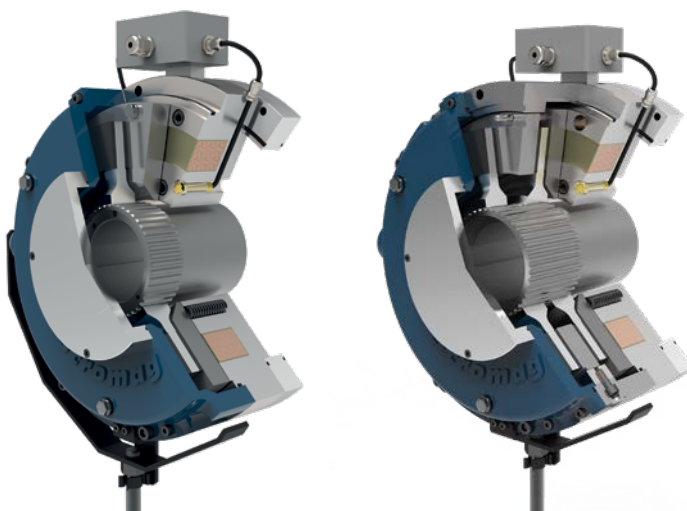


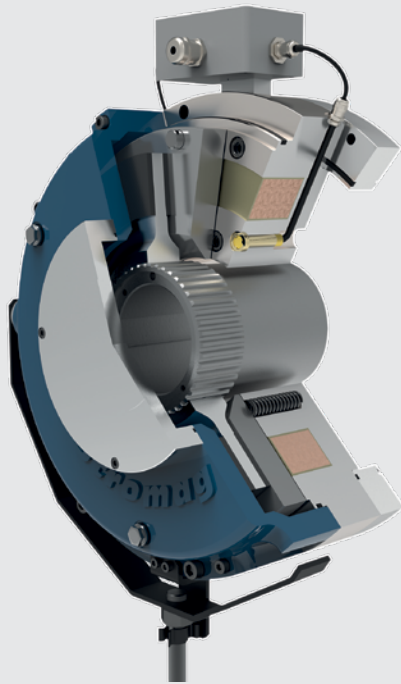


HIGH PERFORMANCE BRAKE - HPB

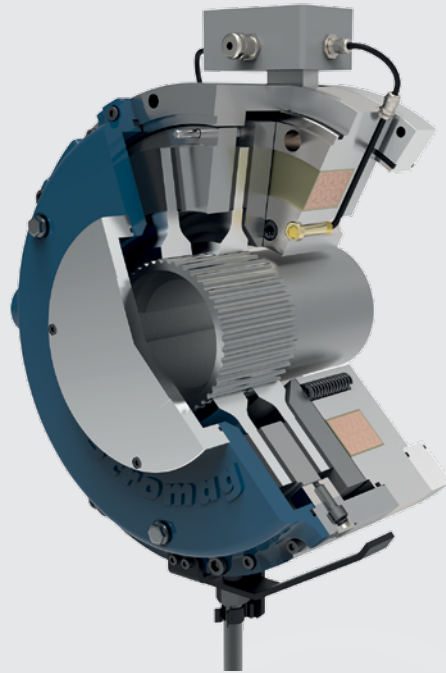
MODULAR BRAKING SYSTEM



HIGH PERFORMANCE BRAKE - HPB



2 FACES



4 FACES

Our High Performance Brake sets the future standard for dynamic performance in all types of applications.

- This special electromagnetic fail-safe brake combines highest performance on smallest space with best protection against environmental influences up to IP67. Our HPB working, holding and emergency stop brake makes your application safe!
- This new design is based on the latest technologies and calculation methods to meet all current requirements. Furthermore, the modular system offers different variations, to ensure a perfect fit.
- The high protection of each part allows a long lifetime in harsh environments, like offshore or marine. Suitable for nearly all types of winches, hoist, and Industrial applications.

HIGH PERFORMANCE BRAKE - HPB

BENEFITS INCLUDE

- Comprehensive brake torque range from 80 – 6400 Nm
- Suitable for nearly all types of winches, hoist, and industrial applications
- Designed for high-speed applications
- Protection class up to IP67
- Marine type approvals available
- Superior heat dissipation for optimal dynamic performance
- Wide range of additional options like encoder mounting, terminal box, hand-release lever, anti-condensation heater, proximity-switches to monitor switching and/or wear status
- Rectifiers and quick switching units optimize switching comfort

APPLICATION

- Flood and seawater proof and high protection against harsh environments, especially for harbor, offshore and marine applications
- All kinds of winches, hoists and cranes
- Industrial and other applications with or without high level requirements

CLASSIFICATION



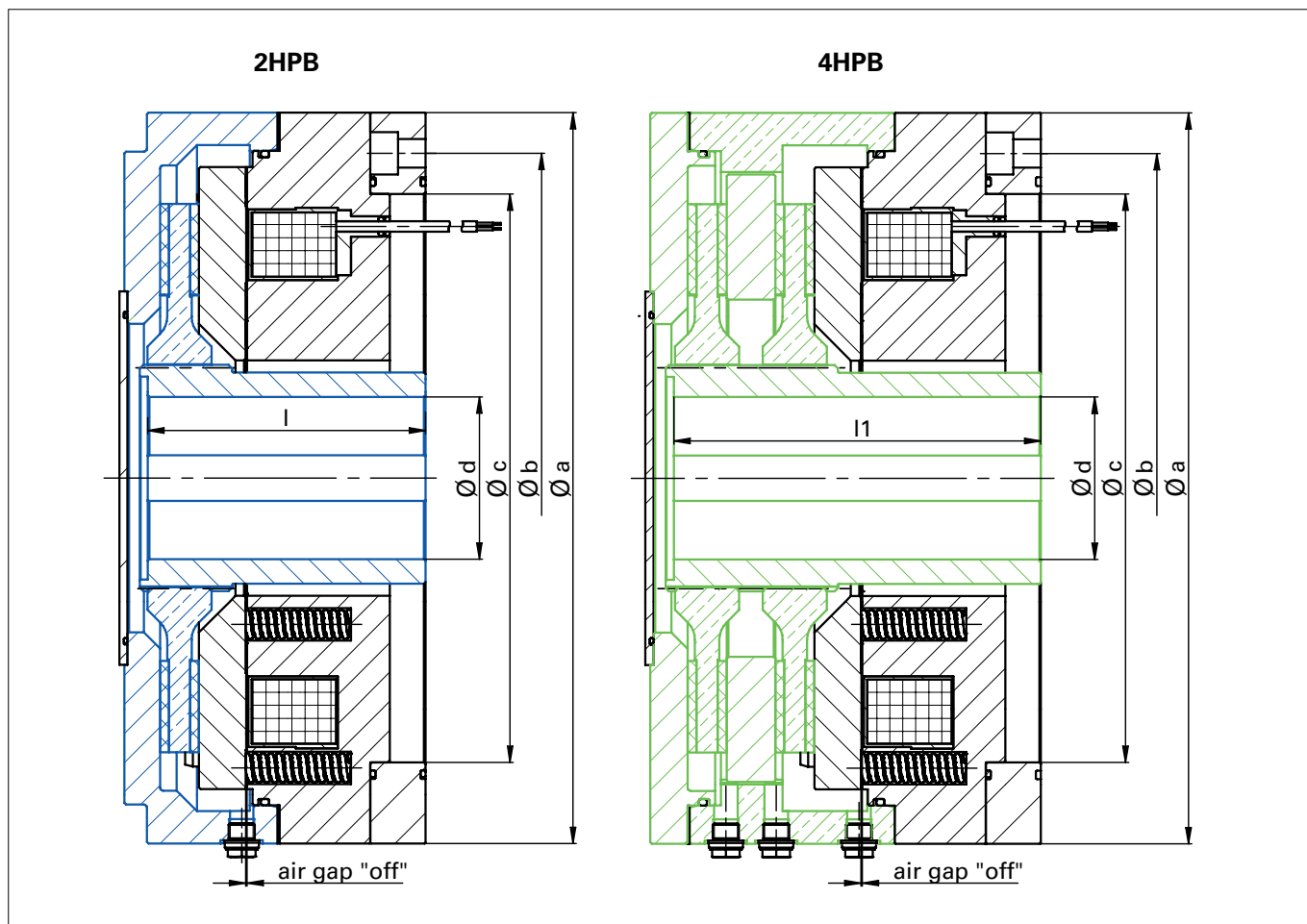
Type approvals for lifting appliances in marine environment available from ABS; DNV; BV and LRS.

Approvals for other classification societies or rules available on request.

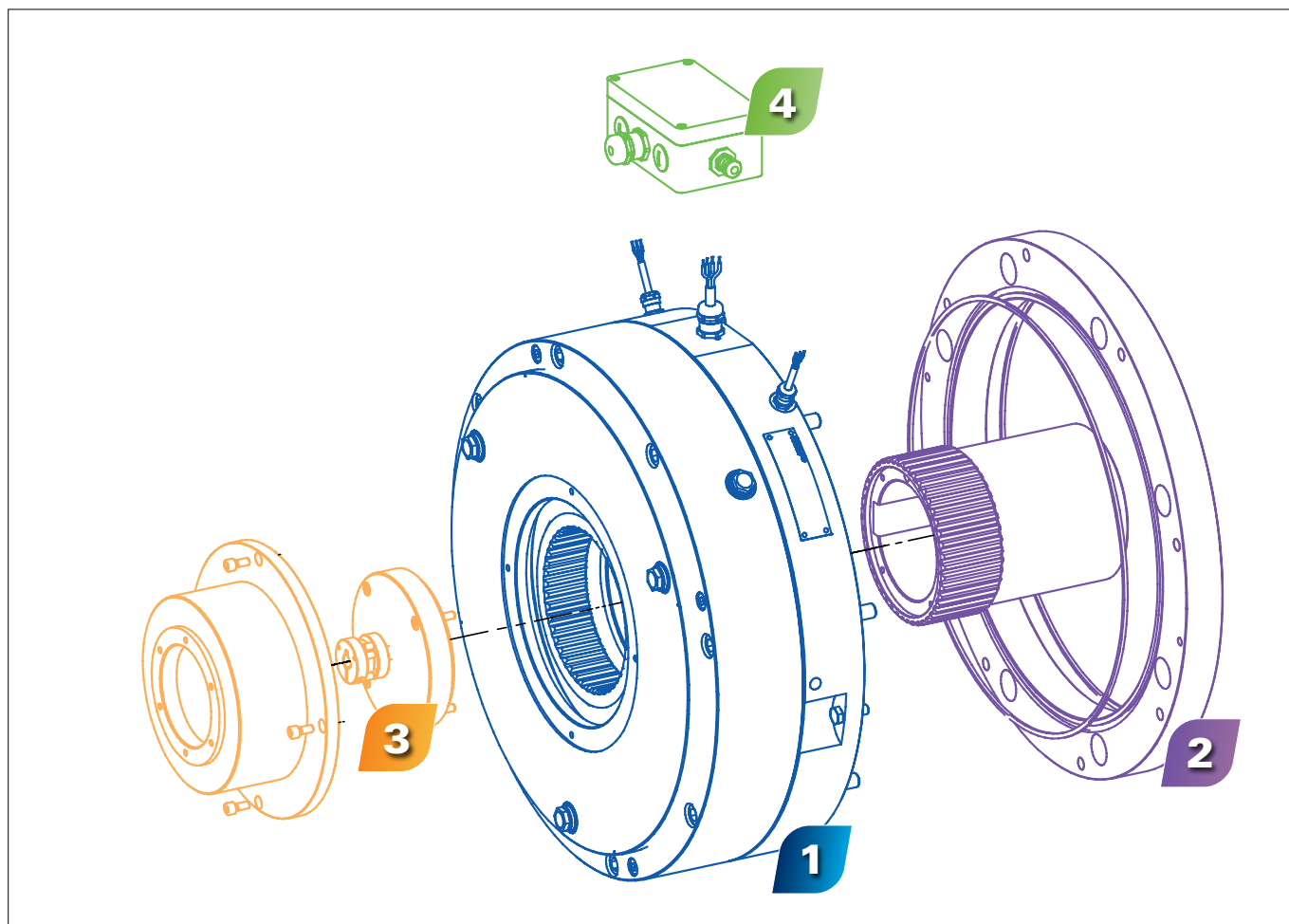
HIGH PERFORMANCE BRAKE - HPB

Brake size	2HPB / 4HPB		20	25	27	30	35	40	45	55
min. outer diameter	a	mm	200	250	275 (300)	300	350	400	450	550
nom. torque	2HPB-...S	Nm	80	130	200	320	500	800	1300	2000
	2HPB-...H		100	160	250	400	630	1000	1600	2500
	2HPB-...V		130	200	320	500	800	1300	2000	3200
	4HPB-...S		160	260	400	640	1000	1600	2600	4000
	4HPB-...H		200	320	500	800	1300	2000	3200	5000
	4HPB-...V		260	400	640	1000	1600	2600	4000	6400
max. speed		1/min	6500	6500	6500	6300	5400	4500	4100	3250
air gap "off"	min / max	mm	0,5/1,1	0,6/1,2	0,6/1,3	0,6/1,4	0,6/1,5	0,7/1,7	0,8/2,1	1,0/2,5
pitch circle diameter	b	mm	165	215	265	265	300	350	400	500
centering	c	mm	130	180	230	230	250	300	350	450
max. bore diameter	d	mm	38	48	55	55	60	95	100	120
hub length 2HPB	l	mm	96	110	117	117	142	142	171	171
hub length 4HPB	l1	mm	118	138	150	150	183	187	226	230

- Keyway according to DIN 6885/1
- Standard flange according to DIN EN 50347
- Subject to technical change



HIGH PERFORMANCE BRAKE - HPB



The modular design of our HPB series is ideal for customizing the brake to suit your application. The brake consists of four modules (1, 2, 3 and 4). Each can be configured differently so that the brake can be adapted to a wide range of requirements. The variety of options and customization possibilities are explained in detail below using the following reference key:

2 HPB 45 S - 110 V 100H7 A450 - A O O O G O O

- 2: Number of friction surfaces
- HPB: Series
- 45: Size
- S: Torque variant
- 110 V: Nominal coil voltage
- 100H7: bore diameter of pinion
- A450: motor connection flange
- A O O O G O O: Options



**PROVIDING
SOLUTIONS
WITH THE
BEST EXPERTISE**

HIGH PERFORMANCE BRAKE - HPB

1

STANDARD VERSION

The standard version is the heart of the HPB. This module is available in 8 different sizes, each can be configured with different torques, coil voltages and/or options. The standard version can be used as it is or upgraded with additional options.

2

MECHANICAL CONNECTION

The mechanical connection kit is optional and consists of a connection flange to mount the brake on the application, eg. electric motor. The brake can also be delivered with a hub that includes the final connection dimensions to fit on a shaft.

3

ENCODER CONNECTION

Optionally, the brake can be equipped with a tacho flange to mount an encoder directly to the brake. It is also possible to adapt the hub of the brake for connection to the encoder shaft.

4

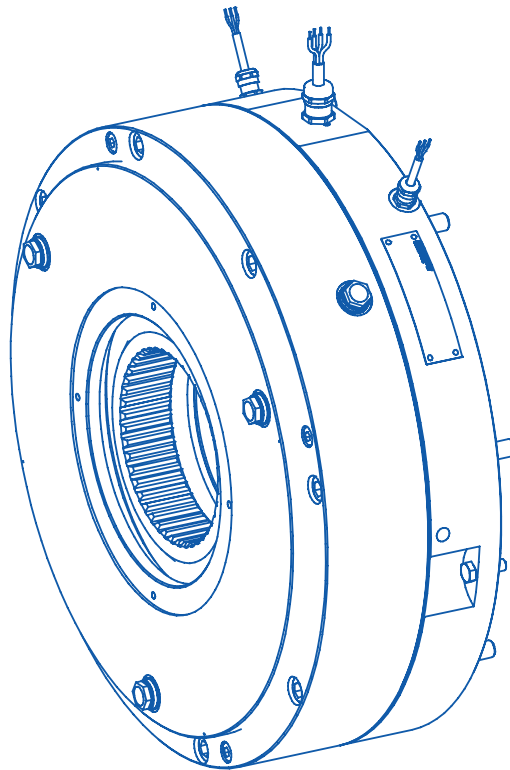
ELECTRICAL CONNECTION

Additional electrical accessories can be supplied loose as an option, e.g. rectifiers or quick switching units for enhanced switching performance.

HIGH PERFORMANCE BRAKE - HPB

1

STANDARD VERSION



1.1 BRAKE SIZE

Developed as double-face and four-face design with currently 8 different sizes our HPB covers a comprehensive torque range.

The size in combination with the number of frictions surfaces and the friction material (please see next chapter 1.2) determines the nominal torque and the characteristic of the individual brake.

2 = Double-face (one friction disc)

4 = Four-face (two friction discs)

HPB ... = Brake size

Furthermore, the size multiplied by 10 gives the outer diameter of the brake in millimetres.

HIGH PERFORMANCE BRAKE - HPB

1.2 TORQUE VALUE AND SPEED

Our HPB brakes can be supplied with 3 different friction linings. Each friction material produces a different torque and friction characteristic.

This means that this brake series can be customized for different applications:

S = Standard

Optimized for working brakes

H = High

Used for holding brakes with emergency stop function

V = Very high

Holding brake applications with occasional emergency stops.

The table below lists the torques currently available. Additional torques available upon request.

2HPB / 4HPB		20	25	27	30	35	40	45	55
2HPB-...S	Nm	80	130	200	320	500	800	1300	2000
2HPB-...H		100	160	250	400	630	1000	1600	2500
2HPB-...V		130	200	320	500	800	1300	2000	3200
4HPB-...S		160	260	400	640	1000	1600	2600	4000
4HPB-...H		200	320	500	800	1300	2000	3200	5000
4HPB-...V		260	400	640	1000	1600	2600	4000	6400
all versions	rpm	6500	6500	6500	6300	5400	4500	4100	3250

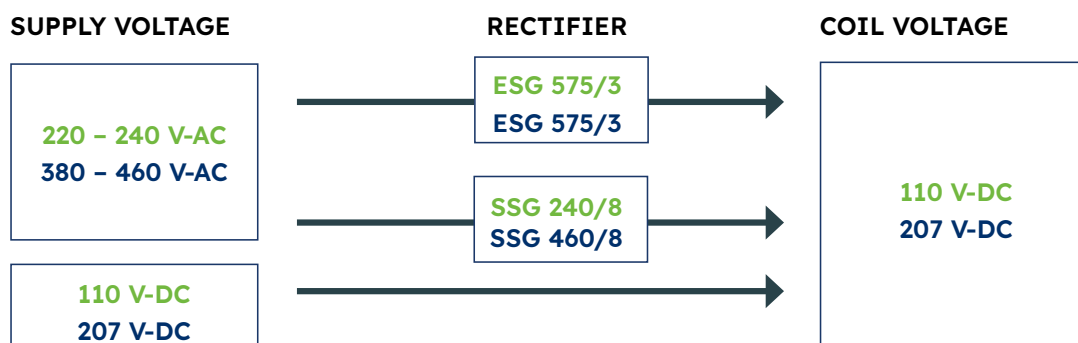
1.3 COIL VOLTAGE

110 V

207 V

The brake can be ordered with two standard coil voltages, 110 V or 207 V.

In combination with our various types of switching devices, the brakes can be connected to different supply voltages:



If the required mains voltage is not listed here, we will be happy to provide a customized solution.

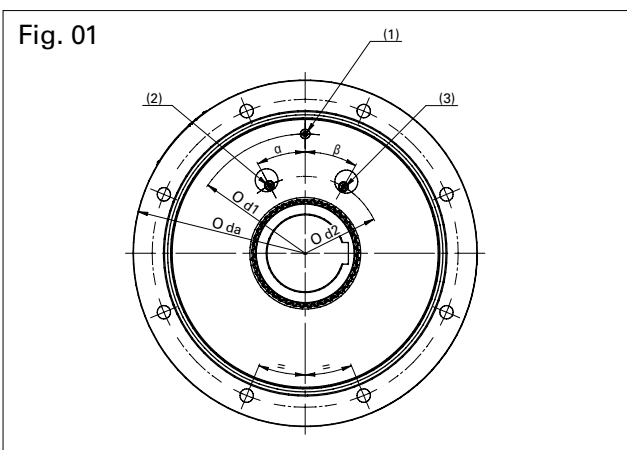
HIGH PERFORMANCE BRAKE - HPB

1.4 ELECTRICAL CONNECTION

The design of the electrical connection can be selected from the following versions:

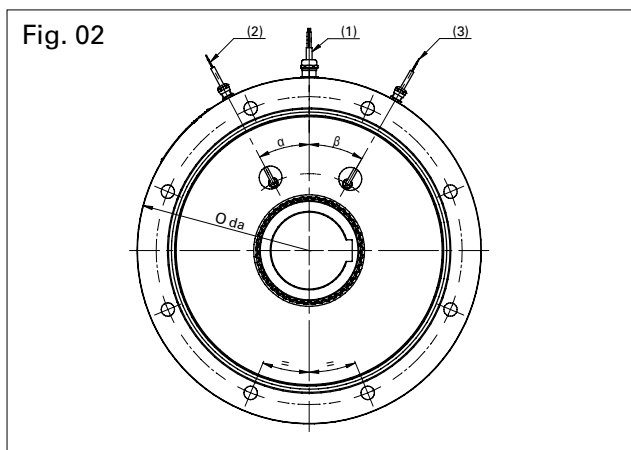
A = Axial cable exit

All cables leaving the brake in an axial direction. These cables can be easily guided through the connected equipment, e.g. an electric motor. The cables are then protected against environmental influences or damage.



R = Radial cable exit

All cables coming out of the brake in radial direction for simple access and free positioning of all cables in the machinery.



Valid for Fig.01 and Fig. 02

- (1) coil / coil + heating
- (2) operation state monitoring
- (3) wear state monitoring

Position of connecting cables		HPB	20	25	27	30	35	40	45	55
outer brake diameter	da	[mm]	200	250	275	300	350	400	450	550
PCD of coil/heating	d1	[mm]	115	160	188	204	233	280	310	394
PCD of proximity switches	d2	[mm]	84	121	136	140	159	191	200	286
angle of operation state monitoring	α	[°]	54	54	54	54	54	50	28	36
angle of wear state monitoring	β	[°]	54	54	54	54	54	50	30	36

HIGH PERFORMANCE BRAKE - HPB

Our HPB can be also delivered with a terminal box instead of flying leads. The terminal box can be equipped with a clamp, rectifier or quick-switching units. This results in following options:

K = Terminal box incl. clamp

E = Terminal box incl. clamp and switching rectifier ESG 575/3

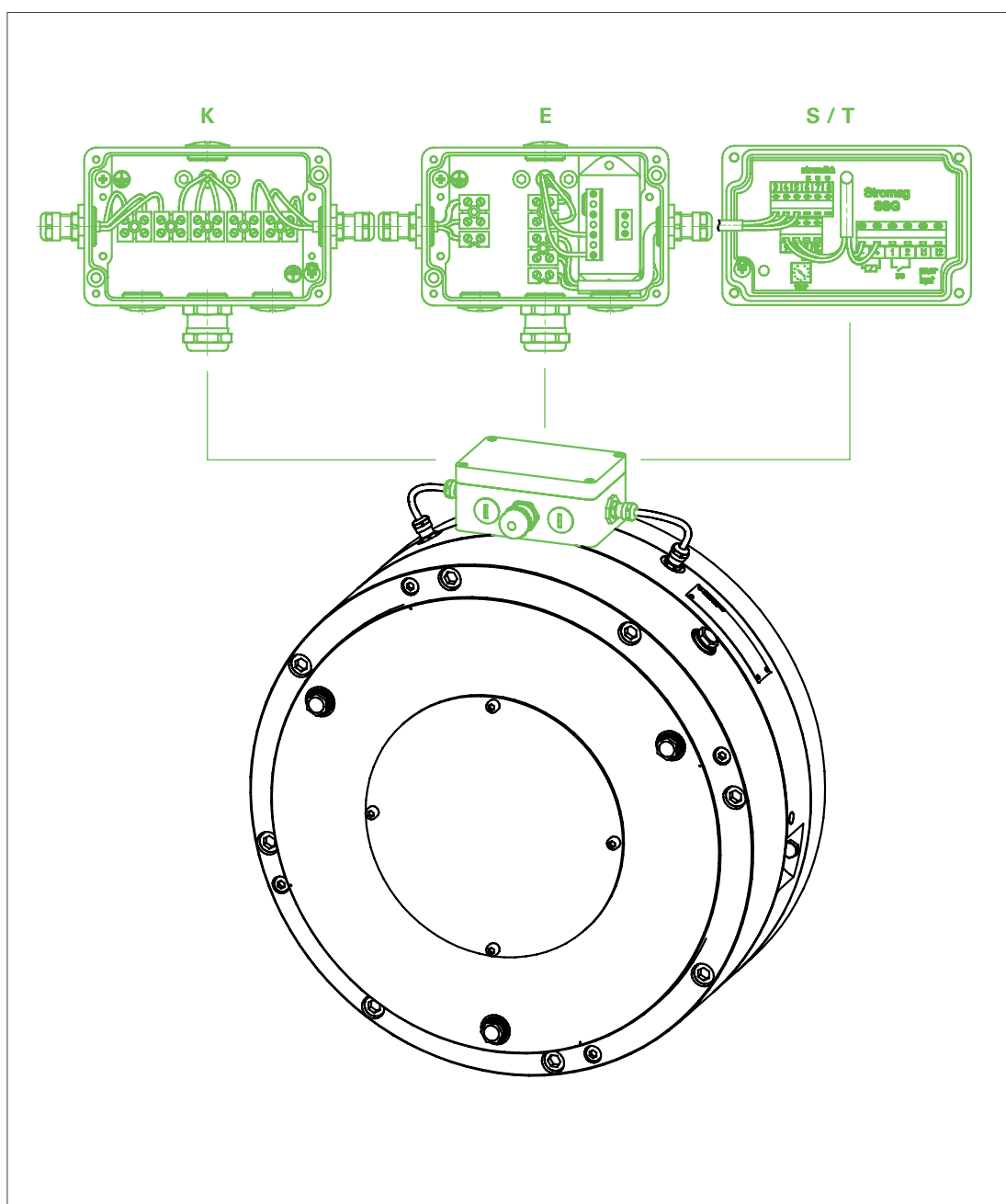
S = Terminal box incl. quick-switching rectifier SSG 240/8

T = Terminal box incl. quick-switching rectifier SSG 460/8

These options allow the connection of the brake to different supply voltages.

Please see chapter 1.3. Furthermore the switching times can be reduced and the switching comfort optimized by using a quick-switching unit.

Quick-switching rectifiers can also be supplied loose for installation in the terminal box of the motor or in the cabinet. Please refer to chapter 4.



HIGH PERFORMANCE BRAKE - HPB

1.5 MONITORING

Our HPB-brake series can be equipped with proximity sensors to monitor the switching status (on/off) or the wear limit. All sensors are mounted inside the brake and protected against environmental influences. The sensors used are non-contact, wear-free proximity switches which are calibrated by Stromag prior to delivery. The switching element features a PNP output and operates as a normally open (NO) contact.

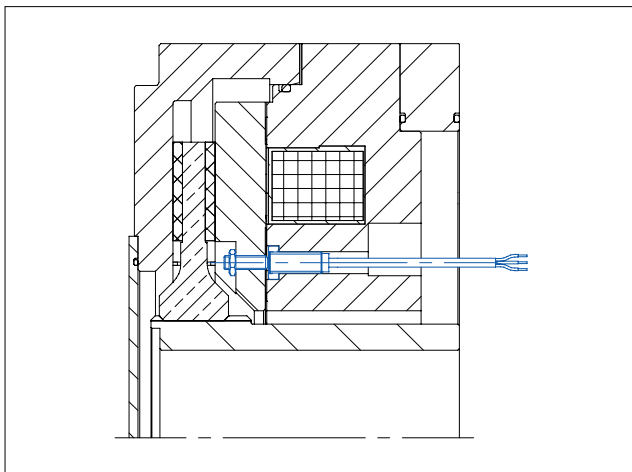
Following selectable options are:

O = Without any sensor

The brake can be delivered without any sensors, if they are not needed for the application.

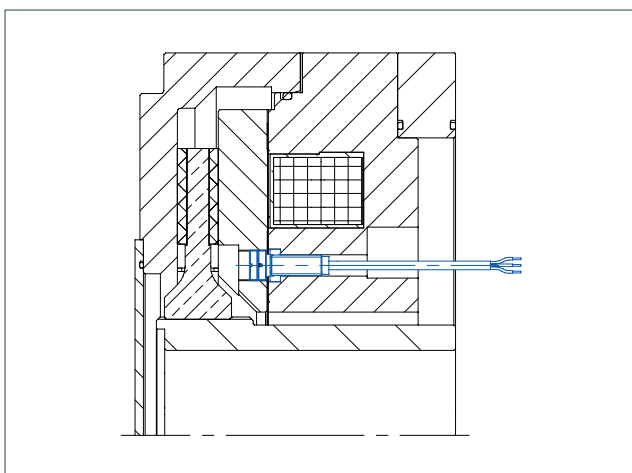
S = Switching status monitoring

To detect the position of the armature plate, indicating whether the brake is open or closed, the brake can be equipped with a proximity switch. When the brake is energized and open the switch is closed. Without power on the coil and closed brake switch will be open.



A = Switching status and maximum wear monitoring

It is also possible to detect the wear status using a proximity switch. When the air gap increases beyond the permissible limit due to lifetime wear, the switch opens.



HIGH PERFORMANCE BRAKE - HPB

1.6 ADDITIONAL OPTIONS

Further available options are a hand lever for manual release or a standstill heater. In general, each brake can be released using an included screw system. The hand lever option provides an additional option for manual emergency release.

Following combinations are available:

O = Without extras

The brake can be delivered without any options, if not needed.

B = Manual emergency release lever and anti-condensation heater

This option includes the emergency release lever and anti-condensation heater.

Both can be ordered separately and are describes below.

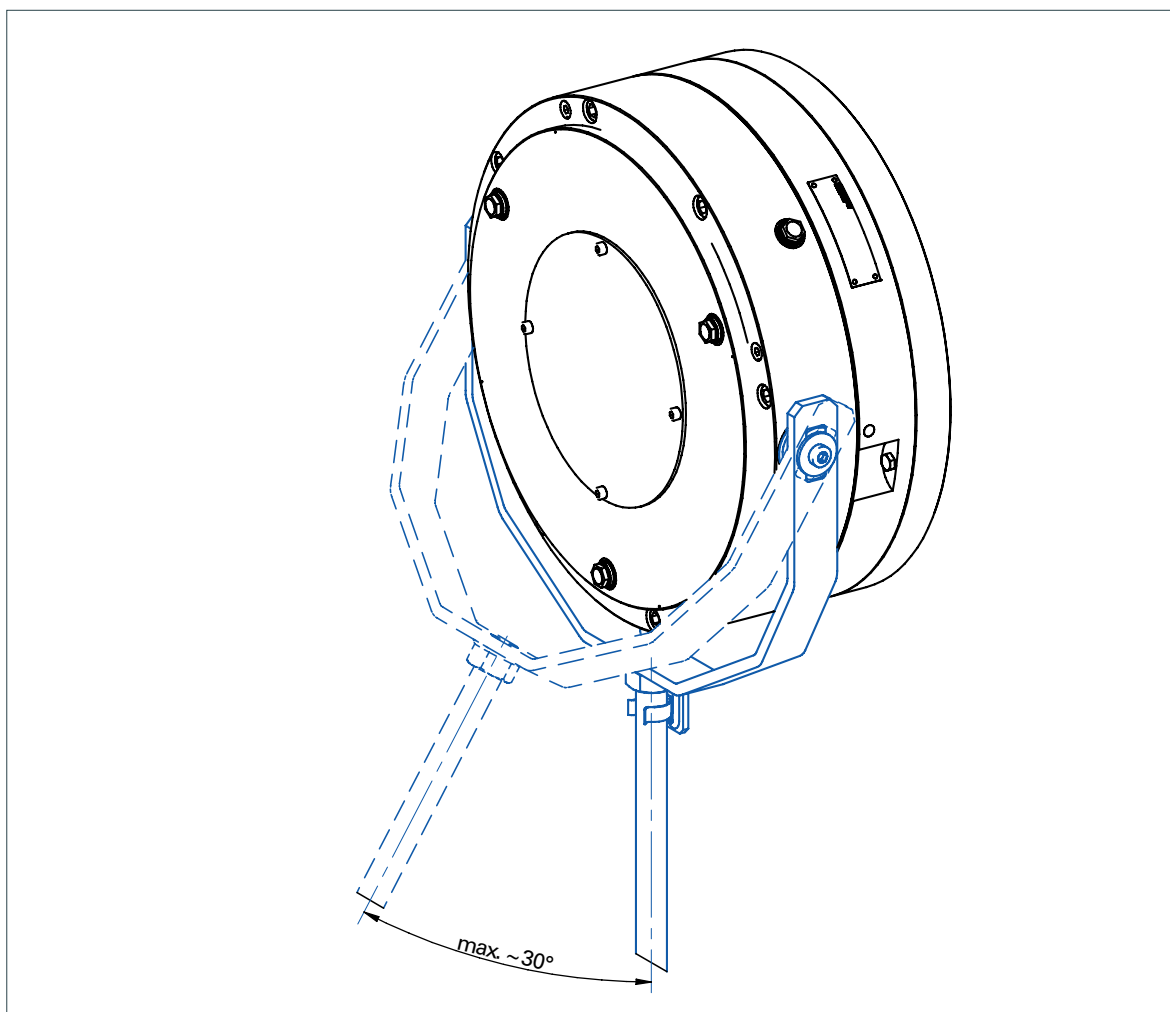
H = Anti-condensation heater

An anti-condensation heater can be fitted where large temperature variations are expected.

The heater is mounted inside the brake and the supply lead is routed together with the coil connection lead.

N = Manual emergency release lever:

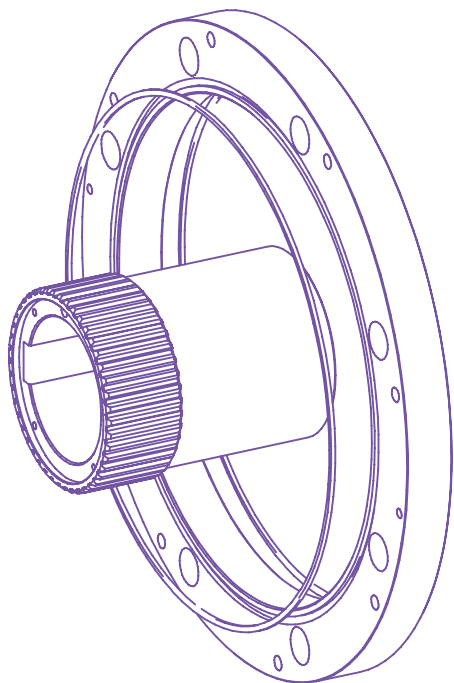
The brake can be fitted with a manual emergency release lever. This allows the brake to be released in the event of an emergency, such as a power failure



HIGH PERFORMANCE BRAKE - HPB

2

MECHANICAL CONNECTION



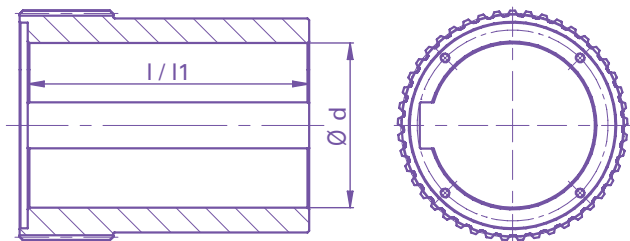
2.1

PINION

...H7 = with driving pinion

NOPI = without driving pinion

The brake can be delivered with or without a driving pinion. If it will be delivered including driving pinion, the diameter of the bore can be chosen according to following table. Keyway according to DIN 6885/1 is included. Other connections, like toothing etc. upon request possible.



Size	2HPB/4HPB		20	25	27	30	35	40	45	55
max. pinion bore	d	mm	38	42	55	55	60	95	100	120
Pinion length 2HPB	l	mm	96	110	117	117	142	142	171	171
Pinion length 4HPB	l ₁	mm	118	138	150	152	183	187	226	230

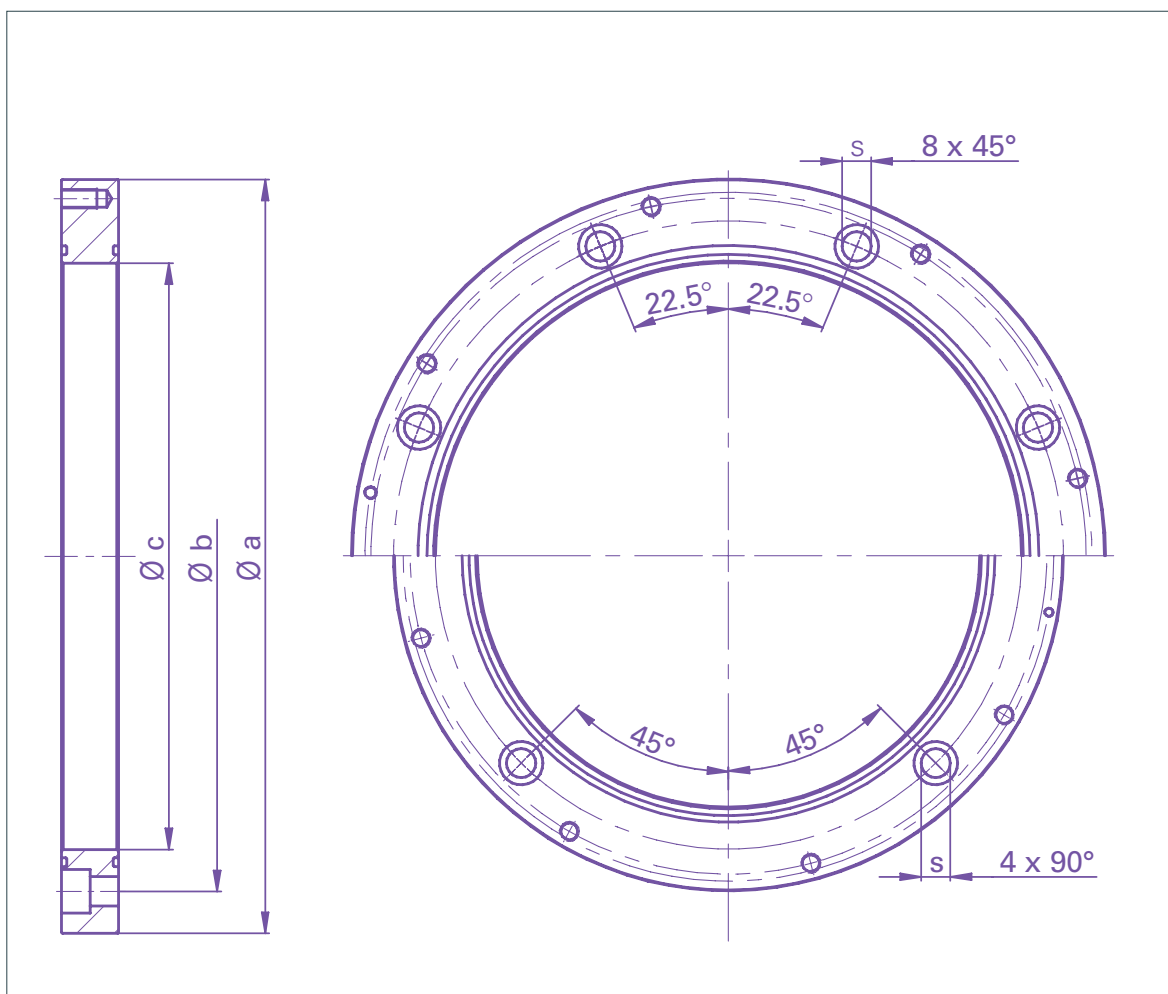
HIGH PERFORMANCE BRAKE - HPB

2.2 FLANGE

A... = with flange

NOFL = without flange

The brake can be delivered with or without a connection flange. The connection flange follows the standard of DIN EN 50347 (DIN IEC 60072-1). The minimum motor connection flange of each brake size can be found in the following table. Other flange dimensions are available on request.

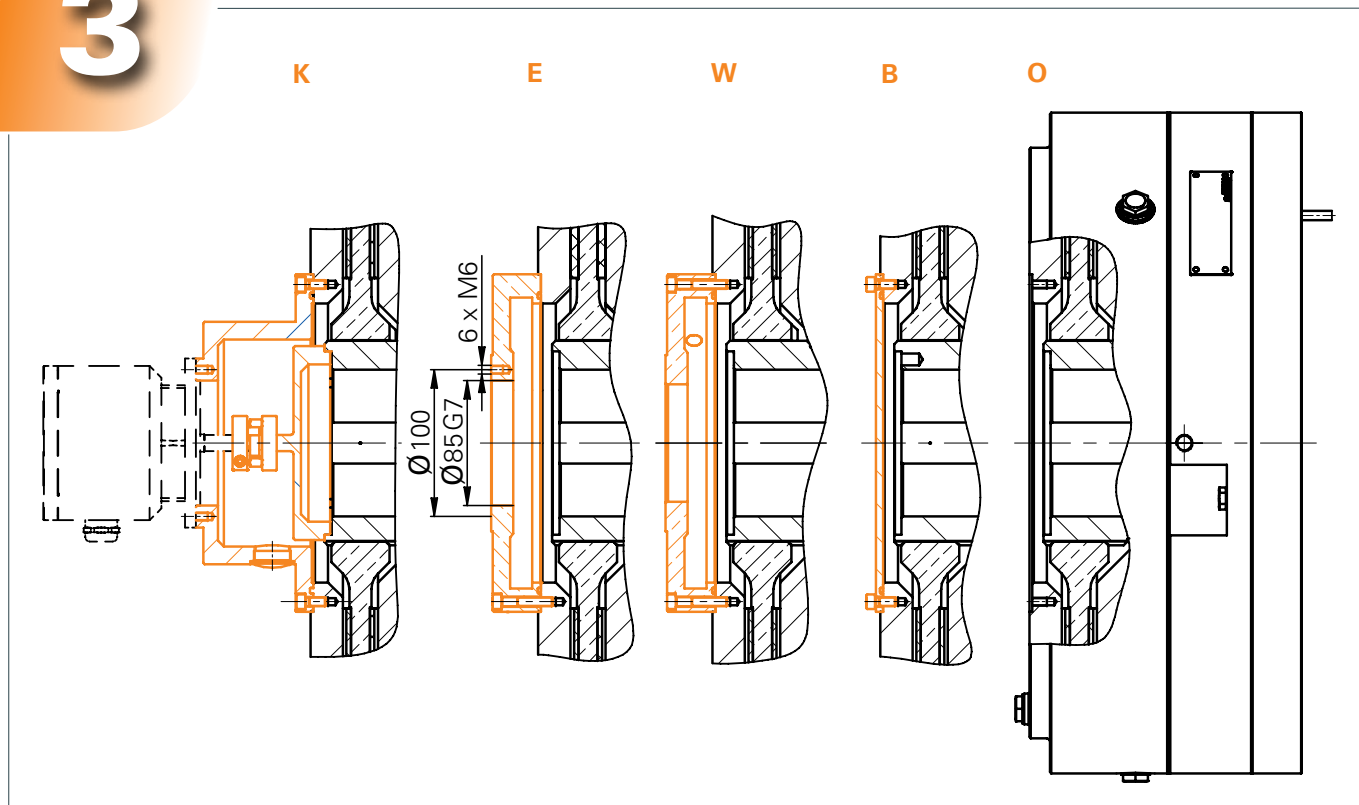


Size	2HPB/4HPB		20	25	27	30	35	40	45	55
Flange size			A200	A250	A300	A300	A350	A400	A450	A550
min. outer diameter	a	mm	200	250	275/300	300	350	400	450	550
Pitch circle diameter	b	mm	165	215	265	265	300	350	400	500
Centering diameter	c	mm	130	180	230	230	250	300	350	450
screw size	s		4x M10	4x M12	4x M12	4x M12	4x M16	4x M16	8x M16	8x M16

HIGH PERFORMANCE BRAKE - HPB

3

ENCODER CONNECTION



3.1 OPTIONS

The brake cover can be designed in different ways. This means that the brakes can be designed to meet the requirements of the application.

O = Without any cover

IP-protection grade must be considered by customer, if necessary

B = Closed with metal sheet

IP67 can be reached for the mounted brake

W = Flange including shaft sealing

For a shaft going through the brake

E = Flange with customized modification

Which allows the possibility to mount an encoder

K = POG-10 Encoder preparation

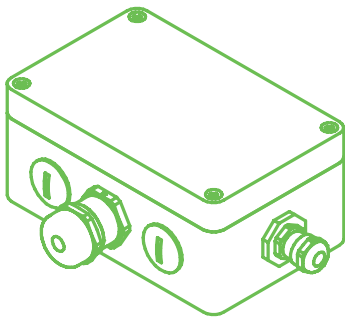
This includes also an adapter and coupling to extend the hub to connect a POG-10 encoder directly to the brake

HIGH PERFORMANCE BRAKE - HPB

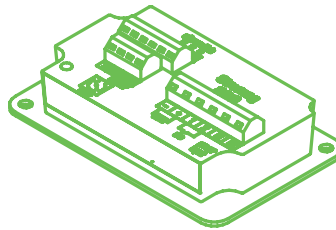
4

ELECTRICAL CONNECTION

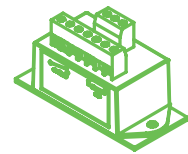
L S T



A B



G



4.1 ELECTRICAL ACCESSORY (supplied loose attached)

For the best possible electrical connection, the brake can be supplied with additional accessory. All of these parts will be delivered loose attached to the brake. They are only required, when they are not directly mounted on the brake (please see chapter 1.4)

This gives the chance to place this parts somewhere else, e.g. in the cabinet. or junction box of the motor and the cable can be routed as needed.

The following loose attached options are discribed at point 1.4 in detail.

O = Without additional extras

L = Terminal box including clamp

S = Terminal box including quick-switching rectifier SSG 240/8

T = Terminal box including quick-switching rectifier SSG 460/8

A = Quick-switching rectifier glued on sheet metal, type BSSG 240/8

B = Quick-switching rectifier glued on sheet metal, type BSSG 460/8

G = Switching recitifer ESG 575/3

HPB - CONFIGURATOR

Select exactly one option in each line to configure the required brake. Transfer the corresponding designations read from top to bottom into the template below to get the final order code of the brake.

1	☐ 2 2HPB - double face brake		☐ 4 4HPB - four face brake		Chapter 1.1				
2	☐ 20 ☐ 25 ☐ 27 ☐ 30 ☐ 35 ☐ 40 ☐ 45 ☐ 55 Brake size					Chapter 1.2			
3	☐ S Standard torque		☐ H High torque		☐ V Very high torque		Chapter 1.2		
4	☐ 110V		☐ 207V			Chapter 1.3			
5	☐ NOPI Without pinion		☐ Ø — H7 Pinion with bore and keyway acc. to DIN 6885/1			Chapter 2.1			
6	☐ NOFL Without connection flange					Chapter 2.2			
	☐ A200	☐ A250	☐ A250/300	☐ A300	☐ A350		☐ A400	☐ A450	☐ A550
7	☐ A Axial cables		☐ R Radial cables		☐ K Terminal box including clamp		Chapter 1.4		
	☐ E Terminal box including clamp and switching rectifier ESG 575/3		☐ S Terminal box including quick-switching rectifier SSG 240/8		☐ T Terminal box including quick-switching rectifier SSG 460/8				
8	☐ O Without any sensors		☐ S Switching status monitoring		☐ A Switching status and maximum wear monitoring		Chapter 1.5		
9	☐ O Without extras		☐ B Including emergency release lever and anti-condensation heater		☐ N Including anti-condensation heater		Chapter 1.6		
					☐ H Including emergency release lever				
10	☐ O Open brakes		☐ B Closed cover by metal sheet		☐ E Flange		Chapter 3.1		
					☐ W Flange for shaft sealing				
11	☐ O Without additional extras		☐ L Terminal box including clamp (loose attached)		☐ S terminal box including quick-switching rectifier SSG 240/8 (loose attached)		Chapter 4.1		
	☐ T terminal box including quick-switching rectifier SSG 460/8 (loose attached)		☐ A quick-switching rectifier BSSG 240/8 (loose attached)		☐ B quick-switching rectifier BSSG 460/8 (loose attached)				
	☐ G								
	Switching rectifier ESG 575/3 (loose attached)								

Final order code:

☐ **2** HPB ☐ **45** ☐ **S** - ☐ **110** ☐ **V** ☐ **100H7** ☐ **A450** - ☐ **A** ☐ **O** ☐ **O** ☐ **O** ☐ **O**

1 2 3 4 5 6 7 8 9 10 11

HPB - BRAKE QUESTIONNAIRE

If you need assistance in selecting the correct type and size of HPB brake for your application, or if your specification doesn't match our catalogue standard, please contact us. We are able to make all the necessary calculations regarding dynamic braking, prepare customised solutions and give you the support you need to find the right brake. All we need is the following information:

Short description of application / drive train:

Type of brake:

☐

Holding brake

☐

Holding brake with emergency function

☐

Working brake

Technical information:

Max. required holding torque:

Max. load torque (without any safety factor):
(only applicable if dynamic braking is required)

Max. speed:

Mass moment of inertia referred to the brake shaft:
(only applicable if dynamic braking is required)

Required dynamic stops per hour:

Environmental temperature:

Mounting orientation:

☐

Horizontal

☐

Vertical

Other requirements:

Please send us the final order code of the configured brake and/or this form as a quotation request. Our specialists will reply promptly and work with you to clarify the technical details. We will then be happy to prepare a solution.

Contact: CustomerCare.EU@regalrexnord.com



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regalrexnord.com

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