

Brushed internal rotor motors BCI series

Drive solutions | Industrial drive engineering 2018-01

ebmpapst

The engineer's choice



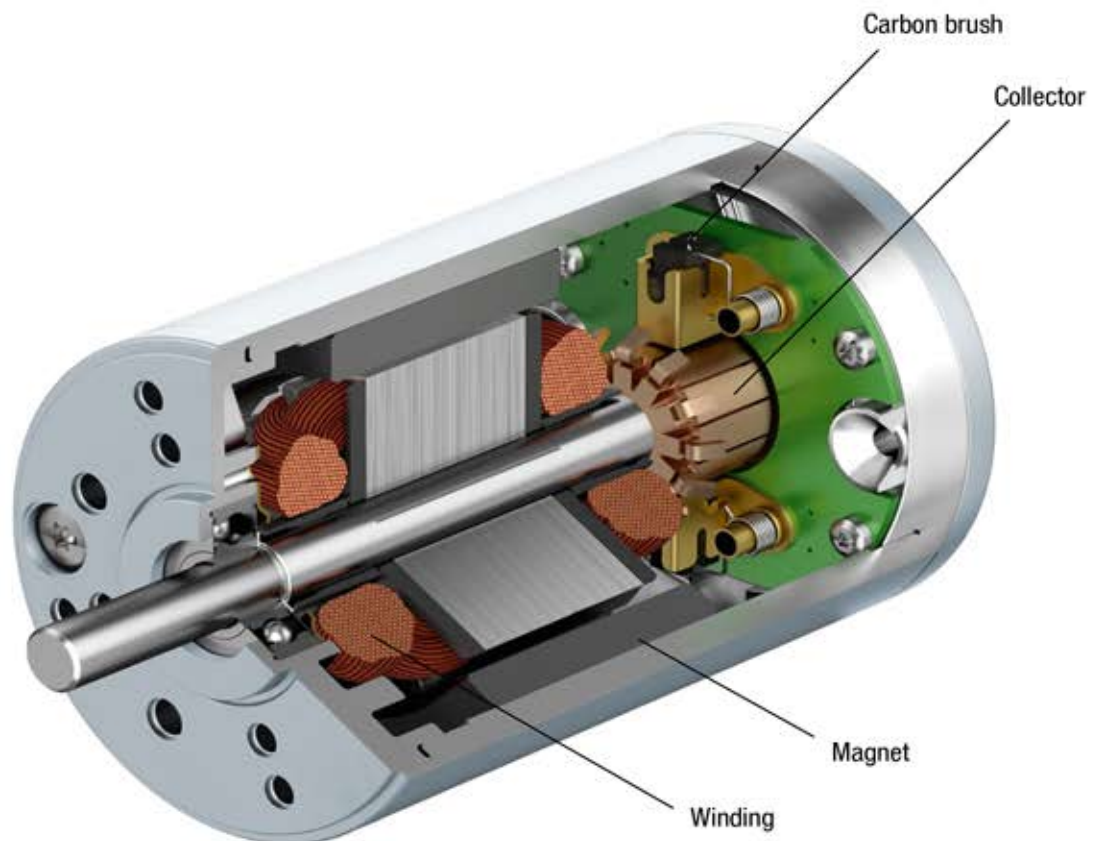
Key figures

- DC motor with permanent magnets
- Power range between 13 and 93 watts
- High power density realized in a compact design
- High overload capacity
- Highly efficient
- Mechanical commutation through a multi-piece collector
- Customer-specific winding layout
- Winding insulation as per insulation class B
- Protection class IP 40, optionally higher

- Various motor types which can be combined with planetary, crown and spur gearheads
- Optional encoder and brake modules

Approvals

- Support with the accreditation of products in different economic areas and markets
- As an experienced and competent partner we would be happy to support you
- Possible approvals include CE, CCC, UL, CSA, EAC or other certification marks.



The data in this catalog contain product specifications, but are not a guarantee of particular properties.

All information is based on the measuring conditions mentioned below. Operation of motors using reference electronics at an ambient temperature of max. 40°C when attached (thermally conductive) to a free-standing steel plate of the following size:
Steel plate 105 x 105 x 10 mm

The **nominal operating point** is the basis for the electromagnetic design of the motor from the point of view of the maximum possible continuous output of the motor and is specified by the nominal values described here.

The values mentioned are typical values for the design in question and are also subject to the tolerances included in the specifications or drawings. Unless otherwise stated, the supplements and safety notes contained in the relevant operating and assembly instructions must be kept at all times. Subject to availability and technical alterations.

Nominal voltage U_{BN} [V DC]

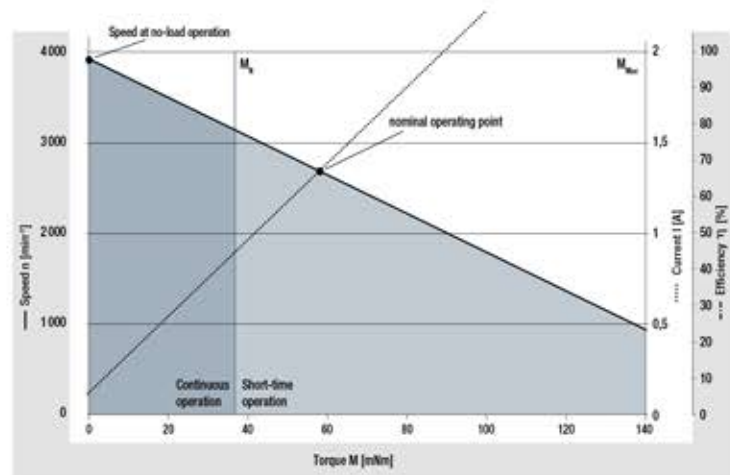
The DC voltage that is applied to the DC motor as a supply voltage. All nominal values listed in the technical tables of the individual motors refer to this voltage. Motor applications are, however, not restricted to this voltage. Changing the voltage results in a parallel shift of the motor curve. The lower voltage limit is defined by the commutator contact resistance and the start-up behavior of the motor. The lower limit results from the mechanical ceiling speed of the motor. In every case, when selecting the voltage and defining the operating point, thermal overload of the motor in continuous operation or the selected operating cycle must be avoided. The ripple of the supply voltage should not exceed 3-5% in normal operation, as higher ripple means poorer efficiency and control quality and corresponding speed fluctuations.

Nominal speed n_N [rpm]

The speed at which the motor can be operated for long periods at an ambient temperature of 40°C and with output of the nominal torque in a thermally conductive installation. It is an operating point at the max. motor curve.

Nominal torque M_N [mNm]

The torque that the motor can output for long periods at an ambient temperature at 40°C and with output of the nominal torque in a thermally conductive installation.



The illustrated curves are idealized representations based on the figures in the tables.

Nominal current I_N [A]

The current that is drawn from the system supply when the motor delivers nominal torque at nominal speed.

$$P_N = M_N \cdot \omega_N = \frac{\pi}{30} \cdot n_N \cdot M_N = \text{ca. } 0.1 \cdot M_N \cdot n_N$$

Nominal output power P_N [W]

The product of the nominal torque and nominal angular velocity. When calculating this value, the tolerances of the individual values contained in the specification data sheets must be considered. In the electromagnetic design of the motors, the nominal operating point is defined with consideration of the fact that the nominal output corresponds approximately to the maximum permitted long-term output power of the motor.

Rated efficiency η_N [%]

Indicates the ratio in % of the mechanical output power to the absorbed electrical output relative to the nominal operating point. Typically, the nominal operating point is close to the optimum efficiency.

Speed at no-load operation n_l [rpm]

The speed that takes effect at the nominal voltage and with unloaded motor. For the DC motor, it is proportional to the applied supply voltage. The theoretical possible speed at no-load operation can, in some cases, be limited by the mechanical ceiling speed.

Start-up torque M_A [mNm]

The torque that the motor can output for short periods at speed "0" rpm and current draw in the amount of the start-up current at start-up or as holding torque.

Start-up current I_A [A]

The current drawn from the DC voltage source as the supply current if the motor outputs "0" rpm as the start-up torque. If the power supply used has a design that is too weak, it may not be possible to reach this point. In this case, the maximum possible start-up torque is limited by the power pack.

Induced current U_{\max} [V/1 000 rpm]

The value of the induced current in the motor per 1 000 rpm. It is a measure for the electromagnetic design of the motor. In no-load operation, the induced current is approximately equal to the applied supply voltage (minus the voltage loss via the ohmic resistance of the winding). Torque-forming current no longer flows; as a result, no more torque can be output to the shaft in no-load operation. The values specified in the technical data are based on an ambient temperature of 25°C.

Connection resistance R_v [Ohm]

The resistance measure at both connection lines of the motor at 20°C. Thus it is the total resistance composed of the line resistance, brush-collector contact resistance and the actual winding resistance.

Connection inductance L_v [mH]

The average inductance measured at 20°C between the two connection lines of the motor with a sinusoidal measuring frequency of 1 kHz.

Rotor moment of inertia J_R [kgm²x10⁻⁶]

The mass moment of inertia of the wound rotor and thus a defining variable for the dynamic properties of the motor.

Thermal resistance R_{th} [K/W]

A substitutional resistance at normal rating that results from the difference between the winding temperature and the ambient temperature in relation to the overall power loss.

Protection class

Information on the protection class complies with the valid Standard EN 60 034-5. It describes protection against foreign particles (Point 1) and water (Point 2).

Permissible ambient temperature range T_u [°C]

Defines the minimum and maximum permissible ambient temperature to which the mentioned performance values apply when the motor is in operation. Other ambient temperatures are possible but should be given special consideration as e. g. higher ambient temperatures result in a reduction of output power.

Here, it must be ensured that the permitted winding temperature in the motor (e.g. for insulation material class B = 130°C, to EN 60 034-1) is not exceeded.

The following formula can be used to provide a rough estimate of the reduced torque permitted at a higher temperature:

$$M_{\text{red}} = M_N \cdot \sqrt{\frac{T_{\text{winding, max.}} - T_{\text{amb.}}}{T_{\text{winding, max.}} - T_N}}$$

M_{red} = value for the reduced torque to be measured

$T_{\text{winding max.}}$ = max. permitted winding temperature defined by the ISO class

$T_{\text{amb.}}$ = value for the elevated ambient temperature

T_N = reference temperature for specifying the nominal data

Please contact the manufacturer if the drives are operated or stored under non standard environmental conditions.

BCI motor.

BCI-42.XX



- Direct current motor with permanent magnets made of ceramic bound ferrite
- Mechanical commutation through 8-piece collector
- Closed steel motor housing with die-cast zinc bearing flanges
- Operation in both directions of rotation
- Service life 3 000 h for continuous operation (S1)
- Insulation class B
- Protection class IP 40, optionally higher

Nominal data

Type		BCI-42.25-A00	BCI-42.25-B00	BCI-42.40-A00	BCI-42.40-B00
Nominal voltage (U_{BN})	V DC	12	24	12	24
Nominal speed (n_N)*	rpm	3 300	3 300	3 100	3 100
Nominal torque (M_N)*	mNm	38	38	57	57
Nominal current (I_{BN})*	A	1.90	0.96	2.50	1.10
Nominal output power (P_N)*	W	13	13	19	19
Rated efficiency, approx. (η_N)	%	60	60	63	70
Free-running speed (n_f)	rpm	4 000	3 900	3 850	3 600
Free-running current (I_{Bf})	A	0.30	0.19	0.27	0.17
Starting torque (M_A)	mNm	200	190	330	320
Starting current (I_A)	A	7.60	4.00	11.2	5.90
Induced voltage (U_{max})	V/1 000 rpm	2.74	5.50	3.04	6.40
Connection resistance (R_L)	Ohm	1.54	6.05	1.08	4.10
Connection inductance (L_L)	mH	2.20	8.90	1.20	5.10
Rotor moment of inertia (J_R)	kgm ² x 10 ⁻⁶	7.40	7.40	11.5	11.5
Heat resistance (R_{th})	K/W	4.80	4.80	4.75	4.75
Protection class**		IP 40			
Permissible ambient temperature range (T_U)	°C	0 ... +40			
Weight	kg	0.40	0.40	0.50	0.50
Order No.		on request	931 4225 001	on request	931 4240 062

Subject to alterations

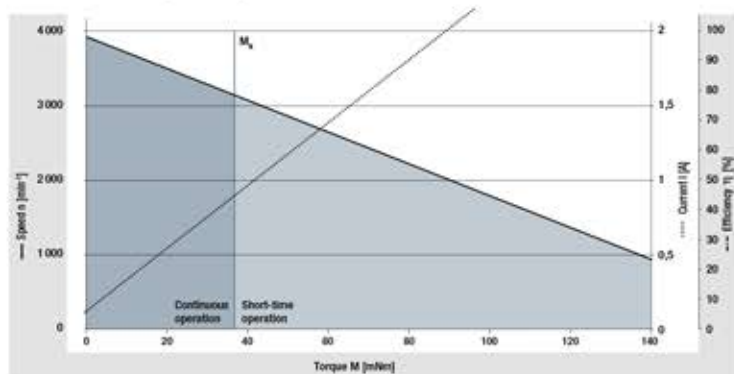
* at T_U max. 40°C

** Classification of protection class refers to installed state with sealing on the flange side

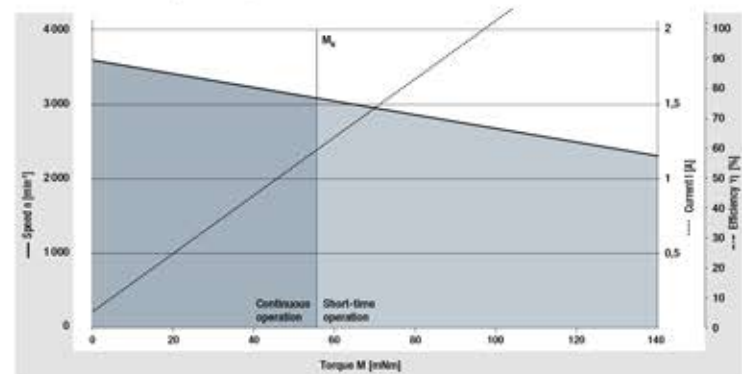
Preferred type: ready to ship in 48 hours

Characteristic curve

BCI-42.25, 24 V (at 25°C)

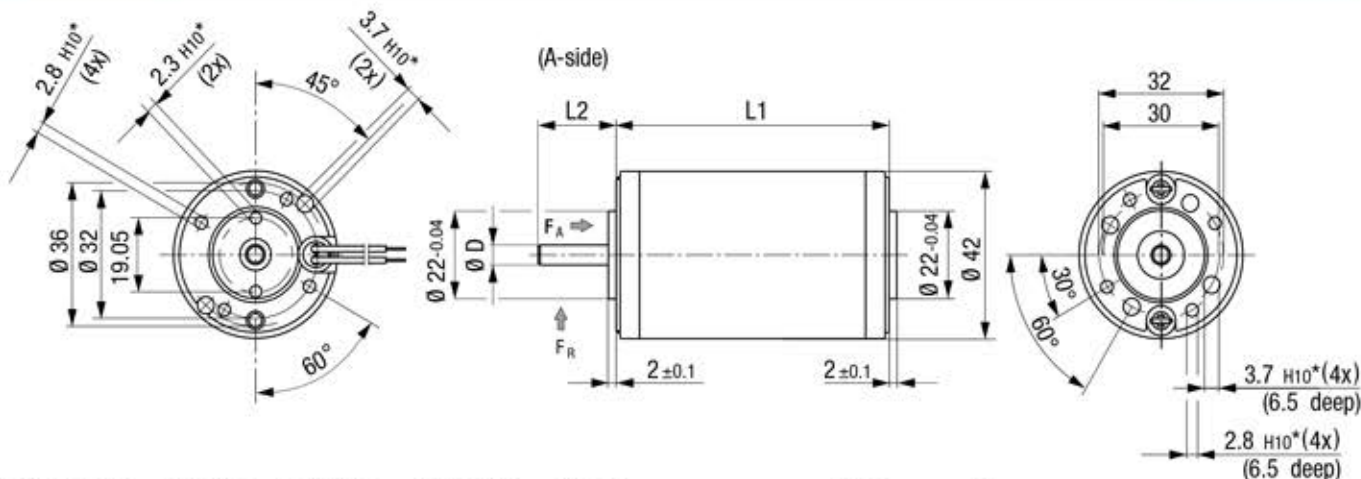


BCI-42.40, 24 V (at 25°C)



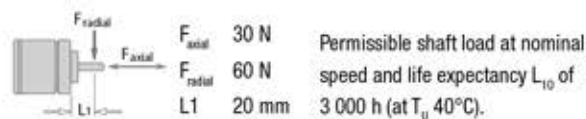
¹⁾ Nominal data, see table

¹⁾ Nominal data, see table



Shaft dimensions	ØD (A-side)	L2 (A-side)	ØD (B-side)	L (B-side)
Standard type	5 _{g5}	20.0 mm	--	--
Preferred type	5 _{g5}	14.5 mm	5 _{g5}	15 mm

Type	L1
BCI-42.25	70 ± 0.5
BCI-42.40	85 ± 0.5



* Blind holes for thread-forming screws according to DIN 7500

Electrical connection

Connection cable

Color	Function
red	Power supply (+)
black	GND (-)

Cable length 300 ± 30 from motor
Cable end 7 ± 2 stripped and tin-coated

Change of the rotating direction is possible by polarity reversal of the wires

Modular construction kit

Brake system

Spring-applied braking
BFK 457-01 (page 48)

Encoder system

Magnetic encoder system
PMG 2-X (page 50)
Optical incremental encoder
HEDS 5500 / PWB AE30 (page 52)

Basic motor

Planetary gearhead

Performax® 42 (page 22)

Crown gearhead

EtaCrown® 52 (page 28)
EtaCrown®Plus 42 (page 32)

Spur gearheads

Compactline 90 (page 36)

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



- Direct current motor with permanent magnets made of ceramic bound ferrite
- Mechanical commutation through 12-piece collector
- Closed steel motor housing with die-cast zinc bearing flanges
- Operation in both directions of rotation
- Service life 3 000 h for continuous operation (S1)
- Insulation class B
- Protection class IP 40, optionally higher

Nominal data

Type		BCI-52.30-A00	BCI-52.30-B00	BCI-52.60-A00	BCI-52.60-B00
Nominal voltage (U_{BN})	V DC	12	24	12	24
Nominal speed (n_N)*	rpm	3 600	3 600	3 100	3 100
Nominal torque (M_N)*	mNm	100	100	170	170
Nominal current (I_{BN})*	A	4.80	2.20	6.40	3.00
Nominal output power (P_N)*	W	38	38	55	55
Rated efficiency, approx. (η_N)	%	66	71	72	77
Free-running speed (n_f)	rpm	4 200	4 200	3 500	3 500
Free-running current (I_{Bf})	A	0.48	0.30	0.60	0.40
Starting torque (M_A)	mNm	550	650	800	980
Starting current (I_A)	A	20.8	12.0	27.6	16.0
Induced voltage (U_{max})	V/1 000 rpm	2.78	5.60	3.04	6.40
Connection resistance (R_c)	Ohm	0.58	2.00	0.44	1.50
Connection inductance (L_c)	mH	0.90	3.60	1.10	4.70
Rotor moment of inertia (J_R)	kgm ² x 10 ⁻⁶	23	23	46	46
Heat resistance (R_{th})	K/W	3.20	3.20	3.30	3.30
Protection class**		IP 40			
Permissible ambient temperature range (T_{amb})	°C	0 ... +40			
Weight	kg	0.90	0.90	1.10	1.10
Order no.		on request	931 5230 001	on request	931 6325 070

Subject to alterations

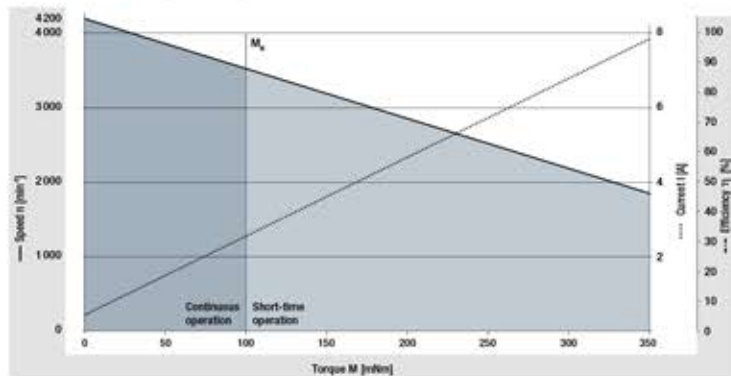
* at T_{amb} max. 40°C

** Classification of protection class refers to installed state with sealing on the flange side

Preferred type: ready to ship in 48 hours

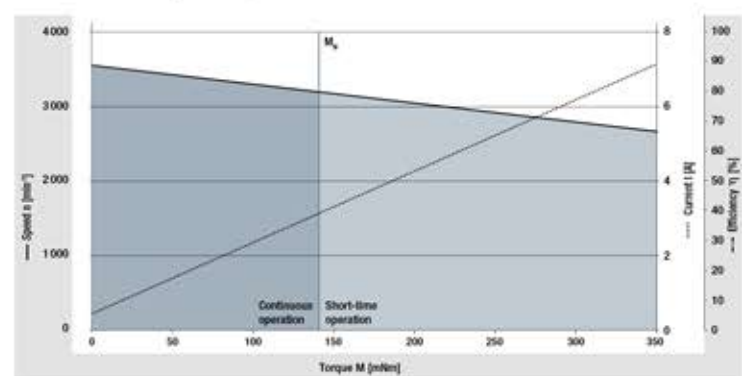
Characteristic curve

BCI-52.30, 24 V (at 25°C)

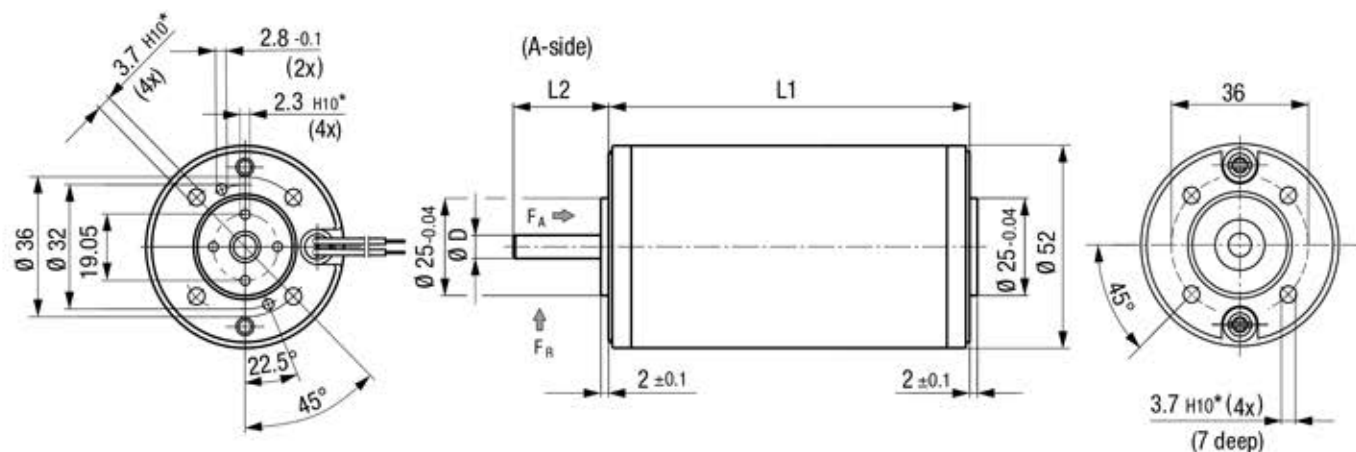


¹⁾ Nominal data, see table

BCI-52.60, 24 V (at 25°C)

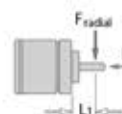


¹⁾ Nominal data, see table



Shaft dimensions	ØD (A-side)	L2 (A-side)	ØD (B-side)	L (B-side)
Standard type	6 _{g5}	25.0 mm	--	--
Preferred type	6 _{g5}	18.2 mm	6 _{g5}	15 mm

Type	L1
BCI-52.30	95 ± 0.5
BCI-52.60	125 ± 0.5



F _{axial}	90 N
F _{radial}	130 N
L1	20 mm

Permissible shaft load at nominal speed and life expectancy L_{10} of 3 000 h (at T_u 40°C).

* Blind holes for thread-forming screws according to DIN 7500

Electrical connection

Connection cable

Color	Function
red	Power supply (+)
black	GND (-)

Cable length 300 ± 30 from motor
Cable end 7 ± 2 stripped and tin-coated

Change of the rotating direction is possible by polarity reversal of the wires

Modular construction kit

Brake system

Spring-applied braking
BFK 457-02 (page 48)

Encoder system

Magnetic encoder system
PMG 2-X (page 50)
Optical incremental encoder
HEDS 5500 / PWB AE30 (page 52)



Basic motor



Planetary gearhead

Performax® 52 (page 24)

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

BCI motor.

BCI-63.XX



- Direct current motor with permanent magnets made of ceramic bound ferrite
- Mechanical commutation through 12-piece collector
- Closed steel motor housing with die-cast zinc bearing flanges
- Operation in both directions of rotation
- Service life 3 000 h for continuous operation (S1)
- Insulation class B
- Protection class IP 40, optionally higher

Nominal data

Type		BCI-63.25-A00	BCI-63.25-B00	BCI-63.55-A00	BCI-63.55-B00
Nominal voltage (U_{BN})	V DC	12	24	12	24
Nominal speed (n_N)*	rpm	3 150	3 150	3 000	3 300
Nominal torque (M_N)*	mNm	140	140	270	270
Nominal current (I_{BN})*	A	5.40	2.70	8.60	4.90
Nominal output power (P_N)*	W	46	46	85	93
Rated efficiency, approx. (η_N)	%	71	71	79	79
Free-running speed (n_f)	min ⁻¹	3 600			
Free-running current (I_{Bf})	A	0.80	0.40	1.00	0.50
Starting torque (M_A)	mNm	840	1 100	1 900	2 550
Starting current (I_A)	A	28.0	17.5	63.0	40.0
Induced voltage (U_{max})	V/1 000 rpm	3.20	6.60	3.30	6.70
Connection resistance (R_c)	Ohm	0.44	1.40	0.19	0.65
Connection inductance (L_c)	mH	0.70	2.90	0.40	1.50
Rotor moment of inertia (J_R)	kgm ² x 10 ⁻⁶	40	40	75	75
Heat resistance (R_{th})	K/W	2.75	2.75	2.45	2.45
Protection class**		IP 40			
Permissible ambient temperature range (T_{amb})	°C	0 ... +40			
Weight	kg	1.20	1.20	1.70	1.70
Order no.		on request	931 6325 001	on request	931 6355 140

Subject to alterations

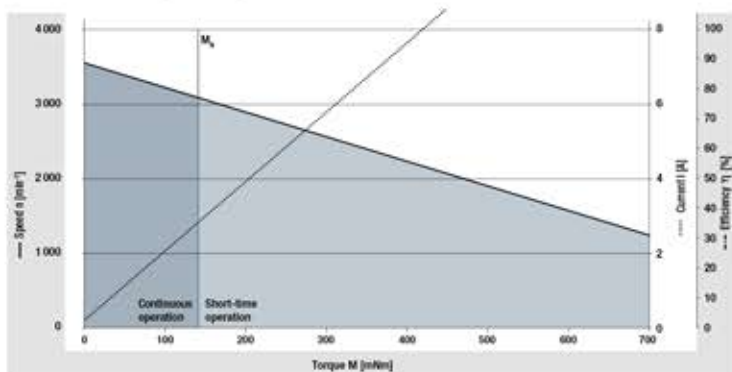
* at T_{amb} max. 40°C

** Classification of protection class refers to installed state with sealing on the flange side

Preferred type: ready to ship in 48 hours

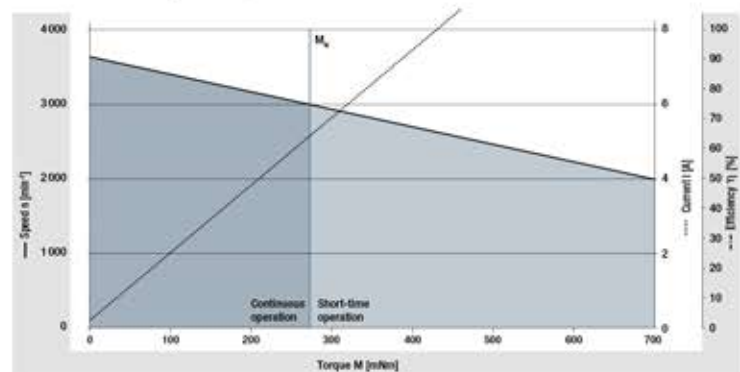
Characteristic curve

BCI-63.25, 24 V (at 25°C)

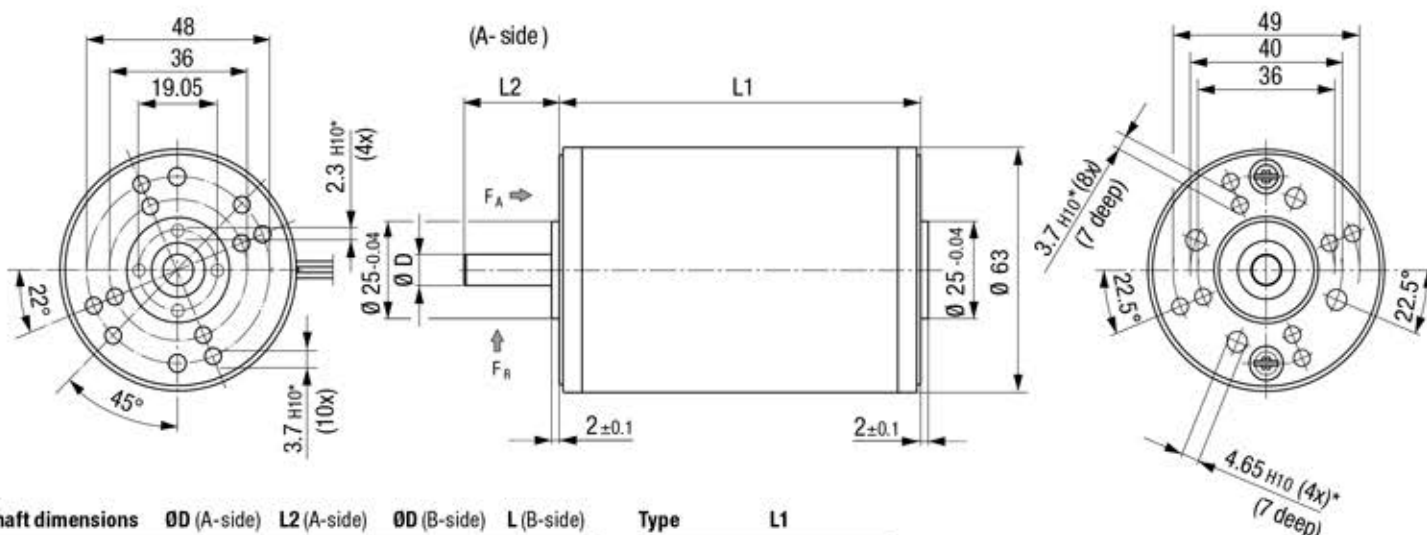


¹⁾ Nominal data, see table

BCI-63.55, 24 V (at 25°C)

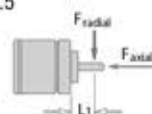


¹⁾ Nominal data, see table



Shaft dimensions	ØD (A-side)	L2 (A-side)	ØD (B-side)	L (B-side)	Type	L1
Standard type	8 _{g5}	25.0 mm	--	--	BCI-63.25	95 ± 0.5
Preferred type	8 _{g5}	20.2 mm	8 _{g5}	15 mm	BCI-63.55	125 ± 0.5

* Blind holes for thread-forming screws according to DIN 7500



F _{axial}	150 N
F _{radial}	150 N
L1	20 mm

Permissible shaft load at nominal speed and life expectancy L_{10} of 3 000 h (at T_u 40°C).

Electrical connection

Connection cable

Color	Function
red	Power supply (+)
black	GND (-)

Cable length 300 ± 30 from motor
Cable end 7 ± 2 stripped and tin-coated

Change of the rotating direction is possible by polarity reversal of the wires

Modular construction kit

Brake system

Spring-applied braking
BFK 457-03 (page 48)

Encoder system

Magnetic encoder system
PMG 2-X (page 50)
Optical incremental encoder
HEDS 5500 / PWB AE30 (page 52)

Basic motor

Planetary gearhead

Performax® 63 (page 26)

Crown gearhead

EtaCrown® 75 (page 30)
EtaCrown®Plus 63 (page 34)

Spur gearheads

Compactline 90 (page 36)
Compactline 91 (page 38)
Flatline 85 (page 44)

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



Performax® 42 (planetary gearhead)	22
Performax® 52 (planetary gearhead)	24
Performax® 63 (planetary gearhead)	26
EtaCrown® 52 (crown gearhead)	28
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Compactline 90 (spur gearhead)	36
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Flatline 78 (spur gearhead)	42
Flatline 85 (spur gearhead)	44
Operating factor, lifetime, efficiency	56

Planetary gearheads.

Performax® 42

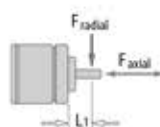
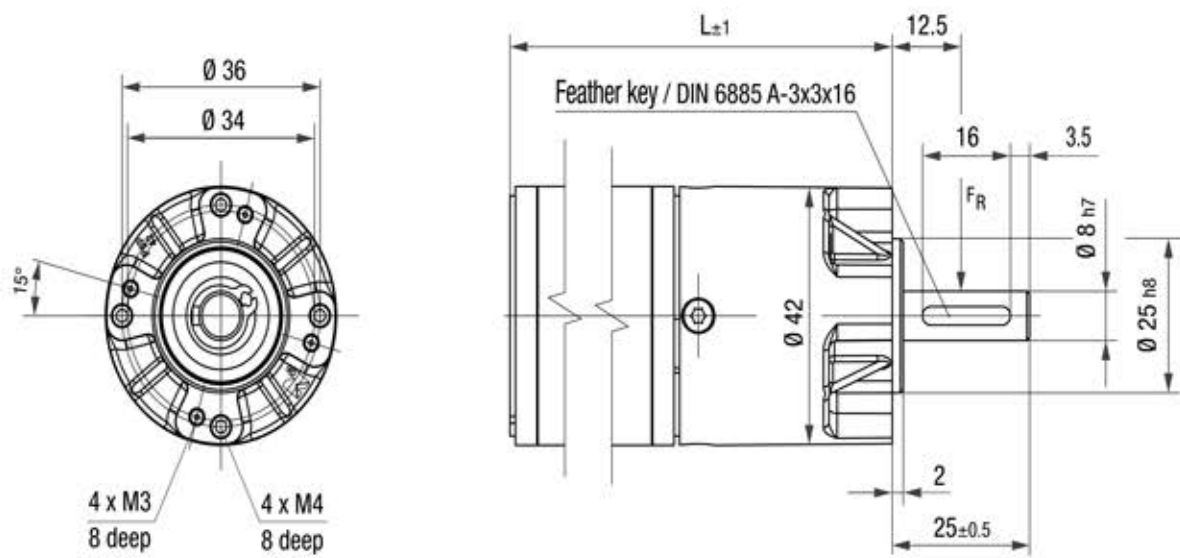


Image of 2-stage gearhead

- High power density from compact dimensions
- 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
- Economical setup due to use of many individual parts which are readily available on the market

Nominal data

Gearheads		Performax® 42.1				Performax® 42.2						
Reduction ratio		3.20	5.00	9.00	17.0	21.3	30.0	38.3	54.0	72.3	102	204
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	1.24	1.00	0.50	0.79	3.20	4.48	1.80	2.60	2.20	3.20	6.30
Short-term torque (M _{max})	Nm	3.10	2.50	1.25	1.98	8.00	11.2	4.50	6.50	5.50	8.00	15.8
Gear play	°	0.70 ... 1.20				0.70 ... 1.20						
Permissible operating temperature (T _v)	°C	-20 ... +80				-20 ... +80						
Operating mode		S1				S1						
Protection class		IP 50				IP 50						
Weight	kg	0.19				0.29						
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	* The service life can be reduced when combined with a motor											
Preferred type: ready to ship in 48 hours	On request											



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 56) of 5 000 h (at T_u 40°C).

Length of the possible motor / gearhead combinations

Motor / gearhead	L - 1-stage		L - 2-stage
BCI-42.25-P42	mm	105	121
BCI-42.40-P42	mm	120	136
Subject to alterations			

Planetary gearheads.

Performax® 52

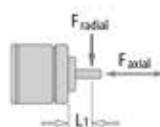
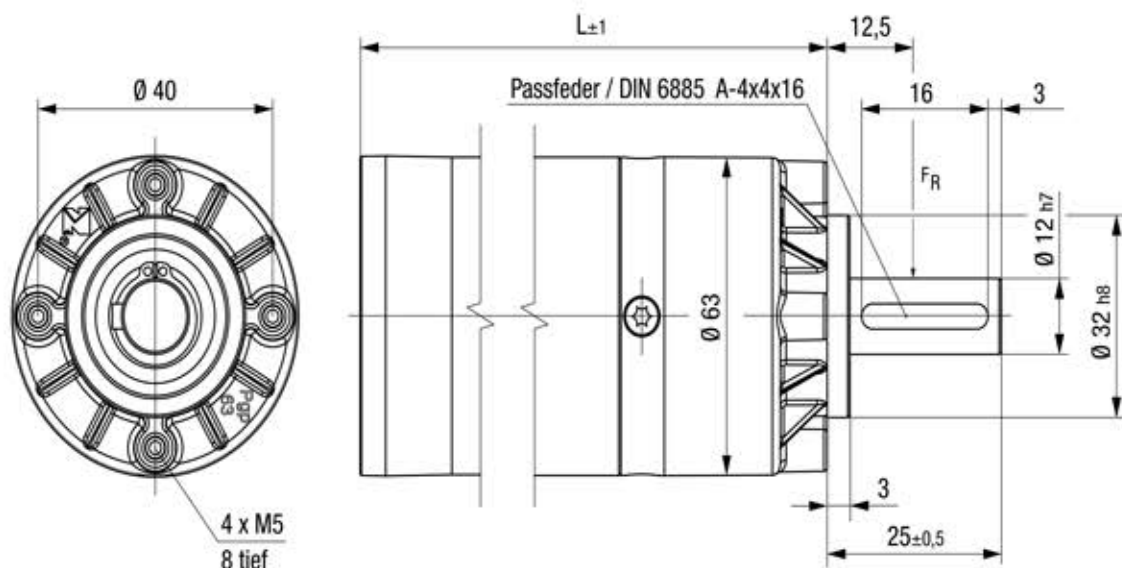


Image of 2-stage gearhead

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- 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
- Economical setup due to use of many individual parts which are readily available on the market

Nominal data

Gearheads		Performax® 52.1				Performax® 52.2						
Reduction ratio		3.2	5	9	17	21.3	30	38.3	54	72.3	102	204
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	2.99	2.99	1.40	0.90	4.60	14.9	5.30	7.40	3.40	4.70	9.40
Short-term torque (M _{max})	Nm	7.48	7.48	3.50	2.25	11.5	37.3	13.3	18.5	8.50	11.8	23.5
Gear play	°	0.70 ... 1.20				0.70 ... 1.20						
Permissible operating temperature (T _v)	°C	-20 ... +80				-20 ... +80						
Operating mode		S1				S1						
Protection class		IP 50				IP 50						
Weight	kg	0.40				0.50						
Shaft load radial / axial	N	350 / 500				350 / 500						
Service life	h	5 000*				5 000*						
Lubrication		Maintenance-free grease lubrication for life										
Installation position		any										
Subject to alterations	* The service life can be reduced when combined with a motor											
Preferred type: ready to ship in 48 hours	On request											



F_{axial} 500 N
 F_{radial} 350 N
 L_1 12.5 mm

Permissible shaft load at nominal speed
 and life expectancy L_{10} (nominal operation) and
 operating factor $C_b = 1$ (see page 56) of 5 000 h (at $T_o 40^\circ\text{C}$).

Length of the possible motor / gearhead combinations

Motor / gearhead		L - 1-stage	L - 2-stage
BCI-52.30-P52	mm	137	155
BCI-52.60-P52	mm	167	185
Subject to alterations			

Planetary gearheads.

Performax® 63

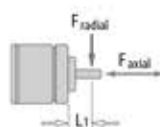
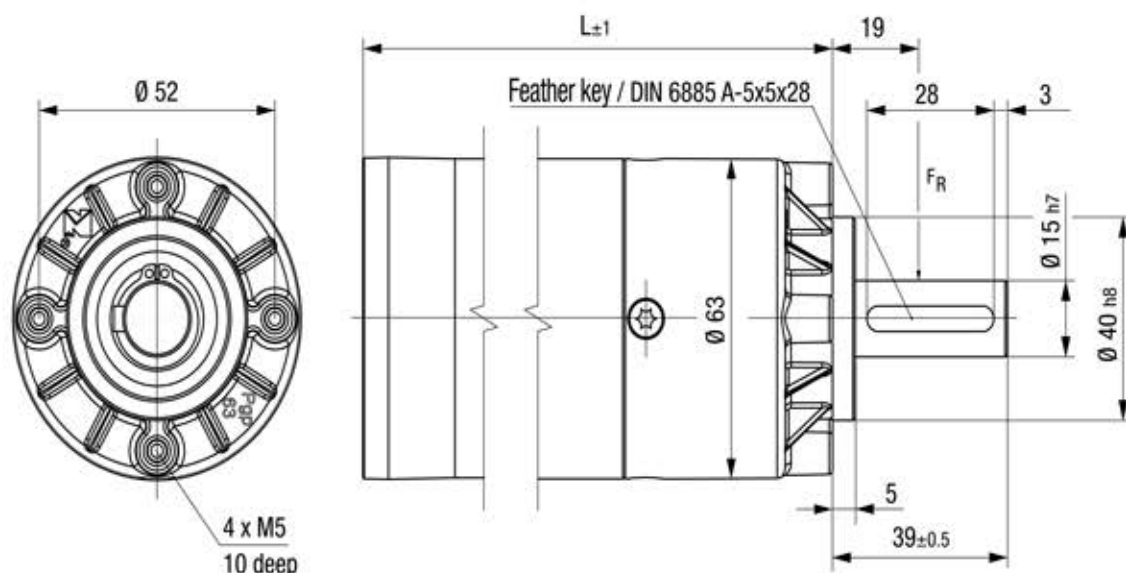


Image of 2-stage gearhead

- High power density from compact dimensions
- 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
- Economical setup due to use of many individual parts which are readily available on the market

Nominal data

Gearheads		Performax® 63.1			Performax® 63.2						
Reduction ratio		5.00	9.00	17.0	21.25	30.0	38.25	54.0	72.3	102	204
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	6.91	2.20	1.50	12.0	17.0	8.30	11.8	5.90	8.30	16.5
Short-term torque (M _{max})	Nm	17.3	5.50	3.75	30.0	42.5	20.8	29.5	14.8	20.8	41.3
Gear play	°	0.70 ... 1.20			0.70 ... 1.20						
Permissible operating temperature (T _v)	°C	-20 ... +80			-20 ... +80						
Operating mode		S1			S1						
Protection class		IP 50			IP 50						
Weight	kg	0.40			0.60						
Shaft load radial / axial	N	350 / 500			350 / 500						
Service life	h	5 000*			5 000*						
Lubrication		Maintenance-free grease lubrication for life									
Installation position		any									
Subject to alterations	* The service life can be reduced when combined with a motor										
Preferred type: ready to ship in 48 hours	On request										



F_{axial} 500 N
 F_{radial} 350 N
 L_1 19 mm

Permissible shaft load at nominal speed and life expectancy L_{10} (nominal operation) and operating factor $C_B = 1$ (see page 56) of 5 000 h (at $T_o 40^\circ\text{C}$).

Length of the possible motor / gearhead combinations

Motor / gearhead		L - 1-stage	L - 2-stage
BCI-63.25-P63	mm	141	162
BCI-63.55-P63	mm	171	192
Subject to alterations			

Crown gearheads.

EtaCrown® 52

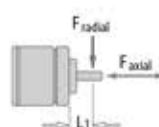
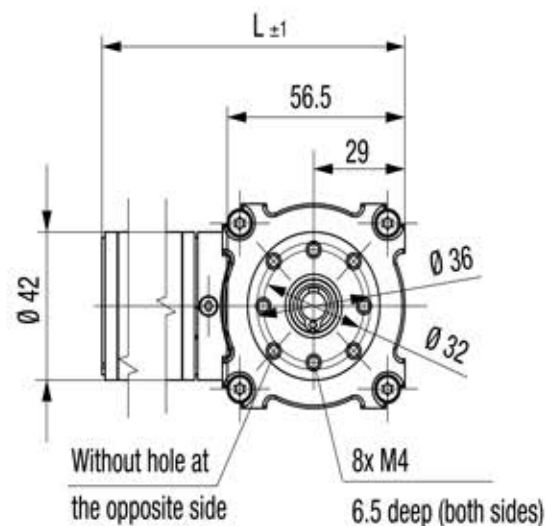
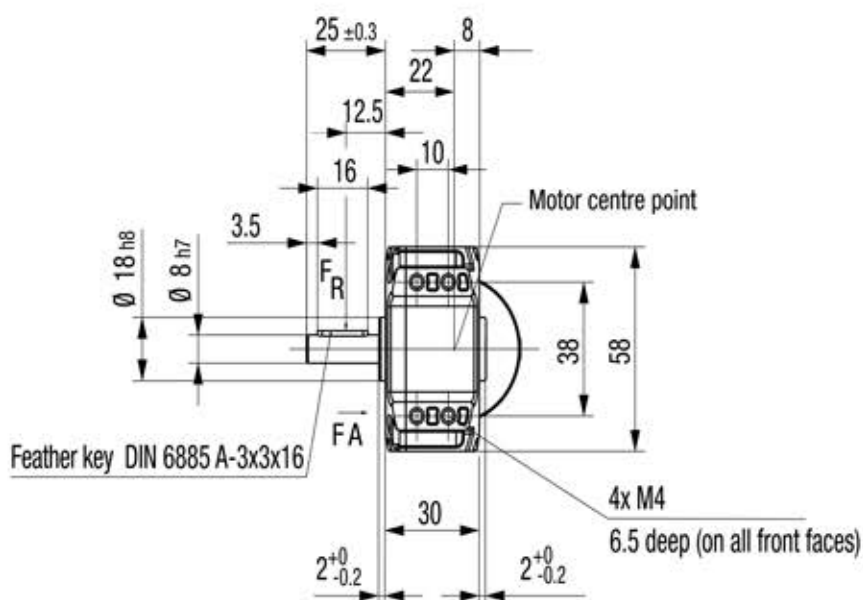


Image of 2-stage gearhead

- 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

Gearheads		EtaCrown® 52.1			EtaCrown® 52.2			
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 _i)	rpm	6 000			6 000			
Rated output torque (M _{ab})	Nm	0.21	0.34	0.52	0.98	1.54	2.77	3.48
Short-term torque (M _{max})	Nm	0.53	0.85	1.30	2.45	3.85	6.93	8.70
Gear play	°	0.55 ... 1.10			0.55 ... 1.10			
Permissible operating temperature (T _U)	°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	* The service life can be reduced when combined with a motor							
Preferred type: ready to ship in 48 hours	On request							



F_{axial} 150 N
 F_{radial} see table
 L_1 12.5 mm

Permissible shaft load at nominal speed and life expectancy L_{10} (nominal operation) and operating factor $C_B = 1$ (see page 56) of 5 000 h (at T_o 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
BCI-42.25-E52	mm	136	165
BCI-42.40-E52	mm	151	180
Subject to alterations			

Crown gearheads.

EtaCrown® 75

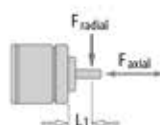
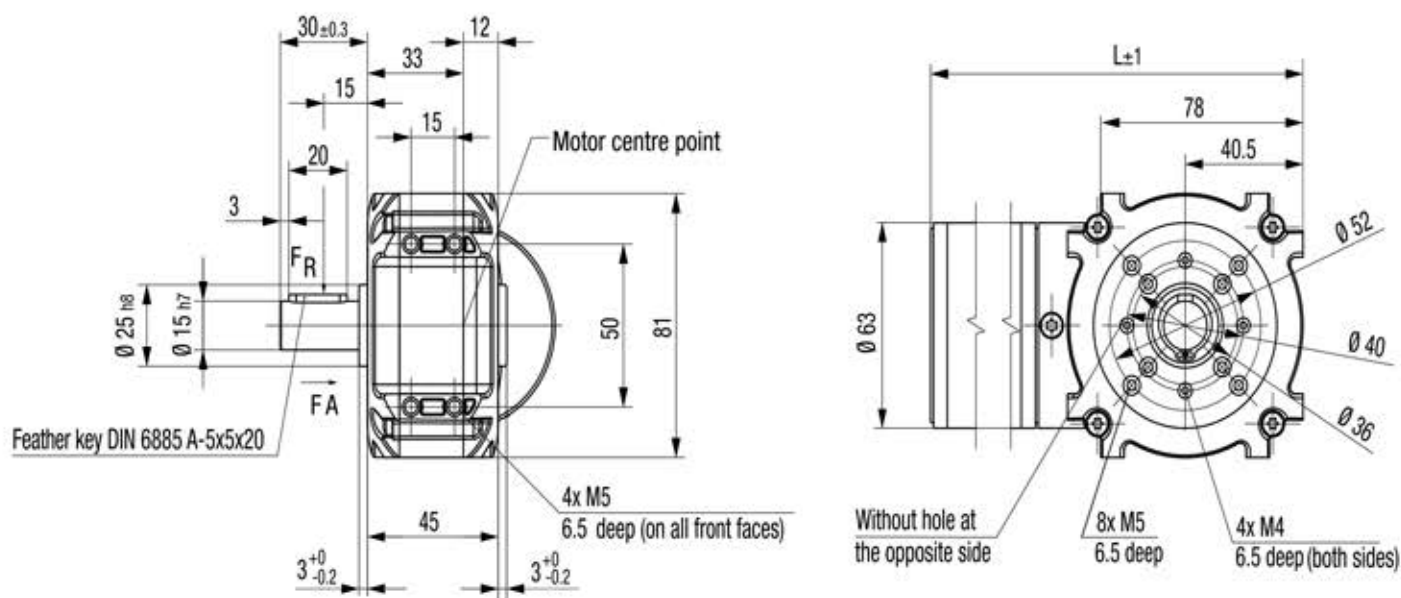


Image of 2-stage gearhead

- Maximum safety in design and operation, as well as optimal vandalism protection; no automatic lock due to high efficiency of the crow 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

Gearheads		EtaCrown® 75.1			EtaCrown® 75.2			
Reduction ratio		4.10	6.70	10.1	20.3	33.3	60.0	113
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	6.00	5.00	2.43	10.0	10.0	10.0	10.0
Short-term torque (M _{max})	Nm	15.0	12.5	6.08	25.0	25.0	25.0	25.0
Gear play	°	0.55 ... 1.10			0.55 ... 1.10			
Permissible operating temperature (T _v)	°C	-20 ... +80			-20 ... +80			
Operating mode		S1			S1			
Protection class		IP 50			IP 50			
Weight	kg	0.90			1.30			
Shaft load radial / axial	N	150 / 500	250 / 500	400 / 500	550 / 500	800 / 500	1100 / 500	1300 / 500
Service life	h	5 000*			5 000*			
Lubrication		Maintenance-free grease lubrication for life						
Installation position		any						
Subject to alterations	* The service life can be reduced when combined with a motor							
Preferred type: ready to ship in 48 hours	On request							



F_{axial} 500 N
 F_{radial} see table
 $L1$ 15 mm

Permissible shaft load at nominal speed and life expectancy L_{10} (nominal operation) and operating factor $C_B = 1$ (see page 56) of 5 000 h (at T_o 40°C).

Shaft end, right (W05) (standard)	Shaft end, left (W06)	Shaft end, both sides (W07)	Hollow shaft (W08)
			 Hollow shaft \varnothing 10 mm

Length of the possible motor / gearhead combinations

Motor / gearhead	L - 1-stage		L - 2-stage
BCI-63.25-E75	mm	186	222
BCI-63.55-E75	mm	216	252

Subject to alterations

Crown gearheads.

EtaCrown®Plus 42

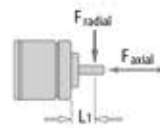
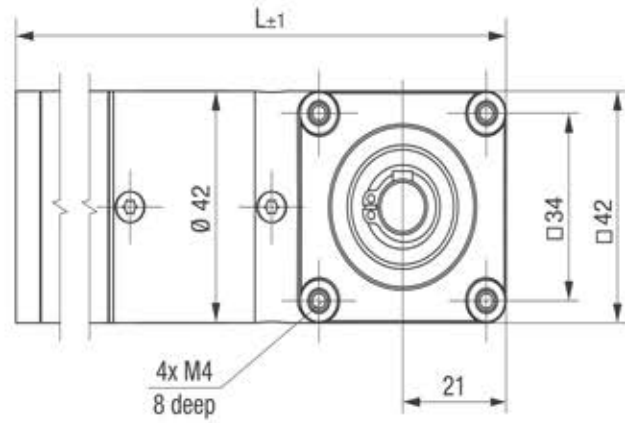
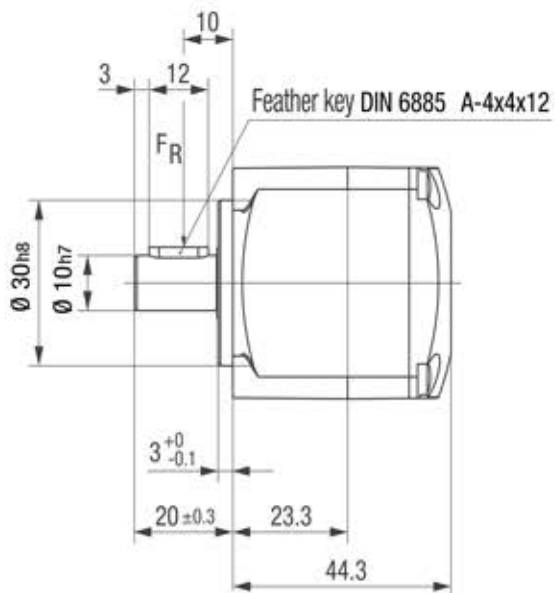


Image of 3-stage gearhead

- Compact design due to combination of the crown wheel and planetary stage in one housing
- No automatic lock due to high efficiency of the crown wheel technology
- High torques by using 5 straight toothed planetary gears made of case-hardened sintered steel in the integrated planetary gear stage
- Wide reduction range thanks to possibility of an upstream planetary stage
- Improved running smoothness thanks to the optimized design of the crown wheel stage when using an upstream helical planetary gear stage made of plastic with optimized sliding properties

Nominal data

Gearheads		EtaCrown®Plus 42.3			
Reduction ratio		54.0	84.8	153	289
No. of stages		3			
Efficiency		0.73			
Max. input speed (n _i)	rpm	6 000			
Rated output torque (M _{ab})	Nm	10.0	10.0	6.70	8.40
Short-term torque (M _{max})	Nm	25.0	25.0	16.8	21.0
Gear play	°	0.70 ... 1.20			
Permissible operating temperature (T _v)	°C	-20 ... +80			
Operating mode		S1			
Protection class		IP 50			
Weight	kg	0.45			
Shaft load radial / axial	N	300 / 200			
Service life	h	5 000*			
Lubrication		Maintenance-free grease lubrication for life			
Installation position		any			
Subject to alterations	* The service life can be reduced when combined with a motor				
Preferred type: ready to ship in 48 hours	On request				



F_{axial} 200 N
 F_{radial} 300 N
 L1 10 mm

Permissible shaft load at nominal speed and life expectancy L_{10} (nominal operation) and operating factor $C_B = 1$ (see page 56) of 5 000 h (at $T_o 40^\circ\text{C}$).

Length of the possible motor / gearhead combinations

Motor / gearhead	L - 3-stage	
BCI-42.25-EP42	mm	150
BCI-42.40-EP42	mm	165
Subject to alterations		

Crown gearheads.

EtaCrown®Plus 63

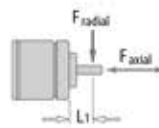
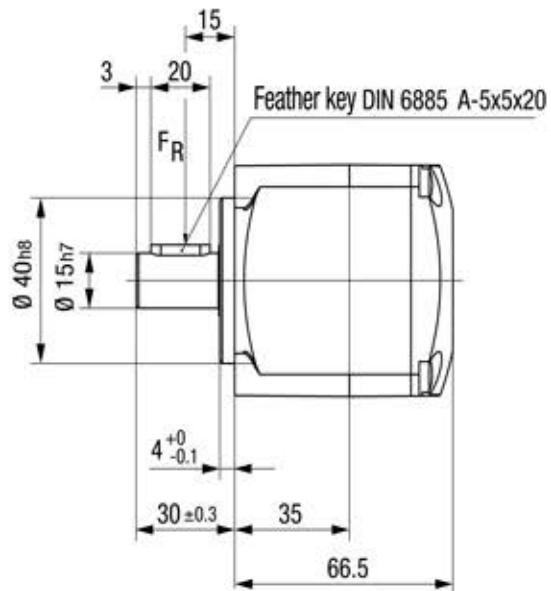


Image of 3-stage gearhead

- Compact design due to combination of the crown wheel and planetary stage in one housing
- No automatic lock due to high efficiency of the crown wheel technology
- High torques by using 5 straight toothed planetary gears made of case-hardened sintered steel in the integrated planetary gear stage
- Wide reduction range thanks to possibility of an upstream planetary stage
- Improved running smoothness thanks to the optimized design of the crown wheel stage when using an upstream helical planetary gear stage made of plastic with optimized sliding properties

Nominal data

Gearheads		EtaCrown®Plus 63.3			
Reduction ratio		54.0	84.8	153	289
No. of stages		3			
Efficiency		0.73			
Max. input speed (n _i)	rpm	6 000			
Rated output torque (M _{ab})	Nm	40.0	40.0	30.1	29.1
Short-term torque (M _{max})	Nm	100	100	75.3	72.8
Gear play	°	0.70 ... 1.20			
Permissible operating temperature (T _v)	°C	-20 ... +80			
Operating mode		S1			
Protection class		IP 50			
Weight	kg	1.00			
Shaft load radial / axial	N	600 / 300			
Service life	h	5 000*			
Lubrication		Maintenance-free grease lubrication for life			
Installation position		any			
Subject to alterations	* The service life can be reduced when combined with a motor				
Preferred type: ready to ship in 48 hours	On request				



F_{axial} 300 N
 F_{radial} 600 N
 L_1 15 mm

Permissible shaft load at nominal speed and life expectancy L_{10} (nominal operation) and operating factor $C_B = 1$ (see page 56) of 5 000 h (at $T_o 40^\circ\text{C}$).

Length of the possible motor / gearhead combinations

Motor / gearhead	L - 3-stage	
BCI-63.25-EP63	mm	211
BCI-63.55-EP63	mm	241
Subject to alterations		