

CENTRIFUGAL PUMP DATASHEET

Project N°	Unit	Document Code	Serial N°	Rev	Page
218857C	03	SP 0910	0511	B	1

Doc. Client Code: 218857C-03-MAC-DS-5911-0000

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: 03-P-511 A/B

EQUIPMENT SERVICE: LIGHT NAPHTHA TRANSFER 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	ISSUE FOR REVIEW (IFR)	28/01/2026	F. Tortorici	M. Pasini	M. Saini E. Ventimiglia						
A	ISSUE FOR REVIEW (IFR)	17/09/2025	J. Clavijo	C. Ruiz C. Ariete	A. Guernieri E. Ventimiglia						
Rev	Status	Date	Wrt	Verif.	App/Auth.	Rev	Status	Date	Wrt	Verif.	App/Auth.

The present document or drawing is property of TECHNIP ENERGIES ITALY S.p.A. and shall not, under any circumstances, be totally or partially, directly or indirectly, transferred, reproduced, copied, disclosed or used, without its prior written consent, for any purpose and in any way other than that for which it is specifically furnished or outside the extent of the agreed upon right of use.

				SOCAR DOWNSTREAM INTEGRATION - NEW REFINERY IN SUMGAYIT FEED PROJECT						
CENTRIFUGAL PUMP DATASHEET				Project N°	Unit	Document Code	Serial N°	Rev	Page	
				218857C	03	SP 0910	0511	B	2	
				Doc. Client Code: 218857C-03-MAC-DS-5911-0000						
GENERAL										
1	Note	APPLICABLE TO: PROPOSAL		APPLICABLE NATIONAL / INTERNATIONAL STANDARD : API-610		XII ed				
2		CLIENT SOCAR		UNIT UNIT 03 - INTERMEDIATE TANKS						
3		SITE NEW REFINERY SUMGAYIT - AZERBAIJAN		SERVICE LIGHT NAPHTHA TRANSFER PUMPS						
4	(1)	NO. REQ 2	PUMP SIZE	TYPE HORIZONTAL	No. STAGES	SERIAL NO.				
5		MANUFACTURER		MODEL						
6		EQUIPMENT NUMBER 03-P-511 A/B								
LIQUID CHARACTERISTICS										
8			Units	@ RATED TEMP	@ MAXIMUM TEMP	@ MINIMUM TEMP	Alternate LIQUID			
9		LIQUID TYPE OR NAME :		LIGHT NAPHTHA		LIGHT NAPHTHA				
10		PUMPING TEMPERATURE :		42.0		-14.0				
11		VAPOR PRESSURE :		0.70						
12		RELATIVE DENSITY (3.1.53) :		0.642		0.715				
13		SPECIFIC HEAT :		2.2						
14		VISCOSITY :		0.23		0.54				
15										
16										
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}	B	
20		NPSHA Datum:		C.L. Suction Nozzle						
21		PUMPING TEMPERATURE :		42.0	42.0					
22		FLOW :	m³/h	109.0	99.1				B	
23	(9)	DISCHARGE PRESSURE (6.3.2) :	bar a	21					B	
24	(9, 11)	SUCTION PRESSURE :	bar a	1.0	2.14				B	
25		DIFFERENTIAL PRESSURE :	bar	20					B	
26		DIFFERENTIAL HEAD :	m	310					B	
27	(8, 9)	NPSHA :	m	4.2						
28	(12)	HYDRAULIC POWER :	kW	59					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	(3)	PUMPS OPERATE IN:		ALONE		ELECTRIC AREA CLASSIFICATION (6.1.29):		HAZARDOUS		
34	(14)	CORROSION DUE TO : (6.12.1.9)				DIVISION		ZONE 2		
35		EROSION DUE TO : (6.12.1.9)				GROUP Group IIA				
36		H2S CONCENTRATION (ppm) : (6.12.1.13)				TEMP CLASS T3				
37		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								B
43										
44										
45		PERFORMANCE				DRIVER (7.1)				
46		PROPOSAL CURVE NO.		RPM	DRIVER TYPE MOTOR					
47		IMPELLER DIA.: RATED	MAX.	MIN.	mm	GEAR				
48		RATED POWER : kW		EFFICIENCY	(%)	VARIABLE SPEED REQUIRED NO				
49		RATED CURVE BEP FLOW (at rated impeller diameter) (6.1.16) :			m³/h	SOURCE OF VARIABLE SPEED				
50		MIN FLOW : THERMAL	m³/h	STABLE	m³/h	MANUFACTURER				
51		PREFERRED OPERATING REGION (6.1.16)		to	m³/h	NAMEPLATE POWER : kW				
52		ALLOWABLE OPERATING REGION (6.9.4.1)		to	m³/h	NOMINAL RPM				
53	(17)	MAX HEAD @ RATED IMPELLER			m	RATED LOAD RPM				
54		MAX POWER @ RATED IMPELLER			kW	FRAME				
55		NPSH3 AT RATED FLOW (6.1.9) :			m	ORIENTATION HORIZONTAL				
56		CENTERLINE OF PUMP TO NPSHA DATUM			m	LUBRICATION				
57		NPSH MARGIN AT RATED FLOW (6.1.10) :			m	BEARING TYPE				
58		SPECIFIC SPEED (6.1.17)		m3/h, rpm, m		RADIAL				
59		SUCTION SPECIFIC SPEED LIMIT (6.1.11)		m3/h, rpm, m	213	THRUST				
60		SUCTION SPECIFIC SPEED (6.1.11)		m3/h, rpm, m		STARTING METHOD Direct On Line (DOL)				
61	(16)	MAX. ALLOWABLE SOUND PRESSURE LEVEL (6.1.19)			85 (dBA)	DRIVER DATASHEET NUMBER				
62		ESTIMATED MAX. SOUND PRESSURE LEVEL			(dBA)	DRIVE DESIGN STANDARD IEC				
63		MAX. ALLOWABLE SOUND POWER LEVEL (6.1.19)			(dB)					
64		ESTIMATED MAX SOUND POWER LEVEL			(dB)					
65										
66										

The present document or drawing is property of TECHNIP ENERGIES ITALY S.p.A. and shall not, under any circumstances, be totally or partially, directly or indirectly, transferred, reproduced, copied, disclosed or used, without its prior written consent, for any purpose and in any way other than that for which it is specifically furnished or outside the extent of the agreed upon right of use.
XLS - SP-0910 SH, 3 of 7 - Rev. 4

 TECHNIP ENERGIES		SOCAR DOWNSTREAM INTEGRATION - NEW REFINERY IN SUMGAYIT FEED PROJECT						
CENTRIFUGAL PUMP DATASHEET		Project N°	Unit	Document Code	Serial N°	Rev	Page	
		218857C	03	SP 0910	0511	B	3	
		Doc. Client Code: 218857C-03-MAC-DS-5911-0000						
1	Note	CONSTRUCTION						Rev
2	API PUMP TYPE (Table 1):	OH2						B
3								
4	NOZZLE CONNECTIONS (6.4.2):							
5		Size	Facing	Rating	Position			
6	SUCTION				END			
7	DISCHARGE				TOP			
8	PRESSURE CASING AUX. CONNECTIONS: (6.4.3)							
9		No.	Size	Type	Facing	Rating	Posn.	
10	BALANCE/LEAK OFF							
11	DRAIN							
12	VENT							
13	PRESSURE GAGE							
14	TEMP GAGE							
15	WARM-UP LINE							
16								
17	DRAIN VALVE SUPPLIED BY (7.6.2.5)	SUPPLIER						
18	DRAINS MANIFOLDED (7.6.2.5)	YES						
19	VENT VALVE SUPPLIED BY							
20	VENTS MANIFOLDED							
21	THREADED CONS FOR PIPELINE SERVICE & < 55°C (6.4.3.2)	NO						
22	SPECIAL FITTINGS FOR TRANSITIONING (6.4.3.3)	NO						
23	CYLINDRICAL THREADS REQUIRED (6.4.3.2)	NO						
24	MACHINED AND STUDDED AUX CONNECTIONS (6.4.3.6)	NO						
25	ROUTE DRAIN TO SKID EDGE	YES						
26								
27								
28		MATERIAL (6.12.1.1)						
29	(6) ANNEX H CLASS	S-5						
30	(4) MINIMUM DESIGN METAL TEMPERATURE (6.12.4.1)	-14 °C						
31	MAXIMUM ALLOWABLE TEMPERATURE (3.1.19)	°C						
32	REDUCED-HARDNESS MATERIALS REQ'D (6.12.1.14)							
33	APPLICABLE HARDNESS STANDARD (6.12.1.14)							
34	BARREL :							
35	CASE :	CS						
36	DIFFUSERS							
37	IMPELLER :	CS						
38	IMPELLER WEAR RING :							
39	CASE WEAR RING :							
40	SHAFT:							
41	BOWL (IF VS-TYPE)							
42								
43								
44		BEARINGS AND BEARING HOUSINGS (6.10.1)						
45	BEARING (TYPE / NUMBER):							
46	RADIAL	/						
47	THRUST	/						
48	REVIEW AND APPROVE THRUST BEARING SIZE : (9.2.5.2.6)							
49	LUBRICATION (6.11.3) (9.3.12.4) :							
50	PRESSURE LUBE SYSTEM TO API-614, CHAPTER :							
51	API 614 DATASHEETS ATTACHED (9.2.6.4)							
52	PRESSURIZED LUBE OIL SYSTEM MOUNTED ON BASEPLATE:							
53	LOCATION OF PRESSURIZED LUBE OIL SYSTEM:							
54	(5, 13) INTERCONNECTING PIPING PROVIDED BY							
55	OIL VISC. ISO GRADE	VG						
56	VENT-TO-HOUSING CONSTANT LEVEL OILER (6.10.2.4) :							
57	OIL MIST PROVISIONS (6.11.3)							
58	GREASE LUBRICATION (6.11.4)							
59								
60								
61								
62								
63								
64								
65								
66								
67								
68								
		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						B
		HYDROTEST (8.3.2.2) : _____ bar g @ _____ °C						B
		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) :						B
		IMPELLERS INDIVIDUALLY SECURED (6.6.3) :						B
		COUPLING: (7.2)						
		MANUFACTURER						B
		MODEL						B
		RATING (kW / 100 RPM)						B
		SPACER LENGTH (7.2.2.d) _____ mm						B
		SERVICE FACTOR (7.2.3)						B
		RIGID-TYPE						
		COUPLING WITH HYDRAULIC FIT (7.2.9)						
		COUPLING WITH PROPRIETARY CLAMPING DEVICE (7.2.10)						
		COUPLING IN COMPLIANCE WITH (7.2.4)(7.2.7)						
		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) :						B
		BASEPLATE						
		API BASEPLATE NUMBER (ANNEX D) :						
		IF NON-STD BASEPLATE DIMENSIONS (LxW) (mm²) :						
		BASEPLATE CONSTRUCTION (7.4)						B
		BASEPLATE DRAINAGE (7.4.1)						B
		MOUNTING :						B
		NON-GROUT CONSTRUCTION (7.4.1.e):						
		SUPPLIED WITH : ● GROUT AND VENT HOLES						
		● DRAIN CONNECTION						
		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 29 bar g						B
		DESIGN TEMPERATURE 80 °C						

The present document or drawing is property of TECHNIP ENERGIES ITALY S.p.A. and shall not, under any circumstances, be fully or partially, directly or indirectly, transferred, reproduced, copied, disclosed or used, without its prior written consent, for any purpose and in any way other than that for which it is specifically furnished or outside the extent of the agreed upon right of use.

				SOCAR DOWNSTREAM INTEGRATION - NEW REFINERY IN SUMGAYIT FEED PROJECT							
CENTRIFUGAL PUMP DATASHEET		Project N°		Unit	Document Code	Serial N°	Rev	Page			
		218857C		03	SP 0910	0511	B	4			
		Doc. Client Code: 218857C-03-MAC-DS-5911-0000									
1	Note	INSTRUMENTATION						SEAL SUPPORT SYSTEM MOUNTING	Rev		
2		INSTRUMENTATION PER API-670 (7.5.2)						MOUNTED ON PUMP BASEPLATE (7.6.1.4)	YES	B	
3		ACCELEROMETERS (7.5.2.1)						LOCATION ON OR OFF BASEPLATE (7.4.6) :			
4		NUMBER OF ACCELEROMETERS									
5		MOUNTING LOCATION:						INTERCONNECTING PIPING BY	Supplier	B	
6		PROVISION FOR MTG ONLY (6.10.2.13)								B	
7	(19)	FLAT SURFACE REQUIRED (6.10.2.14)								B	
8	(15,20)							MECHANICAL SEAL (6.8)		B	
9		VIBRATION PROBES (7.5.2.2)						SEAL TYPE	MECHANICAL SEAL	B	
10		VIBRATION PROBES REQUIRED (7.5.2.2)						API 682 DATASHEET ATTACHED :			
11		NUMBER PER RADIAL BEARING						ADDITIONAL CENTRAL FLUSH PORT (6.8.9)			
12		NUMBER PER AXIAL BEARING						HEATING JACKET REQ'D. (6.8.11)			
13		THREADED PROVISION FOR MTG ONLY (6.10.2.13; 6.6.12)						SEAL MANUFACTURER			
14		FLAT SURFACE PROVISION ONLY (6.10.2.14)						SIZE / TYPE			
15	(15,23)	MONITORS AND CABLES SUPPLIED BY (7.5.2.4)						MANUFACTURER CODE			
16								ARRANGEMENT	DUAL PRESSURIZED	B	
17		TEMPERATURE DETECTORS (7.5.2.3)						SEAL CHAMBER DATA:			
18		TEMP. PROBES REQUIRED (7.5.2.3)						TEMPERATURE		°C	
19		PROVISIONS FOR MOUNTING ONLY (6.10.2.2)						PRESSURE		bar g	
20		RADIAL BEARING TEMP.						FLOW		m³/h	
21		NUMBER PER RADIAL BEARING						SEAL FLUSH PIPING PLAN:			
22		THRUST BEARING TEMP.						PIPE	in	STAINLESS STEEL	B
23		NUMBER PER THRUST BEARING ACTIVE SIDE						SEAL FLUSH FLUID TYPE			
24		NUMBER PER THRUST BEARING INACTIVE SIDE						PIPING ASSEMBLY			
25		TEMP. GAUGES (WITH THERMOWELLS) (9.1.3.5)						AUXILIARY PIPING PLAN:			
26		TEMP. GAUGE LOCATION						PIPE	in	STAINLESS STEEL	B
27		SUPPLY UPPER/LOWER CASING RTD'S FOR WARMUP						AUXILIARY FLUSH FLUID TYPE			
28								PIPING ASSEMBLY			
29		PRESSURE GAUGE TYPE						HEATING AND COOLING (6.1.23-6.1.27)			
30		PRESSURE GAUGE LOCATION						COOLING REQ'D			
31								COOLING WATER PIPING PLAN (7.6.3.1)			
32								COOLING WATER PIPING			
33		REMARKS						FITTINGS			
34								COOLING WATER PIPING MATERIALS	GALVANISED	B	
35								COOLING WATER REQUIREMENTS:	SUPPLY PRESSURE	bar g	
36		PIPING & APPURTENANCES						BEARING HOUSING		m³/h	
37		TAG ALL ORIFICES (7.6.2.4)						HEAT EXCHANGER		m³/h	
38		SOCKET WELD UNION ON 1st SEAL GLAND NIPPLE (7.6.2.8)						TOTAL COOLING WATER		m³/h	
39		MANIFOLD AUX PIPING SYSTEMS AT SKID EDGE (7.6.1.6)						HEATING MEDIUM		B	
40								HEATING PIPING		B	
41		PRESSURE VESSEL DESIGN CODE REFERENCES									
42		THESE REFERENCES SHALL BE PROVIDED BY THE MANUFACTURER									
43		CASTING FACTORS USED IN DESIGN (PER TABLE 4)									
44		SOURCE OF MATERIAL PROPERTIES (6.3.5)									
45		WELDING AND REPAIRS (6.12.3.1)									
46	(21)	THESE REFERENCES SHALL BE PROVIDED BY THE PURCHASER. (DEFAULT TO TABLE 11 IF NO PURCHASER PREFERENCE IS STATED).						YES		B	
47		ALTERNATIVE WELDING CODES AND STANDARDS									
48		WELDING REQUIREMENT (APPLICABLE CODE OR STANDARD)									
49		ALTERNATIVE WELDER/OPERATOR QUALIFICATION STANDARD									
50		ALTERNATIVE WELDING PROCEDURE QUALIFICATION STANDARD									
51		NON-PRESSURE RETAINING STRUCTURAL WELDING STANDARD (BASEPLATES OR SUPPORTS)									
52		STANDARD FOR MAGNETIC PARTICLE OR LIQUID PENETRANT EXAMINATION (PLATE EDGES)									
53		STANDARD FOR POSTWELD HEAT TREATMENT									
54		STANDARD FOR POSTWELD HEAT TREATMENT OF CASING FABRICATION WELDS									
55		MATERIAL INSPECTION									
56		THESE REFERENCES SHALL BE PROVIDED BY THE PURCHASER									
57		DEFAULT TO TABLE 14						YES	TABLE 14 INSPECTION CLASS:	II	B
58		ALTERNATIVE MATERIAL INSPECTIONS AND ACCEPTANCE CRITERIA (SEE TABLE 15, 8.2.2.5)									
59		TYPE OF INSPECTION		METHOD		FOR FABRICATIONS		FOR CASTINGS			
60		RADIOGRAPHY									
61		ULTRASONIC INSPECTION									
62		MAGNETIC PARTICLE INSPECTION									
63		LIQUID PENETRANT INSPECTION									
64		VISUAL INSPECTION (all surfaces)									

The present document or drawing is property of TECHNIP ENERGIES ITALY S.p.A. and shall not, under any circumstances, be totally or partially, directly or indirectly, transferred, reproduced, copied, disclosed or used, without the prior written consent, for any purpose and in any way other than that for which it is specifically furnished or outside the extent of the agreed upon right of use.
XLS - SP-0910 SH 5 of 7 - Rev. 4

							SOCAR DOWNSTREAM INTEGRATION - NEW REFINERY IN SUMGAYIT FEED PROJECT								
CENTRIFUGAL PUMP DATASHEET							Project N°	Unit	Document Code	Serial N°	Rev	Page			
							218857C	03	SP 0910	0511	B	5			
Doc. Client Code: 218857C-03-MAC-DS-5911-0000							TEST								
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	(25)	PRIMER:					MAG PARTICLE						YES	B	
12		FINISH COAT					RADIOGRAPHY								
13	(25)	UNDERSIDE					LIQUID PENETRANT						YES	B	
14							ULTRASONIC								
15		SHIPMENT: (8.4)					HARDNESS TEST REQUIRED (6.12.1.14; 8.2.2.7)							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		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	(18)	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	(24)	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)													
59															
60															
61															
62															
63															
64															
65															
66															
67															
68															

CENTRIFUGAL PUMP DATASHEET

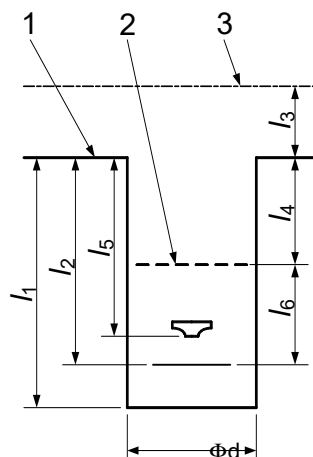
Project N° 218857C Unit 03 Document Code SP 0910 Serial N° 0511 Rev B Page 6

Doc. Client Code: 218857C-03-MAC-DS-5911-0000

1	Note	VERTICAL PUMP TYPE (Table 1)		Rev
2	REMARKS			
3				
4				
5		VERTICAL PUMPS		VERTICAL PUMPS (CONT'D)
6	PUMP THRUST:	(+) UP	(-) DOWN	LINE SHAFT:
7	STATIC THRUST	N	N	LINE SHAFT DIAMETER
8	AT MIN FLOW	N	N	TUBE DIAMETER
9	AT RATED FLOW	N	N	LINESHAFT CONNECTION
10	AT MAX FLOW	N	N	LEVEL CONTROL
11	MAX THRUST	N	N	SUCTION STRAINER TYPE
12	SEPARATE SOLEPLATE REQUIRED (9.3.8.3.2)			IMPELLER COLLETS ACCEPTABLE (6.6.3)
13	SOLEPLATE Length x Width	mm X	mm	HARDENED SLEEVES UNDER BEARINGS (9.3.10.4)
14	SOLEPLATE THICKNESS		mm	STRUCTURAL ANALYSIS (9.3.5)
15	SEPARATE MOUNTING FLANGE REQUIRED (9.3.8.3.1)			
16				SUCTION CAN
17	COLUMN PIPE:			THICKNESS
18	DIAMETER		mm	LENGTH
19	TOTAL COLUMN LENGTH		m	DIAMETER
20	NUMBER OF SECTIONS			CAN DRAIN PIPED TO SURFACE (9.3.13.4)
21	SPACING (LENGTH PER SECTION)		m	ELLIPTICAL BOTTOM HEAD REQUIRED (9.3.2.5)
22				PRESSURE CASING WALLS USING SEAMLESS PIPE (9.3.2.7)
23	GUIDE BUSHINGS:			HYDROTEST BOWLS/COLUMN @ MAX DIFF PRESSURE (9.3.13.1)
24	NUMBER			
25	LINE SHAFT BEARING SPACING		mm	
26	GUIDE BUSHING LUBE:			
27				

MATERIALS (additional)			
SUCTION CAN / BARREL:		LINESHAFT SLEEVES:	
DISCHARGE HEAD:		BEARING RETAINER:	
BOWL SHAFT:		SHAFT ENCLOSING TUBE:	
LINESHAFT:		DISCHARGE COLUMN:	
LINESHAFT HARDFACING:		PRESSURE RATING:	
BELLMOUTH:		HEAD	
BOWL BEARING:		COLUMN PIPE	
LINESHAFT BEARING:		BOWL	
		MAWP (bar g)	HYDRO (bar g)

SUMP ARRANGEMENT	
SUMP DIMENSIONS:	
GRADE ELEVATION	1 m
LOW LIQUID LEVEL ($l_3 + l_4$)	2 m
C.L. OF DISCHARGE	3 m
SUMP DEPTH	l_1 m
PUMP LENGTH	l_2 m
GRADE TO DISCH.	l_3 m
GRADE TO LOW LIQUID LVL	l_4 m
GRADE TO 1ST STG IMPL'R.	l_5 m
SUBMERGENCE REQ'D	l_6 m
SUMP DIAMETER	Φd m



The present document or drawing is property of TECHNIP ENERGIES ITALY S.p.A. and shall not, under any circumstances, be totally or partially, directly or indirectly, transferred, reproduced, copied, disclosed or used, without its prior written consent, for any purpose and in any way other than that for which it is specifically furnished or outside the extent of the agreed upon right of use.

				SOCAR DOWNSTREAM INTEGRATION - NEW REFINERY IN SUMGAYIT FEED PROJECT			
CENTRIFUGAL PUMP DATASHEET		Project N°	Unit	Document Code	Serial N°	Rev	Page
		218857C	03	SP 0910	0511	B	7
		Doc. Client Code: 218857C-03-MAC-DS-5911-0000					
1	Note #	NOTES					Rev
2	(1)	ONE PUMP IN OPERATION AND ONE SPARE.					
3	(2)	FOR SITE CONDITIONS & UTILITY DATA REFER TO DOC. 218857C-00-PR-BD-0001-0000_A.					
4	(3)	FOR HAZARDOUS AREA CLASSIFICATION REFER TO HAZARDOUS AREA CLASSIFICATION DRAWINGS.					
		DOC.No.218857C-03-ELE-HAD-0001-0001					B
5	(4)	CORRESPONDING TO MINIMUM AMBIENT TEMPERATURE.					
6	(5)	ANTICIPATED (DISCHARGE) MECHANICAL DESIGN PRESSURE IS BASED ON ESTIMATED PUMP SHUTOFF PRESSURE. DETAIL					
7		ENGINEERING CONTRACTOR TO UPDATE DISCHARGE SYSTEM MECHANICAL DESIGN PRESSURE BASED ON ACTUAL INSTALLED					
8		PUMP SHUTOFF, WHICH SHALL NOT EXCEED 125% OF THE DIFFERENTIAL HEAD AT RATED FLOW.					
9	(6)	MATERIAL SELECTION TO BE FINALIZED ON VENDOR DESIGN.					
10	(7)	Deleted					B
11	(8)	NPSH SHALL EXCEED THE NPSH3 BY AT LEAST 0.5M, OVER THE ENTIRE ANTICIPATED OPERATING RANGE.					
12	(9)	ALL CALCULATIONS WERE PERFORMED WITH REFERENCE TO THE GROUND LEVEL.					
13	(10)	ENVIRONMENTAL TO BE CONSIDERED MARINE SALT LADEN AND CORROSIVE. DUSTY ATMOSPHERE WITH SAND POLLUTION TO BE					
14		CONSIDERED.					
15	(11)	ALTERNATIVE CONDITION IS REFERENCED TO MAXIMUM SUCTION PRESSURE. RATED CONDITION IS REFERENCED TO MINIMUM					B
		SUCTION PRESSURE.					
16	(12)	ESTIMATED HYDRAULIC POWER CONSIDERED THE MAXIMUM LIGHT NAPHTHA DENSITY AT MINIMUM TEMPERATURE.					
17	(13)	PUMP IS SUBJECTED TO STEAM OUT CONDITIONS 4.5 BARG @ 166°C AND FV @ 166°C.					
18	(14)	TOTAL SULPHUR: 0.1 PPM WT.					
19	(15)	TOXIC COMPOUNDS: BENZENE > 2.42% MOL AND C7-C10 AROMATICS CONTENT > 2.5%WT.					
20	(16)	The noise level shall be measured 1 m from the equipment and also at the ground level or nearest manned platform/workplace.					B
21	(17)	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
22	(18)	Witnessed NPSH3 test shall be performed on each pump, when the margin is 1.0 m or less.					B
23	(19)	Two Flat/Dimpled Faces only per Bearing Housing					B
24	(20)	Lubrication, shaft sealing and oil-control systems and auxiliaries spec doc. no. 218857C-00-MAC-SPE-0004-0000.					B
25	(21)	Project welding specification to be applied 218857C-00-MT-SPE-0001-0000.					B
26	(22)	Test applicability for PMI: all pressure component in contact with process fluid including and not limited to casing, impeller, shaft.					B
27	(23)	Preliminary, the mechanical seal plan selection for dual pressurized seal arrangement is Plan 53B.					B
		To be confirmed by vendor during detail engineering phase.					
28	(24)	With reference to the check for Co-Planar mounting pad flatness, applicability is for baseplates longer than 4 m.					B
29	(25)	Magnetic Particle or Liquid Penetrant required.					B
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							
41							
42							
43							
44							
45							
46							
47							
48							
49							
50							
51							
52							
53							
54							
55							
56							
57							
58							
59							
60							
61							
62							
63							
64							
65							
66							