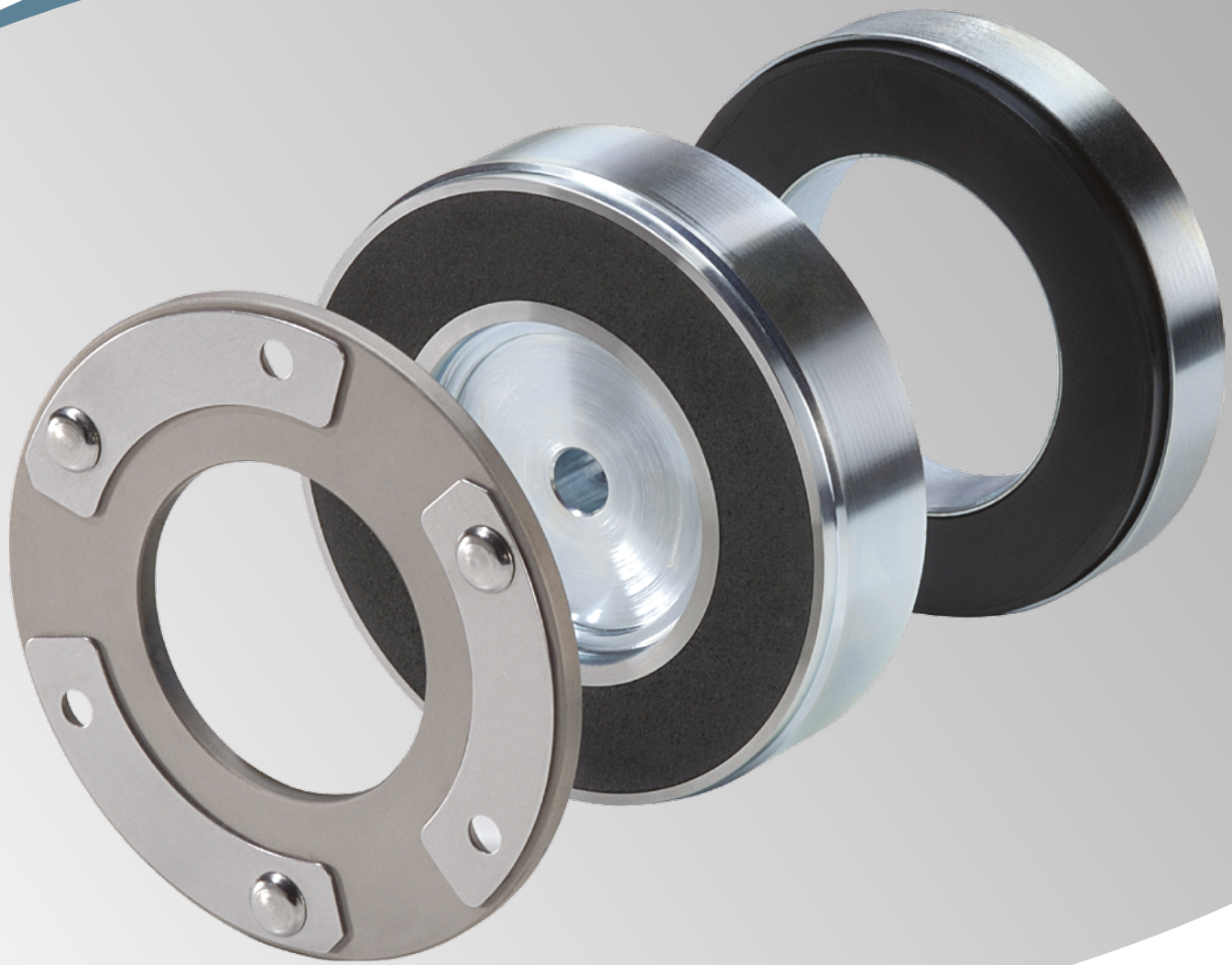
KENDRION

WE MAGNETISE THE WORLD



Active Clutch Line

Electromagnetic single-surface clutch

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

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).

Applications

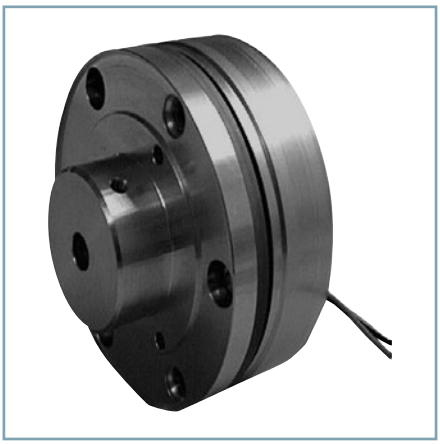
- Automotive technology
- Equipment manufacturing industry
- Handling technology
- Building installations
- Medical technology
- Packaging machinery...

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 clutch
DC

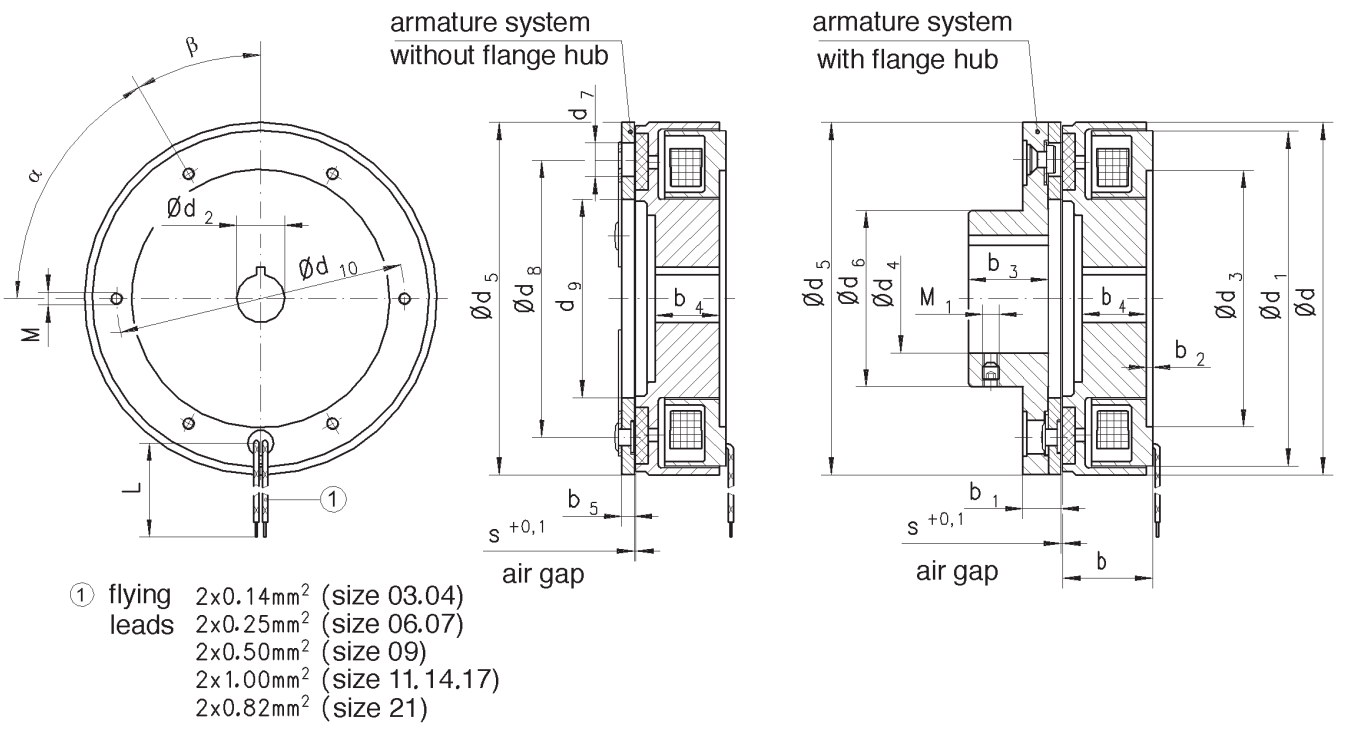
Version	86 011..E00 - front mounting
Standard rated voltages	24 V DC
Protection	IP 00
Thermal class	F
Rated torque	0.2 - 150 Nm
Note	Specification subject to change without notice. The „General technical information“ and the „Operating instructions“ 86 011..E00 must be strictly observed.



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)
						Coupling time	Disconnection time	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 [kgcm²]	J [kgcm²]	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

Dimensions [mm]



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}	b	b_1
03	28	26	5[1] / 6[2]	16	5[1] / 6[2]	28	14	5/2x180°	19.5	12	22	15	5
04	39.5	37	5[1] / 12[2]	28	6[1] / 8[2]	39.5	16	7/2x180°	29	17	32.5	17.5	6
06	56	53	6[1] / 20[2]	42	6[1] / 15[2]	56	24	7/3x120°	46	28	48	19	8
07	70	66.5	10[1] / 30[2]	55	10[1] / 20[2]	70	30	8.5/3x120°	60	37	61	23	9.5
09	90	85.5	10[1] / 40[2]	68	10[1] / 30[2]	90	40	10.5/3x120°	76	46	75	24.5	12
11	110	104	15[1] / 50[2]	80	15[1] / 35[2]	110	50	12/3x120°	95	59	90	28	14
14	140	134	20[1] / 70[2]	110	20[1] / 48[2]	140	70	16/3x120°	120	75	120	33.5	16
17	175	167	20[1] / 70[2]	125	20[1] / 68[2]	170	86	16/3x120°	135	88	140	42.5	16
21	210	200	25[1] / 80[2]	150	25[1] / 80[2]	202	105	18/3x120°	158	114	167	43	19

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

[1] Min. bore.

[2] Max. bore.

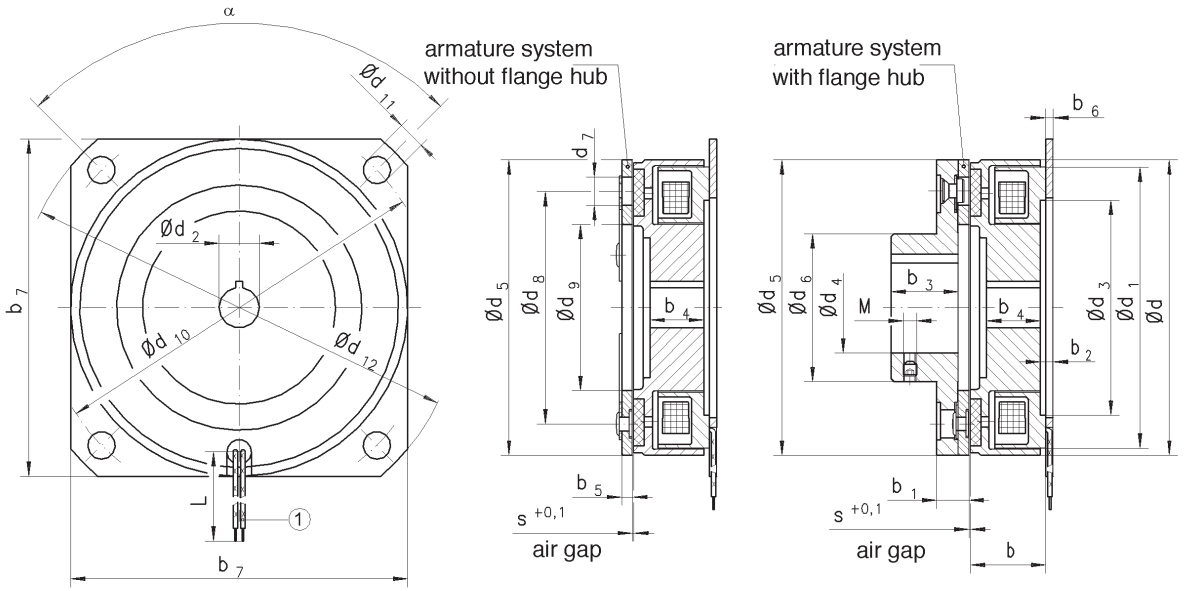
Electromagnetic single-surface clutch
DC

Version	86 021..E00 - flange mounting
Standard rated voltages	24 V DC
Protection	IP 00
Thermal class	F
Rated torques	0.2 - 150 Nm
Note	Specification subject to change without notice. The „General technical information“ and the „Operating instructions“ 86 021..E00 must be strictly observed.

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)
						Coupling time	Disconnection time	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 [kgcm²]	J [kgcm²]	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

Dimensions [mm]



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}	d_{12}
03	28	26	5[1] / 6[2]	16	5[1] / 6[2]	28	14	5/2x180°	19.5	12	33.5	2.6	38.5
04	39.5	37	5[1] / 12[2]	28	6[1] / 8[2]	39.5	16	7/2x180°	29	17	54	3.5	62.5
06	56	53	6[1] / 20[2]	42	6[1] / 15[2]	56	24	7/3x120°	46	28	65	4.5	75.5
07	70	66.5	10[1] / 30[2]	55	10[1] / 20[2]	70	30	8.5/3x120°	60	37	79.5	5.5	89.5
09	90	85.5	10[1] / 40[2]	68	10[1] / 30[2]	90	40	10.5/3x120°	76	46	102	6.5	115.5
11	110	104	15[1] / 50[2]	80	15[1] / 35[2]	110	50	12/3x120°	95	59	127	9	143.5
14	140	134	20[1] / 70[2]	110	20[1] / 48[2]	140	70	16/3x120°	120	75	155	9	170.5
17	175	167	20[1] / 70[2]	125	20[1] / 68[2]	170	86	16/3x120°	135	88	185	9	200
21	210	200	25[1] / 80[2]	150	25[1] / 80[2]	202	105	18/3x120°	158	114	215	9	230

Size	b	b_1	b_2	b_3	b_4	b_5	b_6	b_7	L	s	s_{max}	M	α
03	15	5	2.5	10	9	2	1.5	28	400	0.2	0.3	2xM3	4x90°
04	17.5	6	4	15	10	2.5	2	45	400	0.2	0.5	2xM3	4x90°
06	19	8	4	17	12	3	2	56	400	0.2	0.5	2xM4	4x90°
07	23	9.5	4.5	20	15	3.5	2.5	70	400	0.2	0.5	2xM4	4x90°
09	24.5	12	4.5	25	17	4	2.5	90	400	0.3	0.75	2xM5	4x90°
11	28	14	5	30	20	5	3	110	400	0.3	0.75	2xM6	4x90°
14	33.5	16	6.5	40	24	6.5	4	140	400	0.3	0.75	2xM8	4x90°
17	42.5	16	7	42	39	6.5	4.5	-	400	0.3	0.75	2xM8	4x90°
21	43	19	8	45	39	7	5	-	400	0.4	1	2xM10	4x90°

[1] Min. bore.

[2] Max. bore.

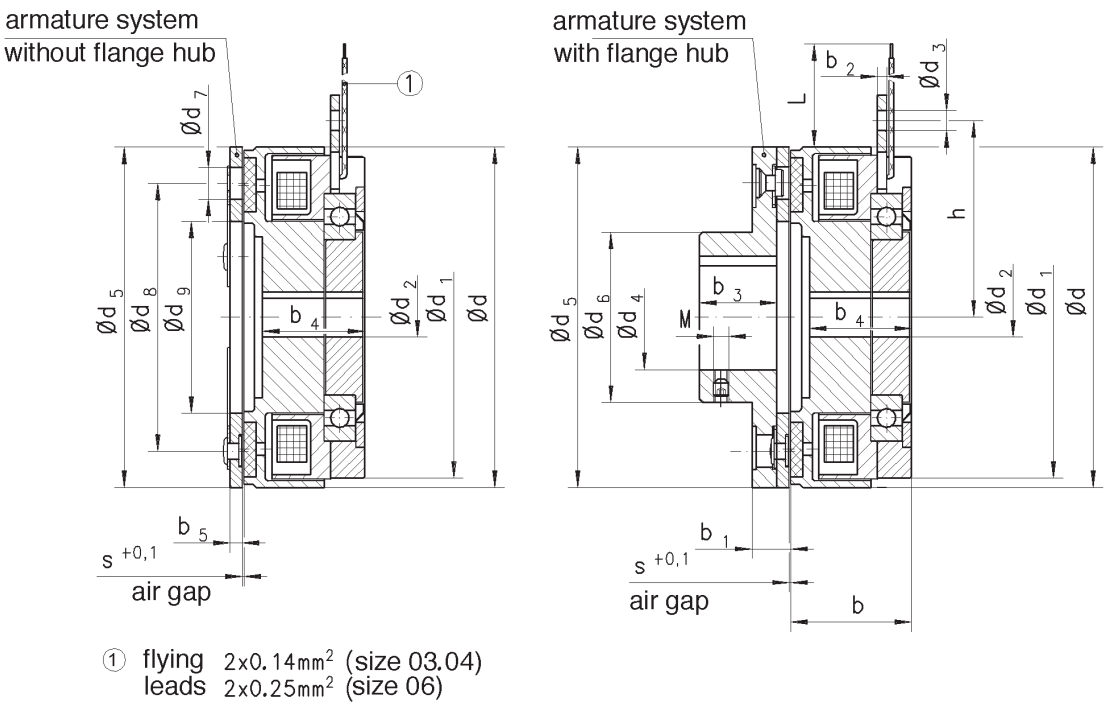
Electromagnetic single-surface clutch
DC

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

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)
						Coupling time	Disconnection time	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 [kgcm²]	J [kgcm²]	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

Dimensions [mm]



Size	d	d_1	d_2 (H7)	d_3	d_4 (H7)	d_5	d_6	d_7	d_8	d_9
03	28	26	5	4.2	5[1] / 6[2]	28	14	5/2x180°	19.5	12
04	39.5	37	5[1] / 8[2]	4.2	5[1] / 8[2]	39.5	16	7/2x180°	29	17
06	56	53	6[1] / 12[2]	4.2	6[1] / 15[2]	56	24	7/3x120°	46	28

Size	b	b_1	b_2	b_3	b_4	b_5	h	L	s	s_{max}	M
03	20	5	1.5	10	14	2	19.2	400	0.2	0.45	2xM3
04	24.5	6	1.5	15	19	2.5	24.8	400	0.2	0.5	2xM3
06	27.5	8	1.5	17	22.5	3	32.8	400	0.2	0.5	2xM3

[1] Min. bore.

[2] Max. bore.

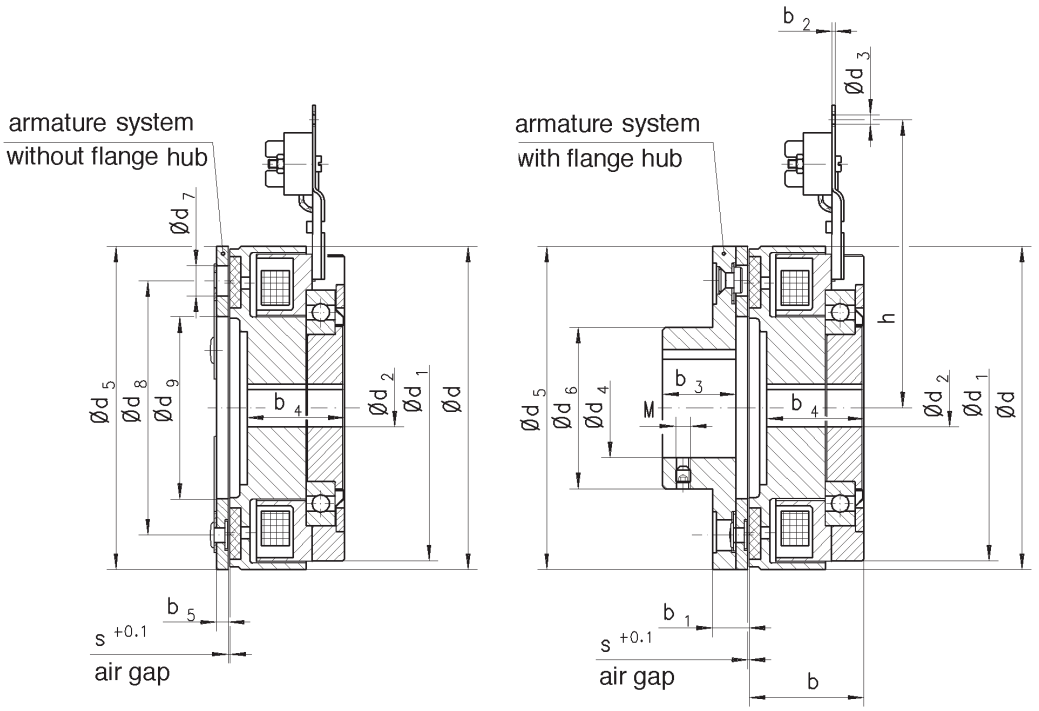
Elektromagnetic single-surface clutch
DC

Version	86 053..E00 - shaft mounting with connection terminal
Standard rated voltages	24 V DC
Protection	IP 00
Thermal class	F
Rated torques	5 - 150 Nm
Note	Specification subject to change without notice. The „General technical information“ and the „Operating instructions“ 86 053..E00 must be strictly observed.

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)
						Coupling time	Disconnection time	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 [kgcm²]	J [kgcm²]	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

Dimensions [mm]



Size	d	d_1	d_2 (H7)	d_3	d_4(H7)	d_5	d_6	d_7	d_8	d_9
07	70	66.5	10[1] / 22[2]	5	10[1] / 20[2]	70	30	8.5/3x120°	60	37
09	90	85.5	10[1] / 28[2]	5	10[1] / 30[2]	90	40	10.5/3x120°	76	46
11	110	104	15[1] / 38[2]	5	15[1] / 35[2]	110	50	12/3x120°	95	59
14	140	134	20[1] / 55[2]	5	20[1] / 48[2]	140	70	16/3x120°	120	75
17	175	167	20[1] / 65[2]	5	20[1] / 68[2]	170	86	16/3x120°	135	88
21	210	200	25[1] / 80[2]	5	25[1] / 80[2]	202	105	18/3x120°	158	114

Size	b	b_1	b_2	b_3	b_4	b_5	h	s	s_{max}	M
07	32.5	9.5	1	20	26.5	3.5	82	0.2	0.5	2xM4
09	34	12	1	25	28.5	4	89	0.3	0.75	2xM5
11	38.5	14	1	30	32.5	5	97.5	0.3	0.75	2xM6
14	47	16	1	40	40	6.5	111.5	0.3	0.75	2xM8
17	57	16	1	42	56	6.5	124.5	0.3	0.75	2xM8
21	60.5	19	1	45	59.5	7	149.5	0.4	1	2xM10

[1] Min. bore.

[2] Max. bore.

KENDRION

WE MAGNETISE THE WORLD

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