

## Short Description

# Variable Double Pumps DPVD



The Liebherr axial piston pump DPVD series is developed for the open circuit in swash plate design. The variable pumps are available in nominal sizes 108-108 and 165-165 cm<sup>3</sup>. The nominal pressure is 400 bar and maximum pressure 450 bar.

### Special Features of the DPVD:

The model is available as a double pump with a back to back cation. Thanks to the common port plate piping is significantly easier to install. Thanks to the inverted piston design with 22° swivel angle, high efficiency and power density are obtained. The DPVD series is available with the most common controls

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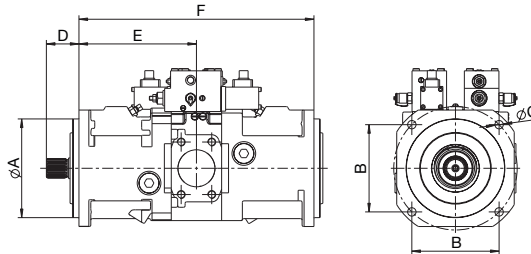
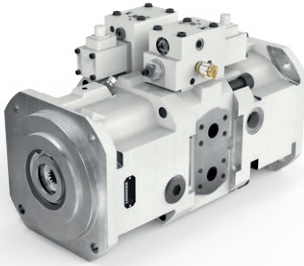
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**LIEBHERR**  
Components

# Technical Data

## Series D: double variable displacement pump DPVD



### DPVD

variable displacement, open circuit, nominal pressure 400 bar, maximum pressure 450 bar (all data for each rotary group)

| Nominal size       |                                       | 108    | 165   |
|--------------------|---------------------------------------|--------|-------|
| Displacement       | $V_{g \max}$ [cm <sup>3</sup> ]       | 107.7  | 167.8 |
| Max. speed         | at $V_{g \max}$ , $n_{\max}$ [rpm]    | 2,200  | 2,100 |
| Volumetric flow    | at $n_{\max}$ , $q_{v \max}$ [l/min]  | 237    | 352   |
| Drive power        | $\Delta p = 400$ bar, $P_{\max}$ [kW] | 158    | 235   |
| Drive torque       | $\Delta p = 400$ bar, $T_{\max}$ [Nm] | 686    | 1,068 |
| Available controls |                                       | EL, DA |       |

### Technical Data

| Product dimensions (mm)*                              |                      | 108      | 165       |
|---|----------------------|----------|-----------|
| Splined shaft profile                                 | DIN 5480 tol. 9g     | W40x2x18 | W45x2x21  |
| Centering diameter                                    | A                    | 200      | 511.18    |
| Screw connection pitch                                | B                    | 250      | 530.2     |
| Fastening bores                                       | C                    | 17       | 11        |
| Splined shaft length                                  | D                    | 66       | 54.2      |
| Connection length, SAE flanges (suction and pressure) | E                    | 238      | 303.8     |
| Shaft collar / mounting flange                        | F                    | 476      | 670.1     |
| Pressure ports  | SAE J518 (6,000 psi) | 1"       | 1¼"       |
| Suction port  | SAE J518 (500 psi)   | 3"       | 4"        |
| Oil leakage port                                      | ISO 9974-1           | M33 x 2  | M26 x 1.5 |

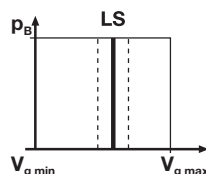
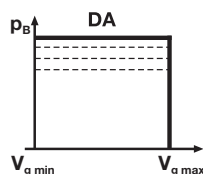
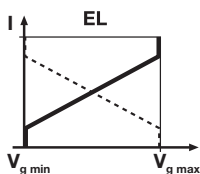
\* Dimensions may vary according to configuration and additional equipment (installation drawing on request).

### Control / regulation Other control function combinations available on request.

Electric proportional adjustment

Pressure control or pressure cut-off

Load Sensing



# Type code for DPVD pumps

|  |  | DPVD | 0   | / |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |
|--|--|------|-----|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--------------|
| <b>Pump type</b>   |  |      |     |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |
| Double variable displacement pump, series D  |  | DPVD |     |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |
| <b>Circuit type</b>  |  |      |     |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |
| Open   |  | 0    |     |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |
| <b>Nominal size</b> (per rotating group)   |  |      |     |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |
|  |  | 108  | 165 |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |
| <b>Minimum displacement</b> (per rotating group) Other values on request   |  |      |     |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |
| 0 - 15 % von V <sub>g</sub> max, value in cm <sup>3</sup>  |  | •    | •   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |
| <b>Control / regulation</b> (Other controls on request)  |  |      |     |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |
| Electric proportional adjustment / pressure cut-off  |  | •    | •   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | EL / DA      |
| Hyperbolic power regulation / load sensing   |  | ○    | ○   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | LR / LS      |
| Hyperbolic power regulation / hydraulic adjustment proportional to control pressure / pressure cut-off               |  | ○    | ○   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | LR / SD / DA |
| Electric proportional adjustment / load sensing  |  | •    | •   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | EL / LS      |
| Fan drive regulation   |  | ○    | ○   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | LU           |
| Pressure control or pressure cut-off   |  | ○    | ○   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | DA           |
| Cumulative power regulation / hydraulic adjustment proportional to control pressure                                  |  | ○    | ○   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | SL / SD      |
| Load sensing / pressure cut-off  |  | ○    | ○   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | LS/DA        |
| Preparation for electro-hydraulic control  |  | ○    | ○   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | EHCO         |
| Integrated electro-hydraulic control   |  | ○    | ○   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | EHC1         |
| <b>Design</b>  |  |      |     |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |
|  |  |      |     |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 1            |
| <b>Direction of rotation (looking at input shaft)</b> Availability of impeller see below                             |  |      |     |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |
| Right  |  | •    | •   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | R            |
| Left   |  | ○    | ○   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | L            |
| <b>Mounting flange</b> (Other mounting flanges on request)   |  |      |     |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |
| Diesel engine flange SAE 1 (SAE J617a)   |  | •    | •   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 11           |
| Diesel engine flange SAE 2 (SAE J617a)   |  | ○    | ○   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 12           |
| Diesel engine flange SAE 3 (SAE J617a)   |  | ○    | ○   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 13           |
| Diesel engine flange SAE 4 (SAE J617a)   |  | ○    | ○   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 14           |
| SAE D (SAE J744)   |  | -    | -   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 24           |
| DIN / ISO 3019-2   |  | ○    | ○   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 31...        |
| Non-standard flange  |  | ○    | ○   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 51...        |
| <b>Shaft end</b>   |  |      |     |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |
| Splined shaft DIN 5480   |  | •    | •   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 1            |
| Splined shaft SAE J744   |  | ○    | ○   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 2            |
| <b>Connections</b>   |  |      |     |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |
| High-pressure port: SAE (6,000 PSI)  |  |      |     |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |
| Suction port: SAE (500 PSI)  |  | •    | •   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | A            |
| Oil leakage and control pressure ports: metric (DIN 3852)  |  |      |     |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |
| High-pressure port: SAE (3,000 PSI)  |  |      |     |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |
| Suction port: SAE (500 PSI)  |  | ○    | ○   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | B            |
| Oil leakage and control pressure ports: metric (DIN 3852)  |  |      |     |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |
| All ports: metric thread   |  | ○    | ○   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | C            |
| <b>Attachments</b>   |  |      |     |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |
| No attachment  |  | •    | •   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0            |
| With impeller  |  | ○    | ○   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | I            |
| External pump  |  | ○    | ○   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | F            |
| <b>Integrated gear pump for control circuit oil</b>  |  |      |     |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |
| Without gear pump  |  | ○    | ○   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 00           |
| With gear pump, V <sub>g</sub> = 24 cm <sup>3</sup> with connections for external feed circuit filtering (Fe and Fa) |  | ○    | •   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 24           |
| <b>Through-drive (side P1 and / or P2)</b>   |  |      |     |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |
| Without through-drive  |  | •    | •   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0            |
| SAE A  |  | ○    | ○   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | A            |
| SAE B  |  | •    | •   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | B            |
| Non-standard flange with through-drive   |  | ○    | ○   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | K            |
| <b>Sensor technology</b>   |  |      |     |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |              |
| Without  |  | •    | •   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0            |
| With swash plate angle sensor  |  | ○    | ○   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | W            |
| With pressure sensor   |  | ○    | ○   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | P            |
| With speed sensor  |  | ○    | ○   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | D            |