PINTSCH BUBENZER

BUEL®
THE THRUSTER

Made in Germany

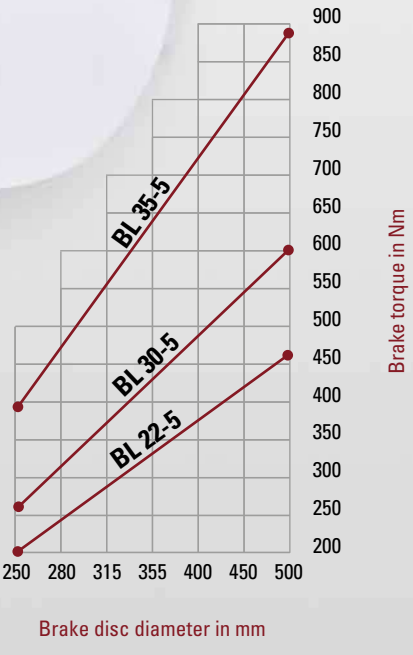
Engineered and manufactured in Germany

BUEL® thrusters have been developed on basis of decades of experience in drive technology and its components. Highest quality standards in all operating divisions of the PINTSCH BUBENZER GmbH are the basis for functional safety of the BUEL® thrusters. With regard to applications and operational capability, there are nearly no limits. Primary purpose is the use as brake release thruster in industrial drum and disc brakes.

BUEL®
THE THRUSTER

Content

Disc Brake SB 16 with BUEL®



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

Easy Maintenance | **High Performance** | **Reliable** | **Robust Design** | **Self-Centering**

Description SB 16 with BUEL®

Main Features

- Limit switch release control
- Manual release lever with or without lock
- Self-centering of brake arms by cam disc and roller
- Automatic wear compensator
- Sintered linings for high friction speeds
- Organic, non-asbestos linings for low friction speeds
- Continuously adjustable brake spring with torque scale and wear bushing enclosed in a spring tube
- Stainless steel pins and spindles
- Maintenance-free bushings in all hinge points
- Right- or left-hand design
- W-execution (special anti-corrosion protection)

Options

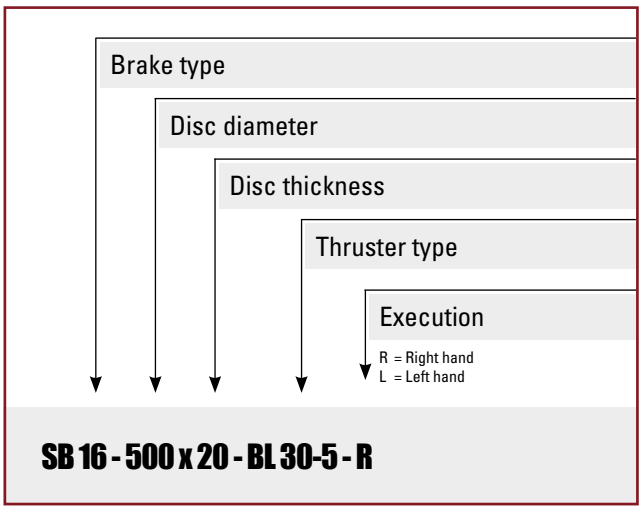
- Limit switch wear control
- Proximity switch hand release
- Monitoring systems (e.g. VSR/CMB)
- Brake disc with hub or coupling

BUEL® Thrusters, Technical Data

Thruster Type	Power (W)	Curr. (A) at 400 V	Weight (kg)
BL 22-5	150	0,4	11
BL 30-5	160	0,4	13
BL 35-5	350	0,6	16

Protection: max. 1.5 times of nominal current

Ordering Example



Please Note

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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 SB 16 with BUEL®

Dimensions and technical data

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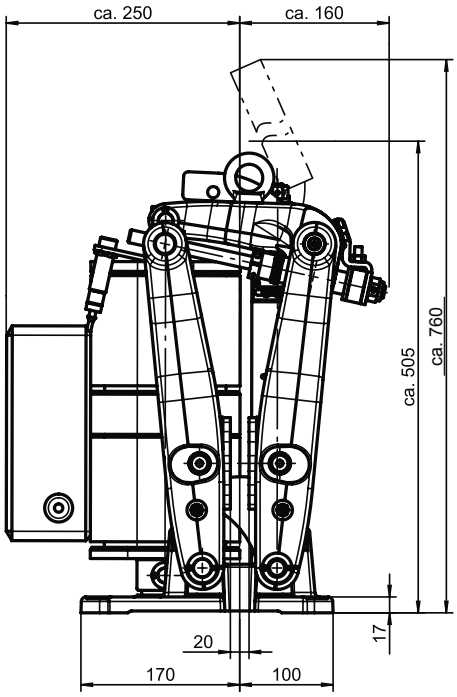
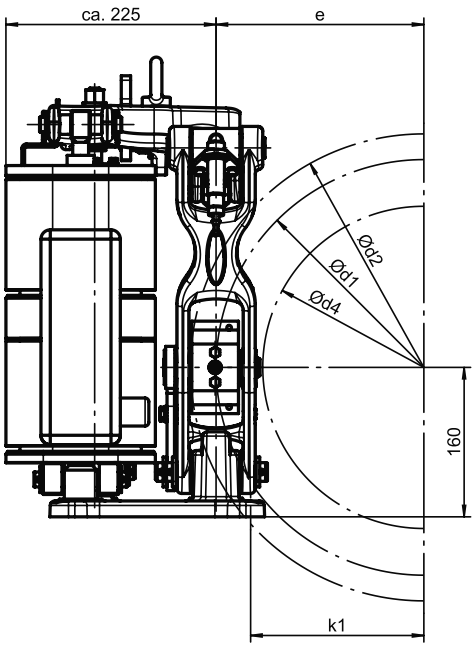
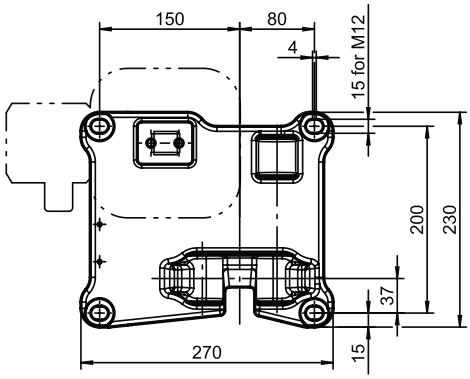
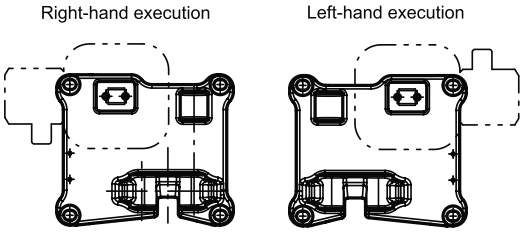
MB-001270 f









*) Average static friction factor of standard material combination

All dimensions in mm
Alterations reserved without notice

For crane brake layout use safety factors documented in the FEM 1.001, Section 1

The friction coefficient is subject to fluctuations depending on operational-, material- and ambient-conditions! This must be considered during the selection!

Weight without thruster: ca. 37 kg			Thruster type		BL 22-5* (Weight: 11 kg)			BL 30-5* (Weight: 13 kg)			BL 35-5 (Weight: 16 kg)		
			Contact force in N		2610			3400			5000 (on request)		
Disc-Ø d_2	Friction-Ø d_1	Max. hub-Ø d_4	e	k_1	*$M_{Brmax.}$ (Nm) at μ = 0,4	*$M_{Brmin.}$ (Nm) at μ = 0,4	*$M_{Brmin.}$ (% from $M_{Brmax.}$)	*$M_{Brmax.}$ (Nm) at μ = 0,4	*$M_{Brmin.}$ (Nm) at μ = 0,4	*$M_{Brmin.}$ (% from $M_{Brmax.}$)	*$M_{Brmax.}$ (Nm) at μ = 0,4	*$M_{Brmin.}$ (Nm) at μ = 0,4	*$M_{Brmin.}$ (% from $M_{Brmax.}$)
250	195	95	97,5	60,5	205	103	50	265	133	50	390	195	50
280	225	125	112,5	75,5	235	118	50	305	153	50	450	225	50
315	260	160	130	93	270	135	50	355	178	50	520	260	50
355	300	200	150	113	315	158	50	410	205	50	600	300	50
400	345	245	172,5	135,5	360	180	50	470	235	50	690	345	50
450	395	295	197,5	160,5	410	205	50	535	268	50	790	395	50
500	445	345	222,5	185,5	465	233	50	605	303	50	890	445	50

*Based on conventional technology.

PINTSCH BUBENZER

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IND. CONT. EQ.
E482639

BUEL® H
HIGH SPEED

BUEL® G
GREEN

BUEL® S
STRONG

TRUST THE THRUSTERS

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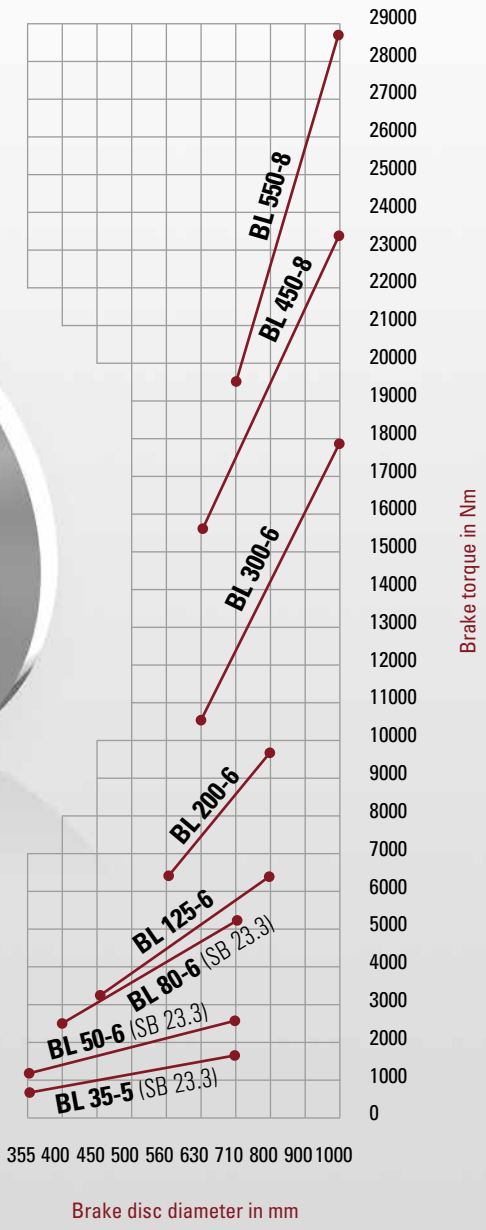
Disc Brake SB 28.3 / SB 23.3 with BUEL®



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

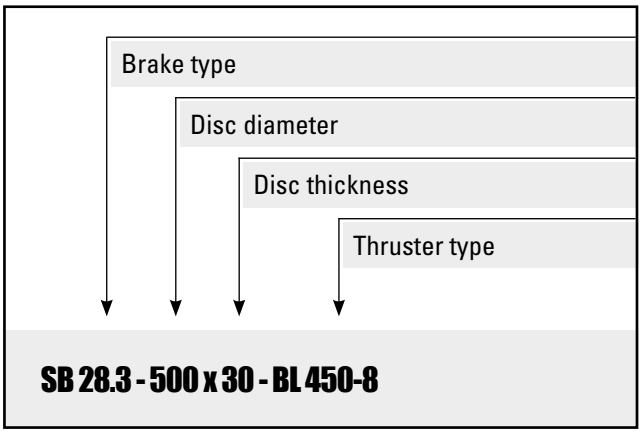
Easy Maintenance | **High Performance** | **Reliable** | **Robust Design** | **Self-Centering**

Description SB 28.3 / SB 23.3 with BUEL®

Main Features

- Limit switch release control
- Manual release lever with or without lock
- Self-centering of brake arms by cam disc and roller
- Automatic wear compensator
- Sintered linings for high friction speeds
- Continuously adjustable brake spring with torque scale and wear bushing enclosed in a spring tube
- Stainless steel pins and spindles
- W-execution (special anti-corrosion protection)
- Maintenance-free bushings in all hinge points
- Symmetric design
- Parallel air gap when brake is released (no tipping of the brake shoes)

Ordering Example



Options

- Limit switch wear control
- Proximity switch hand release
- Monitoring systems (e.g. VSR/CMB)
- Brake disc with hub or coupling

BUEL® Thrusters, Technical Data

Thruster Type	Power (W)	Curr. (A) at 400 V	Weight (kg)
BL 35-5	350	0,6	16
BL 50-6	450	0,7	16
BL 80-6	600	1,3	21
BL 125-6	650	1,4	24
BL 200-6	800	1,5	24
BL 300-6	900	1,6	33
BL 450-8	1200	2,0	33
BL 550-8	1250	2,1	33

Protection: max. 1.5 times of nominal current

Please Note

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PINTSCH BUBENZER Service

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Disc Brake SB 28.3 with BUEL®

Dimensions and technical data

PINTSCH BUBENZER

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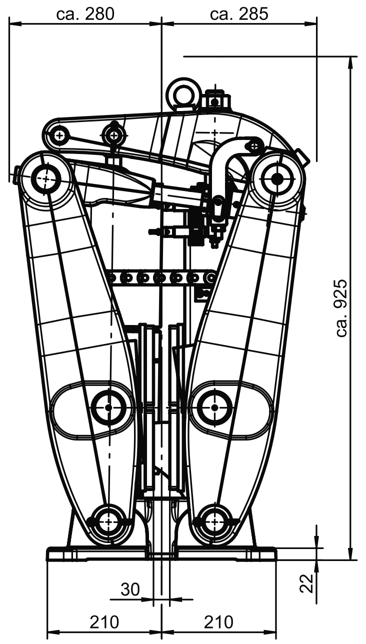
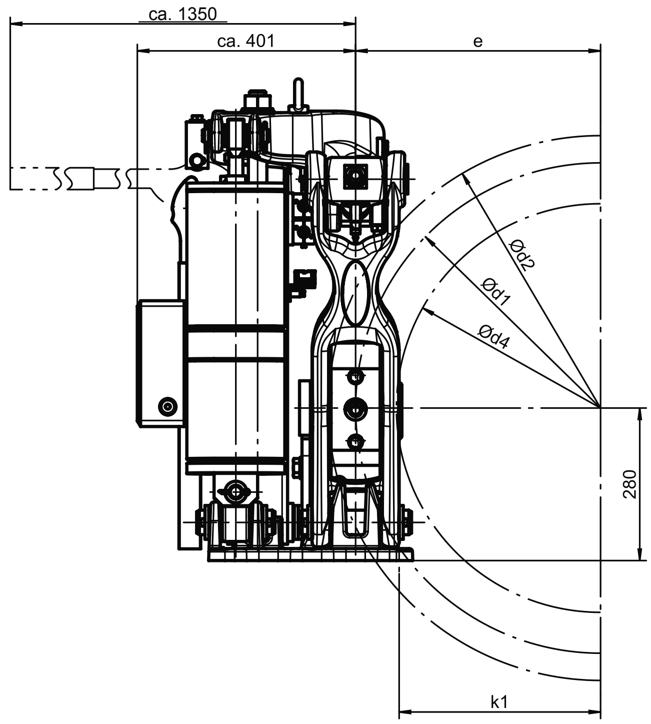
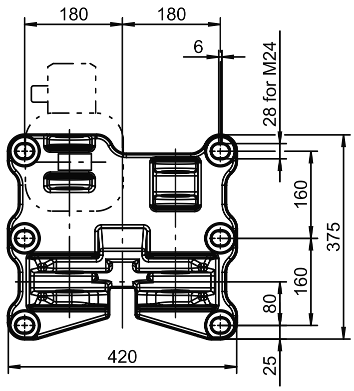
MB-001235 d







*) Average static friction factor of standard material combination

**) Only for BL 125-6 with brake disc-Ø 450 mm

The friction coefficient is subject to fluctuations depending on operational-, material- and ambient-conditions! This must be considered during the selection!

For crane brake layout use safety factors documented in the FEM 1.001, Section 1

All dimensions in mm
Alterations reserved without notice

Weight without thruster: ca. 270 kg			Thruster type		BL 125-6 (Weight: 24 kg)			BL 200-6 (Weight: 24 kg)			BL 300-6 (Weight: 33 kg)			BL 450-8 (Weight: 33 kg)			BL 550-8 (Weight: 33 kg)		
			Contact force in N		22500			35000			50000			65000			80000			
Disc-Ø d_2	Friction-Ø d_1	Max. hub-Ø d_4	e	k_1	*$M_{Brmax.}$ (Nm) at μ = 0,4	*$M_{Brmin.}$ (Nm) at μ = 0,4	*$M_{Brmin.}$ (% from $M_{Brmax.}$)	*$M_{Brmax.}$ (Nm) at μ = 0,4	*$M_{Brmin.}$ (Nm) at μ = 0,4	*$M_{Brmin.}$ (% from $M_{Brmax.}$)	*$M_{Brmax.}$ (Nm) at μ = 0,4	*$M_{Brmin.}$ (Nm) at μ = 0,4	*$M_{Brmin.}$ (% from $M_{Brmax.}$)	*$M_{Brmax.}$ (Nm) at μ = 0,4	*$M_{Brmin.}$ (Nm) at μ = 0,4	*$M_{Brmin.}$ (% from $M_{Brmax.}$)	*$M_{Brmax.}$ (Nm) at μ = 0,4	*$M_{Brmin.}$ (Nm) at μ = 0,4	*$M_{Brmin.}$ (% from $M_{Brmax.}$)
450	350	175 (200**)	175	95	3150	1575	50												
500	400	225	200	120	3600	1800	50												
560	460	285	230	150	4140	2070	50	6440	3220	50									
630	530	355	265	185	4770	2385	50	7420	3710	50	10600	5830	55						
710	610	435	305	225	5490	2745	50	8540	4270	50	12200	6710	55	15860	7930	50	19520	9760	50
800	700	525	350	270	6300	3150	50	9800	4900	50	14000	7700	55	18200	9100	50	22400	11200	50
900	800	625	400	320							16000	8800	55	20800	10400	50	25600	12800	50
1000	900	725	450	370							18000	9900	55	23400	11700	50	28800	14400	50

Disc Brake SB 23.3 with BUEL®

Dimensions and technical data

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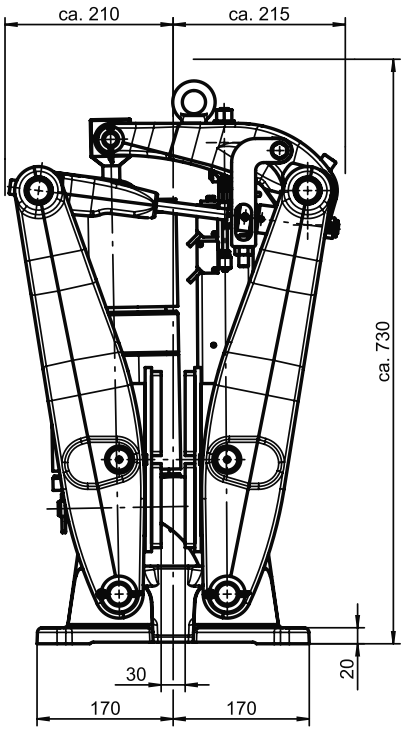
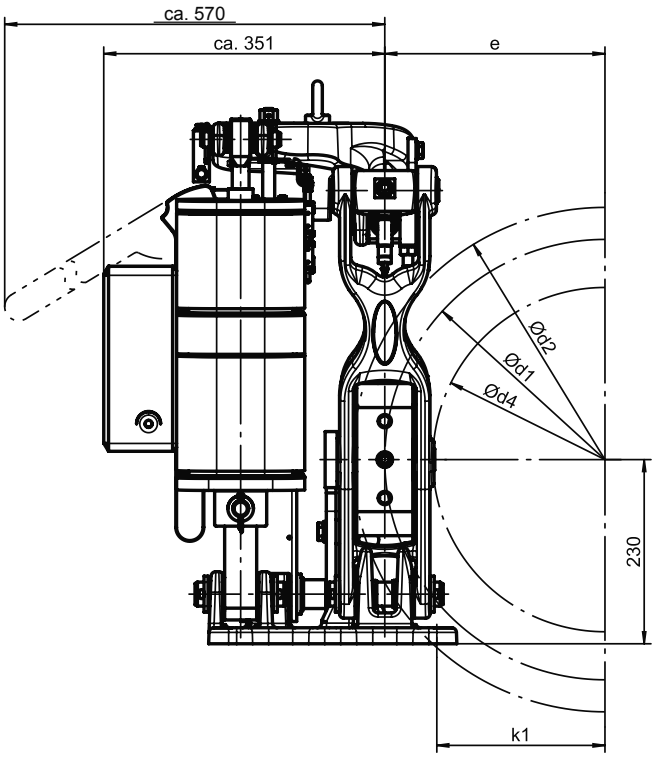
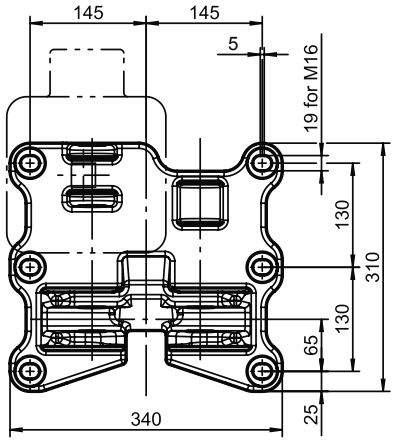
MB-001230 e







*) Average static friction factor of standard material combination

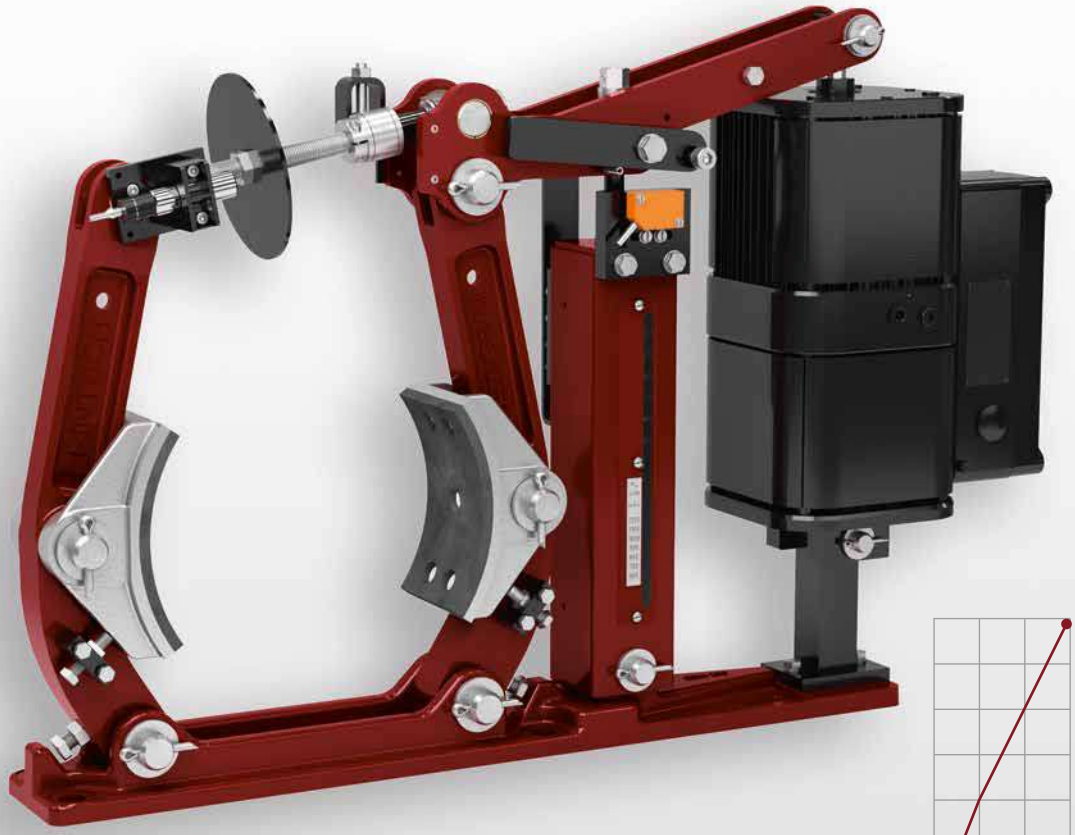
The friction coefficient is subject to fluctuations depending on operational-, material- and ambient-conditions! This must be considered during the selection!

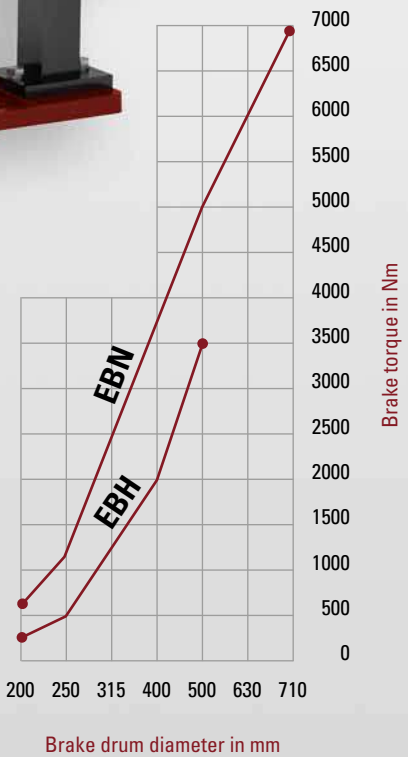
All dimensions in mm
Alterations reserved without notice

For crane brake layout use safety factors documented in the FEM 1.001, Section 1

Weight without thruster: ca. 99 kg			Thruster type		BL 35-5 (Weight: 16 kg)			BL 50-6 (Weight: 16 kg)			BL 80-6 (Weight: 21 kg)		
			Contact force in N		6845			10750			20500		
Disc-Ø d_2	Friction-Ø d_1	Max. hub-Ø d_4	e	k_1	*$M_{Brmax.}$ (Nm) at µ = 0,4	*$M_{Brmin.}$ (Nm) at µ = 0,4	*$M_{Brmin.}$ (% from $M_{Brmax.}$)	*$M_{Brmax.}$ (Nm) at µ = 0,4	*$M_{Brmin.}$ (Nm) at µ = 0,4	*$M_{Brmin.}$ (% from $M_{Brmax.}$)	*$M_{Brmax.}$ (Nm) at µ = 0,4	*$M_{Brmin.}$ (Nm) at µ = 0,4	*$M_{Brmin.}$ (% from $M_{Brmax.}$)
355	275	145	137,5	72,5	755	378	50						
400	320	190	160	95	875	438	50	1375	825	60	2625	1313	50
450	370	240	185	120	1015	508	50	1590	954	60	3035	1518	50
500	420	290	210	145	1150	575	50	1805	1083	60	3445	1723	50
560	480	350	240	175	1315	658	50	2065	1239	60	3935	1968	50
630	550	420	275	210	1505	753	50	2365	1419	60	4510	2255	50
710	630	500	315	250	1725	863	50	2710	1626	60	5165	2583	50

Drum Brakes





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

DIN
Acc. to DIN 15435

High Performance

Reliable

Robust Design

Tried and Trusted

Description Drum Brakes

Main Features

- According to DIN 15435 standard
- Continuously adjustable brake spring enclosed in a square tube with torque scale
- Self-lubricating bushings mean brakes are easy to service, no greasing necessary
- Equal air gap by adjustable lever stops
- Up to size 400:
  Levers and base plate made of nodular cast iron
- From size 500:
  Levers and base plate made of welded steel
- Different thrusters
- Aluminum brake shoes acc. DIN 15435 Bl. 2 with non-asbestos, organic linings
- Shoe clamping springs which prevent brake shoes from tilting when released
- Pins and main spindle of stainless steel
- Uncoated parts and screws of stainless steel

Options

- Automatic wear compensator
- Limit switch release control
- Limit switch wear control
- Proximity switch hand release
- Manual release lever with or w/o stop
- Monitoring systems (e.g. VSR/CMB)
- Brake drums with hubs or couplings
- Weather execution (special paint and coating) for outdoor use

Thrusters, Technical Data

Thruster Type	Power (W)	Curr. (A) at 400 V	Weight (kg)
BL 22-5	150	0,4	11
BL 30-5	160	0,4	13
BL 50-6	450	0,7	16
BL 80-6	600	1,3	21
BL 125-6	650	1,4	24
BL 200-6	800	1,5	24

Protection: max. 1.5 times of nominal current

Please Note

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Drum Brake Type EBN

Dimensions and technical data

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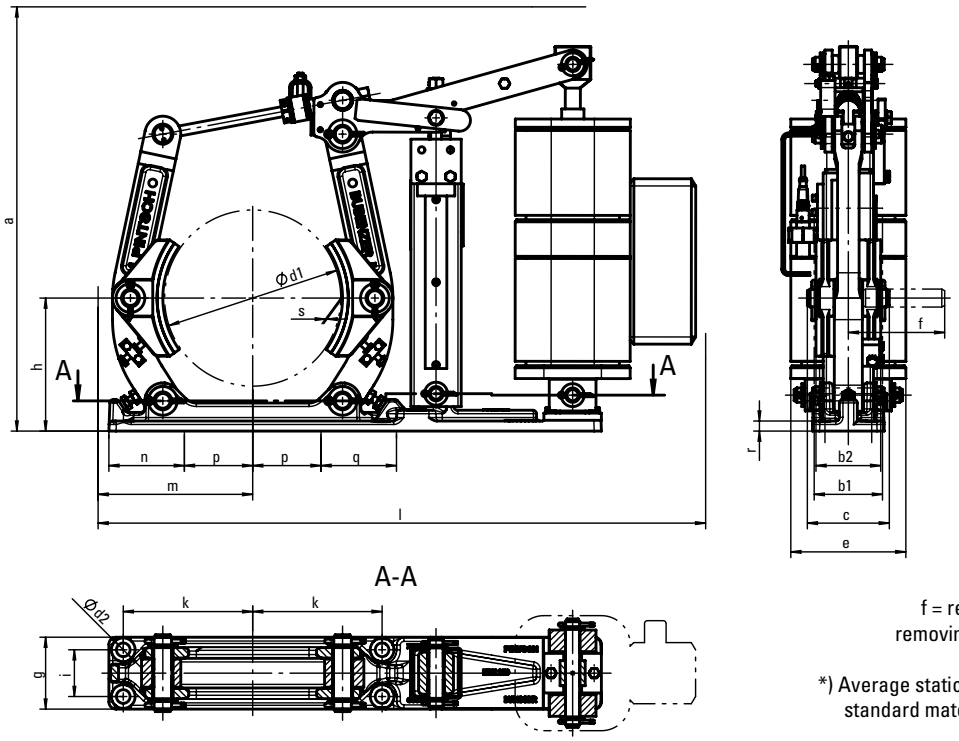
MB-001512 b



A-A

f = required space for removing brake shoe pin

*) Average static friction factor of standard material combination

All dimensions in mm
Alterations reserved without notice

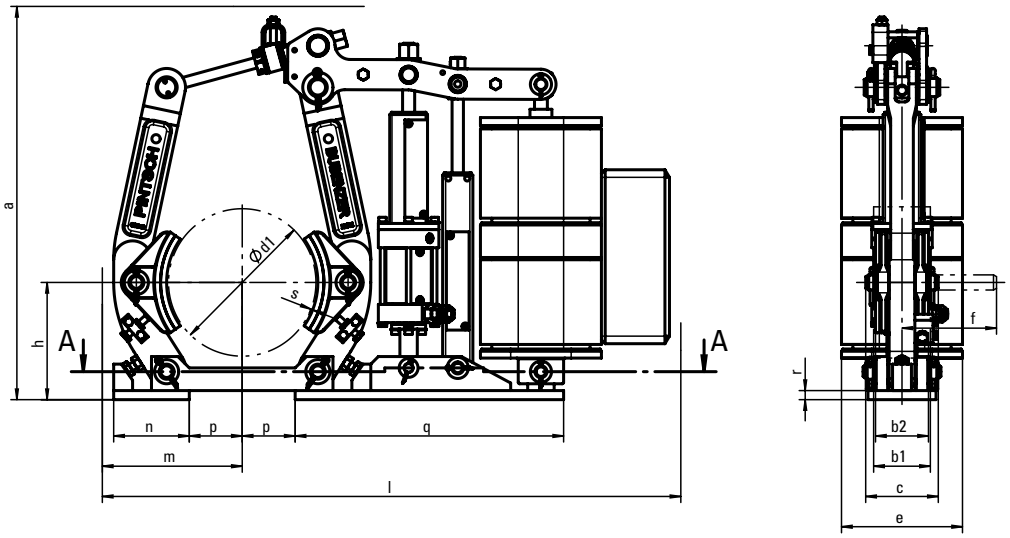
The friction coefficient is subject to fluctuations depending on operational-, material- and ambient-conditions! This must be considered during the selection!

Brake type	Thruster type	*$M_{Brmax.}$ (Nm) at μ = 0,4	*$M_{Brmin.}$ (Nm) at μ = 0,4	*$M_{Brmin.}$ (% from $M_{Brmax.}$)	$a_{max.}$	b_1	b_2	c	d_1	d_2	e	f ca.	g	h	i	k	$l_{max.}$	m ca.	n	p	q	r	s ca.	kg ca.
EBN 200-22-5	BL 22-5	325	195	60	510	75	70	96	200	15	160	115	90	155	55	145	675	185	100	70	100	12	1	41
EBN 200-30-5	BL 30-5	420	210	50	563	75	70	96	200	15	160	115	90	155	55	145	680	185	100	70	100	12	1	45
EBN 200-50-6	BL 50-6	600	360	60	573	75	70	96	200	15	160	115	90	155	55	145	720	185	100	70	100	12	1,2	46
EBN 250-22-5	BL 22-5	450	225	50	518	95	90	115	250	19	160	135	100	185	65	180	800	215	105	95	105	14	1	47
EBN 250-30-5	BL 30-5	560	392	70	581	95	90	115	250	19	160	135	100	185	65	180	805	215	105	95	105	14	1	51
EBN 250-50-6	BL 50-6	1000	550	55	590	95	90	115	250	19	160	135	100	185	65	180	845	215	105	95	105	14	1,2	52
EBN 250-80-6	BL 80-6	1200	600	50	590	95	90	115	250	19	160	135	100	185	65	180	845	215	105	95	105	14	1,2	57
EBN 315-30-5	BL 30-5	700	420	60	703	118	110	140	315	19	160	165	110	225	80	220	920	270	110	133	240	14	1	81
EBN 315-50-6	BL 50-6	1400	770	55	705	118	110	140	315	19	160	165	110	225	80	220	1000	270	110	133	240	14	1,2	82
EBN 315-80-6	BL 80-6	2500	1250	50	705	118	110	140	315	19	160	165	110	225	80	220	1000	270	110	133	240	14	1,2	87
EBN 400-50-6	BL 50-6	1225	735	60	705	150	140	167	400	23	160	195	140	270	100	270	1105	315	135	165	280	15	1,4	98
EBN 400-80-6	BL 80-6	3000	1650	55	710	150	140	167	400	23	160	195	140	270	100	270	1105	315	135	165	280	15	1,4	103
EBN 400-125-6	BL 125-6	4000	2000	50	796	150	140	167	400	23	160	195	140	270	100	270	1105	315	135	165	280	15	1,4	106
EBN 500-50-6	BL 50-6	1500	750	50	851	190	180	210	500	22	160	245	170	330	130	325	1290	390	155	210	315	20	1,5	154
EBN 500-80-6	BL 80-6	3750	1875	50	851	190	180	210	500	22	160	245	170	330	130	325	1290	390	155	210	315	20	1,5	159
EBN 500-125-6	BL 125-6	5120	2560	50	851	190	180	210	500	22	160	245	170	330	130	325	1290	390	155	210	315	20	1,5	162
EBN 630-80-6	BL 80-6	3600	1800	50	995	236	225	250	630	27	160	300	220	410	170	400	1355	470	165	280	330	25	1,8	256
EBN 630-125-6	BL 125-6	5400	2700	50	1015	236	225	250	630	27	160	300	220	410	170	400	1355	470	165	280	330	25	1,8	259
EBN 630-200-6	BL 200-6	6025	3012	50	1015	236	225	250	630	27	160	300	220	410	170	400	1355	470	165	280	330	25	1,8	259
EBN 710-80-6	BL 80-6	4500	2250	50	1110	265	255	280	710	27	160	335	240	460	190	450	1515	520	250	250	450	25	1,8	331
EBN 710-125-6	BL 125-6	6000	3000	50	1110	265	255	280	710	27	160	335	240	460	190	450	1515	520	250	250	450	25	1,8	334
EBN 710-200-6	BL 200-6	6920	3460	50	1110	265	255	280	710	27	160	335	240	460	190	450	1515	520	250	250	450	25	1,8	334

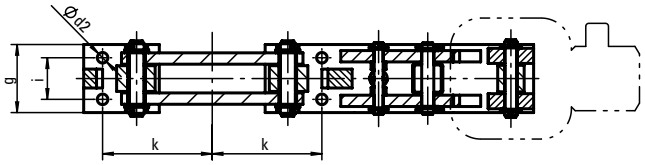
Drum Brake EBN-2St

Dimensions and technical data

Rev. 03-18
MB-001581 a



A-A



f = required space for removing brake shoe pin

*) Average static friction factor of standard material combination

The friction coefficient is subject to fluctuations depending on operational-, material- and ambient-conditions! This must be considered during the selection!

All dimensions in mm
Alterations reserved without notice

Brake type	Thruster type	$M_{BR\,max.}$ (Nm) at μ = 0,4*	a_{max}	b_1	b_2	c	d_1	d_2	e	f ca.	g	h	i	k	l_{max}	m ca.	n	p	q	r	s ca.	kg ca.
EBN-2St 200-22-5	BL 22-5	140	520	75	70	96	200	14	160	115	90	155	55	145	730	185	100	70	350	12	1	36
EBN-2St 200-30-5	BL 30-5	230	520	75	70	96	200	14	160	115	90	155	55	145	735	185	100	70	350	12	1	38
EBN-2St 200-50-6	BL 50-6	360	563	75	70	96	200	14	160	115	90	155	55	145	765	185	100	70	350	12	1	41
EBN-2St 250-22-5	BL 22-5	180	520	95	90	115	250	18	160	135	100	185	65	180	880	205	105	95	405	13	1,2	42
EBN-2St 250-30-5	BL 30-5	290	520	95	90	115	250	18	160	135	100	185	65	180	885	205	105	95	405	13	1,2	44
EBN-2St 250-50-6	BL 50-6	530	582	95	90	115	250	18	160	135	100	185	65	180	925	205	105	95	405	13	1,2	47
EBN-2St 250-80-6	BL 80-6	720	582	95	90	115	250	18	160	135	100	185	65	180	925	205	105	95	405	13	1,2	52
EBN-2St 315-30-5	BL 30-5	420	665	118	110	140	315	18	160	165	110	225	80	220	1035	300	110	133	430	13	1,2	63
EBN-2St 315-50-6	BL 50-6	650	665	118	110	140	315	18	160	165	110	225	80	220	1115	300	110	133	430	13	1,2	66
EBN-2St 315-80-6	BL 80-6	1190	665	118	110	140	315	18	160	165	110	225	80	220	1115	300	110	133	430	13	1,2	71
EBN-2St 315-125-6	BL 125-6	1500	790	118	110	140	315	18	160	165	110	225	80	220	1115	300	110	133	430	13	1,2	74
EBN-2St 400-50-6	BL 50-6	760	680	150	140	167	400	22	160	195	140	270	100	270	1195	310	135	165	500	15	1,5	104
EBN-2St 400-80-6	BL 80-6	1400	680	150	140	167	400	22	160	195	140	270	100	270	1195	310	135	165	500	15	1,5	109
EBN-2St 400-125-6	BL 125-6	2120	790	150	140	167	400	22	160	195	140	270	100	270	1205	310	135	165	500	15	1,5	112
EBN-2St 400-200-6	BL 200-6	2500	790	150	140	167	400	22	160	195	140	270	100	270	1205	310	135	165	500	15	1,5	112
EBN-2St 500-50-6	BL 50-6	960	845	190	180	210	500	22	160	245	170	330	130	325	1285	370	155	210	315	20	1,5	144
EBN-2St 500-80-6	BL 80-6	1770	845	190	180	210	500	22	160	245	170	330	130	325	1285	370	155	210	315	20	1,5	149
EBN-2St 500-125-6	BL 125-6	2680	845	190	180	210	500	22	160	245	170	330	130	325	1295	370	155	210	315	20	1,5	152
EBN-2St 500-200-6	BL 200-6	4350	845	190	180	210	500	22	160	245	170	330	130	325	1295	370	155	210	315	20	1,5	152

Drum Brake Type EBN-2 St

as 2-step brake – Functional description

Rev. 09-02

Two directions are becoming apparent today in the use of double shoe brakes - apart from lifting gear brakes:

First of all, the use as a straight stopping brake and secondly as a brake for markedly special applications.

The 2-step brake offers exceptional possibilities in this area of special tasks.

This type designation is to be understood as covering brakes which:

a) act with an adjustable partial torque A immediately after the actuator is switched off and in which

b) the remaining braking torque B takes effect in an adjustable manner and is delayed in time with regard to torque A.

Thus, the max. braking torque = torque A + torque B

To generate the braking torque, our 2-step brakes have two spring systems fitted with pressure springs which act separately.

The spring 1 generating torque A, is firmly connected to the actuator (release) lever and is tensioned during the release movement. It is adjustable from about 20-50% of the maximum brake torque and takes effect after the actuator is switched off during the normal engagement time.

The spring system 2 generating torque B, is also tensioned during the release movement, generates 30-70% of the maximum braking torque and is firmly connected to a small hydraulic system.

Spring 2 is not firmly connected to the actuator lever; the spring and piston rod moves between two stops in a guide bushing in a crosspiece connected to the actuator lever.

When the actuator is switched off, the brake engages through the action of spring 1. Spring 2 must first displace oil in the hydraulic system through a choke adjustable from the outside before the braking torque generated by it can take effect.

The delaying hydraulic system is the heart of the 2-step brake. It is a small, compact, self-contained system without an external bypass, without an expansion tank. The piston is carried on bearings at both ends, the seals are teflon elements of a new type which reduce friction and the slip-stick effect to a minimum in comparison with usual sleeves and allow a hydraulic system to be used also in brakes with small actuators. The adjustment screw for the throttle valve is easily accessible and protrudes only slightly beyond the housing. The delay can be adjusted from 1 to about 12 seconds.

Filling medium is a special oil.

The whole system is extremely simple and robust, without easily damaged valves. It is easy to fill and to bleed, and consequently meets the basic requirement, also for small maintenance enterprises without specialists, of being clearly arranged, adjustable and capable of repair.

The hydraulic system can be used in all positions, horizontally or vertically.

Range of applications:

In particular, these concern belt drives and crane slew ing gear. Also for braking operations in which the partial torque A is sufficient for normal soft braking but where the full braking torque A+B must be available later for stopping purposes as with certain crane travelling gear. Consideration must be given to effects of wind pressure.

When the time factor in the delay is set appropriately, inching is also possible without the torque B being applied.

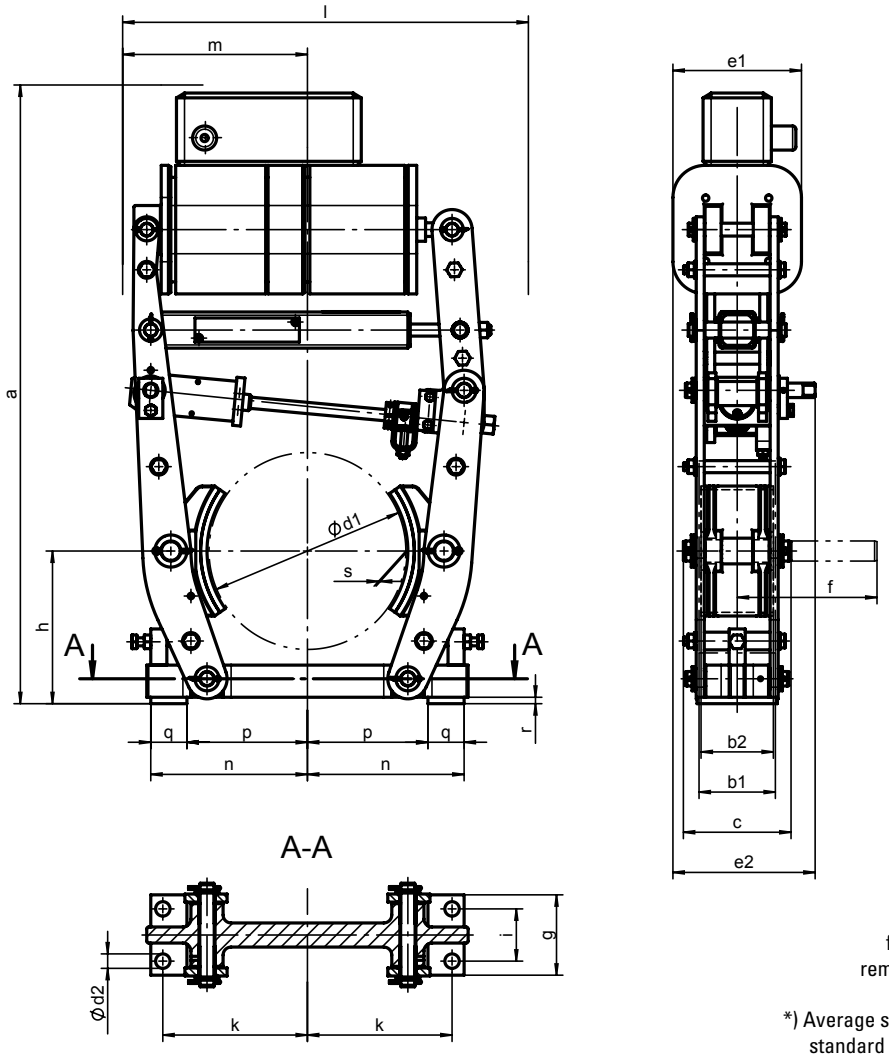
Drum Brake Type EBH

Dimensions and technical data

PINTSCH BUBENZER

B

Rev. 03-18
MB-001518 b



f = required space for removing brake shoe pin

*) Average static friction factor of standard material combination

The friction coefficient is subject to fluctuations depending on operational-, material- and ambient-conditions! This must be considered during the selection!

All dimensions in mm
Alterations reserved without notice

Brake type	Thruster type	*$M_{Brmax.}$ (Nm) at μ = 0,4	*$M_{Brmin.}$ (Nm) at μ = 0,4	*$M_{Brmin.}$ (% from $M_{Brmax.}$)	$a_{max.}$	b_1	b_2	c	d_1	d_2	e_1	e_2 ca.	f ca.	g	h	i	k	$l_{max.}$	m ca.	n	p	q	r	s ca.	kg ca.
EBH 200-22-5	BL 22-5	280	140	50	660	75	70	113	200	14	160	175	150	90	160	55	145	405	195	160	115	45	8	1	32
EBH 250-22-5	BL 22-5	305	153	50	730	95	90	134	250	18	160	180	180	100	190	65	180	455	225	195	150	45	8	1,2	38
EBH 250-30-5	BL 30-5	335	168	50	730	95	90	134	250	18	160	180	180	100	190	65	180	505	230	195	150	45	8	1,2	40
EBH 250-50-6	BL 50-6	510	255	50	770	95	90	134	250	18	160	185	180	100	190	65	180	600	270	195	150	45	8	1,5	43
EBH 315-22-5	BL 22-5	410	246	60	880	118	110	161	315	18	160	195	215	110	230	80	220	610	285	240	190	50	10	1,1	56
EBH 315-30-5	BL 30-5	490	245	50	880	118	110	161	315	18	160	195	215	110	230	80	220	610	285	240	190	50	10	1,1	58
EBH 315-50-6	BL 50-6	1050	577	55	920	118	110	161	315	18	160	195	215	110	230	80	220	615	290	240	190	50	10	1,4	66
EBH 315-80-6	BL 80-6	1120	560	50	920	118	110	161	315	18	160	195	215	110	230	80	220	615	290	240	190	50	10	1,4	72
EBH 400-50-6	BL 50-6	1000	500	50	1025	150	140	206	400	22	160	230	270	140	280	100	270	680	325	295	160	135	10	1,6	99
EBH 400-80-6	BL 80-6	2000	1000	50	1025	150	140	206	400	22	160	230	270	140	280	100	270	680	325	295	160	135	10	1,6	104
EBH 500-50-6	BL 50-6	1150	575	50	1130	190	180	245	500	22	160	270	330	170	340	130	325	840	420	355	275	80	12	1,7	138
EBH 500-80-6	BL 80-6	2200	1100	50	1130	190	180	245	500	22	160	270	330	170	340	130	325	840	420	355	275	80	12	1,7	143
EBH 500-125-6	BL 125-6	3500	1750	50	1140	190	180	245	500	22	160	270	330	170	340	130	325	900	425	355	275	80	12	1,7	150

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BUEL® H

HIGH SPEED

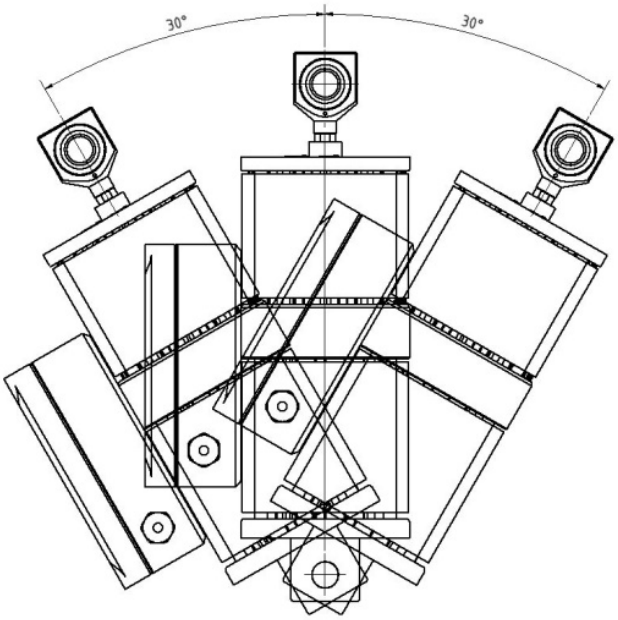
BUEL® thrusters have been developed on the basis of decades of experience in power transmission.
Highest quality standards in each PINTSCH BUBENZER business unit is the basis for excellent reliability and safety.
BUEL® thrusters are used for almost all kind of industrial applications. They are setting new industry standards for disk and drum brakes as well as wheel brakes.

Our experts will assist you to find your best solution with BUEL®.

more information: www.buel-bubenzer.com

- New technology
- Pressure generation by centrifugal gear pump with high mechanical efficiency
- Fast setting times
- Energy saving by intermittent duty
- Fail safe principle
- Redundant valves
- Compact dimensions
- Terminal box with control board
- Automatic pressure drop compensation
- Low heat generation
- Huge temperature range in standard execution
- Little oil volume
- Little ecologic risk
- High protection category
- Infinitely variable setting time
- Swivel head for shear force and misalignment compensation
- Unique design for the complete model range
- Low weight, excellent mass/performance ratio

Installation positions
All BUEL® thrusters are preferably operated vertically (piston rod ontop). A deviation of +/- 30° from the vertical axis is permitted. A horizontal installation is possible as an option (please indicate with the order).



Electrical design
All BUEL® thrusters are operated with 3-phase voltages between 220 V to 690 V @ 50 Hz or 60 Hz.

Protection class
All electric components of the BUEL® thrusters are located inside, for best protection against environmental influences. BUEL® thrusters are rated IP 65. As an option, protection class IP 67 is possible.

Operating modes (BL 35-5 to BL 600-8)
BUEL® thrusters are designed for intermittent duty, independently from the required operating mode of the driveinstalled. Any limitation of the duty cycle is not required.

After reaching the end position (brake released) the motor is switching off. In case the end position is not reached within 4 seconds, the motor is switched off internally.

Ambient temperature range
BUEL® thrusters are suitable for ambient temperatures between -30°C to +60°C*. For deviating ambient temperatures, please contact us.

Protection against moisture
For applications in maritime or tropic environments, the optional use of a small heater to protect the motor windings from moisture is recommended.

Heater voltages can be:

> 110 to 120 V AC 50 Hz or 60 Hz

> 220 to 240 V AC 50 Hz or 60 Hz

*Lower, respectively higher temperatures are possible on request.

Technical Data

BL	F max. [N]	max. power [kW] *	max. current consumption [A] *	operating mode S1 and S3 to [c/h]	weight with hydraulic medium [kg]
22-5**	400	0,15	0,4	1000	11
30-5**	450	0,16	0,4	1000	13
35-5	600	0,35	0,6	1000	16
50-6	900	0,45	0,7	1000	16
50-12	900	0,45	0,7	1000	16
80-6	2000	0,6	1,3	1000	21
80-12	2000	0,6	1,3	1000	21
125-6	2500	0,65	1,4	1000	24
125-12	2500	0,65	1,4	1000	24
200-6	3600	0,8	1,5	1000	24
200-12	3600	0,8	1,5	1000	24
300-6	5000	0,9	1,6	900	33
300-12	5000	0,9	1,6	900	33
400-8	5500	1,0	1,7	900	33
400-10	5500	1,0	1,7	900	33
440-8	6500	1,1	1,8	900	33
450-8	7000	1,2	2,0	900	33
550-8	8000	1,25	2,1	900	33
600-8	8000	1,25	2,1	900	33

*At 400 V, 50 Hz. **At temperature -30°C to +60°C (lower, respectively higher temperatures are possible on request).

Connection dimensions as per DIN 15430

BL	F max.	A	B	C	D	E	F	G	H	K	L	M	N	O*	P	S	T	U	W
22-5	400 N	286	16	26	15	30	20	16	20	14	206	80	40	160	80	136	12	24	M4
30-5	450 N	370	16	34	15	30	20	16	18	16	210	80	40	160	80	136	12	24	M4
35-5	600 N	370	16	34	15	30	20	16	18	16	250	80	40	160	80	136	12	24	M4
50-6	900 N	435	20	94	25	50	25	20	23	22	250	120	60	160	80	136	12	35	M5
50-12	900 N	515	20	114	25	50	25	20	23	22	250	120	60	160	80	136	12	35	M5
80-6	2000 N	450	20	66	25	50	25	20	23	22	250	120	60	160	80	136	13	35	M5
80-12	2000 N	530	20	86	25	50	25	20	23	22	250	120	60	160	80	136	13	35	M5
125-6	2500 N	645	25	69	30	60	31	25	35	25	250	90	40	160	80	136	13	45	M5
125-12	2500 N	705	25	129	30	60	31	25	35	25	250	90	40	160	80	136	13	45	M5
200-6	3600 N	645	25	69	30	60	31	25	35	25	250	90	40	160	80	136	13	45	M5
200-12	3600 N	705	25	129	30	60	31	25	35	25	250	90	40	160	80	136	13	45	M5
300-6	5000 N	645	25	78	30	60	31	25	35	25	270	90	40	180	90	152	12,5	45	M5
300-12	5000 N	705	25	138	30	60	31	25	35	25	270	90	40	180	90	152	12,5	45	M5
400-8	5500 N	645	25	78	30	60	31	25	35	25	270	90	40	180	90	152	12,5	45	M5
400-10	5500 N	645	25	78	30	60	31	25	35	25	270	90	40	180	90	152	12,5	45	M5
440-8	6500 N	648	25	81	30	60	31	25	35	25	270	90	40	180	90	152	12,5	45	M5
450-8	7000 N	645	25	78	30	60	31	25	35	25	270	90	40	180	90	152	12,5	45	M5
550-8	8000 N	645	25	78	30	60	31	25	35	25	270	90	40	180	90	152	12,5	45	M5
600-8	8000 N	665	25	98	30	60	31	25	35	25	270	90	40	180	90	152	12,5	45	M5

*Data without pressure and temperature monitoring.

Code for Options

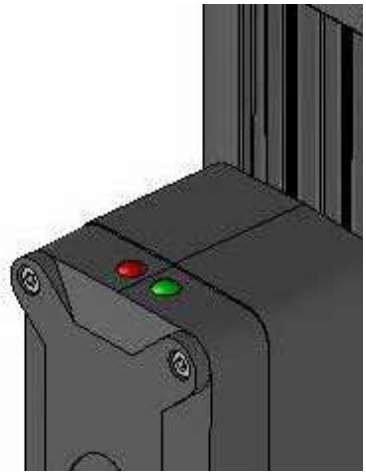
BL	Type
80 (Example)	Force in kp
6 (Example)	Stroke in cm

A	Heater
B	Cover (protection against dust)
C	Increased corrosion protection
EB	Proximity switch
G	Version with internal or external proportional valve
H	High speed execution
I	Protection class IP 67
M	For controlled braking system BB900
N	BL450-6 for BOSS® anti snag system
P	Deviating mounting position
R	Reserve stroke indication
S	Lowering valve
T	Temperature monitoring
W	High temperature execution
X	Special external certificates like e.g. UL
Z	Two stage braking action
xxx V, yy Hz	Voltage, frequency

Option R (reserve stroke indicator by LED)

Visual indication for „dropping below minimum permissible reserve stroke“, by two LED's located on the terminal box.

The option „reserve stroke indicator by LED“ makes it possible to monitor the lower threshold of the reserve stroke, when the brake is set. When going below this threshold, the LED indicator changes from green light to red light.
The LED's are extremely bright. An indication even in direct sunlight is ensured (possible option for BL 125 and up).



CERTIFICATE OF COMPLIANCE

Certificate Number	20170511-E492639
Report Reference	E492639-20170427
Issue Date	2017-MAY-11
Issued to:	PINTSCH BUBENZER GMBH Friedrichshuttenstr 1 57548 Kirchen-Wehbach GERMANY
This is to certify that representative samples of	POWER CIRCUIT AND MOTOR-MOUNTED APPARATUS Enclosed Type electrical Brake thruster Series BUEL, models 22-5, 30-5, 35-5, 50-6,50-12,80-6, 80-12, 125-6, 125-12, 200-6, 200-12, 300-6,300-12, 400-8, 400-10, 440-8, 450-8, 550-8, 600-8. Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.
Standard(s) for Safety:	UL 508, Industrial Control Equipment. CSA C22.2 No. 14-13, Industrial Control Equipment.
Additional Information:	See the UL Online Certifications Directory at www.ul.com/database for additional information

Only those products bearing the UL Certification Mark should be considered as being covered by UL's Certification and Follow-Up Service.

Look for the UL Certification Mark on the product.

Bruce Mahrenholz, Director North American Certification Program

UL LLC

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BUEL® G

GREEN

The BUEL® Model G is a new family member of the PINTSCH BUBENZER brand BUEL®. It is a compact thruster to feed active or passive hydraulic brakes and emergency brakes. It is also suitable for small capacity hydraulic cylinders. Operational pressure can be up to 250 bar.

Our experts will assist you to find your best solution with BUEL®.

more information: www.buel-bubenzer.com

Electrical design
All BUEL® thrusters are operated with 3-phase voltages between 220 V to 690 V @ 50 Hz or 60 Hz.

Protection class
All electric components of the BUEL® thrusters are located inside, for best protection against environmental influences. BUEL® thrusters are rated IP 65. Protection class IP 67 is possible as an option.

Operating modes
BUEL® Model G thrusters are designed for intermittent duty, independently from the required operating mode of the drive installed. There is no limitation of duty cycle. The motor is switched off after reaching the working pressure. In case the working pressure is not reached within 4 seconds, the motor is switched off internally.

Ambient temperature range
BUEL® thrusters are suitable for ambient temperatures between -30°C to +60°C*. For deviating ambient temperatures, please contact us for support.

Protection against moisture
For applications in maritime or tropic environments, the optional use of a small heater to protect the motor windings from moisture is recommended.
Heater voltages can be:
> 110 to 120 V AC 50 Hz or 60 Hz
> 220 to 240 V AC 50 Hz or 60 Hz

Hydraulic media
BUEL® Model G thrusters are filled with a high performance synthetic oil, type PENTOSIN CHF 11S. This oil insures a trouble-free operation in the entire temperature range, indicated above.
Biodegradable oils can be used as an option.

Properties
> Compact design
> Fail safe principle
> Variable tank capacity, small filling quantity
> Use of bio-degradable oils possible
> Redundant valve system
> Energy saving by limited duty cycle
> Automatic compensation of pressure losses, by short time actuation
> Hydraulic parts protected inside the housing
> 2 pressure outlets
> Internal generation of the control voltage for valves and sensors
> Overload protection by monitoring of the working pressure
> External manual release incl. “dead-man-handle”
> Integrated bursting pressure protection
> Options for additional functions and monitoring

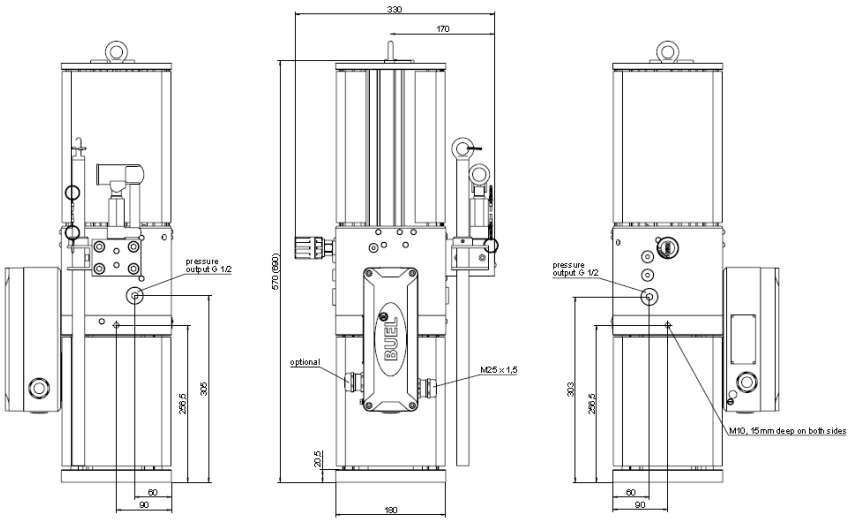
Model G	Max. pressure [bar]	Max. power [kW]	Max. current consumption [A]	Max. flow rate [l/min.]	Weight with oil [kg]	Mode of operation [c/h]
100	100	1,7	4,4	6	39	180
210	210	3,2	6,0	6	39	180
240	240	3,8	6,5	6	39	180
100L	100	1,7	4,4	6	42	180
210L	210	3,2	6,0	6	42	180
240L	240	3,8	6,5	6	42	180

Technical data relates to 3 phase 400 V, 50 Hz.

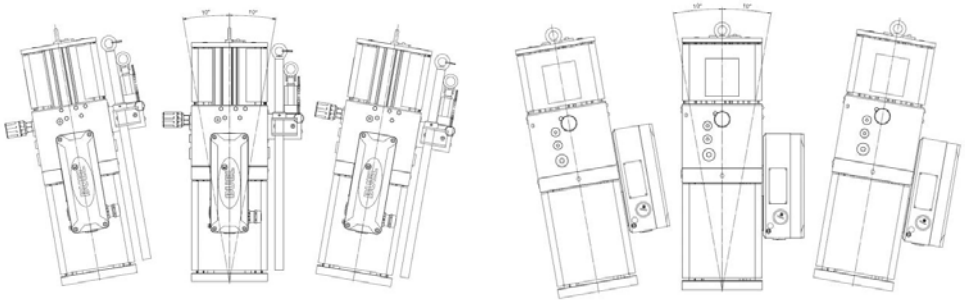
*Lower, respectively higher temperatures are possible on request.

BUEL® Model G

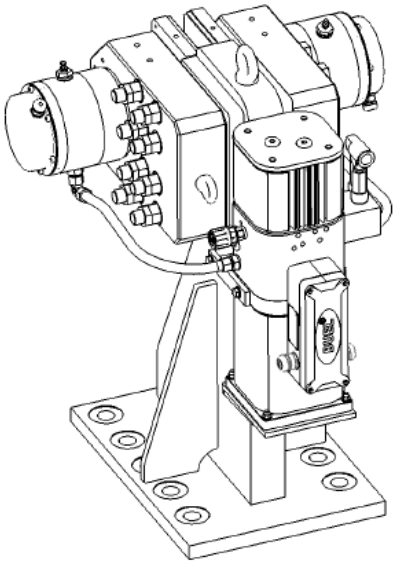
Made in Germany



Installation positions
BUEL® Model G thrusters have to be operated in vertical position (tank on top).
A deviation of +/- 10° from the vertical axis is permitted.



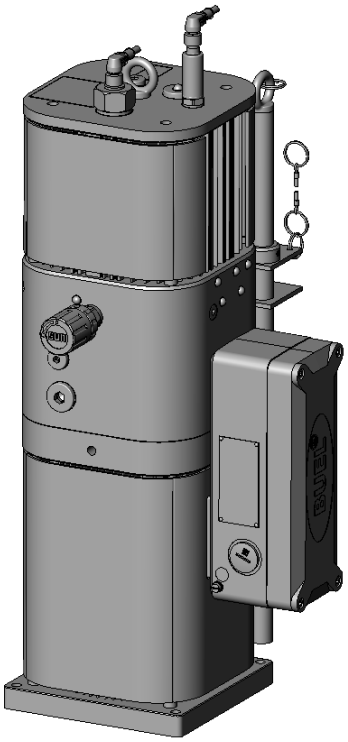
Brake type	Model G size	No. of calipers	Body size
SF 10	210	2	Standard
SF 10		4	Standard
SF 15	210	2	Standard
SF 15		4	Standard
SF 24	210	2	Standard
SF 24		4	„L“ Version
SF 30	240	2	„L“ Version
SF 30		4	„L“ Version
SF 40	240	2	„L“ Version
SF 40		4	„L“ Version
SF 50	240	4	„L“ Version



Code for Options

G	Type
210	Max. working pressure (bar)

A	Heater
C	Increased corrosion protection
D	Pressure monitoring
I	Protection class IP67
L	Big tank housing
M	Shut-off valve latching, non-latching
N	Level monitoring
O	Optical status control
R	Reserve stroke indication
T	Temperature monitoring
V	SOS/BOSS® application
W	High temperature execution
X	Special external certificates
xxx V, yy Hz	Voltage, frequency

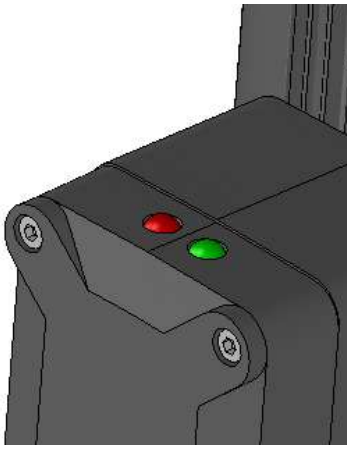


Option O (visual condition monitoring)

Visual indication for „operating pressure reached".
All BUEL® Model G can be equipped with a visual condition monitoring, which makes it possible to monitor the operating pressure.

> red Operating pressure not reached
> green Operating pressure reached

The LED's are extremely bright. An indication even in direct sunlight is ensured.



BUEL® S

STRONG

The BUEL® Model S is a brand new family member of the PINTSCH BUBENZER brand BUEL®. It is designed for wheel brakes on rail mounted cranes, where high pulling forces for mechanical wheel brakes are required. The patented cylinder system generates pulling forces up to 40.000 N. It has a robust, but also compact design for rough environmental conditions.

Our experts will assist you to find your best solution with BUEL®.

more information: www.buel-bubenzer.com

Electrical design
All BUEL® Model S units are operated with 3-phase voltages between 220 V to 690 V @ 50 Hz or 60 Hz.

Protection class
The electric components of the BUEL® Model S thrusters are located inside, for best protection against environmental influences. BUEL® thrusters are rated IP 65.
Protection class IP 67 is available as an option.

Operating modes
BUEL® Model S thrusters are designed for intermittent duty, independently from the required operating mode of the drive installed. There is no limitation of the duty cycle.
After reaching the working pressure, the motor is switched off. In case the working pressure is not reached within 4 seconds, the motor is switched off internally.

Ambient temperature range
BUEL® Model S thrusters are suitable for ambient temperatures between -30°C to +60°C*.
For deviating ambient temperatures, please contact us for support.

Protection against moisture
For applications in maritime or tropic environments, the optional use of a small heater to protect the motor windings from moisture is recommended.
Heater voltages can be:
> 110 to 120 V AC 50 Hz or 60 Hz
> 220 to 240 V AC 50 Hz or 60 Hz

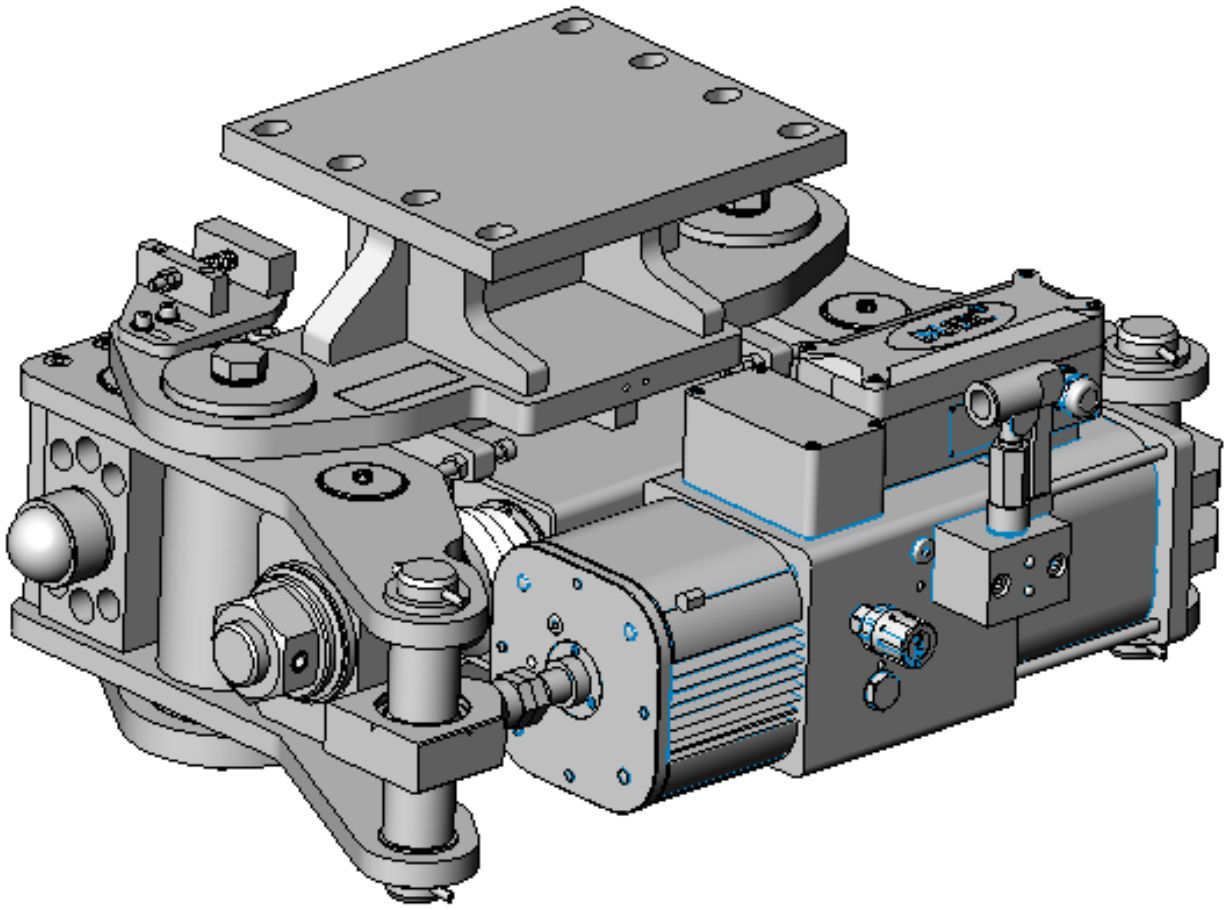
Hydraulic media
BUEL® Model S thrusters are filled with a high performance synthetic oil, type PENTOSIN CHF 11S. This oil insures a trouble-free operation in the entire temperature range, indicated above.
Biodegradable oil is available as an option.

Features
> Pressure generation by centrifugal gear pump
> Energy saving by intermittent duty
> Fail safe principle
> Redundant valves
> Terminal box with control board
> Automatic pressure drop compensation
> Low heat generation
> Huge temperature range in standard execution
> Little oil volume
> Little ecologic risk
> High protection category
> Infinitely variable setting time
> Hand pump with shut-off valve
> Low weight, excellent mass/ performance ratio
> Limit switch release control off the shelf

*Lower, respectively higher temperatures are possible on request.

BUEL® Model S

Made in Germany

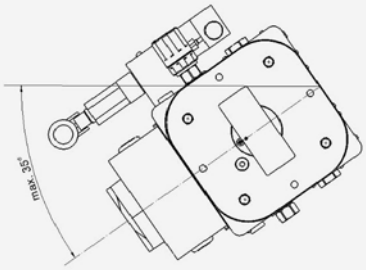


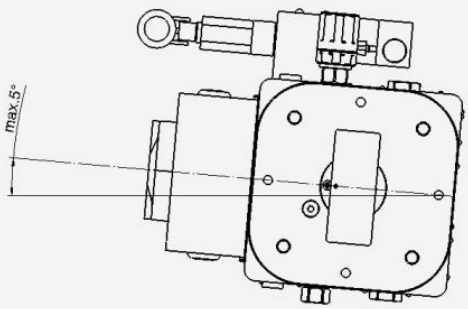
Model S	Wheel brake	Reset force [N]	Stroke [mm]	Max. power [KW]	Max. power consumption [A]	Mode of operation [c/h]	Weight with oil [kg]
3500-28	BRBe 70	35000	28	1,0	1,7	120	52
4000-28	BRBe 90	40000	28	1,1	1,8	120	52

Technical data relates to 3-phase 400 V, 50 Hz.

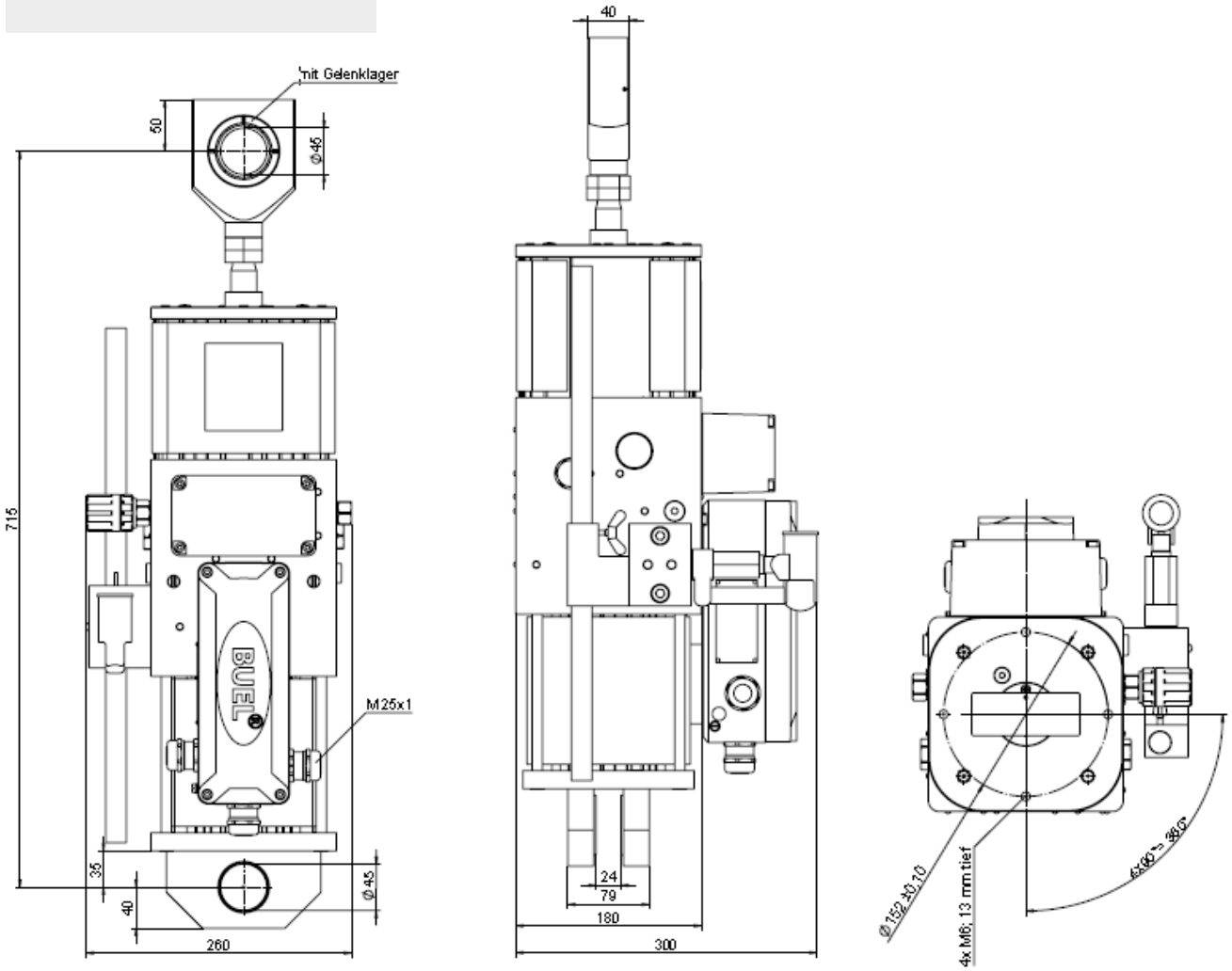
Installation positions

BUEL® Model S units are preferably operated in horizontal position.
A deviation of +/- 2° from the horizontal plane is permitted.
A rotation of 35° / 5° from the normal position is permitted.





Dimensions of BUEL® Model S 3500-28 and 4000-28 are identical.



Code for Options

S	Type
3500	Max. pulling force in dN

Options	Type
A	Heater
C	Increased corrosion protection
I	Protection class IP67
M	Shut-off valve latching, non-latching
R	Shut-off valve latching
xxx V, yy Hz	Voltage, frequency

PINTSCH BUBENZER

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