



**KENDRION** SOLUTIONS

## EEX Line

Spring-applied single-disc brake for potentially explosion hazardous areas

# Our brakes - perfect for your safe application

KENDRION Industrial Brakes - this stands for excellent service and smart innovation, which we consistently use for the benefit of our customers:

## Strong know-how

Our specialists develop pioneering permanent magnet and spring-applied brakes. On the one hand, they use the bundled know-how in the team; on the other hand, they maintain a dialogue with customers in order to always keep trends and requirements in mind. With INTORQ as a new addition to KENDRION, we have once again consistently expanded our range of spring-applied brakes and clutches for you. So we can find the right solution for every requirement.



## Complete product portfolio

Electromagnetic brakes and clutches as well as perfectly matched accessories: With us you will find an exceptionally large selection of quickly available off-the-shelf products that can be put together in a modular system and the best expertise for customer-specific solutions.

## Dynamic innovative power

Worldwide, more than 50 specialists in our research and development department work in agile teams to create convincing product solutions for tomorrow.

## In-depth market knowledge

We are very familiar with our focus markets - thanks to in-depth experience and research, but also thanks to long-standing customer relationships based on partnership at eye level.

## International power

Committed and competent employees, production sites in Germany, United States, India and China as well as a large number of certified sales partners all over the world make us a strong partner for you!

# The EEX Line

## On the point

The EEX Line comprises spring-applied single-disc brakes that are designed with explosion protection for potentially explosive atmospheres.

The functional principle of spring-applied single-disc brakes leads to the build-up of braking torque as soon as the current is switched off. The EXX-Line has brakes with a braking torque of 10 to 270 Nm.

In the spring-applied brakes of the EXX Line, the parts that can ignite explosive mixtures are enclosed in a housing. This prevents an explosion inside the housing from being transferred to the surrounding mixtures.

The spring-applied brakes are equipped with a total of four thermal switches (redundant). They interrupt the control circuit of the machine as soon as an impermissibly high temperature occurs in the brake.

The EEX Line consists of different versions. For the ATEX / IEC area there are brakes for ambient temperatures from -20°C to +40°C, +50°C and +60°C as well as flameproof versions. The U.S./CSA version is approved for an ambient temperature of +40°C.

The brakes can be equipped with a microswitch, which is connected in series with the thermostiches and prevents the motor from starting against the closed brake.

In addition, the brakes can be provided with a hand release to manually cancel the braking effect. As well as an extension with a rectifier for direct connection to alternating current.

### General information on data sheets

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.

## Suitable for the use of:

- DC motors
- Three-phase motors
- Gear motors
- Petrochemical industry
- Process technology for explosion protected and flammable areas



# Spring-applied single-disc brake

Dust and explosion proofing type II for DC or single-phase AC

Dust and explosion proofing type I for DC or single-phase AC

<b>Standard rated voltages</b>	76 ..E..B.. – 205V DC 76 ..G..B.. – 230V AC, 50Hz
<b>Rated torque</b>	10 to 270 Nm

<b>Standard rated voltages</b>	76 ..N..B.. – 205V DC 76 ..P..B.. – 230V AC, 50Hz
<b>Rated torque</b>	10 to 270 Nm

**Approval ATEX/ IEC/ CCC/ UKCE**  
76 ..E..B00 / 76 ..G..B00

II 2G Ex db eb IIC T5 Gb  
-20°C ≤ T<sub>amb</sub> ≤ 40°C  
II 2D Ex tb IIIC T95°C Db, IP67



**Approval ATEX/ IEC/ CCC/ UKCE**  
76 ..N..B00 / 76 ..P..B00

I M2 Ex db eb I Mb  
-20°C ≤ T<sub>amb</sub> ≤ 40°C  
II 2D Ex tb IIIC T95°C Db, IP67



**Approval ATEX/ IEC/ CCC/ UKCE**  
76 ..E..B10 / 76 ..G..B10

II 2G Ex db eb IIC T4 Gb  
-20°C ≤ T<sub>amb</sub> ≤ 50°C  
II 2D Ex tb IIIC T105°C Db, IP67



Motors and generators for hazardous locations

**Approval ATEX/ IEC/ CCC/ UKCE**  
76 ..E..B20

II 2G Ex db eb IIC T4 Gb  
-20°C ≤ T<sub>amb</sub> ≤ 60°C  
II 2D Ex tb IIIC T115°C Db, IP67



<b>Standard rated voltages</b>	EX ..E..B00 – 205V DC EX ..G..B00 – 230V AC, 50Hz
<b>Rated torque</b>	10 to 270 Nm

**Approval U.S./CSA (NEC 500/505)**  
EX ..E..B00 / EX ..G..B00

EX de IIC T5...T2, Class I, Zone 1,  
AEx de IIC T5...T2  
Class I, Division 2, Groups C,D  
Class II, Division 1, Groups E, F and G  
Class III  
DIP A21 TA=100°C  
Enclosure Type 4,  
IP66  
-20°C ≤ T<sub>amb</sub> ≤ 40°C



# Technical details

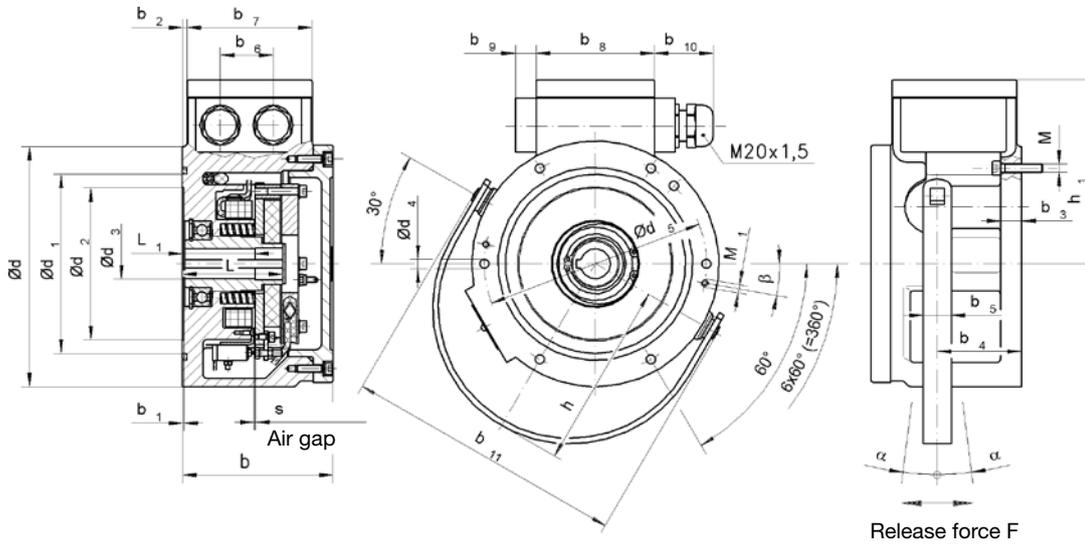
Brake size	Available nominal torques $M_2$ [Nm]	Max. rotation speed $n_{max}$ [min <sup>-1</sup> ]	Max. switching power $P_{max}$ [kJ/h]	Max. switching energy per ES (Z=1) $W_{max}$ [kJ]	Nominal power		Switching times		Moment of inertia armature and flange hub $J$ [kgcm <sup>2</sup> ]	Weight $m$ [kg]
					$P_N$ [W]	$P_S$ [VA]	Coupling time $t_1$ [ms]	Disconnection time $t_2$ [ms]		
10	7.5 – 10	6000	270	41	56	62	80	80	2.5	14.5
11	12.5 – 20	6000	270	41	56	62	70	110	2.5	14.5
13	25 – 50	3600	400	55	82	88	110	170	21.5	29
16	58 – 100	3600	400	55	82	88	90	230	21.5	29
19	113 – 150	3600	570	80	91	95	180	240	125	57
24	160 – 270	3600	570	80	91	95	140	350	125	57

Bore diameter (standard) [mm], flute DIN 6885 BL.1 JS9								
10	Ø 15	Ø 16	Ø 19	Ø 20	Ø 22			
11	Ø 15	Ø 16	Ø 19	Ø 20	Ø 22			
13	Ø 22	Ø 25	Ø 28	Ø 32	Ø 35	Ø 38	Ø 40	
16	Ø 22	Ø 25	Ø 28	Ø 32	Ø 35	Ø 38	Ø 40	
19	Ø 40	Ø 42	Ø 50	Ø 60				
24	Ø 40	Ø 42	Ø 50	Ø 60				



# Dust and explosion proofing type II for DC or single-phase AC

## Dimensions



Brake size	d	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub> (G7)	d <sub>4</sub>	d <sub>5</sub>	b	b <sub>1</sub>	b <sub>2</sub>	b <sub>3</sub>	b <sub>4</sub>	b <sub>5</sub>	b <sub>6</sub>	b <sub>7</sub>	b <sub>8</sub>	b <sub>9</sub>	b <sub>10</sub>	b <sub>11</sub>
10	178	130	110 <sup>3)</sup>	12 <sup>1)</sup> / 22 <sup>2)</sup>	6.6	160	108	1	2.5	15	60.7	20	38	90	85	15	approx. 43	202
11	178	130	110 <sup>3)</sup>	12 <sup>1)</sup> / 22 <sup>2)</sup>	6.6	160	108	1	2.5	15	60.7	20	38	90	85	15	approx. 43	202
13	245	180	160 <sup>3)</sup>	20 <sup>1)</sup> / 45 <sup>2)</sup>	8.4	225	132	1	14	20	77.2	20	38	90	85	15	approx. 43	262
16	245	180	160 <sup>3)</sup>	24 <sup>1)</sup> / 45 <sup>2)</sup>	8.4	225	132	1	14	20	77.2	20	38	90	85	15	approx. 43	262
19	330	260	240 <sup>3)</sup>	30 <sup>1)</sup> / 70 <sup>2)</sup>	10.5	305	143	1	16	20	79.8	25	38	90	85	15	approx. 43	344
24	330	260	240 <sup>3)</sup>	34 <sup>1)</sup> / 70 <sup>2)</sup>	10.5	305	143	1	16	20	79.8	25	38	90	85	15	approx. 43	344

Brake size	h	h <sub>1</sub>	L	L <sub>1</sub>	s	s <sub>max</sub>	M	M <sub>1</sub>	F [N]	α	β
10	134	133	70	52	0.25 <sup>+0.12</sup>	0.7	6xM6	2xM6	approx. 18	approx. 19°	10°
11	134	133	70	52	0.25 <sup>+0.12</sup>	0.7	6xM6	2xM6	approx. 35	approx. 19°	10°
13	164	161	90	83	0.25 <sup>+0.15</sup>	0.9	6xM8	3xM8	approx. 45	approx. 19°	68°
16	164	161	90	83	0.25 <sup>+0.15</sup>	0.9	6xM8	3xM8	approx. 90	approx. 19°	68°
19	215	205	100	92	0.25 <sup>+0.2</sup>	1.1	6xM10	3xM10	approx. 85	approx. 19°	70°
24	215	205	100	92	0.25 <sup>+0.2</sup>	1.1	6xM10	3xM10	approx. 170	approx. 19°	70°

<sup>1)</sup> Min. bore with keyway JS9 as per DIN 6885, sheet 1

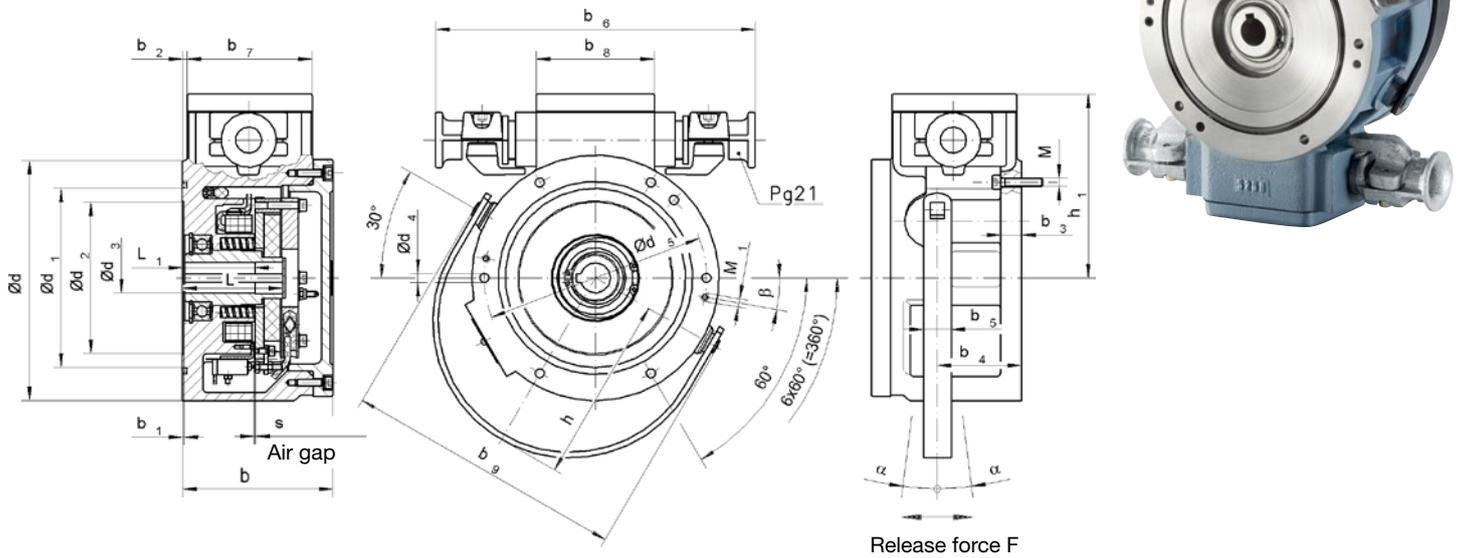
<sup>2)</sup> Max. bore with keyway JS9 as per DIN 6885, sheet 1

<sup>3)</sup> Undercut, no centering diameter

Supporting keyway over entire length, shaft ISO fitting h6 (<sup>1)</sup>, <sup>2)</sup>).

# Dust and explosion proofing type I for DC or single-phase AC

## Dimensions



Brake size	d	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub> (G7)	d <sub>4</sub>	d <sub>5</sub>	b	b <sub>1</sub>	b <sub>2</sub>	b <sub>3</sub>	b <sub>4</sub>	b <sub>5</sub>	b <sub>6</sub>	b <sub>7</sub>	b <sub>8</sub>	b <sub>9</sub>
10	178	130	110 <sup>3)</sup>	12 <sup>1)</sup> / 22 <sup>2)</sup>	6.6	160	108	1	2.5	15	60.7	20	230	90	85	202
11	178	130	110 <sup>3)</sup>	12 <sup>1)</sup> / 22 <sup>2)</sup>	6.6	160	108	1	2.5	15	60.7	20	230	90	85	202
13	245	180	160 <sup>3)</sup>	20 <sup>1)</sup> / 45 <sup>2)</sup>	8.4	225	132	1	14	20	77.2	20	230	90	85	262
16	245	180	160 <sup>3)</sup>	24 <sup>1)</sup> / 45 <sup>2)</sup>	8.4	225	132	1	14	20	77.2	20	230	90	85	262
19	330	260	240 <sup>3)</sup>	30 <sup>1)</sup> / 70 <sup>2)</sup>	10.5	305	143	1	16	20	79.8	25	230	90	85	344
24	330	260	240 <sup>3)</sup>	34 <sup>1)</sup> / 70 <sup>2)</sup>	10.5	305	143	1	16	20	79.8	25	230	90	85	344

Brake size	h	h <sub>1</sub>	L	L <sub>1</sub>	s	s <sub>max</sub>	M	M <sub>1</sub>	F [N]	$\alpha$	$\beta$
10	134	133	70	52	0.25 <sup>+0.12</sup>	0.7	6xM6	2xM6	approx. 18	approx. 19°	10°
11	134	133	70	52	0.25 <sup>+0.12</sup>	0.7	6xM6	2xM6	approx. 35	approx. 19°	10°
13	164	161	90	83	0.25 <sup>+0.15</sup>	0.9	6xM8	3xM8	approx. 45	approx. 19°	68°
16	164	161	90	83	0.25 <sup>+0.15</sup>	0.9	6xM8	3xM8	approx. 90	approx. 19°	68°
19	215	205	100	92	0.25 <sup>+0.2</sup>	1.1	6xM10	3xM10	approx. 85	approx. 19°	70°
24	215	205	100	92	0.25 <sup>+0.2</sup>	1.1	6xM10	3xM10	approx. 170	approx. 19°	70°

<sup>1)</sup> Min. bore with keyway JS9 as per DIN 6885, sheet 1

<sup>2)</sup> Max. bore with keyway JS9 as per DIN 6885, sheet 1

<sup>3)</sup> Undercut, no centering diameter

Supporting keyway over entire length, shaft ISO fitting h6 (<sup>1)</sup>, <sup>2)</sup>).

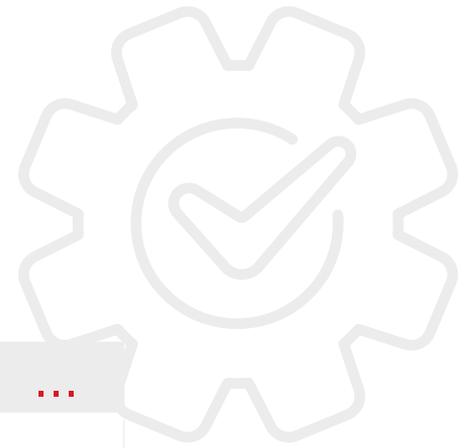
# Accessories

Brake size	Fixing screws			
	Screw	Tightening torque	Order number	Screws per brake
10	ISO 4762 - M6 x 30 - 8.8	9.7 Nm	304 046	6
11	ISO 4762 - M6 x 30 - 8.8	9.7 Nm	304 046	6
13	ISO 4762 - M8 x 35 - 8.8	24 Nm	304 071	6
16	ISO 4762 - M8 x 35 - 8.8	24 Nm	304 071	6
19	ISO 4762 - M10 x 40 - 8.8	45 Nm	304 107	6
24	ISO 4762 - M10 x 40 - 8.8	45 Nm	304 107	6



# Order code

Our order code helps you specify the desired brake variant. The code is composed of the approvals, equipment, version, brake size and temperature range.



	7	6	-	-	-	-	-	B	-	0	-	...
<b>Approvals</b>	76	ATEX / IEC / CCC / UKCE										
	EX	US / CSA										
<b>Microswitch</b>	1	Without microswitch										
	2	With microswitch										
<b>Hand release</b>	4	Without hand release										
	6	With hand release										
<b>Version</b>	E	Standard – without rectifier										
	G	Standard – with rectifier										
	N	Weather protection – without rectifier										
	P	Weather protection – with rectifier										
<b>Brake size</b>	10											
	11											
	13											
	16											
	19											
	24											
<b>Temperature range</b>	0	-20°C to +40°C										
	1	-20°C to +50°C										
	2	-20°C to +60°C										
<b>Variant handling</b>	for example Supply voltage, rated torque ...											
<b>Example</b>	7	6	2	6	E	2	4	B	0	0	-	0001

ATEX / IEC / CCC / UKCE, with microswitch, without hand release, brake size 24, temperature range -20°C to +40°C, 205V DC / 270 Nm



# Customized solutions – tailored exactly to your needs

**Automation solutions have become an indispensable part of industry and everyday life. In this context, it is often the brakes that ensure safety: They hold loads and brake reliably in an emergency.**

Just as automation continues to evolve, brakes must also face higher demands – forward-looking products are in demand. At the same time, quality and safety must be unconditionally guaranteed. This is a challenge that Kendrion Industrial Brakes meets with passion and care.



When it comes to developing customer-specific solutions, we have three aces up our sleeves:

- With our **new agile organization**, we respond much faster to customer requests.
- Our **modularly developed products** enable new configurations without complete redevelopment.
- The **global structure of our organization** bundles competencies and ensures valuable knowledge transfer.

This makes us a competent and reliable partner for our customers – starting with industry-savvy consulting, through product development with practical experience, to uncompromising quality assurance.



We will find the  
solution that suits  
you best!



**KENDRION**

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PRECISION. SAFETY. MOTION.