

KENDRION



KENDRION SOLUTIONS

Classic Line

Spring-applied single-disc
Multiple-disc brake

77 600..A00, 77 600..A15, 77 100..A00

PRECISION. SAFETY. MOTION.

Kendrion – The brake experts

Kendrion stands for high-precision electromagnetic actuator systems and components for passenger cars, commercial vehicles and industrial applications. We are the trusted partner of some of the world's market leaders in the automotive and industrial segments when it comes to designing and producing complex components and customised solutions. Rooted in Germany, headquartered in the Netherlands and listed on the Amsterdam stock exchange, our expertise extends across Europe to the Americas and Asia.

Tradition and progress

More than one hundred years after the company was founded by Wilhelm Binder, Kendrion is ideally equipped for the challenges and tasks of the future. The company has always held a strong position in the market and is expanding its activities all over the world. In the field of electromagnetism, Kendrion stands for highest quality, innovation and precision.

Areas of application for brakes and clutches

The Kendrion business unit Industrial Drive Systems develops and produces electromagnetic brakes and clutches for industrial drive technology. They are used to accelerate, brake, position, hold and secure moving drive components and loads. Areas of applications for the brakes and clutches can be found mainly in robotics and automation, conveyor technology, tooling machines and production engineering, medical technology and elevator technology.

Worldwide availability

The main location is in Villingen-Schwenningen in southern Germany. However, Industrial Drive Systems has further development and production sites as well as a worldwide sales network at its disposal.

We will find the right brake for your application!



Safety with trusted brakes



About the Classic Line

The Classic Line is comprised of DC operated spring-applied single-disc and multiple-disc brakes whose sturdy design and variable connection features make it ideally suited for the most demanding applications. Electromag-

netic spring-applied brakes generate the braking torque when voltage is removed and the electromagnetic force is neutralised.

Versions

77 600..A00

torque range 4 - 240 Nm
DC
adjustable torque
single-disc brake (service brake)

77 600..A15

torque range 7.5 - 360 Nm
DC
adjustable torque
single-disc brake (holding brake)

77 100..A00

torque range 17 - 800 Nm
DC
adjustable torque
multiple-disc brake
built-in bracing springs for vertical operation

Upon request, the brake can be supplied with variable connection features (e.g. flying leads, connecting terminal or connection box with built-in rectifier).

Applications

DC motors

Handling technology

Lifting and materials handling technology

Crane construction

Paper-making and printing machines ...

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

DC

Versions	77 600..A00 - single-disc brake (service brake)
Standard rated voltages	24 V, 102 V, 178 V DC 230 V, 400 V AC
Protection	IP 54 IP 55 (when installed under motor fan hood)
Thermal class	F
Rated torques	4 - 240 Nm
Accessories (options)	hand release feature, mounting screws
Note	Specification subject to change without notice. The "General technical information" and the "Operating instructions" 77 600..A00 must be strictly observed.

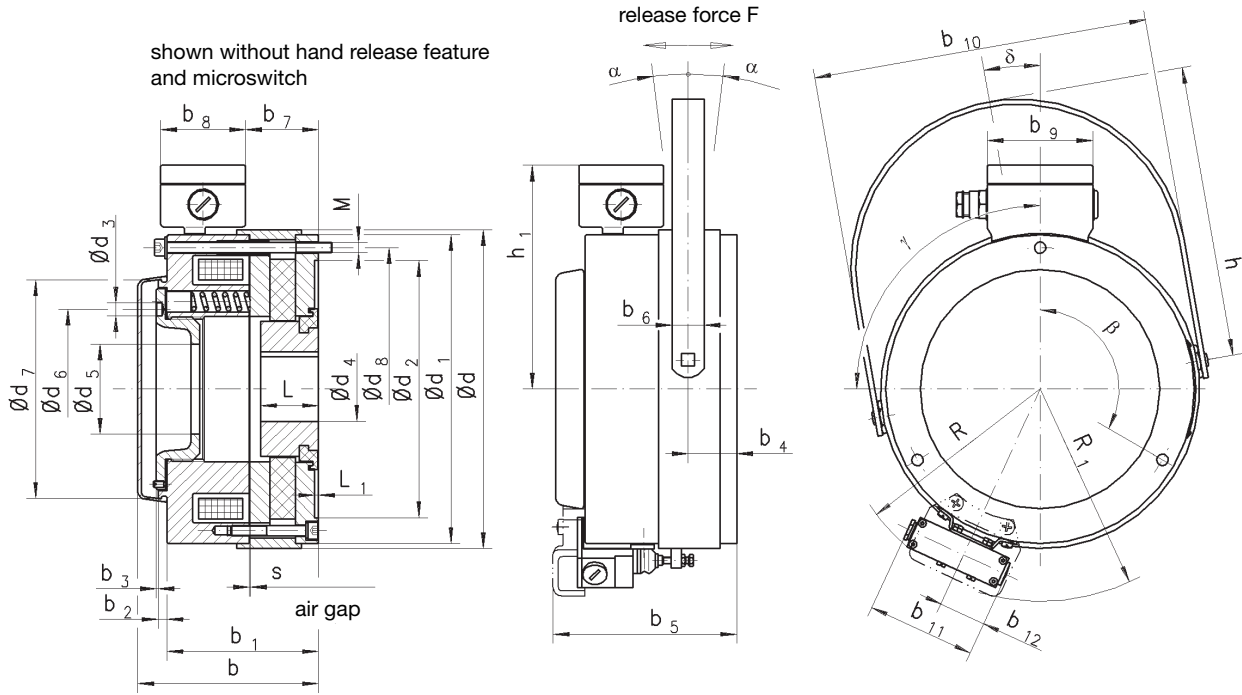


Technical data

Size	Rated torque range (standard) M_2 [Nm]	Max. reachable rated torque $M_{2\max}$ [Nm]	Max. speed n_{\max} [min ⁻¹]	Max. switching power		Max. switching energy (Z=1) W_{\max} [kJ]	Rated power P_N [W]	Response times		Moment of inertia hub and friction disc J [kgcm ²]	Weight m [kg]
				attached P_{\max} [kJ/h]	built in P_{\max} [kJ/h]			Coupling time t_1 [ms]	Disconnection time t_2 [ms]		
10	4 - 8	9	5400	250	350	30	23	15	75	1.22	1.8
11	7 - 14	15	5000	320	480	41	26	30	90	1.75	2.9
13	16 - 32	35	4000	460	720	50	38	40	130	5	4.3
16	30 - 60	65	3500	570	930	58	60	85	145	14	8.6
19	65 - 130	140	3000	640	1090	65	75	100	185	37.5	13.4
24	120 - 240	260	3000	700	1190	80	108	180	220	87	26.5

Accessories

Size	Hand release feature	Mounting screws			
		Screw size	Rated torque	Material number	Screws per brake
10	76 14110B00940	ISO 4762 - M5 x 60 - 8.8	5.5 Nm	304 028	3
11	76 14111B00940	ISO 4762 - M5 x 70 - 8.8	5.5 Nm	304 030	3
13	76 14113B00940	ISO 4762 - M5 x 85 - 8.8	5.5 Nm	304 035	6
16	76 14116B00940	ISO 4762 - M6 x 100 - 8.8	9.5 Nm	304 060	6
19	76 14119B00940	ISO 4762 - M6 x 110 - 8.8	9.5 Nm	304 061	6
24	76 14124B00940	ISO 4762 - M8 x 130 - 8.8	22 Nm	304 088	6



Size	d	d ₁	d ₂ (H9)	d ₃	d ₄ (H7)	d ₅	d ₆	d ₇ (j7)	d ₈	b ca.	b ₁	b ₂	b ₃	b ₄	b ₅	b ₆	b ₇	b ₈
10	105	100	75	5.1	10 ¹⁾ / 22 ²⁾	30	75	70	88	66	50	5	2-3.3	17.9	-	16	13	66
11	120	115	90	5.1	12 ¹⁾ / 22 ²⁾	30	96	72	100	74.5	58.5	5	3.6-6.2	19.4	-	20	8.5	66
13	140	135	110	6.1	16 ¹⁾ / 38 ²⁾	54	104	93	120	88.5	72.5	5	3-4.7	22.2	-	20	22.5	66
16	175	165	140	7.1	20 ¹⁾ / 45 ²⁾	67	124	125	150	106	87.8	5	4.7-8.6	23.7	113.5	20	38.5	66
19	200	190	160	7.1	25 ¹⁾ / 55 ²⁾	79	124	148	170	116	98.5	5	4.5-11	25.5	123.5	20	48.5	66
24	248	240	200	10.1	30 ¹⁾ / 70 ²⁾	90	150	170	220	140.5	117.5	7	2.7-5.6	34	142.5	25	57.5	66

Size	b ₉	b ₁₀	b ₁₁	b ₁₂	h	h ₁	R	R ₁	L	L ₁	s	s _{max} ³⁾	M	F[N] ⁴⁾	α	β	γ	δ
10	82	125.5	84	36.4	118	104	-	-	20.5	2.5	0.25 ^{+0.2}	0.65	3xM5	4	20°	3x120°	56°	180°
11	82	140.5	84	36.4	146	111.5	-	-	20.5	2.5	0.25 ^{+0.2}	0.65	3xM5	7	20°	3x120°	90°	0°
13	82	162.5	84	36.4	161	121.5	111	-	24	2.5	0.3 ^{+0.2}	0.75	6xM5	20	20°	6x60°	90°	10°
16	82	198	84	36.4	203	136.5	125	130	26.5	2.5	0.3 ^{+0.2}	0.85	6xM6	60	18°	6x60°	90°	10°
19	82	223	84	36.4	224	149	137	142	30	3	0.3 ^{+0.2}	0.85	6xM6	70	19°	6x60°	90°	10°
24	82	272.5	84	36.4	269	174	161	165	45	3	0.35 ^{+0.25}	0.95	6xM8	110	17°	6x60°	90°	15°

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 over 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).

Spring-applied single-disc brake

DC

Versions	77 600..A15 - single-disc brake (holding brake)
Standard rated voltages	24 V, 102 V, 178 V DC 230 V, 400 V AC
Protection	IP 54 IP 55 (when installed under motor fan hood)
Thermal class	F
Rated torques	7.5 - 360 Nm
Accessories (options)	hand release feature, mounting screws
Note	Specification subject to change without notice. The "General technical information" and the "Operating instructions" 77 600..A00 must be strictly observed.



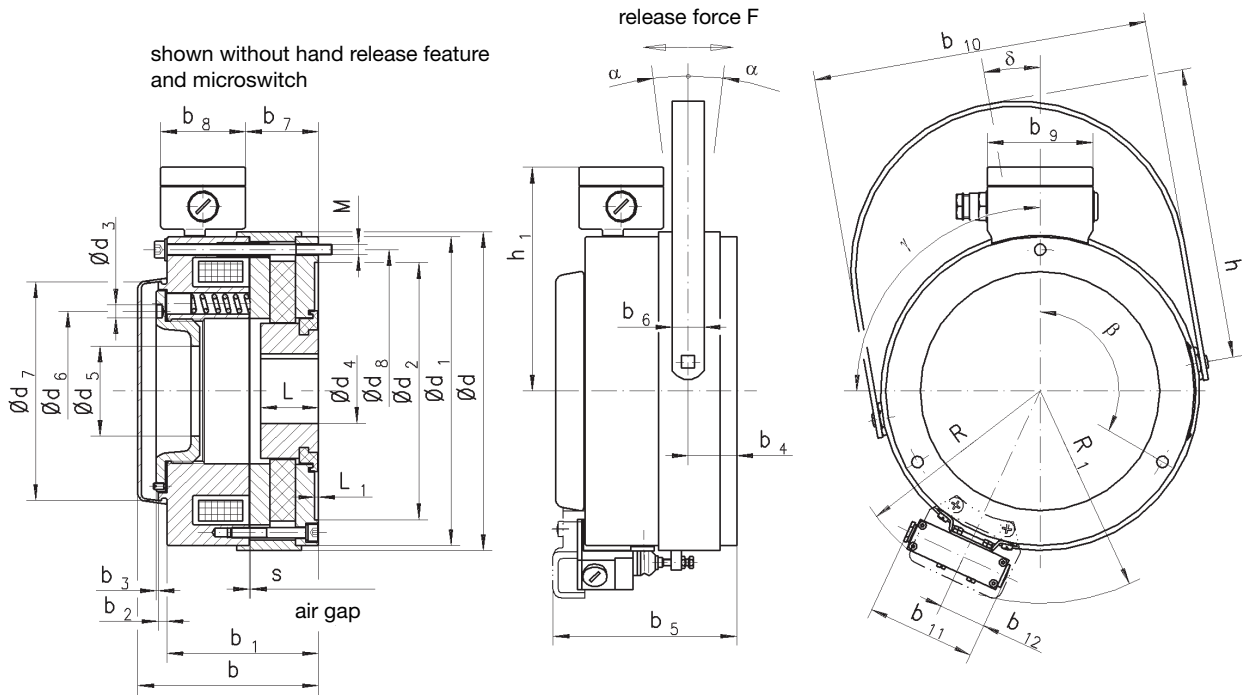
Technical data

Size	Transmissible torque range (standard)	Max. reachable transmissible torque	Max. speed	Max. switching power		Max. switching energy (Z=1)	Rated power	Response times		Moment of inertia hub and friction disc	Weight
				attached	built in			Coupling time	Disconnection time		
	M_4 [Nm]	$M_{4,max}$ [Nm]	n_{max} [min ⁻¹]	P_{max} [kJ/h]	P_{max} [kJ/h]	W_{max} [kJ]	P_N [W]	t_1 [ms]	t_2 [ms]	J [kgcm ²]	m [kg]
10	7.5 - 15	15	5400	90	190	30	68	15	45	1.22	1.8
11	15 - 25	25	5000	125	285	41	79	20	60	1.75	2.9
13	35 - 50	55	4000	150	410	50	130	30	80	5	4.3
16	50 - 100	110	3500	175	535	58	155	50	120	14	8.6
19	120 - 200	200	3000	195	645	65	215	65	155	37.5	13.4
24	180 - 360	360	3000	240	730	80	167	110	205	87	26.5

Accessories

Size	Hand release feature	Mounting screws			
		Screw size	Rated torque	Material number	Screws per brake
10	76 14110B00940	ISO 4762 - M5 x 60 - 8.8	5.5 Nm	304 028	3
11	76 14111B00940	ISO 4762 - M5 x 70 - 8.8	5.5 Nm	304 030	3
13	76 14113B00940	ISO 4762 - M5 x 85 - 8.8	5.5 Nm	304 035	6
16	76 14116B00940	ISO 4762 - M6 x 100 - 8.8	9.5 Nm	304 060	6
19	76 14119B00940	ISO 4762 - M6 x 110 - 8.8	9.5 Nm	304 061	6
24	76 14124B00940	ISO 4762 - M8 x 130 - 8.8	22 Nm	304 088	6

Dimensions [mm]



Size	d	d ₁	d ₂ (H9)	d ₃	d ₄ (H7)	d ₅	d ₆	d ₇ (j7)	d ₈	b	b ₁ ca.	b ₂	b ₃	b ₄	b ₅	b ₆	b ₇	b ₈
10	105	100	75	5.1	10 ¹⁾ / 22 ²⁾	30	75	70	88	66	50	5	1.9-3.9	17.9	-	16	13	66
11	120	115	90	5.1	12 ¹⁾ / 22 ²⁾	30	96	72	100	74.5	58.5	5	4.9-7	19.4	-	20	8.5	66
13	140	135	110	6.1	16 ¹⁾ / 38 ²⁾	54	104	93	120	88.5	72.5	5	4-5.5	22.2	-	20	22.5	66
16	175	165	140	7.1	20 ¹⁾ / 45 ²⁾	67	124	125	150	106	87.8	5	4.6-7.9	23.7	113.5	20	38.5	66
19	200	190	160	7.1	25 ¹⁾ / 55 ²⁾	79	124	148	170	116	98.5	5	3.7-9.6	25.5	123.5	20	48.5	66
24	248	240	200	10.1	30 ¹⁾ / 70 ²⁾	90	150	170	220	140.5	117.5	7	3.1-5.2	34	142.5	25	57.5	66

Size	b ₉	b ₁₀	b ₁₁	b ₁₂	h	h ₁	R	R ₁	L	L ₁	s	s _{max} ³⁾	M	F [N] ⁴⁾	α	β	γ	δ
10	82	125.5	84	36.4	118	104	-	-	20.5	2.5	0.28 ^{+0.2}	0.65	3xM5	8	20°	3x120°	56°	180°
11	82	140.5	84	36.4	146	111.5	-	-	20.5	2.5	0.28 ^{+0.2}	0.75	3xM5	13	20°	3x120°	90°	0°
13	82	162.5	84	36.4	161	121.5	111	-	24	2.5	0.33 ^{+0.2}	0.85	6xM5	32	20°	6x60°	90°	10°
16	82	198	84	36.4	203	136.5	125	130	26.5	2.5	0.35 ^{+0.2}	0.95	6xM6	100	18°	6x60°	90°	10°
19	82	223	84	36.4	224	149	137	142	30	3	0.4 ^{+0.2}	1.05	6xM6	110	19°	6x60°	90°	10°
24	82	272.5	84	36.4	269	174	161	165	45	3	0.4 ^{+0.25}	1.1	6xM8	165	17°	6x60°	90°	15°

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 over entire length. Shaft ISO fitting k6. (¹⁾, ²⁾)

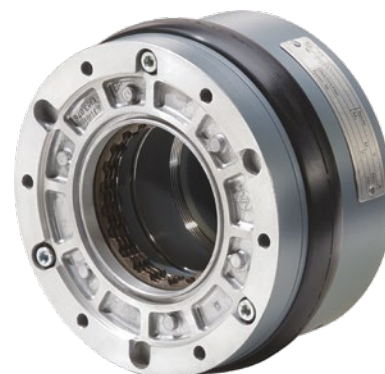
³⁾ Max. air gap referred to max. transmissible torque (standard).

⁴⁾ Release force F (approx.) referred to max. transmissible torque (standard).

Spring-applied multiple-disc brake

DC

Versions	77 100..A00
Standard rated voltages	24 V, 102 V, 178 V DC 230 V, 400 V AC
Protection	IP 54 IP 55 (when installed under motor fan hood)
Thermal class	F
Rated torques	17 - 800 Nm
Accessories (options)	hand release feature, mounting screws
Note	Specification subject to change without notice. The "General technical information" and the "Operating instructions" 77 600..A00 must be strictly observed.

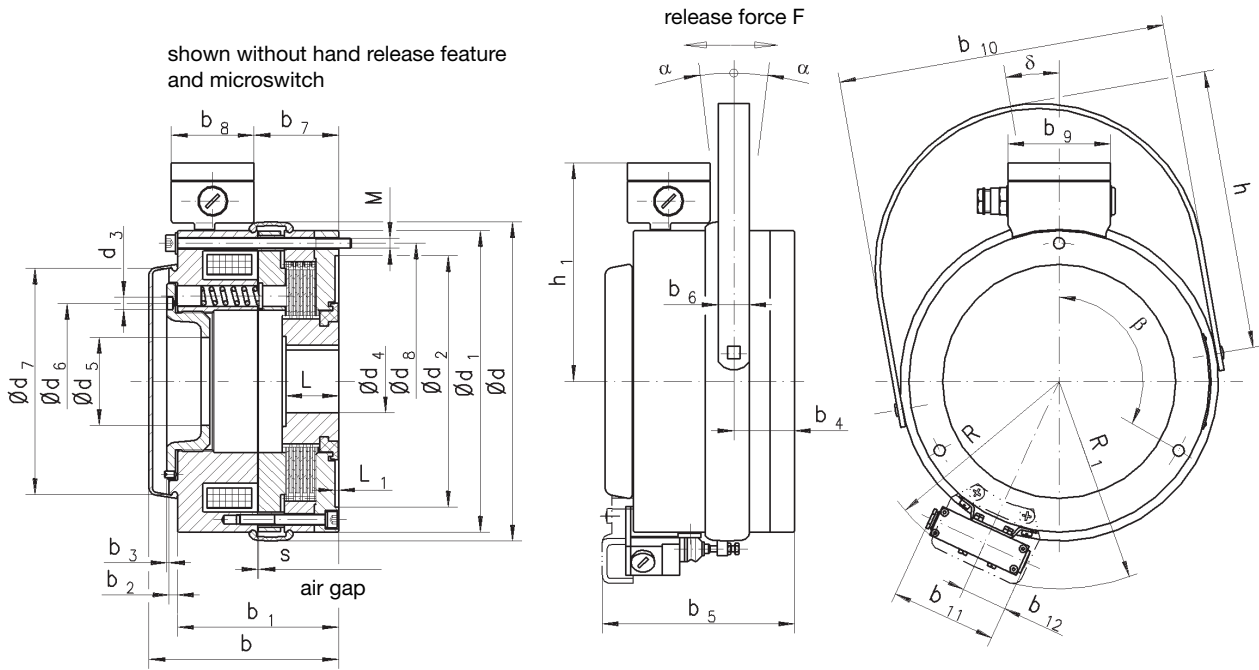


Technical data

Size	Rated torque range (standard)	Max. reachable rated torque	Residual torque	Max. speed	Max. switching power		Max. switching energy (Z=1)	Rated power	Response times		Moment of inertia hub and friction disc	Weight
					attached	built in			Coupling time	Disconnection time		
					P_{max} [kJ/h]	P_{max} [kJ/h]						
13	17 - 25	27	0.05	4500	460	720	25	38	50	160	6.25	5.4
16	25 - 50	55	0.1	3800	570	930	42	60	80	200	20	10.2
19	50 - 100	110	0.2	3200	640	1090	67	75	100	270	40	14.8
24	100 - 200	220	0.5	3000	700	1190	113	109	200	330	95	31.1
25	150 - 300	330	0.7	3000	740	1210	125	109	250	350	135	32.6
29	200 - 400	440	1	3000	1000	1700	180	185	300	480	250	58.3
33	400 - 800	880	2	2500	1300	1980	235	230	450	600	650	93.4

Accessories

Size	Hand release feature	Mounting screws			
		Screw size	Rated torque	Material number	Screws per brake
13	71 10113E00940	ISO 4762 - M5 x 85 - 8.8	4 Nm	304 035	6
16	71 10116E00940	ISO 4762 - M6 x 100 - 8.8	8 Nm	304 060	6
19	71 10119E00940	ISO 4762 - M6 x 120 - 8.8	8 Nm	304 062	6
24	71 10124E00940	ISO 4762 - M8 x 130 - 8.8	12 Nm	304 088	6
25	71 10124E00940	ISO 4762 - M8 x 140 - 8.8	12 Nm	304 090	6
29	71 10129E00940	ISO 4762 - M10 x 170 - 8.8	18 Nm	304 123	6
33	71 10133E00940	ISO 4762 - M12 x 200 - 8.8	28 Nm	304 150	6



Size	d	d ₁	d ₂ (H9)	d ₃	d ₄ (H7)	d ₅	d ₆	d ₇ (i7)	d ₈	b ca.	b ₁	b ₂	b ₃	b ₄	b ₅	b ₆	b ₇	b ₈
13	146	135	110	6.1	12 ¹⁾ / 35 ²⁾	54	75	93	120	90	73.5	5	3.0-4.6	27.5	-	20	23.5	66
16	178	165	140	7.1	20 ¹⁾ / 45 ²⁾	67	96	125	150	108	90	5	2.4-4.6	32	115	20	40	66
19	204	190	160	7.1	25 ¹⁾ / 55 ²⁾	79	104	148	170	120	102	5	3.8-5.6	35.5	127	20	52	66
24	258	240	200	10.1	30 ¹⁾ / 75 ²⁾	90	124	170	220	143	120	7	2.8-5.2	39.5	145	25	59	66
25	258	240	200	10.1	30 ¹⁾ / 75 ²⁾	90	124	170	220	151	128	7	3.1-5.0	48	153	25	67	66
29	315	290	240	10.1	35 ¹⁾ / 85 ²⁾	100	150	210 ¹⁾	267	177	155	8	1.4-3.4	53	-	30	89	66
33	356	330	275	10.1	40 ¹⁾ / 95 ²⁾	115	165	225 ¹⁾	300	202	179	8	1.9-4.1	60.5	-	30	112	66

Size	b ₉	b ₁₀	b ₁₁	b ₁₂	h	h ₁	R	R ₁	L	L ₁	s	s _{max} ³⁾	M	F[N] ⁴⁾	α	β	δ
13	82	155	84	36.5	161	121.5	111	-	25	2.5	0.5 ^{+0.2}	1	6xM5	15	16°	6x60°	10°
16	82	187	84	36.5	203	136.5	125	130	28	2.5	0.6 ^{+0.2}	1.7	6xM6	40	15°	6x60°	10°
19	82	216	84	36.5	224	149	137	142	31	3	0.6 ^{+0.3}	1.7	6xM6	50	16°	6x60°	10°
24	82	266	84	36.5	269	174	161	165	45	3	0.7 ^{+0.3}	1.8	6xM8	55	20°	6x60°	10°
25	82	266	84	36.5	269	174	161	165	45	3	0.9 ^{+0.3}	1.8	6xM8	55	20°	6x60°	10°
29	82	316	84	36.5	328	199	186	-	52	5	1.1 ^{+0.3}	2.3	6xM10	90	21°	6x60°	10°
33	82	358	84	36.5	377	219	205	-	58	5	1.1 ^{+0.3}	2.5	6xM12	180	22°	6x60°	10°

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 over entire length. Shaft ISO fitting k6. (1), 2)

³⁾ Max. air gap referred to max. transmissible torque (standard).

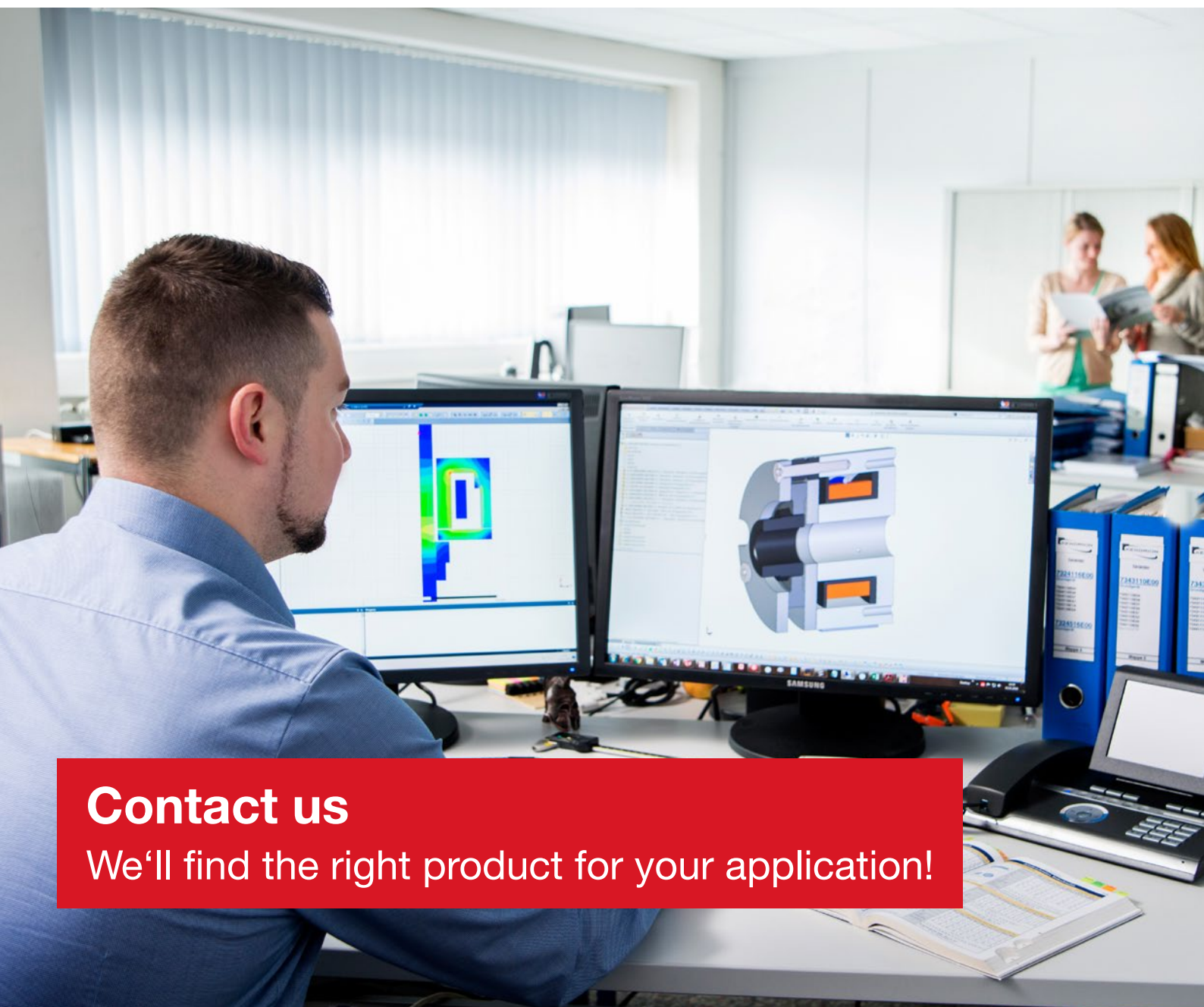
⁴⁾ Release force F (approx.) referred to max. transmissible torque (standard).

Individual customer solutions

Specially tailored to your needs

Automation solutions have become indispensable in both industry and our everyday lives. Mechatronics helps achieve further expansion of these solutions, and increases the range of applications. In many cases, electromagnetic brakes meet the necessary safety requirements, allowing loads to be securely held and ensuring safe braking in an emergency.

Catering to different market demands while also ensuring product standardization is a challenge that Kendrion relishes. Customized solutions can be developed and manufactured on the basis of an existing portfolio of products, the prerequisite being the analysis and understanding of industry-specific customer requirements. With the right product range and a high level of expertise in automation technology, robotics, machine building and elevator engineering, Kendrion Industrial Drive Systems is your dependable partner, providing the ideal individual brake solution for any application.



Contact us

We'll find the right product for your application!



Branded replacement parts from Kendrion

Much more than mere effort

Perfect operation and excellent functionality of your machine are only possible with original spare parts from Kendrion.

If you place top priority on long-term product safety and flawless functionality you should always use original Kendrion spare parts and replacement equipment. These high-quality tested products can only be obtained directly from Kendrion. Our worldwide service network ensures availability around the globe.

Reliable spare parts supply is just one of our key strengths. Our flexible manufacturing capabilities and strong logistics management as well as the in-depth know-how of our service-driven personnel ensure fast and competent assistance in any situation.

Our customers appreciate the excellent reliability of original Kendrion spare parts because they offer uncompromising compatibility and ensure full functionality of the equipment in which they are used.



Kendrion (Villingen) GmbH

Wilhelm-Binder-Strasse 4-6
78048 Villingen-Schwenningen
Germany

T +49 7721 877-0
F +49 7721 877-1462

sales-ids@kendrion.com
www.kendrion-ids.com