

PIPING DESIGN - TOETS - DATASHEET POMP

Klant	: ROC		Always refer to this number	
Project	: Uitbreiding condensaat capaciteit	Rotating Equipment	Zadkine	Piping cursus
Locatie	: Nederland	Afdeling :	Project :	
		Doc. No.: Pomp data sheet		

1	
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4	
5	<u>Equipment Number</u> <u>Service Name</u>
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7	P-831 A/B LD Condensaat Pompen
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REV.	DATUM	OMSCHRIJVING	GEMAAKT	GECONTROLEERD	GOEDGEKEURD

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Plant : Uitbreiding condensaat capaciteit				Zadkine	Piping cursus
Location : Nederland		Dept./Sect.		Project	
Doc. No.: Pomp data sheet					
1	Equipment No. : P-831 A/B				
2	Service Name : LD Condensaat Pompen				Quantity : 2
3	GENERAL				
4	Location :	<input type="checkbox"/> Indoor	<input checked="" type="checkbox"/> Outdoor	<input type="checkbox"/> Protected	<input checked="" type="checkbox"/> Unprotected
5	Operation :	<input checked="" type="checkbox"/> Individual	<input type="checkbox"/> Parallel	<input type="checkbox"/> Series	
6		<input checked="" type="checkbox"/> Continuous	<input type="checkbox"/> Intermittent	<input type="checkbox"/> Occasional	
7	Area class.:	Zone: 2	Gas group: II C	Temperature class: T3	
8	Driver :	Main: E-motor	No. required: 1	Supplied by :	Pump seller Mounted by: Pump seller
9		Spare: E-motor	No. required: 1	Supplied by :	Pump seller Mounted by: Pump seller
10	LIQUID PROPERTIES			CONSTRUCTION	
11	Liquid :	Condensate			Manufacturer's design, bar(g) / °C:
12	Hazardous :	<input type="checkbox"/> Toxic	<input type="checkbox"/> Aggressive	<input type="checkbox"/>	Suction : 42 / 180
13		<input type="checkbox"/> Flammable	<input type="checkbox"/> Self-igniting	<input type="checkbox"/>	Discharge : 42 / 180
14	Corrosive :	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Due to:	Hydrostatic test pressure, bar(g): Suction / Discharge 63 / 63
15	Solids :	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Size, mm:	Shaft : <input checked="" type="checkbox"/> Horizontal <input type="checkbox"/> Vertical
16	Gas in fluid:	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Vol., %:	<input checked="" type="checkbox"/> Overhung <input type="checkbox"/> Between bearing
17					Suction : <input checked="" type="checkbox"/> Single <input type="checkbox"/> Double <input type="checkbox"/> Open suction
18	Temperature, °C :	Minimum	Normal	Maximum	Casing : <input checked="" type="checkbox"/> Volute <input checked="" type="checkbox"/> Single <input type="checkbox"/> Double
19	Density, kg/m³ :	136	145	145	<input type="checkbox"/> Diffuser <input type="checkbox"/> Staggered
20	Viscosity, cP :	0.2	0.2	0.2	Split : <input type="checkbox"/> Axial <input checked="" type="checkbox"/> Radial <input type="checkbox"/> Barrel / Can
21	Vapor pressure, bar(a):	3.2	3.9	3.9	Mounting : <input type="checkbox"/> Foot <input type="checkbox"/> Bracket <input checked="" type="checkbox"/> Centerline
22	Specific heat, kJ/kgK :				<input type="checkbox"/> Flange
23	OPERATING CONDITIONS				
24		Minimum	Normal	Rated	Impeller(s) : <input checked="" type="checkbox"/> Closed <input type="checkbox"/> Semi-open <input type="checkbox"/> Open
25	Capacity, m³/h :	11.7	19.6	21.4	Number of impellers :
26	Pressure, bar(g):				Diameter, mm: Rated Maximum
27	Suction:	2.4	3.1	3.1	First stage: 193 205
28	Differential:	3.4	4	4.07	Follow stages:
29	Differential head, m:	1	0.99	0.97	Wear rings : <input type="checkbox"/> None <input checked="" type="checkbox"/> Casing <input checked="" type="checkbox"/> Impeller
30	Differential head, m:	12.1	11	10.7	<input checked="" type="checkbox"/> Front <input checked="" type="checkbox"/> Back <input type="checkbox"/> Grooved <input type="checkbox"/> Straight
31	Hydraulic power, kW:	NPSHA, m : 2.2			Thrust bal. : <input type="checkbox"/> None <input type="checkbox"/> Balance holes <input type="checkbox"/> Back vanes
32	Design conditions, bar(g) / °C:	Suction : 7.5 / 177			<input type="checkbox"/> Balanced opposed impellers <input type="checkbox"/> Balance drum <input type="checkbox"/> Balance disc
33		Discharge : 7.5 / 177			Jacket : <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No ; For: <input type="checkbox"/> Heating <input type="checkbox"/> Cooling
34	Minimum Design Metal Temperature, °C :	0			On : <input type="checkbox"/> Stuffing box <input type="checkbox"/> Bearing bracket <input type="checkbox"/> Pedestals
35	PUMP PERFORMANCE				
36	Performance Curve no. :	R 200/50 GM1B Rated speed, rpm: 1450			Direction of rotation, facing coupling end: <input checked="" type="checkbox"/> CW <input type="checkbox"/> CCW
37	Shut-off head, m :	12.8	3)	Max. pressure, bar(g): 1.17	1) Vertical pump: <input type="checkbox"/> Dry pit <input type="checkbox"/> Wet pit Pit depth, mm:
38	Efficiency, % :	53.82			Shaft : <input type="checkbox"/> One piece <input type="checkbox"/> Sections
39	Power, kW:	Normal / Rated:	/ 1.1		Length, mm: Bearing span, mm:
40		Maximum / Driver:	1.3 / 4		Lineshaft : <input type="checkbox"/> Open <input type="checkbox"/> Closed
41	Q-normal/Q-BEP, % :	Q-rated/Q-BEP, % : 89			Barrel (can): Length, mm:
42	Minimum flow, Thermal/Mechanical, m³/h:	/ 6 5)			Diameter, mm:
43	NPSHR, Rated / 125% flow, m:	0.7 /			Bowl(s) : <input type="checkbox"/> Bolted <input type="checkbox"/> Threaded
44	Suction specific speed:	8176	(< 12780) (Units: rpm, m³/h,m)		Suction straine : <input type="checkbox"/> Yes <input type="checkbox"/> No Mesh size, mm:
45	Viscosity correction, CH / CQ / CE:	1.0 / 1.0 / 1.0			Column pipe: : <input type="checkbox"/> Flange <input type="checkbox"/> Thread
46	Critical speed, rpm: - 1st./2nd. :	/			Size: Rating: Facing:
47					Stilling tube / outer casing, minimum diameter, mm :
48					Centering device, type:
49					
50	Notes: Q = Capacity; BEP = Best Efficiency Point; CW = Clockwise; CCW = Counter Clockwise				
51	1) At rated impeller diameter.				
52	2) Pumps shall be able to start against open discharge valve.				
53	3) Shut-off head shall not exceed 15 mliq.				
54	4) Vendor to advise on minimum flow requirements.				
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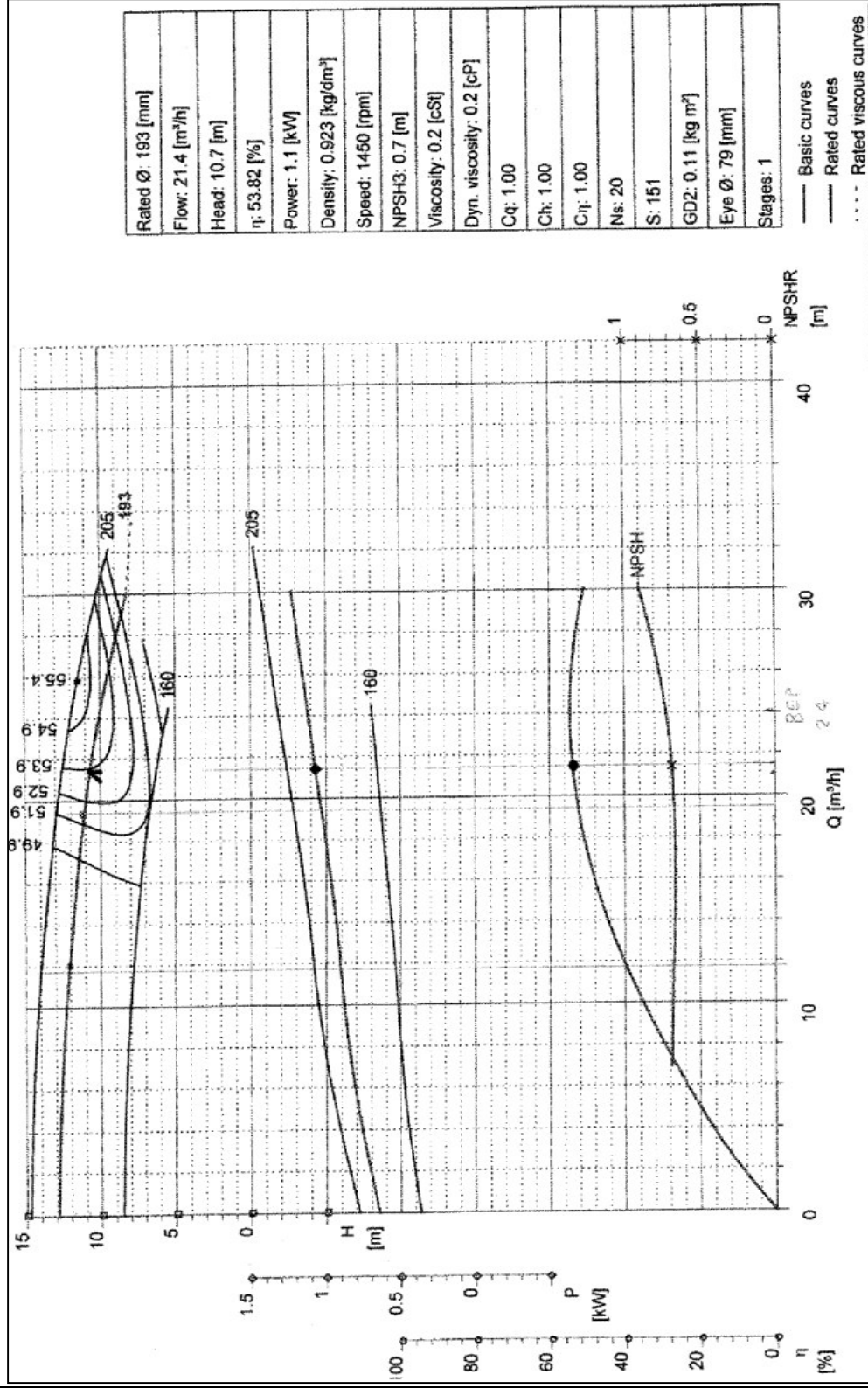
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Client : ROC		Rotating Equipment		Always refer to this number		
Plant : Uitbreiding condensaat capaciteit				Zadkine	Piping cursus	
Location : Nederland		Dept./Sect.		Project		
Doc. No.: Pomp data sheet						
1	Equipment No. : P-831 A/B					
2	Service Name : LD Condensaat Pompen Quantity : 2					
3	MATERIALS OF CONSTRUCTION			PUMP FEATURES		
4	Material Class	: S-6 (as per API 610)	Certificate 1)	Shaft sealing	: <input type="checkbox"/> Packing <input checked="" type="checkbox"/> Mechanical seal <input type="checkbox"/> Seal-less	
5	Casing	: Carbon steel	3.1B	No. of packing rings:	Lantern ring: <input type="checkbox"/> Yes <input type="checkbox"/> No	
6	1 Barrel	:	3.1B	Seal code	: BST -- Special :	
7	Impeller(s)	: 12% CHR	3.1B	Manufacturer	:	
8	Shaft	: AISI 4140	2.2	Model & size	:	
9	1 Seal sleeve	: AISI 316 SS	2.2	Seal flush plan(s)	: Plan 23 + 61	
10	1 Stage sleeves	:	2.2	Cooling water plan	: K	
11	Wear rings: Impeller	: 12% CHR	2.2	[include FI's]		
12	Casing	: 12% CHR	2.2	Bearings:		
13	1 Throat bushing(s)	:	2.2	Radial: Type	: Ball	
14	1 Interstage bushing(s)	:	2.2	No. of bearings	: 1	
15	1 Throttle bushing(s)	:	2.2	Manufacturer	: SKF or Equal	
16	Lantern ring	:	2.2	Bearing no./Size	:	
17	Seal endplate / gland	: AISI 316 SS	2.2	Material: Sleeve	:	
18		:		Bush	:	
19	1 Diffuser(s)	:		Thrust: Type	: Ball	
20	Discharge head	:		Location	: <input checked="" type="checkbox"/> Pump <input type="checkbox"/> Driver	
21	1 Discharge column	:		Manufacturer	: SKF or Equal	
22	Casing gasket	: Grafite filled SS type 304	2.2	Bearing no./Size	:	
23		:		Material thrust collar	:	
24	Baseplate	: Fabricated Steel		Bearings (vertical pumps)		
25	(or mounting flange / plate)	:		Type	:	
26	Bolting	: AISI 4140 or B-7 Alloy	2.2	Material	:	
27	wetted bolting	: AISI 316 SS	2.2	Thrust at design / minimum flow	kg: /	
28		:		Thrust at runout, up / down	kg: /	
29		:		Lubrication:		
30		:		<input type="checkbox"/> Oil bath	<input type="checkbox"/> Grease <input type="checkbox"/> Pumped liquid <input type="checkbox"/> External liquid	
31		:		<input checked="" type="checkbox"/> Oil ring	<input type="checkbox"/> Splash <input type="checkbox"/> Forced feed <input type="checkbox"/> Clean water	
32	1	:		See separate oil system data sheets:	<input type="checkbox"/> Yes <input type="checkbox"/> No	
33	CONNECTIONS					
34	Nozzle position:	Suction: <input type="checkbox"/> Top <input type="checkbox"/> Side <input checked="" type="checkbox"/> End				
35	Note 4)	Discharge: <input checked="" type="checkbox"/> Top <input type="checkbox"/> Side				
36	Connections	Size	Rating	Facing	Finish	
37	1 Suction	3)	4"	300#	RF	125-250 RA
38	1 Discharge	3)	2"	300#	RF	125-250 RA
39	1 Drain		3/4"	300#	RF	125-250 RA
40	1 Vent		3 / 4 "	300#	RF	125-250 RA
41						
42						
43	Internal clearances, mm:					
44	Front wear ring	:	Interstage bush:			
45	Back wear ring	:	Throttle bush:			
46	Throat bush	:				
47						
48	Utilities:	Piping	Consumption			
49	Fluid	Plan	Material	Flow 2)	P [barg]	
50	1					
51						
52						
53	Notes: Nr. = number.					
54	1) According to ISO 10474.					
55	2) m ³ /h for liquids, kg/h for steam.					
56	3) Allowable forces and moments on each nozzle shall be minimum 2 times API 610 Table 2-1A.					
57	4) All auxiliary connections at skid edge with block valve for maintenance.					
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1	Equipment No. : P-831 A/B	Quantity : 2
2	Service Name : LD Condensaat Pompen	



	Pump type R 200/50 GM1 B	Curve n° R20050GM1B rev.2 Diff. n° 37083 - 36	Maximum impeller Ø 205 [mm]	Selection n°: 15
		Minimum impeller Ø 160 [mm]	Casing mat.: A216WCB	
Impeller type B - Pattern n° 37075(L.37112Low)	Impeller mat.: A487CA6NM	Item: P-831A/B		

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		Doc. No.: Pomp data sheet	Rev.:	Date:													
1	Equipment No. : P-831 A/B																
2	Service Name : LD Condensaat Pompen					Quantity : 1											
3	Type of Equipment: Centrifugal Pump Unit			Type of driver: E-Motor													
4	1. GENERAL																
5	This data sheet covers the noise limits of the equipment.																
6	For definition of terminology and for description of the methods to be used for measurement and calculation of noise, reference is																
7	made to Specification EEMUA 140 "Noise Procedure Specification" of the Oil Companies Materials Association (1980)																
8	The following Specification and Standards shall be adhered to:																
9	<input checked="" type="checkbox"/>	- VDI-3731/VDI-3743/DIN-45635 1/24.	Equipment noise data and equipment noise test procedure.														
10	<input type="checkbox"/>	-	<input type="checkbox"/>	-													
11	<input type="checkbox"/>	-	<input type="checkbox"/>	-													
12	<input type="checkbox"/>	-	<input type="checkbox"/>	-													
13	2. NOISE LIMITS TO BE MET BY THE EQUIPMENT																
14	The noise to be generated by the equipment shall not exceed the more stringent of the noise limits given in table 1 below, for any of																
15	the conditions of operation, for which the equipment may normally be expected to be used.																
16	Table 1 (for complete set)		Octave band center frequencies (Hz)						dB(A)								
17			31.5	63	125	250	500	1K		2K	4K	8K					
18	Maximum sound pressure level (dB(A)), ref. 20											80					
19	µPa at any location 1 meter from equipment																
20	surface.																
21	Maximum sound power level (dB(A)) ref. 1 pW																
22	(total) noise emitted by the equipment).																
23	If the equipment generates noise with tonal or impulsive components the limits given shall be taken 5dB more stringent.																
24																	
25	3. INFORMATION TO BE SUBMITTED WITH THE QUOTATION																
26	Seller shall state noise guarantees for the equipment he offers to supply, for any of the conditions of operation for which the																
27	equipment may be expected to be used. This sheet shall be returned with the quotation, with section 4 completed by the seller to give																
28	the following information:																
29	a. Unsilenced sound pressure and sound power levels in octave bands and in dB(A) of the equipment, as applicable.																
30	b. Sound pressure and sound power levels in octave bands and in dB(A) of the equipment with silencing measures taken to meet the																
31	specified noise limits or the minimum attainable sound pressure and sound power levels.																
32	c. Complete description and drawings of any silencers and/or enclosures, if the quotation comprises such silencing devices.																
33	4. NOISE LEVELS GUARANTEED BY SELLER																
34	Table 2	Equip- ment	Con- dition ref.									dB(A)	Narrow band noise state	Impulsive noise State	Silencing measures taken		
35				31.5	63	125	250	500	1K	2K	4K					8K	
36	Maximum sound pressure level (dB(A)), ref. 20 µPa at 1 meter distance from equipment / Piping surface	Compl. set	3a										83			X	
37			3b														X
38		Pump or Compr.	3a		69	72	79	83	77	74	69	70	83			X	
39			3b														X
40		Gearbox	3a														X
41			3b														X
42		Driver	3a										63			X	
43			3b														X
44		Piping	suct.														X
45			disch.														X
46		Sound power level (dB(A)), ref. 1 pW	Pump or Compr.	3a		82	84	91	95	89	86	81	82	95			X
47				3b													
48	Gearbox		3a														X
49			3b														X
50	Driver		3a										75			X	
51			3b														X
52	Quoted noise levels shall have an upper tolerance of + 0 dB.																
53	* Unsilenced sound pressure levels only.																
54	Notes:																
55																	
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