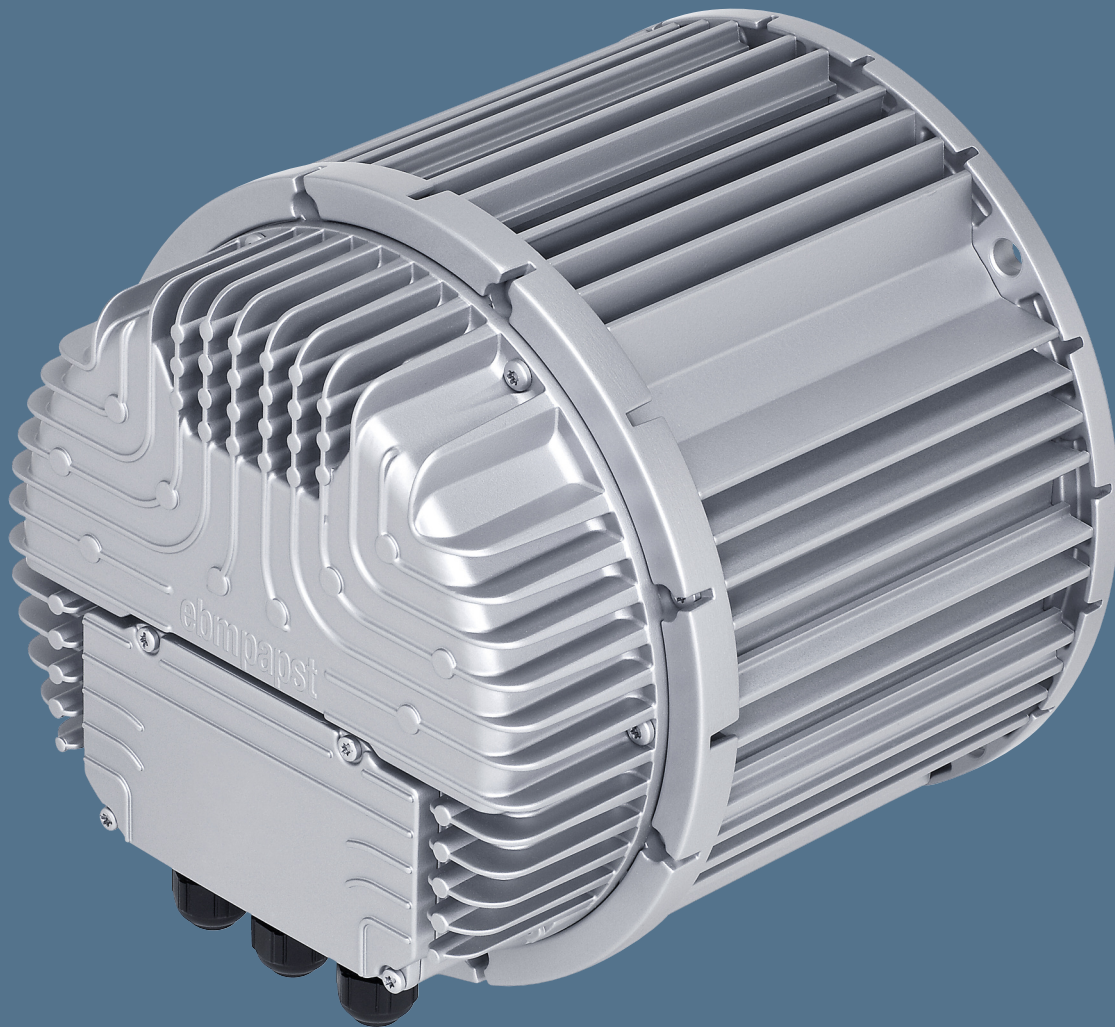


# VarioDrive C

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# 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

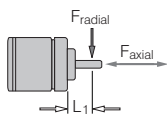


- **Material:** Motor housing / electronics: Die-cast aluminium
- **Direction of rotation:** Counter-clockwise, seen on shaft
- **Type of protection:** IP 55
- **Insulation class:** "B"
- **Mounting position:** Any
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball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

Nominal data	Nominal voltage range	Frequency	Speed/rpm	Torque	Current draw	Input power	Output power	Rotor moment of inertia	Perm. amb. temp.	Mass	Electr. connection
Type	VAC	Hz	rpm	Nm	A	W	W	kgm <sup>2</sup> ·x10 <sup>-6</sup>	°C	kg	p. 70
<b>M3G084-DF18 -81</b>	1~ 200-277	50/60	3000	1,2	2,2	500	380	1960	-25..+40	5,3	K1)

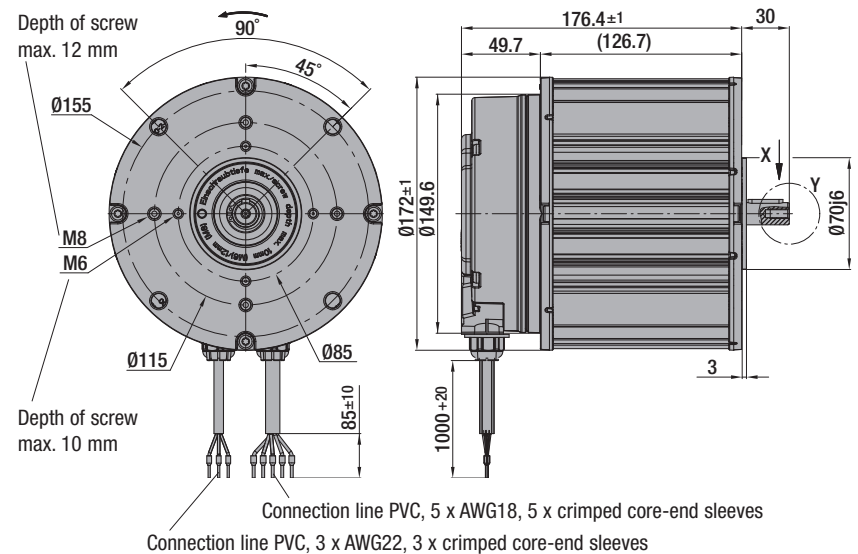
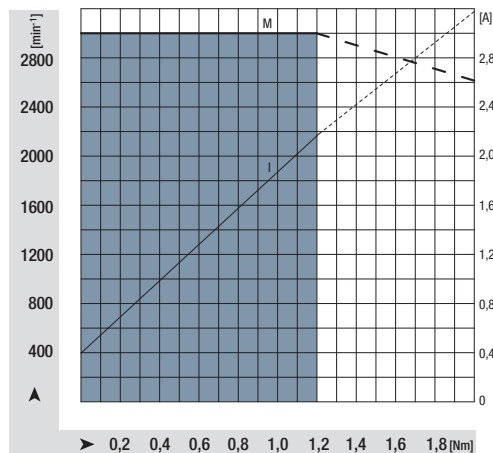
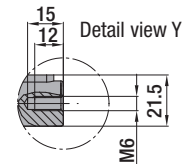
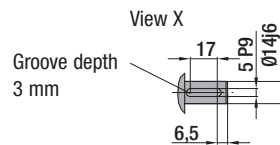
subject to alterations

Nominal data at maximum load and 230 VAC



$F_{axial}$  150 N  
 $F_{radial}$  450 N  $L_1$  15 mm

Permissible shaft load at nominal speed and life expectancy  $L_{10}$  at 20 000 h (at  $T_U$  max. 40°C).



# EC drive motors

VarioDrive C, size 084

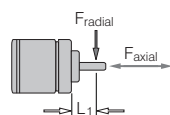


- **Material:** Motor housing / electronics: Die-cast aluminium
- **Direction of rotation:** Counter-clockwise, seen on shaft
- **Type of protection:** IP 55
- **Insulation class:** "B"
- **Mounting position:** Any
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball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

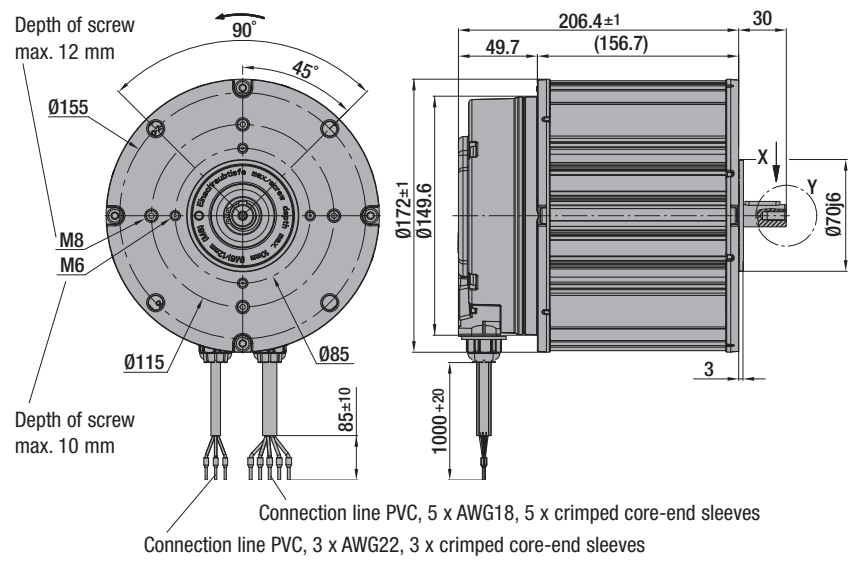
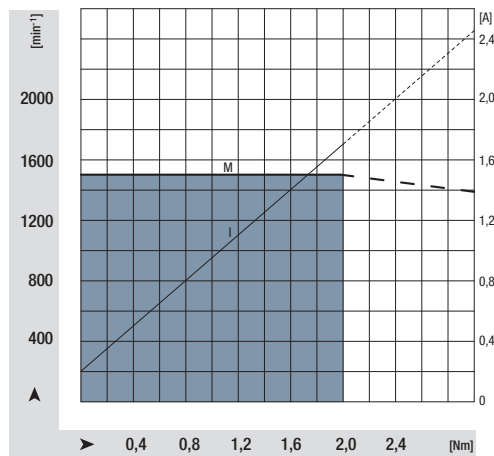
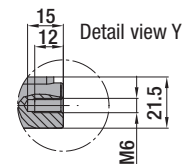
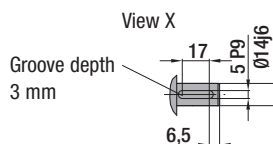
Nominal data	Nominal voltage range	Frequency	Speed/rpm	Torque	Current draw	Input power	Output power	Rotor moment of inertia	Perm. amb. temp.	Mass	Electr. connection
Type	VAC	Hz	rpm	Nm	A	W	W	kgm <sup>2</sup> x10 <sup>-6</sup>	°C	kg	p. 70
<b>M3G084-GF08 -81</b>	1~ 200-277	50/60	1500	2,0	1,7	392	314	3120	-25..+40	6,8	K1)

subject to alterations

Nominal data at höchster Belastung und 230 VAC



$F_{axial}$  150 N  
 $F_{radial}$  1300 N  $L_1$  15 mm  
 Permissible shaft load at nominal speed and life expectancy  $L_{10}$  at 20 000 h (at  $T_U$  max. 40°C).



# EC drive motors

## VarioDrive C, size 084

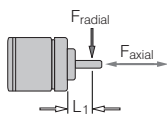


- **Material:** Motor housing / electronics: Die-cast aluminium
- **Direction of rotation:** Counter-clockwise, seen on shaft
- **Type of protection:** IP 55
- **Insulation class:** "B"
- **Mounting position:** Any
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball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

Nominal data	Nominal voltage range	Frequency	Speed/rpm	Torque	Current draw	Input power	Output power	Rotor moment of inertia	Perm. amb. temp.	Mass	Electr. connection
	VAC	Hz	rpm	Nm	A	W	W	kgm <sup>2</sup> ·x10 <sup>-6</sup>	°C	kg	p. 71
<b>M3G084-FA33 -82</b>	1~ 200-277	50/60	3000	1,6	2,7	621	503	2440	-25..+40	6,9	L7)

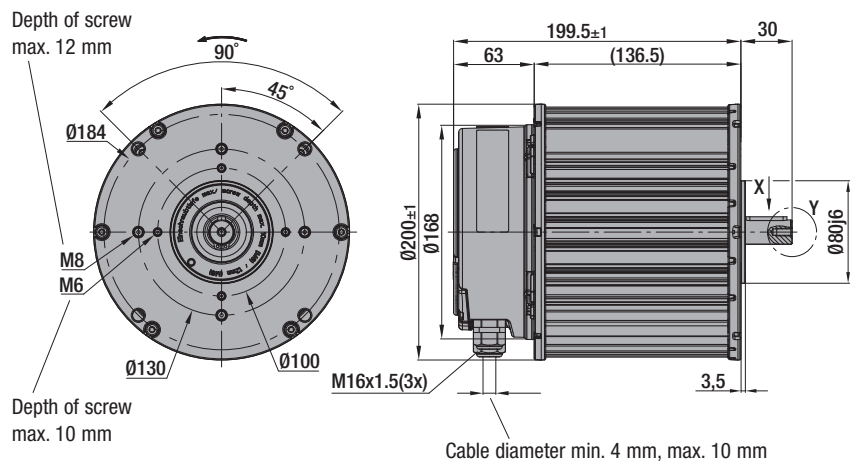
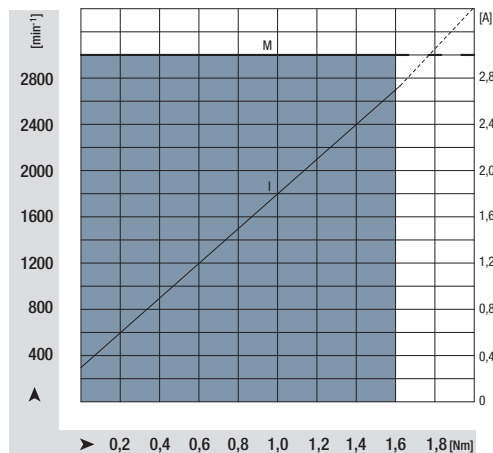
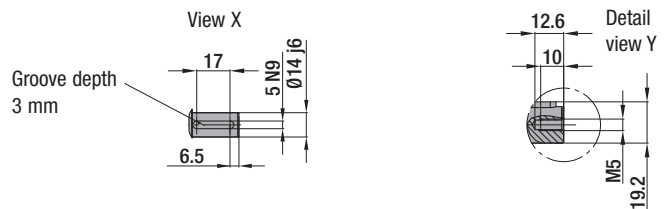
subject to alterations

Nominal data at maximum load and 230 VAC



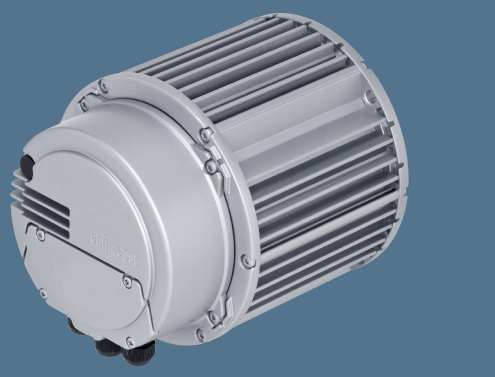
$F_{axial}$  150 N  
 $F_{radial}$  540 N  $L_1$  15 mm

Permissible shaft load at nominal speed and life expectancy  $L_{10}$  at 20 000 h (at  $T_U$  max. 40°C).



# EC drive motors

VarioDrive C, size 084

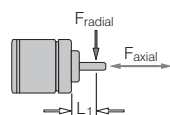


- **Material:** Motor housing / electronics: Die-cast aluminium
- **Direction of rotation:** Counter-clockwise, seen on shaft
- **Type of protection:** IP 55
- **Insulation class:** "B"
- **Mounting position:** Any
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball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

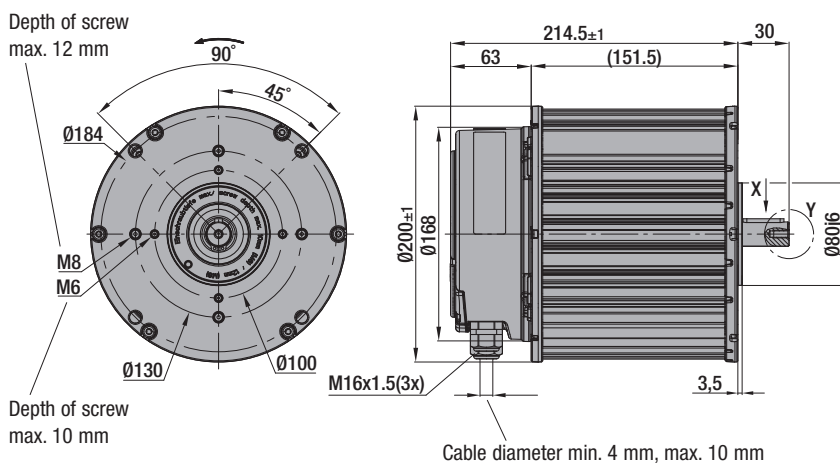
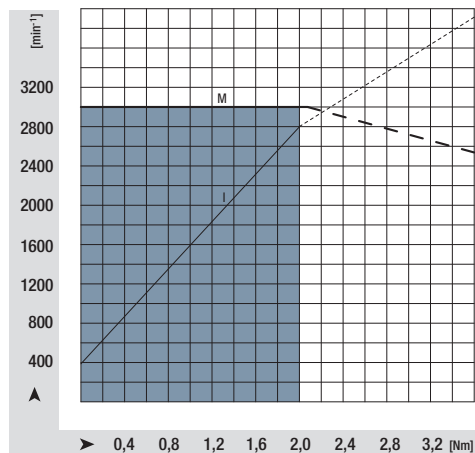
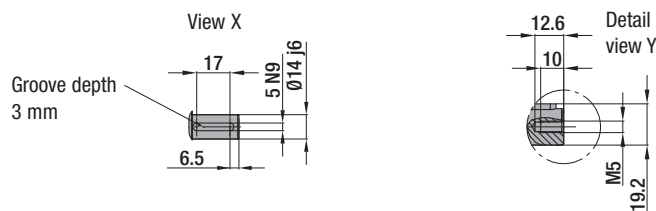
Nominal data	Nominal voltage range	Frequency	Speed/rpm	Torque	Current draw	Input power	Output power	Rotor moment of inertia	Perm. amb. temp.	Mass	Electr. connection
Type	VAC	Hz	rpm	Nm	A	W	W	kgm <sup>2</sup> x10 <sup>-6</sup>	°C	kg	p. 71
<b>M3G084-GF06 -42</b>	3~ 380-480	50/60	3000	2,0	1,4	750	630	3120	-25..+40	7,7	L6)

subject to alterations

Nominal data at maximum load and 400 VAC



$F_{axial}$  150 N  
 $F_{radial}$  650 N     $L_1$  15 mm  
 Permissible shaft load at nominal speed and life expectancy  $L_{10}$  at 20 000 h (at  $T_U$  max. 40°C).



# EC drive motors

## VarioDrive C, size 112

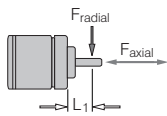


- **Material:** Motor housing / electronics: Die-cast aluminium
- **Direction of rotation:** Counter-clockwise, seen on shaft
- **Type of protection:** IP 55
- **Insulation class:** "B"
- **Mounting position:** Any
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball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

Nominal data	Nominal voltage range	Frequency	Speed/rpm	Torque	Current draw	Input power	Output power	Rotor moment of inertia	Perm. amb. temp.	Mass	Electr. connection
Type	VAC	Hz	rpm	Nm	A	W	W	kgm <sup>2</sup> x10 <sup>-6</sup>	°C	kg	p. 71
<b>M3G112-GA52 -71</b>	1~ 200-277	50/60	1500	4,0	3,4	740	630	10240	-25..+40	10,3	L7)

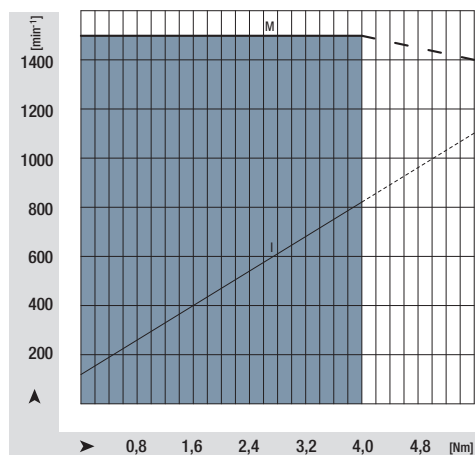
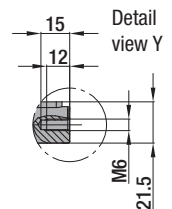
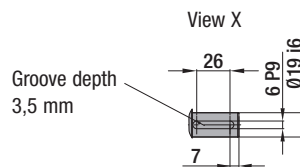
subject to alterations

Nominal data at maximum load and 230 VAC

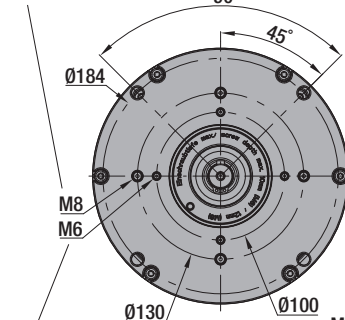


$F_{axial}$  200 N  
 $F_{radial}$  2000 N  $L_1$  20 mm

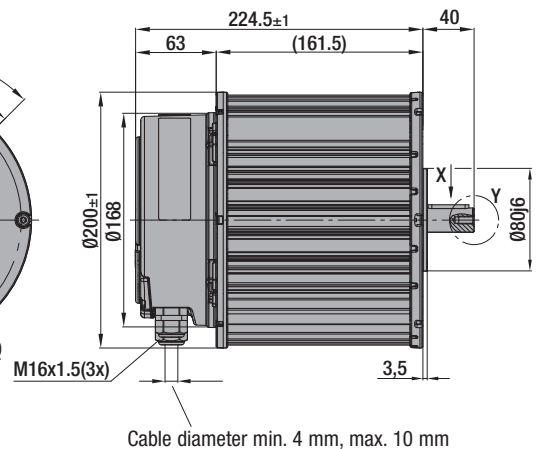
Permissible shaft load at nominal speed and life expectancy  $L_{10}$  at 20 000 h (at  $T_U$  max. 40°C).



Depth of screw max. 12 mm



Depth of screw max. 10 mm



Cable diameter min. 4 mm, max. 10 mm



# EC drive motors

## VarioDrive C, size 112

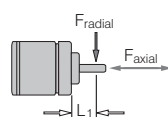


- **Material:** Motor housing / electronics: Die-cast aluminium
- **Direction of rotation:** Counter-clockwise, seen on shaft
- **Type of protection:** IP 55
- **Insulation class:** "B"
- **Mounting position:** Any
- **Mode of operation:** Continuous operation (S1)
- **Bearings:** Maintenance-free ball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

Nominal data	Nominal voltage range	Frequency	Speed/rpm	Torque	Current draw	Input power	Output power	Rotor moment of inertia	Perm. amb. temp.	Mass	Electr. connection
Type	VAC	Hz	rpm	Nm	A	W	W	kgm <sup>2</sup> x10 <sup>-6</sup>	°C	kg	p. 71
<b>M3G112-IA85 -71</b>	1~ 200-277	50/60	1000	5,0	2,8	620	520	12550	-25..+40	13,0	L7)

subject to alterations

Nominal data at maximum load and 230 VAC



$F_{axial}$  200 N  
 $F_{radial}$  3200 N  $L_1$  20 mm  
 Permissible shaft load at nominal speed and life expectancy  $L_{10}$  at 20 000 h (at  $T_U$  max. 40°C).

