KENDRION

KENDRION SOLUTIONS

Elevation Line

Spring-applied single-disc brake and spring-applied double-disc brake for the elevator technology

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 Elevation Line

The Elevation Line is comprised of DC operated springapplied single-disc and double-disc brakes which comply with the requirements of the European standard EN 81-1 (safety requirements to be observed in the construction and installation of elevators).

Owing to the patented safety concept, the usual checks concerning the double-circuit system of spring-applied brakes can be omitted during the technical approval of the elevators. Built-in microswitches are provided for remote interrogation of the brake condition (armature position, degree of wear).

The brake is ideally suited for use in space restricted environments where compact systems comprising of a motor, gearbox and brake are required.

The Elevation Line is preferably used in the field of elevator construction, but it is also ideal for other applications characterised by stringent requirements in terms of brake safety. Electromagnetically operated spring-applied brakes generate the brake torque when voltage is removed.

Versions

76 461..A00
- Torque range 75 to 220 Nm
- Direct current (DC)
- Adjustable torque
- Single-disc brake (holding brake)

76 451..A00
- Torque range 280 to 440 Nm
- Direct current (DC)
- Adjustable torque
- Double-disc brake (holding brake)

Approval

- EN 81-1

Applications

- Elevator technology
- Lifting and materials handling technology
- Crane construction

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.

Technical specifications

Elevation Line

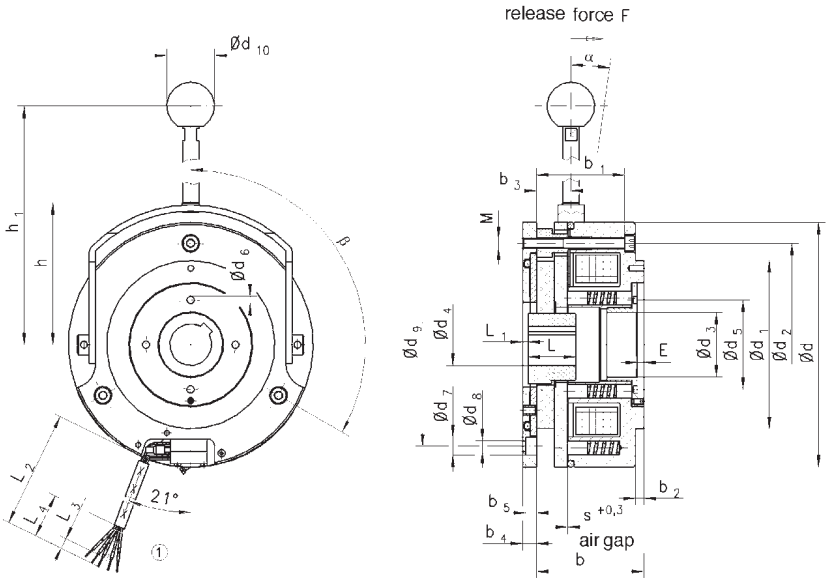
Versions	76 451..A00 – double-disc brake (holding brake) 76 461..A00 – single-disc brake (holding brake)
Standard rated voltages	205 VDC
Protection	IP44
Thermal class	F
Transmissible torques	75 to 440 Nm
Note	The general information on specification sheets and the applicable operating instructions must be observed. Specifications are subject to change without notice.

Size	Transmissible torque	Max. speed	Max. switching power	Max. switching energy (Z = 1)	Rated power	Response times		Moment of inertia armature and flange hub	Weight
						Coupling time	Disconnection time		
	M_4 [Nm]	n_{max} [min^{-1}]	P_{max} [kJ/h]	W_{max} [kJ]	P_N [W]	t_1 [ms]	t_2 [ms]	J [$kgcm^2$]	m [kg]
16	75 – 145	2500	400	65	135[1)]	185	280	20	16
19	120 – 220	2500	500	95	230[1)]	160	220	45	22
19[2)]	280 – 440	2500	500	155	230[1)]	95	260	75	25

[1] Duty cycle = 55%, cycle time t_7 = 5 min.
[2] Double-disc brake 76 45119A00

Dimensions type 76 461..A00

Elevation Line – Spring-applied single-disc brake



1 flying leads 2x0.82mm2 (brake)
flying leads 3x0.53mm2 (microswitch)

Size	d	d_1	d_2	d_3	d_4(H7)	d_5	d_6	d_7	d_8	d_9	d_{10}	b	b_1	b_2	b_3
16	205	141	170	54	25[1]/45[2]	75	6.1	15	9/3 x 120°	170	40	90	74	7	33
19	232	160	196	66	35[1]/50[2]	90	7	15	9/6 x 60°	196	40	97.5	81	6.5	30

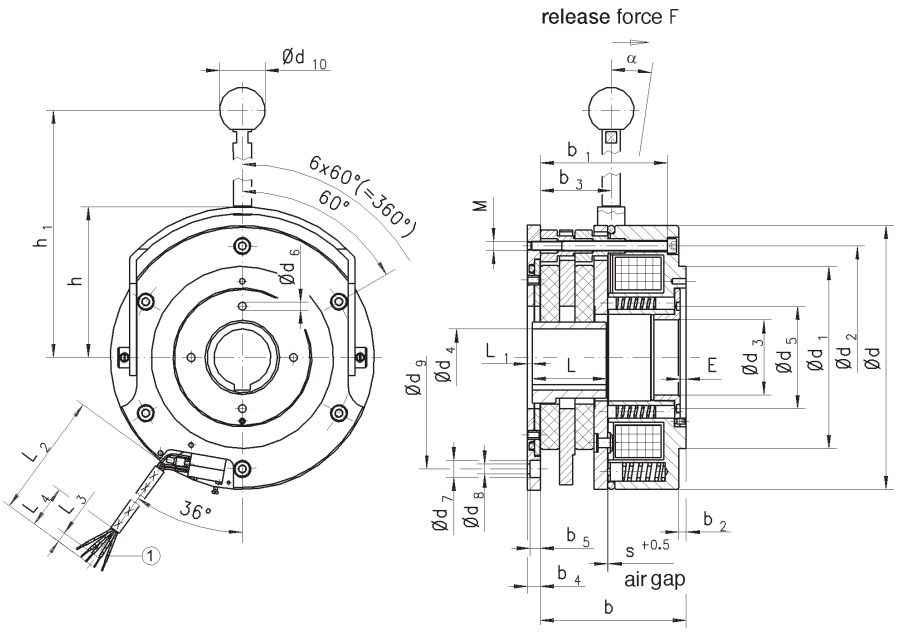
Size	b_4	b_5	h	h_1	L	L_1	L_2	L_3	L_4	s	s_{max}	E	M	F[3] [N]	α	β
16	11.5	9	119	260	40	4.5	850	9	40	0.3	1.1	0-6	3xM8	400	ca. 8°	3x120°
19	11.5	9	133	350	65	4.5	850	9	40	0.3	1.3	0-6	6xM8	400	ca. 12°	6x60°

[1] Min. bore with keyway JS9 as per DIN 6885, sheet 1
[2] Max. bore with keyway JS9 as per DIN 6885, sheet 1
Supporting keyway over entire length. Shaft ISO fitting k6 (1),2))
[3] Release force F (approx.) referred to max. transmissible torque (standard).

Dimensions in mm

Dimensions type 76 451..A00

Elevation Line – Spring-applied double-disc brake



① flying leads 2x0.82mm² (brake)
flying leads 3x0.53mm² (microswitch)

Size	d	d_1	d_2	d_3	d_4(H7)	d_5	d_6	d_7	d_8	d_9	d_{10}	b	b_1	b_2	b_3
19	233	160	196	66	45[1]/50[2]	90	7	15	9/6 x 60°	196	40	128	111.5	6.5	62

Size	b_4	b_5	h	h_1	L	L_1	L_2	L_3	L_4	s	s_{max}	E	M	$F^{3)}$ [N]	α
19	11.5	9	133	350	65	4.5	850	9	40	0.4	1.4	0-6	6xM8	400	ca. 10°

[1] Min. bore with keyway JS9 as per DIN 6885, sheet 1
[2] Max. bore with keyway JS9 as per DIN 6885, sheet 1
Supporting keyway over entire length. Shaft ISO fitting k6 (1),2))
[3] Release force F (approx.) referred to max. transmissible torque (standard).

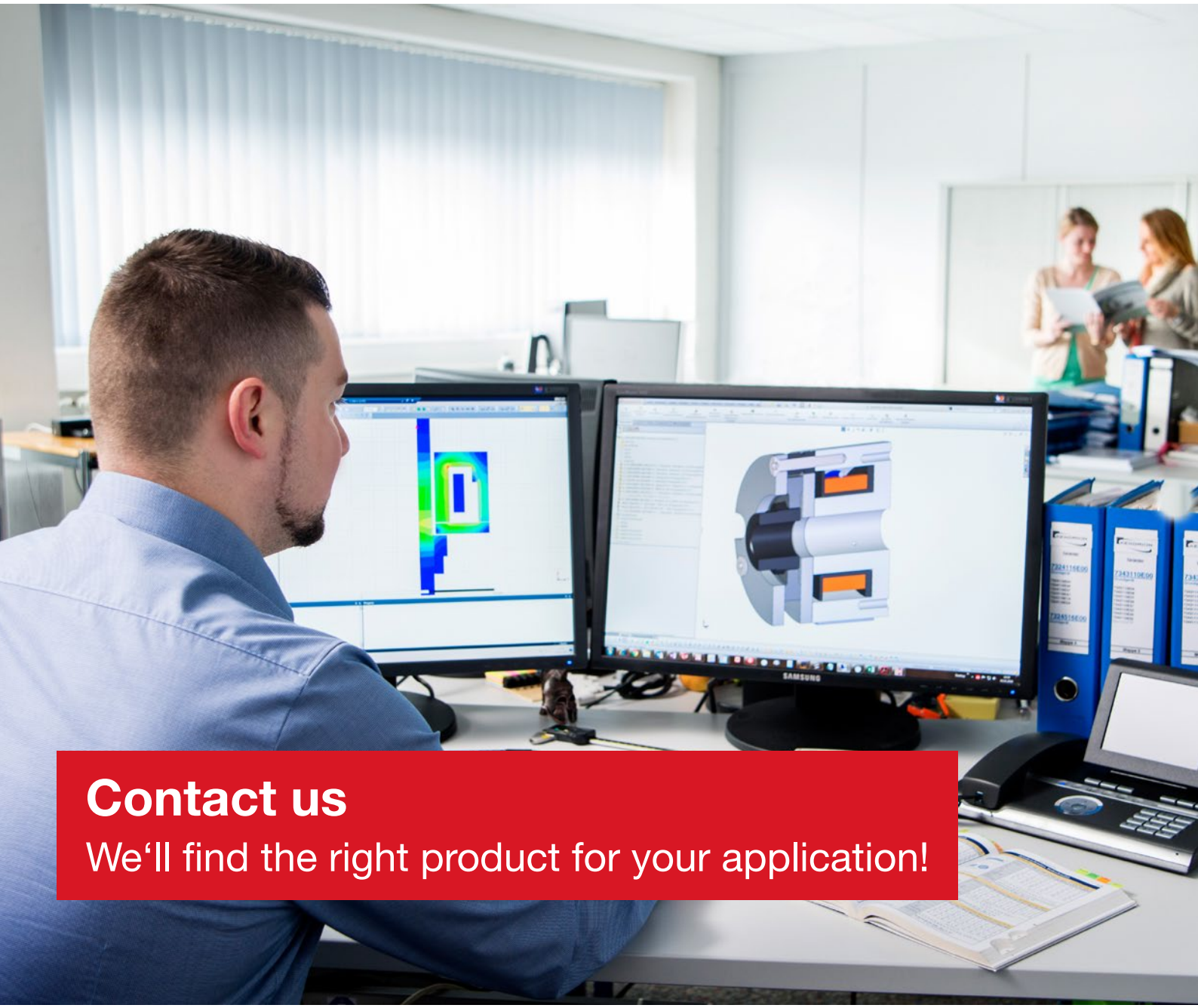
Dimensions in mm

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!

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