

Vendor's name : KSB AKTIENGESELLSCHAFT

Company's name : Nghi Son Refinery and Petrochemical LLC.  
: JGCS Consortium  
: SK Engineering & Construction Co., Ltd.

Plant Location : Nghi Son, Vietnam

Project name : NSRP Complex Project

P / Order No. : 0-6495-PS2158-102-A-100



# AS BUILT

BY:  
J.G.KIM

DATE:  
2015.06.30


Equipment /Material name : STG Condensate Pump

Item number : 113-ST-301-P01 A/B

Document title : Pump Data Sheet

## PROJECT (JOB No.: 0-6495-20)

DOCUMENT CLASS:	X								
ISSUE PURPOSE:	AB								
RESULT CODE: A, B, R, F	( A )								
NEXT STATUS: FA, FR, FI, FC, AB	( - )								
RESUBMISSION DATE:	( - )								
RESPONSIBLE DEPT./PERSON.:	( - )								
Review Date:	( - )								
A: Approved without Comment; B: Approved with Minor Comment R: Not Approved; F: Not Subject to Review									
Approval or review hereunder shall not be construed to relieve Vendor/ Subcontractor of his responsibilities and liability under the Contract									
Purchaser DOC. No.	<table><tr><td>ORIG.</td><td>PURCHASE ORDER NO.</td><td>SERIAL</td><td>REV.</td></tr><tr><td>V</td><td>S2158-102-A-</td><td>168</td><td>2</td></tr></table>	ORIG.	PURCHASE ORDER NO.	SERIAL	REV.	V	S2158-102-A-	168	2
ORIG.	PURCHASE ORDER NO.	SERIAL	REV.						
V	S2158-102-A-	168	2						

2	22 Jun 2015	As Built	fichmar	langmar	wiltrei
1	23 Apr 2015	For Construction	fichmar	langmar	wiltrei
0	18 Dec 2014	For Review	fichmar	langmar	wiltrei
Rev.	Date:	Description	Prep'd	Chk'd	App'd
Vendor's Name:					
					

NSRP Complex Project						Employer Doc. No.			Rev. 2																	
Title: MECHANICAL DATA SHEET FOR STG CONDENSATE PUMPS (113-ST-301-P01A/B)						Contractor Doc. No. VS2158-102-A-168			Page 2 of 9																	
<b>BS EN ISO 5199</b> <b>Centrifugal Pump Process Data Sheet</b> <b>SI Unit</b>						ITEM NO. <b>113-ST-301-P01A/B</b>			Job No. 11102D																	
						Purchase Order No. 0-6495-PS2158-102-A100			Date 20/Jun/15																	
						MCPK 200-150-500 with orifice																				
APPLICABLE TO: <input type="radio"/> PROPOSALS <input checked="" type="radio"/> PURCHASE <input type="checkbox"/> AS BUILT																										
FOR NSRP Complex Project						UNIT STEAM TURBINE GENERATORS																				
SITE Nghi Son, Vietnam						SERVICE STG CONDENSATE PUMPS																				
NOTES: INFORMATION BELOW TO BE COMPLETED: <input type="radio"/> BY PURCHASER <input type="checkbox"/> BY MANUFACTURER <input checked="" type="radio"/> BY MANUFACTURER OR PURCHASER																										
<input type="radio"/> DATA SHEETS							REVISIONS																			
		ITEM NO.	ATTACHED	ITEM NO.	ATTACHED	ITEM NO.	ATTACHED	NO.	DATE	BY																
PUMP	113-ST-301-P01A	<input checked="" type="radio"/>	113-ST-301-P01B	<input checked="" type="radio"/>		<input type="radio"/>		1	12/Dec/14	KSB																
MOTOR	113-ST-301-PM01A	<input checked="" type="radio"/>	113-ST-301-PM01B	<input checked="" type="radio"/>		<input type="radio"/>		2	23/Apr/15	KSB																
GEAR		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		3	20/Jun/15	KSB																
TURBINE		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		4																		
APPLICABLE OVERLAY STANDARD(S):									5																	
<input checked="" type="radio"/> OPERATING CONDITIONS (5.1.3)						<input checked="" type="radio"/> LIQUID (5.1.3)																				
OPERATING CASE						LIQUID TYPE OR NAME Turbine Suspect Condensate Water																				
FLOW, NORMAL 149,5 (m³/h) RATED 165,0 (m³/h)						<input type="radio"/> HAZARDOUS <input type="radio"/> FLAMMABLE <input type="radio"/> (5.1.5)																				
OTHER																										
SUCTION PRESSURE MAX./RATED 137,2 / -67,1 (kPag)						<table border="1"><thead><tr><th>MIN.</th><th>NORMAL</th><th>MAX</th></tr></thead><tbody><tr><td></td><td>50</td><td></td></tr><tr><td></td><td>12,3</td><td></td></tr><tr><td></td><td>988</td><td></td></tr><tr><td></td><td>0,547</td><td></td></tr></tbody></table>						MIN.	NORMAL	MAX		50			12,3			988			0,547	
MIN.	NORMAL	MAX																								
	50																									
	12,3																									
	988																									
	0,547																									
DISCHARGE PRESSURE 620,8 (kPag)						PUMPING TEMP (°C)																				
DIFFERENTIAL PRESSURE 687,9 (kPa)						VAPOUR PRESS. (kPaa)																				
DIFF. HEAD 71 (m) NPSHA 2,26 (m)						DENSITY (kg / m³):																				
PROCESS VARIATIONS (5.1.4)						VISCOSITY (cP)																				
STARTING CONDITIONS (5.1.4) Automatic						SPECIFIC HEAT, Cp (kJ/kg °C)																				
SERVICE: <input checked="" type="radio"/> CONT. <input type="radio"/> INTERMITTENT (STARTS/DAY)						<input type="radio"/> CHLORIDE CONCENTRATION (6.5.2.4) (mg/kg)																				
<input type="radio"/> PARALLEL OPERATION REQ'D (5.1.13)						<input type="radio"/> H2S CONCENTRATION (mg/kg) WET (5.12.1.12c)																				
<input checked="" type="radio"/> SITE DATA (5.1.3)						<input type="radio"/> CORROSIVE / EROSION AGEN 5.12.1.9																				
LOCATION: (5.1.30)						MATERIALS (5.12.1.1)																				
<input type="radio"/> INDOOR <input type="radio"/> HEATED <input checked="" type="radio"/> OUTDOOR <input type="radio"/> UNHEATED						<input checked="" type="radio"/> ANNEX H CLASS (5.12.1.1) S-6																				
<input checked="" type="radio"/> ELECTRICAL AREA CLASSIFICATION (5.1.24 / 6.1.4)						<input checked="" type="radio"/> MIN DESIGN METAL TEMP (5.12.4.1) 10 (°C)																				
ZONE 2 GAS GR IIB TEMP. CLASS T3						<input type="radio"/> REDUCED HARDNESS MATERIALS REQ'D. (5.12.1.12)																				
<input type="radio"/> WINTERIZATION REQ'D <input checked="" type="radio"/> TROPICALIZATION REQ'D.						<input checked="" type="radio"/> BARREL/ CASE A216 WCB IMPELLER A743 CF8M																				
SITE DATA (5.1.30)						<input checked="" type="radio"/> CASE/ IMPELLER WEAR RINGS VG434 (A890 Gr 5a) / 1.4571(A276 316 Ti)																				
<input checked="" type="radio"/> ALTITUDE (m) BAROMETER 101,3 (kPaa)						<input checked="" type="radio"/> SHAFT C45+N (A576 Grade 1045)																				
<input checked="" type="radio"/> RANGE OF AMBIENT TEMPS: MIN/MAX. 3 / 42,4 (°C)						<input type="checkbox"/> DIFFUSERS NA																				
<input checked="" type="radio"/> RELATIVE HUMIDITY: MIN / MAX 79,66 / 91,25 (%)						PERFORMANCE:																				
UNUSUAL CONDITIONS: (5.1.30) <input type="radio"/> DUST <input type="radio"/> FUMES <input type="radio"/> SAND STORM						PROPOSAL CURVE NO. KGP.454/59 1483 RPM																				
<input type="radio"/> OTHER						<input checked="" type="radio"/> IMPELLER DIA. RATED 455 MAX. 504 MIN. 400 (mm)																				
<input checked="" type="radio"/> DRIVER TYPE						<input type="checkbox"/> IMPELLER TYPE Closed																				
<input checked="" type="radio"/> INDUCTION MOTOR <input type="radio"/> STEAM TURBINE <input type="radio"/> GEAR						<input type="checkbox"/> HYDRAULIC POWER (kW)																				
<input type="radio"/> OTHER						<input checked="" type="radio"/> RATED POWER 58,8 (kW) EFFICIENCY 53 (%)																				
<input type="radio"/> MOTOR DRIVER (6.1.1 / 6.1.4)						<input checked="" type="radio"/> MINIMUM CONTINUOUS FLOW																				
<input checked="" type="radio"/> MANUFACTURER ABB-KK						THERMAL 32,07 (m³/h) STABLE 32,07 (m³/h)																				
<input checked="" type="radio"/> 90 (kW) 1483 RPM						<input checked="" type="radio"/> PREFERRED OPER. REGION 208,86 TO 300 (m³/h)																				
<input checked="" type="radio"/> FRAME M3GP 280 SMB 4 <input checked="" type="radio"/> ENCLOSURE IP55						<input checked="" type="radio"/> ALLOWABLE OPER. REGION 29,83 TO 300 (m³/h)																				
<input type="radio"/> HORIZONTAL <input checked="" type="radio"/> VERTICAL <input type="checkbox"/> SERVICE FACTO 1						<input checked="" type="radio"/> MAX HEAD @ RATED IMPELLER 78,8 (m)																				
<input checked="" type="radio"/> VOLTS/PHASE/HERTZ 690 / 3 / 50						<input checked="" type="radio"/> MAX POWER @ RATED IMPELLER 87 (kW)																				
<input type="radio"/> TYPE TEFC						<input checked="" type="radio"/> NPSHR AT RATED FLOW 1,21 (m) (5.1.10)																				
<input checked="" type="radio"/> MINIMUM STARTING VOLTAGE (6.1.5) 80%						<input checked="" type="radio"/> MAX. SUCTION SPECIFIC SPEED: (5.1.11)																				
<input type="radio"/> INSULATION F <input checked="" type="radio"/> TEMP. RISE B						<input checked="" type="radio"/> ACTUAL SUCTION SPECIFIC SPEE 12318																				
<input checked="" type="radio"/> FULL LOAD AMPS 92,4						<input checked="" type="radio"/> MAX SOUND PRESS. LEVEL (dBA) (5.1.16)																				
<input checked="" type="radio"/> LOCKED ROTOR AMPS 7,2						<input checked="" type="radio"/> EST MAX SOUND POWER LEVEL (dBA) (5.1.16)																				
<input checked="" type="radio"/> STARTING METHOD Direct On Line						<input type="radio"/> UTILITY CONDITIONS (5.1.3)																				
<input checked="" type="radio"/> LUBE Grease						ELECTRICITY																				
BEARINGS (TYPE/NUMBER):						DRIVERS																				
<input checked="" type="radio"/> RADIAL Antifriction / 6316/C3						HEATING																				
<input checked="" type="radio"/> THRUST Antifriction / 6316/C3						SYSTEM VOLTAGE DIP <input type="radio"/> 80% <input type="radio"/> OTHER (6.1.5)																				
<input type="checkbox"/> VERTICAL THRUST CAPACITY						STEAM																				
UP (N) DOWN (N)						MAX. PRESS. MAX. TEMP. MIN. PRESS. MIN. TEMP.																				
						SUPPLY TEMP. (°C) MAX. RETURN TEMP. (°C)																				
						NORM. PRESS. (kPag) DESIGN PRESS. (kPag)																				
						MIN. RET. PRESS (kPag) MAX. ALLOW. D.I (kPa)																				
						CHLORIDE CONCENTRATION: (mg/kg)																				

NSRP Complex Project				Employer Doc. No.	Rev. 2																
Title: MECHANICAL DATA SHEET FOR STG CONDENSATE PUMPS (113-ST-301-P01A/B)				Contractor Doc. No. VS2158-102-A-168	Page 3 of 9																
<b>BS EN ISO 5199</b> <b>Centrifugal Pump Process Data Sheet</b> <b>SI Unit</b>				ITEM NO. <b>113-ST-301-P01A/B</b> Purchase Order No. <b>0-6495-PS2158-102-A100</b> MCPK 200-150-500 with orifice	Job No. <b>11102D</b> Date <b>20/Jun/15</b>																
<b>CONSTRUCTION</b>																					
ROTATION: (VIEWED FROM COUPLING END) <input checked="" type="checkbox"/> CW <input type="checkbox"/> CCW																					
PUMP TYPE: (4.1) <input checked="" type="checkbox"/> OH2 <input type="checkbox"/> OH3 <input type="checkbox"/> OH6 <input checked="" type="checkbox"/> OTHER <b>OH1</b>																					
CASING MOUNTING: <input checked="" type="checkbox"/> CENTERLINE <input checked="" type="checkbox"/> IN-LINE <input type="checkbox"/> OTHER <b>Foot</b>																					
CASING TYPE: <input type="checkbox"/> SINGLE VOLUTE <input checked="" type="checkbox"/> MULTIPLE VOLUTE <input type="checkbox"/> DIFFUSER																					
CASE PRESSURE RATING: <input type="checkbox"/> OH6 PUMP SUCTION REGION DESIGNED FOR MAWP (5.3.6) <input checked="" type="checkbox"/> MAX ALLOWABLE WORKING PRESSURE <b>1931</b> (kPag) @ <b>50</b> (°C) <input checked="" type="checkbox"/> HYDROTEST PRESSURE <b>3000 at ambient temp</b> (kPag) <input checked="" type="checkbox"/> NOZZLE CONNECTIONS: (5.4.2)																					
<table><thead><tr><th></th><th>SIZE</th><th>FLANGE RATING</th><th>FAC'G</th><th>POSITION</th></tr></thead><tbody><tr><td>SUCTION</td><td>8"</td><td>150#</td><td>RF</td><td>End</td></tr><tr><td>DISCHARGE</td><td>6"</td><td>150#</td><td>RF</td><td>Top</td></tr></tbody></table>							SIZE	FLANGE RATING	FAC'G	POSITION	SUCTION	8"	150#	RF	End	DISCHARGE	6"	150#	RF	Top	
	SIZE	FLANGE RATING	FAC'G	POSITION																	
SUCTION	8"	150#	RF	End																	
DISCHARGE	6"	150#	RF	Top																	
PRESSURE CASING AUX. CONNECTIONS: (5.4.3)																					
<table><thead><tr><th></th><th>NO.</th><th>SIZE (DN)</th><th>TYPE</th></tr></thead><tbody><tr><td><input checked="" type="checkbox"/> DRAIN</td><td>1</td><td>3/4"</td><td>RF Flange</td></tr><tr><td><input type="checkbox"/> VENT</td><td>--</td><td>--</td><td>Self Venting</td></tr><tr><td><input checked="" type="checkbox"/> WARM-UP</td><td></td><td></td><td></td></tr></tbody></table>							NO.	SIZE (DN)	TYPE	<input checked="" type="checkbox"/> DRAIN	1	3/4"	RF Flange	<input type="checkbox"/> VENT	--	--	Self Venting	<input checked="" type="checkbox"/> WARM-UP			
	NO.	SIZE (DN)	TYPE																		
<input checked="" type="checkbox"/> DRAIN	1	3/4"	RF Flange																		
<input type="checkbox"/> VENT	--	--	Self Venting																		
<input checked="" type="checkbox"/> WARM-UP																					
<input checked="" type="checkbox"/> MACHINED AND STUDDED CONNECTIONS (5.4.3.8) <input type="checkbox"/> CYLINDRICAL THREADS REQUIRED (5.4.3.3)																					
ROTOR: <input type="checkbox"/> COMPONENT BALANCE TO ISO 1940 G1.0 (5.9.4.4)																					
COUPLINGS:(6.2.2) <input checked="" type="checkbox"/> MANUFACTURER <b>John Crane</b> <input checked="" type="checkbox"/> MODEL <b>TSKS</b> <input type="checkbox"/> RATING (kW per 100 r/min) <input checked="" type="checkbox"/> SPACER LENGTH <b>180</b> (mm) <input type="checkbox"/> SERVICE FACT. <b>1,5</b> <input type="checkbox"/> COUPLING BALANCED TO ISO 1940-1 G2.5 (6.2.3) <input type="checkbox"/> COUPLING WITH PROPRIETARY CLAMPING DEVICE (6.2.11) <input type="checkbox"/> COUPLING PER ISO 14691 (6.2.4) <input type="checkbox"/> COUPLING PER ISO 10441 (6.2.4) <input type="checkbox"/> COUPLING PER API 671 (6.2.4) <input type="checkbox"/> ASME B15.1 <input type="checkbox"/> NON SPARK COUPLING GUARD (6.2.14c) <input type="checkbox"/> COUPLING GUARD STANDARD PER (6.2.14a)																					
BASEPLATES: <input checked="" type="checkbox"/> API BASEPLATE NUMBER <b>NA</b> (ANNEX D) <input type="checkbox"/> NON-GROUT CONSTRUCTION (6.3.13) <input type="checkbox"/> OTHER																					
MECHANICAL SEAL:(5.8.1) <input checked="" type="checkbox"/> SEE ATTACHED ISO 21049/API 682 DATA SHEET																					
<b>SURFACE PREPARATION AND PAINT</b>																					
<input checked="" type="checkbox"/> MANUFACTURER'S STANDARD <input type="checkbox"/> OTHER (SEE BELOW) <input type="checkbox"/> SPECIFICATION NO. <b>S-000-13A0-0001V</b>																					
PUMP: <input checked="" type="checkbox"/> PRIMER <b>35µm+ 130µm</b> <input checked="" type="checkbox"/> FINISH COAT <b>75 µm (RAL 7038)</b>																					
BASEPLATE: (6.3.17) <input checked="" type="checkbox"/> PRIMER <b>35µm+ 130µm</b> <input checked="" type="checkbox"/> FINISH COAT <b>75 µm (RAL 7038)</b> <input type="checkbox"/> DETAILS OF LIFTING DEVICES(6.3.20)																					
SHIPMENT: (7.4.1) <input type="checkbox"/> DOMESTIC <input checked="" type="checkbox"/> EXPORT <input type="checkbox"/> EXPORT BOXING REQUIRED <input checked="" type="checkbox"/> OUTDOOR STORAGE MORE THAN 6 MONTHS																					
SPARE ROTOR ASSEMBLY PACKAGED FOR: <input type="checkbox"/> HORIZONTAL STORAGE <input type="checkbox"/> VERTICAL STORAGE <input type="checkbox"/> TYPE OF SHIPPING PREPARATION																					
<b>HEATING AND COOLING</b>																					
<input type="checkbox"/> HEATING JACKET REQ'D. (5.8.9) <input checked="" type="checkbox"/> COOLING REQ'D. <input checked="" type="checkbox"/> COOLING WATER PIPING PLAN (6.5.3.1) C.W. PIPING: <input type="checkbox"/> PIPE <input checked="" type="checkbox"/> TUBING; FITTINGS C.W. PIPING MATERIALS: <input checked="" type="checkbox"/> S. STEEL <input checked="" type="checkbox"/> C. STEEL <input checked="" type="checkbox"/> GALVANIZED COOLING WATER REQUIREMENTS: <input type="checkbox"/> BEARING HOUSING (m³/h) <input type="checkbox"/> HEAT EXCHANGER (m³/h) TOTAL COOLING WATER (m³/h) HEAT MEDIUM: <input type="checkbox"/> STEAM <input type="checkbox"/> OTHER HEATING PIPING: <input type="checkbox"/> TUBING <input type="checkbox"/> PIPE																					
<b>BEARINGS AND LUBRICATION</b>																					
BEARING (TYPE/NUMBER) (5.10.1): <input checked="" type="checkbox"/> RADIAL <b>Antifriction</b> / <b>NU 216-E</b> <input checked="" type="checkbox"/> THRUST <b>Antifriction</b> / <b>2 X 7216</b>																					
LUBRICATION (5.11.3, 5.11.4): <input checked="" type="checkbox"/> GREASE <input checked="" type="checkbox"/> OIL <input type="checkbox"/> PURGE OIL MIST <input type="checkbox"/> PURE OIL MIST <input checked="" type="checkbox"/> CONSTANT LEVEL OILER PREFERENCE (5.10.2.2): <b>ADAMS</b> <input checked="" type="checkbox"/> OIL VISC. ISO GRADE <b>VG46</b>																					
<b>INSTRUMENTATION</b>																					
<input type="checkbox"/> ACCELEROMETER (6.4.2.1) <input type="checkbox"/> PROVISION FOR MOUNTING ONLY (5.10.2.11) <input checked="" type="checkbox"/> FLAT SURFACE REQ'D (5.10.2.12) <input type="checkbox"/> TEMP. GAUGES (WITH THERMOWELLS) (8.1.3.6) <input type="checkbox"/> PRESSURE GAUGE TYPE REMARKS:																					
<b>MASSSES</b>																					
MASS OF PUMP (kg) <b>415</b> MASS OF BASEPLATE (kg) <b>650</b> MASS OF DRIVER (kg) <b>665</b> TOTAL MASS (kg) <b>1760 Approx</b>																					
<b>REMARKS</b>																					
Remarks :																					



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<b>ISO 21049 (API 682 3RD)</b> <b>Mechanical Seal data sheet</b> <b>SI units</b>				ITEM NO. <b>113-ST-301-P01A/B</b> Job No.                   11102D Purchase Order No.       0-6495-PS2158-102-A100                   Date                   20/Jun/15			
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1    DEFAULT SELECTION 2    INDICATES DATA COMPLETED BY PURCHASER 3    BY SEAL VENDOR 4    BY SEAL VENDOR OR PURCHASER				DATA SUPPLIED; HARDWARE SUPPLIED; STANDARDS APPLICABLE;				CUSTOMARY UNITS CUSTOMARY UNITS PRIMARY REFERENCE (5.2) SECONDARY REFERENCE (5.2)				MKS UNITS MKS UNITS															
SEAL SPECIFICATION																											
TYPE (CODE-CW)		■ TYPE A (3.72)		TYPE B (3.73)		ALTERNATE STATIONARY (TYPE A & B)																					
		TYPE C (3.74)		ALTERNATE ROTATING (TYPE C)		SINGLE SPRING (TYPE A)																					
ARR'G'T		DEFAULT CONFIGURATION				ALTERNATE DESIGN				FLUSH PLANS (SEE ANNEX G)																	
1 (3.2)		1CW-FX				● 1CW-FL                   DIST. FLUSH				01 ● 11   14   23   32   51   62																	
						ALTERNATE BUSH				02   13   21   31   41 ● 61   65																	
2 (3.3)		BARRIER	LIQUID   2CW-CW		FX                   TANGENTIAL LBO CONN		01   13   23   41   62   75																				
			GAS       2CW-CS		2NC-CS   FX           DIST. FLUSH		02   14   31   52   71   76																				
			LIQUID   3CW-FB		3CW-BB   3CW-FF   FX		01   11   32   53A   53C   61   74																				
3 (3.4)		BARRIER	GAS       3NC-BB		3NC-FF   3NC-FB		02   13   14   53B   54   62																				
SLEEVE-SHAFT DRIVE				■ SET-SCREW ONTO SHAFT				ALTERNATE (6.1.3.13) - SPECIFY																			
MATERIALS																											
SECONDARY SEALS				SEAL FACES				METAL BELLOWS				SPRINGS				METAL PARTS											
■ FKM       FFKM				■ CARBON VS SIC				UNS N10276 (TYPE B)				■ UNS N10276				■ UNS S31600/ S31635											
SPIRAL-W GASKET				SIC VS SIC				UNS N07718 (TYPE C)				OR N06455				UNS N10276											
NBR				■ SS-SIC       RB-SIC				UNS N08020				UNS S31600				UNS N08020											
OTHER:				VS				OTHER:				OR S31635				OTHER:											
MECHANICAL SEAL DATA																											
● SEAL VENDOR				EagleBurgmann Japan Co.,Ltd.				■ DYNAMIC SEALING PRESSURE RATING (3.19)				1350   kPag															
DATA REQUIREMENTS FORM (ANNEX J)								■ STATIC SEALING PRESSURE RATING (3.69)				1800   kPag															
■ SIZE/TYPE				MA256 065				■ MAXIMUM ALLOWABLE TEMPERATURE (3.40)				200   °C															
■ SEAL DRAWING NUMBER				LL-0448525 00003				● MINIMUM DESIGN METAL TEMPERATURE (6.1.6.11.1)				10   °C															
■ SEAL CODE (ANNEX D)				C1A1A1161				■ GENERATED HEAT @ NORM. CONDITIONS				0.09   kW															
■ VENDOR'S SEAL CODE				LL-0448525				HEAT SOAK @ NORMAL CONDITIONS				kW															
MODIFIED FACES FOR PUMP PERFORMANCE TEST								■ TOTAL SEAL AXIAL THRUST ON SHAFT				50   kgf															
ALTERNATE SEAL FOR PUMP PERFORMANCE TEST																											
SEAL CHAMBER DATA																											
ISO 13709				OTHER, SPECIFY				BOLT-ON CHAMBER (6.1.2.5)																			
SEAL CHAMBER FLUSH PORT REQ'D				SEAL CHAMBER VENT REQ'D				CHAMBER HEATING/REQ'D																			
FLOATING THROAT BUSH				FIXED THROAT BUSH																							
PUMP DATA																											
PUMP DESIGN   ● MANUFACTURER				KSB				● MODEL				MCPK				● FRAME/SIZE				200-150-500				CASE MATERIAL			
PUMP OPERATING PRESSURE				● SUCTION PRESS. (RATED)				-67.1   kPag				● DISCHARGE PRESSURE				620.8   kPag											
SEAL CHAMBER   ● NORMAL				239   kPag				MIN / MAX (3.42)				/   kPag				MSSP (3.44)				kPag							
SHAFT   ● HORIZONTAL				VERTICAL				SHAFT   ● DIA.				65   mm				● SHAFT SPEED				1483   r/min							
SHAFT DIRECTION (FROM DRIVER):				CW       CCW																							
FLUID DATA - (QUENCH, BUFFER AND BARRIER FLUID DATA)																											
PUMPED STREAM								HAZARDOUS                   FLAMMABLE																			
● TYPE OR NAME   Turbine Suspect Condensate Water   CONC'N   %								FLUID SOLID @ AMBIENT																			
DISSOLVED CONTAMINANT   H <sub>2</sub> S   WET								SOLIDIFIES @   °C   POUR POINT   °C																			
Cl <sub>2</sub> ml/m <sup>3</sup> OTHER   @   %WT								PUMPED STREAM SOLIDIFIES UNDER SHEAR																			
SOLID CONTAMINANT								PUMPED STREAM CONTAINS AGENTS THAT POLYMERIZE																			
CONCENTRATION (MASS FRACTION)								SPECIFY AGENTS   @ TEMP   °C																			
● PUMPING TEMPERATURE								PUMPED STREAM CAN PLATE OUT OR DECOMPOSE:																			
MIN   °C   NORMAL   50   °C   MAX   °C								SPECIFY CONDITIONS																			
● RELATIVE DENSITY (TO WATER @ 25°C) AT REF. TEMP.								PUMPED STREAM IS REGULATED FOR FUGITIVE OR																			
@ NORMAL TEMP   0.988   @ MAX TEMP								OTHER EMISSIONS.   REGULATION LEVEL   ml/m <sup>3</sup>																			
● ABSOLUTE VAPOR PRESSURE AT REFERENCE TEMP.								SPECIAL PUMP CLEANING PROCEDURES																			
NORMAL TEMP   12.3   kPaA   MAX TEMP   kPaA								SPECIFY:																			
ATMOSPHERIC BOILING POINT.   °C								ALTERNATE PROCESS FLUIDS & CONCENTRATION																			
● VISCOSITY @ NORMAL PUMPING TEMP.   0.547   cP								(INCL. COMMISSIONING)																			
FLUSH FLUID (PLAN 32)								ABSOLUTE VAPOR PRESSURE AT REFERENCE TEMP.																			
TYPE OR NAME   CONC'N   %								NORMAL TEMP   kPag   MAX TEMP   kPag																			
SEAL VENDOR REVIEW REQUIRED								ATMOSPHERIC BOILING POINT.   °C																			
FLUID TEMPERATURE								VISCOSITY @ NORMAL PUMPING TEMP.   cP																			
MIN   °C   NORMAL   °C   MAX   °C								FLOW RATE REQ'D MAX/MIN   /   m <sup>3</sup> /h																			
RELATIVE DENSITY (TO WATER @ 25°C) AT REF. TEMP.								PRESSURE REQ'D MAX/MIN   kPag																			
@ NORMAL TEMP   @ MAX TEMP																											

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<b>ISO 21049 (API 682 3RD)</b> <b>Mechanical Seal data sheet</b> <b>SI units</b>		ITEM NO. <u>113-ST-301-P01A/B</u> Job No. <u>11102D</u> Purchase Order No. <u>0-6495-PS2158-102-A100</u> Date <u>20/Jun/15</u>			
<div style="display: flex; justify-content: space-between;"> <span>INDICATES DATA COMPLETED BY PURCHASER</span> <span>BY SEAL VENDOR</span> <span>BY SEAL VENDOR OR PURCHASER</span> </div> <div style="text-align: center; padding-top: 5px;">DEFAULT SELECTION</div>					
<b>FLUID DATA - (QUENCH, BUFFER, AND BARRIER FLUID DATA, LIQUID AND GAS)</b>					
<b>QUENCH MEDIUM (PLAN 51, 62)</b>		SUPPLY TEMPERATURE MAX/MIN _____ °C			
TYPE OR NAME _____		FLOW RATE REQ'D MAX/MIN _____ / _____ m³/h			
<b>BUFFER AND BARRIER LIQUID/GAS</b>		RELATIVE DENSITY (TO WATER @ 25°C) AT REF. TEMP. _____			
TYPE OR NAME _____		@ NORMAL TEMP _____ @ MAX TEMP _____			
PURCHASER SELEC'N _____ SEAL VENDOR SELEC'N _____		ABSOLUTE VAPOR PRESSURE AT REFERENCE TEMP. _____			
SEAL VENDOR REVIEW _____ PURCHASER REVIEW _____		NORMAL TEMP _____ kg/cm2 G MAX TEMP _____ kPag			
FLOW RATE REQ'D MAX/MIN. _____ / _____ m³/h		ATMOSPHERIC BOILING POINT (LIQUID) _____ °C			
COOLING/HEATING REQUIRED (+ OR -) _____ kW		VISCOSITY @ NORMAL TEMP (LIQUID) _____ cP			
SUPPLY PRESSURE MAX/MIN. _____ / _____ kPag		SPECIFIC HEAT CAPACITY @ CONSTANT PRESSURE _____			
FLUID OPERATING TEMPERATURE _____		FOR LIQUID @ NORMAL TEMPERATURE _____ kJ/kg. °C			
MIN _____ °C NORMAL _____ °C MAX _____ °C					
<b>SITE AND UTILITIES</b>					
CONTROL VOLTAGE _____ V PHASE _____ HERTZ _____		COOLING H2O SUPPLY TEMP. _____ °C Cl₂ _____ ml/m³			
ELECTRICAL AREA _____		COOLING H₂O PRESS. NORM./DES. _____ / _____ kPag			
DESIGN AMBIENT MIN./MAX. _____ / _____ °C		ATEX (EC DIRECTIVE 94/9/EC) GR CAT. _____ T CLASS _____			
<b>ACCESSORIES</b>					
<b>GENERAL</b>		<b>PLAN 52 AND 53 SYSTEMS</b>			
JOINT USER/VENDOR LAYOUT OF EQUIPMENT (8.1.4) _____		ALTERNATIVE CODE / INSPECTION - SPECIFY _____			
PIPE TAPER THREADS (8.1.9) _____ ISO 7 _____ ASME B1.20.1 _____		EQUIPMENT SUPPORT SUPPLIER _____			
SPECIAL REQUIREMENTS FOR HAZARDOUS SERVICE _____		RESERVOIR CAPACITY (8.5.4.3) _____ l			
SPECIAL CLEANING AND DECONTAMINATION REQ'TS _____		NLL TO GLAND PLATE HEIGHT (8.5.4.2) _____ m			
UTILITY MANIFOLD CONNECTIONS REQUIRED (8.4.4) _____		RESERVOIR CASING MAWP (3.41) _____ kPag _____ °C			
TYPE AND SPEC. OF HEAT TRACING (8.6.5.8) _____		SET PRESSURE RANGE, MAX/MIN _____ / _____ kPag			
THERMAL RELIEF VALVES REQUIRED (9.8.3) _____		SYSTEM HOLD-UP PERIOD (PLANS 53B & 53C) _____ DAYS			
<b>COOLING SYSTEM (PLAN 21, 22, 23, 41, 53B &amp; 53C)</b>		TEMPERATURE INDICATOR (PLAN 53B & 53C) _____			
HEAT EXCHANGER SUPPLIER _____		PRESSURE SWITCH (8.5.4.2.h) TO ACTIVATE ON: _____			
WATER COOLED _____ AIR COOLED _____ ISO 15649 _____		RISING PRESSURE (ARR 2) SET @ _____ kPag			
EQUIPMENT REFERENCE/CODE _____		FALLING PRESSURE (ARR 3) SET @ _____ kPag			
COOLING WATER LINES SUPPLIER _____		HIGH LEVEL ALARM REQUIRED (8.5.4.2.i) _____			
TUBING _____ GALV PIPING (8.4.2) _____		CONNECTING LINES SUPPLIER _____			
COOLING WATER FLOW RATE _____ m³/h		TUBING _____ SCH 80 PIPING (8.5.4.4.9) _____			
SIGHT FLOW INDICATORS (8.4.3) _____ OPEN _____ CLOSED _____		FILLING SYSTEM SUPPLIER _____			
<b>PLAN 11, 13, 14, 23, 31, 32 AND 41 SYSTEMS</b>		EXTERNAL CIRCULATING PUMP (8.6.3.1) _____			
● CONNECTING LINES SUPPLIER _____ <b>KSB</b> _____		<b>PLAN 72 AND 74 SYSTEM</b>			
TUBING _____ ● PIPING (8.5.2.2) _____		EQUIPMENT SUPPLIER _____			
RESTRICTION ORIFICE NIPPLE IN FLUSH LINE (8.5.2.4) _____		HIGH FLOW ALARM SWITCH (8.6.6.5) _____			
CYCLONE SEPARATOR SUPPLIER _____		<b>PLAN 75 AND 76 SYSTEM</b>			
PLAN 32 EQUIPMENT SUPPLIER _____		EQUIPMENT SUPPLIER _____			
PLAN 32 FLOW IND'R _____		HIGH LEVEL ALARM SWITCH FOR PLAN 75 (8.6.5.3) _____			
PLAN 32 TEMPERATURE IND'R _____		TEST CONNECTION (8.6.5.4) _____			
<b>PLAN 52 AND 53 SYSTEMS</b>		<b>INSTRUMENTATION</b>			
STANDARD (FIG G.27) _____ ALTERNATE (FIG G.28) _____		USER SPECIFICATION REFERENCE FOR _____			
DIMENSIONAL VARIATIONS TO STANDARD (FIG G.27) _____		INSTRUMENTATION/CONTROLS _____			
DIMENSIONAL VARIATIONS TO ALTERNATE (FIG G.28) _____		PRESSURE GAUGES (9.4); _____			
ALTERNATE FABRICATION STANDARD _____		OIL FILLED PRESSURE GAUGES (9.4.3) _____			
PRIMARY EQUIPMENT SUPPLIER _____		PRESSURE SWITCHES (9.5.2); _____ TRANSMITTER (9.5.2.3) _____			
SUPPLIER REFERENCE/CODE _____		LEVEL SWITCHES (9.5.3); _____ TRANSMITTER (9.5.3.2) _____			
ASME CODE STAMP REQUIRED <b>U CODE STAMP</b> _____		HYDROSTATIC _____ CAPACITANCE _____ RADAR _____			
		LEVEL INDICATORS (9.6) _____ TRANSMITTER (9.5.3.2) _____			
		WELD PAD _____ EXTERNAL, REMOVABLE (9.6.2) _____			
		FLOW INSTRUMENTS (9.7); _____ TRANSMITTER (9.7.3) _____			
<b>INSPECTION AND TESTING</b>					
PURCHASER PARTICIPATION IN INSPECTION & TEST _____		100% INSPECTION OF ALL WELDS (6.1.6.10.5a) USING; _____			
SPECIFY; _____		MAGNETIC PARTICLE _____ OR _____ LIQUID PENETRANT _____			
INSPECTOR'S CHECK LIST (10.1.7 & ANNEX H) _____		RADIOGRAPHIC _____ ULTRASONIC _____			
PURCHASER APPROVAL REQUIRED FOR WELDED _____		OPTIONAL QUALIFICATION TESTING REQ'D (10.3.1.1.2) _____			
CONNECTION DESIGNS, (6.1.6.10.5) _____		MODIFIED FACES FOR PUMP TEST (10.3.5.2.1) _____			
HARDNESS TEST (10.2.3.K) REQUIRED FOR: _____		ALTERNATE SEAL PUMP TEST (10.3.5.2.2) _____			







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<b>BS EN ISO 5199</b> <b>Centrifugal Pump Process Data Sheet</b> <b>SI Unit</b>		ITEM NO. <u>113-ST-301-P01A/B</u> Job No. <u>11102D</u> Purchase Order No. <u>0-6495-PS2158-102-A100</u> Date <u>20/Jun/15</u>		

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