CASALE

Client Doc. No.: 40-P-1236-E-KSP-0001 (1)

PUMP DATA SHEET (40-P-1236A/B) (1)

Rev

1	NUMBER OF ITEMS	2 (12)		PUMP TYPE	☒ HORIZONTAL SHAFT			
2	SERVICE	NH3 - Water Pump		Sealless Centrifugal	☐ VERTICAL SHAFT			
3	MANUFACTURER	(1)			☒ INDOOR			
4	MANUFACTURER TYPE AND SIZE	CNF 50-32-200		INSTALLATION	☐ OUTDOOR			
5	MANUFACTURER SERIAL NO.	4110026625/011-01-02			☐ UNDER ROOF			
6	SERVICE	Continuous (2)		APPLICABLE STANDARD	(10)			
7	**OPERATING DATA**							
8	LIQUID	20% wt. NH3 solution		SUCTION PRESSURE (MIN/R/MAX)	3.67	9.17	kgf/cm² (g)	
9	SOLID CONTENT	No		DISCHARGE PRESSURE (MIN/R/MAX)	7.85		kgf/cm² (g)	
10	PUMPING TEMPERATURE	65.0	°C	DIFFERENTIAL PRESSURE	4.11		kgf/cm² (g)	
11	DENSITY AT PUMPING TEMPERATURE	838.20	kg/m³	NPSH AVAILABLE	7 (3)		m	
12	VAPOR PRESSURE AT PUMPING TEMPERATURE	1.94	kgf/cm²(a)	NPSH REQUIRED	1.17 (26)	2	m	
13	DYN. VISCOSITY AT PUMPING TEMPERATURE	0.310	cP	RPM OF PUMP	2820		RPM	
14	SPECIFIC HEAT A PUMPING TEMPERATURE	0.940 1	kcal/(kg·°C)	EFFICIENCY AT RATED POINT	34		%	
15	OTHER FLUID CHARACTERISTICS			REQUIRED POWER	3.9		kW	
16	FLOW RATE NORMAL	6.8	m³/h	MOTOR POWER	5.2 (16)		kW	
17	FLOW RATE RATED	9.0	m³/h	RPM OF MOTOR	2820		RPM	
18	MIN. FLOW ALLOWED	2.0	m³/h	MAX SOUND PRESSURE LEVEL	85		dB	
19	DIFFERENTIAL HEAD	50	m	Suction specific speed (Nss)	8153		[US]	1
20	MAX. DIFFERENTIAL HEAD	(5)	m					
21	FLUID PROPERTIES ☐ HIGH FLAMMABLE ☐ TOXIC ☒ CORROSIVE ☐ ABRASIVE ☐ HAZARDOUS ☐ INSTABLE							
22	MELTING TEMP	FLAMING TEMP	SELF IGNITION TEMP	°C	°C	°C		
23								
24	**AMBIENT AIR CONDITIONS** (4)							
25	RANGE OF AMBIENT TEMPS: MIN/NORM/MAX			RELATIVE UMIDITY: MIN/NORM/MAX				
26			°C			%		
27	ELECTRICAL AREA CLASSIFICATION	Zone 2 (14)						
28								
29	**UTILITIES** (4)							

		TEMPERATURE		PRESSURE		CONSUMPTION	
30							
31	COOL. WATER	N/A	°C	N/A	kgf/cm² (g)	N/A	kg/h
32	INSTRUMENT AIR	N/A 2	°C	N/A 2	kgf/cm² (g)	N/A 2	kg/h
33	STEAM	N/A	°C	N/A	kgf/cm² (g)	N/A	kg/h

		AC VOLTS	PHASE	Hz		
34						
35	ELECTRICAL POWER	380 +/- 10% 1	3	50 +/- 3% 1	7.4 (17)	kW
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CONSTRUCTION DATA (7)

SELF-PRIMING		No			
NO OF STAGES		1			
ROTATION	(18)	CCW			
DIAMETER OF IMPELLER (MAX/RATED/MIN)	209	202	160	mm	(11)
DIMENSIONS	650 x 550 x 613 (length x width x height)			mm	(1)
TANK/CAN DIMENSIONS				mm	
CASING	DESIGN PRESSURE	11.00	(13)	kgf/cm² (g)	
	DESIGN TEMPERATURE	190.0		°C	
	SPLITTING	Radial			(1)
TEST PRESSURE (WATER)		25.0		kgf/cm² (g)	(1)
SUCTION NOZZLE	SIZE	2"	(22)		
	RATING	150#			
	ACC. TO	ANSI-RF			
	POSITION	End			
DISCHARGE NOZZLE	SIZE	1 1/4"	(22)		
	RATING	150#			
	ACC. TO	ANSI-RF			
	POSITION	Top			
DRAIN		Flanged with welded bellow seal valve			
VENT		Self			
TYPE OF BEARINGS		slide bearings			

SHAFT SEAL (1)	☐ MECH. SEAL ☐ PACKING		
MECH. SEAL	MANUFACTURER		
	TYPE		
	DISPOSITION		
PACKING	MANUFACTURER		
	TYPE		
	NO. OF RINGS		
DRIVER	MANUFACTURER	HERMETIC/SIEMENS	
	TYPE	ELECTRIC ENGINE	(2)
	VOLS, PH.,CYCLES	380V, 3-PHASE	
	TYPE OF PROTECTION	PTC 180	
COUPLING	MANUFACTURER		
	TYPE		
	SPACER	mm	
	DELIVERED BY		
BASE PLATE	FOR	☒ PUMP ☒ DRIVER	
	DELIVERED BY	HERMETIC	
	BOLTS	No	
AUXILIARY PIPING	FLUSHING	No	
	FLUID		
	QUENCH	No	
	FLUID		
	COOLING	No	
	FLUID		
	HEATING	No	
	FLUID		

MATERIALS (6) (23) (24) (1)

CASING	1.4408 ~ A351 CF8M	IMPELLER/INDUCER	1.4408 ~ A351 CF8M
PUMP ROTOR SHAFT	1.4571 ~ A314 316Ti	STATOR (21)	COPPER
BUSHING AND SLEEVES (20)		BEARING HOUSING (20)	
PISTON	N/A	BEARING PARTS (20)	
DIAPHRAGM	N/A	COUPLING	N/A
PISTON ROD	N/A	BASE PLATE	C.S.
CASING COVER	1.4571 ~ A314 316Ti	PACKING	N/A
CASING GASKETS	AFM 34	MECHANICAL SEAL	N/A
BOLTS	stainless steel ~ A193	SAFETY VALVE	N/A
HEATING JACKET	N/A	TIMING GEAR	N/A
MOTOR CASING	1.4571 ~ A213 TP316Ti	PUMP VENT AND DRAIN VALVES	1.4571 ~ A182 F316 Ti
SHAFT ENCLOSING TUBE	N/A	ROTOR TUBE	1.4571 ~ A240 316 Ti
DISCHARGE PIPE	N/A	STATOR TUBE	HASTELLOY C4
DISCHARGE PIPE BEND	N/A	REINFORCEMENT OF BENDS (FOR PROPELLER TYPE)	N/A
MOUNTING FLANGE	N/A	TANK/CAN	N/A

SHOP TESTS (8) (25) (1)

PERFORMANCE	BY	HERMETIC	MATERIAL CERT.	BY	HERMETIC
	ACC TO	DIN EN ISO 9906 cl. 2B		ACC TO	DIN EN 10204
HYDRO PRESSURE	BY	HERMETIC	VIBRATION AND NOISE	BY	HERMETIC
	ACC TO	DIN EN ISO 5199		ACC TO	MFR. STANDARD
NPSH	BY		MECH. RUNNING	BY	HERMETIC
	ACC TO			ACC TO	MFR. STANDARD
DIMENSION	BY	HERMETIC	SHIPPING DIMENSIONS	BY	HERMETIC
	ACC TO	APPROVED GAD		ACC TO	APPROVED GAD
HUEY TEST	BY		FINAL INSPECTION	BY	HERMETIC
	ACC TO			ACC TO	PURCHASE ORDER

WEIGHTS

PUMP ONLY	140 (1)	kg	
WHOLE UNIT	230 (1)	kg	

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NOTES PAGE

Notes:

(1) HERMETIC PUMPEN GMBH

(2) Motor shall be designed for automatic start-up, and sized to cover end-of-curve operation.

(3) Shown NPSHA is in worst suction condition.

(4) Refer to "Process design basis" data sheet N° A00090Z-E-PRZ-001.

(5) Shut-off head should not exceed 120% of the rated differential head with 0% positive tolerance.

(6) Material in contact with liquid handled AISI316L. Copper, Copper alloys and Fluoroelastomers (FKM) are not allowed.

(7) Temperature sensor (PT100) to be provided on containment shell. N/A due to canned motor pump design (1)

(8) Tests and inspections as per approved quality control plan (QCP; 40-P-1236-Q-LSG-0001) and approved test procedures; scope: (1)
Hydrostatic test
Performance test (with vibration level check)
NPSH test (if margin <1m @ rated point)
Impeller balancing to G6.3
Final inspection
Material certificates on pressure components, to EN10204-3.1.

(9) Insulation Type: Heat conservation. (not in scope of HERMETIC)

(10) Applicable Spec.: ISO 2858 and Casale Spec. with consideration of approved submitted deviation list

(11) Impeller type: semi-open, confirmed by HERMETIC.

(12) One pump in operation and one pump spare.

(13) MAWP min. required value is 14.2 kg/cm2 g at 120°C (2)

(14) II 2G Ex de II B T5

(15) Deleted

(16) Maximum allowable output P2

(17) Maximum allowable input P1

(18) Viewed from Suction Side

(19) Deleted

(20) A314 316Ti/tungsten w5 for sleeve; A314 316Ti/silicium carbide SiC 30 for bushing

(21) Windings are not in contact with liquid. Cover by rotor tube made of A240 316 Ti

(22) Flanges on volute casing according DIN EN 1092-1, however drilled according ANSI #150 RF

(23) DIN material will be used, equivalent ASTM material is indicated

(24) Start-up and operation at -20°C. Baseplate is suitable for -44°C including impact test. (1)

(25) Painting shall be as per painting procedure 40-P-1236-E-MSL-0001 approved by CASALE

(26) at rated flow; Required NPSH at maximum flow is 1.6m (2)

(27) Continuous head rising is confirmed. Furthermore HERMETIC confirm that shut-off head doesn't exceed 120% of the rated point.

(28) Counter flanges for suction and discharge nozzle are in scope of supply of HERMETIC. Nuts, bolts and gaskets are not in scope of supply (3)

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