

Drive Concept for SIMATIC MICRO-DRIVE

Product Catalog 2020-11

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.

The logo for ebm-papst, featuring the company name in a bold, blue, sans-serif font.The tagline 'the engineer's choice' in a white, sans-serif font, set against a blue rectangular background.

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 29 production locations worldwide (including facilities in Germany, China and the USA), together with 48 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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Information

Drive Concept for
SIMATIC MICRO-DRIVE

Accessories

Agents



Product Matrix

motors for SIMATIC MICRO-DRIVE

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

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

Product Matrix motors for SIMATIC MICRO-DRIVE												
Brushless internal rotor motors ECI		ECI-42.20-K1 B00	ECI-42.20-K1 D00	ECI-42.40-K1 B00	ECI-42.40-K1 D00	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	ECI-80.40-K1 D00	ECI-80.60-K1 D00
U _N	VDC	24	48	24	48	24	48	24	48	48	48	48
M _N	mNm	110	110	220	220	360	360	670	670	880	1 200	1 800
P	W	46	46	92	92	150	150	280	280	370	503	754
n _N	rpm	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000	4 000
I _N	A	2.5	1.3	5.1	2.6	8.5	4.5	14	6.5	8.5	12.0	18.5
d	mm	42	42	42	42	63	63	63	63	63	80	80
Motor feedback												
K1 (Hall sensor system)		X	X	X	X	X	X	X	X	X	X	X
Siemens iQ-Encoder		X	X	X	X	X	X	X	X	X	X	X
Brakes												
Holding brake (quiescent current)		X	X	X	X	X	X	X	X	X	X	X
Planetary gearheads												
PerfomaxPlus 42.1		X	X	X	X							
PerfomaxPlus 42.2		X	X	X	X							
PerfomaxPlus 63.1						X	X	X	X	X		
PerfomaxPlus 63.2						X	X	X	X	X		
PE080											X	X
Drive controller*												
F-TM ServoDrive		X	X	X	X	X	X	X	X			
PDC 100 / 100F		X	X	X	X	X	X	X	X			
PDC 600 / 600F		X	X	X	X	X	X	X	X	X	X	
PDC 1000V1						X	X	X	X	X	X	X

* Note for possible combinations: For specific drive controller selection, please use TIA selection tool. new.siemens.com/global/en/products/automation/topic-areas/tia/tia-selection-tool.html

System Overview

SIMATIC MICRO-DRIVE

System Overview SIMATIC MICRO-DRIVE

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

Drive Dimensioning
in the TIA-Selection-Tool



Gear motor
Including Encoder & Gearhead



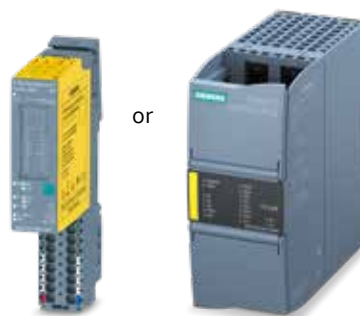
Cable
One cable to motor (Product Partner)



Drive controller
(for SIMATIC MICRO-DRIVE)

F-TM ServoDrive

PDC



or



ET 200SP



STO hardwired



ET 200SP



S7-1200

SIMATIC S7
(S7-1200, S7-1500)



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



commissioning
in the TIA Selection Tool

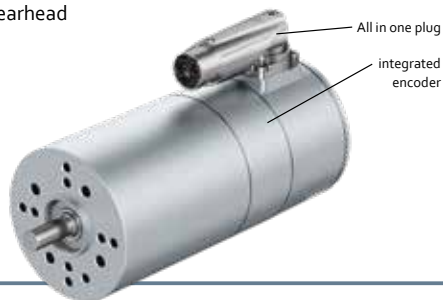


Features / Benefits

ECI-Motors for SIMATIC MICRO-DRIVE

ECI-Motor with iQ-Encoder technology

Feature / function	Benefit
<ul style="list-style-type: none"> ■ 3-phase, electronically commutated internal rotor motor with heavy-duty magnet ■ Rotor position monitoring via hall sensors ■ Winding insulation - insulation class E ■ Protection class from IP 54 to EN 60 034-5 ■ Different motor types for combination with planetary gearhead ■ Brake optional 	<ul style="list-style-type: none"> + High power density in the smallest installation space + High overload capacity + Long service life + Excellent smooth running + Industrial-grade all in one plug (rotatable) + 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 commissioning + Motor temperature detection and evaluation



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

Feature / function	Benefit
<p>Efficient Engineering</p> <ul style="list-style-type: none"> ■ One single uniform engineering platform ■ Common functionalities (trace, library, etc.) 	<ul style="list-style-type: none"> + Shorter training time + Reduced engineering effort + Automatic consistency within the project
<p>Integrated Drive Control</p> <ul style="list-style-type: none"> ■ SIMATIC Motion Control technology objects ■ Drive libraries 	<ul style="list-style-type: none"> + Drives can be easily connected to SIMATIC PLCs + Motion control applications quickly and simply realized
<p>Safety Integrated</p> <ul style="list-style-type: none"> ■ Efficient safety commissioning ■ Standard components with integrated safety technology ■ Integrated communication function block for SINAMICS Safety 	<ul style="list-style-type: none"> + Installation and commissioning even faster + Less hardware / No additional components + Greater flexibility for extensions and adaptations
<p>PROFINET</p> <ul style="list-style-type: none"> ■ PROFIdrive ■ PROFI-safe 	<ul style="list-style-type: none"> + Standardized communication based on standard Ethernet + Easy Remote-Access
<p>Integrated System Diagnostics</p>	<ul style="list-style-type: none"> + System messages are available without any engineering effort (TIA Portal, PLC, Web-Server & HMI)

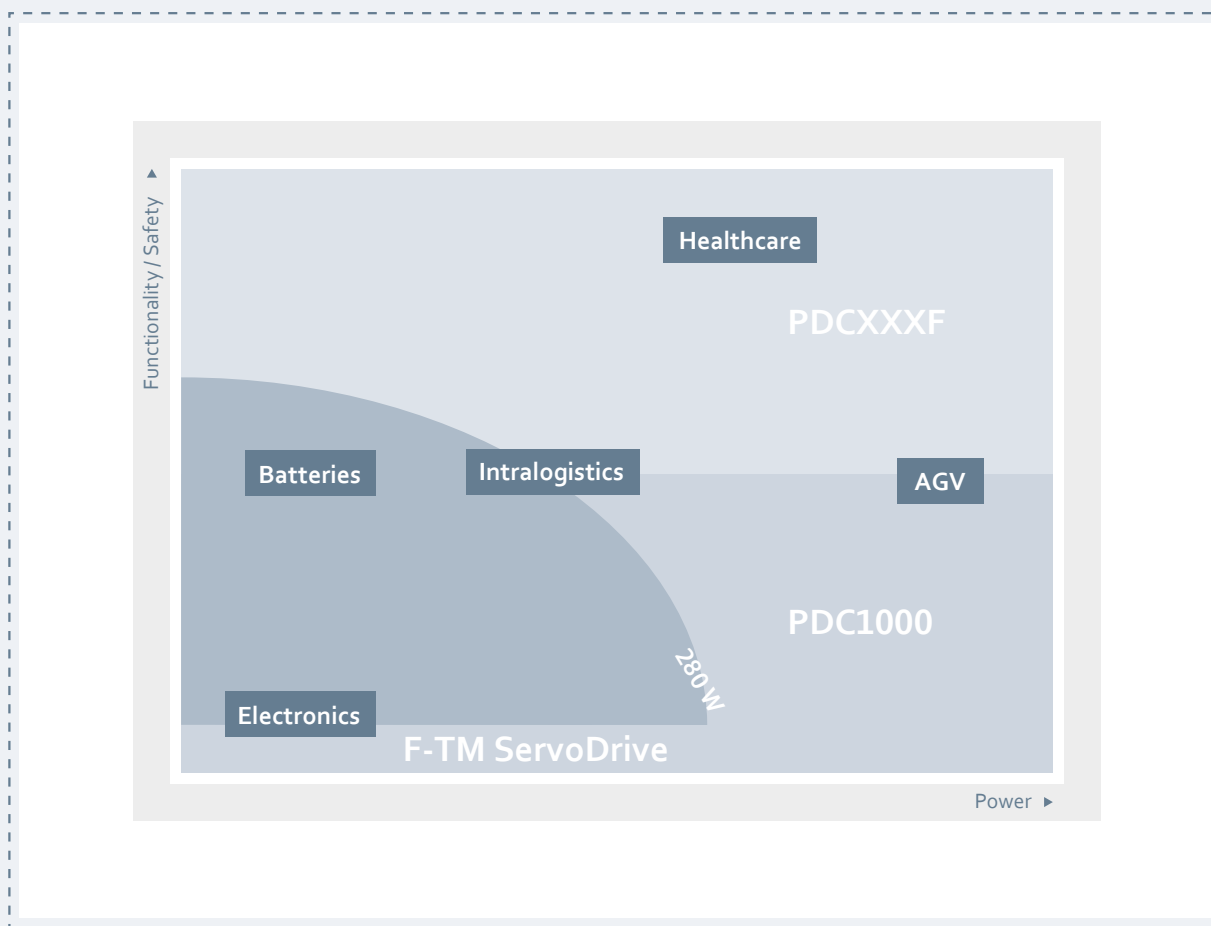
Comparison

F-TM ServoDrive and PDC

Comparison F-TM ServoDrive and PDC

F-TM ServoDrive + BaseUnit with fixed wiring

developed for smaller power outputs in industry; main focus: compact design + simple safety requirements.



PDC Motor/encoder cable + supply + I/Os with connectors

is a PROFINET participant; main focus: higher performance + extended safety functionality (e.g. SLS and SLM).

Features / Benefits

SIMATIC MICRO-DRIVE

F-TM ServoDrive



Feature / function

- Flexibility & combinability of system components
- PROFINET
- Fast current control cycle 62.5 μs
- Safety Integrated: STO
- TIA Portal Integration
- One cable to motor
- Fixed wiring
- 24-48 VDC: 280 W
- Battery supply incl. energy recovery
- UL certification

Benefit

- + Universally applicable
- + Increased performance
- + High power density
- + Fulfills easy demands for safety
- + Simplified commissioning
- + User friendliness
- + Saves time on installation and commissioning
- + Ready for various markets
- + Worldwide use

PDC



Feature / function

- Flexibility & combinability of system components
- PROFINET IRT (1 ms)
- Safety Integrated: STO, SS1, SLT*, SLS, SSM via PROFIsafe
- TIA Portal Integration
- „One Button Tuning“
- One cable to motor
- Integrated C1 EMC-Filter
- 24-48 V: 0.05-1 kW
- Battery supply incl. energy recovery
- UL & Marine certification

Benefit

- + Universally applicable
- + Increased performance
- + Fulfills high demands for safety
- + Easy engineering
- + Saves time on installation
- + Ready for various markets

* only with PDC 100F

Servomotor ECI-42.XX-K1



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

More at www.ebmpapst.com/eci-motoren

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 (UN)	V DC	24	48	24	48
Nominal speed (nN) ²⁾	rpm	4 000	4 000	4 000	4 000
Nominal torque (MN) ²⁾	mNm	110	110	220	220
Nominal current (IN) ²⁾	A	2.50	1.30	5.10	2.60
Nominal output power (PN) 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)	min ⁻¹	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	min ⁻¹	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 ⁴⁾		SSE4220BK1xxxxxxxxx60	SSE4220DK1xxxxxxxxx60	SSE4240BK1xxxxxxxxx60	SSE4240DK1xxxxxxxxx60

¹⁾ The degree of protection refers to the installed condition with sealing on the flange side

²⁾ At T_U max. 40 °C

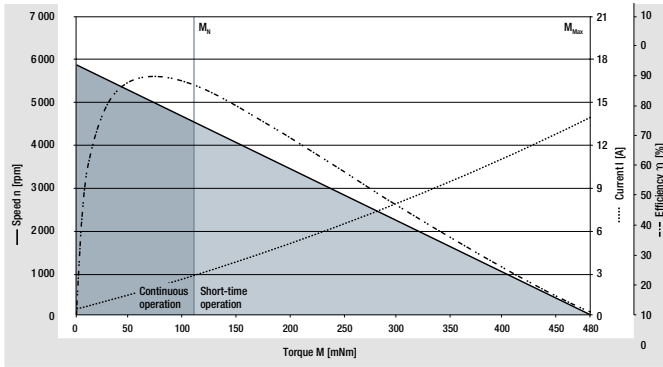
³⁾ Permissible maximum current duration: max. 3 seconds – can be repeated after complete cool down

⁴⁾ When ordering a motor with an integrated brake, please note the information about the part number on p. 29

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

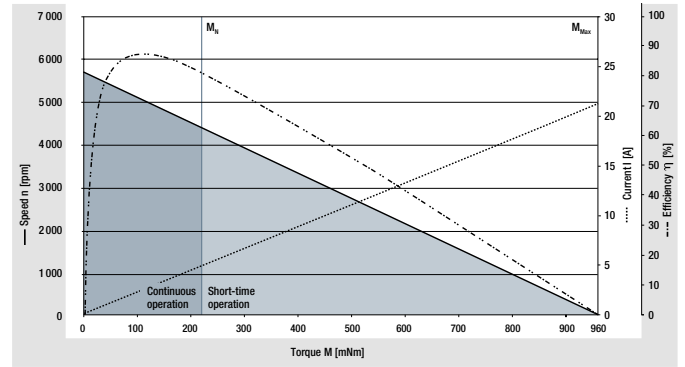
Preliminary data, subject to alterations

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 [page 29](#)



Basic motor



Planetary gearheads

Performax®Plus 42 [page 22](#)
More gearhead types on request



Encoder system

magnetic incremental iQ-Encoder [page 28](#)



Drive controller

F-TM ServoDrive [Description page 9](#)

Available from Siemens
More at: new.siemens.com
(Products & Services -> Drive technology -> Converter -> Servo drive system SIMATIC MICRO-DRIVE)



Drive controller

PDC 100 / 100F [Description Seite 9](#)

Available from Siemens
More at: new.siemens.com
(Products & Services -> Drive technology -> Converter -> Servo drive system SIMATIC MICRO-DRIVE)



Cable

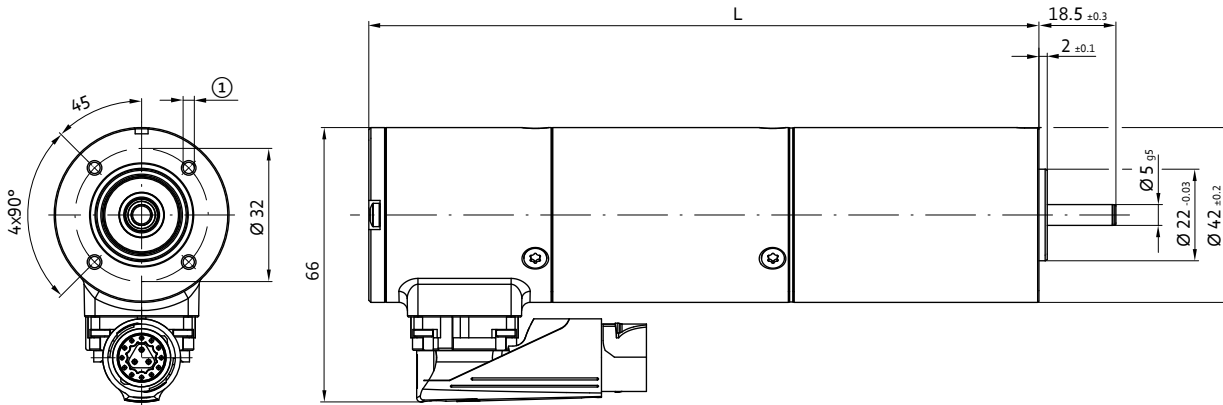
	F-TM ServoDrive	PDC100
Connection cable	CSD_LAiO2	LAiO2
Brake cable	LPBr2	LPBr2

Available from KnorrTec, www.knorrtec.de
and/or from Harting, www.harting.com

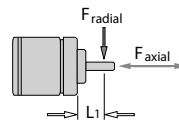


For motor-gearbox combinations, depending on the choice of the single components, the maximum allowable torque (gearbox) can be exceeded or respectively not reached.

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



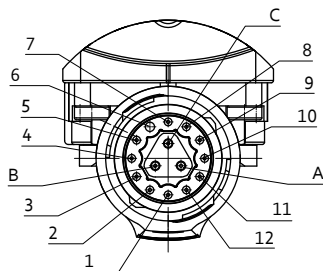
① 4 x for thread-forming screws M3 according to DIN 7500, screw-in depth max. 9.5



Permissible shaft load

F_{axial} :	20 N	Permissible simultaneous shaft loads at rated speed and service life expectancy L_{10} (in rated operation) from 20 000 h (at T_U max. 40 °C)
F_{radial} :	100 N	
L_1 :	10 mm	

Electrical connection without brake

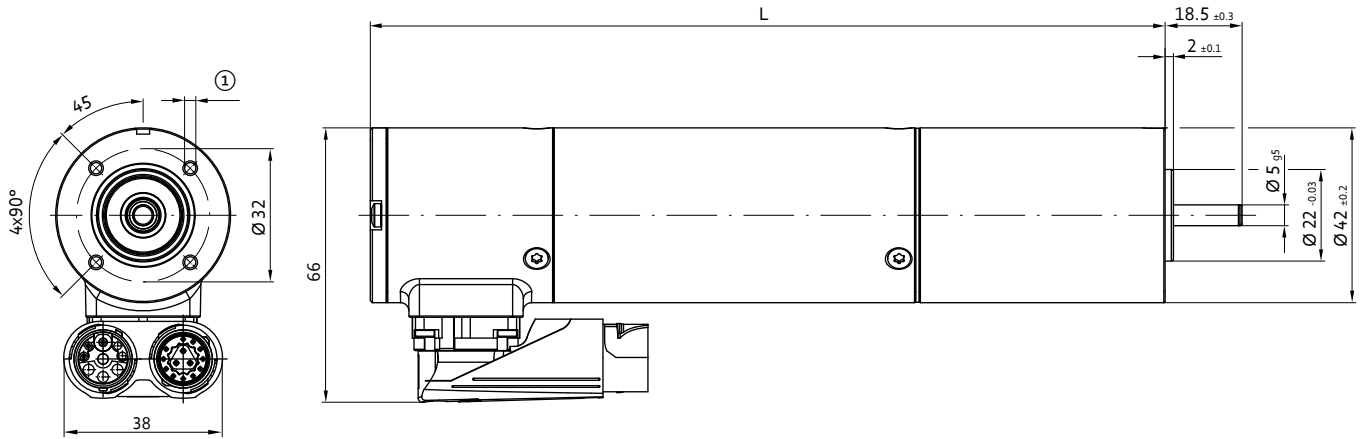


	Pin	Configuration	Function
HALL	1	HA	Hall signal A
	2	HB	Hall signal B
	3	HC	Hall signal C
	4	+12V	Supply voltage
	5	GND	Ground
	6	empty	empty
Encoder	7	A	Encoder channel A
	8	/A	Encoder channel A inverted
	9	B	Encoder channel B
	10	/B	Encoder channel B inverted
	11	+5V	Supply voltage
	12	GND	Ground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

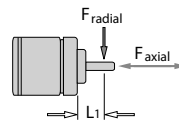
Technical drawing with integrated brake

All dimensions in mm

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



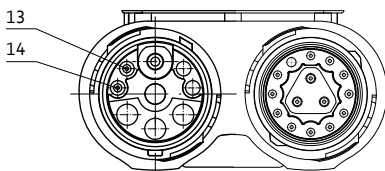
① 4 x for thread-forming screws M3 according to DIN 7500, screw-in depth max. 9.5



Permissible shaft load

F_{axial} :	20 N	Permissible simultaneous shaft loads at rated speed and service life expectancy L_{10} (in rated operation) from 20 000 h (at T_U max. 40 °C)
F_{radial} :	100 N	
L_1 :	10 mm	

Electrical connection with integrated brake



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

Servomotor ECI-63.XX-K1



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

More at

www.ebmpapst.com/eci-motoren

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)	kgm ² 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	1.13	0.16	0.65	0.39
Connection inductance (L_d)	mH	0.21	0.70	0.10	0.39	0.23
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 ⁴⁾		SSE6320BK1xxxxxxxxx60	SSE6320DK1xxxxxxxxx60	SSE6340BK1xxxxxxxxx60	SSE6340DK1xxxxxxxxx60	SSE6360DK1xxxxxxxxx60

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

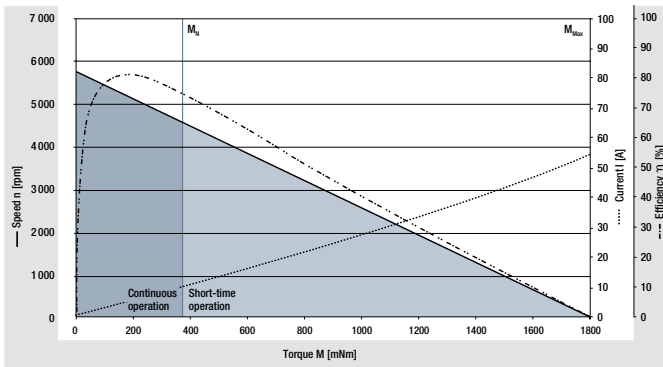
³⁾ Permissible maximum current duration: max. 3 seconds – can be repeated after complete cool down

⁴⁾ When ordering a motor with an integrated brake, please note the information about the part number on p. 29

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

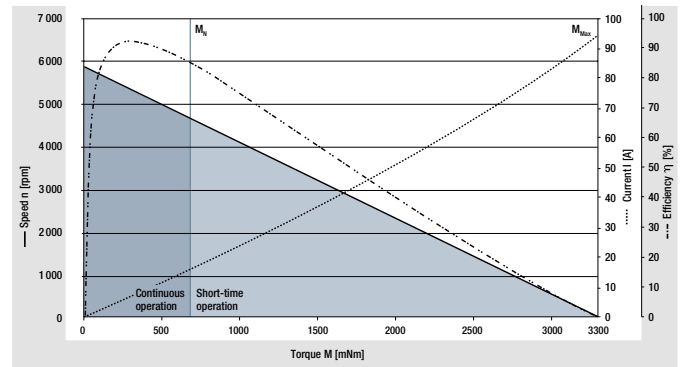
Preliminary data, subject to alterations

A ECI-63.20-K1, 24 V (at 25 °C)



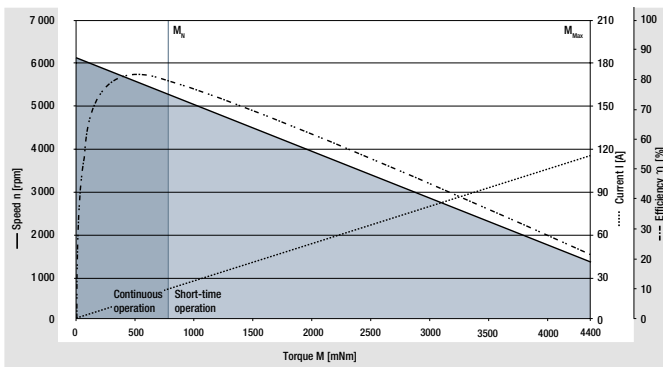
Characteristic curve 48 V on request

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 [page 29](#)



Basic motor



Planetary gearheads

Performax®Plus 63 [page 24](#)
More gearhead types on request



Encoder system

magnetic incremental iQ-Encoder [page 28](#)



Drive controller (for ECI-63.20, ECI-63.40)

F-TM ServoDrive [Description Seite 9](#)

Available from Siemens
More at: new.siemens.com
(Products & Services -> Drive technology -> Converter -> Servo drive system SIMATIC MICRO-DRIVE)



Drive controller

PDC600, PDC600F, PDC1000 V1 [Description Seite 9](#)

Available from Siemens
More at: new.siemens.com
(Products & Services -> Drive technology -> Converter -> Servo drive system SIMATIC MICRO-DRIVE)

Cable

	F-TM ServoDrive	PDC600/600F/1000 V1
Connection cable	CSD_LAiO2	LAiO20
Brake cable	LPBr2	LPBr2



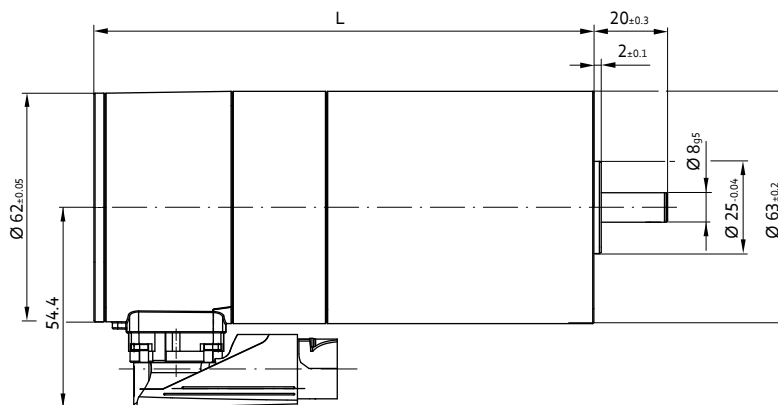
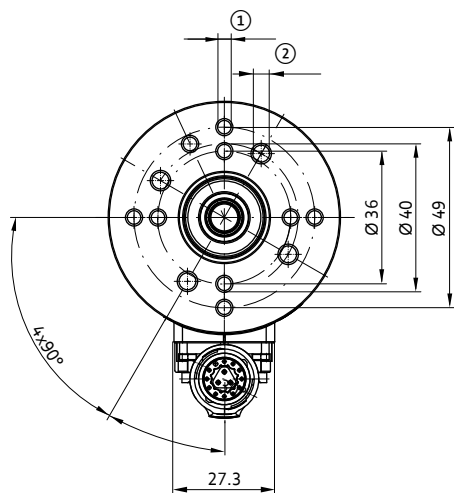
Available from KnorrTec, www.knorrtec.de
and/or from Fa. Harting, www.harting.com

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

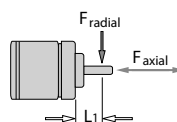
Technical drawing without brake

All dimensions in mm

Type	L
ECI-63.20	135.6 ± 0.4
ECI-63.40	155.6 ± 0.4
ECI-63.60	175.6 ± 0.4



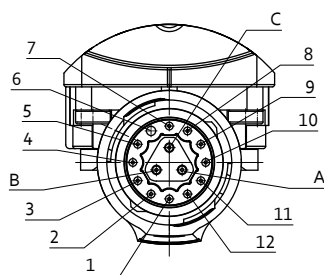
- ① 8 x for thread-forming screws M4 according to DIN 7500, screw-in depth max. 10
- ② 4 x for thread-forming screws M5 according to DIN 7500, screw-in depth max. 10



Permissible shaft load

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

Electrical connection without brake

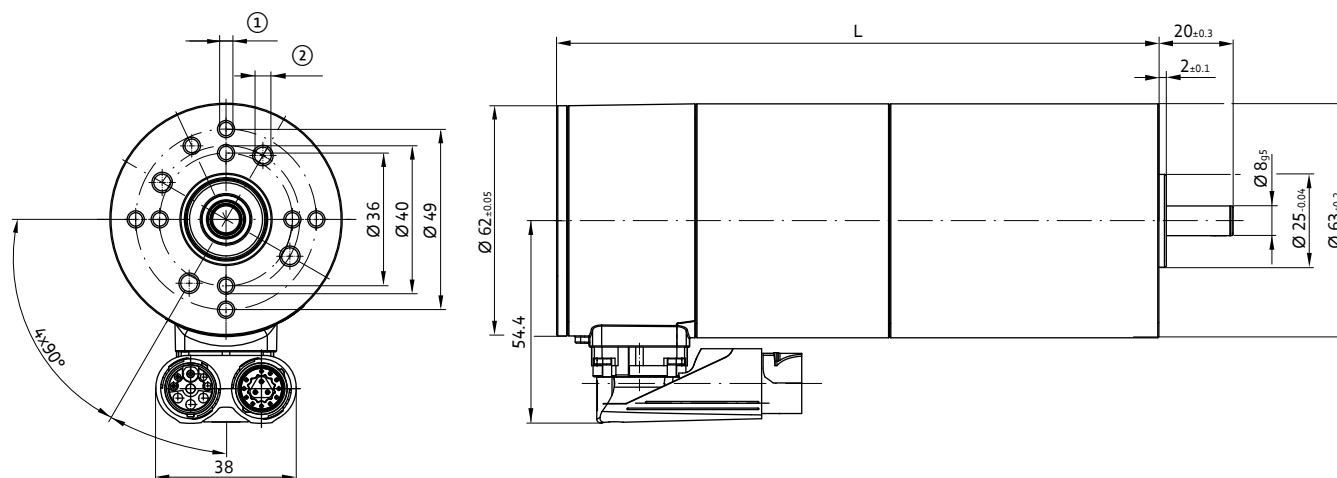


	Pin	Configuration	Function
HALL	1	HA	Hall signal A
	2	HB	Hall signal B
	3	HC	Hall signal C
	4	+12V	Supply voltage
	5	GND	Ground
Encoder	6	empty	empty
	7	A	Encoder channel A
	8	/A	Encoder channel A inverted
	9	B	Encoder channel B
	10	/B	Encoder channel B inverted
	11	+5V	Supply voltage
Motor	12	GND	Ground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

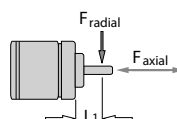
Technical drawing with integrated brake

All dimensions in mm

Type	L
ECI-63.20	162.4 ± 0.4
ECI-63.40	182.4 ± 0.4
ECI-63.60	202.4 ± 0.4



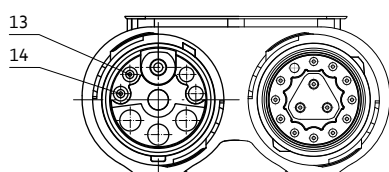
- ① 8 x for thread-forming screws M4 according to DIN 7500, screw-in depth max. 10
- ② 4 x for thread-forming screws M5 according to DIN 7500, screw-in depth max. 10



Permissible shaft load

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

Electrical connection with integrated brake



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

Servomotor ECI-80.XX-K1



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
- Protection class IP 40/IP 54 and connection by connector system
- Basic motor with electronic module K1 for operation with external control electronics
- Mechanical design and interfaces designed for modular flexibility

More at

www.ebmpapst.com/eci-motoren

Type		ECI-80.40-K1 -D00	ECI-80.60-K1 -D00
Characteristic curve		A	B
Nominal voltage (U_N)	V DC	48	48
Nominal speed (n_N) ²⁾	rpm	4 000	4 000
Nominal torque (M_N) ²⁾	mNm	1 200	1 800
Nominal current (I_N) ²⁾	A	12.0	18.5
Nominal output power (P_N) ²⁾	W	503	754
Starting torque (M_{max})	mNm	5 000	5 600
Permissible peak current (I_{max}) ³⁾	A	100	100
Speed at no-load operation (n_l)	rpm	4 850	6 100
No-load current (I_l)	A	0.90	1.00
Recommended speed control range	rpm	0 ... 4 000	0 ... 4 000
Rotor moment of inertia (J_R)	kgm ² x10 ⁻⁶	104	155
Motor constant (K_E)	mVs/rad	96.0	72.2
Connection resistance (R_V)	Ω	0.10	0.04
Connection inductance (L_q)	mH	554	201
Connection inductance (L_d)	mH	271	97
Overload protection	To be implemented via the control electronics		
Permissible ambient temperature range (T_U)	°C	-30 ... +40	-30 ... +40
Part number ⁴⁾		SSE8040DK1xxxxxxxxx60	SSE8060DK1xxxxxxxxx60

¹⁾ The degree of protection refers to the installed condition with sealing on the flange side

²⁾ At T_U max. 40 °C

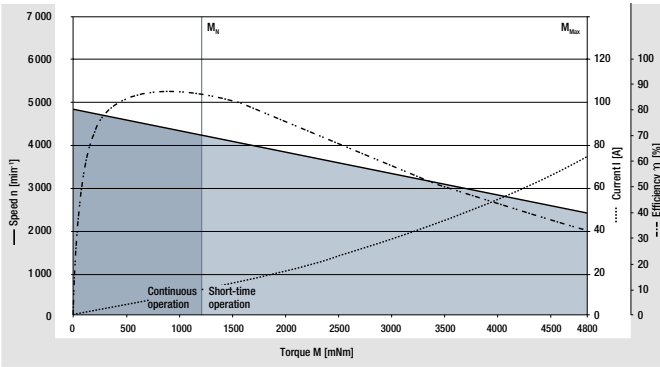
³⁾ Permissible maximum current duration: max. 3 seconds – can be repeated after complete cool down

⁴⁾ When ordering a motor with an integrated brake, please note the information about the part number on p. 29

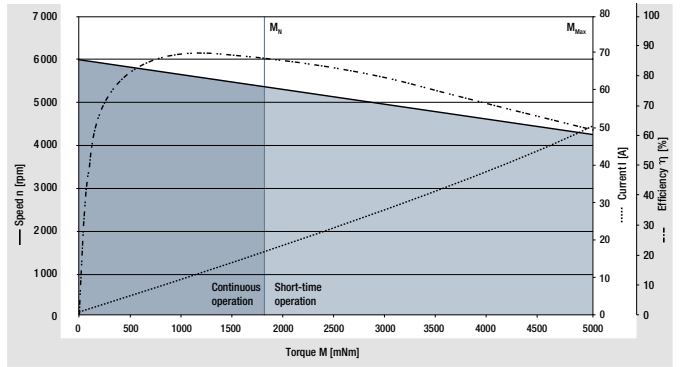
Top-selling types ready for delivery in 4 business days.

Preliminary data, subject to alterations

A ECI-80.40-K1, 48 V (at 25 °C)



B ECI-80.60-K1, 48 V (at 25 °C)



Modular construction kit

Brake system

Spring-applied brake RFK 2.0 Nm [page 29](#)



Basic motor



Planetary gearheads

PE080 [page 26](#)
More gearhead types on request



Encoder system

magnetic incremental iQ-Encoder [page 28](#)



Drive controller

PDC 600 / 600F / 1000 V1 [Description Seite 9](#)

Available from Siemens
More at: new.siemens.com
(Products & Services -> Drive technology -> Converter -> Servo drive system SIMATIC MICRO-DRIVE)



Cable

PDC600 / 600F / 1000 V1

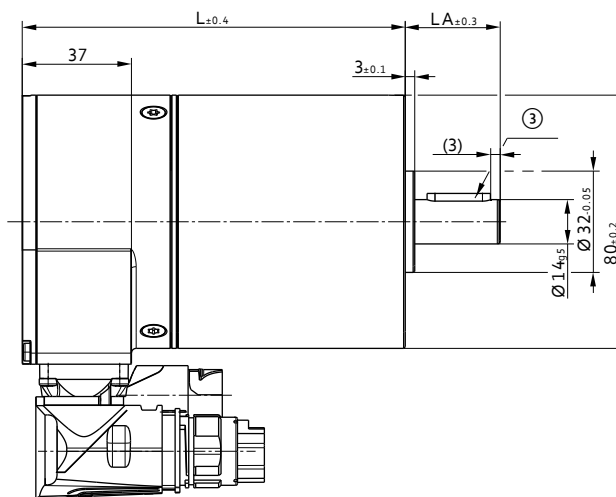
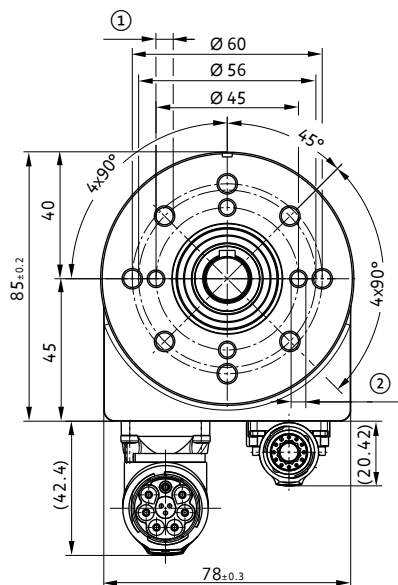
Connection cable motor	LPMo3
Connection cable encoder	LPEn2
Connection cable brakes	LPBr2

Available from KnorrTec, www.knorrtec.de
and/or from Harting, www.harting.com

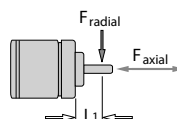


For motor-gearbox combinations, depending on the choice of the single components, the maximum allowable torque (gearbox) can be exceeded or respectively not reached.

Typ	L
ECI-80.40	141 ± 0.6
ECI-80.60	161 ± 0.6



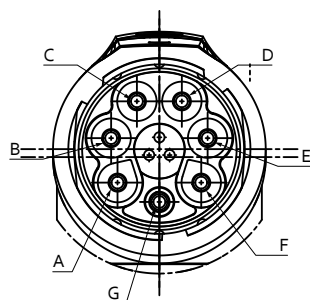
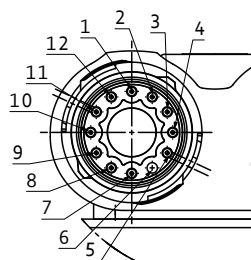
- ① 8 x for thread-forming screws M6 according to DIN 7500, screw-in depth max. 13
- ② 4 x for thread-forming screws M5 according to DIN 7500, screw-in depth max. 10
- ③ Fitted key A5x5x20 DIN 6885



Permissible shaft load

F_{axial} :	70 N	Permissible simultaneous shaft loads at rated speed and service life expectancy L_{10} (in rated operation) from 20 000 h (at T_U max. 40 °C)
F_{radial} :	330 N	
L_1 :	15 mm	

Electrical connection without brake

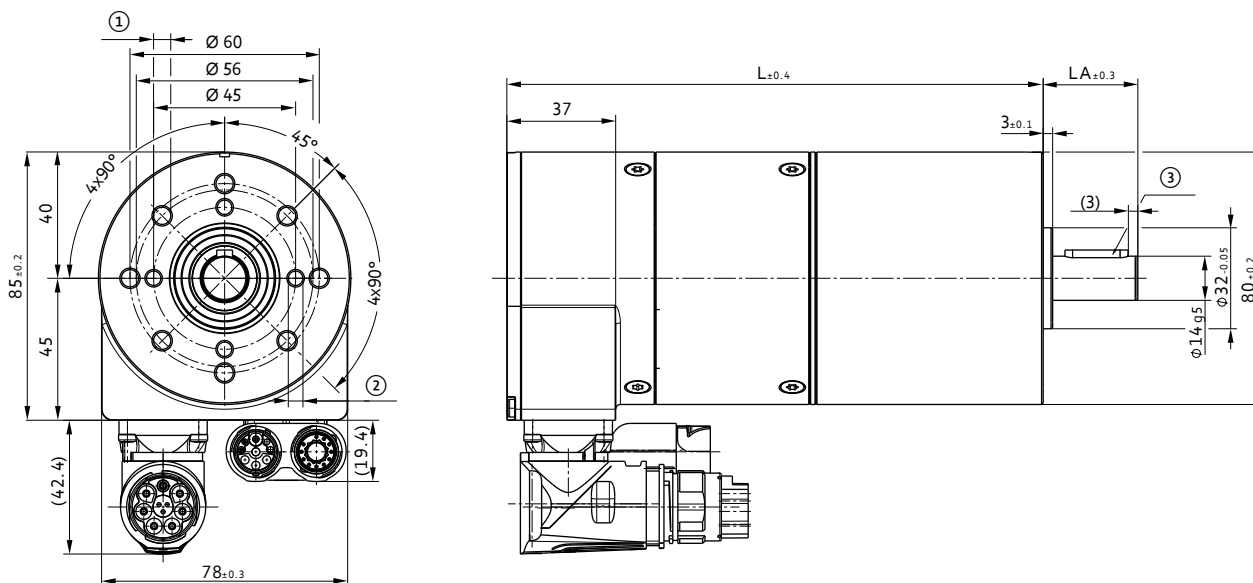


	Pin	Anschluss	Kennung
HALL	1	HA	Hall signal A
	2	HB	Hall signal B
	3	HC	Hall signal C
	4	+12V	Supply voltage
	5	GND	Ground
	6	empty	empty
Encoder	7	A	Encoder channel A
	8	nA	Encoder channel A inverted
	9	B	Encoder channel B
	10	nB	Encoder channel B inverted
	11	+5V	Supply voltage
	12	GND	Ground
Motor	A	W	Winding connector W
	B		not assembled
	C	V	Winding connector V
	D		not assembled
	E	U	Winding connector U
	F		not assembled
	G		grounding

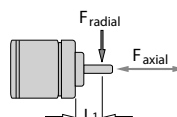
Technical drawing with integrated brake

All dimensions in mm

Typ	L
ECI-80.40	195 ± 0.6
ECI-80.60	215 ± 0.6



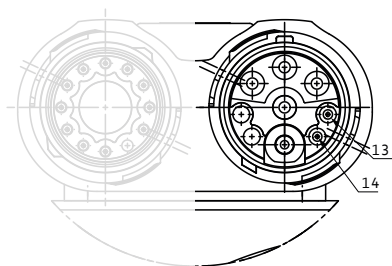
- ① 8 x for thread-forming screws M6 according to DIN 7500, screw-in depth max. 13
- ② 4 x for thread-forming screws M5 according to DIN 7500, screw-in depth max. 13
- ③ Fitted key A5x5x20 DIN 6885



Permissible shaft load

F_{axial} :	70 N	Permissible simultaneous shaft loads at rated speed and service life expectancy L_{10} (in rated operation) from 20 000 h (at T_U max. 40 °C)
F_{radial} :	330 N	
L_1 :	15 mm	

Electrical connection with integrated 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

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

More at www.ebmpapst.com/eci-motoren

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
Rated output torque (M_{ab})	Nm	2.00	1.12	4.48
Short-term torque (M_{max})	Nm	5.00	2.80	11.2
Gear play	°	0.7 ... 1.2	0.7 ... 1.2	0.7 ... 1.2
Permissible ambient temperature range (T_U)	°C	-20 ... +80	-20 ... +80	-20 ... +80
Operating mode		S1	S1	S1
Protection class		IP 50	IP 50	IP 50
Weight	kg	0.22	0.22	0.33
Shaft load radial / axial	N	250 / 150	250 / 150	250 / 150
Service life	h	5 000	5 000	5 000
Length	mm	39.3	39.3	54.8

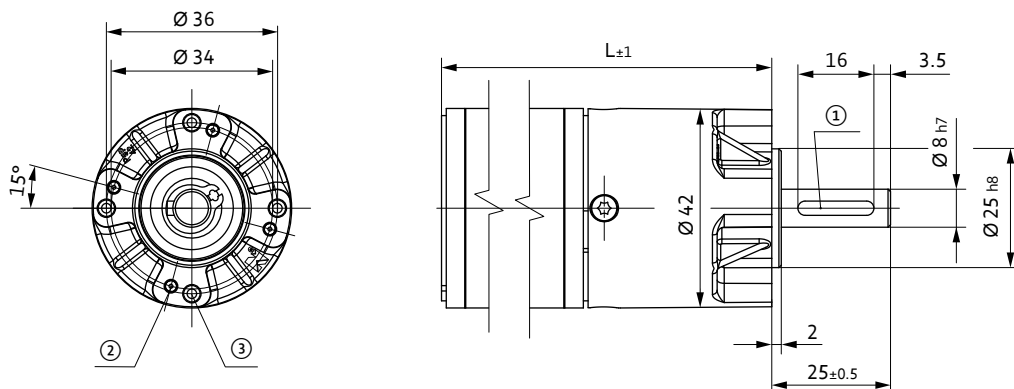
Top-selling types ready for delivery in 4 business days.

Subject to alterations

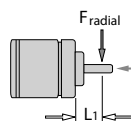
Technical drawing

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
 F_{radial} : 250 N
 L_1 : 12.5 mm

At rated speed, operating factor $C_B=1$ and a service life expectancy L_{10} from 5 000 h (at T_U max. 40°C in rated operation)

Length of the possible motor / gearhead combinations

All dimensions in mm

Motor / gearhead	Voltage	Reduction ratio	Length L	
			1-stage gearhead	2-stage gearhead
SGE4220BK1PP42100560	24V	5	161 + 39.3 = 200.3	
SGE4240BK1PP42100560			181 + 39.3 = 220.3	
SGE4220DK1PP42100560	48V	5	200.3	
SGE4240DK1PP42100560			220.3	
SGE4220BK1PP42100960	24V	9	200.3	
SGE4240BK1PP42100960			220.3	
SGE4220DK1PP42100960	48V	9	200.3	
SGE4240DK1PP42100960			220.3	
SGE4220BK1PP42203060	24V	30	161 + 54.8 = 215.8	
SGE4240BK1PP42203060			181 + 54.8 = 235.8	
SGE4220DK1PP42203060	48V	30	215.8	
SGE4240DK1PP42203060			235.8	
SGE4220BK1PP42205460	24V	54	215.8	
SGE4240BK1PP42205460			235.8	
SGE4220DK1PP42205460	48V	54	215.8	
SGE4240DK1PP42205460			235.8	

Subject to alterations

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



Image of 2-stage gearhead

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

More at www.ebmpapst.com/eci-motoren

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
Rated output torque (M_{ab})	Nm	11.9	7.60	64.0
Short-term torque (M_{max})	Nm	29.8	19.0	160
Gear play	°	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
Operating mode		S1	S1	S1
Protection class		IP 50	IP 50	IP 50
Weight	kg	0.66	0.66	1.20
Shaft load radial / axial	N	350 / 500	350 / 500	350 / 500
Service life	h	5 000	5 000	5 000
Length	mm	57.7	57.7	79.1

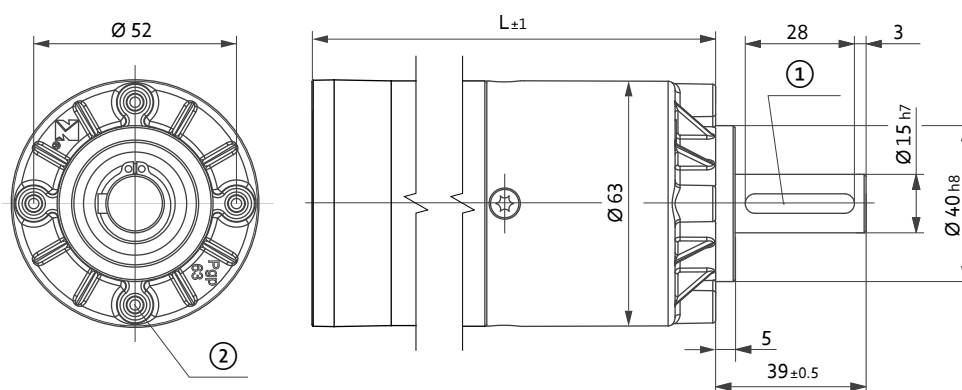
Top-selling types ready for delivery in 4 business days.

Subject to alterations

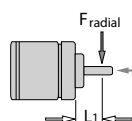
Technical drawing

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 $C_B=1$ and a service life expectancy L_{10} from 5 000 h (at T_U 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	2-stage gearhead
SGE6320BK1PP63100560	24V	5	135.6 + 57.7 = 193.3	
SGE6340BK1PP63100560			155.6 + 57.7 = 213.3	
SGE6320DK1PP63100560			193.3	
SGE6340DK1PP63100560	48V	5	213.3	
SGE6360DK1PP63100560			175.6 + 57.7 = 233.3	
SGE6320BK1PP63100960			193.3	
SGE6340BK1PP63100960	24V	9	213.3	
SGE6320DK1PP63100960			193.3	
SGE6340DK1PP63100960			213.3	
SGE6360DK1PP63100960	48V	9	233.3	
SGE6320BK1PP63203060			135.6 + 79.1 = 214.7	
SGE6340BK1PP63203060			155.6 + 79.1 = 234.7	
SGE6320DK1PP63203060	24V	30	214.7	
SGE6340DK1PP63203060			234.7	
SGE6360DK1PP63203060			175.6 + 79.1 = 254.7	
SGE6320BK1PP63205460	24V	54	214.7	
SGE6340BK1PP63205460			234.7	
SGE6320DK1PP63205460			214.7	
SGE6340DK1PP63205460	48V	54	234.7	
SGE6360DK1PP63205460			254.7	

Subject to alterations

Planetary gearhead PE080



Image of 2-stage gearhead

Description

- Case-hardened and ground ring gears
- Case hardened and ground planetary and sun gears ensure increased transmission quality and a long service life
- Low torsional play
- High efficiency and low-noise operation due to high tooth flank quality, needle-mounted planetary gears and high quality lubricant
- High torsional stiffness and high emergency stop torque due to robust gear design and optimized gear geometry

More at www.ebmpapst.com/eci-motoren

Type		PE080.1		PE080.2	
Reduction ratio ¹⁾		5.00	8.00	25.0	40.0
No. of stages		1	1	2	2
Efficiency		0.96	0.96	0.94	0.94
Max. input speed (n_1)	min ⁻¹	6 500	6 500	6 500	6 500
Rated output torque (M_{ab})	Nm	115	55	125	125
Short-term torque (M_{max}) ²⁾	Nm	184	88	200	200
Emergency stop torque (M_{not}) ³⁾	Nm	230	110	250	250
Gear play	°	≤ 7	≤ 7	≤ 9	≤ 9
Permissible ambient temperature range (T_U)	°C	-25 ... +90	-25 ... +90	-20 ... +80	-20 ... +80
Operating mode		S1	S1	S1	S1
Protection class		IP 64	IP 64	IP 64	IP 64
Weight	kg	2.30	2.30	2.80	2.80
Shaft load radial / axial	N	750 / 900	750 / 900	750 / 900	750 / 900
Service life	h	30 000	30 000	30 000	30 000
Length	mm	112	112	126.5	126.5

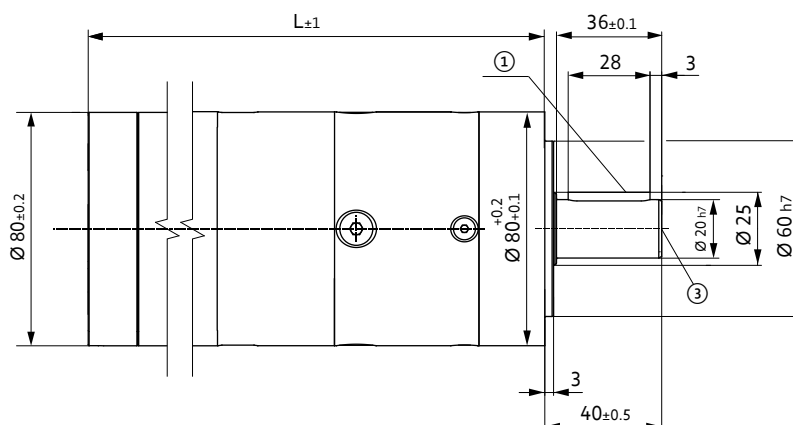
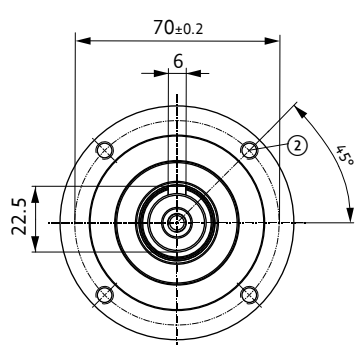
¹⁾ Additional reductions and 3-stage designs on request

²⁾ Permitted for 30 000 loading cycles

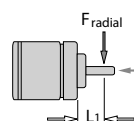
³⁾ 1 000 times during the entire service life

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

Subject to alterations



- ① Fitted key / DIN 6885 A-6x6x28
- ② 4 x M6, 10 deep
- ③ 1 x M6, DIN 332



Permissible shaft load

F_{axial} :	900 N	At rated speed, operating factor $C_B=1$ and a service life expectancy L_{10} from 30 000 h (at T_U max. 40°C in rated operation)
F_{radial} :	750 N	
L_1 :	20 mm	

Length of the possible motor / gearhead combinations

All dimensions in mm

Motor / gearhead	Voltage	Reduction ratio	Length L	
			1-stage gearhead	2-stage gearhead
SGE8040DK1PE80100560	48 V	5	155.6 + 112 = 267.6	
SGE8060DK1PE80100560			175.6 + 112 = 287.6	
SGE8040DK1PE80100860		8	267.6	
SGE8060DK1PE80100860			287.6	
SGE8040DK1PE80202560	48 V	25		155.6 + 126.5 = 282.1
SGE8060DK1PE80202560				175.6 + 126.5 = 302.1
SGE8040DK1PE80204060		40		282.1
SGE8060DK1PE80204060				302.1

Subject to alterations

Encoder



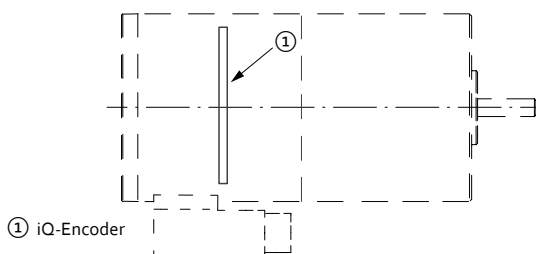
Beschreibung

- Magnetic incremental encoder
- Motor data saved in the HSP motor library (TIA Portal; Siemens)
- Automatic motor detection during start-up
- System diagnostics
- Quick and easy commissioning
- Temperature model stored in TIA
- Patented data transfer via available signalling lines
- Encoder integrated into drive housing

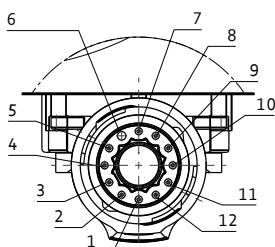
Type	iQ-Encoder (magnetic incremental encoder)
Output signals	2 Square wave signals (A,B), 2 Square wave signals inverse (nA, nB) Output differential or single ended TTL compatible, phase-shifted
Number of pulses per rotation	100 (default), other resolutions available on request
Cut-off frequency	The 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 5V)
Output voltage (high level)	typ. 4.25 V, max 3.8 V (I=-20 mA at 5V)
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

Subject to alterations

Technical drawing



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



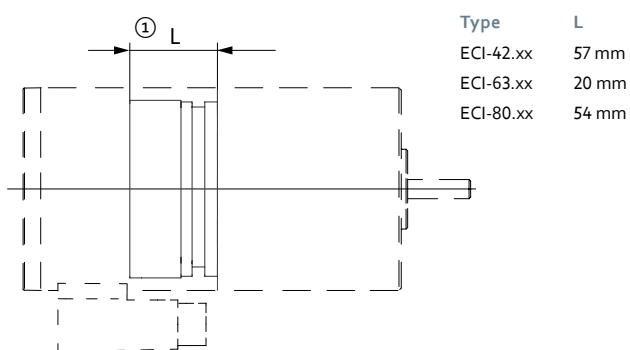
Description

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

Typ		integrated RFK 0.3 Nm Brake module ECI-42	integrated RFK 1.0 Nm Brake module ECI-63	integrated RFK 2.0 Nm Brake module ECI-80
Nominal voltage	V DC	24	24	24
Nominal power	W	6	9	11.4
Braking torque	Nm	0.3	1	2
Closing time, actuation time	ms	≤ 25	≤ 20	≤ 10
Opening time, fall time	ms	≤ 85	≤ 60	≤ 58

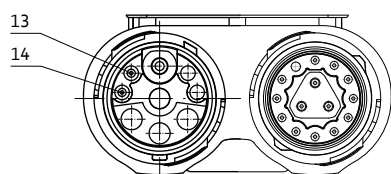
Subject to alterations

Dimensions integrated brake



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

Electrical connection



Information about part number:

Please pay attention to the last digit when ordering:

SSE8040DK1xxxxxxxx6: **x**

Exemplary part number

- 0 = without brake
- 1 = integrated brake

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






Regions in Germany.



Agents

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