



BINDER CLUTCHES & BRAKES

PERMANENT-MAGNET SINGLE-SURFACE BRAKE

86 611..H00

86 621..H00



POWER OF PARTNERSHIP AND MAGNETISM

PM LINE

Kendrion Power Transmission

BINDER CLUTCHES & BRAKES

Our company's strength is measured by the delivery of products, performances, as well as a high degree of esteem towards our customers. KENDRION POWER TRANSMISSION is striving to develop a long-term relationship with its

customers and to cultivate this relationship under the motto "Power of Partnership". Ambitious aims can only be realised through a close and productive co-operation with our customers.

The development of high-quality standard products as well as optimised tailor made solutions is the foundation of all our actions.

Power of Partnership stands for a co-operation with the Kendrion employees without bureaucracy, ensuring a long and successful partnership with our customers.

Top Market Knowledge...

the realisation of market orientated products are the results of our competence in electromagnetism which has been achieved with decades of experience and knowledge. The development of most innovative concepts and the

use of the most modern technologies in our research department together with the use of the latest production and logistic processes are our strengths.

Our customers profit from the individual solutions for high volume as well as the availability of individual products on the basis of a standard platform.

Our know-how is growing steadily hand in hand with the constant optimisation of every business process.

Optimal tailor made solutions...

are not empty promises. The profound understanding of the Power of Magnetism at KENDRION POWER TRANSMISSION is the source of the research/development of market orientated products. Continuous expansion of the technological possibilities

enables us to be in the position to offer optimal solutions of brakes and clutches for numerous applications. We lay great emphasis on being able to offer solutions for different applications such as:

... SECURING
... STOPPING
... POSITIONING
... ACCELERATING.

Important synergies as a basis for success...

KENDRION POWER TRANSMISSION is a European company with a local presence in all economic regions of the world. Integrated in and yielding performance to the Kendrion Holding N.V., which is noted on the Amsterdam stock exchange, as a successful company with an annual turnover of 1,8 billion EUR; and approx. 5500 employees all over the world.

This is an excellent basis to realise, secure and enable our long-term goals and company objectives. A network of connected companies within Kendrion is another valuable factor for the success of KENDRION POWER TRANSMISSION. We live the "Power of Partnership" in a firm exchange

of expertise and business relationship within these companies.



Kendrion Power Transmission protects people and the environment

General technical information

86 611..H00

86 621..H00

Clutch or brake design and rating, calculation example

look at www.KendrionAT.com



www.KendrionAT.com

Product line information

BINDER CLUTCHES & BRAKES



The PM LINE is comprised of DC operated permanent-magnet single-surface brakes characterised by the fact that the braking effect is produced by a permanent-magnetic field (electromagnetically released system). This means that the required braking force is generated when voltage is removed. In order to neutralise the braking effect, the permanent-magnetic field is counteracted by an opposing electromagnetic field. PM LINE brakes ensure reliable brake release with zero residual torque in any mounting position and zero backlash during torque transmission.

These brakes are especially suitable for servo motor applications.

Applications

- Handling technology
- Medical technology
- Wheelchairs
- Servo motors
- Packaging machinery
- ...

Versions

86 611..H00	torque range 3.2 - 120 Nm DC front mounting single-surface brake (holding brake)
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86 621..H00	torque range 2.2 - 120 Nm DC flange mounting single-surface brake (holding brake)
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Upon request, the brake can be supplied with customer-specific fitting dimensions and torques.

Information on technical data included in the data sheets

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The information provided in the operating instructions must be strictly adhered to when designing a machine (e.g. motor) and when using the brakes. The brakes are manufactured and tested in compliance with DIN VDE 0580 requirements. The insulation materials used conform with thermal class F norms. The specified times apply to the following conditions: separate switching of the brake, operating temperature, rated voltage, and rated air gap. All values are mean values that are

subject to variation. In the case of AC brake switching, the coupling time t_1 is substantially longer. W_{max} (maximum switching energy) is the switching energy that must not be exceeded during braking operations at max. 3000 rpm. Braking operations at >3000 rpm lead to a substantial reduction in the maximum admissible switching energy per switching operation. Such operation is only permitted after prior consultation with the manufacturer. The maximum switching power P_{max} is the switching energy W that can be converted by the brake per hour. The permitted number of

switching operations Z (emergency stops) per hour and the max. permitted switching energy W_{max} resulting therefrom are specified in the table included in the operating instructions. If the brake is used for other applications, e.g. as service brake, the diagram (W_{max} as a function of the number of switching operations per hour Z) shown in the operating instructions applies. The P_{max} and W_{max} values are approximate values; they apply to applications where the brake is attached to or built into the motor without additional cooling as well as to

emergency stops. The specified transmissible torques M_4 characterises the torque level of the brakes. Depending on the application of the brake, the switching torque M_1 and the effective transmissible torque M_4 may differ from the specified M_4 values. The switching torque M_1 depends on the speed (rpm). If the friction surfaces are contaminated with oil, grease or dirt the transferable torque M_4 and the switching torque M_1 may drop.

All technical data is subject to the running-in conditions specified by the manufacturer being observed.

PERMANENT-MAGNET SINGLE-SURFACE BRAKE
DC

Version	86 611..H00 - front mounting
Standard rated voltages	24 V, 205 V DC
Protection	IP 00
Thermal class	F
Rated torques	3.2 - 120 Nm

Specification subject to change without notice.
The "General technical information" and the "Operating instructions" 86 611..H00 must be strictly observed.

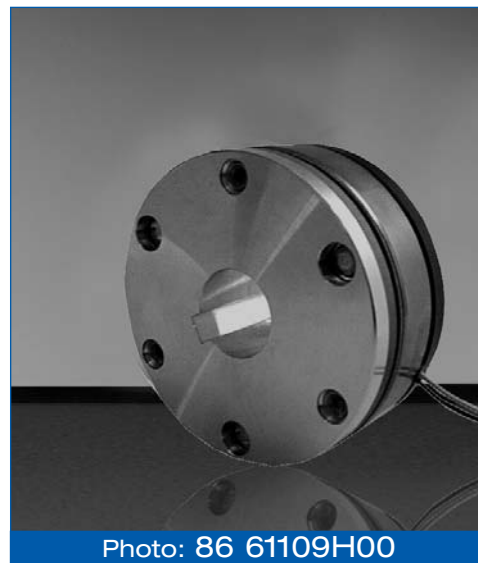


Photo: 86 61109H00

Technical data

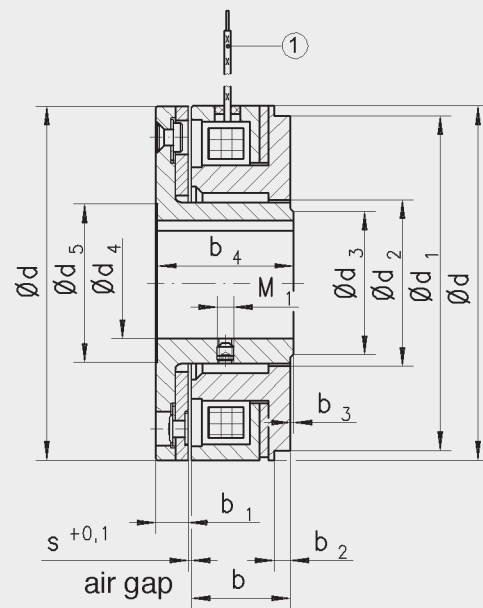
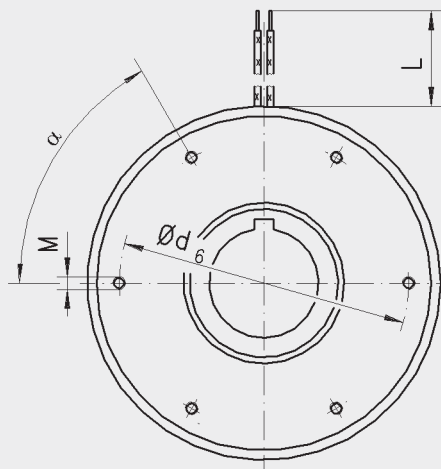
Size	Transmissible torque M ₄ [Nm]	Max. speed n _{max} [rpm]	Max. switching power P _{max} [kJ/h]	Max. switching energy (Z=1) W _{max} [kJ]	Rated power P _N [W]	Response times		Moment of inertia armature and flange hub J [kgcm ²]	Weight m [kg]
						on t ₁ [ms]	off t ₂ [ms]		
06	3.2	10000	7	0.35	12	19	29	0.38	0.3
07	11	10000	8	0.4	16	20	29	1.06	0.6
09	22	10000	11	0.55	18	25	50	3.6	1.1
11	40	10000	17	0.85	24	25	73	9.5	1.4
14	80	8000	29	1.45	35	53	97	31.8	4.1
16	120	8000	31	1.55	37	80	150	57.5	6

Ordering data (to be fully specified)

PERMANENT-MAGNET SINGLE-SURFACE BRAKE

Please specify requested version

1	Size (06, 07, 09, 11, 14, 16) Size: _____	4	Bore diameter (standard) Size 06: Ø 8, Ø 10, Ø 12, Ø 15 mm Size 07: Ø 12, Ø 15, Ø 18, Ø 20 mm Size 09: Ø 12, Ø 15, Ø 20, Ø 25 mm Size 11: Ø 16, Ø 20, Ø 25, Ø 30 mm Size 14: Ø 20, Ø 25, Ø 30, Ø 40 mm Size 16: Ø 25, Ø 30, Ø 40, Ø 50 mm Bore diameter: _____ mm <input type="checkbox"/> with keyway <input type="checkbox"/> without keyway (DIN 6885, sheet 1, P9)
2	Coil voltage (standard 24V, 205V) Voltage: _____ V DC	5	Flange hub interface (customer specific) Measure b ₃ : _____ mm Measure d ₃ : _____ mm Measure d ₅ : _____ mm
3	Voltage type: <input type="checkbox"/> bridge rectified voltage <input type="checkbox"/> smoothed voltage		



① flying leads $2 \times 0.25 \text{mm}^2$ (size 06.07.09)
 $2 \times 0.50 \text{mm}^2$ (size 11)
 $2 \times 0.75 \text{mm}^2$ (size 14.16)

Size	d	d ₁	d ₂	d ₃	d ₄ (H7)	d ₅	d ₆	b	b ₁	b ₂	b ₃	b _{4(-0,1)}	L	s	s _{max}	M	M ₁	α
06	56	53	25	9 ¹⁾ / 24 ²⁾	6 ³⁾ / 15 ⁴⁾	8 ¹⁾ / 28 ²⁾	48	20.8	8.5	3	0.1 ¹⁾ / 0.4 ²⁾	29	400	0.2	0.5	6xM3 / 4.5 deep	2xM3	6x60°
07	70	66.5	32	13 ¹⁾ / 31 ²⁾	10 ³⁾ / 22 ⁴⁾	14 ¹⁾ / 32 ²⁾	61	25.3	10	3.5	0.1 ¹⁾ / 0.4 ²⁾	35	400	0.3	0.65	6xM3 / 3.5 deep	2xM4	6x60°
09	90	85.5	43	13 ¹⁾ / 41 ²⁾	10 ³⁾ / 30 ⁴⁾	15 ¹⁾ / 36 ²⁾	75	26.7	10.6	3.5	0.1 ¹⁾ / 0.5 ²⁾	37	400	0.3	0.7	6xM3 / 3.5 deep	2xM5	6x60°
11	110	104	56	18 ¹⁾ / 54 ²⁾	15 ³⁾ / 35 ⁴⁾	22 ¹⁾ / 45 ²⁾	90	30.7	13	5	0.1 ¹⁾ / 0.5 ²⁾	43.5	400	0.3	0.8	6xM4 / 6.5 deep	2xM6	6x60°
14	140	134	73	24 ¹⁾ / 68 ²⁾	20 ³⁾ / 48 ⁴⁾	30 ¹⁾ / 60 ²⁾	120	37.2	16.5	6.5	0.1 ¹⁾ / 0.5 ²⁾	53.5	400	0.3	0.8	6xM5 / 9.5 deep	2xM8	6x60°
16	160	160	81	25 ¹⁾ / 77 ²⁾	20 ³⁾ / 62 ⁴⁾	30 ¹⁾ / 80 ²⁾	120	43.2	17	7	0.1 ¹⁾ / 0.6 ²⁾	59.5	400	0.3	0.8	6xM5 / 10 deep	2xM8	6x60°

¹⁾ Min. values.

²⁾ Max. values.

³⁾ Min. bore.

⁴⁾ Max. bore.

PERMANENT-MAGNET SINGLE-SURFACE BRAKE
DC

Version	86 621..H00 - flange mounting
Standard rated voltages	24 V, 205 V DC
Protection	IP 00
Thermal class	F
Rated torques	2.2 - 120 Nm

Specification subject to change without notice.
The "General technical information" and the "Operating instructions" 86 621..H00 must be strictly observed.



Photo: 86 62109H00

Technical data

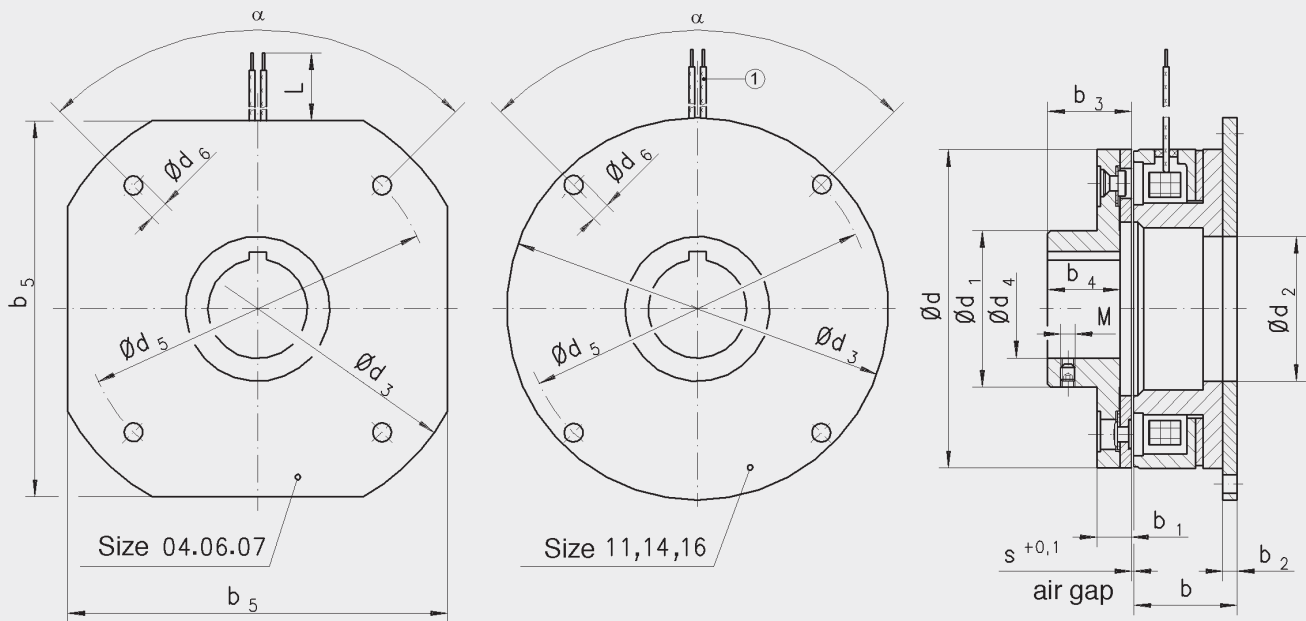
Size	Transmissible torque	Max. speed	Max. switching power	Max. switching energy (Z=1)	Rated power	Response times		Moment of inertia armature and flange hub	Weight
						on	off		
	M ₄ [Nm]	n _{max} [rpm]	P _{max} [kJ/h]	W _{max} [kJ]	P _N [W]	t ₁ [ms]	t ₂ [ms]	J [kgcm ²]	m [kg]
04	2.2	12000	4	0.2	8	14	28	0.12	0.19
06	3.2	10000	7	0.35	12	19	29	0.38	0.3
07	11	10000	8	0.4	16	20	29	1.06	0.6
09	22	10000	11	0.55	18	25	50	3.6	1.1
11	40	10000	17	0.85	24	25	73	9.5	1.4
14	80	8000	29	1.45	35	53	97	31.8	4.1
16	120	8000	31	1.55	37	80	150	57.5	6

Ordering data (to be fully specified)

PERMANENT-MAGNET SINGLE-SURFACE BRAKE

Please specify requested version

1	Size (04, 06, 07, 09, 11, 14, 16)	4	Bore diameter (standard)
	Size: _____		Size 04: Ø 6, Ø 8 mm Size 06: Ø 8, Ø 10, Ø 12, Ø 15 mm Size 07: Ø 12, Ø 15, Ø 18, Ø 20 mm Size 09: Ø 12, Ø 15, Ø 20, Ø 25 mm Size 11: Ø 16, Ø 20, Ø 25, Ø 30 mm Size 14: Ø 20, Ø 25, Ø 30, Ø 40 mm Size 16: Ø 25, Ø 30, Ø 40, Ø 50 mm
	Coil voltage (standard 24 V, 205 V)		Bore diameter: _____ mm
2	Voltage: _____ V DC	3	<input type="checkbox"/> with keyway (DIN 6885, sheet 1, P9) <input type="checkbox"/> without keyway
	Voltage type:		
	<input type="checkbox"/> bridge rectified voltage <input type="checkbox"/> smoothed voltage		



- ① flying $2 \times 0.14 \text{mm}^2$ (size 04)
- leads $2 \times 0.25 \text{mm}^2$ (size 06.07.09)
- $2 \times 0.50 \text{mm}^2$ (size 11)
- $2 \times 0.75 \text{mm}^2$ (size 14.16)

Size	d	d ₁	d ₂	d ₃	d ₄ (H7)	d ₅	d ₆	b	b ₁	b ₂	b ₃	b ₄	b ₅	L	s	s _{max}	M	α
04	39.5	16	13	62.5 _{+0.15}	6 ^{h1} / 15 ^{h2}	54	3.5	23	8.4	2	17.5	15	45	400	0.2	0.4	2xM3	4x90°
06	56	24	24	75 _{h8}	6 ^{h1} / 15 ^{h2}	65	4.5	20.8	8	3	20	17	56	400	0.2	0.5	2xM3	4x90°
07	70	30	30	90 _{h8}	10 ^{h1} / 22 ^{h2}	79.5	5.5	25.3	9.5	3.5	23.5	20	70	400	0.3	0.65	2xM4	4x90°
09	90	40	40	115 _{h8}	10 ^{h1} / 30 ^{h2}	102	6.5	26.7	12	3.5	29	25	-	400	0.3	0.7	2xM5	4x90°
11	110	50	50	132 _{h8}	15 ^{h1} / 35 ^{h2}	121	6.5	30.7	14	5	35	30	-	400	0.3	0.8	2xM6	4x90°
14	140	70	70	162 _{h8}	20 ^{h1} / 48 ^{h2}	151	6.5	37.2	16	6.5	46.5	40	-	400	0.3	0.8	2xM8	4x90°
16	160	79	80	190 _{h8}	20 ^{h1} / 62 ^{h2}	175	9	43.2	16.5	7	47	40	-	400	0.3	0.8	2xM8	4x90°

¹⁾ Min. bore.
²⁾ Max. bore.

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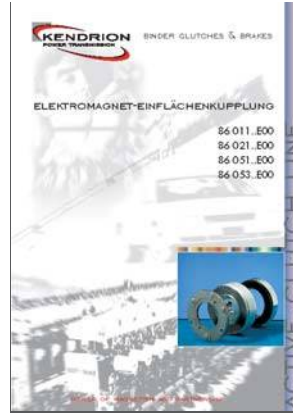
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