Base Load Power Hub (BLPH)

PSV DATA SHEET
For Sea Water Lift Progressive Cavity Pumps (P-50001 A/B)

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Document Class: 2

01	16/10/2024	Approved for Construction (AFC)	APD	GLL	AHN
00	24/07/2024	Issue for Review (IFR)	APD	GLL	AHN
Rev.	Date	Description	Prepared	Reviewed	Approved

PCM | keep it moving

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Revision / Change Log

Rev.	Description
00	Issue for Review (IFR)
01	Approved for Construction (AFC)

HOLDS LIST

No.	Description
1	
2	
3	
4	

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Serie: 3000W

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PRESSURE RELIEF VALVE CALCULATION SHEET

LIQUIDS IN ABSENCE OF CAVITATION OR FLASHING
(According to EN ISO 4126-1)

$$A = \frac{Q_v}{B_9 F_{dr} K F_V} \sqrt{\frac{G}{P_1 - P_2}}$$

$$Re = B_{14} \frac{Q_m}{\mu \sqrt{A'}}$$

TAI Ref.	Item Ref.
24/8637	50-PSV-006/007
Customer	**Sheet No.**
PCM EUROPE	3 of 4
Order No.	**dated**
Customer Ref.	**dated**
GIAN-392481	29/03/2024

Tag
01
02
03
04
05
06
07
08
09
10

DIMENSION

01	MEDIUM	Sea Water			15	SPECIFIC VOLUME		**v**	0.00097 [m³/kg]
02	COEFFICIENT B7		**B_7**	---	16	SPECIFIC GRAVITY (H20=1)		**G**	1.03
03	COEFFICIENT B8		**B_8**	---	17	KINEMATIC VISCOSITY		ν	[ctsk]
04	COEFFICIENT B9		**B_9**	0.05091	18	DYNAMIC VISCOSITY		μ	0.9 [cpoise]
05	COEFFICIENT B13		**B_{13}**	---	19	REQUIRED	MASS FLOW RATE	**Q_m**	2575 [kg/h]
06	COEFFICIENT B14		**B_{14}**	313.4			VOL. FLOW RATE	**Q_v**	2.5 [m³/h]
07	DISCHARGE COEFFICIENT		**K**	0.87	20	CALCULATED AREA(1)		**A**	22.014 [mm²]
08	DE-RATING FACTOR		**F_{dr}**	0.9	21	QTY. OF VALVES		**n**	1
09	OPERATING PRESSURE			[bar g]	22	SELECTED AREA		**A'**	78.5 [mm²]
10	SET PRESSURE			7.6 [bar g]	23	REYNOLDS NUMBER		**Re**	101204
11	OVERPRESSURE			10 [%]	24	LOW TURB. CORR. FACTOR		**Fv'**	1
12	RELIEVING PRESSURE		**P_1**	8.36 [bar g]	25	Fv' * n * A'/A (OK if >= 1)			3.566
13	BACK PRESSURE		**P_2**	0 [bar g]	26	ORIFICE			D
14	TEMPERATURE AT P1		**T_1**	293.2 [K]	27	CAPACITY			8.915 [m³/h]
			t_1	20.2 [°C]	28				

NOTES

(1) Fv assumed as equal to 1

REV.	DATE	COM / BY	DESCRIPTION
10			
09			
08			
07			
06			
05			
04			
03	06/06/2024	LV	
02	17/04/2024	LV	
01	03/04/2024	LV	First issue

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DIMENSIONAL OUTLINE DRAWING WITH MATERIAL LIST AND VALVE DATA

TAI Ref.	Item Ref.	Quantity
24/8637	50-PSV-006/007	2
Customer		**Sheet No.**
PCM EUROPE		4 of 4
Order No.		**dated**
Customer Ref.		**dated**
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10

VALVE DATA

Series	Valve	Size	Spring	Accessories
3000W	3111W	1" X 2"	S	

Orifice	Area [mm²]	Cold differential test pressure [bar g]	Set pressure [bar g]	Overpressure [%]	Total backpressure [bar g]
D	78.5	7.6	7.6	10	0

Superimposed backpressure [bar g]	Relieving temperature [°C]	Minimum temperature [°C]	Maximum temperature [°C]	Service G	L	S	M
0	20.2	-29	100		X		

Inlet connection

Code	Size	Class/PN	Facing	Finish
ASME	1"	150	RF	125 AARH

Outlet connection

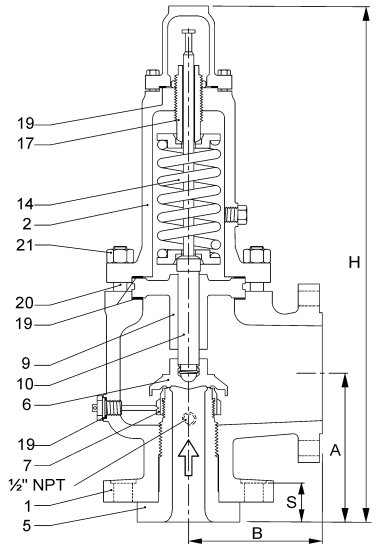
Code	Size	Class/PN	Facing	Finish
ASME	2"	150	RF	125 AARH

PARTS AND MATERIAL LIST

Our material class: L1 /11 /30 /X3 /X7 /X9 /X13

001	Body	A352-LCC		020	Body studs	A320-L7 HDG	
002	Bonnet	A352-LCC		021	Body nuts	A194-7 HDG	
005	Nozzle	UNS S32760	/X3		Cap	A352-LCC	/X13
006	Disc	UNS N07718					
007	Blowdown adjusting ring	A351-CF8M					
009	Guide bushing	A351-CF8M					
010	Spindle	UNS N07718	/X7				
014	Spring	AISI 316					
017	Spring adj. screw	UNS N07718	/X9				
019	Set of gaskets	PTFE					

DRAWING



NOTES

Preliminary dimensions [mm] A	B	S	H	Mass [kg]
105	114	33	465	22

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05			
04			
03	06/06/2024	LV	
02	17/04/2024	LV	
01	03/04/2024	LV	First issue

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