

# KENDRION



**KENDRION** SOLUTIONS

## Servo Line

Fail-safe spring-applied brake  
with high variability

PRECISION. SAFETY. MOTION.

# Our brakes - perfect for your safe application

KENDRION Industrial Brakes - this stands for excellent service and smart innovation, which we consistently use for the benefit of our customers:

## Strong know-how

Our specialists develop pioneering permanent magnet and spring-applied brakes. On the one hand, they use the bundled know-how in the team; on the other hand, they maintain a dialogue with customers in order to always keep trends and requirements in mind. With INTORQ as a new addition to KENDRION, we have once again consistently expanded our range of spring-applied brakes and clutches for you. So we can find the right solution for every requirement.



## Complete product portfolio

Electromagnetic brakes and clutches as well as perfectly matched accessories: With us you will find an exceptionally large selection of quickly available off-the-shelf products that can be put together in a modular system and the best expertise for customer-specific solutions.

## Dynamic innovative power

Worldwide, more than 50 specialists in our research and development department work in agile teams to create convincing product solutions for tomorrow.

## In-depth market knowledge

We are very familiar with our focus markets - thanks to in-depth experience and research, but also thanks to long-standing customer relationships based on partnership at eye level.

## International power

Committed and competent employees, production sites in Germany, United States, India and China as well as a large number of certified sales partners all over the world make us a strong partner for you!

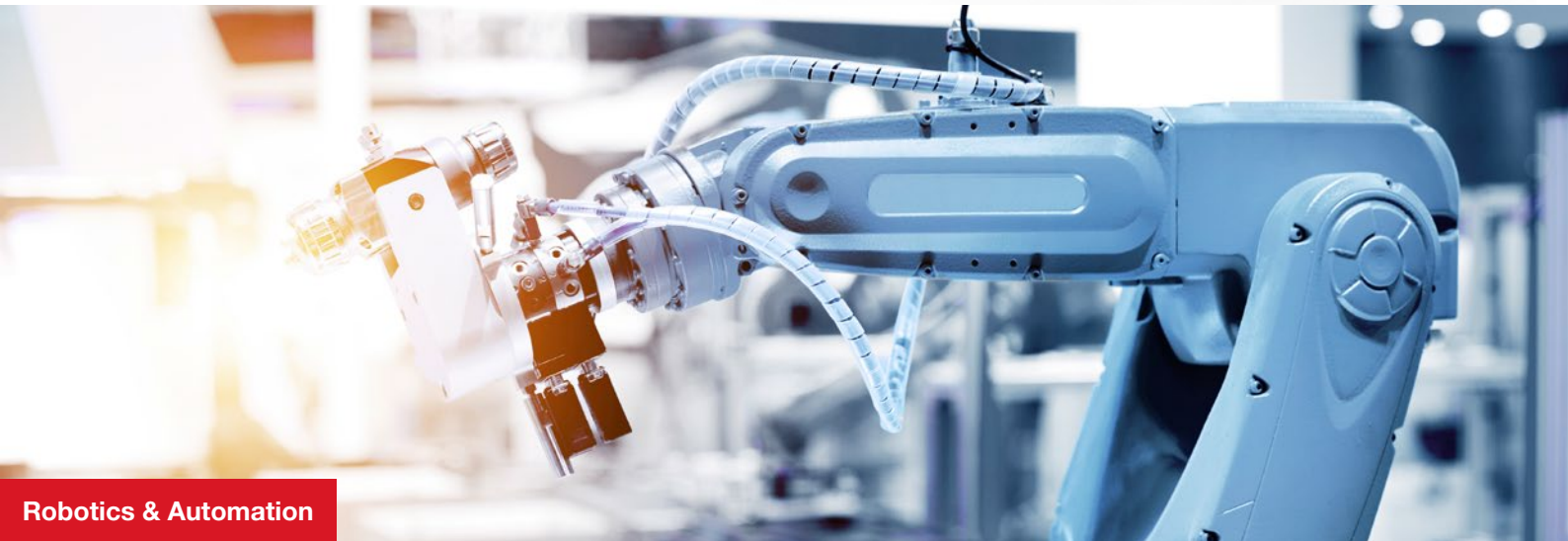
# The Servo Line

## On the point

- Fail-safe spring-applied brake
- Holding brake with emergency stop function
- A total of 10 different sizes available
- Torque range from 0.27 Nm to 70 Nm
- Standard temperature range from  $-15^{\circ}\text{C}$  to  $+120^{\circ}\text{C}$



## Suitable for the use of:



Robotics & Automation



Automated Guided Vehicles (AGVs)



Medical Technology



## Servo Line

**The Servo Line series of spring-applied brakes has been developed for integration into servomotors.**

The spring-applied brakes are designed for use as holding brakes with emergency stop function. They are suitable for use in a wide range of industrial applications such as automation & robotics, machine tool engineering, packaging & materials handling, storage systems, assembly lines or renewable energies.

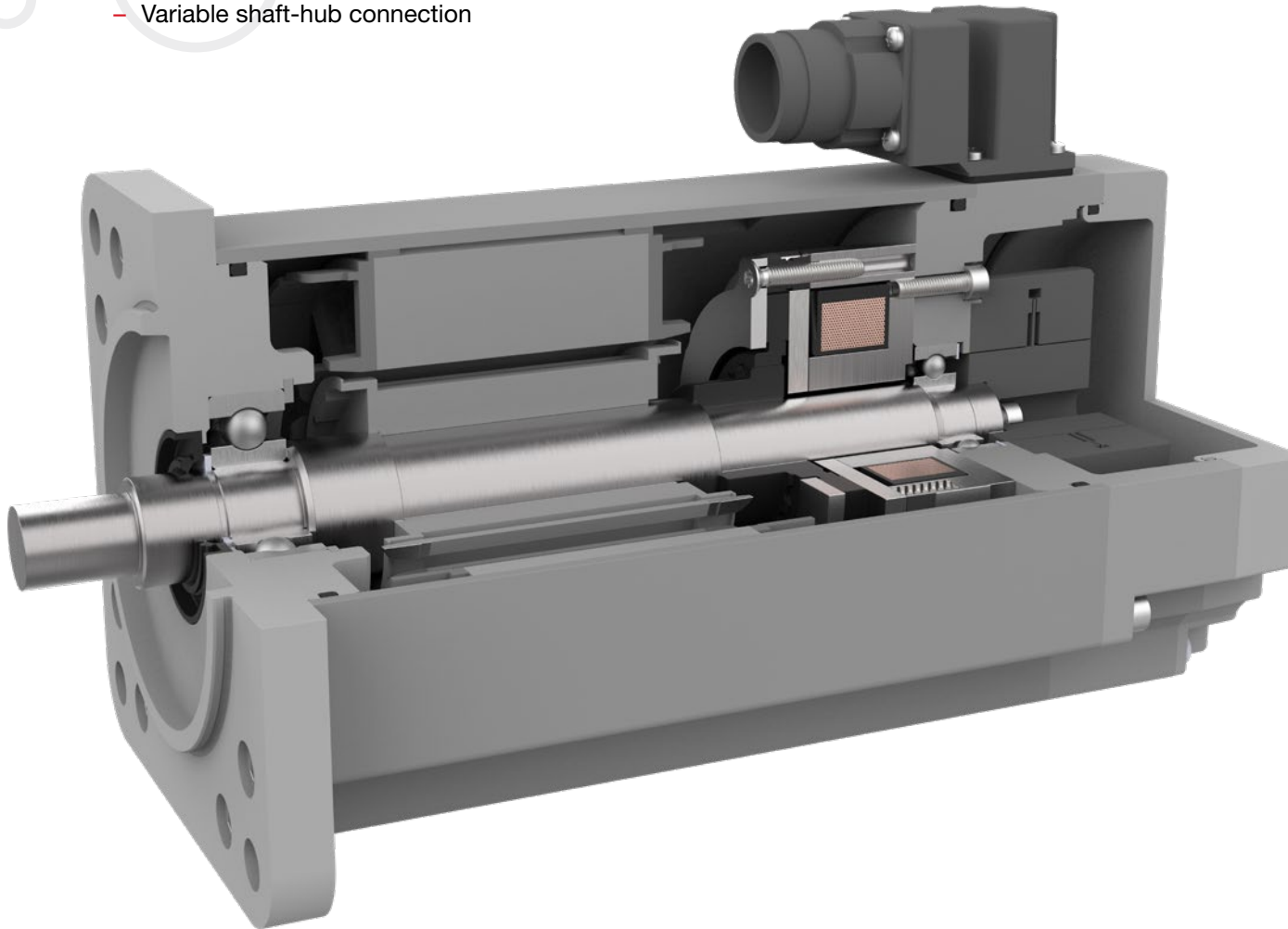
The spring-applied single-disc brakes in the Servo Line series are designed to operate dry. They can be mounted to the A-face or B-face end shield inside the servomotor. The braking effect produced by the compression springs is neutralized by applying the electromagnetic principle involving the generation of a magnetic field. The brakes engage in unpowered condition and release when DC voltage is applied.

- The brakes are equipped with a flange and firmly fastened with screws.
- Using specially developed, proprietary and patented manufacturing technology, the nominal air gap tolerance can be reduced to a few hundredths of a millimetre, providing enhanced power.
- Toothed hub/friction disc connection with minimal backlash.
- Standard version suitable for flange mounting and face mounting.

Our wealth of experience in brake design and state-of-the art manufacturing technologies enables us to achieve an optimum brake service life for given temperature and torque specifications.

## Ideal for integration into servomotors

- Designed for integration into motors
- Possible A-side and B-side mounting to fixed and floating bearing
- Simple and versatile installation options
- Variable shaft-hub connection



## Technical highlights

- High power density due to patented air gap adjustment
- Guaranteed minimum torque over entire life time
- Fast opening and closing times
- Noise-reduced switching behaviour

# Brake types

The two standard brake types – 100 and 101 – have been specially developed for integration into servomotors. The innovative design of the Servo Line brakes provides high power density and versatile installation options. Customers are welcome to discuss their specific requirements with us to receive customized solutions.

## Brake type 100

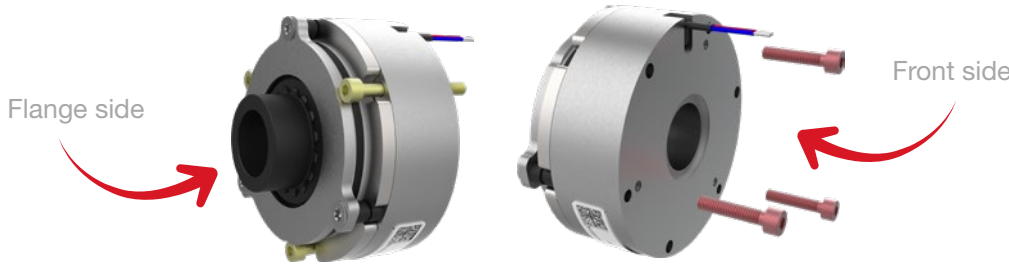
### Long hub

- Brake can be guided over the hub **only** on the flange side
- Mounting of the brake on the motor bearing shield is possible on the flange and front side.
- Hub protrudes from brake flange (longer overall length)

### Mounting options

Flange side

Front side



## Brake type 101

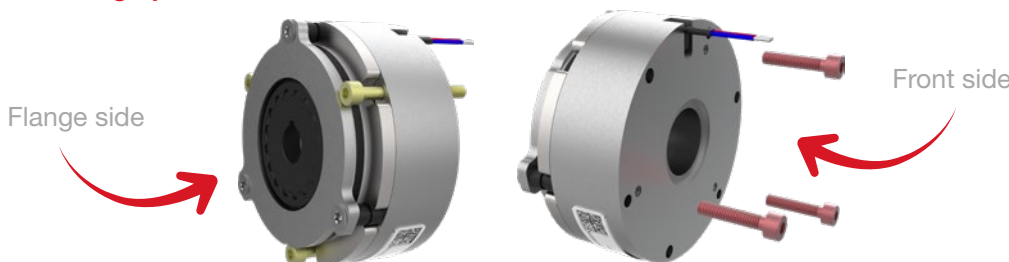
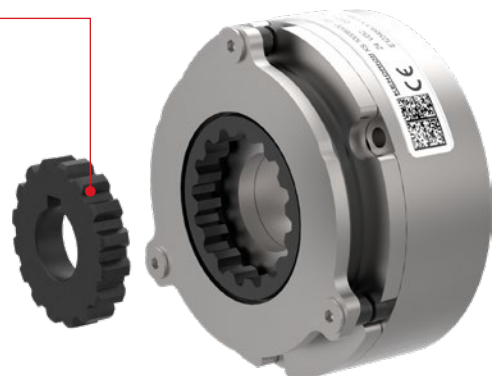
### Short hub

- Brake can be guided over the hub **only** on the flange side
- Mounting of the brake on the motor bearing shield is possible on the flange and front side.
- Hub is flush with brake flange (smaller overall length)

### Mounting options

Flange side

Front side



# Hub types

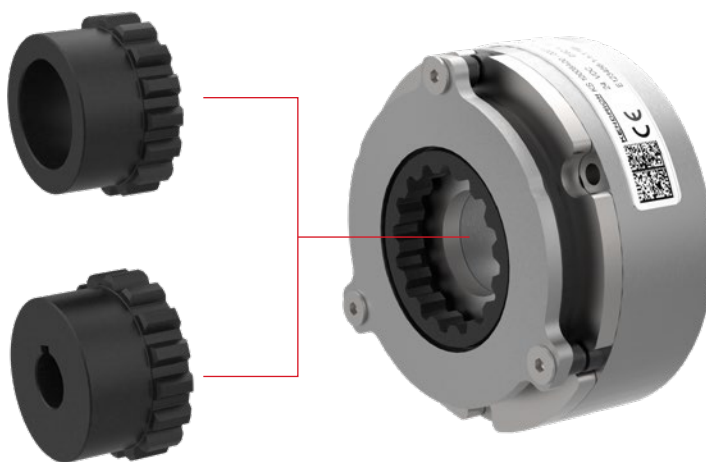
The hub is the connecting element between the motor shaft and the brake. The hubs of the Servo Line offer various options in terms of hub length, hub diameter and keyway design. The hub type can be selected based on the specific installation conditions.

## Hub for brake type 100

### Long hub

- Long hub
- For press-fit connection
- Special version with set screws available on request

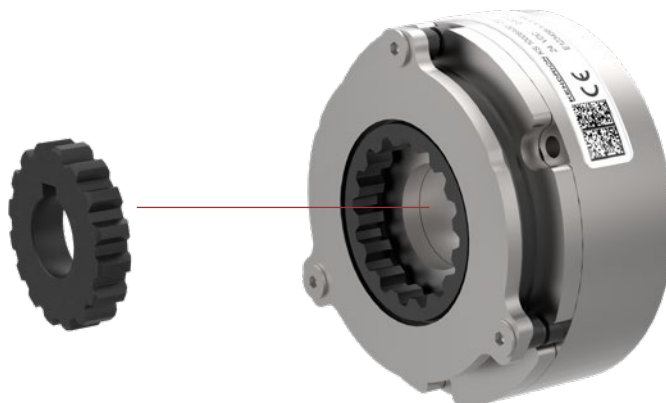
- Long hub
- With keyway
- Special version with set screws available on request



## Hub for brake type 101

### Short hub

- Short hub
- With keyway



# Technical details

<b>Product code / Types</b>	KS 100..A00 ; KS 101..A00
<b>Operation mode</b>	Holding brake with emergency stop function
<b>Standard nominal voltage</b>	24 VDC (other ratings available on request)
<b>Protection class</b>	IP00
<b>Thermal class</b>	F (155°C)
<b>Transmittable torque range</b>	0.27 Nm to 70 Nm
<b>Duty cycle</b>	100% ED
<b>Nominal backlash</b>	1°
<b>Ambient temperature</b>	-15°C to +120°C
<b>Note</b>	The general information on specification sheets and the relevant operating instructions must be observed. Subject to change without notice.

Brake size	Brake type		Min. transmittable torque <sup>1)</sup>	Nominal power	Max. rotation speed <sup>2)</sup>	Max. emergency stop rotation speed	Maximum switching energy per ES (Z=1)	Number of emergency stops	Switching times		Max. inertia friction disc incl. hub	Max. weight brake incl. hub
									Coupling time <sup>3)</sup>	Opening time		
			$M_{4min}$ [Nm]	$P_N$ [W]	$n_{max}$ [min <sup>-1</sup> ]	$n$ [min <sup>-1</sup> ]	$W_{max}$ [J]	$Z_{ges}$	$t_{c1}$ [ms]	$t_o$ [ms]	$J$ [kgcm <sup>2</sup> ]	$m$ [kg]
03	100	101	0.27	6.6	10000	6000	1	500 (Standard)	20	30	0.003	0.13
04	100	101	1.3	8.5	10000	6000	10		20	35	0.014	0.25
05	100	101	2.0	11.4	10000	5000	40		10	58	0.03	0.4
06	100	101	3.3	12.7	8000	4000	70		12	65	0.062	0.5
07	100	101	4.5	14	8000	4000	100		20	80	0.13	0.76
08	100	101	7	14.7	6500	3000	140		30	100	0.263	0.9
10	100	101	16	20.8	6000	3000	600		40	145	1	1.9
12	100	101	32	29.5	4000	2500	1600		50	195	2.8	3.2
14	100	101	50	36.2	4000	2500	2400		55	240	4.4	5.0
16	100	101	70	37.6	3500	1500	5000		100	350	9.8	6.9

<sup>1)</sup> Minimum guaranteed static torque over life time (factory ground and torque-tested brakes)

<sup>2)</sup> Without emergency stop

<sup>3)</sup> Measured with parallel varistor (fast turn-off)



# Dimensions

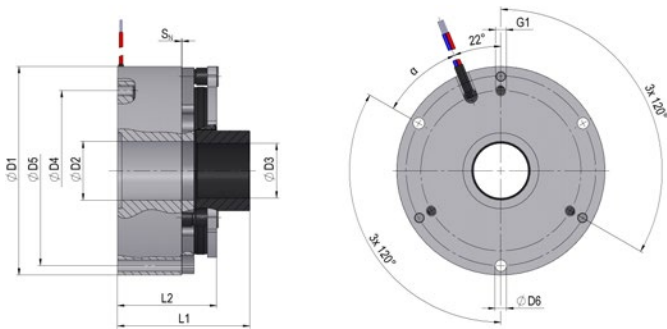
Brake size	Brake type		$\varnothing D_1$ [mm]	$\varnothing D_2$ [mm]	$\varnothing D_3$ [mm]				$\varnothing D_4$ [mm]	$\varnothing D_5$ [mm]	$\varnothing D_6$ [mm]	$G_1$ [mm]	$\alpha$ [°]	$L_1$ [mm]		$L_2$ [mm]	$S_N$ <sup>1)</sup> [mm]
					Type 100		Type 101							Type 100	Type 101		
					Press-fit <sup>2)</sup>		Keyway <sup>3)</sup>										
					Min.	Max.	Min.	Max.									
03	100	101	32	8.2	6.5 <sup>FG6</sup>	7.5 <sup>H7</sup>	–	6 <sup>H7</sup>	28	28	2 x 2.3	2 x M2.5	68	34.1	28.2	28.9	0.08 <sup>+0.02</sup>
04	100	101	44	11.5	8.5 <sup>H7</sup>	10.5 <sup>H7</sup>	6.5 <sup>H7</sup>	8 <sup>H7</sup>	40	39.5	2 x 2.8	2 x M3	68	36.6	29.3	30	0.08 <sup>+0.02</sup>
05	100	101	51	13.5	10.5 <sup>H7</sup>	12.5 <sup>H7</sup>	6.5 <sup>H7</sup>	9.5 <sup>H7</sup>	45	45	3 x 3.3	3 x M3	38	37.8	31.1	32	0.09 <sup>+0.02</sup>
06	100	101	62	16.5	10.5 <sup>H7</sup>	15.5 <sup>H7</sup>	9 <sup>H7</sup>	12 <sup>H7</sup>	42	55	3 x 4.3	3 x M4	38	43.7	31.4	32.2	0.09 <sup>+0.02</sup>
07	100	101	72	19	15.5 <sup>H7</sup>	17.5 <sup>H7</sup>	9 <sup>H7</sup>	13 <sup>H7</sup>	54	65	3 x 4.4	3 x M4	38	47.4	35.8	36.6	0.11 <sup>+0.02</sup>
08	100	101	78	22	15.5 <sup>H7</sup>	20.5 <sup>H7</sup>	10 <sup>H7</sup>	16 <sup>H7</sup>	60	71	3 x 4.3	3 x M4	38	49.5	36.3	37	0.12 <sup>+0.02 / -0.03</sup>
10	100	101	102	27	20.5 <sup>H7</sup>	25.5 <sup>H7</sup>	12.5 <sup>H7</sup>	20 <sup>H7</sup>	72	93	3 x 5.3	3 x M5	38	58.7	42.2	43	0.15 <sup>+0.02 / -0.03</sup>
12	100	101	124	38	23.5 <sup>H7</sup>	35.5 <sup>H7</sup>	20 <sup>H7</sup>	29 <sup>H7</sup>	94	114	3 x 6.6	3 x M6	38	65.0	49.0	50	0.18 <sup>+0.06 / -0.02</sup>
14	100	101	147	45	30.5 <sup>H7</sup>	40.5 <sup>H7</sup>	25 <sup>H7</sup>	35 <sup>H7</sup>	97	134	3 x 9.0	3 x M8	38	68.5	55.0	56	0.20 <sup>+0.06 / -0.02</sup>
16	100	101	164	50	33.5 <sup>H7</sup>	45.5 <sup>H7</sup>	29 <sup>H7</sup>	39 <sup>H7</sup>	120	151	3 x 9.0	3 x M8	38	81.3	60.3	61.3	0.25 <sup>+0.06 / -0.02</sup>

<sup>1)</sup> Nominal air gap

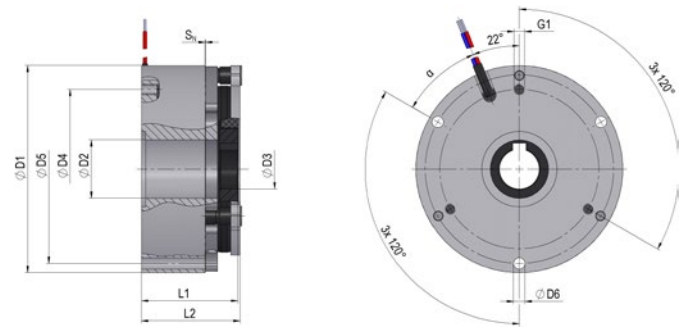
<sup>2)</sup> Press-fit connection on request

<sup>3)</sup> Keyway on request (to DIN 6885-1)

## Brake type 100



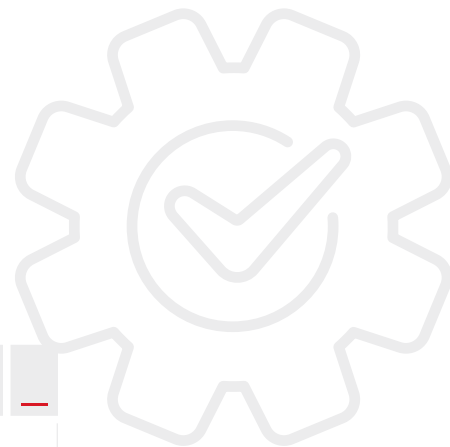
## Brake type 101



Not found the  
right brake?  
Talk to us!

# Order code

Our order code helps you specify the desired brake variant.  
The code is composed of the mounting type, hub type, brake size and brake version.



	KS 1	-	-	-	-	A	-	-
<b>Mounting type</b>		0	1	2				
		Flange-side and front-side mounting (standard)	Front-side mounting only (available on request)	Flange-side mounting only (available on request)				
<b>Hub type</b>		0	1					
		Long hub	Short hub					
<b>Brake size</b>								
<b>Version</b>							00	XY
							Standard series	Customized version on request
<b>Example</b>	KS 1	0	1	0	3	A	0	0

Servo Line with flange-side and front-side mounting, short hub, size 03, standard series

# Customized solutions – tailored exactly to your needs

**Automation solutions have become an indispensable part of industry and everyday life. In this context, it is often the brakes that ensure safety: They hold loads and brake reliably in an emergency.**

Just as automation continues to evolve, brakes must also face higher demands – forward-looking products are in demand. At the same time, quality and safety must be unconditionally guaranteed. This is a challenge that Kendrion Industrial Brakes meets with passion and care.



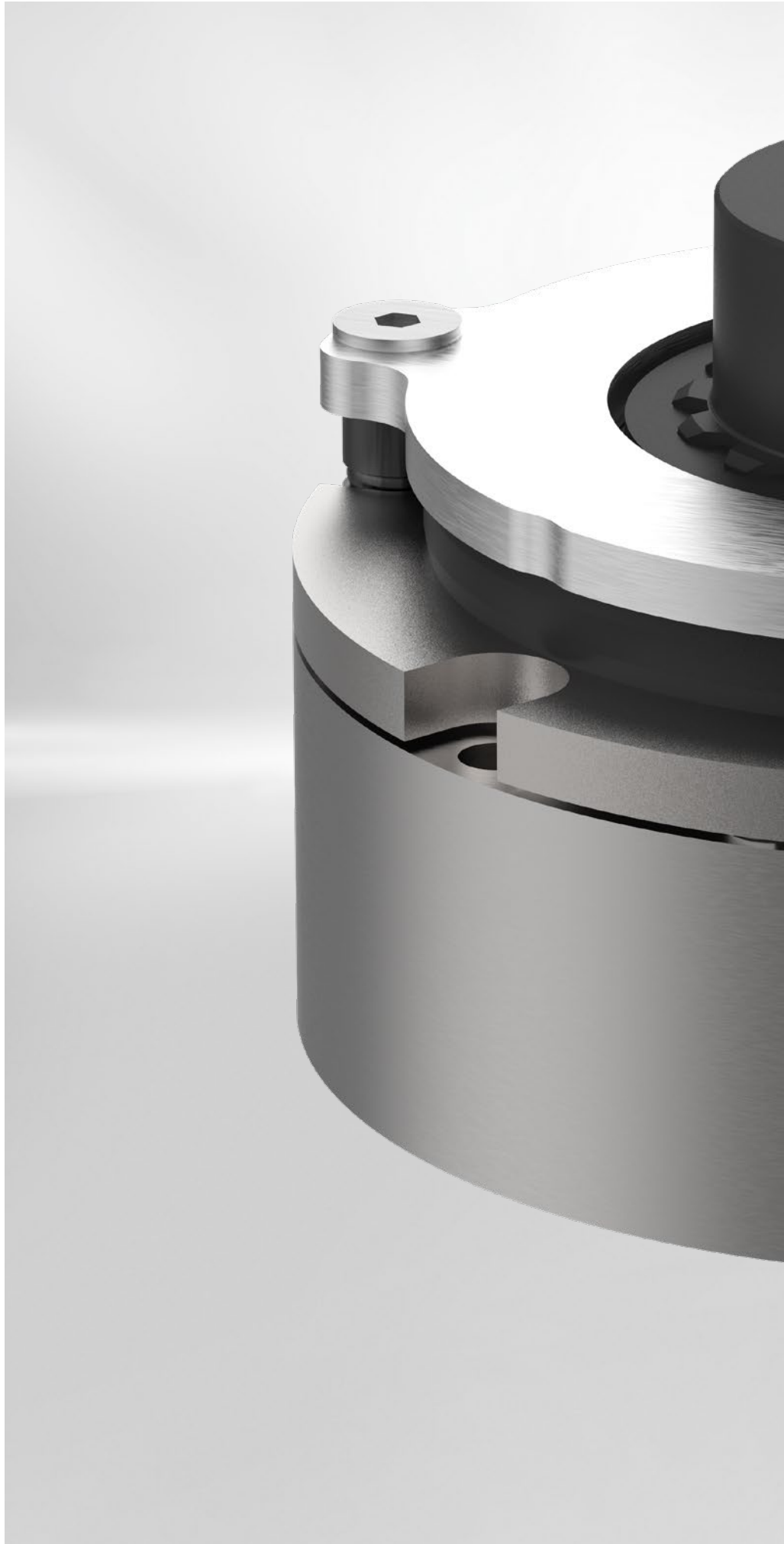
When it comes to developing customer-specific solutions, we have three aces up our sleeves:

- With our **new agile organization**, we respond much faster to customer requests.
- Our **modularly developed products** enable new configurations without complete redevelopment.
- The **global structure of our organization** bundles competencies and ensures valuable knowledge transfer.

This makes us a competent and reliable partner for our customers – starting with industry-savvy consulting, through product development with practical experience, to uncompromising quality assurance.



**We will find the  
solution that suits  
you best!**



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