

# Fixed Displacement Vane Pump

## HV10 and HV20 Series



### Features

- HV10 / HV20 Series are fixed displacement and balanced type vane pumps. With compact sizes, they are available in single pumps and double pumps for both industrial and mobile application.
- The vane design with self compensation for wear and clearances makes volumetric efficiency of pump nearly constant over the service life. (the vanes always adjust its orbit to contact with the cam ring, even though wear occurs between the cam ring and vane tips)
- The vane pump is not damaged at low speed and high pressure operation because pumping action does not start until the speed is high enough for the vane to throw out. With hydraulically balanced design, the bearing is externally loaded only. Therefore, the pump requires minimized maintenance with long service life.
- The inlet or outlet ports can be rotated through increments of 90° in relation to each other, providing application flexibility and easy installation.
- With optional flow control and priority valve covers, the pump can be used in more applications. The flow control cover can limit the flow to the primary circuit at the required flow rate, while diverts remaining flow to the tank. The priority valve cover maintains a constant flow to the primary circuit, while diverts remaining flow to the secondary circuit. Each cover comes with a relief valve to limits the maximum pressure of the primary circuit.

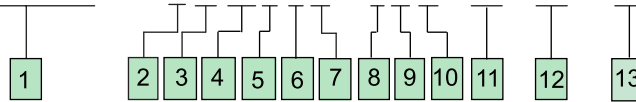


### Handling

- For maximum service life, the pump should be protected from contamination. Filtering fluid before filling and during operation to maintain or exceed ISO cleanliness code 17/14. Replaceable elements should be changed as filter supplier instructions
- The drive shaft must align with the power source shaft. Avoiding shaft end thrust and applications that impose radial loading.
- The start-up procedures should be as follows:
  - Check the rotation of power source to match the rotation of pump.
  - Check inlet and outlet ports to assure all connections are properly installed and check all mounting bolts and flanges to assure all are tight and properly aligned.
  - Fill pump with fluid through the outlet port if the pump is mounted above the fluid level. The spline shaft models also need to be lubricated with an anti-fretting grease or similar lubricant.
  - Place all controls in the neutral position so the pump is unloaded during initial start-up.
  - Prime the pump within a few second when the pump is started.
  - Bleed off entrapped air from outlet circuit until a steady output flow is observed.

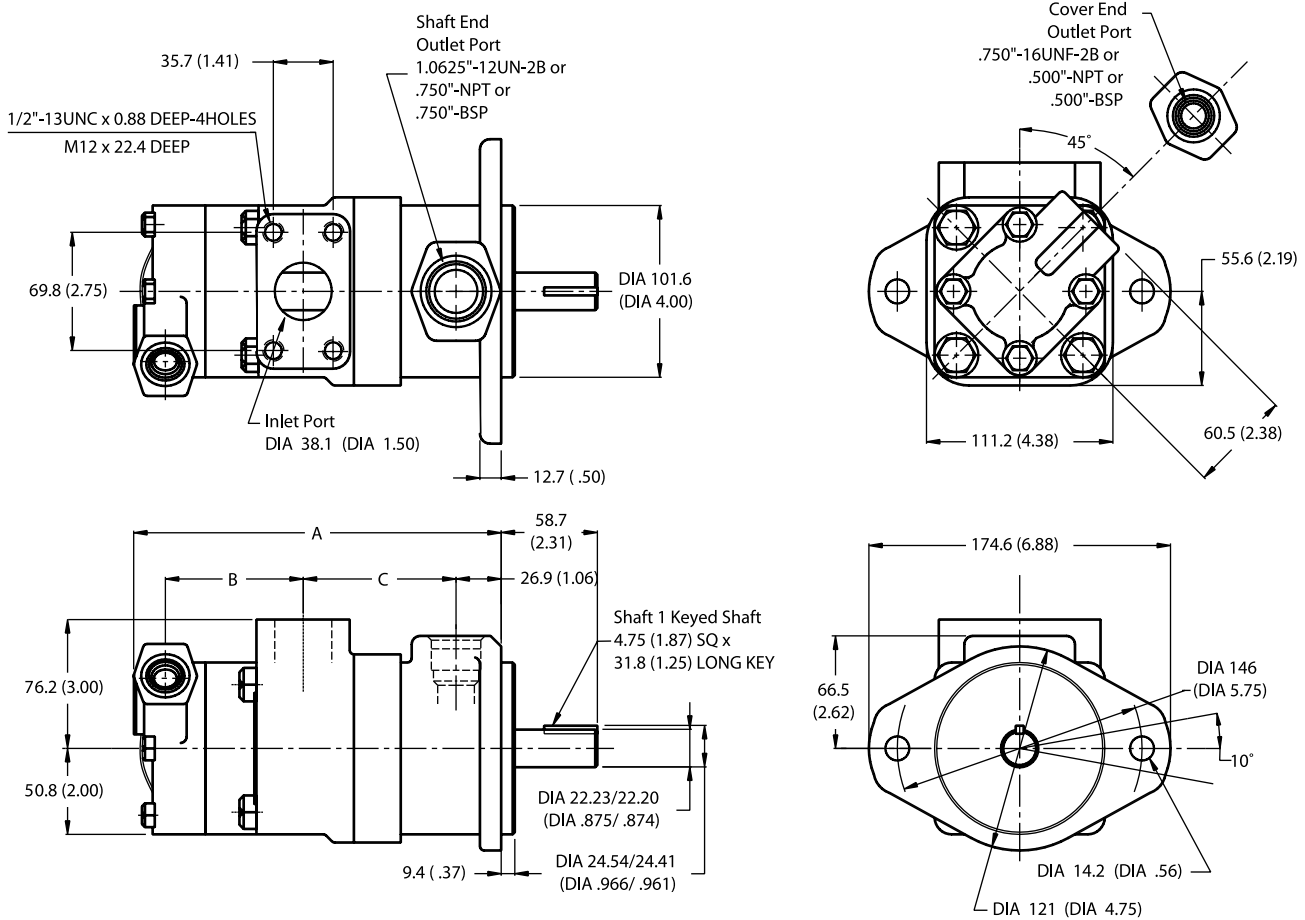
*The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change at any time without notice.*

**HV2010F - 1 F13S7S - 1CC - (8) (H) - (L)**



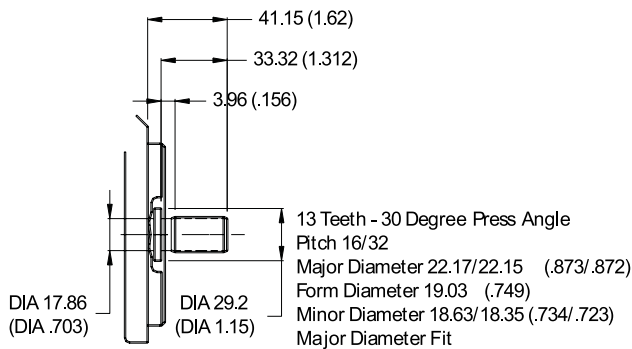
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| <p><b>1</b> Model Series<br/>Standard Cover - HV2010, HV2020<br/>Flow Control Cover(F) - HV2010F, HV2020F<br/>Priority Valve Cover(P) - HV2010P, HV2020P</p> <p><b>2</b> Mounting<br/>1 - 2-Bolt Flange</p> <p><b>3</b> Inlet Port Connection<br/>F - 4-bolt Flange Dia 1.5" (HV2010)<br/>- 4-bolt Flange Dia 2.0" (HV2020)</p> <p><b>4</b> Shaft End Pump Delivery (USgpm at 1200 rpm)<br/>5, 6, 7, 8, 9, 10, 11, 12, 13</p> <p><b>5</b> Shaft End Outlet Port Connection<br/>S - 1.0625"-12 Str.thd.<br/>P - 0.750" NPT<br/>B - 0.750" BSP</p> <p><b>6</b> Cover End Pump Delivery (USgpm at 1200 rpm)<br/>HV2010 - 1, 2, 3, 4, 5, 6, 7<br/>HV2020 - 5, 6, 7, 8, 9, 10, 11, 12, 13,</p> <p><b>7</b> Cover End Outlet Port Connection<br/>HV2010 and HV2020<br/>S - 0.750"-16 Str.thd. (HV2010)<br/>- 1.0625"-12 Str.thd. (HV2020)<br/>P - 0.500" NPT (HV2010)<br/>B - 0.500" BSP (HV2010)<br/>- 0.750" BSP (HV2020)<br/>HV10F, HV10P, HV20F and HV20P<br/>S - 0.750"-16 Str.thd. for outlet and 1.0625"-12 Str. thd. For tank port (HV2020F)<br/>P - 0.750"-16 Str.thd. for outlet and 0.500" NPT for tank port (HV2010F and HV2020)<br/>T - 0.750"-16 Str.thd. for outlet and tank port (HV2010F and HV2020F)<br/>- 0.750"-16 Str.thd. for main outlet and tank port 0.875"-14 Str.thd.for secondary outlet (HV2020P)<br/>K - 0.5625"-18 Str.thd. for main outlet and tank port and 0.750"-16 Str.thd.for secondary outlet (HV2010P)<br/>T - 0.750"-16 Str.thd. for outlet and 0.750"-16 Str.thd. for tank port (HV2020F)</p> <p><b>8</b> Shaft<br/>1 - Straight keyed<br/>11 - Splined</p> | <p><b>9</b> Shaft End Outlet Port Position<br/>(Viewed from cover end)<br/>A - Opposite inlet<br/>B - 90° CCW from inlet<br/>C - Inline with inlet<br/>D - 90° CW from inlet</p> <p><b>10</b> Cover End Outlet Port Position<br/>(Viewed from cover end)<br/>HV2010,HV2010F,HV2010P HV2020,HV2020F,HV2020P<br/>A - 135° CCW from inlet A - Opposite inlet<br/>B - 45° CCW from inlet B - 90° CCW from inlet<br/>C - 45° CW from inlet C - Inline with inlet<br/>D - 135° CW from inlet D - 90° CW from inlet</p> <p><b>11</b> Flow rate Setting for Flow control and<br/>Priority Valve Cover L/min (USgpm)<br/>2 - 7.6 (2) 6 - 22.7 (6)<br/>3 - 11.4 (3) 7 - 26.5 (7)<br/>4 - 15.2 (4) 8 - 30.3 (8)<br/>5 - 19.0 (5)</p> <p><b>12</b> Pressure Setting for Flow control and<br/>Priority Valve Cover bar (psi)<br/>A - 17 (250) F - 103 (1500)<br/>B - 34 (500) G - 121 (1750)<br/>C - 52 (750) H - 138 (2000)<br/>D - 69 (1000) J - 155 (2200)<br/>E - 86 (1250) K - 172 (2500)</p> <p><b>13</b> Shaft Rotation<br/>(Viewed from shaft end)<br/>R - Turn right<br/>L - Turn left</p> |
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Model Series	Cartridge Position	Ring Size Delivery at 1200 r/min & 7 bar (100 psi)	Geometric Displacement	Delivery at 1500 r/min & 7 bar (100 psi)	Maximum Pressure	Maximum Speed	Weight
		USgpm	cm <sup>3</sup> /r (in <sup>3</sup> /r)	L/min (USgpm)	bar (psi)	rpm	kg (lb)
HV2010	Shaft End	5	16.4 (1.00)	23.60 (6.25)	172 (2500)	3400	13.6 (30)
		6	19.5 (1.19)	28.40 (7.50)	172 (2500)	3400	
		7	22.8 (1.39)	33.11 (8.75)	172 (2500)	3000	
		8	26.5 (1.62)	37.85 (10.00)	172 (2500)	2800	
		9	29.7 (1.81)	42.57 (11.25)	172 (2500)	2800	
		10	34.1 (2.08)	47.30 (12.51)	172 (2500)	2500	
		11	36.4 (2.22)	52.04 (13.75)	172 (2500)	2500	
	Cover End	12	39.0 (2.38)	56.77 (15.00)	152 (2200)	2400	
		13	42.4 (2.59)	61.50 (16.25)	152 (2200)	2400	
		1	3.3 (0.20)	4.70 (1.25)	172 (2500)	3000	
		2	6.6 (0.40)	9.40 (2.50)	172 (2500)	3000	
		3	9.8 (0.60)	14.20 (3.75)	172 (2500)	3000	
		4	13.1 (0.80)	18.90 (5.00)	172 (2500)	3000	
		5	16.4 (1.00)	23.60 (6.25)	172 (2500)	3000	
HV2020	Shaft End	6	19.5 (1.19)	28.40 (7.50)	152 (2200)	3000	
		7	22.8 (1.39)	33.11 (8.75)	152 (2200)	2800	
		8	26.5 (1.62)	37.85 (10.00)	152 (2200)	2400	
		9	29.7 (1.81)	42.57 (11.25)	152 (2200)	2400	
	Cover End	10	34.1 (2.08)	47.30 (12.51)	172 (2500)	3000	
		11	36.4 (2.22)	52.04 (13.75)	172 (2500)	3000	
		5	16.4 (1.00)	23.60 (6.25)	172 (2500)	3000	
		6	19.5 (1.19)	28.39 (7.50)	172 (2500)	3000	
		7	22.8 (1.39)	33.11 (8.75)	172 (2500)	3000	
		8	26.5 (1.62)	37.85 (10.00)	172 (2500)	2800	
		9	29.7 (1.81)	42.57 (11.25)	172 (2500)	2800	

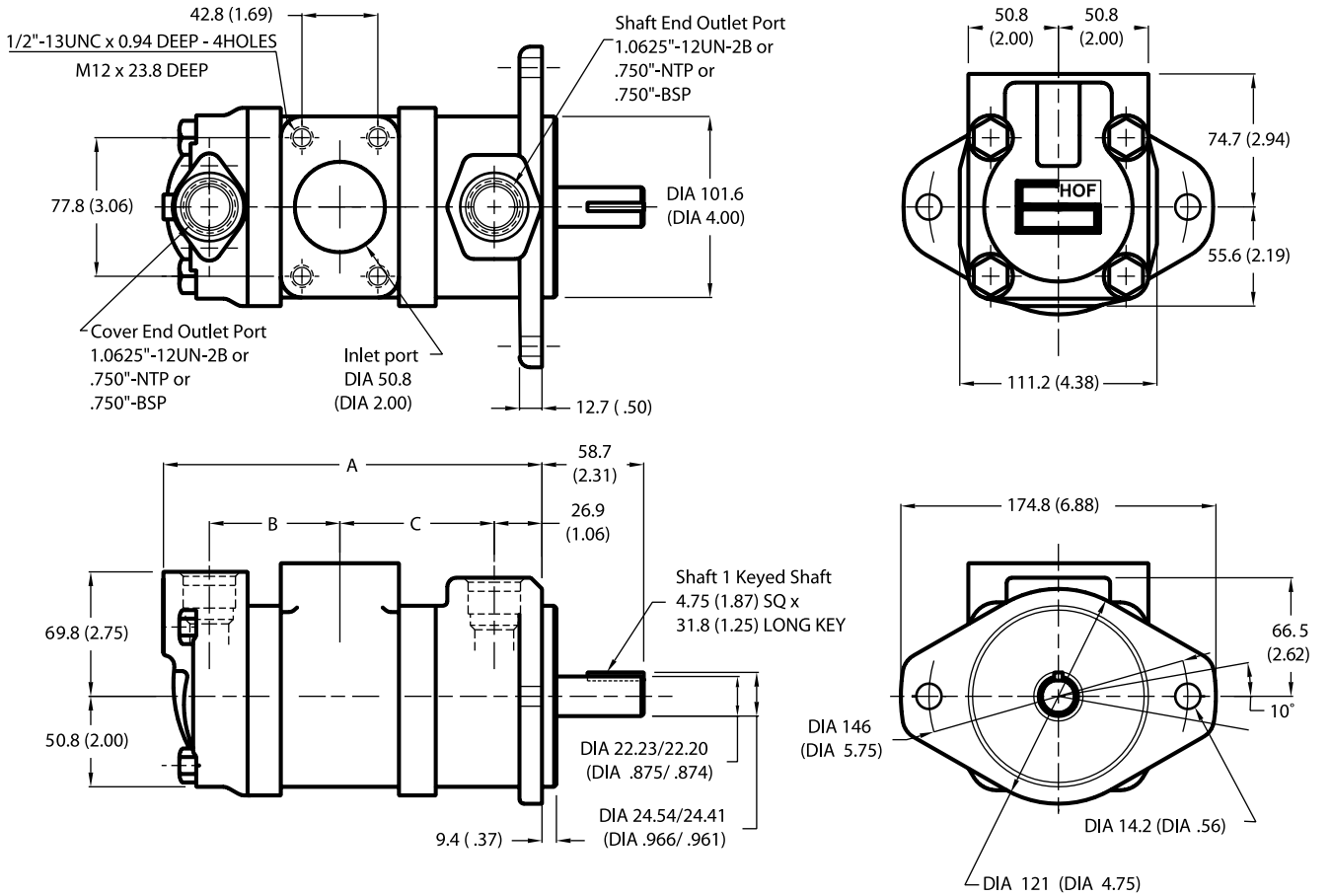


Delivery @ 1200 rpm & 7 bar (100 psi)		Dimension		
Shaft End	Cover End	A	B	C
7, 8, 9	1, 2, 3	213.1 (8.39)	75.9 (2.99)	86.4 (3.40)
7, 8, 9	4, 5	219.5 (8.64)	82.3 (3.24)	86.4 (3.40)
7, 8, 9	6, 7	224.5 (8.84)	87.4 (3.44)	86.4 (3.40)
10, 11	1, 2, 3	218.2 (8.59)	75.9 (2.99)	91.2 (3.59)
10, 11	4, 5	224.5 (8.84)	82.3 (3.24)	91.2 (3.59)
10, 11	6, 7	229.6 (9.04)	87.4 (3.44)	91.2 (3.59)
12, 13	1, 2, 3	221.7 (8.73)	75.9 (2.99)	94.7 (3.73)
12, 13	4, 5	227.8 (8.97)	82.3 (3.24)	94.7 (3.73)
12, 13	6, 7	232.9 (9.17)	87.4 (3.44)	94.7 (3.73)

Other shaft options for Double Pump HV2010 and HV2020

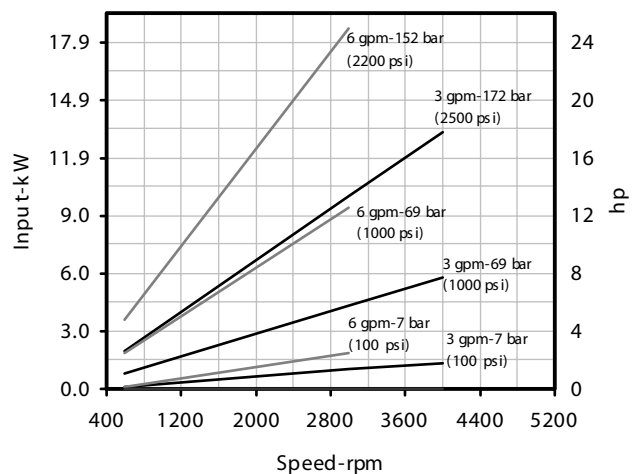
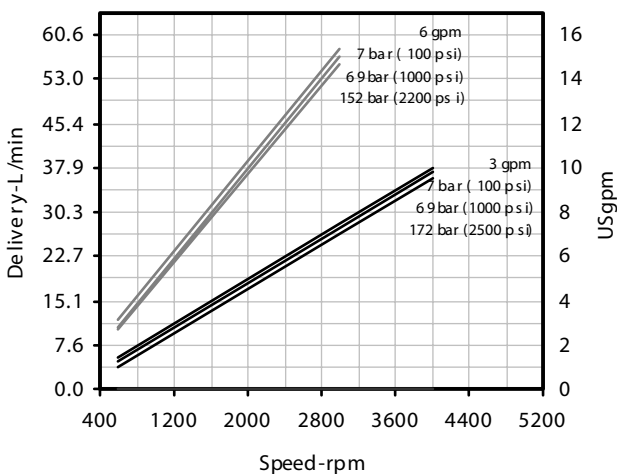
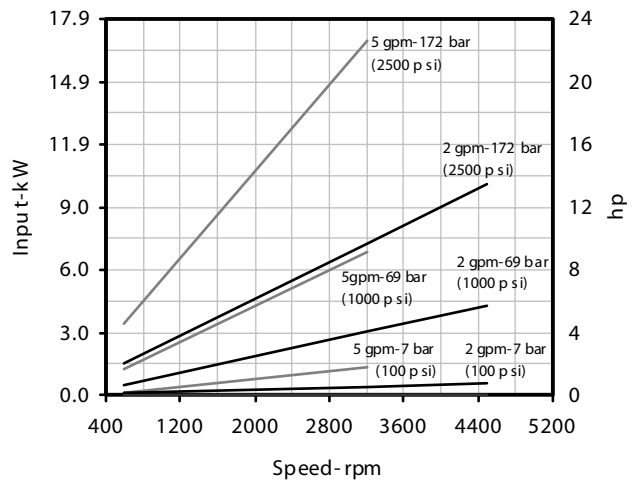
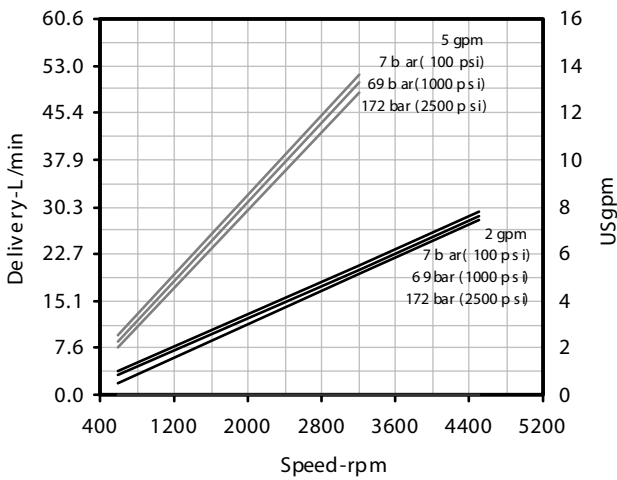
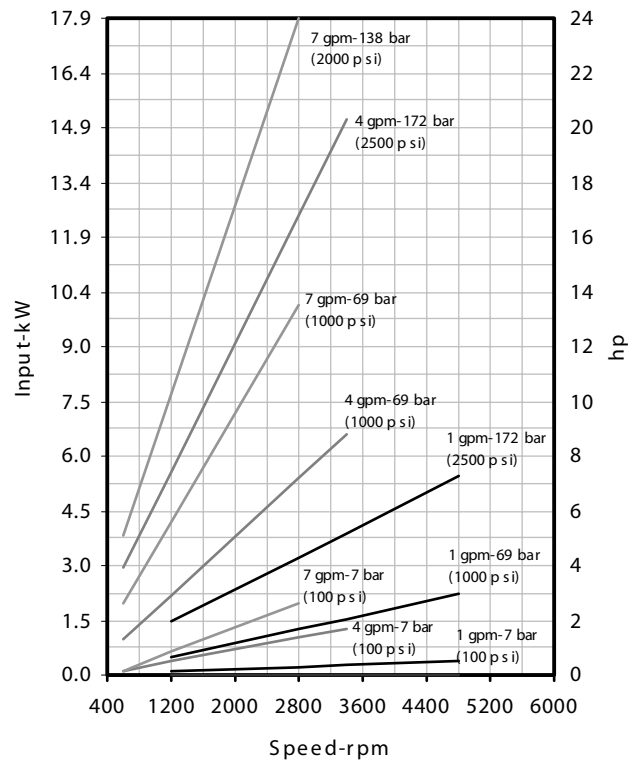
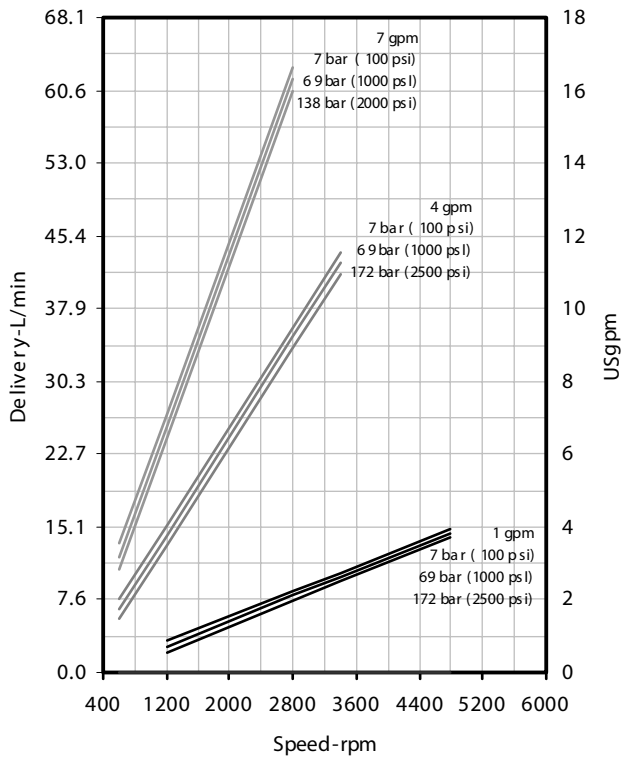


Shaft 11 Splined Shaft



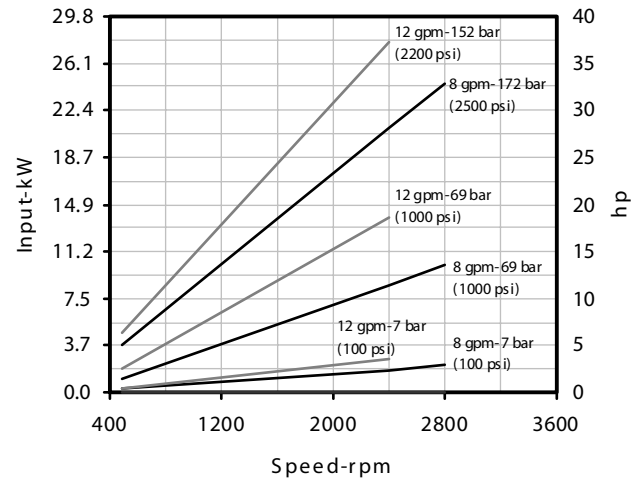
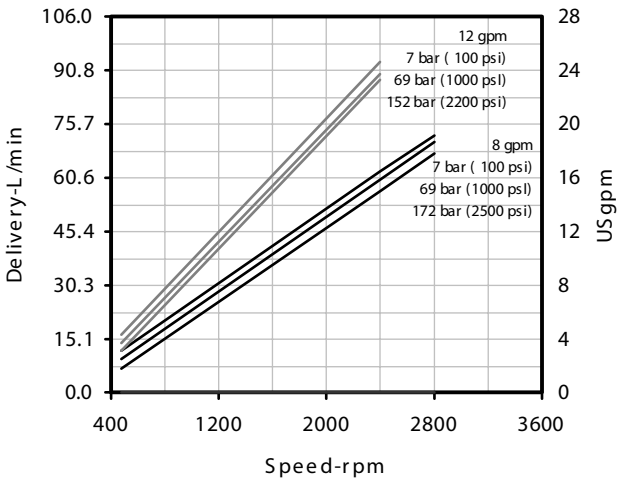
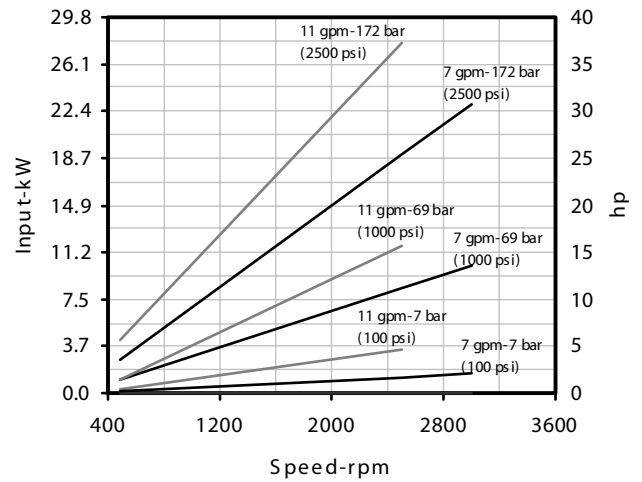
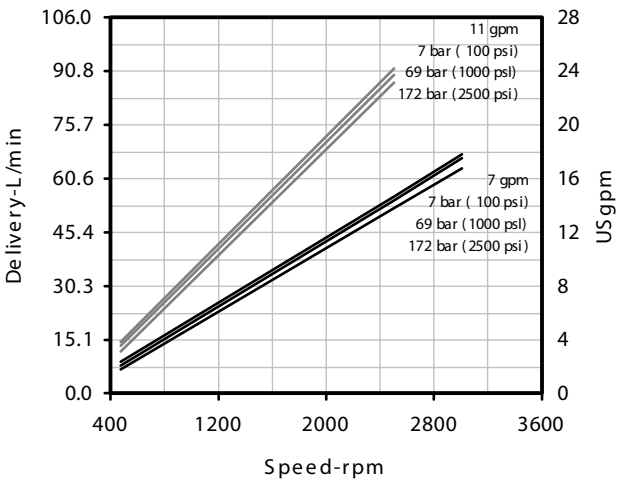
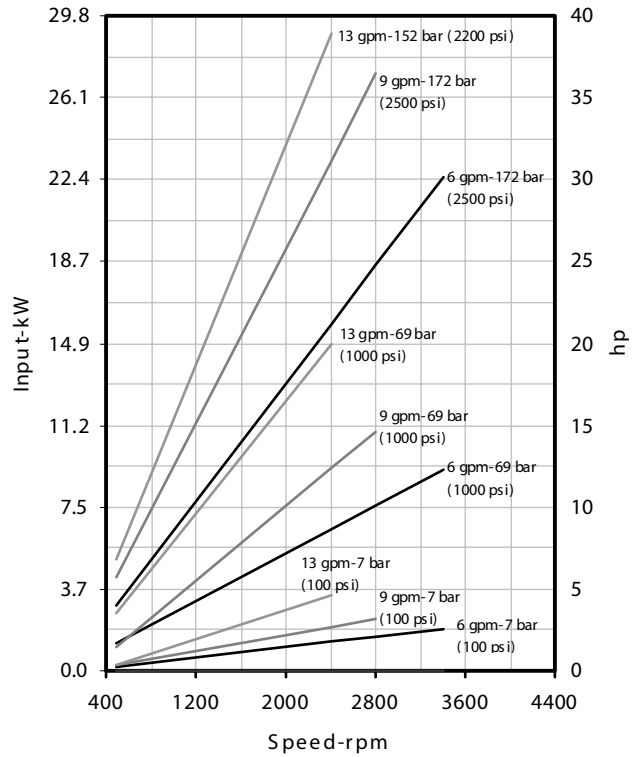
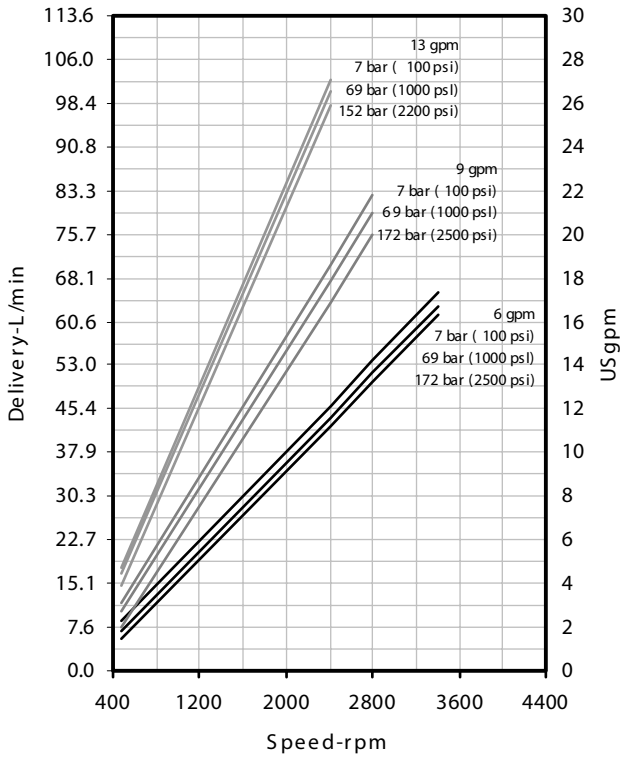
Delivery @ 1200 rpm & 7 bar (100 psi)		Dimension		
Shaft End	Cover End	A	B	C
7, 8, 9	5, 6	213.6 (8.41)	73.7 (2.90)	87.1 (3.43)
7, 8, 9	7, 8, 9	220.0 (8.66)	80.0 (3.15)	87.1 (3.43)
10, 11	5, 6	218.7 (8.61)	73.7 (2.90)	92.2 (3.63)
10, 11	7, 8, 9	225.0 (8.86)	80.0 (3.15)	92.2 (3.63)
10, 11	10, 11	229.9 (9.05)	85.1 (3.35)	92.2 (3.63)
12, 13	5, 6	222.3 (8.75)	73.7 (2.90)	95.5 (3.76)
12, 13	7, 8, 9	228.3 (8.99)	80.0 (3.15)	95.5 (3.76)
12, 13	11	233.4 (9.19)	85.1 (3.35)	95.5 (3.76)

Based on viscosity 32 cSt (150 SSU) oil at 49 °C (120 °F) and pump inlet at 0 PSIG (14.7 PSIA)



For the Cover End Cartridge, the speed could not exceed the maximum speed of the Shaft End Cartridge.

Based on viscosity 32 cSt (150 SSU) oil at 49 °C (120 °F) and pump inlet at 0 PSIG (14.7 PSIA)



For the Cover End Cartridge, the speed could not exceed the maximum speed of the Shaft End Cartridge.