



# FOAIE DE DATE POMPA P-002



01	04.2022	Emis pentru construire	Dan M.	Nan J.C.	Stan C.	Nan J.C.			
00	06.2021	Emis pentru comentarii	Dan M.	Nan J.C.	Stan C.	Nan J.C.			
Rev.	Date	Description	Prepared	Checked	Project manager	Approval			
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	Project Title:				Project no.:	Page no.:			
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1	Item No.	P-002	Number	1	(incl. spare)
2	Equipm. name	DRAIN TRANSFER PUMP	Construction code	<input checked="" type="checkbox"/> EN ISO 14847	<input type="checkbox"/> API 676 <input type="checkbox"/> Mfr's. std.
3	TON		European directives	<input checked="" type="checkbox"/> 94/9/EC	<input checked="" type="checkbox"/> 2006/42/EC <input checked="" type="checkbox"/> 2014/68/EU
4	Pump type	Vertical Progressive Cavity Pump (VPCP)		<input type="checkbox"/> 98/336/EEC	<input type="checkbox"/> 73/23/EEC
5	Pump type acc.	<input checked="" type="checkbox"/> EN ISO 14847 <input type="checkbox"/> API 676 <input type="checkbox"/> Mfr's. std.	Requisition No.		
6	Mfr. / serial no.	/	P & I-Diagr. No.		
7	Mfr's. type		Location	<input checked="" type="checkbox"/> submerged <input type="checkbox"/> shelter <input type="checkbox"/> outdoor	
8	<b>OPERATING &amp; PERFORMANCE DATA</b>				
9	Design case	VERTICAL SUBMERSIBIL	Rated capacity (Q <sub>rated</sub> )	[m³/h]	7.50
10	Liquid pumped	crude oil+salt water	Capacity min. / max.	[m³/h]	5.00 / 12.50
11	Hazard. class acc. VbF/ WGK	/	Min. continuous flow	[m³/h]	-
12	Hazard. propert's.	<input type="checkbox"/> no <input type="checkbox"/> caustic	Capacity at BEP / EOC	[m³/h]	/
13	Special services	<input checked="" type="checkbox"/> no <input type="checkbox"/> solids	Balancing flow capacity	appr. [m³/h]	
14		<input type="checkbox"/> gas content	Differential head at Q <sub>rated</sub>	[barg]	1.3
15	Chloride / H <sub>2</sub> S	[ppm] n.a. / n.a.	Shut-off head	max. allow. / rated [barg]	/
16	Solids - type	n.a.	NPSH min. available at Q <sub>rated</sub>	[mliq]	N/A
17	- concentr. / size	[g/m³]/[mm] - / -	NPSH requ'd. at Q <sub>rated</sub>	estim. / final [mliq]	FLODED
18	Gas content	[Vol.-%] /	Suction press.	(1) min. / max. [barg]	ATM / 0.16
19	pH-value at t <sub>oper.</sub>	-	Discharge press.	(2) norm. / max. [barg]	2.0 / 24.0
20	Operation	<input checked="" type="checkbox"/> continuous <input type="checkbox"/> intermittent	Rated speed	[min <sup>-1</sup> ]	vendor
21	Special starting	<input type="checkbox"/> open discharge valve <input checked="" type="checkbox"/> max. viscosity	Rated efficiency	estimated / final [%]	25 /
22	conditions		Rated power at Q <sub>rated</sub>	[kW]	0.271
23	Operating temp. (t <sub>oper.</sub> )	[°C] +3	Power - at rat. Imp. BEP / EOC	[kW]	/
24	Temperature min. / max.	[°C] +2 / +20	- at max. imp. & Q <sub>rat.</sub>	[kW]	
25	Density at t <sub>oper.</sub>	[kg/m³] 850 (mix)	Power installed	estimated [kW]	5.50 /
26	Density min. / max.	[kg/m³] 800 / 1150.0	Suction specific speed		vendor
27	Kin.viscosity at t <sub>oper.</sub>	[cSt] 4.0			
28	Kin.viscosity min. / max.	[cSt] 1.2 / 15	Viscosity correction factors :		
29	Vapor pressure at t <sub>oper.</sub>	[mbara] na	- head / capacity / efficiency		/ /
30	Specific heat c <sub>p</sub> at t <sub>oper.</sub>	[kJ/kgK] -			
31	<input type="checkbox"/> Pour point <input type="checkbox"/> Freeze point	[°C] -			
32	<b>CONSTRUCTION</b>				
33	Haz. area: Zone/Group/ATEX Cat.	2 / II / 3G	Diametrical running clearances :		
34	EPL Lev./T.Class/Expl.Group	Gc / T3 / IIA	- front wear ring / back wear ring	[mm]	/
35	Max. allow. temp. of liquid	[°C] 55	- throat bushing / throttle bushing	[mm]	/
36	Casing type	<input type="checkbox"/> volute <input type="checkbox"/> double volute <input type="checkbox"/> multiple volute	Pressure casing :		
37		<input type="checkbox"/> barrel <input type="checkbox"/> multi ring sect.	- design temperature (t <sub>des.</sub> )	[°C]	-29 ÷ +60
38	Case mounting	<input checked="" type="checkbox"/> centerline <input type="checkbox"/> foot	- min. design metal temperature	[°C]	-29
39	Case split	<input checked="" type="checkbox"/> radial <input type="checkbox"/> axial	- max. working pressure at t <sub>des.</sub>	[barg]	24
40	Case split (inner casing)	<input checked="" type="checkbox"/> radial <input type="checkbox"/> axial <input type="checkbox"/> mfr. std. <input type="checkbox"/> n/a	- max. allow. working press. (MAWP) at :		
41	Self priming pump	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	- t <sub>des.</sub> / t=20°C	[barg]	/
42	Self venting pump	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	- hydrost. test pressure	[barg]	Acc. to Mfr's. std.
43	No. of stages		Cooling water required	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no	
44	Suct. type of impeller	<input type="checkbox"/> single <input type="checkbox"/> double	- quality	<input type="checkbox"/> Plant Cooling Water <input type="checkbox"/> normal quality	
45	Type of impeller	<input type="checkbox"/> closed <input type="checkbox"/> semiopen <input type="checkbox"/> open	- cooling on	<input type="checkbox"/> bearings <input type="checkbox"/> stuffing box <input type="checkbox"/> pedestals	
46	Impeller mounting	<input type="checkbox"/> overhung <input type="checkbox"/> between bearings	<input type="checkbox"/> oil cooler <input type="checkbox"/> seal cooler <input type="checkbox"/> seal vessel		
47	Impeller diam. min. / act. / max.	[mm] / /	- piping acc.	<input type="checkbox"/> Mfr's. std. <input type="checkbox"/>	
48	Axial thrust	<input type="checkbox"/> balancing hole <input type="checkbox"/> back vanes	Heating required	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> at site (heat tracing)	
49	balancing	<input type="checkbox"/> opposite impellers <input type="checkbox"/> balancing drum	- medium	<input type="checkbox"/> steam <input type="checkbox"/> condensate <input type="checkbox"/> hot oil <input type="checkbox"/> electric	
50		<input type="checkbox"/> balancing disc	- heating for	<input type="checkbox"/> suction case <input type="checkbox"/> stuffing box case <input type="checkbox"/> outlet box	
51	Radial thrust	<input type="checkbox"/> no <input type="checkbox"/> double volutes	Max. consumption	[kg/h] n/a	n/a
52	balancing	<input type="checkbox"/> staggered diffusers / volutes	Max. inlet temp. / max. allow. dt	[°C] /	/
53	Direction of rotation	<input checked="" type="checkbox"/> cw <input type="checkbox"/> ccw	Inlet pressure min. / max.	[bara] /	/
54			Design pressure	[barg]	
55			Design temperature	[°C]	
56			Hydrost. test pressure	[barg]	

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1	Item No.	P-002	Equipm. name	DRAIN TRANSFER PUMP
2	<b>SHAFT BEARING</b>			
3	Bearing type		Lubricant	Lubrication type
4	Axial bearing	<input type="checkbox"/> roller <input type="checkbox"/> sleeve <input type="checkbox"/> tilting pad	<input type="checkbox"/> grease <input type="checkbox"/> oil <input type="checkbox"/> pumpage	<input type="checkbox"/> CLO <input type="checkbox"/> forced feed
5	Radial bearing	<input type="checkbox"/> roller <input type="checkbox"/> sleeve <input type="checkbox"/> tilting pad	<input type="checkbox"/> grease <input type="checkbox"/> oil <input type="checkbox"/> pumpage	<input type="checkbox"/> CLO <input type="checkbox"/> forced feed
6	Intermediate bearing	<input type="checkbox"/> roller <input type="checkbox"/> sleeve <input type="checkbox"/> tilting pad	<input type="checkbox"/> grease <input type="checkbox"/> oil <input type="checkbox"/> pumpage	<input type="checkbox"/> CLO <input type="checkbox"/> forced feed
7				
8	Forced feed lubrication	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no <input type="checkbox"/> acc. API 610 <input type="checkbox"/> acc. API 614 <input type="checkbox"/> acc. EN ISO 10438 <input type="checkbox"/> acc. mfr. std.		
9	<b>SHAFT SEALING</b>			
10	Type of sealing	<input type="checkbox"/> packing <input checked="" type="checkbox"/> mechanical seal	Seal manufacturer	•
11		<input type="checkbox"/> single seal <input type="checkbox"/> dual seal	Mfr. sealing code :	
12		<input type="checkbox"/> face-to-back <input type="checkbox"/> back-to-back <input type="checkbox"/> face-to-face	-inner/outer sealing	• / •
13	Shaft sealing acc.	<input checked="" type="checkbox"/> API 682 <input type="checkbox"/> EN ISO 21049 <input type="checkbox"/> mfr. std.	Seal type	<input type="checkbox"/> spring type <input type="checkbox"/> bellow type
14	Category / type / arrangem.	/ /	Cartridge mounted	<input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> full cartridge
15	Seal piping acc.	<input checked="" type="checkbox"/> mfr. std. <input type="checkbox"/> Plan		
16	Sealing pressure at	INNER SEAL OUTER SEAL	Material code acc.	<input checked="" type="checkbox"/> Mfr's. std. <input type="checkbox"/>
17	- min. / max.	[bara] /		INNER SEAL OUTER SEAL
18	- max. allow. oper. press. :		Mfr's. seal code	
19	- static / dynamic	[barg] /	Gasket materials :	
20	Sealant system required	<input type="checkbox"/> yes <input type="checkbox"/> no :	- stationary seal rings	•
21	- seal vessel	<input type="checkbox"/> yes <input type="checkbox"/> no	- seal ring to sleeve	•
22	- sealant			
23	- pressure level	<input type="checkbox"/> unpressurized (buffer) <input type="checkbox"/> pressurized (barrier)	Face materials :	
24		<input type="checkbox"/> flare system <input type="checkbox"/> with nitrogen	- stationary seal face	•
25	- max. back press. of flare system	[bara]	- rotating seal face	•
26	- controlled barrier pressure	[bara]		
27	- controlled differential pressure	[barg]	Metal parts (spring, bellow)	•
28	- system design pressure	[barg]		
29	Seal operation with	<input checked="" type="checkbox"/> Quench <input type="checkbox"/> Clean Injection :	Shaft sleeve	
30	- medium		- coating	<input type="checkbox"/> yes, type ..... <input type="checkbox"/> no
31	- max. consumption	[kg/h]	Seal end plate	
32	- inlet temperature min. / max.	[°C] /	- bolting	
33	- inlet pressure min. / max.	[bara] /	Throttle bushing	
34	<b>ACCESSORIES</b>		<b>MATERIALS</b>	
35	Pump driver	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no	Mat. classific. code acc. Mfr's. std.	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
36	Base plate	<input checked="" type="checkbox"/> combined <input type="checkbox"/> separate	Pump housing	• S355J2 (1.0570)
37	- raised lip	<input type="checkbox"/> yes <input type="checkbox"/> no	Pressure fitting	(VTC)
38	Foundation bolts	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no No.:		
39				
40	Coupling mfr. / type	/	Wet bolting bolts / nuts	/
41	- limited end float required	<input type="checkbox"/> yes <input type="checkbox"/> no	Dry bolting bolts / nuts	42CrMo4QT / 25CrMo4QT
42	Coupling spacer	<input type="checkbox"/> yes <input type="checkbox"/> no length: mm	Casing gaskets	(VTC)
43	Coupling guard	<input type="checkbox"/> yes <input type="checkbox"/> no non-sparking		
44			Rotor (screw)	• 42CrMo4 (1.7225)
45	Gear	<input type="checkbox"/> yes <input type="checkbox"/> no	Stator	S355J2 (1.0570)
46	- gear ratio		Cardan joint	
47	- AGMA service factor			(VTC)
48			Drive shaft	• 42CrMo4 (1.7225)
49	Sealant system & piping	<input type="checkbox"/> yes <input type="checkbox"/> no		(VTC)
50			Bearing bracket	• P285NH
51	Discharge orifice	<input type="checkbox"/> yes <input type="checkbox"/> no bore diam. : mm		(VTC)
52	Min. recirculating valve	<input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> by others	Orifices	
53	- manufacturer / type	/		
54			Base plate	• S235JR
55	Lube oil heater	<input type="checkbox"/> yes <input type="checkbox"/> no	Coupling guard	S235JR
56	- type	<input type="checkbox"/> electrical <input type="checkbox"/> LP-steam		
57	- power absorbed [kW]	•		
58	Dry-run protection	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> by others	Seal piping	•
59	- manufacturer / type	/	Cooling water piping	•
60	Vibration control	• <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> surface <input type="checkbox"/> probes	Heating piping	•
61	- manufacturer / type	/	Quench piping	•
62	Sound protection	<input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> by others		
63	- type of protection	<input type="checkbox"/> hood <input type="checkbox"/> .....		
64	- arrangement of hood	<input type="checkbox"/> covering pump <input type="checkbox"/> covering pump train		
65	- type of hood	<input type="checkbox"/> natural draught <input type="checkbox"/> forced draught		
66	- inst. motor [kW]			VTC - Vendor to confirm



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1	Item No.	P-002	Equipm. name	DRAIN TRANSFER PUMP							
2	<b>EXTERNAL CONNECTIONS</b>										
3	Code requirement	<input type="checkbox"/> DIN <input checked="" type="checkbox"/> EN1092 <input type="checkbox"/> ISO7005-1 <input type="checkbox"/> ASME B16.5 (ANSI) <input type="checkbox"/> ASME B16.47 Type A									
4											
5	Connection	Size (NPS)	Rating	Facing	Position	Vendor's scope of supply					
6	Suction side					<input checked="" type="checkbox"/> counter flange					
7	Discharge side	DN 80	PN 16	RF	•	<input checked="" type="checkbox"/> counter flange					
8	Balancing line	<input type="checkbox"/> yes <input type="checkbox"/> no				<input type="checkbox"/> counter flange	<input type="checkbox"/> valve	<input type="checkbox"/> blind flange			
9	Case drain	<input type="checkbox"/> yes <input type="checkbox"/> no				<input type="checkbox"/> counter flange	<input type="checkbox"/> valve	<input type="checkbox"/> blind flange			
10	Case vent	<input type="checkbox"/> yes <input type="checkbox"/> no				<input type="checkbox"/> counter flange	<input type="checkbox"/> valve	<input type="checkbox"/> blind flange			
11	C.W. manifold	<input type="checkbox"/> yes <input type="checkbox"/> no				<input type="checkbox"/> counter flange	<input type="checkbox"/> valve	<input type="checkbox"/> blind flange			
12	.....	<input type="checkbox"/> yes <input type="checkbox"/> no				<input type="checkbox"/> counter flange	<input type="checkbox"/> valve	<input type="checkbox"/> blind flange			
13	.....	<input type="checkbox"/> yes <input type="checkbox"/> no				<input type="checkbox"/> counter flange	<input type="checkbox"/> valve	<input type="checkbox"/> blind flange			
14	Piping class:	suction side:	discharge side:								
15	<b>PUMP DRIVE</b>			<b>WEIGHTS &amp; SHIPPING INFORMATION</b>							
16	Type of drive :	(3)	Pump	•	[kg]	500					
17	- main pump/s	<input checked="" type="checkbox"/> el. Motor <input type="checkbox"/> steam turb. <input type="checkbox"/> diesel engine	Driver	•	[kg]	200					
18		<input type="checkbox"/> direct <input type="checkbox"/> gear <input checked="" type="checkbox"/> v.belt									
19	- spare pump	<input type="checkbox"/> el. Motor <input type="checkbox"/> steam turb. <input type="checkbox"/> diesel engine	Coupling		[kg]						
20		<input type="checkbox"/> direct <input type="checkbox"/> gear <input type="checkbox"/> variable speed	Base plate		[kg]						
21			Others		[kg]						
22	Rated speed	[rpm]	hold								
23			Total unit weight	•	[kg]	700					
24	In case of steam turb. or diesel eng. drive :		Total shipping weight		[kg]						
25	- speed range min. / max.	[rpm]	/								
26	- trip speed	[rpm]									
27			Heaviest single part of pump	•	[kg]						
28	Power installed	•	Voltage	•	11kW / 500V	Size of base plate ( L x W )	[mm]	570 / 570			
29			Max. shipping dim. ( L x W x H )	•	[m]						
30	<b>NOISE LEVELS</b>										
31	Noise levels refer to	<input checked="" type="checkbox"/> pump <input type="checkbox"/> pump incl. driver/gear <input type="checkbox"/> with piping <input checked="" type="checkbox"/> without piping									
32	Type of noise protection (if appl.)	•	without noise protect.		with noise protect.		Max. allow. sound level (*)				
33	.....		expected	guaranteed (*)	expected	guaranteed (*)	85dB @ 1m				
34	Sound pressure level L <sub>PA</sub>	(*) [dB(A)]	•	•	•	•					
35	Sound power level L <sub>WA</sub>	(*) [dB(A)]	•	•	•	•					
36	Expected Octave Sound Power Levels L <sub>WA/Oct.</sub>										
37	Octave band centre frequencies	[Hz]	63	125	250	500	1000	2000	4000	8000	Remarks
38	- without noise protection	[dB(A)]									
39	- with noise protection	[dB(A)]									
40	Remarks on Noise Levels :										
41	(*) The upper tolerance for the "guaranteed sound levels" & the "max. allow. sound levels" is + 0 dB(A).										
42	(*) The sound pressure levels refer to a measurement distance of 1m from the pump shape acc. EN 12639.										
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1	Item No.	P-002	Equipm. name	DRAIN TRANSFER PUMP
2	REMARKS			
3	Abbreviations :		<div><div><div>■</div><div>Applicable. Vendor shall design / provide / supply accordingly.</div></div><div><div>●</div><div>Data / information <u>must</u> be completed by bidder.</div></div></div> <div>The equipment shall be delivered with the critical spare part ( List proposed by manufacturer and approved by Conpet SA BU Maintenance Department), Bill of material, spare part technical specification, a maintenance service offer spare part included and an offer with all the spare part used in maintenance activity.</div>	
4	BEP : Best Efficiency Point			
5	EOC : End Of Curve = 125% of BEP, if not otherwise limited by mfr.			
6	cw : clock wise			
7	ccw : counter clock wise			
8				
9	n/a : not applicable			
10				
11				
12				
13				
14	(1) <u>At suction nozzle :</u>			
15	min. suct. press. = min. suction side press.			
16	+ min. stat. press. (min. liquid head at oper. density)			
17	- max. press. loss			
18	max. suct. press. = max. suct. side press. (set press. PSV,			
19	if appl.) + max. stat. press. (max. liquid head at max. density)			
20	- min. dynamic press. loss			
21	(2) <u>At discharge nozzle :</u>			
22	norm. disch. press. = min. suct. press. +			
23	rated differential press. (rat. diff. head at oper. density)			
24	max. disch. press. = max. suct. side press. (set press. PSV,			
25	if appl.) + max. stat. press. (max. liquid head at max. density)			
26	+ max. allow. shut-off press. (max. allow. shut-off head			
27	at max. density)			
28				
29	(3) All pressure parts of all rotating equipments shall be supplied with			
30	certificate of compliance type 3.2 according to SR EN 10204.			
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