



**Niehues**

Hydraulik • Antriebstechnik



# AXIAL PISTON PUMPS SERIES PVPLUS

**Design Series 47**  
**Variable Displacement**



Archivierung: 09/2025



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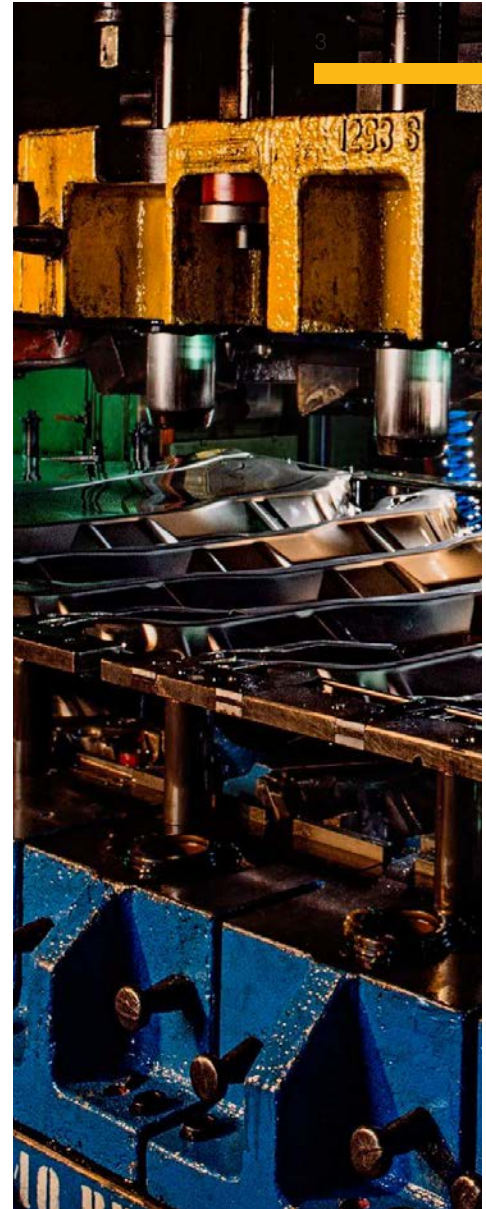
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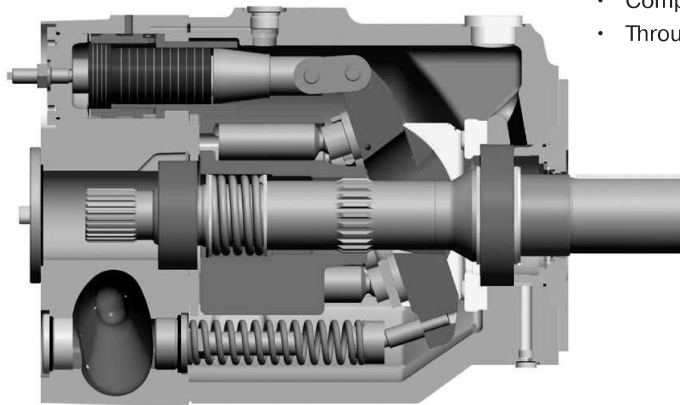


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**Parker Hannifin EMEA Sàrl European Headquarters**  
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# INTRODUCTION

## With through drive for single and multiple pumps

Swash plate type for open circuit



## Technical Features

- Low noise level
- Fast response
- Service-friendly
- High self-priming speed
- Compact design
- Through drive for 100 % nominal torque

## General Information

### Fluid recommendations

Premium quality hydraulic mineral fluid is recommended, like HLP oils to DIN 51524 (part 2 & 3) or ISO6743/4 (HM & HV). Brugger-value recommended to be 30 N/mm<sup>2</sup> minimum for general application and 50 N/mm<sup>2</sup> for heavily loaded hydraulic equipment and fast cycling machines and/or high dynamic loads, measured in accordance with DIN 51 347-2. See also Document MSG30-3248/UK Parker Hydraulic Fluids.

### Viscosity

The normal operating viscosity should range between 16 and 100 mm<sup>2</sup>/s (cSt). Max. start-up viscosity is 1000 mm<sup>2</sup>/s (cSt).

### Filtration

For maximum pump and system component functionality and life, the system should be protected from contamination by effective filtration.

Fluid cleanliness should be in accordance with ISO classification ISO 4406:1999. The quality of filter elements should be in accordance with ISO standards.

General hydraulic systems for satisfactory operation: Class 20/18/15, according to ISO 4406:1999  
Recommended cleanliness for maximum component life and functionality: Class 18/16/13, according to ISO 4406:1999

### Seals

Check hydraulic fluid specification for chemical resistance of seal material.

Check temperature range of seal material and compare with max. system and ambient temperature.

|                               |               |
|-------------------------------|---------------|
| N – Nitrile (FKM shaft seal)  | -25...+ 90 °C |
| V – FKM (FKM shaft seal)      | -25...+115 °C |
| W – Nitrile (PTFE shaft seal) | -30...+ 90 °C |

**Note:** The highest fluid temperature will be at the drain port of the pump, up to 25 °C higher than in the reservoir.



## TECHNICAL DATA

|                                                        |                         | PV016  | PV020  | PV023  | PV028  | PV032  | PV040  | PV046  |
|--------------------------------------------------------|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| Frame size                                             |                         | 1      | 1      | 1      | 1      | 2      | 2      | 2      |
| Max. displacement                                      | [cm <sup>3</sup> /rev.] | 16     | 20     | 23     | 28     | 32     | 40     | 46     |
| Output flow at 1500 rpm                                | [l/min]                 | 24     | 30     | 34,5   | 42     | 48     | 60     | 69     |
| Nominal pressure pN                                    | [bar]                   | 350    | 350    | 350    | 350    | 350    | 350    | 350    |
| Min. outlet pressure                                   | [bar]                   | 15     | 15     | 15     | 15     | 15     | 15     | 15     |
| Max. pressure pmax at 20 % working cycle <sup>1)</sup> | [bar]                   | 420    | 420    | 420    | 420    | 420    | 420    | 420    |
| Case drain pressure, continuous                        | [bar]                   | 0.5    | 0.5    | 0.5    | 0.5    | 0.5    | 0.5    | 0.5    |
| Case drain pressure, max. peak                         | [bar]                   | 2.0    | 2.0    | 2.0    | 2.0    | 2.0    | 2.0    | 2.0    |
| Min. inlet pressure, abs.                              | [bar]                   | 0.8    | 0.8    | 0.8    | 0.8    | 0.8    | 0.8    | 0.8    |
| Max. inlet pressure                                    | [bar]                   | 16     | 16     | 16     | 16     | 16     | 16     | 16     |
| Input power at 1500 rpm and 350 bar                    | [kW]                    | 15.9   | 19.7   | 22.4   | 26.9   | 31.1   | 38.5   | 43.8   |
| Max. input torque at 350 bar                           | [Nm]                    | 94.5   | 118.1  | 135.9  | 165.4  | 184.3  | 230.4  | 265.0  |
| Max speed at 1 bar, abs, inlet pressure                | [rpm]                   | 3000   | 3000   | 3000   | 3000   | 2800   | 2800   | 2800   |
| Min. speed                                             | [rpm]                   | 50     | 50     | 50     | 50     | 50     | 50     | 50     |
| Moment of inertia                                      | [kgm <sup>2</sup> ]     | 0.0016 | 0.0016 | 0.0016 | 0.0016 | 0.0047 | 0.0047 | 0.0047 |
| Weight                                                 | [kg]                    | 19     | 19     | 19     | 19     | 30     | 30     | 30     |

|                                                        |                         | PV063 | PV080 | PV092 | PV140 | PV180  | PV270  | PV360  |
|--------------------------------------------------------|-------------------------|-------|-------|-------|-------|--------|--------|--------|
| Frame size                                             |                         | 3     | 3     | 3     | 4     | 4      | 5      | 6      |
| Max. displacement                                      | [cm <sup>3</sup> /rev.] | 63    | 80    | 92    | 140   | 180    | 270    | 360    |
| Output flow at 1500 rpm                                | [l/min]                 | 94.5  | 120   | 138   | 210   | 270    | 405    | 540    |
| Nominal pressure pN                                    | [bar]                   | 350   | 350   | 350   | 350   | 350    | 350    | 350    |
| Min. outlet pressure                                   | [bar]                   | 15    | 15    | 15    | 15    | 15     | 15     | 15     |
| Max. pressure pmax at 20 % working cycle <sup>1)</sup> | [bar]                   | 420   | 420   | 420   | 420   | 420    | 420    | 420    |
| Case drain pressure, continuous                        | [bar]                   | 0.5   | 0.5   | 0.5   | 0.5   | 0.5    | 0.5    | 0.5    |
| Case drain pressure, max. peak                         | [bar]                   | 2.0   | 2.0   | 2.0   | 2.0   | 2.0    | 2.0    | 2.0    |
| Min. inlet pressure, abs.                              | [bar]                   | 0.8   | 0.8   | 0.8   | 0.8   | 0.8    | 0.8    | 0.8    |
| Max. inlet pressure                                    | [bar]                   | 16    | 16    | 16    | 16    | 16     | 16     | 16     |
| Input power at 1500 rpm and 350 bar                    | [kW]                    | 61.3  | 76.9  | 87.5  | 136.1 | 173.1  | 259.6  | 338.7  |
| Max. input torque at 350 bar                           | [Nm]                    | 365.2 | 463.7 | 533.3 | 812.4 | 1044.5 | 1550.5 | 2067.4 |
| Max speed at 1 bar, abs, inlet pressure                | [rpm]                   | 2800  | 2500  | 2300  | 2400  | 2200   | 1800   | 1750   |
| Min. speed                                             | [rpm]                   | 50    | 50    | 50    | 50    | 50     | 50     | 50     |
| Moment of inertia                                      | [kgm <sup>2</sup> ]     | 0.018 | 0.018 | 0.018 | 0.030 | 0.030  | 0.098  | 0.103  |
| Weight                                                 | [kg]                    | 59    | 59    | 59    | 90    | 90     | 172    | 180    |

<sup>1)</sup> Check adjustment range each compensator.

# ORDERING CODE FRAME SIZE 1

**P V**       **R 1 K 1 T 1 N**      

axial piston pump variable displacement      rotation      mounting interface      through drive code      seals      control

size and displacement      variation      threads code      coupling code      see next page →

| Code | Displacement            | Size |
|------|-------------------------|------|
| 016  | 16 cm <sup>3</sup> /rev | 1    |
| 020  | 20 cm <sup>3</sup> /rev | 1    |
| 023  | 23 cm <sup>3</sup> /rev | 1    |
| 028  | 28 cm <sup>3</sup> /rev | 1    |

| Code | Rotation <sup>1)</sup> |
|------|------------------------|
| R    | Clockwise              |
| L    | Counter clockwise      |

<sup>1)</sup> When looked on shaft

| Code | Variation                                           |
|------|-----------------------------------------------------|
| 1    | Standard                                            |
| 4    | Electronic displacement sensor (CIP) <sup>2)</sup>  |
| 5    | CIP-Sensor & Spec. adjustment <sup>3)</sup> (4 & 9) |
| 9    | Special adjustment <sup>3)</sup>                    |

<sup>2)</sup> not for horse power control, mandatory with FDV/UD\*

<sup>3)</sup> requires Kxxxx number

| Code | Mounting interface | Shaft                                      |
|------|--------------------|--------------------------------------------|
| K    | metr. ISO 3019/2   | 4-hole flange Ø100 mm<br>Cylindric, key    |
| L    | metr. ISO 3019/2   | 4-hole flange Ø100 mm<br>Splined, DIN 5480 |
| D    | SAE ISO 3019/1     | 4-hole flange SAE B<br>Cylindric, key      |
| E    | SAE ISO 3019/1     | 4-hole flange SAE B-B<br>Splined, SAE      |

| Code            | Port <sup>4)</sup> | Threads <sup>5)</sup> |
|-----------------|--------------------|-----------------------|
| 1               | BSPP               | metric                |
| 3               | UNF                | UNC                   |
| 8 <sup>6)</sup> | ISO 6149           | metric                |

| Code | Seals | Shaft seal |
|------|-------|------------|
| N    | NBR   | FKM        |
| V    | FKM   | FKM        |
| W    | NBR   | PTFE       |

| Code | Coupling for through drive            | as single part <sup>7)</sup> |
|------|---------------------------------------|------------------------------|
| 1    | Single pump, no coupling              |                              |
| H    | with coupling 25 x 1,5 x 15, DIN 5480 | MK-PVBG1K01                  |
| Y    | with coupling SAE A 9T-16/32 DP       | MK-PVBG1K11                  |
| A    | with coupling SAE 11T-16/32 DP        | MK-PVBG1K12                  |
| B    | with coupling SAE B 13T-16/32 DP      | MK-PVBG1K13                  |
| C    | with coupling SAE B-B 15T-16/32 DP    | MK-PVBG1K14                  |

| Code | Through drive option                                        |             |
|------|-------------------------------------------------------------|-------------|
|      | No adaptor for 2nd pump                                     |             |
| T    | Single pump prepared for through drive                      |             |
|      | with adaptor for 2nd pump      as single part <sup>7)</sup> |             |
| A    | SAE A-2, Ø 82.55 mm                                         | MK-PVBG1Axx |
| B    | SAE B-4, Ø 101.6 mm                                         | MK-PVBG1Bxx |
| J    | metric, Ø 100 mm                                            | MK-PVBG1Jxx |

See dimensions for details

<sup>7)</sup> to be ordered separately as single part see page 65.

<sup>4)</sup> Drain and flushing ports

<sup>5)</sup> All mounting and connecting threads

<sup>6)</sup> Mounting interface, code K and L only

Standard pump is not painted. Black painted pump and ATEX (excludes electronic components) certification (Zone 2) is available as special option. For additional informations please contact Parker Hannifin.

# ORDERING CODE FRAME SIZE 1

| Code |   |   | Control options                                                                     |
|------|---|---|-------------------------------------------------------------------------------------|
| 0    | 0 | 1 | No control                                                                          |
| 1    | 0 | 0 | With cover plate, no control function (fixed displacement pump)                     |
| M    | M |   | Standard pressure control                                                           |
| M    | R |   | Remote pressure control                                                             |
| M    | F |   | Load Sensing (flow) control                                                         |
| M    | T |   | Two spool LS control                                                                |
|      |   |   | Control variation                                                                   |
|      |   | C | Standard version, integrated pilot valve <sup>1)</sup>                              |
|      |   | 1 | NG6 interface top side for pilot valves <sup>1)</sup>                               |
|      |   | 2 | Remote pressure port int. supply , NG6 interface <sup>2)</sup>                      |
|      |   | 3 | Remote pressure port ext. supply <sup>2)</sup>                                      |
|      |   | W | With unloading function, 24VDC solenoid <sup>1)</sup>                               |
|      |   | K | Prop.-pilot valve type PVACRE...K35 mounted                                         |
|      |   | Z | Without integrated pilot valve, NG6 interface, for mounting of accessory code PVAC* |
|      |   | B | Without integrated pilot valve, without NG6 interface <sup>3)</sup>                 |
|      |   | P | MTZ with mounted pilot valve PVAC1P <sup>2)</sup>                                   |
|      |   | F | Prop.-pilot valve PVACRE*35T with OBE mounted, command signal 0 - 10V               |
|      |   | R | Prop.-pilot valve PVACRE*35T with OBE mounted, command signal 4 - 20 mA             |

<sup>1)</sup> not for MT & \*Z

<sup>2)</sup> only for MT & \*Z

<sup>3)</sup> not for MT & MM

| Horse power / Torque control |   |                         |                                                                                                   |
|------------------------------|---|-------------------------|---------------------------------------------------------------------------------------------------|
| Code                         |   | Nominal HP at 1.500 rpm | Nominal torque                                                                                    |
| B                            |   | 3 kW                    | 20 Nm                                                                                             |
| C                            |   | 4 kW                    | 25 Nm                                                                                             |
| D                            |   | 5.5 kW                  | 35 Nm                                                                                             |
| E                            |   | 7.5 kW                  | 50 Nm                                                                                             |
| G                            |   | 11 kW                   | 71 Nm                                                                                             |
| H                            |   | 15 kW                   | 97 Nm                                                                                             |
| K                            |   | 18.5 kW                 | 120 Nm                                                                                            |
| Function                     |   |                         |                                                                                                   |
|                              | L |                         | Horse power control with pressure control <sup>4)</sup>                                           |
|                              | C |                         | Horse power control with load sensing (single spool)                                              |
|                              | Z |                         | Horse power control with two spool LS control                                                     |
| Control variation            |   |                         |                                                                                                   |
|                              |   | C                       | Standard version, integrated pilot valve <sup>1)</sup>                                            |
|                              |   | 1                       | NG 6 interface top side                                                                           |
|                              |   | W                       | With unloading function, 24 VDC solenoid                                                          |
|                              |   | K                       | Prop.-pilot valve type PVACRE...K35 mounted                                                       |
|                              |   | Z                       | Without integrated pilot valve, NG6 interface, for mounting of accessory code PVAC* <sup>4)</sup> |
|                              |   | B                       | Without integrated pilot valve, without NG6 interface <sup>1), 4)</sup>                           |
|                              |   | P                       | *ZZ with mounted pilot valve PVAC1P <sup>2)</sup>                                                 |
|                              |   | F                       | Prop.-pilot valve PVACRE*35T with OBE mounted, command signal 0 - 10V                             |
|                              |   | R                       | Prop.-pilot valve PVACRE*35T with OBE mounted, command signal 4 - 20 mA                           |

<sup>4)</sup> control variation Z and B without pressure pilot

| Code                                    |   |   | Control option                                                                                                                                    |
|-----------------------------------------|---|---|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Electro hydraulic control <sup>5)</sup> |   |   |                                                                                                                                                   |
| F                                       | D | V | Proportional displacement control, no pressure compensation                                                                                       |
| U                                       | D |   | Proportional displacement control, with pressure compensation                                                                                     |
| Control variation                       |   |   |                                                                                                                                                   |
|                                         |   | R | pilot operated pressure control, open NG6 interface                                                                                               |
|                                         |   | K | pilot operated pressure control, proportional pilot valve type PVACRE...K35 mounted                                                               |
|                                         |   | M | pilot operated pressure control, pressure sensor and proportional pilot valve type PVACRE...K35 mounted for pressure control and/or power control |

<sup>5)</sup> further info in MSG30-3254

# ORDERING CODE FRAME SIZE 2

|          |          |  |  |  |          |          |          |          |          |          |          |  |  |  |
|----------|----------|--|--|--|----------|----------|----------|----------|----------|----------|----------|--|--|--|
| <b>P</b> | <b>V</b> |  |  |  | <b>R</b> | <b>1</b> | <b>K</b> | <b>1</b> | <b>T</b> | <b>1</b> | <b>N</b> |  |  |  |
|----------|----------|--|--|--|----------|----------|----------|----------|----------|----------|----------|--|--|--|

**axial piston pump variable displacement**

| Code | Displacement            | Size |
|------|-------------------------|------|
| 032  | 32 cm <sup>3</sup> /rev | 2    |
| 040  | 40 cm <sup>3</sup> /rev | 2    |
| 046  | 46 cm <sup>3</sup> /rev | 2    |

**rotation**

| Code | Rotation <sup>1)</sup> |
|------|------------------------|
| R    | Clockwise              |
| L    | Counter clockwise      |

<sup>1)</sup> When looked on shaft

**variation**

| Code | Variation                                           |
|------|-----------------------------------------------------|
| 1    | Standard                                            |
| 4    | Electronic displacement sensor (CIP) <sup>2)</sup>  |
| 5    | CIP-Sensor & Spec. adjustment <sup>3)</sup> (4 & 9) |
| 9    | Special adjustment <sup>3)</sup>                    |

<sup>2)</sup> not for horse power control, mandatory with FDV/UD\*

<sup>3)</sup> requires Kxxxx number

**mounting interface**

| Code | Mounting interface | Shaft                                      |
|------|--------------------|--------------------------------------------|
| K    | metr. ISO 3019/2   | 4-hole flange Ø125 mm<br>Cylindric, key    |
| L    | metr. ISO 3019/2   | 4-hole flange Ø125 mm<br>Splined, DIN 5480 |
| D    | SAE ISO 3019/1     | 4-hole flange SAE C<br>Cylindric, key      |
| E    | SAE ISO 3019/1     | 4-hole flange SAE C<br>Splined, SAE        |

**through drive code**

| Code | Through drive option                   |
|------|----------------------------------------|
|      | No adaptor for 2nd pump                |
| T    | Single pump prepared for through drive |
|      | with adaptor for 2nd pump              |
| A    | SAE A-2, Ø 82.55 mm                    |
| B    | SAE B-2/4, Ø 101.6 mm                  |
| C    | SAE C-4, Ø 127 mm                      |
| J    | metric, Ø 100 mm                       |
| K    | metric, Ø 125 mm                       |

**seals**

| Code | Seals | Shaft seal |
|------|-------|------------|
| N    | NBR   | FKM        |
| V    | FKM   | FKM        |
| W    | NBR   | PTFE       |

**threads**

| Code            | Port <sup>4)</sup> | Threads <sup>5)</sup> |
|-----------------|--------------------|-----------------------|
| 1               | BSPP               | metric                |
| 3               | UNF                | UNC                   |
| 8 <sup>6)</sup> | ISO 6149           | metric                |

**coupling code**

| Code | Coupling for through drive            | as single part <sup>7)</sup> |
|------|---------------------------------------|------------------------------|
| 1    | Single pump, no coupling              |                              |
| H    | with coupling 25 x 1.5 x 15, DIN 5480 | MK-PVBG2K01                  |
| J    | with coupling 32 x 1.5 x 20, DIN 5480 | MK-PVBG2K02                  |
| Y    | with coupling SAE A 9T-16/32 DP       | MK-PVBG2K11                  |
| A    | with coupling SAE 11T-16/32 DP        | MK-PVBG2K12                  |
| B    | with coupling SAE B 13T-16/32 DP      | MK-PVBG2K13                  |
| C    | with coupling SAE B-B 15T-16/32 DP    | MK-PVBG2K14                  |
| D    | with coupling SAE C 14T-12/24 DP      | MK-PVBG2K15                  |

**control**

see next page →

<sup>4)</sup> Drain and flushing ports

<sup>5)</sup> All mounting and connecting threads

<sup>6)</sup> Mounting interface, code K and L only

<sup>7)</sup> to be ordered separately as single part see page 65.

Standard pump is not painted. Black painted pump and ATEX (excludes electronic components) certification (Zone 2) is available as special option. For additional informations please contact Parker Hannifin.

# ORDERING CODE FRAME SIZE 2

| Code |   |   | Control options                                                                     |
|------|---|---|-------------------------------------------------------------------------------------|
| 0    | 0 | 1 | No control                                                                          |
| 1    | 0 | 0 | With cover plate, no control function (fixed displacement pump)                     |
| M    | M |   | Standard pressure control                                                           |
| M    | R |   | Remote pressure control                                                             |
| M    | F |   | Load Sensing (flow) control                                                         |
| M    | T |   | Two spool LS control                                                                |
|      |   |   | Control variation                                                                   |
|      |   | C | Standard version, integrated pilot valve <sup>1)</sup>                              |
|      |   | 1 | NG6 interface top side for pilot valves <sup>1)</sup>                               |
|      |   | 2 | Remote pressure port int. supply, NG6 interface <sup>2)</sup>                       |
|      |   | 3 | Remote pressure port ext. supply <sup>2)</sup>                                      |
|      |   | W | With unloading function, 24VDC solenoid <sup>1)</sup>                               |
|      |   | K | Prop.-pilot valve type PVACRE...K35 mounted                                         |
|      |   | Z | Without integrated pilot valve, NG6 interface, for mounting of accessory code PVAC* |
|      |   | B | Without integrated pilot valve, without NG6 interface <sup>3)</sup>                 |
|      |   | P | MTZ with mounted pilot valve PVAC1P <sup>2)</sup>                                   |
|      |   | F | Prop.-pilot valve PVACRE*35T with OBE mounted, command signal 0 - 10V               |
|      |   | R | Prop.-pilot valve PVACRE*35T with OBE mounted, command signal 4 - 20 mA             |

<sup>1)</sup> not for MT & \*Z

<sup>2)</sup> only for MT & \*Z

<sup>3)</sup> not for MT & MM

| Horse power / Torque control |   |   |                                                                                                   |                |
|------------------------------|---|---|---------------------------------------------------------------------------------------------------|----------------|
| Code                         |   |   |                                                                                                   |                |
|                              |   |   | Nominal HPat 1,500 rpm                                                                            | Nominal torque |
| D                            |   |   | 5.5 kW                                                                                            | 35 Nm          |
| E                            |   |   | 7.5 kW                                                                                            | 50 Nm          |
| G                            |   |   | 11 kW                                                                                             | 71 Nm          |
| H                            |   |   | 15 kW                                                                                             | 97 Nm          |
| K                            |   |   | 18,5 kW                                                                                           | 120 Nm         |
| M                            |   |   | 22 kW                                                                                             | 142 Nm         |
| S                            |   |   | 30 kW                                                                                             | 195 Nm         |
| Function                     |   |   |                                                                                                   |                |
|                              | L |   | Horse power control with pressure control <sup>4)</sup>                                           |                |
|                              | C |   | Horse power control with load sensing (single spool)                                              |                |
|                              | Z |   | Horse power control with two spool LS control                                                     |                |
| Control variation            |   |   |                                                                                                   |                |
|                              |   | C | Standard version, integrated pilot valve <sup>1)</sup>                                            |                |
|                              |   | 1 | NG 6 interface top side                                                                           |                |
|                              |   | W | With unloading function, 24 VDC solenoid                                                          |                |
|                              |   | K | Prop.-pilot valve type PVACRE...K35 mounted                                                       |                |
|                              |   | Z | Without integrated pilot valve, NG6 interface, for mounting of accessory code PVAC* <sup>4)</sup> |                |
|                              |   | B | Without integrated pilot valve, without NG6 interface <sup>1), 4)</sup>                           |                |
|                              |   | P | *ZZ with mounted pilot valve PVAC1P <sup>2)</sup>                                                 |                |
|                              |   | F | Prop.-pilot valve PVACRE*35T with OBE mounted, command signal 0 - 10V                             |                |
|                              |   | R | Prop.-pilot valve PVACRE*35T with OBE mounted, command signal 4 - 20 mA                           |                |

<sup>4)</sup> control variation Z and B without pressure pilot

<sup>5)</sup> further info in MSG30-3254

| Code |   |   | Control option                                                                                                                                    |
|------|---|---|---------------------------------------------------------------------------------------------------------------------------------------------------|
|      |   |   | Electro hydraulic control <sup>5)</sup>                                                                                                           |
| F    | D | V | Proportional displacement control, no pressure compensation                                                                                       |
| U    | D |   | Proportional displacement control, with pressure compensation                                                                                     |
|      |   |   | Control variation                                                                                                                                 |
|      |   | R | pilot operated pressure control, open NG6 interface                                                                                               |
|      |   | K | pilot operated pressure control, proportional pilot valve type PVACRE...K35 mounted                                                               |
|      |   | M | pilot operated pressure control, pressure sensor and proportional pilot valve type PVACRE...K35 mounted for pressure control and/or power control |

# ORDERING CODE FRAME SIZE 3

**P V** **R 1 K 1 T 1 N**

axial piston pump variable displacement      size and displacement      rotation      variation      mounting interface      threads code      through drive code      coupling code      seals      control      see next page →

| Code | Displacement            | Size |
|------|-------------------------|------|
| 063  | 63 cm <sup>3</sup> /rev | 3    |
| 080  | 80 cm <sup>3</sup> /rev | 3    |
| 092  | 92 cm <sup>3</sup> /rev | 3    |

| Code | Rotation <sup>1)</sup> |
|------|------------------------|
| R    | Clockwise              |
| L    | Counter clockwise      |

<sup>1)</sup> When looked on shaft

| Code | Variation                                           |
|------|-----------------------------------------------------|
| 1    | Standard                                            |
| 4    | Electronic displacement sensor (CIP) <sup>2)</sup>  |
| 5    | CIP-Sensor & Spec. adjustment <sup>3)</sup> (4 & 9) |
| 9    | Special adjustment <sup>3)</sup>                    |

<sup>2)</sup> not for horse power control, mandatory with FDV/UD\*

<sup>3)</sup> requires Kxxxx number

| Code | Mounting interface | Shaft                                      |
|------|--------------------|--------------------------------------------|
| K    | metr. ISO 3019/2   | 4-hole flange Ø160 mm<br>Cylindric, key    |
| L    | SAE ISO 3019/1     | 4-hole flange Ø160 mm<br>Splined, DIN 5480 |
| D    | SAE ISO 3019/1     | 4-hole flange SAE D<br>Cylindric, key      |
| E    | SAE ISO 3019/1     | 4-hole flange SAE D<br>Splined, SAE        |

| Code            | Port <sup>4)</sup> | Threads <sup>5)</sup> |
|-----------------|--------------------|-----------------------|
| 1               | BSPP               | metric                |
| 3               | UNF                | UNC                   |
| 4 <sup>6)</sup> | BSPP               | metr. M14             |
| 8 <sup>7)</sup> | ISO 6149           | metric                |

| Code | Seals | Shaft seal |
|------|-------|------------|
| N    | NBR   | FKM        |
| V    | FKM   | FKM        |
| W    | NBR   | PTFE       |

| Code | Coupling for through drive            | as single part <sup>8)</sup> |
|------|---------------------------------------|------------------------------|
| 1    | Single pump, no coupling              |                              |
| H    | with coupling 25 x 1.5 x 15, DIN 5480 | MK-PVBG3K01                  |
| J    | with coupling 32 x 1.5 x 20, DIN 5480 | MK-PVBG3K02                  |
| K    | with coupling 40 x 1.5 x 25, DIN 5480 | MK-PVBG3K03                  |
| Y    | with coupling SAE A 9T-16/32 DP       | MK-PVBG3K11                  |
| A    | with coupling SAE 11T-16/32 DP        | MK-PVBG3K12                  |
| B    | with coupling SAE B 13T-16/32 DP      | MK-PVBG3K13                  |
| C    | with coupling SAE B-B 15T-16/32 DP    | MK-PVBG3K14                  |
| D    | with coupling SAE C 14T-12/24 DP      | MK-PVBG3K15                  |
| E    | with coupling SAE C-C 17T-12/24 DP    | MK-PVBG3K16                  |
| F    | with coupling SAE D, E 13T-8/16 DP    | MK-PVBG3K17                  |

| Code | Through drive option                                        |             |
|------|-------------------------------------------------------------|-------------|
|      | No adaptor for 2nd pump                                     |             |
| T    | Single pump prepared for through drive                      |             |
|      | with adaptor for 2nd pump      as single part <sup>8)</sup> |             |
| A    | SAE A-2, Ø 82.55 mm                                         | MK-PVBG3Axx |
| B    | SAE B-2/4, Ø 101.6 mm                                       | MK-PVBG3Bxx |
| C    | SAE C-2/4, Ø 127 mm                                         | MK-PVBG3Cxx |
| D    | SAE D-4, Ø 152.4 mm                                         | MK-PVBG3Dxx |
| J    | metric, Ø 100 mm                                            | MK-PVBG3Jxx |
| K    | metric, Ø 125 mm                                            | MK-PVBG3Kxx |
| L    | metric, Ø 160 mm                                            | MK-PVBG3Lxx |

See dimensions for details

<sup>8)</sup> to be ordered separately as single part see page 65.

<sup>4)</sup> Drain and flushing ports

<sup>5)</sup> All mounting and connecting threads

<sup>6)</sup> For PV063-PV092 only: pressure port 1 1/4" with 4 x M14 instead of 4 x M12

<sup>7)</sup> for mounting interface K and L only

Standard pump is not painted. Black painted pump and ATEX (excludes electronic components) certification (Zone 2) is available as special option. For additional informations please contact Parker Hannifin.

# ORDERING CODE FRAME SIZE 3

| Code |   |   | Control options                                                                     |
|------|---|---|-------------------------------------------------------------------------------------|
| 0    | 0 | 1 | No control                                                                          |
| 1    | 0 | 0 | With cover plate, no control function (fixed displacement pump)                     |
| M    | M |   | Standard pressure control                                                           |
| M    | R |   | Remote pressure control                                                             |
| M    | F |   | Load Sensing (flow) control                                                         |
| M    | T |   | Two spool LS control                                                                |
|      |   |   | Control variation                                                                   |
|      |   | C | Standard version, integrated pilot valve <sup>1)</sup>                              |
|      |   | 1 | NG6 interface top side for pilot valves <sup>1)</sup>                               |
|      |   | 2 | Remote pressure port int. supply, NG6 interface <sup>2)</sup>                       |
|      |   | 3 | Remote pressure port ext. supply <sup>2)</sup>                                      |
|      |   | W | With unloading function, 24VDC solenoid <sup>1)</sup>                               |
|      |   | K | Prop.-pilot valve type PVACRE...K35 mounted                                         |
|      |   | Z | Without integrated pilot valve, NG6 interface, for mounting of accessory code PVAC* |
|      |   | B | Without integrated pilot valve, without NG6 interface <sup>3)</sup>                 |
|      |   | P | MTZ with mounted pilot valve PVAC1P <sup>2)</sup>                                   |
|      |   | F | Prop.-pilot valve PVACRE*35T with OBE mounted, command signal 0 - 10V               |
|      |   | R | Prop.-pilot valve PVACRE*35T with OBE mounted, command signal 4 - 20 mA             |

<sup>1)</sup> not for MT & \*Z

<sup>2)</sup> only for MT & \*Z

<sup>3)</sup> not for MT & MM

| Horse power / Torque control |   |   |                                                                                                   |                   |
|------------------------------|---|---|---------------------------------------------------------------------------------------------------|-------------------|
| Code                         |   |   |                                                                                                   |                   |
|                              |   |   | Nominal HP<br>at 1.500 rpm                                                                        | Nominal<br>torque |
| G                            |   |   | 11 kW                                                                                             | 71 Nm             |
| H                            |   |   | 15 kW                                                                                             | 97 Nm             |
| K                            |   |   | 18,5 kW                                                                                           | 120 Nm            |
| M                            |   |   | 22 kW                                                                                             | 142 Nm            |
| S                            |   |   | 30 kW                                                                                             | 195 Nm            |
| T                            |   |   | 37 kW                                                                                             | 240 Nm            |
| U                            |   |   | 45 kW                                                                                             | 290 Nm            |
| W                            |   |   | 55 kW                                                                                             | 355 Nm            |
| Function                     |   |   |                                                                                                   |                   |
|                              | L |   | Horse power control with pressure control <sup>4)</sup>                                           |                   |
|                              | C |   | Horse power control with load sensing (single spool)                                              |                   |
|                              | Z |   | Horse power control with two spool LS control                                                     |                   |
| Control variation            |   |   |                                                                                                   |                   |
|                              |   | C | Standard version, integrated pilot valve <sup>1)</sup>                                            |                   |
|                              |   | 1 | NG 6 interface top side                                                                           |                   |
|                              |   | W | With unloading function, 24 VDC solenoid                                                          |                   |
|                              |   | K | Prop.-pilot valve type PVACRE...K35 mounted                                                       |                   |
|                              |   | Z | Without integrated pilot valve, NG6 interface, for mounting of accessory code PVAC* <sup>4)</sup> |                   |
|                              |   | B | Without integrated pilot valve, without NG6 interface <sup>1), 4)</sup>                           |                   |
|                              |   | P | *ZZ with mounted pilot valve PVAC1P <sup>2)</sup>                                                 |                   |
|                              |   | F | Prop.-pilot valve PVACRE*35T with OBE mounted, command signal 0 - 10V                             |                   |
|                              |   | R | Prop.-pilot valve PVACRE*35T with OBE mounted, command signal 4 - 20 mA                           |                   |

<sup>4)</sup> control variation Z and B without pressure pilot

| Code |   |   | Control option                                                                                                                                    |
|------|---|---|---------------------------------------------------------------------------------------------------------------------------------------------------|
|      |   |   | Electro hydraulic control <sup>5)</sup>                                                                                                           |
| F    | D | V | Proportional displacement control, no pressure compensation                                                                                       |
| U    | D |   | Proportional displacement control, with pressure compensation                                                                                     |
|      |   |   | Control variation                                                                                                                                 |
|      |   | R | pilot operated pressure control, open NG6 interface                                                                                               |
|      |   | K | pilot operated pressure control, proportional pilot valve type PVACRE...K35 mounted                                                               |
|      |   | M | pilot operated pressure control, pressure sensor and proportional pilot valve type PVACRE...K35 mounted for pressure control and/or power control |

<sup>5)</sup> further info in MSG30-3254

# ORDERING CODE FRAME SIZE 4

|          |          |  |  |  |          |          |          |          |          |          |          |  |  |  |
|----------|----------|--|--|--|----------|----------|----------|----------|----------|----------|----------|--|--|--|
| <b>P</b> | <b>V</b> |  |  |  | <b>R</b> | <b>1</b> | <b>K</b> | <b>1</b> | <b>T</b> | <b>1</b> | <b>N</b> |  |  |  |
|----------|----------|--|--|--|----------|----------|----------|----------|----------|----------|----------|--|--|--|

**axial piston pump variable displacement**

| Code | Displacement             | Size |
|------|--------------------------|------|
| 140  | 140 cm <sup>3</sup> /rev | 4    |
| 180  | 180 cm <sup>3</sup> /rev | 4    |

**rotation**

| Code | Rotation <sup>1)</sup> |
|------|------------------------|
| R    | Clockwise              |
| L    | Counter clockwise      |

<sup>1)</sup> When looked on shaft

**size and displacement**

**variation**

| Code | Variation                                           |
|------|-----------------------------------------------------|
| 1    | Standard                                            |
| 4    | Electronic displacement sensor (CIP) <sup>2)</sup>  |
| 5    | CIP-Sensor & Spec. adjustment <sup>3)</sup> (4 & 9) |
| 9    | Special adjustment <sup>3)</sup>                    |

<sup>2)</sup> not for horse power control, mandatory with FDV/UD\*

<sup>3)</sup> requires Kxxxx number

**mounting interface**

| Code | Mounting interface | Shaft                 |
|------|--------------------|-----------------------|
| K    | metr. ISO 3019/2   | 4-hole flange Ø160 mm |
| L    |                    | 4-hole flange Ø160 mm |
| D    |                    | 4-hole flange SAE D   |
| E    | SAE ISO 3019/1     | 4-hole flange SAE D   |
| F    |                    | 4-hole flange SAE D   |
| G    |                    | 4-hole flange SAE D   |

**through drive code**

| Code | Coupling for through drive            | as single part <sup>8)</sup> |
|------|---------------------------------------|------------------------------|
| 1    | Single pump, no coupling              |                              |
| H    | with coupling 25 x 1.5 x 15, DIN 5480 | MK-PVBG4K01                  |
| J    | with coupling 32 x 1.5 x 20, DIN 5480 | MK-PVBG4K02                  |
| K    | with coupling 40 x 1.5 x 25, DIN 5480 | MK-PVBG4K03                  |
| L    | with coupling 50 x 2 x 24, DIN 5480   | MK-PVBG4K04                  |
| Y    | with coupling SAE A 9T-16/32 DP       | MK-PVBG4K11                  |
| A    | with coupling SAE 11T-16/32 DP        | MK-PVBG4K12                  |
| B    | with coupling SAE B 13T-16/32 DP      | MK-PVBG4K13                  |
| C    | with coupling SAE B-B 15T-16/32 DP    | MK-PVBG4K14                  |
| D    | with coupling SAE C 14T-12/24 DP      | MK-PVBG4K15                  |
| E    | with coupling SAE C-C 17T-12/24 DP    | MK-PVBG4K16                  |
| F    | with coupling SAE D, E 13T-8/16 DP    | MK-PVBG4K17                  |
| G    | with coupling SAE F 15T-8/16 DP       | MK-PVBG4K18                  |

**seals**

| Code | Seals | Shaft seal |
|------|-------|------------|
| N    | NBR   | FKM        |
| V    | FKM   | FKM        |
| W    | NBR   | PTFE       |

**threads**

| Code            | Port <sup>4)</sup> | Threads <sup>5)</sup> |
|-----------------|--------------------|-----------------------|
| 1               | BSPP               | metric                |
| 3               | UNF                | UNC                   |
| 4 <sup>6)</sup> | BSPP               | metr. M14             |
| 8 <sup>7)</sup> | ISO 6149           | metric                |

**coupling code**

| Code | Through drive option                   |
|------|----------------------------------------|
|      | No adaptor for 2nd pump                |
| T    | Single pump prepared for through drive |
|      | with adaptor for 2nd pump              |
| A    | SAE A-2, Ø 82.55 mm                    |
| B    | SAE B-2/4, Ø 101.6 mm                  |
| C    | SAE C-2/4, Ø 127.0 mm                  |
| D    | SAE D-4, Ø 152.4 mm                    |
| J    | metric, Ø 100 mm                       |
| K    | metric, Ø 125 mm                       |
| L    | metric, Ø 160 mm                       |

control → see next page →

<sup>4)</sup> Drain and flushing ports  
<sup>5)</sup> All mounting and connecting threads  
<sup>6)</sup> Pressure port 1 1/4" with 4 x M14 instead of 4 x M12  
<sup>7)</sup> Mounting interface, code K and L only

Standard pump is not painted. Black painted pump and ATEX (excludes electronic components) certification (Zone 2) is available as special option. For additional informations please contact Parker Hannifin.

# ORDERING CODE FRAME SIZE 4

| Code |   |   | Control options                                                                     |
|------|---|---|-------------------------------------------------------------------------------------|
| 0    | 0 | 1 | No control                                                                          |
| 1    | 0 | 0 | With cover plate, no control function (fixed displacement pump)                     |
| M    | M |   | Standard pressure control                                                           |
| M    | R |   | Remote pressure control                                                             |
| M    | F |   | Load Sensing (flow) control                                                         |
| M    | T |   | Two spool LS control                                                                |
|      |   |   | Control variation                                                                   |
|      |   | C | Standard version, integrated pilot valve <sup>1)</sup>                              |
|      |   | 1 | NG6 interface top side for pilot valves <sup>1)</sup>                               |
|      |   | 2 | Remote pressure port int. supply, NG6 interface <sup>2)</sup>                       |
|      |   | 3 | Remote pressure port ext. supply <sup>2)</sup>                                      |
|      |   | W | With unloading function, 24VDC solenoid <sup>1)</sup>                               |
|      |   | K | Prop.-pilot valve type PVACRE...K35 mounted                                         |
|      |   | Z | Without integrated pilot valve, NG6 interface, for mounting of accessory code PVAC* |
|      |   | B | Without integrated pilot valve, without NG6 interface <sup>3)</sup>                 |
|      |   | P | MTZ with mounted pilot valve PVAC1P <sup>2)</sup>                                   |
|      |   | F | Prop.-pilot valve PVACRE*35T with OBE mounted, command signal 0 - 10V               |
|      |   | R | Prop.-pilot valve PVACRE*35T with OBE mounted, command signal 4 - 20 mA             |

- <sup>1)</sup> not for MT & \*Z  
<sup>2)</sup> only for MT & \*Z  
<sup>3)</sup> not for MT & MM

| Horse power / Torque control |   |                         |                                                                                                   |
|------------------------------|---|-------------------------|---------------------------------------------------------------------------------------------------|
| Code                         |   | Nominal HP at 1.500 rpm | Nominal torque                                                                                    |
| K                            |   | 18.5 kW                 | 120 Nm                                                                                            |
| M                            |   | 22 kW                   | 142 Nm                                                                                            |
| S                            |   | 30 kW                   | 195 Nm                                                                                            |
| T                            |   | 37 kW                   | 240 Nm                                                                                            |
| U                            |   | 45 kW                   | 290 Nm                                                                                            |
| W                            |   | 55 kW                   | 355 Nm                                                                                            |
| Y                            |   | 75 kW                   | 485 Nm                                                                                            |
| Z                            |   | 90 kW                   | 585 Nm                                                                                            |
| 2                            |   | 110 kW                  | 700 Nm                                                                                            |
| Function                     |   |                         |                                                                                                   |
|                              | L |                         | Horse power control with pressure control <sup>4)</sup>                                           |
|                              | C |                         | Horse power control with load sensing (single spool)                                              |
|                              | Z |                         | Horse power control with two spool LS control                                                     |
| Control variation            |   |                         |                                                                                                   |
|                              |   | C                       | Standard version, integrated pilot valve <sup>1)</sup>                                            |
|                              |   | 1                       | NG 6 interface top side                                                                           |
|                              |   | W                       | With unloading function, 24 VDC solenoid                                                          |
|                              |   | K                       | Prop.-pilot valve type PVACRE...K35 mounted                                                       |
|                              |   | Z                       | Without integrated pilot valve, NG6 interface, for mounting of accessory code PVAC* <sup>4)</sup> |
|                              |   | B                       | Without integrated pilot valve, without NG6 interface <sup>1), 4)</sup>                           |
|                              |   | P                       | *ZZ with mounted pilot valve PVAC1P <sup>2)</sup>                                                 |
|                              |   | F                       | Prop.-pilot valve PVACRE*35T with OBE mounted, command signal 0 - 10V                             |
|                              |   | R                       | Prop.-pilot valve PVACRE*35T with OBE mounted, command signal 4 - 20 mA                           |

- <sup>4)</sup> control variation Z and B without pressure pilot

| Code |   |   | Control option                                                                                                                                    |
|------|---|---|---------------------------------------------------------------------------------------------------------------------------------------------------|
|      |   |   | Electro hydraulic control <sup>5)</sup>                                                                                                           |
| F    | D | V | Proportional displacement control, no pressure compensation                                                                                       |
| U    | D |   | Proportional displacement control, with pressure compensation                                                                                     |
|      |   |   | Control variation                                                                                                                                 |
|      |   | R | pilot operated pressure control, open NG6 interface                                                                                               |
|      |   | K | pilot operated pressure control, proportional pilot valve type PVACRE...K35 mounted                                                               |
|      |   | M | pilot operated pressure control, pressure sensor and proportional pilot valve type PVACRE...K35 mounted for pressure control and/or power control |

- <sup>5)</sup> further info in MSG30-3254

# ORDERING CODE FRAME SIZE 5

**P V** **R 1 K 1 T 1 N**

axial piston pump variable displacement      size and displacement      rotation      variation      mounting interface      threads code      through drive code      coupling code      seals      control → see next page

| Code | Displacement             | Size |
|------|--------------------------|------|
| 270  | 270 cm <sup>3</sup> /rev | 5    |

| Code | Rotation <sup>1)</sup> |
|------|------------------------|
| R    | Clockwise              |
| L    | Counter clockwise      |

<sup>1)</sup> When looked on shaft

| Code | Variation                                           |
|------|-----------------------------------------------------|
| 1    | Standard                                            |
| 4    | Electronic displacement sensor (CIP) <sup>2)</sup>  |
| 5    | CIP-Sensor & Spec. adjustment <sup>3)</sup> (4 & 9) |
| 9    | Special adjustment <sup>3)</sup>                    |

<sup>2)</sup> not for horse power control, mandatory with FDV/UD\*

<sup>3)</sup> requires Kxxxx number

| Code | Mounting interface | Shaft                                      |
|------|--------------------|--------------------------------------------|
| K    | metr. ISO 3019/2   | 4-hole flange Ø200 mm<br>Cylindric, key    |
| L    | SAE ISO 3019/1     | 4-hole flange Ø200 mm<br>Splined, DIN 5480 |
| D    | SAE ISO 3019/1     | 4-hole flange SAE E<br>Cylindric, key      |
| E    | SAE ISO 3019/1     | 4-hole flange SAE E<br>Splined, SAE        |

| Code | Port <sup>4)</sup> | Threads <sup>5)</sup> |
|------|--------------------|-----------------------|
| 1    | BSPP               | metric                |
| 3    | UNF                | UNC                   |
| 8    | ISO 6149           | metric                |

| Code | Seals | Shaft seal |
|------|-------|------------|
| N    | NBR   | FKM        |
| V    | FKM   | FKM        |
| W    | NBR   | PTFE       |

| Code | Coupling for through drive            | as single part <sup>6)</sup> |
|------|---------------------------------------|------------------------------|
| 1    | Single pump, no coupling              |                              |
| H    | with coupling 25 x 1.5 x 15, DIN 5480 | MK-PVBG5K01                  |
| J    | with coupling 32 x 1.5 x 20, DIN 5480 | MK-PVBG5K02                  |
| K    | with coupling 40 x 1.5 x 25, DIN 5480 | MK-PVBG5K03                  |
| L    | with coupling 50 x 2 x 24, DIN 5480   | MK-PVBG5K04                  |
| M    | with coupling 60 x 2 x 28, DIN 5480   | MK-PVBG5K05                  |
| Y    | with coupling SAE A 9T-16/32 DP       | MK-PVBG5K11                  |
| A    | with coupling SAE 11T-16/32 DP        | MK-PVBG5K12                  |
| B    | with coupling SAE B 13T-16/32 DP      | MK-PVBG5K13                  |
| C    | with coupling SAE B-B 15T-16/32 DP    | MK-PVBG5K14                  |
| D    | with coupling SAE C 14T-12/24 DP      | MK-PVBG5K15                  |
| E    | with coupling SAE C-C 17T-12/24 DP    | MK-PVBG5K16                  |
| F    | with coupling SAE D, E 13T-8/16 DP    | MK-PVBG5K17                  |
| G    | with coupling SAE F 15T-8/16 DP       | MK-PVBG5K18                  |

| Code | Through drive option                   |                              |
|------|----------------------------------------|------------------------------|
|      | No adaptor for 2nd pump                |                              |
| T    | Single pump prepared for through drive |                              |
|      | with adaptor for 2nd pump              | as single part <sup>6)</sup> |
| A    | SAE A-2, Ø 82.55 mm                    | MK-PVBG5Axx                  |
| B    | SAE B-2/4, Ø 101.6 mm                  | MK-PVBG5Bxx                  |
| C    | SAE C-2/4, Ø 127 mm                    | MK-PVBG5Cxx                  |
| D    | SAE D-4, Ø 152.4 mm                    | MK-PVBG5Dxx                  |
| E    | SAE E-4, Ø 165.1 mm                    | MK-PVBG5Exx                  |
| J    | metric, Ø 100 mm                       | MK-PVBG5Jxx                  |
| K    | metric, Ø 125 mm                       | MK-PVBG5Kxx                  |
| L    | metric, Ø 160 mm                       | MK-PVBG5Lxx                  |
| M    | metric, Ø 200 mm                       | MK-PVBG5Mxx                  |

<sup>4)</sup> Drain and flushing ports

<sup>5)</sup> All mounting and connecting threads

See dimensions for details

<sup>6)</sup> to be ordered separately as single part see page 65.

Standard pump is not painted. Black painted pump and ATEX (excludes electronic components) certification (Zone 2) is available as special option. For additional informations please contact Parker Hannifin.

# ORDERING CODE FRAME SIZE 5

| Code |   |   | Control options                                                                     |
|------|---|---|-------------------------------------------------------------------------------------|
| 0    | 0 | 1 | No control                                                                          |
| 1    | 0 | 0 | With cover plate, no control function (fixed displacement pump)                     |
| M    | M |   | Standard pressure control                                                           |
| M    | R |   | Remote pressure control                                                             |
| M    | F |   | Load Sensing (flow) control                                                         |
| M    | T |   | Two spool LS control                                                                |
|      |   |   | Control variation                                                                   |
|      |   | C | Standard version, integrated pilot valve <sup>1)</sup>                              |
|      |   | 1 | NG6 interface top side for pilot valves <sup>1)</sup>                               |
|      |   | 2 | Remote pressure port int. supply, NG6 interface <sup>2)</sup>                       |
|      |   | 3 | Remote pressure port ext. supply <sup>2)</sup>                                      |
|      |   | W | With unloading function, 24VDC solenoid <sup>1)</sup>                               |
|      |   | K | Prop.-pilot valve type PVACRE...K35 mounted                                         |
|      |   | Z | Without integrated pilot valve, NG6 interface, for mounting of accessory code PVAC* |
|      |   | B | Without integrated pilot valve, without NG6 interface <sup>3)</sup>                 |
|      |   | P | MTZ with mounted pilot valve PVAC1P <sup>2)</sup>                                   |
|      |   | F | Prop.-pilot valve PVACRE*35T with OBE mounted, command signal 0 - 10 V              |
|      |   | R | Prop.-pilot valve PVACRE*35T with OBE mounted, command signal 4 - 20 mA             |

- <sup>1)</sup> not for MT & \*Z  
<sup>2)</sup> only for MT & \*Z  
<sup>3)</sup> not for MT & MM

| Horse power / Torque control |   |                         |                                                                                                   |
|------------------------------|---|-------------------------|---------------------------------------------------------------------------------------------------|
| Code                         |   | Nominal HP at 1.500 rpm | Nominal torque                                                                                    |
| T                            |   | 37 kW                   | 240 Nm                                                                                            |
| U                            |   | 45 kW                   | 290 Nm                                                                                            |
| W                            |   | 55 kW                   | 350 Nm                                                                                            |
| Y                            |   | 75 kW                   | 480 Nm                                                                                            |
| Z                            |   | 90 kW                   | 580 Nm                                                                                            |
| 2                            |   | 110 kW                  | 700 Nm                                                                                            |
| 3                            |   | 132 kW                  | 840 Nm                                                                                            |
| 4                            |   | 160 kW                  | 1020 Nm                                                                                           |
| 5                            |   | 180 kW                  | 1150 Nm                                                                                           |
| 6                            |   | 200 kW                  | 1280 Nm                                                                                           |
| Function                     |   |                         |                                                                                                   |
|                              | L |                         | Horse power control with pressure control <sup>4)</sup>                                           |
|                              | C |                         | Horse power control with load sensing (single spool)                                              |
|                              | Z |                         | Horse power control with two spool LS control                                                     |
| Control variation            |   |                         |                                                                                                   |
|                              |   | C                       | Standard version, integrated pilot valve <sup>1)</sup>                                            |
|                              |   | 1                       | NG 6 interface top side                                                                           |
|                              |   | W                       | With unloading function, 24 VDC solenoid                                                          |
|                              |   | K                       | Prop.-pilot valve type PVACRE...K35 mounted                                                       |
|                              |   | Z                       | Without integrated pilot valve, NG6 interface, for mounting of accessory code PVAC* <sup>4)</sup> |
|                              |   | B                       | Without integrated pilot valve, without NG6 interface <sup>1), 4)</sup>                           |
|                              |   | P                       | *ZZ with mounted pilot valve PVAC1P <sup>2)</sup>                                                 |
|                              |   | F                       | Prop.-pilot valve PVACRE*35T with OBE mounted, command signal 0 - 10V                             |
|                              |   | R                       | Prop.-pilot valve PVACRE*35T with OBE mounted, command signal 4 - 20mA                            |

- <sup>4)</sup> control variation Z and B without pressure pilot

| Code |   |   | Control option                                                                                                                                    |
|------|---|---|---------------------------------------------------------------------------------------------------------------------------------------------------|
|      |   |   | Electro hydraulic control <sup>5)</sup>                                                                                                           |
| F    | D | V | Proportional displacement control, no pressure compensation                                                                                       |
| U    | D |   | Proportional displacement control, with pressure compensation                                                                                     |
|      |   |   | Control variation                                                                                                                                 |
|      |   | R | pilot operated pressure control, open NG6 interface                                                                                               |
|      |   | K | pilot operated pressure control, proportional pilot valve type PVACRE...K35 mounted                                                               |
|      |   | M | pilot operated pressure control, pressure sensor and proportional pilot valve type PVACRE...K35 mounted for pressure control and/or power control |

- <sup>5)</sup> further info in MSG30-3254

# ORDERING CODE FRAME SIZE 6

|          |          |  |  |  |          |          |          |          |          |          |          |  |  |  |
|----------|----------|--|--|--|----------|----------|----------|----------|----------|----------|----------|--|--|--|
| <b>P</b> | <b>V</b> |  |  |  | <b>R</b> | <b>1</b> | <b>K</b> | <b>1</b> | <b>T</b> | <b>1</b> | <b>N</b> |  |  |  |
|----------|----------|--|--|--|----------|----------|----------|----------|----------|----------|----------|--|--|--|

**axial piston pump variable displacement**

**size and displacement**

| Code | Displacement             | Size |
|------|--------------------------|------|
| 360  | 360 cm <sup>3</sup> /rev | 6    |

**rotation**

| Code | Rotation <sup>1)</sup> |
|------|------------------------|
| R    | Clockwise              |
| L    | Counter clockwise      |

<sup>1)</sup> When looked on shaft

**variation**

| Code | Variation                                           |
|------|-----------------------------------------------------|
| 1    | Standard                                            |
| 4    | Electronic displacement sensor (CIP) <sup>2)</sup>  |
| 5    | CIP-Sensor & Spec. adjustment <sup>3)</sup> (4 & 9) |
| 9    | Special adjustment <sup>3)</sup>                    |

<sup>2)</sup> not for horse power control, mandatory with FDV/UD\*

<sup>3)</sup> requires Kxxxx number

**mounting interface**

| Code | Mounting interface      | Shaft             |
|------|-------------------------|-------------------|
| K    | 4-hole flange Ø250 mm   | Cylindric, key    |
| L    | 4-hole flange Ø250 mm   | Splined, DIN 5480 |
| R    | 4-hole flange Ø224 mm   | Cylindric, key    |
| T    | 4-hole flange Ø224 mm   | Splined, DIN 5480 |
| D    | SAE 4-hole flange SAE E | Cylindric, key    |
| E    | SAE 4-hole flange SAE E | Splined, DIN 5480 |

**through drive code**

| Code | Port <sup>4)</sup> | Threads <sup>5)</sup> |
|------|--------------------|-----------------------|
| 1    | BSPP               | metric                |
| 3    | UNF                | UNC                   |

<sup>4)</sup> Drain and flushing ports

<sup>5)</sup> All mounting and connecting threads

**seals**

| Code | Seals | Shaft seal |
|------|-------|------------|
| N    | NBR   | FKM        |
| V    | FKM   | FKM        |

**control** → see next page →

**threads code**

**coupling code**

| Code | Coupling for through drive            | as single part <sup>6)</sup> |
|------|---------------------------------------|------------------------------|
| 1    | Single pump, no coupling              |                              |
| H    | with coupling 25 x 1.5 x 15, DIN 5480 | MK-PVBG5K01                  |
| J    | with coupling 32 x 1.5 x 20, DIN 5480 | MK-PVBG5K02                  |
| K    | with coupling 40 x 1.5 x 25, DIN 5480 | MK-PVBG5K03                  |
| L    | with coupling 50 x 2 x 24, DIN 5480   | MK-PVBG5K04                  |
| M    | with coupling 60 x 2 x 28, DIN 5480   | MK-PVBG5K05                  |
| P    | with coupling 70 x 3 x 22, DIN 5480   | MK-PVBG5K06                  |
| Y    | with coupling SAE A 9T-16/32 DP       | MK-PVBG5K11                  |
| A    | with coupling SAE 11T-16/32 DP        | MK-PVBG5K12                  |
| B    | with coupling SAE B 13T-16/32 DP      | MK-PVBG5K13                  |
| C    | with coupling SAE B-B 15T-16/32 DP    | MK-PVBG5K14                  |
| D    | with coupling SAE C 14T-12/24 DP      | MK-PVBG5K15                  |
| E    | with coupling SAE C-C 17T-12/24 DP    | MK-PVBG5K16                  |
| F    | with coupling SAE D, E 13T-8/16 DP    | MK-PVBG5K17                  |
| G    | with coupling SAE F 15T-8/16 DP       | MK-PVBG5K18                  |

**Through drive option**

| Code | Through drive option                   |                              |
|------|----------------------------------------|------------------------------|
|      | No adaptor for 2nd pump                |                              |
| T    | Single pump prepared for through drive |                              |
|      | with adaptor for 2nd pump              | as single part <sup>6)</sup> |
| A    | SAE A-2, Ø 82.55 mm                    | MK-PVBG5Axx                  |
| B    | SAE B-2/4, Ø 101.6 mm                  | MK-PVBG5Bxx                  |
| C    | SAE C-2/4, Ø 127 mm                    | MK-PVBG5Cxx                  |
| D    | SAE D-4, Ø 152.4 mm                    | MK-PVBG5Dxx                  |
| E    | SAE E-4, Ø 165.1 mm                    | MK-PVBG5Exx                  |
| J    | metric, Ø 100 mm                       | MK-PVBG5Jxx                  |
| K    | metric, Ø 125 mm                       | MK-PVBG5Kxx                  |
| L    | metric, Ø 160 mm                       | MK-PVBG5Lxx                  |
| M    | metric, Ø 200 mm                       | MK-PVBG5Mxx                  |

See dimensions for details

<sup>6)</sup> to be ordered separately as single part see page 65.

Standard pump is not painted. Black painted pump and ATEX (excludes electronic components) certification (Zone 2) is available as special option. For additional informations please contact Parker Hannifin.

# ORDERING CODE FRAME SIZE 6

| Code |   |   | Control options                                                                     |
|------|---|---|-------------------------------------------------------------------------------------|
| 0    | 0 | 1 | No control                                                                          |
| 1    | 0 | 0 | With cover plate, no control function (fixed displacement pump)                     |
| M    | M |   | Standard pressure control                                                           |
| M    | R |   | Remote pressure control                                                             |
| M    | F |   | Load Sensing (flow) control                                                         |
| M    | T |   | Two spool LS control                                                                |
|      |   |   | Control variation                                                                   |
|      |   | C | Standard version, integrated pilot valve <sup>1)</sup>                              |
|      |   | 1 | NG6 interface top side for pilot valves <sup>1)</sup>                               |
|      |   | 2 | Remote pressure port int. supply, NG6 interface <sup>2)</sup>                       |
|      |   | 3 | Remote pressure port ext. supply <sup>2)</sup>                                      |
|      |   | W | With unloading function, 24VDC solenoid <sup>1)</sup>                               |
|      |   | K | Prop.-pilot valve type PVACRE...K35 mounted                                         |
|      |   | Z | Without integrated pilot valve, NG6 interface, for mounting of accessory code PVAC* |
|      |   | B | Without integrated pilot valve, without NG6 interface <sup>3)</sup>                 |
|      |   | P | MTZ with mounted pilot valve PVAC1P <sup>2)</sup>                                   |
|      |   | F | Prop.-pilot valve PVACRE*35T with OBE mounted, command signal 0 - 10V               |
|      |   | R | Prop.-pilot valve PVACRE*35T with OBE mounted, command signal 4 - 20 mA             |

- <sup>1)</sup> not for MT & \*Z  
<sup>2)</sup> only for MT & \*Z  
<sup>3)</sup> not for MT & MM

|      |   |   | Horse power / Torque control                                                                      |                |
|------|---|---|---------------------------------------------------------------------------------------------------|----------------|
| Code |   |   | Nominal HP at 1.500 rpm                                                                           | Nominal torque |
|      |   |   | 45 kW                                                                                             | 290 Nm         |
| U    |   |   | 55 kW                                                                                             | 350 Nm         |
| W    |   |   | 75 kW                                                                                             | 480 Nm         |
| Y    |   |   | 90 kW                                                                                             | 580 Nm         |
| Z    |   |   | 110 kW                                                                                            | 700 Nm         |
| 2    |   |   | 132 kW                                                                                            | 840 Nm         |
| 3    |   |   | 160 kW                                                                                            | 1020 Nm        |
| 4    |   |   | 180 kW                                                                                            | 1150 Nm        |
| 5    |   |   | 200 kW                                                                                            | 1280 Nm        |
| 6    |   |   |                                                                                                   |                |
|      |   |   | Function                                                                                          |                |
|      | L |   | Horse power control with pressure control <sup>4)</sup>                                           |                |
|      | C |   | Horse power control with load sensing (single spool)                                              |                |
|      | Z |   | Horse power control with two spool LS control                                                     |                |
|      |   |   | Control variation                                                                                 |                |
|      |   | C | Standard version, integrated pilot valve <sup>1)</sup>                                            |                |
|      |   | 1 | NG 6 interface top side for pilot valve                                                           |                |
|      |   | W | With unloading function, 24 VDC solenoid                                                          |                |
|      |   | K | Prop.-pilot valve type PVACRE...K35 mounted                                                       |                |
|      |   | Z | Without integrated pilot valve, NG6 interface, for mounting of accessory code PVAC* <sup>4)</sup> |                |
|      |   | B | Without integrated pilot valve, without NG6 interface <sup>1), 4)</sup>                           |                |
|      |   | P | *ZZ with mounted pilot valve PVAC1P <sup>2)</sup>                                                 |                |
|      |   | F | Prop.-pilot valve PVACRE*35T with OBE mounted, command signal 0 - 10V                             |                |
|      |   | R | Prop.-pilot valve PVACRE*35T with OBE mounted, command signal 4 - 20 mA                           |                |

**Remark:**  
As torque is pretty much speed independent power at alternative speeds can get recalculated to 1500 rpm for code selection easily.

**Example:**  
Your engine allows  
90 kW @ 1800 rpm →  
 $\frac{90 \text{ kW}}{1800 \text{ rpm}} \times 1500 \text{ rpm} = 75 \text{ kW}$

→ select a first digit  
"Y"-control.

<sup>4)</sup> control variation Z and B without pressure pilot

<sup>5)</sup> further info in  
MSG30-3254

| Code |   |   | Control option                                                                                                                                    |
|------|---|---|---------------------------------------------------------------------------------------------------------------------------------------------------|
|      |   |   | Electro hydraulic control <sup>5)</sup>                                                                                                           |
| F    | D | V | Proportional displacement control, no pressure compensation                                                                                       |
| U    | D |   | Proportional displacement control, with pressure compensation                                                                                     |
|      |   |   | Control variation                                                                                                                                 |
|      |   | R | pilot operated pressure control, open NG6 interface                                                                                               |
|      |   | K | pilot operated pressure control, proportional pilot valve type PVACRE...K35 mounted                                                               |
|      |   | M | pilot operated pressure control, pressure sensor and proportional pilot valve type PVACRE...K35 mounted for pressure control and/or power control |

# PRESSURE CONTROLS

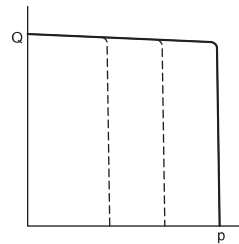
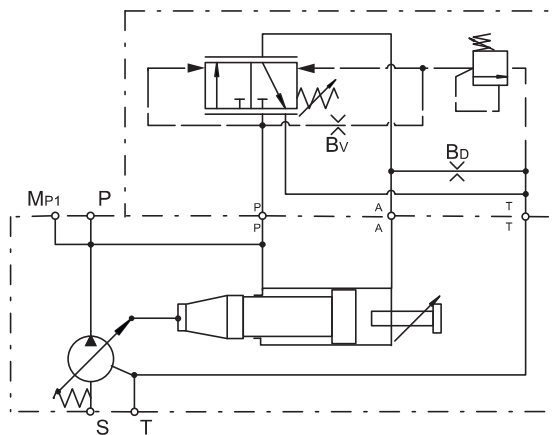
## Standard Pressure Control

### Control option MMC

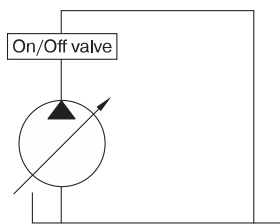
The standard pressure control adjusts the pump displacement according to the actual need of flow in the system in order to keep the pressure constant.

**Note:** Upgrade to the MRC control by simply removing the ISO 6149 M14x1.5-plug. Thread adapters PVCKK\*\* (last two digits defining seal and thread) are available separately if required. PVCKKN1 for ex. for NBR-sealed and towards G1/4 BSPP. Please consult spares list for all further versions.

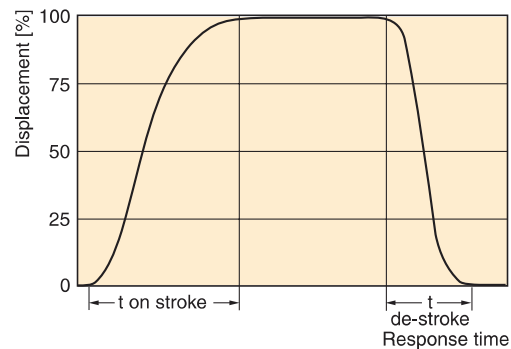
### Control schematics



Response times of the pump are collected from a circuit as below by measuring the pumps swash angle movement at different pressures.



### Dynamic characteristic of flow control \*



\* Curve shown exaggerated

|       | Time on-stroke [ms] |                 | Time de-stroke [ms] |                     |
|-------|---------------------|-----------------|---------------------|---------------------|
|       | against 50 bar      | against 350 bar | zero stroke 50 bar  | zero stroke 350 bar |
| PV360 | 520                 | 180             | 120                 | 82                  |

|                                        |                  |
|----------------------------------------|------------------|
| Pressure adjustment range              | 15 to 420 bar    |
| Factory setting pressure               | 50 bar           |
| Differential pressure adjustment range | 10 to 40 bar     |
| Factory setting differential pressure  | 15 bar           |
| Control oil consumption                | Max 8.0 l/min    |
| Typical pilot flow                     | approx 1.5 l/min |

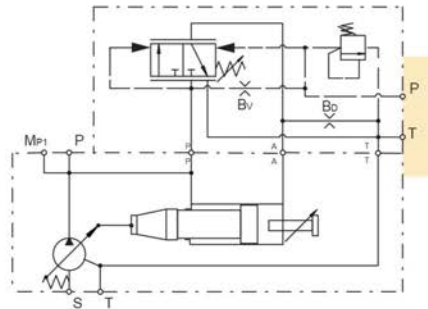
# PRESSURE CONTROLS

## Standard Pressure Control with NG6 Interface

### Control option MM1

With code MM1 the standard pressure control has a valve interface size NG 6 DIN 24340 (CETOP 03 acc. RP35H, NFPA D03) on the top side.

This interface allows the mounting of accessories like multiple pressure selectors without the need of external piping and valve mounting.

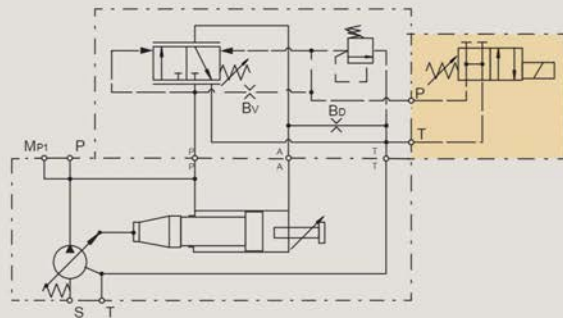


## Standard Pressure Control with Electrical Unloading

### Control option MMW

With code MMW a solenoid operated directional control valve (D1VW002KNJW) for electrical unloading is mounted on the control top side.

When the solenoid is de-energised, the pump compensates at a stand-by pressure of typically 15 bar. When the solenoid is energised, the pump compensates at the pressure adjusted on the integrated pilot valve.

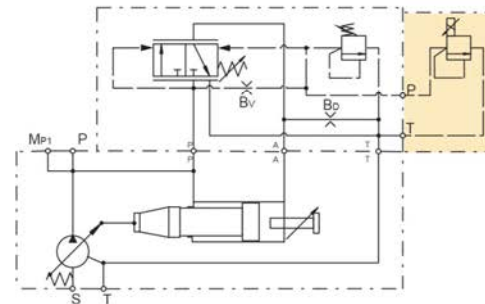


## Standard Pressure Control with Proportional Pilot Valve

### Control option MMK

With code MMK a proportional pilot valve of type PVACRE... K35 (see page 43) is mounted on the top side interface.

This allows a variation of the pump compensating pressure between 20 and 350 bar by an electrical signal.



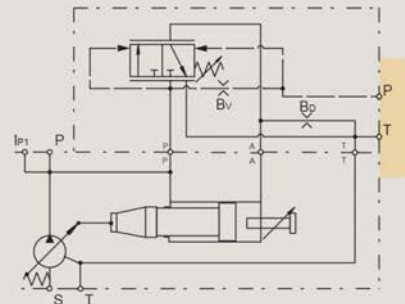
## Standard Pressure Control without Integrated Pressure Pilot Valve

### Control option MMZ

Control MMZ has no integrated pilot valve but a valve interface NG6 DIN 24340 on the top.

This version is recommended for valve accessories.

For operation at >350 bar please select respective valve accessories (see page 40)



# PRESSURE CONTROLS

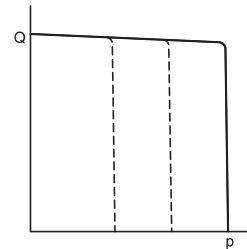
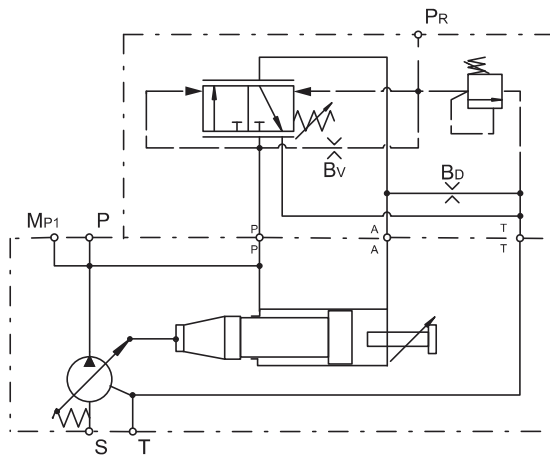
## Remote Pressure Control

### Control option MRC

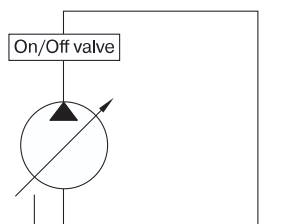
The remote pressure control adjusts the pump displacement according to the actual need of flow in the system

in order to keep the pressure constant at a level given by a remotely installed pilot valve.

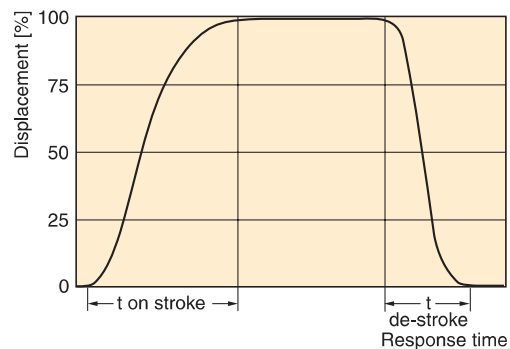
### Control schematics



Response times of the pump are collected from a circuit as below by measuring the pumps swash angle movement at different pressures.



### Dynamic characteristic of flow control \*



\* Curve shown exaggerated

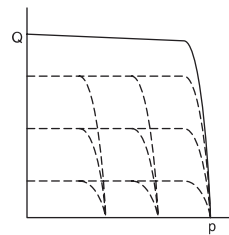
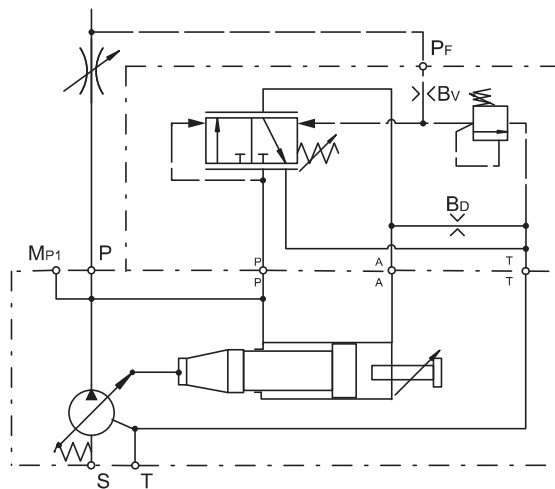
|       | Time on-stroke [ms] |                 | Time de-stroke [ms] |                     |
|-------|---------------------|-----------------|---------------------|---------------------|
|       | against 50 bar      | against 350 bar | zero stroke 50 bar  | zero stroke 350 bar |
| PV360 | 520                 | 180             | 120                 | 82                  |

|                                        |                  |
|----------------------------------------|------------------|
| Pressure adjustment range              | 15 to 420 bar    |
| Factory setting pressure               | 50 bar           |
| Differential pressure adjustment range | 10 to 40 bar     |
| Factory setting differential pressure  | 15 bar           |
| Control oil consumption                | Max 8.0 l/min    |
| Typical pilot flow                     | approx 1.5 l/min |

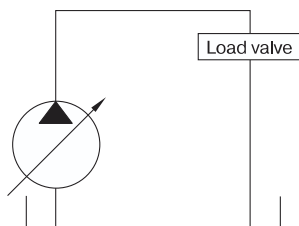


used to match pump flow to system demands. Integrated pilot valve allows pmax adjustment.

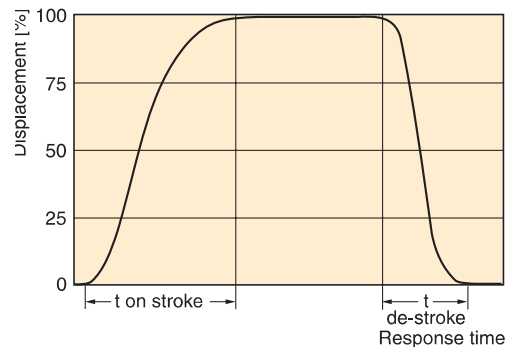
## Control schematics



Response times of the pump are collected from a circuit as below by measuring the pumps swash angle movement at different pressures.



### Dynamic characteristic of flow control \*



\* Curve shown exaggerated

|       | Time on-stroke [ms] |                     | Time de-stroke [ms] |                     |
|-------|---------------------|---------------------|---------------------|---------------------|
|       | stand-by to 50 bar  | stand-by to 350 bar | 50 bar to stand-by  | 350 bar to stand-by |
| PV360 | 500                 | 690                 | 830                 | 50                  |

|                                        |                  |
|----------------------------------------|------------------|
| Pressure adjustment range              | 15 to 420 bar    |
| Factory setting pressure               | 50 bar           |
| Differential pressure adjustment range | 10 to 40 bar     |
| Factory setting differential pressure  | 10 bar           |
| Control oil consumption                | Max 8.0 l/min    |
| Typical pilot flow                     | approx 1.5 l/min |

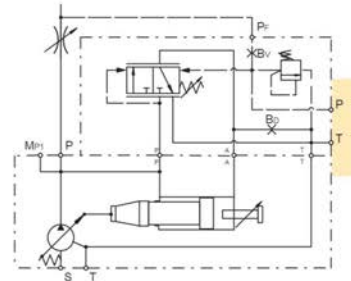
# LOAD SENSING CONTROLS

## Load Sensing Control with NG6 Interface

### Control option MF1

With code MF1 the remote pressure control has a valve interface size NG 6 DIN 24340 (CETOP 03 acc. RP35H, NFPA D03) on the top side.

This interface allows the mounting of accessories like multiple pressure selectors without the need of external piping and valve mounting.

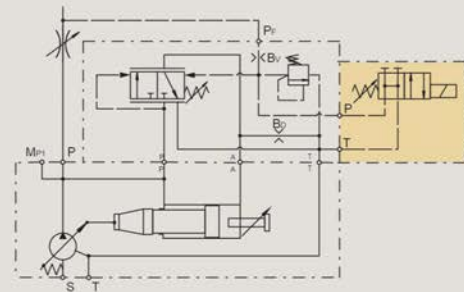


## Load Sensing Control with Electrical Unloading

### Control option MFW

With code MFW a solenoid operated directional control valve (D1VW002KNJW) for electrical unloading is mounted on the control top side.

When the solenoid is de-energised, the pump compensates at a stand-by pressure of typically 15 bar. When the solenoid is energised, the pump compensates at the pressure adjusted on the integrated pilot valve.

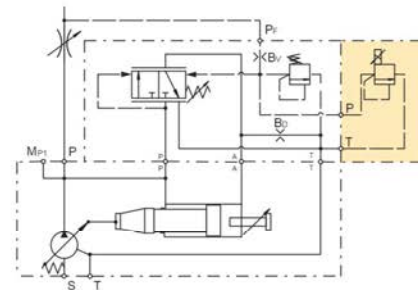


## Load Sensing Control with Proportional Pilot Valve

### Control option MFK

With code MFK a proportional pilot valve of type PVACRE...K35 (see page 43) is mounted on the top side interface.

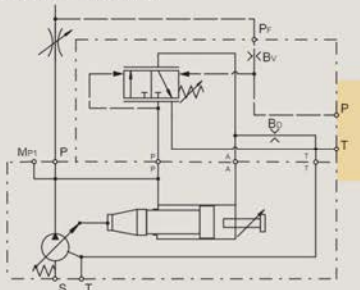
This allows a variation of the pump compensating pressure between 20 and 350 bar by an electrical signal.



## Load Sensing Control without Integrated Pressure Pilot Valve

### Control option MFZ

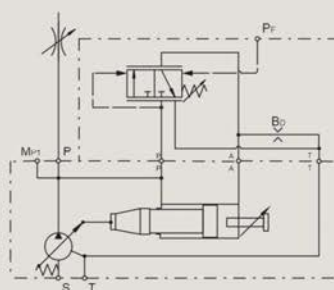
Control MFZ has no integrated pilot valve but a NG6 DIN 24340 interface topside.



This version is recommended for valve accessories.

### Control option MFB

Control MFB has no integrated pilot valve.



# LOAD SENSING CONTROLS

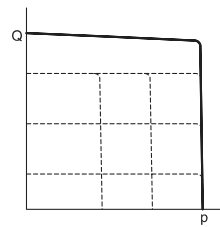
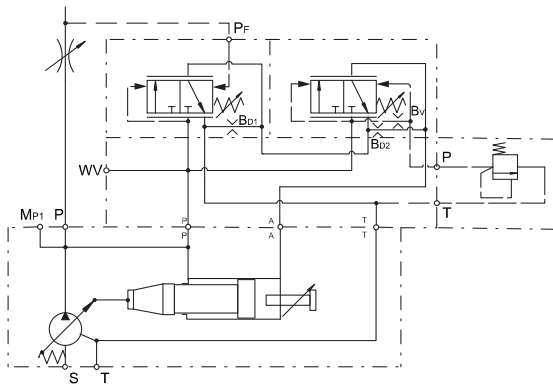
## 2 Spool Load Sensing Control

### Control option MTP

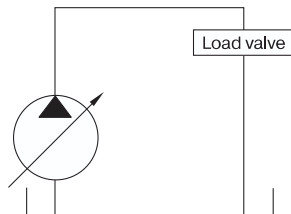
The pilot pressure of the load sensing control is taken from a load sensing port in the hydraulic system. It is used to match pump flow to system demands. With the 2

spool control the interaction of the two control functions is avoided by using two separate control valves for flow and pressure compensation.

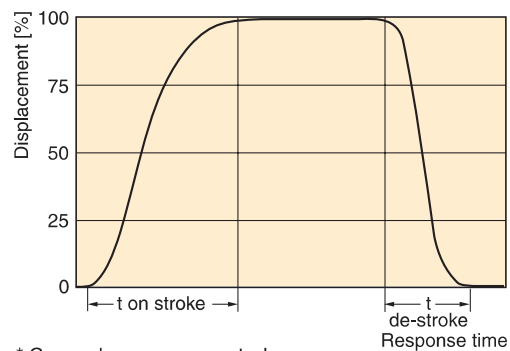
### Control schematics



Response times of the pump are collected from a circuit as below by measuring the pumps swash angle movement at different pressures.



### Dynamic characteristic of flow control \*



\* Curve shown exaggerated

|       | Time on-stroke [ms] |                     | Time de-stroke [ms] |                     |
|-------|---------------------|---------------------|---------------------|---------------------|
|       | stand-by to 50 bar  | stand-by to 350 bar | 50 bar to stand-by  | 350 bar to stand-by |
| PV360 | 920                 | 670                 | 1000                | 170                 |

|                                                         |                  |
|---------------------------------------------------------|------------------|
| Pressure adjustment range                               | 15 to 420 bar    |
| Factory setting pressure                                | 50 bar           |
| Differential pressure adjustment range                  | 10 to 40 bar     |
| Factory setting differential pressure load sensing      | 10 bar           |
| Factory setting differential pressure, pressure control | 15 bar           |
| Control oil consumption                                 | Max 8.0 l/min    |
| Typical pilot flow                                      | approx 1.5 l/min |

# LOAD SENSING CONTROLS

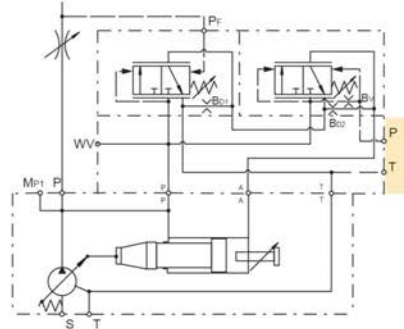
## 2 Spool Load Sensing Control with NG6 Interface without Integrated Pressure Pilot Valve

### Control option MTZ

Control MTZ has no integrated pressure pilot valve but NG 6 DIN 24340 (CETOP 03 acc. RP35H, NFPA D03) on the top side.

This interface allows the mounting of accessories like multiple pressure selectors without the need of external piping and valve mounting.

**Note:** The MT1 control option is not available for new releases as it is identical to the MTZ control.

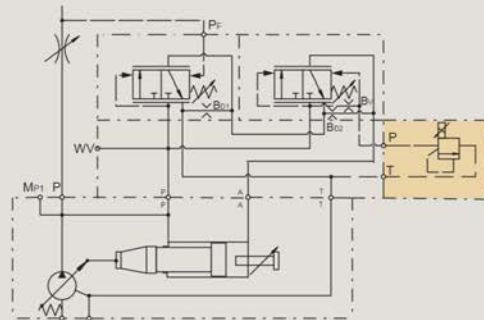


## 2 Spool Load Sensing Control with Proportional Pilot Valve

### Control option MTK

With code MTK a proportional pilot valve of type PVACRE...K35 (see page 43) is mounted on the top side interface.

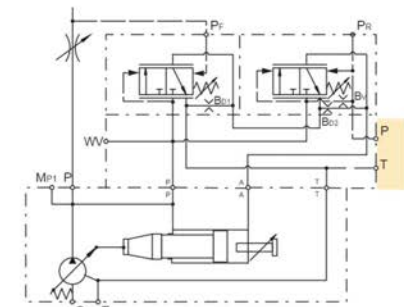
This allows a variation of the pump compensating pressure between 20 and 350 bar by an electrical signal.



## 2 Spool Load Sensing Control without Integrated Pressure Pilot Valve

### Control option MT2

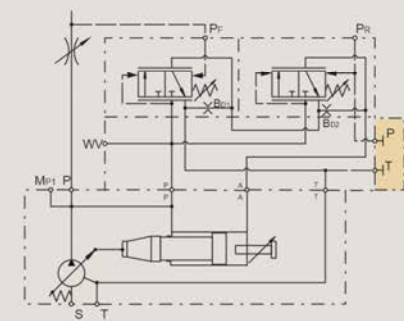
Control MT2 has a valve interface NG6 DIN 24340 on the top side and remote pressure port internal supply.



## 2 Spool Load Sensing Control without Integrated Pressure Pilot Valve

### Control option MT3

Control MT3 with pressure remote port external supply. Incl. closed NG6-pad.



# HORSE POWER/TORQUE CONTROLS

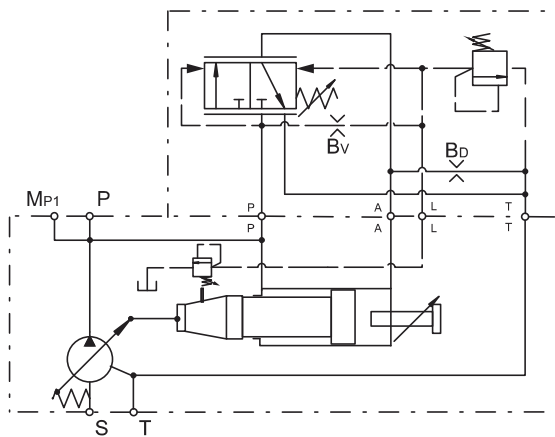
## Horse Power/Torque Controls with Pressure Control

### Control option \*LC

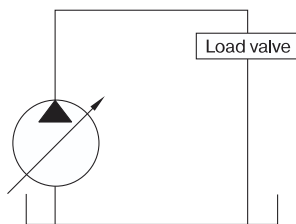
The horse power control type \*L\* provides the benefit of the pressure control, plus the ability to limit the input power the pump will draw. These controls are beneficial when the power available from the prime mover for the

hydraulics is limited or the application power demand has both high flow/low pressure and low flow/high pressure duty cycles.

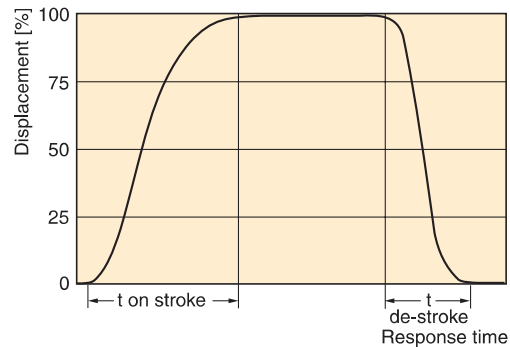
### Control schematics



Response times of the pump are collected from a circuit as below by measuring the pumps swash angle movement at different pressures.



### Dynamic characteristic of flow control \*



\* Curve shown exaggerated

|       | Time on-stroke [ms] |                 | Time de-stroke [ms] |                     |
|-------|---------------------|-----------------|---------------------|---------------------|
|       | against 50 bar      | against 350 bar | zero stroke 50 bar  | zero stroke 350 bar |
| PV360 | 90                  | 90              | 100                 | 100                 |

|                                        |                  |
|----------------------------------------|------------------|
| Pressure adjustment range              | 15 to 350 bar    |
| Factory setting pressure               | 350 bar          |
| Differential pressure adjustment range | 10 to 40 bar     |
| Factory setting differential pressure  | 15 bar           |
| Control oil consumption                | Max 8.0 l/min    |
| Typical pilot flow                     | approx 1.5 l/min |

See Horse Power characteristic curves on page 30



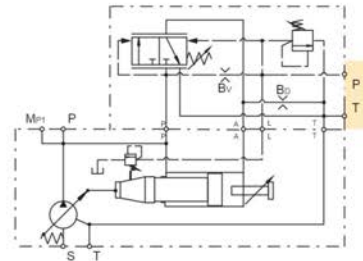
## HORSE POWER/TORQUE CONTROLS

### Horse Power/Torque Control with NG6 Interface

#### Control option \*L1

With code \*L1 the horse power control has a valve interface size NG 6 DIN 24340 (CETOP 03 acc. RP35H, NFPA D03) on the top side.

This interface allows the mounting of accessories like multiple pressure selectors without the need of external piping and valve mounting.

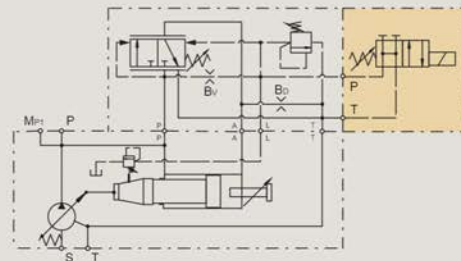


### Horse Power/Torque Control with Electrical Unloading

#### Control option \*LW

With code \*LW a solenoid operated directional control valve (D1VW002KNJW) for electrical unloading is mounted on the control top side.

When the solenoid is de-energised, the pump compensates at a stand-by pressure of typically 15 bar. When the solenoid is energised, the pump compensates at the pressure adjusted on the integrated pilot valve.

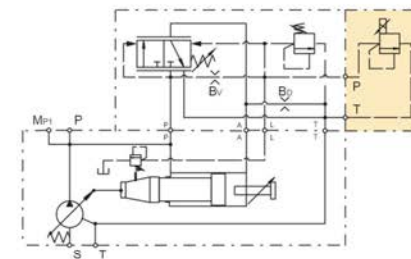


### Horse Power/Torque Control with Proportional Pilot Valve

#### Control option \*LK

With code \*LK a proportional pilot valve of type PVACRE... K35 (see page 43) is mounted on the top side interface.

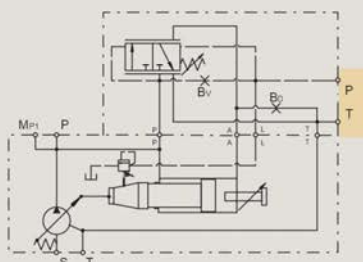
This allows a variation of the pump compensating pressure between 20 and 350 bar by an electrical signal.



### Horse Power/Torque Control without Integrated Pressure Pilot Valve

#### Control option \*LZ

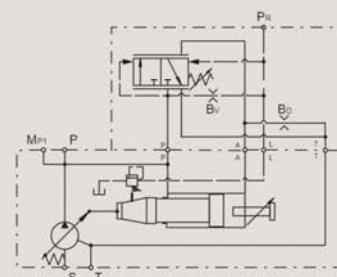
Control \*LZ has no integrated pilot valve but a NG6 DIN 24340 interface topside.



This version is recommended for valve accessories.

#### Control option \*LB

Control \*LB has no integrated pilot valve.



# HORSE POWER/TORQUE CONTROLS

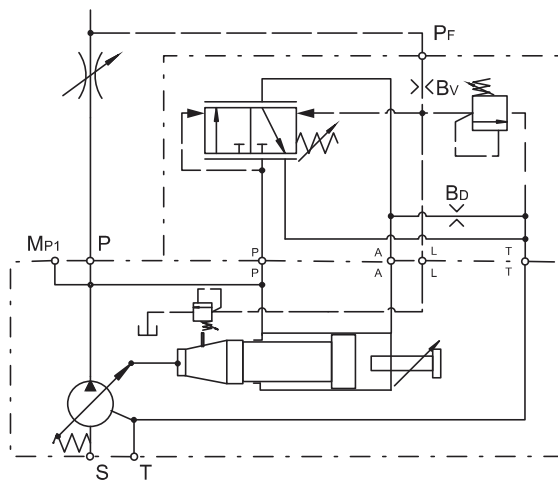
## Horse Power/Torque Controls with Load Sensing

### Control option \*CC

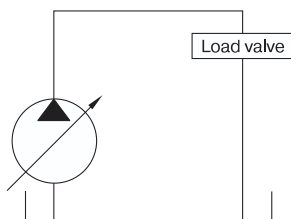
The horse power control type \*C\* provides the benefit of the load sensing control, plus the ability to limit the input power the pump will draw. These controls are beneficial when the power available from the prime mover for the

hydraulics is limited or the application power demand has both high flow/low pressure and low flow/high pressure duty cycles.

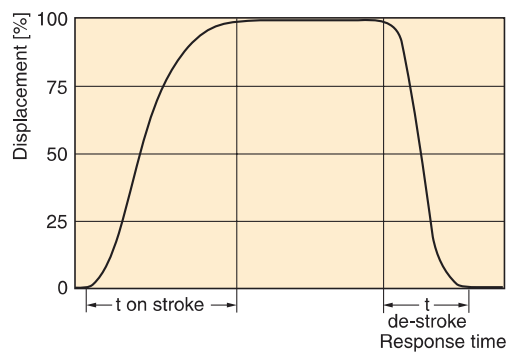
### Control schematics



Response times of the pump are collected from a circuit as below by measuring the pumps swash angle movement at different pressures.



### Dynamic characteristic of flow control \*



\* Curve shown exaggerated

|       | Time on-stroke [ms] |                     | Time de-stroke [ms] |                     |
|-------|---------------------|---------------------|---------------------|---------------------|
|       | stand-by to 50 bar  | stand-by to 350 bar | 50 bar to stand-by  | 350 bar to stand-by |
| PV360 | 90                  | 90                  | 100                 | 100                 |

|                                        |                  |
|----------------------------------------|------------------|
| Pressure adjustment range              | 15 to 350 bar    |
| Factory setting pressure               | 350 bar          |
| Differential pressure adjustment range | 10 to 40 bar     |
| Factory setting differential pressure  | 15 bar           |
| Control oil consumption                | Max 8.0 l/min    |
| Typical pilot flow                     | approx 1.5 l/min |

See Horse Power characteristic curves on page 30

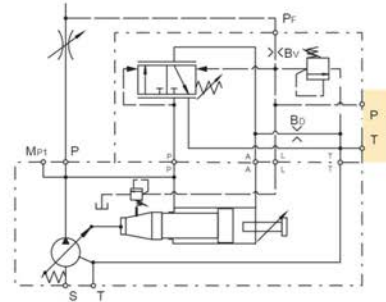
# HORSE POWER/TORQUE CONTROLS

## Horse Power/Torque Control with Load Sensing & NG6 Interface

### Control option \*C1

With code \*C1 the horse power control has a valve interface size NG 6 DIN 24340 (CETOP 03 acc. RP35H, NFPA D03) on the top side.

This interface allows the mounting of accessories like multiple pressure selectors without the need of external piping and valve mounting.

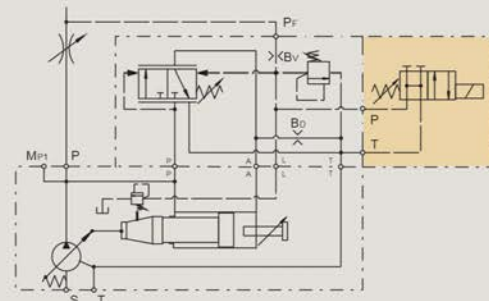


## Horse Power/Torque Control with Load Sensing & Electrical Unloading

### Control option \*CW

With code \*CW a solenoid operated directional control valve (D1VW002KNJW) for electrical unloading is mounted on the control top side.

When the solenoid is de-energised, the pump compensates at a stand-by pressure of typically 15 bar. When the solenoid is energised, the pump compensates at the pressure adjusted on the integrated pilot valve.

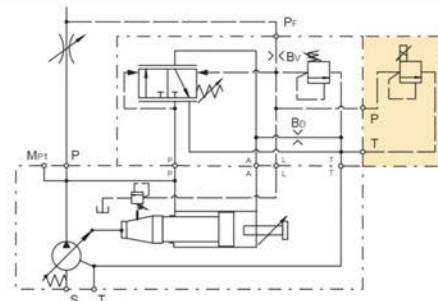


## Horse Power/Torque Control with Load Sensing & Proportional Valve

### Control option \*CK

With code \*CK a proportional pilot valve of type PVACRE...K35 (see page 43) is mounted on the top side interface.

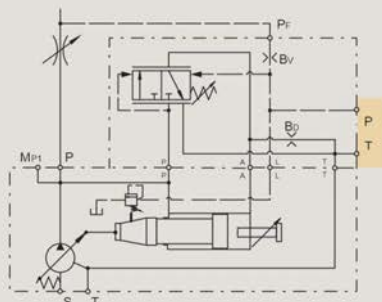
This allows a variation of the pump compensating pressure between 20 and 350 bar by an electrical signal.



## Horse Power/Torque Control with Load Sensing without Integrated Pilot Valve

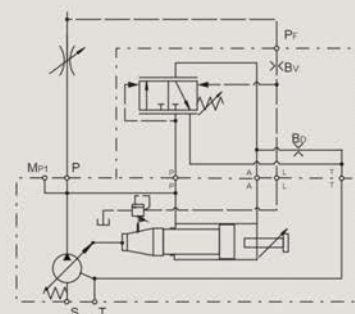
### Control option \*CZ

Control \*CZ has no integrated pilot valve but NG6 DIN 24340 interface topside.



### Control option \*CB

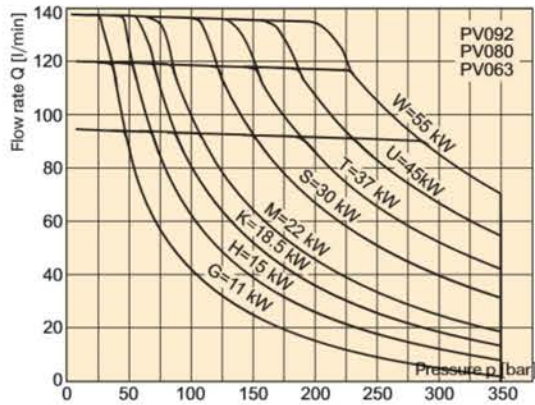
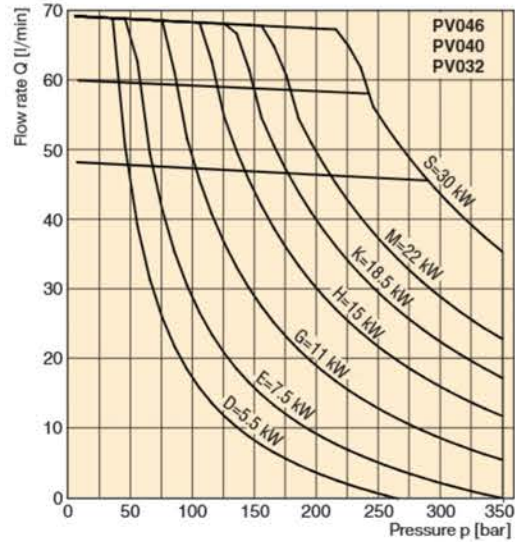
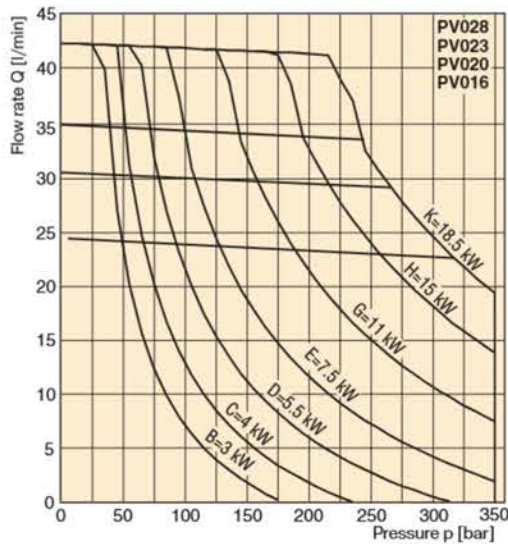
Control \*CB has no integrated pilot valve.





## PERFORMANCE CURVES

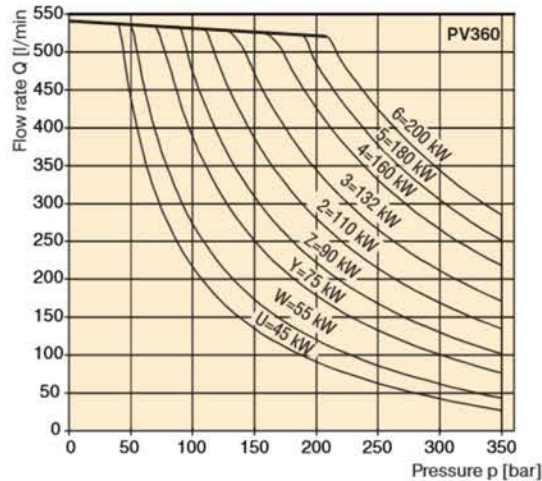
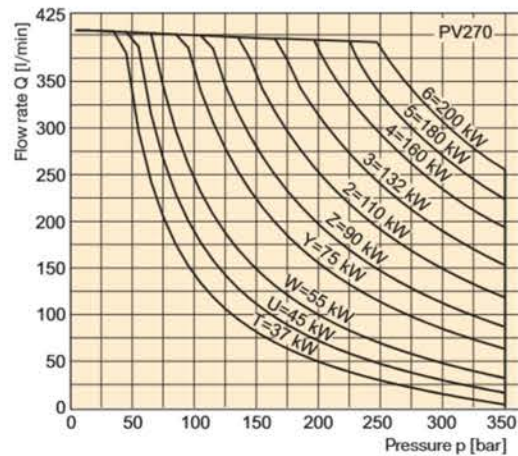
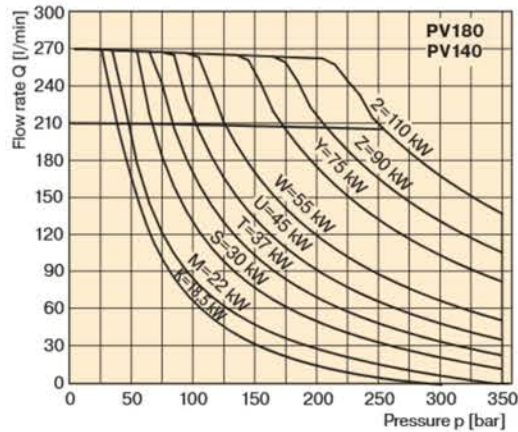
### Typical Horse Power/Torque Control Characteristics





## PERFORMANCE CURVES

### Typical Horse Power/Torque Control Characteristics



Speed :  $n = 1500 \text{ rev/min}$   
 Temperature :  $t = 50^\circ\text{C}$   
 Fluid : HLP, ISO VG46  
 Viscosity :  $\nu = 46 \text{ mm}^2/\text{s}$  at  $40^\circ\text{C}$   
 Pressure : Maximum 350 bar, depending on HP level

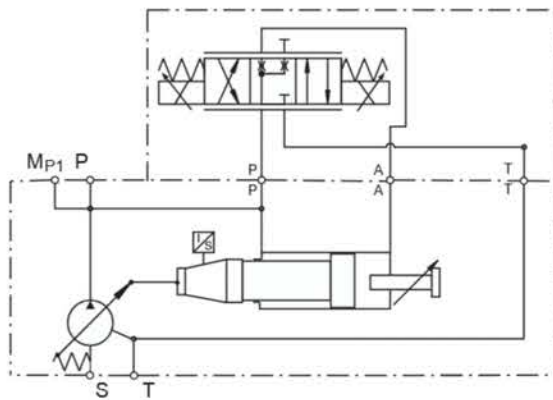
# ELECTRONIC P/Q CONTROLS

## Proportional Displacement Control

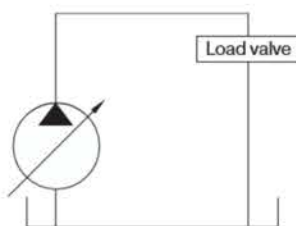
### Control option FDV

The proportional displacement control allows the adjustment of the pump's output flow by an electrical input signal. The actual displacement of the pump is monitored by an electronic displacement sensor and compared with the commanded displacement in an electronic control module PQDXXA-Z10. The command is given as an electrical input signal (0 – 10 V alternatively 4 – 20 mA) from the supervising machine control or a potentiometer.

### Control schematics



Response times of the pump are collected from a circuit as below by measuring the pumps swash angle movement at different pressures.



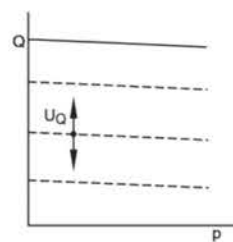
|       | Time on-stroke [ms] |                     | Time de-stroke [ms] |                     |
|-------|---------------------|---------------------|---------------------|---------------------|
|       | stand-by to 50 bar  | stand-by to 350 bar | 50 bar to stand-by  | 350 bar to stand-by |
| PV360 | 255                 | 154                 | 266                 | 183                 |

|                                          |               |
|------------------------------------------|---------------|
| Pressure adjustment range*               | 35 to 350 bar |
| Differential pressure adjustment range * | 10 to 40 bar  |
| Factory setting differential pressure *  | 15 bar        |
| Control oil consumption (FDV only)       | Max 0.3 l/min |

\* Data valid for UD\* version

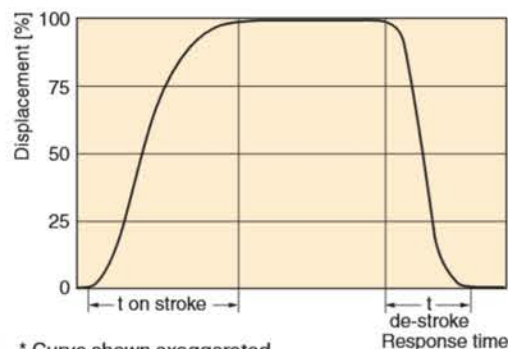
Version FDV of the proportional control does not provide pressure compensation. Therefore the hydraulic circuit must be protected by a pressure relief valve.

**New CIP-Sensor**  
(contactless inductive position) eliminates drift due to wear and any manual sensor adjustments.



FDV included

### Dynamic characteristic of flow control \*



\* Curve shown exaggerated

| Internal pilot pressure required to control the pump |        |
|------------------------------------------------------|--------|
| FDV                                                  | 15 bar |
| UDR                                                  | 25 bar |
| UDK                                                  | 25 bar |
| UDM                                                  | 25 bar |

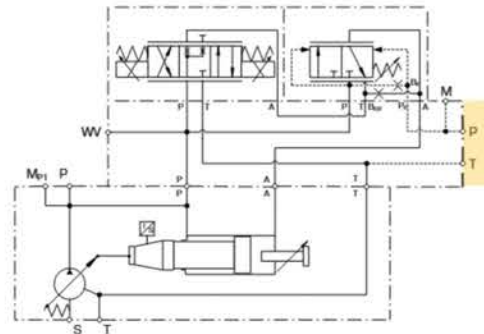
# ELECTRONIC P/Q CONTROLS

## Proportional Displacement Control with Overriding Pressure Control

### Control option UDR without pressure relief pilot valve

Control version UDR provides electro-hydraulic displacement control and pressure stage mounted on an elbow manifold.

The elbow manifold provides NG6/D03 interface on top to mount a pressure pilot valve (not included in UDR).

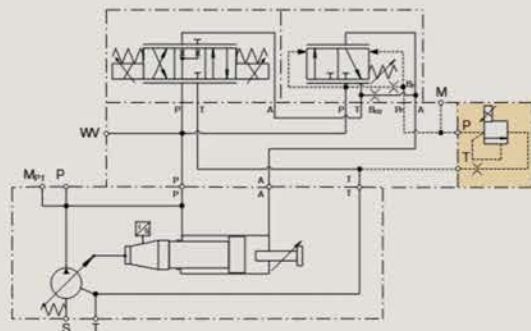


## Proportional Displacement Control with Proportional Pressure Control

### Control option UDK

Control version UDK features proportional pressure pilot valve PVACRE...K35, which enables for electro-hydraulic p/Q control.

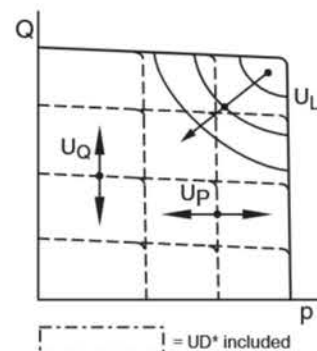
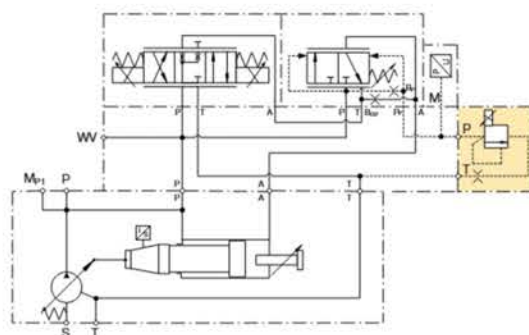
By using the digital module PQDXXA-Z10 it is possible to control the displacement proportionally with overriding open loop proportional pressure control.



## Proportional Displacement Control with Closed Loop Pressure Control

### Control option UDM

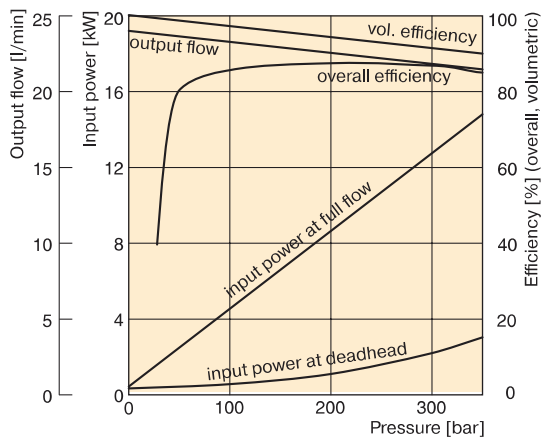
Control version UDM includes pressure transducer Parker SCP 8181 CE. In combination with control module PQDXXA-Z10 both closed loop pressure control as well as electronic power limitation can be realized.



# EFFICIENCY & CASE DRAIN FLOWS

## Efficiency, power consumption

### PV016



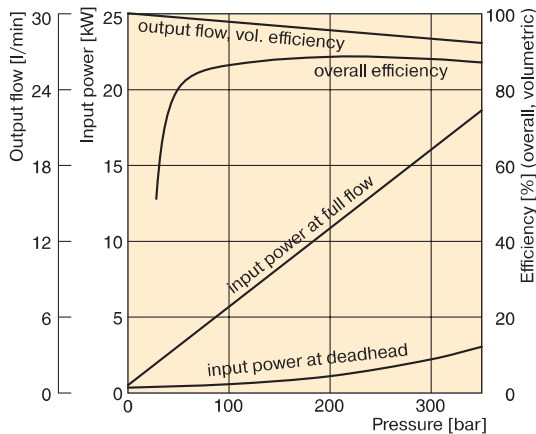
## Efficiency and case drain flows PV016, PV020, PV023 and PV028

The efficiency and power graphs are measured at an input speed of  $n = 1500$  rpm, a temperature of  $50^\circ\text{C}$  and a fluid viscosity of  $30\text{ mm}^2/\text{s}$ .

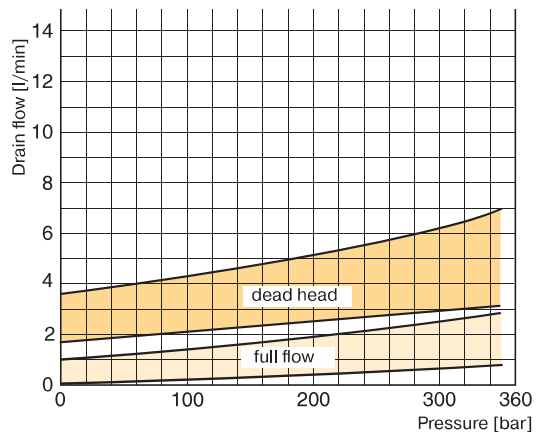
Case drain flow and compensator control flow leave via the drain port of the pump. To the values shown are to be added 1 to 1.2 l/min, if at pilot operated compensators the control flow of the pressure pilot valve also goes through the pump.

**Please note:** The values shown below are only valid for static operation. Under dynamic conditions and at rapid compensation of the pump the volume displaced by the servo piston also leaves the case drain port. This dynamic control flow can reach up to 40 l/min! Therefore the case drain line is to lead to the reservoir at full size and without restrictions as short and direct as possible.

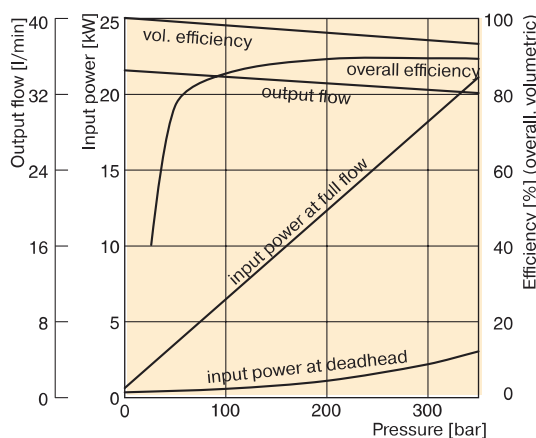
### PV020



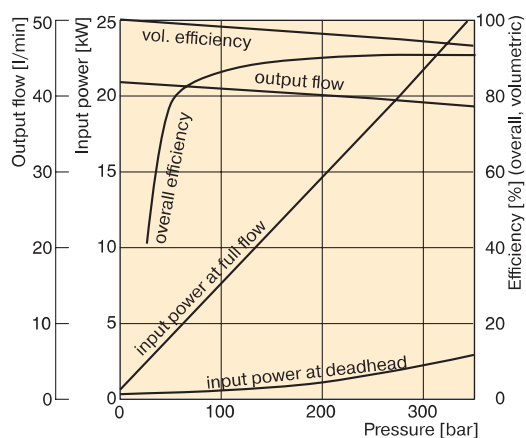
## Case drain flow PV016-028 with pressure compensator



### PV023



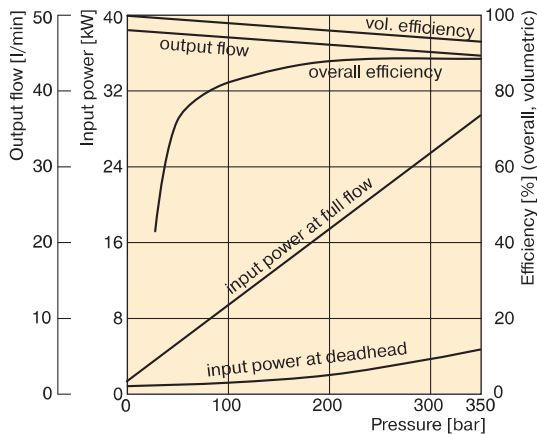
### PV028



# EFFICIENCY & CASE DRAIN FLOWS

## Efficiency, power consumption

### PV032



## Efficiency and case drain flows

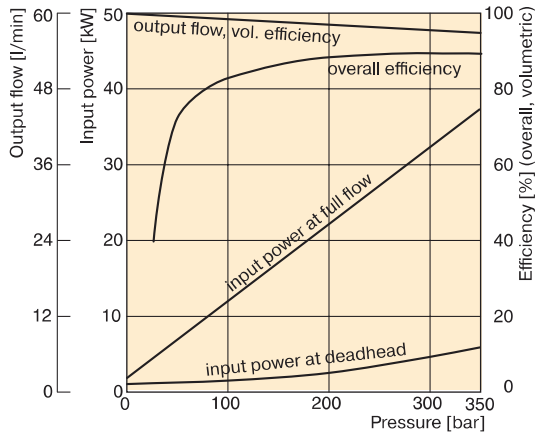
### PV032 to PV046

The efficiency and power graphs are measured at an input speed of  $n = 1500 \text{ rpm}$ , a temperature of  $50^\circ\text{C}$  and a fluid viscosity of  $30 \text{ mm}^2/\text{s}$ .

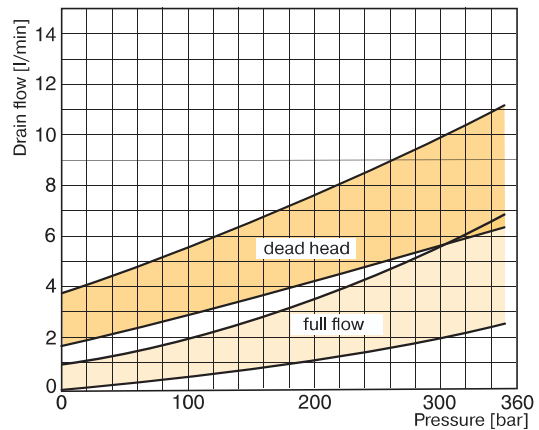
Case drain flow and compensator control flow leave via the drain port of the pump. To the values shown are to be added 1 to 1.2 l/min, if at pilot operated compensators the control flow of the pressure pilot valve also goes through the pump.

**Please note:** The values shown below are only valid for static operation. Under dynamic conditions and at rapid compensation of the pump the volume displaced by the servo piston also leaves the case drain port. This dynamic control flow can reach up to 60 l/min! Therefore the case drain line is to lead to the reservoir at full size and without restrictions as short and direct as possible.

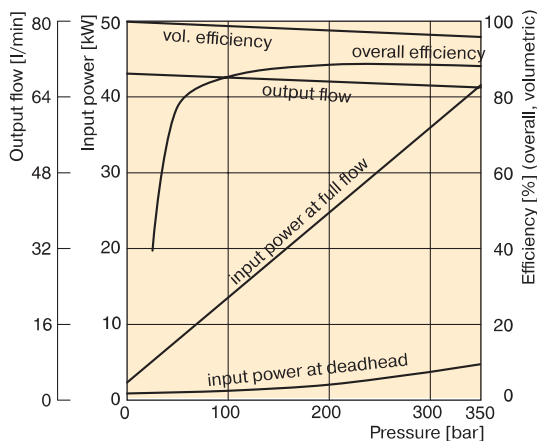
### PV040



## Case drain flow PV032-046 with pressure compensator



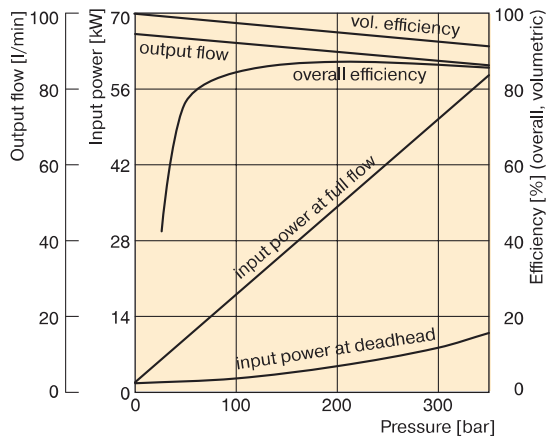
### PV046



# EFFICIENCY & CASE DRAIN FLOWS

## Efficiency, power consumption

### PV063



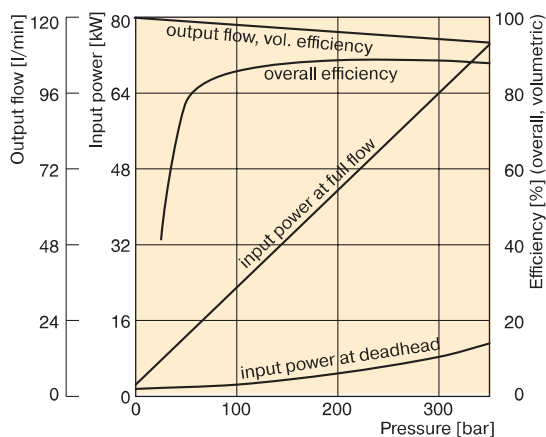
## Efficiency and case drain flows PV063, PV080, PV092

The efficiency and power graphs are measured at an input speed of  $n = 1500$  rpm, a temperature of  $50^\circ\text{C}$  and a fluid viscosity of  $30\text{ mm}^2/\text{s}$ .

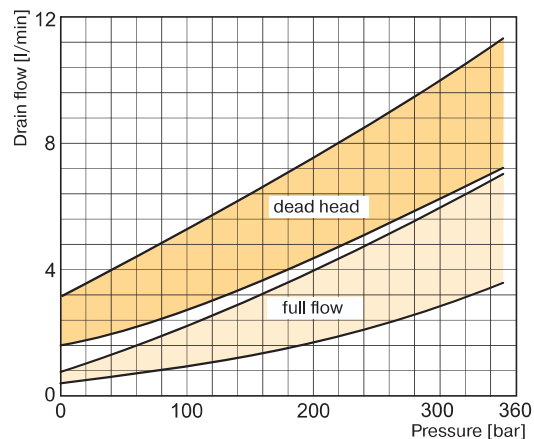
Case drain flow and compensator control flow leave via the drain port of the pump. To the values shown are to be added 1 to 1.2 l/min, if at pilot operated compensators the control flow of the pressure pilot valve also goes through the pump.

**Please note:** The values shown below are only valid for static operation. Under dynamic conditions and at rapid compensation of the pump the volume displaced by the servo piston also leaves the case drain port. This dynamic control flow can reach up to 80 l/min! Therefore the case drain line is to lead to the reservoir at full size and without restrictions as short and direct as possible.

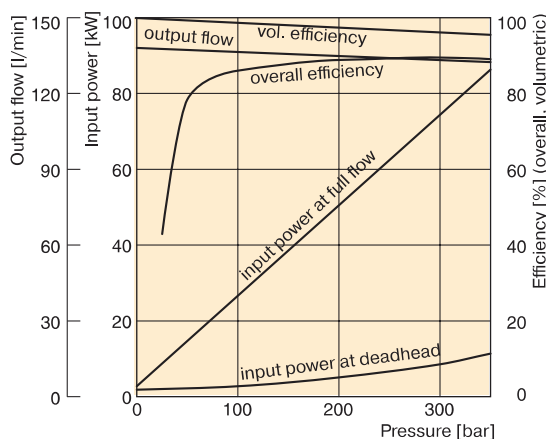
### PV080



## Case drain flows PV063-092



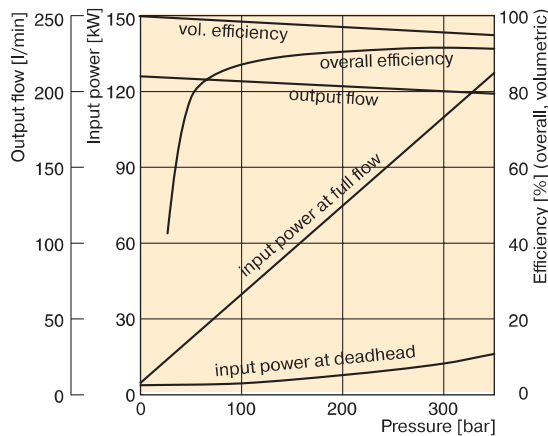
### PV092



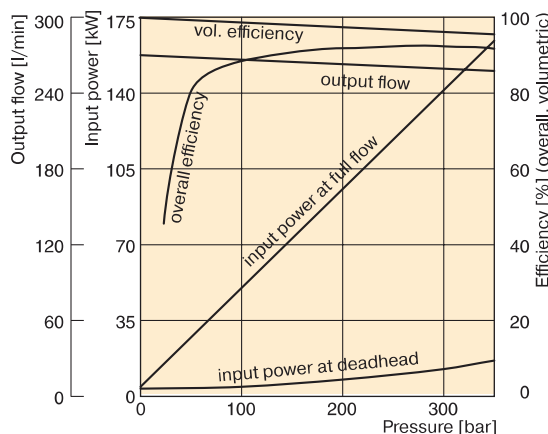
# EFFICIENCY & CASE DRAIN FLOWS

## Efficiency, power consumption

### PV140



### PV180



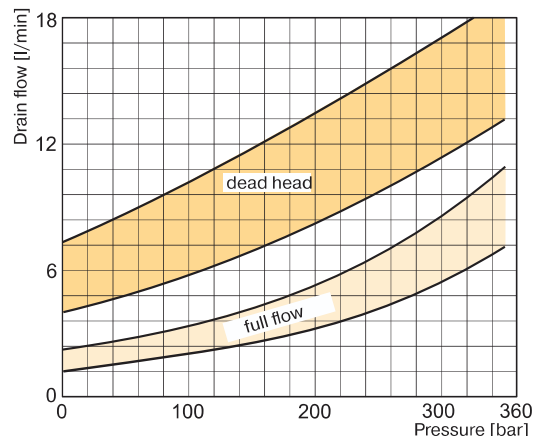
## Efficiency and case drain flows PV140, PV180

The efficiency and power graphs are measured at an input speed of  $n = 1500$  rpm, a temperature of  $50^\circ\text{C}$  and a fluid viscosity of  $30\text{ mm}^2/\text{s}$ .

Case drain flow and compensator control flow leave via the drain port of the pump. To the values shown are to be added 1 to 1.2 l/min, if at pilot operated compensators the control flow of the pressure pilot valve also goes through the pump.

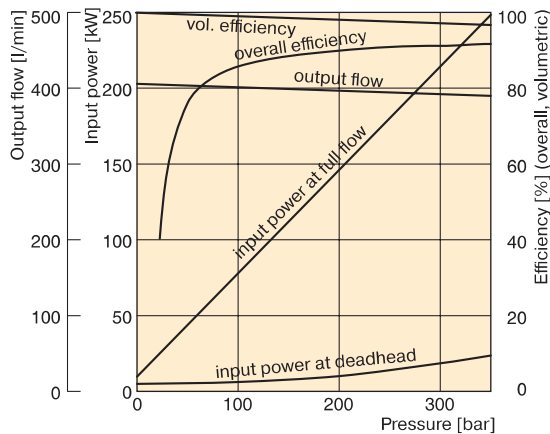
**Please note:** The values shown below are only valid for static operation. Under dynamic conditions and at rapid compensation of the pump the volume displaced by the servo piston also leaves the case drain port. This dynamic control flow can reach up to 120 l/min! Therefore the case drain line is to lead to the reservoir at full size and without restrictions as short and direct as possible.

## Case drain flows PV140-180

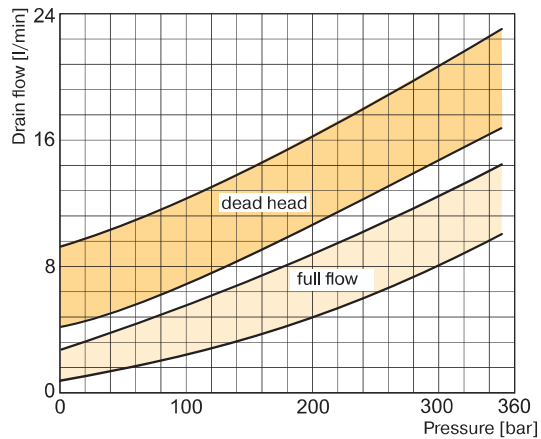


# EFFICIENCY & CASE DRAIN FLOWS

## Efficiency, power consumption PV270



## Case drain flows PV270



## Efficiency and case drain flows PV270

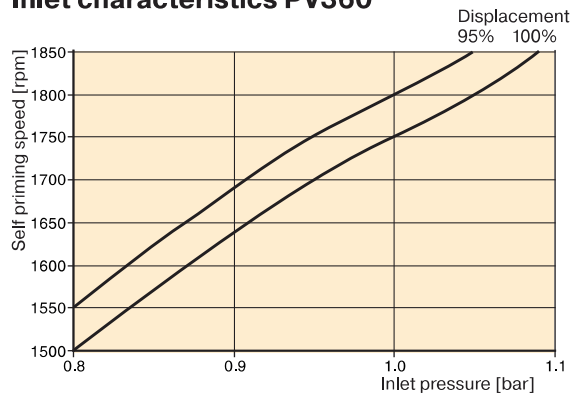
The efficiency and power graphs are measured at an input speed of  $n = 1500$  rpm, a temperature of  $50^\circ\text{C}$  and a fluid viscosity of  $30\text{ mm}^2/\text{s}$ .

Case drain flow and compensator control flow leave via the drain port of the pump. To the values shown are to be added 1 to 1.2 l/min, if at pilot operated compensators the control flow of the pressure pilot valve also goes through the pump.

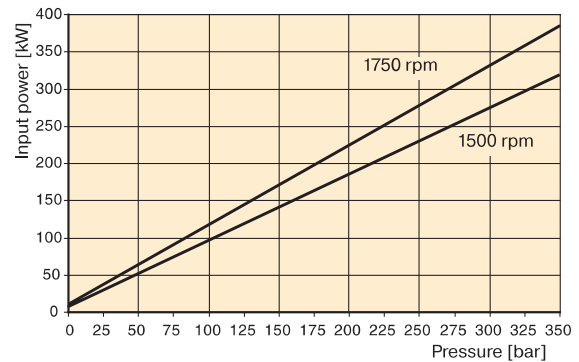
**Please note:** The values shown below are only valid for static operation. Under dynamic conditions and at rapid compensation of the pump the volume displaced by the servo piston also leaves the case drain port. This dynamic control flow can reach up to 120 l/min! Therefore the case drain line is to lead to the reservoir at full size and without restrictions as short and direct as possible.

# PERFORMANCE CURVES

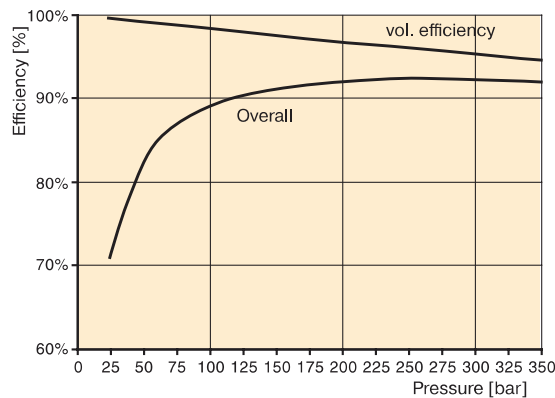
**Typical inlet characteristics vs. speed at various percentage displacements**  
**Inlet characteristics PV360**



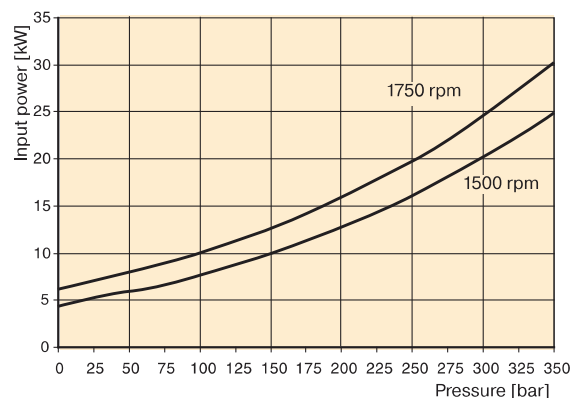
**Typical drive power at full displacement**  
**Input power – full stroke PV360**



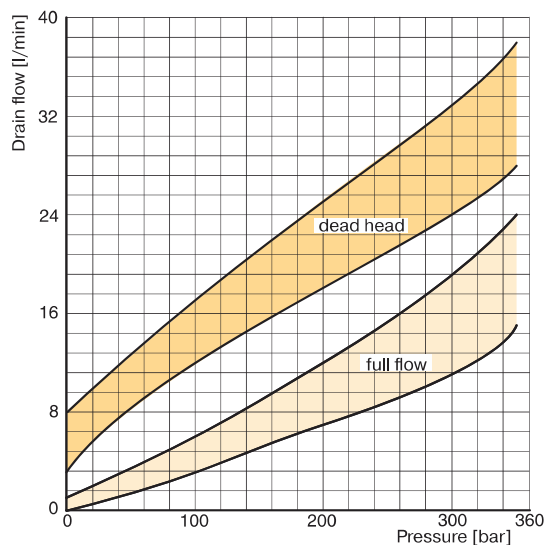
**Typical efficiency at full displacement and 1500 rpm PV360**



**Typical compensated power**  
**Input power – zero stroke PV360**



**Case drain flows PV360**



The curves show typical characteristics measured under following conditions:  
Fluid: Mineral oil ISO VG 22 at 32 °C  
Inlet pressure 1,0 bar (absolute), measured at inlet port.

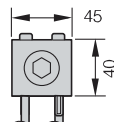
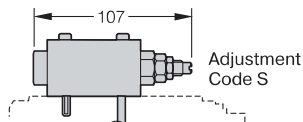
# ACCESSORIES CONTROL

| PV                 | AC                                                               |             |                       |                |             |                       |          |                      |                              |
|--------------------|------------------------------------------------------------------|-------------|-----------------------|----------------|-------------|-----------------------|----------|----------------------|------------------------------|
| For PV pump series | Accessories for controls                                         | Function    | Mounting bolts        | Threads        | Seals       | Adjustment            | Solenoid | Solenoid accessories | Nominal pressure             |
| <b>Code</b>        | <b>Function</b>                                                  |             | <b>Code</b>           | <b>Threads</b> | <b>Code</b> | <b>Seals</b>          |          | <b>Code</b>          | <b>Nominal pressure</b>      |
| 1P                 | Max. pressure relief                                             |             | M                     | Metric         |             |                       |          | 35                   | 350 bar                      |
| 1E                 | 1 pressure, electrical unloading stand by default                |             | -                     | without bolts  |             |                       |          | 42                   | 420 bar                      |
| 2P                 | 2 pressures, electrical selection                                |             |                       |                | <b>Code</b> | <b>Seals</b>          |          | <b>Code</b>          | <b>Solenoid accessories</b>  |
| 2E                 | 2 pressures + stand by electrical selection low pressure default |             |                       |                | N           | NBR                   |          | omit                 | For function 1P              |
| 2M                 | 2 pressures + stand by electrical selection stand by default     |             |                       |                | V           | FPM                   |          | W                    | DIN plug socket without plug |
|                    |                                                                  | <b>Code</b> | <b>Mounting bolts</b> |                | <b>Code</b> | <b>Adjustment</b>     |          | <b>Code</b>          | <b>Solenoid voltage</b>      |
|                    |                                                                  | C           | For single controls   |                | S           | Spindle with lock nut |          | omit                 | For function 1P              |
|                    |                                                                  | S           | Without bolts         |                |             |                       |          | Y                    | 110V/50Hz – 120V/60Hz        |
|                    |                                                                  | M           | For code UD*/MT*      |                |             |                       |          | T                    | 220V/50Hz – 240V/60Hz        |
|                    |                                                                  |             |                       |                |             |                       |          | J                    | 24V DC                       |

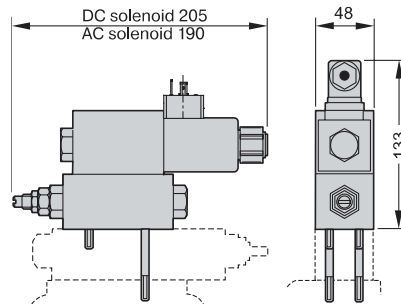
**Warning:** Risk of damaging bolt holes! Prior design series will need UNC bolts for pumps with threadcode "3".

## Dimensions

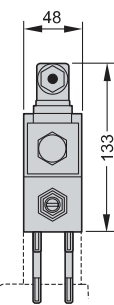
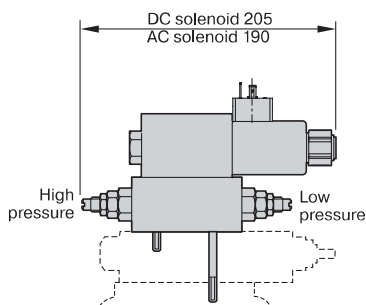
### PVAC1P\*



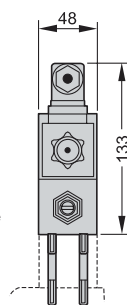
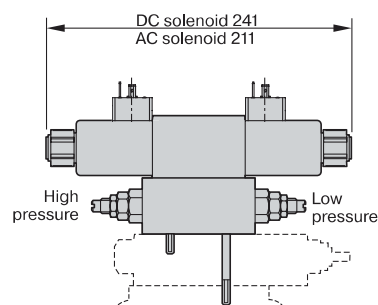
### PVAC1E\*



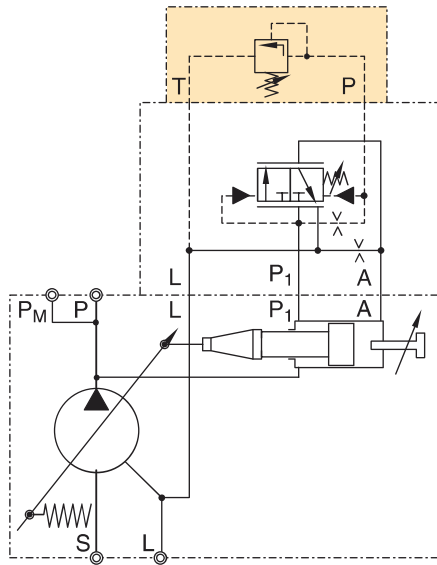
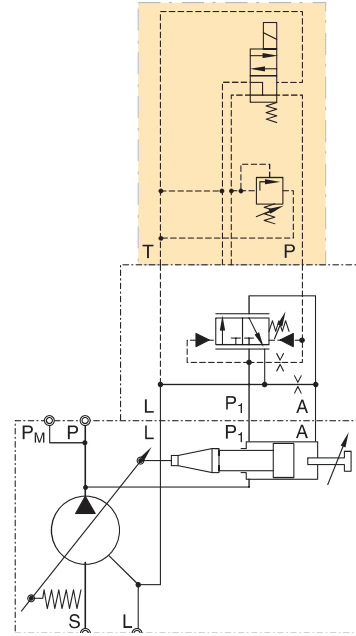
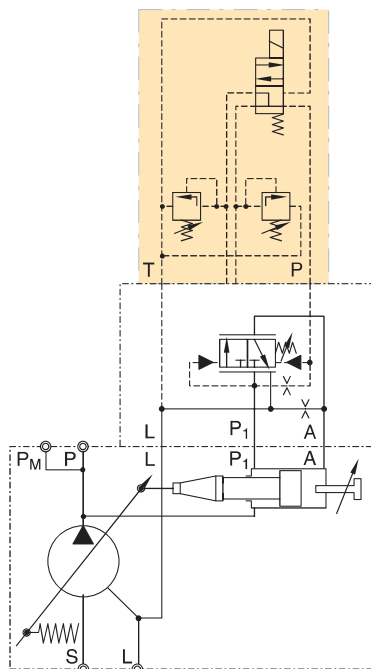
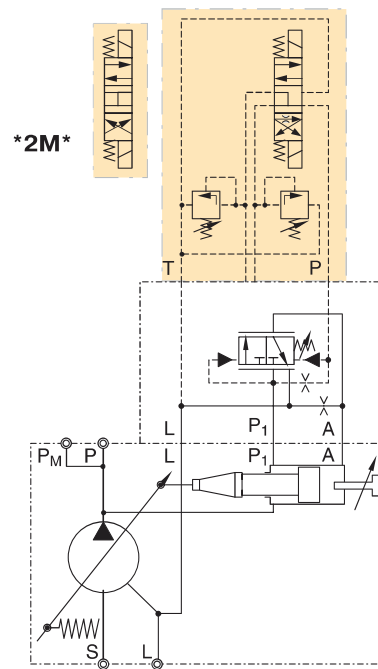
### PVAC2P\*



### PVAC2M\*/PVAC2E\*



# ACCESSORIES CONTROL

**Schematics PVAC1P\***

**Schematics PVAC1E\***

**Schematics PVAC2P\***

**Schematics PVAC2M\*/PVAC2E\***


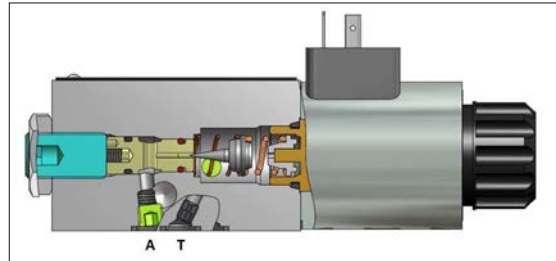
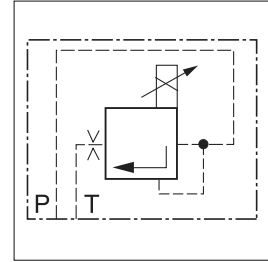
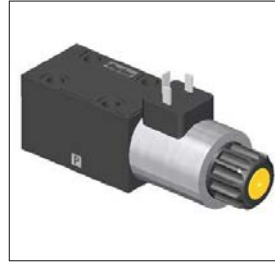
# PROPORTIONAL PRESSURE RELIEF VALVE PVACRE\*

## Proportional pressure relief valve PVACRE\*

The pressure relief valve PVACRE\* is a direct operated proportional valve, which is typically used for a remote pressure control.

### Function

When the pressure in port P exceeds the pressure setting at the solenoid, the cone opens to port T and limits the pressure in port P to the adjusted level. The optimum performance can be achieved in combination with the digital amplifier module PCD00A-400.

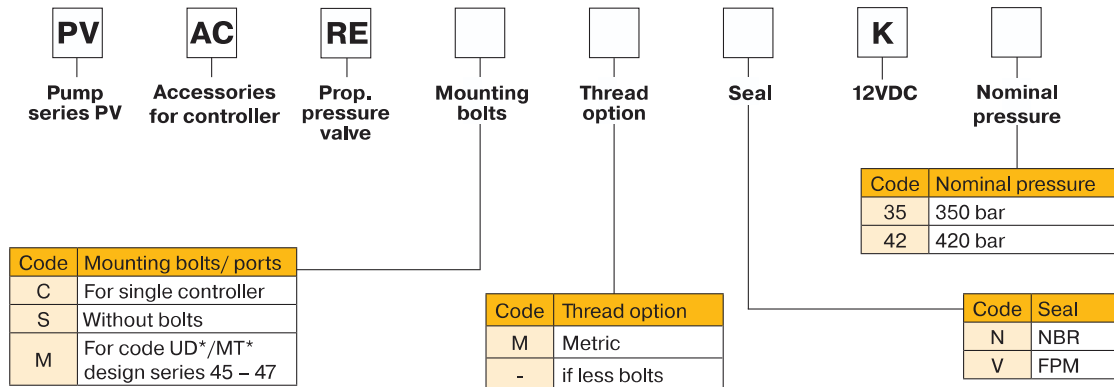


### Technical data

| General                          |                 |                                                                                     |
|----------------------------------|-----------------|-------------------------------------------------------------------------------------|
| Nominal size                     |                 | DIN NG06 / CETOP03 / NFPA D03                                                       |
| Mounting position                |                 | as desired, horizontal mounting preferred                                           |
| Ambient temperature              | [°C]            | -20 ... +70                                                                         |
| Weight                           | [kg]            | 1.8                                                                                 |
| Hydraulic                        |                 |                                                                                     |
| Max. operating pressure          | [bar]           | Port P up to 420; port T depressurized                                              |
| Pressure stages                  | [bar]           | 350, 420                                                                            |
| Fluid                            |                 | Hydraulic oil as per DIN 51524 ... 525                                              |
| Viscosity, recommended permitted | [cSt] / [mm²/s] | 30 ... 80                                                                           |
|                                  | [cSt] / [mm²/s] | 12 ... 380                                                                          |
| Fluid temperature                | [°C]            | -20 ... +60                                                                         |
| Filtration                       |                 | ISO 4406 (1999), 18/16/13                                                           |
| Linearity                        | [%]             | ±4                                                                                  |
| Repeatability                    | [%]             | ±2                                                                                  |
| Hysteresis                       | [%]             | ±4.5 of p <sub>max</sub>                                                            |
| Electrical                       |                 |                                                                                     |
| Duty ratio                       | [%]             | 100 ED                                                                              |
| Protection class                 |                 | IP 65 in accordance with EN 60529 (plugged and mounted)                             |
| Nominal voltage                  | [V]             | 12 (2.2 A for nominal pressure)                                                     |
| Coil resistance                  | [Ohm]           | 4.4 at 20°C                                                                         |
| Solenoid connection              |                 | Connector as per EN 175301-803                                                      |
| Power amplifier, recommended     |                 | PCD00A-400 (open loop – NO sensor), PWDXXA-400 (closed loop – with pressure sensor) |
| Recommended dither frequency     | [Hz]            | 60                                                                                  |
| Recommended dither amplitude     | [%]             | 4                                                                                   |

# PROPORTIONAL PRESSURE RELIEF VALVE PVACRE\*

## Ordering code proportional pressure relief valve

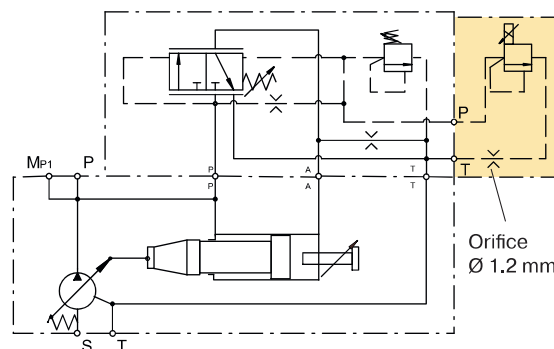


### Warning:

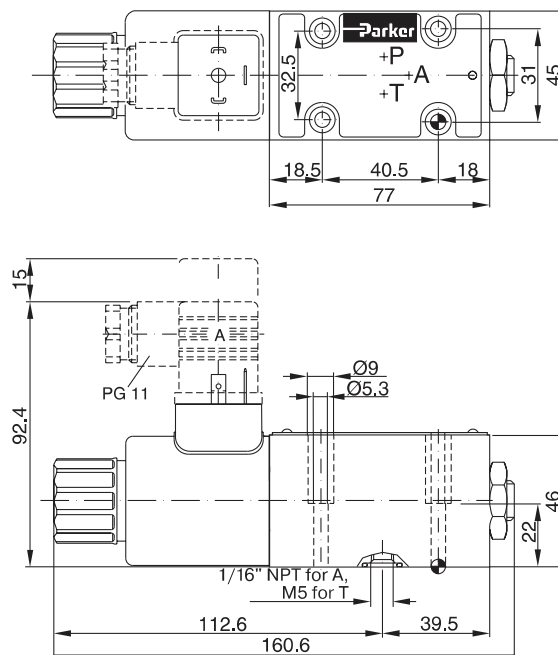
Risk of damaging bolt holes! Prior design series will need UNC bolts for pumps with threadcode "3".

## Schematic PVACRE\*

### Example for PVACRE\* mounted



## Dimensions PVACRE\*



# PROPORTIONAL PRESSURE RELIEF VALVE PVACRE\*T

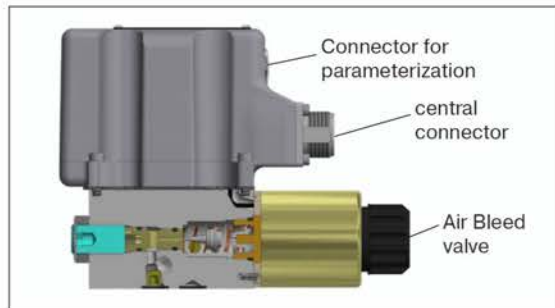
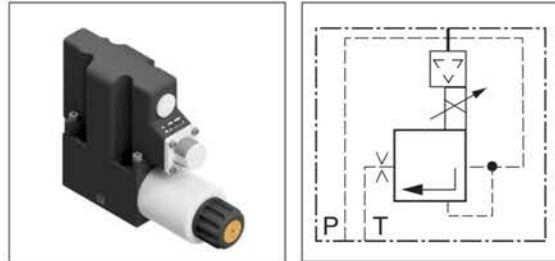
## Proportional pressure relief valve with OBE PVACRE\*T

The direct operated proportional pressure valves of the RE06M\*T series with integrated electronics are based on the functionality of the PVACRE series. The digital onboard electronic are securely housed in a robust metal box and can also be used under harsh ambient conditions. The optimized linearization and the set valve parameters were specifically adapted to the pumps of the PVplus series.

Valve parameters can be adjusted and diagnostic valves displayed by using the ProPxD software and the optionally available parameterization cable.

### Function

When the pressure in port P exceeds the pressure setting at the solenoid, the cone opens to port T and limits the pressure in port P to the adjusted level.



### Technical data

| General                          |                 |                                                         |
|----------------------------------|-----------------|---------------------------------------------------------|
| Nominal size                     |                 | DIN NG06 / CETOP03 / NFPA D03                           |
| Mounting position                |                 | as desired, horizontal mounting preferred               |
| Ambient temperature              | [°C]            | -20 ... +70                                             |
| Weight                           | [kg]            | 2.2                                                     |
| Hydraulic                        |                 |                                                         |
| Max. operating pressure          | [bar]           | Port P up to 420; port T up to 30                       |
| Pressure stages                  | [bar]           | 350, 420                                                |
| Fluid                            |                 | Hydraulic oil as per DIN 51524 ... 525                  |
| Viscosity, recommended permitted | [cSt] / [mm²/s] | 30 ... 80                                               |
|                                  | [cSt] / [mm²/s] | 12 ... 380                                              |
| Fluid temperature                | [°C]            | -20 ... +60                                             |
| Filtration                       |                 | ISO 4406 (1999), 18/16/13                               |
| Linearity                        | [%]             | ±4                                                      |
| Repeatability                    | [%]             | ±2                                                      |
| Hysteresis                       | [%]             | ±4.5 of p <sub>max</sub>                                |
| Electrical                       |                 |                                                         |
| Duty ratio                       | [%]             | 100 ED                                                  |
| Protection class                 |                 | IP 65 in accordance with EN 60529 (plugged and mounted) |
| Nominal voltage                  | [V]             | 18 ... 30 (2 A for nominal pressure)                    |
| Coil resistance                  | [Ohm]           | 4.4 at 20°C                                             |
| Solenoid connection              |                 | Connector as per EN 175301-803                          |

# PROPORTIONAL PRESSURE RELIEF VALVE PVACRE\*T

## Ordering code proportional pressure relief valve with OBE

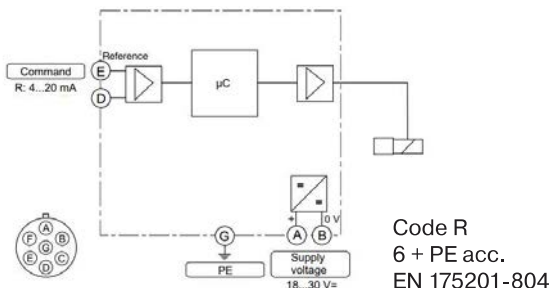
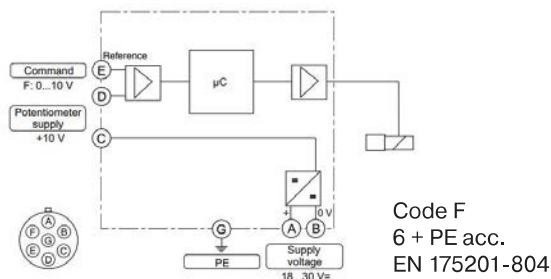
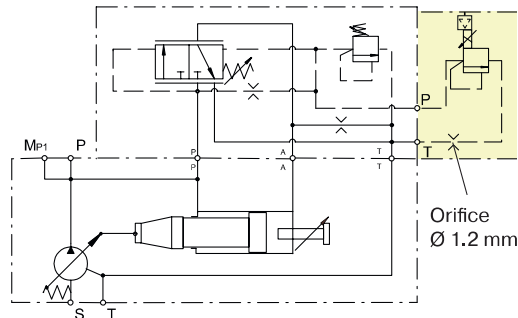
| PV             | AC                                     | RE                   |                |                  |      |                |                  | T                   |
|----------------|----------------------------------------|----------------------|----------------|------------------|------|----------------|------------------|---------------------|
| Pump series PV | Accessories for controller             | Prop. pressure valve | Mounting bolts | Thread option    | Seal | Command Signal | Nominal pressure | Onboard electronics |
| Code           | Mounting bolts/ ports                  |                      | Code           | Thread option    | Code | Command signal | Code             | Nominal pressure    |
| C              | For single controller                  |                      | M              | Metric           | N    | 0...10 V       | 35               | 350 bar             |
| S              | Without bolts                          |                      | -              | if without bolts | V    | 4...20 mA      | 42               | 420 bar             |
| M              | For code UD*/MT* design series 45 – 47 |                      |                |                  |      |                |                  |                     |

### Warning:

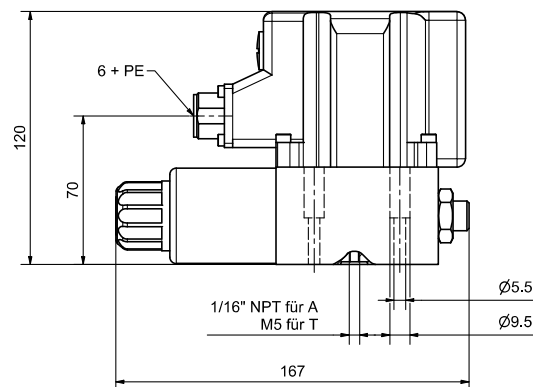
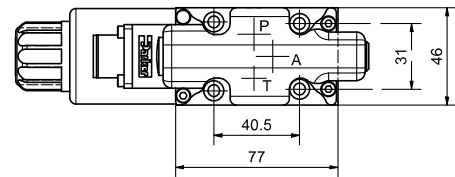
Risk of damaging bolt holes! Prior design series will need UNC bolts for pumps with threadcode "3".

## Schematic PVACRE\*T

### Example for PVACRE\* T mounted



## Dimensions PVACRE\*T



# ELECTRONIC MODULE PQDXXA

## Features

- Digital control circuit
- Covers all displacements
- Covers all available functions (pressure, displacement, power)
- Predefined parameter sets (Plug & Play)
- Connection via USB cable (USB-A/USB-B)
- Ramp time up to 60 seconds
- Compliant to the relevant european EMC specifications
- Offline editing of parameter sets
- Error diagnosis
- Easy hands on control tuning due to online monitoring of PID gains
- All settings (ramps, MIN/MAX, control parameters) can be stored digitally and recalled from a PC to duplicate settings to other modules



CE

## Technical data

|                          |                    |                                                                                                                                                            |
|--------------------------|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Mounting style           |                    | Snap-on mounting for EN50022 rail                                                                                                                          |
| Body material            |                    | Polycarbonate                                                                                                                                              |
| Inflammation class       |                    | V2...V0 acc. UL 94                                                                                                                                         |
| Mounting position        |                    | any                                                                                                                                                        |
| Env. temperature range   | [°C]               | -20...+55                                                                                                                                                  |
| Protection class         |                    | IP 20 acc. DIN 40 050                                                                                                                                      |
| Weight                   | [g]                | 260                                                                                                                                                        |
| Duty ratio               | [%]                | 100                                                                                                                                                        |
| Supply voltage           | [V]                | 18...30 VDC, ripple <5 % eff.                                                                                                                              |
| Rush in current          | [A]                | 22 for 0.2 ms                                                                                                                                              |
| Current consumption      | [A]                | < 4 for p/Q control ; < 2 for Q-control                                                                                                                    |
| Resolution Input Command | [%]                | 0.025 (power 0.1)                                                                                                                                          |
| Interface                |                    | USB-Typ B                                                                                                                                                  |
| EMC                      |                    | EN 50 081-2, EN 50 082-2                                                                                                                                   |
| Connectors               |                    | Screw terminals 0.2...2.5 mm <sup>2</sup> , plug in style                                                                                                  |
| Cables                   | [mm <sup>2</sup> ] | Supply and solenoid cables; 1.5 mm <sup>2</sup> (AWG16) overall braid shield. Sensor and command signals; 0.5 mm <sup>2</sup> (AWG20) overall braid shield |
| Max. cable length        | [m]                | 50                                                                                                                                                         |

For programming the module via PC an interface cable is needed, please order part number PQDXXA-ZXX-KABEL separately.

## Ordering code

|                                        |                               |           |          |            |                           |
|----------------------------------------|-------------------------------|-----------|----------|------------|---------------------------|
| <b>PQD</b>                             | <b>XX</b>                     | <b>A</b>  | <b>-</b> | <b>Z10</b> | downward compatible * Z00 |
| Digital control module for p/Q control | For all frame sizes series PV | Version A |          | Option     |                           |

## Programming software

The programming of the p/Q control module is done in an easy to learn mode. To select the pump model and size and to set the control parameters the program ProPVplus must be started. The program runs under common windows systems.

Latest software available at: [www.parker.com/pmde](http://www.parker.com/pmde)

## Features

- Display and documentation of parameter sets
- Save and reload of optimized parameter sets
- Offers oscilloscope function for easy performance evaluation and optimization
- Parameter sets for all PVplus pumps are pre-installed in the modules



## ELECTRONIC MODULE PQDXXA-PROFINET-Z10

### Features

- Control, monitor and parameter setting via Profinet ® interface
- Covers all displacements and controls (pressure, displacement, power)
- Quick and easy integration with available GSDML and predefined and online available function blocks for I/Os as well as parametrization
- Full integration into overlaying machine control (PLC + HMI) Process parameter, Static Parameter, Conditions
- Predefined data sets for Plug&Play commissioning
- Quick and easy wiring with Push in contact blocks
- Switch function with two RJ45 ports
- Alternative Connection via USB cable (USB-A/USB-B)
- Compatible to the relevant european EMC specification
- Certified by Profibus User Organisation
- Easy error diagnosis



### Technical data

|                          |                    |                                                                                                                                                                |
|--------------------------|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Mounting style           |                    | Snap-on mounting for EN50022                                                                                                                                   |
| Body material            |                    | Polyamide PA6.6                                                                                                                                                |
| Inflammation class       |                    | V0 acc. UL 94                                                                                                                                                  |
| Mounting position        |                    | any                                                                                                                                                            |
| Env. temperature range   | [°C]               | -20...+55                                                                                                                                                      |
| Protection class         |                    | IP 20 acc. DIN 40 050                                                                                                                                          |
| Weight                   | [g]                | 260                                                                                                                                                            |
| Duty ratio               | [%]                | 100                                                                                                                                                            |
| Supply voltage           | [V]                | 18...30 VDC, ripple <5 % eff.                                                                                                                                  |
| Rush in current          | [A]                | 22 for 0.2 ms                                                                                                                                                  |
| Current consumption      | [A]                | < 4 for p/Q control ; < 2 for Q-control                                                                                                                        |
| Resolution Input Command | [%]                | 0.025 (power 0.1)                                                                                                                                              |
| Interface                |                    | 2 x RJ45, USB-B                                                                                                                                                |
| EMC                      |                    | EN61000-6-2: 2005 (Immunity), EN61000-6-3: 2007 +A1: 2010 (Emission)                                                                                           |
| Connectors               |                    | Push in terminals 0.2...2.5 mm <sup>2</sup> , plug in style                                                                                                    |
| Cables                   | [mm <sup>2</sup> ] | Supply and solenoid cables; 1.5 mm <sup>2</sup> (AWG 16) overall braid shield.<br>Sensor and command signals; 0.5 mm <sup>2</sup> (AWG20) overall braid shield |
| Max. cable length        | [m]                | 50                                                                                                                                                             |

Further information at bulletin MSG30-3256-INST/UK

### Ordering code

|                                        |                               |           |          |                 |          |            |
|----------------------------------------|-------------------------------|-----------|----------|-----------------|----------|------------|
| <b>PQD</b>                             | <b>XX</b>                     | <b>A</b>  | <b>-</b> | <b>PROFINET</b> | <b>-</b> | <b>Z10</b> |
| Digital control module for p/Q control | For all frame sizes series PV | Version A |          |                 |          | Option     |

### Programming software

The programming of the p/Q control module is done in an easy to learn mode. To select the pump model and size and to set the control parameters the program ProPVplus must be started. The program runs under common windows systems.

Latest software available at: [www.parker.com/pmde](http://www.parker.com/pmde)

### Features

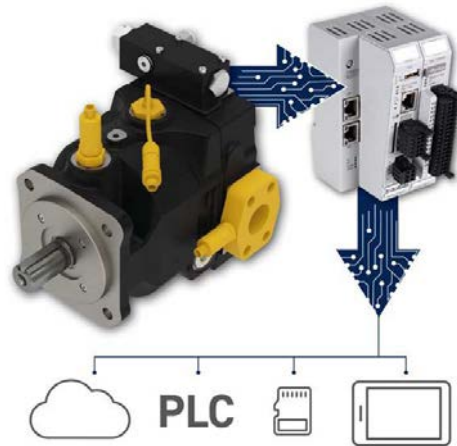
- Display and documentation of parameter sets
- Save and reload of optimized parameter sets
- Offers oscilloscope function for easy performance evaluation and optimization
- Parameter sets for all PVplus pumps are pre-installed in the modules

# PVPLUS CONDITION MONITORING

## PVplus Condition Monitoring

Parker's Condition Monitoring Solution is added to a PVplus pump and consists of a PAC120 controller, a suite of sensors and an easy-to-install mounting kit to track and monitor PVplus under all operating conditions.

This solution provides a cost-effective package to increase pump's lifespan and minimizes the risk of unplanned downtime in high availability applications.



## Key Features

- Threat Detection with Limits Checks and Warnings
- Live Data Monitoring
- Trend Data Tracking
- Graphical User Interface
- Communication Protocols (PROFINET, ETHERCAT, ETHERNET/IP)
- OPC UA functionality

## Technical data

| Model           |                         |                                                                          |
|-----------------|-------------------------|--------------------------------------------------------------------------|
| Basic           |                         | Data Tracking, Limit Check, Trend Data, Standard Communication Protocols |
| Advanced        | On demand               | Basic + Anomaly Detection                                                |
| Components      |                         |                                                                          |
| Pressure Sensor | Housing                 | -1..15 bar, 4..20 mA, round plug M12x1.4 pin                             |
|                 | Inlet                   | -1..15 bar, 4..20 mA, round plug M12x1.4 pin                             |
|                 | Outlet                  | 0..600 bar, 4..20 mA, round plug M12x1.4 pin                             |
| Displacements   | Housing                 | CIP Sensor, 4..20 mA, round plug M12x1.4 pin                             |
| Controller      |                         | Control module, 24 V DC (19,2... 28,8)                                   |
|                 | Network                 | 1 x Ethernet 10/100 MBit-RJ45, OPC UA                                    |
|                 | Fieldbus                | Profinet IO/IRT Slave, EtherCAT Slave* or EtherNet/IP Adapter*           |
|                 | Housing/protection type | Aluminum carrier, plastic, IP20                                          |
|                 | Mounting                | 35 mm DIN rail                                                           |
|                 | Mounting position       | Vertical, stackable                                                      |
|                 | Operating temperature   | 0 °C...+55 °C                                                            |

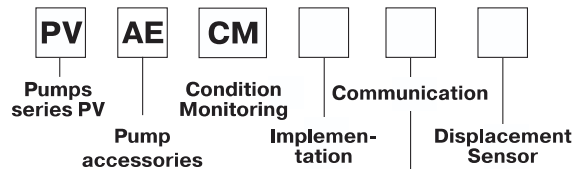
Excluded: Signal Converter

\* on demand, please ask Parker Hannifin for more information

# PVPLUS CONDITION MONITORING

## Evaluation electronics

### Ordering code



| Code | Implementation |
|------|----------------|
| B    | Basic          |
| C**  | Advanced       |

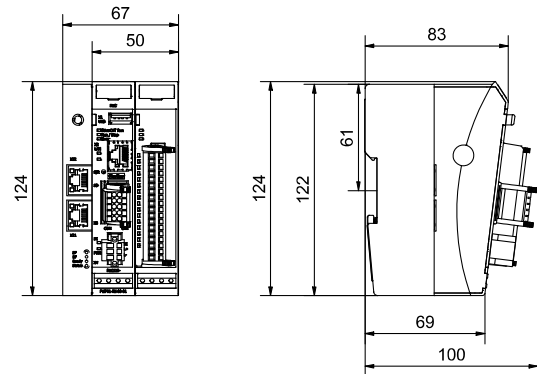
\*\* on demand, please ask  
Parker Hannifin for  
more information

| Code | Communication       |
|------|---------------------|
| P    | Profinet IO/IRT     |
| T**  | EtherCAT Slave      |
| E**  | EtherNet/IP Adapter |

| Code | Displacement Sensor                       |
|------|-------------------------------------------|
| 1    | w/o Electronic displacement sensor (CIP)* |
| 4    | with Electronic displacement sensor (CIP) |

\* only for attachments to pumps  
already equipped with CIP sensor

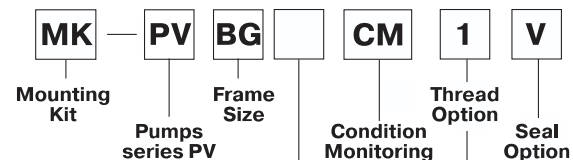
### Dimensions



Evaluation kit contains PAC120,  
PACIO, software, pressure Sensors,  
(Displacement Sensor)

## Mounting Kit

### Ordering code

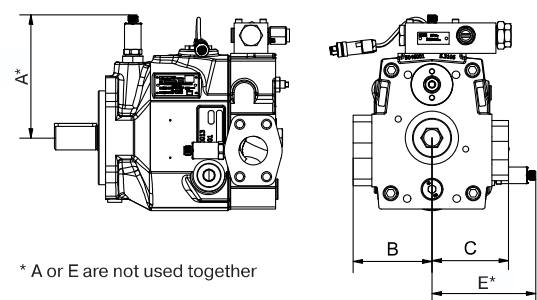


| Code | Frame Size    |
|------|---------------|
| 1    | PV016 - PV028 |
| 2    | PV032 - PV046 |
| 3    | PV063 - PV092 |
| 4    | PV140 - PV180 |
| 5    | PV270         |
| 6    | PV360         |

| Code | Thread Option |
|------|---------------|
| 1    | BSPP          |

| Code | Seal Option |
|------|-------------|
| V    | FKM         |

### Dimensions



\* A or E are not used together

Mounting kit contains flange for inlet  
and outlet and adapter for drain port

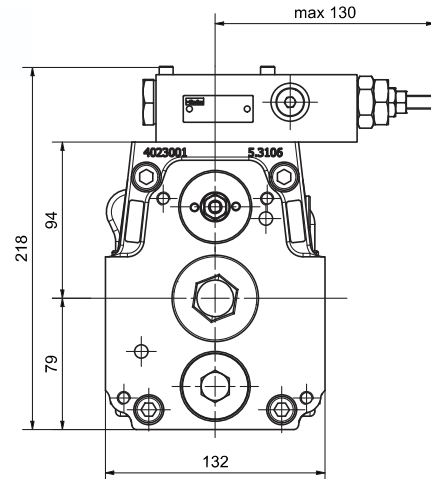
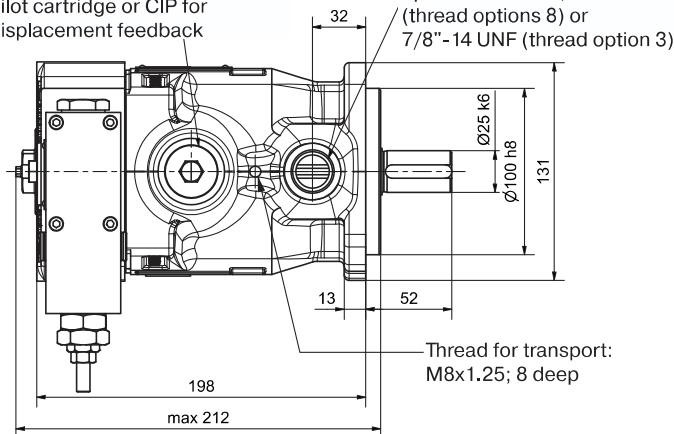
| Dimensions |     |     |     |     |     |     |
|------------|-----|-----|-----|-----|-----|-----|
| Frame Size | 1   | 2   | 3   | 4   | 5   | 6   |
| Dimensions |     |     |     |     |     |     |
| A          | 149 | 159 | 181 | 206 | 233 | 233 |
| B          | 86  | 105 | 125 | 125 | 152 | 152 |
| C          | 88  | 102 | 126 | 126 | 155 | 155 |
| D          | 118 | 133 | 146 | 159 | 177 | 177 |

## PUMP DIMENSIONS

## PV016-028, metric version

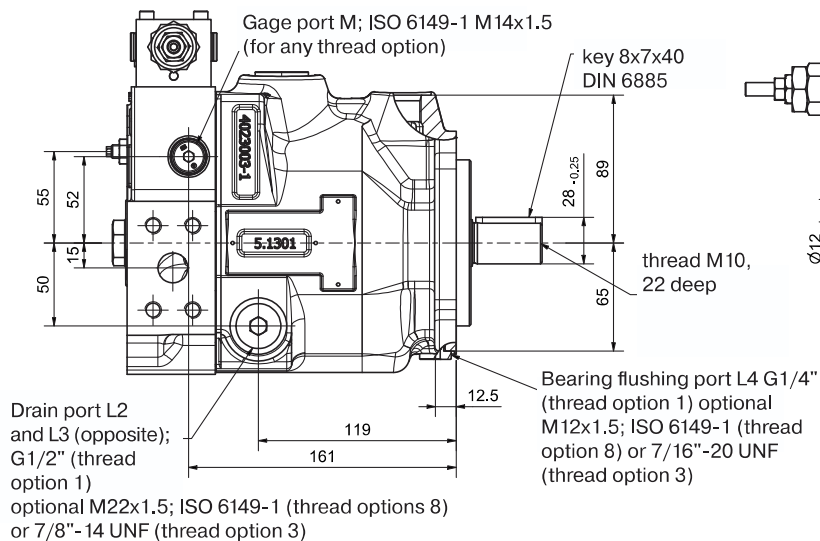
Interface for horse power  
pilot cartridge or CIP for  
displacement feedback

Drain port L1; G1/2"  
optional M22x1.5; ISO 6149-1  
/ (thread options 8) or  
7/8"-14 UNF (thread option 3)



Gage port M; ISO 6149-1 M14x1.5  
(for any thread option)

key 8x7x40  
DIN 6885

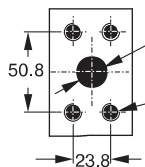


The pump shown above has  
**Mounting option K**  
and **through drive variation T**  
(prepared for through drive)

**OUTLET for metric and SAE version:**

flage acc. ISO 6162  
DN19; PN400

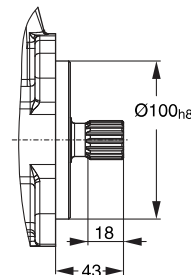
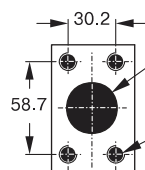
-4xM10, 18 deep  
optional 3/8"-16UNC-2B  
(thread options 3)



**INLET for metric and SAE version:**

flange acc. ISO 6162  
DN32; PN250

4xM10, 18 deep  
optional 7/16"-14UNC-2B  
(thread options 3)



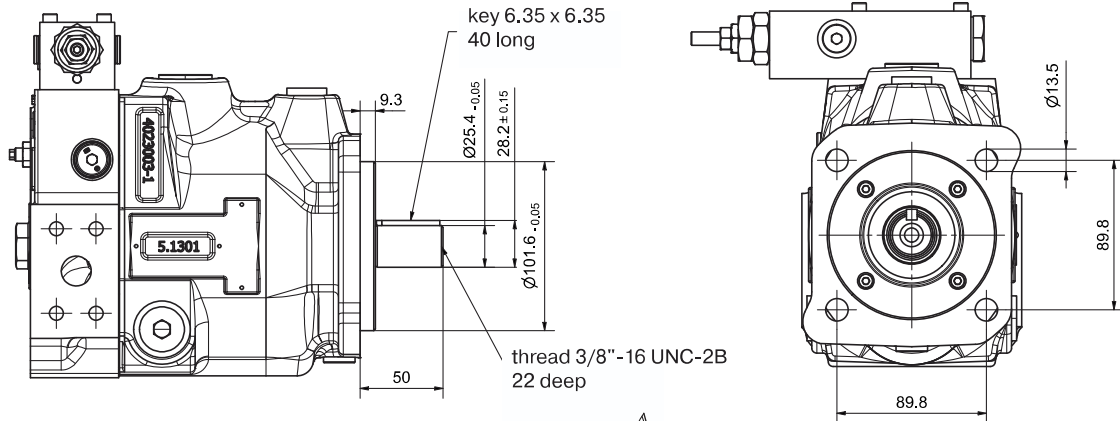
### Mounting optional L

splined shaft W25x1.5x15x8f  
DIN 5480

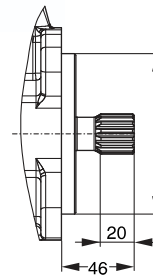
Shown is a clockwise rotating pump with standard pressure compensator. Counter clockwise rotating pumps have inlet, outlet and gage port reversed.

# PUMP DIMENSIONS

## PV016-028, SAE version

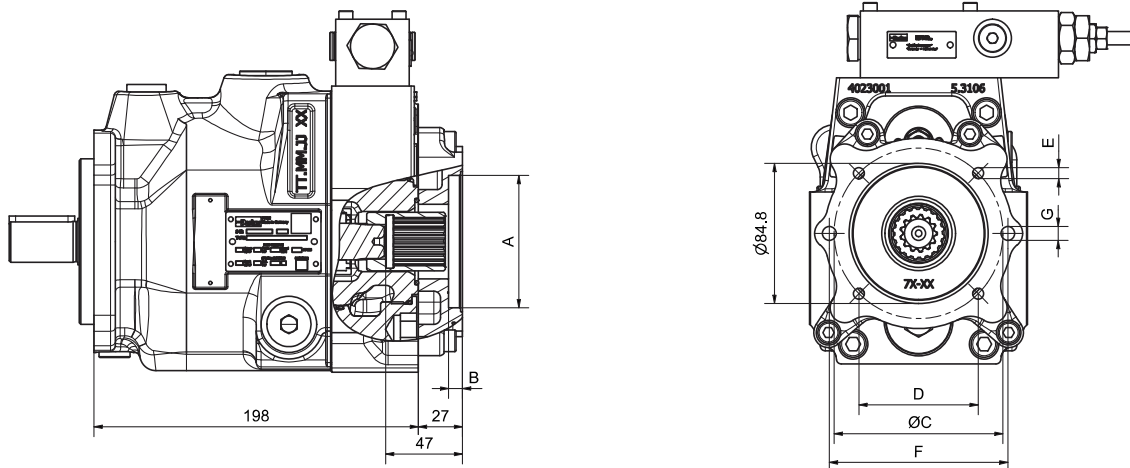


Shown above is  
**Mounting option D**



**Mounting option E**  
Splined shaft 15T-16/32 DP,  
flat root, side fit ANSI B92.1

## Variation with through drive



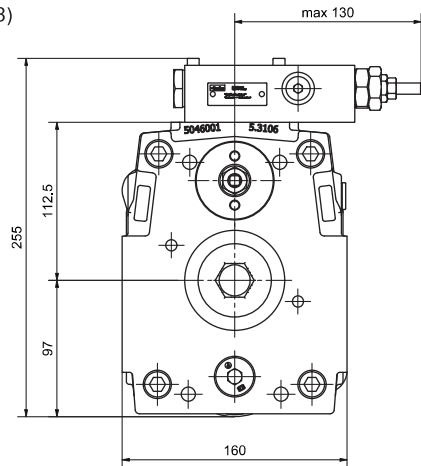
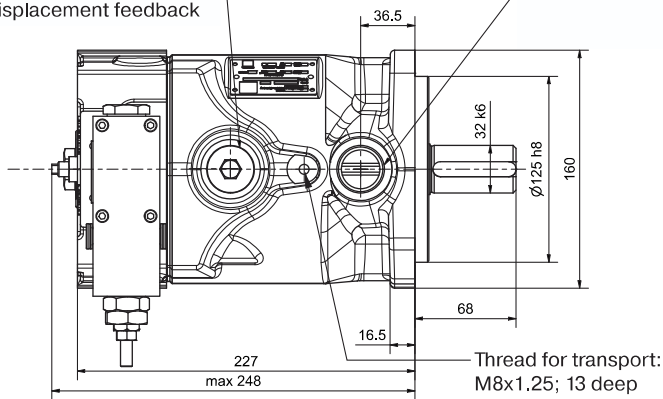
| Through drive adaptors are available with the following dimensions |       |      |     |      |     |     |     |              |
|--------------------------------------------------------------------|-------|------|-----|------|-----|-----|-----|--------------|
| <div>Through drive option</div> <div>Drawing Dimension</div>       | A     | B    | C   | D    | E   | F   | G   | Remark       |
| A                                                                  | 82.55 | 8    | -   | -    | -   | 106 | M10 | SAE A 2-Bolt |
| B                                                                  | 101.6 | 10.5 | 127 | 89.8 | M12 | -   | -   | SAE B 4-Bolt |
| J                                                                  | 100   | 10.5 | 125 | 88.4 | M10 | -   | -   | 4-Bolt       |

# PUMP DIMENSIONS

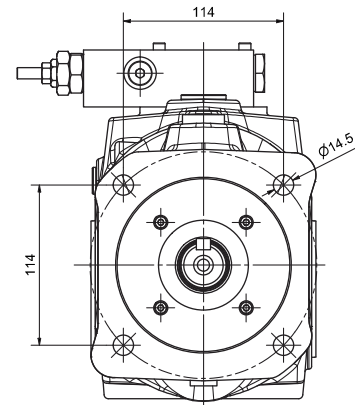
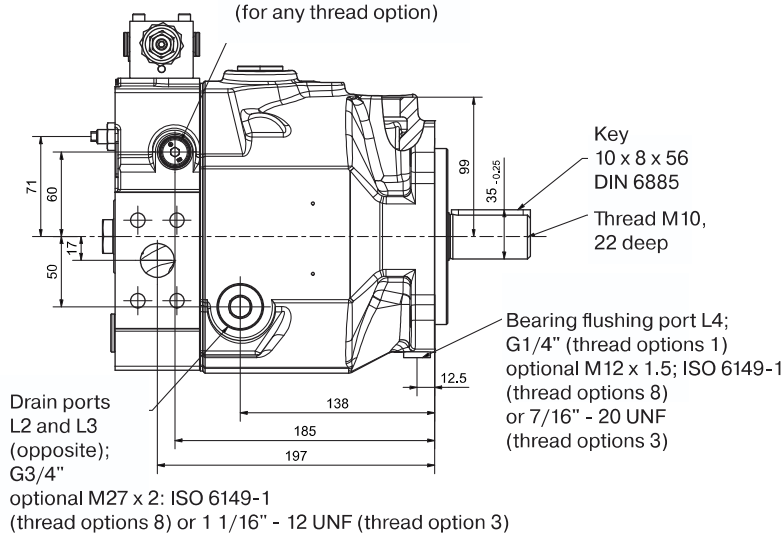
## PV032-046, metric version

Interface for power pilot cartridge  
or CIP Sensor for  
displacement feedback

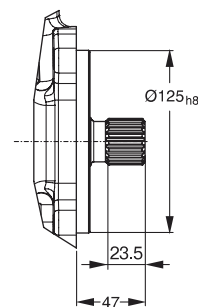
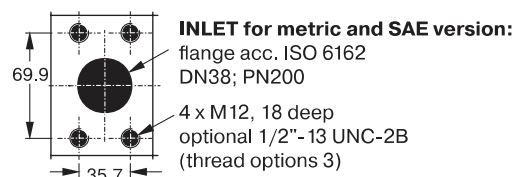
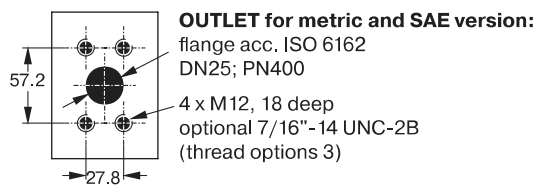
Drain port L1; G3/4" optional M27 x 2;  
ISO 6149-1 (thread options 8)  
or 1 1/16" - 12 UNF (thread option 3)



Gage port M; ISO 6149-1 M14x1.5  
(for any thread option)



The pump shown above has  
**Mounting option K** and  
**through drive variation T**  
(prepared for through drive)

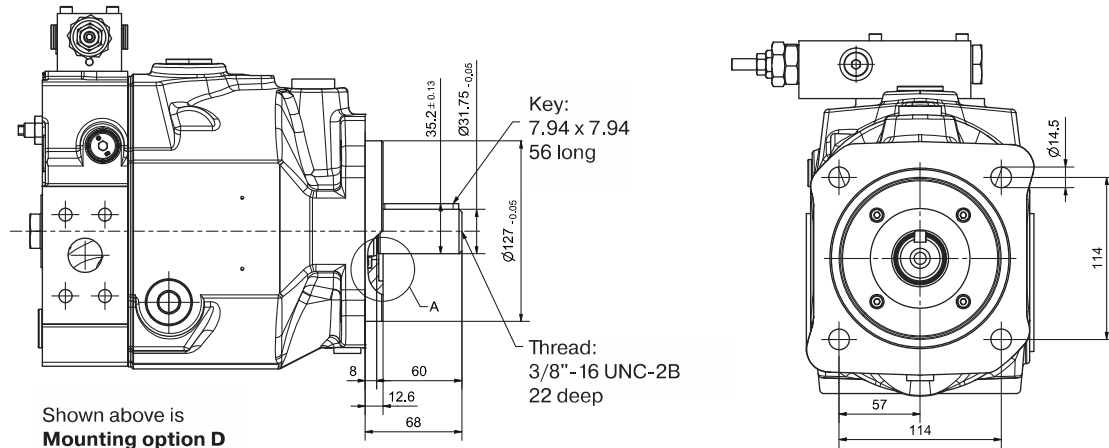


**Mounting optional L**  
splined shaft W32x1.5x20x8f  
DIN 5480

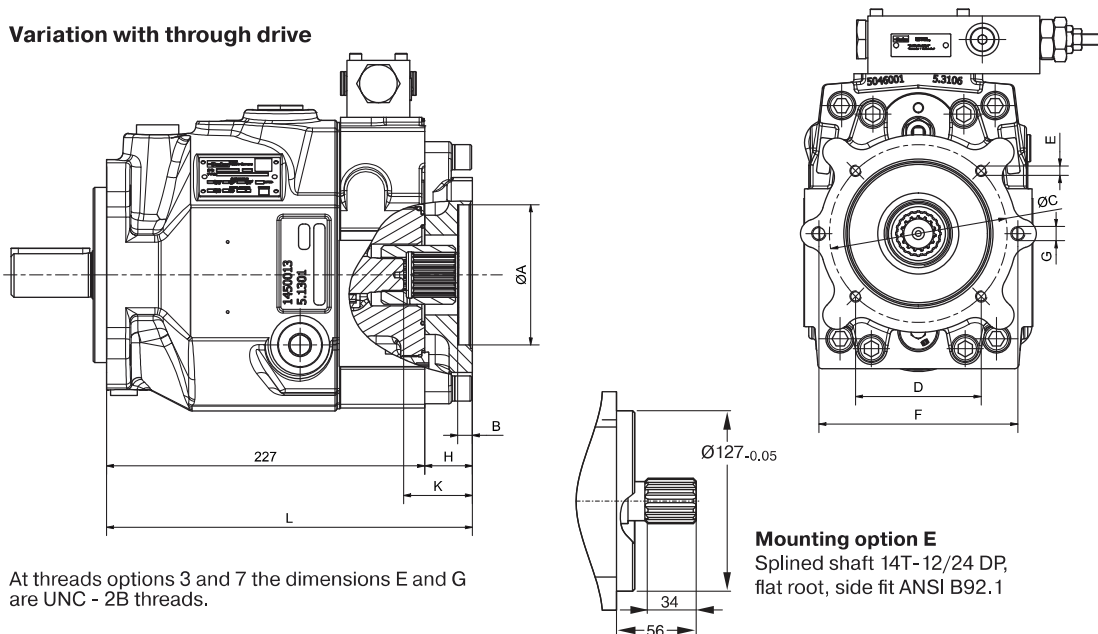
Shown is a clockwise rotating pump with standard pressure  
compensator. Counter clockwise rotating pumps have inlet,  
outlet and gage port reversed.

# PUMP DIMENSIONS

## PV032-046, SAE version



## Variation with through drive



### Through drive adaptors are available with the following dimensions

| Drawing Dimension      | A     | B    | C   | D     | E   | F   | G   | H  | K  | L   | Remark         |
|------------------------|-------|------|-----|-------|-----|-----|-----|----|----|-----|----------------|
| Through drive option A | 82.55 | 8    | -   | -     | -   | 106 | M10 | 34 | 48 | 261 | SAE A 2-Bolt   |
| B                      | 101.6 | 11   | 127 | 89.8  | M12 | 146 | M12 | 34 | 48 | 261 | SAE B 2/4-Bolt |
| C                      | 127   | 13.5 | 162 | 114.6 | M12 | -   | -   | 49 | 63 | 276 | SAE C 4-Bolt   |
| J                      | 100   | 10.5 | 125 | 88.4  | M10 | 140 | M12 | 34 | 48 | 261 | 2/4-Bolt       |
| K                      | 125   | 10.5 | 160 | 113.1 | M12 | -   | -   | 34 | 48 | 261 | 4-Bolt         |

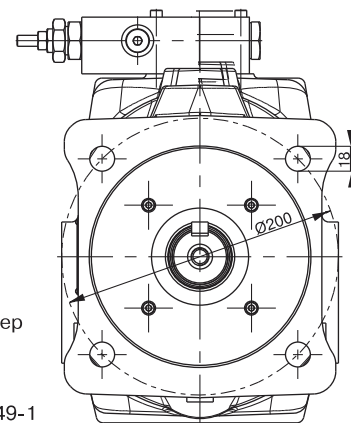
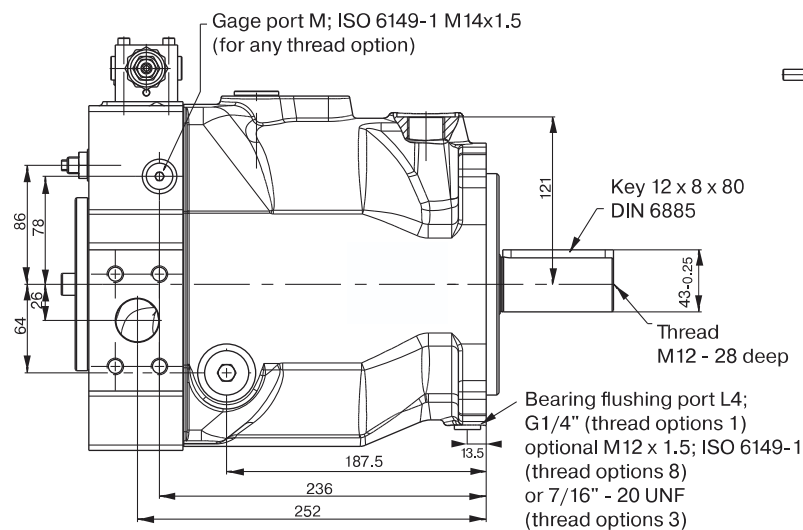
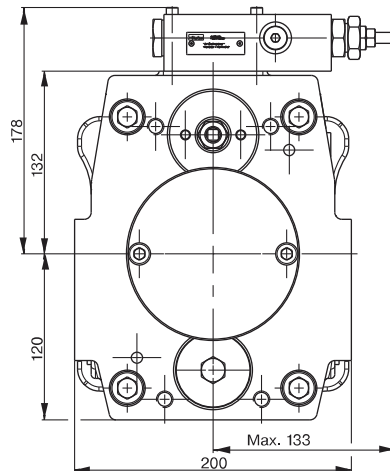
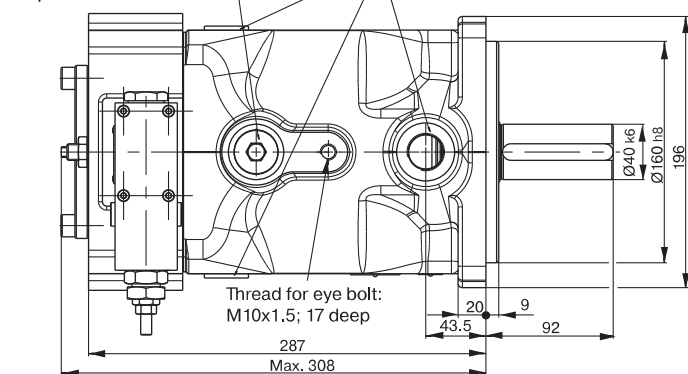


## PUMP DIMENSIONS

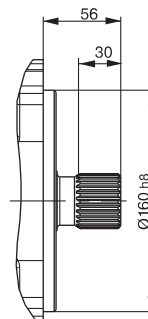
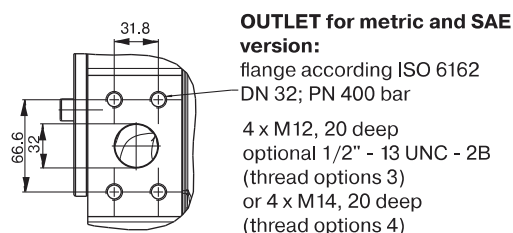
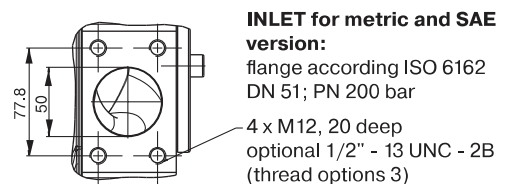
### PV 063-092, metric version

Mounting interface for horse power pilot or CIP for displacement feedback

Drain ports L1, L2 and L3; G3/4" optional M27 x 2; ISO 6149-1 (thread option 8) or 1 1/16" - 12 UNF (thread option 3)



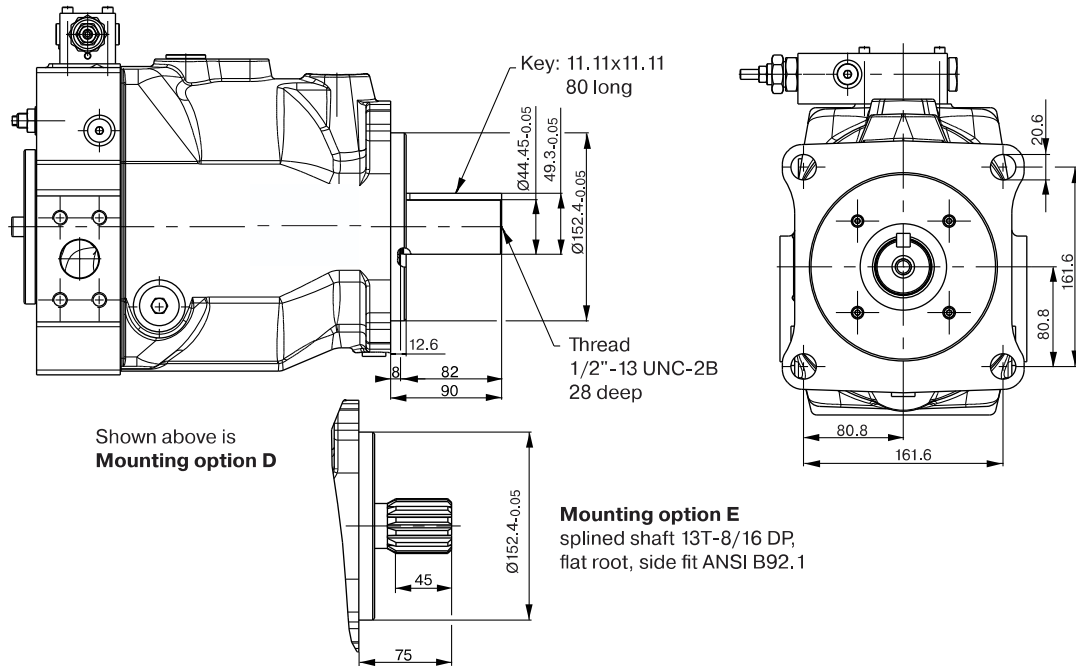
The pump shown above has **Mounting option K** and **through drive variation T** (prepared for through drive)



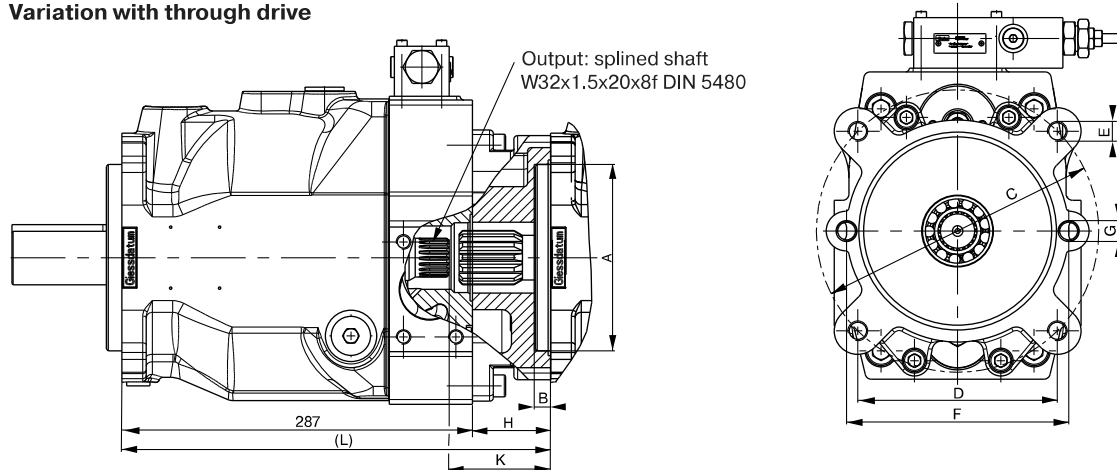
Shown is a clockwise rotating pump with standard pressure compensator. Counter clockwise rotating pumps have inlet, outlet and gage port reversed.

# PUMP DIMENSIONS

## PV 063-092 SAE Version



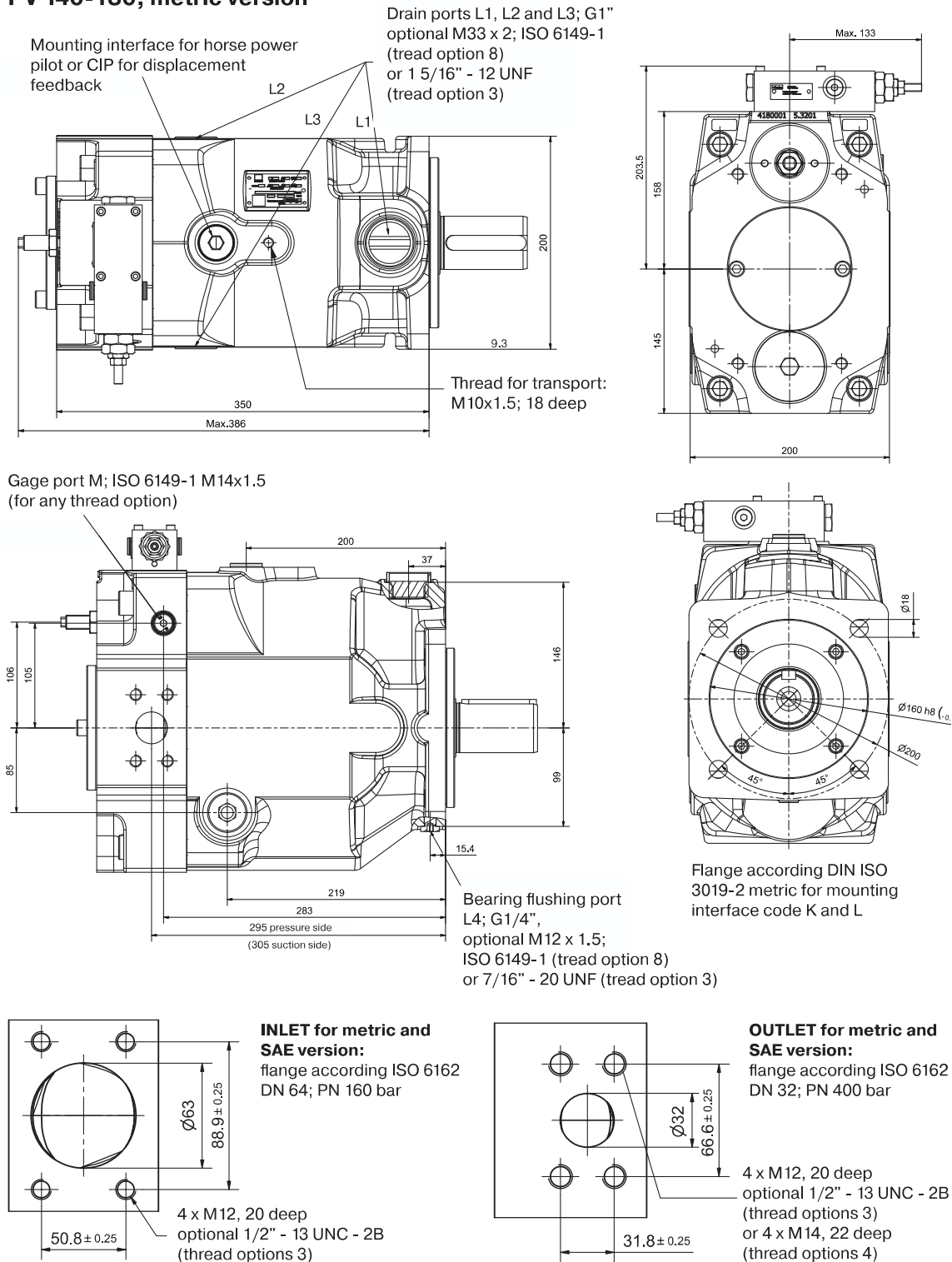
## Variation with through drive



| Through drive adaptors are available with the following dimensions |       |      |       |       |     |     |     |    |    |     |                |  |
|--------------------------------------------------------------------|-------|------|-------|-------|-----|-----|-----|----|----|-----|----------------|--|
| <div>Through drive option</div> <div>Drawing Dimension</div>       | A     | B    | C     | D     | E   | F   | G   | H  | K  | L   | Remark         |  |
| A                                                                  | 82.55 | 8    | -     | -     | -   | 106 | M10 | 39 | 58 | 326 | SAE A 2-Bolt   |  |
| B                                                                  | 101.6 | 11   | 127   | 89.8  | M12 | 146 | M12 | 39 | 58 | 326 | SAE B 2/4-Bolt |  |
| C                                                                  | 127   | 13.5 | 162   | 114.6 | M12 | 181 | M16 | 39 | 58 | 326 | SAE C 2/4-Bolt |  |
| D                                                                  | 152.4 | 13.5 | 228.5 | 161.6 | M16 | -   | -   | 64 | 83 | 351 | SAE D 4-Bolt   |  |
| J                                                                  | 100   | 10.5 | 125   | 88.4  | M10 | 140 | M12 | 39 | 58 | 326 | 2/4-Bolt       |  |
| K                                                                  | 125   | 10.5 | 160   | 113.1 | M12 | 180 | M16 | 39 | 58 | 326 | 2/4-Bolt       |  |
| L                                                                  | 160   | 13.5 | 200   | 141.4 | M16 | -   | -   | 39 | 58 | 326 | 4-Bolt         |  |

# PUMP DIMENSIONS

## PV 140-180, metric version



MSG30-3245/UK - Axial Piston Pumps, Series PVplus

Hydraulic Pump &amp; Motor Europe

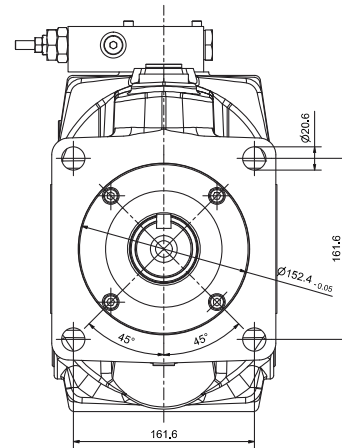
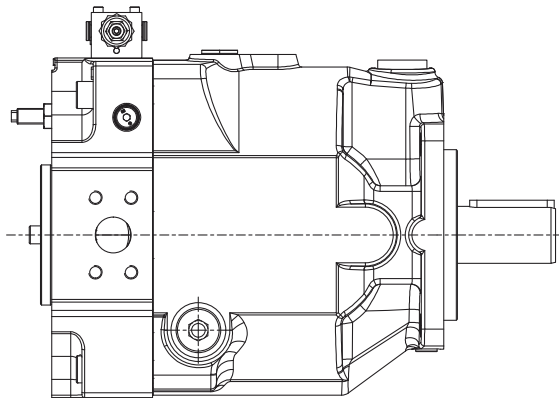
Archivierung: 09/2025

# PUMP DIMENSIONS

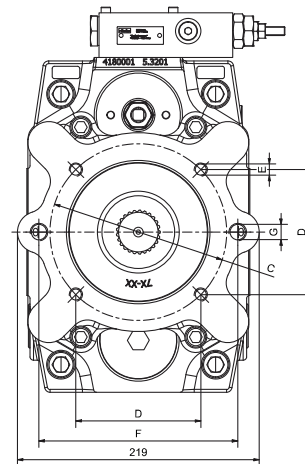
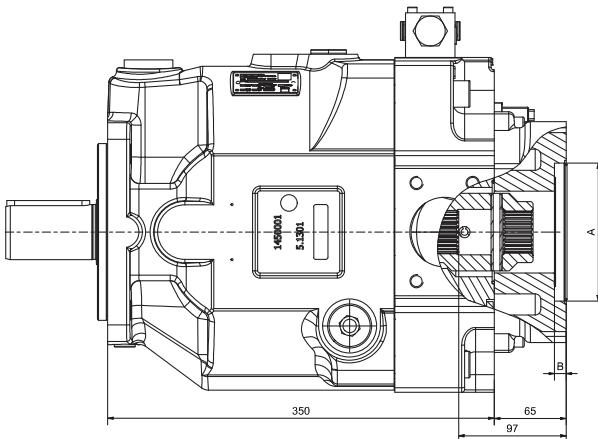
## PV 140-180 SAE Version

Flange according DIN ISO 3019-1 SAE  
for mounting interface code D, E, F and G

Shown are clockwise rotating pumps. Counter clockwise  
rotating pumps have inlet, outlet and gage port reversed.



## Variation with through drive

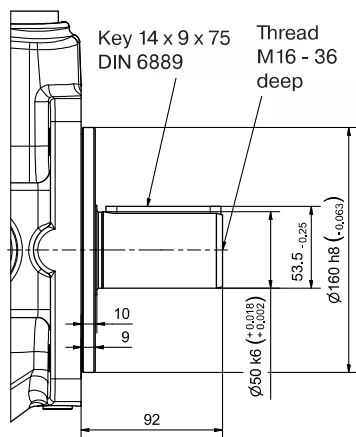


| Through drive adaptors are available with the following dimensions |       |      |       |       |     |     |     |                |
|--------------------------------------------------------------------|-------|------|-------|-------|-----|-----|-----|----------------|
| <div>Through drive option</div> <div>Drawing Dimension</div>       | A     | B    | C     | D     | E   | F   | G   | Remark         |
| A                                                                  | 82.55 | 8    | -     | -     | -   | 106 | M10 | SAE A 2-Bolt   |
| B                                                                  | 101.6 | 11   | 127   | 89.8  | M12 | 146 | M12 | SAE B 2/4-Bolt |
| C                                                                  | 127   | 13.5 | 162   | 114.6 | M12 | 181 | M16 | SAE C 2/4-Bolt |
| D                                                                  | 152.4 | 13.5 | 228.5 | 161.6 | M16 | -   | -   | SAE D 4-Bolt   |
| J                                                                  | 100   | 10.5 | 125   | 88.4  | M10 | 140 | M12 | 2/4-Bolt       |
| K                                                                  | 125   | 10.5 | 160   | 113.1 | M12 | 180 | M16 | 2/4-Bolt       |
| L                                                                  | 160   | 13.5 | 200   | 141.4 | M16 | -   | -   | 4-Bolt         |

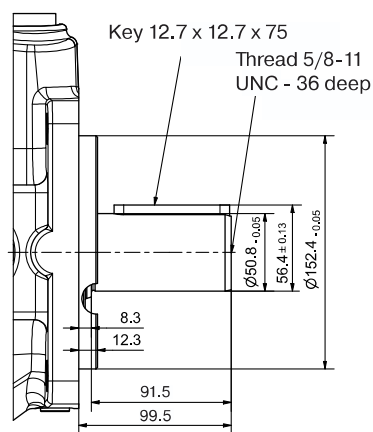
## PUMP DIMENSIONS

## PV 140-180 Mounting options

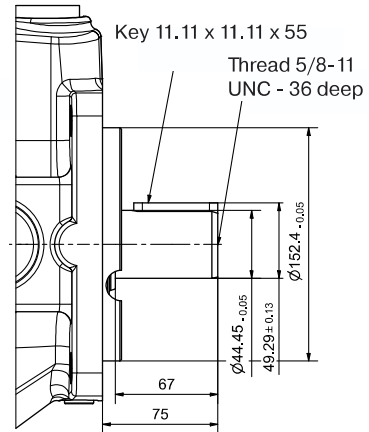
### Mounting option K shaft keyed metric



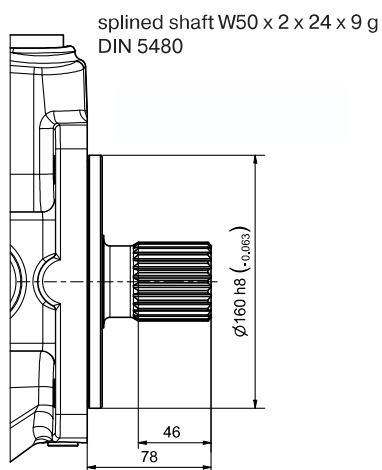
### Mounting option D shaft keyed SAE



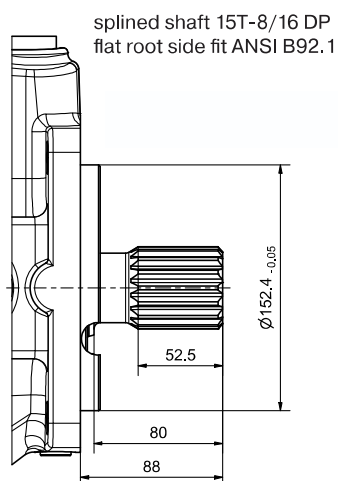
### Mounting option F shaft keyed SAE



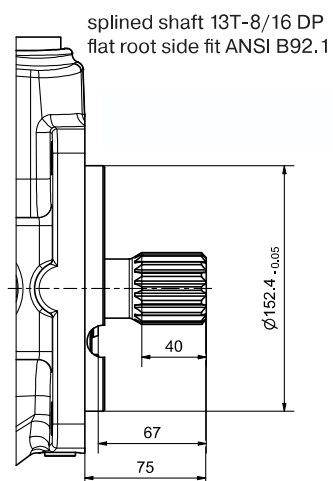
### Mounting option L shaft splined metric



### Mounting option E shaft splined SAE



### Mounting option G shaft splined SAE



MSG30-3245/UK - Axial Piston Pumps, Series PVplus

Hydraulic Pump &amp; Motor Europe

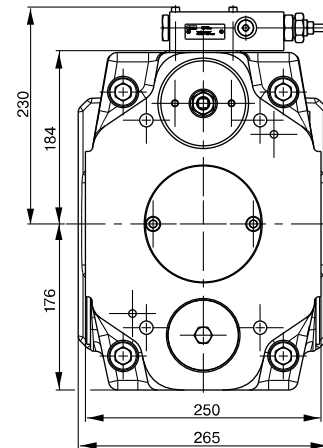
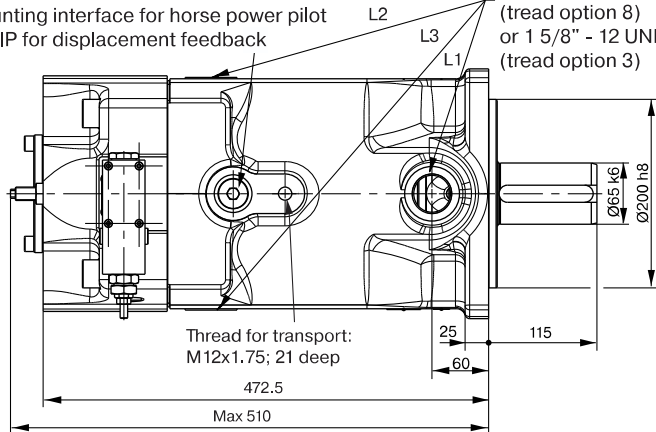
Archivierung: 09/2025



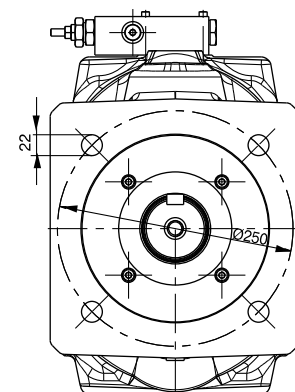
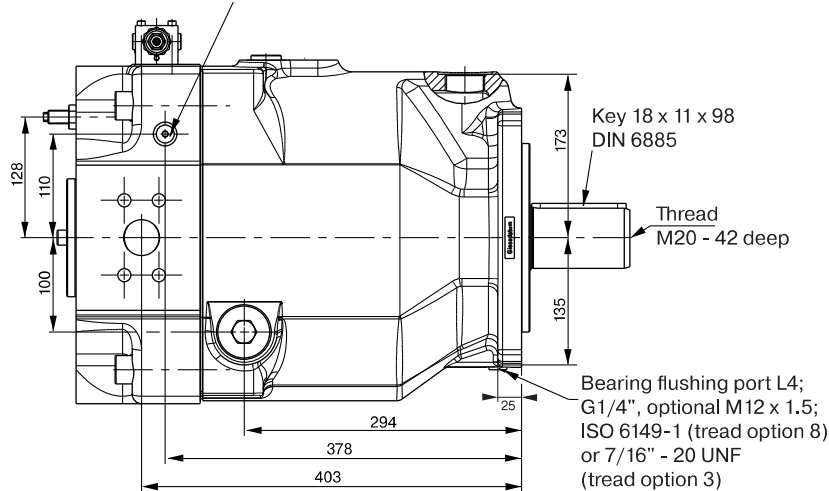
## PUMP DIMENSIONS

### PV 270, metric version

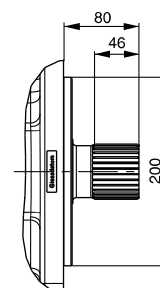
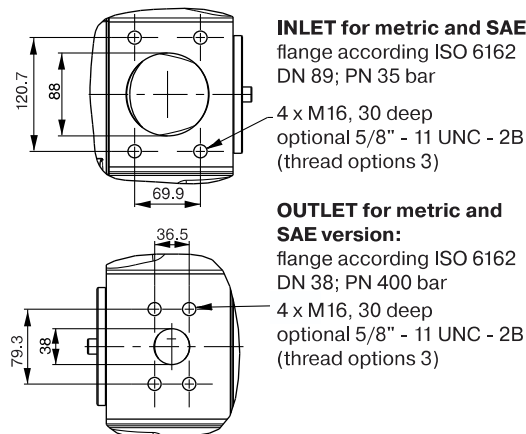
Mounting interface for horse power pilot or CIP for displacement feedback



Gage port M; ISO 6149-1 M14x1.5 (for any thread option)



The pump shown above has **Mounting option K** and **through drive variation T** (prepared for through drive)

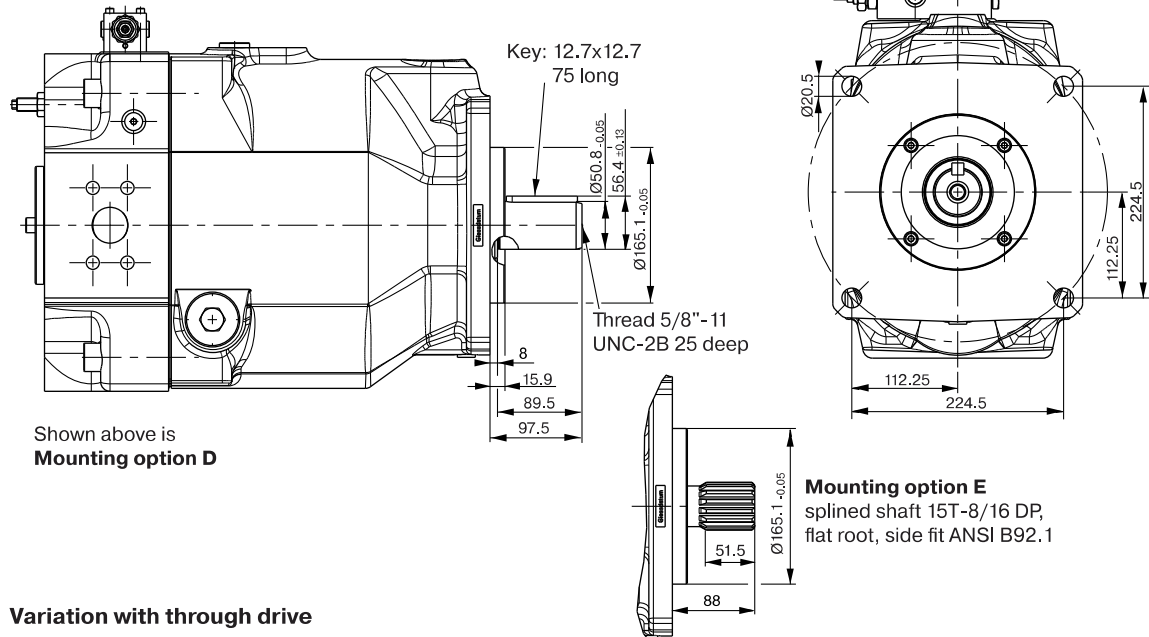


**Mounting option L,**  
splined shaft  
W60 x 2 x 28 x 9g DIN 5480

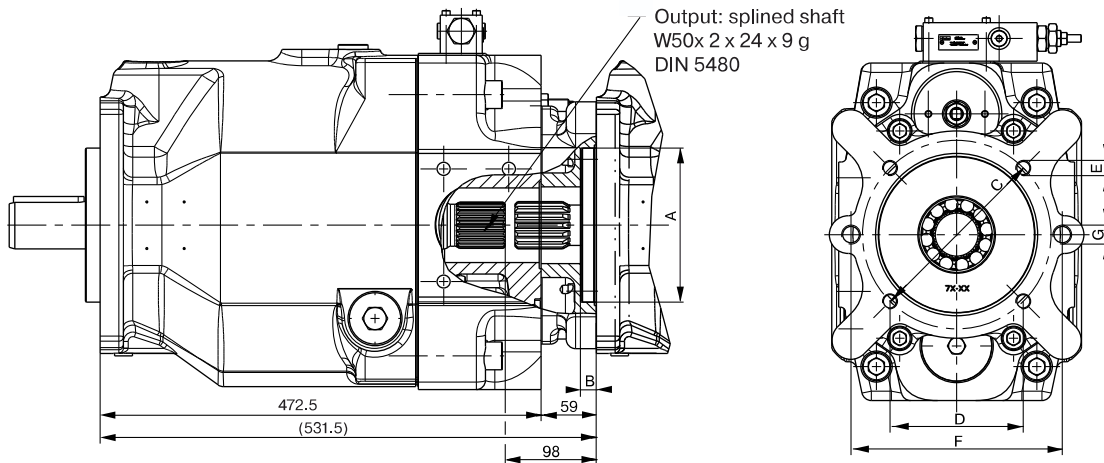
Shown is a clockwise rotating pump with standard pressure control. Counter clockwise rotating pump have inlet, outlet and gage port reversed.

# PUMP DIMENSIONS

## PV 270 SAE Version



## Variation with through drive



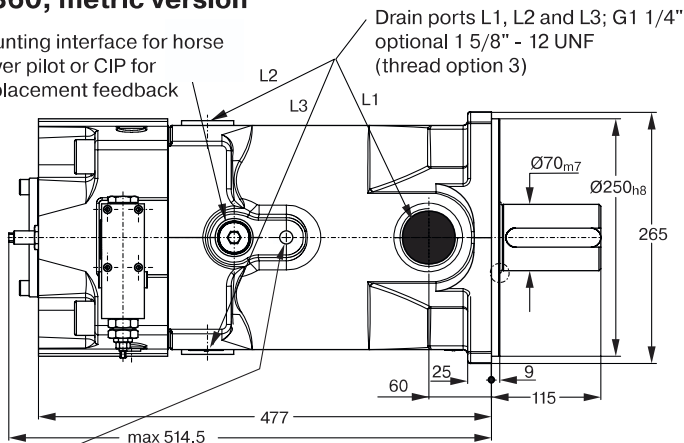
| Through drive adaptors are available with the following dimensions |                   |       |      |       |       |     |     |     |                |
|--------------------------------------------------------------------|-------------------|-------|------|-------|-------|-----|-----|-----|----------------|
| <div>Through drive option</div>                                    | Drawing Dimension | A     | B    | C     | D     | E   | F   | G   | Remark         |
| A                                                                  |                   | 82.55 | 8    | -     | -     | -   | 106 | M10 | SAE A 2-Bolt   |
| B                                                                  |                   | 101.6 | 11   | 127   | 89.8  | M12 | 146 | M12 | SAE B 2/4-Bolt |
| C                                                                  |                   | 127   | 13.5 | 162   | 114.6 | M12 | 181 | M16 | SAE C 2/4-Bolt |
| D                                                                  |                   | 152.4 | 13.5 | 228.5 | 161.6 | M16 | 229 | M16 | SAE D 2/4-Bolt |
| E                                                                  |                   | 165.1 | 17   | 317.5 | 224.5 | M20 | -   | -   | SAE E 4-Bolt   |
| J                                                                  |                   | 100   | 10.5 | 125   | 88.4  | M10 | 140 | M12 | 2/4-Bolt       |
| K                                                                  |                   | 125   | 10.5 | 160   | 113.1 | M12 | 180 | M16 | 2/4-Bolt       |
| L                                                                  |                   | 160   | 13.5 | 200   | 141.4 | M16 | 224 | M20 | 2/4-Bolt       |
| M                                                                  |                   | 200   | 13.5 | 250   | 176.8 | M20 | -   | -   | 4-Bolt         |



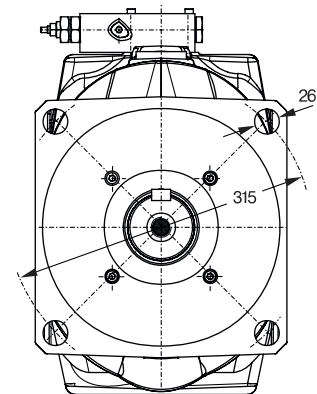
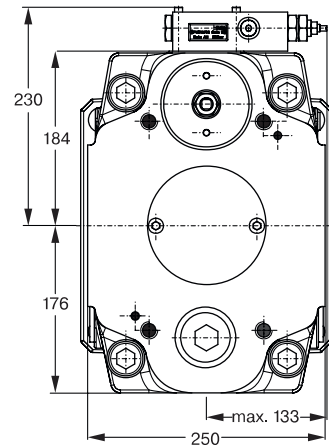
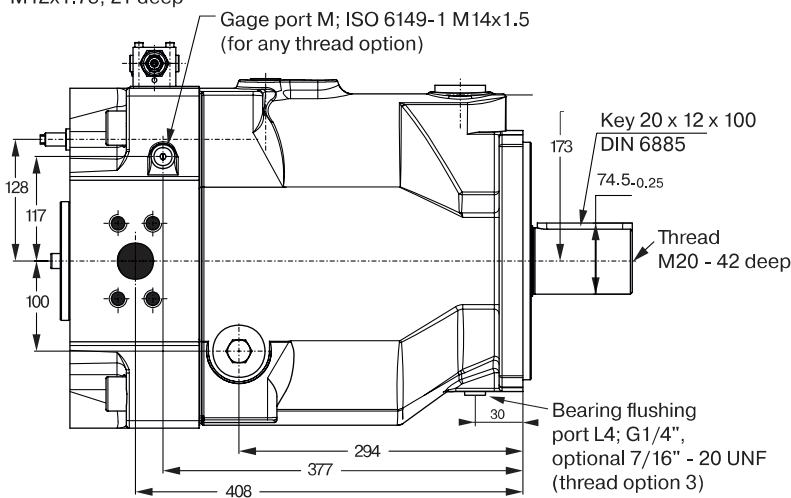
## PUMP DIMENSIONS

### PV 360, metric version

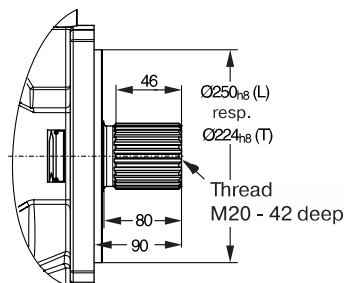
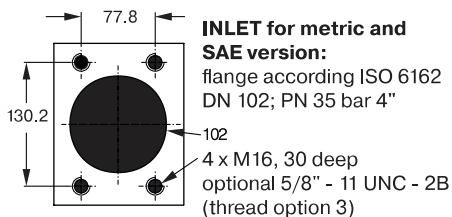
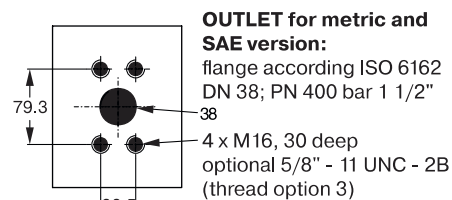
Mounting interface for horse power pilot or CIP for displacement feedback



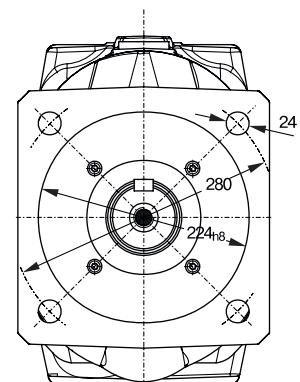
Thread for transport: M12x1.75; 21 deep



The pump shown above has **Mounting option K** and **through drive variation T** (prepared for through drive)



**Mounting option L, T,**  
splined shaft  
W 70 x 3 x 22 x 8f DIN 5480



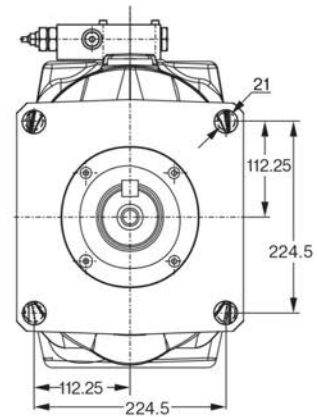
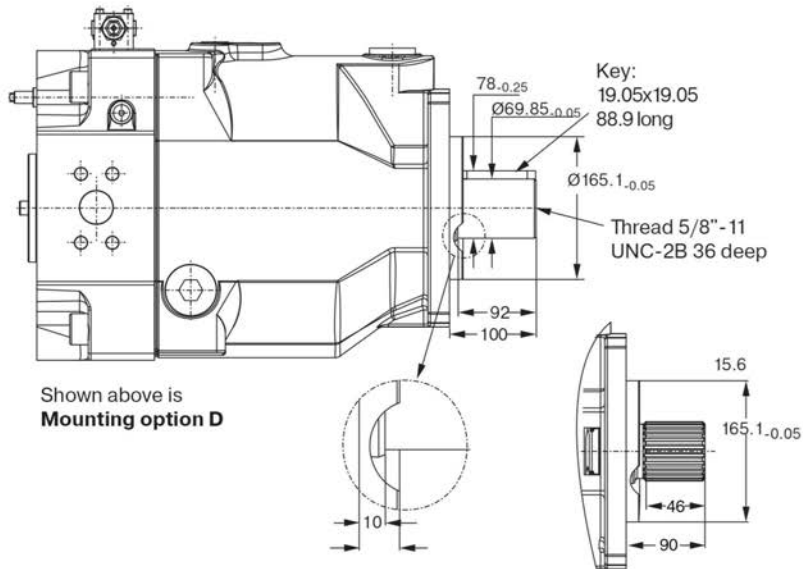
**mounting option R**  
pilot diameter  $\varnothing 224$  mm

Shown is a clockwise rotating pump with standard pressure control. Counter clockwise rotating pump have inlet, outlet and gage port reversed.



## PUMP DIMENSIONS

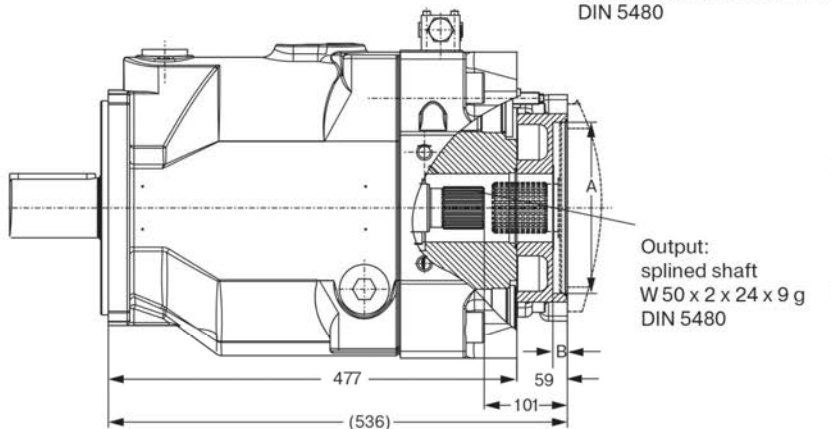
### PV 360 SAE Version



#### Note:

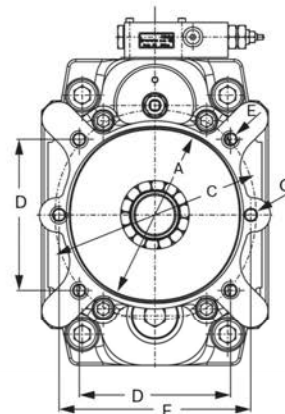
The dimensions shown conform to ISO 3019/1 the actual hole dimensions conform to ISO 3019/2 (pitch Ø315, hole Ø26, see previous page) and cover ISO 3019/1 dimensions as well. Use washers when assembling pump.

### Variation with through drive



#### Mounting option E

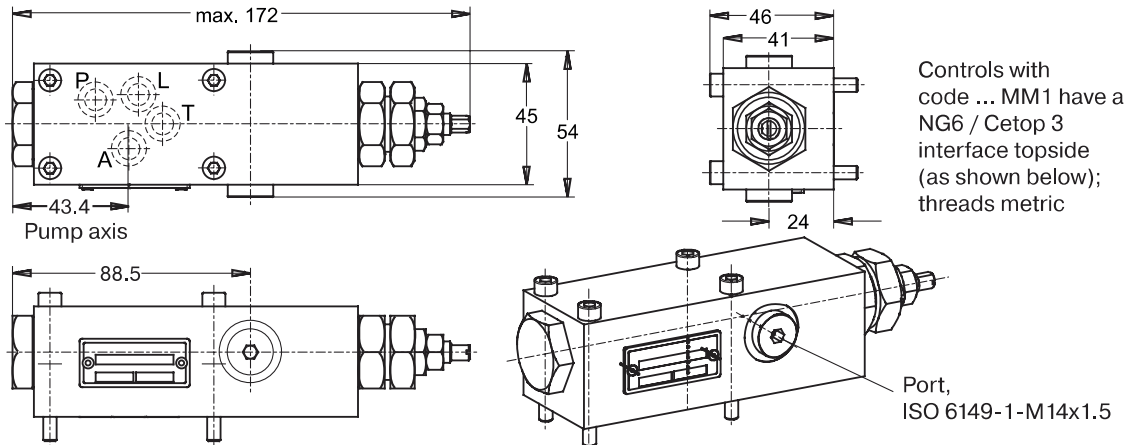
splined shaft W 70x3x22x8f,  
DIN 5480



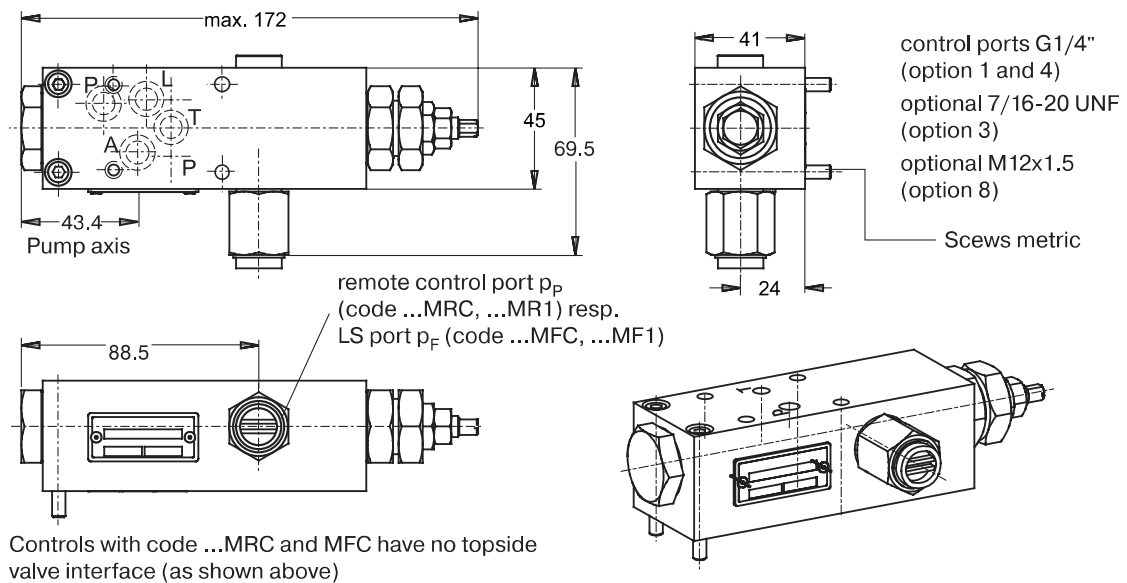
| Through drive adaptors are available with the following dimensions |       |      |       |       |     |     |     |                |
|--------------------------------------------------------------------|-------|------|-------|-------|-----|-----|-----|----------------|
| Drawing Dimension                                                  | A     | B    | C     | D     | E   | F   | G   | Remark         |
| Through drive option                                               |       |      |       |       |     |     |     |                |
| A                                                                  | 82.55 | 8    | -     | -     | -   | 106 | M10 | SAE A 2-Bolt   |
| B                                                                  | 101.6 | 11   | 127   | 89.8  | M12 | 146 | M12 | SAE B 2/4-Bolt |
| C                                                                  | 127   | 13.5 | 162   | 114.6 | M12 | 181 | M16 | SAE C 2/4-Bolt |
| D                                                                  | 152.4 | 13.5 | 228.5 | 161.6 | M16 | 229 | M16 | SAE D 2/4-Bolt |
| E                                                                  | 165.1 | 17   | 317.5 | 224.5 | M20 | -   | -   | SAE E 4-Bolt   |
| J                                                                  | 100   | 10.5 | 125   | 88.4  | M10 | 140 | M12 | 2/4-Bolt       |
| K                                                                  | 125   | 10.5 | 160   | 113.1 | M12 | 180 | M16 | 2/4-Bolt       |
| L                                                                  | 160   | 13.5 | 200   | 141.4 | M16 | 224 | M20 | 2/4-Bolt       |
| M                                                                  | 200   | 13.5 | 250   | 176.8 | M20 | -   | -   | 4-Bolt         |

# CONTROL DIMENSIONS

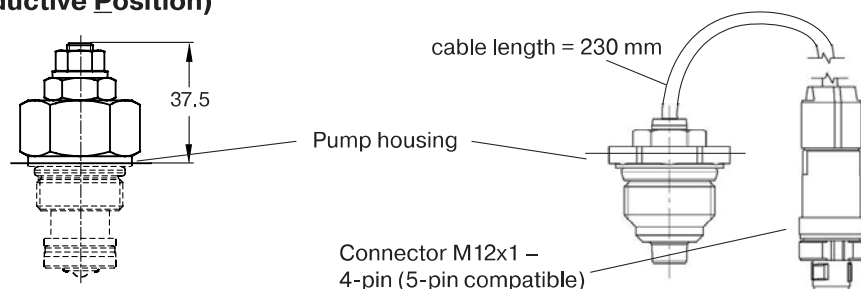
## Dimensions standard pressure control, code ...MMC



## Dimensions remote pressure and load sensing control, codes ...MR1, ...MF1

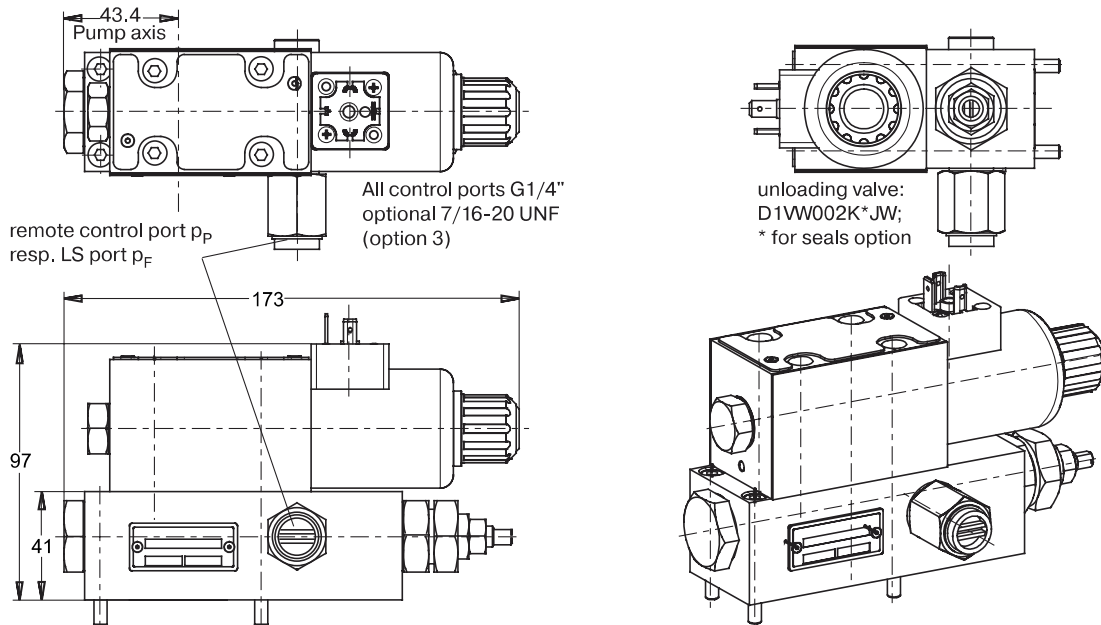


## Dimensions horse power pilot cartridge, displacement sensor (Contactless Inductive Position)



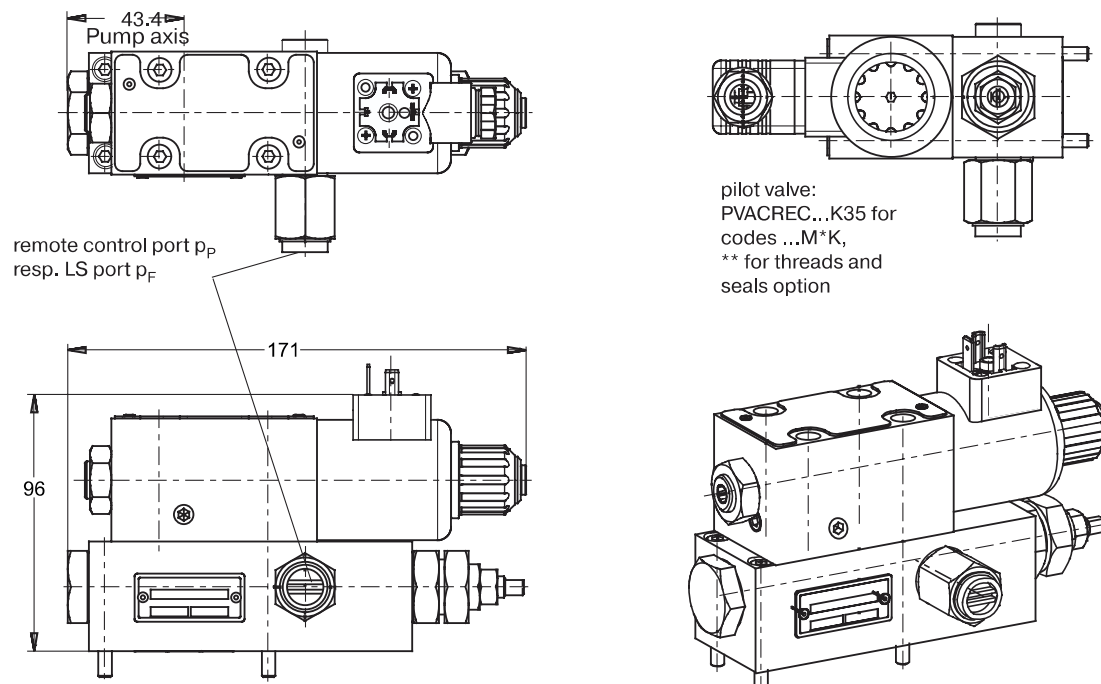
# CONTROL DIMENSIONS

## Dimensions for controls with unloading valve, codes ...M\*W



Shown in version MRW/MFW, version MMW has no remote control port.

## Dimensions for controls with proportional pressure pilot valve, codes ...M\*K



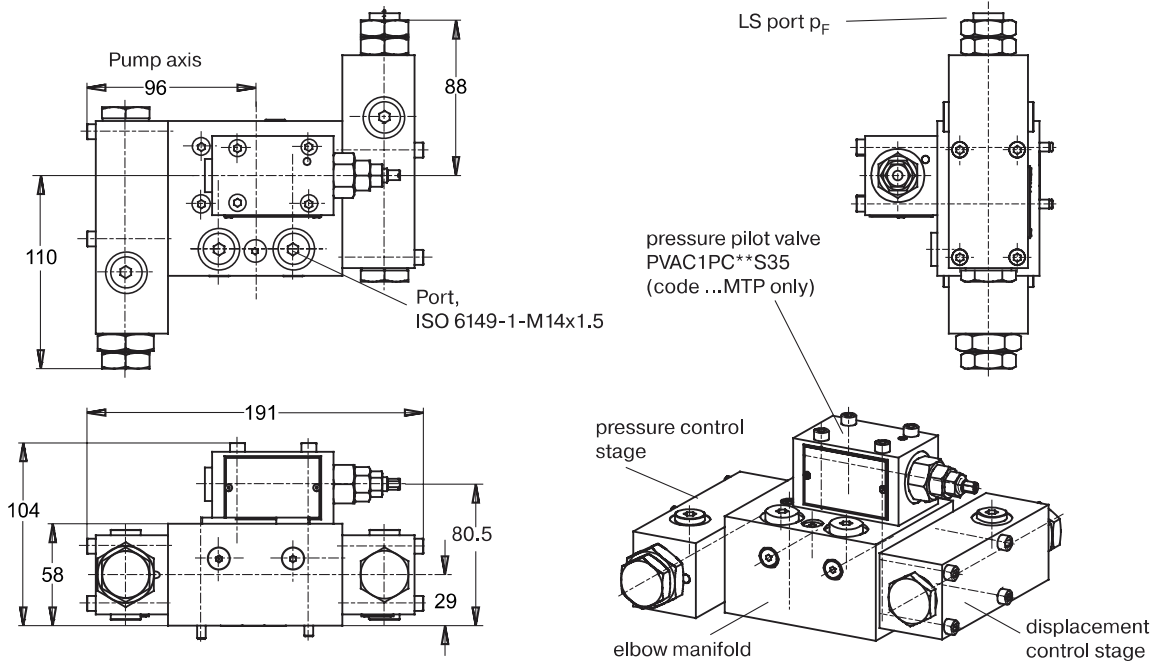
Shown in version MRK/MFK, version MMK has no remote control port.

Dimensions for horse power compensator \*L\* and \*C\* are identical to MM\* respectively MF\*.

# CONTROL DIMENSIONS

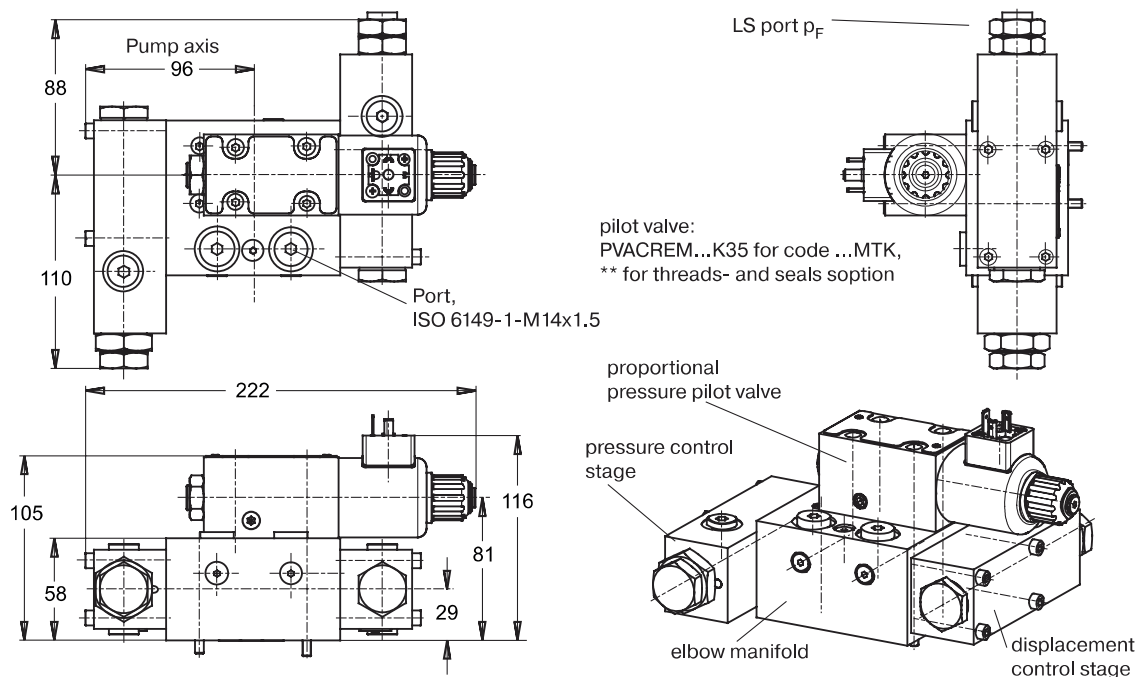
## Dimensions two spool load sensing control, code ...MTZ, ...MTP

All connecting screws metric



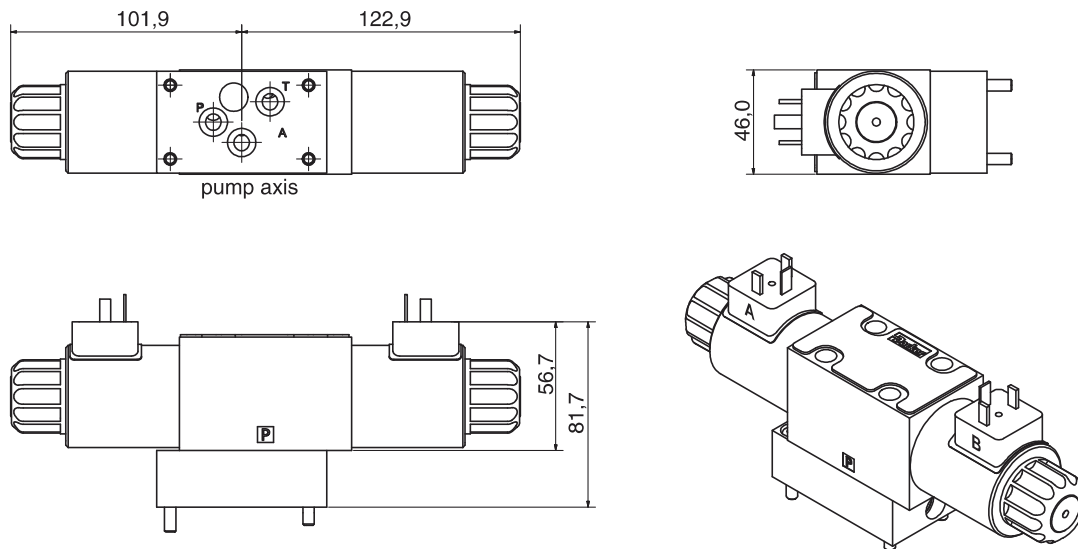
Shown version MTP

## Dimensions two spool load sensing control with proportional pressure pilot valve, code ...MTK – All connecting screws metric



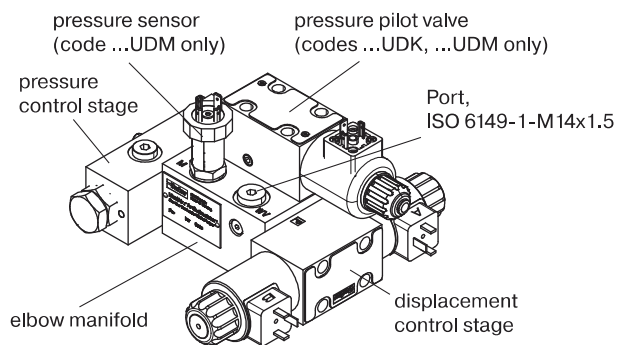
# CONTROL DIMENSIONS

**Dimensions proportional displacement control, code ...FDV** – All connecting screws metric

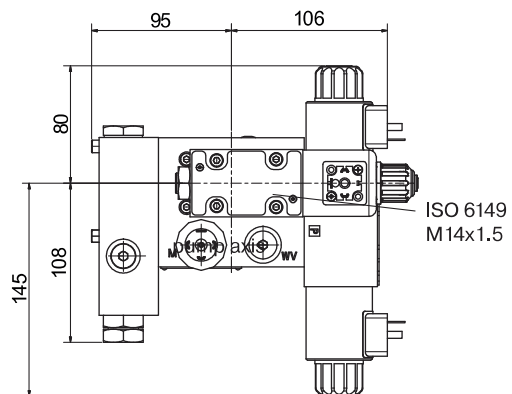
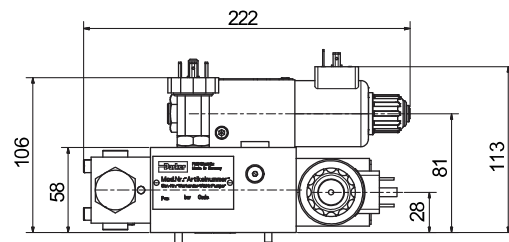
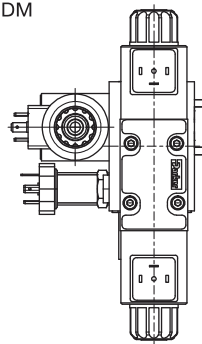


**Dimensions proportional p/Q-control, codes ...UDR, ...UDK, ...UDM**

All connecting screws metric



pilot valve:  
PVACREM...K35 for code ...UDK, UDM  
\*\* for threads- and seals option



# THROUGH DRIVE – MOUNTING KITS

## Mounting kits for multiple pumps, for second pump option

**MK** – **PV** **BG**

Mounting kit   Axial piston pump series PV   Size   Second pump   Thread   Seals

| Code | Pump size                  |
|------|----------------------------|
| 1    | Pump size 1: PV016 – PV028 |
| 2    | Pump size 2: PV032 – PV046 |
| 3    | Pump size 3: PV063 – PV092 |
| 4    | Pump size 4: PV140 – PV180 |
| 5    | Pump size 5: PV270 – PV360 |

| Code | Second pump, SAE                            |
|------|---------------------------------------------|
| T    | Prepared for through drive option (plugged) |
| A    | SAE A-2, diameter 82.55 mm                  |
| B    | SAE B-2/4, diameter 101.6 mm*               |
| C    | SAE C-2/4, diameter 127 mm**                |
| D    | SAE D-4, diameter 152.4 mm                  |
| E    | SAE E-4, diameter 165.1 mm                  |

| Code | Seals |
|------|-------|
| N    | NBR   |
| V    | FPM   |

| Code | Thread |
|------|--------|
| M    | Metric |
| S    | SAE    |

| Code | Second pump, metric |
|------|---------------------|
| J    | Diameter 100 mm     |
| K    | Diameter 125 mm     |
| L    | Diameter 160 mm     |
| M    | Diameter 200 mm     |

Kit contains positions 30, 69, 84, 85 and 87, see spare part list

\* PV016-PV028 only available with SAE B - 4 bolt, diameter 101,6 mm  
\*\* PV032-PV046 only available with SAE C - 4 bolt, diameter 127 mm

## Mounting kits for multiple pumps, couplings

**MK** – **PV** **BG**  **K**

Mounting kit   Axial piston pump series PV   Size   Coupling

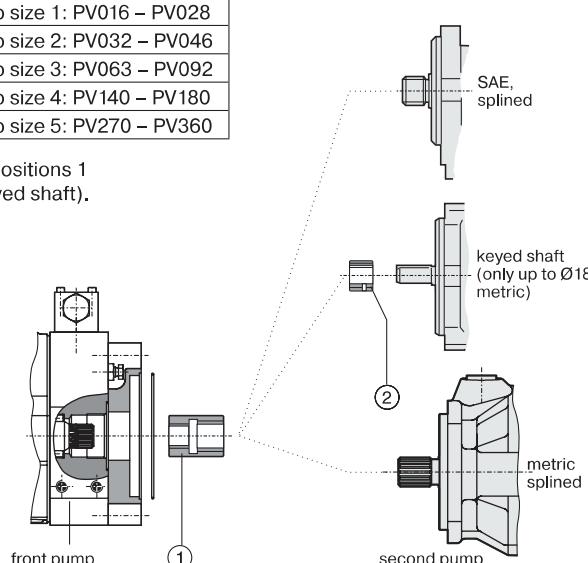
| Code | Pump size                  |
|------|----------------------------|
| 1    | Pump size 1: PV016 – PV028 |
| 2    | Pump size 2: PV032 – PV046 |
| 3    | Pump size 3: PV063 – PV092 |
| 4    | Pump size 4: PV140 – PV180 |
| 5    | Pump size 5: PV270 – PV360 |

| Code | Coupling for metric, splined shaft DIN 5480 |
|------|---------------------------------------------|
| 01   | N25 x 1.5 x 15                              |
| 02   | N32 x 1.5 x 20                              |
| 03   | N40 x 1.5 x 25                              |
| 04   | N50 x 2 x 24                                |
| 05   | N60 x 2 x 28                                |
| 06   | N70 x 3 x 22*                               |

| Code | Coupling for SAE splined shaft flat root, side fit |
|------|----------------------------------------------------|
| 11   | SAE A, 9T 16/32                                    |
| 12   | SAE, 11T 16/32                                     |
| 13   | SAE B, 13T 16/32                                   |
| 14   | SAE B-B, 15T 16/32                                 |
| 15   | SAE C, 14T 12/24                                   |
| 16   | SAE C-C, 17T 12/24                                 |
| 17   | SAE D+E, 13T 8/16                                  |
| 18   | SAE F, 15T 8/16                                    |

| Code | Coupling + adaptor for keyed shaft |
|------|------------------------------------|
| 20   | Diameter 12 mm                     |
| 21   | Diameter 16 mm                     |
| 22   | Diameter 18 mm                     |

Kit contains positions 1 (and 2 for keyed shaft).



\* For PV360 only

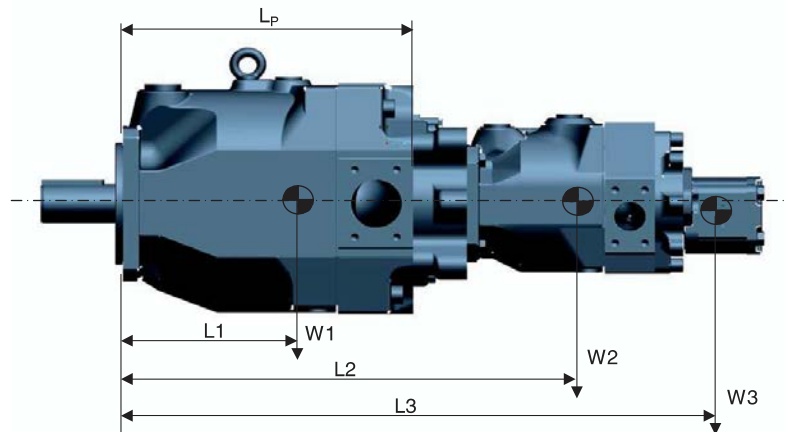
Availability of through drive flange and coupling please check with ordering code options per each pump size, starting at page 6

# THROUGH DRIVE – FLANGE LOAD LIMITATION

## Multiple Pump Combinations – Maximum Moment

Combinations of multiple pumps might require additional pump support to avoid high stress on the front mounting flange. Combinations of two PVplus pumps in the same frame size generally do not need additional support in an industrial application. For combinations of more pumps support is required.

In case of combinations of a PVplus pump with another type of pump it is recommended to calculate the moment for the combination and compare with the maximum moment in table 1 below.



$$\text{Moment } M = (L1 \cdot W1 + L2 \cdot W2 + L3 \cdot W3 + \dots)$$

**Note:** If the calculated moment M exceeds the maximum moment in table 1 below, additional pump support is needed

**Table 1: Maximum Moment and Pump Dimensions**

|                              |             | PV016-PV028 | PV032-PV046 | PV063-PV092 | PV140-PV180 | PV270 | PV360 |
|------------------------------|-------------|-------------|-------------|-------------|-------------|-------|-------|
| Maximum moment <sup>1)</sup> | [Nm]        | 81          | 151         | 401         | 591         | 1686  | 1686  |
| Weight W                     | [N]         | 186         | 294         | 589         | 883         | 1687  | 1766  |
| Distance L1                  | [mm to C/G] | 106         | 119         | 178         | 184         | 234   | 238   |
| Distance Lp                  | [mm]        | 197.5       | 227         | 287         | 350         | 472.5 | 477   |

<sup>1)</sup> at dynamic weight acceleration 10g = 98.1 m/sec<sup>2</sup>

**Table 2 Through Drive Adapter Plate Thickness [mm]**

| Adapter option <sup>2)</sup> | PV016-PV028 | PV032-PV046 | PV063-PV092 | PV140-PV180 | PV270 | PV360 |
|------------------------------|-------------|-------------|-------------|-------------|-------|-------|
| A                            | 27          | 34          | 39          | 65          | 59    | 59    |
| B                            | 27          | 34          | 39          | 65          | 59    | 59    |
| C                            | -           | 49          | 39          | 65          | 59    | 59    |
| D                            | -           | -           | 64          | 65          | 59    | 59    |
| E                            | -           | -           | -           | -           | 59    | 59    |
| G                            | 27          | 34          | 39          | -           | -     | -     |
| J                            | 27          | 34          | 39          | 65          | 59    | 59    |
| K                            | -           | 34          | 39          | 65          | 59    | 59    |
| L                            | -           | -           | 39          | 65          | 59    | 59    |
| M                            | -           | -           | -           | -           | 59    | 59    |

<sup>2)</sup> See page 6 to 17 for reference per each frame size.

# THROUGH DRIVE – SHAFT LOAD LIMITATIONS

| Maximum allowed transferable torque FRONT           |                 |                                              |           |           |           |       |       |
|-----------------------------------------------------|-----------------|----------------------------------------------|-----------|-----------|-----------|-------|-------|
| Shaft code                                          | Shaft type      | Transferable torque at FRONT shaft end. [Nm] |           |           |           |       |       |
|                                                     |                 | PV016-028                                    | PV032-046 | PV063-092 | PV140-180 | PV270 | PV360 |
| <b>D</b>                                            | SAE - Key       | 300                                          | 650       | 1850      | 2150      | 2150  | 4750  |
| <b>E</b>                                            | SAE - Spline    | 320                                          | 630       | 1700      | 2750      | 2800  | 8100* |
| <b>F</b>                                            | SAE - Key       |                                              |           |           | 1200      |       |       |
| <b>G</b>                                            | SAE - Spline    |                                              |           |           | 1700      |       |       |
| <b>R</b>                                            | Metric - Key    |                                              |           |           |           |       | 3750  |
| <b>T</b>                                            | Metric - Spline |                                              |           |           |           |       | 8100  |
| <b>K</b>                                            | Metric - Key    | 280                                          | 640       | 1200      | 1550      | 3300  | 3750  |
| <b>L</b>                                            | Metric - Spline | 320                                          | 720       | 1500      | 3050      | 5750  | 8100  |
| Maximum allowed transferable torque REAR            |                 |                                              |           |           |           |       |       |
| Max. torque transmission cap. for rear mounted pump |                 | 350                                          | 520       | 1100      | 1550      | 3150  | 3250  |

\* DIN5480 splined

## Important notice:

The max. allowable torque of the individual shaft must not be exceeded. For 2-pump combinations there is no problem because PV series offers 100 % through torque. For 3-pump combinations (and more) the limit torque could be reached or exceeded.

Therefore it is necessary to calculate the resulting input as well as through drive torque.



# NOTES



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