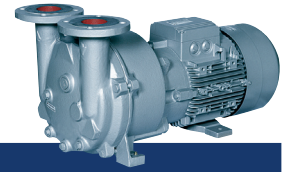


Data sheet 2BV5 111

Liquidring vacuum pump



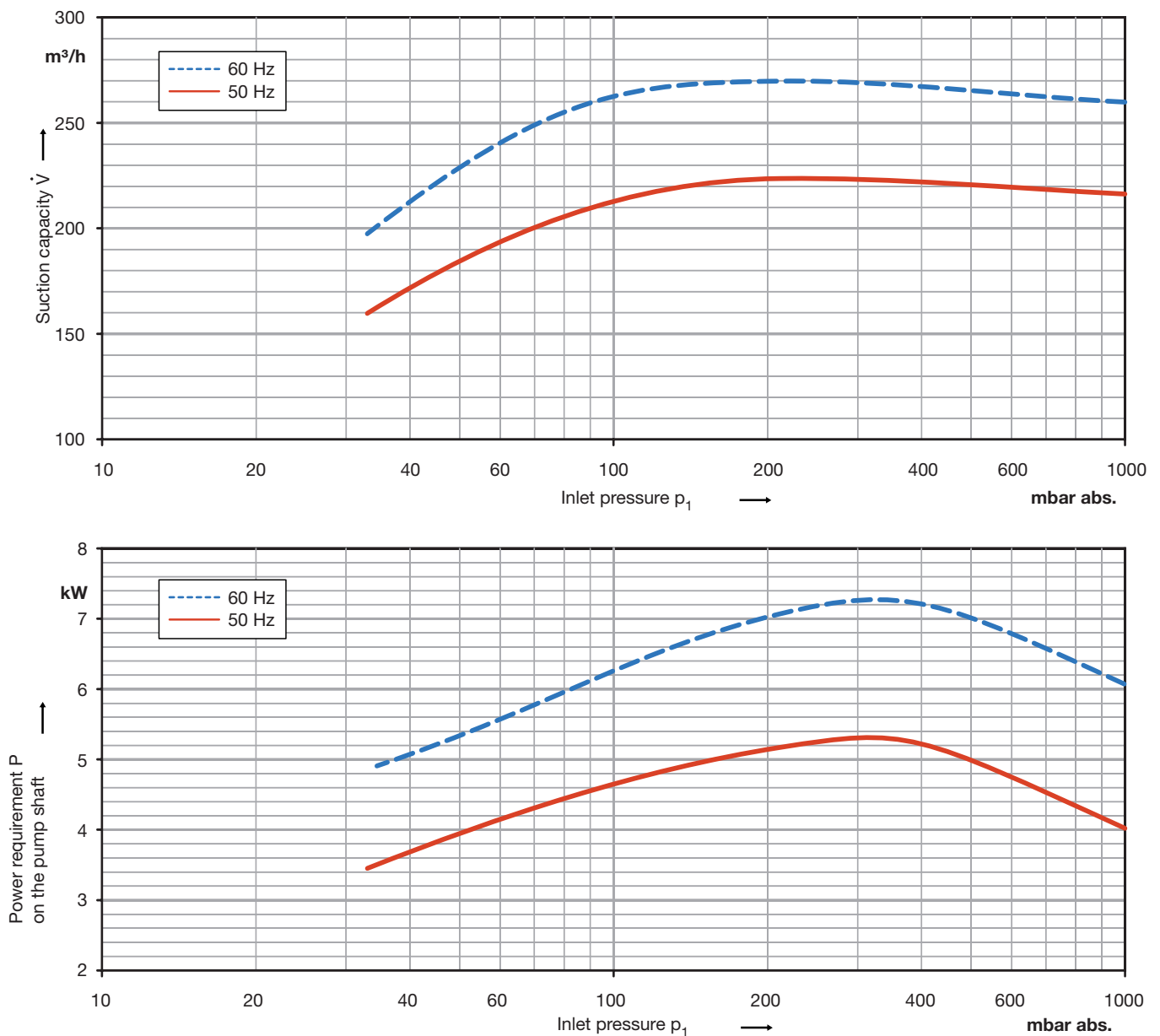
General

Vacuum pumps of the 2BV5 range are suitable for evacuating gases and wet vapours down to inlet pressures of 33 mbar abs. (97 % vacuum). All these vacuum pumps are equipped with built-in cavitation protection. For operation below 45 mbar abs. the cavitation protection should be connected to protect the vacuum pump (no external pipes necessary).

Due to the compact design with their up-to-date technology the vacuum pump of the model range 2BV5 are the most space-saving of their kind. As standard they are available with a pump body in stainless steel. All non-stainless steel parts are painted in standard color RAL 9006.



Performance curves for vacuum operation



The characteristics are valid for the inlet of air with a relative humidity of 100 % and a temperature of 20 °C, compression to 1013 mbar abs. and water at 15 °C as operating liquid. The tolerance is $\pm 10\%$.

The motors are supplied as standard for the input voltage ranges of 50 and 60 Hz and for the protection category IP55 as well as approved for UL and CSA. Vacuum pumps with ATEX 94/9 EG for category 2G are available, too.

Selection and ordering data

Materials	Motor data				Service-factor	Order-No.	Quantity of operating liquid	Sound pressure level **	Weight approx.		
	Fre-quency	Rated									
		voltage	current	output							
Casing/port plate/impeller	Hz	V	A	kW	SF	m³/h	dB(A)	kg			
3- 50/60 Hz version, protection class IP 55, insulation class F *											
cast iron/cast iron/bronze	50 60	200Δ...240Δ 220Δ...275Δ	345Y...415Y 380Y...480Y	27.5 27.5	16.0 16.0	5.5 8.2	1.27 1.0	2BV5111-0KH03-8S	1.2 1.0	68 74	105
cast iron/cast iron/bronze	50 60	345Δ...415Δ 380Δ...480Δ		16.0 16.0		5.5 8.2	1.27 1.0	2BV5111-0KH03-7S	1.2 1.0	68 74	105
cast iron/cast iron/bronze	50 60	500Δ 575Δ		12.5 12.8		5.5 8.2	1.27 1.0	2BV5111-0KH03-5S	1.2 1.0	68 74	105
CrNi steel/CrNi steel/CrNi steel	50 60	200Δ...240Δ 220Δ...275Δ	345Y...415Y 380Y...480Y	27.5 27.5	16.0 16.0	5.5 8.2	1.27 1.0	2BV5111-0HH03-8S	1.2 1.0	68 74	105
CrNi steel/CrNi steel/CrNi steel	50 60	345Δ...415Δ 380Δ...480Δ		16.0 16.0		5.5 8.2	1.27 1.0	2BV5111-0HH03-7S	1.2 1.0	68 74	105
CrNi steel/CrNi steel/CrNi steel	50 60	500Δ 575Δ		12.5 12.8		5.5 8.2	1.27 1.0	2BV5111-0HH03-5S	1.2 1.0	68 74	105

The motors are designed according to DIN EN 60 034 / DIN IEC 34-1 and temperature class F. For the three phase machines the tolerances are ± 10 % for fixed voltage and ± 5 % for voltage range.

For all three phase machines according to UL and CSA norm (UL 507 and CSA 22.2 No. 100) the maximum allowed voltage tolerances are -10 % resp. +6 %. The frequency tolerance is maximum ± 2 %.

All 2BV5 achieve the standards and norms of the low voltage directive 72/23/EWG, rotating electrotechnical motor EN 60034-1-34, electromagnetic compatibility (EMC) DIN EN 61000-0/-6/-4.

* For standard UL 507 and CSA 22.2 No 113 (Certificate Number E225239).

** Measuring-surface sound-pressure level acc. to DIN EN 21680, measured at a distance of 1 m at medium inlet pressure and with connected pipes.

*** The quantities of operating liquid apply for fresh water operation without discharge liquid separator.

For partial recirculation operation the quantity of the fresh applied refrigerant can be reduced by circulation of the operating liquid in a circuit (with discharge liquid separator and internal recirculation of the operating liquid, available as accessories).

An inlet pressure of 10 mbar abs. can be achieved by connecting a gas ejector (see accessories). The gas ejector can be mounted directly onto the vacuum pump.

Other voltages

2BV5 111-...□...□S	
50 Hz	60 Hz
3-	
185...220 V Δ / 320...380 V Y 220...240 V Δ / 345...415 V Y 345...415 V Δ 500 V Δ	200...254 V Δ / 345...440 V Y 220...275 V Δ / 380...480 V Y 380...480 V Δ 575 V Δ
	H H H H
	0 8 7 5
3- ATEX Category 2G	
230 V Δ / 400 V Y 400 V Δ / 690 V Y 500 V Δ	- - -
	D D D
	1 6 5

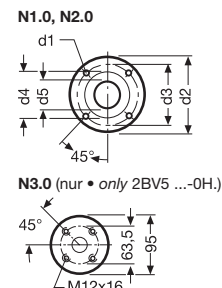
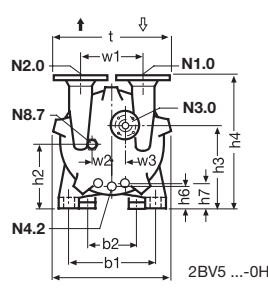
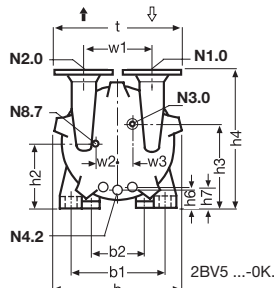
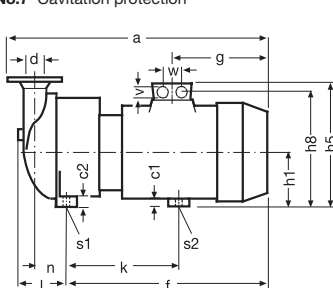
Quantity of Operating Liquid

Frequency	for fresh water operation / partial recirculation Inlet pressure p (abs.) ***		
	< 200 mbar	200 - 500 mbar	> 500 mbar
Hz	m³/h	m³/h	m³/h
50	1.2 / 0.5	0.4 / 0.3	0.35 / 0.12
60	1.0 / 0.5	0.4 / 0.3	0.35 / 0.12

Max. add. water carry-over or permissible back pressure

Frequency	max. additional water carry-over	max. permissible back pressure
Hz	m³/h	mbar abs.
50	3.0	1300
60	3.0	1300

- N1.0 Inlet flange
- N2.0 Pressure flange
- N3.0 Connection operating liquid
- N4.2 Drain/Flushing
- N8.7 Cavitation protection

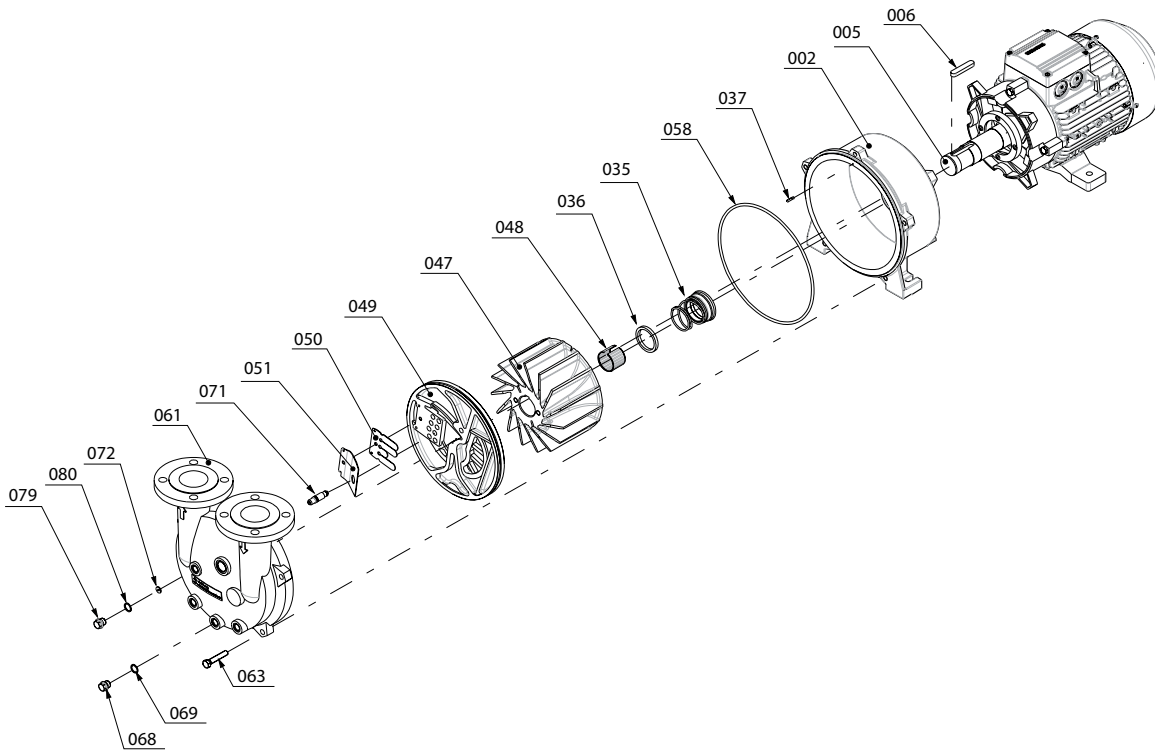


2BV5 111	a	b	b1	b2	c1	c2	h1	h2	h3	h4	h5	h6	h7	h8	k	l	f	g	n	s1
[mm]	653	326	265	190	20	26	151	166	213	371	318	48	68	258	291	128	482	224	91	12 x 23
	s2	t	v	d1	d2	d3	d4	d5	w	w1	w2	w3	d ¹⁾ (N1.0, N2.0)	N3.0 ²⁾	N4.2	N8.7				
	12	340	M32x1.5	19	160	123	97	52	42	180	52	27	DN50 / 2"	G¾ x 24	G¾ x 25	G¾ x 11				

1) suitable for mating flange acc. to DIN 2501, ND16 or ANSI B16.5-3-150

2) suitable for round flange acc. to DIN 2633, ND16, nominal width 15 or ANSI B16.5-1/2-150

Exploded drawing



Materials of construction

Part-No.	Designation	Material combination	
		Grey cast iron/Grey cast iron/Bronze	CrNi steel/CrNi steel/CrNi steel
002	Casing	Grey cast iron (EN-GJL HB 195 / EN-JL2030) EN 1561	Cast chrome-nickel-molybdenum steel (G-X5CrNiMoNb 18-10 / 1.4581) EN 10283
005	Pump shaft	Chrome steel (X20Cr13 / 1.4021) EN 10088 - 3	Chrome-nickel-molybdenum steel (X6CrNiMoTi 17-12-2 / 1.4571) EN 10088 - 3
006	Feather key	Chrome-nickel-molybdenum steel (X6CrNiMoTi 17-12-2 / 1.4571) EN 10088 - 3	Chrome-nickel-molybdenum steel (X6CrNiMoTi 17-12-2 / 1.4571) EN 10088 - 3
035	Mechanical seal	SIC / Carbon / Viton (FPM) / Chrome-nickel-molybdenum steel (EN 12756 - BQ1VGG)	SIC / Carbon / Viton (FPM) / Teflon (PTFE) sheated / Chrome-nickel-molybdenum steel (EN 12756 - Q1BM1GG)
036	Washer	Chrome steel (X20Cr13 / 1.4021) EN 10088 - 3	Chrome-nickel-molybdenum steel (X6CrNiMoTi 17-12-2 / 1.4571) EN 10088 - 3
037	Set screw	Chrome-nickel-molybdenum steel (X5CrNiMo 17-12-2 / 1.4401) EN 10088 - 2	Chrome-nickel-molybdenum steel (X5CrNiMo 17-12-2 / 1.4401) EN 10088 - 2
047	Impeller	Cast aluminium bronze (G-CuAl10Fe5Ni5 / CC33G-GS) EN 1982	Cast chrome-nickel-molybdenum steel (G-X5CrNiMoNb 18-10 / 1.4581) EN 10283
048	Tolerance ring for impeller	Chrome-nickel steel (X12CrNi 17-7 / 1.4310) EN 10088 - 2	Chrome-nickel steel (X12CrNi 17-7 / 1.4310) EN 10088 - 2
049	Port plate	Grey cast iron (EN-GJL HB 195 / EN-JL2030) EN 1561	Cast chrome-nickel-molybdenum steel (G-X5CrNiMoNb 18-10 / 1.4581) EN 10283
050	Valve plate	Teflon (PTFE)	Teflon (PTFE)
051	Intercepting plate	Chrome-nickel-molybdenum steel (X10CrNiMoTi 18-10 / 1.4571) EN 10088 - 2	Chrome-nickel-molybdenum steel (X10CrNiMoTi 18-10 / 1.4571) EN 10088 - 2
058	Gasket for cover	Nitrile-butadiene-caotchouc (NBR 70) ISO 1629	Silicone core, Teflon (PTFE) sheated
061	Cover	Grey cast iron (EN-GJL HB 195 / EN-JL2030) EN 1561	Cast chrome-nickel-molybdenum steel (G-X5CrNiMoNb 18-10 / 1.4581) EN 10283
063	Screw	Steel (DIN ISO 8992)	Steel (DIN ISO 8992)
068	Plug screw	Machining steel, lead alloyed (11SMnPb30 / 1.0718) EN 10087	Chrome-nickel-molybdenum steel (X5CrNiMo 17-12-2 / 1.4401) EN 10088 - 3
069	Sealing ring	Teflon (PTFE)	Teflon (PTFE)
071	Pipe of cavitation protection	Teflon (PTFE)	Teflon (PTFE)
072	Washer for cavitation protection	Chrome-nickel steel (X5CrNi 18-10 / 1.4301) EN 10088 - 3	Chrome-nickel steel (X5CrNi 18-10 / 1.4301) EN 10088 - 3
079	Plug screw	Machining steel, lead alloyed (11SMnPb30 / 1.0718) EN 10087	Chrome-nickel-molybdenum steel (X5CrNiMo 17-12-2 / 1.4401) EN 10088 - 3
080	Sealing ring	Teflon (PTFE)	Teflon (PTFE)

Changes in particular the quoted performance curve, datas and weights without prior notice. The figures are without obligations.

Gardner Denver

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