
35		L*W*H						TEST TOLERANCES TO (8.3.3.5) TABLE 16					
36								ALTERNATE TEST TOLERANCES PER (8.3.3.5) _____					
37		OTHER PURCHASER REQUIREMENTS					NPSH (8.3.4.3) WIT						
38		COORDINATION MEETING REQUIRED (10.1.3) YES					NPSH BASED IN 1ST STG ONLY ALLOWED (8.3.4.3.2) _____						
39		MAXIMUM DISCHARGE PRESSURE TO INCLUDE (6.3.2) _____					TEST NPSHA LIMITED TO 110% SITE NPSHA (8.3.3.7) *						
40		MAX RELATIVE DENSITY YES					RETEST ON SEAL LEAKAGE (8.3.3.3.2) WIT						
41		OPERATION TO TRIP SPEED _____					RETEST REQUIRED AFTER FINAL HEAD ADJ USTMENT(8.3.3.8.2) _____						
42		MAX DIA. IMPELLERS AND/OR NO OF STAGES YES					COMPLETE UNIT TEST (8.3.4.4.1) WIT						
43		CONNECTION DESIGN APPROVAL (9.2.1.4) _____					SOUND LEVEL TEST (8.3.4.5) WIT						
44		TORSIONAL ANALYSIS / REPORT (6.9.2.10) NO					CLEANLINESS PRIOR TO FINAL ASSEMBLY (8.2.2.6) NON-WIT						
45		ANNEXURE L REQUIREMENTS YES					LOCATION OF CLEANLINESS INSPECTION @ VENDOR'S						
46		PROGRESS REPORTS (L.3.3) YES					CHECK FOR CO-PLANAR MOUNTING PAD SURFACES (7.4.8) : NON-WIT						
47		OUTLINE OF PROCEDURESUSED FOR OPTIONAL TESTS (L.2.5) YES					MECHANICAL RUN TEST UNTIL OIL TEMP STABLE (8.3.4.2.1) : WIT						
48		ADDITIONNAL DATA REQUIRING 20 YEARS RETENTION (8.2.1.1) YES					4 HR. MECH RUN AFTER OIL TEMP STABLE (8.3.4.2.2) WIT						
49		LATERAL ANALYSIS REQUIRED (9.2.4.1.2) _____					BRG HSG RESONANCE TEST (8.3.4.7) *						
50		ROTOR DYNAMIC BALANCE TO 4W/N (6.9.3.5) _____					STRUCTURAL RESONANCE TEST (9.3.9.2) _____						
51		INSTALLATION LIST IN PROPOSAL (L.2.3.2.ii) YES					REMOVE / INSPECT HYDRODYNAMIC BEARINGS AFTER TEST (9.2.7.4) _____						
52		VFD STEADY STATE FORCED RESPONSE ANALYSIS (6.9.2.3) NO					AUXILIARY EQUIPMENT TEST (8.3.4.6) WIT						
53		TRANSIENT FORCED RESPONSE(6.9.2.4) _____					EQUIPMENT TO BE INCLUDED IN AUXILLIARY TESTS:						
54		BEARING LIFE CALCULATIONS REQUIRED (6.10.1.11) YES					SEAL PLAN 53B WHOLE SYSTEM						
55		CASING RETIREMENT THICKNESS DRAWING [L.3.6.1 cc) 7) xiii] _____					LOCATION OF AUXILIARY EQUIPMENT TEST						
56		CONNECTION BOLTING (7.6.1.7) PTFE COATED					@ VENDOR'S						
57		VENDOR TO KEEP REPAIR AND HT RCDS (8.2.1.1.c) YES					IMPACT TEST (6.12.4.3) PER EN 13445 _____						
58		VENDOR SUBMIT TEST PROCEDURES (8.3.1.1) YES					PER ASME SECTION VIII _____						
59		SUBMIT INSPECTION CHECK LIST (8.1.5) YES					CASING DISASSEMBLY AFTER TEST (8.3.3.9) _____						
60		ACOUSTIC ANALYSIS OF CROSSOVER PASSAGE (BB3,BB5) NO					SPARE PARTS TEST (8.3.4.8) _____						
61		(9.2.1.5) _____											
62		API-691 DOCUMENTATION REQUIRED (6.1.3.1) _____											
63													
64													
65													
66													
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1	Note	PRESSURE VESSEL DESIGN CODE REFERENCES				Rev																								
2		THESE REFERENCES SHALL BE PROVIDED BY THE MANUFACTURER																												
3		CASTING FACTORS USED IN DESIGN (PER TABLE 4)																												
4		SOURCE OF MATERIAL PROPERTIES (6.3.5)				YES																								
5																														
6		WELDING AND REPAIRS (6.12.3.1)																												
7		THESE REFERENCES SHALL BE PROVIDED BY THE PURCHASER. (DEFAULT TO TABLE 11 IF NO PURCHASER PREFERENCE IS STATED)																												
8		ALTERNATE WELDING CODES AND STANDARDS:				YES																								
9		WELDING REQUIREMENT (APPLICABLE CODE OR STANDARD)				DEFAULT PER TABLE 11																								
10		ALTERNATE WELDER / OPERATOR QUALIFICATION STANDARD :																												
11		ALTERNATE WELDING PROCEDURE QUALIFICATION TANDARD :																												
12		NON-PRESSURE RETAINING STRUCTURAL WELDING STANDARD (BASEPLATES OR SUPPORTS) :																												
13		STANDARD FOR MAGNETIC PARTICLE OR LIQUID PENETRANT EXAMINATION (PLATE EDGES):																												
14		STANDARD FOR POSTWELD HEAT TREATMENT :																												
15		STANDARD FOR POSTWELD HEAT TREATMENT OF CASING FABRICATION WELDS :																												
16																														
17		MATERIAL INSPECTION																												
18		THESE REFERENCES MUST BE LISTED BY THE PURCHASER																												
19		DEFAULT TO TABLE 14 (8.2.2.1) YES TABLE 14 INSPECTION CLASS: III																												
20		ALTERNATIVE MATERIAL INSPECTIONS AND ACCEPTANCE CRITERIA (SEE TABLE 15) (8.2.2.5)																												
21		<table><thead><tr><th>TYPE OF INSPECTION</th><th>METHOD</th><th>FOR FABRICATIONS</th><th>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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26																														
27		NOTES :																												
28		1. Vendor shall complete this Datasheet and validate/verify/complete all materials, dimensions and sizes against the fluid characteristics. It shall be submitted																												
29		as part of the Vendor bid.																												
30		2.This data sheet shall be read in conjunction with the PID (CMIT-240048-728-PCS-15.11-0017) . The Pump Scope of Supply shall be as specified (battery limits) in the relevant PID.																												
31		3. For Detailed Medium Properties information, please refer to the Material and Heat Mass Balance PFD (CMIT-240048-728-PCS-15.01-0002).																												
32		4. The pump (including motor and auxiliaries (excluding mechanical seal, wear rings, shaft sleeve, gasket, shim and O-rings)) shall be designed and constructed for																												
33		a minimum service life of 25 years and at least 3 years of continuous (uninterrupted) operation.																												
34		5.The Preferred Operating Region shall be within 70% to 120% of Pump's BE Flow-rate. The Rated Flow shall be within the region of 80% to 110% of the Pump's Best																												
35		Efficiency Flow-rate as furnished.																												
36		6. For Parallel operation, Head Rise from Rated Point to Shutoff shall be ≥10%.																												
37		7. The Vendor shall furnish the Performance Curve for the Pumps with the Duty Point, Power Absorbed, Efficiency, and NPSH Required marked along with the Bid.																												
38		Moreover, the Vendor shall provide a similar and discrete Performance Curve for numerous pumps' operation modes (parallel or series).																												
39		8. The Casing and Impeller types shall be selected by the Vendor based on the Fluid Properties and the targeted Operating and Design Parameters.																												
40		9. The Vendor shall select and confirm the Mechanical Seal Type and Flushing Plan suitable for the Pumping Fluid to comply with API 682-specific requirements.																												
41		10. All necessary Power/Control Panels, Instruments, Cabling, and Junction Boxes shall be supplied by the Vendor.																												
42		11. The Pump's Coating shall meet the requirements of Local Ambient Conditions such as Ultraviolet Radiation and Sandstorm. The Vendor shall select a Coating of high quality.																												
43		12. The Baseplate Rim/Pan shall be sloped at least 1:120 toward the Pump's End and equipped with a Tapped Drain Opening ≥ 2 NPS.																												
44		13. The Baseplate shall be extended under the Pump, Drive Train Components, all Pipe Joints, and Pipe Flange Faces (including Pump Suction and Discharge Flanges)																												
45		where all shall be within the Drain Pan/Rim Collection Area.																												
46		14. Mounting Pads shall be provided for the Pump and all Drive Train Components.																												
47		15. The Baseplate shall be equipped with Lifting Lugs for at least a four-point lift. Lifting the Baseplate, complete with all equipment mounted, shall not permanently distort or otherwise																												
48		damage the Baseplate or the Machinery mounted on it.																												
49		16. The Vendor (Manufacturer) shall guarantee the material of the Pump can meet the requirements for anticorrosion following API610/MR0175. All Pump Materials																												
50		(including the Coupling Guard) shall be Non-Spark.																												
51		17. As a minimum, 1m shall be kept as NPSH Margin (difference between the NPSH3 and the determined NPSH _d). The NPSH3, specified by the Vendor,																												
52		shall be based on water (at a Temperature <55 °C) at Rated Flow and Rated speed.																												
53		18. The Rated Impeller Diameter shall be ≤ 95% of the Maximum Impeller Size possible for the Pump's Casing.																												
54		19. All Shafts shall be of Forged Material. Rotors/Coupling shall dynamically be balanced to ISO G2.5 quality.																												
55		20. Auxiliary Connections to the Pressure Casing, except the Seal Gland, shall be Socket-Welded, Butt-Welded, or Integrally-Flanged.																												
56		21. Design and Supply of the Anchor Bolts and Levelling Screws shall be in the Vendor's Scope of Supply.																												
57		22.The Bolts/Nuts shall be coated with Anti-Rust Approved Materials. The Bolts/Nuts for Internal Parts shall be of Anti-Corrosive Materials. The Bolting for Pressure Casings shall																												
58		conform to API 610-specific requirements.																												
59		23. The Pump Shutoff Pressure at the Rated Impeller Diameter shall not exceed the downstream System Design Pressure considering Maximum Suction Pressure, Maximum Density,																												
60		Operation up to Trip Speed, and all applicable tolerances.																												
61		24. All Pressure Parts shall be provided with Material Certificates conforming to BS EN10204-type 3.1.																												
62		25. All fabricated joints in the Seal System Piping shall be Full Penetration Butt Welded and the Weld Root shall be made by GTAW Welding.																												
63																														
64																														



DATA SHEET FOR BOOSTER PUMP
(P-282222A/B/C)

Owner Doc.No.	CMIT-240048-728-ROT-15.17-0002	
Job's Doc. No.	253001D0728ME00D02	
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1	Note	Rev
2	26. Noise Level (Sound Pressure Level (Lp)) shall be ≤85dBA @ 1m distance from the Equipment's (Driver + Driven Equipment Train) surface at all directions.	
3	Acoustic hoods shall be provided, if necessary to meet the Noise Level's requirements.	
4	27. The number of Vibration Probes and Temperature Detectors requirements will depend on the Equipment and the selected Bearings as it shall be finalized by the Vendor.	
5	The Monitors with the Connecting Cables to the Probes and Detectors shall be supplied by the Vendor per API670.	
6	28. Suction/Discharge Mating Flanges' along with Bolts/Nuts and Gasket to be supplied by the Vendor.	
7	29. The Vendor shall supply all Tools, Accessories, and Consumables required for the Skid Installation, Commissioning, Test-run, and 3 months of Operation.	
8	Also, the Vendor shall supply the Commissioning and 2-Year Spare Parts.	
9	30. All required Interconnecting Piping and Cabling between the Main Pump Skid and accessory Equipment Skids shall be supplied by the Pump's Vendor.	
10	31. All Witnessed Inspections and Tests are Hold Points. Purchaser prefer not to have Preliminary Tests prior to Witnessed Tests to understand any difficulties encountered during testing.	
11		
12	32. The need for the Casing Disassembly after the Final Performance Test shall be judged by the Vendor or if any abnormal observations existed during the Test.	
13	33. Hardness Test of Parts, Welds, and Heat Affected Zones shall be performed by the Vendor.	
14	34. 100% Dye Penetration Test and 100% Radiographic Examination shall be performed for all Butt-Welded Joints.	
15	35. A Minimum of 3mm shall be considered as Corrosion Allowance for the Pump's Casing. However, the Vendor is allowed to propose an alternative CA value, including zero value, provided that the selected Material of Construction fulfills the service life requirements set in point (4) above and without affecting the pumps'safety or reliability.	
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