

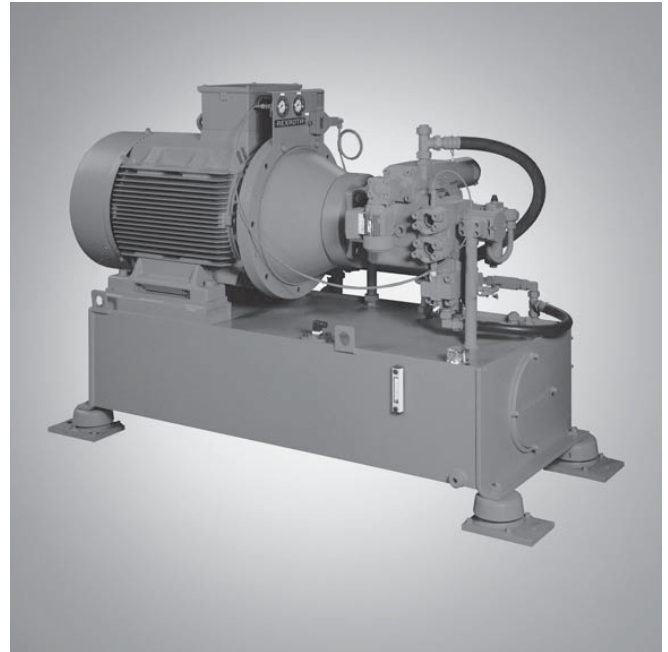
**RE 51 018/11.02**

Replaces: 07.96

**Hydraulic primary unit  
Type ABPAG**

Reservoir volumes 63 to 400 litres

Maximum operating pressure 360 bar



H 2375

Type ABPAG..

**Overview of contents****Contents**

	<b>Page</b>
Features	1, 2
Ordering details	2
Technical data, noise values	3
Selection tables	4, 5
Power unit with oil/water heat exchanger (standard)	
– Circuits	6
– Unit dimensions	7
Power unit with oil/air heat exchanger	
– Circuits	8
– Unit dimensions	9
Commissioning guidelines	10

**Features**

Hydraulic primary units are used for supplying hydraulic systems that have closed loop hydraulic circuits.

The power units are designed for a maximum operating pressure of  $p_{\max} = 360$  bar at the maximum displacement volume of the axial piston pump. Dependent on the controller and adjustment system selected, they supply a flow on the actuator side which suits the application.

These types of power units can be found in the following application areas:

- Shredder systems
- Stirring systems
- Mixers
- Centrifuges
- Winders
- High pressure compressors



© 2002  
by Bosch Rexroth AG, Industrial Hydraulics, D-97813 Lohr am Main

All rights reserved. No part of this document may be reproduced or stored, processed, duplicated or circulated using electronic systems, in any form or by means, without the prior written authorisation of Bosch Rexroth AG. In the event of contravention of the above provisions, the contravening party is obliged to pay compensation.

This document was prepared with the greatest of care, and all statements have been examined for correctness. This document is subject to alterations for reason of the continuing further developments of products. No liability can be accepted for any incorrect or incomplete statements.

## Features

Primary units are of a modular design. The basis is the type A4VG or A4VSG variable displacement pump. All of the components required for closed circuit applications, e.g. pressure relief valve, feed and flushing valve (when required), are fitted into or onto a valve block.

The controller type for the A4VG pumps can be selected from RE 92 003 and for the A4VSG to RE 92 100. The modular system for the primary unit comprises of an oil reservoir, designed as a mounting frame, with built-on electric motor, frame type B 35 and further components such as: drive coupling, pump mounting bracket, pressure gauge, float switch, filler/breather and anti-vibration mounts.

### Isolation, damping

The mechanical isolation of the motor pump group is via damping rings and anti-vibration mounts.

Due to the open design all of the components are easily accessible.

The complete unit is mounted onto anti-vibration mounts which have to be anchored to the foundations.

### Space required

Due to the compact design these units only require a relatively small floor space.

### Filtration

These units are fitted with a filter in the boost circuit.

Electrical clogging indicators indicate when the filter elements have to be changed.

### Operating medium

These units are suitable for use with hydraulic oil HLP to DIN 51 524, part 2. A viscosity class of ISOVG 46 to DIN 51 524 parts 1 and 2 is recommended.

## Ordering details

The pressure medium is to be filled via the filling filter or with the help of a suitable filter/pump unit.

### Pressure limitation

The pump is fitted with two pressure relief valves, one of each is fitted to each high pressure side to provide overload protection.

### Flow adjustment

As standard an electrical adjuster with proportional solenoid is fitted. The relevant amplifier card must be ordered separately.

### Cooling

With oil/water heat exchanger the preferred cooling medium is ammonia-free sweet water (e.g. cooling water); When using spring, stream or river water as well as brackish water, a water analysis is required so that the cooler material can be defined. The water consumption is dependent on the loading of the power unit and the inlet temperature differential.

If a water connection is not available, an oil/air heat exchanger can be fitted as an option.

It, however has to be taken into account that with enclosed rooms an increase in the ambient temperature is to be expected.

ABPAG - / / /		M - A	
Primary unit		A =	Variant A
<b>Reservoir volume in litres (NS)</b>		M =	NBR seals, suitable for mineral oil (HLP) to DIN 51 524. For other fluids, on request
Reservoir NS 63	= 0063	No code =	Without heater
Reservoir NS 100	= 0100	H =	With heater
Reservoir NS 160	= 0160		
Reservoir NS 250	= 0250	<b>Heaters</b>	
Reservoir NS 400	= 0400	No code =	Without thermostat
<b>Material</b>		T =	With thermostat
Steel St 37.2	= S		
Stainless steel	= E		
<b>Pump type</b>			
See selection table on pages 4 and 5			
<b>Electric motor</b>			
(frame size, no. of poles, power in kW) See selection table on pages 4 and 5			
<b>Heat exchanger</b>			
Without heat exchanger	= No code		
With oil/water heat exchanger (standard)	= W		
With oil/air heat exchanger (optional)	= L		

### Ordering example:

ABPAG- 0160 ST/A4VSG71/225M-4-45/WTHM-A

ABPAG- 0400 ST/A4VG180/280M-4-90/LTHM-A

**Technical data** (for applications outside these parameters, please consult us!)

Reservoir capacity	L	100; 160; 250; 400; 630
Pressure fluid		Mineral oil (HLP) to DIN 51 524, part 2
		<b>Please take into account the guidelines stated within the catalogue sheet RE 07 075!</b>
Pumps and controller types		A4VG to catalogue sheet RE 92 003
		A4VSG to catalogue sheet RE 92 100
Filter rating, breather filter	µm	10
Return filter	µm	10
Heat exchanger	Standard	Oil/water
	Optional	Oil/air
Viscosity range	mm <sup>2</sup> /s	10 to 1000 (recommended: 16 to 36)
Operating pressure, max.	bar	360
Electric motor	Current	Ac asynchronous motor
	Voltage	400/690 V at 50 Hz or 460 V at 60 Hz Voltage range to IEC38
	Protection	IP55
	Frame type	B 35
Pipework type		Double cutting edge ring to DIN 2353; light series for tank and leakage lines;
		SAE flange (6000 PSI) for high pressure lines on the pump (other types of fittings on request)
Surface finish		1st undercoat: All steel components (reservoir also internally coated) coated with zinc dust paint 2nd undercoat: Epoxy colour tone RAL 5009 Final coat in various RAL colour tones on request

**Noise values for primary power units**

p in bar	Flow in L/min	Noise pressure level in dB(A)												
		Pump type A4VG / NS						Pump type A4VSG / NS						
		28	40	56	71	90	125	180	250	40	71	125	180	250
100	q <sub>Vmin</sub>	73	74	75	76	77	80	81	81	74	76	80	80	81
	q <sub>Vmax</sub>	78	80	80	83	83	87	87	88	80	83	87	87	88
150	q <sub>Vmin</sub>	75	76	76	79	79	82	82	83	76	79	82	82	83
	q <sub>Vmax</sub>	80	81	81	84	84	87	88	88	81	84	87	88	88
200	q <sub>Vmin</sub>	77	78	78	80	80	83	84	84	78	80	83	84	84
	q <sub>Vmax</sub>	81	82	83	85	85	88	88	89	82	85	88	88	89
250	q <sub>Vmin</sub>	78	79	79	81	82	84	85	86	79	81	84	85	86
	q <sub>Vmax</sub>	81	82	84	85	87	88	89	90	82	85	88	89	90
300	q <sub>Vmin</sub>	80	81	81	82	83	85	86	87	81	82	85	86	87
	q <sub>Vmax</sub>	82	83	85	85	88	89	90	91	83	85	89	90	91

**Noise pressure level**

To DIN 45 635 parts 1, 2 and 41  
 Measured at  $n = 1450 \text{ min}^{-1}$ ,  $n = 41 \text{ mm}^2/\text{s}$  and  $t = 50 \text{ °C}$   
 Measured distance, noise measurement device – power unit: 1 m  
 Pressure fluid: Mineral oil HLP to DIN 51 524 part 2  
 The noise pressure levels of the A4VG pump are obtained by means of the notches D 8314 KH230.

**Please note!**

Noise reflections at the final place of installation can lead to increased noise pressure levels.

## Selection table: power unit with A4VG pump

The Material No. can be obtained after selecting the reservoir size and the pump pressure.

Contained within the Material No. are all of the components stated in the hydraulic circuit diagram.

Material No. with **W** = Oil/water heat exchanger      Material No. with **L** = Oil/air heat exchanger

### Reservoir volume 63 litres

Pump type	$q_{Vmax}$ in L/min	$p_{max}$ in bar	Power $P$ in KW	Electric motor frame size	Material No. (W)	Material No. (L)	Weight <sup>1)</sup> in kg
A4VG28	38	225	15	160L	R900578684	R900904673	265
		275	18.5	180M	R900578685	R900904674	340
		330	22	180L	R900578686	R900904675	355
A4VG40	55	155	15	160L	R900578687	R900904676	270
		190	18.5	180M	R900578688	R900904672	345
		230	22	180L	R900578690	R900904671	360
A4VG56	77	310	30	200L	R900904069	R900904678	420
		160	22	180L	R900578689	R900904679	370
		220	30	200L	R900904078	R900904680	430

### Reservoir volume 100 litres

Pump type	$q_{Vmax}$ in L/min	$p_{max}$ in bar	Power $P$ in KW	Electric motor frame size	Material No. (W)	Material No. (L)	Weight <sup>1)</sup> in kg
A4VG56	77	220	30	200L	R900578691	R900904677	465
		270	37	225S	R900578692	R900904696	525
		330	45	225M	R900578693	R900904695	555
A4VG71	98	130	22	180L	R900578694	R900904707	415
		175	30	200L	R900578695	R900904705	480
		215	37	225S	R900904074	R900904704	540
A4VG90	124	260	45	225M	R900904080	R900904708	570
		135	30	200L	R900578696	R900904709	495
		170	37	225S	R900904081	R900904706	555
		205	45	225M	R900904079	R900904702	585

### Reservoir volume 160 litres

Pump type	$q_{Vmax}$ in L/min	$p_{max}$ in bar	Power $P$ in KW	Electric motor frame size	Material No. (W)	Material No. (L)	Weight <sup>1)</sup> in kg
A4VG71	98	215	37	225S	R900578697	R900904699	655
		260	45	225M	R900578698	R900904700	685
		320	55	250M	R900904082	R900904719	780
A4VG90	124	170	37	225S	R900578683	R900904718	670
		205	45	225M	R900578700	R900904715	700
		250	55	250M	R900578701	R900904716	795
A4VG125	172	120	37	225S	R900578702	R900904714	685
		150	45	225M	R900578703	R900904729	715
		180	55	250M	R900904083	R900904728	820

### Reservoir volume 250 litres

Pump type	$q_{Vmax}$ in L/min	$p_{max}$ in bar	Power $P$ in KW	Electric motor frame size	Material No. (W)	Material No. (L)	Weight <sup>1)</sup> in kg
A4VG125	172	180	55	250M	R900578704	R900904727	935
		245	75	280S	R900578705	R900904726	1120
		300	90	280M	R900578706	R900904725	1170

### Reservoir volume 400 litres

Pump type	$q_{Vmax}$ in L/min	$p_{max}$ in bar	Power $P$ in KW	Electric motor frame size	Material No. (W)	Material No. (L)	Weight <sup>1)</sup> in kg
A4VG180	250	170	75	280S	R900578699	R900904724	1370
		205	90	280M	R900578708	R900904723	1420
		250	110	315S	R900578709	R900904722	1600
		300	132	315M	R900578710	R900904721	1680
		360	160	315L	R900578707	R900904733	1830

<sup>1)</sup> System weight without oil

## Selection table: power unit with A4VSG pump

The Material No. can be obtained after selecting the reservoir size and the pump pressure.

Contained within the Material No. are all of the components stated in the hydraulic circuit diagram.

Material No. with **W** = Oil/water heat exchanger

Material No. with **L** = Oil/air heat exchanger

### Reservoir volume 63 litres

Pump type	$q_{Vmax}$ in L/min	$p_{max}$ in bar	Power $P$ in KW	Electric motor frame size	Material No. (W)	Material No. (L)	Weight <sup>1)</sup> in kg
A4VSG40	55	155	15	160L	R900575710	R900904732	270
		190	18.5	180M	R900575714	R900904730	345
		225	22	180L	R900575722	R900904735	360
		310	30	200L	R900904090	R900904734	425

### Reservoir volume 100 litres

Pump type	$q_{Vmax}$ in L/min	$p_{max}$ in bar	Power $P$ in KW	Electric motor frame size	Material No. (W)	Material No. (L)	Weight <sup>1)</sup> in kg
A4VSG71	98	125	22	180L	R900575723	R900904736	415
		175	30	200L	R900575724	R900904748	480
		215	37	225S	R900904071	R900904747	540

### Reservoir volume 160 litres

Pump type	$q_{Vmax}$ in L/min	$p_{max}$ in bar	Power $P$ in KW	Electric motor frame size	Material No. (W)	Material No. (L)	Weight <sup>1)</sup> in kg
A4VSG71	98	215	37	225S	R900575727	R900904746	655
		260	45	225M	R900575730	R900904745	685
		320	55	250M	R900904073	R900904744	780
A4VSG125	172	120	37	225S	R900575731	R900904743	695
		150	45	225M	R900575733	R900904742	725
		180	55	250M	R900904075	R900904740	820

### Reservoir volume 250 litres

Pump type	$q_{Vmax}$ in L/min	$p_{max}$ in bar	Power $P$ in KW	Electric motor frame size	Material No. (W)	Material No. (L)	Weight <sup>1)</sup> in kg
A4VSG125	172	180	55	250M	R900575734	R900904738	935
		250	75	280S	R900575735	R900904749	1120
		300	90	280M	R900578736	R900904750	1170

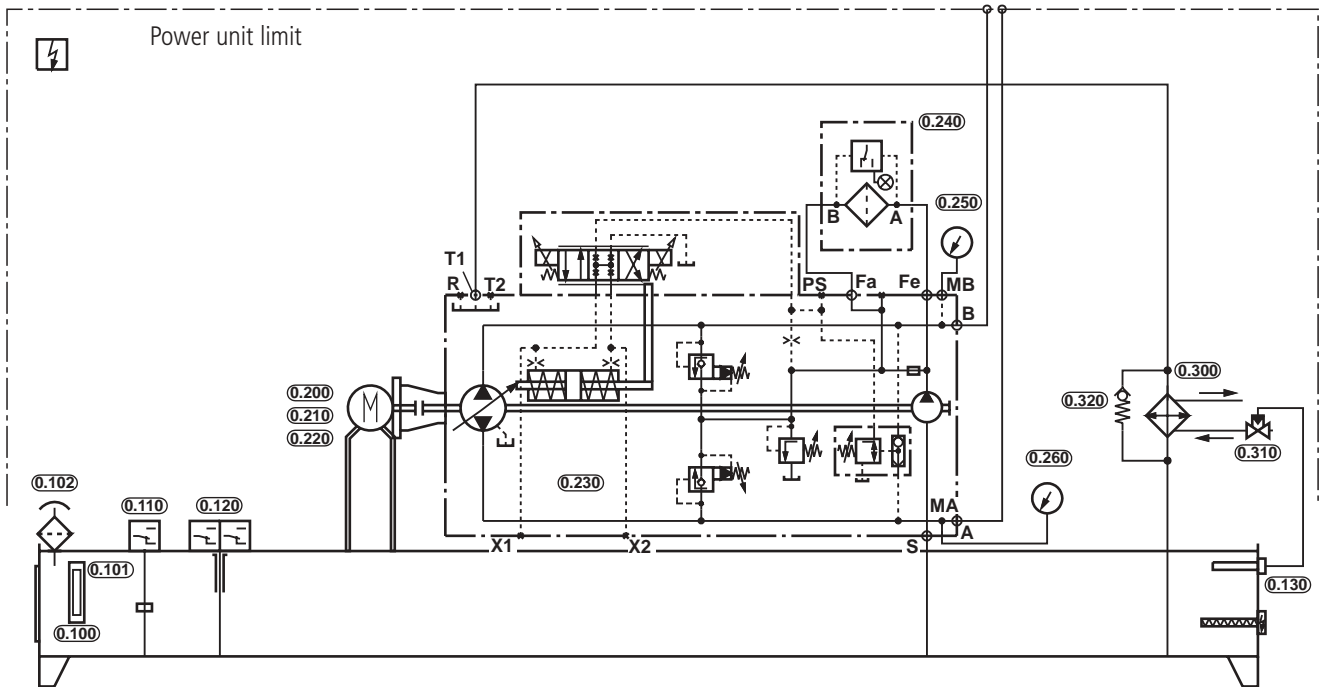
### Reservoir volume 400 litres

Pump type	$q_{Vmax}$ in L/min	$p_{max}$ in bar	Power $P$ in KW	Electric motor frame size	Material No. (W)	Material No. (L)	Weight <sup>1)</sup> in kg
A4VSG180	250	170	75	280S	R900578763	R900904755	1370
		205	90	280M	R900578762	R900904756	1420
		250	110	315S	R900578759	R900904765	1600
		300	132	315M	R900578758	R900904764	1780
		360	160	316L	R900578755	R900904759	1830
A4VSG250	345	145	90	280M	R900575737	R900904758	1520
		180	110	315S	R900575738	R900904763	1700
		220	132	315M	R900575739	R900904753	1780

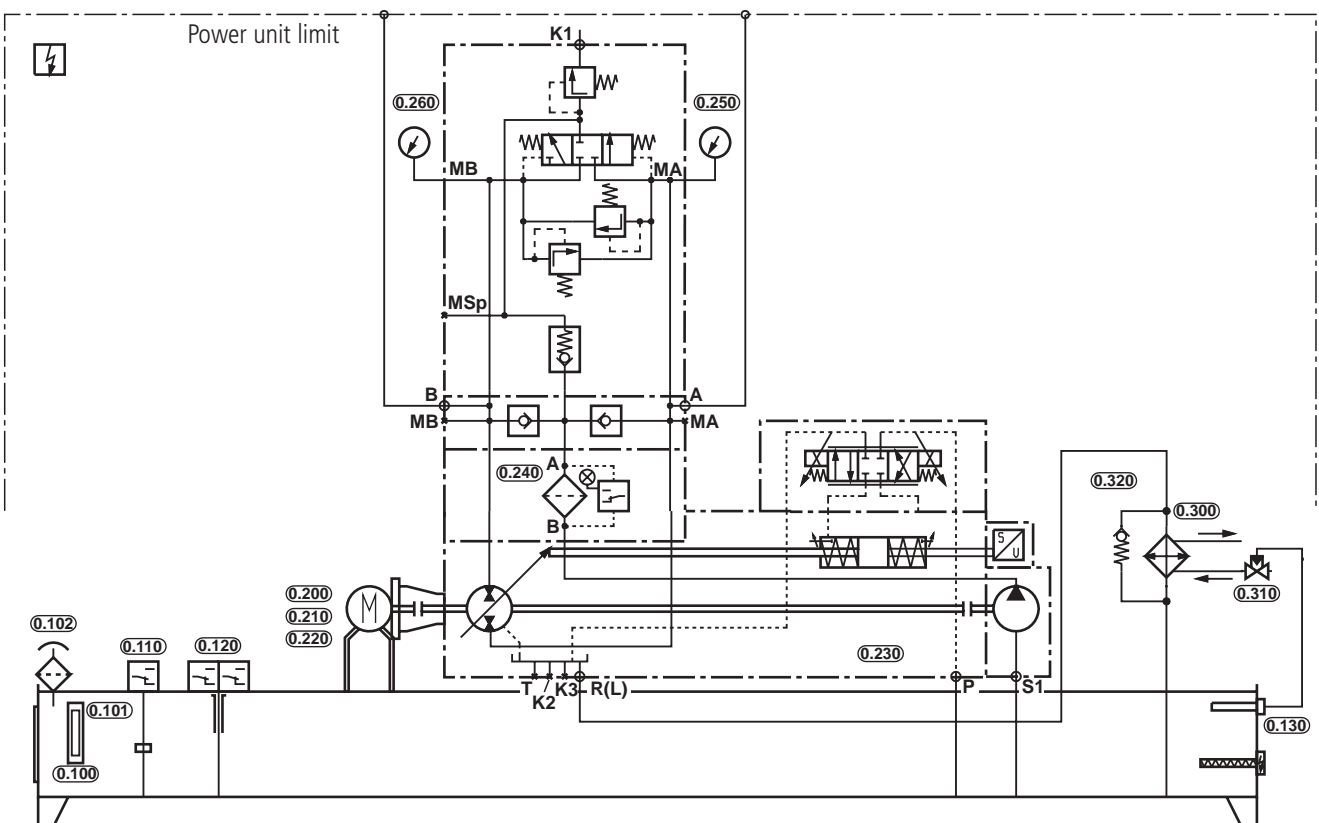
<sup>1)</sup> System weight without oil

# Circuits: ABPAG with A4VG-/ A4VSG pumps and oil/water heat exchanger

## With A4VG pump



## With A4VSG pump



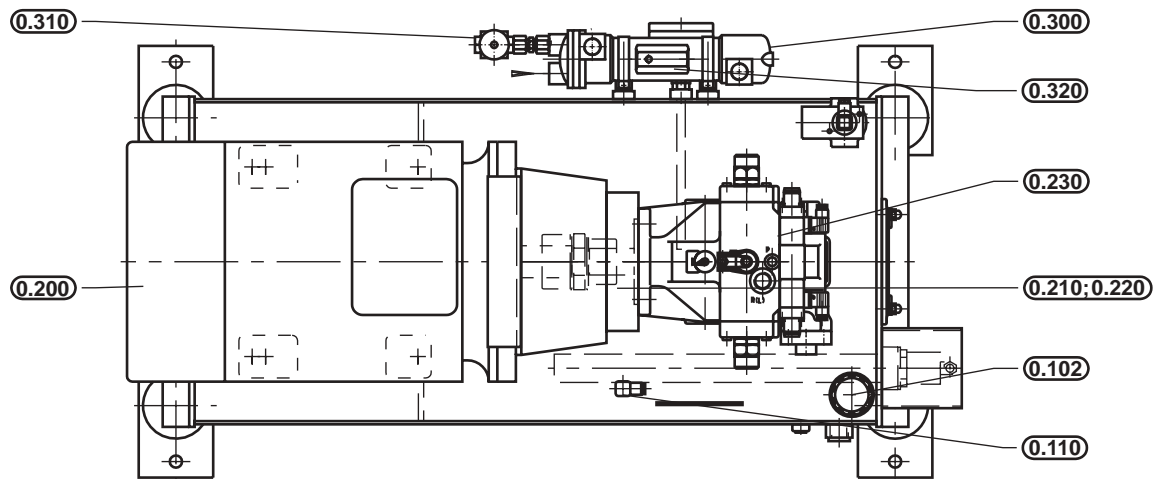
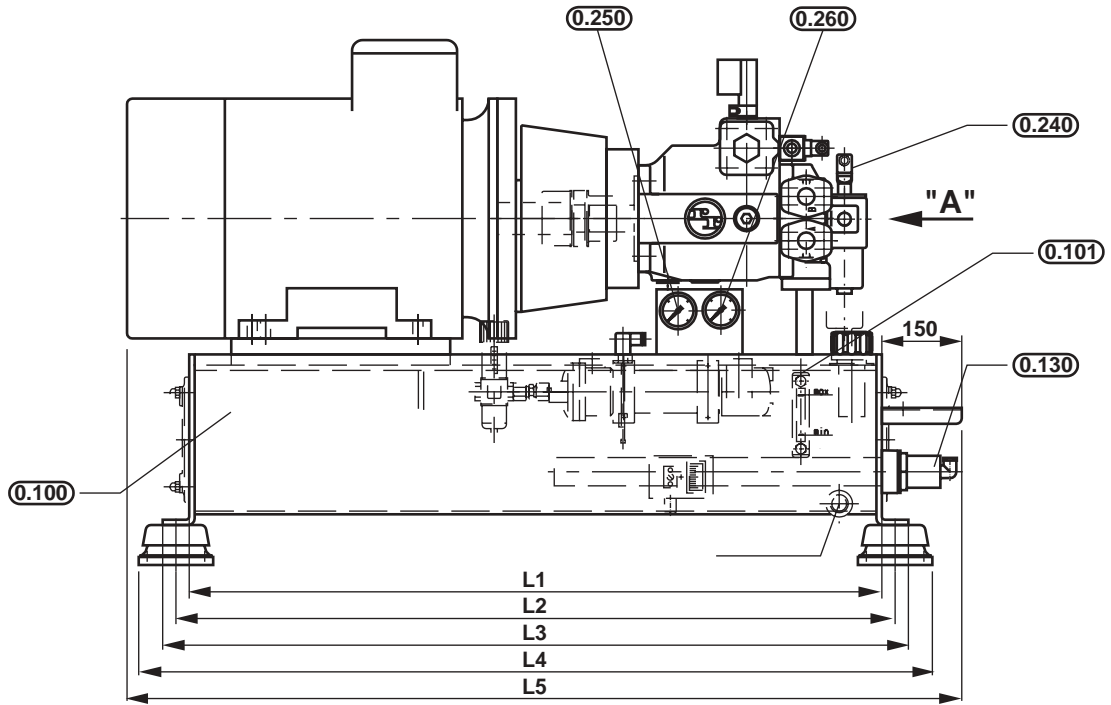
### Parts list:

- |                             |                         |
|-----------------------------|-------------------------|
| 0.100 Reservoir             | 0.220 Coupling          |
| 0.101 Sight glass           | 0.230 Axial piston pump |
| 0.102 Filler/breather       | 0.240 Pressure filter   |
| 0.110 Float switch          | 0.250 Pressure gauge    |
| 0.120 Thermostat            | 0.260 Pressure gauge    |
| 0.130 Immersion heater      | 0.300 Heat exchanger    |
| 0.200 Electric motor        | 0.310 Water valve       |
| 0.210 Pump mounting bracket | 0.320 Check valve       |

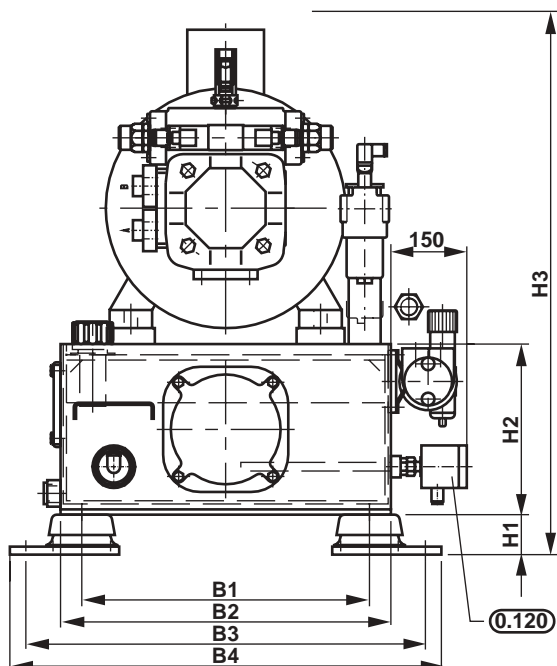
**Unit dimensions:**

(Dimensions in mm)

ABPAG with A4VG-/ A4VSG pumps and oil/water heat exchanger



View "A"



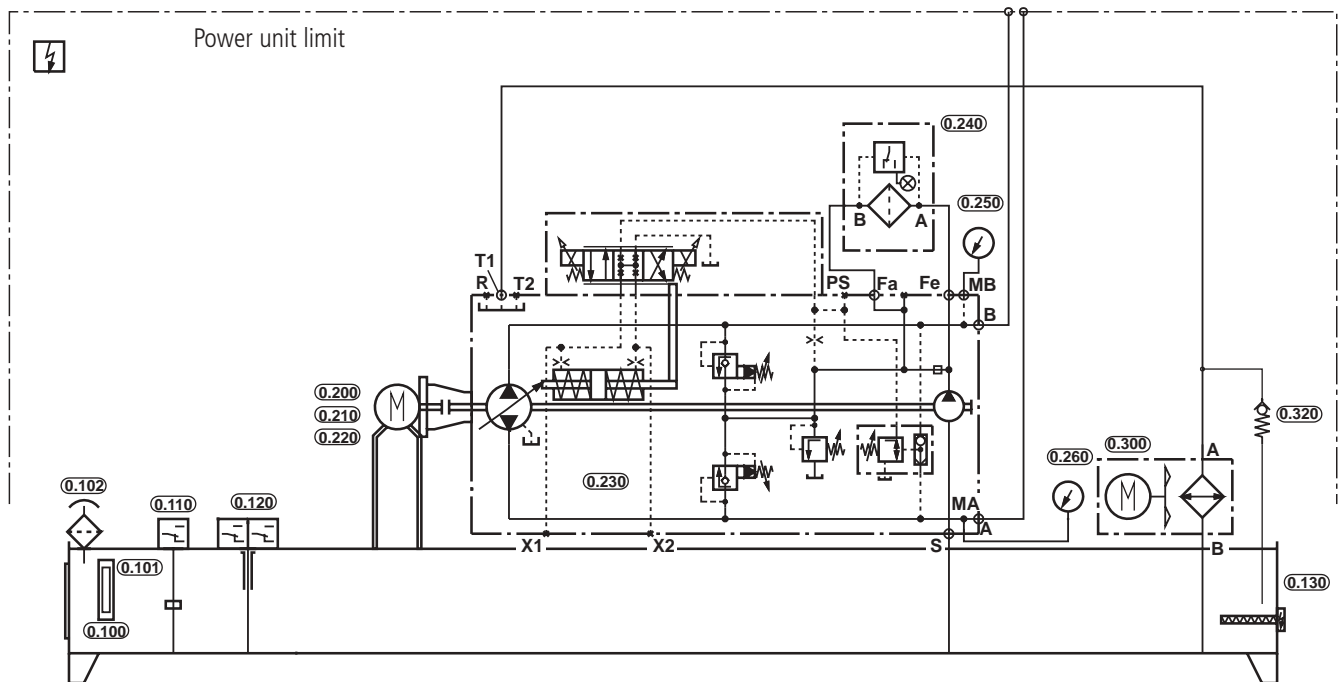
Reservoir NS	L1	L2	L3	L4	L5	B1
63	1050	1100	1150	1180	1330	380
100	1200	1250	1300	1390	1540	440
160	1300	1350	1400	1490	1640	540
250	1500	1560	1610	1700	1850	570
400	1780	1850	1920	2030	2180	650

Reservoir NS	B2	B3	B4	H1	H2	H3
63	460	530	580	50	280	850
100	520	650	710	75	280	950
160	620	750	810	75	320	1100
250	670	780	840	75	370	1250
400	770	910	970	100	420	1500

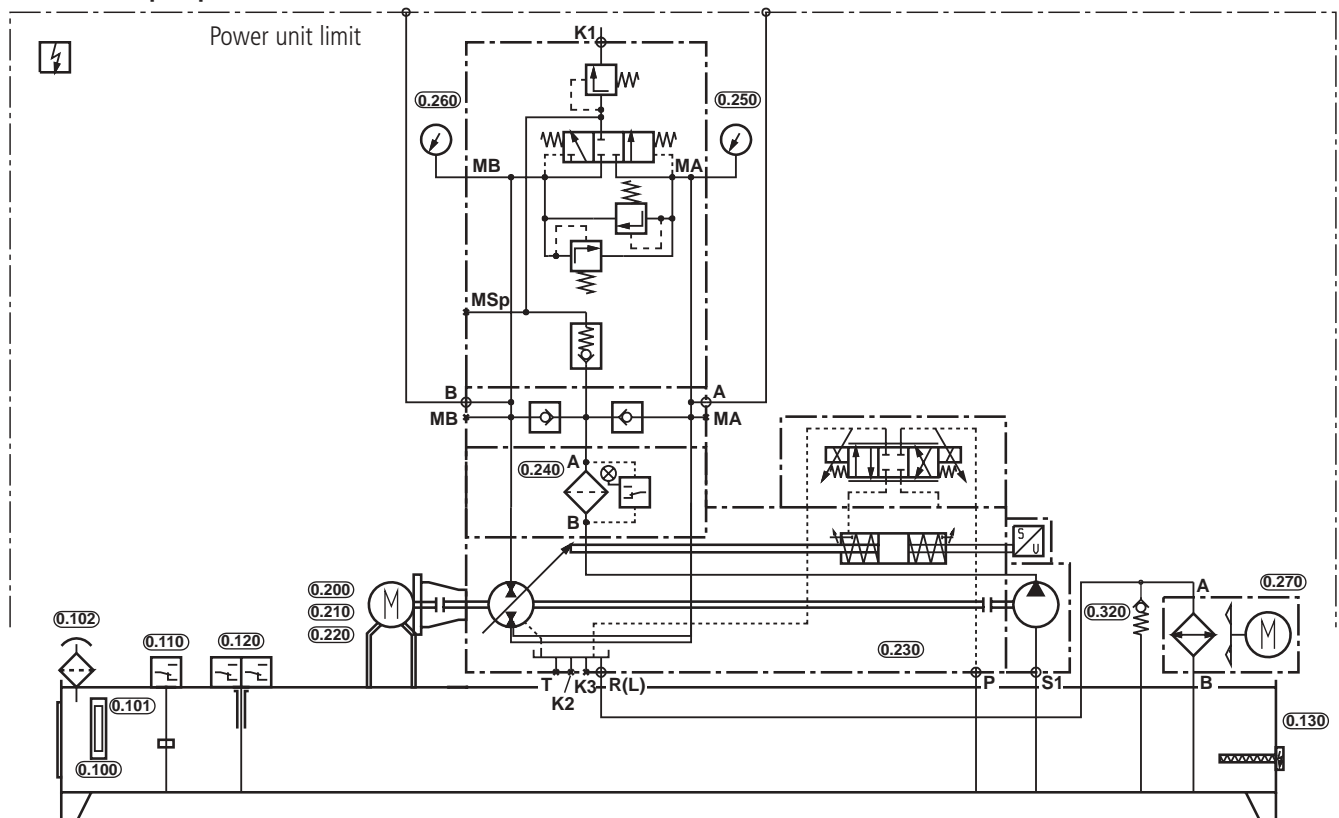
For item explanation see page 6.

# Circuits: ABPAG with A4VG-/ A4VSG pumps and oil/air heat exchanger

## With A4VG pump



## With A4VSG pump



### Parts list:

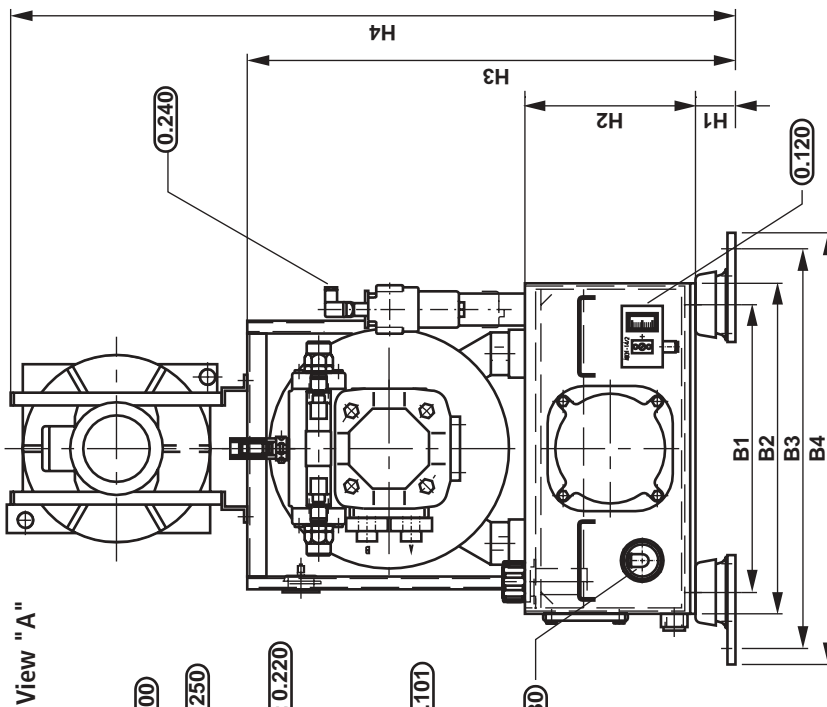
- |       |                       |       |                   |
|-------|-----------------------|-------|-------------------|
| 0.100 | Reservoir             | 0.220 | Coupling          |
| 0.101 | Sight glass           | 0.230 | Axial piston pump |
| 0.102 | Filler/breather       | 0.240 | Pressure filter   |
| 0.110 | Float switch          | 0.250 | Pressure gauge    |
| 0.120 | Thermostat            | 0.260 | Pressure gauge    |
| 0.130 | Immersion heater      | 0.300 | Heat exchanger    |
| 0.200 | Electric motor        | 0.320 | Check valve       |
| 0.210 | Pump mounting bracket |       |                   |



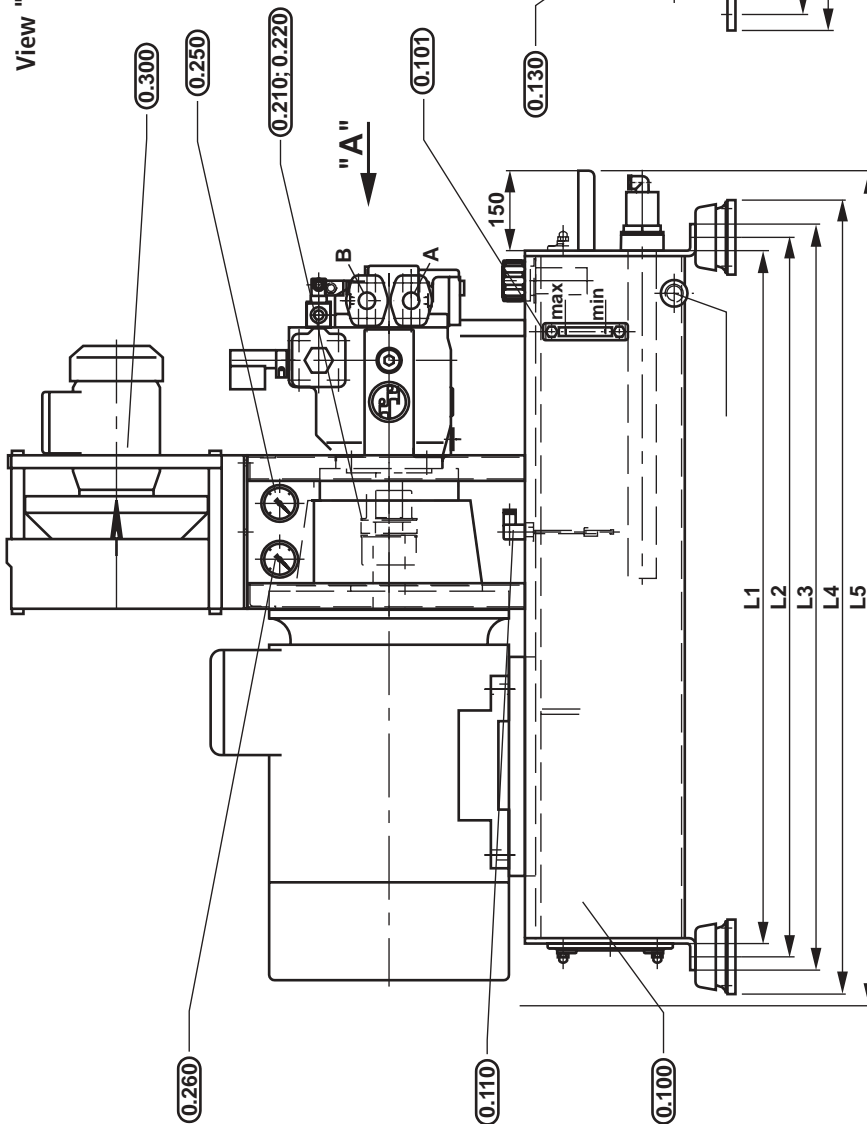
**Unit dimensions:**

(Dimensions in mm)

**ABPAG with A4VG-/ A4VSG pumps and oil/air heat exchanger**

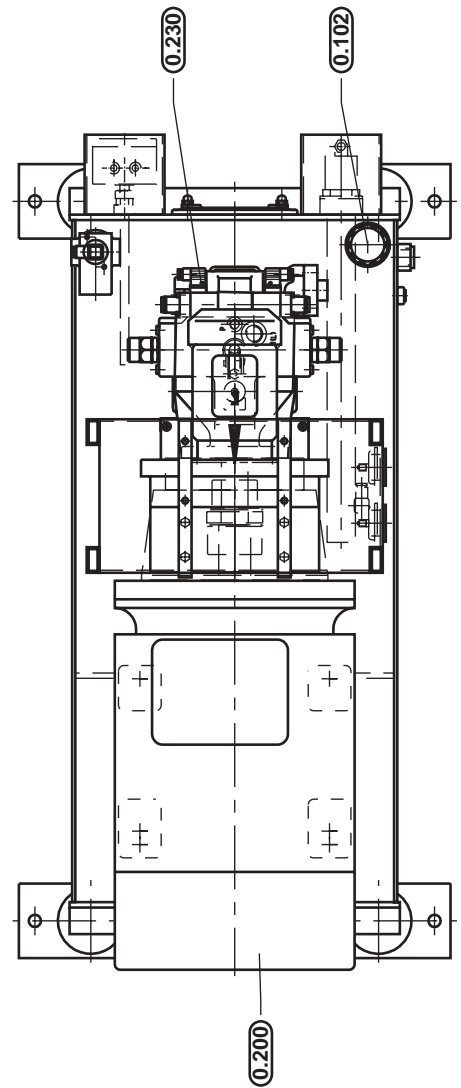


View "A"



Reservoir NS	L1	L2	L3	L4	L5	B1
63	1050	1100	1150	1180	1330	380
100	1200	1250	1300	1390	1540	440
160	1300	1350	1400	1490	1640	540
250	1500	1560	1610	1700	1850	570
400	1780	1850	1920	2030	2180	650

Reservoir NS	B2	B3	B4	H1	H2	H3	H4
63	460	530	580	50	280	850	1740
100	520	650	710	75	280	950	1810
160	620	750	810	75	320	1100	1960
250	670	780	840	75	370	1250	2110
400	770	910	970	100	420	1500	2520



For item explanation see page 8.

## Commissioning guidelines

---

### General

- The power units supplied by ourselves have been tested for function and performance. Changes in any form or manner are not permitted, as this would invalidate any guarantee claim.
- Repairs may only be carried out by the manufacturer or authorised agent or subsidiary. No guarantee will be accepted for commissioning carried out by third parties.

### Commissioning

- Only fill the pressure fluid via a filter which has the necessary retention rate.
- Take into account the direction of rotation arrow when connecting the electric motor.
- Start the pump without load and let it displace oil without pressure for a few seconds in order to provide sufficient lubrication.
- Never run the pump without oil.
- If the pump, after approx. 20 seconds, does not displace oil without any bubbles then the system has to be rechecked.
- After the operating values have been reached, check the pipe connections for leakage and check the operating temperature.

### Bleeding

- Before commissioning, the pump housing must be filled with oil.

### Important guidelines

- Assembly, maintenance and servicing of the power unit must only be carried out by authorised, trained and instructed personnel!
- The power unit must only be operated within the permitted limits!
- When carrying out any work on the power unit, switch the system to zero pressure! Unauthorised conversions and modifications which affect the safety and function are not permitted!
- Provide protective measures and **do not** remove any existing protective devices.
- Ensure that the fixing bolts are correctly fitted! (Take into account the prescribed tightening torque!)
- The general valid safety and accident prevention regulations must be adhered to!

### Note: With reference to the EC machinery guidelines 89/392 EWG, annex II, section B:

The supplied assemblies have been manufactured in accordance with the harmonised standards prEN 982, prEN 983, DIN EN 292 and DIN EN 60 204-1.

Commissioning may not take place until it has been confirmed that the machine, into which the assembly is to be installed, conforms with the regulations stated within the EG guidelines.

## Engineering guidelines

---

Comprehensive instructions and proposals can be found in the Hydraulic Trainer, volume 3 RE 00 281, "Planning and design of hydraulic power systems".

---

### Bosch Rexroth AG Industrial Hydraulics

D-97813 Lohr am Main  
Zum Eisengießer 1 • D-97816 Lohr am Main  
Telefon 0 93 52 / 18-0  
Telefax 0 93 52 / 18-23 58 • Telex 6 89 418-0  
eMail [documentation@boschrexroth.de](mailto:documentation@boschrexroth.de)  
Internet [www.boschrexroth.de](http://www.boschrexroth.de)

### Bosch Rexroth Limited

Cromwell Road, St Neots  
Cambs, PE19 2ES  
Tel: 0 14 80/22 32 56  
Fax: 0 14 80/21 90 52  
E-mail: [info@boschrexroth.co.uk](mailto:info@boschrexroth.co.uk)

The data specified above only serves to describe the product. No statements concerning a certain condition or suitability for a certain application can be derived from our information. It must be remembered that our products are subject to a natural process of wear and ageing.