Electromagnetic brake systems for hoists

INTORQ

setting the standard

Electromagnetic brake systems for hoists

Our products have been setting standards for years, and meet the highest performance demands. Our knowledge of customer requirements during the development stage, our expertise in selecting materials and our production competence are reflected in our products. Our success speaks for itself and our brakes and clutches stand for quality, sophisticated technology and innovation.

Many different brake designs have proved successful when used in lift technology. The shift from conventional lift drives to direct drives mean that brake systems adapted specifically for this purpose are needed. The newly developed kidney-shaped multi-coil technology INTORQ BFK466 brake with calliper provides the high braking torque required by direct drives. If several callipers are arranged optimally around the contour of the motor, up to 9000 Nm can be achieved. The high demands made by passenger lifts are met by taking the required redundancy into account.

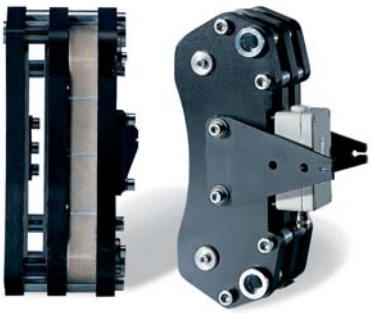
Double spring-applied brakes

DOUBLE SPRING-APPLIED BRAKE
INTORQ BFK458

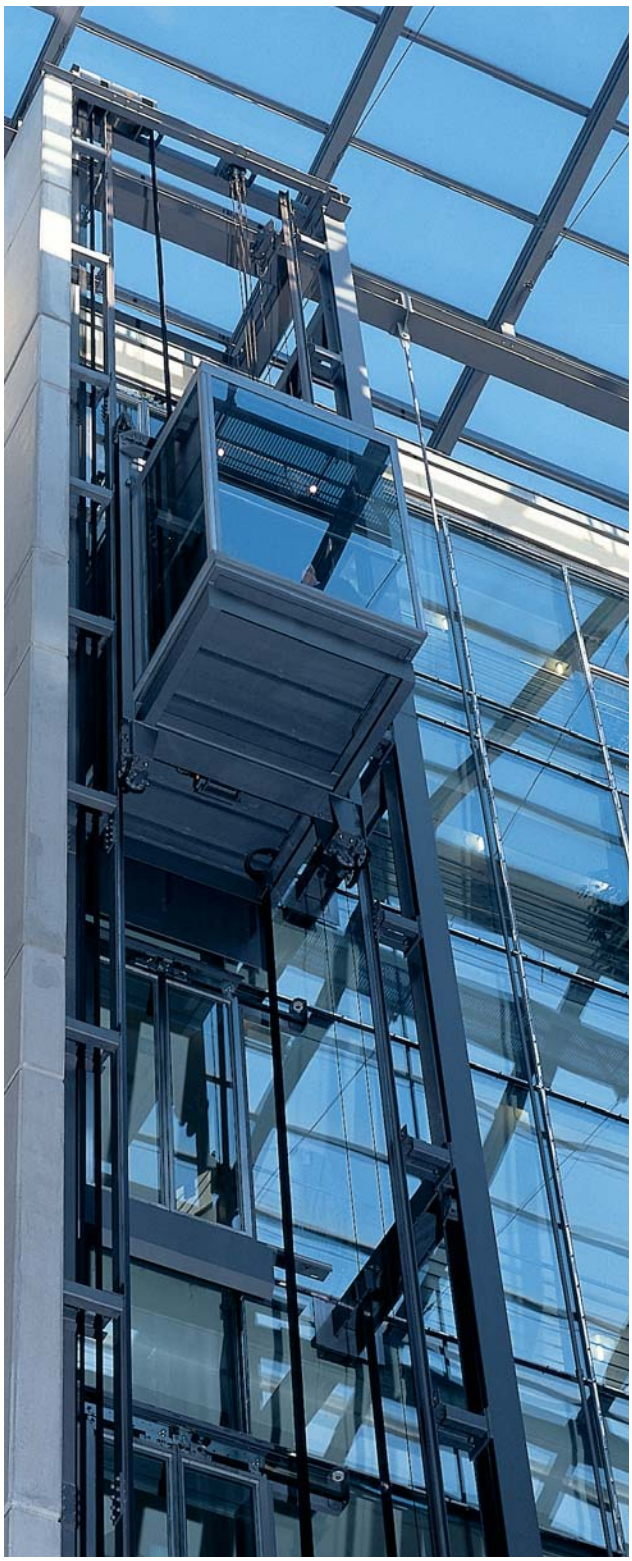
DOUBLE SPRING-APPLIED BRAKE
INTORQ BFK457

DUAL-CIRCUIT SPRING-APPLIED BRAKE
INTORQ BFK454 (TÜV-APPROVED)

DISC BRAKE INTORQ BFK466



MULTI-POLE SPRING-APPLIED BRAKE
INTORQ BFK466



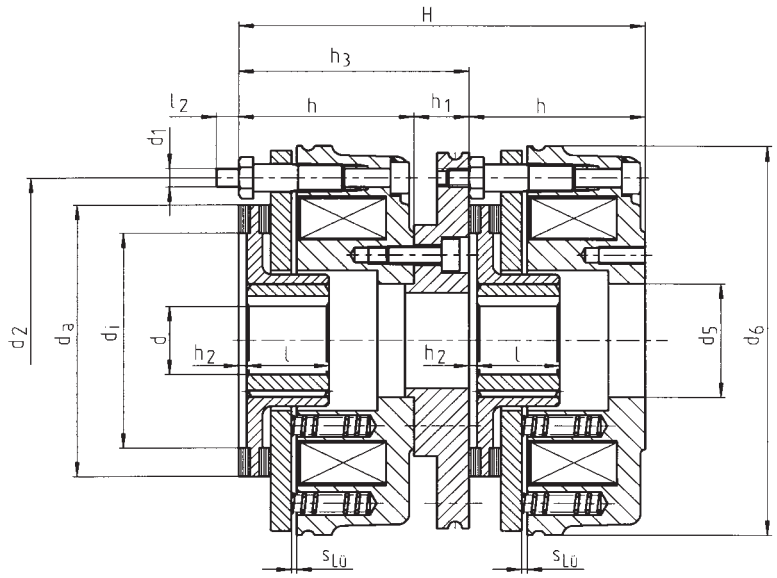
Double spring-applied brake INTORQ BFK458

INTORQ BFK458 spring-applied brakes are suitable for use in passenger lifts. This brake system with required redundancy has a modular structure and is comprised of INTORQ BFK458 components.

Noise-reduced designs
The noise reduction required for lift technology and in many other example applications can be achieved in two ways:

1. Impact-noise-reduced armature plate
The operating noise of the brake can be minimised using O rings, which are installed between the magnet housing and the armature plate as shock absorbers.

2. Noise-reduced aluminium rotor
Rattling noises, which can occur in the rotor/hub connection during load alternation, are reduced by using a rotor with a plastic sleeve.



Size	M_K	d^{H7} max.	d_1	d_2	d_5^{H7}	d_{6j7}	di	da	H	h	h_1	h_2	h_3	l	l_1 [1)]	l_2	s_{air}
06	2x4	15	3xM4	72	25	87	40	60	84.6	36.3	12	1	48.3	18	400	8.7	0.2
08	2x8	20	3xM5	90	32	105	47	77	97.6	42.8	12	1.5	54.8	20	400	9.8	0.2
10	2x16	20	3xM6	112	42	130	66	95	109.8	48.4	13	2	61.4	20	400	12.7	0.2
12	2x32	25	3xM6	132	50	150	70	115	125.8	54.9	16	2	70.9	25	400	13.1	0.3
14	2x60	30	3xM8	145	60	165	80	124	148	65.5	17	2	82.5	30	400	13.1	0.3
16	2x80	38	3xM8	170	68	190	104	149	165	72.5	20	2.25	92.5	30	600	16.4	0.3
18	2x150	45	6xM8	196	75	217	129	174	186.2	83.1	20	2.75	103.1	35	600	17.5	0.4
20	2x260	50	6xM10	230	85	254	148	206	215.2	97.6	20	3.5	117.6	40	600	17.8	0.4
25	2x400	70	6xM10	278	115	302	199	254	236.4	105.7	25	4.5	130.7	50	600	21.5	0.5

- [1)] Cable length
- Manual release as an option
- M_k: Rated torque of the brake in Nm related to Δn = 100 rpm (other rated torques available on request)
- Dimensions in mm

Dual-circuit spring-applied brake INTORQ BFK454

INTORQ dual-circuit spring-applied brakes for hoists have TÜV approval and meet the requirements of TRA 200 and EN 81 for hoists.

The dual-circuit brake system is achieved by splitting the armature plate in two. The spring force used to generate the braking torque acts

- 80 % directly on the front armature plate and
- 20 % indirectly via the rear armature plate (default setting values).

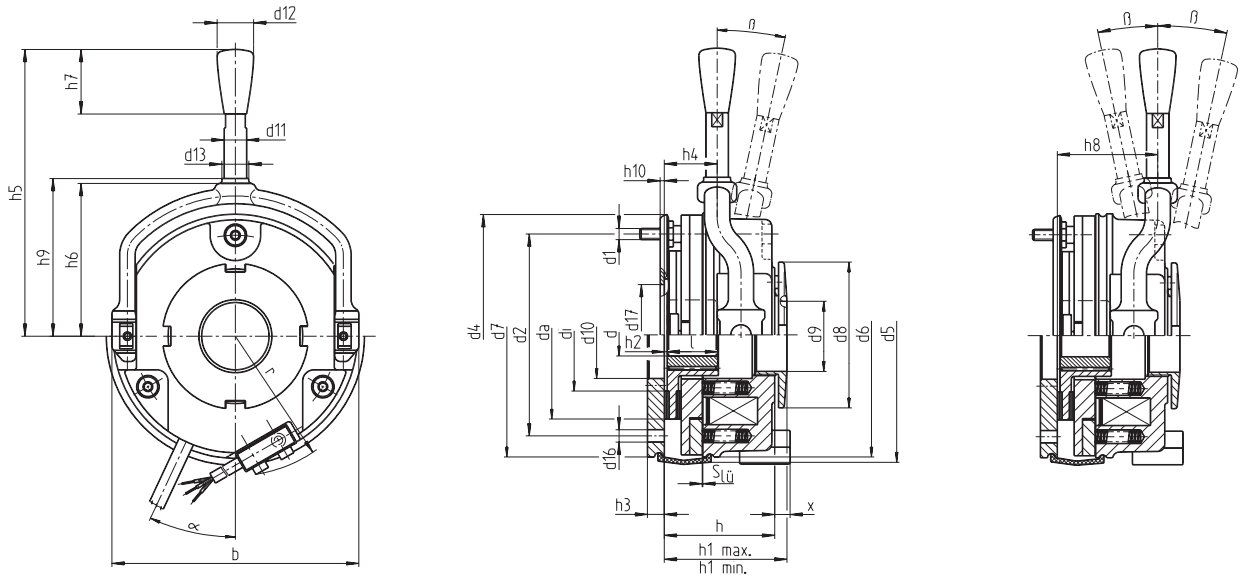
The front armature plate is supported on the rear armature plate's axial guideways. This design ensures that, in case of failure, at least the spring force acting directly on the front armature plate is retained.

Size	M_k	P_{20}	b	$_dJ7$ [1]	$_dH7$ Standard	$_dH7$ max.	d1	d2	d4	d5	d6	d7	d8	$d9^{H8}$	d10	d11	d12	d13	d16
10	15	33	132	10	15/20	20	3xM6	112	132	134	130	130	68	35	45	10	13	12	3x6.6
12	30	40	152	14	20/25	25	3xM6	132	154	155	150	150	82	40	52	10	13	12	3x6.6
14	60	53	169	14	20/25/30	30	3xM8	145	171	169	165	165	92	52	55	12	24	14	3x9
16	90	56	194.5	15	25/30/35/38	38	3xM8	170	195	195	190	190	102	52	70	12	24	14	3x9
18	150	85	222	20	30/35/40/45	45	6xM8	196	–	222	217	217	116	62	77	14	24	15.5	4x9 [2]
20	200	100	258	25	35/40/45/50	50	6xM10	230	–	259	254	254	135	72	90	14	24	16.5	4x11 [2]
25	400	110	302	30	40/45/50/55/60/65/70	70	6xM10	278	–	307	302	302	165	85	120	16	24	18.4	6x11

- Standard voltage 205 V (other voltages available on request)
- M_k: Rated torque of the brake in Nm related to Δn = 100 rpm (other rated torques available on request)
- P_{20}: Coil power at 20°C in W
- l1: Cable length
- m: Mass in kg
- Standard keyway according to DIN 6885/1-P9
- Manual release angle tolerance +3°
- Subject to modifications
- Dimensions in mm

Advantages

- Small unit volume
- Low motor moment of inertia
- Easy reduction of braking torque, depending on the operating conditions
- Simple maintenance and monitoring of dual-circuit function
- No division of the rubbing surface



d17	di	da	h	h1 min.	h1 max.	h2	h3	h4	h5	h6	h7	h8	h9	h10	l	l1	r	S_{air}	x	a	b	m	Size
60	66	95	52.5	56.5	60.1	2	9	31.4	134	73.8	23	46.4	77.8	1.5	20	400	–	0.3	–	25°	9°	2.6	**10**
68	70	115	58.9	63	68.5	2	9	33.4	163.5	85	23	51.4	88.5	1.5	25	400	80.5	0.3	13	25°	10°	4.3	**12**
85	80	124	68.5	73.5	79.5	2	11	36	195.5	98	32	53	101.5	1.5	30	400	88.5	0.3	11.5	25°	9°	6	**14**
98	104	149	77.5	82.5	87.5	2.25	11	42.5	240	113	32	58.5	116	1.5	30	600	99	0.3	11	25°	10°	9.2	**16**
–	129	174	88.1	94	103	2.75	11	46.1	347	124	32	64.1	128.5	–	35	600	112.5	0.4	7	25°	9°	14	**18**
–	148	206	102.6	109	119	3.5	11	52.6	418	146	32	73.6	149.5	–	40	600	[3]	0.4	[3]	25°	10°	21.9	**20**
–	199	254	111.7	120	130	4.5	12.5	63.7	504	170	32	94.7	175.5	–	50	600	155	0.5	[3]	25°	10°	32.5	**25**

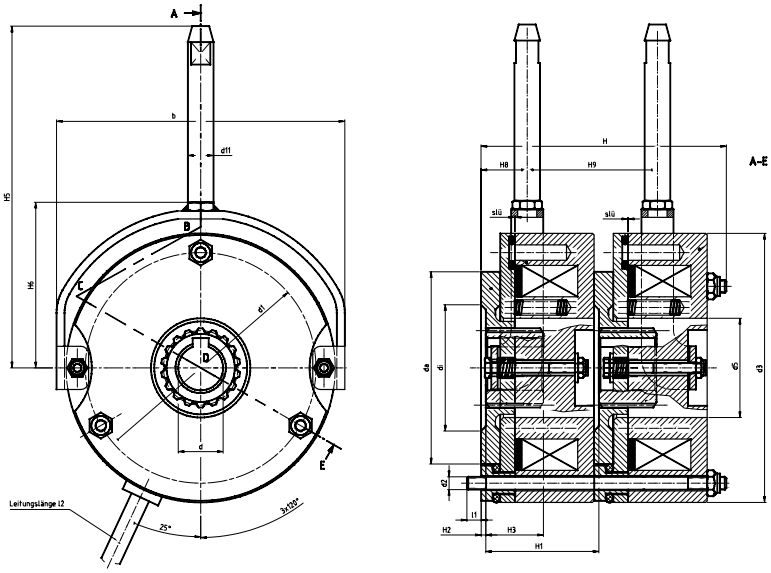
[1] Predrilled, without featherkey way
[2] Each bore offset by 30° in relation to the boresight of the manual release lever
[3] No overshoot

Double spring-applied brake INTORQ BFK457-06 ... 16

Noise-reduced < 50 dbA

Features

- Basic design without flange
- Noise-reduced armature plate
- Noise-reduced aluminium rotor
- Easy to assemble due to the integrated fixing screws for direct mounting
- The brake must be assembled post-delivery.



Size	M_K	$P_{20°}$	b	d^{J7} Predrilled	d^{H7} Standard	d^{H7} max.	d1	d2	d3	d5	d11	da	di	H	H1
06	2x4	20	90	10	11/12/14/15	15	72	3xM4	84	31	8	60	40	75.5	35.3
08	2x8	25	108	10	11/12/14/15/20	20	90	3xM5	102	41.5	8	77	47	90.5	42.8
10	2x16	30	137	10	15/20	20	112	3xM6	130	44	10	95	66	102.9	48.4
12	2x32	40	157	14	20/25	25	132	3XM6	150	52	10	115	70	114.7	54.4
14	2x60	50	174	14	20/25/30	30	145	3XM8	165	60	12	124	80	140.5	66.3
16	2x80	55	203	15	25/30/35/38	38	170	3xM8	190	70	12	149	104	153.1	72.5

Size	M_K	H2	H3	H5	H6	H8	H9	l1*	l2	S_{air} ± 0.1	$S_{air\ max}$ at M_K	$S_{air\ max}$ at $M_{K\ max}$	m (kg)
06	2x4	1	18	109	54	13	44	6	400	0.2	0.5	0.4	1.9
08	2x8	1.5	20	121.7	62	12.7	63.3	9	400	0.2	0.5	0.45	3.2
10	2x16	2	20	147	84	16	70	11	400	0.2	0.5	0.5	6.4
12	2x32	2	25	166	93	18.3	78.4	11	400	0.3	0.75	0.5	9.8
14	2x60	2	30	186	106	22	91.5	14	400	0.3	0.75	0.5	14.8
16	2x80	2.25	30	230	120.5	24.5	100	14	600	0.3	0.75	0.6	21.0

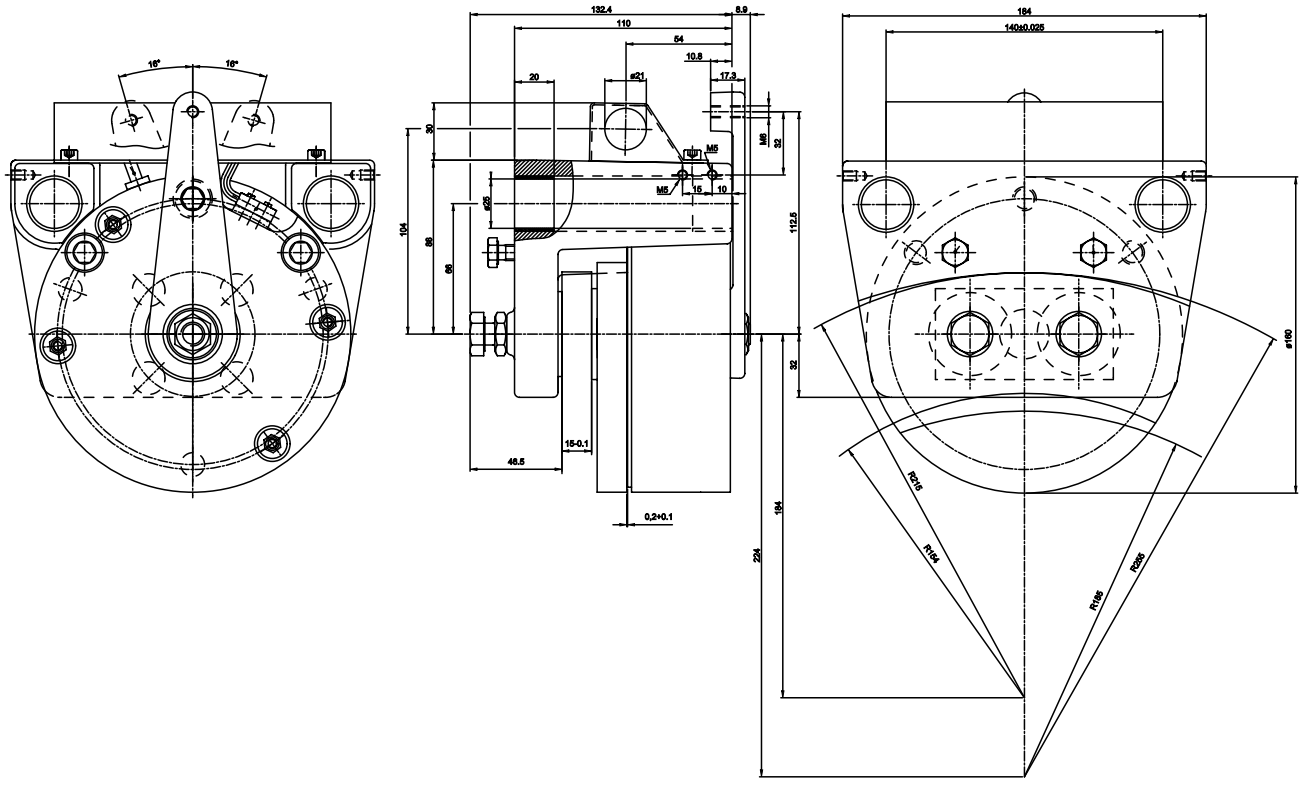
- *Please contact the manufacturer if a different mounting surface made of steel is used.

Spring-applied brake INTORQ BFK466-43

Disc brake with spring force, redundancy achieved by multiple brakes

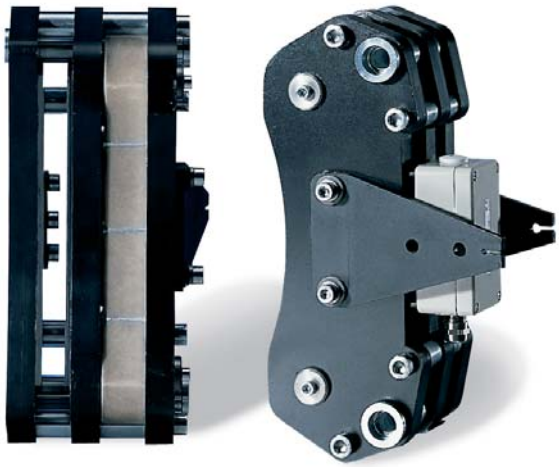
Features

- **Powerful**
  High braking torque
- **Low-noise operation**
  Release without residual torque and quiet operation
- **High energy density**
  High magnetic forces caused by overexcitation
- **Low energy consumption**
  Through holding current derating
- **Safe**
  Air gap or wear monitoring using microswitch



Voltage U_{rated}		Power P_{20}		Rated torque M_K	
Hold	Switch	Hold	Switch	Ø 430	Ø 510
103 V	205 V	45 W	180 W	620 Nm	750 Nm

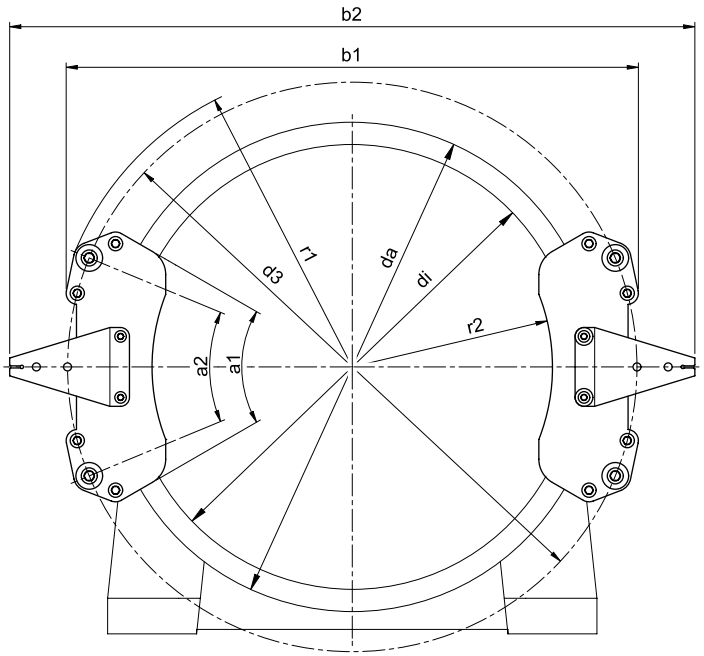
Multi-pole spring-applied brake INTORQ BFK466 for braking torques up to 9000 Nm

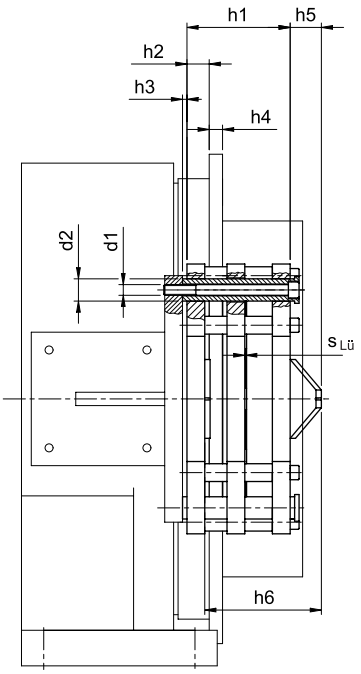


Disc brake with spring force in redundant arrangement, modular structure, can be expanded

Features

- **Powerful**
  High braking torque and large working air gap
- **Low-noise operation**
  Release without residual torque and quiet operation
- **Compact**
  Contours adapt perfectly to the motor design
- **High energy density**
  High magnetic forces caused by overexcitation
- **Low energy consumption**
  "Cold brake" through holding current derating
- **Safe**
  Air gap or wear monitoring using microswitch





Design	M_K*) (Nm)	P_{20} (W) Switch/ hold	b1	b2 (approx.)	da	di	d1	d2	d3	h1	h2	h3	h4	h5 (approx.)	h6 (approx.)	r1	r2	S_{air}	a1	a2
1	450	353/88	510	–	430	360	M10	20	520	108	19	5	15	–	–	275	182.5	0.4	66.5°	50°
2	460	367/92	890	–	810	760	M10	20	890	145	20	22	67	–	–	457	350	0.4	28°	26.8°
3	640	330/83	746	917	690	590	M12	25	740	102.5	25	5	10	26	114	385	288	0.5	49°	37.5°
4	925	473/118	643	770	550	500	M12	25	640	116	25	5	15	25	121	337.5	225	0.5	60°	45°
5	1800	930/233	780	–	690	600	M16	25	745	133	25	5	20	–	–	390	255	0.5	57°	40°

- *Characteristic torque per calliper related to the relative speed
  Δn = 100 rpm
- (Redundancy by using at least 2 callipers)

INTORQ – Sales and Service around the world

Our customers can reach us at any time from anywhere in the world. We cooperate with Lenze's network of worldwide sales offices and service centres.
Our helpline (008000 24 46877) will provide you with expert advice, 24 hours a day, 365 days a year.

Information about our products, catalogues and Operating Instructions can be found at **www.intorq.de**

Contact the Lenze service centres and sales partners through the Lenze website **www.Lenze.com.**

Worldwide sales via www.Lenze.com

Algeria
Argentina
Australia
Austria
Belgium
Bosnia-Herzegovina
Brazil
Bulgaria
Canada
Chile
China
Croatia
Czech Republic
Denmark
Egypt
Estonia
Finland
France
Germany
Greece
Hungary
Iceland
India
Indonesia
Iran
Israel
Italy
Japan
Latvia
Lithuania
Luxembourg
Macedonia
Malaysia
Mauritius
Mexico
Morocco
Netherlands
New Zealand
Norway
Philippines
Poland
Portugal
Romania
Russia
Serbia-Montenegro
Singapore
Slovak Republic
Slovenia
South Africa
South Korea
Spain
Sweden
Switzerland
Syria
Taiwan
Thailand
Tunisia
Turkey
Ukraine
United Kingdom/Eire
USA

INTORQ

INTORQ GmbH & Co. KG

Postfach 11 03
D-31849 Aerzen

Wülmser Weg 5
D-31855 Aerzen

Tel +49 (0)51 54 / 95 39-01
Fax +49 (0)51 54 / 95 39-10
E-mail info@intorq.de
www.intorq.de

13054549 Subject to technical alterations ! Printed in Germany 6.2005 en ! 5 4 3 2 1