

# L-BV

## Data sheet 2BV7 071

### Liquid ring vacuum pump with ejector



#### General information

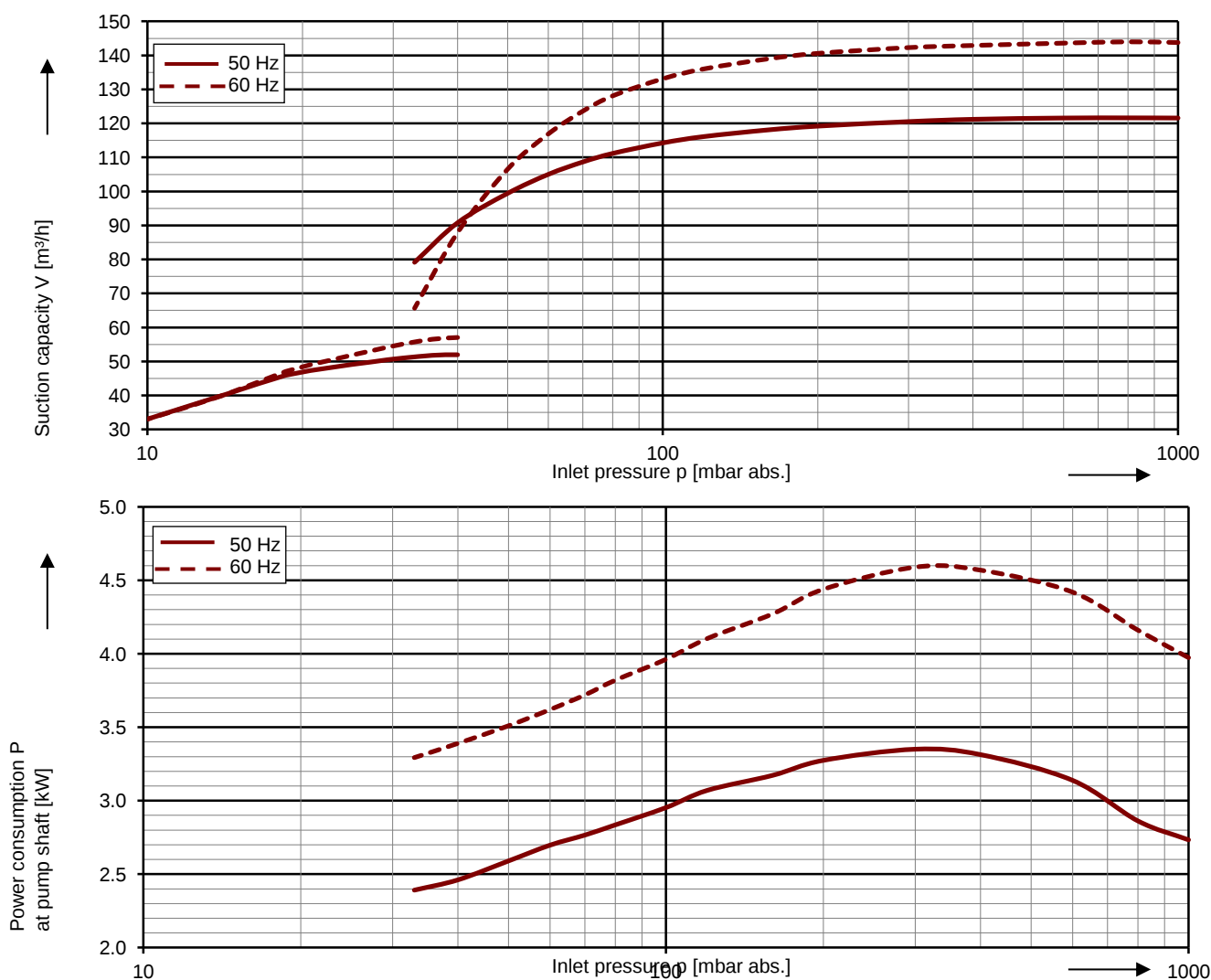
Elmo Rietschle vacuum pumps of the model range L-BV7 are suitable for evacuating gases and wet vapours down to inlet pressures of 33 mbar abs. (97 % vacuum). All these vacuum pumps are equipped with built-in cavitation protection. They work cavitation free down to 80 mbar abs. For operation at lower inlet pressures the integrated cavitation protection should be connected for protecting the vacuum pump (no external pipes necessary).

Our pumps have stainless steel shafts which makes them corrosion resistant. They work safely and reliably even under extreme conditions, like those in humid processes.



#### Performance curves

##### Vacuum operation



The characteristic curves are based on the evacuation of 100 % saturated air and an intake temperature of 20 °C. At a suction pressure of 1013 mbar abs. and a temperature of the operating liquid of 15 °C (water as operating liquid) the characteristic curves will be achieved. 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.

## Selection and ordering data <sup>3)</sup>

Typ 2BV7 071

| Fre-<br>quency                                                                                          | Rated                 |                 |       | Service<br>factor | Operation<br>liquid<br>quantity <sup>1)</sup> | Sound<br>pressure<br>level <sup>2)</sup> | Weight<br>Approx. | Order No. |          |
|---------------------------------------------------------------------------------------------------------|-----------------------|-----------------|-------|-------------------|-----------------------------------------------|------------------------------------------|-------------------|-----------|----------|
|                                                                                                         | Voltage               | Current         | Power |                   |                                               |                                          |                   |           |          |
| Hz                                                                                                      | V                     | A               | kW    | SF                | m³/h                                          | dB(A)                                    | kg                |           |          |
| 3~ 50/60 Hz, IP55, Insulation material class F, UL 507 and CSA 22.2 No 113 (certificate number E225239) |                       |                 |       |                   |                                               |                                          |                   |           |          |
| 50                                                                                                      | 200-240 Δ / 345-415 Y | 20,8 Δ / 12,2 Y | 3,5   | 1,57              | 0,54                                          | 72                                       | 50                | 2BV7071-2 | □ H00-4S |
| 60                                                                                                      | 200-275 Δ / 345-480 Y | 20,8 Δ / 12,2 Y | 5,2   | 1,11              | 0,54                                          | 78                                       |                   |           |          |
| 50                                                                                                      | 200-240 Δ / 345-415 Y | 20,8 Δ / 12,2 Y | 3,5   | 1,57              | 0,54                                          | 72                                       | 50                | 2BV7071-2 | □ H00-4S |
| 60                                                                                                      | 200-275 Δ / 345-480 Y | 20,8 Δ / 12,2 Y | 5,2   | 1,11              | 0,54                                          | 78                                       |                   |           |          |
| 3~ 50/60 Hz, IP55, Insulation material class F, UL 507 and CSA 22.2 No 113 (certificate number E225239) |                       |                 |       |                   |                                               |                                          |                   |           |          |
| 50                                                                                                      | 500 Δ                 | 8,6 Δ           | 3,5   | 1,73              | 0,54                                          | 72                                       | 50                | 2BV7071-2 | □ C00-5S |
| 60                                                                                                      | 575 Δ                 | 8,4 Δ           | 5,2   | 1,33              | 0,54                                          | 78                                       |                   |           |          |

| Materials  |            |          |           |
|------------|------------|----------|-----------|
| Casing     | Port plate | Impeller | Lantern   |
| CrNi steel | CrNi steel | Bronze   | Cast iron |

- The quantities of operating liquid apply for fresh water operation without discharge liquid separator.
- Measuring surface sound pressure level acc. to EN ISO 3744, measured with an equivalent unit at a distance of 1 m. The pump is throttled to an average suction pressure, with piping connected, but no relief valves fitted, tolerance ±3 dB (A).
- High efficiency motors (IE2) available on request. Please refer to corresponding data sheets.

## Other voltages

| Voltage range                                                                                                   |                                                                                                                 | Fixed voltage                                                                                       |                                                                                                     | C  US                                                                                    |             |                                                                                     |                                                                                         |   |
|-----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|---|
| 50 Hz                                                                                                           | 60 Hz                                                                                                           | 50 Hz                                                                                               | 60 Hz                                                                                               | 60 Hz                                                                                                                                                                       | 2BV7 071-.. |  | ...  | S |
|                                                                                                                 |                                                                                                                 |                                                                                                     |                                                                                                     |  V                                                                                       |             |                                                                                     |                                                                                         |   |
| 3 Phase                                                                                                         |                                                                                                                 |                                                                                                     |                                                                                                     |                                                                                                                                                                             |             |                                                                                     |                                                                                         |   |
| 185 - 220 V  / 320 - 380 V Y   | 200 - 254 V  / 345 - 440 V Y   |                                                                                                     |                                                                                                     |       |             | H                                                                                   | 0                                                                                       |   |
| 200 - 240 V  / 345 - 415 V Y | 220 - 275 V  / 380 - 480 V Y |                                                                                                     |                                                                                                     |   |             | H                                                                                   | 8                                                                                       |   |
| 345 - 415 V  / 600 - 720 V Y | 380 - 480 V  / 660 - 720 V Y |                                                                                                     |                                                                                                     |   |             | H                                                                                   | 7                                                                                       |   |
| 500 V                        | 575 V                        |                                                                                                     |                                                                                                     |   |             | H                                                                                   | 5                                                                                       |   |
| 3 Phase                                                                                                         |                                                                                                                 |                                                                                                     |                                                                                                     |                                                                                                                                                                             |             |                                                                                     |                                                                                         |   |
|                                                                                                                 |                                                                                                                 | IE2 3 Phase                                                                                         |                                                                                                     |                                                                                                                                                                             |             |                                                                                     |                                                                                         |   |
| 180 - 240 V  / 310 - 415 V Y | 200 - 275 V  / 345 - 480 V Y | 200 V  / 345 V Y | 230 V  / 400 V Y |   |             | P                                                                                   | 1                                                                                       |   |
| 450 - 550 V                  | 520 - 600 V                  | 500 V            | 575 V            |   |             | P                                                                                   | 5                                                                                       |   |
| 200 - 260 V  / 350 - 450 V Y | 230 - 290 V  / 400 - 500 V Y | 230 V  / 400 V Y | 265 V  / 460 V Y |   |             | P                                                                                   | 6                                                                                       |   |
| 350 - 450 V  / 610 - 725 V Y | 400 - 500 V  / 690 - 725 V Y | 400 V  / 690 V Y | 460 V            |   |             | P                                                                                   | 7                                                                                       |   |

All L-BV fulfil the 2006/42/EC (machinery) and 2006/95/EC (low voltage) directives and the EN 60034-1 norm "Rotating electrical machines". The motors comply with EN 60 034-1 / -2 / -30 (IEC 60034) and thermal class F. For three phase motors tolerances are +/-10% for fixed voltage motors and +/-5% for voltage range motors. Single phase machines are designed with a +/-5% tolerance. The frequency tolerance is +/- 2 % maximum.

## Operation liquid quantity for 50 Hz / 60 Hz [m³/h]

| p1        | Fresh water | Partial recirculation |             |             |
|-----------|-------------|-----------------------|-------------|-------------|
| mbar abs. | 15 °C       | 8 °C                  | 10 °C       | 12 °C       |
| > 500     | 0,14 / 0,14 | 0,1 / 0,11            | 0,11 / 0,12 | 0,12 / 0,13 |
| 200 - 500 | 0,14 / 0,17 | 0,1 / 0,13            | 0,11 / 0,14 | 0,12 / 0,15 |
| < 200     | 0,54 / 0,54 | 0,23 / 0,28           | 0,28 / 0,32 | 0,35 / 0,38 |

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 accessor

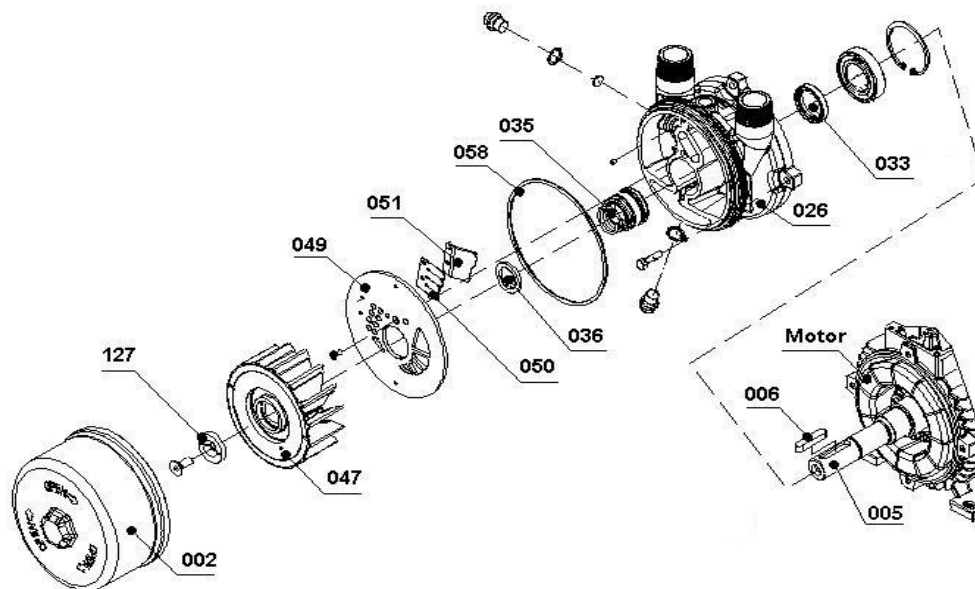
## Max. additional water carry over / Back pressure

| Frequency<br>[Hz] | Water carry-over<br>[m³/h] | Back pressure<br>[mbar] atm. |
|-------------------|----------------------------|------------------------------|
| 50                | 1,35                       | 1300                         |
| 60                | 1,35                       | 1300                         |

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.

The machines are available with a pump body in stainless steel.

All external stainless steel parts are pickled and passivated and all non-stainless steel parts are painted in standard color RAL 9006.



| Part No. |                    | Materials                                                                       |
|----------|--------------------|---------------------------------------------------------------------------------|
|          |                    | CrNi steel / bronze / cast iron                                                 |
| 002      | Casing             | Chrome-nickel steel (X5CrNi 1810 - / 1.4301) EN 10088 - 2                       |
| 005      | Pump shaft         | Chrome-steel (X20Cr13 / 1.4021) EN 10088 - 3                                    |
| 006      | Feather key        | Chrome-nickel-molybdenum steel (X6CrNiMoTi 17-12-2 / 1.4571) EN 10088 - 3       |
| 026      | Lantern            | Grey cast iron (EN-GJL200 / EN-JL 2030) EN 1561                                 |
| 033      | Radial shaft seal  | Nitrile-butadiene-caotchouc (NBR) ISO 1629                                      |
| 035      | Mechanical seal    | SIC / Carbon / Viton (FPM) / chrome-nickel-molybdenum steel (EN 12756 - BQ1VGG) |
| 036      | Washer             | Chrome-nickel-molybdenum steel (X5CrNiMo 17-12-2 / 1.4401) EN 10088 - 3         |
| 047      | Impeller           | Cast aluminium bronze (G-CuAl10Fe5Ni5 / CC33G-GS) EN 1982                       |
| 049      | Port plate         | Chrome-nickel-molybdenum steel (X6CrNiMoTi 17-12-2 / 1.4571) EN 10088 - 3       |
| 050      | Valve plate        | Teflon(PTFE)                                                                    |
| 051      | Intercepting plate | Chrome-nickel-molybdenum steel (X5CrNiMo 17-12-2 / 1.4401) EN 10088 - 2         |
| 058      | Seal (O-Ring)      | Nitrile-butadiene-caotchouc (NBR) ISO 1629                                      |
| 127      | Retaining washer   | Chrome-nickel-molybdenum steel (X6CrNiMoTi 17-12-2 / 1.4571) EN 10088 - 2       |

Changes in particular of the quoted performance curve, data and weights may occur without prior notice. The data given do not constitute an obligation from our side to deliver as shown.

Elmo Rietschle is a brand of Gardner Denver

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