

# KENDRION



**KENDRION** SOLUTIONS

## Active Brake Line

Electromagnetic single-surface brake  
86 111..E00, 86 121..E00

PRECISION. SAFETY. MOTION.

# Kendrion – The brake experts

**Kendrion stands for high-precision electromagnetic actuator systems and components for passenger cars, commercial vehicles and industrial applications. We are the trusted partner of some of the world's market leaders in the automotive and industrial segments when it comes to designing and producing complex components and customised solutions. Rooted in Germany, headquartered in the Netherlands and listed on the Amsterdam stock exchange, our expertise extends across Europe to the Americas and Asia.**

## **Tradition and progress**

More than one hundred years after the company was founded by Wilhelm Binder, Kendrion is ideally equipped for the challenges and tasks of the future. The company has always held a strong position in the market and is expanding its activities all over the world. In the field of electromagnetism, Kendrion stands for highest quality, innovation and precision.

## **Areas of application for brakes and clutches**

The Kendrion business unit Industrial Drive Systems develops and produces electromagnetic brakes and clutches for industrial drive technology. They are used to accelerate, brake, position, hold and secure moving drive components and loads. Areas of applications for the brakes and clutches can be found mainly in robotics and automation, conveyor technology, tooling machines and production engineering, medical technology and elevator technology.

## **Worldwide availability**

The main location is in Villingen-Schwenningen in southern Germany. However, Industrial Drive Systems has further development and production sites as well as a worldwide sales network at its disposal.

We will find the right brake for your application!



**Safety with trusted brakes**



## About the Active Brake Line

The Active Brake Line is comprised of DC operated single-disc brakes where the dynamic effect of an electromagnetic field is used to generate the braking effect (electromagnetically engaged brakes). Active Brake Line products ensure a reliable brake release with zero residual

torque in any mounting position and zero backlash during torque transmission. These brakes require little maintenance throughout their entire service span.

### Versions

#### 86 111..E00

torque range 1 - 150 Nm

DC

front mounting

#### 86 121..E00

torque range 1 - 150 Nm

DC

fl ange mounting

Upon request, the brake can be supplied with variable armature systems (shaft coupling).

### Applications

Automotive technology

Equipment manufacturing industry

Handling technology

Building installations

Building installations

Packaging machinery ...

### Data sheets – General information

The Operating Instructions must be strictly observed during the set-up of the machine (e.g. motor) and during the start-up, operation and maintenance of the brakes. The state-of-the-art brakes have been designed, built and tested in accordance with the requirements of DIN VDE 0580 concerning electromagnetic devices and components. Additional information on technical specifications given in the data sheets is included in the operating instructions.

# Electromagnetic single-surface brake

DC

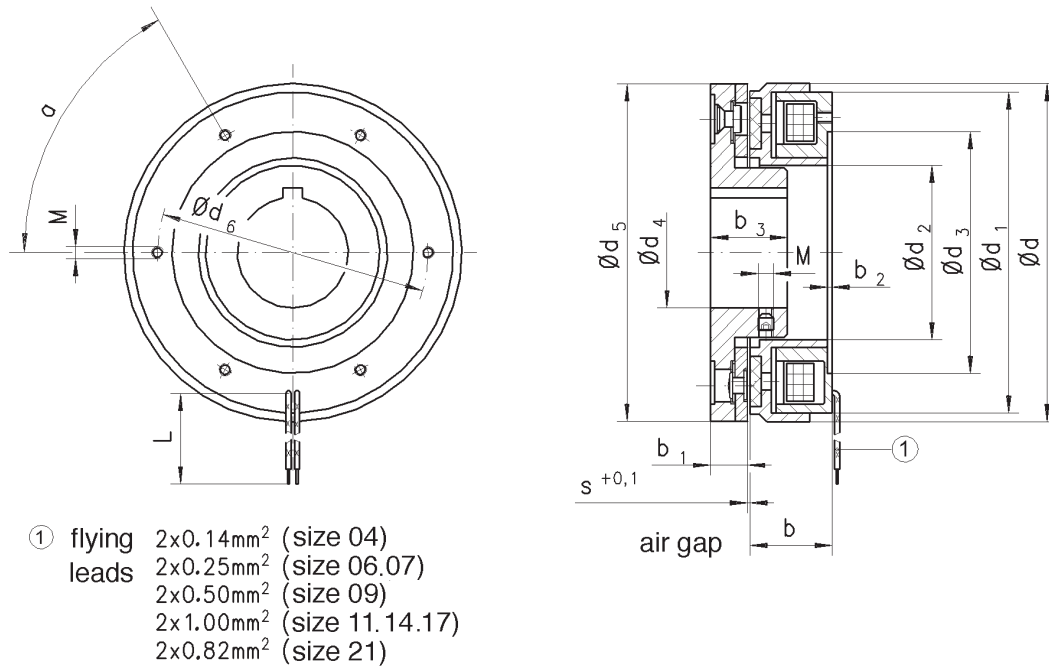
<b>Version</b>	86 111..E00 – front mounting
<b>Standard rated voltages</b>	24 V DC
<b>Protection</b>	IP 00
<b>Thermal class</b>	F
<b>Rated torques</b>	1 - 150 Nm
<b>Note</b>	Specification subject to change without notice. The „General technical information“ and the „Operating instructions“ 86 111..E00 must be strictly observed.



## Technical data

Size	Rated torque $M_2$ [Nm]	Max. speed $n_{max}$ [rpm]	Max. switching power $P_{max}$ [kJ/h]	Max. switching energy (Z = 1) $W_{max}$ [kJ]	Rated power $P_N$ [W]	Response times		Moment of inertia armature (without flange hub) $J$ [kgcm <sup>2</sup> ]	Weight (without flange hub) $m$ [kg]
						Coupling time $t_1$ [ms]	Disconnection time $t_2$ [ms]		
04	1	12000	100	1.6	8	15	16	0.05	0.15
06	2.2	10000	160	4.5	10	15	18	0.22	0.35
07	5	8000	250	6	12	25	25	0.65	0.65
09	11	6000	350	11	17	45	38	2.1	1.15
11	21	4800	500	30	22	70	40	5.7	2
14	60	3600	700	53	35	110	65	20	4

The service life values ( $W_{100}$ ) specified in the table apply if the brake is adjusted twice.



Size	d	d <sub>1</sub> (h7)	d <sub>2</sub>	d <sub>3</sub> (H7)	d <sub>4</sub> (H7)	d <sub>5</sub>	d <sub>6</sub>	b	b <sub>1</sub>
04	39.5	37	15	28	5 <sup>1)</sup> / 8 <sup>2)</sup>	39.5	32.5	17.5	6
06	56	53	25	42	6 <sup>1)</sup> / 15 <sup>2)</sup>	56	48	19	8
07	70	66.5	32	55	10 <sup>1)</sup> / 20 <sup>2)</sup>	70	61	23	9.5
09	90	85.5	42	68	10 <sup>1)</sup> / 30 <sup>2)</sup>	90	75	24.5	12
11	110	104	52	80	15 <sup>1)</sup> / 35 <sup>2)</sup>	110	90	28	14
14	140	134	72	110	20 <sup>1)</sup> / 48 <sup>2)</sup>	140	120	33.5	16

Size	b <sub>2</sub>	b <sub>3</sub>	L	s	s <sub>max</sub>	M	M <sub>1</sub>	α
04	2	15	400	0.2	0.5	6xM2 / 3 deep	2xM3	6x60°
06	2	17	400	0.2	0.5	6xM3 / 4 deep	2xM4	6x60°
07	2	20	400	0.2	0.5	6xM3 / 5 deep	2xM4	6x60°
09	2	25	400	0.3	0.75	6xM3 / 5 deep	2xM5	6x60°
11	2	30	400	0.3	0.75	6xM4 / 6 deep	2xM6	6x60°
14	2.5	40	400	0.3	0.75	6xM5 / 8 deep	2xM8	6x60°

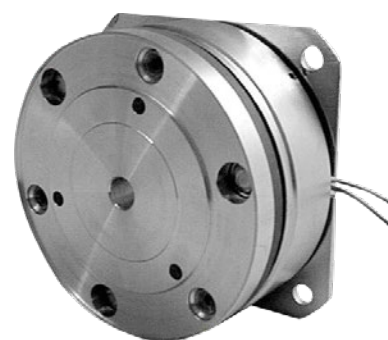
<sup>1)</sup> Min. bore.

<sup>2)</sup> Max. bore.

# Electromagnetic single-surface brake

DC

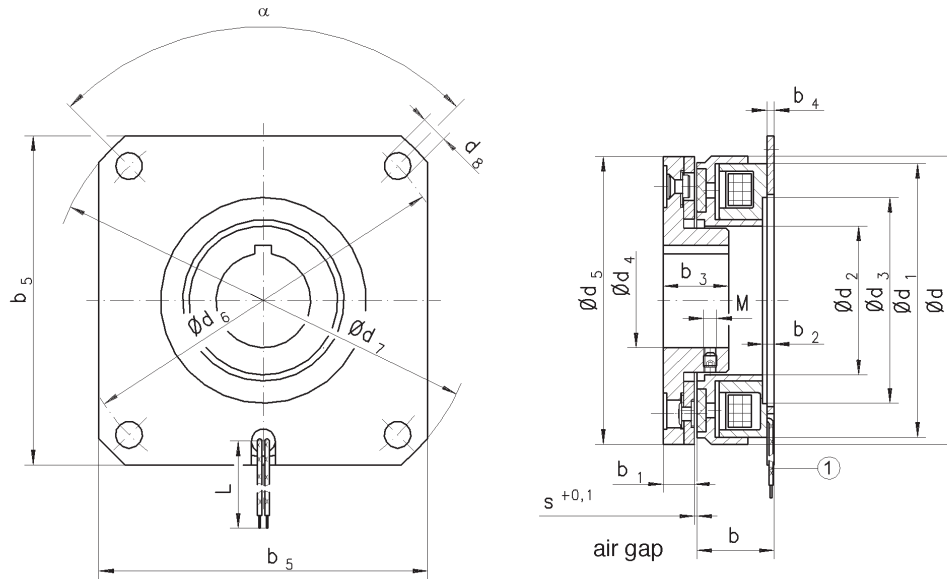
<b>Version</b>	86 121..E00 – flange mounting
<b>Standard rated voltages</b>	24 V DC
<b>Protection</b>	IP 00
<b>Thermal class</b>	F
<b>Rated torques</b>	1 - 150 Nm
<b>Note</b>	Specification subject to change without notice. The „General technical information“ and the „Operating instructions“ 86 121..E00 must be strictly observed.



## Technical data

Size	Rated torque $M_2$ [Nm]	Max. speed $n_{max}$ [rpm]	Max. switching power $P_{max}$ [kJ/h]	Max. switching energy (Z = 1) $W_{max}$ [kJ]	Rated power $P_N$ [W]	Response times		Moment of inertia armature (without flange hub) $J$ [kgcm <sup>2</sup> ]	Weight (without flange hub) $m$ [kg]
						Coupling time $t_1$ [ms]	Disconnection time $t_2$ [ms]		
04	1	12000	100	1.6	8	15	16	0.05	0.15
06	2.2	10000	160	4.5	10	15	18	0.22	0.35
07	5	8000	250	6	12	25	25	0.65	0.65
09	11	6000	350	11	17	45	38	2.1	1.15
11	21	4800	500	30	22	70	40	5.7	2
14	60	3600	700	53	35	110	65	20	4

The service life values ( $W_{100}$ ) specified in the table apply if the brake is adjusted twice.



- ① flying leads  
 2x0.14mm<sup>2</sup> (size 04)  
 2x0.25mm<sup>2</sup> (size 06.07)  
 2x0.50mm<sup>2</sup> (size 09.11)  
 2x1.00mm<sup>2</sup> (size 14)

Size	d	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub> (H7)	d <sub>4</sub> (H7)	d <sub>5</sub>	d <sub>6</sub>	d <sub>7</sub>	d <sub>8</sub>	b
04	39.5	37	15	28	5 <sup>1)</sup> / 8 <sup>2)</sup>	39.5	54	62.5	3.5	19.5
06	56	53	25	42	6 <sup>1)</sup> / 15 <sup>2)</sup>	56	65	75.5	4.5	21
07	70	66.5	32	55	10 <sup>1)</sup> / 20 <sup>2)</sup>	70	79.5	89.5	5.5	25.5
09	90	85.5	42	68	10 <sup>1)</sup> / 30 <sup>2)</sup>	90	102	115.5	6.5	27
11	110	104	52	80	15 <sup>1)</sup> / 35 <sup>2)</sup>	110	127	143.5	9	31
14	140	134	72	110	20 <sup>1)</sup> / 48 <sup>2)</sup>	140	155	170.5	9	37.5

Size	b <sub>1</sub>	b <sub>2</sub>	b <sub>3</sub>	b <sub>4</sub>	b <sub>5</sub>	L	s	s <sub>max</sub>	M	α
04	6	4	15	2	45	400	0.2	0.5	2xM3	4x90°
06	8	4	17	2	56	400	0.2	0.5	2xM4	4x90°
07	9.5	4.5	20	2.5	70	400	0.2	0.5	2xM4	4x90°
09	12	4.5	25	2.5	90	400	0.3	0.75	2xM5	4x90°
11	14	5	30	3	110	400	0.3	0.75	2xM6	4x90°
14	16	6.5	40	4	140	400	0.3	0.75	2xM8	4x90°

<sup>1)</sup> Min. bore.

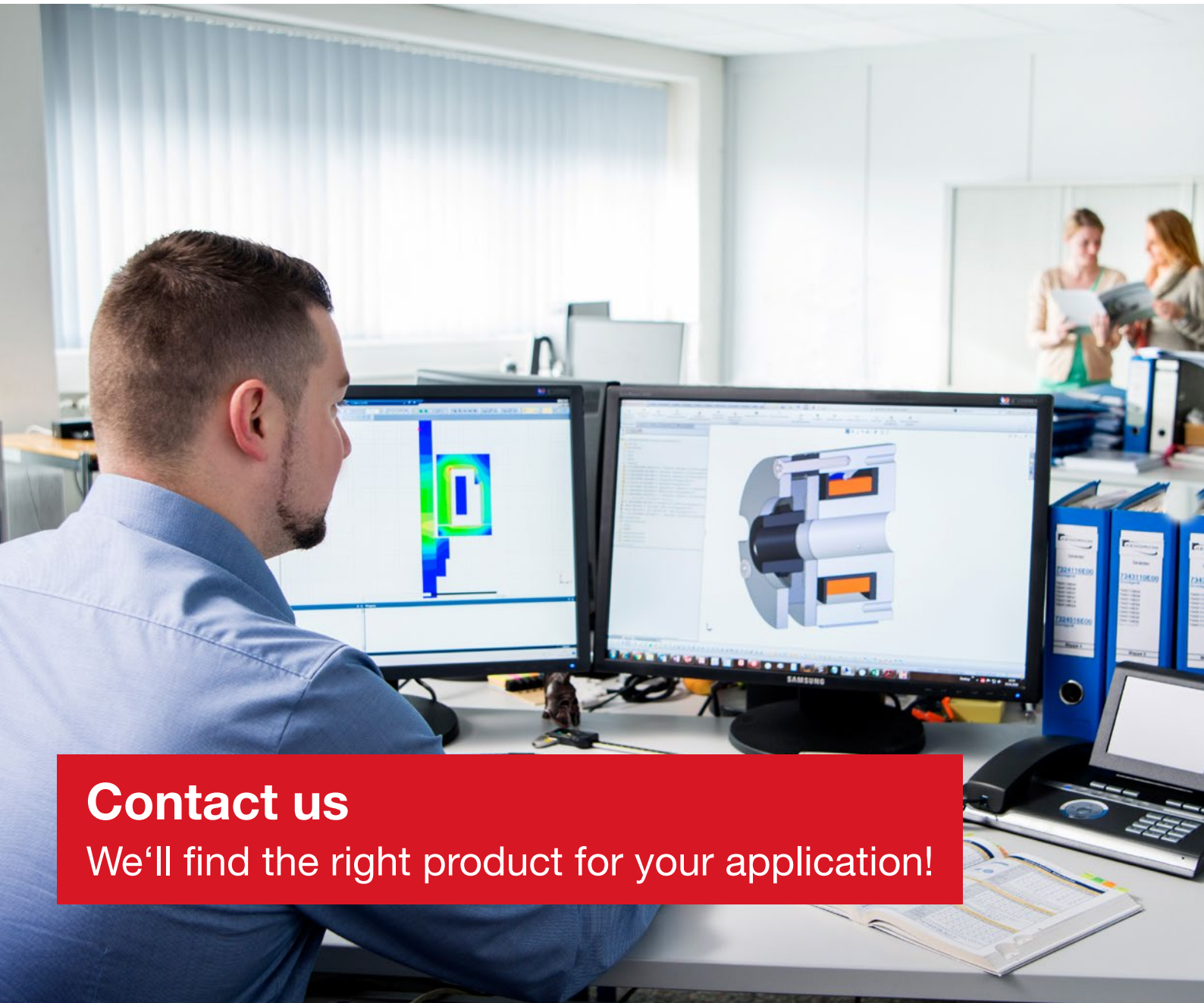
<sup>2)</sup> Max. bore.

# Individual customer solutions

Specially tailored to your needs

**Automation solutions have become indispensable in both industry and our everyday lives. Mechatronics helps achieve further expansion of these solutions, and increases the range of applications. In many cases, electromagnetic brakes meet the necessary safety requirements, allowing loads to be securely held and ensuring safe braking in an emergency.**

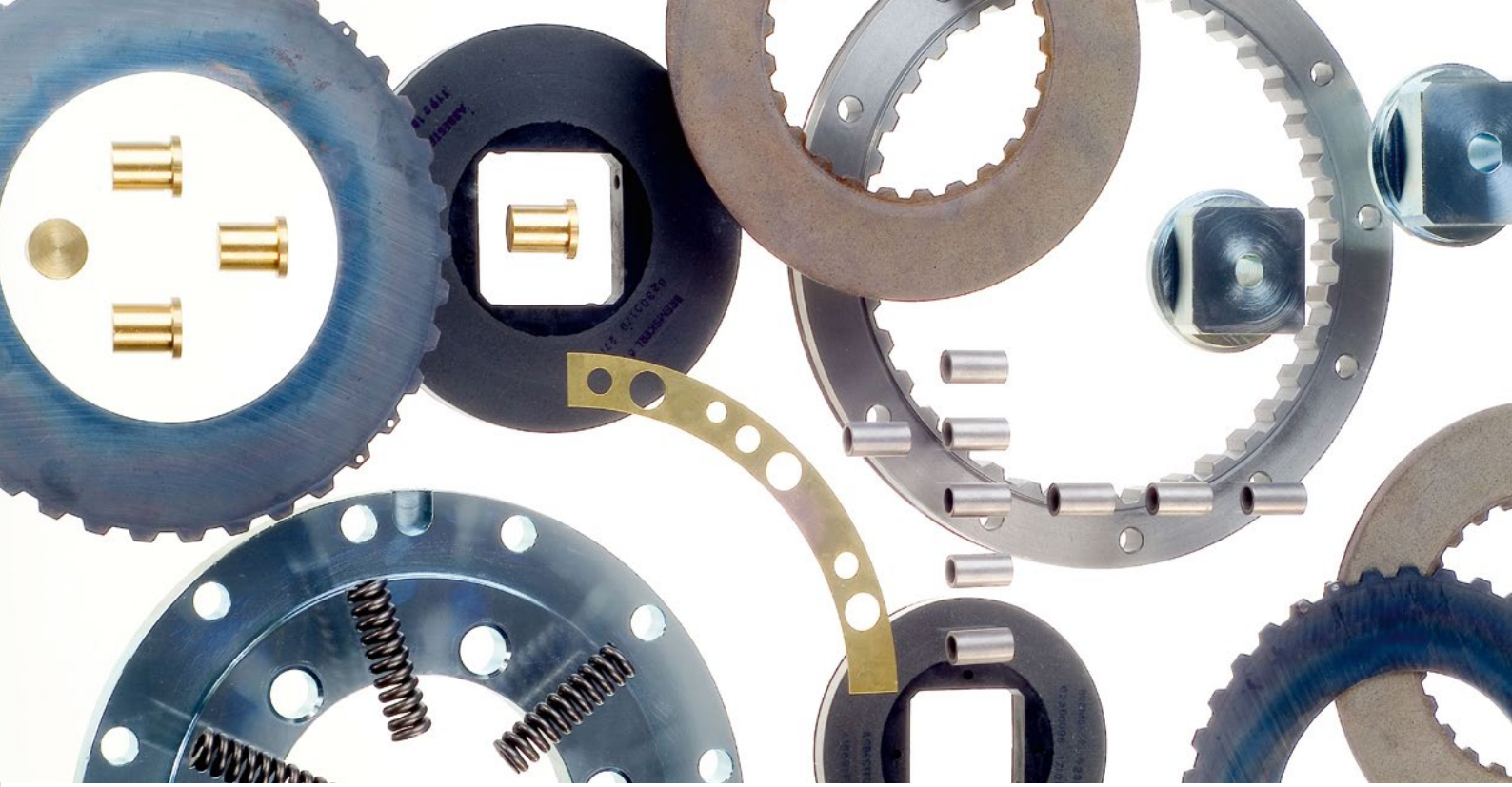
Catering to different market demands while also ensuring product standardization is a challenge that Kendrion relishes. Customized solutions can be developed and manufactured on the basis of an existing portfolio of products, the prerequisite being the analysis and understanding of industry-specific customer requirements. With the right product range and a high level of expertise in automation technology, robotics, machine building and elevator engineering, Kendrion Industrial Drive Systems is your dependable partner, providing the ideal individual brake solution for any application.



**Contact us**

**We'll find the right product for your application!**





## Branded replacement parts from Kendrion

Much more than mere effort

**Perfect operation and excellent functionality of your machine are only possible with original spare parts from Kendrion.**

If you place top priority on long-term product safety and flawless functionality you should always use original Kendrion spare parts and replacement equipment. These high-quality tested products can only be obtained directly from Kendrion. Our worldwide service network ensures availability around the globe.

Reliable spare parts supply is just one of our key strengths. Our flexible manufacturing capabilities and strong logistics management as well as the in-depth know-how of our service-driven personnel ensure fast and competent assistance in any situation.

Our customers appreciate the excellent reliability of original Kendrion spare parts because they offer uncompromising compatibility and ensure full functionality of the equipment in which they are used.

## **Kendrion (Villingen) GmbH**

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