

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

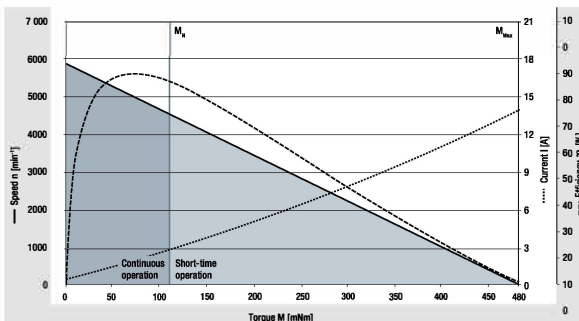
Nominal data					
Type		ECI-42.20-K1-B00	ECI-42.20-K1-D00	ECI-42.40-K1-B00	ECI-42.40-K1-D00
Nominal voltage (U_n)	V DC	24	48	24	48
Nominal speed (n_n)**	rpm	4 000			
Nominal torque (M_n)**	mNm	110	110	220	220
Nominal current (I_n)**	A	2.50	1.30	5.10	2.60
Nominal output power (P_n)**	W	46	46	92	92
Starting 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 ² x10 ⁻⁶	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)	Ω	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
 ** At T_u max. 40 $^{\circ}\text{C}$
 *** Permissible time for peak current: max. 1 sec. – to be repeated only after complete cool down

Characteristic curve

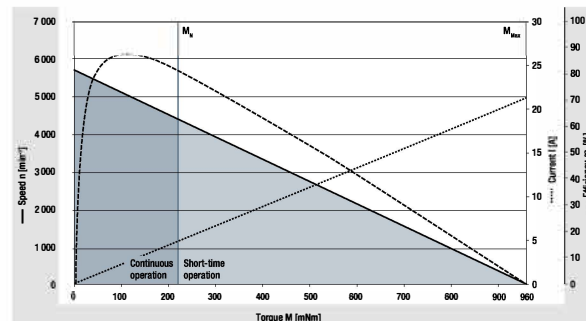
ECI-42.20, 24 V (at 25 $^{\circ}\text{C}$)



¹⁾ Nominal data, see table

Characteristic curve 48 V on request

ECI-42.40, 24 V (at 25 $^{\circ}\text{C}$)

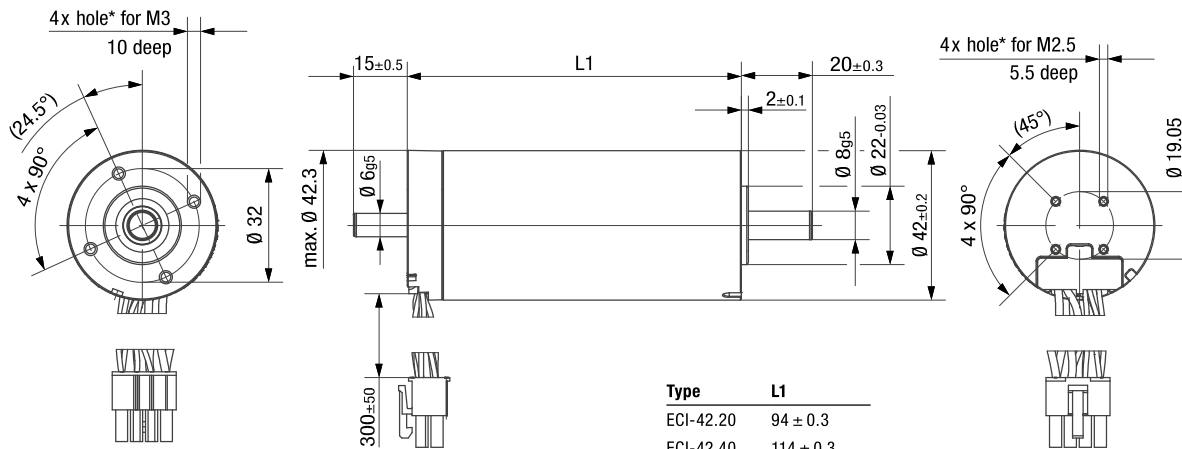


¹⁾ Nominal data, see table

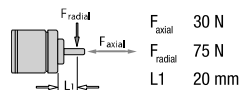
Characteristic curve 48 V on request

Technical drawing

All dimensions in mm



Type	L1
ECl-42.20	94 ± 0.3
ECl-42.40	114 ± 0.3



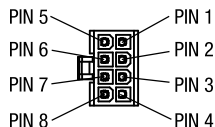
Permissible shaft load at nominal speed and life expectancy L_{10} (nominal operation) of 20 000 h (at T_v max. 40°C)

* 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)



Basic motor



Planetary gearheads

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

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



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.

Planetary gearheads.

Performax®Plus 42



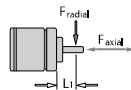
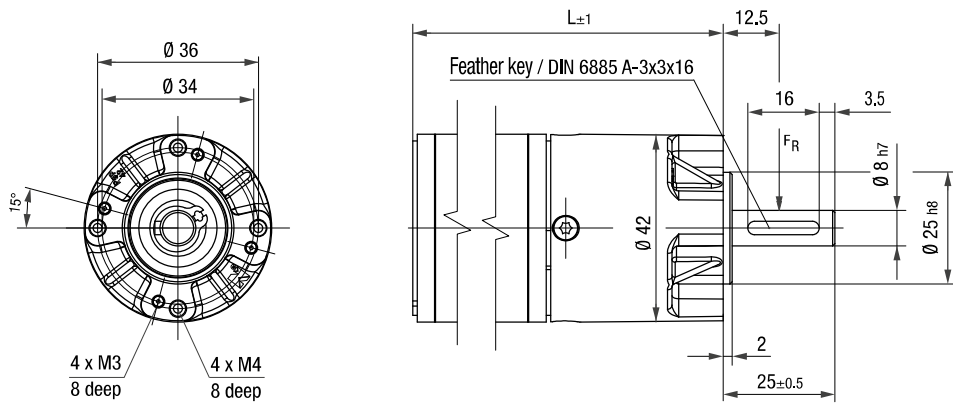
Image of 2-stage gearhead

- 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		Performax®Plus 42.1	Performax®Plus 42.2
Gearheads			
Reduction ratio		5.00	30.0
No. of stages		1	2
Efficiency		0.90	0.81
Max. input speed (n _i)	rpm	6 000	6 000
Rated output torque (M _{ab})	Nm	2.00	4.48
Short-term torque (M _{max})	Nm	5.00	11.2
Gear play	°	0.7 ... 1.2	0.7 ... 1.2
Permissible operating temperature (T _v)	°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



F_{axial} 150 N
 F_{radial} 250 N
 $L1$ 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).

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

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