

# ECI motor.

## ECI-42.XX-K1

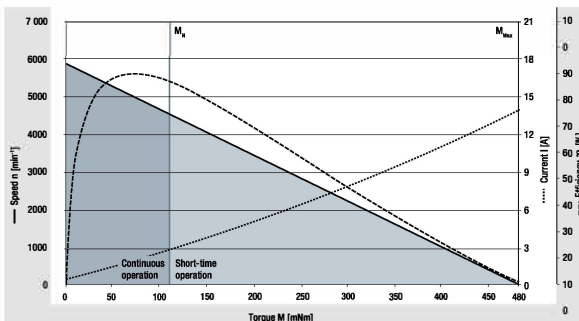


- Highly dynamic 3-phase internal rotor motor with EC technology
- Low cogging torque
- Robust, noise-optimized ball bearing system for a long service life
- High efficiency and high power density realized in a compact design
- Basic motor with electronic module K1 for operation with external control electronics
- Mechanical design and interfaces designed for modular flexibility
- Protection class IP 40 (higher on request) and connection by wires

| Nominal data                                    |                                    |   |                  |                  |                  |
|---|------------------------------------|---|------------------|------------------|------------------|
| Type  |                                    | ECI-42.20-K1-B00  | ECI-42.20-K1-D00 | ECI-42.40-K1-B00 | ECI-42.40-K1-D00 |
| Nominal voltage ( $U_n$ )                       | V DC                               | 24  | 48               | 24               | 48               |
| Nominal speed ( $n_n$ )**                       | rpm                                | 4 000   |                  |                  |                  |
| Nominal torque ( $M_n$ )**                      | mNm                                | 110   | 110              | 220              | 220              |
| Nominal current ( $I_n$ )**                     | A                                  | 2.50  | 1.30             | 5.10             | 2.60             |
| Nominal output power ( $P_n$ )**                | W                                  | 46  | 46               | 92               | 92               |
| Starting torque ( $M_{max}$ )                   | mNm                                | 480   | 480              | 960              | 960              |
| Permissible peak current ( $I_{max}$ )***       | A                                  | 14  | 7                | 21               | 11               |
| Speed at no-load operation ( $n_0$ )            | rpm                                | 5 900   | 5 900            | 5 700            | 5 700            |
| No-load current ( $I_0$ )                       | A                                  | 0.33  | 0.10             | 0.40             | 0.20             |
| Permanent stall torque ( $M_{st}$ )             | mNm                                | 100   | 100              | 200              | 200              |
| Recommended speed control range                 | rpm                                | 0 ... 5 000   |                  |                  |                  |
| Rotor moment of inertia ( $J_r$ )               | kgm <sup>2</sup> x10 <sup>-6</sup> | 3.42  | 3.42             | 6.70             | 6.70             |
| Motor constant ( $K_E$ )                        | mVs/rad                            | 40.9  | 84.2             | 42.8             | 83.9             |
| Connection resistance ( $R_v$ )                 | $\Omega$                           | 0.85  | 3.20             | 0.39             | 1.50             |
| Connection inductance ( $L_v$ )                 | mH                                 | 1.10  | 4.50             | 0.50             | 1.84             |
| Overload protection                             |                                    | To be implemented via the control electronics   |                  |                  |                  |
| Permissible ambient temperature range ( $T_U$ ) | $^{\circ}\text{C}$                 | 0 ... +40   |                  |                  |                  |
| Weight  | kg                                 | 0.33  | 0.33             | 0.48             | 0.48             |
| Order no. (wire interface)*                     | IP 40                              | 932 4220 122  | 932 4220 123     | 932 4240 122     | 932 4240 123     |
| Subject to alterations                          |                                    | * Classification of protection class refers to installed state with sealing on the flange side<br>** At $T_U$ max. 40 $^{\circ}\text{C}$<br>*** Permissible time for peak current: max. 1 sec. – to be repeated only after complete cool down |                  |                  |                  |

### Characteristic curve

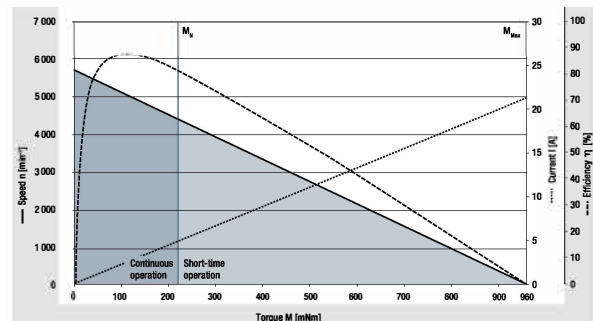
ECI-42.20, 24 V (at 25°C)



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

Characteristic curve 48 V on request

ECI-42.40, 24 V (at 25°C)

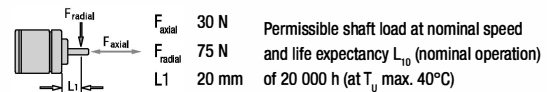
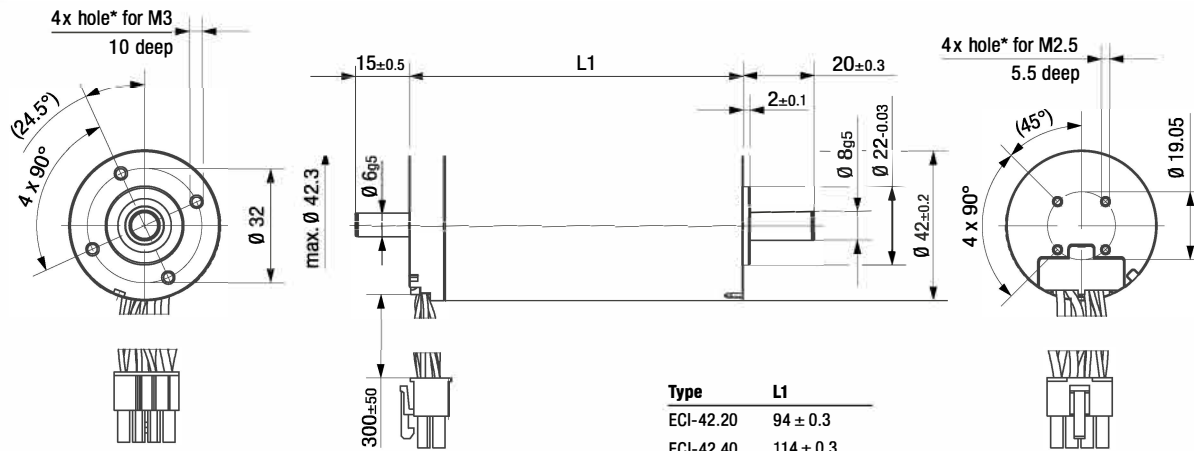


<sup>1)</sup> Nominal data, see table

Characteristic curve 48 V on request

**Technical drawing**

All dimensions in mm

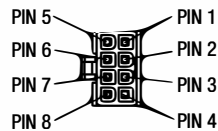


\* For thread-rolling screws according to DIN 7500

**Electrical connection**

**Supply wire**

| No. | Color  | Function |
|-----|--------|----------|
| 1   | yellow | Phase W  |
| 5   | violet | Phase V  |
| 6   | brown  | Phase U  |



Molex pin no. 39-01-2085

**Signal wire**

| No. | Color | Function |
|-----|-------|----------|
| 4   | green | Hall A   |
| 3   | white | Hall B   |
| 8   | gray  | Hall C   |
| 2   | red   | $U_b$    |
| 7   | black | GND      |

**Modular construction kit**

**Brake system**

Spring-applied brake  
BFK 457-01 (page 76)

**Encoder system**

Optical incremental encoder  
HEDS 5500 (page 78)

**Recommended external control electronics**

|                |                    |
|----------------|--------------------|
| VTD-XX.XX-K3   | Speed (page 38)    |
| VTD-XX.XX-K4S  | Position (page 40) |
| VTD-60.13-K5SB | Position (page 42) |

**Basic motor**

**Planetary gearheads**

NoiselessPlus 42 (page 50)  
Performax® 42 (page 54)  
Performax®Plus 42 (page 58)

**Crown gearheads**

EtaCrown® 52 (page 64)  
EtaCrown®Plus 42 (page 68)

For motor-gearbox combinations, depending on the choice of the single components, the maximum allowable torque (gearbox) can be exceeded or respectively not reached.

# Crown gearheads.

EtaCrown® 52



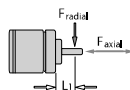
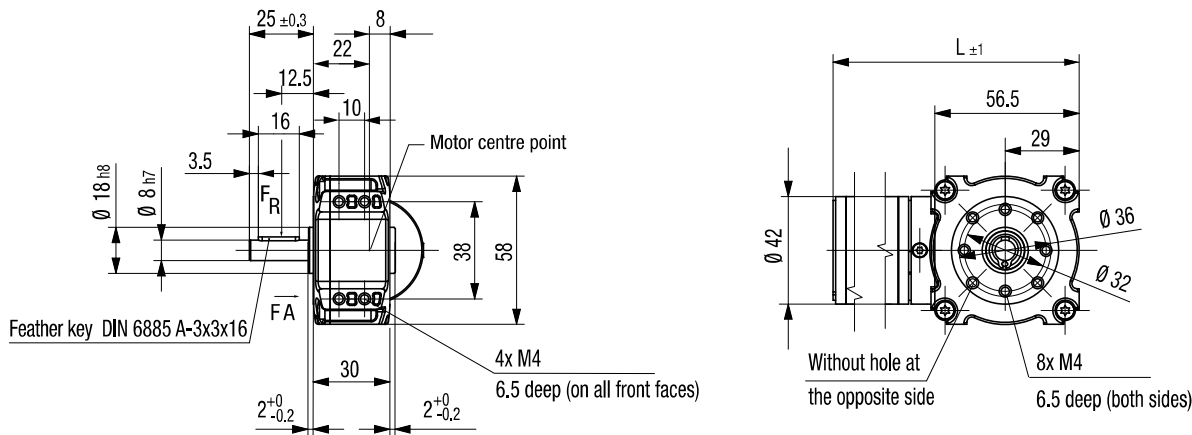
Image of 2-stage gearhead

- Maximum safety in design and operation, as well as optimal vandalism protection; no automatic lock due to high efficiency of the crown wheel technology
- Space-saving installation due to zero offset axle and symmetrical structure
- Flexible application possibilities with various optional shaft outlets and available shaft geometries
- Wide reduction range by means of upstream / downstream planetary stage
- High radial loads due to double ball bearing in the output shaft

| Nominal data  |     | EtaCrown® 52.1                               |           |           | EtaCrown® 52.2 |           |           |           |
|---|-----|--|-----------|-----------|----------------|-----------|-----------|-----------|
| Gearheads   |     |  |           |           |                |           |           |           |
| Reduction ratio                                     |     | 4.10   | 6.70      | 10.1      | 21.2           | 33.3      | 60.0      | 113       |
| No. of stages                                       |     | 1  |           |           | 2              |           |           |           |
| Efficiency  |     | 0.90   |           |           | 0.81           |           |           |           |
| Max. input speed (n <sub>i</sub> )                  | rpm | 6 000  |           |           | 6 000          |           |           |           |
| Rated output torque (M <sub>ab</sub> )              | Nm  | 0.21   | 0.34      | 0.52      | 0.98           | 1.54      | 2.77      | 3.48      |
| Short-term torque (M <sub>max</sub> )               | Nm  | 0.53   | 0.85      | 1.30      | 2.45           | 3.85      | 6.93      | 8.70      |
| Gear play   | °   | 0.55 ... 1.1                                 |           |           | 0.55 ... 1.1   |           |           |           |
| Permissible operating temperature (T <sub>v</sub> ) | °C  | -20 ... +80                                  |           |           | -20 ... +80    |           |           |           |
| Operating mode                                      |     | S1   |           |           | S1             |           |           |           |
| Protection class                                    |     | IP 50  |           |           | IP 50          |           |           |           |
| Weight  | kg  | 0.40   |           |           | 0.65           |           |           |           |
| Shaft load radial / axial                           | N   | 300 / 150                                    | 350 / 150 | 400 / 150 | 500 / 150      | 570 / 150 | 720 / 150 | 770 / 150 |
| Service life  | h   | 5 000  |           |           | 5 000          |           |           |           |
| Lubrication   |     | Maintenance-free grease lubrication for life |           |           |                |           |           |           |
| Installation position                               |     | any  |           |           |                |           |           |           |
| Subject to alterations                              |     | on request                                   |           |           |                |           |           |           |

Technical drawing

Image of 1-stage gearhead with left shaft end (W05) / All dimensions in mm



$F_{axial}$  150 N  
 $F_{radial}$  see table  
 $L1$  12.5 mm

Permissible shaft load at nominal speed and life expectancy  $L_{10}$  (nominal operation) and operating factor  $C_b = 1$  (see page 82) of 5 000 h (at  $T_u$  40°C).

| Shaft end, right (W05) (standard) | Shaft end, left (W06) | Shaft end, both sides (W07) |
|-----------------------------------|-----------------------|-----------------------------|
|                                   |                       |                             |

Length of the possible motor / gearhead combinations

| Motor / gearhead |    | L - 1-stage | L - 2-stage |
|------------------|----|-------------|-------------|
| ECI-42.20-K1-E52 | mm | 160         | 189         |
| ECI-42.40-K1-E52 | mm | 180         | 209         |

Subject to alterations

Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибьюторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибьюторских договоров

Мы предлагаем:

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- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
- Доставку товара в любую точку России и стран СНГ.
- Комплексную поставку.
- Работу по проектам и поставку образцов.
- Формирование склада под заказчика.
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- Входной контроль качества.
- Наличие сертификата ISO.

В составе нашей компании организован Конструкторский отдел, призванный помогать разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

- Регистрацию проекта у производителя компонентов.
- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



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