

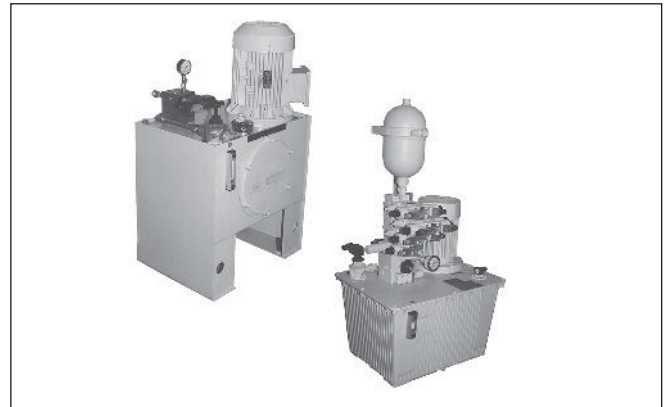
Series	Description	Size	Page
	Modular power units		
M-Pak	Low noise	30 - 630 litres	11-3
L-Pak		250 - 1200 litres	11-19
	Press controls		
PADZ		NG06 - NG50	11-23

By using prefabricated components, modular power units can be produced at a low price and in a short time.

Various options allow a flexible adaption to the requirements of the particular application.

Modular power units are particularly suitable as basis for building up complex hydraulic control systems. A stackable basic block gives the user the possibility of extending the power unit with additional control elements for the specific use.

The products listed below allow short-term unit delivery.



Structure

Modular power units consist of the following modules:

- Tank
- Electrical motor
- Pump
- Bell housing
- Return filter
- Contamination gauge
- Level switch
- Valve stack
- Accumulator

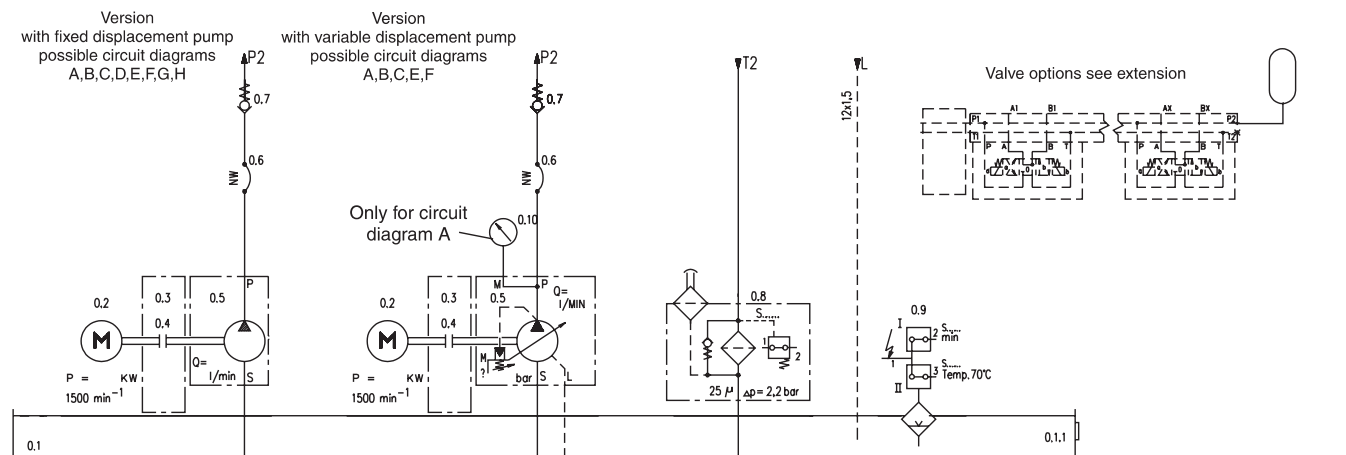
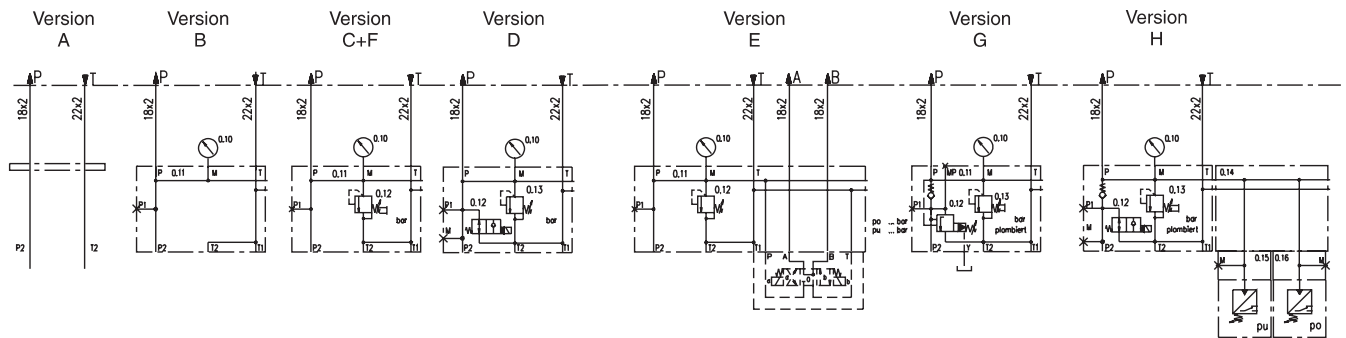
Application

Modular power units are particularly designed for stationary use, working with one pump and requiring volume flows of up to 38 l/min and pressures of up to 315 bar.

Modular power units are used successfully in the following applications:

- Machine tools
- Assembly stations
- Handling systems
- Small presses

Circuit diagrams for modular power units



Systems-M-Pak.PMD CM

Technical data

Hydraulic fluid	Mineral oil HLP to DIN 51 524, part 2 (other hydraulic fluids on request)
Ambient temperature	-10°C to + 50°C
Hydraulic fluid temperature	-10°C to + 70°C
Hydraulic fluid temperature (continuous operation)	+20°C to + 55°C
Operating pressure	See type key
Flow rate	See type key
Pump type	Axial piston pump PV Variable vane pump PVS External gear pump GP Internal gear pump (additional technical details on request)
Noise	The values for pump noise level stated in the listed catalogues do not take into account environmental influences such as location and piping. The noise level can be up to 10 dB (A) above the pump values under unfavourable conditions.
Return filter	$\beta_{25} = 75$
Tolerable degree of contamination	NAS 1638 class 9
Electrical power	See type key
Rotation direction electrical motor	Counter-clockwise (looking at the motor shaft)
Protection mode electrical motor	IP55

Pump selection

Motor	Output [kW]	Tolerable adjusted pressure [bar]																			
		Pump version																			
		A	B	C	D	E	F	G	H	I	K	L	M	N	O	P	R	S	T	U	W
		GP1 2	GP1 2.5	GP1 4.2	GP1 5.8	GP1 6.7	GP1 7.5	GP1 9.2	GP1 11.5	GP2 16	GP2 20	GP2 25	GP2 30	GP2 40	QR 003	QR 005	QR 008	PVS 16	PVS 25	PV 016	PV 023
M01	0.25	60	40	30	20	10	10	10													
M02	0.37	80	70	50	30	20	20	15	15	10											
M03	0.55	120	100	70	50	40	30	25	20	15					55	30	20	PVS and PV with flow rate limit			
M04	0.75	170	140	100	70	50	40	35	30	20	15	10		75	40	30					
M05	1.1	210	200	140	100	80	70	55	45	30	20	15	10	110	70	45					
M06	1.5		210	190	130	110	90	75	60	45	30	25	20	150	90	6					
M07	2.2			210	200	160	140	110	90	65	45	35	30	25	220	140	90	40	25		
M08	3.0				210	210	180	150	120	90	65	50	45	35	280	180	120	55	30		
M09	4.0						210	190	160	120	85	65	55	45		250	160	70	45		
M10	5.5									160	110	90	80	65		280	220	100	60	110	80
M11	7.5									210	160	125	110	90			250	130	85	160	110
M12	9										190	150	130	110				140	100	180	130
																		PVS and PV without flow rate limit			
M12	9																	140 at Q30 l/min	315 at Q 12 l/min		

M

Tank

Pump type

Adjusted pressure

in bar (3 digits)

Motor

Bell housing and coupling

Code	Description
S	Fixed
D	With damping
K	With cooler

Level switch

Code	Level switch
0	Without (stand.)
1	Min./opener
2	Min./ opener thermostat 70°C

Version

Accumulator

Contamination display

Code	Display
0	Without
M	Visual
E	Electrical opener

Erection

Code	Version for tank code 1-3
0	Without feet (stand.)
1	With feet
2	With castors

Code	Pump type	Q l/min	p _{max} bar	Tank code	
A	PGP503... Gear pump	2	210	1-3	
B		2.4	210		
C		3.9	210		
D		5.5	200		
E		6.3	180		
F		7.1	180		
G		8.7	170		
H		11.9	150		
I	PGP511... Gear pump	16.9	220	3-6	
K		21.1	210		
L		26.7	200		
M		31.2	180		
N		41.8	150		
O	QR003	Internal-gear pump	4.5	315	1-6
P	QR005		7	315	2-6
R	QR008		11	280	3-6
S	PVS16	Variable-vane pump	23	140	4-8
T	PVS25		35	140	
U	PV016	Axial piston pump	24	315	4-8
W	PV023		34	315	
Y	PV046		69	250	
Z	PV092		138	100	
X	Other pumps				

Code	P [kW]	U (V)
M01	0.25	230/400
M02	0.37	230/400
M03	0.55	230/400
M04	0.75	230/400
M05	1.1	230/400
M06	1.5	230/400
M07	2.2	230/400
M08	3.0	230/400
M09	4.0	230/400
M10	5.5	400/690
M11	7.5	400/690
M12	9.0	400/690
M13	11	400/690
M14	15	400/690
M15	18.5	400/690
M16	22	400/690
M17	30	400/690
MX	Special motor on request	

n= 1500/1800 U/min. f= 50/60 Hz

Code	Accum. l	P _{max} bar	Tank code
0	without	-	
1	0.75	210	
2	1.0	140	
3	1.0 *	330	1 - 6
4	1.4	140	
5	2.0 *	210	
6	3.5 *	210	
7	4.0 *	330	4 - 6
8	10.0 *	330	
9	20.0 *	330	

only for basic blocks F, G, H
* with CE-certificate accumulator safety block optional

Code	Size	Contents	Max. output	Special paint
1	30	25l	4.0 kW	as plain text according to order code RAL...
2	44	40l	4.0 kW	
3	70	63l	7.5 kW	
4	100	90l	9 kW	
5	160	150 l	9 kW	
6	250	220l	15 kW	
7	400	370l	22kW	
8	630	600l	30kW	

Tank incl. oil level display, return and vent filter.
Code 1 - 3 original (aluminium)
Code 4 - 8 painted in RAL 7032
Motor painted in RAL 7032.
Mounted components in original colours.

Code	Accumulator
A	P and T on bulkhead
B	Base block for extens.
C	Base block for extens. incl. pressure valve
D	Base block for extens. incl. press. valve and unpress. circulation
E	Base block for extens. incl. press. valve and one pos. NG6 /CETOP3
F	Base block for extens. incl. safety valve
G	Base block for extens. incl. safety valve and accum. loading valve
H	Base block for extens. incl. safety valve and electr. accum. operation

Ordering example: M1G140M07K1F2E0

30 l tank, 8.7 l/min gear pump, adjusted to 140 bar, 2.2 kW motor, bell housing with coupling cooler, with level switch, base block for extensions incl. safety valve, 2.0 l membrane accumulator, electrical contamination switch, without feet.

Fixed displacement pumps

Power dissipation, which eventually causes an increase in oil temperature, depends essentially on the process driven by the power unit.

If no other detailed information is available, in the case of fixed displacement pump operation, it should be presumed that the whole contributed power is dissipated.

The dissipated power is calculated as follows:

$$P_{Verl} = p \cdot Q \cdot 1/\eta \cdot ED$$

$\eta \approx 0.7-0.8$ as total efficiency ratio

Switch on duration ED = load duration/cycle duration

The power dissipation may not exceed the possible heat emission.

Variable displacement pump (pressure controlled)

If there are no throttle elements (e.g. directional controlled proportional valves) in the hydraulic circuit, the zero stroke output can be taken as maximum power dissipation.

Please find below the power dissipation and oil leakage flow (at zero stroke) for the variable vane pumps (PVS16 and 25) and axial piston pumps (PV16 and 23).

The dissipated power now has to be disposed of via the tank and, where applicable, via the cooler.

Dissipated power and oil leakage flow PVS 16 and 25:

Working press. [bar]	20	40	60	80	100	120	140
Zero stroke output [kW]	0.4	0.6	0.8	1.2	1.6	2.2	2.8
Oil leakage [l/min]	0.7	1.2	1.7	2.1	2.5	3	4

Dissipated power and oil leakage flow PV 16 and 23:

Working press. [bar]	40	80	120	160	200	240	280	315
Zero stroke output [kW]	0.4	0.8	1.0	1.5	2.0	2.5	3.0	3.5
Oil leakage [l/min]	0.8	0.9	1.1	1.3	1.5	1.7	1.9	2.1

Heat emission via the tank

The heat emitted into the hydraulic medium by power dissipation must be given off to the environment via the tank surface, the surface of the pipes and components used, as well as the cooler when equipped with one.

A rough check will take consideration only of the heat emission via the tank surface and the cooler capacity.

The following table shows the heat emission via the tank in dependence on the difference Δt between oil and ambient temperature and air circulation.

Heat emission via the tank				
Nominal tank size	Free standing tank		Restricted air circulation	
	$\Delta t = 20^\circ\text{C}$	$\Delta t = 30^\circ\text{C}$	$\Delta t = 20^\circ\text{C}$	$\Delta t = 30^\circ\text{C}$
30 l	0.21 kW	0.32 kW	0.14 kW	0.21 kW
44 l	0.28 kW	0.41 kW	0.18 kW	0.28 kW
70 l	0.37 kW	0.55 kW	0.24 kW	0.37 kW
100 l	0.48 kW	0.72 kW	0.32 kW	0.48 kW
160 l	0.67 kW	1.01 kW	0.45 kW	0.67 kW
250 l	0.90 kW	1.25 kW	0.60 kW	0.90 kW

Cooler

When the system is equipped with a cooler, in the case of fixed displacement pumps, the whole pump volume flow is routed through the cooler; in the case of variable displacement pumps, only the oil leakage flow is.

The cooling output of the coolers rated according to motor output is as follows (Δt = difference in temperature between oil and ambient temperature):

Heat emission in kW for $\Delta t = 20^\circ\text{C}$ depending on volume flow								
Cooler for motor	0.5 l/min	1 l/min	2.5 l/min	5 l/min	10 l/min	20 l/min	30 l/min	45 l/min
M01-M06	0.4 kW	0.5 kW	0.6 kW	0.6 kW	0.6 kW	0.6 kW	0.6 kW	
M07 and M08	0.5 kW	0.6 kW	0.75 kW	0.8 kW	0.9 kW	1.0 kW	1.0 kW	
M09-M12	0.5 kW	1.0 kW	1.3 kW	1.5 kW	1.6 kW	1.6 kW	1.6 kW	1.6 kW

Heat emission in kW for $\Delta t = 30^\circ\text{C}$ depending on volume flow								
Cooler for motor	0.5 l/min	1 l/min	2.5 l/min	5 l/min	10 l/min	20 l/min	30 l/min	45 l/min
M01-M06	0.4 kW	0.6 kW	0.7 kW	0.8 kW	0.8 kW	0.8 kW	0.8 kW	
M07 and M08	0.5 kW	0.8 kW	1.1 kW	1.2 kW	1.3 kW	1.4 kW	1.4 kW	
M09-M12	0.6 kW	1.2 kW	1.8 kW	2.1 kW	2.2 kW	2.3 kW	2.3 kW	2.3 kW

Fixed displacement pumps

Balancing examples:

1st example

Drive:

- Gear pump GP1/5.8 with 5.8 l/min
- System pressure 70 bar
- ED = 0.5

This results in a possible max. power dissipation:

$$P_{\text{loss}} = 4.3 \text{ kW}$$

Ambient conditions:

- Free-standing tank
- Ambient temperature 20°C
- Tol. oil temperature 50°C

For this application, a 70 l tank is sufficient, and cooling is not required.

2nd example

Drive:

- Gear pump GP1/9.2 with 9.2 l/min
- System pressure 80 bar
- ED = 1.0

This results in a possible max. power dissipation:

$$P_{\text{loss}} = 1.5 \text{ kW}$$

Ambient conditions:

- Tank with restricted air circulation
- Ambient temperature 20°C
- Tol. oil temperature 50°C

The max. tol. tank for this pump with 70 l can dispose of 0.37 kW. The remaining 1.13 kW must be disposed of using the coupling cooler (motor M07).

Variable displacement pumps (pressure controlled)

Balancing examples:

1st example

Drive:

- Variable vane pump PVS 16
- System pressure 100 bar

This results in a power dissipation:

$$P_{\text{loss}} = 1.6 \text{ kW at } 2.5 \text{ l/min oil leakage flow}$$

Ambient conditions:

- Tank with restricted oil flow
- Ambient temperature 20°C
- Tol. oil temperature 50°C

0.48 kW can be disposed of from the selected oil tank with 100 l. This means that a cooler is required here (motor M10). This is capable of disposing of approx. 1.3 kW for 2.5 l/min oil leakage. Altogether power dissipation of 1.78 kW can be disposed of.

2nd example

Drive:

- Axial piston pump PV16
- System pressure 160 bar

This results in a power dissipation:

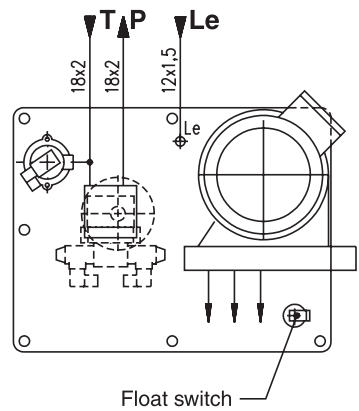
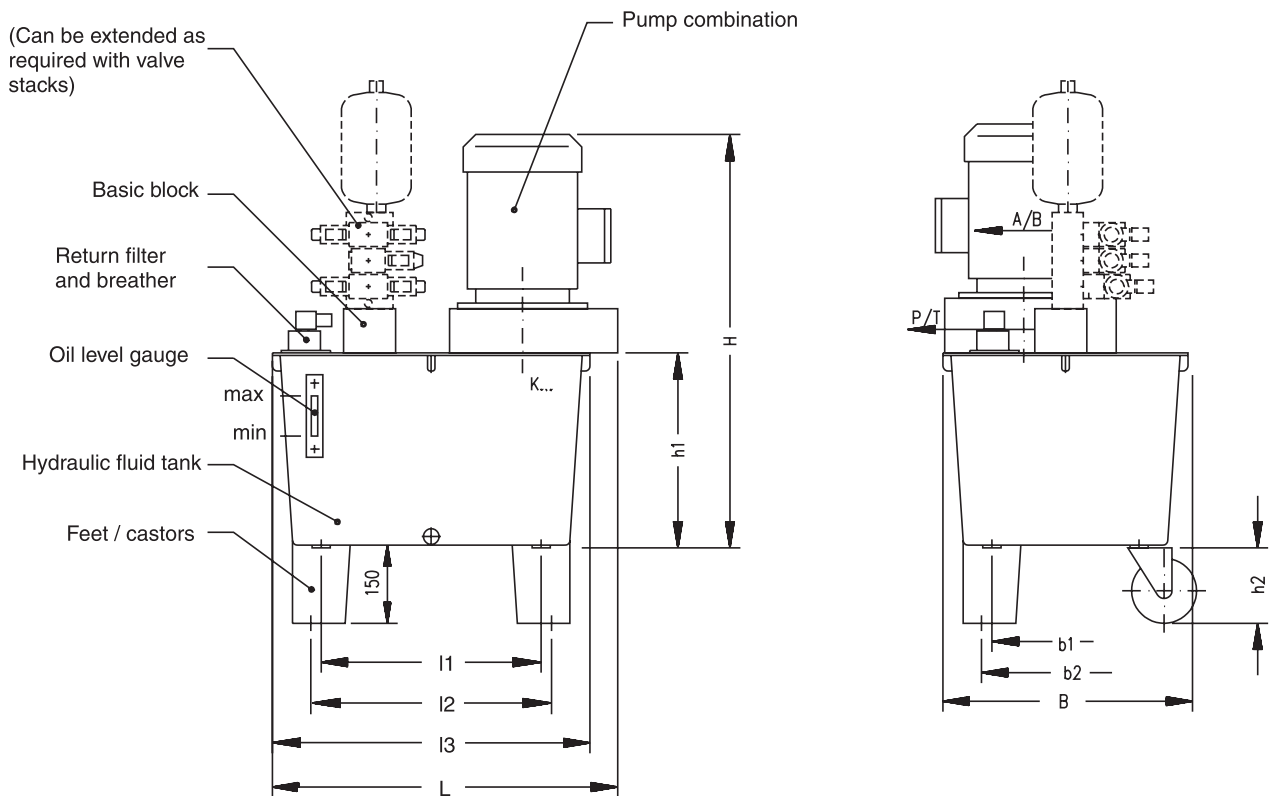
$$P_{\text{loss}} = 1.5 \text{ kW at } 1.3 \text{ l/min oil leakage flow}$$

Ambient conditions:

- Tank with restricted oil flow
- Ambient temperature 20°C
- Tol. oil temperature 50°C

0.9 kW can be disposed of from the selected oil tank with 250 l. This means that a cooler is required here (motor M12). This is capable of disposing of approx. 1.2 kW for 1.3 l/min oil leakage. Altogether power dissipation of 2.1 kW can be disposed of.

Tank sizes 30, 44, 70 litres

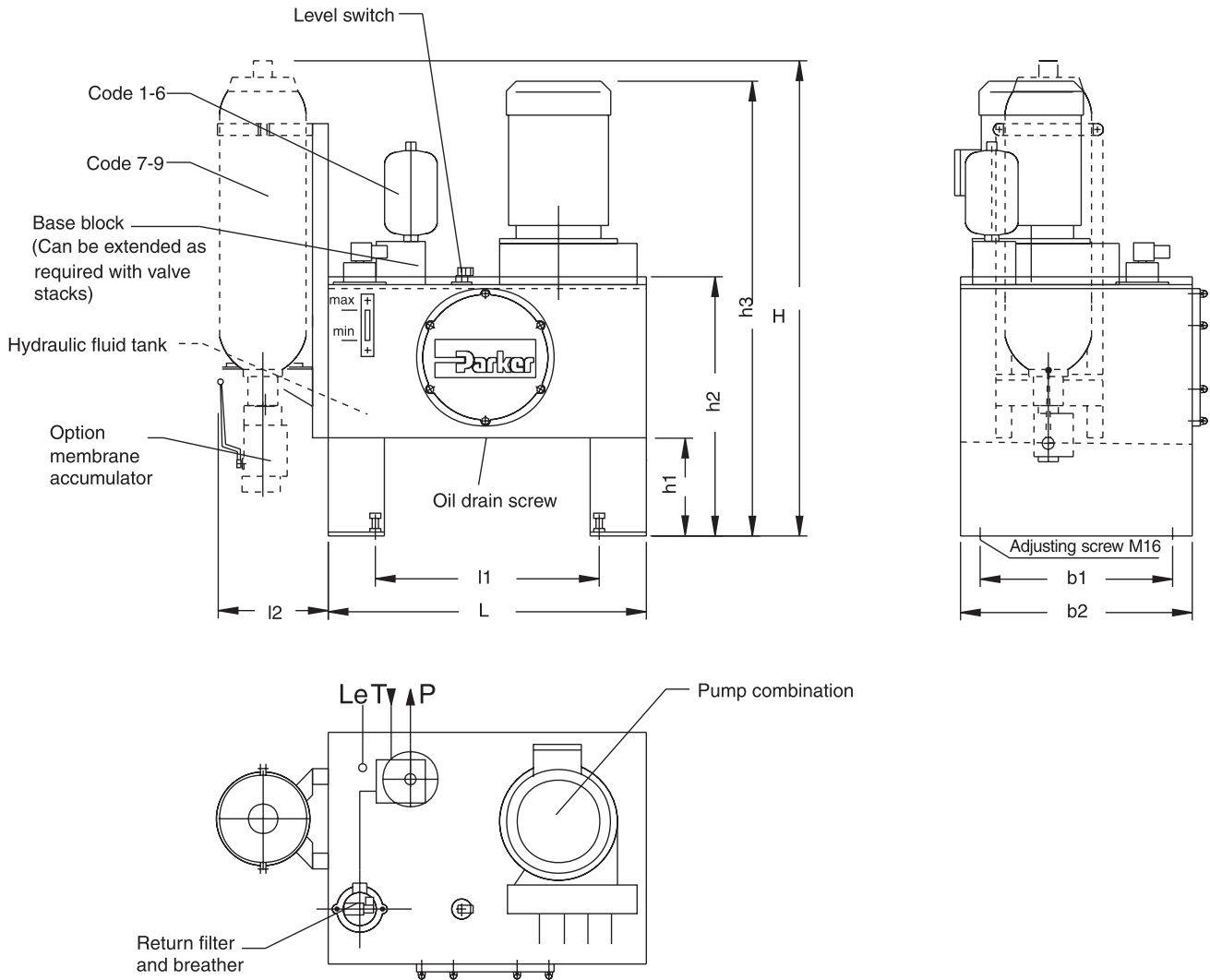


Tank size / Motor	L (with cooler)	I1	I2	I3	B	b1	b2	H	h1	h2	
K30	0.25 - 0.37 kW	530	326	366	490	340	176	216	616	290	105
	0.55 - 1.5 kW	530	326	366	490	340	176	216	652	290	105
	2.2 - 4.0 kW	525	326	366	490	340	176	216	730	290	105
K44	0.55 - 1.5 kW	555	341	381	515	417	241	281	677	315	150
	2.2 - 4.0 kW	565	341	381	515	417	241	281	755	315	150
K70	0.55 - 1.5 kW	650	423	463	611	471	283	323	737	375	150
	2.2 - 4.0 kW	660	423	463	611	471	283	323	795	375	150
	5.5 - 9.0 kW	665	423	463	611	471	283	323	893	375	150

Systems-M-Pak.PMD CM

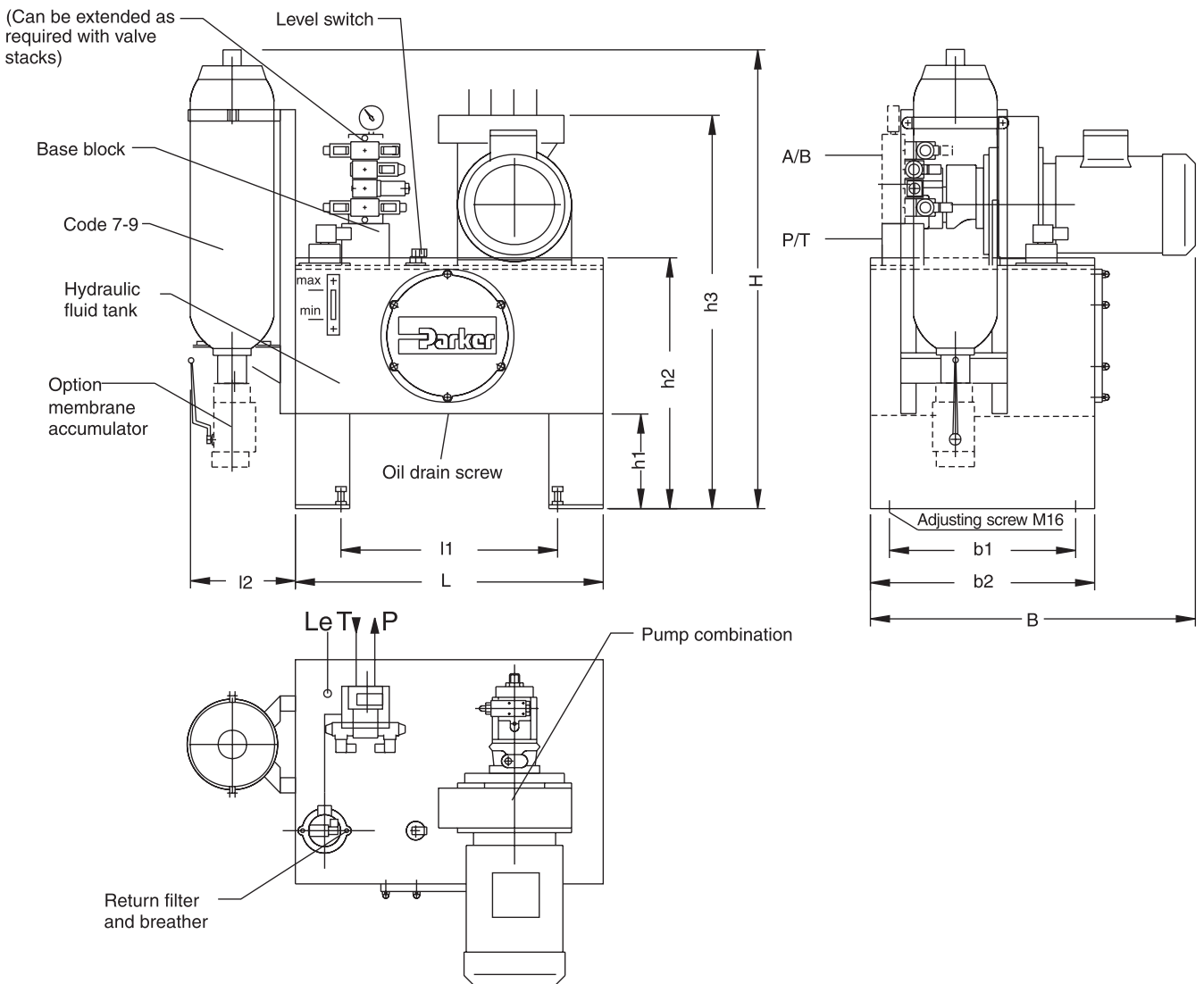


Tank sizes 100, 160, 250 litres



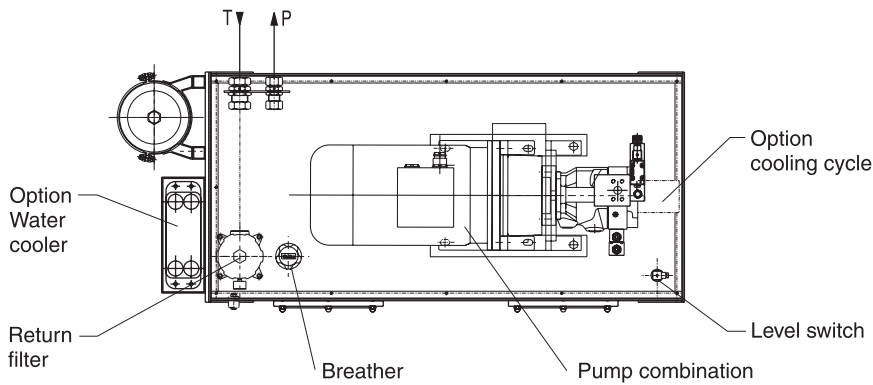
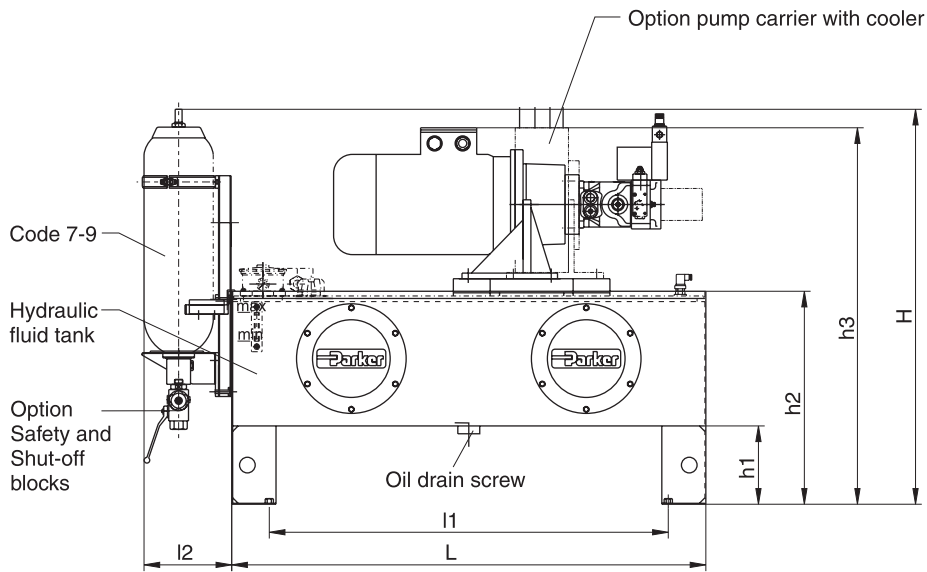
Tank size	L	H	l1	l2	b1	b2	h1	h2	h3
100 l [4 kW]	633	1500	393	300	360	460	250	660	1060
160 l [7.5 kW]	810	1500	570	300	490	590	250	660	1160
250 l [9 kW]	1010	1500	770	300	590	690	250	680	1180

Tank sizes 100, 160, 250 litres



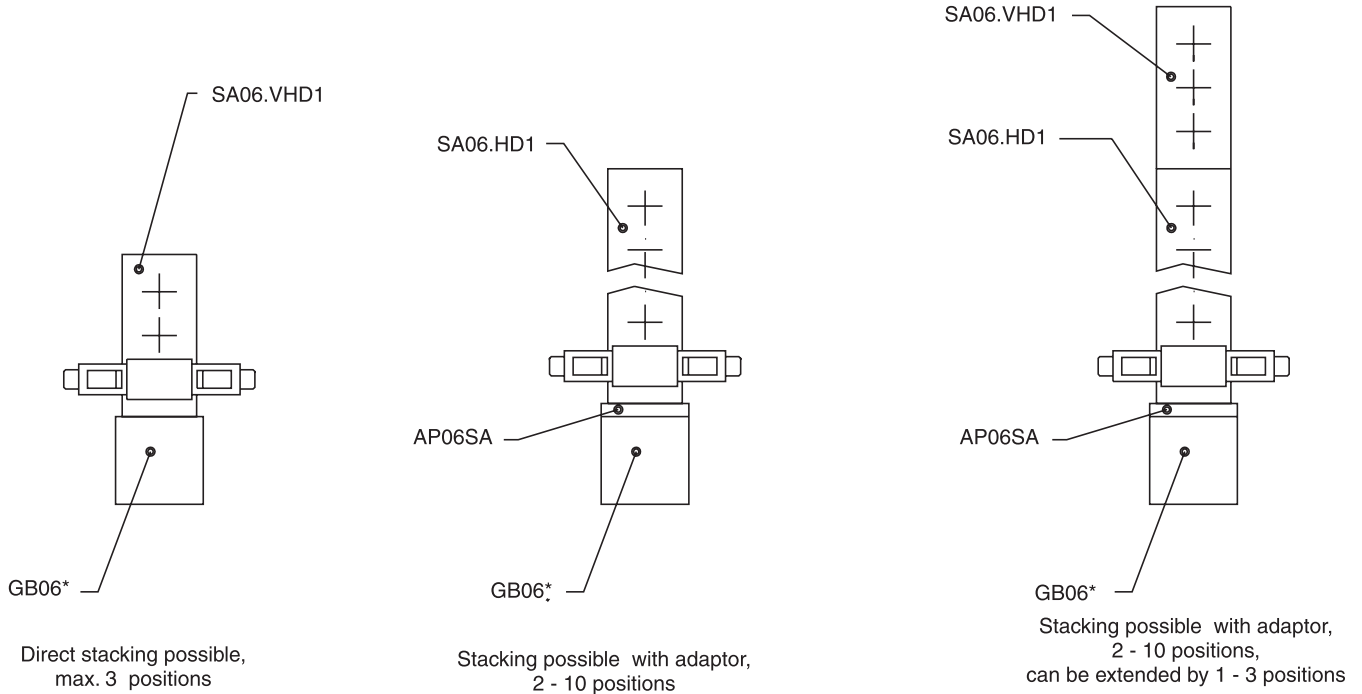
Tank size	L	B (PV016)	H	l1	l2	b1	b2	h1	h2	h3
100 l [4 kW]	633	735	1500	393	300	360	460	250	660	1000
160 l [7.5 kW]	810	855	1500	570	300	490	590	250	660	1075
250 l [9 kW]	1010	855	1500	770	300	590	690	250	680	1095

Tank sizes 400, 630 litres



Tank size	L	B	H	I1	I2	b1	b2	h1	h2	h3
400 l [22 kW]	1514	735	1500	1274	300	635	–	250	680	1210
630 l [30 kW]	1514	945	1500	1274	300	845	–	250	770	1350

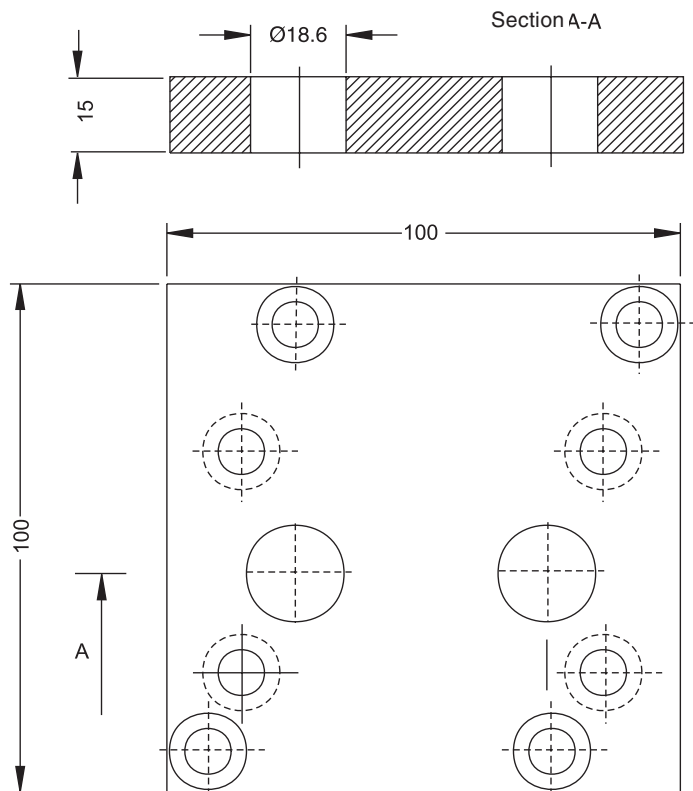
Modular power units can be extended by up to 13 valve stations NG6. The following manifolds and the required valves are to be ordered separately, by using the form "Valves assembly".



*Base block GB06 is a component of the modular power unit

Adaptor AP06SA

In order to install the manifold SA06.HD1 with up to 10 valve positions, the adaptor AP06SA is to be placed on the base block of the modular power units.



Description	Material No.
AP06SA	HR10063999

Delivery includes 8 fastening screws M8 and 4 round sealing rings.

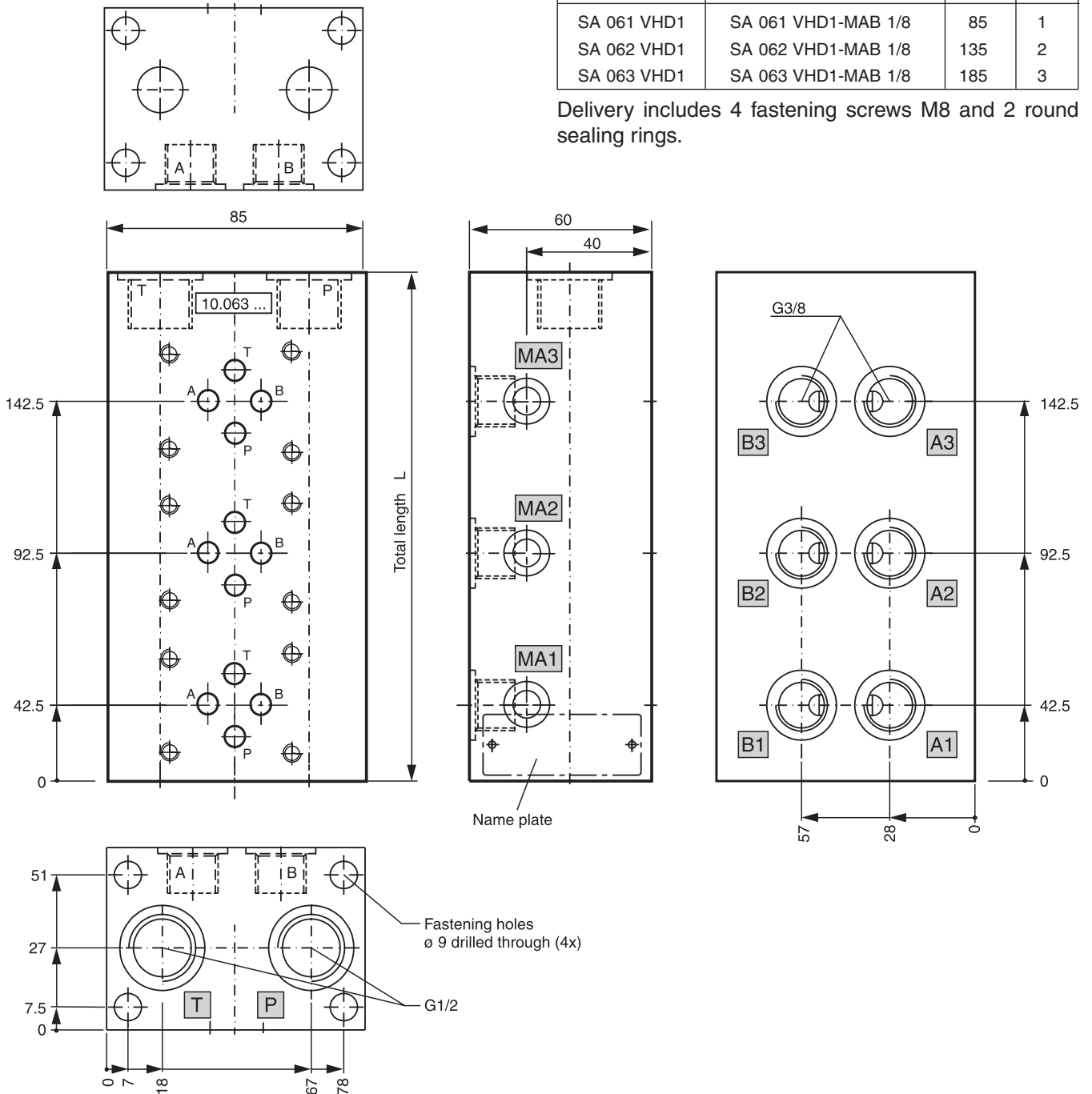
Manifold SA06.VHD1

The manifold SA06.VHD1 can be installed directly on the base block belonging to the modular power unit.

In addition, the manifold SA06.VHD1 can also be mounted directly on the manifold SA06.HD1, for example, for later extension.

SA without measuring conn.	SA with lateral measuring-conn. G1/8 for A and B	Total dimens. L	Valve pos.
Description	Description		
SA 061 VHD1	SA 061 VHD1-MAB 1/8	85	1
SA 062 VHD1	SA 062 VHD1-MAB 1/8	135	2
SA 063 VHD1	SA 063 VHD1-MAB 1/8	185	3

Delivery includes 4 fastening screws M8 and 2 round sealing rings.



Assembly

The tables below help choosing valves for a specific unit. Unless required otherwise, type of manifold (number of positions) determined by factory!

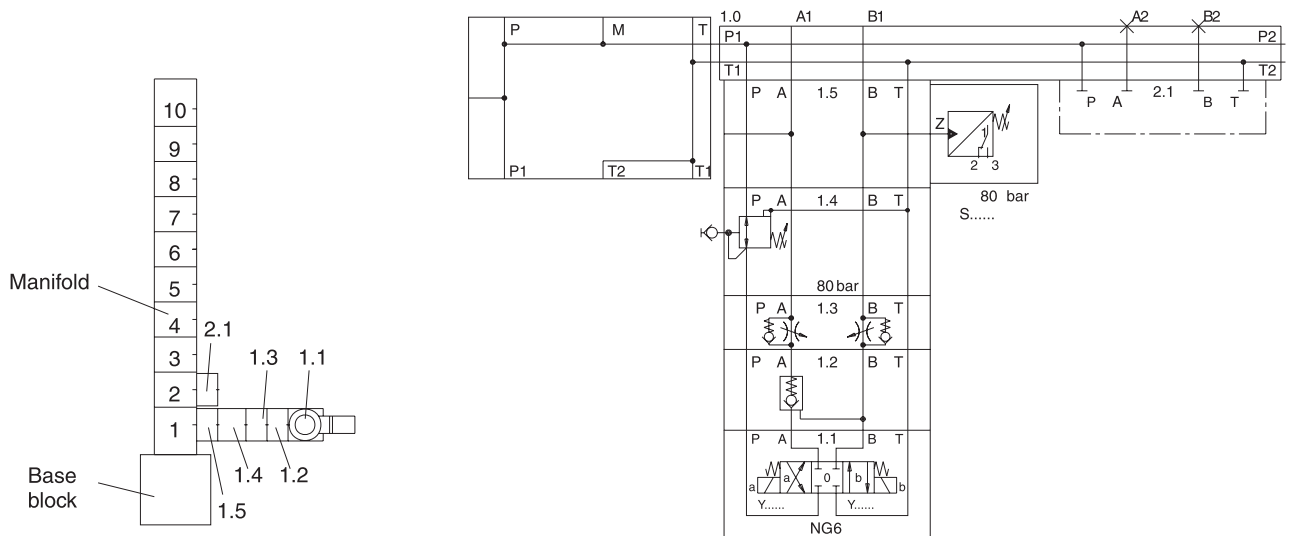
We recommend to add a copy of the completed tables to your order.

Valves for modular power units

Manifold		Top valve		Sandwich valves							
Valve Pos.	Code	Pos.	Code	Pos.	Code	Pos.	Code	Pos.	Code	Pos.	Code
1		1.1		1.2		1.3		1.4		1.5	
2		2.1		2.2		2.3		2.4		2.5	
3		3.1		3.2		3.3		3.4		3.5	
4		4.1		4.2		4.3		4.4		4.5	
5		5.1		5.2		5.3		5.4		5.5	
6		6.1		6.2		6.3		6.4		6.5	
7		7.1		7.2		7.3		7.4		7.5	
8		8.1		8.2		8.3		8.4		8.5	
9		9.1		9.2		9.3		9.4		9.5	
10		10.1		10.2		10.3		10.4		10.5	

Example

1	SA06VHD1	1.1	1C	1.2	D	1.3	A	1.4	H-80	1.5	N-70
2		2.1	P	2.2		2.3		2.4		2.5	



Directional control valves

Symbol	Code	Ordering Code
	1C	D1VW1CNJP
	2C	D1VW2CNJP
	8C	D1VW8CNJP
	11C	D1VW11CNJP
	22C	D1VW22CNJP
	1E	D1VW1ENJP
	20B	D1VW20BNJP
	20H	D1VW20HNJP
Seated type valves		
	D1B	D1SE30BNJP
	D1H	D1SE83BNJP

Check valves

Symbol	Code	Ordering Code
	C	CM2PPV
	D	CPOM2AAN
	E	CPOM2BBN
	F	CPOM2DDN

Pressure switch

Symbol	Code	Ordering Code
	L- <input type="checkbox"/>	PSB[040]AF1A
	M- <input type="checkbox"/>	PSB[040]AF1A
	N- <input type="checkbox"/>	PSB[040]AF1A
	O- <input type="checkbox"/>	PSB[040]AF1A

Adjusted pressure in bar
Valves adjusted and tested

Pressure relief valves

Symbol	Code	Ordering Code
	G- <input type="checkbox"/>	RDM2PT02SVC
		RDM2PT06SVC
		RDM2PT16SVC
		RDM2PT21SVC

Pressure reducing valves

Symbol	Code	Ordering Code
	H- <input type="checkbox"/>	PRDM2PP0206SVC
	J- <input type="checkbox"/>	PRDM2AA0216SVC
	K- <input type="checkbox"/>	PRDM2BB0221SVC

Adjusted pressure in bar
Valves adjusted and tested

Throttle valves

Symbol	Code	Ordering Code
	A	FM2DDDSN
	B	FM2DDDSN

Cover plates

Symbol	Code	Ordering Code
	P	D51VP071C
	Q	AD06-1025

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Project planning

Selection of the modular power unit and project planning of the hydraulic control are assisted by our technical sales department.

General

- The power units supplied by us are tested for function and performance.
- Repairs only through the manufacturer or his authorised dealers and subsidiaries. No guarantee for any repairs carried out by the user or other parties.
- The scope of supply of this modular power unit does not include any further documentation. If necessary, please contact us.

Commissioning

- Fill hydraulic fluid only by using a filter with the required minimum filtration rate.
- Please note the directional arrow when connecting up the electrical motor.
- Start up the pump without load and let it pump without pressure for a few seconds to ensure adequate lubrication.
- Never let the pump run without oil.
- If the pump does not pump bubble-free after approx. 20 seconds, the whole power unit must be checked again.
- Once the operating values have been reached, check the pipe unions for leaks. Check the operating temperature.
- Detailed commissioning instructions in separate leaflet (AL 106).

Air bleeding

Before initial commissioning, the housing of the pump PV must be filled with oil.

Important instructions

- Power units to be assembled, maintained and repaired by authorised, trained and instructed personnel only.
- The power units may only be operated with the permitted operating data!
- Switch off the pressure in the power unit before carrying out any work! No unauthorised modifications and alterations are allowed which could affect the safety and correct functioning of the power unit!
- Mount safeguards, respectively do not remove existing safeguards.
- Always check that the fastening screws have been screwed tight! (Note prescribed torque!).
- Observe general valid safety and accident prevention regulations!

Instructions in accordance with the EU machine directive 89/392 EEC appendix II section B; manufacturer's declaration:

The supplied components are manufactured in conformity with the harmonised standards prEN982, prEN 983 DIN EN 292 and DIN EN 60 024-1.

Commissioning is not allowed before ascertainment that the machine in which the components are to be installed complies with the provisions of the EU directive.

In addition to conventional hydraulic systems, Parker also offers super-silent hydraulics which meet all maintenance demands and are quiet at the same time – the modular power units of series L-Pak.

The new low-noise units are fitted exclusively with Parker components.

Around an extra-silent axial piston pump PVplus®, Parker assembles gear pumps, oil hydraulics valves, control units, hydraulic tanks, filters, fluid connectors, hoses, fittings and control sensors.

The customer can choose between standardised or tailor-made models, all ready for use due to plug-and-play design.

Modern BUS connections make valve control most efficient as they match all applications.

Tanks, too, follow the modular design, with sizes available from 250 to 1,250 litres and single-pump flow rates from 16 to 400 l/min. This modular concept results in excellent noise pressure levels of 65dB (A) at 100bar and of 72dB (A) at 300bar.

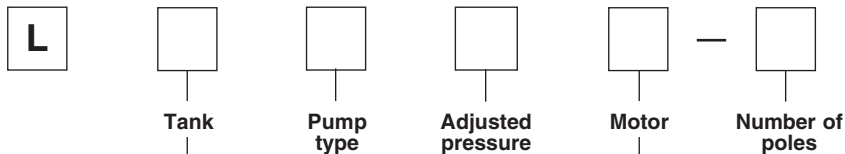
To meet specific requirements for low noise, an advanced modular range of easy-maintenance sound insulators is available.

Applicable in many industrial fields, the Parker modules in combination with Parker systems components guarantee low noise, low cost, premier quality and premier customer service, short delivery times included.

Technical features

- Significant reduction of noise emission through advanced modular insulation for pump/motor/system
- Compact unit for easy operation and maintenance
- Large space for extensions
- Modern BUS cabling available

Ordering code



Code	Size	Contents	Max. motor size
1	250	220l	132M
2	400	370l	132M
3	400	370l	225M
4	630	600l	225M
5	800	760l	225M
6	800	760l	315M
7	1000	960l	315M
8	1250	1200l	315M

Tank incl. oil level display, return and vent filter

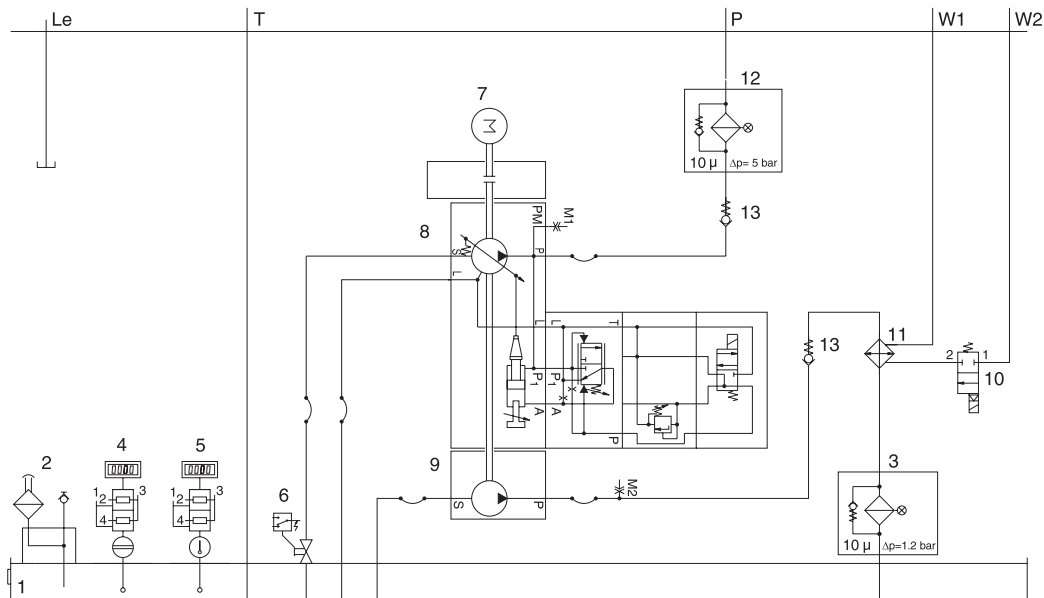
Code	Pump type	Q _{max} l/min	p _{max} bar	Tank Code
A	PV016	24	350	1-8
B	PV020	30	350	1-8
C	PV023	34	350	1-8
D	PV032	48	350	1-8
E	PV040	60	350	1-8
F	PV046	69	350	1-8
G	PV063	94	350	3-8
H	PV080	120	350	3-8
I	PV092	138	350	3-8
K	PV140	210	350	6-8
L	PV180	270	350	6-8
M	PV270	400	350	6-8
X	other pumps on request			

Motor		Number of poles	
Code	Size	4	6
		P [kW]	P [kW]
M01	132M	7.5	
M02	132M	9	
M03	160M	11	7.5
M04	160L	15	11
M05	180M	18.5	
M06	180L	22	15
M07	200L	30	18.5
M08	200L		22
M09	225S	37	
M10	225M	45	30
M11	250M	55	37
M12	280S	75	45
M13	280M	90	55
M14	315S	110	75
M15	315M		90
M16	315M		110
		n= 1500/1800 U/min. f= 50/60 Hz U=400/690 V	n= 1000/1200 U/min. f= 50/60 Hz U=400/690 V

Technical Data

Hydraulic fluid	Mineral oil HLP to DIN 51 524, part 2 (other hydraulic fluids on request)		
Ambient temperature	[°C]	-10 ... +50	
Hydraulic fluid temperature	[°C]	-10 ... +70	
Hydraulic fluid temperature (const. operation)	[°C]	+20 ... +55	
Cooling capacity	Dimensioning according to overall system		
Operating pressure	Max. 350 bar		
Flow rate	Max. 400 l/min		
Pump type	Axial piston pump PV External gear pump PGP (for cooling circuit) (additional technical details on request)		
Noise	Depending on application and insulation, the following values can be reached:		
	System pressure [bar]	Noise emission [dB(A)]	
		at 1000 U/min	at 1500 U/min
	100	65	68
	160	68	71
	210	70	73
	350	72	76
Return filter	$\beta_{10} = 75$		
Tolerable degree of contamination	NAS 1638 class 7, ISO 11171 18/16/13		
Installed load	Max. 110 kW		

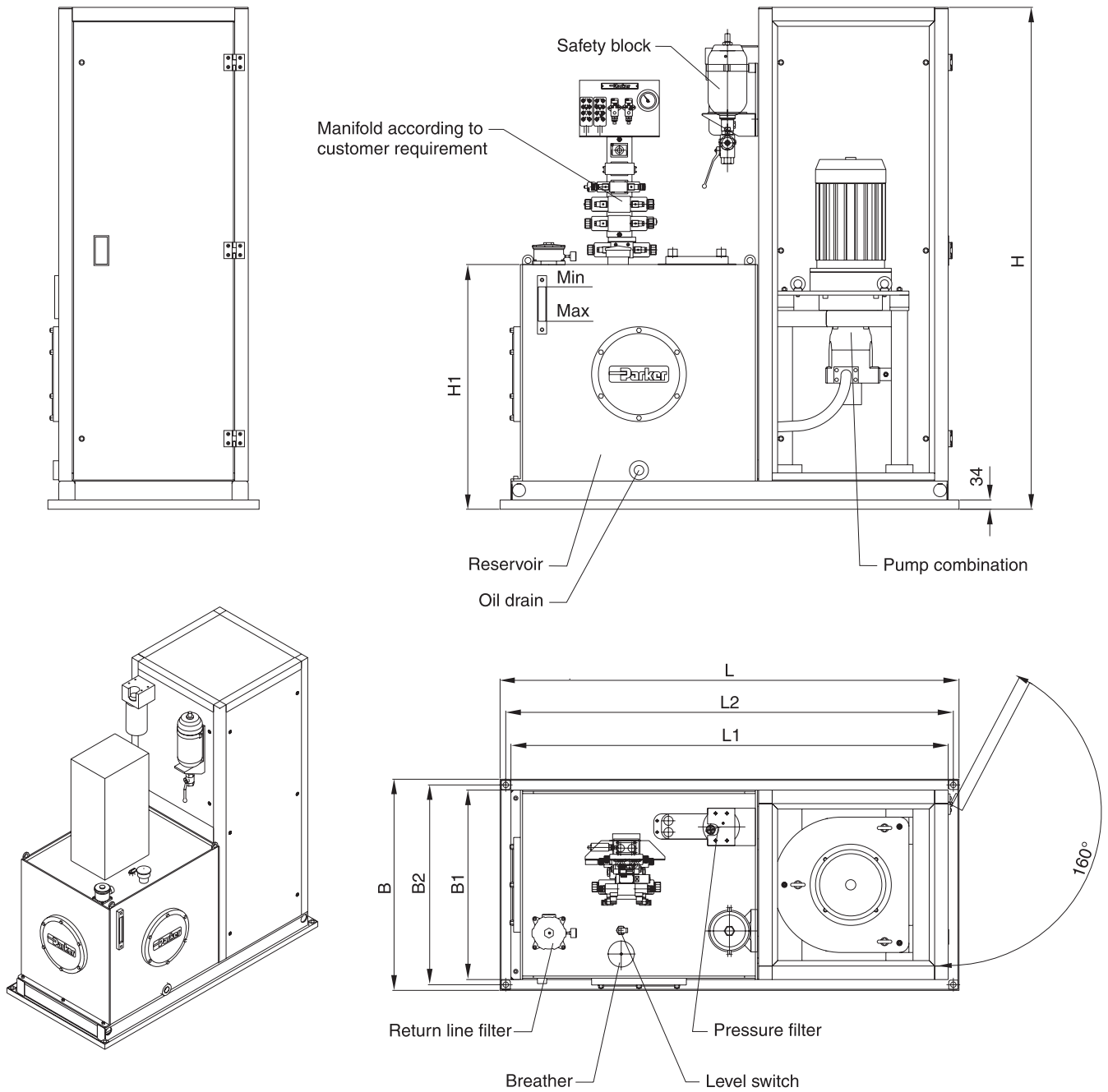
Circuit diagram (example)



- | | |
|------------------------------------|--|
| 1 Reservoir | 8 Axial piston pump with pressure control and electrical pressure relief |
| 2 Breather and adapter | 9 Pump for cooling and filter circuit |
| 3 Tank-top return-line filter | 10 Electrical temperature regulator |
| 4 Level switch | 11 Oil/Water plate heat exchanger (optional oil/air cooler) |
| 5 Temperature switch | 12 Pressure filter |
| 6 Shut-off valve with limit switch | 13 Check valves |
| 7 Three-phase motor | |

L-Pak.PMD CM





Size	Tank size	L	L1	L2	B	B1	B2	H	H1
1	250l (9kW-PV046)	1380	1300	1338	780	700	738	1854	904
	400l (9kW-PV046)	1695	1615	1653	780	700	738	1854	904
2	400l (45kW-PV092)	1720	1640	1678	980	900	938	1854	904
	630l (45kW-PV092)	2093	2013	2051	980	900	938	1854	904
	800l (45kW-PV092)	2368	2288	2326	980	900	938	1854	904
3	800l (200kW-PV270)	2385	2305	2343	1180	1100	1138	2350	929
	1000l (200kW-PV270)	2650	2570	2608	1180	1100	1138	2350	929
	1250l (200kW-PV270)	2980	2900	2938	1180	1100	1138	2350	929

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