

# EVO Vane Products

Industrial and Mobile Applications



# PERMCO

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NFPA  
Solutions through  
motion technology



## **EVO Vane Products Built to handle the toughest jobs!**

Permco is proud to introduce a new line of vane products; you will find our EVO vane line to be both versatile and ruggedly built for the toughest of applications. The EVO line comes in (3) series, PT6, PT7 and PT67 with design features including single, tandem, triple and quad units, through drives, add-a-pump covers, motors and extremely quiet models. We know you have choices when specifying hydraulic vane products, Permco's dedication to providing the highest quality product available and consistent customer service should make the EVO line the Sensible Choice for your hydraulic vane system applications.

Permco's line of vane pumps and motors are well suited for both industrial and mobile applications. A wide variety of standard options are available to meet application specifications worldwide.

- Units come standard with impregnated rust resistant coated housings and exterior components; no need for paint.
- Cartridge kits come standard in bi-rotation configurations for both industrial and mobile types, simplifying field adjustment.
- Shafts are constructed with higher tensile strength steel alloy providing longevity and reliable trouble free operation.
- Components are compatible and interchangeable with most major manufacturers for this product type.
- Housing, port end covers and shaft end covers are constructed of a higher tensile strength cast iron offering rigidity and strength.
- Components sourced globally using the highest quality material available.



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Permco vane pumps and motors come standard with HNBR type seals; Hydrogenated Nitrile Butadiene Rubber (HNBR), also known as Highly Saturated Nitrile (HSN), is a special class of nitrile rubber (NBR also known as Buna N) that has been hydrogenated to increase saturation of the butadiene segment of the carbon polymer backbone. Subsequent improvements to the material properties over that of Buna N include greater thermal stability, broader chemical resistance, and greater tensile strength.

Most manufacturers offer Buna-N as their standard seal arrangement; by utilizing the HNBR seal type, Permco vane products provide greater temperature resistance and a wider range of fluid compatibility including petroleum based hydraulic oil, motor oil, transmission fluid, grease, water/glycol and invert emulsions, HFA, HFB and HFC fluids. HNBR seals also offer greater resistance to ozone, aging and weather. Temperature range limits are also increased with HNBR type seals (-25°F to 300°F).

As with most manufacturers, to accommodate for water glycol and invert emulsions fluids, seal arrangements would need to be specified as EPDM seal type; of course there is normally an extra charge for this. With Permco utilizing the HNBR seal type as our standard seal arrangement we can offer a higher quality seal along with a wider variety of fluid compatibility; all this at the same price that most manufacturers charge for Buna-N type seals.

Phosphate ester and similar type fluids still require Viton® type seals. Operating environments can also play a role in specifying the correct seal for your application; consult factory for assistance.

Permco offers engineering and product development capabilities to assist our customers in designing products around their requirements and applications. Modifications can be made to existing units to increase performance and we have the resources to design new units and features for OEM applications.

Permco's continuous efforts to offer the highest quality products in the marketplace to its customers are not limited to the contents of this catalog; product development is ongoing to produce a wider variety of products to accommodate customer requirements and expand offerings in the vane product line. If you have specific requirements for products not listed and/or have specific performance features not listed in this catalog, please contact Permco or your local Permco distributor for assistance.

Permco also manufactures a complete line of spur gear pumps and motors. Other catalogs contain this information.

North and South American, European, Africa, Australia and New Zealand customer seeking product information or location of a local Permco distributor should call our toll free number 1-800-626-2801; for Asia, Russia and Far East call our China Mainland operation at 022-25761959.



**Check us out on the web: [www.permco.com](http://www.permco.com)**

The items described in this catalog are offered by sale by Permco, its subsidiaries or its authorized distributors; possession of this document does not entitle holder to purchase direct from factory.

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## FEATURES: PT6/PT7 SERIES INDUSTRIAL AND MOBILE APPLICATION

### PT6 SERIES

#### VERSATILE APPLICATIONS

Permco Vane Pumps are used throughout the industry in many mobile and industrial applications, and are suitable for use with mineral oils as well as fire resistant fluids.

#### CARE IN APPLICATIONS

1. Check speed range, pressure, temperature, pump rotation, fluid quality and viscosity.
2. Check pump inlet conditions according to application requirements.
3. Shaft type should support operating torque.
4. Choose the correct coupling to minimize pump shaft load (weight, and misalignment).
5. Proper filtration must be adequate for the lowest contamination level.
6. Environment of pump (noise reflection, shock, and pollution).

#### LARGER FLOW

Greater flow for the envelope size is achieved by increased displacement cam rings; at high permissible speeds with atmospheric inlet

B→ 1.8 to 16 GPM @ 1200 RPM, 0.35 to 3.05 in<sup>3</sup>/rev (5.7 to 50 cm<sup>3</sup>/rev). 4650 PSI Max (320 BAR)

C→ 6 to 31 GPM @ 1200 RPM, 1.28 to 6.10 in<sup>3</sup>/rev (21 to 100 cm<sup>3</sup>/rev). 4000 PSI Max (275 BAR)

D→ 20 to 50 GPM @ 1200 RPM, 4.03 to 9.64 in<sup>3</sup>/rev (66 to 158 cm<sup>3</sup>/rev). 4060 PSI Max (280 BAR)

E→ 42 to 85 GPM @ 1200 RPM, 8.06 to 16.42 in<sup>3</sup>/rev (132 to 269 cm<sup>3</sup>/rev). 3500 PSI Max (240 BAR)

#### HIGHER PRESSURE

Pressure ratings to 4650 PSI (320 Bar) reduce size and cost of actuators, valves and lines, and give extended life at reduced pressures.

#### EXCELLENT EFFICIENCY

Better efficiency under load increases productivity, reducing heating and operating costs.

#### FLEXIBLE MOUNTING

Up to 32 positions for double pumps and up to 128 for triple pumps: this reduces mounting costs and improves performance.

#### LOW NOISE

For increased operator safety and acceptance. Meets or exceeds many mobile and industrial specifications.

#### CONFORMITY

SAE -J744c 2-bolt standards to ISO 3019-1 in various keyed and splined shaft options offered.

#### ADVANCED CARTRIDGE DESIGN

Designed for simple drop-in assemblies. This allows easy conversion or renewal of serviceable elements in minutes at minimum expense and risk of contamination. Pump rotation (mobile design) is easy to change by changing the position of the cam ring on port plate dowel pin hole.

#### WIDE VISCOSITY RANGE

Viscosities for mobile design from 9240 to 60 SUS (860 to 10cSt) permit colder starts and hotter running. The balanced design compensates for wear and temperature changes. At high viscosity or cold temperature the rotor to side plates gap is well lubricated and improves mechanical efficiency.

#### SYNTHETICS

Including phosphate esters, chlorinated hydrocarbons, water glycols and invert emulsions may be pumped at higher pressures and with longer service life by these pumps.



## MINIMUM AND MAXIMUM SPEED, PRESSURE RATINGS PT6/PT7 SERIES INDUSTRIAL AND MOBILE APPLICATION

Model of Pump	Disp. (Series)	Theoretical Displacement Vi		Minimum Speed	Maximum Speed		Maximum Pressure													
					HF-0, HF-1 HF-2	HF-3, HF-4 HF-5	HF-0, HF-2				HF-1, HF-4 HF-5				HF-3					
							Int.	Int.	Cont.	Cont.	Int.	Int.	Cont.	Cont.	Int.	Int.	Cont.	Cont.		
							PSI	BAR	PSI	BAR	PSI	BAR	PSI	BAR	PSI	BAR	PSI	BAR		
in <sup>3</sup> /rev	cm <sup>3</sup> /rev	RPM	RPM	RPM	PSI	BAR	PSI	BAR	PSI	BAR	PSI	BAR	PSI	BAR	PSI	BAR				
PT6C PT6CM PT6CP PT6CG	003	0.66	10.8	600	2800	1800	4000	276	3500	241	3000	207	2500	172	2500	172	2000	138		
	004	0.85	13.9																	
	005	1.05	17.2																	
	006	1.30	21.3																	
	008	1.61	26.4																	
	010	2.08	34.1																	
	012	2.26	37.0																	
	014	2.81	46.0																	
	017	3.56	58.3																	
	020	3.89	63.7																	
	022	4.29	70.3																	
	025	4.84	79.3																	
	028	5.42	88.8																	
	031	6.10	100.0		2500		3000	210	2300	160			2300	160						
PT6D PT6DM PT6DP PT6DS	014	2.81	46.0	600	2500	1800	3500	241	3000	207	3000	207	2500	172	2500	172	2500	172		
	017	3.55	58.2																	
	020	4.03	66.0																	
	024	4.85	79.5																	
	028	5.47	89.6																	
	031	6.00	98.3																	
	035	6.77	110.9																	
	038	7.34	120.3																	
	042	8.30	136.0																	
	045	8.85	145.0																	
	050	9.64	158.0																	
					2200		3000	207	2300	160			2300	160						
PT6E PT6EM PT6EP PT6TE	042	8.07	132.2	600	2200	1800	3500	241	3000	207	3000	207	2500	172	2500	172	2000	138		
	045	8.69	142.4																	
	050	9.67	158.5																	
	052	10.06	164.9																	
	062	12.00	196.6																	
	066	13.02	213.4																	
	072	13.86	227.1																	
	085	16.46	269.7				3000	207	2500	172	2500	172	2300	160						
PT7(B) PT7(B)S	B02	0.35	5.7	600	3600	1800	4650 <sup>1</sup>	320 <sup>1</sup>	4200	290	3500	241	3000	207	2500	172	2000	138		
	B03	0.60	9.8																	
	B04	0.78	12.8																	
	B05	0.97	15.9																	
	B06	1.20	19.7																	
	B07	1.37	22.5																	
	B08	1.51	24.7																	
	B09	1.70	27.9																	
	B10	1.92	31.5																	
	B11	2.14	35.1																	
	B12	2.47	40.5																	
	B14	2.70	44.2																	
	B15	3.01	49.3																	
									4060	280	3500	241								
PT7(D) PT7(D)S	B14	0.35	5.7	600	3600	1800	4650 <sup>1</sup>	320 <sup>1</sup>	4200	290	3500	241	3000	207	2500	172	2000	138		
	B17	0.60	9.8																	
	B20	0.78	12.8																	
	B22	0.97	15.9																	
	B24	1.20	19.7																	
	B28	1.37	22.5																	
	B31	1.51	24.7																	
	B35	1.70	27.9																	
	B38	1.92	31.5																	
	B42	2.14	35.1																	
	045 <sup>2</sup>	2.47	40.5																	
	050 <sup>2</sup>	2.70	44.2																	
					3000		4350	300	4000	276										

Performance data shown throughout this catalog is a result of a series of laboratory tests and is not representative of any one unit



## MINIMUM AND MAXIMUM SPEED, PRESSURE RATINGS PT6/PT7 SERIES INDUSTRIAL AND MOBILE APPLICATION

Model of Pump	Disp. (Series)	Theoretical Displacement Vi		Minimum Speed	Maximum Speed		Maximum Pressure																											
					HF-0, HF-1 HF-2	HF-3, HF-4 HF-5	HF-0, HF-2				HF-1, HF-4 HF-5				HF-3																			
					RPM	RPM	Int.	Int.	Cont.	Cont.	Int.	Int.	Cont.	Cont.	Int.	Int.	Cont.	Cont.																
in <sup>3</sup> /rev	cm <sup>3</sup> /rev	RPM	RPM	RPM	PSI	BAR	PSI	BAR	PSI	BAR	PSI	BAR	PSI	BAR	PSI	BAR																		
PT7(BB)/S PT67C(B) PT7D(B)/S PT7E(B)/S PT67D(BB) PT67DC(B) PT7DD(B)/S PT7ED(B)/S	B02	0.35	5.7	600	2200 <sup>3</sup>	1800	T7BB T7BBS 4650 <sup>1</sup>	320	T7BB T7BBS 4200	290	3500	241	3000	207	2500	172	2000	138																
	B03	0.60	9.8																															
	B04	0.78	12.8																															
	B05	0.97	15.9																															
	B06	1.20	19.7																															
	B07	1.37	22.5																															
	B08	1.51	24.7																															
	B09	1.70	27.9																															
	B10	1.92	31.5																															
	B11	2.14	35.1																															
	B12	2.47	40.5																															
	B14	2.70	44.2																															
	B15	3.01	49.3																															
																			4060	280	3500	241												
	PT6(CC) PT67(CB) PT67D(C) PT67E(C) PT67D(C)B PT67D(CC) PT67DD(C)S PT67ED(C)/S	003	0.66																10.8	600	2200 <sup>3</sup>	1800	4000	276	3500	241	3000	207	2500	172	2500	172	2000	138
005		1.05	17.2																															
006		1.30	21.3																															
008		1.61	26.4																															
010		2.08	34.1																															
012		2.26	37.0																															
014		2.81	46.0																															
017		3.56	58.3																															
020		3.89	63.7																															
022		4.29	70.3																															
025		4.84	79.3																															
028		5.42	88.8																															
031		6.10	100.0																															
			3000	207	2300	160							2300	160																				
PT6(D)C PT6(DD)S PT67(D)B PT7(D)B/S PT67(D)C PT7(DD)S PT67(D)BB PT7E(D)S PT67(D)CB PT67(D)CC PT7(DD)B/S PT67(DD)CS PT7E(D)B/S PT67E(D)C/S	B14	2.64	43.3	600	2200 <sup>3</sup>	1800	3630	250	3000	207	3500	241	3000	207	2500	172	2000	138																
	B17	3.30	54.1																															
	B20	3.95	64.7																															
	B22	4.29	70.3																															
	B24	4.86	79.6																															
	B28	5.39	88.3																															
	B31	5.94	97.3																															
	B35	6.80	111.4																															
	B38	7.23	118.5																															
	B42	8.26	135.4																															
	045 <sup>2</sup>	8.89	145.7																															
	050 <sup>2</sup>	9.64	158.0																															
																			3000	207	2300	160							3000	207	2500	172		
	PT7(E)B/S PT67(E)C PT7(E)DS PT7(EE)S PT67(E)DB/S PT67(E)DC/S	042	8.07																132.2	600	2200 <sup>3</sup>	1800	3500	241	3000	207	3000	207	2500	172	2500	172	2000	138
		045	8.70																142.6															
050		9.67	158.5																															
052		10.00	163.9																															
054		10.43	170.9																															
057		11.18	183.2																															
062		12.00	196.6																															
066		13.00	213.0																															
072		13.86	227.1																															
085		16.40	268.7																															
			1300	90	1100	76							1100	76	1100	76	1100	76																

HF-0, HF-2 = Anti-wear petroleum base  
 HF-1 = Non anti-wear petroleum base  
 HF-3 = Water-in-oil invert emulsions  
 HF-4 = Water glycol solutions  
 HF-5 = Synthetic fluids

- 1) Please contact Permco for applications over 4350 PSI (300 BAR)
- 2) Ten vane technology
- 3) Please consult Permco with higher speeds

For further information or if performance characteristics outlined above do not meet your own particular application requirements, please consult Permco factory or your local Permco distributor.

**ATTENTION AT START-UP**

- \* At first start of operation pump shaft should be at the lowest speed and the lowest pressure to obtain priming. If a pressure relief valve is used at the outlet it should be backed off to zero pressure and/or to the lowest pressure setting.
- \* When possible an air bleed off should be provided in the circuit to facilitate purging of system air.
- \* Never operate the pump shaft at top speed and pressure without checking for completion of pump priming, and the fluid has no aeration.

Performance data shown throughout this catalog is a result of a series of laboratory tests and is not representative of any one unit





## MINIMUM ALLOWABLE INLET PRESSURE [PSI (BAR) ABSOLUTE] PT6/PT7 SERIES INDUSTRIAL APPLICATIONS

Cartridges		Speed (RPM)										
Sizes	Disp	1200	1500	1800	2100	2200	2300	2500	2800	3000	3600	
B	B02	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	
	B03	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	
	B04	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	
	B05	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	
	B06	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.9 (.82)	14.2 (.98)	
	B07	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.9 (.82)	14.2 (.98)	
	B08	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	12.3 (.85)	15.2 (1.05)	
	B09	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	12.3 (.85)	15.2 (1.05)	
	B10	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	13.1 (.90)	16.7 (1.15)	
	B11	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	13.1 (.90)		
	B12	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	13.1 (.90)		
	B14	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	12.2 (.84)	14.4 (.99)	16.4 (1.13)		
	B15	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	12.2 (.84)	14.4 (.99)	16.4 (1.13)		
	C	003	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	13.1 (.90)	14.5 (1.0)		
		005	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	13.1 (.90)	14.5 (1.0)		
006		11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	13.1 (.90)	14.5 (1.0)			
008		11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	13.1 (.90)	14.5 (1.0)			
010		11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	13.1 (.90)	14.5 (1.0)			
012		11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	12.3 (.85)	13.3 (.92)	14.5 (1.0)			
014		11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	12.3 (.85)	13.8 (.95)	14.5 (1.0)			
017		11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	12.3 (.85)	13.1 (.90)	13.8 (.95)	14.9 (1.03)			
020		11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	12.3 (.85)	13.1 (.90)	13.8 (.95)	14.9 (1.03)			
022		11.6 (.80)	11.6 (.80)	11.6 (.80)	12.3 (.85)	13.1 (.90)	13.1 (.90)	14.2 (.98)	15.2 (1.05)			
025		11.6 (.80)	11.6 (.80)	11.6 (.80)	13.1 (.90)	13.8 (.95)	13.8 (.95)	15.2 (1.05)				
028		11.6 (.80)	11.6 (.80)	11.6 (.80)	13.1 (.90)	14.2 (.98)	14.2 (.98)	15.7 (1.08)				
031		11.6 (.80)	11.6 (.80)	11.6 (.80)	12.3 (.85)	13.1 (.90)	16.1 (1.11)	16.1 (1.11)				
D	B14	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	
	B17	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	
	B20	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.9 (.82)	12.5 (.86)		
	B22	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	12.0 (.83)	12.8 (.88)		
	B24	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	12.5 (.86)	13.8 (.95)		
	B28	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	12.8 (.88)	14.5 (1.0)		
	B31	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	13.1 (.90)	15.2 (1.05)		
	B35	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	12.2 (.84)	14.1 (.97)			
	B38	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	12.5 (.86)	14.7 (1.01)			
	B42	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	13.1 (.90)				
	045	11.6 (.80)	11.6 (.80)	12.3 (.85)	14.2 (.98)	15.2 (1.05)						
050	11.6 (.80)	11.6 (.80)	12.3 (.85)	14.8 (1.02)	15.8 (1.09)							
E	042	11.6 (.80)	11.6 (.80)	11.6 (.80)	13.1 (.90)	14.5 (1.0)						
	045	11.6 (.80)	11.6 (.80)	11.6 (.80)	13.1 (.90)	14.5 (1.0)						
	050	11.6 (.80)	11.6 (.80)	11.6 (.80)	13.1 (.90)	14.5 (1.0)						
	052	11.6 (.80)	11.6 (.80)	11.6 (.80)	13.1 (.90)	14.5 (1.0)						
	054	11.6 (.80)	11.6 (.80)	11.6 (.80)	13.1 (.90)	14.5 (1.0)						
	057	11.6 (.80)	11.6 (.80)	12.3 (.85)	13.8 (.95)	14.5 (1.0)						
	062	11.6 (.80)	11.6 (.80)	12.3 (.85)	13.8 (.95)	14.5 (1.0)						
	066	12.3 (.85)	12.3 (.85)	13.8 (.95)	14.5 (1.0)	15.8 (1.09)						
	072	12.3 (.85)	12.3 (.85)	12.3 (.85)	14.5 (1.0)	15.2 (1.05)						
	085	13.1 (.90)	13.1 (.90)	14.5 (1.0)								

Inlet pressure is measured at inlet flange with petroleum base fluids at viscosity between 60 and 300 SUS (10 and 65 cSt). The difference between inlet pressure at the pump flange and atmosphere must not exceed 2.9 PSI (.20 BAR) to prevent aeration.

Multiply absolute pressure by : 1.25 for HF-3, HF-4 fluids  
 1.35 for HF-5 fluid.  
 1.10 for ester and rapeseed base fluids.

Use the cartridge with the highest absolute pressure for double and triple pumps.



## MINIMUM ALLOWABLE INLET PRESSURE [PSI (BAR) ABSOLUTE] PT6/PT7 SERIES MOBILE APPLICATIONS

Cartridges		Speed (RPM)							
Sizes	Disp	1200	1500	1800	2100	2200	2300	2500	2800
CM CP	B03	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	13.0 (.89)	14.5 (1.0)
	B05	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	13.0 (.89)	14.5 (1.0)
	B06	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	13.0 (.89)	14.5 (1.0)
	B08	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	13.0 (.89)	14.5 (1.0)
	B10	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	13.0 (.89)	14.5 (1.0)
	B12	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	12.3 (.85)	13.3 (.92)	14.5 (1.0)
	B14	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	12.3 (.85)	13.7 (.94)	14.5 (1.0)
	B17	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	12.3 (.85)	13.0 (.89)	13.7 (.94)	14.9 (1.03)
	B20	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	12.3 (.85)	13.0 (.89)	13.7 (.94)	14.9 (1.03)
	B22	11.6 (.80)	11.6 (.80)	11.6 (.80)	12.3 (.85)	13.0 (.89)	13.0 (.89)	14.2 (.98)	15.2 (1.05)
	B25	11.6 (.80)	11.6 (.80)	11.6 (.80)	13.0 (.89)	13.7 (.94)	13.7 (.94)	15.2 (1.05)	
	B28	11.6 (.80)	11.6 (.80)	11.6 (.80)	13.0 (.89)	14.5 (1.0)	14.5 (1.0)	15.7 (1.08)	
	B31	11.6 (.80)	11.6 (.80)	11.6 (.80)	12.3 (.85)	13.0 (.89)	14.5 (1.0)	16.1 (1.11)	
DM DP	B14	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	12.8 (.88)	13.7 (.94)	14.5 (1.0)	
	B17	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	12.8 (.88)	13.7 (.94)	14.5 (1.0)	
	B20	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.6 (.80)	12.8 (.88)	13.7 (.94)	14.5 (1.0)	
	B24	11.6 (.80)	11.6 (.80)	11.6 (.80)	11.9 (.82)	12.8 (.88)	13.7 (.94)	15.9 (1.09)	
	B28	11.6 (.80)	11.6 (.80)	11.6 (.80)	12.3 (.85)	13.3 (.92)	14.5 (1.0)	17.1 (1.18)	
	B31	11.6 (.80)	11.6 (.80)	11.6 (.80)	13.0 (.89)	13.7 (.94)	14.5 (1.0)	17.8 (1.23)	
	B35	11.6 (.80)	11.6 (.80)	11.6 (.80)	13.3 (.92)	14.2 (.98)	14.8 (1.02)	18.7 (1.29)	
	B38	11.6 (.80)	11.6 (.80)	11.6 (.80)	13.7 (.94)	14.5 (1.0)	15.2 (1.05)	18.7 (1.29)	
	B42	11.6 (.80)	11.6 (.80)	11.6 (.80)	13.7 (.94)	14.8 (1.02)	15.7 (1.08)		
	B45	11.6 (.80)	11.6 (.80)	12.3 (.85)	14.2 (.98)	15.2 (1.05)			
B50	11.6 (.80)	11.6 (.80)	12.3 (.85)	14.8 (1.02)	15.8 (1.09)				
EM EP	042	11.6 (.80)	11.6 (.80)	11.6 (.80)	12.8 (.88)	14.5 (1.0)			
	045	11.6 (.80)	11.6 (.80)	11.6 (.80)	13.0 (.89)	14.5 (1.0)			
	050	11.6 (.80)	11.6 (.80)	11.6 (.80)	13.0 (.89)	14.5 (1.0)			
	052	11.6 (.80)	11.6 (.80)	11.6 (.80)	13.0 (.89)	14.5 (1.0)			
	062	11.6 (.80)	11.6 (.80)	12.3 (.85)	13.7 (.94)	14.5 (1.0)			
	066	12.3 (.85)	12.3 (.85)	13.7 (.94)	14.5 (1.0)	15.8 (1.09)			
	072	12.3 (.85)	12.3 (.85)	12.3 (.85)	14.5 (1.0)	15.2 (1.05)			

Minimum Inlet Pressure: Please read the charts in this catalog as the minimum requested inlet pressure varies verses the displacement and speed.

Never go under 11.6 PSI Absolute (-2.9 PSI G)

Maximum Inlet Pressure: It is recommended to have at least 22 PSI differential between inlet and outlet. Standard shaft seals are limited to 10 PSI G. Consult factory for more information.

Minimum Outlet Pressure: It is recommended to have at least 22 PSI differential between inlet and outlet.

Vertical Mount: When assembled vertically, be careful to prevent any air from being trapped in the pump especially behind the shaft seal.

Inlet pressure is measured at inlet flange with petroleum based fluids at viscosity between 60 and 300 SUS (10 and 65 cSt). The difference between inlet pressure at the pump flange and atmosphere must not exceed 2.9 PSI (.20 BAR) to prevent aeration.

Multiply absolute pressure by : 1.25 for HF-3, HF-4 fluids  
1.35 for HF-5 fluid.  
1.10 for ester and rapeseed base fluids.

Use the cartridge with the highest absolute pressure for double and triple pumps.



# PUMP SELECTION AND PRESSURE RATING DESCRIPTION PT6/PT7 SERIES INDUSTRIAL AND MOBILE APPLICATION

## PUMP CALCULATIONS

To Resolve:  
 Initial displacement:  $V_i$  (cm<sup>3</sup>/rev)  
 (based on requested flow)  
 Input power  $P$  (kW)

Required Performance:  
 Requested flow:  $Q$  (l/min) 60  
 Speed:  $n$  (RPM) 1500  
 Pressure:  $p$  (BAR) 150

## FORMULA AND EXAMPLE

$V_p$  = Volumetric displacement  
 $Q_a$  = Actual pump flow @ operating condition  
 $Q_{th}$  = Theoretical flow of pump chosen at RPM  
 $Q_s$  = Pump internal leakage  
 $P_s$  = Power Loss  
 $P_i$  = Theoretical input power

Formula:

Example:

1. First calculation  $V_i = \frac{1000 Q}{n}$
2. Choose  $V_p$  of pump with next highest displacement (see chart tabulations) ( $V_p > V_i$ )
3. Theoretical flow of this pump

$$V_i = \frac{1000 \times 60}{1500} = 40 \text{ cm}^3/\text{rev}$$

PT6C-014  $V_p = 46 \text{ cm}^3/\text{rev}$

$$Q_{th} = \frac{V_p \times n}{1000}$$

$$Q_{th} = \frac{46 \times 1500}{1000} = 69 \text{ l/min}$$

4. Find  $Q_s$  leakage function of pressure  $Q_s = f(p)$  on curve at 10 or 24 cSt (see chart page 15)

PT6C (pages 15-16):  $Q_s = 5 \text{ l/min}$  at 150 BAR, 24 cSt

5. Available flow  $Q_a = Q_{th} - Q_s$

$$Q_a = 69 - 5 = 64 \text{ l/min}$$

6. Theoretical input power

$$P_i = \frac{Q_{th} \times p}{600}$$

$$P_i = \frac{69 \times 150}{600} = 17.3 \text{ kW}$$

7. Find  $P_s$  hydrodynamic power loss on curve (see chart page 15)

PT6C (pages 15-16):  $P_s$  at 1500 RPM, 150 BAR = 1.5 kW

8. Calculation of necessary input power  $P = P_i + P_s$

$$P = 17.3 + 1.5 = 18.8 \text{ kW}$$

9. Results

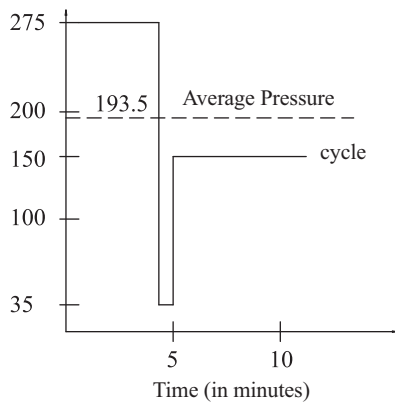
$V_p = 46.0 \text{ cm}^3/\text{rev}$   
 $V_a = 64.0 \text{ l/min}$   
 $P = 18.8 \text{ kW}$  } PT6C-014

If  $Q_a$  is close enough to  $Q$  then done  
 If  $Q_a$  is too low choose PT6C-017  
 If  $Q_a$  is too high choose PT6C-012

*The above calculations should be followed for pump selection for each application.*

## INTERMITTENT PRESSURE RATING

Pressure (BAR)



PT6 and PT7 units may be operated intermittently at pressures higher than the recommended continuous rating when the time weighted average of pressure is less than or equal to the continuous duty pressure rating.

This intermittent pressure rating calculation is only valid if other parameter, speed, fluid, viscosity and contamination levels are respected.

For total cycle time higher than 15 minutes please consult factory or you local Permco representative.

Example: PT6C-014

Duty cycle 4 minutes at 275 BAR  
 1 minute at 35 BAR  
 5 minutes at 160 BAR

$$\frac{(4 \times 275) + (1 \times 35) + (5 \times 160)}{10} = 193.5 \text{ BAR}$$

193.5 Bar is lower than 240 BAR allowed as continuous pressure for PT6C-014 with HF-0 fluid.

Throughout this catalog you will find dimensions, flows, power, pressures and loads in metric terms, to convert please use the following conversion guide.

To convert mm to inches divide by 25.4

To convert KW to HP multiply by 1.341

To convert liters into gallons multiply by .2642

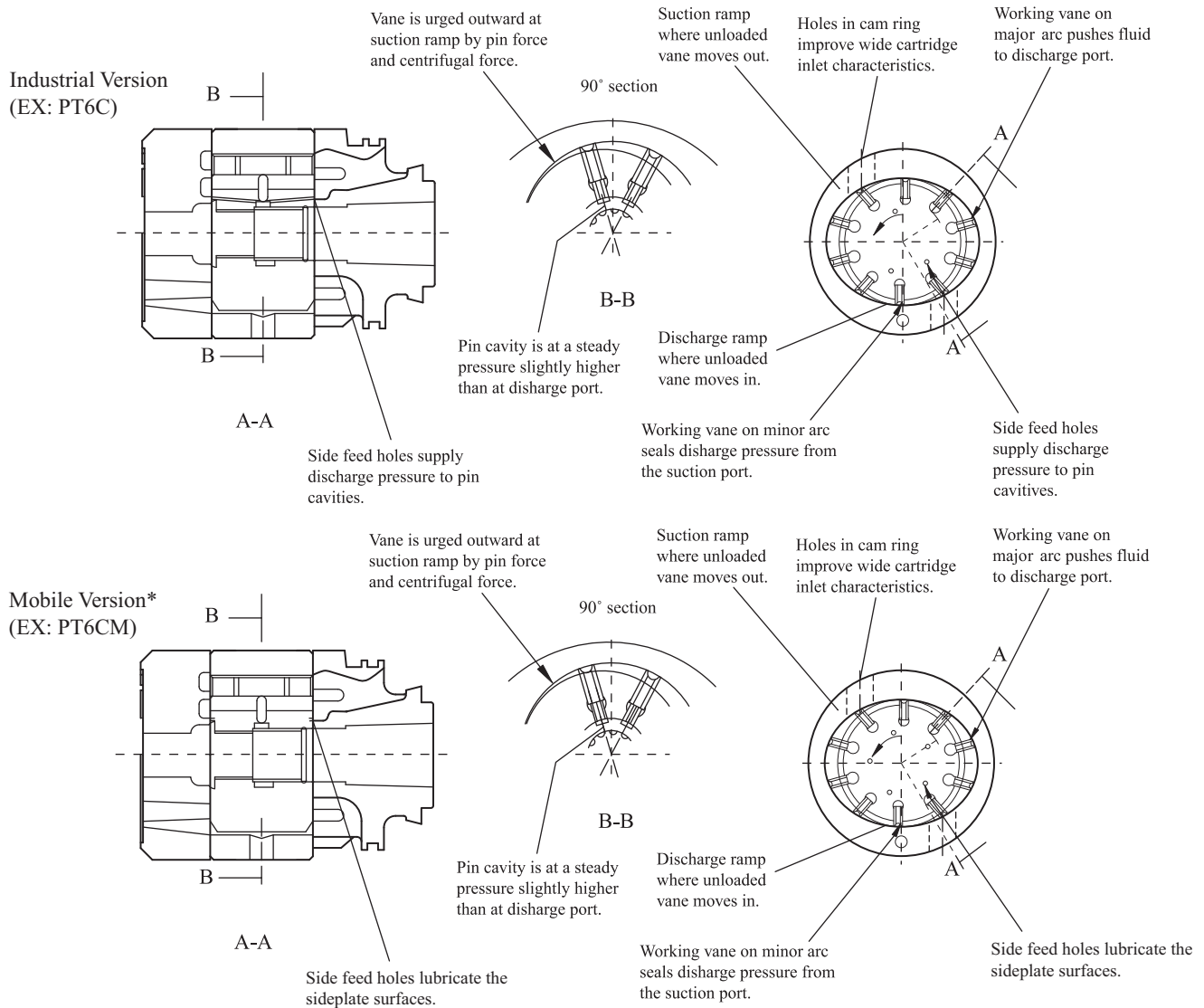
To convert newtons to pounds force multiply by .2248

To convert bar to psi multiply by 14.5

10 cSt = 60 SUS and 24 cSt = 115 SUS

To convert cm<sup>3</sup>/rev to in<sup>3</sup>/rev divide by 16.387

## DESCRIPTION PT6/PT7 SERIES INDUSTRIAL AND MOBILE APPLICATIONS



\* "M" in a model number represents mobile cartridge setup

### APPLICATION ADVANTAGES

- The high pressure capability up to 320 bar (4650 PSI), in the small envelope, reduces installation costs and provides extended life at reduced pressure.
- The high volumetric efficiency, typically 94%, reduces heat generation and allows speeds down to 600 RPM at full pressure.
- The high mechanical efficiency, typically 94%, reduces energy consumption.
- The wide speed range from 600 RPM to 2800 RPM, combined with large size cartridge displacements, will optimize operation for the lowest noise level in the smallest envelope.
- The low speed 600 RPM, low pressure, high viscosity 860 cSt (3900 SUS) allow applications in cold environments with a minimum energy consumption and without risk of seizure.
- The low ripple pressure  $\pm 2$  Bar ( $\pm 29$  PSI) reduces piping noise and increases life time of other components in the circuit.
- The high resistance to particle contamination because of the double lip vane increases pump life.
- The large variety of options (cam displacement, shaft, porting) allows customized installation.



## HYDRAULIC FLUIDS AND SHAFTS PT6/PT7 SERIES INDUSTRIAL AND MOBILE APPLICATION

<b>RECOMMENDED FLUIDS</b>	<p>Petroleum based antiwear R &amp; O fluids.</p> <p>These fluids are the recommended fluids for PT6 series pumps. Maximum catalog ratings and performance data are based on operation with these fluids. These fluids are covered by Permco HF-0 and HF-2 specification.</p>														
<b>ACCEPTABLE ALTERNATE FLUIDS</b>	<p>The use of fluids other than petroleum based antiwear R &amp; O fluids, requires that the maximum ratings of the pumps be reduced. In some cases the minimum replenishment pressures must be increased. Consult factory for more details.</p>														
<b>VISCOSITY</b>	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">Max (cold start, low speed &amp; pressure) industrial pump</td> <td style="text-align: right;">860 mm<sup>2</sup>/s (cSt), 3900 SUS</td> </tr> <tr> <td>Max (cold start, low speed &amp; pressure) mobile pump</td> <td style="text-align: right;">2000 mm<sup>2</sup>/s (cSt), 9240 SUS</td> </tr> <tr> <td>Max (full speed &amp; pressure)</td> <td style="text-align: right;">108 mm<sup>2</sup>/s (cSt), 500 SUS</td> </tr> <tr> <td>Optimum (max. life)</td> <td style="text-align: right;">30 mm<sup>2</sup>/s (cSt), 140 SUS</td> </tr> <tr> <td>Min (full speed &amp; pressure for HF-1, HF-3, HF-4 &amp; HF-5 fluids)</td> <td style="text-align: right;">18 mm<sup>2</sup>/s (cSt), 90 SUS</td> </tr> <tr> <td>Min (full speed &amp; pressure for HF-0 &amp; HF-2 fluids)</td> <td style="text-align: right;">10 mm<sup>2</sup>/s (cSt), 60 SUS</td> </tr> </table>	Max (cold start, low speed & pressure) industrial pump	860 mm <sup>2</sup> /s (cSt), 3900 SUS	Max (cold start, low speed & pressure) mobile pump	2000 mm <sup>2</sup> /s (cSt), 9240 SUS	Max (full speed & pressure)	108 mm <sup>2</sup> /s (cSt), 500 SUS	Optimum (max. life)	30 mm <sup>2</sup> /s (cSt), 140 SUS	Min (full speed & pressure for HF-1, HF-3, HF-4 & HF-5 fluids)	18 mm <sup>2</sup> /s (cSt), 90 SUS	Min (full speed & pressure for HF-0 & HF-2 fluids)	10 mm <sup>2</sup> /s (cSt), 60 SUS		
Max (cold start, low speed & pressure) industrial pump	860 mm <sup>2</sup> /s (cSt), 3900 SUS														
Max (cold start, low speed & pressure) mobile pump	2000 mm <sup>2</sup> /s (cSt), 9240 SUS														
Max (full speed & pressure)	108 mm <sup>2</sup> /s (cSt), 500 SUS														
Optimum (max. life)	30 mm <sup>2</sup> /s (cSt), 140 SUS														
Min (full speed & pressure for HF-1, HF-3, HF-4 & HF-5 fluids)	18 mm <sup>2</sup> /s (cSt), 90 SUS														
Min (full speed & pressure for HF-0 & HF-2 fluids)	10 mm <sup>2</sup> /s (cSt), 60 SUS														
<b>VISCOSITY INDEX</b>	<p>90° min, higher values extend range of operation temperatures.</p> <p>Maximum fluid temperature (0°K (+ 0°C, + 0°F))</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">HF-0, HF-1, HF-2</td> <td style="text-align: right;">373 (+ 100°C, + 212°F)</td> </tr> <tr> <td>HF-3, HF-4</td> <td style="text-align: right;">323 (+ 50°C, + 122°F)</td> </tr> <tr> <td>HF-5</td> <td style="text-align: right;">343 (+ 70°C, + 158°F)</td> </tr> <tr> <td>Biodegradable fluids (esters &amp; rapeseed base)</td> <td style="text-align: right;">338 (+ 65°C, + 149°F)</td> </tr> </table> <p>Minimum fluid temperature (0°K (+ 0°C, + 0°F))</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">HF-0, HF-1, HF-2, HF-5</td> <td style="text-align: right;">255 (+ 18°C, + 0.4°F)</td> </tr> <tr> <td>HF-3, HF-4</td> <td style="text-align: right;">283 (+ 10°C, + 50°F)</td> </tr> <tr> <td>Biodegradable fluids (esters &amp; rapeseed base)</td> <td style="text-align: right;">253 (+ 20.2°C, + 4.4°F)</td> </tr> </table>	HF-0, HF-1, HF-2	373 (+ 100°C, + 212°F)	HF-3, HF-4	323 (+ 50°C, + 122°F)	HF-5	343 (+ 70°C, + 158°F)	Biodegradable fluids (esters & rapeseed base)	338 (+ 65°C, + 149°F)	HF-0, HF-1, HF-2, HF-5	255 (+ 18°C, + 0.4°F)	HF-3, HF-4	283 (+ 10°C, + 50°F)	Biodegradable fluids (esters & rapeseed base)	253 (+ 20.2°C, + 4.4°F)
HF-0, HF-1, HF-2	373 (+ 100°C, + 212°F)														
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HF-3, HF-4	283 (+ 10°C, + 50°F)														
Biodegradable fluids (esters & rapeseed base)	253 (+ 20.2°C, + 4.4°F)														
<b>FLUID CLEANLINESS</b>	<p>The fluid must be cleaned before and during operation to maintain contamination level of NAS1638 class 8 ( or ISO 18/14 ) or better. Filters with 25 micron ( or better, B10 ≤ 100 ) nominal ratings may be adequate but do not guarantee the required cleanliness levels. Suction strainers must be of adequate size to provide minimum inlet pressure specified. 100 mesh ( 149 micron ) is the finest mesh recommended. Use oversize strainers or omit them altogether on applications which require cold starts or use fire resistant fluids.</p>														
<b>OPERATING TEMPERATURES AND VISCOSITIES</b>	<p>Operating temperatures are a function of fluid viscosities, fluid type, and the pump. Fluid viscosity should be selected to provide optimum viscosity at normal operating temperatures. For cold starts the pumps should be operated at low speed and pressure until fluid warms up to an acceptable viscosity for full power operation.</p>														
<b>WATER CONTAMINATION IN THE FLUID</b>	<p>Maximum acceptable content of water.</p> <ul style="list-style-type: none"> <li>-0.10 % for mineral base fluids.</li> <li>-0.05 % for synthetic fluids, crankcase oils, biodegradable fluids.</li> </ul> <p>If amount of water is higher then it should be drained off the circuit.</p>														
<b>COUPLINGS AND FEMALE SPLINES SPLINES</b>	<p>The mating female spline should be free to float and find its own center. If both members are rigidly supported they must be aligned within 0.15 mm (0.006") TIR or less to reduce fretting. The angular alignment of two spline axes must be less than ± 0.05 per 25.4 mm (±0.002" per 1" radius). The coupling spline must be lubricated with a lithium molydisulfide grease or a similar lubricant.</p> <p>The coupling must be hardened to a hardness between 27 and 45 R.C.</p> <p>The female spline must be made to conform to the Class 1 fit as described in SAE-J498b (1971). This is described as a Flat Root Side Fit.</p>														
<b>KEYED SHAFTS</b>	<p>Permco supplies the PT series keyed shaft pumps with high strength heat-treated keys. Therefore, when installing or replacing these pumps, the heat-treated keys must be used in order to insure maximum life in the application. If the key is replaced it must be a heat-treated key between 27 and 34 R.C. hardness. The corners of the keys must be chamfered from 0.76 mm to 1.02 mm (0.03" to 0.04") at 45° to clear radii in the key way.</p>														
<b>NOTE</b>	<p>Alignment of keyed shafts must be within tolerances given for splined shafts.</p>														
<b>SHAFT LOADS</b>	<p>These products are designed primarily for coaxial drives which do not impose axial or side loading on the shaft. Consult factory for more details.</p>														



## GENERAL CHARACTERISTICS

Series	Mounting Standard (SAE J477c ISO/3019-1)	Displacement (in <sup>3</sup> /rev)	Displacement (cm <sup>3</sup> /rev)	Speed		Max. Pressure		Weight (without connectors and bracket)		SAE 4-bolt J518-ISO/DIS 6162-1			
				max	min	psi	bar	lbs	Kg	suction	pressure		
PT6C/ PT6CM	SAE - B	0.66 - 6.10	10.8 - 100.0	2800	600 400	4000	275	34.0	15.5	1 1/2"	1"		
PT6D/ PT6DM	SAE - C	2.81 - 9.64	47.6 - 190.5	2500	600 400	3500	240	60.9	27.62	2"	1 1/4"		
PT6E/ PT6EM	SAE - C	8.07 - 16.46	132.3 - 269.8	2200	600 400	3500	240	95.1	43.14	3"	1 1/2"		
PT6GC	R.17-102	0.66 - 6.10	10.8 - 100.0	2800	400	4000	275	39.7	18.0	1 1/2"	1" SAE		
PT7B	ISO 3019-2 100 A2 HW	0.35 - 3.05	5.7 - 50.0	3600	600	4640	320	55.4	25.12	1 1/2"	1" or 3/4"		
PT7BS	SAE J744 SAE B												
PT7D	ISO 3019-2 125 A2 HW	2.68 - 9.64	43.9 - 158.0	3000	600	4350	300	57.3	26.1	2"	1" 1/4"		
PT7DS	SAE J744 SAE C												
PT6CR	SAE - B	0.66 - 6.10	10.8 - 100.0	2800	600 400	4000	275	44.5	20.2	1 1/2"	1"		
PT6DR	SAE - C	2.81 - 9.64	47.6 - 190.5	2500	600 400	3500	240	73.2	33.2	2"	1 1/4"		
PT6ER	SAE - C	8.07 - 16.46	132.3 - 269.8	2200	600 400	3500	240	107.1	48.6	3"	1 1/2"		
											P1	P2	
PT6CC/ PT6CCM	SAE - B	P1= 0.66 - 6.10 P2= 0.66 - 6.10	P1=10.8 - 100.0 P2=10.8 - 100.0	2800	600 400	4000	275	58.4	26.5	2 1/2" or 3"	1"	1" or 3/4"	
PT6GCC	R.17-102	P1= 0.66 - 6.10 P2= 0.66 - 6.10	P1=10.8 - 100.0 P2=10.8 - 100.0	2800	400	4000	275	63.5	28.8	2 1/2" or 3"	1"	1" or 3/4"	
PT6DC/ PT6DCM	SAE - C	P1= 2.81 - 9.64 P2= 0.66 - 6.10	P1=47.6 - 190.5 P2=10.8 - 100.0	2500	600 400	3500 4000	240 275	84.9	38.5	3"	1 1/4"	1" or 3/4"	
PT6DDS	SAE - C	P1= 2.81 - 9.64 P2= 2.81 - 9.64	P1=47.6 - 190.5 P2=47.6 - 190.5	2500	600	3500	240	123.4	56.0	4"	1 1/4"	1 1/4"	
PT6EC/ PT6ECM	SAE - C	P1= 8.07 - 16.46 P2= 0.66 - 6.10	P1=132.3 - 269.8 P2=10.8 - 100.0	2200	600 400	3500 4000	240 275	120.4	54.6	3 1/2"	1 1/2"	1"	
PT6ED/ PT6EDM	SAE - C	P1= 8.07 - 16.46 P2= 2.81 - 9.64	P1=132.3 - 269.8 P2=47.6 - 190.5	2200	600 400	3500 3500	240 240	140.0	63.5	4"	1 1/2"	1 1/4"	
PT6EE	ISO-3019-2 250 B4 HW	P1= 8.07 - 16.46 P2= 8.07 - 16.46	P1=132.3 - 269.8 P2=132.3 - 269.8	2200	600	3500	240	209.4	95.0	4"	1 1/2"	1 1/4"	
PT6EES	SAE - E												
PT67CB	SAE J744 SAE B	P1= 0.66 - 6.10 P2= 0.35 - 3.05	P1=10.8 - 100.0 P2=5.7 - 50.0	2800	600	4350	300	59.3	26.9	2 1/2"	1"	3/4"	
PT67DB	SAE J744 SAE C	P1= 2.81 - 9.64 P2= 0.35 - 3.05	P1=47.6 - 190.5 P2=5.7 - 50.0	2500	600	4350	300	80.5	36.6	3"	1 1/4"	3/4"	
PT67EB	SAE J744 SAE C	P1= 8.07 - 16.46 P2= 0.35 - 3.05	P1=132.2 - 269.8 P2=5.7 - 50.0	2200	600	4350	300	122.1	55.0	3 1/2"	1 1/2"	3/4"	
											P1	P2	P3
PT6DCC	SAE - C	P1= 2.81 - 9.64 P2= 0.66 - 6.10 P3= 0.66 - 6.10	P1=47.6 - 190.5 P2=10.8 - 100.0 P3=10.8 - 100.0	2500	600 400	3500 4000	240 275	143.3	65.0	4"	1 1/4"	1"	1" or 3/4"
PT6DDCS	SAE - C	P1= 2.81 - 9.64 P2= 2.81 - 9.64 P3= 0.66 - 6.10	P1=47.6 - 190.5 P2=47.6 - 190.5 P3=10.8 - 100.0	2500	600 400	3500 4000	240 275	145.2	66.0	4"	1 1/4"	1 1/4"	1" or 3/4"
PT6EDC	ISO 3019-2 250 B4 HW	P1= 8.07 - 16.46 P2= 2.81 - 9.64 P3= 0.66 - 6.10	P1=132.3 - 269.8 P2=47.6 - 190.5 P3=10.8 - 100.0	2200	600 400	3500 3500 3500	240 240 275	245.8	111.5	4"	1 1/2"	1 1/4"	1" or 3/4"
PT67DCB	SAE J744 SAE C	P1= 2.81 - 9.64 P2= 0.66 - 6.10 P3= 0.35 - 3.05	P1=47.6 - 190.5 P2=10.8 - 100.0 P3=5.7 - 50.0	2500	600	4350	300	143.3	65.0	4"	1 1/4"	1"	3/4"

**PT6C- \* 014 - 1 R 00 - B 1 \***  
 ①    ②    ③    ④    ⑤    ⑥    ⑦    ⑧    ⑨

① **Series** PT6C - SAE-B 2-Bolt Mount

② **Y-** Metric port connection ,  
Omit for UNC

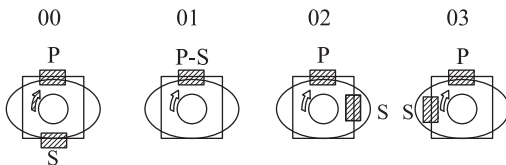
③ **Cam ring**

Volumetric displacement in<sup>3</sup>/ rev (cm<sup>3</sup>/rev)

003 = 0.66 ( 10.8 )	017 = 3.56 ( 58.3 )
005 = 1.05 ( 17.2 )	020 = 3.89 ( 63.8 )
006 = 1.30 ( 21.3 )	022 = 4.29 ( 70.3 )
008 = 1.61 ( 26.4 )	025 = 4.84 ( 79.3 )
010 = 2.08 ( 34.1 )	028 = 5.42 ( 88.8 )
012 = 2.26 ( 37.1 )	031 = 6.10 ( 100.0 )
014 = 2.81 ( 46.0 )	

④ **Type of shaft**

- 1 = Keyed (SAE-B)
- 2 = Keyed (No SAE)
- 3 = Splined (SAE-B)
- 4 = Splined (SAE-BB)
- 5 = Keyed (SAE-BB)



**S = Suction port    P = Pressure port**

⑤ **Direction of rotation**  
(viewed from shaft end)

- R = clockwise
- L = counter-clockwise

⑥ **Porting combination**  
00 = standard

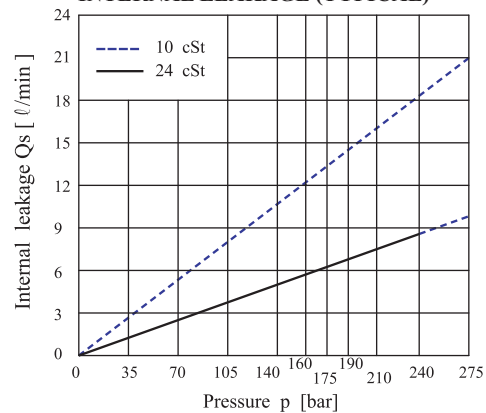
⑦ **Design letter**

⑧ **Seal class**

- 1 = S1 (for mineral oil)
- 4 = S4 (for fire resistant fluids)
- 5 = S5 (for mineral oil and fire resistant fluids)

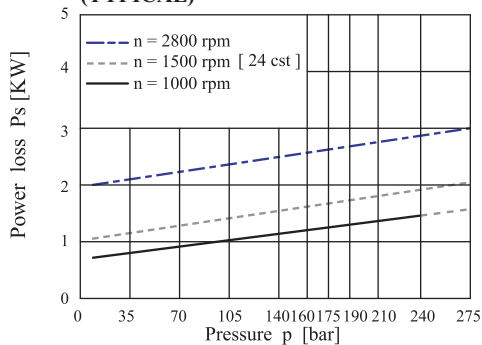
⑨ **Modifications**

### INTERNAL LEAKAGE (TYPICAL)

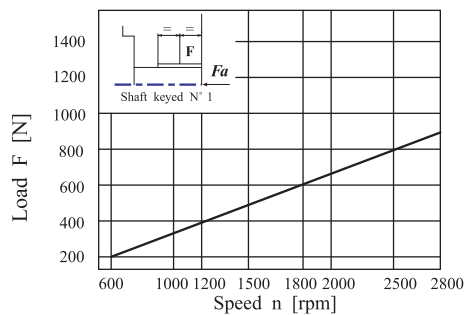


Do not operate pump more than 5 seconds at any speed or viscosity if internal leakage is more than 50 % of theoretical flow.

### HYDROMECHANICAL POWER LOSS (TYPICAL)



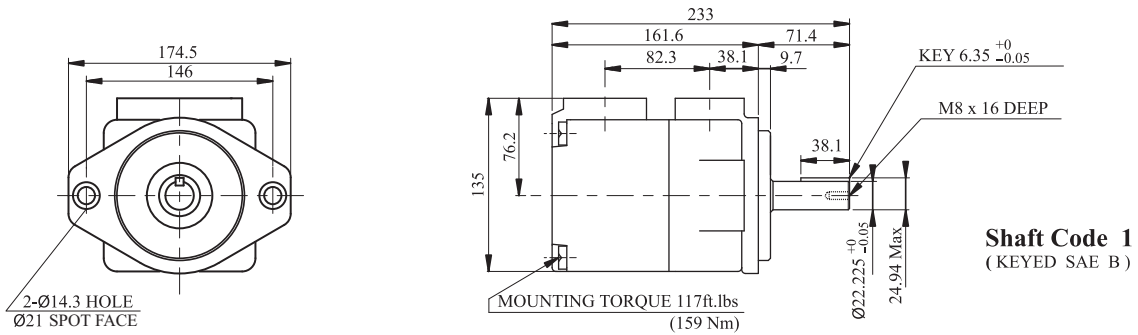
### PERMISSIBLE RADIAL LOAD



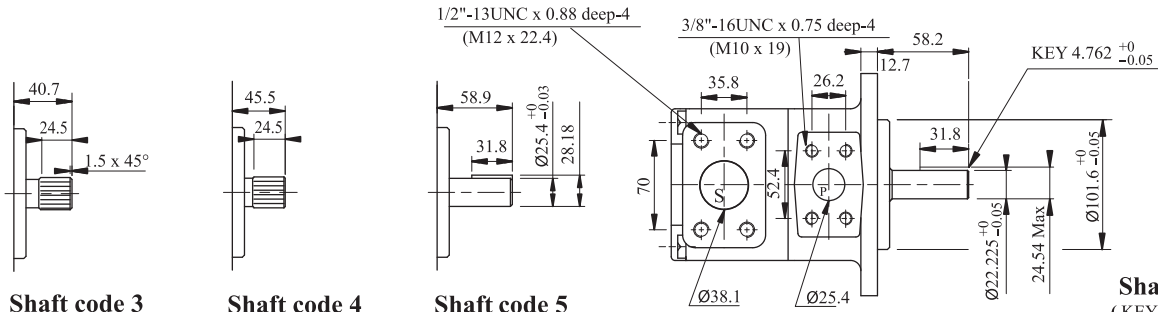
Maximum permissible axial load Fa = 800 N



# PT6C Dimensional Drawing



**Shaft Code 1**  
(KEYED SAE B)



**Shaft Code 2**  
(KEYED NO SAE)

**Shaft code 3**  
SAE B splined shaft  
Class 1-J498b 16/32  
dp. -13 teeth 30°  
pressure angle flat root  
side fit

**Shaft code 4**  
SAE BB splined shaft  
Class 1-J498 16/32  
dp. -15 teeth 30°  
pressure angle flat  
root side fit

**Shaft code 5**  
SAE BB keyed shaft

Shaft torque limits in <sup>3</sup> /rev x psi (cm <sup>3</sup> /rev x bar)		
Pump	Shaft	Vp x p max
PT6C	1	14473 (16500)
	2	12666 (14300)
	3	18246 (20600)
	4	19309 (21812)
	5	18246 (20600)

## PT6C OPERATING CHARACTERISTICS - TYPICAL 115 Sus (24 cSt)

Series	Volumetric Displacement Vp in <sup>3</sup> /rev (cm <sup>3</sup> /rev)	Speed n[RPM]	Flow qvc gpm (l/min)			Input Power HP (KW)			P. Max psi (bar)	MAX RPM
			p = 0 psi (0 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)	p = 100 psi (7 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)		
003	0.66 (10.8)	1000	2.85 ( 10.8 )	1.98 ( 7.5 )	1.35 ( 5.1 )	1.21 ( 0.9 )	4.83 ( 3.6 )	7.64 ( 5.70 )	4000 (275)	2800
		1500	4.28 ( 16.2 )	2.96 ( 11.2 )	2.03 ( 7.7 )	1.74 ( 1.3 )	7.11 ( 5.3 )	15.10 ( 11.26 )		
005	1.05 (17.2)	1000	4.54 ( 17.2 )	3.67 ( 13.9 )	3.04 ( 11.5 )	1.34 ( 1.0 )	6.84 ( 5.1 )	11.13 ( 8.30 )		
		1500	6.82 ( 25.8 )	5.49 ( 20.8 )	4.57 ( 17.3 )	1.88 ( 1.4 )	10.06 ( 7.5 )	16.36 ( 12.20 )		
006	1.30 (21.3)	1000	5.63 ( 21.3 )	4.31 ( 16.3 )	3.38 ( 12.8 )	1.48 ( 1.1 )	8.05 ( 6.0 )	13.41 ( 10.00 )		
		1500	8.43 ( 31.9 )	7.11 ( 26.9 )	6.18 ( 23.4 )	2.01 ( 1.5 )	11.94 ( 8.9 )	19.71 ( 14.70 )		
008	1.61 (26.4)	1000	6.97 ( 26.4 )	5.65 ( 21.4 )	4.73 ( 17.9 )	1.61 ( 1.2 )	9.66 ( 7.2 )	16.23 ( 12.10 )		
		1500	10.46 ( 39.6 )	9.14 ( 34.6 )	8.22 ( 31.1 )	2.15 ( 1.6 )	14.35 ( 10.7 )	23.74 ( 17.70 )		
010	2.08 (34.1)	1000	9.01 ( 34.1 )	7.69 ( 29.1 )	6.76 ( 25.6 )	1.74 ( 1.3 )	11.94 ( 8.9 )	20.25 ( 15.10 )		
		1500	13.50 ( 51.1 )	12.18 ( 46.1 )	11.25 ( 42.6 )	2.28 ( 1.7 )	17.97 ( 13.4 )	29.90 ( 22.30 )		
012	2.26 (37.1)	1000	9.80 ( 37.1 )	8.48 ( 32.1 )	7.56 ( 28.6 )	1.74 ( 1.3 )	12.87 ( 9.6 )	21.86 ( 16.30 )		
		1500	14.69 ( 55.6 )	13.37 ( 50.6 )	12.44 ( 47.1 )	2.28 ( 1.7 )	19.31 ( 14.4 )	32.32 ( 24.10 )		
014	2.81 (46.0)	1000	12.15 ( 46.0 )	10.83 ( 41.0 )	9.91 ( 37.5 )	1.88 ( 1.4 )	15.69 ( 11.7 )	26.69 ( 19.90 )		
		1500	18.23 ( 69.0 )	16.91 ( 64.0 )	15.98 ( 60.5 )	2.55 ( 1.9 )	23.60 ( 17.6 )	39.56 ( 29.50 )		
017	3.56 (58.3)	1000	15.40 ( 58.3 )	14.08 ( 53.3 )	13.16 ( 49.8 )	2.15 ( 1.6 )	19.44 ( 14.5 )	33.26 ( 24.80 )		
		1500	23.09 ( 87.4 )	21.77 ( 82.4 )	20.84 ( 78.9 )	2.82 ( 2.1 )	29.37 ( 21.9 )	49.48 ( 36.90 )		
020	3.89 (63.8)	1000	16.85 ( 63.8 )	15.53 ( 58.8 )	14.61 ( 55.3 )	2.15 ( 1.6 )	21.20 ( 15.8 )	36.21 ( 27.00 )		
		1500	25.28 ( 95.7 )	23.96 ( 90.7 )	23.04 ( 87.2 )	2.95 ( 2.2 )	31.92 ( 23.8 )	53.91 ( 40.20 )		
022	4.29 (70.3)	1000	18.57 ( 70.3 )	17.25 ( 65.3 )	16.33 ( 61.8 )	2.28 ( 1.7 )	23.20 ( 17.3 )	39.69 ( 29.60 )		
		1500	27.84 ( 105.4 )	26.42 ( 100.0 )	25.60 ( 96.9 )	3.08 ( 2.3 )	35.00 ( 26.1 )	59.14 ( 44.10 )		
025(1)	4.84 (79.3)	1000	20.95 ( 79.3 )	19.63 ( 74.3 )	18.70 ( 70.8 )	2.41 ( 1.8 )	25.88 ( 19.3 )	44.52 ( 33.20 )		
		1500	31.41 ( 118.9 )	30.09 ( 113.9 )	29.16 ( 110.4 )	3.35 ( 2.5 )	39.16 ( 29.2 )	66.38 ( 49.50 )		
028(1)	5.42 (88.8)	1000	23.46 ( 88.8 )	22.14 ( 83.8 )	21.50 ( 81.4 (2)	2.55 ( 1.9 )	29.37 ( 21.9 )	43.58 ( 32.50 (2)		
		1500	35.19 ( 133.2 )	33.87 ( 128.2 )	33.23 ( 125.8 (2)	3.75 ( 2.8 )	43.85 ( 32.7 )	65.04 ( 48.50 (2)		
031(1)	6.10 (100.0)	1000	26.42 ( 100.0 )	25.10 ( 95.0 )	24.46 ( 92.6 (2)	2.68 ( 2.0 )	32.72 ( 24.4 )	48.81 ( 36.40 (2)		
		1500	39.63 ( 150.0 )	38.30 ( 145.0 )	37.67 ( 142.6 (2)	3.75 ( 2.8 )	48.95 ( 36.5 )	72.95 ( 54.40 (2)		

(1) 025 - 028 - 031 = 2500 R.P.M.max

(2) 028 - 031 = 210 bar max. int.

Min Speed : 600 rpm



**PT6CM- \* B14 - 1 R 00 - C 1 \***

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

① **Series** PT6CM - SAE-B 2 Bolt Mount

② **Y-** Metric port connection ,  
Omit for UNC

③ **Cam ring**  
Volumetric displacement in<sup>3</sup>/ rev (cm<sup>3</sup>/rev)

B03 = 0.66 ( 10.8 )	B17 = 3.56 ( 58.3 )
B05 = 1.05 ( 17.2 )	B20 = 3.89 ( 63.8 )
B06 = 1.30 ( 21.3 )	B22 = 4.29 ( 70.3 )
B08 = 1.61 ( 26.4 )	B25 = 4.84 ( 79.3 )
B10 = 2.08 ( 34.1 )	B28 = 5.42 ( 88.8 )
B12 = 2.26 ( 37.1 )	B31 = 6.10 ( 100.0 )
B14 = 2.81 ( 46.0 )	

④ **Type of shaft**

- 1 = Keyed (SAE-B)
- 2 = Keyed (No SAE)
- 3 = Splined (SAE-B)
- 4 = Splined (SAE-BB)
- 5 = Keyed (SAE-BB)

⑤ **Direction of rotation**  
(viewed from shaft end)

- R = clockwise
- L = counter-clockwise

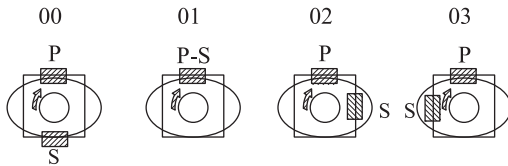
⑥ **Porting combination**  
00 = standard

⑦ **Design letter**

⑧ **Seal class**

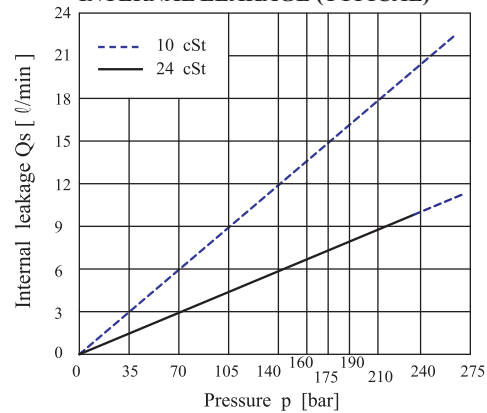
- 1 = S1 (for mineral oil)
- 4 = S4 (for fire resistant fluids)
- 5 = S5 (for mineral oil and fire resistant fluids)

⑨ **Modifications**



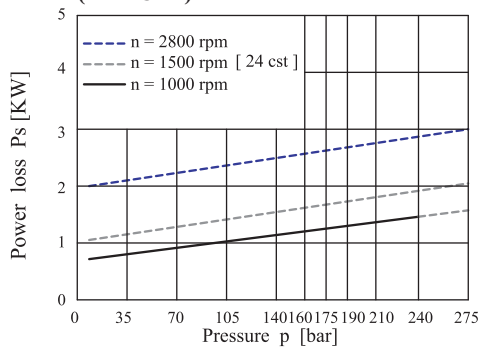
**S = Suction port      P = Pressure port**

**INTERNAL LEAKAGE (TYPICAL)**

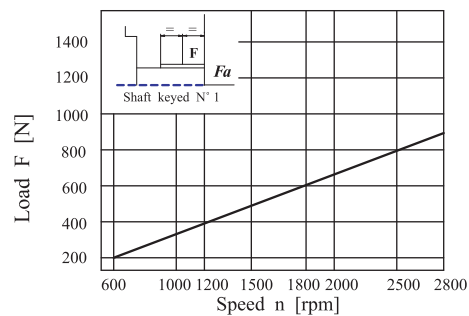


Do not operate pump more than 5 seconds at any speed or viscosity if internal leakage is more than 50 % of theoretical flow.

**HYDROMECHANICAL POWER LOSS (TYPICAL)**



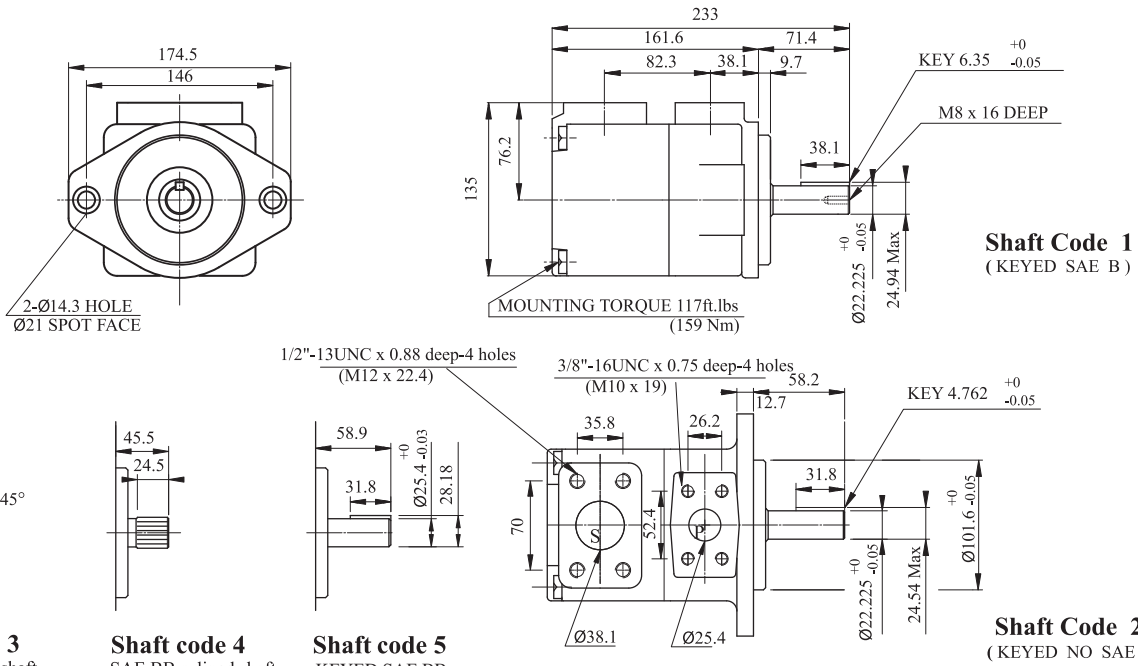
**PERMISSIBLE RADIAL LOAD**



Maximum permissible axial load Fa = 800 N



# PT6CM Dimensional Drawing



Shaft torque limits in <sup>3</sup> /rev x psi (cm <sup>3</sup> /rev x bar)		
Pump	Shaft	Vp x p max
PT6CM	1	14473 (16500)
	2	12666 (14300)
	3	18246 (20600)
	4	19309 (21812)
	5	18246 (20600)

## PT6CM OPERATING CHARACTERISTICS - TYPICAL 115 Sus (24 cSt)

Series	Volumetric Displacement Vp in <sup>3</sup> /rev (cm <sup>3</sup> /rev)	Speed n[RPM]	Flow qvc gpm (l/min)			Input Power HP (KW)			P. Max psi (bar)	MAX RPM
			p = 0 psi (0 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)	p = 100 psi (7 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)		
B03	0.66 (10.8)	1000	2.85 ( 10.8 )	1.88 ( 7.1 )	( )	1.21 ( 0.9 )	4.83 ( 3.6 )	( )	4000 (275)	2800
		1500	4.28 ( 16.2 )	2.83 ( 10.7 )	( )	1.74 ( 1.3 )	7.11 ( 5.3 )	( )		
B05	1.05 (17.7)	1000	4.54 ( 17.2 )	3.57 ( 13.5 )	2.77 ( 10.5 )	1.34 ( 1.0 )	6.84 ( 5.1 )	11.13 ( 8.3 )		
		1500	6.82 ( 25.8 )	5.36 ( 20.3 )	4.17 ( 15.8 )	1.88 ( 1.4 )	10.06 ( 7.5 )	16.36 ( 12.2 )		
B06	1.30 (21.3)	1000	5.63 ( 21.3 )	4.68 ( 17.7 )	3.88 ( 14.7 )	1.48 ( 1.1 )	8.05 ( 6.0 )	13.41 ( 10.0 )		
		1500	8.43 ( 31.9 )	7.00 ( 26.5 )	5.81 ( 22.0 )	2.01 ( 1.5 )	11.94 ( 8.9 )	19.71 ( 14.7 )		
B08	1.61 (26.4)	1000	6.97 ( 26.4 )	6.00 ( 22.7 )	5.20 ( 19.7 )	1.61 ( 1.2 )	9.66 ( 7.2 )	16.23 ( 12.1 )		
		1500	10.46 ( 39.6 )	9.01 ( 34.1 )	7.82 ( 29.6 )	2.15 ( 1.6 )	14.35 ( 10.7 )	23.74 ( 17.7 )		
B10	2.08 (34.1)	1000	9.01 ( 34.1 )	8.06 ( 30.5 )	6.76 ( 25.6 )	1.74 ( 1.3 )	11.94 ( 8.9 )	20.25 ( 15.1 )		
		1500	13.50 ( 51.1 )	12.07 ( 45.7 )	10.88 ( 41.2 )	2.28 ( 1.7 )	17.97 ( 13.4 )	29.90 ( 22.3 )		
B12	2.26 (37.1)	1000	9.80 ( 37.1 )	8.85 ( 33.5 )	7.26 ( 27.5 )	1.74 ( 1.3 )	12.87 ( 9.6 )	21.86 ( 16.3 )		
		1500	14.69 ( 55.6 )	13.26 ( 50.2 )	12.07 ( 45.7 )	2.28 ( 1.7 )	19.31 ( 14.4 )	32.32 ( 24.1 )		
B14	2.81 (46.0)	1000	12.15 ( 46.0 )	11.17 ( 42.3 )	10.38 ( 39.3 )	1.88 ( 1.4 )	15.69 ( 11.7 )	26.69 ( 19.9 )		
		1500	18.23 ( 69.0 )	16.77 ( 63.5 )	15.59 ( 59.0 )	2.55 ( 1.9 )	23.60 ( 17.6 )	39.56 ( 29.5 )		
B17	3.56 (58.3)	1000	15.40 ( 58.3 )	14.45 ( 54.7 )	13.63 ( 51.6 )	2.15 ( 1.6 )	19.44 ( 14.5 )	33.26 ( 24.8 )		
		1500	23.09 ( 87.4 )	21.66 ( 82.0 )	20.47 ( 77.5 )	2.82 ( 2.1 )	29.37 ( 21.9 )	49.48 ( 36.9 )		
B20	3.89 (63.8)	1000	16.85 ( 63.8 )	15.88 ( 60.1 )	15.08 ( 57.1 )	2.15 ( 1.6 )	21.20 ( 15.8 )	36.21 ( 27.0 )		
		1500	25.28 ( 95.7 )	23.83 ( 90.2 )	22.64 ( 85.7 )	2.95 ( 2.2 )	31.92 ( 23.8 )	53.91 ( 40.2 )		
B22	4.29 (70.3)	1000	18.57 ( 70.3 )	17.62 ( 66.7 )	16.80 ( 63.6 )	2.28 ( 1.7 )	23.20 ( 17.3 )	39.69 ( 29.6 )		
		1500	27.84 ( 105.4 )	26.42 ( 100.0 )	25.23 ( 95.5 )	3.08 ( 2.3 )	35.00 ( 26.1 )	59.14 ( 44.1 )		
B25 <sup>(1)</sup>	4.84 (79.3)	1000	20.95 ( 79.3 )	20.00 ( 75.7 )	19.18 ( 72.6 )	2.41 ( 1.8 )	25.88 ( 19.3 )	44.52 ( 33.2 )		
		1500	31.41 ( 118.9 )	29.98 ( 113.5 )	28.79 ( 109.0 )	3.35 ( 2.5 )	39.16 ( 29.2 )	66.38 ( 49.5 )		
B28 <sup>(1)</sup>	5.42 (88.8)	1000	23.46 ( 88.8 )	21.93 ( 83.0 )	21.50 ( 81.4 ) (2)	2.55 ( 1.9 )	29.37 ( 21.9 )	43.58 ( 32.5 )		
		1500	35.19 ( 133.2 )	33.73 ( 127.7 )	33.15 ( 125.5 ) (2)	3.75 ( 2.8 )	43.85 ( 32.7 )	65.04 ( 48.5 ) (2)		
B31 <sup>(1)</sup>	6.10 (100.0)	1000	26.42 ( 100.0 )	25.44 ( 96.3 )	24.89 ( 94.2 ) (2)	2.68 ( 2.0 )	32.72 ( 24.4 )	48.81 ( 36.4 ) (2)		
		1500	39.63 ( 150.0 )	38.17 ( 144.5 )	37.33 ( 141.3 ) (2)	3.75 ( 2.8 )	48.95 ( 36.5 )	72.95 ( 54.4 ) (2)		

(1) 025 - 028 - 031 = 2500 R.P.M.max

(2) 028 - 031 = 210 bar max. int.

Min Speed : 600 rpm

**PT6D \* - 045 - 1 R 00 - B 1 \***  
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

① **Series** PT6D - SAE-C 2 Bolt Mount

② **Y**- Metric port connection (not for code Q)  
Omit for UNC

③ **Cam ring**  
Volumetric displacement in<sup>3</sup>/ rev (cm<sup>3</sup>/rev)

014 = 2.90 ( 47.6 )	035 = 6.77 ( 111.0 )
017 = 3.55 ( 58.2 )	038 = 7.34 ( 120.3 )
020 = 4.03 ( 66.0 )	042 = 8.30 ( 136.0 )
024 = 4.85 ( 79.5 )	045 = 8.89 ( 145.7 )
028 = 5.47 ( 89.7 )	050 = 9.64 ( 158.0 )
031 = 6.00 ( 98.3 )	

④ **Type of shaft**

- 1 = Keyed (SAE C)
- 2 = Keyed (No SAE)
- 3 = Splined (SAE C)
- 4 = Splined (SAE C spec long)

⑤ **Direction of rotation**  
(viewed from shaft end)

R = clockwise  
L = counter-clockwise

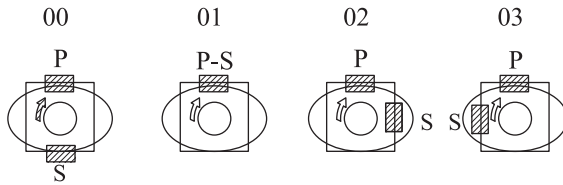
⑥ **Porting combination**  
00 = Standard

⑦ **Design letter**

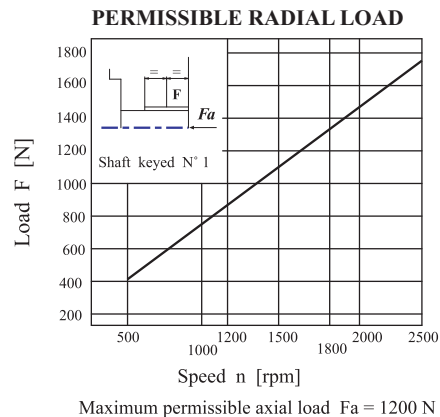
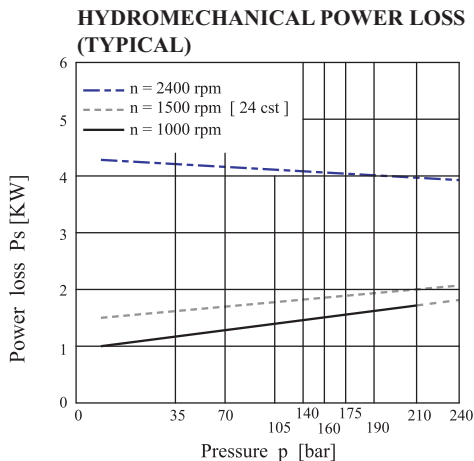
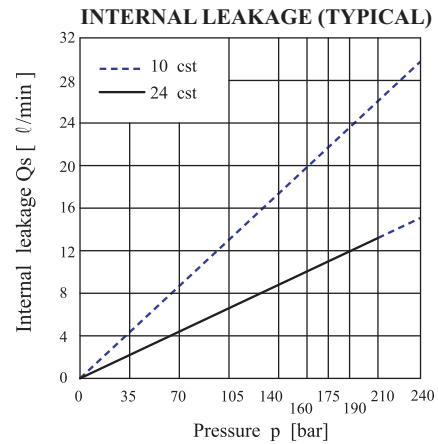
⑧ **Seal class**

- 1 = S1 (for mineral oil)
- 4 = S4 (for fire resistant fluids)
- 5 = S5 (for mineral oil and fire resistant fluids)

⑨ **Modifications**

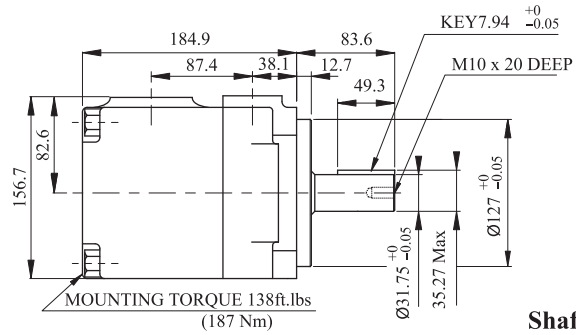
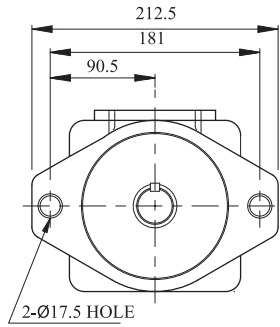


**S = Suction port    P = Pressure port**

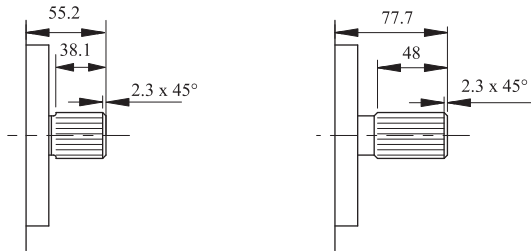




# PT6D Dimensional Drawing

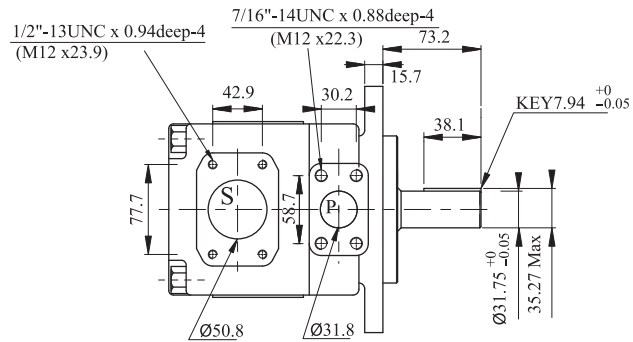


**Shaft Code 1**  
(Keyed SAE C)



**Shaft code 3**  
SAE C splined shaft  
Class 1 - J498b  
12/24 dp. -14 teeth  
30° pressure angle  
Flat root side fit.

**Shaft code 4**  
no SAE splined shaft  
Class 1 - J498b  
12/24 dp. -14 teeth  
30° pressure angle  
Flat root side fit.  
(SAE C spec long)



**Shaft Code 2**  
(Keyed no SAE)

Shaft torque limits in <sup>3</sup> /rev x psi (cm <sup>3</sup> /rev x bar)		
Pump	Shaft	Vp x p max
PT6D	1	38299 (43283)
	2	30638 (34590)
	3	54207 (61200)
	4	54207 (61200)

## PT6D OPERATING CHARACTERISTICS - TYPICAL 115 Sus (24 cSt)

Series	Volumetric Disp. Vp in <sup>3</sup> /rev (cm <sup>3</sup> /rev)	Speed n(RPM)	Flow qvc gpm (l/min)			Input Power HP (KW)			P. Max psi (bar)	MAX RPM
			p = 0 psi (0 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)	p = 100 psi (7 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)		
014	2.90 (47.6)	1000	12.57 ( 47.6 )	10.12 ( 38.3 )	8.48 ( 32.1 )	2.01 ( 1.5 )	16.76 ( 12.5 )	27.76 ( 20.70 )	3500 (240)	2500
		1500	18.86 ( 71.4 )	16.41 ( 62.1 )	14.77 ( 55.9 )	3.08 ( 2.3 )	24.81 ( 18.5 )	41.04 ( 30.60 )		
017	3.55 (58.2)	1000	15.37 ( 58.2 )	13.74 ( 52.0 )	12.63 ( 47.8 )	2.15 ( 1.6 )	19.85 ( 14.8 )	32.99 ( 24.60 )		
		1500	23.06 ( 87.3 )	20.61 ( 78.0 )	18.97 ( 71.8 )	3.35 ( 2.5 )	29.77 ( 22.2 )	49.62 ( 37.00 )		
020	4.03 (66.0)	1000	17.44 ( 66.0 )	14.98 ( 56.7 )	13.34 ( 50.5 )	2.28 ( 1.7 )	22.53 ( 16.8 )	37.55 ( 28.00 )		
		1500	26.15 ( 99.0 )	23.70 ( 89.7 )	22.06 ( 83.5 )	3.75 ( 2.8 )	33.39 ( 24.9 )	55.92 ( 41.70 )		
024	4.85 (79.5)	1000	21.00 ( 79.5 )	18.54 ( 70.2 )	16.91 ( 64.0 )	2.55 ( 1.9 )	26.69 ( 19.9 )	44.79 ( 33.40 )		
		1500	31.52 ( 119.3 )	29.06 ( 110.0 )	27.42 ( 103.8 )	4.02 ( 3.0 )	39.69 ( 29.6 )	66.78 ( 49.80 )		
028	5.47 (89.7)	1000	23.70 ( 89.7 )	21.24 ( 80.4 )	19.60 ( 74.2 )	2.68 ( 2.0 )	29.90 ( 22.3 )	50.29 ( 37.50 )		
		1500	35.53 ( 134.5 )	33.07 ( 125.2 )	31.44 ( 119.0 )	4.29 ( 3.2 )	44.52 ( 33.2 )	74.96 ( 55.90 )		
031	6.00 (98.3)	1000	25.97 ( 98.3 )	23.51 ( 89.0 )	21.87 ( 82.8 )	2.82 ( 2.1 )	32.59 ( 24.3 )	54.85 ( 40.90 )		
		1500	38.97 ( 147.5 )	36.48 ( 138.1 )	34.84 ( 131.9 )	4.43 ( 3.3 )	48.54 ( 36.2 )	81.80 ( 61.00 )		
035	6.77 (111.0)	1000	29.32 ( 111.0 )	26.87 ( 101.7 )	25.23 ( 95.5 )	3.08 ( 2.3 )	36.61 ( 27.3 )	61.69 ( 46.00 )		
		1500	43.98 ( 166.5 )	41.53 ( 157.2 )	39.89 ( 151.0 )	4.69 ( 3.5 )	54.58 ( 40.7 )	92.13 ( 68.70 )		
038	7.34 (120.3)	1000	31.78 ( 120.3 )	29.32 ( 111.0 )	27.69 ( 104.8 )	3.22 ( 2.4 )	39.43 ( 29.4 )	66.78 ( 49.80 )		
		1500	47.66 ( 180.4 )	45.20 ( 171.1 )	43.56 ( 164.9 )	4.96 ( 3.7 )	58.87 ( 43.9 )	99.64 ( 74.30 )		
042(1)	8.30 (136.0)	1000	35.93 ( 136.0 )	33.47 ( 126.7 )	31.83 ( 120.5 )	3.49 ( 2.6 )	44.39 ( 33.1 )	75.10 ( 56.00 )		
		1500	53.89 ( 204.0 )	51.43 ( 194.7 )	49.80 ( 188.5 )	5.36 ( 4.0 )	66.25 ( 49.4 )	112.24 ( 83.70 )		
045(1)	8.89 (145.7)	1000	38.49 ( 145.7 )	36.03 ( 136.4 )	34.40 ( 130.2 )	3.62 ( 2.7 )	47.34 ( 35.3 )	80.33 ( 59.90 )		
		1500	57.72 ( 218.5 )	55.26 ( 209.2 )	53.63 ( 203.0 )	5.50 ( 4.1 )	70.81 ( 52.8 )	120.02 ( 89.50 )		
050(1)	9.64 (158.0)	1000	41.74 ( 158.0 )	39.28 ( 148.7 )	38.30 ( 145.0 (2)	3.75 ( 2.8 )	51.23 ( 38.2 )	76.17 ( 56.80 (2)		
		1500	62.61 ( 237.0 )	60.15 ( 227.7 )	59.17 ( 224.0 (2)	5.90 ( 4.4 )	76.44 ( 57.0 )	113.99 ( 85.00 (2)		

(1) 042 - 045 - 050 = 2200 R.P.M.max (2) 050 = 210 bar max. int.

Min Speed : 600 rpm

**PT6DM \* - B45 - 1 R 00 - C 1 \***

①    ②    ③    ④ ⑤ ⑥    ⑦ ⑧ ⑨

① **Series** PT6DM - SAE-C 2-Bolt Mount

② **Y** - Metric port connection (not for code "Q")  
Omit for UNC

③ **Cam ring**  
Volumetric displacement in<sup>3</sup>/ rev (cm<sup>3</sup>/rev)

B14 = 2.90 ( 47.6 )	B35 = 6.77 ( 111.0 )
B17 = 3.55 ( 58.2 )	B38 = 7.34 ( 120.3 )
B20 = 4.03 ( 66.0 )	B42 = 8.30 ( 136.0 )
B24 = 4.85 ( 79.5 )	B45 = 8.89 ( 145.7 )
B28 = 5.47 ( 89.7 )	B50 = 9.64 ( 158.0 )
B31 = 6.00 ( 98.3 )	

④ **Type of shaft**

- 1 = Keyed (SAE C)
- 2 = Keyed (No SAE)
- 3 = Splined (SAE C)
- 4 = Splined (SAE C spec long)

⑤ **Direction of rotation**  
(viewed from shaft end)

R = clockwise  
L = counter-clockwise

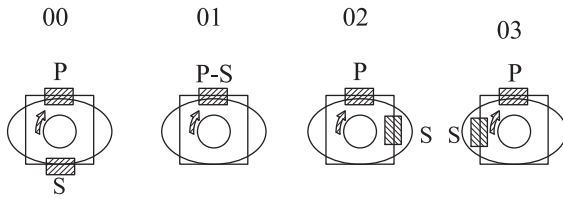
⑥ **Porting combination**  
00 = Standard

⑦ **Design letter**

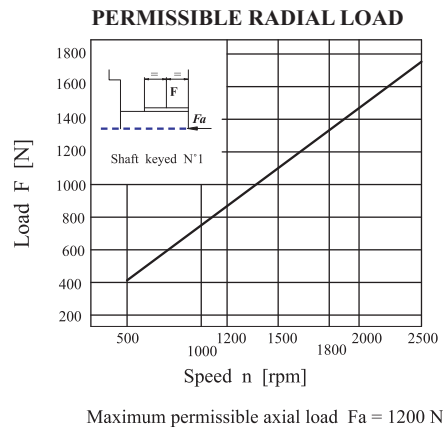
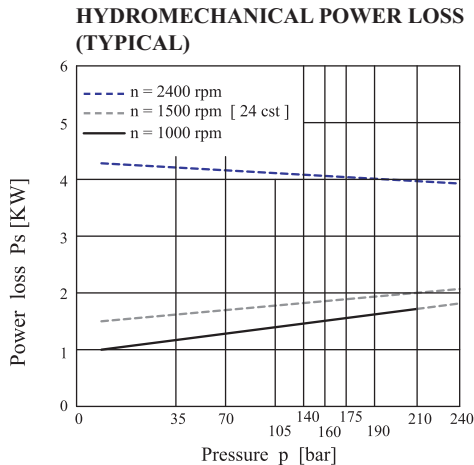
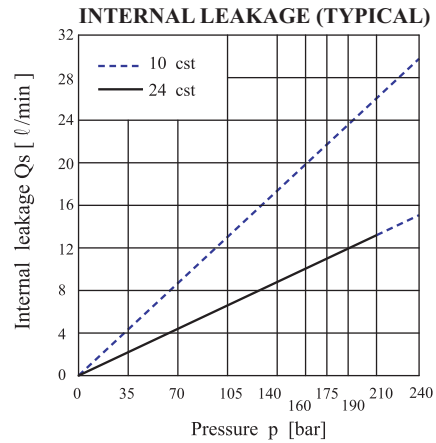
⑧ **Seal class**

- 1 = S1 (for mineral oil)
- 4 = S4 (for fire resistant fluids)
- 5 = S5 (for mineral oil and fire resistant fluids)

⑨ **Modifications**

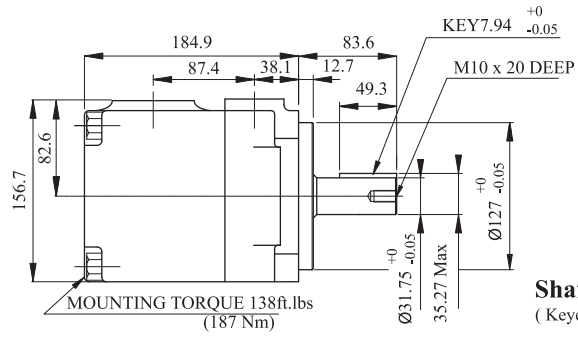
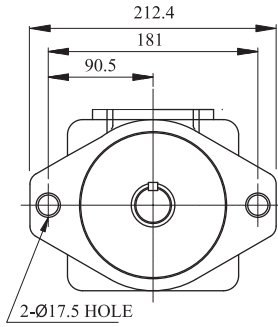


**S = Suction port    P = Pressure port**

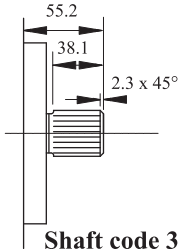




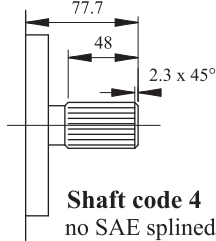
# PT6DM Dimensional Drawing



**Shaft Code 1**  
(Keyed SAE C)



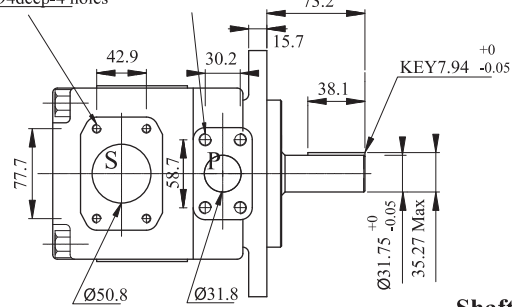
**Shaft code 3**  
SAE C splined shaft  
Class 1 - J498 b  
12/24 dp. -14 teeth  
30° pressure angle  
Flat root side fit.



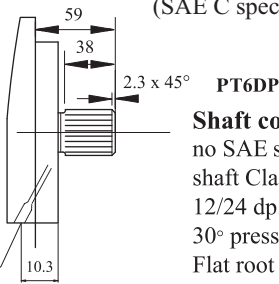
**Shaft code 4**  
no SAE splined shaft  
Class 1 - J498 b  
12/24 dp. -14 teeth  
30° pressure angle  
Flat root side fit.  
(SAE C spec long)

1/2"-13UNC x 0.94deep-4 holes  
(M12 x23.9)

7/16"-14UNC x 0.88deep-4 holes  
(M12 x22.3)



**Shaft Code 2**  
(Keyed no SAE)



**Shaft code 3**  
no SAE splined shaft  
Class 1 - J498 b  
12/24 dp. -14 teeth  
30° pressure angle  
Flat root side fit.

Drain hole between double shaft seals

Shaft torque limits in <sup>3</sup> /rev x psi (cm <sup>3</sup> /rev x bar)		
Pump	Shaft	Vp x p max
PT6DM	1	38299 (43283)
	2	30638 (34590)
	3	54207 (61200)
	4	54207 (61200)

## PT6DM OPERATING CHARACTERISTICS - TYPICAL 115 Sus (24 cSt)

Series	Volumetric Displacement Vp in <sup>3</sup> /rev (cm <sup>3</sup> /rev)	Speed n[RPM]	Flow qvc gpm (l/min)			Input Power HP (KW)			P. Max psi (bar)	MAX RPM
			p = 0 psi (0 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)	p = 100 psi (7 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)		
B14	2.90 (47.6)	1000	12.57 ( 47.6 )	10.12 ( 38.3 )	8.48 ( 32.1 )	2.01 ( 1.5 )	16.76 ( 12.5 )	27.76 ( 20.70 )	3500 (240)	2500
		1500	18.86 ( 71.4 )	16.41 ( 62.1 )	14.77 ( 55.9 )	3.08 ( 2.3 )	24.81 ( 18.5 )	41.04 ( 30.60 )		
B17	3.55 (58.2)	1000	15.37 ( 58.2 )	13.74 ( 52.0 )	12.63 ( 47.8 )	2.15 ( 1.6 )	19.85 ( 14.8 )	32.99 ( 24.60 )		
		1500	23.06 ( 87.3 )	20.61 ( 78.0 )	18.97 ( 71.8 )	3.35 ( 2.5 )	29.77 ( 22.2 )	49.62 ( 37.00 )		
B20	4.03 (66.0)	1000	17.44 ( 66.0 )	14.98 ( 56.7 )	13.34 ( 50.5 )	2.28 ( 1.7 )	22.53 ( 16.8 )	37.55 ( 28.00 )		
		1500	26.15 ( 99.0 )	23.70 ( 89.7 )	22.06 ( 83.5 )	3.75 ( 2.8 )	33.39 ( 24.9 )	55.92 ( 41.70 )		
B24	4.85 (79.5)	1000	21.00 ( 79.5 )	18.54 ( 70.2 )	16.91 ( 64.0 )	2.55 ( 1.9 )	26.69 ( 19.9 )	44.79 ( 33.40 )		
		1500	31.52 ( 119.3 )	29.06 ( 110.0 )	27.42 ( 103.8 )	4.02 ( 3.0 )	39.69 ( 29.6 )	66.78 ( 49.80 )		
B28	5.47 (89.7)	1000	23.70 ( 89.7 )	21.24 ( 80.4 )	19.60 ( 74.2 )	2.68 ( 2.0 )	29.90 ( 22.3 )	50.29 ( 37.50 )		
		1500	35.53 ( 134.5 )	33.07 ( 125.2 )	31.44 ( 119.0 )	4.29 ( 3.2 )	44.52 ( 33.2 )	74.96 ( 55.90 )		
B31	6.00 (98.3)	1000	25.97 ( 98.3 )	23.51 ( 89.0 )	21.87 ( 82.8 )	2.82 ( 2.1 )	32.59 ( 24.3 )	54.85 ( 40.90 )		
		1500	38.97 ( 147.5 )	36.48 ( 138.1 )	34.84 ( 131.9 )	4.43 ( 3.3 )	48.54 ( 36.2 )	81.80 ( 61.00 )		
B35	6.77 (111.0)	1000	29.32 ( 111.0 )	26.87 ( 101.7 )	25.23 ( 95.5 )	3.08 ( 2.3 )	36.61 ( 27.3 )	61.69 ( 46.00 )		
		1500	43.98 ( 166.5 )	41.53 ( 157.2 )	39.89 ( 151.0 )	4.69 ( 3.5 )	54.58 ( 40.7 )	92.13 ( 68.70 )		
B38	7.34 (120.3)	1000	31.78 ( 120.3 )	29.32 ( 111.0 )	27.69 ( 104.8 )	3.22 ( 2.4 )	39.43 ( 29.4 )	66.78 ( 49.80 )		
		1500	47.66 ( 180.4 )	45.20 ( 171.1 )	43.56 ( 164.9 )	4.96 ( 3.7 )	58.87 ( 43.9 )	99.64 ( 74.30 )		
B42(1)	8.30 (136.0)	1000	35.93 ( 136.0 )	33.47 ( 126.7 )	31.83 ( 120.5 )	3.49 ( 2.6 )	44.39 ( 33.1 )	75.10 ( 56.00 )		
		1500	53.89 ( 204.0 )	51.43 ( 194.7 )	49.80 ( 188.5 )	5.36 ( 4.0 )	66.25 ( 49.4 )	112.24 ( 83.70 )		
B45(1)	8.89 (145.7)	1000	38.49 ( 145.7 )	36.03 ( 136.4 )	34.40 ( 130.2 )	3.62 ( 2.7 )	47.34 ( 35.3 )	80.33 ( 59.90 )		
		1500	57.72 ( 218.5 )	55.26 ( 209.2 )	53.63 ( 203.0 )	5.50 ( 4.1 )	70.81 ( 52.8 )	120.02 ( 89.50 )		
B50(1)	9.64 (158.0)	1000	41.74 ( 158.0 )	39.28 ( 148.7 )	38.30 ( 145.0 (2)	3.75 ( 2.8 )	51.23 ( 38.2 )	76.17 ( 56.80 (2)		
		1500	62.61 ( 237.0 )	60.15 ( 227.7 )	59.17 ( 224.0 (2)	5.90 ( 4.4 )	76.44 ( 57.0 )	113.99 ( 85.00 (2)		

(1) 042 - 045 - 050 = 2200 R.P.M.max

(2) 050 = 210 bar max. int.

Min Speed : 600 rpm

## PT6DS/PT6DSM - 045 - 1 R 00 - B 1 \*

①                      ②   ③ ④ ⑤   ⑥ ⑦ ⑧

① **Series** PT6DS/PT6DSM - SAE-C 2 & 4 Bolt Mount

② **Cam ring**

Volumetric displacement in<sup>3</sup>/ rev (cm<sup>3</sup>/rev)

014/B14 = 2.90 ( 47.6 )      035/B35 = 6.77 ( 111.0 )

017/B17 = 3.55 ( 58.2 )      038/B38 = 7.34 ( 120.3 )

020/B20 = 4.03 ( 66.0 )      042/B42 = 8.30 ( 136.0 )

024/B24 = 4.85 ( 79.5 )      045/B45 = 8.89 ( 145.7 )

028/B28 = 5.47 ( 89.7 )      050/B50 = 9.64 ( 158.0 )

031/B31 = 6.00 ( 98.3 )

③ **Type of shaft**

1 = Keyed (SAE C)

2 = Keyed (SAE C spec short)

3 = Splined (SAE C)

4 = Splined (SAE C spec long)

④ **Direction of rotation**

(viewed from shaft end)

R = clockwise

L = counter-clockwise

⑤ **Porting combination**

00 = Standard

⑥ **Design letter**

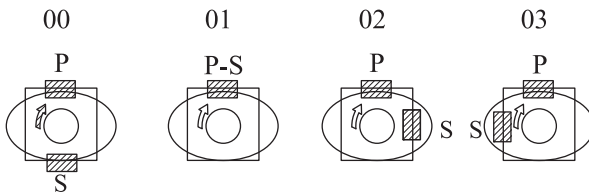
⑦ **Seal class**

1 = S1 (for mineral oil)

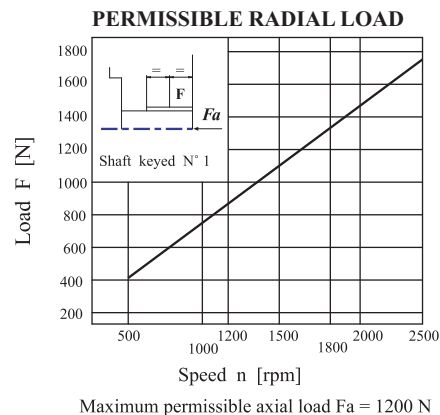
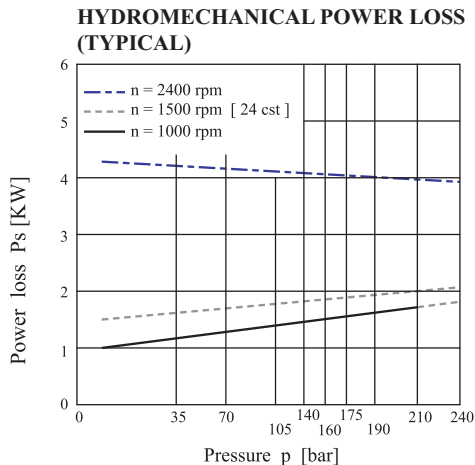
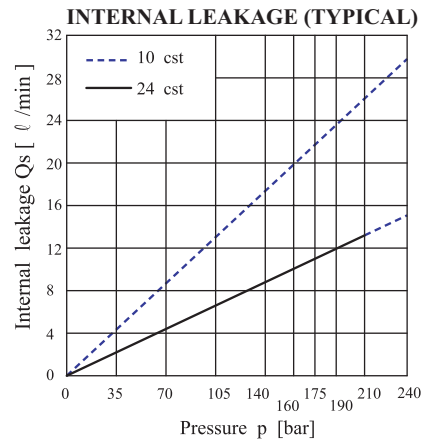
4 = S4 (for fire resistant fluids)

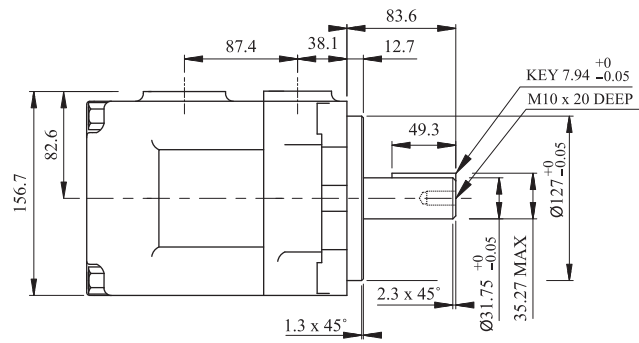
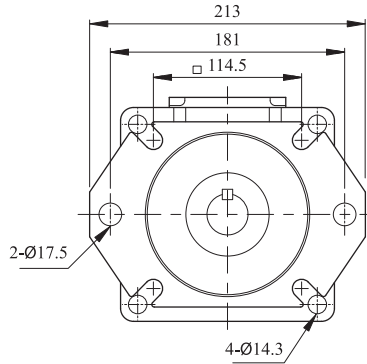
5 = S5 (for mineral oil and fire resistant fluids)

⑧ **Modifications**

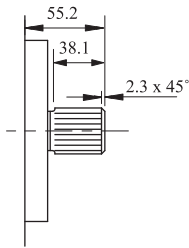


S = Suction port      P = Pressure port



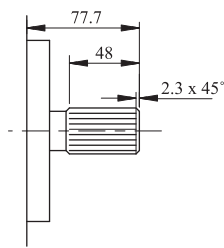


**Shaft code 1**  
(Keyed SAE C)



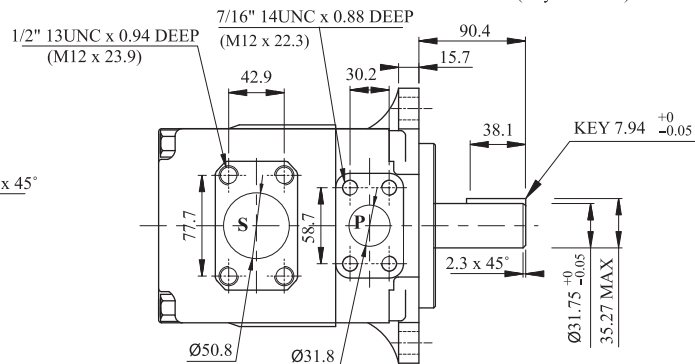
**Shaft code 3**

SAE C splined shaft  
Class 1 - J498b  
12/24 dp, -14 teeth  
30° pressure angle  
Flat root side fit.



**Shaft code 4**

NO SAE splined shaft  
Class 1 - J498b  
12/24 dp, -14 teeth  
30° pressure angle  
Flat root side fit.  
(SAE C spec long)



**Shaft code 2**

(Keyed no SAE) (SAE C spec short)

Shaft torque limits in <sup>3</sup> /rev x psi (cm <sup>3</sup> /rev x bar)		
Pump	Shaft	Vp x p max
PT6DS	1	38299 (43283)
	2	30638 (34590)
	3	54207 (61200)
	4	54207 (61200)

**PT6DS/PT6DSM OPERATING CHARACTERISTICS - TYPICAL 115 Sus (24 cSt)**

Series	Volumetric Displacement Vp in <sup>3</sup> /rev (cm <sup>3</sup> /rev)	Speed n[RPM]	Flow qvc gpm (l/min)			Input Power HP (KW)			P. Max psi (bar)	MAX RPM
			p = 0 psi (0 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)	p = 100 psi (7 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)		
B/014	2.90 (47.6)	1000	12.57 ( 47.6 )	10.12 ( 38.3 )	8.48 ( 32.1 )	2.01 ( 1.5 )	16.76 ( 12.5 )	27.76 ( 20.70 )	3500 (240)	2500
		1500	18.86 ( 71.4 )	16.41 ( 62.1 )	14.77 ( 55.9 )	3.08 ( 2.3 )	24.81 ( 18.5 )	41.04 ( 30.60 )		
B/017	3.55 (58.2)	1000	15.37 ( 58.2 )	13.74 ( 52.0 )	12.63 ( 47.8 )	2.15 ( 1.6 )	19.85 ( 14.8 )	32.99 ( 24.60 )		
		1500	23.06 ( 87.3 )	20.61 ( 78.0 )	18.97 ( 71.8 )	3.35 ( 2.5 )	29.77 ( 22.2 )	49.62 ( 37.00 )		
B/020	4.03 (66.0)	1000	17.44 ( 66.0 )	14.98 ( 56.7 )	13.34 ( 50.5 )	2.28 ( 1.7 )	22.53 ( 16.8 )	37.55 ( 28.00 )		
		1500	26.15 ( 99.0 )	23.70 ( 89.7 )	22.06 ( 83.5 )	3.75 ( 2.8 )	33.39 ( 24.9 )	55.92 ( 41.70 )		
B/024	4.85 (79.5)	1000	21.00 ( 79.5 )	18.54 ( 70.2 )	16.91 ( 64.0 )	2.55 ( 1.9 )	26.69 ( 19.9 )	44.79 ( 33.40 )		
		1500	31.52 ( 119.3 )	29.06 ( 110.0 )	27.42 ( 103.8 )	4.02 ( 3.0 )	39.69 ( 29.6 )	66.78 ( 49.80 )		
B/028	5.47 (89.7)	1000	23.70 ( 89.7 )	21.24 ( 80.4 )	19.60 ( 74.2 )	2.68 ( 2.0 )	29.90 ( 22.3 )	50.29 ( 37.50 )		
		1500	35.53 ( 134.5 )	33.07 ( 125.2 )	31.44 ( 119.0 )	4.29 ( 3.2 )	44.52 ( 33.2 )	74.96 ( 55.90 )		
B/031	6.00 (98.3)	1000	25.97 ( 98.3 )	23.51 ( 89.0 )	21.87 ( 82.8 )	2.82 ( 2.1 )	32.59 ( 24.3 )	54.85 ( 40.90 )		
		1500	38.97 ( 147.5 )	36.48 ( 138.1 )	34.84 ( 131.9 )	4.43 ( 3.3 )	48.54 ( 36.2 )	81.80 ( 61.00 )		
B/035	6.77 (111.0)	1000	29.32 ( 111.0 )	26.87 ( 101.7 )	25.23 ( 95.5 )	3.08 ( 2.3 )	36.61 ( 27.3 )	61.69 ( 46.00 )		
		1500	43.98 ( 166.5 )	41.53 ( 157.2 )	39.89 ( 151.0 )	4.69 ( 3.5 )	54.58 ( 40.7 )	92.13 ( 68.70 )		
B/038	7.34 (120.3)	1000	31.78 ( 120.3 )	29.32 ( 111.0 )	27.69 ( 104.8 )	3.22 ( 2.4 )	39.43 ( 29.4 )	66.78 ( 49.80 )		
		1500	47.66 ( 180.4 )	45.20 ( 171.1 )	43.56 ( 164.9 )	4.96 ( 3.7 )	58.87 ( 43.9 )	99.64 ( 74.30 )		
B/042(1)	8.30 (136.0)	1000	35.93 ( 136.0 )	33.47 ( 126.7 )	31.83 ( 120.5 )	3.49 ( 2.6 )	44.39 ( 33.1 )	75.10 ( 56.00 )		
		1500	53.89 ( 204.0 )	51.43 ( 194.7 )	49.80 ( 188.5 )	5.36 ( 4.0 )	66.25 ( 49.4 )	112.24 ( 83.70 )		
B/045(1)	8.89 (145.7)	1000	38.49 ( 145.7 )	36.03 ( 136.4 )	34.40 ( 130.2 )	3.62 ( 2.7 )	47.34 ( 35.3 )	80.33 ( 59.90 )		
		1500	57.72 ( 218.5 )	55.26 ( 209.2 )	53.63 ( 203.0 )	5.50 ( 4.1 )	70.81 ( 52.8 )	120.02 ( 89.50 )		
B/050(1)	9.64 (158.0)	1000	41.74 ( 158.0 )	39.28 ( 148.7 )	38.30 ( 145.0 (2) )	3.75 ( 2.8 )	51.23 ( 38.2 )	76.17 ( 56.80 (2) )		
		1500	62.61 ( 237.0 )	60.15 ( 227.7 )	59.17 ( 224.0 (2) )	5.90 ( 4.4 )	76.44 ( 57.0 )	113.99 ( 85.00 (2) )		

(1) 042 - 045 - 050 = 2200 R.P.M.max (2) 050 = 210 bar max. int.

Min Speed: 600 rpm



**PT6E \* - 066 - 3 R 00 - A 1 \***  
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

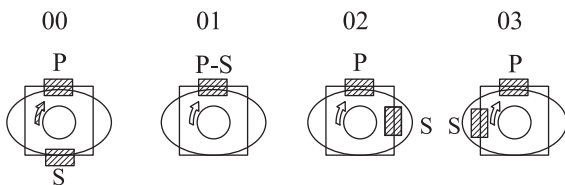
① **Series** PT6E - SAE-C 2-Bolt Mount

② **Y-** Metric port connection,  
Omit for UNC

③ **Cam ring**  
 Volumetric displacement in<sup>3</sup>/ rev (cm<sup>3</sup>/rev)  
 042 = 8.07 ( 132.3 )    062 = 12.00 ( 196.7 )  
 045 = 8.69 ( 142.4 )    066 = 13.02 ( 213.3 )  
 050 = 9.67 ( 158.5 )    072 = 13.86 ( 227.1 )  
 052 = 10.06 ( 164.8 )    085 = 16.46 ( 269.8 )

④ **Type of shaft**  
 1 = Keyed (SAE CC)  
 2 = Keyed (No SAE)  
 3 = Splined (SAE C)  
 4 = Splined (SAE CC)

⑤ **Direction of rotation**  
 (viewed from shaft end)  
 R = clockwise  
 L = counter-clockwise



**S = Suction port    P = Pressure port**

⑥ **Porting combination**

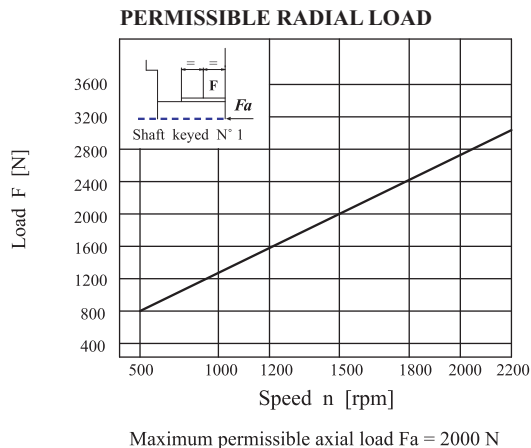
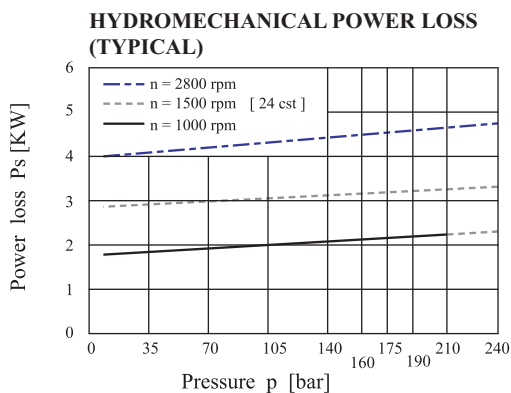
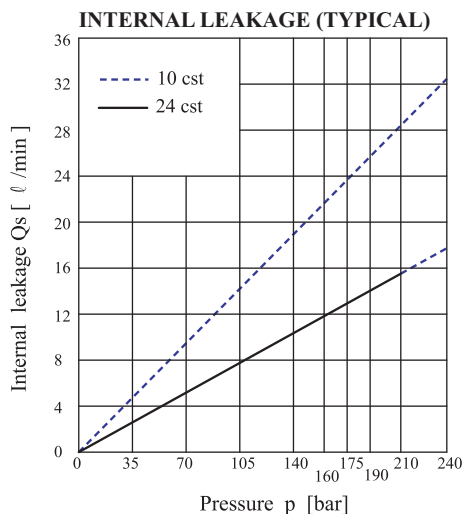
00 = standard

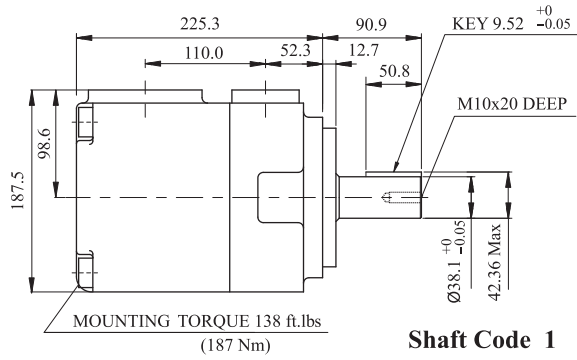
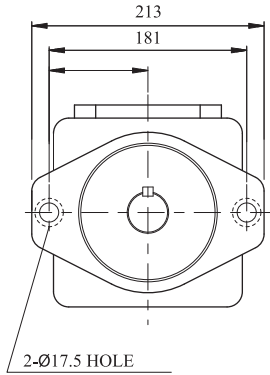
⑦ **Design letter**

⑧ **Seal class**

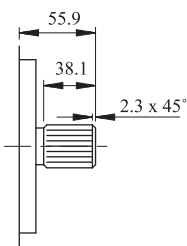
1 = S1 (for mineral oil)  
 4 = S4 (for fire resistant fluids)  
 5 = S5 (for mineral oil and fire resistant fluids)

⑨ **Modifications**



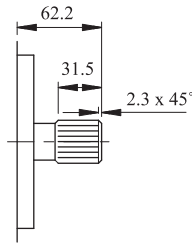


**Shaft Code 1**  
(Keyed SAE CC)



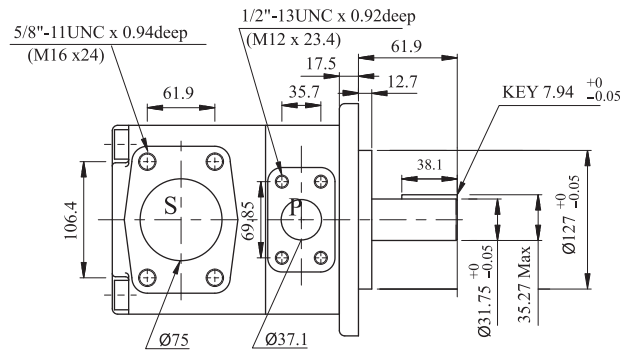
**Shaft code 3**

SAE C Splined shaft  
class 1 - J498b  
12/24 dp. -14 teeth 30°  
pressure angle. Flat root  
side fit.



**Shaft code 4**

SAE CC Splined shaft  
class 1 - J498b 12/24  
dp. -17 teeth 30°  
pressure angle. Flat root  
side fit.



**Shaft Code 2**  
(Keyed no SAE)

Shaft torque limits in <sup>3</sup> /rev x psi (cm <sup>3</sup> /rev x bar)		
Pump	Shaft	Vp x p max
PT6E	1	48273 (54555)
	2	30638 (34590)
	3	54207 (61200)
	4	54207 (61200)
	T	62356 (70400)

**PT6E OPERATING CHARACTERISTICS - TYPICAL 115 Sus (24 cSt)**

Series	Volumetric Displacement Vp in <sup>3</sup> /rev (cm <sup>3</sup> /rev)	Speed n[RPM]	Flow qvc gpm (l/min)			Input Power HP (KW)			P. Max psi (bar)	MAX RPM
			p = 0 psi (0 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)	p = 100 psi (7 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)		
042	8.07 (132.3)	1000	34.95 (132.3)	32.31 (122.3)	30.43 (115.2)	4.29 (3.2)	44.12 (32.9)	74.02 (55.2)	3500 (240)	2200
		1500	52.44 (198.5)	49.80 (188.5)	47.89 (181.3)	6.97 (5.2)	66.25 (49.4)	110.77 (82.6)		
045	8.69 (142.4)	1000	37.62 (142.4)	34.98 (132.4)	33.10 (125.3)	4.56 (3.4)	47.34 (35.3)	79.39 (59.2)		
		1500	56.43 (213.6)	53.79 (203.6)	51.91 (196.5)	7.24 (5.4)	70.94 (52.9)	118.95 (88.7)		
050	9.67 (158.5)	1000	41.87 (158.5)	39.23 (148.5)	37.35 (141.4)	4.69 (3.5)	52.30 (39.0)	87.97 (65.6)		
		1500	62.79 (237.7)	60.15 (227.7)	58.28 (220.6)	7.64 (5.7)	78.45 (58.5)	131.82 (98.3)		
052	10.06 (164.8)	1000	43.54 (164.8)	40.89 (154.8)	39.02 (147.7)	4.83 (3.6)	54.31 (40.5)	91.46 (68.2)		
		1500	65.30 (247.2)	62.66 (237.2)	60.79 (230.1)	7.78 (5.8)	81.53 (60.8)	136.92 (102.1)		
062	12.00 (196.7)	1000	51.96 (196.7)	49.32 (186.7)	47.45 (179.6)	5.36 (4.0)	64.23 (47.9)	108.49 (80.9)		
		1500	77.93 (295.0)	75.29 (285.0)	73.41 (277.9)	8.58 (6.4)	96.42 (71.9)	162.67 (121.3)		
066	13.02 (213.3)	1000	56.35 (213.3)	53.71 (203.3)	51.83 (196.2)	5.63 (4.2)	69.46 (51.8)	117.47 (87.6)		
		1500	84.51 (319.9)	81.87 (309.9)	79.99 (302.8)	8.98 (6.7)	104.20 (77.7)	175.94 (131.2)		
072	13.86 (227.1)	1000	59.99 (227.1)	57.35 (217.1)	55.48 (210.0)	5.77 (4.3)	73.76 (55.0)	124.85 (93.1)		
		1500	89.98 (340.6)	87.34 (330.6)	85.46 (323.5)	9.25 (6.9)	110.77 (82.6)	187.07 (139.5)		
085(1)	16.46 (269.8)	1000	71.27 (269.8 (2)	70.03 (265.1)	( )	6.44 (4.8 (2)	58.33 (43.5 (2)	( )	1450 (100)	2000
		1500	106.91 (404.7 (2)	105.06 (397.7)	( )	9.79 (7.3 (2)	87.57 (65.3 (2)	( )	( )	( )

(1) 085 = 2000 rpm max.

(2) 085 = 75 bar cont. 085 = 90 bar max. int

Min Speed: 600 rpm

PT6EM \* - 066 - 3 R 00 - B 1 \*

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

① **Series** PT6EM - SAE-C 2-Bolt Mount

② **Y** - Metric port connection,  
Omit for UNC

③ **Cam ring**  
Volumetric displacement in<sup>3</sup>/ rev (cm<sup>3</sup>/rev)

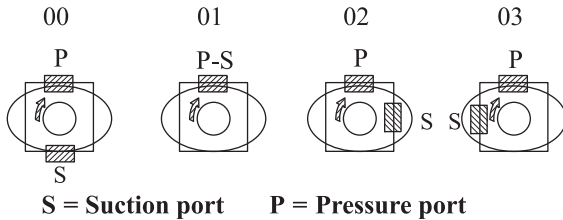
042 = 8.07 ( 132.3 )	062 = 12.00 ( 196.7 )
045 = 8.69 ( 142.4 )	066 = 13.02 ( 213.3 )
050 = 9.67 ( 158.5 )	072 = 13.86 ( 227.1 )
052 = 10.06 ( 164.8 )	085 = 16.46 ( 269.8 )

④ **Type of shaft**

- 1 = Keyed (SAE CC)
- 2 = Keyed (No SAE)
- 3 = Splined (SAE C)
- 4 = Splined (SAE CC)

⑤ **Direction of rotation**  
(viewed from shaft end)

- R = clockwise
- L = counter-clockwise



⑥ **Porting combination**

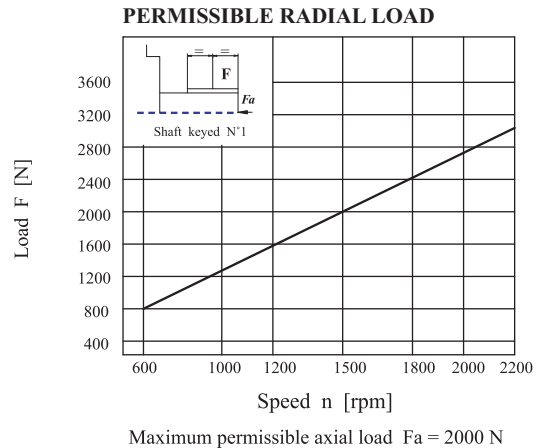
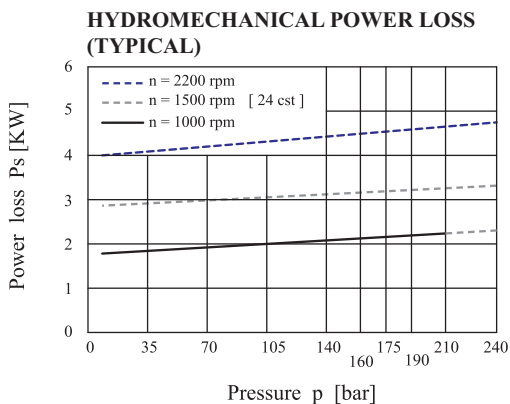
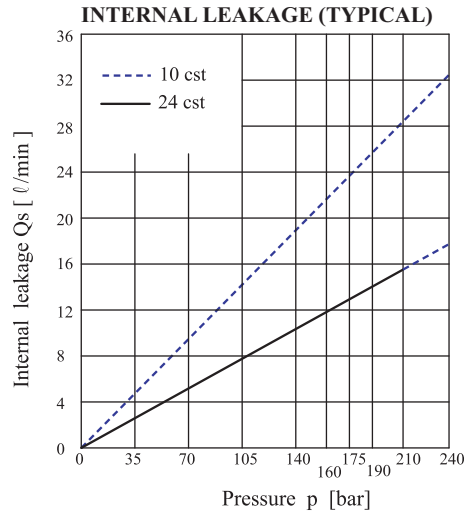
00 = standard

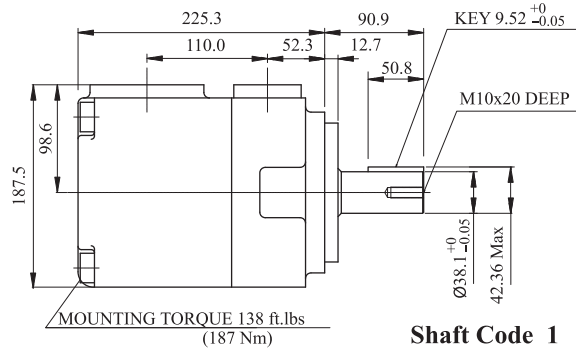
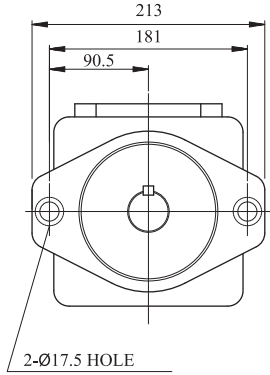
⑦ **Design letter**

⑧ **Seal class**

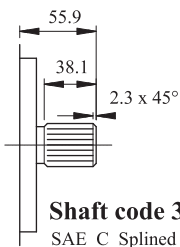
- 1 = S1 (for mineral oil)
- 4 = S4 (for fire resistant fluids)
- 5 = S5 (for mineral oil and fire resistant fluids)

⑨ **Modifications**



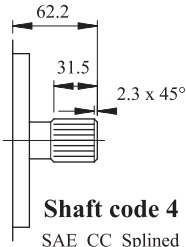


**Shaft Code 1**  
(Keyed SAE CC)



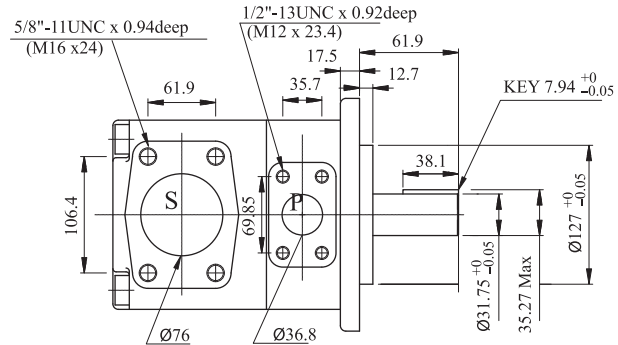
**Shaft code 3**

SAE C Splined shaft  
Class 1 - J498b 12/24  
dp. -14 teeth 30°  
pressure angle. Flat root  
side fit.

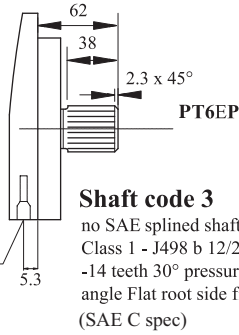


**Shaft code 4**

SAE CC Splined shaft  
Class 1 - J498b 12/24  
dp. -17 teeth 30°  
pressure angle. Flat root  
side fit.



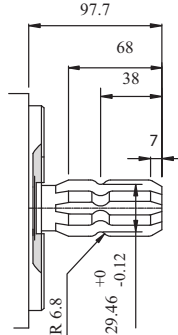
**Shaft Code 2**  
(Keyed no SAE)



**Shaft code 3**

no SAE splined shaft  
Class 1 - J498 b 12/24 dp.  
-14 teeth 30° pressure  
angle Flat root side fit.  
(SAE C spec)

Drain hole between double  
shaft seals



**Shaft code T**

SAE J718C

540 rpm power take-off

For Farm Tractor application

Shaft torque limits in <sup>3</sup> /rev x psi (cm <sup>3</sup> /rev x bar)		
Pump	Shaft	Vp x p max
PT6EM	1	48273 (54555)
	2	30638 (34590)
	3	54207 (61200)
	4	54207 (61200)
	T	62356 (70400)

## PT6EM OPERATING CHARACTERISTICS - TYPICAL 115 Sus (24 cSt)

Series	Volumetric Displacement Vp in <sup>3</sup> /rev (cm <sup>3</sup> /rev)	Speed n[RPM]	Flow qvc gpm (l/min)			Input Power HP (KW)			P. Max psi (bar)	MAX RPM
			p = 0 psi (0 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)	p = 100 psi (7 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)		
042	8.07 (132.3)	1000	34.95 ( 132.3 )	32.31 ( 122.3 )	30.43 ( 115.2 )	4.29 ( 3.2 )	44.12 ( 32.9 )	74.02 ( 55.2 )	3500 (240)	2200
		1500	52.44 ( 198.5 )	49.80 ( 188.5 )	47.89 ( 181.3 )	6.97 ( 5.2 )	66.25 ( 49.4 )	110.77 ( 82.6 )		
045	8.69 (142.4)	1000	37.62 ( 142.4 )	34.98 ( 132.4 )	33.10 ( 125.3 )	4.56 ( 3.4 )	47.34 ( 35.3 )	79.39 ( 59.2 )		
		1500	56.43 ( 213.6 )	53.79 ( 203.6 )	51.91 ( 196.5 )	7.24 ( 5.4 )	70.94 ( 52.9 )	118.95 ( 88.7 )		
050	9.67 (158.5)	1000	41.87 ( 158.5 )	39.23 ( 148.5 )	37.35 ( 141.4 )	4.69 ( 3.5 )	52.30 ( 39.0 )	87.97 ( 65.6 )		
		1500	62.79 ( 237.7 )	60.15 ( 227.7 )	58.28 ( 220.6 )	7.64 ( 5.7 )	78.45 ( 58.5 )	131.82 ( 98.3 )		
052	10.06 (164.8)	1000	43.54 ( 164.8 )	40.89 ( 154.8 )	39.02 ( 147.7 )	4.83 ( 3.6 )	54.31 ( 40.5 )	91.46 ( 68.2 )		
		1500	65.30 ( 247.2 )	62.66 ( 237.2 )	60.79 ( 230.1 )	7.78 ( 5.8 )	81.53 ( 60.8 )	136.92 ( 102.1 )		
062	12.00 (196.7)	1000	51.96 ( 196.7 )	49.32 ( 186.7 )	47.45 ( 179.6 )	5.36 ( 4.0 )	64.23 ( 47.9 )	108.49 ( 80.9 )		
		1500	77.93 ( 295.0 )	75.29 ( 285.0 )	73.41 ( 277.9 )	8.58 ( 6.4 )	96.42 ( 71.9 )	162.67 ( 121.3 )		
066	13.02 (213.3)	1000	56.35 ( 213.3 )	53.71 ( 203.3 )	51.83 ( 196.2 )	5.63 ( 4.2 )	69.46 ( 51.8 )	117.47 ( 87.6 )		
		1500	84.51 ( 319.9 )	81.87 ( 309.9 )	79.99 ( 302.8 )	8.98 ( 6.7 )	104.20 ( 77.7 )	175.94 ( 131.2 )		
072	13.86 (227.1)	1000	59.99 ( 227.1 )	57.35 ( 217.1 )	55.48 ( 210.0 )	5.77 ( 4.3 )	73.76 ( 55.0 )	124.85 ( 93.1 )		
		1500	89.98 ( 340.6 )	87.34 ( 330.6 )	85.46 ( 323.5 )	9.25 ( 6.9 )	110.77 ( 82.6 )	187.07 ( 139.5 )		
085(1)	16.46 (269.8)	1000	71.27 ( 269.8 (2)	70.03 ( 265.1 )	( )	6.44 ( 4.8 (2)	58.33 ( 43.5 (2)	( )	1450 (100)	2000
		1500	106.91 ( 404.7 (2)	105.06 ( 397.7 )	( )	9.79 ( 7.3 (2)	87.57 ( 65.3 (2)	( )		

(1) 085 = 2000 rpm max.

(2) 085 = 75 bar cont.

085 = 90 bar max. int

Min Speed: 600 rpm

## PT6GC - B22 - 6 R 00 - A 1 - 00 \*

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

① **Series** PT6GC - R. 17-102 Mount

② **Cam ring**

Volumetric displacement in<sup>3</sup>/ rev (cm<sup>3</sup>/rev)

B03 = 0.66 ( 10.8 )	B17 = 3.56 ( 58.3 )
B05 = 1.05 ( 17.2 )	B20 = 3.89 ( 63.8 )
B06 = 1.30 ( 21.3 )	B22 = 4.29 ( 70.3 )
B08 = 1.61 ( 26.4 )	B25 = 4.84 ( 79.3 )
B10 = 2.08 ( 34.1 )	B28 = 5.42 ( 88.8 )
B12 = 2.26 ( 37.1 )	B31 = 6.10 ( 100.0 )
B14 = 2.81 ( 46.0 )	

③ **Type of shaft**

6 = Splined (DIN 5462)

④ **Direction of rotation**

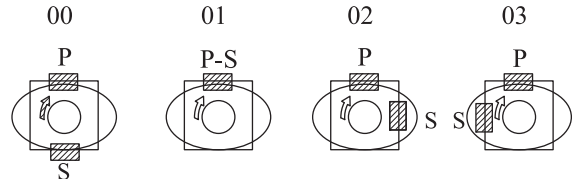
(viewed from shaft end)

R = clockwise

L = counter-clockwise

⑤ **Porting combination**

00 = standard



S = Suction port P = Pressure port

⑥ **Design letter**

⑦ **Seal class**

1 = S1

⑧ **Mounting W/connection variables**

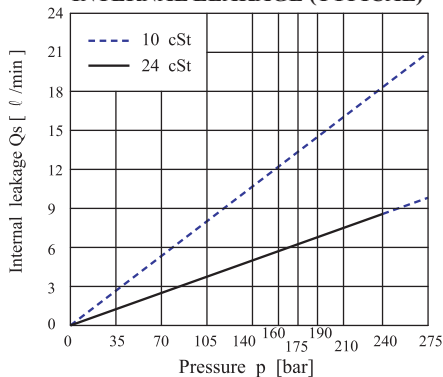
00 = Flange 1" BSPP

01 = Flange 1" SAE 4 bolts (UNC)

M1 = Flange 1" SAE 4 bolts (METRIC)

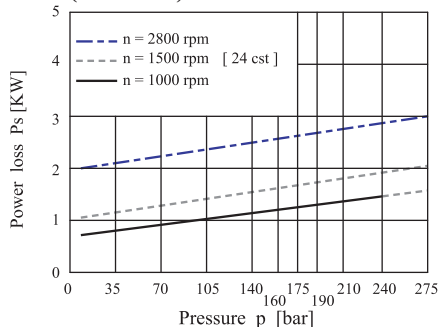
⑨ **Modifications**

### INTERNAL LEAKAGE (TYPICAL)

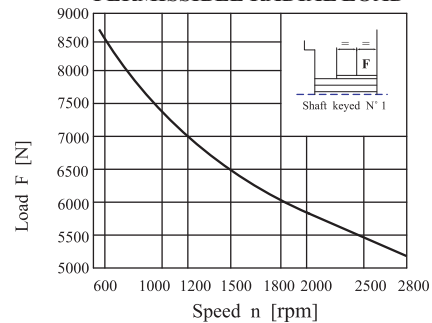


Do not operate pump more than 5 seconds at any speed or viscosity if internal leakage is more than 50 % of theoretical flow.

### HYDROMECHANICAL POWER LOSS (TYPICAL)



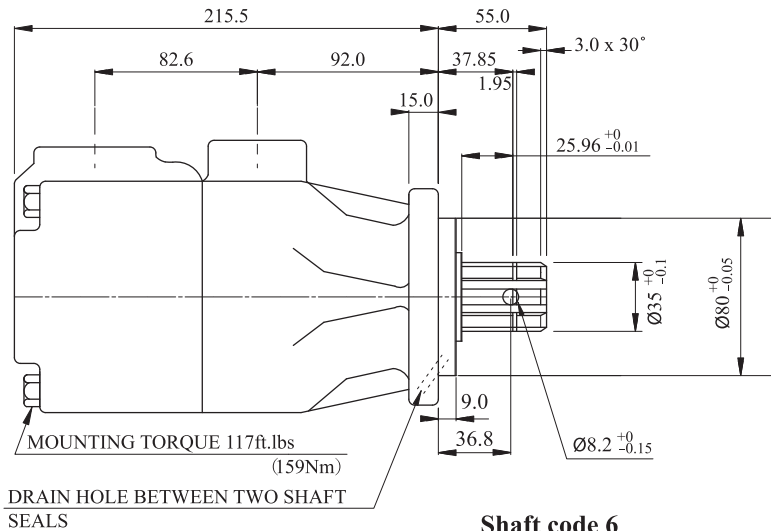
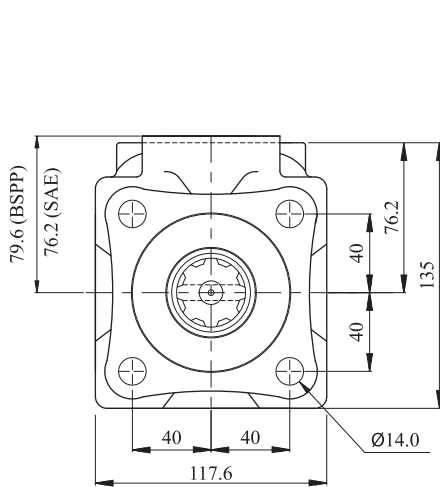
### PERMISSIBLE RADIAL LOAD



Life time 3000 hours when 70% of the time at 500 N and 30% at max. load



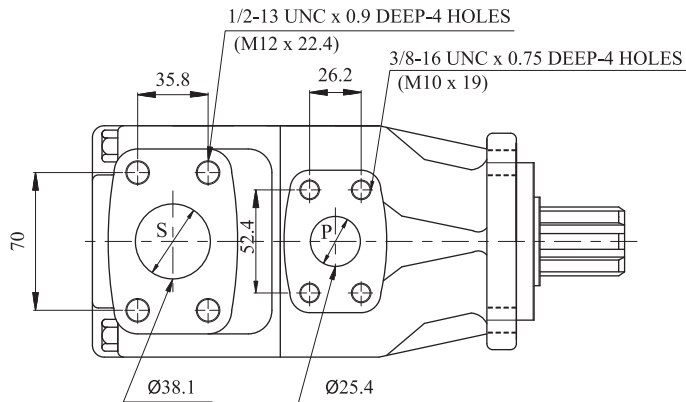
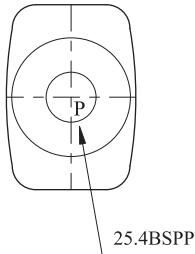
# PT6GC Dimensional Drawing



DRAIN HOLE BETWEEN TWO SHAFT SEALS

**Shaft code 6**  
(DIN 5462) B8 x 32 x 36

## CODE 00



## PT6GC OPERATING CHARACTERISTICS - TYPICAL 115 Sus (24 cSt)

Series	Volumetric Displacement Vp		Flow qvc gpm (l/min) @ 1500 rpm			Input Power HP (KW) @ 1500 rpm			P. Max psi (bar)	MAX RPM						
	in <sup>3</sup> /rev	cm <sup>3</sup> /rev	p = 0 psi (0 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)	p = 100 psi (7 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)								
B03	0.66	( 10.8 )	4.28	( 16.2 )	2.83	( 10.7 )	1.74	( 1.3 )	7.11	( 5.3 )	4000 (275)	2800				
B05	1.05	( 17.2 )	6.82	( 25.8 )	5.36	( 20.3 )	4.17	( 15.8 )	1.88	( 1.4 )			10.06	( 7.5 )	16.36	( 12.2 )
B06	1.30	( 21.3 )	8.43	( 31.9 )	7.00	( 26.5 )	5.81	( 22.0 )	2.01	( 1.5 )			11.94	( 8.9 )	19.71	( 14.7 )
B08	1.61	( 26.4 )	10.46	( 39.6 )	9.01	( 34.1 )	7.82	( 29.6 )	2.15	( 1.6 )			14.35	( 10.7 )	23.74	( 17.7 )
B10	2.08	( 34.1 )	13.50	( 51.1 )	12.07	( 45.7 )	10.88	( 41.2 )	2.28	( 1.7 )			17.97	( 13.4 )	29.90	( 22.3 )
B12	2.26	( 37.1 )	14.69	( 55.6 )	13.26	( 50.2 )	12.07	( 45.7 )	2.28	( 1.7 )			19.31	( 14.4 )	32.32	( 24.1 )
B14	2.81	( 46.0 )	18.23	( 69.0 )	16.77	( 63.5 )	15.59	( 59.0 )	2.55	( 1.9 )			23.60	( 17.6 )	39.56	( 29.5 )
B17	3.56	( 58.3 )	23.09	( 87.4 )	21.66	( 82.0 )	20.47	( 77.5 )	2.82	( 2.1 )			29.37	( 21.9 )	49.48	( 36.9 )
B20	3.89	( 63.8 )	25.28	( 95.7 )	23.83	( 90.2 )	22.64	( 85.7 )	2.95	( 2.2 )			31.92	( 23.8 )	53.91	( 40.2 )
B22	4.29	( 70.3 )	27.84	( 105.4 )	26.42	( 100.0 )	25.23	( 95.5 )	3.08	( 2.3 )			35.00	( 26.1 )	59.14	( 44.1 )
B25(1)	4.84	( 79.3 )	31.41	( 118.9 )	29.98	( 113.5 )	28.79	( 109.0 )	3.35	( 2.5 )			39.16	( 29.2 )	66.38	( 49.5 )
B28(1)	5.42	( 88.8 )	35.19	( 133.2 )	33.73	( 127.7 )	32.89	( 124.5 (2)	3.75	( 2.8 )			43.85	( 32.7 )	65.04	( 48.5 (2)
B31(1)	6.10	( 100.0 )	39.63	( 150.0 )	38.17	( 144.5 )	37.33	( 141.3 (2)	3.75	( 2.8 )			48.95	( 36.5 )	72.95	( 54.4 (2)

(1) 025-028-031 = 2500rpm. max.

(2) 028-031 = 210 bar max. int.

Min Speed : 400 rpm

--Do not use because internal leakage greater than 50% theoretical flow.

PT7B / PT7BS - B10 - 1 R 00 - A 1 - M0 \*

①                      ②      ③ ④      ⑤      ⑥ ⑦      ⑧ ⑨

**① Series**

PT7B - ISO 100 A2 HW 2 Bolt Mount  
3019-2 Flange  
PT7BS - SAE-B 2-Bolt Mount  
J744 Flange

**② Cam ring**

Volumetric displacement in<sup>3</sup>/ rev (cm<sup>3</sup>/rev)

B02 = 0.35 ( 5.7 )	B09 = 1.71 ( 28.0 )
B03 = 0.60 ( 9.8 )	B10 = 1.94 ( 31.8 )
B04 = 0.78 ( 12.8 )	B11 = 2.13 ( 34.9 )
B05 = 0.97 ( 15.9 )	B12 = 2.50 ( 40.9 )
B06 = 1.21 ( 19.8 )	B14 = 2.75 ( 45.1 )
B07 = 1.37 ( 22.5 )	B15 = 3.05 ( 50.0 )
B08 = 1.52 ( 24.9 )	

**③ Type of shaft PT7B-PT7BS**

2 = Keyed (ISO R775)

**Type of shaft PT7BS**

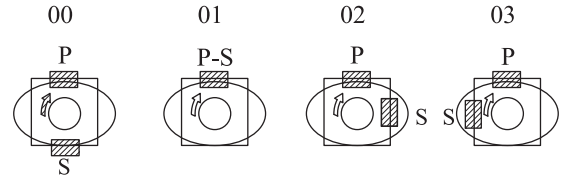
1 = Keyed (SAE B)  
3 = Splined (SAE B)  
4 = Splined (SAE BB)

**④ Direction of rotation**

(viewed from shaft end)  
R = clockwise  
L = counter-clockwise

**⑤ Porting combination**

00 = standard



S = Suction port    P = Pressure port

**⑥ Design letter**

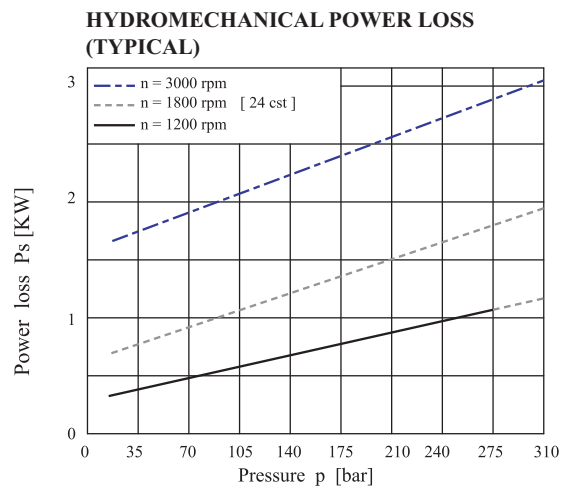
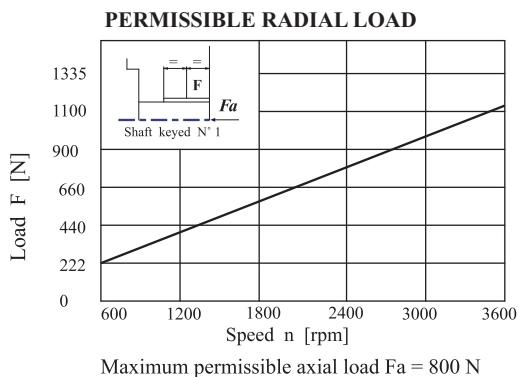
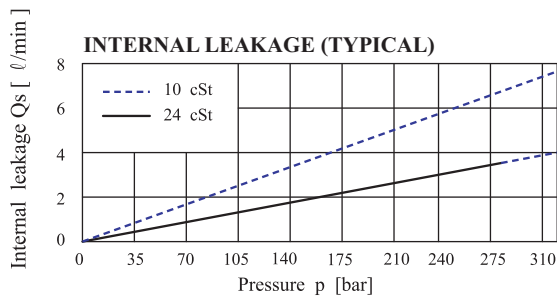
**⑦ Seal class**

1 = S1 (for mineral oil)  
4 = S4 (for fire resistant fluids)  
5 = S5 (for mineral oil and fire resistant fluids)

**⑧ Mounting W/connection variables**  
4 bolts SAE flange (J518C)

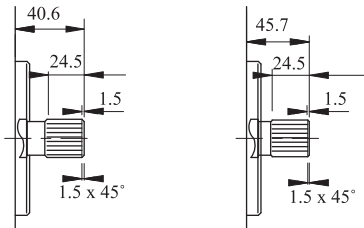
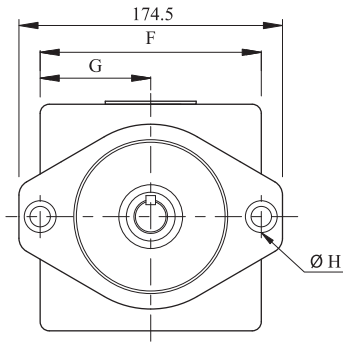
	Unc		Metric	
	PT7BS	PT7B-PT7BS	M0	M1
P	1"	3/4"	1"	3/4"
S	1 1/2"			

**⑨ Modifications**





# PT7B Dimensional Drawing

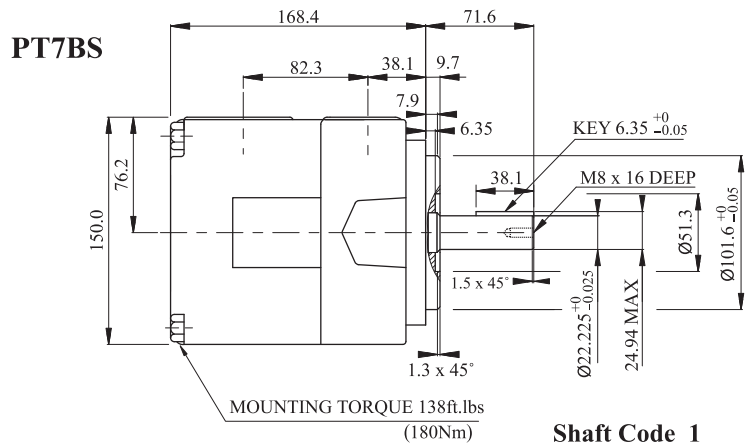


### Shaft code 3

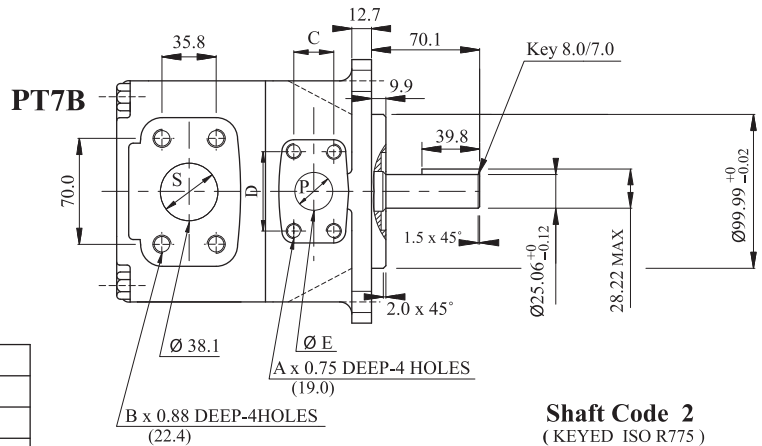
SAE B splined shaft  
Class 1-J498b 16/32  
dp. -13 teeth 30°  
pressure angle flat root  
side fit

### Shaft code 4

SAE BB splined shaft  
Class 1-J498b 16/32 dp.  
-15 teeth 30° pressure  
angle flat root side fit



**Shaft Code 1**  
(KEYED SAE B)



**Shaft Code 2**  
(KEYED ISO R775)

	PT7BS		PT7B	
	00	01	M0	M1
A	3/8-16 UNC		M10	
B	1/2-13 UNC		M12	
C	1.03 (26.2)	0.874 (22.2)	1.03 (26.2)	0.874 (22.2)
D	2.06 (52.4)	1.874 (47.6)	2.06 (52.4)	1.874 (47.6)
ØE	1.00 (25.4)	0.75 (19.05)	1.00 (25.4)	0.75 (19.05)
F	5.75 (146.0)		5.51 (140.0)	
G	2.87 (73.0)		2.75 (70.0)	
ØH	0.56 (14.3)		0.55 (14.0)	

Shaft torque limits in <sup>3</sup> /rev x psi (cm <sup>3</sup> /rev x bar)		
Pump	Shaft	Vp x p max
PT7B	1	14615 (16516)
	2	18246 (20620)
	3	18624 (20620)
	4	18624 (20620)

## PT7B OPERATING CHARACTERISTICS - TYPICAL 115 Sus (24 cSt)

Series	Volumetric Displacement Vp in <sup>3</sup> /rev (cm <sup>3</sup> /rev)	Flow qvc gpm (l/min) @ 1800 rpm			Input Power HP (KW) @ 1800 rpm			P. Max psi (bar)	MAX RPM		
		p = 0 psi (0 bar)	p = 2000 psi (140 bar)	p = 4667 psi (320 bar)	p = 100 psi (7 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)				
B02	0.35 ( 5.7 )	2.75 ( 10.4 )	2.32 ( 8.8 )	1.72 ( 6.5 )	0.74 ( 0.55 )	4.01 ( 2.99 )	8.58 ( 6.40 )	4667 (320)	3600		
B03	0.60 ( 9.8 )	4.65 ( 17.6 )	4.20 ( 15.9 )	3.62 ( 13.7 )	0.84 ( 0.63 )	6.24 ( 4.65 )	13.75 ( 10.25 )				
B04	0.78 ( 12.8 )	6.08 ( 23.0 )	5.65 ( 21.4 )	5.07 ( 19.2 )	0.94 ( 0.70 )	7.90 ( 5.89 )	17.61 ( 13.13 )				
B05	0.97 ( 15.9 )	7.56 ( 28.6 )	7.11 ( 26.9 )	6.53 ( 24.7 )	1.02 ( 0.76 )	9.62 ( 7.17 )	21.62 ( 16.12 )				
B06	1.21 ( 19.8 )	9.40 ( 35.6 )	8.96 ( 33.9 )	8.37 ( 31.7 )	1.13 ( 0.84 )	11.79 ( 8.79 )	26.66 ( 19.88 )				
B07	1.37 ( 22.5 )	10.67 ( 40.4 )	10.25 ( 38.8 )	9.64 ( 36.5 )	1.19 ( 0.89 )	13.29 ( 9.91 )	30.13 ( 22.47 )				
B08	1.52 ( 24.9 )	11.81 ( 44.7 )	11.39 ( 43.1 )	10.80 ( 40.9 )	1.26 ( 0.94 )	14.62 ( 10.90 )	33.23 ( 24.78 )				
B09	1.71 ( 28.0 )	13.29 ( 50.3 )	12.84 ( 48.6 )	12.26 ( 46.4 )	1.35 ( 1.01 )	16.35 ( 12.19 )	37.24 ( 27.77 )				
B10	1.94 ( 31.8 )	15.11 ( 57.2 )	14.66 ( 55.5 )	14.11 ( 53.4 )	1.49 ( 1.11 )	18.44 ( 13.75 )	42.13 ( 31.42 )				
B11	2.13 ( 34.9 )	16.62 ( 62.9 )	16.17 ( 61.2 )	15.59 ( 59.0 )	1.54 ( 1.15 )	20.17 ( 15.04 )	43.21 ( 32.22 )				
B12	2.50 ( 40.9 )	19.47 ( 73.7 )	19.05 ( 72.1 )	18.52 ( 70.1 )	1.72 ( 1.28 )	23.55 ( 17.56 )	50.57 ( 37.71 )				
B14	2.75 ( 45.1 )	21.35 ( 80.8 )	20.92 ( 79.2 )	20.34 ( 77.0 )	1.82 ( 1.36 )	25.79 ( 19.23 )	55.48 ( 41.37 )				
B15	3.05 ( 50.0 )	23.72 ( 89.8 )	23.33 ( 88.3 )	22.85 ( 86.5 )	1.97 ( 1.47 )	28.54 ( 21.28 )	57.34 ( 42.76 )				
										4080 (280)	

(1) 011-012-014 = 300 bar max. int.

(2) 015 = 280 bar max. int.

Min Speed : 600 rpm



## PT7D/ PT7DS - B45 - 1 R 00 - A 1 M0 -

①                      ②    ③ ④ ⑤    ⑥ ⑦ ⑧ ⑨

① **Series**

PT7D - ISO 125 A2 HW 2 Bolt Mount  
3019-2 Flange  
PT7DS - SAE-C 2 Bolt Mount  
J744 Flange

② **Cam ring**

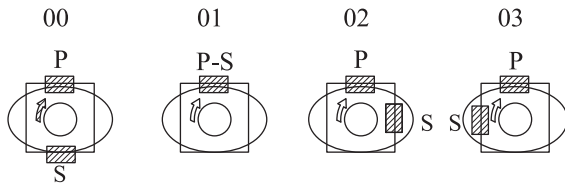
Volumetric displacement in<sup>3</sup>/ rev (cm<sup>3</sup>/rev)  
 B14 = 2.68 ( 43.9 )    B35 = 6.92 ( 113.4 )  
 B17 = 3.36 ( 55.0 )    B38 = 7.36 ( 120.6 )  
 B20 = 4.03 ( 66.0 )    B42 = 8.39 ( 137.5 )  
 B24 = 4.95 ( 81.1 )    B45 = 8.89 ( 145.7 )  
 B28 = 5.49 ( 89.9 )    B50 = 9.64 ( 157.9 )  
 B31 = 6.05 ( 99.1 )

③ **Type of shaft**

1 = Keyed (SAE C 32-1)  
 2 = Keyed (No SAE)  
 3 = Splined (SAE C 32-4)  
 4 = Splined (SAE C spec long)  
**Type of shaft** PT7D - PT7DS  
 5 = Keyed (ISO 3019-2-G32M)

④ **Direction of rotation**

(viewed from shaft end)  
 R = clockwise  
 L = counter-clockwise



**S = Suction port    P = Pressure port**

⑤ **Porting combination**

00 = Standard

⑥ **Design letter**

⑦ **Seal class**

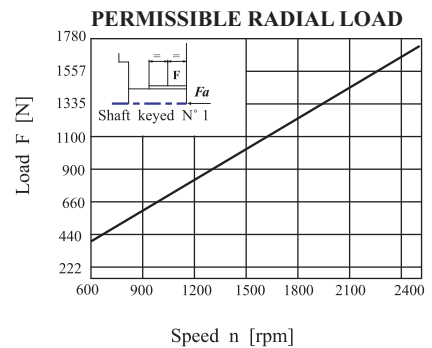
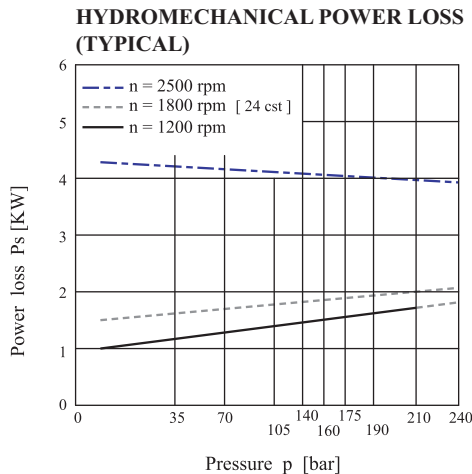
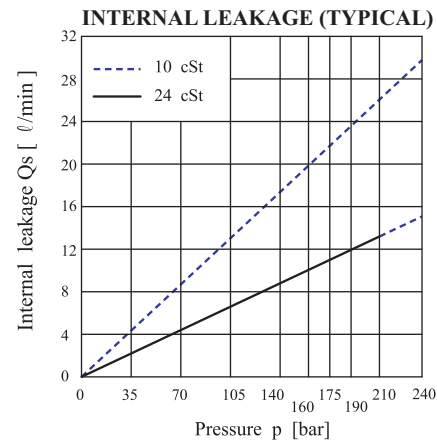
1 = S1 (for mineral oil)  
 4 = S4 (for fire resistant fluids)  
 5 = S5 (for mineral oil and fire resistant fluids)

⑧ **Mounting w / connection variables**

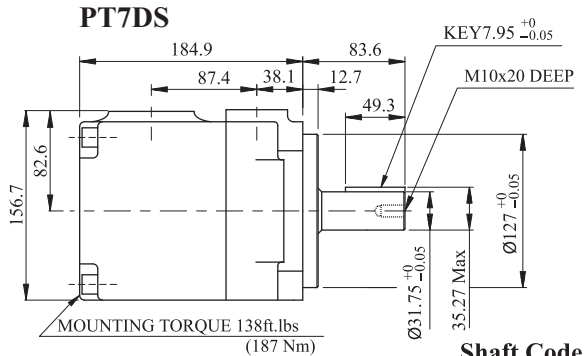
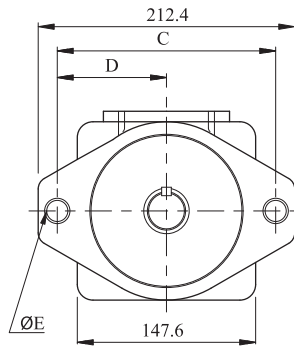
P = 1" 1/4		S = 2"	
	UNC	METRIC	
PT7D		M0	
PT7DS	00	M0	Y0 1)

1) 250 bar max. int

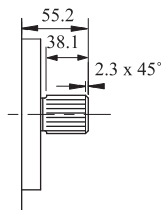
⑨ **Modifications**



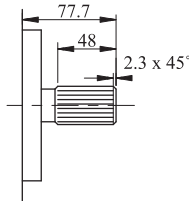
Maximum permissible axial load Fa = 1200 N



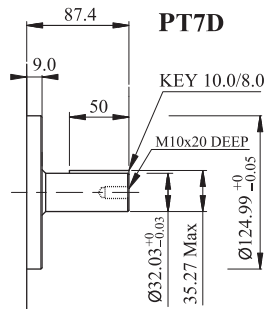
**Shaft Code 1**  
(Keyed SAE C)



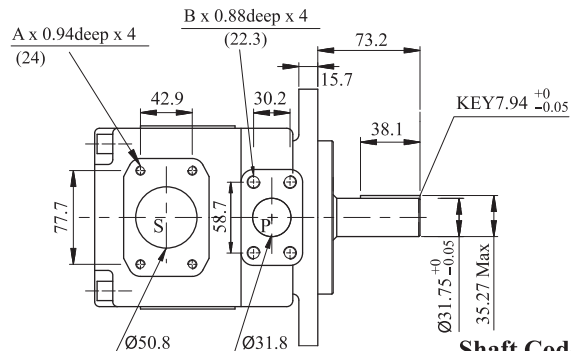
**Shaft code 3**  
SAE C splined shaft  
Class 1 - J498b  
12/24 dp, -14 teeth  
30° pressure angle  
Flat root side fit.



**Shaft code 4**  
SAE C spc(\*) splined  
shaft Class 1 - J498b  
12/24 dp, -14 teeth  
30° pressure angle  
Flat root side fit.  
(SAE C spec long)



**Shaft code 5**  
(Keyed ISO R775)



**Shaft Code 2**  
(Keyed no SAE)

Shaft torque limits in <sup>3</sup> /rev x psi (cm <sup>3</sup> /rev x bar)		
Pump	Shaft	Vp x p max
PT7D PT7DS	1	38299 (43283)
	2	30638 (34590)
	3	54207 (61200)
	4	54207 (61200)
	5	39238 (44344)

	PT7DS		PT7D	
	00	M0	Y0 1)	M0
A	1/2-13UNC	M12	M12	M12
B	7/16-14UNC	M12	M10	M12
C	181		180	
D	90.5		90	
E	17.5		18	

1) 250 bar max.int

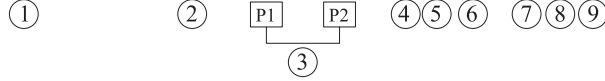
## PT7D OPERATING CHARACTERISTICS - TYPICAL 115 Sus (24 cSt)

Series	Volumetric Displacement Vp in <sup>3</sup> /rev (cm <sup>3</sup> /rev)	Flow qvc gpm (l/min) @ 1800 rpm			Input Power HP (KW) @ 1800 rpm			P. Max psi (bar)	MAX RPM
		p = 0 psi (0 bar)	p = 2000 psi (140 bar)	p = 4667 psi (320 bar)	p = 100 psi (7 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)		
B14	2.68 ( 43.9 )	20.90 ( 79.1 )	19.15 ( 72.5 )	17.14 ( 64.9 )	3.49 ( 2.60 )	27.76 ( 20.7 )	58.47 ( 43.6 )	3000	3000
B17	3.36 ( 55.0 )	26.10 ( 98.8 )	24.38 ( 92.3 )	22.38 ( 84.7 )	3.75 ( 2.80 )	33.93 ( 25.3 )	71.88 ( 53.6 )		
B20	4.03 ( 66.0 )	31.33 ( 118.6 )	29.59 ( 112.0 )	27.61 ( 104.5 )	4.02 ( 3.00 )	39.96 ( 29.8 )	85.29 ( 63.6 )		
B24	4.95 ( 81.1 )	38.52 ( 145.8 )	36.77 ( 139.2 )	34.77 ( 131.6 )	4.56 ( 3.40 )	48.41 ( 36.1 )	103.80 ( 77.4 )		
B28	5.49 ( 89.9 )	42.74 ( 161.8 )	41.00 ( 155.2 )	38.99 ( 147.6 )	4.69 ( 3.50 )	53.24 ( 39.7 )	114.66 ( 85.5 )		
B31	6.05 ( 99.1 )	47.10 ( 178.3 )	45.36 ( 171.7 )	43.38 ( 164.2 )	4.96 ( 3.70 )	58.47 ( 43.6 )	125.65 ( 93.7 )		
B35	6.92 ( 113.4 )	53.86 ( 203.9 )	52.09 ( 197.2 )	50.35 ( 190.6 (1)	0.00 ( 0.00 )	66.25 ( 49.4 )	130.35 ( 97.2 (1)		
B38	7.36 ( 120.6 )	57.27 ( 216.8 )	55.53 ( 210.2 )	53.79 ( 203.6 (1)	5.63 ( 4.20 )	70.27 ( 52.4 )	138.39 ( 103.2 (1)	3791 (260)	3000
B42	8.39 ( 137.5 )	65.30 ( 247.2 )	63.56 ( 240.6 )	62.05 ( 234.9 (2)	6.03 ( 4.50 )	79.66 ( 59.4 )	149.39 ( 111.4 (2)		
B45	8.89 ( 145.7 )	69.21 ( 262.0 )	66.99 ( 253.6 )	65.38 ( 247.5 (3)	6.71 ( 5.00 )	83.68 ( 62.4 )	144.43 ( 107.7 (3)		
B50	9.64 ( 157.9 )	75.02 ( 284.0 )	72.86 ( 275.8 )	71.67 ( 271.3 (4)	7.11 ( 5.30 )	90.52 ( 67.5 )	134.50 ( 100.3 (4)		

(1) B35-B38 = 280 bar max. int (2) B42 = 260 bar max. int. (3) 045 = 240 bar max. int.  
(4) 050 = 210 bar max. int

Min Speed : 600 rpm

## PT6CC/PT6CCM - W - 022 - 008 - 1 R 00 - C 1 00



① **Series** PT6CC/PT6CCM - SAE-B 2-Bolt Mount

② **Use for Severe duty shaft only**

③ **Cam ring for " P1 " & " P2 "**

Volumetric displacement in<sup>3</sup>/ rev (cm<sup>3</sup>/rev)

003/B03 = 0.66 ( 10.8 )    017/B17 = 3.56 ( 58.3 )

005/B05 = 1.05 ( 17.2 )    020/B20 = 3.89 ( 63.8 )

006/B06 = 1.30 ( 21.3 )    022/B22 = 4.29 ( 70.3 )

008/B08 = 1.61 ( 26.4 )    025/B25 = 4.84 ( 79.3 )

010/B10 = 2.08 ( 34.1 )    028/B28 = 5.42 ( 88.8 )

012/B12 = 2.26 ( 37.1 )    031/B31 = 6.10 ( 100.0 )

014/B14 = 2.81 ( 46.0 )

④ **Type of shaft**

1 = Keyed (No SAE)

3 = Splined (SAE BB)

5 = Splined (SAE B)

**W version**

2 = Keyed (SAE BB)

S = Splined (DIN 5462)

⑤ **Direction of rotation**

(viewed from shaft end)

R = clockwise

L = counter - clockwise

⑥ **Porting combination**

00 = standard

⑦ **Design letter**

C = Industrial

D = Mobile

⑧ **Seal class**

1 = S1 (for mineral oil)

4 = S4 (for fire resistant fluids)

5 = S5 (for mineral oil and fire resistant fluids)

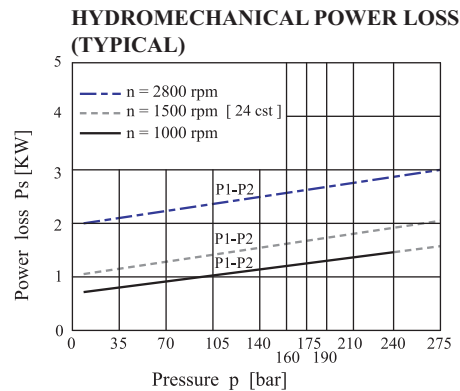
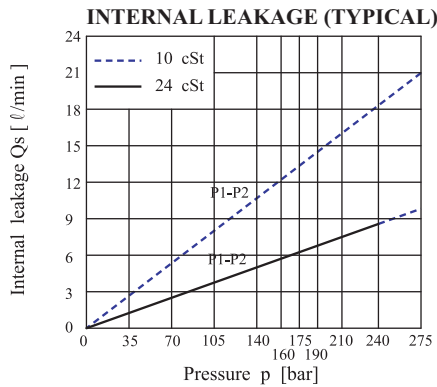
⑨ **Mounting W/connection variables**

Code	P1 = 1" , S = 3"		P1 = 1" , S = 2-1/2"	
	Unc	Metric	1"	3/4" 1)
P2	00	0M	01	W0
	10	1M	11	W1

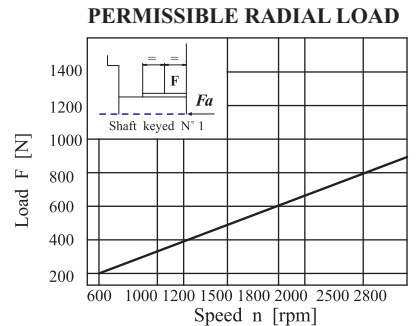
1) for 46 ml/rev. max.

2) for 126 ml/rev. max.

The large cartridge must be always mounted in the front.



Total hydromechanical power loss is the sum of each sections loss at its operating conditions.



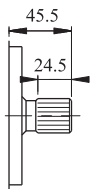
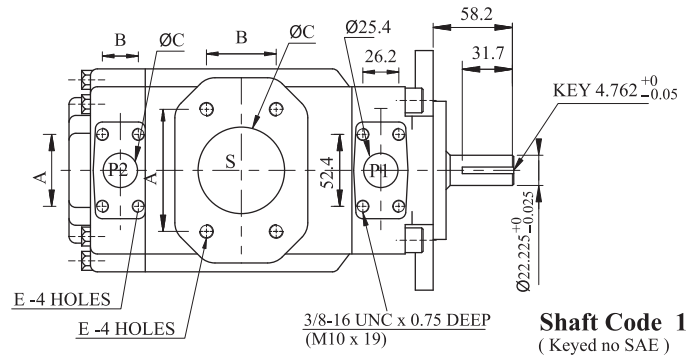
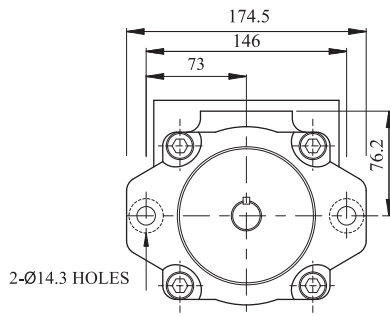
Maximum permissible axial load  $F_a = 800$  N

Do not operate pump more than 5 seconds at any speed or viscosity if internal leakage is more than 50 % of theoretical flow

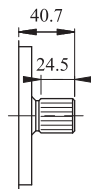
Total leakage is the sum of each section loss at its operating conditions.



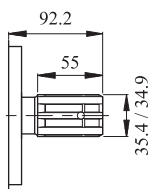
# PT6CC Dimensional Drawing



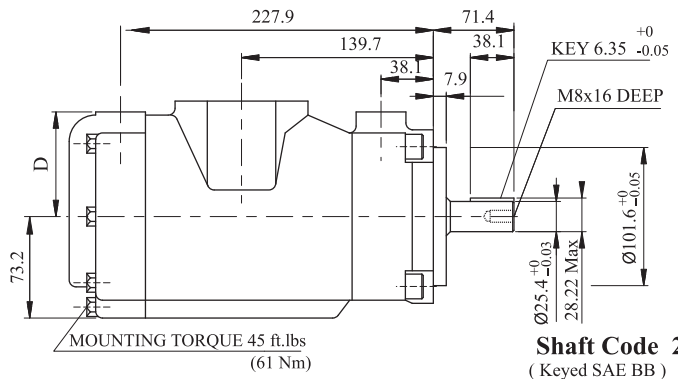
**Shaft code 3**  
SAE BB Splined shaft  
class 1 - J498b 16/32  
dp. -15 teeth 30°  
pressure angle. Flat root  
side fit.



**Shaft code 5**  
SAE B Splined shaft  
class 1 - J498b 16/32  
dp. -13 teeth 30°  
pressure angle. Flat root  
side fit.



**Shaft code S**  
DIN 5462  
B8x32x36  
5.96 +0 -0.03  
Ø31.89 +0 -0.02



**Shaft Code 2**  
(Keyed SAE BB)

Port	A	B	C	D	E
S	106.4	61.9	76.2		5/8" - 11UNC x 1.12 deep (M16 x 28.4)
S	88.9	50.8	63.5		1/2" - 13UNC x 0.94 deep (M12 x 24.0)
P2	47.6	22.2	19.0	76.2	3/8" - 16UNC x 0.75deep (M10 x 19.0)
P2	52.4	26.2	25.4	74.7	

Shaft torque limits in <sup>3</sup> /rev x psi (cm <sup>3</sup> /rev x bar)		
Pump	Shaft	Vp x p max.P1+P2
PT6CC	1	12666 (14300)
	2	18972 (21420)
	3	28937 (32670)
	5	18246 (20600)

## PT6CC/PT6CCM OPERATING CHARACTERISTICS - TYPICAL 115 Sus (24 cSt)

Pressure Port	Series	Volumetric Displacement Vp in <sup>3</sup> /rev (cm <sup>3</sup> /rev)	Flow qvc gpm (l/min) @ 1500 rpm			Input Power HP (KW) @ 1500 rpm			P. Max psi (bar)	MAX RPM
			p = 0 psi (0 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)	p = 100 psi (7 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)		
P1 & P2	B/003	0.66 ( 10.8 )	4.28 ( 16.2 )	2.96 ( 11.2 )	2.03 ( 7.7 )	1.74 ( 1.30 )	7.11 ( 5.30 )	11.26 ( 8.40 )	4010 (275)	2800
	B/005	1.05 ( 17.2 )	6.82 ( 25.8 )	5.49 ( 20.8 )	4.57 ( 17.3 )	1.88 ( 1.40 )	10.06 ( 7.50 )	16.36 ( 12.20 )		
	B/006	1.30 ( 21.3 )	8.43 ( 31.9 )	7.11 ( 26.9 )	6.18 ( 23.4 )	2.01 ( 1.50 )	11.94 ( 8.90 )	19.71 ( 14.70 )		
	B/008	1.61 ( 26.4 )	10.46 ( 39.6 )	9.14 ( 34.6 )	8.22 ( 31.1 )	2.15 ( 1.60 )	14.35 ( 10.70 )	23.74 ( 17.70 )		
	B/010	2.08 ( 34.1 )	13.50 ( 51.1 )	12.18 ( 46.1 )	11.25 ( 42.6 )	2.28 ( 1.70 )	17.97 ( 13.40 )	29.90 ( 22.30 )		
	B/012	2.26 ( 37.1 )	14.69 ( 55.6 )	13.37 ( 50.6 )	12.44 ( 47.1 )	2.28 ( 1.70 )	19.31 ( 14.40 )	32.32 ( 24.10 )		
	B/014	2.81 ( 46.0 )	18.23 ( 69.0 )	16.91 ( 64.0 )	15.98 ( 60.5 )	2.55 ( 1.90 )	23.60 ( 17.60 )	39.56 ( 29.50 )		
	B/017	3.56 ( 58.3 )	23.09 ( 87.4 )	21.77 ( 82.4 )	20.84 ( 78.9 )	2.82 ( 2.10 )	29.37 ( 21.90 )	49.48 ( 36.90 )		
	B/020	3.89 ( 63.8 )	25.28 ( 95.7 )	23.96 ( 90.7 )	23.04 ( 87.2 )	2.95 ( 2.20 )	31.92 ( 23.80 )	53.91 ( 40.20 )		
	B/022	4.29 ( 70.3 )	27.84 ( 105.4 )	26.52 ( 100.4 )	25.60 ( 96.9 )	3.08 ( 2.30 )	35.00 ( 26.10 )	59.14 ( 44.10 )		
	B/025(1)	4.84 ( 79.3 )	31.41 ( 118.9 )	30.09 ( 113.9 )	29.16 ( 110.4 )	3.35 ( 2.50 )	39.16 ( 29.20 )	66.38 ( 49.50 )		
	B/028(1,2)	5.42 ( 88.8 )	35.19 ( 133.2 )	33.87 ( 128.2 )	33.23 ( 125.8 )	3.75 ( 2.80 )	43.85 ( 32.70 )	65.04 ( 48.50 )	3062 (210)	2500
B/031(1,2)	6.10 ( 100.0 )	39.63 ( 150.0 )	38.30 ( 145.0 )	37.67 ( 142.6 )	3.75 ( 2.80 )	48.95 ( 36.50 )	73.09 ( 54.50 )			

(1) 025 - 028 - 031 = 2500 rpm. max

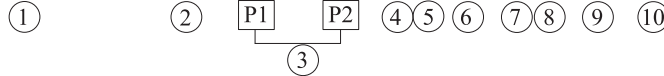
2) 028 - 031 = 210 bar max. int.

Min Speed : 600 rpm



# PT6DC Ordering Code

**PT6DC/PT6DCM - W - 038 - 022 - 1 R 00 - B 1 - 00 - \***



① **Series** PT6DC/PT6DCM - SAE-C 2-Bolt Mount

② **Severe duty shaft only**

③ **Cam ring for " P1 "**

Volumetric displacement in<sup>3</sup>/ rev (cm<sup>3</sup>/rev)

014/B14 = 2.90 ( 47.6 )	035/B35 = 6.77 ( 111.0 )
017/B17 = 3.55 ( 58.2 )	038/B38 = 7.34 ( 120.3 )
020/B20 = 4.03 ( 66.0 )	042/B42 = 8.30 ( 136.0 )
024/B24 = 4.85 ( 79.5 )	045/B45 = 8.89 ( 145.7 )
028/B28 = 5.47 ( 89.7 )	050/B50 = 9.64 ( 158.0 )
031/B31 = 6.00 ( 98.3 )	

**Cam ring for " P2 "**

003/B03 = 0.66 ( 10.8 )	017/B17 = 3.56 ( 58.3 )
005/B05 = 1.05 ( 17.2 )	020/B20 = 3.89 ( 63.8 )
006/B06 = 1.30 ( 21.3 )	022/B22 = 4.29 ( 70.3 )
008/B08 = 1.61 ( 26.4 )	025/B25 = 4.84 ( 79.3 )
010/B10 = 2.08 ( 34.1 )	028/B28 = 5.42 ( 88.8 )
012/B12 = 2.26 ( 37.1 )	031/B31 = 6.10 ( 100.0 )
014/B14 = 2.81 ( 46.0 )	

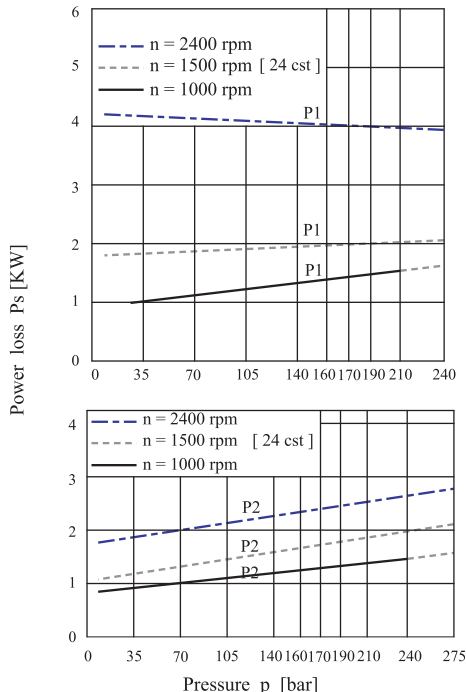
④ **Type of shaft**

- 1 = Keyed (SAE C)
- 2 = Keyed (No SAE)
- 3 = Splined (SAE C)
- 4 = Splined (SAE C spec long)

**Sever duty(PT6DCW only)**

- 5 = Keyed (No SAE)

### HYDROMECHANICAL POWER LOSS (TYPICAL)



Total hydromechanical power loss is the sum of each sections loss at its operating conditions.

⑤ **Direction of rotation**

- (viewed from shaft end)
- R = clockwise
- L = counter - clockwise

⑥ **Porting combination**

- 00 = standard

⑦ **Design letter**

- B = Industrial
- C = Mobile

⑧ **Seal class**

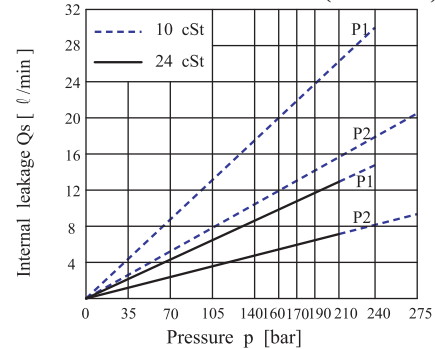
- 1 = S1 (for mineral oil)
- 4 = S4 (for fire resistant fluids)
- 5 = S5 (for mineral oil and fire resistant fluids)

⑨ **Mounting W/connection variables**

	UNC		METRIC	
	00	01	M0	M1
P2	1"	3/4"	1"	3/4"

⑩ **Modifications**

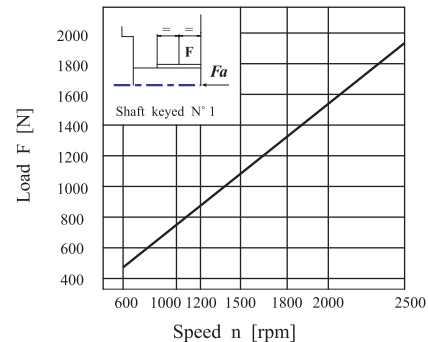
### INTERNAL LEAKAGE (TYPICAL)



Do not operate pump more than 5 seconds at any speed or viscosity if internal leakage is more than 50 % of theoretical flow

Total leakage is the sum of each section loss at its operating conditions.

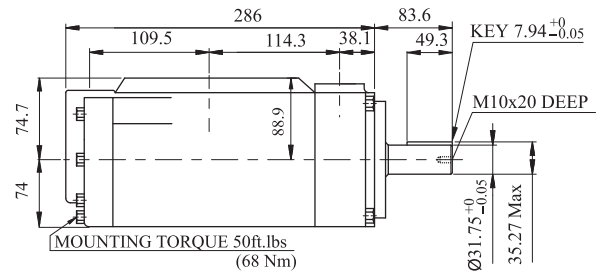
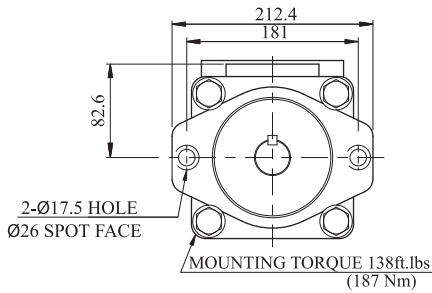
### PERMISSIBLE RADIAL LOAD



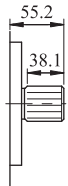
Maximum permissible axial load Fa = 1200 N



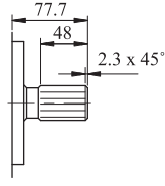
# PT6DC Dimensional Drawing



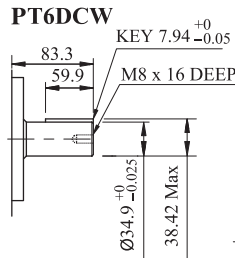
**Shaft Code 1**  
(Keyed SAE C)



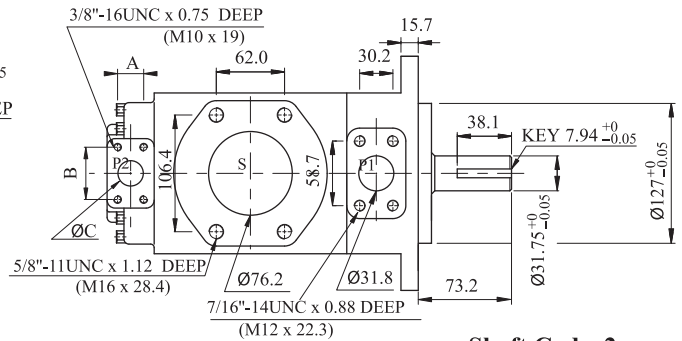
**Shaft code 3**  
SAE C Splined shaft class 1 - J498B  
12/24 dp. -14 teeth  
30° pressure angle.  
Flat root side fit.



**Shaft code 4**  
NO SAE Splined shaft class 1 - J498B  
12/24 dp. -14 teeth  
30° pressure angle. Flat root side fit.  
(SAE C spec long)



**Shaft code 5**  
(Keyed no SAE)



**Shaft Code 2**  
(Keyed no SAE)

Shaft torque limits in <sup>3</sup> /rev x psi (cm <sup>3</sup> /rev x bar)		
Pump	Shaft	Vp x p max.P1+P2
PT6DC	1	38299 (43240)
	2	30638 (34590)
	3	54207 (61200)
	4	54207 (61200)
	5	49247 (55600)

Alternate connect. variables		
	00 & M0	01 & M1
A	1.031 (26.2)	0.874 (22.2)
B	2.06 (52.4)	1.874 (47.6)
C	1.0 (25.4)	0.75 (19.05)

## PT6DC/PT6DCM OPERATING CHARACTERISTICS - TYPICAL 115 Sus (24 cSt)

Pressure Port	Series	Volumetric Displacement Vp in <sup>3</sup> /rev (cm <sup>3</sup> /rev)	Flow qvc gpm (l/min) @ 1500 rpm			Input Power HP (KW) @ 1500 rpm			P. Max psi (bar)	MAX RPM		
			p = 0 psi (0 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)	p = 100 psi (7 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)				
P1	B/014	2.90 ( 47.6 )	18.86 ( 71.4 )	16.41 ( 62.1 )	14.77 ( 55.9 )	3.08 ( 2.3 )	24.81 ( 18.5 )	41.04 ( 30.6 )	3500 (240)	2500		
	B/017	3.55 ( 58.2 )	23.06 ( 87.3 )	20.61 ( 78.0 )	18.97 ( 71.8 )	3.35 ( 2.5 )	29.77 ( 22.2 )	49.62 ( 37.0 )				
	B/020	4.03 ( 66.0 )	26.15 ( 99.0 )	23.70 ( 89.7 )	22.06 ( 83.5 )	3.75 ( 2.8 )	33.39 ( 24.9 )	55.92 ( 41.7 )				
	B/024	4.85 ( 79.5 )	31.52 ( 119.3 )	29.06 ( 110.0 )	27.42 ( 103.8 )	4.02 ( 3.0 )	39.69 ( 29.6 )	66.78 ( 49.8 )				
	B/028	5.47 ( 89.7 )	35.53 ( 134.5 )	33.07 ( 125.2 )	31.44 ( 119.0 )	4.29 ( 3.2 )	44.52 ( 33.2 )	74.96 ( 55.9 )				
	B/031	6.00 ( 98.3 )	38.97 ( 147.5 )	36.48 ( 138.1 )	34.84 ( 131.9 )	4.43 ( 3.3 )	48.54 ( 36.2 )	81.80 ( 61.0 )				
	B/035	6.77 ( 111.0 )	43.98 ( 166.5 )	41.53 ( 157.2 )	39.89 ( 151.0 )	4.69 ( 3.5 )	54.58 ( 40.7 )	92.13 ( 68.7 )				
	B/038	7.34 ( 120.3 )	47.66 ( 180.4 )	45.20 ( 171.1 )	43.56 ( 164.9 )	4.96 ( 3.7 )	58.87 ( 43.9 )	99.64 ( 74.3 )				
	B/042 (1)	8.30 ( 136.0 )	53.89 ( 204.0 )	51.43 ( 194.7 )	49.80 ( 188.5 )	5.36 ( 4.0 )	66.25 ( 49.4 )	112.24 ( 83.7 )				
	B/045 (1)	8.89 ( 145.7 )	57.72 ( 218.5 )	55.26 ( 209.2 )	53.63 ( 203.0 )	5.50 ( 4.1 )	70.81 ( 52.8 )	120.02 ( 89.5 )				
B/050 (1)	9.64 ( 158.0 )	62.61 ( 237.0 )	60.15 ( 227.7 )	59.17 ( 224.0 ) (2)	5.90 ( 4.4 )	76.44 ( 57.0 )	113.99 ( 85.0 ) (2)	3062 (210)	2200			
P2	B/003	0.66 ( 10.8 )	4.28 ( 16.2 )	2.96 ( 11.2 )	2.03 ( 7.7 )	1.74 ( 1.3 )	7.11 ( 5.3 )	11.26 ( 8.4 )	4010 (275)	2500		
	B/005	1.05 ( 17.2 )	6.82 ( 25.8 )	5.49 ( 20.8 )	4.57 ( 17.3 )	1.88 ( 1.4 )	10.06 ( 7.5 )	16.36 ( 12.2 )				
	B/006	1.30 ( 21.3 )	8.43 ( 31.9 )	7.11 ( 26.9 )	6.18 ( 23.4 )	2.01 ( 1.5 )	11.94 ( 8.9 )	19.71 ( 14.7 )				
	B/008	1.61 ( 26.4 )	10.46 ( 39.6 )	9.14 ( 34.6 )	8.22 ( 31.1 )	2.15 ( 1.6 )	14.35 ( 10.7 )	23.74 ( 17.7 )				
	B/010	2.08 ( 34.1 )	13.50 ( 51.1 )	12.18 ( 46.1 )	11.25 ( 42.6 )	2.28 ( 1.7 )	17.97 ( 13.4 )	29.90 ( 22.3 )				
	B/012	2.26 ( 37.1 )	14.69 ( 55.6 )	13.37 ( 50.6 )	12.44 ( 47.1 )	2.28 ( 1.7 )	19.31 ( 14.4 )	32.32 ( 24.1 )				
	B/014	2.81 ( 46.0 )	18.23 ( 69.0 )	16.91 ( 64.0 )	15.98 ( 60.5 )	2.55 ( 1.9 )	23.60 ( 17.6 )	39.56 ( 29.5 )				
	B/017	3.56 ( 58.3 )	23.09 ( 87.4 )	21.77 ( 82.4 )	20.84 ( 78.9 )	2.82 ( 2.1 )	29.37 ( 21.9 )	49.48 ( 36.9 )				
	B/020	3.89 ( 63.8 )	25.28 ( 95.7 )	23.96 ( 90.7 )	23.04 ( 87.2 )	2.95 ( 2.2 )	31.92 ( 23.8 )	53.91 ( 40.2 )				
	B/022	4.29 ( 70.3 )	27.84 ( 105.4 )	26.52 ( 100.4 )	25.60 ( 96.9 )	3.08 ( 2.3 )	35.00 ( 26.1 )	59.14 ( 44.1 )				
	B/025	4.84 ( 79.3 )	31.41 ( 118.9 )	30.09 ( 113.9 )	29.16 ( 110.4 )	3.35 ( 2.5 )	39.16 ( 29.2 )	66.38 ( 49.5 )				
	B/028	5.42 ( 88.8 )	35.19 ( 133.2 )	33.87 ( 128.2 )	33.23 ( 125.8 ) (2)	3.75 ( 2.8 )	43.85 ( 32.7 )	65.04 ( 48.5 ) (2)			3062 (210)	2200
	B/031	6.10 ( 100.0 )	39.63 ( 150.0 )	38.30 ( 145.0 )	37.67 ( 142.6 ) (2)	3.75 ( 2.8 )	48.95 ( 36.5 )	72.95 ( 54.4 ) (2)				

(1) 042 - 045 - 050 = 2200 rpm max

(2) 028 - 031 - 050 = 210 bar max. int.

Min Speed : 600 rpm

## PT6DDS/PT6DDSM - 038 - 022 - 1 R 00 - A 1 - 00 \*

1

P1
P2

3
4
5
6
7
8
9

**① Series**

PT6DDS/PT6DDSM - SAE-C 2 & 4 Bolt Mount

**② Cam ring for " P1 " "P2"**

Volumetric displacement in<sup>3</sup>/ rev (cm<sup>3</sup>/rev)

014/B14 = 2.90 ( 47.6 )	035/B35 = 6.77 ( 111.0 )
017/B17 = 3.55 ( 58.2 )	038/B38 = 7.34 ( 120.3 )
020/B20 = 4.03 ( 66.0 )	042/B42 = 8.30 ( 136.0 )
024/B24 = 4.85 ( 79.5 )	045/B45 = 8.89 ( 145.7 )
028/B28 = 5.47 ( 89.7 )	050/B50 = 9.64 ( 158.0 )
031/B31 = 6.00 ( 98.3 )	

**③ Type of shaft**

- 1 = Keyed (SAE C)
- 2 = Keyed (SAE CC)
- 3 = Splined (SAE C)
- 4 = Splined (SAE BB)
- 5 = Keyed (No SAE)

**④ Direction of rotation**

- (viewed from shaft end)
- R = clockwise
  - L = counter - clockwise

**⑤ Porting combination**

00 = standard

**⑥ Design letter**

**⑦ Seal class**

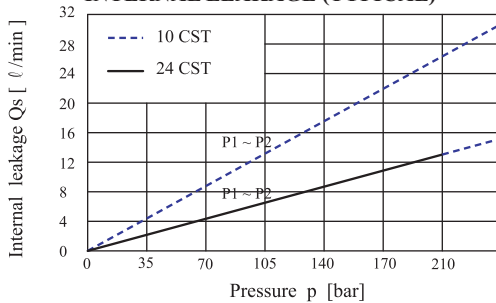
- 1 = S1 (for mineral oil)
- 4 = S4 (for fire resistant fluids)
- 5 = S5 (for mineral oil and fire resistant fluids)

**⑧ Mounting W/connection variables**

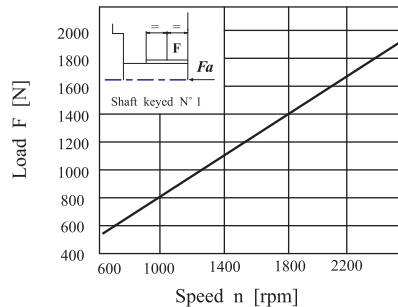
P1 & P2 = 1-1/4" S = 4"		
PT6DDS	Unc	Metric
	00	M0

**⑨ Modifications**

**INTERNAL LEAKAGE (TYPICAL)**

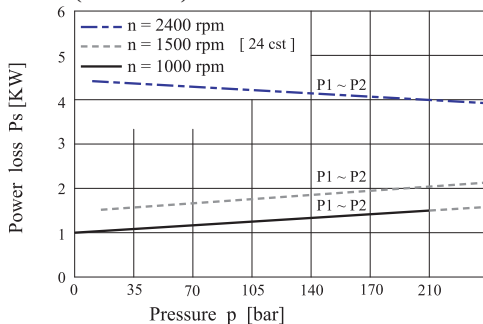


**PERMISSIBLE RADIAL LOAD**



Maximum permissible axial load  $F_a = 1200$  N

**HYDROMECHANICAL POWER LOSS (TYPICAL)**



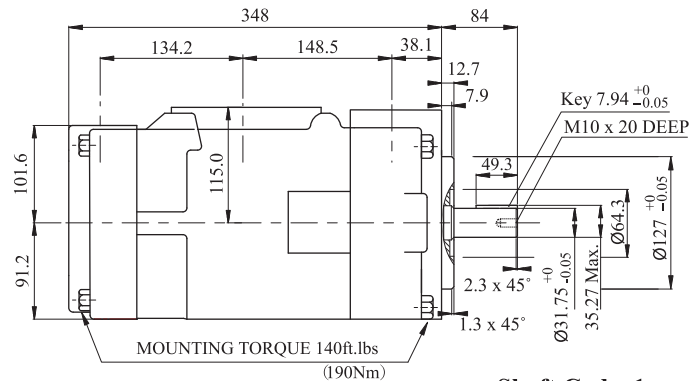
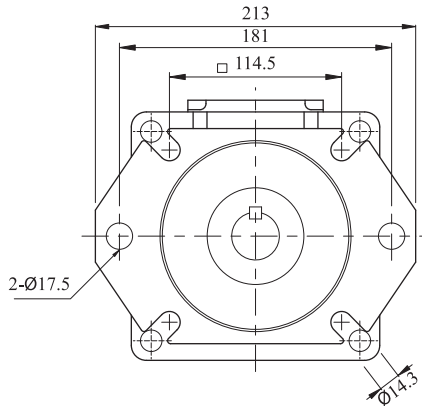
Total hydromechanical power loss is the sum of each sections loss at its operating conditions.

Do not operate pump more than 5 seconds at any speed or viscosity if internal leakage is more than 50 % of theoretical flow.

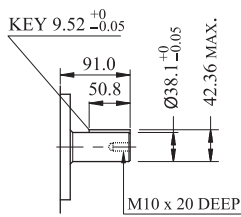
Total leakage is the sum of each section loss at its operating conditions.



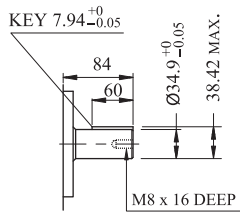
# PT6DDS Dimensional Drawing



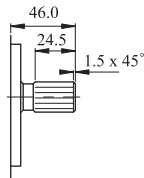
**Shaft Code 1**  
Keyed SAE C



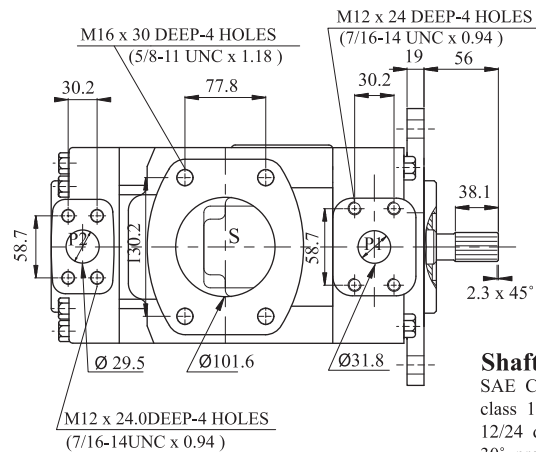
**Shaft Code 2**  
Keyed SAE CC



**Shaft code 5**  
Keyed no SAE



**Shaft code 4**  
SAE BB Splined shaft  
class 1 - J498B  
16/32 dp, -15 teeth  
30° pressure angle.  
Flat root side fit.



**Shaft code 3**  
SAE C Splined shaft  
class 1 - J498B  
12/24 dp, -14 teeth  
30° pressure angle.  
Flat root side fit.

Shaft torque limits in <sup>3</sup> /rev x psi (cm <sup>3</sup> /rev x bar)		
Pump	Shaft	V <sub>p</sub> x p max.P1+P2
PT6DDS	1	38299 (43240)
	3	54152 (61200)
	4	31780 (35880)
	5	40035 (55600)

## PT6DDS/PT6DDSM OPERATING CHARACTERISTICS - TYPICAL 115 Sus (24 cSt)

Pressure Port	Series	Volumetric Displacement V <sub>p</sub> in <sup>3</sup> /rev (cm <sup>3</sup> /rev)	Flow q <sub>v</sub> gpm (l/min) @ 1500 rpm			Input Power HP (KW) @ 1500 rpm			P. Max psi (bar)	MAX RPM
			p = 0 psi (0 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)	p = 100 psi (7 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)		
P1 & P2	B/014	2.90 ( 47.6 )	18.86 ( 71.4 )	16.41 ( 62.1 )	14.77 ( 55.9 )	3.08 ( 2.3 )	24.81 ( 18.5 )	41.04 ( 30.6 )	3500 (240)	2500
	B/017	3.55 ( 58.2 )	23.06 ( 87.3 )	20.61 ( 78.0 )	18.97 ( 71.8 )	3.35 ( 2.5 )	29.77 ( 22.2 )	49.62 ( 37.0 )		
	B/020	4.03 ( 66.0 )	26.15 ( 99.0 )	23.70 ( 89.7 )	22.06 ( 83.5 )	3.75 ( 2.8 )	33.39 ( 24.9 )	55.92 ( 41.7 )		
	B/024	4.85 ( 79.5 )	31.52 ( 119.3 )	29.06 ( 110.0 )	27.42 ( 103.8 )	4.02 ( 3.0 )	39.69 ( 29.6 )	66.78 ( 49.8 )		
	B/028	5.47 ( 89.7 )	35.53 ( 134.5 )	33.12 ( 125.2 )	31.44 ( 119.0 )	4.29 ( 3.2 )	44.52 ( 33.2 )	74.96 ( 55.9 )		
	B/031	6.00 ( 98.3 )	38.97 ( 147.5 )	36.48 ( 138.1 )	34.84 ( 131.9 )	4.43 ( 3.3 )	48.54 ( 36.2 )	81.80 ( 61.0 )		
	B/035	6.77 ( 111.0 )	43.98 ( 166.5 )	41.53 ( 157.2 )	39.89 ( 151.0 )	4.69 ( 3.5 )	54.58 ( 40.7 )	92.13 ( 68.7 )		
	B/038	7.34 ( 120.3 )	47.66 ( 180.4 )	45.20 ( 171.1 )	43.56 ( 164.9 )	4.96 ( 3.7 )	58.87 ( 43.9 )	99.64 ( 74.3 )		
	B/042(1)	8.30 ( 136.0 )	53.89 ( 204.0 )	51.43 ( 194.7 )	49.80 ( 188.5 )	5.36 ( 4.0 )	66.25 ( 49.4 )	112.24 ( 83.7 )		
	B/045(1)	8.89 ( 145.7 )	57.72 ( 218.5 )	55.26 ( 209.2 )	53.63 ( 203.0 )	5.50 ( 4.1 )	70.81 ( 52.8 )	120.02 ( 89.5 )		
B/050(1)	9.64 ( 158.0 )	62.61 ( 237.0 )	60.15 ( 227.7 )	59.17 ( 224.0 )	5.90 ( 4.4 )	76.44 ( 57.0 )	113.99 ( 85.0 )	3062 (210)	2200	

(1) 042-045-050 = 2200 rpm. max.

(2) 050 = 210 bar max. int.

Min Speed : 600 rpm



## PT6EC/PT6ECM - \* - 066 - 014 - 1 R 00 - B 1

①                      ②                      P1                      P2                      ④ ⑤ ⑥                      ⑦ ⑧

③

① **Series** PT6EC/PT6ECM - SAE-C 2-Bolt Mount

② **Y-Metric port connection, Omit for UNC**

③ **Cam ring for " P1 "**

Volumetric displacement in<sup>3</sup>/ rev (cm<sup>3</sup>/rev)

042 = 8.07 ( 132.3 )	062 = 12.00 ( 196.7 )
045 = 8.69 ( 142.4 )	066 = 13.02 ( 213.3 )
050 = 9.67 ( 158.5 )	072 = 13.86 ( 227.1 )
052 = 10.06 ( 164.8 )	085 = 16.46 ( 269.8 )

**Cam ring for " P2 "**

003/B03 = 0.66 ( 10.8 )	017/B17 = 3.56 ( 58.3 )
005/B05 = 1.05 ( 17.2 )	020/B20 = 3.89 ( 63.8 )
006/B06 = 1.30 ( 21.3 )	022/B22 = 4.29 ( 70.3 )
008/B08 = 1.61 ( 26.4 )	025/B25 = 4.84 ( 79.3 )
010/B10 = 2.08 ( 34.1 )	028/B28 = 5.42 ( 88.8 )
012/B12 = 2.26 ( 37.1 )	031/B31 = 6.10 ( 100.0 )
014/B14 = 2.81 ( 46.0 )	

④ **Type of shaft**

- 1 = Keyed (SAE CC)
- 2 = Keyed (No SAE)
- 3 = Splined (SAE C)
- 4 = Splined (SAE CC)

⑤ **Direction of rotation**

(viewed from shaft end)

- R = clockwise
- L = counter - clockwise

⑥ **Porting combination**

00 = standard

⑦ **Design letter**

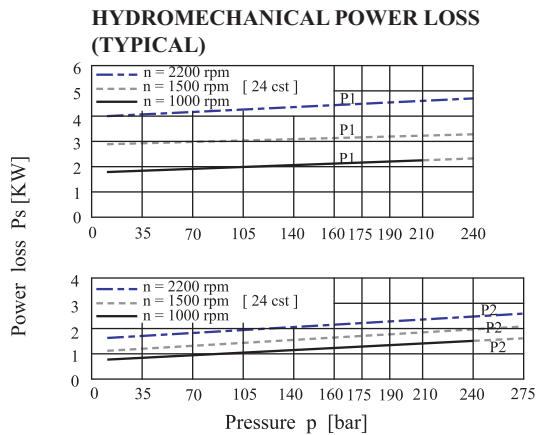
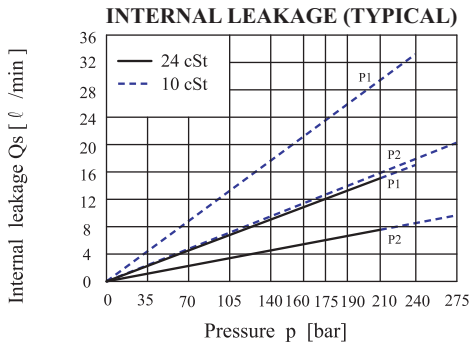
- B = Industrial
- C = Mobile

⑧ **Seal class**

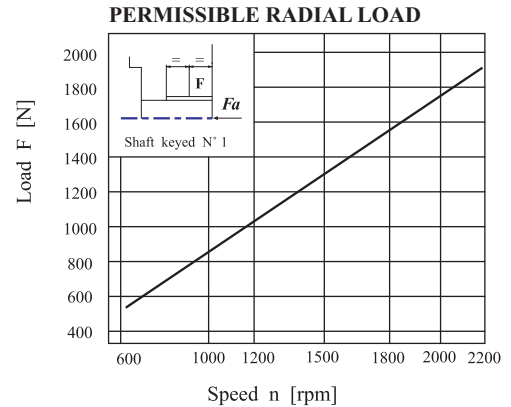
- 1 = S1 (for mineral oil)
- 4 = S4 (for fire resistant fluids)
- 5 = S5 (for mineral oil and fire resistant fluids)

Do not operate pump more than 5 seconds at any speed or viscosity of internal leakage is more than 50% of theoretical flow.

Total leakage is the sum of each section loss at its operating conditions.



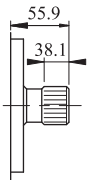
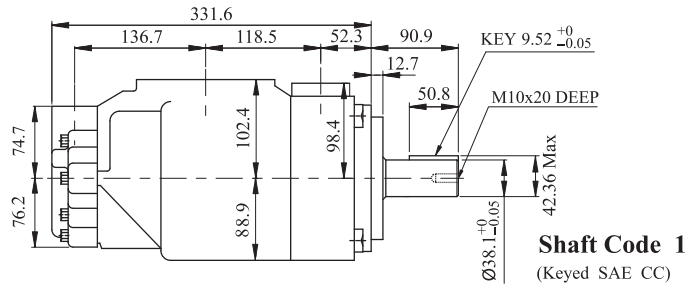
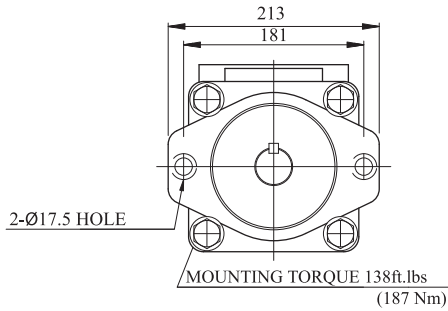
Total hydromechanical power loss is the sum of each sections loss at its operating conditions.



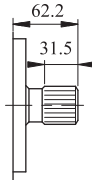
Maximum permissible axial load Fa = 2000 N



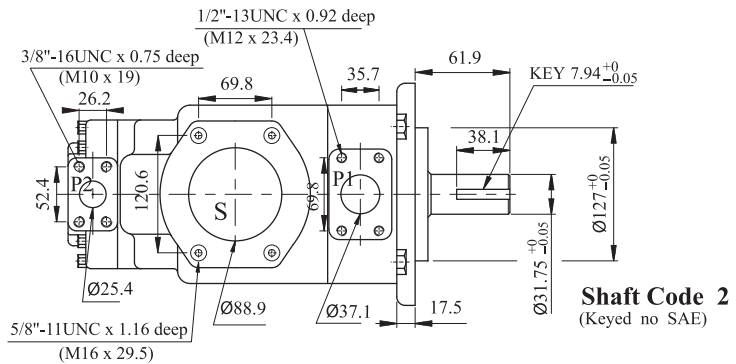
# PT6EC Dimensional Drawing



**Shaft code 3**  
SAE C Splined  
shaft class 1 - J498b  
12/24 dp. -14  
teeth 30° pressure  
angle. Flat root  
side fit.



**Shaft code 4**  
SAE CC Splined  
shaft class 1 - J498b  
12/24 dp. -17  
teeth 30° pressure  
angle. Flat root  
side fit.



Shaft torque limits in <sup>3</sup> /rev x psi (cm <sup>3</sup> /rev x bar)		
Pump	Shaft	Vp x p max.P1+P2
PT6EC	1	64044 (72306)
	2	30638 (34590)
	3	54207 (61200)
	4	67582 (76376)

## PT6EC/PT6ECM OPERATING CHARACTERISTICS - TYPICAL 115 Sus (24 cSt)

Pressure Port	Series	Volumetric Displacement Vp in <sup>3</sup> /rev (cm <sup>3</sup> /rev)	Flow qve gpm (l/min) @ 1500 rpm			Input Power HP (KW) @ 1500 rpm			P. Max psi (bar)	MAX RPM
			p = 0 psi (0 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)	p = 100 psi (7 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)		
P1	042	8.07 (132.3)	52.44 (198.5)	49.80 (188.5)	47.89 (181.3)	6.97 (5.2)	66.25 (49.4)	110.77 (82.6)	3500 (240)	2200
	045	8.69 (142.4)	56.43 (213.6)	53.79 (203.6)	51.91 (196.5)	7.24 (5.4)	70.94 (52.9)	118.95 (88.7)		
	050	9.67 (158.5)	62.79 (237.7)	60.15 (227.7)	58.28 (220.6)	7.64 (5.7)	78.45 (58.5)	131.82 (98.3)		
	052	10.06 (164.8)	65.30 (247.2)	62.66 (237.2)	60.79 (230.1)	7.78 (5.8)	81.53 (60.8)	136.92 (102.1)		
	062	12.00 (196.7)	77.93 (295.0)	75.29 (285.0)	73.41 (277.9)	8.58 (6.4)	96.42 (71.9)	162.67 (121.3)		
	066	13.02 (213.3)	84.51 (319.9)	81.87 (309.9)	79.99 (302.8)	8.98 (6.7)	104.20 (77.7)	175.94 (131.2)		
	072	13.86 (227.1)	89.98 (340.6)	87.34 (330.6)	85.46 (323.5)	9.25 (6.9)	110.77 (82.6)	187.07 (139.5)		
	085 (1)	16.46 (269.8)	106.91 (404.7)	105.06 (397.7 (2)	( )	9.79 (7.3)	87.57 (65.3 (2)	( )		
P2	B/003	0.66 (10.8)	4.28 (16.2)	2.96 (11.2)	2.03 (7.7)	1.74 (1.3)	7.11 (5.3)	11.26 (8.4)	4010 (275)	2200
	B/005	1.05 (17.2)	6.82 (25.8)	5.49 (20.8)	4.57 (17.3)	1.88 (1.4)	10.06 (7.5)	16.36 (12.2)		
	B/006	1.30 (21.3)	8.43 (31.9)	7.11 (26.9)	6.18 (23.4)	2.01 (1.5)	11.94 (8.9)	19.71 (14.7)		
	B/008	1.61 (26.4)	10.46 (39.6)	9.14 (34.6)	8.22 (31.1)	2.15 (1.6)	14.35 (10.7)	23.74 (17.7)		
	B/010	2.08 (34.1)	13.50 (51.1)	12.18 (46.1)	11.25 (42.6)	2.28 (1.7)	17.97 (13.4)	29.90 (22.3)		
	B/012	2.26 (37.1)	14.69 (55.6)	13.37 (50.6)	12.44 (47.1)	2.28 (1.7)	19.31 (14.4)	32.32 (24.1)		
	B/014	2.81 (46.0)	18.23 (69.0)	16.91 (64.0)	15.98 (60.5)	2.55 (1.9)	23.60 (17.6)	39.56 (29.5)		
	B/017	3.56 (58.3)	23.09 (87.4)	21.77 (82.4)	20.84 (78.9)	2.82 (2.1)	29.37 (21.9)	49.48 (36.9)		
	B/020	3.89 (63.8)	25.28 (95.7)	23.96 (90.7)	23.04 (87.2)	2.95 (2.2)	31.92 (23.8)	53.91 (40.2)		
	B/022	4.29 (70.3)	27.84 (105.4)	26.52 (100.4)	25.60 (96.9)	3.08 (2.3)	35.00 (26.1)	59.14 (44.1)		
	B/025	4.84 (79.3)	31.41 (118.9)	30.09 (113.9)	29.16 (110.4)	3.35 (2.5)	39.16 (29.2)	66.38 (49.5)		
	B/028	5.42 (88.8)	35.19 (133.2)	33.87 (128.2)	33.23 (125.8 (3)	3.75 (2.8)	43.85 (32.7)	65.04 (48.5 (3)		
	B/031	6.10 (100.0)	39.63 (150.0)	38.30 (145.0)	37.67 (142.6 (3)	3.75 (2.8)	48.95 (36.5)	72.95 (54.4 (3)		

(1) 085 = 2000 rpm max.

(2) 085 = 90 bar max. int.

(3) 028 - 031 = 210 bar max. int.

Min Speed : 600 rpm

**PT6ED/PT6EDM - \* - 066 - 038 - 1 R 00 - B 1 \***

①
②
P1
P2
④
⑤
⑥
⑦
⑧
⑨

① **Series** PT6ED/PT6EDM - SAE-C 2-Bolt Mount

② **Y-Metric port connection**, Omit for UNC

③ **Cam ring for " P1 "**

Volumetric displacement in<sup>3</sup>/ rev (cm<sup>3</sup>/rev)

042 = 8.07 ( 132.3 )	062 = 12.00 ( 196.7 )
045 = 8.69 ( 142.4 )	066 = 13.02 ( 213.3 )
050 = 9.67 ( 158.5 )	072 = 13.86 ( 227.1 )
052 = 10.06 ( 164.8 )	085 = 16.46 ( 269.8 )

**Cam ring for " P2 "**

014/B14 = 2.90 ( 47.6 )	035/B35 = 6.77 ( 111.0 )
017/B17 = 3.55 ( 58.2 )	038/B38 = 7.34 ( 120.3 )
020/B20 = 4.03 ( 66.0 )	042/B42 = 8.30 ( 136.0 )
024/B24 = 4.85 ( 79.5 )	045/B45 = 8.89 ( 145.7 )
028/B28 = 5.47 ( 89.7 )	050/B50 = 9.64 ( 158.0 )
031/B31 = 6.00 ( 98.3 )	

④ **Type of shaft**

- 1 = Keyed (SAE CC)
- 2 = Keyed (No SAE)
- 3 = Splined (SAE C)
- 4 = Splined (SAE CC)

⑤ **Direction of rotation**

- (viewed from shaft end)
- R = clockwise
- L = counter - clockwise

⑥ **Porting combination**

- 00 = standard

⑦ **Design letter**

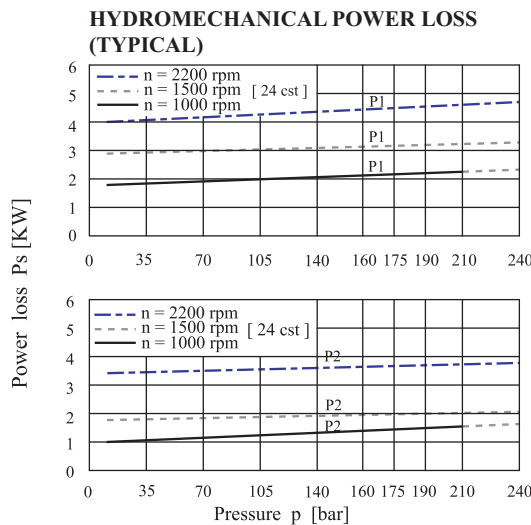
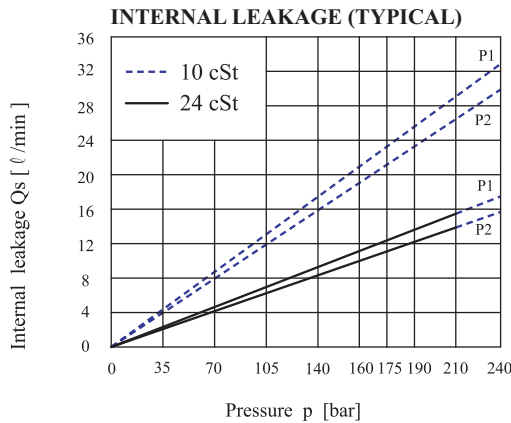
- B = Industrial
- C = Mobile

⑧ **Seal class**

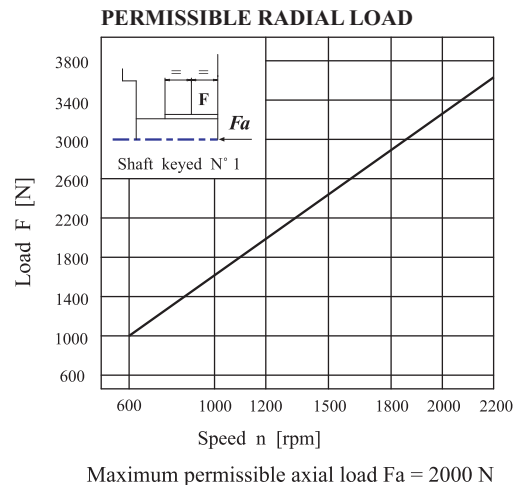
- 1 = S1 (for mineral oil)
- 4 = S4 (for fire resistant fluids)
- 5 = S5 (for mineral oil and fire resistant fluids)

⑨ **Modifications**

Do not operate pump more than 5 seconds at any speed or viscosity if internal leakage is more than 50% of theoretical flow,

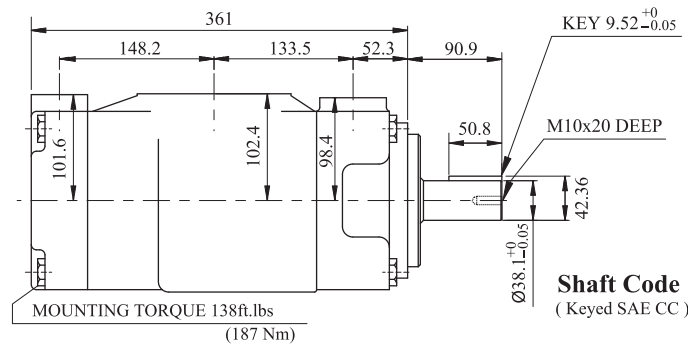
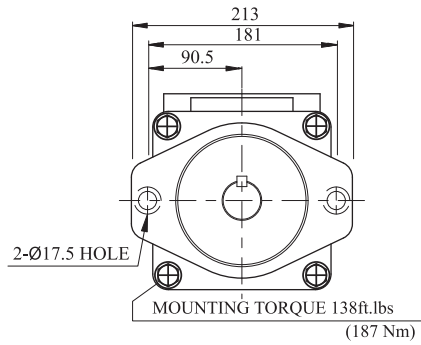


Total hydromechanical power loss is the sum of each sections loss at its operating conditions.

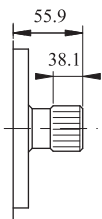




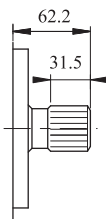
# PT6ED Dimensional Drawing



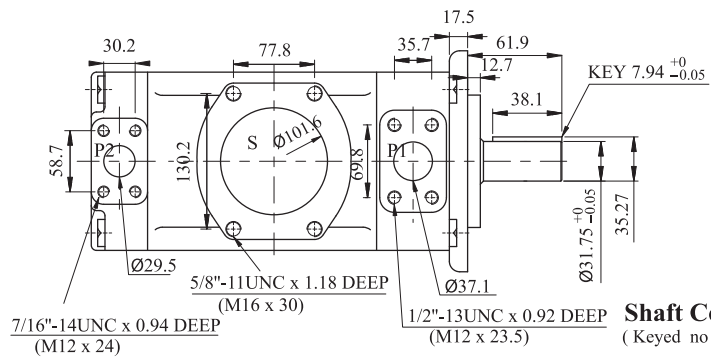
**Shaft Code 1**  
(Keyed SAE CC)



**Shaft code 3**  
SAE C Splined shaft class 1 - J498b  
12/24 dp. -14 teeth 30° pressure angle. Flat root side fit.



**Shaft code 4**  
SAE CC Splined shaft class 1 - J498b  
12/24 dp. -17 teeth 30° pressure angle. Flat root side fit.



**Shaft Code 2**  
(Keyed no SAE)

Shaft torque limits in <sup>3</sup> /rev x psi (cm <sup>3</sup> /rev x bar)		
Pump	Shaft	Vp x p max. P1+P2
PT6ED	1	64044 (72306)
	2	30638 (34590)
	3	54207 (61200)
	4	67582 (76376)

## PT6ED/PT6EDM OPERATING CHARACTERISTICS - TYPICAL 115 Sus

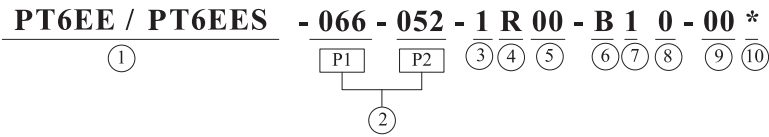
Pressure Port	Series	Volumetric Displacement Vp in <sup>3</sup> /rev (cm <sup>3</sup> /rev)	Flow qvc gpm (l/min) @ 1500 rpm			Input Power HP (KW) @ 1500 rpm			P. Max psi (bar)	MAX RPM
			p = 0 psi (0 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)	p = 100 psi (7 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)		
P1	042	8.07 (132.3)	52.44 (198.5)	49.80 (188.5)	47.89 (181.3)	6.97 (5.2)	66.25 (49.4)	110.77 (82.6)	3500 (240)	2200
	045	8.69 (142.4)	56.43 (213.6)	53.79 (203.6)	51.91 (196.5)	7.24 (5.4)	70.94 (52.9)	118.95 (88.7)		
	050	9.67 (158.5)	62.79 (237.7)	60.15 (227.7)	58.28 (220.6)	7.64 (5.7)	78.45 (58.5)	131.82 (98.3)		
	052	10.06 (164.8)	65.30 (247.2)	62.66 (237.2)	60.79 (230.1)	7.78 (5.8)	81.53 (60.8)	136.92 (102.1)		
	062	12.00 (196.7)	77.93 (295.0)	75.29 (285.0)	73.41 (277.9)	8.58 (6.4)	96.42 (71.9)	162.67 (121.3)		
	066	13.02 (213.3)	84.51 (319.9)	81.87 (309.9)	79.99 (302.8)	8.98 (6.7)	104.20 (77.7)	175.94 (131.2)		
	072	13.86 (227.1)	89.98 (340.6)	87.34 (330.6)	85.46 (323.5)	9.25 (6.9)	110.77 (82.6)	187.07 (139.5)		
	085 (1)	16.46 (269.8)	106.91 (404.7)	105.06 (397.7 (2))		9.79 (7.3)	87.57 (65.3 (2))			
P2	B/014	2.90 (47.6)	18.86 (71.4)	16.41 (62.1)	14.77 (55.9)	3.08 (2.3)	24.81 (18.5)	41.04 (30.6)	3500 (240)	2200
	B/017	3.55 (58.2)	23.06 (87.3)	20.61 (78.0)	18.97 (71.8)	3.35 (2.5)	29.77 (22.2)	49.62 (37.0)		
	B/020	4.03 (66.0)	26.15 (99.0)	23.70 (89.7)	22.06 (83.5)	3.75 (2.8)	33.39 (24.9)	55.92 (41.7)		
	B/024	4.85 (79.5)	31.52 (119.3)	29.06 (110.0)	27.42 (103.8)	4.02 (3.0)	39.69 (29.6)	66.78 (49.8)		
	B/028	5.47 (89.7)	35.53 (134.5)	33.07 (125.2)	31.44 (119.0)	4.29 (3.2)	44.52 (33.2)	74.96 (55.9)		
	B/031	6.00 (98.3)	38.97 (147.5)	36.48 (138.1)	34.84 (131.9)	4.43 (3.3)	48.54 (36.2)	81.80 (61.0)		
	B/035	6.77 (111.0)	43.98 (166.5)	41.53 (157.2)	39.89 (151.0)	4.69 (3.5)	54.58 (40.7)	92.13 (68.7)		
	B/038	7.34 (120.3)	47.66 (180.4)	45.20 (171.1)	43.56 (164.9)	4.96 (3.7)	58.87 (43.9)	99.64 (74.3)		
	B/042	8.30 (136.0)	53.89 (204.0)	51.43 (194.7)	49.80 (188.5)	5.36 (4.0)	66.25 (49.4)	112.24 (83.7)		
	B/045	8.89 (145.7)	57.72 (218.5)	55.26 (209.2)	53.63 (203.0)	5.50 (4.1)	70.81 (52.8)	120.02 (89.5)		
	B/050	9.64 (158.0)	62.61 (237.0)	60.15 (227.7)	59.17 (224.0 (3))	5.90 (4.4)	76.44 (57.0)	113.99 (85.0 (3))		
								3062 (210)		

(1) 085 = 2000 rpm max.

(2) 085 = 90 bar max. int.

(3) 050 = 210 bar max. int.

Min Speed : 600 rpm



- ① **Series** PT6EE - ISO 250 B4HW 4 Bolt Mount  
3019-2 Flange  
PT6EES - SAE-C 4 Bolt Mount  
J744c Flange

- ② **Cam ring for " P1 " & " P2 "**  
Volumetric displacement in<sup>3</sup>/ rev (cm<sup>3</sup>/rev)
- |                       |                       |
|-----------------------|-----------------------|
| 042 = 8.07 ( 132.3 )  | 062 = 12.00 ( 196.7 ) |
| 045 = 8.69 ( 142.4 )  | 066 = 13.02 ( 213.3 ) |
| 050 = 9.67 ( 158.5 )  | 072 = 13.86 ( 227.1 ) |
| 052 = 10.06 ( 164.8 ) | 085 = 16.46 ( 269.8 ) |

- ③ **Type of shaft**
- 1 = Keyed ( SAE CC )
  - 2 = Keyed (G45N ISO 3019-2)
  - 3 = Splined ( SAE CC )
  - 4 = Splined ( SAE D&E )
  - 5 = Keyed ( SAE D&E )

- ④ **Direction of rotation**  
(viewed from shaft end)
- R = clockwise
  - L = counter - clockwise

- ⑤ **Porting combination**  
00 = standard

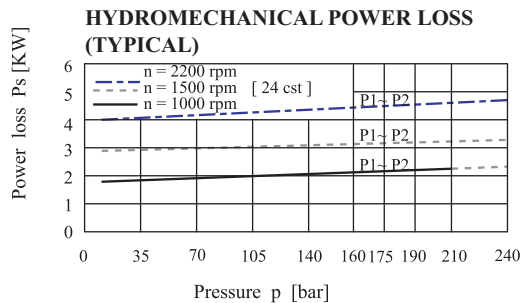
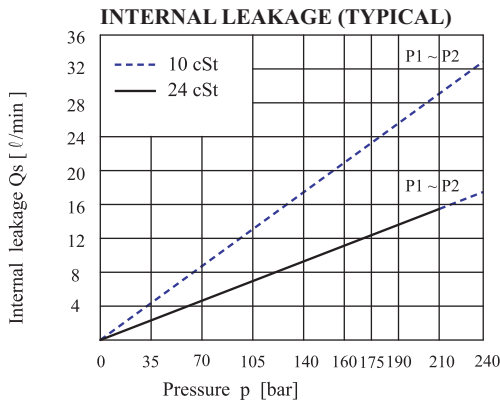
- ⑥ **Design letter**
- ⑦ **Seal class**
- 1 = S1 (for mineral oil)
  - 4 = S4 (for fire resistant fluids)
  - 5 = S5 (for mineral oil and fire resistant fluids)

- ⑧ **Coupling adapter**
- 0 = None
  - 2 = SAE B
  - 3 = SAE BB

- ⑨ **Port connection variables**  
SAE 4 bolt flange (J518c)

	Unc	Metric
PT6EE		M0
PT6EES	00	M0

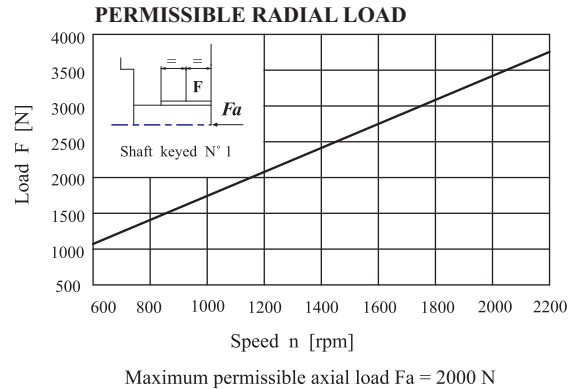
- ⑩ **Modifications**



Total hydromechanical power loss is the sum of each sections loss at its operating conditions.

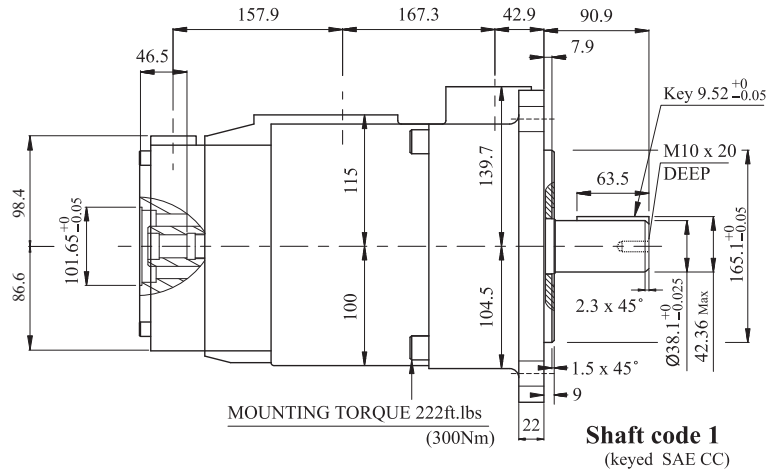
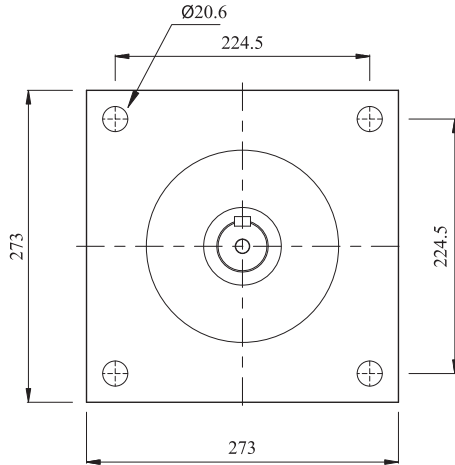
Do not operate pump more than 5 seconds at any speed or viscosity if internal leakage is more than 50% of theoretical flow.

Total leakage is the sum of each section loss at its operating conditions.



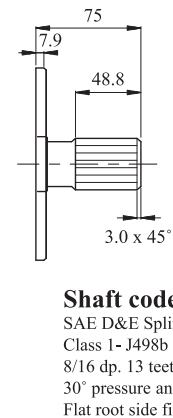
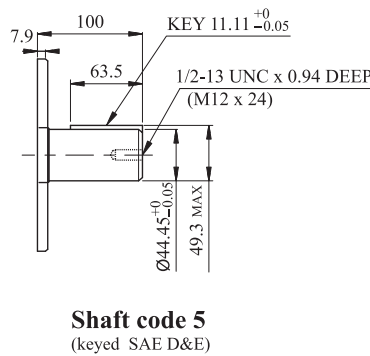
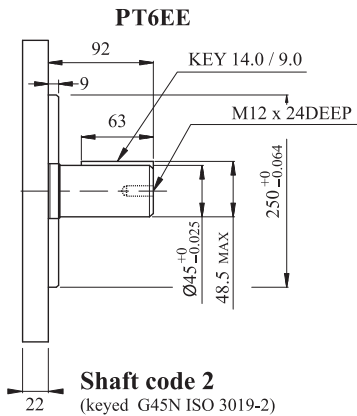
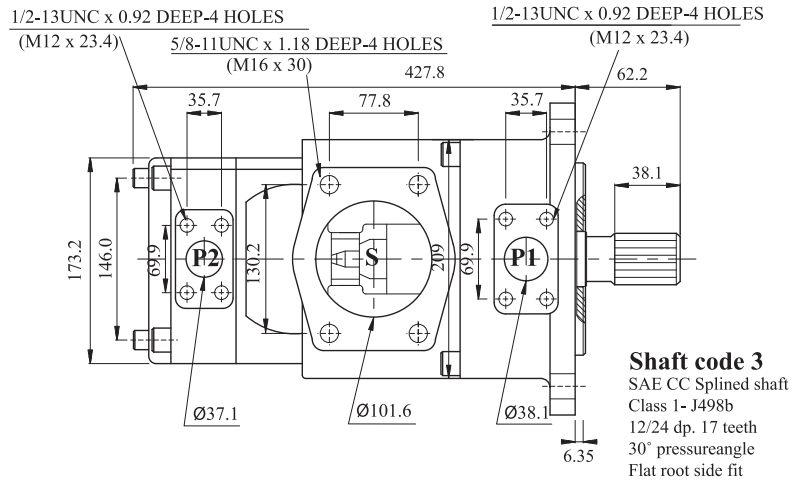


# PT6EE/PT6EES Dimensional Drawing



Shaft torque limits in <sup>3</sup> /rev x psi (cm <sup>3</sup> /rev x bar)			
Shaft	Vi x p max.	Coupling	Vi x p max.
1	80053 (90380)	SAE-B	18246 (20600)
2	101506 (114600)	SAE-BB	28937 (32670)
3	112312 (126800)		
4	112312 (126800)		
5	104818 (110840)		

Code	Coupling adapter
0	without coupling
2	SAE B -13 teeth -pitch 16/32 Major dia (min) 0.875 (22.225) Minor dia (min) 0.753 (19.126)
3	SAE BB -15 teeth -pitch 16/32 Major dia (min) 1.00 (25.4) Minor dia (min) 0.877 (22.275)



## PT6EE OPERATING CHARACTERISTICS - TYPICAL 115 Sus (24 cSt)

Pressure Port	Series	Volumetric Displacement Vp in <sup>3</sup> /rev (cm <sup>3</sup> /rev)	Flow qvc gpm (l/min) @ 1500 rpm			Input Power HP (KW) @ 1500 rpm			P. Max psi (bar)	MAX RPM
			p = 0 psi (0 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)	p = 100 psi (7 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)		
P1 & P2	042	8.07 (132.3)	52.44 (198.5)	49.80 (188.5)	47.89 (181.3)	6.97 (5.2)	66.25 (49.4)	110.77 (82.6)	3500 (240)	2200
	045	8.69 (142.4)	56.43 (213.6)	53.79 (203.6)	51.91 (196.5)	7.24 (5.4)	70.94 (52.9)	118.95 (88.7)		
	052	10.06 (164.8)	65.30 (247.2)	62.66 (237.2)	60.79 (230.1)	7.78 (5.8)	81.53 (60.8)	136.92 (102.1)		
	062	12.00 (196.7)	77.93 (295.0)	75.29 (285.0)	73.41 (277.9)	8.58 (6.4)	96.42 (71.9)	162.67 (121.3)		
	066	13.02 (213.3)	84.51 (319.9)	81.87 (309.9)	79.99 (302.8)	8.98 (6.7)	104.20 (77.7)	175.94 (131.2)		
	072	13.86 (227.1)	89.98 (340.6)	87.34 (330.6)	85.46 (323.5)	9.25 (6.9)	110.77 (82.6)	187.07 (139.5)		
	085(1)	16.46 (269.8)	106.91 (404.7)	105.06 (397.7)	( )	9.79 (7.3)	87.57 (65.3)	( )		

(1) 085 = 2000 rpm. max.

(2) 085 = 75 bar cont. 085 = 90 bar max. int.

Min Speed : 600 rpm

## PT6GCC - B22 - B08 - 6 R 00 - A 1 - 00 \*



① **Series**

② **Cam ring for " P1 "**

Volumetric displacement in<sup>3</sup>/ rev (cm<sup>3</sup>/rev)

B03 = 0.66 ( 10.8 )	B17 = 3.56 ( 58.3 )
B05 = 1.05 ( 17.2 )	B20 = 3.89 ( 63.8 )
B06 = 1.30 ( 21.3 )	B22 = 4.29 ( 70.3 )
B08 = 1.61 ( 26.4 )	B25 = 4.84 ( 79.3 )
B10 = 2.08 ( 34.1 )	B28 = 5.42 ( 88.8 )
B12 = 2.26 ( 37.1 )	B31 = 6.10 ( 100.0 )
B14 = 2.81 ( 46.0 )	

**Cam ring for " P2 "**

B03 = 0.66 ( 10.8 )	B17 = 3.56 ( 58.3 )
B05 = 1.05 ( 17.2 )	B20 = 3.89 ( 63.8 )
B06 = 1.30 ( 21.3 )	B22 = 4.29 ( 70.3 )
B08 = 1.61 ( 26.4 )	B25 = 4.84 ( 79.3 )
B10 = 2.08 ( 34.1 )	B28 = 5.42 ( 88.8 )
B12 = 2.26 ( 37.1 )	B31 = 6.10 ( 100.0 )
B14 = 2.81 ( 46.0 )	

③ **Type of shaft**

6 = splined (DIN 5462)

④ **Direction of rotation**(view on shaft end)

R = clockwise  
L = counter-clockwise

⑤ **Porting combination**

00 = standard

⑥ **Design letter**

⑦ **Seal class**

1 = S1

⑧ **Mounting W/connection variables**

		P1 = 1", S = 3"		P1 = 1", S = 2 1/2" 2)	
P2		1"	3/4" 1)	1"	3/4" 1)
Code	Unc	00	01	10	11
	Metric	0M	M0	1M	M1

1) for 2.80 in<sup>3</sup>/rev (46 cm<sup>3</sup>/rev) max.

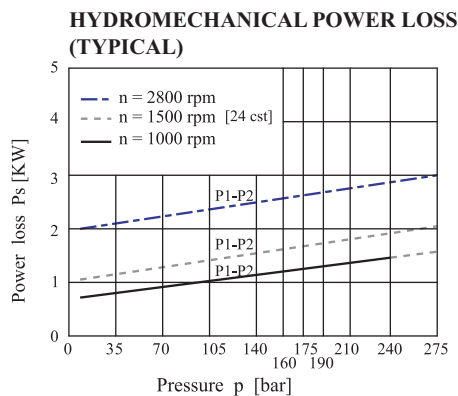
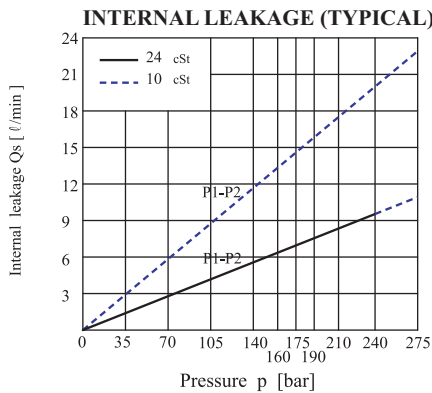
2) for 7.69 in<sup>3</sup>/rev (126 cm<sup>3</sup>/rev) max.

The large cartridge must be always mounted in the front.

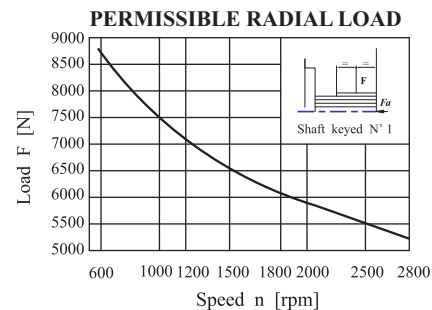
⑨ **Modifications**

Do not operate pump more than 5 seconds at any speed or viscosity if internal leakage is more that 50% of theoretical flow,

Total leakage is the sum of each section loss at its operating conditions.



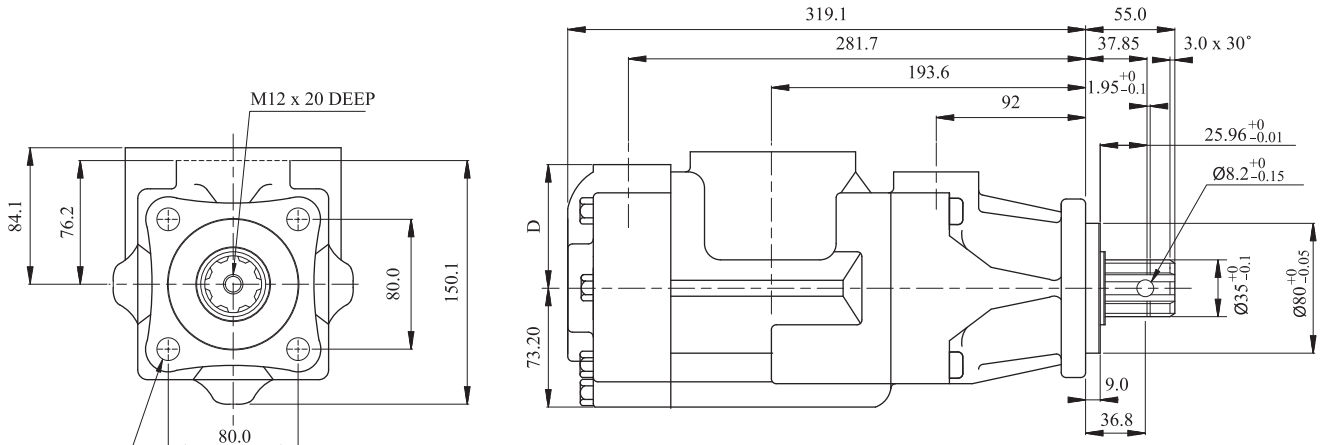
Total hydromechanical power loss is the sum of each sections loss at its operating conditions.



Life time 3000 hours when 70% of the time at 500 N and 30% at max. load



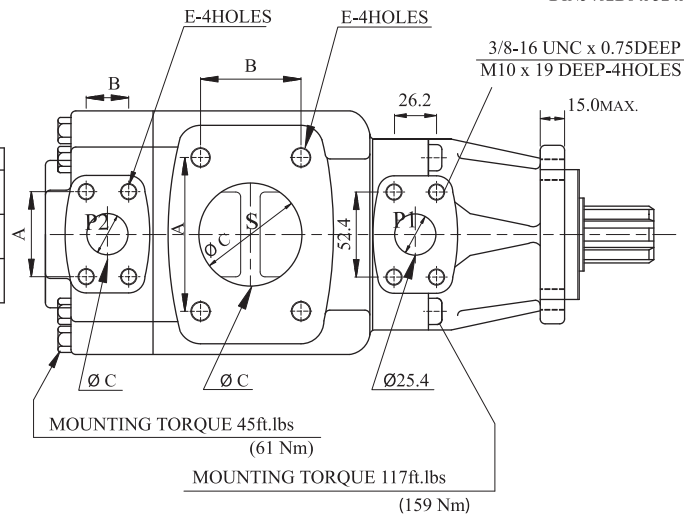
# PT6GCC Dimensional Drawing



**Shaft Code-6**  
DIN5462B8 x 32 x 36

PORT	A	B	C	D	E
S	106.4	61.9	76.2		5/8-11UNC x 1.12 (M16 x 28.4 DEEP)
S	88.9	50.8	63.5		1/2-13UNC x 0.94 (M12 x 24.0 DEEP)
P2	47.7	22.2	19.0	76.2	3/8-16UNC x 0.75 (M10 x 19.0 DEEP)
P2	52.4	26.2	25.4	74.7	

Shaft torque limits in <sup>3</sup> /rev x psi (cm <sup>3</sup> /rev x bar)	
Shaft	Vp x p max.(P1+P2)
6	36921 (32670)



## PT6GCC OPERATING CHARACTERISTICS - TYPICAL 115 Sus (24 cSt)

Pressure Port	Series	Volumetric Displacement Vp in <sup>3</sup> /rev (cm <sup>3</sup> /rev)	Flow qvc gpm (l/min) @ 1500 rpm			Input Power HP (KW) @ 1500 rpm			P. Max psi (bar)	MAX RPM
			p = 0 psi (0 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)	p = 100 psi (7 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)		
P1 & P2	B03	0.66 ( 10.8 )	4.28 ( 16.2 )	2.83 ( 10.7 )	( ---- )	1.74 ( 1.3 )	7.11 ( 5.3 )	( ---- )	4010 (275)	2800
	B05	1.05 ( 17.2 )	6.82 ( 25.8 )	5.36 ( 20.3 )	4.17 ( 15.8 )	1.88 ( 1.4 )	10.06 ( 7.5 )	16.36 ( 12.2 )		
	B06	1.30 ( 21.3 )	8.43 ( 31.9 )	7.00 ( 26.5 )	5.81 ( 22.0 )	2.01 ( 1.5 )	11.94 ( 8.9 )	19.71 ( 14.7 )		
	B08	1.61 ( 26.4 )	10.46 ( 39.6 )	9.01 ( 34.1 )	7.82 ( 29.6 )	2.15 ( 1.6 )	14.35 ( 10.7 )	23.74 ( 17.7 )		
	B10	2.08 ( 34.1 )	13.50 ( 51.1 )	12.07 ( 45.7 )	10.88 ( 41.2 )	2.28 ( 1.7 )	17.97 ( 13.4 )	29.90 ( 22.3 )		
	B12	2.26 ( 37.1 )	14.69 ( 55.6 )	13.26 ( 50.2 )	12.07 ( 45.7 )	2.28 ( 1.7 )	19.31 ( 14.4 )	32.32 ( 24.1 )		
	B14	2.81 ( 46.0 )	18.23 ( 69.0 )	16.77 ( 63.5 )	15.59 ( 59.0 )	2.55 ( 1.9 )	23.60 ( 17.6 )	39.56 ( 29.5 )		
	B17	3.56 ( 58.3 )	23.09 ( 87.4 )	21.66 ( 82.0 )	20.47 ( 77.5 )	2.82 ( 2.1 )	29.37 ( 21.9 )	49.48 ( 36.9 )		
	B20	3.89 ( 63.8 )	25.28 ( 95.7 )	23.83 ( 90.2 )	22.64 ( 85.7 )	2.95 ( 2.2 )	31.92 ( 23.8 )	53.91 ( 40.2 )		
	B22	4.29 ( 70.3 )	27.84 ( 105.4 )	26.42 ( 100.0 )	25.23 ( 95.5 )	3.08 ( 2.3 )	35.00 ( 26.1 )	59.14 ( 44.1 )		
	B25(1)	4.84 ( 79.3 )	31.41 ( 118.9 )	29.98 ( 113.5 )	28.79 ( 109.0 )	3.35 ( 2.5 )	39.16 ( 29.2 )	66.38 ( 49.5 )		
	B28(1)	5.42 ( 88.8 )	35.19 ( 133.2 )	33.73 ( 127.7 )	32.89 ( 124.5 (2)	3.75 ( 2.8 )	43.85 ( 32.7 )	65.04 ( 48.5 (2)		
	B31(1)	6.10 ( 100.0 )	39.63 ( 150.0 )	38.17 ( 144.5 )	37.33 ( 141.3 (2)	3.75 ( 2.8 )	48.95 ( 36.5 )	72.95 ( 54.4 (2)		

(1) B25-B28-B31 = 2500 rpm. max

(2) B28-B31 = 210 bar max. int.

Min Speed: 600 rpm

-- Do not use because internal leakage greater than 50% theoretical flow.



**PT6QDC - 038 - 022 - 1 R 00 - A 1 - 00 - \***  
1    
P1    
P2    
3
4
5    
6    
7    
8    
9

① **Series** PT6QDC- SAE-C 2 & 4 Bolt Mount

② **Cam ring for " P1 "**

Volumetric displacement in<sup>3</sup>/ rev (cm<sup>3</sup>/rev)

014 = 2.90 ( 47.6 )    035 = 6.77 ( 111.0 )  
 017 = 3.55 ( 58.2 )    038 = 7.34 ( 120.3 )  
 020 = 4.03 ( 66.0 )    042 = 8.30 ( 136.0 )  
 024 = 4.85 ( 79.5 )    045 = 8.89 ( 145.7 )  
 028 = 5.47 ( 89.7 )    050 = 9.64 ( 158.0 )  
 031 = 6.00 ( 98.3 )

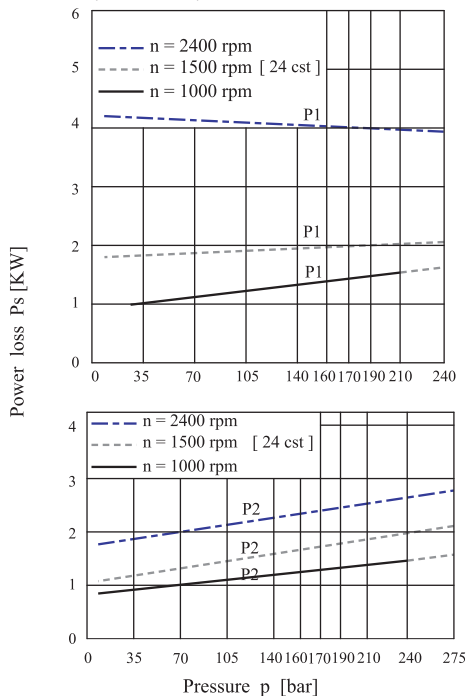
**Cam ring for " P2 "**

003 = 0.66 ( 10.8 )    017 = 3.56 ( 58.3 )  
 005 = 1.05 ( 17.2 )    020 = 3.89 ( 63.8 )  
 006 = 1.30 ( 21.3 )    022 = 4.29 ( 70.3 )  
 008 = 1.61 ( 26.4 )    025 = 4.84 ( 79.3 )  
 010 = 2.08 ( 34.1 )    028 = 5.42 ( 88.8 )  
 012 = 2.26 ( 37.1 )    031 = 6.10 ( 100.0 )  
 014 = 2.81 ( 46.0 )

③ **Type of shaft**

- 1 = Keyed ( SAE C )
- 2 = Keyed ( no SAE )
- 3 = Splined ( SAE C )
- 4 = Splined ( no SAE )

**HYDROMECHANICAL POWER LOSS (TYPICAL)**



Total hydromechanical power loss is the sum of each sections loss at its operating conditions.

④ **Direction of rotation**  
(viewed from shaft end)

- R = clockwise
- L = counter - clockwise

⑤ **Porting combination**  
00 = standard

⑥ **Design letter**

⑦ **Seal class**

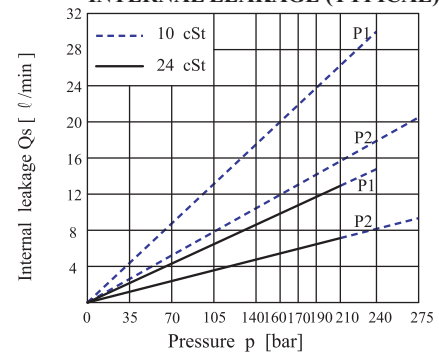
- 1 = S1 (for mineral oil)
- 4 = S4 (for fire resistant fluids)
- 5 = S5 (for mineral oil and fire resistant fluids)

⑧ **Mounting W/connection variables**

	UNC		METRIC	
	00	01	M0	M1
P2	1"	3/4"	1"	3/4"

⑨ **Modifications**

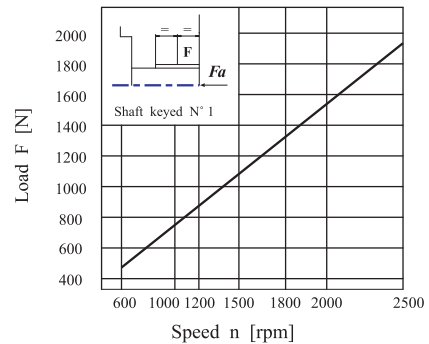
**INTERNAL LEAKAGE (TYPICAL)**



Do not operate pump more than 5 seconds at any speed or viscosity if internal leakage is more than 50 % of theoretical flow

Total leakage is the sum of each section loss at its operating conditions.

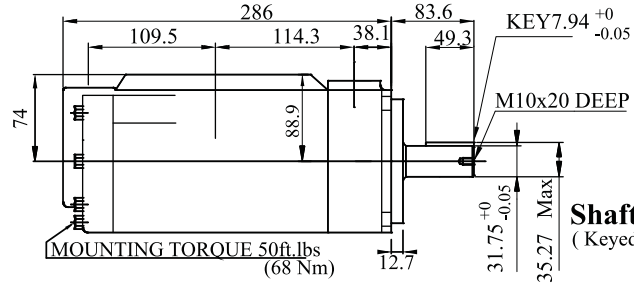
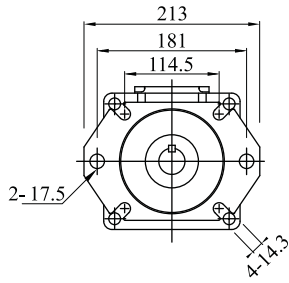
**PERMISSIBLE RADIAL LOAD**



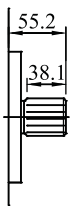
Maximum permissible axial load Fa = 1200 N



# PT6QDC Dimensional Drawing

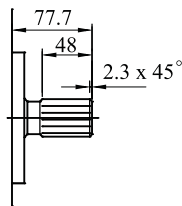


**Shaft Code 1**  
(Keyed SAE C)



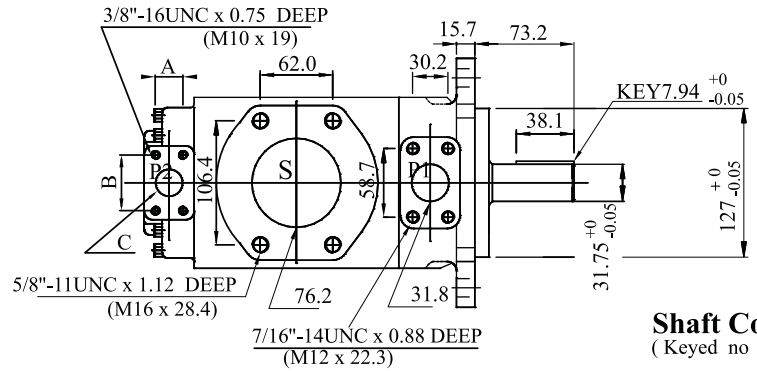
### Shaft code 3

SAE C Splined shaft class 1 - J498b  
12/24 d.p. -14 teeth  
30° pressure angle.  
Flat root side fit.



### Shaft code 4

NO SAE Splined shaft class 1 - J498  
b 12/24 d.p. -14 teeth  
30° pressure angle. Flat root side fit.



**Shaft Code 2**  
(Keyed no SAE)

Shaft torque limits in <sup>3</sup> /rev x psi (cm <sup>3</sup> /rev x bar)		
Pump	Shaft	Vp x p max.P1+P2
PT6QDC	1	38299 (43240)
	2	30638 (34590)
	3	54207 (61200)
	4	54207 (61200)

Alternate connect. variables		
	00 & M0	01 & M1
A	1.031 (26.2)	0.874 (22.2)
B	2.06 (52.4)	1.874 (47.6)
C	1.0 (25.4)	0.75 (19.05)

## PT6QDC OPERATING CHARACTERISTICS - TYPICAL 115 Sus (24 cSt)

Pressure Port	Series	Volumetric Displacement Vp in <sup>3</sup> /rev (cm <sup>3</sup> /rev)	Flow qve gpm (l/min) @ 1500 rpm			Input Power HP (KW) @ 1500 rpm			P. Max psi (bar)	MAX RPM
			p = 0 psi (0 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)	p = 100 psi (7 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)		
P1	014	2.90 ( 47.6 )	18.86 ( 71.4 )	16.41 ( 62.1 )	14.77 ( 55.9 )	3.08 ( 2.3 )	24.81 ( 18.5 )	41.04 ( 30.6 )	3500 (240)	2500
	017	3.55 ( 58.2 )	23.06 ( 87.3 )	20.61 ( 78.0 )	18.97 ( 71.8 )	3.35 ( 2.5 )	29.77 ( 22.2 )	49.62 ( 37.0 )		
	020	4.03 ( 66.0 )	26.15 ( 99.0 )	23.70 ( 89.7 )	22.06 ( 83.5 )	3.75 ( 2.8 )	33.39 ( 24.9 )	55.92 ( 41.7 )		
	024	4.85 ( 79.5 )	31.52 ( 119.3 )	29.06 ( 110.0 )	27.42 ( 103.8 )	4.02 ( 3.0 )	39.69 ( 29.6 )	66.78 ( 49.8 )		
	028	5.47 ( 89.7 )	35.53 ( 134.5 )	33.07 ( 125.2 )	31.44 ( 119.0 )	4.29 ( 3.2 )	44.52 ( 33.2 )	74.96 ( 55.9 )		
	031	6.00 ( 98.3 )	38.97 ( 147.5 )	36.48 ( 138.1 )	34.84 ( 131.9 )	4.43 ( 3.3 )	48.54 ( 36.2 )	81.80 ( 61.0 )		
	035	6.77 ( 111.0 )	43.98 ( 166.5 )	41.53 ( 157.2 )	39.89 ( 151.0 )	4.69 ( 3.5 )	54.58 ( 40.7 )	92.13 ( 68.7 )		
	038	7.34 ( 120.3 )	47.66 ( 180.4 )	45.20 ( 171.1 )	43.56 ( 164.9 )	4.96 ( 3.7 )	58.87 ( 43.9 )	99.64 ( 74.3 )		
	042(1)	8.30 ( 136.0 )	53.89 ( 204.0 )	51.43 ( 194.7 )	49.80 ( 188.5 )	5.36 ( 4.0 )	66.25 ( 49.4 )	112.24 ( 83.7 )		
045(1)	8.89 ( 145.7 )	57.72 ( 218.5 )	55.26 ( 209.2 )	53.63 ( 203.0 )	5.50 ( 4.1 )	70.81 ( 52.8 )	120.02 ( 89.5 )			
050(1)	9.64 ( 158.0 )	62.61 ( 237.0 )	60.15 ( 227.7 )	59.17 ( 224.0 (2)	5.90 ( 4.4 )	76.44 ( 57.0 )	113.99 ( 85.0 (2)			
P2	003	0.66 ( 10.8 )	4.28 ( 16.2 )	2.96 ( 11.2 )	2.03 ( 7.7 )	1.74 ( 1.3 )	7.11 ( 5.3 )	11.26 ( 8.4 )	4010 (275)	2500
	005	1.05 ( 17.2 )	6.82 ( 25.8 )	5.49 ( 20.8 )	4.57 ( 17.3 )	1.88 ( 1.4 )	10.06 ( 7.5 )	16.36 ( 12.2 )		
	006	1.30 ( 21.3 )	8.43 ( 31.9 )	7.11 ( 26.9 )	6.18 ( 23.4 )	2.01 ( 1.5 )	11.94 ( 8.9 )	19.71 ( 14.7 )		
	008	1.61 ( 26.4 )	10.46 ( 39.6 )	9.14 ( 34.6 )	8.22 ( 31.1 )	2.15 ( 1.6 )	14.35 ( 10.7 )	23.74 ( 17.7 )		
	010	2.08 ( 34.1 )	13.50 ( 51.1 )	12.18 ( 46.1 )	11.25 ( 42.6 )	2.28 ( 1.7 )	17.97 ( 13.4 )	29.90 ( 22.3 )		
	012	2.26 ( 37.1 )	14.69 ( 55.6 )	13.37 ( 50.6 )	12.44 ( 47.1 )	2.28 ( 1.7 )	19.31 ( 14.4 )	32.32 ( 24.1 )		
	014	2.81 ( 46.0 )	18.23 ( 69.0 )	16.91 ( 64.0 )	15.98 ( 60.5 )	2.55 ( 1.9 )	23.60 ( 17.6 )	39.56 ( 29.5 )		
	017	3.56 ( 58.3 )	23.09 ( 87.4 )	21.77 ( 82.4 )	20.84 ( 78.9 )	2.82 ( 2.1 )	29.37 ( 21.9 )	49.48 ( 36.9 )		
	020	3.89 ( 63.8 )	25.28 ( 95.7 )	23.96 ( 90.7 )	23.04 ( 87.2 )	2.95 ( 2.2 )	31.92 ( 23.8 )	53.91 ( 40.2 )		
	022	4.29 ( 70.3 )	27.84 ( 105.4 )	26.52 ( 100.4 )	25.60 ( 96.9 )	3.08 ( 2.3 )	35.00 ( 26.1 )	59.14 ( 44.1 )		
	025	4.84 ( 79.3 )	31.41 ( 118.9 )	30.09 ( 113.9 )	29.16 ( 110.4 )	3.35 ( 2.5 )	39.16 ( 29.2 )	66.38 ( 49.5 )		
	028	5.42 ( 88.8 )	35.19 ( 133.2 )	33.87 ( 128.2 )	33.23 ( 125.8 (2)	3.75 ( 2.8 )	43.85 ( 32.7 )	65.04 ( 48.5 (2)		
	031	6.10 ( 100.0 )	39.63 ( 150.0 )	38.30 ( 145.0 )	37.67 ( 142.6 (2)	3.75 ( 2.8 )	48.95 ( 36.5 )	72.95 ( 54.4 (2)		

(1) 042 - 045 - 050 = 2200 rpm max

(2) 028 - 031 - 050 = 210 bar max. int.

Min Speed : 600 rpm

PT67CB W - 022 - B08 - 6 R 00 - A 1 - 00 \*

① **Series** PT67CB - SAE-B 2-Bolt Mount

② **Use for severe duty shaft only**

③ **Cam ring for " P1 "**

Volumetric displacement in<sup>3</sup>/ rev (cm<sup>3</sup>/rev)

003 = 0.66 ( 10.8 )	017 = 3.56 ( 58.3 )
005 = 1.05 ( 17.2 )	020 = 3.89 ( 63.8 )
006 = 1.30 ( 21.3 )	022 = 4.29 ( 70.3 )
008 = 1.61 ( 26.4 )	025 = 4.84 ( 79.3 )
010 = 2.08 ( 34.1 )	028 = 5.42 ( 88.8 )
012 = 2.26 ( 37.1 )	031 = 6.10 ( 100.0 )
014 = 2.81 ( 46.0 )	

**Cam ring for " P2 "**

B02 = 0.35 ( 5.7 )	B09 = 1.71 ( 28.0 )
B03 = 0.60 ( 9.8 )	B10 = 1.94 ( 31.8 )
B04 = 0.78 ( 12.8 )	B11 = 2.13 ( 34.9 )
B05 = 0.97 ( 15.9 )	B12 = 2.50 ( 40.9 )
B06 = 1.21 ( 19.8 )	B14 = 2.75 ( 45.1 )
B07 = 1.37 ( 22.5 )	B15 = 3.05 ( 50.0 )
B08 = 1.52 ( 24.9 )	

④ **Type of shaft**

1 = Keyed (No SAE)     **W version**  
 3 = Splined (SAE BB)    2 = Keyed (SAE BB)  
 5 = Splined (SAE B)

⑤ **Direction of rotation**

(viewed from shaft end)  
 R = clockwise  
 L = counter-clockwise

⑥ **Porting combination**

00 = standard

⑦ **Design letter**

⑧ **Seal class**

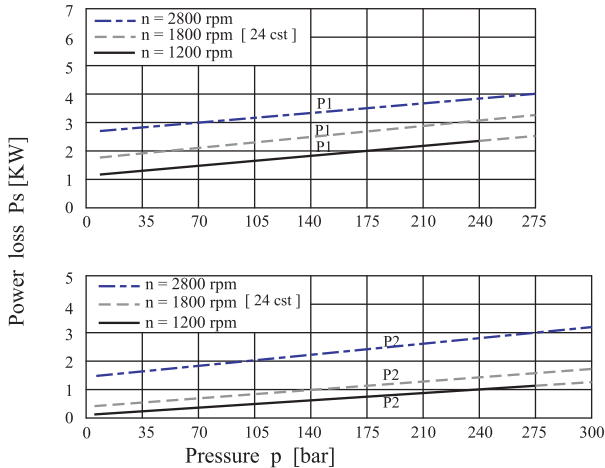
1 = S1 (for mineral oil)  
 4 = S4 (for fire resistant fluids)  
 5 = S5 (for mineral oil and fire resistant fluids)

⑨ **Mounting W/connection variables**

P1 = 1" , P2 = 3/4" , S = 2 1/2"	
Unc	Metric
11	M1

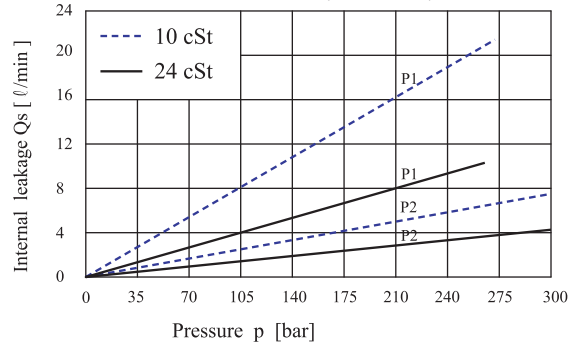
⑩ **Modifications**

**HYDROMECHANICAL POWER LOSS (TYPICAL)**

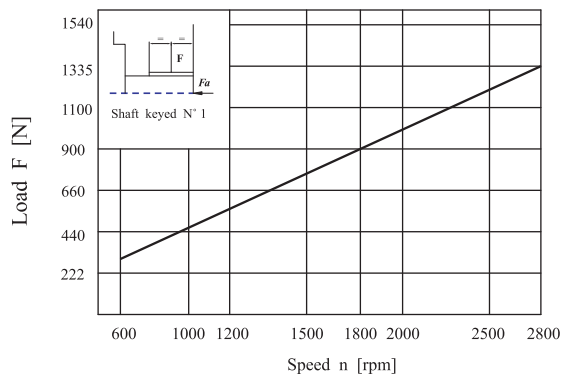


Total hydromechanical power loss is the sum of each sections loss at its operating conditions.

**INTERNAL LEAKAGE (TYPICAL)**



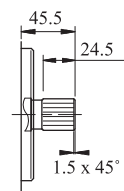
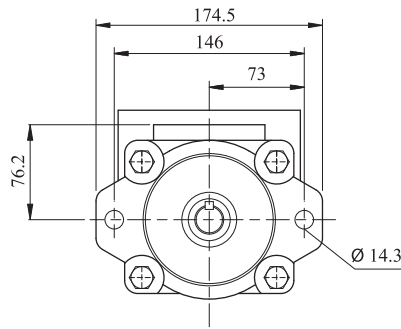
**PERMISSIBLE RADIAL LOAD**



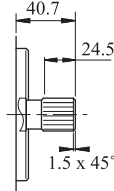
Maximum permissible axial load Fa = 800 N



# PT67CB Dimensional Drawing

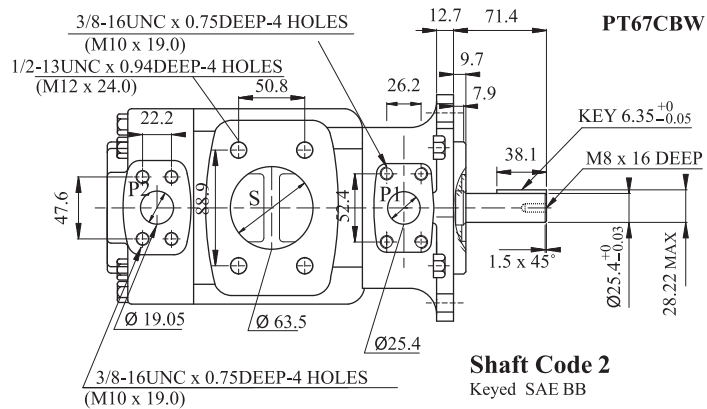
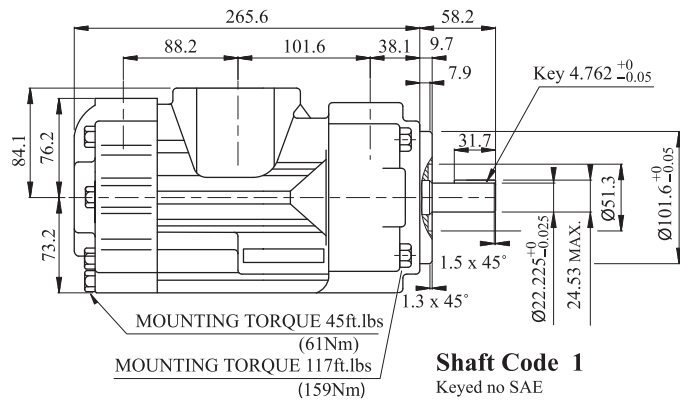


**Shaft code 3**  
SAE BB splined shaft  
Class 1-J498b 16/32 dp.  
-15 teeth 30° pressure  
angle flat root side fit



**Shaft code 5**  
SAE B splined shaft  
Class 1-J498b 16/32 dp.  
-13 teeth 30° pressure  
angle flat root side fit

Shaft torque limits in <sup>3</sup> /rev x psi (cm <sup>3</sup> /rev x bar)		
Pump	Shaft	V <sub>p</sub> x p max.(P1+P2)
PT67CB	1	12666 (14300)
	2	18972 (21420)
	3	28937 (32670)
	5	18246 (20600)



## PT67CB OPERATING CHARACTERISTICS - TYPICAL 115 Sus (24 cSt)

Pressure Port	Series	Volumetric Displacement V <sub>p</sub> in <sup>3</sup> /rev (cm <sup>3</sup> /rev)	Flow qvc gpm (l/min) @ 1800 rpm			Input Power HP (KW) @ 1800 rpm			P. Max psi (bar)	MAX RPM
			p = 0 psi (0 bar)	p = 2000 psi (140 bar)	p = 4000 psi (275 bar)	p = 100 psi (7 bar)	p = 2000 psi (140 bar)	p = 4000 psi (275 bar)		
P1	003	0.66 ( 10.8 )	5.18 ( 19.6 )	3.86 ( 14.6 )	0.00 ( -- )	2.11 ( 1.57 )	8.45 ( 6.30 )	0.00 ( -- )	4000 (275)	2800
	005	1.05 ( 17.2 )	8.16 ( 30.9 )	6.87 ( 26.0 )	5.68 ( 21.5 )	2.28 ( 1.70 )	11.99 ( 8.94 )	19.81 ( 14.77 )		
	006	1.30 ( 21.3 )	10.12 ( 38.3 )	8.82 ( 33.4 )	7.61 ( 28.8 )	2.39 ( 1.78 )	14.27 ( 10.64 )	23.79 ( 17.74 )		
	008	1.61 ( 26.4 )	12.52 ( 47.4 )	11.25 ( 42.6 )	10.01 ( 37.9 )	2.53 ( 1.89 )	17.10 ( 12.75 )	28.74 ( 21.43 )		
	010	2.08 ( 34.1 )	16.19 ( 61.3 )	14.90 ( 56.4 )	13.68 ( 51.8 )	2.76 ( 2.06 )	21.38 ( 15.94 )	36.21 ( 27.00 )		
	012	2.26 ( 37.1 )	17.62 ( 66.7 )	16.33 ( 61.8 )	15.11 ( 57.2 )	2.83 ( 2.11 )	23.04 ( 17.18 )	39.13 ( 29.18 )		
	014	2.81 ( 46.0 )	21.85 ( 82.7 )	20.55 ( 77.8 )	19.34 ( 73.2 )	3.08 ( 2.30 )	27.99 ( 20.87 )	47.77 ( 35.62 )		
	017	3.56 ( 58.3 )	27.69 ( 104.8 )	26.39 ( 99.9 )	25.18 ( 95.3 )	3.42 ( 2.55 )	34.80 ( 25.95 )	59.73 ( 44.54 )		
	020	3.89 ( 63.8 )	30.30 ( 114.7 )	29.01 ( 109.8 )	27.79 ( 105.2 )	3.57 ( 2.66 )	37.86 ( 28.23 )	65.07 ( 48.52 )		
	022	4.29 ( 70.3 )	33.39 ( 126.4 )	32.10 ( 121.5 )	30.88 ( 116.9 )	3.75 ( 2.80 )	41.46 ( 30.92 )	71.37 ( 53.22 )		
	025 (1)	4.84 ( 79.3 )	37.64 ( 142.5 )	36.35 ( 137.6 )	35.16 ( 133.1 )	4.01 ( 2.99 )	46.45 ( 34.64 )	80.11 ( 59.74 )		
	028 (1)	5.42 ( 88.8 )	42.16 ( 159.6 )	40.87 ( 154.7 )	40.74 ( 154.2 (2)	4.26 ( 3.18 )	51.74 ( 38.58 )	76.73 ( 57.22 (2)		
031 (1)	6.10 ( 100.0 )	47.47 ( 179.7 )	46.20 ( 174.9 )	45.57 ( 172.5 (2)	4.57 ( 3.41 )	57.95 ( 43.21 )	86.05 ( 64.17 (2)			
P2	Series	in <sup>3</sup> /rev (cm <sup>3</sup> /rev)	p = 0 psi (0 bar)	p = 2000 psi (140 bar)	p = 4375 psi (300 bar)	p = 100 psi (7 bar)	p = 2000 psi (140 bar)	p = 4375 psi (300 bar)	4375 (300)	2800
	B02	0.35 ( 5.7 )	2.75 ( 10.4 )	2.32 ( 8.8 )	1.80 ( 6.8 )	0.74 ( 0.55 )	4.01 ( 2.99 )	8.58 ( 6.40 )		
	B03	0.60 ( 9.8 )	5.18 ( 17.6 )	4.20 ( 15.9 )	3.70 ( 14.0 )	0.84 ( 0.63 )	6.24 ( 4.65 )	13.75 ( 10.25 )		
	B04	0.78 ( 12.8 )	6.08 ( 23.0 )	5.65 ( 21.4 )	5.12 ( 19.4 )	0.94 ( 0.70 )	7.90 ( 5.89 )	17.61 ( 13.13 )		
	B05	0.97 ( 15.9 )	7.56 ( 28.6 )	7.11 ( 26.9 )	6.60 ( 25.0 )	1.02 ( 0.76 )	9.62 ( 7.17 )	21.62 ( 16.12 )		
	B06	1.21 ( 19.8 )	9.40 ( 35.6 )	8.96 ( 33.9 )	8.45 ( 32.0 )	1.13 ( 0.84 )	11.79 ( 8.79 )	26.66 ( 19.88 )		
	B07	1.37 ( 22.5 )	10.67 ( 40.4 )	10.25 ( 38.8 )	9.72 ( 36.8 )	1.19 ( 0.89 )	13.29 ( 9.91 )	30.13 ( 22.47 )		
	B08	1.52 ( 24.9 )	11.81 ( 44.7 )	11.39 ( 43.1 )	10.86 ( 41.1 )	1.26 ( 0.94 )	14.62 ( 10.90 )	33.23 ( 24.78 )		
	B09	1.71 ( 28.0 )	13.29 ( 50.3 )	12.84 ( 48.6 )	12.42 ( 47.0 )	1.35 ( 1.01 )	16.35 ( 12.19 )	37.24 ( 27.77 )		
	B10	1.94 ( 31.8 )	15.11 ( 57.2 )	14.66 ( 55.5 )	14.13 ( 53.5 )	1.49 ( 1.11 )	18.44 ( 13.75 )	42.13 ( 31.42 )		
	B11	2.13 ( 34.9 )	16.62 ( 62.9 )	16.17 ( 61.2 )	15.67 ( 59.3 )	1.54 ( 1.15 )	20.17 ( 15.04 )	43.21 ( 32.22 )		
	B12	2.50 ( 40.9 )	19.47 ( 73.7 )	19.05 ( 72.1 )	18.52 ( 70.1 )	1.72 ( 1.28 )	23.55 ( 17.56 )	50.57 ( 37.71 )		
	B14	2.75 ( 45.1 )	21.35 ( 80.8 )	20.92 ( 79.2 )	20.34 ( 77.0 )	1.82 ( 1.36 )	25.79 ( 19.23 )	55.48 ( 41.37 )		
	B15	3.05 ( 50.0 )	23.72 ( 89.8 )	23.33 ( 88.3 )	22.85 ( 86.5 (3)	1.97 ( 1.47 )	28.54 ( 21.28 )	57.34 ( 42.76 (3)		

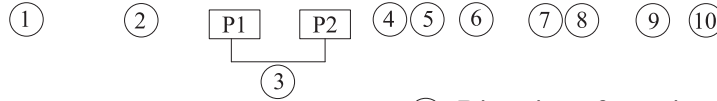
(1) 025-028-031 = 2500 rpm  
(3) B15 = 280 bar max. int.

(2) 028-031 = 210 bar max. int.

--Not to use because internal leakage greater than 50% theoretical flow.

Min Speed : 600 rpm

**PT67DB - W - 038 - B08 - 1 R 00 - A 1 - M 1 \***



① **Series-** PT67DB - SAE-C 2-Bolt Mount

② **Severe duty shaft only**

③ **Cam ring for " P1 "**

Volumetric displacement in<sup>3</sup>/ rev (cm<sup>3</sup>/rev)

014 = 2.90 ( 47.6 )	035 = 6.77 ( 111.0 )
017 = 3.55 ( 58.2 )	038 = 7.34 ( 120.3 )
020 = 4.03 ( 66.0 )	042 = 8.30 ( 136.0 )
024 = 4.85 ( 79.5 )	045 = 8.89 ( 145.7 )
028 = 5.47 ( 89.7 )	050 = 9.64 ( 158.0 )
031 = 6.00 ( 98.3 )	

**Cam ring for " P2 "**

B02 = 0.35 ( 5.7 )	B09 = 1.71 ( 28.0 )
B03 = 0.60 ( 9.8 )	B10 = 1.94 ( 31.8 )
B04 = 0.78 ( 12.8 )	B11 = 2.13 ( 34.9 )
B05 = 0.97 ( 15.9 )	B12 = 2.50 ( 40.9 )
B06 = 1.21 ( 19.8 )	B14 = 2.75 ( 45.1 )
B07 = 1.37 ( 22.5 )	B15 = 3.05 ( 50.0 )
B08 = 1.52 ( 24.9 )	

④ **Type of shaft**

- 1 = Keyed (SAE C)      2 = Keyed (No SAE)
  - 3 = Splined (SAE C)    4 = Splined (No SAE)
  - 5 = Keyed (No SAE)
- (PT67DBW only)

⑤ **Direction of rotation**

- (viewed from shaft end)
- R = clockwise
- L = counter-clockwise

⑥ **Porting combination**

- 00 = standard

⑦ **Design letter**

⑧ **Seal class**

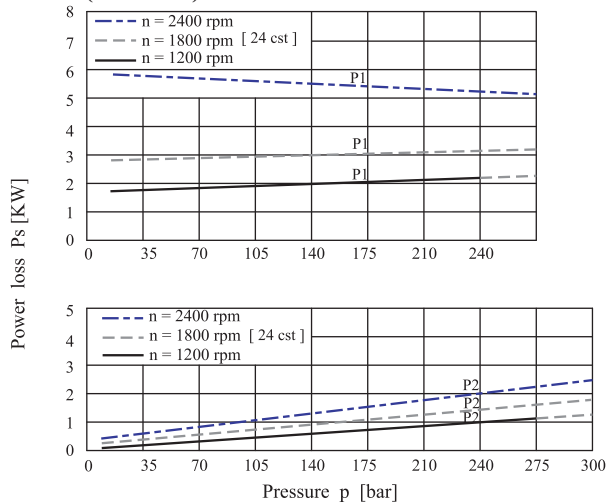
- 1 = S1 (for mineral oil)
- 4 = S4 (for fire resistant fluids)
- 5 = S5 (for mineral oil and fire resistant fluids)

⑨ **Mounting W/connection variables**

P1 = 1 1/4", P2 = 3/4", S = 3"	
Unc	Metric
11	M1

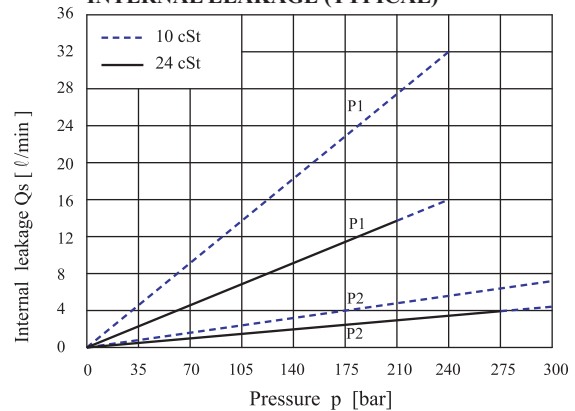
⑩ **Modifications**

**HYDROMECHANICAL POWER LOSS (TYPICAL)**

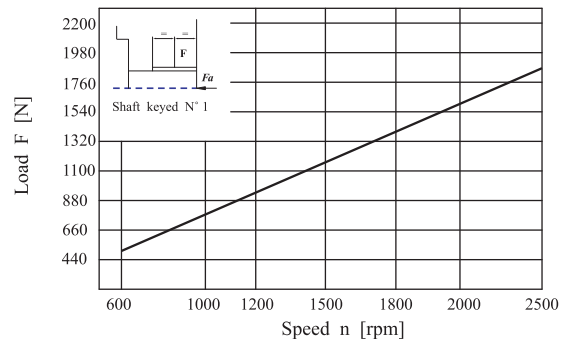


Total hydromechanical power loss is the sum of each sections loss at its operating conditions.

**INTERNAL LEAKAGE (TYPICAL)**

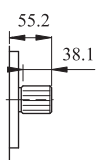
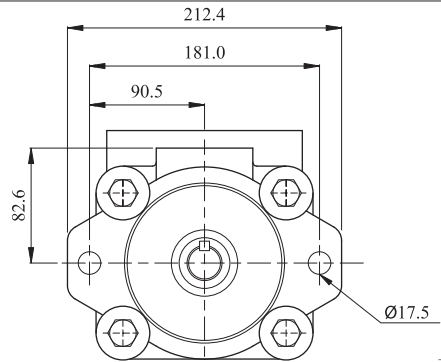


**PERMISSIBLE RADIAL LOAD**

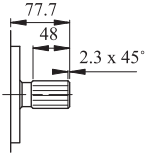




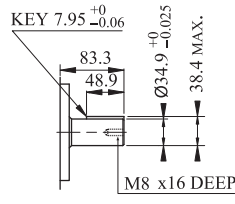
# PT67DB Dimensional Drawing



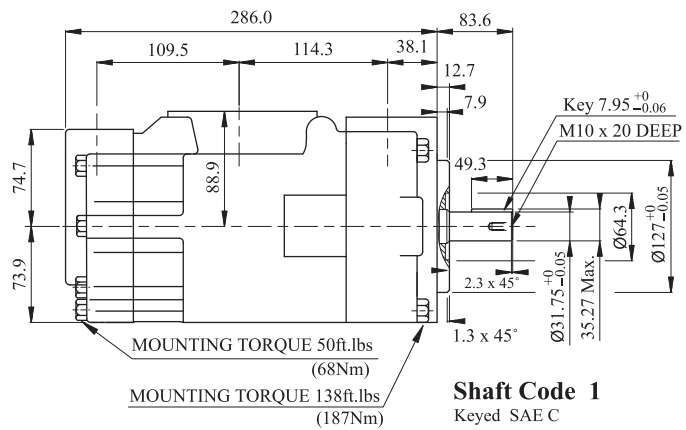
**Shaft code 3**  
SAE C Splined shaft class 1 - J498B 12/24 dp. -14 teeth 30° pressure angle. Flat root side fit.



**Shaft code 4**  
NO SAE Splined shaft class 1 - J498B 12/24 dp. -14 teeth 30° pressure angle. Flat root side fit.

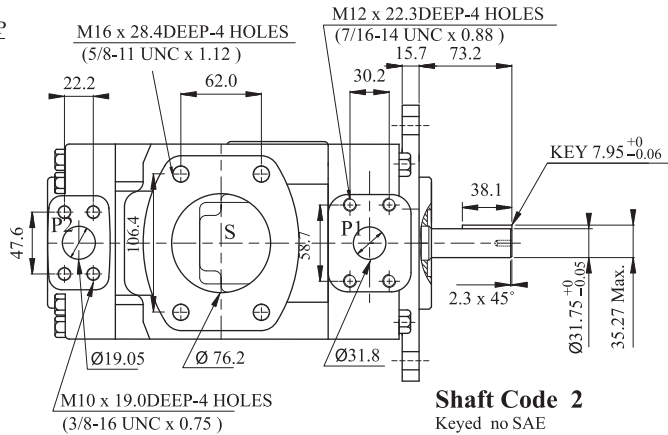


**Shaft code 5**  
Keyed no SAE  
**PT67DBW**



MOUNTING TORQUE 50ft.lbs (68Nm)  
MOUNTING TORQUE 138ft.lbs (187Nm)

**Shaft Code 1**  
Keyed SAE C



**Shaft Code 2**  
Keyed no SAE

Shaft torque limits in <sup>3</sup> /rev x psi (cm <sup>3</sup> /rev x bar)		
Pump	Shaft	Vp x p max.P1+P2
PT67DB	1	38299 (43240)
	2	30638 (34590)
	3	54207 (61200)
	4	54207 (61200)
	5	49247 (55600)

## PT67DB OPERATING CHARACTERISTICS - TYPICAL 115 Sus (24 cSt)

Pressure Port	Series	Volumetric Displacement Vp in <sup>3</sup> /rev (cm <sup>3</sup> /rev)	Flow qve gpm (l/min) @ 1800 rpm			Input Power HP (KW) @ 1800 rpm			P. Max psi (bar)	MAX RPM
			p = 0 psi (0 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)	p = 100 psi (7 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)		
P1	014	2.90 ( 47.6 )	22.45 ( 85.0 )	20.45 ( 77.4 )	18.78 ( 71.1 )	4.01 ( 2.99 )	28.94 ( 21.58 )	9.72 ( 36.79 )	3500 (240)	2500
	017	3.55 ( 58.2 )	23.06 ( 87.3 )	20.61 ( 78.0 )	18.97 ( 71.8 )	3.35 ( 2.50 )	29.77 ( 22.20 )	49.62 ( 37.00 )		
	020	4.03 ( 66.0 )	31.33 ( 118.6 )	26.79 ( 101.4 )	27.53 ( 104.2 )	4.53 ( 3.38 )	39.52 ( 29.47 )	13.24 ( 50.11 )		
	024	4.85 ( 79.5 )	37.72 ( 142.8 )	35.56 ( 134.6 )	33.95 ( 128.5 )	4.91 ( 3.66 )	47.02 ( 35.06 )	80.31 ( 59.89 )		
	028	5.47 ( 89.7 )	42.61 ( 161.3 )	40.42 ( 153.0 )	38.78 ( 146.8 )	5.19 ( 3.87 )	52.68 ( 39.28 )	90.22 ( 67.28 )		
	031	6.00 ( 98.3 )	46.68 ( 176.7 )	44.51 ( 168.5 )	42.88 ( 162.3 )	5.48 ( 4.09 )	57.45 ( 42.84 )	98.58 ( 73.51 )		
	035	6.77 ( 111.0 )	52.73 ( 199.6 )	50.54 ( 191.3 )	48.63 ( 184.1 )	5.78 ( 4.31 )	64.49 ( 48.09 )	110.90 ( 82.70 )		
	038	7.34 ( 120.3 )	57.14 ( 216.3 )	54.97 ( 208.1 )	53.31 ( 201.8 )	6.03 ( 4.50 )	69.65 ( 51.94 )	111.94 ( 83.47 )		
	042	8.30 ( 136.0 )	64.59 ( 244.5 )	62.42 ( 236.3 )	60.79 ( 230.1 )	6.48 ( 4.83 )	78.37 ( 58.44 )	135.19 ( 100.81 )		
	045	8.89 ( 145.7 )	69.19 ( 261.9 )	67.02 ( 253.7 )	65.38 ( 247.5 )	6.73 ( 5.02 )	83.75 ( 62.45 )	144.60 ( 107.83 )		
050	9.64 ( 158.0 )	75.05 ( 284.1 )	72.86 ( 275.8 )	71.67 ( 271.3 )	7.07 ( 5.27 )	90.57 ( 67.54 )	134.53 ( 100.32 )	4375 (300)	2500	
Series	in <sup>3</sup> /rev (cm <sup>3</sup> /rev)	p = 0 psi (0 bar)	p = 2000 psi (140 bar)	p = 4375 psi (300 bar)	p = 100 psi (7 bar)	p = 2000 psi (140 bar)	p = 4375 psi (300 bar)			
P2	B02	0.35 ( 5.8 )	2.75 ( 10.4 )	2.32 ( 8.8 )	1.80 ( 6.8 )	0.74 ( 0.55 )	4.01 ( 2.99 )	8.58 ( 6.40 )	4083 (280)	2500
	B03	0.60 ( 9.8 )	4.65 ( 17.6 )	4.20 ( 15.9 )	3.70 ( 14.0 )	0.84 ( 0.63 )	6.24 ( 4.65 )	13.75 ( 10.25 )		
	B04	0.78 ( 12.8 )	6.08 ( 23.0 )	5.65 ( 21.4 )	5.12 ( 19.4 )	0.94 ( 0.70 )	7.90 ( 5.89 )	17.61 ( 13.13 )		
	B05	0.97 ( 15.9 )	7.56 ( 28.6 )	7.11 ( 26.9 )	6.60 ( 25.0 )	1.02 ( 0.76 )	9.62 ( 7.17 )	21.62 ( 16.12 )		
	B06	1.21 ( 19.8 )	9.40 ( 35.6 )	8.96 ( 33.9 )	8.45 ( 32.0 )	1.13 ( 0.84 )	11.79 ( 8.79 )	26.66 ( 19.88 )		
	B07	1.37 ( 22.5 )	10.67 ( 40.4 )	10.25 ( 38.8 )	9.72 ( 36.8 )	1.19 ( 0.89 )	13.29 ( 9.91 )	30.13 ( 22.47 )		
	B08	1.52 ( 24.9 )	11.81 ( 44.7 )	11.39 ( 43.1 )	10.86 ( 41.1 )	1.26 ( 0.94 )	14.62 ( 10.90 )	33.23 ( 24.78 )		
	B09	1.71 ( 28.0 )	13.29 ( 50.3 )	12.84 ( 48.6 )	12.42 ( 47.0 )	1.35 ( 1.01 )	16.35 ( 12.19 )	37.24 ( 27.77 )		
	B10	1.94 ( 31.8 )	15.11 ( 57.2 )	14.66 ( 55.5 )	14.13 ( 53.5 )	1.49 ( 1.11 )	18.44 ( 13.75 )	42.13 ( 31.42 )		
	B11	2.13 ( 34.9 )	16.62 ( 62.9 )	16.17 ( 61.2 )	15.67 ( 59.3 )	1.54 ( 1.15 )	20.17 ( 15.04 )	43.21 ( 32.22 )		
	B12	2.50 ( 40.9 )	19.47 ( 73.7 )	19.05 ( 72.1 )	18.52 ( 70.1 )	1.72 ( 1.28 )	23.55 ( 17.56 )	50.57 ( 37.71 )		
	B14	2.75 ( 45.1 )	21.35 ( 80.8 )	20.92 ( 79.2 )	20.34 ( 77.0 )	1.82 ( 1.36 )	25.79 ( 19.23 )	55.48 ( 41.37 )		
	B15	3.05 ( 50.0 )	23.72 ( 89.8 )	23.33 ( 88.3 )	22.85 ( 86.5 )	1.97 ( 1.47 )	28.54 ( 21.28 )	57.34 ( 42.76 )		

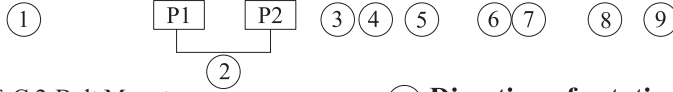
(1) 042-045-050 = 2200 rpm max.

(2) 050 = 210 bar max. int.

(3) B15 = 280 bar max. int.

Min Speed : 600 rpm

**PT67EB - 038 - B08 - 1 R 00 - A 1 - M1 \***



① **Series-** PT67EB - SAE-C 2-Bolt Mount

② **Cam ring for " P1 "**

Volumetric displacement in<sup>3</sup>/ rev (cm<sup>3</sup>/rev)

042 = 8.07 ( 132.3 )	062 = 12.00 ( 196.7 )
045 = 8.69 ( 142.4 )	066 = 13.02 ( 213.3 )
050 = 9.67 ( 158.5 )	072 = 13.86 ( 227.1 )
052 = 10.06 ( 164.8 )	085 = 16.46 ( 269.8 )

**Cam ring for " P2 "**

B02 = 0.35 ( 5.7 )	B09 = 1.71 ( 28.0 )
B03 = 0.60 ( 9.8 )	B10 = 1.94 ( 31.8 )
B04 = 0.78 ( 12.8 )	B11 = 2.13 ( 34.9 )
B05 = 0.97 ( 15.9 )	B12 = 2.50 ( 40.9 )
B06 = 1.21 ( 19.8 )	B14 = 2.75 ( 45.1 )
B07 = 1.37 ( 22.5 )	B15 = 3.05 ( 50.0 )
B08 = 1.52 ( 24.9 )	

③ **Type of shaft**

- 1 = Keyed (SAE CC)
- 2 = Keyed (No SAE)
- 3 = Splined (SAE C)
- 4 = Splined (SAE CC)

④ **Direction of rotation** (viewed from shaft end)

R = clockwise

L = counter-clockwise

⑤ **Porting combination**

00 = standard

⑥ **Design letter**

⑦ **Seal class**

1 = S1 (for mineral oil)

4 = S4 (for fire resistant fluids)

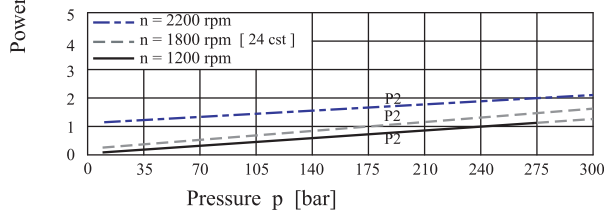
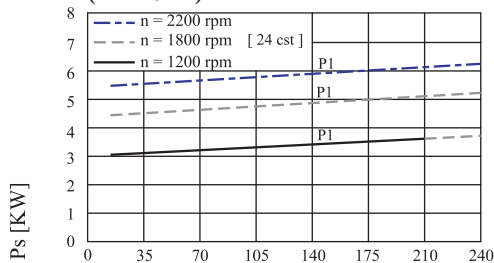
5 = S5 (for mineral oil and fire resistant fluids)

⑧ **Mounting W/connection variables**

P1 = 1-1/2", P2 = 3/4", S = 3-1/2"	
Unc	Metric
01	M1

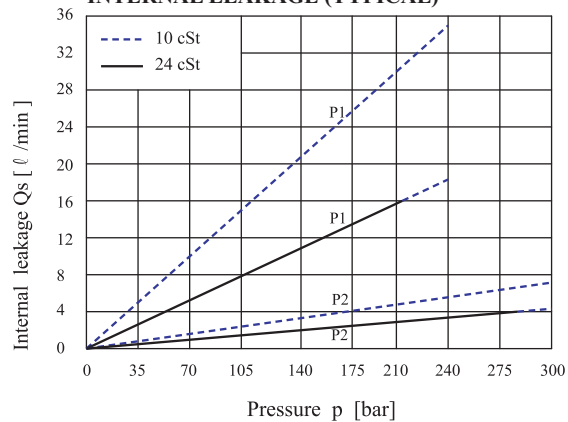
⑨ **Modifications**

**HYDROMECHANICAL POWER LOSS (TYPICAL)**

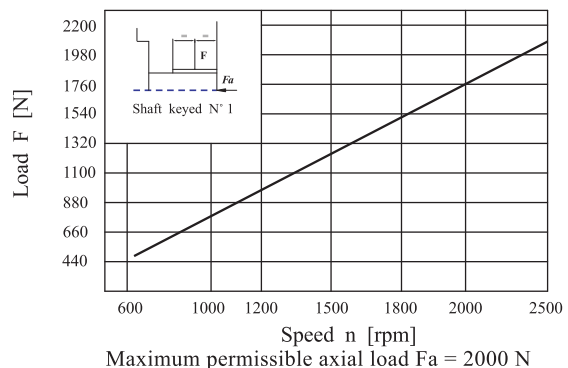


Total hydromechanical power loss is the sum of each sections loss at its operating conditions.

**INTERNAL LEAKAGE (TYPICAL)**

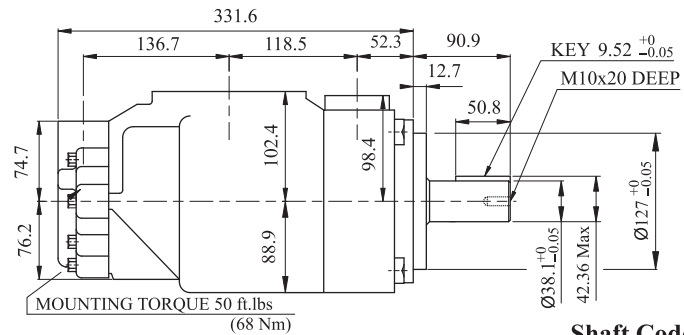
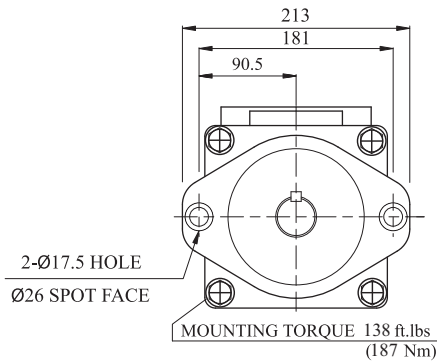


**PERMISSIBLE RADIAL LOAD**

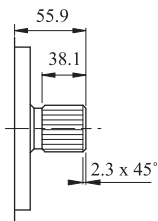




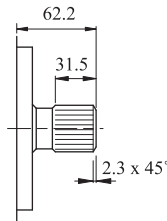
# PT67EB Dimensional Drawing



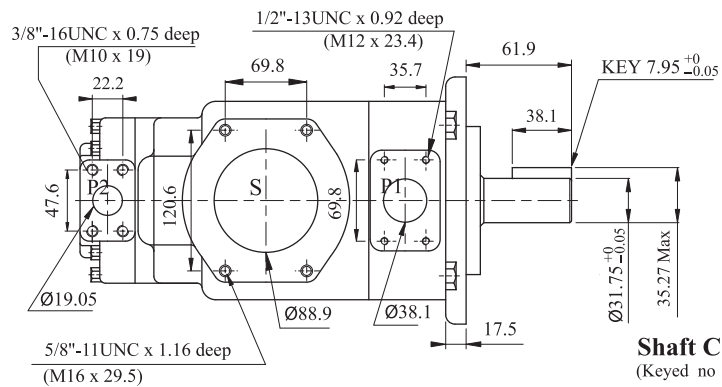
**Shaft Code 1**  
(Keyed SAE CC)



**Shaft code 3**  
SAE C Splined  
shaft class 1 - J498b  
12/24 dp. -14 teeth  
30° pressure angle.  
Flat root side fit.



**Shaft code 4**  
SAE CC Splined  
shaft class 1 - J498b  
12/24 dp. -17 teeth  
30° pressure angle.  
Flat root side fit.



**Shaft Code 2**  
(Keyed no SAE)

Shaft torque limits in <sup>3</sup> /rev x psi (cm <sup>3</sup> /rev x bar)		
Pump	Shaft	V <sub>p</sub> x p max.P1+P2
PT67EB	1	64044 (72306)
	2	30638 (34590)
	3	54207 (61200)
	4	67582 (76376)

## PT67EB OPERATING CHARACTERISTICS - TYPICAL 115 Sus (24 cSt)

Pressure Port	Series	Volumetric Displacement V <sub>p</sub>		Flow qvc gpm (l/min) @ 1800 rpm			Input Power HP (KW) @ 1800 rpm			P. Max psi (bar)	MAX RPM
		in <sup>3</sup> /rev	cm <sup>3</sup> /rev	p = 0 psi (0 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)	p = 100 psi (7 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)		
P1	042	8.07 (132.3)	62.82 (237.8)	60.28 (228.2)	58.43 (221.2)	8.09 (6.03)	78.44 (58.49)	26.36 (99.78)	3500 (240)	2200	
	045	8.69 (142.4)	67.63 (256.0)	65.07 (246.3)	63.24 (239.4)	8.37 (6.24)	84.04 (62.67)	143.60 (107.08)			
	050	9.67 (158.5)	75.29 (285.0)	72.73 (275.3)	70.88 (268.3)	8.82 (6.58)	92.93 (69.30)	31.36 (118.70)			
	052	10.06 (164.8)	78.25 (296.2)	75.63 (286.3)	73.86 (279.6)	8.98 (6.70)	96.47 (71.94)	162.68 (121.31)			
	062	12.00 (196.7)	93.41 (353.6)	90.88 (344.0)	89.03 (337.0)	9.87 (7.36)	112.65 (84.00)	196.34 (146.41)			
	066	13.02 (213.3)	101.28 (383.4)	98.75 (373.8)	96.90 (366.8)	10.34 (7.71)	123.39 (92.01)	212.46 (158.43)			
	072	13.86 (227.1)	107.84 (408.2)	105.67 (400.0)	103.45 (391.6)	10.73 (8.00)	131.04 (97.72)	225.85 (168.42)			
	085(1)	16.40 (268.7)	127.60 (483.0)	125.93 (476.7 (2))		11.67 (8.70)	87.57 (65.30 (2))				
P2	Series	in <sup>3</sup> /rev	cm <sup>3</sup> /rev	p = 0 psi (0 bar)	p = 2000 psi (140 bar)	p = 4375 psi (300 bar)	p = 100 psi (7 bar)	p = 2000 psi (140 bar)	p = 4375 psi (300 bar)	4375 (300)	2200
	B02	0.35 (5.7)	2.75 (10.4)	2.32 (8.8)	1.80 (6.8)	0.74 (0.55)	4.01 (2.99)	8.58 (6.40)			
	B03	0.60 (9.8)	4.65 (17.6)	4.20 (15.9)	3.70 (14.0)	0.84 (0.63)	6.24 (4.65)	13.75 (10.25)			
	B04	0.78 (12.8)	6.08 (23.0)	5.65 (21.4)	5.12 (19.4)	0.94 (0.70)	7.90 (5.89)	17.61 (13.13)			
	B05	0.97 (15.9)	7.56 (28.6)	7.11 (26.9)	6.60 (25.0)	1.02 (0.76)	9.62 (7.17)	21.62 (16.12)			
	B06	1.21 (19.8)	9.40 (35.6)	8.96 (33.9)	8.45 (32.0)	1.13 (0.84)	11.79 (8.79)	26.66 (19.88)			
	B07	1.37 (22.5)	10.67 (40.4)	10.25 (38.8)	9.72 (36.8)	1.19 (0.89)	13.29 (9.91)	30.13 (22.47)			
	B08	1.52 (24.9)	11.81 (44.7)	11.39 (43.1)	10.86 (41.1)	1.26 (0.94)	14.62 (10.90)	33.23 (24.78)			
	B09	1.71 (28.0)	13.29 (50.3)	12.84 (48.6)	12.42 (47.0)	1.35 (1.01)	16.35 (12.19)	37.24 (27.77)			
	B10	1.94 (31.8)	15.11 (57.2)	14.66 (55.5)	14.13 (53.5)	1.49 (1.11)	18.44 (13.75)	42.13 (31.42)			
	B11	2.13 (34.9)	16.62 (62.9)	16.17 (61.2)	15.67 (59.3)	1.54 (1.15)	20.17 (15.04)	43.21 (32.22)			
	B12	2.50 (40.9)	19.47 (73.7)	19.05 (72.1)	18.52 (70.1)	1.72 (1.28)	23.55 (17.56)	50.57 (37.71)			
	B14	2.75 (45.1)	21.35 (80.8)	20.92 (79.2)	20.34 (77.0)	1.82 (1.36)	25.79 (19.23)	55.48 (41.37)			
	B15	3.05 (50.0)	23.72 (89.8)	23.33 (88.3)	22.85 (86.5 (3))	1.97 (1.47)	28.54 (21.28)	57.34 (42.76 (3))			

(1) 085 = 2000rpm max.

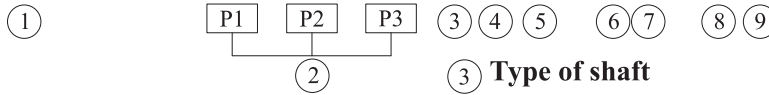
(2) 085 = 75 bar cont.  
085 = 90 bar max. int.

(3) B15 = 280 bar max. int.

Min Speed : 600 rpm



**PT6DCC/PT6DCCM - 038 - 022 - 008 - 1 R 00 - A 1 - 00 \***



① **Series** - PT6DCC/PT6DCCM - SAE-C 2-Bolt Mount

② **Cam ring for " P1 "**

Volumetric displacement in<sup>3</sup>/ rev (cm<sup>3</sup>/rev)

014/B14 = 2.90 ( 47.6 )	035/B35 = 6.77 ( 111.0 )
017/B17 = 3.55 ( 58.2 )	038/B38 = 7.34 ( 120.3 )
020/B20 = 4.03 ( 66.0 )	042/B42 = 8.30 ( 136.0 )
024/B24 = 4.85 ( 79.5 )	045/B45 = 8.89 ( 145.7 )
028/B28 = 5.47 ( 89.7 )	050/B50 = 9.64 ( 158.0 )
031/B31 = 6.00 ( 98.3 )	

**Cam ring for " P2 " & " P3 "**

003/B03 = 0.66 ( 10.8 )	017/B17 = 3.56 ( 58.3 )
005/B05 = 1.05 ( 17.2 )	020/B20 = 3.89 ( 63.8 )
006/B06 = 1.30 ( 21.3 )	022/B22 = 4.29 ( 70.3 )
008/B08 = 1.61 ( 26.4 )	025/B25 = 4.84 ( 79.3 )
010/B10 = 2.08 ( 34.1 )	028/B28 = 5.42 ( 88.8 )
012/B12 = 2.26 ( 37.1 )	031/B31 = 6.10 ( 100.0 )
014/B14 = 2.81 ( 46.0 )	

③ **Type of shaft**

- 1 = Keyed (No SAE)
- 2 = Keyed (SAE CC)
- 3 = Splined (SAE C)
- 4 = Splined (SAE CC)

④ **Direction of rotation** (viewed from shaft end)

- R = clockwise
- L = counter-clockwise

⑤ **Porting combination**

- 00 = standard

⑥ **Design letter**

- A = Industrial
- B = Mobile

⑦ **Seal class**

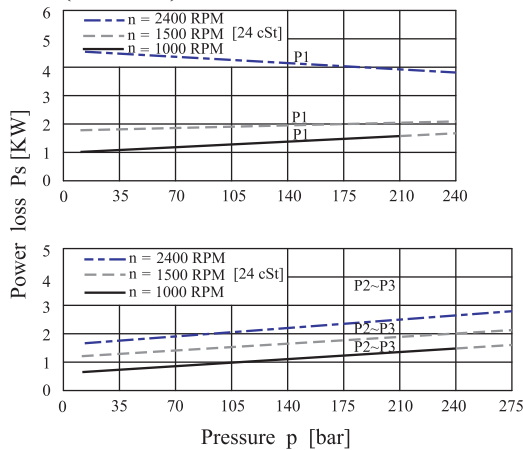
- 1 = S1 (for mineral oil)
- 4 = S4 (for fire resistant fluids)
- 5 = S5 (for mineral oil and fire resistant fluids)

⑧ **Mounting W/connection variables**

	Unc		Metric	
	00	01	M0	M1
P3	1"	3/4"	1"	3/4"

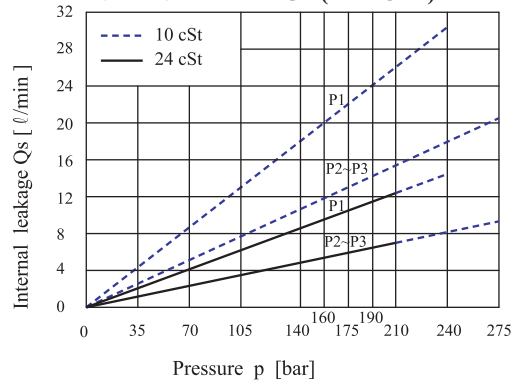
⑨ **Modifications**

### HYDROMECHANICAL POWER LOSS (TYPICAL)

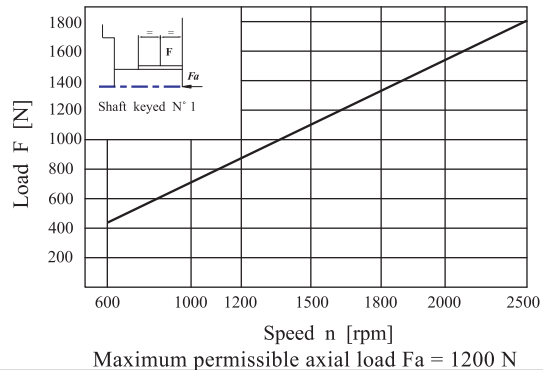


Total hydromechanical power loss is the sum of each sections loss at its operating conditions.

### INTERNAL LEAKAGE (TYPICAL)

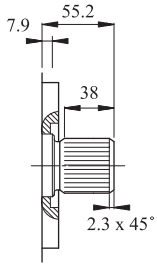
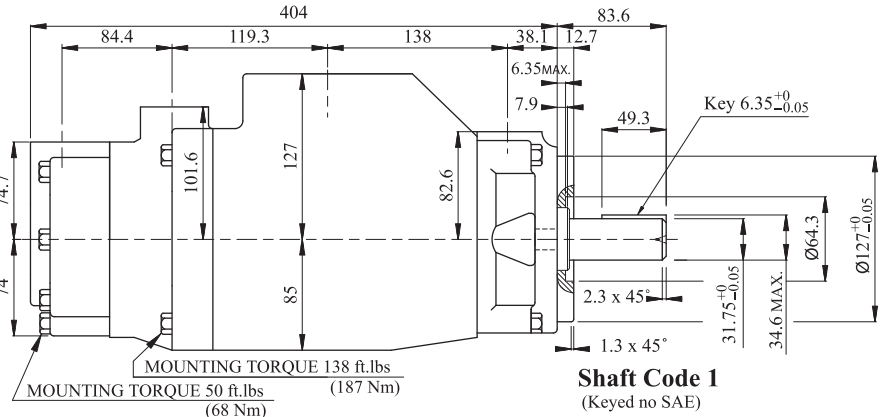
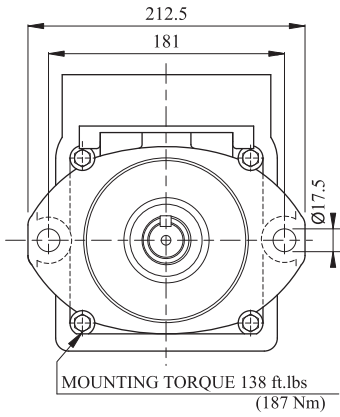


### PERMISSIBLE RADIAL LOAD

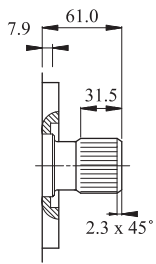




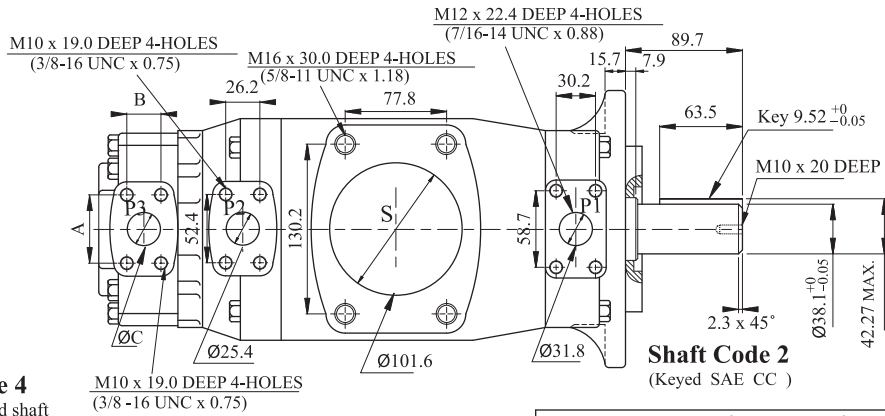
# PT6DCC Dimensional Drawing



**Shaft Code 3**  
SAE C splined shaft  
Class 1-J498b 12/24 dp.  
-14 teeth 30°  
pressure angle flat root  
side fit



**Shaft Code 4**  
SAE CC splined shaft  
Class 1-J498b 12/24 dp.  
-17 teeth 30° pressure  
angle flat root  
side fit



PORT	CODE	A	B	C
P3	00&M0	2.06(52.4)	1.03(26.2)	1.0(25.4)
	01&M1	1.874(47.6)	0.874(22.2)	0.75(19.05)

Shaft torque limits in <sup>3</sup> /rev x psi (cm <sup>3</sup> /rev x bar)	
Shaft	Vp x p max. (P1+P2+P3)
1	38299 (43240)
2	58901 (66500)
3	54027 (61200)
4	58901 (66500)

## PT6DCC/PT6DCCM OPERATING CHARACTERISTICS - TYPICAL 115 Sus (24 cSt)

Pressure Port	Series	Volumetric Displacement Vp in <sup>3</sup> /rev (cm <sup>3</sup> /rev)	Flow qvc gpm (l/min) @ 1500 rpm			Input Power HP (KW) @ 1500 rpm			P. Max psi (bar)	MAX RPM
			p = 0 psi (0 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)	p = 100 psi (7 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)		
P1	B/014	2.90 (47.6)	18.86 (71.4)	16.41 (62.1)	14.77 (55.9)	3.08 (2.3)	24.81 (18.5)	41.04 (30.6)	3500 (240)	2500
	B/017	3.55 (58.2)	23.06 (87.3)	20.61 (78.0)	18.97 (71.8)	3.35 (2.5)	29.77 (22.2)	49.62 (37.0)		
	B/020	4.03 (66.0)	26.15 (99.0)	23.70 (89.7)	22.06 (83.5)	3.75 (2.8)	33.39 (24.9)	55.92 (41.7)		
	B/024	4.85 (79.5)	31.52 (119.3)	29.06 (110.0)	27.42 (103.8)	4.02 (3.0)	39.69 (29.6)	66.78 (49.8)		
	B/028	5.47 (89.7)	35.53 (134.5)	33.07 (125.2)	31.44 (119.0)	4.29 (3.2)	44.52 (33.2)	74.96 (55.9)		
	B/031	6.00 (98.3)	38.97 (147.5)	36.48 (138.1)	34.84 (131.9)	4.43 (3.3)	48.54 (36.2)	81.80 (61.0)		
	B/035	6.77 (111.0)	43.98 (166.5)	41.53 (157.2)	39.89 (151.0)	4.69 (3.5)	54.58 (40.7)	92.13 (68.7)		
	B/038	7.34 (120.3)	47.66 (180.4)	45.20 (171.1)	43.56 (164.9)	4.96 (3.7)	58.87 (43.9)	99.64 (74.3)		
	B/042 (1)	8.30 (136.0)	53.89 (204.0)	51.43 (194.7)	49.80 (188.5)	5.36 (4.0)	66.25 (49.4)	112.24 (83.7)		
	B/045 (1)	8.89 (145.7)	57.72 (218.5)	55.26 (209.2)	53.63 (203.0)	5.50 (4.1)	70.81 (52.8)	120.02 (89.5)		
B/050 (1)	9.64 (158.0)	62.61 (237.0)	60.15 (227.7)	59.17 (224.0) (2)	5.90 (4.4)	76.44 (57.0)	113.99 (85.0) (2)	3062 (210)	2200	
P2&P3	B/003	0.66 (10.8)	4.28 (16.2)	2.96 (11.2)	2.03 (7.7)	1.74 (1.3)	7.11 (5.3)	11.26 (8.4)	4010 (275)	2500
	B/005	1.05 (17.2)	6.82 (25.8)	5.49 (20.8)	4.57 (17.3)	1.88 (1.4)	10.06 (7.5)	16.36 (12.2)		
	B/006	1.30 (21.3)	8.43 (31.9)	7.11 (26.9)	6.18 (23.4)	2.01 (1.5)	11.94 (8.9)	19.71 (14.7)		
	B/008	1.61 (26.4)	10.46 (39.6)	9.14 (34.6)	8.22 (31.1)	2.15 (1.6)	14.35 (10.7)	23.74 (17.7)		
	B/010	2.08 (34.1)	13.50 (51.1)	12.18 (46.1)	11.25 (42.6)	2.28 (1.7)	17.97 (13.4)	29.90 (22.3)		
	B/012	2.26 (37.1)	14.69 (55.6)	13.37 (50.6)	12.44 (47.1)	2.28 (1.7)	19.31 (14.4)	32.32 (24.1)		
	B/014	2.81 (46.0)	18.23 (69.0)	16.91 (64.0)	15.98 (60.5)	2.55 (1.9)	23.60 (17.6)	39.56 (29.5)		
	B/017	3.56 (58.3)	23.09 (87.4)	21.77 (82.4)	20.84 (78.9)	2.82 (2.1)	29.37 (21.9)	49.48 (36.9)		
	B/020	3.89 (63.8)	25.28 (95.7)	23.96 (90.7)	23.04 (87.2)	2.95 (2.2)	31.92 (23.8)	53.91 (40.2)		
	B/022	4.29 (70.3)	27.84 (105.4)	26.52 (100.4)	25.60 (96.9)	3.08 (2.3)	35.00 (26.1)	59.14 (44.1)		
	B/025	4.84 (79.3)	31.41 (118.9)	30.09 (113.9)	29.16 (110.4)	3.35 (2.5)	39.16 (29.2)	66.38 (49.5)		
	B/028	5.42 (88.8)	35.19 (133.2)	33.87 (128.2)	33.23 (125.8) (3)	3.75 (2.8)	43.85 (32.7)	65.04 (48.5) (3)		
	B/031	6.10 (100.0)	39.63 (150.0)	38.30 (145.0)	37.67 (142.6) (3)	3.75 (2.8)	48.95 (36.5)	72.95 (54.4) (3)	3062 (210)	

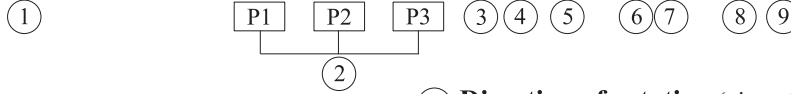
(1) 042-045-050 = 2200rpm max.

(2) 050 = 210 bar max. int.

(3) 028-031 = 210 bar max. int.

Min Speed: 600 rpm

## PT6DDCS/PT6DDCSM - 038 - 035 - 014 - 1 R 00 - B 1 - 00 \*



① **Series** PT6DDCS/PT6DDCSM - SAE-C 2 & 4 Bolt Mount

② **Cam ring for " P1 " & " P2 "**

Volumetric displacement in<sup>3</sup>/ rev (cm<sup>3</sup>/rev)

014/B14 = 2.90 ( 47.6 )	035/B35 = 6.77 ( 111.0 )
017/B17 = 3.55 ( 58.2 )	038/B38 = 7.34 ( 120.3 )
020/B20 = 4.03 ( 66.0 )	042/B42 = 8.30 ( 136.0 )
024/B24 = 4.85 ( 79.5 )	045/B45 = 8.89 ( 145.7 )
028/B28 = 5.47 ( 89.7 )	050/B50 = 9.64 ( 158.0 )
031/B31 = 6.00 ( 98.3 )	

**Cam ring for " P3 "**

003/B03 = 0.66 ( 10.8 )	017/B17 = 3.56 ( 58.3 )
005/B05 = 1.05 ( 17.2 )	020/B20 = 3.89 ( 63.8 )
006/B06 = 1.30 ( 21.3 )	022/B22 = 4.29 ( 70.3 )
008/B08 = 1.61 ( 26.4 )	025/B25 = 4.84 ( 79.3 )
010/B10 = 2.08 ( 34.1 )	028/B28 = 5.42 ( 88.8 )
012/B12 = 2.26 ( 37.1 )	031/B31 = 6.10 ( 100.0 )
014/B14 = 2.81 ( 46.0 )	

③ **Type of shaft**

- 1 = Keyed (SAE C)
- 2 = Keyed (SAE CC)
- 3 = Splined (SAE C)
- 4 = Splined (SAE CC)
- 5 = Keyed (No SAE)

④ **Direction of rotation** (viewed from shaft end)

R = clockwise

L = counter-clockwise

⑤ **Porting combination**

00 = standard

⑥ **Design letter**

⑦ **Seal class**

1 = S1 (for mineral oil)

4 = S4 (for fire resistant fluids)

5 = S5 (for mineral oil and fire resistant fluids)

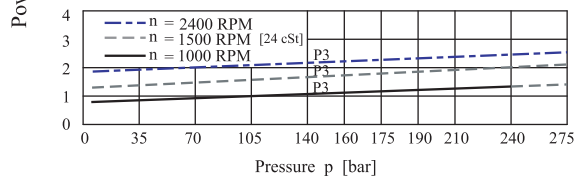
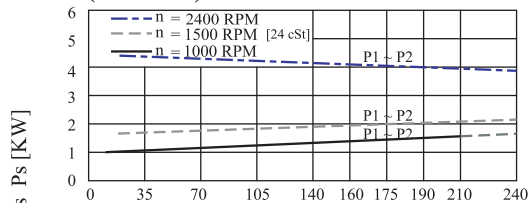
⑧ **Port connection variables**

SAE 4 bolt flange (J518c)

P1 & P2 = 1-1/4" S = 4"				
	Unc		Metric	
CODE	00	01	M0	M1
P3	1"	3/4"	1"	3/4"

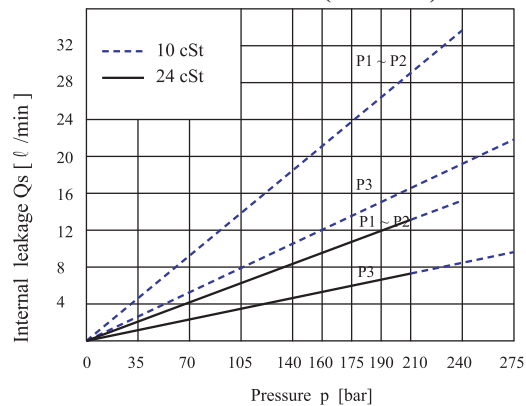
⑨ **Modifications**

**HYDROMECHANICAL POWER LOSS (TYPICAL)**

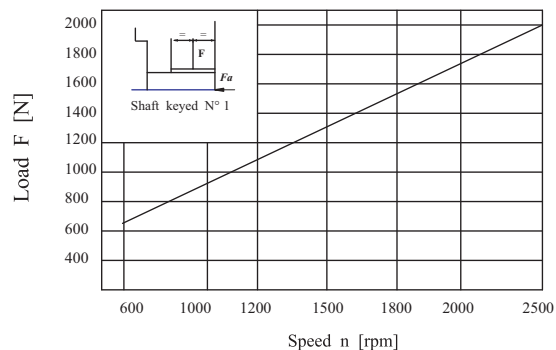


Total hydromechanical power loss is the sum of each sections loss at its operating conditions.

**INTERNAL LEAKAGE (TYPICAL)**



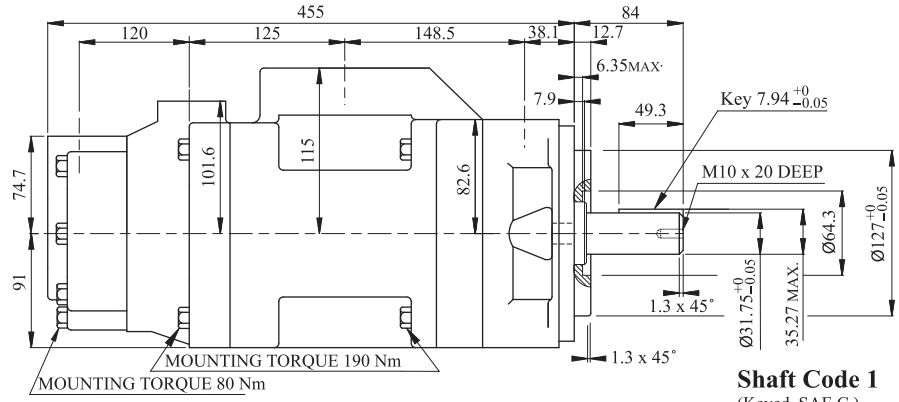
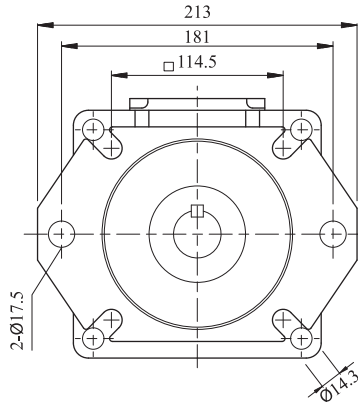
**PERMISSIBLE RADIAL LOAD**



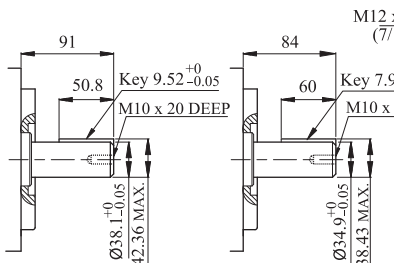
Maximum permissible axial load Fa = 1200 N



# PT6DDCS Dimensional Drawing

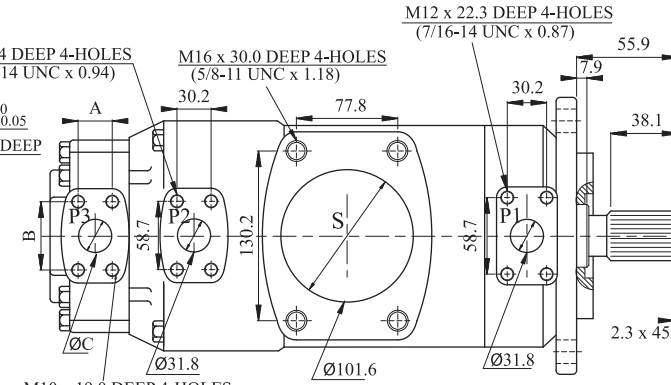


**Shaft Code 1**  
(Keyed SAE C)

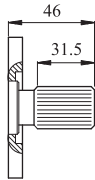


**Shaft Code 2**  
(Keyed SAE CC)

**Shaft Code 5**  
(Keyed no SAE)



**Shaft Code 3**  
SAE C splined shaft  
Class 1-J498b 12/24 dp.  
-14 teeth  
30° pressure angle flat  
root side fit



**Shaft Code 4**  
SAE CC splined shaft  
Class 1-J498b 12/24 dp.  
-17 teeth  
30° pressure angle flat  
root side fit

Alternate connect. variables		
	00 & M0	01 & M1
A	1.03 (26.2)	0.874 (22.2)
B	2.06 (52.4)	1.874 (47.6)
C	1.0 (25.4)	0.75 (19.05)

Shaft torque limits in <sup>3</sup> /rev x psi (cm <sup>3</sup> /rev x bar)	
Shaft	Vp x p max. (P1+P2+P3)
1	38299 (43240)
2	63979 (72306)
3	54207 (61200)
5	49197 (55600)

## PT6DDCS/PT6DDCSM OPERATING CHARACTERISTICS - TYPICAL 115 Sus (24 cSt)

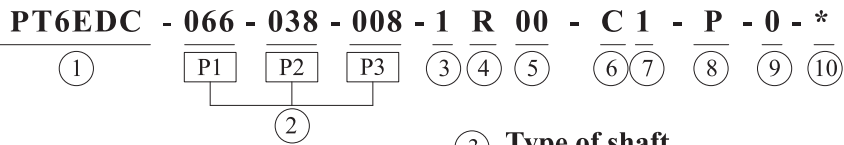
Pressure Port	Series	Volumetric Displacement Vp in <sup>3</sup> /rev (cm <sup>3</sup> /rev)	Flow qvc gpm (l/min) @ 1500 rpm			Input Power HP (KW) @ 1500 rpm			P. Max psi (bar)	MAX RPM
			p = 0 psi (0 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)	p = 100 psi (7 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)		
P1&P2	B/014	2.90 (47.6)	18.86 (71.4)	16.41 (62.1)	14.77 (55.9)	3.08 (2.3)	24.81 (18.5)	41.04 (30.6)	3500 (240)	2500
	B/017	3.55 (58.2)	23.06 (87.3)	20.61 (78.0)	18.97 (71.8)	3.35 (2.5)	29.77 (22.2)	49.62 (37.0)		
	B/020	4.03 (66.0)	26.15 (99.0)	23.70 (89.7)	22.06 (83.5)	3.75 (2.8)	33.39 (24.9)	55.92 (41.7)		
	B/024	4.85 (79.5)	31.52 (119.3)	29.06 (110.0)	27.42 (103.8)	4.02 (3.0)	39.69 (29.6)	66.78 (49.8)		
	B/028	5.47 (89.7)	35.53 (134.5)	33.07 (125.2)	31.44 (119.0)	4.29 (3.2)	44.52 (33.2)	74.96 (55.9)		
	B/031	6.00 (98.3)	38.97 (147.5)	36.48 (138.1)	34.84 (131.9)	4.43 (3.3)	48.54 (36.2)	81.80 (61.0)		
	B/035	6.77 (111.0)	43.98 (166.5)	41.53 (157.2)	39.89 (151.0)	4.69 (3.5)	54.58 (40.7)	92.13 (68.7)		
	B/038	7.34 (120.3)	47.66 (180.4)	45.20 (171.1)	43.56 (164.9)	4.96 (3.7)	58.87 (43.9)	99.64 (74.3)		
	B/042 (1)	8.30 (136.0)	53.89 (204.0)	51.43 (194.7)	49.80 (188.5)	5.36 (4.0)	66.25 (49.4)	112.24 (83.7)		
	B/045 (1)	8.89 (145.7)	57.72 (218.5)	55.26 (209.2)	53.63 (203.0)	5.50 (4.1)	70.81 (52.8)	120.02 (89.5)		
B/050 (1)	9.64 (158.0)	62.61 (237.0)	60.15 (227.7)	59.17 (224.0) (2)	5.90 (4.4)	76.44 (57.0)	113.99 (85.0) (2)	3062 (210)	2200	
P3	B/003	0.66 (10.8)	4.28 (16.2)	2.96 (11.2)	2.03 (7.7)	1.74 (1.3)	7.11 (5.3)	11.26 (8.4)	4010 (275)	2500
	B/005	1.05 (17.2)	6.82 (25.8)	5.49 (20.8)	4.57 (17.3)	1.88 (1.4)	10.06 (7.5)	16.36 (12.2)		
	B/006	1.30 (21.3)	8.43 (31.9)	7.11 (26.9)	6.18 (23.4)	2.01 (1.5)	11.94 (8.9)	19.71 (14.7)		
	B/008	1.61 (26.4)	10.46 (39.6)	9.14 (34.6)	8.22 (31.1)	2.15 (1.6)	14.35 (10.7)	23.74 (17.7)		
	B/010	2.08 (34.1)	13.50 (51.1)	12.18 (46.1)	11.25 (42.6)	2.28 (1.7)	17.97 (13.4)	29.90 (22.3)		
	B/012	2.26 (37.1)	14.69 (55.6)	13.37 (50.6)	12.44 (47.1)	2.28 (1.7)	19.31 (14.4)	32.32 (24.1)		
	B/014	2.81 (46.0)	18.23 (69.0)	16.91 (64.0)	15.98 (60.5)	2.55 (1.9)	23.60 (17.6)	39.56 (29.5)		
	B/017	3.56 (58.3)	23.09 (87.4)	21.77 (82.4)	20.84 (78.9)	2.82 (2.1)	29.37 (21.9)	49.48 (36.9)		
	B/020	3.89 (63.8)	25.28 (95.7)	23.96 (90.7)	23.04 (87.2)	2.95 (2.2)	31.92 (23.8)	53.91 (40.2)		
	B/022	4.29 (70.3)	27.84 (105.4)	26.52 (100.4)	25.60 (96.9)	3.08 (2.3)	35.00 (26.1)	59.14 (44.1)		
	B/025	4.84 (79.3)	31.41 (118.9)	30.09 (113.9)	29.16 (110.4)	3.35 (2.5)	39.16 (29.2)	66.38 (49.5)		
	B/028	5.42 (88.8)	35.19 (133.2)	33.87 (128.2)	33.23 (125.8) (3)	3.75 (2.8)	43.85 (32.7)	65.04 (48.5) (3)		
	B/031	6.10 (100.0)	39.63 (150.0)	38.30 (145.0)	37.67 (142.6) (3)	3.75 (2.8)	48.95 (36.5)	72.95 (54.4) (3)		

(1) 042-045-050 = 2200RPM max.

(2) 050 = 210 bar max. int.

(3) 028-031 = 210 bar max. int.

Min Speed : 600 rpm



① **Series** PT6EDC - ISO 250 B4 HW 4 Bolt  
Mount 3019-2 Flange

② **Cam ring for " P1 "**  
Volumetric displacement in<sup>3</sup>/ rev (cm<sup>3</sup>/rev)

042 = 8.07 ( 132.3 )	066 = 13.02 ( 213.3 )
045 = 8.69 ( 142.4 )	072 = 13.86 ( 227.1 )
052 = 10.06 ( 164.8 )	085 = 16.46 ( 269.8 )
062 = 12.00 ( 196.7 )	

**Cam ring for " P2 "**

014 = 2.90 ( 47.6 )	035 = 6.77 ( 111.0 )
017 = 3.55 ( 58.2 )	038 = 7.34 ( 120.3 )
020 = 4.03 ( 66.0 )	042 = 8.30 ( 136.0 )
024 = 4.85 ( 79.5 )	045 = 8.89 ( 145.7 )
028 = 5.47 ( 89.7 )	050 = 9.64 ( 158.0 )
031 = 6.00 ( 98.3 )	

**Cam ring for " P3 "**

003 = 0.66 ( 10.8 )	017 = 3.56 ( 58.3 )
005 = 1.05 ( 17.2 )	020 = 3.89 ( 63.8 )
006 = 1.30 ( 21.3 )	022 = 4.29 ( 70.3 )
008 = 1.61 ( 26.4 )	025 = 4.84 ( 79.3 )
010 = 2.08 ( 34.1 )	028 = 5.42 ( 88.8 )
012 = 2.26 ( 37.1 )	031 = 6.10 ( 100.0 )
014 = 2.81 ( 46.0 )	

③ **Type of shaft**

1 = Keyed (G45N-ISO 3019-2)

④ **Direction of rotation** (viewed from shaft end)

R = clockwise  
L = counter-clockwise

⑤ **Porting combination**

00 = standard

⑥ **Design letter**

C = Industrial  
D = Mobile

⑦ **Seal class**

1 = S1 (for mineral oil)  
4 = S4 (for fire resistant fluids)  
5 = S5 (for mineral oil and fire resistant fluids)

⑧ **Mounting (pump)**

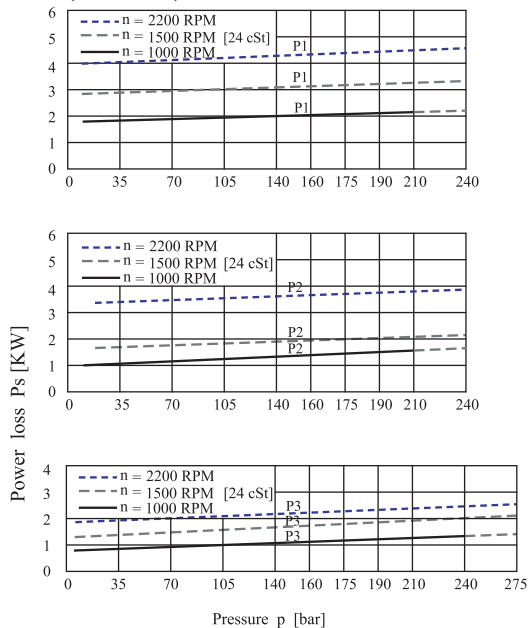
P = Pedestal mounting  
F = Face mounting

⑨ **Mounting W/connection variables**

0 = P3 = 1" SAE  
1 = P3 = 3/4" SAE

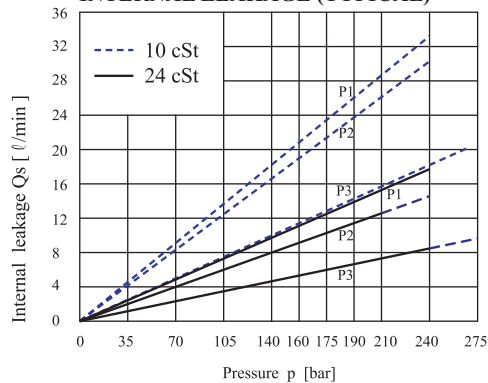
⑩ **Modifications**

**HYDROMECHANICAL POWER LOSS (TYPICAL)**

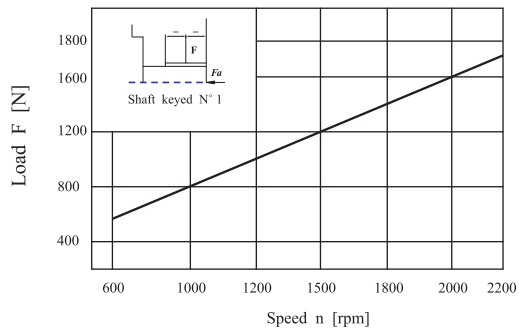


Total hydromechanical power loss is the sum of each sections loss at its operating conditions.

**INTERNAL LEAKAGE (TYPICAL)**



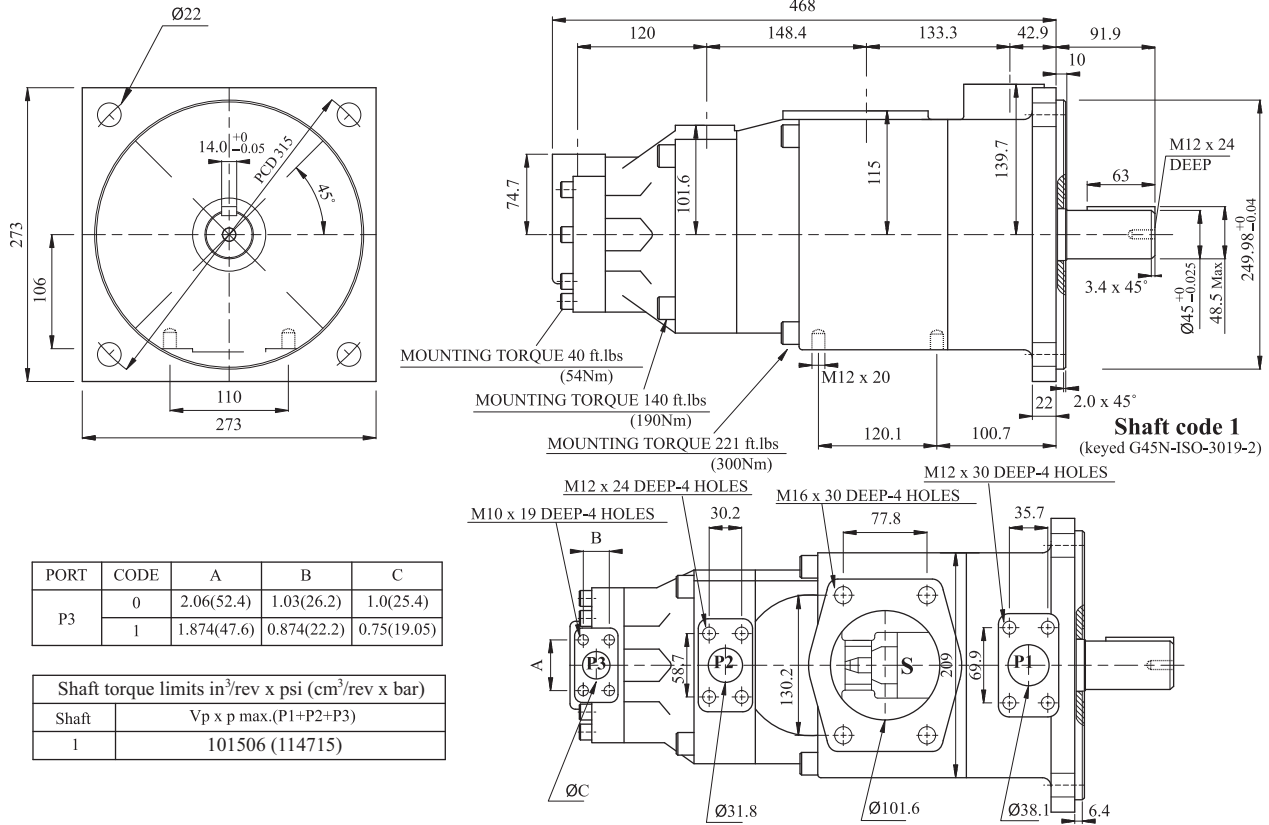
**PERMISSIBLE RADIAL LOAD**



Maximum permissible axial load Fa = 2000 N



# PT6EDC Dimensional Drawing



PORT	CODE	A	B	C
P3	0	2.06(52.4)	1.03(26.2)	1.0(25.4)
	1	1.874(47.6)	0.874(22.2)	0.75(19.05)

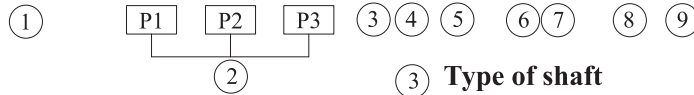
Shaft torque limits in <sup>3</sup> /rev x psi (cm <sup>3</sup> /rev x bar)	
Shaft	Vp x p max.(P1+P2+P3)
1	101506 (114715)

## PT6EDC OPERATING CHARACTERISTICS - TYPICAL 115 Sus (24 cSt)

Pressure Port	Series	Volumetric Displacement Vp in <sup>3</sup> /rev (cm <sup>3</sup> /rev)	Flow qvc gpm (l/min) @ 1500 rpm			Input Power HP (KW) @ 1500 rpm			P. Max psi (bar)	MAX RPM
			p = 0 psi (0 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)	p = 100 psi (7 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)		
P1	042	8.07 (132.3)	52.44 (198.5)	49.80 (188.5)	47.89 (181.3)	1.37 (5.2)	13.05 (49.4)	21.82 (82.6)	3500 (240)	2200
	045	8.69 (142.4)	56.43 (213.6)	53.79 (203.6)	51.91 (196.5)	1.43 (5.4)	13.97 (52.9)	23.43 (88.7)		
	052	10.06 (164.8)	65.30 (247.2)	62.66 (237.2)	60.79 (230.1)	1.53 (5.8)	16.06 (60.8)	26.97 (102.1)		
	062	12.00 (196.7)	77.93 (295.0)	75.29 (285.0)	73.41 (277.9)	1.69 (6.4)	18.99 (71.9)	32.04 (121.3)		
	066	13.02 (213.3)	84.51 (319.9)	81.87 (309.9)	79.99 (302.8)	1.77 (6.7)	20.53 (77.7)	34.66 (131.2)		
	072	13.86 (227.1)	89.98 (340.6)	87.34 (330.6)	85.46 (323.5)	1.82 (6.9)	21.82 (82.6)	36.85 (139.5)		
	085(1)	16.46 (269.8)	106.91 (404.7)	105.06 (397.2)		1.93 (7.3)	17.25 (65.3 (2))		1450 (100)	2000
P2	014	2.90 (47.6)	18.86 (71.4)	16.41 (62.1)	14.77 (55.9)	3.08 (2.3)	24.81 (18.5)	41.04 (30.6)	3500 (240)	2200
	017	3.55 (58.2)	23.06 (87.3)	20.61 (78.0)	18.97 (71.8)	3.35 (2.5)	29.77 (22.2)	49.62 (37.0)		
	020	4.03 (66.0)	26.15 (99.0)	23.70 (89.7)	22.06 (83.5)	3.75 (2.8)	33.39 (24.9)	55.92 (41.7)		
	024	4.85 (79.5)	31.52 (119.3)	29.06 (110.0)	27.42 (103.8)	4.02 (3.0)	39.69 (29.6)	66.78 (49.8)		
	028	5.47 (89.7)	35.53 (134.5)	33.07 (125.2)	31.44 (119.0)	4.29 (3.2)	44.52 (33.2)	74.96 (55.9)		
	031	6.00 (98.3)	38.97 (147.5)	36.48 (138.1)	34.84 (131.9)	4.43 (3.3)	48.54 (36.2)	81.80 (61.0)		
	035	6.77 (111.0)	43.98 (166.5)	41.53 (157.2)	39.89 (151.0)	4.69 (3.5)	54.58 (40.7)	92.13 (68.7)		
	038	7.34 (120.3)	47.66 (180.4)	45.20 (171.1)	43.56 (164.9)	4.96 (3.7)	58.87 (43.9)	99.64 (74.3)		
	042(3)	8.30 (136.0)	53.89 (204.0)	51.43 (194.7)	49.80 (188.5)	5.36 (4.0)	66.25 (49.4)	112.24 (83.7)		
	045(3)	8.89 (145.7)	57.72 (218.5)	55.26 (209.2)	53.63 (203.0)	5.50 (4.1)	70.81 (52.8)	120.02 (89.5)		
	050(3)	9.64 (158.0)	62.61 (237.0)	60.15 (227.7)	59.17 (224.0 (4))	5.90 (4.4)	76.44 (57.0)	113.99 (85.0 (4))	3062 (210)	2200
P3	003	0.66 (10.8)	4.28 (16.2)	2.96 (11.2)	2.04 (7.7)	1.74 (1.3)	7.11 (5.3)	11.22 (8.4)	4010 (275)	2200
	005	1.05 (17.2)	6.82 (25.8)	5.49 (20.8)	4.57 (17.3)	1.88 (1.4)	10.06 (7.5)	16.36 (12.2)		
	006	1.30 (21.3)	8.43 (31.9)	7.11 (26.9)	6.18 (23.4)	2.01 (1.5)	11.94 (8.9)	19.71 (14.7)		
	008	1.61 (26.4)	10.46 (39.6)	9.14 (34.6)	8.22 (31.1)	2.15 (1.6)	14.35 (10.7)	23.74 (17.7)		
	010	2.08 (34.1)	13.50 (51.1)	12.18 (46.1)	11.25 (42.6)	2.28 (1.7)	17.97 (13.4)	29.90 (22.3)		
	012	2.26 (37.1)	14.69 (55.6)	13.37 (50.6)	12.44 (47.1)	2.28 (1.7)	19.31 (14.4)	32.32 (24.1)		
	014	2.81 (46.0)	18.23 (69.0)	16.91 (64.0)	15.98 (60.5)	2.55 (1.9)	23.60 (17.6)	39.56 (29.5)		
	017	3.56 (58.3)	23.09 (87.4)	21.77 (82.4)	20.84 (78.9)	2.82 (2.1)	29.37 (21.9)	49.48 (36.9)		
	020	3.89 (63.8)	25.28 (95.7)	23.96 (90.7)	23.04 (87.2)	2.95 (2.2)	31.92 (23.8)	53.91 (40.2)		
	022	4.29 (70.3)	27.84 (105.4)	26.52 (100.4)	25.60 (96.9)	3.08 (2.3)	35.00 (26.1)	59.14 (44.1)		
	025	4.84 (79.3)	31.41 (118.9)	30.09 (113.9)	29.16 (110.4)	3.35 (2.5)	39.16 (29.2)	66.38 (49.5)		
	028	5.42 (88.8)	35.19 (133.2)	33.87 (128.2)	33.23 (125.8 (4))	3.75 (2.8)	43.85 (32.7)	65.04 (48.5 (4))		
		031	6.10 (100.0)	39.63 (150.0)	38.30 (145.0)	37.67 (142.6 (4))	3.75 (2.8)	48.95 (36.5)		

(1) 085 = 2000 RPM max. (2) 085 = 75 bar cont. 085 = 90 bar max. int. (3) 042-045-050 = 2200 RPM max. Min Speed: 600 rpm  
 (4) 028-031-050 = 210 bar max.

## PT67DCB - 038 - 022 - B08 - 1 R 00 - A 1 - M1 \*



① **Series** PT67DCB - SAE-C 2-Bolt Mount

② **Cam ring for " P1 "**

Volumetric displacement in<sup>3</sup>/ rev (cm<sup>3</sup>/rev)

014 = 2.90 ( 47.6 )	035 = 6.77 ( 111.0 )
017 = 3.55 ( 58.2 )	038 = 7.34 ( 120.3 )
020 = 4.03 ( 66.0 )	042 = 8.30 ( 136.0 )
024 = 4.85 ( 79.5 )	045 = 8.89 ( 145.7 )
028 = 5.47 ( 89.7 )	050 = 9.64 ( 158.0 )
031 = 6.00 ( 98.3 )	

**Cam ring for " P2 "**

003 = 0.66 ( 10.8 )	017 = 3.56 ( 58.3 )
005 = 1.05 ( 17.2 )	020 = 3.89 ( 63.8 )
006 = 1.30 ( 21.3 )	022 = 4.29 ( 70.3 )
008 = 1.61 ( 26.4 )	025 = 4.84 ( 79.3 )
010 = 2.08 ( 34.1 )	028 = 5.42 ( 88.8 )
012 = 2.26 ( 37.1 )	031 = 6.10 ( 100.0 )
014 = 2.81 ( 46.0 )	

**Cam ring for " P3 "**

B02 = 0.35 ( 5.7 )	B09 = 1.71 ( 28.0 )
B03 = 0.60 ( 9.8 )	B10 = 1.94 ( 31.8 )
B04 = 0.78 ( 12.8 )	B11 = 2.13 ( 34.9 )
B05 = 0.97 ( 15.9 )	B12 = 2.50 ( 40.9 )
B06 = 1.21 ( 19.8 )	B14 = 2.75 ( 45.1 )
B07 = 1.37 ( 22.5 )	B15 = 3.05 ( 50.0 )
B08 = 1.52 ( 24.9 )	

③ **Type of shaft**

- 1 = Keyed (No SAE)
- 2 = Keyed (SAE CC)
- 3 = Splined (SAE C)
- 4 = Splined (SAE CC)

④ **Direction of rotation** (viewed from shaft end)

- R = clockwise
- L = counter-clockwise

⑤ **Porting combination**

- 00 = standard

⑥ **Design letter**

⑦ **Seal class**

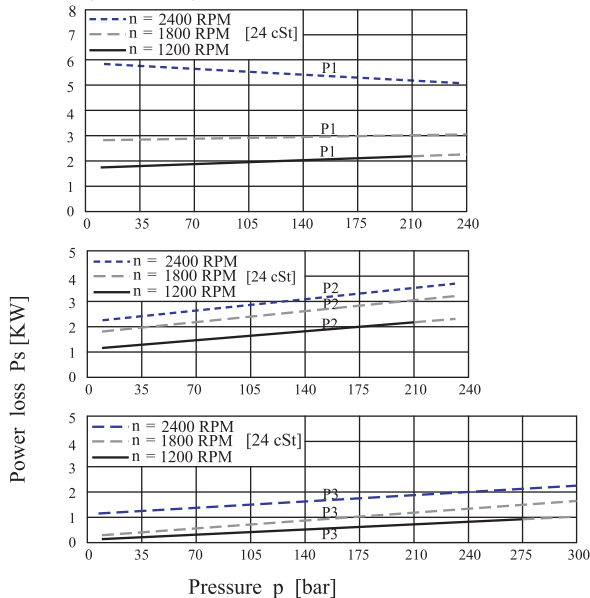
- 1 = S1 (for mineral oil)
- 4 = S4 (for fire resistant fluids)
- 5 = S5 (for mineral oil and fire resistant fluids)

⑧ **Mounting W/connection variables**

P1 = 1 1/4" P2 = 1" P3 = 3/4" S = 4"	
Unc	Metric
01	M1

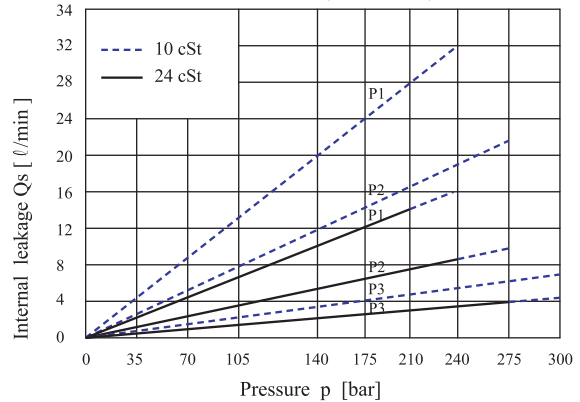
⑨ **Modifications**

### HYDROMECHANICAL POWER LOSS (TYPICAL)

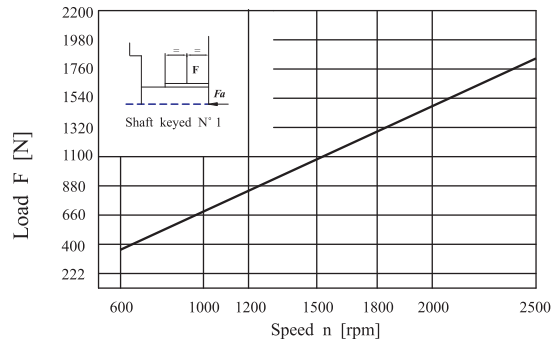


Total hydromechanical power loss is the sum of each sections loss at its operating conditions.

### INTERNAL LEAKAGE (TYPICAL)



### PERMISSIBLE RADIAL LOAD



Maximum permissible axial load Fa = 800 N





**PT6CR/PT6CRM** \* **- 025 - 1 R 00 - A 1 0 - A 1 ..**  
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

① **Series** PT6CR/PT6CRM - SAE-B 2-Bolt Mount

② **Y-Metric** port connection, Omit for UNC

③ **Cam ring**

Volumetric displacement in<sup>3</sup>/ rev (cm<sup>3</sup>/rev)

003/B03 = 0.66 ( 10.8 )	017/B17 = 3.56 ( 58.3 )
005/B05 = 1.05 ( 17.2 )	020/B20 = 3.89 ( 63.8 )
006/B06 = 1.30 ( 21.3 )	022/B22 = 4.29 ( 70.3 )
008/B08 = 1.61 ( 26.4 )	025/B25 = 4.84 ( 79.3 )
010/B10 = 2.08 ( 34.1 )	028/B28 = 5.42 ( 88.8 )
012/B12 = 2.26 ( 37.1 )	031/B31 = 6.10 ( 100.0 )
014/B14 = 2.81 ( 46.0 )	

④ **Type of shaft**

1 = Keyed (SAE BB)	2 = Keyed (No SAE)
3 = Splined (SAE B)	4 = Splined (SAE BB)
5 = Keyed (No SAE)	

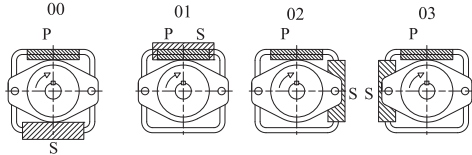
⑤ **Direction of rotation**

(viewed from shaft end)

R = clockwise

L = counter-clockwise

⑥ **Porting combination**



⑦ **Adapter**

0 = None	B = SAE B
A = SAE A	C = SAE C

⑧ **Coupling**

1 = SAE A	4 = SAE C
2 = SAE B	5 = SAE J498b
3 = SAE BB	16/32 - 11 teeth

⑨ **Porting adapter**

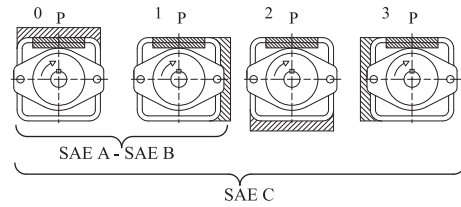
⑩ **Design letter**

⑪ **Seal class**

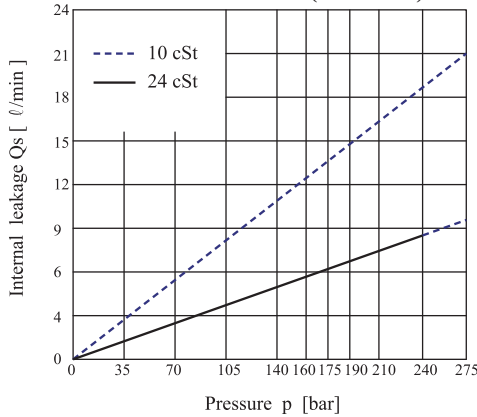
1 = S1 (for mineral oil)
4 = S4 (for fire resistant fluids)
5 = S5 (for mineral oil and fire resistant fluids)

⑫ **Modification**

**Porting adapter**

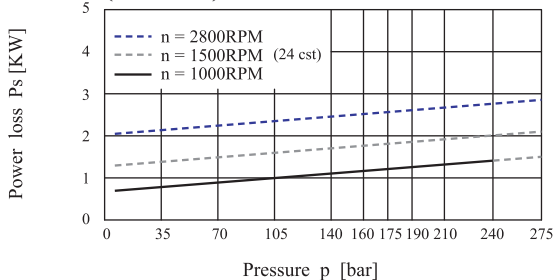


**INTERNAL LEAKAGE (TYPICAL)**

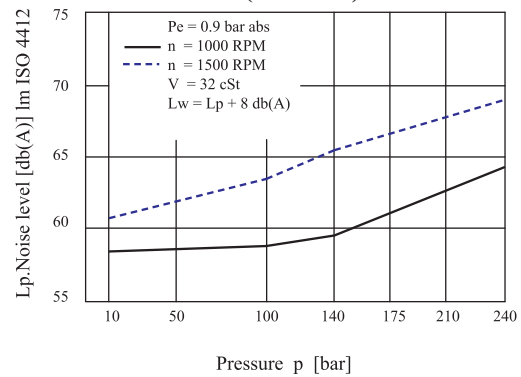


Do not operate the pump more than 5 seconds at any speed or viscosity if internal leakage is more than 50% of theoretical flow.

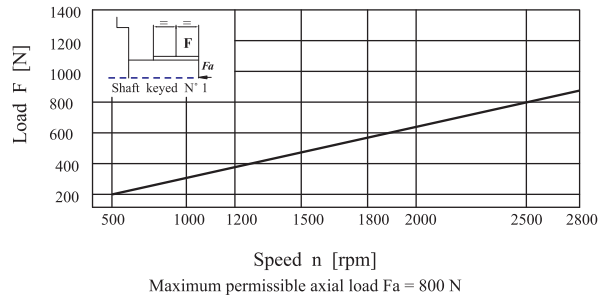
**HYDROMECHANICAL POWER LOSS (TYPICAL)**



**NOISE LEVEL (TYPICAL) PT6CR-022**



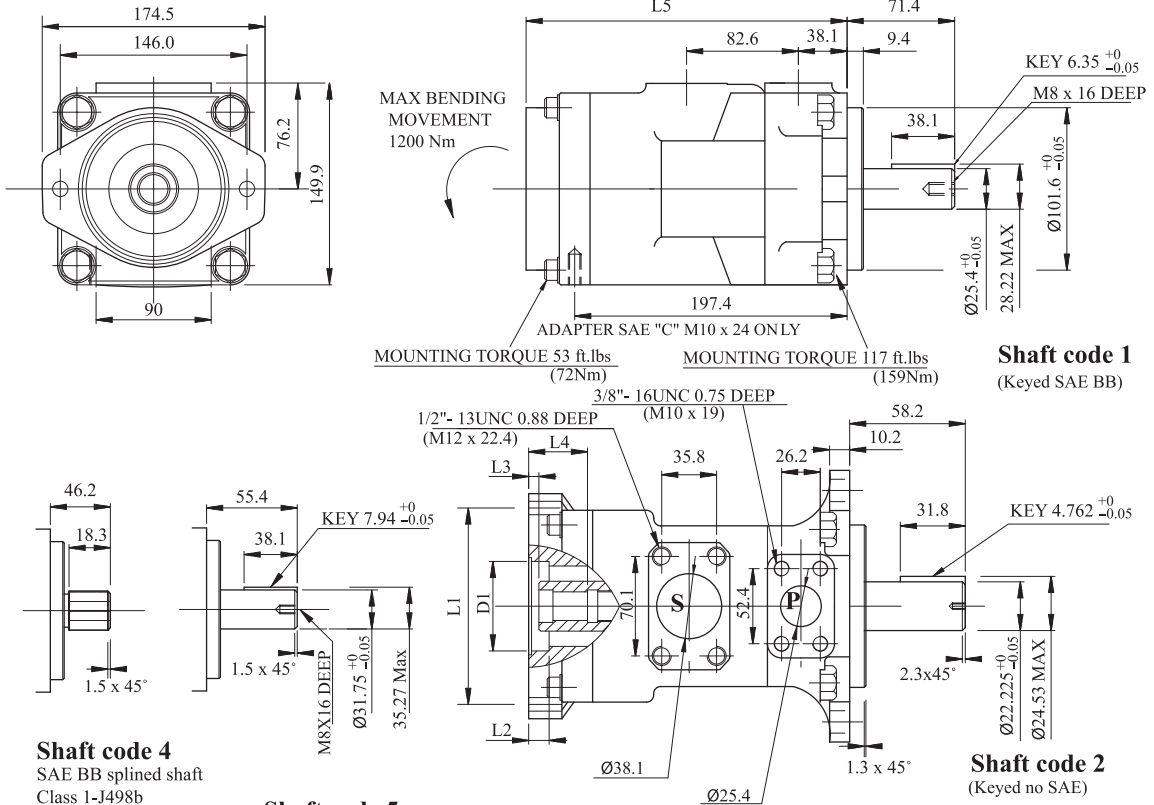
**PERMISSIBLE RADIAL LOAD**



Maximum permissible axial load Fa = 800 N



# PT6CR Dimensional Drawing



Shaft torque limits in <sup>3</sup> /rev x psi (cm <sup>3</sup> /rev x bar)			
Shaft	V x p max.	Coupling drive	V x p max.
1	18972 (21420)	SAE A	9743 (11000)
2	12666 (14300)	SAE B	18246 (20600)
3	18246 (20600)	SAE BB	19530 (22050)
4	28937 (32670)	SAE C	19530 (22050)
5	30274 (34180)	SAE -11 teeth	14039 (15850)

Adapter	SAE A			SAE B		SAE C
Coupling drive	SAE A	SAE 11 teeth	SAE B	SAE B	SAE BB	SAE C
Number of teeth	9	11	13	13	15	14
Pitch	16/32	16/32	16/32	16/32	16/32	12/24
Pressure angle	30°	30°	30°	30°	30°	30°
Major dia.(min)	15.875	19.05	22.225	22.225	25.40	31.75
Minor dia.(min)	12.70	16.00	19.125	19.125	22.275	27.585

Adapter	D1	D2	P	L1	L2	L3	L4	L5
SAE A	82.6	M10	24	106.4	11.0	7.9	32.0	209.0
SAE B	101.65	M12	28	146.0	16.0	7.9	46.0	223.0
SAE C	127.1	M16	—	181.0	16.0	7.9	56.0	233.0

## PT6CR/PT6CRM OPERATING CHARACTERISTICS - TYPICAL 115 Sus (24 cSt)

Pressure Port	Series	Volumetric Displacement Vp in <sup>3</sup> /rev (cm <sup>3</sup> /rev)	Flow qvc gpm (l/min) @ 1500 rpm			Input Power HP (KW) @ 1500 rpm			P. Max psi (bar)	MAX RPM
			p = 0 psi (0 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)	p = 100 psi (7 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)		
P1	B/003	0.66 ( 10.8 )	4.28 ( 16.2 )	2.96 ( 11.2 )	2.03 ( 7.7 )	1.74 ( 1.3 )	7.11 ( 5.3 )	11.26 ( 8.4 )	4010 (275)	2800
	B/005	1.05 ( 17.2 )	6.82 ( 25.8 )	5.49 ( 20.8 )	4.57 ( 17.3 )	1.88 ( 1.4 )	10.06 ( 7.5 )	16.36 ( 12.2 )		
	B/006	1.30 ( 21.3 )	8.43 ( 31.9 )	7.11 ( 26.9 )	6.18 ( 23.4 )	2.01 ( 1.5 )	11.94 ( 8.9 )	19.71 ( 14.7 )		
	B/008	1.61 ( 26.4 )	10.46 ( 39.6 )	9.14 ( 34.6 )	8.22 ( 31.1 )	2.15 ( 1.6 )	14.35 ( 10.7 )	23.74 ( 17.7 )		
	B/010	2.08 ( 34.1 )	13.50 ( 51.1 )	12.18 ( 46.1 )	11.25 ( 42.6 )	2.28 ( 1.7 )	17.97 ( 13.4 )	29.90 ( 22.3 )		
	B/012	2.26 ( 37.1 )	14.69 ( 55.6 )	13.37 ( 50.6 )	12.44 ( 47.1 )	2.28 ( 1.7 )	19.31 ( 14.4 )	32.32 ( 24.1 )		
	B/014	2.81 ( 46.0 )	18.23 ( 69.0 )	16.91 ( 64.0 )	15.98 ( 60.5 )	2.55 ( 1.9 )	23.60 ( 17.6 )	39.56 ( 29.5 )		
	B/017	3.56 ( 58.3 )	23.09 ( 87.4 )	21.77 ( 82.4 )	20.84 ( 78.9 )	2.82 ( 2.1 )	29.37 ( 21.9 )	49.48 ( 36.9 )		
	B/020	3.89 ( 63.8 )	25.28 ( 95.7 )	23.96 ( 90.7 )	23.04 ( 87.2 )	2.95 ( 2.2 )	31.92 ( 23.8 )	53.91 ( 40.2 )		
	B/022	4.29 ( 70.3 )	27.84 ( 105.4 )	26.52 ( 100.4 )	25.60 ( 96.9 )	3.08 ( 2.3 )	35.00 ( 26.1 )	59.14 ( 44.1 )		
	B/025(1)	4.84 ( 79.3 )	31.41 ( 118.9 )	30.09 ( 113.9 )	29.16 ( 110.4 )	3.35 ( 2.5 )	39.16 ( 29.2 )	66.38 ( 49.5 )		
	B/028(1)	5.42 ( 88.8 )	35.19 ( 133.2 )	33.87 ( 128.2 )	33.23 ( 125.8 (2)	3.75 ( 2.8 )	43.85 ( 32.7 )	65.04 ( 48.5 (2)	3062 (210)	2500
	B/031(1)	6.10 ( 100.0 )	39.63 ( 150.0 )	38.30 ( 145.0 )	37.67 ( 142.6 (2)	3.75 ( 2.8 )	48.95 ( 36.5 )	72.95 ( 54.4 (2)		

(1) 025 - 028 - 031 = 2500 R.P.M. max.

(2) 028 - 031 = 210 bar max. int.

Min Speed : 600 rpm

**PT6DR/PT6DRM \* - 045 - 1 R 00 - A 1 0 - A 1 ..**

1
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① **Series** PT6DR/PT6DRM - SAE-C 2-Bolt Mount

② **Y**-Metric port connection, Omit for UNC

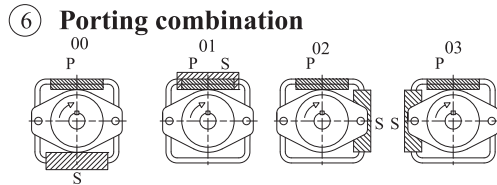
③ **Cam ring**  
 Volumetric displacement in<sup>3</sup>/ rev (cm<sup>3</sup>/rev)

014/B14 = 2.90 ( 47.6 )	035/B35 = 6.77 ( 111.0 )
017/B17 = 3.55 ( 58.2 )	038/B38 = 7.34 ( 120.3 )
020/B20 = 4.03 ( 66.0 )	042/B42 = 8.30 ( 136.0 )
024/B24 = 4.85 ( 79.5 )	045/B45 = 8.89 ( 145.7 )
028/B28 = 5.47 ( 89.7 )	050/B50 = 9.64 ( 158.0 )
031/B31 = 6.00 ( 98.3 )	

④ **Type of shaft**

- 1 = Keyed (SAE C)
- 2 = Keyed (SAE CC)
- 3 = Splined (SAE C)
- 5 = Keyed (No SAE)

⑤ **Direction of rotation**  
 (viewed from shaft end)  
 R = clockwise  
 L = counter-clockwise



⑦ **Adapter**

0 = None	B = SAE B
A = SAE A	C = SAE C

⑧ **Coupling**

1 = SAE A	4 = SAE C
2 = SAE B	5 = SAE J498b
3 = SAE BB	16/32 - 11 teeth

⑨ **Porting adapter**

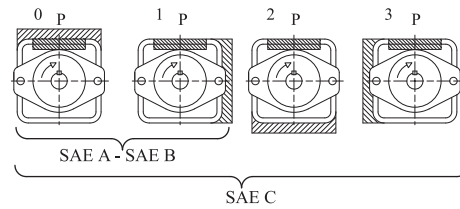
⑩ **Design letter**

⑪ **Seal class**

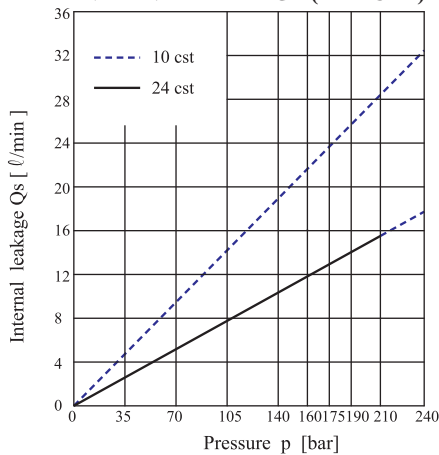
- 1 = S1 (for mineral oil)
- 4 = S4 (for fire resistant fluids)
- 5 = S5 (for mineral oil and fire resistant fluids)

⑫ **Modification**

**Porting adapter**

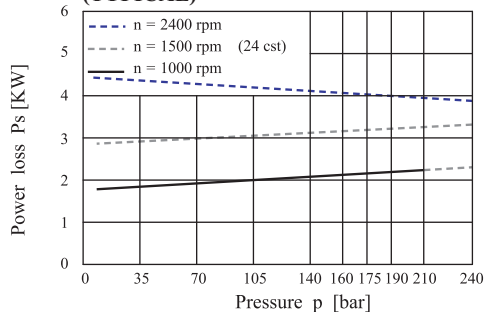


**INTERNAL LEAKAGE (TYPICAL)**

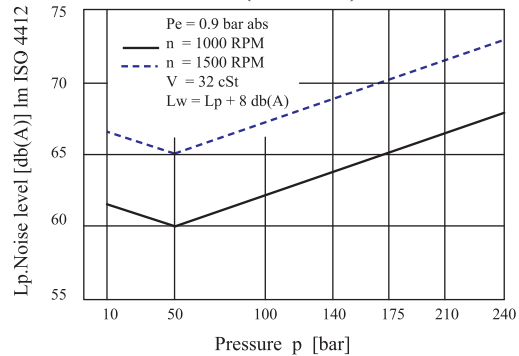


Do not operate the pump more than 5 seconds at any speed or flow viscosity if internal leakage is more than 50% of theoretical

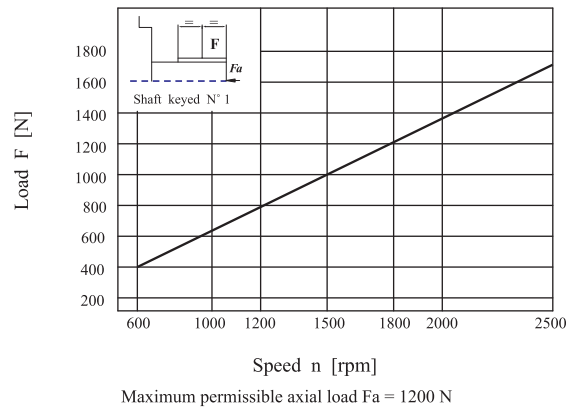
**HYDROMECHANICAL POWER LOSS (TYPICAL)**



**NOISE LEVEL (TYPICAL) PT6DR-038**

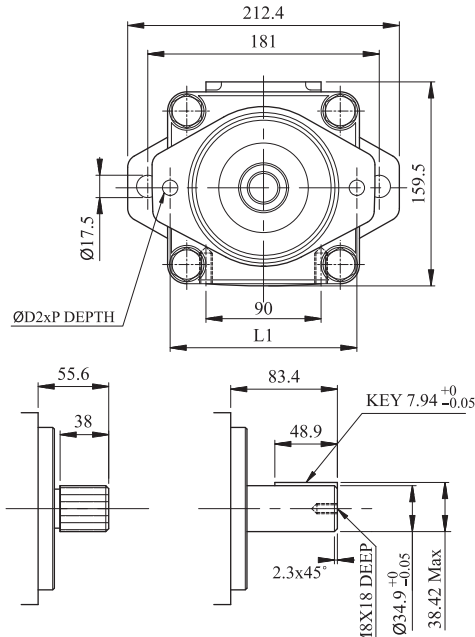


**PERMISSIBLE RADIAL LOAD**



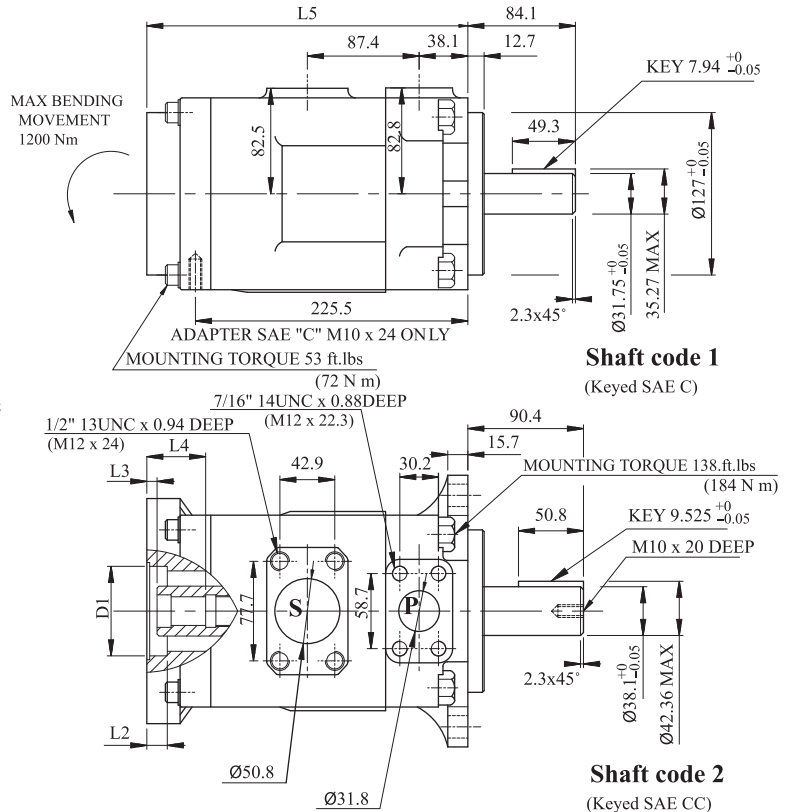


# PT6DR Dimensional Drawing



**Shaft code 3**  
SAE C splined shaft  
Class 1-J498b  
12/24 dp.-14 teeth  
30° pressure angle  
flat root side fit

**Shaft code 5**  
(Keyed no SAE)



**Shaft code 1**  
(Keyed SAE C)

**Shaft code 2**  
(Keyed SAE CC)

Shaft torque limits in <sup>3</sup> /rev x psi (cm <sup>3</sup> /rev x bar)			
Shaft	V x p max.	Coupling drive	V x p max.
1	38300 (43240)	SAE A	9743 (11000)
2	58491 (66036)	SAE B	18246 (20600)
3	54207 (61200)	SAE BB	28937 (32670)
5	49247 (55600)	SAE C	33118 (37390)
		SAE -11 teeth	14039 (15850)

Adapter	SAE "A"			SAE "B"		SAE "C"
	SAE A	SAE 11 teeth	SAE B	SAE B	SAE BB	SAE C
Coupling drive	9	11	13	13	15	14
Number of teeth	16/32	16/32	16/32	16/32	16/32	12/24
Pitch	30°	30°	30°	30°	30°	30°
Pressure angle	15.875	19.05	22.225	22.225	25.400	31.750
Major dia.(min)	12.700	16.00	19.134	19.134	22.268	27.585
Minor dia.(min)						

Adapter	D1	D2	P	L1	L2	L3	L4	L5
SAE A	82.65/82.60	M10	24	106.4	11.0	7.9	32.0	237.0
SAE B	101.70/101.65	M12	28	146.0	16.0	7.9	46.0	251.0
SAE C	127.10/127.05	M16	-	181.0	16.0	7.9	56.0	261.0

## PT6DR/PT6DRM OPERATING CHARACTERISTICS - TYPICAL 115 Sus (24 cSt)

Series	Volumetric Displacement Vp in <sup>3</sup> /rev (cm <sup>3</sup> /rev)	Flow qvc gpm (l/min) @ 1500 rpm			Input Power HP (KW) @ 1500 rpm			P. Max psi (bar)	MAX RPM	
		p = 0 psi (0 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)	p = 100 psi (7 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)			
B/014	2.90 ( 47.6 )	18.86 ( 71.4 )	16.41 ( 62.1 )	14.77 ( 55.9 )	3.08 ( 2.3 )	24.81 ( 18.5 )	41.04 ( 30.6 )	3500 (240)	2500	
B/017	3.55 ( 58.2 )	23.06 ( 87.3 )	20.61 ( 78.0 )	18.97 ( 71.8 )	3.35 ( 2.5 )	29.77 ( 22.2 )	49.62 ( 37.0 )			
B/020	4.03 ( 66.0 )	26.15 ( 99.0 )	23.70 ( 89.7 )	22.06 ( 83.5 )	3.75 ( 2.8 )	33.39 ( 24.9 )	55.92 ( 41.7 )			
B/024	4.85 ( 79.5 )	31.52 ( 119.3 )	29.06 ( 110.0 )	27.42 ( 103.8 )	4.02 ( 3.0 )	39.69 ( 29.6 )	66.78 ( 49.8 )			
B/028	5.47 ( 89.7 )	35.53 ( 134.5 )	33.07 ( 125.2 )	31.44 ( 119.0 )	4.29 ( 3.2 )	44.52 ( 33.2 )	74.96 ( 55.9 )			
B/031	6.00 ( 98.3 )	38.94 ( 147.5 )	36.48 ( 138.1 )	34.84 ( 131.9 )	4.43 ( 3.3 )	48.54 ( 36.2 )	81.80 ( 61.0 )			
B/035	6.77 ( 111.0 )	43.98 ( 166.5 )	41.53 ( 157.2 )	39.89 ( 151.0 )	4.69 ( 3.5 )	54.58 ( 40.7 )	92.13 ( 68.7 )			
B/038	7.34 ( 120.3 )	47.66 ( 180.4 )	45.20 ( 171.1 )	43.56 ( 164.9 )	4.96 ( 3.7 )	58.87 ( 43.9 )	99.64 ( 74.3 )			
B/042 (1)	8.30 ( 136.0 )	53.89 ( 204.0 )	51.43 ( 194.7 )	49.80 ( 188.5 )	5.36 ( 4.0 )	66.25 ( 49.4 )	112.24 ( 83.7 )			2200
B/045 (1)	8.89 ( 145.7 )	57.72 ( 218.5 )	55.26 ( 209.2 )	53.63 ( 203.0 )	5.50 ( 4.1 )	70.81 ( 52.8 )	120.02 ( 89.5 )			
B/060	9.64 ( 158.0 )	62.61 ( 237.0 )	60.15 ( 227.7 )	59.17 ( 224.0 ) (2)	5.90 ( 4.4 )	76.44 ( 57.0 )	113.99 ( 85.0 ) (2)	3063 (210)		

(1) 042 - 045 -050 = 2200 R.P.M. max.

(2) 050 = 210 bar max. int.

Min Speed : 600 rpm

PT6ER/PT6ERM \* - 066 - 1 R 00 - A 1 0 - A 1 ..  
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

① **Series** PT6ER/PT6ERM - SAE-C 2-Bolt Mount

② **Y-Metric** port connection, Omit for UNC

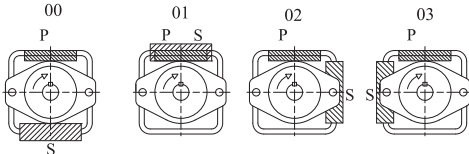
③ **Cam ring**  
 Volumetric displacement in<sup>3</sup>/ rev (cm<sup>3</sup>/rev)

042 = 8.07 ( 132.3 )	062 = 12.00 ( 196.7 )
045 = 8.69 ( 142.4 )	066 = 13.02 ( 213.3 )
050 = 9.67 ( 158.5 )	072 = 13.86 ( 227.1 )
052 = 10.06 ( 164.8 )	085 = 16.46 ( 269.8 )

④ **Type of shaft**  
 1 = Keyed (SAE CC)  
 3 = Splined (SAE C)  
 4 = Splined (SAE CC)

⑤ **Direction of rotation**  
 (viewed from shaft end)  
 R = clockwise  
 L = counter-clockwise

⑥ **Porting combination**



⑦ **Adapter**

0 = None      B = SAE B  
 A = SAE A    C = SAE C

⑧ **Coupling**

1 = SAE A      4 = SAE C  
 2 = SAE B      5 = SAE J498b  
 3 = SAE BB    16/32 - 11 teeth

⑨ **Porting adapter**

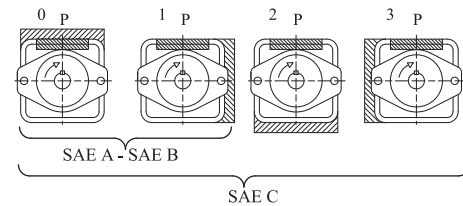
⑩ **Design letter**

⑪ **Seal class**

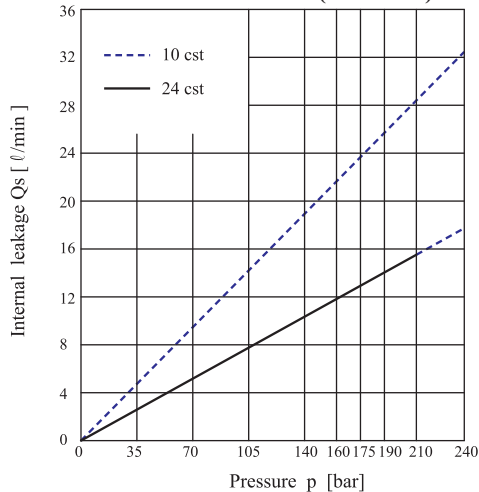
1 = S1 (for mineral oil)  
 4 = S4 (for fire resistant fluids)  
 5 = S5 (for mineral oil and fire resistant fluids)

⑫ **Modification**

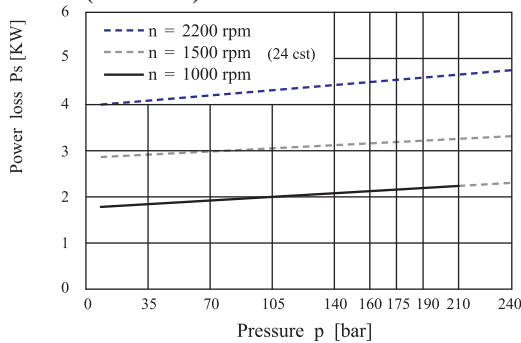
Porting adapter



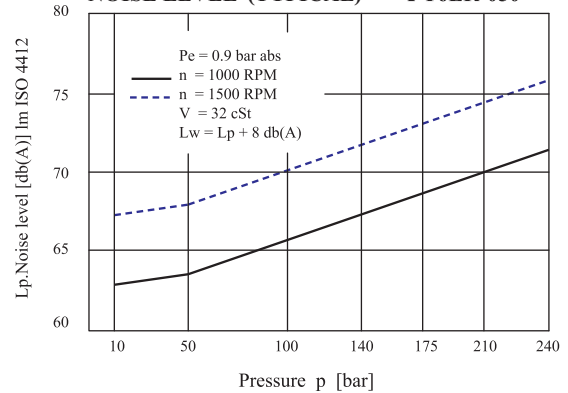
**INTERNAL LEAKAGE (TYPICAL)**



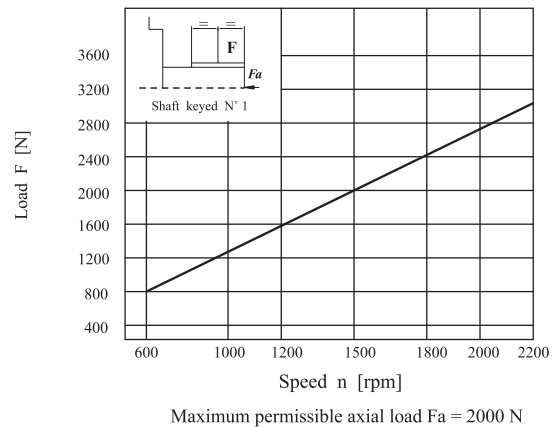
**HYDROMECHANICAL POWER LOSS (TYPICAL)**



**NOISE LEVEL (TYPICAL) PT6ER-050**

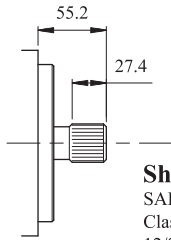
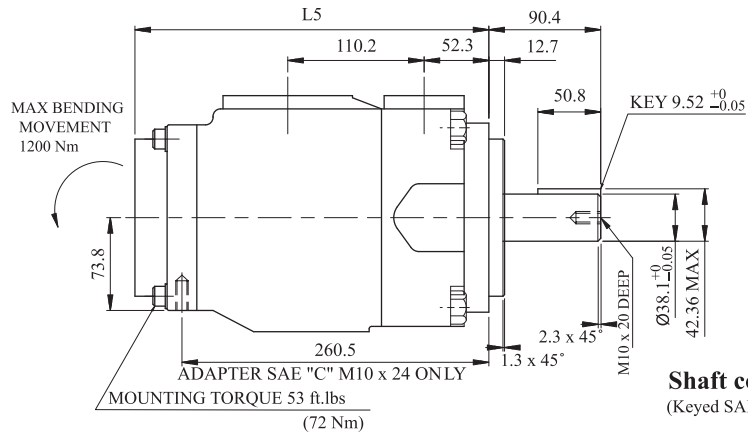
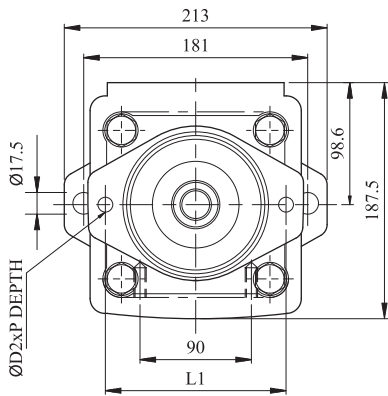


**PERMISSIBLE RADIAL LOAD**

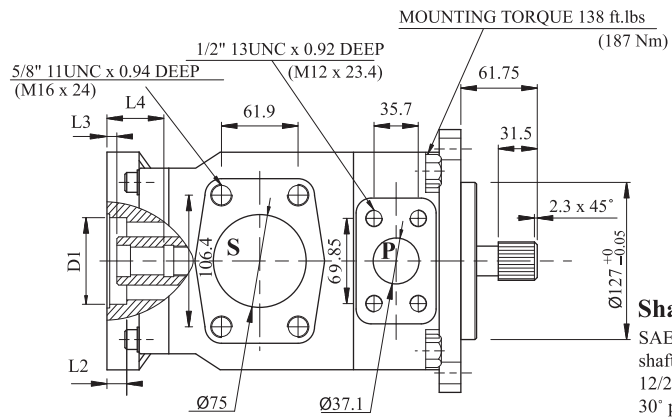


Maximum permissible axial load Fa = 2000 N

# PT6ER Dimensional Drawing



**Shaft code 3**  
SAE C splined shaft  
Class 1-J498b  
12/24 dp.-14 teeth  
30° pressure angle  
flat root side fit



**Shaft code 4**  
SAE CC splined shaft  
Class 1-J498b  
12/24 dp.-17 teeth  
30° pressure angle  
flat root side fit

Shaft torque limits in <sup>3</sup> /rev x psi (cm <sup>3</sup> /rev x bar)			
Shaft	V x p max.	Coupling drive	Vp x p max.
1	71355 (80560)	SAE A	9743 (11000)
3	54207 (61200)	SAE B	18246 (20600)
4	106474 (120210)	SAE BB	28937 (32670)
		SAE C	58884 (66480)
		SAE -11 teeth	14039 (15850)

Adapter	SAE "A"		SAE "B"		SAE "C"	
	SAE A	SAE 11 teeth	SAE B	SAE BB	SAE C	SAE C
Coupling drive	SAE A	SAE 11 teeth	SAE B	SAE BB	SAE C	SAE C
Number of teeth	9	11	13	13	15	14
Pitch	16/32	16/32	16/32	16/32	16/32	12/24
Pressure angle	30°	30°	30°	30°	30°	30°
Major dia.(min)	15.875	19.05	22.225	22.225	25.400	31.750
Minor dia.(min)	12.700	16.00	19.134	19.134	22.268	27.585

Adapter	D1	D2	P	L1	L2	L3	L4	L5
SAE A	82.65/82.60	M10	24	106.4	11.0	7.9	32.0	272.0
SAE B	101.70/101.65	M12	28	146.0	16.0	7.9	46.0	286.0
SAE C	127.10/127.05	M16	—	181.0	16.0	7.9	56.0	296.0

## PT6ER/PT6ERM OPERATING CHARACTERISTICS - TYPICAL 115 Sus (24 cSt)

Series	Volumetric Displacement Vp in <sup>3</sup> /rev (cm <sup>3</sup> /rev)	Flow qvc gpm (l/min) @ 1500 rpm			Input Power HP (KW) @ 1500 rpm			P. Max psi (bar)	MAX RPM
		p = 0 psi (0 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)	p = 100 psi (7 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)		
042	8.07 (132.3)	52.44 (198.5)	49.80 (188.5)	47.89 (181.3)	6.97 (5.2)	66.25 (49.4)	110.77 (82.6)	3500 (240)	2200
045	8.69 (142.4)	56.43 (213.6)	53.79 (203.6)	51.91 (196.5)	7.24 (5.4)	70.94 (52.9)	118.95 (88.7)		
050	9.67 (158.5)	62.79 (237.7)	60.15 (227.7)	58.28 (220.6)	7.64 (5.7)	78.45 (58.5)	131.82 (98.3)		
052	10.06 (164.8)	65.30 (247.2)	62.66 (237.2)	60.79 (230.1)	7.78 (5.8)	81.53 (60.8)	136.92 (102.1)		
062	12.00 (196.7)	77.93 (295.0)	75.29 (285.0)	73.41 (277.9)	8.58 (6.4)	96.42 (71.9)	162.67 (121.3)		
066	13.02 (213.3)	84.51 (319.9)	81.87 (309.9)	79.99 (302.8)	8.98 (6.7)	104.20 (77.7)	175.94 (131.2)		
072	13.86 (227.1)	89.98 (340.6)	87.34 (330.6)	85.46 (323.5)	9.25 (6.9)	110.77 (82.6)	187.07 (139.5)		
085(1)(2)	16.46 (269.8)	106.91 (404.7)	105.06 (397.7)	( )	9.79 (7.3)	87.57 (65.3)	( )		

(1) 085 = 2000 rpm max.

(2) 085 = 75 bar cont. 085 = 90 bar max.int

Min Speed : 600 rpm

## PT6DRS/PT6DRSM - 035 - 1 R 00 - A 1 0 - A 1 ..

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪

① **Series** PT6DRS/PT6DRSM - SAE-C 2 & 4 Bolt Mount

② **Cam ring**

Volumetric displacement in<sup>3</sup>/ rev (cm<sup>3</sup>/rev)

014/B14 = 2.90 ( 47.6 )    035/B35 = 6.77 ( 111.0 )

017/B17 = 3.55 ( 58.2 )    038/B38 = 7.34 ( 120.3 )

020/B20 = 4.03 ( 66.0 )    042/B42 = 8.30 ( 136.0 )

024/B24 = 4.85 ( 79.5 )    045/B45 = 8.89 ( 145.7 )

028/B28 = 5.47 ( 89.7 )    050/B50 = 9.64 ( 158.0 )

031/B31 = 6.00 ( 98.3 )

③ **Type of shaft**

1 = Keyed (SAE C)

2 = Keyed (SAE CC)

3 = Splined (SAE C)

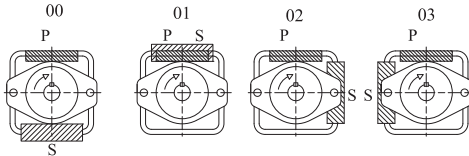
5 = Keyed (No SAE)

④ **Direction of rotation**  
(viewed from shaft end)

R = clockwise

L = counter-clockwise

⑤ **Porting combination**



⑥ **Adapter**

0 = None                    B = SAE B

A = SAE A                C = SAE C

⑦ **Coupling**

1 = SAE A                4 = SAE C

2 = SAE B                5 = SAE J498b

3 = SAE BB              16/32 - 11 teeth

⑧ **Porting adapter**

⑨ **Design letter**

⑩ **Seal class**

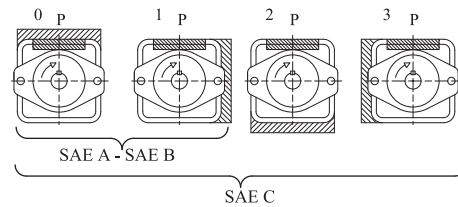
1 = S1 (for mineral oil)

4 = S4 (for fire resistant fluids)

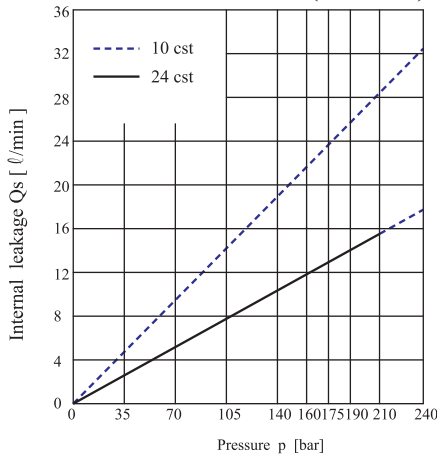
5 = S5 (for mineral oil and fire resistant fluids)

⑪ **Modification**

**Porting adapter**

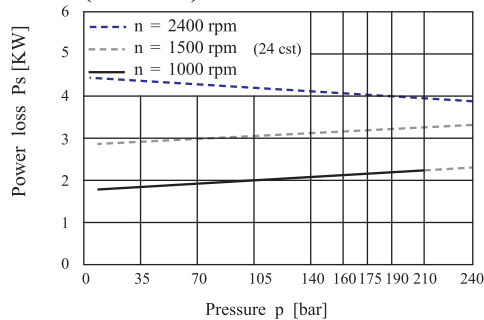


### INTERNAL LEAKAGE (TYPICAL)

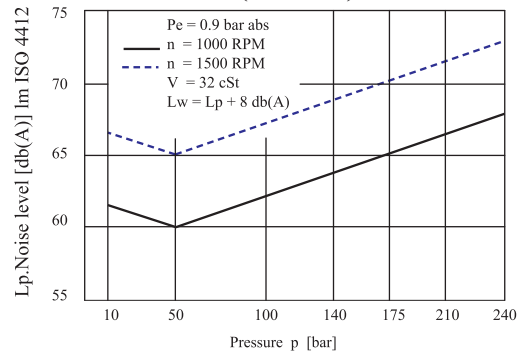


Do not operate the pump more than 5 seconds at any speed or viscosity if internal leakage is more than 50% of theoretical flow.

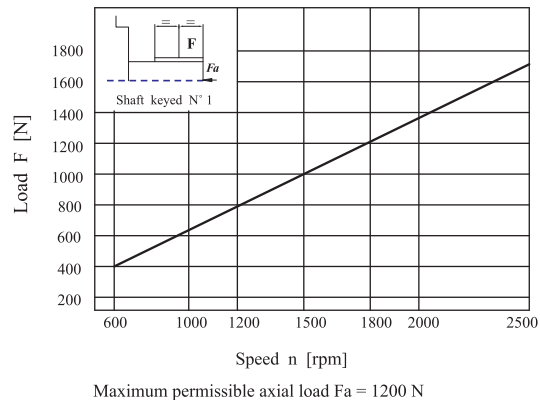
### HYDROMECHANICAL POWER LOSS (TYPICAL)



### NOISE LEVEL (TYPICAL) PT6DR-038



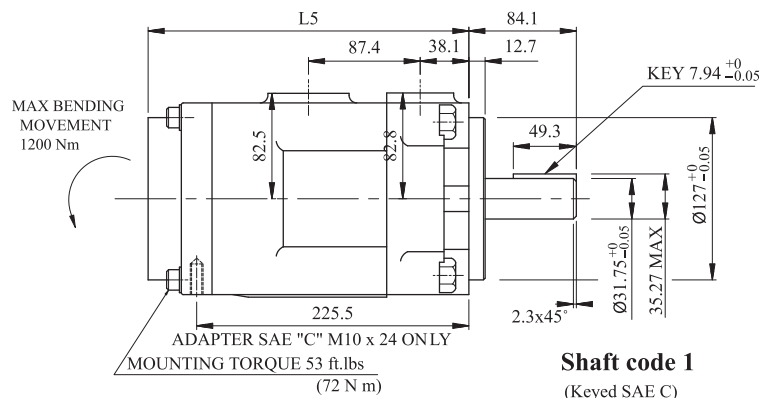
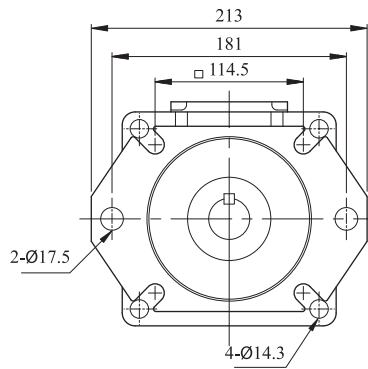
### PERMISSIBLE RADIAL LOAD



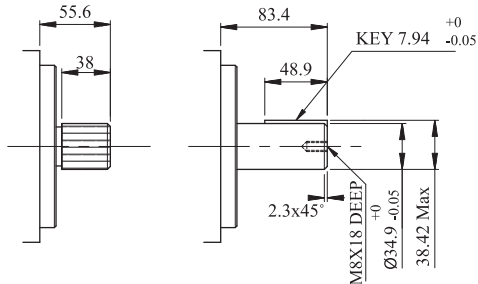
Maximum permissible axial load Fa = 1200 N



# PT6DRS Dimensional Drawing

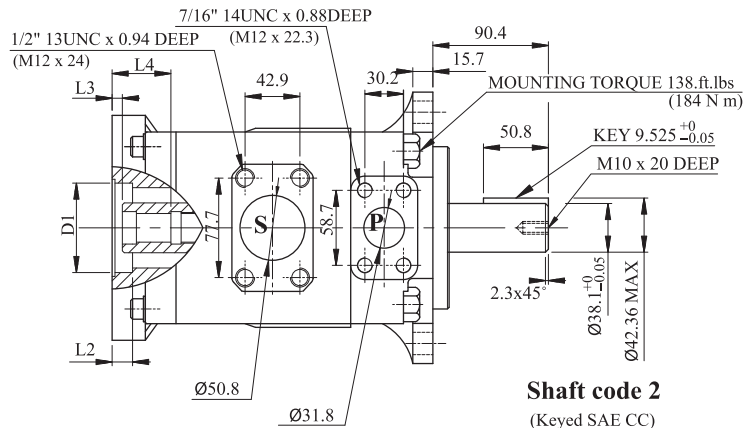


**Shaft code 1**  
(Keyed SAE C)



**Shaft code 3**  
SAE C splined shaft  
Class 1-J498b  
12/24 dp.-14 teeth  
30° pressure angle  
flat root side fit

**Shaft code 5**  
(Keyed no SAE)



**Shaft code 2**  
(Keyed SAE CC)

Shaft torque limits in <sup>3</sup> /rev x psi (cm <sup>3</sup> /rev x bar)			
Shaft	V x p max.	Coupling drive	V x p max.
1	38300 (43240)	SAE A	9743 (11000)
2	58491 (66036)	SAE B	18246 (20600)
3	54207 (61200)	SAE BB	28937 (32670)
5	49247 (55600)	SAE C	33118 (37390)
		SAE -11 teeth	14039 (15850)

Adapter	SAE "A"			SAE "B"		SAE "C"
Coupling drive	SAE A	SAE 11 teeth	SAE B	SAE B	SAE BB	SAE C
Number of teeth	9	11	13	13	15	14
Pitch	16/32	16/32	16/32	16/32	16/32	12/24
Pressure angle	30°	30°	30°	30°	30°	30°
Major dia.(min)	15.875	19.05	22.225	22.225	25.400	31.750
Minor dia.(min)	12.700	16.00	19.134	19.134	22.268	27.585

Adapter	D1	D2	P	L1	L2	L3	L4	L5
SAE A	82.65/82.60	M10	24	106.4	11.0	7.9	32.0	237.0
SAE B	101.70/101.65	M12	28	146.0	16.0	7.9	46.0	251.0
SAE C	127.10/127.05	M16	-	181.0	16.0	7.9	56.0	261.0

## PT6DRS/PT6DRSM OPERATING CHARACTERISTICS - TYPICAL 115 Sus (24 cSt)

Series	Volumetric Displacement Vp in <sup>3</sup> /rev (cm <sup>3</sup> /rev)	Flow qve gpm (l/min) @ 1500 rpm			Input Power HP (KW) @ 1500 rpm			P. Max psi (bar)	MAX RPM		
		p = 0 psi (0 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)	p = 100 psi (7 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)				
B/014	2.90 ( 47.6 )	18.86 ( 71.4 )	16.41 ( 62.1 )	14.77 ( 55.9 )	3.08 ( 2.3 )	24.81 ( 18.5 )	41.04 ( 30.6 )	3500 (240)	2500		
B/017	3.55 ( 58.2 )	23.06 ( 87.3 )	20.61 ( 78.0 )	18.97 ( 71.8 )	3.35 ( 2.5 )	29.77 ( 22.2 )	49.62 ( 37.0 )				
B/020	4.03 ( 66.0 )	26.15 ( 99.0 )	23.70 ( 89.7 )	22.06 ( 83.5 )	3.75 ( 2.8 )	33.39 ( 24.9 )	55.92 ( 41.7 )				
B/024	4.85 ( 79.5 )	31.52 ( 119.3 )	29.06 ( 110.0 )	27.42 ( 103.8 )	4.02 ( 3.0 )	39.69 ( 29.6 )	66.78 ( 49.8 )				
B/028	5.47 ( 89.7 )	35.53 ( 134.5 )	33.07 ( 125.2 )	31.44 ( 119.0 )	4.29 ( 3.2 )	44.52 ( 33.2 )	74.96 ( 55.9 )				
B/031	6.00 ( 98.3 )	38.94 ( 147.4 )	36.48 ( 138.1 )	34.84 ( 131.9 )	4.43 ( 3.3 )	48.54 ( 36.2 )	81.80 ( 61.0 )				
B/035	6.77 ( 111.0 )	43.98 ( 166.5 )	41.53 ( 157.2 )	39.89 ( 151.0 )	4.69 ( 3.5 )	54.58 ( 40.7 )	92.13 ( 68.7 )				
B/038	7.34 ( 120.3 )	47.66 ( 180.4 )	45.20 ( 171.1 )	43.56 ( 164.9 )	4.96 ( 3.7 )	58.87 ( 43.9 )	99.64 ( 74.3 )				
B/042(1)	8.30 ( 136.0 )	53.89 ( 204.0 )	51.43 ( 194.7 )	49.80 ( 188.5 )	5.36 ( 4.0 )	66.25 ( 49.4 )	112.24 ( 83.7 )			3063 (210)	2200
B/045(1)	8.89 ( 145.7 )	57.72 ( 218.5 )	55.26 ( 209.2 )	53.63 ( 203.0 )	5.50 ( 4.1 )	70.81 ( 52.8 )	120.02 ( 89.5 )				
B/050(1)	9.64 ( 158.0 )	62.61 ( 237.0 )	60.15 ( 227.7 )	59.17 ( 224.0 (2)	5.90 ( 4.4 )	76.44 ( 57.0 )	113.99 ( 85.0 (2)				

(1) 042 - 045 - 050 = 2200 R.P.M. max.

(2) 050 = 210 bar max. int.

Min Speed : 600 rpm



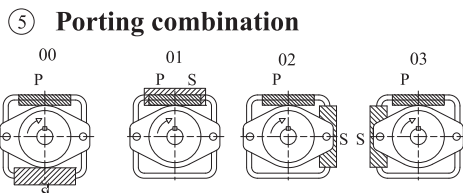
**PT6DRSS/PT6DRSSM - 045 - 1 R 00 - A 1 0 - A 1 ..**  
①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩
⑪

① **Series** PT6DRSS/PT6DRSSM - SAE-C 4-Bolt Mount

② **Cam ring**  
 Volumetric displacement in<sup>3</sup>/ rev (cm<sup>3</sup>/rev)  
 014/B14 = 2.90 ( 47.6 )    035/B35 = 6.77 ( 111.0 )  
 017/B17 = 3.55 ( 58.2 )    038/B38 = 7.34 ( 120.3 )  
 020/B20 = 4.03 ( 66.0 )    042/B42 = 8.30 ( 136.0 )  
 024/B24 = 4.85 ( 79.5 )    045/B45 = 8.89 ( 145.7 )  
 028/B28 = 5.47 ( 89.7 )    050/B50 = 9.64 ( 158.0 )  
 031/B31 = 6.00 ( 98.3 )

③ **Type of shaft**  
 1 = Keyed (SAE C)  
 2 = Keyed (SAE CC)  
 3 = Splined (SAE C)  
 5 = Keyed (No SAE)

④ **Direction of rotation**  
 (viewed from shaft end)  
 R = clockwise  
 L = counter-clockwise



⑥ **Adapter**  
 0 = None                    B = SAE B  
 A = SAE A                C = SAE C

⑦ **Coupling**  
 1 = SAE A                4 = SAE C  
 2 = SAE B                5 = SAE J498b  
 3 = SAE BB              16/32 - 11 teeth

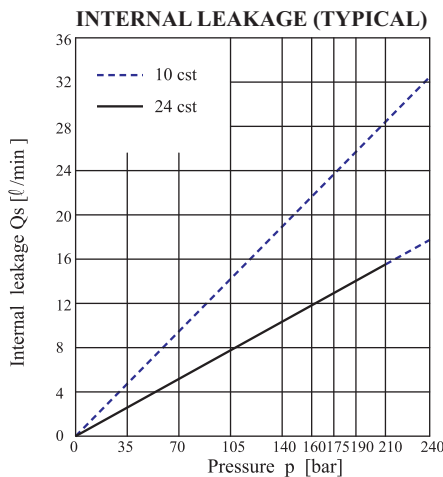
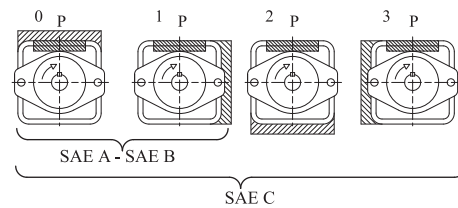
⑧ **Porting adapter**

⑨ **Design letter**

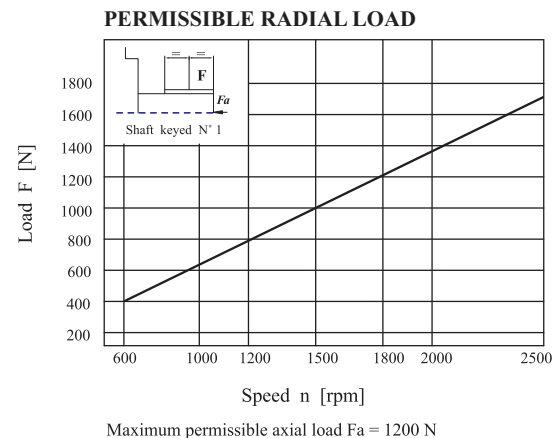
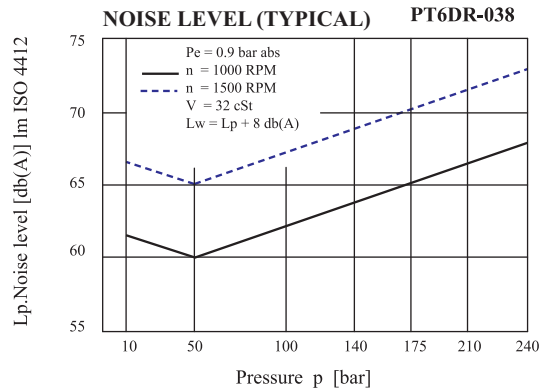
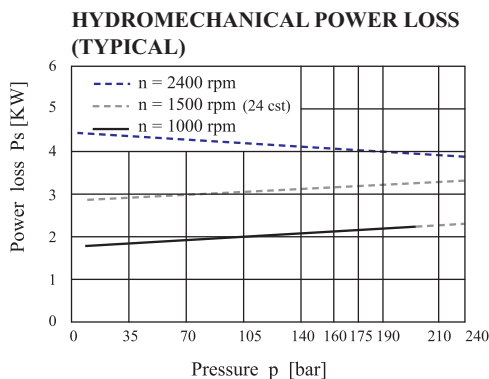
⑩ **Seal class**  
 1 = S1 (for mineral oil)  
 4 = S4 (for fire resistant fluids)  
 5 = S5 (for mineral oil and fire resistant fluids)

⑪ **Modification**

**Porting adapter**

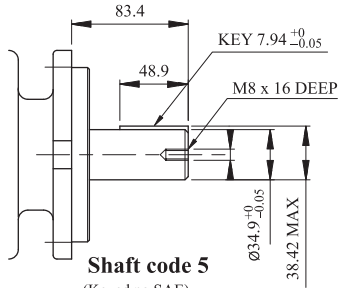
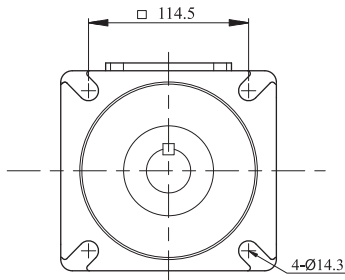


Do not operate the pump more than 5 seconds at any speed or viscosity if internal leakage is more than 50% of theoretical flow.

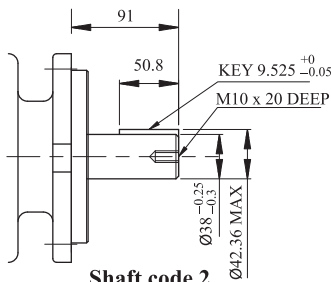




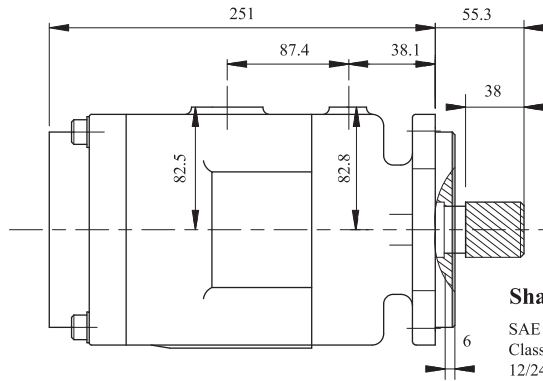
# PT6DRSS Dimensional Drawing



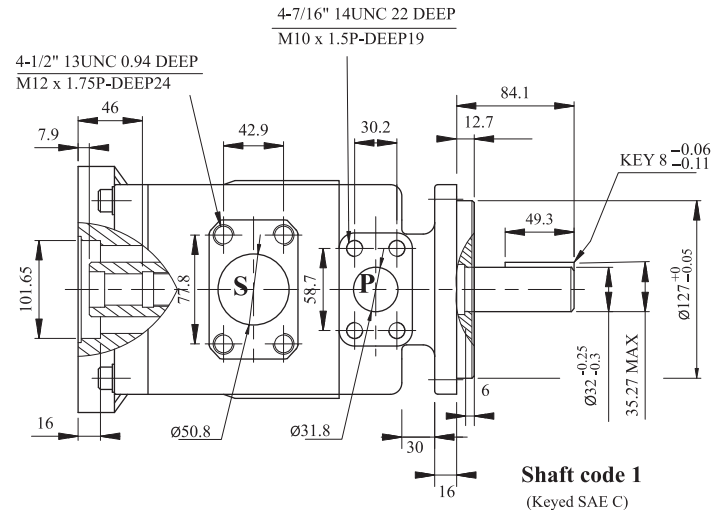
**Shaft code 5**  
(Keyed no SAE)



**Shaft code 2**  
(Keyed SAE CC)



**Shaft code 3**  
SAE C splined shaft  
Class 1-J498b  
12/24 dp, -14 teeth  
30° pressure angle  
flat root side fit



**Shaft code 1**  
(Keyed SAE C)

Shaft torque limits in <sup>3</sup> /rev x psi (cm <sup>3</sup> /rev x bar)			
Shaft	V x p max.	Coupling drive	V x p max.
1	38300 (43240)	SAE A	9743 (11000)
2	58491 (66036)	SAE B	18246 (20600)
3	54207 (61200)	SAE BB	28937 (32670)
5	49247 (55600)	SAE C	33118 (37390)
		SAE -11 teeth	14039 (15850)

Adapter	SAE "A"		SAE "B"		SAE "C"	
Coupling drive	SAE A	SAE 11 teeth	SAE B	SAE B	SAE BB	SAE C
Number of teeth	9	11	13	13	15	14
Pitch	16/32	16/32	16/32	16/32	16/32	12/24
Pressure angle	30°	30°	30°	30°	30°	30°
Major dia.(min)	15.875	19.05	22.225	22.225	25.400	31.750
Minor dia.(min)	12.700	16.00	19.134	19.134	22.268	27.585

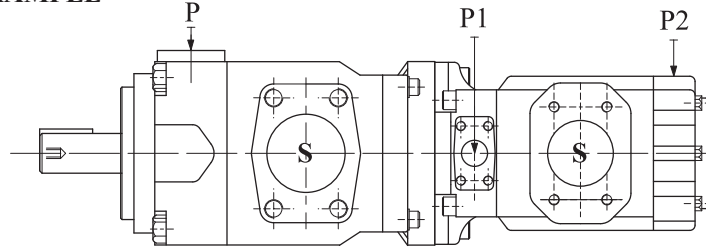
## PT6DRSS/PT6DRSSM OPERATING CHARACTERISTICS - TYPICAL 115 Sus (24 cSt)

Series	Volumetric Displacement Vp in <sup>3</sup> /rev (cm <sup>3</sup> /rev)	Flow qvc gpm (l/min) @ 1500 rpm			Input Power HP (KW) @ 1500 rpm			P. Max psi (bar)	MAX RPM	
		p = 0 psi (0 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)	p = 100 psi (7 bar)	p = 2000 psi (140 bar)	p = 3500 psi (240 bar)			
B/014	2.90 ( 47.6 )	18.86 ( 71.4 )	16.41 ( 62.1 )	14.77 ( 55.9 )	3.08 ( 2.3 )	24.81 ( 18.5 )	41.04 ( 30.6 )	3500 (240)	2500	
B/017	3.55 ( 58.2 )	23.06 ( 87.3 )	20.61 ( 78.0 )	18.97 ( 71.8 )	3.35 ( 2.5 )	29.77 ( 22.2 )	49.62 ( 37.0 )			
B/020	4.03 ( 66.0 )	26.15 ( 99.0 )	23.70 ( 89.7 )	22.06 ( 83.5 )	3.75 ( 2.8 )	33.39 ( 24.9 )	55.92 ( 41.7 )			
B/024	4.85 ( 79.5 )	31.52 ( 119.3 )	29.06 ( 110.0 )	27.42 ( 103.8 )	4.02 ( 3.0 )	39.69 ( 29.6 )	66.78 ( 49.8 )			
B/028	5.47 ( 89.7 )	35.53 ( 134.5 )	33.07 ( 125.2 )	31.44 ( 119.0 )	4.29 ( 3.2 )	44.52 ( 33.2 )	74.96 ( 55.9 )			
B/031	6.00 ( 98.3 )	38.94 ( 147.4 )	36.48 ( 138.1 )	34.84 ( 131.9 )	4.43 ( 3.3 )	48.54 ( 36.2 )	81.80 ( 61.0 )			
B/035	6.77 ( 111.0 )	43.98 ( 166.5 )	41.53 ( 157.2 )	39.89 ( 151.0 )	4.69 ( 3.5 )	54.58 ( 40.7 )	92.13 ( 68.7 )			
B/038	7.34 ( 120.3 )	47.66 ( 180.4 )	45.20 ( 171.1 )	43.56 ( 164.9 )	4.96 ( 3.7 )	58.87 ( 43.9 )	99.64 ( 74.3 )			
B/042(1)	8.30 ( 136.0 )	53.89 ( 204.0 )	51.43 ( 194.7 )	49.80 ( 188.5 )	5.36 ( 4.0 )	66.25 ( 49.4 )	112.24 ( 83.7 )			2200
B/045(1)	8.89 ( 145.7 )	57.72 ( 218.5 )	55.26 ( 209.2 )	53.63 ( 203.0 )	5.50 ( 4.1 )	70.81 ( 52.8 )	120.02 ( 89.5 )			
B/050(1)	9.64 ( 158.0 )	62.61 ( 237.0 )	60.15 ( 227.7 )	59.17 ( 224.0 )	5.90 ( 4.4 )	76.44 ( 57.0 )	113.99 ( 85.0 )			

(1) 042 - 045 - 050 = 2200 R.P.M.max (2) 050 = 210 bar max. int.

Min Speed : 600 rpm

### EXAMPLE



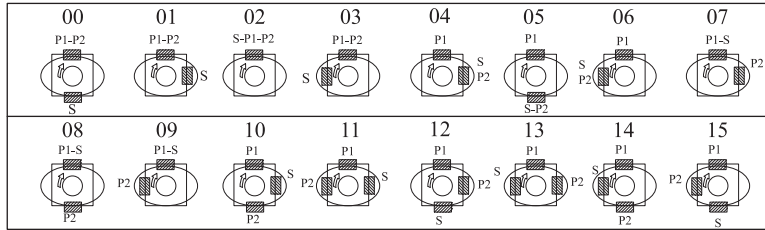
**PT6ER + PT6CC**

- 1. Define front pump  
PT6ER -\*\*\*- 1 R 02 - B21 - A I
- 2. Define rear pump  
PT6CC -\*\*\*-\*\*\*- 5 R 01 - C 100
- 3. Define mounting  
Ass'y tandem VV03

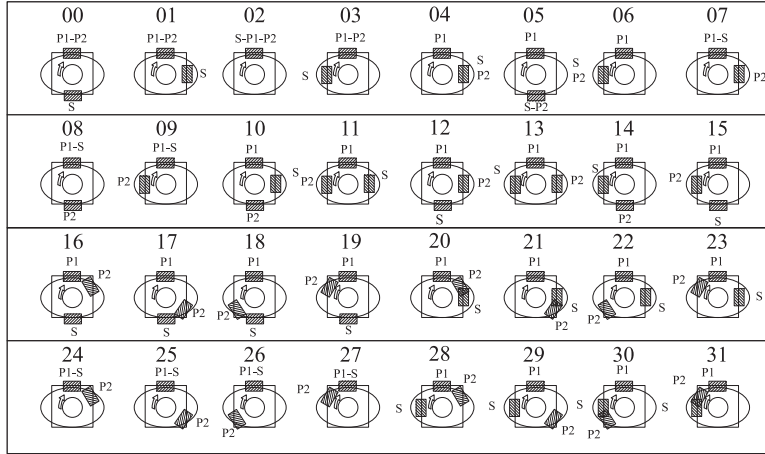
Rear pump		Drive train pump			
		PT6*R (single pumps)		PT6***R (single pumps)	
Series	Shaft	Coupling	Adapter	Coupling	Adapter
<b>PT6C*</b> <b>PT6CR*</b> <b>PT6CSH</b>	3 4	2 3	B B	Not available	
<b>PT6CC*</b>	3 5	3 2	B B	Not available	
<b>PT6D*</b> <b>PT6DR*</b> <b>PT6DC*</b> <b>PT6DCC*</b>	3	4	C	Not available	
<b>PT6E*</b> <b>PT6ER*</b> <b>PT6EC*</b> <b>PT6ED*</b>	3	4	C	Not available	
<b>PTE</b>	4 3	1 5	A A	Available	
<b>PT7B</b>	3 4	2 3	B B	Not available	

# PORTING DIAGRAMS-PT6 SERIES INDUSTRIAL APPLICATION

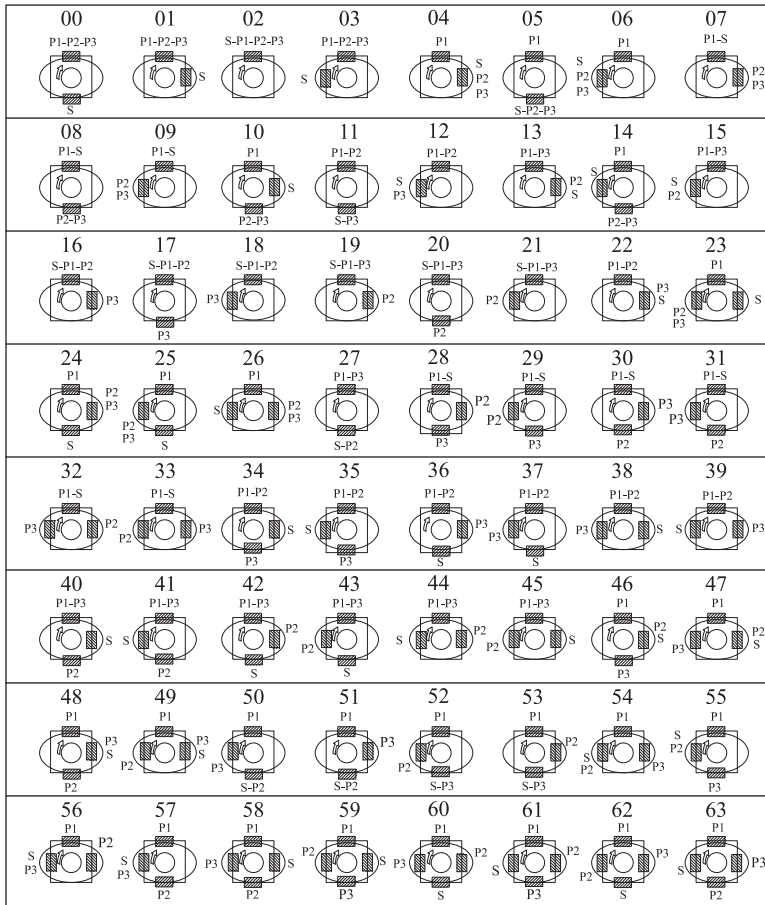
**PT6DD-PT6DDS-PT6EE  
PT6EES-PT6ED**



**PT6CC-PT6DC-PT6EC  
PT6GCC-PT67CB  
PT67DB-PT67EB  
PT6QDC**



**PT6DCC - PT6EDC  
PT6DCCS- PT67DCB**





# PORTING DIAGRAMS-PT6 SERIES INDUSTRIAL APPLICATION

PT6DCC-PT6EDC-  
PT6DCCS-PT67DCB

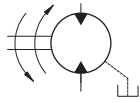
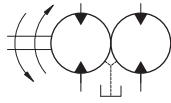
P1



S	P2	P3				P2	P3			
		02	16	17	18		20	30	08	31
		19	07	28	32		21	33	29	09
		01	22	34	38		40	48	10	58
		13	04	46	47		45	49	59	23
		00	36	11	37		27	51	05	50
		42	24	53	60		43	62	52	25
		03	39	35	12		41	63	14	57
		44	26	61	56		15	54	55	06

**FEATURES**

PM\* series high speed, high pressure fixed displacement Vane Motors offer a wide choice of torque ratings, reversible shaft rotation, foot or flange mounting and choice of port locations.

**Single Motor****Double Motor****HYDRAULICALLY BALANCED DESIGN**

Vane Motors are hydraulically balanced to reduce wear and heat producing friction. The vane, rotor and cam ring are pressure balanced to increase life and efficiency over full speed range.

**REPLACEABLE ROTARY KITS**

The rotary kit assembly is easily replaceable. The torque capability of motors within the same series can be changed by changing the rotary kit or cam ring.

**ROTATION**

Motors may be stalled or reversed repeatedly under load without damage.

**SPEED RANGE**

Starting to maximum speed (4000 rpm) with full torque capability during acceleration. These motors can start smoothly at full load. To fully realize the smooth start characteristic, the designed maximum operating speed for single cartridge motors should be above 1200 rpm..

For optimum operating efficiency and life, minimum continuous operating speeds should be above 400 rpm, at differential pressure higher than 2000 psi (140 bar).

**MOUNTING FLEXIBILITY**

Ports and mounting conform to ISO-3019-1 standards, thus providing the optimum mounting for connecting pipe work.

**LOW TORQUE RIPPLE AT LOW SPEED**

While operating at very low speed Vane Motors exhibit very low torque ripple.

**HIGH EFFICIENCY**

Vane Motors have high volumetric efficiency that is maintained throughout their operating life. The high starting torque efficiency of Vane Motors allow start under high load without pressure overshoots, jerks and high instantaneous horsepower loads. Efficiency varies with motor size, pressure, speed and fluid viscosity and temperature.

**SEVERE DUTY VANE MOTORS**

Vane Motors have been specially designed to suit severe duty application for pressure up to 3400 psi, high speeds up to 4000 rpm and fluid lubricity. These are designated as PM4S series and recommended when both, pressure is over 2000 psi and speed is over 2000 rpm. They are also recommended for fluid viscosity below 25 cSt and speed over 2000 rpm. PM4S motors have longer life at high efficiency.

**FIRE RESISTANT FLUIDS**

Easily used in the standard PM4S version of Vane Motors. These include phosphate or organic ester fluids and blends, water glycol solutions and water oil invert emulsions.

**RELIABILITY**

These high performance motors have been field proven on a wide variety of applications.

**APPLICATIONS**

These motors can be widely used in load hoist winch drives, swing drives, propulsion drives, traction drives, etc.

**INTERNALLY DRAINED MOTORS**

(PM4C1, PM4D1, PM4E1)

These motors may be alternately pressurized at port A & B to 2500 psi (175 bar) max. Whichever port is at low pressure must not be subjected to more than 21 psi (3.5 bar) peak pressure 100 psi (7 bar)

**EXTERNALLY DRAINED MOTORS**

Single Cartridge Motors may be alternately pressurized at ports A & B to 2500 psi (175 bar) max. Which ever port is at low pressure should not be subject to more than 500 psi (35 bar).

**PRESSURE, DRAIN PORT d, 3.5 bar max.**

To ensure maximum motor performance in conjunction with your specific application, consult your Permco representative if your application requires:

- minimum speed of less than 100 rpm
- Overrunning loads
- Indirect drive
- Braking or retarding

**SHAFTS**

Permco offers vane motors with option of keyed or splined shafts. Keyed shafts are supplied with high strength heat treated keys. If the key is replaced, it must be heat treated between 27 and 34 RC hardness. The corners of the keys must be chamfered 0.03" to 0.04" at 45° to clear radii in the key way. Alignment of keyed shaft must be within tolerances given for splined shaft.



# HIGH PERFORMANCE VANE MOTOR PM\*

## SHAFTS, COUPLINGS AND FEMALE SPLINES

- The shaft will accept a maximum misalignment of .002" TIR when the pump is foot mounted and .001" when flange mounted. The angular alignment of two spline axes must be Less than 0.1° (0.002 per 1").
- The coupling spline must be lubricated with lithium moly-disulfide grease or a similar lubricant.
- The coupling must be hardened to a hardness between 27 and 45 RC.
- The female spline must be made to conform to the Class 1 fit as described in SAE-J498B (1971). This is described as a Flat Root Side Fit.

Series	Speed rpm									
	500		1000		2000		3000		3600	
	psi	bar	psi	bar	psi	bar	psi	bar	psi	bar
PM4C/ PM4SC	10	0.7	20	1.4	45	3.1	80	5.5	135	9.3
PM4D/ PM4SD	10	0.7	20	1.4	45	3.1	80	5.5	135	9.3
PM4E/ PM4SE	20	1.4	40	2.8	75	5.2	160	11	—	—

## RECOMMENDED FLUIDS

### PETROLEUM BASED ANTIWEAR R & O FLUIDS

These fluids are recommended fluids for PM4 series Vane Motors. Maximum catalog ratings and performance data are based on operation with these fluids.

## ALTERNATE FLUIDS

The use of fluids other than petroleum based antiwear R & O fluids requires that the maximum ratings of the motors be reduced. In some cases the minimum replenishment pressures must be increased. Contact Permco representative for more details.

## VISCOSITY

Max (cold start, low speed & pressure)	862mm <sup>2</sup> /s (cSt)
Max (full speed & pressure)	108mm <sup>2</sup> /s (cSt)
Optimum (max. life)	30mm <sup>2</sup> /s (cSt)
Min (full speed & pressure)	10mm <sup>2</sup> /s (cSt)

## VISCOSITY INDEX

90 min. Higher values extend range of operating temperatures, and life time.

Fluid temperature (0°) F max. 353(+80°C) min. 255(-18°C)

## FLUID CLEANLINESS

The fluid must be cleaned before and during operation to maintain contamination level of NAS 1638 class 8 (or ISO 18/4) or better. 25 micron normal filters may be adequate but do not guarantee the required cleanliness levels.

## REPLENISHMENT PRESSURE

The inlet port of the motor must be supplied with minimum replenishment pressure (see chart) to prevent cavitation during dynamic braking.

## SHAFT LOADS

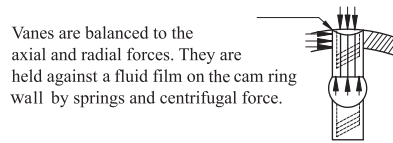
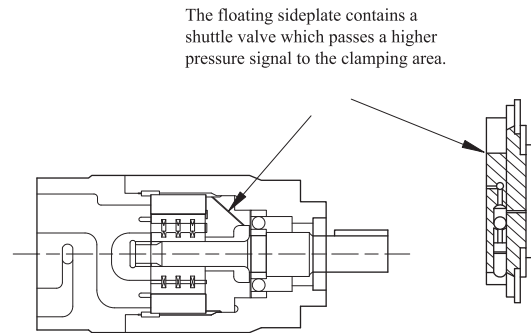
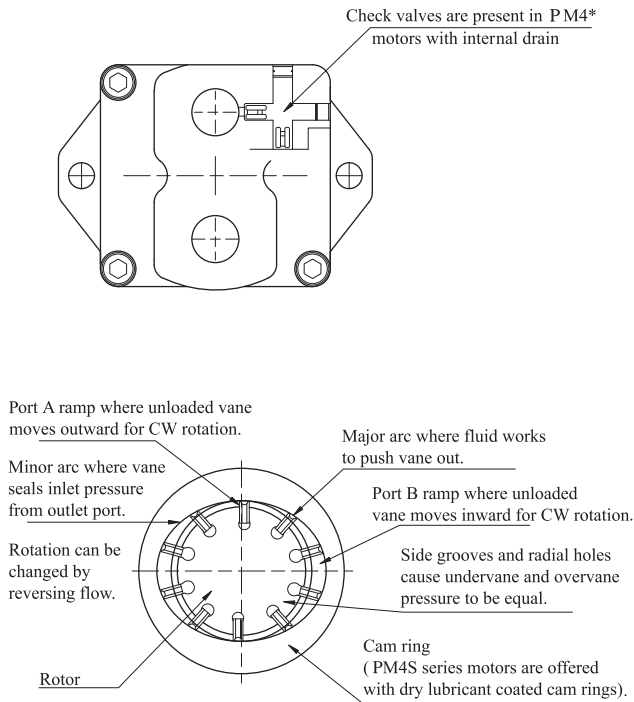
Axial or radial load are permissible. Both loads should not be applied simultaneously.

## OPERATING TEMPERATURES AND VISCOSITIES

Operating temperatures are a function of fluid viscosities, fluid type and the motors. Fluid viscosity should be selected to provide optimum viscosity at nominal operating temperatures. For cold starts, the motors should be operated at low speed and pressure until fluid warms up to an acceptable viscosity for full power operation.



# HIGH PERFORMANCE VANE MOTOR PM\*



Vanes are fitted in the slotted rotor slide radially and follow the elliptical contour of the cam ring and seal against it. The cam ring has two major and two minor radial sections joined by transitional sections called ramps. These contours and the pressures exposed to them are balanced diametrically.

Direction of shaft rotation is governed by the direction of fluid flow through the port connections located in the body cover. These motors are reversible by reversing flow to and from the ports.

Light springs urge the vanes radially against the cam contour assuring a seal at zero speed so the motor can develop starting torque. The springs are assisted by centrifugal force at higher speeds. Radial grooves and holes through the vanes equalize radial hydraulic forces on the vanes at all times. Fluid enters and leaves the motor cartridge through openings in the side plates at the ramps. Each motor port connects to two diametrically opposed ramps. Pressurized fluid entering at port A torques the rotor clockwise. The rotor transports it to the ramp openings which connect to port B from which it returns to the low pressure side of the system. Pressure at port B torques the rotor counterclockwise. The fluid film separates the rotor axially from the side port plate surfaces. The front side plate, clamped against the cam ring by this pressure, maintains optimum clearance to accommodate dimensional changes due to temperature and pressure. A 3-way shuttle valve in the side plate causes clamping pressure to equal the pressure in port A or B, whichever is higher.

## DESCRIPTION

Vane Motors have positive displacement, hydraulically balanced cartridge units, with drive speed dependent on the motor size and gpm delivery to the inlet port. The units are capable of operating at high speeds and high pressures, or higher speeds at lower pressures. These motors may be operated in either direction or rotation, reversed or stalled under load conditions without damage.

## PRINCIPLE OF OPERATION

The operating principle of a Single Vane Motor is illustrated in the figure above. Rotation of the motor shaft is caused by differential pressure across the motor exerting a force against the vanes. This force is in effect tangential to the rotor and causes the rotor to turn, carrying the motor shaft with it.

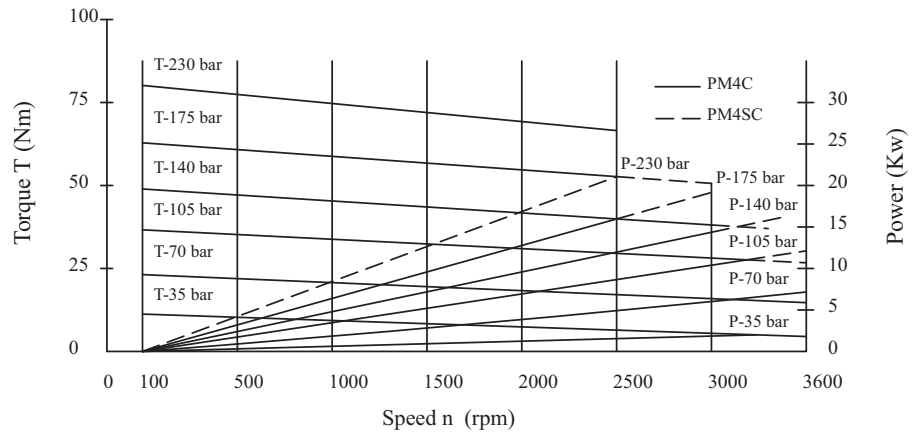
	Mounting Standard (SAE J477c ISO/3019-1 )	Weight		Option for inlet & outlet port SAE 4 bolt SAE threaded J781c ISO/DIS 6162-1	Moment of Inertia		
		lbs	Kgs		lbs.in <sup>2</sup>	Kg m <sup>2</sup> x 10 <sup>-4</sup>	
PM4C-PMC1	PM4SC-PM4SC1	SAE - B	34	15	1 "	2.7	7.9
PM4D-PMD1	PM4SD-PM4SD1	SAE - C	60	27	1 1/4 "	1.4	4.11
PM4E-PME1	PM4SE-PM4SE1	SAE - C	99	45	2 "	20.0	58.7



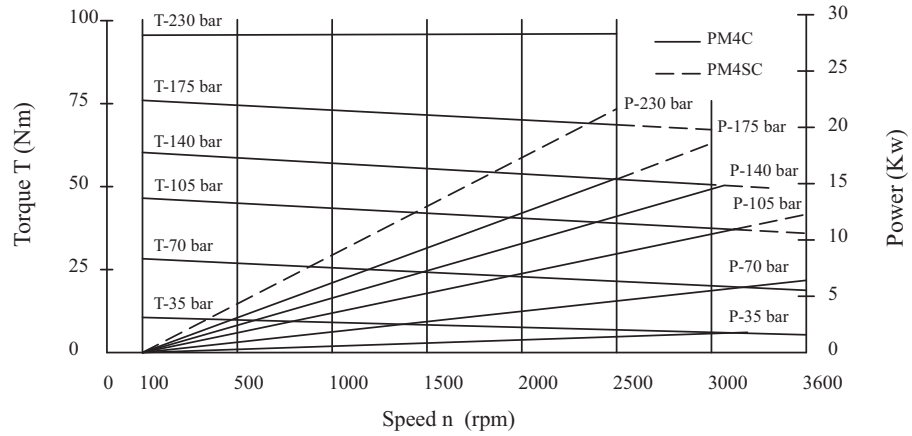


# PERFORMANCE CURVES OIL VISCOSITY 24 cSt (45° C)

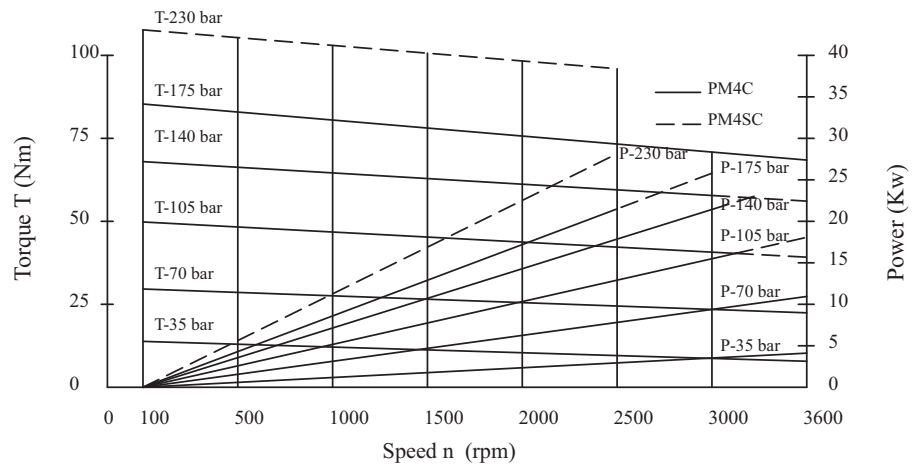
PM4C-024



PM4C-027



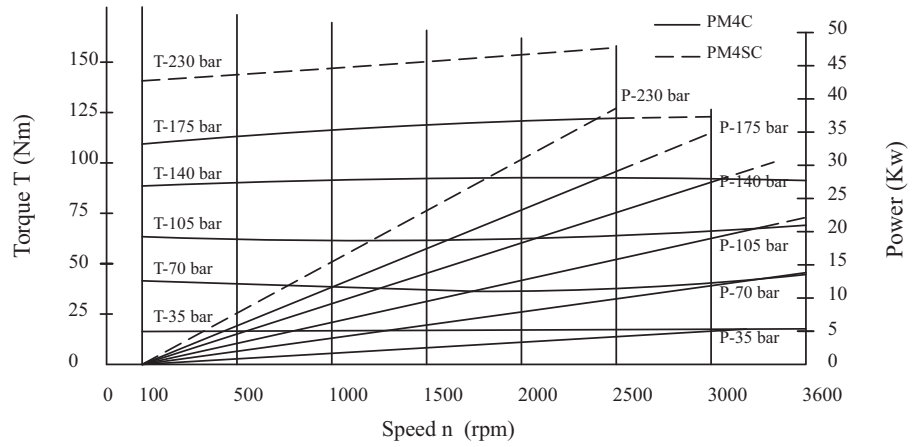
PM4C-031



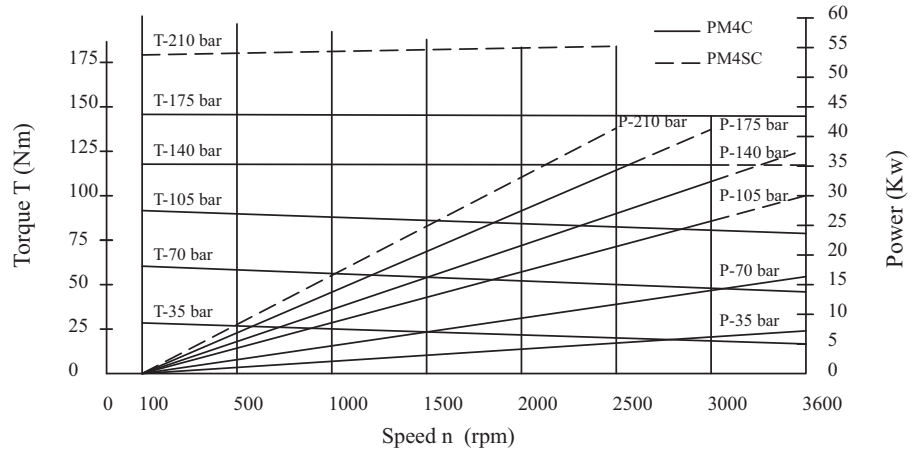


# PERFORMANCE CURVES OIL VISCOSITY 24 cSt (45° C)

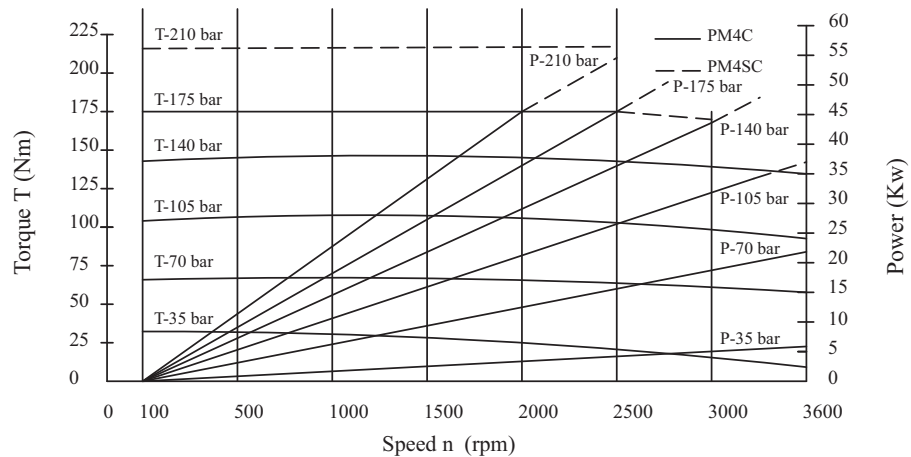
PM4C-043



PM4C-055



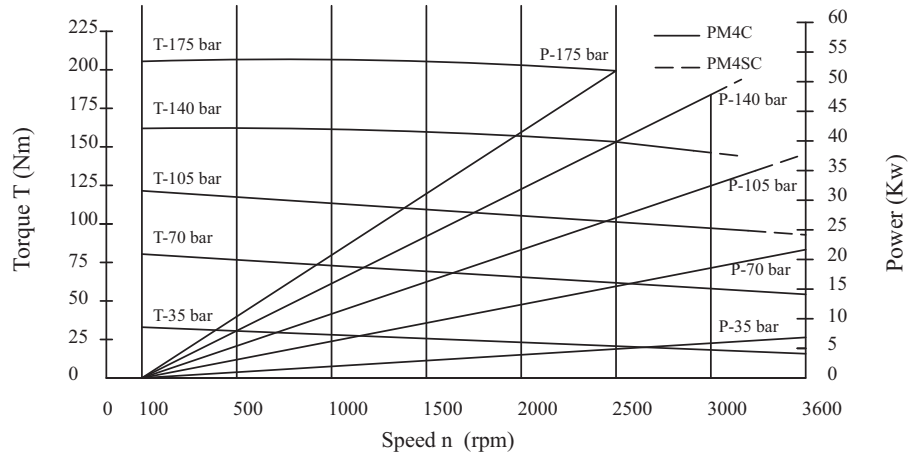
PM4C-067





# PERFORMANCE CURVES OIL VISCOSITY 24 cSt (45° C)

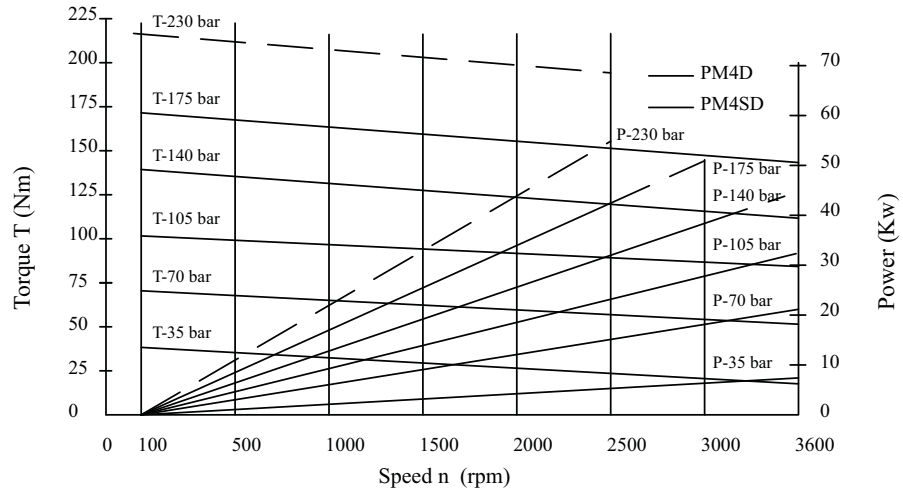
PM4C-075



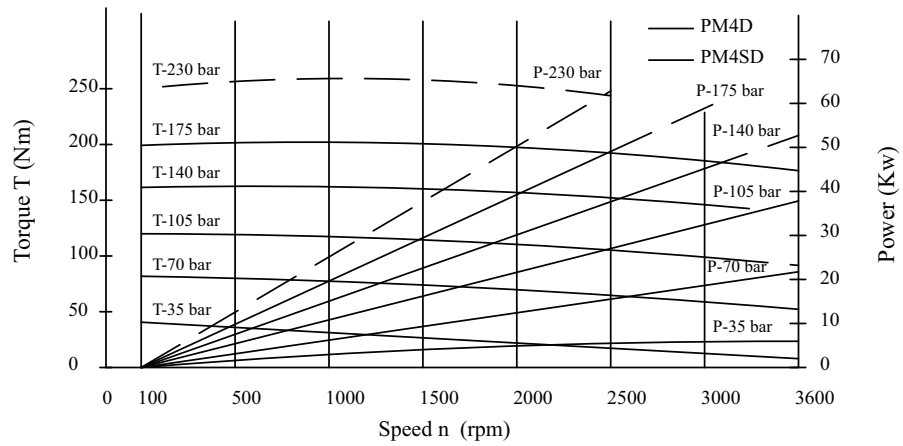


# PERFORMANCE CURVES OIL VISCOSITY 24 cSt (45° C)

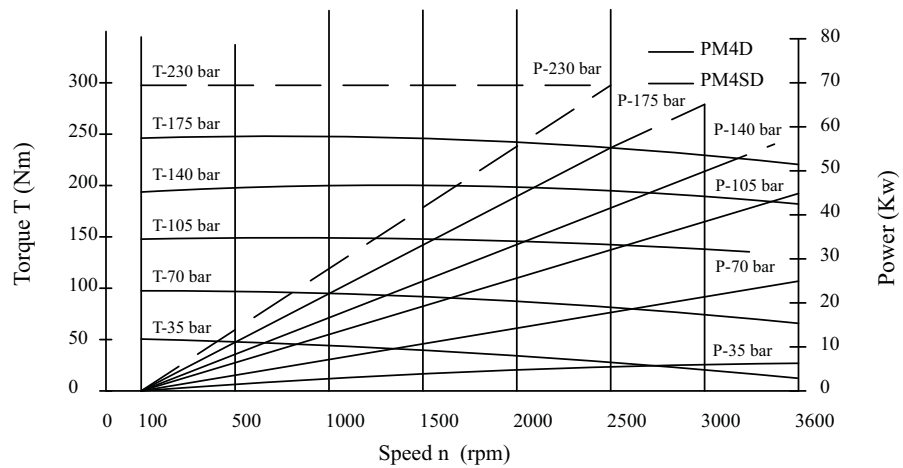
PM4D-062



PM4D-074



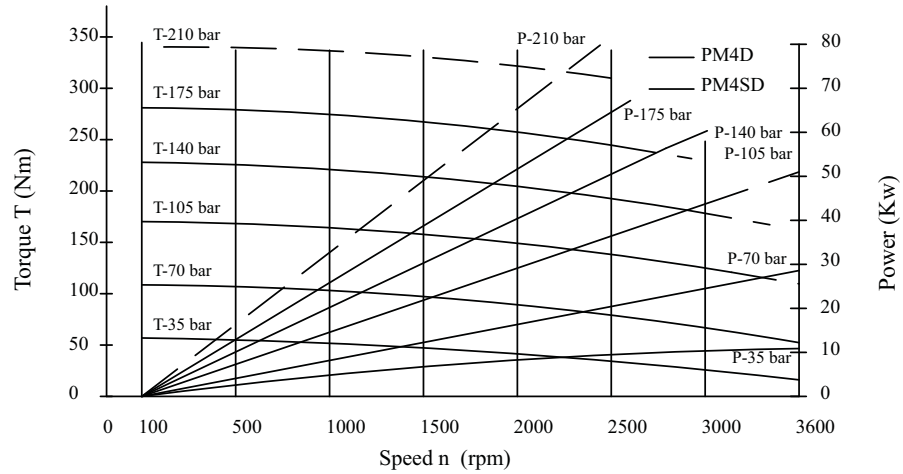
PM4D-088



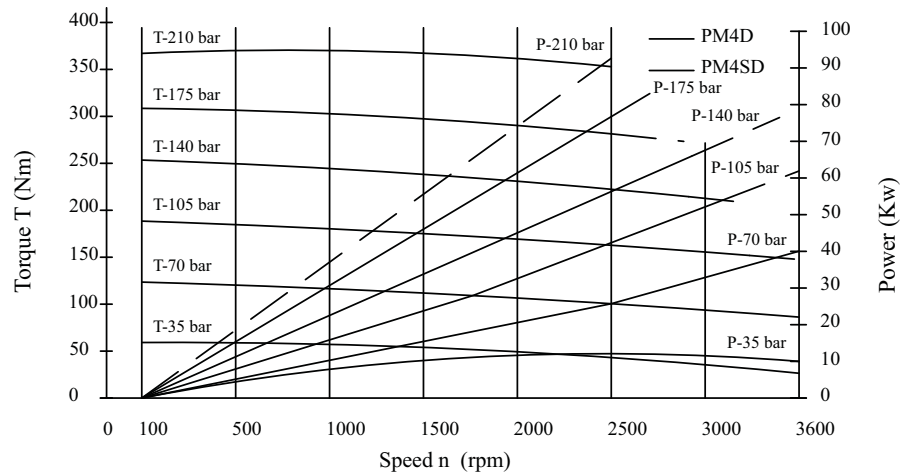


# PERFORMANCE CURVES OIL VISCOSITY 24 cSt (45° C)

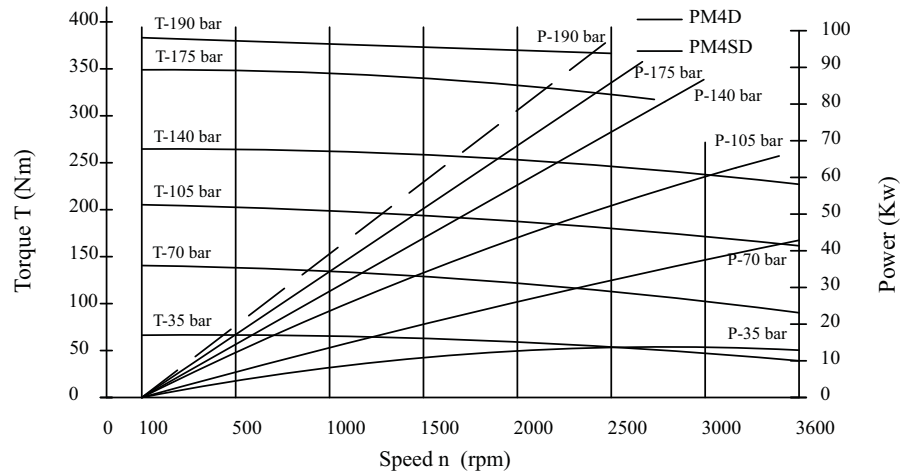
**PM4D-102**



**PM4D-113**



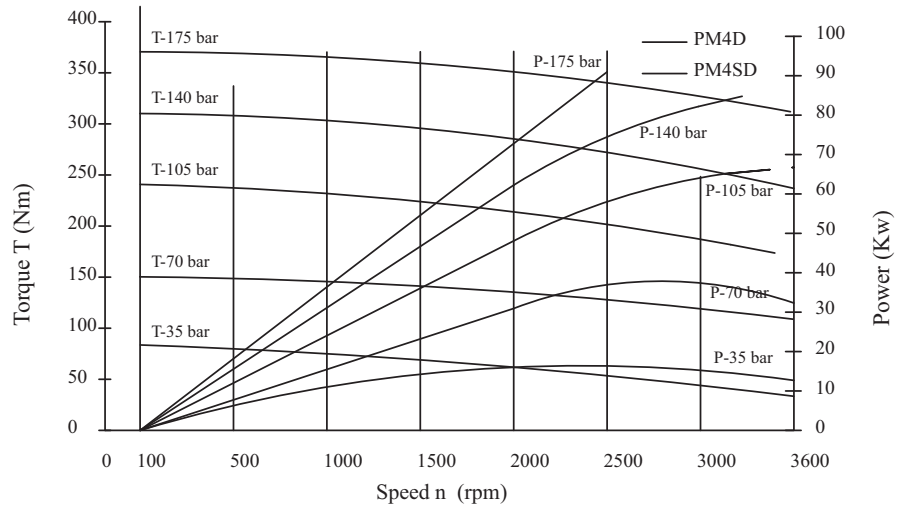
**PM4D-128**





# PERFORMANCE CURVES OIL VISCOSITY 24 cSt (45° C)

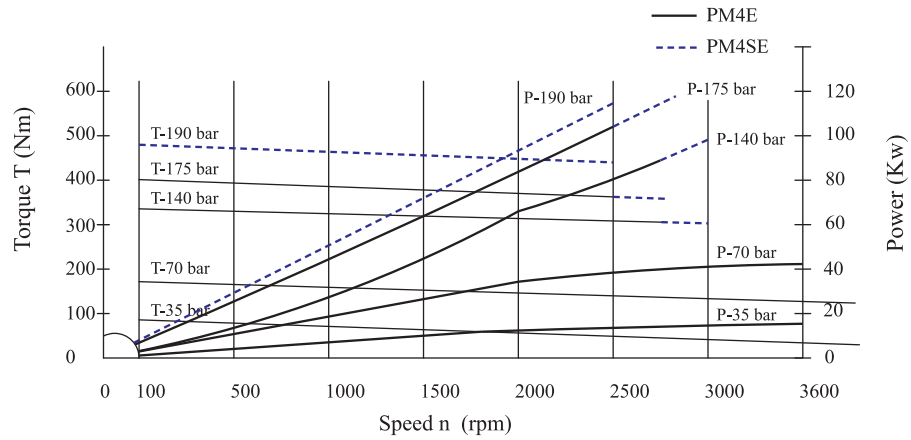
PM4D-138



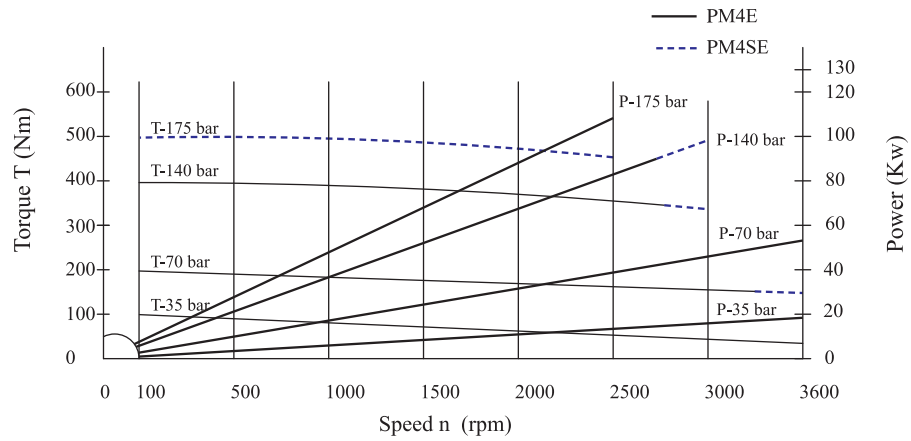


# PERFORMANCE CURVES OIL VISCOSITY 24 cSt (45° C)

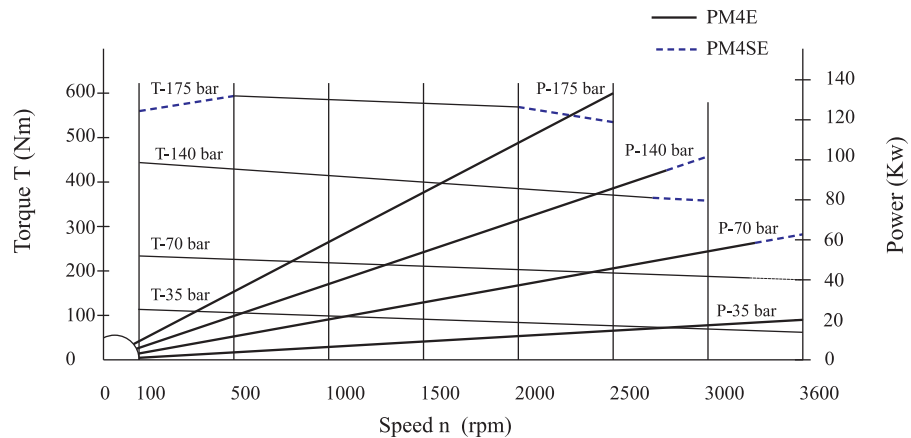
PM4E-153



PM4E-185



PM4E-214

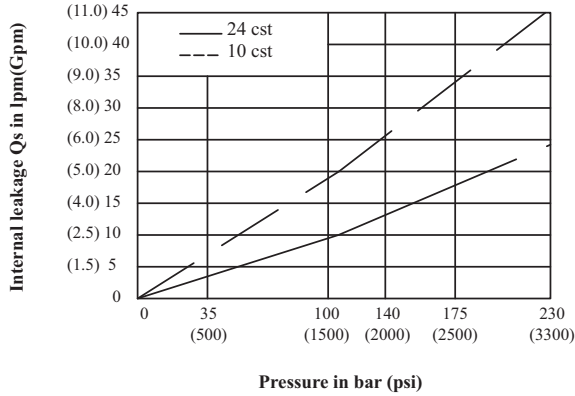




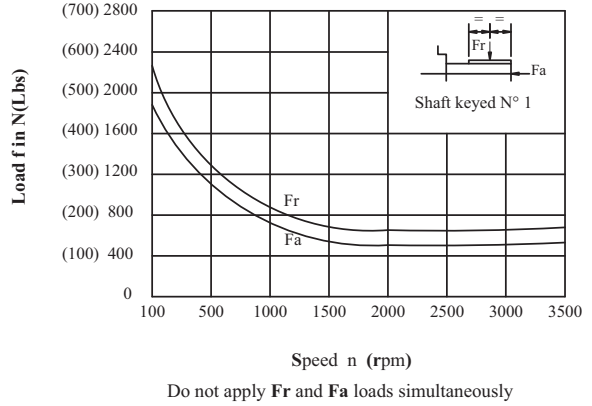
# INTERNAL LEAKAGE AND PERMISSIBLE RADIAL AND AXIAL LOADS OIL VISCOSITY 24 cSt (45 ° C)

## PM4C/PM4SC

INTERNAL LEAKAGE

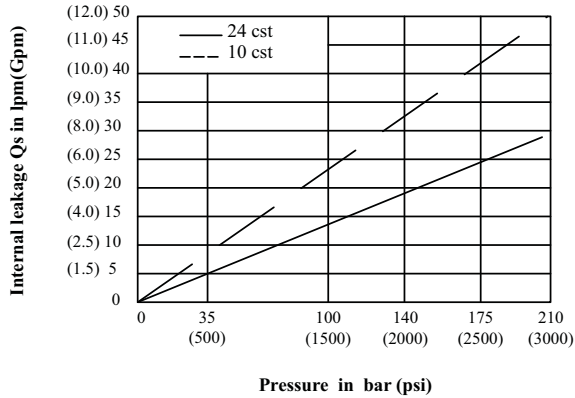


PERMISSIBLE RADIAL AND AXIAL LOADS

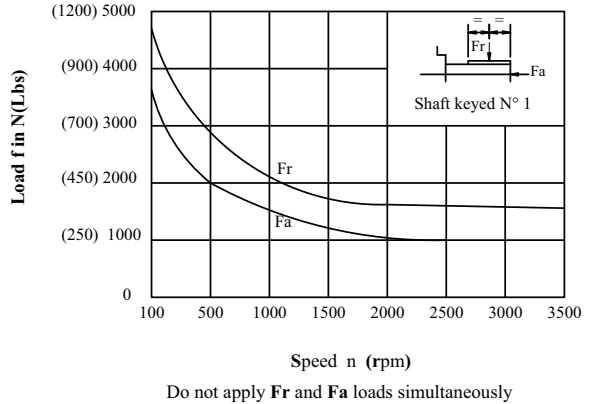


## PM4D/PM4SD

INTERNAL LEAKAGE

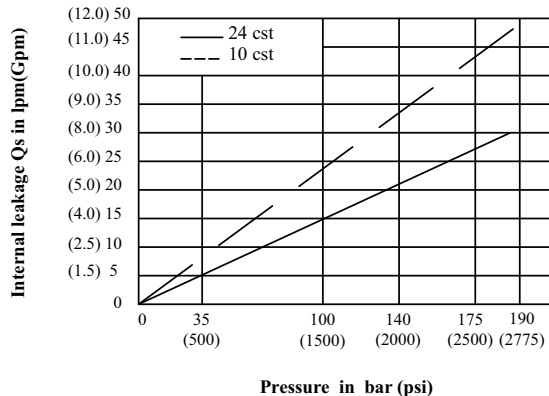


PERMISSIBLE RADIAL AND AXIAL LOADS

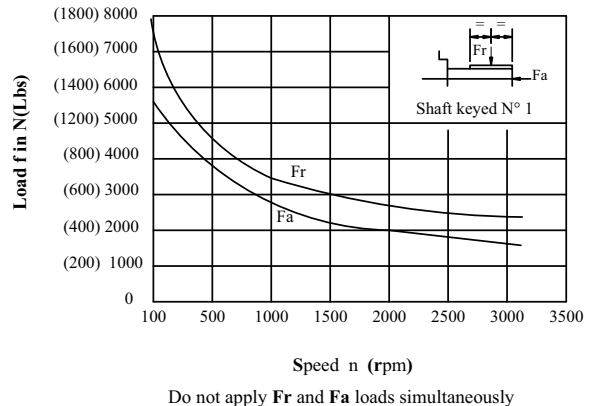


## PM4E/PM4SE

INTERNAL LEAKAGE



PERMISSIBLE RADIAL AND AXIAL LOADS







## MAXIMUM SPEED, PRESSURE RATINGS PM4\* SERIES

Series	Size	Displ	Maximum Pressure					Operating pressure range drain bar	Max. speed for low loaded condition 1) RPM	Max. speed for max. pressure ratings					
			HF-0 HF-2	HF-2A	HF-1	HF-3 HF-5	HF-4			HF-0, HF-2		HF-2A		HF-1	
			bar	bar	bar	bar	bar			Cont.	Int. 2)	Cont.	Int. 2)	Cont.	Int. 2)
PM4	C C1	024	175	175	175			3.5	4000	2500	3600	2500	3000	2000	2500
		027													
		031													
		043													
		055													
		067													
	075														
	SC SC1	024	230	230	175	175	140		4000	2500	3600	2500	3000	2000	2500
		027													
		031													
		043													
		055	210	210											
		067													
	075	175	175												
	D D1	062	175	175	140				4000	2500	3600	2500	2800	2000	2500
		074													
		088													
		102													
		113													
		128													
	138														
	SD SD1	062	230	190	140	140	140		4000	2500	3600	2500	2800	2000	2500
		074													
		088													
		102	210	190											
		113													
		128	190	190											
	138	175	175												
	E E1	153	175	175	140				3600	2500	3000	2500	2800	1800	2200
		185													
214															
SE SE1	153	190	175	140	140	140	3600	2500	3000	2500	2800	1800	2200		
	185	180													
	214	175													

1) Low loaded condition 35 bar for PM4 , 80 bar max. for PM4S

2) Intermittent speed - Do not exceed 6 seconds per minute of operation.

HF-0, HF-2 = Antiwear petroleum base. HF-2A = Crankcase. HF-1 = Non antiwear petroleum base. HF-5 = Synthetic fluids.

HF-3 = Water in oil emulsion. HF-4 = Water glycols.

Internal drain : All motors can be equipped with internal drains. The model numbers will be PM4C1, PM4SC1, PM4D1, PM4SD1, PM4E1, PM4SE1.



## MOTOR SELECTION PM4\*

### MOTOR CALCULATIONS

Required performance:  
 Torque: T (Nm) 140  
 Pump flow available  
 at 24 cSt: Qp (l/min) 115  
 Speed: n (RPM) 1500  
 Pressure: p (BAR) 175

1. Check that available power is compatible with required power (0.85 estimated overall efficiency).

$$0.85 \times \frac{Q_p \times p}{600} \geq \frac{T \times \pi \times n}{30 \times 1000}$$

$$0.85 \times \frac{115 \times 175}{600} \geq \frac{140 \times \pi \times 1500}{30 \times 1000}$$

$$28.5 > 22$$

### FORMULA AND EXAMPLE

Vi = Volumetric displacement (cm<sup>3</sup>/rev)  
 Qm = Actual flow used by motor (l/min)  
 Qs = Motor internal leakage (l/min)  
 Qp = Pump available flow (l/min)

Two ways to calculate:

2a. Calculate Vi from T required torque

$$V_i = \frac{20 \pi \times T}{p} = \frac{20 \pi \times 140}{175} = 50.26 \text{ cm}^3/\text{rev}$$

3a. Choose motor from Vi immediately greater than Vi calculated

PM4C-055 Vi = 58.8 cm<sup>3</sup>/rev (see page 91)

4a. Check motor pressure for

T = 140 Nm around 1500 RPM  
 PM4C-055 T = 140 Nm n = 1500 RPM  
 p = 163 BAR (see page 82)

5a. Flow loss PM4C-055 at 163 BAR at 24 cSt

Qs = 16 l/min (see page 88)

Real flow used by the motor:

$$Q_m = Q_p - Q_s = 115 - 16 = 99 \text{ l/min}$$

6a. Real speed of motor:

$$n = \frac{Q_m \times 1000}{V_i} = \frac{99 \times 1000}{58.8} = 1684 \text{ RPM}$$

Real performances:

Vi = 58.8 cm<sup>3</sup>/rev  
 n = 1684 RPM  
 T = 140 Nm  
 p = 163 BAR

} PM4C-055

2b. Calculate Vi from Qp available pump flow

$$V_i = \frac{1000 \times 115}{1500} = 76.6 \text{ cm}^3/\text{rev}$$

3b. Choose motor from Vi immediately less than Vi calculated

PM4C-067 Vi = 71.1 cm<sup>3</sup>/rev (see page 91)

4b. Check motor pressure with T = 140 Nm at 1500 RPM

PM4C-067 T = 140 Nm n = 1500 RPM  
 p = 140 BAR (see page 82)

5b. Flow loss PM4C-067 at 140 BAR at 24 cSt

Qs = 14 l/min (see page 88)

Real flow used by the motor:

$$Q_m = Q_p - Q_s = 115 - 14 = 101 \text{ l/min}$$

6b. Real speed of motor:

$$n = \frac{Q_m \times 1000}{V_i} = \frac{101 \times 1000}{71.1} = 1420 \text{ RPM}$$

Real performances:

Vi = 71.1 cm<sup>3</sup>/rev  
 n = 1420 RPM  
 T = 140 Nm  
 p = 140 BAR

} PM4C-067

*In each case always choose the smallest motor which will operate at the highest speed and pressure, and offers the most efficient solution.*

Throughout this catalog you will find dimensions, flows, power, pressures and loads in metric terms, to convert please use the following conversion guide.

To convert mm to inches divide by 25.4

To convert liters into gallons multiply by .2642

To convert bar to psi multiply by 14.5

10 cSt = 60 SUS and 24 cSt = 115 SUS

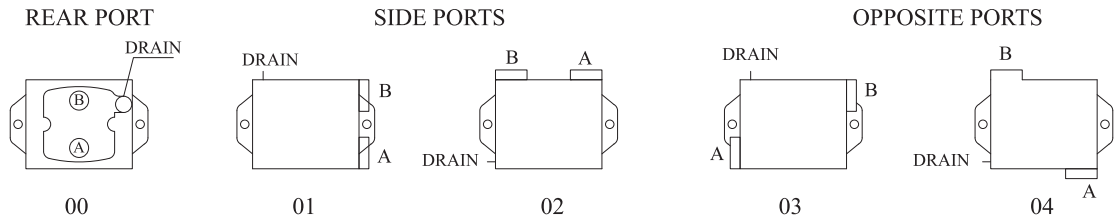
To convert KW to HP multiply by 1.341

To convert newtons to pounds force multiply by .2248

To convert cm<sup>3</sup>/rev to in<sup>3</sup>/rev divide by 16.387

PM4\*C1 \ PM4\*C - 055 - 1 N 00 - A 1 02 \*

- ① **Series internal drain**
- ② **Series external drain**  
PM4\*C1/PM4\*C - SAE-B 2-Bolt Mount
- ③ **Torque**  
024 = 0.24 in.lb/PSI (0.39 Nm/bar)  
027 = 0.28 in.lb/PSI (0.45 Nm/bar)  
031 = 0.33 in.lb/PSI (0.55 Nm/bar)  
043 = 0.45 in.lb/PSI (0.74 Nm/bar)  
055 = 0.57 in.lb/PSI (0.93 Nm/bar)  
067 = 0.69 in.lb/PSI (1.13 Nm/bar)  
075 = 0.78 in.lb/PSI (1.27 Nm/bar)
- ④ **Type of shaft**  
1 = Keyed (SAE B)  
2 = Keyed (No SAE)  
3 = Splined (SAE B)
- ⑤ **Rotation**  
N - Bi-directional  
\*S = Severe duty motor  
PM4C - PM4SC  
  
**View from shaft end**  
CW rotation    A = inlet    B = outlet  
CCW rotation    A = outlet    B = inlet
- ⑥ **Porting combination**  
00 = standard
- ⑦ **Design letter**
- ⑧ **Seal class**  
1 = HNBR
- ⑨ **Port connections**  
01 = SAE threaded port  
    SAE drain  
02 = SAE 4 bolt flange  
    UNC threaded - SAE drain  
04 = SAE 4 bolt flange  
    UNC threaded - BSPP drain  
M4 = SAE 4 bolt flange  
    metric threaded - BSPP drain
- ⑩ **Modifications**

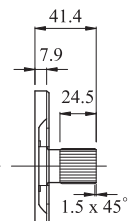
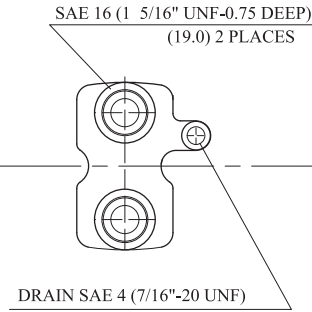
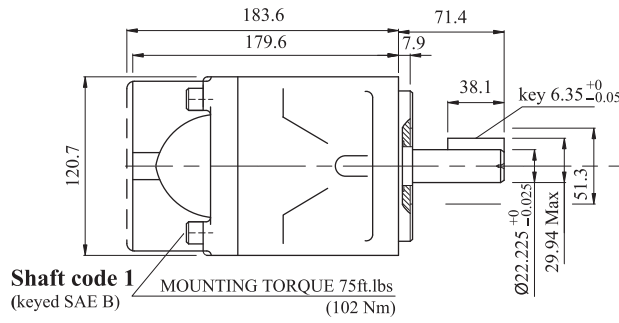


**Porting combination**

**OPERATING CHARACTERISTICS - TYPICAL 115 Sus (24 cSt)**

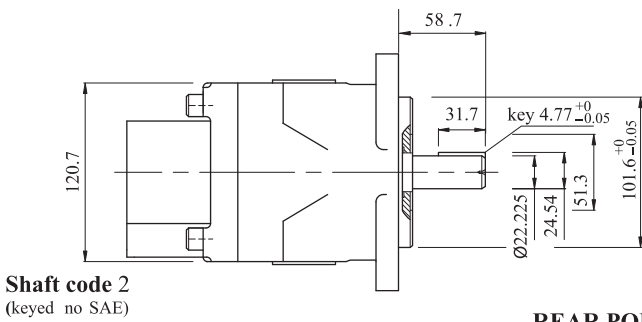
Model	Series	Volumetric Displacement Vi		Input flow at n = 2000 rpm		Torque T at n = 2000 rpm	Power output at n = 2000 rpm
		in <sup>3</sup> /rev	(cm <sup>3</sup> /rev)	Theoretical gpm (lpm)	2500 psi (175 bar) Δp gpm (lpm)	2500 psi (175 bar) Δp in.lbs (Nm)	2500 psi (175 bar) Δp HP (KW)
PM4C	024	1.49	( 24.4 )	12.94 ( 49.0 )	17.70 ( 67.0 )	535.40 ( 60.5 )	17.03 ( 12.7 )
	027	1.72	( 28.2 )	14.79 ( 56.0 )	19.55 ( 74.0 )	619.47 ( 70.0 )	19.71 ( 14.7 )
	031	2.11	( 34.5 )	18.23 ( 69.0 )	22.98 ( 87.0 )	768.14 ( 86.8 )	24.14 ( 18.0 )
	043	2.84	( 46.5 )	24.57 ( 93.0 )	29.32 ( 111.0 )	1061.95 ( 120.0 )	33.66 ( 25.1 )
PM4SC	055	3.59	( 58.8 )	31.17 ( 118.0 )	35.93 ( 136.0 )	1318.59 ( 149.0 )	41.84 ( 31.2 )
	067	4.34	( 71.1 )	37.51 ( 142.0 )	42.27 ( 160.0 )	1504.43 ( 170.0 )	47.74 ( 35.6 )
	075	4.89	( 80.1 )	42.27 ( 160.0 )	47.02 ( 178.0 )	1752.22 ( 198.0 )	55.65 ( 41.5 )

# PM4C Dimensional Drawing

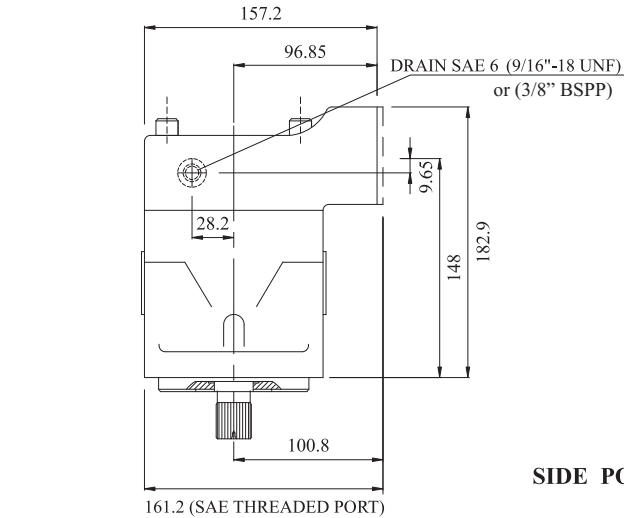
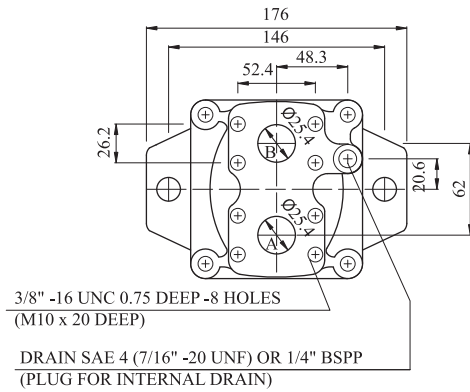


**Shaft code 3**  
SAE B splined shaft  
Class 1 - J498b  
16/32 dp. 13 teeth  
30° pressure angle  
flat root side fit

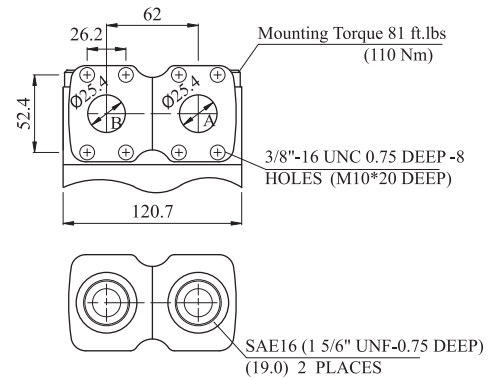
## SAE THREADED PORT



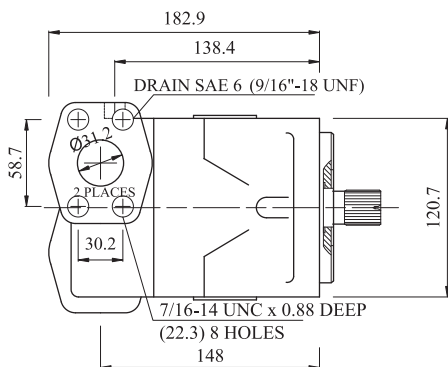
## REAR PORTS



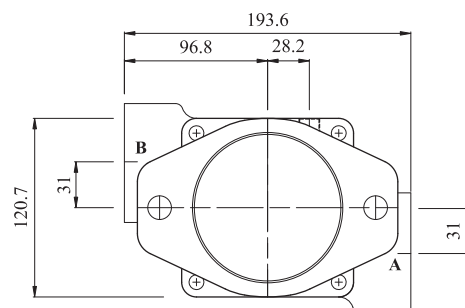
## SIDE PORTS



## SAE THREADED PORT



## OPPOSITE PORTS

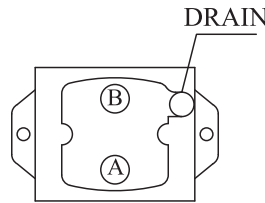


PM4\*D1 \
PM4\*D
- 138
- 1
N
00
- B
1
02
\*

- ① **Series internal drain**
- ② **Series external drain**  
PM4\*D1/PM4\*D - SAE-C 2 & 4 Bolt Mount
- ③ **Torque**  
062 = 0.63 in.lb/PSI (1.04 Nm/bar)  
074 = 0.75 in.lb/PSI (1.22 Nm/bar)  
088 = 0.88 in.lb/PSI (1.45 Nm/bar)  
102 = 0.96 in.lb/PSI (1.68 Nm/bar)  
113 = 1.13 in.lb/PSI (1.86 Nm/bar)  
128 = 1.28 in.lb/PSI (2.11 Nm/bar)  
138 = 1.40 in.lb/PSI (2.30 Nm/bar)
- ④ **Type of shaft**  
1 = Keyed (SAE C)  
3 = Splined (SAE C)  
S = Splined (SAE J718C)
- ⑤ **Rotation**  
N = Bi-directional  
  
\*S = Severe duty motor  
PM4D -PM4SD
- ⑥ **Porting combination**  
00 = standard
- ⑦ **Design letter**
- ⑧ **Seal class**  
1 = HNBR
- ⑨ **Port connections**  
01 = SAE threaded port  
SAE drain  
02 = SAE 4 bolt flange  
UNC threaded - SAE drain  
04 = SAE 4 bolt flange  
UNC threaded - BSPP drain  
M4 = SAE 4 bolt flange  
metric threaded - BSPP drain
- ⑩ **Modifications**

**View from shaft end**

CW rotation    A = inlet    B = outlet  
CCW rotation    A = outlet    B = inlet



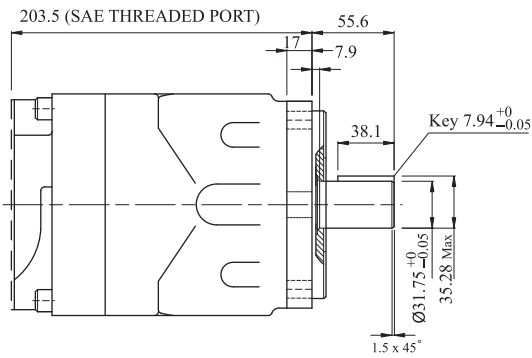
**Porting combination**

00 = standard

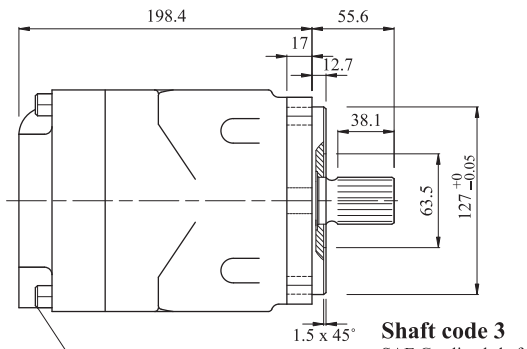
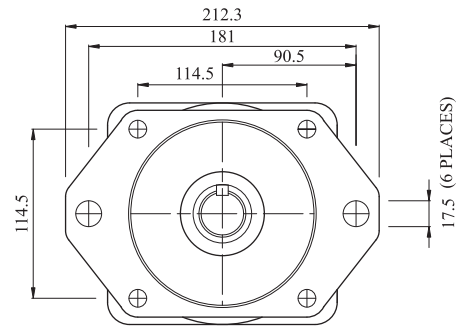
00

**OPERATING CHARACTERISTICS - TYPICAL 115 Sus (24 cSt)**

Model	Series	Volumetric Displacement Vi		Input flow at n = 2000 rpm			Torque T at n = 2000 rpm		Power output at n = 2000 rpm		
		in <sup>3</sup> /rev	cm <sup>3</sup> /rev	Theoretical gpm	Theoretical (lpm)	2500 psi (175 bar) Δ p gpm	2500 psi (175 bar) Δ p (lpm)	2500 psi (175 bar) Δ p in.lbs	2500 psi (175 bar) Δ p (Nm)	2500 psi (175 bar) Δ p HP	2500 psi (175 bar) Δ p (KW)
PM4D	062	3.97	( 65.1 )	34.34	( 130.0 )	40.68	( 154.0 )	1460.18	( 165.0 )	46.40	( 34.6 )
	074	4.69	( 76.8 )	40.68	( 154.0 )	47.02	( 178.0 )	1769.92	( 200.0 )	56.19	( 41.9 )
	088	5.56	( 91.1 )	48.08	( 182.0 )	54.42	( 206.0 )	2088.50	( 236.0 )	66.25	( 49.4 )
PM4SD	102	6.44	( 105.5 )	55.74	( 211.0 )	63.67	( 241.0 )	2336.29	( 264.0 )	74.16	( 55.3 )
	113	7.12	( 116.7 )	61.55	( 233.0 )	67.89	( 257.0 )	2654.88	( 300.0 )	84.22	( 62.8 )
	128	8.08	( 132.4 )	70.01	( 265.0 )	76.35	( 289.0 )	3008.86	( 340.0 )	95.48	( 71.2 )
	138	8.81	( 144.4 )	76.35	( 289.0 )	82.69	( 313.0 )	3292.05	( 372.0 )	104.47	( 77.9 )

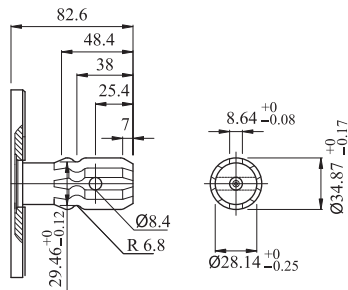
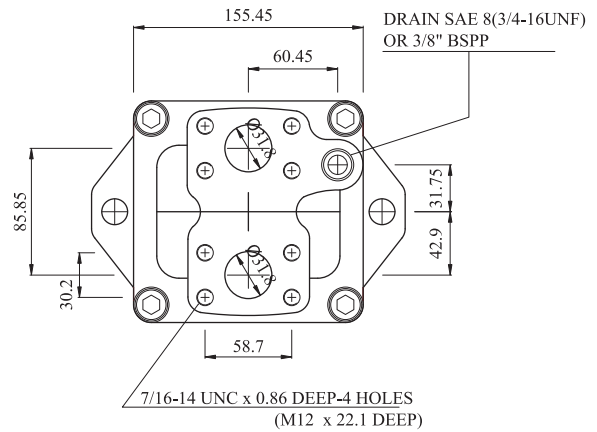


**Shaft code 1**  
(keyed SAE C)

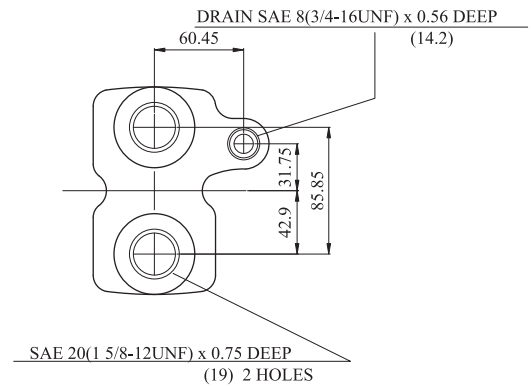


MOUNTING TORQUE 133ft.lbs  
(180 Nm)

**Shaft code 3**  
SAE C splined shaft  
Class 1 -J498b  
12/24 dp, 14 teeth  
30° pressure angle  
flat root side fit



**Shaft code S**  
SAE J718C  
540 rpm power take-off  
For FarmTractor application



**SAE THREADED PORT**

PM4\*E1 \ PM4\*E - 214 - 1 N 00 - B 5 02 \*

①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩

① **Series internal drain**

② **Series external drain**

PM4\*E1/PM4\*E - SAE-C 2 & 4 Bolt Mount

③ **Torque**

153 = 1.54 in.lb/PSI (2.52 Nm/bar)

185 = 1.86 in.lb/PSI (3.05 Nm/bar)

214 = 2.16 in.lb/PSI (3.53 Nm/bar)

④ **Type of shaft**

1 = Keyed (SAE C)

3 = Splined (SAE C)

⑤ **Rotation**

N = Bi-directional

\*S = Severe duty motor

PM4E - PM4SE

**View from shaft end**

CW rotation    A = inlet    B = outlet

CCW rotation    A = outlet    B = inlet

⑥ **Porting combination**

00 = standard

⑦ **Design letter**

⑧ **Seal class**

1 = HNBR

⑨ **Port connections**

01 = SAE threaded port

SAE drain

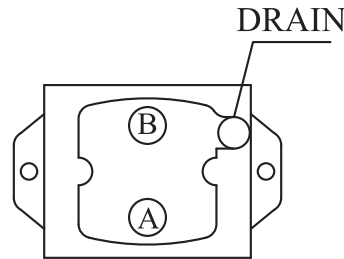
02 = SAE 4 bolt flange

UNC threaded - SAE drain

04 = SAE 4 bolt flange

UNC threaded - BSPP drain

⑩ **Modifications**



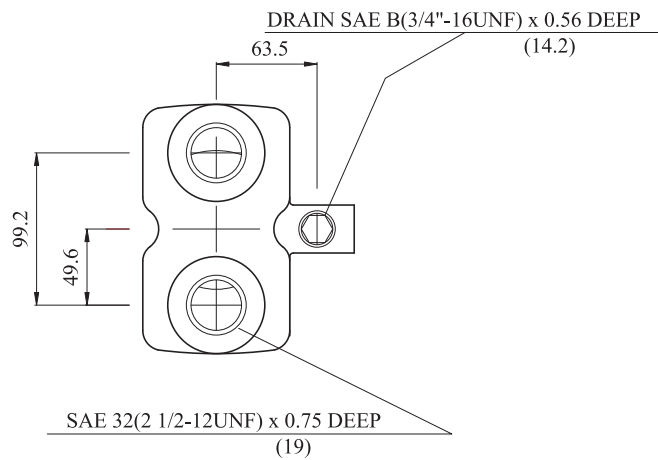
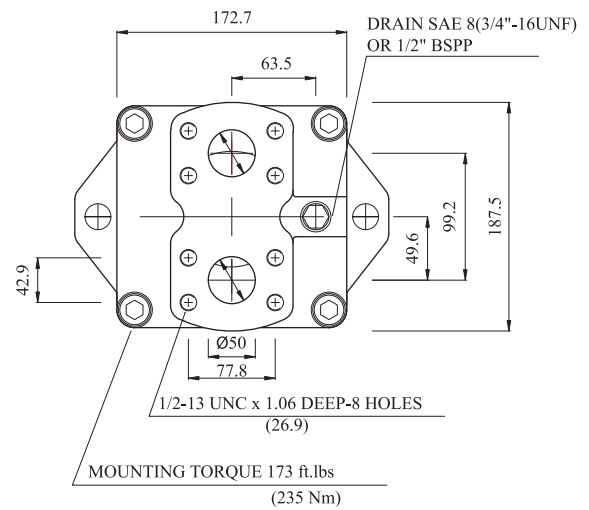
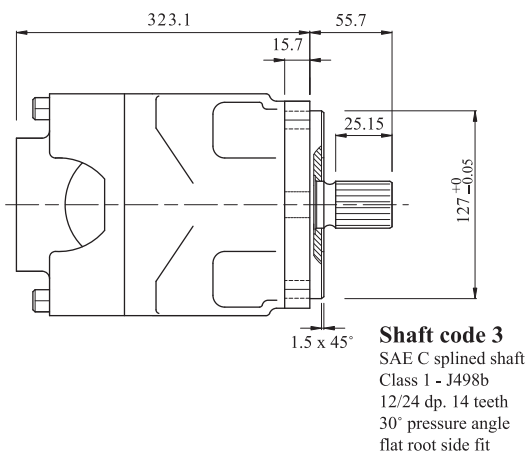
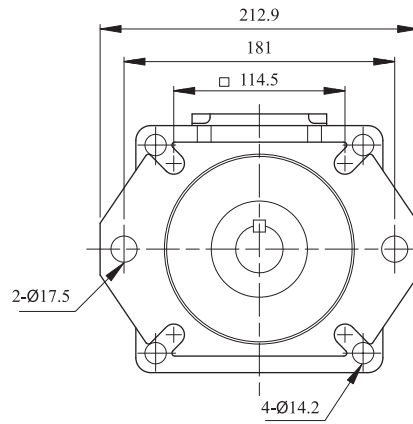
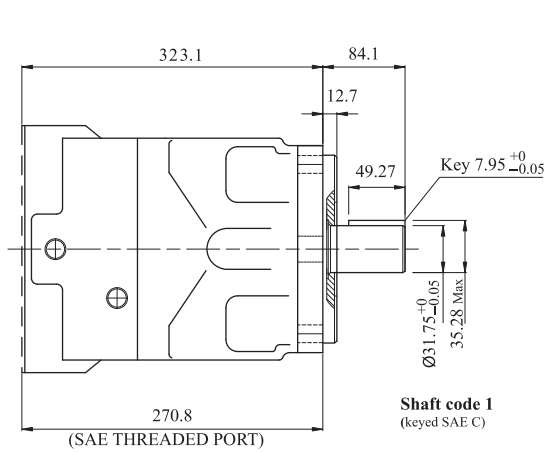
00

## Porting combination

00 = standard

### OPERATING CHARACTERISTICS - TYPICAL 115 Sus (24 cSt)

Model	Series	Volumetric Displacement $V_i$		Input flow at $n = 2000$ rpm		Torque $T$ at $n = 2000$ rpm		Power output at $n = 2000$ rpm			
		in <sup>3</sup> /rev	cm <sup>3</sup> /rev	Theoretical gpm	(lpm)	2500 psi (175 bar) $\Delta p$ gpm	(lpm)	2500 psi (175 bar) $\Delta p$ in.lbs	(Nm)	2500 psi (175 bar) $\Delta p$ HP	(KW)
PM4E	153	9.67	( 158.5 )	83.58	( 316.4 )	90.61	( 343.0 )	3522.14	( 398.0 )	111.84	( 83.4 )
	185	11.69	( 191.6 )	101.05	( 382.5 )	108.05	( 409.0 )	4283.20	( 484.0 )	135.98	( 101.4 )
PM4SE	214	13.55	( 222.0 )	117.13	( 443.4 )	124.16	( 470.0 )	5017.72	( 567.0 )	159.31	( 118.8 )



**SAE THREADED PORT**





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