ECM Vector Motor

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Power your future
**Wolong Vector Motor**

Electronically controlled motors (ECM) are commonly applied in advanced HVAC and fan systems, which meet energy efficiency levels of IE4 (and above) while supporting multiple control and operation modes.

**EM48 Series Motor Features**

- Constant Torque & Constant Speed modes
- Constant air flow customization
- COM, PWM, 0-10VDC speed control
- Up to 5 discrete speed selections by 24VAC
- 200-2000rpm rotate speed options
- 115/230VAC single phase power supply (50Hz/60Hz)
- Advanced electronic protection features built-in
- CW and CCW rotation
- IP20-IP55 options for indoor & outdoor applications
- Complies with UL 63730 CLASS B requirements

**Motor Technology**

- Optimal control at all speed ranges to maximize torque
- Robust control, not sensitive to parameter variations
- High torque and precise speed controls
- Interior PM motor, concentrated flux design
- Magnet protection to avoid demagnetization
- Direct flux control technology, high power density

**Type Designation**

![Type Designation Diagram]

- **EM 48 10 A 34 *****
  - Series of products
  - Power of output
  - Motor TypeID: A,B,C,D
  - Poles: 6,8,10,12etc
  - frame
  - Electronically commutated motor
## Motor Parameters

### Low speed series

<table>
<thead>
<tr>
<th>Model</th>
<th>Output</th>
<th>Rated (RPM)</th>
<th>Voltage Supply (VAC)</th>
<th>Max Current at 60 Hz(A)</th>
<th>Efficiency (%)</th>
</tr>
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<tbody>
<tr>
<td>EM4810B14***</td>
<td>1/4HP</td>
<td>1050</td>
<td>115</td>
<td>2.9</td>
<td>80</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>208-230</td>
<td>1.7</td>
<td>81</td>
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<tr>
<td>EM4810B12***</td>
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<td>1050</td>
<td>115</td>
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<tr>
<td>&amp; 1/2HP</td>
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<tr>
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### High speed series

<table>
<thead>
<tr>
<th>Model</th>
<th>Output</th>
<th>Rated (RPM)</th>
<th>Voltage Supply (VAC)</th>
<th>Max Current at 60 Hz(A)</th>
<th>Efficiency (%)</th>
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<td>208-230</td>
<td>1.7</td>
<td>82</td>
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<tr>
<td>EM4810D12***</td>
<td>1/2HP</td>
<td>1800</td>
<td>115</td>
<td>5.8</td>
<td>84</td>
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<td>208-230</td>
<td>3.0</td>
<td>87</td>
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<td>208-230</td>
<td>5.5</td>
<td>88</td>
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</tbody>
</table>

** Motor choices include IP20-IP55 options
** Shaft diameter selection: φ12.7/φ15/φ15.87
**Type A: 5 Speed Motor with Insert Terminal**
- Constant speed mode
- 24VAC speed control,
- Up to 5 discrete speeds
- Speed range 200-2000rpm
- 115/230VAC single phase power supply (50Hz/60Hz)
- Motor protection IP20 to IP22
- Open structure for indoor applications

**Type B: Multi Speed Design for Replacement Applications**
- Constant speed mode
- 24VAC speed supply
- Up to 5 discrete speeds
- Selectable direction of rotation
- Speed range 200-2000rpm
- 115/230VAC single phase power supply (50Hz/60Hz)
- Motor protection IP20 to IP44
- Suitable for indoor and outdoor applications

**Type C: Serial and PWM Motor**
- Constant torque, constant speed modes
- PWM speed control with serial communication
- Selectable direction of rotation
- Speed range 200-2000rpm
- 115/230VAC single phase power supply (50Hz/60Hz)
- Supports maximum speed limit
- Motor protection IP20 to IP55,
- Suitable for indoor and outdoor applications
Type D: 0-10V Speed Control Motor

- Constant speed mode
- Speed range 200-2000rpm
- 0~10VDC speed control with high-linearity
- 115/230VAC single phase power supply (50Hz/60Hz)
- Customizable mounting options
- Motor protection IP44 to IP55
- Enclosed for outdoor applications

Type E: Separable Control Motor

- Constant torque, constant speed modes
- Selectable direction of rotation
- Supports maximum speed limit
- COM, PWM, 0-10VDC, or 5 discrete speeds
- Speed range 200-2000rpm
- 115/230VAC single phase power supply (50Hz/60Hz)
- Motor protection IP42 to IP55
- Enclosed for outdoor applications

Type F: Double Shaft Motor

- Constant torque, constant speed modes
- Selectable direction of rotation
- COM, PWM, 0-10VDC, or 5 discrete speeds
- Speed range 200-2000rpm
- 115/230VAC single phase power supply (50Hz/60Hz)
- Steel shell motor, customizable mounting options
- Motor protection IP20 to IP44
- Suitable for indoor applications
The successful 3 phase controller vector motor series serves commercial and industrial HVAC applications.

**Motor Features**

» 380-480VAC three phase power supply (50 Hz/60 Hz)
» Speed range 200-1800rpm
» Maximum output power 3.7kw
» 0-10VDC analog speed control or PWM speed control
» Supports customizable serial communication
» Up to 91% system efficiency, comply with IE4 motor efficiency
» IP54-IP66 motor protection and advanced electronic protection

**Technical Data**

<table>
<thead>
<tr>
<th>Type</th>
<th>Voltage Supply (VAC)</th>
<th>Freq. (Hz)</th>
<th>Output Power (KW)</th>
<th>Input Current (A)</th>
<th>Rated Torque (r/min)</th>
<th>Efficiency (%)</th>
<th>Poles</th>
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<tr>
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<td>50/60</td>
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<th>Input Current (A)</th>
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| EC132 | 380-480 50/60        | 1.1        | 2.2               | 1000              | 10.5               | 85          | 10       |
|       | 380-480 50/60        | 1.5        | 2.9               | 1000              | 14.3               | 86          | 10       |
|       | 380-480 50/60        | 2.2        | 4.2               | 1000              | 21.0               | 87          | 10       |
|       | 380-480 50/60        | 3.0        | 5.6               | 1000              | 28.7               | 89          | 10       |
|       | 380-480 50/60        | 1.1        | 2.1               | 1500              | 7.0                | 87          | 10       |
|       | 380-480 50/60        | 1.5        | 2.9               | 1500              | 9.6                | 88          | 10       |
|       | 380-480 50/60        | 2.2        | 4.1               | 1500              | 14.0               | 90          | 10       |
|       | 380-480 50/60        | 3.0        | 5.6               | 1500              | 19.1               | 90          | 10       |
|       | 380-480 50/60        | 1.1        | 2.09              | 1800              | 5.8                | 88          | 10       |
|       | 380-480 50/60        | 1.5        | 2.89              | 1800              | 8                  | 89          | 10       |
|       | 380-480 50/60        | 2.2        | 4.03              | 1800              | 11.7               | 91          | 10       |
|       | 380-480 50/60        | 3.0        | 5.5               | 1800              | 15.9               | 91          | 10       |
|       | 380-480 50/60        | 3.7        | 6.8               | 1800              | 19.6               | 91          | 10       |
Resin Motor Series

1. PWM and COM speed control
2. Constant speed mode
3. Speed range 200-1300rpm, customizable
4. Multi-protection features
5. Plastic resin motor structure, high protection
6. Separation structure and lift on lift-off type

Motor Parameters

<table>
<thead>
<tr>
<th>Type</th>
<th>Controller Type</th>
<th>Voltage (VAC)</th>
<th>Freq. (Hz)</th>
<th>Current (A)</th>
<th>Output (W)</th>
<th>Rated (r/min)</th>
<th>Torque (NM)</th>
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<td>ZWB4710L03A</td>
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<td>240</td>
<td>60</td>
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<td>60</td>
<td>1.83</td>
<td>200</td>
<td>682</td>
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Dimension Figure
Type A 5 Speed Motor with Insert Terminal

**Motor shaft diameter, shaft length and outgoing line can be customized

Type B Multi-speed Design for Replacement Applications

**Motor shaft diameter, shaft length and outgoing line can be customized
**Type C Serial and PWM Motor**

Motor shaft diameter, shaft length and outgoing line can be customized.

**Type D 0-10V Speed Control Motor**

Motor shaft diameter, shaft length and outgoing line can be customized.
**Type E Separable Control Motor**

**Motor shaft diameter, shaft length and outgoing line can be customized**

**Type F Double Shaft Motor**

**Motor shaft diameter, shaft length and outgoing line can be customized**
Technical Data

EM56 Vector Motor

<table>
<thead>
<tr>
<th>H(mm)</th>
<th>L(mm)</th>
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<tbody>
<tr>
<td>284, 294</td>
<td>90, 100</td>
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EC112 Vector Motor

<table>
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<th>H(mm)</th>
<th>L(mm)</th>
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<td>267.5, 277.5</td>
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EC132 Vector Motor

Technical Data

EC132 Vector Motor

<table>
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<tr>
<th>H(mm)</th>
<th>L(mm)</th>
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<tbody>
<tr>
<td>263, 277</td>
<td>90, 104</td>
</tr>
</tbody>
</table>

**MOTOR TYPE**
- Type: A
- Type: B
- Type: C
- Type: D
- Type: E
- Type: F
- EM48
- EM56
- EC132
- EC112

**RUNNING MODE**
- Constant speed
- Constant torque
- Constant air flow

**SPEED CONTROL MODE**
- Multiple Choices:
  - Serial
  - PWM
  - 0-10VDC
  - 5 discrete speeds

**MOTOR STRUCTURE**
- Steel shell
- Aluminum shell
- Resin shell
- Other

**SHAFT DIAMETER**
- Ø12.7mm
- Ø14.0mm
- Ø15.0mm
- Ø15.87mm
- Ø24mm
- Other

**MOTOR HEIGHT**
- 257.5mm
- 267.5mm
- Other