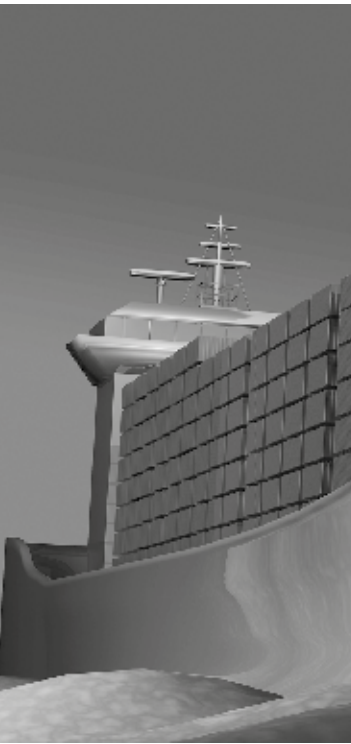


**SHIP & OFFSHORE**  
BRAKING UNLIMITED

Made in Germany



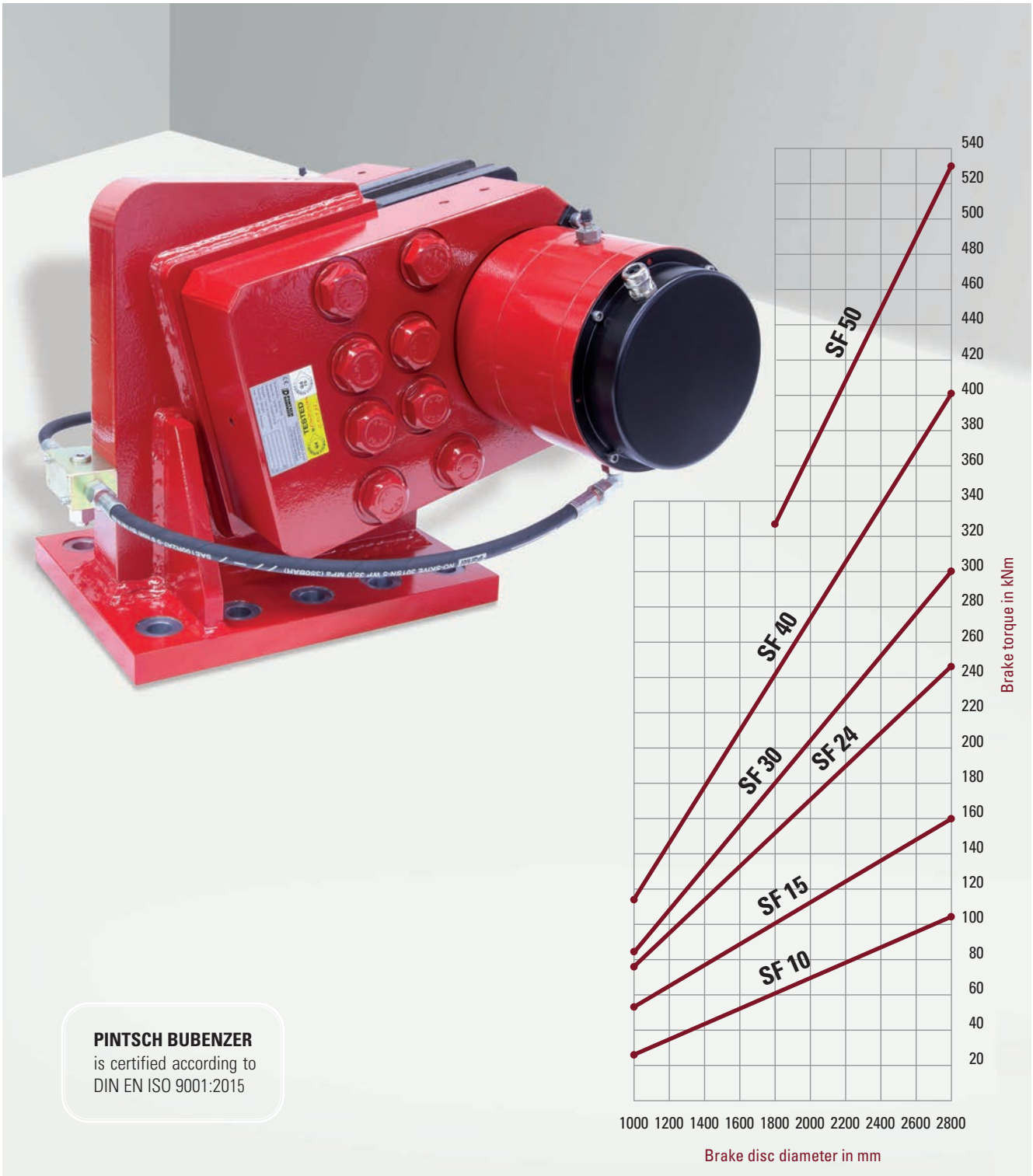
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## **Content**

Hydraulic Disc Brakes	B1 - B10
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Brake Control Unit BCU2001	CX9 - CX11
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# Hydraulic Caliper Disc Brakes SF Series



**PINTSCH BUBENZER**  
is certified according to  
DIN EN ISO 9001:2015



Reliable



High Performance



Robust Design



Easy Maintenance

## Description SF



### Main Features

- Two identical caliper halves, ready for operation, with spring packs set to nominal force and limit switch release control
- Up to 2 mm air gap between brake pad and disc
- Easy, manual pad wear compensation
- Organic, non-asbestos linings

### Options

- Limit switch wear control
- Sintered linings
- Complete piped supports for one or more calipers
- Hydraulic power units
- Special seals for flameproof fluids
- Cleaning pads
- Brake discs
- CMB contact force measurement

### Applications

- The high capacity of these brakes makes them particularly suitable as secondary emergency brakes on hoist gears and on downhill conveyor
- Other applications are possible in material handling, requiring power and compact design in either direction of rotation, particularly in replacing band brakes
- Brakes for use in high duty cycle applications are to be specifically indicated prior to the technical selection procedure**

### Operating Restrictions

- Brakes of this range are tested both mechanically and hydraulically and are set to nominal force. This setting can only be changed by the manufacturer. Operating conditions other than described in this brochure require the manufacturer's approval and may influence the function of the caliper and its components



#### Please Note

We supply a detailed operating manual with every order. Nevertheless, we would point out that brakes are only as safe as the servicing and maintenance performed while they are in operation. The guarantee for the correct functioning of our brakes is only valid if the user adheres to the German DIN standard 15434 part 2 (drum and disc brakes, servicing and maintenance in operation), or to comparable standards in his own country.



#### PINTSCH BUBENZER Service

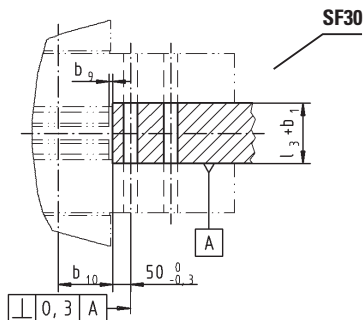
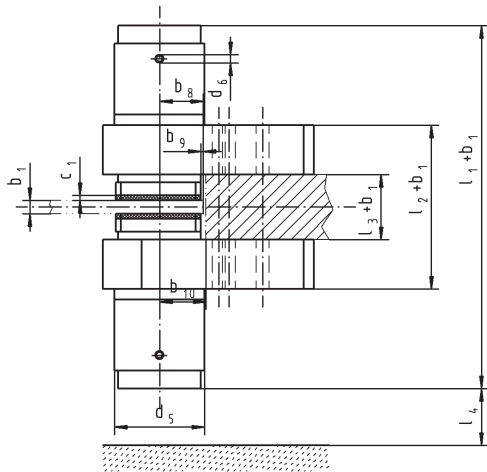
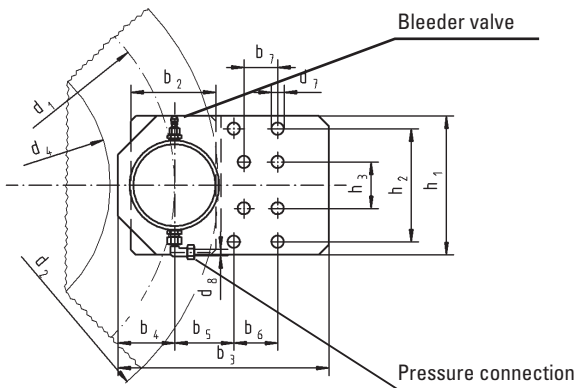
This includes the verification of the brake selection, if required. A detailed questionnaire is provided for this purpose. Installation and commissioning on-site by PINTSCH BUBENZER service engineers is possible. Drawings as DWG/DXF files for your engineering department are available upon request.

# Disc Brake SF

Dimensions and technical data

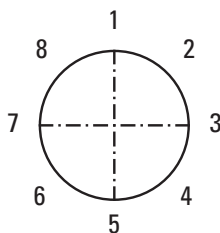


Rev. 12-06



\*) Average friction factor of standard material combination  
All dimensions in mm. Alterations reserved without notice.

**Brake torque  $M_{Br}$  in Nm =  $F_A$  (kN) x  $\mu$  x  $d_1$  (mm)**



Please indicate required mounting position.

Type SF	10	15	24	30	40
b <sub>2</sub>	165	165	195	280	300
b <sub>3</sub>	410	410	480	640	720
b <sub>4</sub>	110	110	130	155	175
b <sub>5</sub>	115	115	130	200	220
b <sub>6</sub>	85	85	100	110	125
b <sub>7</sub>	60	60	70	110	125
b <sub>8</sub>	85	85	100	140	160
b <sub>9</sub>	5	5	5	5	10
b <sub>10</sub>	90	90	105	150	170
c <sub>1</sub>	10	10	10	10	10
d <sub>5</sub>	175	175	225	290	310
d <sub>6</sub>	3/8"	3/8"	3/8"	3/8"	3/8"
d <sub>7</sub>	25	25	31	38	50
d <sub>8</sub>	12	12	12	12	12
h <sub>1</sub>	270	270	300	400	480
h <sub>2</sub>	220	220	230	300	375
h <sub>3</sub>	90	90	70	100	125
l <sub>1</sub>	650	690	810	940	981
l <sub>2</sub>	292	292	342	402	502
l <sub>3</sub>	100	100	110	130	110
l <sub>4min</sub>	40	110	130	180	200
Bolt	ø M24	M24	M30	M36	M48
Bolt material	10.9	10.9	10.9	10.9	10.9
Tighten. torque, Nm	1050	1050	2100	3500	6400
Contact force $F_A$ kN	100	150	240	300	400
Op. pressure bar	140	180	180	210	210
Max. pressure bar	200	200	200	240	240
Release stroke mm	2	2	2	2	2
Oil volume l	0,023	0,023	0,035	0,050	0,052
Pad surface cm <sup>2</sup>	427	427	570	1050	1360
Theor. friction $\mu^*$	0,40	0,40	0,40	0,40	0,40
Weight (kg)	200	210	368	760	1180

Data per caliper half

### Brake disc data

	SF10	SF15	SF24	SF30	SF40
d <sub>2</sub> =	d <sub>2</sub> -170 mm	d <sub>2</sub> -170 mm	d <sub>2</sub> -200 mm	d <sub>2</sub> -290 mm	d <sub>2</sub> -320 mm
d <sub>4</sub> =	d <sub>2</sub> -420 mm	d <sub>2</sub> -420 mm	d <sub>2</sub> -490 mm	d <sub>2</sub> -620 mm	d <sub>2</sub> -700 mm

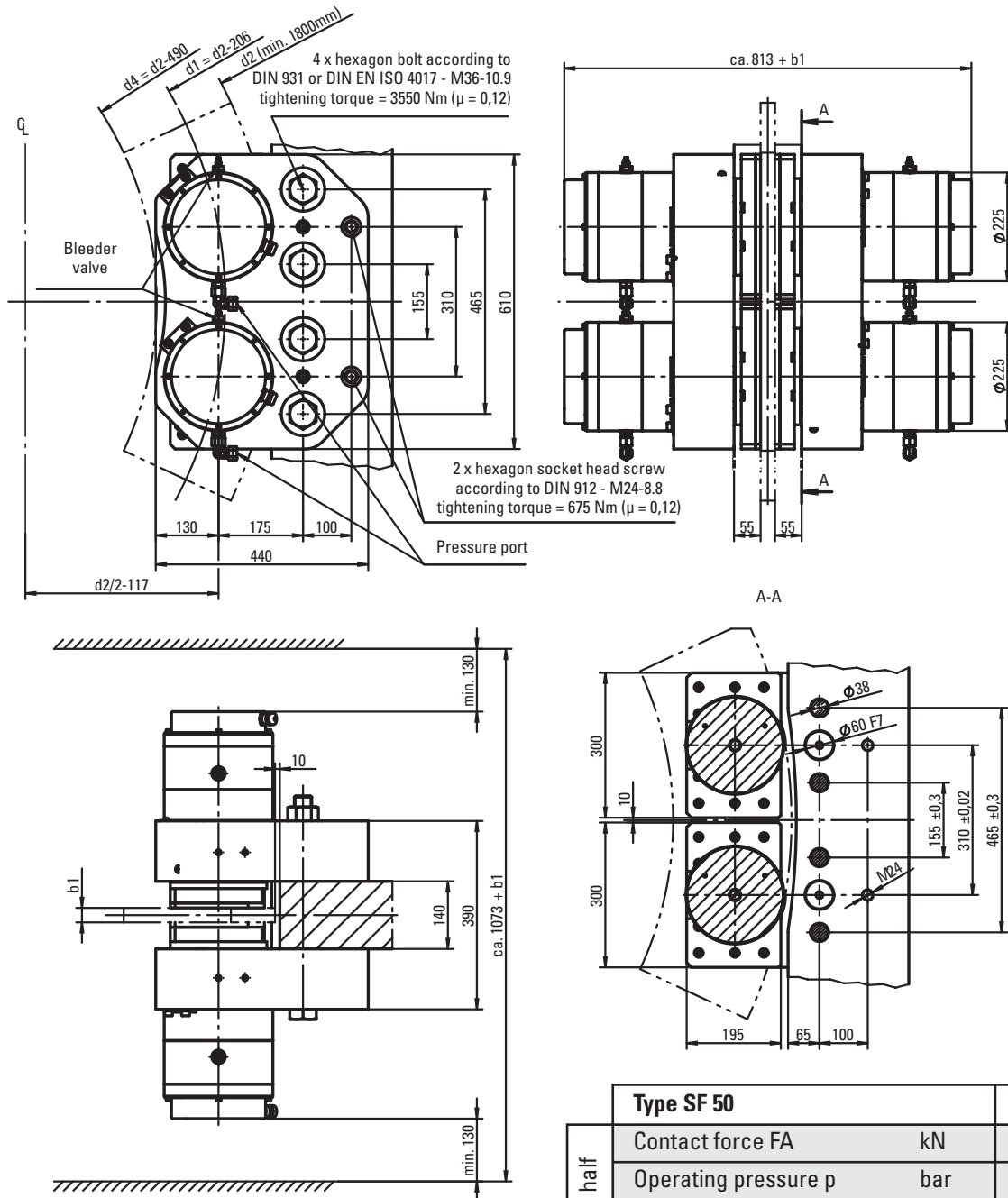
d<sub>2</sub> = Brake disc diameter in mm  
d<sub>1</sub> = Friction diameter in mm  
d<sub>4</sub> = Max. permissible drum or hub diameter in mm  
b<sub>1</sub> = Disc thickness in mm (min. 30)

# Disc Brake SF 50

Dimensions and technical data



Rev. 02-14



**Brake Torque  $M_{Br}$  in Nm =  $F_A$  (kN) x  $\mu$  x  $d_1$  (mm)**

Type SF 50			
Data per caliper half	Contact force $F_A$	kN	510
	Operating pressure p	bar	180
	Max. pressure $p_{max.}$	bar	200
	Release stroke	mm	2
	Oil volume	l	0,07
	Pad surface	cm <sup>2</sup>	1100
	Theor. friction factor	$\mu^*$	0,40
	Weight (without bracket)	kg	ca. 730

\*) Theor. friction factor of standard material combination

All dimensions in mm  
Alterations reserved without notice

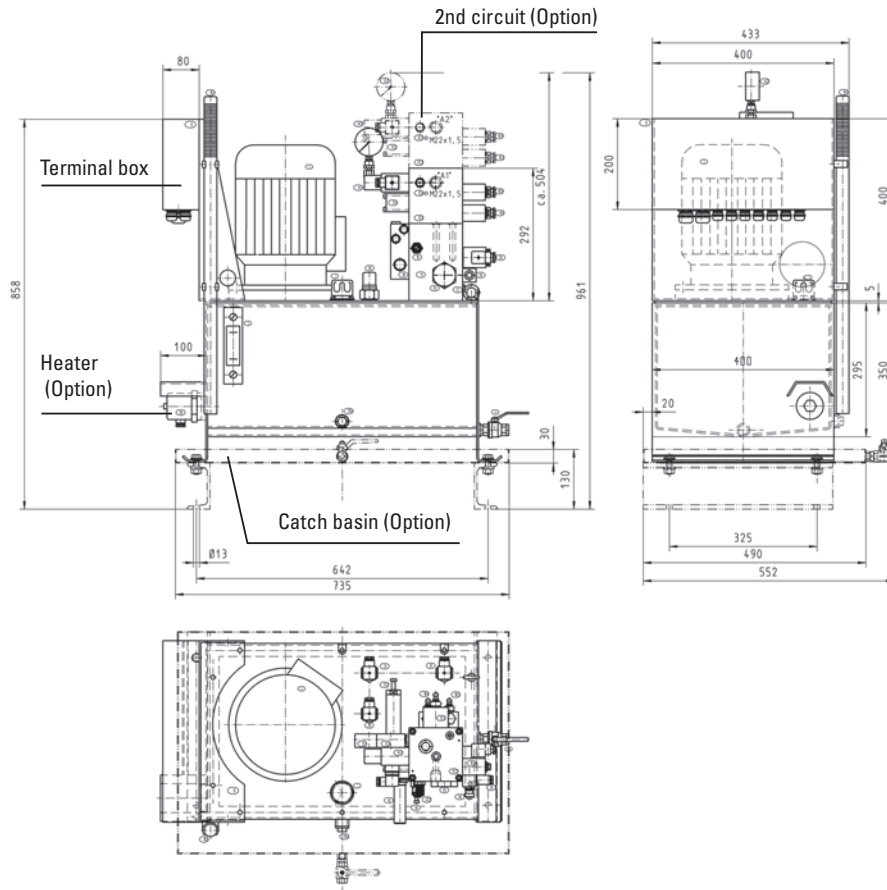
$d_2$  = Brake disc diameter in mm  
 $d_1$  = Friction diameter in mm  
 $d_4$  = Max. permissible drum or hub diameter in mm  
 $b_1$  = Brake disc thickness in mm (min. 30)

# Disc Brake SF

Hydraulic power unit for one or more calipers



Rev. 12-06



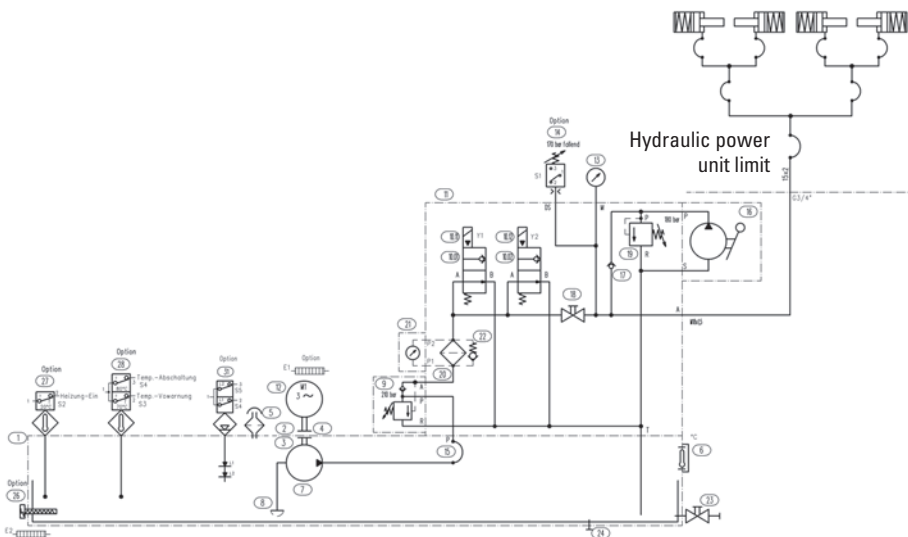
Example:	
Standard configuration	up to 4 SF10/SF15
	up to 2 SF24
Motor:	3 kW
Pump:	7,9 l/min
Pressure:	210 bar
Tank:	40 l
Weight:	85 kg

The flow diagram shows the general arrangement of the hydraulic power unit, including hand pump for emergency manual release of the brakes.

The two solenoid valves are connected in parallel (redundancy). After the nominal pressure is reached, the idler valve switches into idle running. The motor is continuously energized.

Pressure switch, temperature switch, heaters, level switch, stainless steel version and other accessories are available options.

Hydraulic power units are also available as dual-circuit power units, e.g. to operate main hoist and boom hoist brakes with one power unit only.



All dimensions in mm  
Alterations reserved without notice



We supply a complete hydraulic and electric diagram according to the order specification with every order.

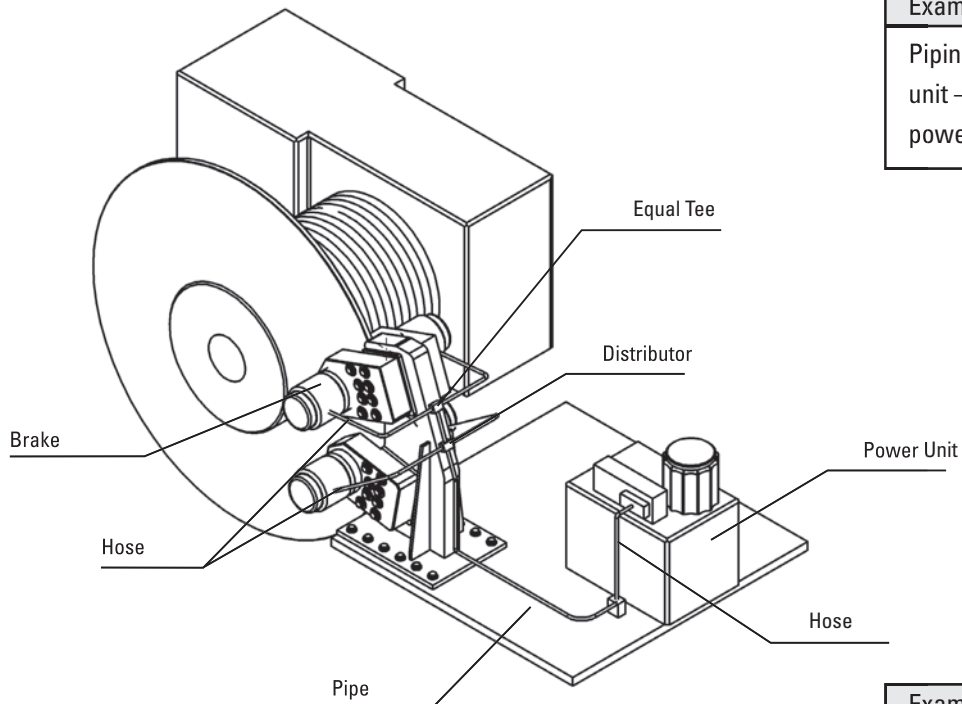


# Piping Samples

Disc brakes SF and BSC

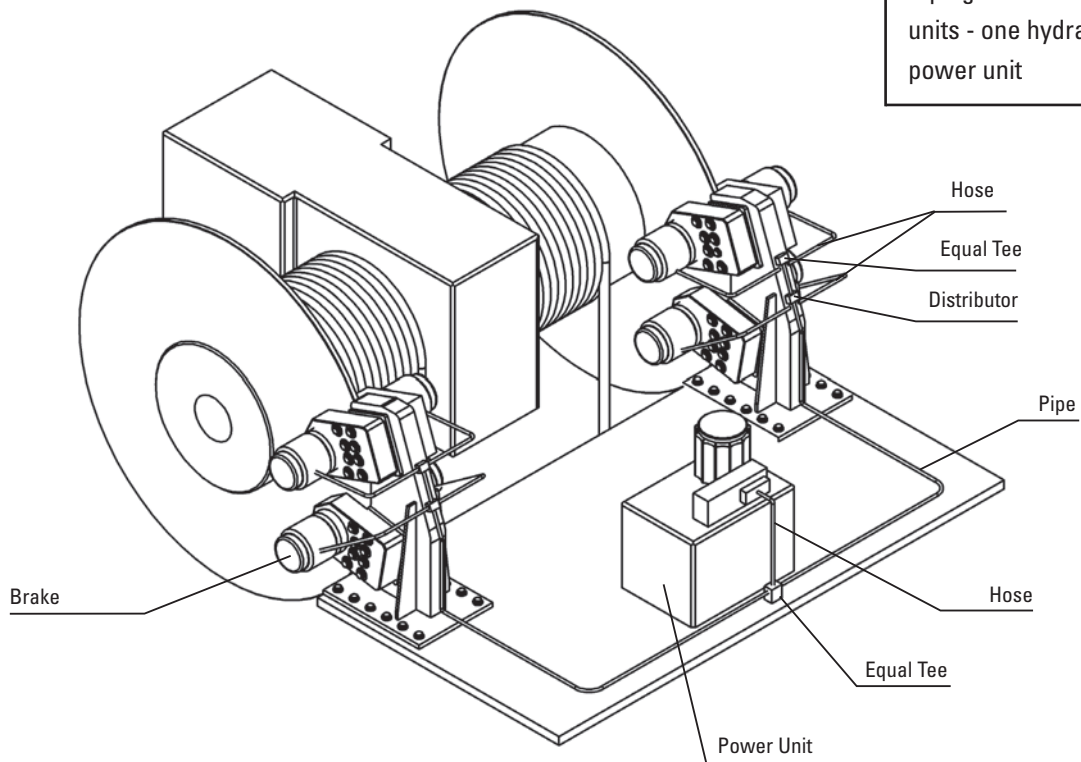


Rev. 09-02



Example:

Piping of one brake unit – one hydraulic power unit



Example:

Piping of two brake units - one hydraulic power unit



Attention: For operating two brake units with one power unit please note, that the power unit should be installed between the brakes in the centre to achieve almost equal pipe length on both sides (equal apply time of brakes).

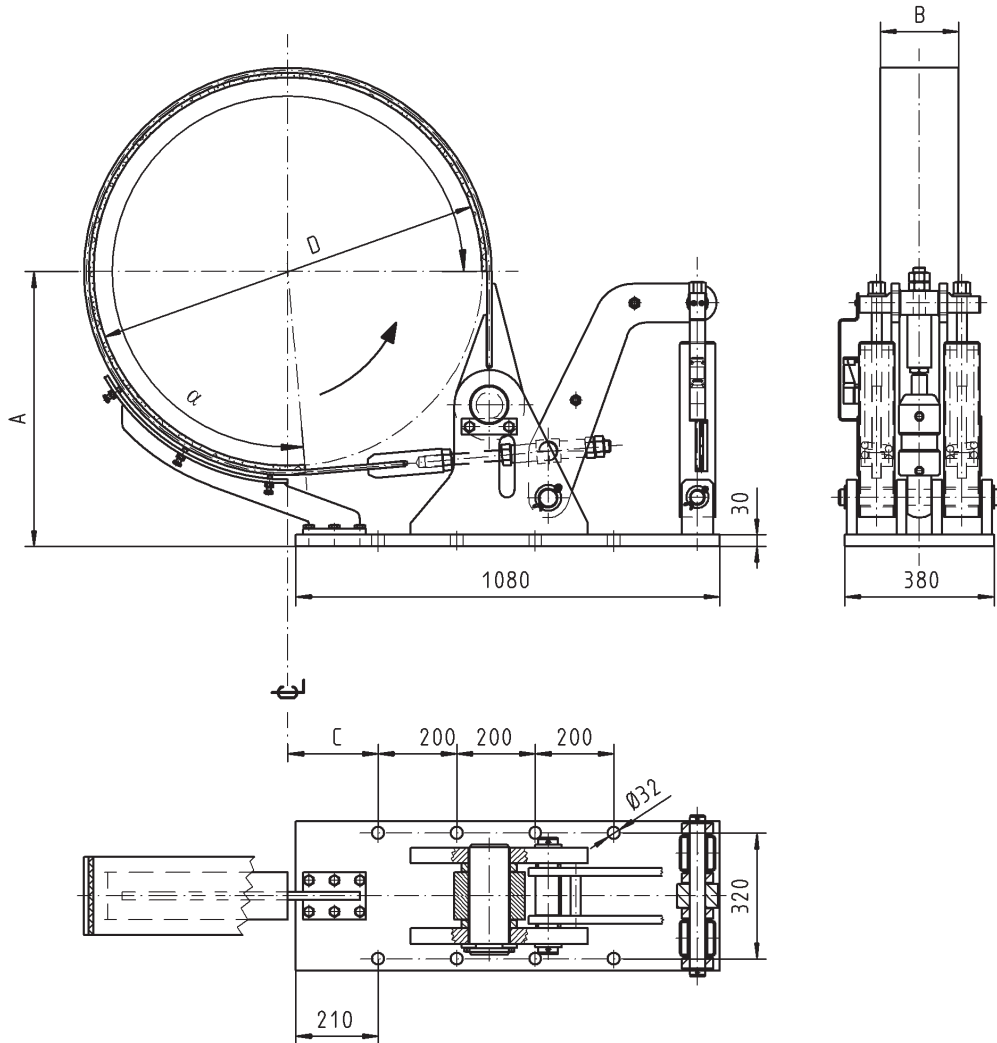


# Band Brake Type BHB

Dimensions and technical data



Rev. 11-04



**Other diameters and release by thruster upon request.**

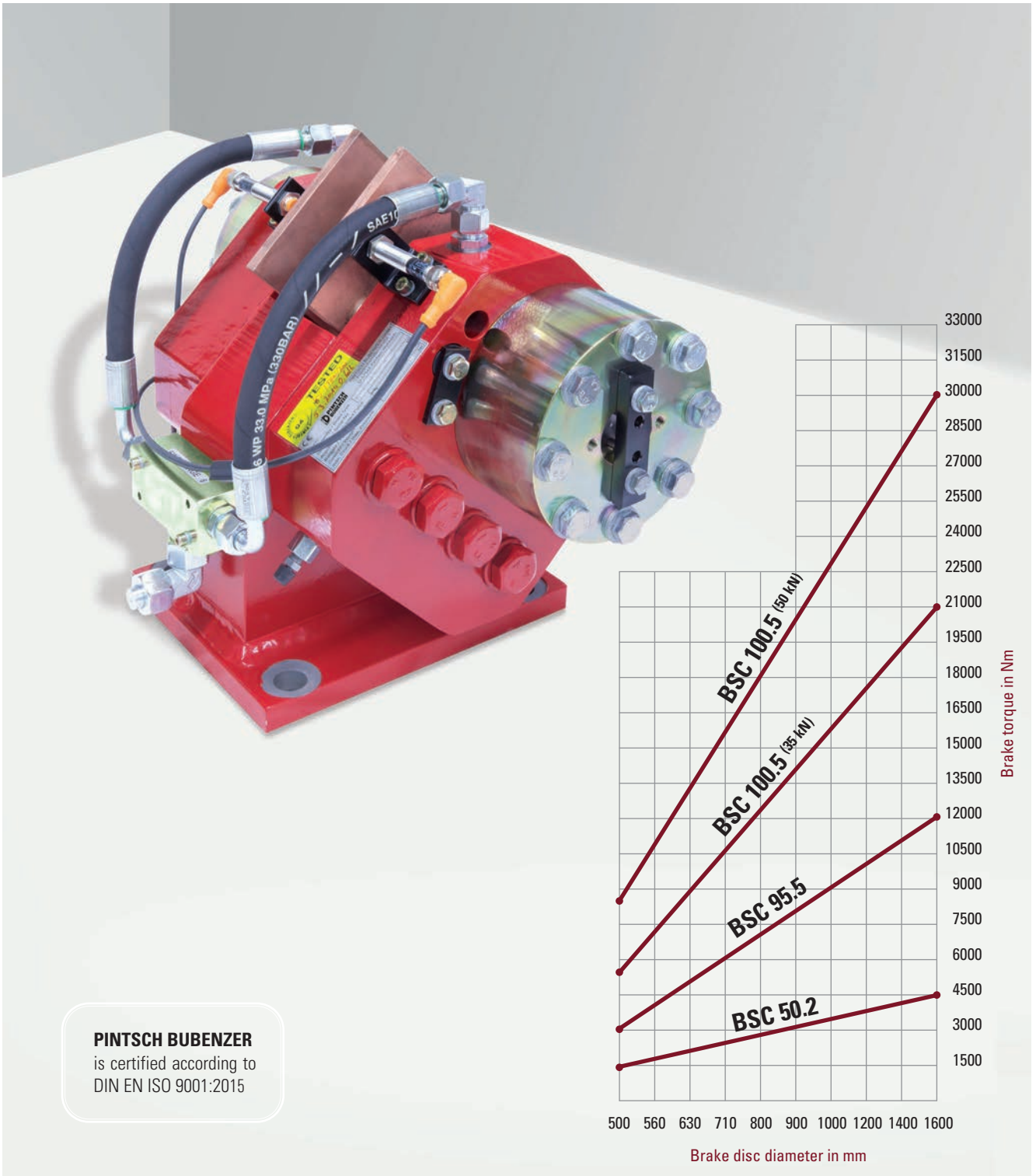
\*) Average friction factor of standard material combination

All dimensions in mm  
Alterations reserved without notice

Brake type	A	D	C	E	$M_{Br}$ (kNm) $\mu=0,4^*$	Band width (B)
BHB 990-80/60	700	990	20	230	min. 60	
					<100	120
					<160	160
					max. 203	200
BHB 1110-80/60	760	1110	80	290	min. 70	
					<140	120
					<180	160
					max. 230	200
BHB 1240-80/60	825	1240	145	355	min. 60	
					<160	120
					<200	160
					max. 253	200
BHB 790-80/60 (Wrap angle 265° !)	600	790	-30	180	min. 60	120
					<100	160
					max. 130	200



# Hydraulic Caliper Disc Brakes BSC Series



Reliable



High Performance



Robust



Compact

## Description BSC



### Main Features

Two identical caliper halves, ready for operation, with spring packs set to nominal force
Up to 1 mm air gap between brake pad and disc
Easy, manual pad wear compensation
Organic, non-asbestos linings

### Options

Limit switch release control
Limit switch wear control
Sintered linings
Complete piped supports for one or more calipers
Hydraulic power units
Special seals for flameproof fluids
Cleaning pads
Brake discs

### Applications

The high capacity of these brakes makes them particularly suitable as service- or secondary emergency brakes e.g. on hoists, slewing drives and belt conveyors
Other applications are in material handling, mechanical engineering and wind turbine industry, where high holding forces are required independent of the direction of rotation within limited space

### Operating Restrictions

Brakes of this range are mechanically and hydraulically tested and are set to nominal force. This setting can only be changed by the manufacturer. Operating conditions other than described in this brochure require the manufacturer's approval and may influence the function of the caliper and its components
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#### Please Note

We supply a detailed operating manual with every order. Nevertheless, we would point out that brakes are only as safe as the servicing and maintenance performed while they are in operation. The guarantee for the correct functioning of our brakes is only valid if the user adheres to the German DIN standard 15434 part 2 (drum and disc brakes, servicing and maintenance in operation), or to comparable standards in his own country.



#### PINTSCH BUBENZER Service

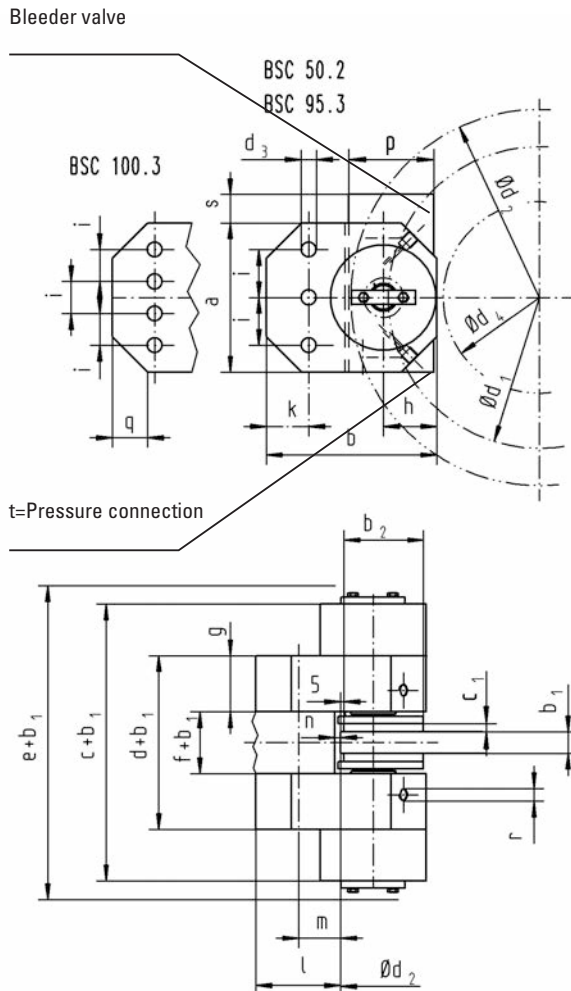
This includes the verification of the brake selection, if required. A detailed questionnaire is provided for this purpose. Installation and commissioning on-site by PINTSCH BUBENZER service engineers is possible. Drawings as DWG/DXF files for your engineering department are available upon request.

# Disc Brake BSC

Dimensions and technical data



Rev. 12-06

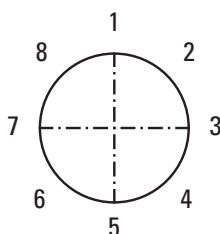


Type BSC	50.2	95.5	100.5
a	130	220	210
b	128	213	240
b <sub>2</sub>	63	112	112
c	224	380	360
c <sub>1</sub>	6	12	12
d	108	137	215
d <sub>3</sub>	14	21	22
e	302	435	412
f	38	57	57
g	35	40	79
h	42	75	75
i	35	47,5	45
k	24	32	60
l	53	78	119
m	29	46	59
n	7	8	8
p	70	120	120
q	30x30°	25x45°	50x45°
r	1/4"	3/8"	3/8"
s	30	34	40
t	Ø10	Ø12	Ø12
Bolt Ø	M12	M20	M20
Bolt material	8.8	8.8	10.9
Tighten. torque, Nm	86	410	560
Contact force F <sub>A</sub> kN	7	20	35   50
Op. pressure bar	60	60	100   160
Max. pressure bar	90	100	180
Release stroke mm	1	1	1
Oil volume l	0,002	0,004	0,005
Pad surface cm <sup>2</sup>	73	195	195
Theor. friction µ*	0,40	0,40	0,40
Weight (kg)	12	30	40

\*) Average friction factor of standard material combination

All dimensions in mm  
Alterations reserved without notice

**Brake torque M<sub>Br</sub> in Nm = F<sub>A</sub> (kN) x µ x d<sub>1</sub> (mm)**



Please indicate required mounting position.

### Brake disc data

	BSC 50.2	BSC 95.5	BSC 100.5
d <sub>1</sub> =	d <sub>2</sub> -70 mm	d <sub>2</sub> -105 mm	d <sub>2</sub> -105 mm
d <sub>4</sub> =	d <sub>2</sub> -170 mm	d <sub>2</sub> -284 mm	d <sub>2</sub> -260 mm

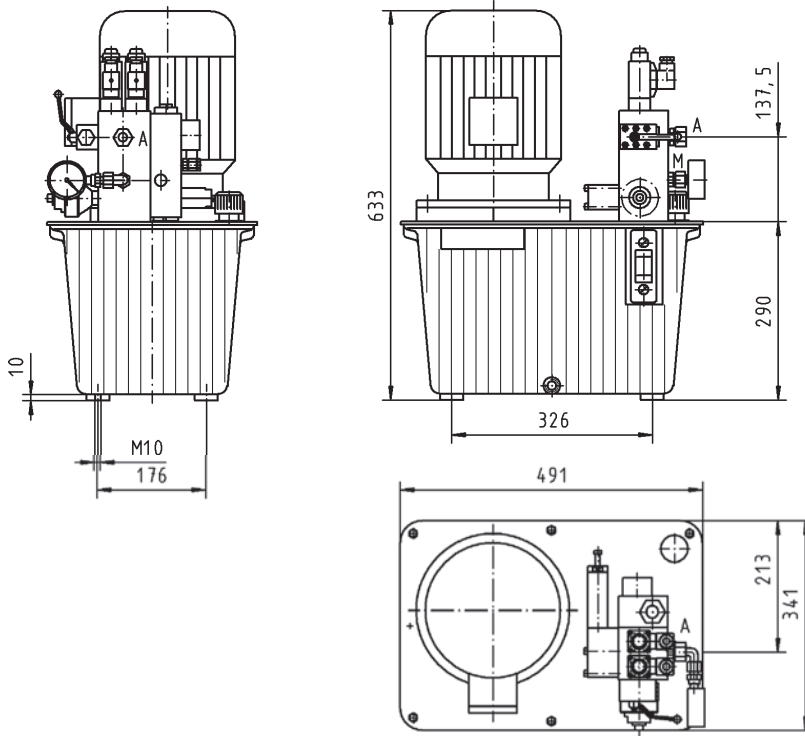
- d<sub>2</sub> = Brake disc diameter in mm
- d<sub>1</sub> = Friction diameter in mm
- d<sub>4</sub> = Max. permissible drum or hub diameter in mm
- b<sub>1</sub> = Disc thickness in mm (min. 30)

# Disc Brake BSC

Hydraulic power unit for one or more calipers



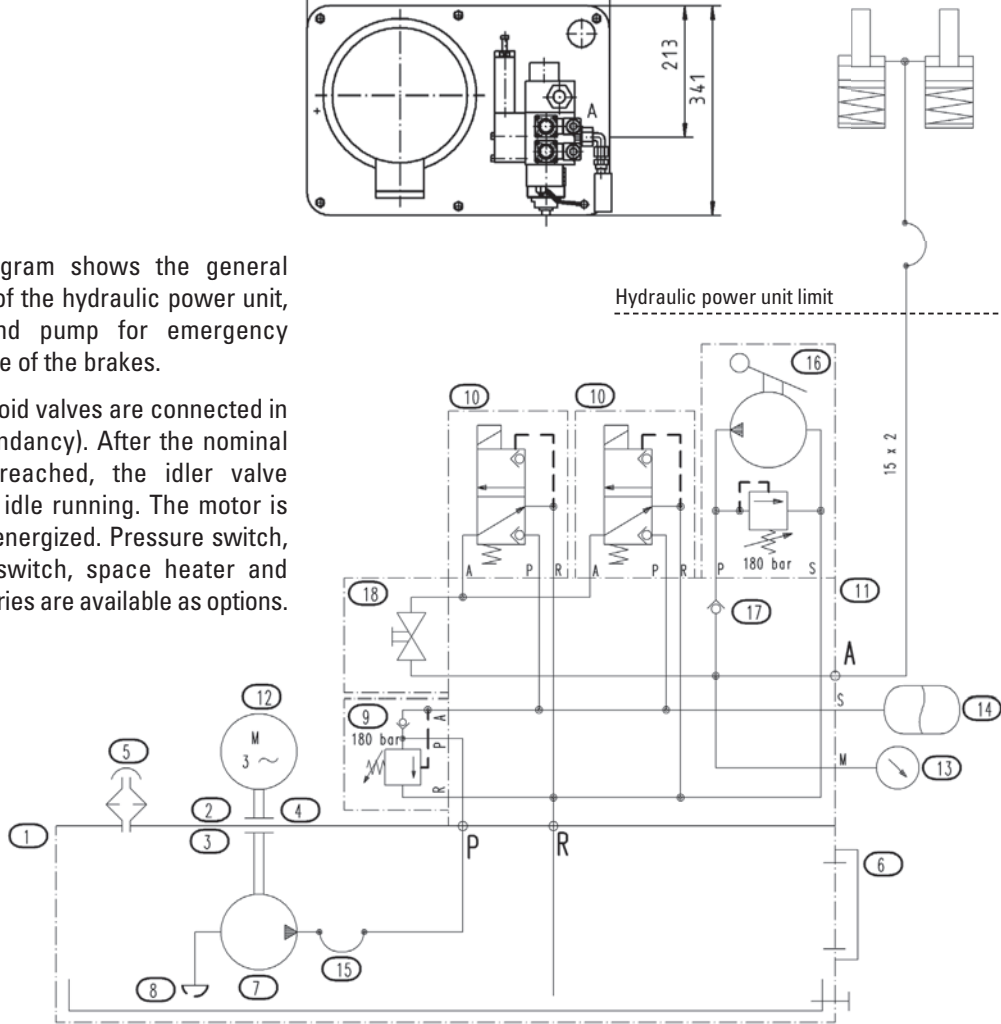
Rev. 09-02



Example:	
Standard configuration up to 4 BSC 100.3	
Motor:	3 kW
Pump:	9 l/min
Pressure:	180 bar
Tank:	30 l

The flow diagram shows the general arrangement of the hydraulic power unit, including hand pump for emergency manual release of the brakes.

The two solenoid valves are connected in parallel (redundancy). After the nominal pressure is reached, the idler valve switches into idle running. The motor is continuously energized. Pressure switch, temperature switch, space heater and other accessories are available as options.

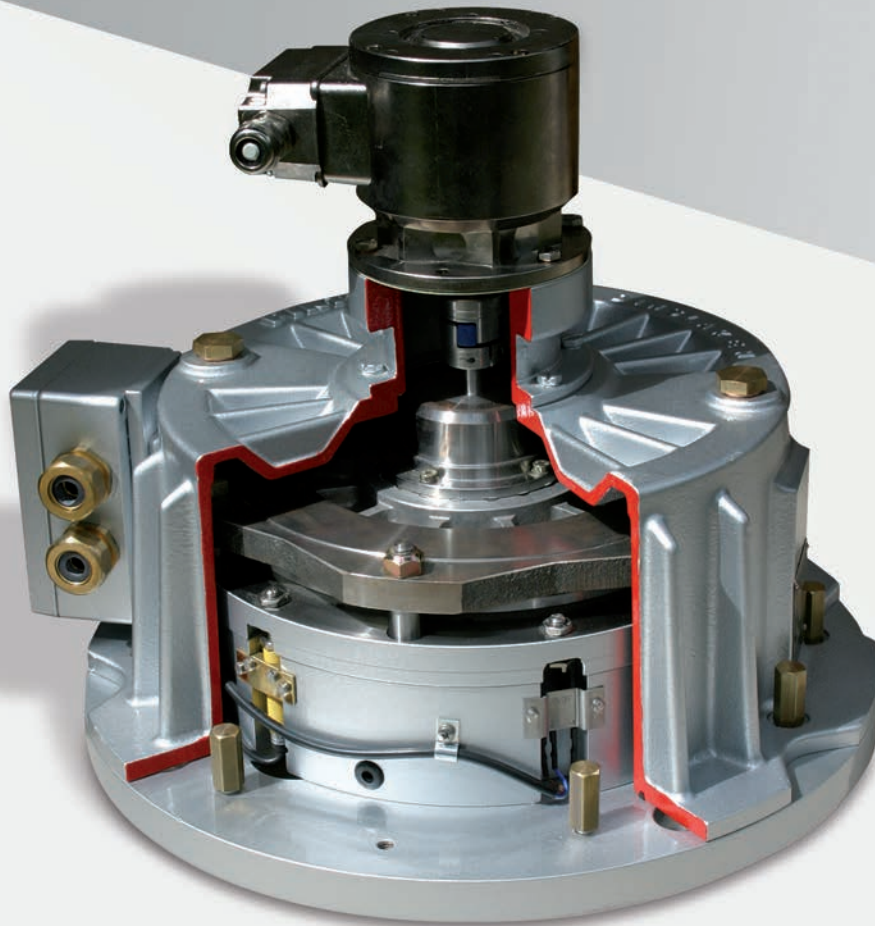


All dimensions in mm  
Alterations reserved without notice



We supply a complete hydraulic and electric diagram according to the order specification with every order.

## Spring Set Brakes SFB Series



**PINTSCH BUBENZER**  
is certified according to  
DIN EN ISO 9001:2015



Reliable



High Performance



Robust



Easy Maintenance



Compact



Tried and Trusted



## Description SFB Series



### Main Features

Spring applied safety brake
Electromechanically released
Protection-class IP67
Double wear reserve by single air gap adjustment
High work capacity
High wear resistance because of high abrasion resistance
Functional without cover
Emergency release screws

### Applications

Gantry, trolley and hoisting applications
Electrical drives for ship winches and deck machinery
Jack up systems at offshore systems
Dynamic and static use at general industrial applications

### Certificates

ABS, DNV, LR, GL, RMROS, BV
-----------------------------

### Options

Special brake torque:
Lower brake torque = type SFB
Higher brake torque = type SFB-SH
Holding brake torques available on request
Micro- or proximity switches:
• Monitoring the function on/off
• Maximum air gap (wear-monitoring)
Lateral junction box
Tacho preparation with all mounting parts
Cover bore
Shaft sealing
Special voltage
Anti condensation heater
Radial cable outlet
Special flange

### Electrical equipment

One-way, bridge and switching rectifier
Protective element
Brake control unit = BCU 2001
Brake control and monitoring system = BCMS-4



#### Please Note

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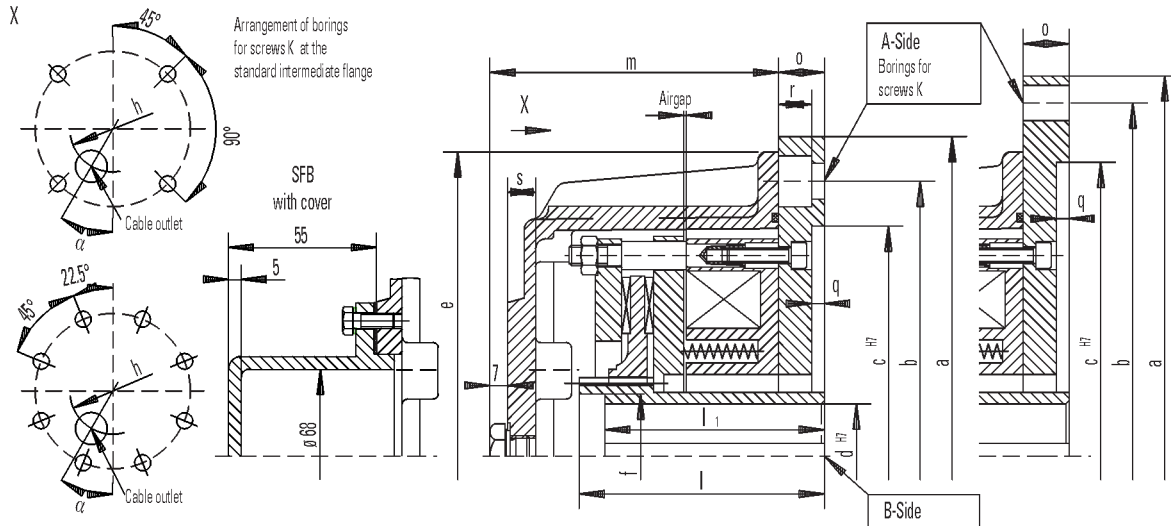
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# Spring Set Brake SFB

Electromagnetic Two Disc, Spring Set Brake



Rev. 05-08



Keyways for keys acc. to DIN6885 Bl.1, width accuracy P9. Protection IP67

Alterations reserved without notice

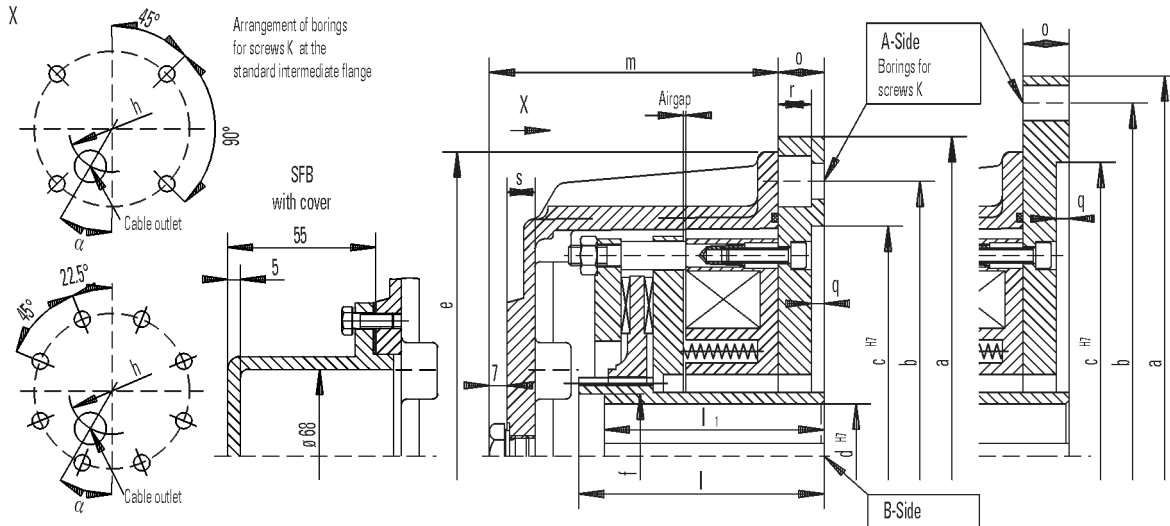
Brake size		SFB 6.3	SFB 10	SFB 16	SFB 25	SFB 40	SFB 63	SFB 100	SFB 160	SFB 250			
Brake torque M2 dynamic acc. to DIN VDE 0580	Nm	63	100	160	250	400	630	1000	1600	2500			
		54	80	130	210	330	520	830	1300	2100			
		45	63	100	180	260	400	660	1050	1650			
Mass moment of inertia	kgm <sup>2</sup>	0.0017	0.0037	0.0048	0.0068	0.0175	0.036	0.050	0.128	0.140			
Mass (weight)	kg	19	28	42	55	74	106	168	242	306			
max. speed	min <sup>-1</sup>	6000	6000	6000	5500	4700	4000	3600	3200	2800			
Coil b. 20°C	Nominal voltage	V DC	110	110	110	110	110	110	110	110			
	Nominal power	W	99	128	158	196	220	307	344	435	495		
	Nominal current	A	0.90	1.16	1.44	1.78	2.0	2.79	3.13	3.95	4.50		
Air gap, brake OFF		min. mm	0.3	0.3	0.3	0.4	0.4	0.4	0.6	0.4	0.4		
		max. mm	0.9	1.2	1.2	1.3	1.4	1.8	1.8	2.3	2.5		
Diameter mm	B-Side	d Rough boring	26	26	36	36	36	36	36	46	46		
		d <sup>H7</sup> Preferential boring	28	28	38	38	48	60	60	65	65		
			32	32	42	42	55	65	65	70	70		
			38	38	48	48	60	75	75	75	75		
					55	55				80	80		
d <sup>H7</sup> maximal	40	40	55	55	60	75	75	110	110				
Length mm	e	238	260	280	318	400	440	446	540	556			
	f						95	95	128	128			
	h	150	180	202	214	244	292	330	394	440			
	l	96	96	117	117	142	148	148	191	191			
	l <sup>1</sup>	96	96	117	117	142	142	142	171	171			
	m	115	118	137	143	169	171	183	211	232			
	s	11	11	11	12	14	15	15	15	15			
A	α °	15	15	30	22.5	30	30	30	30	45			
Suitable standard Intermediate flange		A250	A300	A300-1	A350	A400-1	A450-1	A450-1	A550-1	A660			
		A300	A350	A350	A400	A450	A550	A550	A660	A800			
				A400	A450	A550	A660	A660	A800				
				A450									
Dimensions of standard intermediate flanges													
Standard intermediate flange		A250	A300	A300-1	A350	A400	A400-1	A450	A450-1	A550	A550-1	A660	A800
Diameter mm	a	250	300	300	350	400	400	450	450	550	550	660	800
	b	215	265	265	300	350	350	400	400	500	500	600	740
	c <sup>H7</sup>	180	230	230	250	300	300	350	350	450	450	550	680
Length mm	o	18	18	18	20	22	22	24	24	24	24	30	30
	q	5	5	5	6	6	6	6	6	6	6	7	7
	r	13		13			17.5		17.5		17.5		
Screws	k	4xM12	4xM12	4xM12	4xM16	4xM16	4xM16	4xM12	8xM16	8xM16	8xM16	8xM20	8xM20

# Spring Set Brake SFB

Electromagnetic Two Disc, Spring Set Brake



Rev. 05-08



Brake size		SFB	SFB	SFB	
		400	630	1000	
Brake torque M2 dynamic acc. to DIN VDE 0580	Nm	4000	6300	10000	
		3350	5250	8500	
		2650	4200	7000	
Mass moment of inertia	kgm <sup>2</sup>	0.325	0.375	1.007	
Mass (weight)	kg	357	500	750	
max. speed	min <sup>-1</sup>	2500	2200	2000	
Coil c b. 20° C	Nominal voltage	V DC	110	110	110
	Nominal power	W	553	671	980
	Nominal current	A	5.03	6.10	8.91
Air gap, brake OFF		min. mm	0.4	0.7	0.7
		max. mm	2.5	2.8	3.1
Diameter mm	B-Side	d Rough boring	46	58	68
		d <sup>H7</sup> Preferential boring	65	100	125
			70		
			75		
			80		
			90		
d <sup>H7</sup> maximal	110	125	140		
Length mm	e	660	700	795	
	f	128	140	155	
	h	520	570	620	
	l	191	237	282	
	l <sup>1</sup>	171	210	255	
	m	272	310	360	
	s	15	15	15	
A	α°	30	30	30	
Suitable standard intermediate flange		A660-1	A800	A800-1	
		A800			
		Dimensions of standard intermediate flange			
Standard intermediate flange		A660-1	A800	A800-1	
Diameter mm	a	600	800	800	
	b	600	740	740	
	c <sup>H7</sup>	550	680	680	
Length mm	o	30	30	30	
	q	7	7	7	
	r	21.5		21.5	
Screws		k	8xM20	8xM20	8xM20

Keyways for keys acc. to DIN6885 Bl.1, width accuracy P9. Protection IP67

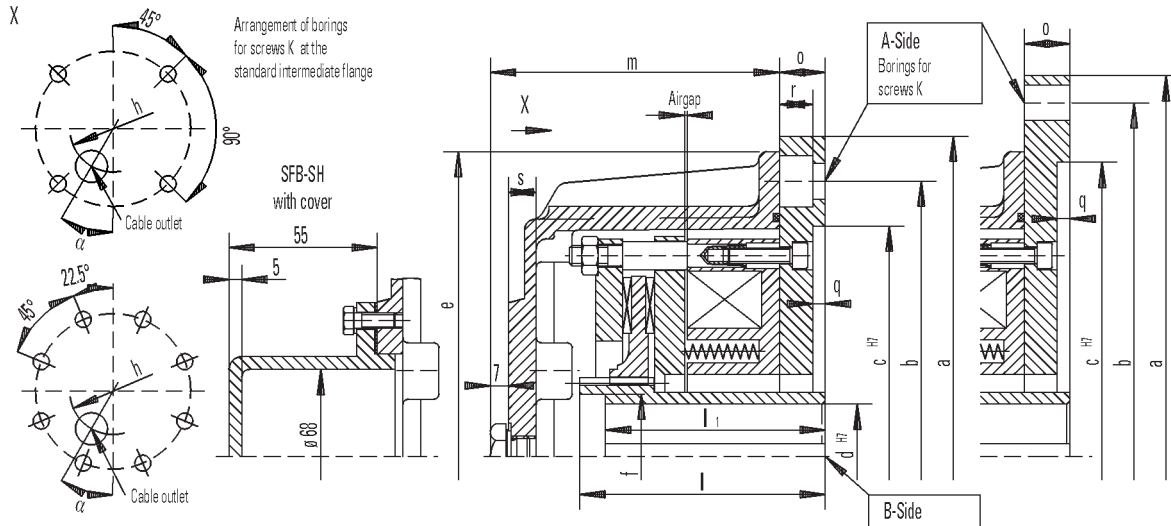
Alterations reserved without notice

# Spring Set Brake SFB-SH

Electromagnetic Two Disc, Spring Set Brake  
Increased brake torque



Rev. 05-08



Keyways for keys acc. to DIN6885 Bl.1,  
width accuracy P9. Protection IP67

Alterations reserved without notice

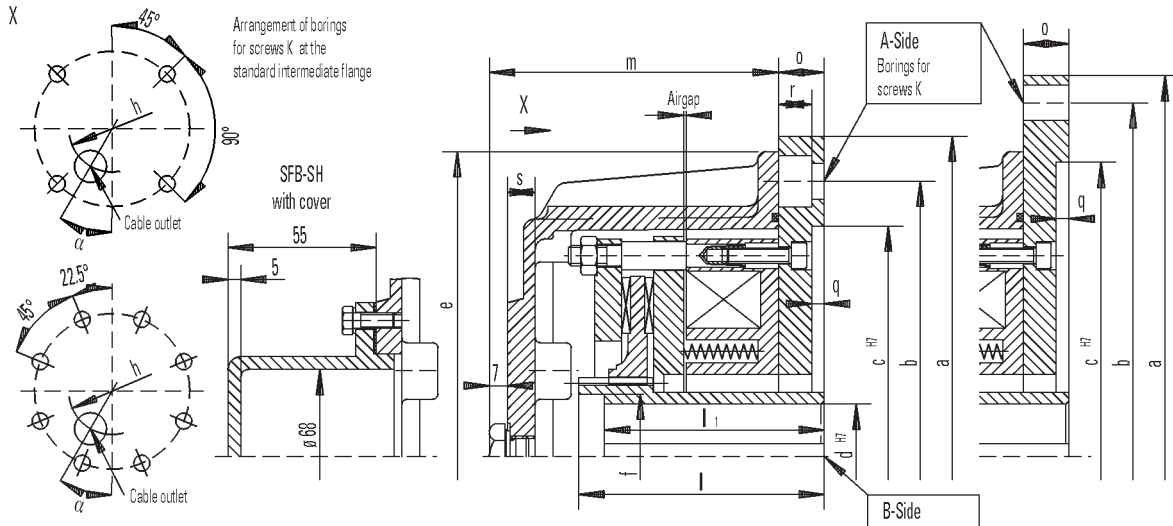
Brake size		SFB 6.3-SH	SFB 10-SH	SFB 16-SH	SFB 25-SH	SFB 40-SH	SFB 63-SH	SFB 100-SH	SFB 160-SH	SFB 250-SH			
Brake torque M2 dynamic acc. to DIN VDE 0580	Nm	80	130	210	350	550	800	1300	2100	3300			
		75	120	190	310	490	750	1200	1900	3000			
		69	110	180	275	440	690	1100	1750	2750			
Mass moment of inertia	kgm <sup>2</sup>	0.0017	0.0037	0.0048	0.0068	0.0175	0.036	0.050	0.128	0.140			
Mass (weight)	kg	19	28	42	55	74	106	168	242	306			
max. speed	min <sup>-1</sup>	6000	6000	6000	5500	4700	4000	3600	3200	2800			
Coil b. 20°C	Nominal voltage	V DC	110	110	110	110	110	110	110	110			
	Nominal power	W	99	128	158	196	220	307	344	435	495		
	Nominal current	A	0.90	1.16	1.44	1.78	2.0	2.79	3.13	3.95	4.50		
Air gap, brake OFF		min. mm	0.3	0.3	0.3	0.4	0.4	0.4	0.6	0.4	0.4		
		max. mm	0.9	1.2	1.2	1.3	1.4	1.8	1.8	2.3	2.5		
Diameter mm	B-Side	d Rough boring	26	26	36	36	36	36	36	46	46		
		d <sup>H7</sup> Preferential boring	28	28	38	38	48	60	60	65	65		
			32	32	42	42	55	65	65	70	70		
			38	38	48	48	60	75	75	75	75		
					55	55				80	80		
d <sup>H7</sup> maximal	40	40	55	55	60	75	75	110	110				
Length mm	e	238	260	280	318	400	440	446	540	556			
	f						95	95	128	128			
	h	150	180	202	214	244	292	330	394	440			
	l	96	96	117	117	142	148	148	191	191			
	l <sup>1</sup>	96	96	117	117	142	142	142	171	171			
	m	115	118	137	143	169	171	183	211	232			
	s	11	11	11	12	14	15	15	15	15			
A	α °	15	15	30	22.5	30	30	30	30	45			
Suitable standard intermediate flange		A250	A300	A300-1	A350	A400-1	A450-1	A450-1	A550-1	A660			
		A300	A350	A350	A400	A450	A550	A550	A660	A800			
				A400	A450	A550	A660	A660	A800				
				A450									
Dimensions of standard intermediate flange													
Standard intermediate flange		A250	A300	A300-1	A350	A400	A400-1	A450	A450-1	A550	A550-1	A660	A800
Diameter mm	a	250	300	300	350	400	400	450	450	550	550	660	800
	b	215	265	265	300	350	350	400	400	500	500	600	740
	c <sup>H7</sup>	180	230	230	250	300	300	350	350	450	450	550	680
Length mm	o	18	18	18	20	22	22	24	24	24	24	30	30
	q	5	5	5	6	6	6	6	6	6	6	7	7
	r	13		13			17.5		17.5		17.5		
Screws	k	4xM12	4xM12	4xM12	4xM16	4xM16	4xM16	8xM16	8xM16	8xM16	8xM16	8xM20	8xM20

# Spring Set Brake SFB-SH

Electromagnetic Two Disc, Spring Set Brake  
Increased brake torque



Rev. 05-08



Brake size		SFB 400-SH	SFB 630-SH	SFB 1000-SH	
Brake torque M2 dynamic acc. to DIN VDE 0580	Nm	5200	8000	13000	
		4800	7500		
Mass moment of inertia	kgm <sup>2</sup>	0.325	0.375	1.007	
Mass (weight)	kg	357	500	750	
max. speed	min <sup>-1</sup>	2500	2200	2000	
Coil c b. 20° C	Nominal voltage	V DC	110	110	
	Nominal power	W	553	671	980
	Nominal current	A	5.03	6.10	8.91
Air gap, brake OFF		min. mm	0.4	0.7	0.7
		max. mm	2.5	2.8	3.1
Diameter mm	B-Side	d Rough boring	46	58	68
		d <sup>H7</sup> Preferential boring	65	100	125
			70		
			75		
			80		
			90		
d <sup>H7</sup> maximal	110	125	140		
Length mm	e	660	700	795	
	f	128	140	155	
	h	520	570	620	
	l	191	237	282	
	l <sup>1</sup>	171	210	255	
	m	272	310	360	
	s	15	15	15	
A	α°	30	30	30	
Suitable standard intermediate flange		A660-1	A800	A800-1	
		A800			
		Dimensions of standard intermediate flange			
Standard intermediate flange		A660-1	A800	A800-1	
Diameter mm	a	600	800	800	
	b	600	740	740	
	c <sup>H7</sup>	550	680	680	
Length mm	o	30	30	30	
	q	7	7	7	
	r	21.5		21.5	
Screws		k	8xM20	8xM20	

Keyways for keys acc. to DIN6885 Bl.1,  
width accuracy P9. Protection IP67

Alterations reserved without notice

# Spring Set Brake KFB



**PINTSCH BUBENZER**  
is certified according to  
DIN EN ISO 9001:2015



Reliable



High Performance



Robust



Easy Maintenance



Compact



Tried and Trusted

## Description KFB



### Main Features

Spring applied safety brake
Electromechanically released
Protection-class IP67 – seawater protected
High wear reserve by multiple air gap adjustment
Small construction at high work capacity
High availability caused by high durability
Functional without cover
Emergency release screws

### Applications

Gantry, trolley and hoisting application
Dynamic and static use at general industrial applications
General engineering
Steel mills
Wind energy systems
Coal mining

### Certificates

ABS, Atex
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### Options

Special brake torque
Handlever
Micro or proximity switch: <ul style="list-style-type: none"><li>• Monitoring the function on/off</li><li>• Maximum air gap (wear-monitoring)</li></ul>
Lateral junction box
Tacho preparation with all mounting parts
Cover bore
Shaft sealing
Special voltage
Anti condensation heater
Radial cable outlet
Special flange

### Electrical equipment

One-way, bridge and switching rectifier
Protective element
Brake control unit = BCU 2001
Brake control and monitoring system = BCMS-4



#### Please Note

We supply a detailed operating manual with every order. Nevertheless, we would point out that brakes are only as safe as the servicing and maintenance performed while they are in operation. The guarantee for the correct functioning of our brakes is only valid if the user adheres to the German DIN standard 15434 part 2 (drum and disc brakes, servicing and maintenance in operation), or to comparable standards in his own country.



#### PINTSCH BUBENZER Service

This includes the verification of the brake selection, if required. A detailed questionnaire is provided for this purpose. Installation and commissioning on-site by PINTSCH BUBENZER service engineers is possible. Drawings as DWG/DXF files for your engineering department are available upon request.

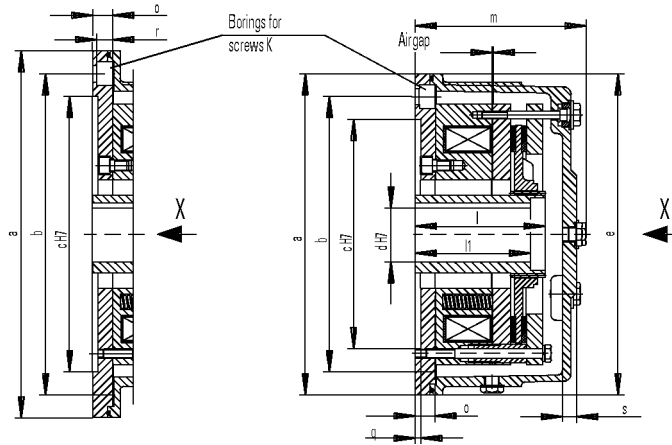
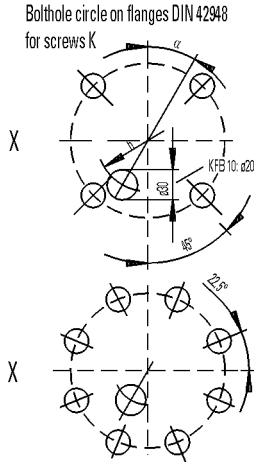


# Spring Set Brake KFB

Electromagnetic Two Disc, Spring Set Brake



Rev. 10-09



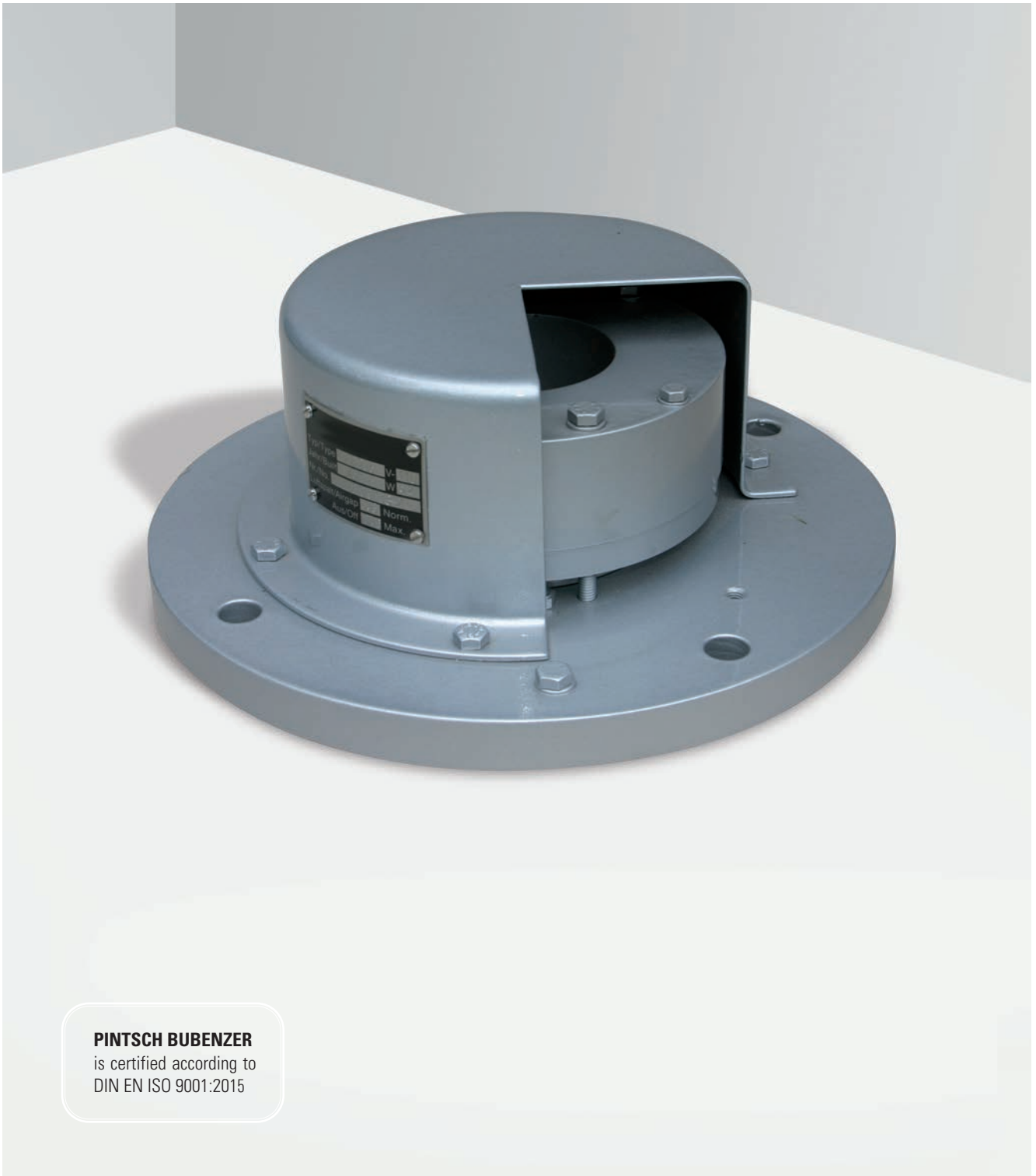
\* The larger dimension belongs to the larger assigned brake.

Alterations reserved without notice.

Brake size		KFB 5	KFB 10	KFB 16	KFB 25	KFB 30	KFB 40	KFB 63	KFB 100	KFB 160	
Brake torque M2 dynamic acc. to DIN VDE 0580	Nm	50	100	160	250	300	400	630	1000	1600	
Mass moment of inertia	kgm <sup>2</sup>	0.0010	0.0017	0.0037	0.0048	0.0055	0.0068	0.0175	0.036	0.050	
Mass (weight)	kg	13	19	28	42	50	55	74	106	168	
max. speed	min <sup>-1</sup>	6000	6000	6000	6000	6000	5500	4700	4000	3600	
Coil b. 20° C	Nominal voltage	V DC	110	110	110	110	110	110	110	110	
	Nominal power	W	79	93	128	158	133	196	220	307	
	Nominal current	A	0.72	0.84	1.16	1.44	1.2	1.78	2.0	2.79	
Air gap, OFF	norm. mm	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	
	max. mm	0.8	1.0	1.0	1.2	0.8	1.2	1.3	1.6	1.8	
Diameter mm	B-Side	d pilot bore	8	26	26	36	26	36	36	36	36
		d <sup>H7</sup> preferential bore	15	28	28	38	32	38	48	60	60
			20	32	32	42	38	42	55	65	65
			25	38	38	48	42	48	60	75	75
						55	45	55			
Length mm	e	160/200	200/250	253/303	300/350	250/300	303/350	350/400	400/450	450/550	
	f										
	h	93	106	144	194	144	194	214	264	314	
	l	110	110	96	117	137	117	142	148	155	
	l <sup>1</sup>	110	110	96	117	137	117	142	142	142	
	m	145	154	141	165	175	175	187	196	218	
	s	13	15	15	15	15	15	15	15	17	
A	α °	22.5	30	30	30	67.5	30	30	30	30	
Suitable standards flanges		A160	A200	A250	A300	A250	A300	A350	A400	A450	
		A200	A250	A300	A350	A300	A350	A400	A450	A550	
		Dimensions of standards flanges									
Size of standards flanges		A160	A200	A250	A300	A350	A400	A450	A550		
Diameter mm	a	160	200	250	300	350	400	450	550		
	b	130	165	215	265	300	350	400	500		
	c <sup>H7</sup>	110	130	180	230	250	300	350	450		
Length mm	o	18	18	18/20*	20/22*	22	22/24*	24/29*	24/29*		
	q	5	5	5	5	6	6	6	6		
	r	11	11	13	13	17.5	17.5	17.5	17.5		
Screws	k	4xM8	4xM10	4xM12	4xM12	4xM16	4xM16	8xM16	8xM16		



## Spring-Set Brake MFB



**PINTSCH BUBENZER**  
is certified according to  
DIN EN ISO 9001:2015



Reliable



High Performance



Robust



Easy Maintenance



Compact



Tried and Trusted

## Description MFB



### Main Features

Spring applied safety brake
Electromagnetic lifting
Protection-class IP56
Small construction at high work capacity
High wear reserve caused by high abrasion resistance
Manual lifting

### Applications

Predominant in static uses at shipbuilding industry as holding- or safety- brake
Industrial application with requirements of small dimensions at heavy duty applications

### Certificates

RMROS
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### Options

Cast iron cover (IP67)
Special voltage
Cover bore
Tacho preparation

### Electrical equipment

One-way, bridge and switching rectifier	
Protective element	
Brake control unit	= BCU 2001
Brake control and monitoring system	= BCMS-4



#### Please Note

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#### PINTSCH BUBENZER Service

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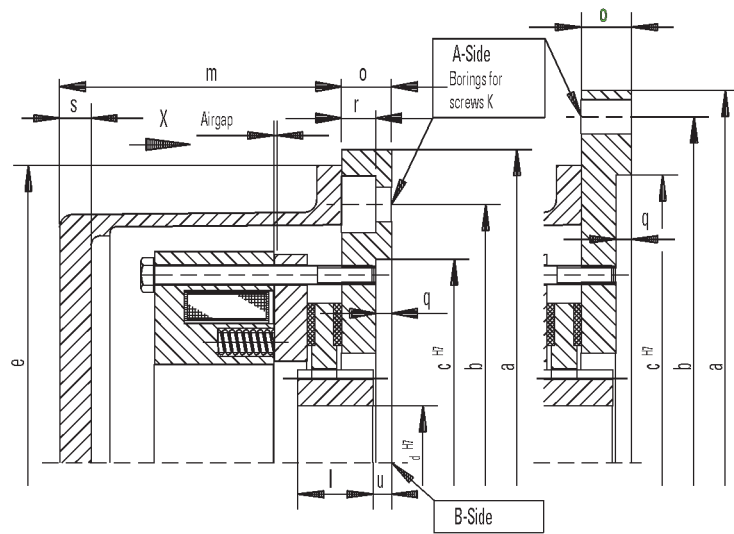
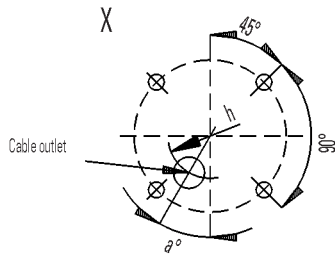
# Spring-Set Brake MFB

Electromagnetic Two-Disc Spring-Set Brake



Rev. 05-08

Arrangement of borings for screws K at the standard intermediate flange



Keyways for keys to DIN 6885 T1, width accuracy P9

Brake torque acc. to DIN VDE 0580  
Protection IP56

Alterations reserved without notice

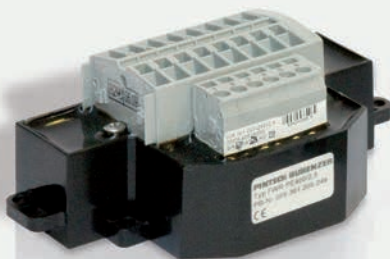
Brake size		MFB 1	MFB 2.5	MFB 5	MFB 10	MFB 16				
Brake torque	Nm	10	25	50	100	160				
Moment of inertia	kgm <sup>2</sup>	0.000145	0.0005	0.0012	0.0020	0.0048				
Mass (weight)	kg	9	10	15	21	24				
max. speed	min <sup>-1</sup>	5500	4500	4000	3500	3000				
Coil b. 20° C	Nominal voltage	V –	110	110	110	110				
	Nominal power	W	31	52	76	94	125			
	Nominal current	A	0.28	0.47	0.69	0.85	1.14			
Airgap, OFF	norm. mm	0.2	0.2	0.3	0-3	0.3				
	max. mm	0.5	0.6	0.8	0.8	1.1				
Diameter mm	B-Seite	d Rough boring	10	10	15	15	26			
		d <sup>H7</sup> Preferential boring		22	24	24	28			
			d <sup>H7</sup> maximal	22	35	45	55	60		
		e	190	190	238	260	300			
Length mm	l	20.5	24	26.5	30	40				
	m	81.5	81.5	101.5	111.5	102				
	s	1.5	1.5	1.5	1.5	1.5				
	u	8	6	6	6	6				
A	α°	15	15	15	15	15				
Suitable standard intermediate flange		A200	A200	A250-1	A300	A300-2				
		A250-2	A250	A300-1	A350	A350-1				
Dimensions of intermediate flanges										
Standard intermediate flange		A200	A250	A250-1	A250-2	A300	A300-1	A300-2	A350	A350-1
Diameter mm	a	200	250	250	250	300	300	300	350	350
	b	165	215	215	215	265	265	265	300	300
	c <sup>H7</sup>	130	180	180	180	230	230	230	250	250
	h	114	144	162	114	200	170	208	200	208
Length mm	o	16	18	18	18	18	18	18	20	22
	q	5	5	5	5	5	5	5	6	6
	r	11		13		13		13		17.5
	Screws k	4xM10	4xM12	4xM112	4xM12	4xM12	4xM12	4xM12	4xM16	4xM16



# Accessories



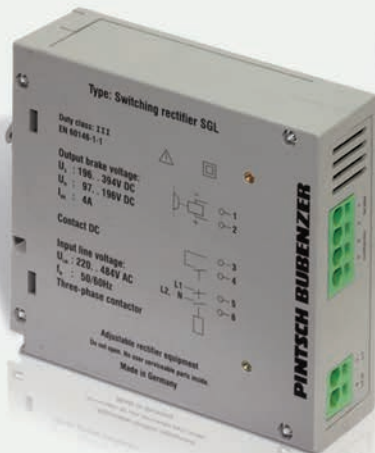
Brake rectifier  
FWR



Brake rectifier  
HWR



Protective element  
PE-400/150/5



Switching rectifier  
SGL

Brake rectifier  
BGL+EGL

**PINTSCH BUBENZER**  
is certified according to  
DIN EN ISO 9001:2015



Reliable



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Tried and Trusted



## Description Accessories



### Main Features

EMC compatibility
Top-hat rail mounted
Combinable with Brake Control Unit BCU2001
Integrated protective element
Integrated spark quench element

### Specific Features for the rectifiers BGL and EGL

Prepared for switching AC and DC circuits simultaneously
Installation in cabinet

### Specific Features for the protective element PE 400/150/5

To be connected parallel to the output of the rectifiers BGL, EGL and SGL to increase the interruption capacity
---

### Specific Features for the rectifiers FWR and HWR

Prepared for switching AC and DC circuits simultaneously
Installation in junction box

### Specific Features of the switching rectifier SGL

Prepared for switching AC and DC circuits simultaneously
Switches from bridge rectification to half-wave rectification
Four time settings 0,5 s, 1 s, 1,5 s, 2 s adjustable
Applying brakes at elevated temperatures
Accelerated brake release (Overexcitation with AC power supply voltage = 2 x DC coil voltage)
Accelerated brake effect (Standard excitation with AC power supply voltage = DC coil voltage)



#### Please Note

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#### PINTSCH BUBENZER Service

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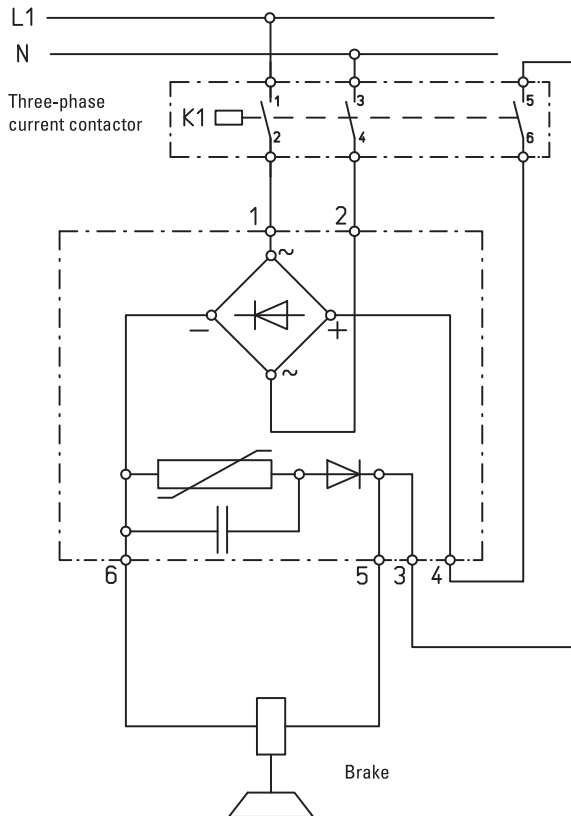
# BGL-PE400/150/3 - EGL-PE400/150/5

Principal circuit diagram

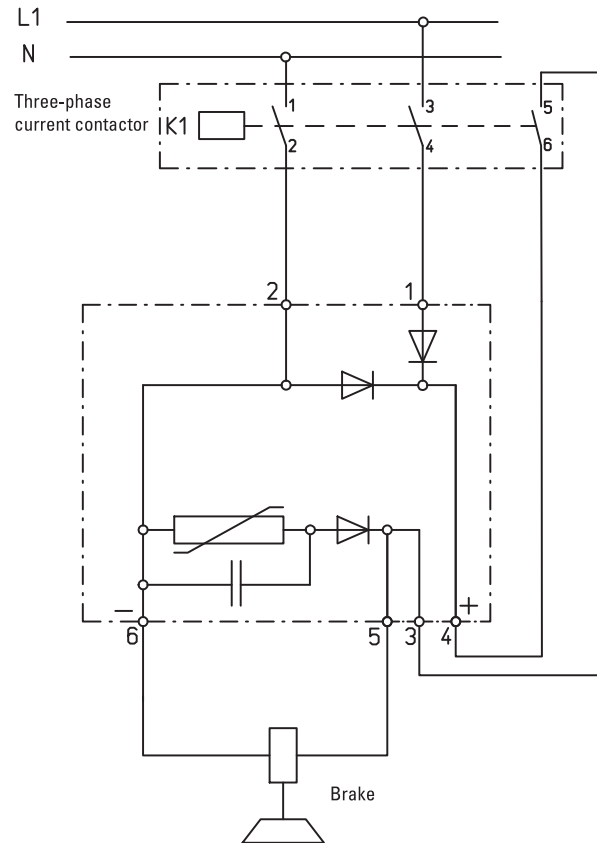


Rev. 03-09

Bridge rectification with module BGL



Half-wave rectification with module EGL



## Technical data

### Brake rectifier BGL-PE400/150/3

AC line voltage:	AC 460V; 50/60 Hz
Permissible rated coil voltages:	DC 24V...390V
Maximum brake current:	2,5A
Maximum continuous output of the internal protective circuit:	3W
Disconnection peak at maximum coil current:	≤450V
Ambient temperature:	-40° C ... +50° C
Protection class:	IP 20

### Brake rectifier EGL-PE400/150/5

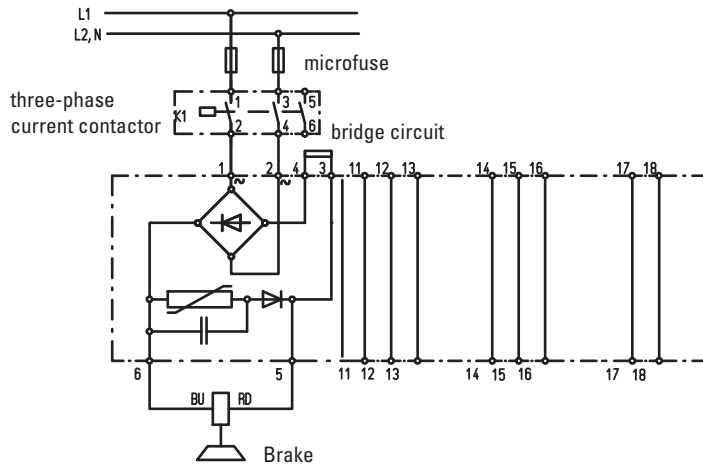
AC line voltage:	AC 460V; 50/60 Hz
Permissible rated coil voltages:	DC 24V...220V
Maximum brake current:	5A
Maximum continuous output of the internal protective circuit:	5W
Disconnection peak at maximum coil current:	≤450V
Ambient temperature:	-40° C ... +50° C
Protection class:	IP 20

# Full wave rectifier FWR-PE400/150/3

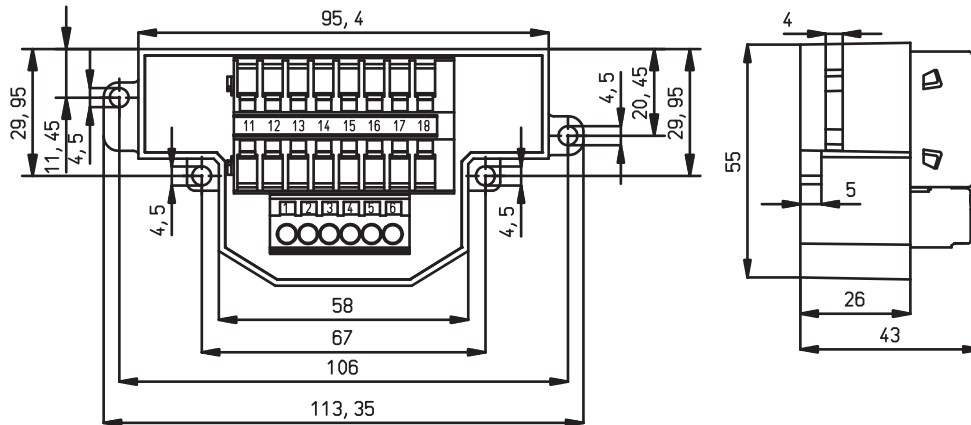
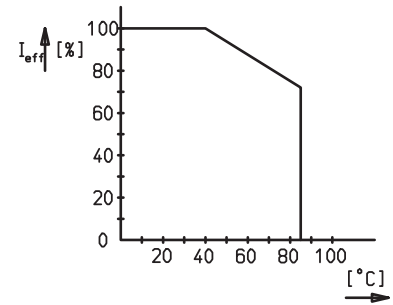
Principal circuit diagram



Rev. 10-10



load diagram



## Technical data

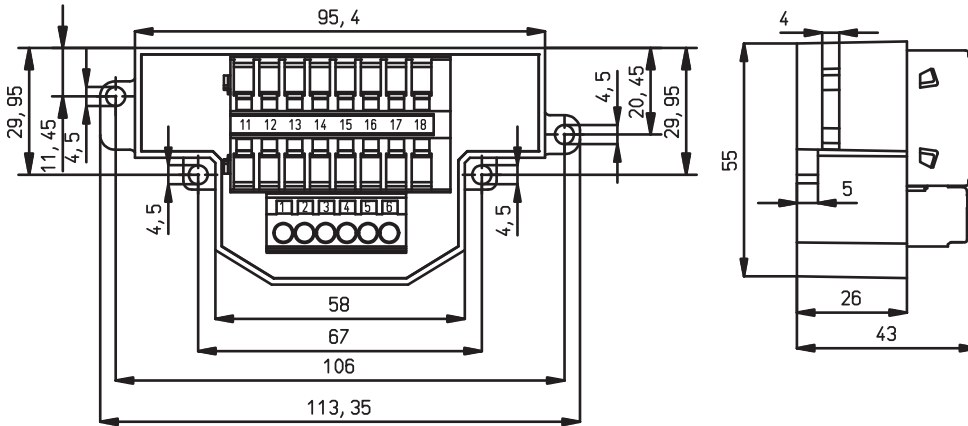
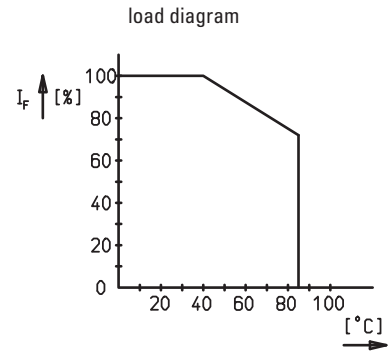
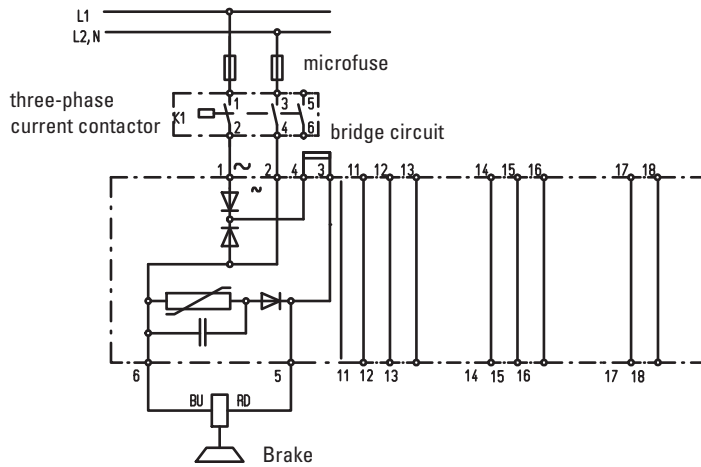
Coil voltage of the connected brake	DC 24V ... 390V
Max. voltage of supplying alternating current network	AC 460V - 50/60 Hz
Max. Output current $I_{eff}$ at $T_A = < 50^\circ\text{C}$	2,5 A
Max. Output current $I_{eff}$ at max. $T_A$ $85^\circ\text{C}$	1,8 A
Protection fuse in the AC input voltage line to the rectifier (In the selection of fuse is permissible on the $I^2 t$ limit load integral to eight)	FF 4A microfuse switching capacity H
Permitted limit integral $I^2 t$	700A <sup>2</sup> s (t < 10ms)
Max. energy absorption of a shut-off	150 J
Max. continuous power of the internal protective circuit (average value)	3W
Shut-off peak at max. coil current	< 450V
Ambiente temperature $T_A$	-40° C ... +85° C
Permissible cross section of connection wire	0,2 ... 2,5 mm AWG 24 ... 14
Weight	0,3 kg
Protection class	IP 65 components seal / IP20 terminals
Mark of conformity	CE / RoHS conform

# Full wave rectifier HWR-PE400/150/5

Principal circuit diagram



Rev. 10-10



## Technical data

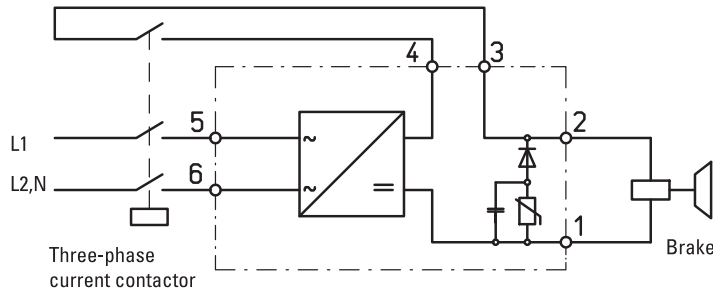
Coil voltage of the connected brake	DC 24V ... 240V
Max. voltage of supplying alternating current network	AC 550V - 50/60 Hz
Max. Output current $I_{eff}$ at $T_A = < 50^\circ\text{C}$	5 A
Max. Output current $I_{eff}$ at max. $T_A$ 85°C	3,6 A
Protection fuse in the AC input voltage line to the rectifier (In the selection of fuse is permissible on the $I^2 t$ limit load integral to eight)	FF 4A microfuse switching capacity H
Permitted limit integral $I^2 t$	700A <sup>2</sup> s (t <10ms)
Max. energy absorption of a shut-off	150 J
Max. continuous power of the internal protective circuit (average value)	5W
Shut-off peak at max. coil current	< 450V
Ambiente temperature $T_A$	-40° C ... +85° C
Permissible cross section of connection wire	0,2 ... 2,5 mm AWG 24 ... 14
Weight	0,3 kg
Protection class	IP 65 components seal / IP20 terminals
Mark of conformity	CE / RoHS conform

# Switching rectifier SGL

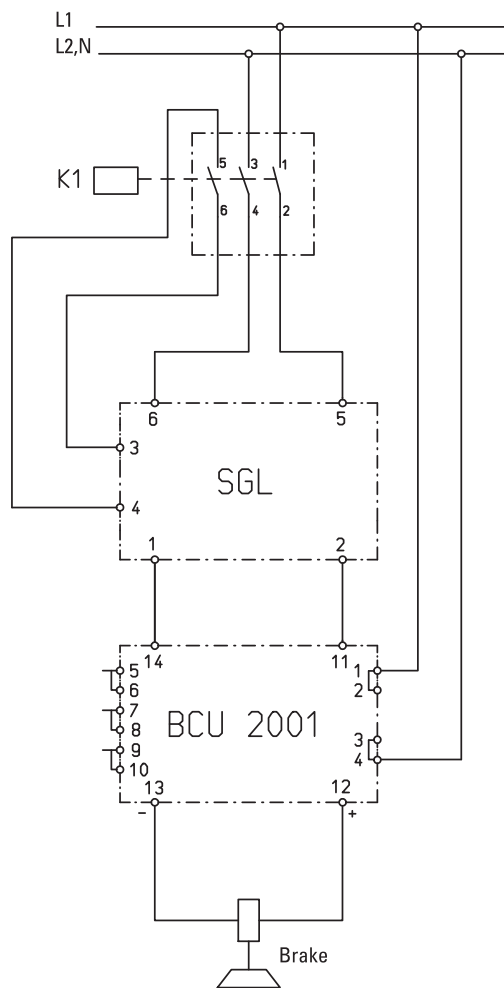
Principal circuit diagram



Rev. 03-09



Switching rectification with module SGL



Switching rectification with module SGL combined with the Brake Control Unit BCU2001

## Technical data

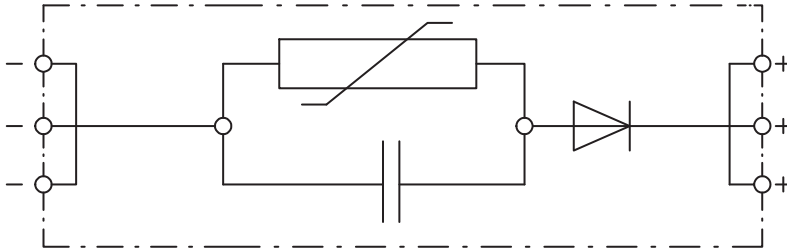
AC line voltage:	AC 220V...484V; 50/60 Hz
Maximum brake current for 2 s:	8A
Maximum continuous output of the internal protective circuit:	5 W
Permanent brake current:	4A
Time settings by DIP switch:	0,5 s, 1 s, 1,5 s, 2,0 s
Ambient temperature:	-40° C ... +50° C
Protection class:	IP 20

# Protective element PE-400/150/5

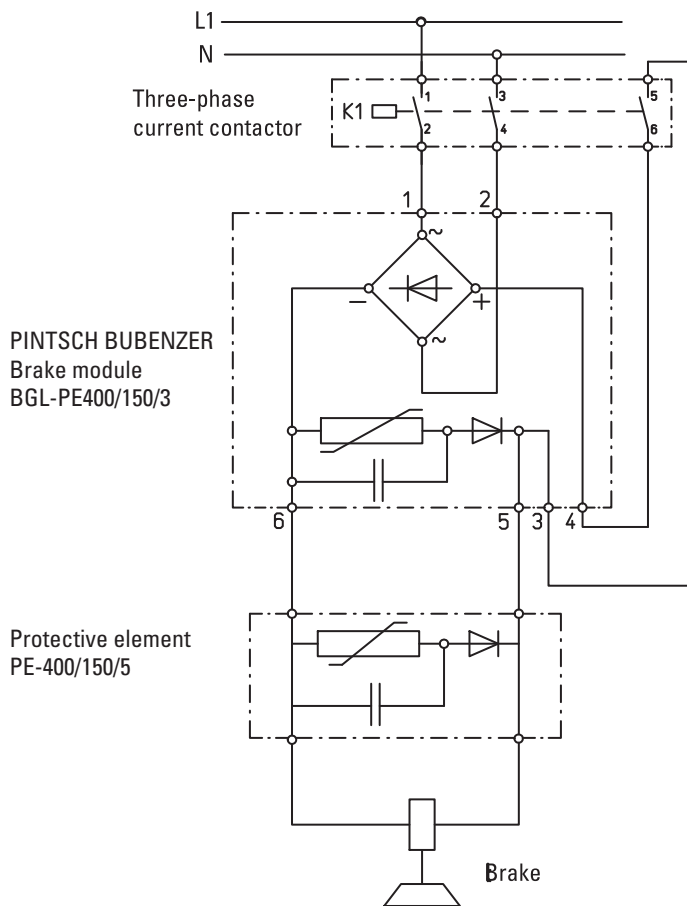
Principal circuit diagram



Rev. 03-09



Protective element  
PE-400/150/5



Bridge rectification with  
module BGL combined  
with the protective element  
PE-400/150/5

## Technical data

Maximum brake voltage:	DC 400V
Maximum brake current:	5A
Maximum continuous output of the internal protective circuit:	5W
Disconnection peak at maximum coil current:	≤ 450V
Ambient temperature:	-40° C ... +50° C
Protection class:	IP 20





# Brake Control Unit BCU2001



**PINTSCH BUBENZER**  
is certified according to  
DIN EN ISO 9001:2015



Reliable



High Performance



Robust



Easy Maintenance



Compact



Tried and Trusted

# Description Brake Control Unit BCU2001



## Main Features

EMC compatibility
Maximum air gap (wear) indication by LED
Maximum air gap indication by relay contact
Function on/off indication by LED
Function on/off indication by relay contact
No sensors on the brake
No sensor wiring to the brake
Perfect retrofit equipment
Directly connectable with PLC systems
AC and DC auxiliary power supplies applicable
Top-hat rail mounted

## Applications

Container cranes
Ship winches
Automatic racking systems
Conveyor belts
General electrical drives

## Options

Combinable with the switching rectifier SGL in overexcitation mode
Combinable with bridge rectifier BGL-PE400/150/3
Combinable with half-wave rectifier EGL-PE400/150/3

## Method

The Brake Control Unit BCU 2001 records characteristic current and voltage variations, which are induced by movements of the armature disk in the magnetic field of the brake coil. In an interference free and reliable manner it evaluates the signal levels in terms of the control state (applied or released) and the maximum air gap (maximum wear)

## Important requirements

AC and DC circuit to be switched simultaneously
AC circuit may not be switched alone



### Please Note

We supply a detailed operating manual with every order. Nevertheless, we would point out that brakes are only as safe as the servicing and maintenance performed while they are in operation. The guarantee for the correct functioning of our brakes is only valid if the user adheres to the German DIN standard 15434 part 2 (drum and disc brakes, servicing and maintenance in operation), or to comparable standards in his own country.



### PINTSCH BUBENZER Service

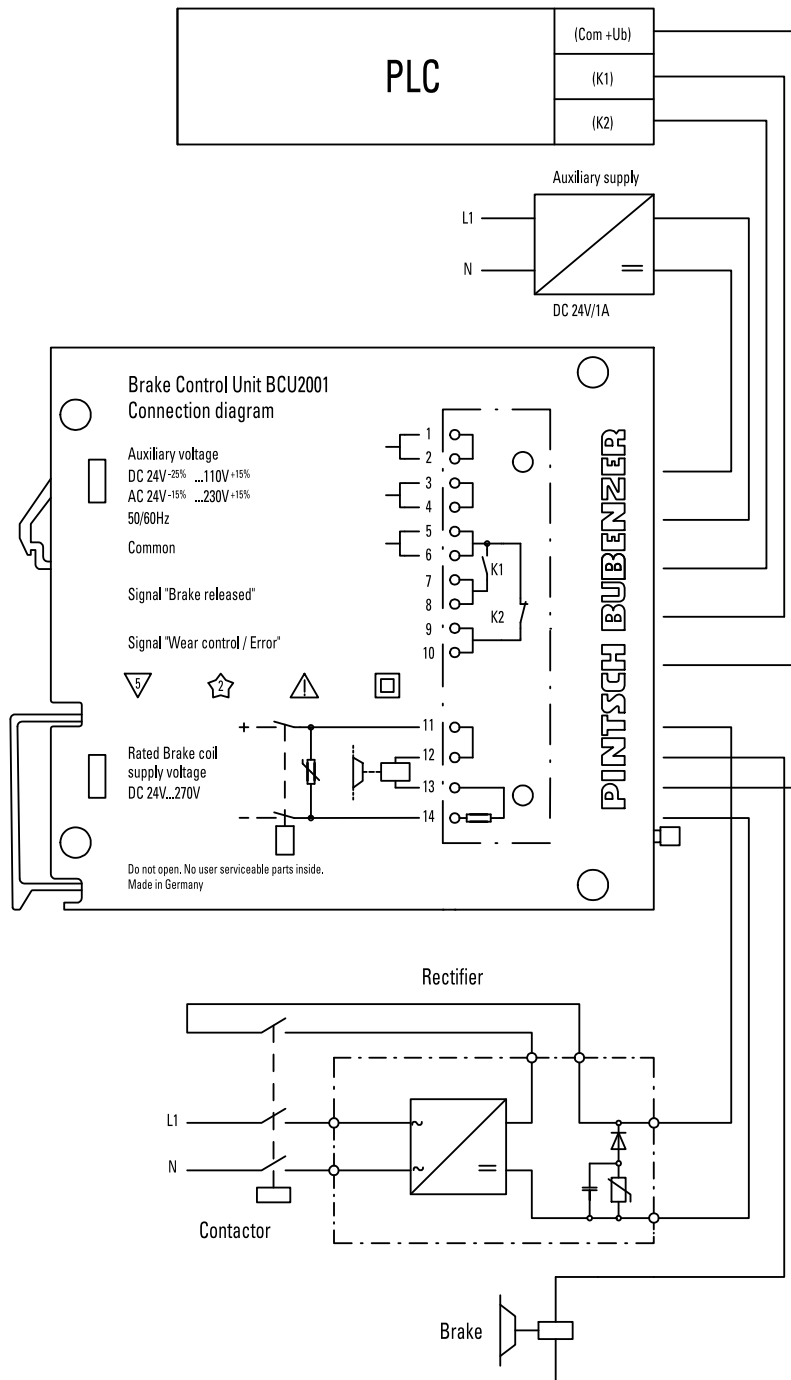
This includes the verification of the brake selection, if required. A detailed questionnaire is provided for this purpose. Installation and commissioning on-site by PINTSCH BUBENZER service engineers is possible. Drawings as DWG/DXF files for your engineering department are available upon request.

# Brake Control Unit BCU2001

Principal circuit diagram



Rev. 03-09



## Technical data

Permissible coil voltages:	DC 24V ... 396V
Ambient temperature:	-40° C ... +50° C
Protection class:	IP 20
Permissible auxiliary power supplies:	AC 24 V -15% ... AC 230 V +15% DC 24 V -25% ... DC 110 V +15%



# Brake Control Unit BCMS-4



**PINTSCH BUBENZER**  
is certified according to  
DIN EN ISO 9001:2015



Reliable



High Performance



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Compact



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# Description Brake Control Unit BCMS-4



## Main Features

■	Plug and play – minimal configuration and implementation effort
■	No micro- or proximity switches required for the brake (much lower amount of wiring)
■	Components such as contactors, power rectifier, suppressor to be omitted (space and cost savings)
■	Through the use of plug-in terminals a prior installation of the connecting cables is possible (saves time)
■	Normal maintenance intervals are not required on our brakes (extreme reduction of maintenance costs)
■	Due to the 4-channel version up to four spring-loaded brakes can be operated simultaneously
■	Certified safety through professional association
■	In conjunction with a superior safety PLC operation by security classification DIN EN ISO 13849-1 PL d, Cat 3 is possible
■	Internal 2-channel safety logic in redundant design
■	Providing I / O diagnostic outputs for integration into PLC
■	Quick releasing and closing of the brakes
■	Overcurrent trip to protect the brakes
■	Wire break recognition
■	Minimize the power dissipation of the brakes by regulation the holding current
■	Internal menu structure

■	Representation of the status wear
■	User interface RS 232 for connection and intervention in the menu structure
■	Manual operation of the menu structure
■	The operating status and diagnostic messages are be visualized and displayed at the unit itself
■	Optimization of the wear allowance
■	„One solution, one source“

## Applications

■	Container cranes
■	Ship winches
■	Automatic racking systems
■	Conveyor belts
■	General electrical drives

## Method

The BCMS-4 is a micro-controller-based monitoring and switching device for spring applied brakes of the SFB and KFB series. Through measurement and analysis of current and voltage of the outgoing two-wire lines of the individual brakes wear and switching state of each electromagnetic spring-applied brake can be detected in some distant mounting position. There can be up to four brakes operated and evaluated simultaneously. The operation of the brakes is fundamentally with rapid releasing and closing of the brakes.



### Please Note

We supply a detailed operating manual with every order. Nevertheless, we would point out that brakes are only as safe as the servicing and maintenance performed while they are in operation. The guarantee for the correct functioning of our brakes is only valid if the user adheres to the German DIN standard 15434 part 2 (drum and disc brakes, servicing and maintenance in operation), or to comparable standards in his own country.



### PINTSCH BUBENZER Service

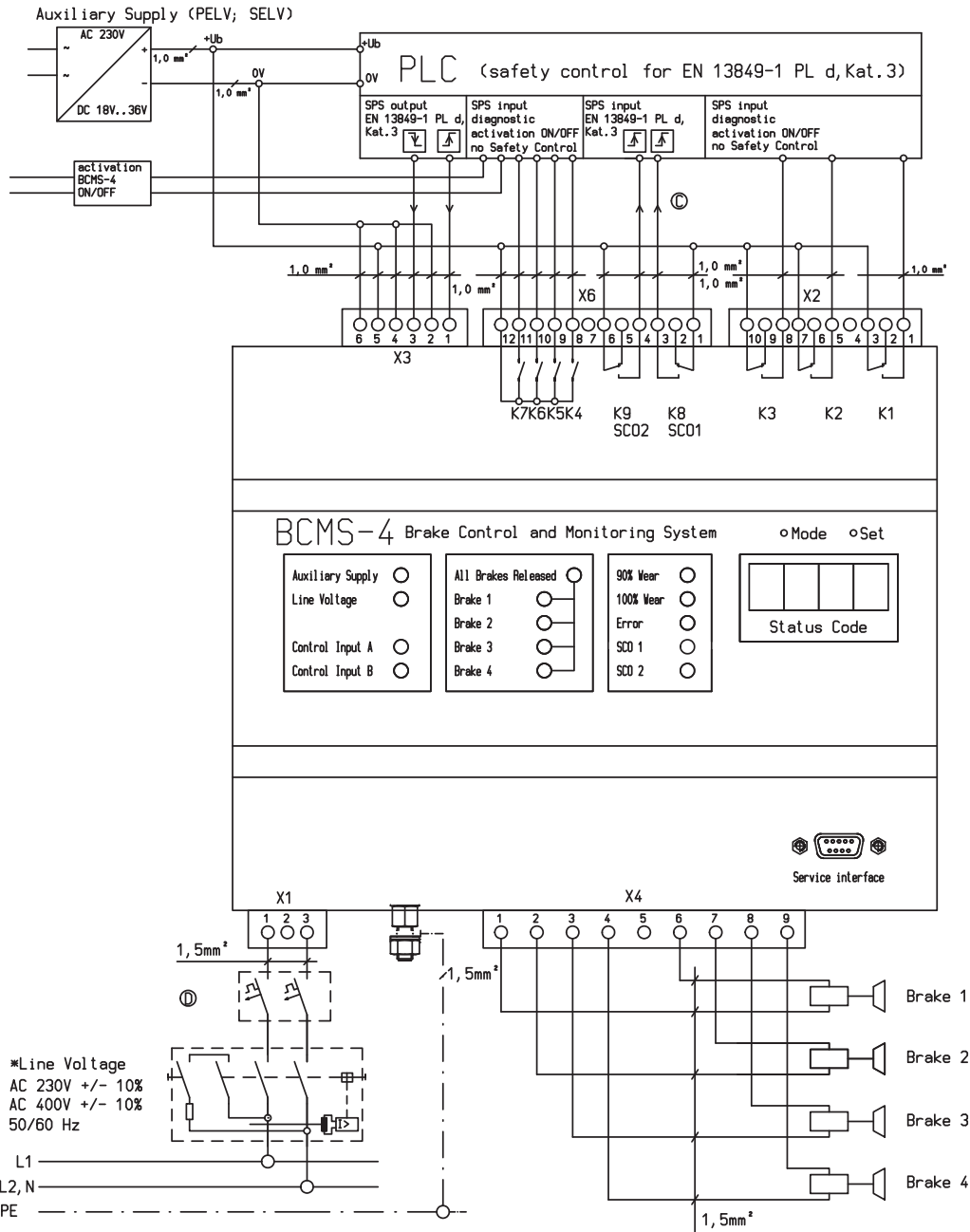
This includes the verification of the brake selection, if required. A detailed questionnaire is provided for this purpose. Installation and commissioning on-site by PINTSCH BUBENZER service engineers is possible. Drawings as DWG/DXF files for your engineering department are available upon request.

# Brake Control Unit BCMS-4

Principal circuit diagram



Rev. 11-11



## Technical data

Permissible auxiliary power supplies:	AC 230V +/- 10%; 50/60 Hz AC 400V +/- 10%; 50/60 Hz
Ambient temperature:	-30°C .... +50°C
Protection class:	IP 20
Permissible coil voltages:	110 V DC and 207 V DC
security rating:	DIN EN ISO 13849-1 PL d, Cat 3
PFHD:	1.16 <sup>-7</sup>





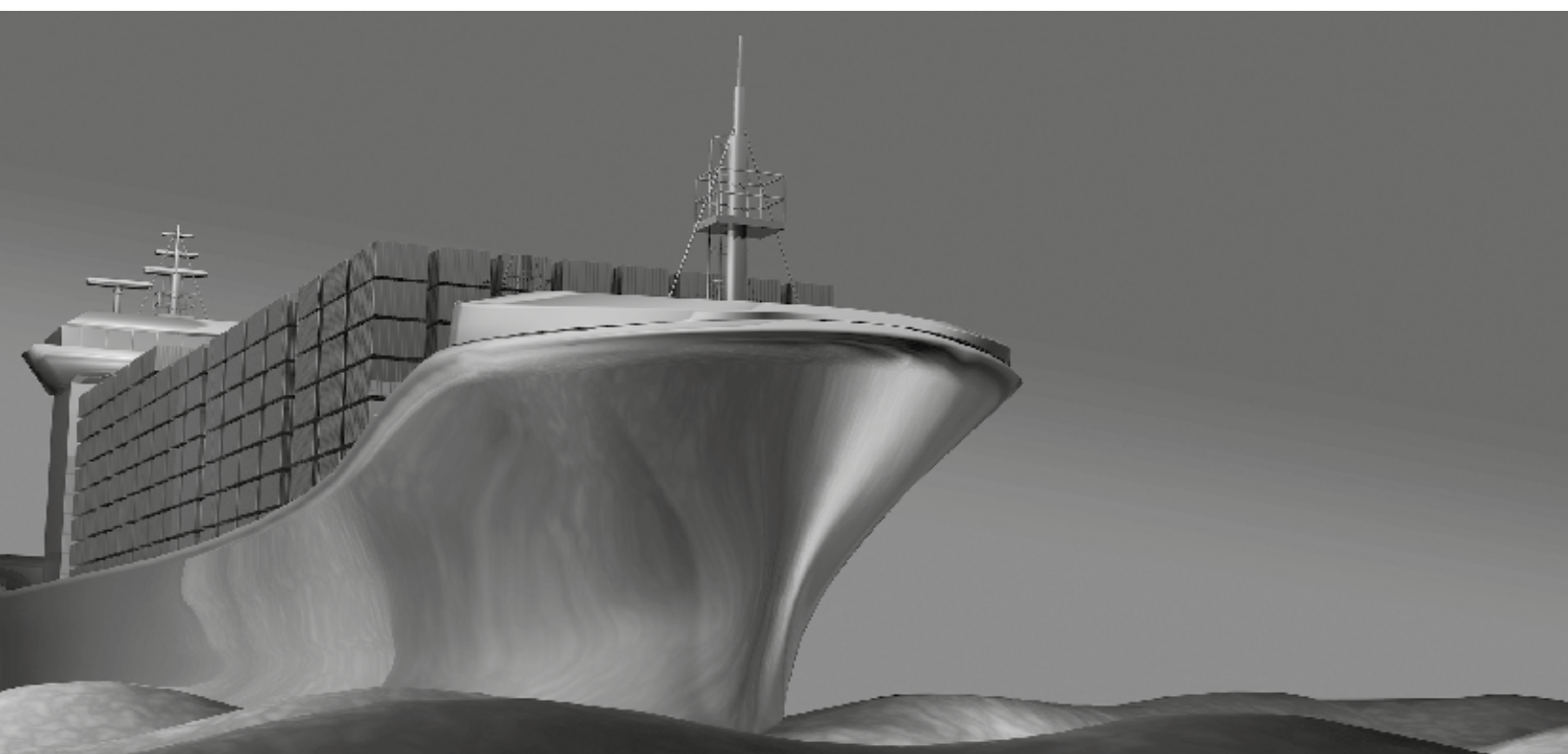




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3rd edition

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