Rexroth
Bosch Group

HD hydraulic control, pressure related

A4VSO, A4VSH and A4VSG variable displacement pumps
Models 1 and 2

Sizes 40...750 | Nominal pressure 350 bar | Peak pressure 400 bar

RE 92080/08.93
Preliminary information

High pressure range

Ordering Code

A4VS [ ] [ ] [ ] / [ ] [ ] – [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Fluid | Model | Rotation | Seals | Shaft end | Mounting flange | Service lines | Through drive | Valves | Filtration

Axial piston machine

Swashplate construction, adjustable, industrial range	A4VS

Type of operation

Pump, open circuit	O
Pump, semi-closed circuit	H
Pump, closed circuit	G

Size

≙ Flow $V_{g\,max}$ (cm^3)	40	71	125	180	250	355	500	750

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

Hydraulic control, pilot pressure-related — HD [ ] [ ] [ ]

Pilot pressure characteristic curve	40	71	125	180	250	355	500	750	
10 - 45 bar	●	●	●	●	●	●	●	●	1
10 - 28 bar	●	●	●	●	●	●	●	●	2
5,5 - 19 bar	●	●	●	●	●	●	●	●	3

Closed loop pressure control

										Circuit type O	H	G
With closed loop pressure control in A	●	●	●	●	●	●	●	○	A	–	●	●
With closed loop remote pressure control in A	●	●	●	●	●	●	●	○	GA	–	●	●
With closed loop pressure control in B	●	●	●	●	●	●	●	○	B	●	●	●
With closed loop remote pressure control in B	●	●	●	●	●	●	●	○	GB	●	●	●
With closed loop pressure control on both sides	●	●	●	●	●	●	●	○	D	–	●	●
With closed loop remote pressure control on both sides	●	●	●	●	●	●	●	○	G	–	●	●
Without closed loop pressure control - no code												

Constant power control and elec. pilot pressure control for HD1

Closed loop control with constant power valve	●	●	●	●	●	●	●	●	P
Elec. pilot pressure control with DBEP 6	●	●	●	●	●	●	●	●	T
Constant power control and elec. pilot pressure control	●	●	●	●	●	●	●	●	U
Without constant power and elec. pilot pressure control – no code									

● = available ○ = in preparation – = not available

HD1/2/3 Hydraulic control, pilot pressure related

The HD hydraulic control sets the pump flow in relation to a pilot pressure signal.

Sizes 500 - 750 have an adjustable control time facility. The high control time, which is standard, is necessary for operation with LV06.

The mechanical swivel angle limitation can be set in the range V_{gmax} to 50 % V_{gmax}.

Spring centring of the control cylinder is standard.

For pilot pressure design purposes it should be noted that the effective hydraulic control pressure command value on the A4VSO is the difference between pilot and housing pressures or, in the case of the A4VSH/G it is also the difference between X_1 and X_2.

It is possible fit an inductive positional transducer IW9 (see RE 92076). Please indicate your requirements in clear text.

Please note:

On variable displacement pumps for open circuit application (swivel to one side only) the Vgmin stop is set so that when port B is closed a pressure of approx. 20 bar is set.
When operating at stall pressure please note information in RE 92050 on flushing the housing

Unit dimensions see pages 4 and 5.

Technical data

Pilot pressure (in X_1,X_2)	p_{St}	bar	HD1	10 ± 0,5	–	45 ± 1,5			
			HD2	10 ± 0,5	–	28 ± 1,5			
			HD3	5,5 ± 0,5	–	19 ± 1,5			
Size				**40**	**71**	**125/180**	**250/355**	**500**	**750**
Control movement	s_{max}	mm		14,2	17,1	20,7	25,9	32,6	37
Control area	A	cm^2		3,9	6,4	9	14,4	18,8	28,5
Control volume	V_{Smax}	cm^3		5,5	11	18,7	37,3	61,4	105
Min. control pressure required	p_{min} in P	bar		30	30	50	50	50	50
Control time (at 200 bar high pressure)	t	s		0,08	0,09	0,10	0,15	0,75	1,0
Control time setting range (at 200 bar high press.)	t	s		–	–	–	–	0,15 - 0,75	0,2 - 1,0
Max. feed pressure	$p_{Sp\,max}$	bar					16		

A4VSO - open circuit - RE 92050

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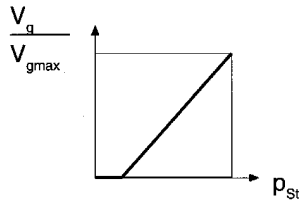
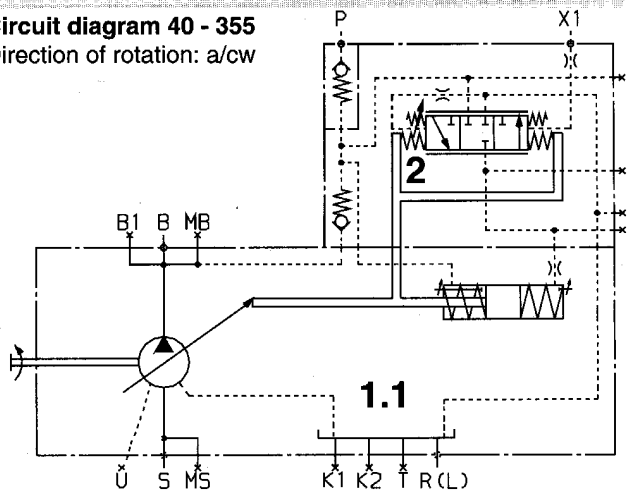
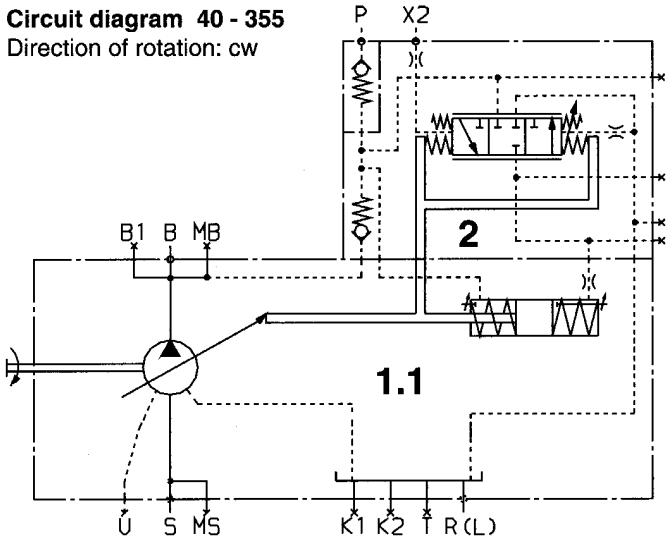


Hysteresis ≤ ± 3 % of V_{gmax}
Repeatability ≤ 1% of V_{gmax}

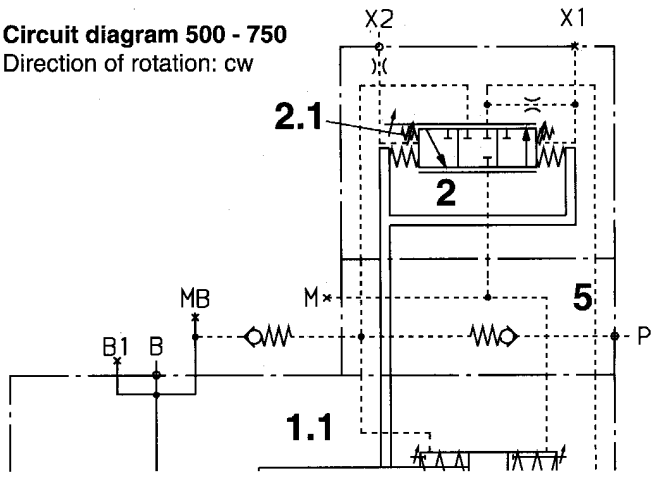
Circuit diagram 40 - 355
Direction of rotation: a/cw



Circuit diagram 40 - 355
Direction of rotation: cw



Circuit diagram 500 - 750
Direction of rotation: cw

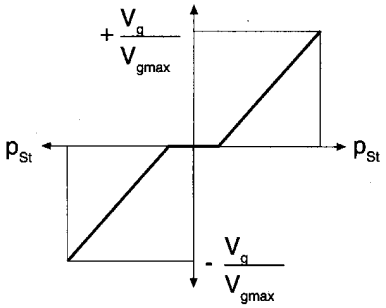


HD hydraulic control, pressure-related, series 1 and 2

For details of unit dimensions and technical data on the variable displacement pump see main brochures A4VSO RE 92050, A4VSH RE 92110 and A4VSG RE 92100.

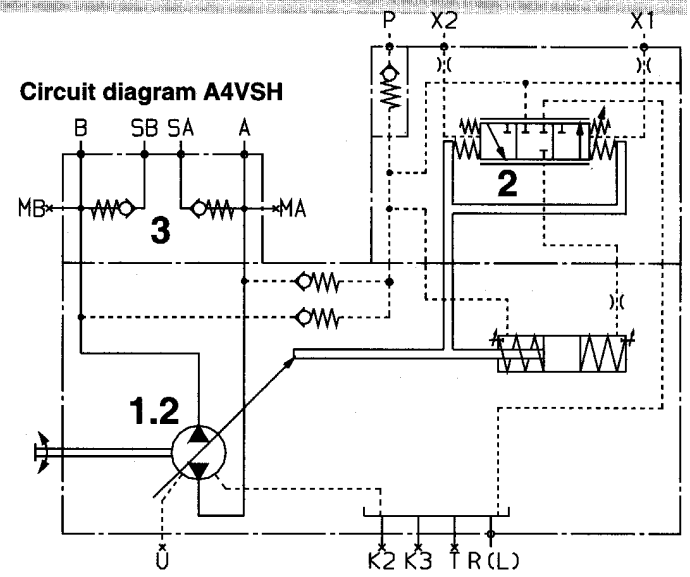
A4VSH - semi-closed circuit - RE 92110

Characteristic curve



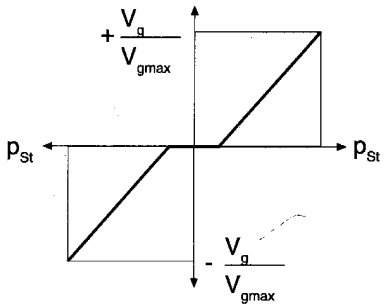
Hysteresis ≤ ± 3 % of V_{gmax}
Repeatability ≤ 1% of V_{gmax}

Circuit diagram A4VSH



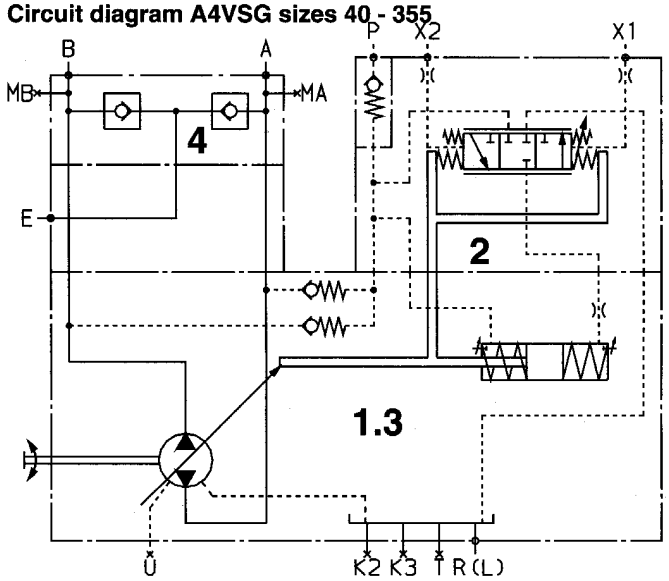
A4VSG - closed circuit - RD 92100

Characteristic curve

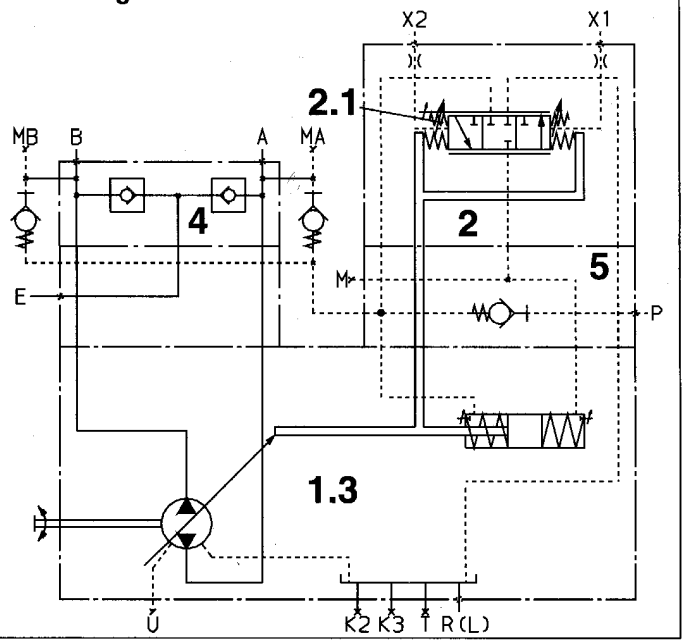


Hysteresis ≤ ± 3 % of V_{gmax}
Repeatability≤ 1% of V_{gmax}

Circuit diagram A4VSG sizes 40 - 355



Circuit diagram A4VSG sizes 500 - 750



Components

1	Pump with hydraulic control
1.1	A4VSO
1.2	A4VSH
1.3	A4VSG
2	Control section
2.1	Control time setting (sizes 500 and 750)
3	Anti-cavitation check valves(A4VSH)
4	Boost valves (A4VSG)
5	Sandwich plate (sizes 500 and 750)

Ports

A, B	Pressure port
M_A,M_B	Test port operating pressure (plugged)
S	Suction port
M_S	Test port suction pressure (plugged) A4VSO
B_1	Auxiliary port (plugged)
P	Control pressure port
R(L)	Oil filling + bleed point (Leckölanschluß)
E	Feed
T	Oil drain (plugged)
U	Flushing port (plugged)
K_1,K_2,K_3	Flushing port housing (plugged)
X_1,X_2	Pilot pressure port
M	Test port control chamber pressure (plugged) (sizes 500 and 750)
S_A,S_B	Anti-cavitation valve port (A4VSH)
E	Feed (A4VSG)

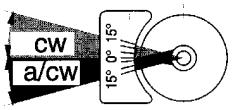
Unit dimensions HD1/2/3 Sizes 40 - 355

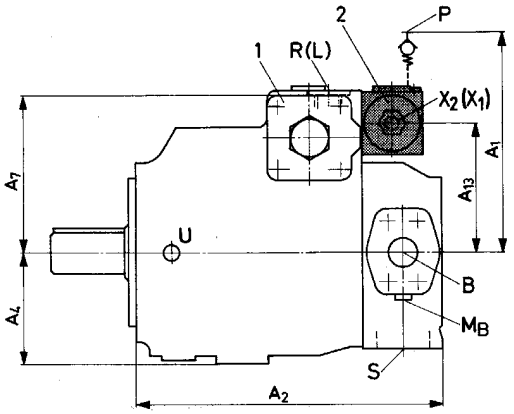
A4VSO - open circuit - RE 92050

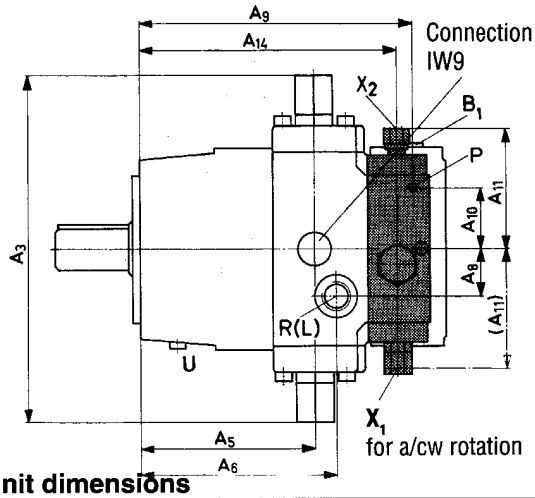
Direction of through flow S to B

Swivel range[1]) / or pilot pressure	Direction of rotation
cw/ in X_1	a/cw
la/cw / in X_2	cw

[1]) cf: swivel angle indicator





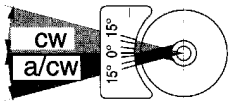


A4VSH - semi-closed circuit - RE 92110
A4VSG - closed circuit - RE 92100

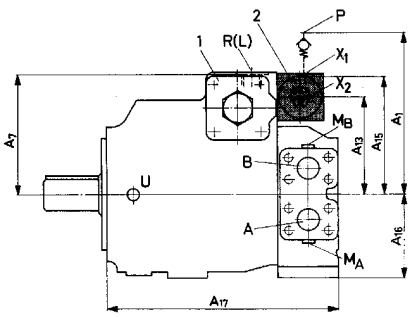
Direction of through flow

Swivel range [1]) / or pilot pressure	Direction of rotation cw	a/cw
cw/ in X_1	**B** to **A**	**A** to **B**
a/cw / in X_2	**A** to **B**	**B** to **A**

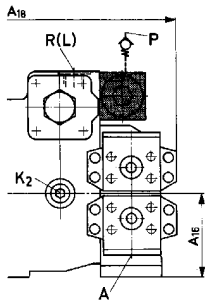
[1]) cf: swivel angle indicator

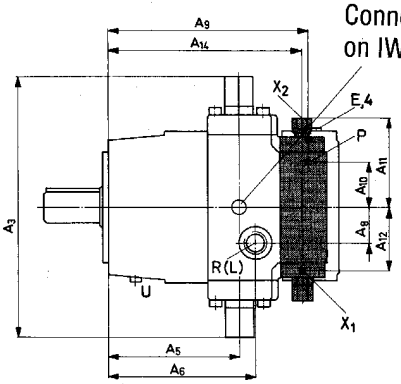


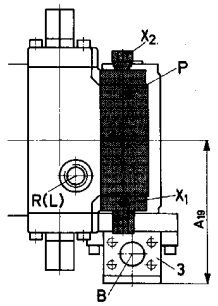
A4VSG



A4VSH







Unit dimensions

Size	A_1	A_2	A_3	A_4	A_5	A_6	A_7	A_8	A_9	A_{10}	A_{11}	A_{12}	A_{13}	A_{14}	A_{15}	A_{16}	A_{17}	A_{18}
40	193	269	296	91	144	160	134	37	233	56,5	113	82,5	106	218	132,5	110	281	285
71	209	298	332	106	166	186	152	45	260	56,5	113	82,5	122	245	148,5	113	306	322
125	246,5	355	401	120,5	203	219	185,5	45	301	75	133	102,5	148	301	182	133	363	388
180	246,5	379	401	120,5	203	219	185,5	45	301	75	133	102,5	148	301	182	133	363	391
250	282,5	434	485	151	248	277	233	55	363	75	133	102,5	184	363	218	189	441	471
355	282,5	468	485	151	248	277	233	55	363	75	133	102,5	184	363	218	191	468	†

(† in preparation)

Ports

Size	A_{19}	A, B		S		P	R(L)	X_1,X_2	U	E	M_A,M_B
40	215	SAE 3/4"	(High pressure series)	SAE 1 1/2"	(Std. pressure series)	S8*	M22x1,5	M14x1,5	M14x1,5	M18x1,5	M14x1,5
71	230	SAE 1"	(High pressure series)	SAE 2"	(Std. pressure series)	S8*	M27x2	M14x1,5	M14x1,5	M18x1,5	M14x1,5
125	235	SAE 1 1/4"	(High pressure series)	SAE 2 1/2"	(Std. pressure series)	S8*	M33x2	M14x1,5	M14x1,5	M22x1,5	M14x1,5
180	in prep.	SAE 1 1/4"	(High pressure series)	SAE 3"	(Std. pressure series)	S8*	M33x2	M14x1,5	M14x1,5	M22x1,5	M14x1,5
250	300	SAE 1 1/2"	(High pressure series)	SAE 3"	(Std. pressure series)	S8*	M42x2	M14x1,5	M14x1,5	M27x2	M14x1,5
355	in prep.	SAE 1 1/2"	(High pressure series)	SAE 3"	(Std. pressure series)	S8*	M42x2	M14x1,5	M14x1,5	M27x2	M14x1,5

*Screw fitting BO-RVZ 8SM-WD (stud to DIN 3853 / ISO 8434, cavity W shaped to DIN 3861)

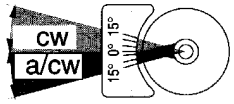
Unit dimensions HD1/2/3 Sizes 500 - 750

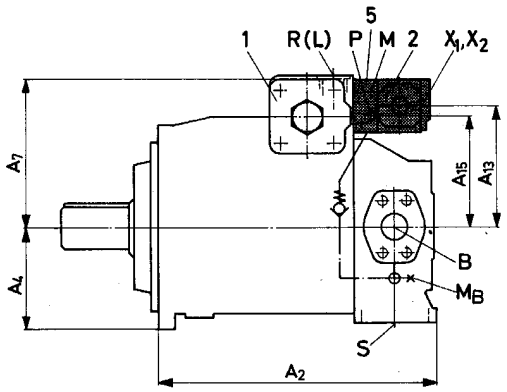
A4VSO - open circuit - RE 92050

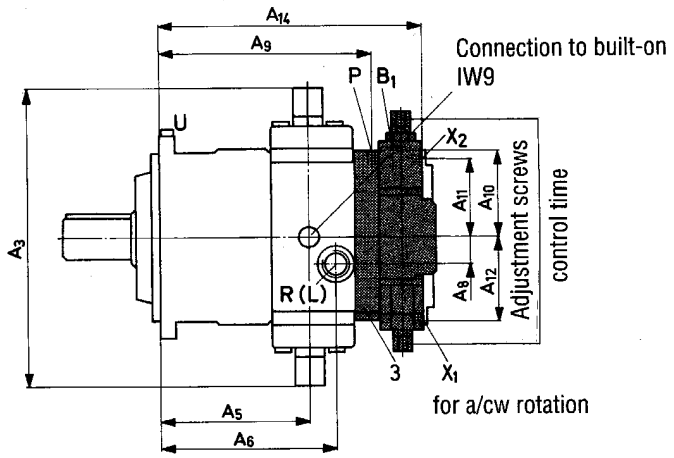
Direction of through flow S to B

Swivel range [1])/ or pilot pressure	Direction of rotation
cw / in X_1	a/cw
a/cw / in X_2	cw

[1]) cf: swivel angle indicator





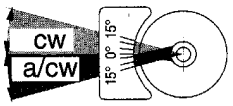


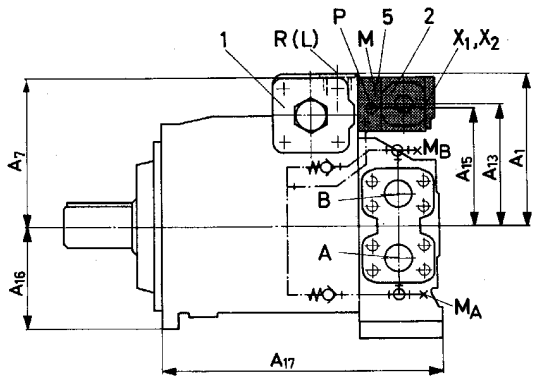
A4VSG - closed circuit - RE 92100

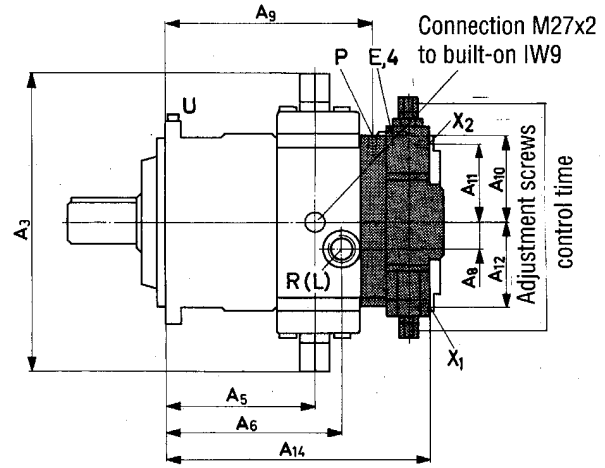
Direction of through flow

Swivel range [1])/ or pilot pressure	Direction of rotation cw	Direction of rotation a/cw
cw/ in X_1	**B** to **A**	**A** to **B**
a/cw / in X_2	**A** to **B**	**B** to **A**

[1]) cf: swivel angle indicator







Unit dimensions

Size	A_1	A_2	A_3	A_4	A_5	A_6	A_7	A_8	A_9	A_{10}	A_{11}	A_{12}	A_{13}	A_{14}	A_{15}	A_{16}	A_{17}
500	282,5	519	555	190	279	329	280	50	383	160	145	158	225	492	200	225	514
750	319	564	630	232	301	351	318	50	415	160	145	158	255	520	230	in prep.	

Ports

Size	A, B	S	P	R(L)	X_1,X_2	U	E	M_a,M_B	M
500	SAE 2" (High pr. range)	SAE 5" (Std. pr. range)	M22x1,5	M48x2	M14x1,5	M14x1,5	M27x2	S12*	M14x1,5
750	SAE 2" (High pr. range.)	SAE 5" (Std. pr. range)	M22x1,5	M48x2	M14x1,5	M14x1,5	M27x2	S12*	M14x1,5

* Screw couplings to BO-ETVD 12S (studs to DIN 3853 / ISO 8434, cavity W shaped toDIN 3861)

Variation **A** with single sided pressure control in port A

Variation **GA** with remote pressure control on one side only (via X_A) in port A

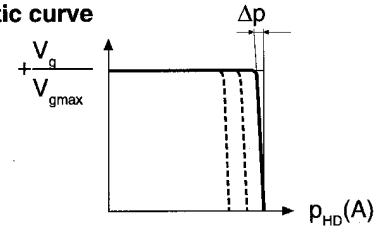
For A4VSG only - closed circuit - RE 92 100

If the pressure set on the pressure control valve is exceeded at port A the pressure control valve opens and swivels the pump towards zero stroke.

Bi-directional rotation not possible.

HDGA has remote pressure control via port X. However, the pressure relief valve is not supplied.
We recommend: DBD 6 (RE 25402)

Characteristic curve



Rise in pressure Δp ≤5 bar
Hysteresis ≤ ± 5 bar (sizes 40, 71, 125 an. 250)
≤ ± 10 bar (sizes 180, 355, 500 and 750)

Components

1 A4VSG with hydraulic control
2 Control section
4 Boost valve
5 Sandwich plate
6 Pressure control port A
6.1 Pressure relief valve (not supplied)
We recommend DBD 6 (RE 25402)

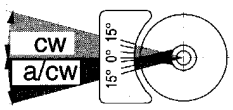
Technical data

Setting ranges for pressure control **50...350 bar** in port A, but not until control pressure in P has been exceeded. Please state figure in clear text.

Direction of through flow

Swivel range[1])/ /pilot pressure	Direction of rotation cw	a/cw
cw/in X_1	**B** to **A***	**A** to **B**
a/cw /in X_2	**A** to **B**	**B** to **A***

* Pressure control in port A
[1]) cf: swivel angle indicator



Ports

A, B	Pressure port
M_A, M_B	Test port operating pressure (plugged)
P	Control pressure port
R(L)	Oil fill port + bleed point (case drain port)
E	Feed
T	Oil drain (plugged)
U	Flushing port (plugged)
K_2, K_3	Flushing port for housing (plugged)
X_1, X_2	Pilot pressure port
X_A	Pilot pressure port, pressure controller remote control (HD.GA only).
M	Test port control chamber pressure (plugged) (Sizes 500 and. 750)

Unit dimensions

Size	A_1	A_3	A_5	A_6	A_7	A_8	A_9	A_{10}	A_{11}	A_{12}	A_{13}	A_{14}	A_{15}
40	193	296	144	160	134	37	233	56,5	113	82,5	106	218	132,5
71	209	332	166	186	152	45	260	56,5	113	82,5	122	245	148,5
125	247	401	203	219	185,5	45	301	75	133	102,5	148	301	182
180	247	401	203	219	185,5	45	301	75	133	102,5	148	301	182
250	282,5	485	248	277	233	55	363	75	133	102,5	184	363	218
355	282,5	485	248	277	233	55	363	75	133	102,5	184	363	218
500	341	555	279	329	280	50	383	160	145	158	225	492	200
750	372	630	301	351	317,5	50	415	160	145	158	255	520	230

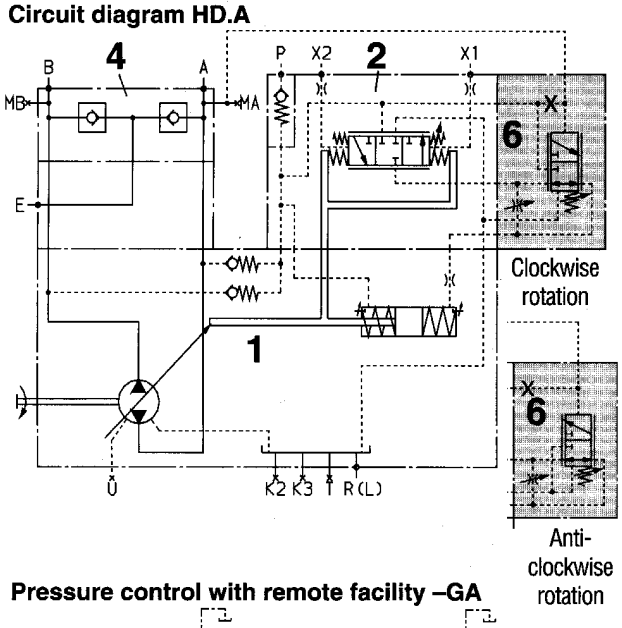
Size	A_{16}	A_{17}	A_{18}	A_{19}	A_{20}	A_{21}	P	R(L)	X_1, X_2	X_A	U	M_A	M_B	M
40	110	281	189	4	163	299	S8 [1])	M22x1,5	M14x1,5	M14x1,5	M14x1,5	S8 [2])	M14x1,5	–
71	113	306	205	4	179	326	S8 [1])	M27x2	M14x1,5	M14x1,5	M14x1,5	S8 [2])	M14x1,5	–
125	133	363	226	19,5	200	396	S8 [1])	M33x2	M14x1,5	M14x1,5	M14x1,5	S8 [2])	M14x1,5	–
180	133	363	226	23,5	200	396	S8 [1])	M33x2	M14x1,5	M14x1,5	M14x1,5	S8 [2])	M14x1,5	–
250	189	441	262	19,5	236	458	S8 [1])	M42x2	M14x1,5	M14x1,5	M14x1,5	S8 [2])	M14x1,5	–
355	191	468	262	19,5	236	458	S8 [1])	M42x2	M14x1,5	M14x1,5	M14x1,5	S8 [2])	M14x1,5	–
500	225	514	–	136	304	469	M22x1,5	M48x2	M14x1,5	M14x1,5	M14x1,5	S12 [3])	S12 [3])	M14x1,5
750	in prep.		–	136	334	500	M22x1,5	M48x2	M14x1,5	M14x1,5	M14x1,5	S12 [3])	S12 [3])	M14x1,5

[1]) Screw coupling BO-RVZ 8SM-WD
[2]) Screw coupling BO-RSWV 8SM-WD
[3]) Screw coupling BO-ETVD 12S

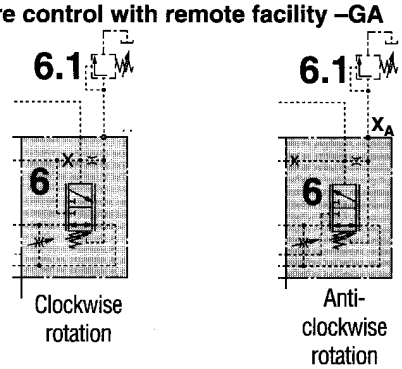
} Studs to DIN 3853 / ISO 8434, cavity W shaped to DIN 3861

Sizes 40 - 355

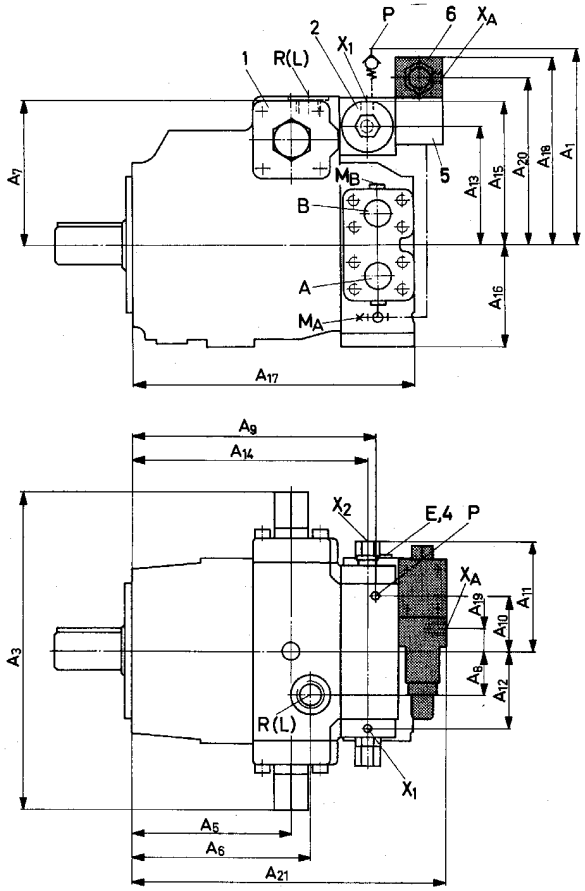
Circuit diagram HD.A



Pressure control with remote facility –GA



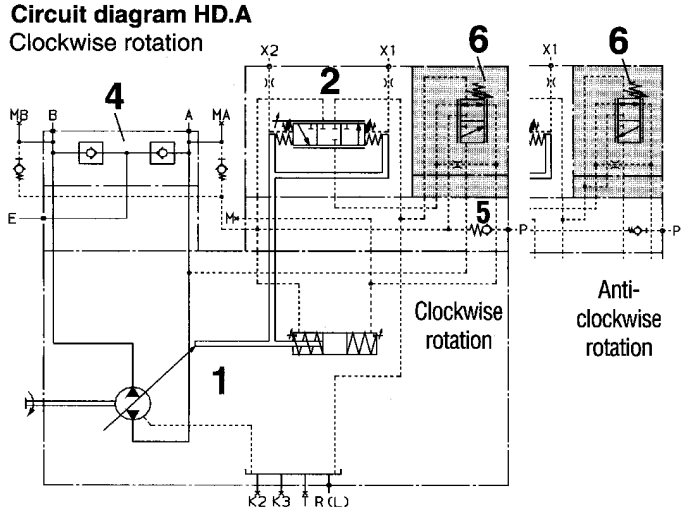
Unit dimensions HD.GA



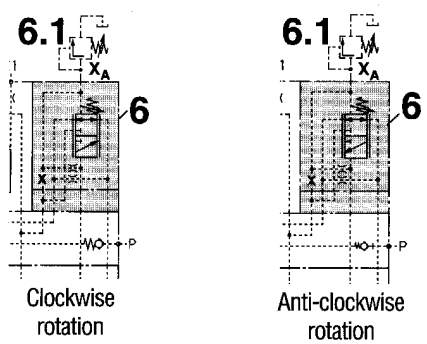
Sizes 500 - 750

Circuit diagram HD.A

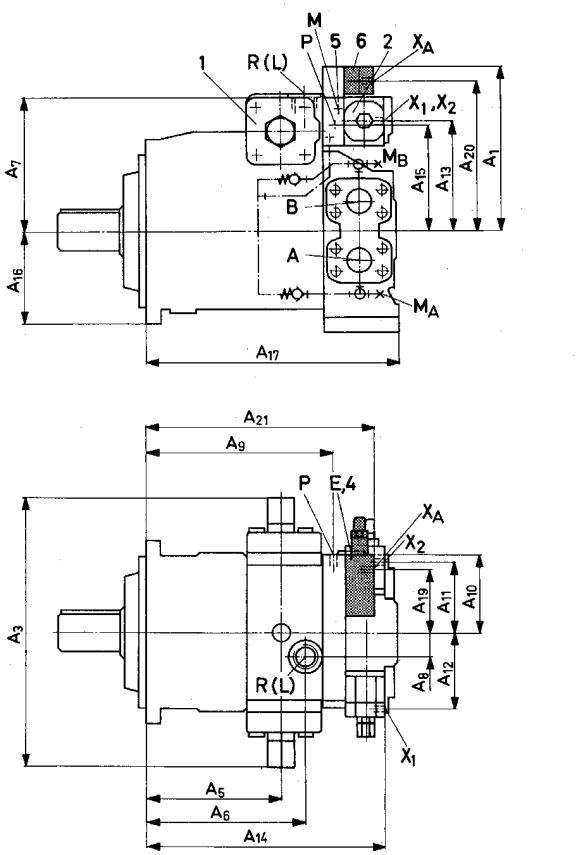
Clockwise rotation



Pressure control with remote facility –GA



Unit dimensions HD.GA



Variation **B** — with pressure control on one side only in port B

Variation **GB** — with remote pressure control on one side only (via X_B) in port B

If the pressure set at port B on the pressure control valve is exceeded the pressure control valve opens and swivels the pump backwards until the set pressure is again reached.

Bi-directional rotation not possible

On the HDGB pressure control is remote via port X_B although the pressure relief valve is not supplied.
Recommendation: DBDH 6 (RE 25402)

Technical data

Pressure control setting range **50...350 bar** in port B, but only once control pressure in P is exceeded. Please state value in clear text.

For unit dimensions please see pages 10 and 11..

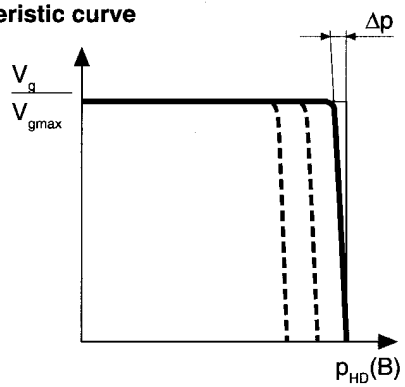
Components

1	Pump with hydraulic control device
1.1	A4VSO
1.2	A4VSG
2	Pilot section
5	Sandwich plate
7	Pressure control port B
7.1	Pressure relief valve (not supplied) Recommended: DBD 6 (RE 25402)

Ports

A, B	Pressure port
M_A, M_B	Test port operating pressure (plugged)
B_1	Auxiliary port (plugged)
S	Suction port
P	Control pressure port
R(L)	Oil fill port + bleed point (case drain port)
E	Feed (A4VSG)
T	Oil drain (plugged)
U	Flushing port (plugged)
K_1,K_2,K_3	Casing flushing port (plugged)
X_1,X_2	Pilot pressure port
X_B	Pilot pressure port, remote pressure control for HD.GB only
M	Test port control chamber pressure (plugged) (Sizes 500 and 750)

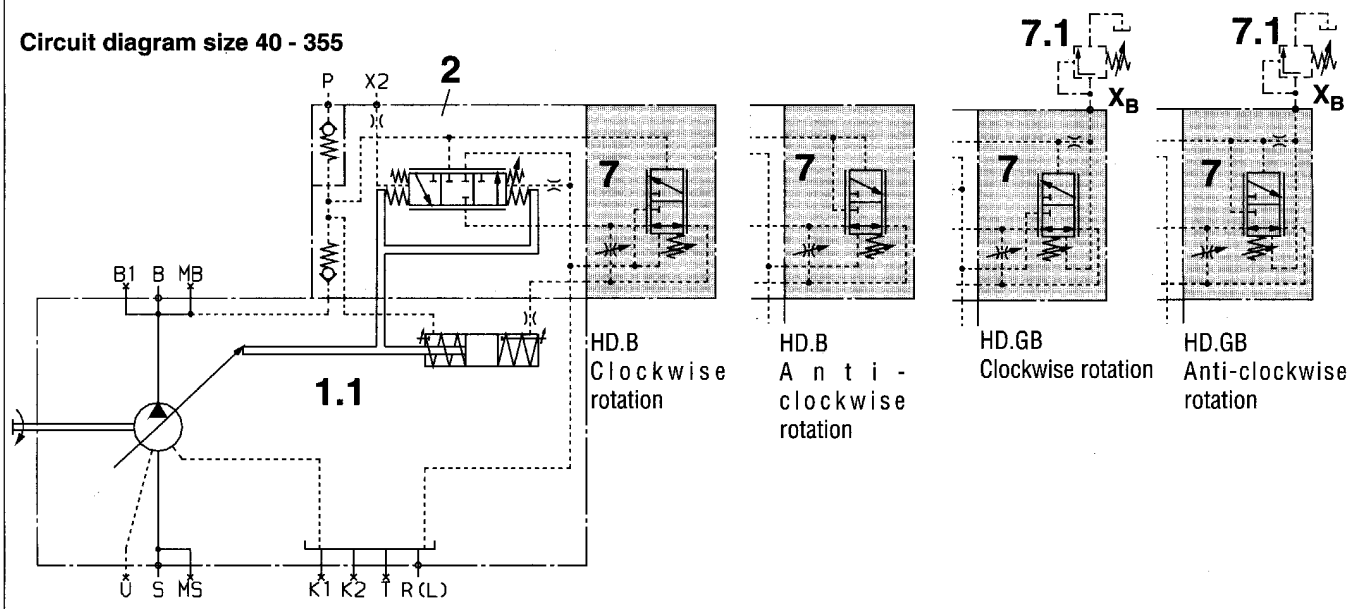
Characteristic curve



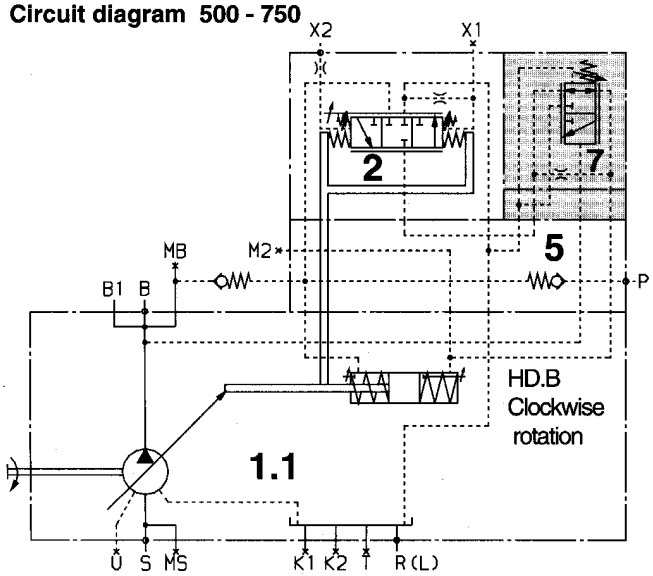
Pressure rise Δp ≤ 5bar
Hysteresis ≤ ±5 bar(Size 40, 71, 125 u. 250)
±10 bar(Size 180, 355, 500 u.750)

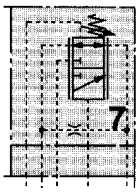
A4VSO - open circuit - RE 92050

Circuit diagram size 40 - 355

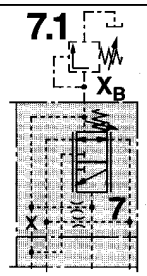


Circuit diagram 500 - 750

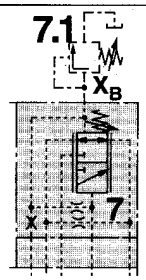




HD.B
Anti-
clockwise
rotation



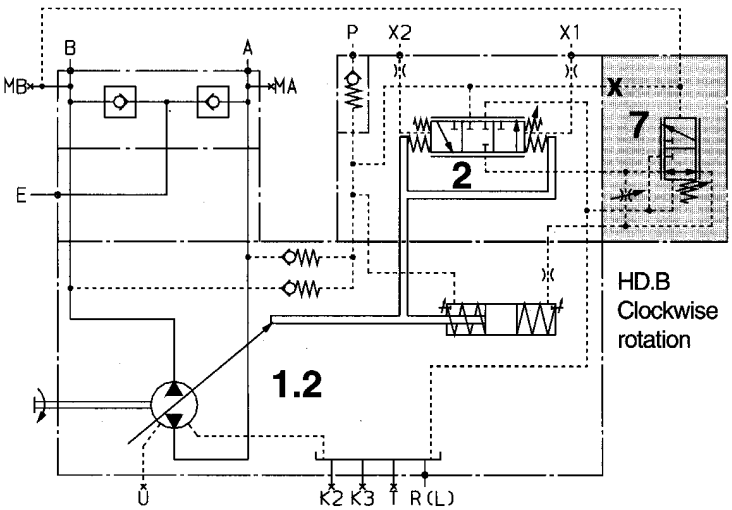
HD.GB
Clockwise
rotation

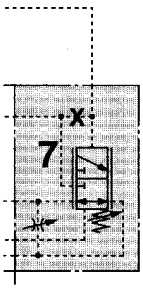


HD.GB
Anti-
clockwise
rotation

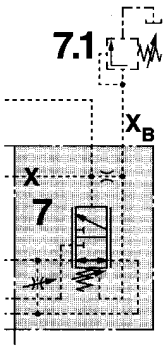
A4VSG - closed circuit - RE 92100

Crcuit diagram sizes 40 - 355

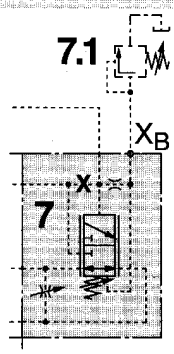




HD.B
Anti-
clockwise
rotation

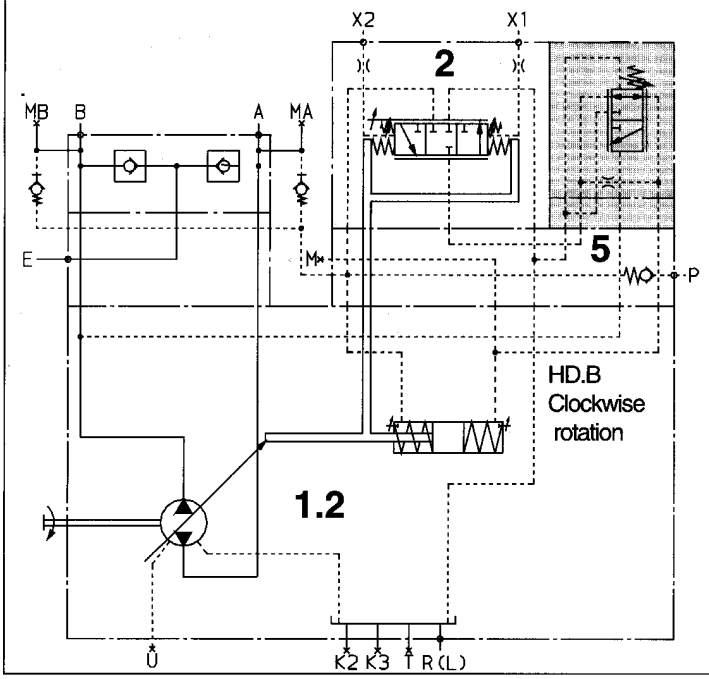


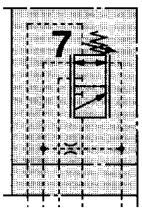
HD.GB
Anti-
clockwise
rotation



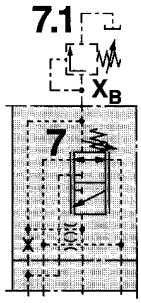
HD.GB
Anti-
clockwise
rotation

Crcuit diagram sizes 500 - 750

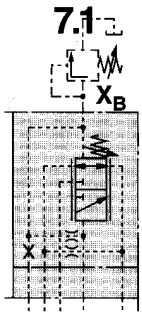




HD.B
Anti-
clockwise
rotation



HD.GB
Clockwise
rotation



HD.GB
Anti-clockwise
rotation

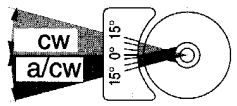
Unit dimensions HD.B/ HD.GB Sizes 40 - 355

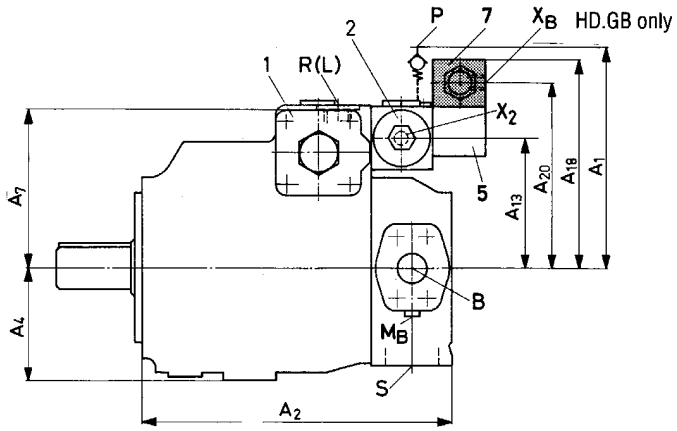
A4VSO - open circuit - RE 92050

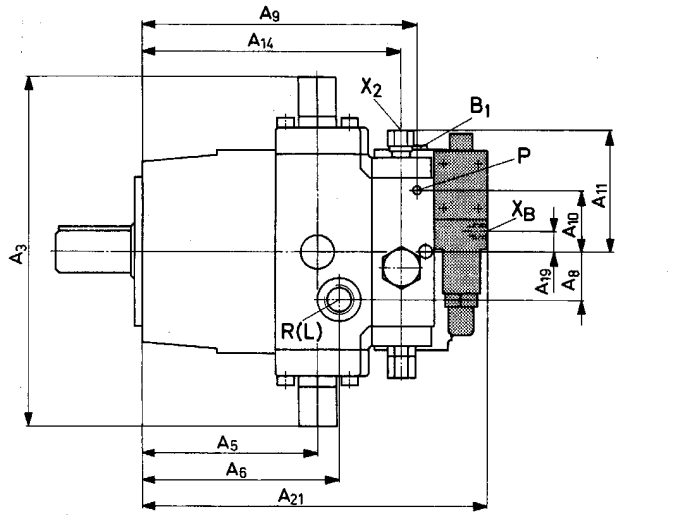
Direction of through flow S to B*

Swivel range / pilot pressure	Rotation
cw /in X_1	a/cw
a/cw /in X_2	cw

* Pressure control in port B
[1]) cf: swivel angle indicator







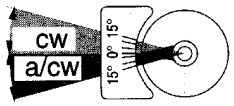
A4VSG - closed circuit - RE 92100

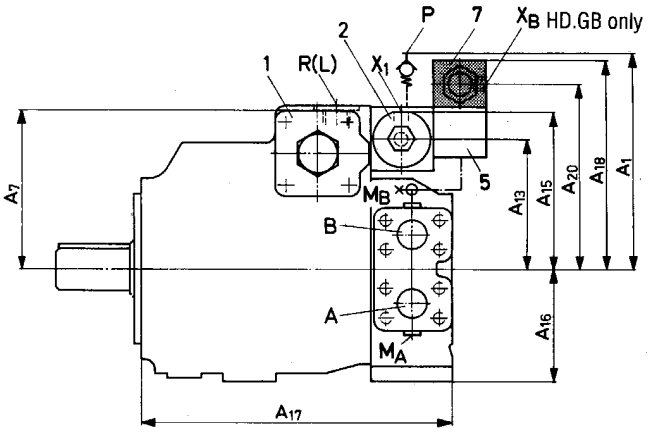
A4VSH - semi-closed circuit - RE 92110

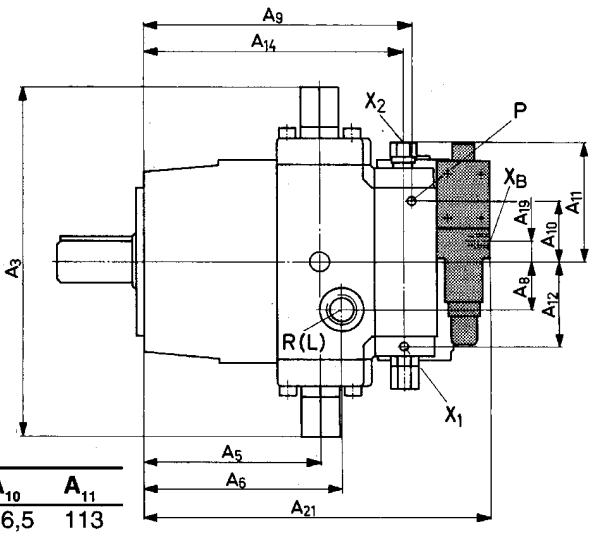
Direction of flow

Swivel range [1])/ control pressure	Rotation cw	a/cw
cw /in X_1	**B to A**	**A to B***
links/in X_2	**A to B***	**B to A**

* Pressure control in port B
[1]) cf: swivel angle indicator







Unit dimensions

Size	A_1	A_2	A_3	A_4	A_5	A_6	A_7	A_8	A_9	A_{10}	A_{11}
40	193	269	296	91	144	160	134	37	233	56,5	113
71	209	298	332	106	166	186	152	45	260	56,5	113
125	247	355	401	120,5	203	219	185,5	45	301	75	133
180	247	379	401	120,5	203	219	185,5	45	301	75	133
250	282,5	434	485	151	248	277	233	55	363	75	133
355	282,5	468	485	151	248	277	233	55	363	75	133

Size	A_{12}	A_{13}	A_{14}	A_{15}	A_{16}	A_{17}	A_{18}	A_{19}	A_{20}	A_{21}	P	R(L)	X_1, X_2	X_B	M_A, $M_{B\text{-open circuit}}$	$M_{B\text{-closed circuit}}$
40	82,5	106	218	132,5	110	281	189	4	163	299	S8 [1])	M22x1,5	M14x1,5	M14x1,5	M14x1,5	S8 [2])
71	82,5	122	245	148,5	113	306	205	4	179	326	S8 [1])	M27x2	M14x1,5	M14x1,5	M14x1,5	S8 [2])
125	102,5	148	301	182	133	363	226	19,5	200	396	S8 [1])	M33x2	M14x1,5	M14x1,5	M14x1,5	S8 [2])
180	102,5	148	301	182	133	363	226	23,5	200	396	S8 [1])	M33x2	M14x1,5	M14x1,5	M14x1,5	S8 [2])
250	102,5	184	363	218	189	441	262	19,5	236	458	S8 [1])	M42x2	M14x1,5	M14x1,5	M14x1,5	S8 [2])
355	102,5	184	363	218	191	468	262	19,5	236	458	S8 [1])	M42x2	M14x1,5	M14x1,5	M14x1,5	S8 [2])

[1]) Screw coupling BO-RVZ 8SM-WD
[2]) Screw coupling BO-RSWV 8SM-WD
} Studs to DIN 3853 / ISO 8434, cavity W shaped to DIN 3861

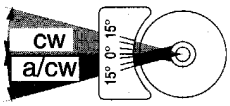
Unit dimensions HD.B/ HD.GB sizes 500-750

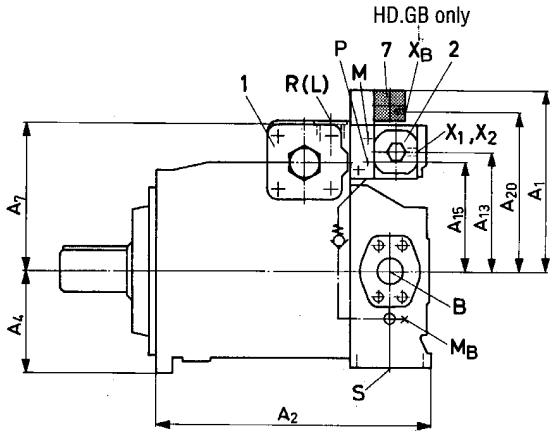
A4VSO - open circuit - RE 92050

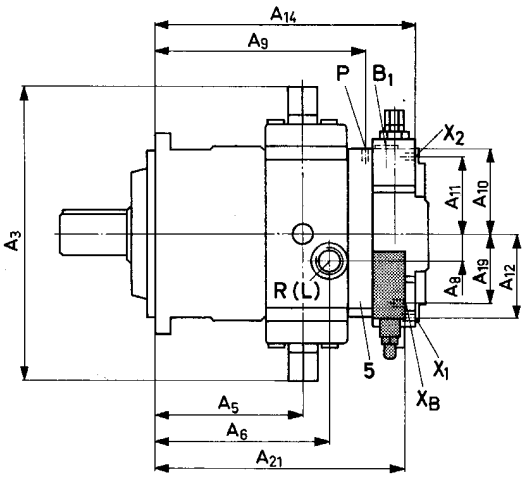
Direction of flow S to B*

Swivel range / pilot pressure	Rotation
cw /in X_1	a/cw
a/cw /in X_2	cw

* pressure control in port B
[1]) cf: swivel angle indicator







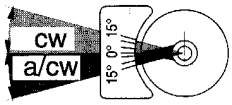
A4VSG - closed circuit - RE 92100

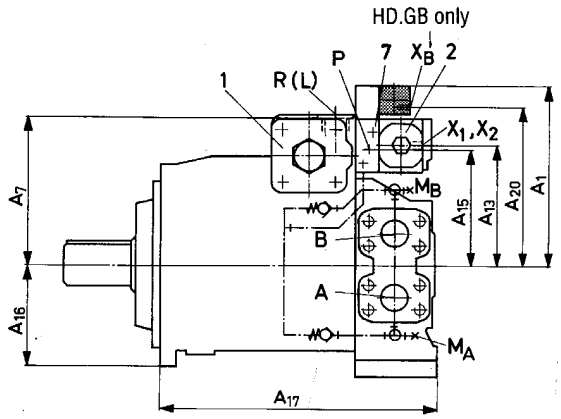
A4VSH - semi-closed circuit - RE 92110

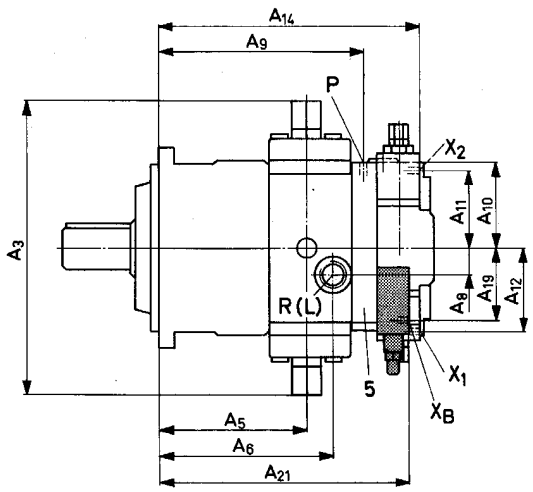
Direction of rotation

Swivel range[1])/ pilot pressure	Rotation cw	a/cw
cw /in X_1	**B to A**	**A to B***
a/cw /in X_2	**A to B***	**B to A**

* Pressure control in port B
[1]) cf: swivel angle indicator







Unit dimensions

Size	A_1	A_2	A_3	A_4	A_5	A_6	A_7	A_8	A_9	A_{10}	A_{11}	A_{12}
500	341	519	555	190	279	329	280	50	383	160	145	158
750	372	564	630	232	301	351	317,5	50	415	160	145	158

Size	A_{13}	A_{14}	A_{15}	A_{16}	A_{17}	A_{19}	A_{20}	A_{21}	P	R(L)	X_1, X_2	E	X_B	M_A, M_B	M
500	225	492	200	225	514	136	304	469	M22x1,5	M48x2	M14x1,5	M27x2	M14x1,5	S12*	M14x1,5
750	255	520	230	in Vorber.		136	334	500	M22x1,5	M48x2	M14x1,5	M27x2	M14x1,5	S12*	M14x1,5

* Screw coupling BO-ETVD 12S (Studs to DIN 3853 / ISO 8434, cavity W shaped to DIN 3861)

A4VSG - closed circuit- RE 92 100

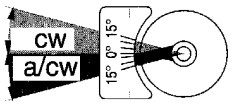
Variation **D** with pressure control on both sides

Variation **G** with remote pressure control on both sides

Two valves, connected in each case to the relevant high pressure, intercept the input flow signal so that a pre-set operating pressure cannot be exceeded.
On the HDG pressure control of both high pressure ports A und B is remote via ports X_{Aa} and X_B , although the pressure relief valves are not supplied.
Recommended : DBDH 6 (RE 25402)

Technical data

Control ranges pressure control **50...350 bar** in port A and in port B, but **only once pressure set in P is exceeded.**
Please indicate control values in clear text.

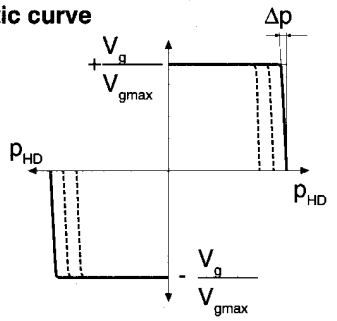


Direction of flow

Swivel range[1])/ control pressure	Rotation cw	a/cw
cw /in X_1	**B** to **A**	**A** to **B**
a/cw /in X_2	**A** to **B**	**B** to **A**

[1]) cf: Swivel angle indicator

Characteristic curve



Pressure rise $\Delta p \leq 5$bar
Hysteresis ≤ ±5 bar(size 40, 71, 125 and 250)
±10 bar(size 180, 355, 500 and 750)

Components

1 A4VSG with hydraulic control
2 Control section
4 Anti-cavitation valves
5 Sandwich plate
6 Pressure control port A (B for anti-clockwise rotation)
7 Pressure control port B (A for anti-clockwise rotation
6.1; 7.1 Pressure relief valve (not supplied)
Recommended: DBD 6 (RE 25402)

Ports

A, B Pressure port
M_A, M_B Operating pressure test port (plugged)
P Control pressure port
R(L) Oil fill port + bleed point (case drain port)
E Feed
T Oil drain (plugged)
U Flushing port (plugged)
K_1, K_2, K_3 Flushing port for housing (plugged)
X_1, X_2 Pilot pressure port
X_A, X_B Pilot pressure port, remote control pressure controller (HD.G only)
M Test port control chamber pressure (plugged) (Sizes 500 and 750)

Unit dimensions

Size	A_1	A_3	A_5	A_6	A_7	A_8	A_9	A_{10}	A_{11}
40	193	296	144	160	134	37	233	56,5	113
71	209	332	166	186	152	45	260	56,5	113
125	247	401	203	219	185,5	45	301	75	133
180	247	401	203	219	185,5	45	301	75	133
250	282,5	485	248	277	233	55	363	75	133
355	282,5	485	248	277	233	55	363	75	133
500	341	555	279	329	280	50	383	160	145
750	372	630	301	351	317,5	50	415	160	145

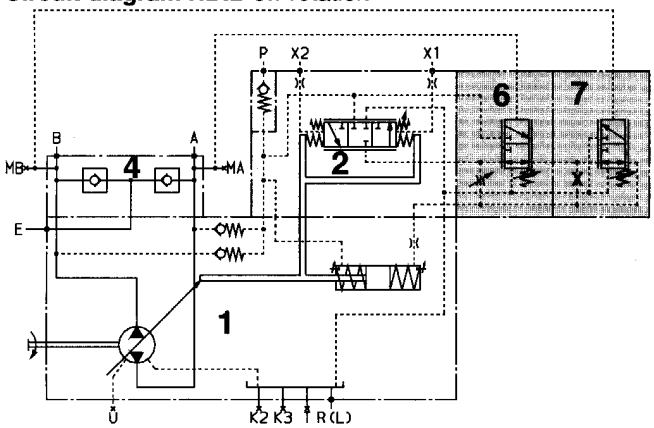
Ports

Size	A_{12}	A_{13}	A_{14}	A_{15}	A_{16}	A_{17}	A_{18}	A_{19}	A_{20}	A_{21}	A_{22}	P	R(L)	X_1, X_2; X_A, X_B	M_A, M_B	M
40	82,5	106	218	132,5	110	281	229	4	163	299	203	S8 [1])	M22x1,5	M14x1,5	M14x1,5	–
71	82,5	122	245	148,5	113	306	245	4	179	326	219	S8 [1])	M27x2	M14x1,5	M14x1,5	–
125	102,5	148	301	182	133	363	266	19,5	200	396	240	S8 [1])	M33x2	M14x1,5	M14x1,5	–
180	102,5	148	301	182	133	363	266	23,5	200	396	240	S8 [1])	M33x2	M14x1,5	M14x1,5	–
250	102,5	184	363	218	189	441	302	19,5	236	458	276	S8 [1])	M42x2	M14x1,5	S8 [2])	–
355	102,5	184	363	218	191	468	302	19,5	236	458	276	S8 [1])	M42x2	M14x1,5	S8 [2])	–
500	158	225	492	200	225	514	–	136	304	469	136	M22x1,5	M48x2	M14x1,5	S12 [3])	M14x1,5
750	158	255	520	230	in prep.		–	145	334	500	136	M22x1,5	M48x2	M14x1,5	S12 [3])	M14x1,5

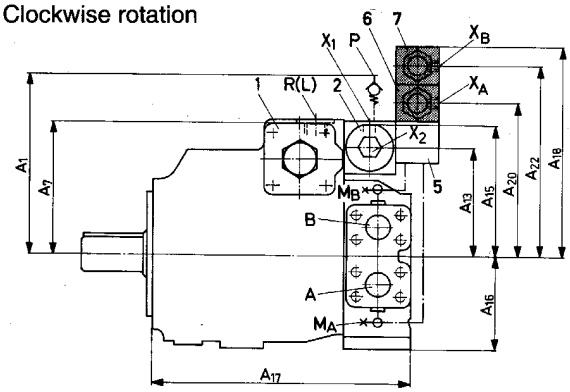
[1]) Screw coupling BO-RVZ 8SM-WD
[2]) Screw coupling BO-RSTV 8SM-WD
[3]) Screw coupling BO-ETVD 12S
} Studs to DIN 3853 / ISO 8434, cavity W shaped to DIN 3861

Sizes 40 - 355

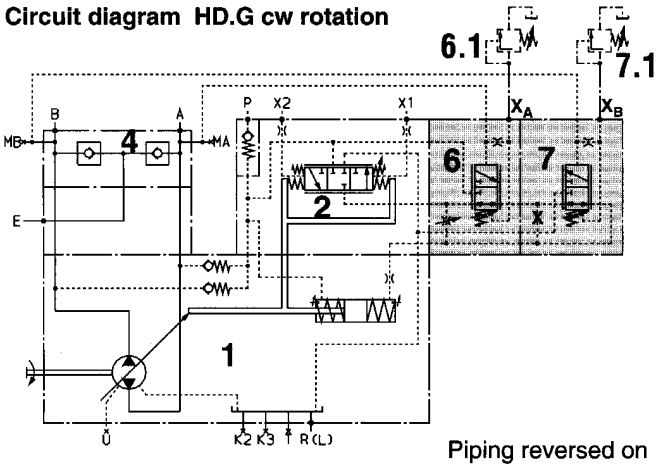
Circuit diagram HD.D cw rotation

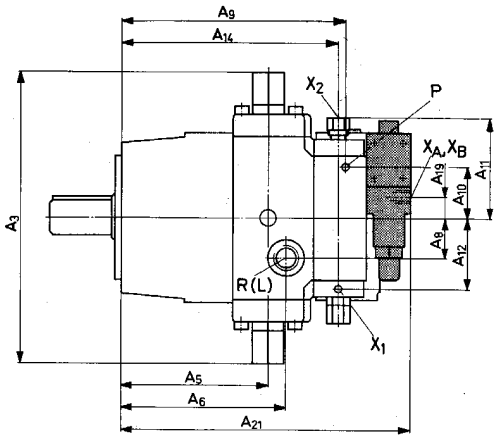


Unit dimensions
Clockwise rotation



Circuit diagram HD.G cw rotation

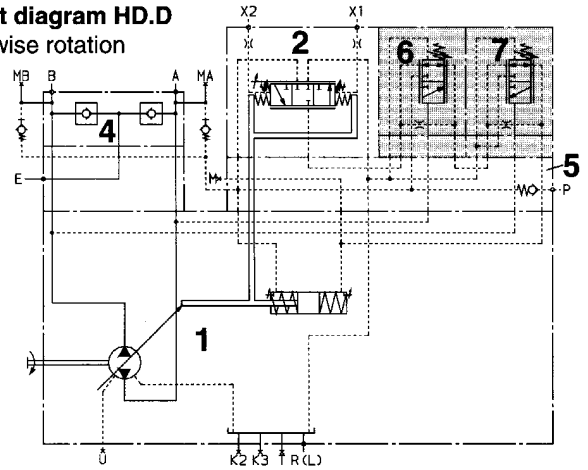




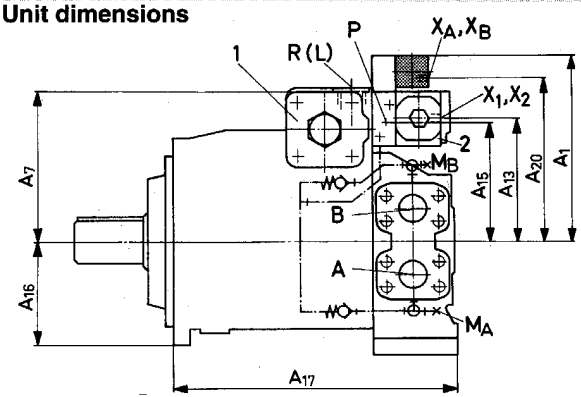
Piping reversed on M_A and M_B

Sizes 500 - 750

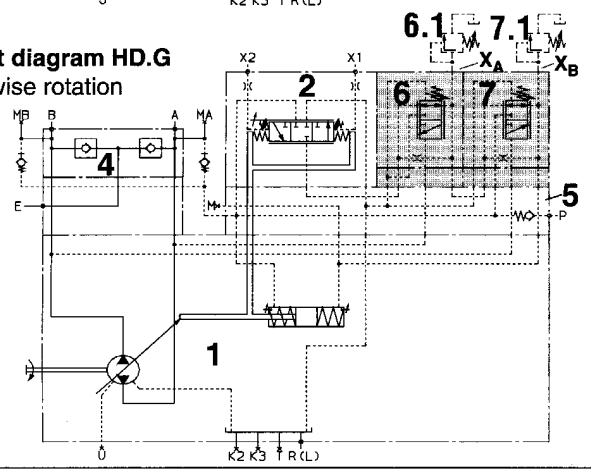
Circuit diagram HD.D
Clockwise rotation

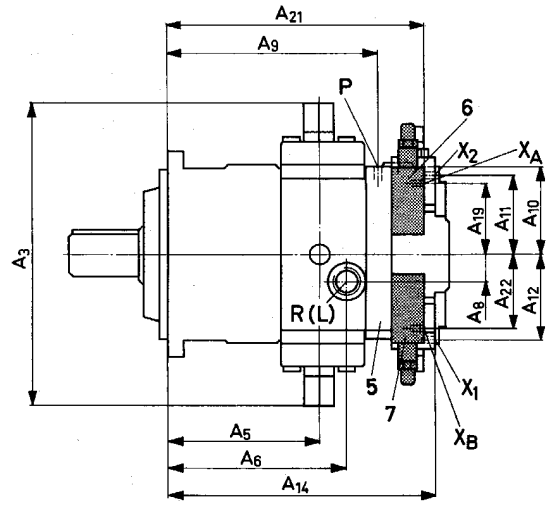


Unit dimensions



Circuit diagram HD.G
Clockwise rotation

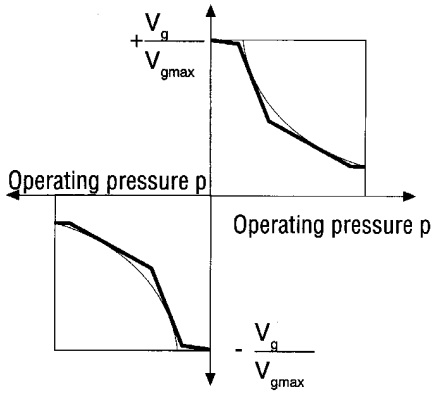




Variation P Constant power control for HD1

As the operating pressure rises the pilot pressure (i.e. the command value for HD) is reduced by the constant power valve LV 06.

Characteristic curve



Technical data

Min. start of control greater than set control pressure at P.
When ordering please state in clear text e.g. 55 kW at 1500 rpm
For typical output characteristics see RE 95546.

Components

8 constant power valve 95546
LV 06 405 (for sizes 40 - 355)
LV 06 205 (for sizes 500 - 750)

8.1 Sandwich plate for mounting constant power valve (size 40 - 355)

8.2 Change-over valve (for A4VSH/ G)

Ports

A, B	Pressure port
M_A, M_B	Operating pressure test port (plugged)
P	Control pressure port
R(L)	Oil fill port + bleed point (case drain port)
E	Feed
T	Oil drain (plugged)
U	Flushing port (plugged)
K_1, K_2, K_3	Flushing port for housing (plugged)
X_1, X_2	Pilot pressure port
M	Test port control chamber pressure (plugged) (sizes 500 and 750)

Unit dimensions

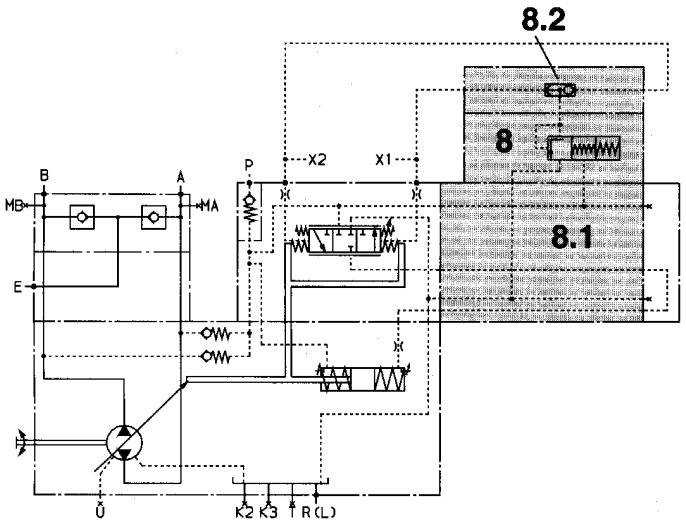
Size	A_1	A_2	A_3	A_5	A_6	A_7	A_8	A_9	A_{10}
40	222	175	296	144	160	134	37	233	56,5
71	238	175	332	166	186	152	45	260	56,5
125	275	193	401	203	219	185,5	45	301	75
180	275	193	401	203	219	185,5	45	301	75
250	309	193	485	248	277	233	55	363	75
355	309	193	485	248	277	233	55	363	75
500	401	240	555	279	329	280	50	383	235
750	438	240	630	301	351	317,5	50	415	235

Size	A_{11}	A_{12}	A_{13}	A_{14}	A_{15}	A_{16}	A_{17}	P	R(L)	X_1, X_2
40	193	82,5	106	113	132,5	218	323	S8 [1]	M22x1,5	S8 [2]
71	209	82,5	122	113	148,5	245	345	S8 [1]	M27x2	S8 [2]
125	247	102,5	148	133	182	301	425	S8 [1]	M33x2	S8 [2]
180	247	102,5	148	133	182	301	425	S8 [1]	M33x2	S8 [2]
250	282,5	102,5	184	133	218	363	438	S8 [1]	M42x2	S8 [2]
355	282,5	102,5	184	133	218	363	438	S8 [1]	M42x2	S8 [2]
500	200	158	225	145	–	519	–	M22x1,5	M48x2	S8 [2]
750	230	158	255	145	–	547	–	M22x1,5	M48x2	S8 [2]

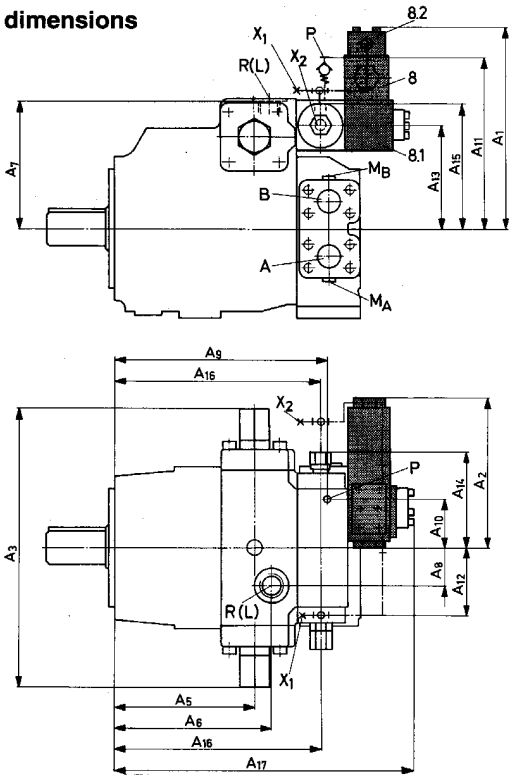
[1]) Screw coupling BO-RVZ 8SM-WD
[2]) Screw coupling BO-RSTV 8SM-WD
} Studs to DIN 3853 / ISO 8434, cavity W shaped to DIN 3861

Sizes 40 - 355

Circuit diagram A4VSG - closed circuit



Unit dimensions

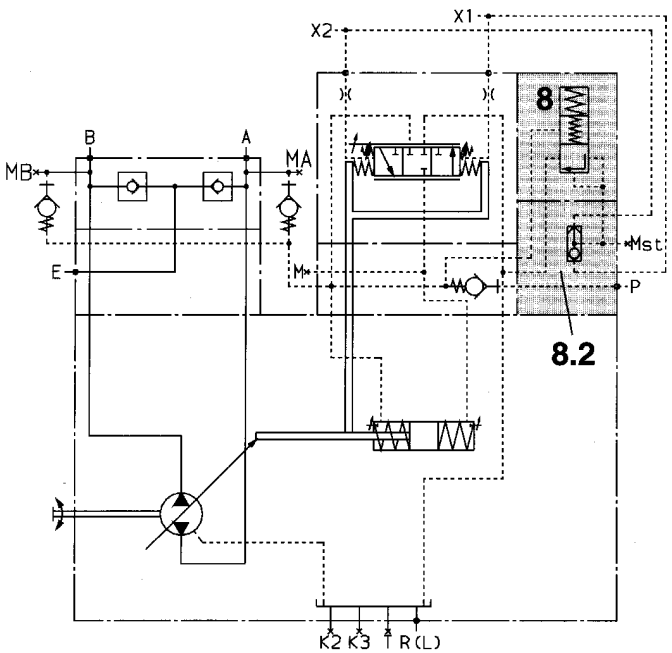


Open circuit

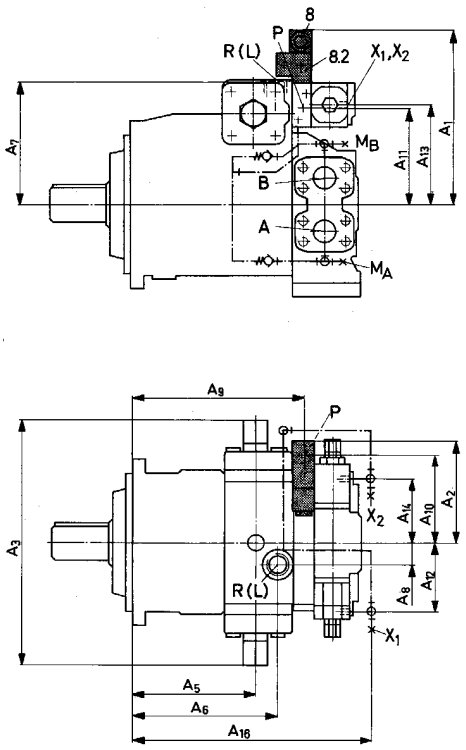
Port X_2 only – cw rotation or
Port X_1 only – a/cw rotation
Position of ports X_1 and X_2 as for basic model HD (see page 4)

Sizes 500 - 750

Circuit diagram A4VSG - closed circuit



Unit dimensions



Open circuit port X1 plugged – rotation clockwise or
port X2 plugged – rotation anti-clockwise

Variation T — electrical pilot pressure control with DBEP 6 for HD1

When operating solenoid a or b on the proportional valve DBEP the corresponding control chamber X_1 or X_2 is supplied with pilot pressure. Control is by means of an electrical command value. The solenoid current limits the hydraulic pilot pressure.

Technical data

Control range 300 - 700 mA ≙ 10 - 45 bar at X_1, X_2

Components

9 Proportional valves DBEP 6 see RE 29164
Model B with ø1,0 mm inlet (open circuit)
Model C with ø1,0 mm inlet (closed circuit)

9.1 Sandwich plate for mounting proportional valve

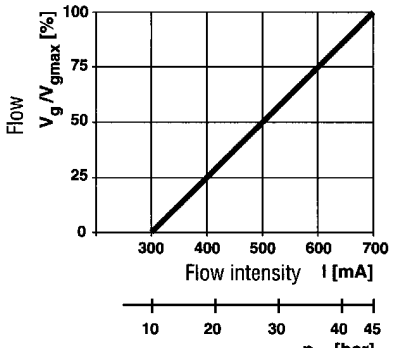
Ports

A, B	Pressure port
M_A, M_B	Operating pressure test port (plugged)
B_1	Auxiliary port (closed)
S	Suction port (A4VSO)
M_S	Test port suction pressure (plugged)
P	Control pressure port
R(L)	Oil fill port + bleed point (case drain port)
E	Feed
T	Oil drain (plugged)
U	Flushing port (plugged)
K_1, K_2, K_3	Flushing point for housing (plugged)
X_1, X_2	Pilot pressure port (plugged)
M	Test port control chamber pressure (plugged) (sizes 500 and 750)

A4VSO - open circuit- RE 92 050

DBEP 6, Model B

Characteristic curve

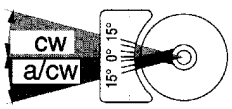


Hysteresis ≤ ± 4% of V_{gmax}
Repeatability ≤ 2% of V_{gmax}

Flow direction S to B

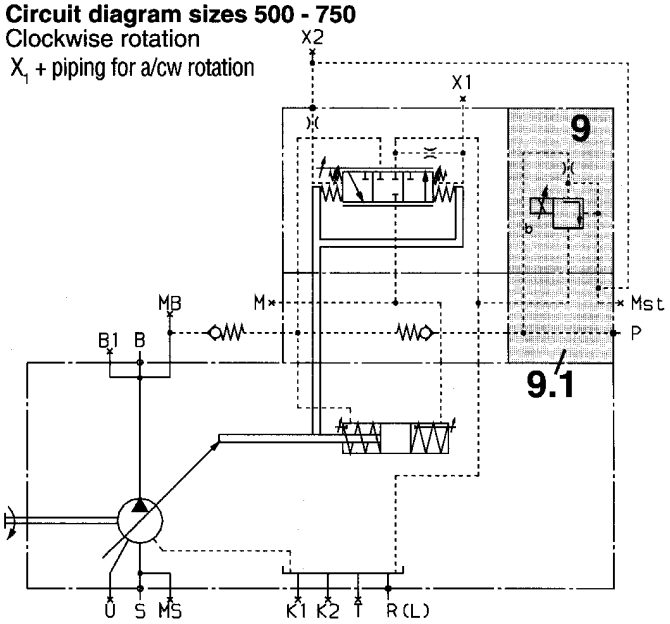
Swivel range[1])/ or solenoid operation	Rotation
cw / b	a/cw
a/cw / b	cw

[1]) cf: swivel angle indicator



Circuit diagram sizes 500 - 750

Clockwise rotation
X_1 + piping for a/cw rotation

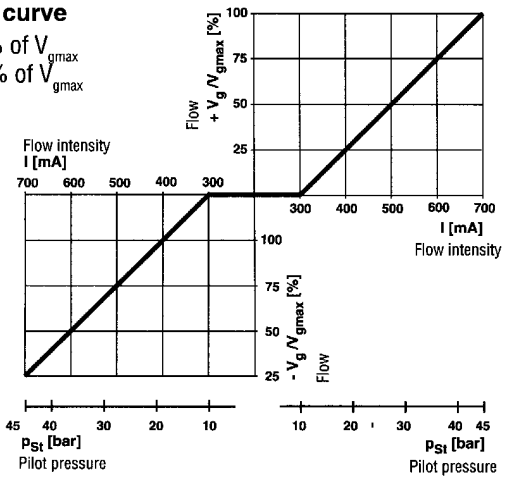


A4VSG - closed circuit - RE 92 100

DBEP 6, Model C

Characteristic curve

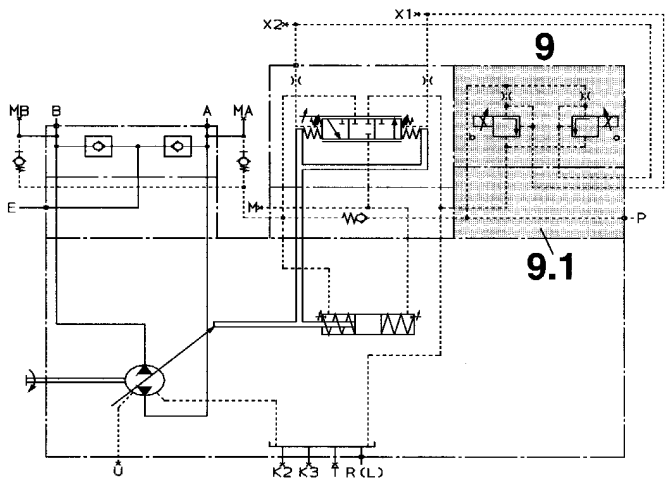
Hysteresis ≤ ± 4% of V_{gmax}
Repeatability ≤ 2% of V_{gmax}



Direction of flow

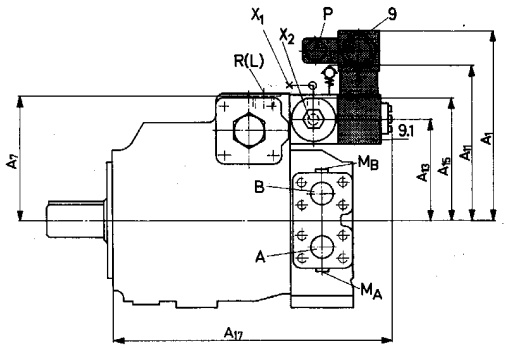
Swivel range[1])/ or solenoid operation	Direction of rotation cw	a/cw
cw / b	**B** to **A**	**A** to **B**
a/cw / a	**A** to **B**	**B** to **A**

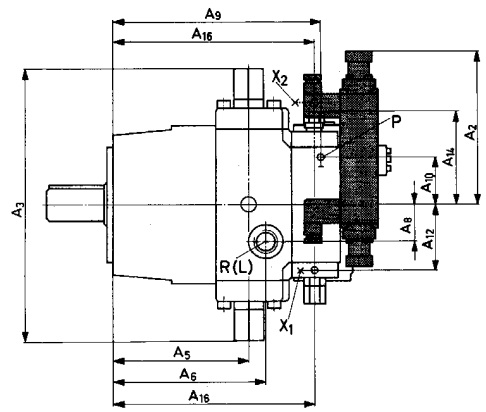
Circuit diagram sizes 500 - 750



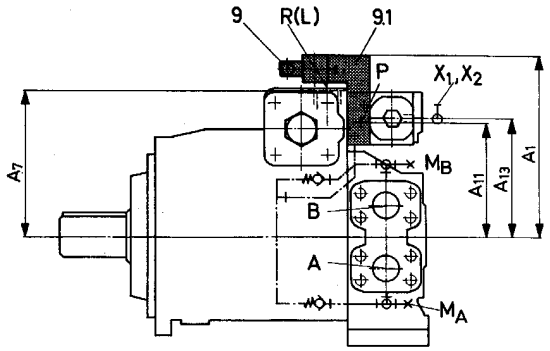
Unit dimensions HD1T

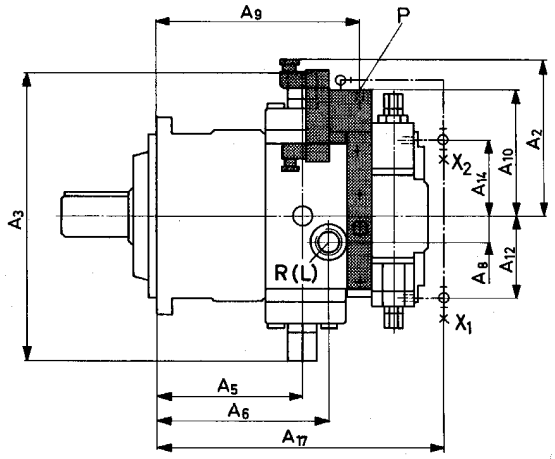
Sizes 40 - 355





Sizes 500 - 750





Unit dimensions

Size	A_1	A_2	A_3	A_5	A_6	A_7	A_8	A_9	A_{10}
40	228	203	296	144	160	134	37	233	56,5
71	228	203	332	166	186	152	45	260	56,5
125	263	204	401	203	219	185,5	45	301	75
180	263	204	401	203	219	185,5	45	301	75
250	299	204	485	248	277	233	55	363	75
355	299	204	485	248	277	233	55	363	75
500	379,5	331	555	279	329	280	50	383	235
750	409	331	630	301	351	317,5	50	415	235

Size	A_{11}	A_{12}	A_{13}	A_{14}	A_{15}	A_{16}	A_{17}	P	R(L)	X_1, X_2	M_A, M_B	M
40	193	82,5	106	113	132,5	218	345	S8 [1]	M22x1,5	S8 [2]	M14x1,5	–
71	209	82,5	122	113	148,5	245	345	S8 [1]	M27x2	S8 [2]	M14x1,5	–
125	247	102,5	148	133	182	301	423	S8 [1]	M33x2	S8 [2]	M14x1,5	–
180	247	102,5	148	133	182	301	423	S8 [1]	M33x2	S8 [2]	M14x1,5	–
250	282,5	102,5	184	133	218	363	487	S8 [1]	M42x2	S8 [2]	M14x1,5	–
355	282,5	102,5	184	133	218	363	487	S8 [1]	M42x2	S8 [2]	M14x1,5	–
500	200	158	225	145	–	–	519	M22x1,5	M48x2	S8 [2]	S12 [3]	M14x1,5
750	230	158	255	145	–	–	547	M22x1,5	M48x2	S8 [2]	S12 [3]	M14x1,5

[1]) Screw coupling BO-RVZ 8SM-WD
[2]) Screw coupling BO-RSTV 8SM-WD
[3]) Screw coupling BO-ETVD 12S

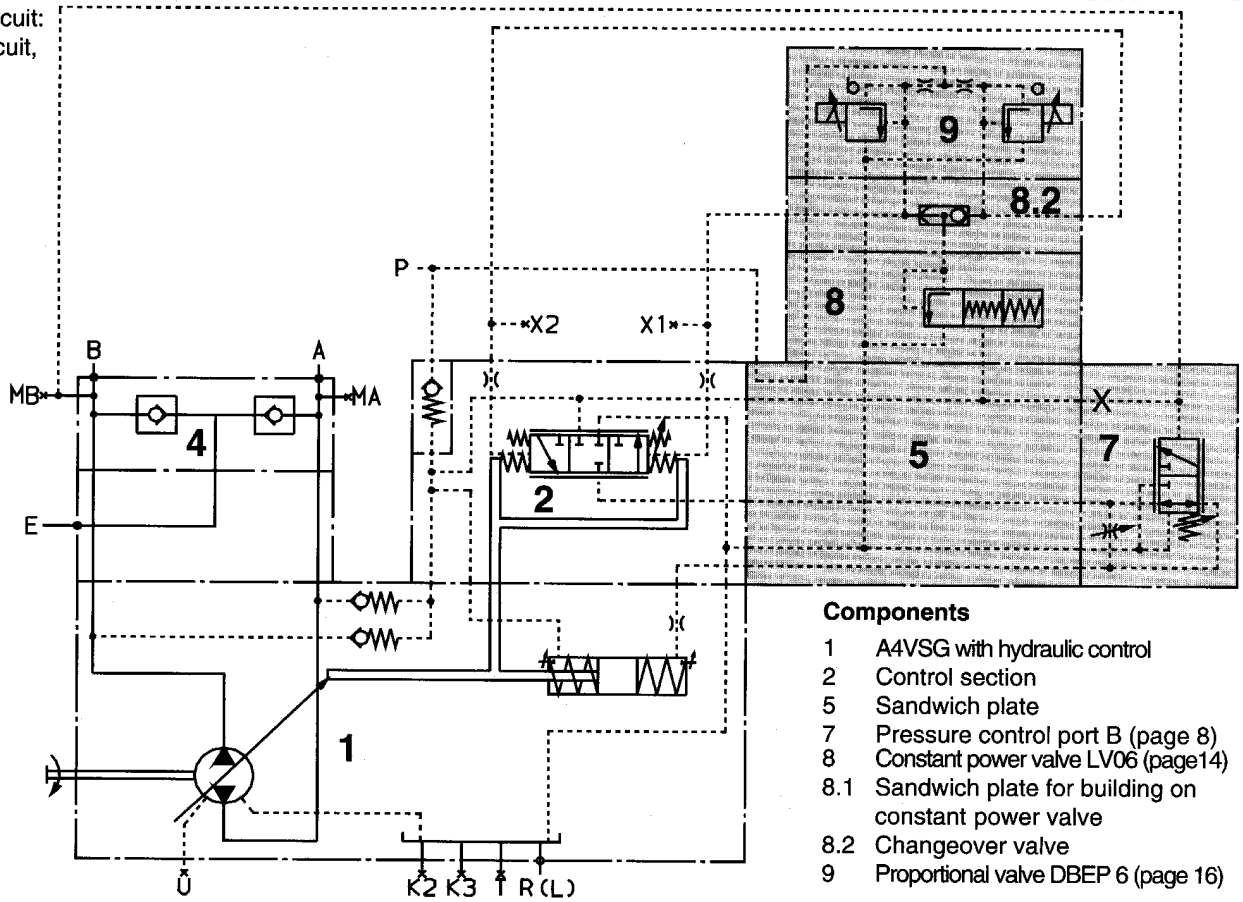
} Spigots to DIN 3853 / ISO 8434, cavity W shaped to DIN 3861

Variation U Constant power control and electrical pilot pressure control with DBEP 6 for HD1

This model is a combination of HD1P (pages 14– 15) and HD1T (page 16–17).

Modular System Combinations – Example: HD1BU Sizes 40 - 355

Typical circuit:
closed circuit,
clockwise
rotation

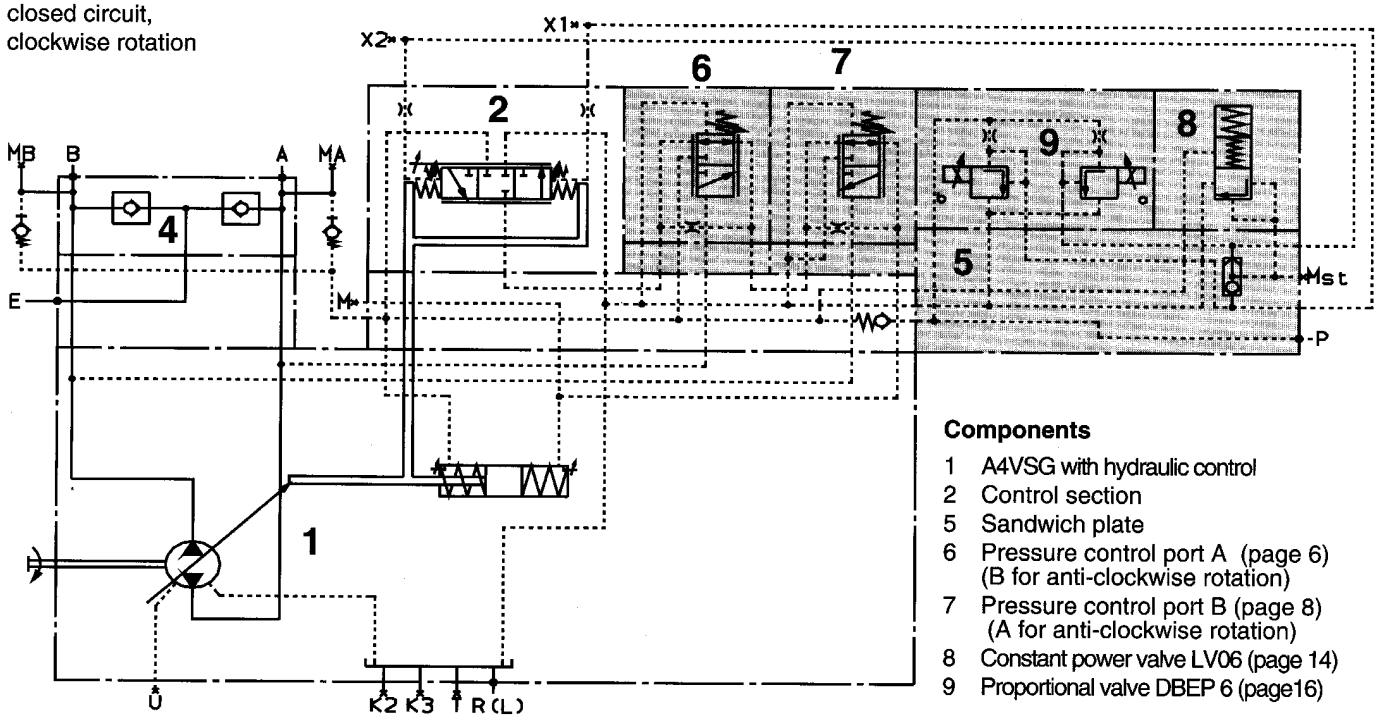


Components

1 A4VSG with hydraulic control
2 Control section
5 Sandwich plate
7 Pressure control port B (page 8)
8 Constant power valve LV06 (page14)
8.1 Sandwich plate for building on constant power valve
8.2 Changeover valve
9 Proportional valve DBEP 6 (page 16)

Modular System Combinations – Example: HD1DU Size 500 - 750

Typical circuit:
closed circuit,
clockwise rotation



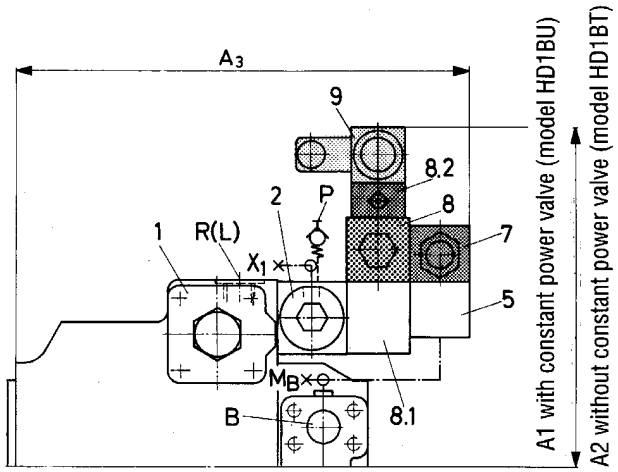
Components

1 A4VSG with hydraulic control
2 Control section
5 Sandwich plate
6 Pressure control port A (page 6) (B for anti-clockwise rotation)
7 Pressure control port B (page 8) (A for anti-clockwise rotation)
8 Constant power valve LV06 (page 14)
9 Proportional valve DBEP 6 (page16)

Unit dimensions HD1BU
Sizes 40 - 355

A4VSG - closed circuit

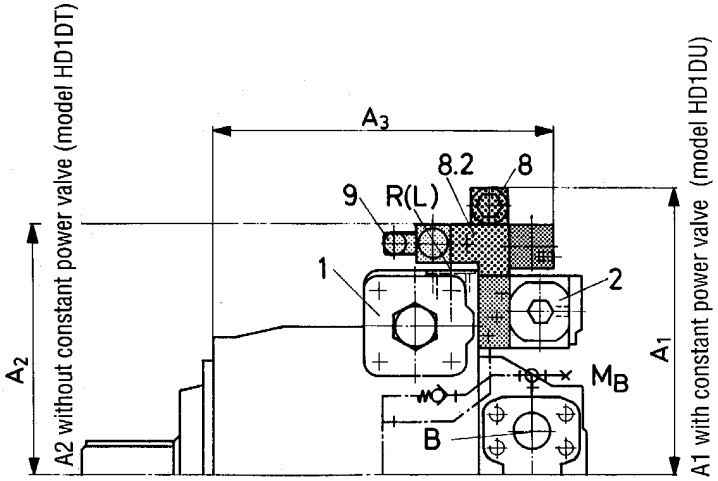
Clockwise rotation

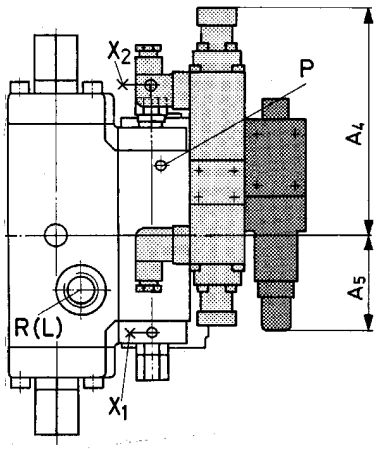


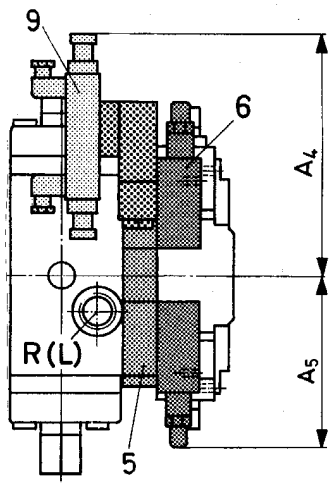
Unit dimensions HD1DU
Sizes 500 - 750

A4VSG - closed circuit

Clockwise rotation







Unit dimension

Size	A_1	A_2	A_3	A_4	A_5	M_A	M_B
40	267	217	355	189	95	M14x1,5	S8 [2]
71	267	217	355	189	95	M14x1,5	S8 [2]
125	317	263	396	204	79	M14x1,5	S8 [2]
180	317	263	396	204	79	M14x1,5	S8 [2]
250	353	299	458	204	79	M14x1,5	S8 [2]
355	353	299	458	204	79	M14x1,5	S8 [2]
500	401	345	468	332	240	S12 [1]	S12 [1]
750	438	375	500	351	240	S12 [1]	S12 [1]

[1]) Screw coupling BO-ETVD 12S
[2]) Screw coupling BO-RSWV 8SM-WD

} Studs to DIN 3853 / ISO 8434, cavity W shaped to DIN 3861

Ports

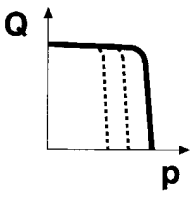
A, B	Pressure port
M_A, M_B	Test port operating pressure (plugged)
P	Control pressure port
R(L)	Oil fill port + bleed point (case drain port)
E	Feed
T	Oil drain (plugged)
U	Flushing port (plugged)
K_2, K_3	Flushing port for housing (plugged)
X_1, X_2	Pilot pressure port (plugged)
M	Test port control chamber pressure (plugged) (sizes 500 and 750)

HD hydraulic control, pressure-related, series 1 and 2

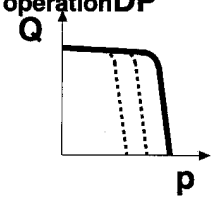
A4VS variable pumps

RE 92060

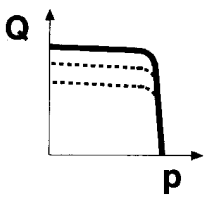
Pressure controller DR



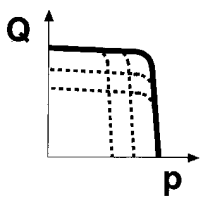
Pressure controller for parallel operation DP



Flow controller FR

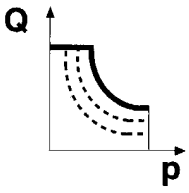


Pressure and flow controller DFR

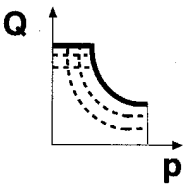


RE 92064

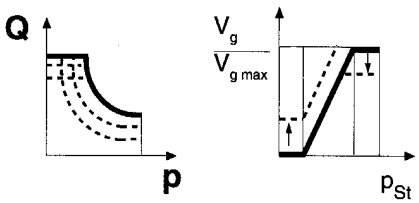
Constant power controller with hyperbolic curve LR2



Constant power control with remote control power curve LR3

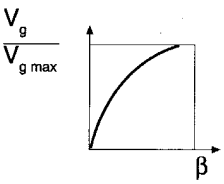


Hydraulic control pilot pressure related LR2N



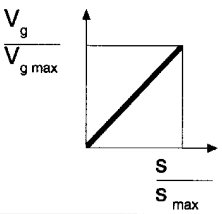
RE 92068

Hydraulic control stroke-dependent HW

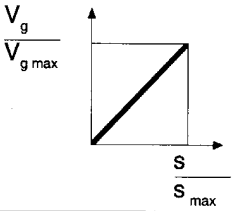


RE 92072

Manual control MA



Electric motor control EM

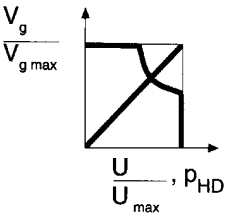


RE 92076

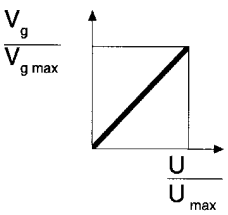
Hydr. flow adjustment flow-dependent HM 1/2

Application:
- 2-point control
- Base unit for servo- or proportional control applications

Hydraulic flow control HS / HSP

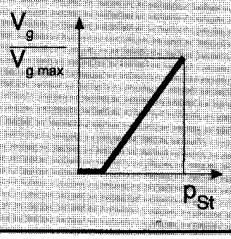


Hydraulic flow control EO1



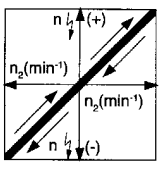
RE 92080

Hydraulic control, pilot pressure-related HD



RE 92055

Speed control, in secondary control DS1



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