

# ECI motor.

## ECI-42.XX-K1

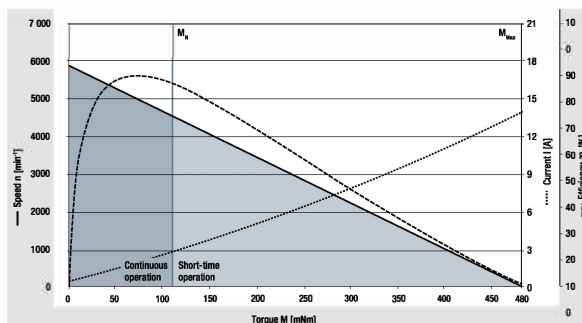


- Highly dynamic 3-phase internal rotor motor with EC technology
- Low cogging torque
- Robust, noise-optimized ball bearing system for a long service life
- High efficiency and high power density realized in a compact design
- Basic motor with electronic module K1 for operation with external control 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 ( $n_l$ )	rpm	5 900	5 900	5 700	5 700
No-load current ( $I_l$ )	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 ( $T_U$ )	°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 ** At $T_U$ max. 40°C *** Permissible time for peak current: max. 1 sec. – to be repeated only after complete cool down			

### Characteristic curve

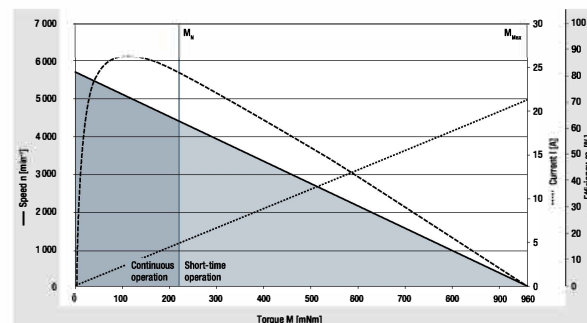
ECI-42.20, 24 V (at 25°C)



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

Characteristic curve 48 V on request

ECI-42.40, 24 V (at 25°C)

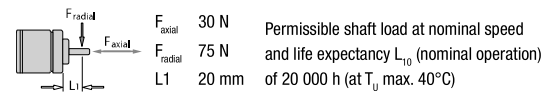
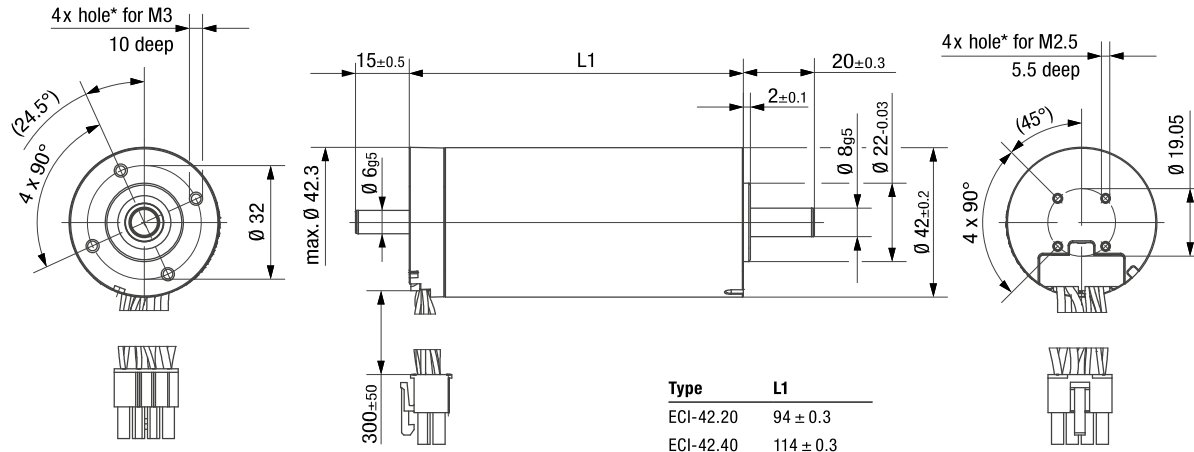


<sup>1)</sup> Nominal data, see table

Characteristic curve 48 V on request

## Technical drawing

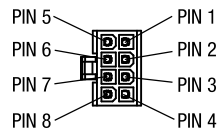
All dimensions in mm



\* 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 <sub>B</sub>
7	black	GND

## Modular construction kit

Brake system	Basic motor	Planetary gearheads
Spring-applied brake BFK 457-01 (page 76)		NoiselessPlus 42 (page 50)
		Performax® 42 (page 54)
		Performax®Plus 42 (page 58)
Encoder system		
Optical incremental encoder HEDS 5500 (page 78)		
Recommended external control electronics		Crown gearheads
VTD-XX.XX-K3      Speed (page 38)		EtaCrown® 52 (page 64)
VTD-XX.XX-K4S      Position (page 40)		EtaCrown®Plus 42 (page 68)
VTD-60.13-K5SB      Position (page 42)		

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

# Planetary gearheads.

Performax®Plus 42



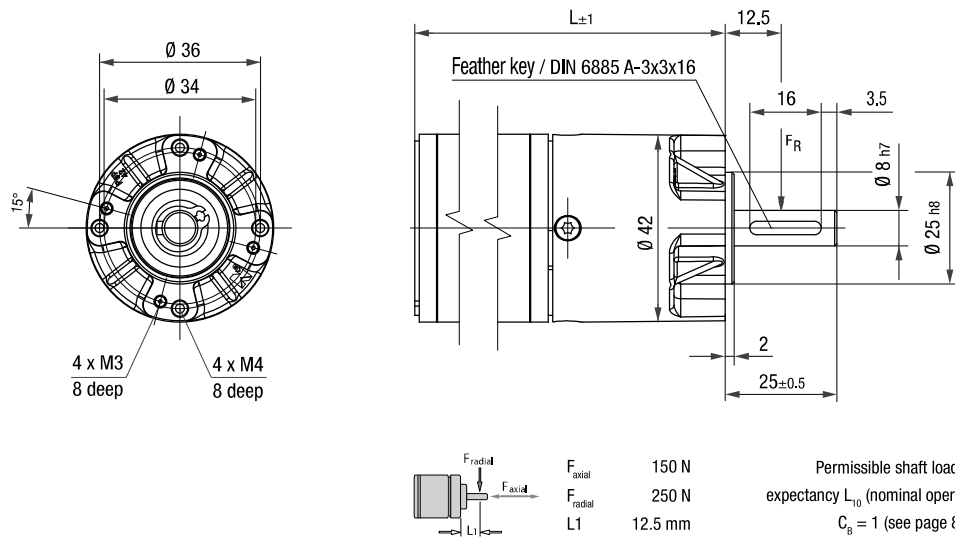
Image of 2-stage gearhead

- High torques thanks to large gearing width in the first gear stage
- Good shock resistance due to housing made of case-hardened steel with linear tooth profile in the output stage
- Very quiet operation due to helical teeth in the first gear stage
- Planetary wheels made of plastic with optimized sliding properties in the first stage ensure smooth operation
- Large effective diameter thanks to radial screw connection

Nominal data				
Gearheads			Performax®Plus 42.1	Performax®Plus 42.2
Reduction ratio			5.00	30.0
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		2.00	4.48
Short-term torque (M <sub>max</sub> )	Nm		5.00	11.2
Gear play	°		0.7 ... 1.2	0.7 ... 1.2
Permissible operating temperature (T <sub>U</sub> )	°C		-20 ... +80	-20 ... +80
Operating mode			S1	S1
Protection class			IP 50	IP 50
Weight	kg		0.22	0.33
Shaft load radial / axial	N		250 / 150	250 / 150
Service life	h		5 000	5 000
Lubrication		Maintenance-free grease lubrication for life		
Installation position		any		
Subject to alterations				

# Technical drawing

Image of 1-stage gearhead / 2-stage design completely cylindrical / All dimensions in mm



## Length of the possible motor / gearhead combinations

Motor / gearhead		L - 1-stage	L - 2-stage
ECI-42.20-K1-PP42	mm	133	149
ECI-42.40-K1-PP42	mm	153	169
Subject to alterations			