KENDRION | INDUSTRIAL

WE MAGNETISE THE WORLD

AC Line

Spring-applied single-disc brake

73 341..A00
73 431..H00
73 241..E00 / 73 245..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 customers all over the world.

In the Industrial Drive Systems business unit, electromagnetic brakes and clutches are developed and produced for industrial drive engineering. They are used for the accelerating, braking, positioning, holding and securing of movable drive components and loads. Areas of application for our brakes and clutches are primarily in the areas of robotic and automatic control engineering, machine tool and production machinery as well as medical technology and material handling.

Our main site is located in Villingen in the Black Forest, Germany. Industrial Drive Systems can also rely on additional production sites and subsidiaries in Aerzen (Germany), China, Great Britain and Italy, as well as numerous sales partners all over the world.

Tradition and progress

The long-established BINDER brand laid the foundations for the successful development of Industrial Drive Systems. In the year 1911, Wilhelm Binder founded his company and began at the start of the 1920s with the development and production of electromagnetic components. In 1997, the company was taken over by the Dutch group Schuttersveld N.V., today Kendrion N.V..

The former magneta GmbH & Co. KG belongs to the Kendrion Group since 2010. As the present Kendrion (Aerzen) GmbH, the innovative company continues to develop and produce electromagnetic clutches and brakes along with magnetic particle clutches and brakes at its site in Aerzen.

Kobra greensigned safety brakes

As the first company, we at Kendrion developed safety brakes that contribute to the well-being of the environment in two separate ways. The reduced energy consumption was just as important to us as the ecology in the entire value-creation process. The KOBRA (Kendrion Optimised Brake) spring-applied safety brake is the impressive result, and the pioneer product of the Kendrion greensigned strategy.

Kendrion – We magnetise the world!

www.kendrion.com

About the AC Line

The AC Line is comprised of spring-applied single-disc brakes which can be connected directly to an AC power source (e.g. motor terminal box) without having to use a rectifier.The switching times of the AC Line brakes are characteristically shorter than DC operated brakes. Electromagnetically operated spring-applied braking generates the braking torque when voltage is removed.

Versions
73 341..A00 torque range 1 - 5 Nm single-phase AC
73 431..H00 torque range 7.5 - 75 Nm three-phase AC
73 241..E00 torque range 4.5 - 75 Nm three-phase AC adjustable torque closed version with connection cable
73 245..E00 torque range 4.5 - 75 Nm three-phase AC adjustable torque closed version with connection box

Applications
AC motors
Equipment manufacturing industry
Geared motors
Handling technology
Lifting and materials
Crane construction
Paper-making and printing machines
Heavy machinery construction
Gate drives
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.

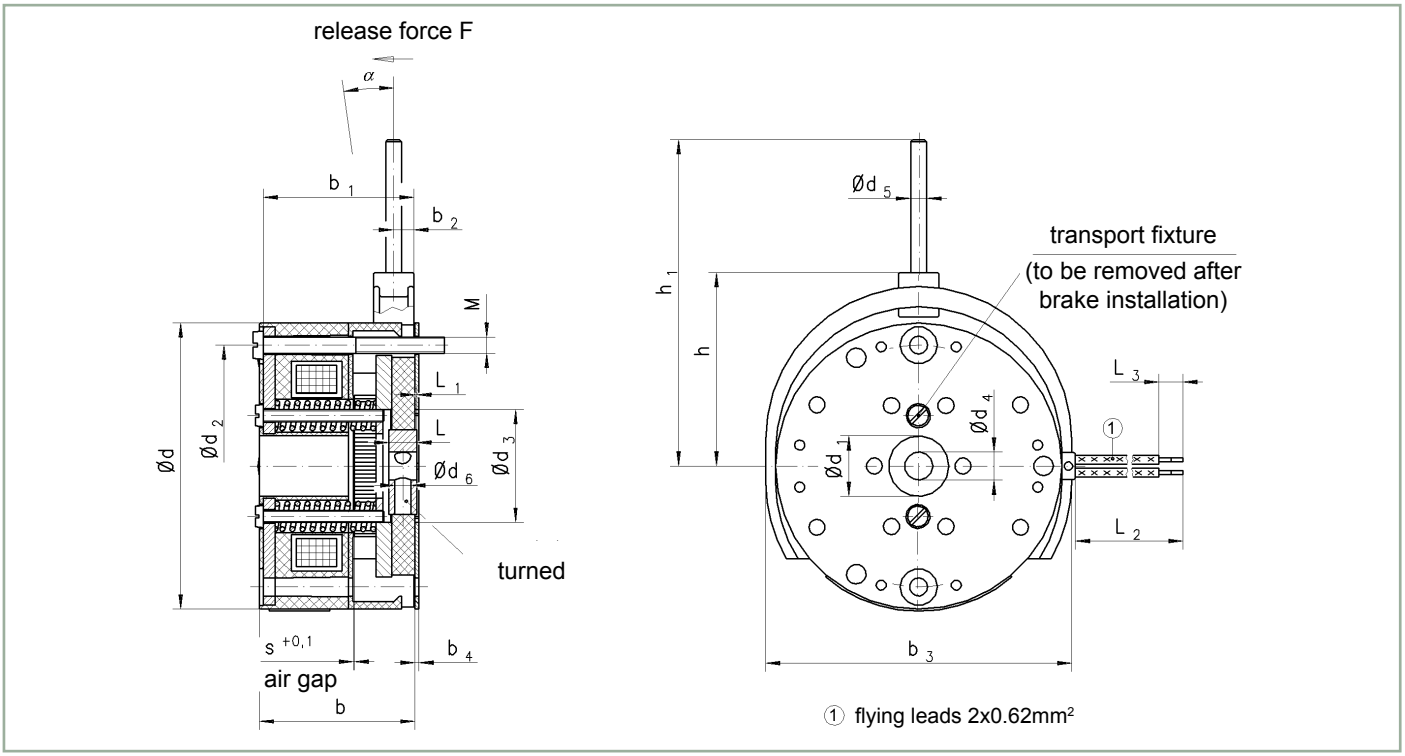
Spring-applied single-disc brake
Single-phase AC

Version	73 341..A00
Standard rated voltage	230V AC, 50 Hz
Protection	IP 54 (when installed under motor fan hood)
Thermal class	F
Rated torque	1 - 5 Nm
Accessories (options)	friction plate, hand release feature, mounting screws
Note	Specification subject to change without notice. The “General technical information” and the “Operating instructions” 73 341..A00 must be strictly observed.

Technical specifications

Size	Transmissible torque M_4 [Nm]	Max. speed n_{max} [min^{-1}]	Max. switching power P_{max} [kJ/h]	Max. switching energy (Z = 1) W_{max} [kJ]	Rated power P_s [VA]	Response times		Moment of inertia armature and flange hub J [$kgcm^2$]	Weight m [kg]
						Coupling time (acc. to VDE 0580) t_1 [ms]	Disconnection time t_2 [ms]		
05	1	13000	70	18	25	15	10	0.021	0.28
07	2	10000	100	22	70	15	10	0.096	0.56
09	5	8000	140	45	75	20	10	0.277	1.15

Dimensions [mm]



Size	d	d_1	d_2	d_3	d_4(H7)	d_5	d_6	b	b_1	b_2	b_3
05	56	12	46	22	8[1)]/11[2)]	–	2.8[4)]	32	30.5	–	–
07	71	15	60	28	10[1)]/14[2)]	4	3.8[4)]	39	37.5	5	76
09	90	16	75	32	13[1)]/15[2)]	4	5.8[4)]	47.5	46	6	96

Size	h	h_1	L	L_1	L_2	L_3	s	s_{max} [3)]	M	F [N]	α
05	–	–	5	0.5	400	6	0.2	0.6	2 x M3	–	–
07	48	81	7	0.5	400	6	0.2	0.6	2 x M4	ca. 26	ca. 6°
09	59	92	8	0.5	400	6	0.2	0.6	2 x M5	ca. 42	ca. 6°

[1)] Min. bore
[2)] Max. bore
[2)] Shaft ISO fitting k6 ([1)],[2)])
[3)] Max. air gap up to friction disc replacement
[4)] Pre-bored in case of hubs with finished bore d_4

Accessories

Size	Friction plate		Hand release feature	Mounting screws			
	with corrosion protection	without corrosion protection		Screw	Rated torque	Material number	Screws per brake
05	73 34105A02902	73 34105A00902	–	ISO 1207 - M3 x 35 - 4.8	1 Nm	302 074	2
07	73 34107A02902	73 34107A00902	73 34107A00940	ISO 1207 - M4 x 45- 4.8	2.5 Nm	302 165	2
09	73 34109A02902	73 34109A00902	73 34109A00940	ISO 1207 - M5 x 55- 4.8	5 Nm	302 252	2

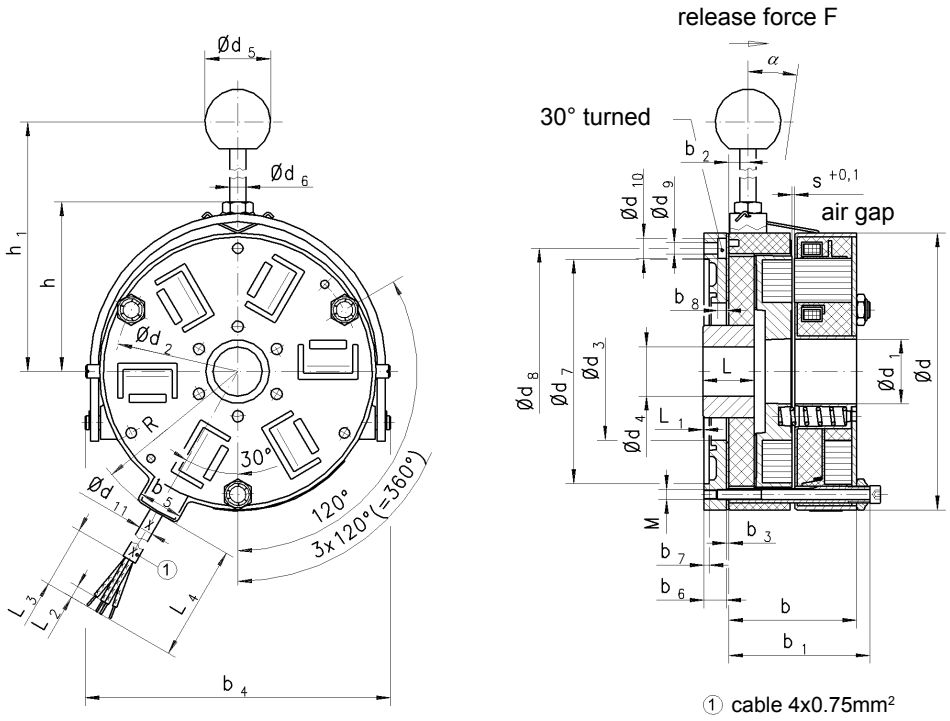
Spring-applied single-disc brake
Three-phase AC

Version	73 431..H00
Standard rated voltage	400 V AC 3~, 50 Hz
Protection	IP 44 (when installed under motor fan hood)
Thermal class	F
Rated torque	7.5 - 75 Nm
Accessories (options)	friction plate, hand release feature, flange, mounting screws
Note	Specification subject to change without notice. The “General technical information” and the “Operating instructions” 73 431..H00 must be strictly observed.

Technical specifications

Size	Transmissible torque M_4 [Nm]	Max. speed n_{max} [min^{-1}]	Max. switching power P_{max} [kJ/h]	Max. switching energy (Z = 1) W_{max} [kJ]	Rated power P_s [VA]	Response times		Moment of inertia armature and flange hub J [$kgcm^2$]	Weight m [kg]
						Coupling time (acc. to VDE 0580) t_1 [ms]	Disconnection time t_2 [ms]		
10	7.5	5400	300	30	80	7	5	1.22	1.3
11	15	5400	360	41	100	8	5	1.75	1.9
13	35	4000	540	50	230	11	6	5	3.0
16	75	3500	850	58	480	12	7	14	5.6

Dimensions [mm]



Size	d	d_1	d_2	d_3	d_4(H7)	d_5	d_6	d_7(H9)	d_8	d_9	d_{10}	d_{11}	b	b_1	b_2	b_3	b_4
10	100	23	88	42	10[1] / 10[2] / 22[3]	32	8	75	88	5.5 3x120°	10	6.8	49	56.5	8.5	1	105
11	115	22.5	100	42	13[1] / 13[2] / 22[3]	32	8	90	100	5.5 3x120°	10	6.8	54.5	62	9	1	118
13	135	31	120	67	18[1] / 22[2] / 38[3]	32	8	110	120	5.5 6x60°	10	6.8	61.5	69	9.5	1	141.5
16	165	46	150	78	23[1] / 30[2] / 44[3]	32	8	140	150	6.5 6x60°	11	6.8	74.5	83	11.5	1	170.5

Size	b_5	b_6	b_7	b_8	h	h_1	R	L	L_1	L_2	L_3	L_4	s	s_{max}[4]	M	F [N]	α
10	22	8	2.5	4.2	63	115	62	13/20.5[5]	0..1	6	30	500	0.25	0.6	3xM5	ca.60	ca. 8°
11	22	9	2.5	4.2	70	122	68.5	13/22[5]	0..1	6	30	500	0.25	0.6	3xM5	ca.100	ca. 8°
13	22	11	2.5	4.2	84	135	79.5	14/24.5[5]	0..1	6	30	500	0.25	0.6	3xM5	ca.170	ca. 8°
16	22	10.5	2.5	4.5	99	150	94	17/26.7[5]	0..1	6	30	500	0.3	0.6	3xM6	ca.220	ca. 8°

[1] Min. bore of brake with optional flange; keyway JS9 as per DIN 6885, sheet 1.
[2] Min. bore of brake without optional flange; keyway JS9 as per DIN 6885, sheet 1.
[3] Max. bore with keyway JS9 as per DIN 6885, sheet 1.
[4] Max. air gap up to brake adjustment or friction disc replacement.
[5] Hub length of brake with optional flange. Supporting keyway over entire length. Shaft ISO fitting k6. ([1], [2], [3])

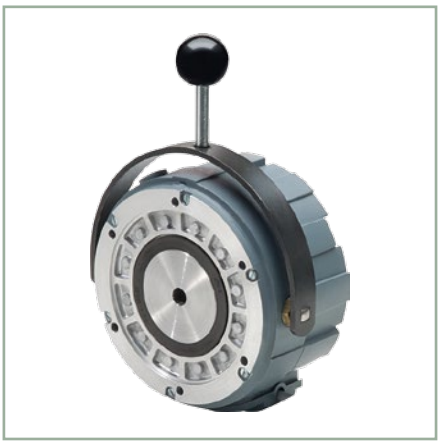
Accessories

Size	Friction plate	Flange (only with friction plate)	Hand release feature	Mounting screws			
				Screw	Rated torque	Material number	Screws per brake
10	73 43110A01001	73 44110A00002	73 43110A01940	ISO 4762 - M5 x 65 - 8.8	6 Nm	304 029	3
11	73 43111A01001	73 44111A00002	73 43111A01940	ISO 4762 - M5 x 70 - 8.8	6 Nm	304 030	3
13	73 43113A01001	73 44113A00002	73 43113A01940	ISO 4762 - M5 x 75 - 8.8[6]	6 Nm	304 031	3
16	73 43116A01001	73 44116A00002	73 43116A01940	ISO 4762 - M6 x 90 - 8.8	10 Nm	304 058	3

[6] If the brake is fitted to the aluminium end shield or if an optional flange is used, screws as per ISO 4762-M5x80-8.8 will be required.

Spring-applied single-disc brake
Three-phase AC

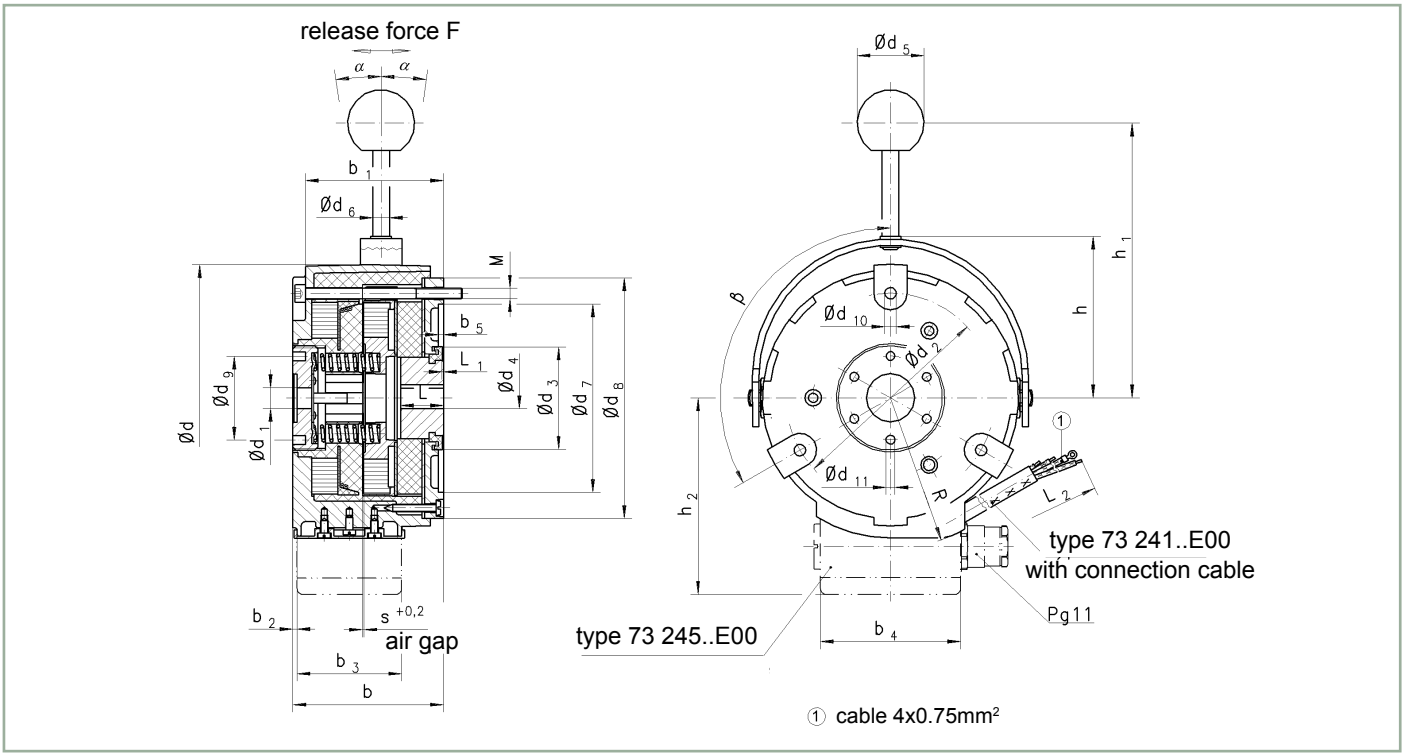
Version	73 241..E00 – closed version with connection cable 73 245..E00 – closed version with connection box
Standard rated voltage	400 V AC 3~, 50 Hz
Protection	IP 65 (when installed under motor fan hood)
Thermal class	F
Rated torque	4.5 - 75 Nm
Accessories (options)	hand release feature, mounting screws
Note	Specification subject to change without notice. The “General technical information” and the “Operating instructions” 73 241..E00 or 73 245..E00 must be strictly observed.



Technical specifications

Size	Trans-missible torque M_4 [Nm]	Max. reachable rated torque with fully screwed in adjustment ring $M_{2\,max}$ [Nm]	Max. speed n_{max} [min^{-1}]	Max. switching power P_{max} [kJ/h]	Max. switching energy (Z = 1) W_{max} [kJ]	Rated power P_s [VA]	Response times		Moment of inertia armature and flange hub	Weight
							Coupling time (acc. to VDE 0580) t_1 [ms]	Disconnection time t_2 [ms]	J [kgcm^2]	m [kg]
10	4.5-7.5	8	5400	450	60	80	7	5	1.22	1.7
11	9-15	16.5	5000	500	65	100	8	5	1.75	2.5
13	21-35	38.5	4000	680	72	230	11	6	5	3.8
16	45-75	82.5	3500	850	82	480	12	7	14	7.5

Dimensions [mm]



Size	d	d_1	d_2	d_3	d_4(H7)	d_5	d_6	d_7(H9)	d_8	d_9	d_{10}	d_{11}	b	b_1	b_2	b_3	b_4
10	110	0...23	88	48.9	10[1] / 22[2]	32	8	75	100	40	5.5	4.1	62.5	59.5	2	50	67
11	128	0...22.5	100	48.9	12[1] / 22[2]	32	8	90	115	40	5.5	4.1	72	66	2	50	67
13	148	0...31	120	76	17[1] / 38[2]	32	8	110	135	50	5.5	5.1	80.5	74.5	2	50	67
16	176	0...46	150	88	23[1] / 45[2]	32	8	140	165	60	6.5	7.1	93.1	86.1	2	50	67

Size	b_5	h	h_1	h_2	R	L	L_1	L_2	s	s_{max}[3]	M	F [N][4]	α	ß
10	2.5	66	122	86	64	20.5	0.5	500	0.2	0.6	3xM5	20	ca. 26°	3x120°
11	2.5	78	135	94	71	20.5	0.5	500	0.2	0.6	3xM5	40	ca. 26°	3x120°
13	2.5	91	148	105	83	24	0.5	500	0.2	0.6	6xM5	80	ca. 26°	6x60°
16	2.5	109.5	168	121	100	26.5	0.5	500	0.2	0.6	6xM6	100	ca. 26°	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 entire length. Shaft ISO fitting k6 ([1],[2])
[3] Max. air gap referred to max. rated torque (standard)
[4] Release force F (approx.) referred to max. rated torque (standard)

Accessories

Size	Hand release feature	Mounting screws			
		Screw	Rated torque	Material number	Screws per brake
10	73 24110A00940	ISO 4762 - M5 x 70 - 8.8	6 Nm	304 03	3
11	73 24111A00940	ISO 4762 - M5 x 75 - 8.8	6 Nm	304 031	3
13	73 24113A00940	ISO 4762 - M5 x 85 - 8.8	6 Nm	304 035	6
16	73 24116A00940	ISO 4762 - M6 x 100 - 8.8	10 Nm	304 060	6

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