High Speed, High Pressure Vane Motors

M - Motors
25M, 35M, 45M, 50M

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**Dependable**
The M Motor is a proven design that has been operating in the field for decades. They are available with either standard or heavy duty bearings.

These motors start out with high efficiencies, and operates at those levels throughout the life of the motor. This is inherent in this vane motor design.

The bi-rotational design of these motors lends itself to quick reversal motion. They can be stalled at as high as 65% of maximum pressure rating at 1200r/min without damage.

**Versatile**
This motor design can operate at as low as 100 rpm to as high as 3,000 rpm at maximum pressures. It can run at faster speeds as system pressures decrease.

Because both ports can be pressurized at the same time, the M-Motor is perfect for multiple motors connected in series.

The heavy duty bearing allows for indirect drive options such as gears, belts and pulleys.

Several port position configurations are available.

**Serviceable**
The internal rotating parts are self contained in a cartridge kit in this design. This makes this motor easily field serviceable. In most cases the motor can stay in place while the ring, rotor, and vanes are replaced with new. Port orientation adjustments too can be done in the field.

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### Model Codes

<table>
<thead>
<tr>
<th>25</th>
<th>M</th>
<th>65</th>
<th>A</th>
<th>11</th>
<th>C</th>
<th>20</th>
<th>***</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
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<td>8</td>
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</tbody>
</table>

1. **Series**
   - 25M
   - 35M
   - 45M
   - 50M
   - 26M
   - 36M
   - 46M
   - 51M

2. **Vane Motor**

3. **Ring Size - Nom. Torque Rating (lb. in./100 psi)**
   - 25M – 42, 55 & 65
   - 35M – 80, 95 & 115
   - 45M – 130, 155 & 185
   - 50M – 220, 255 & 300

4. **Mounting Flange & Port Connections**
   - A – SAE type 2-bolt mounting flange and SAE 4-bolt flange connections

5. **Shaft**
   - 1 – Straight keyed (Optional)
   - 11 – Splined (STD)

6. **Cover Position**
   - (Viewing cover end)
   - A – Cover port opposite body port
   - B – Cover port 90 CCW from body port
   - C – Port connections in line
   - D – Cover port 90 CW from body port

7. **Design 20-29**

8. **Special Features Suffix**
   - 114
   - 124 *50M only

* See specification notes for max pressures, etc.
## Physical Specifications

<table>
<thead>
<tr>
<th>Model Series</th>
<th>Mounting</th>
<th>Std Shaft Splined</th>
<th>Optional Shaft Keyed</th>
<th>Approx Weight kg (lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25M</td>
<td>SAE “B” 2 Bolt</td>
<td>7/8” - 13 Tooth</td>
<td>7/8” X .187 Key</td>
<td>18 (40)</td>
</tr>
<tr>
<td>35M</td>
<td>SAE “C” 2 Bolt</td>
<td>1 1/4” - 14 Tooth</td>
<td>1 1/4” X .312 Key</td>
<td>29 (64)</td>
</tr>
<tr>
<td>45M</td>
<td>SAE “C” 2 Bolt</td>
<td>1 1/4” - 14 Tooth</td>
<td>1 1/4” X .312 Key</td>
<td>39 (85)</td>
</tr>
<tr>
<td>50M</td>
<td>SAE “D” 2 Bolt</td>
<td>1 3/4” - 13 Tooth</td>
<td>1 3/4” x .437 Key</td>
<td>73 (160)</td>
</tr>
</tbody>
</table>

## Performance Specifications

<table>
<thead>
<tr>
<th>Model Series</th>
<th>Torque Nm/6,9 bar (lb. in./100psi)</th>
<th>Displacement cm³/r (in³/r)</th>
<th>Flow Input @ 1200 r/min L/min (US gpm)</th>
<th>Max. Torque Nm (lb. in.) @ Max. Pressure</th>
<th>Maximum Speeds &amp; Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>25M</td>
<td>4.7 (42) 6.2 (55) 7.3 (65)</td>
<td>43.9 (2.68) 57.7 (3.52) 68.7 (4.19)</td>
<td>52.7 (13.9) 69.4 (18.3) 82.6 (21.8)</td>
<td>115.8 (1025) 151.4 (1340) 180.8 (1600)</td>
<td>3600 r/min @ 34 bar (500 psi) † 4000 r/min @ 34 bar (500 psi) ‡ 2600 r/min @ 155 bar (2250 psi) † 3000 r/min @ 172 bar (2500 psi) ‡</td>
</tr>
<tr>
<td>35M</td>
<td>9.0 (80) 10.7 (95) 13.0 (115)</td>
<td>83.6 (5.10) 100.3 (6.12) 121.9 (7.44)</td>
<td>100.4 (26.5) 120.5 (31.8) 146.3 (38.6)</td>
<td>221.5 (1960) 264.4 (2340) 320.9 (2840)</td>
<td></td>
</tr>
<tr>
<td>45M</td>
<td>14.7 (130) 17.5 (155) 20.9 (185)</td>
<td>138.0 (8.42) 163.2 (9.96) 193.2 (11.79)</td>
<td>165.6 (43.7) 195.9 (51.7) 232.3 (61.3)</td>
<td>361.6 (3200) 429.4 (3800) 502.9 (4450)</td>
<td></td>
</tr>
<tr>
<td>50M</td>
<td>24.9 (220) 28.8 (255) 33.9 (300)</td>
<td>231.3 (14.11) 268.2 (16.36) 317.2 (19.35)</td>
<td>277.8 (73.3) 322.2 (85.0) 380.7 (100.5)</td>
<td>615.9 (5450) 717.6 (6350) 844.1 (7470)</td>
<td>2800 r/min @ 34 bar (500 psi) † 3200 r/min @ 34 bar (500 psi) ‡ 2200 r/min @ 155 bar (2250 psi) † 2400 r/min @ 172 bar (2500 psi) ‡</td>
</tr>
</tbody>
</table>

† Continuous operation
‡ Intermittent operation: 10% of total operating time; each application of pressure and/or speed not to exceed 6 seconds
● 114 model suffix: 2500 psi, counterclockwise; 2250 psi, clockwise. (Rotation viewed from shaft end)
● 124 model suffix: 2500 psi, bi-directional rotation
Installation Dimensions

25M Motors

Dimensions in millimeters (inches)
Port connection pads are for use with SAE 4-bolt flanges.
Fluid supply to connection “L” turns shaft clockwise as viewed from shaft end. Fluid supply to connection “K” turns shaft counterclockwise.

35M Motors

Dimensions in millimeters (inches)
Port connection pads are for use with SAE 4-bolt flanges.
Fluid supply to connection “L” turns shaft clockwise as viewed from shaft end. Fluid supply to connection “K” turns shaft counterclockwise.
Installation Dimensions

45M Motors
Dimensions in millimeters (inches)
Port connection pads are for use with SAE 4-bolt flanges.
Fluid supply to connection “L” turns shaft clockwise as viewed from shaft end. Fluid supply to connection “K” turns shaft counterclockwise.

50M Motors
Dimensions in millimeters (inches)
Port connection pads are for use with SAE 4-bolt flanges.
Fluid supply to connection “L” turns shaft clockwise as viewed from shaft end. Fluid supply to connection “K” turns shaft counterclockwise.
Optional Shafts

25M
No. 1 straight keyed shaft
Dimensions in millimeters (inches)

35M & 45M
No. 1 straight keyed shaft
Dimensions in millimeters (inches)

50M
No. 1 straight keyed shaft
Dimensions in millimeters (inches)
**Typical Performance**

**25M Motors**

Performance Constants:

Oil SAE 10W, viscosity 32 cSt (150 SUS) @ 38°C (100°F)

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**Torque – Nm (lb.in)**

**Power – kW (hp)**
**Typical Performance**

**35M Motors**

Performance Constants:

Oil SAE 10W, viscosity 32 cSt (150 SUS) @ 38°C (100°F)
Typical Performance

45M Motors

Performance Constants:

Oil SAE 10W, viscosity 32 cSt (150 SUS) @ 38°C (100°F)
Typical Performance

45M Motors
Performance Constants:
Oil SAE 10W, viscosity 32 cSt (150 SUS) @ 38°C (100°F)
**Typical Performance**

**50M Motors**

Performance Constants:

Oil SAE 10W, viscosity 32 cSt (150 SUS) @ 38°C (100°F)
Typical Performance

50M Motors
Performance Constants:

Oil SAE 10W, viscosity 32 cSt (150 SUS) @ 38°C (100°F)