

DOC. NO. VP-2017-112-P101AB-001		ONSHORE FACILITIES Phase 4 & 5			Page		1 of 4		Rev
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1	APPLICABLE TO:	☐ PROPOSALS ☒ PURCHASE ☒ AS BUILT		
2	FOR	PARS OIL & GAS COMPANY UNIT 112		
3	SITE	ASSALUYEH, IRAN PHASE 4 & 5 SERVICE CONSENSATE FEED PUMPS		
4	NOTES:	INDICATES INFORMATION TO BE COMPLETED ☐ BY PURCHASER ☒ BY MANUFACTURER ☐ BY MFR OR PURCHASER		

☒ DATA SHEETS						☐ REVISIONS			
	ITEM NO	ATTACHED	ITEM NO	ATTACHED	ITEM NO	ATTACHED	NO	DATE	BY
7	PUMP	112-P-101 A/B	☒	☐	☐	☐	1		
8	MOTOR	112-PM-101 A/B	☒	☐	☐	☐	2		
9	GEAR		☐	☐	☐	☐	3		
10	TURBINE		☐	☐	☐	☐	4		
11	APPLICABLE OVERLAY STANDARDS:						5		

☒ OPERATING CONDITIONS(5.1.3) FLOW @ P.T. NORMAL 530 (m³/h) RATED 583 (m³/h) OTHER _____ SUCTION PRESSURE: MAX/RATED 1.00 (bara) DISCHARGE PRESSURE 22.54 (bara) DIFFERENTIAL PRESSURE 21.54 (bara) DIFF. HEAD 292.0 (m) NPSHA 8.67 (m) PROCESS VARIATIONS (5.1.4) _____ STARTING CONDITIONS (5.1.4) Manual SERVICE: ☒ CONTINUOUS ☐ INTERMITTENT (STARTS/DAY) _____ ☒ PARALLEL OPERATION REQUIRED (5.1.13) ☒ SITE DATA(5.1.3) LOCATION: (5.1.30) ☐ INDOOR ☐ HEATED ☒ OUTDOOR ☒ UNHEATED ☒ ELECTRIC AREA CLASSIFICATION (5.1.24/6.1.4) CLASS T3 GRADE IIB DIVISION Zone 2 ☐ WINTERIZATION REQ'D ☐ TROPICALIZATION REQ'D. ☒ SITE DATA (5.1.30) ☐ ALTITUDE (m) BAROMETER 1 (bar) ☒ RANGE OF AMBIENT TEMPS: MIN/MAX. 2 / 48 (°C) ☒ RELATIVE HUMIDITY: MIN / MAX 65 / 100 (%) UNUSUAL CONDITIONS: (5.1.30) ☒ DUST ☐ FUMES ☒ OTHER H2S: 10ppm & SO2: 5ppm ☒ DRIVER TYPE ☒ INDUCTION MOTOR ☐ STEAM TURBINE ☐ GEAR ☐ OTHER _____ ☒ MOTOR DRIVE(6.1.1/6.1.4) ☒ MANUFACTURER HYOSUNG ☒ FRAME 720 (kW) ☒ ENCLOSURE 2970 (r/min) ☒ FRAME 630 ☒ EP (Exd IIB T4) ☒ HORIZONTAL ☒ VERTICAL ☒ SERVICE FACTOR 1.0 ☒ VOLTS/PHASE/HERTZ 6000 / 3 / 50 ☒ TYPE HSTC ☐ MINIMUM STARTING VOLTAGE (6.1.5) _____ ☒ INSULATION F ☒ TEMP.RISE B ☒ FULL LOAD AMPS 79.4 ☒ LOCKED ROTOR AMPS 516 ☒ STARTING METHOD DOL ☒ LUBE OIL BEARINGS (TYPE/NUMBER) ☒ DE SLEEVE / ☒ NDE SLEEVE / ☐ VERTICAL THRUST CAPACITY UP (N) DOWN (N)	☒ LIQUID(5.1.3) LIQUID TYPE OR NAME HC CONDENSATE ☐ HAZARDOUS ☒ FLAMMABLE ☐ (5.1.5) <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td></td> <td>MIN</td> <td>NORMAL</td> <td>MAX</td> </tr> <tr> <td>PUMPING TEMP (°C)</td> <td></td> <td>37</td> <td>85</td> </tr> <tr> <td>VAPOR PRESS (MPa)</td> <td></td> <td>0.43765</td> <td></td> </tr> <tr> <td>RELATIVE DENSITY (SG)</td> <td></td> <td>0.752</td> <td></td> </tr> <tr> <td>VISCOSITY [mPa·s]</td> <td></td> <td>0.83</td> <td></td> </tr> </table> SPECIFIC HEAT, Cp [kJ/kg·K] ☐ CHLORIDE CONCENTRATION (mg/kg) (6.5.2.4) ☐ H₂S CONCENTRATION (mol fraction) WET (5.12.1.12c) CORROSIVE/EROSIVE AGENT YES (5.12.1.9) ☒ MATERIALS(5.12.1.1) ☒ ANNEX H CLASS (5.12.1.1) S-6 ☒ MIN DESIGN METAL TEMP. (5.12.4.1) 8 (°C) ☐ REDUCED HARDNESS MATERIALS REQ'D(5.12.1.12) ☒ BARREL/CASE A-216 Gr.WCB IMPELLER A743 Gr.CA6NM ☒ CASE/IMPELLER WEAR RINGS A276 Ty.420 ☒ SHAFT A276 Ty.410 ☐ DIFFUSERS ☒ PERFORMANCE PROPOSAL CURVE NO. VP-2017-112-P101AB-002 2970 r/min ☒ IMPELLER DIA. RATED 474 MAX. 517 MIN. 414 (mm) ☒ IMPELLER TYPE CLOSED ☒ RATED POWER 520.3 (kW) EFFICIENCY 67 (%) ☒ MINIMUM CONTINUOUS FLOW: THERMAL (m³/h) STABLE 226 (m³/h) ☐ PREFERRED OPERATING REGION TO (m³/h) ☒ ALLOWABLE OPERATING REGION 226 TO 950 (m³/h) ☒ MAX HEAD @ RATED IMPELLER 327.5 (m) ☒ MAX POWER @ RATED IMPELLER 644.2 (kW) ☒ NPSH REQUIRED AT RATED FLOW 5.9 (m) (5.1.10) ☒ MAX.SUCTION SPECIFIC SPEED 202.1 (m³/s . rpm .m) (5.1.11) ☒ MAX. SOUND PRESS. LEVEL REQ'D 85 @ 1 METER [dB(A)] (5.1.16) ☒ ESTIMATED MAX. SOUND PRESS LEVEL 85 [dB(A)] (5.1.16) ☒ ESTIMATED MAX. SOUND POWER LEVEL [dB(A)] (5.1.16) ☒ UTILITY ONDITIONS(5.1.3) <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td rowspan="2">ELECTRICITY</td> <td>VOLTAGE</td> <td>PHASE</td> <td>HERTZ</td> </tr> <tr> <td>6000 V</td> <td>3</td> <td>50</td> </tr> <tr> <td>DRIVERS</td> <td colspan="3"></td> </tr> <tr> <td>HEATING</td> <td colspan="3"></td> </tr> <tr> <td colspan="4">SYSTEM VOLTAGE DIP ☐ 80% ☐ OTHER (6.1.5)</td> </tr> <tr> <td>STEAM</td> <td>MAX.PRESS.</td> <td>MAX.TEMP.</td> <td>MIN. PRESS.</td> </tr> <tr> <td>DRIVERS</td> <td></td> <td></td> <td></td> </tr> <tr> <td>HEATING</td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="4">COOLING WATER:(5.1.19) SOURCE _____</td> </tr> <tr> <td colspan="2">SUPPLY TEMP. (°C)</td> <td colspan="2">MAX.RETURN TEMP. (°C)</td> </tr> <tr> <td colspan="2">NORM. PRESS. (MPa)</td> <td colspan="2">DESIGN PRESS. (MPa)</td> </tr> <tr> <td colspan="2">MIN.RET.PRESS. (MPa)</td> <td colspan="2">MAX.ALLOW.D.P. (MPa)</td> </tr> <tr> <td colspan="4">CHLORIDE CONCENTRATION: (mg/kg)</td> </tr> </table>		MIN	NORMAL	MAX	PUMPING TEMP (°C)		37	85	VAPOR PRESS (MPa)		0.43765		RELATIVE DENSITY (SG)		0.752		VISCOSITY [mPa·s]		0.83		ELECTRICITY	VOLTAGE	PHASE	HERTZ	6000 V	3	50	DRIVERS				HEATING				SYSTEM VOLTAGE DIP ☐ 80% ☐ OTHER (6.1.5)				STEAM	MAX.PRESS.	MAX.TEMP.	MIN. PRESS.	DRIVERS				HEATING				COOLING WATER:(5.1.19) SOURCE _____				SUPPLY TEMP. (°C)		MAX.RETURN TEMP. (°C)		NORM. PRESS. (MPa)		DESIGN PRESS. (MPa)		MIN.RET.PRESS. (MPa)		MAX.ALLOW.D.P. (MPa)		CHLORIDE CONCENTRATION: (mg/kg)			
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1	APPLICABLE TO:	☐ PROPOSALS ☒ PURCHASE ☐ AS BUILT								
2	FOR	PARS OIL & GAS COMPANY				UNIT	112			
3	SITE	ASSALUYEH, IRAN PHASE 4 & 5				SERVICE	EXTRACTION CIRCULATION PUMPS			
4	NOTES:	INDICATES INFORMATION TO BE COMPLETED ☐ BY PURCHASER ☒ BY MANUFACTURER ☐ BY MFR OR PURCHASER								
5		☒ DATA SHEETS					☐ REVISIONS			
6		ITEM NO	ATTACHED	ITEM NO	ATTACHED	ITEM NO	ATTACHED	NO	DATE	BY
7	PUMP	112-P-102 A/B	☒		☐		☐	1		
8	MOTOR	112-PM-102A/B	☒		☐		☐	2		
9	GEAR		☐		☐		☐	3		
10	TURBINE		☐		☐		☐	4		
11								5		

APPLICABLE OVERLAY STANDARDS:																								
☒ OPERATING CONDITIONS(5.1.3)					☒ LIQUID(5.1.3)																			
13	FLOW @ P.T. NORMAL	22	(m³/h)	RATED	24.2	(m³/h)	LIQUID TYPE OR NAME																	
14	OTHER						☐ HAZARDOUS ☒ FLAMMABLE ☐ CAUSTIC 10% (5.1.5)																	
15	SUCTION PRESSURE:	MAX/RATED	14.72	(bara)	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>MIN</td> <td>NORMAL</td> <td>MAX</td> </tr> <tr> <td></td> <td>56.5</td> <td>85</td> </tr> <tr> <td></td> <td>0.186</td> <td></td> </tr> <tr> <td></td> <td>1.11</td> <td></td> </tr> <tr> <td></td> <td>0.557</td> <td></td> </tr> </table>					MIN	NORMAL	MAX		56.5	85		0.186			1.11			0.557	
MIN	NORMAL	MAX																						
	56.5	85																						
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16	DISCHARGE PRESSURE		17.82	(bara)																				
17	DIFFERENTIAL PRESSURE		3.10	(bara)																				
18	DIFF. HEAD	28.47	(m)	NPSHA	133.5	(m)																		
19	PROCESS VARIATIONS	(5.1.4)					PUMPING TEMP (°C)																	
20	STARTING CONDITIONS	(5.1.4) DIRECT START W. OPEN VALVE					VAPOR PRESS (bara)																	
21	SERVICE:	☒ CONTINUOUS ☐ INTERMITTENT (STARTS/DAY)					RELATIVE DENSITY (SG)																	
22	☒ PARALLEL OPERATION REQUIRED (5.1.13)						VISCOSITY [mPa-s]																	
23	☒ SITE DATA(5.1.3)					SPECIFIC HEAT, Cp [kJ/kg-K]																		
24	LOCATION:	(5.1.30)					☐ CHLORIDE CONCENTRATION (mg/kg) (6.5.2.4)																	
25	☐ INDOOR ☐ HEATED ☒ OUTDOOR ☒ UNHEATED						☐ H ₂ S CONCENTRATION (mol fraction) WET (5.12.1.12c)																	
26	☒ ELECTRIC AREA CLASSIFICATION (5.1.24/6.1.4)						CORROSIVE/EROSIVE AGENT Yes (5.12.1.9)																	
27	CLASS T3 GRADE II B DIVISION Zone 2						☒ MATERIALS(5.12.1.1)																	
28	☐ WINTERIZATION REQ'D ☐ TROPICALIZATION REQ'D.						☒ ANNEX H CLASS (5.12.1.1) S-6 ☒ MIN DESIGN METAL TEMP. (5.12.4.1) 8 (°C) ☐ REDUCED HARDNESS MATERIALS REQ'D(5.12.1.12)																	
29	SITE DATA (5.1.30)						☒ BARREL/CASE A-216 Gr.WCB IMPELLER A743 CA6NM ☒ CASE/IMPELLER WEAR RINGS A276 Tp 420 ☐ SHAFT A322 Gr.4140 ☐ DIFFUSERS																	
30	☐ ALTITUDE (m) BAROMETER 1 (bara)						☒ PERFORMANCE																	
31	☒ RANGE OF AMBIENT TEMPS: MIN/MAX. 2 / 48 (°C)						PROPOSAL CURVE NO. VP-2017-112-P102AB-002 2895 r/min																	
32	☒ RELATIVE HUMIDITY: MIN / MAX 65 / 100 (%)						☒ IMPELLER DIA. RATED 160 MAX. 168 MIN. 131 (mm) ☒ IMPELLER TYPE CLOSED ☒ RATED POWER 3.5 (kW) EFFICIENCY 59.7 (%)																	
33	UNUSUAL CONDITIONS: (5.1.30) ☒ DUST ☐ FUMES						☒ MINIMUM CONTINUOUS FLOW: THERMAL (m³/h) STABLE 4.1 (m³/h)																	
34	☒ OTHER H2S: 10ppm & SO2: 5ppm						☐ PREFERRED OPERATING REGION TO (m³/h) ☒ ALLOWABLE OPERATING REGION 4.1 TO 36 (m³/h) ☒ MAX HEAD @ RATED IMPELLER 32.3 (m) ☒ MAX POWER @ RATED IMPELLER 4.2 (kW) ☒ NPSH REQUIRED AT RATED FLOW 1.7 (m) (5.1.10)																	
35							☒ MAX.SUCTION SPECIFIC SPEED 127.96 (m³/s . rpm .m) (5.1.11) ☒ MAX. SOUND PRESS. LEVEL REQ'D 85 @ 1 METER [dB(A)] (5.1.16) ☒ ESTIMATED MAX. SOUND PRESS LEVEL 85 [dB(A)] (5.1.16) ☒ ESTIMATED MAX. SOUND POWER LEVEL [dB(A)] (5.1.16)																	
36							☒ UTILITY ONDITIONS(5.1.3)																	
37	☒ DRIVER TYPE																							
38	☒ INDUCTION MOTOR ☐ STEAM TURBINE ☐ GEAR						ELECTRICITY																	
39	☐ OTHER						<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>VOLTAGE</td> <td>PHASE</td> <td>HERTZ</td> </tr> <tr> <td>400 V</td> <td>3</td> <td>50</td> </tr> </table>					VOLTAGE	PHASE	HERTZ	400 V	3	50							
VOLTAGE	PHASE	HERTZ																						
400 V	3	50																						
40							HEATING																	
41	☒ MOTOR DRIVE(6.1.1/6.1.4)																							
42	☒ MANUFACTURER HYOSUNG						SYSTEM VOLTAGE DIP ☐ 80% ☐ OTHER (6.1.5)																	
43	☒ FRAME 5.5 (kW) 2895 (r/min)						STEAM																	
44	☒ HORIZONTAL ☐ VERTICAL ☒ ENCLOSURE TEFC						<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>MAX.PRESS.</td> <td>MAX.TEMP.</td> <td>MIN. PRESS.</td> <td>MIN.TEMP.</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table>					MAX.PRESS.	MAX.TEMP.	MIN. PRESS.	MIN.TEMP.									
MAX.PRESS.	MAX.TEMP.	MIN. PRESS.	MIN.TEMP.																					
45	☒ VOLTS/PHASE/HERTZ 400 / 3 / 50						DRIVERS																	
46	☒ TYPE EF						HEATING																	
47	☐ MINIMUM STARTING VOLTAGE (6.1.5)						COOLING WATER:(5.1.19) SOURCE																	
48	☒ INSULATION F ☒ TEMP.RISE B						SUPPLY TEMP. (°C) MAX.RETURN TEMP. (°C)																	
49	☒ FULL LOAD AMPS 11						NORM. PRESS. (MPa) DESIGN PRESS. (MPa)																	
50	☒ LOCKED ROTOR AMPS 71						MIN.RET.PRESS. (MPa) MAX.ALLOW.D.P. (MPa)																	
51	☒ STARTING METHOD DOL						CHLORIDE CONCENTRATION: (mg/kg)																	
52	☐ LUBE																							
53	BEARINGS (TYPE/NUMBER)																							
54	☒ DE BALL / 6208ZZ																							
55	☒ NDE BALL / 6206ZZ																							
56	☐ VERTICAL THRUST CAPACITY																							
57	UP (N) DOWN (N)																							
58																								
59																								
60																								

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1	APPLICABLE TO: ☐ PROPOSALS ☒ PURCHASE ☒ AS BUILT																
2	FOR PARS OIL & GAS COMPANY UNIT 112																
3	SITE ASSALUYEH, IRAN PHASE 4 & 5 SERVICE TREATED CONDENSATE PUMPS																
4	NOTES: INDICATES INFORMATION TO BE COMPLETED ☐ BY PURCHASER ☒ BY MANUFACTURER ☐ BY MFR OR PURCHASER																
5	☒ DATA SHEETS																
6	☐ REVISIONS																
7	ITEM NO	ATTACHED	ITEM NO	ATTACHED	ITEM NO	ATTACHED	NO	DATE	BY								
8	PUMP	112-P-104 A/B	☒	☐		☐	1										
9	MOTOR	112-PM-104 A/B	☒	☐		☐	2										
10	GEAR		☐	☐		☐	3										
11	TURBINE		☐	☐		☐	4										
12	APPLICABLE OVERLAY STANDARDS:																
13	☒ OPERATING CONDITIONS(5.1.3)					☒ LIQUID(5.1.3)											
14	FLOW @ P.T. NORMAL 542.42 (m³/h) RATED 596.2 (m³/h)					LIQUID TYPE OR NAME HC CONDENSATE											
15	OTHER					☐ HAZARDOUS ☒ FLAMMABLE ☐ (5.1.5)											
16	SUCTION PRESSURE: MAX/RATED 1.13 (bara)					<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;">MIN</td> <td style="width:33%;">NORMAL</td> <td style="width:33%;">MAX</td> </tr> <tr> <td></td> <td>56.6</td> <td>85</td> </tr> </table>				MIN	NORMAL	MAX		56.6	85		
MIN	NORMAL	MAX															
	56.6	85															
17	DISCHARGE PRESSURE 8.06 (bara)					PUMPING TEMP (°C)											
18	DIFFERENTIAL PRESSURE 6.93 (bara)					VAPOR PRESS (MPa)											
19	DIFF. HEAD 97.04 (m) NPSHA 3.22 (m)					RELATIVE DENSITY (SG)											
20	PROCESS VARIATIONS (5.1.4)					VISCOSITY [mPa·s]											
21	STARTING CONDITIONS (5.1.4) Manual					SPECIFIC HEAT, Cp [kJ/kg·K]											
22	SERVICE: ☒ CONTINUOUS ☐ INTERMITTENT (STARTS/DAY)					☐ CHLORIDE CONCENTRATION (mg/kg) (6.5.2.4)											
23	☒ PARALLEL OPERATION REQUIRED (5.1.13)					☐ H ₂ S CONCENTRATION (mol fraction) WET (5.12.1.12c)											
24	☒ SITE DATA(5.1.3)					CORROSIVE/EROSIVE AGENT YES (5.12.1.9)											
25	LOCATION: (5.1.30)					☒ MATERIALS(5.12.1.1)											
26	☐ INDOOR ☐ HEATED ☒ OUTDOOR ☒ UNHEATED					☒ ANNEX H CLASS (5.12.1.1) S-6											
27	☒ ELECTRIC AREA CLASSIFICATION (5.1.24/6.1.4) CLASS T3 GRADE IIB DIVISION Zone 2					☒ MIN DESIGN METAL TEMP. (5.12.4.1) 8 (°C)											
28	☐ WINTERIZATION REQ'D ☐ TROPICALIZATION REQ'D.					☐ REDUCED HARDNESS MATERIALS REQ'D(5.12.1.12)											
29	SITE DATA (5.1.30)					☒ BARREL/CASE A-216 Gr.WCB IMPELLER A743 Gr.CA6NM											
30	☐ ALTITUDE (m) BAROMETER 1 (bar)					☒ CASE/IMPELLER WEAR RINGS A276 Ty.420											
31	☒ RANGE OF AMBIENT TEMPS: MIN/MAX. 2 / 48 (°C)					☒ SHAFT A322 Gr.4140											
32	☒ RELATIVE HUMIDITY: MIN / MAX 65 / 100 (%)					☐ DIFFUSERS											
33	UNUSUAL CONDITIONS: (5.1.30) ☒ DUST ☐ FUMES					☒ PERFORMANCE											
34	☒ OTHER H2S: 10ppm & SO2: 5ppm					PROPOSAL CURVE NO. VP-2017-112-P104AB-002 1480 r/min											
35						☒ IMPELLER DIA. RATED 544 MAX. 614 MIN. 495 (mm)											
36						☒ IMPELLER TYPE CLOSED											
37						☒ RATED POWER 151.1 (kW) EFFICIENCY 75.9 (%)											
38	☒ DRIVER TYPE					☒ MINIMUM CONTINUOUS FLOW:											
39	☒ INDUCTION MOTOR ☐ STEAM TURBINE ☐ GEAR					THERMAL (m³/h) STABLE 218 (m³/h)											
40	☐ OTHER					☐ PREFERRED OPERATING REGION TO (m³/h)											
41	☒ MOTOR DRIVE(6.1.1/6.1.4)					☒ ALLOWABLE OPERATING REGION 218 TO 900 (m³/h)											
42	☒ MANUFACTURER HYOSUNG					☒ MAX HEAD @ RATED IMPELLER 113 (m)											
43	☒ FRAME 200 (kW) ☒ ENCLOSURE EP (Exd IIB T4)					☒ MAX POWER @ RATED IMPELLER 185.7 (kW)											
44	☒ HORIZONTAL ☒ VERTICAL ☒ SERVICE FACTOR 1.0					☒ NPSH REQUIRED AT RATED FLOW 2.3 (m) (5.1.10)											
45	☒ VOLTS/PHASE/HERTZ 6000 / 3 / 50					☒ MAX.SUCTION SPECIFIC SPEED 206.93 (m³/s . rpm .m) (5.1.11)											
46	☒ TYPE TEFC					☒ MAX. SOUND PRESS. LEVEL REQ'D 85 @ 1 METER [dB(A)] (5.1.16)											
47	☐ MINIMUM STARTING VOLTAGE (6.1.5)					☒ ESTIMATED MAX. SOUND PRESS LEVEL 85 [dB(A)] (5.1.16)											
48	☒ INSULATION F ☒ TEMP.RISE B					☐ ESTIMATED MAX. SOUND POWER LEVEL [dB(A)] (5.1.16)											
49	☒ FULL LOAD AMPS 24.4					☒ UTILITY ONDITIONS(5.1.3)											
50	☒ LOCKED ROTOR AMPS 159					ELECTRICITY											
51	☒ STARTING METHOD DOL					<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;">VOLTAGE</td> <td style="width:33%;">PHASE</td> <td style="width:33%;">HERTZ</td> </tr> <tr> <td>6000 V</td> <td>3</td> <td>50</td> </tr> </table>				VOLTAGE	PHASE	HERTZ	6000 V	3	50		
VOLTAGE	PHASE	HERTZ															
6000 V	3	50															
52	☒ LUBE GREASE					DRIVERS HEATING											
53						SYSTEM VOLTAGE DIP ☐ 80% ☐ OTHER (6.1.5)											
54	BEARINGS (TYPE/NUMBER)					STEAM											
55	☒ DE BALL / NU320					<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:25%;">MAX.PRESS.</td> <td style="width:25%;">MAX.TEMP.</td> <td style="width:25%;">MIN. PRESS.</td> <td style="width:25%;">MIN.TEMP.</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table>				MAX.PRESS.	MAX.TEMP.	MIN. PRESS.	MIN.TEMP.				
MAX.PRESS.	MAX.TEMP.	MIN. PRESS.	MIN.TEMP.														
56	☒ NDE BALL / 6320C3					DRIVERS											
57	☐ VERTICAL THRUST CAPACITY					HEATING											
58	UP (N) DOWN (N)					COOLING WATER:(5.1.19) SOURCE											
59						SUPPLY TEMP. (°C) MAX.RETURN TEMP. (°C)											
60						NORM. PRESS. (MPa) DESIGN PRESS. (MPa)											
						MIN.RET.PRESS. (MPa) MAX.ALLOW.D.P. (MPa)											
						CHLORIDE CONCENTRATION: (mg/kg)											

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1	APPLICABLE TO:	☐ PROPOSALS ☒ PURCHASE ☐ AS BUILT						
2	FOR	PARS OIL & GAS COMPANY						
3	SITE	ASSALUYEH, IRAN PHASE 4 & 5						
4	NOTES:	INDICATES INFORMATION TO BE COMPLETED ☐ BY PURCHASER ☒ BY MANUFACTURER ☐ BY MFR OR PURCHASER						
5		☒ DATA SHEETS						
6		☐ REVISIONS						
7		ITEM NO	ATTACHED	ITEM NO	ATTACHED	ITEM NO	ATTACHED	NO
8	PUMP	112-P-106	☒		☐		☐	1
9	MOTOR	112-PM-106	☒		☐		☐	2
10	GEAR		☐		☐		☐	3
11	TURBINE		☐		☐		☐	4
12								5
13	APPLICABLE OVERLAY STANDARDS:							
14	☒ OPERATING CONDITIONS(5.1.3)							
15	FLOW @ P.T. NORMAL	10	(m³/h)	RATED	10	(m³/h)		
16	OTHER							
17	SUCTION PRESSURE:	MAX/RATED	0.65	(bara)				
18	DISCHARGE PRESSURE		3.48	(bara)				
19	DIFFERENTIAL PRESSURE		2.83	(bara)				
20	DIFF. HEAD	24.83	(m)	NPSHA	11.05	(m)		
21	PROCESS VARIATIONS	(5.1.4)						
22	STARTING CONDITIONS	(5.1.4) DIRECT START W. OPEN VALVE						
23	SERVICE:	☒ CONTINUOUS ☐ INTERMITTENT (STARTS/DAY)						
24		☐ PARALLEL OPERATION REQUIRED (5.1.13)						
25	☒ SITE DATA(5.1.3)							
26	LOCATION:	(5.1.30)						
27	☐ INDOOR ☐ HEATED ☒ OUTDOOR ☒ UNHEATED							
28	☒ ELECTRIC AREA CLASSIFICATION (5.1.24/6.1.4)							
29	CLASS	T3	GRADE	II B	DIVISION	Zone 2		
30	☐ WINTERIZATION REQ'D	☐ TROPICALIZATION REQ'D						
31	SITE DATA	(5.1.30)						
32	☐ ALTITUDE		(m)	BAROMETER	1	(bara)		
33	☒ RANGE OF AMBIENT TEMPS: MIN/MAX	2	/	48	(°C)			
34	☒ RELATIVE HUMIDITY:	MIN / MAX	65	/	100	(%)		
35	UNUSUAL CONDITIONS:	(5.1.30) ☒ DUST ☐ FUMES						
36	☒ OTHER	H2S: 10ppm & SO2: 5ppm						
37	☒ DRIVER TYPE							
38	☒ INDUCTION MOTOR ☐ STEAM TURBINE ☐ GEAR							
39	☐ OTHER							
40	☒ MOTOR DRIVE(6.1.1/6.1.4)							
41	☒ MANUFACTURER	HYOSUNG						
42		3.7	(kW)		1445	(r/min)		
43	☒ FRAME	132M		☒ ENCLOSURE	TEFC			
44	☐ HORIZONTAL ☒ VERTICAL	☒ SERVICE FACTOR						
45		400	/	3	/	50		
46	☒ VOLTS/PHASE/HERTZ							
47	☒ TYPE	TE						
48	☐ MINIMUM STARTING VOLTAGE (6.1.5)							
49	☒ INSULATION	F		☐ TEMP. RISE				
50	☒ FULL LOAD AMPS	8.1						
51	☒ LOCKED ROTOR AMPS	53						
52	☒ STARTING METHOD	DOL						
53	☒ LUBE	GREASE						
54	BEARINGS (TYPE/NUMBER)							
55	☒ DE	BALL	/	3208B				
56	☒ NDE	BALL	/	6209ZZ				
57	☒ VERTICAL THRUST CAPACITY							
58	UP	981	(N)	DOWN	1667	(N)		
59								
60								

☒ LIQUID(5.1.3)							
LIQUID TYPE OR NAME							
CAUSTIC SOLUTION 5% (5.1.5)							
☐ HAZARDOUS ☐ FLAMMABLE ☐ (5.1.5)							
		MIN	NORMAL	MAX			
PUMPING TEMP (°C)			40	85			
VAPOR PRESS (MPa)			0.075				
RELATIVE DENSITY (SG)			1.164				
VISCOSITY [mPa·s]							
SPECIFIC HEAT, Cp		[kJ/kg·K]					
☐ CHLORIDE CONCENTRATION		(mg/kg) (6.5.2.4)					
☐ H ₂ S CONCENTRATION		(mol fraction) WET (5.12.1.12c)					
CORROSIVE/EROSIVE AGENT		Yes (5.12.1.9)					
☒ MATERIALS(5.12.1.1)							
☒ ANNEX H CLASS (5.12.1.1) S-6							
☒ MIN DESIGN METAL TEMP. (5.12.4.1) 8 (°C)							
☐ REDUCED HARDNESS MATERIALS REQ'D(5.12.1.12)							
☒ BARREL/CASE		A-216 Gr. WCB IMPELLER A743 Gr. CA6NM					
☒ CASE/IMPELLER WEAR RINGS		A276 Type 420					
☒ SHAFT		A276 Type 420					
☐ DIFFUSERS							
☒ PERFORMANCE							
PROPOSAL CURVE NO.		VP-2017-112-P106-002 1445 r/min					
☒ IMPELLER DIA. RATED		153	MAX.	170	MIN.	145	(mm)
☒ IMPELLER TYPE		CLOSED					
☒ RATED POWER		1.54	(kW)	EFFICIENCY	51	(%)	
☒ MINIMUM CONTINUOUS FLOW:							
THERMAL			(m³/h)	STABLE	2.9	(m³/h)	
☐ PREFERRED OPERATING REGION		TO (m³/h)					
☒ ALLOWABLE OPERATING REGION		2.9	TO	14	(m³/h)		
☒ MAX HEAD @ RATED IMPELLER		28.1 (m)					
☒ MAX POWER @ RATED IMPELLER		1.81 (kW)					
☒ NPSH REQUIRED AT RATED FLOW		0.65 (m) (5.1.10)					
☒ MAX. SUCTION SPECIFIC SPEED		98.7 (m³/s.m.rpm) (5.1.11)					
☒ MAX. SOUND PRESS. LEVEL REQ'D		85 @ 1 METER [dB(A)] (5.1.16)					
☒ ESTIMATED MAX. SOUND PRESS LEVEL		85 [dB(A)] (5.1.16)					
☐ ESTIMATED MAX. SOUND POWER LEVEL		[dB(A)] (5.1.16)					
☒ UTILITY ONDITIONS(5.1.3)							
ELECTRICITY		VOLTAGE	PHASE	HERTZ			
DRIVERS		400	3	50			
HEATING							
SYSTEM VOLTAGE DIP		☐ 80% ☐ OTHER (6.1.5)					
STEAM		MAX.PRESS.	MAX.TEMP.	MIN. PRESS.	MIN.TEMP.		
DRIVERS							
HEATING							
COOLING WATER:(5.1.19)		SOURCE					
SUPPLY TEMP.		(°C) MAX.RETURN TEMP. (°C)					
NORM. PRESS.		(MPa) DESIGN PRESS. (MPa)					
MIN.RET.PRESS.		(MPa) MAX.ALLOW.D.P. (MPa)					
CHLORIDE CONCENTRATION:		(mg/kg)					