4.1 FIXED DISPLACEMENT

CONTENTS PVF100

ORDERING CODE

4.1.1 Fixed Displacement Vane Pump

PVF100 – __ 1 – 6 F R A A 42 __ – XXXX

Fixed displacement vane pump

Seals

	NBR
F-	FPM

Size

1
2
3
4

Displacement

	6
	8
	10
	12
PVF100-1-	14
	17
	19
	23
	25
	31
	41
	47
PVF100-2-	53
	59
	65
	76
PVF100-3-	94
	116
	136
	153
PVF100-4-	184
	200
	237

Installation type

F	Flange mounting

Shaft rotation

R	Clockwise, (viewed from shaft end)

Discharge port position

A	Top

Suction port position

A	Top

Design number

42	Size 1
41	Size 2
31	Size 3
30	Size 4

Design standard

	European Standard
90	North American Standard

Modification number

XXXX	Determined by manufacturer

TECHNICAL INFORMATION

4.1.2 Specifications

Pump size			PVF100-1										PVF100-2		
			6	8	10	12	14	17	19	23	25	31	41	47	53
Geometric displacement		[cm³/rev]	5.8	8.0	9.4	12.2	13.7	16.6	18.6	22.7	25.3	31.0	41.3	47.2	52.5
Max. pressure with fluid type	HLP, HFD-U	[bar]	210									160	210		
	HL	[bar]	160										140		
	HFC	[bar]	160												
	HFD-R	[bar]	160										140		
Drive speed	Min.	[rpm]	750 (at 100 cSt max.)										600 (at 100 cSt max.)		
	Max.	[rpm]	1800 (1200 with HFD-R)												
Approx. weight		[kg]	9.0										15.5		

Pump size			PVF100-2		PVF100-3			PVF100-4				
			59	65	76	94	116	136	153	184	200	237
Geometric displacement		[cm³/rev]	58.2	64.7	76.4	93.6	115.6	136.0	153.0	184.0	201.0	237.0
Max. pressure with fluid type	HLP, HFD-U	[bar]	210				160	175				
	HL	[bar]	140									
	HFC	[bar]	160									
	HFD-R	[bar]	140									
Drive speed	Min.	[rpm]	600 (at 100 cSt max.)		600							
	Max.	[rpm]	1800 (1200 with HFD-R)									
Approx. weight		[kg]	15.5		30.9			68.5				

4.1.3 Hydraulic fluids

The pump series is designed for use with:

Hydraulic oil based on mineral oil
(HL, HLP, ISO VG 32 or 46)

Synthetic fluids
(Phosphate ester, HFD-R)
(Polyol ester, HFD-U)
(Water glyclol, HFC)

4.1.4 Viscosity range

Normal operating viscosity:
20 - 400 cSt (mm²/s)

4.1.5 Temperature range

from 0 to +70 °C

4.1.6 Seals

The pump series is equipped with **NBR** seals. When phosphate ester or polyolester fluids are used, FPM seals must be used.

4.1.7 Filtration

For maximum pump and system component life time, the system should be protected from contamination by effective filtration. Cleanliness class:

23 / 21 / 18 to ISO 4406:1999

or

Class 12 to NAS 1638

or cleaner.

4.1.8 Installation notes

A. Mounting with coupling
Use a flexible coupling whenever possible. There must not be any radial or axial forces on the pump shaft. The maximum misalignment must be 0.1 mm and the angular deviation must be less than 0.2°.

B. Suction pressures
The suction pressures at the pump inlet port must be within the values specified in the following table. The internal diameter of the suction pipe must correspond to the internal diameter of the pump suction port.

If the pump is installed on the tank or above the oil level, the distance between the pump inlet and the oil level should not exceed 1 metre (0.8 metres when phosphate ester or aqueous fluids are used).

Pump type		Suction pressure		
		Minimum		Maximum
		Mineral oil	Phosphate ester, Aqueous fluid	
PVF100 series Single pumps	PVF100-1 PVF100-2	-0.2 bar	-0.16 bar	+0.3 bar
	PVF100-3 PVF100-4	-0.2 bar *		

* Min. suction pressure at speeds > 1700 rpm:
PVF100-3-116: 0 bar (1 bar abs.)
PVF100-4-237: -0.13 bar

C. Commissioning notes
During initial commissioning or after a lengthy stoppage, the pump may develop suction problems. If this is the case, install an air bleed valve on the discharge side or the air can be released by slightly loosening the joint at the discharge port. As far as possible, the pump should be run in jog mode with unloaded circulation.

D. Other notes
If the pump is to be operated at speeds below 1200 rpm, install the pump with the inlet port at the top to ensure better suction.

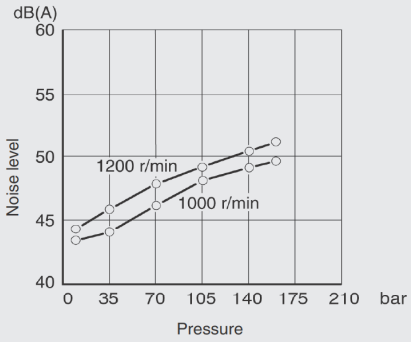
PERFORMANCE DATA

4.1.9 Noise level

Measurement conditions

Viscosity of the fluid: 20 mm²/s
Measuring point: 1 metre horizontally away from the pump
Background noise: 40 dB (A)

PVF100-1-6



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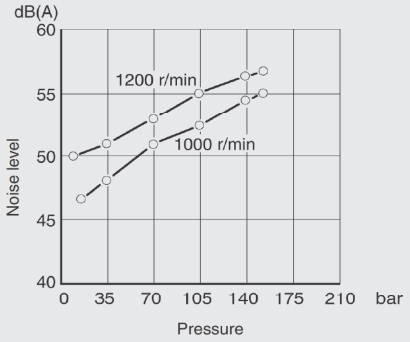

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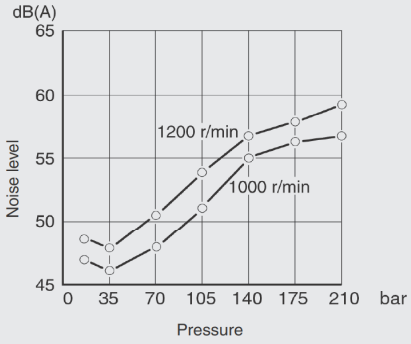

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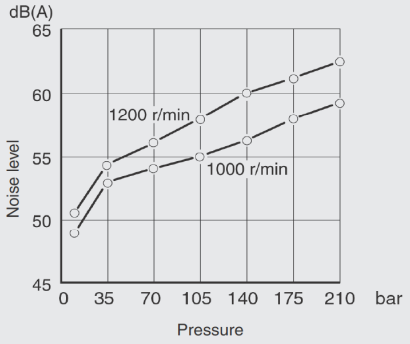

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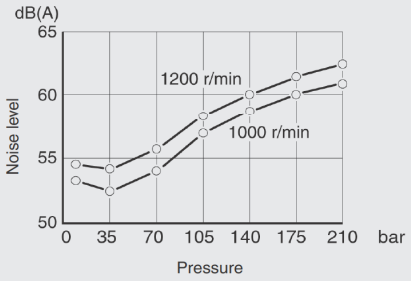

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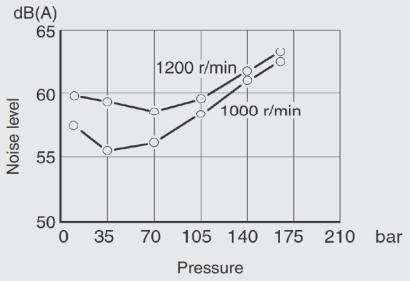

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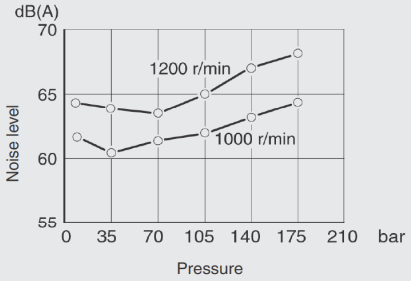

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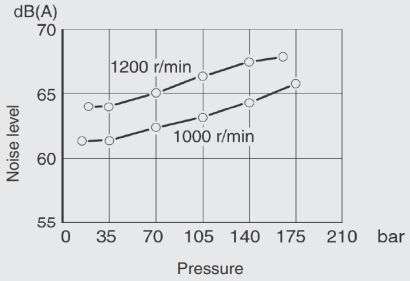
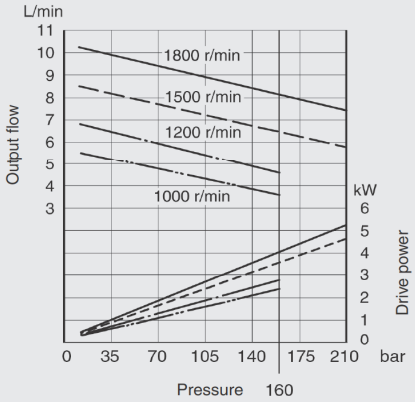


4.1.10 PVF100-1-

Performance characteristic curves
at viscosity 20 mm²/s (ISO VG32 oil, 50 °C)

PVF100-1-6



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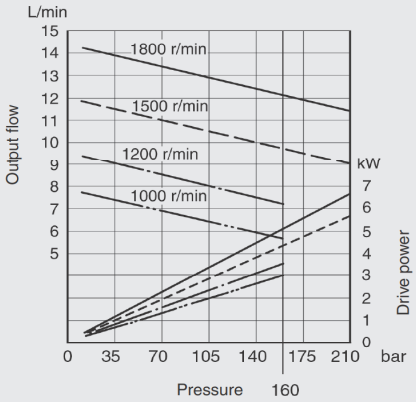

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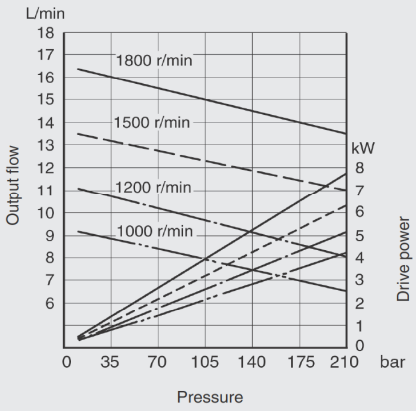

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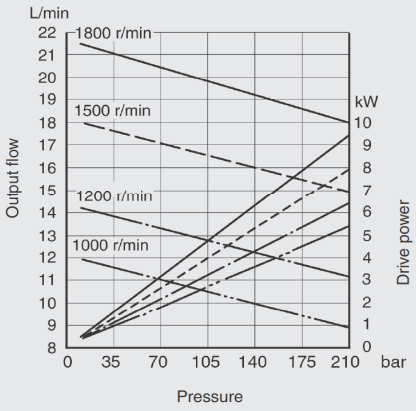

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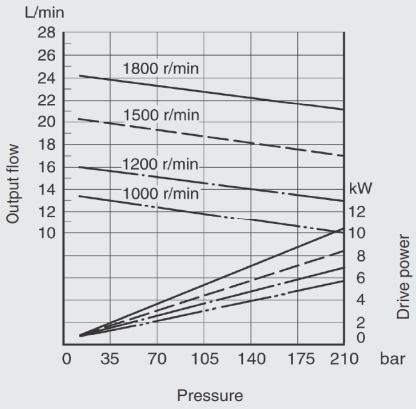
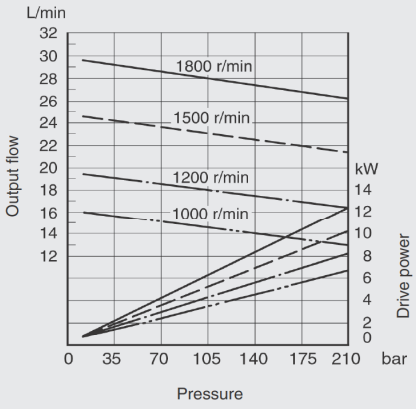
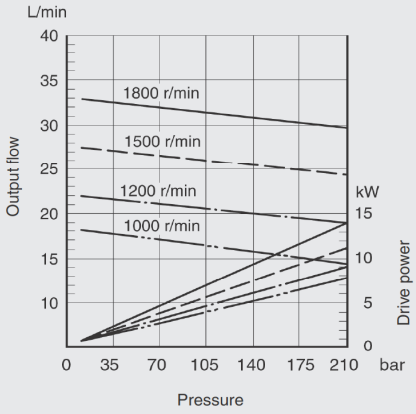


PVF100-1-17

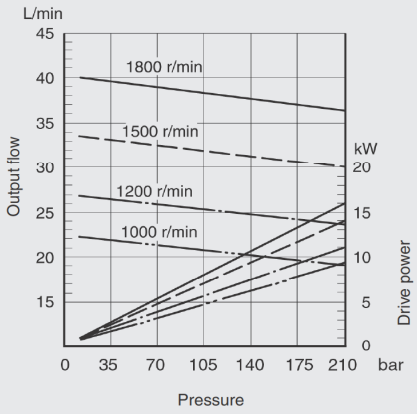


Performance characteristic curves
at viscosity 20 mm²/s (ISO VG32 oil, 50 °C)

PVF100-1-19



PVF100-1-23



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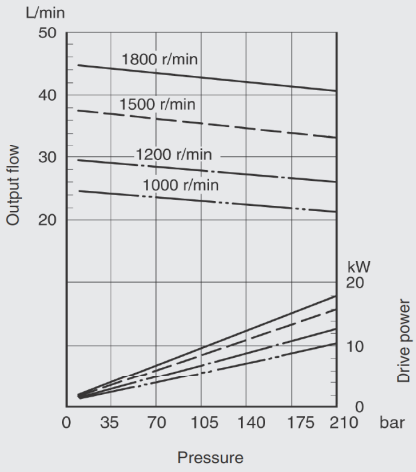

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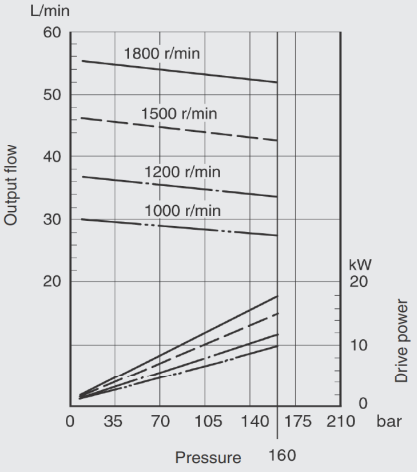
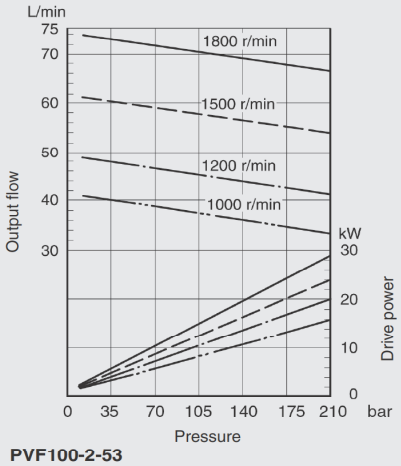


4.1.11 PVF100-2-

Performance characteristic curves
at viscosity 20 mm²/s (ISO VG32 oil, 50 °C)

PVF100-2-41



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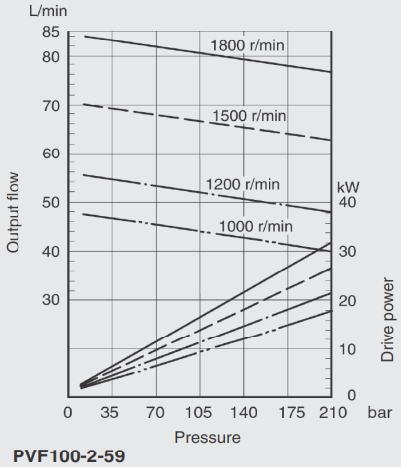

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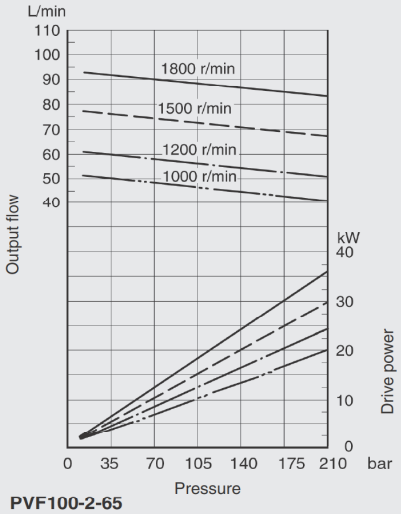
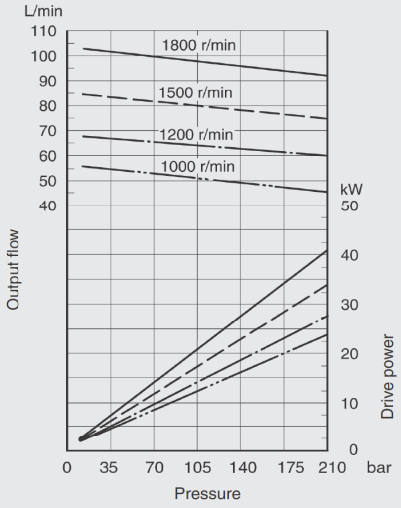
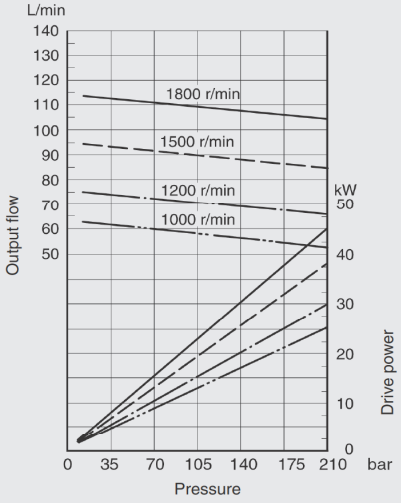


PVF100-2-59



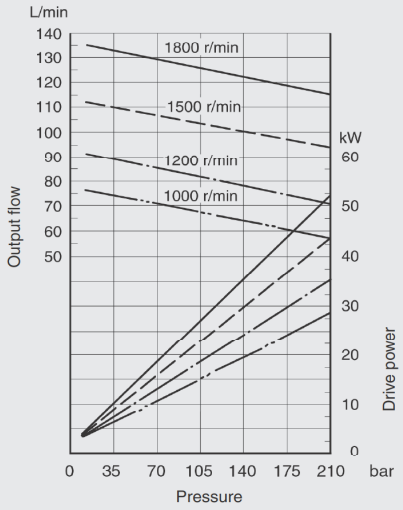
PVF100-2-65



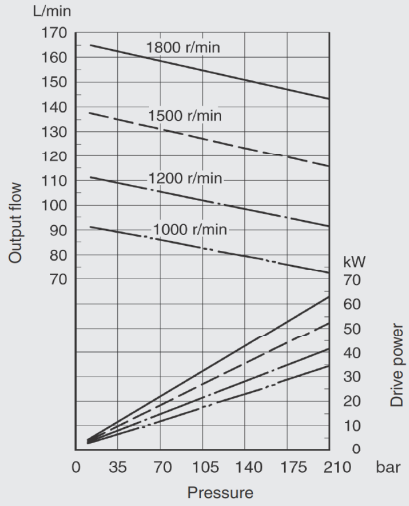
4.1.12 PVF100-3-

Performance characteristic curves
at viscosity 20 mm²/s (ISO VG32 oil, 50 °C)

PVF100-3-76



PVF100-3-94



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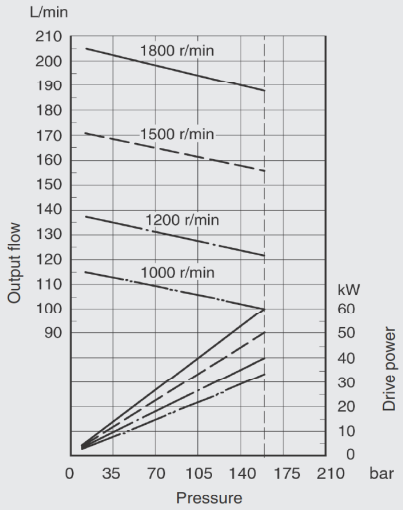
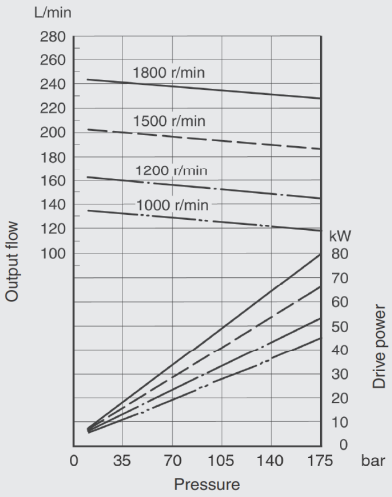


4.1.13 PVF100-4-

Performance characteristic curves
at viscosity 20 mm²/s (ISO VG32 oil, 50 °C)

PVF100-4-136



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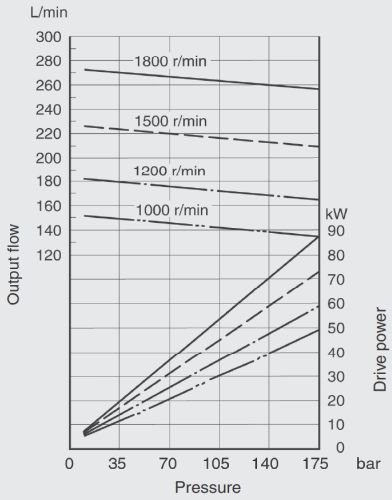

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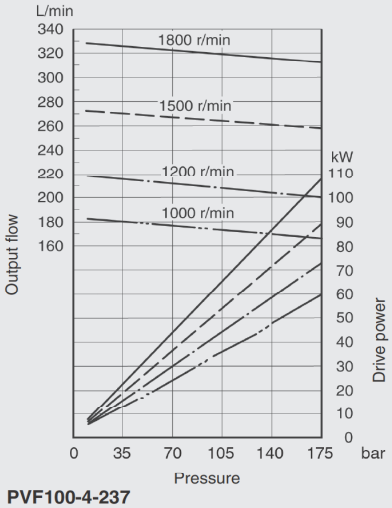

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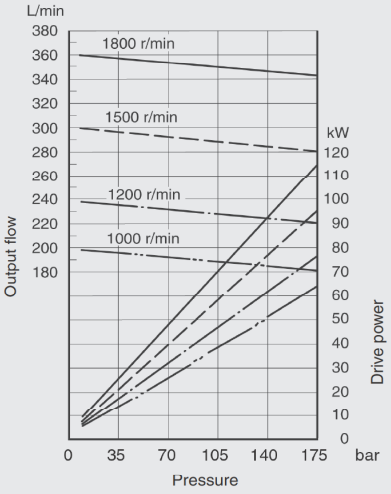
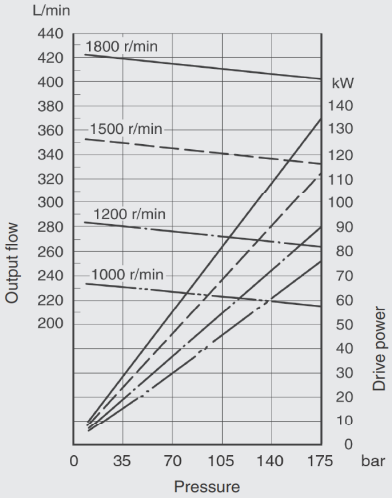
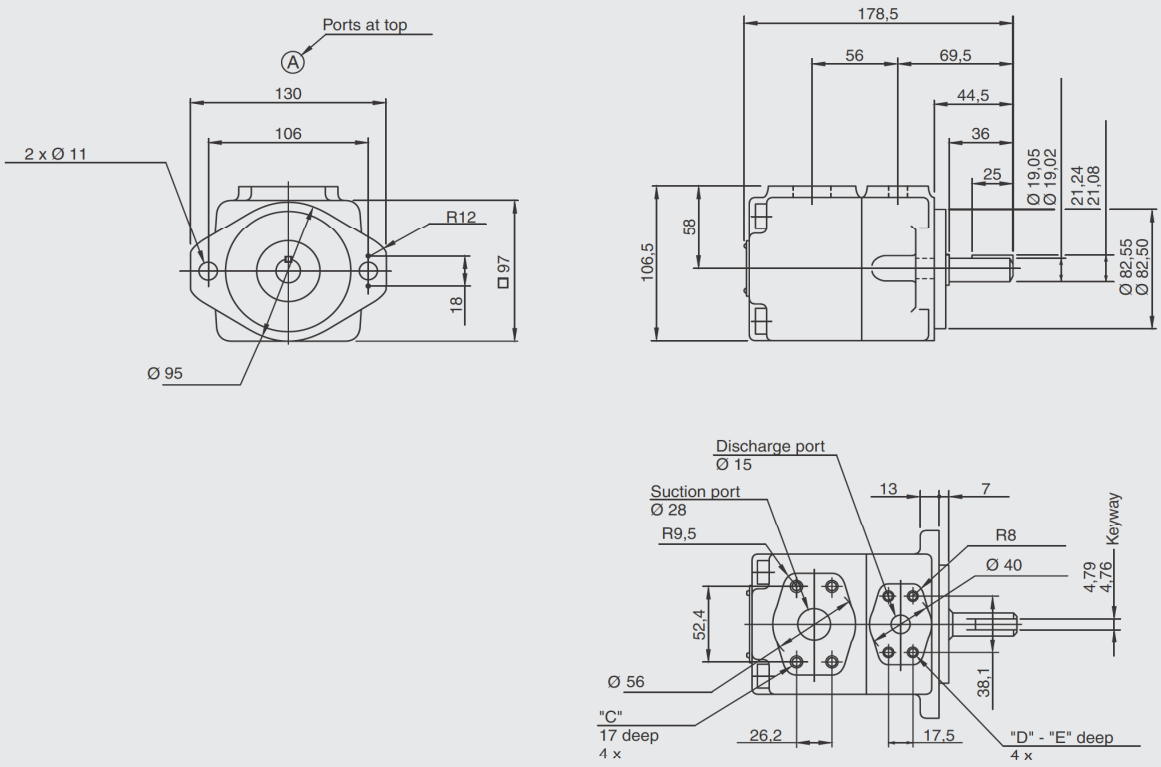


PVF100-4-237



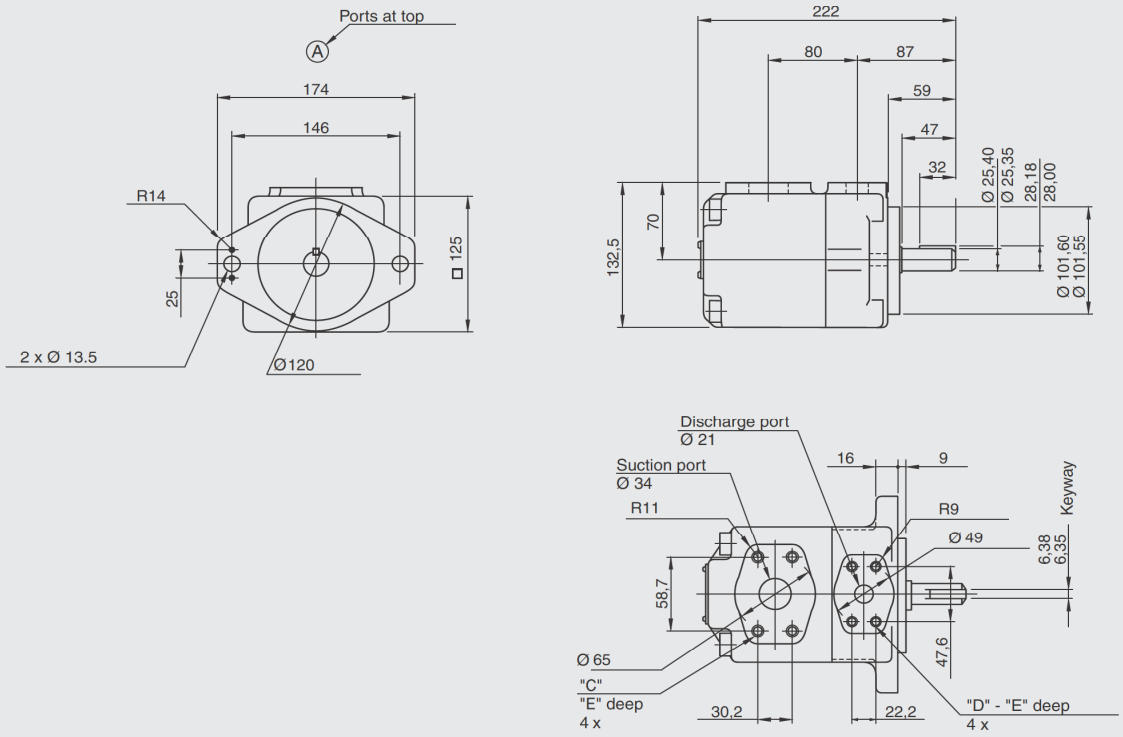
DIMENSIONS

4.1.14 PVF100-1-



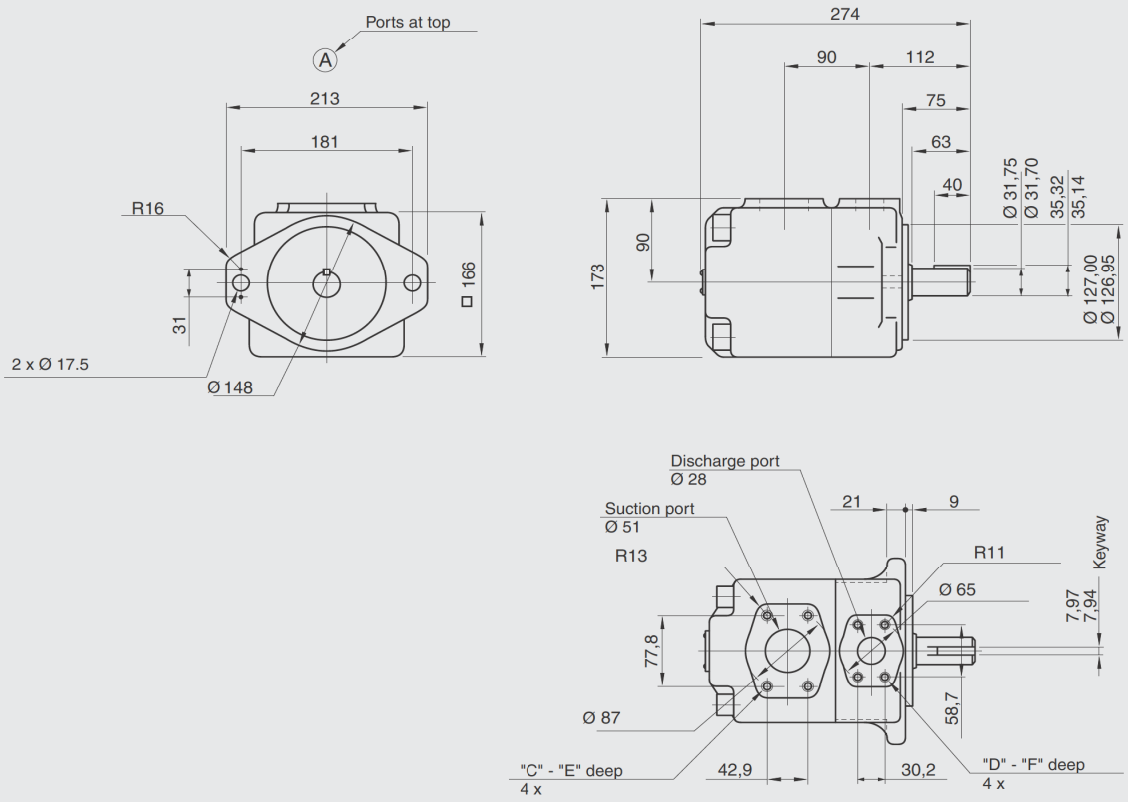
Design Standard	"C" Thread	"D" Thread	E mm
PVF100-1...42 European Standard	M10	M8	14
PVF100-1...4290 US Standard	3/8-16 UNC	5/16-18 UNC	16

4.1.15 PVF100-2-



Design Standard	"C" Thread	"D" Thread	E mm
PVF100-2...41 **European Standard**	M10	M10	19
PVF100-2...4190 **US Standard**	7/16-14 UNC	3/8-16 UNC	20

4.1.16 PVF100-3-



Design Standard	"C" Thread	"D" Thread	E mm	F mm
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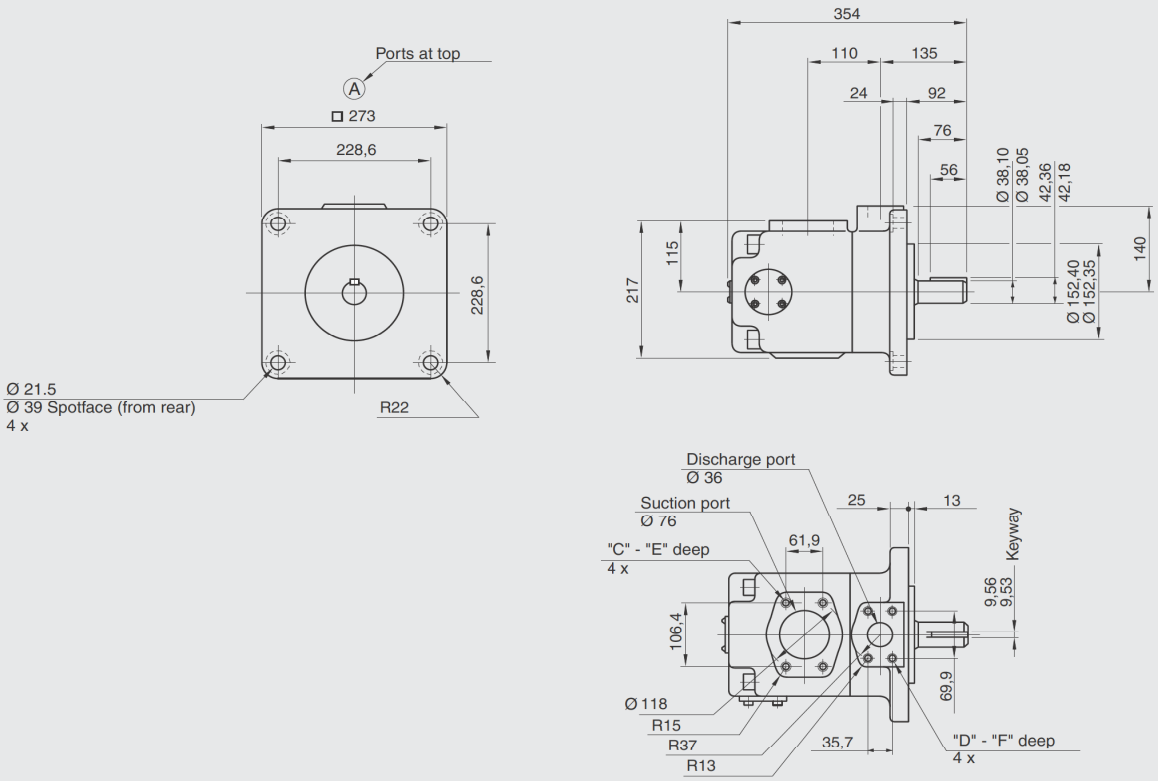
PVF100-3...3190 US Standard	1/2-13 UNC	7/16-14 UNC	21	20

4.1.17 PVF100-4-



Design Standard	"C" Thread	"D" Thread	E mm	F mm
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PVF100-4...3090 US Standard	5/8-11 UNC	1/2-13 UNC	21	21