Drive Concept for SIMATIC MICRO-DRIVE

Product Catalog 2019-04

ebmpapst

the engineer's choice

About ebm-papst

ebm-papst is a leader in ventilation and drive engineering technology and a much sought-after engineering partner in many industries. With around 20,000 different products, we have the perfect solution for practically every requirement. We have placed the highest emphasis on economy and ecology for many years.

We believe the consistent further development of our highly-efficient GreenTech EC technology provides our customers with the best opportunities for the future in industrial digitization. With GreenIntelligence, ebm-papst already offers intelligent networked complete solutions that are unique anywhere in the world today and that secure our customers a decisive advantage.

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Six reasons that make us the ideal partner:

Our systems expertise.
You want the best solution for every project. The entire ventilation system must thus be considered as a whole. And that's what we do – with motor technology that sets standards, sophisticated electronics and aerodynamic designs – all from a single source and perfectly matched.

Our spirit of invention.
We are also always able to develop customized solutions for you with our versatile team of over 600 engineers and technicians.

Our lead in technology.
We are not only pioneers and trailblazers in the development of highly efficient EC technology, we also recognized the opportunities of digitization at an early stage. Therefore, we can offer solutions today that combine the highest energy efficiency with the advantages of IoT and digital networking.

Closeness to our customers.
ebm-papst has 25 production locations worldwide (including facilities in Germany, China and the USA), together with 49 sales offices, each of which has a dense network of sales representatives. You will always have a local contact, someone who speaks your language and knows your market.

Our standard of quality.
Our quality management is uncompromising, at every step in every process. This is underscored by our certification according to international standards including DIN EN ISO 9001, TS declaration of conformity and DIN EN ISO 14001.

Our sustainable approach.
Assuming responsibility for the environment, for our employees and for society is an integral part of our corporate philosophy. We develop products with an eye to maximum environmental compatibility, in particular resource-preserving production methods. We promote environmental awareness among our young staff and are actively involved in sports, culture and education. That's what makes us a leading company – and an ideal partner for you.

Drive Concept for SIMATIC MICRO-DRIVE

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SIMATIC MICRO-DRIVE is the new servo drive system in the safety extra-low voltage range. Consisting of the ProfiDriveControl (PDC) servo controller and flexibly usable motors and connecting cables.

Therefore ebm-papst offers motors and gearheads in different construction sizes within a product partner program.

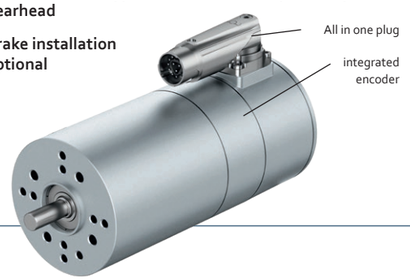
Product Matrix motors for SIMATIC MICRO-DRIVE

Brushless internal rotor motors ECI		ECI-42.20-K1	ECI-42.40-K1	ECI-63.20-K1	ECI-63.40-K1	ECI-63.60-K1
UN	VDC	24	24	24	24	24
		48	48	48	48	48
MN	mNm					
P	W					
nN	rpm					
l	mm					
d	mm					
Motor Feedback						
K1 (Hall sensor system)		X	X	X	X	X
Siemens iQ-Encoder		X	X	X	X	X
Brakes						
Hold brake (quiescent current)		X	X	X	X	X
Gearheads						
PerfomaxPlus 42.1		X	X			
PerfomaxPlus 42.2				X	X	X
PerfomaxPlus 63.1				X	X	X
PerfomaxPlus 63.2				X	X	X
PDC (ProfiDriveControl)						
PDC 50 / 50F / 50FIO		X				
PDC 100 / 100F / 100FIO			X			
PDC 200 / 200F / 200FIO				X	X	
PDC 400 / 400F / 400FIO						X

Information about ECI-Motors
for SIMATIC MICRO-DRIVE

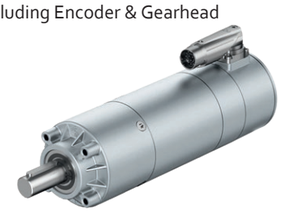
ECI-Motor with iQ-Encoder Technology

Feature / function	Benefit
3-phase, electronic commutated internal rotor with heavy-duty magnet	High power density in the smallest installation space
Rotor position monitoring via hall sensors	High overload capacity
Winding insulation - insulation class E	Long service life
Protection class from IP 54 to EN 60 034-5	Excellent smooth running
Different motor types combinable with planetary gearhead	Industrial-grade all in one plug (rotatable)
Brake installation optional	Self-lockable quick-release connector
	Simplified project planning via storage of motor data in the TIA-Portal
	Automatic recognition of the drive components via electronic data sheet in the motor
	Informative system diagnosis notifications
	Quick and easy start-up
	Motor temperature detection and evaluation



System Overview SIMATIC MICRO-DRIVE

Gear motor
Including Encoder & Gearhead



Cable
One cable to motor (Product Partner)

Drive
(for SIMATIC MICRO-DRIVE)

Including Standard I/Os and Failsafe I/Os
Configuration with TIA-Portal V15.1
(only Step 7)

Drive Dimensioning
in the TIA-Selection-Tool

SITOP
(24 / 48 V) Power Supply

Incremental encoder / Hall
just as second encoder interface (SSI)

SIMATIC S7
(S7-1200, S7-1500, ...)

Information / Advantages
SIMATIC MICRO-DRIVE

SIMATIC MICRO-DRIVE

Feature / function	Benefit
Flexibility & combinability of system components	Universally applicable
PROFINET IRT (1 ms)	Increased performance
Safety Integrated: STO, SS1, SLT, SLS, SBC, SSM via PROFIsafe	Fulfills high demands for safety
TIA Portal integration	Easy engineering
„One Button Tuning"	Saves time on installation
One cable to motor	Ready for various markets
Integrated C1 EMC-Filter	
24-48 V: 0,05-1 kW	
Battery supply incl. energy recovery	
UL & Marine certification	

Information / Advantages through connection to SIMATIC S7-1500 @ SINAMICS in TIA portal

Feature / function	Benefit
Efficient Engineering	
One single uniform engineering platform	Shorter training time
Common functionalities (trace, library, etc.)	Reduced engineering effort
	Automatic consistency within the project
Integrated Drive Control	
SIMATIC Motion Control technology objects	Drives can be easily connected to SIMATIC PLCs
Drive libraries	Motion control applications quickly and simply realized
Safety Integrated	
Efficient safety commissioning	Installation and commissioning even faster
Standard components with integrated safety technology	Less hardware / No additional components
Integrated communication function block for SINAMICS Safety	Greater flexibility for extensions and adaptations
PROFINET	
PROFIdrive	Standardized communication based on standard Ethernet
PROFIsafe	Easy Remote-Access
Integrated System Diagnostics	System messages are available without any engineering effort (TIA Portal, PLC, Web-Server & HMI)

ECI-Motor ECI-42.XX-K1

More at www.ebmpapst.com/eci-motoren

Description

- 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 54 and connection by connector system

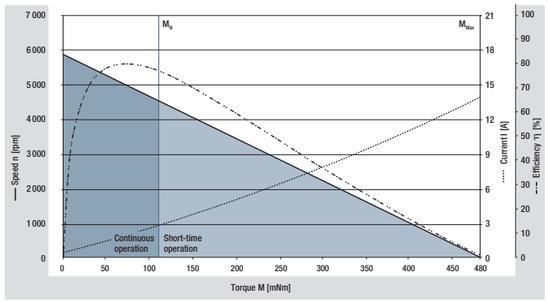
Type		ECI-42.20-K1-B00	ECI-42.20-K1-D00	ECI-42.40-K1-B00	ECI-42.40-K1-D00
Characteristic curve		A		B	
Nominal voltage (U_N)	V DC	24	48	24	48
Nominal speed (n_N)[2]	rpm	4 000	4 000	4 000	4 000
Nominal torque (M_N)[2]	mNm	110	110	220	220
Nominal current (I_N)[2]	A	2.50	1.30	5.10	2.60
Nominal output power (P_N)[2]	W	46.0	46.0	92.0	92.0
Starting torque (M_{max})	mNm	480	480	960	960
Permissible peak current (I_{max})[3]	A	7.50	3.90	15.3	7.80
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_{NO})	mNm	100	100	200	200
Recommended speed control range	rpm	0 ... 5 000	0 ... 5 000	0 ... 5 000	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	35.2	84.2	42.8	83.9
Connection resistance (R_V)	Ω	0.85	3.20	0.39	1.50
Connection inductance (L_q)	mH	1.45	5.91	0.64	2.79
Connection inductance (L_d)	mH	0.81	3.37	0.37	1.56
Overload protection		To be implemented via the control electronics			
Permissible ambient temperature range (T_U)	°C	0 ... +40	0 ... +40	0 ... +40	0 ... +40
Part number		SSE4220BK1xxxxxxxx60	SSE4220DK1xxxxxxxx60	SSE4240BK1xxxxxxxx60	SSE4240DK1xxxxxxxx60

[1] The degree of protection refers to the installed condition with sealing on the flange side
[2] At TU max. 40 °C
[3] Permissible maximum current duration: max. 3 seconds – can be repeated after complete cool down

Top-selling types ready for delivery in 4 business days.

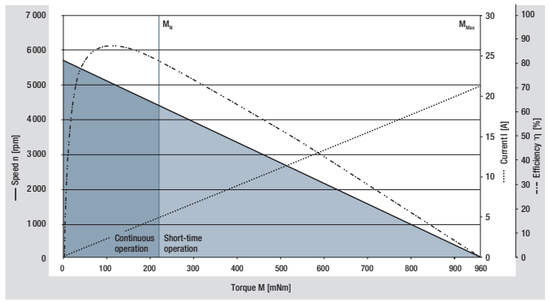
Preliminary data, subject to alterations

A ECI-42.20, 24 V (at 25 °C)



Characteristic curve 48 V on request

B ECI-42.40, 24 V (at 25 °C)



Characteristic curve 48 V on request

Modular construction kit

Brake system
Spring-applied brake RFK 0.3 Nm — from page 19

Encoder system
magnetic incremental iQ-Encoder — from page 18

Basic motor

Planetary gearheads
Performax® Plus 42 — from page 14

PDC controller

PDC 50	Description page 5
PDC 100	Description page 5

Available from Siemens
More at: https://new.siemens.com
(Produkte & Services -> Antriebstechnik -> Umrichter -> Servoantriebssystem SIMATIC MCRO-DRIVE)

Cable

	PDC50	PDC100
Connection cable	LA02	LA02
Brake cable	LPBr2	LPBr2

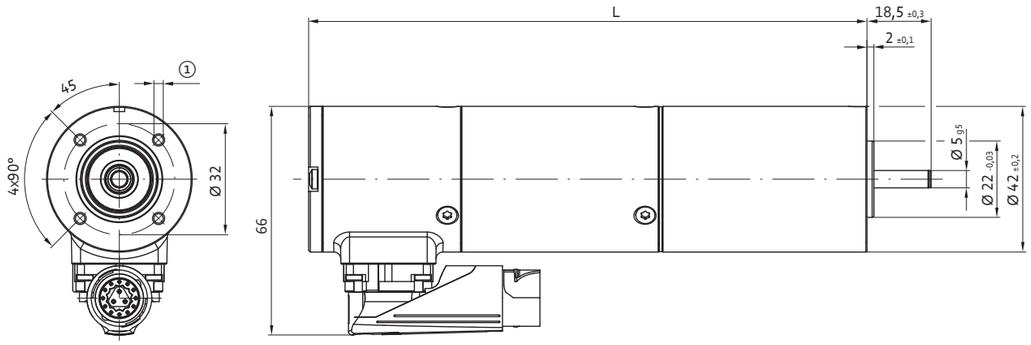
Available from KnorrTec
More at: https://www.knorrtec.de
(Unternehmen -> Kooperation)

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

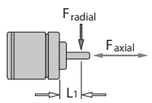
Technical drawing without brake

All dimensions in mm

Type	L
ECI-42.20	161 ± 0.4
ECI-42.40	181 ± 0.4



① 4 x for thread-forming screws M3 according to DIN 7500, screw-in depth max. 9.5

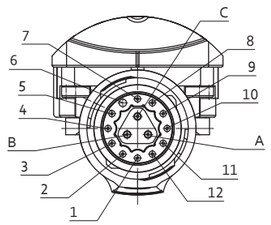


Permissible shaft load

F_{axial}:	30 N	Permissible simultaneous shaft loads at rated speed and service life expectancy L10 (in rated operation) from 20 000 h (at TU max. 40 °C)
F_{radial}:	75 N	
L_1:	10 mm	

Electrical connection without brake

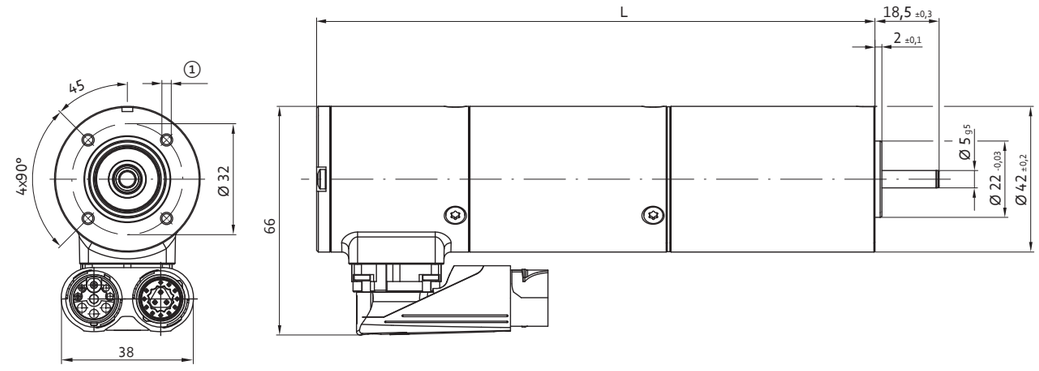
	Pin	Configuration	Function
HALL	1	H A	Hall signal A
	2	H B	Hall signal B
	3	H C	Hall signal C
	4	+12V	Supply voltage
	5	GND	Ground
	6	empty	empty
Encoder	7	A	Encoder channel A
	8	/A	Encoder channel A inverted
	9	B	Encoder channel B
	10	/B	Encoder channel B inverted
	11	+5V	Supply voltage
	12	GND	Ground
Motor	A	U	Winding connector U
	B	V	Winding connector V
	C	W	Winding connector W



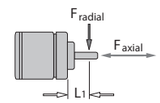
Technical drawing with integrated brake

All dimensions in mm

Type	L
ECI-42.20	191 ± 0.4
ECI-42.40	211 ± 0.4



① 4 x for thread-forming screws M3 according to DIN 7500, screw-in depth max. 9.5

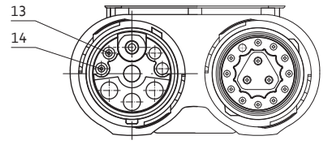


Permissible shaft load

F_{axial}:	30 N	Permissible simultaneous shaft loads at rated speed and service life expectancy L10 (in rated operation) from 20 000 h (at TU max. 40 °C)
F_{radial}:	75 N	
L_1:	10 mm	

Electrical connection with integrated brake

	Pin	Configuration	Function
Brake	13	+24 V	Supply voltage
	14	GND	Ground



ECI-Motor ECI-63.XX-K1

More at www.ebmpapst.com/eci-motoren

Description

- 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 54 and connection by connector system

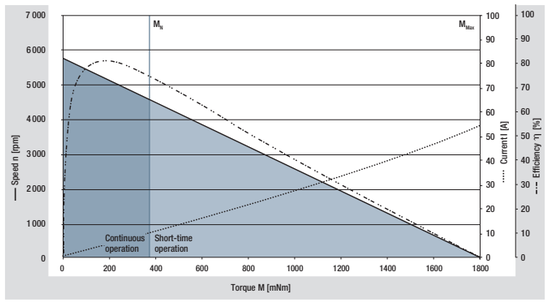
Type		ECI-63.20-K1 -B00	ECI-63.20-K1 -D00	ECI-63.40-K1 -B00	ECI-63.40-K1 -D00	ECI-63.60-K1 -D00
Characteristic curve		A		B		C
Nominal voltage (U_N)	V DC	24	48	24	48	48
Nominal speed (n_N)[2]	rpm	4 000	4 000	4 000	4 000	4 000
Nominal torque (M_N)[2]	mNm	360	360	670	670	880
Nominal current (I_N)[2]	A	8.50	4.50	14.0	6.50	8.50
Nominal output power (P_N)[2]	W	150	150	280	280	370
Starting torque (M_{max})	mNm	1 800	1 800	3 300	3 300	4 400
Permissible peak current (I_{max})[3]	A	25.5	13.5	42.0	19.5	25.5
Speed at no-load operation (n_L)	rpm	5 250	5 250	5 250	5 250	5 250
No-load current (I_L)	A	0.50	0.30	0.70	0.32	0.45
Recommended speed control range	rpm	0 ... 5 000	0 ... 5 000	0 ... 5 000	0 ... 5 000	0 ... 5 000
Rotor moment of inertia (J_R)	kgm² x10^{-6}	19.0	19.0	38.0	38.0	57.0
Motor constant (K_E)	mVs/rad	41.4	73.3	40.4	83.8	83.8
Connection resistance (R_V)	Ω	0.14	0.42	0.08	0.24	0.15
Connection inductance (L_q)	mH	0.33	1.12	0.16	0.65	0.38
Connection inductance (L_d)	mH	0.20	0.69	0.09	0.38	0.22
Overload protection		To be implemented via the control electronics				
Permissible ambient temperature range (T_U)	°C	0 ... +40	0 ... +40	0 ... +40	0 ... +40	0 ... +40
Part number		SSE6320BK1xxxxxxxx60	SSE6320DK1xxxxxxxx60	SSE6340BK1xxxxxxxx60	SSE6340DK1xxxxxxxx60	SSE6360DK1xxxxxxxx60

[1] The degree of protection refers to the installed condition with sealing on the flange side
The shaft geometry in the IP54 version is different from the displayed sketch
[2] At TU max. 40 °C
[3] Permissible maximum current duration: max. 3 seconds – can be repeated after complete cool down

Top-selling types ready for delivery in 4 business days.

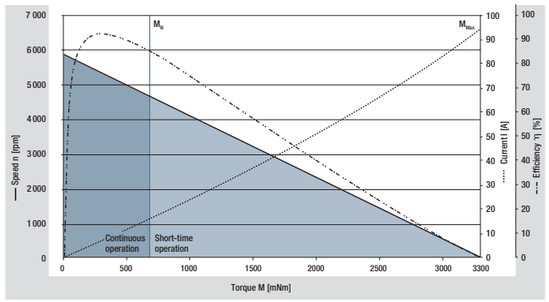
Preliminary data, subject to alterations

A ECI-63.20-K1, 24 V (at 25 °C)



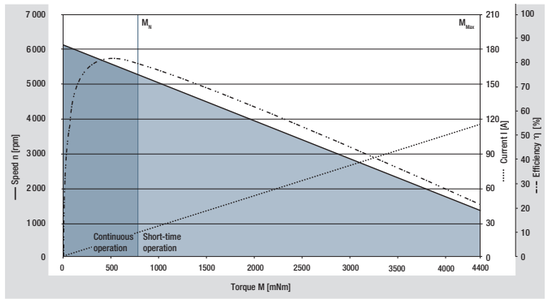
Characteristic curve 48 V on request

B ECI-63.40-K1, 24 V (at 25 °C)



Characteristic curve 48 V on request

C ECI-63.60-K1, 24 V (at 25 °C)



Characteristic curve 48 V on request

Modular construction kit

Brake system
Spring-applied brake RFK 1.0 Nm — from page 19

Encoder system
magnetic incremental iQ-Encoder — from page 18

Basic motor

Planetary gearheads
Performax®Plus 63 — from page 16

PDC controller

PDC 200	Description page 5
PDC 400	Description page 5

Available from Siemens
More at: https://new.siemens.com
(Produkte & Services -> Antriebstechnik -> Umrichter -> Servoantriebssystem SIMATIC MCRO-DRIVE)

Cable

	PDC200	PDC400
Connection cable	LA02	LA02
Brake cable	LPBr2	LPBr2

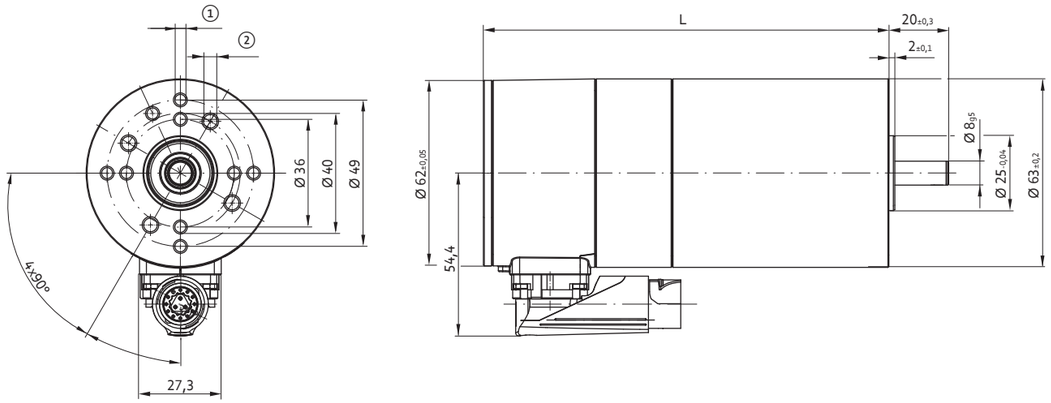
Available from KnorrTec
More at: https://www.knorrtec.de
(Unternehmen -> Kooperation)

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

Technical drawing without brake

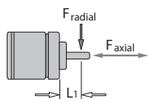
All dimensions in mm

Type	L	ØD
ECI-63.20	135.6 ± 0.4	6_{g5}
ECI-63.40	155.6 ± 0.4	6_{g5}
ECI-63.60	175.6 ± 0.4	10_{g5}



① 8 x for thread-forming screws M4 according to DIN 7500, screw-in depth max. 10

② 4 x for thread-forming screws M5 according to DIN 7500, screw-in depth max. 10

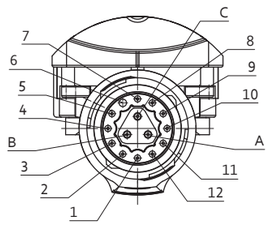


Permissible shaft load

F_{axial}:	150 N	Permissible simultaneous shaft loads at rated speed and service life expectancy L10 (in rated operation) from 20 000 h (at TU max. 40 °C)
F_{radial}:	150 N	
L_1:	10 mm	

Electrical connection without brake

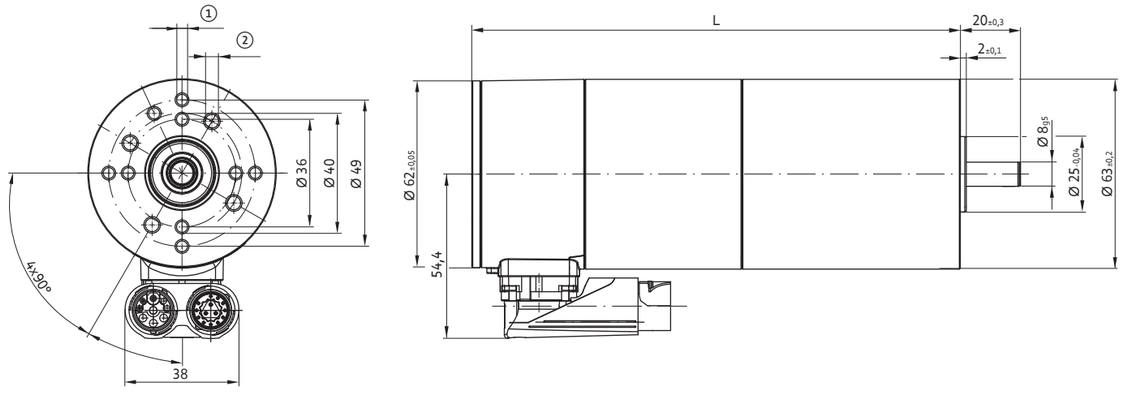
	Pin	Configuration	Function
HALL	1	H A	Hall signal A
	2	H B	Hall signal B
	3	H C	Hall signal C
	4	+12V	Supply voltage
	5	GND	Ground
	6	empty	empty
Encoder	7	A	Encoder channel A
	8	/A	Encoder channel A inverted
	9	B	Encoder channel B
	10	/B	Encoder channel B inverted
	11	+5V	Supply voltage
	12	GND	Ground
Motor	A	U	Winding connector U
	B	V	Winding connector V
	C	W	Winding connector W



Technical drawing without brake

All dimensions in mm

Type	L	ØD
ECI-63.20	162.4 ± 0.4	6_{g5}
ECI-63.40	182.4 ± 0.4	6_{g5}
ECI-63.60	202.4 ± 0.4	10_{g5}



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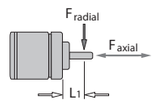
② 4 x for thread-forming screws M5 according to DIN 7500, screw-in depth max. 10

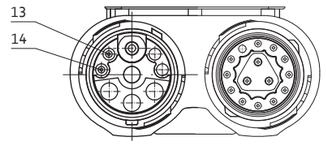


Permissible shaft load

F_{axial}:	150 N	Permissible simultaneous shaft loads at rated speed and service life expectancy L10 (in rated operation) from 20 000 h (at TU max. 40 °C)
F_{radial}:	150 N	
L_1:	10 mm	

Electrical connection without brake

	Pin	Configuration	Function
Brake	13	+24 V	Supply voltage
	14	GND	Ground



Planetary gearhead Performax®Plus 42 for ECI-42.xx

Image of 2-stage gearhead

More at www.ebmpapst.com/eci-motoren

Description

- High power density from compact dimensions
- 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
- Efficient structure due to the use of many finished casting individual parts
- Arbitrary installation position permitted
- Maintenance-free grease lubrication for life

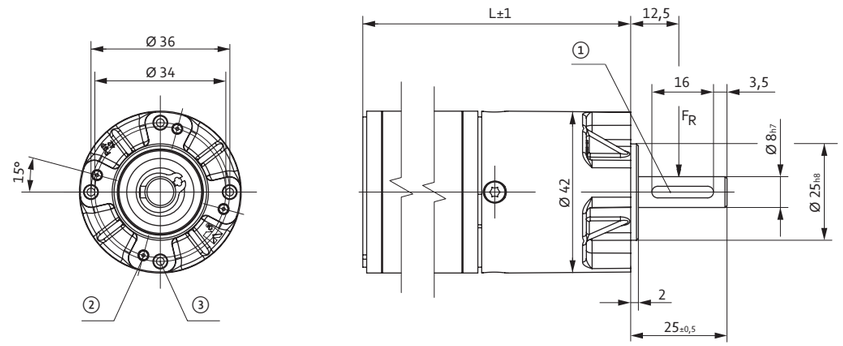
Type		Performax®Plus 42.1		Performax®Plus 42.2	
Reduction ratio		5.00	9.00	30.0	54.0
No. of stages		1	1	2	2
Efficiency		0.90	0.90	0.81	0.81
Max. input speed (n_1)	rpm	6 000	6 000	6 000	6 000
Rated output torque (M_{ab})	Nm	2.00	0.50	4.48	2.60
Short-term torque (M_{max})	Nm	5.0	1.25	11.2	6.50
Gear play	°	0.7 ... 1.2	0.7 ... 1.2	0.7 ... 1.2	0.7 ... 1.2
Permissible ambient temperature range (T_U)	°C	0 ... +40	0 ... +40	0 ... +40	0 ... +40
Operating mode		S1	S1	S1	S1
Protection class		IP 50	IP 50	IP 50	IP 50
Weight	kg	0.22	0.19	0.29	0.29
Shaft load radial / axial	N	250 / 150	250 / 150	250 / 150	250 / 150
Service life	h	5 000	5 000	5 000	5 000

Top-selling types ready for delivery in 4 business days.

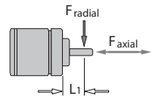
Preliminary data, subject to alterations

Technical drawing

Image of 1-stage gearhead — All dimensions in mm



① Fitted key / DIN 6885 A-3x3x16
② 4 x M3, 8 deep
③ 4 x M4, 8 deep



Permissible shaft load

F_{axial}:	150 N	At rated speed, operating factor CB=1 and a service life expectancy L10 from 5 000 h (at TU max. 40°C in rated operation)
F_{radial}:	250 N	
L_1:	12.5 mm	

Length of the possible motor / gearhead combinations

All dimensions in mm

Motor / gearhead	Voltage	Reduction ratio	Length L 1-stage gearhead	Length L 2-stage gearhead
SGE4220BK1PP42100560	24V	5	161 + 35.3 = 196.3	
SGE4240BK1PP42100560			181 + 35.3 = 216.3	
SGE4220DK1PP42100560	48V		196.3	
SGE4240DK1PP42100560			216.3	
SGE4220BK1PP42100960	24V	9	196.3	
SGE4240BK1PP42100960			216.3	
SGE4220DK1PP42100960	48V		196.3	
SGE4240DK1PP42100960			216.3	
SGE4220BK1PP42203060	24V	30		161 + 54.8 = 215.8
SGE4240BK1PP42203060				181 + 54.8 = 235.8
SGE4220DK1PP42203060	48V			215.8
SGE4240DK1PP42203060				235.8
SGE4220BK1PP42205460	24V	54		215.8
SGE4240BK1PP42205460				235.8
SGE4220DK1PP42205460	48V			215.8
SGE4240DK1PP42205460				235.8

Preliminary data, subject to alterations

Planetary gearhead Performax®Plus 63 for ECI-63.xx

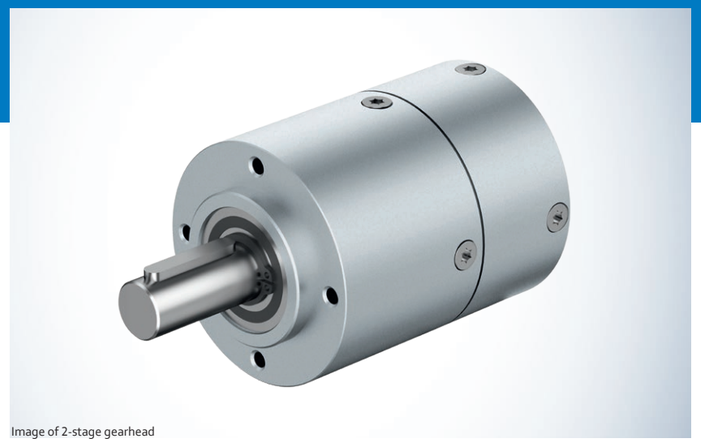


Image of 2-stage gearhead

More at www.ebmpapst.com/eci-motoren

Description

- 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 running 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
- Arbitrary installation position permitted
- Maintenance-free grease lubrication for life

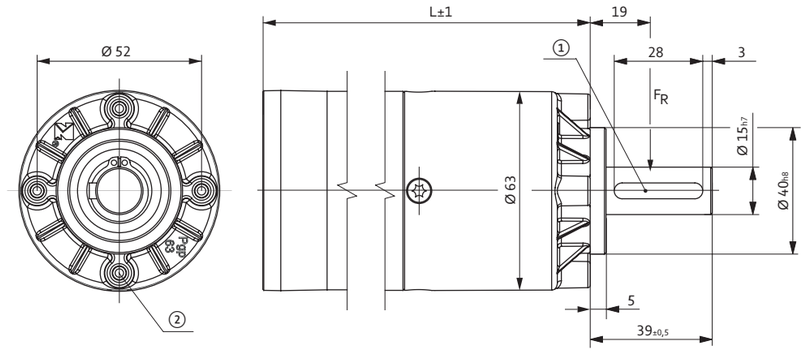
Type		Performax®Plus 63.1		Performax®Plus 63.2	
Reduction ratio		5.00	9.00	30.0	54.0
No. of stages		1	1	2	2
Efficiency		0.90	0.90	0.81	0.81
Max. input speed (n_1)	rpm	6 000	6 000	6 000	6 000
Rated output torque (M_{ab})	Nm	11.9	7.60	64.0	41.0
Short-term torque (M_{max})	Nm	29.8	19.0	160	102.5
Gear play	°	0.7 ... 1.2	0.7 ... 1.2	0.7 ... 1.2	0.7 ... 1.2
Permissible ambient temperature range (T_U)	°C	0 ... +40	0 ... +40	0 ... +40	0 ... +40
Operating mode		S1	S1	S1	S1
Protection class		IP 50	IP 50	IP 50	IP 50
Weight	kg	0.66	0.66	1.20	1.20
Shaft load radial / axial	N	350 / 500	350 / 500	350 / 500	350 / 500
Service life	h	5 000	5 000	5 000	5 000

Top-selling types ready for delivery in 4 business days.

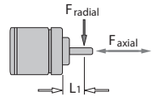
Preliminary data, subject to alterations

Technical drawing

Image of 1-stage gearhead — All dimensions in mm



① Fitted key / DIN 6885 A-5x5x28
② 4 x M5, 10 deep



Permissible shaft load

F_{axial}:	500 N	At rated speed, operating factor CB=1 and a service life expectancy L10 from 5 000 h (at TU max. 40°C in rated operation)
F_{radial}:	350 N	
L_1:	19 mm	

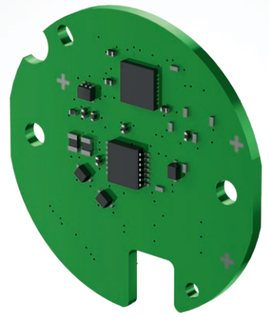
Length of the possible motor / gearhead combinations

All dimensions in mm

Motor / gearhead	Voltage	Reduction ratio	Length L 1-stage gearhead	Length L 2-stage gearhead
SGE6320BK1PP63100560	24V	5	135.6 + 57.8 = 192.8	
SGE6340BK1PP63100560			155.6 + 57.8 = 213.4	
SGE6320DK1PP63100560	48V		192.8	
SGE6340DK1PP63100560			213.4	
SGE6360DK1PP63100560			175.6 + 57.8 = 233.4	
SGE6320BK1PP63100960	24V	9	192.8	
SGE6340BK1PP63100960			213.4	
SGE6320DK1PP63100960	48V		192.8	
SGE6340DK1PP63100960			213.4	
SGE6360DK1PP63100960			233.4	
SGE6320BK1PP63203060	24V	30		135.6 +79.2 = 214.8
SGE6340BK1PP63203060				155.6 + 79.2 = 234.8
SGE6320DK1PP63203060	48V			214.8
SGE6340DK1PP63203060				234.8
SGE6360DK1PP63203060				175.6 + 79.2 = 254.8
SGE6320BK1PP63205460	24V	54		214.8
SGE6340BK1PP63205460				234.8
SGE6320DK1PP63205460	48V			214.8
SGE6340DK1PP63205460				234.8
SGE6360DK1PP63205460				254.8

Preliminary data, subject to alterations

Encoder



Description

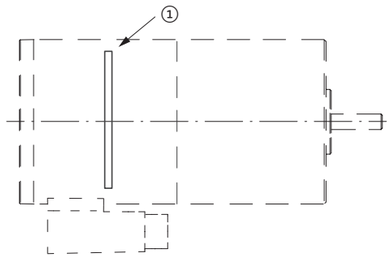
- Magnetic incremental encoder
- Motor data saved in the HSP motor library (TIA Portal; Siemens)
- Automatic component identification during assembly and start-up
- System diagnostics
- Quick and easy commissioning
- Recording and evaluation of the motor temperature (temperature model)
- Patented data transfer via available signalling lines

Type	iQ-Encoder (magnetic incremental encoder)
Output signals	2 Square wave signals (A,B), 2 Square wave signals inverse (nA, nB) Output differential or single ended TTL compatible, phase-shifted
Number of pulses per rotation	100 (default), other resolutions available on request
Cut-off frequency	The maximum frequency is 5 KHz
Supply voltage	+ 5V (+/- 10%) (provided by SIEMENS PDCxxx=)
Power consumption	typ. 40 mA max. 100 mA
permissible output current	max. 20 mA
permissible deviation of pulse width from electrical 180°	+/- 90°
Phase shift between channel A and B	typ. 90° (+/- 30°)
Output voltage (low level)	typ. 0.25 V, max 0.8 V (I=20 mA at 5 V)
Output voltage (high level)	typ. 4.25 V, max 3.8 V (I=-20 mA at 5 V)
permissible ambient temperature range (T_U)	0 ... +40
Reverse polarity protection	Takes place via short circuit of the supply voltage per protection diode, max. 200 mA continuous current permissible

Preliminary data, subject to alterations

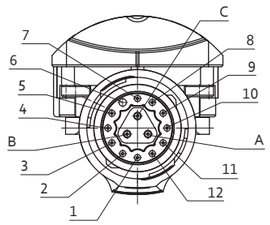
Technical drawing

All dimensions in mm



① iQ-Encoder

Electrical connection



	Pin	Configuration	Function
Encoder	7	A	Encoder channel A
	8	/A	Encoder channel A inverted
	9	B	Encoder channel B
	10	/B	Encoder channel B inverted
	11	+5V	Supply voltage
	12	GND	Ground

Brake

Description

- Spring-applied braking
- Single-disk brakes with 2 friction contact surfaces
- Braking torque effective in powerless state
- Braking force is eliminated by electromagnetic force
- Holding brake with emergency stop function
- Currentless-operated brake with high power density
- Reduced inertia for optimum dynamics

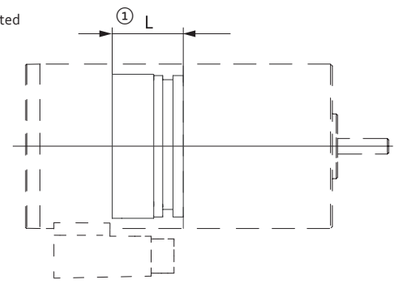
Type		integrated RFK 0.3 Nm ECI-42 Brake module ECI 42-K4	integrated RFK 1.0 Nm ECI-63 Brake module ECI 63-K4
Nominal voltage	V DC	24	24
Nominal power	W	5.0	9.0
Braking torque	Nm	0.12	1.00
Closing time, actuation time	ms	25.0	20.0
Opening time, fall time	ms	85.0	60.0

Preliminary data, subject to alterations

Technical drawing

All dimensions in mm

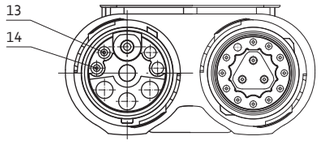
Brake integrated



① The drive enclosure is made longer by installation of the brake module

Type	L
ECI-42.20	113.8 ± 0.4
ECI-42.40	133.8 ± 0.4
ECI-63.20	155.4 ± 0.4
ECI-63.40	175.4 ± 0.4
ECI-63.60	195.4 ± 0.4

Electrical connection



	Pin	Configuration	Function
Brake	13	+24 V	Supply voltage
	14	GND	Ground

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