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PISTON PRODUCT INFORMATION

Page 1 of 2

PI - 1243

25 October 2005

PV Series "E-Mod" Pump Release

We are pleased to announce the release of the PV Series "E-mod" pumps as part of our long-term piston product strategy. This change to the "E-mod" configuration will affect the PV 6, 10, 15, & 20 frame sizes. The PV/PVT 29, 38, 47, & 64 sizes are not affected and will remain at their existing modification levels. There is no change in the inter-company transfer price between the "D-mod" and "E-mod" pumps and the current prices will remain in effect until 1 July 2006.

All orders received in Marysville for PV6, PV10, PV15, and PV20 pumps on **1 November 2006** or later will be shipped as "E-mod" pumps. All orders received prior to this date will be shipped as "D-mod" pumps. We will maintain an adequate inventory of service parts to support the field population of "E-mod" pumps and additional service parts will be made available as required. Sales Literature has been modified to reflect the "E-mod" configuration and is posted on the denisonhydraulics.com web site. The Service Literature will also be posted to the web site as soon as it is available.

To make this transition as easy as possible, the model number description of the new PV Series "E-mod" pumps remains the same as the "D-mod" pumps, except for the Design Letter. For example, the old "D-mod" model number was PV6 2R1D C00 and the corresponding new "E-mod" model number is PV6 2R1E C00. You can continue to order pumps using your current model code descriptions and our Customer Service Representatives will update your orders to the correct Design Letter based upon the date that the orders are received. We will send an acknowledgement of your order indicating any changes that are made. We have assigned new 9-digit code numbers for the "E-mod" pumps to insure a smooth transition and to differentiate between the "D-mod" and "E-mod" pumps.

The configuration of the PV Series "E-mod" pumps will be the same as the Parker PVP pumps. The PV6 will be configured as a PVP16, the PV10 as a PVP23, the PV15 as a PVP33, and the PV20 as a PVP41. The PVP pumps have been in production for more than 20 years and have a proven track record as a highly reliable product. The speed and pressure ratings are almost identical to the PV Series pumps and they are capable of running on a variety of fluids with little or no modification. Consult, the Marysville Piston Product Management Group for fluid capability information.

Parker Hannifin Corporation - Hydraulic Pump Division - HPD
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Page 2 of 2**PI - 1243**

The PV6, PV10, and PV15 "E-mod" pump mounting flanges and shafts identical to the "D-mod" pumps. The PV20 "E-mod" pump however, has a SAE B mounting flange and shaft. The corresponding PV20 "D-mod" pump had a SAE C mounting flange and shaft. The thru-drive version of the "E-mod" PV20 pump has a SAE B-B input shaft to maximize the input torque capacity. The maximum input torque for the PVT20 "E-mod" pump with the SAE B-B shaft is limited to 2990 lb-in or 336 N-m. The maximum input torque for the PVT20 "D-mod" pump with the SAE C key shaft was limited to 4880 lb-in or 551 N-m. All applications of the new thru-drive PV20 "E-mod" pumps should be checked to determine if the new SAE B-B input shaft torque capacity is adequate for the application.

The PV6, PV10, and PV15 "E-mod" pump inlet and outlet ports are in slightly different locations but the sizes are the same as the "D-mod" pump ports. The case drain ports of the "E-mod" pumps are also in slightly different locations and are one size smaller than the corresponding "D-mod" pumps. The PV20 "E-mod" pump inlet port is one size larger and the outlet port is one size smaller than the corresponding PV20 "D-mod" pump ports. Please refer to the PV Series "E-mod" catalog on the web site for the dimensions of these ports.

The standard PV Series "E-mod" pumps are capable of operating with water glycol fluids. Please check the fluid compatibility information on the web site to determine if the "E-mod" pump ratings are adequate for the customer applications. We have also decided to discontinue the option of EPR seals for Skydrol fluid applications with the "E-mod" pumps.

The painting of the "E-mod" pumps will be handled different from the "D-mod" pumps. The standard "E-mod" pumps will not be painted. They will be treated with a preservative clear coating for shipment and storage. Black paint is an option for the "E-mod" pumps that can be specified in the model code when required. The previous standard "D-mod" pumps were painted blue.

The release of the PV Series "E-mod" pumps will help us better utilize our resources and become more competitive in the market place. We look forward to seeing increased sales.

Thanks to everyone for their cooperation and support.

Harold Williamson
Piston Product Development Manager

PV6

Catalog HY13-1552-002/US
Dimensional Data

Variable Volume Piston Pumps
Series PVP16

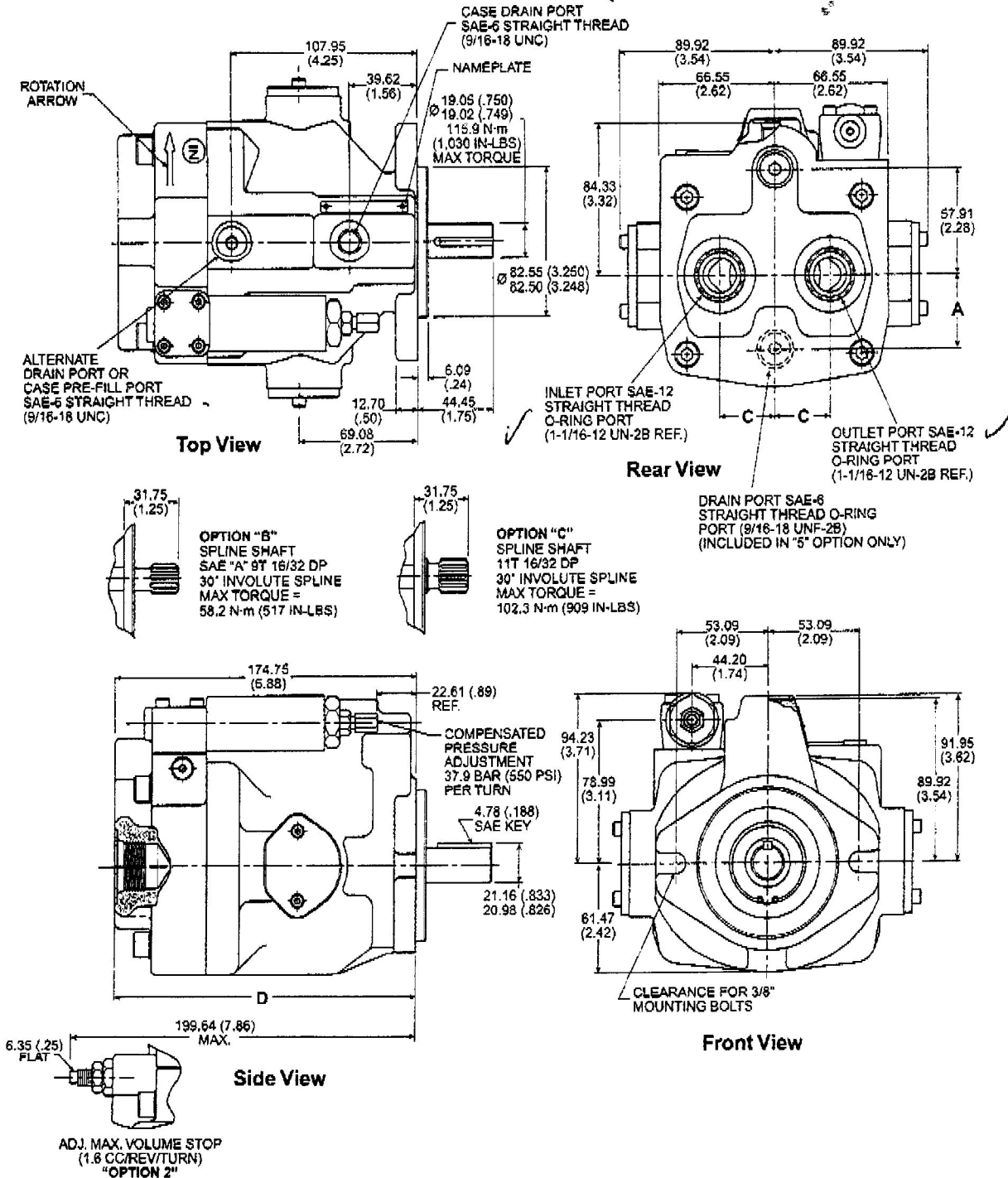
Rear Ported Pump Dimensions

* Inch equivalents for millimeter dimensions are shown in (**).

NOTE:

Illustration shows Righthand (CW) rotation pump. Lefthand (CCW) pumps will have inlet and outlet ports reversed with compensator on outlet side.

Pilot Dimensions			
Pilot Option	A	C	D
OMIT	N/A	32.00 (1.26)	173.23 (6.82)
5	38.10 (1.50)	28.44 (1.12)	144.53 (5.70)



hpm102-1.p65, lw, jt



Catalog HY12-1552-002/US
Dimensional Data

**Variable Volume Piston Pumps
 Series PVP16**

PV6

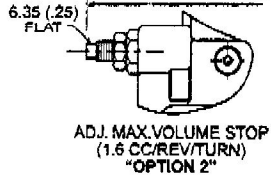
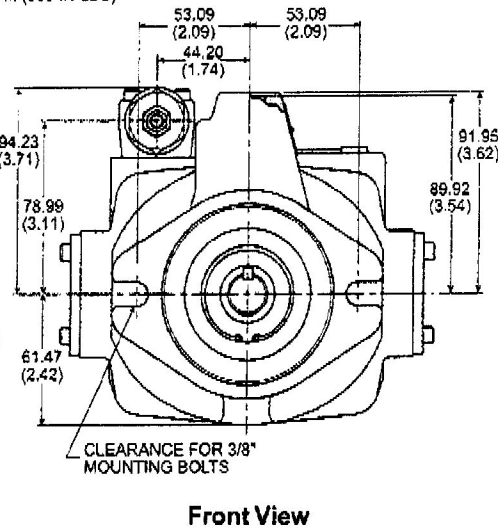
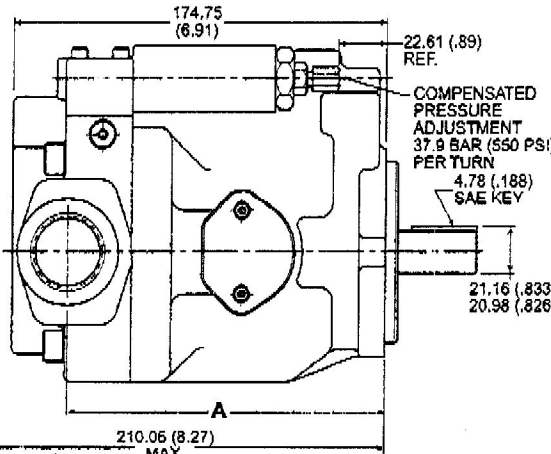
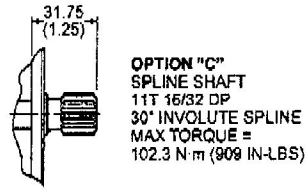
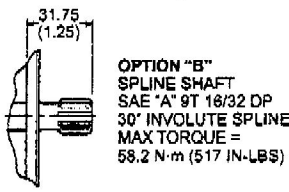
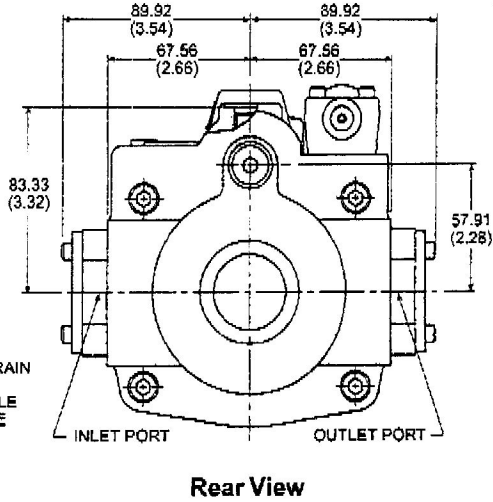
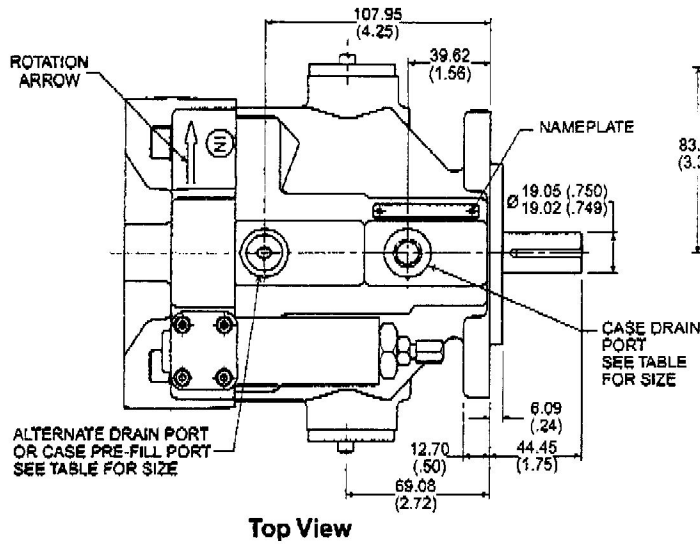
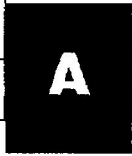
**Side Ported – Options 2 & 4
 Dimensions**

* Inch equivalents for millimeter dimensions are shown in (**).

NOTE:

Illustration shows Righthand (CW) rotation pump. Lefthand (CCW) pumps will have inlet and outlet ports reversed with compensator on outlet side.

Port Size Type and Location			
Option	A	Inlet and Outlet Ports	Drain Port
2	148.84 (5.86)	3/4" SAE 4-Bolt Flange 3/8-16 Thread Std PSI Series (Code 61)	SAE-6 Straight Thread (9/16-18UNC)
4	152.40 (6.00)	SAE-16 Straight Thread (1-5/16-12UN-2B)	SAE-6 Straight Thread (9/16-18UNC)



hpm102-1 p65, iw, jk



Catalog HY13-1552-002/US
Dimensional Data

**Variable Volume Piston Pumps
 Series PVP16**

PV6

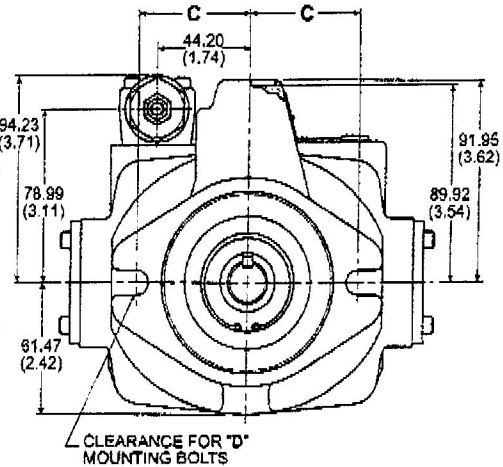
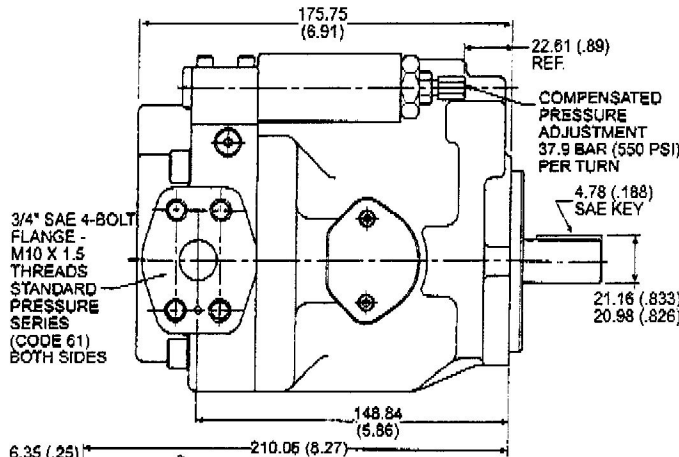
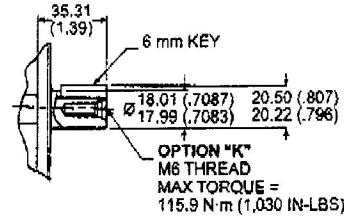
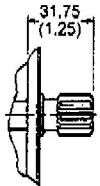
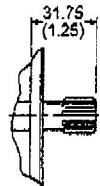
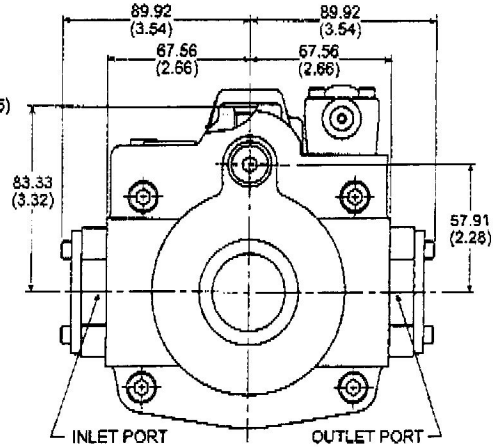
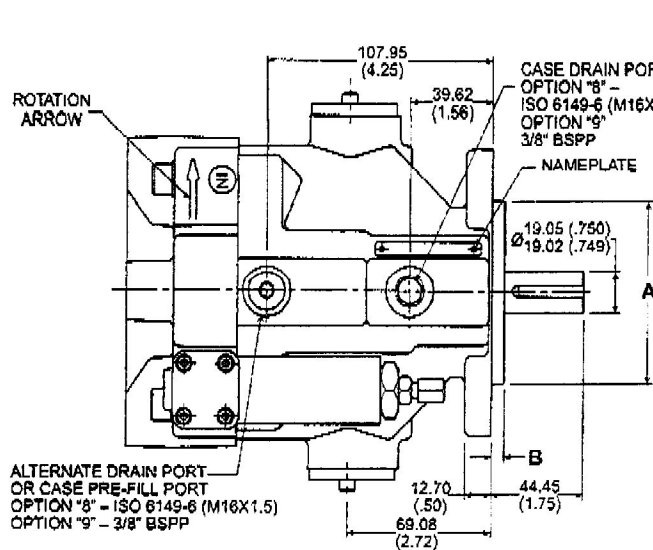
Side Ported – Options 8 & 9 Dimensions

* inch equivalents for millimeter dimensions are shown in (**).

NOTE:

Illustration shows Righthand (CW) rotation pump. Lefthand (CCW) pumps will have inlet and outlet ports reversed with compensator on outlet side.

Pilot Dimensions				
Shaft Option	A	B	C	D
Omit B, C	82.55/82.50 ∅ (3.250/3.248)	6.10 (.24)	53.09 (2.09)	∅ 3/8"
K	80.00/79.95 ∅ (3.149/3.147)	7.24 (.285)	55.83 (2.19)	∅ 10mm



hpm102-1.p65, lw, jk



PV10 PV15

Catalog HY13-1552-002/US
Dimensional Data

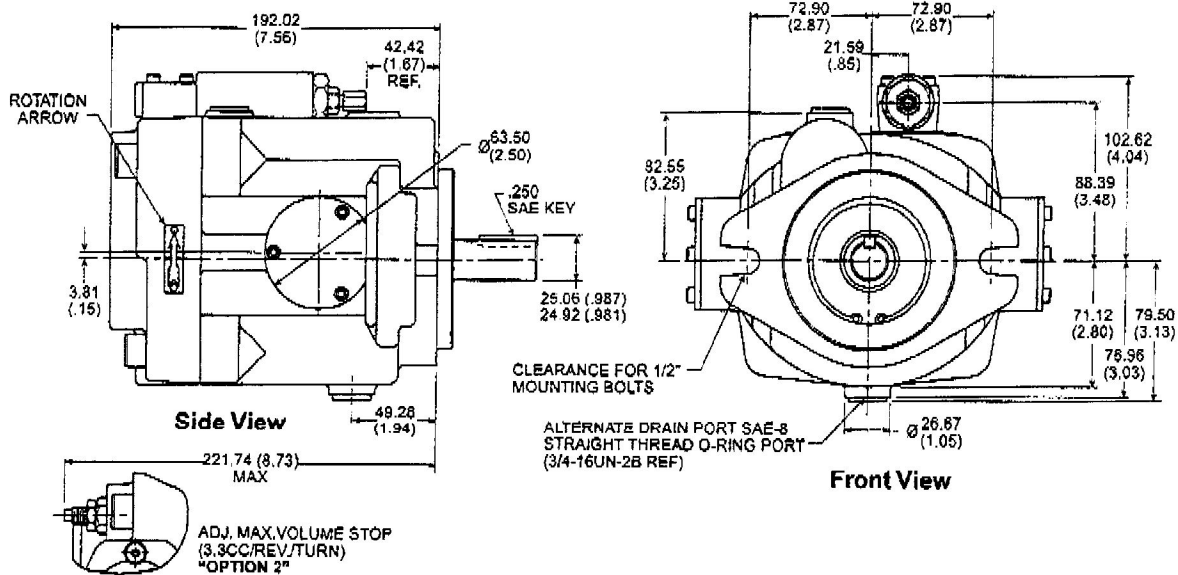
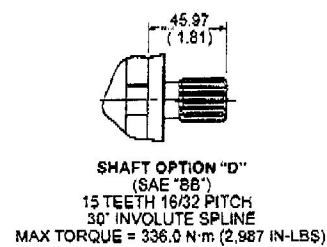
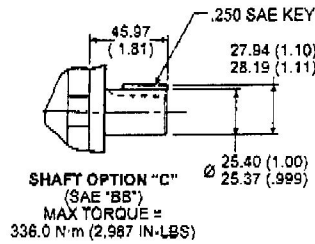
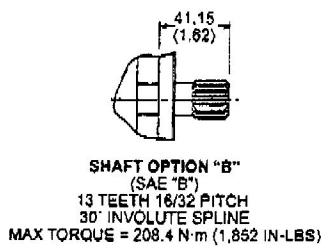
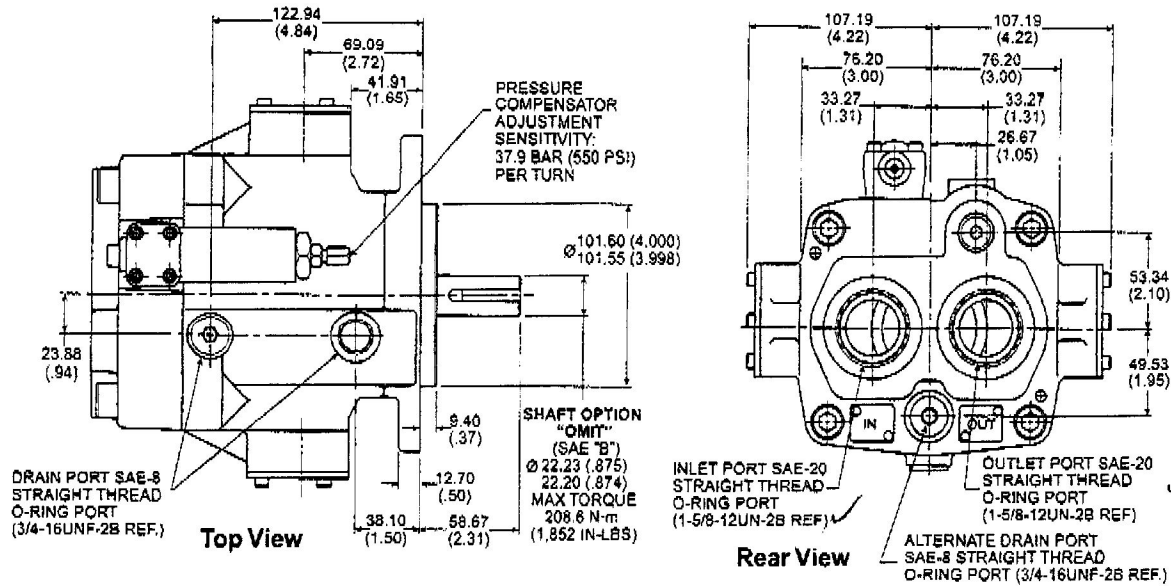
Variable Volume Piston Pumps
Series PVP 23/33

Rear Ported Pump Dimensions

* Inch equivalents for millimeter dimensions are shown in (**).

NOTES:

1. Righthand (CW) rotation pump shown. Lefthand (CCW) pumps have inlet and outlet ports reversed.
2. Pump shown with standard pressure compensator (control option "omit").



hpm102-1.p65, iw, jk



PV10 PV15

Catalog HY13-1552-002/US
Dimensional Data

**Variable Volume Piston Pumps
 Series PVP 23/33**

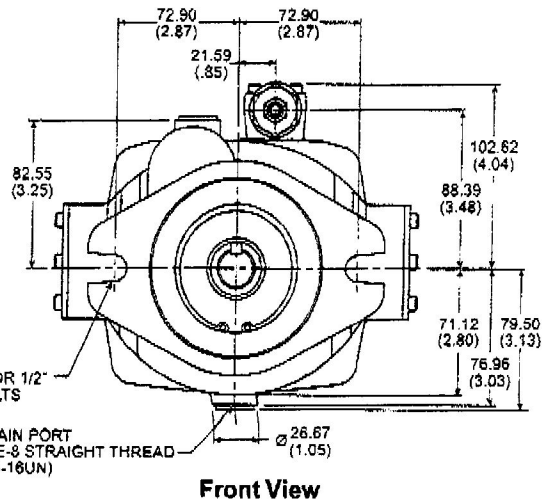
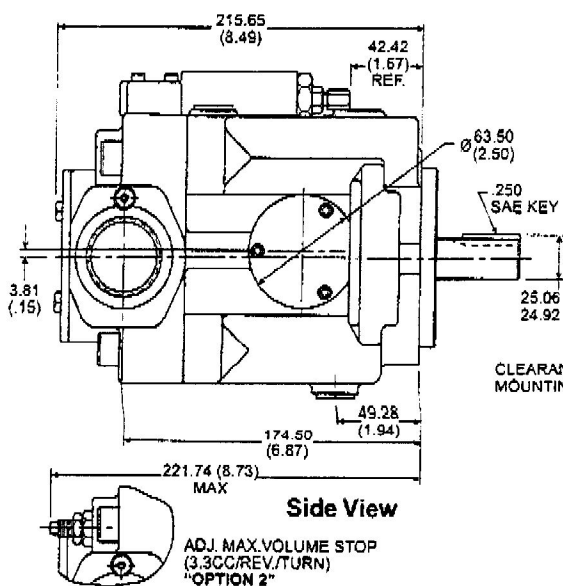
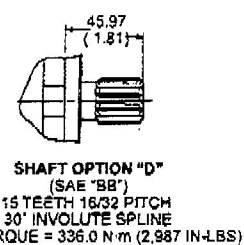
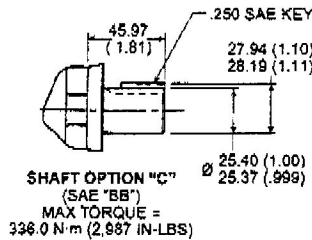
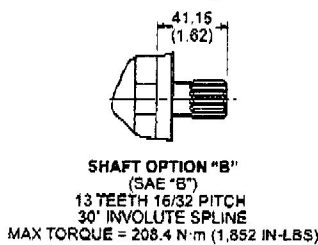
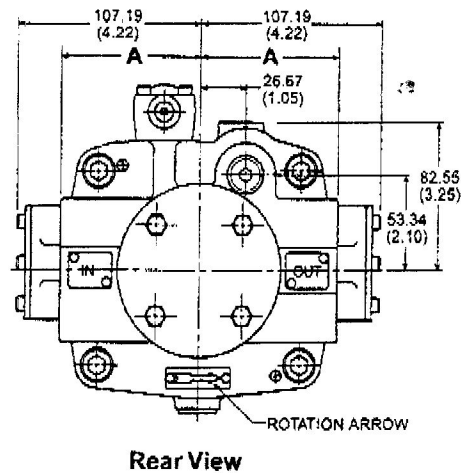
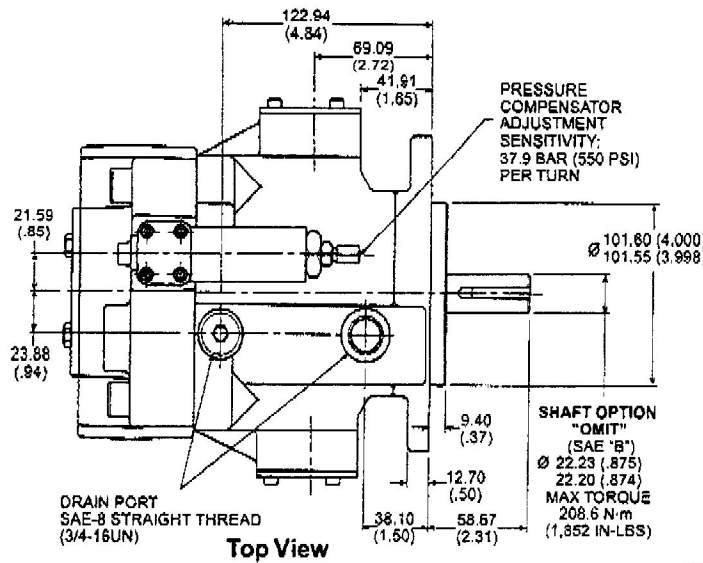
Side Ported – Options 2 & 3 Dimensions

* inch equivalents for millimeter dimensions are shown in (**).

NOTES:

1. Righthand (CW) rotation pump shown. Lefthand (CCW) pumps have inlet and outlet ports reversed.
2. Pump shown with standard pressure compensator (control option "omit").

Port Location		
Option	A	Inlet and Outlet Port
2	148.84 (3.10)	1-1/4" SAE 4-Bolt Flange 7/16-14 Threads Standard Pressure Series (Code 61)
3	152.40 (3.22)	SAE-20 Straight Thread (1-5/8-12UN-2B)



hpm102-1 p65, wv, k



A117

Parker Hannifin Corporation
 Hydraulic Pump/Motor Division
 Greenville, Tennessee USA

PV10

PV15

Catalog HY13-1552-002/US
Dimensional Data

**Variable Volume Piston Pumps
 Series PVP 23/33**

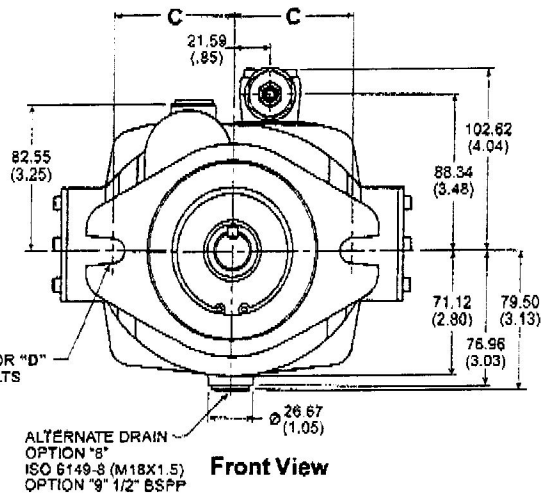
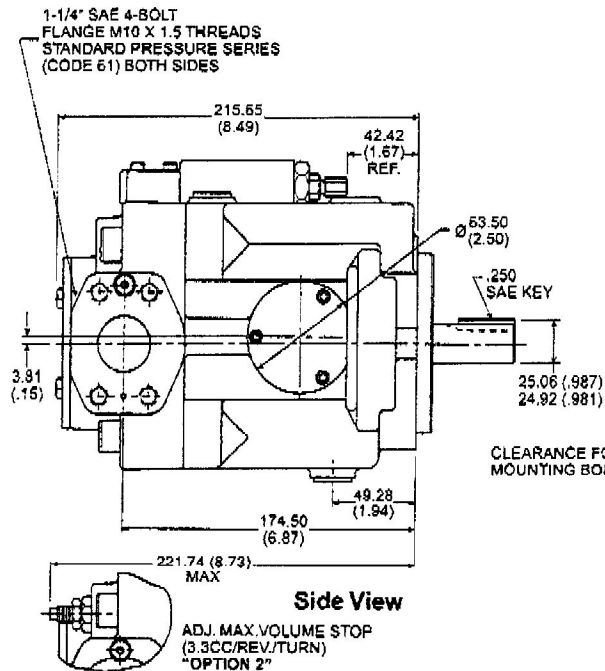
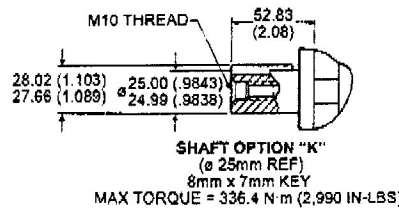
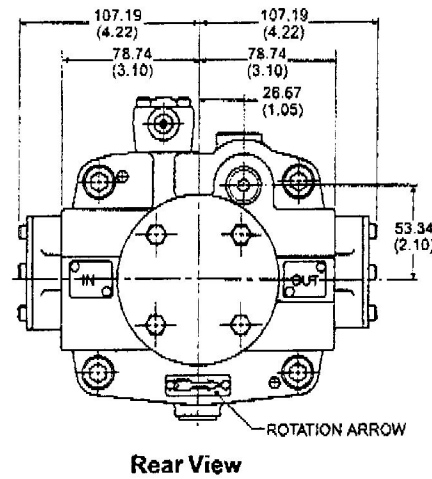
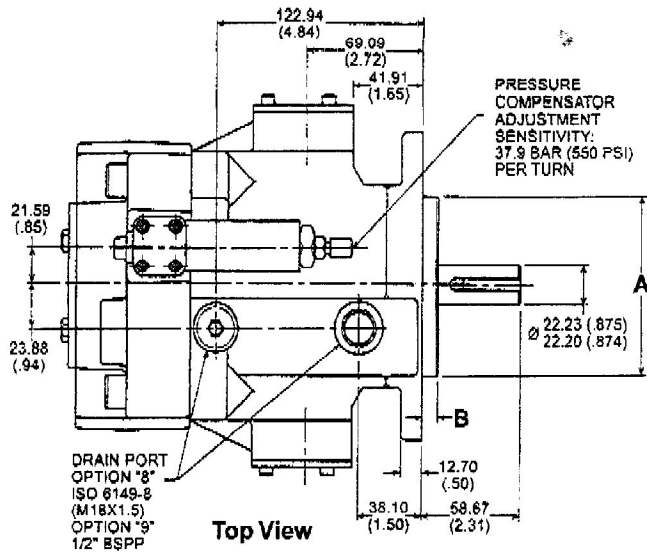
Side Ported – Options 8 & 9 Dimensions

* Inch equivalents for millimeter dimensions are shown in (**).

NOTES:

1. Righthand (CW) rotation pump shown. Lefthand (CCW) rotation pump will have inlet and outlet ports reversed.
2. Pump shown with standard pressure compensator (control option "omit").

Shaft Option	Pilot Dimensions			
	A	B	C	D
Omit B, C, D	101.60/101.55 (4.000/3.998)	9.40 (.37)	72.90 (2.87)	ø 12.70 (.50)
K	100.00/99.95 (3.937/3.935)	9.14 (.36)	69.85 (2.75)	ø 12mm



hpm102-1.p65, iw, jk

