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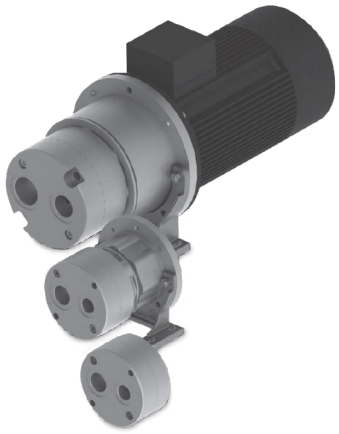
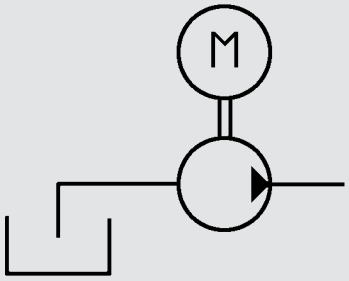


Feed Pumps
VP / VPB / VPBM

Symbol



General

The feed pumps from the VP series are low-noise, single-stroke vane pumps with constant flow rate.

Using a damped bell housing (PT) enables noise levels to be reduced.

Product Features

- Pump with bell housing and coupling
- Optional with flange-mounted motor
- Low-noise version

Application Field

- Filter circuits
- Cooling circuits
- Lubrication technology
- Pump transfer units

Operation Data

Operating pressure	max. 16 bar
Pressure at the suction port	max. -0.4 bar for mineral oil
Medium	Mineral oil to DIN 51524 Part 1 and Part 2
Permissible contamination	≤ NAS 12
Temperature of medium	-20 °C to +80 °C for mineral oil
Viscosity	See characteristic curves
Ambient temperature	-20 °C to +40 °C
Mounting position	Ideally horizontal
RPM	• min. 1,000 rpm • max. 2,000 rpm Direction of rotation – right-turning (view of motor fan)
Drive (only VPBM)	Drive type: electric motor Current type: three-phase current Power and voltage: see model code Protection type: IP 55 Insulation class: F
Volumetric efficiency	>90% (at **υ = 40 mm²/s)**

Weights			
	VP-2		5.0 kg
	VP-3		13.0 kg
	VPB-2		8.5 kg
	VPB-3	2.20 - 4.0 kW	18.0 kg
	VPB-3	5.50 - 7.5 kW	19.5 kg
	VPBM-2	0.75 kW	18.0 kg
	VPBM-2	1.50 kW	24.0 kg
	VPBM-3	2.20 kW	39.0 kg
	VPBM-3	4.00 kW	49.0 kg
	VPBM-3	5.50 kW	60.0 kg
	VPBM-3	7.50 kW	79.0 kg

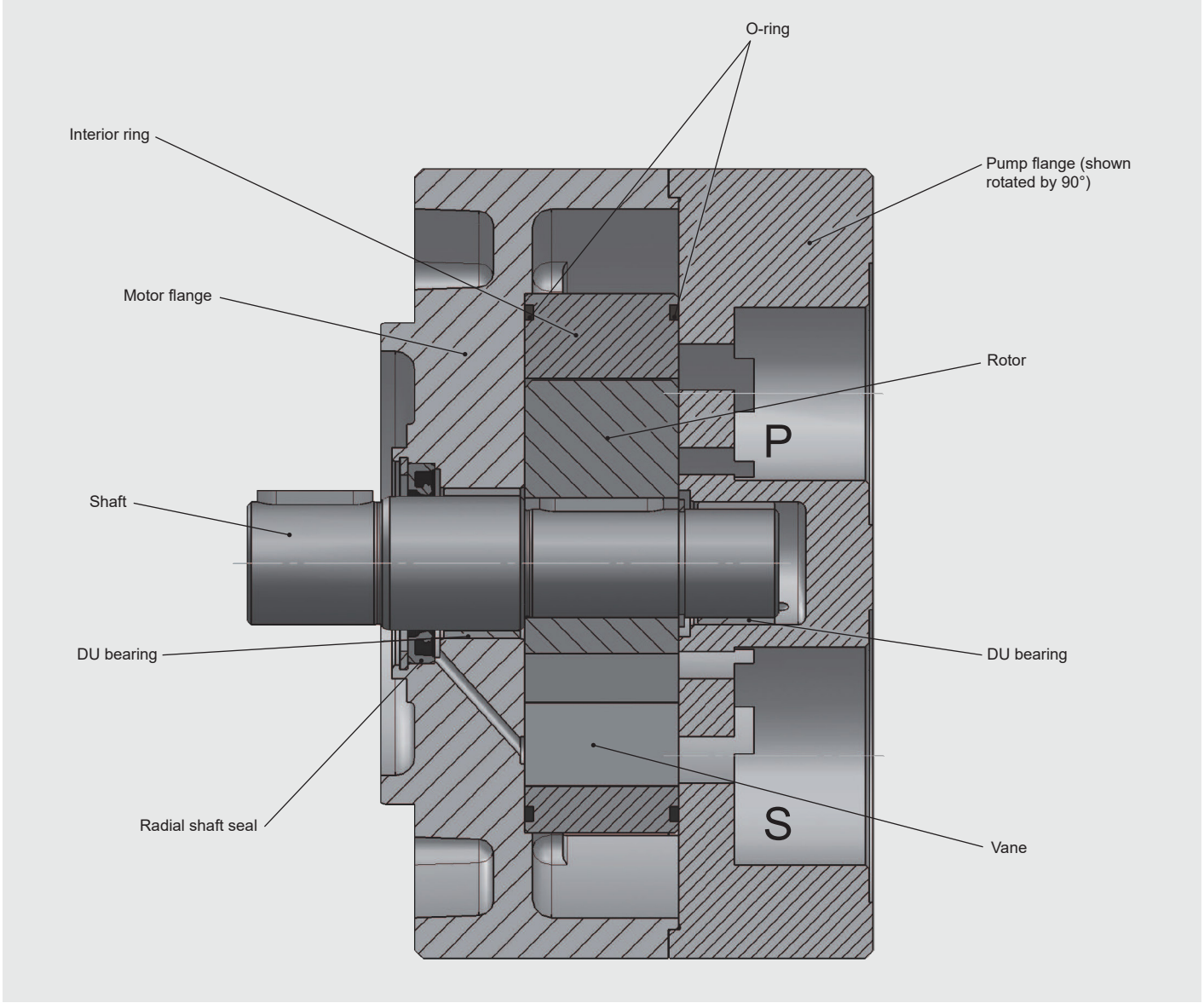
Noise levels in dB(A)

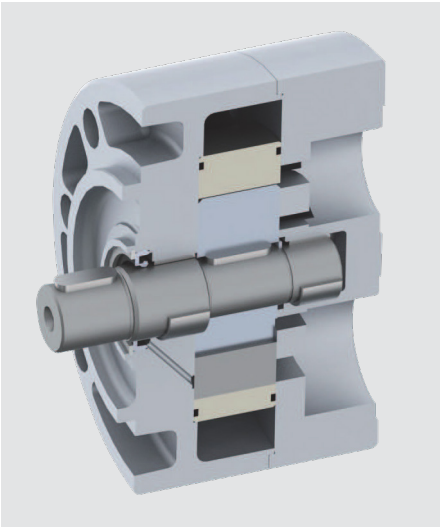
	ccm/rev	1 bar	6 bar	10 bar
Size 2	20	57	60	63
	30 40	60	61	64
		61	62	64
Size 3	70	62	64	67
	100	66	67	69
	130	68	69	70

Test fluid: ISO VG46 at +40 °C (40 mm²/s)
Measurements with damped pump mount
The noise level values serve as guidelines, as room acoustics, connections, viscosity and reflection affect the level of noise.

The low-noise pumps from the VP series can be combined with various hydraulic pumps. For specific details, contact the specialist department.

Design





Note regarding tubing
pressure differences (flow loss)
l [m] **Dp [bar] = 5.84 · d_4**
[mm] · Q [l/min] □ g [mm²/s]

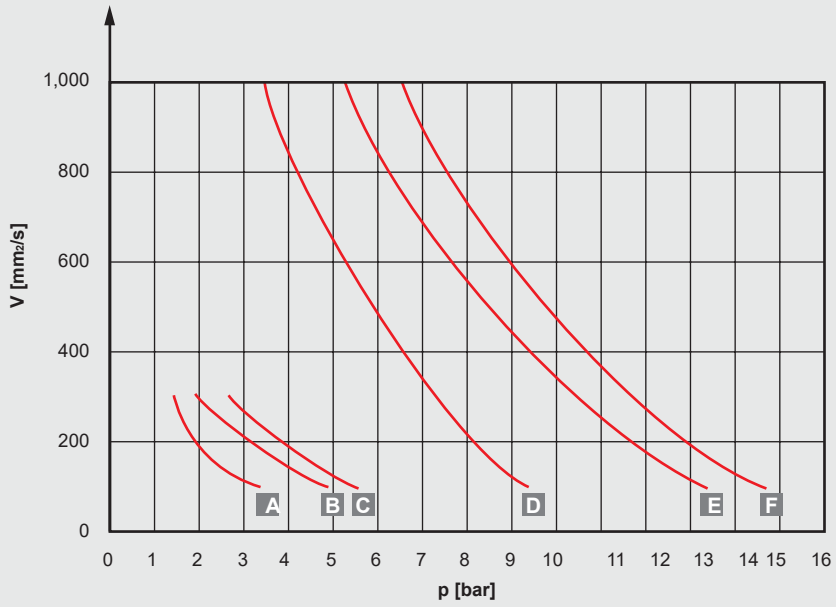
□ Influence of the interior diameter on flow losses with the following example values: l = 1 m, Q = 150 l/min, **g = 200 mm²/s Dp [bar] di_1 (38) 0.084 Internal diameter [mm] di_1 (32) 0.167 di_1 (25) 0.45**

□ Observations apply only for straight pipes
□ Additional threaded joints and pipe bends increase flow loss.

Note:
- As few threaded connections as possible
- Few pipe bends – where bends are used, with large bending radius
- Difference in height between pump and oil level as small as possible
- Hoses must be suitable for a vacuum of min. 5,000 mmW (e.g. by means of steel wire insert)
- Do not reduce the pipe cross-section determined by the threaded connection.

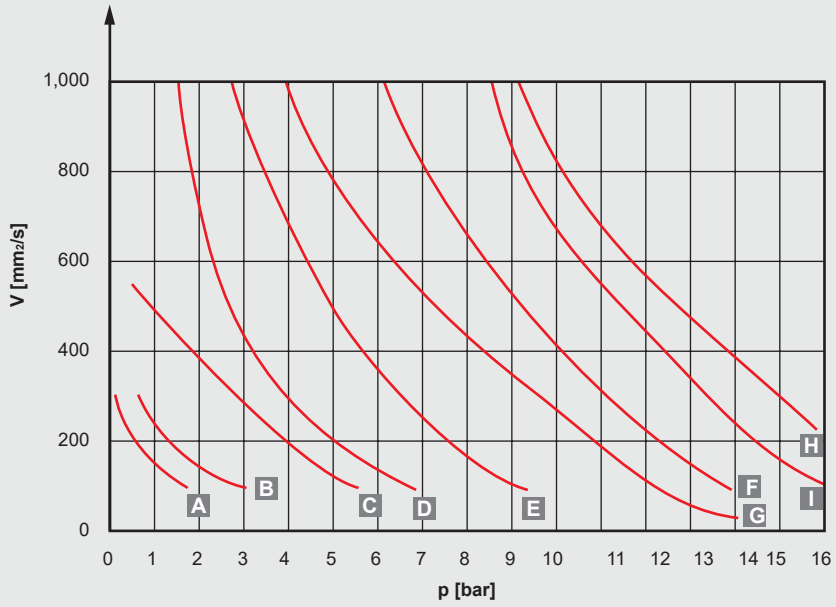
Control Curves

VP-2



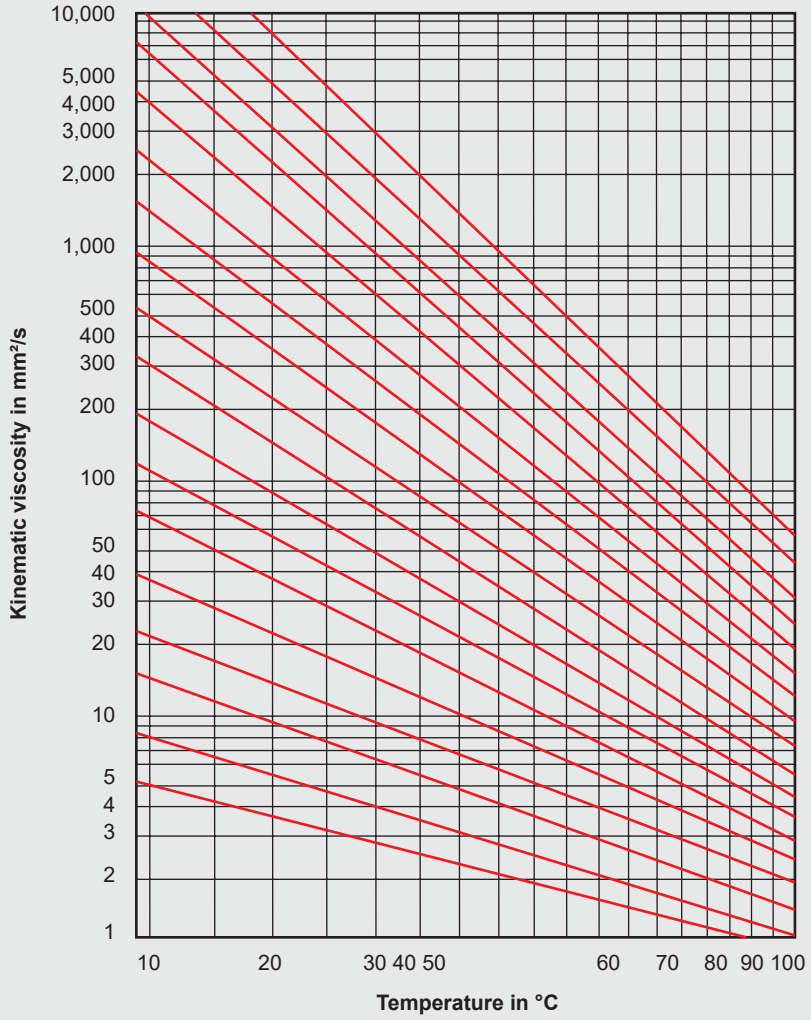
A	40 cm³ / rev – 0.75 kW
B	30 cm³ / rev – 0.75 kW
C	20 cm³ / rev – 0.75 kW
D	40 cm³ / rev – 1.50 kW
E	30 cm³ / rev – 1.50 kW
F	20 cm³ / rev – 1.50 kW

VP-3



A	130 cm³ / rev – 2.2 kW
B	130 cm³ / rev – 2.2 kW
C	70 cm³ / rev – 2.2 kW
D	130 cm³ / rev – 4.0 kW
E	100 cm³ / rev – 4.0 kW
F	70 cm³ / rev – 4.0 kW
G	130 cm³ / rev – 5.5 kW
H	130 cm³ / rev – 7.5 kW
I	100 cm³ / rev – 5.5 kW

Viscosity-temperature graph to DIN 51519 viscosity index 50



Design

Pump (VP, VPB or VPBM) selected in accordance with customer specifications.

Example:

Flow rate:	190 l/min
Counter-pressure:	5 bar
Viscosity:	200 cSt
Motor voltage:	400 V – 50 Hz

Selection:

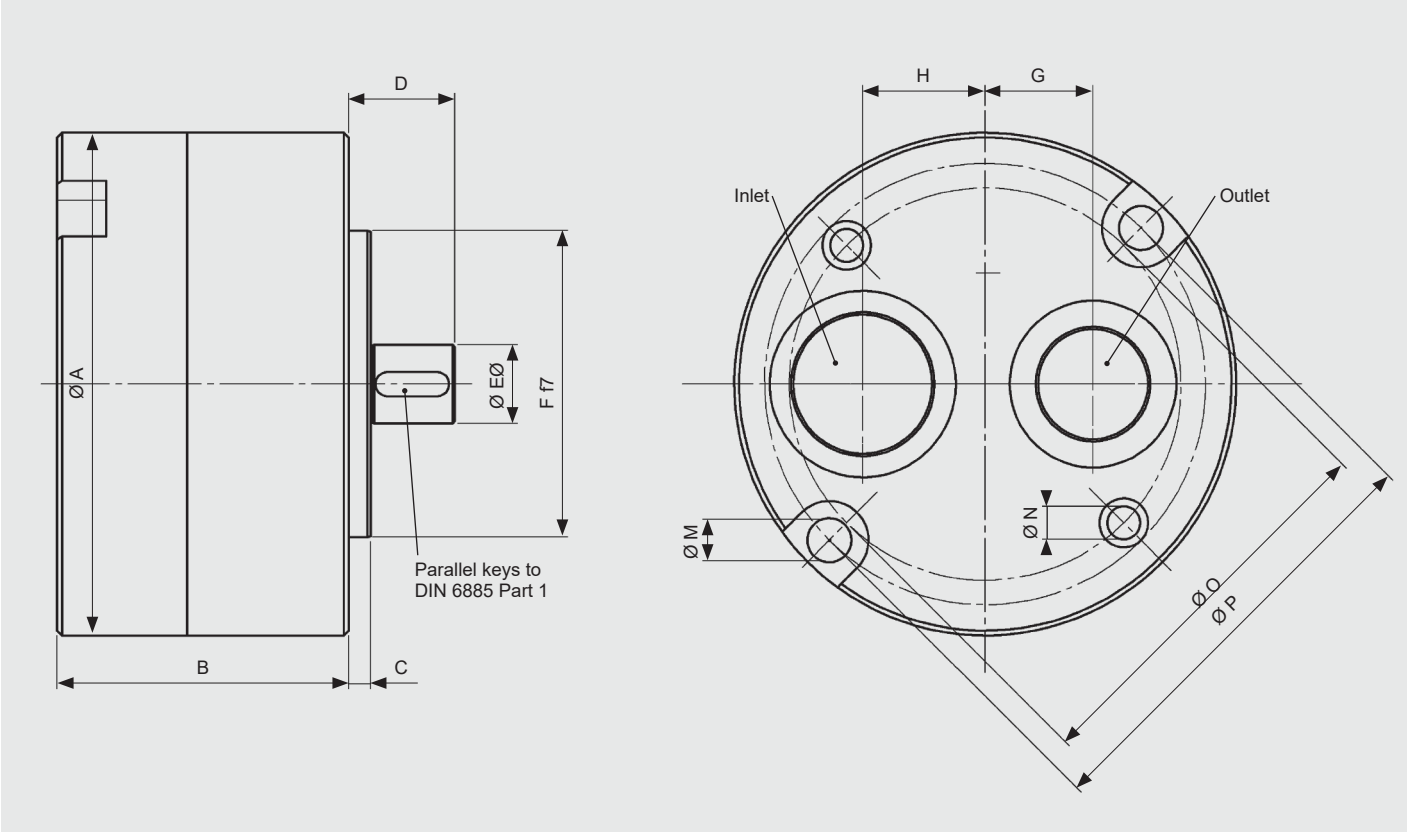
190 l/min **→ VP-3 / VPBM-3 (approx. 130 ccm/rev at 1,500 rpm)** and 200 cSt **→ drive power 4 kW (= motor size 112)**

Result:

VP-3/1.0/P/-/130
VPBM-3/1.0/P/112/130/4/400-50

Dimensions

VP



Assembly	Flow rate l/min 1,500 rpm	A	B	C	D	E	F	G	H	M	N	O	P
VP-2	30 – 60	160	79.5	7	44	22	100	30	35	13.5	11.0	125	140
VP-3	100 – 200	205	119.0	7	44	32	125	44	50	17.0	13.5	160	180

Ports

VP-2

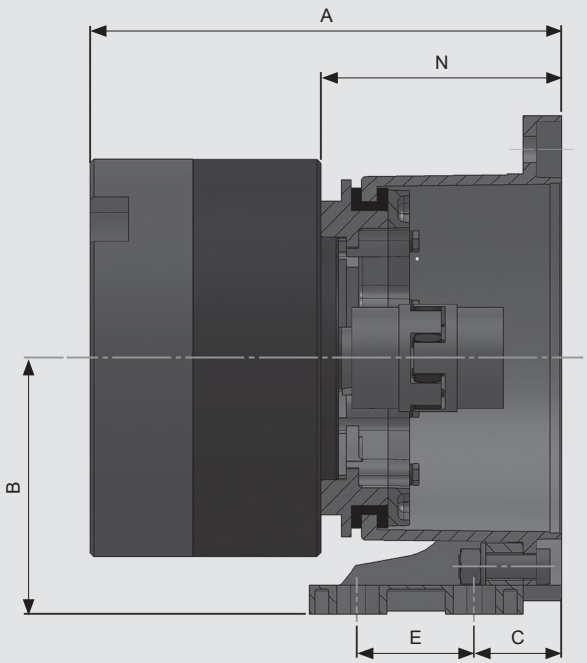
Inlet: G 1¼"
Outlet: G 1"

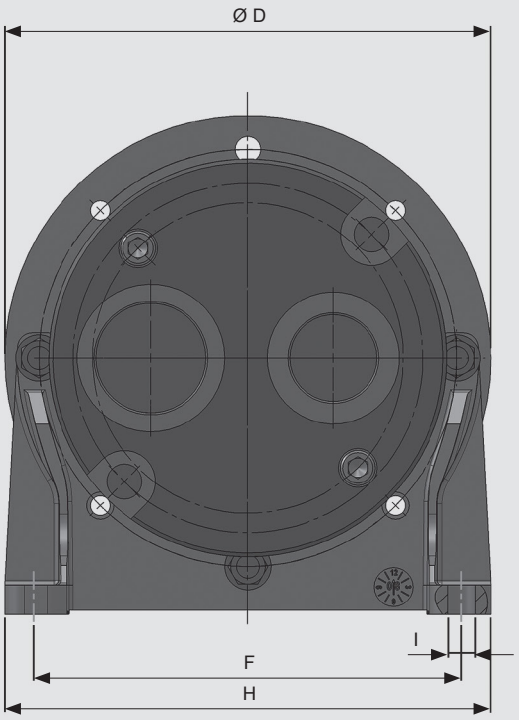
VP-3

Inlet: G2"
Outlet: G1½"

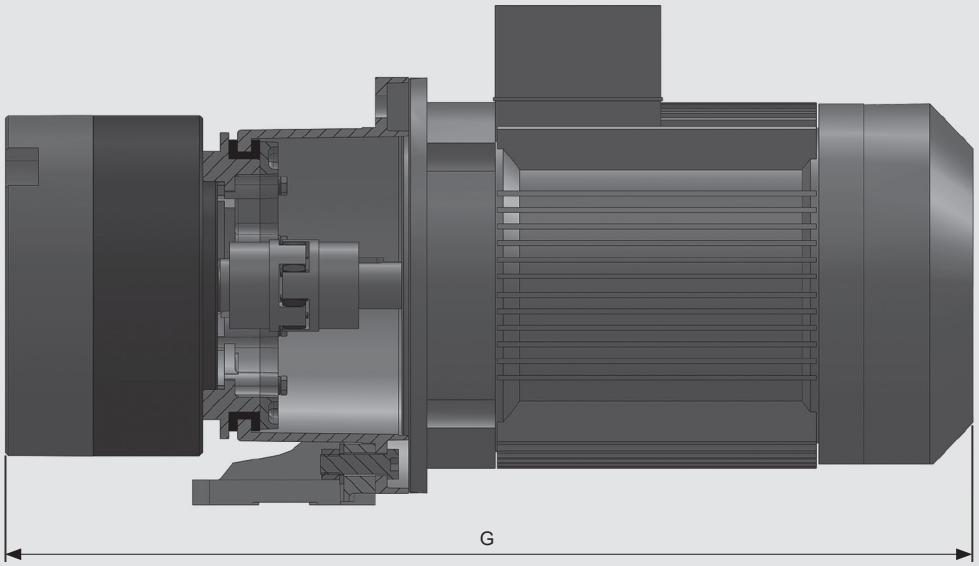
Dimensions

VPB





VPBM



Size	Motor size		A	B	C	D	E	F	G	H	I	N
2	80	0.75 kW	192.5	112	19	200	60	180	480	210	11	113
	90	1.50 kW	192.5	112	19	200	60	180	485	210	11	113
3	100	2.20 kW	243.0	132	40	250	60	220	560	250	14	124
	112	4.00 kW	243.0	132	40	250	60	220	580	250	14	124
	132	5.50 kW	263.0	160	39	300	80	260	680	290	14	144
	132	7.50 kW	263.0	160	39	300	80	260	680	290	14	144

Model Type

VPBM-2 - 1.0 - P - 90/40 - 1.5/400-50

Pump
VP = pump
VPB = pump + PT + coupling
VPBM = pump + PT + coupling + motor
(PT = bell housing)

Assembly
2
3

Modification number

Seals
P = Perbunan
V = Viton
(other seals on request)

Motor size and flow rate

Assembly	Motor size	Motor rating	Flow rate in ccm/revolutions (other rates on request)					
			20	30	40	70	100	130
2	80	0.75 kW	•	•	•			
	90	1.50 kW	•	•	•			
3	100	2.20 kW				•	•	•
	112	4.00 kW				•	•	•
	132	5.50 kW					•	•
	132	7.50 kW						•

(Caution: maximum pressure 16 bar)

Motor power and voltage
(only VPBM) n
= 1,500 rpm

Motor version:
B5

Size 2: motor power
0.75 kW
1.50 kW

Size 3: motor power
2.2 kW
4.0 kW
5.5 kW
7.5 kW

Standard voltages and frequencies for three-phase motors

Motor power 0.75 kW – 4 kW
400 V star / 230 V delta – 50 Hz

Motor power 5.5 kW – 7.5 kW
690 V star / 400 V delta – 50 Hz

Other voltages and frequencies on request.

Design Data Sheet, Feed Pumps

Project: _____

Contact: _____

Telephone: _____

E-mail: _____

Medium: _____ (Enclose data sheet for the medium)

Fluid temperature: _____ °C

Fluid purity: _____

Spec. materials prescribed? _____

Seal material: ○ Perbunan (NBR) ○ Viton (FPM) ○ Other: _____

Flow rate: _____ l/min

Suction height: _____ m

Operating pressure: _____ bar

Max. pressure: _____ bar (pressure limitation valve)

Electrical data

Motor rating: _____ kW

Voltage: _____ V _____ Hz

Speed: _____ rpm

Direction of rotation: _____

Installation position of the pump: _____

Installation space limited? _____

Permitted noise level: _____ dB(A)

Ambient temperature: _____ °C

Unit qty. per year: _____

Remarks/miscellaneous:

_____

_____

_____

_____

_____

_____

_____

Note

The information in this brochure relates to the operating conditions and applications described.

For applications and operating conditions not described, please contact the relevant technical department.

Subject to technical modifications and corrections.

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