



# Axial Piston Pumps

Series PVplus  
Variable Displacement



[parker.com/pmde](http://parker.com/pmde)



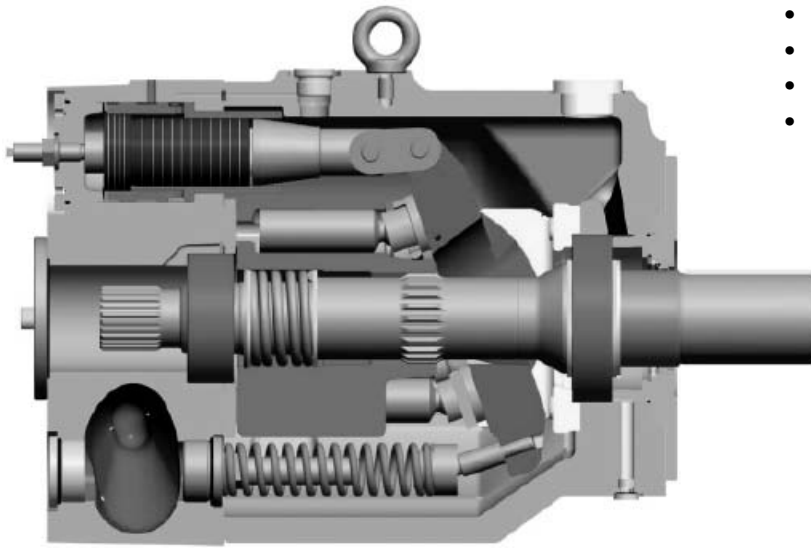
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**With thru drive for single and multiple pumps**

Swash plate type for open circuit

**Technical Features**

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

**General Information****Fluid recommendations**

Premium quality hydraulic mineral fluid is recommended, like HLP oils to DIN 51524, part 2. 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 HY30-3248/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.

|   |                         | 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]                    | 15.5   | 19.5   | 22.5   | 27.5   | 31     | 39     | 45     |
| Max speed at 1 bar, abs, inlet pressure               | [rpm]                   | 3000   | 3000   | 3000   | 3000   | 2800   | 2800   | 2800   |
| Min. speed  | [rpm]                   | 400    | 400    | 400    | 400    | 400    | 400    | 400    |
| Moment of inertia                                     | [kgm <sup>2</sup> ]     | 0.0017 | 0.0017 | 0.0017 | 0.0017 | 0.0043 | 0.0043 | 0.0043 |
| 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]                    | 61.5  | 78    | 89.5  | 136   | 175   | 263   | 350   |
| Max speed at 1 bar, abs, inlet pressure               | [rpm]                   | 2800  | 2500  | 2300  | 2400  | 2200  | 1800  | 1750  |
| Min. speed  | [rpm]                   | 400   | 400   | 400   | 400   | 400   | 400   | 400   |
| 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   |

1) Check adjustment range each compensator.



axial piston pump variable displacement

size and displacement

rotation

variation

mounting interface

threads code

thru drive code

coupling code

seals

control

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                                     |
| 2    | Electronic displacement sensor <sup>2)</sup> |
| 9    | Special adjustment <sup>3)</sup>             |

<sup>2)</sup> not for horse power control

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

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

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

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

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

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

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

| Code | Coupling for thru 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 | Thru drive option                                      |             |
|------|--|-------------|
|      | No adaptor for 2nd pump                                |             |
| T    | Single pump prepared for thru drive                    |             |
|      | with adaptor for 2nd pump as single part <sup>7)</sup> |             |
| A    | SAE A, Ø 82.55 mm                                      | MK-PVBG1Axx |
| B    | SAE B, Ø 101.6 mm                                      | MK-PVBG1Bxx |
| H    | metric, Ø 80 mm  | MK-PVBG1Hxx |
| J    | metric, Ø 100 mm                                       | MK-PVBG1Jxx |

See dimensions for details

<sup>7)</sup> to be ordered separately as single part see page 61.

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.

| 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, integrated pilot valve                                   |
| M                 | R |   | Remote pressure control, integrated pilot valve                                     |
| M                 | F |   | Load Sensing (flow) control, integrated pilot valve                                 |
| M                 | T |   | Two spool LS control  |
| Control variation |   |   |   |
|                   |   | C | Standard version <sup>1)</sup>  |
|                   |   | 1 | NG6 interface top side for pilot valves   |
|                   |   | 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 | MT1 with mounted pilot valve PVAC1P <sup>2)</sup>                                   |

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

4) 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 |

5) further info in HY30-3254



axial piston pump variable displacement

size and displacement

rotation

variation

mounting interface

threads code

thru drive code

coupling code

seals

control

see next page →

| 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    |

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

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

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

| Code | Variation                                    |
|------|--|
| 1    | Standard                                     |
| 2    | Electronic displacement sensor <sup>2)</sup> |
| 9    | Special adjustment <sup>3)</sup>             |

<sup>2)</sup> not for horse power control

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

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

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

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

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

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

| Code | Coupling for thru 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                  |

| Code | Thru drive option                                      |             |
|------|--|-------------|
|      | No adaptor for 2nd pump                                |             |
| T    | Single pump prepared for thru drive                    |             |
|      | with adaptor for 2nd pump as single part <sup>6)</sup> |             |
| A    | SAE A, Ø 82.55 mm                                      | MK-PVBG2Axx |
| B    | SAE B, Ø 101.6 mm                                      | MK-PVBG2Bxx |
| C    | SAE C, Ø 127 mm  | MK-PVBG2Cxx |
| H    | metric, Ø 80 mm  | MK-PVBG2Hxx |
| J    | metric, Ø 100 mm                                       | MK-PVBG2Jxx |
| K    | metric, Ø 125 mm                                       | MK-PVBG2Kxx |

See dimensions for details

<sup>7)</sup> to be ordered separately as single part see page 61.

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.



| 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, integrated pilot valve                                   |
| M                 | R |   | Remote pressure control, integrated pilot valve                                     |
| M                 | F |   | Load Sensing (flow) control, integrated pilot valve                                 |
| M                 | T |   | Two spool LS control  |
| Control variation |   |   |   |
|                   |   | C | Standard version <sup>1)</sup>  |
|                   |   | 1 | NG6 interface top side for pilot valves   |
|                   |   | 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 | MT1 with mounted pilot valve PVAC1P <sup>2)</sup>                                   |

1) not for MT & \*Z  
2) only for MT  
3) not for MT & MM

| Horse power / Torque control |   |   |   |
|------------------------------|---|---|---|
| Code                         |   | Nominal HP at 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 <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>4)</sup>                               |

4) 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 |

5) further info in HY30-3254



axial piston pump  
variable displacement  
high pressure  
version

size and displacement

rotation

variation

mounting interface

threads code

thru drive code

coupling code

seals

compensator

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

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

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

| Code | Variation                                    |
|------|--|
| 1    | Standard                                     |
| 2    | Electronic displacement sensor <sup>2)</sup> |
| 9    | Special adjustment <sup>3)</sup>             |

<sup>2)</sup> not for horse power control

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

| Code | Mounting interface              | Shaft             |
|------|---------------------------------|-------------------|
| K    | metr. ISO 4-hole flange Ø160 mm | Cylindric, key    |
| L    | 3019/2 4-hole flange Ø160 mm    | Splined, DIN 5480 |
| D    | SAE ISO 4-hole flange SAE D     | Cylindric, key    |
| E    | 3019/1 4-hole flange SAE D      | 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               | ISO 6149           | metric                |

| Code | Coupling for thru drive               | as single part <sup>7)</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 | Thru drive option                   |             |
|------|-------------------------------------|-------------|
|      | No adaptor for 2nd pump             |             |
| T    | Single pump prepared for thru drive |             |
|      | with adaptor for 2nd pump           |             |
|      | as single part <sup>7)</sup>        |             |
| A    | SAE A, Ø 82.55 mm                   | MK-PVBG3Axx |
| B    | SAE B, Ø 101.6 mm                   | MK-PVBG3Bxx |
| C    | SAE C, Ø 127 mm                     | MK-PVBG3Cxx |
| D    | SAE D, Ø 152.4 mm                   | MK-PVBG3Dxx |
| H    | metric, Ø 80 mm                     | MK-PVBG3Hxx |
| 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>7)</sup> to be ordered separately as single part see page 61.

<sup>4)</sup> Drain, gage 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

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.

| 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, integrated pilot valve                                   |
| M                 | R |   | Remote pressure control, integrated pilot valve                                     |
| M                 | F |   | Load Sensing (flow) control, integrated pilot valve                                 |
| M                 | T |   | Two spool LS control  |
| Control variation |   |   |   |
|                   |   | C | Standard version <sup>1)</sup>  |
|                   |   | 1 | NG6 interface top side for pilot valves   |
|                   |   | 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 | MT1 with mounted pilot valve PVAC1P <sup>2)</sup>                                   |

1) not for MT & \*Z  
2) only for MT  
3) not for MT & MM

| Horse power / Torque control |   |   |   |
|------------------------------|---|---|---|
| Code                         |   |   |   |
|                              |   |   | Nominal HP at 1.500 rpm   |
|                              |   |   | Nominal torque  |
| G                            |   |   | 11 kW   |
| H                            |   |   | 15 kW   |
| K                            |   |   | 18.5 kW   |
| M                            |   |   | 22 kW   |
| S                            |   |   | 30 kW   |
| T                            |   |   | 37 kW   |
| U                            |   |   | 45 kW   |
| W                            |   |   | 55 kW   |
| 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 <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>4)</sup>                               |

4) 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 |

5) further info in HY30-3254



axial piston pump variable displacement

size and displacement

rotation

variation

mounting interface

threads code

thru drive code

coupling code

seals

control

see next page →

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

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

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

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

| Code | Variation                                    |
|------|--|
| 1    | Standard                                     |
| 2    | Electronic displacement sensor <sup>2)</sup> |
| 9    | Special adjustment <sup>3)</sup>             |

<sup>2)</sup> not for horse power control

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

| Code | Coupling for thru drive               | as single part <sup>8)</sup> |
|------|---------------------------------------|------------------------------|
| 1    | Single pump, no coupling              |                              |
| H    | with coupling 25 x 1.5 x 15, DIN 5480 | MK-PVVG4K01                  |
| J    | with coupling 32 x 1.5 x 20, DIN 5480 | MK-PVVG4K02                  |
| K    | with coupling 40 x 1.5 x 25, DIN 5480 | MK-PVVG4K03                  |
| L    | with coupling 50 x 2 x 24, DIN 5480   | MK-PVVG4K04                  |
| Y    | with coupling SAE A 9T-16/32 DP       | MK-PVVG4K11                  |
| A    | with coupling SAE - 11T-16/32 DP      | MK-PVVG4K12                  |
| B    | with coupling SAE B 13T-16/32 DP      | MK-PVVG4K13                  |
| C    | with coupling SAE B-B 15T-16/32 DP    | MK-PVVG4K14                  |
| D    | with coupling SAE C 14T-12/24 DP      | MK-PVVG4K15                  |
| E    | with coupling SAE C-C 17T-12/24 DP    | MK-PVVG4K16                  |
| F    | with coupling SAE D, E 13T-8/16 DP    | MK-PVVG4K17                  |
| G    | with coupling SAE F 15T-8/16 DP       | MK-PVVG4K18                  |

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

| 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 | Thru drive option                                      |             |
|------|--|-------------|
|      | No adaptor for 2nd pump                                |             |
| T    | Single pump prepared for thru drive                    |             |
|      | with adaptor for 2nd pump as single part <sup>8)</sup> |             |
| A    | SAE A, Ø 82.55 mm                                      | MK-PVVG4Axx |
| B    | SAE B, Ø 101.6 mm                                      | MK-PVVG4Bxx |
| C    | SAE C, Ø 127 mm  | MK-PVVG4Cxx |
| D    | SAE D, Ø 152.4 mm                                      | MK-PVVG4Dxx |
| H    | metric, Ø 80 mm  | MK-PVVG4Hxx |
| J    | metric, Ø 100 mm                                       | MK-PVVG4Jxx |
| K    | metric, Ø 125 mm                                       | MK-PVVG4Kxx |
| L    | metric, Ø 160 mm                                       | MK-PVVG4Lxx |

See dimensions for details

<sup>8)</sup> to be ordered separately as single part see page 61.

<sup>4)</sup> Drain, gage 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.

| 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, integrated pilot valve                                   |
| M                 | R |   | Remote pressure control, integrated pilot valve                                     |
| M                 | F |   | Load Sensing (flow) control, integrated pilot valve                                 |
| M                 | T |   | Two spool LS control  |
| Control variation |   |   |   |
|                   |   | C | Standard version <sup>1)</sup>  |
|                   |   | 1 | NG6 interface top side for pilot valves   |
|                   |   | 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 | MT1 with mounted pilot valve PVAC1P <sup>2)</sup>                                   |

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

4) 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 |

5) further info in HY30-3254



axial piston pump  
variable displacement  
high pressure  
version

size and displacement

| 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                                     |
| 2    | Electronic displacement sensor <sup>2)</sup> |
| 9    | Special adjustment <sup>3)</sup>             |

<sup>2)</sup> not for horse power control

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

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

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

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

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

rotation  
variation

mounting interface  
threads code

thru drive code  
coupling code

seals

compensator

see next page →

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

| Code | Coupling for thru drive               | as single part <sup>6)</sup> |
|------|---------------------------------------|------------------------------|
| 1    | Single pump, no coupling              |                              |
| H    | with coupling 25 x 1.5 x 15, DIN 5480 | MK-PVVG5K01                  |
| J    | with coupling 32 x 1.5 x 20, DIN 5480 | MK-PVVG5K02                  |
| K    | with coupling 40 x 1.5 x 25, DIN 5480 | MK-PVVG5K03                  |
| L    | with coupling 50 x 2 x 24, DIN 5480   | MK-PVVG5K04                  |
| M    | with coupling 60 x 2 x 28, DIN 5480   | MK-PVVG5K05                  |
| Y    | with coupling SAE A 9T-16/32 DP       | MK-PVVG5K11                  |
| A    | with coupling SAE - 11T-16/32 DP      | MK-PVVG5K12                  |
| B    | with coupling SAE B 13T-16/32 DP      | MK-PVVG5K13                  |
| C    | with coupling SAE B-B 15T-16/32 DP    | MK-PVVG5K14                  |
| D    | with coupling SAE C 14T-12/24 DP      | MK-PVVG5K15                  |
| E    | with coupling SAE C-C 17T-12/24 DP    | MK-PVVG5K16                  |
| F    | with coupling SAE D, E 13T-8/16 DP    | MK-PVVG5K17                  |
| G    | with coupling SAE F 15T-8/16 DP       | MK-PVVG5K18                  |

| Code | Thru drive option                   |             |
|------|-------------------------------------|-------------|
|      | No adaptor for 2nd pump             |             |
| T    | Single pump prepared for thru drive |             |
|      | with adaptor for 2nd pump           |             |
|      | as single part <sup>6)</sup>        |             |
| A    | SAE A, Ø 82.55 mm                   | MK-PVVG5Axx |
| B    | SAE B, Ø 101.6 mm                   | MK-PVVG5Bxx |
| C    | SAE C, Ø 127 mm                     | MK-PVVG5Cxx |
| D    | SAE D, Ø 152.4 mm                   | MK-PVVG5Dxx |
| E    | SAE E, Ø 165.1 mm                   | MK-PVVG5Exx |
| H    | metric, Ø 80 mm                     | MK-PVVG5Hxx |
| J    | metric, Ø 100 mm                    | MK-PVVG5Jxx |
| K    | metric, Ø 125 mm                    | MK-PVVG5Kxx |
| L    | metric, Ø 160 mm                    | MK-PVVG5Lxx |
| M    | metric, Ø 200 mm                    | MK-PVVG5Mxx |

See dimensions for details

<sup>6)</sup> to be ordered separately as single part see page 61.

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.

| 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, integrated pilot valve                                   |
| M                 | R |   | Remote pressure control, integrated pilot valve                                     |
| M                 | F |   | Load Sensing (flow) control, integrated pilot valve                                 |
| M                 | T |   | Two spool LS control  |
| Control variation |   |   |   |
|                   |   | C | Standard version <sup>1)</sup>  |
|                   |   | 1 | NG6 interface top side for pilot valves   |
|                   |   | 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 | MT1 with mounted pilot valve PVAC1P <sup>2)</sup>                                   |

1) not for MT & \*Z  
2) only for MT  
3) 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  |  |
| 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 <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>4)</sup>                               |  |

4) 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 |

5) further info in HY30-3254



axial piston pump variable displacement

size and displacement

rotation

variation

mounting interface

threads code

thru drive code

coupling code

seals

control

see next page →

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

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

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

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

| Code | Variation                                    |
|------|--|
| 1    | Standard                                     |
| 2    | Electronic displacement sensor <sup>2)</sup> |
| 9    | Special adjustment <sup>3)</sup>             |

<sup>2)</sup> not for horse power control

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

| Code | Mounting interface    | Shaft                 |
|------|-----------------------|-----------------------|
| K    | 4-hole flange Ø250 mm | Cylindric, key        |
| L    | metr. ISO 3019/2      | 4-hole flange Ø250 mm |
| R    |                       | 4-hole flange Ø224 mm |
| T    | 4-hole flange Ø224 mm | Splined, DIN 5480     |
| D    | SAE ISO 3019/1        | 4-hole flange SAE E   |
| E    |                       | 4-hole flange SAE E   |

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

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

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

| Code | Coupling for thru 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                  |

| Code | Thru drive option                   |
|------|-------------------------------------|
|      | No adaptor for 2nd pump             |
| T    | Single pump prepared for thru drive |
|      | with adaptor for 2nd pump           |
|      | as single part <sup>6)</sup>        |
| A    | SAE A, Ø 82.55 mm                   |
| B    | SAE B, Ø 101.6 mm                   |
| C    | SAE C, Ø 127 mm                     |
| D    | SAE D, Ø 152.4 mm                   |
| E    | SAE E, Ø 165.1 mm                   |
| H    | metric, Ø 80 mm                     |
| J    | metric, Ø 100 mm                    |
| K    | metric, Ø 125 mm                    |
| L    | metric, Ø 160 mm                    |
| M    | metric, Ø 200 mm                    |

See dimensions for details

<sup>6)</sup> to be ordered separately as single part see page 61.

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.



| 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, integrated pilot valve                                   |
| M                 | R |   | Remote pressure control, integrated pilot valve                                     |
| M                 | F |   | Load Sensing (flow) control, integrated pilot valve                                 |
| M                 | T |   | Two spool LS control  |
| Control variation |   |   |   |
|                   |   | C | Standard version <sup>1)</sup>  |
|                   |   | 1 | NG6 interface top side for pilot valves   |
|                   |   | 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 | MT1 with mounted pilot valve PVAC1P <sup>2)</sup>                                   |

1) not for MT & \*Z  
2) only for MT  
3) not for MT & MM

| Horse power / Torque control |   |   |   |                |
|------------------------------|---|---|---|----------------|
| Code                         |   |   | Nominal HP at 1.500 rpm   | Nominal torque |
| 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 <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>4)</sup>                               |                |

4) 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 |

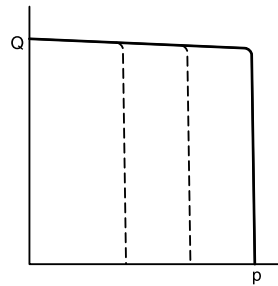
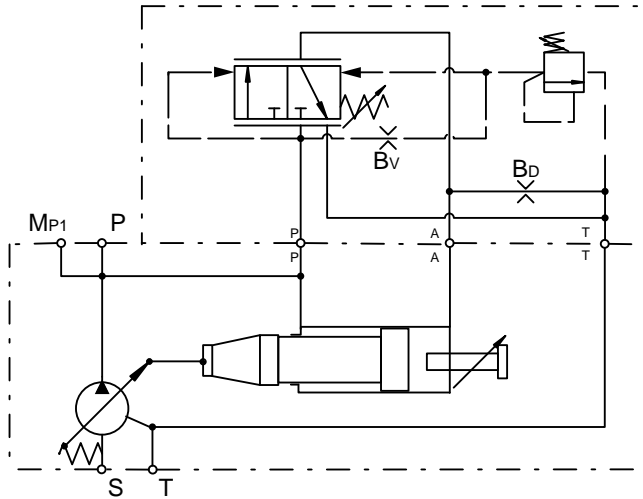
5) further info in HY30-3254

**Standard Pressure Control**

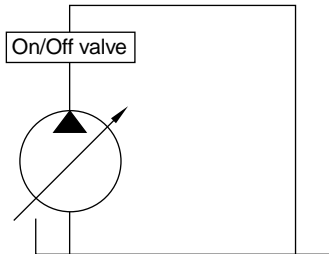
**Control option MMC**

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.

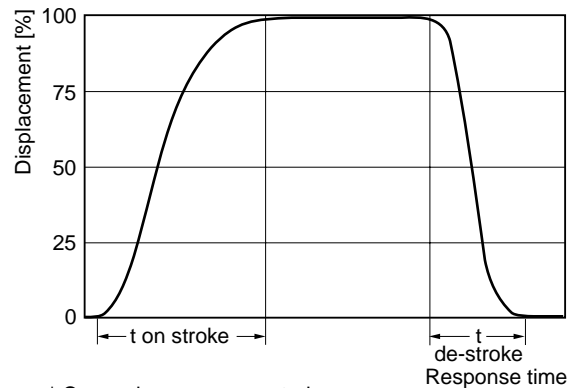
**Control schematics**



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                  |

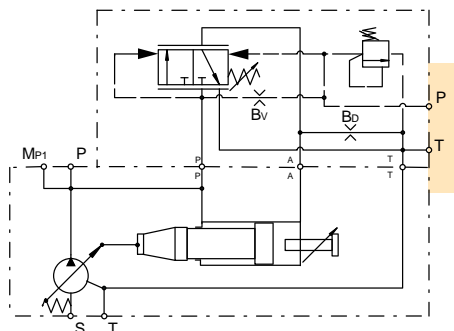
|  |                  |
|--|------------------|
| Pressure adjustment range              | 15 to 420 bar    |
| Factory setting pressure               | 50 bar           |
| Differential pressure adjustment range | 10 to 40 bar     |
| Factory setting differential pressure  | 15 bar           |
| Control oil consumption                | Max 8.0 l/min    |
| Typically pilot flow                   | approx 1,5 l/min |

**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.

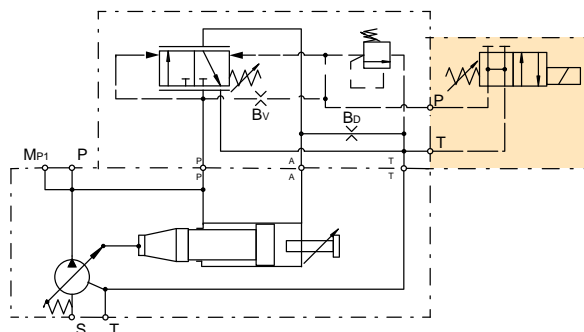


**Standard Pressure Control with Electrical Unloading**

**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.

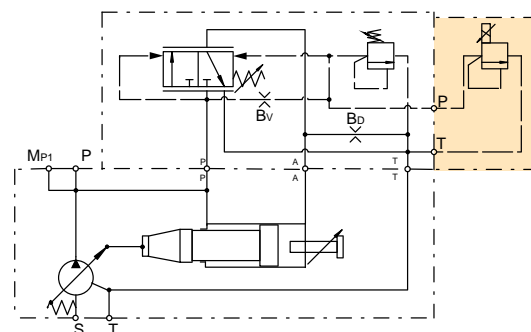


**Standard Pressure Control with Proportional Pilot Valve**

**Control option MMK**

With code MMK a proportional pilot valve of type PVACRE..35 (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.



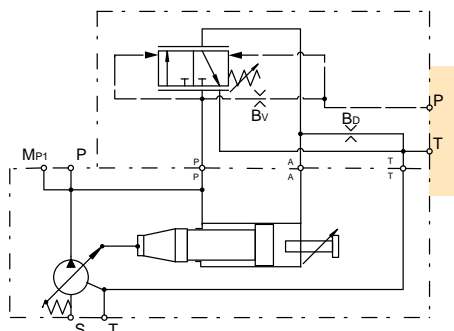
**Standard Pressure Control without Integrated Pressure Pilot Valve**

**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)

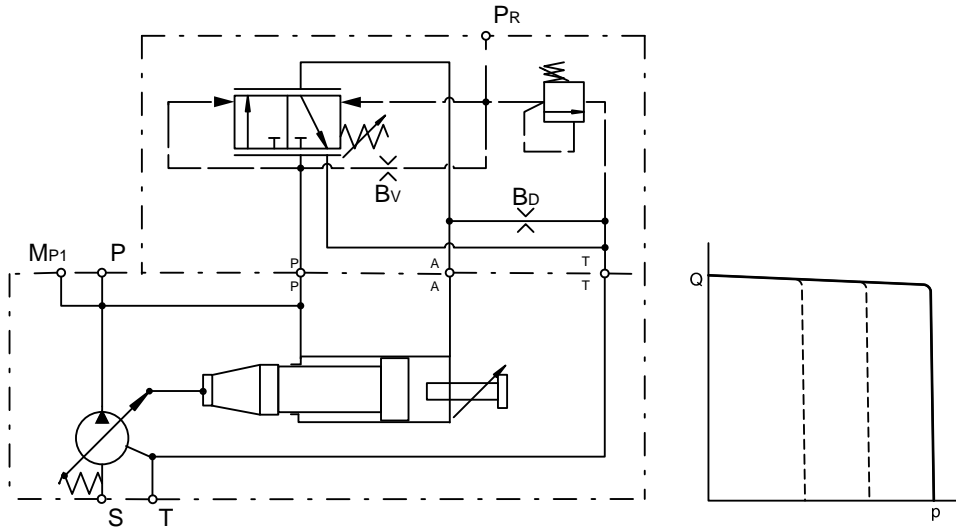


**Remote Pressure Control**

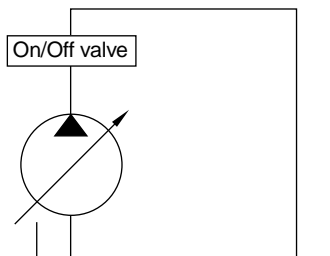
**Control option MRC**

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.

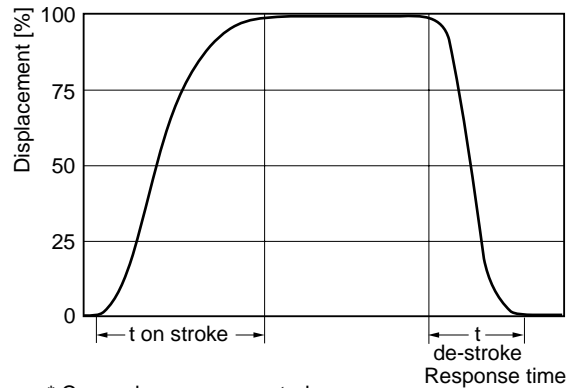
**Control schematics**



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                  |

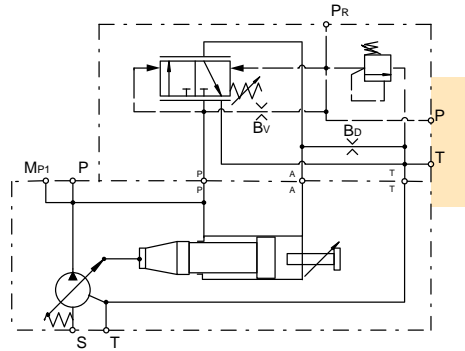
|  |                  |
|--|------------------|
| Pressure adjustment range              | 15 to 420 bar    |
| Factory setting pressure               | 50 bar           |
| Differential pressure adjustment range | 10 to 40 bar     |
| Factory setting differential pressure  | 15 bar           |
| Control oil consumption                | Max 8.0 l/min    |
| Typically pilot flow                   | approx 1,5 l/min |

**Remote Pressure Control with NG6 Interface**

**Control option MR1**

With code MR1 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.

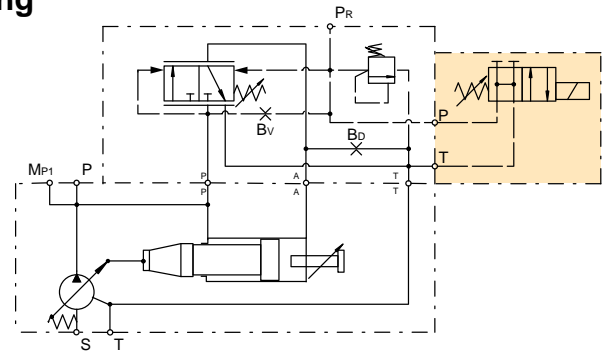


**Remote Pressure Control with Electrical Unloading**

**Control option MRW**

With code MRW 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.

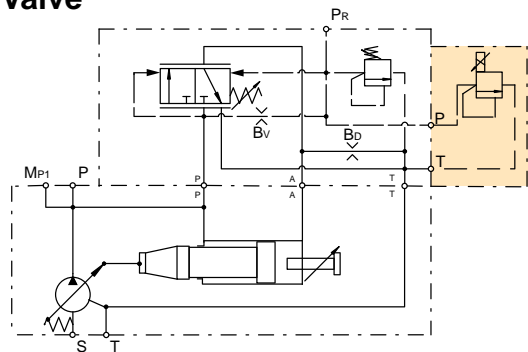


**Remote Pressure Control with Proportional Pilot Valve**

**Control option MRK**

With code MRK a proportional pilot valve of type PVACRE..35 (see page 43) is mounted on the top side interface.

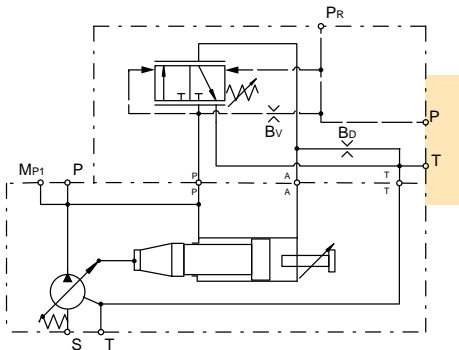
This allows a variation of the pump compensating pressure between 20 and 350 bar by an electrical signal.



**Remote Pressure Control without Integrated Pressure Pilot Valve**

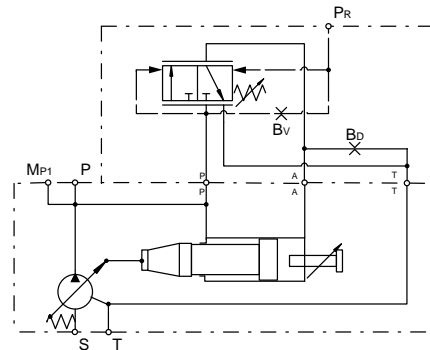
**Control option MRZ**

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



**Control option MRB**

Control MRB has no integrated pilot valve.



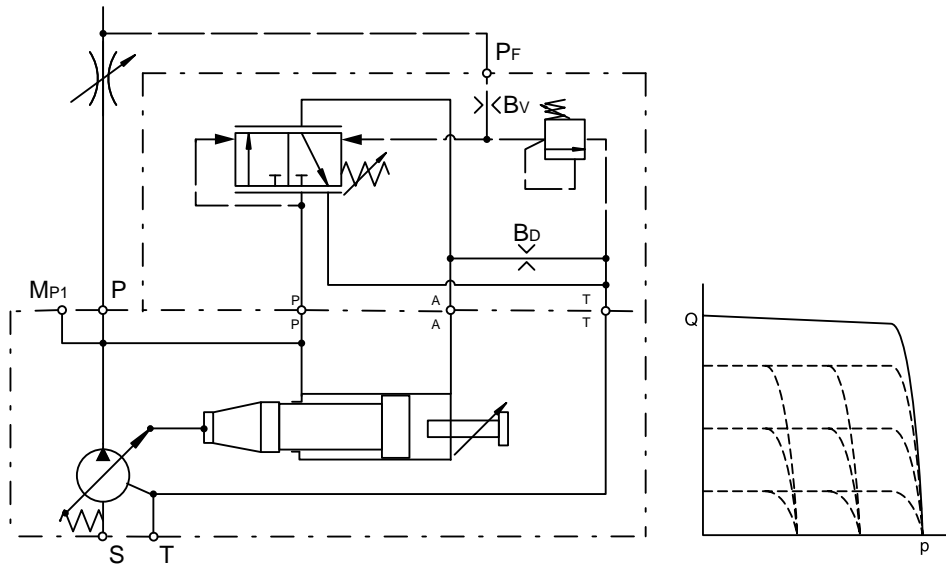
This version is recommended for valve accessories.

**Load Sensing Control**

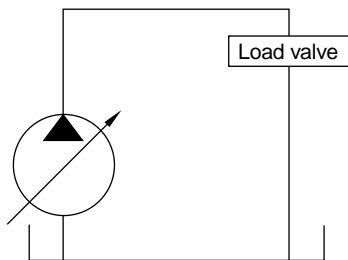
**Control option MFC**

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. Integrated pilot valve allows pmax adjustment.

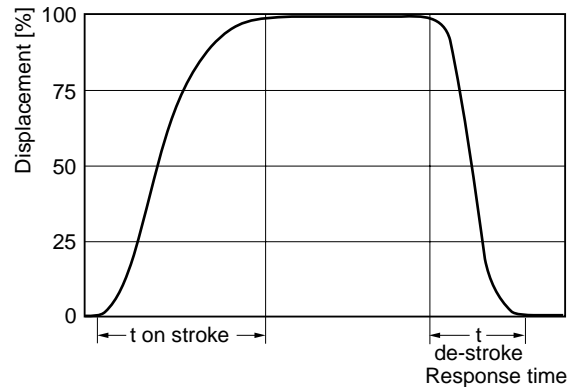
**Control schematics**



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                  |

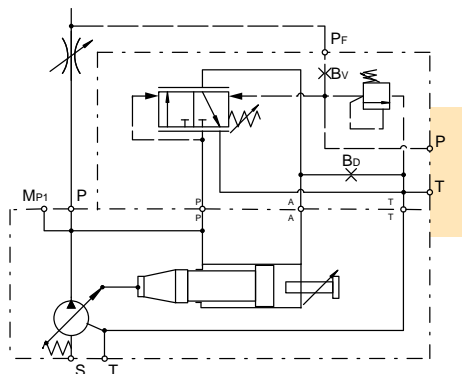
|  |                  |
|--|------------------|
| Pressure adjustment range              | 15 to 420 bar    |
| Factory setting pressure               | 50 bar           |
| Differential pressure adjustment range | 10 to 40 bar     |
| Factory setting differential pressure  | 10 bar           |
| Control oil consumption                | Max 8.0 l/min    |
| Typically pilot flow                   | approx 1,5 l/min |

**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.

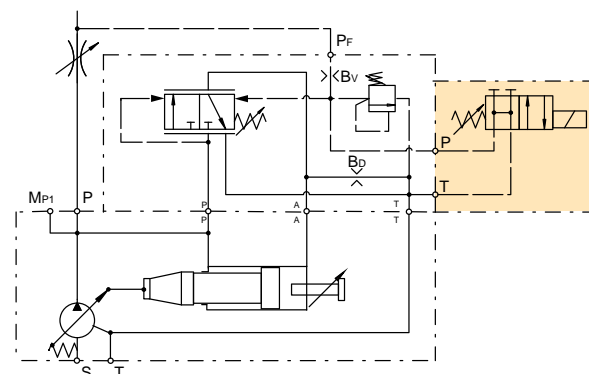


**Load Sensing Control with Electrical Unloading**

**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.

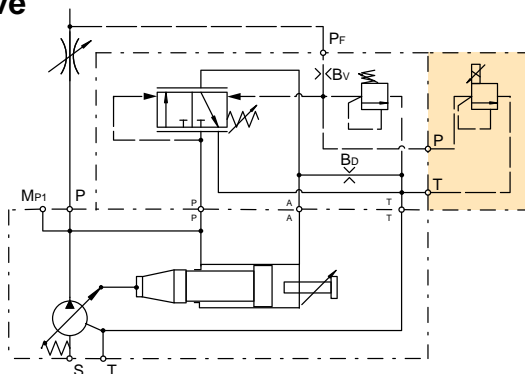


**Load Sensing Control with Proportional Pilot Valve**

**Control option MFK**

With code MFK a proportional pilot valve of type PVACRE..35 (see page 43) is mounted on the top side interface.

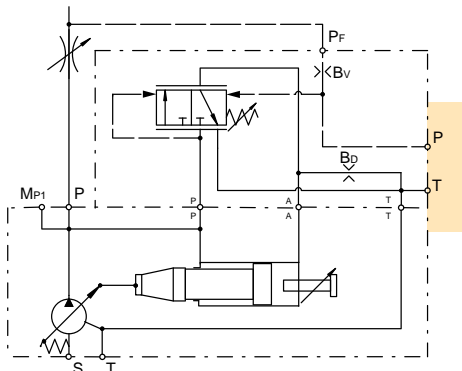
This allows a variation of the pump compensating pressure between 20 and 350 bar by an electrical signal.



**Load Sensing Control without Integrated Pressure Pilot Valve**

**Control option MFZ**

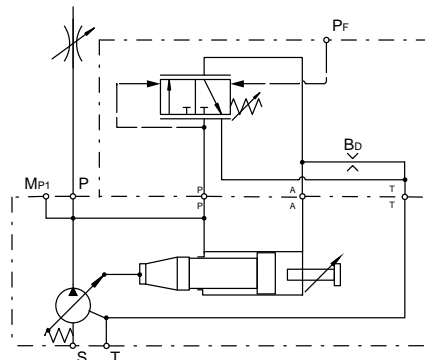
Control MFZ has no integrated pilot valve but a NG6 DIN 24340 interface topside.



This version is recommended for valve accessories.

**Control option MFB**

Control MFB has no integrated pilot valve.

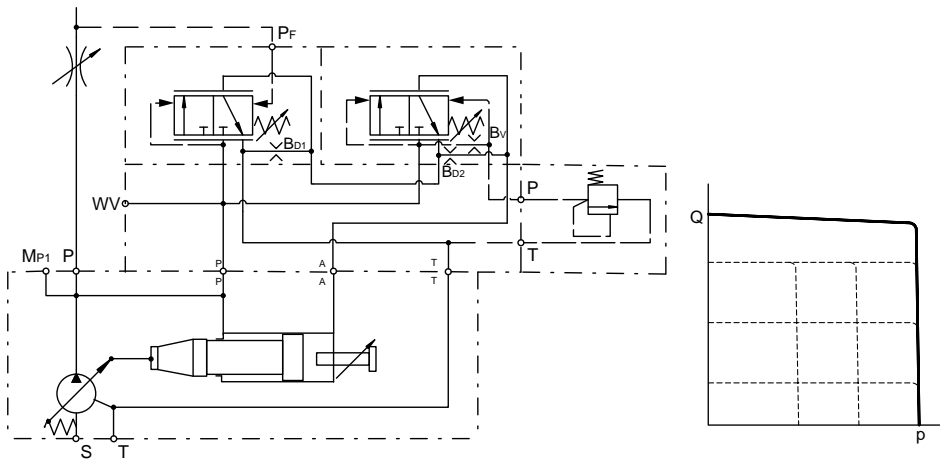


## 2 Spool Load Sensing Control

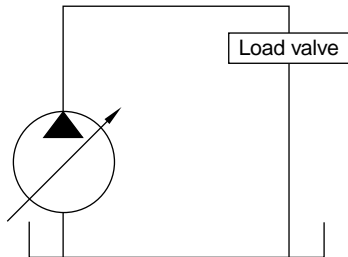
### Control option MTP

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.

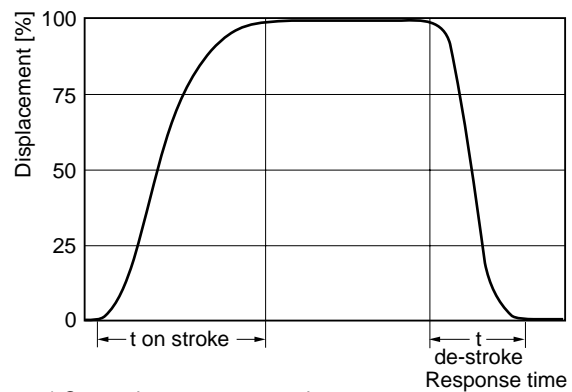
### Control schematics



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                 |

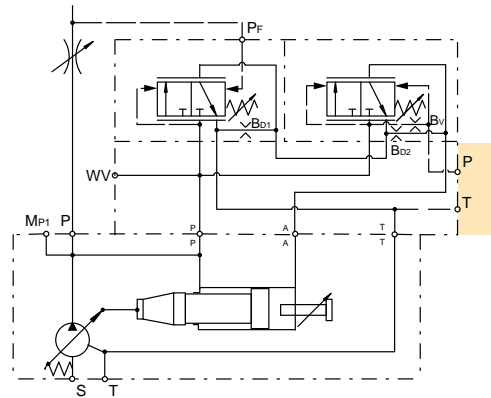
|   |                  |
|---|------------------|
| Pressure adjustment range                               | 15 to 420 bar    |
| Factory setting pressure                                | 50 bar           |
| Differential pressure adjustment range                  | 10 to 40 bar     |
| Factory setting differential pressure load sensing      | 10 bar           |
| Factory setting differential pressure, pressure control | 15 bar           |
| Control oil consumption                                 | Max 8.0 l/min    |
| Typically pilot flow                                    | approx 1,5 l/min |



**2 Spool Load Sensing Control with NG6 Interface without Integrated Pressure Pilot Valve  
 Control option MT1 & MTZ**

Control MT1 & MTZ has no integrated pressure pilot valve but NG 6 DIN 24340 (CETOP 03 acc. RP35H, NFPA D03) on the top side.

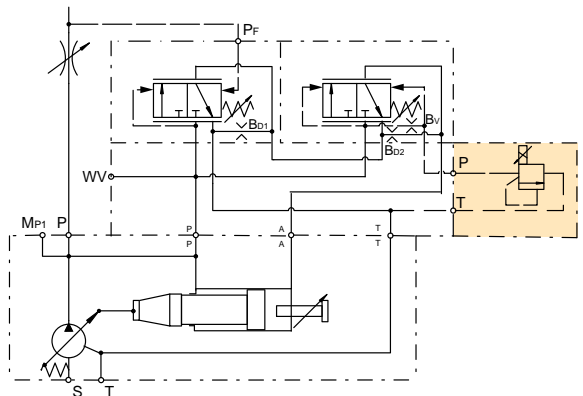
This interface allows the mounting of accessories like multiple pressure selectors without the need of external piping and valve mounting.



**2 Spool Load Sensing Control with Proportional Pilot Valve  
 Control option MTK**

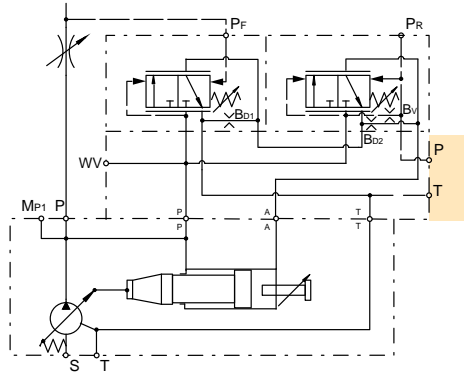
With code MTK a proportional pilot valve of type PVACRE..35 (see page 43) is mounted on the top side interface.

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



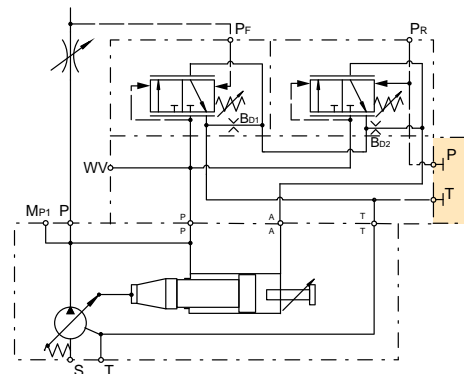
**2 Spool Load Sensing Control without Integrated Pressure Pilot Valve  
 Control option MT2**

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.

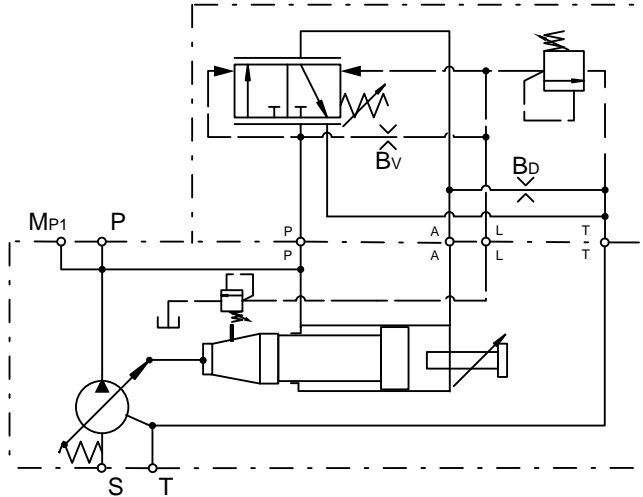


**Horse Power/Torque Controls with Pressure Control**

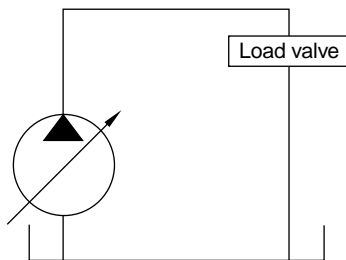
**Control option \*LC**

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.

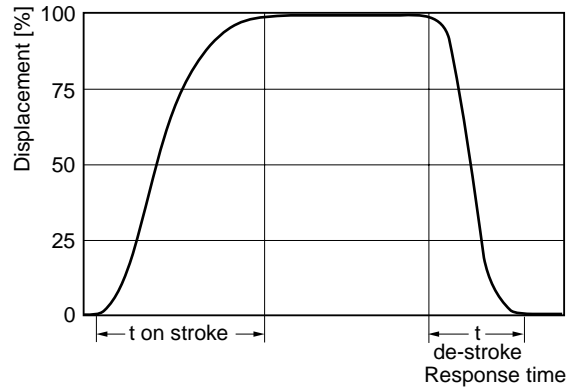
**Control schematics**



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    |
| Typically pilot flow                   | approx 1,5 l/min |

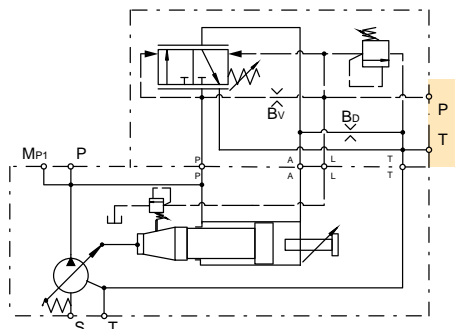
**See Horse Power characteristic curves on page 30**

### 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.

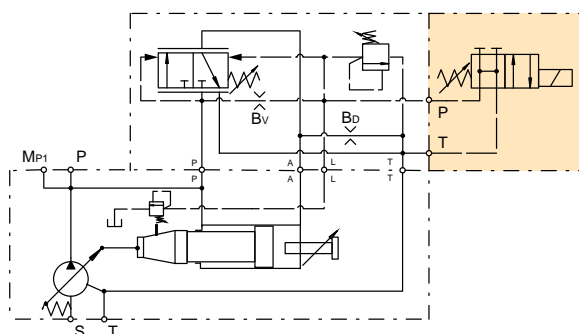


### Horse Power/Torque Control with Electrical Unloading

#### 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.

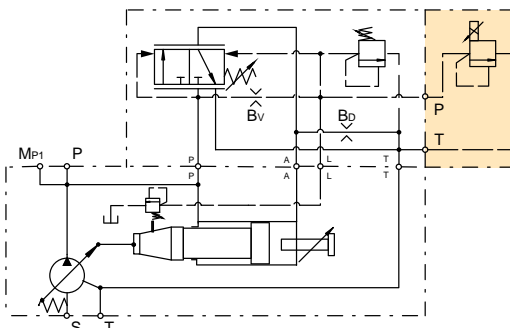


### Horse Power/Torque Control with Proportional Pilot Valve

#### Control option \*LK

With code \*LK a proportional pilot valve of type PVACRE..35 (see page 43) is mounted on the top side interface.

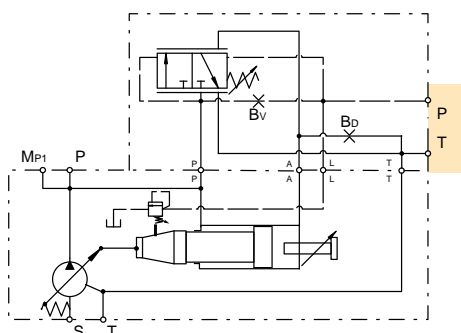
This allows a variation of the pump compensating pressure between 20 and 350 bar by an electrical signal.



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

#### Control option \*LZ

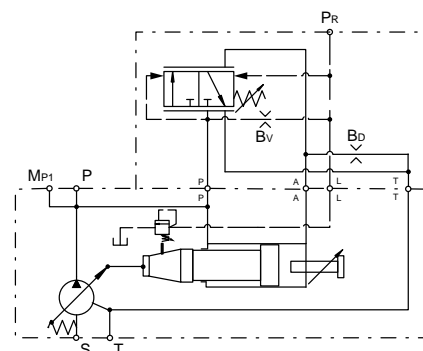
Control \*LZ has no integrated pilot valve but a NG6 DIN 24340 interface topside.



This version is recommended for valve accessories.

#### Control option \*LB

Control \*LB has no integrated pilot valve.

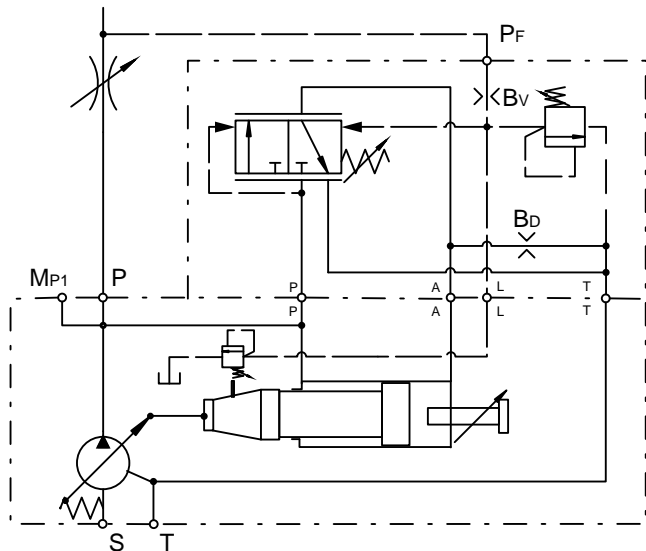


**Horse Power/Torque Controls with Load Sensing**

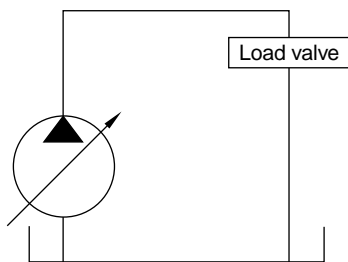
**Control option \*CC**

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.

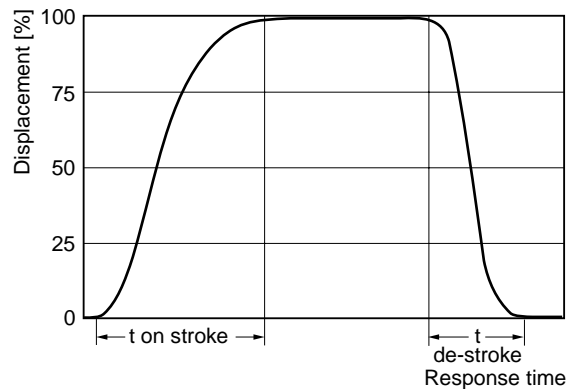
**Control schematics**



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    |
| Typically pilot flow                   | approx 1,5 l/min |

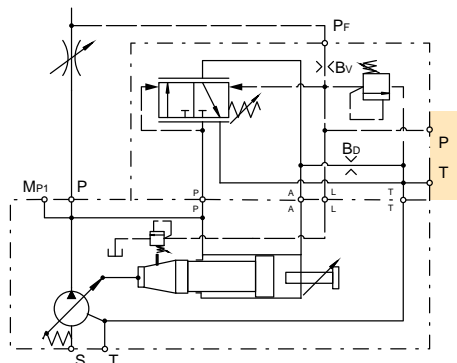
**See Horse Power characteristic curves on page 30**

### 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.

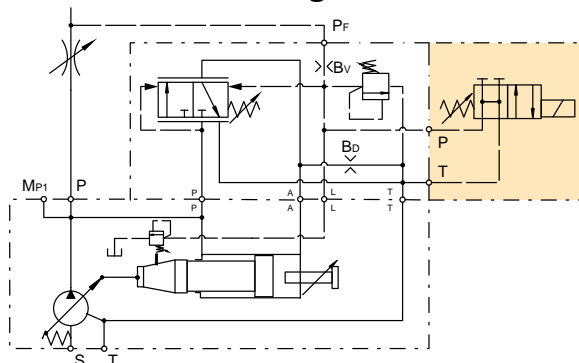


### Horse Power/Torque Control with Load Sensing & Electrical Unloading

#### 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.

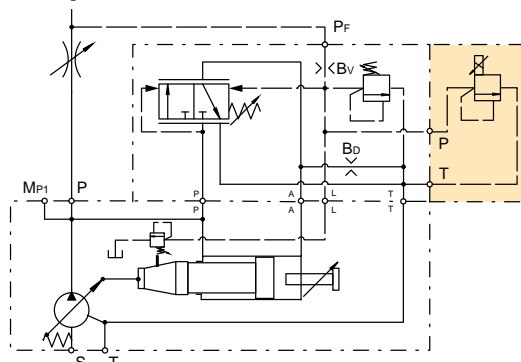


### Horse Power/Torque Control with Load Sensing & Proportional Valve

#### Control option \*CK

With code \*CK a proportional pilot valve of type PVACRE..35 (see page 43) is mounted on the top side interface.

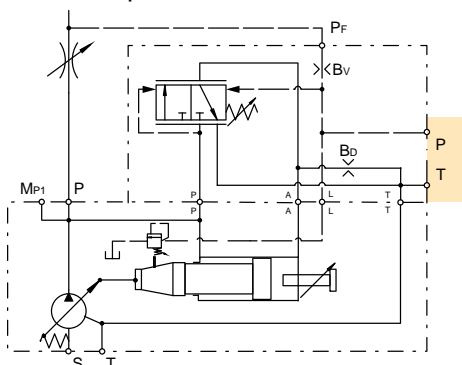
This allows a variation of the pump compensating pressure between 20 and 350 bar by an electrical signal.



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

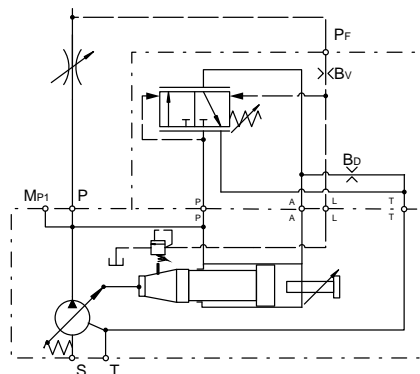
#### Control option \*CZ

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

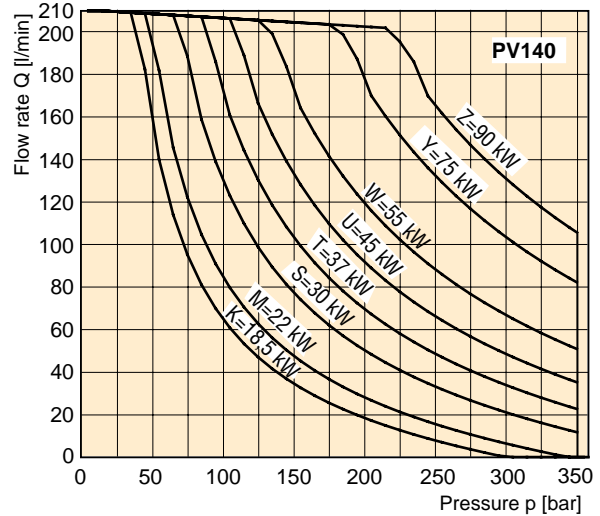
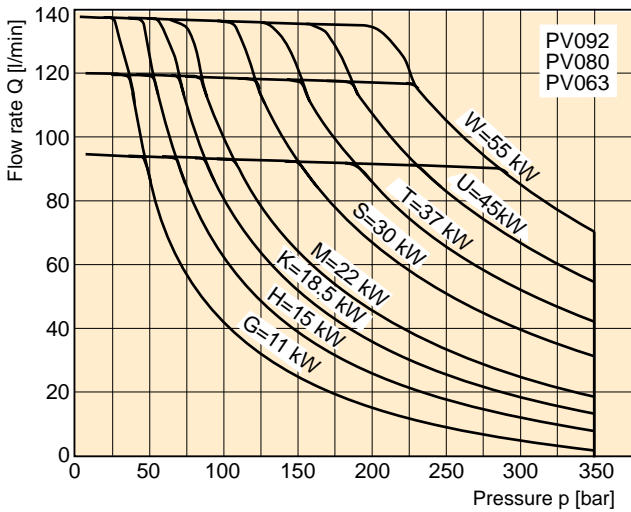
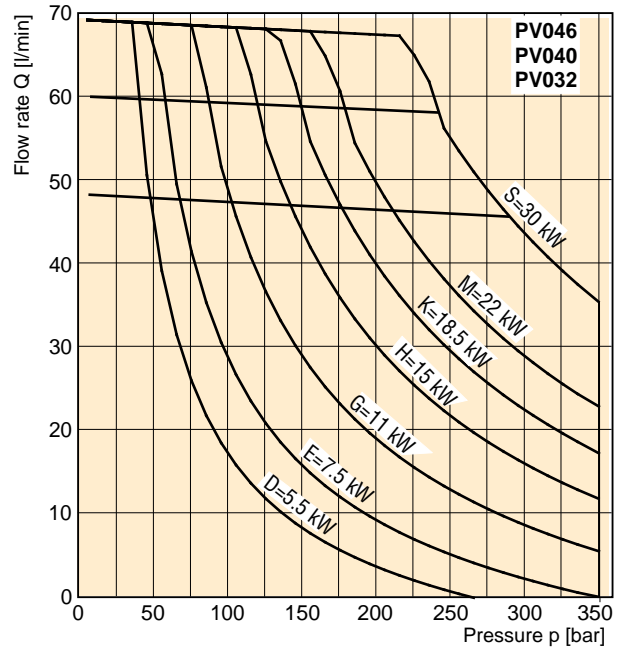
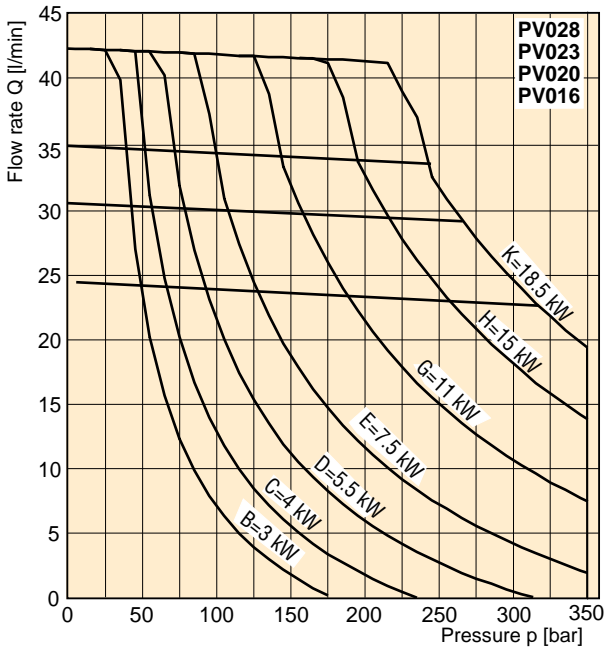


#### Control option \*CB

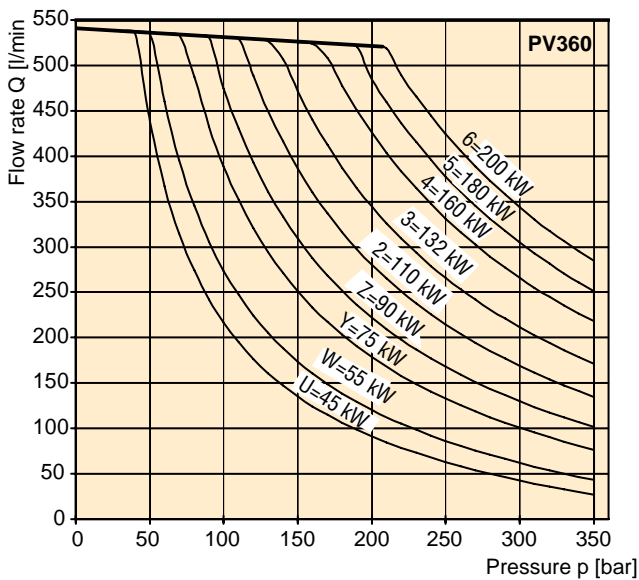
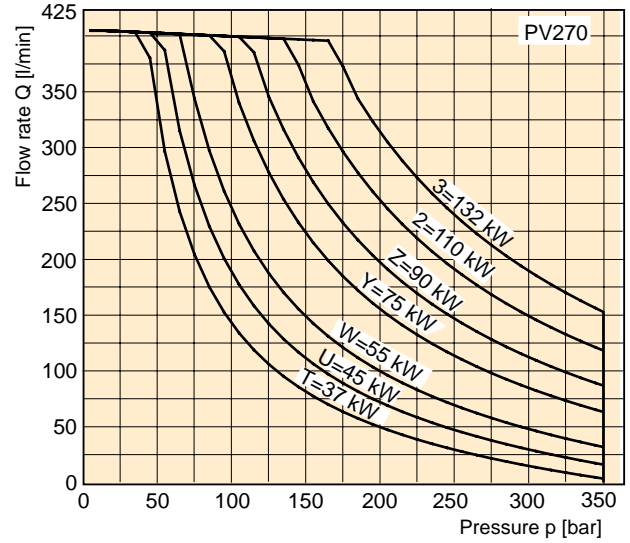
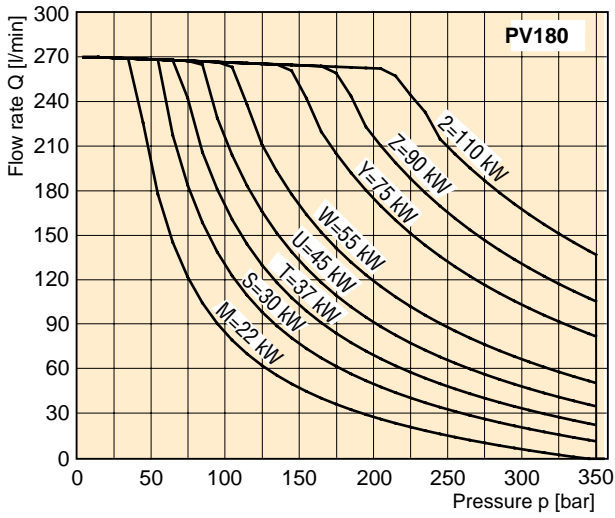
Control \*CB has no integrated pilot valve.



**Typical Horse Power/Torque Control Characteristics**



**Typical Horse Power/Torque Control Characteristics**



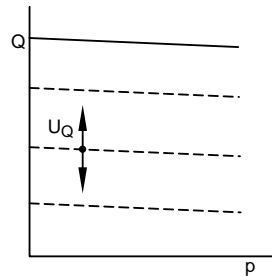
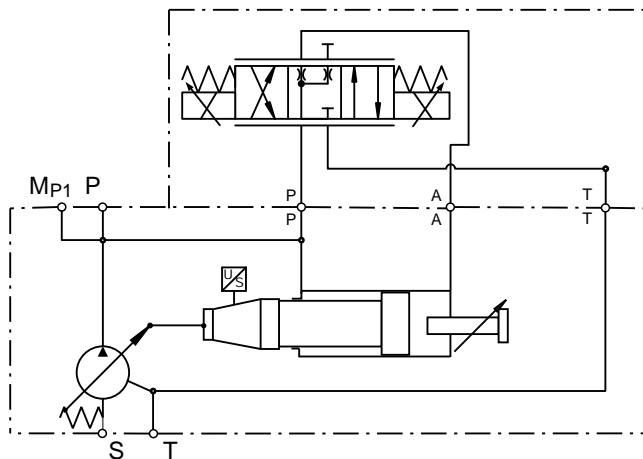
Speed : n = 1500 rev/min  
 Temperature : t = 50 °C  
 Fluid : HLP, ISO VG46  
 Viscosity :  $\nu = 46 \text{ mm}^2/\text{s}$  at 40 °C  
 Pressure : Maximum 350 bar, depending on HP level

## Proportional Displacement Control

### Control option FDV

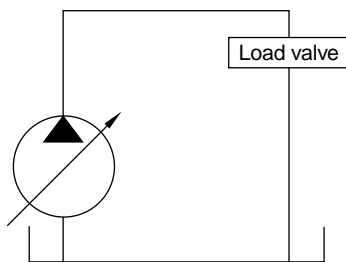
The proportional displacement control allows the adjustment of the pump's output flow by an electrical input signal. The actual displacement of the pump is monitored by an electronic displacement sensor and compared with the commanded displacement in an electronic control module PQDXXA-Z10. The command is given as an electrical input signal (0 - 10 V alternatively 4 - 20 mA) from the supervising machine control or a potentiometer. Version FDV of the proportional control does not provide a pressure compensation. Therefore the hydraulic circuit must be protected by a pressure relief valve.

### Control schematics

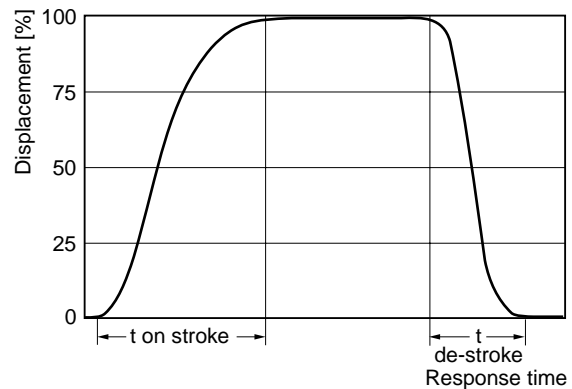


[Dashed box] = FDV included

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 | 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 |

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

\* Data valid for UD\* version

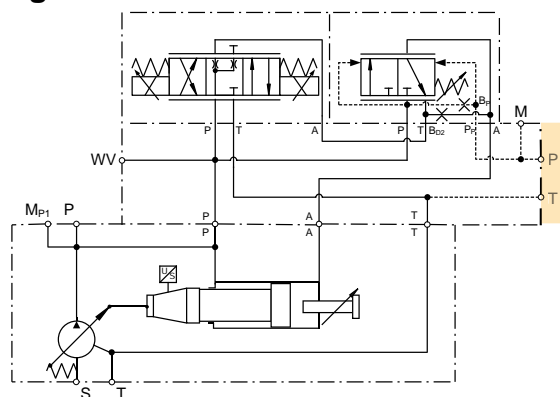


**Proportional Displacement Control with Overriding Pressure Control**

**Control option UDR**

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).

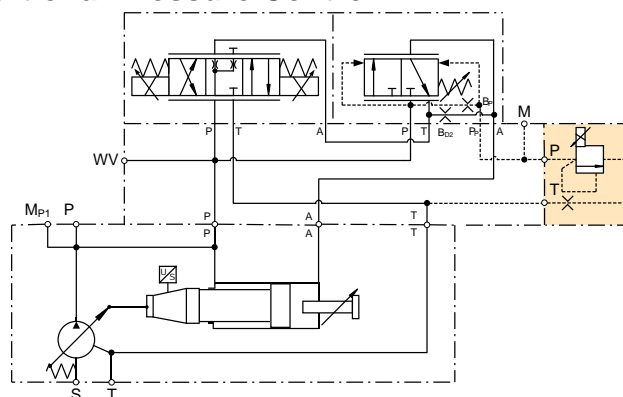


**Proportional Displacement Control with Proportional Pressure Control**

**Control option UDK**

Control version UDK features proportional pressure pilot valve PVACRE...35, which enables for electro- hydraulic p/Q control.

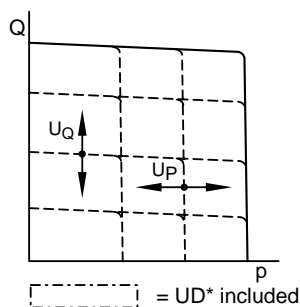
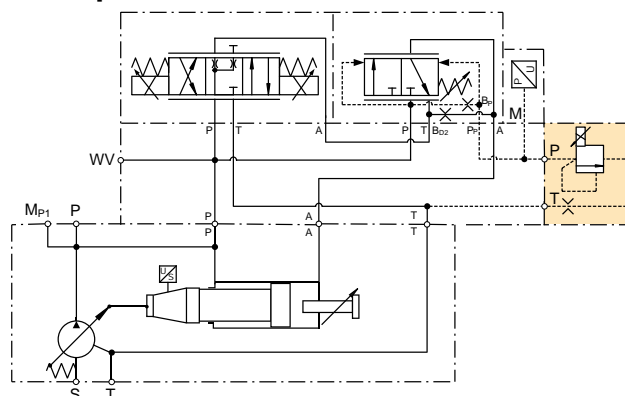
By using the digital module PQDXXA-Z10 it is possible to control the displacement proportionally with overriding open loop proportional pressure control.



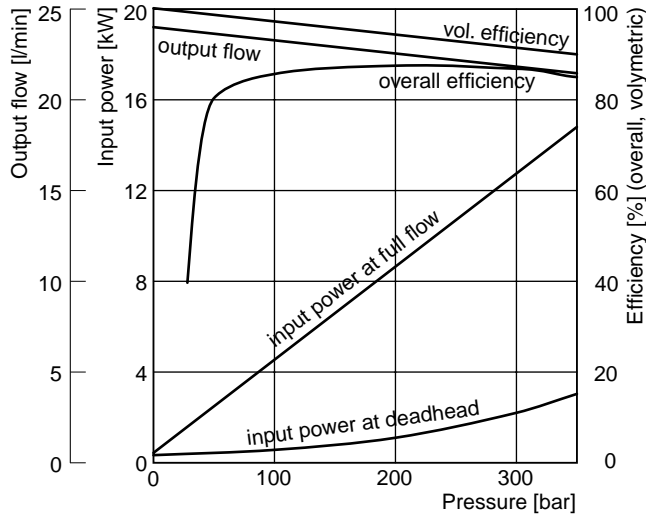
**Proportional Displacement Control with Closed Loop Pressure Control**

**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, power consumption  
PV016**



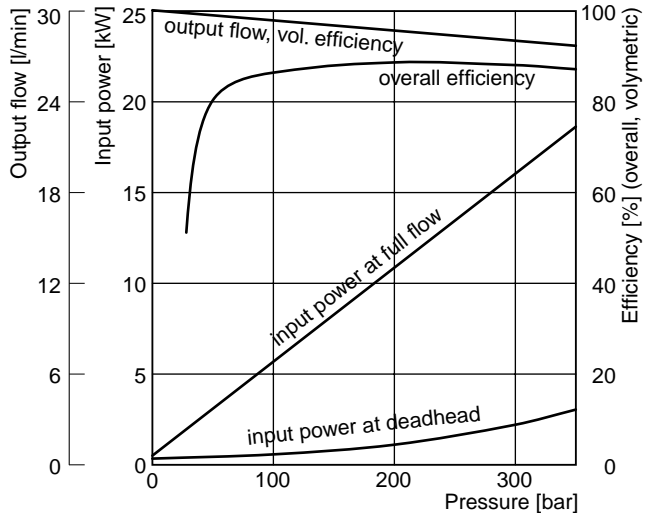
**Efficiency and case drain flows PV016, PV020, PV023  
and PV028**

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

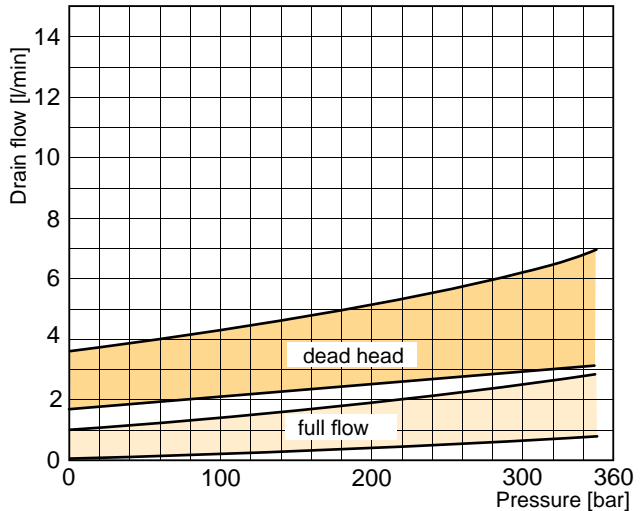
Case drain flow and compensator control flow leave via the drain port of the pump. To the values shown are to be added 1 to 1.2 l/min, if at pilot operated compensators the control flow of the pressure pilot valve also goes through the pump.

**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.

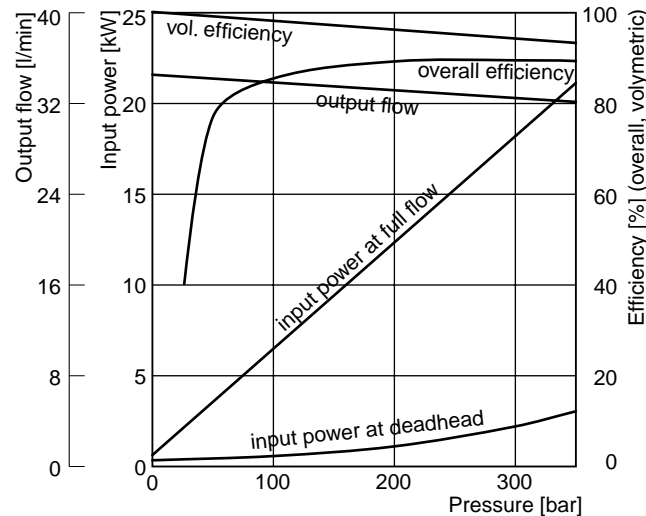
**PV020**



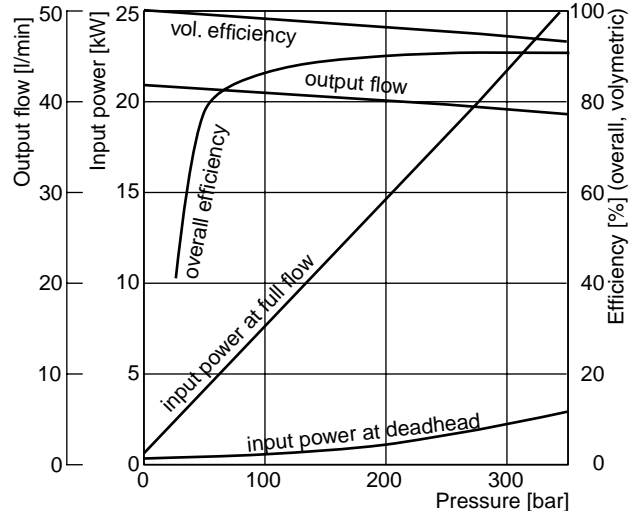
**Case drain flow PV016-028 with pressure compensator**



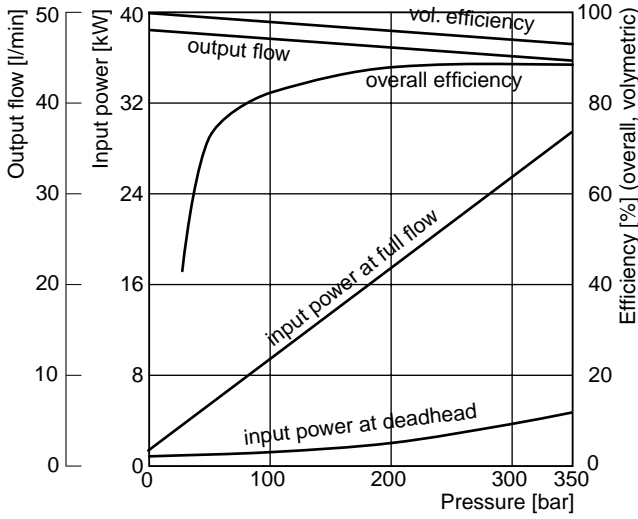
**PV023**



**PV028**



**Efficiency, power consumption  
PV032**



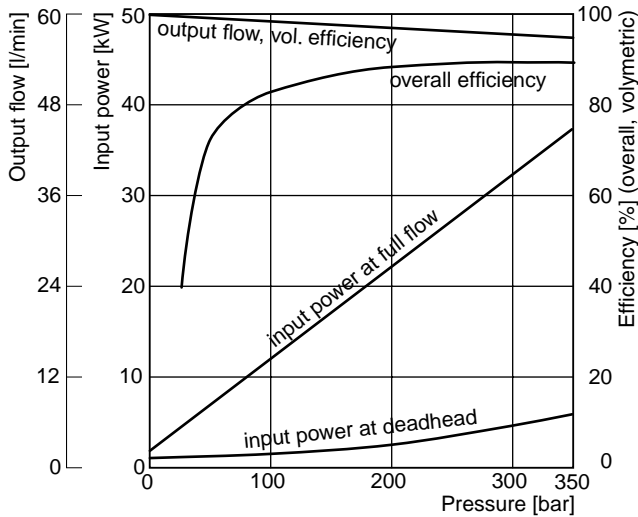
**Efficiency and case drain flows PV032 to PV046**

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

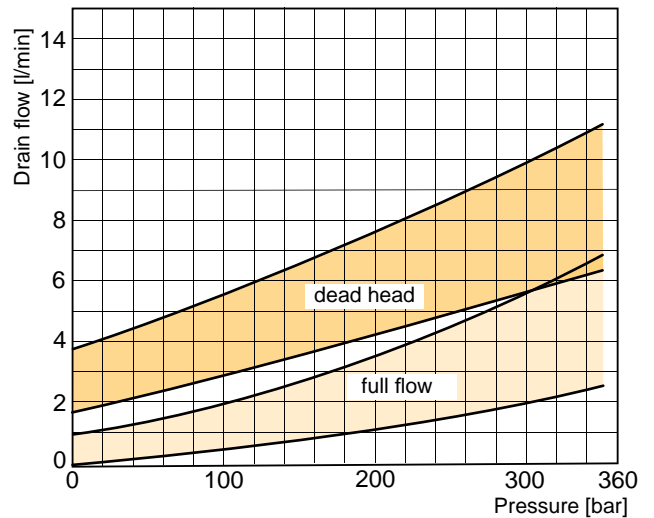
Case drain flow and compensator control flow leave via the drain port of the pump. To the values shown are to be added 1 to 1.2 l/min, if at pilot operated compensators the control flow of the pressure pilot valve also goes through the pump.

**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.

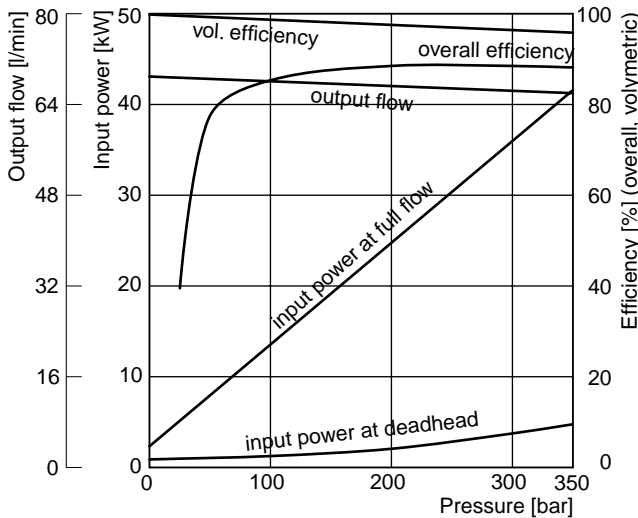
**PV040**



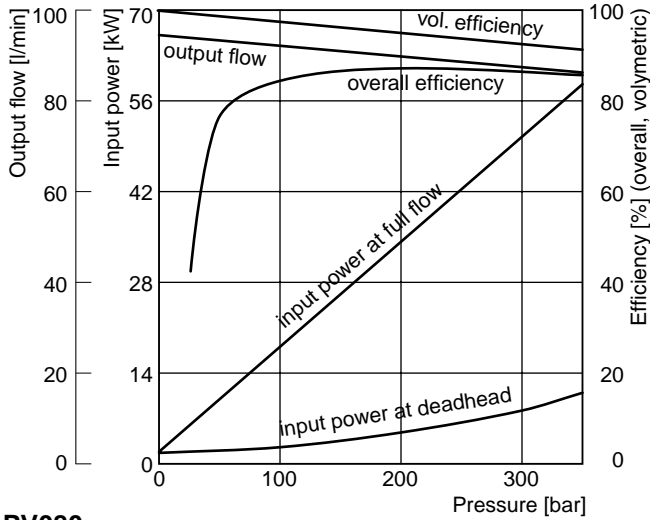
**Case drain flow PV032-046 with pressure compensator**



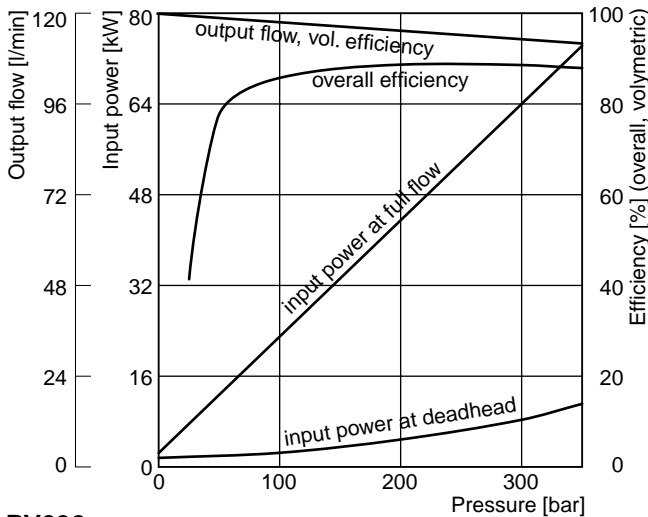
**PV046**



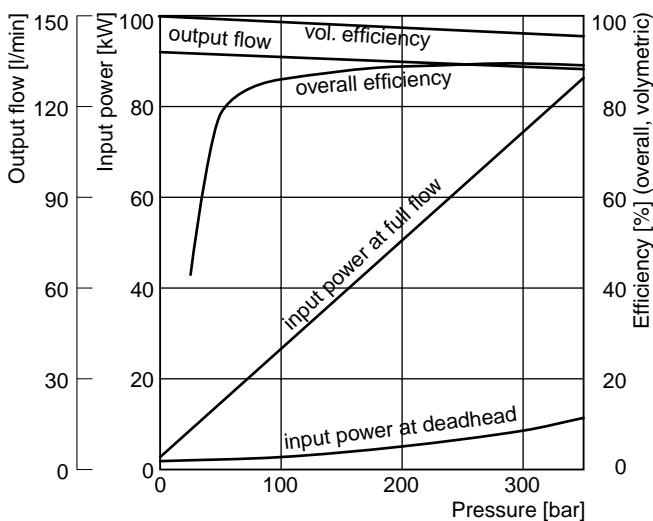
**Efficiency, power consumption  
PV063**



**PV080**



**PV092**



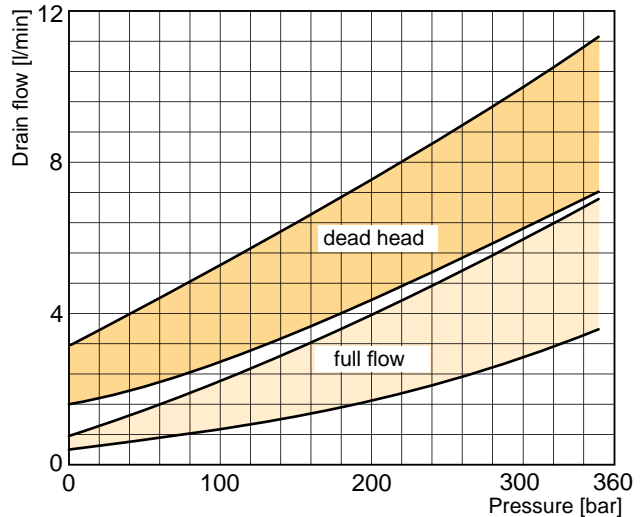
**Efficiency and case drain flows PV063, PV080, PV092**

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

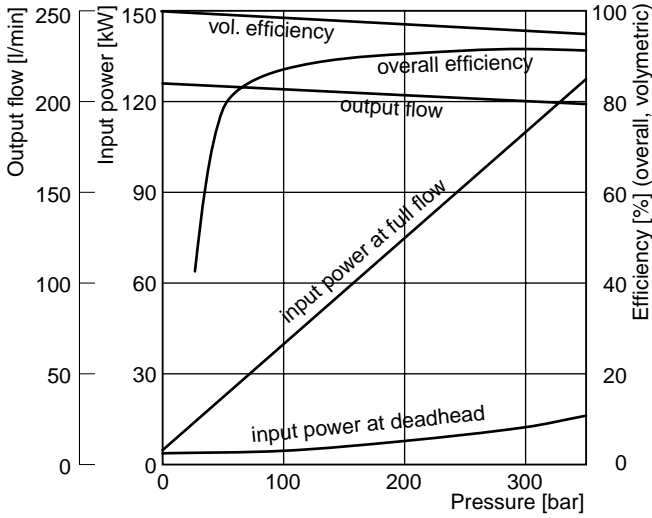
Case drain flow and compensator control flow leave via the drain port of the pump. To the values shown are to be added 1 to 1.2 l/min, if at pilot operated compensators the control flow of the pressure pilot valve also goes through the pump.

**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.

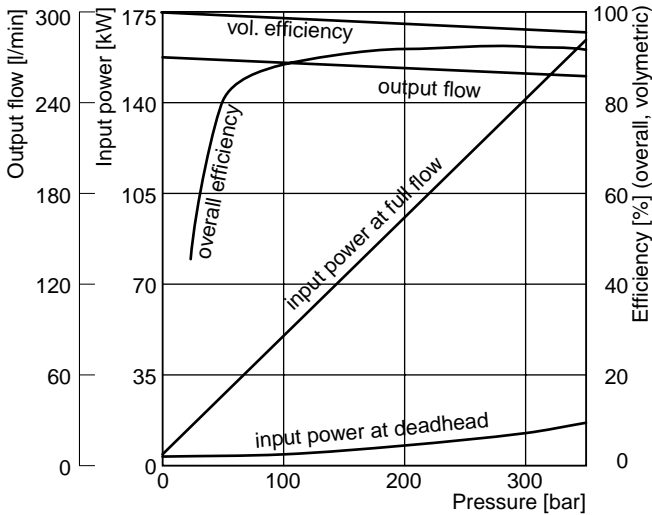
**Case drain flows PV063-092**



**Efficiency, power consumption  
PV140**



**PV180**



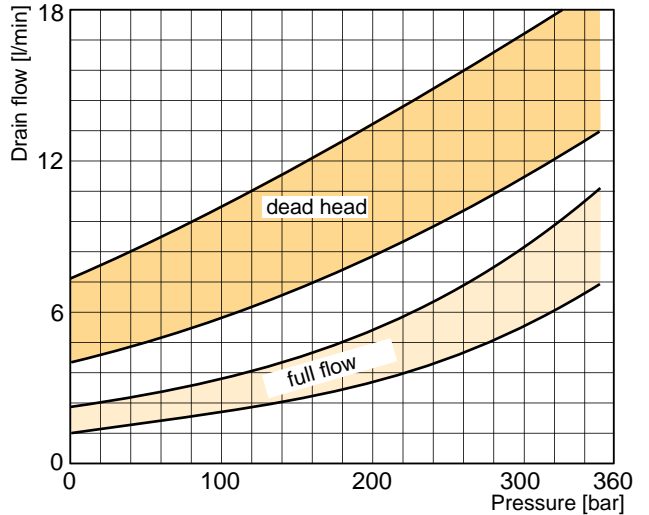
**Efficiency and case drain flows PV140, PV180**

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

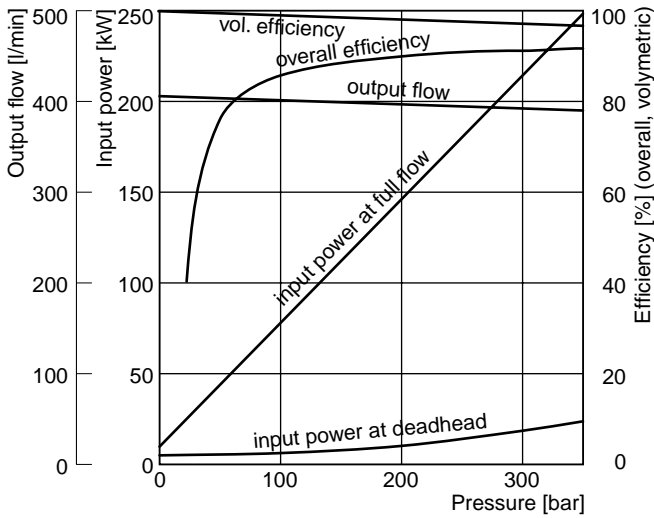
Case drain flow and compensator control flow leave via the drain port of the pump. To the values shown are to be added 1 to 1.2 l/min, if at pilot operated compensators the control flow of the pressure pilot valve also goes through the pump.

**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.

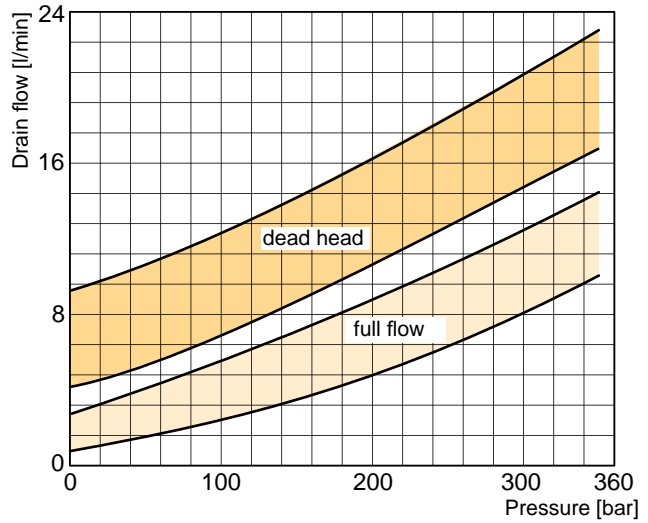
**Case drain flows PV140-180**



Efficiency, power consumption  
PV270



Case drain flows PV270



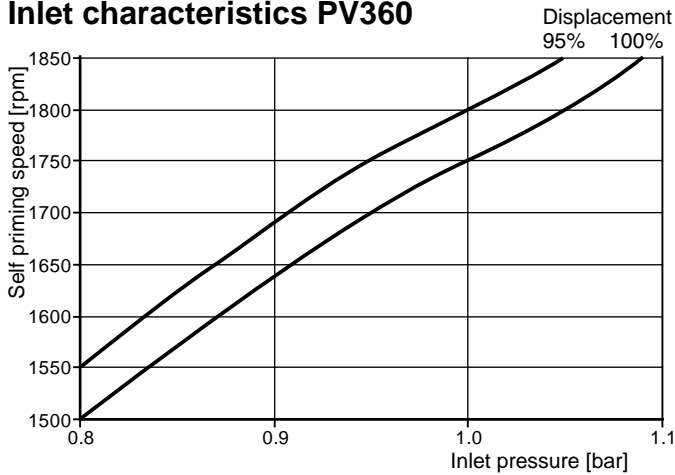
Efficiency and case drain flows PV270

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

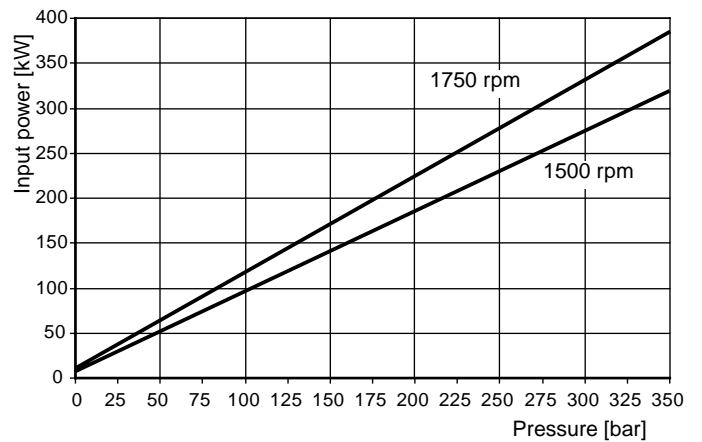
Case drain flow and compensator control flow leave via the drain port of the pump. To the values shown are to be added 1 to 1.2 l/min, if at pilot operated compensators the control flow of the pressure pilot valve also goes through the pump.

**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.

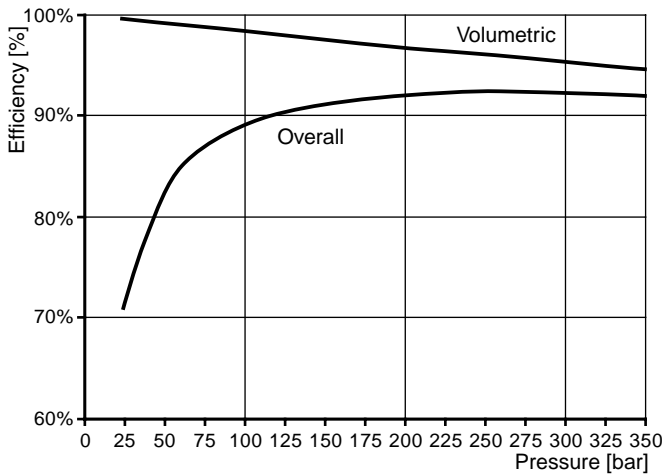
**Typical inlet characteristics vs. speed at various percentage displacements**  
**Inlet characteristics PV360**



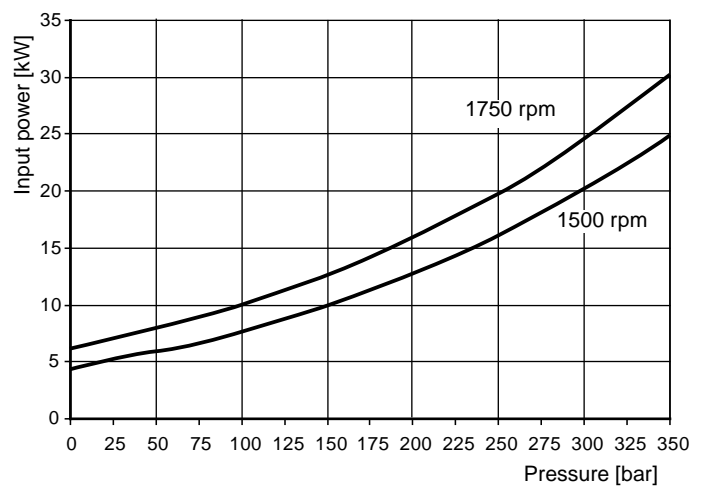
**Typical drive power at full displacement**  
**Input power – full stroke PV360**



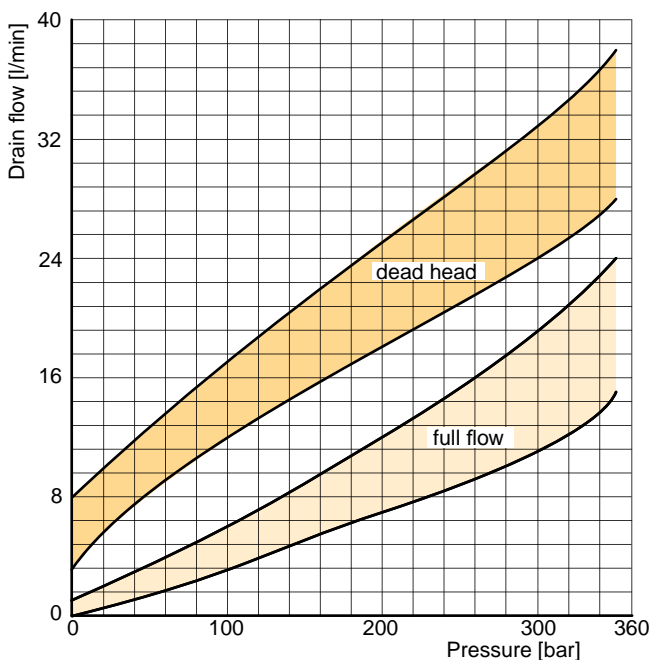
**Typical efficiency at full displacement and 1500 rpm PV360**



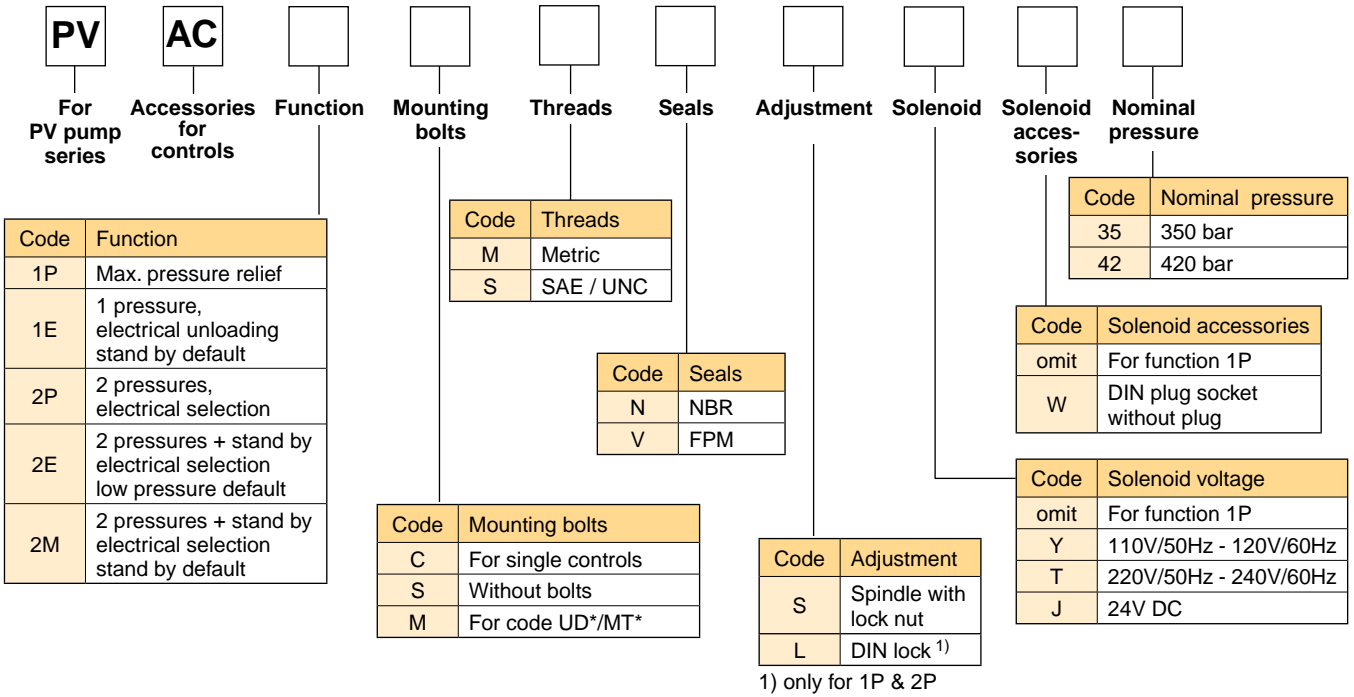
**Typical compensated power**  
**Input power – zero stroke PV360**



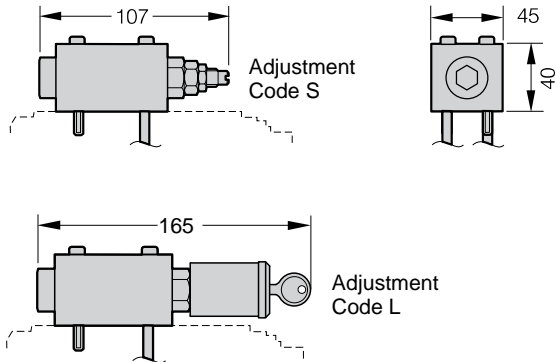
**Case drain flows PV360**



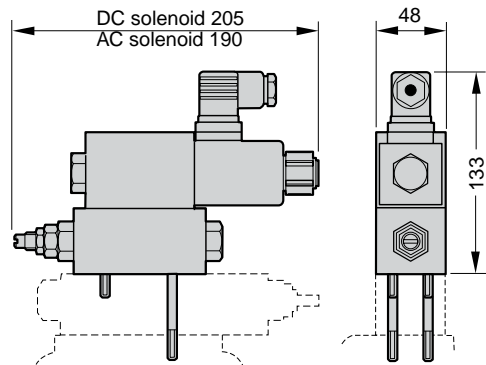
The curves show typical characteristics measured under following conditions:  
 Fluid: Mineral oil ISO VG 22 at 32 °C  
 Inlet pressure 1,0 bar (absolute), measured at inlet port.



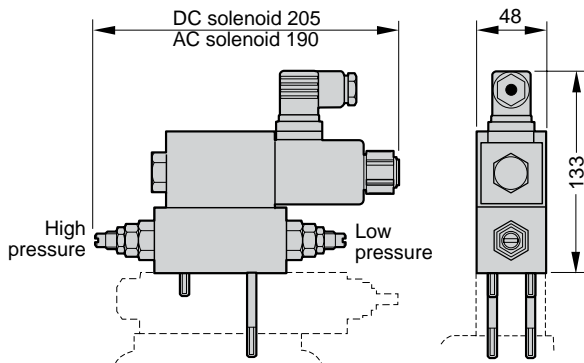
**Dimensions  
 PVAC1P\***



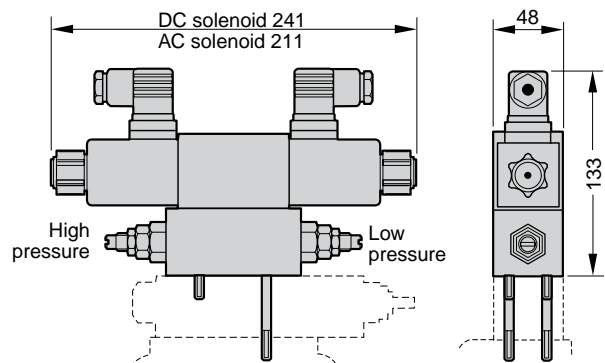
**PVAC1E\***



**PVAC2P\***

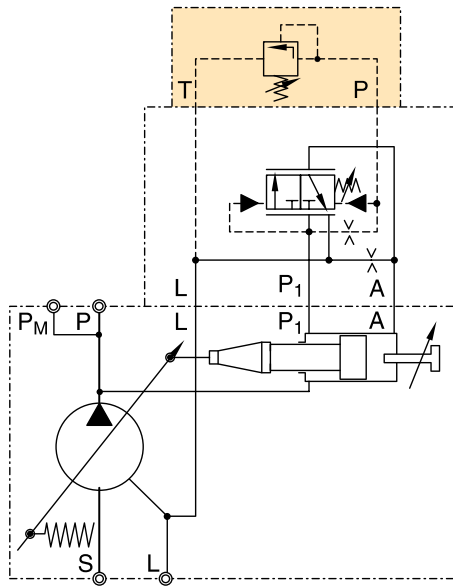


**PVAC2M\*/PVAC2E\***

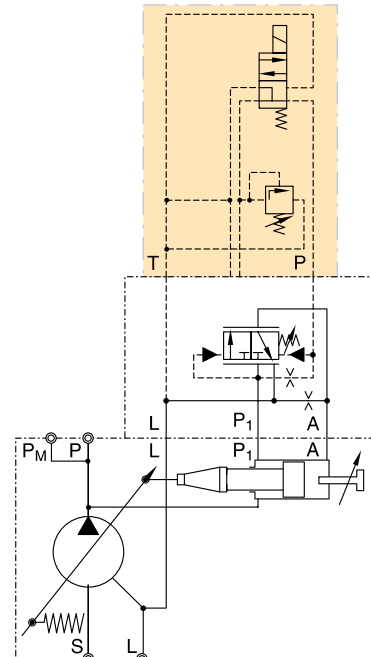




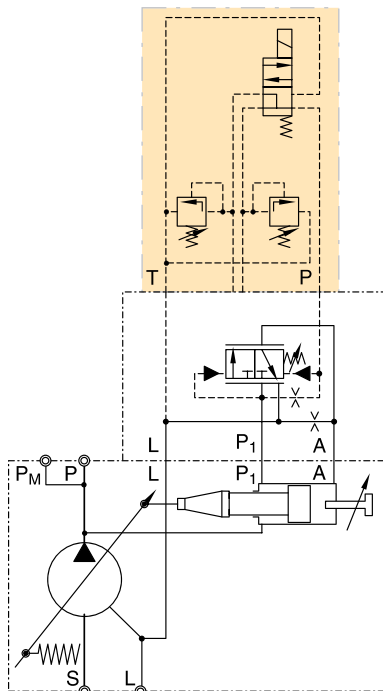
**Schematics PVAC1P\***



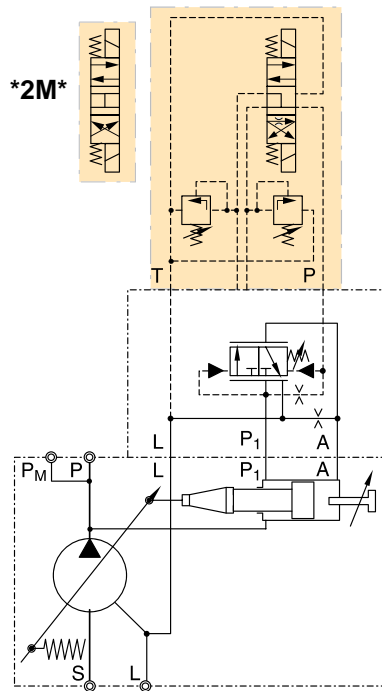
**Schematics PVAC1E\***



**Schematics PVAC2P\***



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

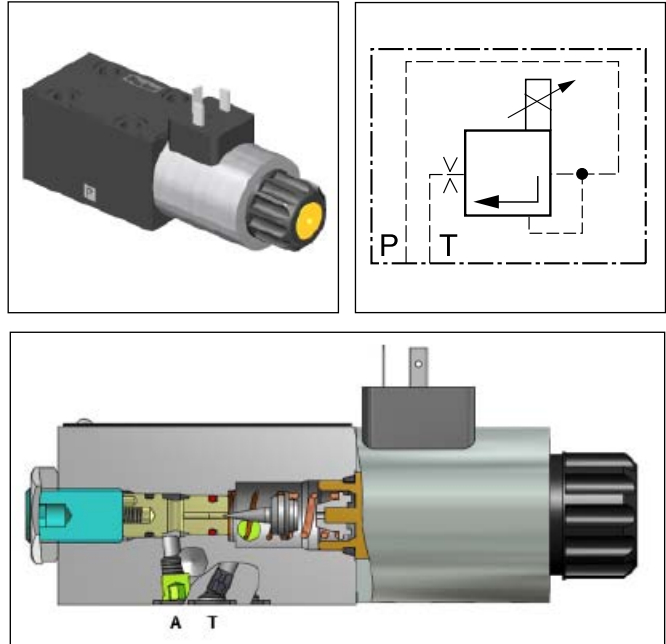


**Proportional pressure relief valve PVACRE\***

**Function**

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

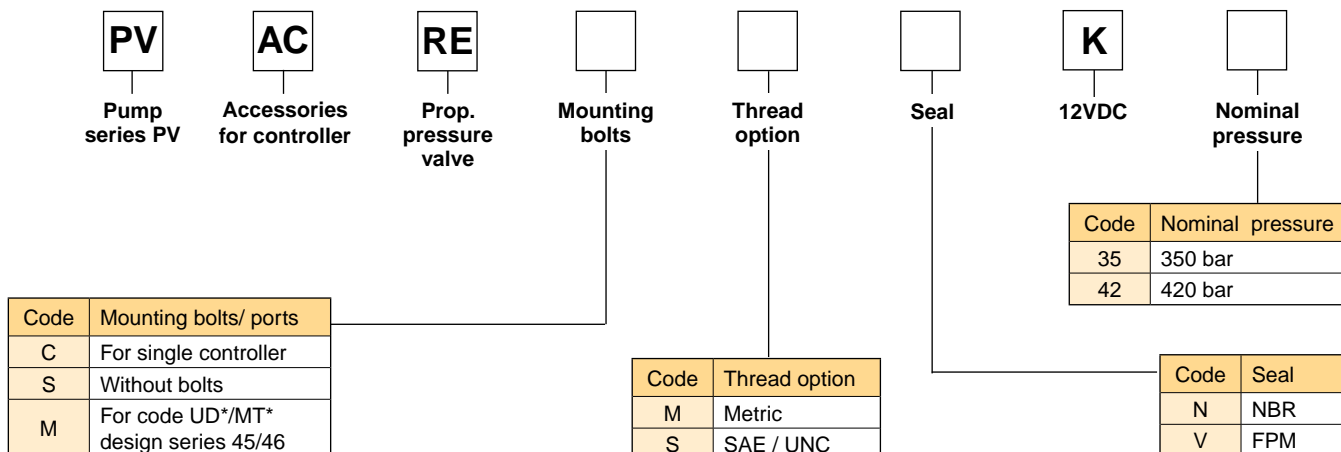
The optimum performance can be achieved in combination with the digital amplifier module PCD00A-400 (see catalogue HY11-3500 for reference).



**Technical data**

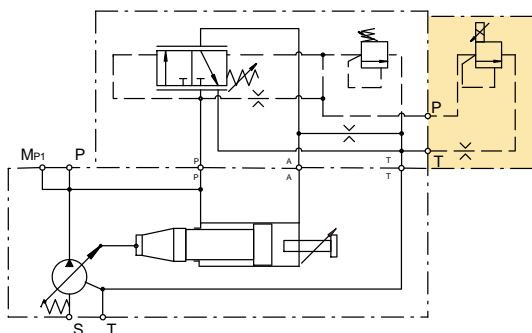
|                                  |                                  |  |
|----------------------------------|----------------------------------|--|
| <b>General</b>                   |                                  |  |
| Nominal size                     |                                  | DIN NG06 / CETOP03 / NFPA D03                                      |
| Mounting position                |                                  | as desired, horizontal mounting preferred                          |
| Ambient temperature              | [°C]                             | -20 ... +70  |
| Weight                           | [kg]                             | 1.8  |
| <b>Hydraulic</b>                 |                                  |  |
| 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]<br>[cSt]/ [mm²/s] | 30 ... 80<br>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>   |
| <b>Electrical</b>                |                                  |  |
| Duty ratio                       | [%]                              | 100 ED   |
| Protection class                 |                                  | IP 65 in accordance with EN 60529 (plugged and mounted)            |
| Nominal voltage                  | [V]                              | 12 (2.2 A for the 350 bar version; 2,35 A for the 420 bar version) |
| Coil resistance                  | [Ohm]                            | 4.4 at 20°C  |
| Solenoid connection              |                                  | Connector as per EN 175301-803                                     |
| Power amplifier, recommended     |                                  | PCD00A-400   |

**Ordering code proportional pressure relief valve**

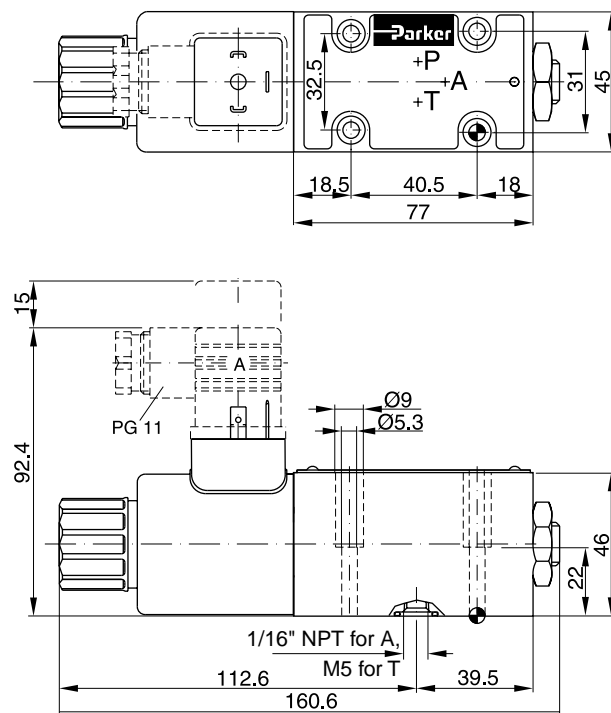


**Schematic PVACRE\***

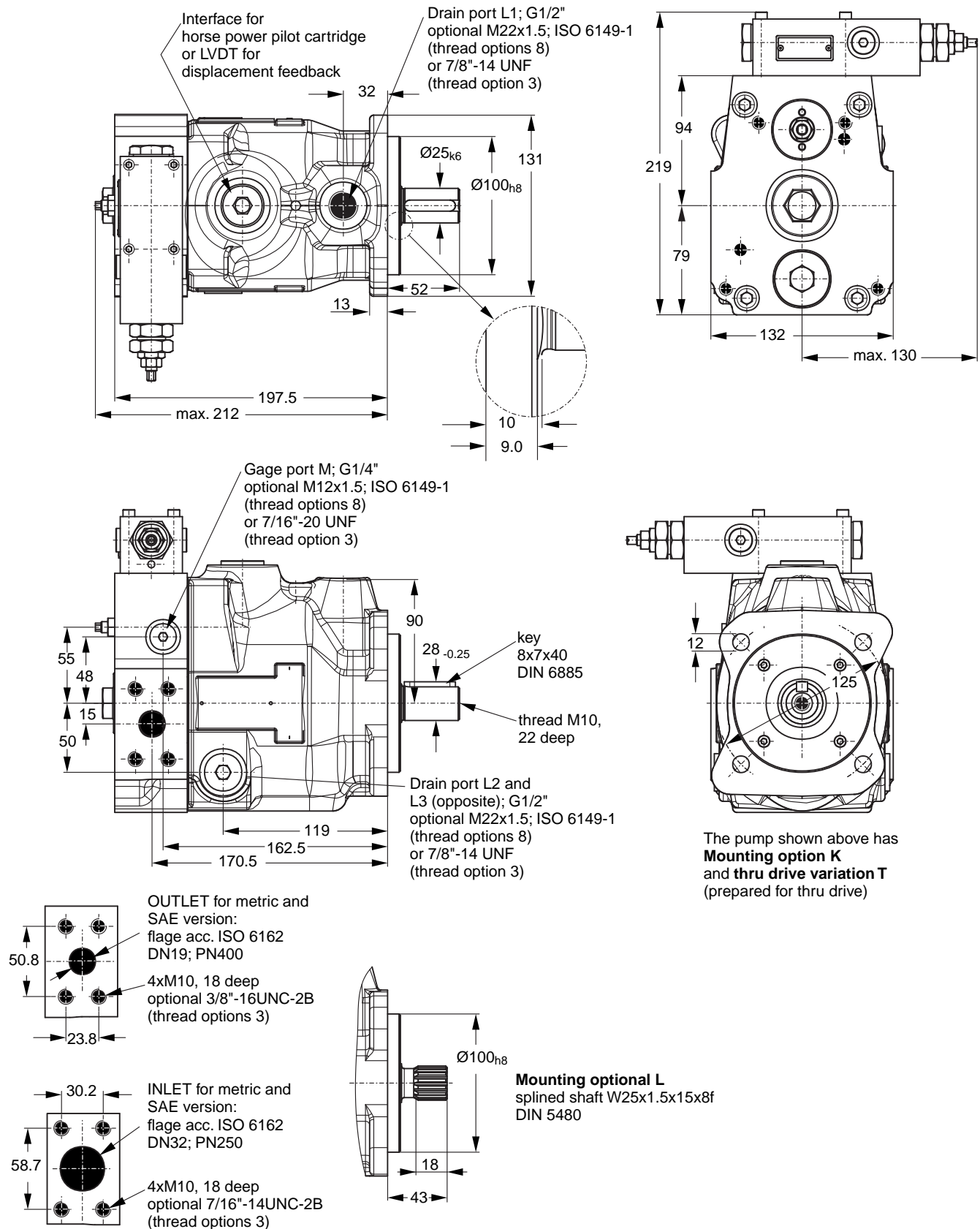
**Example for PVACRE\* mounted**



**Dimensions PVACRE\***

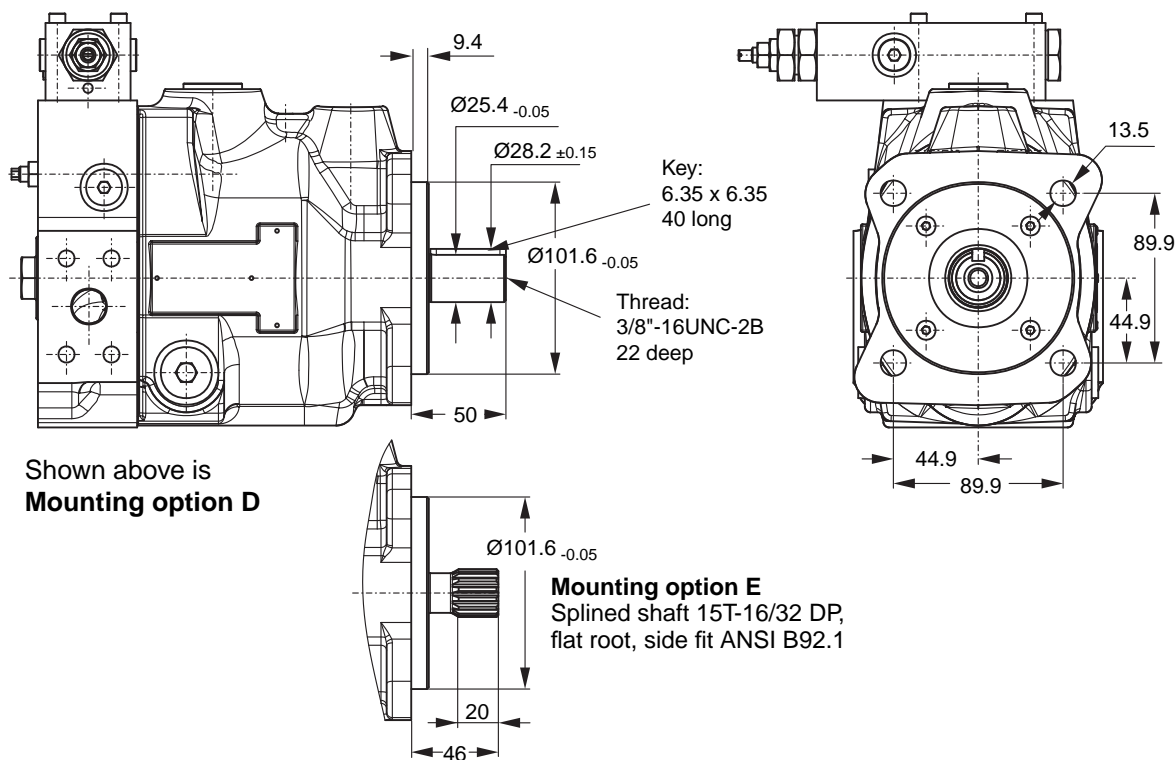


**PV016 - 028, metric version**

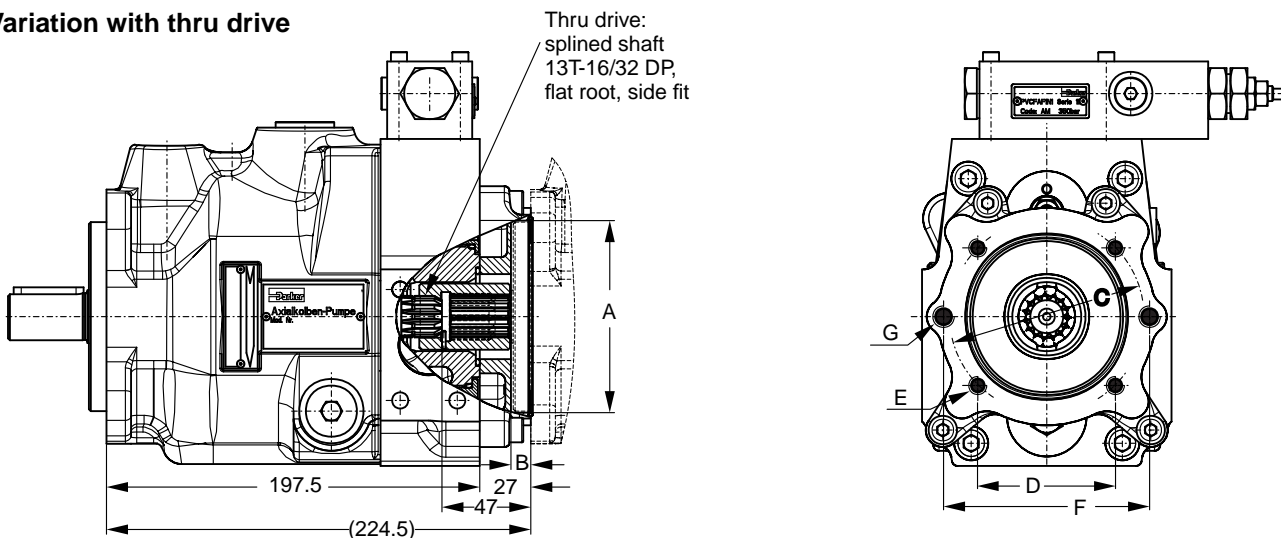


Shown is a clockwise rotating pump with standard pressure compensator. Counter clockwise rotating pumps have inlet, outlet and gage port reversed.

**PV016 - 028, SAE version**

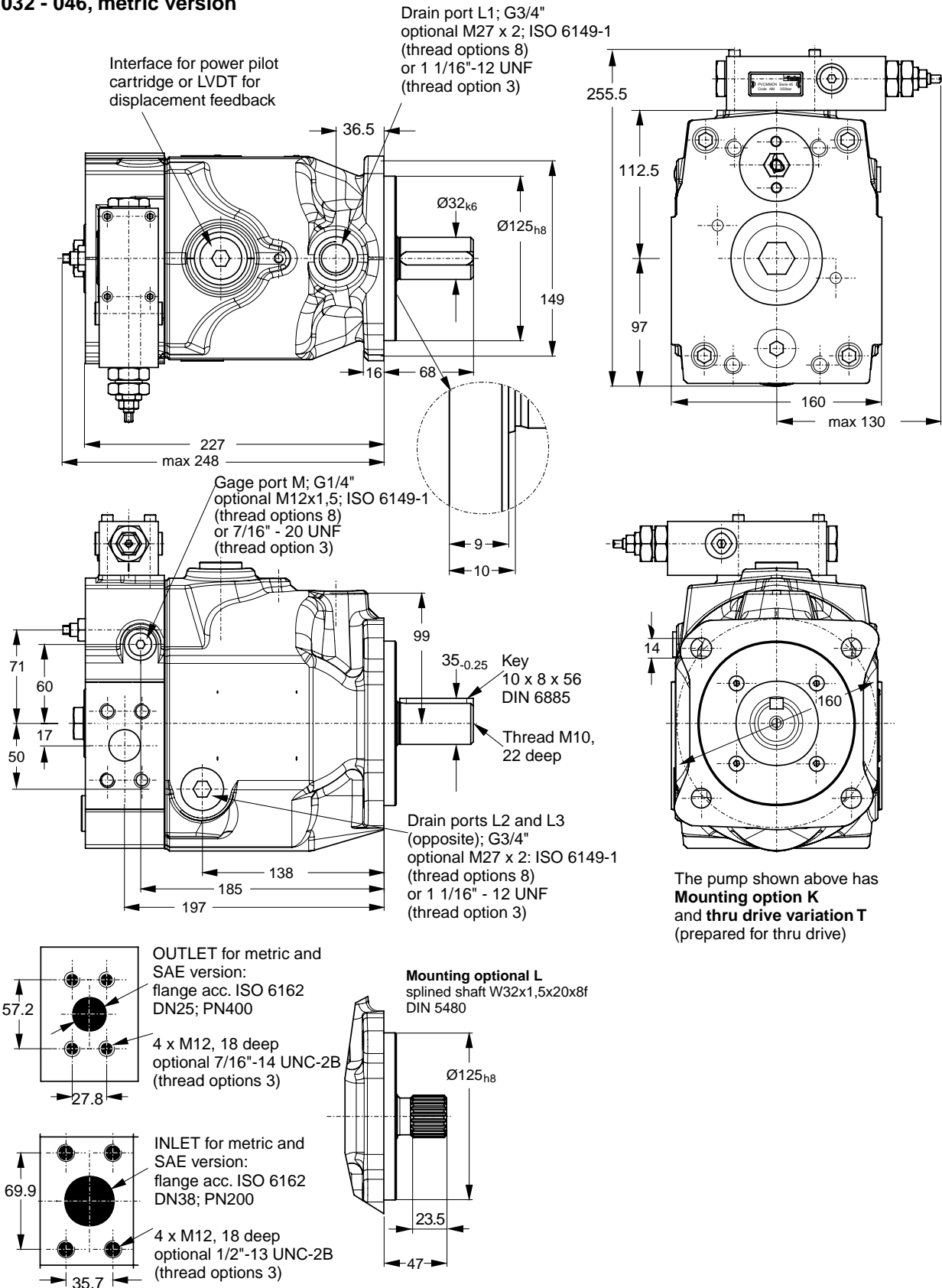


**Variation with thru drive**



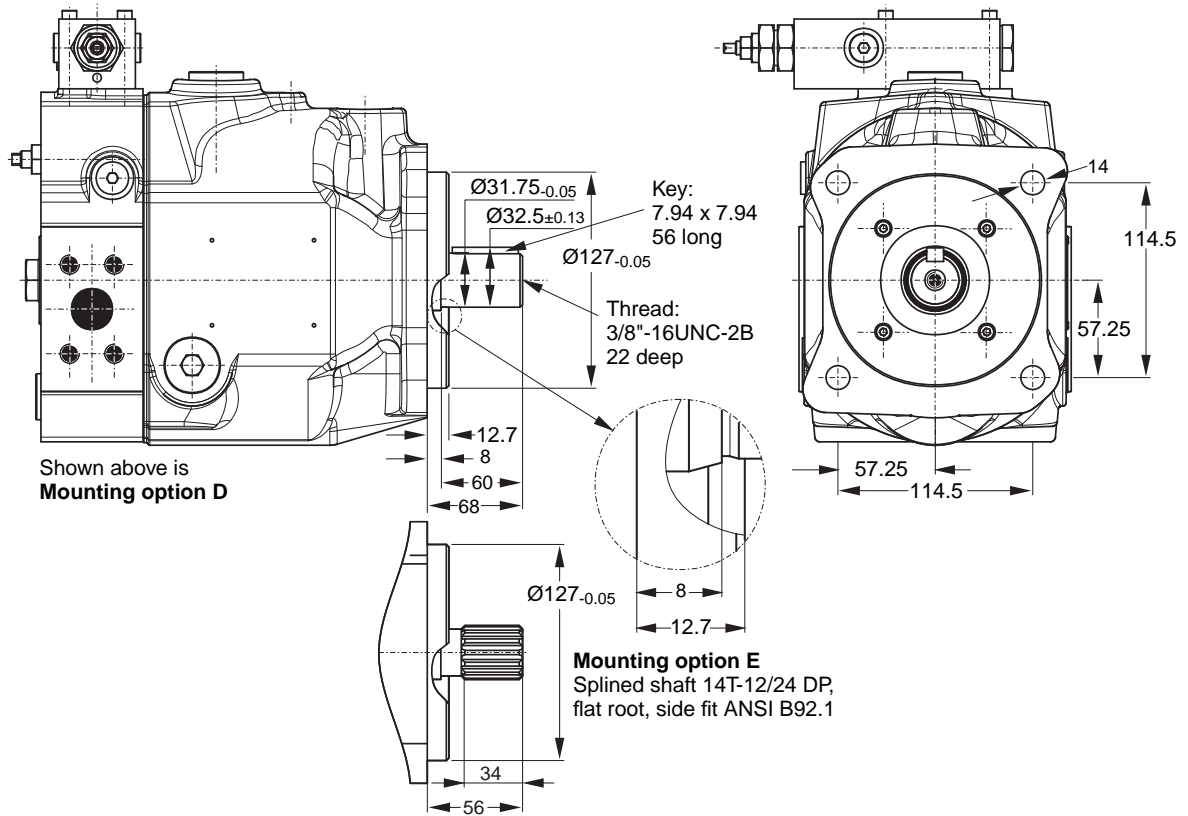
| Thru drive adaptors are available with the following dimensions |       |      |     |      |      |          |     |      |         |              |
|---|-------|------|-----|------|------|----------|-----|------|---------|--------------|
| Drawing Dimension   | A     | B    | C   | D    | E    |          | F   | G    |         | Remark       |
|   |       |      |     |      | Metr | UNC      |     | Metr | UNC     |              |
| Thru drive option   |       |      |     |      |      |          |     |      |         |              |
| A   | 82.55 | 8    | -   | -    | -    | -        | 106 | M10  | 3/8"-16 | SAE A 2-Bolt |
| B   | 101.6 | 10.5 | 127 | 89.8 | M12  | 1/2"-13  | -   | -    | -       | SAE B 4-Bolt |
| H   | 80    | 8.5  | 103 | 72.8 | M8   | 5/16"-18 | 109 | M10  | 3/8"-16 | 2/4-Bolt     |
| J   | 100   | 10,5 | 125 | 88.4 | M10  | 3/8"-16  | -   | -    | -       | 4-Bolt       |

**PV032 - 046, metric version**

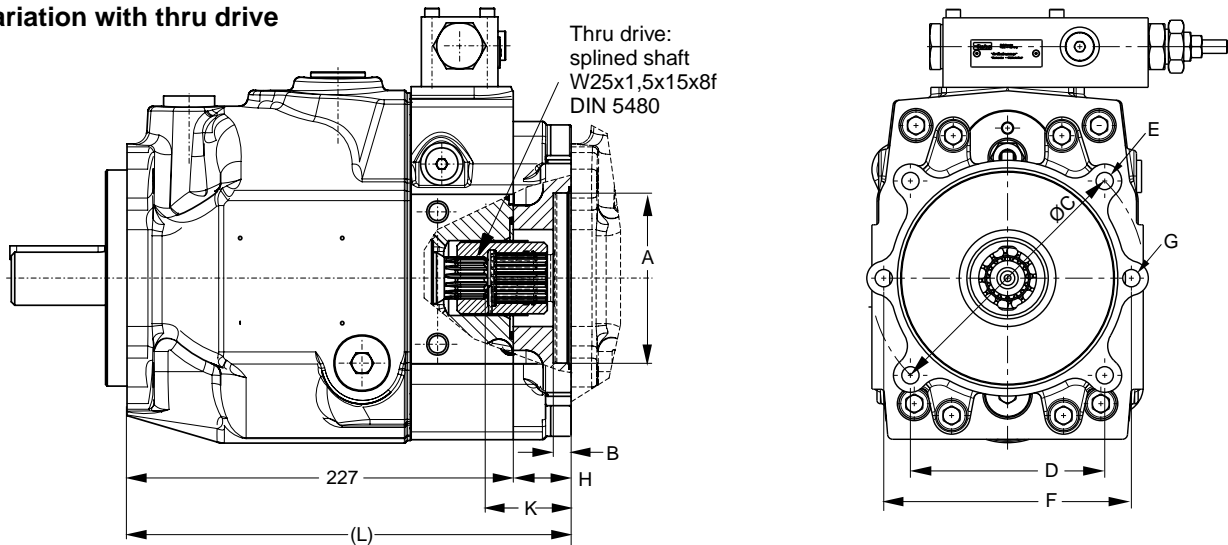


Shown is a clockwise rotating pump with standard pressure compensator.  
 Counter clockwise rotating pumps have inlet, outlet and gage port reversed.

**PV032 - 046, SAE version**



**Variation with thru drive**



At threads options 3 and 7 the dimensions E and G are UNC - 2B threads.

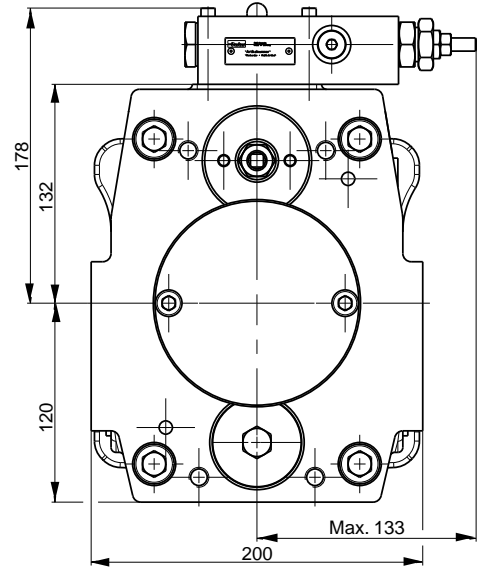
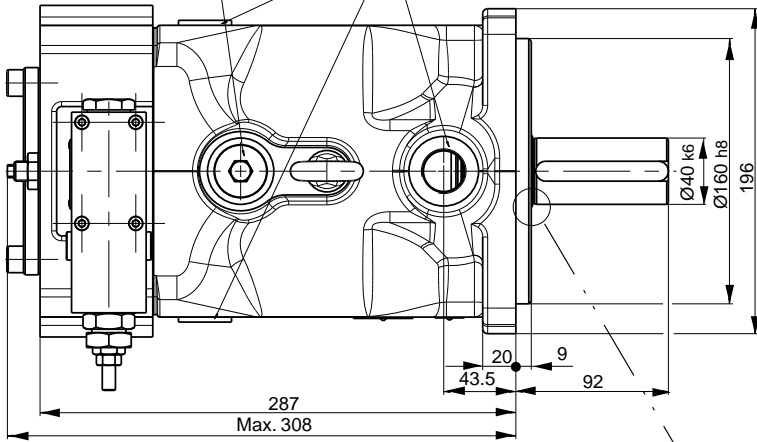
| Thru drive adaptors are available with the following dimensions |       |      |     |       |      |          |     |      |         |    |    |     |                |
|---|-------|------|-----|-------|------|----------|-----|------|---------|----|----|-----|----------------|
| Drawing Dimension / Thru drive option                           | A     | B    | C   | D     | E    |          | F   | G    |         | H  | K  | L   | Remark         |
|   |       |      |     |       | Metr | UNC      |     | Metr | UNC     |    |    |     |                |
| A   | 82.55 | 8    | -   | -     | -    | -        | 106 | M10  | 3/8"-16 | 34 | 48 | 261 | SAE A 2-Bolt   |
| B   | 101.6 | 11   | 127 | 89.8  | M12  | 1/2"-13  | 146 | M12  | 1/2"-13 | 34 | 48 | 261 | SAE B 2/4-Bolt |
| C   | 127   | 13.5 | 162 | 114.6 | M12  | 1/2"-13  | -   | -    | -       | 49 | 63 | 276 | SAE C 4-Bolt   |
| H   | 80    | 8.5  | 103 | 72.8  | M8   | 5/16"-18 | 109 | M10  | 3/8"-16 | 34 | 48 | 261 | 2/4-Bolt       |
| J   | 100   | 10.5 | 125 | 88.4  | M10  | 3/8"-16  | 140 | M12  | 1/2"-13 | 34 | 48 | 261 | 2/4-Bolt       |
| K   | 125   | 10.5 | 160 | 113.1 | M12  | 1/2"-13  | -   | -    | -       | 34 | 48 | 261 | 4-Bolt         |



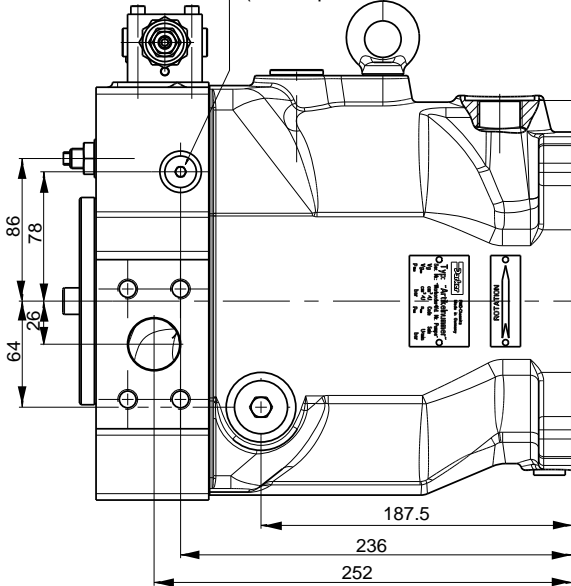
**PV 063 - 092 Metric**

Mounting interface for horse power pilot or LVDT 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)

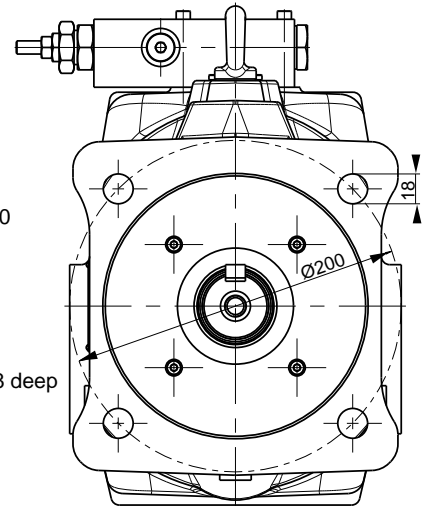


Gage port M; G1/4", optional M12 x 1.5; ISO 6149-1 (thread option 8) or 7/16" - 20 UNF (thread option 3)

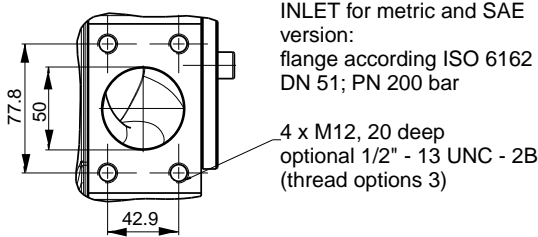


Key 12 x 8 x 80  
 DIN 6885

Thread  
 M12 - 28 deep

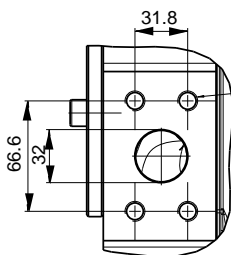


The pump shown above has **Mounting option K** and thru drive variation **T** (prepared for thru drive)



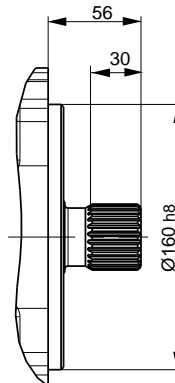
INLET for metric and SAE version:  
 flange according ISO 6162  
 DN 51; PN 200 bar

4 x M12, 20 deep  
 optional 1/2" - 13 UNC - 2B  
 (thread options 3)



4 x M12, 20 deep  
 optional 1/2" - 13 UNC - 2B  
 (thread options 3)  
 or thread options 4:  
 4 x M14, 20 deep

OUTLET for metric and SAE version:  
 flange according ISO 6162  
 DN 32; PN 400 bar

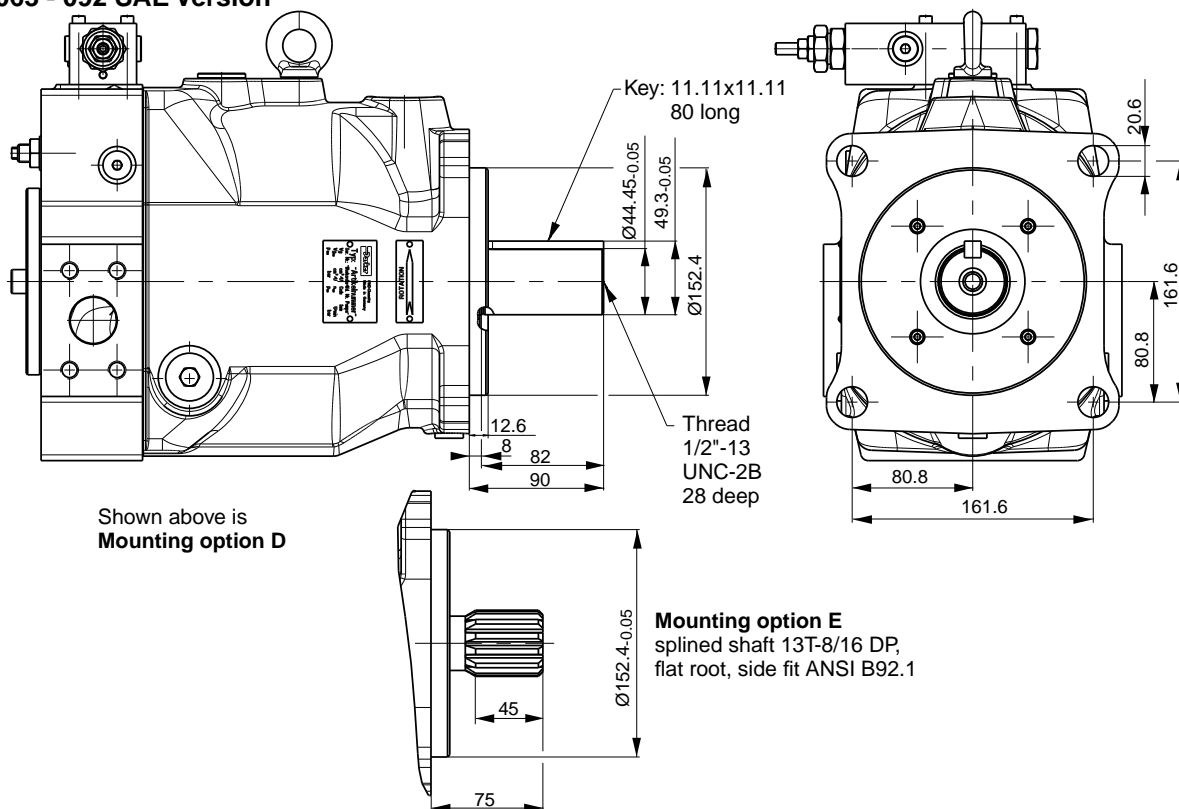


**Mounting option L**, splined shaft  
 W40 x 1.5 x 25 x 8f DIN 5480

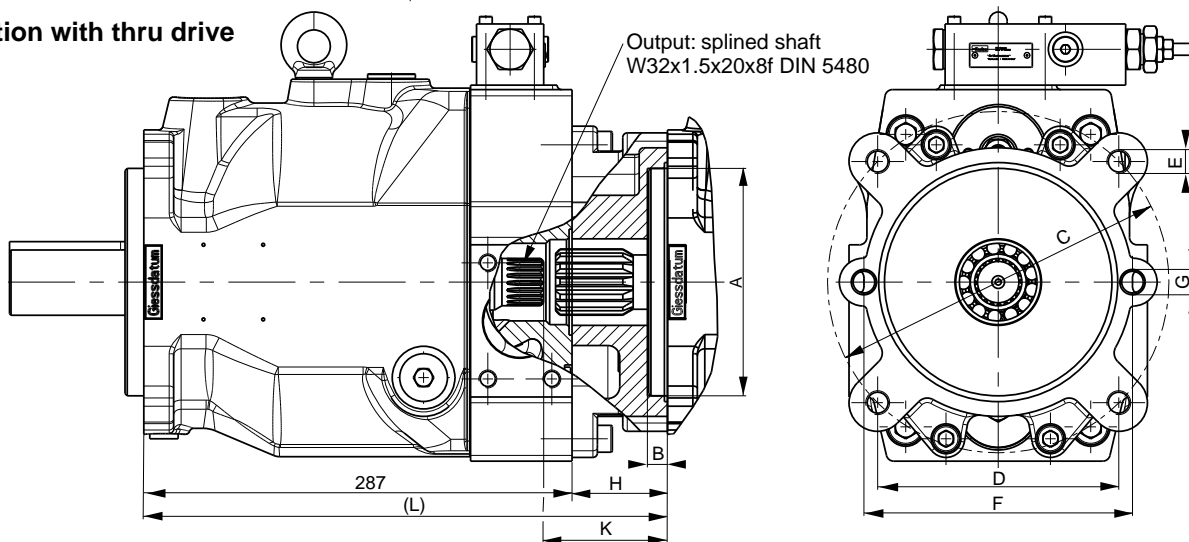
Shown is a clockwise rotating pump with standard pressure compensator. Counter clockwise rotating pumps have inlet, outlet and gage port reversed.



**PV 063 - 092 SAE Version**

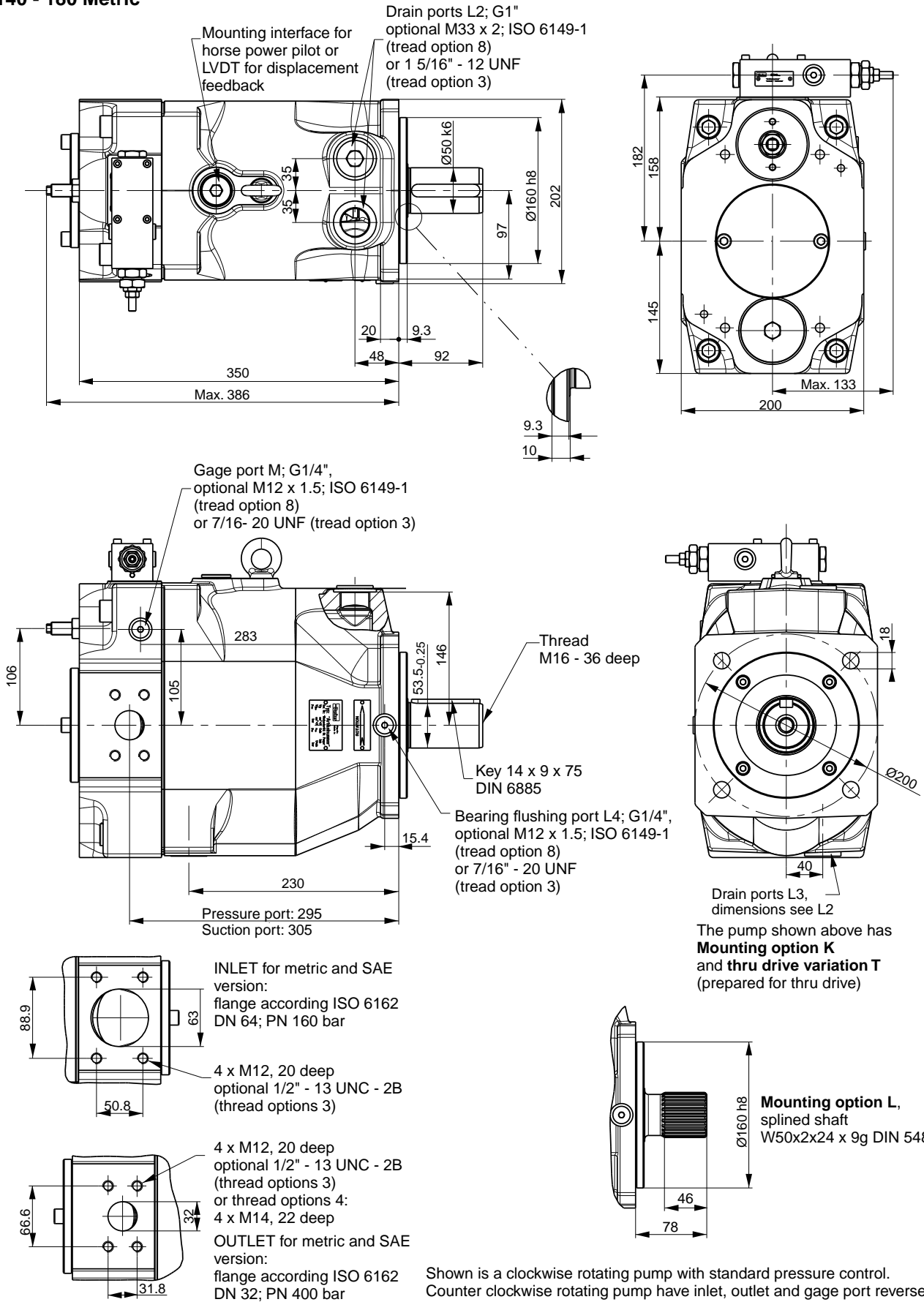


**Variation with thru drive**

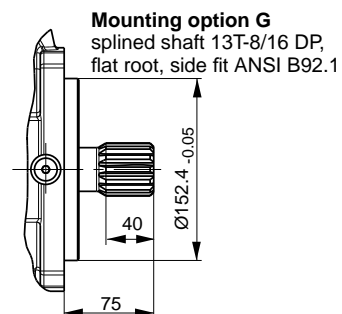
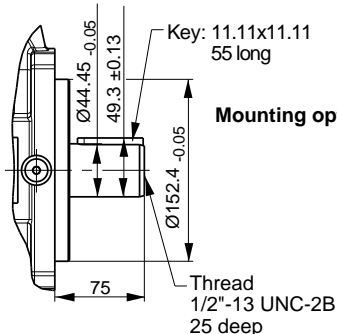
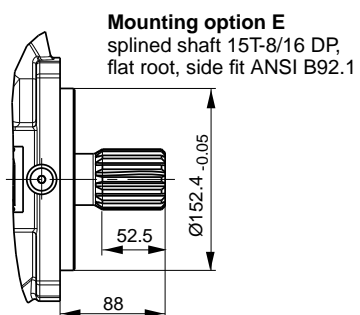
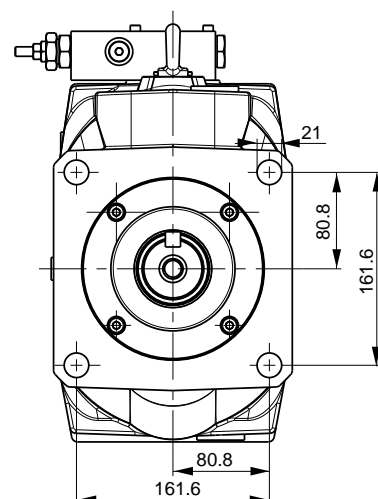
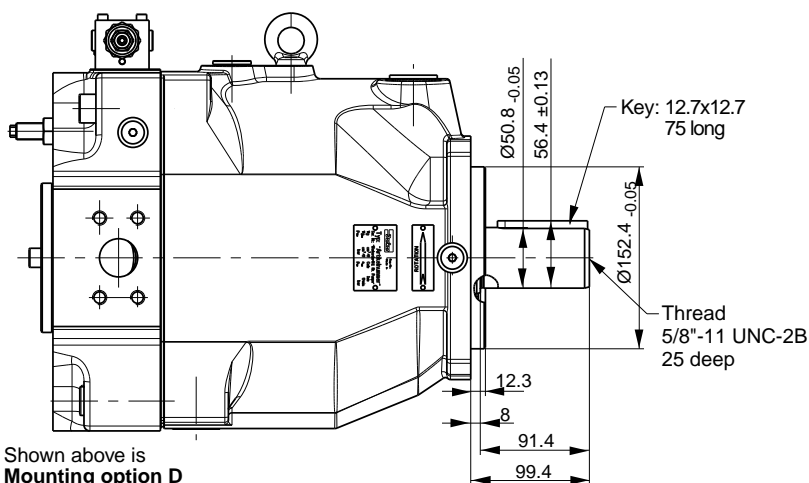


| Thru drive adaptors are available with the following dimensions |       |      |       |       |      |          |     |      |         |    |    |     |                |
|---|-------|------|-------|-------|------|----------|-----|------|---------|----|----|-----|----------------|
| Drawing Dimension   | A     | B    | C     | D     | E    |          | F   | G    |         | H  | K  | L   | Remark         |
|   |       |      |       |       | Metr | UNC      |     | Metr | UNC     |    |    |     |                |
| Thru drive option   |       |      |       |       |      |          |     |      |         |    |    |     |                |
| A   | 82.55 | 8    | -     | -     | -    | -        | 106 | M10  | 3/8"-16 | 39 | 58 | 326 | SAE A 2-Bolt   |
| B   | 101.6 | 11   | 127   | 89.8  | M12  | 1/2"-13  | 146 | M12  | 1/2"-13 | 39 | 58 | 326 | SAE B 2/4-Bolt |
| C   | 127   | 13.5 | 162   | 114.6 | M12  | 1/2"-13  | 181 | M16  | 5/8"-11 | 39 | 58 | 326 | SAE C 2/4-Bolt |
| D   | 152.4 | 13.5 | 228.5 | 161.6 | M16  | 5/8"-11  | -   | -    | -       | 64 | 83 | 351 | SAE D 4-Bolt   |
| H   | 80    | 8.5  | 103   | 72.8  | M8   | 5/16"-18 | 109 | M10  | 3/8"-16 | 39 | 58 | 326 | 2/4-Bolt       |
| J   | 100   | 10.5 | 125   | 88.4  | M10  | 3/8"-16  | 140 | M12  | 1/2"-13 | 39 | 58 | 326 | 2/4-Bolt       |
| K   | 125   | 10.5 | 160   | 113.1 | M12  | 1/2"-13  | 180 | M16  | 5/8"-11 | 39 | 58 | 326 | 2/4-Bolt       |
| L   | 160   | 13.5 | 200   | 141.4 | M16  | 5/8"-11  | -   | -    | -       | 39 | 58 | 326 | 4-Bolt         |

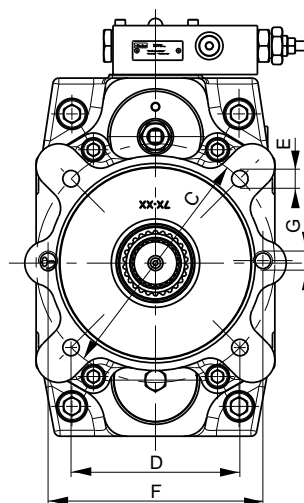
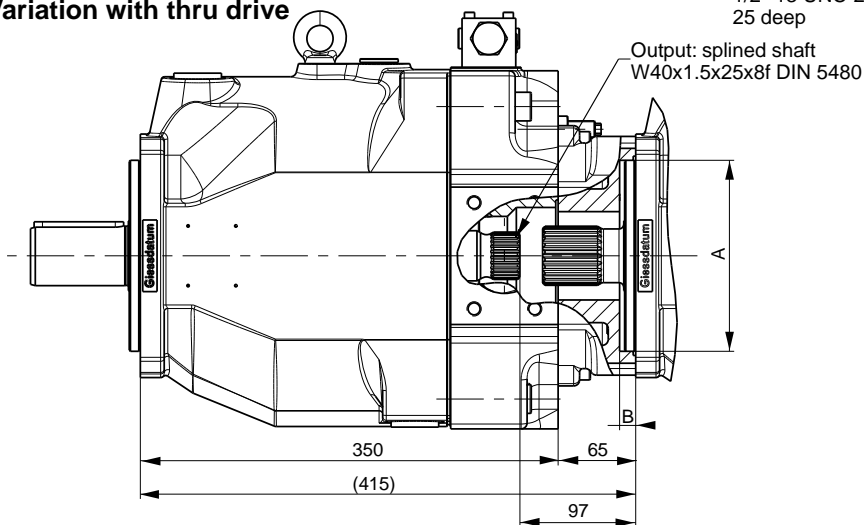
**PV 140 - 180 Metric**



**PV 140 - 180 SAE Version**

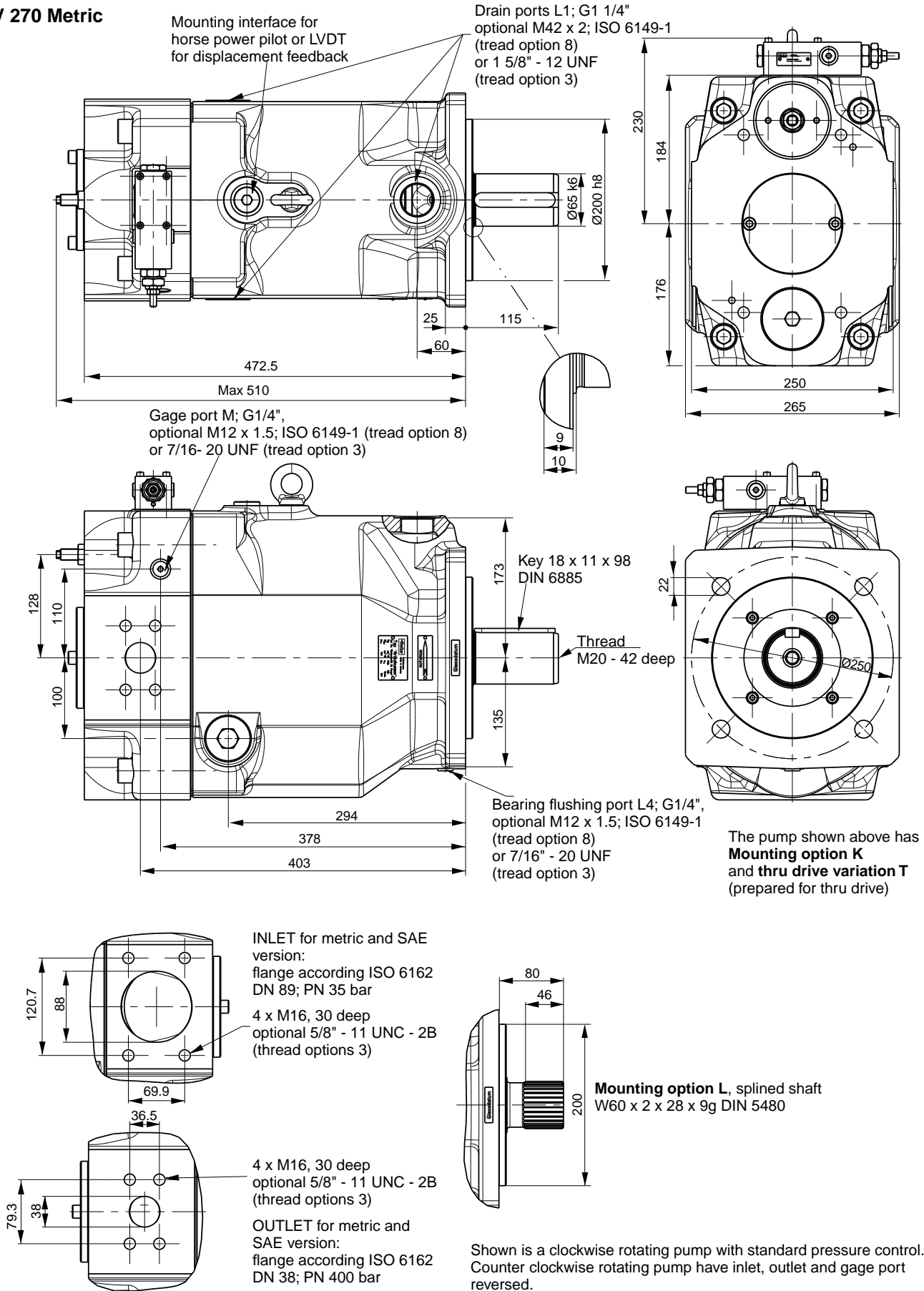


**Variation with thru drive**

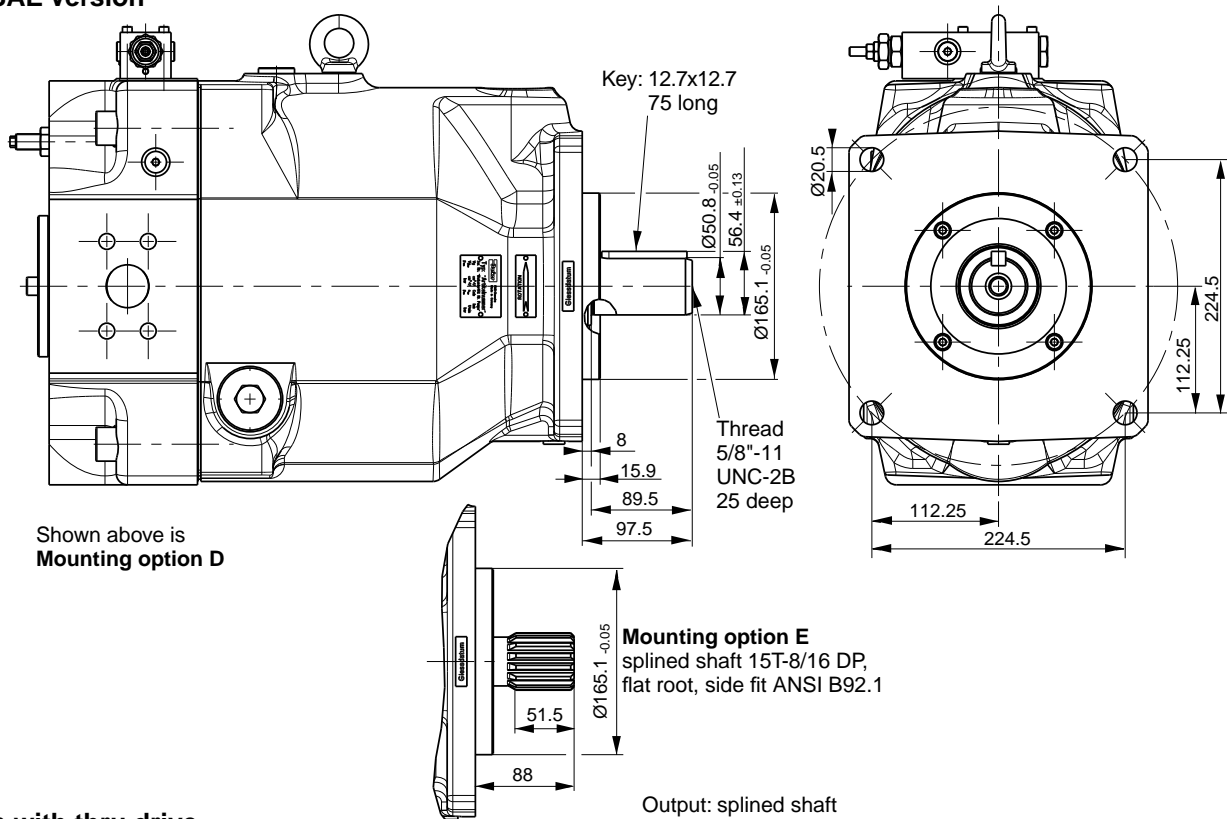


| Thru drive adaptors are available with the following dimensions |       |      |       |       |      |          |     |      |         |                |
|---|-------|------|-------|-------|------|----------|-----|------|---------|----------------|
| Drawing Dimension   | A     | B    | C     | D     | E    |          | F   | G    |         | Remark         |
|   |       |      |       |       | Metr | UNC      |     | Metr | UNC     |                |
| Thru drive option   |       |      |       |       |      |          |     |      |         |                |
| A   | 82.55 | 8    | -     | -     | -    | -        | 106 | M10  | 3/8"-16 | SAE A 2-Bolt   |
| B   | 101.6 | 11   | 127   | 89.8  | M12  | 1/2"-13  | 146 | M12  | 1/2"-13 | SAE B 2/4-Bolt |
| C   | 127   | 13.5 | 162   | 114.6 | M12  | 1/2"-13  | 181 | M16  | 5/8"-11 | SAE C 2/4-Bolt |
| D   | 152.4 | 13.5 | 228.5 | 161.6 | M16  | 5/8"-11  | -   | -    | -       | SAE D 4-Bolt   |
| H   | 80    | 8.5  | 103   | 72.8  | M8   | 5/16"-18 | 109 | M10  | 3/8"-16 | 2/4-Bolt       |
| J   | 100   | 10.5 | 125   | 88.4  | M10  | 3/8"-16  | 140 | M12  | 1/2"-13 | 2/4-Bolt       |
| K   | 125   | 10.5 | 160   | 113.1 | M12  | 1/2"-13  | 180 | M16  | 5/8"-11 | 2/4-Bolt       |
| L   | 160   | 13.5 | 200   | 141.4 | M16  | 5/8"-11  | -   | -    | -       | 4-Bolt         |

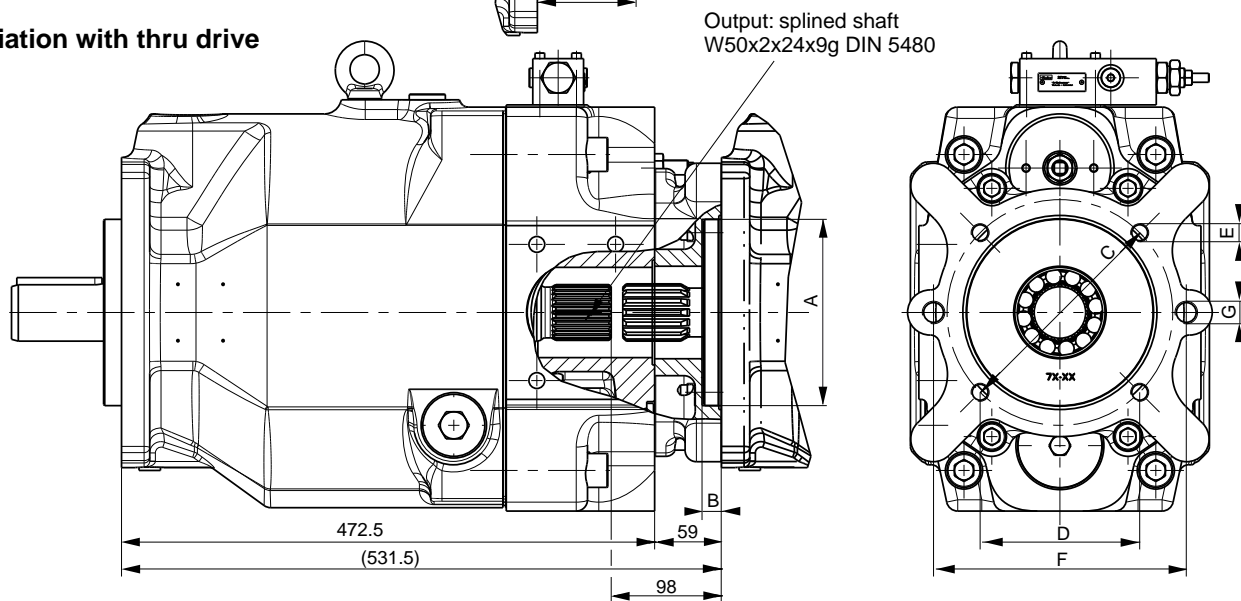
**PV 270 Metric**



**PV 270 SAE Version**

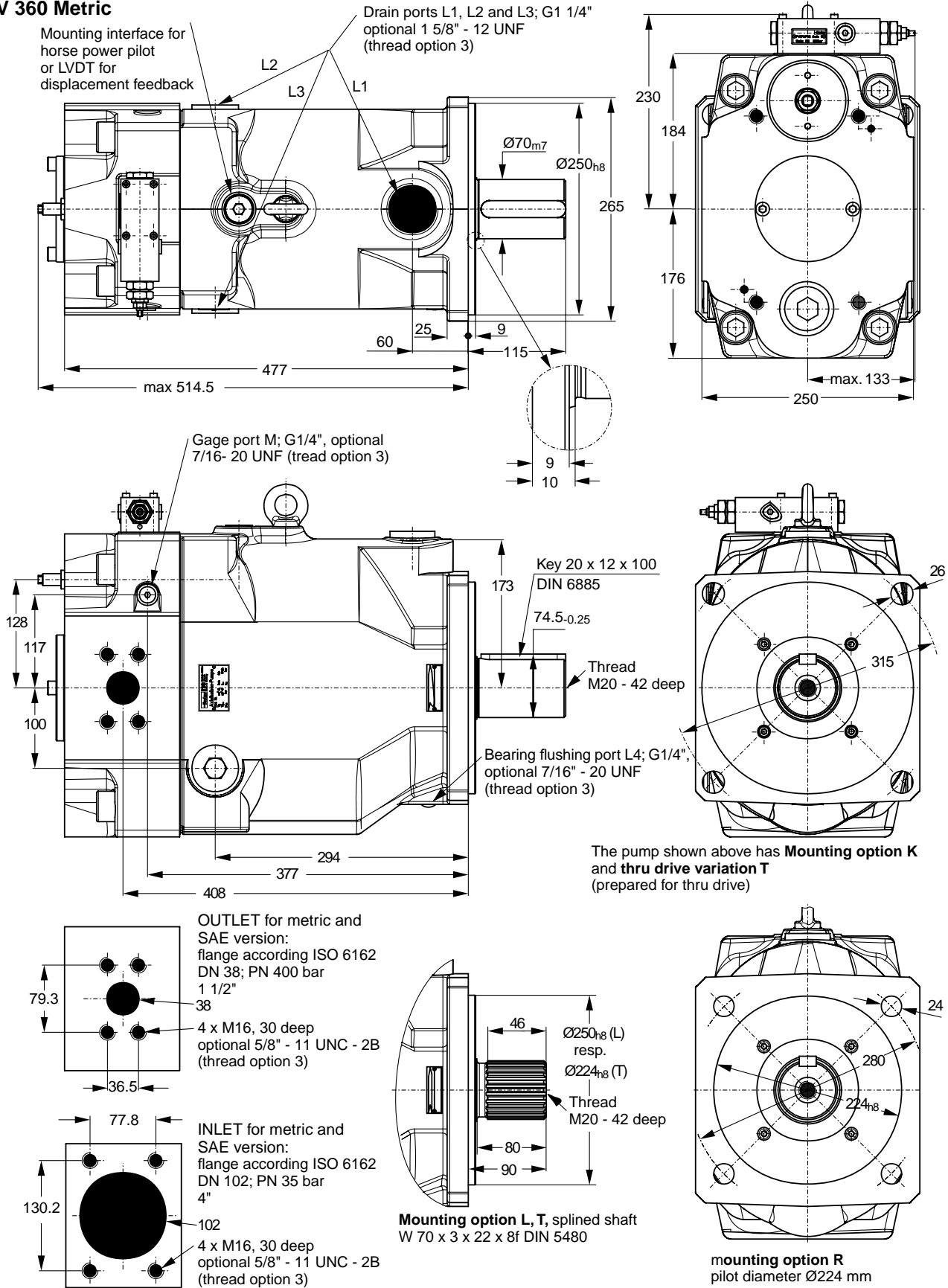


**Variation with thru drive**



| Thru drive adaptors are available with the following dimensions |       |      |       |       |      |          |     |      |         |                |  |
|---|-------|------|-------|-------|------|----------|-----|------|---------|----------------|--|
| Drawing Dimension   | A     | B    | C     | D     | E    |          | F   | G    |         | Remark         |  |
|   |       |      |       |       | Metr | UNC      |     | Metr | UNC     |                |  |
| Thru drive option   |       |      |       |       |      |          |     |      |         |                |  |
| A   | 82.55 | 8    | -     | -     | -    | -        | 106 | M10  | 3/8"-16 | SAE A 2-Bolt   |  |
| B   | 101.6 | 11   | 127   | 89.8  | M12  | 1/2"-13  | 146 | M12  | 1/2"-13 | SAE B 2/4-Bolt |  |
| C   | 127   | 13.5 | 162   | 114.6 | M12  | 1/2"-13  | 181 | M16  | 5/8"-11 | SAE C 2/4-Bolt |  |
| D   | 152.4 | 13.5 | 228.5 | 161.6 | M16  | 5/8"-11  | 229 | M16  | 5/8"-11 | SAE D 2/4-Bolt |  |
| E   | 165.1 | 17   | 317.5 | 224.5 | M20  | 3/4"-10  | -   | -    | -       | SAE E 4-Bolt   |  |
| H   | 80    | 8.5  | 103   | 72.8  | M8   | 5/16"-18 | 109 | M10  | 3/8"-16 | 2/4-Bolt       |  |
| J   | 100   | 10.5 | 125   | 88.4  | M10  | 3/8"-16  | 140 | M12  | 1/2"-13 | 2/4-Bolt       |  |
| K   | 125   | 10.5 | 160   | 113.1 | M12  | 1/2"-13  | 180 | M16  | 5/8"-11 | 2/4-Bolt       |  |
| L   | 160   | 13.5 | 200   | 141.4 | M16  | 5/8"-11  | 224 | M20  | 3/4"-10 | 2/4-Bolt       |  |
| M   | 200   | 13.5 | 250   | 176.8 | M20  | 3/4"-10  | -   | -    | -       | 4-Bolt         |  |

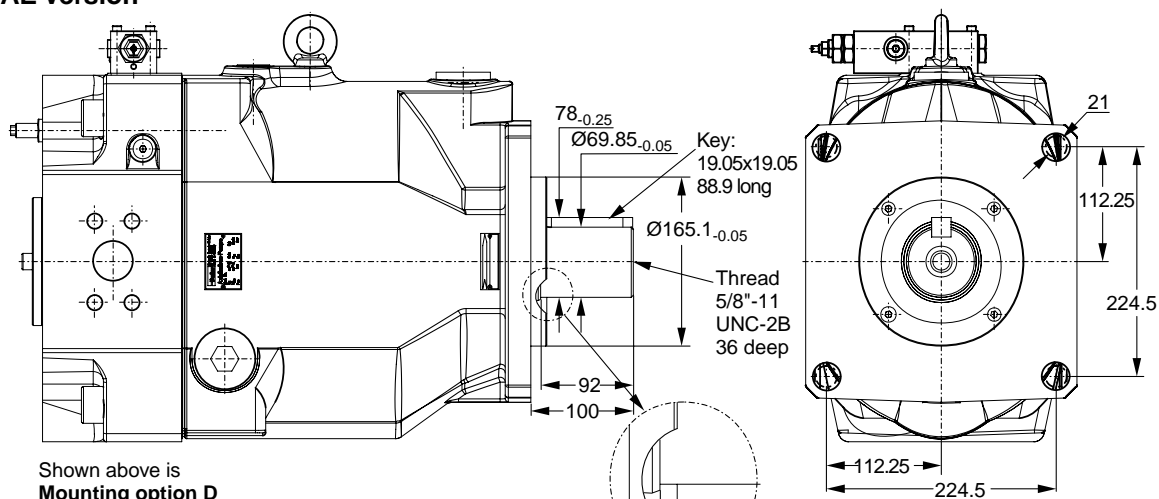
**PV 360 Metric**



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

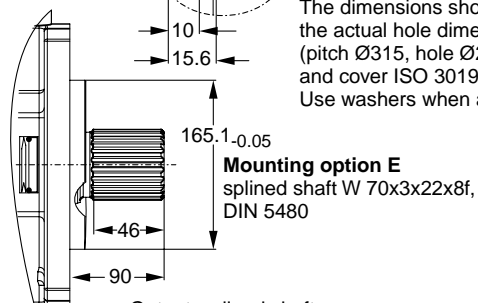


**PV 360 SAE Version**



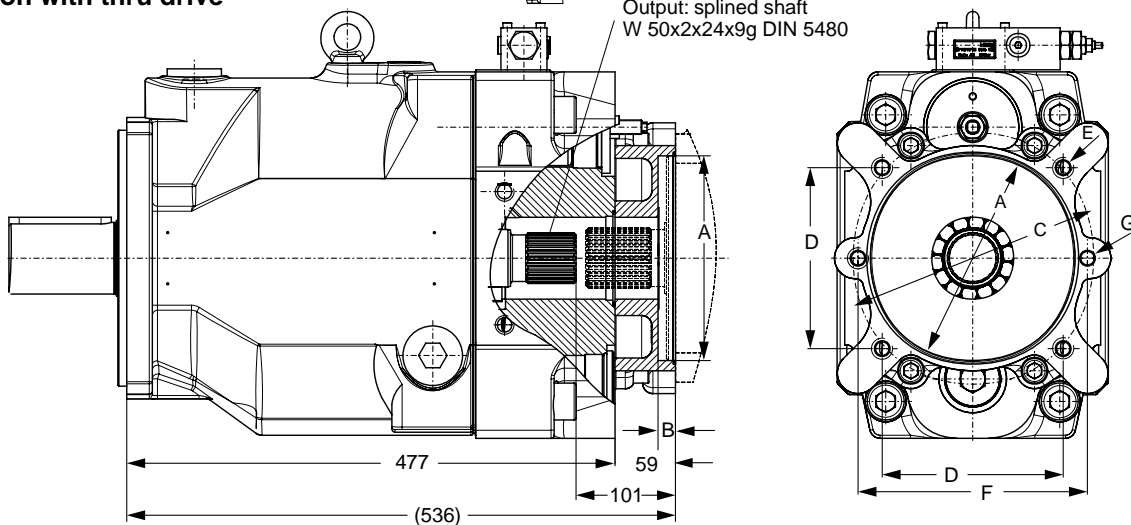
Shown above is  
**Mounting option D**

**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.



**Mounting option E**  
 splined shaft W 70x3x22x8f,  
 DIN 5480

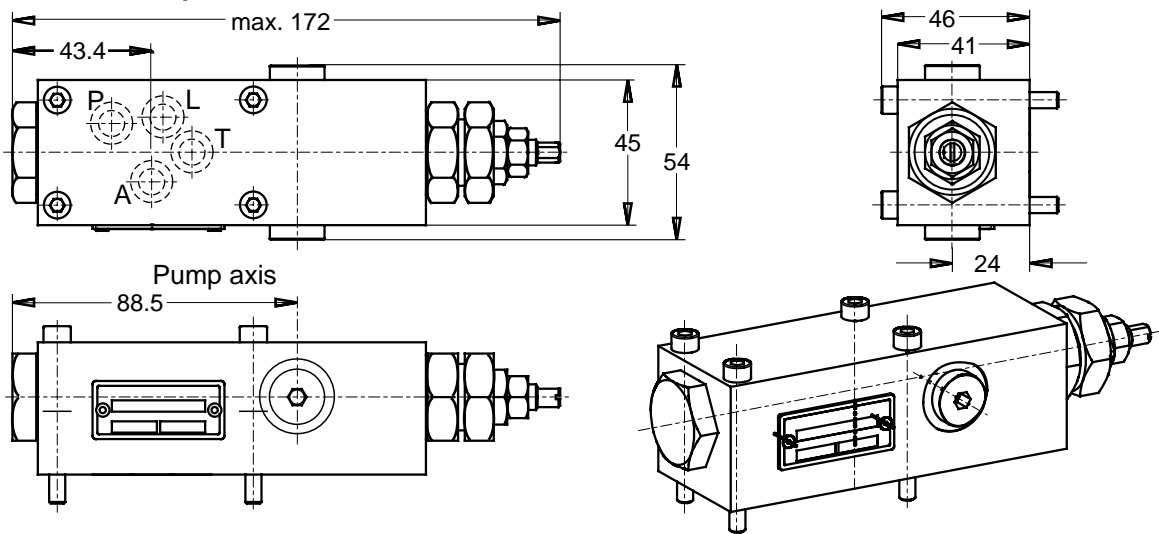
**Variation with thru drive**



Output: splined shaft  
 W 50x2x24x9g DIN 5480

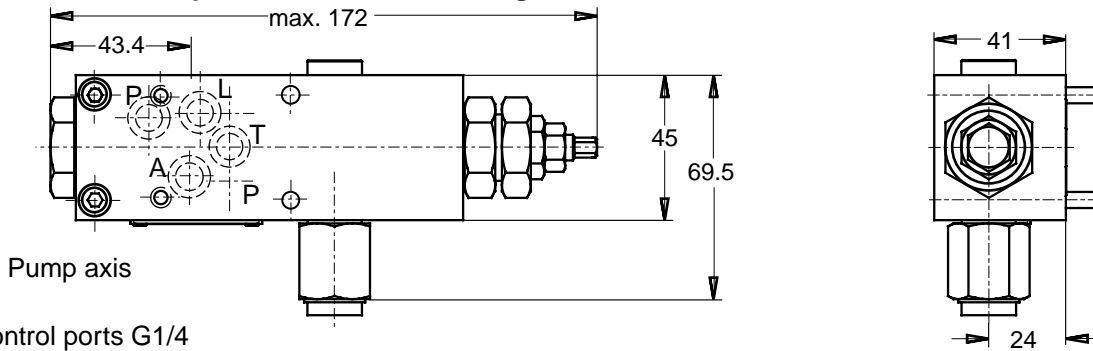
| Thru drive adaptors are available with the following dimensions |       |      |       |       |      |          |     |      |         |                |
|---|-------|------|-------|-------|------|----------|-----|------|---------|----------------|
| Drawing Dimension   | A     | B    | C     | D     | E    |          | F   | G    |         | Remark         |
|   |       |      |       |       | Metr | UNC      |     | Metr | UNC     |                |
| Thru drive option   |       |      |       |       |      |          |     |      |         |                |
| A   | 82.55 | 8    | -     | -     | -    | -        | 106 | M10  | 3/8"-16 | SAE A 2-Bolt   |
| B   | 101.6 | 11   | 127   | 89.8  | M12  | 1/2"-13  | 146 | M12  | 1/2"-13 | SAE B 2/4-Bolt |
| C   | 127   | 13.5 | 162   | 114.6 | M12  | 1/2"-13  | 181 | M16  | 5/8"-11 | SAE C 2/4-Bolt |
| D   | 152.4 | 13.5 | 228.5 | 161.6 | M16  | 5/8"-11  | 229 | M16  | 5/8"-11 | SAE D 2/4-Bolt |
| E   | 165.1 | 17   | 317.5 | 224.5 | M20  | 3/4"-10  | -   | -    | -       | SAE E 4-Bolt   |
| H   | 80    | 8.5  | 103   | 72.8  | M8   | 5/16"-18 | 109 | M10  | 3/8"-16 | 2/4-Bolt       |
| J   | 100   | 10.5 | 125   | 88.4  | M10  | 3/8"-16  | 140 | M12  | 1/2"-13 | 2/4-Bolt       |
| K   | 125   | 10.5 | 160   | 113.1 | M12  | 1/2"-13  | 180 | M16  | 5/8"-11 | 2/4-Bolt       |
| L   | 160   | 13.5 | 200   | 141.4 | M16  | 5/8"-11  | 224 | M20  | 3/4"-10 | 2/4-Bolt       |
| M   | 200   | 13.5 | 250   | 176.8 | M20  | 3/4"-10  | -   | -    | -       | 4-Bolt         |

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

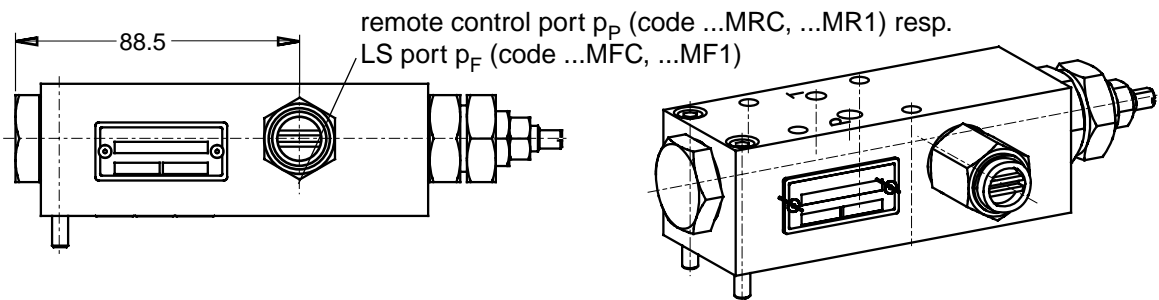


Controls with code ...MM1 have a NG6 / Cetop 3 interface topside (as shown below)

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

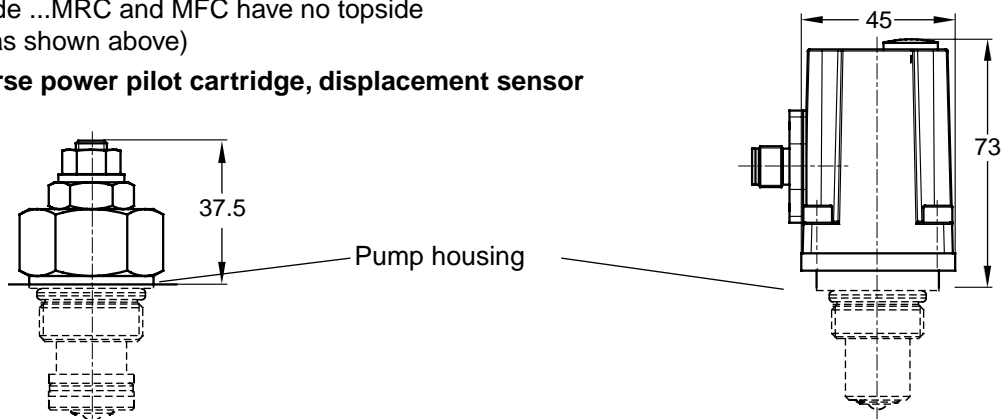


All control ports G1/4  
 Optional 7/16-20 UNF (option 3)



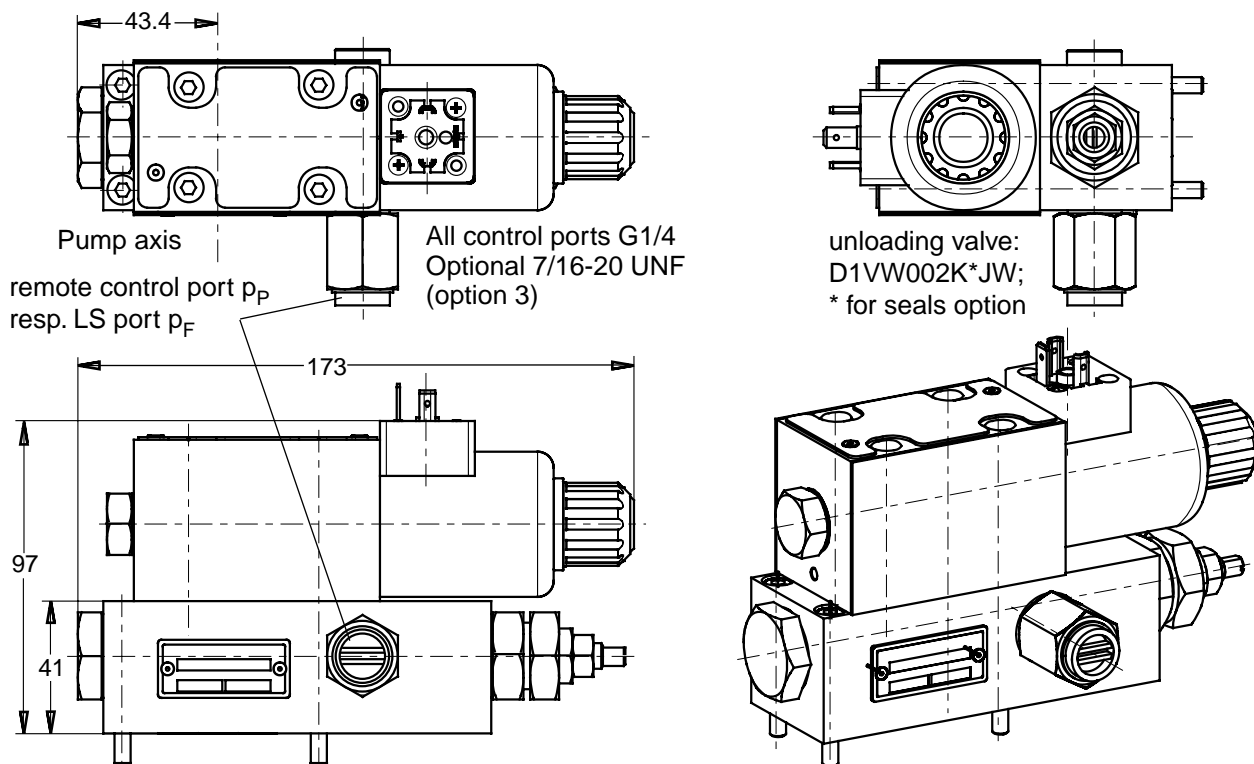
Controls with code ...MRC and MFC have no topside valve interface (as shown above)

**Dimensions horse power pilot cartridge, displacement sensor**



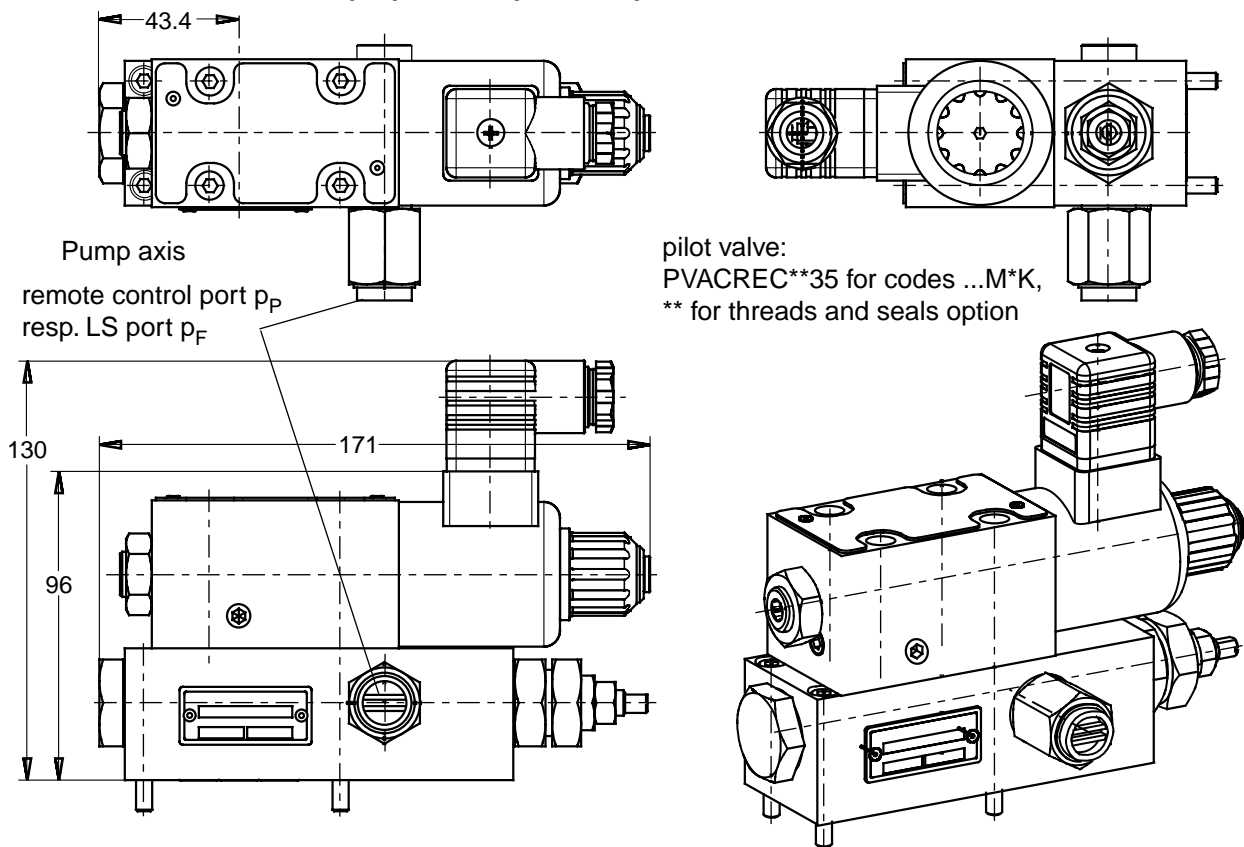


**Dimensions for controls with unloading valve, codes ...M\*W**



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

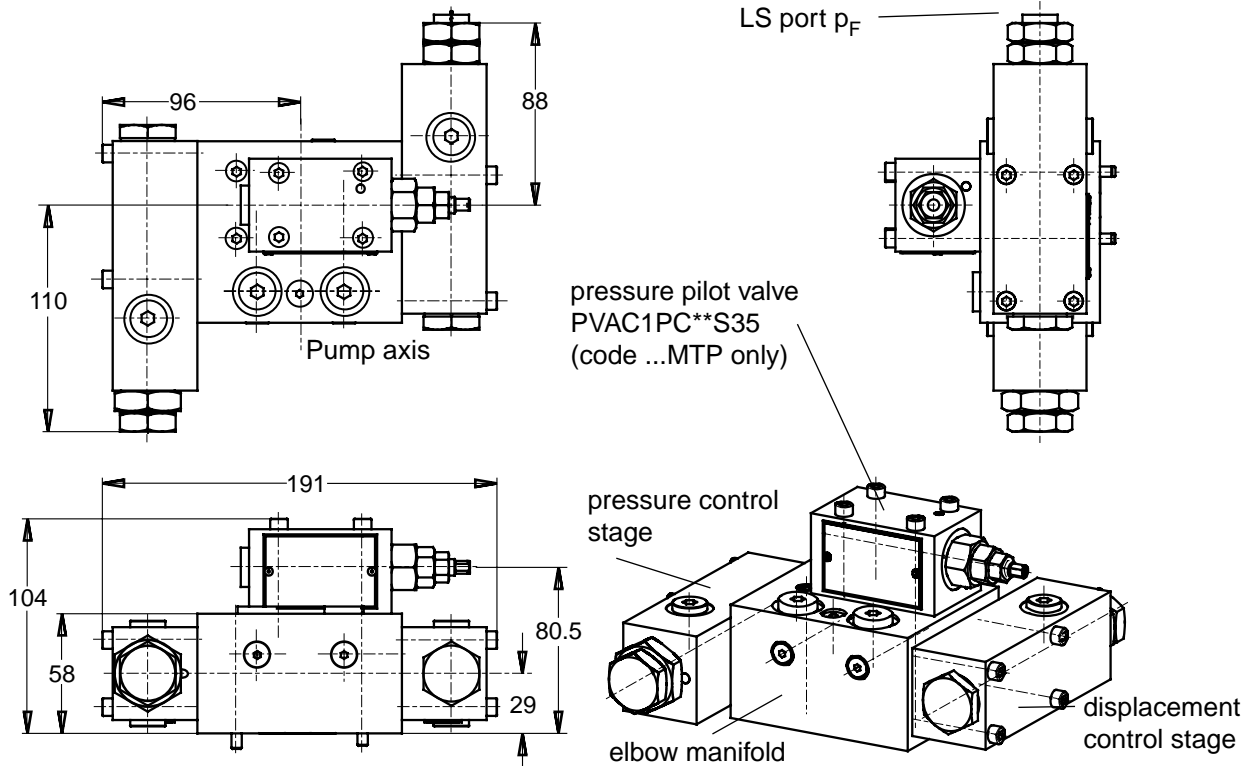
**Dimensions for controls with proportional pressure pilot valve, codes ...M\*K**



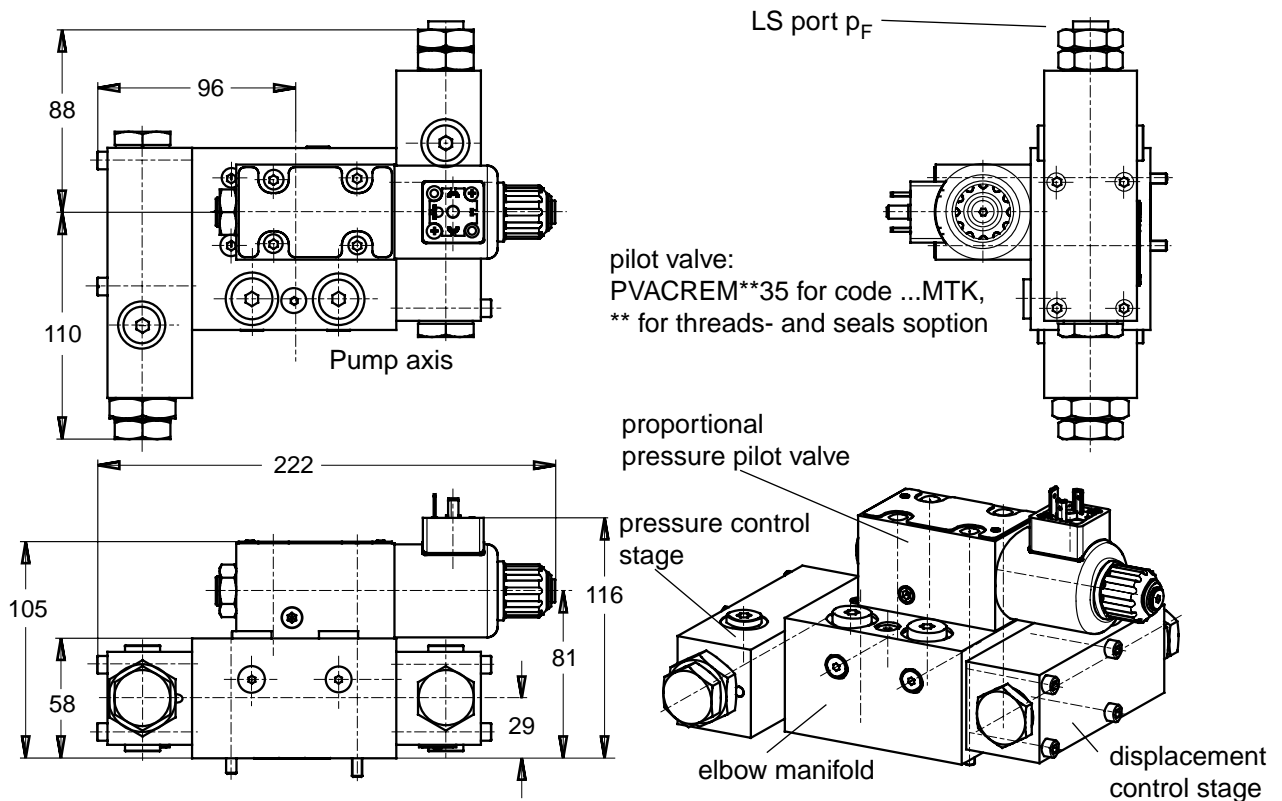
Shown in version MRK/MFK, version MMK has no remote control port.

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

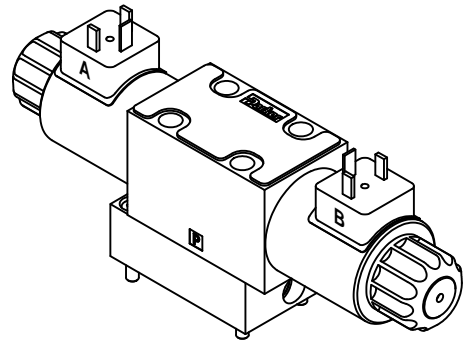
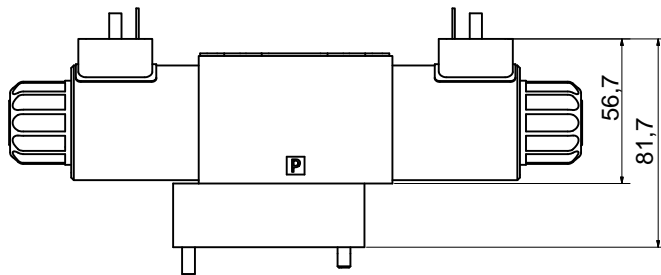
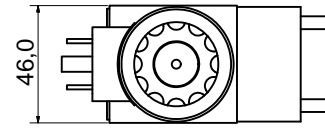
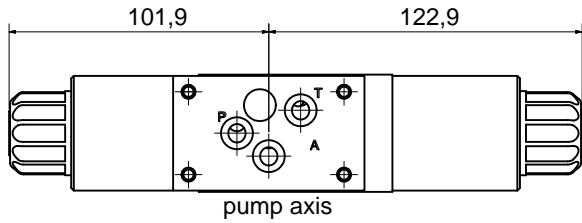
**Dimensions two spool load sensing control, code ...MT1, ...MTP**



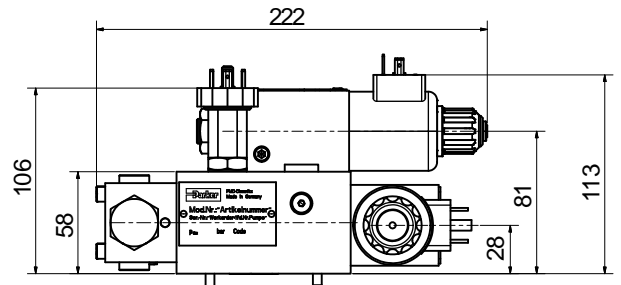
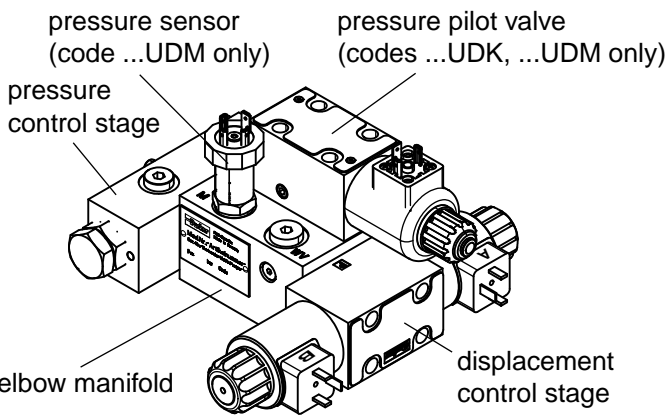
**Dimensions two spool load sensing control with proportional pressure pilot valve, code ...MTK**



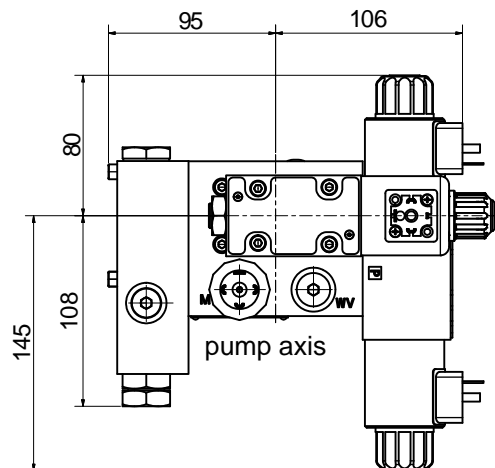
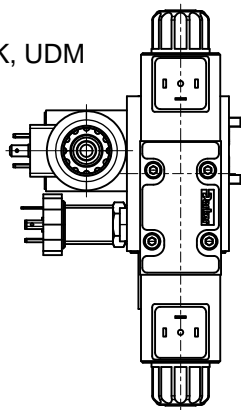
**Dimensions proportional displacement control, code ...FDV**



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



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



**Features**

- Digital control circuit
- Covers all displacements
- Covers all available functions
- Predefined parameter sets (Plug & Play)
- Connection via USB cable (USB-A/USB-B)
- Ramp time up to 60 seconds
- Compatible to the relevant european EMC specifications
- Offline edition of parameter sets
- Easy error diagnosis
- 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

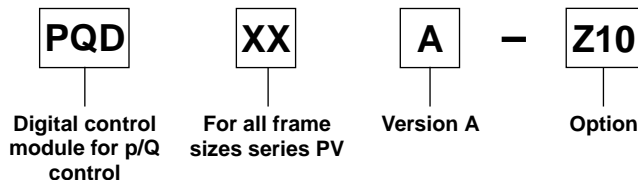


**Technical data**

|                          |                    |   |
|--------------------------|--------------------|---|
| 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...30VDC, 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.<br>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**



**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. This program runs under WINDOWS® 95 and higher.

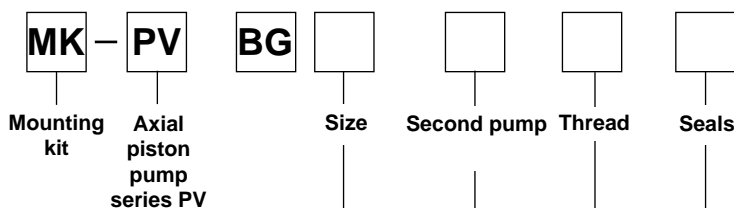
The latest version of this software can be downloaded at the following internet address:

[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

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



| 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 |

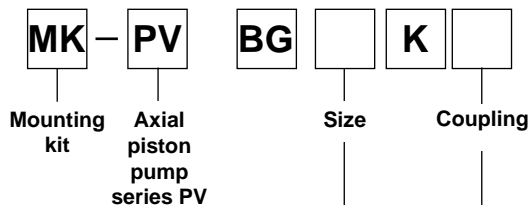
| Code                | Second pump, SAE                         |
|---------------------|--|
| T                   | Prepared for thru drive option (plugged) |
| Y                   | SAE AA, diameter 50.8 mm                 |
| A                   | SAE A, diameter 82.55 mm                 |
| B                   | SAE B, diameter 101.6 mm                 |
| C                   | SAE C, diameter 127 mm                   |
| D                   | SAE D, diameter 152.4 mm                 |
| E                   | SAE E, diameter 165.1 mm                 |
| Second pump, metric |  |
| G                   | Diameter 63 mm                           |
| H                   | Diameter 80 mm                           |
| J                   | Diameter 100 mm                          |
| K                   | Diameter 125 mm                          |
| L                   | Diameter 160 mm                          |
| M                   | Diameter 200 mm                          |

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

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

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

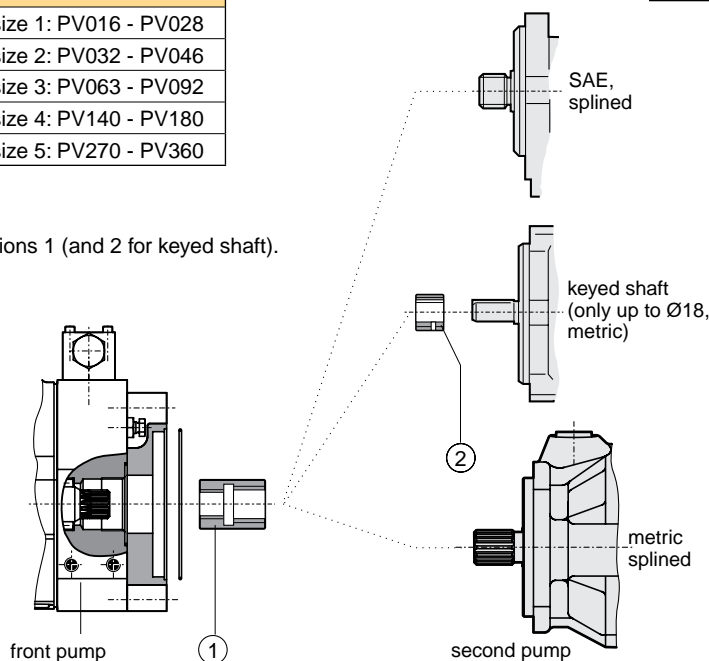
**Mounting kits for multiple pumps, couplings**



| 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*                               |
| 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                             |
| 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).



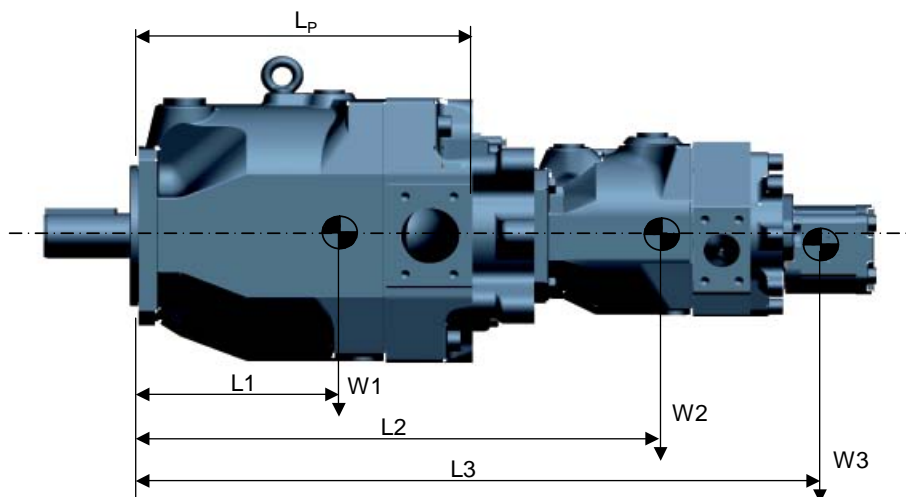
\* For PV360 only

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

### Multiple Pump Combinations - Maximum Moment

Combinations of multiple pumps might require additional pump support to avoid a too 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.



$$\text{Moment } M = (L_1 \cdot W_1 + L_2 \cdot W_2 + L_3 \cdot W_3 + \dots)$$

Note:

If the calculated moment  $M$  exceed 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   |

1) 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 |
|------------------------------|-------------|-------------|-------------|-------------|-------|-------|
| Y                            | 27          | -           | -           | -           | -     | -     |
| 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          | -           | -     | -     |
| H                            | 27          | 34          | 39          | 65          | 59    | 59    |
| J                            | 27          | 34          | 39          | 65          | 59    | 59    |
| K                            | -           | 34          | 39          | 65          | 59    | 59    |
| L                            | -           | -           | 39          | 65          | 59    | 59    |
| M                            | -           | -           | -           | -           | 59    | 59    |

2) See page 6 to 17 for reference per each frame size.

| <b>Maximum allowed transferable torque FRONT</b>    |                 |  |           |           |           |       |       |
|---|-----------------|--|-----------|-----------|-----------|-------|-------|
| 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  |
| <b>Maximum allowed transferable torque REAR</b>     |                 |  |           |           |           |       |       |
| 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% thru 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 thru drive torque.



**WARNING – USER RESPONSIBILITY**

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