VarioDrive C

VarioDrive C, technical information | 56
VarioDrive C, size 084 | 58
VarioDrive C, size 112 | 62
VarioDrive C, size 150 | 67

Specifications
Our new EC drive motors VarioDrive C

Technical information

The new line-fed EC drive solution VarioDrive C from ebm-papst Mulfingen is an intelligent alternative to IEC standard motors with frequency inverter. Their robust mechanical design with IP 55 type of protection and insulation class “B” or “F” make for long service life and allow operation in tough ambient conditions. Their mounting options are the same as with the well-known B14 / B5 flange variant and make them easy to connect to the customer application.

A common feature of all three different sizes M3G084, M3G112 and M3G150 is their closed and compact design with integrated electronics. Torques between 1.0 - 18.0 Nm can easily be realised in the 390 - 2100 W performance range in connection with variable speed control.

There are numerous analogue and digital control inputs available to control the motor. Additionally, connection is also possible via RS485 interface. Diverse functions such as under-voltage detection, over-temperature protection, locked-rotor protection and motor current limitation ensure motor safety.

Electronically commutated synchronous machines come with high efficiency. This advantage becomes especially apparent with speed control in partial load operation when comparing them to asynchronous machines. Here, higher efficiency brings about a considerable savings in energy, thus conserving resources and protecting the environment. Wear-and-tear of the motor and the unit it drives is also reduced at partial load, increasing service life and bringing down the maintenance expenditure of the complete application.
Application areas:

The VarioDrive C is particularly suited for applications with square torque curve, such as fan and pump drives. If aggressive media, high temperatures or fluids are involved, the motor usually has to be installed outside the delivery chamber or delivery medium.

Therefore, typical applications include:

– Climate-controlled cabinets
– Air exhaust boxes
– Process technology plants
– And many more ...
EC drive motors
VarioDrive C, size 084

- **Material:** Motor housing / electronics:
  Die-cast aluminium

- **Direction of rotation:**
  Counter-clockwise, seen on shaft

- **Type of protection:** IP 55

- **Insulation class:** “B”

- **Mounting position:** Any

- **Mode of operation:**
  Continuous operation (S1)

- **Bearings:** Maintenance-free ball bearings

- **Technical features:**
  See electr. connection p. 70

---

**Nominal data**

<table>
<thead>
<tr>
<th>Type</th>
<th>VAC</th>
<th>Hz</th>
<th>rpm</th>
<th>Nm</th>
<th>A</th>
<th>W</th>
<th>W kgm² x 10⁻⁶</th>
<th>°C</th>
<th>kg</th>
<th>p. 70</th>
</tr>
</thead>
<tbody>
<tr>
<td>M3G084-DF18 -81</td>
<td>1~</td>
<td>200-277</td>
<td>50/60</td>
<td>3000</td>
<td>1.2</td>
<td>2.2</td>
<td>500</td>
<td>380</td>
<td>1960</td>
<td>-25..+40</td>
</tr>
</tbody>
</table>

subject to alterations
Nominal data at maximum load and 230 VAC

---

**Permissible shaft load at nominal speed and life expectancy L₁₀ at 20 000 h (at TJ max. 40°C).**

- **Faxial:** 150 N
- **Radial:** 450 N

**View X**

- **Detail view Y**

**Groove depth**

3 mm

**Connection line PVC, 5 x AWG18, 5 x crimped core-end sleeves**

**Connection line PVC, 3 x AWG22, 3 x crimped core-end sleeves**
## EC drive motors

**VarioDrive C, size 084**

- **Material:** Motor housing / electronics: Die-cast aluminium
- **Direction of rotation:** Counter-clockwise, seen on shaft
- **Type of protection:** IP 55
- **Insulation class:** “B”
- **Mounting position:** Any
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings
- **Technical features:** See electr. connection p. 70

### Nominal data

<table>
<thead>
<tr>
<th>Type</th>
<th>VAC</th>
<th>Hz</th>
<th>rpm</th>
<th>Nm</th>
<th>A</th>
<th>W</th>
<th>W kgm²×10⁻⁶</th>
<th>°C</th>
<th>kg</th>
<th>p. 70</th>
</tr>
</thead>
<tbody>
<tr>
<td>M3G084-GF08 -81</td>
<td>1–200-277</td>
<td>50/60</td>
<td>1500</td>
<td>2,0</td>
<td>1,7</td>
<td>392</td>
<td>314</td>
<td>3120</td>
<td>-25..+40</td>
<td>6,8</td>
</tr>
</tbody>
</table>

Subject to alterations No mininal data at hóchster Belastung und 230 VAC

- **EMC:**
  - Interference emission acc. to EN 61000-6-4
  - Interference immunity acc. to EN 61000-6-2
  - Harmonics acc. to EN 61000-3-2/3
- **Leakage current:** < 3,5 mA acc. to EN 61800-5-1
- **Cable exit:** Variable
- **Protection class:** I
- **Product conforming to standards:** CE; EN 61800-5-1

### Permissibleshaftloadatnominalspeedandlifeexpectancy

F<sub>axial</sub> 150 N
F<sub>radial</sub> 1300 N  L<sub>1</sub> 15 mm

Permissible shaft load at nominal speed and life expectancy L<sub>10</sub> at 20000 h (at T<sub>U</sub> max. 40°C).

### Depth of screw

- max. 12 mm
- max. 10 mm

### Connection line

PVC, 5 x AWG18, 5 x crimped core-end sleeves
EC drive motors
VarioDrive C, size 084

- **Material:** Motor housing / electronics: Die-cast aluminium
- **Direction of rotation:** Counter-clockwise, seen on shaft
- **Type of protection:** IP 55
- **Insulation class:** "B"
- **Mounting position:** Any
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball bearings
- **Technical features:** See electr. connection p. 71

### Nominal data

<table>
<thead>
<tr>
<th>Type</th>
<th>VAC</th>
<th>Hz</th>
<th>rpm</th>
<th>Torque</th>
<th>Current draw</th>
<th>Input power</th>
<th>Output power</th>
<th>Perm. amb. temp.</th>
<th>Mass</th>
<th>p. 71</th>
</tr>
</thead>
<tbody>
<tr>
<td>M3G084-FA33 -82</td>
<td>1~ 200-277</td>
<td>50/60</td>
<td>3000</td>
<td>1,6</td>
<td>2,7</td>
<td>621</td>
<td>503</td>
<td>2440</td>
<td>-25..&lt;+40</td>
<td>6,9</td>
</tr>
</tbody>
</table>

subject to alterations

Nominal data at maximum load and 230 VAC

- **EMC:**
  - Interference emission acc. to EN 61000-6-4
  - Interference immunity acc. to EN 61000-6-2
  - Harmonics acc. to EN 61000-3-2/3
- **Leakage current:**
  - < 3,5 mA acc. to EN 61800-5-1
- **Connection leads:** Via terminal box
- **Protection class:** I (acc. to EN 61800-5-1)
- **Product conforming to standards:**
  - CE; EN 61800-5-1

Permissible shaft load at nominal speed and life expectancy L10 at 20 000 h (at TJ max. 40°C).
EC drive motors
VarioDrive C, size 084

- **Material**: Motor housing / electronics: Die-cast aluminium
- **Direction of rotation**: Counter-clockwise, seen on shaft
- **Type of protection**: IP 55
- **Insulation class**: "B"
- **Mounting position**: Any
- **Mode of operation**: Continuous operation (S1)
- **Bearings**: Maintenance-free ball bearings
- **Technical features**: See electr. connection p. 71

---

### Nominal data

<table>
<thead>
<tr>
<th>Type</th>
<th>VAC</th>
<th>Hz</th>
<th>rpm</th>
<th>Torque</th>
<th>Current draw</th>
<th>Input power</th>
<th>Output power</th>
<th>Rotor moment of inertia</th>
<th>Perm. amb. temp.</th>
<th>Mass</th>
<th>kW</th>
<th>Electr. connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSG084-GF06-42</td>
<td>3~</td>
<td>380-480</td>
<td>50/60</td>
<td>3000</td>
<td>2.0</td>
<td>750</td>
<td>630</td>
<td>3120</td>
<td>-25..+40</td>
<td>7.7</td>
<td></td>
<td>p. 71</td>
</tr>
</tbody>
</table>

*subject to alterations: Nominal data at maximum load and 400 VAC*

---

**EMC**:
- Interference emission acc. to EN 61000-6-4
- Interference immunity acc. to EN 61000-6-2
- Harmonics acc. to EN 61000-3-2/3

**Leakage current**:
- < 3.5 mA acc. to EN 61800-5-1

**Connection leads**: Via terminal box

**Protection class**: I (acc. to EN 61800-5-1)

**Product conforming to standards**:
- CE; EN 61800-5-1

---

**Permissible shaft load at nominal speed and life expectancy L₁₀ at 20 000 h (at Tₜ max. 40°C).**

- **Axial**: 150 N
- **Radial**: 650 N L₁ 15 mm

---

**View X**

- Groove depth 3 mm
- Depth of screw max. 12 mm

**View Y**

- Depth of screw max. 10 mm
- Cable diameter min. 4 mm, max. 10 mm
EC drive motors
VarioDrive C, size 112

- **Material**: Motor housing / electronics: Die-cast aluminium
- **Direction of rotation**: Counter-clockwise, seen on shaft
- **Type of protection**: IP 55
- **Insulation class**: "B"
- **Mounting position**: Any
- **Mode of operation**: Continuous operation (S1)
- **Bearings**: Maintenance-free ball bearings
- **Technical features**: See electr. connection p. 71

---

**Nominal data**

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal voltage range</th>
<th>Frequency</th>
<th>Speed rpm</th>
<th>Torque</th>
<th>Current draw</th>
<th>Input power</th>
<th>Output power</th>
<th>Rotor moment of inertia</th>
<th>Perm. amb. temp.</th>
<th>Mass</th>
<th>Electr. connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>M3G112-GA52 -71</td>
<td>1~ 200-277</td>
<td>50/60</td>
<td>1500</td>
<td>4,0</td>
<td>3,4</td>
<td>740</td>
<td>630</td>
<td>10240</td>
<td>-25..+40</td>
<td>10,3</td>
<td>L7</td>
</tr>
</tbody>
</table>

subject to alterations Nominal data at maximum load and 230 VAC

---

F<sub>axial</sub> 200 N
F<sub>radial</sub> 2000 N L<sub>1</sub> 20 mm
Permissible shaft load at nominal speed and life expectancy L<sub>10</sub> at 20 000 h (at TU max. 40°C).

---

Depth of screw max. 12 mm

Cable diameter min. 4 mm, max. 10 mm
EC drive motors
VarioDrive C, size 112

- **Material**: Motor housing / electronics: Die-cast aluminium
- **Direction of rotation**: Counter-clockwise, seen on shaft
- **Type of protection**: IP 55
- **Insulation class**: "B"
- **Mounting position**: Any
- **Mode of operation**: Continuous operation (S1)
- **Bearings**: Maintenance-free ball bearings
- **Technical features**: See electr. connection p. 71

**Nominal data**

<table>
<thead>
<tr>
<th>Type</th>
<th>VAC</th>
<th>Hz</th>
<th>rpm</th>
<th>Nm</th>
<th>A</th>
<th>W</th>
<th>W</th>
<th>kgm² x 10⁻⁶</th>
<th>°C</th>
<th>kg</th>
<th>p. 71</th>
</tr>
</thead>
<tbody>
<tr>
<td>M3G112-IA85 -71</td>
<td>1~ 200-277</td>
<td>50/60</td>
<td>1000</td>
<td>5,0</td>
<td>2,8</td>
<td>620</td>
<td>520</td>
<td>12550</td>
<td>-25..+40</td>
<td>13,0</td>
<td>L7</td>
</tr>
</tbody>
</table>

subject to alterations

Nominal data at maximum load and 230 VAC

- **EMC**: Interference emission acc. to EN 61000-6-4
  Interference immunity acc. to EN 61000-6-2
  Harmonics acc. to EN 61000-3-2/3
- **Leakage current**: < 3,5 mA acc. to EN 61800-5-1
- **Connection leads**: Via terminal box
- **Protection class**: I (acc. to EN 61800-5-1)
- **Product conforming to standards**: CE; EN 61800-5-1

- **Rotormoment of inertia**:
- **Perm. amb. temp.**:
- **Electr. connection**: p. 71

**Permissible shaft load at nominal speed and life expectancy L 10 at 20 000 h**
(at T U max. 40°C).

- **F axial**: 200 N
- **F radial**: 3200 N
- **L 1 20 mm**: 20 mm

**Groove depth**: 3.5 mm

**View X**

**View Y**

**Detail view**

- **Depth of screw max. 12 mm**
- **Depth of screw max. 10 mm**
- **Cable diameter min. 4 mm, max. 10 mm**