

Fixed Displacement Vane Pump

HV and HVQ Series



Features

- HV / HVQ Series are fixed displacement and balanced type vane pumps. Available in both 12 vanes design for industrial application with quiet operating and 10 vanes design for mobile application with higher pressure and wider range of speed.
- The vane design with self compensation for wear and clearances makes volumetric efficiency of pump nearly constant over the service life. (the vane always adjust its orbit to contact with the cam ring, even though wear occurs between the cam ring and vane tip)
- With a balanced intra-vane design, outlet pressure is continuously applied only to the area between the vane and insert. This area is small and thrust is correspondingly light. Top and bottom areas of the vane are subject to either inlet or outlet pressure, depending on the vane's location during rotor rotation. The valving of pressure to and from the bottom area of the vane is through holes drilled in the rotor. This varying pressure under the vane reduces wear and increases pump efficiency.
- 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.



- The inlet or outlet ports can be rotated through increments of 90° in relation to each other, providing application flexibility and easy installation.
- With the cartridge independent of the shaft, allowing for easy change of flow capacity and field servicing without removing the pump from its mounting.
- For the cartridge kit of HVQ Series, the flexible plates are inserted between the support plates and the rotor. The flexible plates are assembled with the bronze facing towards the rotor to improve cold start capability and compensate thermal expansion in the rotor. This makes HVQ Series particularly suited for mobile application.

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 16/ 13. Appropriately size suction filter, with cold start bypass, of 149 micron absolute (100 mesh) and 10 micron absolute return line filter is recommended. 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 with rotation of pump.

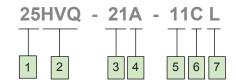
- Check inlet and outlet ports to assure all connections are properly installed and check all mounting bolts and flanges to assure all are tight and properly aligned.
- Fill pump with fluid through the outlet port if the pump is mounted above the fluid level. The spline shaft models also need to be lubricate 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.





Ordering Code Single Pump



1 Model

20, 25, 35, 45

2 Series

HV - Industrial

HVQ - Mobile

3 Ring Size (USgpm)

20HV/HVQ - 2, 5, 8, 9, 11, 12, 14

25HV/HVQ - 12, 14, 17, 19, 21

35HV/HVQ - 21, 25, 30, 35, 38

45HV/HVQ - 42, 47, 50, 57, 60

4 Port Connection

A - SAE 4-bolt with Inch threads

AM - SAE 4-bolt with Metric threads

5 Shaft

1 - Straight keyed

11 - Splined (25, 35, 45HV/HVQ)

86 - Heavy duty straight keyed (25, 35, 45HV/HVQ)

151 - Splined (20HV/HVQ only)

6 Outlet Port position

(Viewed from cover end)

A - Opposite inlet

B - 90° CCW from inlet

C - Inline with inlet

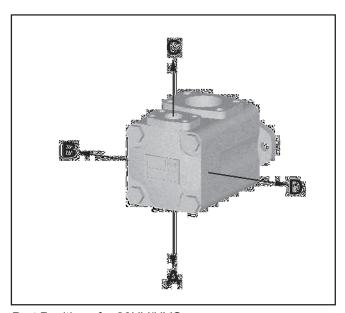
D - 90° CW from inlet

7 Shaft Rotation

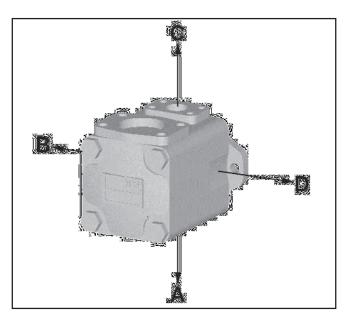
(Viewed from shaft end)

R - Turn right

L - Turn left



Port Positions for 20HV/HVQ



Port Positions for 25HV/HVQ, 35HV/HVQ 45HV/HVQ



Specifications

Single Pump HV Series

Model	Delivery at 1200 rpm & 7 bar (100 psi)	Displacement	Maximum Speed	Maximum Pressure	Typical Delivery at max speed & pressure	Typical Input Power at max speed & pressure	Weight
	USgpm	cm ³ /r (in ³ /r)	rpm	bar (psi)	L/min (USgpm)	kW (hp)	kg (lb)
20HV	2 5 8 9 11 12	7.0 (0.42) 18 (1.10) 27 (1.67) 30.2 (1.84) 36 (2.22) 40 (2.47)	1800	206 (3000) 206 (3000) 206 (3000) 206 (3000) 206 (3000) 158 (2300)	11.3 (3.0) 28.4 (7.5) 45.4 (12.0) 51.0 (13.5) 56.8 (15.0) 62.1 (16.4)	5.2 (7.0) 11.2 (15.0) 17.0 (22.8) 23.5 (31.5) 22.6 (30.3) 25.1 (33.7)	11.8 (26)
	14	45 (2.78)		138 (2000)	69.6 (18.4)	28.3 (37.9)	
25HV	12 14 17 19 21	39 (2.47) 45 (2.78) 55 (3.39) 60.8 (3.72) 67 (4.13)	1800	172 (2500)	62.1 (16.4) 69.6 (18.4) 86.3 (22.8) 96.1 (25.4) 106.0 (28.0)	22.9 (30.8) 25.7 (34.5) 29.8 (40.0) 32.5 (43.5) 34.0 (45.6)	14.5 (32)
35HV	21 25 30 35 38	68.3 (4.18) 81 (4.94) 97 (5.91) 112 (6.83) 121 (7.37)	1800	172 (2500)	106.3 (28.1) 124.9 (33.0) 154.4 (40.8) 181.7 (48.0) 193.8 (51.2)	34.0 (45.5) 45.5 (61.0) 54.5 (73.0) 61.5 (82.4) 65.9 (88.3)	22.7 (50)
45HV	42 47 50 57 60	138 (8.41) 151.4 (9.26) 162 (9.85) 183.6 (11.23) 193 (11.75)	1800	172 (2500)	208.2 (55.0) 244.1 (64.5) 253.6 (67.0) 295.0 (77.8) 310.4 (82.0)	75.3 (101.0) 82.5 (110.6) 87.3 (117.0) 94.0 (126.0) 103.7 (139.0)	34.0 (75)

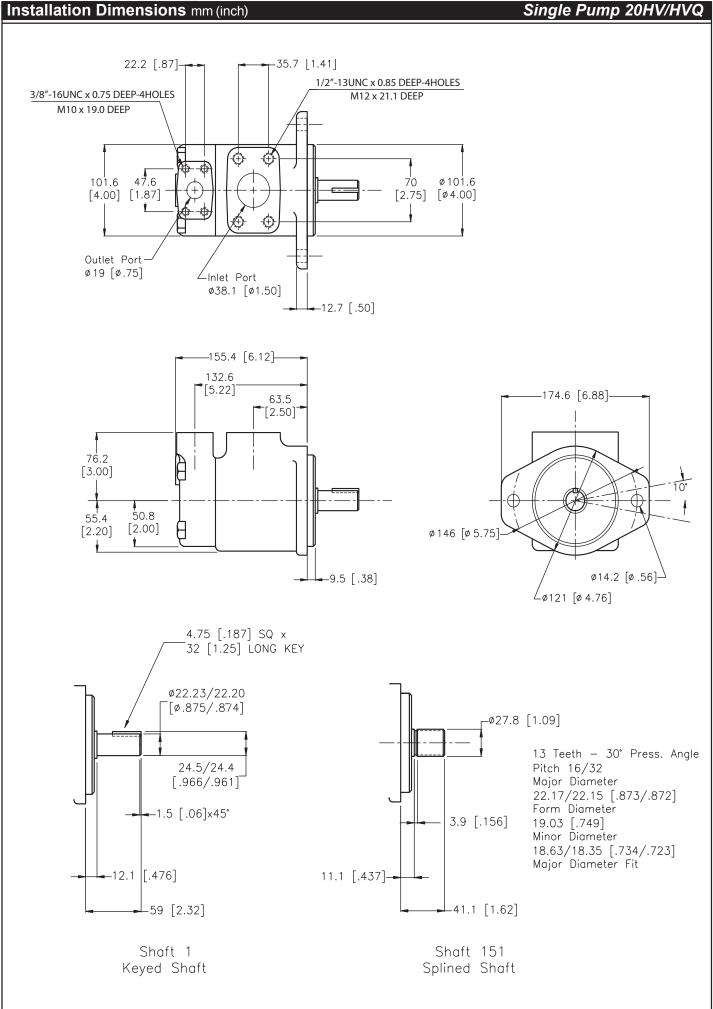
Specifications

Single Pump HVQ Series

Model	Delivery at 1200 rpm & 7 bar (100 psi)	Displacement	Maximum Speed	Maximum Pressure	Typical Delivery at max speed & pressure	Typical Input Power at max speed & pressure	Weight
	USgpm	cm ³ /r (in ³ /r)	rpm	bar (psi)	L/min (USgpm)	kW (hp)	kg (lb)
	2	7.0 (0.42)		206 (3000)	15.9 (4.2)	7.3 (9.8)	
	5	18 (1.10)		206 (3000)	41.6 (11.0)	17.9 (24.0)	
	8	27 (1.67)		206 (3000)	64.3 (17.0)	26.1 (35.0)	
20HVQ	9	30.2 (1.84)	2700	206 (3000)	71.5 (18.9)	32.9 (44.1)	11.8 (26)
	11	36 (2.22)		206 (3000)	87.1 (23.0)	35.4 (47.5)	
	12	39 (2.41)		158 (2300)	96.5 (25.5)	28.3 (38.0)	
	14	45 (2.80)		138 (2000)	113.6 (30.0)	29.1 (39.0)	
	12	40 (2.45)	2700		87.1 (23.0)	41.0 (55.0)	
	14	45 (2.77)	2700		102.2 (27.0)	46.6 (62.5)	
25HVQ	17	55 (3.37)	2500	206 (3000)	117.3 (31.0)	51.8 (69.5)	14.5 (32)
	19	60.8 (3.72)	2500		133.5 (34.5)	53.0 (71.0)	
	21	67 (4.12)	2500		143.8 (38.0)	61.9 (83.0)	
	21	68.3 (4.18)	2500		143.8 (38.0)	55.0 (73.9)	
	25	81 (4.98)	2500		170.3 (45.0)	75.3 (101.0)	
35HVQ	30	97 (5.96)	2500	206 (3000)	208.2 (55.0)	87.7 (117.5)	22.7 (50)
	35	112 (6.88)	2400		227.1 (60.0)	98.5 (132.0)	
	38	121 (7.42)	2400		246.0 (65.0)	104.4 (140.0)	
	42	138 (8.41)			251.7 (66.5)	91.4 (122.5)	
45111/0	47	151.4 (9.26)	2200	172 (2500)	280.8 (74.20)	95.0 (127.3)	240 (75)
45HVQ	50	162 (9.90)	2200	172 (2500)	299.0 (79.0)	105.2 (141.0)	34.0 (75)
	57	183.6 (11.23)			342.5 (90.50)	109.3 (146.6)	
	60	193 (11.80)			363.4 (96.0)	126.8 (170.0)	



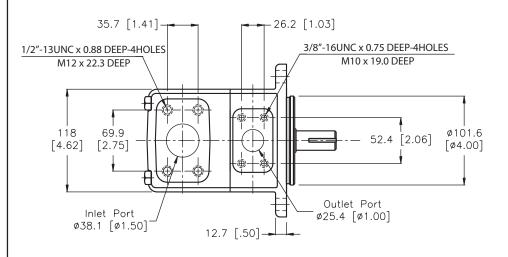


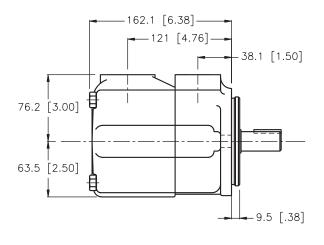


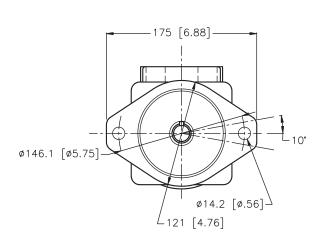


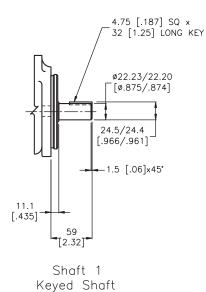
Installation Dimensions mm (inch)

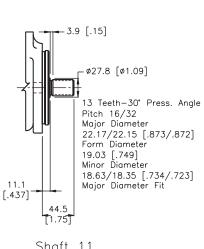
Single Pump 25HV/HVQ









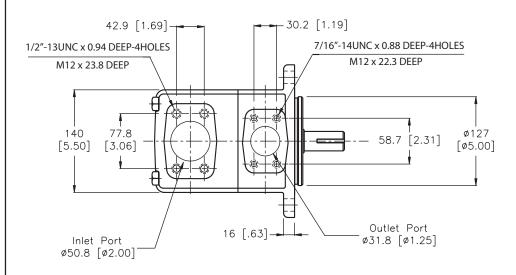


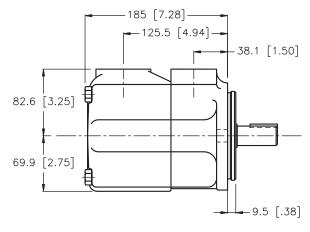
Shaft 11 Splined Shaft

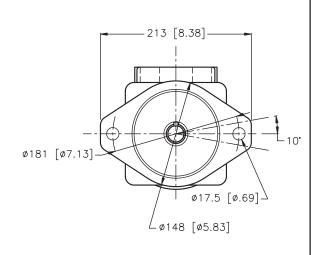
Shaft 86 Heavy Duty Keyed Shaft

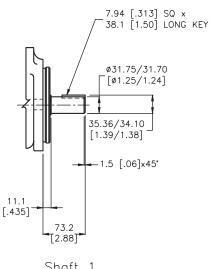


Installation Dimensions mm (inch) Single Pump 35HV/HVQ

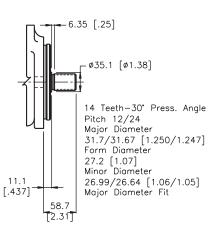




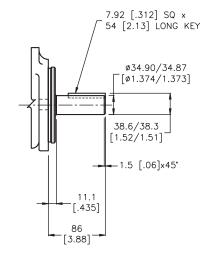




Shaft 1 Keyed Shaft



Shaft 11 Splined Shaft



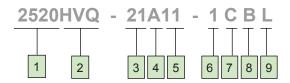
Shaft 86 Heavy Duty Keyed Shaft



Installation Dimensions mm (inch) Single Pump 45HV/HVQ - 35.7 [1.41] 61.9 [2.43]-5/8"-11UNC x 0.88 DEEP-4HOLES 1/2"-13UNC x 0.94 DEEP-4HOLES M16 x 22.3 DEEP M12 x 23.8 DEEP φ---φ 159 106.4 ø127 69.9 [2.75] [6.25] [4.19] [ø5.00] Outlet Port ø38.1 [ø1.50] Inlet Port ø76.2 [ø3.00] 16 [.63] -216 [8.50] — -153 [6.03]**-**-213 [8.38]--43 [1.69] 93.7 [3.69] ø181 [ø7.13]-82.6 [3.25] ø17.5 [ø.69]△ -12.7 [.50] ∠ø148 [ø5.83] 7.92 [.312] SQ x 28.5 [1.12] LONG KEY 9.53 [.375] SQ x 50.8 [2.00] LONG KEY 9.7 [.38] ø38.07/38.05 ø31.75/31.70 [ø1.499/1.498] [\$1.25/1.24] ø39.6 [ø1.56] 35.36/34.10 42.4/42.1 [1.67/1.66] 14 Teeth-30° Press. Angle [1.39/1.38]Pitch 12/24 Major Diameter 31.7/31.67 [1.250/1.247] Form Diameter -1.5 [.06]×45° -1.5 [.06]x45° 27.2 [1.07] Minor Diameter 26.99/26.64 [1.06/1.05] Major Diameter Fit 14.22 14.22 [.560] 14.3 [.560] [.565] 87.4 [3.44]— 61.9 [2.44] 2.44 Shaft 1 Shaft 11 Shaft 86 Keyed Shaft Splined Shaft Heavy Duty Keyed Shaft



Ordering Code Double Pump



1 Model

2520, 3520, 4520 3525, 4525, 4535

2 Series

HV - Industrial

HVQ - Mobile

3 Shaft End Pump

Ring Size (USgpm)

2520HV/HVQ - 12, 14, 17, 19, 21 3525HV/HVQ - 21, 25, 30, 35, 38 4520, 4525, 4535HV/HVQ - 42, 47, 50, 57, 60

4 Port Connection

A - SAE 4-bolt with Inch threads

AM - SAE 4-bolt with Metric threads

5 Cover End Pump

Ring Size (USgpm)

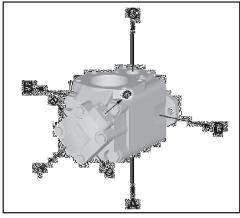
25<u>20</u>HV/HVQ - 2, 5, 8, 9, 11, 12, 14 35<u>25</u>,45<u>25</u>HV/HVQ - 12, 14, 17, 19, 21 45<u>35</u>HV/HVQ - 21, 25, 30, 35, 38

6 Shaft

1 - Straight keyed

11 - Splined

86 - Heavy duty straight keyed



Port Positions for 2520HV/HVQ, 3520HV/HVQ 4520HV/HVQ, 3525HV/HVQ, 4525HV/HVQ

7 Shaft End Outlet Port position

(Viewed from cover end)

A - Opposite inlet

B - 90° CCW from inlet

C - Inline with inlet

D - 90° CW from inlet

8 Cover End Outlet Port position

(Viewed from cover end)

For all models except 4535HV/HVQ

A - 135° CCW from inlet

B - 45° CCW from inlet

C - 45° CW from inlet

D - 135° CW from inlet

For 4535HV/HVQ

A - Opposite inlet

B - 90° CCW from inlet

C - Inline with inlet

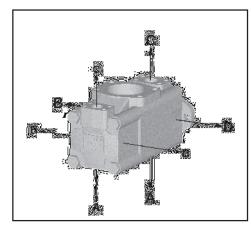
D - 90° CW from inlet

9 Shaft Rotation

(Viewed from shaft end)

R - Turn right

L - Turn left



Port Positions for 4535HV/HVQ

Double Pump HV Series

Model	Cartridge Position	Delivery at 1200 rpm & 7 bar (100 psi)	Displacement	Maximum Speed	Maximum Pressure	Typical Delivery at max speed &	Typical Input Power at max speed &	Weight
		USgpm	cm ³ /r (in ³ /r)	rpm	bar (psi)	pressure L/min (USgpm)	pressure kW (hp)	kg (l b)
	Shaft End	12 14 17 19 21	39 (2.47) 45 (2.78) 55 (3.39) 60.8 (3.72) 67 (4.13)	1800	172 (2500)	62.1 (16.4) 69.6 (18.4) 86.3 (22.8) 91.6 (25.4) 106.0 (28.0)	22.9 (30.8) 25.7 (34.5) 29.8 (40.0) 32.5 (43.5) 34.0 (45.6)	
2520HV	Cover End	2 5 8 9 11 12	7.0 (0.42) 18 (1.10) 27 (1.67) 30.2 (1.84) 36 (2.22) 40 (2.47) 45 (2.78)	1800	206 (3000) 206 (3000) 206 (3000) 206 (3000) 206 (3000) 158 (2300) 138 (2000)	11.3 (3.00) 28.4 (7.5) 45.4 (12.0) 51.0 (13.5) 56.8 (15.0) 62.1 (16.4) 69.6 (18.4)	5.2 (7.0) 11.2 (15.0) 17.0 (22.8) 23.5 (31.5) 22.6 (30.3) 25.1 (33.7) 28.3 (37.9)	20 (45)
	Shaft End	21 25 30 35 38	68.3 (4.18) 81 (4.94) 97 (5.91) 112 (6.83) 121 (7.37)	1800	172 (2500)	106.3 (28.1) 124.9 (33.0) 154.4 (40.8) 181.7 (48.0) 193.8 (51.2)	33.9 (45.5) 45.5 (61.0) 54.5 (73.0) 61.5 (82.4) 65.9 (88.3)	
3520HV	Cover End	2 5 8 9 11 12 14	7.0 (0.42) 18 (1.10) 27 (1.67) 30.2(1.84) 36 (2.22) 40 (2.47) 45 (2.78)	1800	206 (3000) 206 (3000) 206 (3000) 206 (3000) 206 (3000) 158 (2300) 138 (2000)	11.3 (3.00) 28.4 (7.5) 45.4 (12.0) 51.0 (13.5) 56.8 (15.0) 62.1 (16.4) 69.6 (18.4)	5.2 (7.0) 11.2 (15.0) 17.0 (22.8) 23.5 (31.5) 22.6 (30.3) 25.1 (33.7) 28.3 (37.9)	34 (75)
3525HV	Shaft End	21 25 30 35 38	68.3 (4.18) 81 (4.94) 97 (5.91) 112 (6.83) 121 (7.37)	1800	172 (2500)	106.3 (28.1) 124.9 (33.0) 154.4 (40.8) 181.7 (48.0) 193.8 (51.2)	33.9 (45.5) 45.5 (61.0) 54.5 (73.0) 61.5 (82.4) 65.9 (88.3)	34.5 (76)
	Cover End	12 14 17 19 21	39 (2.47) 45 (2.78) 55 (3.39) 68.3 (3.72) 67 (4.13)	1800	172 (2500)	62.1(16.4) 69.6 (18.4) 86.3 (22.8) 96.1 (25.4) 106.0 (28.0)	22.9 (30.8) 25.7 (34.5) 29.8 (40.0) 32.5 (43.5) 34.0 (45.6)	
	Shaft End	42 47 50 57 60	138(8.41) 151.4 (9.26) 162 (9.85) 183.6 (11.23) 193 (11.75)	1800	172 (2500)	208.2(55.0) 244.1 (64.5) 253.6 (67.0) 295.0 (77.8) 310.4 (82.0)	75.3 (101.0) 82.5 (110.6) 87.3 (117.0) 94.0 (126.0) 103.7 (139.0)	
4520HV	Cover End	2 5 8 9 11 12	7.0 (0.42) 18 (1.10) 27 (1.67) 30.2 (1.84) 36 (2.22) 40 (2.47) 45 (2.78)	1800	206 (3000) 206 (3000) 206 (3000) 206 (3000) 206 (3000) 158 (2300) 138 (2000)	11.3 (3.00) 28.4 (7.5) 45.4 (12.0) 51.0 (13.5) 56.8 (15.0) 62.1 (16.4) 69.6 (18.4)	5.2 (7.0) 11.2 (15.0) 17.0 (22.8) 23.5 (31.5) 22.6 (30.3) 25.1 (33.7) 28.3 (37.9)	43 (94)
4525HV	Shaft End	42 47 50 57 60	138 (8.41) 151.4 (9.26) 162 (9.85) 183.6 (11.23) 193 (11.75)	1800	172 (2500)	208.2 (55.0) 244.1 (64.5) 253.6(67.0) 295.0 (77.8) 310.4 (82.0)	75.3 (101.0) 82.5 (110.6) 87.3 (117.0) 94.0 (126.0) 103.7 (139.0)	46 (101)
	Cover End	12 14 17 19 21	39 (2.47) 45 (2.78) 55 (3.39) 60.8 (3.72) 67 (4.13)	1800	172 (2500)	62.1 (16.4) 69.6 (18.4) 86.3 (22.8) 96.1 (25.4) 106.0 (28.0)	22.9 (30.8) 25.7 (34.5) 29.8 (40.0) 32.5 (43.5) 34.0 (45.6)	
4535HV	Shaft End	42 47 50 57 60	138 (8.41) 151.4 (9.26) 162 (9.85) 183.6 (11.23) 193 (11.75)	1800	172 (2500)	208.2(55.0) 244.1 (64.5) 253.6 (67.0) 295.0 (77.8) 310.4 (82.0)	75.3 (101.0) 82.5 (110.6) 87.3 (117.0) 94.0 (126.0) 103.7 (139.0)	54(118)
	Cover End	21 25 30 35 38	68.3 (4.18) 81 (4.94) 97 (5.91) 112 (6.83) 121(7.37)	1800	172 (2500)	106.3 (28.1) 124.9 (33.0) 154.4 (40.8) 181.7 (48.0) 193.8 (51.2)	33.9 (45.5) 45.5 (61.0) 54.5 (73.0) 61.5 (82.4) 65.9 (88.3)	



nedificationscom		Double Pump HVQ Series
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Model	Cartridge Position	Delivery at 1200 rpm & 7 bar (100 psi)	Displacement	Maximum Speed	Maximum Pressure	Typical Delivery at max speed & pressure	Typical Input Power at max speed & pressure	Weight
		USgpm	cm ³ /r (in ³ /r)	rpm	bar (psi)	L/min (USgpm)	kW (hp)	kg (lb)
	Shaft End	12 14 17 19 21	40 (2.45) 45 (2.77) 55 (3.37) 60.8 (3.72) 67 (4.12)	2500	206 (3000)	87.1 (23.0) 102.2 (27.0) 117.3 (31.0) 130.5 (34.50) 143.8 (38.0)	41.0 (55.0) 46.6 (62.5) 51.8 (69.5) 53.0 (71.0) 61.9 (83.0)	
2520HVQ	Cover End	2 5 8 9 11 12 14	7.0 (0.42) 18 (1.10) 27 (1.67) 30.2 (1.84) 36 (2.22) 39 (2.41) 45 (2.80)	2700	206(3000) 206 (3000) 206 (3000) 206 (3000) 206 (3000) 158 (2300) 138 (2000)	15.9 (4 2) 37.9 (10.0) 60.6 (16.0) 71.5 (18.9) 79.5 (21.0) 88.9 (23.5) 104.1 (27.5)	7.3 (9.8) 16.4 (22.0) 24.2 (32.5) 32.9 (44.1) 32.8 (44.0) 26.1 (35.0) 26.9 (36.0)	20 (45)
	Shaft End	21 25 30 35 38	68.3 (4.18) 81 (4.98) 97 (5.96) 112 (6.88) 121 (7.42)	2500	206 (3000)	143.8 (38.0) 145.7 (38.5) 177.9 (47.0) 208.2 (55.0) 223.3 (59.0)	55.0 (73.9) 66.4 (89.0) 77.6 (104.0) 89.5 (120.0) 97.0 (130.0)	
3520HVQ	Cover End	2 5 8 9 11 12 14	7.0 (0.42) 18 (1.10) 27 (1.67) 30.2 (1.84) 36 (2.22) 39 (2.41) 45 (2.80)	2500	206 (3000) 206 (3000) 206 (3000) 206 (3000) 206 (3000) 158 (2300) 138 (2000)	15.0 (4.0) 37.9 (10.0) 60.6 (16.0) 67.8 (17.9) 79.5 (21.0) 88.9 (23.5) 104.1 (27.5)	6.1 (8.2) 16.4 (22.0) 24.2 (32.5) 27.5 (36.8) 32.8 (44.0) 26.1 (35.0) 26.9 (36.0)	34 (75)
3525HVQ	Shaft End	21 25 30 35 38	68.3 (4.18) 81 (4.98) 97 (5.96) 112 (6.88) 121 (7.42)	2500	206 (3000)	143.8 (38.0) 145.7(38.5) 177.9 (47.0) 208.2 (55.0) 223.3 (59.0)	55.0 (73.9) 66.4(89.0) 77.6 (104.0) 89.5 (120.0) 97.0 (130.0)	34.5 (76)
	Cover End	12 14 17 19 21	40 (2.45) 45 (2.77) 55 (3.37) 60.8 (3.72) 67 (4.12)	2500	206 (3000)	79.5 (21.0) 90.8 (24.0) 117.3 (31.0) 130.5 (34.50) 143.8 (38.0)	38.0 (51.0) 43.3 (58.0) 51.5 (69.0) 53.0 (71.0) 61.9 (83.0)	
	Shaft End	42 47 50 57 60	138 (8.46) 151.4 (9.26) 162 (9.90) 183.6 (11.23) 193 (11.80)	2200	172 (2500)	251.7(66.5) 280.8 (74.2) 299.0 (79.0) 342.5 (90.5) 363.4 (96.0)	91.4 (122.5) 95.0 (127.3) 105.2 (141.0) 109.3 (146.6) 126.8 (170.0)	
4520HVQ	Cover End	2 5 8 9 11 12	7.0 (0.42) 18 (1.10) 27 (1.67) 30.2 (1.84) 36 (2.22) 39 (2.41) 45 (2.80)	2200	206 (3000) 206 (3000) 206 (3000) 206 (3000) 206 (3000) 158 (2300) 138 (2000)	13.6 (3.6) 32.2 (8.5) 51.1 (13.5) 59.7 (15.7) 68.1 (18.0) 77.6 (20.5) 90.8 (24.0)	5.6 (7.5) 14.5 (19.5) 21.3 (28.5) 24.2 (32.5) 28.7 (38.5) 23.1(31.0) 23.9 (32.0)	43 (94)
	Shaft End	42 47 50 57 60	138 (8.46) 151.4 (9.26) 162 (9.90) 183.6 (11.23) 193 (11.80)	2200	172 (2500)	251.7(66.5) 280.8 (74.2) 299.0 (79.0) 342.5 (90.5) 363.4 (96.0)	91.4(122.5) 95.0 (127.3) 105.2 (141.0) 109.3 (146.6) 126.8(170.0)	
4525HVQ	Cover End	12 14 17 19 21	40 (2.45) 45 (2.77) 55 (3.37) 60.8 (3.72) 67 (4.12)	2200	206 (3000)	68.1(18.0) 79.5 (21.0) 100.3 (26.5) 120.6 (31.8) 124.9 (33.0)	32.8 (44.0) 38.0 (51.0) 45.5 (61.0) 48.8 (69.5) 54.5 (73.0)	46(101)
4535HVQ	Shaft End	42 47 50 57 60	138 (8.46) 151.4 (9.26) 162 (9.90) 183.6 (11.23) 193 (11.80)	2200	172 (2500)	251.7 (66.5) 280.8 (74.2) 299.0 (79.0) 342.5 (90.5) 363.4 (96.0)	91.4 (122.5) 95.0 (127.3) 105.2 (141.0) 109.3 (146.6) 126.8 (170.0)	54 (118)
	Cover End	21 25 30 35 38	68.3 (4.18) 81 (4.98) 97 (5.96) 112 (6.88) 121 (7.42)	2200	206 (3000)	128 (33.8) 145.7 (38.5) 177.9 (47.0) 208.2 (55.0) 223.3 (59.0)	51.9 (69.5) 66.4 (89.0) 77.6 (104.0) 89.5 (120.0) 97.0 (130.0)	

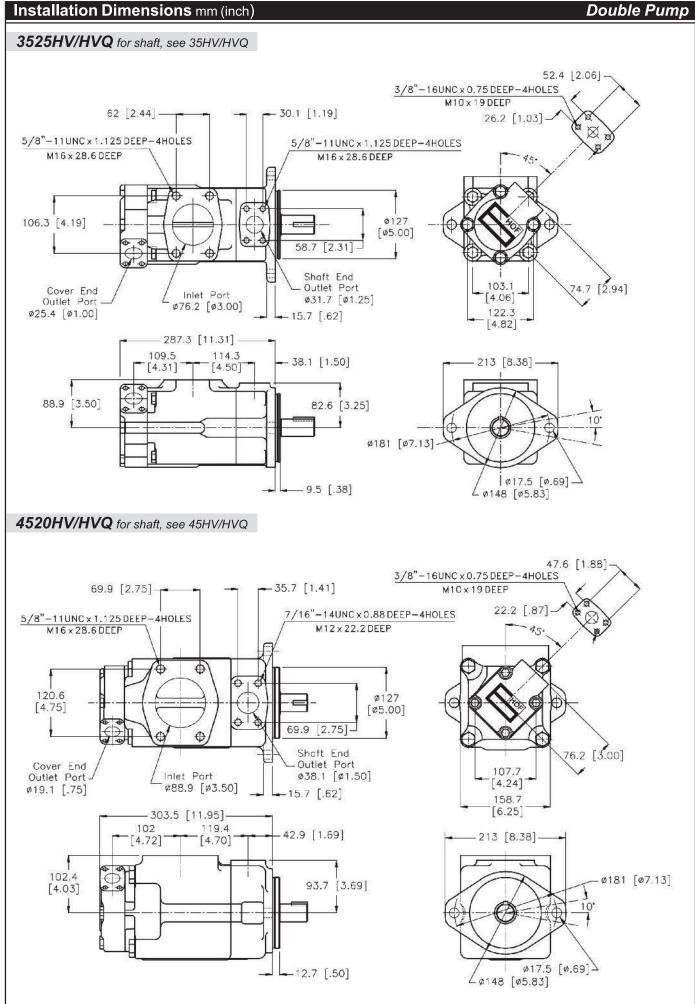




Installation Dimensions mm (inch) Double Pump 2520HV/HVQ for shaft, see 25HV/HVQ 3/8"-16UNC x 0.75 DEEP-4HOLES 47.6 [1.88] -M10 x 19 DEEP 50.8 [2.00] - 26.2 [1.03] 22.2 [.87] 3/8"-16UNC x 0.75 DEEP-4HOLES 1/2"-13UNC x 0.94 DEEP-4HOLES M10×19 DEEP M12 x 23.8 DEEP 88.9 [3.50] ø101.6 [\$4.00] 4 52.4 [2.06] 76.2 [3.00] Shaft End Outlet Port ø25,4 [ø1.00] Cover End Outlet Port 86.5 Inlet Port [3.41] ø63.5 [ø2.50] ø19.1 [ø.75] 107.7 12.7 [.50] [4.24]250 [9.81] -88.1 101.6 38.1 [1.50] [3.47] [4.00] 175 [6.88] 85.9 [3.38] - Ø146.1 [Ø5.75] 76.2 [3.00] ø14.2 [ø.56] - 9.5 [.38] ∠ ø121 [ø4.76] 3520HV/HVQ for shaft, see 35HV/HVQ 47.6 [1.88] 3/8"-16UNC x 0.75 DEEP-4HOLES M10 x 19 DEEP 30.1 [1.19] 62 [2.44] -22.2 [.87] 7/16"-14UNC x 0.88 DEEP-4HOLES 5/8"-11UNC x 1.125 DEEP-4HOLES M16 x 28.6 DEEP M12 x 22.2 DEEP 0127 106.3 [4.19] [ø5.00] 58.7 [2.31] Cover End Outlet Port Shaft End 103.1 76.2 [3.00] Inlet Port Outlet Port [4.06]ø76.1 [ø3.00] ø31.7 [ø1.25] Ø19.1 [Ø.75] 107.7 [4.24] - 15.7 [.62] 273.3 [10.8] 99.6 114.3 38.1 [1.50] 213 [8.38] [3.92] [4.50]88.9 [3.50] 82.6 [3.25] ø181 [ø7.13] Ø17.5 [Ø.69] △ 9.5 [.38] ∠ø148 [ø5.83]



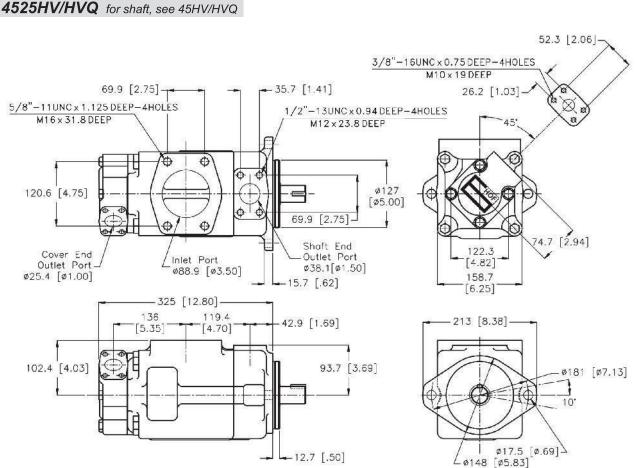




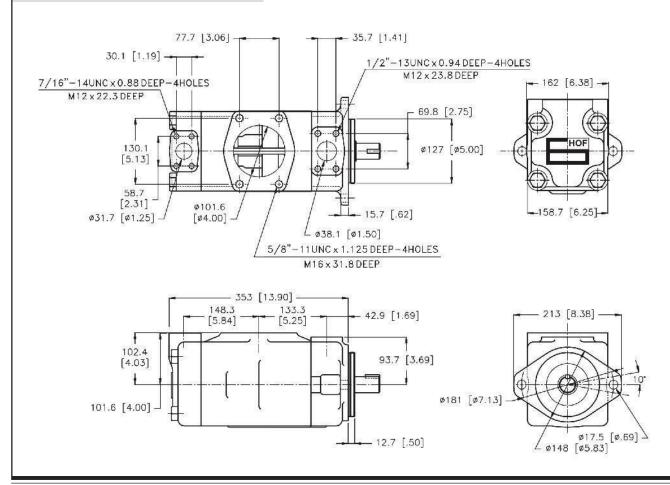
Double Pump



Installation Dimensions mm (inch)



4535HV/HVQ for shaft, see 45HV/HVQ

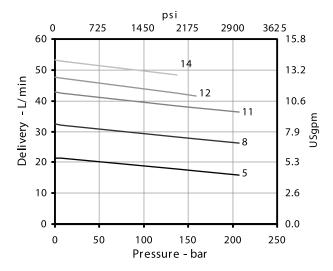


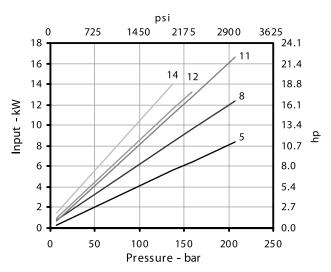




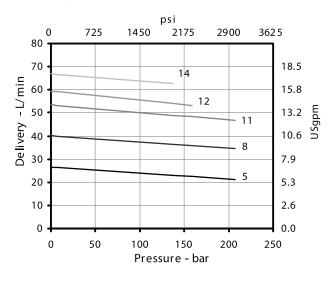
Based on SAE 10W Fluid at 50 °C (120 °F) and Pump inlet at 0 PSIG (14.7 PSIA)

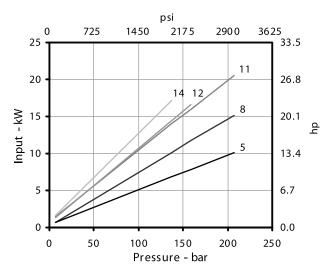
At 1200 rpm



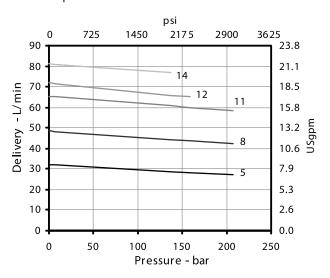


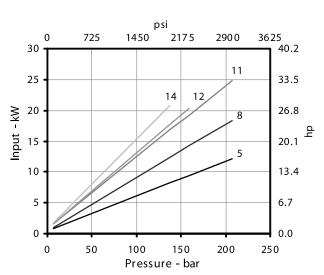
At 1500 rpm





At 1800 rpm



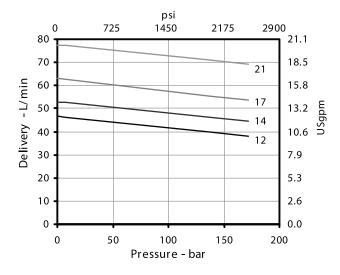


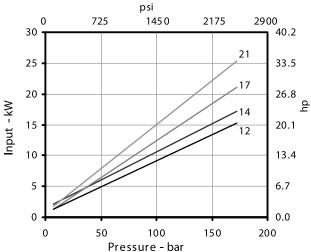


25HV, Shaft End of 25**HV, Cover End of **25HV

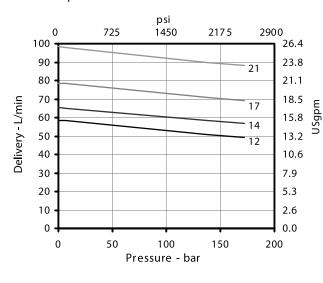
Based on SAE 10W Fluid at 50 °C (120 °F) and Pump inlet at 0 PSIG (14.7 PSIA)

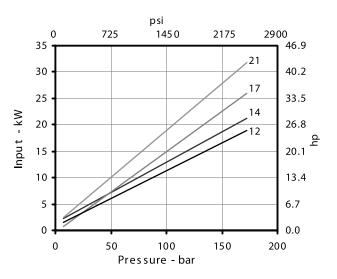
At 1200 rpm



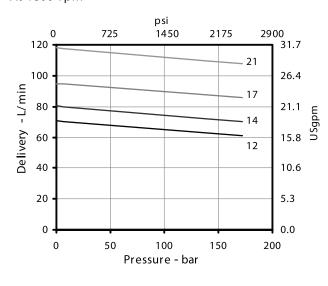


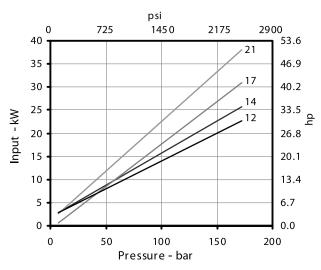
At 1500 rpm





At 1800 rpm



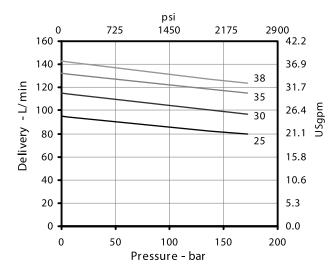


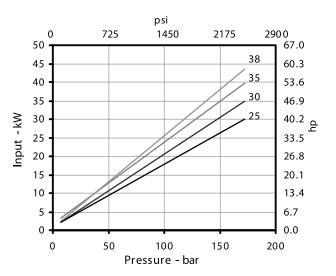


35HV, Shaft End of 35**HV, Cover End of **35HV

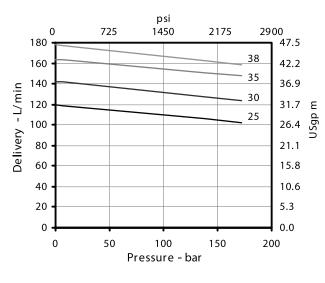
Based on SAE 10W Fluid at 50 °C (120 °F) and Pump inlet at 0 PSIG (14.7 PSIA)

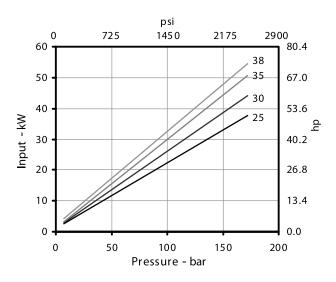
At 1200 rpm



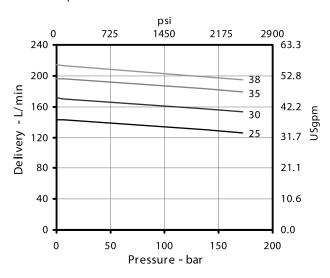


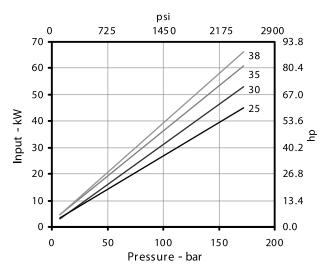
At 1500 rpm





At 1800 rpm



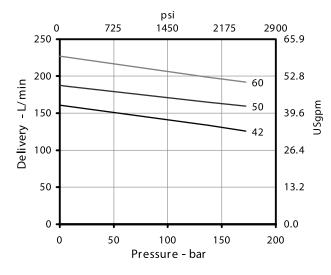


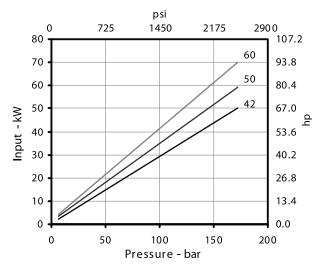


45HV, Shaft End of 45**HV

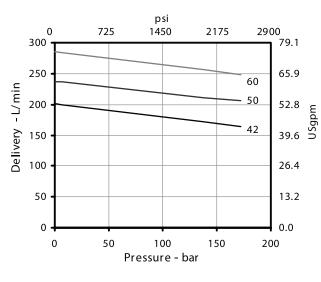
Based on SAE 10W Fluid at 50 °C (120 °F) and Pump inlet at 0 PSIG (14.7 PSIA)

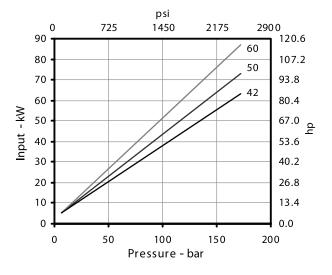
At 1200 rpm



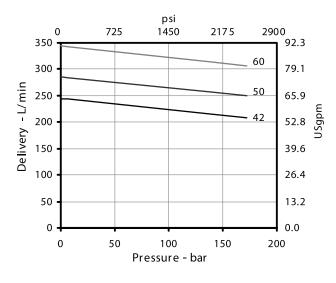


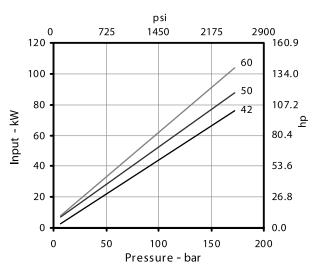
At 1500 rpm





At 1800 rpm







Performance Characteristics 20HVQ, Cover End of 20HVQ

Based on SAE 10W Fluid at 82 °C (180 °F) and Pump inlet at 0 PSIG (14.7 PSIA) Size 5, 8 80 21.1 30 40.2 7 bar 206 bar 69 bar 70 18.5 Size 8 138 ba 25 33.5 206 ba 60 Inpu t - kw 12 26.8 Size 8 7 bar Delivery - L/min 206 bar 50 13.2 69 bar 138 bar 40 138 baı 10.6 Size 8 20.1 을 206 bai 188 bar Size 5 30 7.9 10 Size 5 69 bar Size 8 20 5.3 69 bar Size 5 5 10 2.6 7 bar Size 8 Size 5 0 0.0 0 1200 1600 2000 2400 2800 3200 800 1200 1600 2000 2400 2800 3200 400 800 400 Speed - rpm Speed - rpm Size 11 100 26.4 40 53.6 7 bar 206 bai 69 bar 35 46.9 138 ba 80 21.1 206 ba 40.2 30 Inpu t- kw 20 5 Delivery - L/min 33.5 60 15.9 138 ba 26.8 으 40 10.6 15 20.1 10 13.4 20 5.3 6.7 bar 0.0 400 800 1200 1600 2000 2400 2800 3200 400 800 1200 1600 2000 2400 2800 3200 Speed - rpm Speed - rpm Size 12 120 31.7 30 40.2 158 bar 7 bar 69 bar 100 26.4 25 33.5 38 ba 138 ba 158 ba 15 mg 15 80 26.8 Delivery - L/min 60 15.9 69 bar 20.1 윤 40 10.6 10 13.4 20 5.3 5 6.7 7 bar 400 800 1200 1600 2000 2400 2800 3200 400 800 1200 1600 2000 2400 2800 3200 Speed - rpm Speed - rpm Size 14 140 37.0 30 40.2 138 bar 7 bar 120 31.7 69 bar 33.5 25 138 ba 100 26.4 Inpu t - kw 12 05 26.8 Delivery - L/min 80 21.1 69 bar 20.1 윤 15.9 60 10 13.4 40 10.6 5 6.7 20 5.3 bai 0 800 1200 1600 2000 2400 2800 3200 400 400 800 1200 1600 2000 2400 2800 3200

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





Performance Characteristics 25HVQ, Shaft End of 25**HVQ, Cover End of **25HVQ

Based on SAE 10W Fluid at 82 °C (180 °F) and Pump inlet at 0 PSIG (14.7 PSIA) Size 12 120 60.3 45 206 bar 7 bar 53.6 40 69 bar 100 26.4 138 bai 35 46.9 206 bai npu t - 52 52 kw 80 21.1 40.2 Delivery - L/min 138 baı 33.5 ^c 60 15.9 26.8 40 20.1 10.6 15 10 13.4 20 5.3 5 6.7 0 0.0 0 0.0 800 1200 1600 2000 2400 2800 3200 1200 1600 2000 2400 2800 3200 400 800 Speed - rpm Speed - rpm Size 14 140 37.0 50 67.0 206 bar 45 7 bar 120 31.7 69 bar 53.6 40 🖊 138 ba 100 26.4 35 46.9 206 ba 1 20 20 × 4 × 30 138 bai Delivery - L/min 40.2 80 21.1 33.5 15.9 60 26.8 69 bar 15 20.1 40 10.6 10 13.4 20 5.3 6.7 0.0 0 1200 1600 2000 2400 2800 3200 800 800 1200 1600 2000 2400 2800 3200 400 400 Speed - rpm Speed - rpm Size 17 160 42.3 60 80.4 7 bar 140 37.0 206 bar 67.0 50 69 har 120 138 bar 206 bar 53.6 npu t - kw Delivery - L/ min 100 26.4 138 bar 40.2 80 21.1 30 60 15.9 69 ba 20 26.8 10.6 40 10 13.4 20 5.3 7 bai 0.0 0.0 800 1200 1600 2000 2400 2800 3200 400 800 1200 1600 2000 2400 2800 3200 Speed - rpm Speed - rpm Size 21 180 70 93.8 47.6 7 bar 206 bar 160 69 bar 42.3 60 80.4 138 bar 37.0 140 50 67.0 Delivery - L/min 100 80 40 31.7 Inpu t - kw 138 bai 40 53.6 <u>c</u> 26.4 21.1 30 40.2 15.9 69 bar 20 26.8 10.6 10 5.3 20 7 bar 0.0 0.0 0 800 1200 1600 2000 2400 2800 3200 400 400 800 1200 1600 2000 2400 2800 3200 Speed - rpm Speed - rpm

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





35HVQ, Shaft End of 35**HVQ, Cover End of **35HVQ **Performance Characteristics** Based on SAE 10W Fluid at 82 °C (180 °F) and Pump inlet at 0 PSIG (14.7 PSIA) Size 25 107.2 52.8 206 bar 7 bar 69 bar 70 93.8 138 bar 160 42.3 206 bar 60 80.4 138 bar Inpu t - kw Delivery - L/min 67.0 120 31.7 53.6 80 21.1 30 40.2 69 bar 20 26.8 40 10.6 10 13.4 7 bar 0.0 0 0.0 0 400 800 1200 1600 2000 2400 2800 3200 400 800 1200 1600 2000 2400 2800 3200 Speed - rpm Speed - rpm Size 30 120.6 250 66.1 90 7 bar 206 bar 69 bar 80 107.2 138 bar 200 52.8 70 93.8 206 bar 138 bar Delivery - L/min 001 60 80.4 Input - kw 39.6 50 67.0 40 53.6 26.4 69 bar 30 40.2 20 26.8 50 13.2 10 13.4 7 ba 0.0 0.0 800 1200 1600 2000 2400 2800 3200 800 1200 1600 2000 2400 2800 3200 Speed - rpm Speed - rpm Size 35 300 79.3 100 134.0 206 bar 7 bar 69 bar 250 66.1 138 bar 80 107.2 206 bar 138 bar 200 52.8 Delivery - L/min Inpu t - kw 80.4 150 39.6 hр 40 536 69 bar 100 26.4 20 26.8 50 13.2 7 bar 0 0.0 0.0 400 800 1200 1600 2000 2400 2800 3200 400 800 1200 1600 2000 2400 2800 3200 Speed - rpm Speed - rpm Size 38 160.9 300 79.3 120 7 bar 69 bar 206 bar 250 66.1 100 134.0 138 baı 206 bar Delivery - L/min 100 Inpu t - kw 09 08 107.2 138 bar 39.6 80.4 으 69 bar 26.4 40 53.6

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

800 1200 1600 2000 2400 2800 3200

Speed - rpm

13.2

20

0

400



50

400

26.8

7 bar

800 1200 1600 2000 2400 2800 3200

Speed - rpm

45HVQ, Shaft End of 45**HVQ

Based on SAE 10W Fluid at 82 °C (180 °F) and Pump inlet at 0 PSIG (14.7 PSIA)

