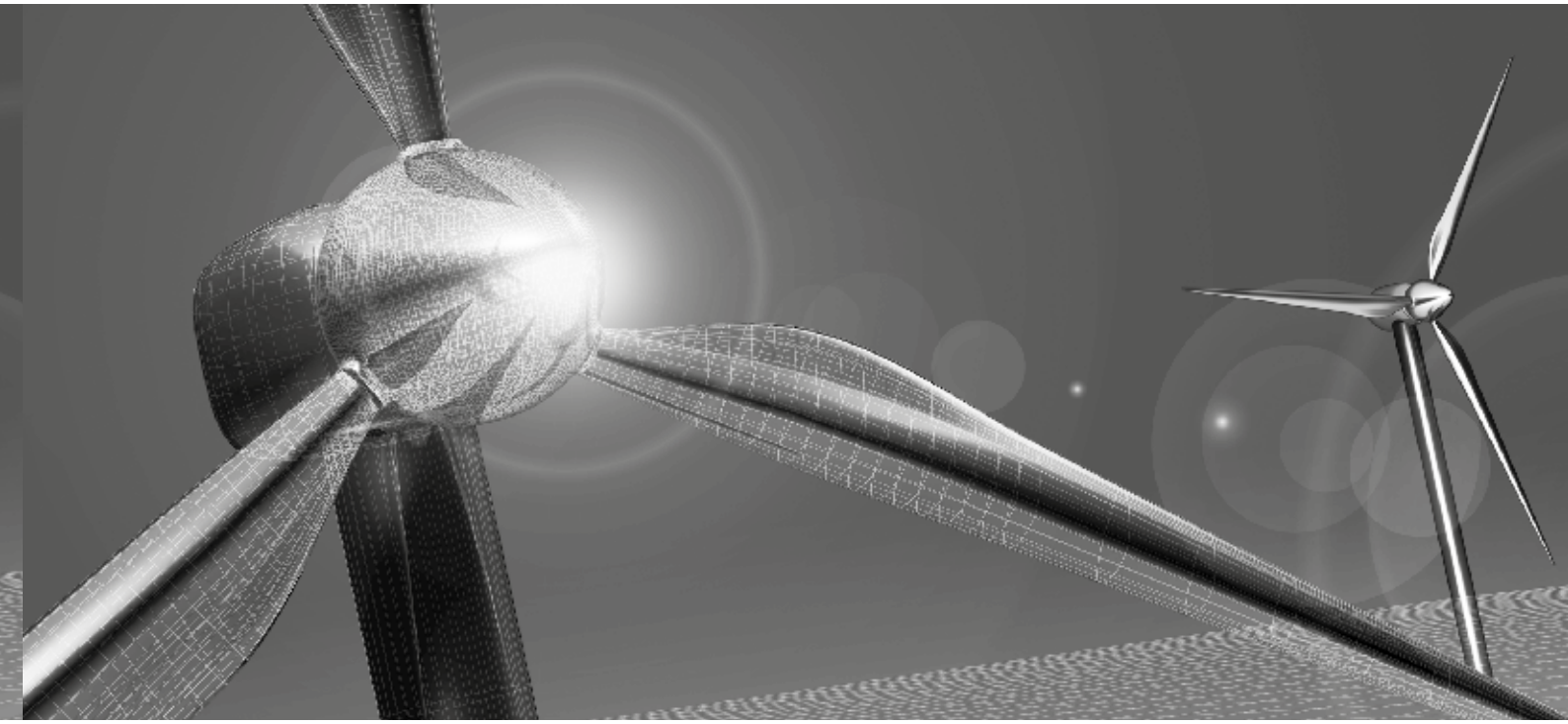
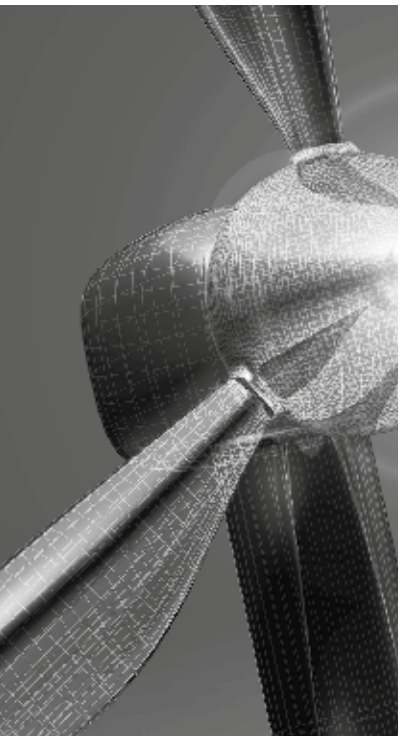


PINTSCH BUBENZER

WIND POWER

BRAKING UNLIMITED

Made in Germany



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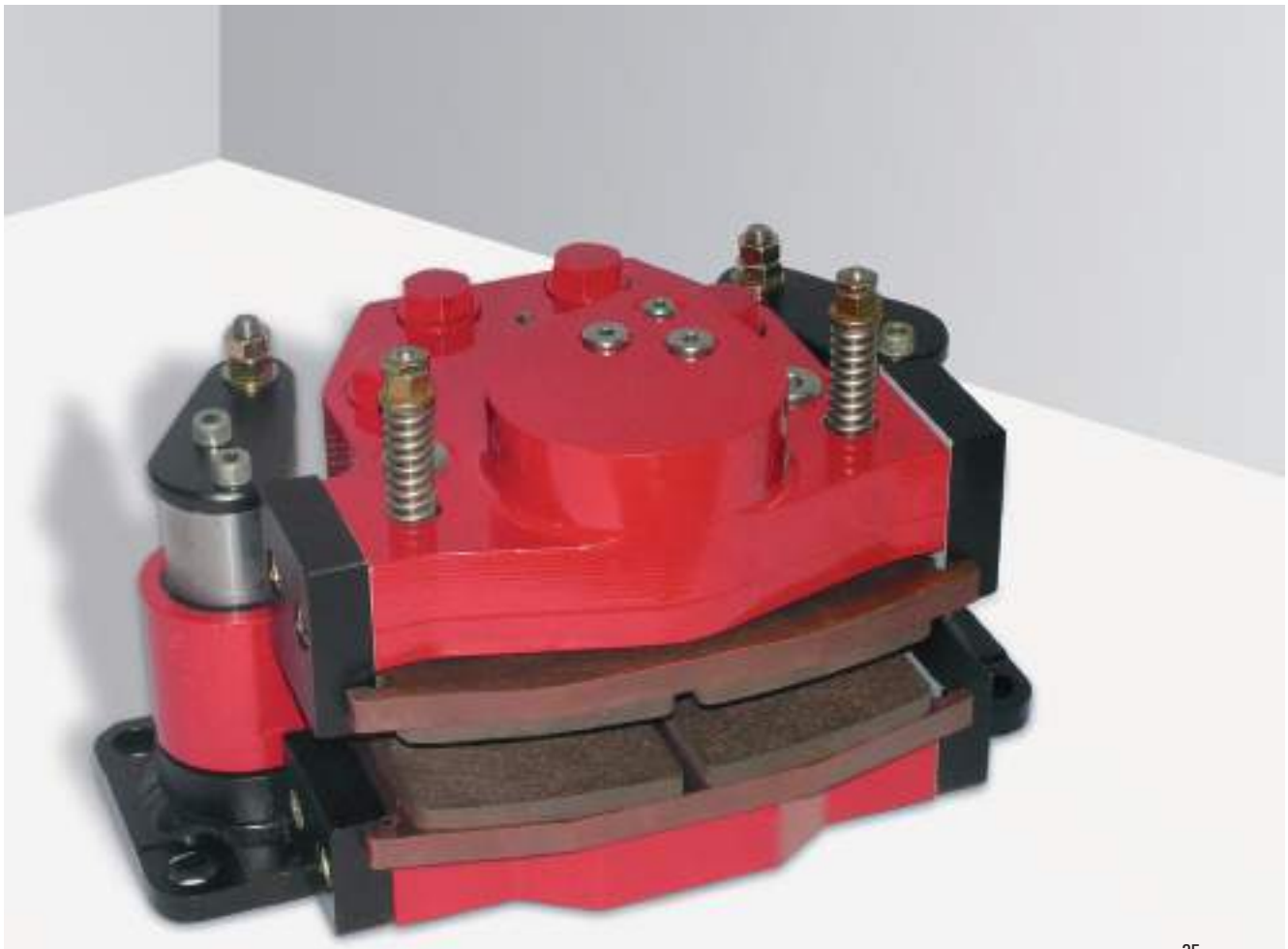
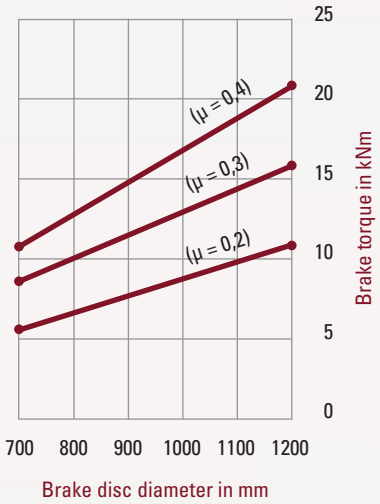
Content

Rotor Brake (active)

Hydraulic Caliper Disc Brakes SFRA 5





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

Reliable

High Performance

Robust Design

Easy Maintenance

Description SFRA 5

Main Features

- **Active** caliper brake, ready to operate, hydraulically applied, spring retracted
- **No** failsafe function!
- **Sintered linings**
- Horizontal compensation +- 5 mm
- Support for direct gear box mounting

Applications

- The high capacity of these brakes makes them particularly suitable as rotor brakes in wind turbines
- Use of the brakes for applications with high duty cycles should be specifically indicated during technical selection procedure

Options

- Limit switch release control
- Limit switch wear control
- Hydraulic power units
- Brake discs and couplings
- Seals for special fluids
- **Sensors** for **remote monitoring** and diagnostic, like e.g. temperature-, wear- and release gap monitoring
- Rotor locking pin
- Temperature sensor

Operating Restrictions

- Brakes of this range are tested both mechanically and hydraulically. 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 therefore 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.

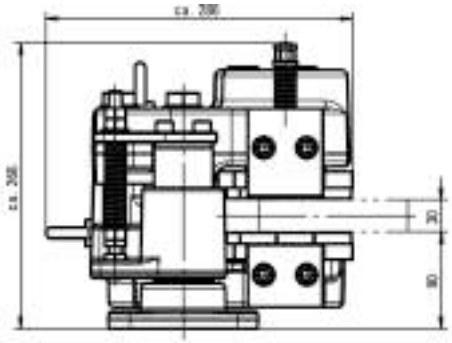
PINTSCH BUBENZER Service

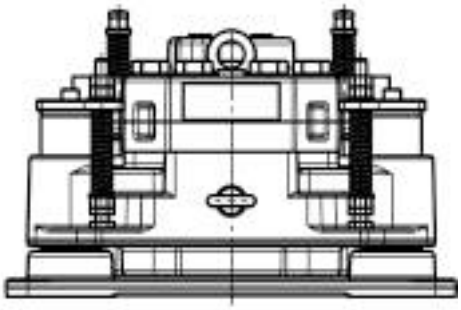
This includes the verification of the brake selection, if required. A detailed questionnaire is provided for this purpose. Installation and commissioning on site is possible by PINTSCH BUBENZER service engineers. Drawings as DWG/DXF files for your engineering department are available upon request.

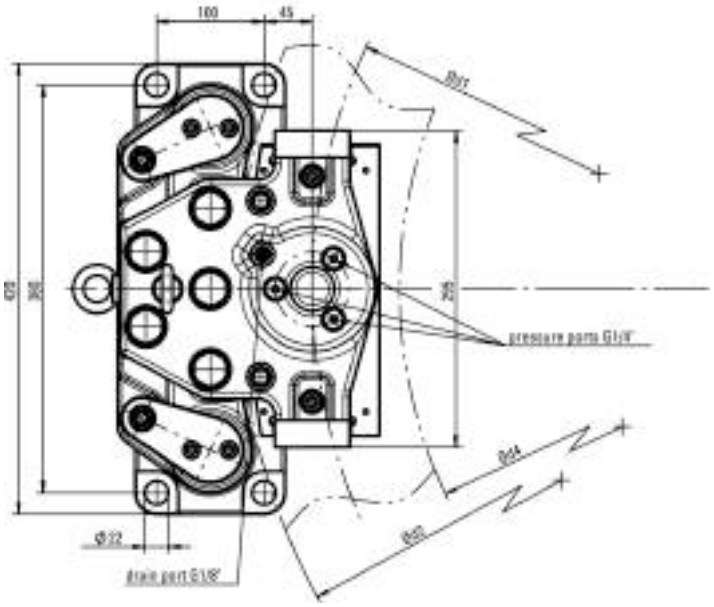
Rotor Brake (active) SFRA5

Dimensions and technical data

Rev. 05-10







Type SFRA 5		
Contact Force F_A	kN	50
Operating Pressure p	bar	115
Max. Pressure p_{max}	bar	122
Air gap (each side)	mm	1
Oil Volume - 1 mm Stroke	l	0.005
Piston Area	cm^2	44
Temperature Range*	°C	-20 to +70
Weight	kg	ca. 78

Brake Pad		
Pad Area (each side)	cm^2	200
Brake Pad Width	mm	125
Theor. Friction Coefficient **	μ	0,2... 0,3... 0,4

Brake Disc		
Brake Disc Ø d2	mm	700...1200
Friction Ø d1	mm	d2 - 137
Max. perm. Hub Ø d4	mm	d2 - 300
Disc Thickness (Standard)	mm	30

Brake torque M_{Br} in Nm = F_A (kN) x μ x d_1 (mm)

*) For lower temperatures please contact us

**) Average friction factor of standard material combination, dependent of the operational conditions

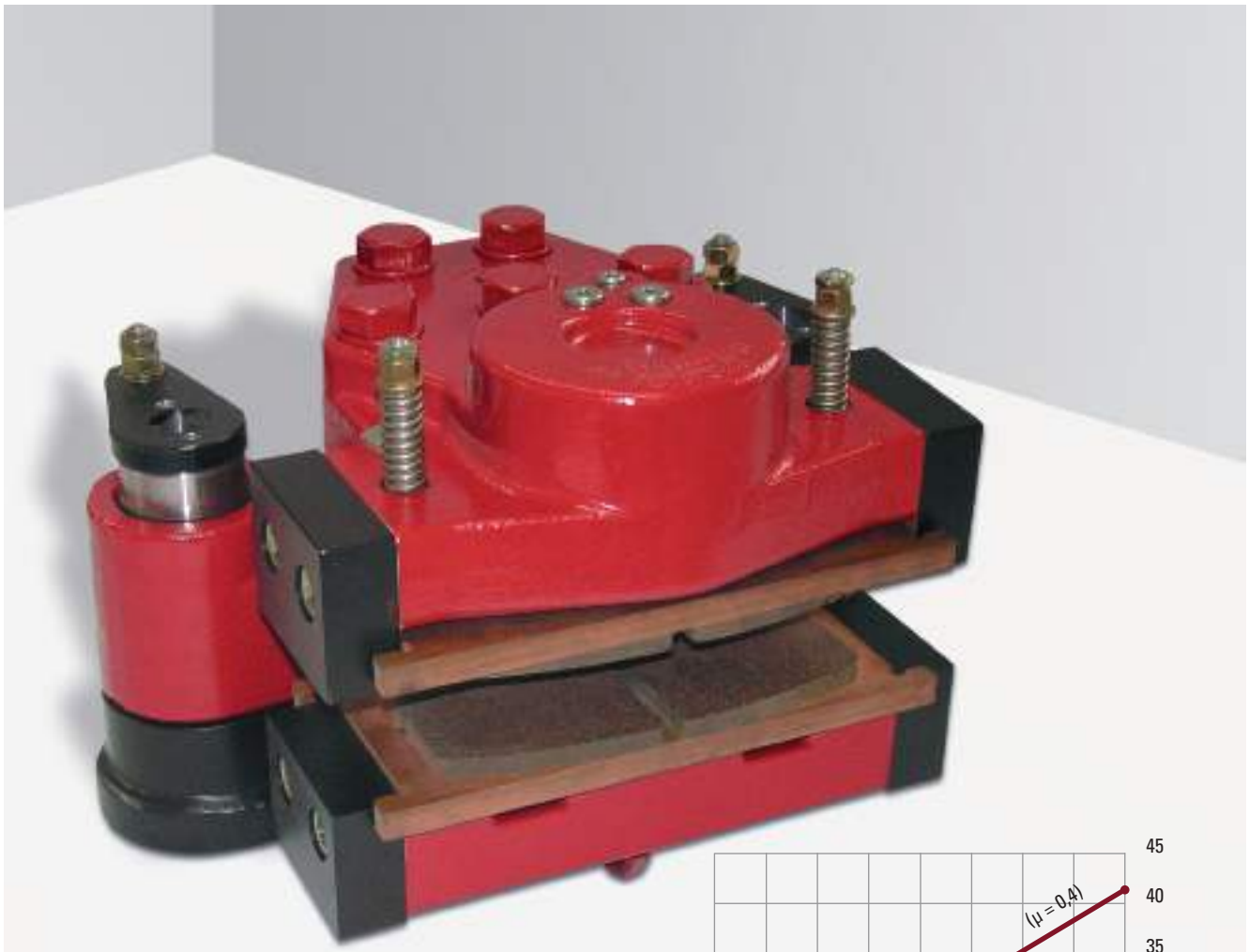
All dimensions in mm

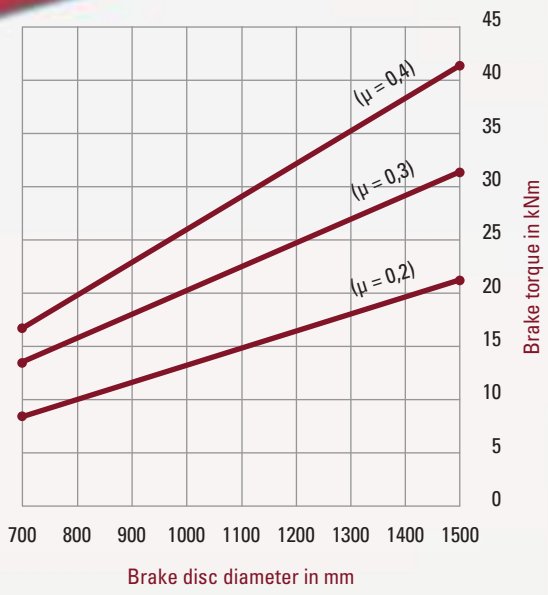
Alterations reserved without notice

Notes

Rotor Brake (active)

Hydraulic Caliper Disc Brakes SFRA 8





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DIN EN ISO 9001:2015

Reliable

High Performance

Robust Design

Easy Maintenance

Description SFRA 8

Main Features

- **Active** caliper brake, ready to operate, hydraulically applied, spring retracted
- **No** failsafe function!
- **Sintered linings**
- Horizontal compensation +- 5 mm
- Support for direct gear box mounting

Applications

- The high capacity of these brakes makes them particularly suitable as rotor brakes in wind turbines
- Use of the brakes for applications with high duty cycles should be specifically indicated during technical selection procedure

Options

- Limit switch release control
- Limit switch wear control
- Hydraulic power units
- Brake discs and couplings
- Seals for special fluids
- **Sensors** for **remote monitoring** and diagnostic, like e.g. temperature-, wear- and release gap monitoring
- Rotor locking pin
- Temperature sensor

Operating Restrictions

- Brakes of this range are tested both mechanically and hydraulically. 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 therefore 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

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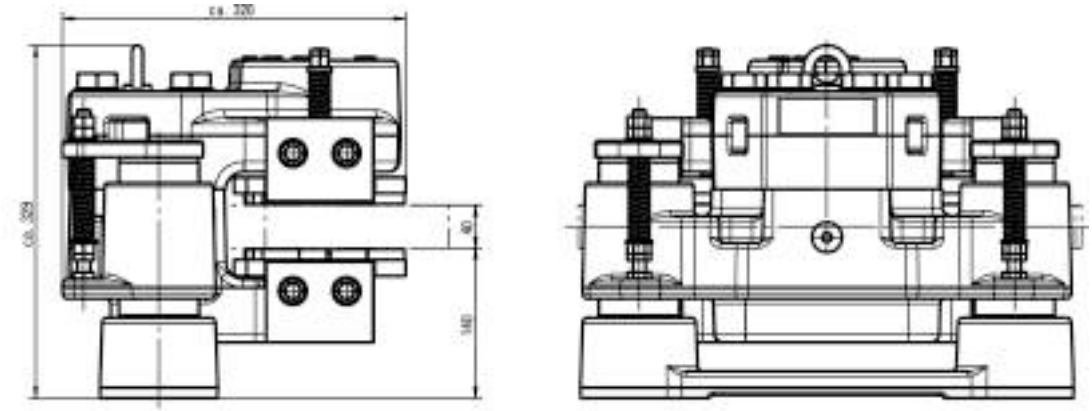
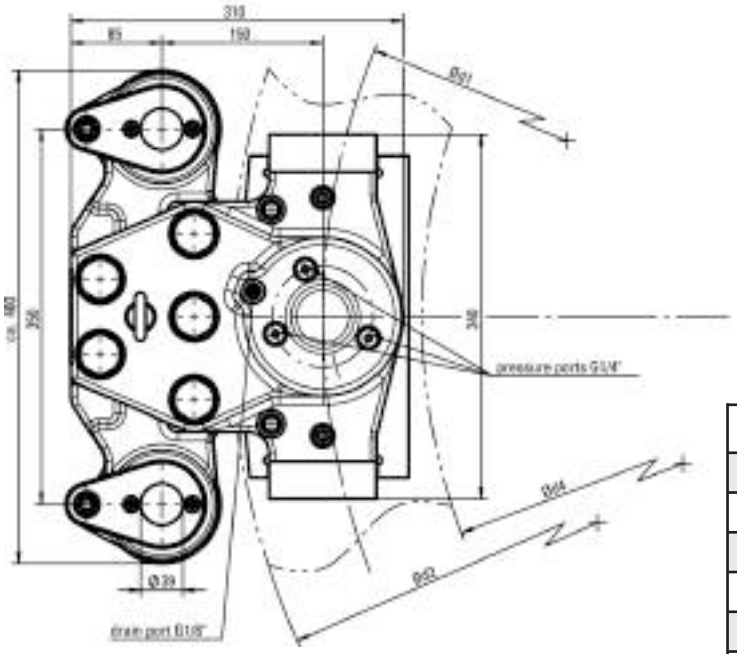
Rotor Brake (active) SFRA 8

Dimensions and technical data

Rev. 05-10





Type SFRA 8		
Contact Force F_A	kN	80
Operating Pressure p	bar	100
Max. Pressure p_{max}	bar	108
Air gap (each side)	mm	1
Oil Volume - 1 mm Stroke	l	0.008
Piston Area	cm^2	79
Temperature Range*	°C	-20 to +70
Weight	kg	ca. 130

Brake Pad		
Pad Area (each side)	cm^2	263
Brake Pad Width	mm	160
Theor. Friction Coefficient **	μ	0,2... 0,3... 0,4

Brake torque M_{Br} in Nm = F_A (kN) x μ x d_1 (mm)

Brake Disc		
Brake Disc Ø d2	mm	700...1500
Friction Ø d1	mm	d2 - 175
Max. perm. Hub Ø d4	mm	d2 - 360
Disc Thickness (Standard)	mm	40

*) For lower temperatures please contact us

**) Average friction factor of standard material combination, dependent of the operational conditions

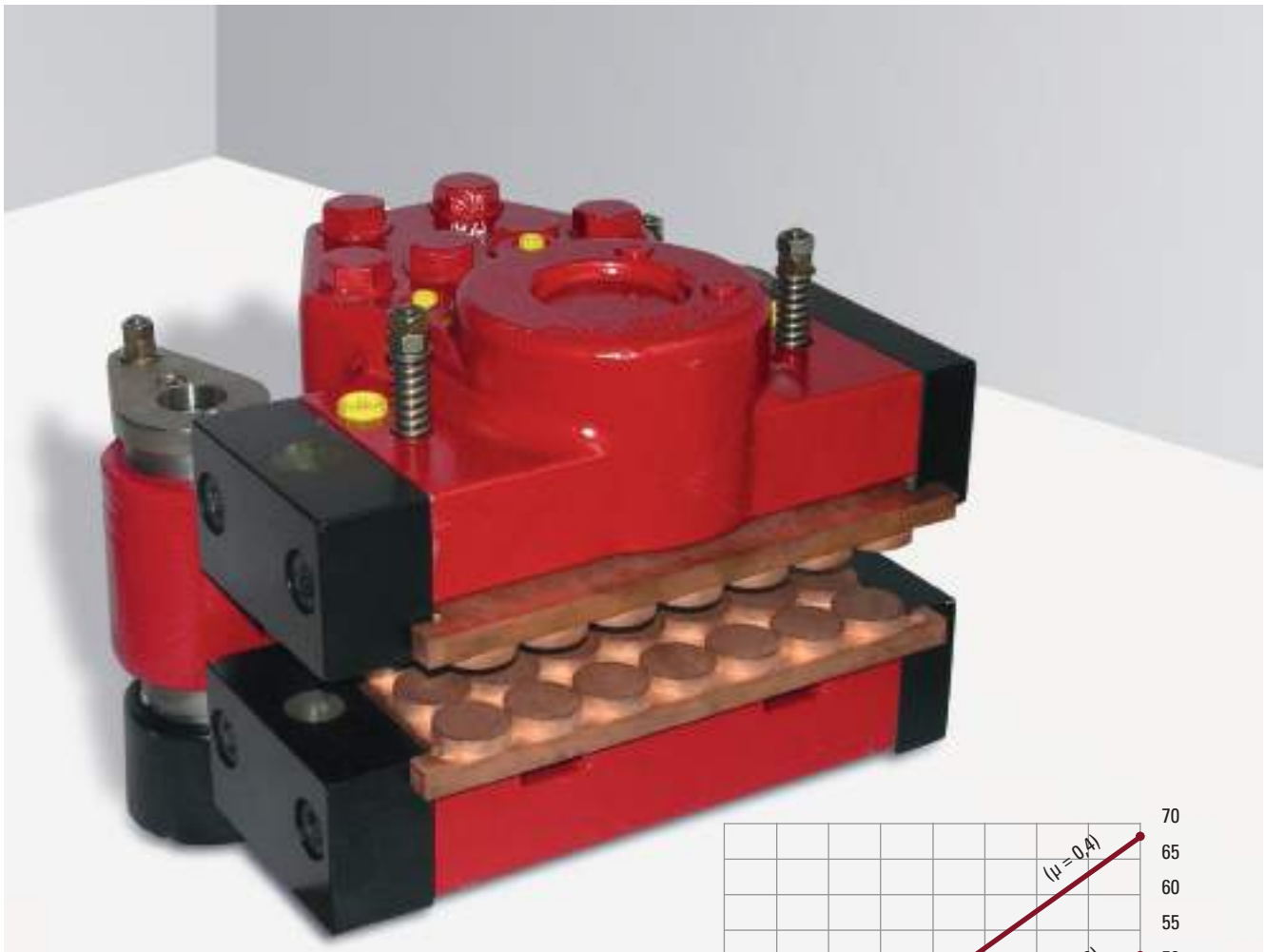
All dimensions in mm

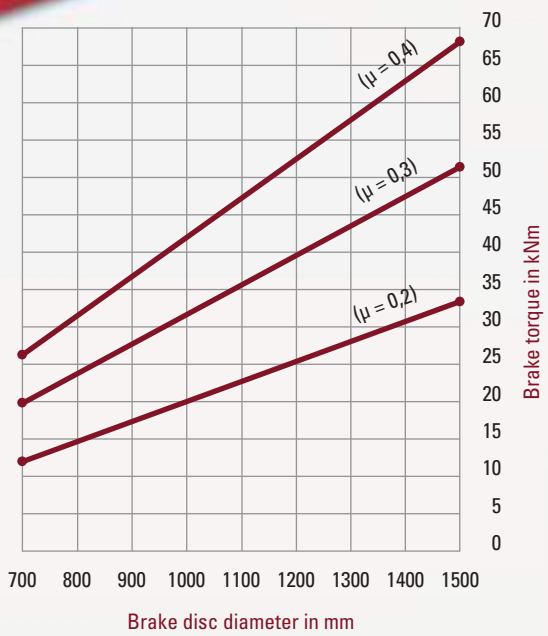
Alterations reserved without notice

Notes

Rotor Brake (active)

Hydraulic Caliper Disc Brakes SFRA 12





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Reliable

High Performance

Robust Design

Easy Maintenance

Description SFRA 12

Main Features

- **Active** caliper brake, ready to operate, hydraulically applied, spring retracted
- **No** failsafe function!
- **Sintered linings**
- Horizontal compensation +- 5 mm
- Support for direct gear box mounting

Applications

- The high capacity of these brakes makes them particularly suitable as rotor brakes in wind turbines
- Use of the brakes for applications with high duty cycles should be specifically indicated during technical selection procedure

Options

- Limit switch release control
- Limit switch wear control
- Hydraulic power units
- Brake discs and couplings
- Seals for special fluids
- **Sensors** for **remote monitoring** and diagnostic, like e.g. temperature-, wear- and release gap monitoring
- Rotor locking pin
- Temperature sensor

Operating Restrictions

- Brakes of this range are tested both mechanically and hydraulically. 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 therefore 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.

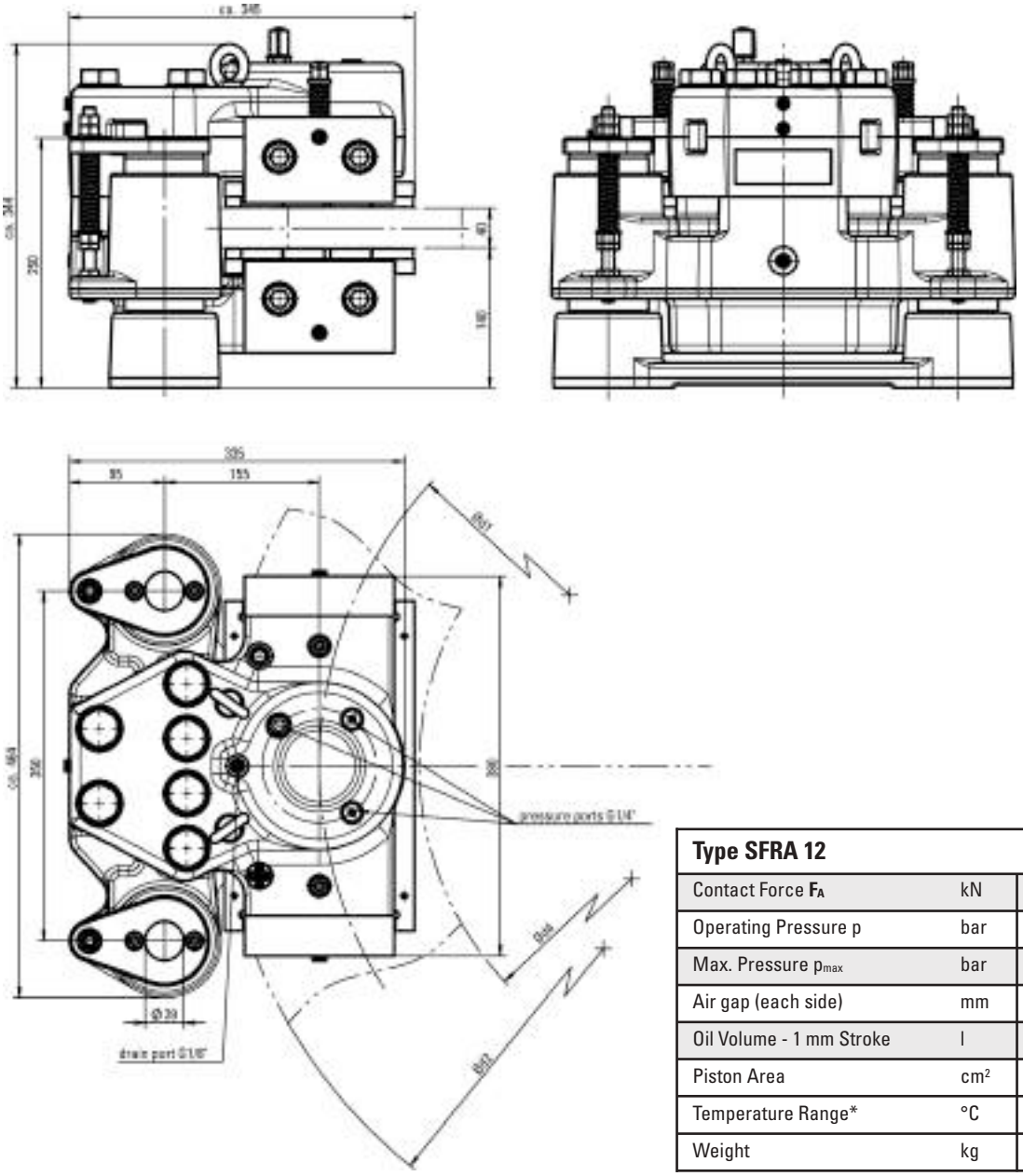
PINTSCH BUBENZER Service

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

Rotor Brake (active) SFRA 12

Dimensions and technical data

Rev. 08-12



Type SFRA 12		
Contact Force F_A	kN	130
Operating Pressure p	bar	115
Max. Pressure p_{max}	bar	122
Air gap (each side)	mm	1
Oil Volume - 1 mm Stroke	l	0.012
Piston Area	cm²	113
Temperature Range*	°C	-20 to +70
Weight	kg	ca. 178

Brake Pad		
Pad Area (each side)	cm²	370
Brake Pad Width	mm	190
Theor. Friction Coefficient **	μ	0,2... 0,3... 0,4

Brake torque M_{Br} in Nm = F_A (kN) x μ x d_1 (mm)

Brake Disc		
Brake Disc Ø d2	mm	700...1500
Friction Ø d1	mm	d2 - 200
Max. perm. Hub Ø d4	mm	d2 - 400
Disc Thickness (Standard)	mm	40

*) For lower temperatures please contact us

**) Average friction factor of standard material combination, dependent of the operational conditions

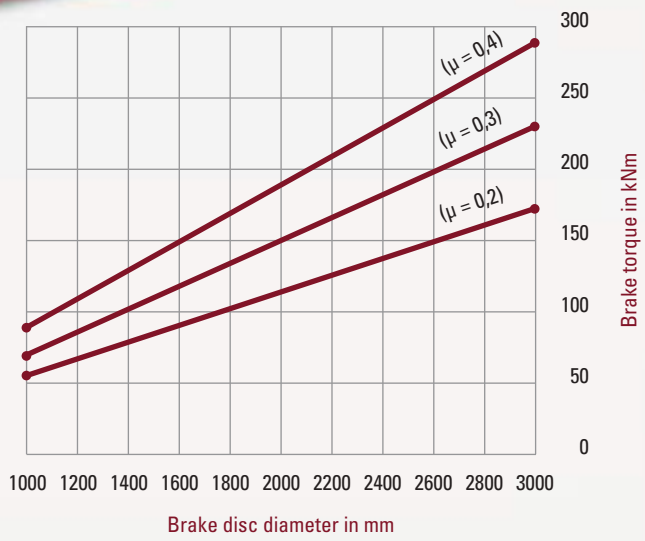
All dimensions in mm

Alterations reserved without notice

Notes

Rotor Brake (active)

Hydraulic Caliper Disc Brakes BACW 100



GL Renewables Certification
CERTIFICATE NO. DAA-GL-004-2012

PINTSCH BUBENZER
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Reliable

High Performance

Robust Design

Easy Maintenance

Rotor Brake (active)

Description BACW 100

Main Features

- Brake hydraulic applied
- **No** failsafe function!
- Organic, non-asbestos linings
- Airgap between brake pad and disc up to 2 mm per side

Options

- Sintered linings
- Complete piped supports for one or more calipers
- Hydraulic power units
- Brake discs
- Temperature sensor

Applications

- Rotor Brake Systems with organic lining material for low speed applications
- Rotor Brake Systems with sintered lining material for high speed applications

Operating Restrictions

Brakes of this range are tested both mechanically and hydraulically. 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 therefore 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.

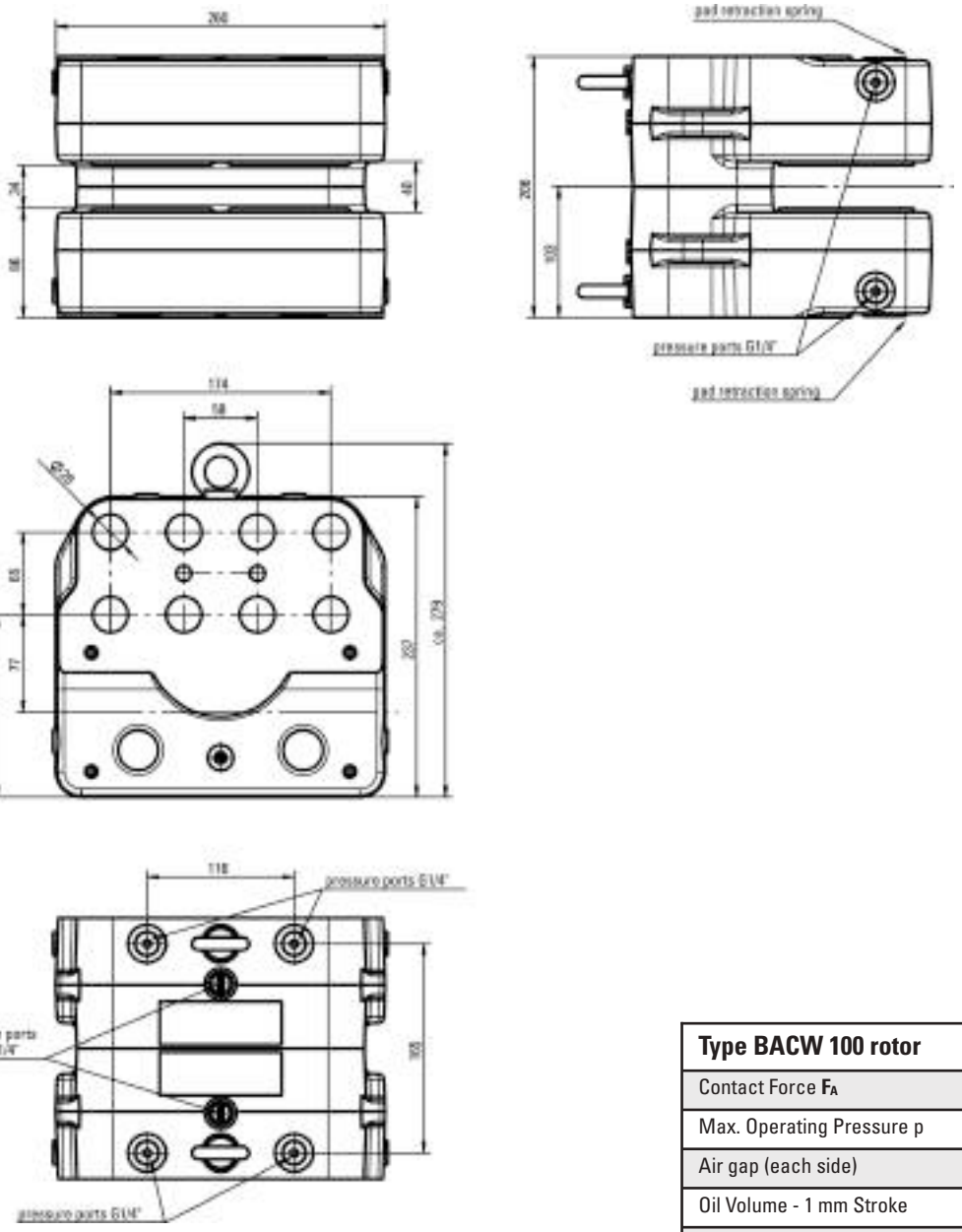
PINTSCH BUBENZER Service

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

Rotor brake (active) BACW 100

Dimensions and technical data

Rev. 05-12



Type BACW 100 rotor		
Contact Force F_A	kN	200
Max. Operating Pressure p	bar	160
Air gap (each side)	mm	3
Oil Volume - 1 mm Stroke	l	0.025
Piston Area (each side)	cm²	127
Temperature Range*	°C	-40 to +70
Weight	kg	ca. 69

Brake torque M_{Br} in Nm = F_A (kN) x μ x d_1 (mm)

Brake Pad		
Pad Area (each side)	cm²	197
Brake Pad Width	mm	108
Theor. Friction Coefficient **	μ	0,2... 0,3... 0,4

Brake Disc		
Disc Thickness (Standard)	mm	30

*) For lower temperatures please contact us

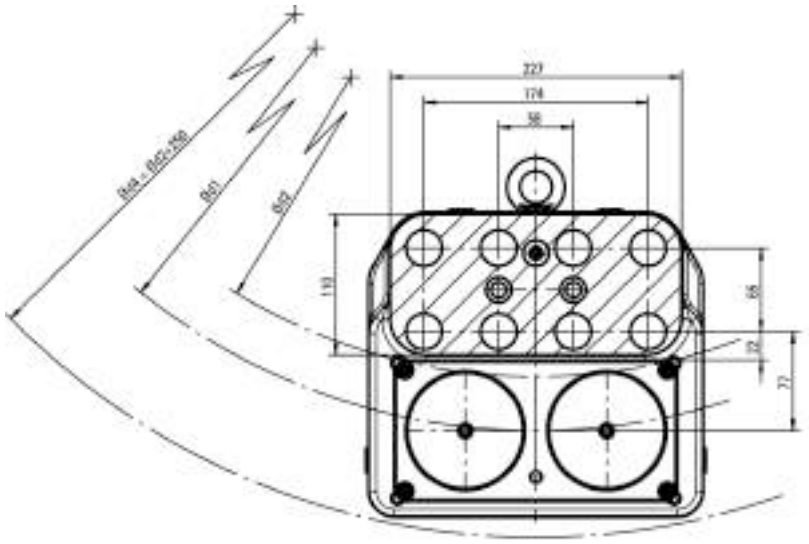
**) Average friction factor of standard material combination, dependent of the operational conditions

All dimensions in mm
Alterations reserved without notice

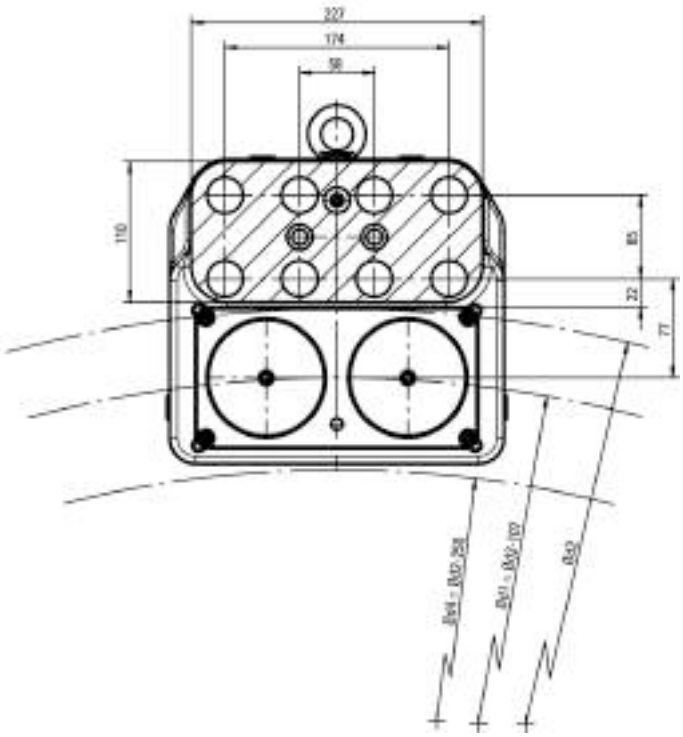
Rotor brake (active) BACW 100

Dimensions and technical data

Rev. 05-12



Inside mounting	
ød2	ød1
900	984
1000	1087
1200	1290
1400	1493
1600	1695
1800	1897
2000	2099
>2200	ød2+100

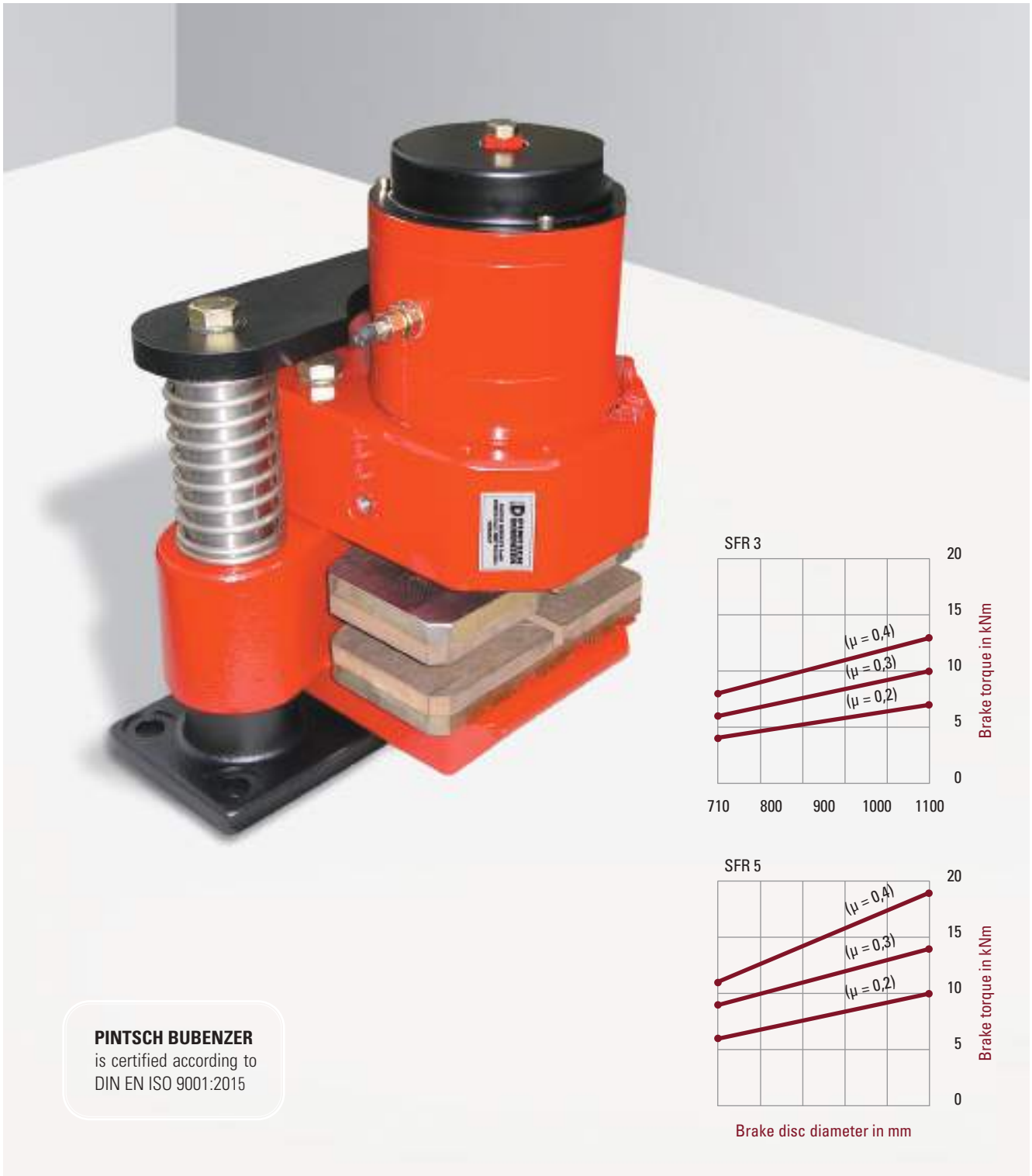


Outside mounting
ød2 = min. 700

All dimensions in mm
Alterations reserved without notice

Rotor Brake (passive)

Hydraulic Caliper Disc Brakes SFR Series



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

Reliable

High Performance

Robust Design

Easy Maintenance

Description SFR

Main Features

- **Monospring** caliper brake, ready to operate, with spring pack set to nominal force
- **Sintered linings**
- Limit switch release control
- Easy, manual pad wear compensation
- Horizontal compensation +- 5 mm
- Support for direct gear box mounting

Applications

- The high capacity of these brakes makes them particularly suitable as rotor brakes in wind turbines

Options

- Limit switch wear control
- Hydraulic power units
- Brake discs and couplings
- Seals for special fluids
- **Sensors** for **remote monitoring** and diagnostic, like e.g. spring force-, temperature-, wear- and release gap monitoring
- CMB contact force measurement
- Automatic wear compensator
- Temperature sensor

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 therefore 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.

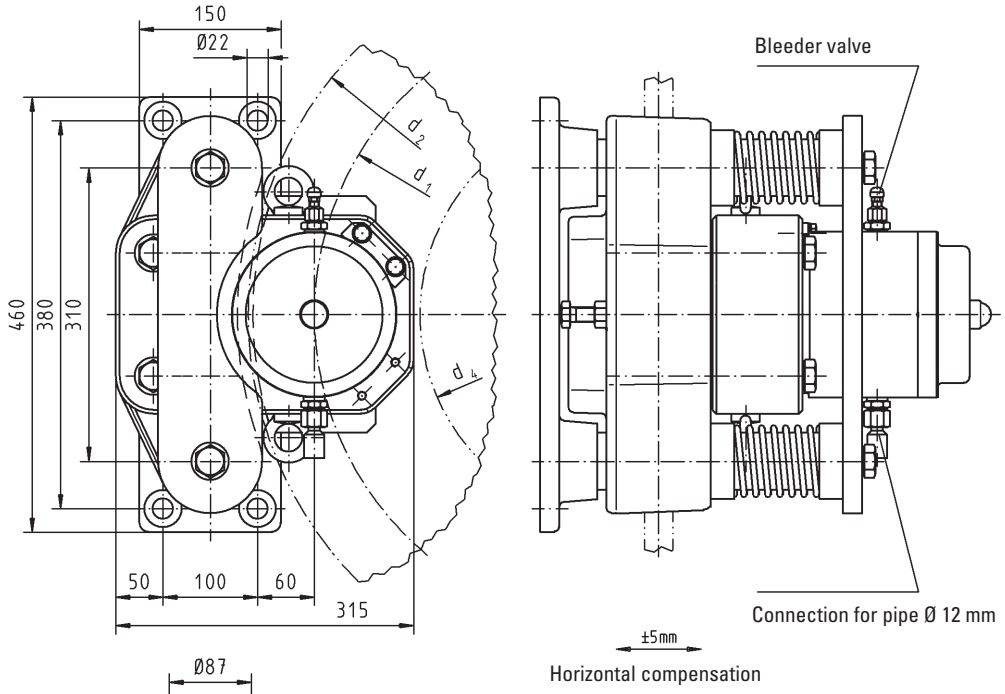
PINTSCH BUBENZER Service

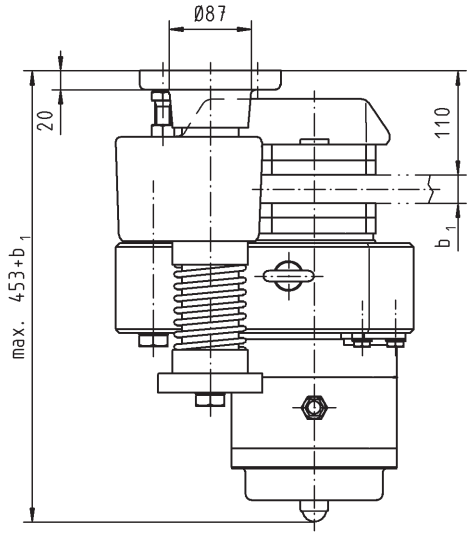
This includes the verification of the brake selection, if required. A detailed questionnaire is provided for this purpose. Installation and commissioning on site is possible by PINTSCH BUBENZER service engineers. Drawings as DWG/DXF files for your engineering department are available upon request.

Rotor Brake (passive) SFR 3-5

Dimensions and technical data

Rev. 03-09



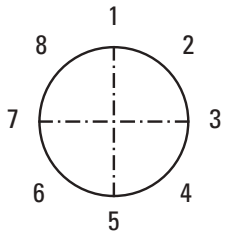


*) Average friction factor of standard material combination dependent upon operational conditions

All dimensions in mm
Alterations reserved without notice

Type SFR		3	5
Contact force F_A	kN	35	50
Operating pressure	bar	55	80
Max. pressure	bar	135	135
Rel. stroke (per side)	mm	1	1
Oil volume	l	0.023	0.023
Pad surface (1 pad)	cm²	250	250
Theor. friction	μ*	0,2... 0,3... 0,4	0,2... 0,3... 0,4
Weight	kg	159	159
Bolt	Ø	M20	M20
Bolt material		10.9	10.9
Tighten. torque	Nm	560	560

Brake torque M_{Br} in Nm = F_A (kN) x μ x d_1 (mm)

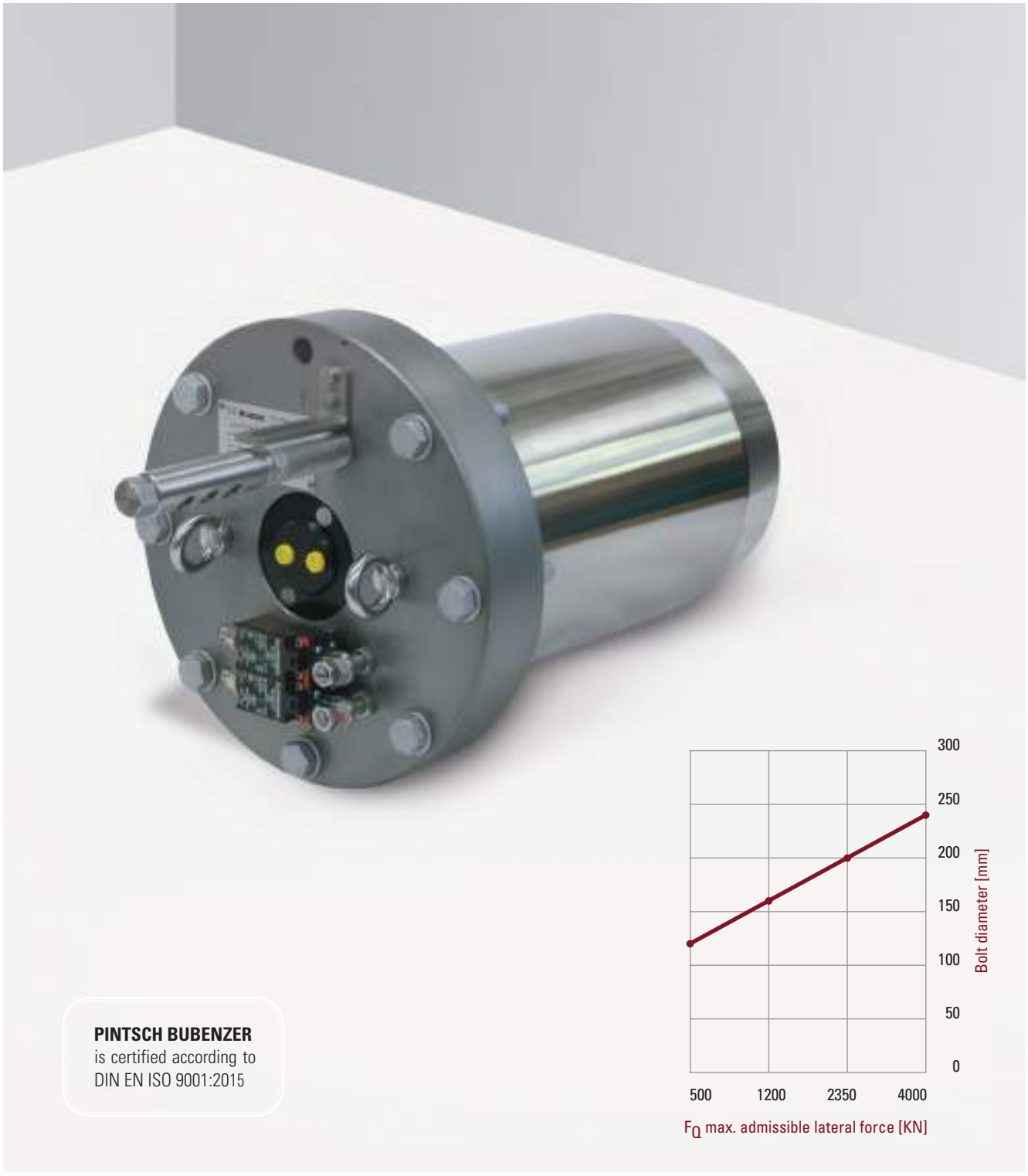


Brake disc		
Brake disc Ø d_2	mm	710... 1100
Friction Ø d_1	mm	d2-140
Max. perm. Hub Ø d_4	mm	d2-360
Disc thickness b_1	mm	30... 40

Please indicate mounting position in case of order

Notes

Rotor Locking Device HRV



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

Reliable

High Performance

Robust Design

Easy Maintenance

Description Rotor Locking Device HRV

Main Features

- Standard design and design for off-shore application available
- Hydraulic operation
- Monitoring and display of end positions "rotor locked / rotor unlocked"
- Low-maintenance design
- Compact design

Applications

- Monitoring and display of intermediate lock bolt positions available on request
- Hydraulic design optionally provided with check valves
- Mechanical bolt locking
- Lock bolt operated electromechanically
- Suitable for application at high and low temperatures

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 therefore 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.

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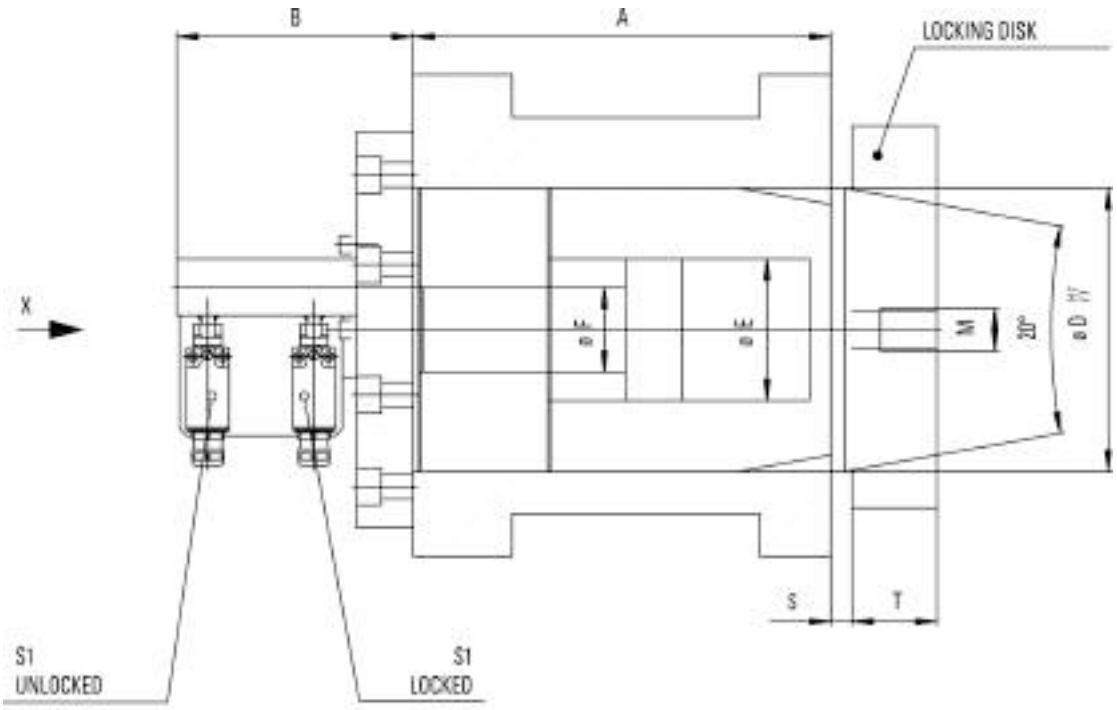
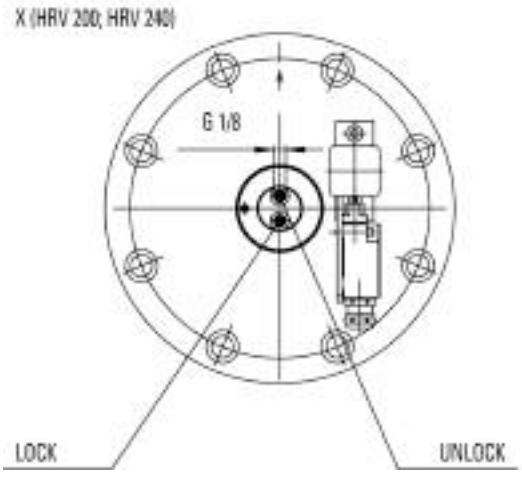
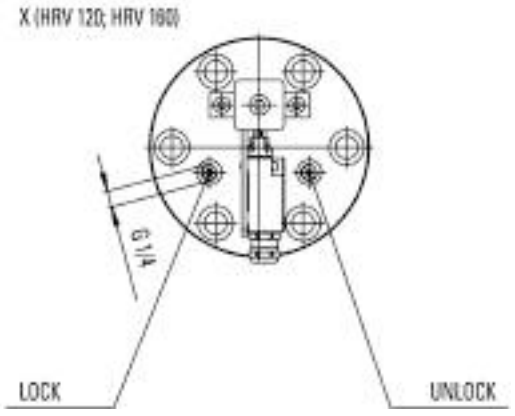
Rotor Locking Device HRV

Dimensions and technical data

Rev. 03-09







All dimensions in mm
Alterations reserved without notice

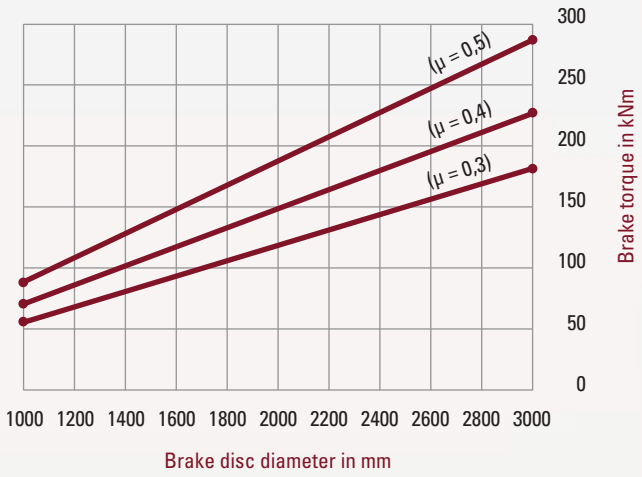
Max. operating pressure: 250 [bar]	Operating temperature: -30 to +60 [°C]

Type	F_Q	max. stroke	A	B	D	E	F	M	S	T
HRV-120-50	500	50	240	150	120	62	36	M24	15	30
HRV-160-60	1200	60	275	150	160	80	50	M27	15	40
HRV-200-70	2350	70	320	160	200	100	60	M30	15	50
HRV-240-80	4000	80	355	160	240	120	70	M30	15	60

Notes

Yaw Brake (active)

Hydraulic Caliper Disc Brakes BACW 100



GL Renewables Certification
CERTIFICATE NO. DAA-GL-004-2012

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High Performance

Robust Design

Easy Maintenance

Yaw Brake (active)

Description BACW 100

Main Features

- Brake hydraulic applied
- **No** failsafe function!
- Organic, non-asbestos linings
- Airgap between brake pad and disc up to 2 mm per side

Applications

- YAW Brake Systems

Options

- Pad Retraction Springs for dynamically Applications
- Sintered linings
- Complete piped supports for one or more calipers
- Hydraulic power units
- Brake discs

Operating Restrictions

Brakes of this range are tested both mechanically and hydraulically. 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

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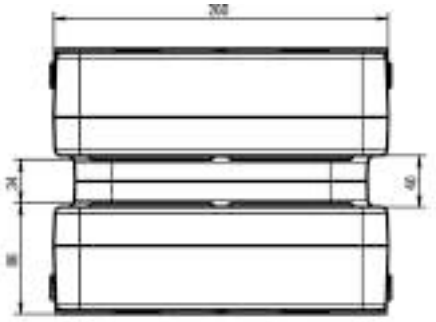
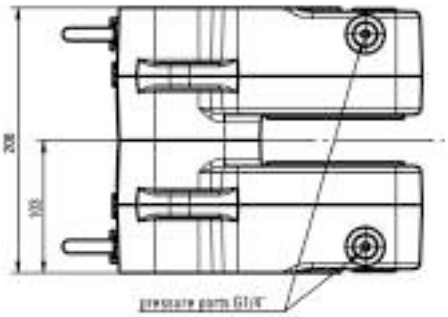
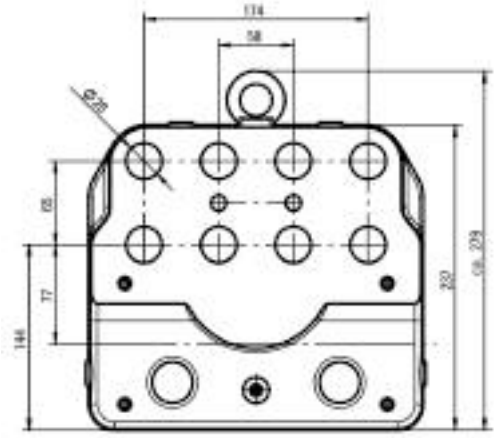
Yaw brake (active) BACW 100

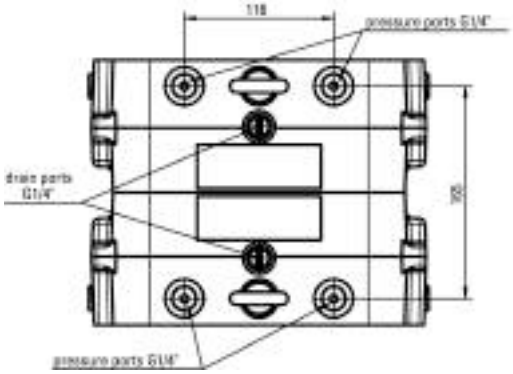
Dimensions and technical data

Rev. 05-12









Type BACW 100		
Contact Force F_A	kN	200
Max. Operating Pressure $p_{max.}$	bar	160
Air gap (each side)	mm	2
Oil Volume - 1 mm Stroke	l	0.025
Piston Area (each side)	cm²	127
Temperature Range*	°C	-40 to +70
Weight	kg	ca. 66

Brake torque M_{Br} in Nm = F_A (kN) x μ x d_1 (mm)

Brake Pad		
Pad Area (each side) organic	cm²	197
Pad Area (each side) composite	cm²	157
Brake Pad Width	mm	108
Theor. Friction Coefficient *	μ	0,3... 0,4... 0,5

*) For lower temperatures please contact us
**) Average friction factor of standard material combination, dependent of the operational conditions

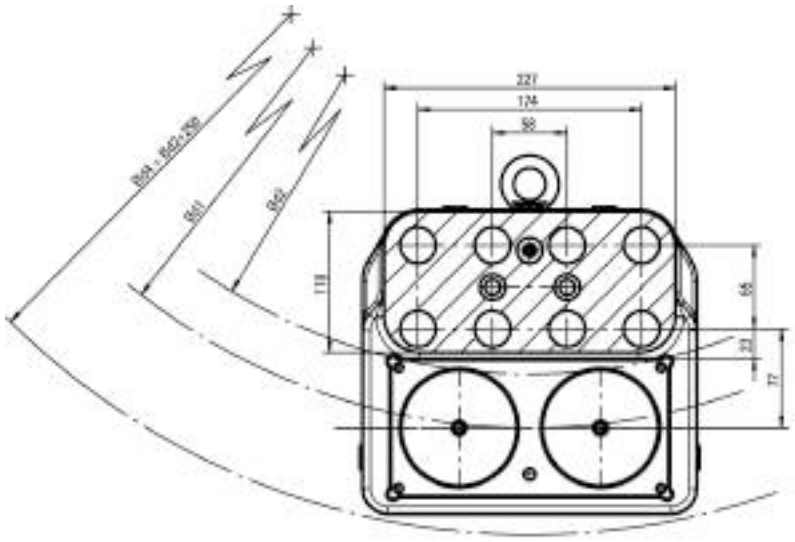
Brake Disc		
Disc Thickness (Standard)	mm	30

All dimensions in mm
Alterations reserved without notice

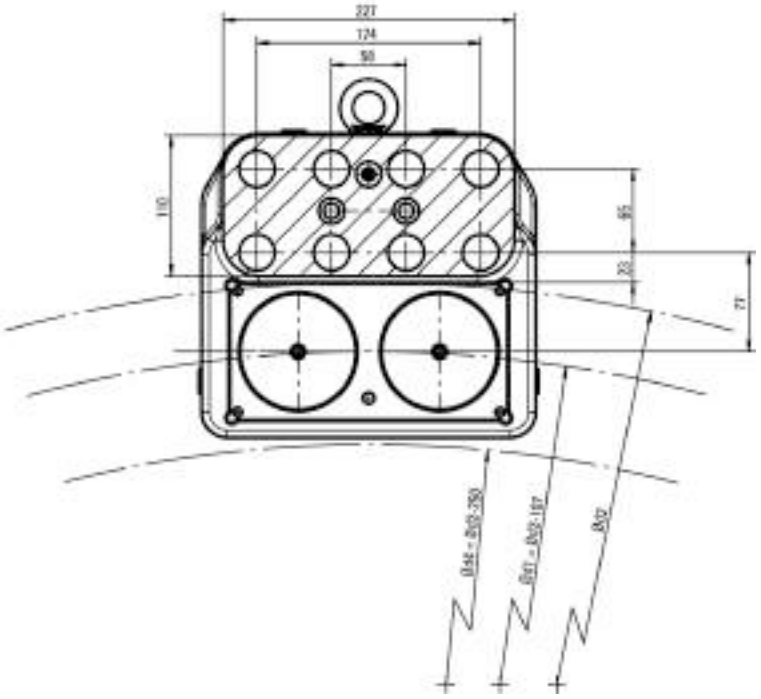
Yaw Brake (active) BACW 100

Dimensions and technical data

Rev. 05-12



Inside mounting	
ød2	ød1
900	984
1000	1087
1200	1290
1400	1493
1600	1695
1800	1897
2000	2099
>2200	ød2+100

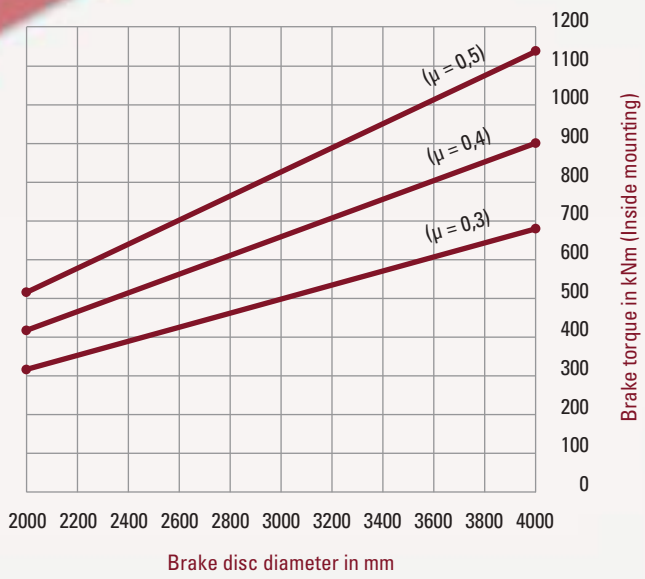


Outside mounting
ød2 = min. 700

All dimensions in mm
Alterations reserved without notice

Yaw Brake (active)

Hydraulic Caliper Disc Brakes BACW 200



GL Renewables Certification
CERTIFICATE NO. DAA-GL-004-2012

PINTSCH BUBENZER
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Reliable

High Performance

Robust Design

Easy Maintenance

Yaw Brake (active)

Description BACW 200

Main Features

- Brake hydraulic applied
- **No** failsafe function!
- Organic, non-asbestos linings
- Airgap between brake pad and disc up to 2 mm per side

Options

- Composite linings
- Complete piped supports for one or more calipers
- Hydraulic power units
- Brake discs

Applications

- Yaw Brake System

Operating Restrictions

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Please Note

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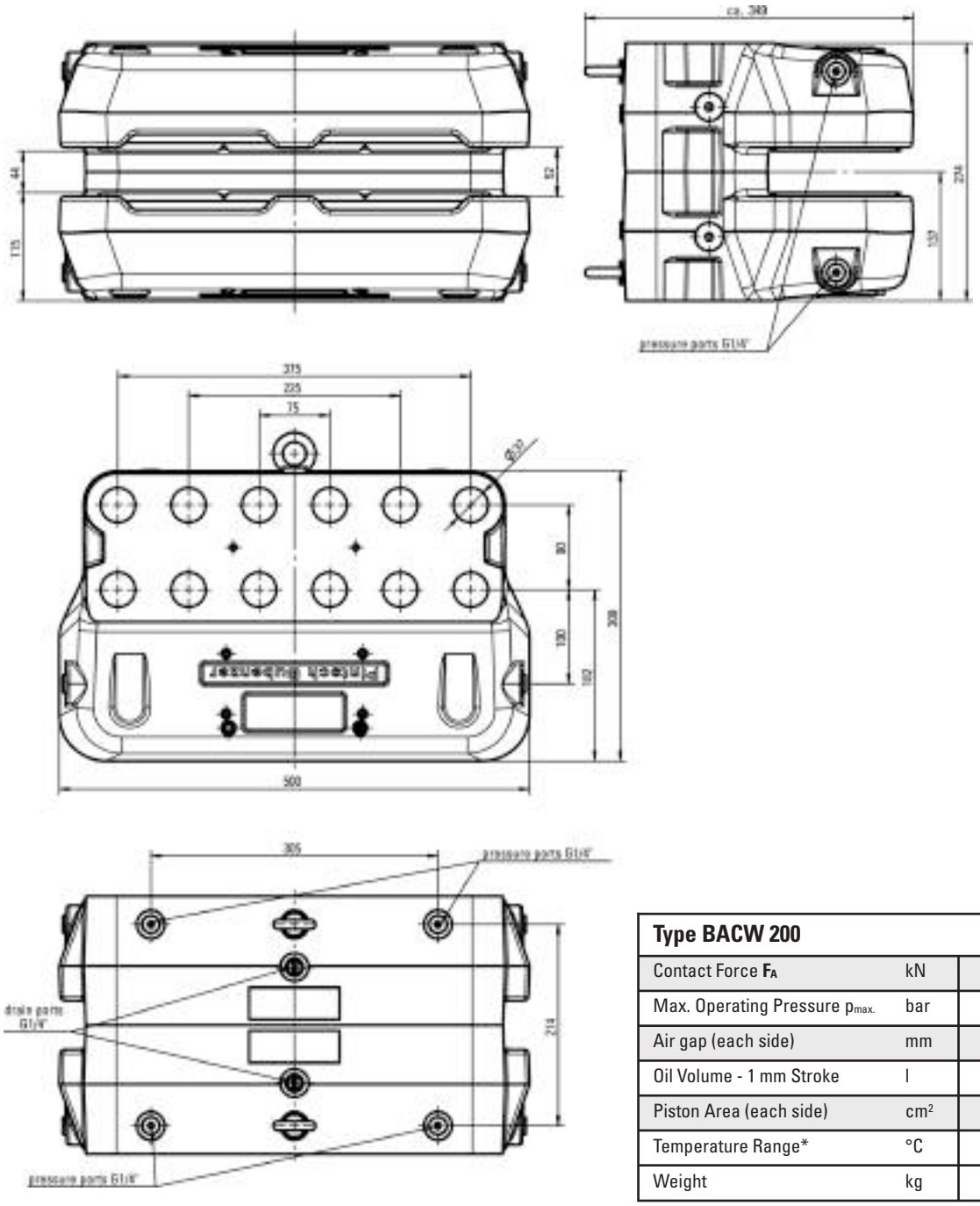
Yaw Brake (active) BACW 200

Dimensions and technical data

Rev. 10-14



Type BACW 200		
Contact Force F_A	kN	620
Max. Operating Pressure $p_{max.}$	bar	180
Air gap (each side)	mm	2
Oil Volume - 1 mm Stroke	l	0.069
Piston Area (each side)	cm²	345
Temperature Range*	°C	-40 to +70
Weight	kg	ca. 190

Brake torque M_{Br} in Nm = F_A (kN) x μ x d_1 (mm)

*) Average friction factor of standard material combination, dependent of the operational conditions

Brake Pad		
Pad Area (each side) organic	cm²	526
Pad Area (each side) composite	cm²	398
Brake Pad Width	mm	138
Theor. Friction Coefficient *	μ	0,3... 0,4... 0,5

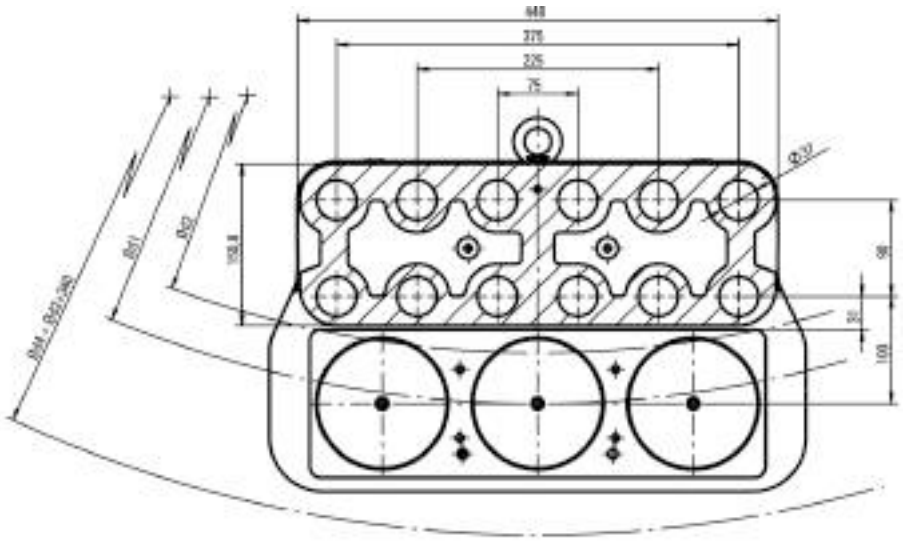
Brake Disc		
Disc Thickness (Standard)	mm	40

All dimensions in mm
Alterations reserved without notice

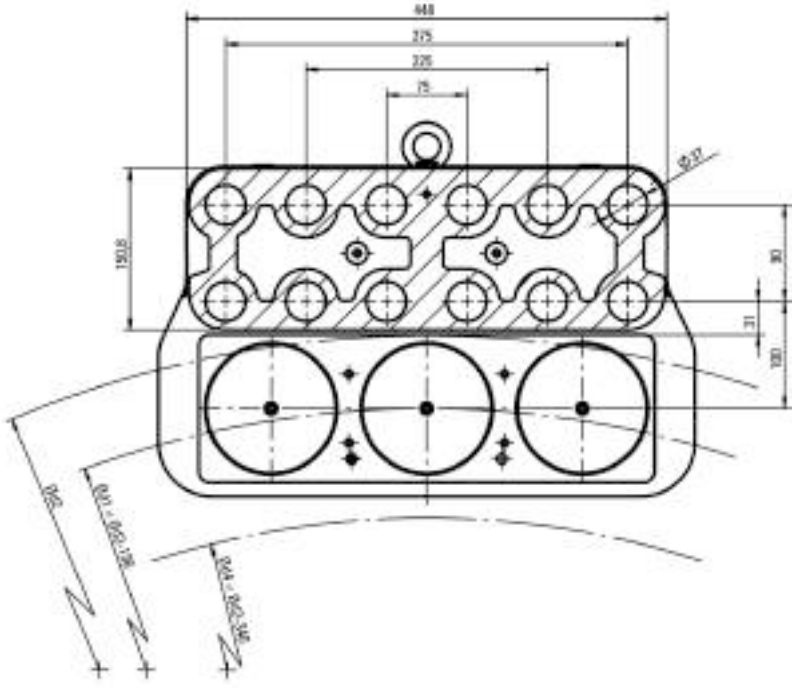
Yaw Brake (active) BACW 200

Dimensions and technical data

Rev. 10-14



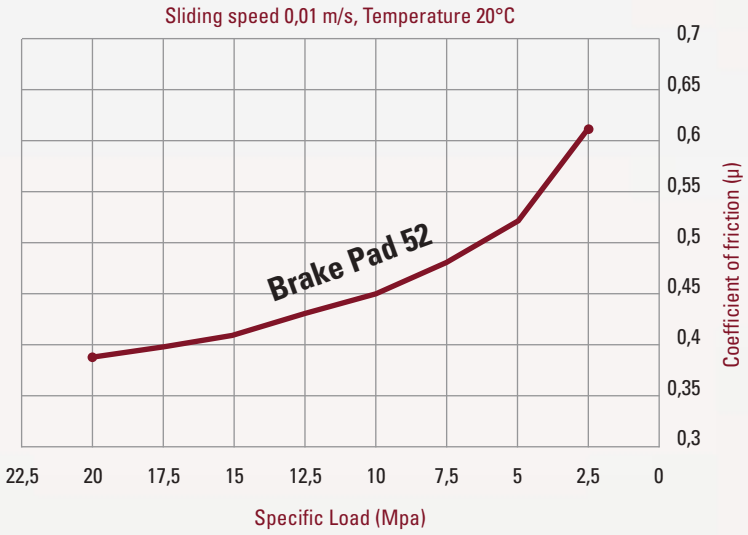
Inside mounting	
ød2	ød1
2000	2095
2200	2300
2500	2605
3000	3110
>4000	ød2 + 115



Outside mounting
ød2 = min. 2000

All dimensions in mm
Alterations reserved without notice

Brake Pad 52 for YAW Brake Application



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Reliable

High Performance

Robust Design

Easy Maintenance

Description Brake Pad 52

Main Features

- Slip-stick free running
- No adhesive friction
- Emergency operation qualities (brake disks remain undamaged when brake pads are worn)
- No corrosion prevention needed
- Saving in weight of 75 % (against conventional brake pads)
- In combination with JSF-grease largely insensitive against leaking oils and greases
- Noiseless Sliding
- Low Wear Rate

Chemical Resistance

Brake Pad 52 has a high resistance to corrosive media. The material is resistant against different media. Suitability for other chemicals and media should be determined experimentally according to for example DIN 50905 or ASTM D543

Applications

Brake Pad 52 is a composite material for yaw-brakes. The supporting layer consists of glass-fibre reinforced epoxy resin, the sliding layer composed of a compound of epoxy resin, filled with a combination of different solid lubrications and brake additives. The glass-fibre reinforced supporting layer in combination with the sliding layer, which has been applied by a specific casting process, leads to very high stability characteristics and high load capacity and offers very good tribological characteristics with low wear and very good temperature resistance

Please Note

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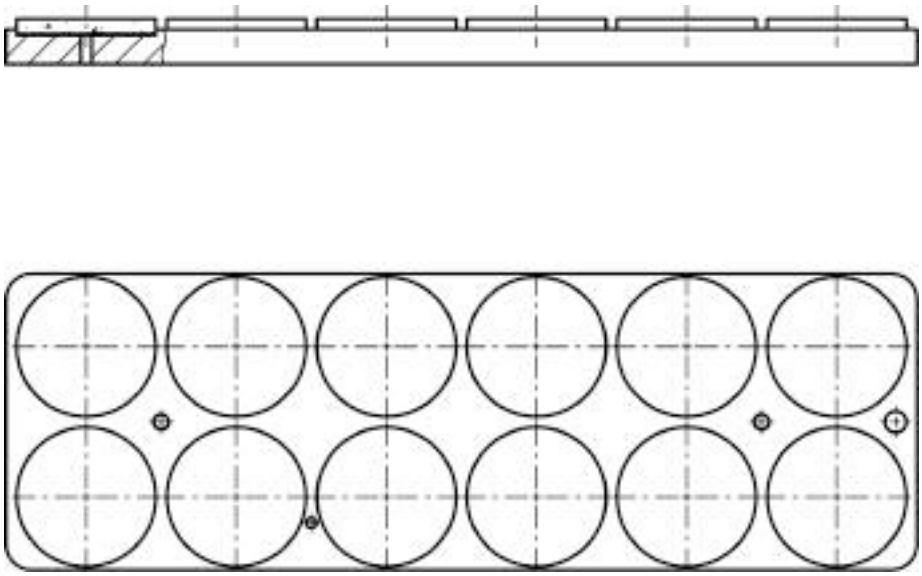
Brake Pad 52

Dimensions and technical data

Rev. 05-09



Material characteristics Requirement for the counter material		
Max. dynamic load	100	N/mm²
Max. static load	200	N/mm²
Max. sliding speed	0,5	m/s
Typical friction coefficient	0,38 – 0,62	µ
Temperature range	-100 bis 190	°C
Hardness of counter material	> 160	HB
Surface roughness of counter material (Ra)	0,2 – 3,2	µm

*) Average friction factor of standard material combination dependent upon operational conditions

All dimensions in mm
Alterations reserved without notice

Material properties are no assured properties. They are dependent on the individual installation situation and on load, velocity, temperature, surface roughness, lubrication etc.

Notes

Yaw/Pitch Drive Brake (passive)

Electro-magnetic Motor-mounted Brake KFB

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Reliable | **High Performance** | **Robust** | **Easy Maintenance** | **Compact** | **Tried and Trusted**

Yaw/Pitch Drive Brake (passive)

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

- Wind energy systems

Options

- Special brake torque
- Handlever
- Micro- or proximity switch:
  • 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

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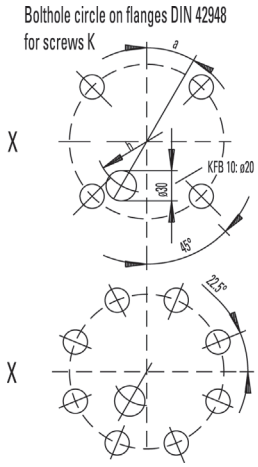
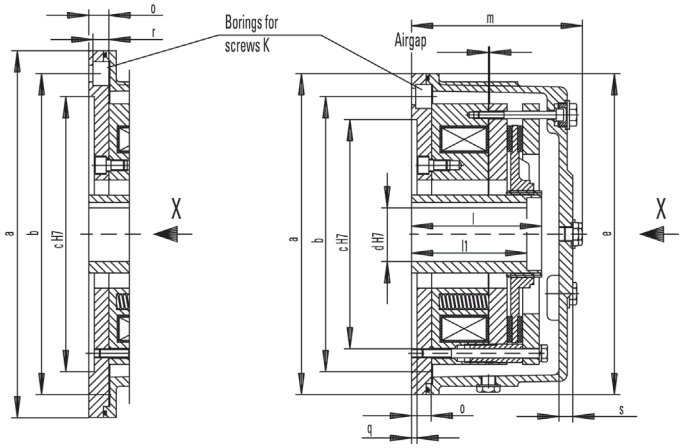
Yaw/Pitch Drive Brake (passive) KFB

Dimensions and technical data

PINTSCH BUBENZER

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 intertia		kgm²	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⁻¹	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	110
	Nominal power	W	79	93	128	158	133	196	220	307	344
	Nominal current	A	0.72	0.84	1.16	1.44	1.2	1.78	2.0	2.79	3.13
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 H7 preferrential 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			
Lenght 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
	l¹		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
∢	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 H7	110	130	180	230	250	300	350	450
Lenght 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

Notes

Hydraulic Power Units

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

Reliable

High Performance

Robust Design

Easy Maintenance

Description Hydraulic Power Units (Example)

Applications

- Single solution for rotor brake, yaw brake or rotor locking device
- Dual solution for rotor and yaw brakes or in combination with rotor locking device
- Combined triple solution for rotor brake, yaw brake and rotor locking device in one unit

Options

- Temperature switch
- Oil level switch
- Terminal box
- Pressure switch analogue 4-20 mA
- Pipes, hoses and fittings as mounting material
- Hydraulic oil

Special Applications

- All these variations of hydraulic power units are available in cold climate version "cold weather extreme" down to -40°C
- UL certificate for 60 Hz version in combination with brake type BACW200

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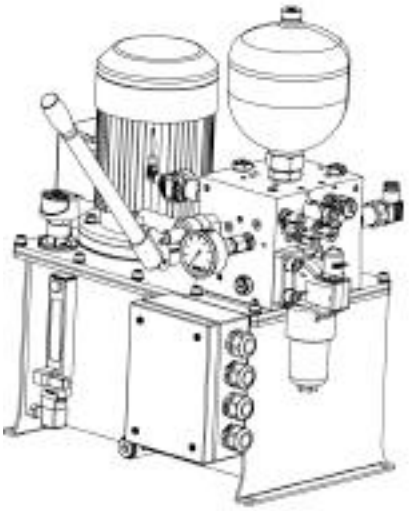
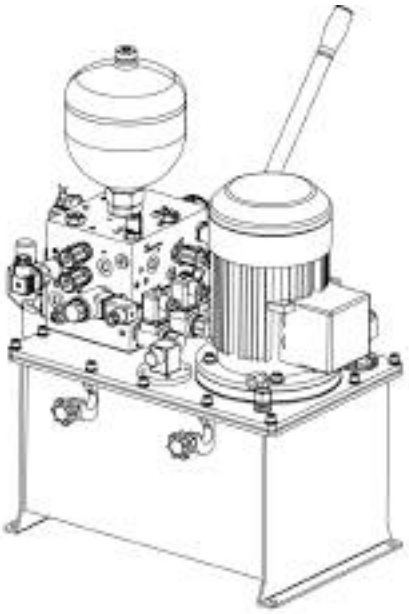
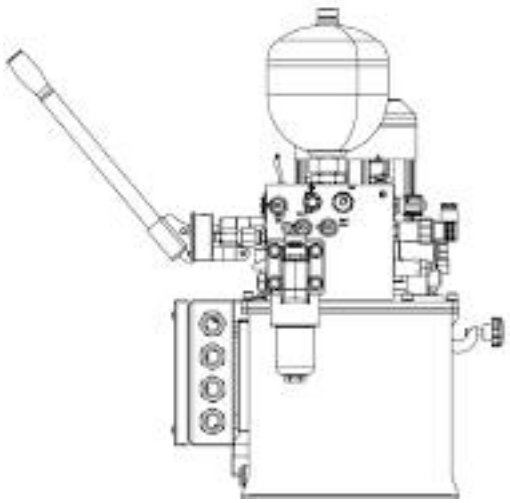
Hydraulic Power Unit (Example)

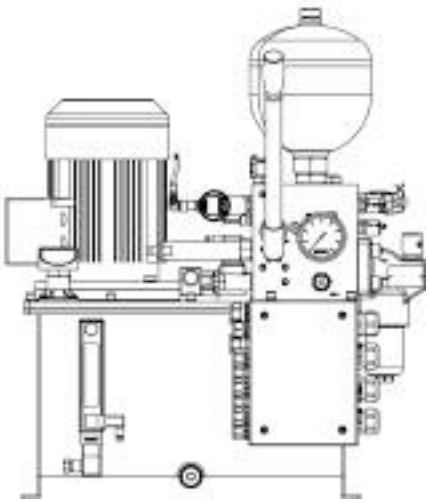
Drawing

Rev. 03-09





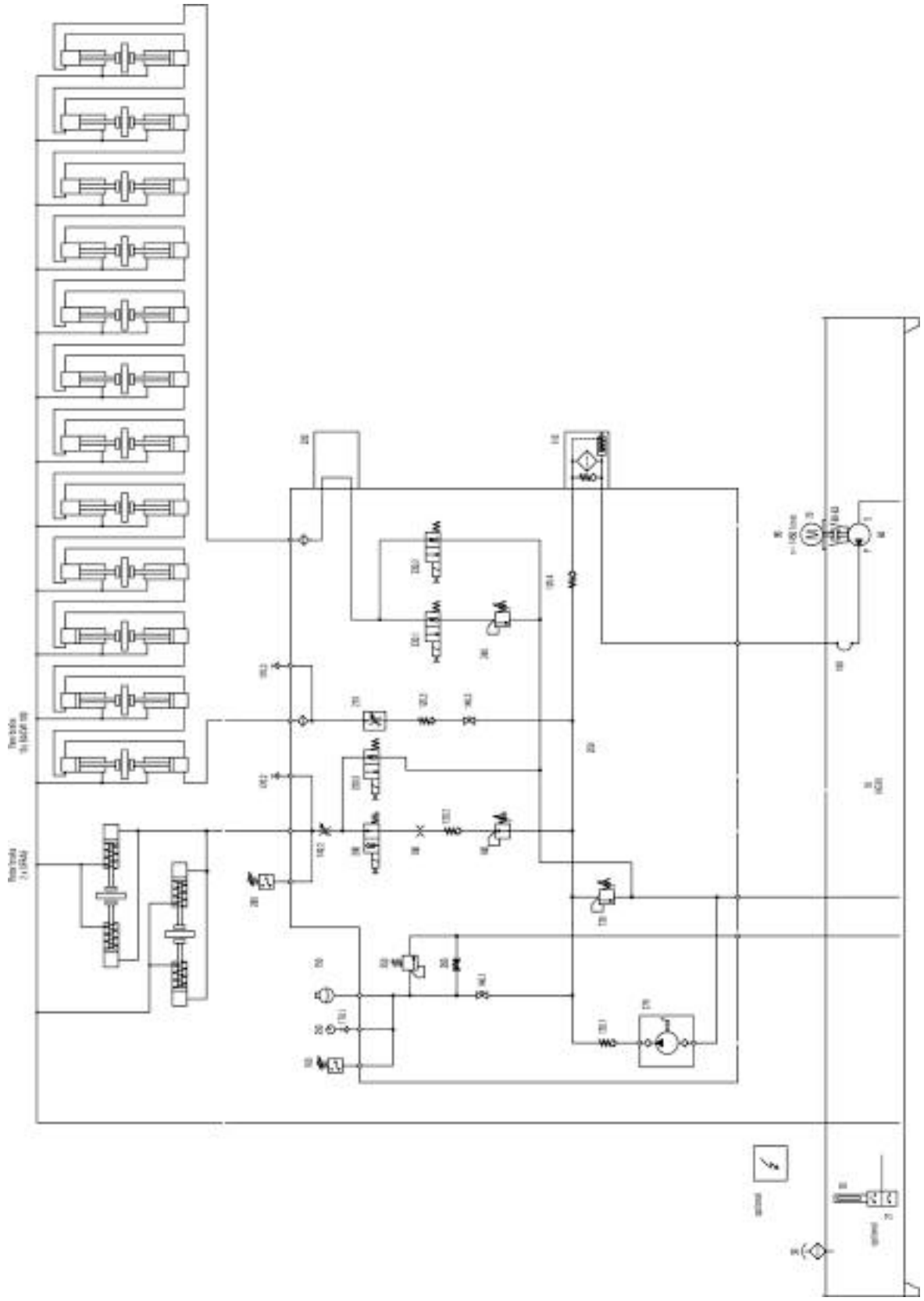




Hydraulic Power Unit (Example)

Hydraulic diagram

Rev. 03-09



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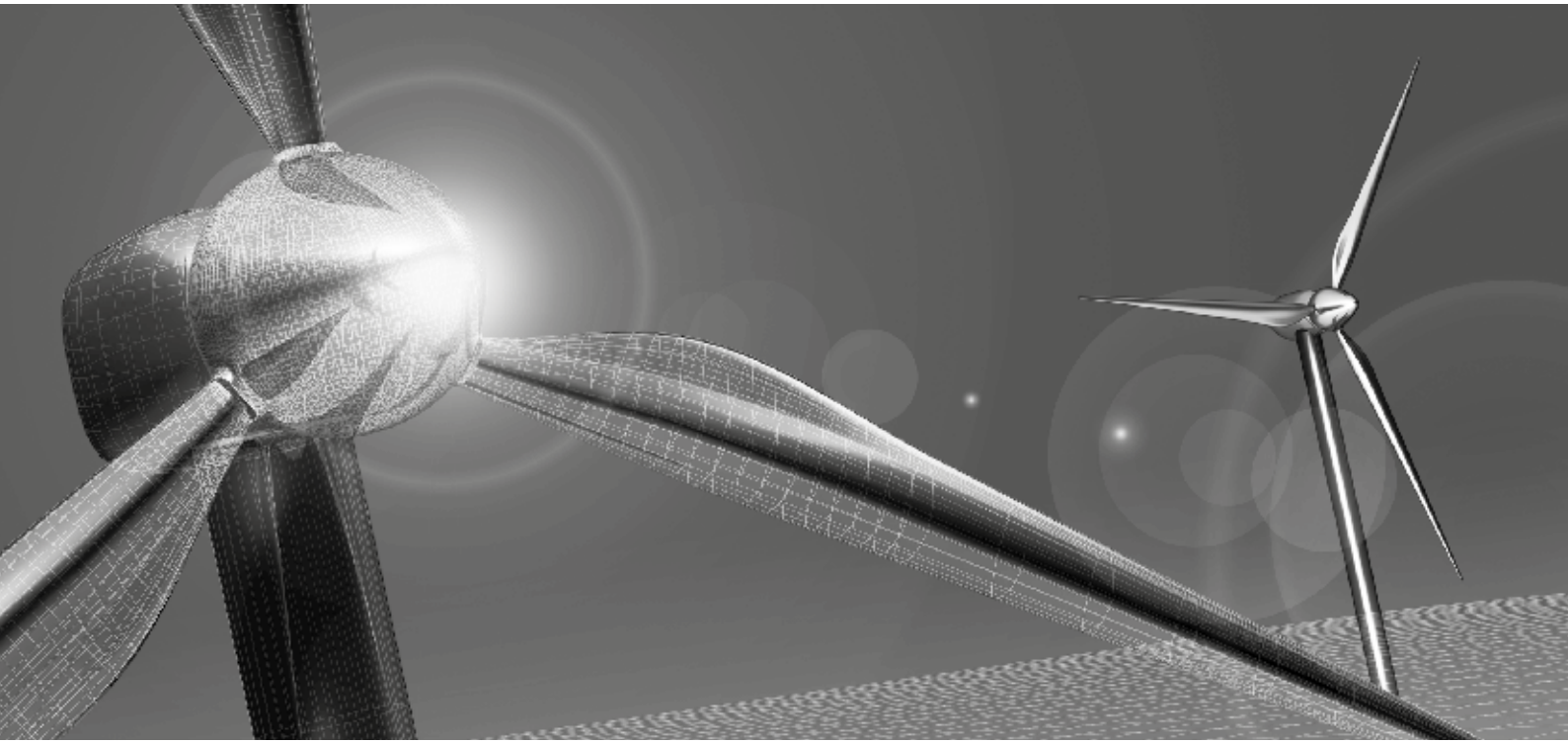

PINTSCH BUBENZER

4th edition

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