

# HIGH PERFORMANCE VANE PUMP VT6CBB



Series **VT6CBB - 022 - B09 - B02 - 1 R 00 - B 1 01 \***

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

|                        |                        |
|------------------------|------------------------|
| *003/B03 = 10.8 (0.66) | 015/B15 = 50.5 (3.08)  |
| 005/B05 = 17.2 (1.05)  | 017/B17 = 58.3 (3.56)  |
| 006/B06 = 21.3 (1.30)  | 020/B20 = 63.8 (3.89)  |
| 008/B08 = 26.4 (1.61)  | 022/B22 = 70.3 (4.29)  |
| 010/B10 = 34.1 (2.08)  | 025/B25 = 79.3 (4.84)  |
| 012/B12 = 37.1 (2.26)  | 028/B28 = 88.8 (5.42)  |
| 014/B14 = 46.0 (2.81)  | 031/B31 = 100.0 (6.10) |

\*0 - Uni-directional 'B' - Bi-directional

**Cam ring for "P2" & "P3"**  
 Volumetric displacement cm<sup>3</sup>/rev (in<sup>3</sup>/rev)

B02 = 5.8 (0.35)  
 B03 = 9.8 (0.59)  
 B04 = 12.8 (0.78)  
 B05 = 15.9 (0.97)  
 B06 = 19.8 (1.21)  
 B07 = 22.5 (1.37)  
 B08 = 24.9 (1.52)  
 B09 = 28.0 (1.71)  
 B10 = 31.8 (1.94)  
 B11 = 34.9 (2.13)  
 B12 = 41.0 (2.50)  
 B14 = 45.0 (2.75)

**Type of Shaft**

- 1 = Keyed (no SAE)
- 2 = Keyed (SAE BB)
- 3 = Splined (SAE BB)
- 5 = Splined (SAE B)
- E = Splined

**Modifications**

**Port connections**

| CODE |        | S = 2 1/2" SAE 4-Bolt Pad.           |                                      |                                  |
|------|--------|--------------------------------------|--------------------------------------|----------------------------------|
| UNC  | METRIC | P1                                   | P2                                   | P3                               |
| 01   | W0     | 1" SAE 4 bolt Pad.                   | 3/4" SAE 4 bolt Pad.                 | SAE 8,3/4" 16 UNF-2B O'ring Boss |
| 11   | W1     |                                      |                                      | 3/4" SAE 4 bolt Pad.             |
| 02   | W2     | SAE 16,1 5/16" 12 UNF-2B O'ring Boss | SAE 12,1 1/16" 12 UNF-2B O'ring Boss | SAE 8,3/4" 16 UNF-2B O'ring Boss |

**Seal class**

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

**Design letter**

**Porting combination** (see page CI-1-4)  
 00 - standard

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

- R - clockwise
- L - counter-clockwise

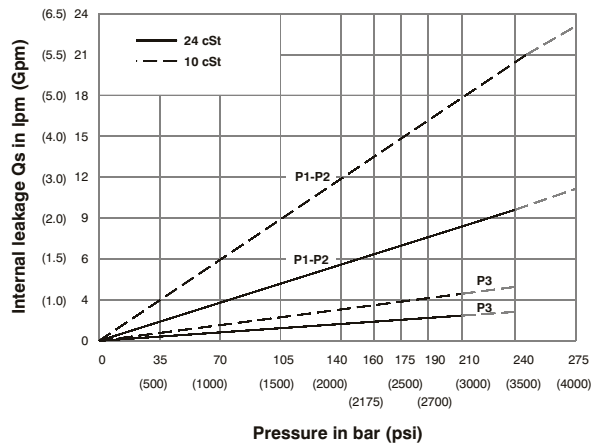
**OPERATING CHARACTERISTICS - TYPICAL (24 cST) (Input power p (KW) for one cartridge only)**

| Pressure port     | Series            | Volumetric Displacement Vp |                      | Flow q & n = 1500 rpm |       |                        |       |                        |       | Input power p & n = 1500 rpm |       |                        |       |                        |      |
|-------------------|-------------------|----------------------------|----------------------|-----------------------|-------|------------------------|-------|------------------------|-------|------------------------------|-------|------------------------|-------|------------------------|------|
|                   |                   | in <sup>3</sup> /rev       | cm <sup>3</sup> /rev | p = 0 bar (0 psi)     |       | p = 140 bar (2000 psi) |       | p = 240 bar (3500 psi) |       | p = 7 bar (100 psi)          |       | p = 140 bar (2000 psi) |       | p = 240 bar (3500 psi) |      |
|                   |                   |                            |                      | gpm                   | lpm   | gpm                    | lpm   | gpm                    | lpm   | hp                           | kw    | hp                     | kw    | hp                     | kw   |
| P1                | 003               | 0.66                       | 10.8                 | 4.29                  | 16.2  | 2.96                   | 11.2  | 2.04                   | 7.7   | 1.74                         | 1.3   | 7.11                   | 5.3   | 11.26                  | 8.4  |
|                   | 005               | 1.05                       | 17.2                 | 6.83                  | 25.8  | 5.50                   | 20.8  | 4.57                   | 17.3  | 1.88                         | 1.4   | 10.06                  | 7.5   | 16.36                  | 12.2 |
|                   | 006               | 1.30                       | 21.3                 | 8.44                  | 31.9  | 7.11                   | 26.9  | 6.19                   | 23.4  | 2.01                         | 1.5   | 11.94                  | 8.9   | 19.71                  | 14.7 |
|                   | 008               | 1.61                       | 26.4                 | 10.48                 | 39.6  | 9.15                   | 34.6  | 8.22                   | 31.1  | 2.15                         | 1.6   | 14.35                  | 10.7  | 22.93                  | 17.7 |
|                   | 010               | 2.08                       | 34.1                 | 13.52                 | 51.1  | 12.19                  | 46.1  | 11.26                  | 42.6  | 2.28                         | 1.7   | 18.64                  | 13.4  | 29.90                  | 22.3 |
|                   | 012               | 2.26                       | 37.1                 | 14.71                 | 55.6  | 13.36                  | 50.6  | 12.46                  | 47.1  | 2.28                         | 1.7   | 19.31                  | 14.4  | 32.32                  | 24.1 |
|                   | 014               | 2.81                       | 46.0                 | 18.25                 | 69.0  | 16.93                  | 64.0  | 16.00                  | 60.5  | 2.55                         | 1.9   | 23.60                  | 17.6  | 39.56                  | 29.5 |
|                   | 015               | 3.08                       | 50.5                 | 20.00                 | 75.6  | 18.73                  | 73.2  | 19.02                  | 67.5  | 2.68                         | 2.0   | 25.61                  | 19.1  | 42.91                  | 32.0 |
|                   | 017               | 3.56                       | 58.3                 | 23.12                 | 87.4  | 21.79                  | 82.4  | 20.87                  | 78.9  | 2.82                         | 2.1   | 29.37                  | 21.9  | 49.48                  | 36.9 |
|                   | 020               | 3.89                       | 63.8                 | 25.32                 | 95.7  | 23.99                  | 90.7  | 23.07                  | 87.2  | 2.95                         | 2.2   | 31.92                  | 23.8  | 53.91                  | 40.2 |
|                   | 022               | 4.29                       | 70.3                 | 27.88                 | 105.4 | 26.56                  | 100.4 | 25.63                  | 96.9  | 3.08                         | 2.3   | 35.00                  | 26.1  | 59.14                  | 44.1 |
|                   | 025               | 4.84                       | 79.3                 | 31.46                 | 118.9 | 30.13                  | 113.9 | 29.21                  | 110.4 | 3.35                         | 2.5   | 39.16                  | 29.2  | 66.38                  | 49.5 |
|                   | 028 <sup>1)</sup> | 5.42                       | 88.8                 | 35.24                 | 133.2 | 33.92                  | 128.2 | 33.28                  | 125.8 | 3.75                         | 2.8   | 43.85                  | 32.7  | 65.04                  | 48.5 |
| 031 <sup>1)</sup> | 6.10              | 100.0                      | 39.68                | 150.0                 | 38.35 | 145.0                  | 37.72 | 142.6                  | 3.75  | 2.8                          | 48.95 | 36.5                   | 72.95 | 54.4                   |      |
|                   |                   |                            |                      | p = 0 bar (0 psi)     |       | p = 140 bar (2000 psi) |       | p = 210 bar (3000 psi) |       | p = 7 bar (100 psi)          |       | p = 140 bar (2000 psi) |       | p = 210 bar (3000 psi) |      |
|                   |                   | in <sup>3</sup> /rev       | cm <sup>3</sup> /rev | gpm                   | lpm   | gpm                    | lpm   | gpm                    | lpm   | hp                           | kw    | hp                     | kw    | hp                     | kw   |
| P2 & P3           | B02               | 0.35                       | 5.8                  | 2.30                  | 8.7   | 1.4                    | 5.9   | --                     | --    | 0.53                         | 0.4   | 2.81                   | 2.1   | --                     | --   |
|                   | B03               | 0.59                       | 9.8                  | 3.88                  | 14.7  | 2.9                    | 11.9  | --                     | --    | 0.67                         | 0.5   | 3.62                   | 2.7   | --                     | --   |
|                   | B04               | 0.78                       | 12.8                 | 5.08                  | 19.2  | 4.33                   | 16.4  | 3.97                   | 15.0  | 0.93                         | 0.7   | 5.23                   | 3.9   | 10.06                  | 7.5  |
|                   | B05               | 0.97                       | 15.9                 | 6.31                  | 23.8  | 5.55                   | 21.0  | 5.18                   | 19.6  | 1.00                         | 0.75  | 6.64                   | 4.9   | 11.2                   | 8.3  |
|                   | B06               | 1.21                       | 19.8                 | 7.85                  | 29.7  | 7.12                   | 26.9  | 6.66                   | 25.2  | 1.07                         | 0.8   | 8.05                   | 6.0   | 12.34                  | 9.2  |
|                   | B07               | 1.37                       | 22.5                 | 8.92                  | 33.7  | 8.17                   | 30.9  | 7.80                   | 29.5  | 1.20                         | 0.9   | 9.05                   | 6.7   | 14.02                  | 10.4 |
|                   | B08               | 1.52                       | 24.9                 | 9.89                  | 37.4  | 9.15                   | 34.6  | 8.78                   | 33.2  | 1.34                         | 1.0   | 10.05                  | 7.5   | 15.69                  | 11.7 |
|                   | B09               | 1.71                       | 28.0                 | 11.11                 | 42.0  | 10.37                  | 39.2  | 10.00                  | 37.8  | 1.47                         | 1.1   | 11.94                  | 8.9   | 23.60                  | 17.6 |
|                   | B10               | 1.94                       | 31.8                 | 12.61                 | 47.7  | 11.87                  | 44.9  | 11.51                  | 43.5  | 1.6                          | 1.2   | 13.0                   | 9.7   | 26.0                   | 19.6 |
|                   | B11               | 2.13                       | 34.9                 | 13.85                 | 52.3  | 13.09                  | 49.5  | 12.72                  | 48.1  | 1.7                          | 1.3   | 14.0                   | 10.5  | 28.0                   | 21.0 |
|                   | B12               | 2.50                       | 41.0                 | 16.27                 | 61.5  | 15.53                  | 58.7  | *                      | *     | 1.8                          | 1.4   | 15.02                  | 11.2  | *                      | *    |
|                   | B14               | 2.75                       | 45.0                 | 17.86                 | 67.5  | 17.12                  | 64.7  | **                     | **    | 2.1                          | 1.6   | 15.42                  | 11.5  | **                     | **   |

1) 028-031 = 210 bar (3000 psi) max. int.  
 \*B12 = 210bar (3000psi) Max. Int  
 \*\*B14 = 175bar (2500psi) Max. Int

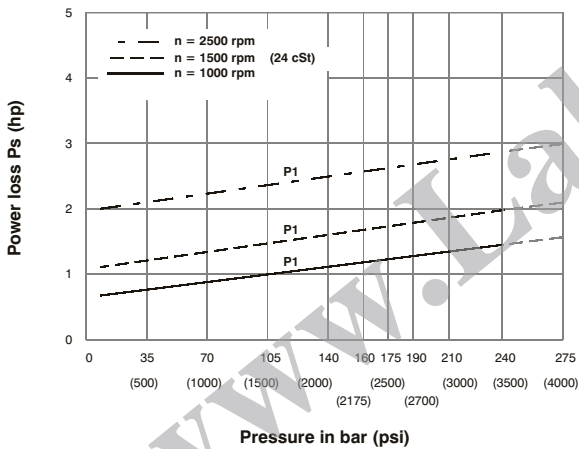
- Not to use because internal leakage greater than 50% of theoretical flow.

## INTERNAL LEAKAGE (TYPICAL)



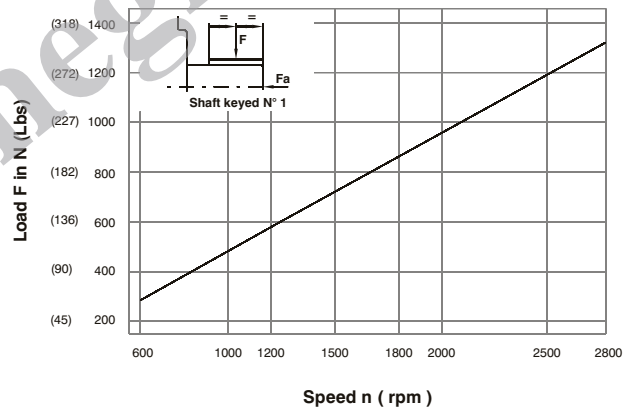
Do not operate pump more than 5 seconds at any speed or viscosity if internal leakage is more than 50% of theoretical flow. Total leakage is the sum of each section loss at its operating conditions.

## HYDROMECHANICAL POWER LOSS (TYPICAL)



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

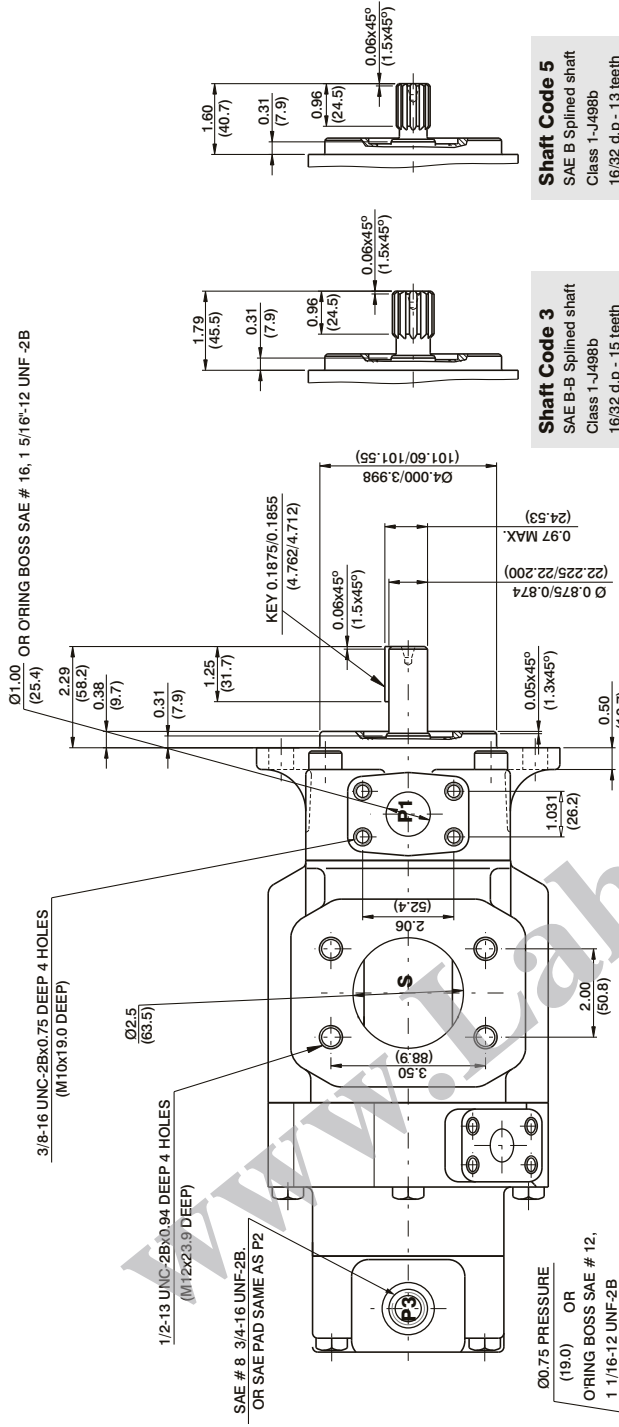
## PERMISSIBLE RADIAL LOAD



Maximum axial load permissible  $F_a = 800 \text{ N (180 Lbs)}$



TP



**Shaft Code 5**  
SAE B Splined shaft  
Class 1-J498B  
16/32 d.p - 13 teeth  
30° pressure angle  
flat root side fit

**Shaft Code 3**  
SAE B-B Splined shaft  
Class 1-J498B  
16/32 d.p - 15 teeth  
30° pressure angle  
flat root side fit

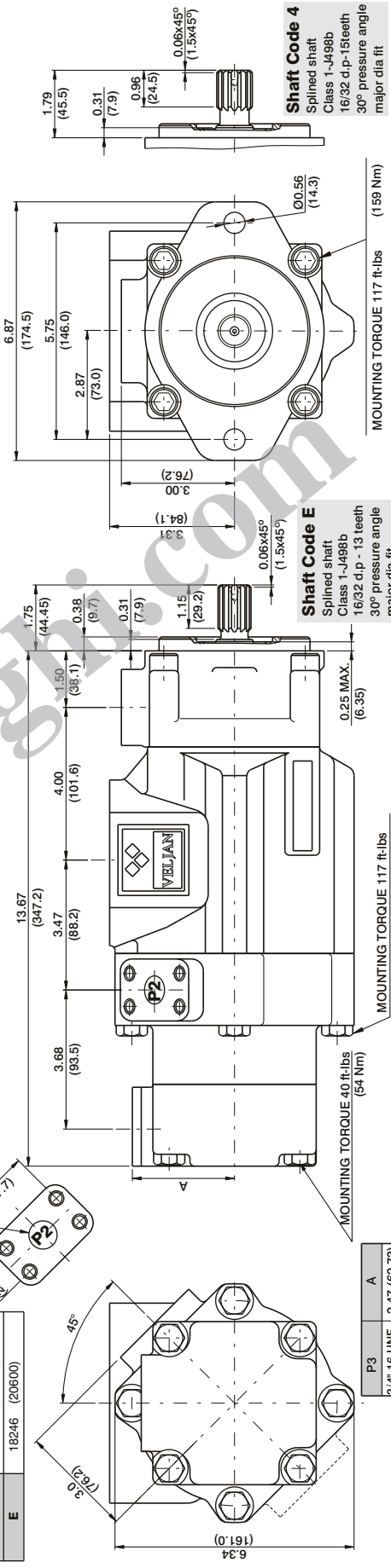
**Shaft Code 1**

**Shaft Code 4**  
Splined shaft  
Class 1-J498B  
16/32 d.p-15teeth  
30° pressure angle  
major dia fit

**Shaft Code E**  
Splined shaft  
Class 1-J498B  
16/32 d.p - 13 teeth  
30° pressure angle  
major dia fit

**Shaft Code 2**

| Shaft Code | in <sup>3</sup> /rev x psi (ml/rev x bar) |
|------------|---|
| 1          | 12666 (14300)                             |
| 2          | 18972 (21470)                             |
| 3          | 28937 (32670)                             |
| 4          | 28937 (32670)                             |
| 5          | 18246 (20600)                             |
| E          | 18246 (20600)                             |



|    | A                   |
|----|---------------------|
| P3 | 3/4"-16 UNF (62.73) |
|    | 3/4" SAE PAD (69.8) |