

# K4 drive systems Brilliantly versatile

version 2015-04

**ebm**papst

The engineer's choice



## Company profile: ebm-papst

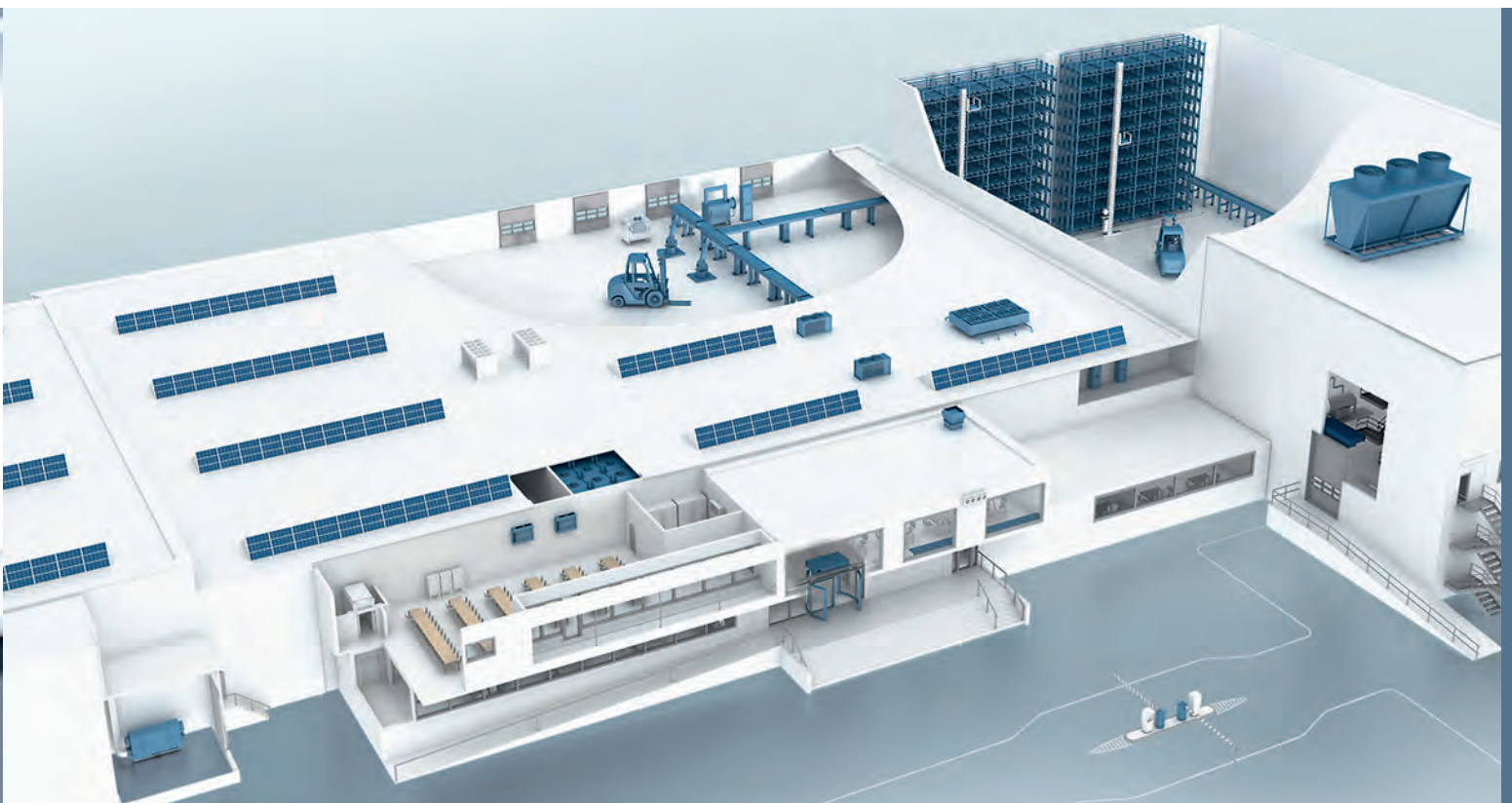
*The entire scope of ventilation and drive technology: this is the world of ebm-papst. More than 11.700 people – in Germany and throughout the world – develop, produce and sell our motors and fans. Our global presence and our unique range of products based on a quality standard that surpasses every other have made us what we are: world market leader in motors and fans. Expertly knowing what our customers need and incessantly striving to arrive at the perfect application solution for a wide variety of different industries is what determines our daily work.*

*Those who know us know the high standards we apply to our work and know our creed: to be as close to our customers as possible and to simply be the best in terms of innovation and reliability.*



# Contents

|                                         |    |
|-----------------------------------------|----|
| Company profile: ebm-papst              | 2  |
| The K4 can do almost anything           | 4  |
| Commissioning K4 motors                 | 5  |
| VARIODRIVE Compact-Motor VDC-3-49.15-K4 | 6  |
| ECl 63.20 with electronic-module K4     | 8  |
| ECl 63.40 with electronic-module K4     | 10 |
| ECl 63.60 with electronic-module K4     | 12 |
| ECl brake module                        | 14 |
| Connection description – K4             | 15 |
| Overview of gearbox types               | 16 |
| A versatile solution                    | 17 |



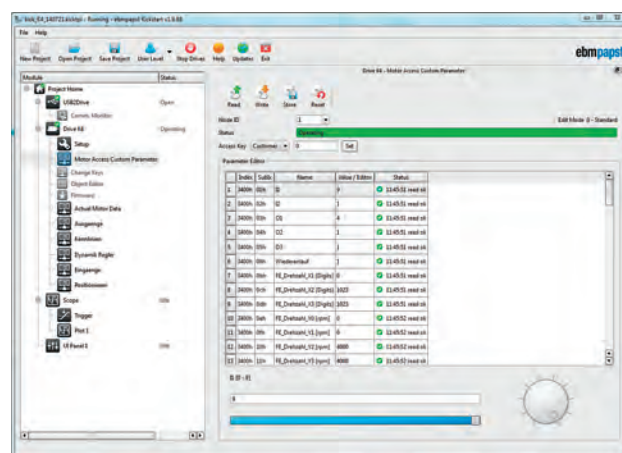
# The K4 can do almost anything ...

Our ECI series works according to a modular principle that is as simple as it is ingenious. You choose the appropriate GreenTech EC drives and enhance it by adding components, such as gearboxes, brakes and/or internal electronics modules. We assemble everything together for you into a compact system, with all the components perfectly integrated. In this way, you receive a drive system that is customized, cost-effective and adapted to address your specific application needs.

The K4 series provides endless options, featuring a fully integrated electronic control unit offering multiple analog and digital interfaces that can be configured via an RS485 interface. The integrated controls and interface provides ease and flexibility in adapting the drive to the most complex applications. We have managed to deliver all of this capability with a minimal increase in package size in relation to a drive without an integrated electronic control unit. This drive series is available in stack lengths of 15 to 60 mm with continuous rated outputs from 100 to 400 watts.

## Versatile and resourceful:

- User-friendly programming and controllability through intelligent “Kickstart” PC software



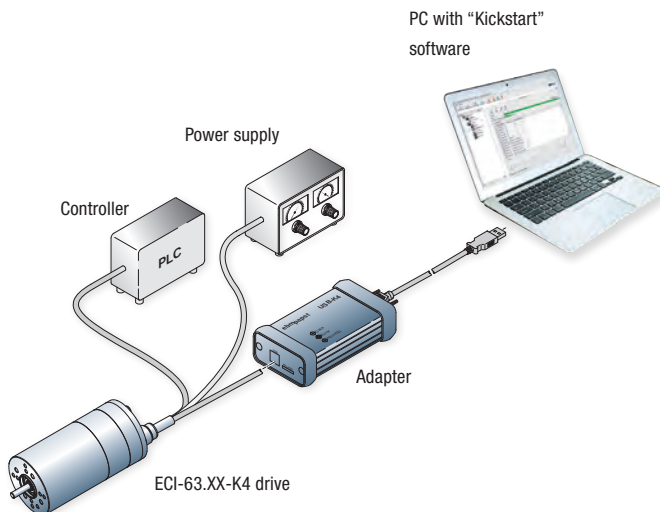
- Three different operating modes (speed, torque or positioning)
- Dynamic drives with outstanding overload capacity





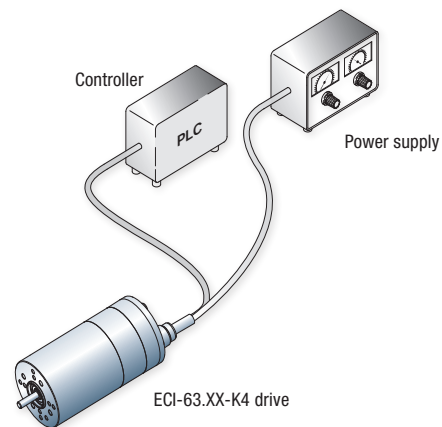
# Commissioning K4 motors

## Parameterisation and commissioning



## Automatic operation

Automatic operation with stored parameters and integrated control



The RS485 interface serves as an interface for parameterisation and diagnosis. It can be operated using the freely available "Kickstart" PC software. This requires a PC and the ebm-papst USB-CAN-RS485 adapter. The adapter is available as an accessory and can be ordered using the part number 914 0000 400.



### Interface adapter for "Kickstart" PC software

USB-CAN-RS485 adapter

### Order No.

914 0000 400

Load your detailed operating manual and the PC software "Kickstart" under [www.ebmpapst.com](http://www.ebmpapst.com) or the adjacent QR code:



### Functional description of the LED displays

| LED name | Colour | Function assignment                                   |
|----------|--------|-------------------------------------------------------|
| Data     | red    | • No assignment.                                      |
|          | green  | • Active data transfer via the USB-CAN-RS485 adapter. |
| Error    | red    | • No response following request to K4.                |
|          | green  | • Receipt of a faulty data package.                   |
| microSD  | red    | • Received data is ok.                                |
|          | green  | • No assignment.                                      |
|          |        | • Access to the memory card.                          |

# VARIODRIVE Compact-motor

VDC-3-49.15-K4



- Motor with completely integrated 4Q operation and K4 control electronics
- Speed, torque or positioning mode possible
- Selection of operation mode and parameterization via RS485
- Extensive interface with numerous inputs and outputs
- Output stage enabled via digital input
- Integrated brake chopper function
- Speed control range with holding torque until  $n = 0$  rpm
- Excellent control behavior via field-oriented control with sine commutation
- High efficiency and high power density realized in a compact design
- Robust mechanical design with aluminium cover and sealed plug system
- User-friendly parameterization with “Kickstart” PC software

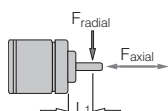
## Basic motor

| Technical data                                |                                     | VDC-3-49.15-K4-B00                 | VDC-3-49.15-K4-D00                 |
|-----------------------------------------------|-------------------------------------|------------------------------------|------------------------------------|
| Nominal voltage ( $U_N$ )                     | V DC                                | 24                                 | 48                                 |
| Permissible supply voltage range ( $U_{ZK}$ ) | V DC                                | 20 ... 28                          | 40 ... 53                          |
| Nominal speed ( $n_N$ )                       | min <sup>-1</sup>                   | 4 000*                             | 4 000*                             |
| Nominal torque ( $M_N$ )                      | mNm                                 | 235*                               | 300*                               |
| Nominal current ( $I_N$ )                     | A                                   | 5*                                 | 3.2*                               |
| Nominal output power ( $P_N$ )                | W                                   | 100*                               | 125*                               |
| Free-running speed ( $n_L$ )                  | min <sup>-1</sup>                   | 5 000                              | 5 000                              |
| Free-running current ( $I_L$ )                | A                                   | 1.0                                | 0.6                                |
| Max. reverse voltage                          | V DC                                | 35                                 | 58                                 |
| Set value input                               |                                     | analog / PWM / frequency / digital | analog / PWM / frequency / digital |
| Recommended speed control range               | min <sup>-1</sup>                   | 0 ... 4 500                        | 0 ... 4 500                        |
| Function for motor protection at stall        |                                     | thermal                            | thermal                            |
| Overload protection                           |                                     | yes                                | yes                                |
| Starting torque ( $M_{max}$ )                 | mNm                                 | 850                                | 1500                               |
| Rotor moment of inertia ( $J_R$ )             | kgm <sup>2</sup> x 10 <sup>-6</sup> | 108                                | 108                                |
| Heat resistance ( $R_{th}$ )                  | K/W                                 | 3.3                                | 3.3                                |
| Ambient temperature range ( $T_U$ )           | °C                                  | -30 ... +40                        | -30 ... +40                        |
| Motor mass (m)                                | kg                                  | 0.59                               | 0.59                               |
| Order No. (IP 54)**                           |                                     | 937 4915 400                       | 937 4915 402                       |

subject to alterations

\* at  $T_U$  max. 40 °C / 104 °F

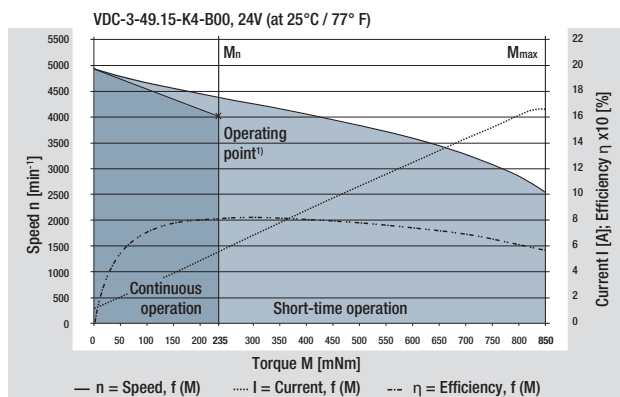
\*\* Classification of protection class refers to installed state with sealing on the flange side



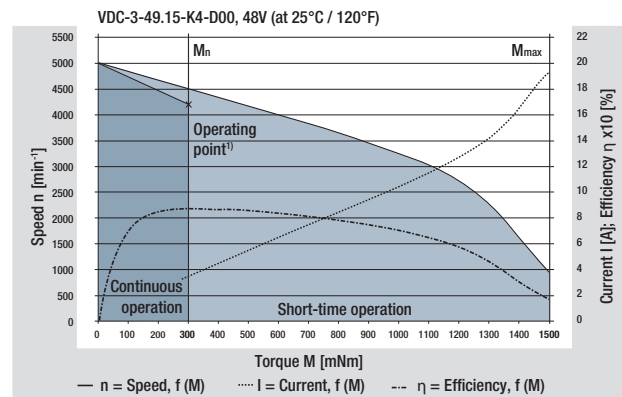
$F_{axial}$  20 N  
 $F_{radial}$  60 N

$L_1 = 10$  mm

Permissible shaft load at nominal speed and life expectancy  $L_{10}$  of 20 000 h\*\*



<sup>1)</sup> Nominal data, see table above

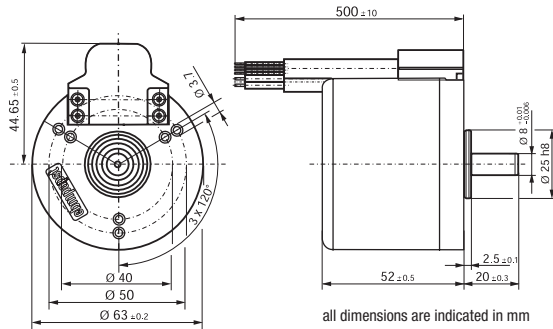


<sup>1)</sup> Nominal data, see table above

# VARIODRIVE Compact-motor

VDC-3-49.15-K4

## Basic motor



## Wire interface

Tapped blind holes for thread-forming screws  
in accordance to DIN 7500.  
max. screw depth 9.5 mm  
max. screw-in torque 3 Nm

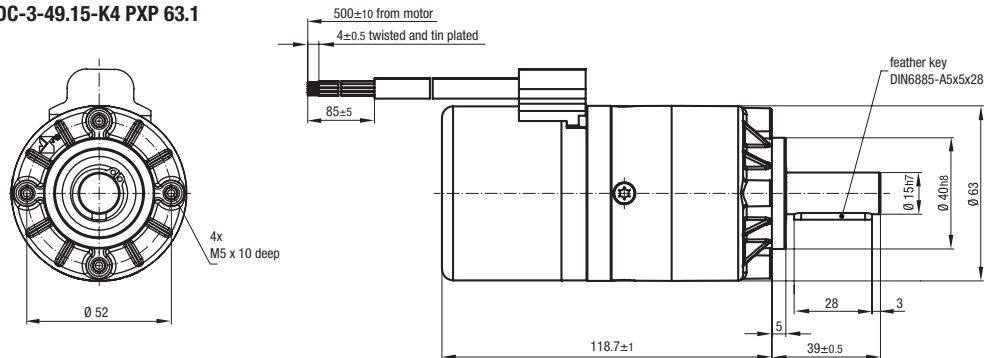
Protective cap in aluminium natural.

## Gear motors

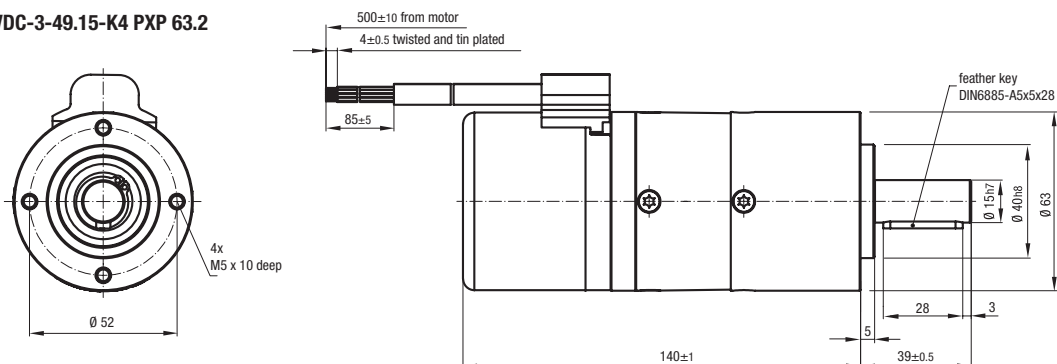
| Technical data / product series            |                    | VDC-3-49.15-K4 with Performax® PLUS 63 (preferred type) |              |              |              |
|--------------------------------------------|--------------------|---------------------------------------------------------|--------------|--------------|--------------|
| Ratio/number of stages                     | i/Number of stages | 5:1 / 1                                                 | 5:1 / 1      | 30:1 / 2     | 30:1 / 2     |
| Nominal voltage-motor                      | V DC               | 24                                                      | 48           | 24           | 48           |
| Output torque in S1 operation ( $M_{ab}$ ) | Nm                 | 1.0*                                                    | 1.4*         | 5.7*         | 7.3*         |
| Nominal output speed ( $n_{ab}$ )          | min <sup>-1</sup>  | 800*                                                    | 800*         | 133*         | 133*         |
| Output power ( $P_{ab}$ )                  | W                  | 90*                                                     | 112,5*       | 80*          | 101*         |
| Nominal current                            | A                  | 5*                                                      | 3.2*         | 5*           | 3.2*         |
| Ambient temperature range ( $T_u$ )        | °C                 | -30 ... +40                                             | -30 ... +40  | -30 ... +40  | -30 ... +40  |
| Mass (m)                                   | kg                 | 1.25                                                    | 1.25         | 1.64         | 1.64         |
| Order No. (IP 40)                          |                    | 947 4915 420                                            | 947 4915 422 | 947 4915 421 | 947 4915 423 |
| subject to alterations                     |                    | * at $T_u$ max. 40 °C/ 104 °F                           |              |              |              |



## VDC-3-49.15-K4 PXP 63.1



## VDC-3-49.15-K4 PXP 63.2



# ECI 63.20

with electronic module K4



- Motor with completely integrated 4Q operation and K4 control electronics
- Speed, torque or positioning mode possible
- Selection of operation mode and parameterization via RS485
- Extensive interface with numerous inputs and outputs
- Output stage enabled via digital input
- Integrated brake chopper function
- Speed control range with holding torque until  $n = 0$  rpm
- Excellent control behavior via field-oriented control with sine commutation
- High efficiency and high power density realized in a compact design
- User-friendly parameterization with “Kickstart” PC software

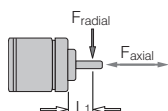
## Basic motor

| Technical data                                |                                    | ECI-63.20-K4-B00                   | ECI-63.20-K4-D00                   |
|-----------------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| Nominal voltage ( $U_N$ )                     | V DC                               | 24                                 | 48                                 |
| Permissible supply voltage range ( $U_{ZK}$ ) | V DC                               | 20 ... 28                          | 40 ... 53                          |
| Nominal speed ( $n_N$ )                       | min <sup>-1</sup>                  | 4 000*                             | 4 000*                             |
| Nominal torque ( $M_N$ )                      | mNm                                | 425*                               | 450*                               |
| Nominal current ( $I_N$ )                     | A                                  | 8.5*                               | 5.4*                               |
| Nominal output power ( $P_N$ )                | W                                  | 178*                               | 188*                               |
| Free-running speed ( $n_L$ )                  | min <sup>-1</sup>                  | 5 600                              | 6 200                              |
| Free-running current ( $I_L$ )                | A                                  | 0.5                                | 0.30                               |
| Max. reverse voltage                          | V DC                               | 35                                 | 58                                 |
| Set value input                               |                                    | analog / PWM / frequency / digital | analog / PWM / frequency / digital |
| Recommended speed control range               | min <sup>-1</sup>                  | 0 ... 5 000                        | 0 ... 5 000                        |
| Function for motor protection at stall        |                                    | thermal                            | thermal                            |
| Overload protection                           |                                    | yes                                | yes                                |
| Starting torque ( $M_{max}$ )                 | mNm                                | 1 250                              | 1 800                              |
| Rotor moment of inertia ( $J_R$ )             | kgm <sup>2</sup> x10 <sup>-6</sup> | 19                                 | 19                                 |
| Heat resistance ( $R_{th}$ )                  | K/W                                | 3.6                                | 3.6                                |
| Ambient temperature range ( $T_U$ )           | °C                                 | 0 ... +40                          | 0 ... +40                          |
| Motor mass (m)                                | kg                                 | 0.85                               | 0.85                               |
| Order No. (IP 40)                             | Wire interface                     | 932 6320 403                       | 932 6320 405                       |
| Order No. (IP 54)**                           | Connector interface                | 932 6320 400                       | 932 6320 402                       |

subject to alterations

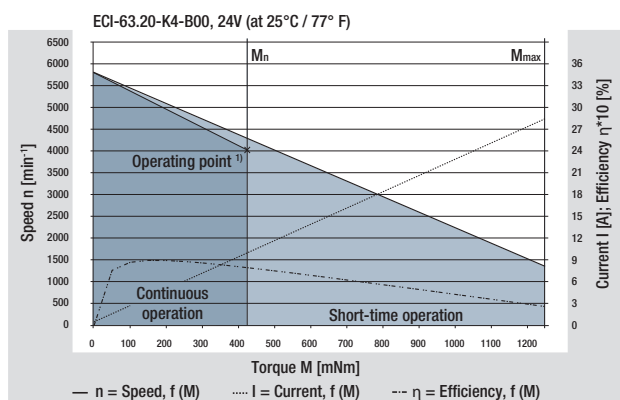
\* at  $T_U$  max. 40 °C / 104 °F

\*\* Classification of protection class refers to installed state with sealing on the flange side

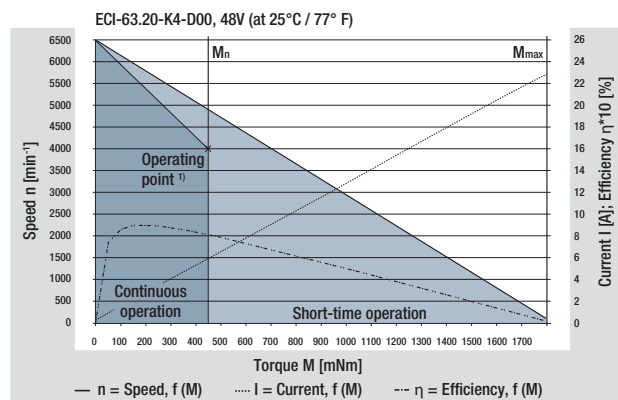


$F_{axial}$  150 N  
 $F_{radial}$  150 N  
 $L_1 = 20$  mm

Permissible shaft load at nominal speed and life expectancy  $L_{10}$  of 20 000 h\*\*



<sup>1)</sup> Nominal data, see table above



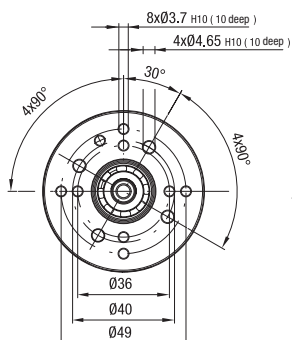
<sup>1)</sup> Nominal data, see table above



# ECI 63.20

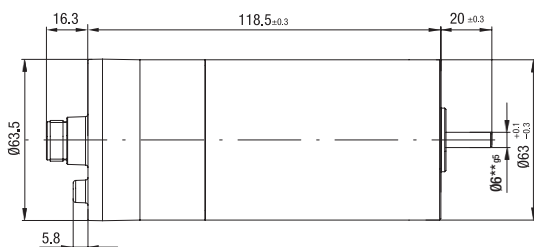
with electronic module K4

## Basic motor



## Connector interface (M16)

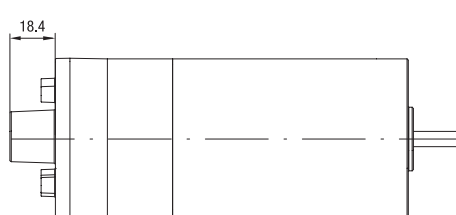
(connection cable must be ordered separately)



\*\* Ø8 mm und Ø10 mm possible

## Wire interface

(connection cable must be ordered separately)



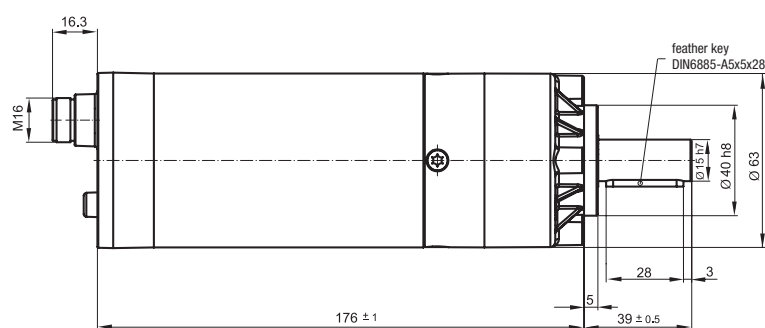
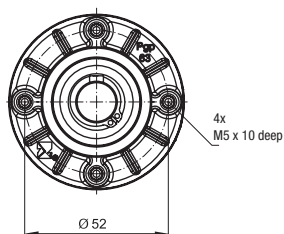
all dimensions are indicated in mm

## Gear motors

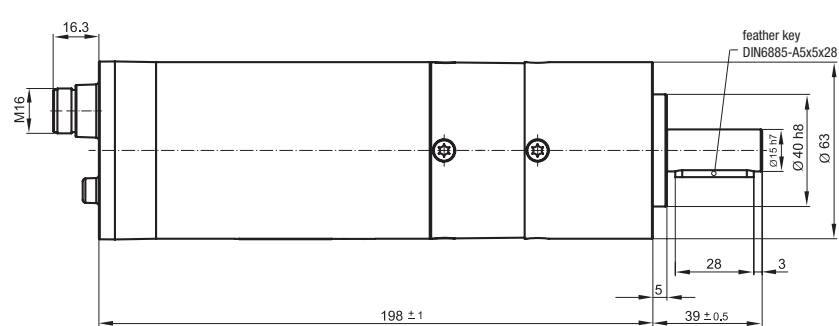
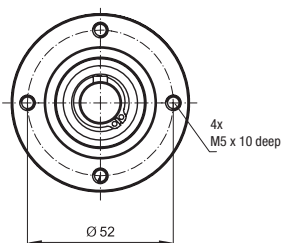
| Technical data / product series            |                    | ECI-63.20-K4 with Performax® PLUS 63 (preferred type) |              |              |              |
|--------------------------------------------|--------------------|-------------------------------------------------------|--------------|--------------|--------------|
| Ratio/number of stages                     | i/Number of stages | 5:1/1                                                 | 5:1/1        | 30:1/2       | 30:1/2       |
| Nominal voltage-motor                      | V DC               | 24                                                    | 48           | 24           | 48           |
| Output torque in S1 operation ( $M_{ab}$ ) | Nm                 | 1.9                                                   | 2            | 10.3         | 10.9         |
| Nominal output speed ( $n_{ab}$ )          | min <sup>-1</sup>  | 800                                                   | 800          | 133          | 133          |
| Output power ( $P_{ab}$ )                  | W                  | 160                                                   | 169          | 144          | 152          |
| Nominal current                            | A                  | 8.5                                                   | 5.4          | 8.5          | 5.4          |
| Ambient temperature range ( $T_U$ )        | °C                 | 0 ... +40                                             | 0 ... +40    | 0 ... +40    | 0 ... +40    |
| Mass (m)                                   | kg                 | 1.5                                                   | 1.5          | 1.9          | 1.9          |
| Order No. (IP 40)                          |                    | 942 6320 420                                          | 942 6320 422 | 942 6320 421 | 942 6320 423 |
| subject to alterations                     |                    | * at $T_U$ max. 40 °C/ 104 °F                         |              |              |              |



## ECI-63.20-K4 PXP 63.1



## ECI-63.20-K4 PXP 63.2



# ECI 63.40

with electronic module K4



- Motor with completely integrated 4Q operation and K4 control electronics
- Speed, torque or positioning mode possible
- Selection of operation mode and parameterization via RS485
- Extensive interface with numerous inputs and outputs
- Output stage enabled via digital input
- Integrated brake chopper function
- Speed control range with holding torque until  $n = 0$  rpm
- Excellent control behavior via field-oriented control with sine commutation
- High efficiency and high power density realized in a compact design
- User-friendly parameterization with “Kickstart” PC software

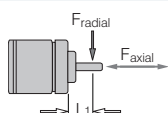
## Basic motor

| Technical data                                |                                    | ECI-63.40-K4-B00                   | ECI-63.40-K4-D00                   |
|-----------------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| Nominal voltage ( $U_N$ )                     | V DC                               | 24                                 | 48                                 |
| Permissible supply voltage range ( $U_{ZK}$ ) | V DC                               | 20 ... 28                          | 40 ... 53                          |
| Nominal speed ( $n_N$ )                       | min <sup>-1</sup>                  | 4 000*                             | 4 000*                             |
| Nominal torque ( $M_N$ )                      | mNm                                | 600*                               | 750*                               |
| Nominal current ( $I_N$ )                     | A                                  | 12.3*                              | 7.3*                               |
| Nominal output power ( $P_N$ )                | W                                  | 251*                               | 314*                               |
| Free-running speed ( $n_L$ )                  | min <sup>-1</sup>                  | 5 900                              | 5 800                              |
| Free-running current ( $I_L$ )                | A                                  | 0.9                                | 0.46                               |
| Max. reverse voltage                          | V DC                               | 35                                 | 58                                 |
| Set value input                               |                                    | analog / PWM / frequency / digital | analog / PWM / frequency / digital |
| Recommended speed control range               | min <sup>-1</sup>                  | 0 ... 5 000                        | 0 ... 5 000                        |
| Function for motor protection at stall        |                                    | thermal                            | thermal                            |
| Overload protection                           |                                    | yes                                | yes                                |
| Starting torque ( $M_{max}$ )                 | mNm                                | 1 300                              | 2 700                              |
| Rotor moment of inertia ( $J_R$ )             | kgm <sup>2</sup> x10 <sup>-6</sup> | 38                                 | 38                                 |
| Heat resistance ( $R_{th}$ )                  | K/W                                | 2.9                                | 2.9                                |
| Ambient temperature range ( $T_U$ )           | °C                                 | 0 ... +40                          | 0 ... +40                          |
| Motor mass (m)                                | kg                                 | 1.15                               | 1.15                               |
| Order No. (IP 40)                             | Wire interface                     | 932 6340 403                       | 932 6340 405                       |
| Order No. (IP 54)**                           | Connector interface                | 932 6340 400                       | 932 6340 402                       |

subject to alterations

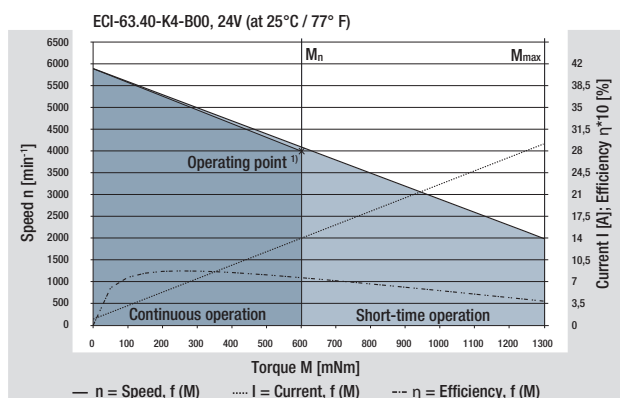
\* at  $T_U$  max. 40 °C / 104 °F

\*\* Classification of protection class refers to installed state with sealing on the flange side

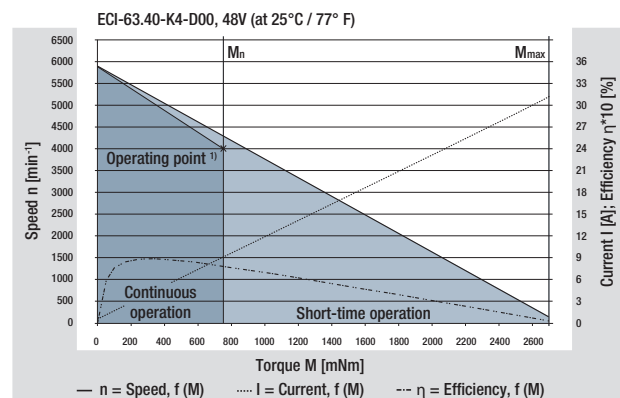


$F_{axial}$  150 N  
 $F_{radial}$  150 N  
 $L_1 = 20$  mm

Permissible shaft load at nominal speed and life expectancy  $L_{10}$  of 20 000 h\*\*



<sup>1)</sup> Nominal data, see table above

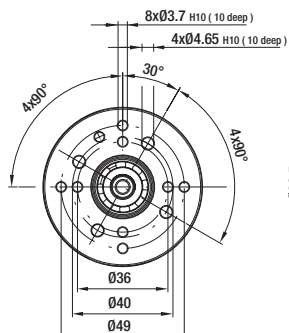


<sup>1)</sup> Nominal data, see table above

# ECI 63.40

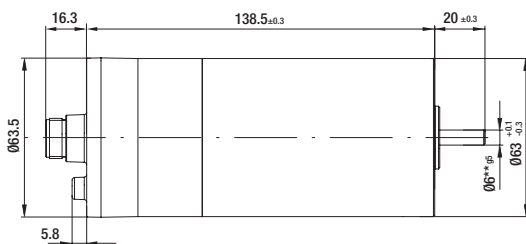
with electronic module K4

## Basic motor



## Connector interface (M16)

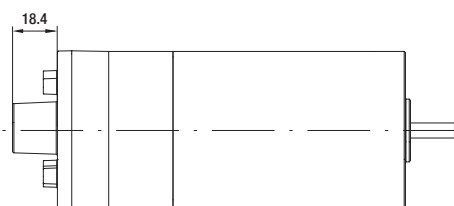
(connection cable must be ordered separately)



\*\* Ø8 mm und Ø10 mm possible

## Wire interface

(connection cable must be ordered separately)



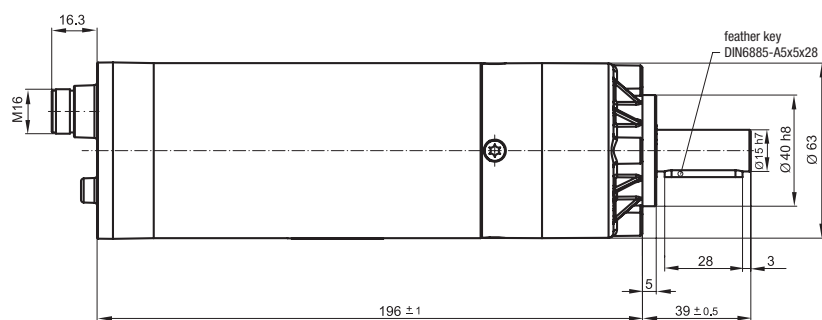
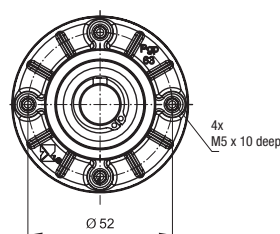
all dimensions are indicated in mm

## Gear motors

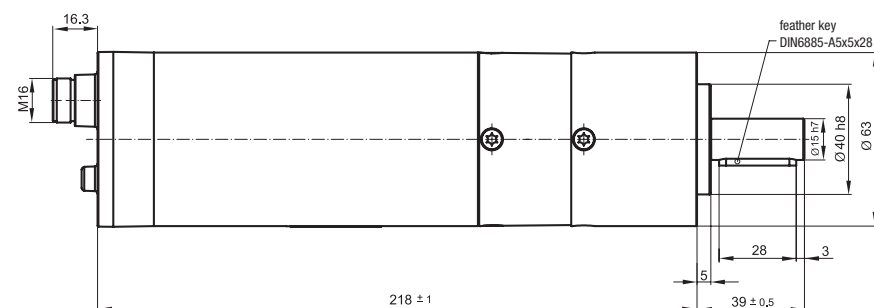
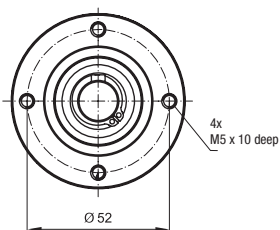
| Technical data / product series            |                      | ECI-63.40-K4 with Performax® PLUS 63 (preferred type) |              |              |              |
|--------------------------------------------|----------------------|-------------------------------------------------------|--------------|--------------|--------------|
| ratio / number of stages                   | i / Number of stages | 5:1 / 1                                               | 5:1 / 1      | 30:1 / 2     | 30:1 / 2     |
| nominal voltage-motor                      | V DC                 | 24                                                    | 48           | 24           | 48           |
| Output torque in S1 operation ( $M_{ab}$ ) | Nm                   | 2.7*                                                  | 3.3*         | 14.6*        | 18.2*        |
| Nominal output speed ( $n_{ab}$ )          | min <sup>-1</sup>    | 800*                                                  | 800*         | 133*         | 133*         |
| Output power ( $P_{ab}$ )                  | W                    | 226*                                                  | 283*         | 203*         | 254*         |
| Nominal current                            | A                    | 12.3*                                                 | 7.2*         | 12.3*        | 7.2*         |
| Ambient temperature range ( $T_U$ )        | °C                   | 0 ... +40                                             | 0 ... +40    | 0 ... +40    | 0 ... +40    |
| Mass (m)                                   | kg                   | 1.8                                                   | 1.8          | 2.2          | 2.2          |
| Order No. (IP 40)                          |                      | 942 6340 420                                          | 942 6340 422 | 942 6340 421 | 942 6340 423 |
| subject to alterations                     |                      | * at $T_U$ max. 40 °C / 104 °F                        |              |              |              |



## ECI-63.40-K4 PXP 63.1



## ECI-63.40-K4 PXP 63.2



# ECI 63.60

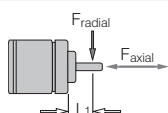
with electronic module K4



- Motor with completely integrated 4Q operation and K4 control electronics
- Speed, torque or positioning mode possible
- Selection of operation mode and parameterization via RS485
- Extensive interface with numerous inputs and outputs
- Output stage enabled via digital input
- Integrated brake chopper function
- Speed control range with holding torque until  $n = 0$  rpm
- Excellent control behavior via field-oriented control with sine commutation
- High efficiency and high power density realized in a compact design
- User-friendly parameterization with “Kickstart” PC software

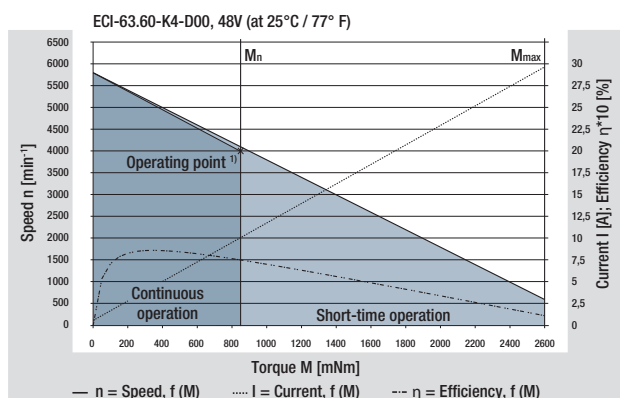
## Basic motor

| Technical data                                |                                     | ECI-63.60-K4-D00                                                                                                                  |
|-----------------------------------------------|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Nominal voltage ( $U_N$ )                     | V DC                                | 48                                                                                                                                |
| Permissible supply voltage range ( $U_{zk}$ ) | V DC                                | 40 ... 53                                                                                                                         |
| Nominal speed ( $n_N$ )                       | min <sup>-1</sup>                   | 4 000*                                                                                                                            |
| Nominal torque ( $M_N$ )                      | mNm                                 | 850*                                                                                                                              |
| Nominal current ( $I_N$ )                     | A                                   | 8.6*                                                                                                                              |
| Nominal output power ( $P_N$ )                | W                                   | 356*                                                                                                                              |
| Free-running speed ( $n_L$ )                  | min <sup>-1</sup>                   | 5 800                                                                                                                             |
| Free-running current ( $I_L$ )                | A                                   | 0.6                                                                                                                               |
| Max. reverse voltage                          | V DC                                | 58                                                                                                                                |
| Set value input                               |                                     | analog / PWM / frequency / digital                                                                                                |
| Recommended speed control range               | min <sup>-1</sup>                   | 0 ... 5 000                                                                                                                       |
| Function for motor protection at stall        |                                     | thermal                                                                                                                           |
| Overload protection                           |                                     | yes                                                                                                                               |
| Starting torque ( $M_{max}$ )                 | mNm                                 | 2 600                                                                                                                             |
| Rotor moment of inertia ( $J_R$ )             | kgm <sup>2</sup> x 10 <sup>-6</sup> | 57                                                                                                                                |
| Heat resistance ( $R_{th}$ )                  | K/W                                 | 2.5                                                                                                                               |
| Ambient temperature range ( $T_U$ )           | °C                                  | 0 ... +40                                                                                                                         |
| Motor mass (m)                                | kg                                  | 1.5                                                                                                                               |
| Order No. (IP 40)                             | Wire interface                      | 932 6360 405                                                                                                                      |
| Order No. (IP 54)**                           | Connector interface                 | 932 6360 402                                                                                                                      |
| subject to alterations                        |                                     | * at $T_U$ max. 40 °C / 104 °F<br>** Classification of protection class refers to installed state with sealing on the flange side |



$F_{axial}$  150 N  
 $F_{radial}$  150 N  
 $L_1 = 20$  mm

Permissible shaft load at nominal speed and life expectancy  $L_{10}$  of 20 000 h\*\*

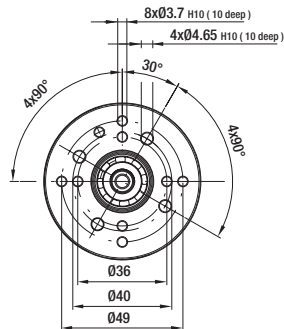


<sup>1)</sup> Nominal data, see table above

# ECI 63.60

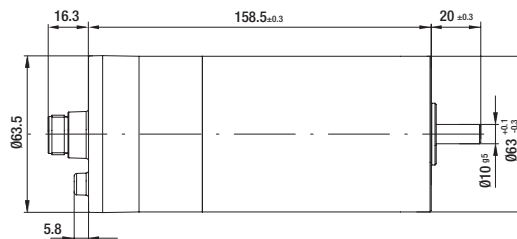
with electronic module K4

## Basic motor



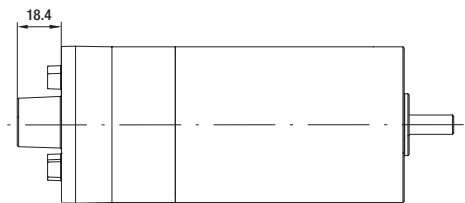
## Connector interface (M16)

(connection cable must be ordered separately)



## Wire interface

(connection cable must be ordered separately)



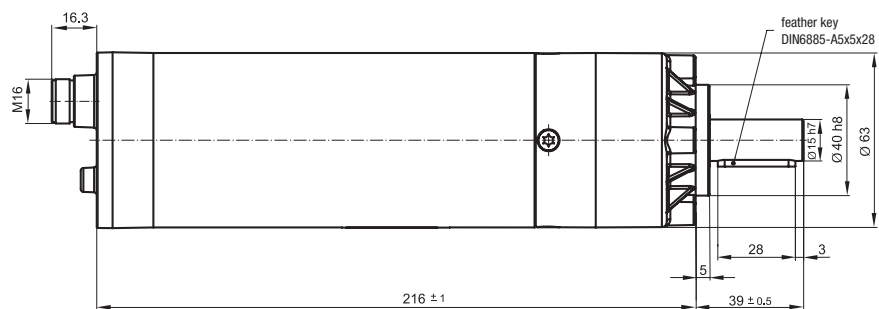
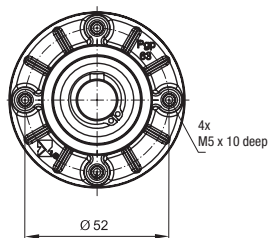
all dimensions are indicated in mm

## Gear motors

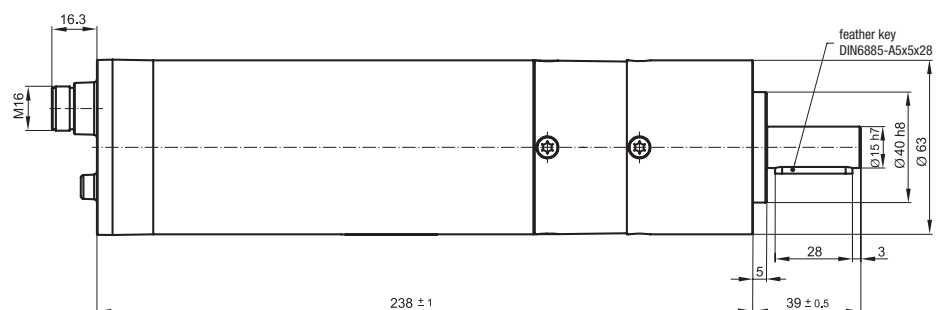
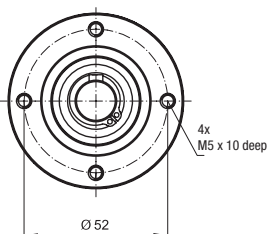
| Technical data / product series            |                    | ECI-63.60-K4 with Performax® PLUS 63 (preferred type) |              |
|--------------------------------------------|--------------------|-------------------------------------------------------|--------------|
| Ratio/number of stages                     | i/Number of stages | 5:1 / 1                                               | 30:1 / 2     |
| Nominal voltage-motor                      | V DC               | 48                                                    | 48           |
| Output torque in S1 operation ( $M_{ab}$ ) | Nm                 | 3.9*                                                  | 20.6*        |
| Nominal output speed ( $n_{ab}$ )          | min <sup>-1</sup>  | 800*                                                  | 133*         |
| Output power ( $P_{ab}$ )                  | W                  | 320*                                                  | 288*         |
| Nominal current                            | A                  | 8.6*                                                  | 8.6*         |
| Ambient temperature range ( $T_U$ )        | °C                 | 0 ... +40                                             | 0 ... +40    |
| Mass (m)                                   | kg                 | 2.2                                                   | 2.5          |
| Order No. (IP 40)                          |                    | 942 6360 422                                          | 942 6360 423 |
| subject to alterations                     |                    | * at $T_U$ max. 40 °C / 104 °F                        |              |



## ECI-63.60-K4 PXP 63.1

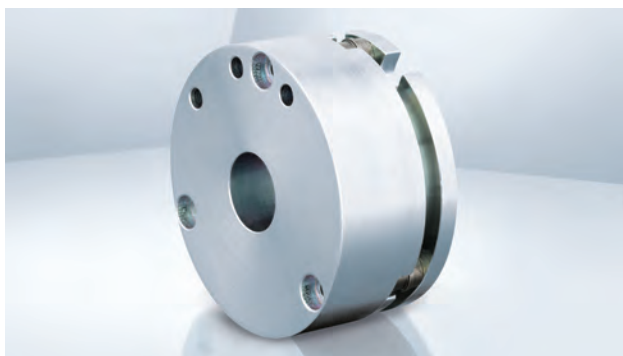


## ECI-63.60-K4 PXP 63.2





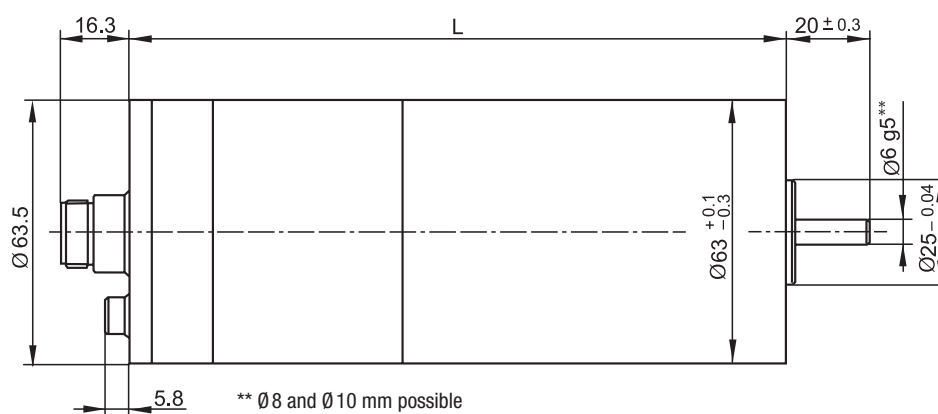
# ECI brake module



- Module installed between basic motor and electronics module
- Holding brake with emergency stop function
- Currentless-operated brake, released electromagnetically
- Braking torque applied by spring force
- Reduced inertia for optimum dynamics

| Brake module                                  |                  |                                     |
|-----------------------------------------------|------------------|-------------------------------------|
| Technical data                                |                  | BFK*                                |
| Nominal voltage ( $U_N$ )                     | V DC             | 24                                  |
| Permissible supply voltage range ( $U_{zk}$ ) | V DC             | 22 – 26                             |
| Nominal power ( $P_N$ )                       | W                | 10                                  |
| Braking torque                                | Nm               | 1                                   |
| Closing time                                  | ms               | 50                                  |
| Release time                                  | ms               | 50                                  |
| Internal version                              | Protection class | IP 54                               |
| Ambient temperature range                     | °C               | 0 ... +40                           |
| Mass                                          | kg               | 0.33                                |
| subject to alterations                        |                  | * Max. 150 emergency stops possible |

## ECI-63.XX-K4 with BFK (integrated configuration)

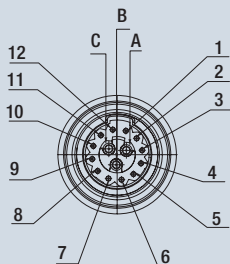


| Type         | Length L (mm) | brake module only (mm) |
|--------------|---------------|------------------------|
| ECI-63.20-K4 | 138,3 ± 0,4   | 19,8                   |
| ECI-63.40-K4 | 158,3 ± 0,4   | 19,8                   |
| ECI-63.60-K4 | 178,3 ± 0,4   | 19,8                   |

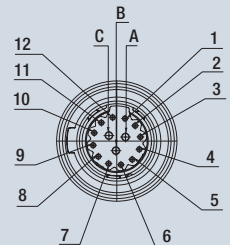


# Connection description – K4

Connector interface ECI-63.XX-K4  
(socket on motor)



Wire interface ECI-63.XX-K4  
(socket on motor)



Cable connection  
VDC-3-49.15-K4  
(mounted)



Power  
AWG 16 (1,5 mm<sup>2</sup>)

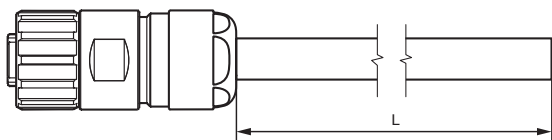
Signal  
AWG 24 (0,22 mm<sup>2</sup>)

|        | Wire      | Pin | Configuration      | Function                           | AWG |
|--------|-----------|-----|--------------------|------------------------------------|-----|
| Signal | white     | 1   | IN A               | NPN 24V                            | 24  |
|        | brown     | 2   | IN B               | NPN 24V                            |     |
|        | green     | 3   | IN 1               | NPN 24V                            |     |
|        | yellow    | 4   | IN 2               | NPN 24V/analog 0...10V/brake       |     |
|        | grey      | 5   | OUT 1              | PNP 24V                            |     |
|        | pink      | 6   | OUT 2              | PNP 24V                            |     |
|        | blue      | 7   | OUT 3*             | PNP 24V                            |     |
|        | red       | 8   | Analog IN 1        | 0...10V (differential)             |     |
|        | black     | 9   | Analog GND         | GND for analog IN 1 (differential) |     |
|        | violett   | 10  | RS485 A (+)        | Progr. bus                         |     |
|        | grey/pink | 11  | RS485 B (-)        | Progr. bus                         |     |
|        | red/blue  | 12  | U <sub>Logic</sub> | Logic power supply + (24V)         |     |
| Power  | grey      | A   | Ballast            | Ballast resistor                   | 16  |
|        | brown     | B   | U <sub>ZK</sub>    | Power supply                       |     |
|        | black     | C   | GND                | Power-/ Signal-GND                 |     |

\* Output (OUT 3) is only available on ECI-63.XX-K4

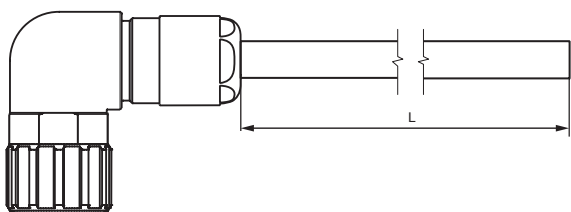
## Connection type for ECI-63.XX-K4

Connector interface – straight connector



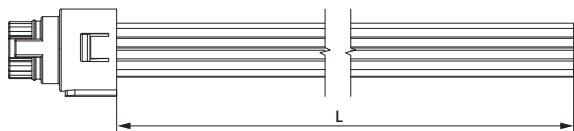
| Length L  | Order No.    |
|-----------|--------------|
| 1 000 ±30 | 992 0160 034 |
| 3 000 ±30 | 992 0160 035 |

Connector interface – angled connector



| Length L  | Order No.    |
|-----------|--------------|
| 1 000 ±30 | 992 0160 036 |
| 3 000 ±30 | 992 0160 037 |

Wire interface



| Length L | Order No.    |
|----------|--------------|
| 500 ±5   | 992 040 0001 |

# Overview of motor gearbox types

Performax®Plus with K4-motor



| Overview of motor gearbox types |      |    |                    | Performax® Plus 63.1<br>i = 5:1 | Performax® Plus 63.2<br>i = 30:1 |
|---------------------------------|------|----|--------------------|---------------------------------|----------------------------------|
|                                 |      |    |                    | Order No.                       | Order No.                        |
| VDC                             | 24 V | K4 | VDC-3-49.15-K4-B00 | 947 4915 420                    | 947 4915 421                     |
|                                 | 48 V | K4 | VDC-3-49.15-K4-D00 | 947 4915 422                    | 947 4915 423                     |
| ECI                             | 24 V | K4 | ECI-63.20-K4-B00   | 942 6320 420                    | 942 6320 421                     |
|                                 |      |    | ECI-63.40-K4-B00   | 942 6340 420                    | 942 6340 421                     |
|                                 |      |    | ECI-63.20-K4-D00   | 942 6320 422                    | 942 6320 423                     |
|                                 | 48 V | K4 | ECI-63.40-K4-D00   | 942 6340 422                    | 942 6340 423                     |
|                                 |      |    | ECI-63.60-K4-D00   | 942 6360 422                    | 942 6360 423                     |

## Compact gearbox and energy-efficient drive solutions

The high-performance Performax® Plus planetary gearbox is a technologically outstanding expansion to the Performax® product series and extends the power range to include applications that need particularly high output powers. It is perfectly suited for use in raw, challenging conditions and impresses with its extremely high torques and extra robust design. With nearly twice as much torque, achieved through larger tooth widths in the input stage and ring gear toothing made from hardened steel in the output stage, the Performax® Plus gearboxes pack a real punch.

The level of performance that characterises the entire Performax® series is based on a design solution in which ebm-papst ZEITLAUF makes best use of the construction space available in the gearbox.

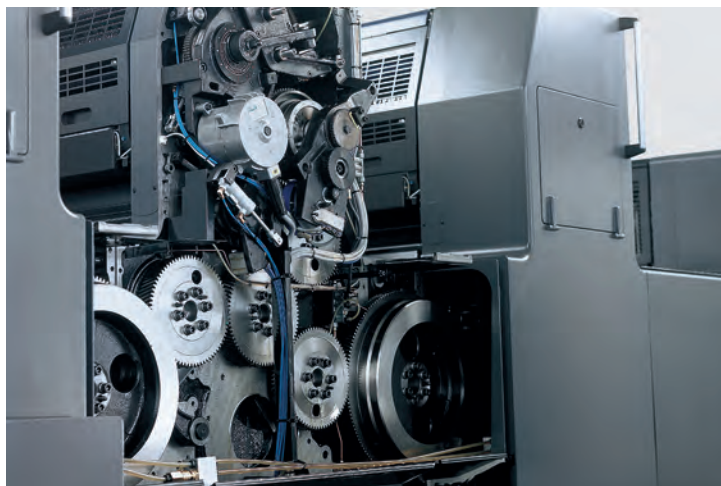
Radially mounting the individual housing components makes the maximum useable diameter available for the ring gear toothing. Solutions with axial mounting, as used by many competitors, limit the space available for the toothing. This means that only a relatively small ring gear diameter is possible, therefore only allowing limited loads to be transferred. In gear reductions, too, the Performax® series is leading the way in technology. Gear reductions of up to 17:1 in a single stage are unique performance criteria in the drive market, with maximum power yield in minimal space. In addition, the gear reductions can be staged harmoniously and purposefully divided more finely, above all in the small reductions range. The ideally suited HRL radial load stage also allows extra high radial loads to be absorbed. Depending on the output speed, it can convey centrifugal forces of up to 2,000 N.

## A versatile solution



### The K4 can do almost anything ...

- Medical technology (pump drives, various lifting and adjusting equipment)
- Textile technology (various winding or spool drives)
- Intralogistics systems (conveyor, storage and sorting systems)
- Industrial automation
- Packaging technology

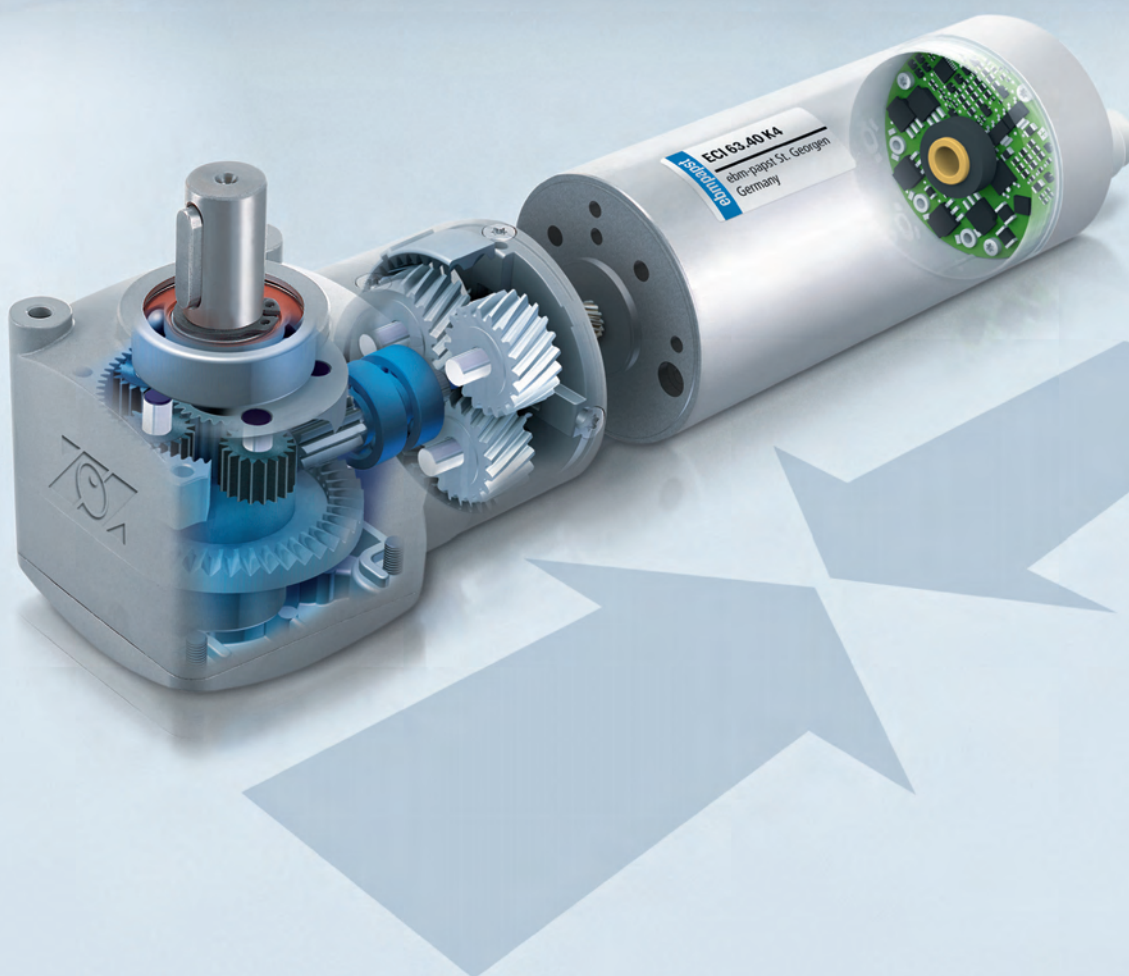


## Notes





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2013

What happens when two strong partners join forces together? In the best case, unmatched synergies, like those resulting from the integration of drive specialist Zeitlauf GmbH antriebstechnik & Co KG in the ebm-papst Group. Together, we offer you optimised drive solutions consisting of gearbox, motor and software-based control system. What do you gain from this? Even greater options and system expertise in drive engineering – and all from a single source! Visit our website: [www.ebmpapst.com](http://www.ebmpapst.com)

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**St. Georgen GmbH & Co. KG**

Hermann-Papst-Straße 1  
78112 St. Georgen  
Germany  
Phone +49 7724 81-0  
Fax +49 7724 81-1309  
info2@de.ebmpapst.com

**ebm-papst**  
**ZEITLAUF GmbH & Co KG**

Industriestraße 9  
91207 Lauf  
Germany  
Phone +49 9123 945-0  
Fax +49 9123 945-145  
info@zeitlauf.com

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