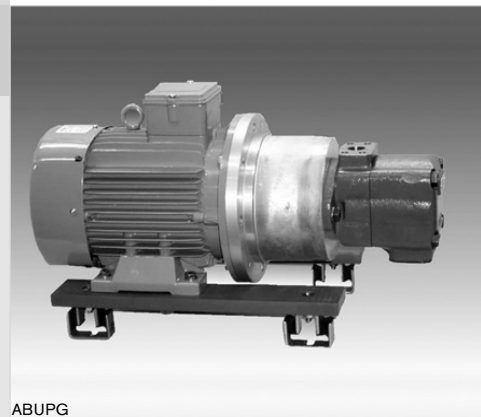


# Pump motor assembly for circulation circuits

**RE 51066/10.05**  
Replaces: 11.02

1/10

## Type ABUPG

With pump type PVV  
Electric motor frame size B35: BS 80 to 132

ABUPG

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## Features

- Within the pump motor assembly electrical energy is converted into hydraulic energy.
- Electric motor with foot and flange, frame type B35
  - The pump is mounted onto the electric motor via a pump mounting bracket and drive coupling
  - For mounting onto a reservoir, base frame or can be separately mounted
  - Low operating noise
  - Numerous areas of application
  - Accessible and maintenance friendly design
  - Specially designed for use in industrial hydraulic circulation circuits

Information on available spare parts:  
[www.boschrexroth.com/spc](http://www.boschrexroth.com/spc)

## Ordering details

ABUPG — U — 1X / / SE

<b>Type</b> To Rexroth standard RN 116.02						<b>SE =</b> Rigid pump mounting bracket; flexible mounts
<b>Pump type</b> PVV to RE 10335 (see page 4 → e.g. PVV1-018)						<b>Electric motor frame size</b> See page 4 → e.g. 80-4-A1
Pressure connection location	= U					
				<b>1X =</b>		Series 10 to 19 (10 to 19: unchanged installation and connection dimensions)

**Example** for a circulation pump motor assembly with a flow of 25 l/min at 1500 min<sup>-1</sup>:


Material No.: **R900714970** Type: **ABUPG-PVV1-018U-1X/80-4-A1/SE**

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

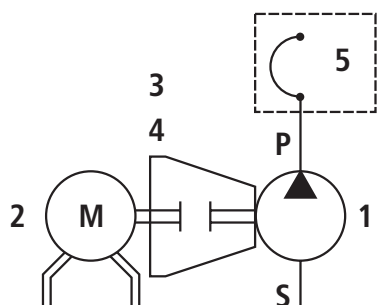
Pipe connections				Flanges to ISO 6162 (SAE interface) 3000 PSI Fixing screws: UNC
Pressure fluid				Mineral oil HLP to DIN 51524; part 2 (other fluids on request!)  <ul style="list-style-type: none"> <li>• Please take the specifications stated within catalogue sheet RE 07075 into account</li> <li>• Different types of oils must <b>not</b> be mixed, as sedimentation and a reduction in lubrication could result.</li> <li>• Dependent on the operating conditions the oil has to be changed at regular intervals.</li> </ul>
Pump type				PVV to catalogue sheet RE 10335
– Inlet	$p_{\min-\max}$	bar	0.83 to 2.4 (recommended 1 to 1.35)	
– Outlet	$p_{\text{nom}}$	bar	10	
– Peak pressure	$p_{\max}$	bar	16	
– Pump flanges	PVV1, PVV2	ISO 3019/1 101-2		
– Pump flanges	PVV4, PVV5	ISO 3019/1 127-2		
Pressure fluid temperature range	$\vartheta$	°C	–10 to +70, (recommended: +30 to +60) Take the permissible viscosity range into account	
Viscosity range	$\nu$	mm <sup>2</sup> /s	13 to 860 (recommended: 13 to 54)	
Cleanliness class to ISO code				Maximum permissible degree of contamination of the pressure fluid is to ISO 4406 (c), this relates to the pump utilised to catalogue sheet RE 10335 <sup>1)</sup>
Electric motor				Standard: IM B35 to AB 42-30 Special version only on request!
– Motor type				AC asynchronous motor
– No. of poles				4
– Voltage To IEC38	$U$	V	230/400 at 50 Hz; 400/690 at 50 Hz 460 at 60 Hz	
– RPM	$n$	min <sup>-1</sup> min <sup>-1</sup>	1500 at 50 Hz 1800 at 60 Hz	
– Protection	IP		55	
– Direction of rotation				Anti-clockwise (looking on the motor shaft)
Surface finish				The components are undercoated

<sup>1)</sup> The cleanliness class stated for the components must be adhered too in hydraulic systems. Effective filtration prevents faults from occurring and at the same time increases the component service life.

For the selection of filters see catalogue sheets RE 50070, RE 50076, RE 50081, RE 50086 and RE 50088.

 **Note:** For commissioning and maintenance of hydraulic systems please take catalogue sheet RE 07900 into account. The pump motor assembly has been designed and manufactured in accordance with the harmonised EN standards / specifications.

## Circuit



- 1 Variable vane pump type PVV
- 2 Electric motor
- 3 Pump mounting bracket
- 4 Coupling
- 5 Pressure hose to AB-E 23-10 or AB-E 23-14  
(not included within the scope of supply)

## Noise pressure level

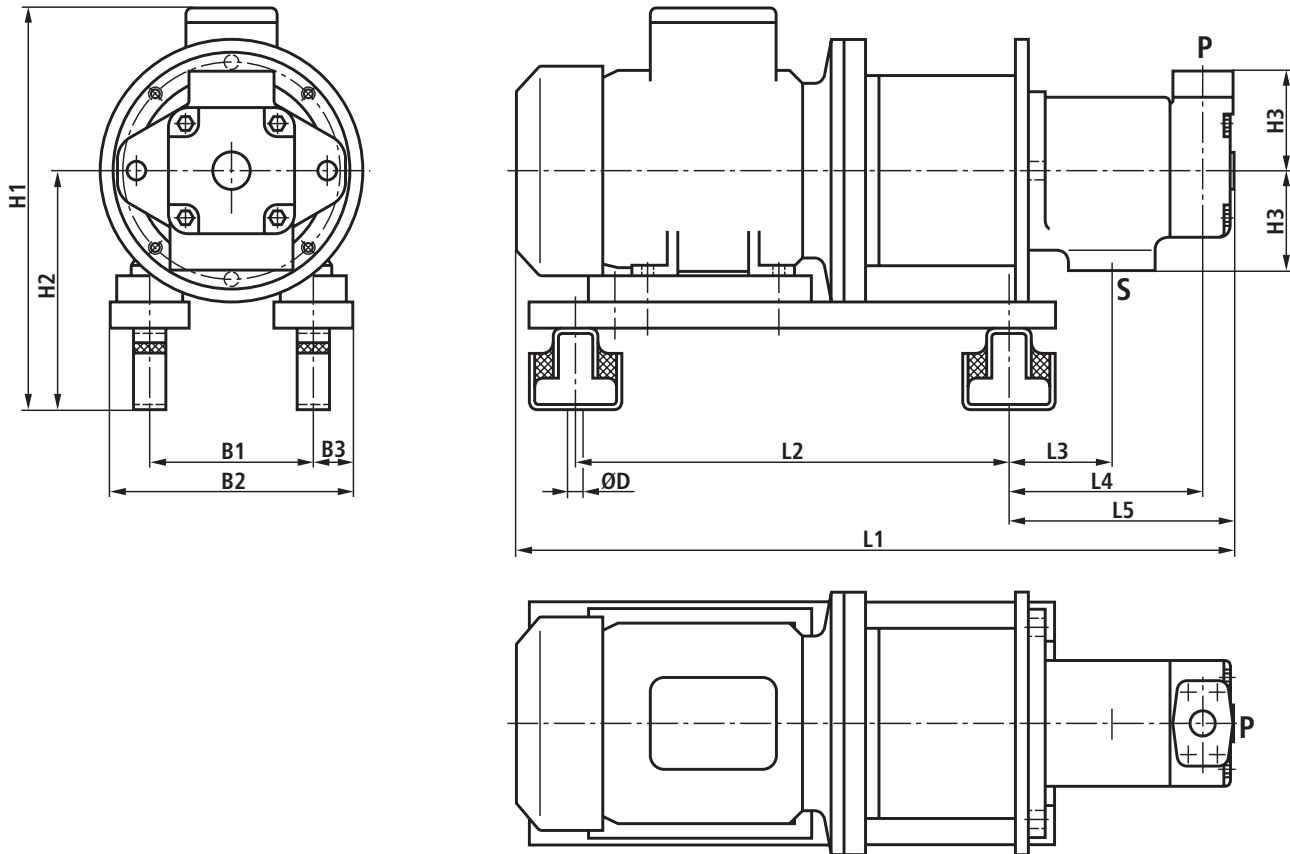
(measured to DIN 45635 part 1 and part 41 (pressure  $p = 10$  bar; mounted on a reservoir))

Motor pump assembly	Material No.	Noise emission in dB(A)
ABUPG-PVV1- 18U-1X/ 80 -4-A1/SE	R900714970	64
ABUPG-PVV1- 27U-1X/ 90S-4-A0/SE	R900714971	66
ABUPG-PVV1- 36U-1X/ 90L-4-A1/SE	R900714972	68
ABUPG-PVV1- 46U-1X/100L-4-A0/SE	R900714973	70
ABUPG-PVV2- 60U-1X/100L-4-A0/SE	R900714974	72
ABUPG-PVV4- 82U-1X/100L-4-A1/SE	R900714975	73
ABUPG-PVV4- 98U-1X/112M-4-B0/SE	R900714976	74
ABUPG-PVV4-122U-1X/132S-4-B0/SE	R900714977	75
ABUPG-PVV5-162U-1X/132M-4-B1/SE	R900714978	76
ABUPG-PVV5-193U-1X/132M-4-B1/SE	R900714979	76

## Selection table

Frequency	50 Hz	60 Hz	$p_{\max}$ in bar	50 Hz	60 Hz	Electric motor frame size	Material No.	Total weight in kg
	1500 min <sup>-1</sup>	1750 min <sup>-1</sup>		1500min <sup>-1</sup>	1750 min <sup>-1</sup>			
Pump size	$q_{v \max.}$ in l/min	$q_{v \max.}$ in l/min		Power in kW	Power in kW			
18	25	30	10	0.75	0.9	80 -4-A1	R900714970	38
27	37	45	10	1.1	1.32	90S-4-A0	R900714971	42
36	50	60	10	1.5	1.5	90L-4-A1	R900714972	45
46	63	76	10	2.2	2.64	100L-4-A0	R900714973	60
60	83	100	10	2.2	2.64	100L-4-A0	R900714974	63
82	113	136	10	3.0	3.6	100L-4-A1	R900714975	69
98	135	163	10	4.0	4.8	112M-4-B0	R900714976	74
122	168	203	10	5.5	6.6	132S-4-B0	R900714977	88
162	223	269	10	7.5	9.0	132M-4-B1	R900714978	113
193	266	321	10	7.5	9.0	132M-4-B1	R900714979	114

**Unit dimensions (Dimensions in mm)**



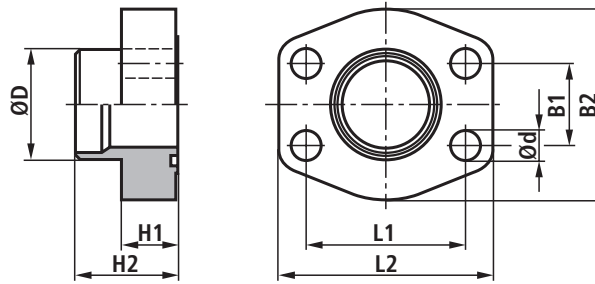
Pump type	Electric motor frame size	B1	B2	B3	ØD	Approx. H1	H2	H3	Approx. L1	L2	L3	L4	L5
PVV1-018	80 -4-A1	125	185	30	11	310	179	76	535	330	78.5	148	171
PVV1-027	90S-4-A0	140	200			320	189		580	330	84.5	154	17
PVV1-036	90L-4-A1					605	380		51.5	121	144		
PVV1-046	100L-4-A0	160	230	360		198		610	108.5	16.5	151		
PVV2-060	100L-4-A1			645		116.5	19.5	177					
PVV4-082	112M-4-B0	190	260	35		365	191	82.6	670	430	93.5	0	154
PVV4-098	132S-4-B0	216	286		415	210	770	117	20.5		178		
PVV5-162	132M-4-B1				13.5	430	227	93.6	800		145	22	208
PVV5-193													

**Pipe connections**

Pump type	Suction flange	Suction side Pipe Ø	UNC-screws	Pressure flange	Pressure side Pipe Ø	UNC-screws
PVV1-018	SAE 1 1/2"-S	48.3 x 3.2	1/2" x 1 3/4"	SAE 3/4"-S	18L	3/8" x 1 1/4"
PVV1-027					22L	
PVV1-036					28L	
PVV1-046						
PVV2-060	SAE 2"-S	60.3 x 3.6	1/2" x 1 3/4"	SAE 1 1/4"-S	35L	7/16" x 1 1/4"
PVV4-082					42L	
PVV4-098						
PVV4-122	SAE 3"-S	88.9 x 3.6	5/8" x 2"	SAE 1 1/2"-S	48.3 x 3.2	1/2" x 1 3/4"
PVV5-162						
PVV5-193						

## Suction side <sup>1)</sup> (Dimensions in mm)

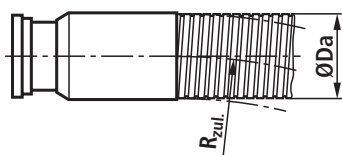
### Suction flange



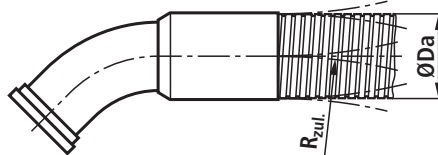
Pump type	Flange AB 22-15 <sup>2)</sup>	L1	L2	B1	B2	H1	H2	Ød	ØD
PVV1-018	R900727370	69.9	93	35.7	78	24.5	44.5	13.5	48.3
PVV1-027									
PVV1-036									
PVV1-046									
PVV2-060									
PVV4-082	R900053722	77.8	102	42.9	90	25	45	60.3	
PVV4-098									
PVV4-122									
PVV5-162	R900215585	106.4	134	61.9	124	26	51	17.5	88.9
PVV5-193									

<sup>1)</sup> Flanges are not included within the scope of supply and must be ordered separately <sup>2)</sup> Includes screws and O-ring

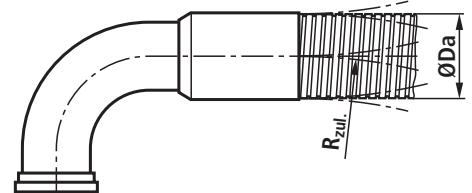
### Suction hose to AB-E 23-15 <sup>3)</sup> – preferred for mounting next to a reservoir and when mounting onto a reservoir to AB-E 40-41



Straight fitting



45° - fitting



90° - fitting

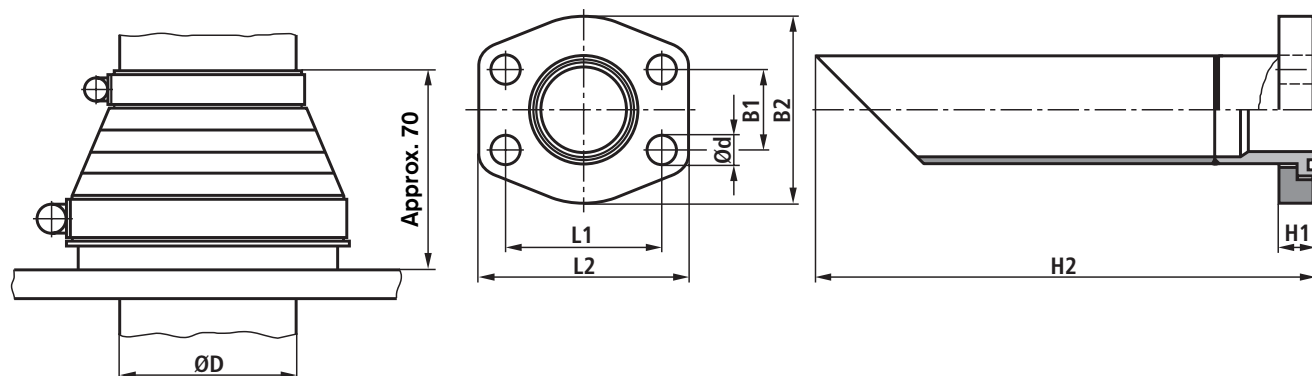
Pump type	Material No.	Suction hose AB-E 23-15 Designation	Di <sup>4)</sup>	Da	Max. bend radius R <sub>zul</sub>
PVV1-018	R900830427	AB: Schlauch AB 23-15/050/XXXX	51	62	135
PVV1-027					
PVV1-036					
PVV1-046					
PVV2-060					
PVV4-082	R900830428	AB: Schlauch AB 23-15/060/XXXX	60	73	155
PVV4-098					
PVV4-122					
PVV5-162	R900830430	AB: Schlauch AB 23-15/090/XXXX	90	104	225
PVV5-193					

<sup>3)</sup> Fittings, connection types as well as the hose length are to be stated in the case of an order – see AB-E 23-15

<sup>4)</sup> Inside Ø

## Suction side (Dimensions in mm)

Cover seal to AB-E 12-03 and suction pipe to AB-E 23-03 – preferred for mounting onto a reservoir



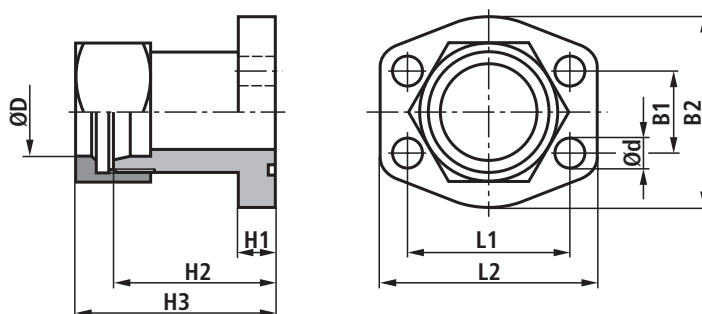
Pump type	Cover seal AB 12-03 <sup>1)</sup>	Pipe AB 23-03 <sup>2)</sup>	L1	L2	B1	B2	H3	H2	Ød	ØD
PVV1-018	R900869992	R900727261	69.9	93	35.7	78	16	750	13.5	48.3
PVV1-027										
PVV1-036										
PVV1-046										
PVV2-060										
PVV4-082	R900869993	R900727262	77.8	102	42.9	90	16	1000	60.3	
PVV4-098										
PVV4-122										
PVV5-162	R900869995	R900727263	106.4	134	61.9	124	22	1250	17.5	88.9
PVV5-193										

<sup>1)</sup> Comprises of a flexible grommit and hose clamps

<sup>2)</sup> Includes screws and O-ring; Pipe is cut to the required length during assembly

## Pressure side <sup>3)</sup> (Dimensions in mm)

Pressure flange

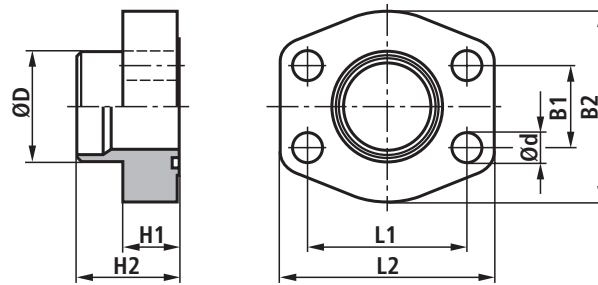


Pump type	Flange AB 22-14 <sup>4)</sup>	L1	L2	B1	B2	H1	H2	H3	Ød	ØD		
PVV1-018	R900727520	47.6	65	22.2	50	14	60	69	11.5	18		
PVV1-027	R900727523									22		
PVV1-036	R900727548									28		
PVV2-060	R900727555	52.4	70	26.2	55	65	76	76	11.5	28		
PVV4-082	R900727557	58.7	79	30.2	68					63	72	35
PVV4-098										65	76	35
PVV4-122						65	76	35				

<sup>3)</sup> The flanges are not included within the scope of supply and must be ordered separately.

<sup>4)</sup> Includes screws and O-ring

## Pressure side <sup>1)</sup> (Dimensions in mm)

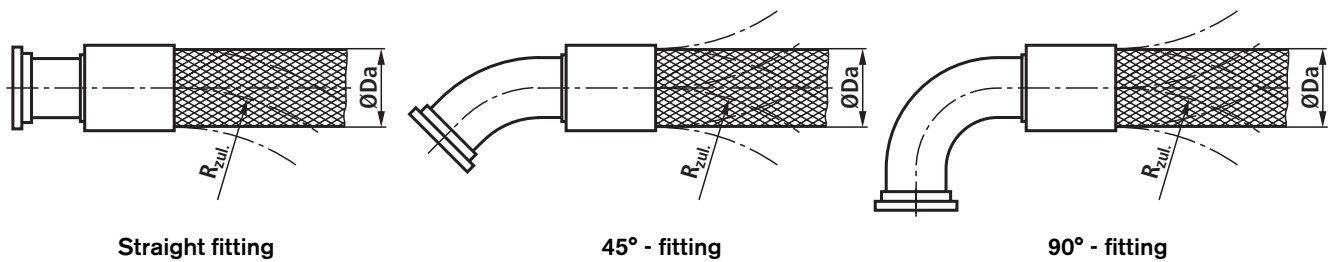


Pump type	Flange AB 22-15 <sup>2)</sup>	L1	L2	B1	B2	H1	H2	Ød	ØD
PVV5-162	R900727370	69.9	93	35.7	78	24.5	44.5	13.5	48.3
PVV5-193									

<sup>1)</sup> The flanges are not included within the scope of supply and must be ordered separately.

<sup>2)</sup> Includes screws and O-ring

## Pressure hose to AB-E 23-14 <sup>3)</sup>



Straight fitting

45° - fitting

90° - fitting

Pump type	Pressure hose AB-E 23-14		Di <sup>4)</sup>	Da	Max. bend radius R <sub>zul</sub>
	Materail No.	Designation			
PVV1-018	R900830237	AB: Schlauch AB 23-14/2ST-19/XXX	19.1	29.3	240
PVV1-027					
PVV1-036					
PVV1-046					
PVV2-060	R900830236	AB: Schlauch AB 23-14/2ST-25/XXX	25.4	38.1	300
PVV4-082	R900829778	AB: Schlauch AB 23-14/2ST-31/XXX	31.8	48.3	420
PVV4-098					
PVV4-122					
PVV5-162	R900830235	AB: Schlauch AB 23-14/2ST-38/XXX	38.1	54.6	500
PVV5-193					

<sup>3)</sup> Fittings, connection types as well as the hose length are to be stated in the case of an order – see AB-E 23-14

<sup>4)</sup> Inside Ø

## Installation guidelines

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### Fluid reservoir

- The usable volume of the reservoir has to match the operating conditions.
- The permissible fluid temperature must not be exceeded, if necessary fit a cooler.

### Pipes and connections

- Remove the plugs on the pump.
- We recommend the use of seamless precision tubes to DIN 2391 and removable pipe connections.
- Select the internal diameter of the tubes with regard to the connection sizes (suction velocity 0.6 to 1.5 m/s).
- Clean tubes and fittings carefully before assembly.

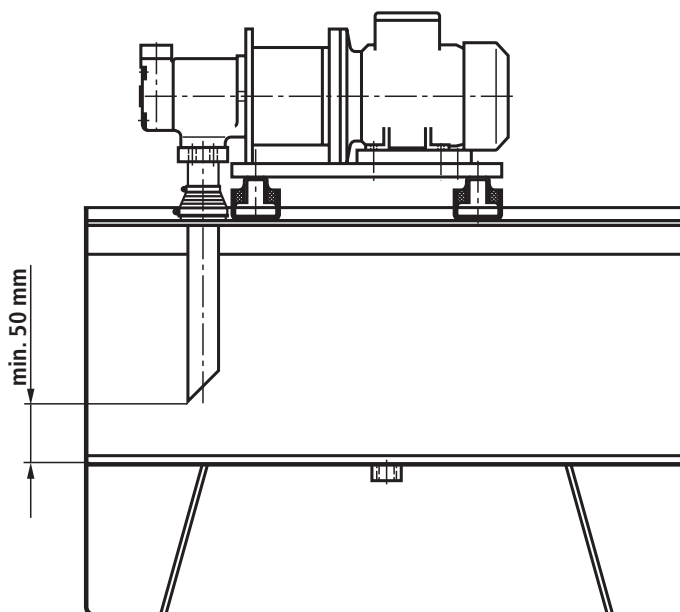
### Filter

- Where possible use return or pressure filter.  
(Suction filters only in conjunction with an under pressure switch/clogging indicator)

### Pressure fluid

- Please take the specifications stated within catalogue sheet RE 07075 into account.
- Return lines must always be under the oil level.
- Suction lines must be air tight.

### Pipe recommendations



## Commissioning guidelines

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### General

- The motor/pump assemblies 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 claims!
- Repairs may only be carried out by the manufacturer or authorised agent or subsidiary.

### Commissioning

- Check to see if the system has been carefully and correctly assembled.
- Only fill with pressure fluid via filter with the required minimum retention rate.
- When connecting the electric motor take into account the arrow showing the direction of rotation.
- On no account run the pump without oil.
- Further commissioning guidelines can be found in catalogue sheet RE 07080.
- After the operating values have been reached, check the pipe work for leaks and check the operating temperature.

### Important notes

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

### Notes with regard to the EC machinery directive 89/392 EWG annex II, section B; manufacturer declaration:

The sub-assemblies are manufactured to conform with the harmonised standards prEN 982, prEN983, DIN EN 181 and DIN EN 60204-1.

The commissioning cannot be carried out until it has been confirmed that the machine, to which the sub-assemblies are to be fitted, conforms with EC guidelines.

## Engineering guidelines

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Extensive guidelines and assistance can be found in the Hydraulic Trainer, volume 3, RE 00281, "Project guidelines and design of hydraulic power system".

### Noise

The noise pressure levels for pumps stated in the catalogue sheets are measured in line with DIN 45635, sheet 26. Only the pump noise emissions are shown.

External influences (place of use, pipe work, etc.) have not been taken into account. The values stated in the standard are only valid for one pump.

The noise pressure level at the place of use can, in unfavourable circumstances, increase by up to 10 dB(A) over the values of the pump itself.

## Spare parts list - wear parts

Pump motor assembly		Coupling AB 33-22	
Material No.	Type	Material No.	
R900714970	ABUPG-PVV1-018U/ 80 -4-A1/SE-A	R900215173	Kupplung AB 33-22/KD 24-G(22,23)-19X50
R900714971	ABUPG-PVV1-027U/ 90S-4-A0/SE-A	R900715760	Kupplung AB 33-22/KD 24-G(22,23)-24X50
R900714972	ABUPG-PVV1-036U/ 90L-4-A1/SE-A	R900715760	Kupplung AB 33-22/KD 24-G(22,23)-24X50
R900714973	ABUPG-PVV1-046U/100L-4-A0/SE-A	R900214351	Kupplung AB 33-22/KD 24-G (22,23)/28
R900714974	ABUPG-PVV2-060U/100L-4-A0/SE-A	R900214351	Kupplung AB 33-22/KD 24-G (22,23)/28
R900714975	ABUPG-PVV4-082U/100L-4-A1/SE-A	R900215175	Kupplung AB 33-22/KD 28-K(31,75)/28X60
R900714976	ABUPG-PVV4-098U/112M-4-B0/SE-A	R900215175	Kupplung AB 33-22/KD 28-K(31,75)/28X60
R900714977	ABUPG-PVV4-122U/132S-4-B0/SE-A	R900214348	Kupplung AB 33-22/KD 38-K(31,75)/38
R900714978	ABUPG-PVV5-162U/132M-4-B1/SE-A	R900214349	Kupplung AB 33-22/KD 28-K(31,75)/38X60
R900714979	ABUPG-PVV5-193U/132M-4-B1/SE-A	R900214349	Kupplung AB 33-22/KD 28-K(31,75)/38X60

Material No.	Pump motor assemblies Type	Anti-vibration mount AB-E 33-10	
		Motor side	Pump side
R900714970	ABUPG-PVV1-018U/ 80 -4-A1/SE-A	R900081780	R900006564
R900714971	ABUPG-PVV1-027U/ 90S-4-A0/SE-A	R900081780	R900006564
R900714972	ABUPG-PVV1-036U/ 90L-4-A1/SE-A	R900081780	R900006564
R900714973	ABUPG-PVV1-046U/100L-4-A0/SE-A	R900081778	R900006564
R900714974	ABUPG-PVV2-060U/100L-4-A0/SE-A	R900081778	R900006564
R900714975	ABUPG-PVV4-082U/100L-4-A1/SE-A	R900081780	R900006565
R900714976	ABUPG-PVV4-098U/112M-4-B0/SE-A	R900081778	R900006565
R900714977	ABUPG-PVV4-122U/132S-4-B0/SE-A	R900081778	R900006565
R900714978	ABUPG-PVV5-162U/132M-4-B1/SE-A	R900081773	R900006563
R900714979	ABUPG-PVV5-193U/132M-4-B1/SE-A	R900081773	R900006563

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