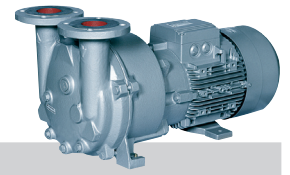
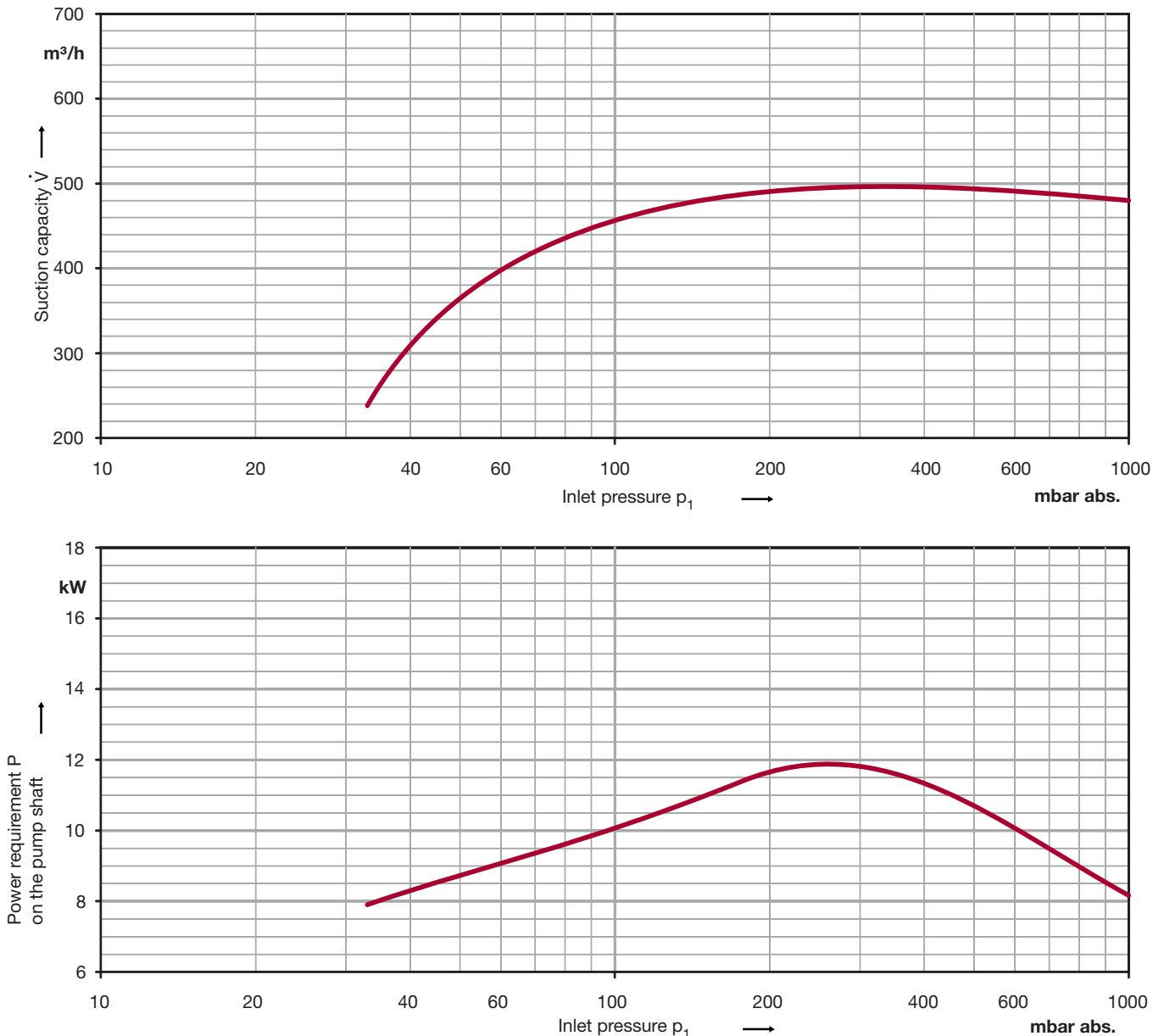


Data sheet liquidring pump

Series L-BV5 | L_300
Range 2BV5 161 Vacuum pump ATEX



Performance curves for vacuum operation



Vacuum pumps of the L-BV5 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 80 mbar abs. the cavitation protection should be connected to protect the vacuum pump. All pumps L-BV5 are especially space-saving in their monoblock design. They are available in cast iron (standard color RAL 9006). The motor is painted as standard in RAL 9006.

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.

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 $\pm 10\%$.

Selection and ordering data

| Materials | Motor data | | | | | | Service-factor | Order-No. | Quantity of operating liquid | Sound pressure level ** | Weight approx. |
|---|------------|---------|--------|------|-------------|-------|---------------------------------|-----------|------------------------------|-------------------------|----------------|
| | Rated | | | | | | | | | | |
| | voltage | current | output | | | | | | | | |
| Casing/port plate/impeller | V | A | kW | SF | m³/h | dB(A) | kg | | | | |
| 3~ 50 Hz version, protection class IP 55, insulation class F | | | | | | | | | | | |
| cast iron/cast iron/bronze | 400Δ | 690Y | 28.5 | 16.5 | 12.0 | 1,1 | 2BV5161-0KD02-6S-Z Z=F91 | 2.4 | 74 | 287 | |
| cast iron/cast iron/bronze | 500Δ | | 22.8 | | 12.0 | 1,1 | 2BV5161-0KD02-5S-Z Z=F91 | 2.4 | 74 | 287 | |
| CrNi steel/CrNi steel/CrNi steel | 400Δ | 690Y | 28.5 | 16.5 | 12.0 | 1,1 | 2BV5161-0HD02-6S-Z Z=F91 | 2.4 | 74 | 287 | |
| CrNi steel/CrNi steel/CrNi steel | 500Δ | | 22.8 | | 12.0 | 1,1 | 2BV5161-0HD02-5S-Z Z=F91 | 2.4 | 74 | 287 | |

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 .
The frequency tolerance is maximum ± 2 %.

All L-BV5 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.

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

Quantity of Operating Liquid

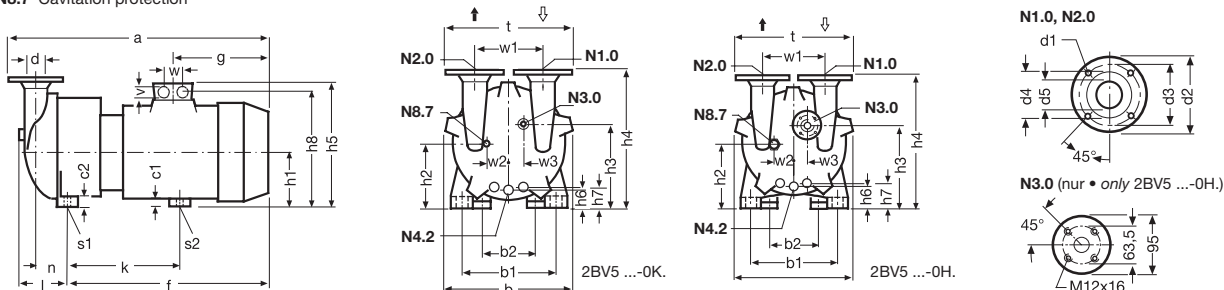
| Frequency | for fresh water operation / partial recirculation Inlet pressure p (abs.) *** | | |
|-----------|---|----------------|------------|
| | < 200 mbar | 200 - 500 mbar | > 500 mbar |
| Hz | m³/h | m³/h | m³/h |
| 50 | 2.4 / 1.2 | 0.7 / 0.6 | 0.5 / 0.25 |
| 60 | 2.4 / 1.2 | 0.7 / 0.6 | 0.5 / 0.25 |

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 |

Dimensions

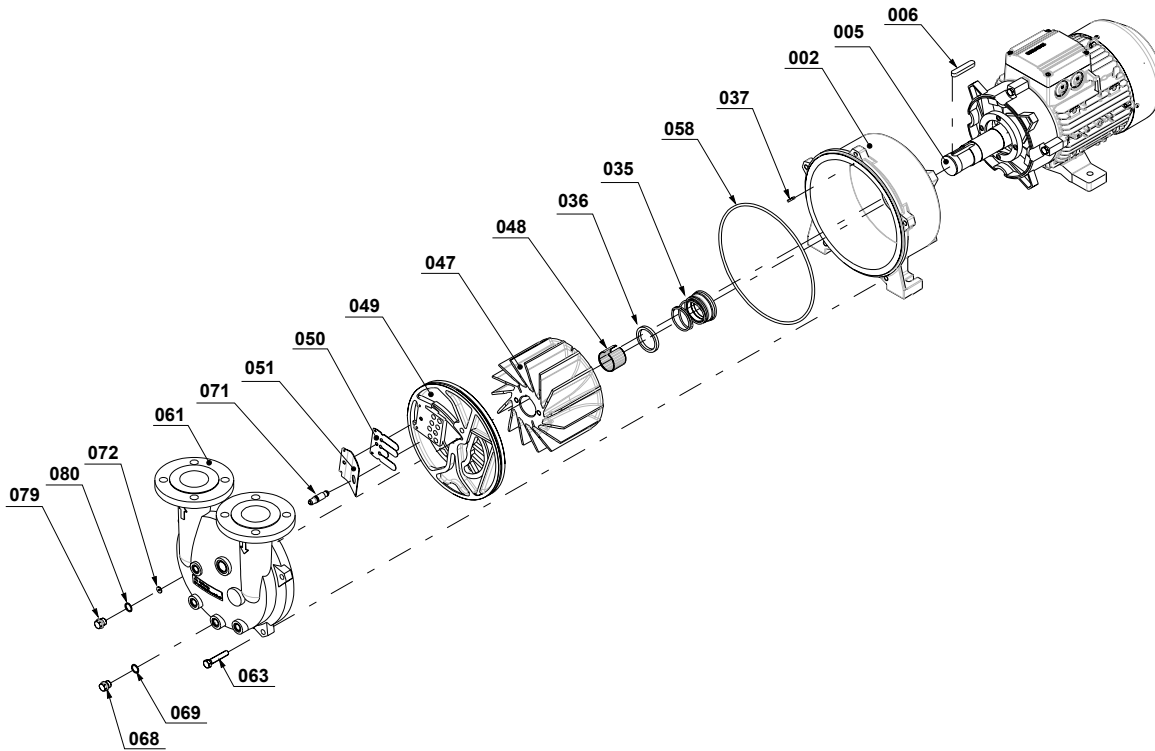
- N1.0 Inlet flange
- N2.0 Pressure flange
- N3.0 Connection operating liquid
- N4.2 Drain/Flushing
- N8.7 Cavitation protection



| 2BV5 161 | a | b | b1 | b2 | c1 | c2 | h1 | h2 | h3 ³⁾ | h4 | h5 | h6 | h7 | h8 | k | l | f | g | n | s1 |
|----------|------|-----|----------|-----|-----|-----|-----|-----|------------------|-----|-----|----|------------------------------|--------------------|---------|---------|-----|-----|-----|---------|
| [mm] | 1009 | 481 | 370 | 188 | 30 | 29 | 210 | 225 | 303 | 427 | 372 | 53 | 76 | 302 | 617 | 201 | 772 | 412 | 137 | 15 x 27 |
| | 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 | | | | |
| | 15 | 450 | M40 x1.5 | 22 | 200 | 156 | 130 | 80 | 75 | 250 | 81 | 41 | DN80 / 3" | 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
- 3) for 2BV5 161-H... h3 = 305

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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