

# YB-Sliding Vane Pump Manual



## ✧ Overview

 YB series sliding vane pump is a volumetric pump. It absorbs foreign advanced technology, reasonable structure, long life, small volume, high efficiency. Built-in overflow valve, using a blade rotor to transport liquid, when conveying viscous and volatile liquid, lower than the same other pump power, in low speed and large flow of transmission has more obvious advantages.

✧ **Use**

It's commonly used to deliver non-corrosive industrial liquids and petroleum products.

## ✧ Technical Data and Scope

There are two materials, cast iron and ductile iron, as well as special elastomers compatible with fuel and biofuels

✚ Max working pressure: 1.21 MPa (12.1 bar)

✚ Max speed: 780 rpm, available for electric motor or hydraulic drive

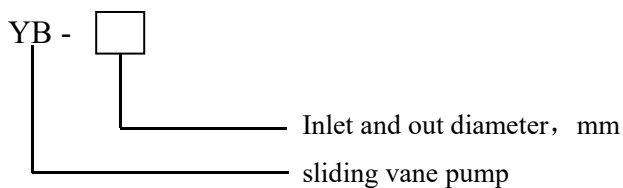
Max temperature: 149°C

✚ Max viscosity: 0.00425 m<sup>2</sup>/s (4,250 cSt)

✚ Max flow rate: 120 m<sup>3</sup>/h (1,999 L / min)

✚ Max differential pressure: 0.86 MPa (8.6 bar)

## ✧ Model



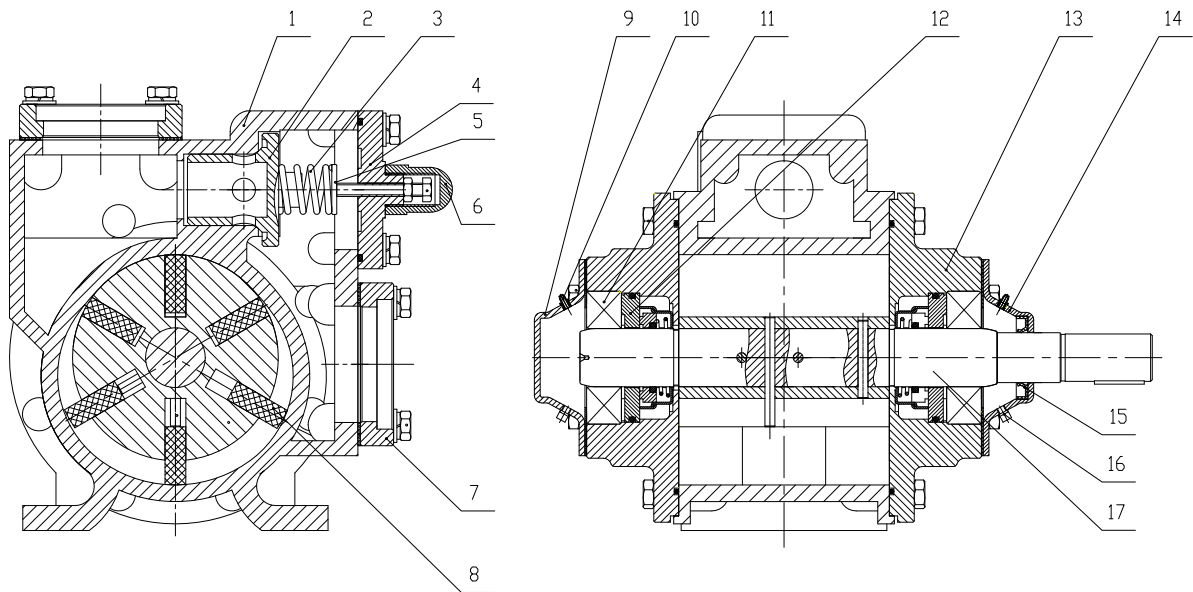
Example: YB-50 for a sliding vane pump with a diameter of 50 mm at the inlet and outlet.

## ✧ Characteristics

Small volume, high efficiency, smooth operation, strong self-priming ability, change the speed can adjust the flow, even if the prime mover in the idle situation can work normally and meet the requirements of flow and pressure;

✚ The overflow valve is set in the pump. When the outlet system is suddenly closed, ensure that the motor doesn't load.

## ✧ Structure Drawing



## ✧ Materials Table

| No. | Name                               | Material | No. | Name              | Material | No. | Name                | Material |
|-----|------------------------------------|----------|-----|-------------------|----------|-----|---------------------|----------|
| 1   | Pump body                          | HT200    | 2   | Relief valve core | QT450-10 | 3   | Relief valve spring | 65Mn     |
| 4   | Relief valve cover                 | HT200    | 5   | Spring seat       | 25       | 6   | Relief valve cap    | 25       |
| 7   | Inlet and outlet connection flange | 45       | 8   | Vane              | PPS      | 9   | Rear end cover      | Q235A    |
| 10  | Zerk                               |          | 11  | Ball bearing      |          | 12  | Mechanical seal     |          |
| 13  | Pump cover                         | HT200    | 14  | Front end cover   | Q235A    | 15  | Oil seal            | Nitrile  |
| 16  | Oil drain valve                    |          | 17  | Shaft             | 40Cr13   |     |                     |          |

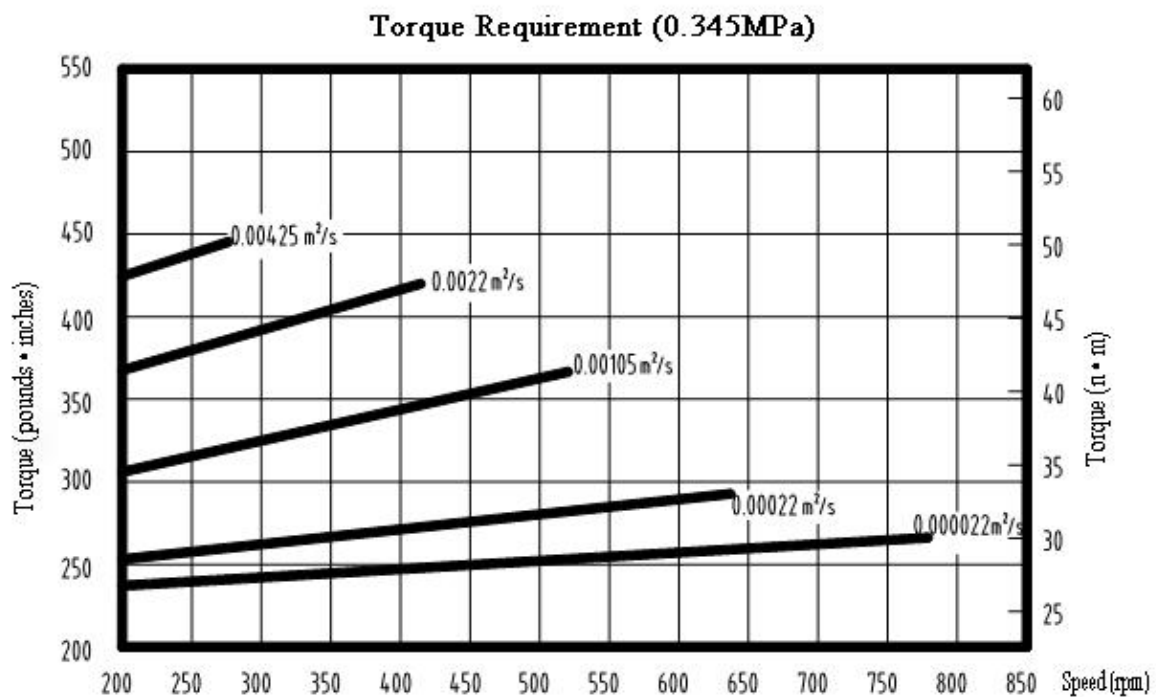
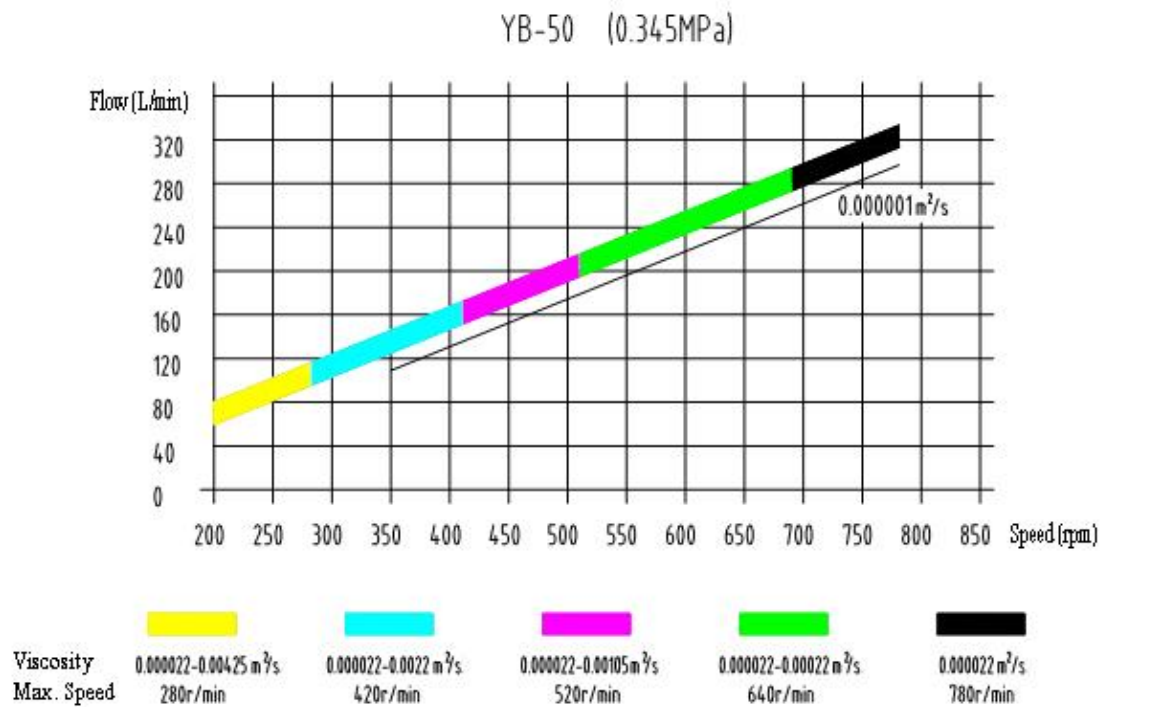
### ✧ Performance Parameter

| Model                          | YB-50 |     |     |     | YB-65 |     |     |     | YB-80 |     |     |     | YB-100 |      |      |     |     |
|--------------------------------|-------|-----|-----|-----|-------|-----|-----|-----|-------|-----|-----|-----|--------|------|------|-----|-----|
| Rated Speed (rpm)              | 640   | 520 | 420 | 350 | 640   | 520 | 420 | 350 | 640   | 520 | 420 | 350 | 500    | 400  | 300  | 230 | 190 |
| Flow Rate (L/min)              | 264   | 210 | 165 | 135 | 461   | 363 | 288 | 237 | 1023  | 835 | 671 | 544 | 1919   | 1532 | 1135 | 855 | 695 |
| Pressure (MPa)                 | 0.345 |     |     |     |       |     |     |     |       |     |     |     |        |      |      |     |     |
| Power (hp)                     | 3.2   | 2.6 | 2.0 | 1.7 | 4.7   | 3.7 | 2.9 | 2.4 | 11.2  | 8.5 | 6.5 | 5.2 | 20.8   | 15.9 | 11.5 | 8.6 | 7.0 |
| 5m height self-priming time(s) | 15    |     |     |     | 10    |     |     |     | 10    |     |     |     | 10     |      |      |     |     |
| Power (kW)                     | 2.2   |     |     |     | 4     |     |     |     | 7.5   |     |     |     | 18.5   |      |      |     |     |

### ✧ Performance Parameter (max and min rotational speed)

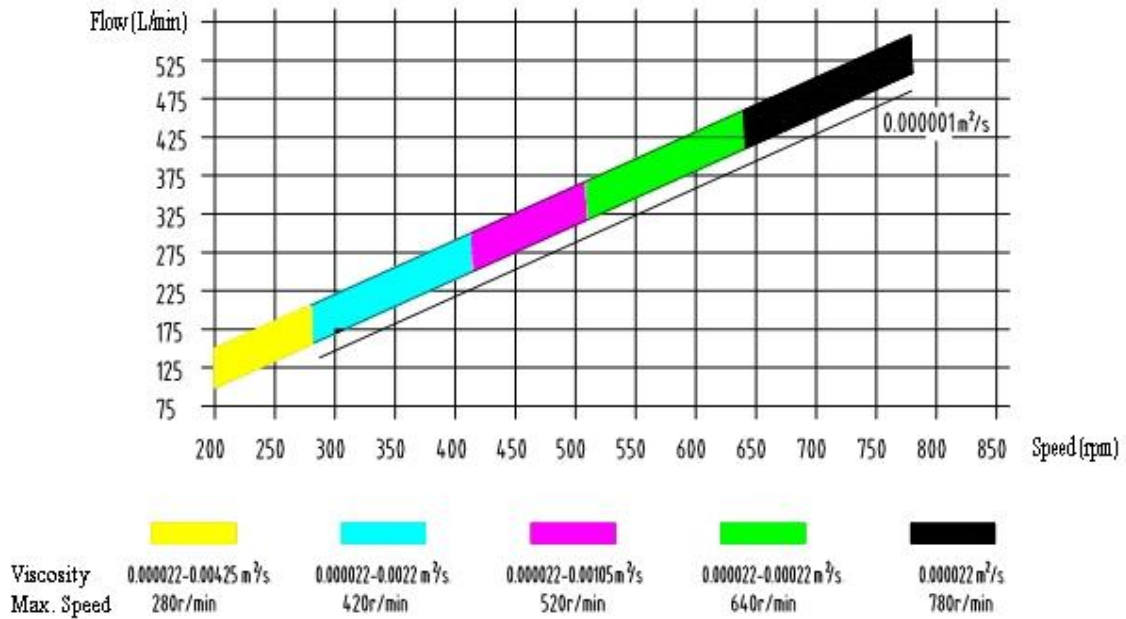
| Model         | At the max pump speed |                   |                               | At the min pump speed |                   |                               | Max differential pressure (MPa) | Max working pressure (MPa) | maxi working temperature (°C) |
|---------------|-----------------------|-------------------|-------------------------------|-----------------------|-------------------|-------------------------------|---------------------------------|----------------------------|-------------------------------|
|               | Speed (rpm)           | Flow Rate (L/min) | Viscosity (m <sup>2</sup> /s) | Speed (rpm)           | Flow Rate (L/min) | Viscosity (m <sup>2</sup> /s) |                                 |                            |                               |
| <b>YB-50</b>  | 780                   | 329               | 0.000022                      | 68                    | 26                | 0.00425                       | 0.86                            | 1.21                       | 149                           |
| <b>YB-65</b>  | 780                   | 587               | 0.000022                      | 68                    | 45                | 0.00425                       | 0.86                            | 1.21                       | 149                           |
| <b>YB-80</b>  | 640                   | 1022              | 0.000022                      | 68                    | 106               | 0.00425                       | 0.86                            | 1.21                       | 149                           |
| <b>YB-100</b> | 520                   | 1999              | 0.000022                      | 68                    | 250               | 0.00425                       | 0.86                            | 1.21                       | 149                           |

## ✧ Performance Curve and Torque Requirements

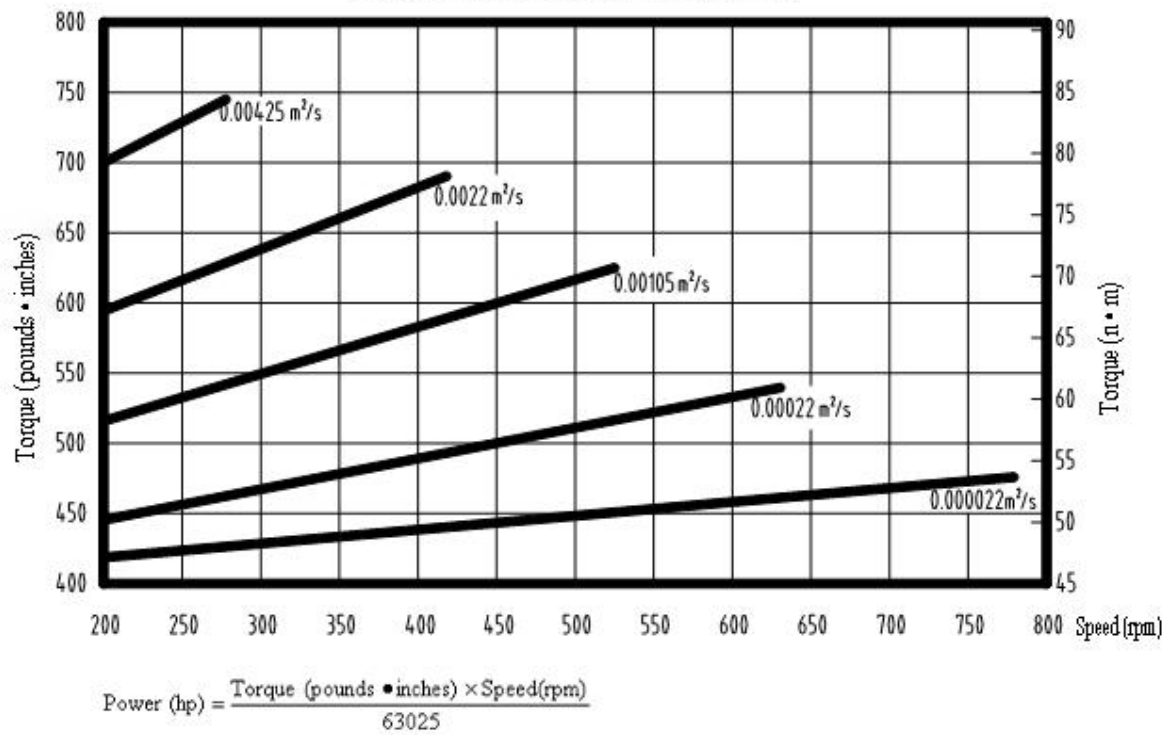


$$\text{Power (hp)} = \frac{\text{Torque (pounds} \cdot \text{inches)} \times \text{Speed (rpm)}}{63025}$$

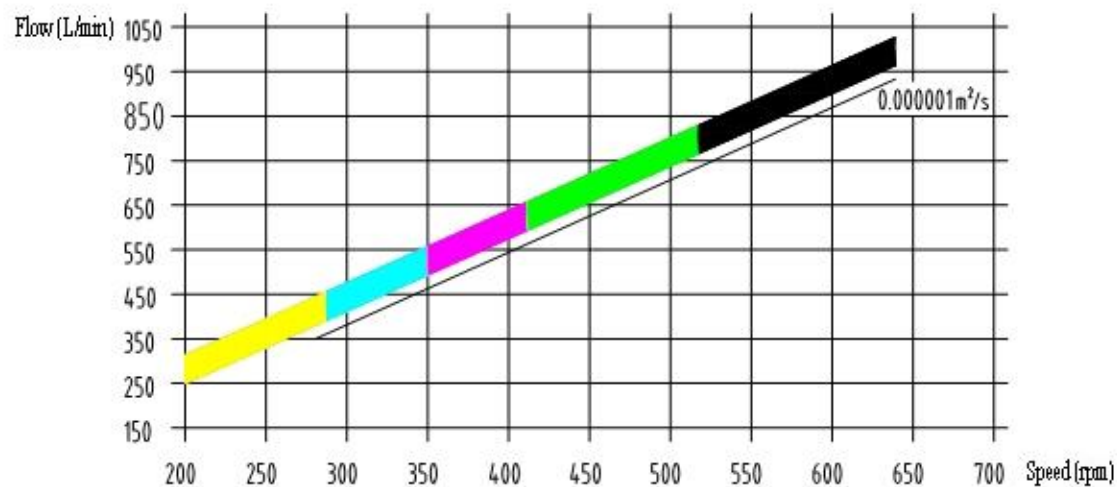
### YB-65 (0.345MPa)



### Torque Requirement (0.345MPa)

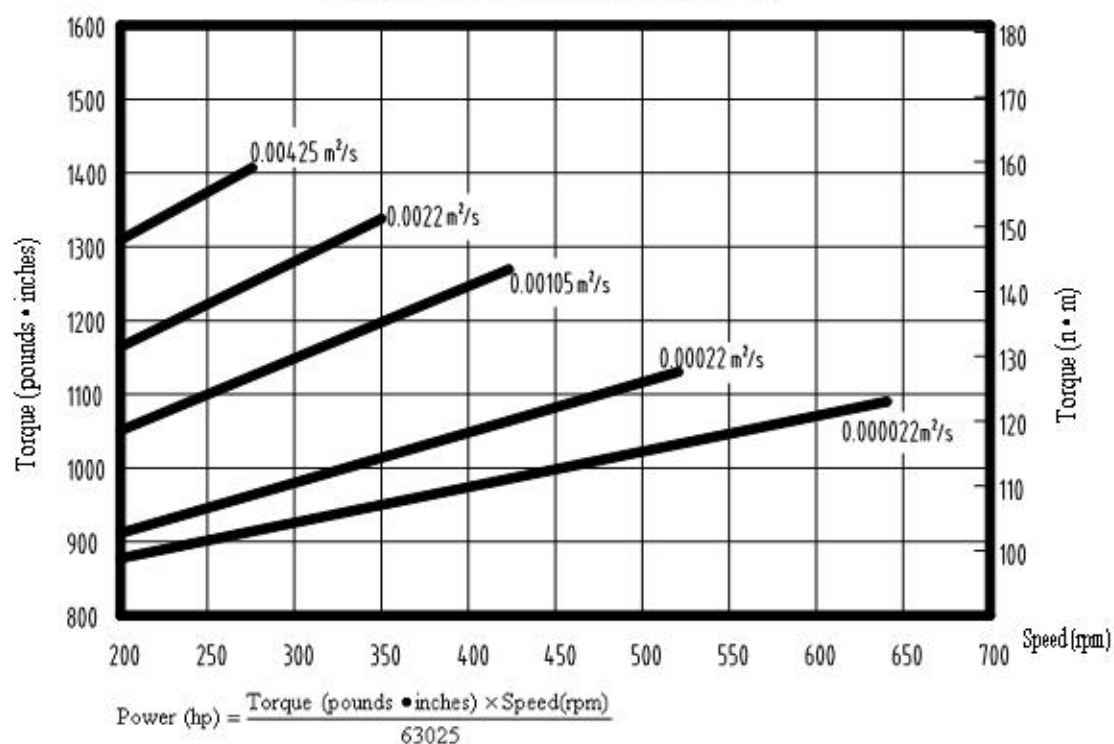


### YB-80 (0.345MPa)

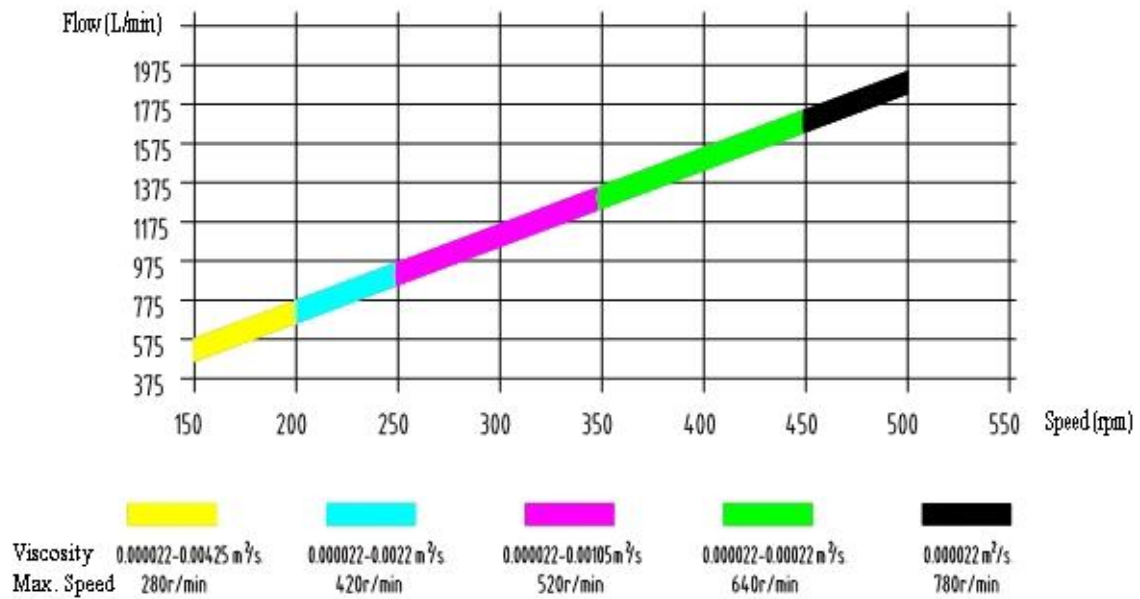


|            |                                    |                                   |                                    |                                    |                            |
|------------|------------------------------------|-----------------------------------|------------------------------------|------------------------------------|----------------------------|
| Viscosity  | 0.000022-0.00425 m <sup>2</sup> /s | 0.000022-0.0022 m <sup>2</sup> /s | 0.000022-0.00105 m <sup>2</sup> /s | 0.000022-0.00022 m <sup>2</sup> /s | 0.000022 m <sup>2</sup> /s |
| Max. Speed | 280r/min                           | 420r/min                          | 520r/min                           | 640r/min                           | 780r/min                   |

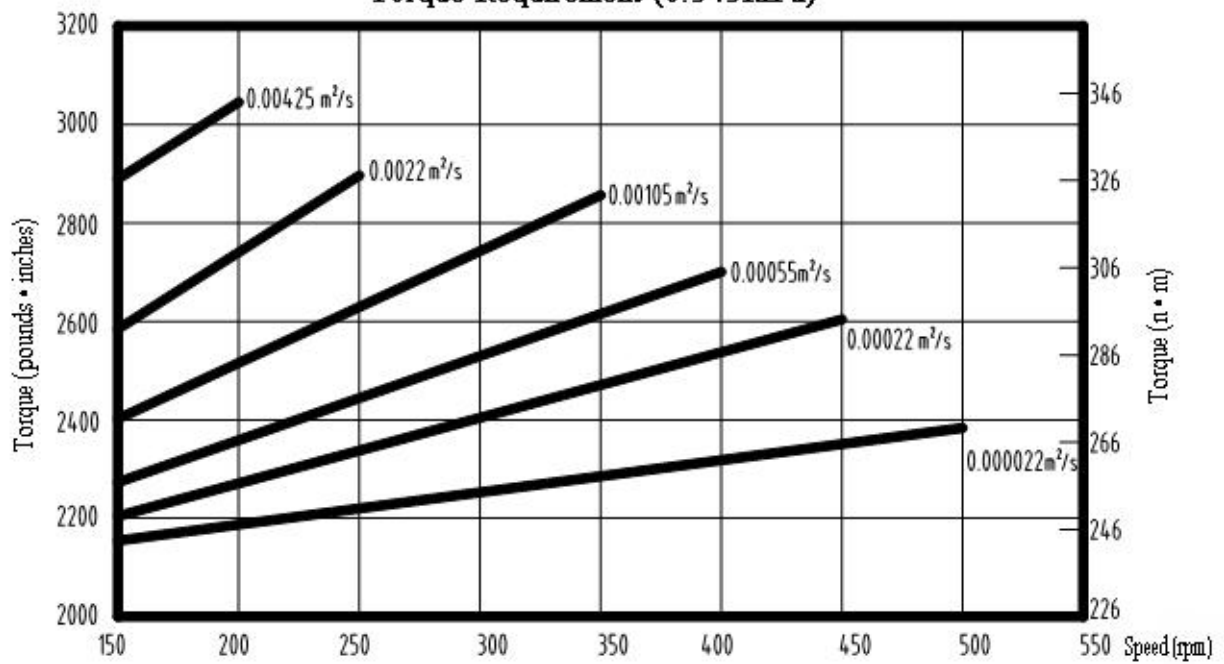
### Torque Requirement (0.345MPa)



### YB-100 (0.345MPa)

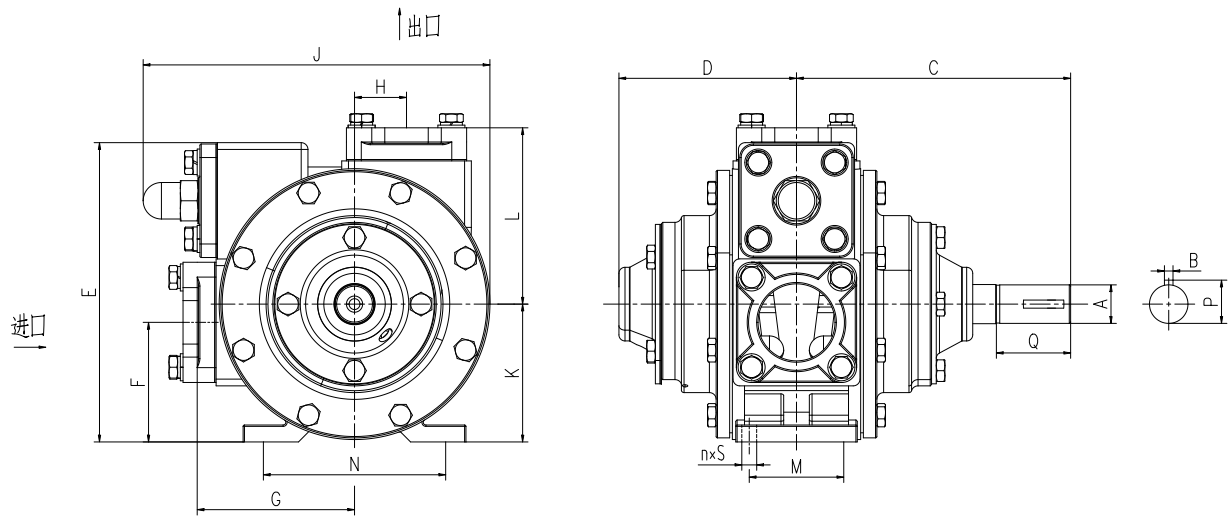


### Torque Requirement (0.345MPa)



$$\text{Power (hp)} = \frac{\text{Torque (pounds • inches)} \times \text{Speed (rpm)}}{63025}$$

## ✧ Installation Size



| Model  |    | A               | B             | C               | D               | E                 | F               | G                | H               | J                  | K               | L                | M               | N               | P               | Q               | n×S               |
|--------|----|-----------------|---------------|-----------------|-----------------|-------------------|-----------------|------------------|-----------------|--------------------|-----------------|------------------|-----------------|-----------------|-----------------|-----------------|-------------------|
| YB-50  | mm | φ28.5           | 6.35          | 203             | 137             | 221               | 89              | 102              | 38              | 248                | 102             | 105              | 41              | 127             | 32              | 58              | 4×φ11             |
|        | in | 1 $\frac{1}{8}$ | $\frac{1}{4}$ | 8               | 5 $\frac{3}{8}$ | 8 $\frac{11}{16}$ | 3 $\frac{1}{2}$ | 4                | 1 $\frac{1}{2}$ | 9 $\frac{3}{4}$    | 4               | 4 $\frac{1}{8}$  | 1 $\frac{5}{8}$ | 5               | 1 $\frac{1}{4}$ | 2 $\frac{1}{4}$ | 4× $\frac{7}{16}$ |
| YB-65  | mm | φ28.5           | 6.35          | 222             | 152             | 244               | 95              | 110              | 44              | 271                | 102             | 129              | 76              | 140             | 32              | 58              | 4×φ11             |
|        | in | 1 $\frac{1}{8}$ | $\frac{1}{4}$ | 8 $\frac{3}{4}$ | 6               | 9 $\frac{5}{8}$   | 3 $\frac{3}{4}$ | 4 $\frac{5}{16}$ | 1 $\frac{3}{4}$ | 10 $\frac{11}{16}$ | 4               | 5 $\frac{1}{16}$ | 3               | 5 $\frac{1}{2}$ | 1 $\frac{1}{4}$ | 2 $\frac{1}{4}$ | 4× $\frac{7}{16}$ |
| YB-80  | mm | φ28.5           | 6.35          | 244             | 165             | 310               | 117             | 127              | 64              | 340                | 137             | 133              | 64              | 152             | 32              | 58              | 4×φ14             |
|        | in | 1 $\frac{1}{8}$ | $\frac{1}{4}$ | 9 $\frac{5}{8}$ | 6 $\frac{1}{2}$ | 12 $\frac{3}{16}$ | 4 $\frac{5}{8}$ | 5                | 2 $\frac{1}{2}$ | 13 $\frac{3}{8}$   | 5 $\frac{3}{8}$ | 5 $\frac{1}{4}$  | 2 $\frac{1}{2}$ | 6               | 1 $\frac{1}{4}$ | 2 $\frac{1}{4}$ | 4× $\frac{7}{16}$ |
| YB-100 | mm | φ38             | 9.55          | 280             | 206             | 394               | 127             | 187              | 64              | 429                | 162             | 203              | 114             | 203             | 41.5            | 73              | 4×φ16             |
|        | in | 1 $\frac{1}{2}$ | $\frac{3}{8}$ | 11              | 8 $\frac{1}{8}$ | 15 $\frac{1}{2}$  | 5               | 7 $\frac{3}{8}$  | 2 $\frac{1}{2}$ | 16 $\frac{7}{8}$   | 6 $\frac{3}{8}$ | 8                | 4 $\frac{1}{2}$ | 8               | 1 $\frac{5}{8}$ | 2 $\frac{7}{8}$ | 4× $\frac{7}{16}$ |

## ✧ Pipe Matching Flange

| Model | Inlet&outlet size | Model  | Inlet&outlet size |
|-------|-------------------|--------|-------------------|
| YB-50 | 2" NPT            | YB-65  | 2.5" NPT          |
| YB-80 | 3" NPT            | YB-100 | 4" NPT            |