

Bosch Rexroth PV7-1X/63-71RE07MC0-16 variable vane pump

Manufacturer: Bosch Rexroth

Manufacturer part number / published order designation: R900506808

Published model: PV7-1X/63-71RE07MC0-16

About this compilation

Prepared by Hydmaster from selected manufacturer documentation. Original technical pages follow without cropped drawings, rewritten data or altered units. This cover and index are Hydmaster editorial material, not a manufacturer-issued exact-execution datasheet.

Coverage: selected pages relevant to the identified size and configuration. Other options or neighbouring models retained on an original page apply only where explicitly identified.

Execution notes and conditions

Individual delivery pressure/flow settings are not proven; series adjustment ranges are not presets.

Source-page index

Source page numbers below are physical pages of each complete original PDF. The original printed page labels and technical content remain unchanged. Compiled page numbers count this cover/index.

Source A: Rexroth Pv7 Pilot Re10515 2018 Original

Original pages	Compiled pages	Relevant content
1-8	2-9	Manufacturer family overview and publication edition; Exact execution type key; Published exact material-number ordering list; Pilot-operated pump construction and single-pump function; Pressure relief and recovery function; Exact frame and size column: output pressure, speed, reference flow and fluid requirements; Dynamic-pressure test conditions; Actual C0 control circuit and requirements; other controller panel is contextual only
18	10	Frame size 63, actual displacement 71: characteristic curves under printed conditions
20-21	11-12	Single-pump C/D standard-controller installation envelope for the exact frame-size row; Exact frame-size suction and pressure fluid connections; flange inch sizes are not pipe threads
32-35	13-16	Hydraulic project planning and intended use; Mechanical project planning and drive requirements; Installation requirements; Commissioning and safe operating requirements

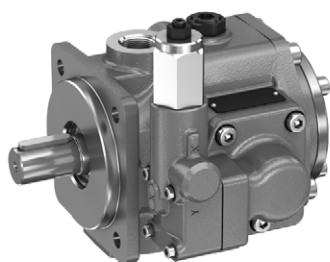
Adjustable vane pump, pilot-operated

Type PV7

RE 10515

Edition: 2018-11

Replaces: 10.2005



- ▶ Size 14 to 150
- ▶ Component series 1X
- ▶ Maximum operating pressure 160 bar
- ▶ Maximum flow 270 l/min

Features

- ▶ Variable displacement
- ▶ Low operating noise
- ▶ Extended bearing life cycle thanks to hydrodynamically lubricated plain bearings
- ▶ Pressure and flow can be controlled
- ▶ Low hysteresis
- ▶ Very low control up times and down control times
- ▶ Mounting dimensions according to ISO 3019-2.
- ▶ Connection dimensions according to ISO 6162-1 and ISO 228-1
- ▶ Suitable for HLP, HETG, HEES and HFD-U hydraulic fluids
- ▶ Standard Series PV7 single pumps can be combined with multiple pumps as well as internal gear, external gear, axial piston and radial piston pumps.
- ▶ Used for drives in continuous operation with variable flow requirement and a high share in the pressure holding function, e.g.:
 - machine tools
 - hydrostatic bearings
 - constant pressure systems

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Ordering code

01	02	03	04	05	06	07	08	09	10	11	12
PV7	-	1X	/		R	E				-	

Type

01	Vane pump, variable, pilot-operated	PV7
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Series

02	Series 1A to 1Z (1A to 1Z have unchanged installation and connection dimensions)	1X
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Frame size (BG) and size (NG)

03	BG 10 – NG 14 cm ³	10-14
	BG 10 – NG 20 cm ³	10-20
	BG 16 – NG 20 cm ³	16-20
	BG 16 – NG 30 cm ³	16-30
	BG 25 – NG 30 cm ³	25-30
	BG 25 – NG 45 cm ³	25-45
	BG 40 – NG 45 cm ³	40-45
	BG 40 – NG 71 cm ³	40-71
	BG 63 – NG 71 cm ³	63-71
	BG 63 – NG 94 cm ³	63-94
	BG 100 – NG 118 cm ³	100-118
	BG 100 – NG 150 cm ³	100-150

Direction of rotation

04	Viewed on drive shaft	clockwise	R
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Drive shaft

05	Cylindrical drive shaft according to ISO 3019-2 with output	E
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Line connections

06	Frame sizes 10, 16, 25	Suction and pressure port: Pipe thread according to ISO 228-1	01
	Frame size 40	Suction port: SAE flange connection according to ISO 6162-1 Pressure port: Pipe thread according to ISO 228-1	37
	Frame sizes 63, 100	Suction and pressure port: SAE flange connection according to ISO 6162-1	07

Seal material

07	NBR seals, suitable for HLP mineral oil according to DIN 51524	M
	FKM shaft seal ring, suitable for HETG, HEES and HFD-U hydraulic fluid	K

Controller type

08	Pressure controller	C
	Pressure controller for hydraulic remote pressure adjustment	D
	Flow controller	N
	Pressure controller with 2-step electric pressure adjustment	W

Controller option

09	Standard	0
	Lockable	3
	With K plate	5
	With Q plate	6
	Lockable with K plate	7
	Lockable with Q plate	8

01	02	03	04	05	06	07	08	09	10	11	12
PV7	-	1X	/		R	E				-	

Zero stroke pressure range

10		10 -14	10 -20	16 -20	16 -30	25 -30	25 -45	40 -45	40 -71	63 -71	63 -94	100 -118	100 -150	
	20 - 80 bar	-	-	-	●	-	●	-	●	-	●	-	●	08
	20 - 100 bar	-	●	-	-	-	-	-	-	-	-	-	-	10
	20 - 160 bar	●	-	●	-	●	-	●	-	●	-	●	-	16

Option

11	Directional valve, normally closed, only available for C5-, D5 and W controllers	WG
	Directional valve, normally open, only available for C5, D5 and W controllers	WH

Setting in plain text

12	Pressure adjustment [bar]	-P***
	Flow setting [l/min] at $n = 1450$ rpm	-Q***

Preferred types (available for immediate delivery)

Controller type C	Material number
PV7-1X/10-14RE01MC0-16	R900580381
PV7-1X/10-20RE01MC0-10	R900534143
PV7-1X/16-20RE01MC0-16	R900580382
PV7-1X/16-30RE01MC0-08	R900533582
PV7-1X/25-30RE01MC0-16	R900580383
PV7-1X/25-45RE01MC0-08	R900534508
PV7-1X/40-45RE37MC0-16	R900580384
PV7-1X/40-71RE37MC0-08	R900535588
PV7-1X/63-71RE07MC0-16	R900506808
PV7-1X/63-94RE07MC0-08	R900560659
PV7-1X/100-118RE07MC0-16	R900506809
PV7-1X/100-150RE07MC0-08	R900561846
Controller type D	
PV7-1X/10-14RE01MD0-16	R900504653
PV7-1X/10-20RE01MD0-10	R900906584
PV7-1X/16-20RE01MD0-16	R900509274
PV7-1X/16-30RE01MD0-08	R900560658
PV7-1X/25-30RE01MD0-16	R900509506
PV7-1X/25-45RE01MD0-08	R900568833
PV7-1X/40-45RE37MD0-16	R900593330
PV7-1X/40-71RE37MD0-08	R900539886
PV7-1X/63-71RE07MD0-16	R900519094
PV7-1X/63-94RE07MD0-08	R900574560
PV7-1X/100-118RE07MD0-16	R900532770
PV7-1X/100-150RE07MD0-08	R900915470

Sample pumps with customer-specific setting:

- ▶ PV7-1X/16-20RE01MC0-16-P50 $p_{\text{zero stroke}} = 50$ bar
- ▶ PV7-1X/16-20RE01MC0-16-Q25 $q_{V \text{ max}} = 25$ l/min
- ▶ PV7-1X/16-20RE01MC0-16-P70Q20 $p_{\text{zero stroke}} = 70$ bar
 $q_{V \text{ max}} = 20$ l/min

In customer-specific settings, the pump comes noise-optimized at the desired operating points ($p_{\text{zero stroke}}/q_{V \text{ max}}$).

In standard versions, the pump is noise-optimized at maximum operating pressure and the zero stroke pressure is reset to 30 bar for delivery.

Function, section

Type PV7 hydraulic pumps are vane pumps with variable displacement.

They consist essentially of the housing (1), rotor (2), vanes (3), stator ring (4), pressure controller (5) and flow adjusting screw (6).

The annular stator ring (4) is fixed by the small floating stroking piston (10) and the large floating set piston (11). The ring is fixed at a third location by the height adjusting screw (7).

The driven rotor (2) rotates within the stator ring (4).

The vanes (3) are guided in the rotor (2) and are pressed against the inner running surface of the stator ring (4) by centrifugal force.

Suction and displacement procedure

The chambers (8) required for the transport of hydraulic fluid are formed by the vanes (3), the rotor (2), the stator ring (4), and the control plate (9).

To ensure pump function on commissioning, the stator ring (4) is held in its eccentric position (displacement position) by the spring (12) behind the large floating stroking piston (11).

The chamber volume (8) increases as the rotor (2) rotates and the chambers (8) are filled with hydraulic fluid through the suction channel (S). When the greatest chamber volume is reached, the chambers (8) are separated from the suction side.

As the rotor (2) continues to rotate, the connection to the pressure side is opened, and the chambers decrease in size and force the hydraulic fluid into the system through the pressure channel (P).

Adjustment

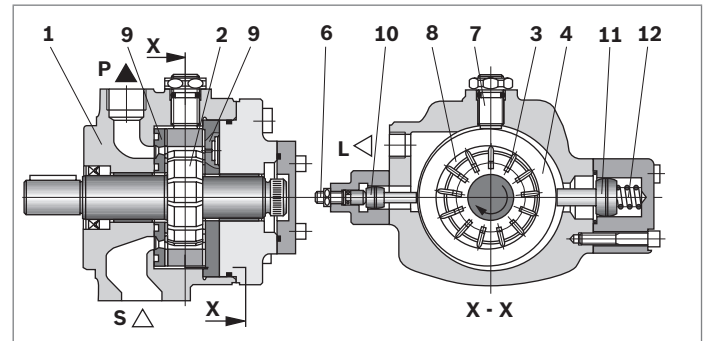
As pressure builds in the system, the back of the small floating stroking piston (10) is always pressurized through a channel.

In the flow position, the back of the large stroking piston (11) is also pressurized through a bore in the regulator spool (14). The large stroking piston (11), with the larger surface, holds the stator ring (4) in its eccentric position.

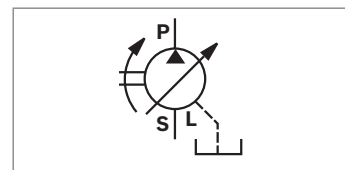
The pump displaces fluid at a pressure that is below the zero stroke pressure set on the pressure controller (5).

The regulator spool (14) is held in a certain position by the spring (13).

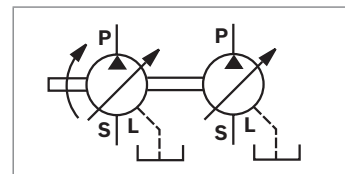
▼ PV7-1X



▼ Single pump symbol



▼ Double pump symbol



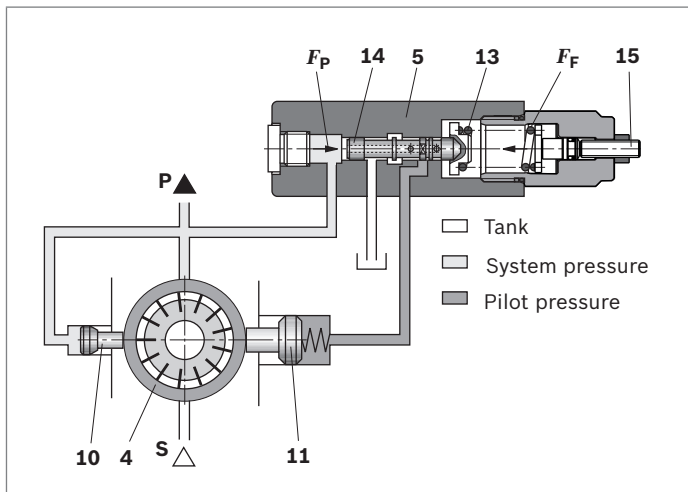
Pressure relief

If the force F_P produced by pressure $\times$ area exceeds the counterforce F_F of the spring, the regulator spool (14) is pushed against the spring (13). This connects the space behind the large floating stroking piston (11) to the tank, relieving pressure.

The small set piston (10), which is always under system pressure, moves the stator ring (4) to virtually the center position. The pump maintains pressure, flow returns to zero, leakages are replaced.

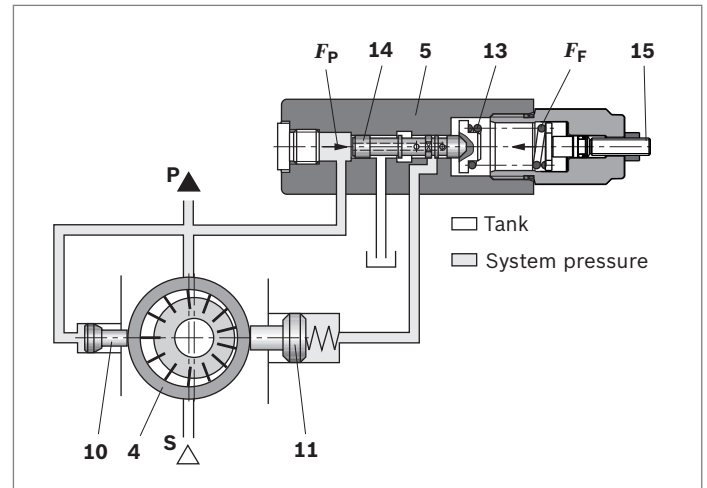
Power loss and fluid heating are minimal.

The characteristic curve q_V-p runs vertically and moves parallel to various high pressures that are set.

**Pressure recovery**

If the pressure in the system drops below the set zero stroke pressure, the spring (13) moves the regulator spool (14) back to its original position.

The large stroking piston (11) is pressurized and moves the stator ring (4) to its eccentric position. The pump continues to displace fluid.



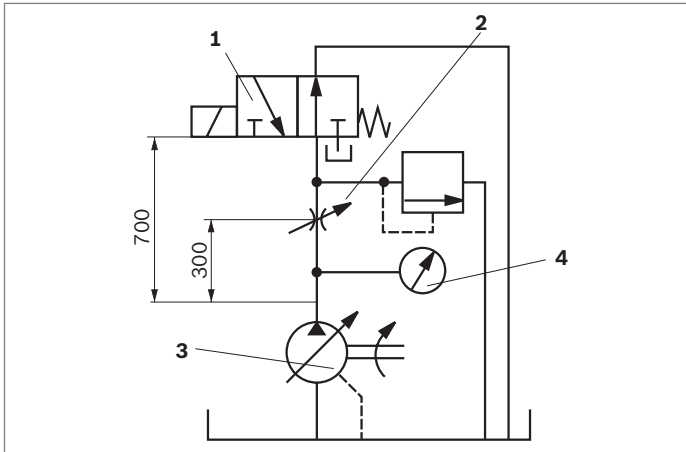
Technical data

Frame size		BG	10	10	16	16	25	25	40	40	63	63	100	100
Displacement	V_g	cm ³	14	20	20	30	30	45	45	71	71	94	118	150
Speed	n	rpm	900 ... 1800											
Drive power (at $n = 1450$ rpm; $p = p_{\max}$; $v = 41$ mm ² /s)	$P_{\max}$	kW	6.3	5.8	8.5	6.8	13.7	10.2	20.5	16.5	33	20.9	51.5	33
Maximum torque	$T_{\max}$	Nm	90	90	140	140	180	180	280	280	440	440	680	680
Operating pressure, absolute														
Input	$p_{\min-\max}$	bar	0.8 ... 2.5											
Output	$p_{\min}$	bar	20											
	$p_{\max}$	bar	160	100	160	80	160	80	160	80	160	80	160	80
Leakage oil	$p_{\max}$	bar	2											
Leakage flow at zero stroke (at $p_{\max}$)	q_{VL}	l/min	2.7	1.9	4	2.5	5.3	3.2	6.5	4	8	5.3	11	7.3
Maximum flow (at $n = 1450$ rpm; $p = 10$ bar; $v = 41$ mm ² /s)	q_v	l/min	21	29	29	43.5	43.5	66	66	104	108	136	171	218
Change in flow (from one turn of flow adjusting screw $n = 1450$ rpm)	q_v	l/min	10	10	14	14	18	18	25	25	34	34	46	46
Change in pressure			From one turn of pressure adjusting screw (see page 5 pos. 15) approx. 19 bar											
Shaft load			Radial and axial forces cannot be absorbed.											
Weight (with pressure controller)	m	kg	12.5	12.5	17	17	21	21	30	30	37	37	56	56
Hydraulic fluid														
Hydraulic fluid for use at up to 160 bar (nominal pressure)			Mineral oil HLP according to DIN 51524, part 2 Please observe our regulations according to data sheet 90220.											
Special hydraulic fluids up to operating pressure			$p_{\max} = 100$ bar HETG and HEES hydraulic fluids according to VDMA 24 568 HFD-U according to ISO 12922 Other hydraulic fluids available on request!											
Hydraulic fluid temperature range			θ	°C	-10 to +70, observe permissible viscosity range.									
Viscosity range			v	mm ² /s	16 to 160 at operating temperature Maximum 800 on start with pump mode Maximum 200 on start in zero stroke mode									
Maximum admissible degree of contamination of the hydraulic fluid cleanliness class according to ISO 4406 (c)			Class 20/18/15											
Type of mounting			4-hole mounting flange (according to VMDA 24560 Part 1 and DIN ISO 3019-2)											

Dynamic pressure control characteristics, measurement set-up

The control times apply to the measurement set-up shown.
For other set-ups and line lengths, the control times will change.

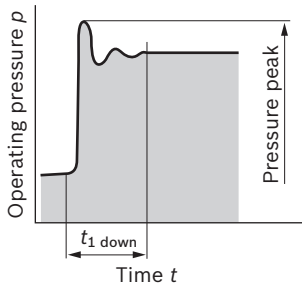
▼ Circuit diagram



- 1 Directional valve (switching time 30 ms)
- 2 Throttle for setting pressure during displacement
- 3 Hydraulic pump
- 4 Pressure tapping point

Pressure relief

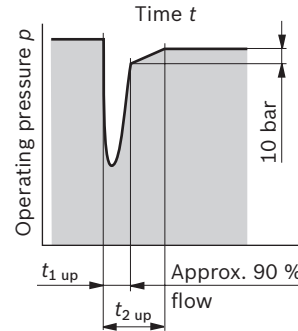
q_v displacement → q_v zero stroke



Pump type	Down control times [ms] (average)					
	20 ... 160 bar		20 ... 80 bar		20 ... 40 bar	
	t_{down}	$p_{\text{max}}^{1)}$	t_{down}	$p_{\text{max}}^{1)}$	t_{down}	$p_{\text{max}}^{1)}$
10-14	100	180	–	–	150	80
10-20	–	–	100	130	150	100
16-20	100	200	–	–	120	100
16-30	–	–	100	140	150	110
25-30	100	220	–	–	120	120
25-45	–	–	100	150	120	120
40-45	100	240	–	–	120	140
40-71	–	–	100	180	120	150
63-71	150	220 ²⁾	–	–	150	180
63-94	–	–	200	150 ²⁾	220	150
100-118	200	220 ²⁾	–	–	250	200
100-150	–	–	250	150 ²⁾	280	150

Pressure recovery

q_v zero stroke → q_v displacement



Pump type	Control up times [ms] (average)					
	160 ... 130 bar		80 ... 60 bar		40 ... 30 bar	
	$t_{1 \text{ up}}$	$t_{2 \text{ up}}$	$t_{1 \text{ up}}$	$t_{2 \text{ up}}$	$t_{1 \text{ up}}$	$t_{2 \text{ up}}$
10-14	60	80	–	–	60	80
10-20	–	–	60	80	50	100
16-20	50	80	–	–	50	90
16-30	–	–	50	80	50	100
25-30	80	100	–	–	70	100
25-45	–	–	80	100	80	130
40-45	70	100	–	–	60	100
40-71	–	–	80	100	80	140
63-71	80	120	–	–	100	140
63-94	–	–	120	150	130	210
100-118	100	150	–	–	150	250
100-150	–	–	150	200	180	280

1) Permissible pressure peaks

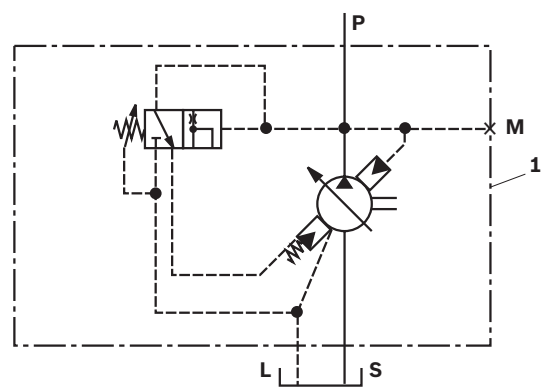
2) Pressure relief valve required to limit pressure peaks.

Controller

Type C pressure controller

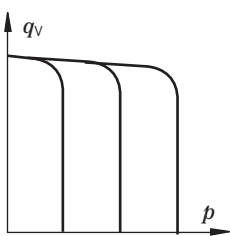
- ▶ Mechanical pressure adjustment, ordering code ...C0...
- ▶ Lockable version, ordering code ...C3...

▼ Circuit diagram



Connections	
P	Pressure port
S	Suction port
L	Drain port
S	Measuring port (plugged)

▼ Characteristic curve



Order example	
1	Pump: PV7-1X/16-20RE01MC0-16 or PV7-1X/63-94RE07MC0-08

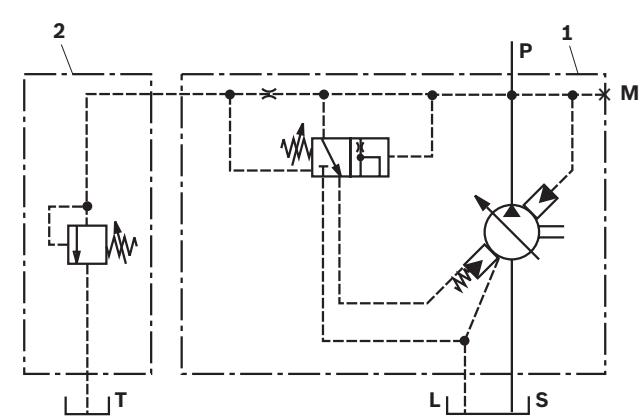
Spare part controller V7-1A/...C0-10 BG (100 bar)
Material no.: R901182736

Spare part controller V7-1A/...C0-16 BG (160 bar)
Material no.: R901169899

Type D pressure controller

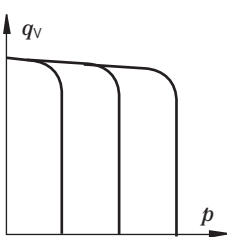
- ▶ Remote pressure setting, ordering code ...D0...
- ▶ Lockable version, ordering code ...D3...

▼ Circuit diagram



Connections	
P	Pressure port
S	Suction port
T	Tank port
L	Drain port
S	Measuring port (plugged)

▼ Characteristic curve



Order example	
1	Pump: PV7-1X/25-45RE01MD0-08
2	Pressure relief valve must be ordered separately.

The remote control line between the controller (1) and the pressure relief valve (2) should not exceed 2 m.

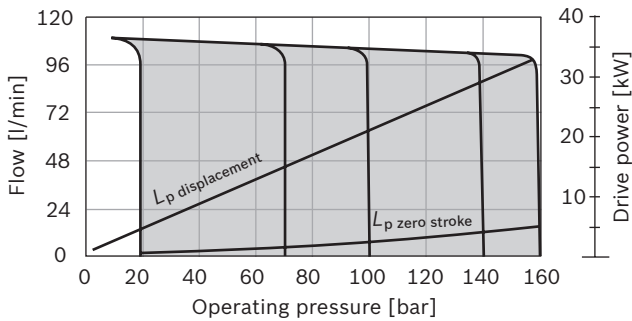
Notice

The zero stroke pressure is the aggregate of the pressures set on the pump and pressure relief valve. Do not plug the remote control port, otherwise the pump cannot relieve pressure.

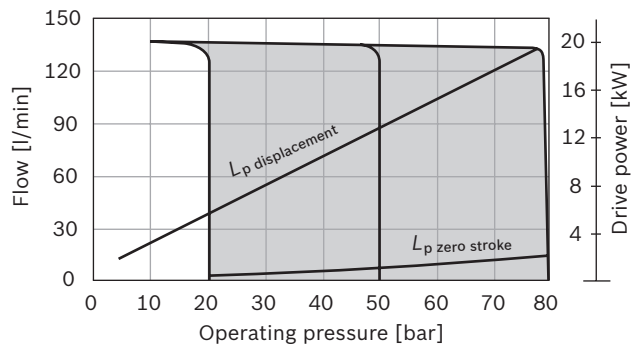
Spare part controller V7-1A/...D0-16 BG (160 bar)
Material no.: R901169902

Characteristic curves for frame size 63

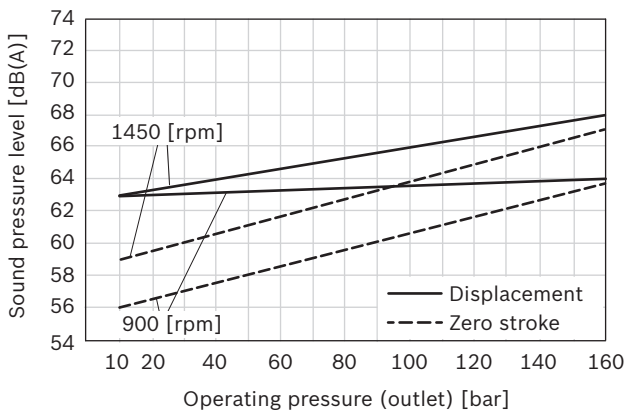
▼ PV7/63-71



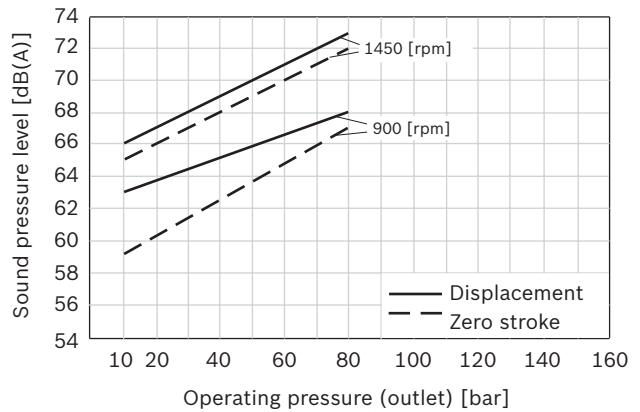
▼ PV7/63-94



▼ PV7/63-71 sound pressure levels



▼ PV7/63-94 sound pressure levels

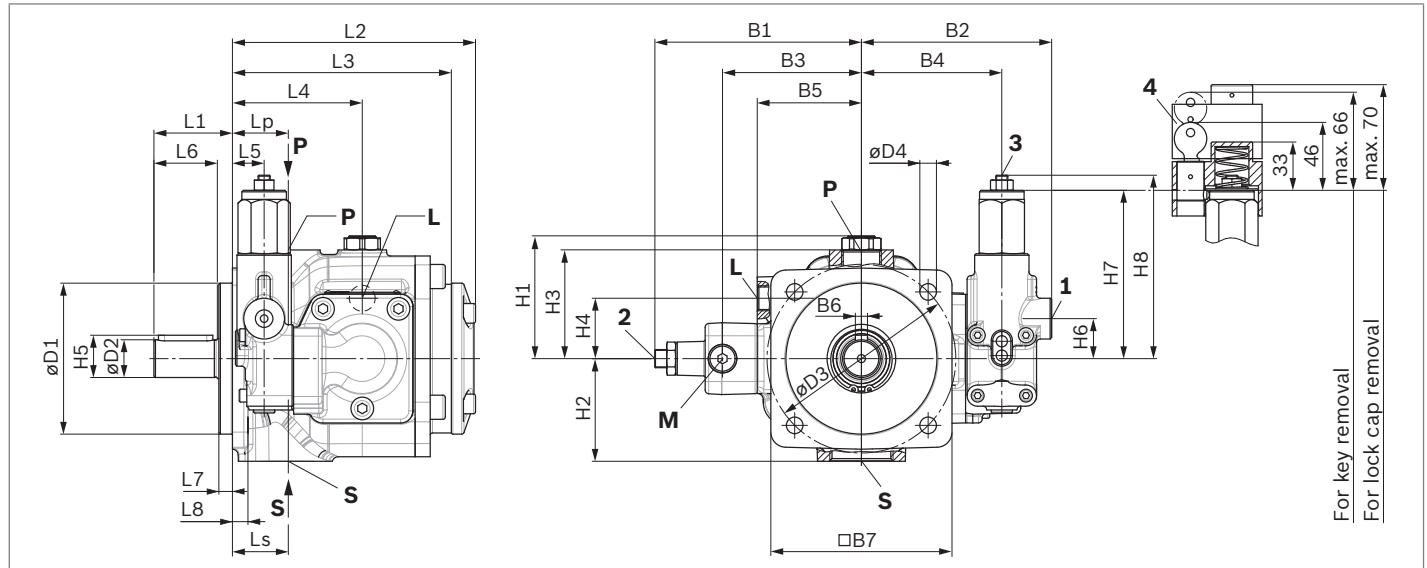


Notice

- ▶ Characteristic curves measured at $n = 1450$ rpm; $v = 41$ mm²/s; $\theta = 50$ °C
- ▶ Sound pressure levels measured in acoustic room according to DIN 45635 Part 26;
Distance: Microphone – pump = 1 m
- ▶ The pump comes calibrated for optimal operating noise at the desired zero stroke pressure. If not specified, the pump comes optimized for the maximum achievable zero stroke pressure.

Dimensions (dimensions in mm)

Single pump with type C, D or N controller



P	Pressure port ¹⁾
S	Suction port
L	Drain port
S	Measuring port
1	Control port G1/4×12 only for ordering code: ... D ... (Pressure controller with remote pressure setting), or ... N ... (Flow controller with remote flow control)
2	Flow control
3	Pressure adjuster
4	Space required to remove the lock cap (pressure can only be adjusted with lock cap removed)

Notes on adjustments

► Flow control (2)

- Turning clockwise reduces flow.
- Turning counterclockwise increases flow.
- The set flow should not be less than 50% of the maximum value.

► Pressure adjuster (3)

- Turning clockwise increases operating pressure.
- Turning counterclockwise decreases operating pressure.

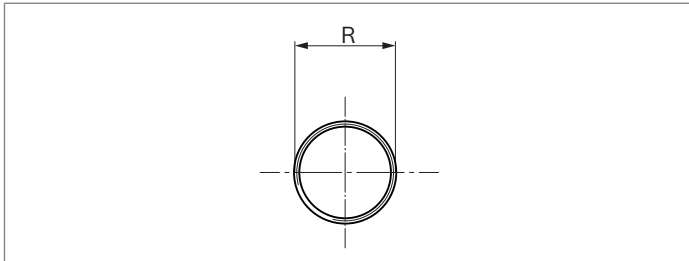
BG	L1	L2	L3	L4	L5	L6	L7	L8	Lp	Ls	L	S	ØD1	ØD2	ØD3	ØD4
10	44	142	132	78.5	22	36	7	9.3	26	26	G1/4×12	G1/4×12	80h8	20j6	103	9H13
16	52	161	145	86	21	42	9	10.3	37	37	G3/8×12	G1/4×12	100h8	25j6	125	11H13
25	52	173	157	86	21	42	9	10.3	34	38	G3/8×12	G1/4×12	100h8	25j6	125	11H13
40	68	182.6	166.6	86	21.5	58	9	12.3	26.5	43	G1/2×14	G1/4×12	125h8	32k6	160	14H13
63	68	205.3	189.3	98.7	34.2	58	9	12	38.7	50.7	G1/2×14	G1/4×12	125h8	32k6	160	14H13
100	92	237.3	221.3	110.8	28.3	82	9	17	45.3	59.3	G3/4×16	G1/4×12	160h8	40k6	200	18H13

BG	B1	B2 ¹⁾	B3	B4	B5	B6	□B7	H1	H2	H3	H4	H5	H6	H7	H8
10	max. 134	123	88	90	65	6h9	96	max. 76.1	58	64	37	22.5	25	110	max. 130
16	max. 138	126	92	93	69	8h9	120	max. 83.6	68	72	40	28	26.5	111.5	max. 131.5
25	max. 144	132	98	99	75	8h9	120	max. 93.8	92	80	40	28	26.5	111.5	max. 131.5
40	max. 161	158	115	125	94	10h9	141.2	max. 108.3	89	94	45	35	26	111	max. 131
63	max. 167	163	121	130	100	10h9	141.2	max. 114.7	105	100	47	35	26	111	max. 131
100	max. 195	182.5	150	149.5	121	12h9	200	max. 127.2	126	111	52	43	26	111	max. 131

¹⁾ For controller with ordering code ...**C**... B2 + 2 mm

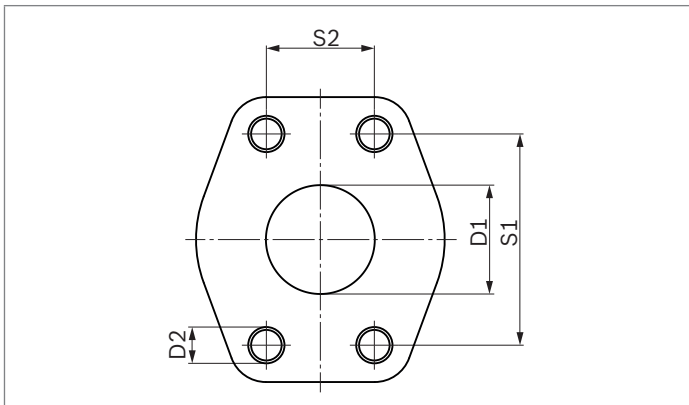
Connections

▼ Suction port S and pressure port P Pipe thread according to ISO 228-1



BG	Suction port S R	Pressure connection P R
10	G1 × 18	G1/2×14
16	G1 1/4×20	G3/4×16
25	G1 1/2×22	G1 × 18
40	See SAE flange connection	G1 × 18

▼ Suction port S and pressure port P SAE flange connection according to ISO 6162-1



Suction port S						Pressure connection P				
BG	Port size	D1	D2	S1	S2	Port size	D1	D2	S1	S2
40	DN38 (SAE 1 1/2")	Ø36	M12 × 20	69.9±0.2	35.7±0.2	See pipe thread				
63	DN51 (SAE 2")	Ø51	M12 × 27	77.8±0.6	42.9±0.6	DN32 (SAE 1 1/4")	Ø32	M10 × 29	58.7±0.6	30.2±0.6
100	DN64 (SAE 2 1/2")	Ø63	M12 × 30	88.9±0.2	50.8±0.2	DN38 (SAE 1 1/2")	Ø38	M12 × 27	69.9±0.2	35.7±0.2

Project planning information

When using vane pumps, we recommend carefully observing the notes below.

Project planning, installation and commissioning of the vane pumps require skilled persons with training.

Technical data

All characteristics are based on manufacturing tolerances and apply under specific boundary conditions.

Please note that this means certain deviations are possible and characteristics may vary when boundary conditions (e.g., viscosity) change.

Characteristic curves for flow and power input

When designing the drive motor, observe the maximum possible application parameters.

Sound pressure level

The sound pressure levels shown starting on page 14 were measured in the style of DIN 45635 Sheet 26.

This means that only the noise emitted by the pump is shown. Ambient influences (place of installation, piping, etc.) were not included.

These levels always refer to only one pump. Each additional comparable pump increases the initial level by 3 dB(A).

Notice

Due to the power unit design and influences at the final place of installation of the pump, the sound pressure level is usually 5 to 10 dB(A) higher than the level from the pump itself.

Leakage

Page 6 contains the average external leakage of the pumps. Note that these values are only intended to serve as project planning guidelines for determining cooler sizes and line cross-sections. The zero stroke power is the relevant factor for dimensioning the reservoir (see pages 14 to 19). Cross section narrowing and the use of a leakage cooler can cause unacceptably high pressure peaks in the leakage line.

Leakage cooler

The values for external leakage on page 6 are averages for continuous operation.

When the pump relieves pressure, the leakage flow is increased momentarily by the pilot fluid of the controller.

Cross section narrowing, long drain lines and leakage coolers can cause unacceptably high pressure peaks.

Appropriate steps, e.g., a check valve in the bypass, should be taken to prevent the leakage pressure ($p_{\max} = 2 \text{ bar}$) from exceeding permissible limits. Otherwise there is a risk the shaft seal will be damaged.

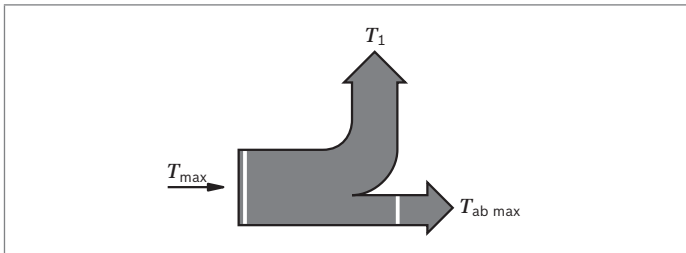
Pressure limitation

Depending on the controller version, the PV7 vane pump contains no internal mechanism for limiting potential peaks in operating pressure. Setting and limiting the admissible operating pressure has to be ensured on the system side. The pressure relief valves necessary for that purpose are to be designed considering the maximum flow and the existing pressure increase speed so that the admissible intermittent operating pressure is not exceeded.

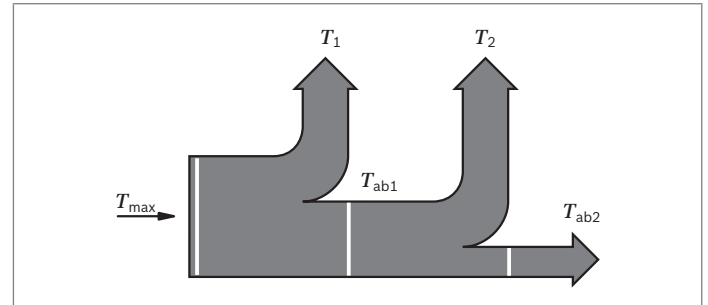
Multiple pumps

PV7 pumps are designed to be combinable. Every pump comes with a geared through-drive.

- ▶ When operating the PV7 as a displacement pump, it should be used as the downstream pump.
- ▶ The same general technical data for single pumps applies (see page 6).
- ▶ The pump under greater load (pressure × flow) should be the first pump stage.
- ▶ When combining multiple pumps, the torque generated may reach unacceptable levels.
The sum of the torque levels should not exceed the permissible values (see table).
- ▶ Combination parts must be listed as separate items when ordering.
- ▶ The combination parts come with the necessary seals and screws.

▼ Single pump

PV7 Frame size	Maximum permissible drive torque $T_{\max}$	Maximum permissible output torque $T_{\text{out max}}$
10	90	45
16	140	70
25	180	90
40	280	140
63	440	220
100	680	340

Combination pump

Pump combination: P2V7/25-30... + V7/25-30

Desired maximum pressure: $p_n = 160 \text{ bar}$

Calculation example

$$T = \frac{\Delta p \times V \times 0.0159}{\eta_{\text{hydr.-mech.}}} \quad [\text{Nm}]$$

$$T_{1,2} = \frac{160 \times 30 \times 0.0159}{0.85} = \quad [\text{kW}]$$

$$T_{1,2} = 90 \text{ Nm} \leq T_{\text{out max}}$$

$$T = T_1 + T_2 = 180 \text{ Nm} \leq T_{\max}$$

$$T = T_1 + T_2 = 180 \text{ Nm} \leq T_{\max}$$

Key

- T Torque [Nm]
 Δp Operating pressure [bar]
 V Displacement [cm^3]
 η Hydromechanical efficiency

Notice

The pump combination can be operated with the calculated parameters.

Installation information

Fluid tank

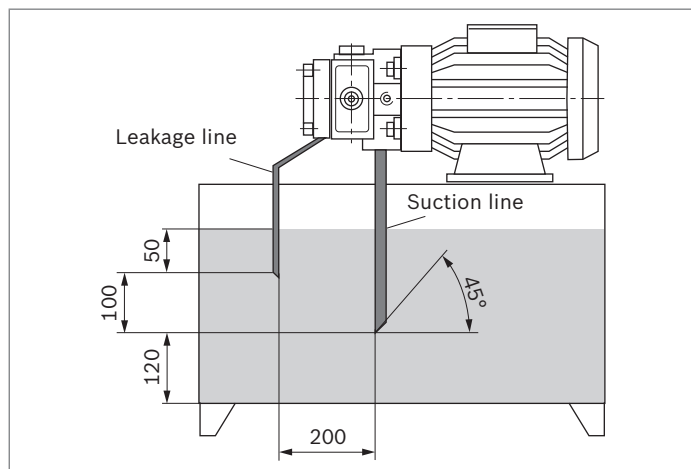
- ▶ Adjust useful volume of the tank to the operating conditions.
- ▶ The permissible fluid temperature may not be exceeded; include a cooler, if necessary.

Lines and connections

- ▶ Cut at a 45° angle.
- ▶ Remove protective plugs from the pump.
- ▶ We recommend the use of seamless precision steel pipes according to DIN EN 10305-1 and removable pipe connections.
- ▶ Select the inner width of the pipes according to the connections.
- ▶ Thoroughly clean pipelines and fittings prior to installing.

Suggested pipe routing

Minimum dimensions [mm]



- ▶ Minimum 120 mm from the tank bottom.
- ▶ Place the leakage line so the pump cannot run dry.
- ▶ Under no circumstances should the leakage and return fluid be directly suctioned back into the pump.

Filter

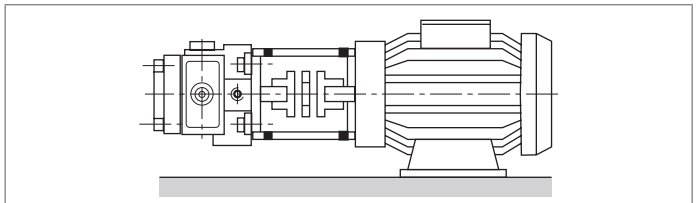
If possible, use return flow filters or pressure filters.
(Use suction filters only in combination with a ported vacuum switch/clogging indicator).

Hydraulic fluid

- ▶ Please observe our regulations according to data sheet 90220.
- ▶ We recommend brand name hydraulic fluids.
- ▶ Do not mix different types of hydraulic fluids, since this can result in decomposition and deterioration of lubricity.
- ▶ Hydraulic fluid should be replaced at regular intervals according to the operating conditions. Residue should also be cleaned from the hydraulic fluid reservoir at this time.

Drive

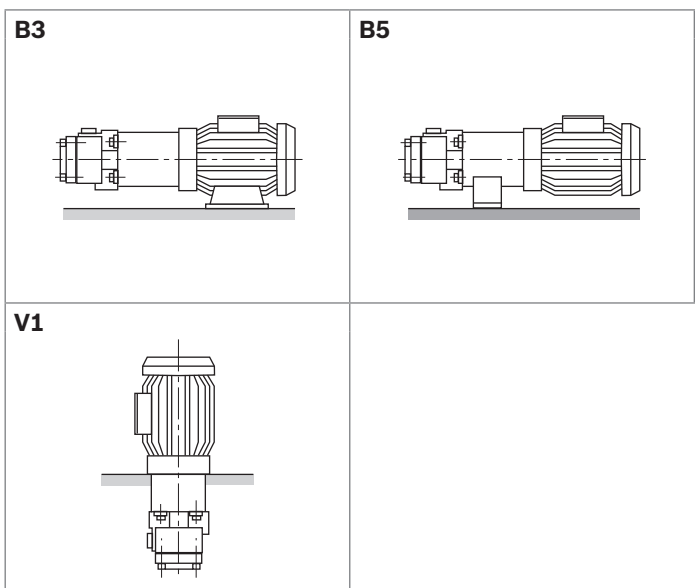
Electric motor + pump carrier + coupling + pump



- ▶ No radial or axial forces permissible on the pump drive shaft.
- ▶ Motor and pump must be exactly aligned.
- ▶ Use a torsionally flexible coupling.

Installation positions

Horizontal position preferred



Commissioning information

Bleeding

- ▶ All type PV7 vane pumps are self-priming.
- ▶ Before initial commissioning, the pump must be air bled to protect it against damage.
- ▶ During initial commissioning, we recommend filling the housing through the leakage line. Note the filter rating. This increases operating safety and prevents wear in case of unfavorable installation conditions.
- ▶ Should the pump not be outputting bubble-free oil after approx. 20 seconds, re-check the system. After the operating level has been reached, check the pipe connections for leakage. Check the operating temperature.

Commissioning

- ▶ Check whether the system is thoroughly and properly installed.
- ▶ Note the motor and pump direction of rotation arrows.
- ▶ Start the pump without load and let it pump at low pressure for a few seconds in order to ensure sufficient lubrication.
- ▶ Never operate the pump without hydraulic fluid.

Notice

The pump should only be adjusted, maintained and repaired by authorized, trained and instructed persons.
Use only original Rexroth spare parts.
Only operate the pump within the permissible tolerances.
Only operate the pump when in good working order.
Before working on the pump (e.g., installation/removal), de-energize and depressurize the system.
Do not make any unauthorized conversions or changes affecting the safety and functionality of the pump.
Install protective devices (e.g., coupling guard).
Do not remove any protective devices.
Always observe general safety and accident prevention regulations.