

RE 92 064/05.98

Replaces: 05.93

**Power controllers LR2, LR3 and LR2N**

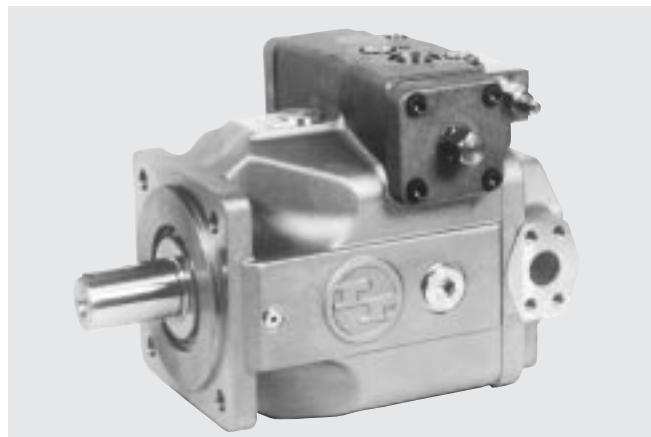
Variable displacement pumps A4VSO, A4VSH and A4VSG

Size 40 - 1000

Series 1, 2 and 3

Nominal pressure 350 bar

Peak pressure 400 bar



A4VSO...LR2

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Features

- Power controller with hyperbolic characteristic
- The pump displacement is controlled by the power controller as a function of the operating pressure so that a specified drive power is not exceeded at constant drive speed
- Power changes from min to max via a spring
- Settings are easy to adjust – via only one adjusting screw
- Supplementary functions in the modular system, e.g.:
 - Hydraulic remote control
 - Pressure control
 - Flow control
 - Hydraulic stroke limitation
 - Mechanical stroke limitation
 - Hydraulic two-point control
- Further information:
 - Variable displacement pumps, open circuit, A4VSO RE 92 050
 - Size 40 - 1000
 - Variable displacement pumps, closed circuit, A4VSG RE 92 100
 - Size 40 - 1000
 - Variable displacement pumps, semi-closed circuit, A4VSH RE 92 110
 - Size 40 - 250



Ordering code

A4VS					/			-										
Hydraulic fluid																		
Axial piston pump																		
Swashplate design, adjustable, industrial range		A4VS																
Type of operation																		
Pump, open circuit																O		
Pump, semi-closed circuit																H		
Pump, closed circuit																G		
Size																		
≅ Displacement $V_{g \max}$ (cm³)		40	71	125	180	250	355	500	750	1000								

Series
Rotation
Seals
Shaft end
Mounting flange
Service lines
Through drive
Valves
Filtration

For detailed information see:
RE 92050 - A4VSO
RE 92110 - A4VSH
RE 92100 - A4VSG

Power controller with hyperbolic characteristic, basic setting $V_{g \max}$ for open circuit applications

Adjustment of power characteristic	40	71	125	180	250	355	500	750	1000	
Mechanically adjustable	●	●	●	●	●	●	●	●	●	2
Hydraulic remote control	●	●	●	●	●	●	●	●	●	3
Pressure control										
With pressure control	●	●	●	●	●	●	●	●	●	D
With pressure control, remote controlled	●	●	●	●	●	●	●	●	●	G
Without pressure control – no code letter										
Flow control / limitation										
With flow control	●	●	●	●	●	●	–	–	–	F
With hydraulic stroke limitation, proportional	●	●	●	●	●	●	●	●	●	H
With mechanical stroke limitation	●	●	●	●	●	●	–	–	–	M
With hydraulic two-point control	●	●	●	●	●	●	●	●	○	Z
With electric relief valve as starting aid	●	●	●	●	●	●	○	○	○	Y
With load sensing and press. contr., remote contr.	●	●	●	●	●	●	–	–	–	S*
Without flow control / limitation – no code letter										

*Cannot be combined with D or G, since pressure control is included in the scope of supply in this case

Power controller with hyperbolic characteristic, basic setting $V_{g \min}$, pilot pressure-dependent, for open, semi-closed and closed circuit applications

Adjustment of power characteristic	40	71	125	180	250	355	500	750	1000	
Mechanically adjustable	●	●	●	●	●	●	●	●	●	2
Hydraulic remote control	●	●	●	●	●	●	●	●	●	3
Pressure control										
With pressure control	●	●	●	●	●	●	●	●	●	D
With pressure control, remote controlled	●	●	●	●	●	●	●	●	●	G
Without pressure control – no code letter										
Electr. pilot pressure specification										
With proportional valve DBEP 6	○	○	○	○	○	○	○	○	○	T
Without electr. pilot pressure specification – no code letter										

- = Available
- = In preparation
- = Not available
- = Preferred range (shorter delivery times)
Preferred types see RE 92050

LR2 Power controller, with hyperbolic characteristic

See main brochure A4VSO RE 92050, A4VSH RE 92110 and A4VSG RE 92100 for details, unit sizes and technical data of the variable displacement pump.

The power controller LR2 controls the pump displacement (flow rate) as a function of the operating pressure so that a specified drive power is not exceeded with constant drive speed.

$$p \times V_g = \text{constant}$$

Precise control in accordance with the hyperbolic characteristic ensures optimum utilization of the power.

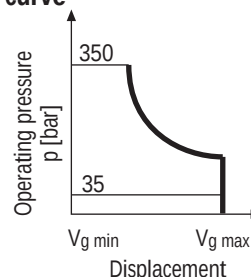
Commencement of the control range can also be set mechanically.

The entire range of settings can be adjusted by means of a spring and adjusting screw.

The pump is swivelled into its starting position ($V_{g \max}$) by an adjusting spring when depressurized.

The minimum and maximum swivel angle limitation can be adjusted mechanically up to 50% of $V_{g \max}$.

Characteristic curve

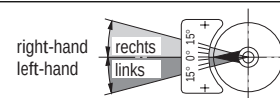


Direction of flow S to B

Right-hand rotation – left-hand swivel range

Left-hand rotation – right-hand swivel range

cf. swivel angle indicator

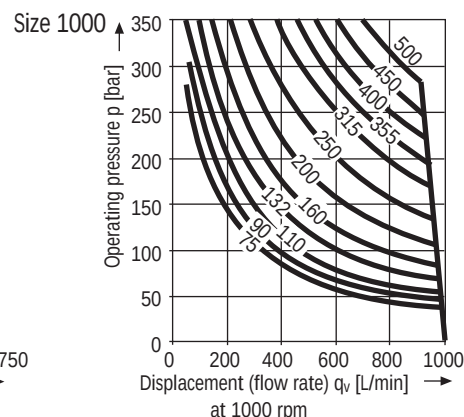
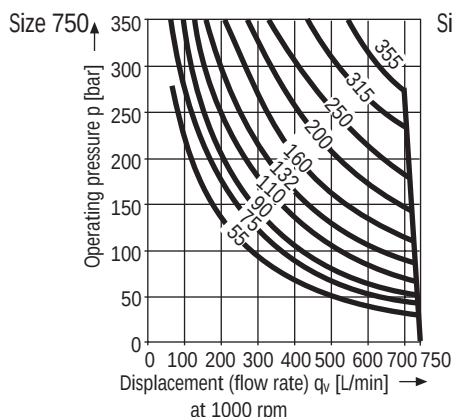
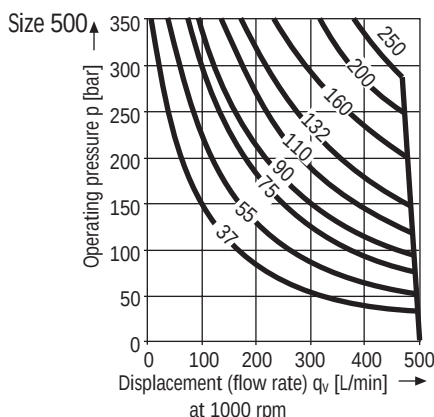
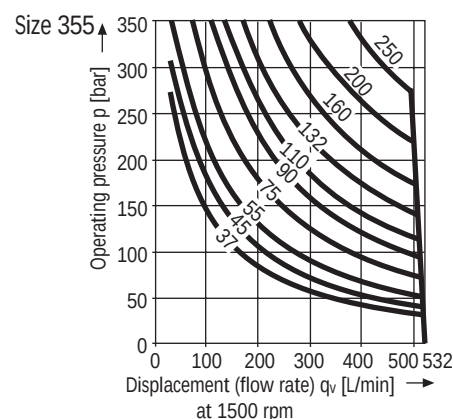
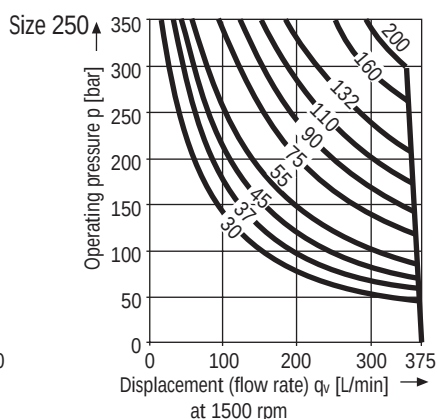
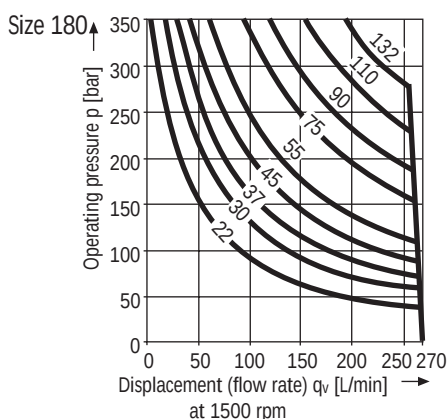
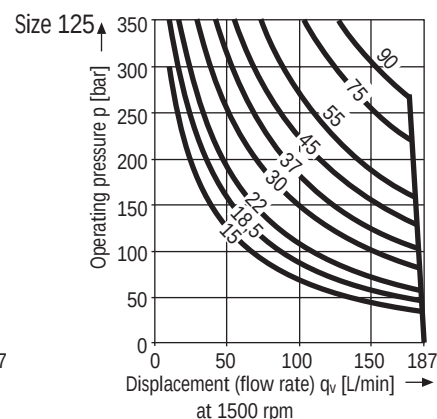
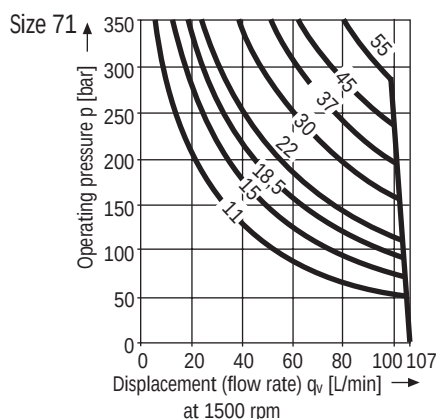
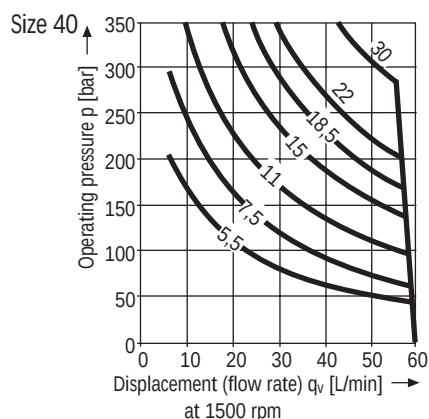


Range of settings: 35...350 bar commencement of control

The power characteristic is set by the manufacturer.

Please state clearly, e.g.: 50 kW at 1500 rpm.

Characteristics fields in kW



LR2 Power controller, with hyperbolic characteristic

See main brochure RE 92050 for details, unit sizes and technical data of the variable displacement pump A4VSO.

Ports

B	Pressure port
B ₁	Auxiliary port (plugged)
S	Suction port
R(L)	Oil filling port and bleed (case drain port)
U	Flushing port bearing (plugged)
K ₁ , K ₂	Flushing port (plugged)
R _{kv}	External pilot oil return (plugged) sizes 40-355
T	Oil drain (plugged)
M _B	Operating pressure test port (plugged)
M _S	Suction pressure test port (plugged)
M ₁ , M ₂	Control chamber test port (plugged) sizes 125-1000 (series 3)
P	Control pressure port (plugged) sizes 500-1000

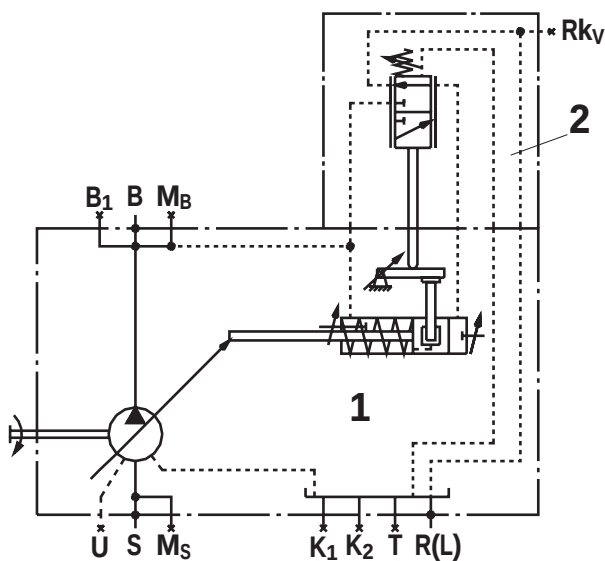
Components

1	A4VSO with hydraulic control device
1.1	Sandwich plate
2	Power valve

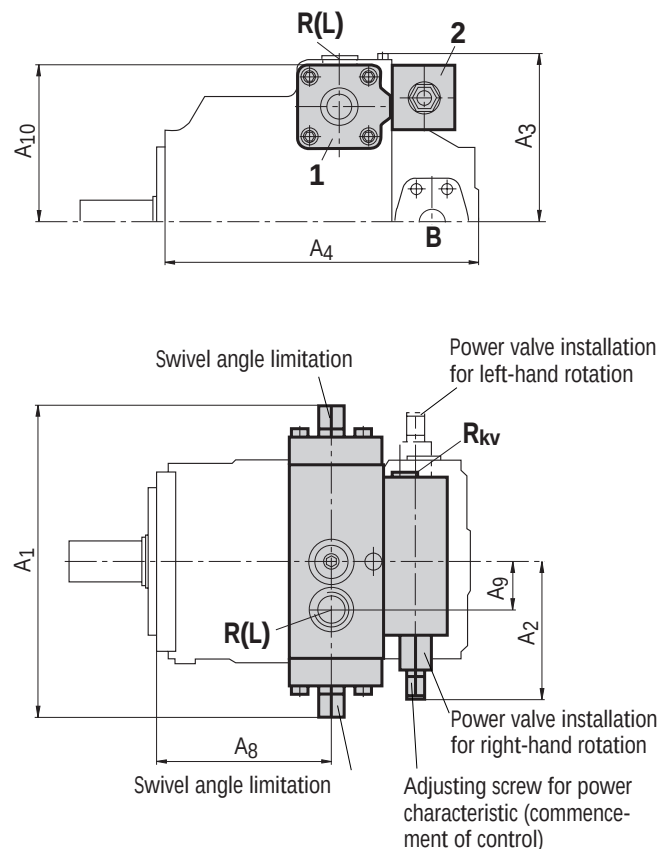
Series 1 and 2

Sizes 40...355

Circuit diagram



Unit dimensions



Unit dimensions

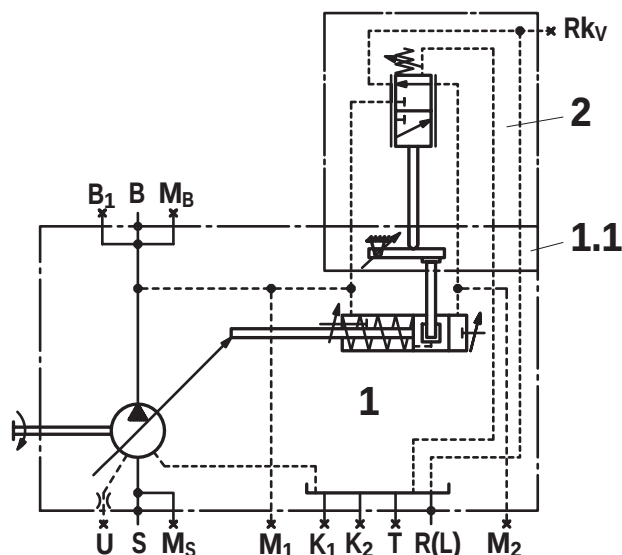
Size	Ports							R(L), B ₁ , K ₁ , K ₂ , T	R _{kv}
	A ₁	A ₂	A ₃	A ₄	A ₈	A ₉	A ₁₀		
40	260	132	154	269	144	42	135	M22x1.5; 14 deep	M18x1.5
71	296	132	165	298	166	46	152	M27x2; 16 deep	M18x1.5
125	354	132	197	355	203	50	186	M33x2; 18 deep	M18x1.5
180	354	132	197	379	203	50	186	M33x2; 18 deep	M18x1.5
250	424	132	245	439	248	55	233	M42x2; 20 deep	M18x1.5
355	424	132	245	468	248	55	233	M42x2; 20 deep	M18x1.5

LR2 Power controller, with hyperbolic characteristic

Series 3

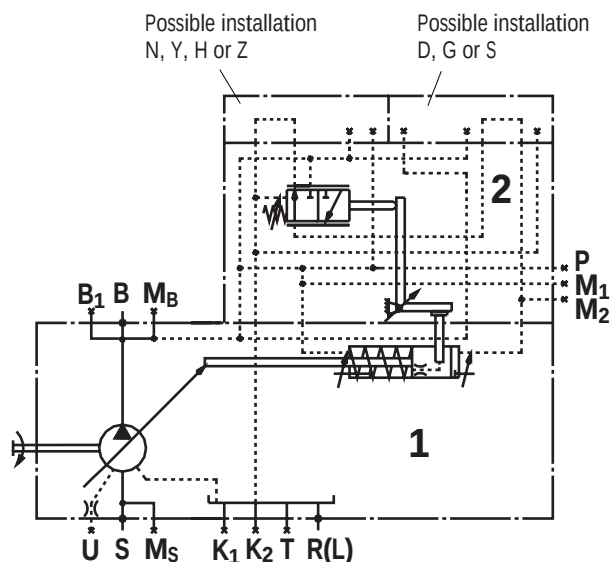
Sizes 125...355

Circuit diagram

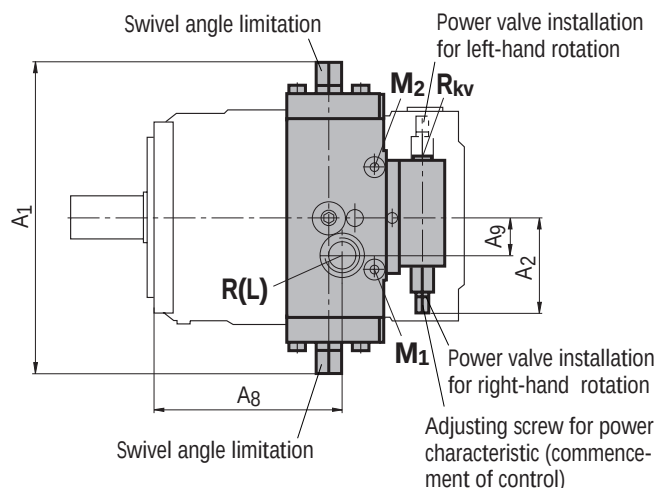
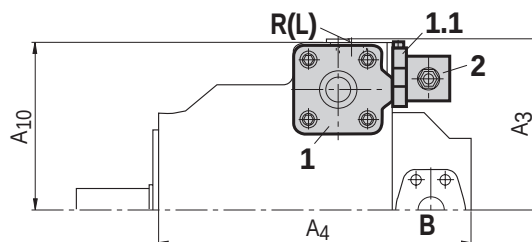


Sizes 500...1000

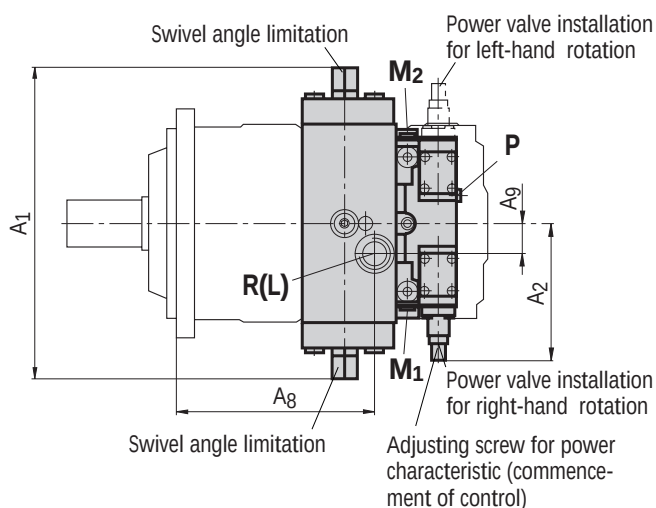
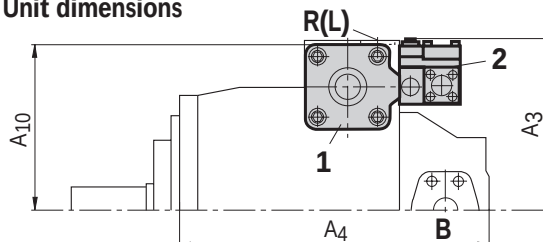
Circuit diagram



Unit dimensions



Unit dimensions



Unit dimensions

Size	Ports							R(L), B1, K1, K2, T	Rkv	M1, M2	P
	A1	A2	A3	A4	A8	A9	A10				
125	354	132	194	355	217	50	186	M33x2; 18 deep	M18x1.5	M14x1.5	—
180	354	132	194	379	217	50	186	M33x2; 18 deep	M18x1.5	M14x1.5	—
250	424	132	238	435	265	55	233	M42x2; 20 deep	M18x1.5	M18x1.5	—
355	424	132	238	468	265	55	233	M42x2; 20 deep	M18x1.5	M18x1.5	—
500	510	228	285	520	329	50	280	M48x2; 22 deep	—	M18x1.5	M22x1.5
750	582	228	322	564	351	50	317	M48x2; 22 deep	—	M18x1.5	M22x1.5
1000	622	228	350	633	411	55	344	M48x2; 22 deep	—	M18x1.5	M22x1.5

LR3 Power controller, with remote-controlled power characteristic

The power controller LR3 can be remotely controlled by applying an external pilot pressure (p_{st}) at port X_{LR} to the spring chamber of the power control valve.

The commencement of control can be varied in proportion to the applied pilot pressure.

The basic setting refers to $X_{LR} = 0$ bar.

The pilot pressure port X_{LR} must not be plugged.

The power can be boosted by pilot pressure in port X_{LR}

Power increase / pilot pressure (kW / bar)

Sizes	40	71	125	180	250	355	500	750	1000
$n^*=1000$ rpm	0.53	0.78	1.15	1.66	1.83	2.46	5.30	7.5	9.2
$n^*=1200$ rpm	0.64	0.94	1.38	1.99	2.19	2.95	6.40	9.0	11.0
$n^*=1500$ rpm	0.80	1.18	1.72	2.47	2.74	3.69	8.00	11.25	–
$n^*=1800$ rpm	0.96	1.41	2.07	2.98	3.29	4.42	9.60	–	–

* Note speed limits and permissible flow rate as specified in RE 92050.

Maximum external pilot pressure 100 bar

Total range for commencement of control: 50 ... 350 bar

The **basic setting** for the power characteristic is made by the manufacturer.

Please state clearly, e.g.: 50 kW at 1500 rpm, $X_{LR} = 0$ bar.

The basic setting can be changed on sizes 40 to 355 by dismantling the X_{LR} connector.

Basic setting can be adjusted externally as for LR2 from size 500 upwards.

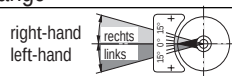
The properties and supplementary functions of the LR3 are otherwise the same as for the LR2, including mechanical adjustment of the minimum and maximum swivel angle limits up to 50% $V_{g \max}$.

Direction of flow S to B

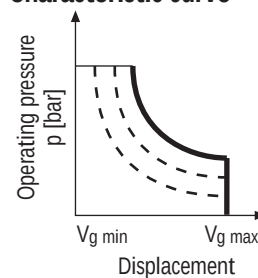
Right-hand rotation – left-hand swivel range

Left-hand rotation – right-hand swivel range

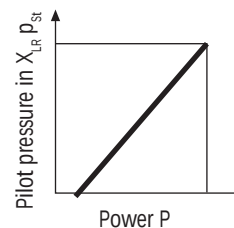
cf. swivel angle indicator



Characteristic curve



See main brochure RE 92050 for details, unit sizes and technical data of the variable displacement pump A4VSO.



Components

- 1 A4VSO with hydraulic control device
- 1.1 Sandwich plate
- 2 Power valve

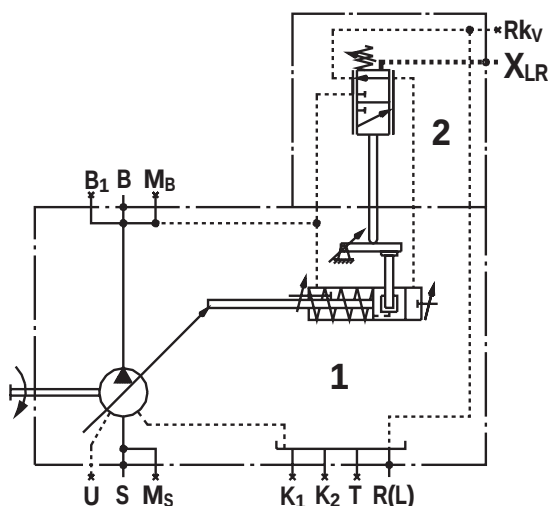
Ports

- B Pressure port
- B_1 Auxiliary port (plugged)
- S Suction port
- X_{LR} Pilot pressure port, remote control, commencement of control
- R(L) Oil filling port and bleed (case drain port)
- U Flushing port bearing (plugged)
- K_1, K_2 Flushing port (plugged)
- R_{kv} External pilot oil return (plugged) sizes 40-355
- T Oil drain (plugged)
- M_B Operating pressure test port (plugged)
- M_S Suction pressure test port (plugged)
- M_1, M_2 Control chamber test port (plugged) sizes 125-1000 (series 3)
- P Control pressure port (plugged) sizes 500-1000

Series 1 and 2

Sizes 40...355

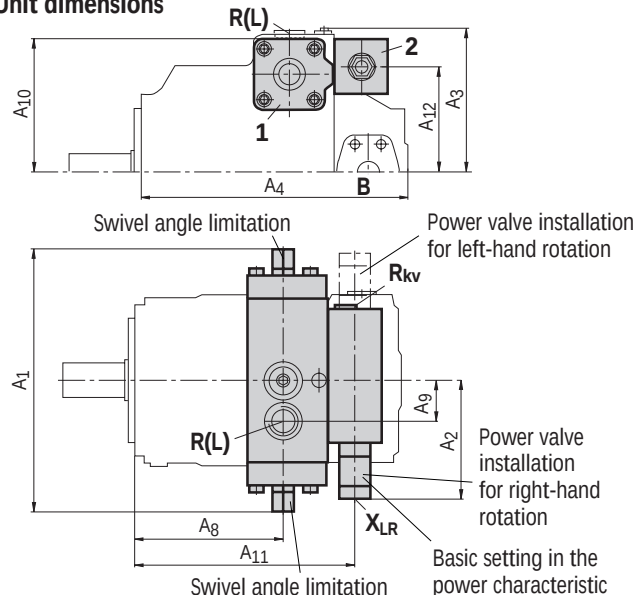
Circuit diagram



Unit dimensions

Size	A1	A2	A3	A4	A8	A9	A10	A11	A12	Ports	R(L), B_1, K_1, K_2, T	R_{kv}
40	260	133	154	269	144	42	135	219	106	$M14 \times 1.5$; 12 deep	$M22 \times 1.5$; 14 deep	$M18 \times 1.5$
71	296	133	165	298	166	46	152	246	117	$M14 \times 1.5$; 12 deep	$M27 \times 2$; 16 deep	$M18 \times 1.5$
125	354	133	197	355	203	50	186	295	138	$M14 \times 1.5$; 12 deep	$M33 \times 2$; 18 deep	$M18 \times 1.5$
180	354	133	197	379	203	50	186	295	138	$M14 \times 1.5$; 12 deep	$M33 \times 2$; 18 deep	$M18 \times 1.5$
250	424	133	245	439	248	55	233	357	168	$M14 \times 1.5$; 12 deep	$M42 \times 2$; 20 deep	$M18 \times 1.5$
355	424	133	245	468	248	55	233	357	168	$M14 \times 1.5$; 12 deep	$M42 \times 2$; 20 deep	$M18 \times 1.5$

Unit dimensions



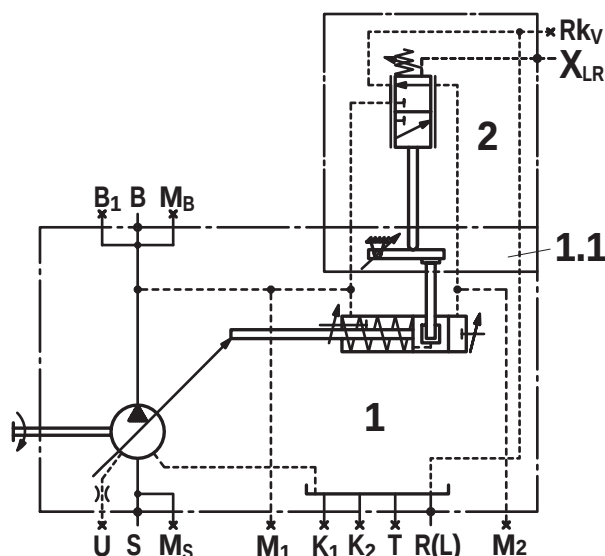
LR3 Power controller, with remote-controlled power characteristic

Before finalizing your design, please request a certified installation drawing.

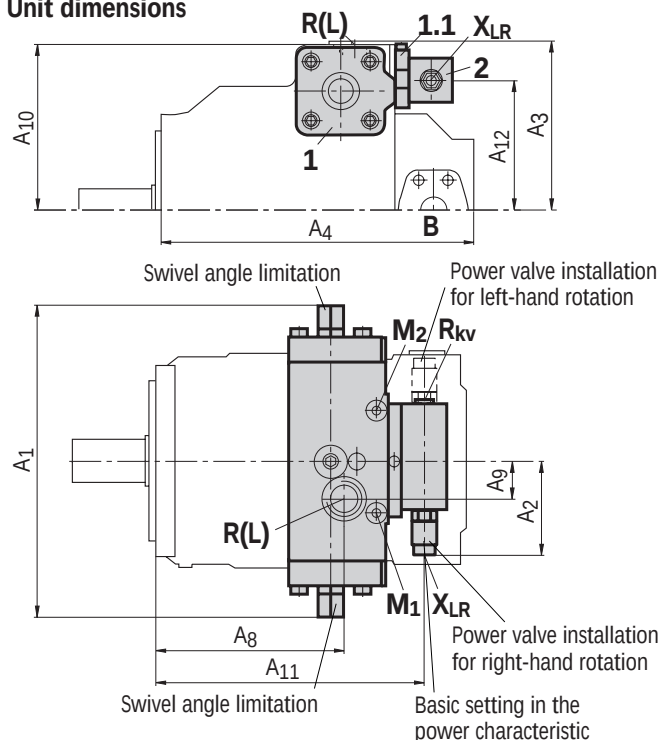
Series 3

Sizes 125...355

Circuit diagram

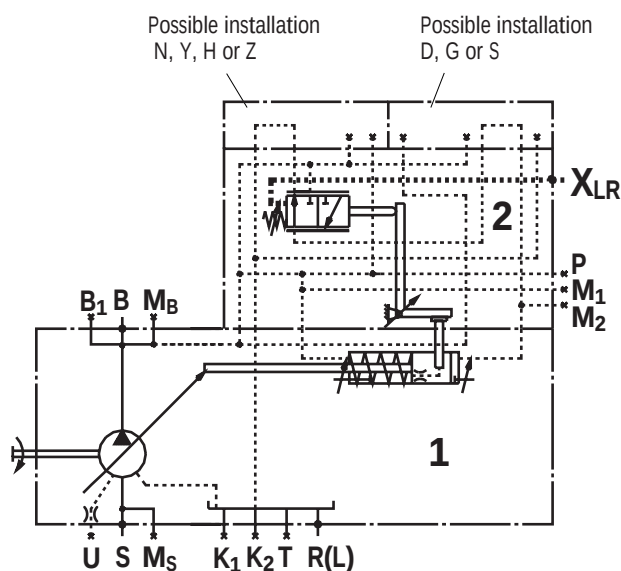


Unit dimensions

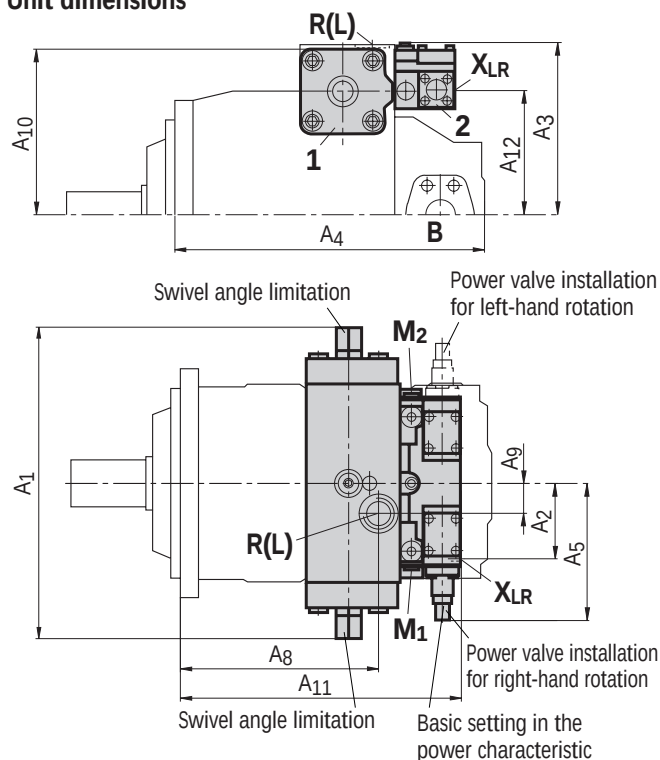


Sizes 500...1000

Circuit diagram



Unit dimensions



Unit dimensions

Ports

Size	A ₁	A ₂	A ₃	A ₄	A ₅	A ₈	A ₉	A ₁₀	A ₁₁	A ₁₂	X _{LR}	R(L), B ₁ , K ₁ , K ₂ , T	R _{kV}	M ₁ , M ₂	P
125	354	133	194	355	—	217	50	186	315	147	M14x1.5; 12 deep	M33x2; 18 deep	M18x1.5	M14x1.5	—
180	354	133	194	379	—	217	50	186	315	147	M14x1.5; 12 deep	M33x2; 18 deep	M18x1.5	M14x1.5	—
250	424	133	238	435	—	265	55	233	377	183	M14x1.5; 12 deep	M42x2; 20 deep	M18x1.5	M18x1.5	—
355	424	133	238	468	—	265	55	233	377	183	M14x1.5; 12 deep	M42x2; 20 deep	M18x1.5	M18x1.5	—
500	510	125	285	520	228	329	50	280	464	207	M14x1.5; 12 deep	M48x2; 22 deep	—	M18x1.5	M22x1.5
750	582	125	322	564	228	351	50	317	496	237	M14x1.5; 12 deep	M48x2; 22 deep	—	M18x1.5	M22x1.5
1000	622	125	350	633	228	411	55	344	562	260	M14x1.5; 12 deep	M48x2; 22 deep	—	M18x1.5	M22x1.5

Version **D** with pressure control

Pressure control is superimposed on the power control and **can be set between 20 and 350 bar**. The value must be stated clearly.

When the pressure set on the pressure control valve is reached, the pump switches to pressure control mode and only delivers as much hydraulic fluid as is required to maintain this pressure.

Components

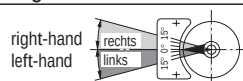
- 1 A4VSO with hydraulic control device
- 1.1 Sandwich plate
- 2 Power control valve
- 3 Pressure control valve

Direction of flow S to B

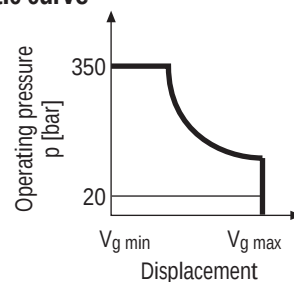
Right-hand rotation – left-hand swivel range

Left-hand rotation – right-hand swivel range

cf. swivel angle indicator

**Characteristic curve**

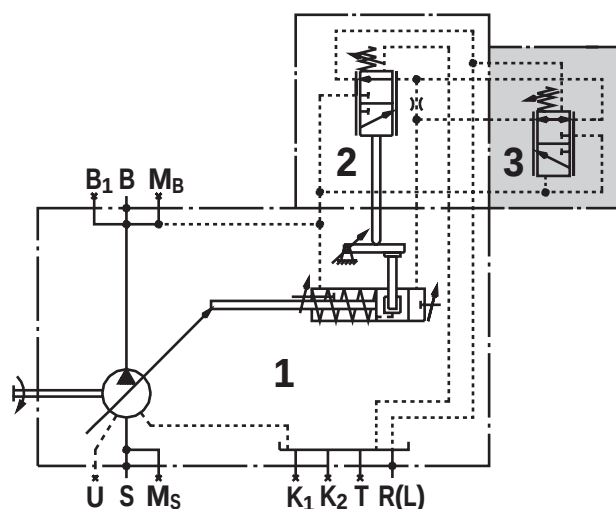
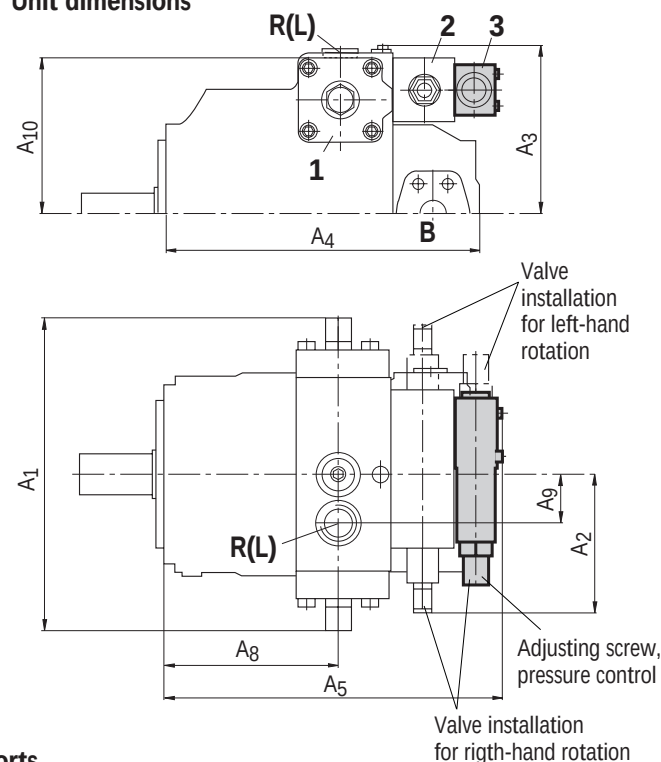
See main brochure RE 92050 for details, unit sizes and technical data of the variable displacement pump A4VSO.

**Ports**

- B Pressure port
- B₁ Auxiliary port (plugged)
- S Suction port
- R(L) Oil filling port and bleed (case drain port)
- U Flushing port bearing (plugged)
- K₁, K₂ Flushing port (plugged)
- T Oil drain (plugged)
- M_B Operating pressure test port (plugged)
- M_S Suction pressure test port (plugged)
- M₁, M₂ Control chamber test port (plugged) sizes 125-1000 (series 3)
- P Control pressure port (plugged) sizes 500-1000

Series 1 and 2

Sizes 40...355

Circuit diagram**Unit dimensions****Unit dimensions**

Size	A ₁	A ₂	A ₃	A ₄	A ₅	A ₈	A ₉	A ₁₀	Ports
40	260	132	154	269	295	144	42	135	R(L), B ₁ , K ₁ , K ₂ , T
71	296	132	165	298	322	166	46	152	M27x2; 16 deep
125	354	132	197	355	371	203	50	186	M33x2; 18 deep
180	354	132	197	379	371	203	50	186	M33x2; 18 deep
250	424	132	245	439	433	248	55	233	M42x2; 20 deep
355	424	132	245	468	433	248	55	233	M42x2; 20 deep

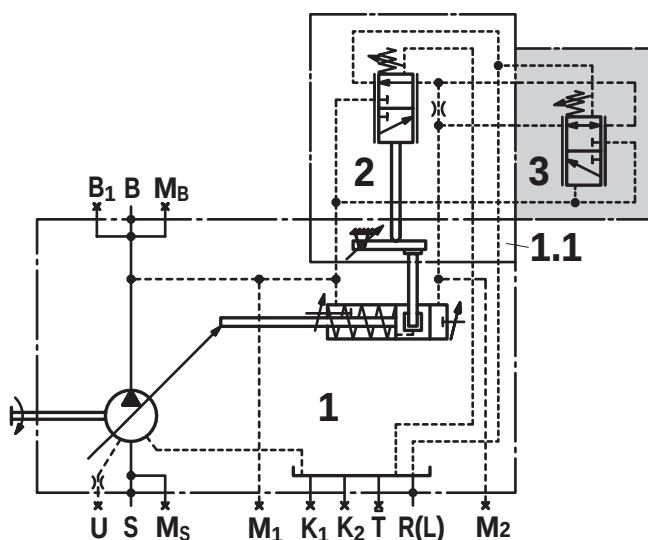
Version **D** with pressure control

Before finalizing your design, please request a certified installation drawing.

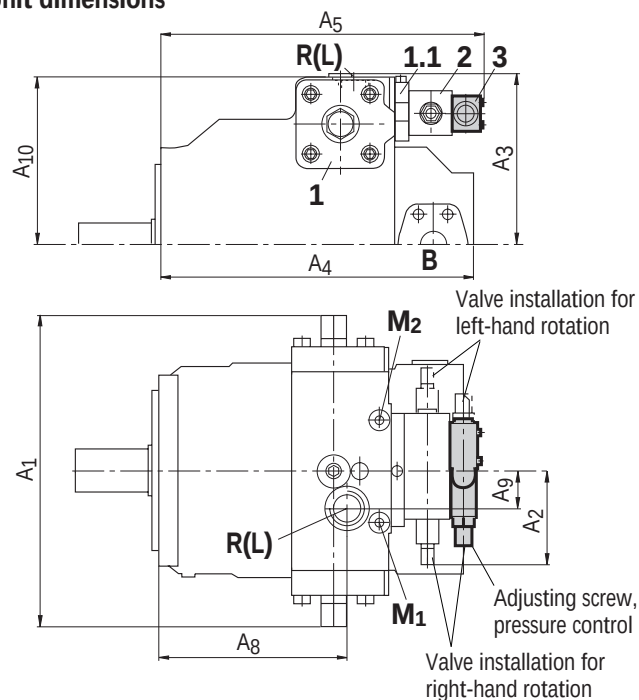
Series 3

Sizes 125...355

Circuit diagram

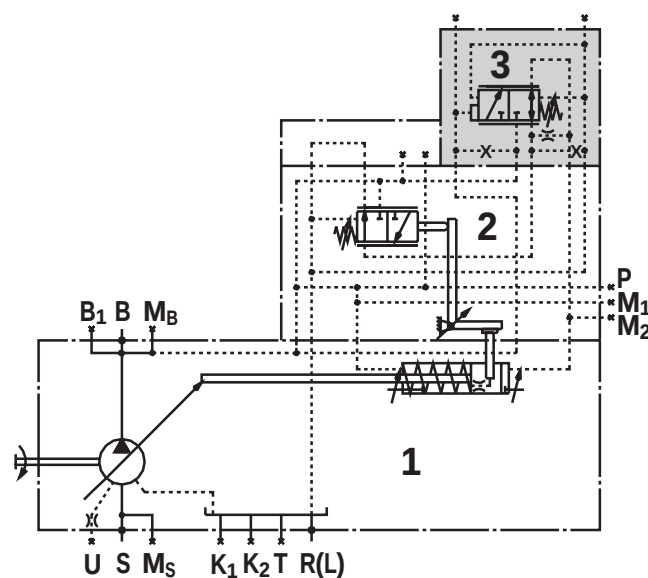


Unit dimensions

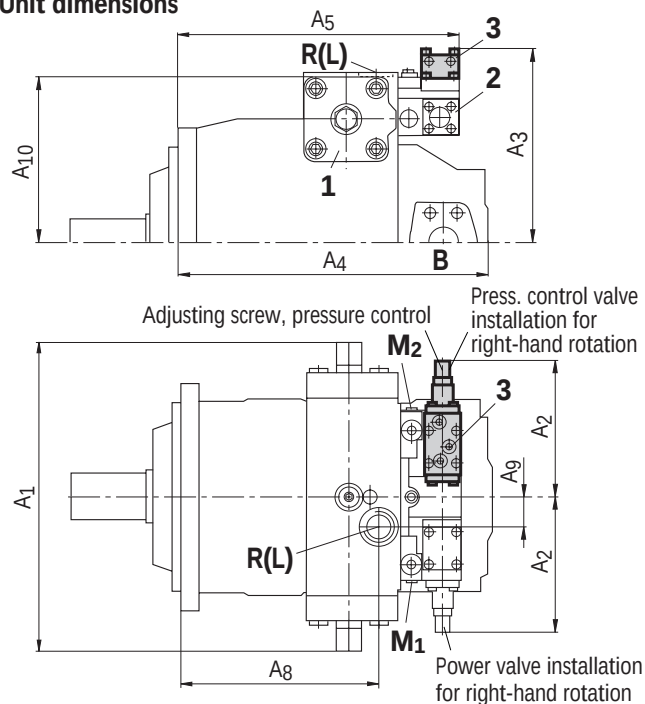


Sizes 500...1000

Circuit diagram



Unit dimensions



Valve turned through 180° for left-hand rotation

Unit dimensions

Size	Ports									M ₁ , M ₂	P
	A ₁	A ₂	A ₃	A ₄	A ₅	A ₈	A ₉	A ₁₀	R(L), B ₁ , K ₁ , K ₂ , T		
125	354	132	194	355	391	217	50	186	M33x2; 18 deep	M14x1.5	—
180	354	132	194	379	391	217	50	186	M33x2; 18 deep	M14x1.5	—
250	424	132	238	435	453	265	55	233	M42x2; 20 deep	M18x1.5	—
355	424	132	238	468	453	265	55	233	M42x2; 20 deep	M18x1.5	—
500	510	228	320	520	468	329	50	280	M48x2; 22 deep	M18x1.5	M22x1.5
750	582	228	350	564	500	351	50	317	M48x2; 22 deep	M18x1.5	M22x1.5
1000	622	228	373	633	566	411	55	344	M48x2; 22 deep	M18x1.5	M22x1.5

Version **G** with remote-controlled pressure control

A pressure limiting valve can be connected to port X_D for remote control. This valve is not included in the scope of supply of the LR2G or LR3G.

The following separate pressure limiting valves are recommended:

- DBD 6 (hydraulic) as described in RD 25402 or
- DBETR-SO 437 with attenuated piston (electric) as described in RE 29166

The line length should not exceed 2 metres at most.

The pressure difference at the pressure control valve is routinely set to 20 bar and results in a control oil requirement of approx. 1.5 L/min. If a different setting is required (between 14 and 50 bar), this must be stated clearly.

The pump switches to pressure control mode when the set pressure is reached in the unit (pressure set on the pressure limiting valve plus pressure difference at the pressure control valve).

Components

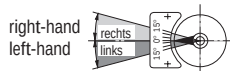
- 1 A4VSO with hydraulic control device
- 1.1 Sandwich plate
- 2 Power control valve
- 3 Pressure control valve
- 4 Pressure limiting valve (not included in the scope of supply)

Direction of flow S to B

Right-hand rotation – left-hand swivel range

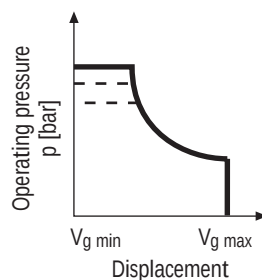
Left-hand rotation – right-hand swivel range

cf. swivel angle indicator



Characteristic curve

See main brochure RE 92050 for details, unit sizes and technical data of the variable displacement pump A4VSO.



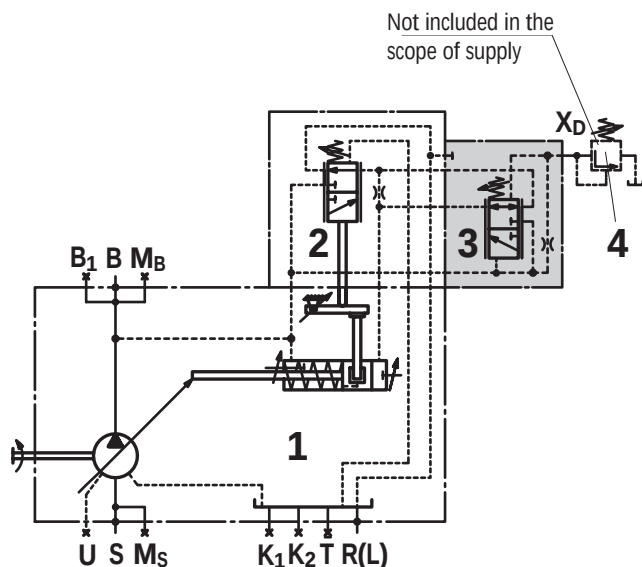
Ports

- B Pressure port
- B_1 Auxiliary port (plugged)
- S Suction port
- R(L) Oil filling port and bleed (case drain port)
- X_D Pilot pressure port
- U Flushing port bearing (plugged)
- K_1, K_2 Flushing port (plugged)
- T Oil drain (plugged)
- M_B Operating pressure test port (plugged)
- M_S Suction pressure test port (plugged)
- M_1, M_2 Control chamber test port (plugged) sizes 125-1000 (series 3)
- P Control pressure port (plugged) sizes 500-1000

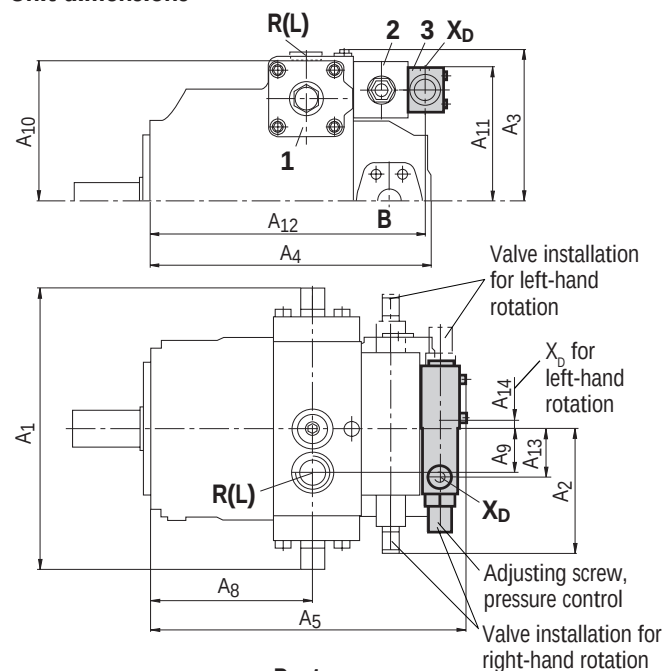
Series 1 and 2

Sizes 40...355

Circuit diagram



Unit dimensions



Unit dimensions

Size	A ₁	A ₂	A ₃	A ₄	A ₅	A ₈	A ₉	A ₁₀	A ₁₁	A ₁₂	A ₁₃	A ₁₄	Ports	
40	260	132	154	269	295	144	42	135	130	269	37	7	X_D	R(L), B_1, K_1, K_2, T
71	296	132	165	298	322	166	46	152	141	296	37	7	X_D	R(L), B_1, K_1, K_2, T
125	354	132	197	355	371	203	50	186	162	345	37	7	X_D	R(L), B_1, K_1, K_2, T
180	354	132	197	379	371	203	50	186	162	345	37	7	X_D	R(L), B_1, K_1, K_2, T
250	424	132	245	439	433	248	55	233	192	407	37	7	X_D	R(L), B_1, K_1, K_2, T
355	424	132	245	468	433	248	55	233	192	407	37	7	X_D	R(L), B_1, K_1, K_2, T

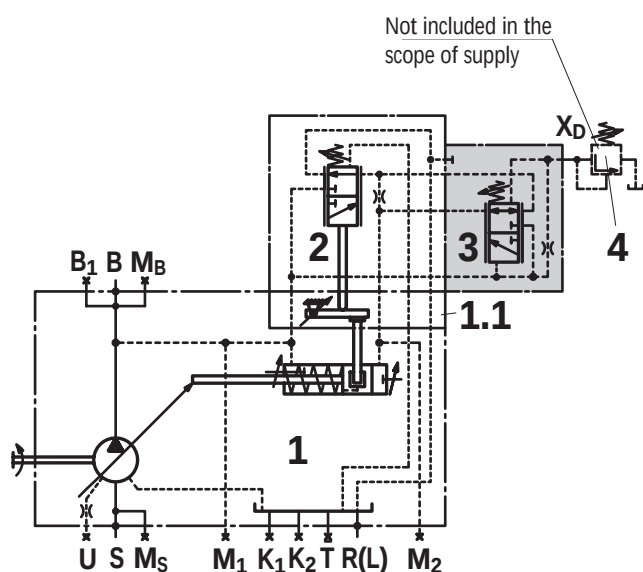
Version **G** with remote-controlled pressure control

Before finalizing your design, please request a certified installation drawing.

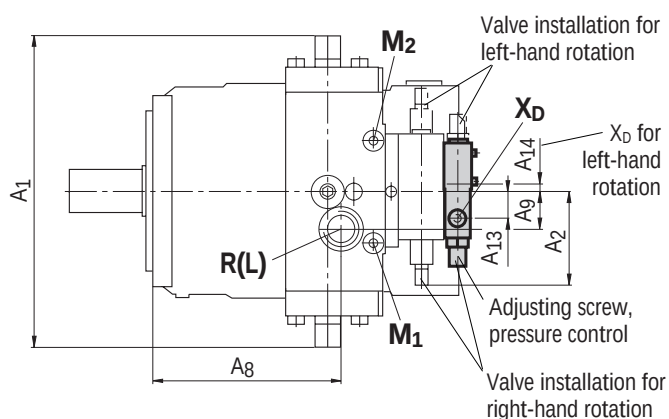
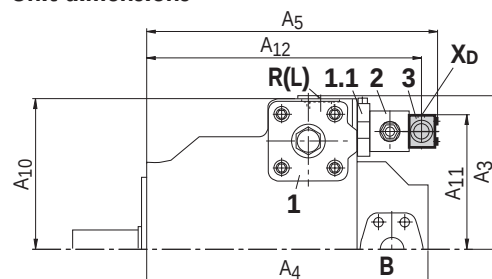
Series 3

Sizes 125...355

Circuit diagram

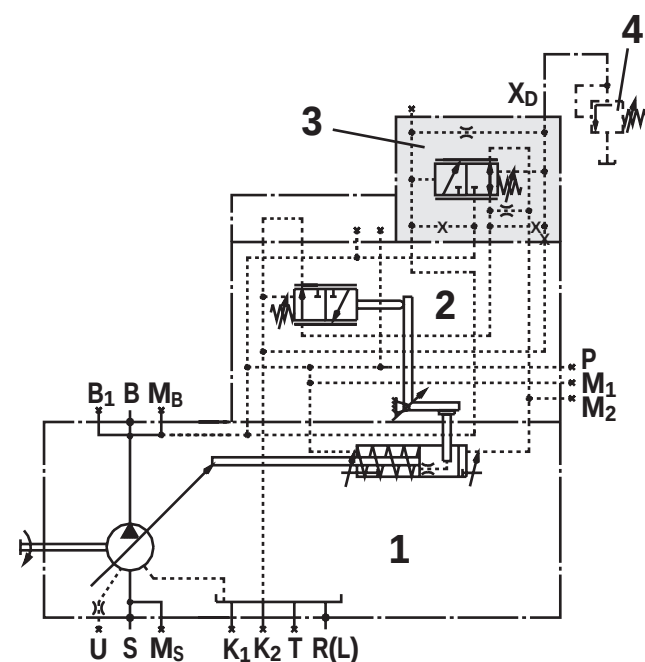


Unit dimensions

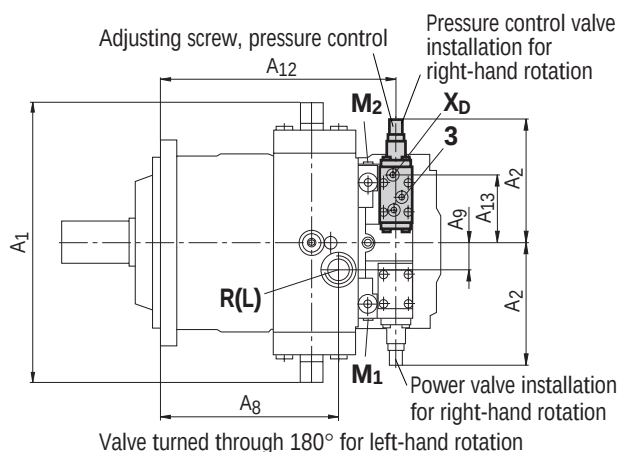
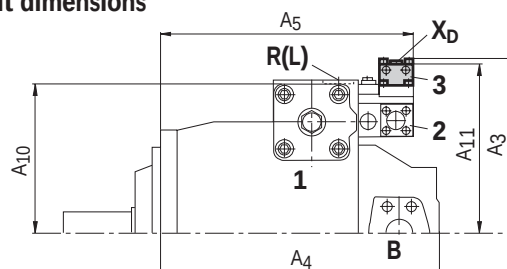


Sizes 500 bis 1000

Circuit diagram



Unit dimensions



Unit dimensions

	Ports																
Size	A ₁	A ₂	A ₃	A ₄	A ₅	A ₈	A ₉	A ₁₀	A ₁₁	A ₁₂	A ₁₃	A ₁₄	X _D	R(L),B ₁ ,K ₁ ,K ₂ ,T	M ₁ ,M ₂	P	
125	354	132	194	355	391	217	50	186	171	365	37	7	M14x1.5	M33x2; 18 deep	M14x1.5	–	
180	354	132	194	379	391	217	50	186	171	365	37	7	M14x1.5	M33x2; 18 deep	M14x1.5	–	
250	424	132	238	435	453	265	55	233	207	427	37	7	M14x1.5	M42x2; 20 deep	M18x1.5	–	
355	424	132	238	468	453	265	55	233	207	427	37	7	M14x1.5	M42x2; 20 deep	M18x1.5	–	
500	510	228	320	520	468	329	50	280	311	430	125	–	M14x1.5	M48x2; 22 deep	M18x1.5	M22x1.5	
750	582	228	350	564	500	351	50	317	341	462	125	–	M14x1.5	M48x2; 22 deep	M18x1.5	M22x1.5	
1000	622	228	373	633	566	411	55	344	364	528	125	–	M14x1.5	M48x2; 22 deep	M18x1.5	M22x1.5	

Version **F** with flow control

In addition to the power control function, the flow rate (displacement) of the pump can also be set via a pressure difference, e.g. at an orifice.

The pressure difference at the flow control valve is normally **set to 14 bar**.

The minimum and maximum swivel angle limits can be mechanically adjusted up to 50% $V_{g \max}$.

Components

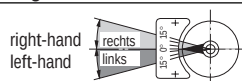
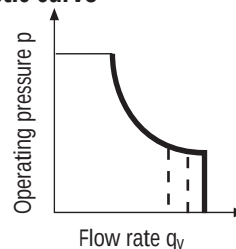
- 1 A4VSO with hydraulic control device
- 1.1 Sandwich plate
- 2 Power control valve
- 3 Flow control valve
- 4 Orifice (not included in the scope of supply)

Direction of flow S to B

Right-hand rotation – left-hand swivel range

Left-hand rotation – right-hand swivel range

cf. swivel angle indicator

**Static characteristic curve**

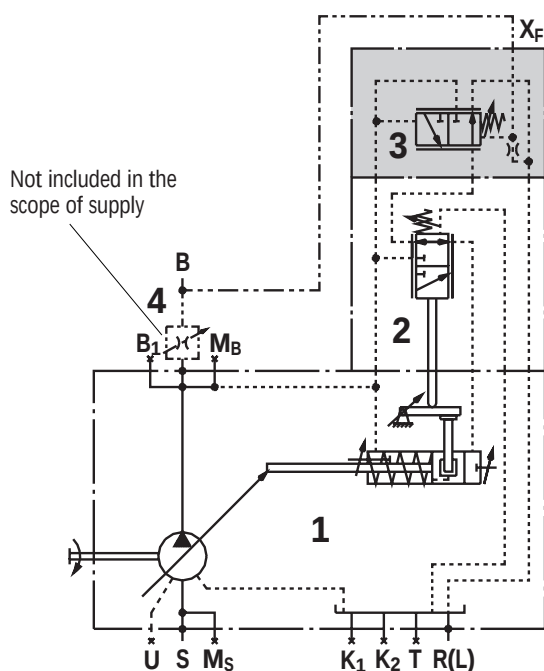
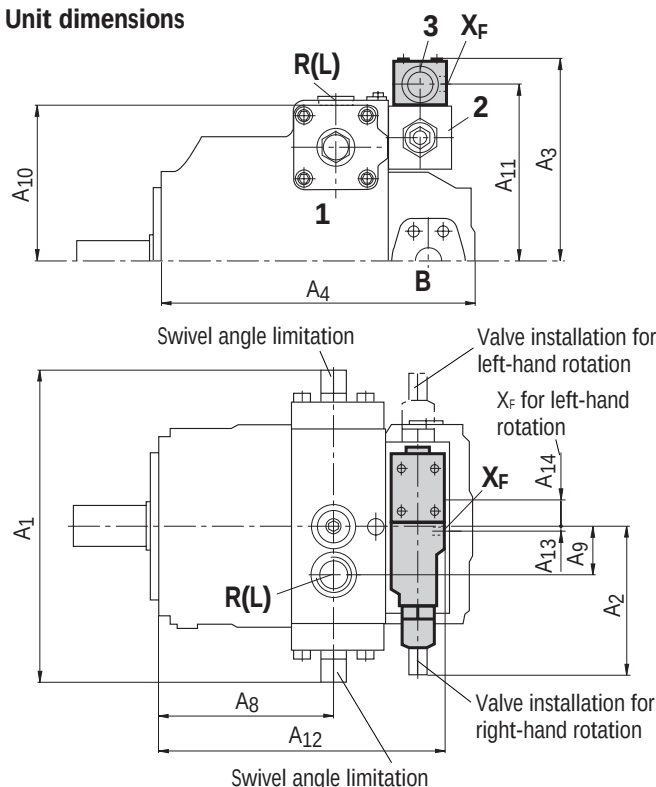
See main brochure RE 92050 for details, unit sizes and technical data of the variable displacement pump A4VSO.

Ports

- B Pressure port
- X_F Pilot pressure port
- B_1 Auxiliary port (plugged)
- S Suction port
- R(L) Oil filling port and bleed (case drain port)
- U Flushing port bearing (plugged)
- K_1, K_2 Flushing port (plugged)
- T Oil drain (plugged)
- M_B Operating pressure test port (plugged)
- M_S Suction pressure test port (plugged)
- M_1, M_2 Control chamber test port (plugged) sizes 125-355 (series 3)

Series 1 and 2

Sizes 40...355

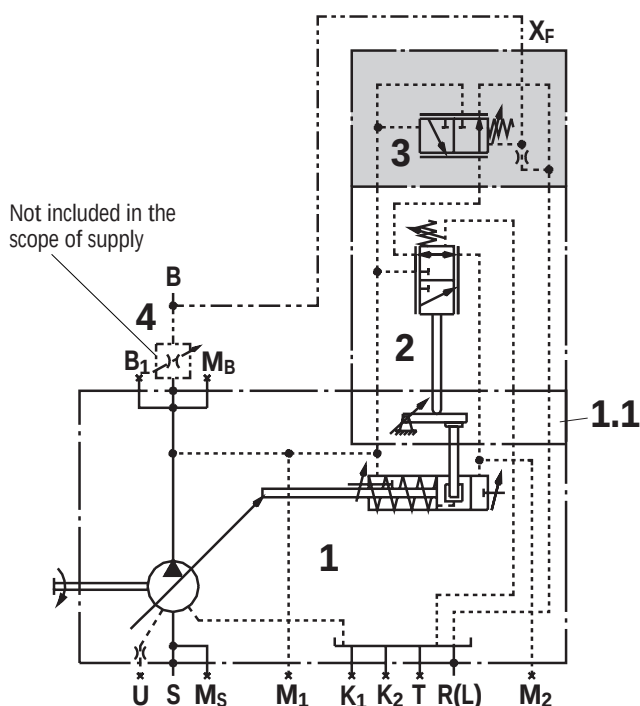
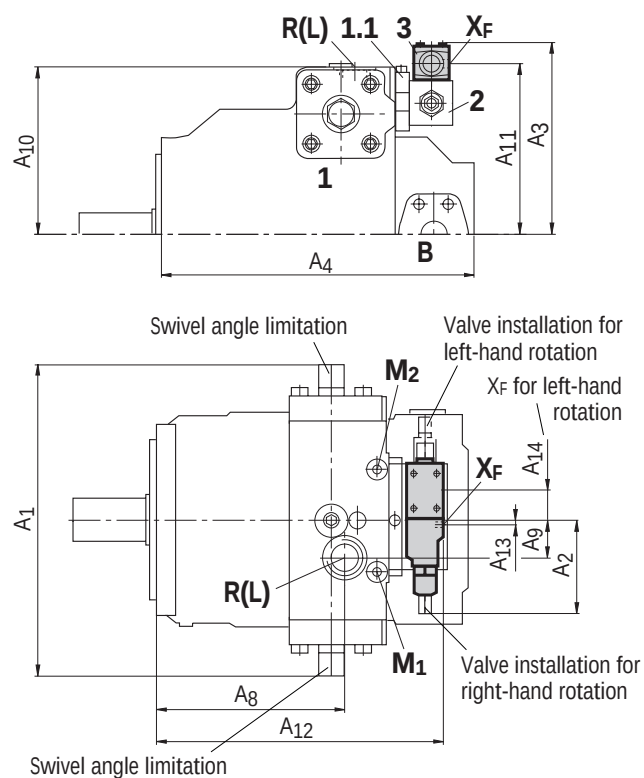
Circuit diagram**Unit dimensions****Unit dimensions**

Size	Ports												R(L), B_1, K_1, K_2, T
	A_1	A_2	A_3	A_4	A_8	A_9	A_{10}	A_{11}	A_{12}	A_{13}	A_{14}	X_F	
40	260	132	182	269	144	42	135	156	243	7	37	M14x1.5	M22x1.5; 14 deep
71	296	132	193	298	166	46	152	167	270	7	37	M14x1.5	M27x2; 16 deep
125	354	132	214	355	203	50	186	188	319	7	37	M14x1.5	M33x2; 18 deep
180	354	132	214	379	203	50	186	188	319	7	37	M14x1.5	M33x2; 18 deep
250	424	132	244	439	248	55	233	218	381	7	37	M14x1.5	M42x2; 20 deep
355	424	132	244	468	248	55	233	218	381	7	37	M14x1.5	M42x2; 20 deep

Series 3

Sizes 125...355

Circuit diagram

**Unit dimensions****Unit dimensions**

Size	Ports												R(L), B ₁ , K ₁ , K ₂ , T	M ₁ , M ₂
	A ₁	A ₂	A ₃	A ₄	A ₈	A ₉	A ₁₀	A ₁₁	A ₁₂	A ₁₃	A ₁₄	X _f		
125	354	132	223	355	217	50	186	197	339	7	37	M14x1.5	M33x2; 18 deep	M14x1.5
180	354	132	223	379	217	50	186	197	339	7	37	M14x1.5	M33x2; 18 deep	M14x1.5
250	424	132	259	435	265	55	233	233	401	7	37	M14x1.5	M42x2; 20 deep	M18x1.5
355	424	132	259	468	265	55	233	233	401	7	37	M14x1.5	M42x2; 20 deep	M18x1.5

Version H with hydraulic stroke limitation

Basic setting V_{gmax}

The displacement (flow rate) is reduced in proportion to the pilot pressure. The hyperbolic power control is superimposed on the pilot pressure signal and ensures that the specified drive power remains constant ($p \times V_g = \text{constant}$).

The flow rate can also be limited by:

- limiting the swivel angle at the main piston (1) - mechanical
- limiting the stroke at the pilot valve (3.1) - hydraulic

Technical data

Min. required control pressure p_{min} in P _____ 35 bar
 Max. permitted control pressure p_{max} in P _____ 100 bar
 Control oil loss in P at $p = 50$ bar _____ max. 4 L/min
 Pilot pressure range in P_{St} _____ 10-45 bar
 Max. pilot pressure $p_{St max}$ _____ 100 bar
 Commencement of control of the power characteristic ____ 50 - 350 bar
 but only above the control pressure p .

Setting ranges for mechanical swivel angle limitation on the main piston:

V_{gmin} 0 - 50 % V_{gmax} V_{gmax} 100 - 50 % V_{gmax}

Setting ranges for stroke limitation on the pilot element:

V_{gmin} 0 - 100 % V_{gmax} V_{gmax} 100 - 0 % V_{gmax}

Hysteresis _____ $\leq \pm 2\%$ of V_{gmax}

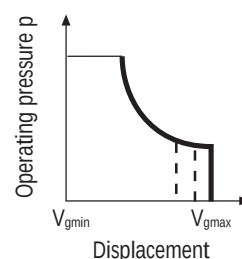
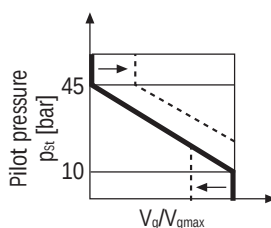
For LR2GH and LR3GH please note:

If the set pressure is below the control pressure p , the pump remains at V_{gmin} mechanically up to size 355 and vibrations may occur in sizes 500 - 1000.

Components

- A4VSO with hydraulic control device
- 1 Sandwich plate
- 2 Power control valve
- 3.1 Pilot valve
- 3.2 Control valve
- 4 Check valve (integrated in series 3)

Characteristic curves

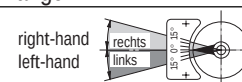


Direction of flow S to B

Right-hand rotation – left-hand swivel range

Left-hand rotation – right-hand swivel range

cf. swivel angle indicator



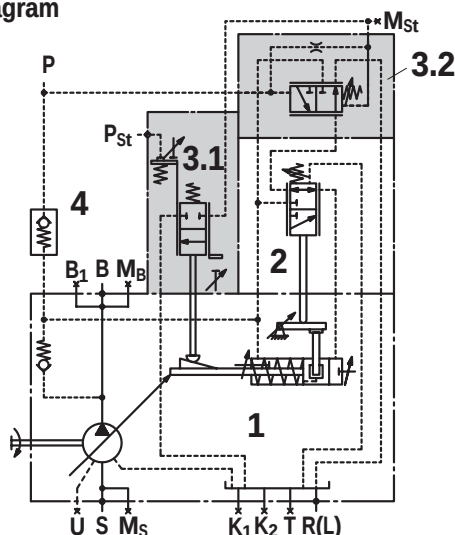
Ports

- B Pressure port
- B₁ Auxiliary port (plugged)
- S Suction port
- R(L) Oil filling port and bleed (case drain port)
- P Control pressure port
- P_{St} Pilot pressure port
- U Flushing port bearing (plugged)
- K₁, K₂ Flushing port (plugged)
- T Oil drain (plugged)
- M_B Operating pressure test port (plugged)
- M_S Suction pressure test port (plugged)
- M_{St} Test port (plugged)
- M₁, M₂ Control chamber test port (plugged) sizes 125-1000 (series 3)

Series 1 and 2

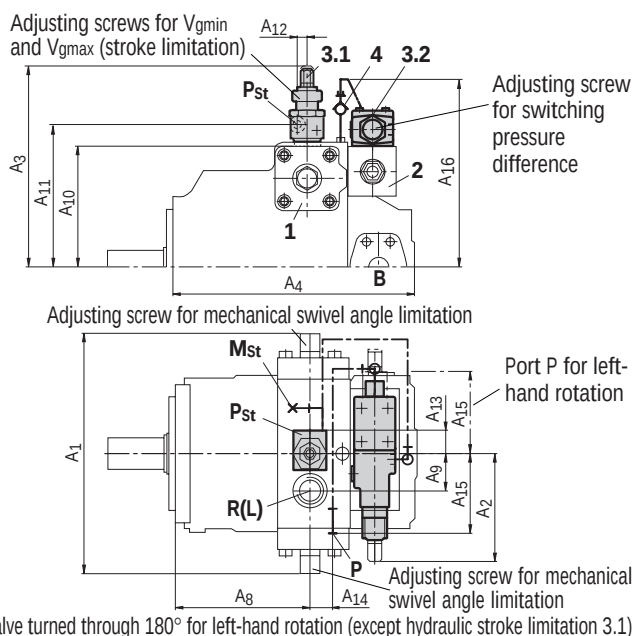
Sizes 40...355

Circuit diagram



Unit dimensions

Unit dimensions



Valve turned through 180° for left-hand rotation (except hydraulic stroke limitation 3.1)

Ports

Size	A1	A2	A3	A4	A8	A9	A10	A11	A12	A13	A14	A15	A16	P _{St}	P*	R(L), B ₁ , K ₁ , K ₂ , T	M _{St} *
40	260	132	254	269	144	42	135	163	15	35	34	82	198	M14x1.5	S8 (Pipe dia. 8x1.5)	M22x1.5; 14 deep	S8 (Pipe dia. 8x1.5)
71	296	132	271	298	166	46	152	180	15	35	39	82	215	M14x1.5	S8 (Pipe dia. 8x1.5)	M27x2; 16 deep	S8 (Pipe dia. 8x1.5)
125	354	132	329	355	203	50	186	214	15	35	46	105	249	M14x1.5	S8 (Pipe dia. 8x1.5)	M33x2; 18 deep	S8 (Pipe dia. 8x1.5)
180	354	132	329	379	203	50	186	214	15	35	46	105	249	M14x1.5	S8 (Pipe dia. 8x1.5)	M33x2; 18 deep	S8 (Pipe dia. 8x1.5)
250	424	132	352	439	248	55	233	261	15	35	60	124	303	M14x1.5	S12 (Pipe dia. 12x2)	M42x2; 20 deep	S8 (Pipe dia. 8x1.5)
355	424	132	352	468	248	55	233	261	15	35	60	124	303	M14x1.5	S12 (Pipe dia. 12x2)	M42x2; 20 deep	S8 (Pipe dia. 8x1.5)

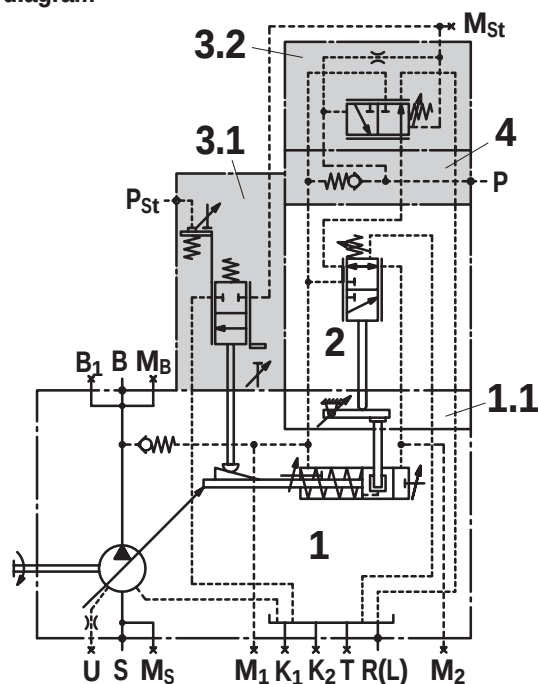
* Connector with threaded stem to DIN 3853 / ISO 8434, bore type V

Version **H** with hydraulic stroke limitation

Series 3

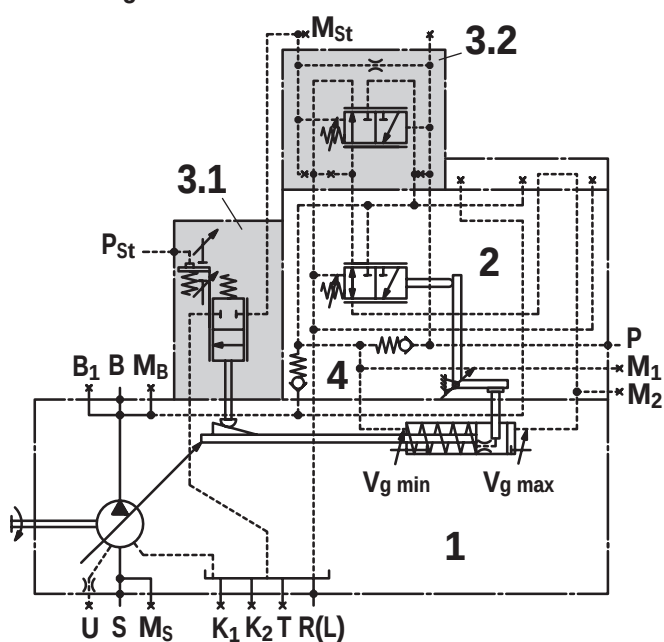
Sizes 125...355

Circuit diagram



Sizes 500...1000

Circuit diagram



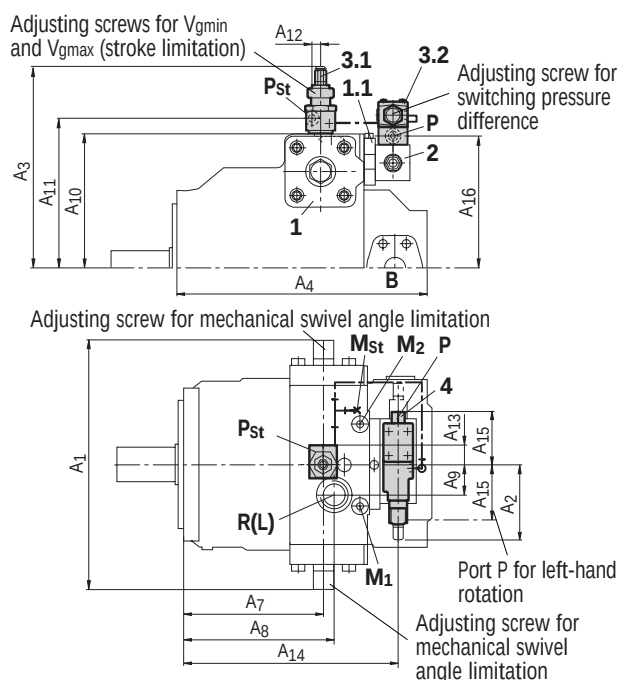
Unit dimensions

Ports																
Size	A ₁	A ₂	A ₃	A ₄	A ₇	A ₈	A ₉	A ₁₀	A ₁₁	A ₁₂	A ₁₃	A ₁₄	A ₁₅	A ₁₆	P _{St}	P
125	354	132	329	355	203	217	50	186	214	15	35	315	88	192	M14x1.5	M18x1.5
180	354	132	329	379	203	217	50	186	214	15	35	315	88	192	M14x1.5	M18x1.5
250	424	132	352	435	248	265	55	233	261	15	35	377	88	228	M14x1.5	M18x1.5
355	424	132	352	468	248	265	55	233	261	15	35	377	88	228	M14x1.5	M18x1.5
500	510	228	397	520	279	329	50	280	306	15	35	185	47	202	M14x1.5	M22x1.5
750	582	228	436	564	301	351	50	317	345	15	35	195	47	232	M14x1.5	M22x1.5
1000	622	228	463	633	360	411	55	344	372	15	35	202	47	255	M14x1.5	M22x1.5

* Connector with threaded stem to DIN 3853 / ISO 8434, bore type W

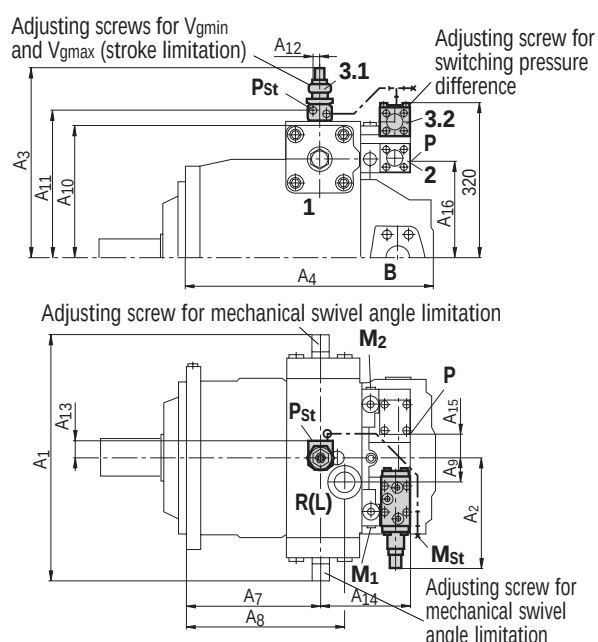
LR2, LR3 and LR2N

Unit dimensions



Valve turned through 180° for left-hand rotation (except hydraulic stroke limitation 3.1)

Unit dimensions



Valve turned through 180° for left-hand rotation (except hydraulic stroke limitation 3.1)

Version **M** with mechanical stroke limitation V_{gmax}

In addition to the power control function, the displacement or flow rate V_{gmax} can be infinitely varied via a spindle. The adjustment should be made when depressurized.

Settings for stroke limitation V_{gmax}

Size	40	71	125	180	250	355
Change in V_g / rev. [cm^3]	4.3	6.3	9.1	13.1	14.4	20.6
Control movement						
Total s [mm]	14.2	17.1	20.7	20.7	25.9	25.9

Right-hand rotation (when looking onto spindle) - **increase in flow rate**

Left-hand rotation (when looking onto spindle) - **decrease in flow rate**

The **minimum swivel angle limit V_{gmin}** can be mechanically set up to 50% V_{gmax} .

Components

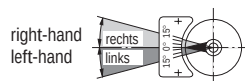
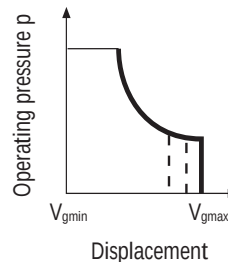
- 1 A4VSO with hydraulic control device
- 1.1 Sandwich plate
- 2 Power control valve

Direction of flow S to B

Right-hand rotation – left-hand swivel range

Left-hand rotation – right-hand swivel range

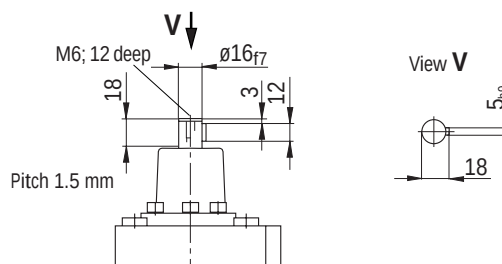
cf. swivel angle indicator

**Static characteristic curve**

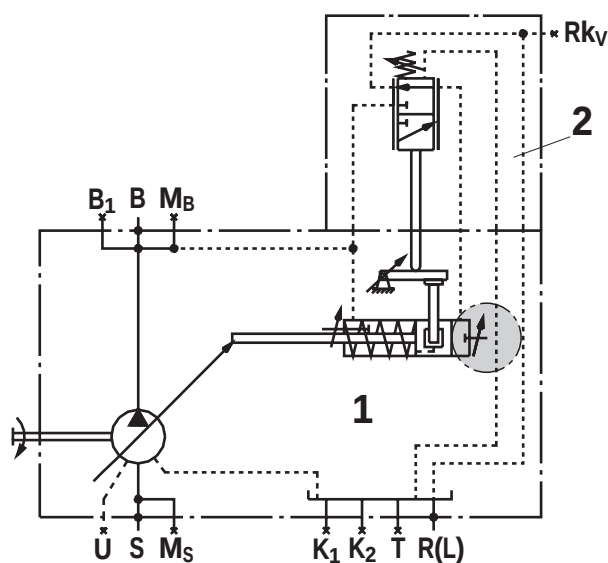
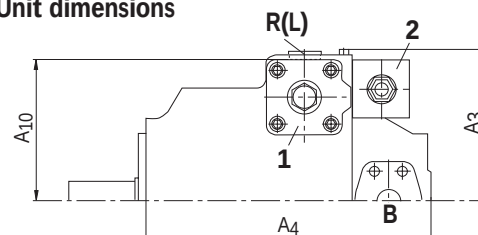
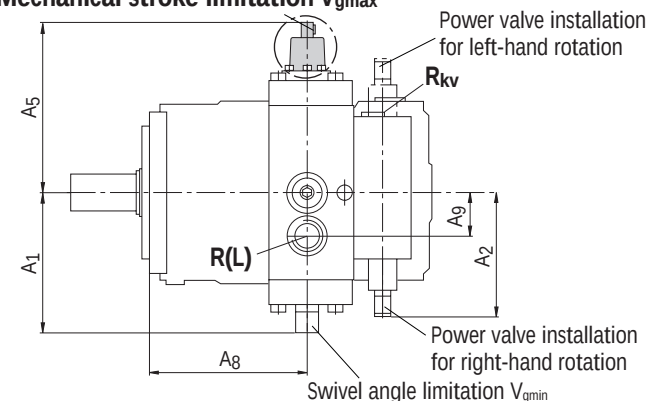
See main brochure RE 92050 for details, unit sizes and technical data of the variable displacement pump A4VSO.

Ports

- B Pressure port
- B₁ Auxiliary port (plugged)
- S Suction port
- R(L) Oil filling port and bleed (case drain port)
- U Flushing port bearing (plugged)
- K₁, K₂ Flushing port (plugged)
- R_{kv} External pilot oil return (plugged) (series 1 and 2)
- T Oil drain (plugged)
- M_B Operating pressure test port (plugged)
- M_S Suction pressure test port (plugged)
- M₁, M₂ Control chamber test port (plugged) sizes 125-355 (series 3)

Mechanical stroke limitation V_{gmax} **Series 1 and 2**

Sizes 40...355

Circuit diagram**Unit dimensions****Mechanical stroke limitation V_{gmax}** 

Swivel angle limitation V_{gmin} and mechanical stroke limitation V_{gmax} are reversed for left-hand rotation. Values on page 17.

Version **M** with mechanical stroke limitation V_{gmax}

Before finalizing your design, please request a certified installation drawing.

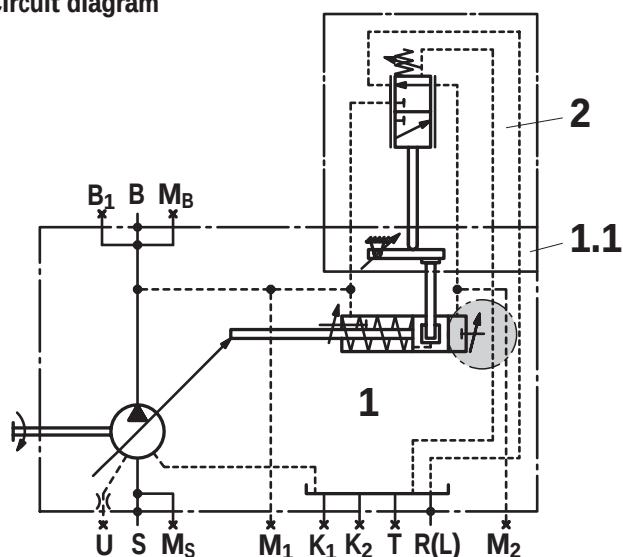
Unit dimensions - series 1 and 2

Sizes									Ports	R_{kv}
	A_1	A_2	A_3	A_4	A_5	A_8	A_9	A_{10}	$R(L), B_1, K_1, K_2, T$	
40	130	132	154	269	172	144	42	135	M22x1.5; 14 deep	M18x1.5
71	148	132	165	298	188	166	46	152	M27x2; 16 deep	M18x1.5
125	177	132	197	355	213	203	50	186	M33x2; 18 deep	M18x1.5
180	177	132	197	379	213	203	50	186	M33x2; 18 deep	M18x1.5
250	212	132	245	439	243	248	55	233	M42x2; 20 deep	M18x1.5
355	212	132	245	468	243	248	55	233	M42x2; 20 deep	M18x1.5

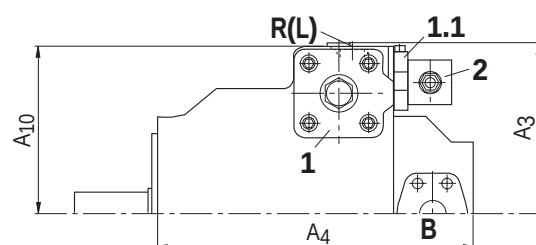
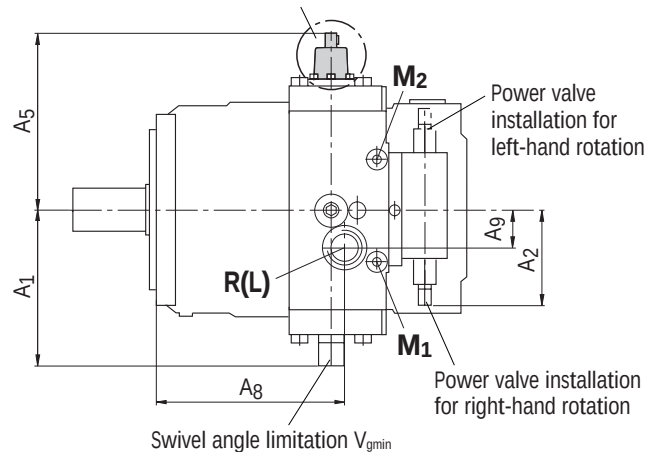
Series 3

Sizes 125...355

Circuit diagram



Unit dimensions

Mechanical stroke limitation V_{gmax} 

Unit dimensions

Size									Ports	M_1, M_2
	A_1	A_2	A_3	A_4	A_5	A_8	A_9	A_{10}	$R(L), B_1, K_1, K_2, T$	
125	177	132	194	355	213	217	50	186	M33x2; 18 deep	M14x1.5
180	177	132	194	379	213	217	50	186	M33x2; 18 deep	M14x1.5
250	212	132	238	435	243	265	55	233	M42x2; 20 deep	M18x1.5
355	212	132	238	468	243	265	55	233	M42x2; 20 deep	M18x1.5

Version **Z** hydraulic two-point control for use as starting circuit, external pilot oil supply

See main brochure RE 92050 for details, unit sizes and technical data of the variable displacement pump A4VSO.

The LR2(3)Z is a simple 2-point control with superimposed power control.

Port R_{kv} must be connected by the customer for power control to the tank.

When pressure builds up at port R_{kv} , the control device swivels back against the adjustable mechanical V_{gmin} stop. The pump moves to LR2 (3) control function when the pressure at port R_{kv} is relieved.

A starting or shorting circuit can be installed to reduce the starting torque of the pump.

Required pilot pressure at port R_{kv} :

$$p_{st} = \frac{\text{Operating pressure } p_{HD}}{2} \text{ but at least 20 bar}$$

Important:

Note the instructions in RE 92050 for flushing the housing at port U

Components

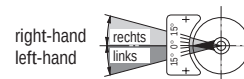
- 1 A4VSO with hydraulic control device
- 1.1 Sandwich plate
- 2 Power control valve
- 3 Subplate for sizes 500 - 750;
sizes 40 - 355 for LR.DZ and LR.GZ

Direction of flow S to B

Right-hand rotation – left-hand swivel range

Left-hand rotation – right-hand swivel range

cf. swivel angle indicator



Ports

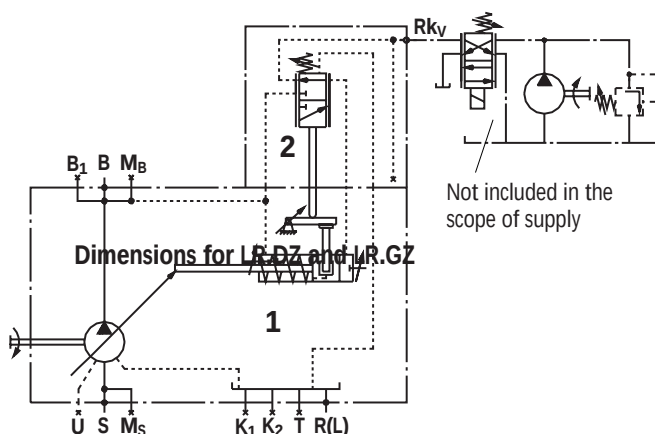
- B Pressure port
- B_1 Auxiliary port (plugged)
- S Suction port
- R(L) Oil filling port and bleed (case drain port)
- U Flushing port bearing (plugged)
- K_1, K_2 Flushing port (plugged)
- R_{kv} External pilot oil return
- T Oil drain (plugged)
- M_B Operating pressure test port (plugged)
- M_S Suction pressure test port (plugged)
- M_1, M_2 Control chamber test port (plugged) sizes 125-750 (series 3)

Series 1 and 2

Sizes 40...355

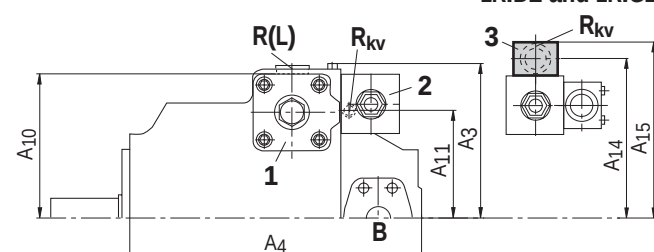
Wiring example

Starting circuit with external pilot oil supply

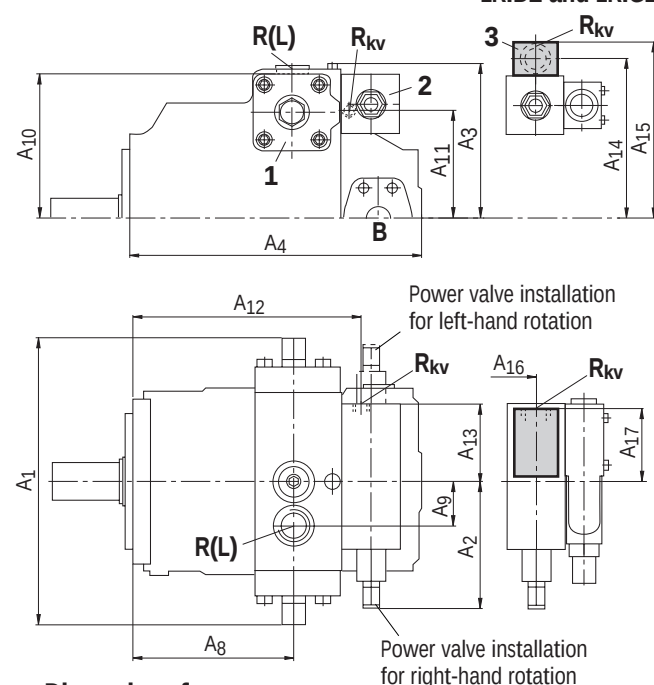


Unit dimensions

LR.Z



LR.DZ and LR.GZ



Unit dimensions

Unit dimensions											Dimensions for						for right-hand rotation	
											LR.DZ and LR.GZ						Ports	
Size	A ₁	A ₂	A ₃	A ₄	A ₈	A ₉	A ₁₀	A ₁₁	A ₁₂	A ₁₃	A ₁₄	A ₁₅	A ₁₆	A ₁₇	R(L),B ₁ ,K ₁ ,K ₂ ,T	R _{kv}		
40	260	132	154	269	144	42	135	114	209	79,5	152	168	219	63	M22x1.5; 14 deep	M18x1.5		
71	296	132	165	298	166	46	152	125	236	79,5	163	179	246	63	M27x2; 16 deep	M18x1.5		
125	354	132	197	355	203	50	186	146	285	79,5	184	200	295	63	M33x2; 18 deep	M18x1.5		
180	354	132	197	379	203	50	186	146	285	79,5	184	200	295	63	M33x2; 18 deep	M18x1.5		
250	424	132	245	439	248	55	233	176	347	79,5	214	230	357	63	M42x2; 20 deep	M18x1.5		
355	424	132	245	468	248	55	233	176	347	79,5	214	230	357	63	M42x2; 20 deep	M18x1.5		

Version **Z** hydraulic two-point control for use as starting circuit, external pilot oil supply

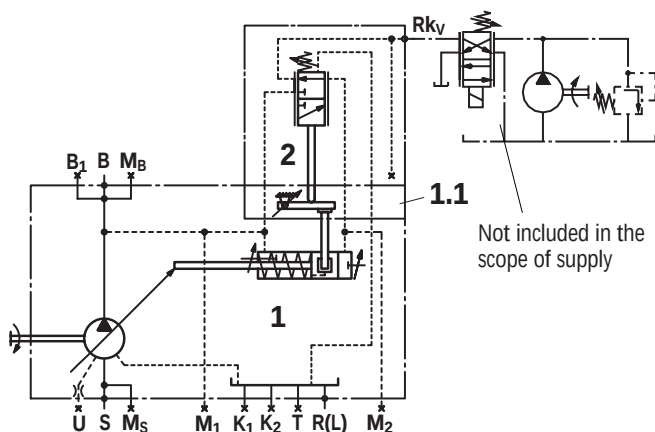
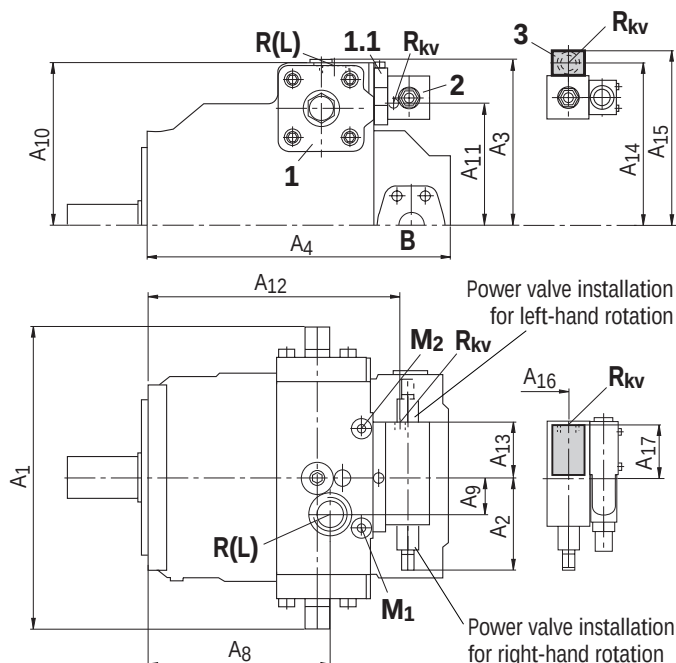
Before finalizing your design, please request a certified installation drawing.

Series 3

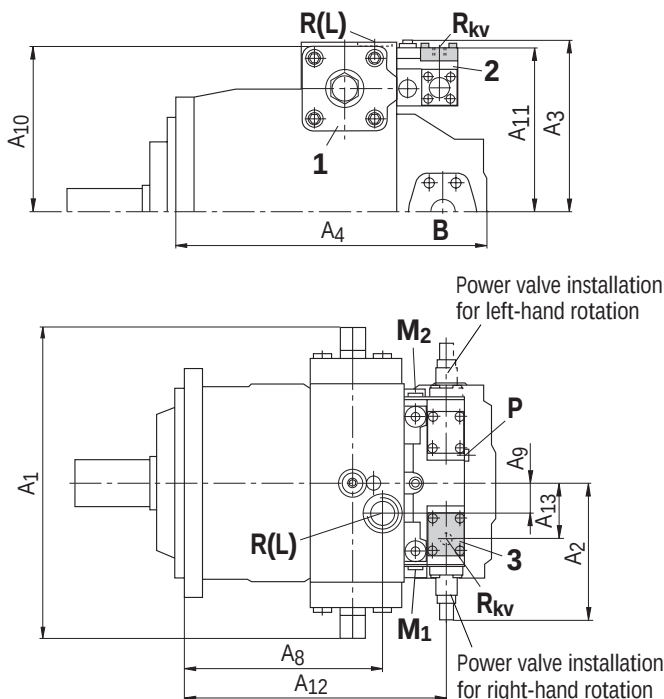
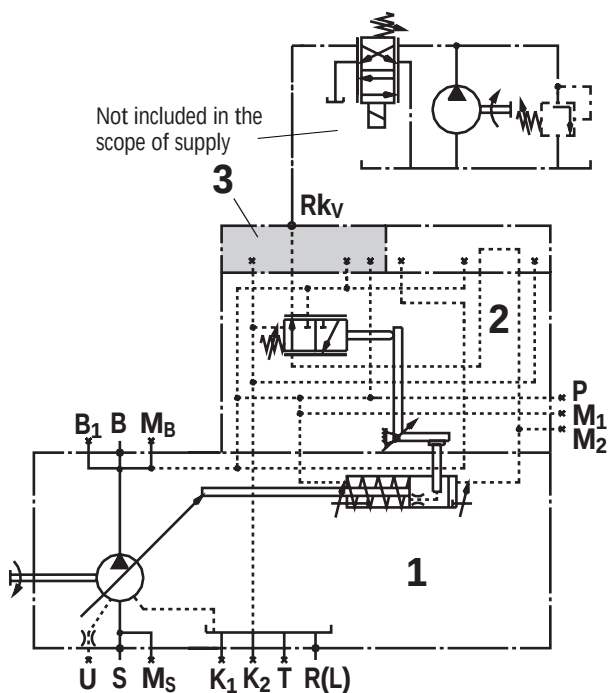
Sizes 125...355

Wiring example

Starting circuit with external pilot oil supply

**Unit dimensions**
LR.Z**LR.DZ and LR.GZ**

Sizes 500...750

**Unit dimensions****Dimensions for**
LR.DZ and LR.GZ**Ports**

Size	A ₁	A ₂	A ₃	A ₄	A ₈	A ₉	A ₁₀	A ₁₁	A ₁₂	A ₁₃	A ₁₄	A ₁₅	A ₁₆	A ₁₇	R(L), B ₁ , K ₁ , K ₂ , T	R _{kv}	M ₁ , M ₂
125	354	132	194	355	217	50	186	161	305	79.5	193	209	315	63	M33x2; 18 deep	M18x1.5	M14x1.5
180	354	132	194	379	217	50	186	161	305	79.5	193	209	315	63	M33x2; 18 deep	M18x1.5	M14x1.5
250	424	132	238	435	265	55	233	191	367	79.5	289	305	377	63	M42x2; 20 deep	M18x1.5	M18x1.5
355	424	132	238	468	265	55	233	191	367	79.5	289	305	377	63	M42x2; 20 deep	M18x1.5	M18x1.5
500	510	228	285	520	329	50	280	277	434	94.3	-	-	-	-	M48x2; 22 deep	M18x1.5	M18x1.5
750	582	228	322	564	351	50	317	302	465	94.3	-	-	-	-	M48x2; 22 deep	M18x1.5	M18x1.5

Version **Y** electr. two-point control with internal pilot oil supply

See main brochure RE 92050 for details, unit sizes and technical data of the variable displacement pump A4VSO.

The LR2(3)Y is an electric two-point control with internal pilot oil supply. In other words, the control oil required for control purposes is taken from the high-pressure side.

A minimum operating pressure of 20 bar is required for control.

Valve function:

a) Solenoid deenergized

= starting circuit, pump is swivelled back to V_{gmin}

b) Solenoid energized

= pump operating in control function

Important:

Note the instructions in RE 92050 for flushing the housing at port U

Components

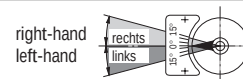
- 1 A4VSO with hydraulic control device
- 1.1 Sandwich plate
- 2 Power control valve
- 3 Directional seated valve M-3SEW6U3X / 420MG24N9Z4 see RE 22058
- 3.1 Sandwich plate

Direction of flow S to B

Right-hand rotation – left-hand swivel range

Left-hand rotation – right-hand swivel range

cf. swivel angle indicator



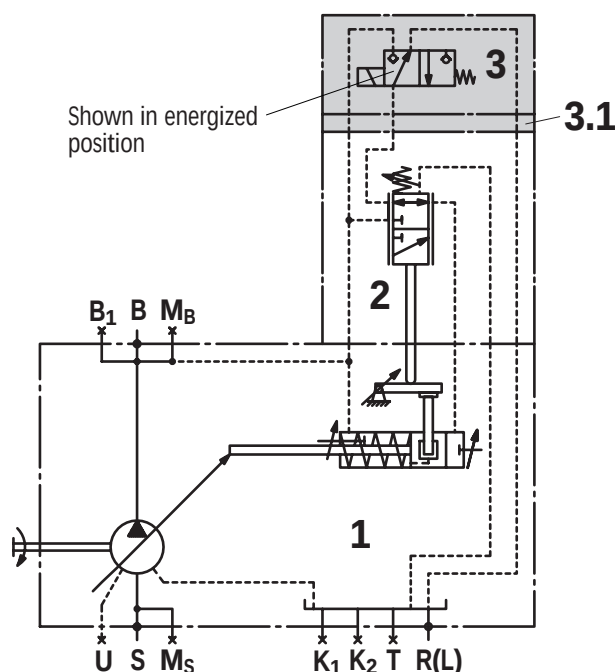
Ports

- B Pressure port
- B₁ Auxiliary port (plugged)
- S Suction port
- R(L) Oil filling port and bleed (case drain port)
- U Flushing port bearing (plugged)
- K₁, K₂ Flushing port (plugged)
- T Oil drain (plugged)
- M_B Operating pressure test port (plugged)
- M_S Suction pressure test port (plugged)
- M₁, M₂ Control chamber test port (plugged) sizes 125-355 (series 3)

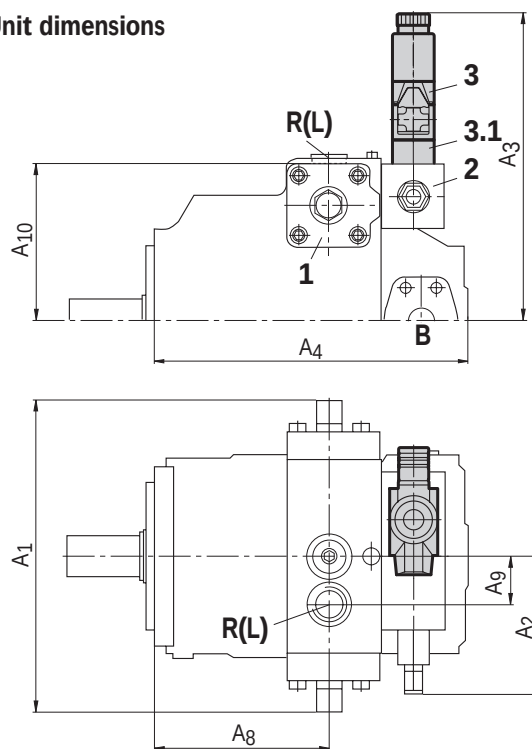
Series 1 and 2

Sizes 40...355

Circuit diagram



Unit dimensions



Valve turned through 180° for left-hand rotation (Items 2 and 3)

Unit dimensions

Size	A ₁	A ₂	A ₃	A ₄	A ₈	A ₉	A ₁₀	Ports R(L), B ₁ , K ₁ , K ₂ , T
40	260	132	292	269	144	42	135	M22x1.5; 14 deep
71	296	132	303	298	166	46	152	M27x2; 16 deep
125	354	132	329	355	203	50	186	M33x2; 18 deep
180	354	132	329	379	203	50	186	M33x2; 18 deep
250	424	132	359	439	248	55	233	M42x2; 20 deep
355	424	132	359	468	248	55	233	M42x2; 20 deep

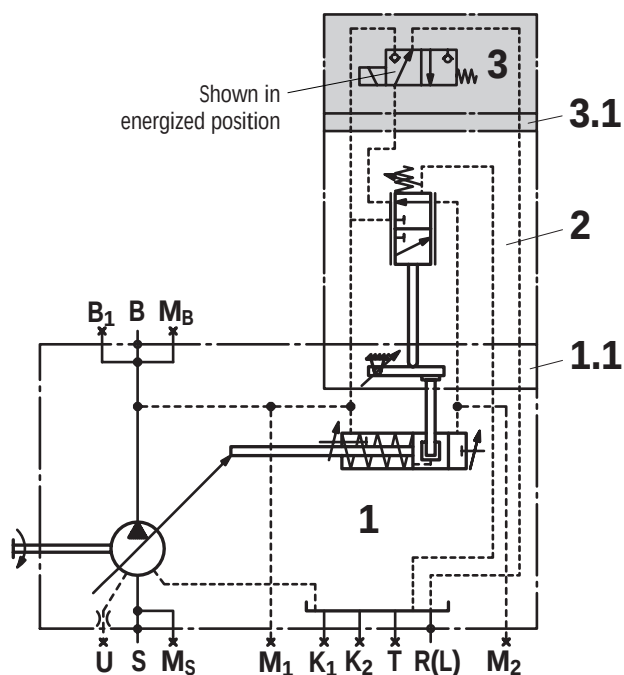
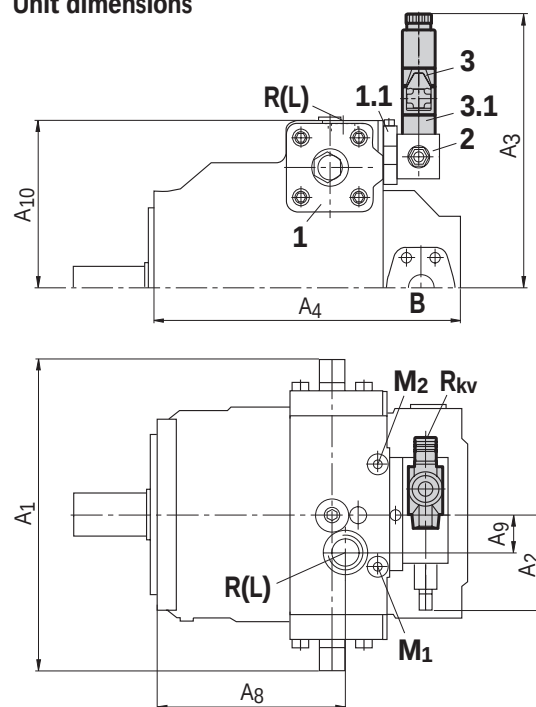
Version **Y** electr. two-point control with internal pilot oil supply

Before finalizing your design, please request a certified installation drawing.

Series 3

Sizes 125...355

Circuit diagram

**Unit dimensions**

Valve turned through 180° for left-hand rotation (Items 2 and 3)

Unit dimensions

Size	Ports							M ₁ , M ₂
	A ₁	A ₂	A ₃	A ₄	A ₈	A ₉	A ₁₀	
125	354	132	344	355	217	50	186	M33x2; 18 deep
180	354	132	344	379	217	50	186	M33x2; 18 deep
250	424	132	374	435	265	55	233	M42x2; 20 deep
355	424	132	374	468	265	55	233	M42x2; 20 deep

Version **S** with load-sensing valve and pressure control, remote-controlled

See main brochure RE 92050 for details, unit sizes and technical data of the variable displacement pump A4VSO.

The LRS is a load-sensing demand controller which adjusts the pump delivery volume as required by the consumer.

The pump delivery volume depends on the external test orifice (throttle) connected between pump and consumer, but remains unaffected by the load pressure in the entire area below the power characteristic.

The load-sensing valve compares the operating pressure in front of orifices 5.1 and 5.2 with the operating pressure behind the orifices and maintains the pressure difference Δp encountered here at the set value, i.e. the pump delivery volume remains constant. If the pressure difference at orifice 5.1 changes due to a change in operating conditions, only the pump delivery volume changes in line with the new requirements. In other words, if the pressure difference increases, the pump switches to a smaller delivery volume. When the operating pressure set on pressure limiting valve 4 is reached, it switches to the pressure control range regardless of the pressure difference prevailing at orifice 5.1.

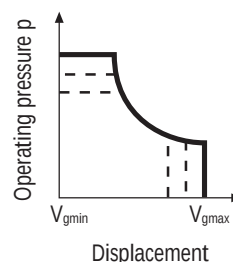
The pressure difference at the load-sensing valve 3 is normally set to $\Delta p = 14$ bar eingestellt.

When the pressure limiting valve 4 is tripped, the pilot oil consumption amounts to approx. 1.3 L/min at a nozzle diameter of 0.8 mm and $\Delta p = 14$ bar. The line length should not exceed 2 metres at most.

Ports

B	Pressure port
B ₁	Auxiliary port (plugged)
S	Suction port
R(L)	Oil filling port and bleed (case drain port)
X _F	Flow control pilot pressure port
U	Flushing port bearing (plugged)
K ₁ , K ₂	Flushing port (plugged)
T	Oil drain (plugged)
M _B	Operating pressure test port (plugged)
M _S	Suction pressure test port (plugged)
M ₁ , M ₂	Control chamber test port (plugged) sizes 125-355 (series 3)

Characteristic curve

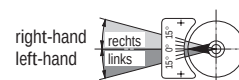


Direction of flow **S** to **B**

Right-hand rotation – left-hand swivel range

Left-hand rotation – right-hand swivel range

cf. swivel angle indicator



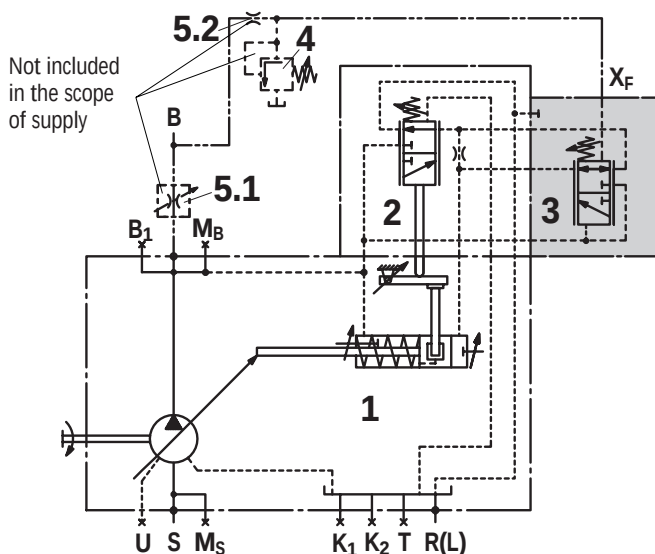
Components

- 1 A4VSO with hydraulic control device
- 1.1 Sandwich plate
- 2 Power control valve
- 3 Load-sensing valve
- 4 Pressure limiting valve (not included in the scope of supply)
Recommended:
DBD 6 (hydraulic) as described in RD 25402 or
DBETR-SO 437 with attenuated piston (electric)
as described in RE 29166
- 5.1 Flow control orifice
- 5.2 Pressure control nozzle (not included in the scope of supply)
Recommended size 0.8 - 1 mm
The pressure increase may be up to 14 bar,
depending on the flow control

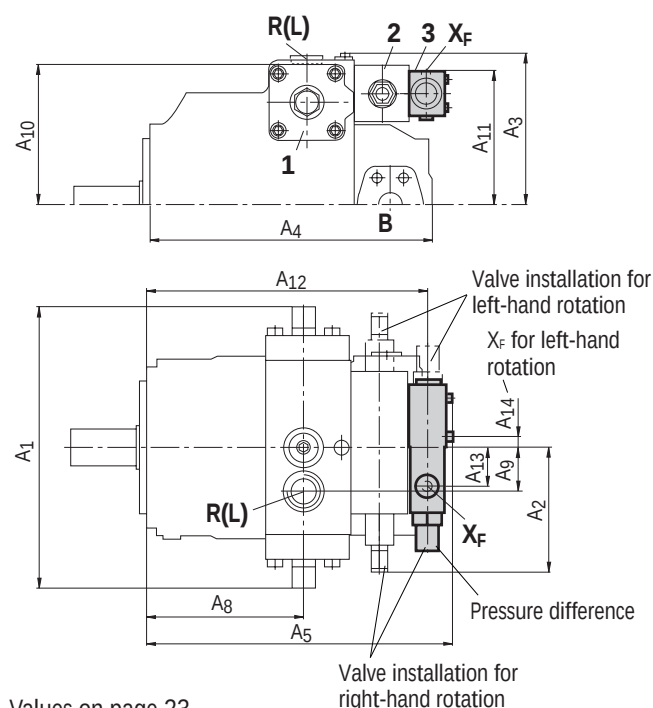
Series 1 and 2

Sizes 40...355

Circuit diagram



Unit dimensions



Values on page 23

Version **S** with load-sensing valve and pressure control, remote-controlled

Before finalizing your design, please request a certified installation drawing.

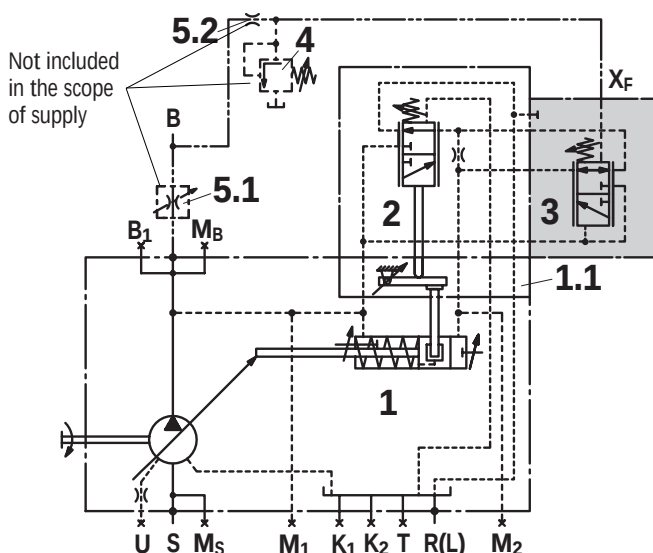
Unit dimensions

	Ports													
Size	A ₁	A ₂	A ₃	A ₄	A ₅	A ₈	A ₉	A ₁₀	A ₁₁	A ₁₂	A ₁₃	A ₁₄	X	R(L), B ₁ ,K ₁ , K ₂ , T
40	260	132	154	269	295	144	42	135	130	269	37	7	M14x1.5	M22x1.5; 14 deep
71	296	132	165	298	322	166	46	152	141	296	37	7	M14x1.5	M27x2; 16 deep
125	354	132	197	355	371	203	50	186	162	345	37	7	M14x1.5	M33x2; 18 deep
180	354	132	197	379	371	203	50	186	162	345	37	7	M14x1.5	M33x2; 18 deep
250	424	132	245	435	433	248	55	233	192	407	37	7	M14x1.5	M42x2; 20 deep
355	424	132	245	468	433	248	55	233	192	407	37	7	M14x1.5	M42x2; 20 deep

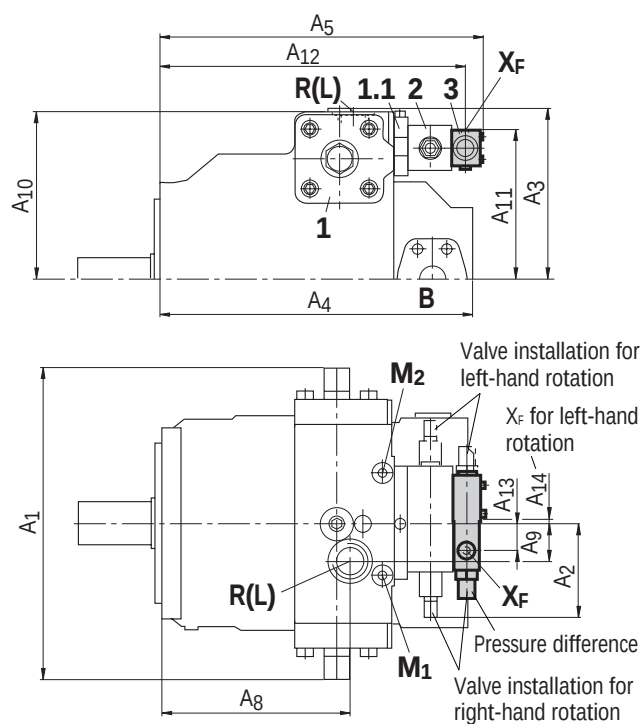
Series 3

Sizes 125...355

Circuit diagram



Unit dimensions



Unit dimensions

Size	Ports														R(L), B ₁ , K ₁ , K ₂ , T	M ₁ , M ₂
	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₈	A ₉	A ₁₀	A ₁₁	A ₁₂	A ₁₃	A ₁₄	X		
125	354	132	194	355	391	122	217	50	186	171	365	37	7	M14x1.5	M33x2; 18 deep	M14x1.5
180	354	132	194	379	391	122	217	50	186	171	365	37	7	M14x1.5	M33x2; 18 deep	M14x1.5
250	424	132	238	439	453	151	265	55	233	207	427	37	7	M14x1.5	M42x2; 20 deep	M18x1.5
355	424	132	238	468	453	151	265	55	233	207	427	37	7	M14x1.5	M42x2; 20 deep	M18x1.5

Version **N** hydraulic stroke adjustment dependent on pilot pressure, basic setting V_{gmin}

See main brochure RE 92050, RE 92110 and RE 92100
for details, unit sizes and technical data of the variable displacement pump.

Basic setting V_{gmin} , the flow rate increasing proportionally with the pilot pressure in P_{St} .

The hyperbolic power control is superimposed on the pilot pressure signal and keeps the specified drive power constant.

$$(p \times V_g = \text{constant}).$$

The flow rate can also be limited by:

- limiting the swivel angle at the main piston (1) - mechanical
- limiting the stroke at the pilot valve (3.1) - hydraulic

Technical data

Min. required control pressure p_{min} in P _____ 35 bar

Min. required control pressure p_{min} in P when fed with
max. 20 bar (self-priming) _____ 50 bar

Max. permissible control pressure p_{max} in P _____ 100 bar

Control oil loss in P at $p = 50$ bar _____ max. 4 L/min

Pilot pressure range in P_{St} _____ 10-45 bar

Commencement of control of the power characteristic ____ 50 - 350 bar
but only above the control pressure p .

Setting ranges for mechanical swivel angle limitation on the main piston:

V_{gmin} 0 - 50 % V_{gmax} V_{gmax} 100 - 50 % V_{gmax}

Setting ranges for stroke limitation on the pilot element:

V_{gmin} 0 - 100 % V_{gmax} V_{gmax} 100 - 0 % V_{gmax}

Hysteresis _____ $\leq \pm 2\%$ von V_{gmax}

Table of values LR2N

Size		40	71	125	180	250	355	500	750	1000
Control volume	V_{1max} cm ³	11.4	21.5	37.5	37.5	73.2	73.2	125.0	210.0	263.3
Control volume	V_{2max} cm ³	2.9	5.4	12.7	12.7	24.9	24.9	40.1	72.6	88.0
Differential volume	$V_1 - V_2$ cm ³	8.6	16.1	24.8	24.8	48.3	48.3	84.9	137.4	175.3

Series 1 and 2

- semi-closed circuit - A4VSH - RD 92110

- closed circuit - A4VSG - RD 92100

The power controller LR2(3)N swivels to one side.

The direction of rotation cannot be reversed.

The controller only operates in pump mode - pressure in B.

Components

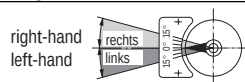
- A4VSG/H with hydraulic control device
- Power control valve
- 1 Pilot valve
- 2 Control valve
- 4 Check valve

Direction of flow A to B

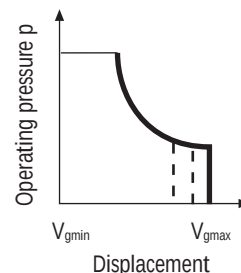
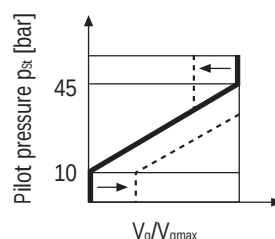
Right-hand rotation – left-hand swivel range

Left-hand rotation – right-hand swivel range

cf. swivel angle indicator



Characteristic curves



For LR2GN and LR3GN please note:
**If the set pressure is below the control pressure p ,
the pump remains at V_{gmin} mechanically up to
size 355 and vibrations may occur in sizes 500 - 1000**

Ports

- A, B Pressure port
- B_1 Auxiliary port (plugged)
- R(L) Oil filling port and bleed (case drain port)
- P Control pressure port
- P_{St} Pilot pressure port
- U Flushing port bearing (plugged)
- K_1, K_2 Flushing port (plugged)
- T Oil drain (plugged)
- M_A, M_B Operating pressure test port (plugged)
- M_{St} Test port (plugged)
- E Infeed (A4VSG)
- S_A, S_B Anti-cavitation valve port (A4VSH)

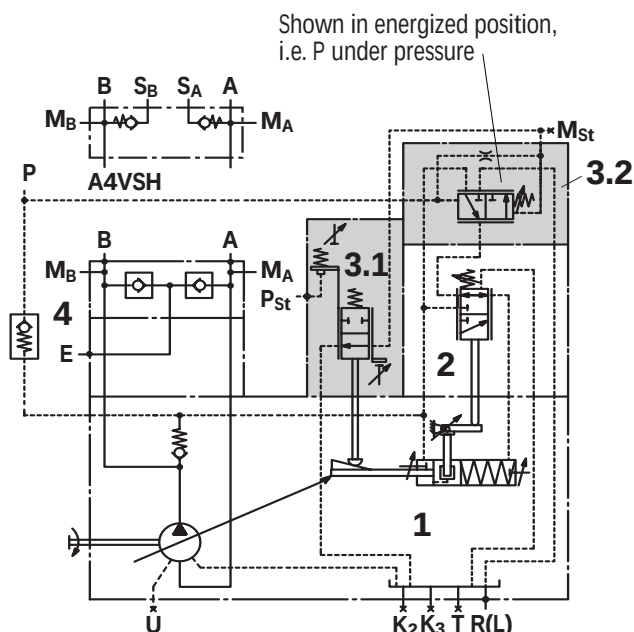
Version **N** hydraulic stroke adjustment dependent on pilot pressure, basic setting V_{gmin}

Before finalizing your design, please request a certified installation drawing.

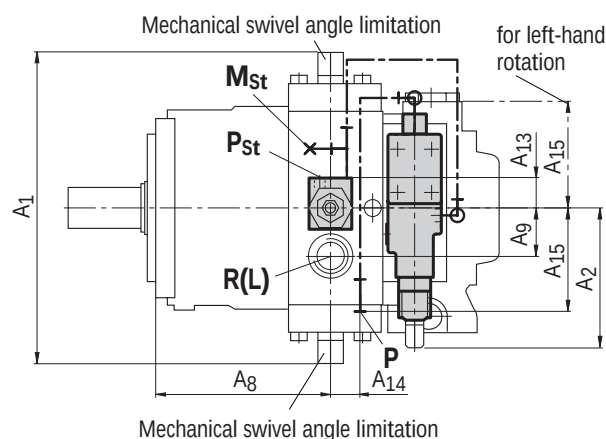
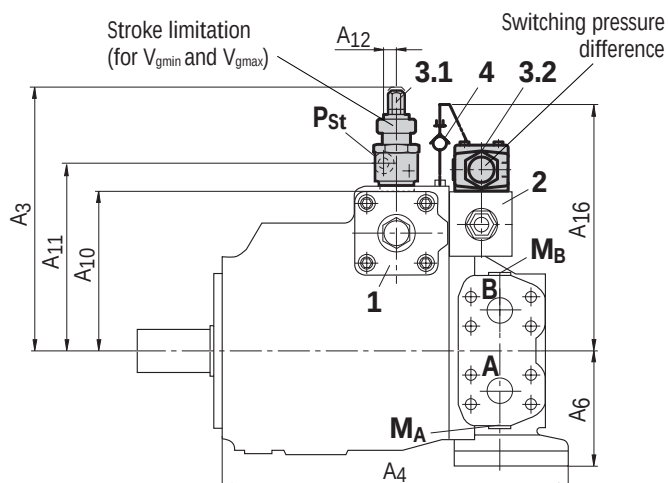
Series 1 and 2 - semi-closed circuit - A4VSH - RD 92110
 - closed circuit - A4VSG - RD 92100

Sizes 40...355

Circuit diagram



Unit dimensions



Valve turned through 180° for left-hand rotation (except hydraulic stroke limitation 3.1)

Unit dimensions

Size	A1	A2	A3	A4	A6	A8	A9	A10	A11	A12	A13	A14	A15	A16
40	260	132	248	281	110	144	42	135	163	15	35	34	82	198
71	296	132	265	306	113	166	46	152	180	15	35	39	82	215
125	354	132	323	363	133	203	50	186	214	15	35	46	105	249
180	354	132	323	363	133	203	50	186	214	15	35	46	105	249
250	424	132	346	441	189	248	55	233	261	15	35	60	124	303
355	424	132	346	468	191	248	50	233	261	15	35	60	124	303

Ports

Size	P _{St}	P*	R(L), B ₁ , K ₁ , K ₂ , T	M _A , M _B	M _{St} *
40	M14x1.5	S8 (Pipe dia.8x1.5)	M22x1.5; 14 deep	M14x1.5	S8 (Pipe dia.8x1.5)
71	M14x1.5	S8 (Pipe dia.8x1.5)	M27x2; 16 deep	M14x1.5	S8 (Pipe dia.8x1.5)
125	M14x1.5	S8 (Pipe dia.8x1.5)	M33x2; 18 deep	M14x1.5	S8 (Pipe dia.8x1.5)
180	M14x1.5	S8 (Pipe dia.8x1.5)	M33x2; 18 deep	M14x1.5	S8 (Pipe dia.8x1.5)
250	M14x1.5	S12 (Pipe dia.12x2)	M42x2; 20 deep	M14x1.5	S8 (Pipe dia.8x1.5)
355	M14x1.5	S12 (Pipe dia.12x2)	M42x2; 20 deep	M14x1.5	S8 (Pipe dia.8x1.5)

* Connector with threaded stem to DIN 3853 / ISO 8434, bore type W

Series 3 - semi-closed and closed circuit applications

on request

Version **N** hydraulic stroke adjustment dependent on pilot pressure, basic setting V_{gmin}

See main brochure RE 92050 for details, unit sizes and technical data of the variable displacement pump A4VSO.

Series 1 and 2 - A4VSO open circuit - RD 92050**Components**

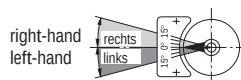
- 1 A4VSO with hydraulic control device
- 1.1 Sandwich plate
- 2 Power control valve
- 3.1 Pilot valve
- 3.2 Control valve
- 4 Check valve (integrated in series 3)

Direction of flow S to B

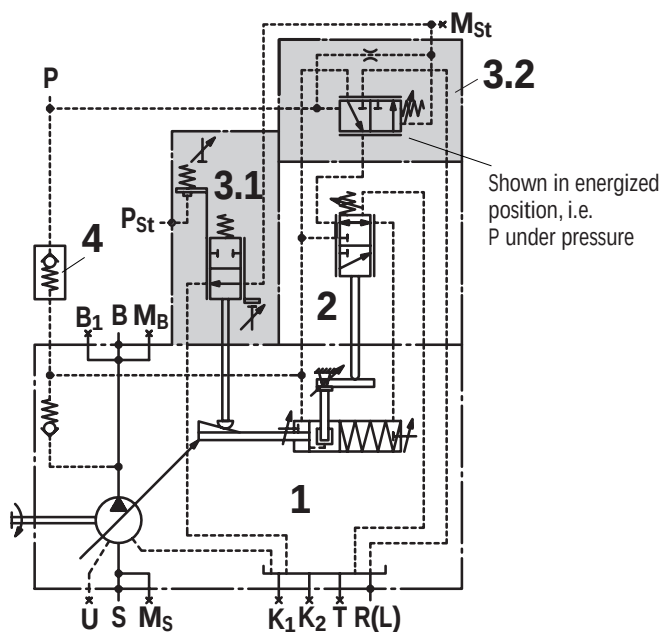
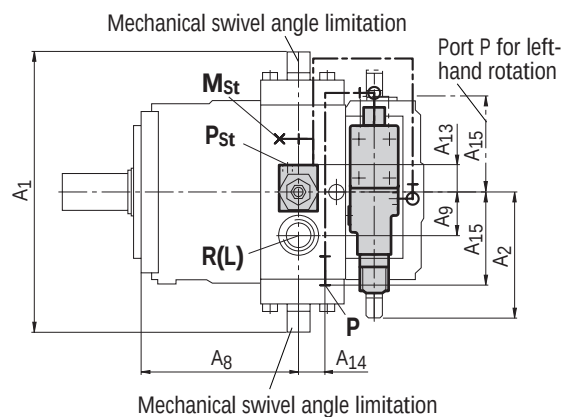
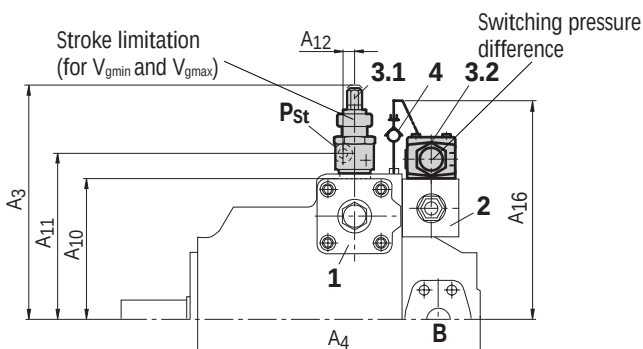
Right-hand rotation – left-hand swivel range

Left-hand rotation – right-hand swivel range

cf. swivel angle indicator

**Ports**

- B Pressure port
- B₁ Auxiliary port (plugged)
- S Suction port
- R(L) Oil filling port and bleed (case drain port)
- P Control pressure port
- P_{St} Pilot pressure port
- U Flushing port bearing (plugged)
- K₁, K₂ Flushing port (plugged)
- T Oil drain (plugged)
- M_B Operating pressure test port (plugged)
- M_S Suction pressure test port (plugged)
- M_{St} Test port (plugged)
- M₁, M₂ Control chamber test port (plugged) sizes 125-1000 (series 3)

Sizes 40...355**Circuit diagram****Unit dimensions**

Valve turned through 180° for left-hand rotation (except hydraulic stroke limitation 3.1)

Unit dimensions

Size	Ports													P [*]	R(L), B ₁ , K ₁ , K ₂ , T	M _{St} [*]	M _B
	A ₁	A ₂	A ₃	A ₄	A ₈	A ₉	A ₁₀	A ₁₁	A ₁₂	A ₁₃	A ₁₄	A ₁₅	A ₁₆				
40	260	132	248	269	144	42	135	163	15	35	34	82	198	M14x1.5	S8 (Pipe dia. 8x1.5)	M22x1.5; 14 deep	S8 (Pipe dia. 8x1.5) M14x1.5
71	296	132	265	298	166	46	152	180	15	35	39	82	215	M14x1.5	S8 (Pipe dia. 8x1.5)	M27x2; 16 deep	S8 (Pipe dia. 8x1.5) M14x1.5
125	354	132	323	355	203	50	186	214	15	35	46	105	249	M14x1.5	S8 (Pipe dia. 8x1.5)	M33x2; 18 deep	S8 (Pipe dia. 8x1.5) M14x1.5
180	354	132	323	379	203	50	186	214	15	35	46	105	249	M14x1.5	S8 (Pipe dia. 8x1.5)	M33x2; 18 deep	S8 (Pipe dia. 8x1.5) M14x1.5
250	424	132	346	439	248	55	233	261	15	35	60	124	303	M14x1.5	S12 (Pipe dia. 12x2)	M42x2; 20 deep	S8 (Pipe dia. 8x1.5) M14x1.5
355	424	132	346	468	248	55	233	261	15	35	60	124	303	M14x1.5	S12 (Pipe dia. 12x2)	M42x2; 20 deep	S8 (Pipe dia. 8x1.5) M14x1.5

* Connector with threaded stem to DIN 3853 / ISO 8434, bore type W

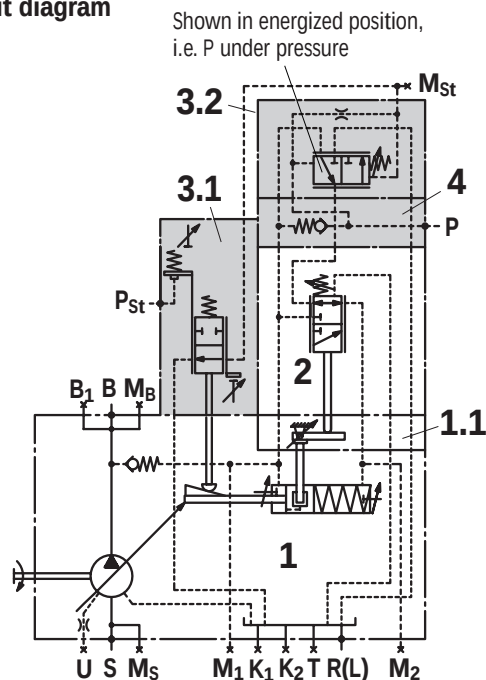
Version **N** hydraulic stroke adjustment dependent on pilot pressure, basic setting V_{gmin}

Before finalizing your design, please request a certified installation drawing.

Series 3 - A4VSO open circuit - RD 92050

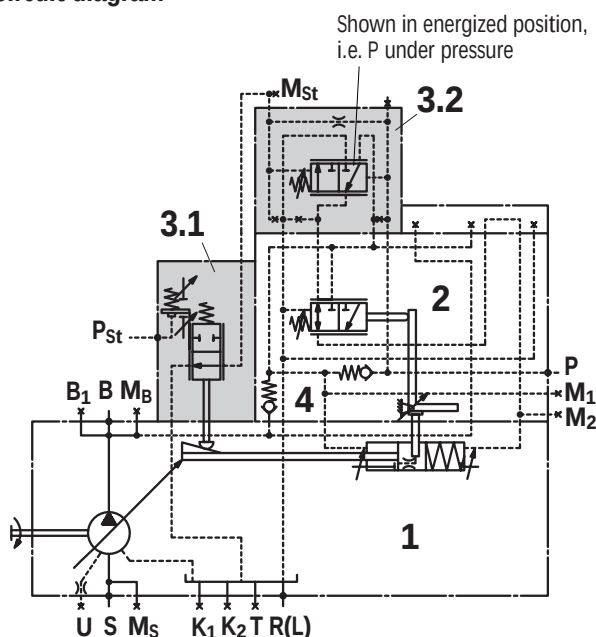
Sizes 125...355

Circuit diagram



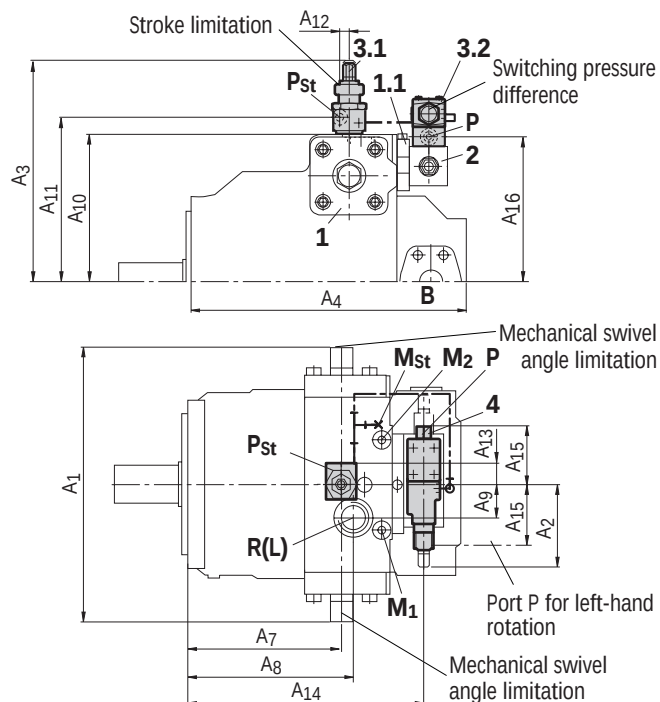
Sizes 500...1000

Circuit diagram



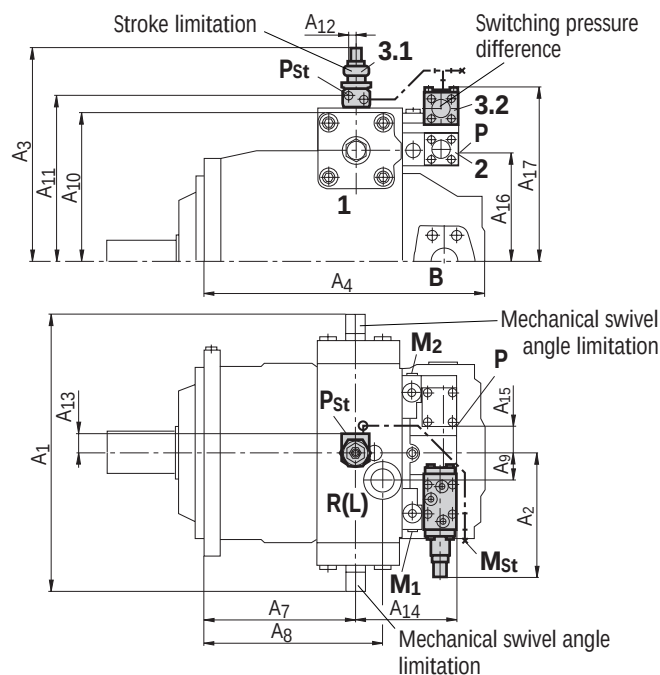
Unit dimensions

Unit dimensions



Valve turned through 180° for left-hand rotation (except hydraulic stroke limitation 3.1)

Unit dimensions



Valve turned through 180° for left-hand rotation (except hydraulic stroke limitation 3.1)

Ports

Size	A1	A2	A3	A4	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	Pst	P	R(L),B1,K1,K2,T	M _B	M ₁ , M ₂	M _{St} *
125	354	132	323	355	203	217	50	186	214	15	35	315	88	192	-	M14x1.5	M18x1.5	M33x2; 18 deep	M14x1.5	M14x1.5	S8 (Pipe dia.8x1.5)
180	354	132	323	379	203	217	50	186	214	15	35	315	88	192	-	M14x1.5	M18x1.5	M33x2; 18 deep	M14x1.5	M14x1.5	S8 (Pipe dia.8x1.5)
250	424	132	346	435	248	265	55	233	261	15	35	377	88	228	-	M14x1.5	M18x1.5	M42x2; 20 deep	M14x1.5	M18x1.5	S8 (Pipe dia.8x1.5)
355	424	132	346	468	248	265	55	233	261	15	35	377	88	228	-	M14x1.5	M18x1.5	M42x2; 20 deep	M14x1.5	M18x1.5	S8 (Pipe dia.8x1.5)
500	510	228	391	520	279	329	50	280	306	15	35	185	47	202	320	M14x1.5	M22x1.5	M48x2; 22 deep	M18x1.5	M18x1.5	S8 (Pipe dia.8x1.5)
750	582	228	430	564	301	351	50	317	345	15	35	195	47	232	350	M14x1.5	M22x1.5	M48x2; 22 deep	M18x1.5	M18x1.5	S8 (Pipe dia.8x1.5)
1000	622	228	457	633	360	411	55	344	372	15	35	202	47	255	355	M14x1.5	M22x1.5	M48x2; 22 deep	M18x1.5	M18x1.5	S8 (Pipe dia.8x1.5)

* Connector with threaded stem to DIN 3853 / ISO 8434, bore type W

LR2, LR3 and LR2N

LR2GN hydraulic stroke control and pressure control, remote-controlled, basic setting V_{gmin}

See main brochure RE 92050 for details, unit sizes and technical data of the variable displacement pump A4VSO.

Description and technical data

see page 10 for remote-controlled pressure control **G**,
see page 24 for hydraulic stroke control **N**.

For LR2GN and LR3GN please note:
**If the set pressure is below the control pressure p ,
the pump remains at V_{gmin} mechanically up to
size 355 and vibrations may occur in sizes 500 - 1000**

Components

- 1 A4VSO with hydraulic control device
- 1.1 Sandwich plate
- 2 Power control valve
- 3.1 Pilot valve
- 3.2 Control valve
- 4 Check valve (integrated in series 3)
- 5 Pressure control valve
- 6 Pressure limiting valve (not included in the scope of supply)

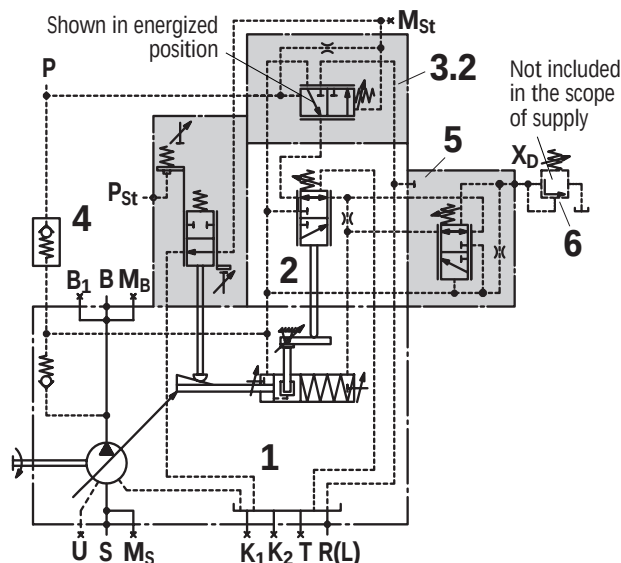
Ports

- B Pressure port
- B_1 Auxiliary port (plugged)
- S Suction port
- R(L) Oil filling port and bleed (case drain port)
- X_D Pilot pressure port
- P Control pressure port
- P_{St} Pilot pressure port
- U Flushing port bearing (plugged)
- K_1, K_2 Flushing port (plugged)
- T Oil drain (plugged)
- M_B Operating pressure test port (plugged)
- M_S Suction pressure test port (plugged)
- M_{St} Test port (plugged)
- M_1, M_2 Control chamber test port (plugged) sizes 125-1000 (series 3)

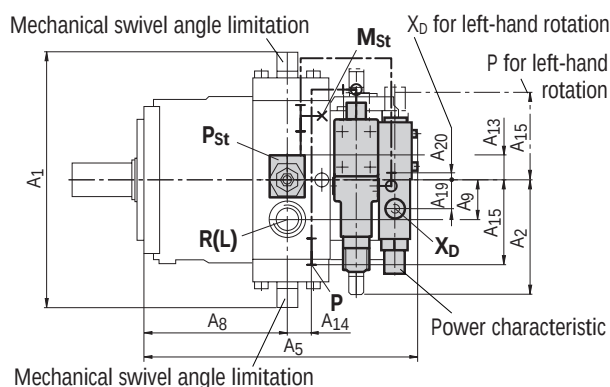
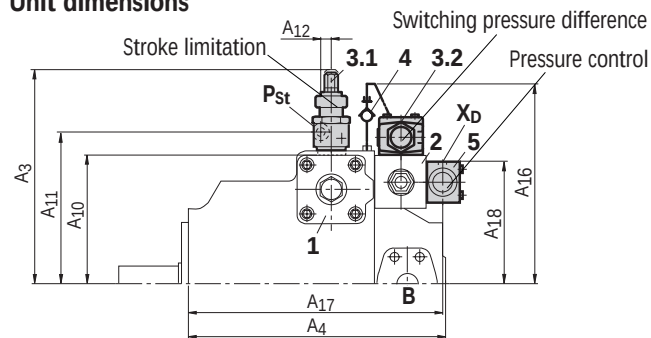
Series 1 and 2

Sizes 40...355

Circuit diagram



Unit dimensions



Unit dimensions

Valve turned through 180° for left-hand rotation (except hydraulic stroke limitation 3.1)

Size	A1	A2	A3	A4	A5	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20
40	260	132	248	269	295	144	42	135	163	15	35	34	82	198	269	130	37	7
71	296	132	265	298	322	166	46	152	180	15	35	39	82	215	296	141	37	7
125	354	132	323	355	371	203	50	186	214	15	35	46	105	249	345	162	37	7
180	354	132	323	379	371	203	50	186	214	15	35	46	105	249	345	162	37	7
250	424	132	346	439	433	248	55	233	261	15	35	60	124	303	407	192	37	7
355	424	132	346	468	433	248	55	233	261	15	35	60	124	303	407	192	37	7

Ports

Size	P_{St}	P*	R(L), B_1, K_1, K_2, T	M_B, M_S	M_{St} *	X_D
40	M14x1.5	S8 (Pipe dia. 8x1.5)	M22x1.5; 14 deep	M14x1.5	S8 (Pipe dia. 8x1.5)	M14x1.5
71	M14x1.5	S8 (Pipe dia. 8x1.5)	M27x2; 16 deep	M14x1.5	S8 (Pipe dia. 8x1.5)	M14x1.5
125	M14x1.5	S8 (Pipe dia. 8x1.5)	M33x2; 18 deep	M14x1.5	S8 (Pipe dia. 8x1.5)	M14x1.5
180	M14x1.5	S8 (Pipe dia. 8x1.5)	M33x2; 18 deep	M14x1.5	S8 (Pipe dia. 8x1.5)	M14x1.5
250	M14x1.5	S12 (Pipe dia. 12x2)	M42x2; 20 deep	M14x1.5	S8 (Pipe dia. 8x1.5)	M14x1.5
355	M14x1.5	S12 (Pipe dia. 12x2)	M42x2; 20 deep	M14x1.5	S8 (Pipe dia. 8x1.5)	M14x1.5

* Connector with threaded stem to DIN 3853 / ISO 8434, bore type V

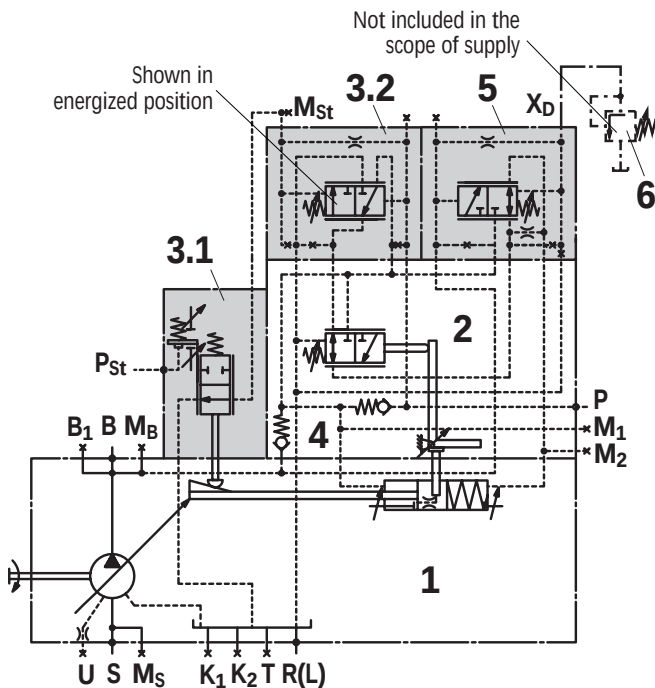
LR2GN hydraulic stroke control and pressure control, remote-controlled, basic setting Vgmin

Before finalizing your design, please request a certified installation drawing.

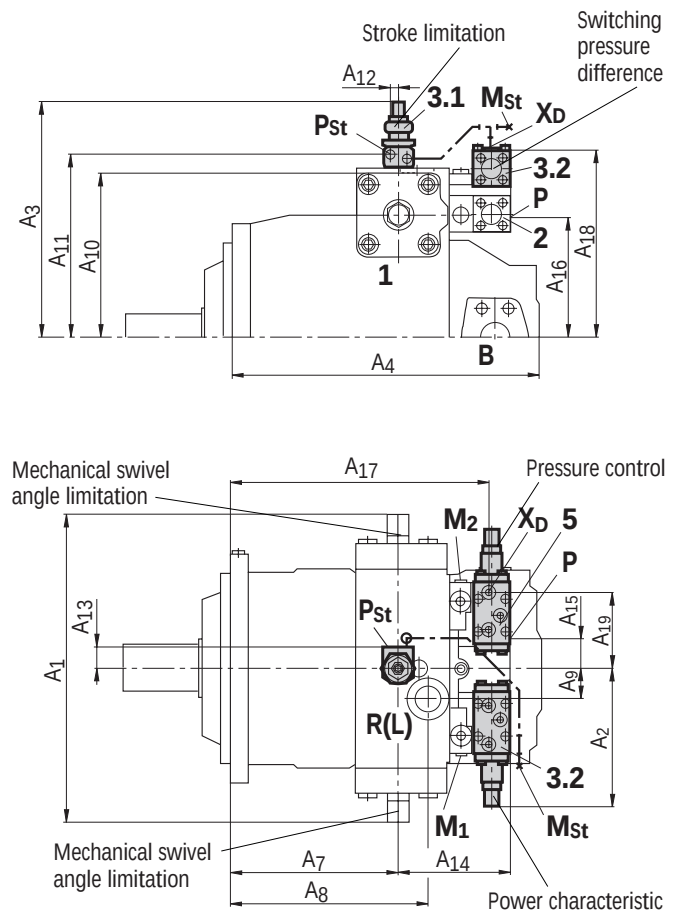
Series 3

Sizes 500...1000

Circuit diagram



Unit dimensions



Valve turned through 180° for left-hand rotation (except hydraulic stroke limitation 3.1)

Unit dimensions

Size	A1	A2	A3	A4	A5	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19
500	510	228	391	520	-	279	329	50	280	306	15	35	185	47	202	430	311	125
750	582	228	430	564	-	301	351	50	317	345	15	35	195	47	232	462	341	125
1000	622	228	457	633	-	360	411	55	344	372	15	35	202	47	255	528	364	125

Ports

Size	Pst	P	R(L), B1, K1, K2, T	MB	M1, M2	Mst*	XD
500	M14x1.5	M22x1.5	M48x2; 22 deep	M18x1.5	M18x1.5	S8 (Pipe dia.8x1.5)	M14x1.5
750	M14x1.5	M22x1.5	M48x2; 22 deep	M18x1.5	M18x1.5	S8 (Pipe dia.8x1.5)	M14x1.5
1000	M14x1.5	M22x1.5	M48x2; 22 deep	M18x1.5	M18x1.5	S8 (Pipe dia.8x1.5)	M14x1.5

* Connector with threaded stem to DIN 3853 / ISO 8434, bore type W

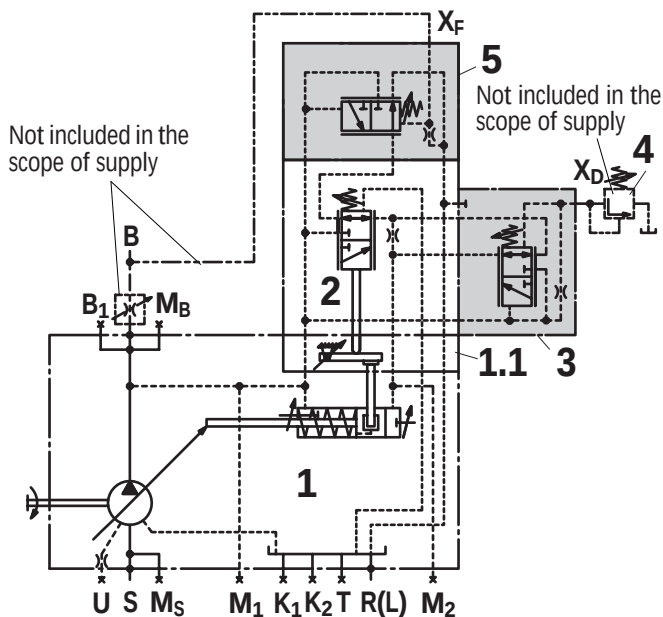
LR2GF with flow control and pressure control, remote-controlled

Before finalizing your design, please request a certified installation drawing.

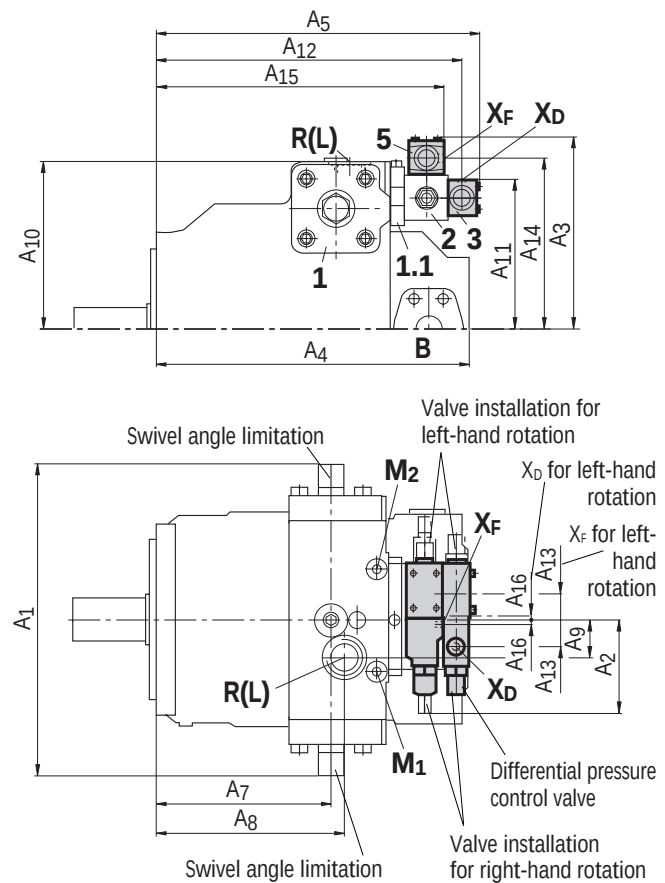
Series 3

Sizes 125...355

Circuit diagram



Unit dimensions



Unit dimensions

																	Ports	
Size	A ₁	A ₂	A ₃	A ₄	A ₅	A ₇	A ₈	A ₉	A ₁₀	A ₁₁	A ₁₂	A ₁₃	A ₁₄	A ₁₅	A ₁₆	X _D , X _F	R(L), B ₁ , K ₁ , K ₂ , T	
125	354	132	223	355	391	203	217	50	186	171	365	37	197	339	7	M14x1.5	M33x2; 18 deep	
180	354	132	223	379	391	203	217	50	186	171	365	37	197	339	7	M14x1.5	M33x2; 18 deep	
250	424	132	259	435	453	248	265	50	233	207	427	37	233	401	7	M14x1.5	M42x2; 20 deep	
355	424	132	259	468	453	248	265	50	233	207	427	37	233	401	7	M14x1.5	M42x2; 20 deep	

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