SOCAR DOWNSTREAM | T.EN TECHNIP ENERGIES

SOCAR DOWNSTREAM INTEGRATION - NEW REFINERY IN SUMGAYIT FEED PROJECT

CENTRIFUGAL PUMP DATASHEET

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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 adequetly cover the project requiremets.

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					
	ITEM / TAG NUMBERS	ATT	ITEM / TAG NUMBERS	ATT	ITEM / TAG NUMBERS	ATT
PUMP(s)						
MOTOR(s)						
GEAR(s)						
TURBINE(s)						

APPLICABLE OVERLAY STANDARDS

Rev	Status	Date	Wrt	Verif.	App/Auth.	Rev	Status	Date	Wrt	Verif.	App/Auth.
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. Guerrieri E. Ventimiglia						

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GENERAL

Note			Rev
	APPLICABLE TO:	PROPOSAL	
	APPLICABLE NATIONAL / INTERNATIONAL STANDARD :	API-610 XII ed	
	CLIENT	SOCAR	
	UNIT	UNIT 03 - INTERMEDIATE TANKS	
	SITE	NEW REFINERY SUMGAYIT - AZERBAIJAN	
	SERVICE	LIGHT NAPHTHA TRANSFER PUMPS	
(1)	NO. REQ 2 PUMP SIZE		
	TYPE	HORIZONTAL No. STAGES	
	MANUFACTURER	MODEL SERIAL NO.	
	EQUIPMENT NUMBER	03-P-511 A/B	

LIQUID CHARACTERISTICS

	Units	@ RATED TEMP	@ MAXIMUM TEMP	@ MINIMUM TEMP	*Alternate LIQUID*
LIQUID TYPE OR NAME :		LIGHT NAPHTHA		LIGHT NAPHTHA	
PUMPING TEMPERATURE :	°C	42.0		-14.0	
VAPOR PRESSURE :	bar a	0.70			
RELATIVE DENSITY (3.1.53) :		0.642		0.715	
SPECIFIC HEAT :	kJ/(kg-K)	2.2			
VISCOSITY :	cP	0.23		0.54	

OPERATING CONDITIONS (6.1.3)

		Units	Rated	Normal	Alt Condition 1	Alt Condition 2	Alt Condition 3	Alt Condition 4	
					Max.Suction Pressure	*{Name 2}*	*{Name 3}*	*{Name 4}*	
	NPSHA Datum:		C.L. Suction Nozzle						
	PUMPING TEMPERATURE :	°C	42.0	42.0					
	FLOW :	m³/h	109.0	99.1					B
(9)	DISCHARGE PRESSURE (6.3.2) :	bar a	21						B
(9, 11)	SUCTION PRESSURE :	bar a	1.0		2.14				B
	DIFFERENTIAL PRESSURE :	bar	20						B
	DIFFERENTIAL HEAD :	m	310						B
(8, 9)	NPSHA :	m	4.2						
(12)	HYDRAULIC POWER :	kW	59						B

(2, 10)	SERVICE (CONTINUOUS/INTERMITTENT) :	CONTINUOUS	INSTALLATION LOCATION : OUTDOOR
	• IF INTERMITTENT, NO. OF STARTS :		IF INDOOR, TEMPERATURE: MAX: °C MIN: °C
(3)	PUMPS OPERATE IN:	ALONE	ELECTRIC AREA CLASSIFICATION (6.1.29): HAZARDOUS
(14)	CORROSION DUE TO : (6.12.1.9)		DIVISION ZONE 2 B
	EROSION DUE TO : (6.12.1.9)		GROUP Group IIA B
	H2S CONCENTRATION (ppm) : (6.12.1.13)		TEMP CLASS T3 B
	CHLORIDE CONCENTRATION (ppm) :		PUMP VALVE START POSITION : Partially Open Valve
	PARTICULATE SIZE (DIA IN MICRONS)		
	PARTICULATE CONCENTRATION (ppm)		
	CORROSION ALLOWANCE (6.3.10) :		
	DESIGN NOTES:	Pump design shall comply with specification "CENTRIFUGAL PUMPS FOR HEAVY DUTY SERVICES AMENDMENT TO HS523217-00-MAC-PE-0001-0000 Rev0 " no 218857C-00-MAC-SPE-0001-0000	B

PERFORMANCE

	PROPOSAL CURVE NO.	RPM		
	IMPELLER DIA.: RATED	MAX.	MIN.	mm
	RATED POWER :	kW	EFFICIENCY	(%)
	RATED CURVE BEP FLOW (at rated impeller diameter) (6.1.16) :			m³/h
	MIN FLOW : THERMAL	m³/h	STABLE	m³/h
	PREFERRED OPERATING REGION (6.1.16)		to	m³/h
	ALLOWABLE OPERATING REGION (6.9.4.1)		to	m³/h
(17)	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
	SPECIFIC SPEED (6.1.17)	m3/h, rpm, m		
	SUCTION SPECIFIC SPEED LIMIT (6.1.11)	m3/h, rpm, m	213	
	SUCTION SPECIFIC SPEED (6.1.11)	m3/h, rpm, m		
(16)	MAX. ALLOWABLE SOUND PRESSURE LEVEL (6.1.19)		85	(dBA)
	ESTIMATED MAX. SOUND PRESSURE LEVEL			(dBA)
	MAX. ALLOWABLE SOUND POWER LEVEL (6.1.19)			(dB)
	ESTIMATED MAX SOUND POWER LEVEL			(dB)

DRIVER (7.1)

	DRIVER TYPE	MOTOR
	GEAR	
	VARIABLE SPEED REQUIRED	NO
	SOURCE OF VARIABLE SPEED	
	MANUFACTURER	
	NAMEPLATE POWER : kW	
	NOMINAL RPM	
	RATED LOAD RPM	B
	FRAME	
	ORIENTATION	HORIZONTAL B
	LUBRICATION	
	BEARING TYPE	
	RADIAL	
	THRUST	B
	STARTING METHOD	Direct On Line (DOL) B
	DRIVER DATASHEET NUMBER	B
	DRIVE DESIGN STANDARD	IEC B

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CONSTRUCTION

API PUMP TYPE (Table 1): OH2

NOZZLE CONNECTIONS (6.4.2):

	Size	Facing	Rating	Position
SUCTION				END
DISCHARGE				TOP

PRESSURE CASING AUX. CONNECTIONS: (6.4.3)

	No.	Size	Type	Facing	Rating	Posn.
BALANCE/LEAK OFF						
DRAIN						
VENT						
PRESSURE GAGE						
TEMP GAGE						
WARM-UP LINE						

		Rev
DRAIN VALVE SUPPLIED BY (7.6.2.5)	SUPPLIER	
DRAINS MANIFOLDED (7.6.2.5)	YES	
VENT VALVE SUPPLIED BY		
VENTS MANIFOLDED		
THREADED CONS FOR PIPELINE SERVICE & < 55°C (6.4.3.2)	NO	
SPECIAL FITTINGS FOR TRANSITIONING (6.4.3.3)	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)

Note		
(6)	ANNEX H CLASS	S-5
(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)	
	APPLICABLE HARDNESS STANDARD (6.12.1.14)	
	BARREL :	
	CASE :	CS
	DIFFUSERS	
	IMPELLER :	CS
	IMPELLER WEAR RING :	
	CASE WEAR RING :	
	SHAFT:	
	BOWL (IF VS-TYPE)	

BEARINGS AND BEARING HOUSINGS (6.10.1)

Note			Rev
	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, 13)	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)		

		Rev
CASING MOUNTING (6.3.14, 9.3.8.3):		B
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)(7.2.2.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	B

BASEPLATE

		Rev
API BASEPLATE NUMBER (ANNEX D) :		
IF NON-STD BASEPLATE DIMENSIONS (LxW) (mm²) :		
BASEPLATE CONSTRUCTION (7.4)	TOP DECKING	B
BASEPLATE DRAINAGE (7.4.1)	SLOPED FULL DECK PLATE	B
MOUNTING :	GROUTED	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:

			Rev
DESIGN PRESSURE	29	bar g	B
DESIGN TEMPERATURE	80	°C	

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Note	INSTRUMENTATION		Rev
	INSTRUMENTATION PER API-670 (7.5.2)		
	ACCELEROMETERS (7.5.2.1)		
	NUMBER OF ACCELEROMETERS		
	MOUNTING LOCATION:		
	PROVISION FOR MTG ONLY (6.10.2.13)	YES	
(19)	FLAT SURFACE REQUIRED (6.10.2.14)	YES	
(15,20)			
	VIBRATION PROBES (7.5.2.2)		
	VIBRATION PROBES REQUIRED (7.5.2.2)		
	NUMBER PER RADIAL BEARING		
	NUMBER PER AXIAL BEARING		
	THREADED PROVISION FOR MTG ONLY (6.10.2.13; 6.6.12)		
	FLAT SURFACE PROVISION ONLY (6.10.2.14)		
(15,23)	MONITORS AND CABLES SUPPLIED BY (7.5.2.4)		
	TEMPERATURE DETECTORS (7.5.2.3)		
	TEMP. PROBES REQUIRED (7.5.2.3)		
	PROVISIONS FOR MOUNTING ONLY (6.10.2.2)		
	RADIAL BEARING TEMP.		
	NUMBER PER RADIAL BEARING		
	THRUST BEARING TEMP.		
	NUMBER PER THRUST BEARING ACTIVE SIDE		
	NUMBER PER THRUST BEARING INACTIVE SIDE		
	TEMP. GAUGES (WITH THERMOWELLS) (9.1.3.5)		
	TEMP. GAUGE LOCATION		
	SUPPLY UPPER/LOWER CASING RTD'S FOR WARMUP		
	PRESSURE GAUGE TYPE		
	PRESSURE GAUGE LOCATION		
	REMARKS		
	PIPING & APPURTENANCES		
	TAG ALL ORIFICES (7.6.2.4)	YES	
	SOCKET WELD UNION ON 1st SEAL GLAND NIPPLE (7.6.2.8)		
	MANIFOLD AUX PIPING SYSTEMS AT SKID EDGE (7.6.1.6)	YES	

	SEAL SUPPORT SYSTEM MOUNTING			Rev
	MOUNTED ON PUMP BASEPLATE (7.6.1.4)	YES		B
	LOCATION ON OR OFF BASEPLATE (7.4.6) :			
	INTERCONNECTING PIPING BY	Supplier		B
				B
	MECHANICAL SEAL (6.8)			B
	SEAL TYPE	MECHANICAL SEAL		B
	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	DUAL PRESSURIZED		B
	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	GALVANISED		B
	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

PRESSURE VESSEL DESIGN CODE REFERENCES

THESE REFERENCES SHALL BE PROVIDED BY THE MANUFACTURER

CASTING FACTORS USED IN DESIGN (PER TABLE 4)

SOURCE OF MATERIAL PROPERTIES (6.3.5)

WELDING AND REPAIRS (6.12.3.1)

THESE REFERENCES SHALL BE PROVIDED BY THE PURCHASER. (DEFAULT TO TABLE 11 IF NO PURCHASER PREFERENCE IS STATED)

Note			Rev
(21)	ALTERNATIVE WELDING CODES AND STANDARDS	YES	B
	WELDING REQUIREMENT (APPLICABLE CODE OR STANDARD)		
	ALTERNATIVE WELDER/OPERATOR QUALIFICATION STANDARD		
	ALTERNATIVE WELDING PROCEDURE QUALIFICATION STANDARD		
	NON-PRESSURE RETAINING STRUCTURAL WELDING STANDARD (BASEPLATES OR SUPPORTS)		
	STANDARD FOR MAGNETIC PARTICLE OR LIQUID PENETRANT EXAMINATION (PLATE EDGES)		
	STANDARD FOR POSTWELD HEAT TREATMENT		
	STANDARD FOR POSTWELD HEAT TREATMENT OF CASING FABRICATION WELDS		

MATERIAL INSPECTION

THESE REFERENCES SHALL BE PROVIDED BY THE PURCHASER

DEFAULT TO TABLE 14: YES — TABLE 14 INSPECTION CLASS: II (B)

ALTERNATIVE MATERIAL INSPECTIONS AND ACCEPTANCE CRITERIA (SEE TABLE 15, 8.2.2.5)

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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Note	SURFACE PREPARATION, PAINT & SPARES		Rev
	MANUFACTURER'S STANDARD (8.4.3.4)	NO	B
	OTHER (SEE BELOW)	YES	B
	SPECIFICATION NO.	218857C-00-MT-SPE-0005-0000	
	PUMP:		
	PUMP SURFACE PREPARATION		
	PRIMER		
	FINISH COAT		
	BASEPLATE:		
	SURFACE PREPARATION		
(25)	PRIMER:		B
	FINISH COAT		
(25)	UNDERSIDE		B
	SHIPMENT: (8.4)	EXPORT	
	EXPORT BOXING REQUIRED	YES	
	PREPARE FOR OUTDOOR STORAGE (NUMBER OF MONTHS) :		
	SPARE ROTOR ASSEMBLY PACKAGED FOR:		
	ROTOR STORAGE ORIENTATION (9.2.8.2)		
	SHIPPING & STORAGE CONTAINER SUITABLE FOR VERTICAL STORAGE (9.2.8.3) :		
	N2 PURGE REQUIRED (9.2.8.4) :		
	SPARE PARTS (10.3.4.2)		
	START-UP	YES	
	NORMAL MAINTENANCE		

Note	MASSES kg					
	ITEM No	PUMP	DRIVER	GEAR	BASE	TOTAL

	OTHER PURCHASER REQUIREMENTS	
	COORDINATION MEETING REQUIRED	
(24)	MAXIMUM DISCHARGE PRESSURE TO INCLUDE (6.3.2)	
	MAX RELATIVE DENSITY	YES
	OPERATION TO TRIP SPEED	
	MAX DIA. IMPELLERS AND/OR NO OF STAGES	
	CONNECTION DESIGN APPROVAL (9.2.1.4)	
	TORSIONAL ANALYSIS / REPORT (6.9.2)	
	PROGRESS REPORTS (L.3.3)	YES
	OUTLINE OF PROCEDURES USED FOR OPTIONAL TESTS (L.2.5)	YES
	ADDITIONNAL DATA REQUIRING 20 YEARS RETENTION (8.2.1.1)	
	LATERAL ANALYSIS REQUIRED (9.2.4.1.2)	
	ROTOR DYNAMIC BALANCE TO 4W/N (6.9.3.5)	
	VFD STEADY STATE FORCED RESPONSE ANALYSIS (6.9.2.3)	
	TRANSIENT FORCED RESPONSE (6.9.2.4)	
	BEARING LIFE CALCULATIONS REQUIRED (6.10.1.11)	
	CASING RETIREMENT THICKNESS DRAWING [L.3.6.1 cc) 7) xiii)]	
	CONNECTION BOLTING (7.6.1.7)	
	VENDOR TO KEEP REPAIR AND HT RCDS (8.2.1.1.c)	
	VENDOR SUBMIT TEST PROCEDURES (8.3.1.1)	YES
	SUBMIT INSPECTION CHECK LIST (8.1.5)	
	ACOUSTIC ANALYSIS OF CROSSOVER PASSAGE (BB3, BB5)(9.2.1.5)	
	API-691 DOCUMENTATION REQUIRED (6.1.3.1)	

TEST			Rev
SHOP INSPECTION (8.1.1.1)		YES	B
PERF. CURVE & DATA APPROVAL REQ'D PRIOR TO SHIPMENT (8.3.3.4.6) :		YES	B
TEST WITH SUBSTITUTE SEAL (8.3.3.3.1)		NO	B
MATERIAL CERTIFICATION REQUIRED (6.12.1.8):	CASING	YES	B
	IMPELLER	YES	B
	SHAFT	YES	B
	OTHER		
CASTING REPAIR WELD PROCEDURE APPROVAL REQD (6.12.2.5):		YES	B
INSPECTION REQUIRED FOR CONNECTION WELDS (6.12.3.4)			
	MAG PARTICLE	YES	B
	RADIOGRAPHY		
	LIQUID PENETRANT	YES	B
	ULTRASONIC		
HARDNESS TEST REQUIRED (6.12.1.14; 8.2.2.7)			B
ADDITIONAL SUBSURFACE EXAMINATION (6.12.1.6) (8.2.1.3)			B
FOR:			
METHOD:			
PMI TESTING REQUIRED (8.2.2.8)		YES	B
COMPONENTS TO BE TESTED :	Note 22		B
RESIDUAL UNBALANCE TEST (J.4.1.2)			
NOTIFICATION OF SUCCESSFUL PERFORMANCE TEST (8.1.1.3) (8.3.3.4.6)			
BASEPLATE (NOZZLE LOAD) TEST (7.4.24)			
HYDROSTATIC TEST (8.3.2)		OBSERVE	B
HYDROSTATIC TEST OF BOWLS & COLUMN (9.3.13.1)			
PERFORMANCE TEST (8.3.3)		OBSERVE	B
RETEST ON SEAL LEAKAGE (8.3.3.3.2)			
TEST DATA POINTS TO (8.3.3.4)		8.3.3.4	B
ALTERNATE TEST TOLERANCES PER (8.3.3.5)			
NPSH (8.3.4.3)		WIT	B
NPSH BASED ON 1ST STG ONLY ALLOWED (8.3.4.3.2)			
TEST NPSHA LIMITED TO 110% SITE NPSHA (8.3.3.7)			
RETEST REQUIRED AFTER FINAL HEAD ADJUSTMENT (8.3.3.8.2)		OBSERVE	B
COMPLETE UNIT TEST (8.3.4.4.1)			
SOUND LEVEL TEST (8.3.4.5)		OBSERVE	B
CLEANLINESS PRIOR TO FINAL ASSEMBLY (8.2.2.6)			
LOCATION OF CLEANLINESS INSPECTION:			
CHECK FOR CO-PLANAR MOUNTING PAD FLATNESS (7.4.8)		OBSERVE	B
MECHANICAL RUN TEST UNTIL OIL TEMP STABLE (8.3.4.2.1)		OBSERVE	B
4 HR. MECH RUN AFTER OIL TEMP STABLE (8.3.4.2.2)			
BRG HSG RESONANCE TEST (8.3.4.7)			
STRUCTURAL RESONANCE TEST (9.3.9.2)			
REMOVE / INSPECT HYDRODYNAMIC BEARINGS AFTER TEST (9.2.7.4)			
AUXILIARY EQUIPMENT TEST (8.3.4.6)			B
EQUIPMENT TO BE INCLUDED IN AUXILLIARY TESTS :			B
LOCATION OF AUXILIARY EQUIPMENT TEST :			
IMPACT TEST (6.12.4.3)	PER EN 13445		
	PER ASME SECTION VIII		
CASING DISASSEMBLY AFTER TEST (8.3.3.9)			
SPARE PARTS TEST (8.3.4.8)			

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SOCAR DOWNSTREAM | T.EN TECHNIP ENERGIES

SOCAR DOWNSTREAM INTEGRATION - NEW REFINERY IN SUMGAYIT FEED PROJECT

CENTRIFUGAL PUMP DATASHEET

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VERTICAL PUMP TYPE (Table 1) | Note | Rev

REMARKS

VERTICAL PUMPS

PUMP THRUST:	(+) UP	(-) DOWN
STATIC THRUST	N	N
AT MIN FLOW	N	N
AT RATED FLOW	N	N
AT MAX FLOW	N	N
MAX THRUST	N	N
SEPARATE SOLEPLATE REQUIRED (9.3.8.3.2)		
SOLEPLATE Length x Width	mm X	mm
SOLEPLATE THICKNESS		mm
SEPARATE MOUNTING FLANGE REQUIRED (9.3.8.3.1)		

COLUMN PIPE:

- DIAMETER — mm
- TOTAL COLUMN LENGTH — m
- NUMBER OF SECTIONS
- SPACING (LENGTH PER SECTION) — m

GUIDE BUSHINGS:

- NUMBER
- LINE SHAFT BEARING SPACING — mm
- GUIDE BUSHING LUBE:

VERTICAL PUMPS (CONT'D)

LINE SHAFT:

- LINE SHAFT DIAMETER — mm
- TUBE DIAMETER — mm
- LINESHAFT CONNECTION
- LEVEL CONTROL
- SUCTION STRAINER TYPE
- IMPELLER COLLETS ACCEPTABLE (6.6.3)
- HARDENED SLEEVES UNDER BEARINGS (9.3.10.4)
- STRUCTURAL ANALYSIS (9.3.5)

SUCTION CAN

- THICKNESS — mm
- LENGTH — m
- DIAMETER — mm

- CAN DRAIN PIPED TO SURFACE (9.3.13.4)
- ELLIPTICAL BOTTOM HEAD REQUIRED (9.3.2.5)
- PRESSURE CASING WALLS USING SEAMLESS PIPE (9.3.2.7)
- HYDROTEST BOWLS/COLUMN @ MAX DIFF PRESSURE (9.3.13.1)

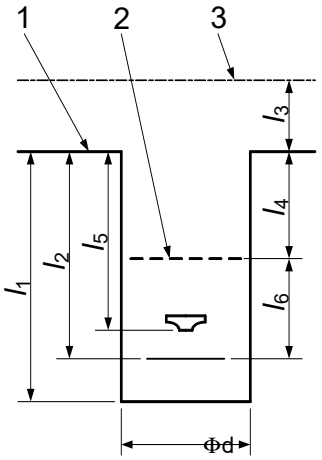
MATERIALS (additional)

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

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



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CENTRIFUGAL PUMP DATASHEET

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	Note #	NOTES	Rev
1		**NOTES**	
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)	Lubrification, shaft sealing and oil-control systems and auxiliares 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)	Prelliminary, 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
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