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BINDER CLUTCHES & BRAKES

ELECTROMAGNETIC SINGLE-SURFACE CLUTCH

86 011..E00
86 021..E00
86 051..E00
86 053..E00

ACTIVE CLUTCH LINE

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Kendrion PowerTransmission

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 bureau-cracy, 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...

European com-pany with a local presence in all economic regions of the world. Integrated in and yielding per-formance to the Kendrion Hol-ding 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.

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Contents

General technical information

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86 021..E00

86 051..E00

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ACTIVE CLUTCH LINE

The ACTIVE CLUTCH LINE is comprised of DC operated single-disc clutches without slip ring, characterised by the fact that the dynamic effect of an electromagnetic field is used for torque transmission (electromagnetically engaged clutches). ACTIVE CLUTCH LINE products ensure reliable clutch release with zero residual torque in any mounting position and zero backlash during torque transmission. These clutches require little if any maintenance throughout their service span.
The achievable switching power depends on the clutch version employed.

Applications

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

Versions

86 011 . . E00	torque range 0.2 - 150 Nm DC front mounting
86 021 . . E00	torque range 0.2 - 150 Nm DC flange mounting
86 051 . . E00	torque range 0.2 - 2.2 Nm DC shaft mounting
86 053 . . E00	torque range 5 - 150 Nm DC shaft mounting with connecting terminal

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

Information on technical data included in the data sheets

The information provided in the operating instructions must be strictly adheared to when designing a machine (e.g. motor) and when using the brakes. The clutches are manufactured and tested in compliance with DIN VDE 0580 requirements. The insulation materials used conform with thermal class F norms. Static operation of the clutch without friction work is only permitted after prior consultation with the manufacturer. The specified times apply to the following conditions: seperate 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 clutch switching, the coupling time t_1 is substantially longer. W_{max} (maximum switching energy) is the switching energy that must not be exceeded during clutch operations at max. 1000 rpm. Clutch operations at >1000 rpm lead to a substantial reduction in the maximum admissible switching energy per switching operation. Such operations are 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 clutch per hour. In the case of applications where the number of switching operations per hour is greater than 1 (Z>1), 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. The specified rated torques M_2 characterise the torque level of the clutches. Depending on the application of the clutch, the switching torque M_1 and the transmissible torque M_4 may differ from the specified M_2 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 process of the brake being completed.

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ACTIVE CLUTCH LINE

ELECTROMAGNETIC SINGLE-SURFACE CLUTCH

DC

Version	86 011..E00 - front mounting
Standard rated voltages	24 V DC
Protection	IP 00
Thermal class	F
Rated torque	0.2 - 150 Nm

Specification subject to change without notice.
The "General technical information" and the "Operating instructions" 86 011..E00 must be strictly observed.

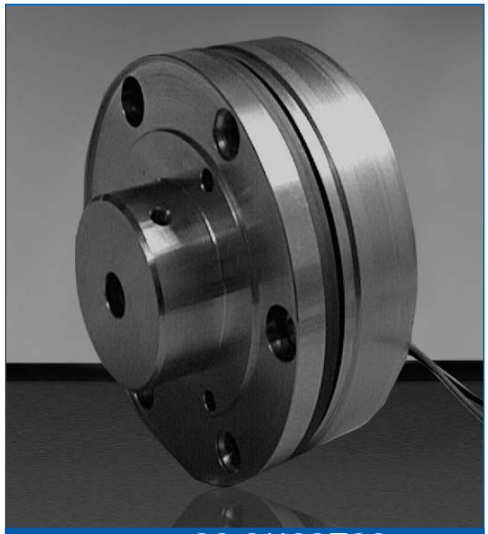


Photo: 86 01109E00

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 on t_1 [ms]	Response times off t_2 [ms]	Moment of inertia Armature (without flange hub) J [kgcm²]	Moment of inertia Magnet system J [kgcm²]	Weight (without flange hub) m [kg]
03	0.2	16000	65	0.9	6	13	12	0.01	0.06	0.06
04	1	12000	100	1.6	8	15	16	0.05	0.17	0.15
06	2.2	10000	160	4.5	10	15	18	0.22	0.55	0.35
07	5	8000	250	6	12	25	25	0.65	2.45	0.65
09	11	6000	350	11	17	45	38	2.1	7	1.15
11	21	4800	500	30	22	70	40	5.7	20	2
14	60	3600	700	53	35	110	65	20	36	4
17	80	3000	1000	80	40	110	70	48	85	7.4
21	150	2500	1300	110	45	150	90	97	217	11

The service life values (W_{tot}) specified in the table apply if the clutch is adjusted twice.

Ordering data (to be fully specified)

ELECTROMAGNETIC SINGLE-SURFACE CLUTCH

Please specify requested version

1 Size (03, 04, 06, 07, 09, 11, 14, 17, 21)
Size: _____

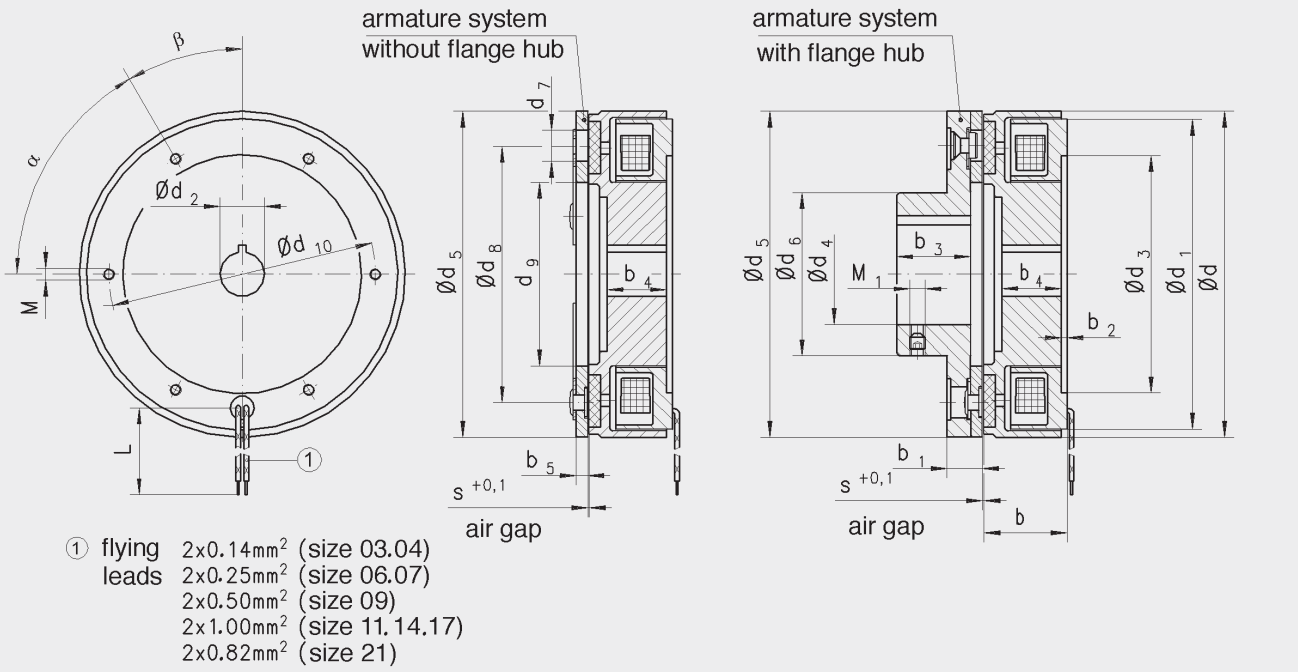
2 Coil voltage (standard 24 V)
Voltage: _____ V DC

3 Armature system:
☐ with flange hub ☐ without flange hub

4 Bore diameter-magnet system (standard)
Size 03: Ø 5, Ø 6 mm
Size 04: Ø 6, Ø 10 mm
Size 06: Ø 6, Ø 10, Ø 15 mm
Size 07: Ø 10, Ø 12, Ø 15, Ø 25 mm
Size 09: Ø 12, Ø 15, Ø 20, Ø 30, Ø 35 mm
Size 11: Ø 15, Ø 25, Ø 35, Ø 45, Ø 50 mm
Size 14: Ø 20, Ø 30, Ø 40, Ø 50, Ø 60 mm
Size 17: Ø 25, Ø 30, Ø 40, Ø 50, Ø 60 mm
Size 21: Ø 30, Ø 40, Ø 65, Ø 70, Ø 80 mm
Bore diameter: _____ mm ---->

4 ☐ with keyway ☐ without keyway
(DIN 6885, sheet1, P9
with max. bore P9, as per sheet 3)
☐ with drive pin (only for size 03)

5 Bore diameter-armature with flange hub (standard))
Size 03: Ø 5 mm
Size 04: Ø 6, Ø 8 mm
Size 06: Ø 6, Ø 8, Ø 10 mm
Size 07: Ø 10, Ø 12, Ø 15, Ø 20 mm
Size 09: Ø 12, Ø 15, Ø 20, Ø 25 mm
Size 11: Ø 15, Ø 20, Ø 25, Ø 30 mm
Size 14: Ø 20, Ø 25, Ø 30, Ø 40 mm
Size 17: Ø 25, Ø 30, Ø 35, Ø 45, Ø 65 mm
Size 21: Ø 30, Ø 40, Ø 65, Ø 70, Ø 80 mm
Bore diameter: _____ mm
☐ with keyway ☐ without keyway
(DIN 6885 Bl.1 P9)



Size	d	d_1(h7)	d_2(H7)	d_3(H7)	d_4(H7)	d_5	d_6	d_7	d_8	d_9	d_{10}
03	28	26	5[1] / 6[2]	16	5[1] / 6[2]	28	14	5/2x180°	19.5	12	22
04	39.5	37	5[1] / 12[2]	28	6[1] / 8[2]	39.5	16	7/2x180°	29	17	32.5
06	56	53	6[1] / 20[2]	42	6[1] / 15[2]	56	24	7/3x120°	46	28	48
07	70	66.5	10[1] / 30[2]	55	10[1] / 20[2]	70	30	8.5/3x120°	60	37	61
09	90	85.5	10[1] / 40[2]	68	10[1] / 30[2]	90	40	10.5/3x120°	76	46	75
11	110	104	15[1] / 50[2]	80	15[1] / 35[2]	110	50	12/3x120°	95	59	90
14	140	134	20[1] / 70[2]	110	20[1] / 48[2]	140	70	16/3x120°	120	75	120
17	175	167	20[1] / 70[2]	125	20[1] / 68[2]	170	86	16/3x120°	135	88	140
21	210	200	25[1] / 80[2]	150	25[1] / 80[2]	202	105	18/3x120°	158	114	167

Size	b	b_1	b_2	b_3	b_4	b_5	L	s	s_{max}	M	M_1	α	β
03	15	5	1	10	9	2	400	0.2	0.3	4xM2/3tief	2xM3	4x90°	45°
04	17.5	6	2	15	10	2.5	400	0.2	0.5	6xM2/3tief	2xM3	6x60°	30°
06	19	8	2	17	12	3	400	0.2	0.5	6xM3/4tief	2xM4	6x60°	30°
07	23	9.5	2	20	15	3.5	400	0.2	0.5	6xM3/5tief	2xM4	6x60°	30°
09	24.5	12	2	25	17	4	400	0.3	0.75	6xM3/5tief	2xM5	6x60°	30°
11	28	14	2	30	20	5	400	0.3	0.75	6xM4/6tief	2xM6	6x60°	30°
14	33.5	16	2.5	40	24	6.5	400	0.3	0.75	6xM5/8tief	2xM8	6x60°	30°
17	29	16	2.5	42	39	6.5	400	0.3	0.75	6xM6/8tief	2xM8	6x60°	30°
21	30	19	3	45	39	7	400	0.4	1	6xM8/8tief	2xM10	6x60°	30°

[1]) Min. bore
[2]) Max. bore

ACTIVE CLUTCH LINE

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ACTIVE CLUTCH LINE

ELECTROMAGNETIC SINGLE-SURFACE CLUTCH

DC

Version	86 021..E00 - flange nounting
Standard rated voltages	24 V DC
Protection	IP 00
Thermal class	F
Rated torques	0.2 - 150 Nm

Specification subject to change without notice.
The "General technical information" and the "Operating instructions" 86 021..E00 must be strictly observed.

Photo: 86 02109E00

Technical data

Size	Rated torque	Max. speed	Max. switching power	Max. switching energy (Z=1)	Rated power	Response times		Moment of inertia		Weight (without flange hub)
						on	off	Armature (without flange hub)	Magnet system	
	M_2 [Nm]	n_{max} [rpm]	P_{max} [kJ/h]	W_{max} [kJ]	P_N [W]	t_1 [ms]	t_2 [ms]	J [kgcm^2]	J [kgcm^2]	m [kg]
03	0.2	16000	65	0.9	6	13	12	0.01	0.06	0.06
04	1	12000	100	1.6	8	15	16	0.05	0.17	0.15
06	2.2	10000	160	4.5	10	15	18	0.22	0.55	0.35
07	5	8000	250	6	12	25	25	0.65	2.45	0.65
09	11	6000	350	11	17	45	38	2.1	7	1.15
11	21	4800	500	30	22	70	40	5.7	20	2
14	60	3600	700	53	35	110	65	20	36	4
17	80	3000	1000	80	40	110	70	48	85	7.4
21	150	2500	1300	110	45	150	90	97	217	11

The service life values (W_{tot}) specified in the table apply if the clutch is adjusted twice.

Ordering data (to be fully specified)

ELECTROMAGNETIC SINGLE-SURFACE CLUTCH

Please specify requested version

1 **Size (03, 04, 06, 07, 09, 11, 14, 17, 21)**
Size: _____

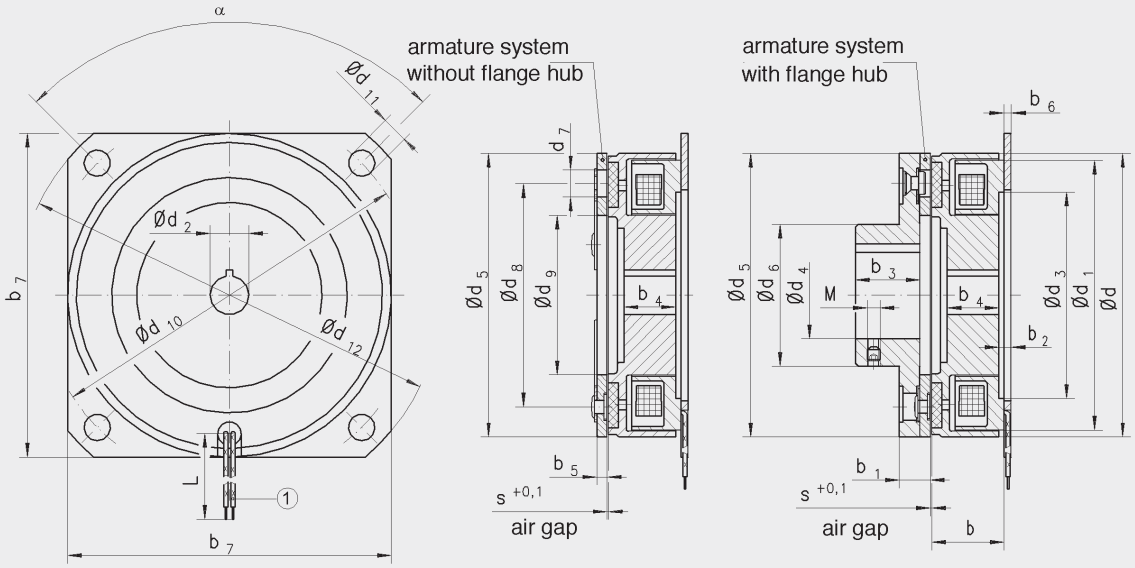
2 **Coil voltage (standard 24 V)**
Voltage: _____ **V DC**

3 **Armature system:**
☐ **with flange hub** ☐ **wuithout flange hub**

4 **Bore diameter-magnet system (standard)**
Size 03: Ø 5, Ø 6 mm
Size 04: Ø 6, Ø 10 mm
Size 06: Ø 6, Ø 10, Ø 15 mm
Size 07: Ø 10, Ø 12, Ø 15, Ø 25 mm
Size 09: Ø 12, Ø 15, Ø 20, Ø 30, Ø 35 mm
Size 11: Ø 15, Ø 25, Ø 35, Ø 45, Ø 50 mm
Size 14: Ø 20, Ø 30, Ø 40, Ø 50, Ø 60 mm
Size 17: Ø 25, Ø 30, Ø 40, Ø 50, Ø 60 mm
Size 21: Ø 30, Ø 40, Ø 65, Ø 70, Ø 80 mm
Bore diameter: _____ **mm** ---->

4 ☐ **with keyway** ☐ **without keyway**
(DIN 6885, sheet 1, P9
with max. bore P9, as per sheet 3)
☐ **with drive pin (only for size 03)**

5 **Bore diameter-armature with flange hub (standard)**
Size 03: Ø 5 mm
Size 04: Ø 6, Ø 8 mm
Size 06: Ø 6, Ø 8, Ø 10 mm
Size 07: Ø 10, Ø 12, Ø 15, Ø 20 mm
Size 09: Ø 12, Ø 15, Ø 20, Ø 25 mm
Size 11: Ø 15, Ø 20, Ø 25, Ø 30 mm
Size 14: Ø 20, Ø 25, Ø 30, Ø 40 mm
Size 17: Ø 25, Ø 30, Ø 35, Ø 45, Ø 65 mm
Size 21: Ø 30, Ø 40, Ø 65, Ø 70, Ø 80 mm
Bore diameter: _____ **mm**
☐ **with keyway** ☐ **without keyway**
(DIN 6885 sheet 1 P9)



① flying leads
2x0.14mm² (size 03.04)
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(H7)	d_3(H7)	d_4(H7)	d_5	d_6	d_7	d_8	d_9	d_{10}	d_{11}
03	28	26	5[1] / 6[2]	16	5[1] / 6[2]	28	14	5/2x180°	19.5	12	33.5	2.6
04	39.5	37	5[1] / 12[2]	28	6[1] / 8[2]	39.5	16	7/2x180°	29	17	54	3.5
06	56	53	6[1] / 20[2]	42	6[1] / 15[2]	56	24	7/3x120°	46	28	65	4.5
07	70	66.5	10[1] / 30[2]	55	10[1] / 20[2]	70	30	8.5/3x120°	60	37	79.5	5.5
09	90	85.5	10[1] / 40[2]	68	10[1] / 30[2]	90	40	10.5/3x120°	76	46	102	6.5
11	110	104	15[1] / 50[2]	80	15[1] / 35[2]	110	50	12/3x120°	95	59	127	9
14	140	134	20[1] / 70[2]	110	20[1] / 48[2]	140	70	16/3x120°	120	75	155	9
17	175	167	20[1] / 70[2]	125	20[1] / 68[2]	170	86	16/3x120°	135	88	185	9
21	210	200	25[1] / 80[2]	150	25[1] / 80[2]	202	105	18/3x120°	158	114	215	9

Size	d_{12}	b	b_1	b_2	b_3	b_4	b_5	b_6	b_7	L	s	s_{max}	M	α
03	38.5	15	5	2.5	10	9	2	1.5	28	400	0.2	0.3	2xM3	4x90°
04	62.5	17.5	6	4	15	10	2.5	2	45	400	0.2	0.5	2xM3	4x90°
06	75.5	19	8	4	17	12	3	2	56	400	0.2	0.5	2xM4	4x90°
07	89.5	23	9.5	4.5	20	15	3.5	2.5	70	400	0.2	0.5	2xM4	4x90°
09	115.5	24.5	12	4.5	25	17	4	2.5	90	400	0.3	0.75	2xM5	4x90°
11	143.5	28	14	5	30	20	5	3	110	400	0.3	0.75	2xM6	4x90°
14	170.5	33.5	16	6.5	40	24	6.5	4	140	400	0.3	0.75	2xM8	4x90°
17	200	29	16	7	42	39	6.5	4.5	-	400	0.3	0.75	2xM8	4x90°
21	230	30	19	8	45	39	7	5	-	400	0.4	1	2xM10	4x90°

[1]) Min. bore
[2]) Max. bore

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ACTIVE CLUTCH LINE

ELECTROMAGNETIC SINGLE-SURFACE CLUTCH

DC

Version	86 051..E00 - shaft mounting
Standard rated voltages	24 V DC
Protection	IP 00
Thermal class	F
Rated torques	0.2 - 2.2 Nm

Specification subject to change without notice.
The "General technical information" and the "Operating instructions" 86 051..E00 must be strictly observed.

Photo: 86 05106E00

Technical data

Size	Rated torque	Max. sped	Max. switching power	Max. switching energy (Z = 1)	Rated power	Response times		Moment of inertia		Weight (without flange hub)
						on	off	Armature (without flange hub)	Magnet system	
	M_2 [Nm]	n_{max} [rpm]	P_{max} [kJ/h]	W_{max} [kJ]	P_N [W]	t_1 [ms]	t_2 [ms]	J [kgcm^2]	J [kgcm^2]	m [kg]
03	0.2	16000	65	0.9	6	13	12	0.01	0.06	0.06
04	1	12000	100	1.6	8	15	16	0.05	0.17	0.15
06	2.2	10000	160	4.5	10	15	18	0.22	0.55	0.35

The service life values (Wtot) specified in the table apply if the clutch is adjusted twice.

Ordering data (to be fully specified)

ELECTROMAGNETIC SINGLE-SURFACE CLUTCH

Please specify requested version

1 **Size (03, 04, 06)**

Size: _____

2 **Coil voltage (standard 24 V)**

Voltage: _____ V DC

3 **Armature system:**

☐ **with flange hub** ☐ **without flange hub**

4 **Bore diameter-magnet system (standard)**

Size 03: Ø 5 mm
Size 04: Ø 5, Ø 6 mm
Size 06: Ø 6, Ø 10, Ø 12 mm

Bore diameter: _____ mm

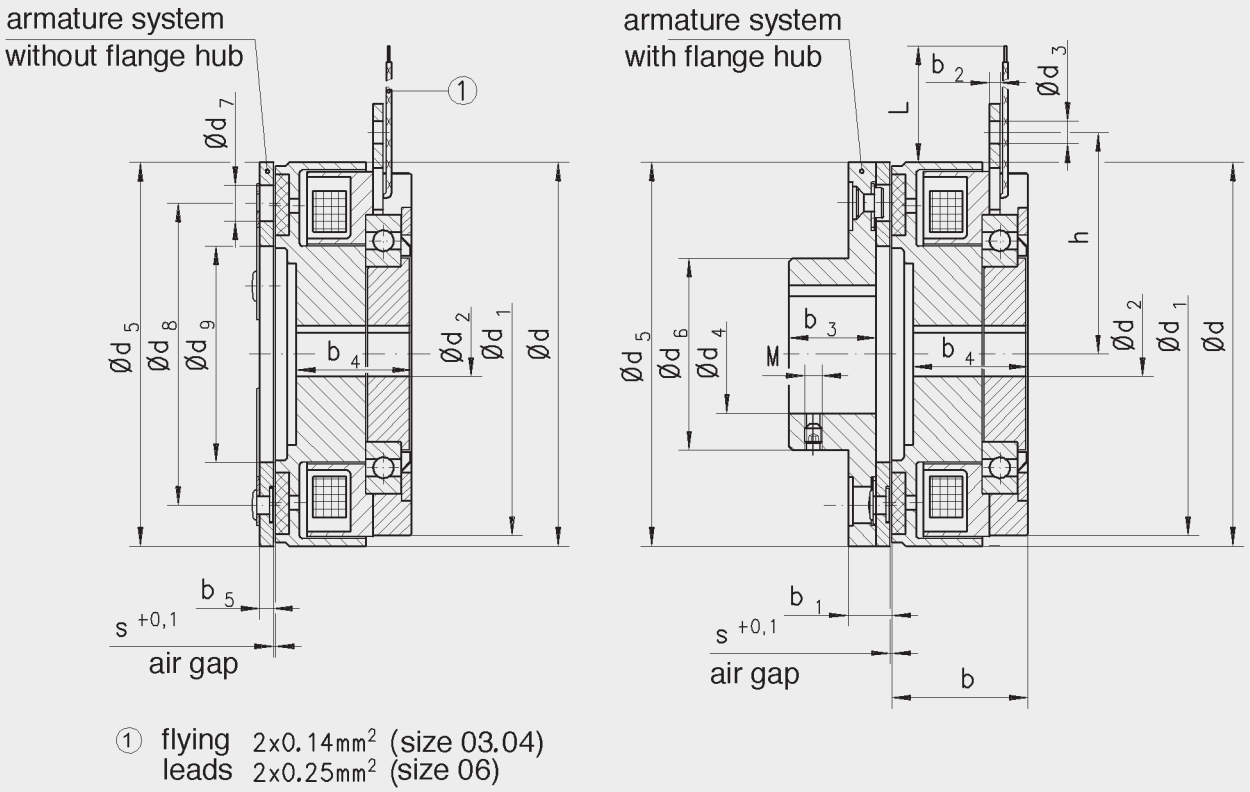
☐ **with keyway (DIN 6885, sheet 1, P9)** ☐ **without keyway**
☐ **with drive pin (only for size 03)**

5 **Bore diameter-armature with flange hub (standard)**

Size 03: Ø 5 mm
Size 04: Ø 6, Ø 8 mm
Size 06: Ø 6, Ø 8, Ø 10 mm

Bore diameter: _____ mm

☐ **with keyway (DIN 6885, sheet 1, P9)** ☐ **without keyway**



Size	d	d_1	d_2(H7)	d_3	d_4(H7)	d_5	d_6	d_7	d_8	d_9	b	b_1	b_2	b_3	b_4	b_5	h	L	s	s_{max}	M
03	28	26	5	4.2	5[1] / 6[2]	28	14	5/2x180°	19.5	12	20	5	1.5	10	14	2	19.2	400	0.2	0.45	2xM3
04	39.5	37	5[1] / 8[2]	4.2	5[1] / 8[2]	39.5	16	7/2x180°	29	17	24.5	6	1.5	15	19	2.5	24.8	400	0.2	0.5	2xM3
06	56	53	6[1] / 12[2]	4.2	6[1] / 15[2]	56	24	7/3x120°	46	28	27.5	8	1.5	17	22.5	3	32.8	400	0.2	0.5	2xM3

[1]) Min. bore
[2]) Max. bore

ACTIVE CLUTCH LINE

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ACTIVE CLUTCH LINE

ELEKTROMAGNETIC SINGLE-SURFACE CLUTCH

DC

Version	86 053..E00 - shaft mounting with connection terminal
Standard rated voltages	24 V DC
Protection	IP00
Thermal class	F
Rated torques	5 - 150 Nm

Specification subject to change without notice.
The "General technical information" and the "Operating instructions" 86 053..E00 must be strictly observed.

Photo: 86 05309E00

Technical data

Size	Rated torque	Max. speed	Max. switching power	Max. switching energy (Z = 1)	Rated torque	Response times		Moment of inertia		Weight (without flange hub)
						on	off	Armature (without flange hub)	Magnet system	
	M_2 [Nm]	n_{max} [rpm]	P_{max} [kJ/h]	W_{max} [kJ]	P_N [W]	t_1 [ms]	t_2 [ms]	J [kgcm^2]	J [kgcm^2]	m [kg]
07	5	8000	250	6	12	25	25	0.65	2.45	0.65
09	11	6000	350	11	17	45	38	2.1	7	1.15
11	21	4800	500	30	22	70	40	5.7	20	2
14	60	3600	700	53	35	110	65	20	36	4
17	80	3000	1000	80	40	110	70	48	85	7.4
21	150	2500	1300	110	45	150	90	97	217	11

The service life values (W_{tot}) specified in the table apply if the clutch is adjusted twice.

Ordering data (to be fully specified)

ELECTROMAGNETIC SINGLE-SURFACE CLUTCH

Please specify requested version

1 Size (07, 09, 11, 14, 17, 21)
Size: _____

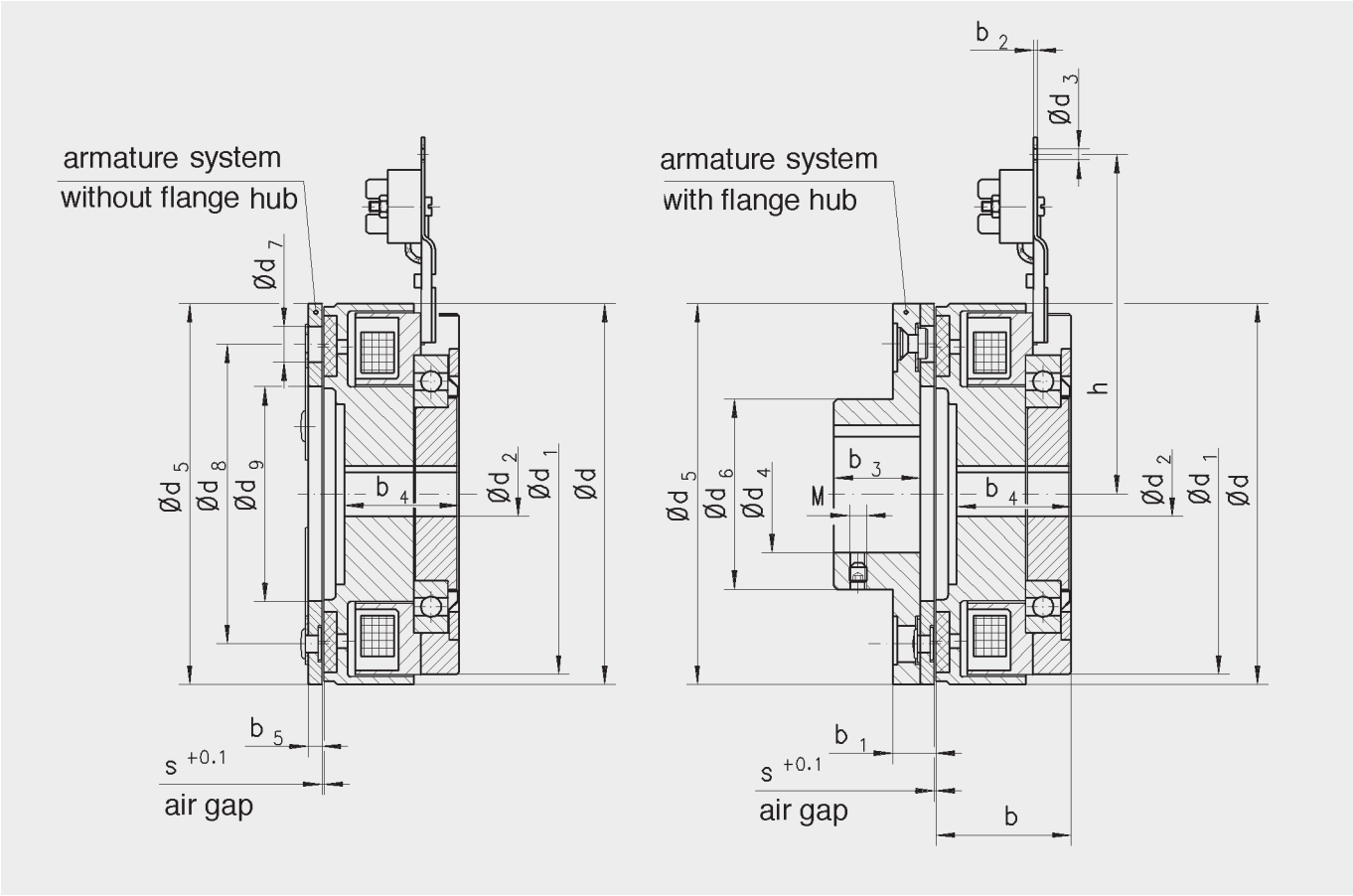
2 Coil voltage (standard 24 V)
Voltage: _____ V DC

3 Armature system:
☐ with flange hub ☐ without flange hub

4 Bore diameter-magnet system (standard)
Size 07: Ø 10, Ø 12, Ø 19 mm
Size 09: Ø 12, Ø 15, Ø 20 mm
Size 11: Ø 15, Ø 20, Ø 30, Ø 35 mm
Size 14: Ø 20, Ø 30, Ø 40, Ø 50 mm
Size 17: Ø 25, Ø 30, Ø 40, Ø 50, Ø 60 mm
Size 21: Ø 30, Ø 40, Ø 65, Ø 70, Ø 80 mm
Bore diameter: _____ mm ---->

4 ☐ with keyway ☐ without keyway
(DIN 6885, sheet 1, P9)

5 Bore diameter-armature with flange hub (standard)
Size 07: Ø 10, Ø 12, Ø 15, Ø 20 mm
Size 09: Ø 12, Ø 15, Ø 20, Ø 25 mm
Size 11: Ø 15, Ø 20, Ø 25, Ø 30 mm
Size 14: Ø 20, Ø 25, Ø 30, Ø 40 mm
Size 17: Ø 25, Ø 30, Ø 35, Ø 45, Ø 65 mm
Size 21: Ø 30, Ø 40, Ø 65, Ø 70, Ø 80 mm
Bore diameter: _____ mm
☐ with keyway ☐ without keyway
(DIN 6885, sheet 1, P9)



Size	d	d_1	d_2(H7)	d_3	d_4(H7)	d_5	d_6	d_7	d_8	d_9	b	b_1	b_2	b_3	b_4	b_5	h	s	s_{max}	M
07	70	66.5	10[1] / 22[2]	5	10[1] / 20[2]	70	30	8.5/3x120°	60	37	32.5	9.5	1	20	26.5	3.5	82	0.2	0.5	2xM4
09	90	85.5	10[1] / 28[2]	5	10[1] / 30[2]	90	40	10.5/3x120°	76	46	34	12	1	25	28.5	4	89	0.3	0.75	2xM5
11	110	104	15[1] / 38[2]	5	15[1] / 35[2]	110	50	12/3x120°	95	59	38.5	14	1	30	32.5	5	97.5	0.3	0.75	2xM6
14	140	134	20[1] / 55[2]	5	20[1] / 48[2]	140	70	16/3x120°	120	75	47	16	1	40	40	6.5	111.5	0.3	0.75	2xM8
17	175	167	20[1] / 65[2]	5	20[1] / 68[2]	170	86	16/3x120°	135	88	57	16	1	42	56	6.5	124.5	0.3	0.75	2xM8
21	210	200	25[1] / 80[2]	5	25[1] / 80[2]	202	105	18/3x120°	158	114	60.5	19	1	45	59.5	7	149.5	0.4	1	2xM10

[1]) Min. bore
[2]) Max. bore

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