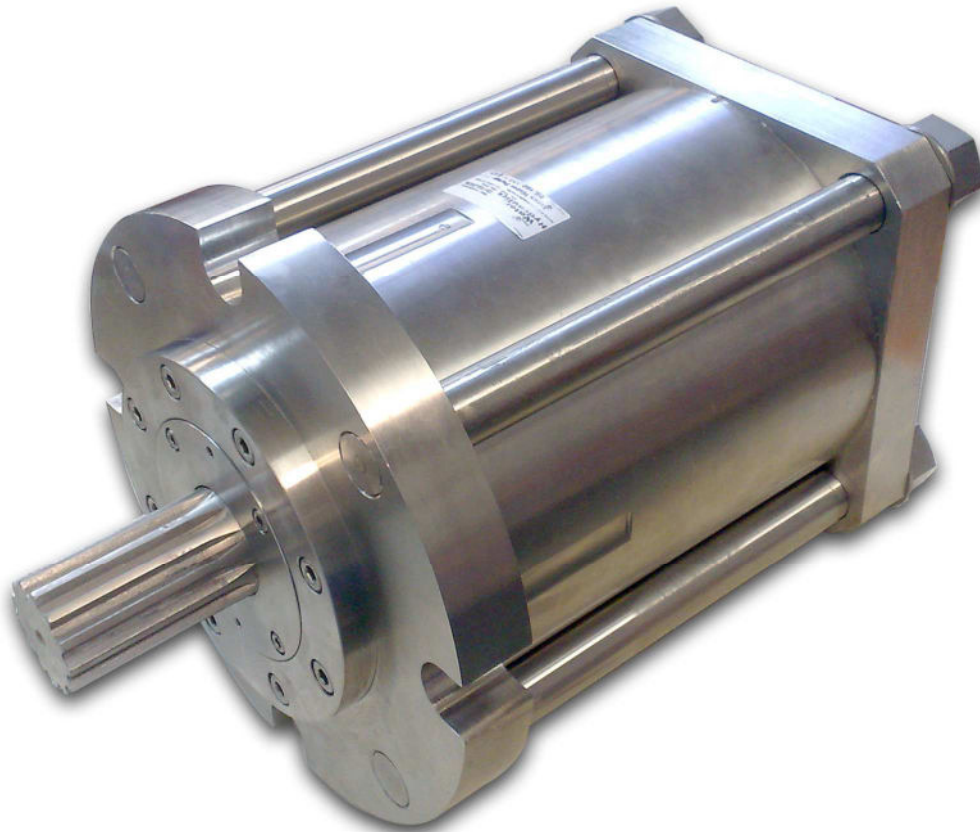


Janus

Pumps – Axial Piston

The
Water
Hydraulics
Co. Ltd.



Our Janus Axial Piston Pumps are totally oil free, clean and completely safe to use. As a result of employing advanced materials, high velocity and loaded sliding surfaces, the range of pumps can operate effectively with water as their only coolant/lubricant; therefore, this removes the potential for cross contamination of the system fluid or lubricating oil. Each pump employs technology that minimises vibration and ensures a low noise yet high efficiency operation. The result is an exceptionally small, light-weight product.

Manufactured in 316 stainless steel as standard, the product offers excellent resistance to corrosive fluids. The materials utilised internally can be selected to suit the most appropriate combinations for not just tap water but also sea water and various other fluids.

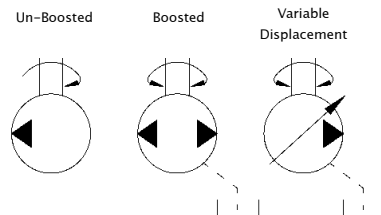
Minimal pulsation is experienced with these units due to the multiple piston design and the high operational speeds. Accurate flow metering is simply achieved with the control of the output shaft speed.

ASSEMBLY ORDERING CODE

NOTE: Variable Pumps are only available in P60 and P180 size. see Variable Pump Data sheet for control options



Circuit Symbols



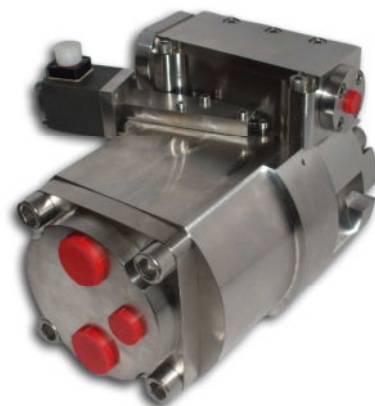
Unit Type		Operating Pressure		Displacement			Fluid		Shaft Seal	
*		*	(Bar)	*	(cc/rev)		*		*	
PA	Pump Anti-Clockwise			0.8	0.8	P1	W	Tap Water	MS	Mech. Seal
PB	Pump Boosted			1.2	1.2		S	Sea Water	-	Std lip seal
PC	Pump Clockwise	010	10	3.0	3.0	P3	T	Technical Water		
PV	Pump Variable**	Min	...	4.6	4.6	P6	O	Other*		
PPC	Power Pack Pump	...	...	6.0	6.0			(*Please Specify)		
	Clockwise	160	160	10	10.0	P15				
	(**P60 & P180 only)	Max		15	15.0					
				19	19.0					
				23	23.0	P30				
				30	30.0					
				35	35.0					
				51	51.0	P60				
				63	63.0					
				70	70.0					
				134	134.0	P180				
				180	180.0					
				225	225.0					

Example

- A pump operating at 100 Bar on tap water fed from a reservoir with a positive head. Shaft rotation clockwise (viewed on shaft end) with a displacement of 6cc

Ordering Code

PC100-6.0W



NOTES :

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FM 87247

SPECIFICATION

Pump		P1	P3	P6	P15	P30	P60	P180
Displacement cc/rev:	Max:	1.2	3	6	19	35	70.3	225
	Min:	0.8	3	4.6	12	20	35	135
Max. RPM:	Unboosted:	2000	1800	1800	1800	1800	1800	1800
	Boosted*:	–	2000	2000	2000	2000	2000	2000
Max. input power (kW)		0.55	1.75	3.8	11	19.5	42	114
Max. water flow (l/min)		2.4	6.0	12	37.2	66	146	430
Max cont. pressure (Bar)		100	160	160	160	160	160	160
Weight (kg)		1.5	1.9	2.2	6	10	19	82
Temperature (°C):	Max**:	90	90	50	50	50	50	50
	Min***:	2	2	2	2	2	2	2

* Pump speeds above 2000rpm are possible under higher boost conditions, consult TWHC ** Higher temperature operation is possible, consult TWHC for details

Motor Pump Assemblies

A standard range of bell housings and couplings are available for connecting the pumps to the B5 electric motor flange. See Pick A Pack Data sheet for further information on potential combinations. The pumps are not capable of operating with induced axial or radial loads on the output shaft. Always adopt the use of a 3 part gear style coupling where possible. If the drive shaft/spigot location is within 0.05mm concentricity, direct inline drive assemblies are permissible.

Temperature

The units will generate full performance from 2°C to 50°C (smaller units to 90°C). For temperatures below freezing, an environmentally friendly antifreeze is available; ask for the Monopropylene Glycol datasheet. Operation above 50°C is possible, but the volumetric efficiency of the unit will be affected. Consult TWHC and specify the maximum operating temperature.

Filters

All incoming water to the motors must be pre-filtered to a nominal rating of 10µm (25µm absolute) with a filter element rating of $\beta_{10} = 75$ or better. Return line filtration is advisable on closed loop systems. High pressure filtration may also be considered but due to the employment of stainless steel housings is an expensive option. See data sheet for system component protection

Fluid

Use water of drinking water quality conforming to the EEC-directive 80/778/EEC or consult TWHC if unsure of water quality.

The standard product operates happily on Technical water i.e. Distilled, RO water or Demineralised however the seal material or construction may change with environment. Please specify operating fluid on orders.

The pumps also operate on Non flammable fluids such as Glycol 95/5 mixtures. Internal clearances must be adjusted when functioning on such fluid so once again it is important to specify the exact fluid on all orders.

The standard construction will operate on sea water. However due to the increased corrosion potential of the fluid a more noble material construction may be required for long term operation. Consult TWHC with applications data for further information.

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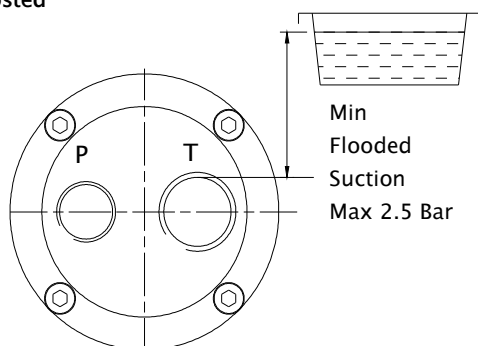
INLET CONDITIONS

The Pumps are available in 2 designs either 2 port Unboosted or 3 port boosted configuration.

2 Port Design

Predominantly used in power pack application where the supply water is fed to the pump from a low pressure source i.e. local tank or water mains with very low supply pressure. This design of pump can not lift water and the inlet pressure **must** be positive at all times. The pipework must be sized to ensure that, even under minimum head conditions, the water pressure is still positive at the inlet. Failure to ensure this can result in pump premature failure. A simple check is to remove the pump inlet hose and measure the flow into a bucket, providing the flow rate is 20% over the maximum flow of the pump when the tank is at the lowest level, therefore ensuring the inlet has positive pressure under dynamic conditions.

Un-boosted



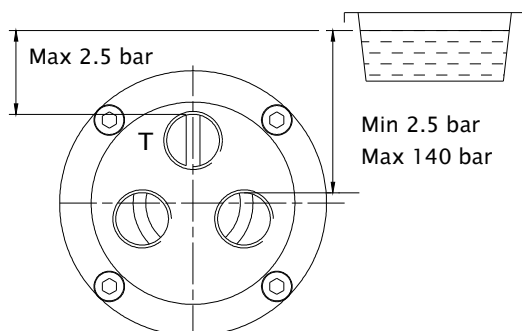
Do not place a filter between tank and pump unless a pressure switch protecting against negative pressure is fitted. Filter all water upon entry to the tank. All supply pipe work to be a maximum diameter and minimum length

The ports are clearly marked P (pressure) and T (tank) do not reverse or turn the shaft in the wrong direction or failure will result.

3 Port Design

When water is fed to the pump at a minimum of 2.5 bar by either a very high pressure water main, a head or column of water in excess of 25m in height, or by an external boost pump, the 3 port design of unit should be incorporated. It separates the inlet water of the pump from the internal leakage water which must be piped away to as low a pressure sump or drain as possible. Low casing pressure will prolong the shaft seals life and prevent low pressure cavitation issues. The minimum case pressure and maximum inlet pressure is desired, a minimum positive inlet pressure of 2.0 bar above T pressure is required at all times

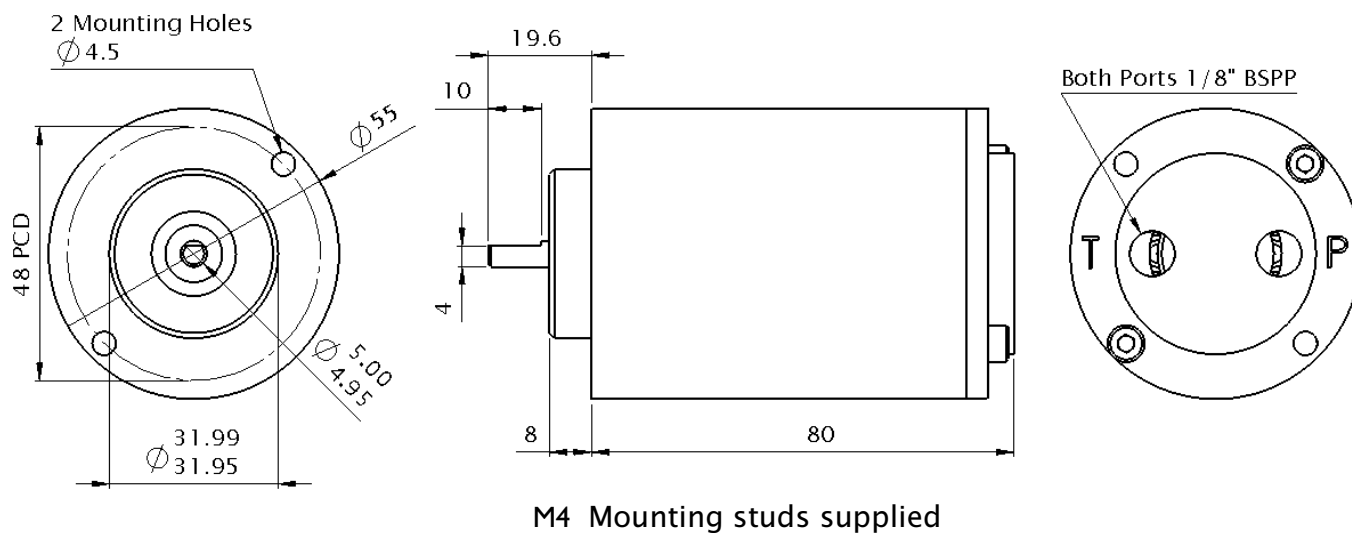
Boosted



Boosted pumps can rotate in either direction. Inlet and outlet ports change according to shaft rotation. Max. casing pressure 2.5 bar. Max inlet pressure 160 bar

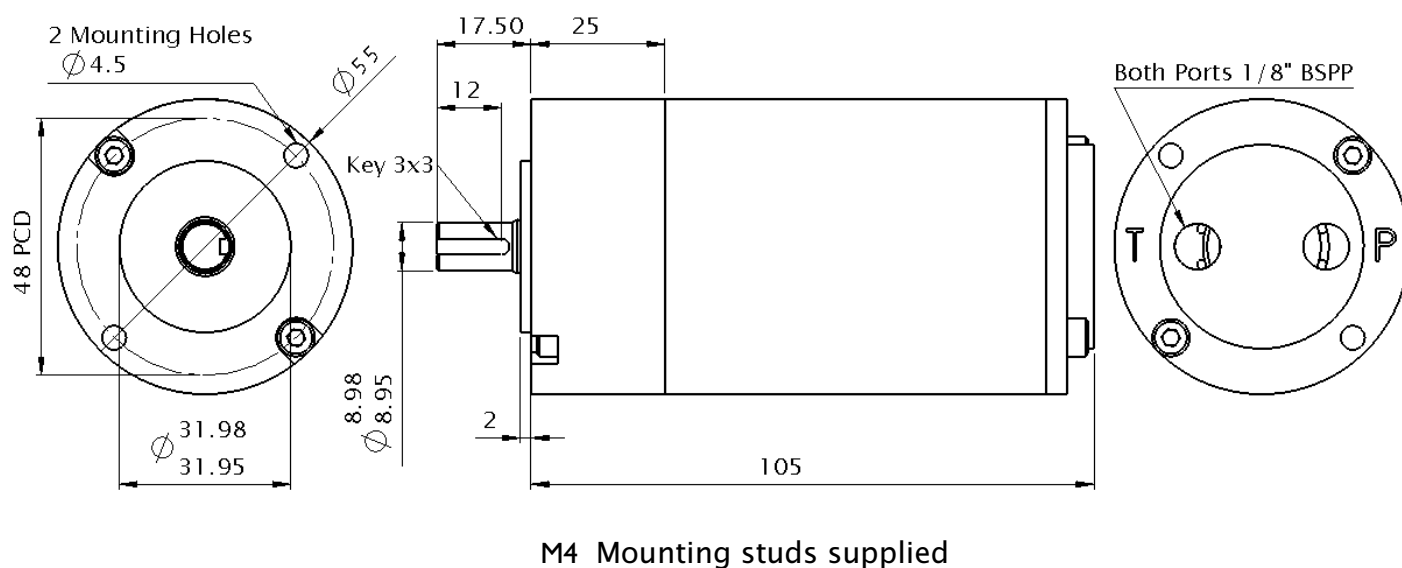
PC100-0.8W

PC100-1.2W



PC100-0.8WMS

PC100-1.2WMS



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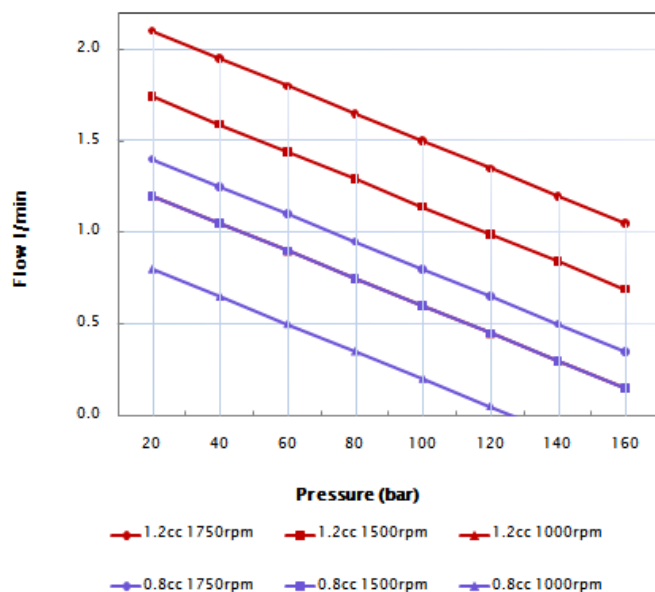
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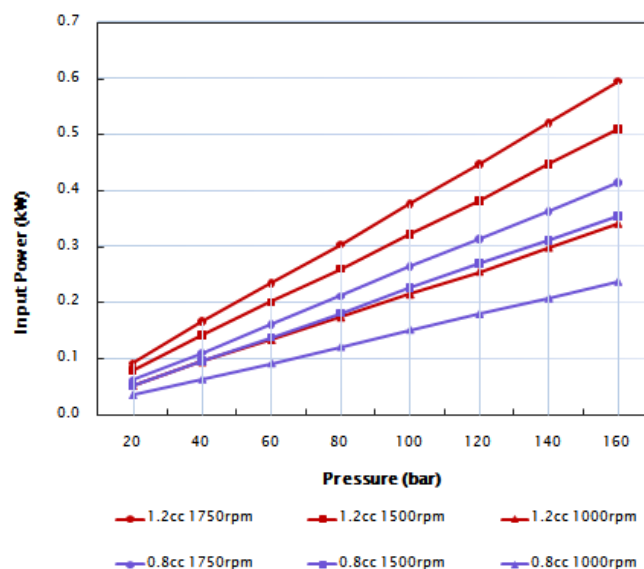
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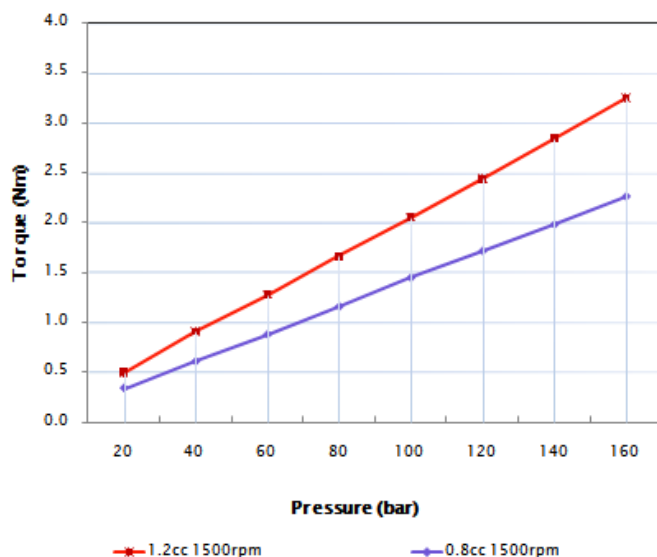
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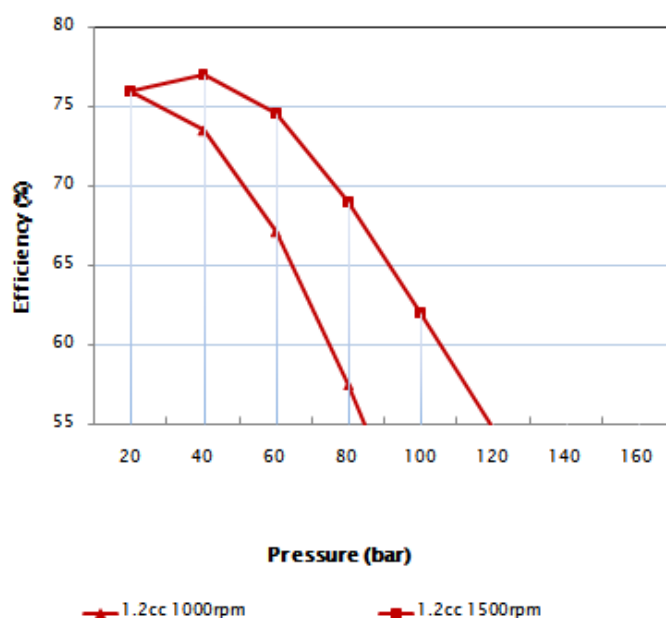
Input Power kW



Input Torque



Overall Efficiency



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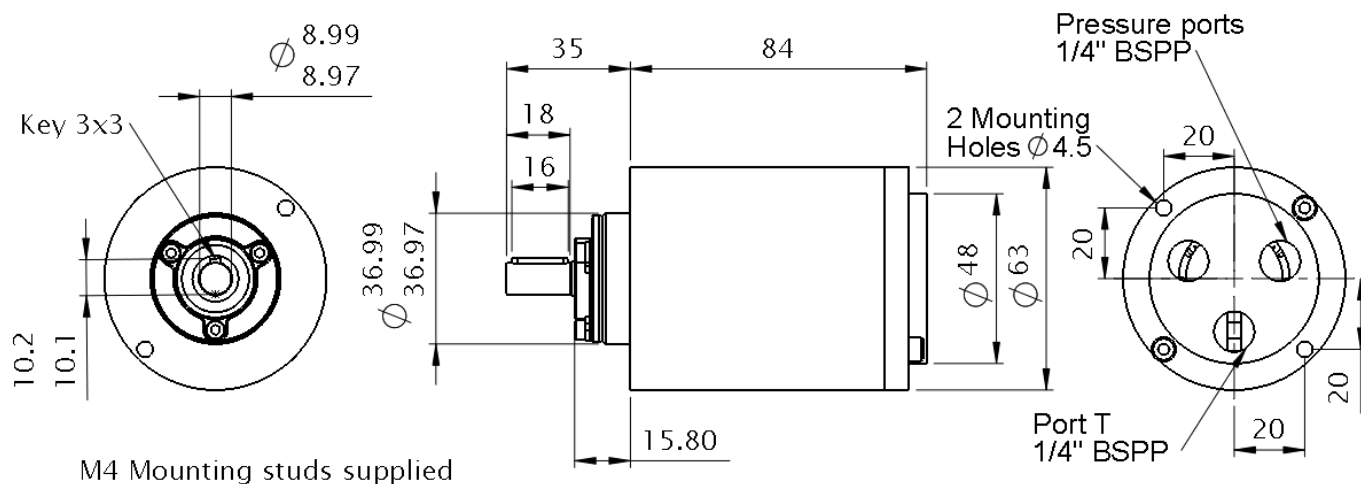
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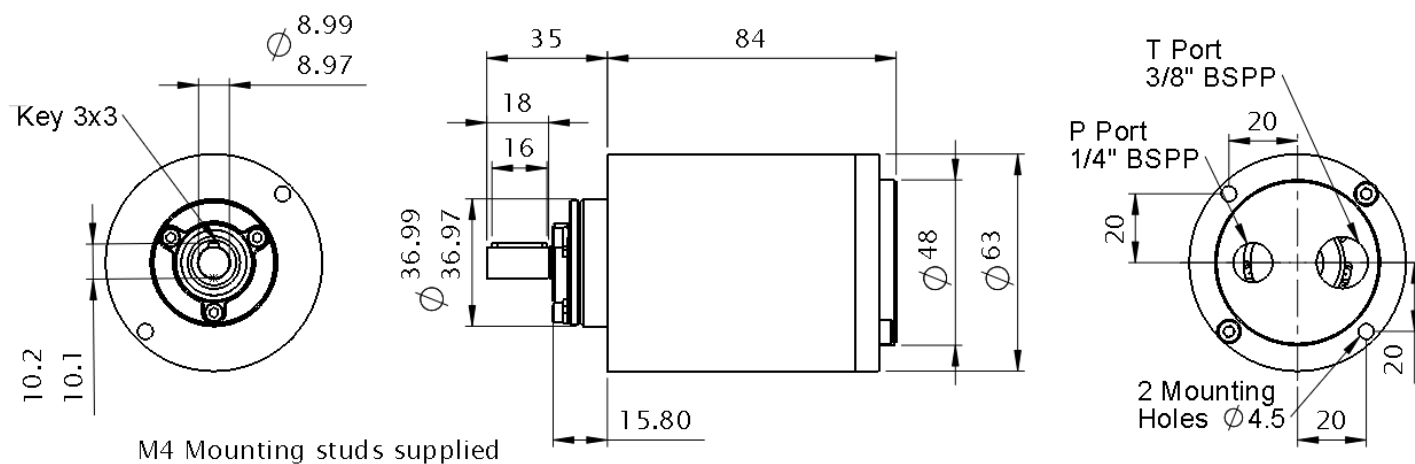
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PB160-3.0W



PC160-3.0W & PA160-3.0W

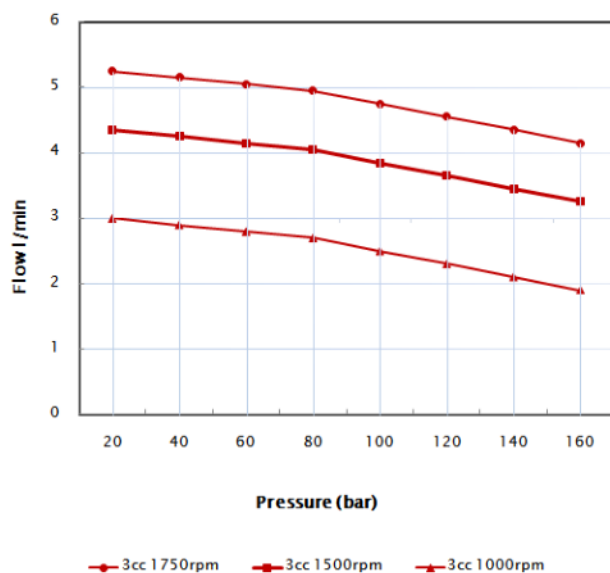


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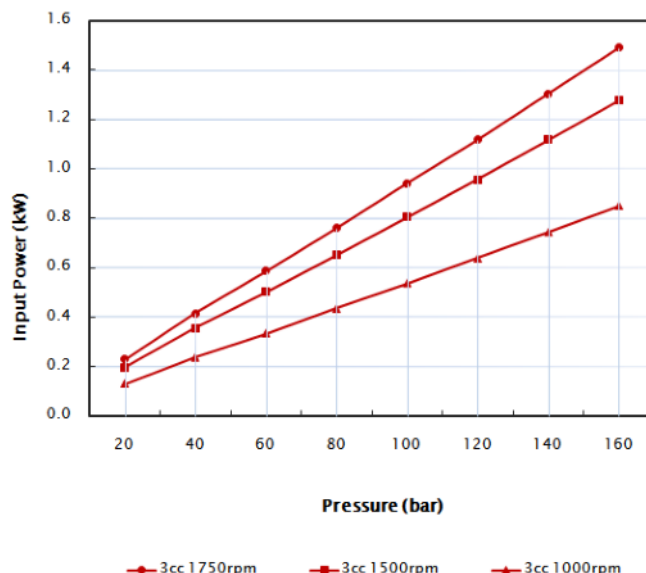
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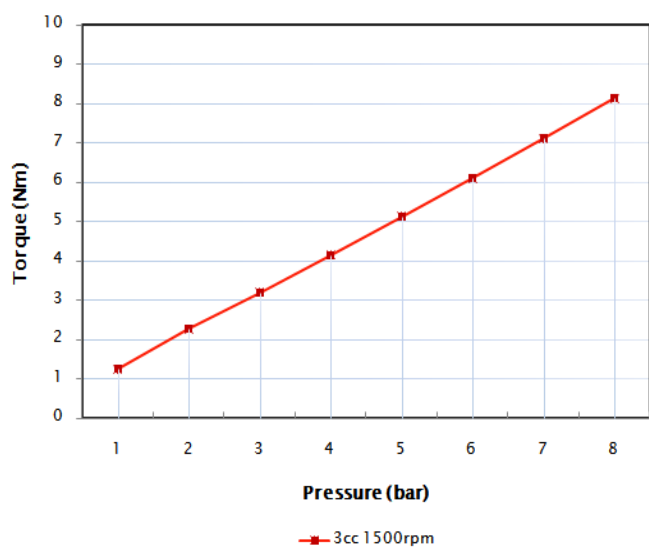
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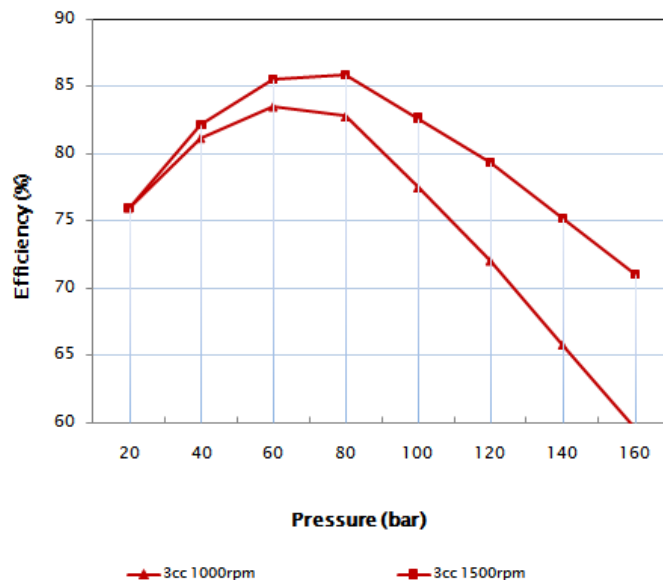
Input Power kW



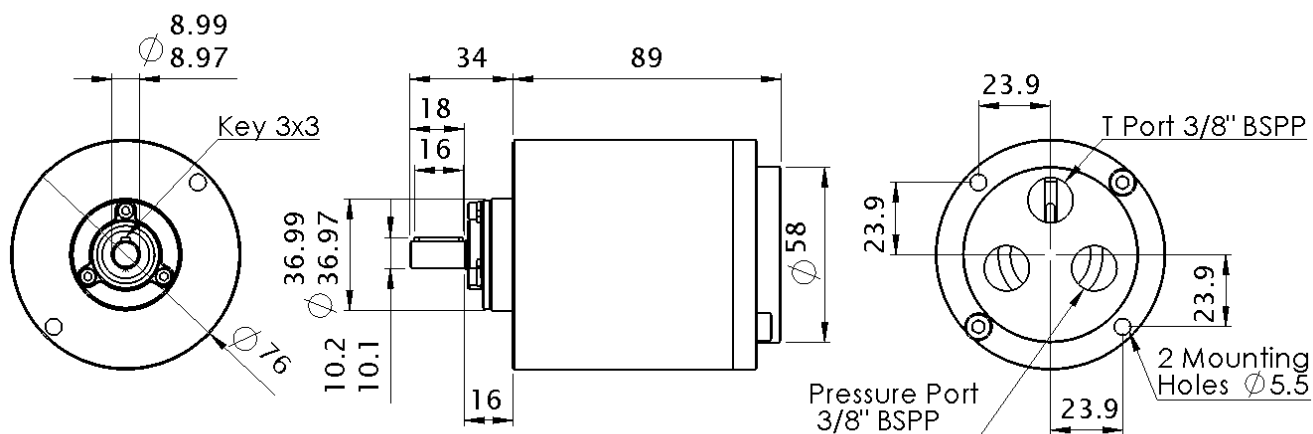
Input Torque



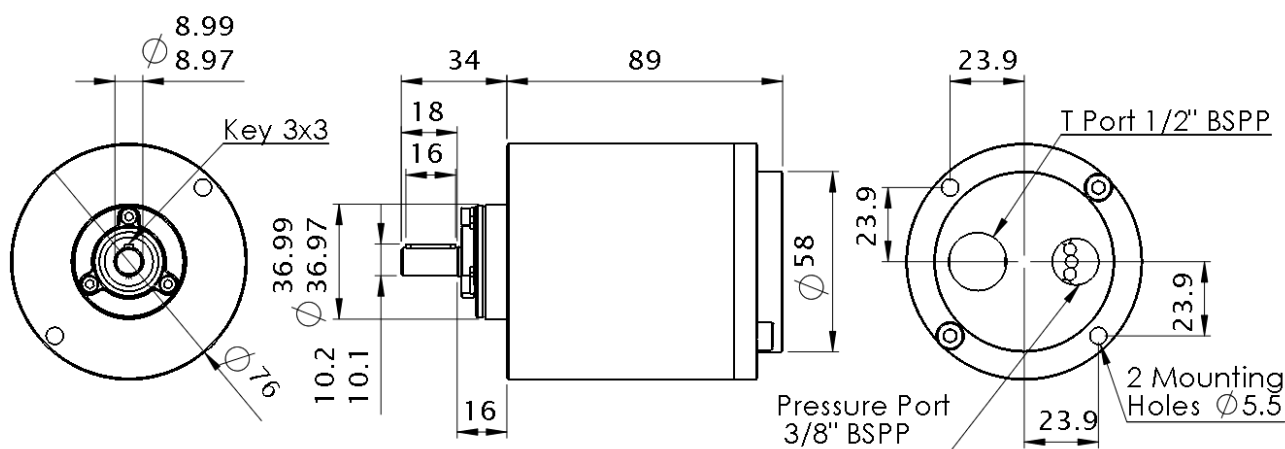
Overall Efficiency



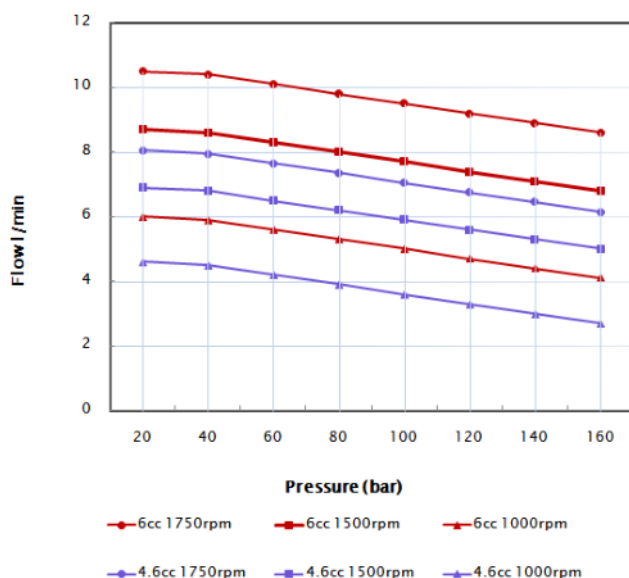
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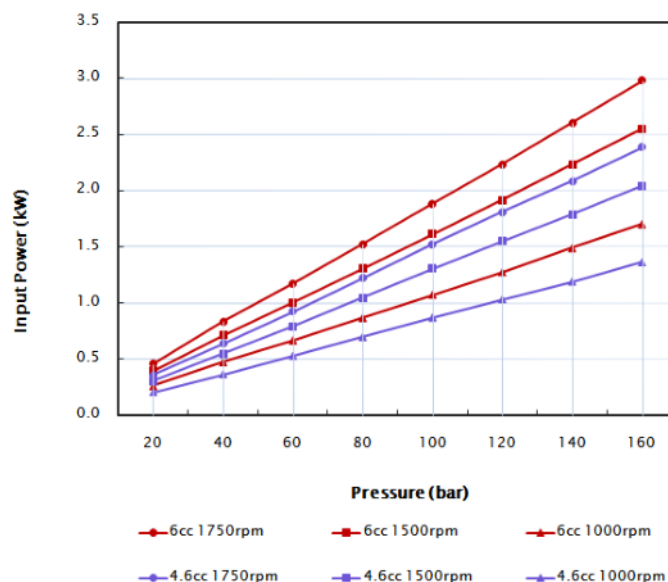
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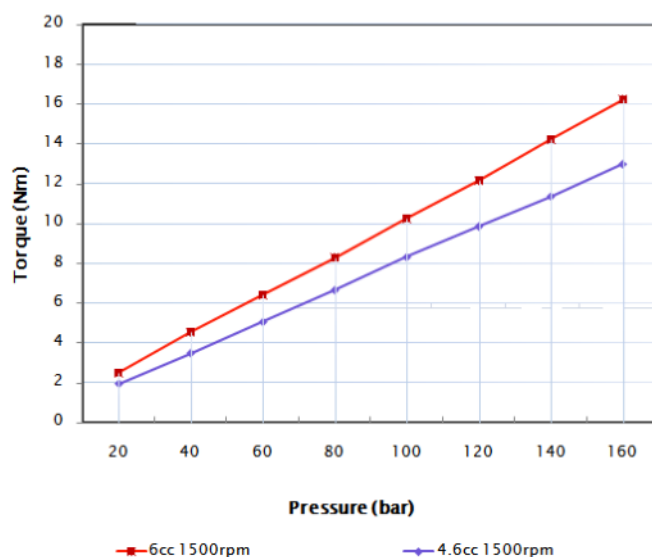
Output Flow



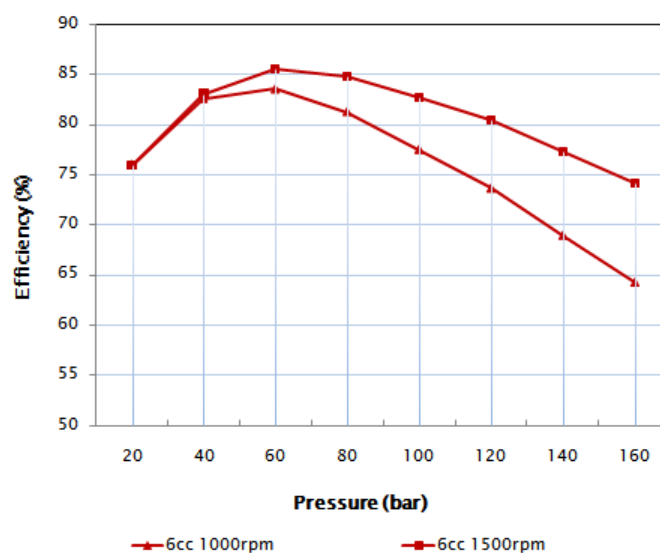
Input Power kW



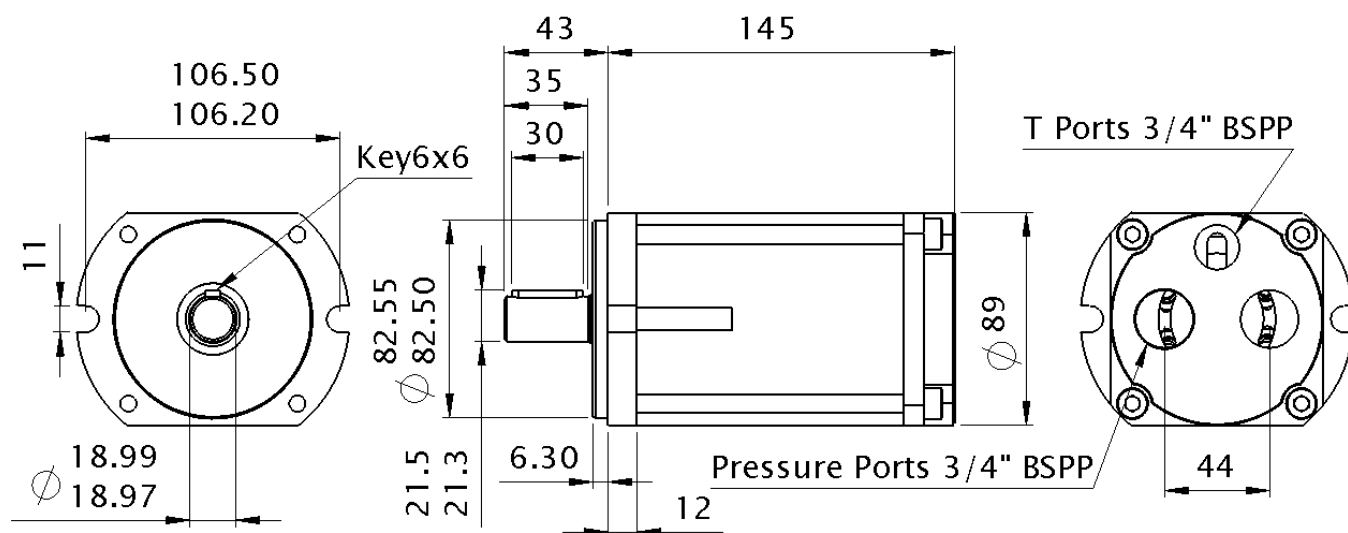
Input Torque



Overall Efficiency

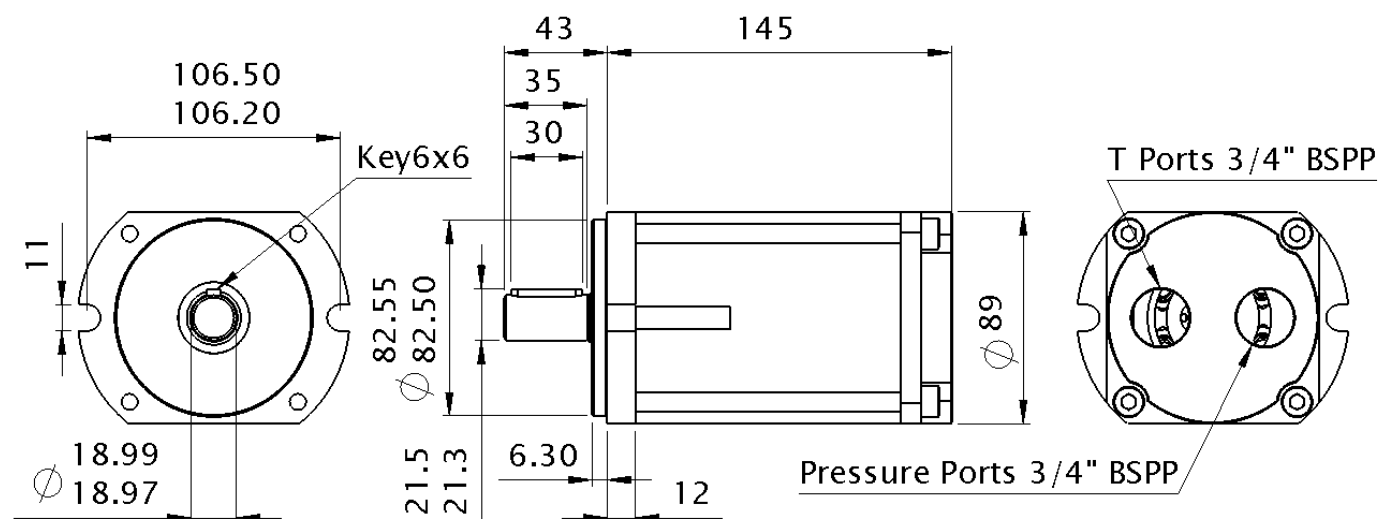


PB160-12W & PB160-15W & PB160-19W



PC160-12W & PC160-15W & PC160-19W

PA160-12W & PA160-15W & PA160-19W .



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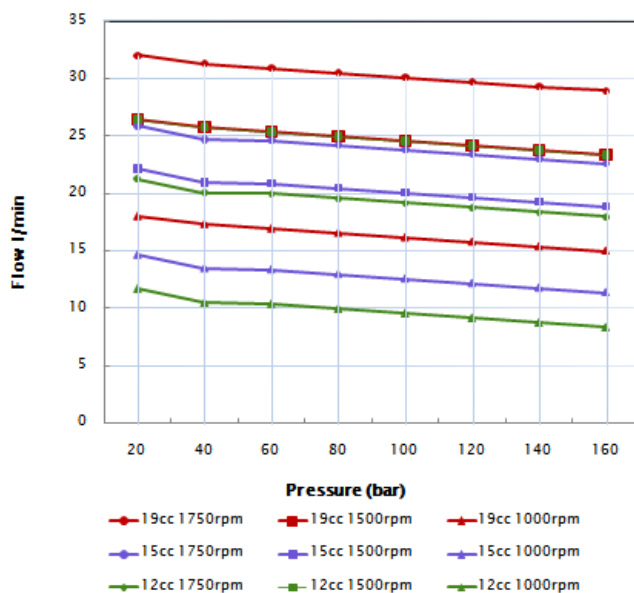
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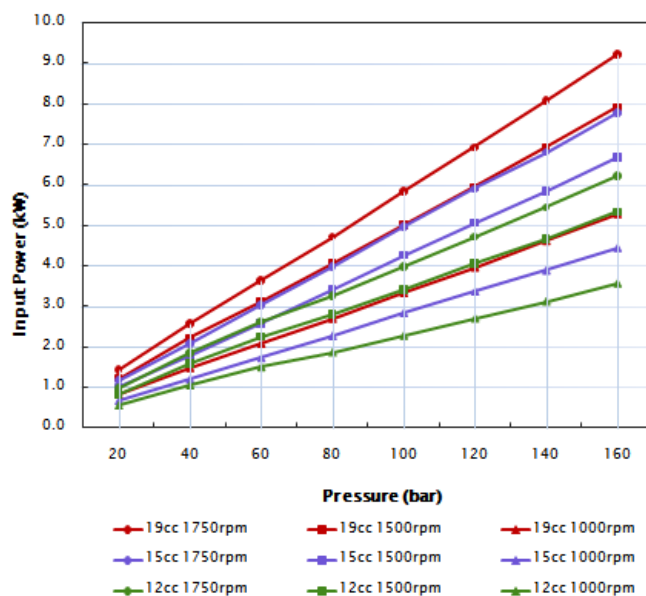
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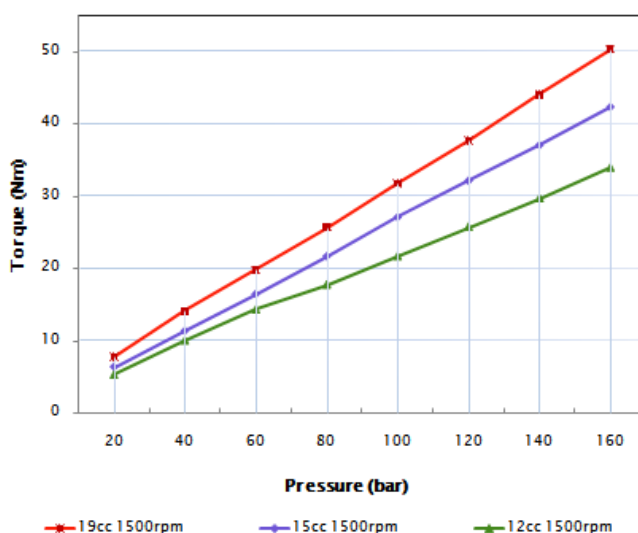
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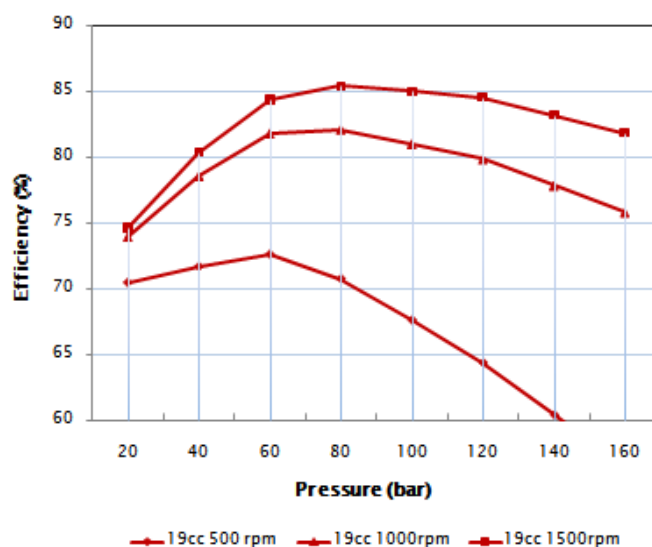
Input Power kW



Input Torque



Overall Efficiency



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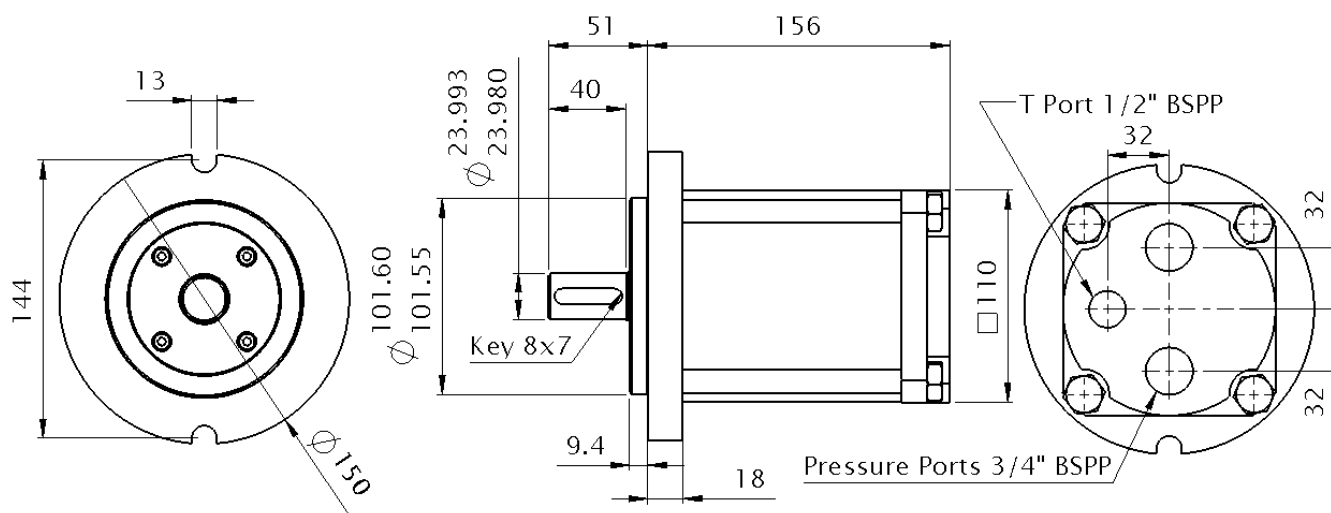
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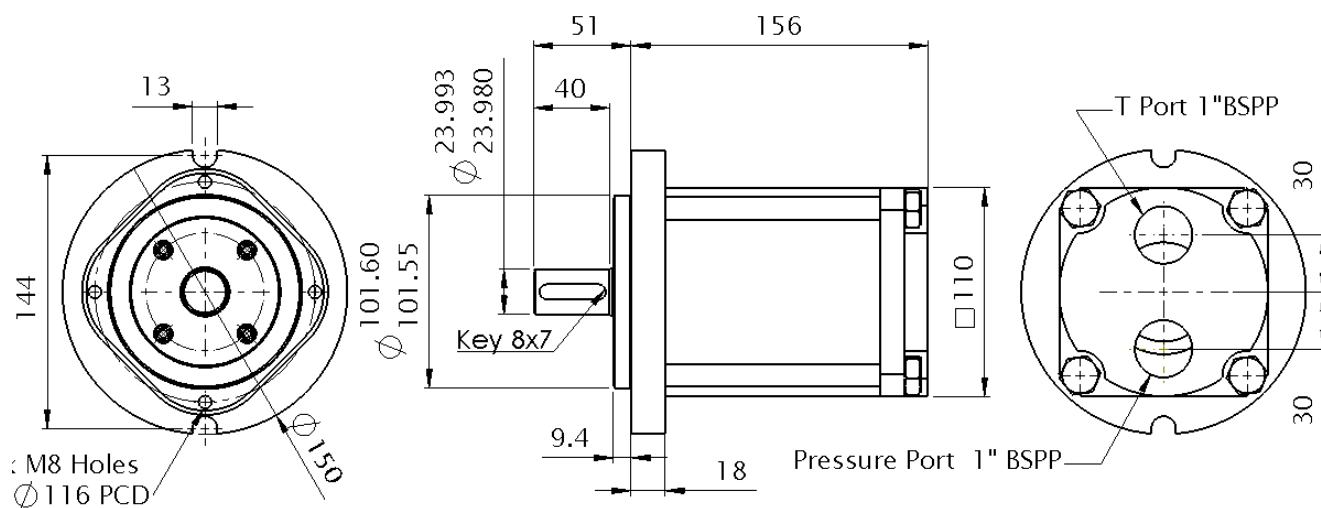
PB160-23W & PB160-30W & PB160-35W



PC160-23W & PC160-30W & PC160-35W

PA160-23W & PA160-30W & PA160-35W

PPC160-23W & PPC160-30W & PPC160-35W (O ring face seal and M8 holes only added on PP Option)



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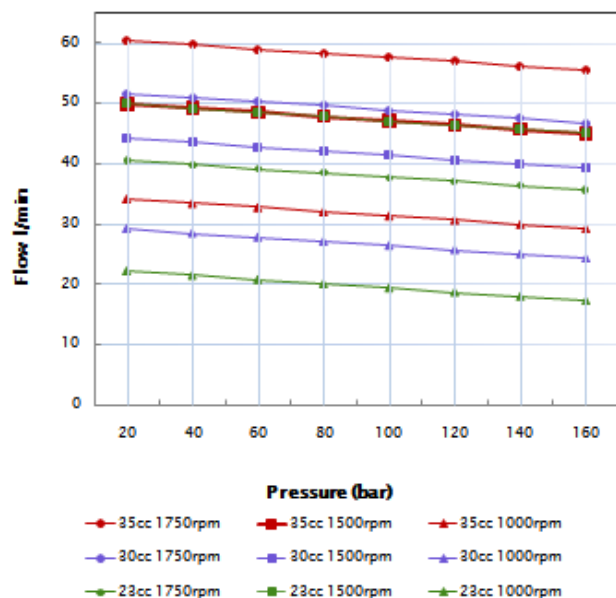
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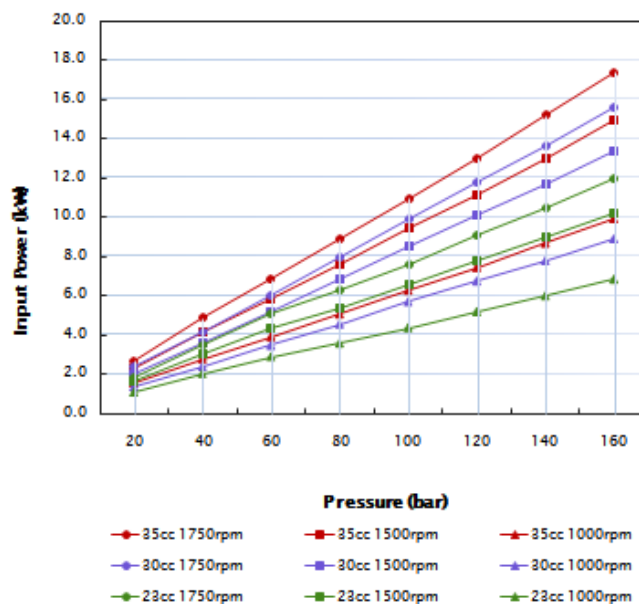
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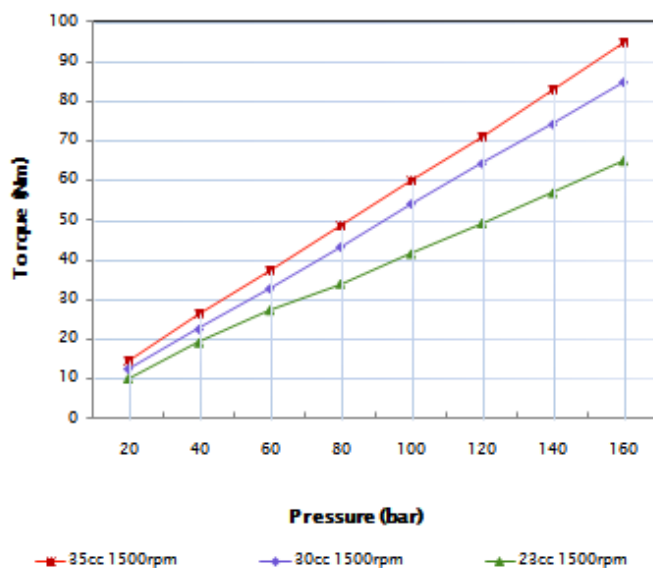
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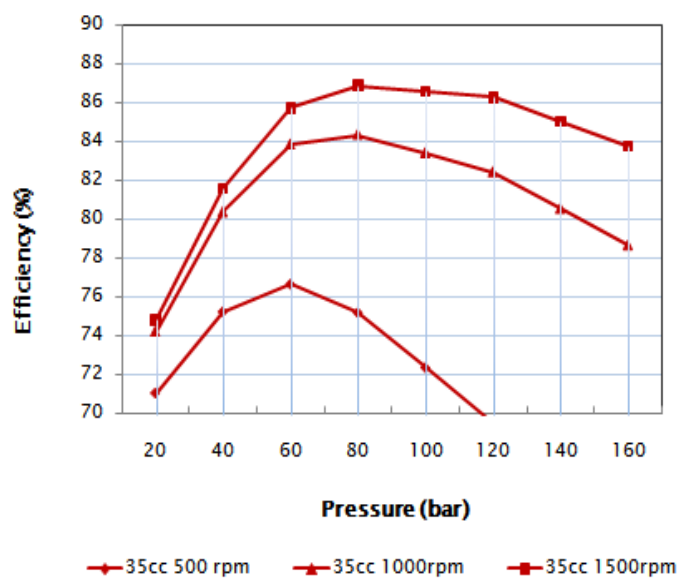
Input Power kW



Input Torque



Overall Efficiency



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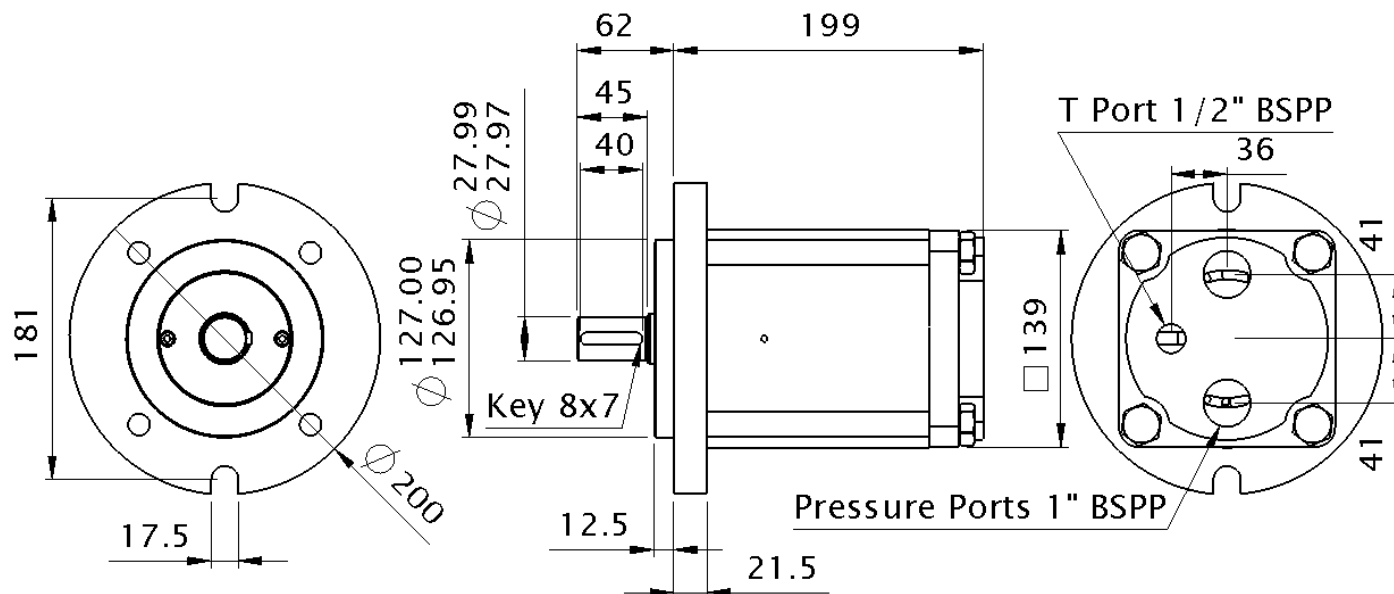
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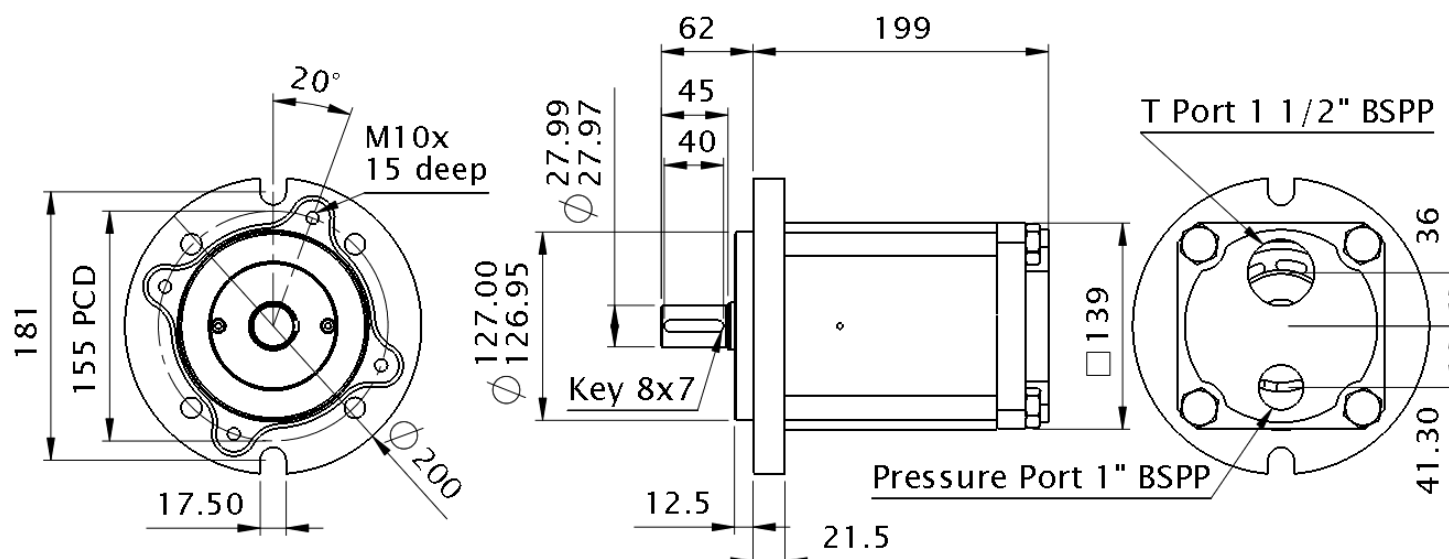
PB160-51W & PB160-63W & PB160-70W



PC160-51W & PC160-63W & PC160-70W

PA160-51W & PA160-63W & PA160-70W

PPC160-51W & PPC160-63W & PPC160-70W (O ring face seal and M10 holes only added on PP Option)



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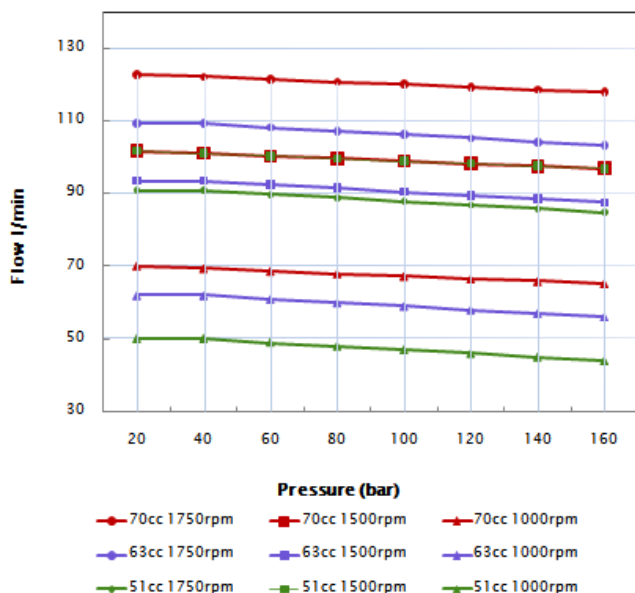
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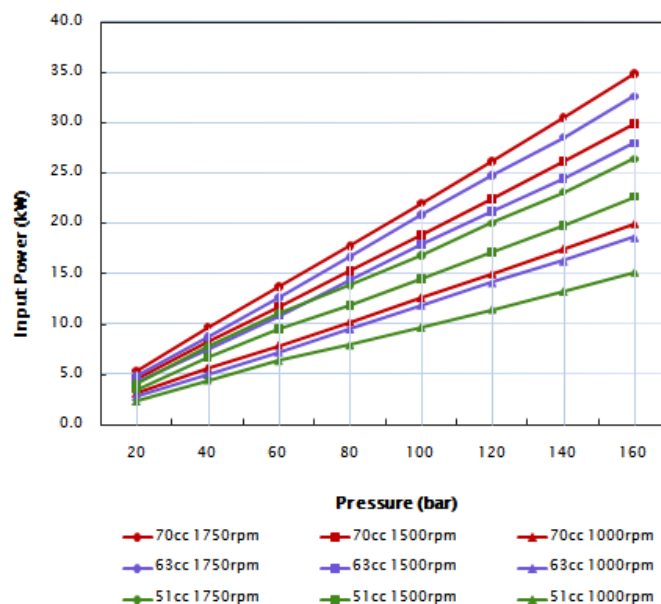
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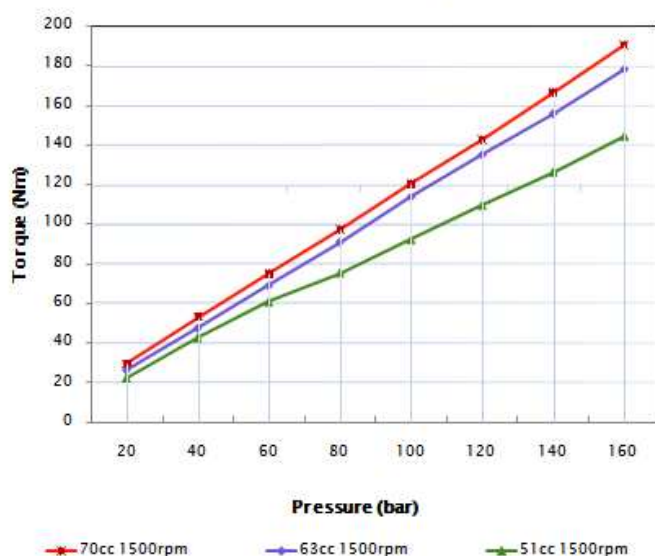
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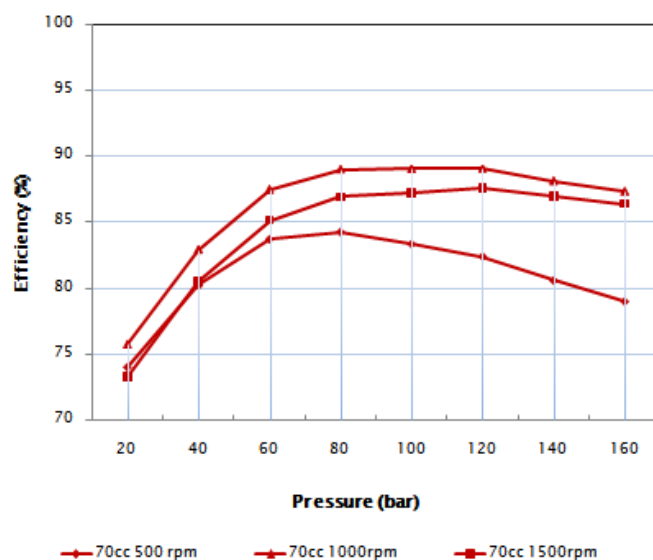
Input Power kW



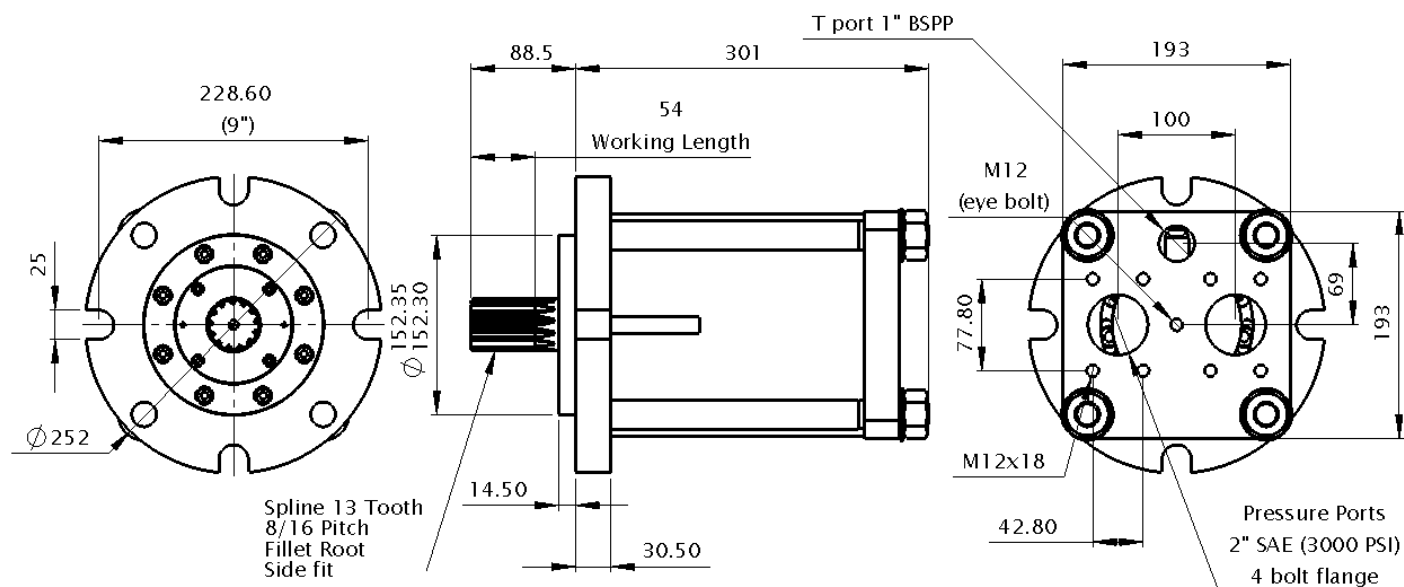
Input Torque



Overall Efficiency

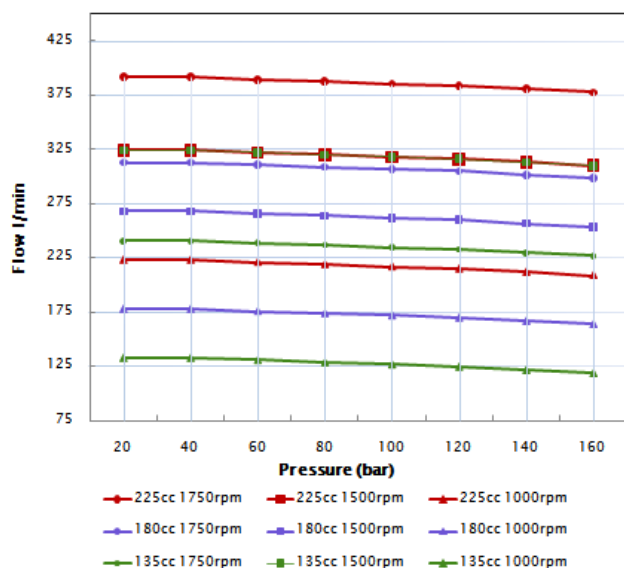


PB.160.135.W & PB.160.180.W & PB.160.225.W

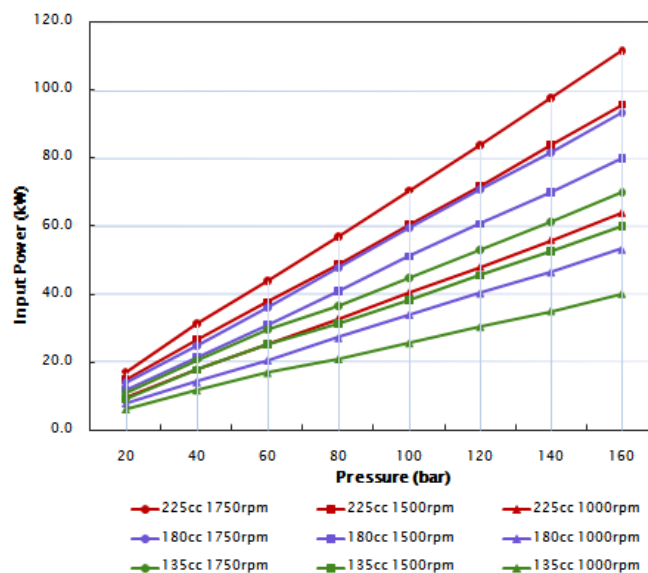


Please Note the P180 pump is only supplied in the 3 port Boosted configuration with mechanical seal.

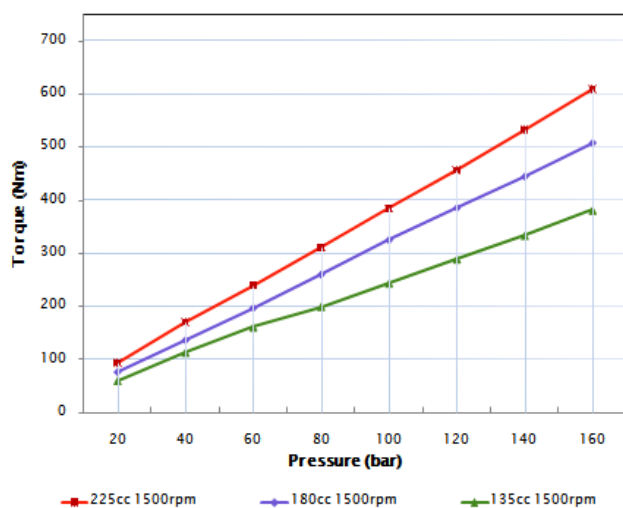
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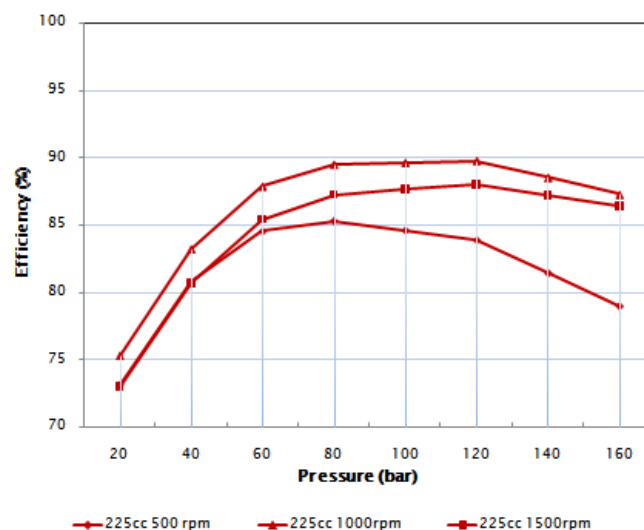
Input Power kW



Input Torque



Overall Efficiency



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FM 87247