

Fixed Displacement Vane Pump V and VQ Series

HOF

Features

- V and VQ 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 VQ 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 VQ 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

25VQ - 21A - 11C(L) - (V)

Model 20,25,35,45

Series

V - Industrial
 VQ - Mobile

Ring Size (USgallon)

20V/VQ - 5, 8, 11, 12, 14
 25V/VQ - 12, 14, 17, 21
 35V/VQ - 25, 30, 35, 38
 45V/VQ - 42, 50, 60

Port Connection

A - SAE 4-bolt with Inch threads
 AM - SAE 4-bolt with Metric threads

Shaft

1 - Straight keyed
 11 - Splined (25V/VQ, 35V/VQ, 45V/VQ)
 86 - Heavy duty straight keyed (25V/VQ, 35V/VQ, 45V/VQ)
 151 - Splined (20V/VQ only)

Seal

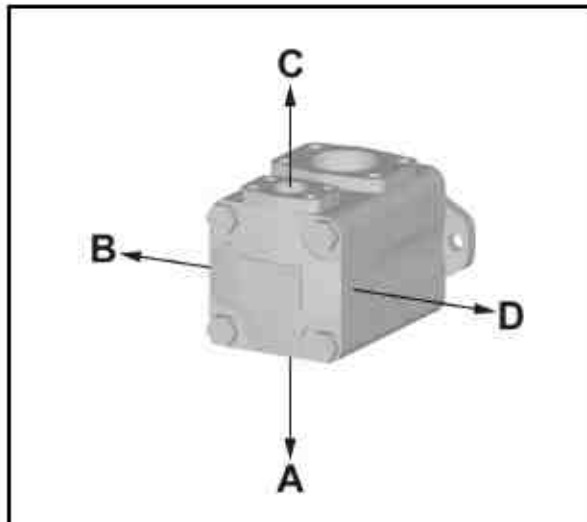
Omit - Buna seal
 V - Viton seal

Shaft Rotation

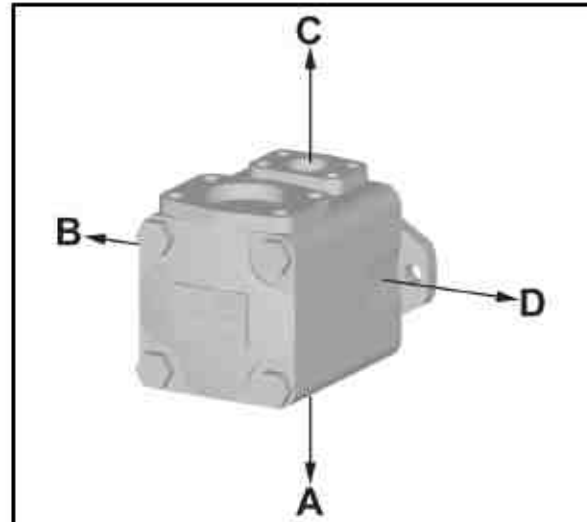
(Viewed from shaft end)
 Omit - Turn right
 L - Turn left

Outlet port position

(Viewed from cover end)
 A - Opposite Inlet
 B - 90° CCW from Inlet
 C - Inline with Inlet
 D - 90° CW from Inlet



Port Positions for 20V/VQ



Port Positions for 25V/VQ, 35V/VQ, 45V/VQ

Specifications

Single Pump V Series

| Model | Delivery at 1200 rpm & 7 bar (100 psi) | Displacement cm^3/r (in^3/r) | Maximum Speed | Maximum Pressure | Typical Delivery at max speed & pressure L/min (USgpm) | Typical Input Power at max speed & pressure kW (hp) | Weight kg (lb) |
|-------|--|---|------------------|---------------------|--|--|--------------------------------|
| | USgpm | | rpm | bar (psi) | | | |
| 20V | 6 | 16 (1.10) | 1800 | 206 (3000) | 28.4 (7.6) | 11.2 (16.0) | 11.6 (26) |
| | 8 | 27 (1.67) | | 206 (3000) | 45.4 (12.0) | 17.0 (22.8) | |
| | 11 | 36 (2.22) | | 206 (3000) | 68.8 (16.0) | 22.6 (30.3) | |
| | 12 | 40 (2.47) | | 158 (2300) | 82.1 (16.4) | 25.1 (33.7) | |
| | 14 | 45 (2.75) | | 136 (2000) | 89.6 (16.4) | 26.3 (37.9) | |
| 25V | 12 | 39 (2.47) | 1800 | 172 (2500) | 62.1 (16.4) | 22.9 (30.8) | 14.5 (32) |
| | 14 | 45 (2.76) | | | 69.6 (16.4) | 25.7 (34.5) | |
| | 17 | 55 (3.39) | | | 86.3 (22.8) | 29.8 (40.0) | |
| | 21 | 67 (4.13) | | | 106.0 (26.0) | 34.0 (45.6) | |
| 35V | 25 | 81 (4.94) | 1800 | 172 (2500) | 124.9 (33.0) | 45.5 (61.0) | 22.7 (50) |
| | 30 | 97 (5.91) | | | 154.4 (40.8) | 54.5 (73.0) | |
| | 35 | 112 (6.83) | | | 181.7 (48.0) | 61.5 (82.4) | |
| | 38 | 121 (7.37) | | | 183.8 (51.2) | 65.9 (88.3) | |
| 45V | 42 | 138 (8.41) | 1800 | 172 (2500) | 208.2 (56.0) | 76.3 (101.0) | 34.0 (75) |
| | 50 | 162 (9.85) | | | 253.6 (67.0) | 87.3 (117.0) | |
| | 60 | 193 (11.75) | | | 310.4 (82.0) | 103.7 (139.0) | |

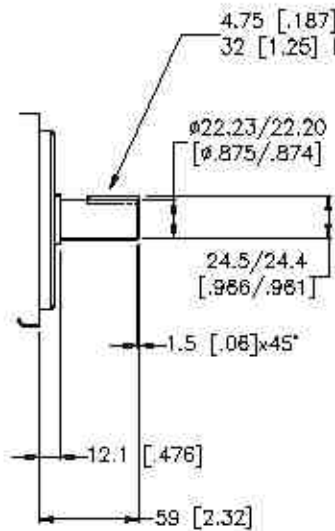
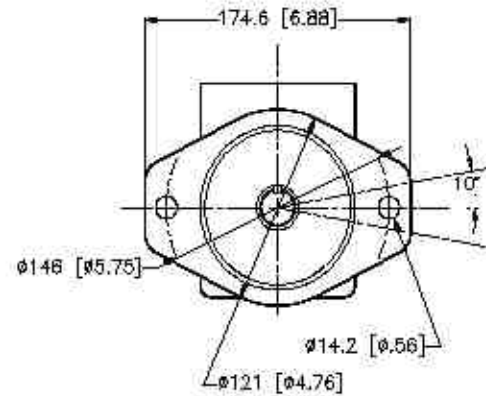
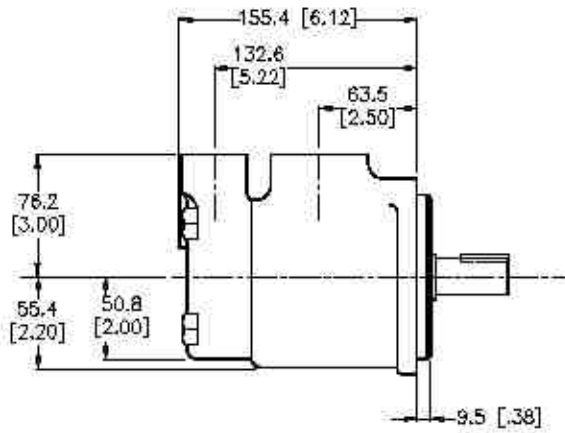
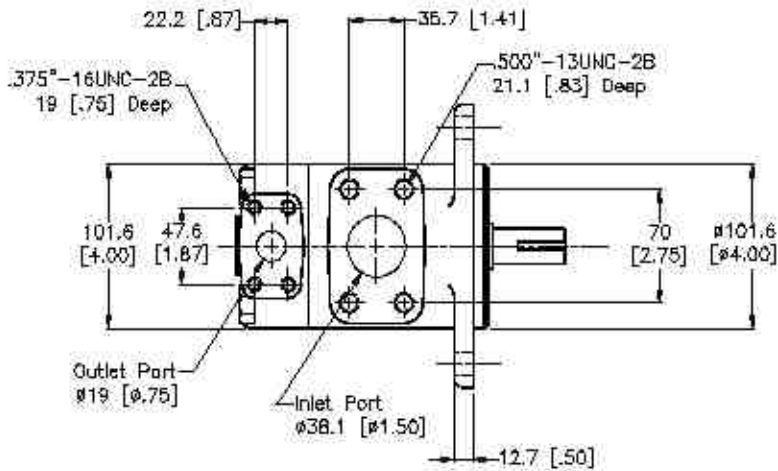
Specifications

Single Pump VQ Series

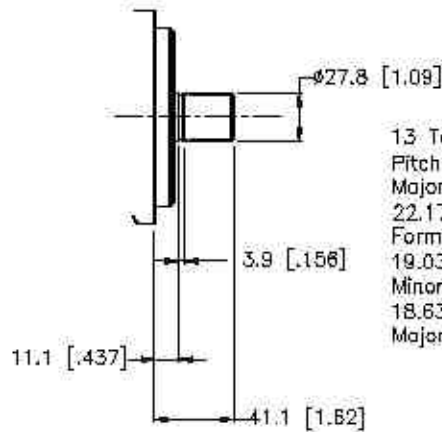
| Model | Delivery at 1200 rpm & 7 bar (100 psi) | Displacement cm^3/r (in^3/r) | Maximum Speed | Maximum Pressure | Typical Delivery at max speed & pressure L/min (USgpm) | Typical Input Power at max speed & pressure kW (hp) | Weight kg (lb) |
|-------|--|---|------------------|---------------------|--|--|--------------------------------|
| | USgpm | | rpm | bar (psi) | | | |
| 20VQ | 6 | 18 (1.10) | 2700 | 206 (3000) | 41.6 (11.0) | 17.9 (24.0) | 11.6 (26) |
| | 8 | 27 (1.67) | | 206 (3000) | 64.3 (17.0) | 26.1 (35.0) | |
| | 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) | | 136 (2000) | 113.8 (30.0) | 29.1 (39.0) | |
| 25VQ | 12 | 40 (2.45) | 2700 | 206 (3000) | 87.1 (23.0) | 41.0 (55.0) | 14.5 (32) |
| | 14 | 45 (2.77) | 2700 | | 102.2 (27.0) | 46.6 (62.5) | |
| | 17 | 55 (3.37) | 2500 | | 117.3 (31.0) | 51.8 (69.5) | |
| | 21 | 67 (4.12) | 2500 | | 143.8 (38.0) | 61.9 (83.0) | |
| 35VQ | 25 | 81 (4.98) | 2500 | 206 (3000) | 170.3 (45.0) | 75.3 (101.0) | 22.7 (50) |
| | 30 | 97 (5.96) | 2500 | | 208.2 (55.0) | 87.7 (117.5) | |
| | 35 | 112 (6.88) | 2400 | | 227.1 (60.0) | 99.5 (132.0) | |
| | 38 | 121 (7.42) | 2400 | | 246.0 (65.0) | 104.4 (140.0) | |
| 45VQ | 42 | 138 (8.46) | 2200 | 172 (2500) | 251.7 (66.5) | 91.4 (122.5) | 34.0 (75) |
| | 50 | 162 (9.80) | | | 299.0 (79.0) | 105.2 (141.0) | |
| | 60 | 193 (11.80) | | | 363.4 (96.0) | 126.8 (170.0) | |

Installation Dimensions mm (inch)

Single Pump 20V/VQ



Shaft 1
Keyed Shaft

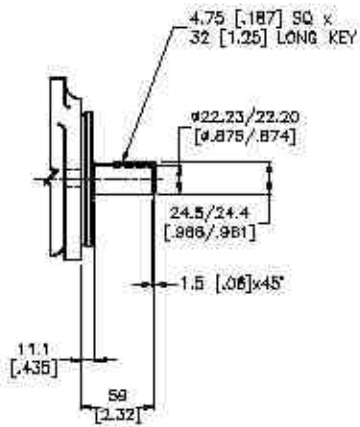
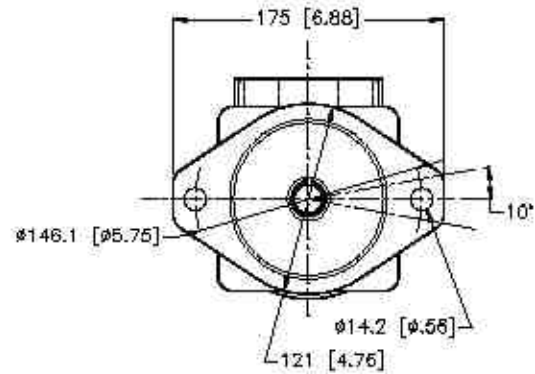
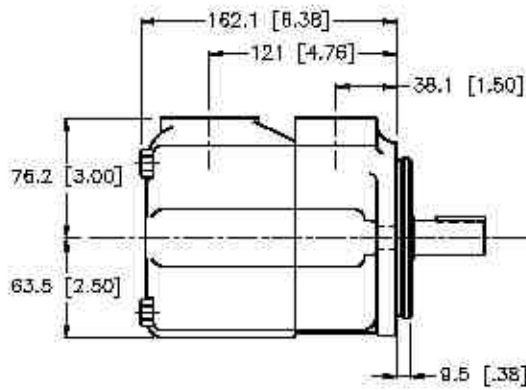
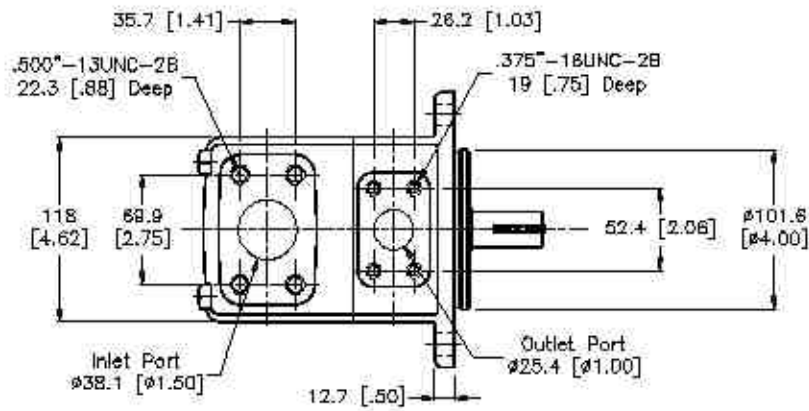


Shaft 151
Splined Shaft

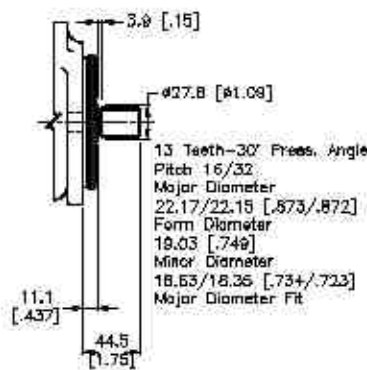
13 Teeth - 30° Press. Angle
 Pitch 18/32
 Major Diameter
 22.17/22.15 [.873/.872]
 Form Diameter
 19.03 [.749]
 Minor Diameter
 18.63/18.35 [.734/.723]
 Major Diameter Fit

Installation Dimensions mm (inch)

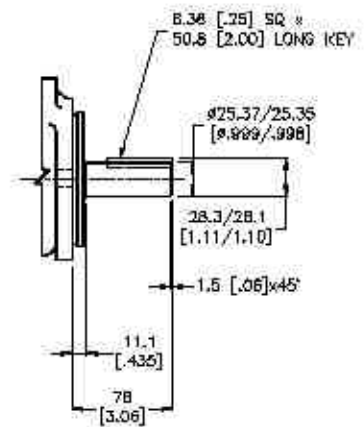
Single Pump 25V/VQ



Shaft 1
Keyed Shaft



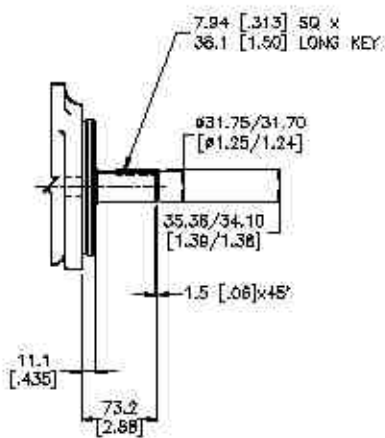
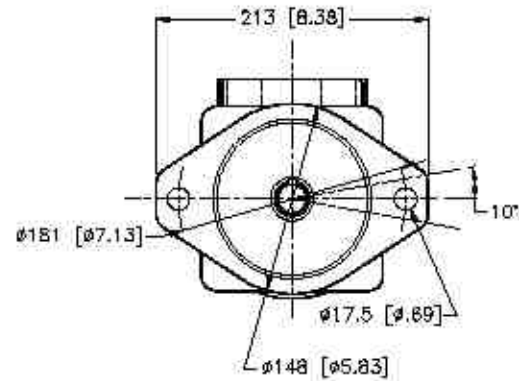
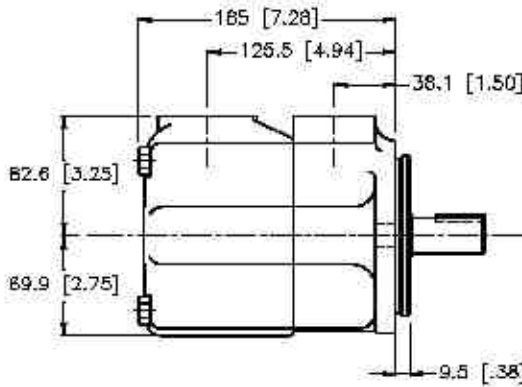
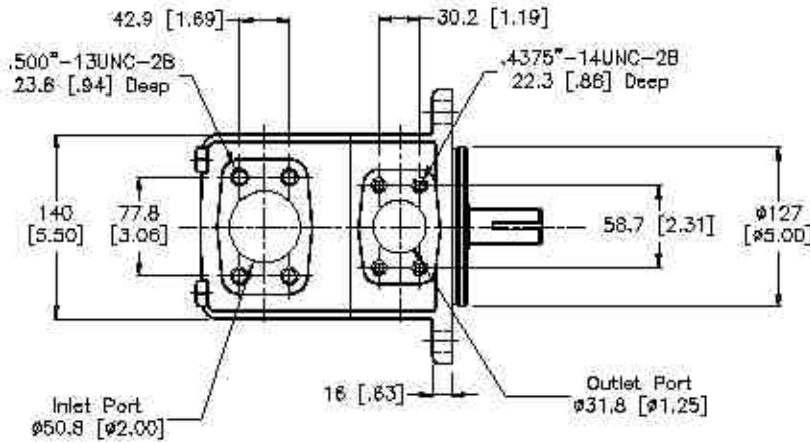
Shaft 11
Splined Shaft



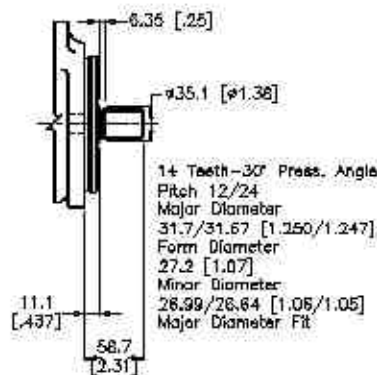
Shaft 86
Keyed Shaft

Installation Dimensions mm (inch)

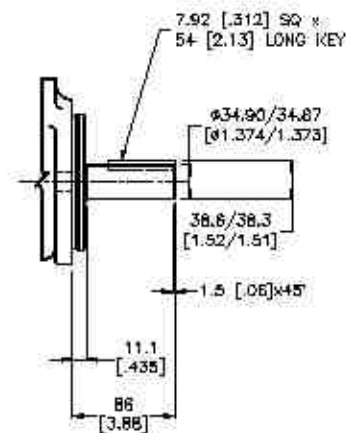
Single Pump 35V/Q



Shaft 1
Keyed Shaft



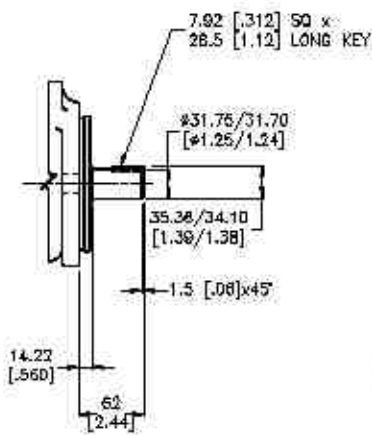
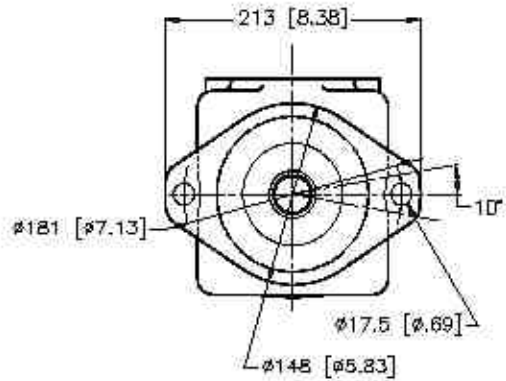
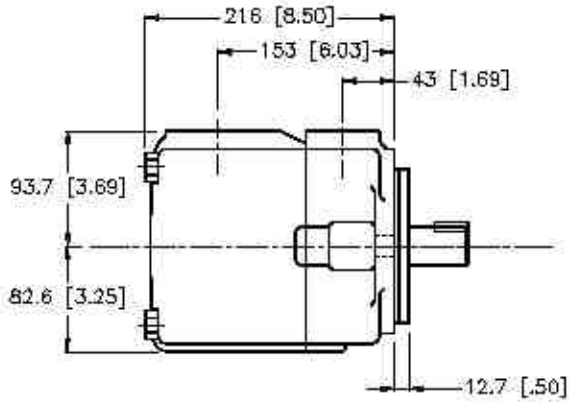
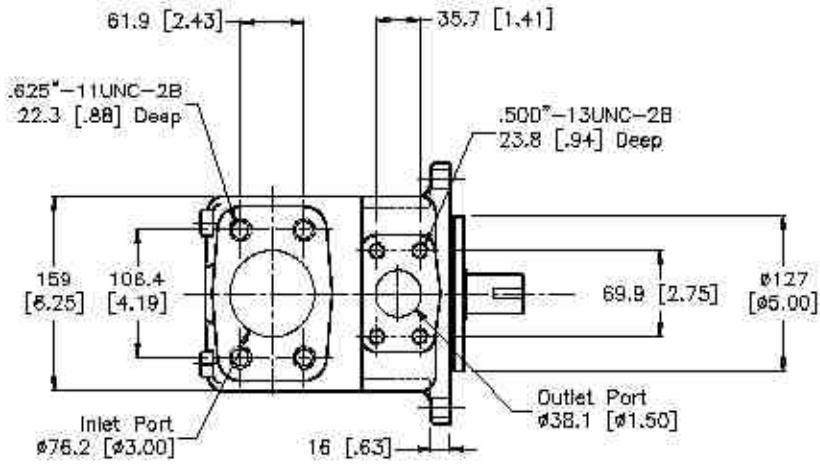
Shaft 11
Splined Shaft



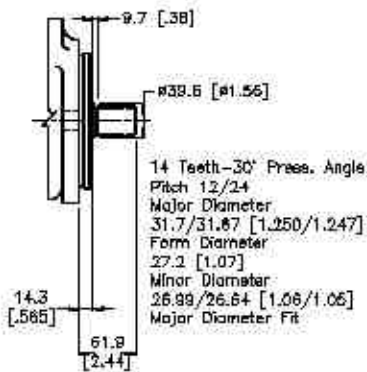
Shaft 86
Keyed Shaft

Installation Dimensions mm (inch)

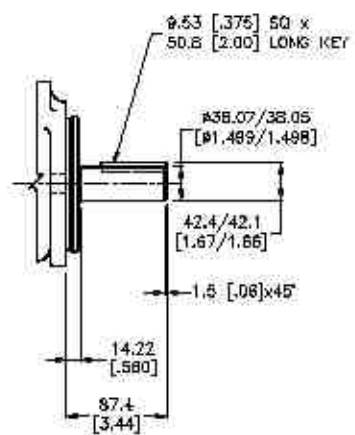
Single Pump 45V/NQ



Shaft 1
Keyed Shaft



Shaft 11
Splined Shaft



Shaft 86
Keyed Shaft

Ordering Code

Double Pump

2520VQ - 21 A 11 - 1 C B (L) - (V)

Model

2520, 3520, 4520
 3525, 4525, 4535

Series

V - Industrial
 VQ - Mobile

Shaft End Pump

Ring Size (USgallon)
 25**V/VQ - 12, 14, 17, 21
 35**V/VQ - 25, 30, 35, 38
 45**V/VQ - 42, 50, 60

Port Connection

A - SAE 4-bolt with Inch threads
 AM - SAE 4-bolt with Metric threads

Cover End Pump

Ring Size (USgallon)
 **20V/VQ - 5, 8, 11, 12, 14
 **25V/VQ - 12, 14, 17, 21
 **35V/VQ - 25, 30, 35, 38

Shaft

1 - Straight keyed
 11 - Splined
 86 - Heavy duty straight keyed

Seal

Omit - Buna seal
 V - Viton seal

Shaft Rotation

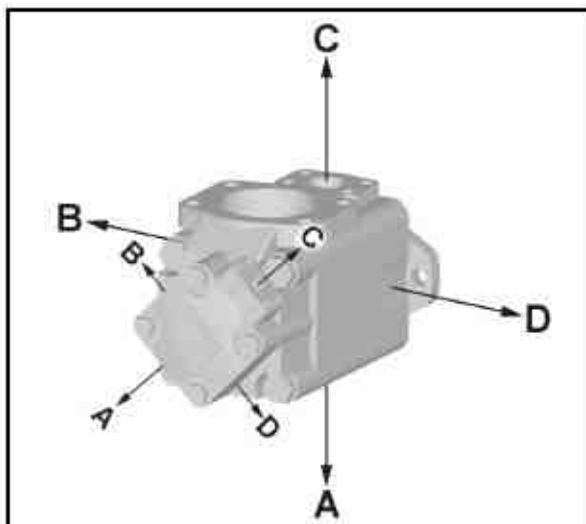
(Viewed from shaft end)
 Omit - Turn right
 L - Turn left

Cover End Outlet port position
 (Viewed from cover end)

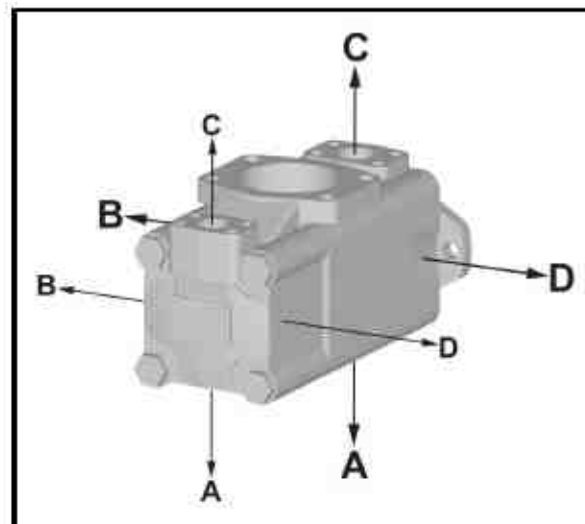
For all models except 4535V/VQ
 A - 135° CCW from Inlet
 B - 45° CCW from inlet
 C - 45° CW from Inlet
 D - 135° CW from inlet
 For 4535V/VQ
 A - Opposite inlet
 B - 90° CCW from inlet
 C - Inline with inlet
 D - 90° CW from inlet

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



Port Positions for 2520V/VQ, 3520V/VQ
 4520V/VQ, 3525V/VQ, 4525V/VQ



Port Positions for 4535V/VQ

Specifications

Double Pump V Series

| 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) | |
| 2620V | Shaft End | 12 | 39 (2.47) | 1800 | 172 (2500) | 62.1 (16.4) | 22.9 (30.8) | 20 (45) |
| | | 14 | 45 (2.78) | | | 68.8 (18.4) | 25.7 (34.5) | |
| | | 17 | 55 (3.39) | | | 88.3 (22.8) | 29.8 (40.0) | |
| | Cover End | 21 | 67 (4.13) | 106.0 (28.0) | 34.0 (45.6) | | | |
| | | 5 | 18 (1.10) | 208 (3000) | 28.4 (7.5) | 11.2 (15.0) | | |
| | | 8 | 27 (1.87) | 208 (3000) | 45.4 (12.0) | 17.0 (22.8) | | |
| 3520V | Shaft End | 11 | 36 (2.22) | 1800 | 172 (2500) | 58.8 (15.0) | 22.8 (30.3) | 34 (75) |
| | | 12 | 40 (2.47) | | | 158 (2300) | 25.1 (33.7) | |
| | | 14 | 45 (2.78) | | | 138 (2000) | 28.3 (37.9) | |
| | Cover End | 25 | 81 (4.94) | 208 (3000) | 28.4 (7.5) | 11.2 (15.0) | | |
| | | 30 | 97 (5.91) | 208 (3000) | 45.4 (12.0) | 17.0 (22.8) | | |
| | | 35 | 112 (6.83) | 158 (2300) | 58.8 (15.0) | 22.8 (30.3) | | |
| 3525V | Shaft End | 38 | 121 (7.37) | 1800 | 172 (2500) | 82.1 (18.4) | 25.1 (33.7) | 34.5 (76) |
| | | 38 | 121 (7.37) | | | 89.8 (18.4) | 28.3 (37.9) | |
| | | 38 | 121 (7.37) | | | 124.9 (33.0) | 45.6 (61.0) | |
| | Cover End | 30 | 81 (4.94) | 154.4 (40.8) | 54.5 (73.0) | | | |
| | | 35 | 97 (5.91) | 181.7 (48.0) | 61.5 (82.4) | | | |
| | | 38 | 121 (7.37) | 193.8 (51.2) | 65.9 (88.3) | | | |
| 4520V | Shaft End | 42 | 138 (8.41) | 1800 | 172 (2500) | 103.7 (139.0) | 75.3 (101.0) | 43 (94) |
| | | 50 | 162 (9.85) | | | 253.6 (67.0) | 87.3 (117.0) | |
| | | 60 | 193 (11.75) | | | 310.4 (82.0) | 103.7 (139.0) | |
| | Cover End | 5 | 18 (1.10) | 208 (3000) | 28.4 (7.5) | 11.2 (15.0) | | |
| | | 8 | 27 (1.87) | 208 (3000) | 45.4 (12.0) | 17.0 (22.8) | | |
| | | 11 | 36 (2.22) | 208 (3000) | 58.8 (15.0) | 22.8 (30.3) | | |
| 4525V | Shaft End | 12 | 40 (2.47) | 1800 | 172 (2500) | 62.1 (16.4) | 22.9 (30.8) | 46 (101) |
| | | 14 | 45 (2.78) | | | 68.8 (18.4) | 25.7 (34.5) | |
| | | 17 | 55 (3.39) | | | 88.3 (22.8) | 29.8 (40.0) | |
| | Cover End | 21 | 67 (4.13) | 106.0 (28.0) | 34.0 (45.6) | | | |
| | | 42 | 138 (8.41) | 208.2 (55.0) | 75.3 (101.0) | | | |
| | | 50 | 162 (9.85) | 253.6 (67.0) | 87.3 (117.0) | | | |
| 4535V | Shaft End | 60 | 193 (11.75) | 1800 | 172 (2500) | 310.4 (82.0) | 103.7 (139.0) | 64 (118) |
| | | 60 | 193 (11.75) | | | 310.4 (82.0) | 103.7 (139.0) | |
| | | 60 | 193 (11.75) | | | 310.4 (82.0) | 103.7 (139.0) | |
| | Cover End | 25 | 81 (4.94) | 124.9 (33.0) | 45.6 (61.0) | | | |
| | | 30 | 97 (5.91) | 154.4 (40.8) | 54.5 (73.0) | | | |
| | | 35 | 112 (6.83) | 181.7 (48.0) | 61.5 (82.4) | | | |
| | | 38 | 121 (7.37) | 193.8 (51.2) | 65.9 (88.3) | | | |

Specifications

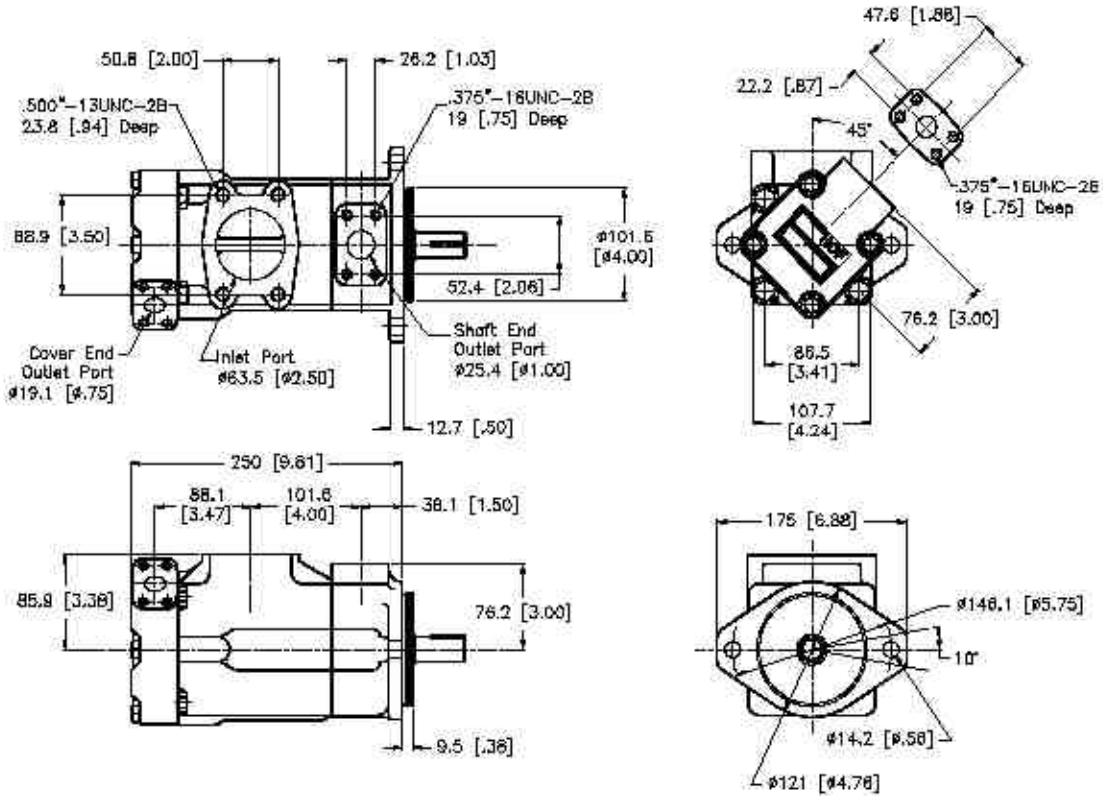
Double Pump VQ Series

| Model | Cartridge Position | Delivery at 1200 rpm & 7 bar (100 psi) | Displacement cm ³ /r (in ³ /r) | Maximum Speed | Maximum Pressure bar (psi) | Typical Delivery at max speed & pressure | Typical Input Power at max speed & pressure kW (hp) | Weight kg (lb) |
|--------|--------------------|--|---|---------------|-------------------------------|--|--|-------------------|
| | | USgpm | | rpm | | L/min (USgpm) | | |
| 2520VQ | Shaft End | 12 | 40 (2.45) | 2700 | 206 (3000) | 87.1 (23.0) | 41.0 (55.0) | 20 (45) |
| | | 14 | 45 (2.77) | 2700 | | 102.2 (27.0) | 46.8 (62.5) | |
| | | 17 | 55 (3.37) | 2500 | | 117.3 (31.0) | 51.8 (69.5) | |
| | | 21 | 67 (4.12) | 2500 | | 143.8 (38.0) | 61.9 (83.0) | |
| | Cover End | 5 | 18 (1.10) | 2700 | 206 (3000) | 41.8 (11.0) | 17.8 (24.0) | |
| | | 8 | 27 (1.67) | | 206 (3000) | 64.3 (17.0) | 28.1 (35.0) | |
| | | 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) | | | |
| 3520VQ | Shaft End | 28 | 81 (4.98) | 2500 | 206 (3000) | 170.3 (45.0) | 75.3 (101.0) | 34 (76) |
| | | 30 | 97 (5.98) | 2500 | | 208.2 (55.0) | 87.7 (117.5) | |
| | | 35 | 112 (6.88) | 2400 | | 227.1 (60.0) | 98.5 (132.0) | |
| | | 38 | 121 (7.42) | 2400 | | 245.9 (65.0) | 104.4 (140.0) | |
| | Cover End | 6 | 18 (1.10) | 2500 | 206 (3000) | 37.9 (10.0) | 16.4 (22.0) | |
| | | 8 | 27 (1.67) | | 206 (3000) | 60.6 (16.0) | 24.2 (32.5) | |
| | | 11 | 36 (2.22) | | 206 (3000) | 79.5 (21.0) | 32.8 (44.0) | |
| | | 12 | 39 (2.41) | | 158 (2300) | 88.9 (23.5) | 28.1 (35.0) | |
| | 14 | 45 (2.80) | 138 (2000) | 104.1 (27.5) | 28.9 (38.0) | | | |
| 3525VQ | Shaft End | 25 | 81 (4.98) | 2500 | 206 (3000) | 170.3 (45.0) | 75.3 (101.0) | 34.5 (76) |
| | | 30 | 97 (5.96) | 2500 | | 208.2 (55.0) | 87.7 (117.5) | |
| | | 35 | 112 (6.88) | 2400 | | 227.1 (60.0) | 98.5 (132.0) | |
| | | 38 | 121 (7.42) | 2400 | | 245.9 (65.0) | 104.4 (140.0) | |
| | Cover End | 12 | 40 (2.45) | 2500 | 206 (3000) | 78.5 (21.0) | 38.0 (51.0) | |
| | | 14 | 45 (2.77) | | 206 (3000) | 90.8 (24.0) | 43.3 (58.0) | |
| | | 17 | 55 (3.37) | | 158 (2300) | 117.3 (31.0) | 51.5 (69.0) | |
| | | 21 | 67 (4.12) | | 138 (2000) | 143.8 (38.0) | 61.9 (83.0) | |
| 4520VQ | Shaft End | 42 | 138 (8.46) | 2200 | 172 (2500) | 251.7 (66.5) | 91.4 (122.5) | 43 (94) |
| | | 50 | 162 (9.90) | 2200 | | 299.0 (79.0) | 105.2 (141.0) | |
| | | 60 | 193 (11.80) | 2200 | | 363.4 (96.0) | 128.8 (170.0) | |
| | | 5 | 18 (1.10) | 2200 | | 206 (3000) | 32.2 (8.5) | |
| | 8 | 27 (1.67) | 206 (3000) | | 51.1 (13.5) | 21.3 (28.5) | | |
| | 11 | 36 (2.22) | 206 (3000) | | 68.1 (18.0) | 28.7 (38.5) | | |
| | 12 | 39 (2.41) | 158 (2300) | | 77.8 (20.5) | 23.1 (31.0) | | |
| | | 14 | 45 (2.80) | 138 (2000) | 90.8 (24.0) | 28.9 (32.0) | | |
| 4525VQ | Shaft End | 42 | 138 (8.46) | 2200 | 172 (2500) | 251.7 (66.5) | 91.4 (122.5) | 46 (101) |
| | | 50 | 162 (9.90) | 2200 | | 299.0 (79.0) | 105.2 (141.0) | |
| | | 60 | 193 (11.80) | 2200 | | 363.4 (96.0) | 128.8 (170.0) | |
| | | 12 | 40 (2.45) | 2200 | | 206 (3000) | 68.1 (18.0) | |
| | 14 | 45 (2.77) | 206 (3000) | | 79.5 (21.0) | 38.0 (51.0) | | |
| | 17 | 55 (3.37) | 158 (2300) | | 100.3 (26.5) | 45.6 (61.0) | | |
| | 21 | 67 (4.12) | 138 (2000) | | 124.9 (33.0) | 54.5 (73.0) | | |
| | 4535VQ | Shaft End | 42 | 138 (8.46) | 2200 | 172 (2500) | 251.7 (66.5) | |
| 50 | | | 162 (9.90) | 2200 | 299.0 (79.0) | | 105.2 (141.0) | |
| 60 | | | 193 (11.80) | 2200 | 363.4 (96.0) | | 128.8 (170.0) | |
| 25 | | | 81 (4.98) | 2200 | 206 (3000) | | 145.7 (39.5) | 66.4 (89.0) |
| 30 | | 87 (5.98) | 206 (3000) | | 177.9 (47.0) | 77.6 (104.0) | | |
| 35 | | 112 (6.88) | 206 (3000) | | 208.2 (55.0) | 89.5 (120.0) | | |
| 38 | | 121 (7.42) | 223.3 (58.0) | | 223.3 (58.0) | 97.0 (130.0) | | |

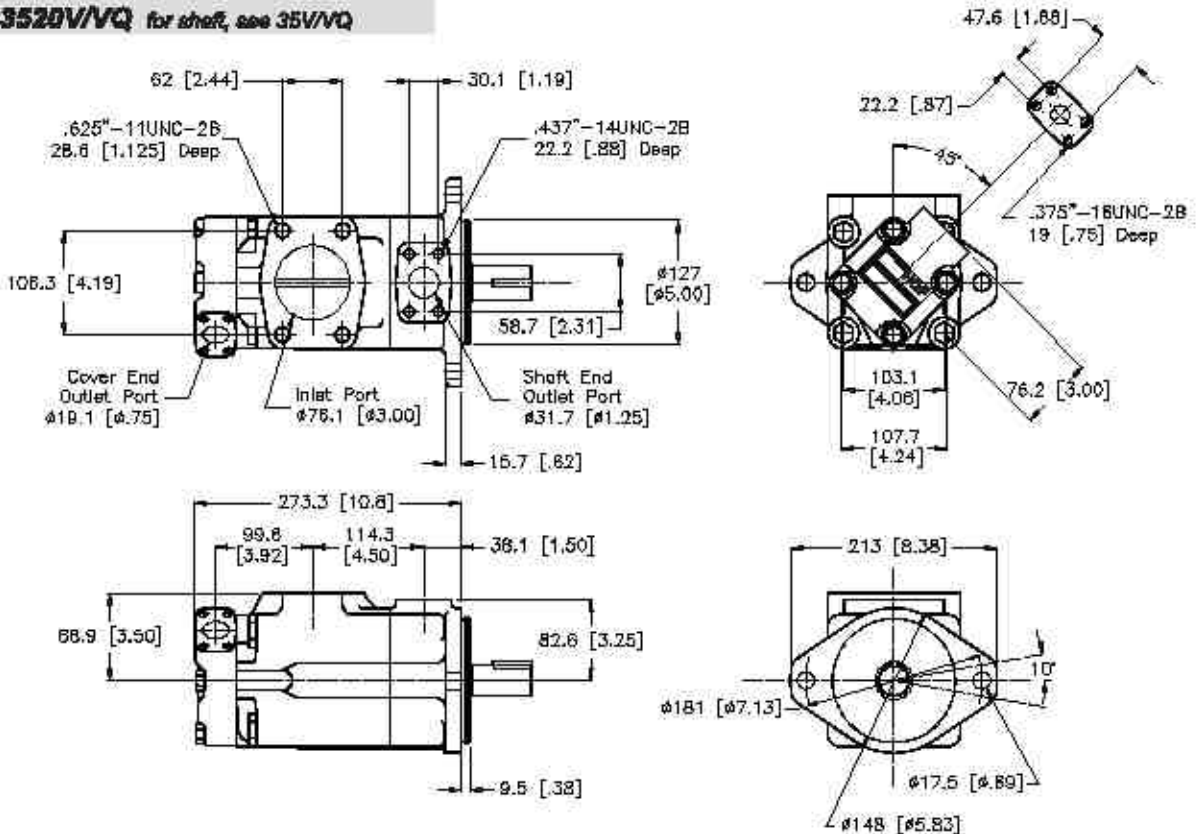
Installation Dimensions mm (inch)

Double Pump

2520V/VQ for shaft, see 20V/VQ



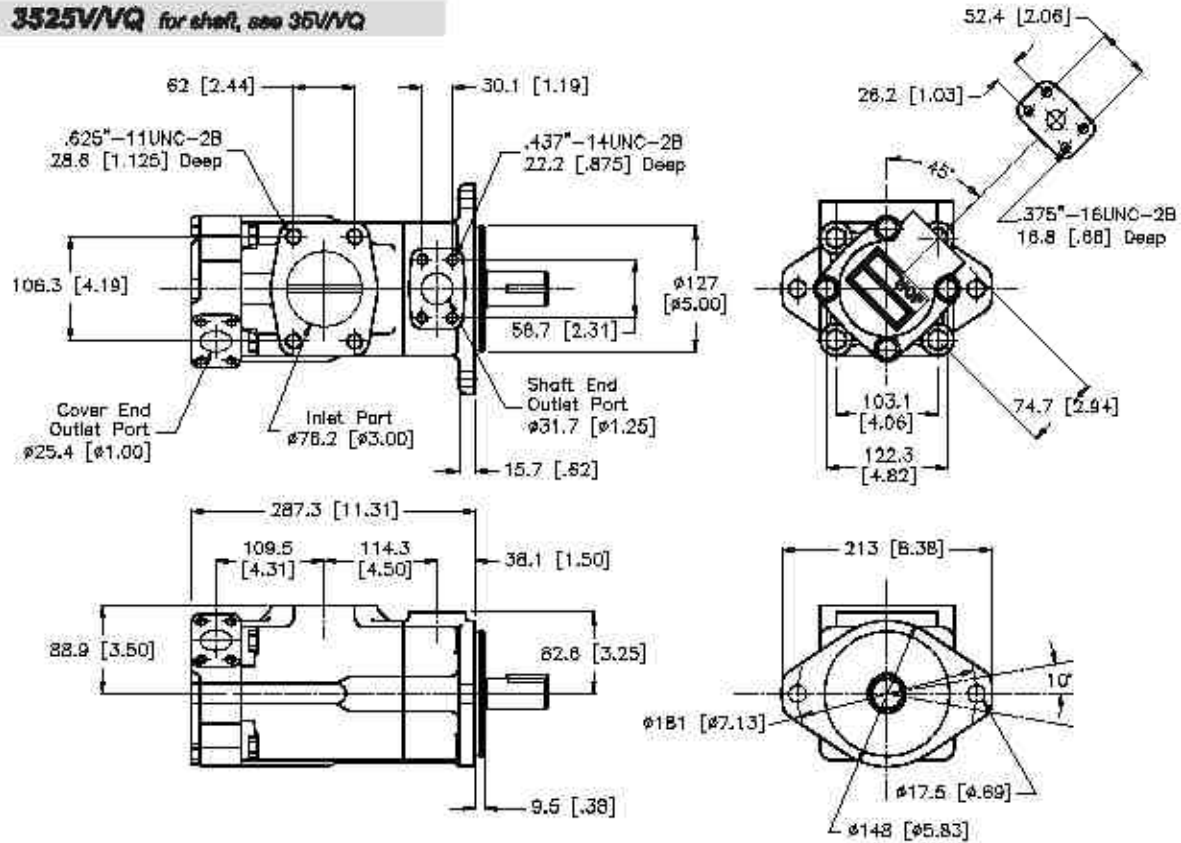
3520V/VQ for shaft, see 35V/VQ



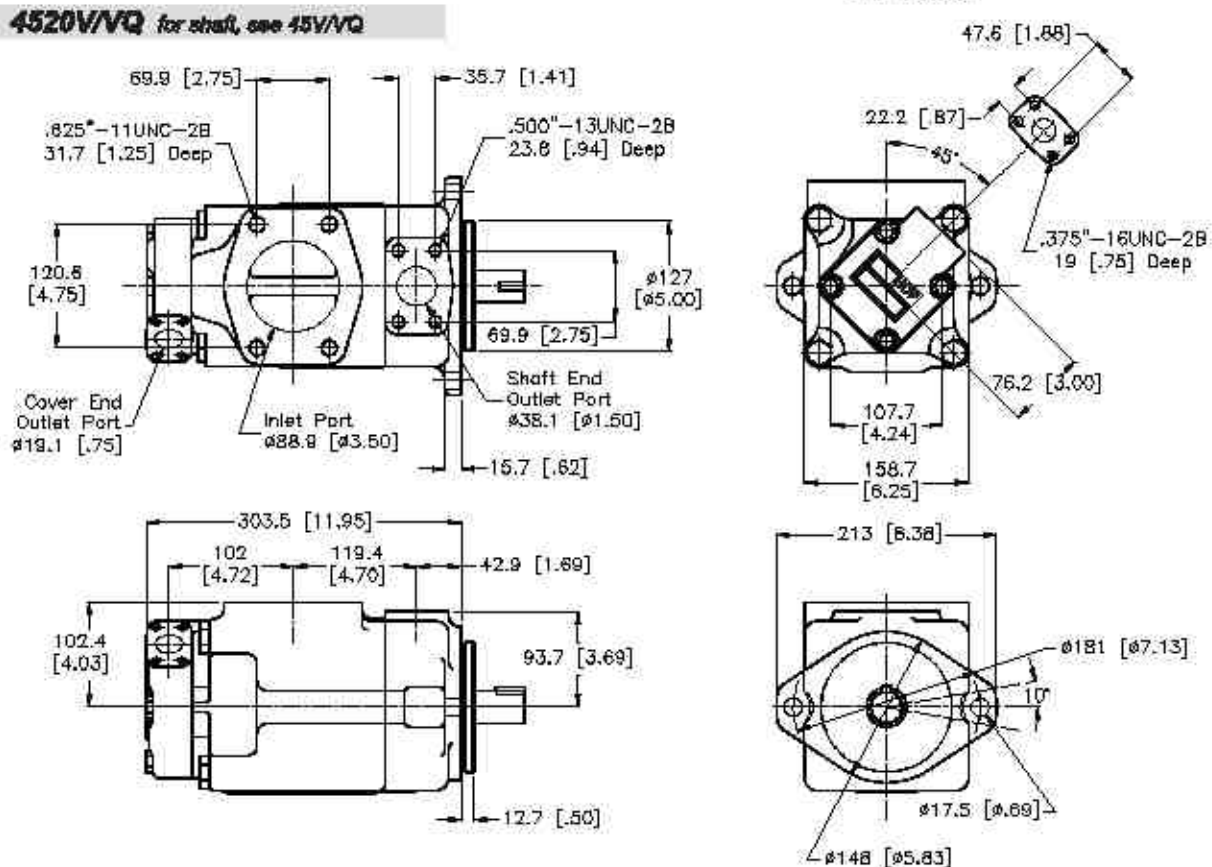
Installation Dimensions mm (inch)

Double Pump

3525V/VQ for shaft, see 35V/VQ



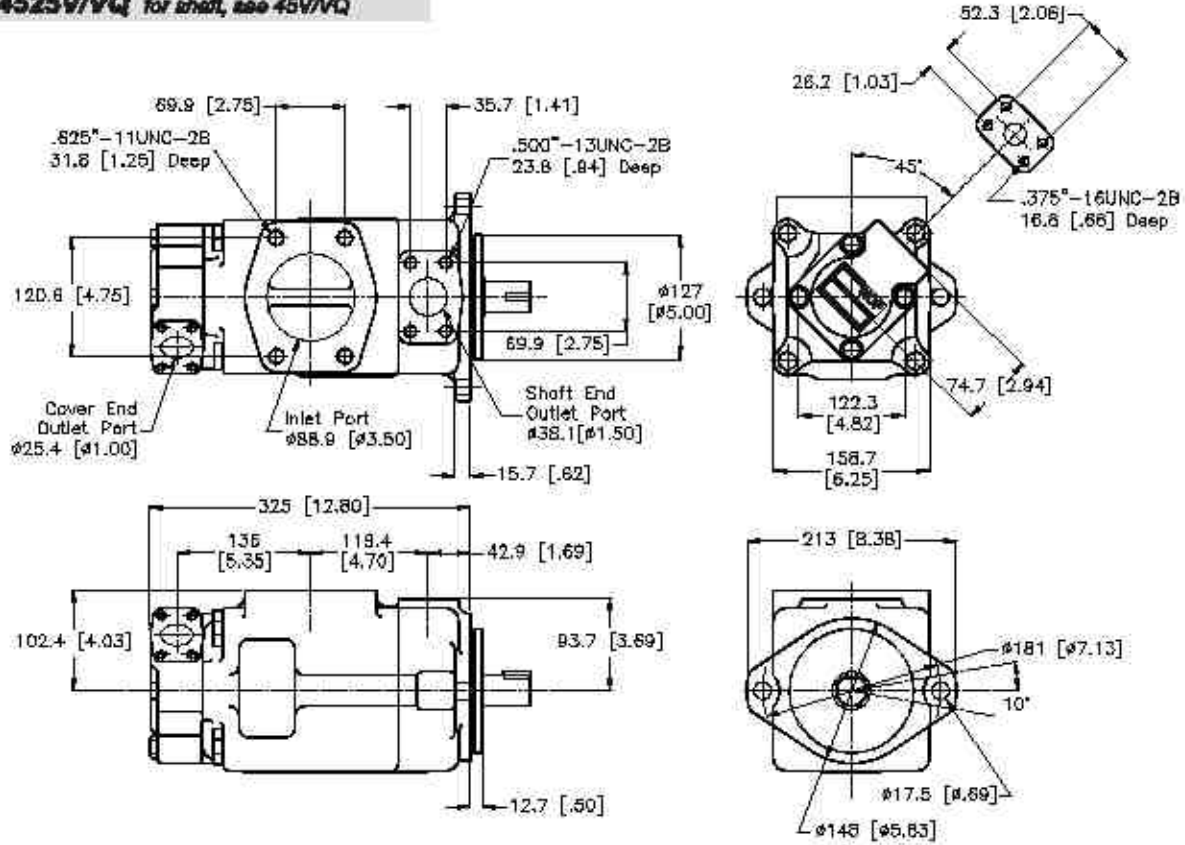
4520V/VQ for shaft, see 45V/VQ



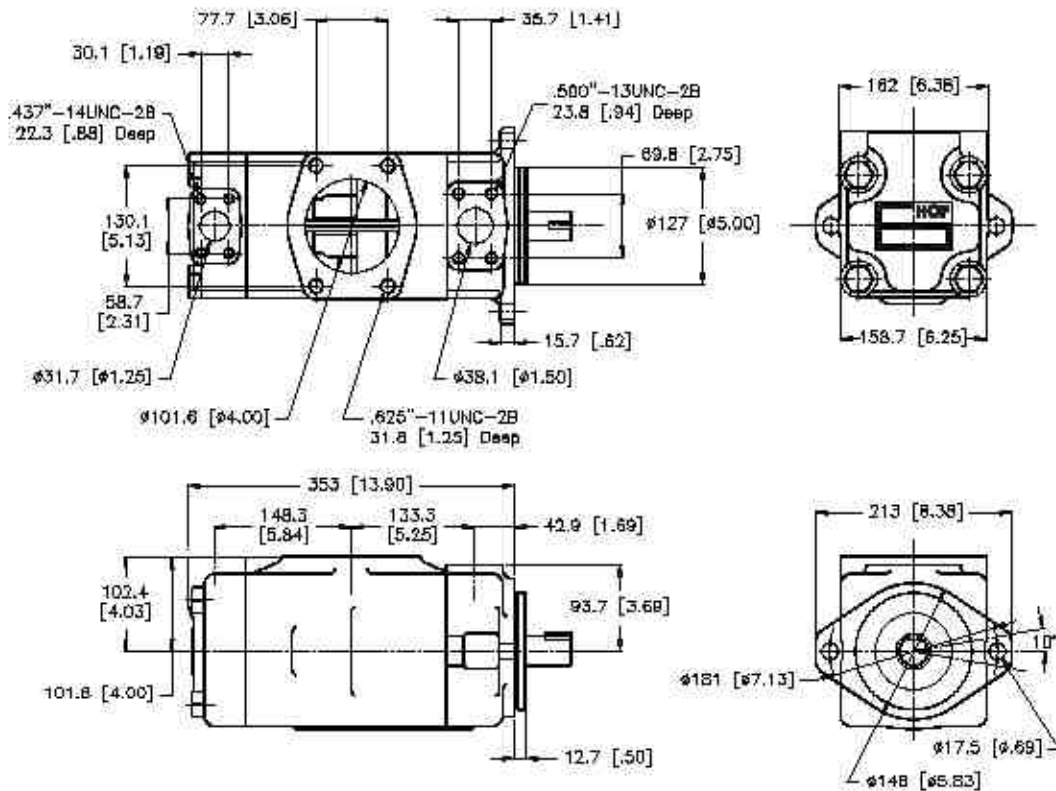
Installation Dimensions mm (inch)

Double Pump

4525V/VQ for shaft, see 45V/VQ



4535V/VQ for shaft, see 45V/VQ

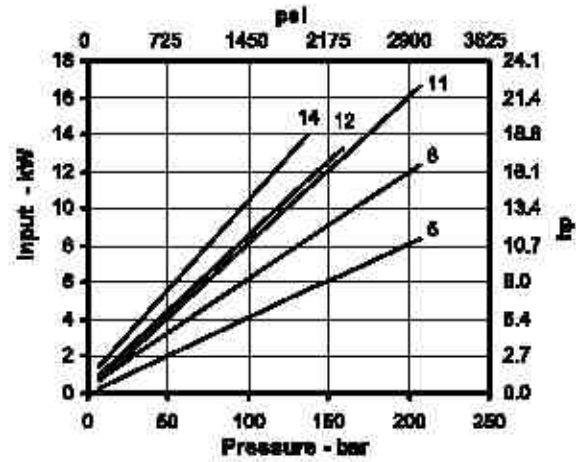
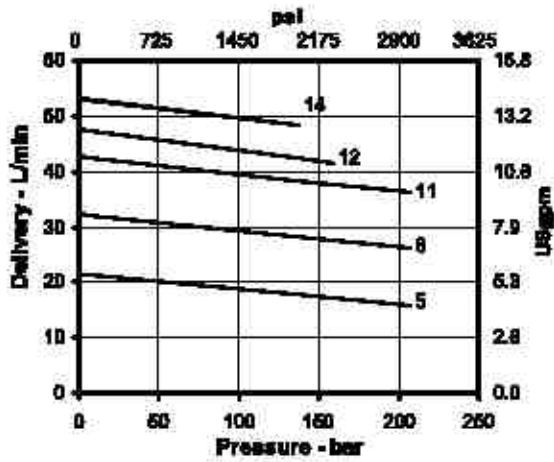


Performance Characteristics

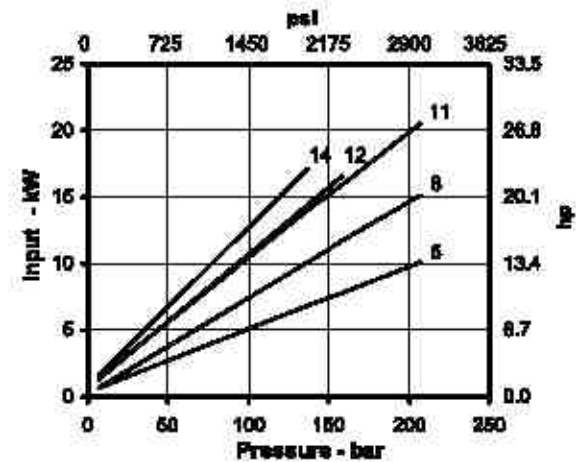
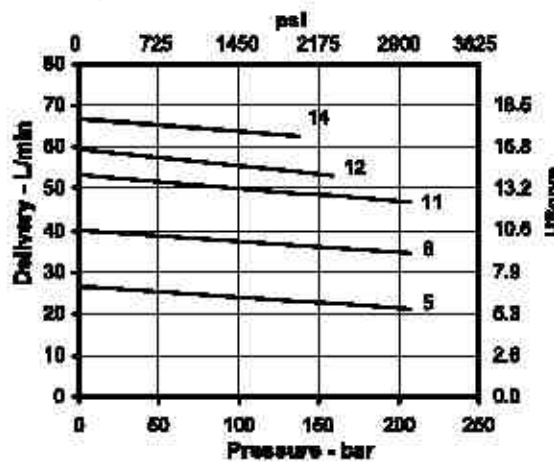
20V, Cover End of 20V

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

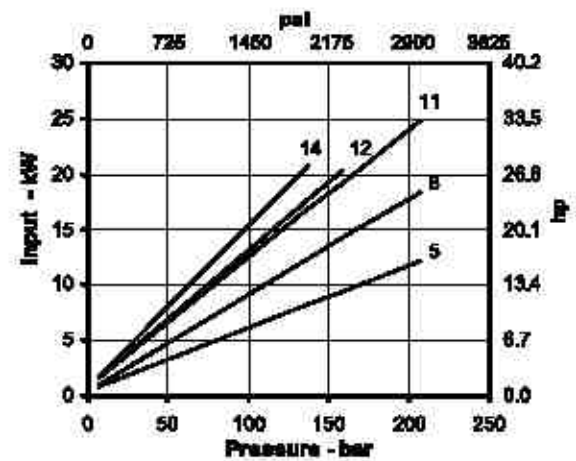
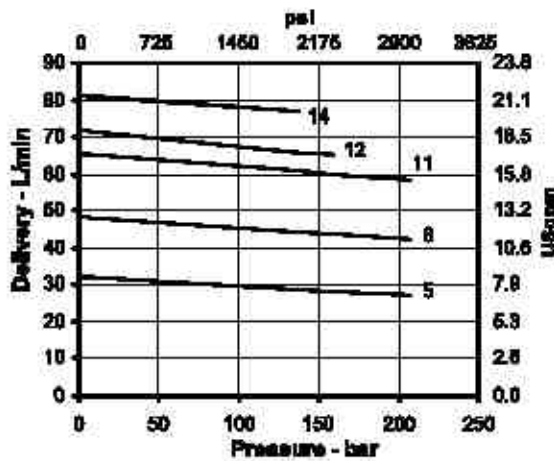
At 1200 rpm



At 1600 rpm



At 1800 rpm

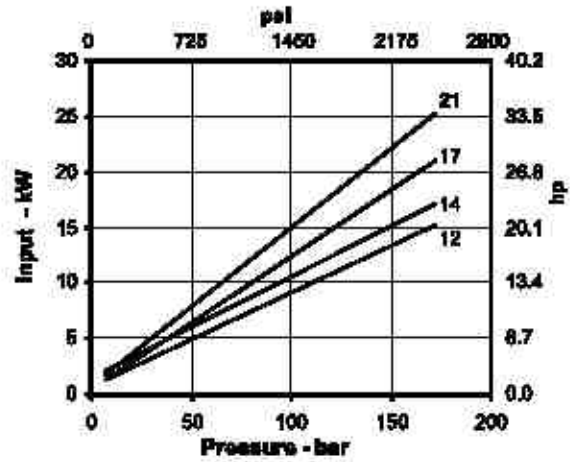
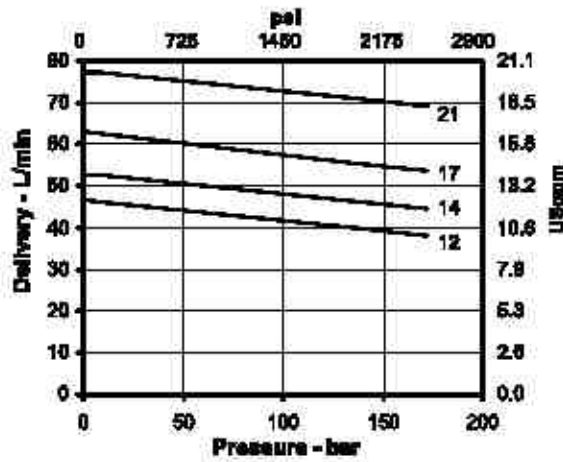


Performance Characteristics

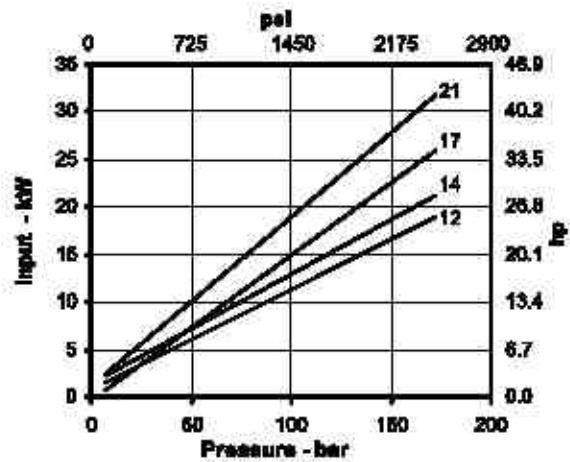
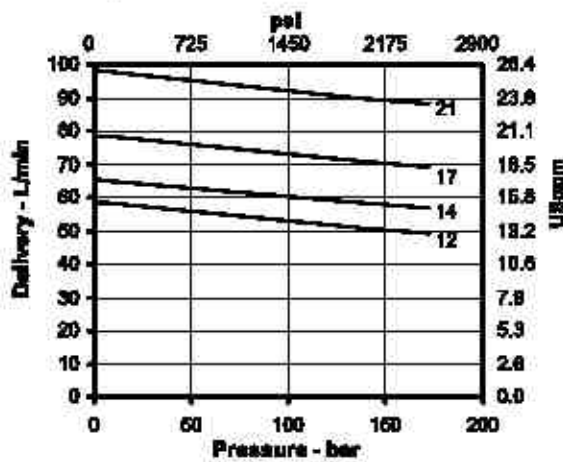
25V, Shaft End of 25^{mm}V, Cover End of 25V

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

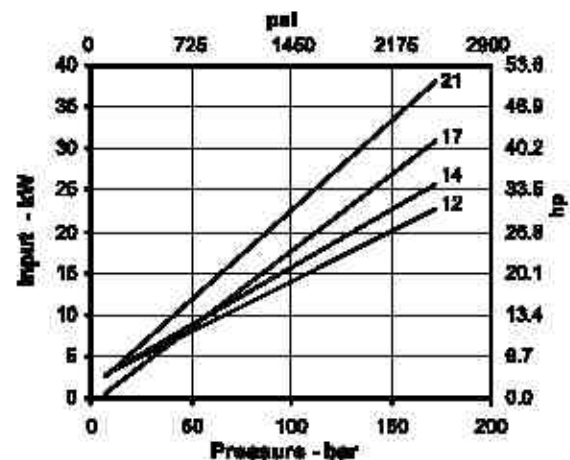
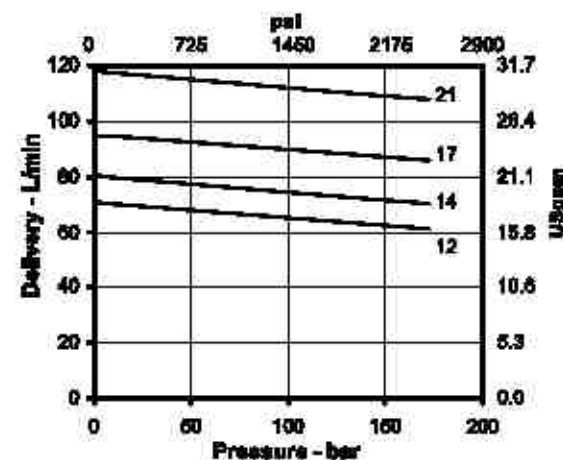
At 1200 rpm



At 1500 rpm



At 1800 rpm

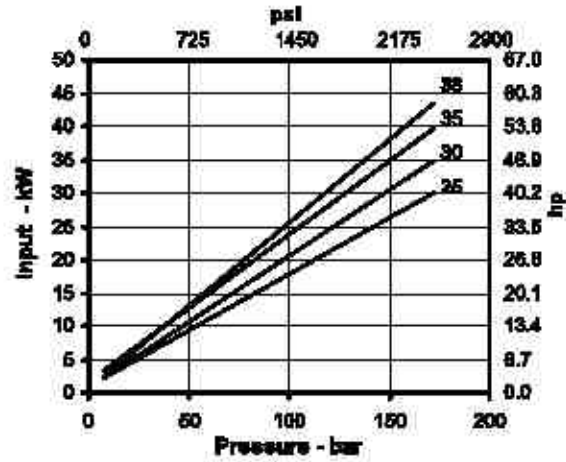
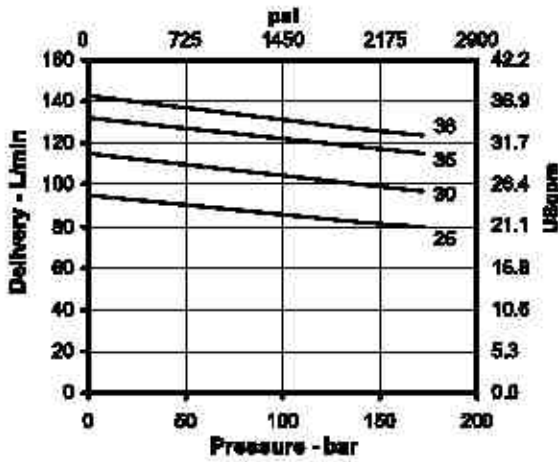


Performance Characteristics

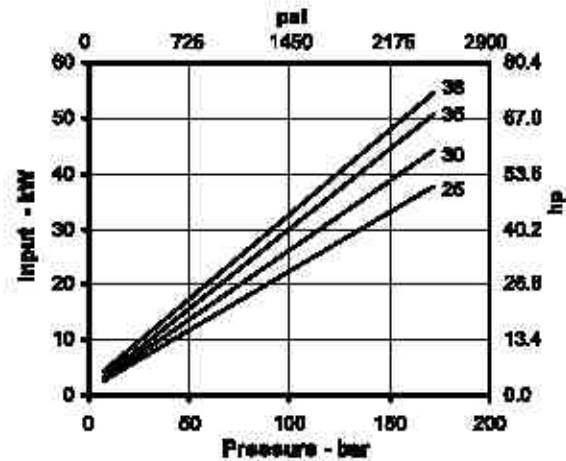
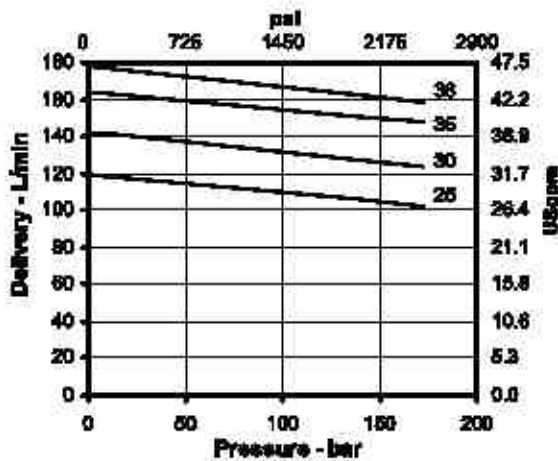
35V, Shaft End of 35^{mm}V, Cover End of 35V

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

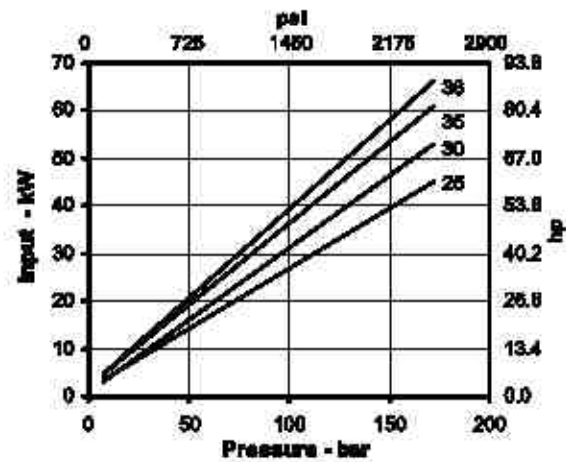
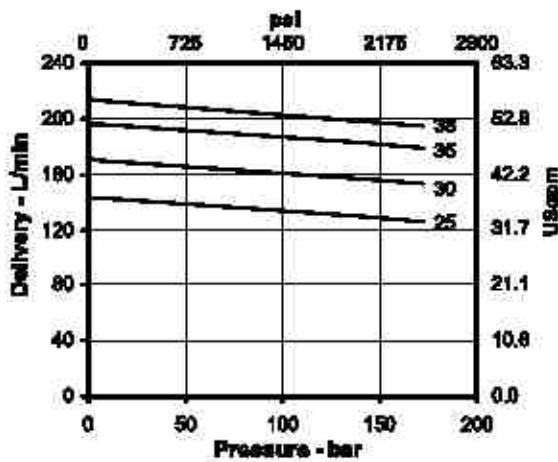
At 1200 rpm



At 1500 rpm



At 1800 rpm

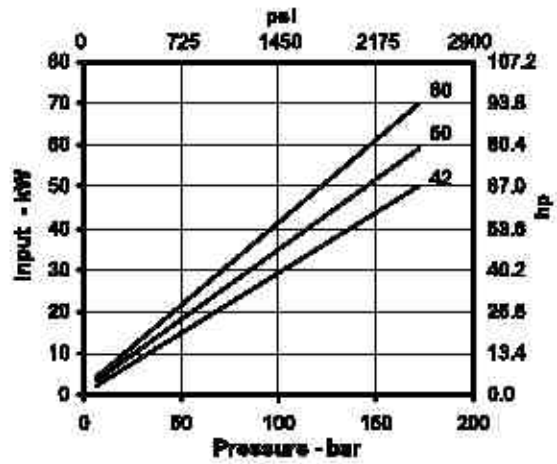
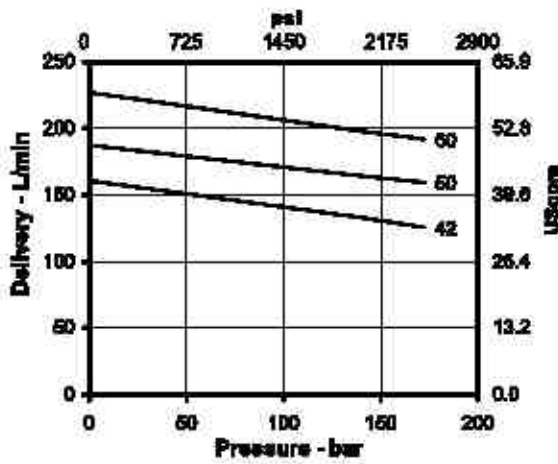


Performance Characteristics

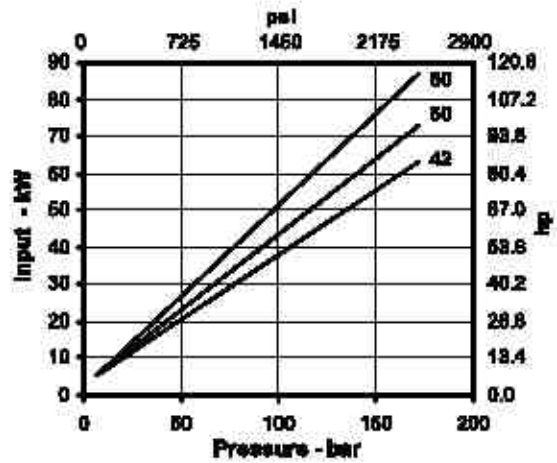
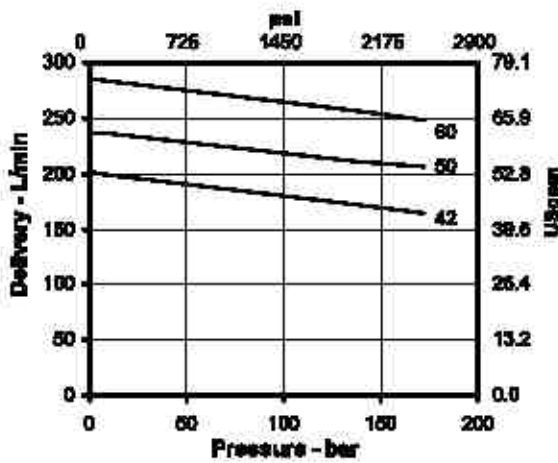
45V, Shaft End of 45^{mm}V

Based on SAE 10W Fluid at 60 °C (120 °F) and Pump Inlet at 0 PSIG (14.7 PSIA)

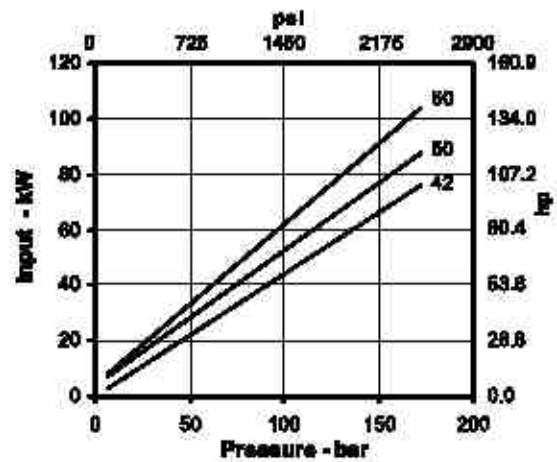
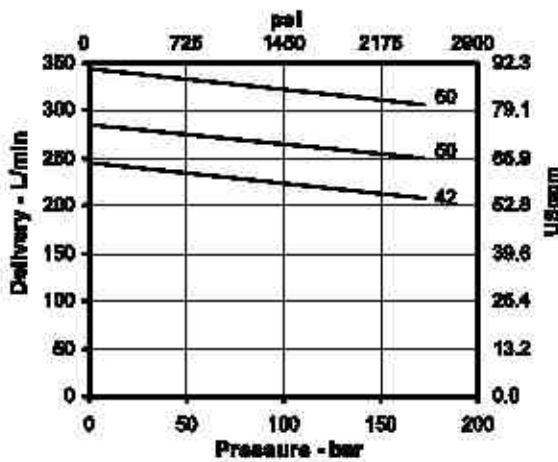
At 1200 rpm



At 1500 rpm



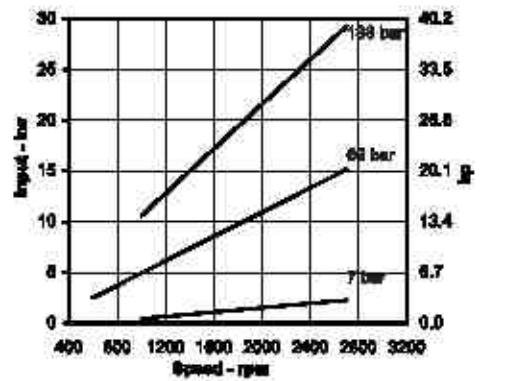
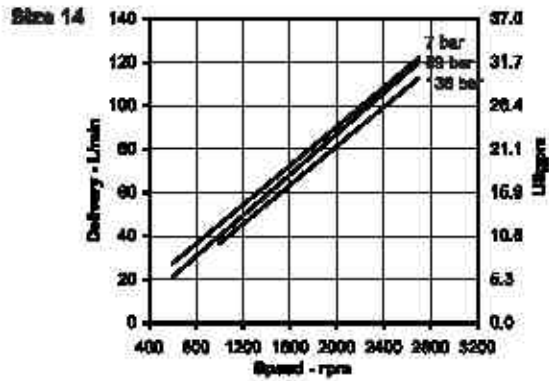
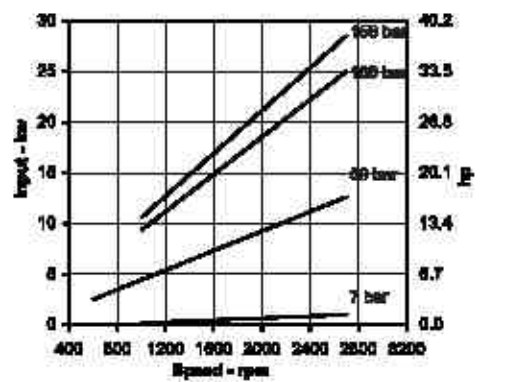
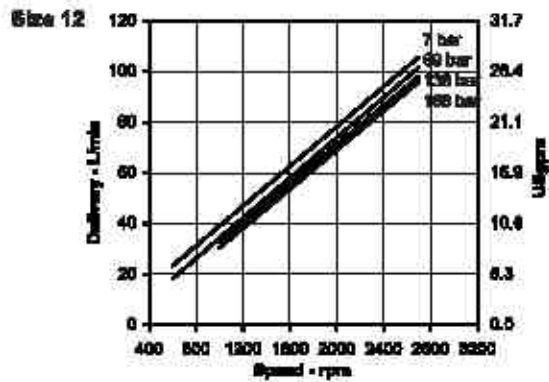
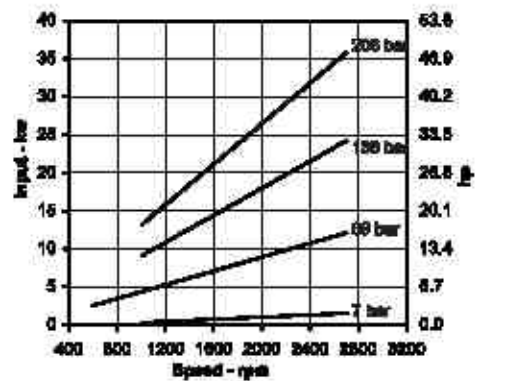
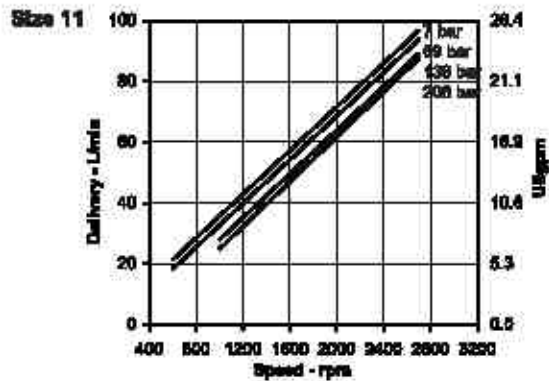
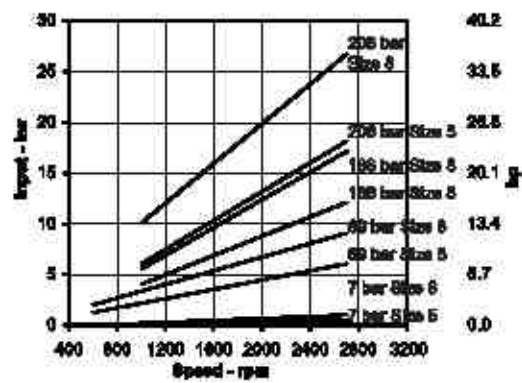
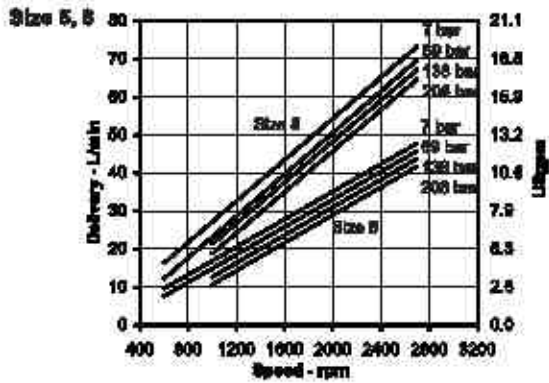
At 1800 rpm



Performance Characteristics

20VQ, Cover End of 20VQ

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

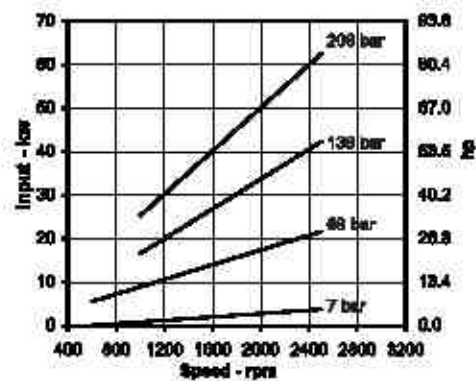
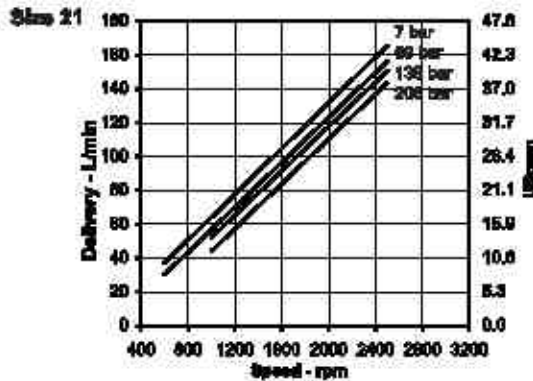
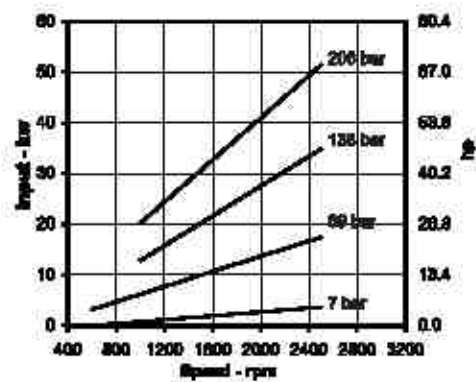
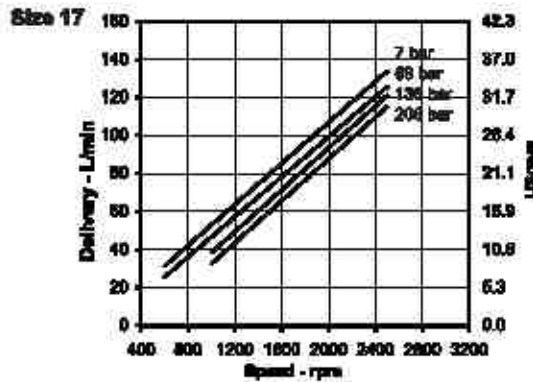
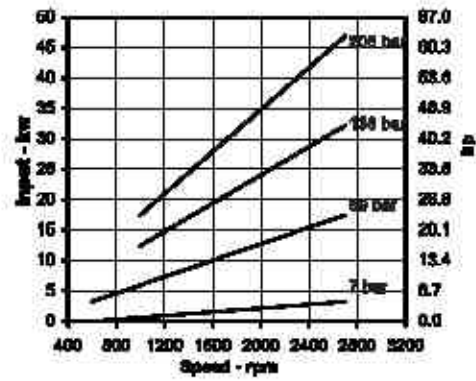
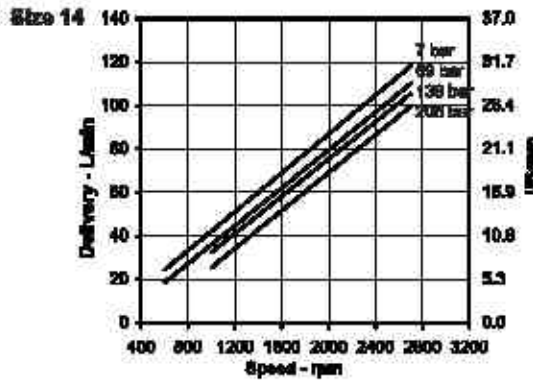
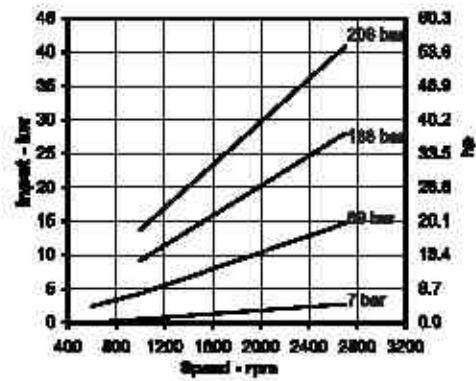
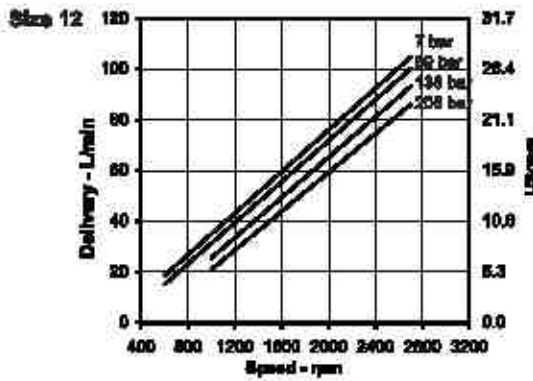


For the Cover End Cartridge, the speed could not exceed the maximum speed of the Shaft End Cartridge.

Performance Characteristics

25VQ, Shaft End of 25^{mm}VQ, Cover End of 25VQ

Based on SAE 10W Fluid at 62 °C (180 °F) and Pump Inlet at 0 PSIG (14.7 PSIA)

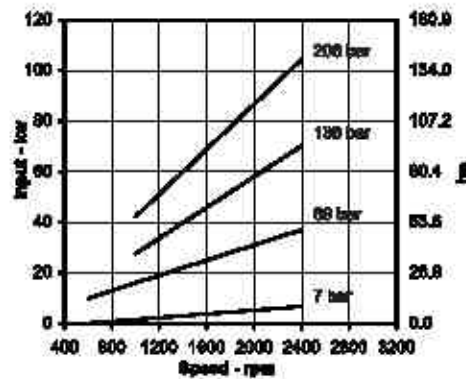
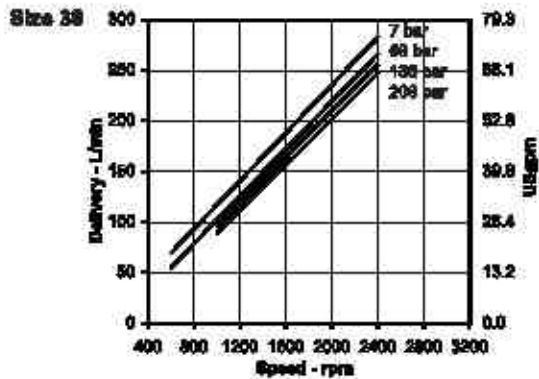
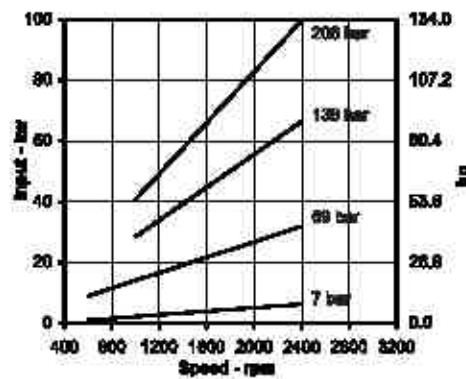
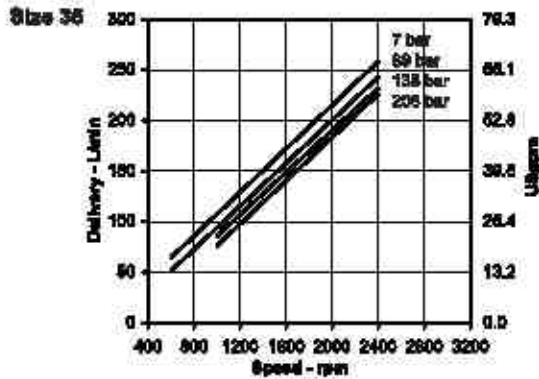
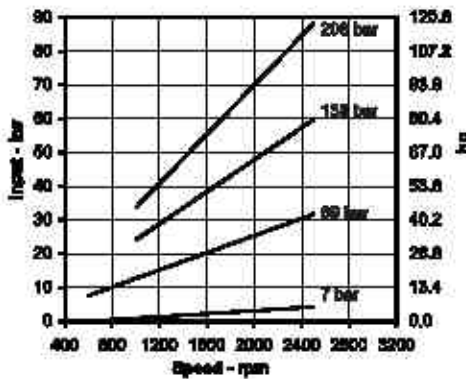
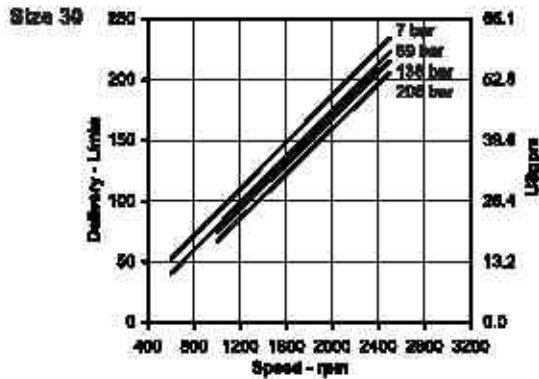
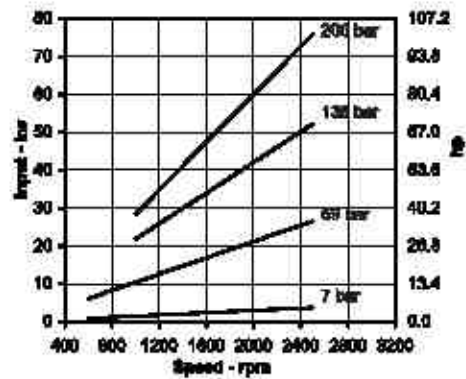
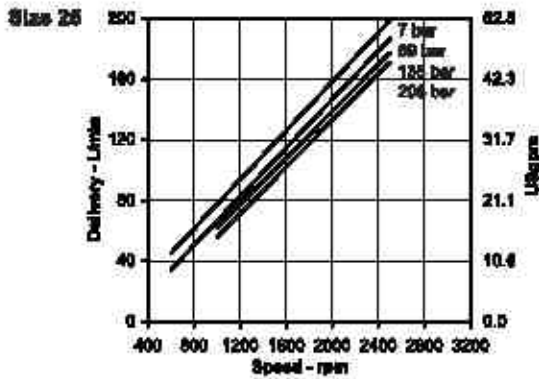


For the Cover End Cartridge, the speed could not exceed the maximum speed of the Shaft End Cartridge.

Performance Characteristics

35VQ, Shaft End of 35^{mm}VQ, Cover End of 35VQ

Based on BAE 10W Fluid at 82 °C (180 °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.

Performance Characteristics

45VQ, Shaft End of 45^{mm}VQ

Based on SAE 10W Fluid at 62 °C (180 °F) and Pump Inlet at 0 PSIG (14.7 PSIA)

