Axial Piston Pumps

Series PVplus
Variable Displacement

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P	V				R	1	K	1	T	1	N			

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 cm³/rev**	**2**
040	**40 cm³/rev**	**2**
046	**46 cm³/rev**	**2**

Code	Seals	Shaft seal
N	**NBR**	**FKM**
V	FKM	FKM
W	NBR	PTFE

Code	Rotation [1]
R	**Clockwise**
L	Counter clockwise

[1] When looked on shaft

Code	Variation
1	**Standard**
2	Electronic displacement sensor [2]
9	Special adjustment [3]

[2] not for horse power control
[3] requires Kxxxx number

Code	Coupling for thru drive	as single part [7]
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	Mounting interface		Shaft
K	**metr. ISO 3019/2**	**4-hole flange Ø125 mm**	**Cylindric, key**
L		**4-hole flange Ø125 mm**	**Splined, DIN 5480**
D	SAE ISO 3019/1	4-hole flange SAE C	Cylindric, key
E		4-hole flange SAE C	Splined, SAE

Code	Thru drive option	
	No adaptor for 2nd pump	
T	**Single pump prepared for thru drive**	
	with adaptor for 2nd pump	as single part [7]
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

[7] to be ordered separately as single part
see page 61.

Code	Port[4]	Threads[5]
1	**BSPP**	**metric**
3	UNF	UNC
8[6]	ISO 6149	metric

[4] Drain, gage and flushing ports
[5] All mounting and connecting threads
[6] 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
M	R		Remote pressure control
M	F		Load Sensing (flow) control
M	T		Two spool LS control
			Control variation
		C	Standard version, integrated pilot valve [1]
		1	NG6 interface top side for pilot valves
		2	Remote pressure port int. supply , NG6 interface [2]
		3	Remote pressure port ext. supply [2]
		W	With unloading function, 24VDC solenoid [1]
		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 [3]
		P	MT1 with mounted pilot valve PVAC1P [2]

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 [4]	
	C		Horse power control with load sensing (single spool)	
	Z		Horse power control with two spool LS control	
Control variation				
		C	Standard version, integrated pilot valve [1]	
		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* [4]	
		B	Without integrated pilot valve, without NG6 interface [1], [4]	

4) control variation Z and B without pressure pilot

Code			Control option
Electro hydraulic control [5]			
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

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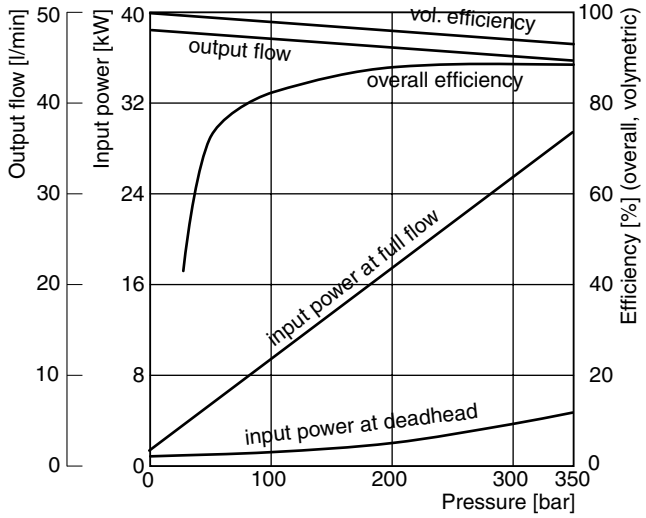
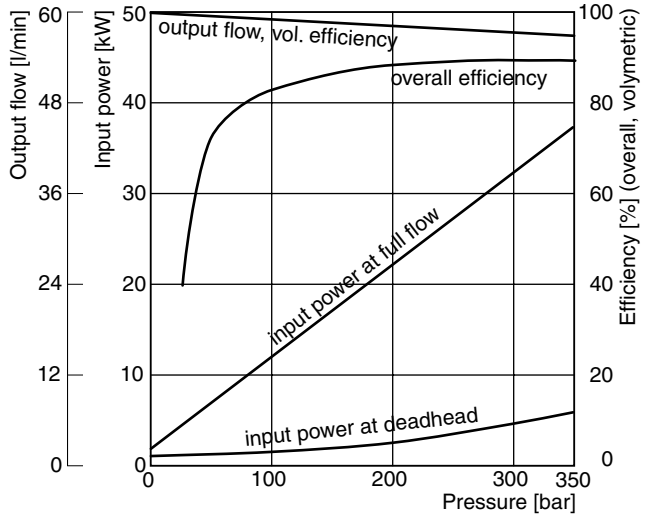
Pump & Motor Division Europe
Chemnitz, Germany

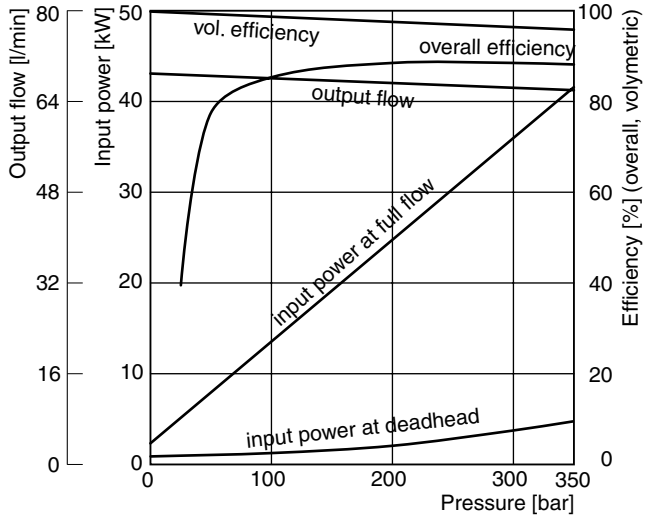
Efficiency, power consumption
PV032



PV040



PV046



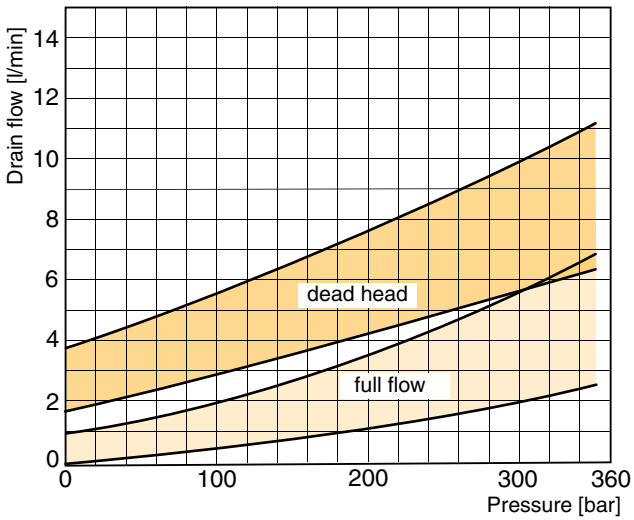
Efficiency and case drain flows PV032 to PV046

The efficiency and power graphs are measured at an input speed of n = 1500 rpm, a temperature of 50 °C and a fluid viscosity of 30 mm^2/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.

Case drain flow PV032-046 with pressure compensator



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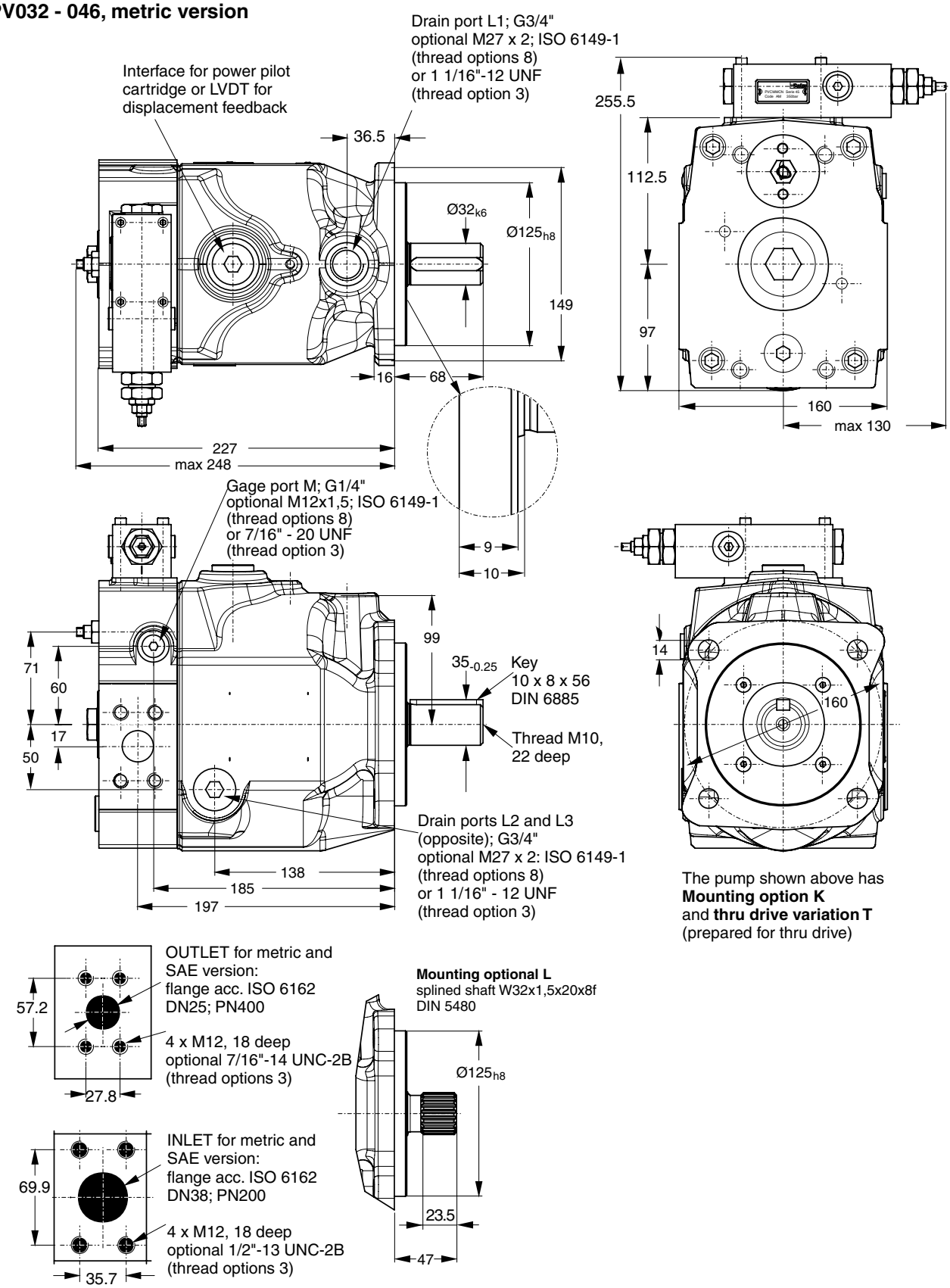
PV032 - 046, metric version



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

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

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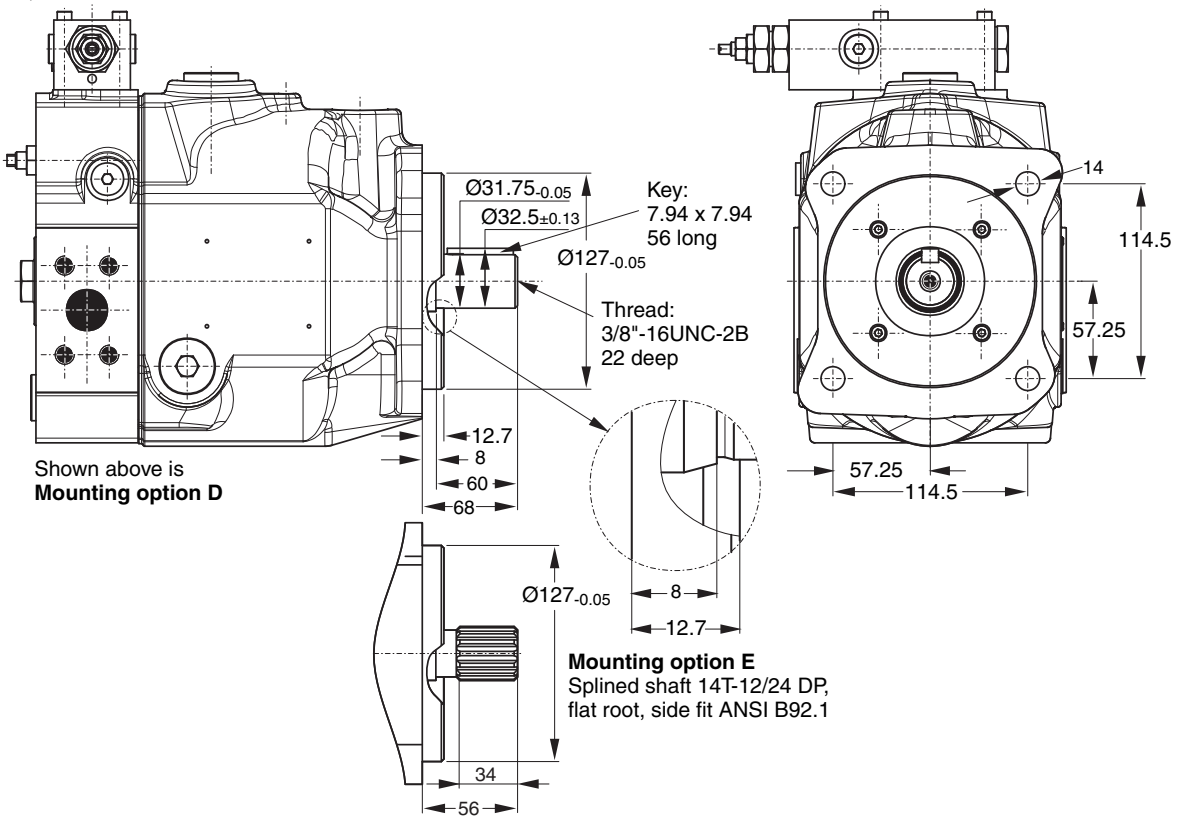
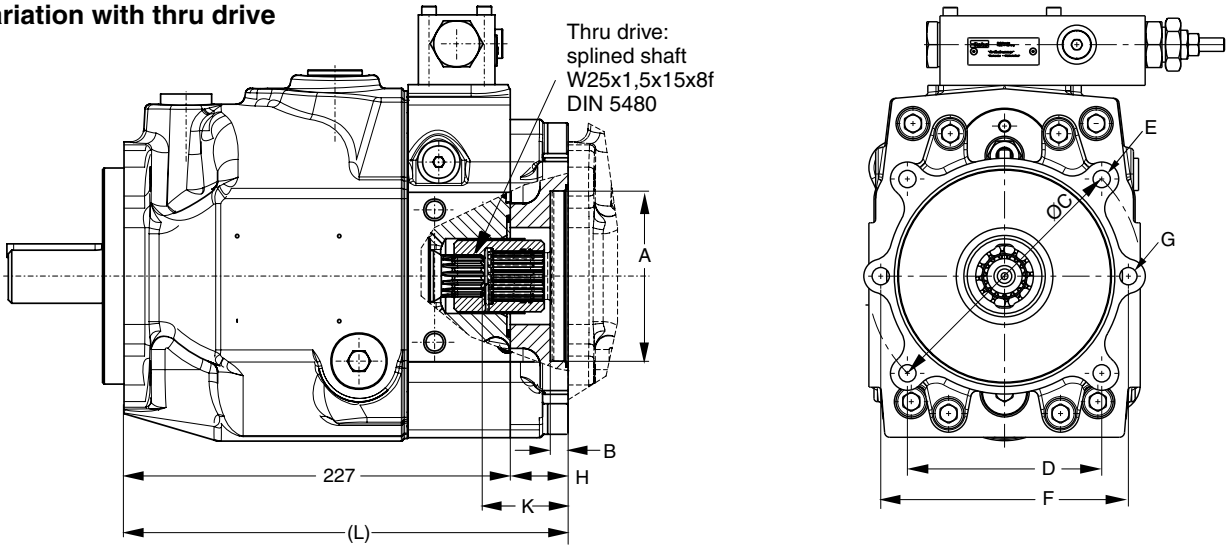
PV032 - 046, SAE version



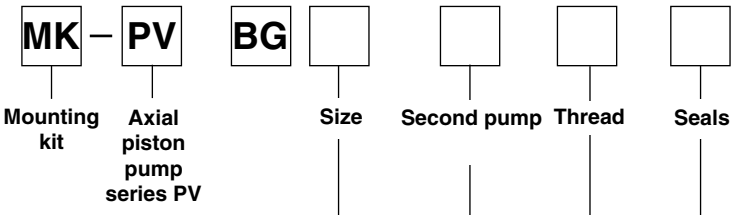
Variation with thru drive



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

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

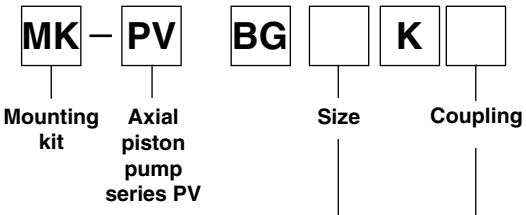
Code	Second pump, SAE
T	Prepared for thru drive option (plugged)
Y	SAE AA, diameter 50.8 mm
A	SAE A, diameter 82.55 mm
B	SAE B, diameter 101.6 mm
C	SAE C, diameter 127 mm
D	SAE D, diameter 152.4 mm
E	SAE E, diameter 165.1 mm
	Second pump, metric
G	Diameter 63 mm
H	Diameter 80 mm
J	Diameter 100 mm
K	Diameter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

Code	Seals
N	NBR
V	FPM

Code	Thread
M	Metric
S	SAE

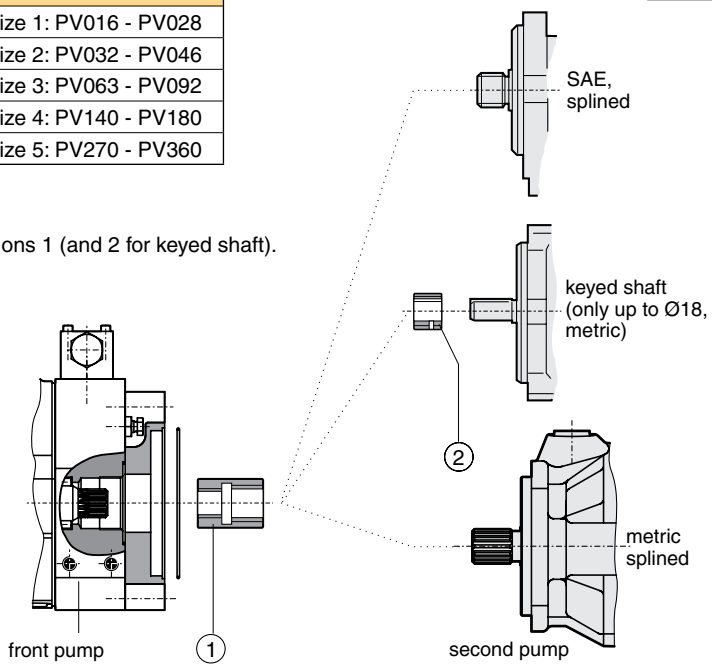
Kit contains positions 30, 69, 84, 85 and 87, see spare part list

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

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



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 shaf
20	Diameter 12 mm
21	Diameter 16 mm
22	Diameter 18 mm

* For PV360 only

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

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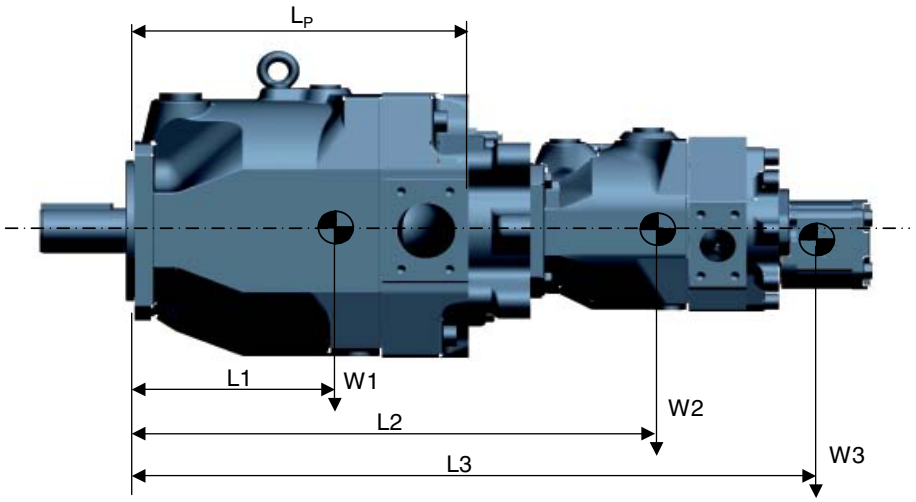
Multiple Pump Combinations - Maximum Moment

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.



Moment M = (L1*W1 + L2*W2 + L3*W3 +...)
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 1)	[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^2

Table 2 Through Drive Adapter Plate Thickness [mm]

Adapter option 2)	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.

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

* DIN5480 splined

Important notice

The max. allowable torque of the individual shaft must not be exceeded. For 2-pump combinations there is no problem because PV series offers 100% 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.

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