Danfoss BC448302546603en PVM Variable Displacement Piston Pump User Guide

Contents

Danfoss BC448302546603en PVM Variable Displacement Piston Pump

Product Information

Specifications:

- Design Code: B
- Maximum Pressure: Up to 315 bar
- Displacement Range: 45 – 50cc/rev (2.75 – 3.05in3/rev)
- Variable Speed Drive Ready

Introduction

Vickers by Danfoss PVM Variable Displacement Piston Pump is an open circuit, axial piston design suitable for various industrial applications. The pump offers efficient control options that can optimize performance while reducing system cooling needs and upfront costs. The pump can handle pressures up to 315 bar continuously, resulting in less maintenance and extended operating life.

Features and Benefits

- Saddle-type yoke with steel-backed polymer bearings for improved life and reduced deflection
- Single control piston reduces loading on the yoke, allowing installation in tighter locations
- Capable of operating with various types of hydraulic fluids including high-water-content and phosphate ester fluids
- Reduces or eliminates the need for damping barriers between the noise source and the operator, improving customer comfort
- Adjustable maximum stop for flow tuning and gauge ports for monitoring inlet and outlet conditions
- Mounting flange offered in SAE configurations and ports offered in SAE in both tube and flange versions
- Side- or end-ported models available for easy plumbing and fitting to machine space needs
- Multiple drain ports for flexible mounting orientations, reducing installed costs

Model Code Selection

The model code for the Vickers by Danfoss PVM Variable Displacement Piston Pump consists of several alphanumeric characters. Each character represents a specific feature or option. Here is a breakdown of the model code:

1. Pump Type: PVM
2. Displacement: 045 (45.1 cm3/r [2.75 in3/r]) or 050 (50.0 cm3/r [3.05 in3/r])
3. Valve Plate: E (Quiet version, optimized for 1000-1800 rpm) or M (Higher speed version)
4. Input Shaft: 05 (SAE J744-22-1 SAE B STRAIGHT KEYED), 06 (SAE J744-25-1 SAE B-B STRAIGHT KEYED), 07 (SAE J744-22-4 SAE B 13T SPLINE), or 08 (SAE J744-25-4 SAE B-B 15T SPLINE)
5. Main Port Type: 1 (SAE J514 TUBE PORTS SAE AUXILIARY PORTS) or 2 (SAE J518 FLANGE PORTS SAE AUXILIARY PORTS)

Product Usage Instructions

Installation:

1. Select a suitable location for the pump installation, considering space constraints and plumbing requirements.
2. Ensure proper alignment of the pump with the power source and hydraulic system.
3. Attach the pump securely using the provided mounting flange or brackets.
4. Connect the input shaft of the pump to the power source using the appropriate coupling or key.
5. Connect the main ports of the pump to the hydraulic system using compatible fittings and hoses.
6. Ensure all connections are tight and leak-free.

Fluid Selection:

Select a hydraulic fluid suitable for your specific industrial application. The Vickers by Danfoss PVM Variable Displacement Piston Pump is compatible with various types of hydraulic fluids, including high-water-content and phosphate ester fluids. However, ensure that the selected fluid meets the recommended specifications provided by the manufacturer.

Operation:

1. Ensure that the pump is properly connected to the power source and hydraulic system.
2. Start the power source and allow it to reach the desired operating speed.
3. Monitor the inlet and outlet conditions using the gauge ports if necessary.
4. Adjust the maximum stop to tune the flow according to your system requirements if needed.
5. Observe the pump for any abnormal noises, vibrations, or leaks during operation.
6. If any issues arise, refer to the troubleshooting section of the user manual or contact customer support for assistance.

FAQ

Q: What is the maximum pressure that this pump can handle?

A: The Vickers by Danfoss PVM Variable Displacement Piston Pump can handle pressures up to 315 bar (4568 psi) continuously.

Q: What types of hydraulic fluids can be used with this pump?

A: This pump is capable of operating with various types of hydraulic fluids, including high-water-content and phosphate ester fluids, in addition to the typical petroleum-based and synthetic fluids.

Q: Can this pump be installed in tight locations?

A: Yes, the pump's single control piston reduces loading on the yoke, resulting in a reduced pump size, allowing installation in tighter locations.

Q: Are there any specific mounting requirements for this pump?

A: The pump's mounting flange is offered in SAE configurations, and both side- and end-ported models are available to facilitate lumbing and help fit the pump to your machine space needs. Multiple drain ports allow for many mounting orientations, reducing installed costs.

Vickers by Danfoss

PVM Variable Displacement Piston Pump
Design Code B

Up to 315 bar 45 – 50cc/rev (2.75 – 3.05in3/rev) Variable Speed Drive Ready

Introduction

- Vickers by Danfoss M Series pumps are open circuit, axial piston designs. A variety of control options allows the pumps to perform most efficiently in a specific application. Efficiency of the pump controls allows down-sizing of system cooling needs, saving up front cost in the machine. Alternatively, cooling capacity could be kept the same and the flow capability of the system increased, thus improving performance and customer satisfaction.
- The M Series also contains a strong proven rotating group allowing the pumps to handle pressures up to 315 bar
  (4568 psi) continuous with less maintenance cost. High-load carrying capacity bearings and a stiff drive shaft help provide very long life at rated industrial conditions, reducing operating costs and extending operating life.
- M Series pumps feature a saddle-type yoke with steel-backed polymer bearings. The stiff yoke reduces deflection and allows even loading of bearings, improving life. A single control piston reduces loading on the yoke, resulting in reduced pump size which allows installation in tighter locations.
- M Series pumps operate at a level of quietness that exceeds the requirements of today's demanding work conditions. The pumps feature a unique three-piece envelope (flange, housing and valve block) specifically created for low fluid-borne and structure-borne noise levels. Another pump feature – a bimetal timing plate – improves pump filling characteristics which, in turn, reduce fluid-borne noise and extend pump life.
- M Series pumps reduce, or in some cases remove, the need for damping barriers between the noise source and the operator. This saves money on the installed cost of the system while improving customer comfort. An adjustable maximum stop provides a means of tuning flow to your system, while gauge ports allow

monitoring of inlet and outlet conditions. These standard features reduce system complexity and cost. Mounting flange is offered in SAE con fig urations, and ports are offered in SAE in both tube and flange versions.
- Side- or end-ported models are available to facilitate plumbing and help fit the pump to your machine space needs. Multiple drain ports allow many mounting orientations, reducing installed costs.
- M Series pumps are capable of operating with many types of hydraulic fluids used in industrial systems. High-water-content and phosphate ester fluids can be accommodated, in addition to the typical petroleum based and synthetic fluids.

Typical Applications

- Mining machinery
- Injection molding machines
- Metal forming machines
- Oil and Gas Equipment
- Conveyor lines
- Primary metals
- Metal cutting equipment

Features and Benefits

- Tear drop shaped housing contains fluid borne sound and reduces operator fatigue
- Standard adjustable maximum volume screw and gage ports give the ultimate in flexibility to the engineer or service technician
- High overall efficiency reduces operating costs
- Robust shaft bearings extends operating life and lowers maintenance costs
- Multiple port types and locations aid in flexibility of machine design
- Very low pressure ripple reduces shock in the system resulting in less leakage

Model Code Selection

PVM	045	*	R	**	C	*	*	*	***	**	000	*	*	B	-	**	0	*
1,2,3	4,5,6	7	8	9,10	11	12	13	14	15,16,17	18,19	20,21,22	23	24	25	26	27,28	29	30

1,2,3 Product Series
PVM – M Series Variable Piston Pump

4,5,6 Displacement
045 45.1 cm3/r [2.75 in3/r] (315 bar MAX)
050 50.0 cm3/r [3.05 in3/r] (230 bar MAX)

7 Valve Plate
E - Quiet version, optimized for 1000-1800 rpm

M - Higher speed version. ref speed performance data for individual displacements

8 Input Rotation
R – Clockwise (Right hand)

9,10 Input Shaft
05 - SAE J744-22-1 SAE B STRAIGHT KEYED
06 - SAE J744-25-1 SAE B-B STRAIGHT KEYED
07 - SAE J744-22-4 SAE B 13T SPLINE
08 - SAE J744-25-4 SAE B-B 15T SPLINE

11 Mounting Flange
C – SAE B, 2-bolt

12 Main Port Location
E – End Ported
S – Side Ported

13 Main Port Type
1 - SAE J514 TUBE PORTS SAE AUXILIARY PORTS
2 - SAE J518 FLANGE PORTS SAE AUXILIARY PORTS

14 Control
0 – None
A – Pressure Compensator
B – Pressure and Flow Compensator with Bleed Orifice
C – Pressure and Flow Compensator with Plugged Orifice

15,16,17 Pressure Compensator Setting
000 – None
070 – 70 bar (Adjustable between 40 bar and 130 bar)
230 – 230 bar (Adjustable between 130 bar and 320 bar)
315 – 315 bar (Adjustable between 130 bar and 320 bar)

18,19 Flow Compensator Setting
00 – None
11 – 11 bar setting
20 – 20 bar setting

20,21,22 Power control Torque Limiter Setting
000 – None

23 Auxiliary Mounting Pad
0 - NONE (NON-THROUGH DRIVE)
1- AUXILIARY A-MOUNT WITH COVER PLATE AND NO COUPLER
A - SAE A 2-BOLT 9T SPLINE
B - SAE A 2-BOLT 11T SPLINE
C - SAE B 2-/4-BOLT 13T SPLINE
D - SAE B-B 2-/4-BOLT 15T SPLINE

24 Paint
0 – No paint
A – Standard black paint

25 Design Code
B – B

26 Differentiator
- -

27, 28 Pump Special Features
00 – Adjustable Max Displacement Stop

29 Compensator Special Features
0 – None

30 Customer Identification
0 – None
(Contact Danfoss for options)

Specifications and Performance

High speed version (M)

Displacement, Pressure and Flow Ratings At 93°C (200°F), SAE 10W oil, 1 bar absolute (0 psig) inlet

Model Series	Geometric Displacement cm³/r (in³/r)	Maximum Pressure bar (psi)		Maximum Flow at 315 bar (4500 psi)	
		Nominal	Peak**	Flange Ports l/min (USgpm) @ 1 bar inlet	Tube Ports l/min (USgpm) @ 1 bar inlet
PVM045	45,1 (2.75)	315 (4568)	350 (5000)	115 (30) @ 2600 r/min	106 (28) @ 2400 r/min
PVM050	50,0 (3.05)	230 (3300)	280 (4000)	125 (33) @ 2600 r/min	116 (31) @ 2400 r/min

**Less than 0.5 second.

Speed, Input Power and Torque Ratings At 93°C (200°F), SAE 10W oil, 1 bar absolute (0 psig) inlet

Approximate Model Series	Operating Speed and Pressure r/min 1 bar Inlet Flange Ports	1 bar Inlet Tube Ports	0,85 bar Inlet Flange Ports	Max. Input Power at Max. Speed and 280 bar (4000 psi) kW (hp)	Max. Torque at 280 bar (4000 psi) Nm (lb-ft)	Weight (dry) kg (lbs)
PVM045	2600 r/min			56 (75)		
		2400 r/min		53 (71)	198 (46)	24 (52)
			2200 r/min	48 (64)		
PVM050	2600 r/min			51 (68)		
		2400 r/min		48 (64)	204 (150)	24 (52)
			2200 r/min	44 (59)		

Standard Response Times.

Model Series	On Stroke (msec)	Off Stroke (msec)
PVM045	140	40
PVM050	140	23

*Values with pressure compensator control.

Quiet version, optimized for 1000-1800 rpm (E)

Displacement, Pressure and Flow Ratings At 50°C (120°F), SAE 10W oil, 1 bar absolute (0 psig) inlet

Model Series	Maximum Geometric Displacement cm³/r (in³/r)	Maximum Pressure bar (psi) Nominal	Peak**	Maximum Flow at 315 bar (4500 psi)* l/min (USgpm) – Average measured flow rate @1800 r/min	@1500 r/min	@1200 r/min	@1000 r/min
PVM045	45,1 (2.75)	315 (4568)	350 (5000)	76 (20)	65 (17)	49 (13)	42 (11)
PVM050	50,0 (3.05)	230 (3300)	280 (4000)	87 (23)	75 (20)	62 (16)	49 (13)

**Momentary system pressure spikes only

Speed, Input Power and Torque Ratings At 50°C (120°F), SAE 10W oil, 1 bar absolute (0 psig) inlet

Model Series	Maximum Operating Speed r/min	Maximum Input Power at 315 bar (4500 psi) kw (hp)*@88% M.E. @1800 r/min	@1500 r/min	@1200 r/min	@ 1000 r/min	Maximum Torque at 315 bar (4500 psi)* Nm (lb-ft)	Approximate Weight kg (lb)
PVM045	1800	41 (55)	34 (46)	27 (37)	23 (31)	221 (163)	24 (52)
PVM050	1800	35 (47)	30 (40)	28 (38)	23 (31)	190 (140)	24 (52)

Standard Response Times

Model Series	On Stroke (msec)	Off Stroke (msec)
PVM045	140	40
PVM050	140	40

* 3300 psi on overbore pumps

Specifications and Performance

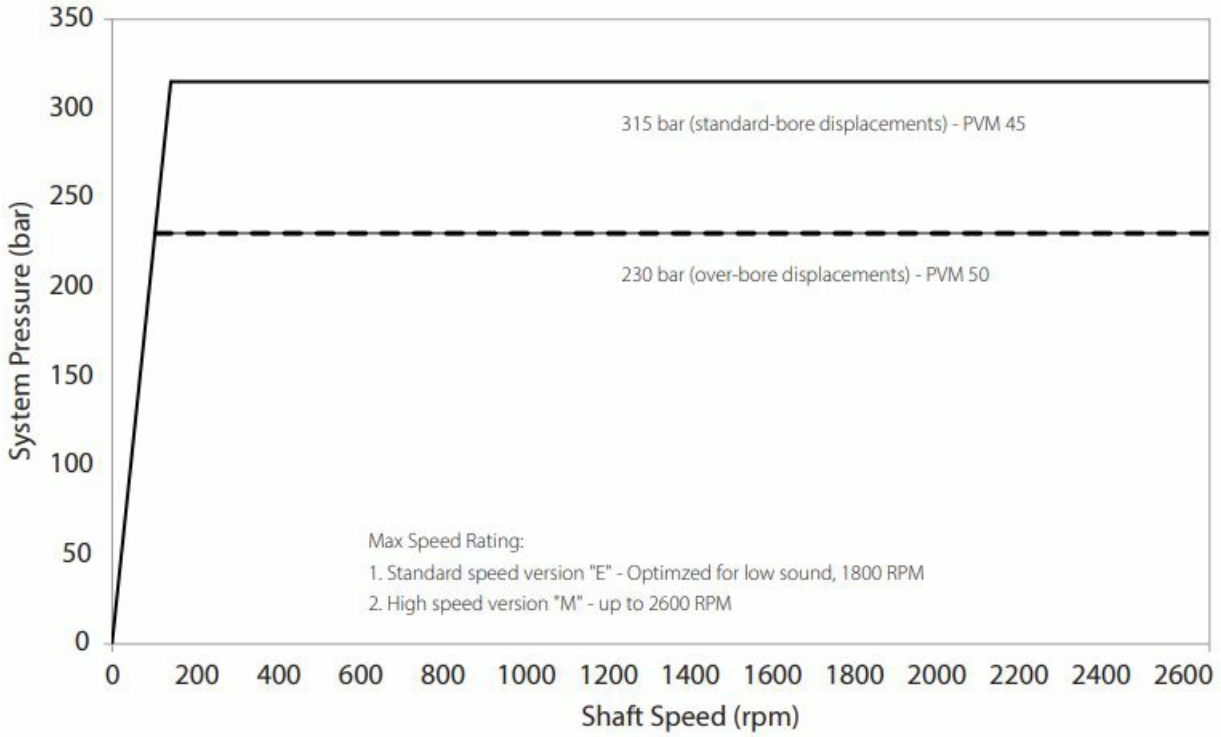
Variable Speed Drive
Variable Speed Performance- System Pressure vs Speed

Model Series	Max Speed “E”* (rpm)	Max Speed “M”*(rpm)	Min Speed (rpm)	Nominal Pressure (bar)	Peak Pressure (bar) **	Inertia (kg-cm2)
PVM045	1800	2600	0	315	350	36.2
PVM050	1800	2600	0	230	280	33.9

* Valve plate type
**Less than 0.5 second.
Note – For Variable Speed Drive applications, Modelcode Position 14 should be set at 0 and position 15, 16, 17 should be set to 000 to configure pump to “Fixed Displacement” type.
Moment of Inertia (single pump rotating group)

Model	Moment of Inertia	
	N-m (sec2)	lbf-in (sec2)
PVM045	0.0036	0.0320
PVM050	0.0034	0.0300

PVM System Pressure vs. Shaft Speed



Test condition: Mineral oil SAE 10W, oil temperature 49º C (120º F), 1 bar absolute inlet pressure.

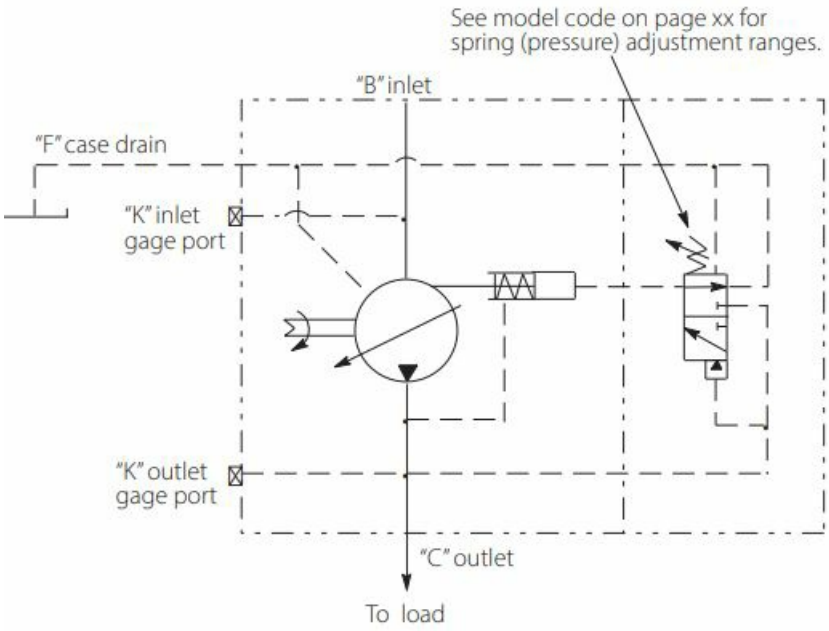
Control Options

Pressure Compensator

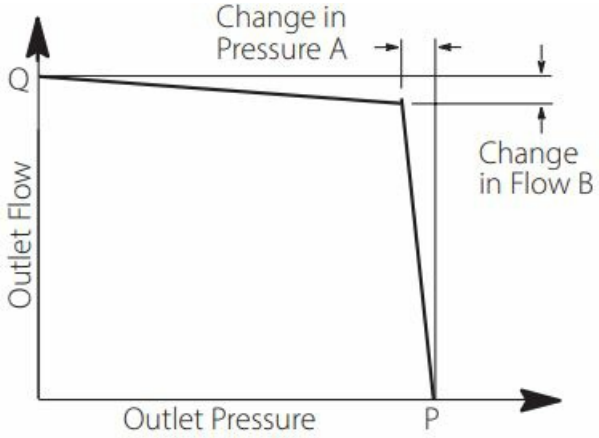
Control – Code A

The pump will provide a continuously modulated flow to meet changing load demands at a pre-adjusted compensator pressure. At pressures below the compensator setting, the pump will operate at maximum displacement.

Warning: The pressure compensator may be adjusted beyond the rated pressure of the pump. When adjusting the pressure limiter, install a 0-350 bar (0-5000 psi) gage in the outlet gage port and limit the pressure setting to the continuous rated pressure for the pump displacement.



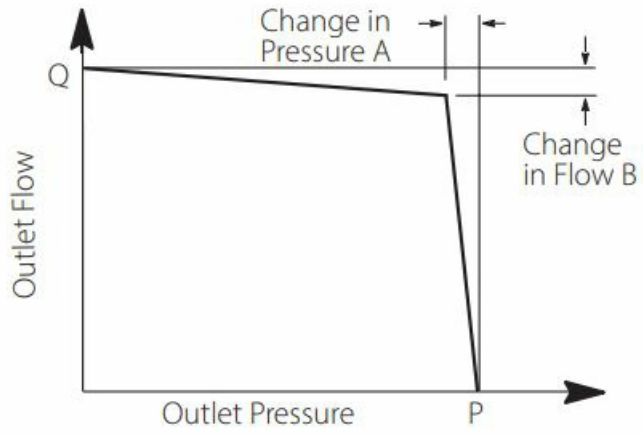
Industrial Pressure Cut-off Characteristics of Code A Pressure Compensator Control at 50°C (120°F), static conditions.



Pressure Cut-off Characteristics of Pressure Compensator Control @ 50°C (120°F), Static Conditions

Model Series	Max. Speed r/min	"Q" Outlet Flow l/min (USgpm)	"P" Outlet Pressure bar (psi)	A bar (psi)	B L/min (USgpm)
PVM045	1800	76 (20)	315 (4568)	10 (150)	4,5 (1.2)
PVM050	1800	87 (23)	230 (3300)	10 (150)	4,5 (1.2)

Mobil Pressure Cut-off Characteristics of Pressure Compensator Control at 93°C (200°F), static conditions.



Pressure Cut-off Characteristics of Pressure Compensator Control @ 93°C (200°F), Static Conditions

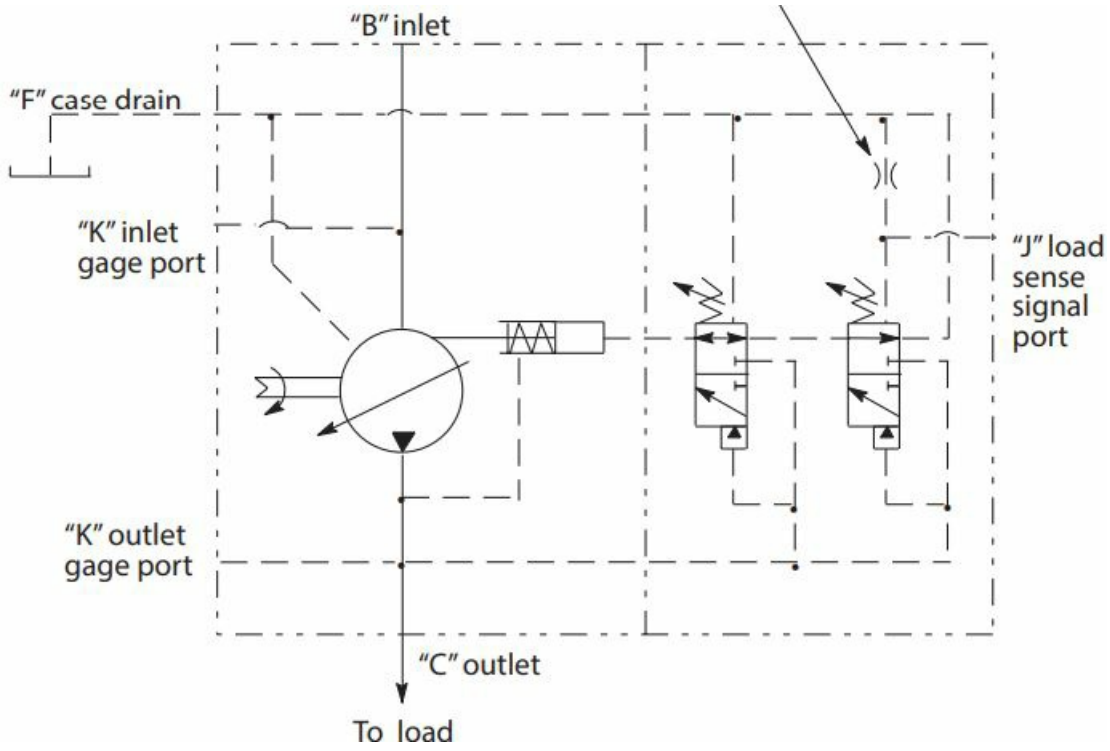
Model Series	Rated Speed r/min	"Q" Outlet Flow l/min (USgpm)	"P" Outlet Pressure bar (psi)	A bar (psi)	B L/min (USgpm)
PVM045	2600	115 (30)	315 (4568)	10 (150)	4,5 (1.2)
PVM050	2600	125 (33)	230 (3300)	10 (150)	4,5 (1.2)

Control Options

Load Sensing and Pressure Compensator Control – Code B or C

The pump will provide power matching of pump output to system load demand, maximizing efficiency and improving load metering characteristics of any directional control valve installed between the pump and the load. Load sensing ensures that the pump always provides only the amount of flow needed by the load. At the same time, the pump operating pressure adjusts to the actual load pressure plus a pressure differential required for the control action. When the system is not demanding power, the load sense control will operate in an energy-saving stand-by mode. Typically, the differential pressure is that between the pressure inlet and service port of a proportionally controlled directional valve, or a load sensing directional control valve. If the load pressure exceeds the system pressure setting, the pressure compensator de-strokes the pump. The load sensing line must be as short as possible and can also be used for remote control or unloading of the pump pressure. For remote control purposes, it is recommended that you contact your Danfoss representative for the correct configuration of the control.

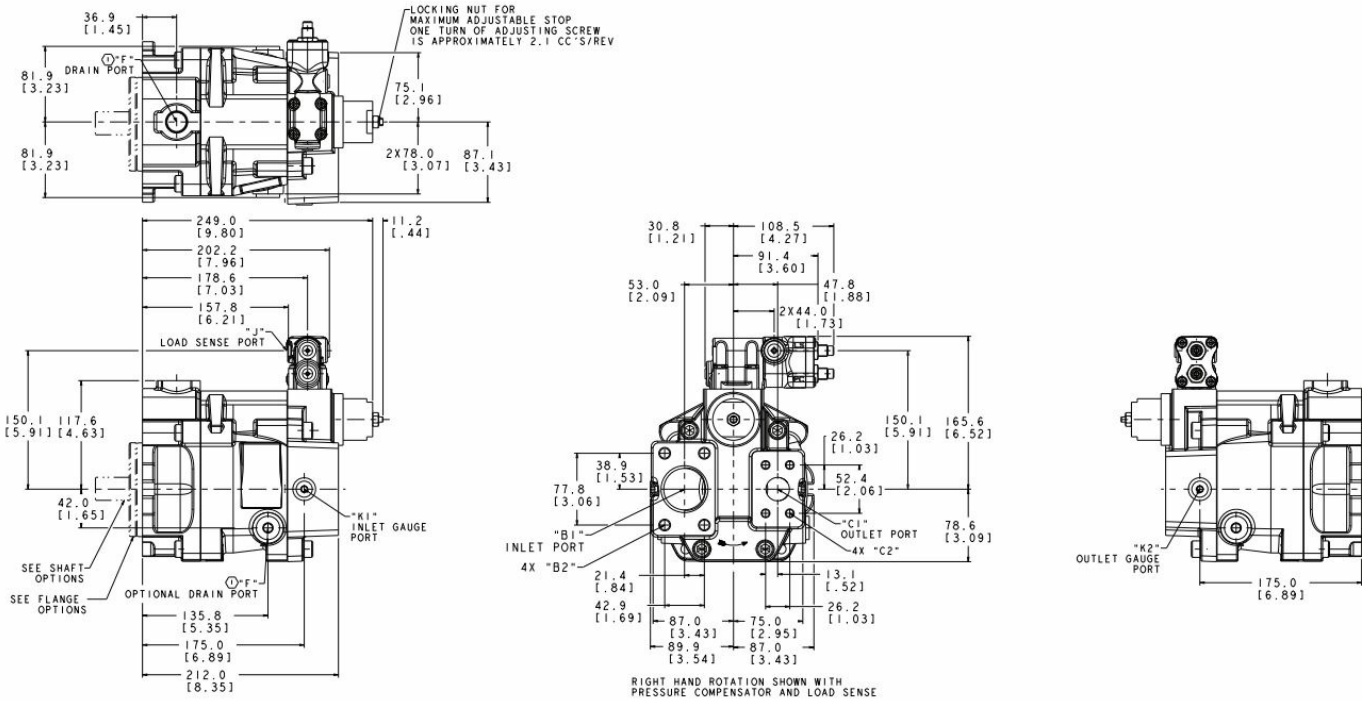
Warning: The pressure com- pensator may be adjusted beyond the rated pressure of the pump. When adjusting the pressure limiter, install a 0-350 bar (0-5000 psi) gage in the outlet gage port and limit the pressure setting to the continuous rated pressure for the pump displacement..



End-ported Models

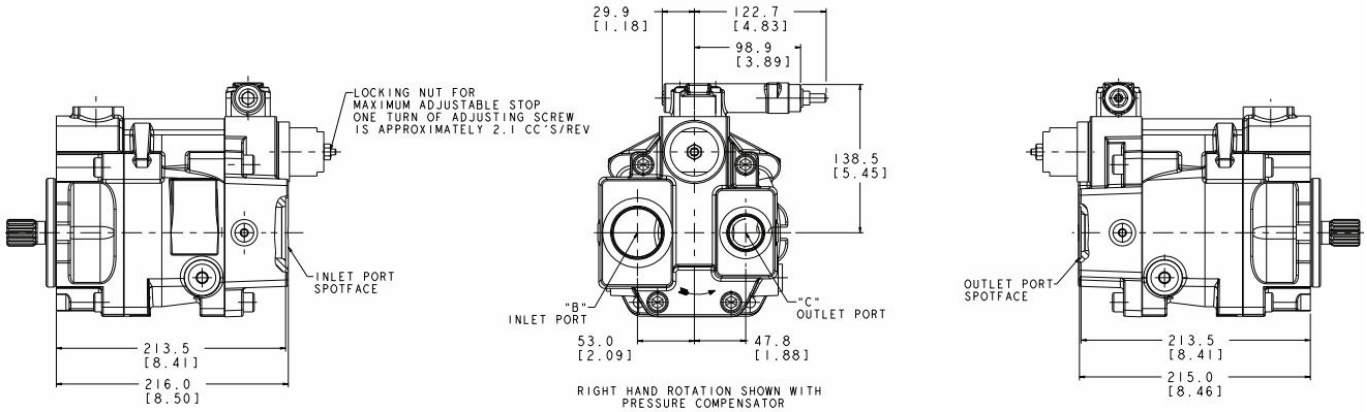
PVM045/050 Design Code B

Flange Ports



	PORT	"B1"	"B2"	"C1"	"C2"	"F"	"J"	"K1"	"K2"
FLANGE PORTS	SAE PORT	Ø2.0 INLET PORT "B" SAE J518C 4 BOLT FLANGE PORT STANDARD PRESSURE SERIES	.500-13 UNC-2B THREAD ↧1.06 MINIMUM	Ø1.0 OUTLET PORT "C" SAE J518C, 4 BOLT FLANGE PORT STANDARD PRESSURE SERIES	.375-16 UNC-2B THREAD ↧.87 MINIMUM	SAE J514 O-RING BOSS PORT "F" FOR .625 O.D. TUBE .875-14 UNF-2B THREAD	SAE J514 O-RING BOSS PORT "J" FOR .250 O.D. TUBE .4375-20 UNF-2B THREAD	SAE J514 O-RING BOSS PORT "K1" FOR .375 O.D. TUBE .5625-18 UNF-2B THREAD	SAE J514 O-RING BOSS PORT FOR .375 O.D. TUBE .5625-18 UNF-2B THREA

Tube Ports

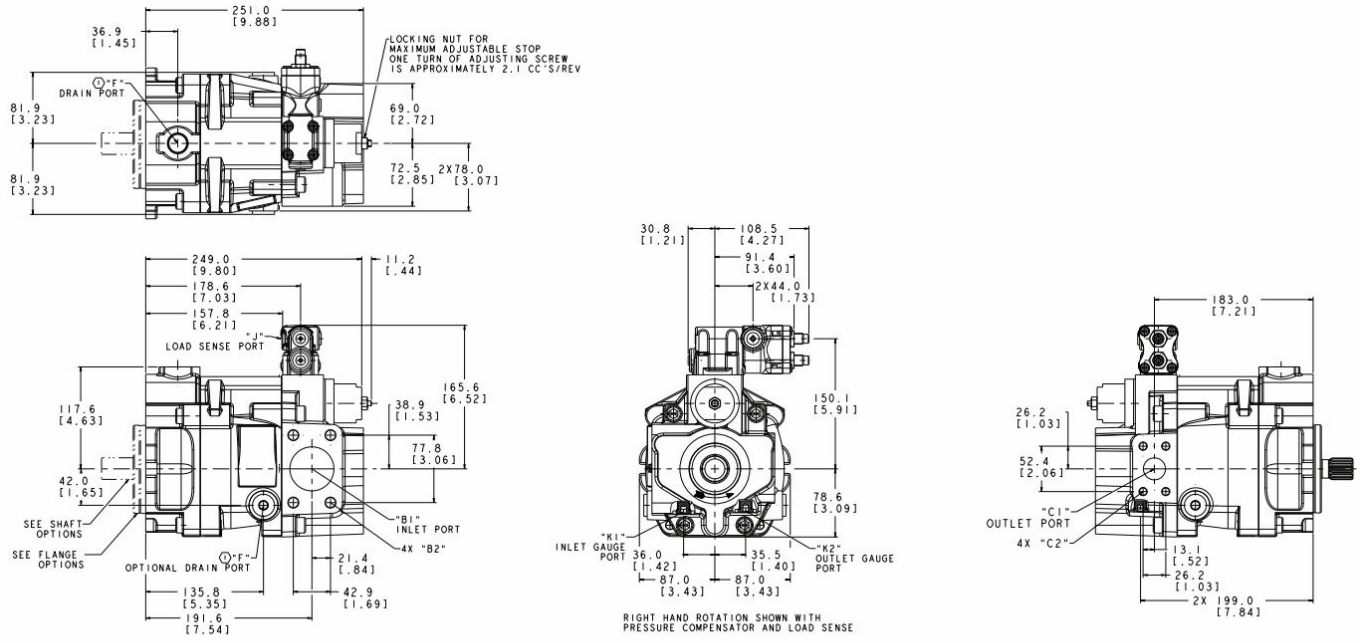


	PORT	"B"	"C"
TUBE PORT	SAE PORT	SAE J514 O-RING "B" FOR 1.50 O.D. TUBING 1.875-12 UN-2B THREAD	SAE J514 O-RING "C" FOR 1.0 O.D. TUBING 1.3125-12 UN-2B THREAD

Side-ported Models

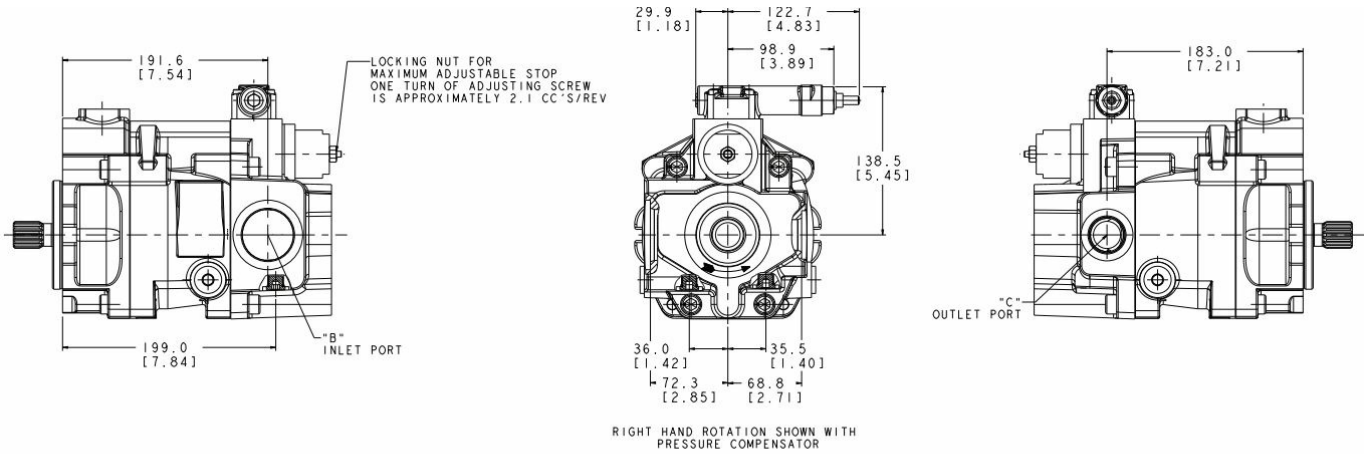
PVM045/050 Design Code B

Flange Ports



	PORT	"B1"	"B2"	"C1"	"C2"	"F"	"J"	"K1"	"K2"
FLANGE PORTS	SAE PORT	Ø2.0 INLET PORT "B" SAE J518C 4 BOLT FLANGE PORT STANDARD PRESSURE SERIES	.500-13 UNC-2B THREAD ↧1.06 MINIMUM	Ø1.0 OUTLET PORT "C" SAE J518C, 4 BOLT FLANGE PORT STANDARD PRESSURE SERIES	.375-16 UNC-2B THREAD ↧.87 MINIMUM	SAE J514 O-RING BOSS PORT "F" FOR .625 O.D. TUBE .875-14 UNF-2B THREAD	SAE J514 O-RING BOSS PORT "J" FOR .250 O.D. TUBE .4375-20 UNF-2B THREAD	SAE J514 O-RING BOSS PORT FOR .375 O.D. TUBE .5625-18 UNF-2B THREAD	SAE J514 O-RING BOSS PORT FOR .375 O.D. TUBE .5625-18 UNF-2B THREAD

Tube Ports



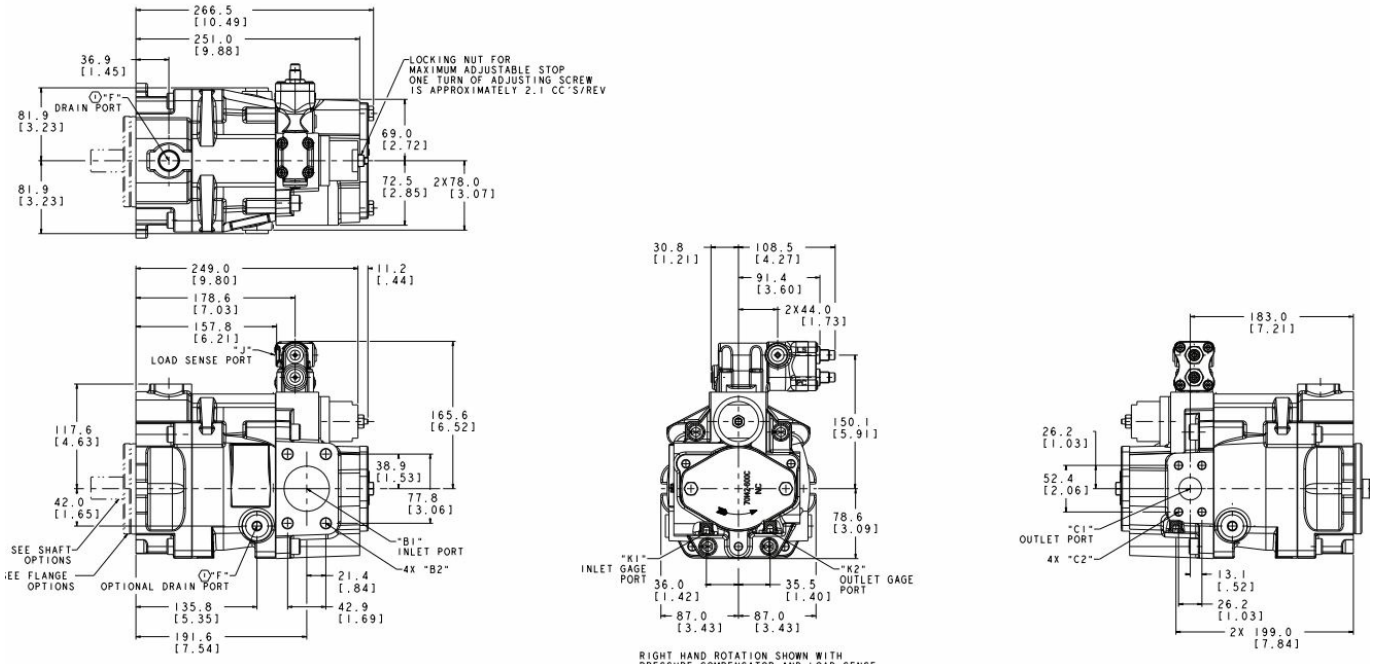
RIGHT HAND ROTATION SHOWN WITH
PRESSURE COMPENSATOR

	PORT	"B"	"C"
TUBE PORTS	SAE PORT	SAE J514 O-RING FOR 1.50 O-RING TUBING 1.875-12 UNF-2B THREAD	SAE J514 O-RING FOR 1.0 O.D. TUBING 1.3125-12 UNF-2B THREAD

Thru-drive Models

PVM045/050 Design Code B

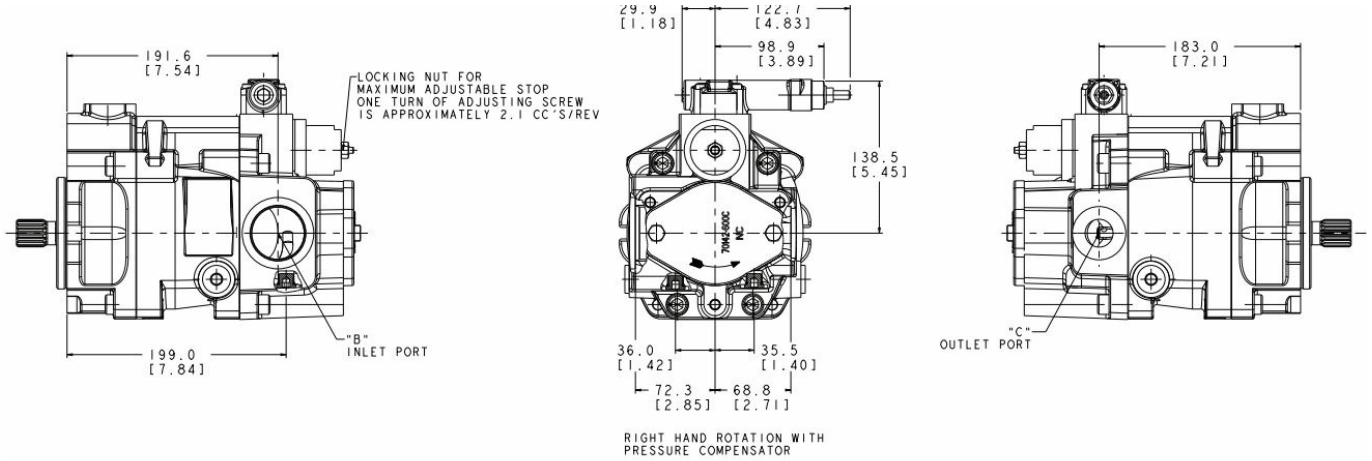
Flange Ports



RIGHT HAND ROTATION SHOWN WITH
PRESSURE COMPENSATOR AND LOAD SENSE

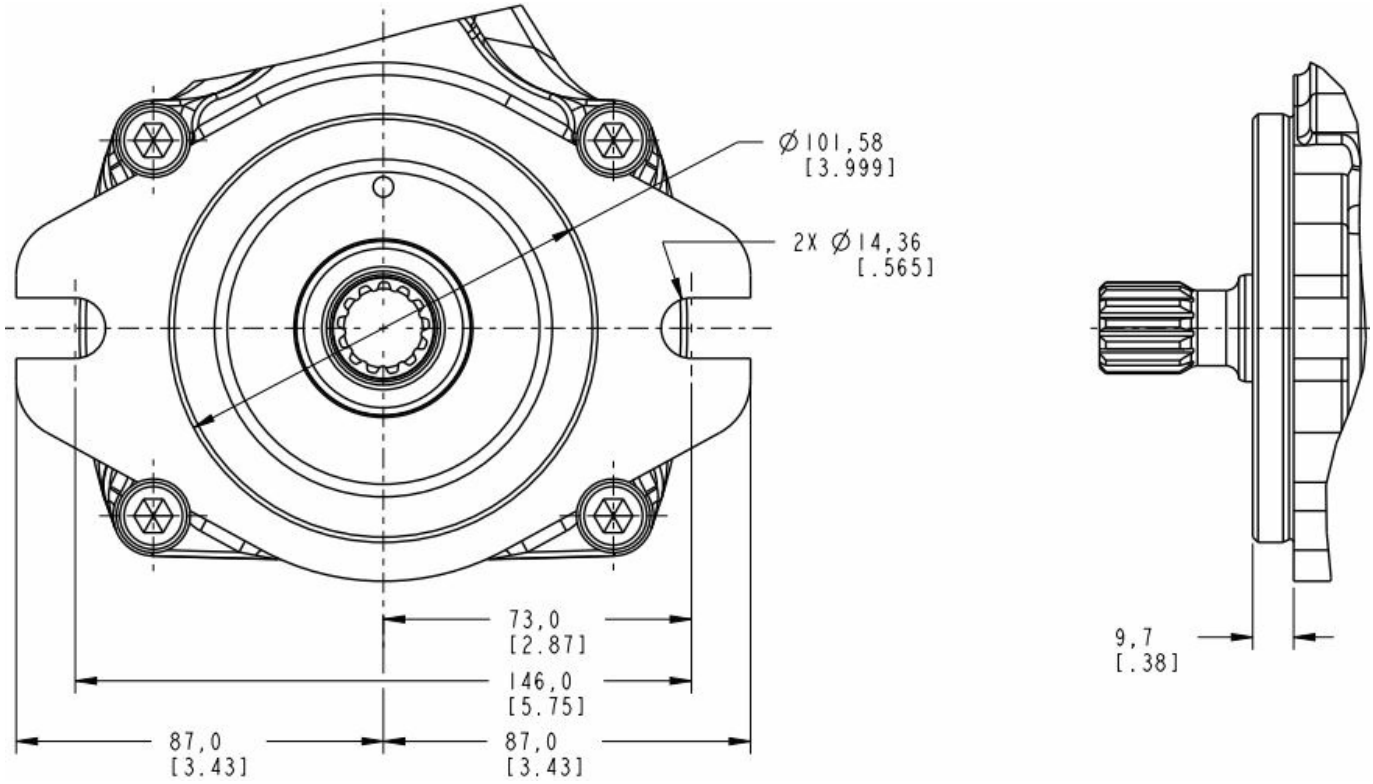
	PORT	"B1"	"B2"	"C1"	"C2"	"F"	"J"	"K1"	"K2"
FLANGE PORTS	SAE PORT	Ø2.0 INLET PORT "B" SAE J518C 4 BOLT FLANGE PORT STANDARD PRESSURE SERIES	.500-13 UNC-2B THREAD ↧1.06 MINIMUM	Ø1.0 OUTLET PORT "C" SAE J518C, 4 BOLT FLANGE PORT STANDARD PRESSURE SERIES	.375-16 UNC-2B THREAD ↧.87 MINIMUM	SAE J514 O-RING BOSS PORT "F" FOR .625 O.D. TUBE .875-14 UNF-2B THREAD	SAE J514 O-RING BOSS PORT "J" FOR .250 O.D. TUBE .4375-20 UNF-2B THREAD	SAE J514 O-RING BOSS PORT FOR .375 O.D. TUBE .5625-18 UNF-2B THREAD	SAE J514 O-RING BOSS P FOR .375 O.D. TUBE .5625-18 UNF-2B THRE

Tube Ports



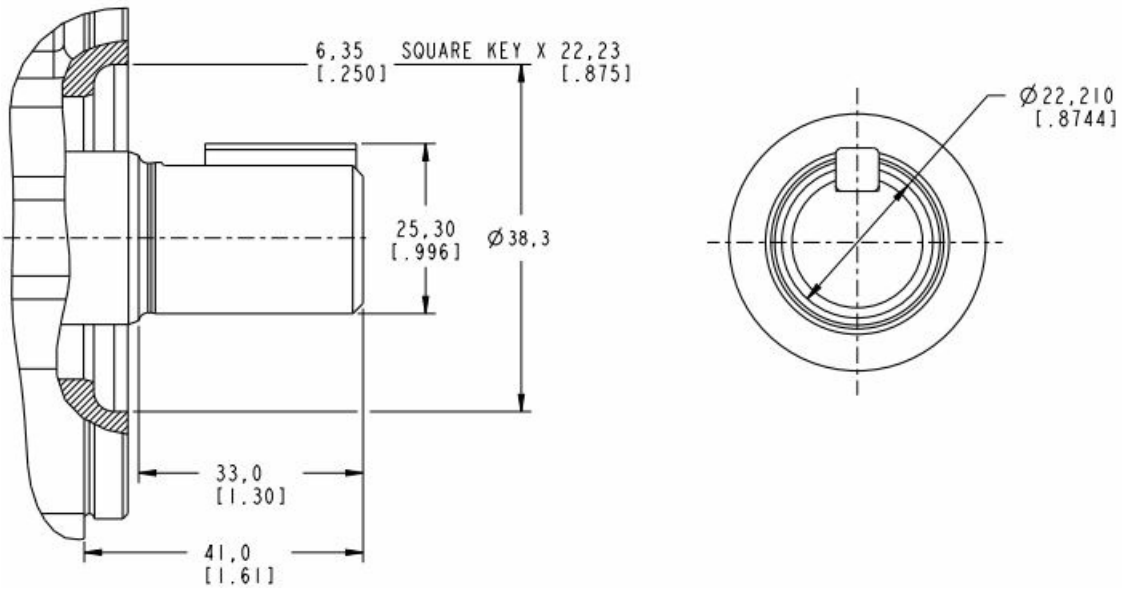
	PORT	"B"	"C"
TUBE PORTS	SAE PORT	SAE J514 O-RING FOR 1.50 O-RING TUBING 1.875-12 UNF-2B THREAD	SAE J514 O-RING FOR 1.0 O.D. TUBING 1.3125-12 UNF-2B THREAD

Mounting Flange Options

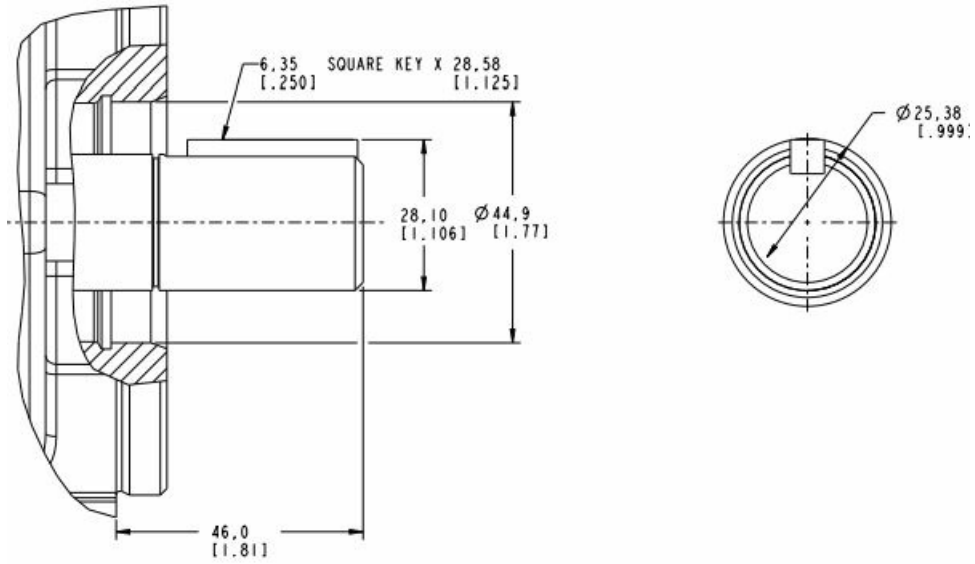


Shaft Options

05 – SAE J744-22-1 SAE B STRAIGHT KEYED

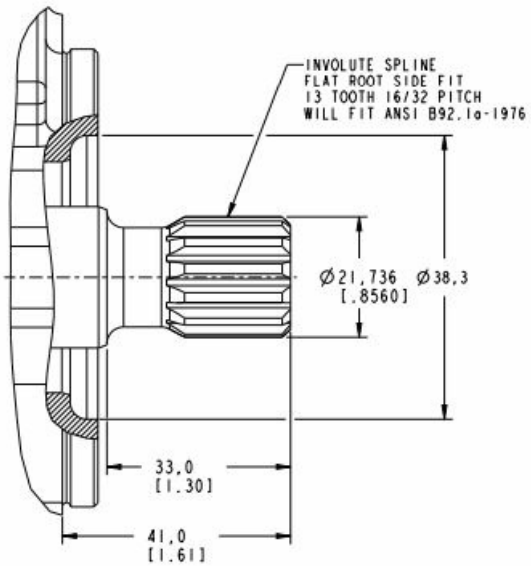


06 – SAE J744-25-1 SAE B-B STRAIGHT KEYED

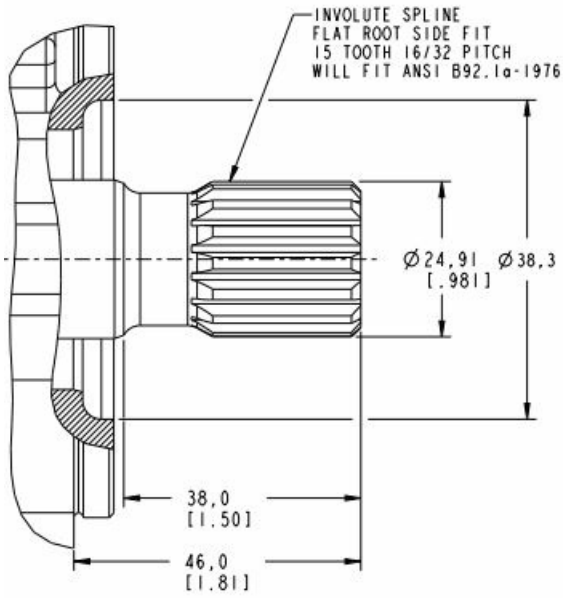


Shaft Options

SAE J744-22-4 SAE B 13T SPLINE



08 – SAE J744-25-4 SAE B-B 15T SPLINE



Input Shaft Selection Data

SAE Splined Shafts

SAE Splined Shafts

Model Series	Shaft Designation	Shaft Code	Max. Input Torque† Nm (lb. in.)	Max. Thru-drive Output Torque‡ Nm (lb. in.)
PVM045/050	SAE J744-22-4 (SAE “B,” 13T)	07	208 (1850)	208 (1850)*
	SAE J744-25-4 (SAE “B-B,” 15T)	08	337 (2987)	337 (2987)

SAE Keyed Shafts

Model Series	Shaft Designation	Shaft Code	Max. Input Torque† Nm (lb. in.)	Max. Thru-drive Output Torque‡ Nm (lb. in.)
PVM045/050	SAE J744-22-1 (SAE “B”)	05	135 (1200)	135 (1200)*
	SAE J744-25-1 (SAE “B-B”)	06	215 (1900)	215 (1900)*

Operating

Requirements

Inlet Pressure, Case Pressure, and Operating Temperature Requirements

Rated Absolute	**Minimum bar, absolute**	**Maximum Gauge**	**Maximum Continuous**	**Maximum Intermittent**	**Peak**	**Rated**	**Maximum Intermittent**
bar (psi)	**(in. Hg)**	**bar (psi)**	**bar (psi)**	**bar (psi)**	**bar (psi)**	**°C (°F)**	**°C (°F)**
1,0 (14.5) 0,85 (5)	3,5 (50)	0,5 (7)	2 (30)	3,5 (50)	82 (180)	104 (220)	
Hydraulic Fluids							

Recommended Operating	**Maximum Viscosity**	**Minimum Viscosity @ Max. Intermittent Temperature of**
Viscosity Range	**at Startup**	**104°C (220°F)**
Fluid **cSt (SUS)**	**cSt (SUS)**	**cSt (SUS)**
Use antiwear hydraulic oil, or automotive type crankcase oil (designations SC, SD, SE, 16 to 40 (83 to 187)	1000 (4550)	10 (90)

Specifications and Performance

Quiet version, optimized for 1000-1800 rpm (E) and Higher speed version (M)
Alternate fluids guide

		Petroleum Base	**Petroleum Base**	**Motor Oil**	**Universal**	**Automatic**	**Mil Spec Fluids**	**Environmentally Acceptable Fluids**		**Fire Resistant Fluids**		**Specialty Fluids**	**Food Grade Fluid**
	Fluid Type / Model Series	ZDDP	Zinc Free		Tractor	Transmission Fluid		Vegetable Base	Synthetic Base	Synthetic Base	Water Containing		
												Cutting	H1 – a

		AW (HM)	AW (HM)		UTTO	ATF		HETG	HEES	Phosphate ester HFDR	Polyester – HFDU	Polyether polyol – HFDU	Water Glycol – HFC	Invert Emulsion – HFB	Fluids	pproved
1	**Model series Quiet version " E" @ 1800 RPM Unless Noted**															
	PVM 45	4060 PSI	NR	3625 PSI **	3625 PSI **	3625 PSI **	NR	3625 PSI **	3625 PSI 1800 RPM	3300 PSI **	3300 PSI **	NR	2500 PSI **	2250 PSI **	NR	3625 PSI **
	PVM 50	3335 PSI	NR	3250 PSI **	3250 PSI **	3250 PSI **	NR	3250 PSI **	3250 PSI 1800 RPM	3000 PSI **	3000 PSI **	NR	2250 PSI **	2000 PSI **	NR	3250 PSI **
2	**Model Series Higher Speed Version (M)**															
	PVM 45	4060 PSI 2600 RPM	NR	3625 PSI ** 2600 RPM	3625 PSI ** 2600 RPM	3625 PSI ** 2600 RPM	NR	3625 PSI ** 2600 RPM	3625 PSI 1800 RPM	3300 PSI ** 1800 RPM	3300 PSI ** 1800 RPM	NR	2500 PSI ** 1800 RPM	2250 PSI ** 1800 RPM	NR	NR
	PVM 50	3335 PSI 2600 RPM	NR	3250 PSI ** 2600 RPM	3250 PSI ** 2600 RPM	3250 PSI ** 2600 RPM	NR	3250 PSI ** 2600 RPM	3250 PSI 1800 RPM	3000 PSI ** 1800 RPM	3000 PSI ** 1800 RPM	NR	2250 PSI ** 1800 RPM	2000 PSI ** 1800 RPM	NR	NR

Installation and Start-up

Warning: Care should be taken that mechanical and hydraulic resonances are avoided in the application of the pump. Such resonances can seriously compromise the life and/or safe operation of the pump.

Drive Data
Mounting attitude can be either horizontal or vertical, using the appropriate case drain ports to ensure that the case remains full of fluid at all times. Consult your local Danfoss Representative if a different arrangement is required.

In those cases where geometric tolerances of mounting are critical, or where specific tolerance ranges are required and not specified, consult Danfoss Engineering for specific limits. Direction of shaft rotation, viewed from the prime mover end, must be as indicated in the model designation on the pump – either right hand (clockwise) or left hand (counterclockwise). Direct coaxial drive through a flexible coupling is recommended. If drives imposing radial shaft loads are considered, please consult your Danfoss Representative.

Start-up Procedure
Make sure the reservoir and circuit are clean and free of dirt/debris prior to filling with hydraulic fluid. Fill the reservoir with filtered oil and fill to a level sufficient enough to prevent vortexing at the suction connection to pump inlet. It is good practice to clean the system by flushing and filtering, using an external slave pump.

Caution: Before the pump is started, fill the case through the uppermost drain port with hydraulic fluid of the type to be used. The case drain line must be connected directly to the reservoir and must terminate below the oil level.

Once the pump is started,
it should prime within a few seconds. If the pump does not prime, check to make sure that there are no restrictions between the reservoir and the inlet to the pump, that the pump is being rotated in the proper direction, and that there are no air leaks in the inlet line and connections. Also check to make sure that trapped air can escape at the pump outlet. After the pump is primed, tighten the loose outlet con-nections, then operate for five to ten minutes (unloaded) to remove all trapped air from the circuit. If the reservoir has a sight gage, make sure the fluid is clear – not milky.

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Documents / Resources

	Danfoss BC448302546603en PVM Variable Displacement Piston Pump [pdf] User Guide BC448302546603en PVM Variable Displacement Piston Pump, BC448302546603en, PVM Variable Displacement Piston Pump, Displacement Piston Pump, Piston Pump

References

- User Manual