

Product overview of *motors and drive systems.*

Drive solutions | Industrial drive technology

ebmpapst

the engineer's choice



ebm-papst Xplore:

Discover augmented reality and
interactive additional information.



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, lowercase, sans-serif font. The 'e', 'b', and 'p' are in black, while the 'm', 'a', and 's' are in blue.

the engineer's choice

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.

The story of our success as market and technology leader.

1963	Establishment of Elektrobau Mulfingen GmbH & Co. KG by Gerhard Sturm and Heinz Ziehl.	
	Development of the first tubeaxial fan featuring EC-/DC technology .	1965
	The new 68 motor gives momentum to the ebm-papst success story.	1966
	Production of the first electronically commutated DC external rotor motor.	1972
	Introduction of the first gas blower with EC technology .	1991
1992	Takeover of PAPST Motoren GmbH in St. Georgen.	
1997	The Alcatel SEL AG motor and fan plant in Landshut becomes part of the Group.	
	Development of the first fans with integrated electronics .	1998
2003	Re-naming of the three brands ebm, PAPST and mvl to become ebm-papst.	
	Introduction of crown gear technology with EtaCrown transmission.	2007
	Development of business into system supplier for gas heating and condensing technology.	2008
	Introduction of GreenTech , the symbol of energy efficiency and resource conservation.	2010
	Introduction of a new generation of controllers (K4) for BLDC motors.	2012
2013	50 years of ebm-papst. ebm-papst takes over the transmission specialist Zeitlauf .	
	Presentation of the ECI-80 BLDC servomotor .	2014
	Introduction of the overload-capable Optimax 63 planetary gear.	2015
	Introduction of intelligent compact drives with ECI-K5 bus interface .	2017
2018	Record sales of more than 2.0 billion euros for the global Group.	
	ECI-42 - a modular system for individual drive solutions.	2019

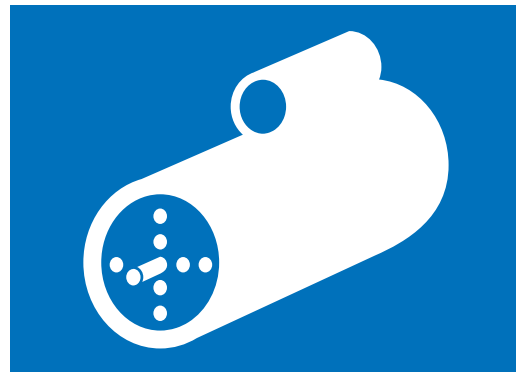


Three core competencies, *unique synergy effects.*

An excellent system solution requires three things.

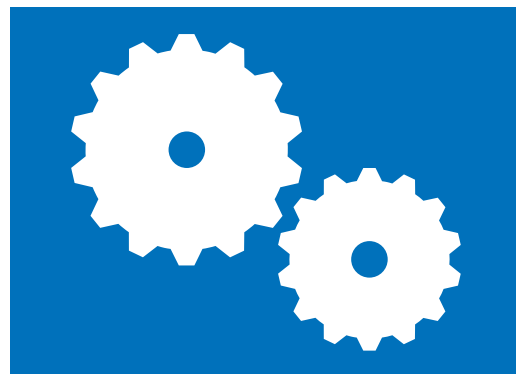
Innovative motor technology:

There are 3 different motor concepts available here. The internal rotor motors in the ECI series offer output powers of up to 750 W. These brushless DC motors are at the heart of the drive solution in a modular system. The external rotor motors in the VD/VDC series are the method of choice if high requirements are placed on synchronous operation and compact dimensions. The range of motors is rounded off with brushed motors in the BC series. These provide an economical alternative if the operating behavior of a classic, mechanically commutated DC motor is good enough.



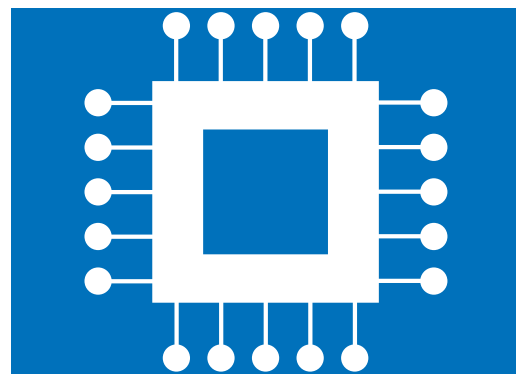
Gearbox engineering:

Three different gear technologies are available for combination with ebm-papst's innovative motor technology: Planetary, crown and spur gears. They are perfectly suited to the motor-specific performance parameters and shape factors, e.g. to speed and torque, as well as to individual dimensions. When the components work together, a drive solution is created that satisfies all the requirements of the application in question.



Electronics:

Our electronics modules can also be combined flexibly with the ECI, VD/VDC and BCI series motors. Depending on the application-specific requirement, our customers can take advantage of a wide range of control functions. Speed, torque and position-controlled operation of the motor can be implemented as required. The motor can be controlled via digital or analog inputs/outputs and via standardized BUS interfaces.



You have everything in hand: *with our three digital helpers.*

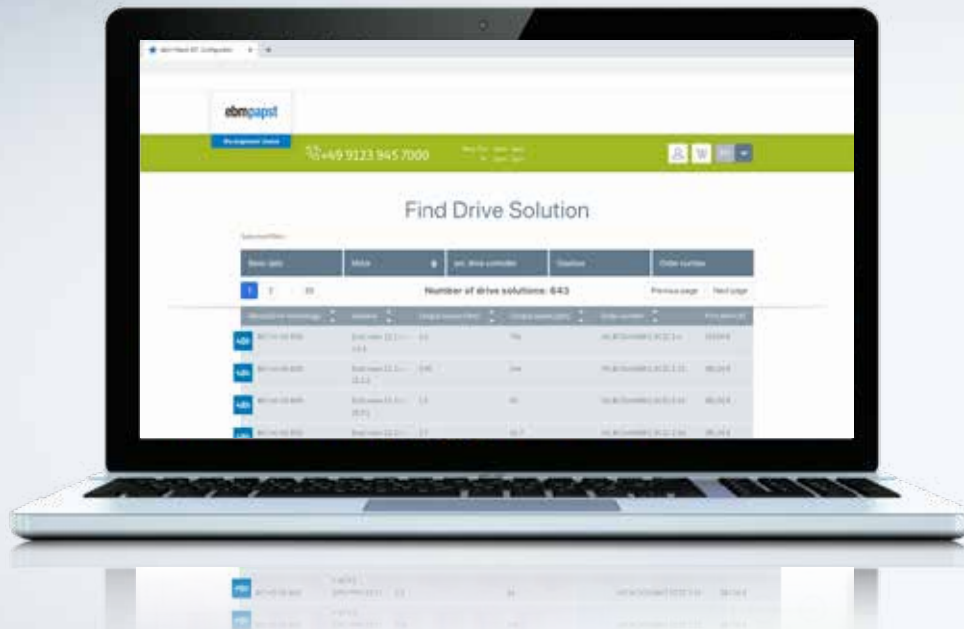
1. The ebm-papst online portal for drive technology

A drive solution perfectly geared to your requirements – without excessive development costs? A real option thanks to the modular system from ebm-papst! And that's not all: You can even put your drive unit together yourself – simply and with just a few clicks online: in our IDT configurator.

There you can choose between various motors, gearboxes and electronics, on through to brakes and sensors. All the necessary information is available for every component, including specifications, characteristic curves and 3D models, etc. So you can assemble exactly the drive solution you want quickly and conveniently – and, as a special feature, study it from all sides in a 360° view.

The best part:

You can start with your configuration right away – without the need for login and of course free of charge.



To visit the ebm-papst online portal, go to:
idt-config.ebmpapst.com

2. The ebm-papst commissioning and service tool driveSTUDIO

Individual adaptation to the requirements of different applications is even easier and, above all, intuitive with the free driveSTUDIO software. Three different operating levels ensure that experienced application engineers and users with little knowledge of programming get results quickly.

For example, values for speed and torque can be output in the demo level. On the parameterization level, function diagrams assist users with inputs such as control loops, reference travels and the adjustment of acceleration and the braking ramp.

And particularly experienced users can freely program test runs of any travel sequences on the scripting level

Your advantage:

driveSTUDIO runs on all PCs equipped with the Windows 7 or more recent operating system. It is available for free download in German and English: ebmpapst.com/drivestudio



3. The ebm-papst Xplore app

Download the digital world of ebm-papst onto your smartphone or tablet. Our ebm-papst Xplore app combines compact information with fascinating applications. It provides a whole new outlook on our products and technical components:

- AR content and interactive additional information for product brochures
- Selected product brochures as PDF downloads
- Virtual experience when visiting trade shows

Good to know:

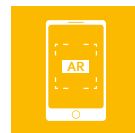
The app is constructed like a huge building kit. You can decide for yourself which modules you want to install or quite simply delete them again. Why not just try it out – simply download from the App Store or Play Store.



1. Activate the module

Go into the ebm-papst Xplore app and select the "Product overview drive solutions" module.

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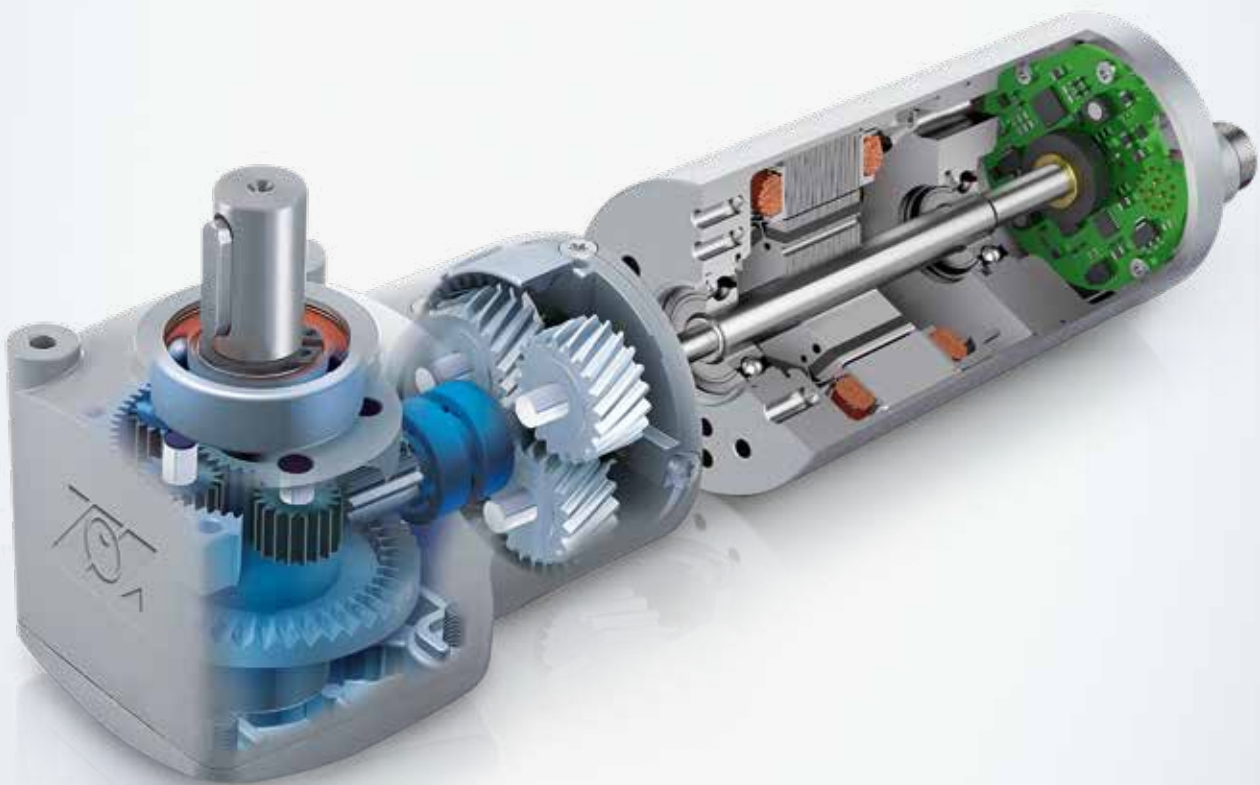
2. Scan the images

Aim the camera at the images marked with this icon, and away you go.

Bring this brochure to life – with the ebm-papst "Xplore" app and augmented reality.



More system offers more possibilities: *the ECI 63 modular drive system.*



Scan the page and begin your virtual experience.
Xplore App > Brochure module
"Product overview drive solutions"

Overview of our catalogues:



Motor concept BLDC internal rotor with appropriate modular system
More on page 10



Motor concept BLDC external rotor with appropriate modular system
More on page 12



Motor concept brushed internal rotor with appropriate modular system
More on page 14



Various special drives with suitable components and accessories

Brushless internal rotor servomotors *ECl* series.

Brushless internal rotor servomotors series ECl

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Product Catalogue 2019-11

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The outstanding features of the ECl series of electronically commutated internal rotor motors are their high power density and dynamic characteristics.

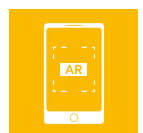
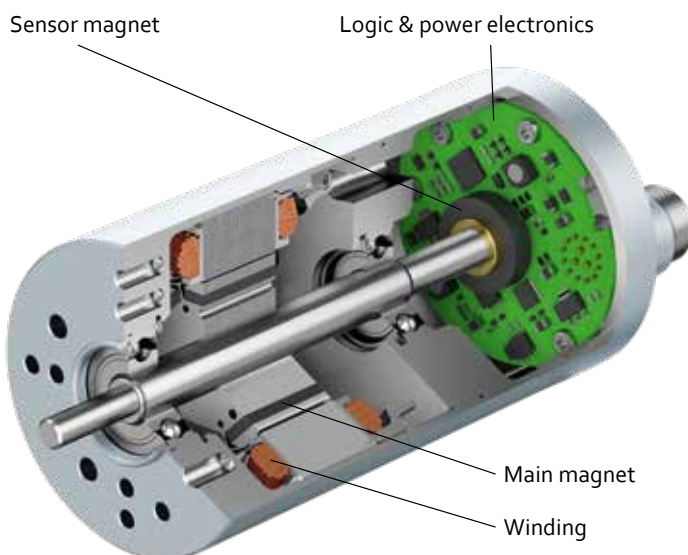
They are ideal for robotics and numerous other applications. In the power range from 30 to 750 W, they are ready to move big things. In combination with planetary and crown gearheads, they exploit their full potential.

Facts and Figures

- 3-phase, electronically commutated internal rotor motor with high-performance magnet
- Power range 30 to 750 W
- High power density with extremely compact dimensions
- High overload capacity
- Long service life
- Extremely smooth operation
- Rotor position detection by Hall sensors
- Customer-specific winding designs
- Winding insulation in accordance with insulation class E
- Degree of protection up to IP 54, in accordance with EN 60 034-5
- Various motor types can be combined with
 - planetary and crown gearheads
 - Integrated control electronics optional
 - Encoder and brake attachment optional

Approvals

- Support in the approval of products for various economic areas and markets
- We would be pleased to be your expert partner
- Possible approvals include CE, CCC, UL, CSA, EAC
- Additional approvals on request



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	ECI-63.20-K3//4/5	ECI-63.40-K3//4/5	ECI-63.60-K3//4/5	ECI-80.20-K1	ECI-80.40-K1	ECI-80.60-K1
		24	24	24	24	24	24	24	24	24	24	24
U _N	V DC	48	48	48	48	48	48	48	48	48	48	48
M _N	mNm	110	220	360	670	880	425	600	850	700	1200	1800
P	W	46	92	150	280	370	178	251	356	293	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
l	mm	104	124	106	126	146	112	132	152	96	116	136
d	mm	42	42	63	63	63	63	63	63	80	80	80
Control electronics (integrated)												
K1 (Hall sensors)		●	●	●	●	●				●	●	●
K3 (speed)			●				●	●	●			
K4 (position)							●	●	●			
K5 (CANopen)							●	●	●			
Control electronics (external)												
VTD-XX.XX-K3 (speed)		●	●	●	●	●						
VTD-XX.XX-K4S (position)		●	●	●	●	●				●	●	●
VTD-60.13-K5SB (CANopen)		●	●	●	●	●						
VTD-60.35-K5SB (CANopen)				●	●	●				●	●	●
Transmission												
NoiselessPlus 42 (planetary gear)		●	●									
NoiselessPlus 63 (planetary gear)				●	●	●	●	●	●			
Performax® 42 (planetary gear)		●	●									
Performax® 63 (planetary gear)				●	●	●	●	●	●			
Optimax 42 (planetary gear)		●	●									
Optimax 63 (planetary gear)				●	●	●	●	●	●	●	●	●
EtaCrown® 52 (crown gearhead)		●	●									
EtaCrown® 75 (crown gearhead)				●	●	●	●	●	●			
EtaCrown®Plus 42 (crown gearhead)		●	●									
EtaCrown®Plus 63 (crown gearhead)				●	●	●	●	●	●			
Brakes												
RFK (standby current, spring force)		●	●	●	●	●	●	●	●			
Encoder systems												
Magnetic encoder systems		●	●	●	●	●				●	●	●

Subject to change
● Standard type

With our **preferred types**, we offer a selection of motors and gear motors that are ready for shipment within 48 hours. The preferred types can be purchased with a maximum order quantity of 20 products per order.

With **standard types**, we refer to a wide range of motors and gear motors that can be purchased via specified order numbers with standard delivery times.

Other products available for project requirements are described on **request**. These products are generally available but cannot yet be ordered using the material number created. We reserve the right to create the necessary order number after technical and commercial evaluation of the requirement.

Brushless external rotor motors VD/VDC series.

Brushless external rotor motors VD/VDC series

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Our electronically commutated external rotor motors in the VD/VDC series impress with their durability and excellent control properties. In combination with planetary, crown and spur gearheads, a wide range of innovative applications are available, e.g. in the field of industrial automation.

Facts and Figures

- 3-phase, electronically commutated external rotor motor
- Power range 5 to 125 W
- High power density with extremely compact dimensions
- Excellent synchronization characteristics over the entire speed range
- High overload capacity
- Very high power density
- Steady speed/torque curve
- Extremely broad speed control range
- Robust housing and bearing system
- Degree of protection up to IP 54, in accordance with EN 60 034
- Different motor types can be combined with planetary, crown and spur gears

Approvals

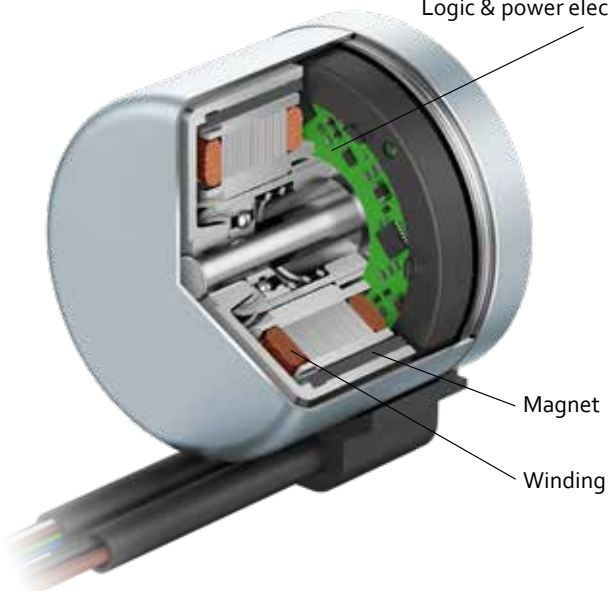
- Support in the approval of products for various economic areas and markets
- We would be pleased to be your expert partner
- Possible approvals include CE, CCC, UL, CSA, EAC
- Additional approvals on request



Logic & power electronics

Magnet

Winding



Brushless External rotor motors VD/VDC		VD-25.07	VD-35.06	VD-43.10	VD-54.14	VD-49.15	VDC-43.10	VDC-54.14	VDC-49.15	VDC-49.15	VDC-49.15
U _N	V DC	24	24	24	24	24	24	24	24	24	48
M _N	mNm	8.00	20.0	54.0	150	235	45.0	130	150	235	300
P	W	5.00	8.00	21.0	57.0	110	18.8	47.6	63.0	100	125
n _N	rpm	6 000	3 700	3 700	3 700	4 500	4 000	3 500	4 000	4 000	4 000
l	mm	23.6	29.3	40.8	43.3	52.0	40.0	42.0	52.0	52.0	52.0
d	mm	32.0	44.0	52.8	68.4	63.0	52.8	68.3	63.0	63.0	63.0
Control electronics (integrated)											
K1 (Hall sensors)		●	●	●	●	●					
K3 (speed)							●	●	●		
K4 (position)										●	●
Control electronics (external)											
VTD-XX.XX-K3		●	●	●	●	●					
VTD-XX.XX-K4S					●	●					
VTD-60.13-K5 SB				●	●	●					
Gearheads											
NoiselessPlus 63 (planetary gearheads)						●					
Performax® 63 (planetary gearheads)						●				●	●
Performax®Plus 63 (planetary gearheads)						●				●	●
EtaCrown® 75 (crown gearheads)						●				●	●
EtaCrown®Plus 63 (crown gearheads)						●				●	●
Compactline 90 (spur gearheads)					●			●			
Compactline 91 (spur gearheads)			●		●	●	●	●	●	●	●
Compactline 92 (spur gearheads)					●			●			
Flatline 85 (spur gearheads)					●	●		●	●	●	●

Subject to change
 ● Standard type

With our **preferred types**, we offer a selection of motors and gear motors that are ready for shipment within 48 hours. The preferred types can be purchased with a maximum order quantity of 20 products per order.

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Brushed internal rotor motors *BCI series.*

Brushed internal rotor motors *BCI series*

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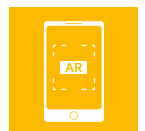
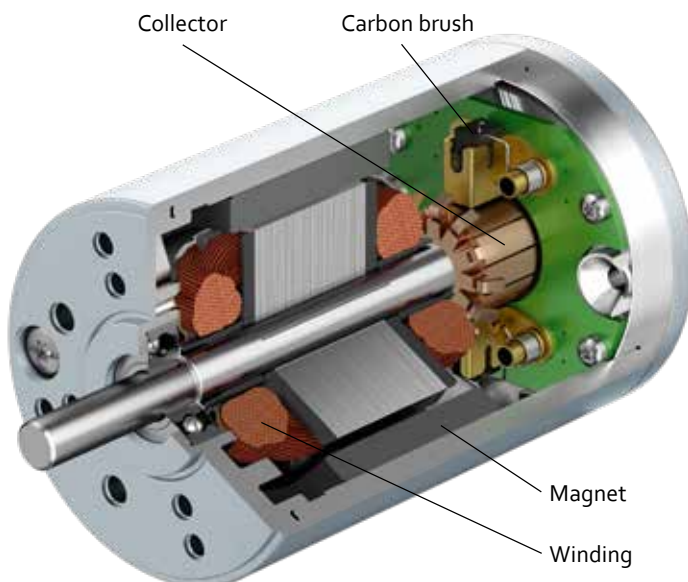
The mechanically commutated DC motors in the BCI series are available in three different sizes and many voltage variants. In combination with our planetary, crown and spur gearheads, there are a wide range of applications.

Facts and Figures

- DC motor with permanent magnets
 - Power range 13 to 93 W
 - High power density with extremely compact dimensions
 - High overload capacity
 - High efficiency
 - Mechanical commutation with multi-part collector
 - Customer-specific winding design
 - Winding insulation in accordance with insulation class B
 - Degree of protection IP 40, optionally higher
 - Encoder and brake attachment optional
- Different motor types can be combined with planetary, crown and spur gears

Approvals

- Support in the approval of products for various economic areas and markets
- We would be pleased to be your expert partner
- Possible approvals include CE, CCC, UL, CSA, EAC or other test marks



Brushed internal rotor motors BCI		BCI-42.25	BCI-42.40	BCI-52.30	BCI-52.60	BCI-63.25	BCI-63.55
U_N	V DC	24	24	24	24	24	24
M_N	mNm	38.0	57.0	100	170	140	270
P	W	13.0	19.0	38.0	55.0	46.0	93.0
n_N	rpm	3 900	3 600	4 200	3 500	3 600	3 600
l	mm	70.0	85.0	95.0	125	95.0	125
d	mm	42.0	42.0	52.0	52.0	63.0	63.0
Gearbox							
Performax® 42 (planetary gearbox)		●	●				
Performax® 52 (planetary gearbox)				●	●		
Performax® 63 (planetary gearbox)						●	●
EtaCrown® 52 (crown gearbox)		●	●				
EtaCrown® 75 (crown gearbox)						●	●
EtaCrown®Plus 42 (crown gearbox)		●	●				
EtaCrown®Plus 63 (crown gearbox)						●	●
Compactline 90 (spur gearbox)		●	●				
Compactline 91 (spur gearbox)						●	●
Compactline 92 (spur gearbox)						●	●
Flatline 78 (spur gearbox)		●					
Flatline 85 (spur gearbox)						●	●
Brakes							
BFK (spring force)		●	●	●	●	●	●
Encoder systems							
PMG 2-2/2-12 (magnetic)		●	●	●	●	●	●
HEDS 5500/512 (optical, incremental)		●	●	●	●	●	●

Subject to change
 ● Standard type

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With **standard types**, we refer to a wide range of motors and gear motors that can be purchased via specified order numbers with standard delivery times.

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Information *about gearboxes.*

We offer three different gear technologies in the gearbox product section. These include planetary, angular or crown gear and spur gears, which are adapted individually to the customer's requirements according to the modular system principle. Ultimately, the application itself decides which of the technologies offered will provide the best results.

Planetary gear starting on page 18

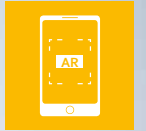


Crown gearheads starting on page 20



Spur gear starting on page 22





Information *about planetary gearboxes.*

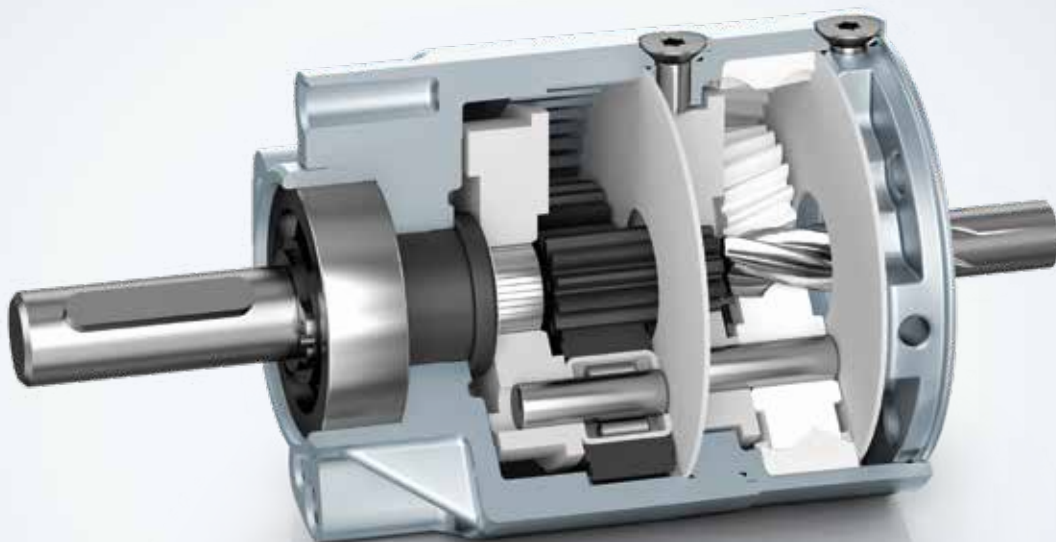
When high power densities are required, our comprehensive planetary gearbox product series offers the optimal solution. All three strong product series impress with their extremely smooth operation, which is achieved thanks to extremely robust, sometimes straight and sometimes helical planetary gears made of high-strength plastic or steel.

Overall advantages:

- Higher first and second stage reduction ratios
- Extremely smooth operation
- Outstanding performance
- Compact design
- No offset

Product series and their strengths:

- NoiselessPlus: unique smooth operation
- Performax®: extreme performance
- Optimax: robust and durable



Gearbox*

			NoiselessPlus 42	NoiselessPlus 63	Performax® 42	Performax® 52	Performax® 63	Performax® Plus 42	Performax® Plus 63	Optimax 42	Optimax 63
Number of stages											
1	Torque (M _N)	Nm	up to 2.8	up to 10.5	up to 1.2	up to 3.0	up to 6.9	up to 2.6	up to 11.9	up to 16.0	up to 40.0
	Reduction	r	4.30	4.30	3.20	3.20			3.20		
			6.00	6.00	5.0	5.0	5.00		5.00	3.00	3.00
			11.0	11.0	9.0	9.00	9.00	5.00	9.00	5.00	5.00
			21.0	21.0	17.0	17.0	17.0		17.0	9.00	9.00
Torque (M _N)	Nm	up to 4.1	up to 9.4	up to 5.6	up to 14.9	up to 37.3	up to 12.1	up to 64	up to 27.0	up to 68.0	
2	Reduction	r	21.3		21.3	21.3	21.25		21.3	9.00	9.00
			26.0		30.0	30.0	30.0		30.0		
			38.3		38.3	38.3	38.25		38.3	15.0	15.0
			47.6	26.0	54.0	54.0	54.0	30.0	54.0	25.0	25.0
			66.0	47.0	72.3	72.3	72.25		72.3		
			121	66.0	102	102	102		102	45.0	45.0
			231	121	204	204	204	204			

Possible combinations with

ECI motors

ECI-42	●		●				●			●	
ECI-63		●					●		●		●
ECI-80									●		●

VD/VDC motors

VD/VDC-43.10											
VD/VDC-54.14											
VD/VDC-49.15		●					●		●		

BCI motors

BCI-42				●							
BCI-52						●					
BCI-63								●			

Subject to change

* The overview of the transmissions shows all possible reductions. The combination of the necessary reduction with the desired motor is described in the catalogue and on the homepage and is available on request.

Information *about crown gearheads.*

When it comes to crown gearheads, ebm-papst impresses with its innovative crown gearhead technology. It enables powerful, compact and highly efficient transmission solutions that can be produced extremely economically. The output shafts of all crown gearheads are made of ground, case-hardened steel and are thus especially robust. Torque is transmitted via a keyway connection as standard. A special feature of the crown gearheads is the lack of self-locking.

Overall advantages:

- Outstanding efficiency
- Broad range of reduction ratios
- No self-locking
- Very high power density
- No offset

Two strong product series:

- EtaCrown®
- EtaCrown®Plus



Gearbox*

			EtaCrown® 52	EtaCrown® 75	EtaCrown® Plus 42	EtaCrown® Plus 63
Number of stages						
1	Torque (M_N)	Nm	up to 10	up to 10	up to 40	up to 40
	Reduction	r	4.10	4.10		
			6.70	6.70		
2	Torque (M_N)	Nm	up to 10	up to 10	up to 40	up to 40
	Reduction	r	21.2	21.2		
			33.3	33.3		
3	Torque (M_N)	Nm	up to 10	up to 10	up to 40	up to 40
	Reduction	r	60.0	60.0	54.0	54.0
			113	113	84.8	84.8
					153	153
					289	289
Possible combinations with						
ECI motors						
	ECI-42		●		●	
	ECI-63			●		●
	ECI-80					
VD/VDC motors						
	VD/VDC-43.10					
	VD/VDC-54.14					
	VD/VDC-49.15			●		●
BCI motors						
	BCI-42		●		●	
	BCI-52					
	BCI-63			●		●
Subject to change						

* The overview of the transmissions shows all possible reductions. The combination of the necessary reduction with the desired motor is described in the catalogue and on the homepage and is available on request.

Information *about the spur gearbox.*

Spur gearboxes from ebm-papst are characterized by their space-saving design and extremely smooth operation. They are available in two powerful product series. Both Flatline and Compactline transmissions impress with their very good price-performance ratio. Spur gears have a simple design and can be combined with both VD/VDC and BCI motors.

Overall advantages:

- Very high power density
- Compact, shallow design
- Broad range of reduction ratios
- Great radial loads permissible
- Good price-performance ratio

Two different product series:

- Flatline
- Compactline



Gearbox*

			Compactline 90	Compactline 91	Compactline 92	Flatline 78	Flatline 85	
Number of stages								
2	Torque (M_N)	Nm	up to 15	up to 15	up to 15	up to 30	up to 30	
	Reduction	r		7.80				
				9.20	15.5			
				16.0	11.1	18.4		
				18.8	13.1	22.2		
				26.8	13.8	23.1		
				30.6	22.0	31.1		
				32.0	26.4	32.4		
					27.6	40.1		
					38.6			
3	Torque (M_N)	Nm	up to 15	up to 15	up to 15	up to 30	up to 30	
	Reduction	r			55.0		8.20	
				37.5		70.4		12.3
				57.8	41.3	75.6	38.6	18.0
				67.8	67.3	92.2	65.2	27.6
				79.1	117.1	142	82.8	40.3
				92.7	165.8	163	140.8	64.0
				121.6		184.4		101.8
				142.5		274.6		136.5
								189
4	Torque (M_N)	Nm	up to 15	up to 15	up to 15	up to 30	up to 30	
	Reduction	r		189.3			303.6	
				222			454	
				296		191.9	687	
				368		252.6	1 028.7	
				432			1 030	
Possible combinations with								
VD/VDC motors								
VD/VDC-43.10			●	●				
VD/VDC-54.14			●	●	●		●	
VD/VDC-49.15				●			●	
BCI motors								
BCI-42			●			●		
BCI-52								
BCI-63				●	●		●	
Subject to change								

* The overview of the transmissions shows all possible reductions. The combination of the necessary reduction with the desired motor is described in the catalogue and on the homepage and is available on request.

Accessories: *Controllers, encoders, brakes.*



Electronics (external)

Control electronics

- Integrated and external controllers for actuation of BLDC motors
- Versions for speed-controlled operation with analog set value requirement
- Versions for torque- and position-controlled operation
- Versions with CANopen interface (DS 402 compatible)



Incremental encoder (integrated)

Encoder systems

- Magnetic and optical encoder systems
- Encoders feature non-contacting operation and are wear-free
- Encoders are used in combination with suitable electronics for speed detection, speed control and positioning



Spring force brake (integrated)

Brake systems

- Brakes based on the spring-applied brake principle
- Single-disk brakes with 2 friction surfaces
- Braking torque is built up when the power is switched off
- Brake is released by electromagnetic force

Control electronics

		K3 (integrated)	K4 (integrated)	K5 (integrated)	VTD-XX-XX-K3	VTD-XX-XX-K4S	VTD-60.13-K5SB	VTD-60.35-K5SB
Bus interface				CANopen			CANopen	CANopen
Nominal voltage	V DC	24/48	24/48	24/48	14 - 28	10 - 30	10 - 60	9 - 60
Speed control		●	●	●	●	●	●	●
Torque control			●	●			●	●
Position control			●	●			●	●

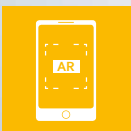
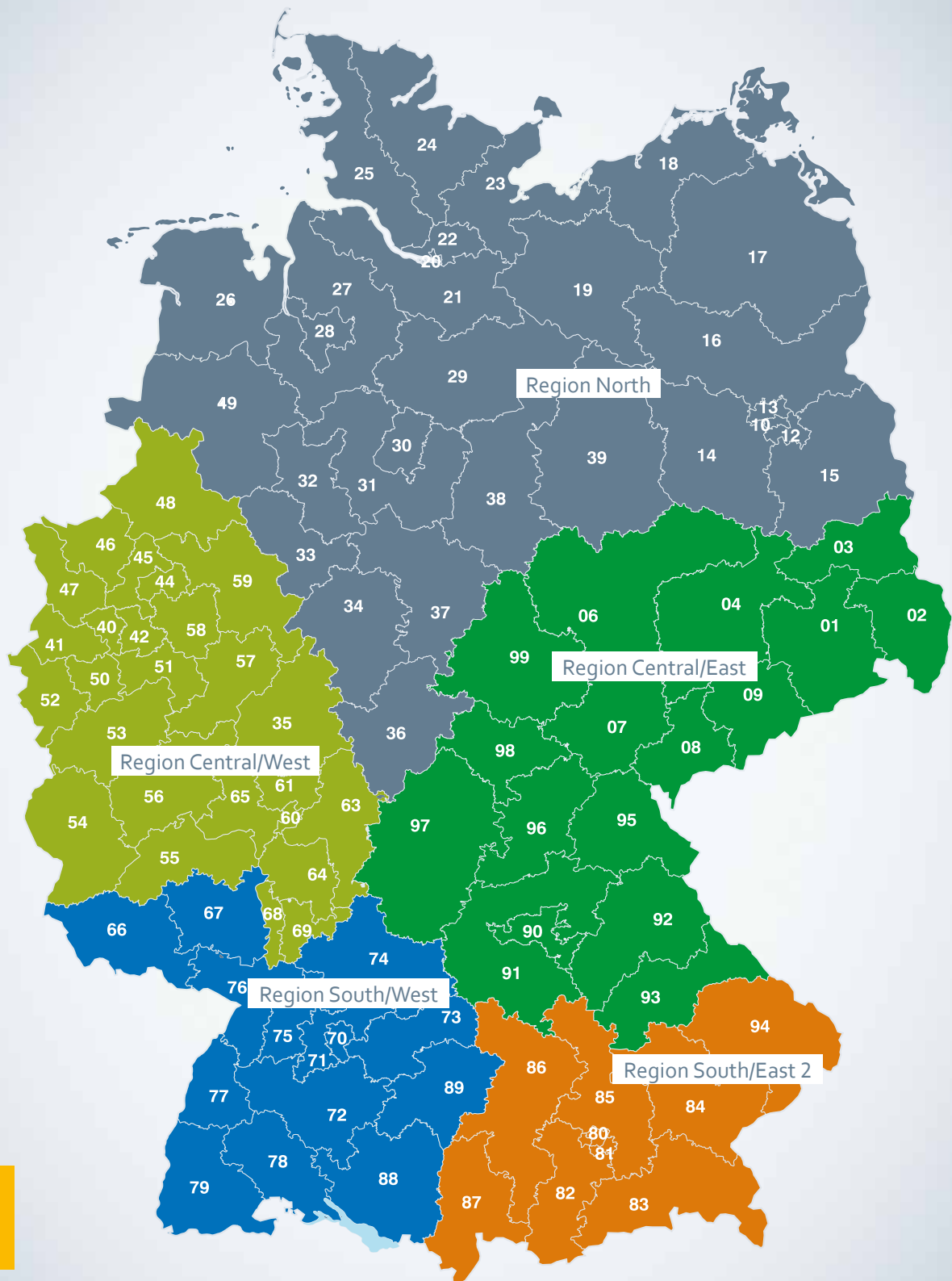
Encoder systems

		PMG 2-12	PMG 2-2	HEDS 5500	PWB AE30	RM22 / RMC22
pulses per revolution	Z	12	2	512	512	1,024 (4,096)
Nominal voltage	V DC	24	24	24	24	5

Type		integrated RFK 0.3 Nm ECI 42 brake module	integrated RFK 1.0 Nm ECI 63 brake module	integrated RFK 1.0 Nm ECI 63 brake module	integrated RFK 2.0 Nm ECI 80 brake module
Nominal voltage	V DC	24	24	24	24
rated output	W	6	9	9	11.4
Braking torque	Nm	0.3	1	1	2
Closing, response time	ms	25	20	20	10
Opening time, release time	ms	85	60	60	58

Subject to change

Regions in Germany.



ebm-papst *around the world.*

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