LPV SERIES AXIAL PISTON PUMPS

FEATURES AND BENEFITS
The LPV line of Variable Volume, Pressure Compensated Piston Pumps are the perfect choice when reliable, fast and quiet control is required. All of the Control Compensator options are interchangeable on all pump sizes. This very flexible Control Compensator design allows the LPV pump to be quickly changed as your circuit requirement demand.

External shaft seal and bearing access for ease of servicing

Control Compensator options:
Pressure Compensator, Remote Pressure, Load Sense and a D03 valve mount
Allowing for pressure control circuits
From dual pressure to Proportional pressure

Standard SAE mounting and shafts

Swash block and saddle design permit consistent control and provide long life over Trunnion designs. Saddle bearing can also be easily serviced.

Specially designed spherical port plate makes these extremely quiet operating pumps with optimized filling performance.
LPV PUMPS
AXIAL PISTON PUMPS

DESCRIPTION
The LPV series of pumps, are variable displacement axial piston pumps with variable swash block, suitable for applications with open loop circuits and intermediate pressures.
Available in 5 nominal displacements.
These pressure compensated pumps automatically adjust the output flow rate to maintain the set pressure. The maximum output flow can be limited via maximum volume adjustment screw.
SAE J744 2-Bolt Mounting Flange.
Available with four different types of Control Compensator options designed to meet your application or requirements.

TYPICAL PERFORMANCE SPECIFICATIONS

<table>
<thead>
<tr>
<th>PUMP SIZE</th>
<th>LPV-4</th>
<th>LPV-8</th>
<th>LPV-11</th>
<th>LPV-17</th>
<th>LPV-22</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAXIMUM DISPLACEMENT</td>
<td>in³/rev</td>
<td>0.488</td>
<td>0.976</td>
<td>1.342</td>
<td>2.196</td>
</tr>
<tr>
<td>(cc³/rev)</td>
<td>8</td>
<td>16.5</td>
<td>22</td>
<td>36</td>
<td>46</td>
</tr>
<tr>
<td>FLOW AT 1800 RPM</td>
<td>GPM</td>
<td>3.8</td>
<td>7.9</td>
<td>10.6</td>
<td>17.1</td>
</tr>
<tr>
<td>(lpm)</td>
<td>14.4</td>
<td>30</td>
<td>40</td>
<td>64.8</td>
<td>82.8</td>
</tr>
<tr>
<td>OPERATING PRESSURE</td>
<td>PSI / bar</td>
<td>3000 PSI / 210 bar</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OPERATING SPEED</td>
<td>RPM</td>
<td>500 min to 2000 max</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROTATION DIRECTION</td>
<td>Clockwise (as viewed from shaft side)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PORT SIZE AND TYPE</td>
<td>See dimensional data page</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WEIGHT</td>
<td>LBS</td>
<td>20</td>
<td>27</td>
<td>27</td>
<td>51</td>
</tr>
<tr>
<td>(kg)</td>
<td>9</td>
<td>12</td>
<td>12</td>
<td>23</td>
<td>23</td>
</tr>
<tr>
<td>AMBIENT TEMPERATURE RANGE</td>
<td>°F (°C)</td>
<td>15 to 120 (-10 to 50)</td>
<td></td>
<td></td>
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<tr>
<td>FLUID TEMPERATURE RANGE</td>
<td>°F (°C)</td>
<td>15 to 160 (-10 to 70)</td>
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<td></td>
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<tr>
<td>FLUID CLEANLINESS</td>
<td>ISO 18/16/13 is recommended</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>REC. OPERATING VISCOSITIES</td>
<td>SUS (cSt)</td>
<td>60 to 140 (20 to 75)</td>
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IDENTIFICATION CODE

LPV - [ ] B30 - [ ] - [ ] - [ ] - [ ] - [ ]

PRESSURE RANGE
up to 3000 PSI

FLOW RATE

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<thead>
<tr>
<th>CODE</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>4</td>
<td>4 gpm</td>
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<tr>
<td></td>
<td>8 cm³/rev</td>
</tr>
<tr>
<td>8</td>
<td>8 gpm</td>
</tr>
<tr>
<td></td>
<td>16.5 cm³/rev</td>
</tr>
<tr>
<td>11</td>
<td>11 gpm</td>
</tr>
<tr>
<td></td>
<td>22 cm³/rev</td>
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<tr>
<td>17</td>
<td>17 gpm</td>
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<td>36 cm³/rev</td>
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<tr>
<td>22</td>
<td>22 gpm</td>
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<tr>
<td></td>
<td>46 cm³/rev</td>
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CODE ROTATION

<table>
<thead>
<tr>
<th>RF</th>
<th>COUNTERCLOCKWISE ROTATION</th>
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<tbody>
<tr>
<td>RF</td>
<td>CLOCKWISE ROTATION</td>
</tr>
<tr>
<td>RF</td>
<td>COUNTERCLOCKWISE ROTATION</td>
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CODE SEALS

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<thead>
<tr>
<th>CODE</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>0</td>
<td>BUNA-N</td>
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CODE SHAFT OPTIONS

<table>
<thead>
<tr>
<th>CODE</th>
<th>DESCRIPTION</th>
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</thead>
<tbody>
<tr>
<td>OMIT</td>
<td>STRAIGHT KEY</td>
</tr>
<tr>
<td>12</td>
<td>SPLINED SHAFT</td>
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CODE PORTS

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<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>2S</td>
<td>BRITISH (BSP) THREAD SIDE PORTS</td>
</tr>
<tr>
<td>5S</td>
<td>SAE 4 BOLT FLANGE SIDE PORTS</td>
</tr>
</tbody>
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TYPICAL ORDERING CODE:
LPV-8B30-RF-0-5S-A
LPV-11B30-RF-0-5S19-A

COMPENSATOR OPTIONS

<table>
<thead>
<tr>
<th>CODE</th>
<th>DESCRIPTION</th>
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</thead>
<tbody>
<tr>
<td>OMIT</td>
<td>STANDARD PRESSURE COMPENSATOR</td>
</tr>
<tr>
<td>7</td>
<td>REMOTE PRESSURE</td>
</tr>
<tr>
<td>19</td>
<td>LOAD SENSE</td>
</tr>
<tr>
<td>RC</td>
<td>DGS PAD FOR REMOTE CONTROL</td>
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COMPENSATOR CONVERSION KITS

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<thead>
<tr>
<th>ITEM NUMBER</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>1019205</td>
<td>Compensator LPV Code 7</td>
</tr>
<tr>
<td>1019206</td>
<td>Compensator LPV Code RC</td>
</tr>
<tr>
<td>1019207</td>
<td>Compensator LPV Code 19</td>
</tr>
</tbody>
</table>

SEAL KITS

| KIT SEAL LPV-4  | 1020699  |
| KIT SEAL LPV-8  | 1020700  |
| KIT SEAL LPV-11 | 1020701  |
| KIT SEAL LPV-17 | 1020704  |
| KIT SEAL LPV-22 | 1020702  |
PERFORMANCE CURVES FOR LPV-4

FLOW VS PRESSURE

INPUT POWER @ FULL FLOW

INPUT POWER @ ZERO FLOW

NOISE LEVEL

VOLUMETRIC & TOTAL EFFICIENCY

DRAIN FLOW RATE
PERFORMANCE CURVES FOR LPV-8

FLOW VS PRESSURE

INPUT POWER @ FULL FLOW

INPUT POWER @ ZERO FLOW

NOISE LEVEL

VOLUMETRIC & TOTAL EFFICIENCY

DRAIN FLOW RATE
PERFORMANCE CURVES FOR LPV-11

FLOW VS PRESSURE

INPUT POWER @ FULL FLOW

INPUT POWER @ ZERO FLOW

NOISE LEVEL

VOLUMETRIC & TOTAL EFFICIENCY

DRAIN FLOW RATE
PERFORMANCE CURVES FOR LPV-17

FLOW VS PRESSURE

INPUT POWER @ FULL FLOW

INPUT POWER @ ZERO FLOW

NOISE LEVEL

VOLUMETRIC & TOTAL EFFICIENCY

DRAIN FLOW RATE
PERFORMANCE CURVES FOR LPV-22

FLOW VS PRESSURE

INPUT POWER @ FULL FLOW

INPUT POWER @ ZERO FLOW

NOISE LEVEL

VOLUMETRIC & TOTAL EFFICIENCY

DRAIN FLOW RATE
CONTROL COMPENSATOR OPTIONS

PRESSURE COMPENSATED CONTROL
(Standard)

By controlling the system pressure, the standard pressure compensated control changes pump displacement to match the system’s flow requirement. Simply stated: a pressure compensated pump will provide variable flow at a constant pressure setting.

Pump displacement is mechanically controlled by the angle of the swash plate. The swash plate angle is controlled by the extension of the compensator plunger working against the swash plate bias spring. The compensator senses downstream pressure and adjusts displacement to maintain the set pressure.

The control would be used on systems requiring variable flow but unchanging pressure.

REMOTE PRESSURE CONTROL
(Code 7)

The Remote Pressure Control is designed for use with, and must use an external pressure control device to set the upper pressure limit.
External pressure device is supplied separately.
The X port on the compensator, allows pilot flow to an external pressure device and must not be blocked off.
Back pressure from the Remote Pressure Control device, adds to the factory set Minimum bias spring within the compensator body. These external valves should be direct acting and capable of adding back pressures of up to 3,000 psi.
CONTROL COMPENSATOR OPTIONS

LOAD SENSING CONTROL (Code 19)

The load sensing control is designed to deliver constant flow across an orifice, and to adjust pressure to meet the system’s demands. This is accomplished by using a flow control valve between the pump outlet and the actuator. This type of control is often called “flow compensating”.

A sense line must be connected between the downstream side of the flow control valve and the pump compensator. Through this line, the compensator senses fluctuations in system pressure requirements. There are two adjustments on this compensator:
(a) Back side adjustment sets the upper pressure limit;
(b) front adjustment sets the pressure differential of the flow control valve. This setting comes preset to 250 psi (17.2 bar).

When this control is combined with a variable flow control (like a proportional valve), it will deliver both variable flow and variable pressure.

D03 PATTERN REMOTE CONTROL (Code RC)

The RC Control offers the adaptability for a variety of controlling pressure compensation values, based on the valve selections of commonly used valves.
- Two Pressure - energize to High Pressure
- Two Pressure - energize to Low Pressure
- Three Pressure – Low / Medium / High
- Proportional Pressure Control

The RC Control comes with the non adjustable differential pressure and upper pressure control adjustments. The D03 valve and / or other pressure valves required for the desired circuit are supplied separately.
OVERALL AND MOUNTING DIMENSIONS FOR LPV-4

LPV-4B30-RF-0-2S-A

Pressure adjustment screw

Flow adjustment screw
\[ \Delta \text{displacement/turn} \, .8 \text{cm}^3 [.05 \text{ in}^3] \]

Remote pressure control port 1/4" BSPP

Load sensing port 1/4" BSPP

Dimensions in mm [IN]

LPV-4 SERIES AXIAL PISTON PUMPS

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OVERALL AND MOUNTING DIMENSIONS FOR LPV-8 & 11
LPV-8, 11 B30-RF-0-5S-A

LPV-4B30-RF-O-2SRC-A

Pressure adjustment screw

Differential pressure (not adjustable)

Flow adjustment screw
Δ displacement/turn
08: .8 cm³ [.05 in³]
11: 1.5 cm³ [.09 in³]

Differential pressure (not adjustable)

Remote pressure control port
1/4" BSPP

Flow adjustment screw

Δ displacement/turn
08: 1.5 cm³ [.09 in³]
11: 2 cm³ [.12 in³]

Flow adjustment screw

Δ displacement/turn
08: .8 cm³ [.05 in³]
11: 1.5 cm³ [.09 in³]

Pressure adjustment screw

Differential pressure (not adjustable)

Remote pressure control port
1/4" BSPP

Case drain port
3/8" BSPP

Pressure adjustment screw

Pressure port
SAE 3000 3/4" flange

Suction port
SAE 3000 1" flange

VSD03M to be ordered separately
(metric screw to fix it)

Dimensions in mm [IN]
LPV-8, 11 B30-RF-O-5S19-A

Pressure adjustment screw

Flow adjustment screw

Δ displacement/turn
08: 1.5 cm³ [.09 in³]
11: 2 cm³ [.12 in³]

LPV-8, 11 B30-RF-O-5SRC-A

Pressure adjustment screw

Flow adjustment screw

Δ displacement/turn
08: 1.5 cm³ [.09 in³]
11: 2 cm³ [.12 in³]

OVERALL AND MOUNTING DIMENSIONS FOR LPV-17 & 22

LPV-17, 22 B30-RF-O-5S-A

Pressure adjustment screw

Flow adjustment screw

Δ displacement/turn
17: 2.6 cm³ [.16 in³]
22: 3.2 cm³ [.195 in³]

Dimensions in mm [IN]

VSD03M to be ordered separately
(metric screw to fix it)
**LPV-17, 22 B30-RF-0-5S7-A**

- **Differential pressure (not adjustable)**
- **Flow adjustment screw**
  - Δ displacement/turn
  - 17: 2.6 cm³ [0.16 in³]
  - 22: 3.2 cm³ [0.195 in³]
- **Remote pressure control port**
  - 1/4" BSPP

**Dimensions in mm [IN]**

**LPV-17, 22 B30-RF-0-5S19-A**

- **Pressure adjustment screw**
- **Flow adjustment screw**
  - Δ displacement/turn
  - 17: 2.6 cm³ [0.16 in³]
  - 22: 3.2 cm³ [0.195 in³]
- **Load sensing port**

**LPV-17, 22 B30-RF-0-5SRC-A**

- **Pressure adjustment screw**
- **Differential pressure (not adjustable)**
- **Flow adjustment screw**
  - Δ displacement/turn
  - 17: 2.6 cm³ [0.16 in³]
  - 22: 3.2 cm³ [0.195 in³]
- **VSD03M** to be ordered separately (metric screw to fix it)
# FOOT MOUNTING BRACKET DIMENSIONS

Dimensions in inches (millimeters)

![Diagram of Foot Mounting Bracket Dimensions](image)

<table>
<thead>
<tr>
<th>FOOT BRACKET SERIES</th>
<th>SAE FLANGE</th>
<th>DIMENSIONS</th>
<th>R THREAD</th>
<th>S BOLT SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPVR6</td>
<td>A</td>
<td>5.25 (133.4) 2.09 (53.1) 4.19 (106.4) 3.252 (82.6) 3.00 (76.2) 7.81 (198.4) 5.12 (130.0) 3.50 (88.9) 1.75 (44.4) 2.00 (50.8) .48 (12.2) 1.00 (25.4) 3.98 (101.1) .31 (7.9) .81 (20.6) 3/8-16 UNC</td>
<td>3/8 In.</td>
<td></td>
</tr>
<tr>
<td>FPVR15</td>
<td>B</td>
<td>6.25 (158.8) 2.87 (73.0) 5.75 (146.1) 4.00 (101.6) 4.25 (108.0) 9.69 (246.1) 6.85 (174.0) 5.75 (146.1) 2.87 (73.0) 2.01 (51.1) .59 (15.0) 1.26 (32.0) 4.45 (113.0) .47 (11.9) .79 (20.1) 1/2-13 UNC</td>
<td>1/2 In.</td>
<td></td>
</tr>
</tbody>
</table>
FOOT MOUNTING BRACKET ORDERING INFORMATION

**FPVR** - [ ] - [ ] - [ ]

<table>
<thead>
<tr>
<th>SIZE</th>
<th>CODE</th>
<th>USED WITH MODEL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6</td>
<td>LPV-4, LPV-8, LPV-11</td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>LPV-17, LPV-22</td>
</tr>
</tbody>
</table>

**MOTOR SIZE**

<table>
<thead>
<tr>
<th>CODE</th>
<th>NEMA FRAME SIZE</th>
<th>MOTOR SPACERS [in.]</th>
<th>BRACKET* SPACERS [in.]</th>
</tr>
</thead>
<tbody>
<tr>
<td>143</td>
<td>143/145</td>
<td>1.74</td>
<td>-</td>
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<tr>
<td>182</td>
<td>182/183</td>
<td>0.75</td>
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<tr>
<td>213</td>
<td>213/215</td>
<td>-</td>
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<td>254</td>
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<tr>
<td>284</td>
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<td>0.75</td>
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<tr>
<td>324</td>
<td>324/326</td>
<td>-</td>
<td>1.75</td>
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*NOTE: Foot bracket spacers mount pump to 25 H.P. motor, 1800 rpm, 284 T frame.

**TYPICAL ORDERING CODE:**

FPVR-15-284-B

FOOT MOUNTING BOLTS ORDERING INFORMATION

**BPVR** - [ ] - [ ] - [ ] - [ ]

**SIZE**

<table>
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<th>CODE</th>
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<th>BOLT SIZE</th>
<th>QUANTITY BOLTS/WASHERS</th>
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</thead>
<tbody>
<tr>
<td>6</td>
<td>LPV-4, LPV-8, LPV-11</td>
<td>3/8 - 16 UNC X 0.88</td>
<td>2</td>
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<tr>
<td>15</td>
<td>LPV-17, LPV-22</td>
<td>1/2 - 13 UNC X 1.25</td>
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**TYPICAL ORDERING CODE:**

BPVR-15-2-U-A
## Straight Flanges Dimensions

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<th>Port Size</th>
<th>Pad Size</th>
<th>Dimensions (inches)</th>
<th>Mounting Hardware</th>
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<tbody>
<tr>
<td></td>
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<td>A</td>
<td>B</td>
</tr>
<tr>
<td>0.75</td>
<td>0.75</td>
<td>1.97</td>
<td>2.56</td>
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<tr>
<td>1</td>
<td>1</td>
<td>2.17</td>
<td>2.75</td>
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<tr>
<td>1.25</td>
<td>1.25</td>
<td>2.68</td>
<td>3.12</td>
</tr>
</tbody>
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ABOUT CONTINENTAL HYDRAULICS

Rugged, durable, high-performance, efficient—the reason Continental Hydraulics’ products are used in some of the most challenging applications across the globe. With a commitment to quality customer support and innovative engineering, Continental’s pumps, valves, power units, mobile and custom products deliver what the markets demand. Continental has been serving the food production, brick and block, wood products, automotive and machine tool industries since 1962. Learn how our products survive some of the most harsh environments.

SALES@CONTHYD.COM

4895 12th Avenue East, Shakopee, MN 55379 / continentalhydraulics.com / 952-895-6400