Rexroth
Bosch Group

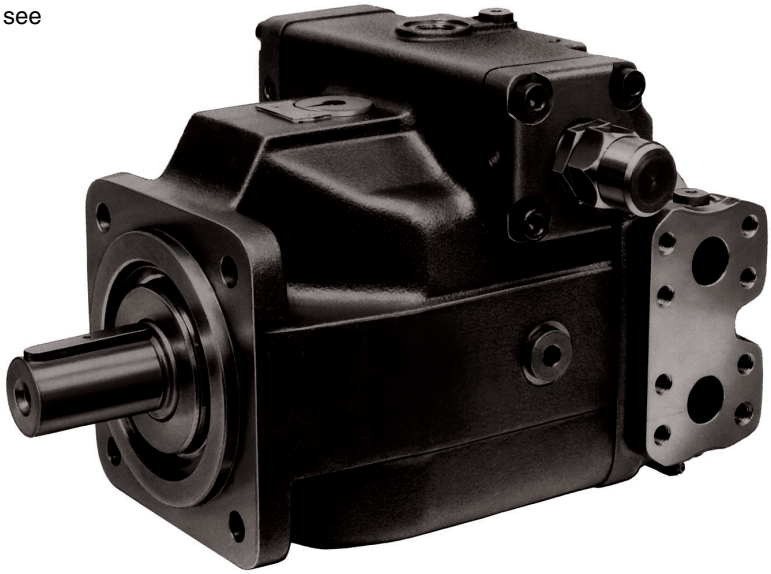
Variable Displacement Pump A4VSG

Series 1 and 2, for closed circuits
axial piston, swashplate design

Sizes 40...1000	Nominal pressure 5100 psi (350 bar)	Peak pressure 5800 psi (400 bar)

RA
92 100/10.97
SAE and Metric
replaces 05.95

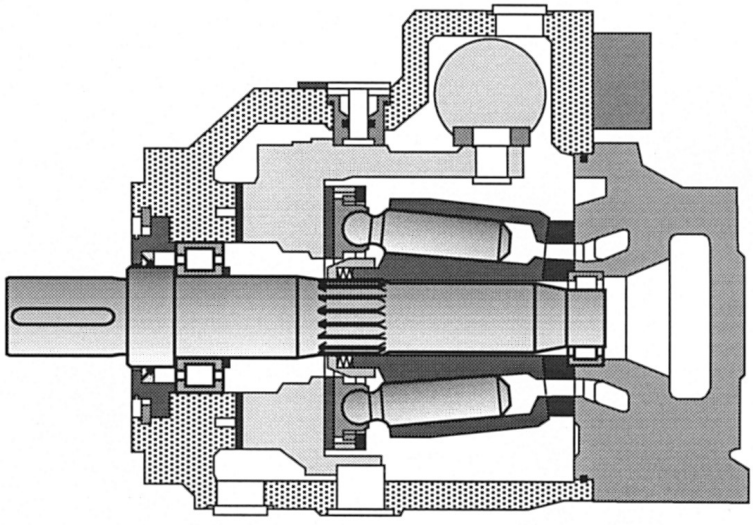
For the description of control options and regulating devices see separate RA sheets (see page 2).



Axial piston, swashplate 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 swashplate.

- Swashplate design
- Infinitely variable displacement
- Reversible flow
- Numerous control options
- Nominal pressure 5100 psi (350 bar)
- Low noise level
- Long service life
- Drive shaft capable of absorbing axial and radial loads
- Low power / weight ratio
- Modular design
- Short control times
- Tandem pumps possible, full thru drive
- Swivel angle indicator standard
- Installation position optional
- Operation on HF fluids permitted at derated parameters



Ordering code

Fluid

Petroleum oils (no code)	
HF-Fluids (except Skydrol)	**E-**

Version

SAE version	**A**
Metric version (no code)	

Axial piston unit

Variable pump, swashplate design, industrial applications	**A4VS**

Mode of operation

Pump, closed circuit	**G**

Sizes		**40**	**71**	**125**	**180**	**250**	**355**	**500**	**750**	**1000**
Displacement	in³/rev.	2.44	4.33	7.63	10.98	15.26	21.66	30.51	45.77	61.02
	cm³/rev.	40	71	125	180	250	355	500	750	1000

Control and adjustment devices		**40**	**71**	**125**	**180**	**250**	**355**	**500**	**750**	**1000**		
Manual control	MA	●	●	●	●	●	●	●	–	–	**MA**	see **RE/RA 92072**
Hydraulic control, volume dependent	HM	●	●	●	●	●	●	●	❍	❍	**HM..**	
Hydraulic control, with servo valve	HS	●	●	●	●	●	●	●	●	●	**HS..**	see **RE/RA 92076**
Hydraulic control, with proportional valve	EO	●	●	●	●	●	●	●	❍	❍	**EO..**	
Hydraulic control, pilot pressure dependent	HD[1])	●	●	●	●	●	●	●	●	❍	**HD..**	see **RE/RA 92080**
Constant pressure control	DR[1])	●	●	●	●	●	●	●	●	❍	**DR..**	see **RE/RA 92060**
Parallel pressure control	DP[1])	●	●	●	●	●	●	●	●	❍	**DP..**	see **RE/RA 92060**
Const. power control w/ hyperb. operating curve	LR[1])	●	●	●	●	●	●	●	●	❍	**LR..N**	see **RE/RA 92064**
Hydraulic control, with rotary servo	HW	●	●	●	●	●	●	●	●	❍	**HW**	see **RA 92068** in preparation
Hydraulic control, speed dependent	DS	●	●	●	●	●	●	●	●	❍	**DS..**	see **RA 92055**

Series

	●	●	–	–	–	–	–	–	–	**10*)**
	–	–	●	●	●	●	●	●	●	**22**

Direction of rotation

As viewed from shaft drive	clockwise	**R**
	counter-clockwise	**L**
	bi-directional [1])	**W**

Seals

Buna N/ Shaft seal: FPM (Fluorocarbon)	**P**
FPM (Fluorocarbon)	**V**

Shaft end	**40**	**71**	**125**	**180**	**250**	**355**	**500**	**750**	**1000**	
Parallel keyed shaft SAE	●	●	●	●	●	❍	–	–	–	**K**
Splined shaft SAE	●	●	●	●	●	❍	–	–	–	**S**
Metric keyed shaft per DIN 6885	●	●	●	●	●	●	●	●	●	**P**
Metric splined shaft per DIN 5480	●	●	●	●	●	●	●	●	●	**Z**

Mounting flange	**40**	**71**	**125**	**180**	**250**	**355**	**500**	**750**	**1000**	
SAE 4-bolt	●	●	●	●	●	❍	–	–	–	**D**
ISO 4-bolt	●	●	●	●	●	●				**B**
ISO 8-bolt	–	–	–	–	–	–	●	●	●	**H**

Port connections

Port A,B: SAE on the side, same side, UNC mounting threads	**60**
Port A,B: SAE on the side, same side, metric mounting threads	**10**

*) HD control is series 11.

1) Depending on control type, alternating direction of rotation may not be possible, please note separate RA sheets on controls.

2) For sizes 500 (only available for DS control), HS/HS1 see RA 92076

		A4VS	G			/		–							

Fluid
Version
Axial piston unit
Mode of operation
Sizes
Control and adjustment devices
Series
Direction of rotation
Seals
Shaft end
Mounting flange
Port connections

Through drive	40	71	125	180	250	355	500	750	1000	
Without auxilliary pump, withouth through drive	●	●	●	●	●	●	●	●	●	**N00**
With through drive (For information, please refer to table on Page 4)										**K...**

Auxiliary pump mounted and with boost circuit filter piped

1 Auxiliary pump	n < 2800 rpm	–	●	●	●	●	●	●	❍	❍	**H02**
for boost oil circuit	n > 2800 rpm	●	●	–	–	–	–	–	–	–	**H03**
1 Auxiliary pump for a combined	n < 2800 rpm	–	●	●	–	●	–	–	–	–	**H04**
boost oil and pilot oil circuit (EO1 only)	n > 2800 rpm	●	●	–	–	–	–	–	–	–	**H05**

Auxiliary pumps mounted – see RA 90139 (in preparation)

Valves

Without valve block	**0**
With SDVB valve block built on	**9**

Filtration	40	71	125	180	250	355	500	750	1000		
Without filter	●	●	●	●	●	●	●	●	●		**N**
Filter installed in the boost circuit	●	●	●	●	●	●	●	❍	❍		**F**
Sandwich filter with HS and DS controls (see RE/RA 92076 and RA 92055)	●	●	●	●	●	●	●[2)]	–	–		**Z**
Filter mounted in the boost circuit and sandwich filter with HS and DS controls	●	●	●	●	●	●	●[2)]	–	–		**U**

● = available
❍ = in preparation
– = not available

Through drive ordering codes

Flange	Hub/shaft	to accept	40	71	125	180	250	355	500	750	1000	
Without auxiliary pump, without through drive			●	●	●	●	●	●	●	●	●	N00
With through drive for mounting of axial piston unit, gear or radial piston pump												
ISO 125, 4-bolt	Splined shaft 32x2x30x14x9g	A4VSO/H/G 40	●	●	●	●	●	●	●	○	○	K31
ISO 125, 4-bolt	splined 32x2x14x9g	A4VSO/H/G 40	●	●	●	●	●	❍	●	❍	❍	K31
ISO 140, 4-bolt	splined 40x2x18x9g	A4VSO/H/G 71	–	●	●	●	●	●	●	❍	❍	K33
ISO 160, 4-bolt	splined 50x2x24x9g	A4VSO/H/G 125	–	–	●	●	●	❍	●	❍	❍	K34
ISO 160, 4-bolt	splined 50x2x24x9g	A4VSO/G 180	–	–	–	●	●	❍	●	❍	❍	K34
ISO 224, 4-bolt	splined 60x2x28x9g	A4VSO/H/G 250	–	–	–	–	●	❍	●	❍	❍	K35
ISO 224, 4-bolt	splined 70x3x22x9g	A4VSO/G 355	–	–	–	–	–	●	❍	❍	❍	K77
ISO 315, 8-bolt	splined 80x2x38x9g	A4VSO/G 500	–	–	–	–	–	–	●	●	❍	K43
ISO 400, 8-bolt	splined 90x3x28x9g	A4VSO/G 750	–	–	–	–	–	–	–	❍	❍	K76
ISO 80, 2-bolt	keyed Ø 18 (mm)	A10VSO 18	●	●	●	●	●	●	●	❍	❍	K51
ISO 100, 2-bolt	keyed Ø 22 (mm)	A10VSO 28	●	●	●	●	●	❍	❍	❍	❍	K25
ISO 100, 2-bolt	keyed Ø 25 (mm)	A10VSO 45	●	●	●	●	●	❍	●	❍	❍	K26
ISO 125, 2-bolt	keyed Ø 32 (mm)	A10VSO 71	–	●	●	●	●	●	●	❍	❍	K27
ISO 125, 2-bolt	keyed Ø 40 (mm)	A10VSO 100	–	–	●	●	●	❍	●	❍	❍	K37
ISO 180, 4-bolt	keyed Ø 45 (mm)	A10VSO 140	–	–	–	❍	●	●	●	❍	❍	K59
127-4 (SAE C, 4-bolt)	splined 32-4 (SAE C)	AA4VSO/G 40	❍	❍	❍	❍	❍	❍	–	–	–	K15
127-4 (SAE C, 4-bolt)	splined 38-4 (SAE C-C)	AA4VSO/G 71	❍	❍	●	❍	❍	❍	–	–	–	K16
152-4 (SAE D, 4-bolt)	splined 44-4 (SAE D)	AA4VSO/G 125	–	–	●	❍	❍	❍	–	–	–	K17
152-4 (SAE D, 4-bolt)	splined 50-4 (SAE F)	AA4VSO/G 180	–	–	–	❍	❍	❍	–	–	–	K78
165-4 (SAE E, 4-bolt)	splined 50-4 (SAE F)	AA4VSO/G 250	–	–	–	–	●	❍	–	–	–	K18
82-2 (SAE A, 2-bolt)	keyed 19-1 (SAE A-B)	AA10VSO 18	❍	❍	❍	❍	❍	❍	–	–	–	K40
101-2 (SAE B, 2-bolt)	keyed 22-1 (SAE B)	AA10VSO 28	●	●	●	❍	❍	❍	–	–	–	K03
101-2 (SAE B, 2-bolt)	keyed 25-1 (SAE B-B)	AA10VSO 45	❍	❍	❍	❍	❍	❍	–	–	–	K05
127-2 (SAE C, 2-bolt)	keyed 32-1 (SAE C)	AA10VSO 71	–	❍	❍	❍	●	❍	–	–	–	K08
127-2 (SAE C, 2-bolt)	keyed 38-1 (SAE C-C)	AA10VSO 100	–	–	❍	❍	❍	❍	–	–	–	K38
152-4 (SAE D, 4-bolt)	keyed 44-1 (SAE D)	AA10VSO 140	–	–	❍	❍	❍	❍	–	–	–	K21
82-2 (SAE A, 2-bolt)	splined 5/8" 16-4 (SAE A)	G2 / GC2/GC3-1X	●	●	●	●	●	●	●	❍	❍	K01
82-2 (SAE A, 2-bolt)	splined 3/4" 19-4 (SAE A-B)	A10VSO 18	●	●	●	●	●	●	●	❍	❍	K52
101-2 (SAE B, 2-bolt)	splined 7/8"	G3, A10VO 28	●	●	●	●	●	●	●	●	❍	K02
101-2 (SAE B)	splined 25-4 (SAE B-B)	GC4-1X, A10VO 45	❍	❍	●	❍	❍	●	❍	❍	❍	K04
101-2 (SAE B)	splined 32-4 (SAE C)	GC5-1X	●	●	●	❍	●	❍	❍	❍	❍	K06
127-2 (SAE C)	splined 32-4 (SAE C)	A10VO 71	❍	❍	❍	❍	❍	❍	❍	❍	❍	K07
127-2 (SAE C)	splined 38-4 (SAE C-C)	GC6-1X, A10VO 100	–	❍	●	●	●	❍	❍	❍	❍	K24
152-4 (SAE D)	splined 44-4 (SAE D)	A10VO 140	❍	❍	❍	❍	❍	❍	❍	❍	❍	K17
Ø 63 (mm) metric, 4-bolt, keyed Ø 25 (mm)		R4	●	●	●	❍	●	❍	❍	❍	❍	K57
101-2 (SAE B)	22-4 (SAE B)	G4	●	●	●	●	●	●	●	●	❍	K68
101-2 (SAE B, 2-bolt)	splined 7/8" R-shaft (SAE B med.)	A10VO 28...R, PVV 1 & 2	❍	❍	❍	❍	❍	❍	❍	❍	❍	KA3
101-2 (SAE B, 2-bolt)	splined 1" R-shaft (SAE BB)	A10VO 45...R	❍	❍	❍	❍	❍	❍	❍	❍	❍	KA4
127-2 (SAE C, 2-bolt)	splined 1-1/4", R-shaft (SAE C)	A10VO 71...R, PVV 4 & 5	❍	❍	❍	❍	❍	❍	❍	❍	❍	KA5
with through drive shaft, without coupler, without intermediate flange, with cover			●	●	●	❍	●	●	●	●	❍	K99

Through drive / Combination pumps

1. If a second Brueninghaus Hydromatik pump is to be mounted at the factory, the two ordering codes have to be connected with a "+". Ordering code of the first pump + ordering code of the second pump
   SAE Example: AA4VSG 125 EO1/22R – PSD60K16ON **+** AA4VSG 71 HM1/10R – PSD60N000N
   Metric Example: A4VSG 125 EO1/22R – PPB10K339F **+** A4VSG 71 HM1/10R – PZB10N000N
2. Please check with the factory if a gear pump or radial piston pump is to be mounted at the factory.

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.

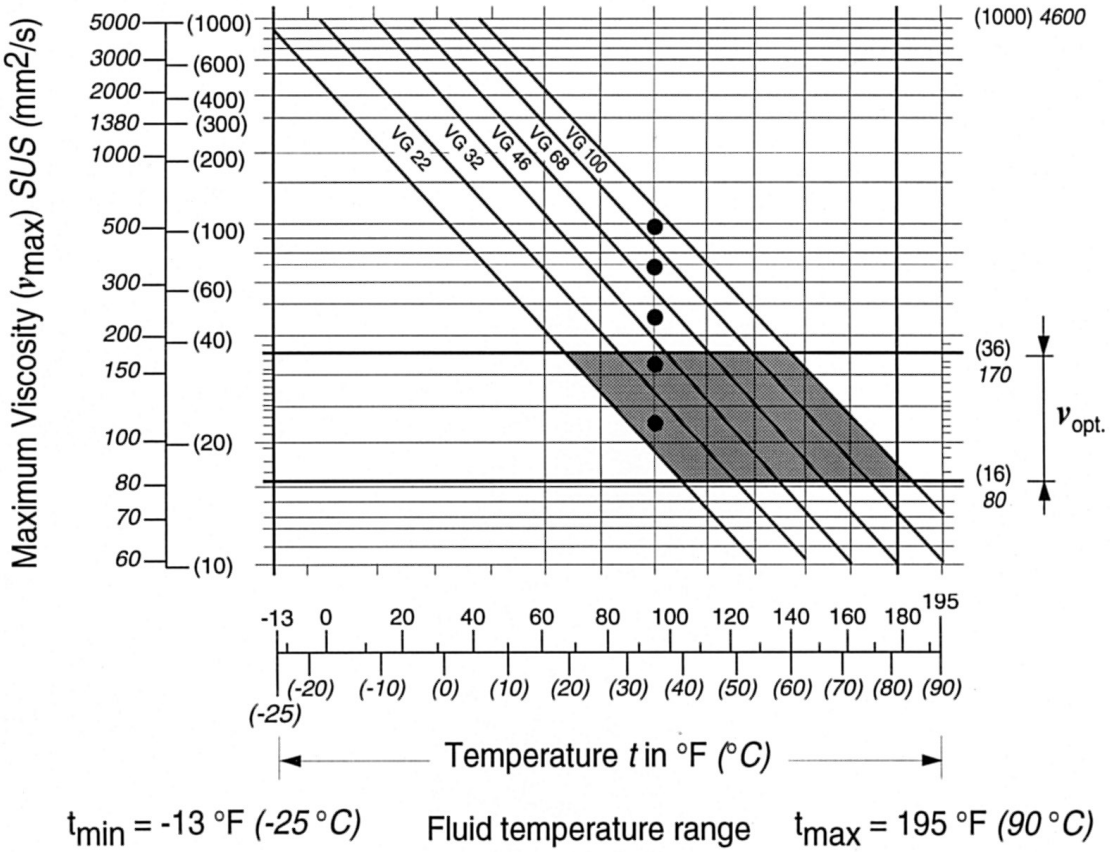
Important: The leakage fluid (case drain fluid) temperature is influenced by pressure and speed and is typically higher than the tank temperature. However, maximum temperature at any point in the system must be less than 195°F (90°C).

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

β_{20} ratio ≥ 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)
_____ ≥ 10 psi (0.7 bar) absolute

Operating pressure range – Outlet Port

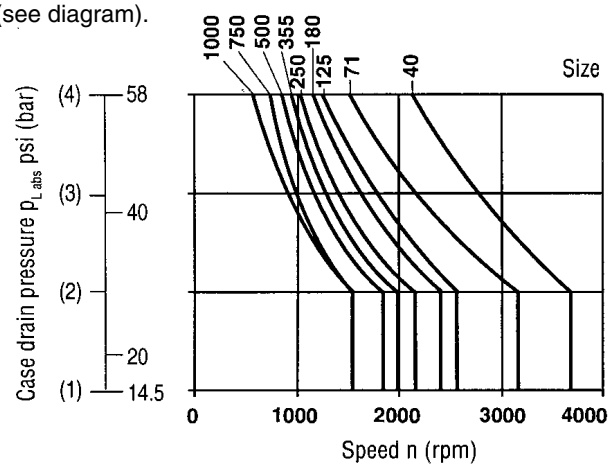
Pressure at ports A or B

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

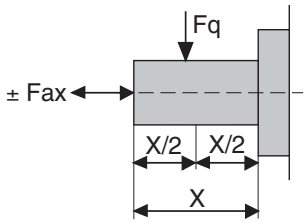


Table of values (theoretical values, without considering η_{mh} and η_v; values rounded)

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 1800 rpm	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
Δp = 5100 psi (350 bar)			(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 1800 rpm	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
Δp = 5100 psi (350 bar)			(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
Δp = 1450 psi (100 bar)			(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	± $F_{ax\,max}$	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 $Q = \dfrac{V_g \cdot n \cdot \eta_v}{231}$ gpm $\left(Q = \dfrac{V_g \cdot n \cdot \eta_v}{1000} \text{ L/min} \right)$

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

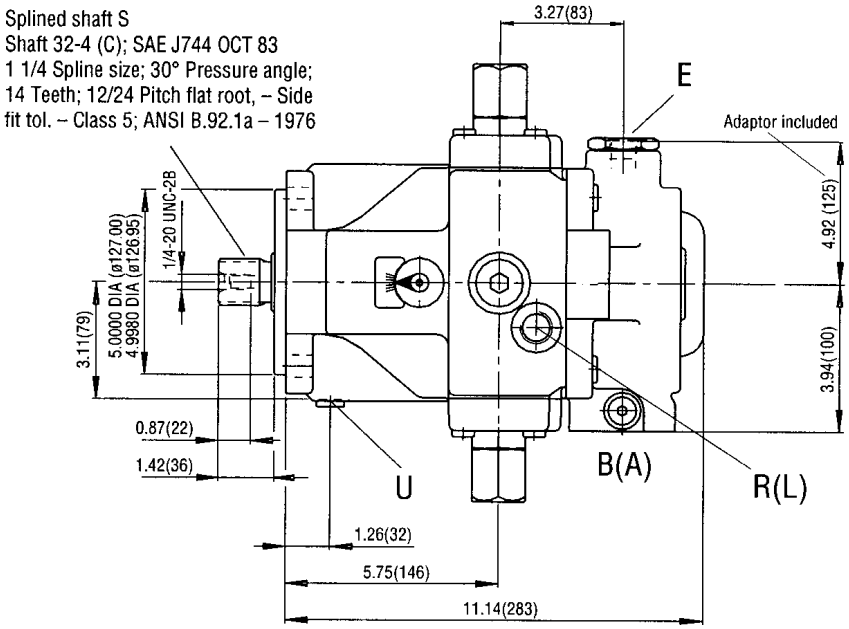
Power $P = \dfrac{Q \cdot \Delta p}{1714 \cdot \eta_t}$ HP $\left(P = \dfrac{Q \cdot \Delta p}{600 \cdot \eta_t} \text{ kW} \right)$

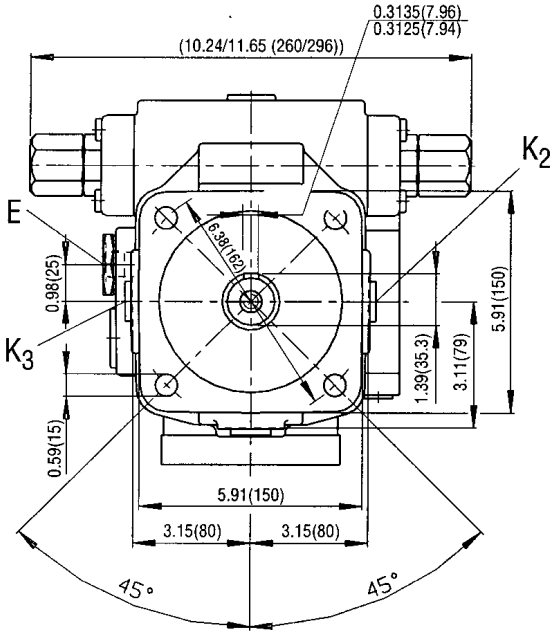
V_g = Geometric displacement per rev. - in³ (cm³)
n = Speed rpm (rpm)
Δp = Pressure differential - psi (bar)
Q = Flow - gpm (L/min)
T = Torque - lb-ft (Nm)
P = Power - HP (kW)
η_v = Volumetric efficiency
η_{mh} = Mechanical-hydraulic efficiency
η_t = Total efficiency ($\eta_t = \eta_v \cdot \eta_{mh}$)

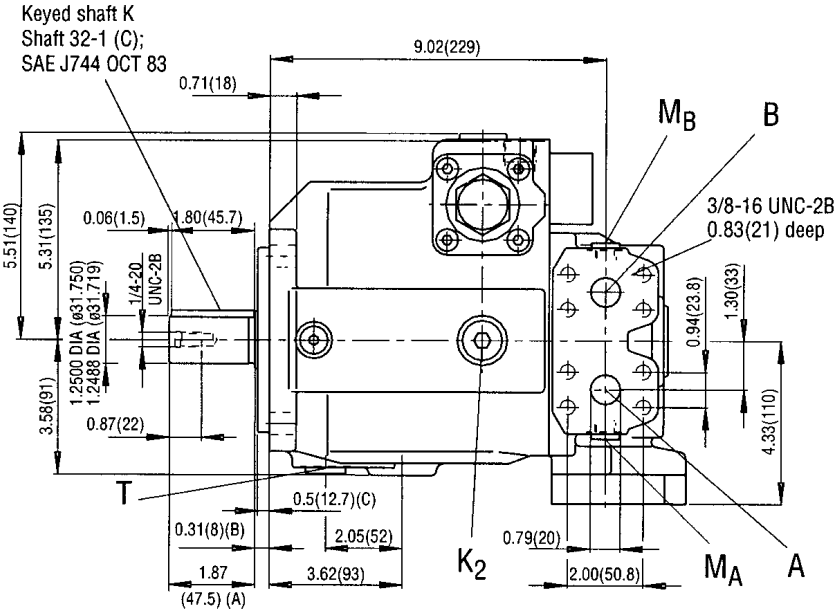
Unit dimensions, size 40, SAE Version

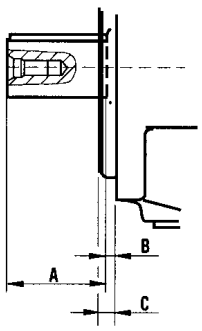
(without considering the control)

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







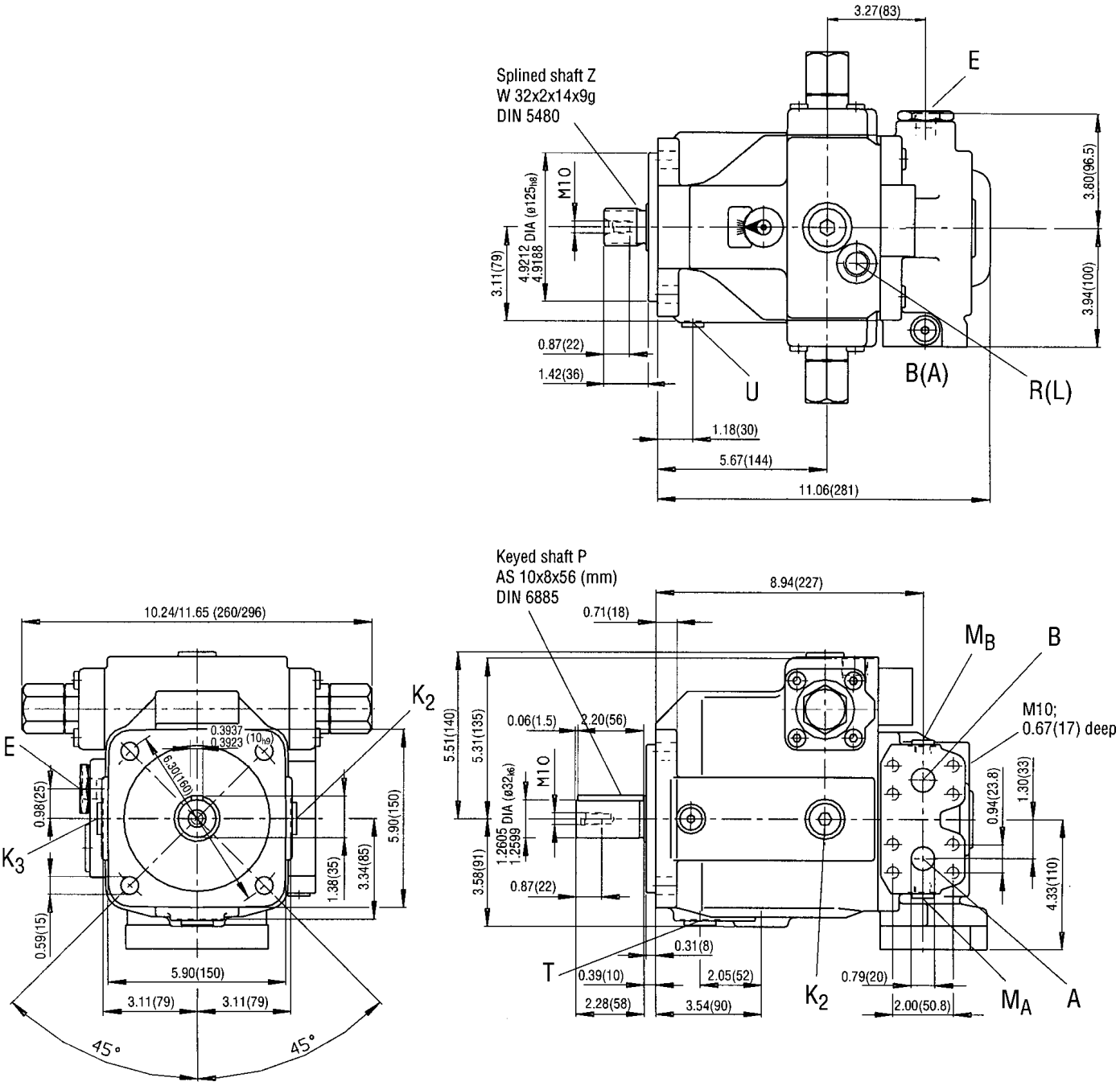


Port connections

A,B	Pressure ports 3/4" SAE (high pressure series; Code 62)
M_A, M_B	Test ports 7/16-20 UNF-2B (plugged)
T	Case drain port 7/8-14 UNF-2B (plugged)
E	Boost port 3/4-16 UNF-2B
K_2,K_3	Flushing ports 7/8-14 UNF-2B (plugged)
R (L)	Fluid fill and air bleed port 7/8-14 UNF-2B for exact location see control data sheets
U	Flushing port 7/16-20 UNF-2B; 0.47(12) deep (plugged)

Unit dimensions, size 40, Metric Version

(without considering the control)



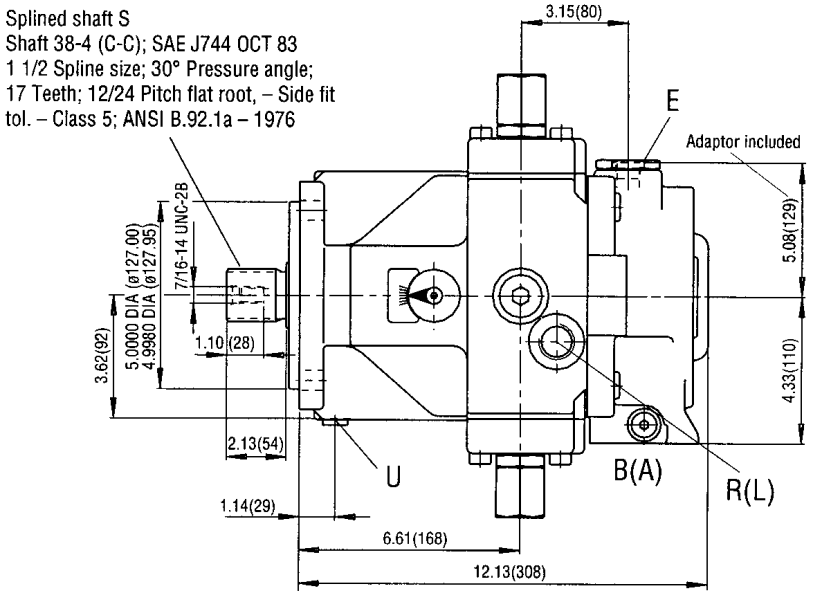
Port connections

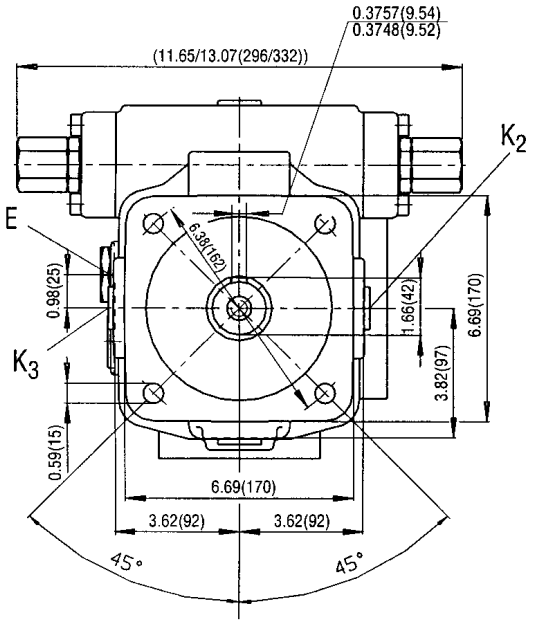
A,B	Pressure ports 3/4" SAE (high pressure series)
M_A, M_B	Test ports M14x1.5 (plugged)
T	Case drain port M22x1.5 (plugged)
E	Boost port M18x1.5
K_2,K_3	Flushing ports M22x1.5 (plugged)
R (L)	Fluid fill and air bleed port M22x1.5 for exact location see control data sheets
U	Flushing port M14x1.5; 0.47(12) deep (plugged)

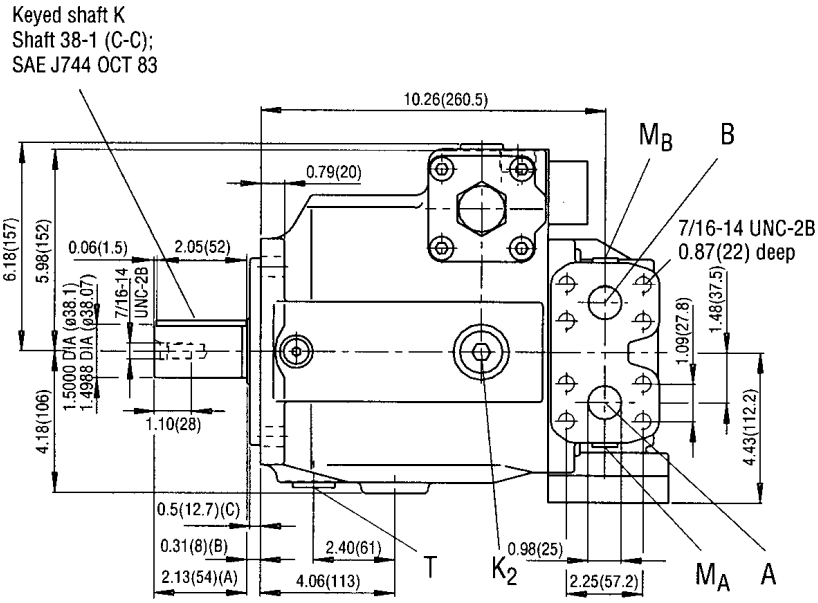
Unit dimensions, size 71, SAE Version

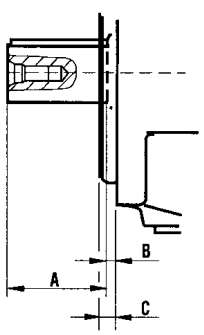
(without considering the control)

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









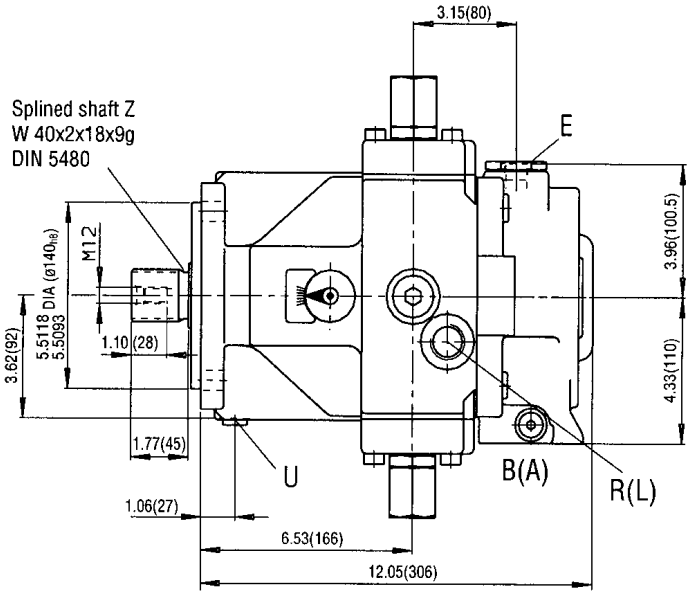
Keyed shaft K
SAE-Version

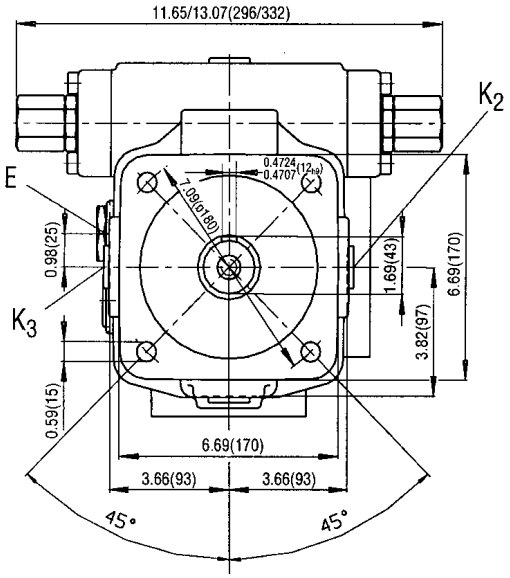
Port connections

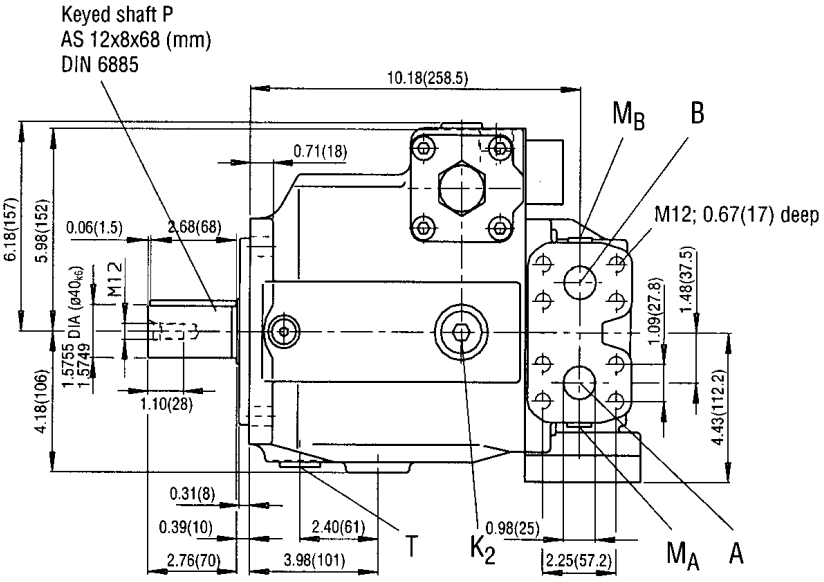
A,B	Pressure ports 1" SAE (high pressure series; Code 62)
M_A, M_B	Test ports 7/16-20 UNF-2B (plugged)
T	Case drain port 1 1/16-12 UN-2B (plugged)
E	Boost port 3/4-16 UNF-2B
K_2,K_3	Flushing ports 1 1/16-12 UN-2B (plugged)
R (L)	Fluid fill and air bleed port 1 1/16-12 UN-2B for exact location see control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

Unit dimensions, size 71, Metric Version

(without considering the control)







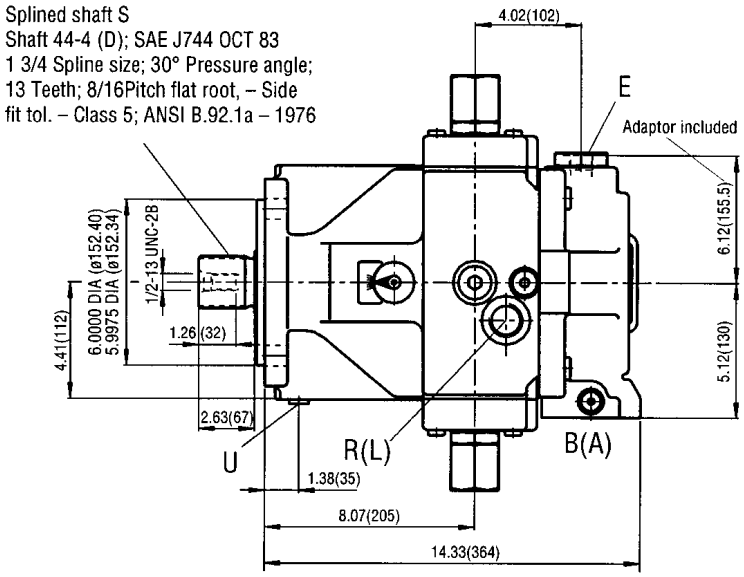
Port connections

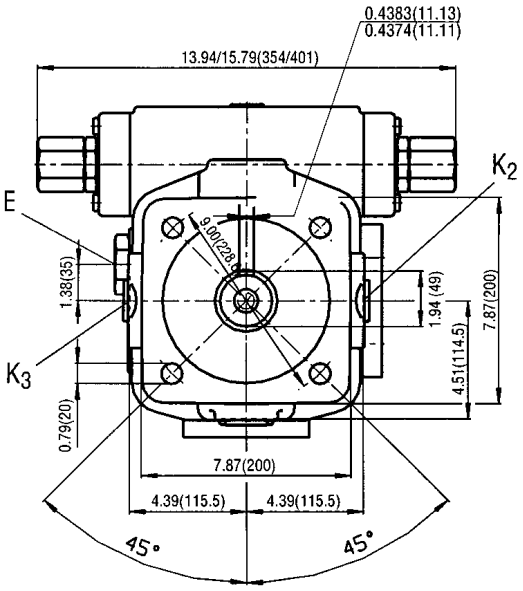
A,B	Pressure ports 1" SAE (high pressure series)
M_A, M_B	Test ports M14x1.5 (plugged)
T	Case drain port M27x2 (plugged)
E	Boost port M18x1.5
K_2,K_3	Flushing ports M27x2 (plugged)
R (L)	Fluid fill and air bleed port M27x2 for exact location see control data sheets
U	Flushing port M14x1.5; 0.47(12) deep (plugged)

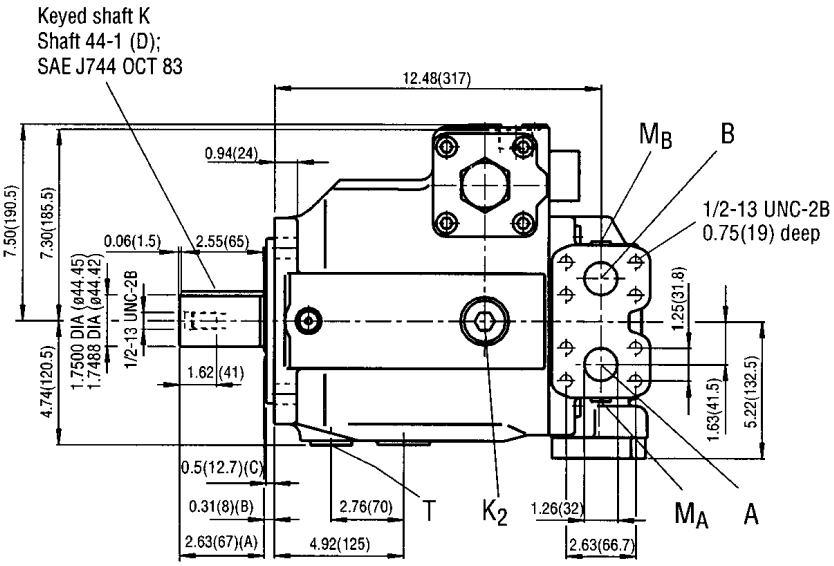
Unit dimensions, size 125, SAE Version

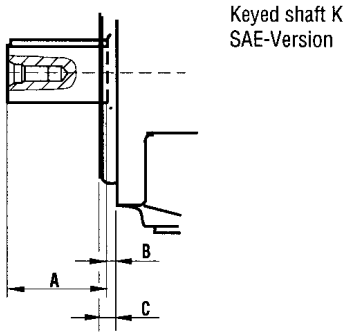
(without considering the control)

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







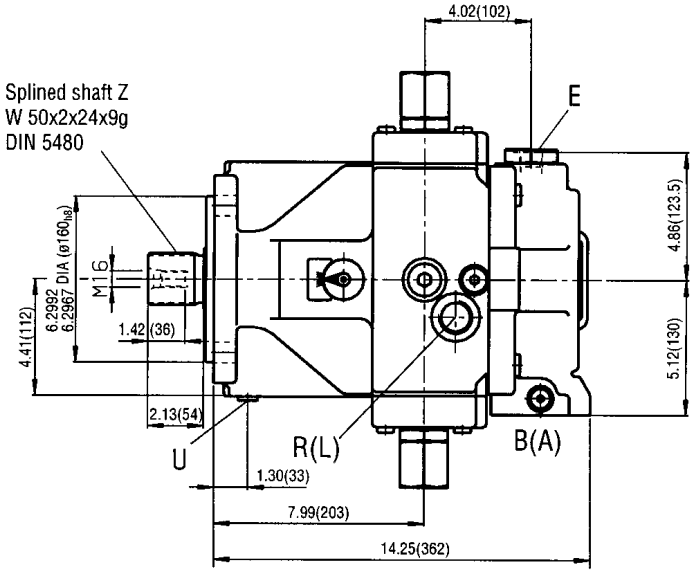


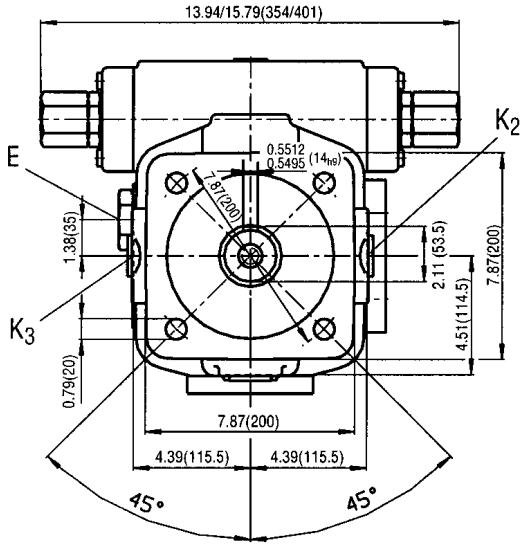
Port connections

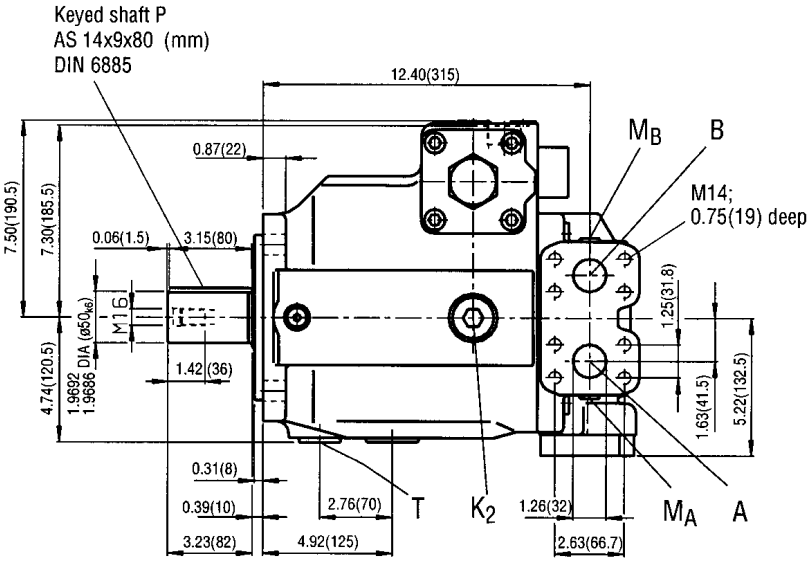
A,B	Pressure ports 1 1/4" SAE (high pressure series; Code 62)
M_A, M_B	Test ports 7/16-20 UNF-2B (plugged)
T	Case drain port 1 5/16-12 UN-2B (plugged)
E	Boost port 7/8-14 UNF-2B
K_2,K_3	Flushing ports 1 5/16-12 UN-2B (plugged)
R (L)	Fluid fill and air bleed port 1 5/16-12 UN-2B for exact location see control data sheets
U	Flushing port 7/16-20 UNF-2B; 0.47(12) deep (plugged)

Unit dimensions, size 125, Metric Version

(without considering the control)







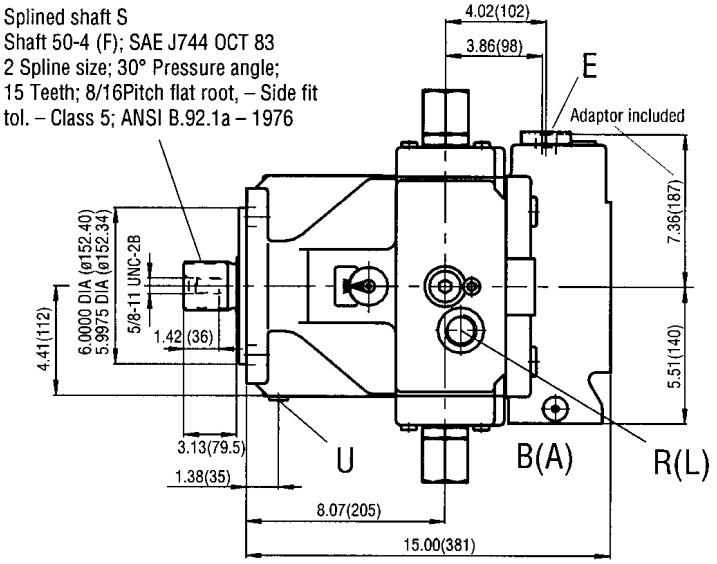
Port connections

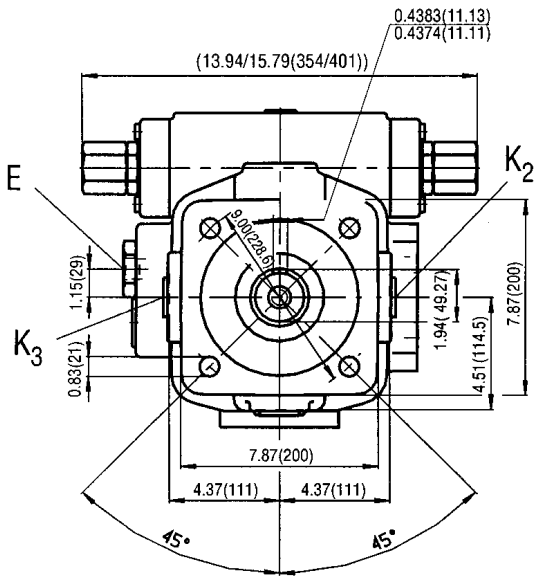
A,B	Pressure ports 1 1/4" SAE (high pressure series)
M_A, M_B	Test ports M14x1.5 (plugged)
T	Case drain port M33x2 (plugged)
E	Boost port M22x1.5
K_2,K_3	Flushing ports M33x2 (plugged)
R (L)	Fluid fill and air bleed port M33x2 for exact location see control data sheets
U	Flushing port M14x1.5; 0.47(12) deep (plugged)

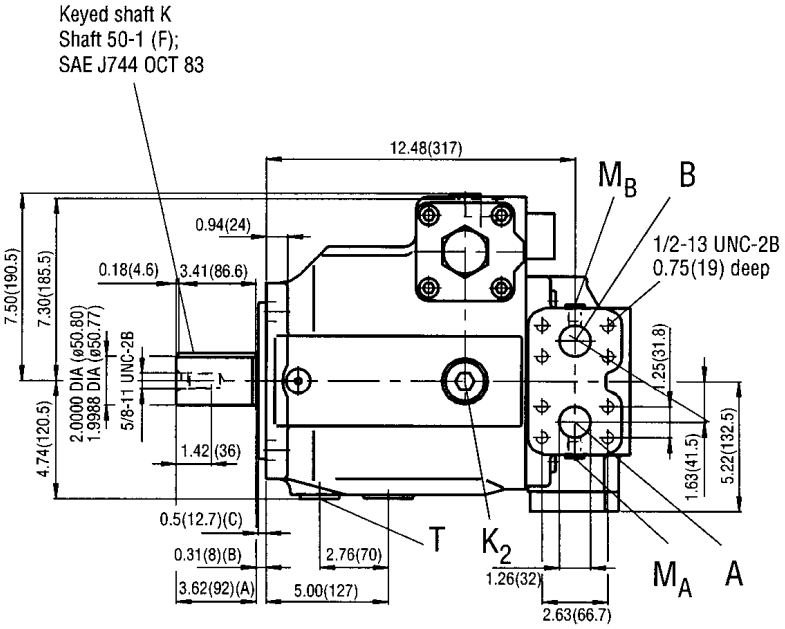
Unit dimensions, size 180, SAE Version

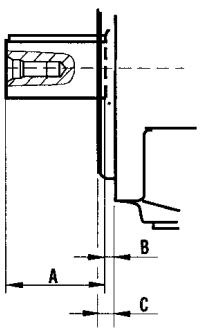
(without considering the control)

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







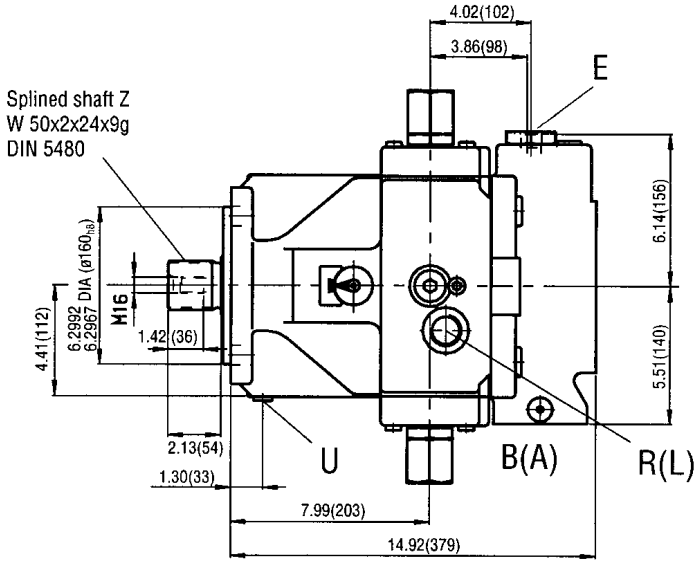


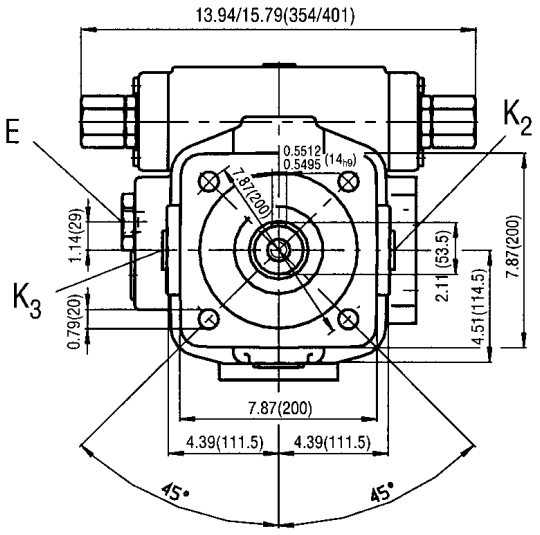
Port connections

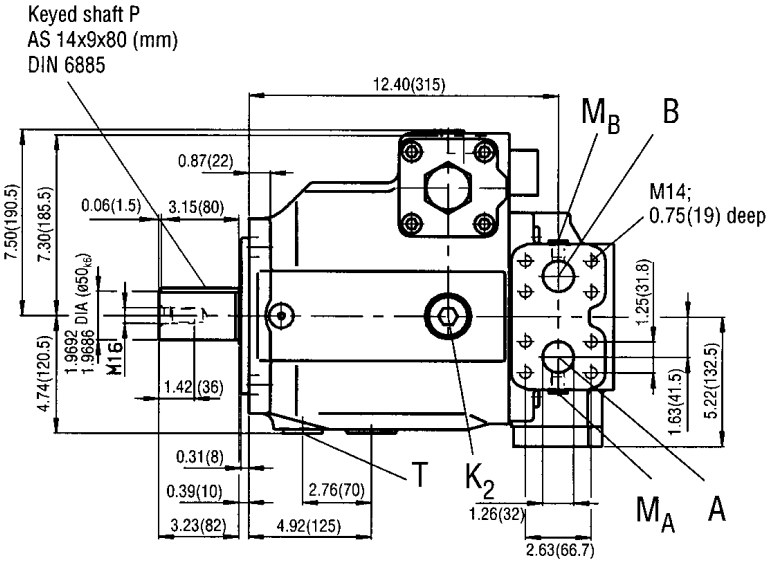
A,B	Pressure ports 1 1/4" SAE (high pressure series; Code 62)
M_A, M_B	Test ports 7/16-20 UNF-2B (plugged)
T	Case drain port 1 5/16-12 UN-2B (plugged)
E	Boost port 7/8-14 UNF-2B
K_2,K_3	Flushing ports 1 5/16-12 UN-2B (plugged)
R (L)	Fluid fill and air bleed port 1 5/16-12 UN-2B for exact location see control data sheets
U	Flushing port 7/16-20 UNF-2B; 0.47(12) deep (plugged)

Unit dimensions, size 180, Metric Version

(without considering the control)







Port connections

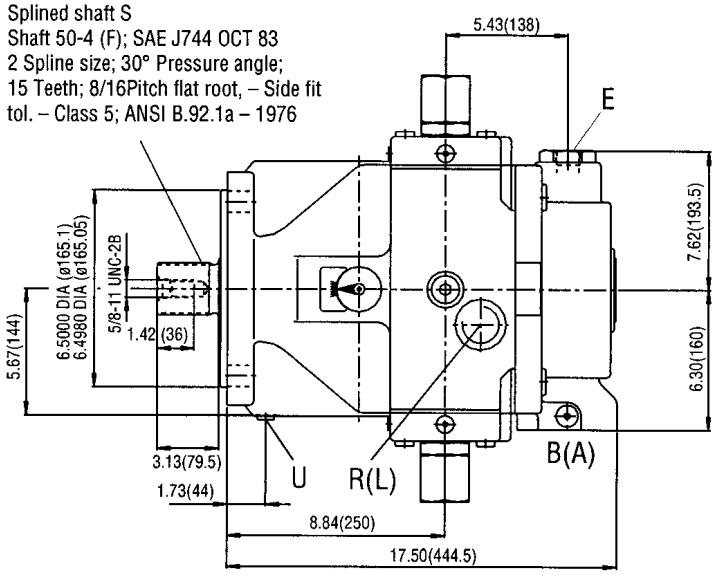
A,B	Pressure ports 1 1/4" SAE (high pressure series)
M_A, M_B	Test ports M14x1.5 (plugged)
T	Case drain port M33x2 (plugged)
E	Boost port M22x1.5
K_2,K_3	Flushing ports M33x2 (plugged)
R (L)	Fluid fill and air bleed port M33x2 for exact location see control data sheets
U	Flushing port M14x1.5; 0.47(12) deep (plugged)

Unit dimensions, size 250, SAE Version

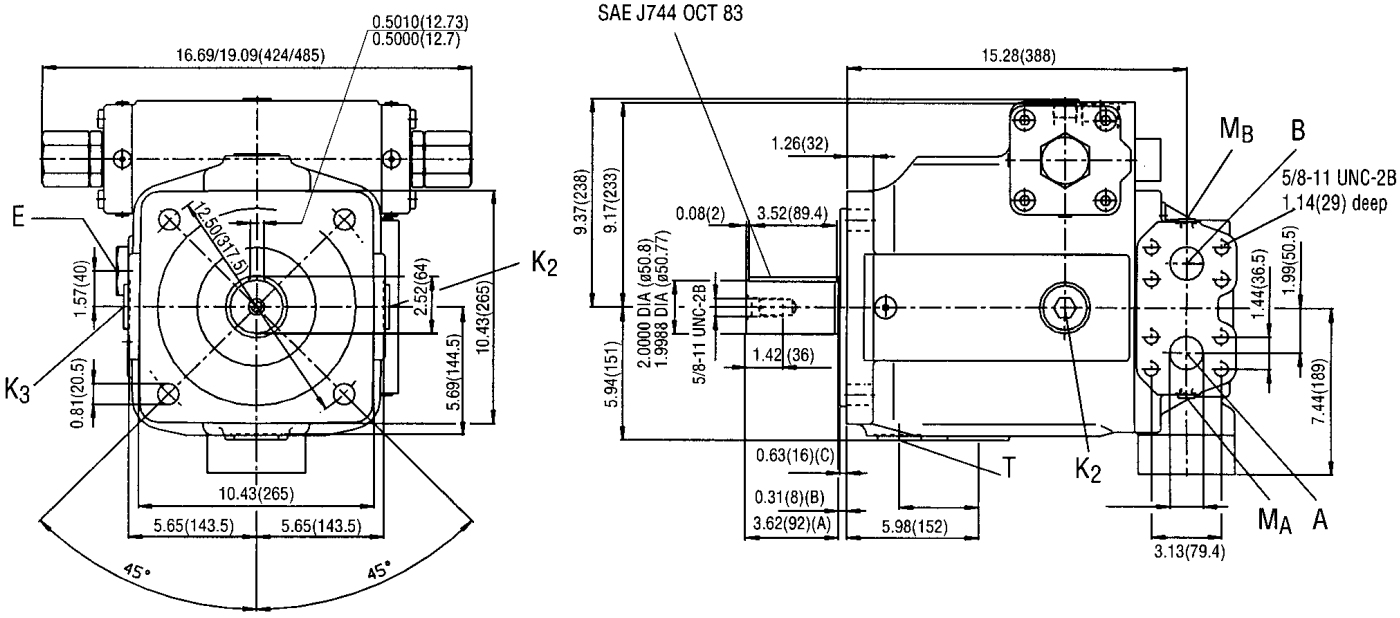
(without considering the control)

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

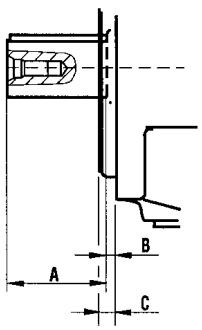
Splined shaft S
Shaft 50-4 (F); SAE J744 OCT 83
2 Spline size; 30° Pressure angle;
15 Teeth; 8/16Pitch flat root, – Side fit
tol. – Class 5; ANSI B.92.1a – 1976



Keyed shaft K
Shaft 50-1 (F), Long version;
SAE J744 OCT 83



Keyed shaft K
SAE-Version

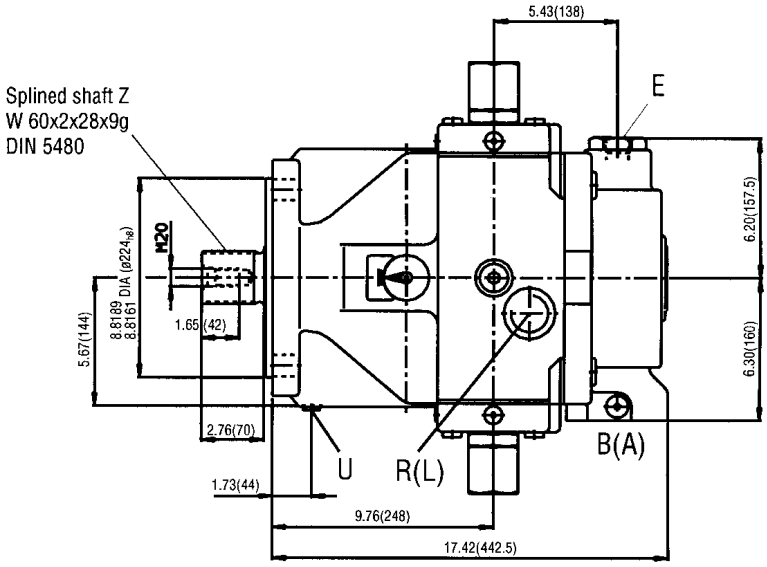


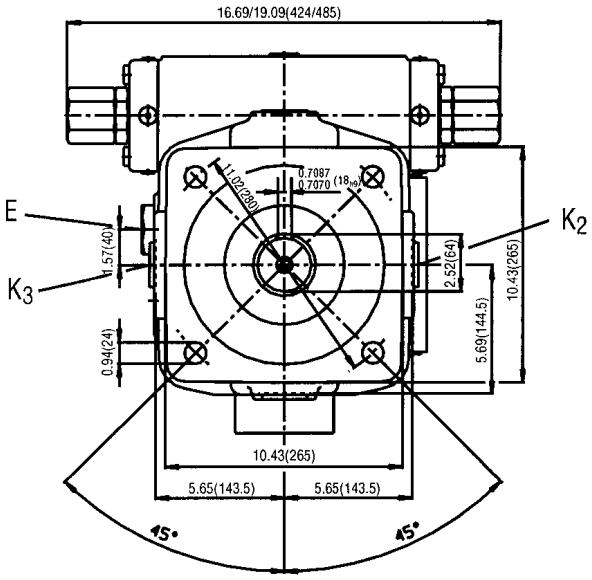
Port connections

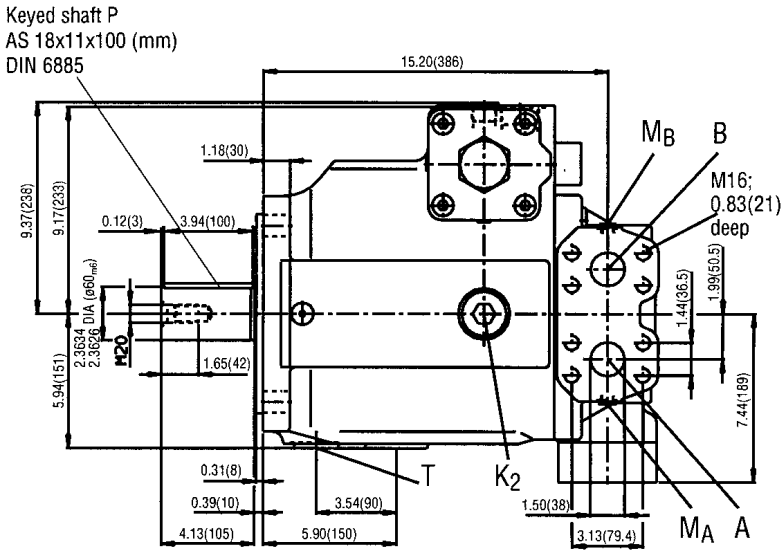
A,B	Pressure ports 1 1/2" SAE (high pressure series)
M_A, M_B	Test ports 7/16-20 UNF-2B (plugged)
T	Case drain port 1 5/8-12 UN-2B (plugged)
E	Boost port 1 1/16-12 UN-2B
K_2,K_3	Flushing ports 1 5/8-12 UN-2B (plugged)
R (L)	Fluid fill and air bleed port 1 5/8-12 UN-2B for exact location see control data sheets
U	Flushing port 7/16-20 UNF-2B; 0.47(12) deep (plugged)

Unit dimensions, size 250, Metric Version

(without considering the control)





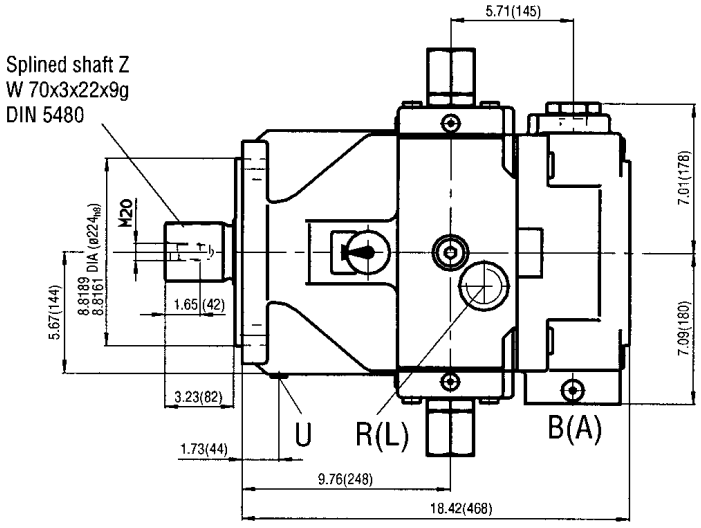


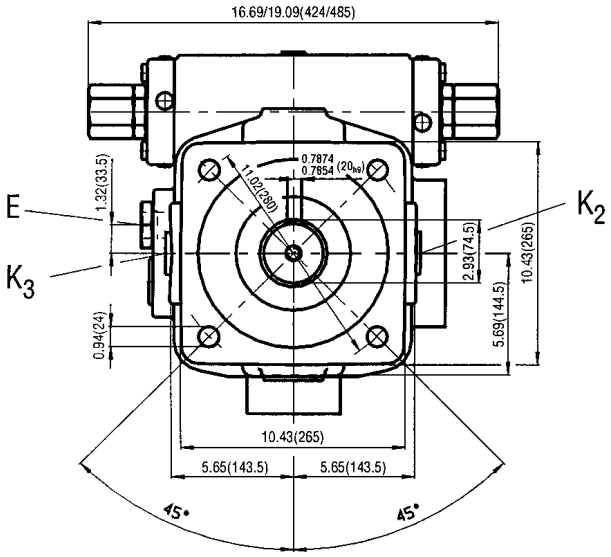
Port connections

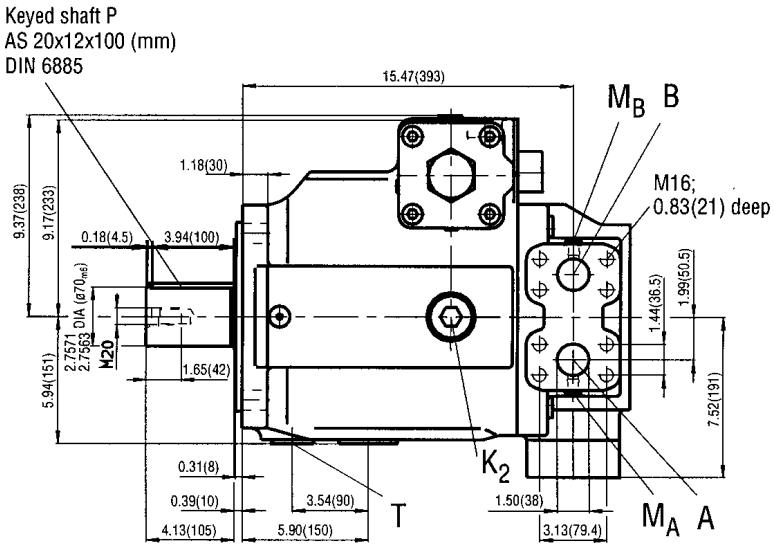
A,B	Pressure ports 1 1/2" SAE (high pressure series)
M_A, M_B	Test ports M14x1.5 (plugged)
T	Case drain port M42x2 (plugged)
E	Boost port M27x2
K_2,K_3	Flushing ports M42x2 (plugged)
R (L)	Fluid fill and air bleed port M42x2 for exact location see control data sheets
U	Flushing port M14x1.5; 0.47(12) deep (plugged)

Unit dimensions, size 355

(without considering the control)





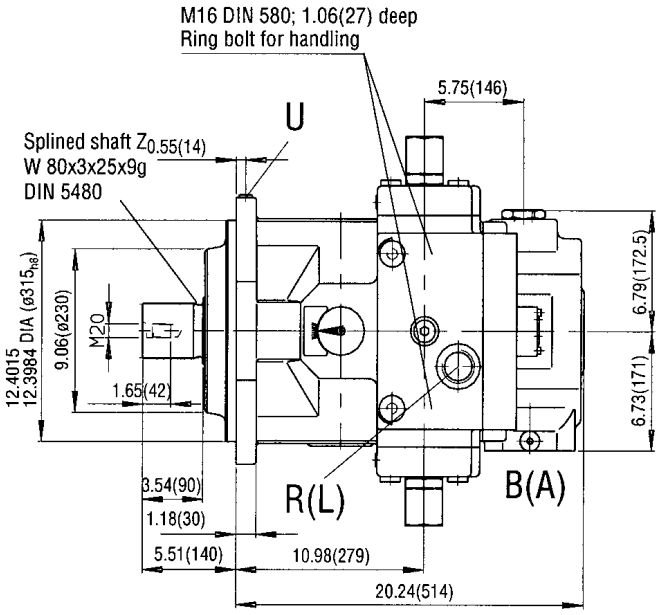


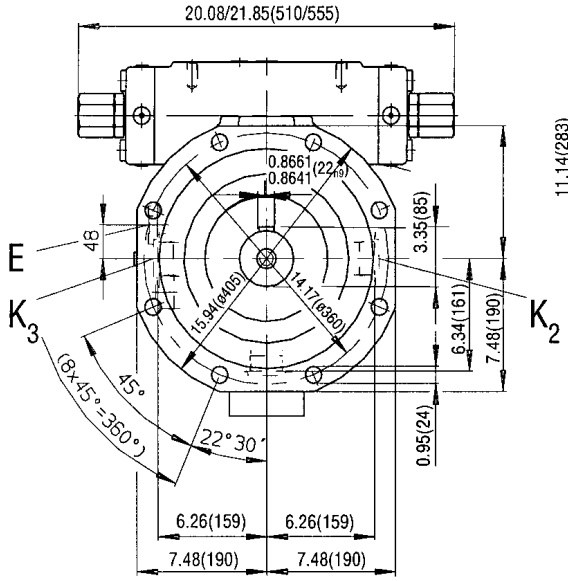
Port connections

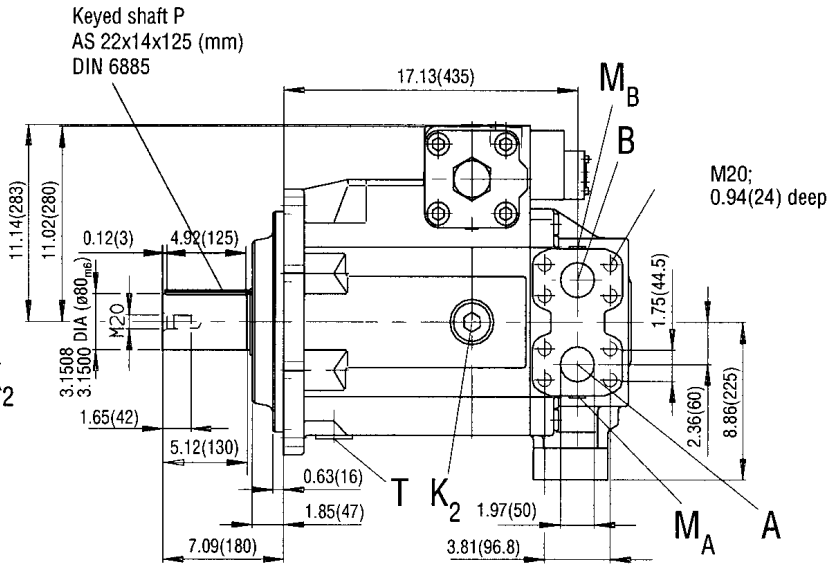
A,B	Pressure ports 1 1/2" SAE (high pressure series)
M_A, M_B	Test ports M14x1.5 (plugged)
T	Case drain port M42x2 (plugged)
E	Boost port M33x2
K_2,K_3	Flushing ports M42x2 (plugged)
R (L)	Fluid fill and air bleed port M42x2 for exact location see control data sheets
U	Flushing port M18x1.5; 0.47(12) deep (plugged)

Unit dimensions, size 500

(without considering the control)





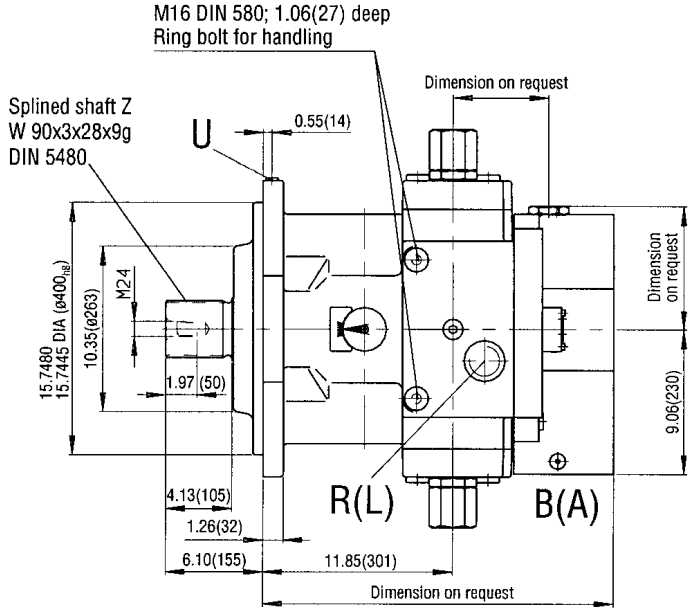


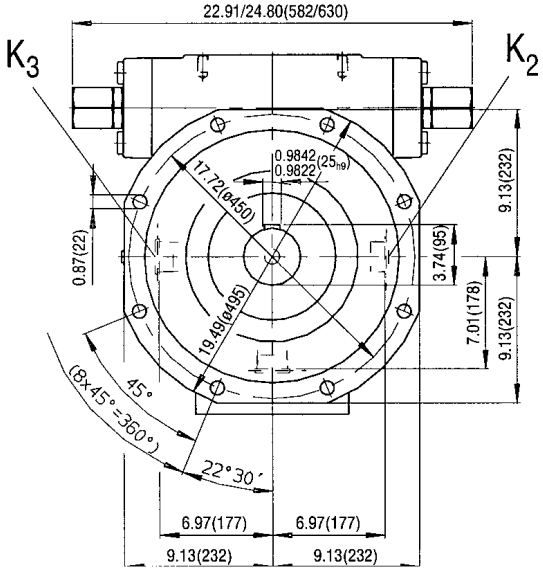
Port connections

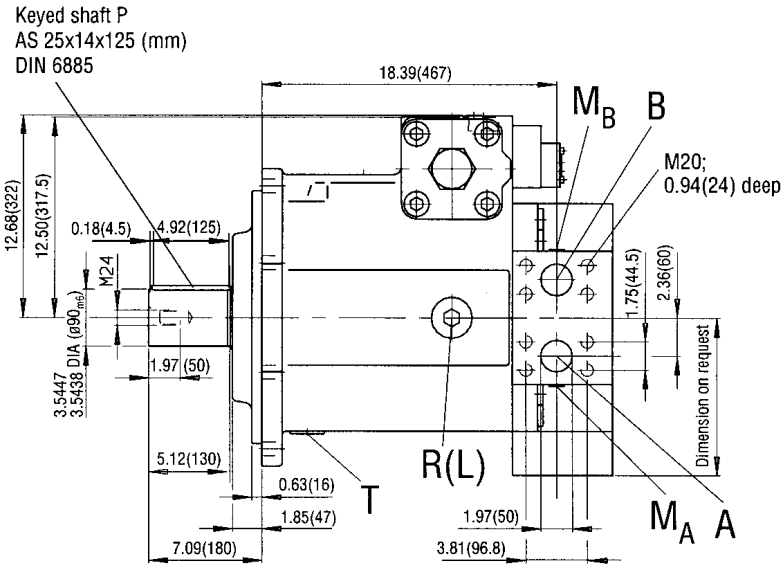
A,B	Pressure ports 2" SAE (high pressure series)
M_A, M_B	Test ports M18x1.5 (plugged)
T	Case drain port M48x2 (plugged)
E	Boost port M27x2
K_2,K_3	Flushing ports M48x2 (plugged)
R (L)	Fluid fill and air bleed port M48x2 for exact location see control data sheets
U	Flushing port M18x1.5; 0.47(12) deep (plugged)

Unit dimensions, size 750

(without considering the control)





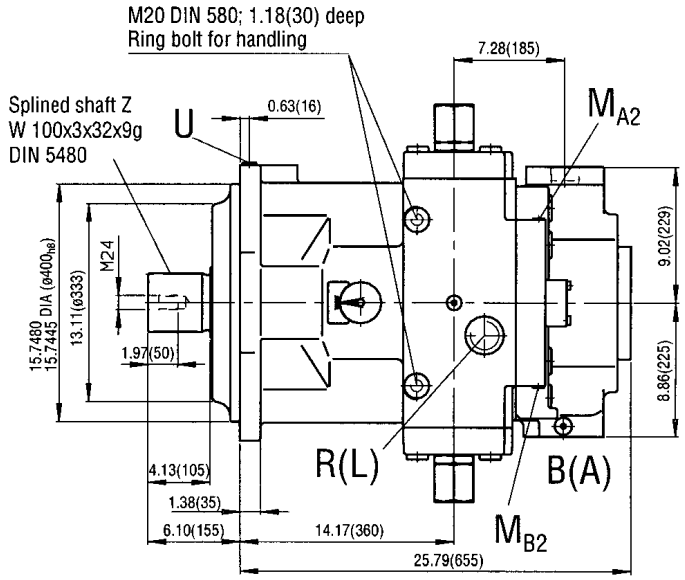


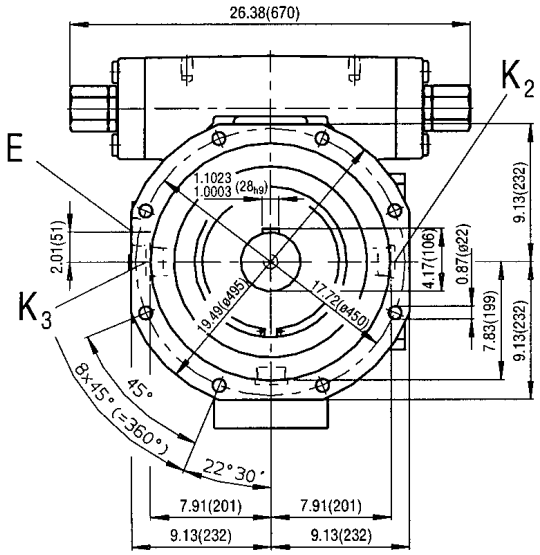
Port connections

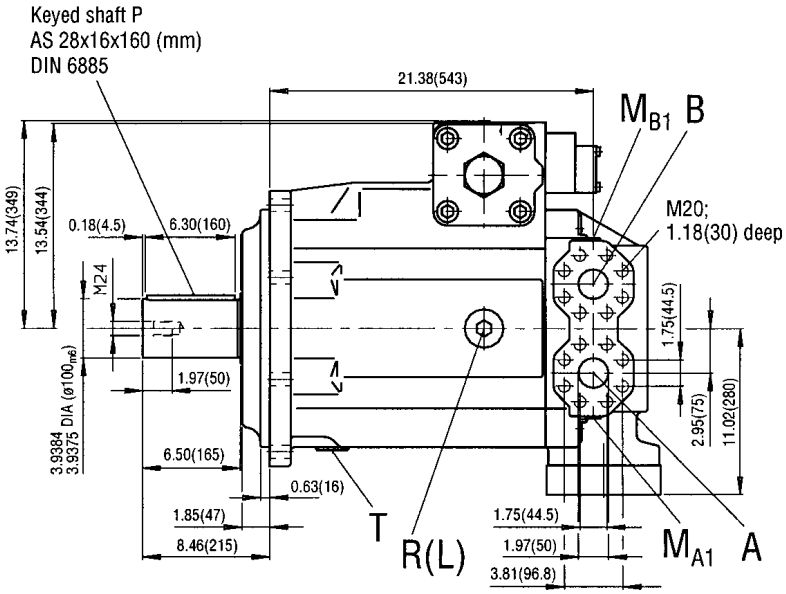
A,B	Pressure ports 2" SAE (high pressure series)
M_A, M_B	Test ports M18x1.5 (plugged)
T	Case drain port M48x2 (plugged)
E	Boost port M48x2
K_2,K_3	Flushing ports M48x2 (plugged)
R (L)	Fluid fill and air bleed port M48x2 for exact location see control data sheets
U	Flushing port M18x1.5; 0.47(12) deep (plugged)

Unit dimensions, size 1000

(without considering the control)







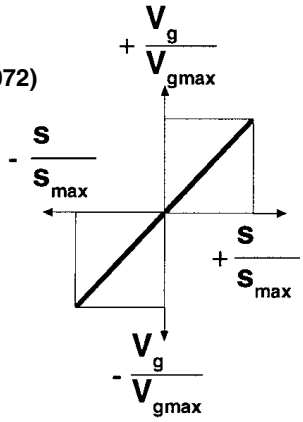
Port connections

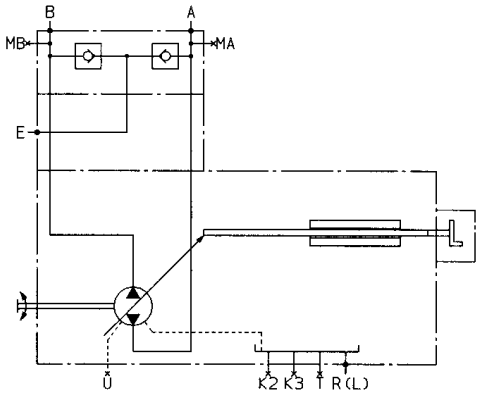
A,B	Pressure ports 2" SAE (high pressure series)
M_{A1}, M_{B1}	Test ports, operation pressure M18x1.5 (plugged)
M_{A2}, M_{B2}, M_P	Test ports, control pressure M14x1.5
T	Case drain port M48x2 (plugged)
E	Boost port M48x2
K_2,K_3	Flushing ports M48x2 (plugged)
R (L)	Fluid fill and air bleed port M48x2 for exact location see control data sheets
U	Flushing port M18x1.5; 0.47(12) deep (plugged)

Summary of controls

MA Manual control (see RA 92 072)

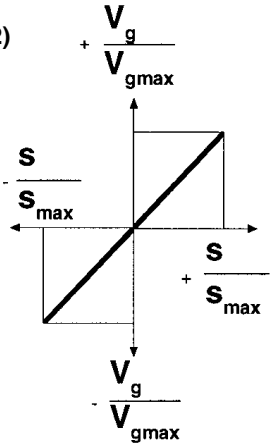
Stepless adjustment of displacement by means of handwheel.

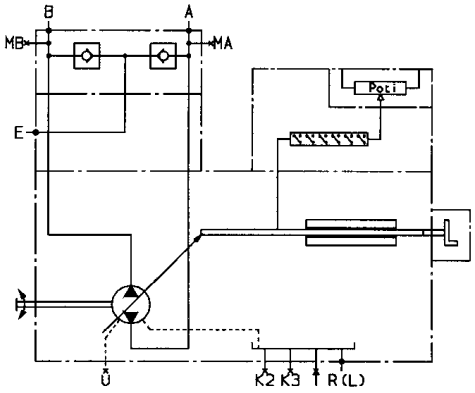




EM Electric motor control (see RA 92 072)

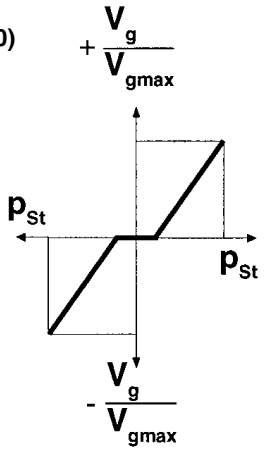
Stepless adjustment of displacement by means of electric motor with control spindle. With a programmed sequence control various intermediate displacements can be selected by means of built-on limit switches or potentiometer.

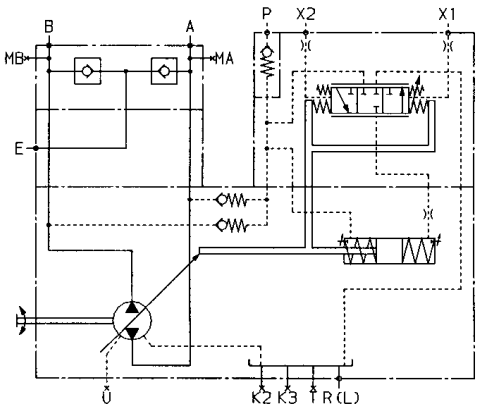




HD Hydraulic control pilot pressure dependent (see RA 92 080)

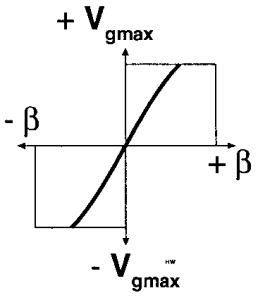
Stepless control of displacement dependent on pilot pressure signal. The displacement is proportional to the pilot pressure.
Optional:
Pilot pressure characteristic curves (HD1, HD2, HD3)
Pressure control (HD.A, HD.B, HD.D)
Remote pressure control (HD.GA, HD.GB, HD.G)
HP control (HD1P)
Electrical pilot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

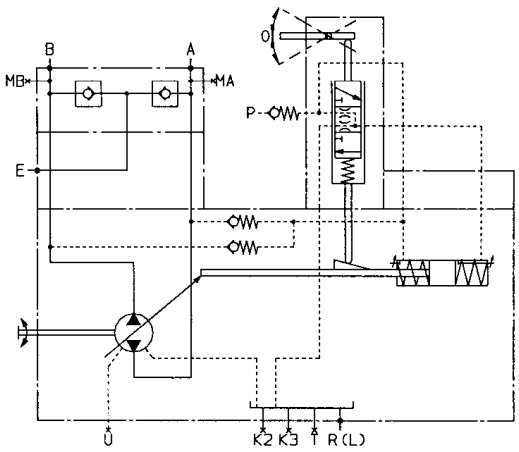




HW Hydraulic control with rotary servo (see RA 92 068, in preparation)

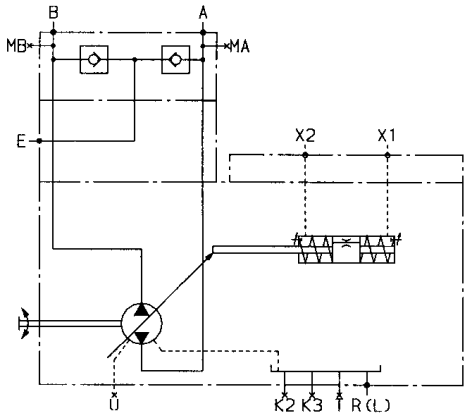
Infinite adjustment of the pump flow as a function of the angle position (sin. β) of the pivot.
Optional:
with hyperbolic horsepower control swiveling one side of center only (HWP)





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

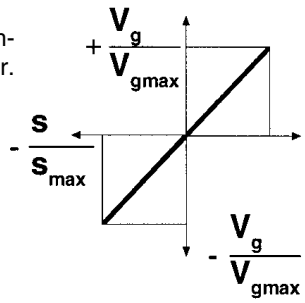
The pump displacement is infinitely adjustable, dependent on the control volume in port X_1 and X_2.
Application: – 2 point control
– basic control device for servo- or proportional control

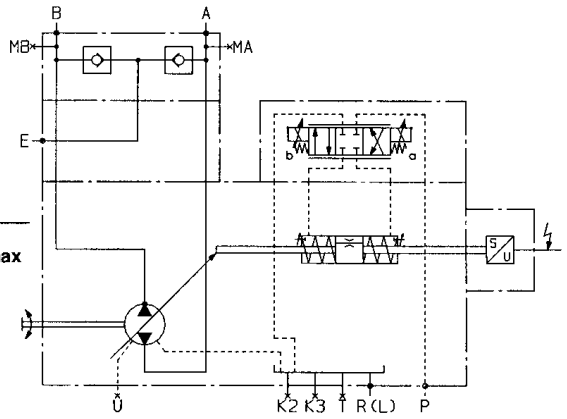


(Example: HM1)

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

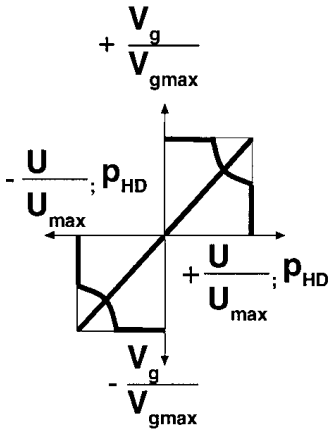
The stepless displacement control is accomplished with a proportional valve with electr. feedback of swivel angle.
Electronic control
Optional:
Short circuit valve (EO1K, EO2K)
Without valves (EO1E, EO2E)

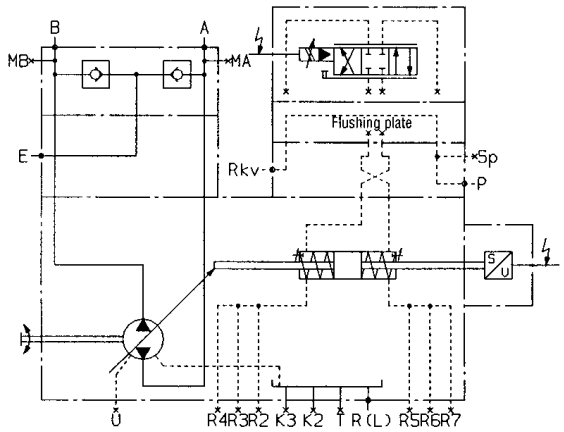




HS, HS1, HS3 Hydraulic control with servo or proportional valve (see RA 92 076)

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

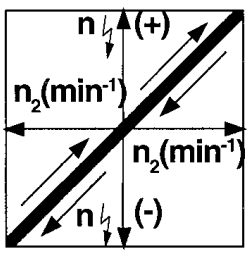


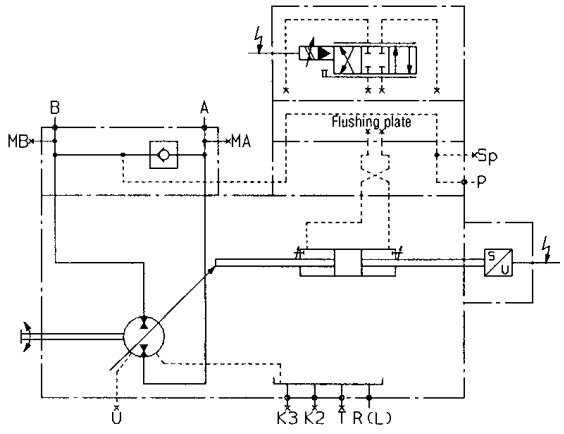


(Example: HS) (HS3, see RE 30 021)

DS1 Speed control secondary controlled (see RA 92 055)

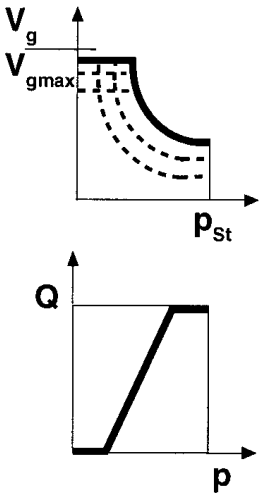
The speed control DS1 controls the secondary unit (the motor) in such a manner, that this motor supplies sufficient torque to maintain the required speed. Hooked up to a system with constant pressure, this torque is proportional to displacement, thus to swivel angle.

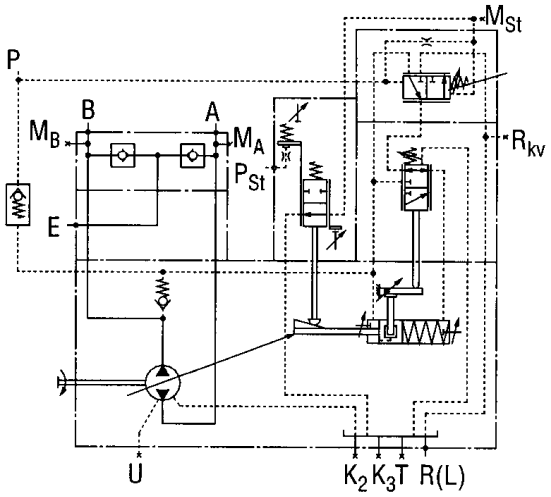




LR.N Hydraulic control pilot pressure dependent basic position $V_{g\,min}$ (see RA 92 064)

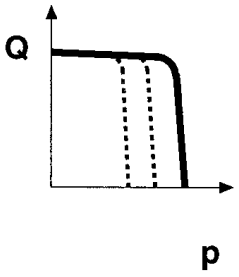
With overriding power control.
Single sided operation.
The displacement is proportional to the pilot pressure in P_{St}. The additional hyperbolic power control is overriding the pilot pressure signal and holds the preset power constant.
Optional:
Pressure control (LR2DN)
Pressure control, remote (LR2GN)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

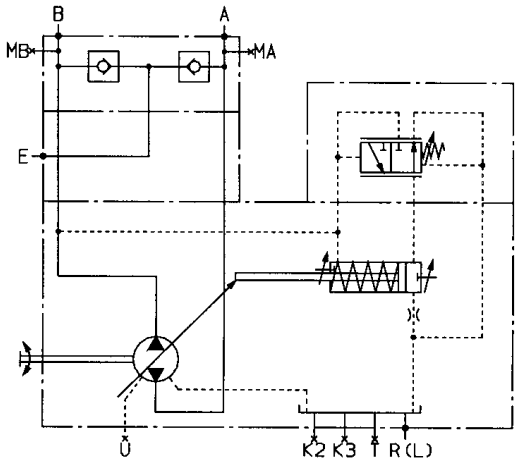




DR Pressure control (see RA 92 060)

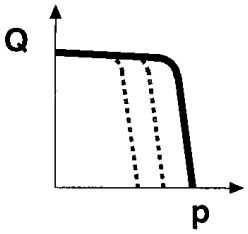
Single sided operation
Maintain a constant pressure in a hydraulic system
Adjustment range 290...5100 psi (20...350 bar)
Optional:
Remote control (DRG)

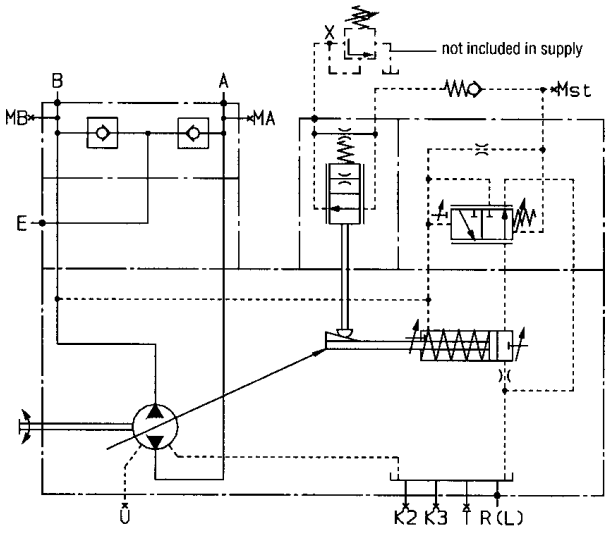




DP Pressure control for parallel operation (see RA 92 060)

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

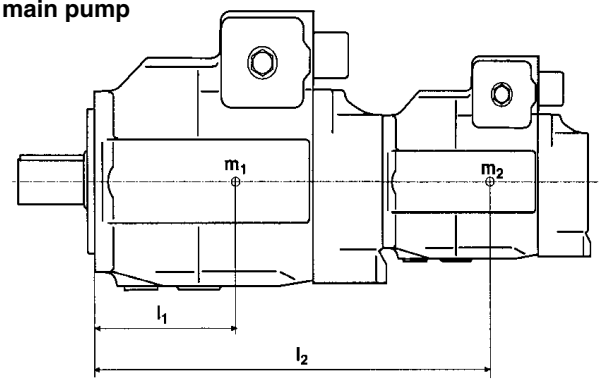
Splined shaft Z

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

Keyed shaft P

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

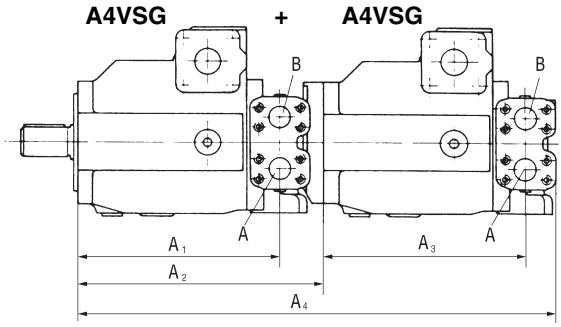
$$T_m = m_1 \cdot l_1 \cdot \frac{1}{12} + m_2 \cdot l_2 \cdot \frac{1}{12} \text{ [lb-ft]}$$

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 (Nm)	1327.6 (1800)	1475 (2000)	3098 (4200)	3098 (4200)	6859 (9300)	6859 (9300)	11506 (15600)	14382 (19500)
Perm. bending moment referred to mounting flange of main pump 10 g ≙ 98.1 m/sec²	$T_{m\ zul.}$	lb-ft (Nm)	132 (180)	148 (200)	310 (420)	310 (420)	686 (930)	686 (930)	1151 (1560)	1438 (1950)
Weight	m	lb (kg)	104 (47)	132 (60)	221 (100)	251 (114)	472 (214)	523 (237)	772 (350)	1102 (500)
Center to center distance	l_1	in (mm)	4.72 (120)	5.51 (140)	6.69 (170)	7.08 (180)	8.26 (210)	8.66 (220)	9.05 (230)	10.23 (260)

Unit dimensions for combination pumps



SAE

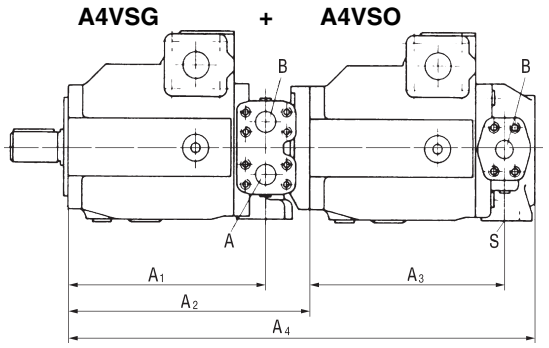
main pump / 2nd pump	AA4VSG 125				AA4VSG 250			
	A_1	A_2	A_3	A_4	A_1	A_2	A_3	A_4
AA4VSG 71	12.48 (317)	15.12 (384)	10.26 (260.5)	27.24 (692)				
AA4VSG 125	12.48 (317)	15.12 (384)	12.48 (317)	29.45 (748)				
AA4VSG 250					15.28 (388)	18.94 (481)	15.28 (388)	38.78 (985)

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
A4VSG 40	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)
A4VSG 71	– (–)	– (–)	– (–)	– (–)	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)
A4VSG 125	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	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)
A4VSG 180	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	12.4 (315)	15.8 (403)	12.4 (315)	30.7 (782)	15.2 (386)	18.4 (469)	12.4 (315)	33.3 (848)
A4VSG 250	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	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
A4VSG 40	15.4 (393)		8.93 (227)		17.1 (435)	19.8 (505)	8.93 (227)	30.9 (786)	18.3 (467)		8.93 (227)	
A4VSG 71	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)	
A4VSG 125	15.4 (393)		12.4 (315)		17.1 (435)	19.8 (505)	12.4 (315)	34.1 (868)	18.3 (467)		12.4 (315)	
A4VSG 180	15.4 (393)		12.4 (315)		17.1 (435)	19.8 (505)	12.4 (315)		18.3 (467)		12.4 (315)	
A4VSG 250	15.4 (393)		15.2 (386)		17.1 (435)	21.2 (541)	15.2 (386)	38.6 (982)	18.3 (467)		15.2 (386)	
A4VSG 355	15.4 (393)		15.4 (393)		17.1 (435)	21.2 (541)	15.2 (386)	38.6 (982)	18.3 (467)		15.2 (386)	
A4VSG 500	– (–)	– (–)	– (–)	– (–)	17.1 (435)	23.2 (590)	17.1 (435)	43.1 (1095)	18.3 (467)	25.1 (640)	17.1 (435)	45.0 (1145)
A4VSG 750	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	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.

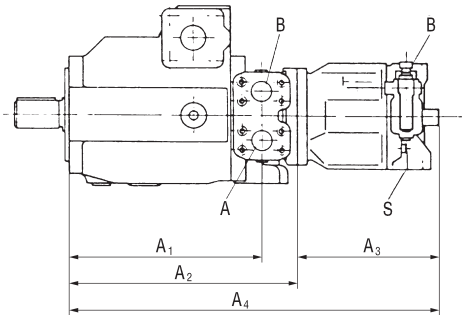
Metric

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
A4VSG 40	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)
A4VSG 71	– (–)	– (–)	– (–)	– (–)	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)
A4VSG 125	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	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)
A4VSG 180	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	12.4 (315)	15.8 (403)	12.5 (318)	30.7 (782)	15.2 (386)	18.4 (469)	12.5 (318)	33.3 (848)
A4VSG 250	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	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
A4VSG 40	15.4 (393)		8.93 (227)		17.1 (435)	19.8 (505)	8.93 (227)	30.4 (774)	18.3 (467)		8.93 (227)	
A4VSG 71	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)	
A4VSG 125	15.4 (393)		12.2 (310)		17.1 (435)	19.8 (505)	12.2 (310)	33.8 (860)	18.3 (467)		12.2 (310)	
A4VSG 180	15.4 (393)		12.5 (318)		17.1 (435)	19.8 (505)	12.5 (318)	34.8 (884)	18.3 (467)		12.5 (318)	
A4VSG 250	15.4 (393)		14.9 (380)		17.1 (435)	21.2 (541)	14.9 (380)	38.5 (980)	18.3 (467)		14.9 (380)	
A4VSG 355	15.4 (393)	19.6 (498)	15.4 (393)	38.0 (966)	17.1 (435)		15.4 (393)		18.3 (467)		15.4 (393)	
A4VSG 500	– (–)	– (–)	– (–)	– (–)	17.1 (435)	23.2 (590)	17.3 (441)	43.7 (1110)	18.3 (467)	25.1 (640)	17.3 (441)	45.6 (1160)
A4VSG 750	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)	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.

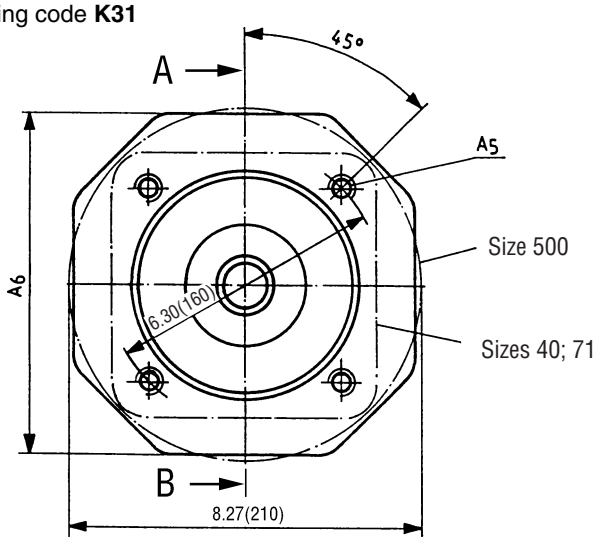
Metric

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)

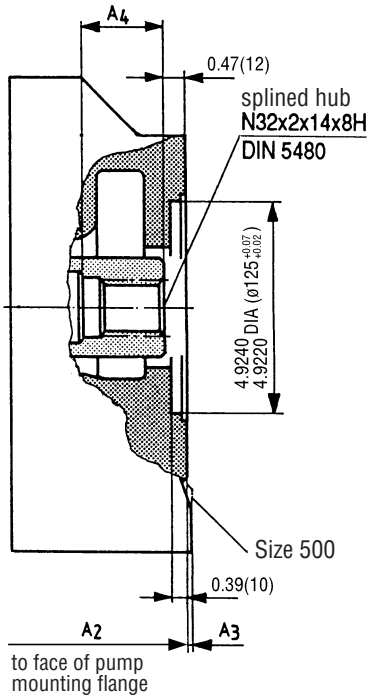
main pump / 2nd pump	A4VSG 355				A4VSG 500				A4VSG 750			
	A_1	A_2	A_3	A_4	A_1	A_2	A_3	A_4	A_1	A_2	A_3	A_4
A10VSO 18	15.4 (393)	18.1 (460)	7.67 (195)	25.7 (655)	17.1 (435)	19.8 (505)	7.67 (195)	27.5 (700)	18.3 (467)		7.67 (195)	
A10VSO 28	15.4 (393)		8.11 (206)		17.1 (435)		8.11 (206)		18.3 (467)		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)	

Unit dimensions - Through drives

Flange ISO 125, 4-bolt; for mounting of axial piston pump A4VSO/H/G 40 (splined shaft Z)
Ordering code **K31**

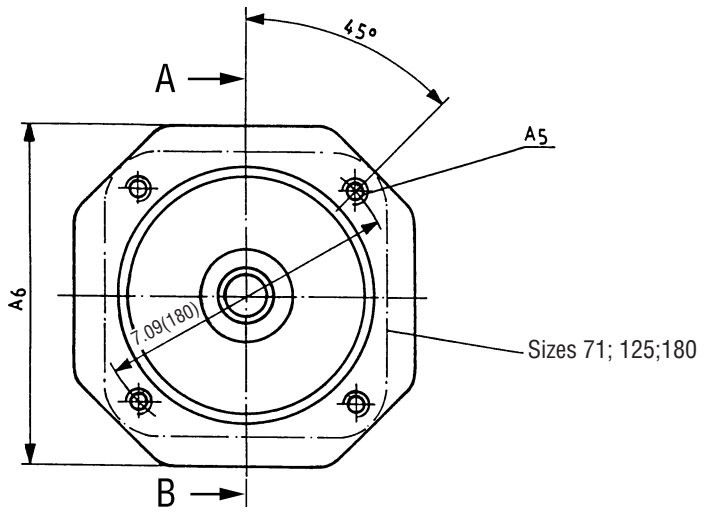


Section A–B

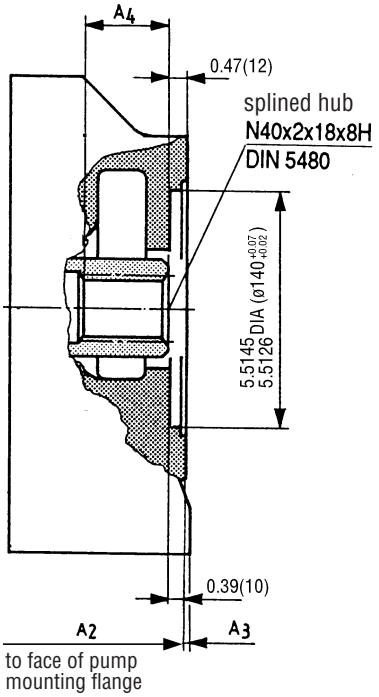


Size of main pump	A_2	A_3	A_4	A_5	A_6
40	11.34(288)	–	2.28(58)	M12; 0.94(24) deep	–
71	12.44(316)	–	2.16(55)	M12; 0.94(24) deep	–
125	13.66(347)	0.31(8)	1.46(37)	M12; 0.71(18) deep	5.90(150)
180	14.61(371)	–	1.46(37)	M12; 0.71(18) deep	–
250	16.97(431)	0.12(3)	1.89(48)	M12; 0.71(18) deep	7.87(200)
500	19.88(505)	0.47(12)	2.36(60)	M12; 0.71(18) deep	–

Flange ISO 140, 4-bolt; for mounting of axial piston pump A4VSO/H/G 71 (splined shaft Z)
Ordering code **K33**

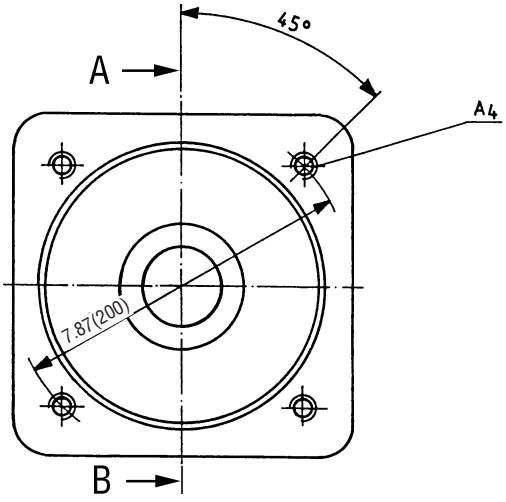


Section A–B

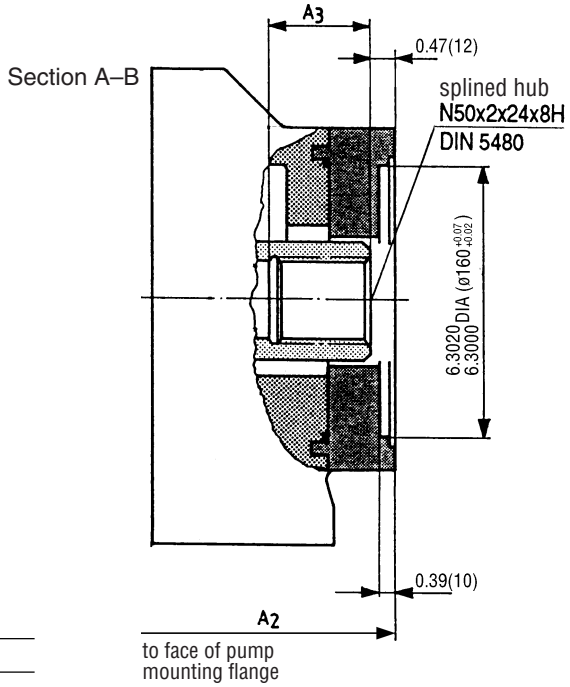


Size of main pump	A_2	A_3	A_4	A_5	A_6
71	12.44(316)	–	1.97(50)	M12; 0.94(24) deep	–
125	14.68(373)	–	1.97(50)	M12; 0.98(25) deep	–
180	15.63(397)	–	1.77(45)	M12; 0.71(18) deep	6.69(170)
250	16.97(431)	0.12(3)	1.89(48)	M12; 0.71(18) deep	7.87(200)
355	18.11(460)	–	1.89(48)	M12; 0.71(18) deep	8.66(220)
500	19.88(505)	0.47(12)	2.36(60)	M12; 0.71(18) deep	9.45(240)

Flange ISO 160, 4-bolt; for mounting of axial piston pump A4VSO/H/G 125 or 180 (splined shaft Z)
Ordering code **K34**

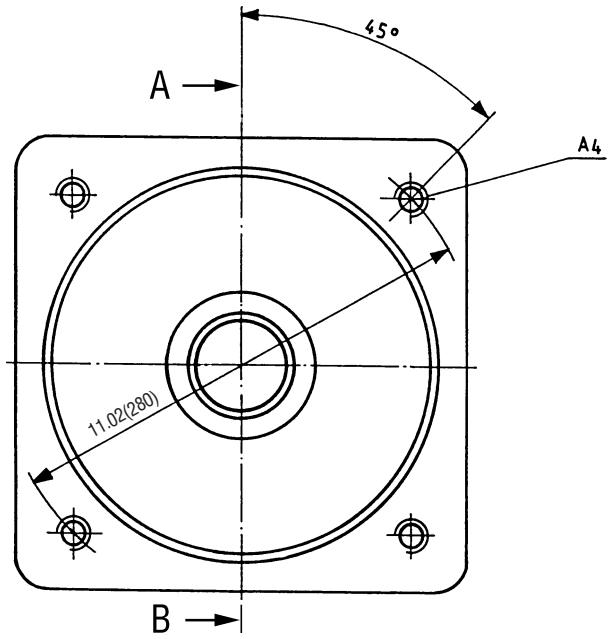


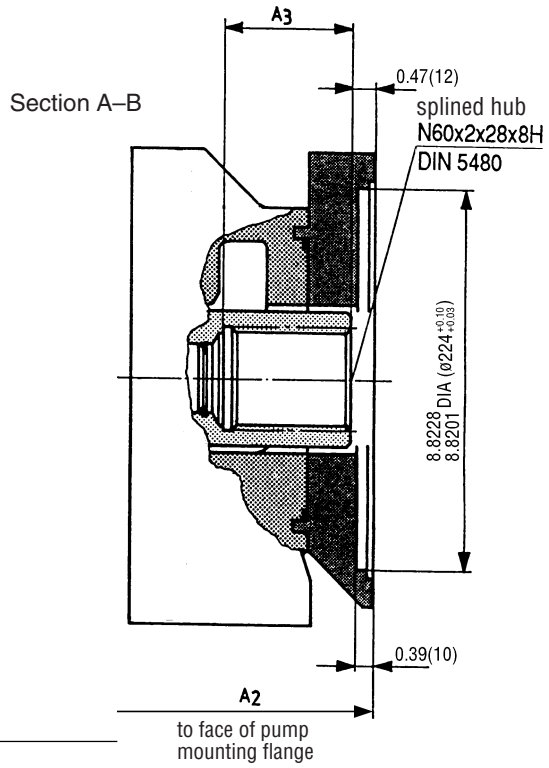
Section A–B



Size of main pump	A_2	A_3	A_4
125	14.92(379)	2.28(58)	M16; 1.22(31) deep
180	15.87(403)	2.09(53)	M16; 1.26(32) deep
250	18.46(469)	2.36(60)	M16; 1.26(32) deep
500	19.88(505)	2.36(60)	M16; 0.94(24) deep

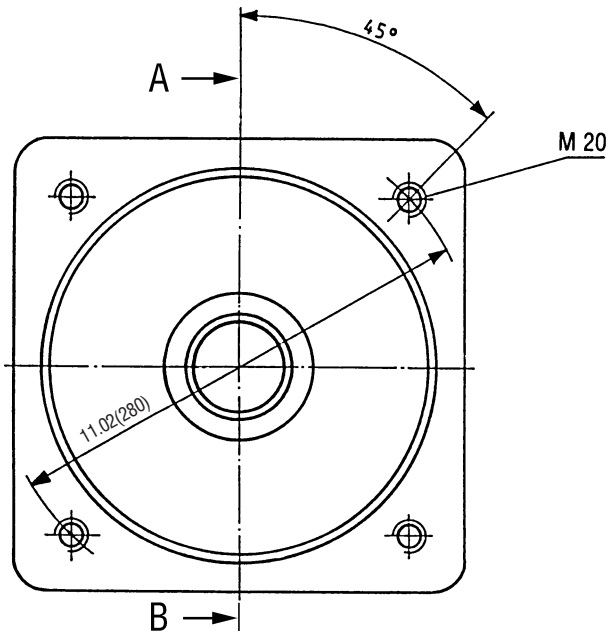
Flange ISO 224, 4-bolt; for mounting of axial piston pump A4VSO/H/G 250 (splined shaft Z)
Ordering code **K35**

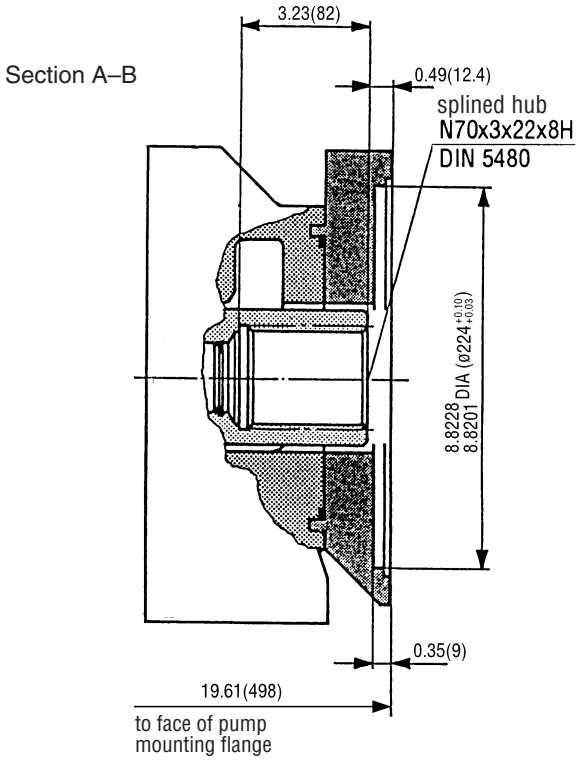




Size of main pump	A_2	A_3	A_4
250	18.46(469)	2.95(75)	M20; 1.46(37) deep
500	21.30(541)	2.91(74)	M20; 1.42(36) deep

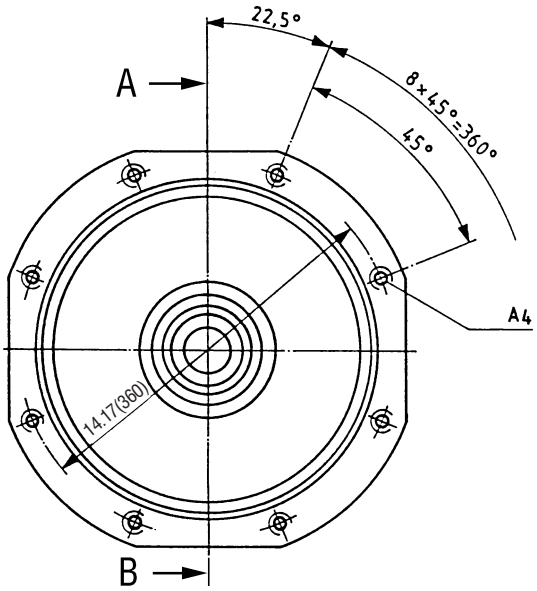
Flange ISO 224, 4-bolt; for mounting of axial piston pump A4VSO/G 355 (splined shaft Z)
Ordering code **K77**



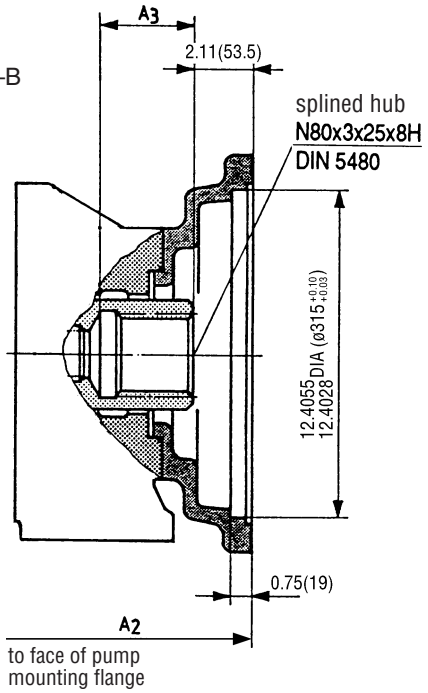


Size of main pump 355

Flange ISO 315, 8-bolt; for mounting of axial piston pump A4VSO/G 500 (splined shaft Z)
Ordering code **K43**

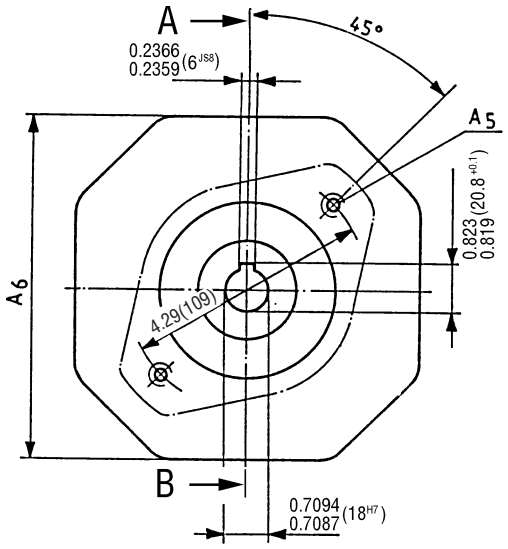


Section A–B

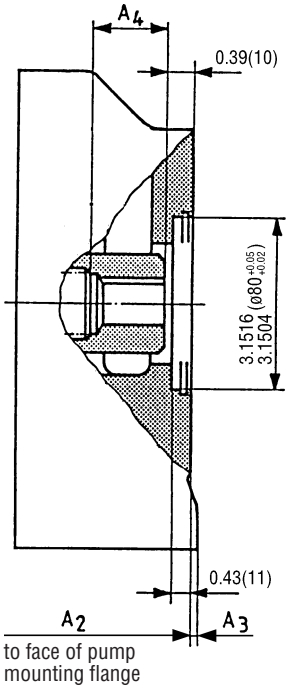


Size of main pump	A_2	A_3	A_4
500	23.23(590)	3.58(91)	M20; 1.02(26) deep
750	25.20(640)	3.58(91)	M20; 1.02(26) deep

Flange ISO 80, 2-bolt; for mounting of axial piston pump A10VSO 18 (keyed shaft P) see RA 92712
Ordering code **K51**

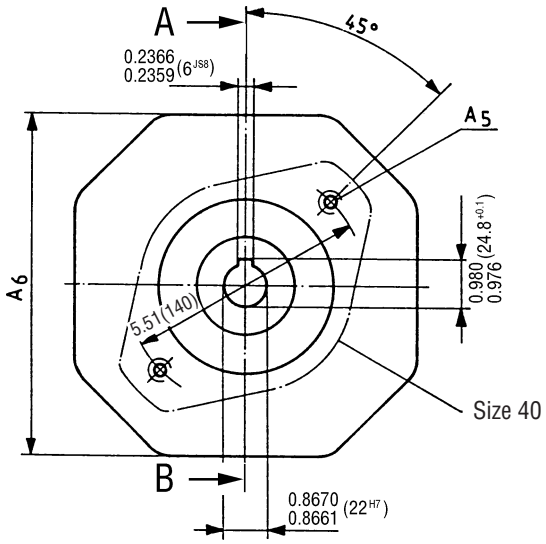


Section A–B

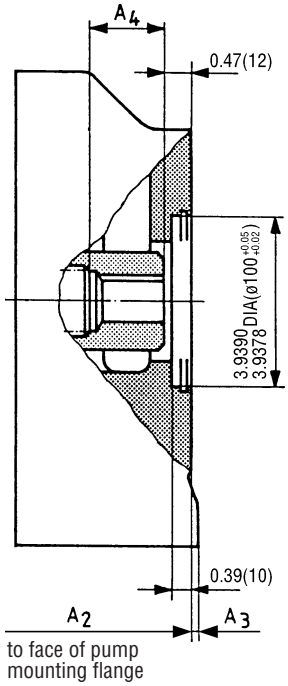


Size of main pump	A_2	A_3	A_4	A_5
40	10.35(263)	–	1.09(27.8)	M10
71	11.46(291)	–	1.48(37.5)	M10
125	13.66(347)	0.45(11.5)	1.50(38.2)	M10
180	14.61(371)	–	1.50(38.2)	M10; 0.47(12) deep
250	16.97(431)	0.12(3)	1.30(33)	M10; 0.47(12) deep
355	18.11(460)	–	1.48(37.6)	M10
500	19.88(505)	0.59(15)	1.67(42.5)	M10

Flange ISO 100, 2-bolt; for mounting of axial piston pump A10VSO 28 (keyed shaft P) see RE 92711 (metric)
Ordering code **K25**

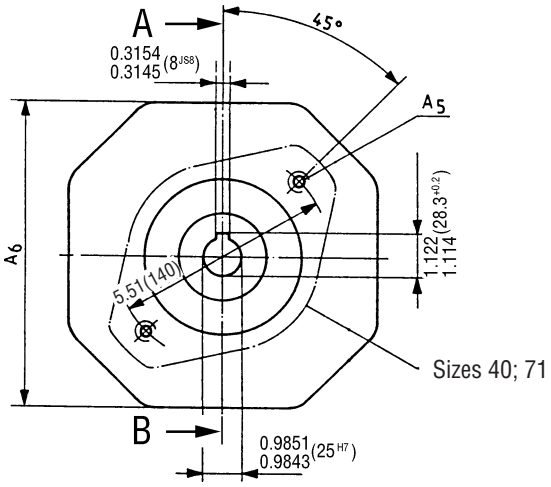


Section A–B

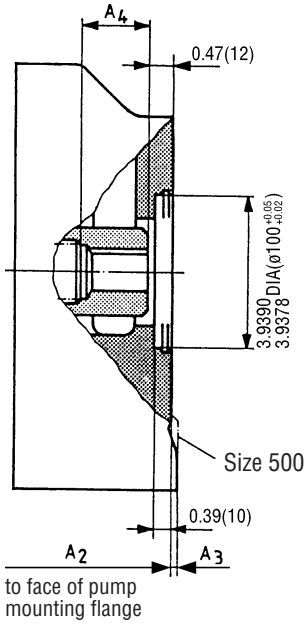


Size of main pump	A_2	A_3	A_4	A_5	A_6
40	11.42(290)	–	2.17(55)	M12; 1.02(26) deep	–
71	12.44(316)	0.08(2)	1.38(35)	M12; 0.71(18) deep	5.51(140)
125	14.45(367)	–	1.46(37)	M12; 0.59(15) deep	5.91(150)
180	15.39(391)	–	1.46(37)	M12; 0.59(15) deep	5.91(150)
250	16.97(431)	0.12(3)	1.89(48)	M12; 0.71(18) deep	7.87(200)

Flange ISO 100, 2-bolt; for mounting of axial piston pump A10VSO 45 (keyed shaft P) see RE 92711 (metric)
Ordering code **K26**

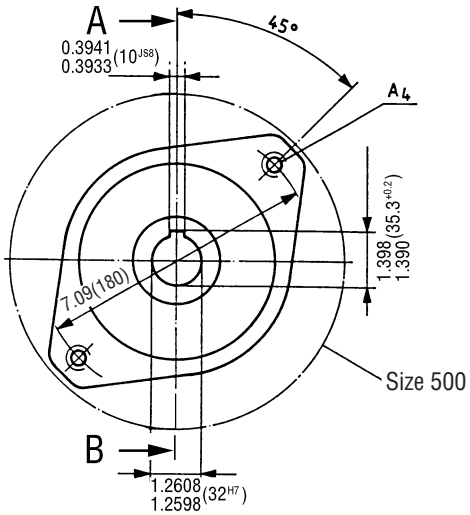


Section A–B

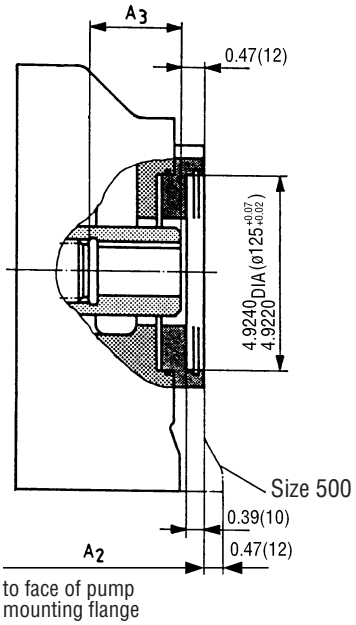


Size of main pump	A_2	A_3	A_4	A_5	A_6
40	11.42(290)	–	2.40(61)	M12; 1.02(26) deep	–
71	12.24(311)	–	1.89(48)	M12; 1.50(38) deep	–
125	14.45(367)	–	2.05(52)	M12; 1.38(35) deep	5.91(150)
180	15.39(391)	–	2.05(52)	M12; 0.79(20) deep	5.91(150)
250	16.97(431)	0.12(3)	1.89(48)	M12; 0.71(18) deep	7.87(200)
500	19.88(505)	0.47(12)	2.36(60)	M12; 0.71(18) deep	9.45(240)

Flange ISO 125, 2-bolt; for mounting of axial piston pump A10VSO 71 (keyed shaft P) see RE 92711 (metric)
Ordering code **K27**

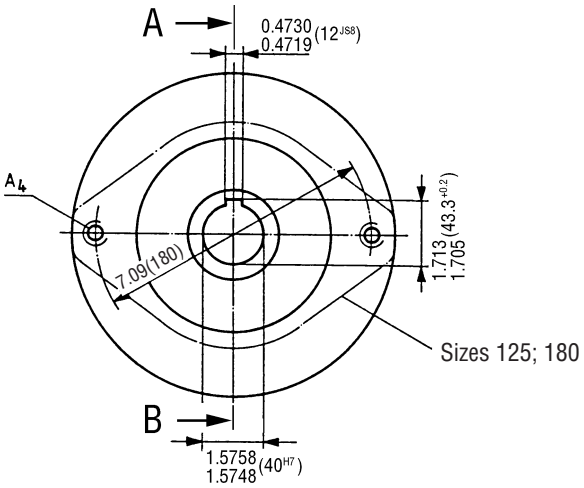


Section A–B

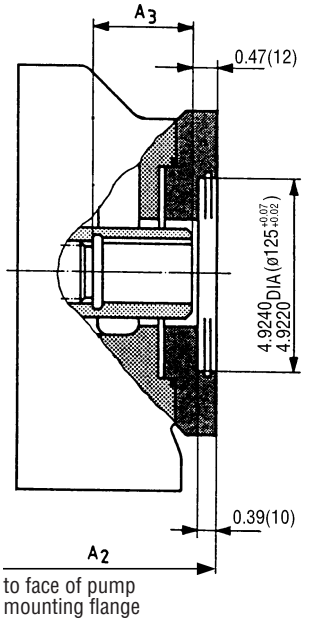


Size of main pump	A_2	A_3	A_4
71	12.64(321)	2.44(62)	M16; 1.14(29) deep
125	14.88(378)	2.48(63)	M16; 0.94(24) deep
180	15.83(402)	2.28(58)	M16; 0.94(24) deep
250	17.68(449)	2.44(62)	M16; 0.94(24) deep
355	18.82(478)	2.44(62)	M16; 0.94(24) deep
500	19.88(505)	2.36(60)	M16; 0.94(24) deep

Flange ISO 125, 2-bolt; for mounting of axial piston pump A10VSO 100 (keyed shaft P) see RE 92711 (metric)
Ordering code **K37**

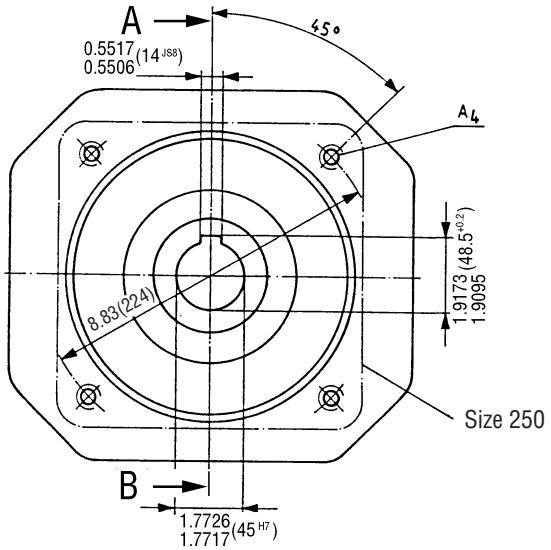


Section A–B

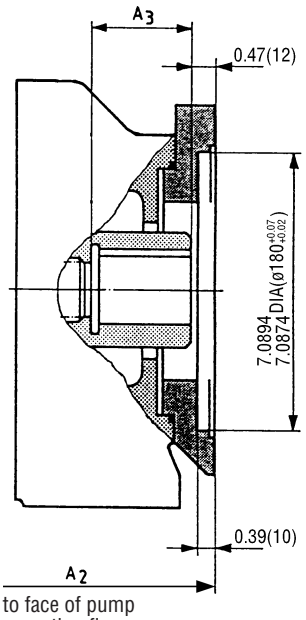


Size of main pump	A_2	A_3	A_4
125	15.12(384)	2.76(70)	M16; 0.94(24) deep
180	16.08(408.5)	2.56(65)	M16; 0.94(24) deep
250	17.99(457)	2.68(68)	M16; 1.02(26) deep
500	20.91(531)	3.39(86)	M16; 1.02(26) deep

Flange ISO 180, 4-bolt; for mounting of axial piston pump A10VSO 140 (keyed shaft P) see RE 92711 (metric)
Ordering code **K59**



Section A–B

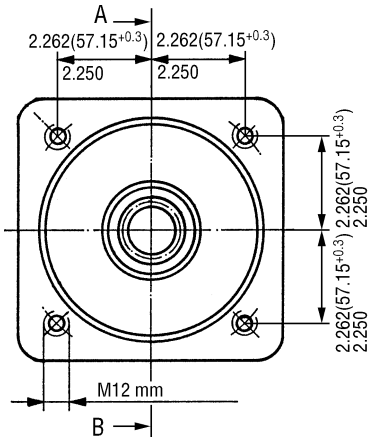


to face of pump mounting flange

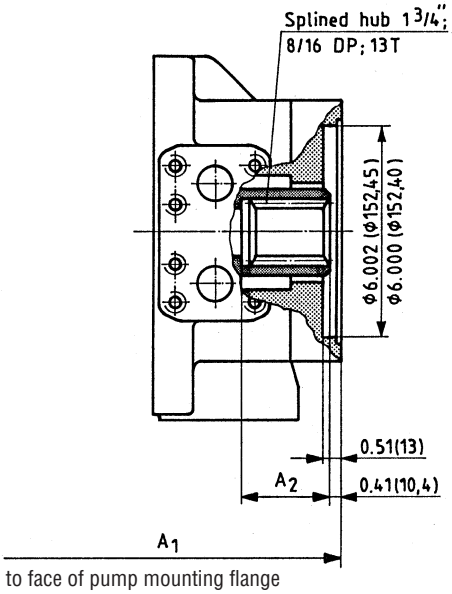
Size of main pump	A_2	A_3	A_4
250	18.46(469)	3.11(79)	M16; 1.26(32) deep
355	19.61(498)	3.11(79)	M16; 1.26(32) deep
500	20.87(530)	3.35(85)	M16; 0.98(25) deep

With through drive shaft, without hub, without intermediate flange, **covered**
Ordering code **K99**
Dimensions on demand

Flange 127-4, (SAE C, 4-bolt); for mounting of axial piston pump AA4VSO/G 71 (splined shaft S)
Ordering code **K16**



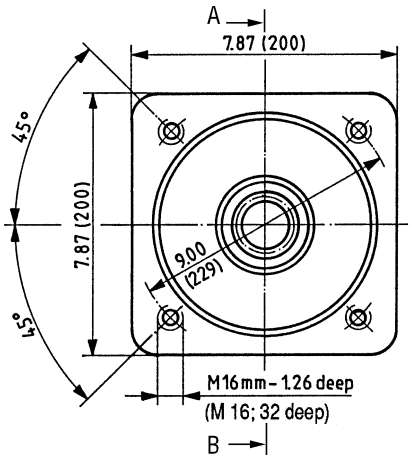
Section A–B



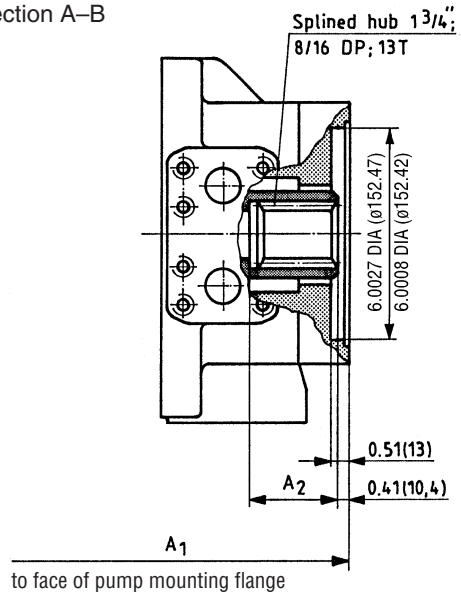
to face of pump mounting flange

Size of main pump	A_1	A_2
125	15.12(384)	2.64(67)
250	on request	

Flange 152-4 (SAE D, 4-bolt); for mounting of axial piston pump AA4VSO/G 125 (splined shaft S)
Ordering code **K17**

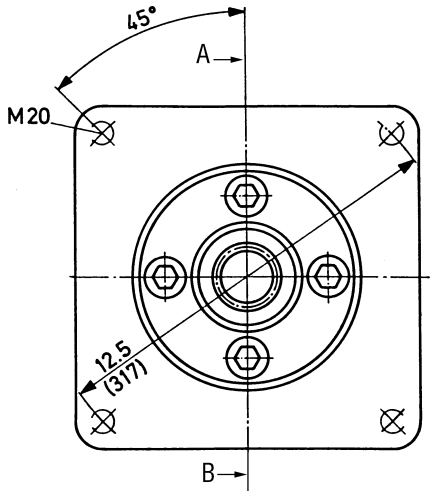


Section A–B

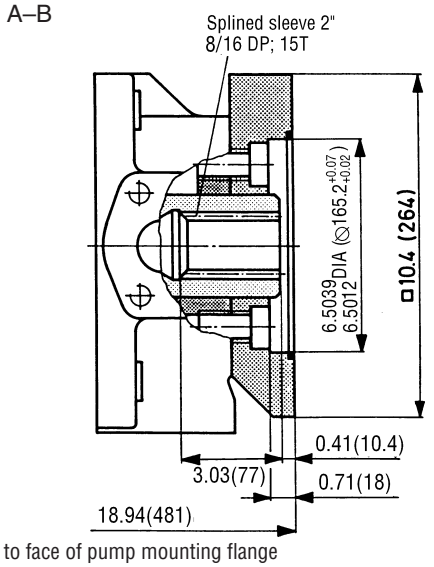


Size of main pump	A_1	A_2
125	15.12(384)	2.64(67)
250	on request	

Flange 165-4 (SAE E, 4-bolt); for mounting of axial piston pump AA4VSO/G 250 (splined shaft S)
Ordering code **K18**

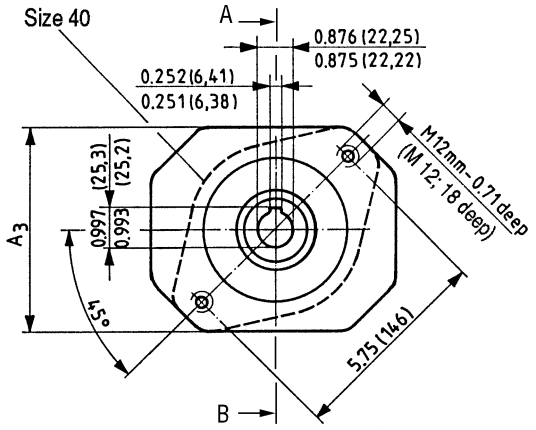


Section A–B

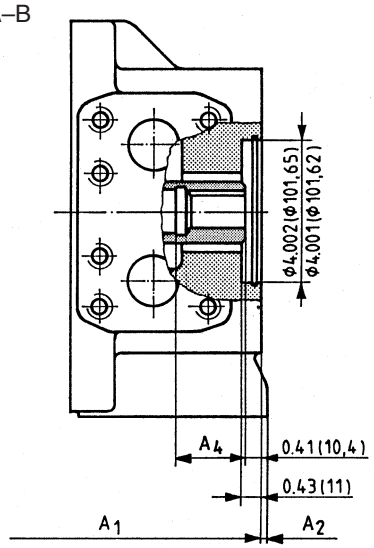


Size of main pump
AA4VSO 250

Flange 101-2 (SAE B, 2-bolt); for mounting of axial piston pump AA10VSO 28 - keyed shaft "K" (see RA 92 711)
Ordering code **K03**



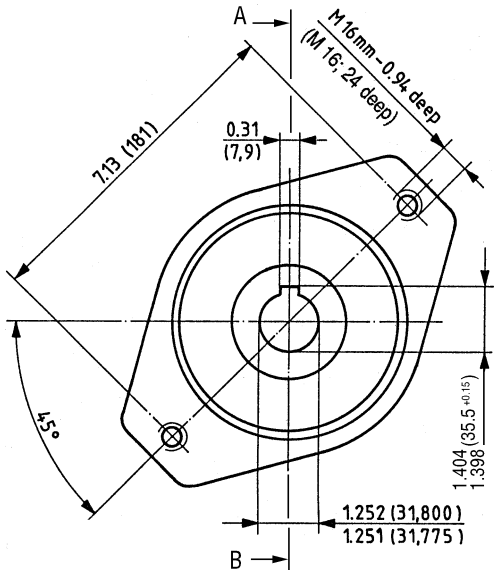
Section A–B



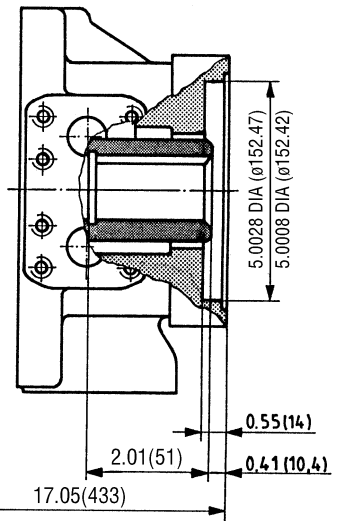
to face of pump mounting flange

Size of main pump	A_1	A_2	A_3	A_4
40	11.50(292)	–	5.12(130)	2.40(61)
71	12.76(324)	–	5.51(140)	2.40(61)
125	14.53(369)	0.32(8)	5.91(150)	1.73(44)

Flange 127-2 (SAE C, 2-bolt); for mounting of axial piston pump AA10VSO 71 - keyed shaft "K" (see RA 92 711)
Ordering code **K08**



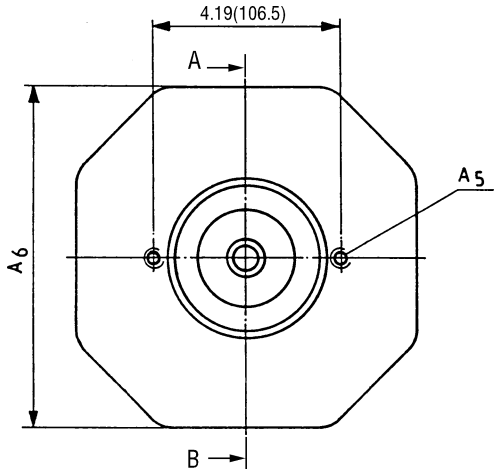
Section A–B



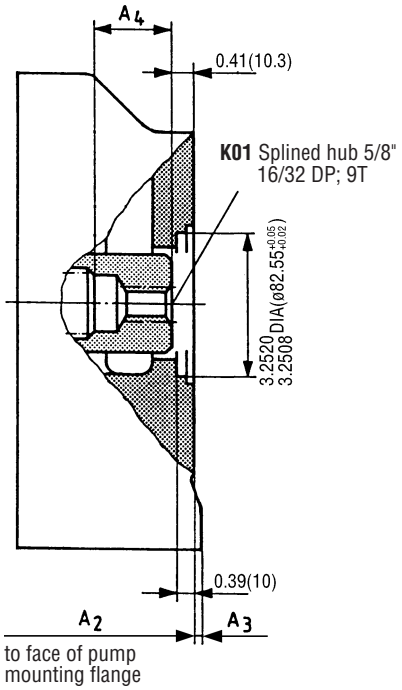
to face of pump mounting flange

Size of main pump 250

Flange 82-2 (SAE A, 2-bolt); for mounting of external gear pump G2 (see RA 10 030) or internal gear pump 1 PF2GC2/3-1X/XXXXR07MU2 (see RA 10 215)
Ordering code **K01**



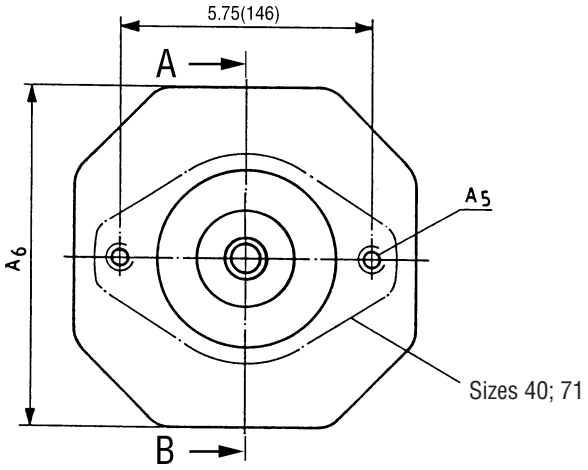
Section A–B



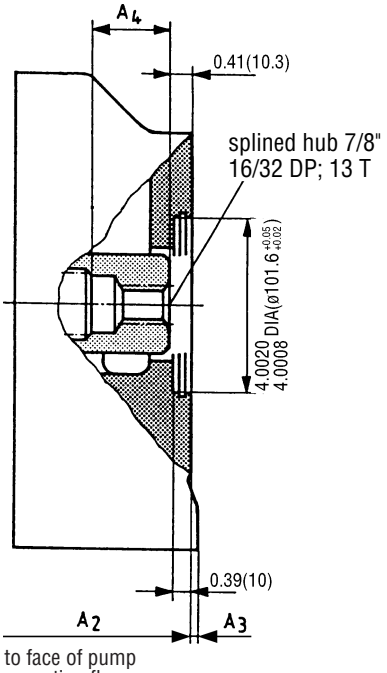
Size of main pump	A_2	A_3	A_4	A_5	A_6
40	10.35(263)	–	1.57(40)	M10;0.59(15) deep	5.12(130)
71	11.46(291)	0.08(2)	1.46(37)	M10;0.59(15) deep	5.51(140)
125	13.66(347)	0.31(8)	1.54(39)	M10;0.59(15) deep	5.91(150)
180	in preparation				
250	16.97(431)	0.12(3)	1.97(50)	M10;0.59(15) deep	7.87(200)
355	in preparation				

Caution: with G2 and GC mounting alternate direction of rotation is not possible.
Also: watch for correct hydraulic fluid (see RA 10030 and/or 10215).

Flange SAE 102-2 (SAE B, 2-bolt); for mounting of external gear pump G3 (see RA 10039) or for mounting of axial piston pump A10VO 28 (splined shaft S) see RA 92701
Ordering code **K02**



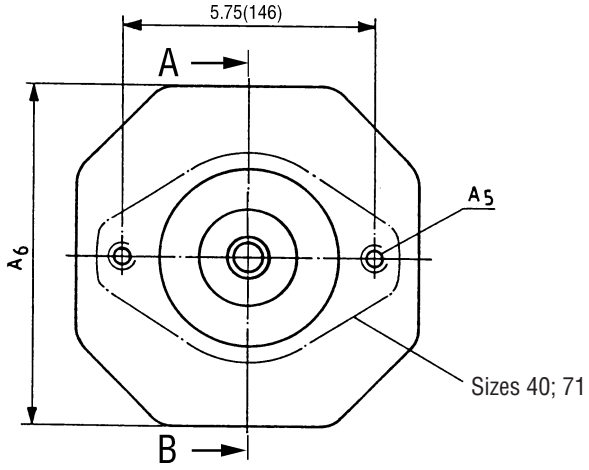
Section A–B



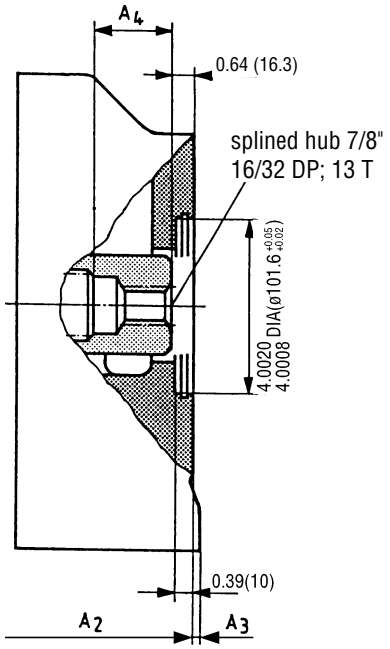
Size of main pump	A_2	A_3	A_4	A_5	A_6
40	11.42(290)	–	2.60(66)	M12; 1.02(26) deep	–
71	12.68(322)	–	2.09(53)	M12; 1.18(30) deep	–
125	13.66(347)	0.31(8)	1.54(39)	M12; 0.59(15) deep	5.51(150)
180	14.61(371)	–	1.54(39)	M12; 0.59(15) deep	6.30(160)
250	16.97(431)	0.39(10)	2.01(51)	M12; 0.71(18) deep	7.87(200)
355	18.11(460)	–	2.01(51)	M12; 0.71(18) deep	8.66(220)
500	19.88(505)	–	2.48(63)	M12; 0.71(18) deep	9.45(240)
750	21.85(555)	–	2.48(63)	M12; 0.71(18) deep	10.16(258)

Caution: with G3 mounting alternate direction of rotation is not possible.
Also: watch for correct hydraulic fluid (see RA 10039).

Flange SAE 102-2 (SAE B, 2-bolt); for mounting of fixed vane pump PVV1 and 2 with “J” shaft (see RA 10 335) or for mounting of axial piston pump A10VO 28 (splined shaft R) see RA 92701
Ordering code **KA3**



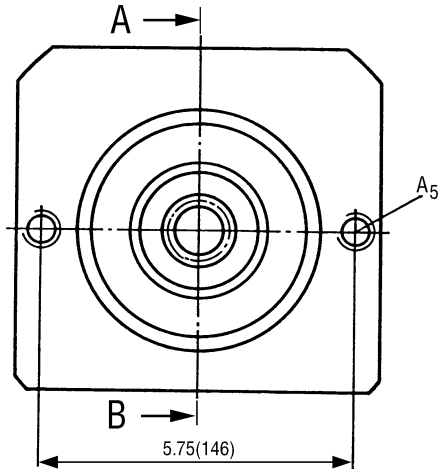
Section A–B



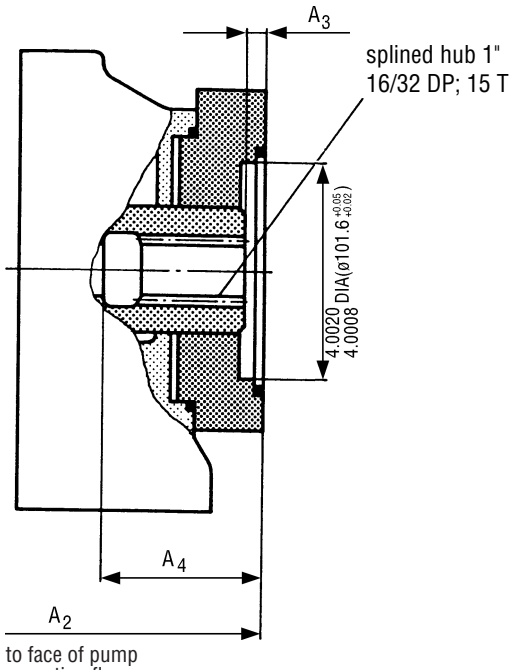
Size of main pump	A_2	A_3	A_4	A_5	A_6
40	11.42(290)	–	2.36(60)	M12; 1.02(26) deep	–
71	12.68(322)	–	1.85(47)	M12; 1.18(30) deep	–
125	13.66(347)	0.31(8)	1.30(33)	M12; 0.59(15) deep	5.51(150)
180	14.61(371)	–	1.30(33)	M12; 0.59(15) deep	6.30(160)
250	16.97(431)	0.39(10)	1.77(45)	M12; 0.71(18) deep	7.87(200)
355	18.11(460)	–	1.77(45)	M12; 0.71(18) deep	8.66(220)
500	19.88(505)	–	2.24(57)	M12; 0.71(18) deep	9.45(240)
750	21.85(555)	–	2.24(57)	M12; 0.71(18) deep	10.16(258)

Caution: with G3 mounting alternate direction of rotation is not possible. Also: watch for correct hydraulic fluid (see RA 10039).

Flange SAE 101-2 (SAE B, 2-bolt); for mounting of internal gear pump 1PF2GC4-1X/0XXXR07MU2, (see RA 10215) or for mounting of axial piston pump A10VO 45 (splined shaft S) see RA 92701
Ordering code **K04**



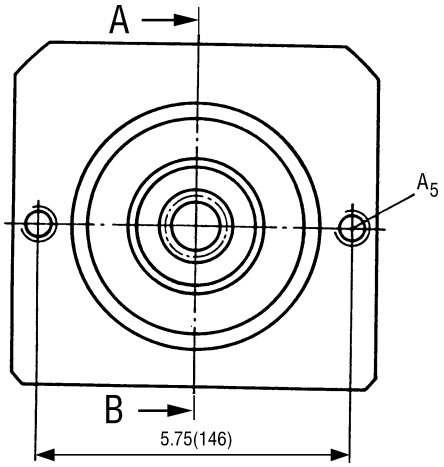
Section A–B

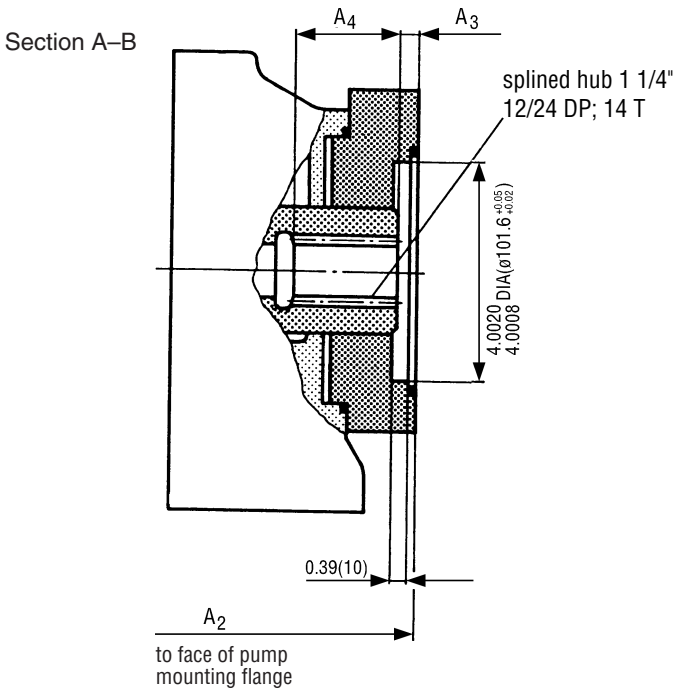


Size of main pump	A_2	A_3	A_4	A_5
125	13.66(347)	0.39(10)	1.93(49)	M12; 0.59(15) deep
355	18.11(460)	0.35(9)	2.36(60)	M12; 0.71(18) deep

Caution: with internal gear pump GC mounting alternate direction of rotation is not possible. Also: watch for correct hydraulic fluid (see RA 10215).

Flange SAE 101-2 (SAE B, 2-bolt); for mounting of internal gear pump 1PF2GC5-1X/0XXXR07MU2, (see RA 10215)
Ordering code **K06**

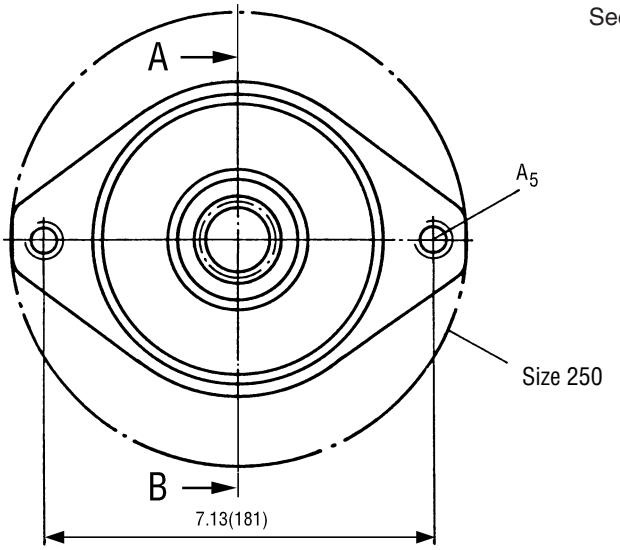


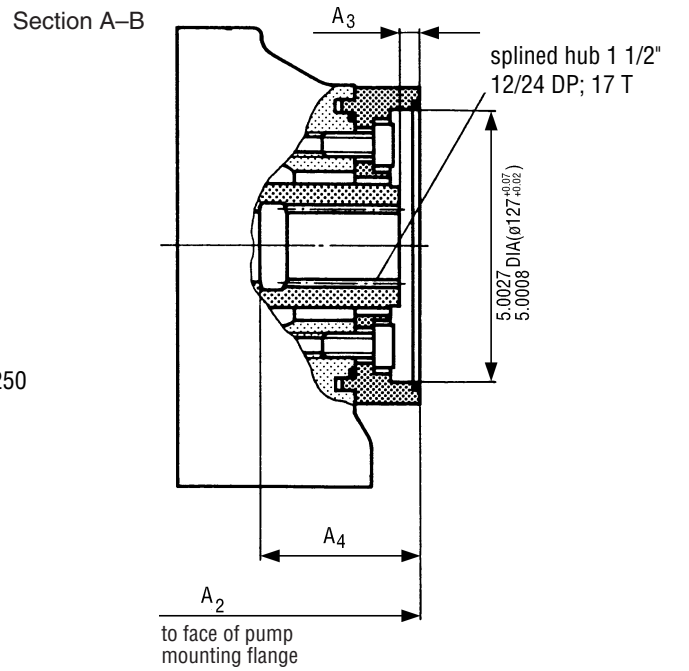


Size of main pump	A_2	A_3	A_4	A_5
125	14.88(378)	0.35(9)	0.53(13.5)	M12; 0.71(18) deep

Note: with internal gear pump GC mounting alternate direction of rotation is not possible. Also: watch for correct hydraulic fluid (see RA 10215).

Flange SAE 127-2 (SAE C, 2-bolt); for mounting of internal gear pump 1PF2GC6-1X/XXXXR07MU2, (see RA 10215) or for mounting of axial piston pump A10VO 100 (splined shaft S) see RA 92701
Ordering code **K24**

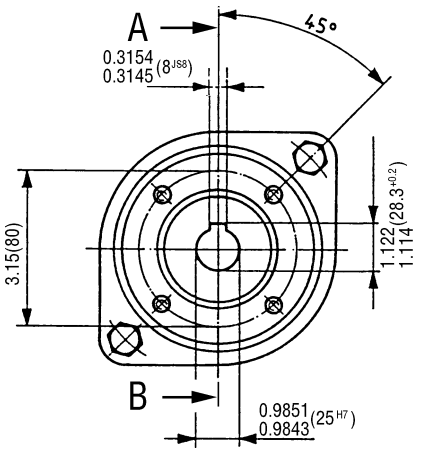




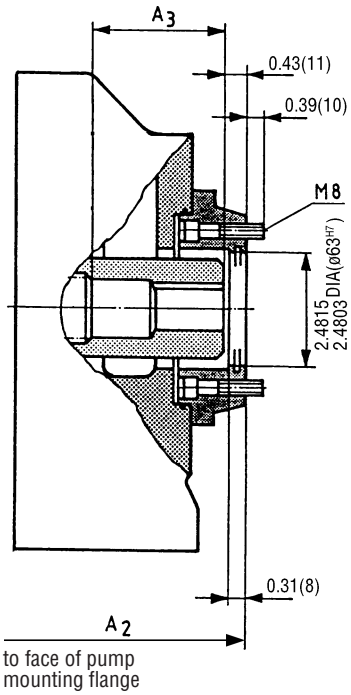
Size of main pump	A_2	A_3	A_4	A_5
125	14.84(377)	0.35(9)	2.91(74)	M16; 0.94(24) deep
180	15.79(401)	0.39(10)	2.83(72)	M16; 0.94(24) deep
250	17.76(451)	0.41(10.5)	2.99(76)	M16; 0.79(20) deep

Note: with internal gear pump GC mounting alternate direction of rotation is not possible. Also: watch for correct hydraulic fluid (see RA 10215).

Flange ø 63 (mm) metric, 4-bolt; for mounting of radial piston pump R4 (keyed shaft) see RA 11263
Ordering code **K57**



Section A–B

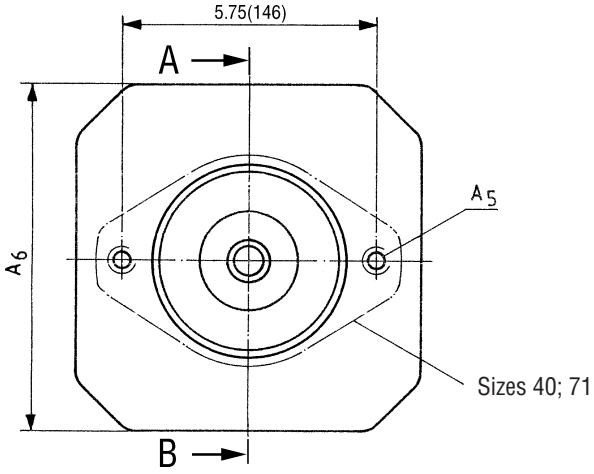


Size of main pump	A_2	A_3
40*	11.38(289)	2.40(61)
71*	12.56(319)	2.20(56)
125	14.76(375)	2.44(62)
250	18.07(459)	3.07(78)

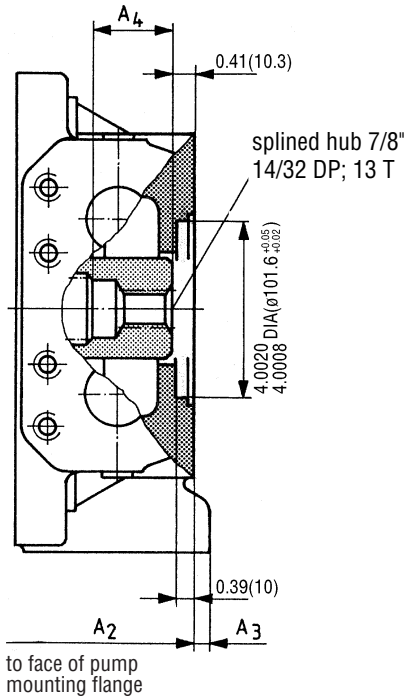
Pay attention to direction of rotation and hydraulic fluid (see RA 11263).

*Mounting of radial piston pump R4-3 only possible with main pump A4VSG 40 and 71 using control option LR.D, LR.S or LR.G.

Flange SAE 101-2 (SAE B, 2-bolt); for mounting of gear pump G4 (see RA 10042)
Ordering code **K68**



Section A–B

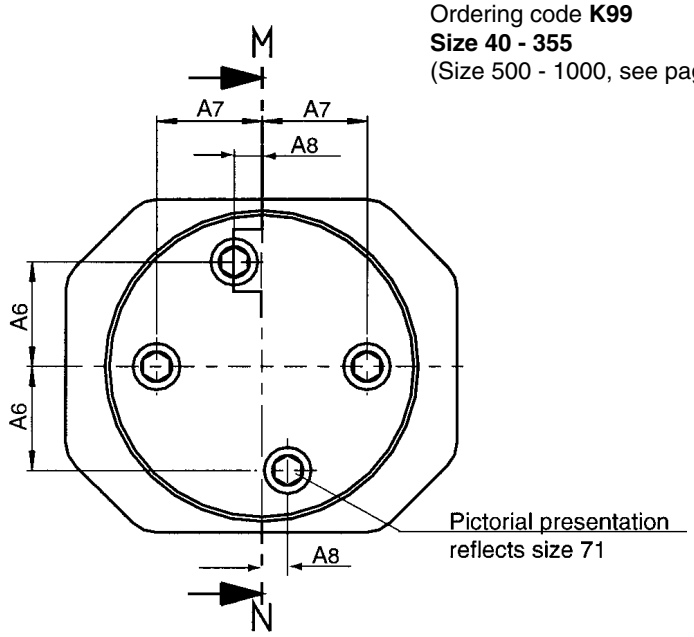


Size of main pump	A_2	A_3	A_4	A_5	A_6
40	11.42(290)	–	2.60(66)	M12; 1.02(26) deep	–
71	12.68(322)	–	2.09(53)	M12; 1.18(30) deep	–
125	13.66(347)	0.31(8)	1.54(39)	M12; 0.59(15) deep	5.91(150)
180	14.61(371)	–	1.54(39)	M12; 0.59(15) deep	6.30(160)
250	16.97(431)	0.39(10)	2.01(51)	M12; 0.71(18) deep	7.87(200)
355	18.11(460)	–	2.01(51)	M12; 0.71(18) deep	8.66(220)
500	19.88(505)	–	2.48(63)	M12; 0.71(18) deep	9.45(240)
750	21.85(555)	–	2.48(63)	M12; 0.71(18) deep	10.16(258)

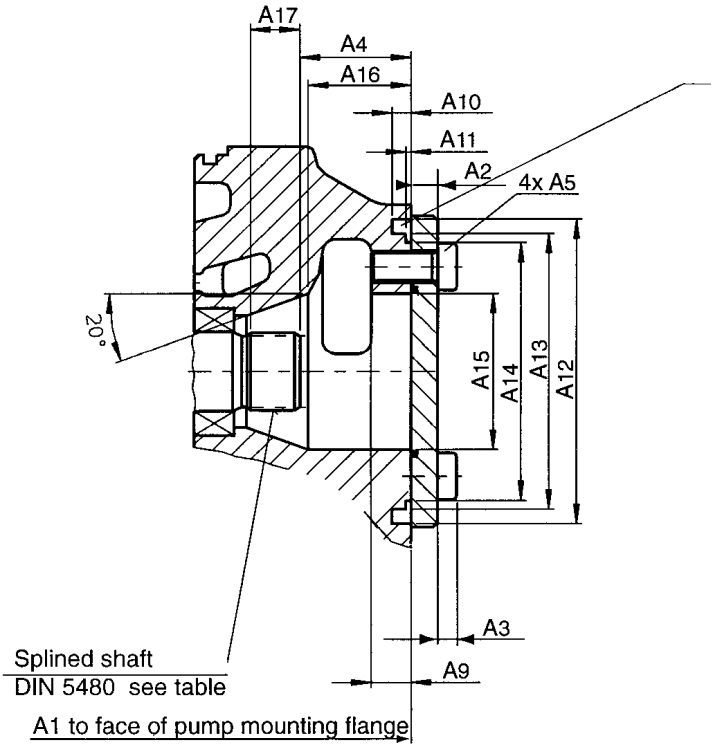
Caution: with G4 mounting alternate direction of rotation is not possible. Also: watch for correct hydraulic fluid (see RA 10042).

With through drive shaft, without hub or intermediate flange, **with cover**

Ordering code **K99**
Size 40 - 355
(Size 500 - 1000, see page 43)



Section M - N



Size Main pump	O-ring (not included in supply)	Splined shaft DIN 5480
40	99x3 78 SH A	W25x1.25x30x18x9g
71	PRP 245 7509	W30x1.25x30x22x9g
125	119x3 78 SH A	W35x1.25x30x26x9g
180	119x3 78 SH A	W35x1.25x30x26x9g
250	162x3 78 SH A	W42x1.25x30x32x9g
355	162x3 78 SH A	W42x1.25x30x32x9g

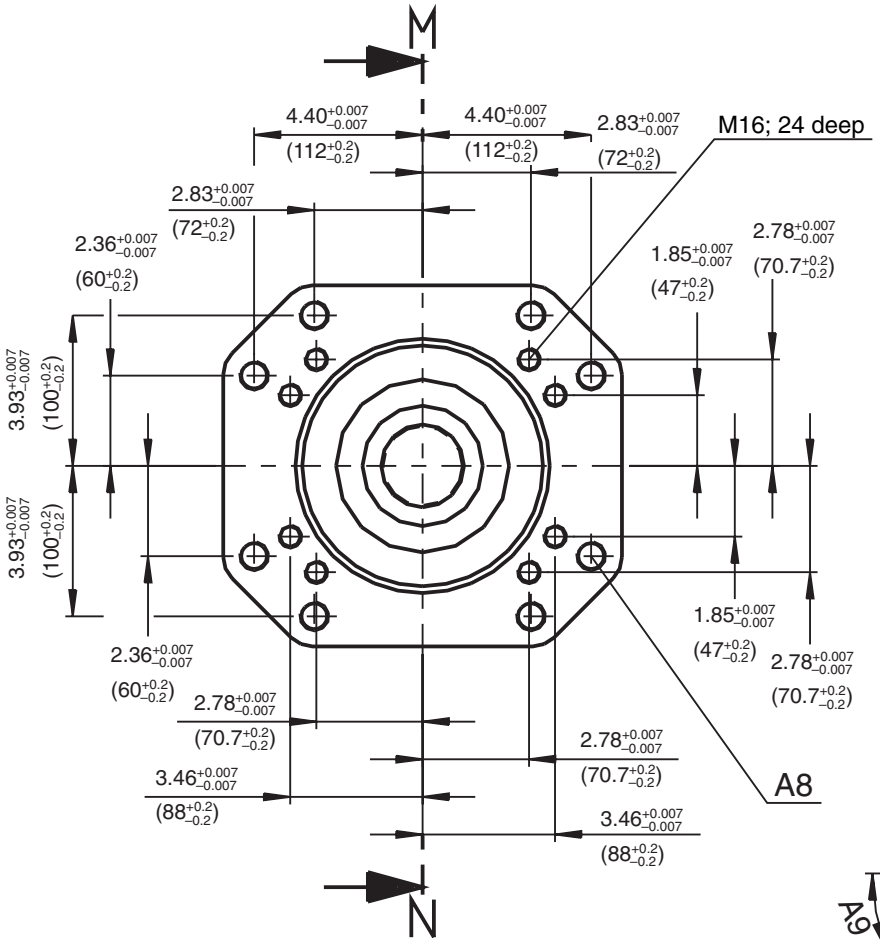
Size, Main pump	A_1	A_2	A_3	A_4	A_5	A_6	A_7	A_8	A_9	A_{10}	A_{11}	A_{12}	A_{13}	A_{14}	A_{15}	A_{16}	A_{17}
40	10.3	0.39	0.29	$2.01_{\pm 0.03}$	M12x25	$1.5_{\pm 0.007}$	$1.5_{\pm 0.007}$	0	0.70	0.35	$0.09_{+0.003}$	ø4.64	$ø4.13_{g6}$	$ø3.84_{-0.015}$	ø2.04	1.73	0.55
	(263)	(10)	(7.5)	$(51.3_{\pm 1})$	(M12x25)	$(37_{\pm 0.2})$	$(37_{\pm 0.2})$	0	(18)	(9)	$(2.3_{+0.1})$	(ø118)	$(ø105_{g6})$	$(ø97.6_{-0.4})$	(ø52)	(44)	(14)
71	11.4	0.39	0.29	$1.88_{\pm 0.03}$	M12x28	42,3	$1.77_{\pm 0.005}$	$0.60_{\pm 0.005}$	0.70	0.35	$0.10_{+0.003}$	ø5.11	$ø4.56_{g6}$	$ø4.19_{-0.015}$	ø2.48	1.53	0.62
	(291)	(10)	(7.5)	$(48_{\pm 1})$	(M12x28)	(42.3)	$(45_{\pm 0.15})$	$(15.4_{\pm 0.15})$	(18)	(9)	$(2.7_{+0.1})$	(ø130)	$(ø116_{g6})$	$(ø106.4_{-0.4})$	(ø63)	(39)	(16)
125	13.6	0.47	0.33	$1.95_{\pm 0.03}$	M14x30	$1.85_{\pm 0.005}$	$1.85_{\pm 0.005}$	0	0.70	0.33	$0.09_{+0.003}$	ø5.39	$ø4.88_{g6}$	$ø4.56_{-0.015}$	ø2.75	1.81	0.86
	(347)	(12)	(8.5)	$(49.7_{\pm 1})$	(M14x30)	$(47_{\pm 0.15})$	$(47_{\pm 0.15})$	0	(18)	(8.5)	$(2.3_{+0.1})$	(ø137)	$(ø124_{g6})$	$(ø116_{-0.4})$	(ø70)	(46)	(22)
180	14.6	0.47	0.33	$1.95_{\pm 0.03}$	M14x30	$1.85_{\pm 0.005}$	$1.85_{\pm 0.005}$	0	0.70	0.33	$0.09_{+0.003}$	ø5.39	$ø4.88_{g6}$	$ø4.56_{-0.015}$	ø2.75	1.81	0.98
	(371)	(12)	(8.5)	$(49.7_{\pm 1})$	(M14x30)	$(47_{\pm 0.15})$	$(47_{\pm 0.15})$	0	(18)	(8.5)	$(2.3_{+0.1})$	(ø137)	$(ø124_{g6})$	$(ø116_{-0.4})$	(ø70)	(46)	(25)
250	16.9	0.59	0.47	$2.42_{\pm 0.03}$	M20x40	$2.48_{\pm 0.005}$	$2.48_{\pm 0.005}$	0	1.02	0.35	$0.09_{+0.003}$	ø7.08	$ø6.49_{g6}$	$ø6.18_{-0.015}$	ø3.46	2.52	1.20
	(431)	(15)	(12)	$(61.4_{\pm 1})$	(M20x40)	$(63_{\pm 0.15})$	$(63_{\pm 0.15})$	0	(26)	(9)	$(2.3_{+0.1})$	(ø180)	$(ø165_{g6})$	$(ø157_{-0.4})$	(ø88)	(64)	(30.5)
355	18.1	0.59	0.47	$2.42_{\pm 0.03}$	M20x40	$2.48_{\pm 0.005}$	$2.48_{\pm 0.005}$	0	1.02	0.35	$0.09_{+0.003}$	ø7.08	$ø6.49_{g6}$	$ø6.18_{-0.015}$	ø3.46	2.52	1.33
	(460)	(15)	(12)	$(61.4_{\pm 1})$	(M20x40)	$(63_{\pm 0.15})$	$(63_{\pm 0.15})$	0	(26)	(9)	$(2.3_{+0.1})$	(ø180)	$(ø165_{g6})$	$(ø157_{-0.4})$	(ø88)	(64)	(34)

With through drive shaft, without hub or intermediate flange, **with cover**

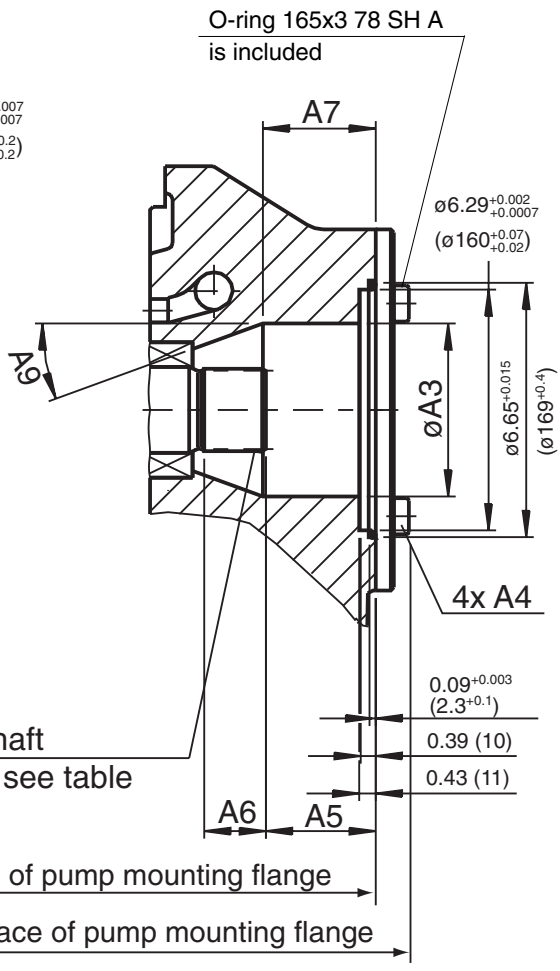
Ordering code **K99**

Size 500 - 1000

drawn without cover

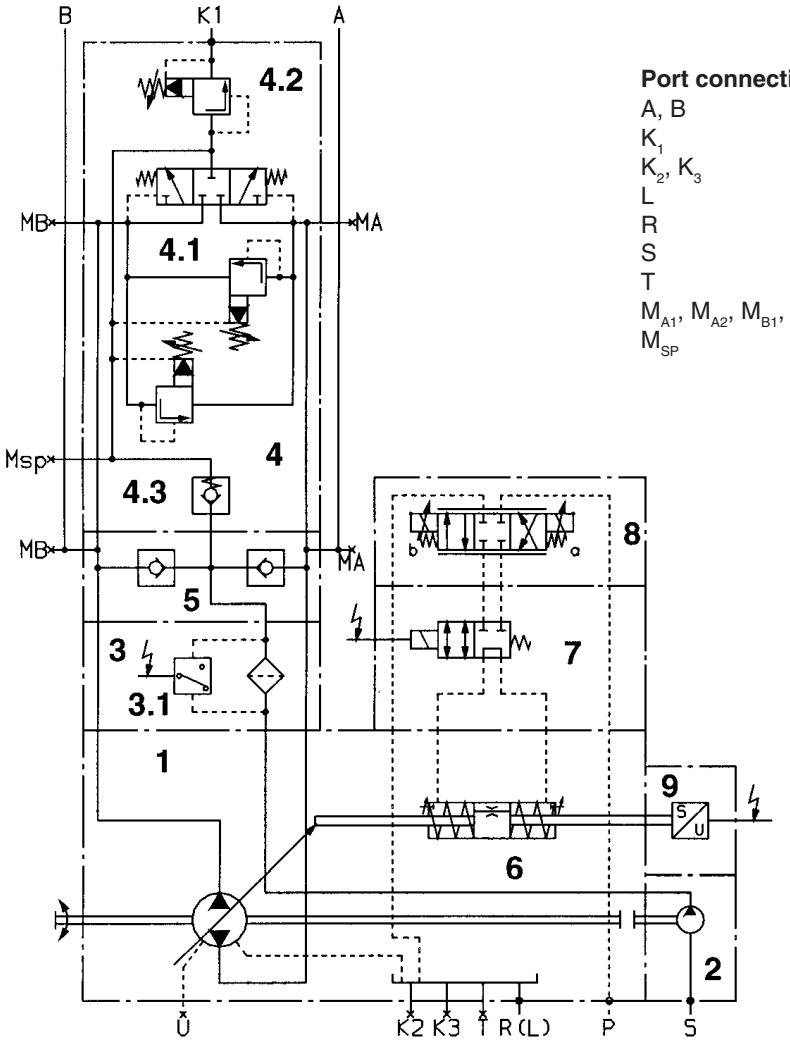


Section M - N



Size Main pump	A_1	A_2	A_3	A_4	A_5	A_6	A_7	A_8	A_9	Splined shaft DIN 5480
500	19.88 (505)	20.47 (520)	ø4.52 (ø115)	M16x30 (M16x30)	2.87 (73)	1.61 (41)	2.95 (75)	M20;24 deep (M20;24 deep)	20°	W55x1.25x30x42x9g
750	21.85 (555)	22.71 (577)	ø4.52 (ø115)	M16x24 (M16x24)	2.87 (73)	1.61 (41)	2.95 (75)	M20;24 deep (M20;24 deep)	20°	W55x1.25x30x42x9g
1000	24.72 (628)	25.70 (653)	ø55.9 (ø142)	M16x24 (M16x24)	2.95 (75)	1.96 (50)	2.55 (65)	M20;30 deep (M20;30 deep)	15°	W65x1.25x30x50x9g

Typical schematic diagram AA4VSG 40 71 125 180 EO1K/10L–PPB10H029F 22 H03 KD60



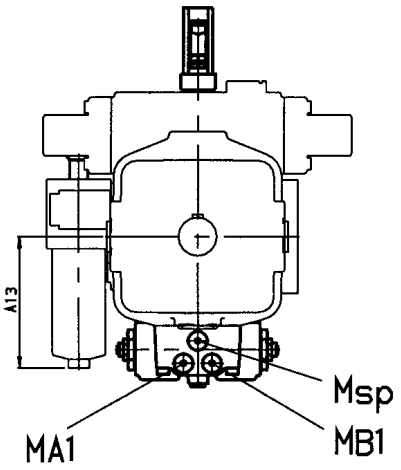
Port connections

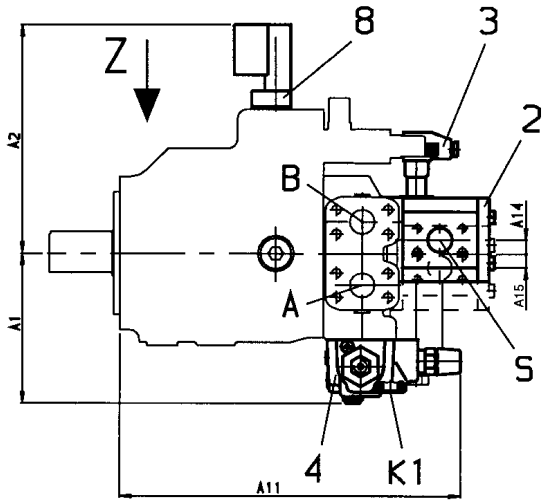
A, B	Pressure ports
K_1	Flushing port
K_2, K_3	Housing flushing ports (plugged)
L	Case drain port
R	Return line or bleed
S	Suction port - auxiliary pump
T	Oil drain port (plugged)
M_{A1}, M_{A2}, M_{B1}, M_{B2}	Test ports for operating pressure (plugged)
M_{SP}	Test port for flushing pressure (plugged)

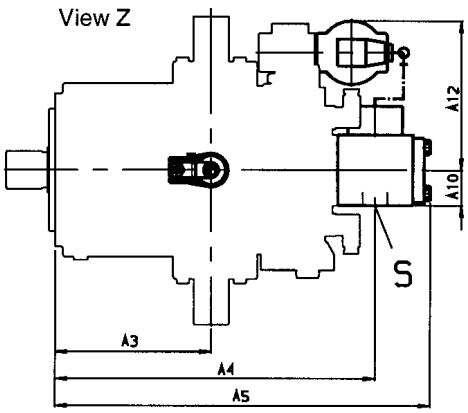
Item		Ordering code	
1	Variable displacement pump A4VSG 40...180	**AA4VSG**	
2	Boost pump - selection see page 47 (assembled and piped)	**H 02** or **H 03**	
3	Boost circuit filter	**F**	
3.1	Optical/electrical clogging indicator		
4	Valve block SDVB 16 at A4VSG 40...180		For sizes 250...500 "SDVB 30" to circuit type 1 and for size 750 "SDVB 50" are installed (see RA 95533 in preparation). The check valve (item 4.3) is installed in the pipeline in this case.
4.1	Pressure relief valve	**9**	
4.2	Flushing valve		
4.3.	Check valve4.4		
5	Boost circuit check valves	Standard on AA4VSG	
6	Hydraulic control option		
7	Short circuit valve (Z4WE6E68–2X/AG24NZ4)	**EO1K**	
8	4/3 way proportional valve		
9	Inductive position transducer (LVDT feedback device)		
	Electronic control not included in supply (please order separately)		

Unit dimensions

A4VSG with auxiliary pump, flushing block, inductive positional transducer and filter

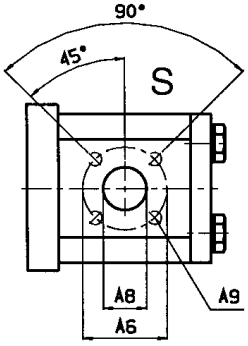




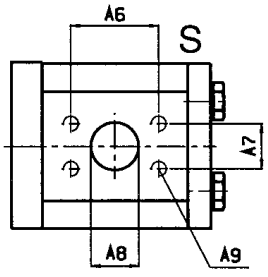


Note: For dimensions, see table on page 46.

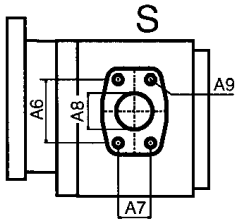
Port S (selection see page 32)



G2



G3



G4

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}*
40	6.85	9.68	5.66	12.2	14.2	1.57	–	0.78	M6; 13 deep	1.65	~14.3	6.88	4.52	0.64	0.64
	(174)	(246)	(144)	(311)	(361)	(40)	(–)	(20)		(42)	(~364)	(175)	(115)	(16.3)	(16.3)
71				13.2	13.4										
				(337)	(341)										
	6.96	10.4	6.53			1.57	–	0.78	M6; 13 deep	1.65	15.3	7.08	4.52	0.64	0.64
	(177)	(265)	(166)			(40)	(–)	(20)		(42)	(389)	(180)	(115)	(16.3)	(16.3)
71				13.3	13.5										
				(340)	(345)										
125	7.73	11.7	7.99	16.1	18.6	2.06	1.03	1.00	M10; 16 deep	1.81	17.4	7.67	6.77	0.72	0.72
	(196.5)	(298)	(203)	(409)	(473)	(52.5)	(26.2)	(25.4)		(46)	(442)	(195)	(172)	(18.3)	(18.3)
180	7.73	11.7	7.99	17.3	20.1	2.31	1.18	1.25	M10; 16 deep	1.81	17.4	8.97	7.00	0.72	0.72
	(196.5)	(298)	(203)	(439.5)	(511)	(58.8)	(30.2)	(31.75)		(46)	(442)	(228)	(178)	(18.3)	(18.3)
250	12.4	13.5	9.76	20.4	23.2	2.31	1.18	1.25	M10; 16 deep	1.81	17.6	8.97	6.57	0.72	0.72
	(317)	(345)	(248)	(519.5)	(590.5)	(58.8)	(30.2)	(31.75)		(46)	(448)	(228)	(167)	(18.3)	(18.3)
355	12.5	13.5	9.76	22.2	25.2	2.74	1.40	1.49	M12	3.54	17.9	10.4	8.58	0.95	0.95
	(319)	(345)	(248)	(566)	(641)	(69.8)	(35.8)	(38)		(90)	(455)	(266)	(218)	(24.3)	(24.3)
500	13.8	15.4	10.9	24.4	27.8	3.06	1.68	1.96	M12	4.09	19.1	10.2	7.99	0.95	0.95
	(353)	(392)	(279)	(622)	(708)	(77.8)	(42.8)	(50)		(104)	(487)	(260)	(203)	(24.3)	(24.3)

* A_{14} gear - auxiliary pump
direction of rotation clockwise

* A_{15} gear - auxiliary pump
direction of rotation counter-clockwise

Ports

Size	M_A, M_B	K_1	K_2, K_3	S	M_{SP}
40	M14x1.5	M22x1.5; 14 deep	M22x1.5	Square flange form B	M14x1.5
71	M14x1.5	M22x1.5; 14 deep	M27x2	Square flange form B	M14x1.5
125	M14x1.5	M22x1.5; 14 deep	M33x2	SAE 1" (Standard pressure series)	M14x1.5
180	M14x1.5	M22x1.5; 14 deep	M33x2	SAE 1 1/4" (Standard pressure series)	M14x1.5
250	M14x1.5	M33x2; 18 deep	M42x2	SAE 1 1/4" (Standard pressure series)	M22x1.5
355	M14x1.5	M33x2;18 deep	M42x2	SAE 1 1/2" (Standard pressure series)	M22x1.5
500	M14x1.5	M33x2; 18 deep	M48x2	SAE 2" (Standard pressure series)	M22x1.5

Auxiliary pumps, mounted and piped, H02 - H05

Standard are auxiliary pumps mounted and piped as follows:

1 in^3 = 16.38 cm^3

Size A4VSG	40	71	125	180	250	355	500	750	Ordering Code
1 auxiliary pump for boost oil circuit n < 2800 rpm auxiliary pump mounted (V_g cm^3)	–	G2 (16)	G2 (26)	G3 (32)	G3 (38)	G4 (63)	G4 (100)	❍	**H02**
1 auxiliary pump for boost oil circuit n > 2800 rpm auxiliary pump mounted (V_g cm^3)	G2 (11)	G2 (11)	–	–	–	–	–	–	**H03**
1 auxiliary pump for a combined boost oil circuit and pilot oil circuit (EO1 only) n < 2800 rpm auxiliary pump mounted (V_g cm^3)	–	G2 (16)	G2 (26)	–	G3 (38)	–	–	–	**H04**
1 auxiliary pump for a combined boost oil circuit and pilot oil circuit (EO1 only) n > 2800 rpm auxiliary pump mounted (V_g cm^3)	G2 (11)	G2 (11)	–	–	–	–	–	–	**H05**

Unit dimensions and technical data see data sheets:

G2 - RA 10030

G3 - RA 10039

G4 - RA 10042

❍ = in preparation (please request)

Valve block SDVB 16 (pump sizes 40...180),
SDVB 30 to circuit type 1 (pump sizes 250...500) and
SDVB 50 (pump sizes 750 and 1000)
see RA 95533

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