KENDRION

WE MAGNETISE THE WORLD

Active Brake Line

Electromagnetic single-surface brake

86 111..E00
86 121..E00

INDUSTRIAL DRIVE SYSTEMS

BINDER

Industrial Drive Systems

Kendrion – The brake experts

As a solution provider, Kendrion develops, produces and markets innovative and high-quality electromagnetic and mechatronic systems and components for industrial and automotive applications. Kendrion is very serious about its commitment to addressing the technical challenges of the future. Which is why the responsible use of resources along the entire value chain, and trustworthy business practices, are deeply ingrained in our corporate culture.

The right brakes for every situation

The Industrial Drive Systems business unit develops and produces electromagnetic brakes and clutches for industrial drive engineering. They are used for the accelerating, braking, positioning, holding and securing of movable drive components and loads. The areas of application for our brakes and clutches are primarily in robotics and automation technology, machine tool and production machinery, as well as in medical technology and material handling.

'Servo Line', our newly designed spring-applied brake for servo motors, completes our product portfolio, enabling us to provide the ideal solution for any application.

Worldwide availability

The headquarters of Industrial Drive Systems is located in Villingen within Germany's Black Forest. However, the business unit can also rely on additional production sites and subsidiaries in Aerzen (Germany), China, the UK and Italy, as well as numerous sales partners all over the world.

Tradition and progress

It was the long-established BINDER brand that laid the foundations for the successful development of Industrial Drive Systems. Wilhelm Binder founded his company in 1911, and during the early 1920s he began developing and manufacturing electromagnetic components. In 1997, the business was taken over by Dutch group Schuttersveld N.V., today Kendrion N.V.

The former magneta GmbH & Co. KG has been part of the Kendrion Group since 2010. Now known as Kendrion (Aerzen) GmbH, this innovative company continues to develop and produce permanent magnet brakes for small motors, electromagnetic clutches and brakes at its site in Aerzen, along with magnetic particle clutches and brakes.

Kendrion – We magnetise the world!

www.kendrion-ids.com

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
flange mounting

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

Applications

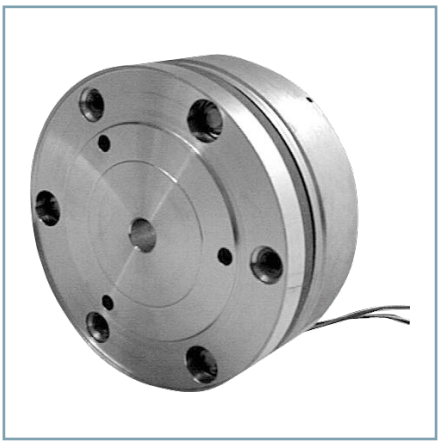
- Automotive technology
- Equipment manufacturing industry
- Handling technology
- Building installations
- Medical technology
- Packaging machinery...

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

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

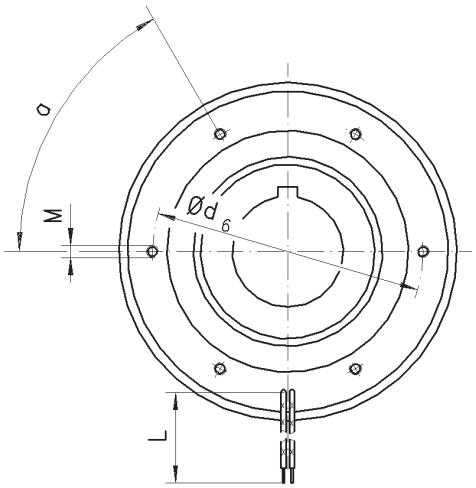


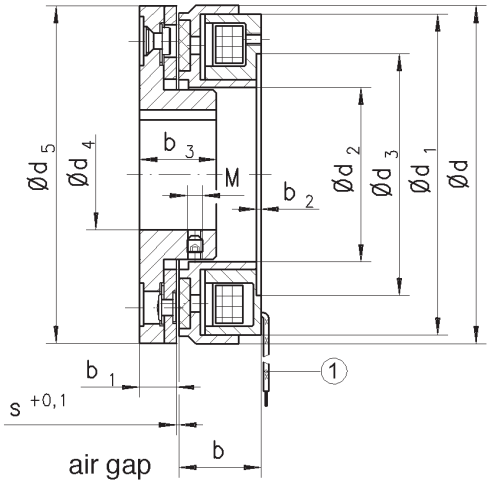
Technical data

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 [kgcm²]	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_{tot}) specified in the table apply if the brake is adjusted twice.

Dimensions [mm]





① flying leads
2x0.14mm² (size 04)
2x0.25mm² (size 06.07)
2x0.50mm² (size 09)
2x1.00mm² (size 11.14.17)
2x0.82mm² (size 21)

Size	d	d_1 (h7)	d_2	d_3 (H7)	d_4(H7)	d_5	d_6	b	b_1
04	39.5	37	15	28	5[1] / 8[2]	39.5	32.5	17.5	6
06	56	53	25	42	6[1] / 15[2]	56	48	19	8
07	70	66.5	32	55	10[1] / 20[2]	70	61	23	9.5
09	90	85.5	42	68	10[1] / 30[2]	90	75	24.5	12
11	110	104	52	80	15[1] / 35[2]	110	90	28	14
14	140	134	72	110	20[1] / 48[2]	140	120	33.5	16

Size	b_2	b_3	L	s	s_{max}	M	M_1	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°

[1] Min. bore.

[2] Max. bore.

Electromagnetic single-surface brake
DC

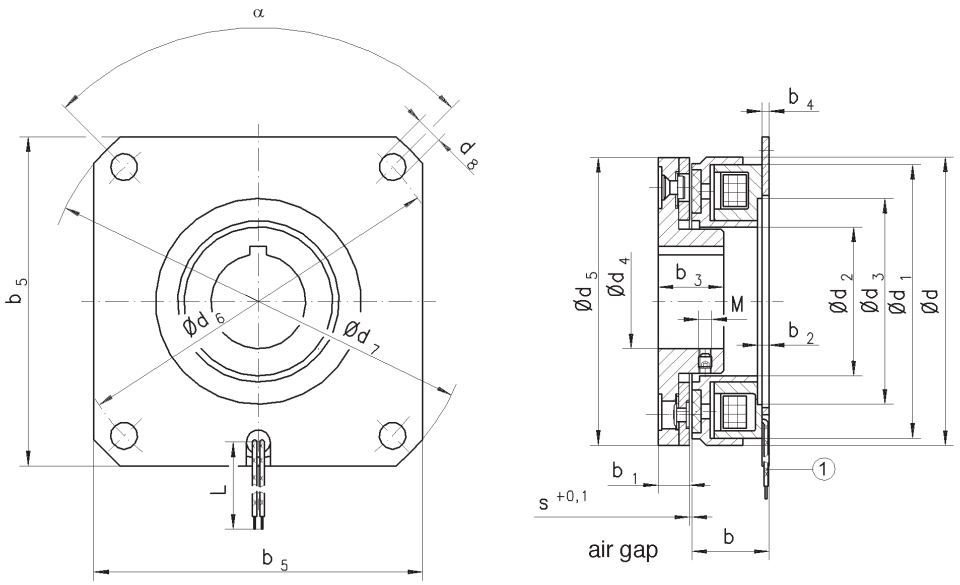
Version	86 121..E00 – flange mounting
Standard rated voltages	24 V DC
Protection	IP 00
Thermal class	F
Rated torques	1 - 60 Nm
Note	Specification subject to change without notice. The „General technical information“ and the „Operating instructions“ 86 121..E00 must be strictly observed.

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 [kgcm²]	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 (Wtot) specified in the table apply if the brake is adjusted twice.

Dimensions [mm]



① flying leads $2x0.14mm^2$ (size 04)
$2x0.25mm^2$ (size 06.07)
$2x0.50mm^2$ (size 09.11)
$2x1.00mm^2$ (size 14)

Size	d	d_1	d_2	d_3 (H7)	d_4 (H7)	d_5	d_6	d_7	d_8	b
04	39.5	37	15	28	5[1] / 8[2]	39.5	54	62.5	3.5	19.5
06	56	53	25	42	6[1] / 15[2]	56	65	75.5	4.5	21
07	70	66.5	32	55	10[1] / 20[2]	70	79.5	89.5	5.5	25.5
09	90	85.5	42	68	10[1] / 30[2]	90	102	115.5	6.5	27
11	110	104	52	80	15[1] / 35[2]	110	127	143.5	9	31
14	140	134	72	110	20[1] / 48[2]	140	155	170.5	9	37.5

Size	b_1	b_2	b_3	b_4	b_5	L	s	s_{max}	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°

[1] Min. bore.

[2] Max. bore.

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