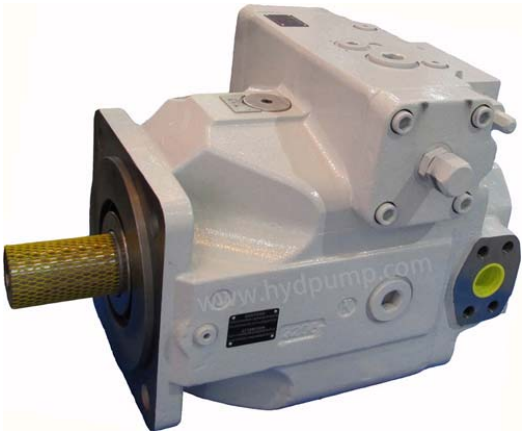
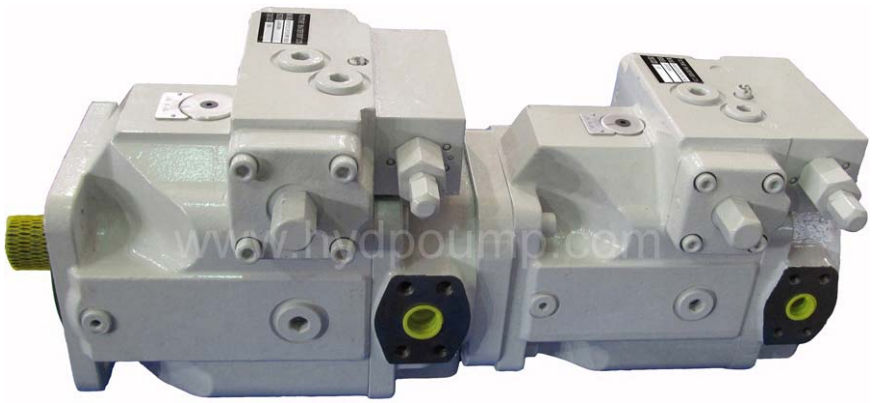
Brueninghaus Hydromatik Rexroth A4VSG Pump

Pump model A4VSG71 A4VSG125 A4VSG180 A4VSG250 A4VSG355 A4VSG500 A4VSG750 A4VSG1000

Closed circuit variable hydraulic piston A4VG pump

Axial piston, swash plate design, variable displacement pump model A4VSG is designed for hydrostatic transmissions in closed circuit.
Flow is proportional to input speed and displacement, and is infinitely variable by adjustment of the swash plate.
Nominal pressure 5100 psi (350 bar). Peak pressure 5800 psi (400 bar)





Ordering code:

		A	A4VS	G	250	DR	/	30	--	R	P	P	B	10	N00			
	1	2	3	4	5	6		7		8	9	10	11	12	13	14	15	

1 Fluid
2 Version
3 Axial piston unit
4 Operation model
5 Size
6 Control device
7 Series
8 Direction of rotation
9 Seals
10 Shaft end
11 Mounting flange
12 Port connections
13 Through drive
14 Valves
15 Filtration

More explanation:

1 Fluid: Blank= Petroleum oils

E= HF-Fluids (except Skydrol)

2 Version: A = SAE version

Blank= Metric version

3 Axial piston unit: Variable pump, swashplate design, industrial applications.

4 Operation model: Pump, closed circuit

5 Size: displacement 40, 71, 125, 180, 250, 355, 500, 750, 1000 (cc/rev.)

6 Control device: DR=Constant pressure control

LR=Const. Power control with hyperbolic curve

MA=Manual control

EO=Hydraulic control, with proportional valve

HD=Hydraulic control, pilot pressure dependent

7 Series: 10, 22, 30

8 Direction of rotation: R= right. L= left (Viewed on shaft end)

9 Seals: P= NBR (Nitrile rubber to DIN ISO 1629) with shaft seal FPM

V= FPM (Fluoride rubber to DIN ISO 1629)

10 Shaft end: P= Metric Parallel with key to DIN 6885

Z= Metric splined shaft per DIN 5480

11 Mounting flange: B= ISO 4-bolt

12 Port connections: 10=Port A,B: SAE on the side (same side), metric mounting threads

13 Through drive: N00= Without auxiliary pump, without through drive

K31= ISO 125, 4-hole, Splined shaft 32x2x30x14x9g, A4VSO/H/G 40

K33= ISO 140, 4-hole, Splined shaft 40x2x30x18x9g, A4VSO/H/G 71

K34= ISO 160, 4-hole, Splined shaft 50x2x30x24x9g, A4VSO/H/G 125

K34= ISO 160, 4-hole, Splined shaft 50x2x30x24x9g, A4VSO/G 180

K35= ISO 224, 4-hole Splined shaft 60x2x30x28x9g, A4VSO/H/G 250

K99= With through drive, without hub or intermediate flange, with cover closed

14 Valves: 0= Without valve block

9= Valve block SDVB mounted

15 Filtration: N= Without filter

F= Filter in boost circuit, mounted

Features:

– slot-controlled swashplate design – infinitely variable adjustment of displacement – reversible flow – permissible nominal pressure 350 bar – low noise level – long service life – drive shaft capable of absorbing axial and radial loads – operation on HF fluids possible with reduced operating parameters	– high power/weight ratio – modular design – short control times – through drive and tandem pumps possible – pump swivel angle indicator –installation position optional –Interchangeable with original Rexroth pump of same model

Hydraulic Fluid

The A4VSG pumps in the standard design, should be used with good quality, petroleum oil based, anti-wear hydraulic fluids. More detailed information regarding the selection of hydraulic fluids and their application limits can be found in our Data Sheets RA 90 220 (Petroleum Oil), RA 90 221 (Biodegradable Fluids) and RA 90 223 (Type HF–Fire Resistant/Synthetic Fluids).

When operating with environmentally compatible fluids (Biodegradable) or Fire Resistant (Type HF synthetic fluids) possible reduction of the operating specifications may be required. Please consult with us and your fluid supplier.

Operating Viscosity Range

In order to obtain optimum efficiency and service life, we recommend that the operating viscosity (at normal operating temperature) be selected from within the range.

Optimum Viscosity (ν_{opt}) 80...170 SUS (16...36 mm²/s)

Limits of Viscosity Range

The limiting values for viscosity are as follows:

Absolute Minimum Viscosity (ν_{min}) 60 SUS (10 mm²/s)
Only for short periods at max. permissible leakage oil temperature t_{max} = 195°F (90°C)

Maximum Viscosity (ν_{max}) 4600 SUS (1000 mm²/s)
Only for short periods during cold start-up

Notes on Hydraulic Fluid Selection

In order to select the correct fluid, it is necessary to know the operating temperature in the tank (open circuits) in relation to the ambient temperature.

The hydraulic fluid should be selected so that, within the operating temperature range, the fluid viscosity is within the optimum range ν_{opt} (see shaded area of the selection diagram). We recommend that the higher viscosity grade is selected in each case.

Example: At an ambient temperature of X°, the operating temperature in the reservoir is 140 °F (60 °C). In the optimum operating viscosity range ν_{opt}, (shaded area), this corresponds to viscosity grades VG 46 or VG 68, VG 68 should be selected.

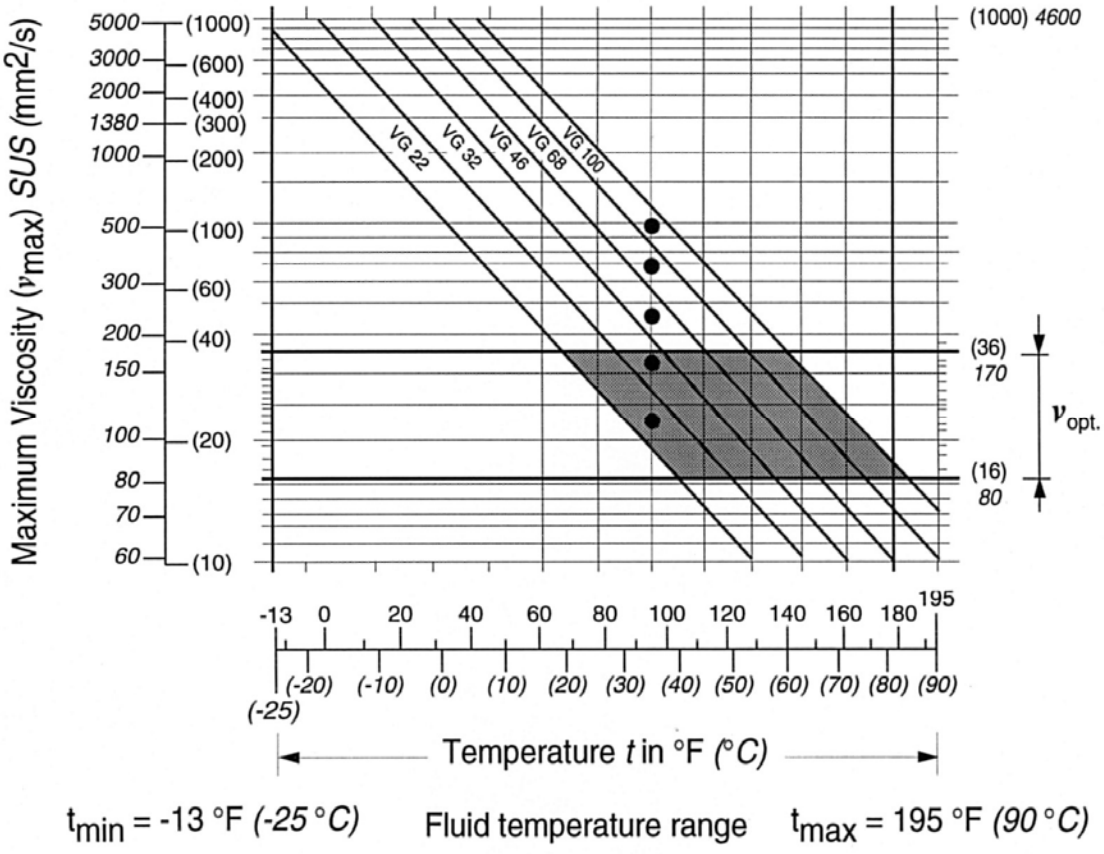
Important: The leakage fluid (case drain fluid) temperature is influenced by pressure and speed and is typically higher than the tank temperature. However, maximum temperature at any point in the system must be less than 195°F (90°C).

Temperature range (See Selection Diagram)

t_{min} = –13° F (–25° C)

t_{max} = +195° F (+90° C)

Selection Diagram



Hydraulic Fluid (continued)

Bearing flushing

For a reliable continuous operation bearing flushing is required with the following operating conditions:

– Applications with special fluids (non mineral) due to limited lubricity and narrow temperature range
– operation with mineral oils, however with marginal conditions for temperature and viscosity
– with vertical mounting (shaft up). In order to ensure lubrication of front bearing and shaft seal, we recommend bearing flushing.

The bearing flushing port "U" is located in the mounting flange area of the pump. The flushing oil flows through the pump's front bearing and leaves via the case drain.

We recommend the following flushing flows:

Size		40	71	125	180	250	355	500	750	1000
Q_{Sp}	GPM	0.8	1.0	1.3	1.8	2.6	4.0	5.3	7.9	10.6
	L/min	(3)	(4)	(5)	(7)	(10)	(15)	(20)	(30)	(40)

For the given flushing flows there will be a pressure difference of approx. 29 psi (2 bar) between the inlet of port “U” and case pressure.

Filtration of the Hydraulic Fluid (Axial Piston Unit)

In order to guarantee reliable operation, the hydraulic fluid must be maintained to a minimum cleanliness level of:

to NAS 1638 class 9,
to SAE class 6, ASTM, AIA, or
to ISO/DIS 4406 SAE J1168 class 18/15 is required.

This may be achieved, for example, with filter elements

type…D 020… (see RA 31 278)

Hence the following filtration ratio is achieved

®$_{20}$ ratio ε 100.

If a filter is installed in a boost circuit in the factory (code F), the following sizes of filter will be fitted dependent upon the size of the axial piston unit as standard, and fitted with a visual/ electrical plugging indicator.

Sizes 40 and 71:	LFBN/HC60G20D1.0/24/V
Sizes 125, 180, and 250:	LFBN/HC110G20D1.0/24/V
Size 355:	LFBN/HC240G20D1.0/24/V
Size 500:	LFBN/HC330G20D1.0/24/V

For further details see RA 31 278.

Technical Data

(Valid for operation on petroleum oil based fluids)

Operating pressure range – Inlet Port

Recommended boost pressure $p_{abs\ min}$ ____ 230 psi (16 bar)

Recommended boost pressure if a common auxiliary pump is used for the boost oil and pilot oil circuits (EO1) $p_{abs\ max}$ ____ 360 psi (25 bar)

Max. boost pressure – auxiliary pump peak pressure with control options
MA-, HM-, HS-, EO-, DS- ____ 725 psi (50 bar)

with control options
HD-, HW-, LR.N-, DR- ____ 230 psi (16 bar)

Auxiliary pump – inlet pressure
Suction pressure $p_{s\ min}$ at v = 60…1400 SUS (10…300 mm²/s)
____ ε 10 psi (0.7 bar) absolute

Operating pressure range – Outlet Port

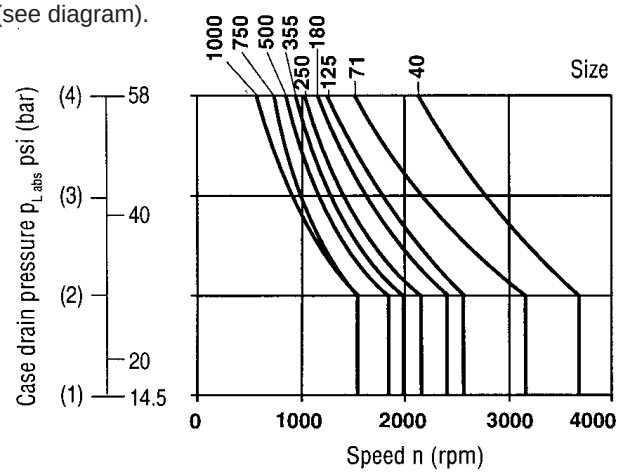
Pressure at ports A or B

Nominal pressure p_n ____ 5100 psi (350 bar)

Peak pressure p_{max} ____ 5800 psi (400 bar)

Case drain pressure

The permissible case drain pressure is depended on the speed (see diagram).



Max. case drain pressure (housing pressure)

$p_{L\ abs\ max}$ ____ 60 psi (4 bar)

These are approximate values. Under certain operating conditions a reduction in these values may be necessary.

Application of force

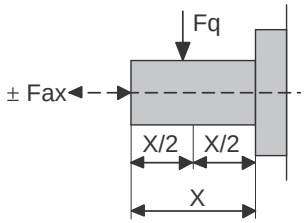


Table of values (theoretical values, without considering η_{mh} and η_v; values rounded)

Size				40	71	125	180	250	355	500	750	1000
Displacement		$V_{g\,max}$	in³/rev	2.44	4.33	7.63	11.0	15.26	21.7	30.51	45.8	61.02
			(cm³/rev)	(40)	(71)	(125)	(180)	(250)	(355)	(500)	(750)	(1000)
Max. speed		n_{max}	rpm	3700	3200	2600	2400	2200	2000	1800	1600	1600
Max. flow	at n_{max}	Q_{max}	gpm	39.1	60.0	85.9	114.1	145.3	187.5	237.7	317.0	422.6
			(L/min)	(148)	(227)	(325)	(432)	(550)	(710)	(900)	(1200)	(1600)
	at n_E = 1200 rpm	Q	gpm	12.7	22.5	39.6	57.0	79.3	112.5	158.5	237.8	317.0
			(L/min)	(48)	(85)	(150)	(216)	(300)	(426)	(600)	(900)	(1200)
	at n_E 1800rpm	Q	gpm	19.0	33.7	59.4	85.6	118.9	168.8	237.7	—	—
			(L/min)	(72)	(128)	(2259)	(324)	(450)	(639)	(900)	—	—
Max. power	at n_{max}	P_{max}	HP	116	178	255	339	432	558	707	943	1257
$-p$ = 5100psi (350bar)			(kW)	(86)	(132)	(190)	(252)	(321)	(414)	(525)	(700)	(933)
	at n_E = 1200 rpm	P	HP	37.8	66.9	117.8	169.6	236.0	334.7	471.6	707.6	943.2
			(kW)	(28)	(50)	(88)	(126)	(175)	(248)	(350)	(525)	(700)
	at n_E 1800rpm	P	HP	56.5	100.3	176.7	254.7	353.8	502.3	707	—	—
			(kW)	(42)	(75)	(131)	(189)	(263)	(373)	(525)	—	—
Max. torque	at $V_{g\,max}$	T_{max}	lb-ft	165	293	516	743	1032	1465	2064	3096	4127
$-p$ = 5100psi (350bar)			(Nm)	(223)	(395)	(696)	(1002)	(1391)	(1976)	(2783)	(4174)	(5565)
Torque	at $V_{g\,max}$	T	lb-ft	32	57	101	146	202	287	405	607	809
$-p$ = 1450psi (100bar)			(Nm)	(64)	(113)	(199)	(286)	(398)	(564)	(795)	(1193)	(1590)
Moment of inertia about drive axis		J	lb-ft²	0.116	0.287	0.712	1.305	2.276	4.509	7.890	15.66	28.47
			(kgm²)	(0.005)	(0.012)	(0.03)	(0.055)	(0.096)	(0.19)	(0.333)	(0.66)	(1.20)
Filling volume (case)			gal	0.5	0.6	1.3	1.0	2.6	2.1	3.7	5.0	7.13
			(L)	(2)	(2.5)	(5)	(4)	(10)	(8)	(14)	(19)	(27)
Approx. weight		m	lbs	104	132	220	251	472	523	772	1102	1389
(pump with press. control)			(kg)	(47)	(60)	(100)	(114)	(214)	(237)	(350)	(500)	(630)
Permissible	max. axial force	$\pm F_{ax\,max}$	lbf	135	180	225	315	405	450	450	495	495
loading of			(N)	(600)	(800)	(1000)	(1400)	(1800)	(2000)	(2000)	(2200)	(2200)
drive shaft	max. radial force	$F_{q\,max}$	lbf	225	270	360	450	450	495	562	674	787
			(N)	(1000)	(1200)	(1600)	(2000)	(2000)	(2200)	(2500)	(3000)	(3500)

Installation notes

Optional installation position. The pump housing must be filled with fluid during commissioning and stay full when operating. In order to obtain the lowest noise level, all connections (suction, pressure, case drain ports) must be linked by flexible couplings to tank.

Avoid placing a check valve in the case drain line. This may be permissible in individual cases, but only after consultation with us.

Calculation of size

Flow $Q = \frac{V_g \cdot n \cdot \eta_v}{231}$ gpm $\left(Q = \frac{V_g \cdot n \cdot \eta_v}{1000} \text{ L/min}\right)$

Torque $T = \frac{V_g \cdot -p}{24 \cdot \pi \cdot \eta_{mh}}$ lb-ft $\left(T = \frac{V_g \cdot -p}{20 \cdot \pi \cdot \eta_{mh}} \text{ Nm}\right)$

Power $P = \frac{Q \cdot -p}{1714 \cdot \eta_t}$ HP $\left(P = \frac{Q \cdot -p}{600 \cdot \eta_t} \text{ kW}\right)$

V_g = Geometric displacement per rev. - in³ (cm³)
n = Speed rpm (rpm)
$-p$ = Pressure differential - psi (bar)
Q = Flow - gpm (L/min)

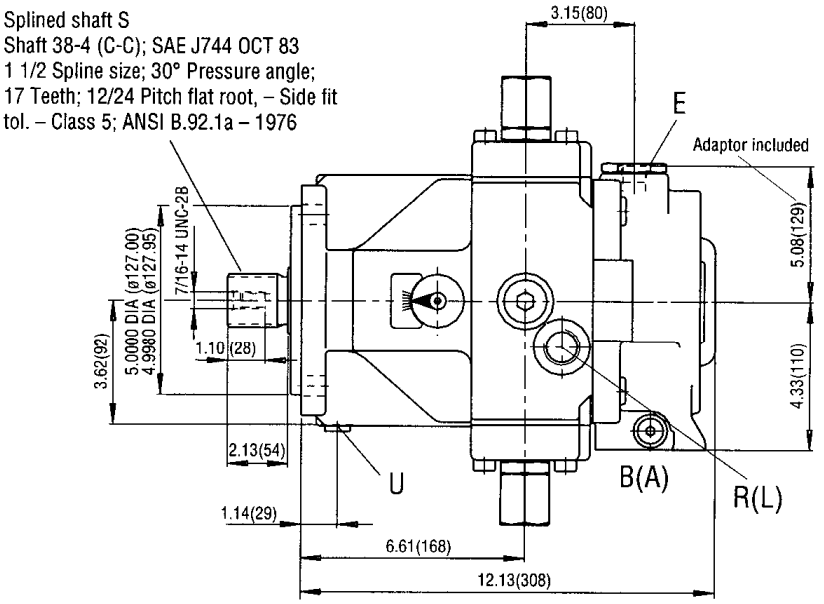
P = Power - HP (kW)
T = Torque - lb-ft (Nm)
η_v = Volumetric efficiency

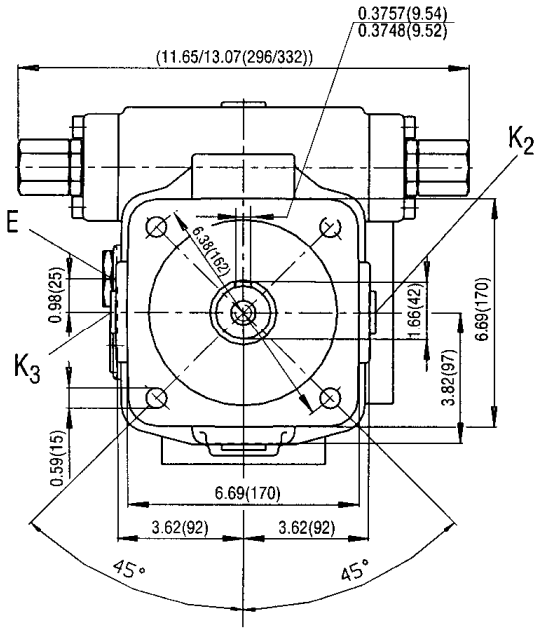
η_t = Total efficiency ($\eta_t = \eta_v \cdot \eta_{mh}$)
η_{mh} = Mechanical-hydraulic efficiency

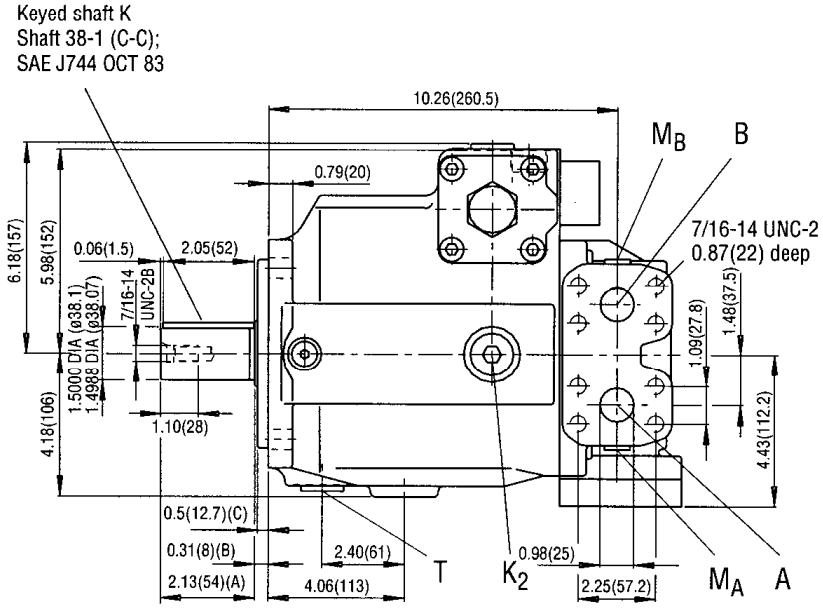
Unit dimensions, size 71, SAE Version

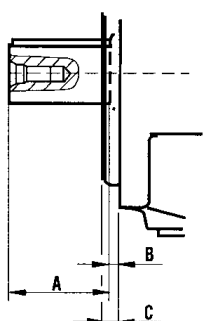
(without considering the control)

Please note: shown is the shaft end in metric version.
The SAE-shaft end has a recessed shaft shoulder.









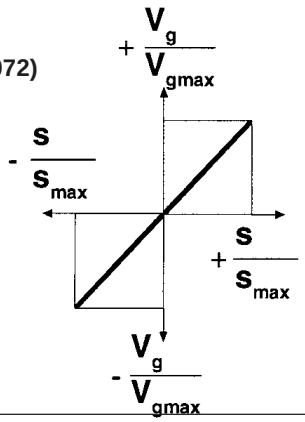
Port connections

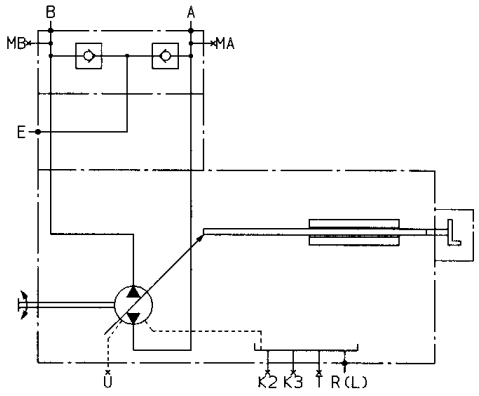
A,B	Pressure ports 1" SAE (high pressure series; Code 62)
M_A, M_B	Test ports 7/16-20 UNF-2B (plugged)
T	Case drain port 1 1/16-12 UN-2B (plugged)
E	Boost port 3/4-16 UNF-2B
K_2,K_3	Flushing ports 1 1/16-12 UN-2B (plugged)
R (L)	Fluid fill and air bleed port 1 1/16-12 UN-2B for exact location see control data sheets
U	Flushing port 7/16-20 UNF-2B; 0.47(12) deep (plugged)

Summary of controls

MA Manual control (see RA 92 072)

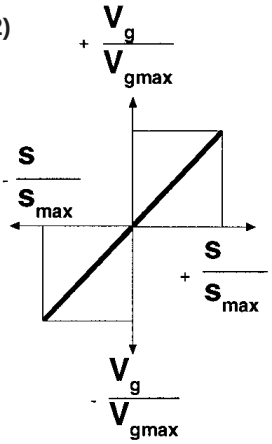
Stepless adjustment of displacement by means of handwheel.

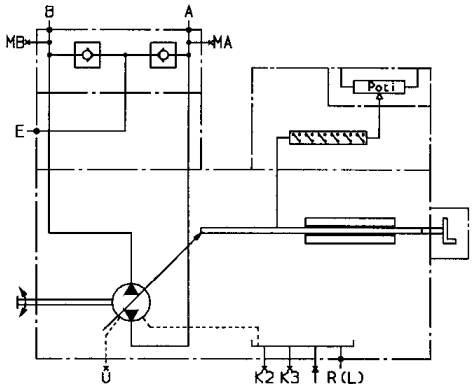




EM Electric motor control (see RA 92 072)

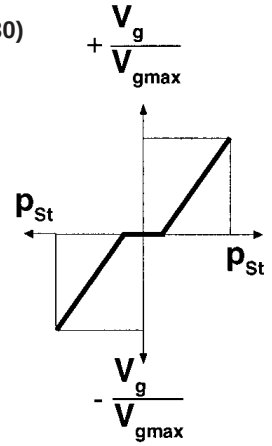
Stepless adjustment of displacement by means of electric motor with control spindle. With a programmed sequence control various intermediate displacements can be selected by means of built-on limit switches or potentiometer.

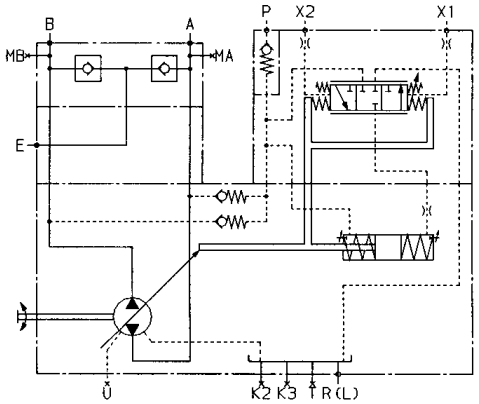




HD Hydraulic control pilot pressure dependent (see RA 92 080)

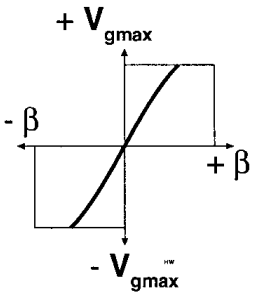
Stepless control of displacement dependent on pilot pressure signal. The displacement is proportional to the pilot pressure.
Optional:
Pilot pressure characteristic curves (HD1, HD2, HD3)
Pressure control (HD.A, HD.B, HD.D)
Remote pressure control (HD.GA, HD.GB, HD.G)
HP control (HD1P)
Electrical pilot pressure control (HD1T)

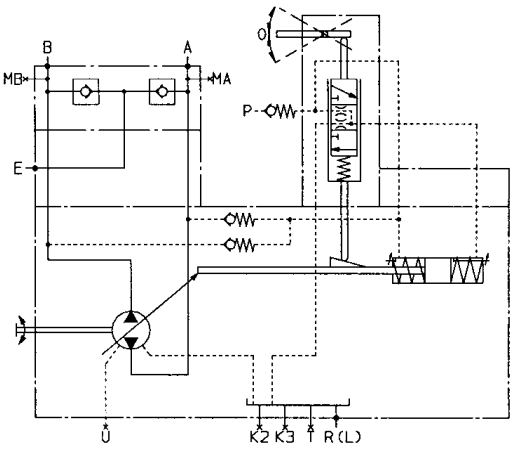




HW Hydraulic control with rotary servo (see RA 92 068, in preparation)

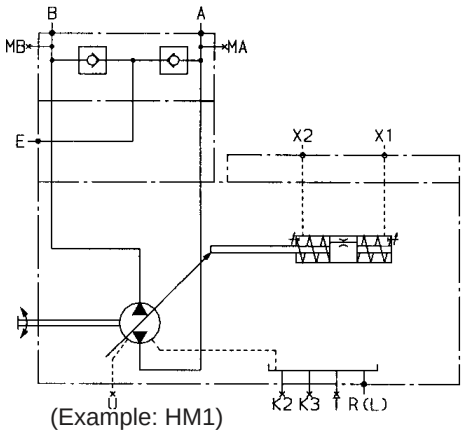
Infinite adjustment of the pump flow as a function of the angle position (sin. ®) of the pivot.
Optional:
with hyperbolic horsepower control swiveling one side of center only (HWP)





HM1/2/3 Hydraulic flow control flow dependent (see RA 92 076)

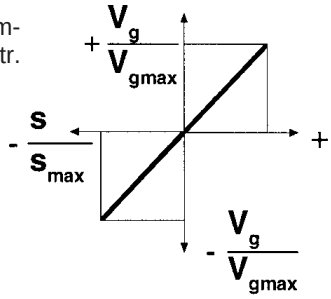
The pump displacement is infinitely adjustable, dependent on the control volume in port X_1 and X_2.
Application: – 2 point control
– basic control device for servo- or proportional control

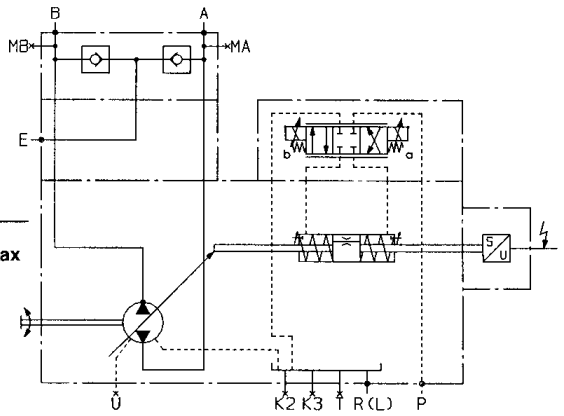


(Example: HM1)

EO1/2 Hydraulic control with proportional valve (see RA 92 076)

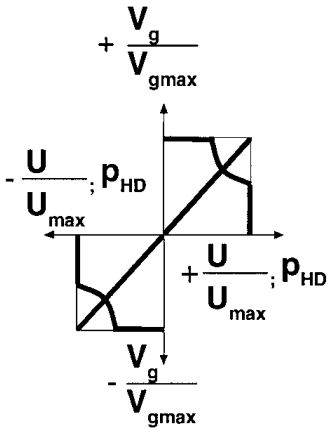
The stepless displacement control is accomplished with a proportional valve with electr. feedback of swivel angle.
Electronic control
Optional:
Short circuit valve (EO1K, EO2K)
Without valves (EO1E, EO2E)

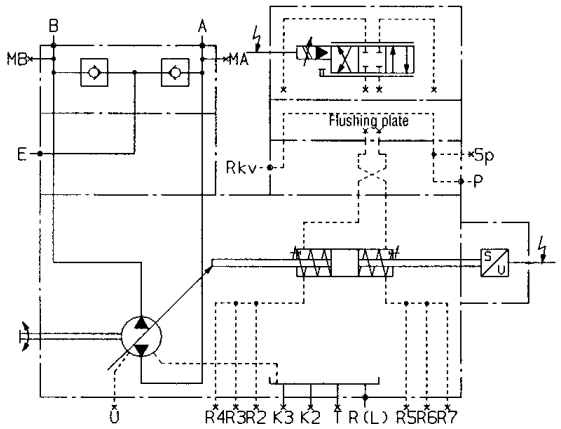




HS, HS1, HS3 Hydraulic control with servo or proportional valve (see RA 92 076)

The stepless displacement control is accomplished by means of a servo or proportional valve with electric feedback of swivel angle.
Electronic control
Optional:
Servo valve (HS/ HS1)
Proportional valve (HS3)
Short circuit valve (HS1K, HS3K)
Without valves (HSE, HS1E, HS3E).
The **HS3P**-control is equipped with built-on pressure transducer, which makes it suitable for pressure- and power control

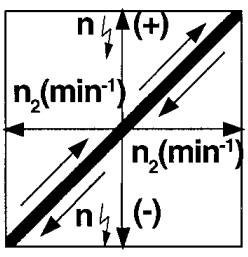


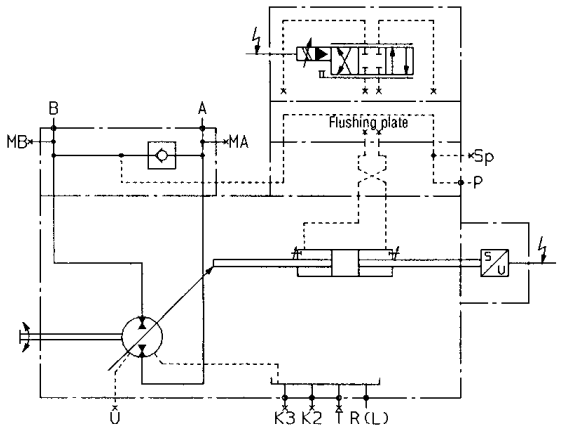


(Example: HS) (HS3, see RE 30 021)

DS1 Speed control secondary controlled (see RA 92 055)

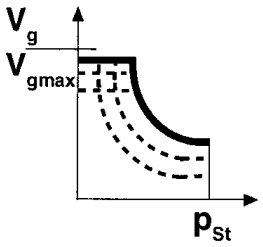
The speed control DS1 controls the secondary unit (the motor) in such a manner, that this motor supplies sufficient torque to maintain the required speed. Hooked up to a system with constant pressure, this torque is proportional to displacement, thus to swivel angle.

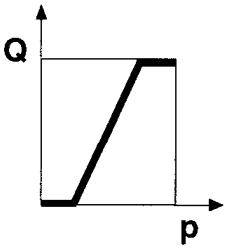


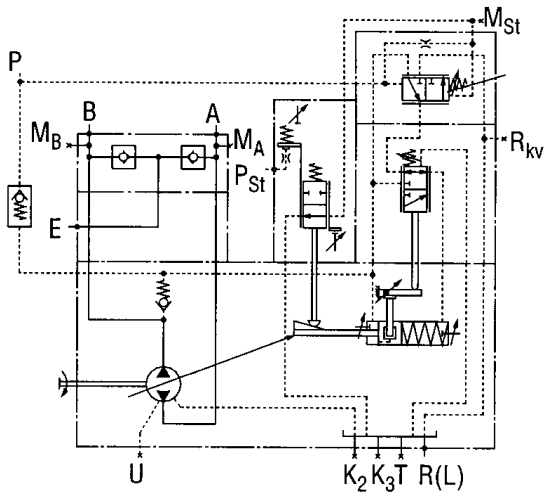


LR.N Hydraulic control pilot pressure dependent basic position $V_{g\,min}$ (see RA 92 064)

With overriding power control.
Single sided operation.
The displacement is proportional to the pilot pressure in P_{St}. The additional hyperbolic power control is overriding the pilot pressure signal and holds the preset power constant.
Optional:
Pressure control (LR2DN)
Pressure control, remote (LR2GN)
HP-characteristic, remote (LR3N, LR3DN, LR3GN)

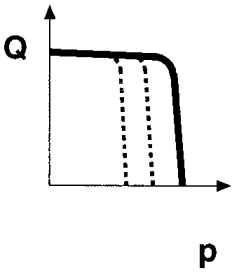


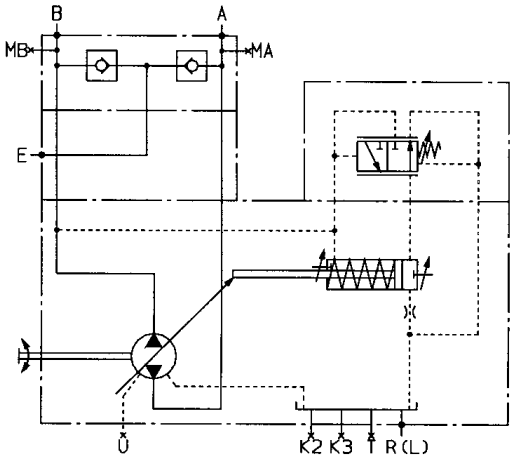




DR Pressure control (see RA 92 060)

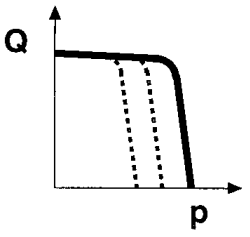
Single sided operation
Maintain a constant pressure in a hydraulic system
Adjustment range 290...5100 psi (20...350 bar)
Optional:
Remote control (DRG)

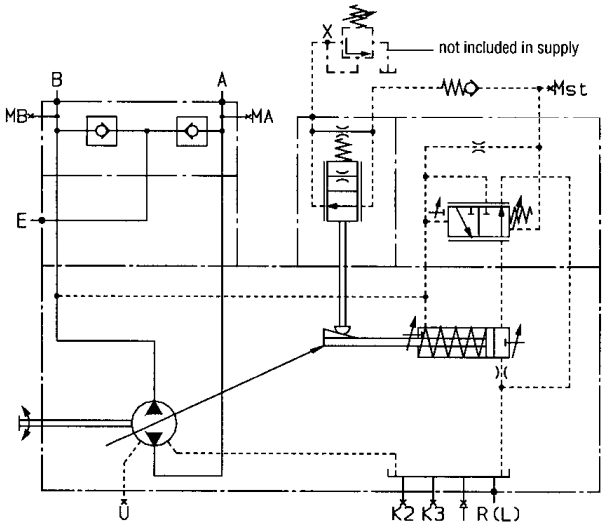




DP Pressure control for parallel operation (see RA 92 060)

Single sided operation
Suitable to maintain a constant pressure in a system with multiple axial piston pumps A4VSG in parallel operation.
Optional:
Flow control (DPF)





Through-drive

Axial piston units A4VSG can be supplied with a through-drive capability, as shown in the ordering code on page 3:

It is recommended that no more than three individual pumps are coupled in series.

Included in the supply are:
Coupling, fixing screws, seal and an intermediate flange (if required).

Combination pumps

Two or more independent circuits are available to the user when combination pumps are used.

1. If the combination pump consists of **2 Brueninghaus Hydromatik units** and if it is supposed to be delivered as **an assembled unit**, the two odering codes are to be combined with the "**+**" symbol.
   Ordering example:
   AA4VSG 125 EO1/22R – PKD60K169F +
   AA4VSG 71 HM1/10R – PSD60N000N

1.1 Please see data sheet RA 90 139 (in preparation) if a gear pump or radial piston pump is to be mounted as a combination pump at the factory. This data sheet lists the pumps which can be mounted and they are included in the ordering code of the first pump.

2. **Auxiliary pumps, built-on and piped up** (see page 32)
   Dependent upon the application, the following auxiliary pumps and/or piping are available:
   Ordering example (metric):
   A4VSG 125 EO1/22R – PPB10H029F
   A4VSG with auxiliary pump piped up for boost circuit
   A4VSG 71 EO1/10R – PPB10H059F
   A4VSG with **one** auxiliary pump piped up for a common boost and pilot supply circuit, at speeds of > 2800 rpm.

It is recommended that no more than three individual pumps are coupled in series.
When planning a pump combination with equal pump sizes (i.e. 125+125) and controls HD.P, HD.T and HD.U it is necessary to consult us.

Permissible through drive torque

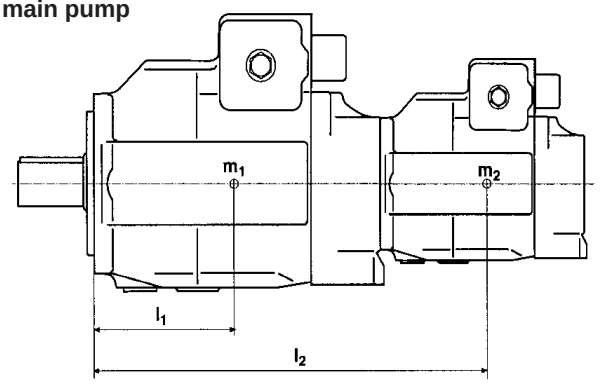
Splined shaft Z

Size			40	71	125	180	250	355	500	750
Max. perm. through-drive torque at mounting flange pump1 (pump1 + (pump2)	$T_{tot.\ max}$	lb-ft	329	583	1027	1478	2052	2914	4105	6156
		(Nm)	(446)	(790)	(1392)	(2004)	(2782)	(3952)	(5566)	(8348)
1 Permissible through drive torque	T_{D1max}	lb-ft	164	291	513	739	1026	1457	2052	3078
		(Nm)	(223)	(395)	(696)	(1002)	(1391)	(1976)	(2783)	(4174)
	T_{D2max}	lb-ft	164	291	513	739	1026	1457	2052	3078
		(Nm)	(223)	(395)	(696)	(1002)	(1391)	(1976)	(2783)	(4174)
2 Permissible through drive torque	T_{D1max}	lb-ft	164	291	513	739	1026	1457	2052	3078
		(Nm)	(223)	(395)	(696)	(1002)	(1391)	(1976)	(2783)	(4174)
	T_{D2max}	lb-ft	164	291	513	739	1026	1457	2052	3078
		(Nm)	(223)	(395)	(696)	(1002)	(1391)	(1976)	(2783)	(4174)

Keyed shaft P

Size			40	71	125	180	250	355	500	750
Max. perm. through-drive torque at mounting flange pump1(pump 1 + (pump2)	$T_{tot.\ max}$	lb-ft	280	516	1027	1032	1696	2623	3835	5541
		(Nm)	(380)	(700)	(1392)	(1400)	(2300)	(3557)	(5200)	(7513)
1 Permissible through drive torque	T_{D1max}	lb-ft	164	291	513	739	1026	1457	2052	3078
		(Nm)	(223)	(395)	(696)	(1002)	(1391)	(1976)	(2783)	(4174)
	T_{D2max}	lb-ft	116	225	513	293	670	1166	1783	2463
		(Nm)	(157)	(305)	(696)	(398)	(909)	(1581)	(2417)	(3339)
2 Permissible through drive torque	T_{D1max}	lb-ft	116	225	513	293	670	1166	1783	2463
		(Nm)	(157)	(305)	(696)	(398)	(909)	(1581)	(2417)	(3339)
	T_{D2max}	lb-ft	164	291	513	739	1026	1457	2052	3078
		(Nm)	(223)	(395)	(696)	(1002)	(1391)	(1976)	(2783)	(4174)

Permissible bending moment related to mounting flange of main pump



m_1, m_2 [lbs] Weight of pumps
l_1, l_2 [in] Center to center distance

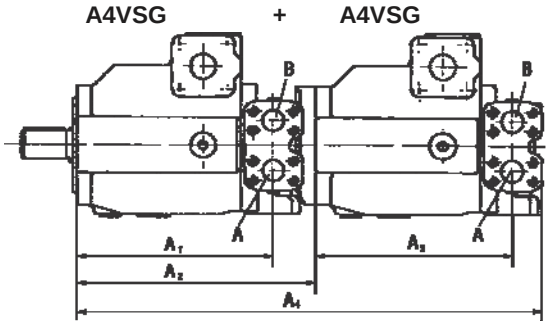
$$T_m = m_1 \cdot l_1 \cdot \frac{1}{12} + m_2 \cdot l_2 \cdot \frac{1}{12} \text{ [lb-ft]}$$

m_1, m_2 [kg] Weight of pumps
l_1, l_2 [mm] Center to center distance

$$T_m = m_1 \cdot l_1 \cdot \frac{1}{102} + m_2 \cdot l_2 \cdot \frac{1}{102} \text{ [Nm]}$$

Size			40	71	125	180	250	355	500	750
Perm. bending moment	$T_{m\ perm.}$	lb-ft	1327.6	1475	3098	3098	6859	6859	11506	14382
		(Nm)	(1800)	(2000)	(4200)	(4200)	(9300)	(9300)	(15600)	(19500)
Perm.bending moment	$T_{m\ zul.}$	(Nm)	(180)	(200)	(420)	(420)	(930)	(930)	(1560)	(1950)
10 g ≙ 98.1m/sec²										
Weight	m	lb	104	132	221	251	472	523	772	1102
		(kg)	(47)	(60)	(100)	(114)	(214)	(237)	(350)	(500)
Center to center distance	l_1	in	4.72	5.51	6.69	7.08	8.26	8.66	9.05	10.23
		(mm)	(120)	(140)	(170)	(180)	(210)	(220)	(230)	(260)

Unit dimensions for combination pumps



SAE

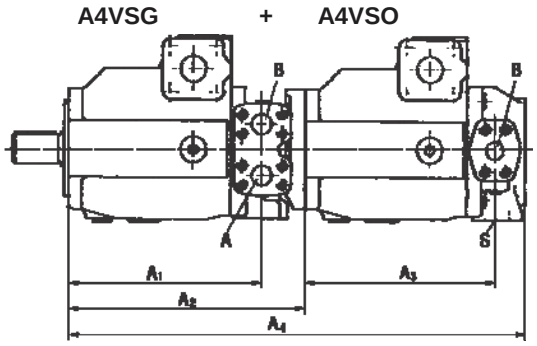
main pump / 2nd pump	AA4VSG 125				AA4VSG 250			
	A_1	A_2	A_3	A_4	A_1	A_2	A_3	A_4
AA4VSG71	12.48 (317)	15.12 (384)	10.26 (260.5)	27.24 (692)				
AA4VSG125	12.48 (317)	15.12 (384)	12.48 (317)	29.45 (748)				
AA4VSG250					15.28 (388)	18.94 (481)	15.28 (388)	38.78 (985)

Metric

main pump / 2nd pump	A4VSG 40				A4VSG 71				A4VSG 125				A4VSG 180				A4VSG 250			
	A_1	A_2	A_3	A_4	A_1	A_2	A_3	A_4	A_1	A_2	A_3	A_4	A_1	A_2	A_3	A_4	A_1	A_2	A_3	A_4
A4VSG40	8.93 (227)	11.33 (288)	8.93 (227)	22.4 (569)	10.2 (259)	12.4 (316)	8.93 (227)	23.5 (597)	12.4 (315)	13.6 (347)	8.93 (227)	24.7 (628)	12.4 (315)	14.6 (371)	8.93 (227)	25.6 (652)	15.2 (386)	16.9 (431)	8.93 (227)	28.0 (712)
A4VSG71	– (–)	– (–)	– (–)	– (–)	10.2 (259)	12.4 (316)	10.2 (259)	24.5 (623)	12.4 (315)	14.6 (373)	10.2 (259)	26.7 (680)	12.4 (315)	15.6 (397)	10.2 (259)	27.6 (703)	15.2 (386)	16.9 (431)	10.2 (259)	29.0 (737)
A4VSG125	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	12.4 (315)	14.9 (379)	12.4 (315)	29.2 (742)	12.4 (315)	15.8 (403)	12.4 (315)	30.1 (766)	15.2 (386)	18.4 (469)	12.4 (315)	32.7 (832)
A4VSG180	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	12.4 (315)	15.8 (403)	12.4 (315)	30.7 (782)	15.2 (386)	18.4 (469)	12.4 (315)	33.3 (848)
A4VSG250	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	15.2 (386)	18.4 (469)	15.2 (386)	35.9 (912)

main pump / 2nd pump	A4VSG 355				A4VSG 500				A4VSG 750			
	A_1	A_2	A_3	A_4	A_1	A_2	A_3	A_4	A_1	A_2	A_3	A_4
A4VSG40	15.4 (393)		8.93 (227)		17.1 (435)	19.8 (505)	8.93 (227)	30.9 (786)	18.3 (467)		8.93 (227)	
A4VSG71	15.4 (393)	18.1 (460)	10.2 (259)	30.1 (766)	17.1 (435)	19.8 (505)	10.2 (259)	31.9 (811)	18.3 (467)		10.2 (259)	
A4VSG125	15.4 (393)		12.4 (315)		17.1 (435)	19.8 (505)	12.4 (315)	34.1 (868)	18.3 (467)		12.4 (315)	
A4VSG180	15.4 (393)		12.4 (315)		17.1 (435)	19.8 (505)	12.4 (315)		18.3 (467)		12.4 (315)	
A4VSG250	15.4 (393)		15.2 (386)		17.1 (435)	21.2 (541)	15.2 (386)	38.6 (982)	18.3 (467)		15.2 (386)	
A4VSG355	15.4 (393)		15.4 (393)		17.1 (435)	21.2 (541)	15.2 (386)	38.6 (982)	18.3 (467)		15.2 (386)	
A4VSG500	– (–)	– (–)	– (–)	– (–)	17.1 (435)	23.2 (590)	17.1 (435)	43.1 (1095)	18.3 (467)	25.1 (640)	17.1 (435)	45.0 (1145)
A4VSG750	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	18.3 (467)	25.7 (655)	18.3 (467)	

Unit dimensions for combination pumps



SAE

main pump / 2nd pump	AA4VSG 125				AA4VSG 250			
	A_1	A_2	A_3	A_4	A_1	A_2	A_3	A_4
AA4VSG 71	12.48 (317)	15.12 (384)	10.08 (256)	26.93 (684)				
AA4VSG 125	12.48 (317)	15.12 (384)	12.28 (312)	32.48 (825)				
AA4VSG 250					15.28 (388)	18.94 (481)	15.04 (382)	36.30 (922)

Other combination pumps in SAE-Version on request.

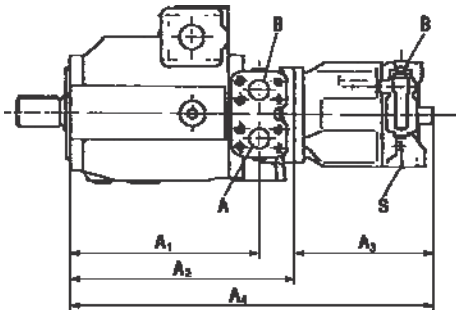
Metric

main pump / 2nd pump	A4VSG 40				A4VSG 71				A4VSG 125				A4VSG 180				A4VSG 250			
	A_1	A_2	A_3	A_4	A_1	A_2	A_3	A_4	A_1	A_2	A_3	A_4	A_1	A_2	A_3	A_4	A_1	A_2	A_3	A_4
A4VSG40	8.93 (227)	11.33 (288)	8.93 (227)	21.9 (557)	10.2 (259)	12.4 (316)	8.93 (227)	23.0 (585)	12.4 (315)	13.6 (347)	8.93 (227)	24.2 (616)	12.4 (315)	14.6 (371)	8.93 (227)	25.1 (640)	15.2 (386)	16.9 (431)	8.93 (227)	27.5 (700)
A4VSG71	– (–)	– (–)	– (–)	– (–)	10.2 (259)	12.4 (316)	10.0 (254)	24.2 (6i5)	12.4 (315)	14.6 (373)	10.0 (254)	26.4 (671)	12.4 (315)	15.6 (397)	10.0 (254)	27.3 (695)	15.2 (386)	16.9 (431)	10.0 (254)	28.7 (729)
A4VSG125	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	12.4 (315)	14.9 (379)	12.2 (310)	28.8 (734)	12.4 (315)	15.8 (403)	12.2 (310)	30.1 (758)	15.2 (386)	18.4 (469)	12.2 (310)	32.4 (824)
A4VSG180	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	12.4 (315)	15.8 (403)	12.5 (318)	30.7 (782)	15.2 (386)	18.4 (469)	12.5 (318)	33.3 (848)
A4VSG250	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	15.2 (386)	18.4 (469)	14.9 (380)	35.7 (908)

main pump / 2nd pump	A4VSG 355				A4VSG 500				A4VSG 750			
	A_1	A_2	A_3	A_4	A_1	A_2	A_3	A_4	A_1	A_2	A_3	A_4
A4VSG40	15.4 (393)		8.93 (227)		17.1 (435)	19.8 (505)	8.93 (227)	30.4 (774)	18.3 (467)		8.93 (227)	
A4VSG71	15.4 (393)	18.1 (460)	10.0 (254)	30.1 (758)	17.1 (435)	19.8 (505)	10.0 (254)	31.6 (803)	18.3 (467)		10.0 (254)	
A4VSG125	15.4 (393)		12.2 (310)		17.1 (435)	19.8 (505)	12.2 (310)	33.8 (860)	18.3 (467)		12.2 (310)	
A4VSG180	15.4 (393)		12.5 (318)		17.1 (435)	19.8 (505)	12.5 (318)	34.8 (884)	18.3 (467)		12.5 (318)	
A4VSG250	15.4 (393)		14.9 (380)		17.1 (435)	21.2 (541)	14.9 (380)	38.5 (980)	18.3 (467)		14.9 (380)	
A4VSG355	15.4 (393)	19.6 (498)	15.4 (393)	38.0 (966)	17.1 (435)		15.4 (393)		18.3 (467)		15.4 (393)	
A4VSG500	– (–)	– (–)	– (–)	– (–)	17.1 (435)	23.2 (590)	17.3 (441)	43.7 (1110)	18.3 (467)	25.1 (640)	17.3 (441)	45.6 (1160)
A4VSG750	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	18.3 (467)	25.7 (655)	18.6 (473)	47.9 (1219)

Unit dimensions for combination pumps

A4VSG + A10VSO



SAE

main pump / 2nd pump	AA4VSG 40				AA4VSG 71				AA4VSG 125				AA4VSG 250			
	A_1	A_2	A_3	A_4	A_1	A_2	A_3	A_4	A_1	A_2	A_3	A_4	A_1	A_2	A_3	A_4
AA10VSO 28	9.02 (229)	11.50 (292)	8.11 (206)	19.60 (498)	10.26 (260.5)	12.76 (324)	8.11 (206)	20.87 (530)	12.48 (317)	14.53 (369)	8.11 (206)	22.64 (575)				
AA10VSO 71													15.28 (388)	17.05 (433)	10.12 (257)	27.17 (690)

Other combination pumps in SAE-Version on request.

Metric

main pump / 2nd pump	A4VSG 40				A4VSG 71				A4VSG 125				A4VSG 180				A4VSG 250			
	A_1	A_2	A_3	A_4	A_1	A_2	A_3	A_4	A_1	A_2	A_3	A_4	A_1	A_2	A_3	A_4	A_1	A_2	A_3	A_4
A10VSO 18	8.93 (227)	10.3 (263)	7.67 (195)	18.0 (458)	10.2 (259)	11.4 (291)	7.67 (195)	19.1 (486)	12.4 (315)	13.6 (347)	7.67 (195)	21.3 (542)	12.4 (315)	14.6 (371)	7.67 (195)	22.2 (566)	15.2 (386)	16.9 (431)	7.67 (195)	24.6 (626)
A10VSO 28	8.93 (227)	11.4 (290)	8.11 (206)	19.5 (496)	10.2 (259)	12.4 (316)	8.11 (206)	20.5 (522)	12.4 (315)	14.4 (367)	8.11 (206)	22.5 (573)	12.4 (315)	15.3 (391)	8.11 (206)	23.5 (597)	15.2 (386)	16.9 (431)	8.11 (206)	25.0 (637)
A10VSO 45	8.93 (227)	11.4 (290)	8.81 (224)	20.2 (514)	10.2 (259)	12.2 (311)	8.81 (224)	21.0 (535)	12.4 (315)	14.4 (367)	8.81 (224)	23.2 (591)	12.4 (315)	15.3 (391)	8.81 (224)	24.2 (615)	15.2 (386)	16.9 (431)	8.81 (224)	25.7 (655)
A10VSO 71	– (–)	– (–)	– (–)	– (–)	10.2 (259)	12.6 (321)	10.1 (257)	22.8 (580)	12.4 (315)	14.8 (378)	10.1 (257)	25.0 (635)	12.4 (315)	15.8 (402)	10.1 (257)	25.9 (659)	15.2 (386)	17.6 (449)	10.1 (257)	27.7 (706)
A10VSO 100	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	12.4 (315)	15.1 (385)	12.8 (326)	27.9 (711)	12.4 (315)	16.0 (408.5)	12.8 (326)	28.9 (735)	15.1 (386)	17.9 (457)	12.8 (326)	30.8 (783)
A10VSO 140	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	12.4 (315)		10.8 (275)		15.1 (386)	18.4 (469)	13.2 (337)	31.7 (806)

main pump / 2nd pump	A4VSG 355				A4VSG 500				A4VSG 750			
	A_1	A_2	A_3	A_4	A_1	A_2	A_3	A_4	A_1	A_2	A_3	A_4
A10VSO 18	15.4 (393)	18.1 (460)	7.67 (195)	25.7 (655)	17.1 (435)	19.8 (505)	7.67 (195)	27.5 (700)	18.3 (467)		7.67 (195)	
A10VSO 28	15.4 (393)		8.11 (206)		17.1 (435)		8.11 (206)		18.3 (467)		8.11 (206)	
A10VSO 45	15.4 (393)		8.81 (224)		17.1 (435)	19.8 (505)	8.81 (224)	28.7 (729)	18.3 (467)		8.81 (224)	
A10VSO 71	15.4 (393)	18.8 (478)	10.1 (257)	28.9 (735)	17.1 (435)	19.8 (505)	10.1 (257)	30.0 (762)	18.3 (467)		10.1 (257)	
A10VSO 100	15.4 (393)		12.8 (326)		17.1 (435)	20.9 (531)	12.8 (326)	33.7 (857)	18.3 (467)		12.8 (326)	
A10VSO 140	15.4 (393)	19.6 (498)	13.2 (337)	32.8 (835)	17.1 (435)	20.8 (530)	13.2 (337)	34.1 (867)	18.3 (467)		13.2 (337)	

Details model of Rexroth A4VSG pump	
A4VSG71HD3D/11R-PPB10N00	A4VSG500HD1G/30R-PZH10K079N
A4VSG125DP/30R-PPB10N00	A4VSG500HD1GT/30R-PPH10K439
A4VSG180HD1DT/30R-PPB10H009	A4VSG71HD3D/11R-PPB10N000NE
A4VSG180EM/10R-PPB10N00	AA4VSG180EO2/30R-PPB13N00
A4VSG250HD3A/30R-PPB10N00	AA4VSG125EO2/30R-PPB13N00
A4VSG355HW/30R-PPB10K520NE	AA4VSG355DRG/30R-PPB13N00
A4VSG500HD1G/30R-PZH10K079	AA4VSG355EO2/30R-PPB25N00
A4VSG750HD/22R-PPH10K99	AA4VSG180MA/30R-PPB13N00
A4VSG1000HD1G/30R-PZH10K72	AA4VSG355HD1/30R-PPB13N00
A4VSG125DP/30R-PPB10N000N	AA4VSG125DR/30L-PPB13N00
A4VSG125EO2/30R-PKD60K020NE	AA4VSG180DR/30R-VPB13N00
A4VSG125HD1/30R-PSD60N000N	AA4VSG125LR2/30R-PPB13N00
A4VSG125HD1D/30R-PKD60N009N	AA4VSG180DRG/30R-PPB13N00
A4VSG125HD1D/30R-VKD60K020NE	AA4VSG125DRG/30R-PPB13K33
A4VSG125HD1DT/30R-PSD60N009N	A4VSG180LR2/30R-PPB13N00
A4VSG125HS/30W-PKD60K020N	A4VSG125LR2N/30R-PPB13N00
A4VSG180EO2/30R-PKD60K020NE	A4VSG180DR/30R-PPB13N00
A4VSG180EO2K/30R-PZB10K279NE	A4VSG180DFR/30R-PPB13N00
A4VSG180HD1DT/30R-PKD60H009F	A4VSG250DFR/30R-PPB13N00
A4VSG180HD1T/30R-PPB10K680N	A4VSG250LR2/30R-PPB13N00
A4VSG180HD3D/30R-PZB10N000NE	A4VSG250LR2N/30R-PPB13N00
A4VSG250DRG/30R-PKD60K080N	A4VSG250DRG/30R-PPB13N00
A4VSG250DS1/30W-PSD60T990N	A4VSG250DR/30R-PPB13N00
A4VSG250HD1A/30R-VZB10K680N	A4VSG71LR2/10R-PPB13N00
A4VSG250HD1D/30R-PKD60N000	A4VSG125DFR/30R-PPB13N00
A4VSG250HD1D/30R-PSD60N000	A4VSG125LR2/30R-PPB13N00
A4VSG250HD1P/30R-PPB10G300	A4VSG180DRG/30R-PPB13N00
A4VSG250HD3D/30R-PPB10N00	A4VSG125LR2/30R-PPB13N00
A4VSG250HS/30R-PKD60H029F	A4VSG125DP/30R-PPB13N00
A4VSG250HSE/30R-PPB10N00	A4VSG125DFR/30R-PPB13N00
A4VSG355HD1BU/30R-VKD60H069	A4VSG355HD1/30R-PPB13N00
A4VSG355HD1DU/30R-PKD60K249N	A4VSG355LR3N/30R-PPB25N00
A4VSG355HW/30R-PKD60N00	A4VSG500LR3N/30R-PPH25N00
A4VSG355HW/30R-PPB10K520	A4VSG750LR3N/30R-PZH25N00
A4VSG500DS1/22W-PPH10N00	AA4VSG355EO2/30R-PKD63K52
A4VSG500DS1/30W-PPH10K430	A4VSG500DR/30R-PPH25N00
A4VSG500HD1/30R-PPH10N00	A4VSG750HS3/30R-PZH25N00
A4VSG500HD1DT/30L-PPH10K049N	A4VSG1000HS3/30R-PZH25N00
A4VSG500HD1G/30R-PZH10K029N	A4VSG40LR2/10R-PPB13N00
A4VSG500HD1GT/30R-PPH10K439N	A4VSG71LR2/10R-PPB13N00
A4VSG125EO2/30R-PKD60K020N	A4VSG71LR2G/10R-PPB13N00
A4VSG125EO2/30R-PKD60K039N	A4VSG40LR2G/10R-PPB13N00
A4VSG125HD1D/30R-PKD60N0	A4VSG250DR/30R-PPB13N00
A4VSG125HD1D/30R-PSD60K240N	A4VSG250DP/30R-PPB13N00
A4VSG125HD1DT/30R-PKD60K049F	A4VSG250DRG/30R-PPB13N00
A4VSG125HD3D/30R-PPB10N00	A4VSG250LR2G/30R-PPB13N00
A4VSG125HSE/30R-PKD60K030N	A4VSG250LR2N/30R-PPB13N00
A4VSG180EO2/30R-PPB10K029N	A4VSG250HS3/30R-PPB13N00
A4VSG180HD1A/30R-PSD60K240N	A4VSG250LR2/30R-PPB13N00
A4VSG180HD1DT/30R-PPB10H009F	A4VSG250DFR/30R-PPB13N00
A4VSG180HD3D/30R-PPB10N00	A4VSG1000LR3N/30R-PZH25N00
A4VSG180HW/30R-PPB10K020N	A4VSG125DR/30R-PPB13N00
A4VSG250DS1/30W-PSD60T000	A4VSG250LR3N/30R-PPB25N00
A4VSG250HD1A/30R-VZB10K350N	A4VSG180DFR/30R-PPB13N00
A4VSG250HD1D/30R-PKD60H009F	A4VSG125DRG/30R-PPB13N00
A4VSG250HD1D/30R-PKD60N00	A4VSG500HS3/30R-PPH25N00
A4VSG250HD1DU/30R-PKD60K049N	A4VSG355HS3/30R-PPB13N00
A4VSG250HD3A/30R-PPB10N00	A4VSG180DR/30R-PPB13N00
A4VSG250HD3D/30R-PPB10K349	A4VSG125DR/30R-VPB13N00
A4VSG250HM1/30L-PKD60N00	A4VSG125LR2N/30R-PPB13N00
A4VSG250HS/30R-PKD60H029FES1430	A4VSG125LR2G/30R-PPB13N00
A4VSG355DS1/30L-PZB10T000NE	A4VSG125LR2D/30R-PPB13N00
A4VSG355HD3D/30R-PZB10K840N	A4VSG180LR2G/30R-PPB13N00
A4VSG355HW/30R-PPB10K020NE	A4VSG180LR2/30R-PPB13N00
A4VSG500DS1/30W-PPH10K180NE	A4VSG180LR2N/30R-PPB13N00
A4VSG500DS1/30W-PZH10T990N-	A4VSG180DR/30R-PPB13N00
A4VSG500HD1DT/22R-PPH10H009N	A4VSG250HD1BT/30R-PKD63K22
A4VSG500HD1DT/30R-PPH10K049N	A4VSG250DRG/30R-PKD63K22
A4VSG250LR2G/30R-PKD63N00	A4VSG250LR2G/30R-PKD63N00