

CENTRIFUGAL PUMP DATASHEET

Project N° 218857C Unit 01 Document Code SP 0910 Serial N° 0101 Rev B Page 1
Doc. Client Code: 218857C-01-MAC-DS-1901-0000

IMPORTANT NOTE

Electrical Area Classification Note that the selections available allow for both Europe and US designations
Some of the drop-down selections may not adequately cover the project requirements.

PROJECT UNITS

SI

CLIENT: SOCAR

PROJECT TITLE: SOCAR DOWNSTREAM INTEGRATION NEW REFINERY IN SUMGAYIT FEED PROJECT

JOB NUMBER:

EQUIPMENT NUMBER: 01-P-101 A/B/C/D

EQUIPMENT SERVICE: CRUDE OIL PUMPS

SERIAL NUMBER:

REQ / SPEC NUMBER :

PURCHASE ORDER NUMBER :

Cells coloured thus contain drop-down options
Text in BLACK color are by Purchaser
Text in BLUE color are by Supplier
Text in RED color are by Purchaser OR Supplier

COMMENTS:

ADDITIONAL / RELATED DATASHEETS

PUMP(s)
MOTOR(s)
GEAR(s)
TURBINE(s)

ITEM / TAG NUMBERS	ATT	ITEM / TAG NUMBERS	ATT	ITEM / TAG NUMBERS	ATT

APPLICABLE OVERLAY STANDARDS

B	ISSUED FOR REVIEW (IFR)	20/02/2026	F. Tortorici	M. Pasini	M. Sani E. Ventimiglia						
A	ISSUED FOR REVIEW	28/8/2025	E. Sanchez	C. Ruiz C. Ariete	A. Guerrieri E. Ventimiglia						
Rev	Status	Date	Wrt	Verif.	App/Auth.	Rev	Status	Date	Wrt	Verif.	App/Auth.

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				SOCAR DOWNSTREAM INTEGRATION - NEW REFINERY IN SUMGAYIT FEED PROJECT					
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				218857C	01	SP 0910	0101	B	2
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GENERAL									
1	Note	APPLICABLE TO: PROPOSAL		APPLICABLE NATIONAL / INTERNATIONAL STANDARD : API-610 12th edition		Rev			
2		CLIENT SOCAR		UNIT UNIT 01 - CRUDE OIL TANKS AREA					
3		SITE NEW REFINERY SUMGAYIT - AZERBAIJAN		SERVICE CRUDE OIL PUMPS		B			
4	(1)	NO. REQ 4	PUMP SIZE	TYPE HORIZONTAL		No. STAGES			
5		MANUFACTURER		MODEL		SERIAL NO.			
6		EQUIPMENT NUMBER 01-P-101 A/B/C/D							
7									
LIQUID CHARACTERISTICS									
9		Units	@ RATED TEMP	@ MAXIMUM TEMP	@ MINIMUM TEMP	Alternate LIQUID			
10	(19)	LIQUID TYPE OR NAME :	NEFT DASHLARI CRUDE		SHIRVAN CRUDE	SHIRVAN CRUDE		B	
11		PUMPING TEMPERATURE :	42.0		5.0	0.0		B	
12		VAPOR PRESSURE :	0.43						
13		RELATIVE DENSITY (3.1.53) :	0.838		0.912	0.916		B	
14		SPECIFIC HEAT :	1.86						
15		VISCOSITY :	5.8		179.7	258.3		B	
16									
17	(11)	OPERATING CONDITIONS (6.1.3)							
18		Units	Rated	Normal	Alt Condition 1	Alt Condition 2	Alt Condition 3	Alt Condition 4	
19					Max. Suction pressure	{Name 2}	{Name 3}	{Name 4}	
20		NPSHA Datum: C.L. Suction Nozzle							
21		PUMPING TEMPERATURE :	42.0	42.0					B
22		FLOW :	350.0	318.2					
23	(9, 18)	DISCHARGE PRESSURE (6.3.2) :	33.52						B
24	(9, 12)	SUCTION PRESSURE :	0.98	2.54					B
25		DIFFERENTIAL PRESSURE :	32.54						B
26		DIFFERENTIAL HEAD :	396						B
27	(9,8)	NPSHA :	5.3						B
28	(17)	HYDRAULIC POWER :	344.4						B
29									
30									
31	(2, 10)	SERVICE (CONTINUOUS/INTERMITTENT) :	CONTINUOUS	INSTALLATION LOCATION : OUTDOOR					
32		• IF INTERMITTENT, NO. OF STARTS :		IF INDOOR, TEMPERATURE: MAX: °C MIN: °C					
33	(1, 3, 14)	PUMPS OPERATE IN:	PARALLEL	ELECTRIC AREA CLASSIFICATION (6.1.29): HAZARDOUS					
34		CORROSION DUE TO : (6.12.1.9)		DIVISION	ZONE	2		B	
35		EROSION DUE TO : (6.12.1.9)		GROUP	Group IIA				B
36	(15)	H2S CONCENTRATION (ppm) : (6.12.1.13)		TEMP CLASS	T3				B
37	(13)	CHLORIDE CONCENTRATION (ppm) :		PUMP VALVE START POSITION :		Partially Open Valve			
38		PARTICULATE SIZE (DIA IN MICRONS)							
39		PARTICULATE CONCENTRATION (ppm)							
40		CORROSION ALLOWANCE (6.3.10) :							
41		DESIGN NOTES: Pump design shall comply with specification "CENTRIFUGAL PUMPS FOR HEAVY DUTY SERVICES AMENDMENT TO HS523217-00-MAC-PE-0001-0000							
42		Rev0 " no 218857C-00-MAC-SPE-0001-0000							
43									
44		PERFORMANCE				DRIVER (7.1)			
45	(13)	PROPOSAL CURVE NO.	RPM	DRIVER TYPE MOTOR					
46		IMPELLER DIA.: RATED MAX. MIN. mm		GEAR					
47		RATED POWER : kW	EFFICIENCY (%)	VARIABLE SPEED REQUIRED NO					
48		RATED CURVE BEP FLOW (at rated impeller diameter) (6.1.16) :	m³/h	SOURCE OF VARIABLE SPEED					
49		MIN FLOW : THERMAL m³/h	STABLE m³/h	MANUFACTURER					
50		PREFERRED OPERATING REGION (6.1.16)	to m³/h	NAMEPLATE POWER : kW					
51		ALLOWABLE OPERATING REGION (6.9.4.1)	to m³/h	NOMINAL RPM					
52	(24)	MAX HEAD @ RATED IMPELLER	m	RATED LOAD RPM		B			
53		MAX POWER @ RATED IMPELLER	kW	FRAME					
54		NPSH3 AT RATED FLOW (6.1.9) :	m	ORIENTATION HORIZONTAL		B			
55		CENTERLINE OF PUMP TO NPSHA DATUM	m	LUBRICATION					
56		NPSH MARGIN AT RATED FLOW (6.1.10) :	m	BEARING TYPE					
57		SPECIFIC SPEED (6.1.17)	m³/h, rpm, m	RADIAL					
58		SUCTION SPECIFIC SPEED LIMIT (6.1.11)	m³/h, rpm, m	THRUST		B			
59		SUCTION SPECIFIC SPEED (6.1.11)	m³/h, rpm, m	STARTING METHOD Direct On Line (DOL)		B			
60	(23)	MAX. ALLOWABLE SOUND PRESSURE LEVEL (6.1.19)	85 (dBA)	DRIVER DATASHEET NUMBER		B			
61		ESTIMATED MAX. SOUND PRESSURE LEVEL	(dBA)	DRIVE DESIGN STANDARD IEC		B			
62		MAX. ALLOWABLE SOUND POWER LEVEL (6.1.19)	(dB)						
63		ESTIMATED MAX SOUND POWER LEVEL	(dB)						
64									
65									

CENTRIFUGAL PUMP DATASHEET

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Note		CONSTRUCTION				
(29)	API PUMP TYPE (Table 1):	BB				
NOZZLE CONNECTIONS (6.4.2):						
	SUCTION	Size	Facing	Rating	Position	
	DISCHARGE					
PRESSURE CASING AUX. CONNECTIONS: (6.4.3)		No.	Size	Type	Facing	Rating
	BALANCE/LEAK OFF					
	DRAIN					
	VENT					
	PRESSURE GAGE					
	TEMP GAGE					
	WARM-UP LINE					
DRAIN VALVE SUPPLIED BY (7.6.2.5)						SUPPLIER
DRAINS MANIFOLDED (7.6.2.5)						YES
VENT VALVE SUPPLIED BY						SUPPLIER
VENTS MANIFOLDED						YES
THREADED CONS FOR PIPELINE SERVICE & < 55°C (6.4.3.2)						NO
ESTIMATED HYDRAULIC POWER CONSIDERED THE MAXIMUM CRUDI						NO
CYLINDRICAL THREADS REQUIRED (6.4.3.2)						NO
MACHINED AND STUDDED AUX CONNECTIONS (6.4.3.6)						NO
ROUTE DRAIN TO SKID EDGE						YES
MATERIAL (6.12.1.1)						
(6, 15)	ANNEX H CLASS	S-6				
(4)	MINIMUM DESIGN METAL TEMPERATURE (6.12.4.1)					-14 °C
	MAXIMUM ALLOWABLE TEMPERATURE (3.1.19)					°C
	REDUCED-HARDNESS MATERIALS REQ'D (6.12.1.14)					YES
	APPLICABLE HARDNESS STANDARD (6.12.1.14)					
	BARREL :					
	CASE :					CS
	DIFFUSERS					
	IMPELLER :					13Cr4Ni
	IMPELLER WEAR RING :					
	CASE WEAR RING :					
	SHAFT:					
	BOWL (IF VS-TYPE)					
BEARINGS AND BEARING HOUSINGS (6.10.1)						
BEARING (TYPE / NUMBER):						
	RADIAL		/			
	THRUST		/			
REVIEW AND APPROVE THRUST BEARING SIZE : (9.2.5.2.6)						
LUBRICATION (6.11.3) (9.3.12.4) :						
	PRESSURE LUBE SYSTEM TO API-614, CHAPTER :					
	API 614 DATASHEETS ATTACHED (9.2.6.4)					
	PRESSURIZED LUBE OIL SYSTEM MOUNTED ON BASEPLATE:					
	LOCATION OF PRESSURIZED LUBE OIL SYSTEM:					
(5, 16)	INTERCONNECTING PIPING PROVIDED BY					
	OIL VISC. ISO GRADE					VG
	VENT-TO-HOUSING CONSTANT LEVEL OILER (6.10.2.4) :					
	OIL MIST PROVISIONS (6.11.3)					
	GREASE LUBRICATION (6.11.4)					
CASING MOUNTING (6.3.14, 9.3.8.3):						
CASING TYPE:						
OH3 BACK-PULLOUT LIFTING DEVICE REQD. (9.1.2.6)						
CASING PRESSURE RATING:						
MAWP (6.3.6) : _____ bar g @ _____ °C						
HYDROTEST (8.3.2.2) : _____ bar g @ _____ °C						
WETTING AGENT REQUIRED FOR HYDROTEST (8.3.2.7) :						
HYDROTEST OH PUMP AS ASSEMBLY (8.3.2.14) :						
SUCT'N PRESS. REGIONS DESIGNED FOR MAWP (6.3.8) :						
ROTOR:						
SHAFT FLEXIBILITY INDEX (SFI) (9.1.1.3)						
FIRST CRITICAL SPEED WET (MULTISTAGE PUMPS ONLY)						
COMPONENT BALANCE TO ISO 1940-1, G1 (6.9.3.4) :						
SHRINK-FIT-LIMITED MOVEMENT IMPELLERS (9.2.2.3)						
ROTATION (VIEWED FROM COUPLING END) :						
IMPELLERS INDIVIDUALLY SECURED (6.6.3) :						
COUPLING: (7.2)						
MANUFACTURER						
MODEL						
RATING (kW / 100 RPM)						
SPACER LENGTH (7.2.2.d) _____ mm						
SERVICE FACTOR (7.2.3)						
RIGID-TYPE						
COUPLING WITH HYDRAULIC FIT (7.2.9)						
COUPLING WITH PROPRIETARY CLAMPING DEVICE (7.2.10)						
COUPLING IN COMPLIANCE WITH (7.2.4)(7.2.2.f)						
GUARDS (7.3)						
COUPLING AND SHAFT GUARD STANDARD (7.3)						
IGNITION HAZARD ASSESSMENT PER EN 13463-1 (7.3.2.2; 7.3.3.4)						
COUPLING GUARD MATERIAL (7.3.2.1; 7.3.3.3) :						
SHAFT GUARD MATERIAL (7.3.2.1; 7.3.3.3) :						
SPARK RESISTANT MATERIAL REQUIRED (7.3.2.1) : YES						
BASEPLATE						
API BASEPLATE NUMBER (ANNEX D) :						
IF NON-STD BASEPLATE DIMENSIONS (LxW) (mm²) :						
BASEPLATE CONSTRUCTION (7.4) TOP DECKING						
BASEPLATE DRAINAGE (7.4.1) SLOPED FULL DECK PLATE						
MOUNTING : GROUTED						
NON-GROUT CONSTRUCTION (7.4.1.e):						
SUPPLIED WITH : ● GROUT AND VENT HOLES YES						
● DRAIN CONNECTION YES						
DEMONSTRATE BASEPLATE PAD FLATNESS (7.4.9)						
PROVIDE SPACER PLATE UNDER ALL EQUIPMENT FEET (7.4.10)						
BOLT OH 3/4/5 PUMP TO PAD / FOUNDATION :						
PROVIDE SOLEPLATE FOR OH 3/4/5 PUMPS (9.1.2) :						
REMARKS :						
DISCHARGE CIRCUIT PIPING DESIGN:						
DESIGN PRESSURE 44 bar g						
DESIGN TEMPERATURE 80 °C						

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1	Note	INSTRUMENTATION					Rev																								
2		INSTRUMENTATION PER API-670 (7.5.2)					B																								
3		ACCELEROMETERS (7.5.2.1)																													
4		NUMBER OF ACCELEROMETERS																													
5		MOUNTING LOCATION:																													
6		PROVISION FOR MTG ONLY (6.10.2.13)					B																								
7	(20)	FLAT SURFACE REQUIRED (6.10.2.14)					B																								
8																															
9		VIBRATION PROBES (7.5.2.2)																													
10		VIBRATION PROBES REQUIRED (7.5.2.2)																													
11		NUMBER PER RADIAL BEARING																													
12		NUMBER PER AXIAL BEARING																													
13		THREADED PROVISION FOR MTG ONLY (6.10.2.13; 6.6.12)																													
14		FLAT SURFACE PROVISION ONLY (6.10.2.14)																													
15	(25)	MONITORS AND CABLES SUPPLIED BY (7.5.2.4)					B																								
16																															
17		TEMPERATURE DETECTORS (7.5.2.3)																													
18		TEMP. PROBES REQUIRED (7.5.2.3)																													
19		PROVISIONS FOR MOUNTING ONLY (6.10.2.2)																													
20		RADIAL BEARING TEMP.																													
21		NUMBER PER RADIAL BEARING																													
22		ESTIMATED HYDRAULIC POWER CONSIDERED THE MAXIMUM																													
23		NUMBER PER THRUST BEARING ACTIVE SIDE																													
24		NUMBER PER THRUST BEARING INACTIVE SIDE																													
25		TEMP. GAUGES (WITH THERMOWELLS) (9.1.3.5)																													
26		TEMP. GAUGE LOCATION																													
27		SUPPLY UPPER/LOWER CASING RTD'S FOR WARMUP																													
28																															
29		PRESSURE GAUGE TYPE																													
30		PRESSURE GAUGE LOCATION																													
31																															
32		REMARKS																													
33																															
34																															
35																															
36		PIPING & APPURTENANCES																													
37		TAG ALL ORIFICES (7.6.2.4)					B																								
38		SOCKET WELD UNION ON 1st SEAL GLAND NIPPLE (7.6.2.8)																													
39		MANIFOLD AUX PIPING SYSTEMS AT SKID EDGE (7.6.1.6)					B																								
40		PRESSURE VESSEL DESIGN CODE REFERENCES																													
41		THESE REFERENCES SHALL BE PROVIDED BY THE MANUFACTURER																													
42		CASTING FACTORS USED IN DESIGN (PER TABLE 4)																													
43		SOURCE OF MATERIAL PROPERTIES (6.3.5)																													
44		WELDING AND REPAIRS (6.12.3.1)																													
45		THESE REFERENCES SHALL BE PROVIDED BY THE PURCHASER. (DEFAULT TO TABLE 11 IF NO PURCHASER PREFERENCE IS STATED)																													
46	(21)	ALTERNATIVE WELDING CODES AND STANDARDS					B																								
47		WELDING REQUIREMENT (APPLICABLE CODE OR STANDARD)																													
48		ALTERNATIVE WELDER/OPERATOR QUALIFICATION STANDARD																													
49		ALTERNATIVE WELDING PROCEDURE QUALIFICATION STANDARD																													
50		NON-PRESSURE RETAINING STRUCTURAL WELDING STANDARD (BASEPLATES OR SUPPORTS)																													
51		STANDARD FOR MAGNETIC PARTICLE OR LIQUID PENETRANT EXAMINATION (PLATE EDGES)																													
52		STANDARD FOR POSTWELD HEAT TREATMENT																													
53		STANDARD FOR POSTWELD HEAT TREATMENT OF CASING FABRICATION WELDS																													
54		MATERIAL INSPECTION																													
55		THESE REFERENCES SHALL BE PROVIDED BY THE PURCHASER																													
56		DEFAULT TO TABLE 14	YES	TABLE 14 INSPECTION CLASS:	II	B																									
57		ALTERNATIVE MATERIAL INSPECTIONS AND ACCEPTANCE CRITERIA (SEE TABLE 15, 8.2.2.5)																													
58		<table><tr><th>TYPE OF INSPECTION</th><th>METHOD</th><th>FOR FABRICATIONS</th><th>FOR CASTINGS</th></tr><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></table>					TYPE OF INSPECTION	METHOD	FOR FABRICATIONS	FOR CASTINGS	RADIOGRAPHY				ULTRASONIC INSPECTION				MAGNETIC PARTICLE INSPECTION				LIQUID PENETRANT INSPECTION				VISUAL INSPECTION (all surfaces)				
TYPE OF INSPECTION	METHOD	FOR FABRICATIONS	FOR CASTINGS																												
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59																															
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61																															
62																															
63																															
64																															
		SEAL SUPPORT SYSTEM MOUNTING																													
		MOUNTED ON PUMP BASEPLATE (7.6.1.4)					B																								
		LOCATION ON OR OFF BASEPLATE (7.4.6) :																													
		INTERCONNECTING PIPING BY					B																								
		Supplier					B																								
		MECHANICAL SEAL (6.8)					B																								
		SEAL TYPE																													
		API 682 DATASHEET ATTACHED :																													
		ADDITIONAL CENTRAL FLUSH PORT (6.8.9)																													
		HEATING JACKET REQ'D. (6.8.11)																													
		SEAL MANUFACTURER																													
		SIZE / TYPE																													
		MANUFACTURER CODE																													
		ARRANGEMENT					B																								
		DUAL PRESSURIZED																													
		SEAL CHAMBER DATA:																													
		TEMPERATURE °C																													
		PRESSURE bar g																													
		FLOW m³/h																													
		SEAL FLUSH PIPING PLAN:																													
		PIPE in STAINLESS STEEL					B																								
		SEAL FLUSH FLUID TYPE																													
		PIPING ASSEMBLY																													
		AUXILIARY PIPING PLAN:																													
		PIPE in STAINLESS STEEL					B																								
		AUXILIARY FLUSH FLUID TYPE																													
		PIPING ASSEMBLY																													
		HEATING AND COOLING (6.1.23-6.1.27)																													
		COOLING REQ'D																													
		COOLING WATER PIPING PLAN (7.6.3.1)																													
		COOLING WATER PIPING																													
		FITTINGS																													
		COOLING WATER PIPING MATERIALS					B																								
		GALVANISED																													
		COOLING WATER REQUIREMENTS:																													
		SUPPLY PRESSURE bar g																													
		BEARING HOUSING m³/h																													
		HEAT EXCHANGER m³/h																													
		TOTAL COOLING WATER m³/h					B																								
		HEATING MEDIUM																													
		HEATING PIPING					B																								

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1	Note	SURFACE PREPARATION, PAINT & SPARES					TEST					Rev		
2		MANUFACTURER'S STANDARD (8.4.3.4)					SHOP INSPECTION (8.1.1.1)					YES	B	
3		OTHER (SEE BELOW)					PERF. CURVE & DATA APPROVAL REQ'D PRIOR TO SHIPMENT (8.3.3.4.6) :					YES	B	
4		SPECIFICATION NO. 218857C-00-MT-SPE-0005-0000					TEST WITH SUBSTITUTE SEAL (8.3.3.3.1)					NO	B	
5		PUMP:					MATERIAL CERTIFICATION REQUIRED (6.12.1.8): CASING					YES	B	
6		PUMP SURFACE PREPARATION					IMPELLER					YES	B	
7		PRIMER					SHAFT					YES	B	
8		FINISH COAT					OTHER							
9		BASEPLATE:					CASTING REPAIR WELD PROCEDURE APPROVAL REQD (6.12.2.5):					YES	B	
10		SURFACE PREPARATION					INSPECTION REQUIRED FOR CONNECTION WELDS (6.12.3.4)							
11	(27)	PRIMER:					MAG PARTICLE					YES	B	
12		FINISH COAT					RADIOGRAPHY							
13	(27)	UNDERSIDE					LIQUID PENETRANT					YES	B	
14							ULTRASONIC							
15		SHIPMENT: (8.4)					HARDNESS TEST REQUIRED (6.12.1.14; 8.2.2.7)					YES	B	
16		EXPORT BOXING REQUIRED					ADDITIONAL SUBSURFACE EXAMINATION (6.12.1.6) (8.2.1.3)						B	
17		PREPARE FOR OUTDOOR STORAGE (NUMBER OF MONTHS) :					FOR: _____							
18							METHOD: _____							
19		SPARE ROTOR ASSEMBLY PACKAGED FOR:					PMI TESTING REQUIRED (8.2.2.8)					YES	B	
20		ROTOR STORAGE ORIENTATION (9.2.8.2)					COMPONENTS TO BE TESTED : Note 22						B	
21		SHIPPING & STORAGE CONTAINER SUITABLE FOR					RESIDUAL UNBALANCE TEST (J.4.1.2)							
22		ESTIMATED HYDRAULIC POWER CON VERTICAL STORAGE (9.2.8.3) :					NOTIFICATION OF SUCCESSFUL PERFORMANCE TEST (8.1.1.3) (8.3.3.4.6)							
23		N2 PURGE REQUIRED (9.2.8.4) :					BASEPLATE (NOZZLE LOAD) TEST (7.4.24)							
24							HYDROSTATIC TEST (8.3.2)					OBSERVE	B	
25		SPARE PARTS (10.3.4.2)					HYDROSTATIC TEST OF BOWLS & COLUMN (9.3.13.1)							
26		START-UP					PERFORMANCE TEST (8.3.3)					OBSERVE	B	
27		NORMAL MAINTENANCE					RETEST ON SEAL LEAKAGE (8.3.3.2)							
28							TEST DATA POINTS TO (8.3.3.4)					8.3.3.4	B	
29							ALTERNATE TEST TOLERANCES PER (8.3.3.5)							
30	(25)	MASSES kg					NPSH (8.3.4.3)					WIT	B	
31		ITEM No	PUMP	DRIVER	GEAR	BASE	TOTAL	NPSH BASED ON 1ST STG ONLY ALLOWED (8.3.4.3.2)						
32								TEST NPSHA LIMITED TO 110% SITE NPSHA (8.3.3.7)						
33								RETEST REQUIRED AFTER FINAL HEAD ADJUSTMENT (8.3.3.8.2)					OBSERVE	B
34								COMPLETE UNIT TEST (8.3.4.4.1)						
35							SOUND LEVEL TEST (8.3.4.5)					OBSERVE	B	
36		OTHER PURCHASER REQUIREMENTS					CLEANLINESS PRIOR TO FINAL ASSEMBLY (8.2.2.6)							
37		COORDINATION MEETING REQUIRED					LOCATION OF CLEANLINESS INSPECTION:							
38	(27)	MAXIMUM DISCHARGE PRESSURE TO INCLUDE (6.3.2)					CHECK FOR CO-PLANAR MOUNTING PAD FLATNESS (7.4.8)					OBSERVE	B	
39		MAX RELATIVE DENSITY					MECHANICAL RUN TEST UNTIL OIL TEMP STABLE (8.3.4.2.1)					OBSERVE	B	
40		OPERATION TO TRIP SPEED					4 HR. MECH RUN AFTER OIL TEMP STABLE (8.3.4.2.2)							
41		MAX DIA. IMPELLERS AND/OR NO OF STAGES					BRG HSG RESONANCE TEST (8.3.4.7)							
42		CONNECTION DESIGN APPROVAL (9.2.1.4)					STRUCTURAL RESONANCE TEST (9.3.9.2)							
43		TORSIONAL ANALYSIS / REPORT (6.9.2)					REMOVE / INSPECT HYDRODYNAMIC BEARINGS AFTER TEST (9.2.7.4)							
44		PROGRESS REPORTS (L.3.3)					AUXILIARY EQUIPMENT TEST (8.3.4.6)						B	
45		OUTLINE OF PROCEDURES USED FOR OPTIONAL TESTS (L.2.5)					EQUIPMENT TO BE INCLUDED IN AUXILLIARY TESTS :						B	
46		ADDITIONNAL DATA REQUIRING 20 YEARS RETENTION (8.2.1.1)					LOCATION OF AUXILIARY EQUIPMENT TEST :							
47		LATERAL ANALYSIS REQUIRED (9.2.4.1.2)												
48		ROTOR DYNAMIC BALANCE TO 4W/N (6.9.3.5)					IMPACT TEST (6.12.4.3) PER EN 13445							
49		VFD STEADY STATE FORCED RESPONSE ANALYSIS (6.9.2.3)					PER ASME SECTION VIII							
50		TRANSIENT FORCED RESPONSE (6.9.2.4)					CASING DISASSEMBLY AFTER TEST (8.3.3.9)							
51		BEARING LIFE CALCULATIONS REQUIRED (6.10.1.11)					SPARE PARTS TEST (8.3.4.8)							
52		CASING RETIREMENT THICKNESS DRAWING [L.3.6.1 cc) 7) xiii)]												
53		CONNECTION BOLTING (7.6.1.7)												
54		VENDOR TO KEEP REPAIR AND HT RCDS (8.2.1.1.c)												
55		VENDOR SUBMIT TEST PROCEDURES (8.3.1.1)											B	
56		SUBMIT INSPECTION CHECK LIST (8.1.5)												
57		ACOUSTIC ANALYSIS OF CROSSOVER PASSAGE (BB3, BB5)(9.2.1.5)												
58		API-691 DOCUMENTATION REQUIRED (6.1.3.1)												
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				SOCAR DOWNSTREAM INTEGRATION - NEW REFINERY IN SUMGAYIT FEED PROJECT			
CENTRIFUGAL PUMP DATASHEET		Project N°	Unit	Document Code	Serial N°	Rev	Page
		218857C	01	SP 0910	0101	B	6
		Doc. Client Code: 218857C-01-MAC-DS-1901-0000					
1	Note #	NOTES					Rev
2	(1)	TWO PUMPS IN PARALLEL OPERATION AND TWO SPARES.					B
3	(2)	FOR SITE CONDITIONS & UTILITIES OPERATING AND DESIGN CONDITIONS REFER TO BASIC DESIGN DATA DOC.					
4		218857C-00-PR-BD-0001-0000_A.					
5	(3)	FOR HAZARDOUS AREA CLASSIFICATION REFER TO HAZARDOUS AREA CLASSIFICATION DRAWINGS. Refer Doc no 218857C-01-ELE-HAD-0001-0001.					B
6	(4)	CORRESPONDING TO MINIMUM AMBIENT TEMPERATURE.					
7	(5)	ANTICIPATED (DISCHARGE) MECHANICAL DESIGN PRESSURE IS BASED ON ESTIMATED PUMP SHUTOFF PRESSURE. DETAIL					
8		ENGINEERING CONTRACTOR TO UPDATE DISCHARGE SYSTEM MECHANICAL DESIGN PRESSURE BASED ON ACTUAL INSTALLED					
9		PUMP SHUTOFF, WHICH SHALL NOT EXCEED 120% OF THE DIFFERENTIAL HEAD AT RATED FLOW.					
10	(6)	MATERIAL SELECTION TO BE FINALIZED ON VENDOR DESIGN.					
11	(7)	Deleted.					B
12	(8)	NPSH SHALL EXCEED THE NPSH3 BY AT LEAST 0.5M, OVER THE ENTIRE ANTICIPATED OPERATING RANGE.					
13	(9)	ALL CALCULATION WERE PERFORMED WITH REFERENCE TO THE GROUND LEVEL.					
14	(10)	ENVIRONMENTAL TO BE CONSIDERED MARINE SALT LADEN AND CORROSIVE. DUSTY ATMOSPHERE WITH SAND POLLUTION TO BE					
15		CONSIDERED.					
16	(11)	CONTROLLING CASE: LCM CASE.					
17	(12)	ALTERNATIVE CONDITION IS REFERENCED TO MAXIMUM SUCTION PRESSURE.					
18	(13)	PUMP MOTOR TO BE SIZED FOR END OF CURVE OPERATION.					
19	(14)	PUMP SHALL OPERATE IN PARALLEL WITH PUMPS 01-P-102A/B/C.					B
20	(15)	H2S CONTENT: 0.21 PPM WT (LCM CASE), 0 PPM (HSCM CASE). SULFUR CONTENT: 0.151%WT (LCM CASE), 1.16%WT(HSCM CASE)					
21	(16)	PUMP IS SUBJECTED TO STEAM OUT CONDITIONS 4.5 BARG @ 166°C AND FV @ 166°C.					
22	(17)	ESTIMATED HYDRAULIC POWER CONSIDERED THE MAXIMUM CRUDE OIL DENSITY (SHIRVAN CRUDE) AT MINIMUM TEMPERATURE.					B
23	(18)	NPSH TO BE CONFIRMED BASED ON FINAL PIPING CONFIGURATION.					B
24	(19)	MINIMUM OPERATIVE TEMPERATURE: 5 °C. ALTERNATIVE TEMPERATURE FOR REFERENCE: 0 °C.					B
25	(20)	Two Flat/Dimpled Faces only per Bearing Housing					B
26	(21)	Project welding specification to be applied 218857C-00-MT-SPE-0001-0000.					B
27	(22)	Test applicability for PMI: all pressure component in contact with process fluid including and not limited to casing, impeller, shaft.					B
28	(23)	The noise level shall be measured 1 m from the equipment and also at the ground level or nearest manned platform/workplace.					B
30	(24)	Unless otherwise agreed upon, the shutoff head, inclusive of the positive (API 610 XII ed table 16) tolerance shall not exceed 120% of rated head.					B
31	(25)	Preliminary, the mechanical seal plan selection for dual pressurized seal arrangement is Plan 53B.					B
32		To be confirmed by vendor during detail engineering phase.					
33	(26)	Witnessed NPSH3 test shall be performed on each pump, when the margin is 1.0 m or less.					B
34	(27)	With reference to the check for Co-Planar mounting pad flatness, applicability is for baseplates longer than 4 m.					B
35	(28)	Magnetic Particle or Liquid Penetrant required.					B
36	(29)	To be defined during detail engineering based on the evaluation of Vendors offers and available selections.					B
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