

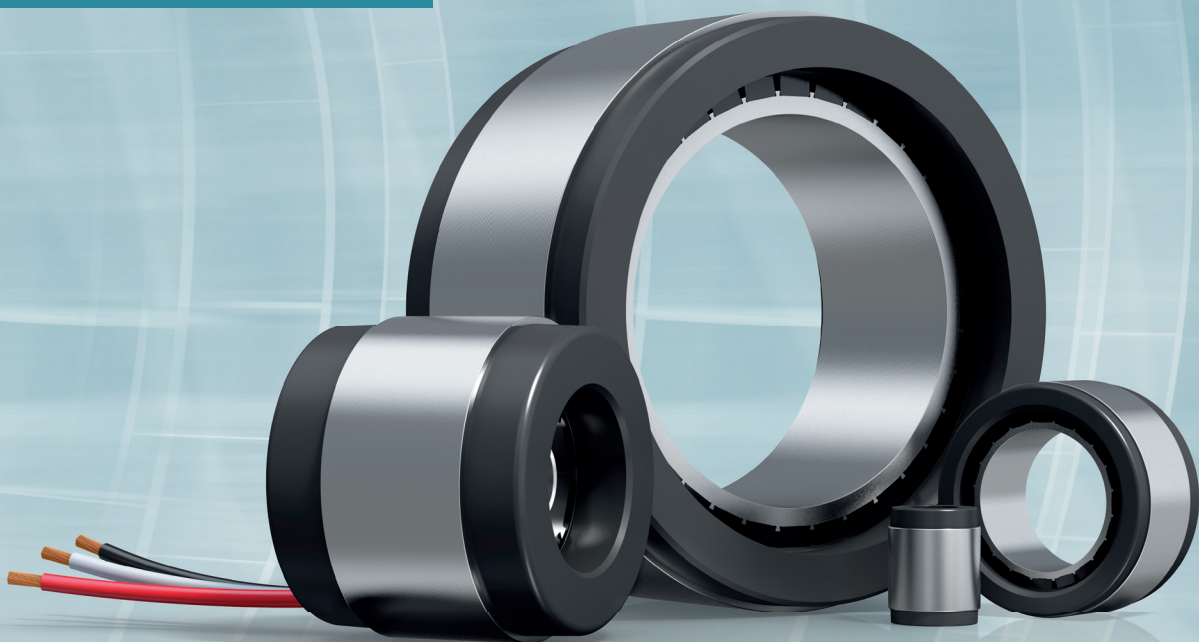


**WITTENSTEIN**

cyber motor

## cyber<sup>®</sup> kit motors Frameless servo motors

compact  
dynamic  
highly integrable



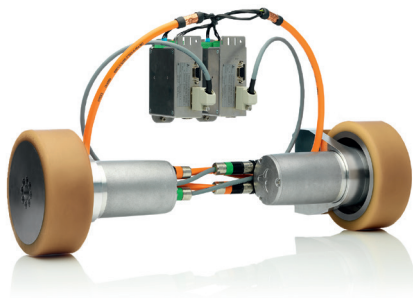
# WITTENSTEIN cyber motor sets international benchmarks in mechatronic drive technology

MADE IN GERMANY

EVERYTHING FROM A SINGLE SOURCE

- > DEVELOPMENT
- > PRODUCTION
- > SALES & SERVICE

► BROAD MOTOR BASE AS A STARTING POINT FOR CUSTOMIZED SOLUTIONS



## MECHATRONIC SYSTEM SOLUTIONS

We combine expertise from the following areas:

- Servo motors (rotary & linear)
- Servo actuators (linear & rotary)
- Drive electronics
- Sensors
- Software

## Testing, approval and certification

Our products can be certified according to:



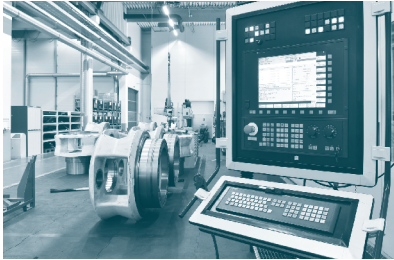
## From industrial applications to extreme environmental conditions

- Industrial environment
- High and low temperatures
- Vacuum
- Clean room
- Food industry
- Potentially explosive atmospheres
- Radiation

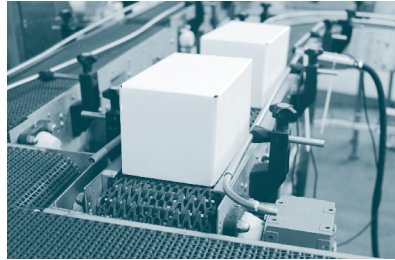


# Applications for frameless servo motors

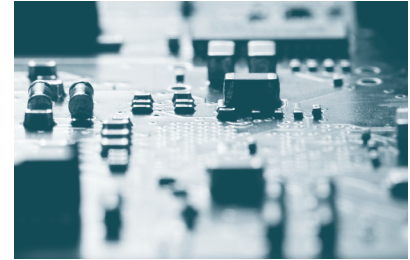
## Measurement and testing technology



## Electr. automation and drive technology



## Semiconductor and electronics production



## Assembly and production machines



## Robotics and handling



## Food and packaging



# Benefits of frameless servo motors

## Compact design

- Maximum torque density
- Power density up to 10 kW/kg
- Low axial length due to minimized height of winding head

## Efficiency

- Low power losses
- Low mass inertia
- Increased heat dissipation

## Flexibility

- Stator diameters from 19 mm to 440 mm
- Voltages up to 750V<sub>DC</sub> possible
- Power & torque-optimized versions



## Suitable for integration

- Support with integration (magnet retaining sleeve, insertion fixture)
- Customer-specific interfaces (mounting pattern, motor shaft, etc.)
- Expansion of the scope of delivery to provide a ready-to-install system

## Precision

- Optimized synchronization characteristics
- Low torque ripple
- Minimal cogging torque

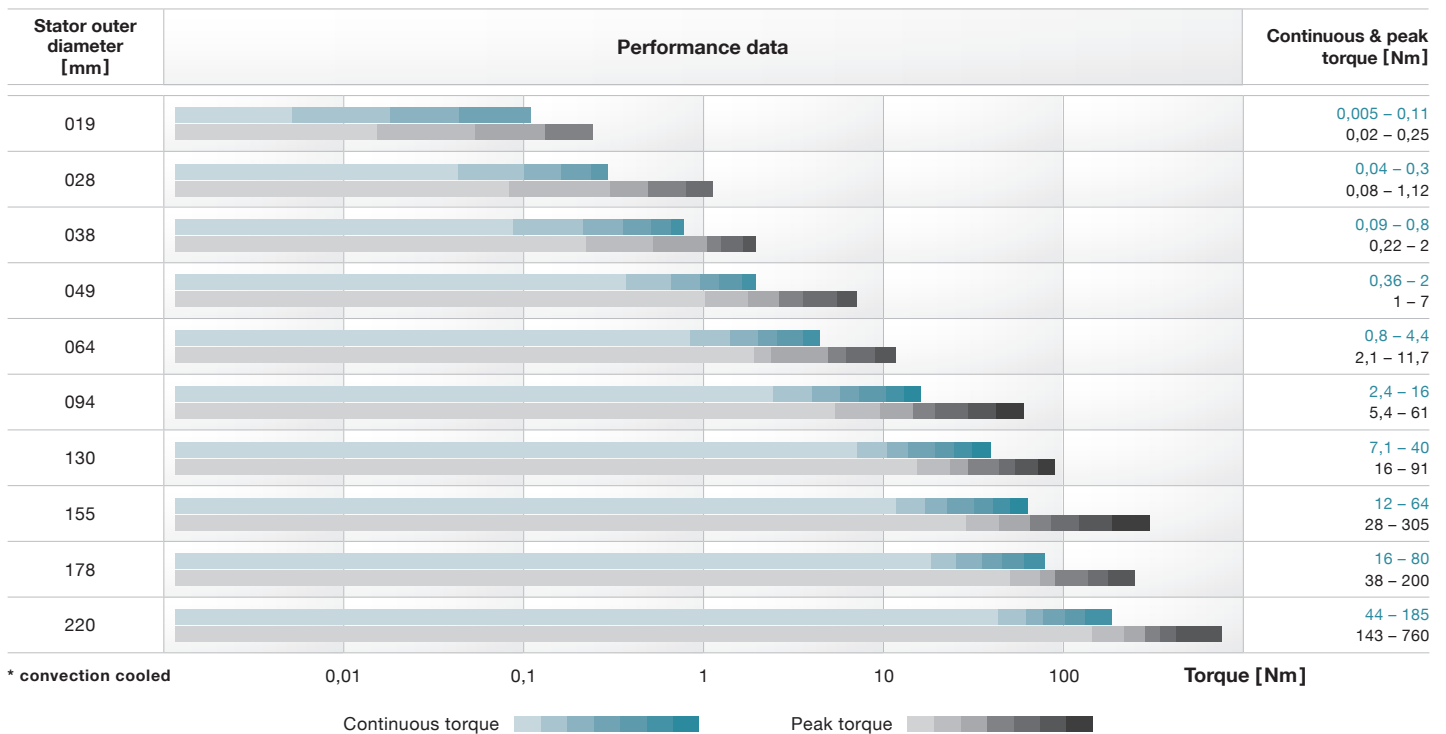
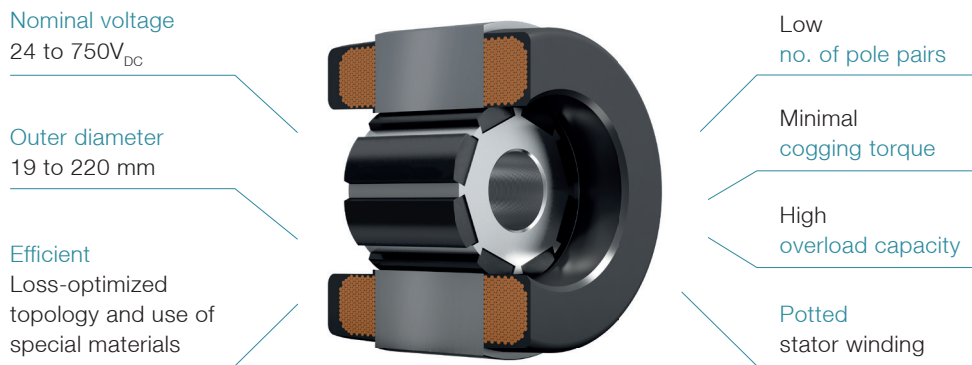
## Robustness

- Potted stators
- Test bench for frameless motors
- Extended and customized testing

# Power-optimized motors

Stator outer diameter D [mm]	Length of laminated core L [mm]										Height of winding head		Hollow shaft H [mm]
	7	17	30	45	60	90	120	165	230	360	A [mm]	B [mm]	
019											2,5	2,5	3
028											4,8	5,8	4,5
038											7	10	6,2
049											9	13	10
064											11	15	12
094											15	20	12
130											23	25	31
155											28	32	35
178											30	34	37
220											38	40	100

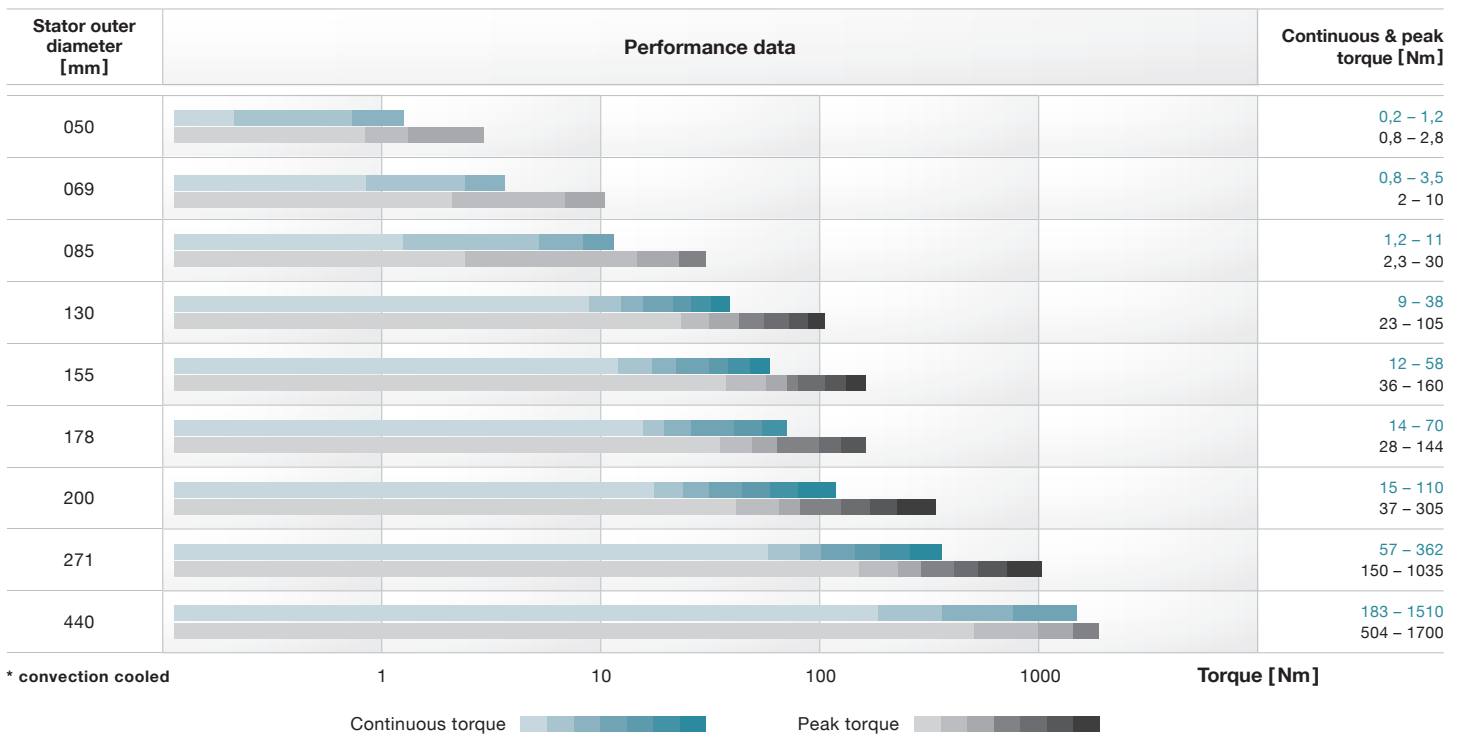
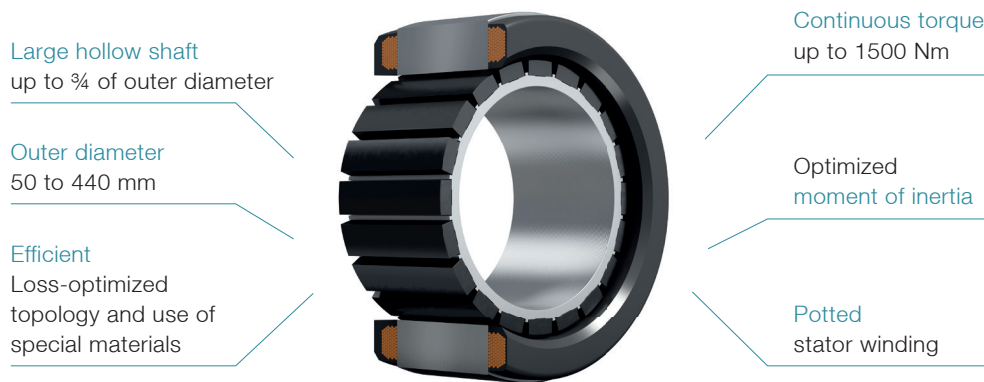
Overall length = L + A + B



# Torque-optimized motors

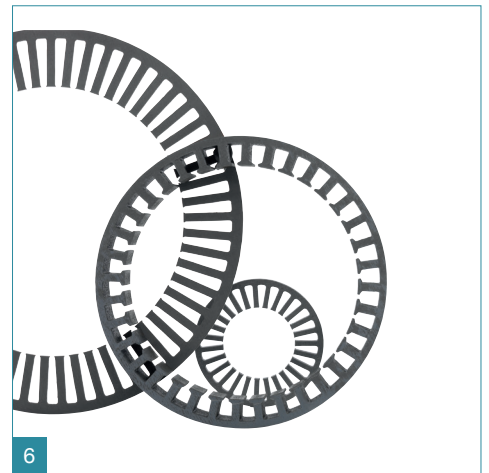
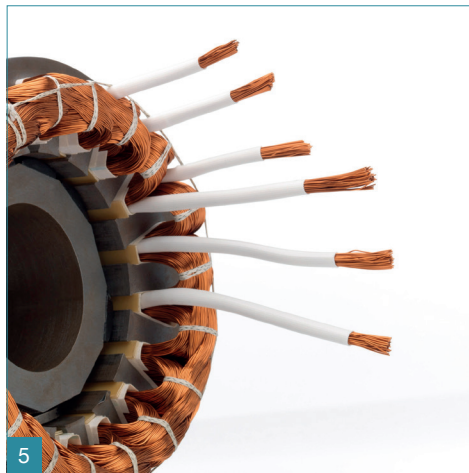
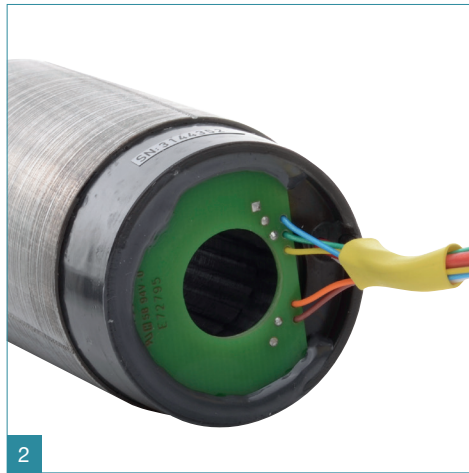
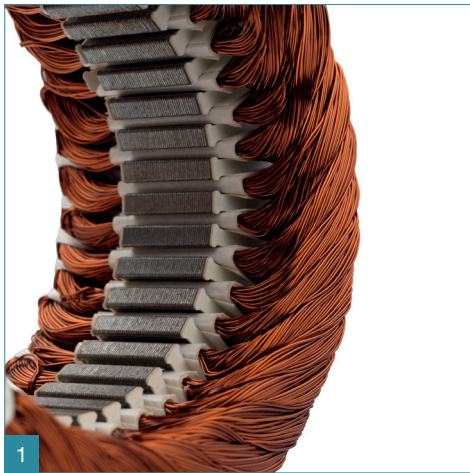
Stator outer diameter D [mm]	Length of laminated core L [mm]											Height of winding head		Hollow shaft H [mm]
	7	17	30	45	60	90	120	165	230	360	560	A [mm]	B [mm]	
050	[Bar chart showing core length options for D=050]											3	6	30
069	[Bar chart showing core length options for D=069]											3,5	5,5	42
085	[Bar chart showing core length options for D=085]											6	6,2	52
130	[Bar chart showing core length options for D=130]											11	13	85
155	[Bar chart showing core length options for D=155]											11	13	95
178	[Bar chart showing core length options for D=178]											21	26	104
200	[Bar chart showing core length options for D=200]											22	27	115
271	[Bar chart showing core length options for D=271]											15	20	185
440	[Bar chart showing core length options for D=440]											28	33	330

Overall length = L + A + B



compact · dynamic · highly integrable

# Options



## Wide range of motor products for individual solutions

### 1) WINDING

Winding is adapted to achieve the required speed, torque, voltage or current input.

### 2) SENSORS

Optionally available with integrated sensors, e.g. temperature sensor, Hall sensor, etc.

### 3) INTERFACES

Individual mechanical adjustments to rotor and stator to ensure optimum integration in customer application.

### 4) COOLING

Standard: Convection cooled  
Optional: Liquid cooling

### 5) CABLE OUTLET

Standard: Axial  
Optional: Individual outlet direction (radial)

### 6) INDIVIDUAL LAMINATED CORES

Customer-specific lamination design

# Integration in the overall system

## INCREASE THE DEGREES OF FREEDOM IN YOUR DESIGN

**Maximum efficiency and superior performance data** in a limited space are typical requirements for frameless motors. We can help you achieve ideal integration in your system. We can modify the interface and/or scope of delivery to ensure reliable and cost-effective installation.

## YOUR OPTIONS

We simplify and speed up integration in your application.

### Support with integration

### We take on subsequent production steps

#### Help with integration

WITTENSTEIN provides insertion devices and training courses (e.g. magnetic bonding, shrink fitting)



#### Assembly at

#### - Customer -

Technical support by WITTENSTEIN

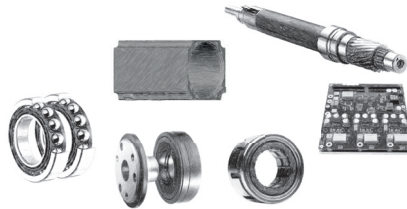


Independent integration with technical support

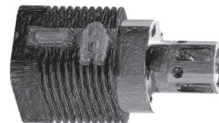
#### cyber® kit motor



#### Extendible scope of delivery



#### Individualized assembly / application



#### We perform integration

WITTENSTEIN deals with the parts provided and assembles them to produce ready-to-install assemblies



#### Assembly at

#### - WITTENSTEIN -

You provide the individual components



Delivery of a ready-to-install system

#### Your advantages if we help with integration

- We minimize your risks by providing expert support
- You increase your internal added value
- We share our development & production expertise with you

#### Your advantages if we take on subsequent production steps

- You benefit from our experience in development & assembly
- Ideal level of integration reduces your costs
- Delivery of a ready-to-install assembly simplifies integration in your system



cyber motor

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**WITTENSTEIN – one with the future**  
[www.wittenstein-cyber-motor.de](http://www.wittenstein-cyber-motor.de)