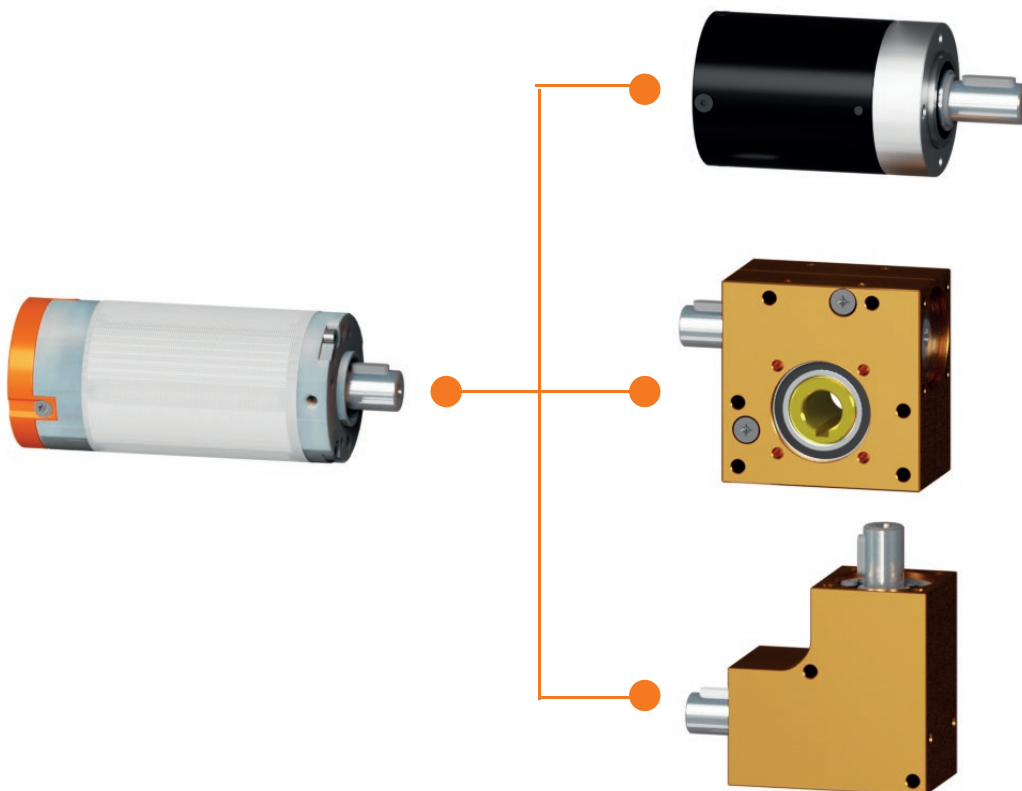


## BLDC drive solutions

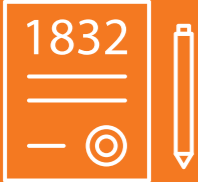


# WE GET IDEAS MOVING

The spirit of innovation and a sense of ideas beyond the familiar has made us into a pioneering company over more than 185 years.

For a quarter of a century, we have been offering customized drive solutions for office and workplace workstations, as well as for shading systems and building technology.

Through our tradition of innovation, we have succeeded in establishing ourselves as a specialist and problem-solver in numerous areas.



Over 185 years' experience



More than 60 standard solutions for four different market segments



100% Made in Black Forest

# THE RIGHT PRODUCT FOR EACH APPLICATION

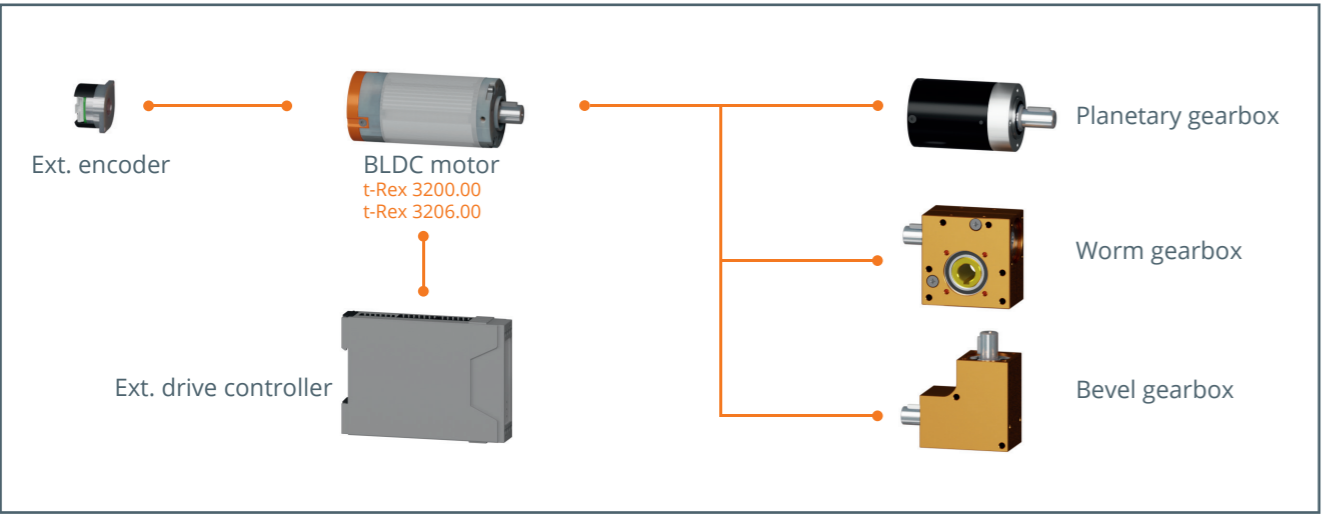
## Bevel gears

- Page 04 Customized BLDC drive solutions from a single source
- Page 06 BLDC motos with planetary stage
- Page 08 BLDC-motors with worm gearbox
- Page 10 BLDC-motors with bevel gearbox
- Page 12 BLDC-motors spindle as linear actuator



# Customized BLDC drive solutions from a single source

## INFO DATA SHEET










With Ketterer BLDC drives, you get a customized drive solution that is perfectly tailored to your needs.

Our motors can be easily combined with a variety of components such as different types of gearboxes, encoders and drive controllers to create individual solutions that meet your exact requirements. For applications where a rotary motion is to be converted into a linear motion, we offer drive systems with lead screws - both as through-spindle and with matching spindle nut.

Contact us for more information or an individual consultation - we look forward to helping you realize your drive solution.

## Combinatorics BLDC-motors (DC)

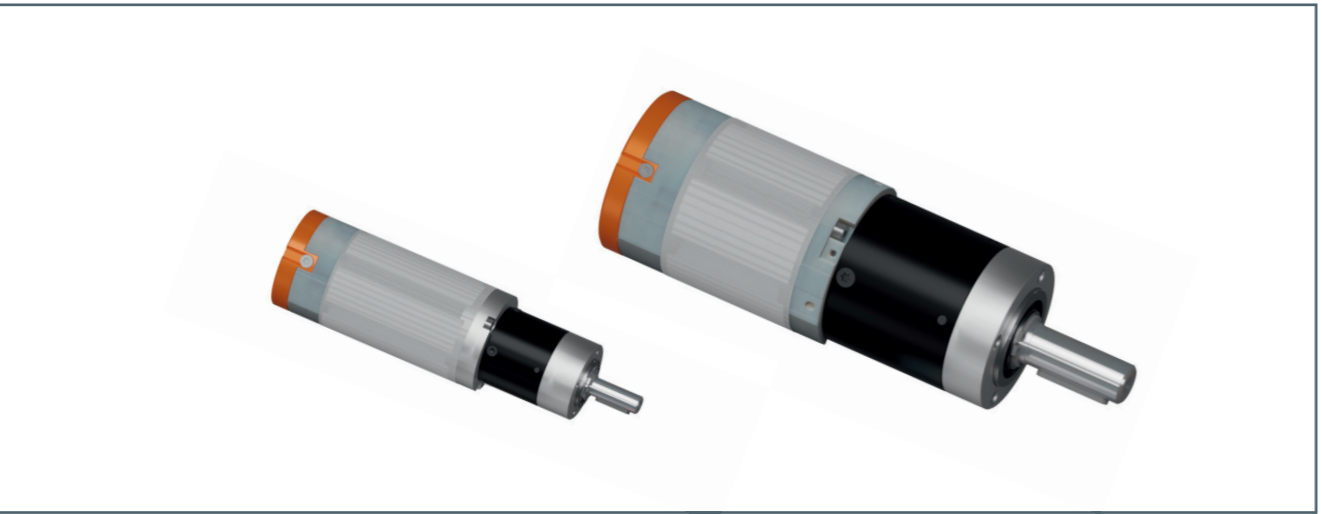
	t-Rex 3200-I-44-47		t-Rex 3200-I-44-89		t-Rex 3206-I-65-51	t-Rex 3206-I-65-86	
Size	44		44		65	65	
Length	47		89		51	86	
Winded with focus	max. torque	max. speed	max. torque	max. speed	max. speed	max. torque	max. speed
Rated voltage (VDC)	24 - 48		24 - 48		24 - 48	24 - 48	
Rated power (W)	41 - 74		31 - 61		90 - 155	68 - 140	
Rated speed (rpm)	2000 - 4664		600 - 1390		1785 - 3895	507 - 1123	
Rated torque (Nm)	0.2 - 0.15		0.5 - 0.4		0.5 - 0.4	1.3 - 1.9	
Stall torque (Nm)	1 - 1.5		1.8 - 2.9		2.5	6.7 - 9	
Item.-Nr.	3200.00-3000		3200.00-3002		3206.00-1000	3206.00-0003 3206.00-0005	

<div><div>Planetary gearbox</div><div>Economy Class</div><div></div><div><math>\eta</math>= 80% - 70%</div><div>i= 4:1 bis 603:1</div><div>max. Gearbox backlash &lt; 1°</div></div>	IMS.35/ IMS.42 Pro MAX LN*	#	IMS.35/ IMS.42 Pro MAX LN	MS.35/ IMS.42 Pro MAX LN*	IMS.53/ IMS.60 Pro MAX LN*	IMS.53/ IMS.60 Pro MAX LN	IMS.53/ IMS.60 Pro MAX LN
	* at speed $n < 3000 \text{ rpm}$						
<div><div>Planetary gearbox</div><div>High Precision</div><div></div><div><math>\eta</math>=98% - 92%</div><div>i= 3:1 bis 512:1</div><div>max. Gearbox backlash &lt; 0,4°</div></div>	PLE040	PLE040	PLE040	PLE040	PLE040 PLE060	PLE040 PLE060	PLE040 PLE060
<div><div>Worm gearbox</div><div></div><div>i= 1:1 bis 65:1</div></div>	Ket-Motion 2020 Ket-Motion 2030	Ket-Motion 2020 Ket-Motion 2030	Ket-Motion 2020 Ket-Motion 2030	Ket-Motion 2020 Ket-Motion 2030	Ket-Motion 2020 Ket-Motion 2030	Ket-Motion 2030	Ket-Motion 2030
<div><div>Bevel gearbox</div><div></div><div>i= 1:1</div></div>	Ket-Bee 200X L Ket-Bee 200X T	Ket-Bee 200X L Ket-Bee 200X T	Ket-Bee 200X L Ket-Bee 200X T	Ket-Bee 200X L Ket-Bee 200X T	Ket-Bee 200X L Ket-Bee 200X T	Ket-Bee 200X L Ket-Bee 200X T	Ket-Bee 200X L Ket-Bee 200X T
<div><div>Ex. drive controller</div><div></div><div>miControl</div></div>	mcDSA-E40 mcDSA-E45	mcDSA-E40 mcDSA-E45	mcDSA-E40 mcDSA-E45	mcDSA-E40 mcDSA-E45	mcDSA-E40 mcDSA-E45	mcDSA-E40 mcDSA-E45	mcDSA-E40 mcDSA-E45
	weitere miControl Reglertypen auf Anfrage						
	Our motors are perfectly designed to be combined with the most common drive controllers on the market. If you are planning to use a different controller, please contact us!						
<div><div>External encoder</div><div></div></div>	Our motors are characterized by seamless compatibility with all common encoder types on the market. We look forward to helping you meet your requirements and offering you the best possible solution.						
<div><div>Threaded spindle</div><div></div></div>	As through-spindle or with spindle nut as transmission element Spindle type: in various diameters, pitches, speeds and directions of rotation Material: steel, stainless steel, aluminum Length and finishing according to customer specifications						

# BLDC motors with planetary stage

for various motion control applications

## INFO DATA SHEET



Our BLDC motors are designed so that they can be seamlessly combined with planetary gearboxes from various manufacturers. This unique flexibility enables us to offer customized solutions for individual customer requirements - be it high torques or specific speeds.

With our innovative technology, we guarantee:


- Customized solutions for your specific requirements
- Compact design thanks to high power density of the motors
- Cost optimization through reduced stages for planetary gearboxes
- Maximum flexibility in integration thanks to suitable market components

Please do not hesitate to contact us for further information.

### Combinatorics BLDC motors (DC)


	t-Rex 3200-I-44-47		t-Rex 3200-I-44-89		t-Rex 3206-I-65-51	t-Rex 3206-I-65-86	
Size	44		44		65	65	
Length	47		89		51	86	
Winded with focus	max. torque	max. speed	max. torque	max. speed	max. speed	max. torque	max. speed
Rated voltage (VDC)	24 - 48		24 - 48		24 - 48	24 - 48	
Rated power (W)	41 - 74		31 - 61		90 - 155	68 - 140	
Rated speed (rpm)	2000 - 4664		600 - 1390		1785 - 3895	507 - 1123	
Rated torque (Nm)	0.2 - 0.15		0.5 - 0.4		0.5 - 0.4	1.3 - 1.9	
Stall torque (Nm)	1 - 1.5		1.8 - 2.9		2.5	6.7 - 9	
Item.-Nr.	3200.00-3000		3200.00-3002		3206.00-1000	3206.00-0003 3206.00-0005	

Planetary gear Economy Class	IMS.35/ IMS.42 Pro MAX LN*	#	IMS.35/ IMS.42 Pro MAX LN	IMS.35/ IMS.42 Pro MAX LN*	IMS .53/ IMS.62 Pro MAX LN*	IMS.53/ IMS.60 Pro MAX LN	IMS.53/ IMS.60 Pro MAX LN
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 η= 80% - 70% i= 4:1 bis 603:1 max. Gearbox backlash < 1°	Reduction range: Efficiency η: Recommended input speed: Permissible output torque T <sub>Ab</sub> : Backlash:	from i=4 to i=601 (3-stage) 80 % - 70 % 3,000 rpm IMS.35 ProMAX 3 - 15 Nm 0.9°DEG to 1°DEG	IMS.45 ProMAX 4 - 25 Nm 0.7°DEG to 0.8°DEG	IMS.53 ProMAX 8 - 50 Nm 0.7°DEG to 0.8°DEG	IMS.60 ProMAX 14 - 84 Nm 0.6°DEG to 0.7°DEG
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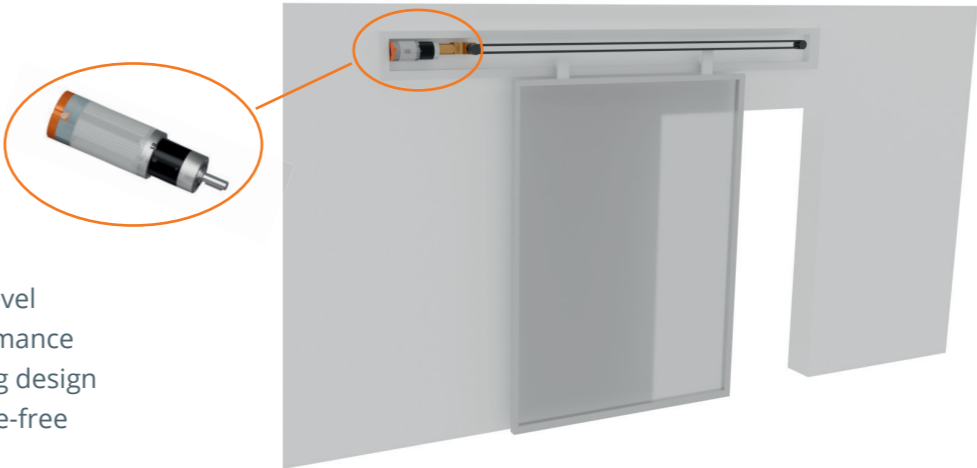
\* Only a speed-reduced application possible (n < 3000 rpm)

Planetary gear High Precision	PLE040	PLE040	PLE040	PLE040	PLE040 PLE060	PLE040 PLE060	PLE040 PLE060
----------------------------------	--------	--------	--------	--------	------------------	------------------	------------------

 η= 98% - 92% i= 3:1 bis 512:1 max. Gearbox backlash < 0,4°	Reduction range: Efficiency η: Recommended input speed: Permissible output torque T <sub>Ab</sub> : Backlash:	from i=3 to i=512 (3-stage) 98 % - 92 % 5,000 rpm or 4,500 rpm PLE 40 24 - 32 Nm 0.25°DEG to 0.37°DEG	PLE 60 64 - 70 Nm 0.17°DEG to 0.25°DEG
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### Possible applications:

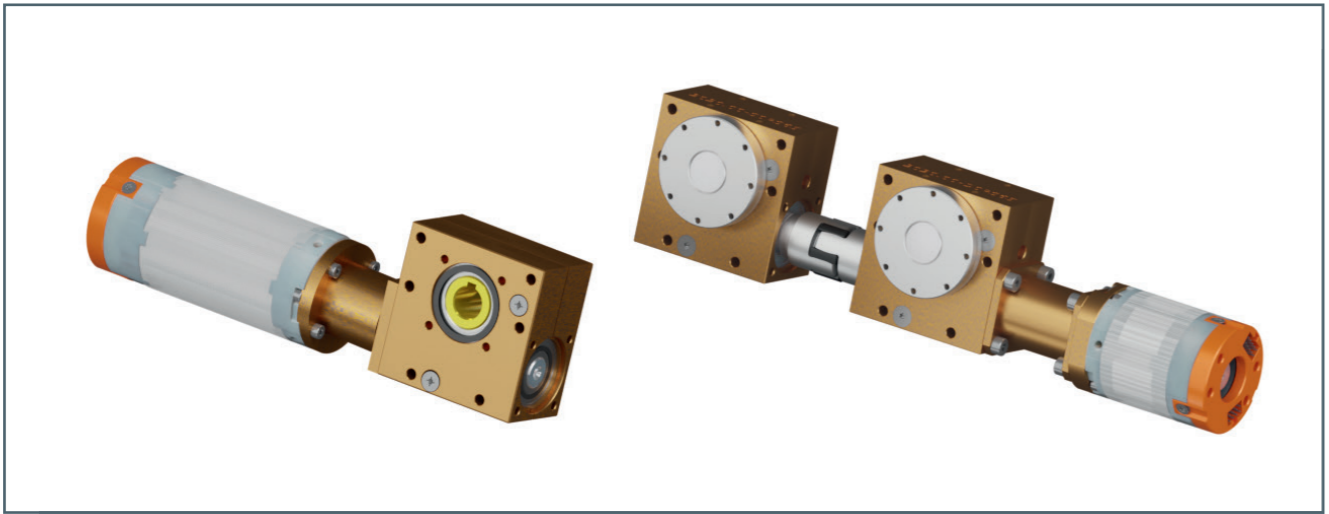
- **Sliding doors:** Ideal for residential and commercial premises, they allow smooth and quiet access
- **Security doors:** Increase protection with automated opening and closing mechanisms
- **Shutters:** Perfect for window and patio systems



- Low noise level
- High performance
- Space-saving design
- Maintenance-free

# BLDC motors with worm gearbox

## INFO DATA SHEET



Our BLDC motor with worm gearbox offers you a number of advantages. Thanks to the high efficiency and performance of the brushless DC motor, you can save energy and achieve powerful performance at the same time. The worm gear ensures precise and reliable power transmission as well as high transmission ratios, ideal for applications where a large torque boost is required

- High efficiency and performance
- Precise and reliable power transmission
- Can be freely combined with the gearboxes available on the market
- Option for compact design without clutch
- Energy saving and high performance

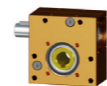
Thanks to Ketterer's flexibility, we can offer customized solutions that precisely meet your individual requirements.

Please contact us for further information.

## Combinatorics BLDC motors (DC)

	t-Rex 3200-I-44-47		t-Rex 3200-I-44-89		t-Rex 3206-I-65-51	t-Rex 3206-I-65-86	
Size	44		44		65	65	
Length	47		89		51	86	
Winded with focus	max. torque	max. speed	max. torque	max. speed	max. speed	max. torque	max. speed
Rated voltage (VDC)	24 - 48		24 - 48		24 - 48	24 - 48	
Rated power (W)	41 - 74		31 - 61		90 - 155	68 - 140	
Rated speed (rpm)	2000 - 4664		600 - 1390		1785 - 3895	507 - 1123	
Rated torque (Nm)	0.2 - 0.15		0.5 - 0.4		0.5 - 0.4	1.3 - 1.9	
Stall torque (Nm)	1 - 1.5		1.8 - 2.9		2.5	6.7 - 9	
Item.-Nr.	3200.00-3000		3200.00-3002		3206.00-1000	3206.00-0003 3206.00-0005	

Worm gearbox	Ket-Motion 2020*	Ket-Motion 2020*	Ket-Motion 2020	Ket-Motion 2020*	Ket-Motion 2020*	Ket-Motion 2030	Ket-Motion 2030
	Ket-Motion 2030*	Ket-Motion 2030*	Ket-Motion 2030	Ket-Motion 2030*	Ket-Motion 2030*		



i= 1:1 bis 65:1

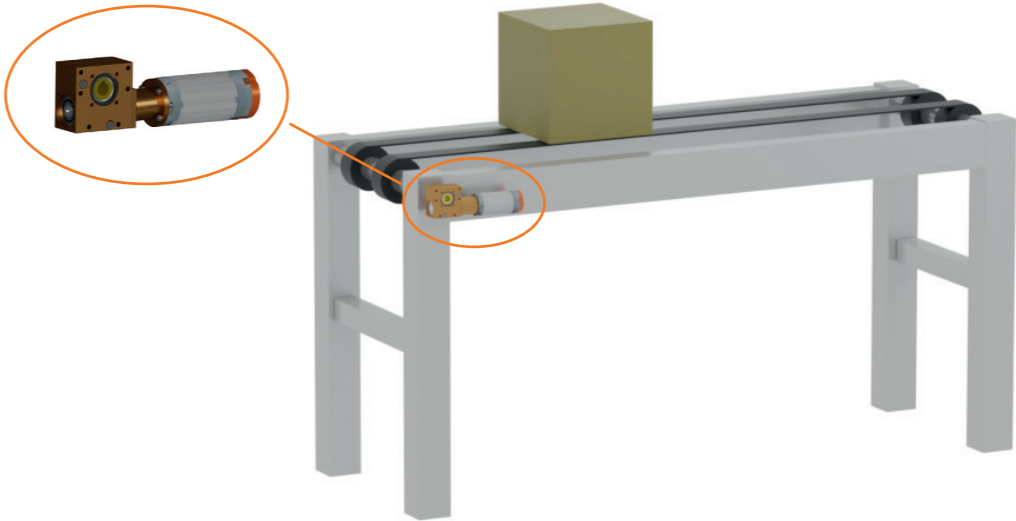
Reduction range: i=1 bis i=65  
Empfohlene Eingangs-drehzahl: max. 1.000 rpm  
Recommended input speed: from 0.2 Nm to 5.4 Nm  
Duty cycle: 20% at 5 min (designed for intermittent operation)  
Backlash: 1° DEG + 0.5° DEG  
Variance: With a drive journal or with through worm gear  
Housing made of aluminum, for 2020

\* Only a speed-reduced application possible

Products from other manufacturers on request

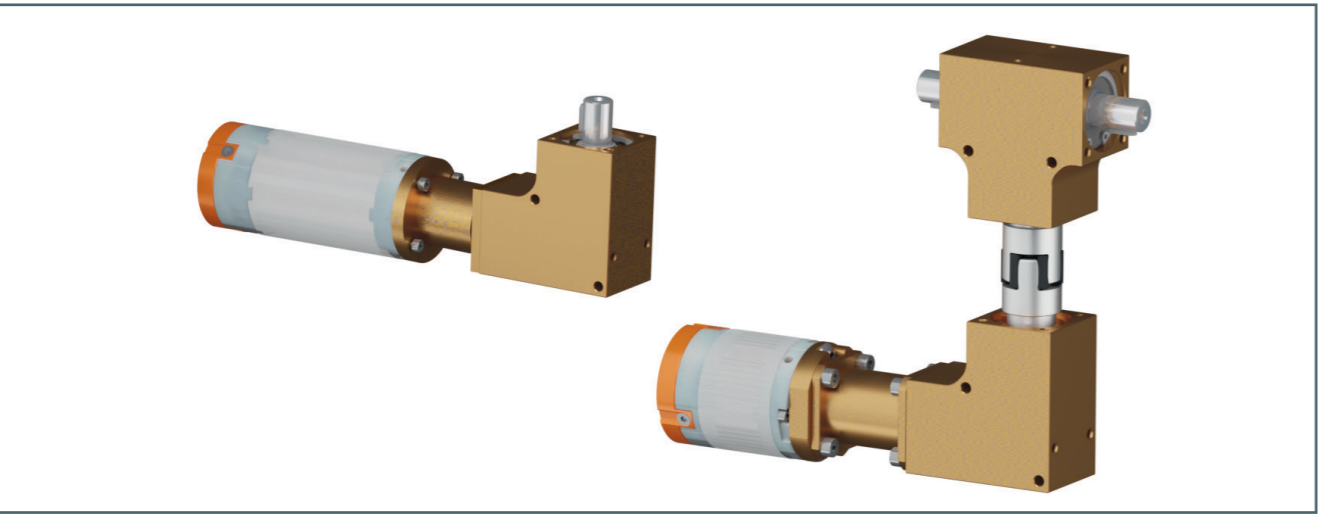
## Possible applications:

- **Electric swivel mechanisms for inspection and maintenance access:** For machines and systems where access flaps or doors need to be moved. The swivel mechanism can handle large loads handle large loads with low maintenance.
- **Conveyor and roller belts:** For high transmission ratios, precise power transmission and energy-efficient performance.
- **Rotary movements in mechanical engineering:** Highly reliable and durable drive solution with high efficiency and precision with high torque.




# BLDC motors with bevel gearbox

## INFO DATA SHEET



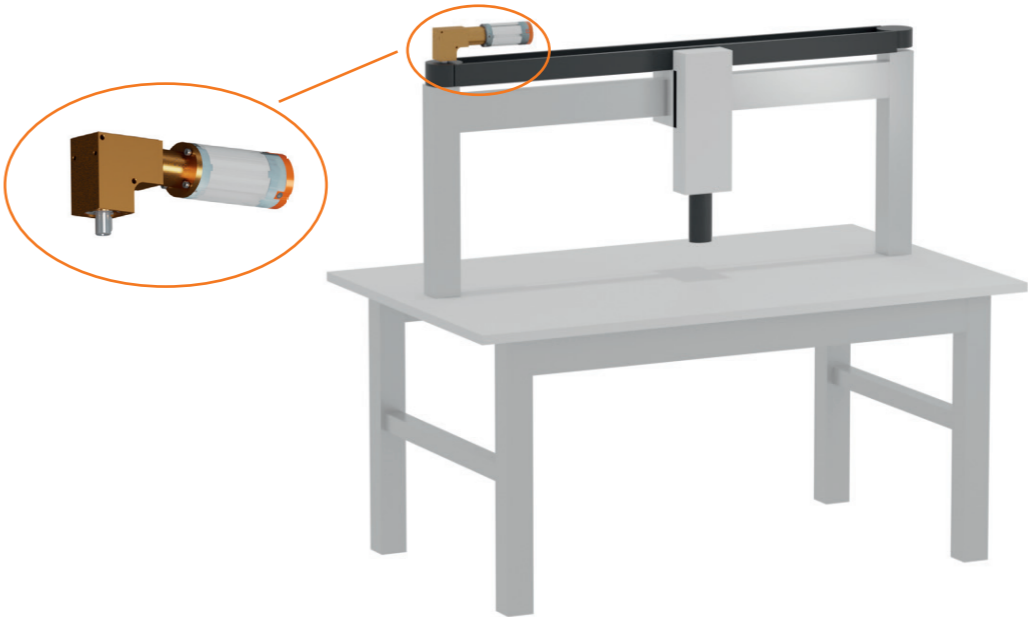
### Combinatorics BLDC motors (DC)

	t-Rex 3200-I-44-47		t-Rex 3200-I-44-89		t-Rex 3200-I-65-51	t-Rex 3206-I-65-86	
Size	44		44		65	65	
Length	47		89		51	86	
Winded with focus	max. torque	max. speed	max. torque	max. speed	max. speed	max. torque	max. speed
Rated voltage (VDC)	24 - 48		24 - 48		24 - 48	24 - 48	
Rated power (W)	41 - 74		31 - 61		90 - 155	68 - 140	
Rated speed (rpm)	2000 - 4664		600 - 1390		1785 - 3895	507 - 1123	
Rated torque (Nm)	0.2 - 0.15		0.5 - 0.4		0.5 - 0.4	1.3 - 1.9	
Stall torque (Nm)	1 - 1.5		1.8 - 2.9		2	6.7 - 9	
Item.-Nr.	3200.00-3000		3200.00-3002		3206.00-1000	3206.00-0003 3206.00-0005	

	Ket-Bee 200X L*		Ket-Bee 200X L*	Ket-Bee 200X L	Ket-Bee 200X L*	Ket-Bee 200X L*	Ket-Bee 200X L	Ket-Bee 200X L
	Ket-Bee 200X T*		Ket-Bee 200X T*	Ket-Bee 200X T	Ket-Bee 200X T*	Ket-Bee 200X T*	Ket-Bee 200X T	Ket-Bee 200X T
* Only a speed-reduced application possible								
i= 1:1	Ratio:	i = 1						
	Recommended input speed:	max. 1,000 rpm						
	Torque:	from 0.28 Nm to 14 Nm						
	Duty cycle:	20% at 5 min (designed for intermittent operation)						
	Backlash:	3° DEG +1° DEG						
	Variance:	As L-gearbox or as T-gearbox						
Products from other manufacturers on request								

### Mögliche Anwendung:

- **Mechanical engineering and industry:** For reliable motion deflection (1:1). The option of space-saving L- or T-arrangement increases the flexibility of the design. Ideal for applications where a compact design without additional coupling is required and efficiency and minimal energy loss are crucial.
- **Drive for articulated robots in production:** These drives enable precise movement deflections and are ideal for robot arms that require high precision and uniform power transmission.
- **Portal unit:** Can be used flexibly as a direct belt drive for these simple portal units



Our BLDC motors with bevel gearboxes are ideal for applications that require precise motion redirection with a transmission ratio of 1:1. As direct drives, they offer high efficiency and performance. The combination of BLDC motor and bevel gearbox enables reliable motion control in various applications.

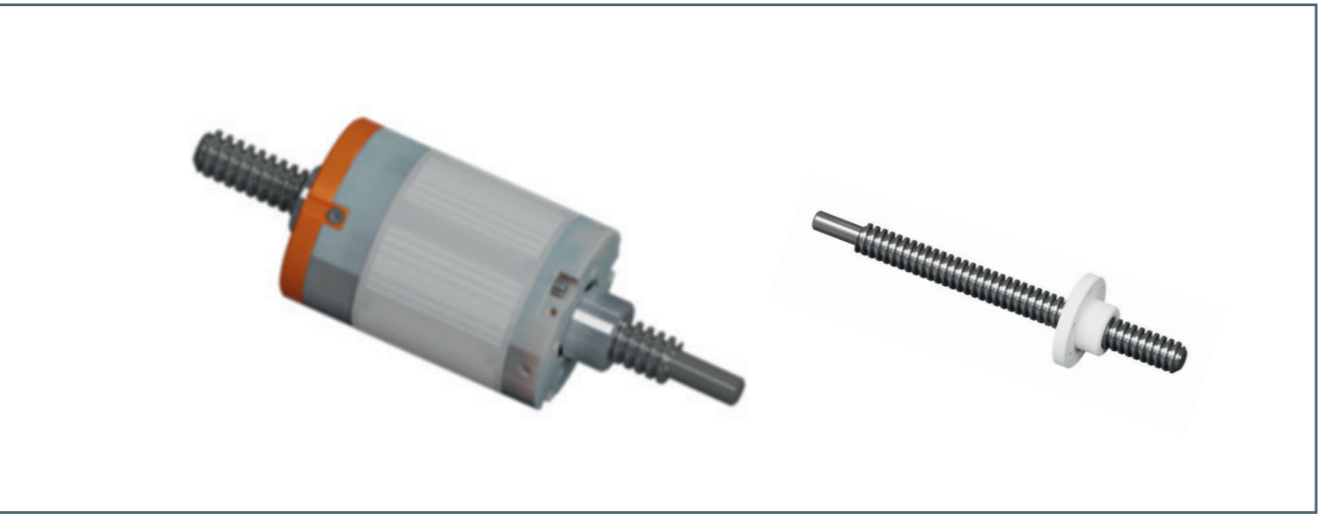
- Reliable motion deflection with 1:1 transmission ratio
- High efficiency and performance thanks to direct drive
- Minimized energy loss and reduced wear
- Spatial flexibility thanks to L-gearbox and T-gearbox for 90° or 2x90° deflection
- Option for compact design without coupling
- Can be freely combined with the gearboxes available on the market

Thanks to Ketterer's flexibility, we can offer customized solutions that precisely meet your individual requirements.

Please contact us for more information.

# BLDC motors spindle as linear actuator

## INFO DATA SHEET


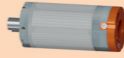




For applications in which a rotary motion is to be converted into a linear motion, we offer BLDC drive systems with threaded spindles - both as through spindles and with a matching spindle nut. Our range includes matching spindles with a large selection of diameters, pitches, speeds and directions of rotation. We use materials such as steel, stainless steel and aluminum. The length and finishing of the spindle are carried out according to your specifications.

- Customized solutions for your specific requirements
- Compact design thanks to the high power density of the motors
- Maximum flexibility in the selection of components

Contact us for more information or an individual consultation - we look forward to helping you realize your drive solution.

## Combinatorics BLDC-motors (DC)

	 t-Rex 3200-I-44-47		 t-Rex 3200-I-44-89		 t-Rex 3206-I-65-51	 t-Rex 3206-I-65-86	
Size	44		44		65	65	
Length	47		89		51	86	
Winded with focus	max. torque	max. speed	max. torque	max. speed	max. speed	max. torque	max. speed
Rated voltage (VDC)	24 - 48		24 - 48		24 - 48	24 - 48	
Rated power (W)	41 - 74		31 - 61		90 - 155	68 - 140	
Rated speed (rpm)	2000 - 4664		600 - 1390		1785 - 3895	507 - 1123	
Rated torque (Nm)	0.2 - 0.15		0.5 - 0.4		0.5 - 0.4	1.3 - 1.9	
Stall torque (Nm)	1 - 1.5		1.8 - 2.9		2.5	6.7 - 9	
Item.-Nr.	3200.00-3000	3200.00-3002	3200.00-0005 3200.00-0006	3200.00-0004 3200.00-0009	3206.00-1000	3206.00-0003 3206.00-0005	3206.00-0004

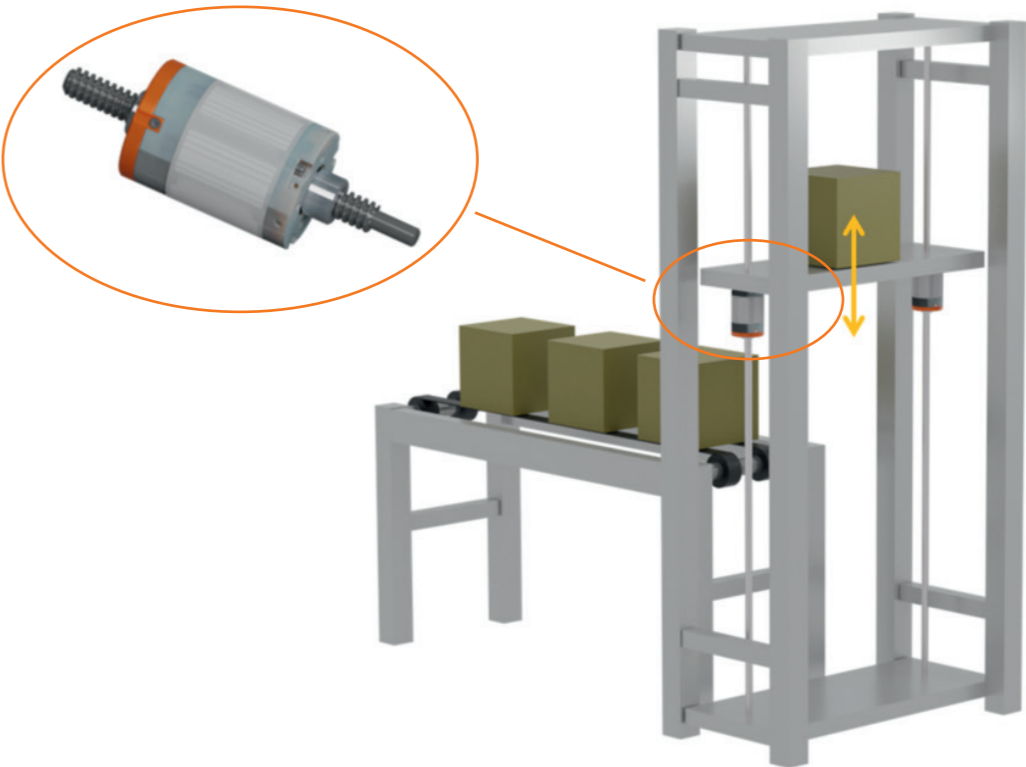
### Threaded spindle



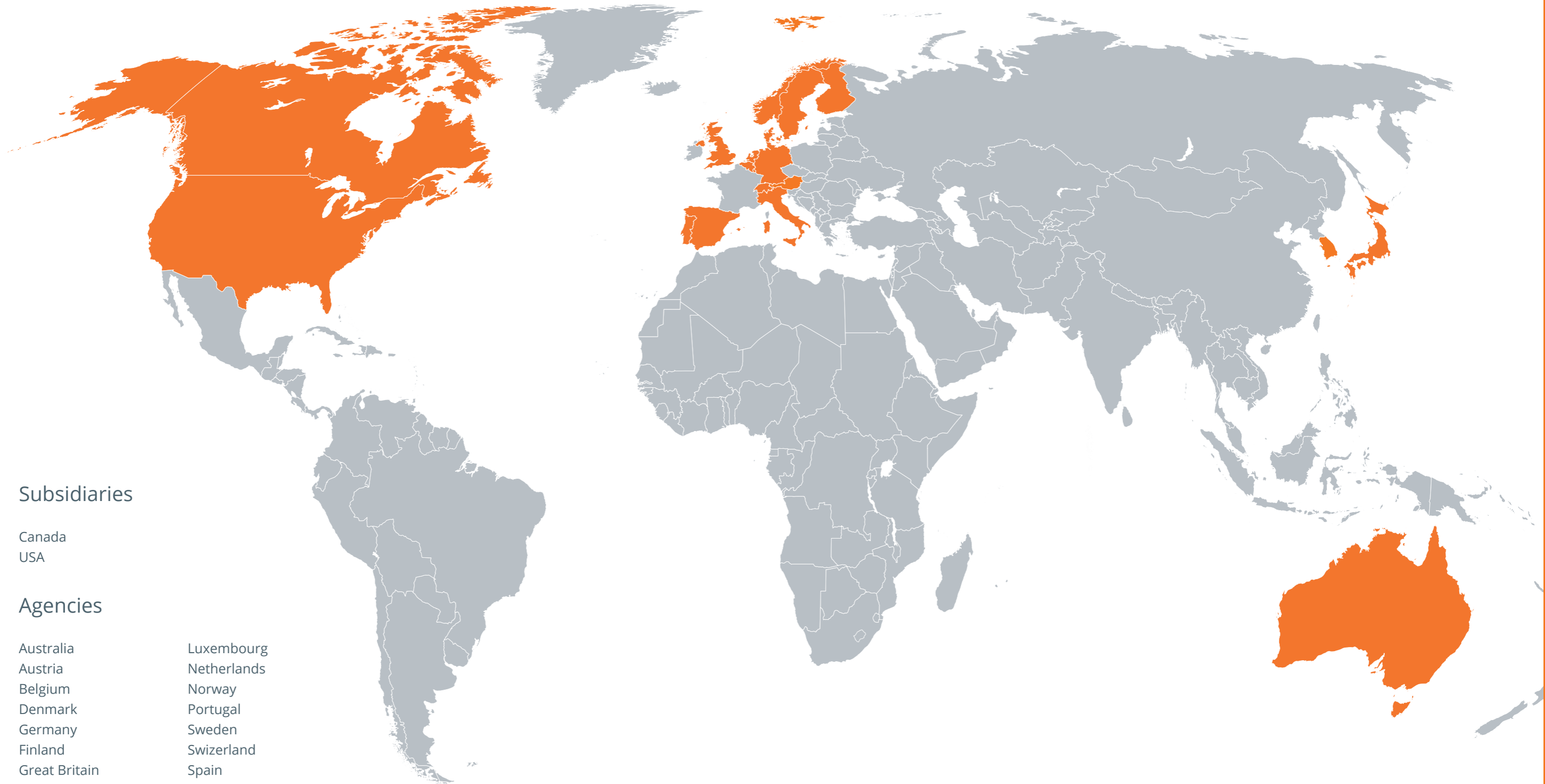
As through-spindle or with spindle nut as transmission element  
Spindle type: in various diameters, pitches, speeds and directions of rotation  
Material: steel, stainless steel, aluminum  
Length and finishing according to customer specifications

## Possible applications

- **Automated workpiece feeding in production lines:** The high precision and flexibility of the spindle make them perfect for the automated transportation and positioning of workpieces.
- **Lifting and lifting devices:** Particularly compact and energy-efficient solution that can be individually adapted to customer requirements and can be seamlessly integrated into existing production systems.
- **Linear movements in industry and mechanical engineering:** Our BLDC motors with spindles are ideal for linear movements in production systems.



# USED AROUND THE WORLD



## Subsidiaries

Canada  
USA

## Agencies

Australia	Luxembourg
Austria	Netherlands
Belgium	Norway
Denmark	Portugal
Germany	Sweden
Finland	Switzerland
Great Britain	Spain
Italy	South Korea
Japan	

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