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# 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.

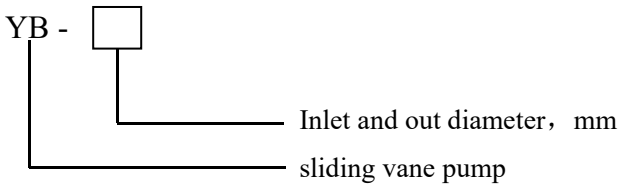
## ✧ Use

- 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℃
- Max viscosity: 0.00425 m2/s (4,250 cSt)
- Max flow rate: 120 m3/h (1,999 L / min)
- Max differential pressure: 0.86 MPa (8.6 bar)

## ✧ Model

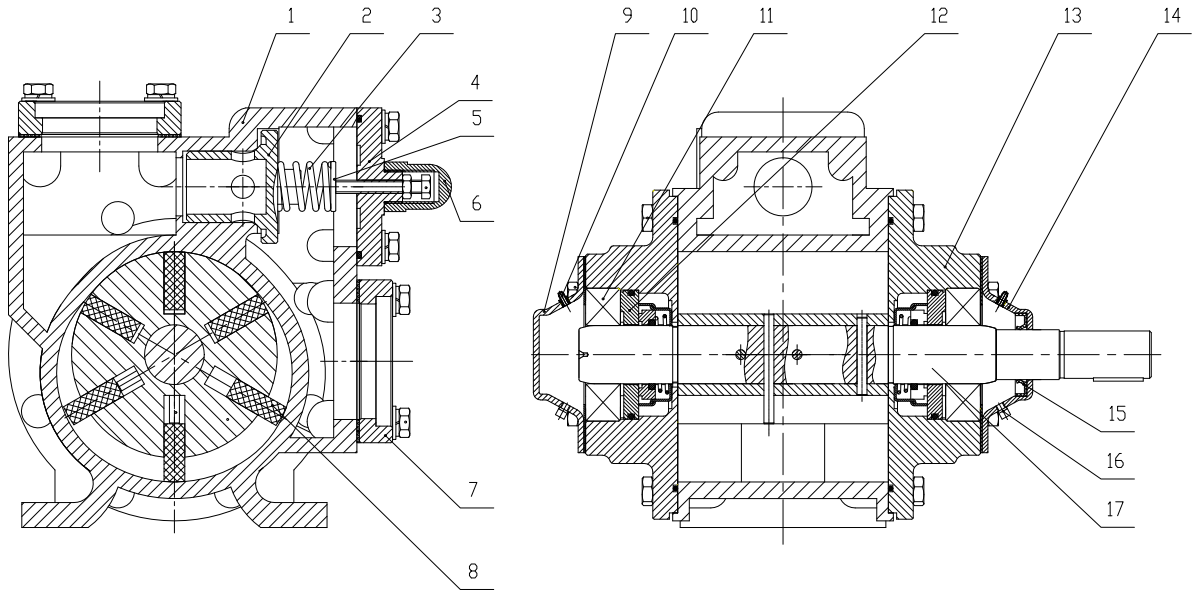



Example: YB-50 for a sliding vane pump with a diameter of 50 mm at the inlet and outlet.

## ✧ 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 | | | |

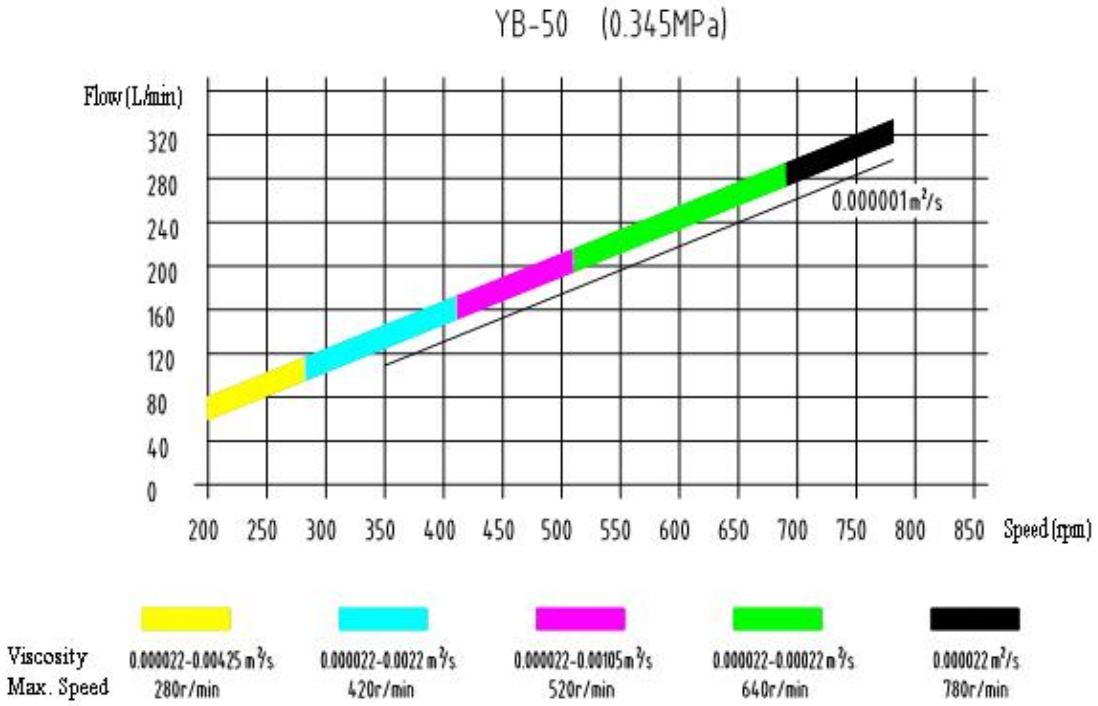
## ✧ Performance Parameter

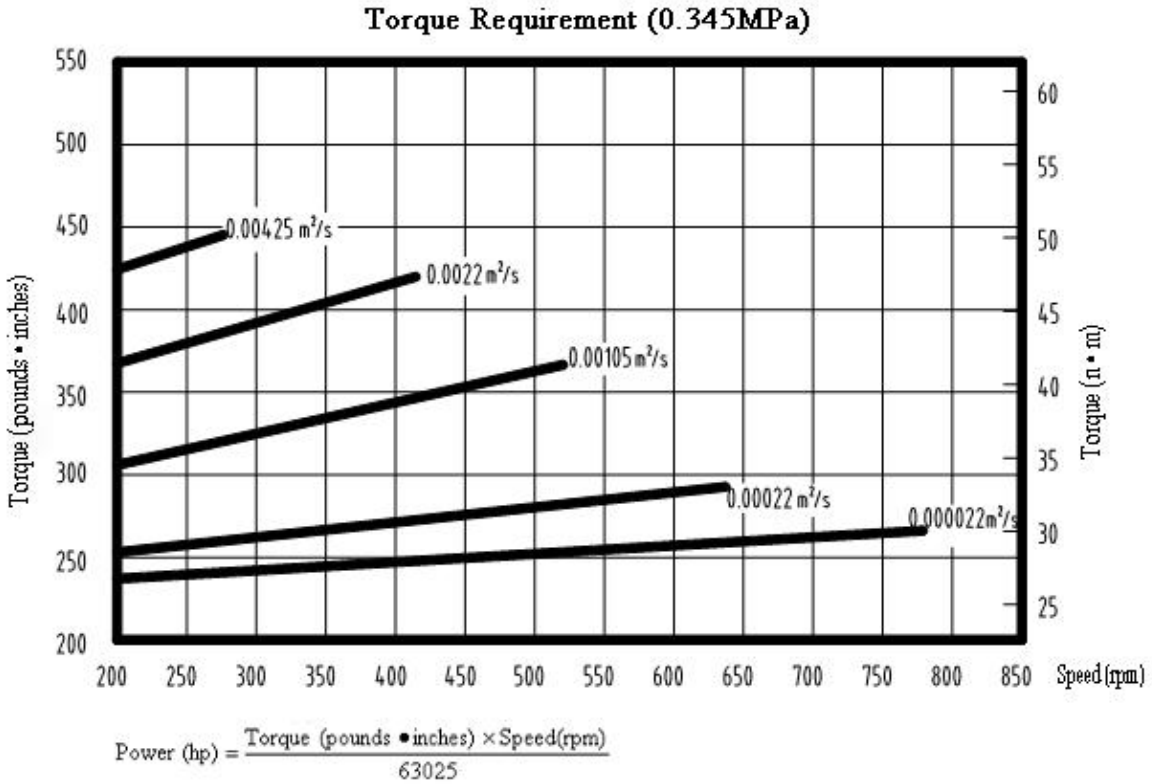
| Model | YB-50 | | | | YB-65 | | | | YB-80 | | | | YB-100 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Rated Speed (rpm) | 640 | 520 | 420 | 350 | 640 | 520 | 420 | 350 | 640 | 520 | 420 | 350 | 500 | 400 | 300 | 230 | 190 |
| Flow Rate (L/min) | 264 | 210 | 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 (℃) |
|---|---|---|---|---|---|---|---|---|---|
| | Speed (rpm) | Flow Rate (L/min) | Viscosity（$m^2/s$） | Speed (rpm) | Flow Rate (L/min) | Viscosity（$m^2/s$） | | | |
| **YB-50** | 780 | 329 | 0.000022 | 68 | 26 | 0.00425 | 0.86 | 1.21 | 149 |
| **YB-65** | 780 | 587 | 0.000022 | 68 | 45 | 0.00425 | 0.86 | 1.21 | 149 |
| **YB-80** | 640 | 1022 | 0.000022 | 68 | 106 | 0.00425 | 0.86 | 1.21 | 149 |
| **YB-100** | 520 | 1999 | 0.000022 | 68 | 250 | 0.00425 | 0.86 | 1.21 | 149 |

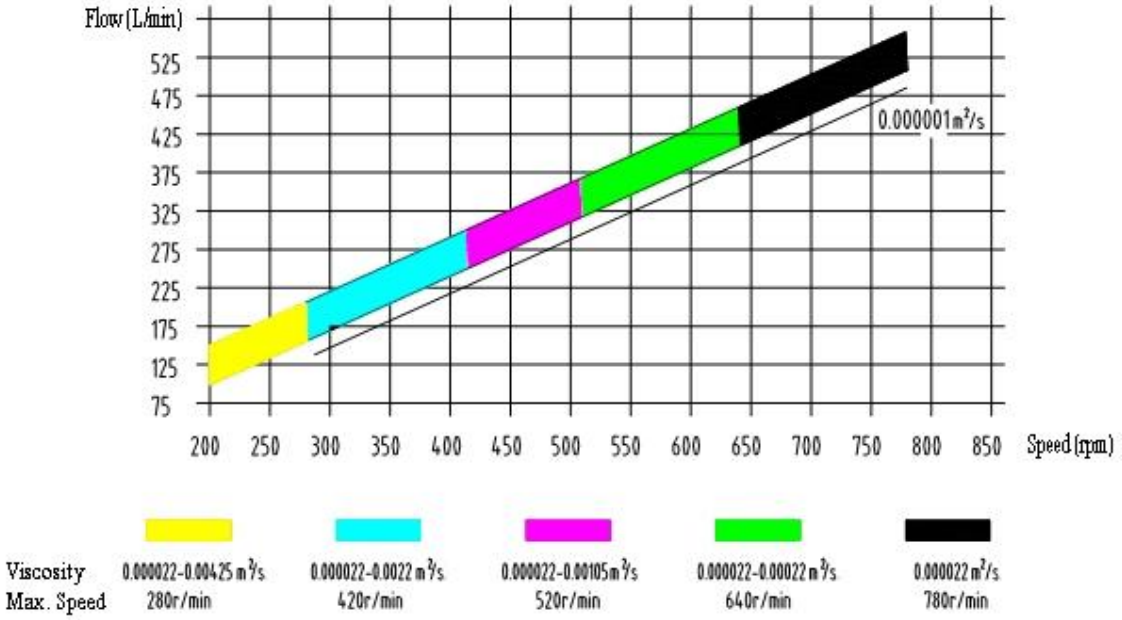
## ✧ Performance Curve and Torque Requirements



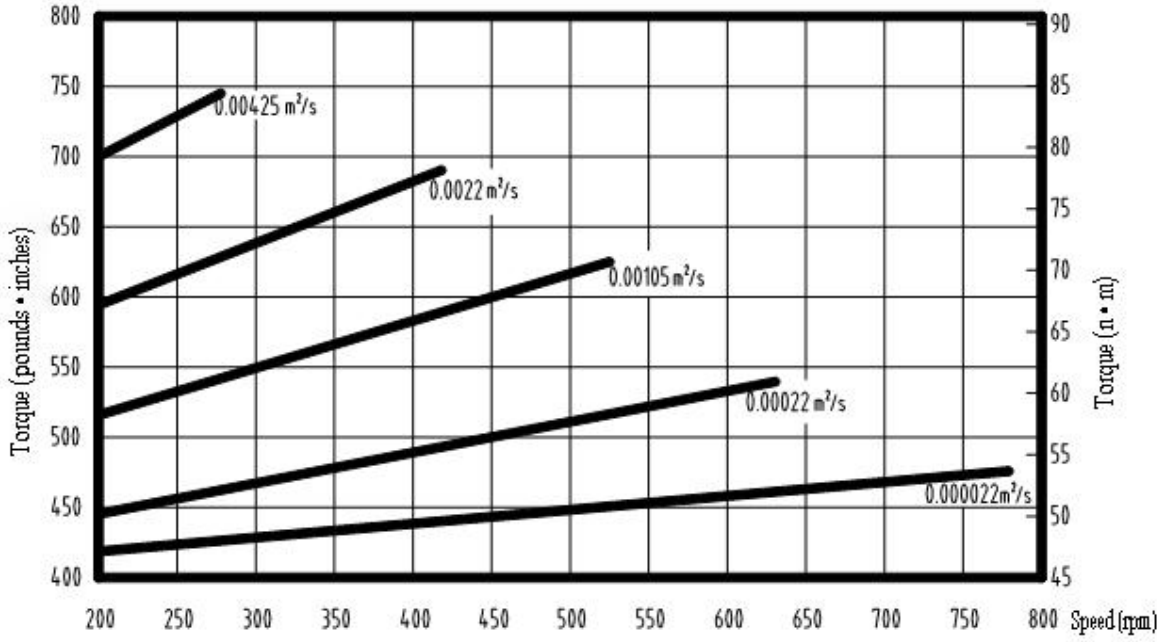




$$\text{Power (hp)} = \frac{\text{Torque (pounds} \bullet \text{inches)} \times \text{Speed(rpm)}}{63025}$$

## YB-65 (0.345MPa)

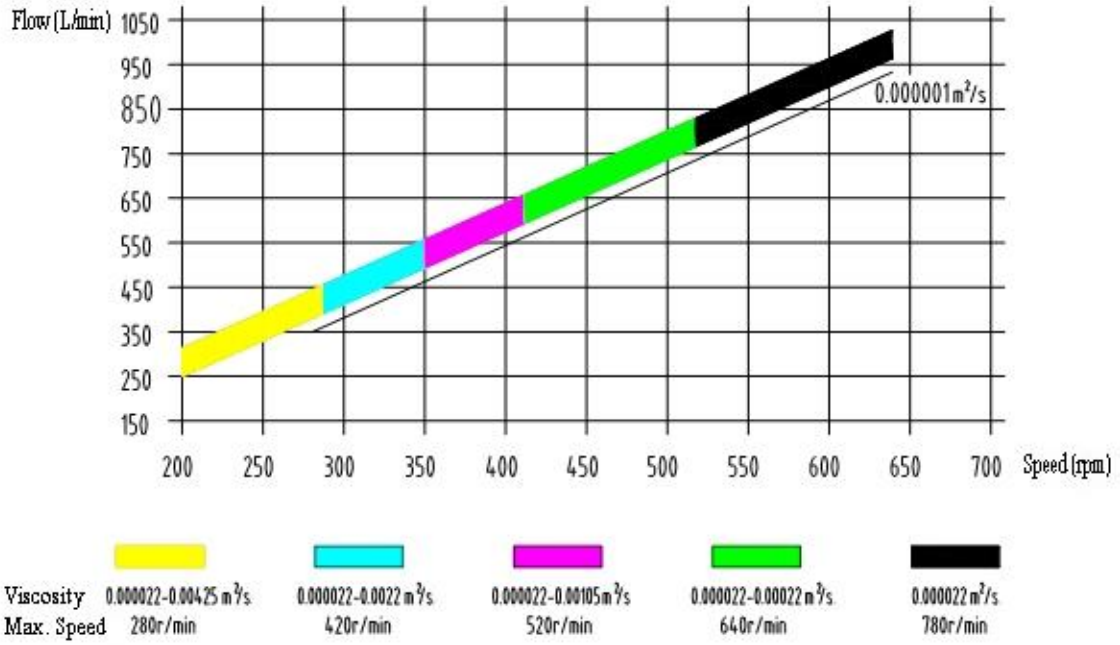



## Torque Requirement (0.345MPa)

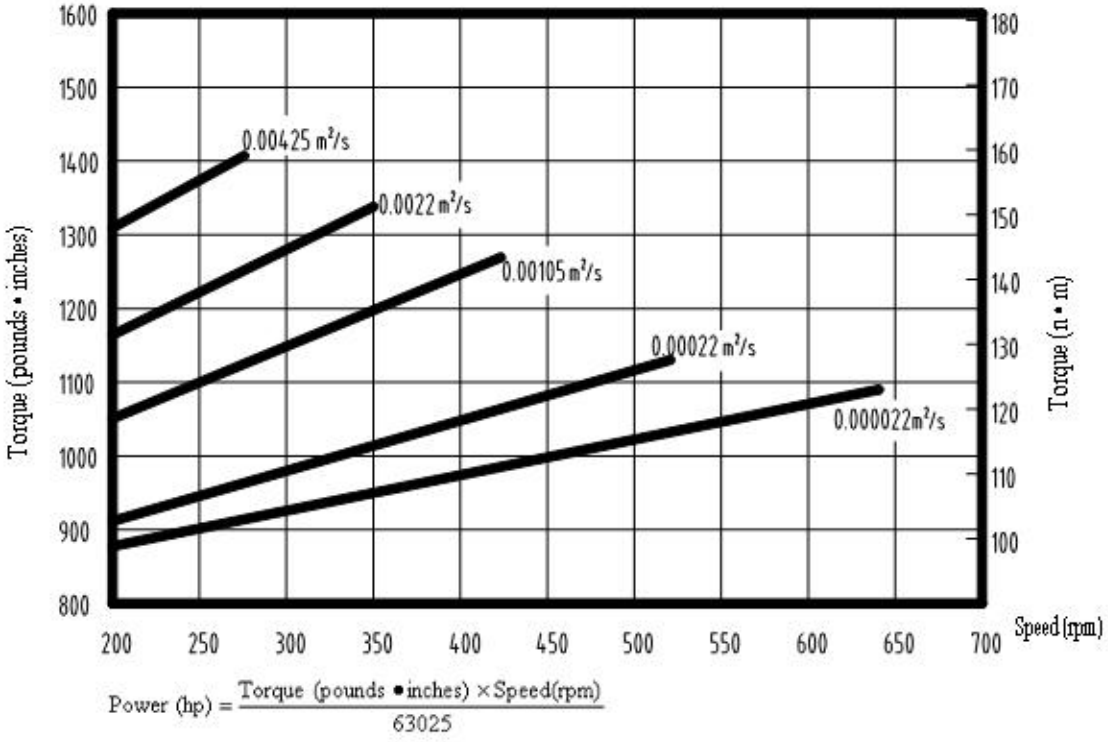



$$\text{Power (hp)} = \frac{\text{Torque (pounds • inches)} \times \text{Speed(rpm)}}{63025}$$

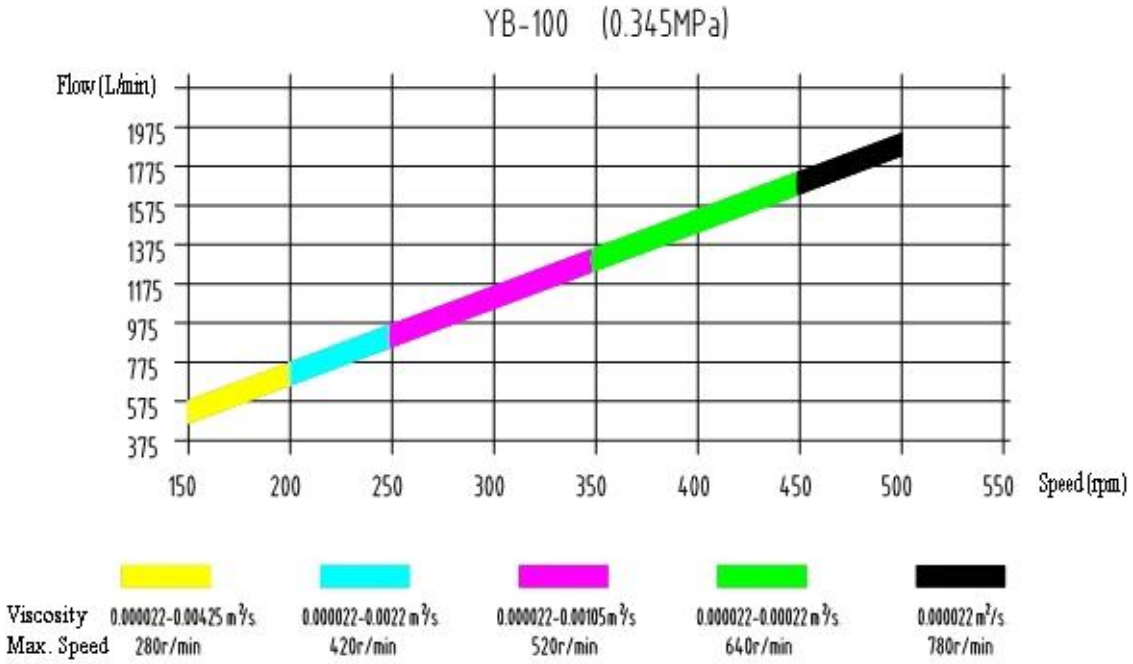
YB-80 (0.345MPa)

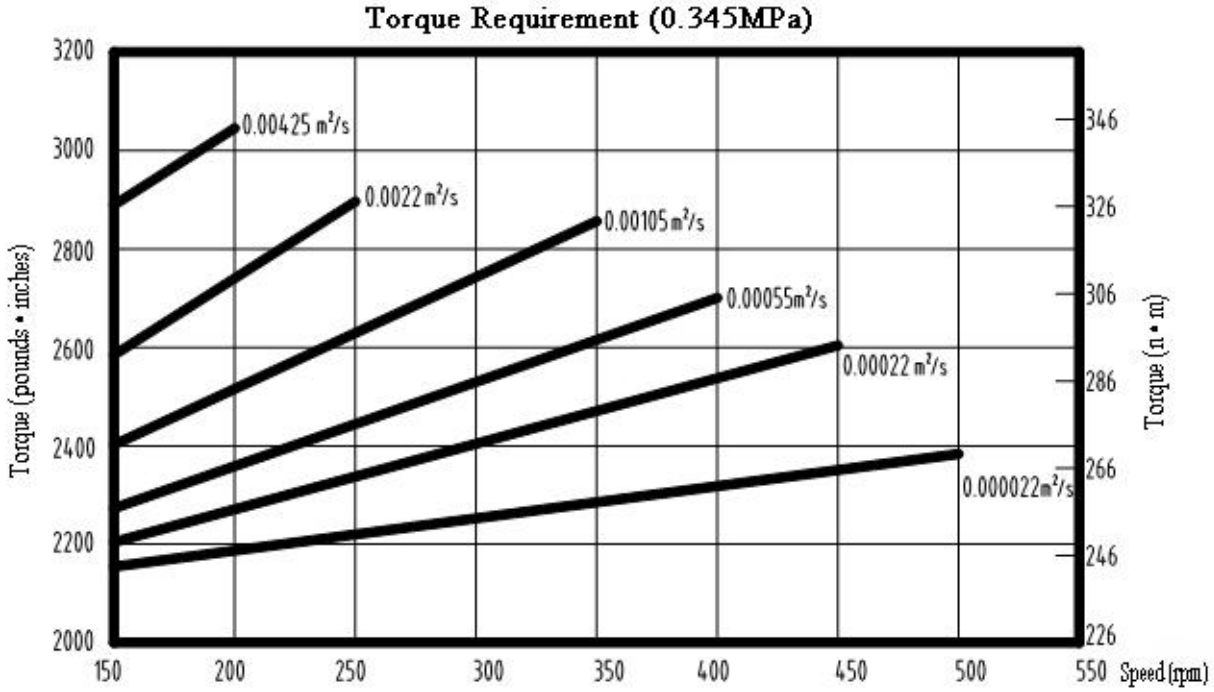



**Torque Requirement (0.345MPa)**



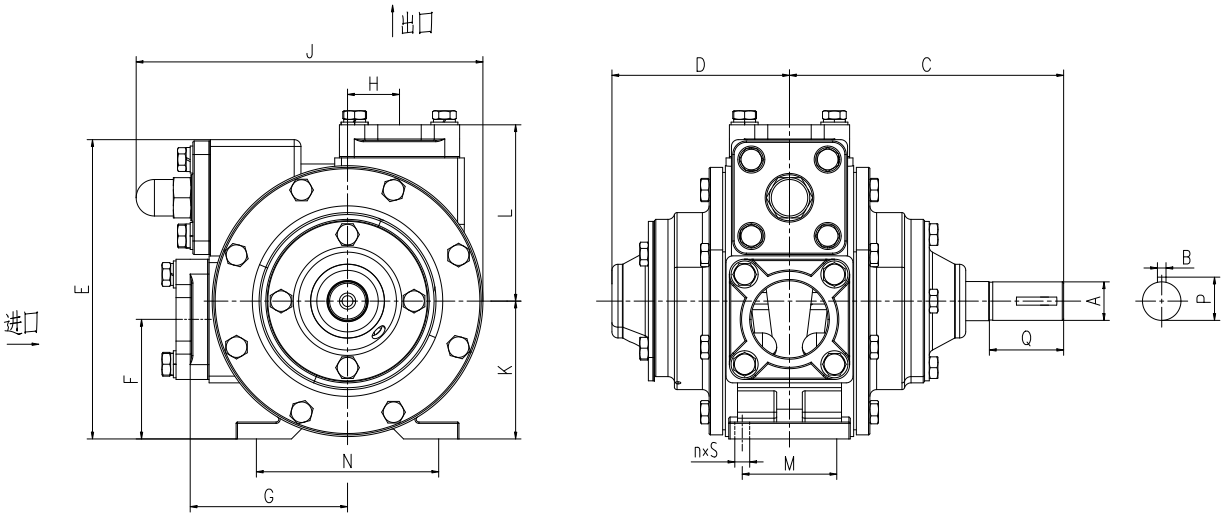

$$\text{Power (hp)} = \frac{\text{Torque (pounds • inches)} \times \text{Speed(rpm)}}{63025}$$




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

## ✧ 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 | $1\frac{1}{4}$ | $2\frac{1}{4}$ | $4\times\frac{7}{16}$ |
| 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 | $5\frac{1}{2}$ | $1\frac{1}{4}$ | $2\frac{1}{4}$ | $4\times\frac{7}{16}$ |
| 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 | $1\frac{1}{4}$ | $2\frac{1}{4}$ | $4\times\frac{7}{16}$ |
| 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 | $1\frac{5}{8}$ | $2\frac{7}{8}$ | $4\times\frac{7}{16}$ |

## ✧ 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 |