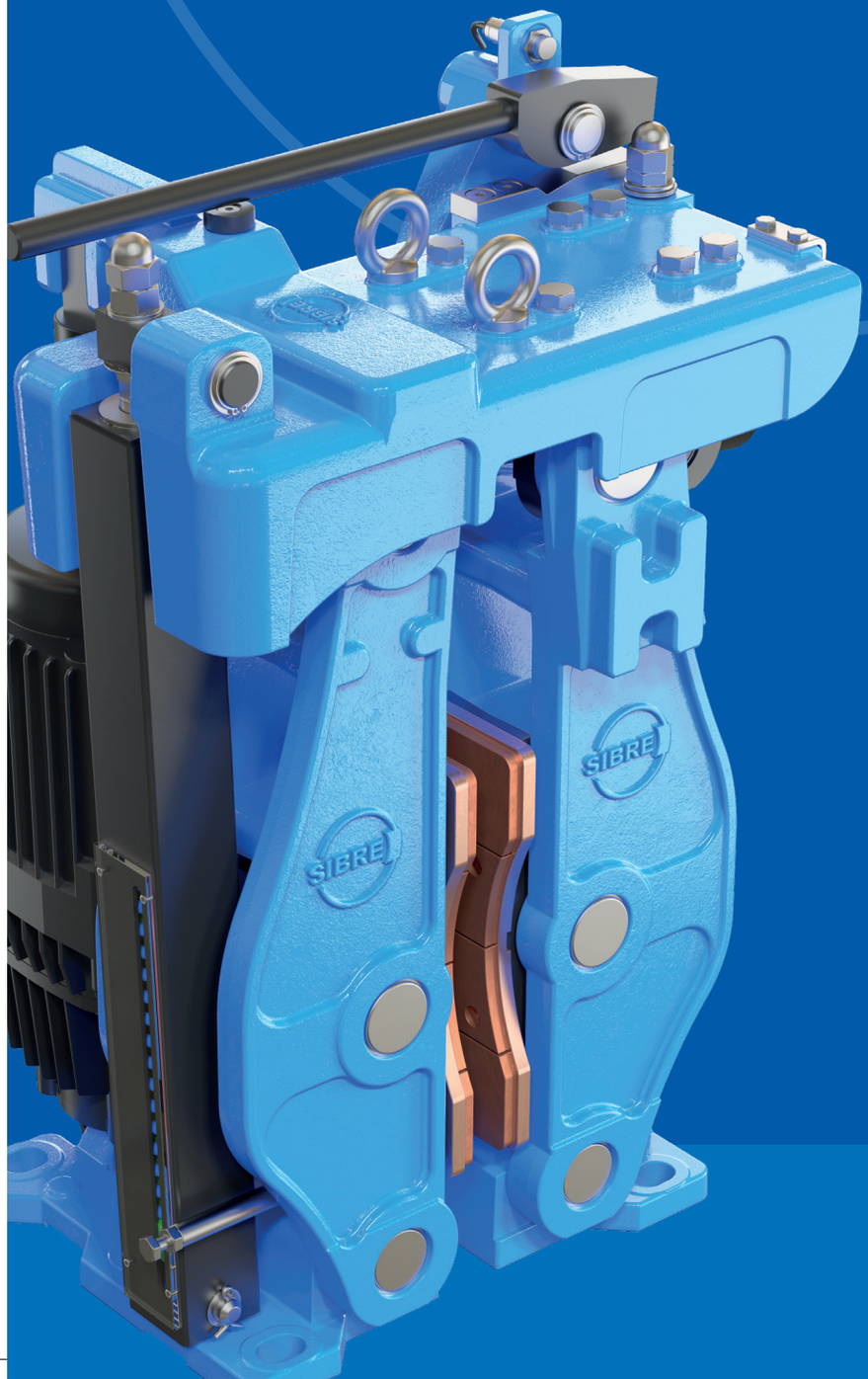
SIBRE – the world of industrial brakes



BRAKES

SIBRE -

The SIBRE Siegerland Bremsen GmbH is a worldwide operating, medium-sized company of traditions with meanwhile over 60 years of company history.

From the very first the company engages in the development and production of brake systems for the industry. Right from the start value was set on technical innovation, the most modern manufacturing technology and high customer use. Production procedures are continuously supervised by a quality management system.

The aim of the product development is an optimum combination of a top-quality product, the easiest use and market-driven price both for plant engineers and plant operators.

the world of industrial brakes

CONCEPTION

With a Team of experienced engineers and service technicians we have the knowledge to stand behind our slogan “Sure to be Safe”. Through this knowledge and experience the SIBRE Team has a complete understanding of Braking System requirements, and the consequences of an inferior or flawed product. SIBRE has the flexibility to design, build, and test in our own facility, allowing free thinking ideas and concepts to be realized.

ENGINEERING

Based on the collective decades of experience, our engineers, technicians, and input from our customers, the SIBRE R & D department, can develop, manufacture and test products heavy industry can rely on. Using state of the art software and the latest innovative hardware, the SIBRE Team can achieve optimal products. From innovative concepts to detailed construction plans, our R & D department consistently develops reliable SIBRE Products.

PRODUCTION

With a well-trained, long-standing team, and a newly expanded modern production hall, SIBRE is producing quality. From individual components and parts to final assembly, SIBRE stands firm on sustainable product quality.

QUALITY

Being ISO 9001 certified, SIBRE is guaranteeing the highest quality of each individual part and the entire brake assembly. With the most currently available measuring and testing equipment, the SIBRE Team has the capability to check for raw material properties and dimensional accuracy, on each critical component. These capabilities ensure the functional reliability customers have come to depend on from SIBRE.

from **conception** to **high quality** brakes

INTERNATIONAL PRESENCE

With 11 offices strategically placed on all continents, SIBRE is truly a renowned Global Player.

We pride ourselves in being a reliable partner for safety relevant components. Through our well-established sales and service locations, we have created solid cooperation, that often exceed customer expectations. Among the industries we support, Container and Material Handling, Mining and Metals, Forestry, Oil and Gas, Wastewater Treatment, Movable Bridges, and Hydropower to name a few, SIBRE's well-situated locations allow for responsive action to serve our customers.

CONCEPTION & ENGINEERING

for **innovative** brake-systems

CONCEPTION

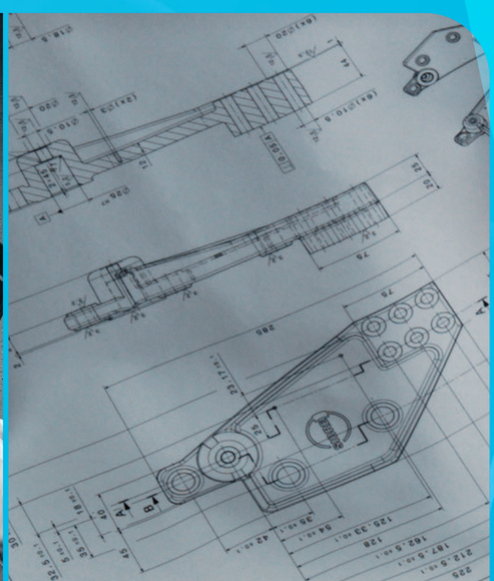
Sure to Be Safe. The SIBRE slogan and motto.

Realizing People's lives depend on the safest working environments, in some of the most inhospitable places, the SIBRE Team is consistently discussing, consulting, analyzing, and verifying ideas to create new components and systems.

Sure to Be Safe. The lives of real people depend on it.

This ever-flowing conversation is not just an internal practice; we actively seek input from industry. We engage industry leaders, engineering and consulting firms, and the all-important persons responsible for maintaining equipment.

These cooperative discussions create a true partnership between manufacturer and user. The ability of our product developers to engage dynamic thinkers allow the best possible solutions.



ENGINEERING

Implementing ideas and concepts belong to the dynamic engineering team at SIBRE.

This energizing team is always on the mission to safeguard people and equipment. The redesigning of our products is as important as bringing to life new concepts.

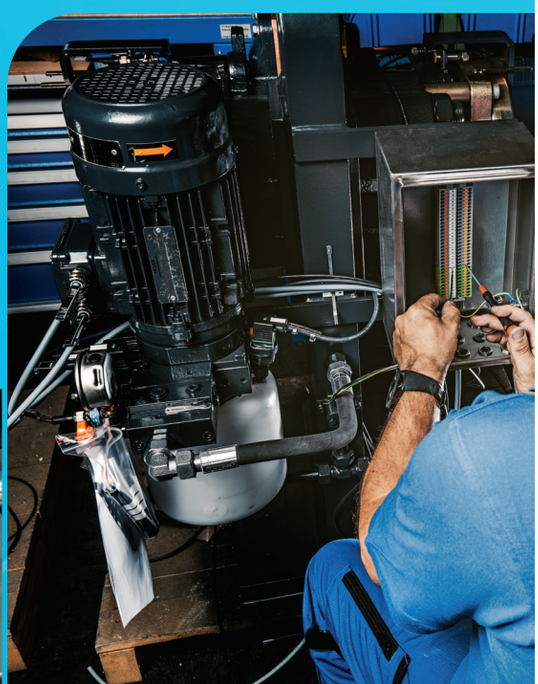
With the availability of the most modern hardware and software the engineering team has made the tried and true SIBRE range more efficient and maintenance friendly.

This dynamic group of engineers is an important part of SIBRE being a global supplier in the world of industrial brakes, couplings and crane wheels.

Made in Germany, standing behind the heritage of German Engineering.

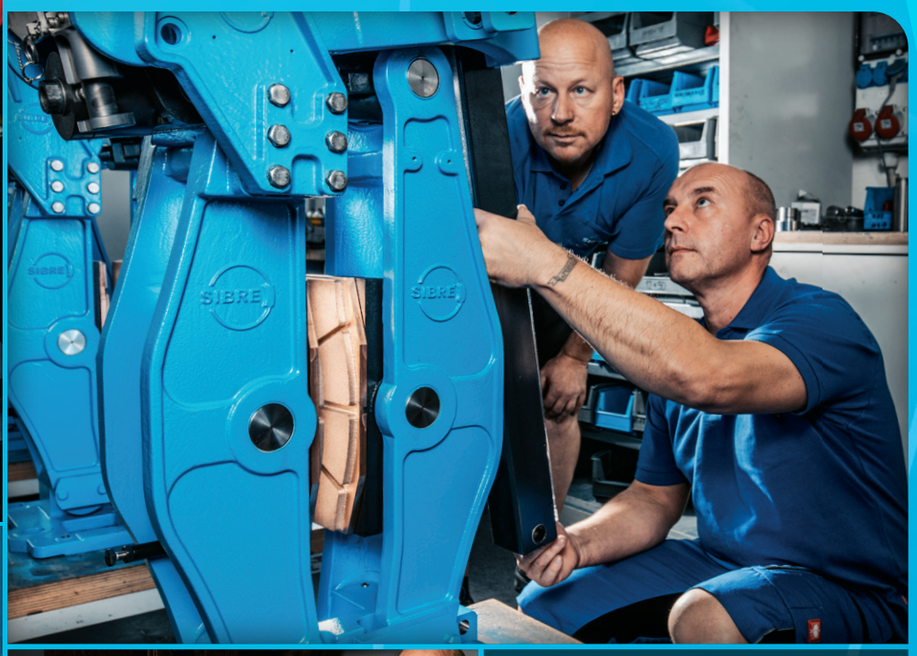
PRODUCTION & QUALITY

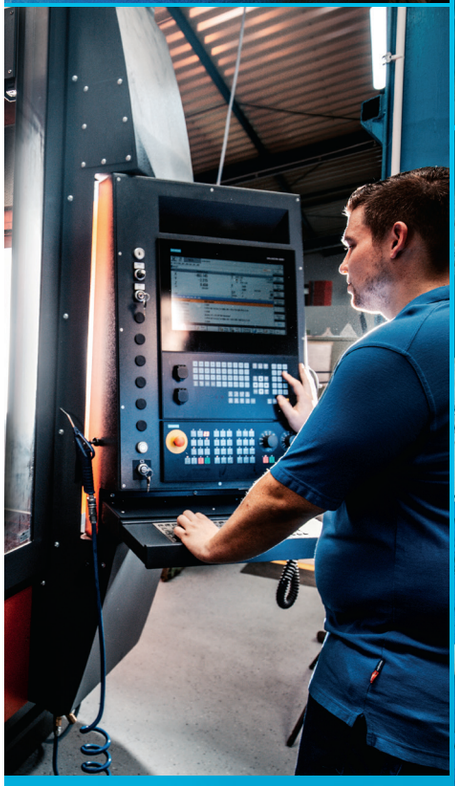
made in **Germany**



PRODUCTION

With a steadily expanding product offering, the extending global network of offices and activities, so to the SIBRE production facilities grow. Our machining facility in Haiger/Germany and our assembly plant, just up the road in Eschenburg/Germany, have also been growing. Both facilities have seen significant modernization and expansion to accommodate the demand for highly engineered integral products. Since 2018 several new lines have been installed. Our central production plant located in Haiger, Germany boasts several state-of-the-art CNC machines. These additions allow for tighter control of production and faster response times to customer requirements. This growth has afforded SIBRE the honor of being a good steward to our local communities, and continuing the solid reputation Made in Germany has been known for the world over for.





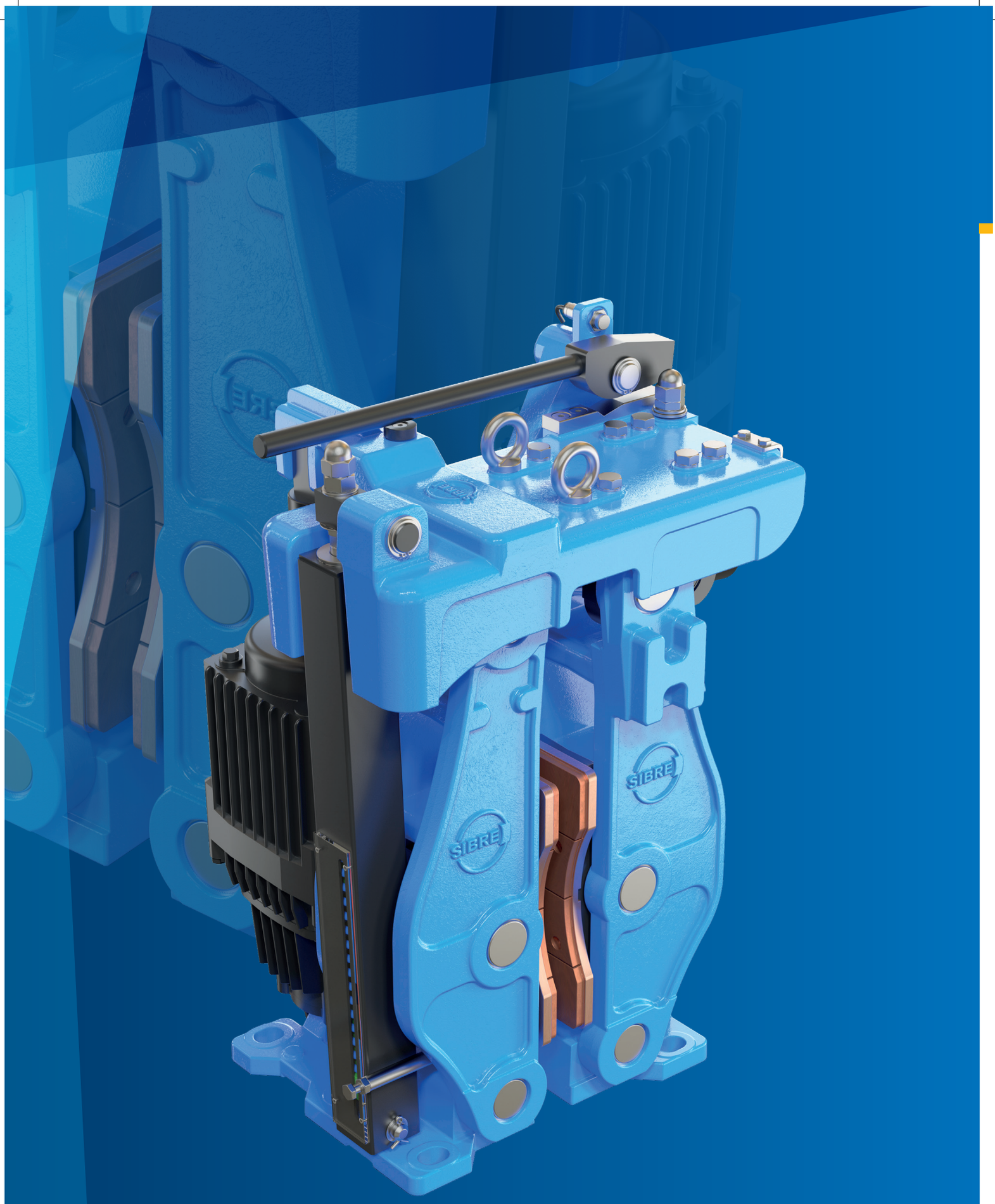
QUALITY

High-quality, reliable braking systems and drive components require a consistent quality standard.

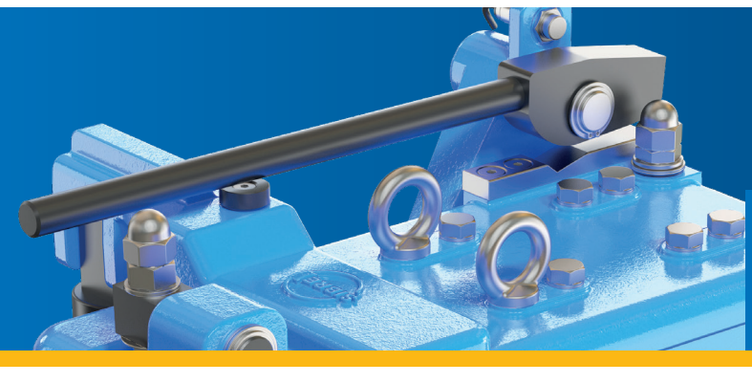
With our internal development and simulation laboratory, both individual components and fully assembled systems are put through their paces.

In addition to function and load simulation, we also focus on checking, reaction times, material properties and dimensional accuracy.

SIBRE quality
– made in Germany



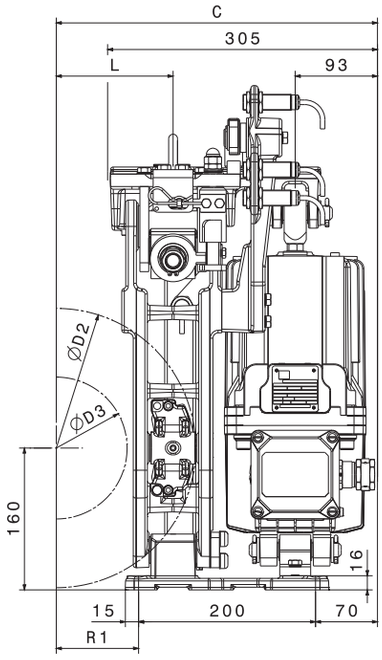
DISC BRAKE

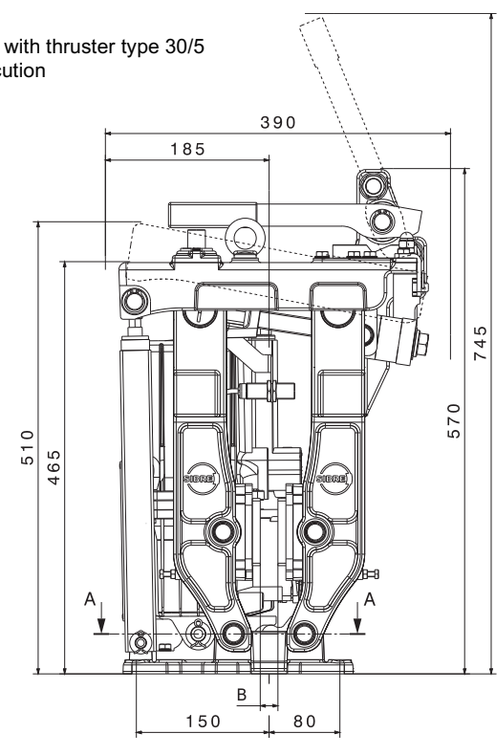


DISC BRAKE
USB5-05

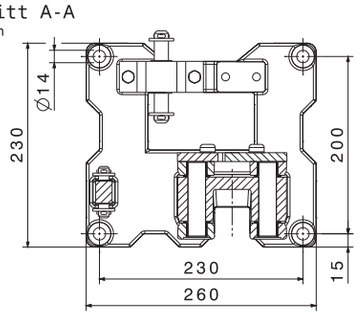
M 1501 458 E-EN-2020-04

disc brake shown with thruster type 30/5
in right hand execution





Schnitt A-A
section



D2: Outer disc diameter
D3: Max. coupling or hub-Ø
B: Disc width = 20 mm, others on request
L: R1 + 39 mm

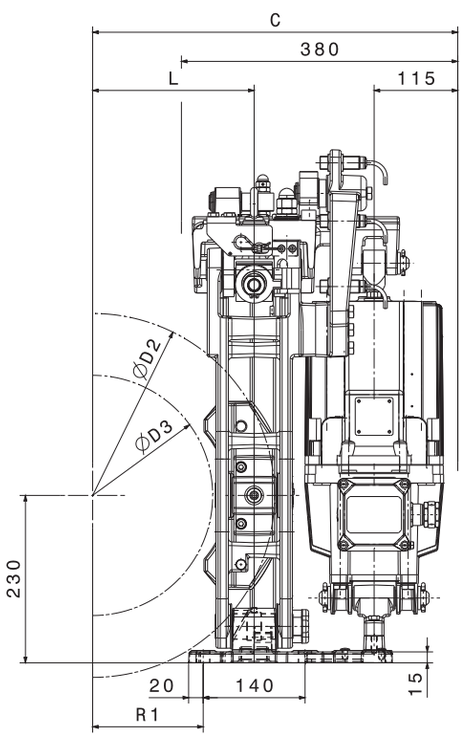
Thruster type				23/5 220-50		30/5 300-50	
Dimensions in mm				Braking torque M in Nm			
D2	D3	R1	C	Mmin	Mmax	Mmin	Mmax
250	96	61	331	110	210	195	390
280	126	76	346	115	240	225	450
315	160	93	363	135	280	260	520
355	200	113	383	155	320	300	600
400	244	135	405	175	370	345	690
450	294	160	430	205	420	395	790
500	344	185	455	230	480	445	890

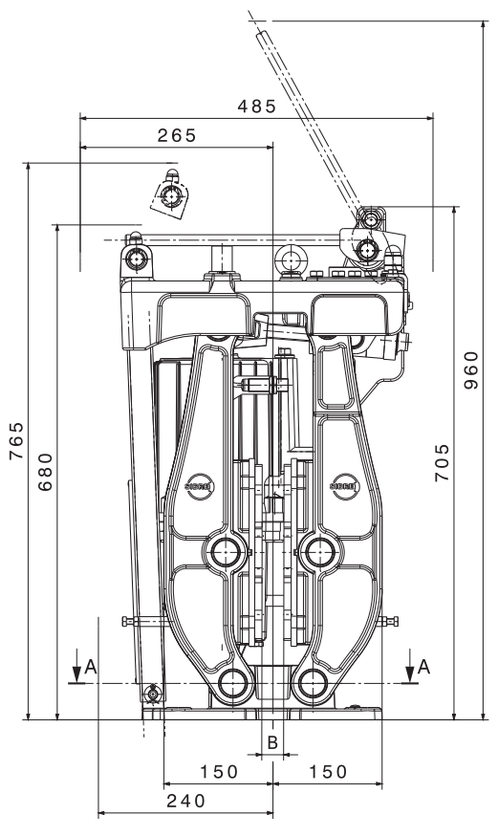
- Brake linings of sintered material with standard brake disc material S355J2G3
- The specified braking torques are based on an average friction coefficient μm = 0,4 with grinded and optimum conditioned brake linings up to a sliding speed of 60 m/s. Deviating parameters can reduce the friction coefficient.
- Please contact us when using thrusters with lifting- and / or lowering valves.
- Weight without thruster: 46 kg.

- **Available options:**
  - Left hand execution, special execution for low and high ambient temperature
  - Manual release
  - Brake linings of organic material (please contact us for other operating conditions)
  - Inductive sensors for indication "brake open", "brake closed" and / or "pad wear"
  - Temperature sensor for brake linings
  - Load cell for monitoring of clamping force

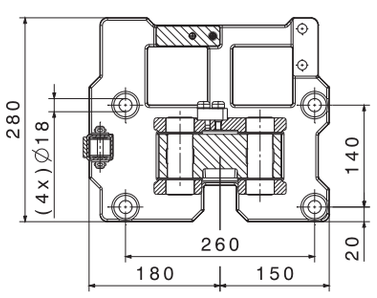
DISC BRAKE
USB5-I

M 1501 459 E-EN-2019-05





Schnitt A-A
section

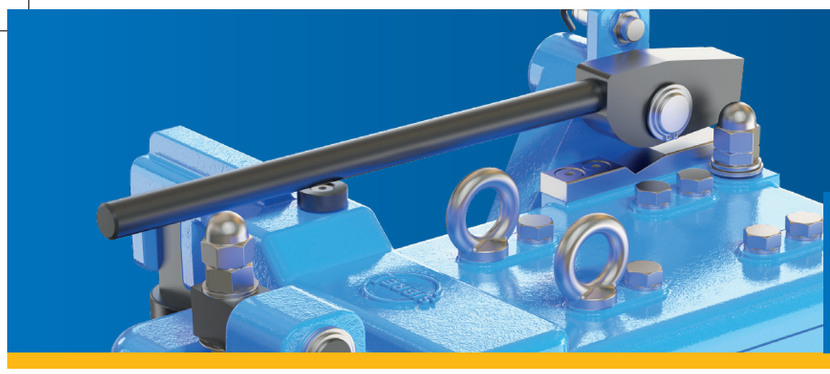


D2: Outer disc diameter
D3: Max. coupling or hub-Ø
B: Disc width = 30 mm, others on request
L: R1 + 70 mm

Thruster type				30/5		50/6		80/6	
Dimensions in mm				Braking torque M in Nm					
D2	D3	R1	C	Mmin	Mmax	Mmin	Mmax	Mmin	Mmax
355	180	75.5	425.5	550	850	950	1700	900	2200
400	230	102	452	650	950	1100	1900	1000	2600
450	280	127	477	750	1100	1200	2200	1200	3000
500	330	152	502	850	1200	1400	2500	1300	3400
560	390	182	532	1000	1400	1600	2900	1500	3900
630	450	217	567	1100	1600	1900	3300	1700	4400
710	530	257	607	1300	1900	2100	3800	2000	5100

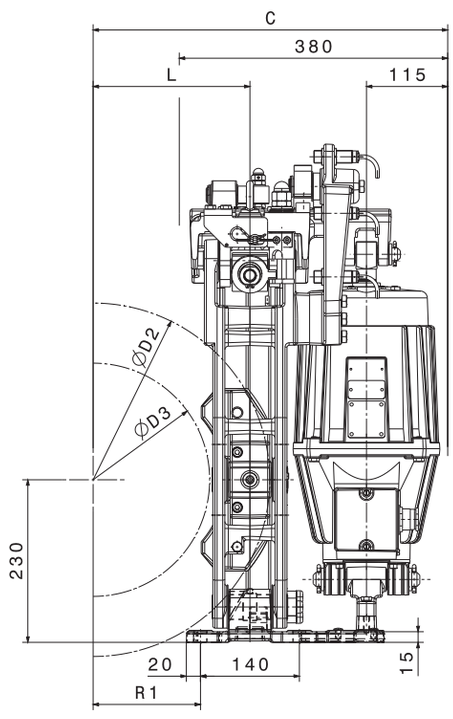
- Brake linings of sintered material with standard brake disc material S355J2G3
- The specified braking torques are based on an average friction coefficient μm = 0,4 with grinded and optimum conditioned brake linings up to a sliding speed of 60 m/s. Deviating parameters can reduce the friction-coefficient.
- Please contact us when using thrusters with lifting- and/ or lowering valves.
- Weight without thruster: 85 kg.

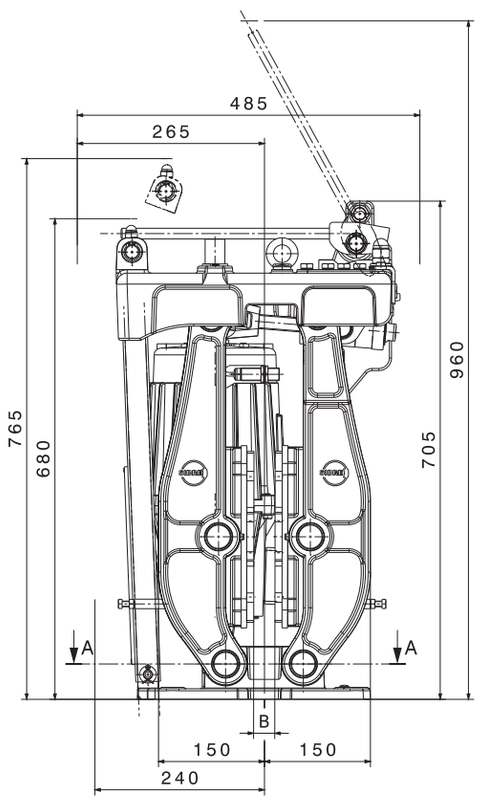
- **Available options:**
  - Special executions for low and high ambient temperature
  - Manual release
  - Inductive sensors for indication “brake open”, “brake closed” and/ or “pad wear”.
  - Temperature sensor for brake linings
  - Load cell for monitoring of clamping force



DISC BRAKE
USB5-I – ELHY

M 1501 460 E-EN-2019-05





Schnitt A-A
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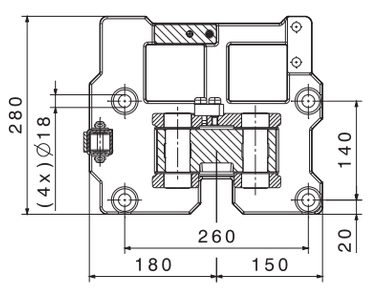


D2: Outer disc diameter
D3: Max. coupling or hub-Ø
B: Disc width = 30 mm, others on request
L: R1 + 70 mm

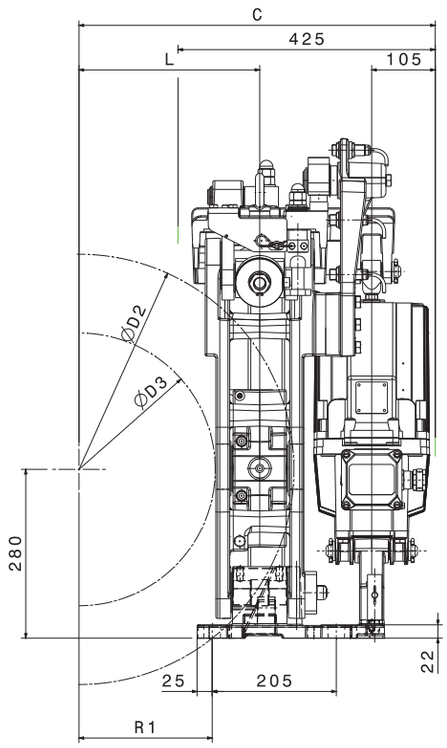
Thruster type				300/5		500/6		800/6	
Dimensions in mm				Braking torque M in Nm					
D2	D3	R1	C	Mmin	Mmax	Mmin	Mmax	Mmin	Mmax
355	180	75.5	425.5	550	850	650	1400	900	2200
400	230	102	452	650	950	750	1600	1000	2600
450	280	127	477	750	1100	900	1900	1200	3000
500	330	152	502	850	1200	1000	2100	1300	3400
560	390	182	532	1000	1400	1100	2400	1500	3900
630	450	217	567	1100	1600	1300	2800	1700	4400
710	530	257	607	1300	1900	1500	3200	2000	5100

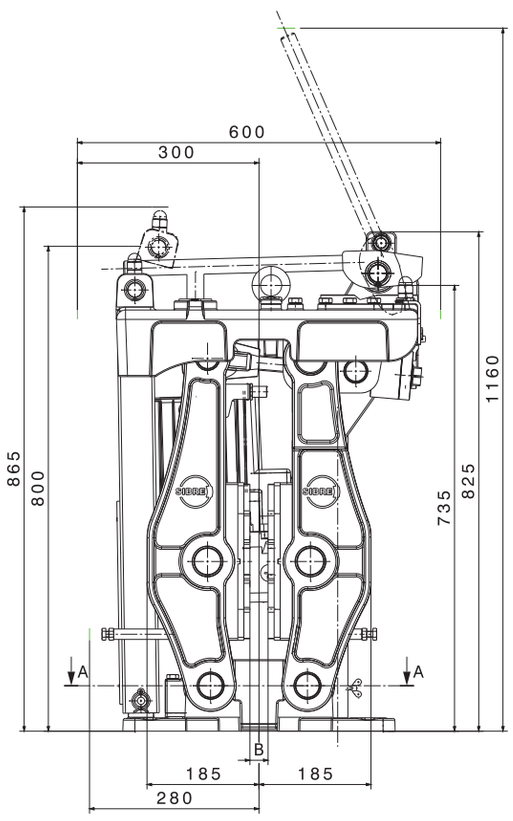
- Brake linings of sintered material with standard brake disc material S355J2G3
- The specified braking torques are based on an average friction coefficient μm = 0,4 with grinded and optimum conditioned brake linings up to a sliding speed of 60 m/s. Deviating parameters can reduce the friction-coefficient.
- Please contact us when using thrusters with lifting- and/ or lowering valves.
- Weight without thruster: 85 kg.

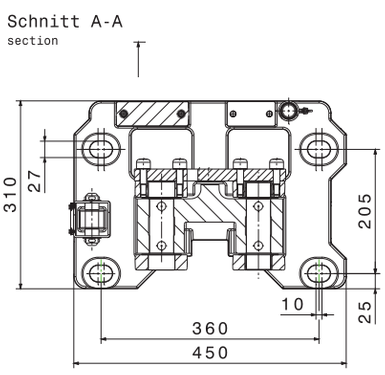
- **Available options:**
  - Special executions for low and high ambient temperature
  - Manual release
  - Inductive sensors for indication “brake open”, “brake closed” and/ or “pad wear”.
  - Temperature sensor for brake linings
  - Load cell for monitoring of clamping force

DISC BRAKE
USB5-II

M 1501 461 E-EN-2019-05





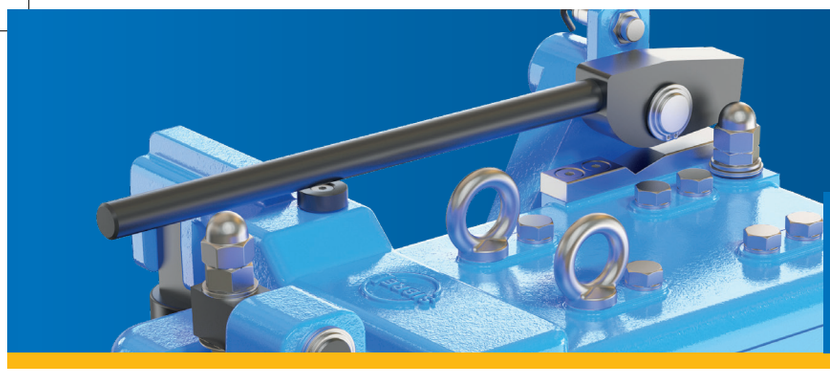


D2: Outer disc diameter
D3: Max. coupling or hub-Ø
B: Disc width = 30 mm, others on request
L: R1 + 78,5 mm

Thruster type				50/7		80/7		125/7	
Dimensions in mm				Braking torque M in Nm					
D2	D3	R1	C	Mmin	Mmax	Mmin	Mmax	Mmin	Mmax
450	190	95	465	1300	2000	1500	3200	1700	4900
500	240	120	490	1500	2300	1700	3600	1900	5600
560	300	150	520	1800	2700	2000	4200	2200	6400
630	370	185	555	2100	3100	2300	4800	2500	7400
710	450	225	595	2400	3600	2600	5600	2900	8500
800	530	270	640	2700	4100	3000	6400	3300	9800

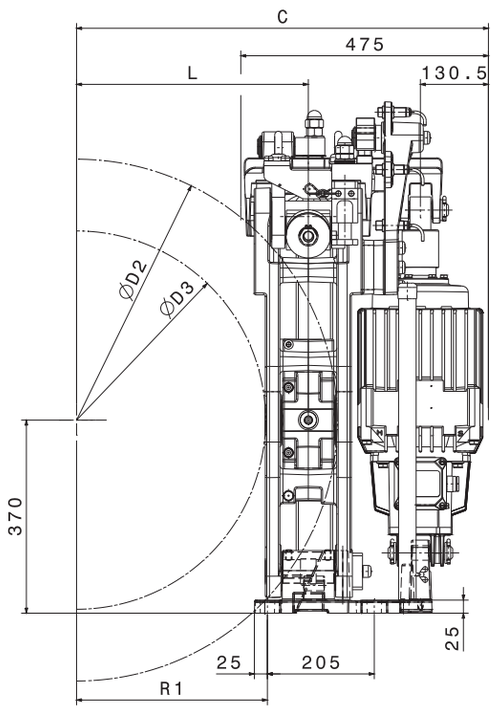
- Brake linings of sintered material with standard brake disc material S355J2G3
- The specified braking torques are based on an average friction coefficient μm = 0,4 with grinded and optimum conditioned brake linings up to a sliding speed of 60 m/s. Deviating parameters can reduce the friction-coefficient.
- Please contact us when using thrusters with lifting- and/ or lowering valves.
- Weight without thruster: 175 kg.

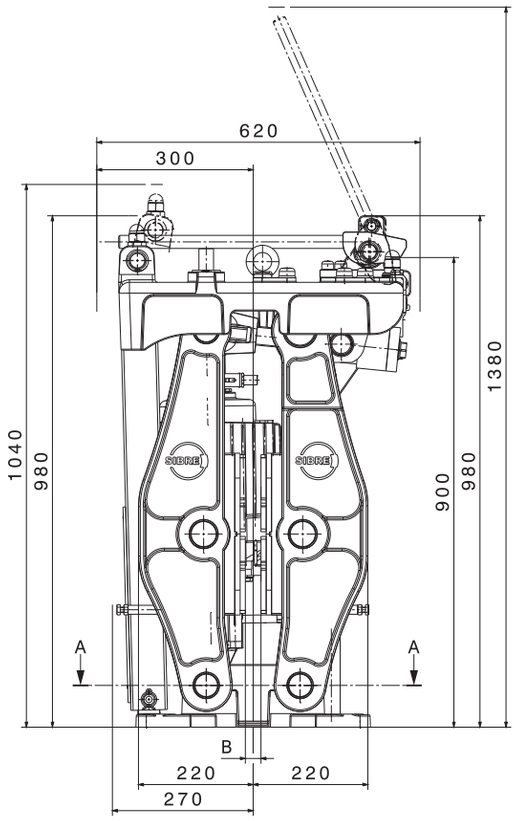
- **Available options:**
  - Special executions for low and high ambient temperature
  - Manual release
  - Inductive sensors for indication “brake open”, “brake closed” and/ or “pad wear”.
  - Temperature sensor for brake linings
  - Load cell for monitoring of clamping force

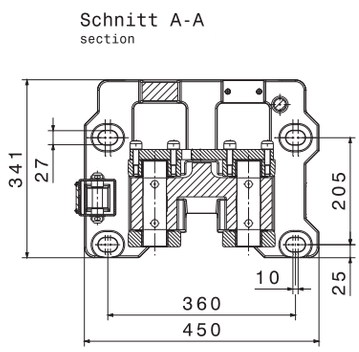


DISC BRAKE
USB5-III

M 1501 462 E-EN-2019-05







D2: Outer disc diameter
D3: Max. coupling or hub-Ø
B: Disc width = 30 mm, others on request
L: R1 + 78,5 mm

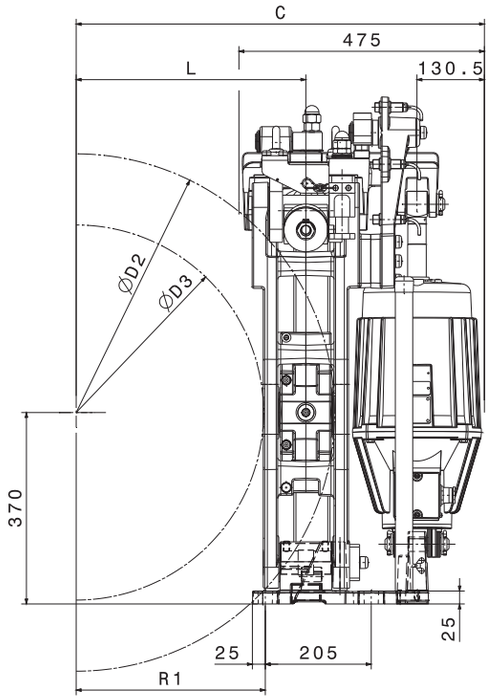
Thruster type				121/6		201/6		301/6		400/6	
Dimensions in mm				Braking torque M in Nm							
D2	D3	R1	C	Mmin	Mmax	Mmin	Mmax	Mmin	Mmax	Mmin	Mmax
560	265	140	564	3500	4500	4000	7000	6000	10500	6500	13000
630	345	181	605	4000	5500	5000	8000	7000	12000	7500	15500
710	425	221	645	4500	6000	5500	9500	8500	14000	9000	17500
800	515	266	690	5000	7000	6500	11000	9500	16000	10000	20000
900	615	316	740	6000	8000	7500	12500	11000	18500	11500	23000
1000	715	366	790	6500	9000	8500	14000	12500	20500	13000	26000

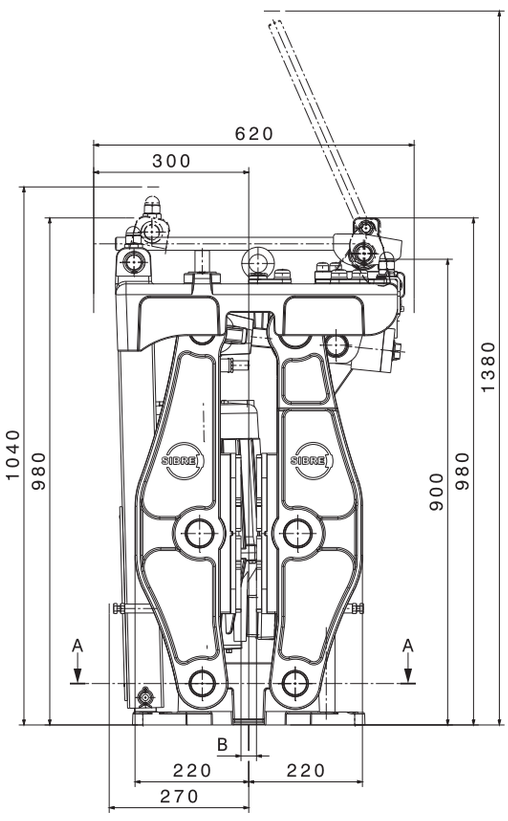
- Brake linings of sintered material with standard brake disc material S355J2G3
- The specified braking torques are based on an average friction coefficient μm = 0,4 with grinded and optimum conditioned brake linings up to a sliding speed of 60 m/s. Deviating parameters can reduce the friction-coefficient.
- Please contact us when using thrusters with lifting- and/ or lowering valves.
- Weight without thruster: 250 kg.

- **Available options:**
  - Special executions for low and high ambient temperature
  - Manual release
  - Inductive sensors for indication “brake open”, “brake closed” and/ or “pad wear”.
  - Temperature sensor for brake linings
  - Load cell for monitoring of clamping force

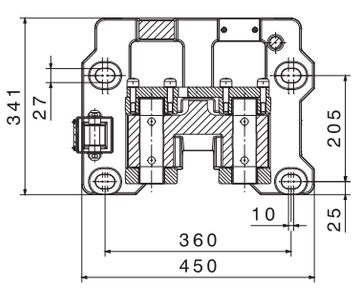
DISC BRAKE
USB5-III – ELHY

M 1501 463 E-EN-2019-07





Schnitt A-A
section

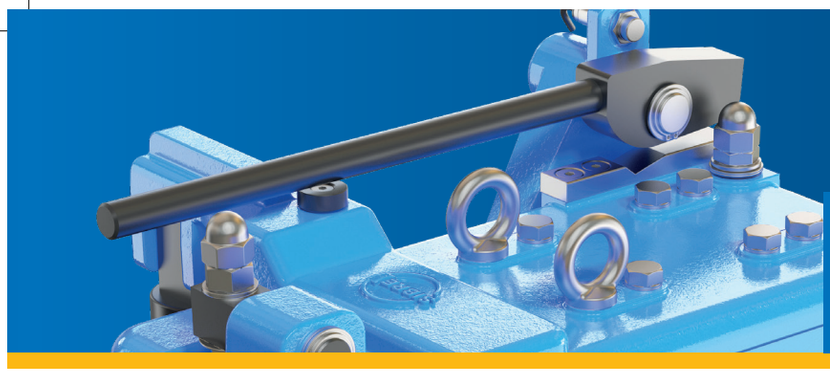


D2: Outer disc diameter
D3: Max. coupling or hub-Ø
B: Disc width = 30 mm, others on request
L: R1 + 78,5 mm

Thruster type				1250/ 60		2000/ 60		3000/ 60	
Dimensions in mm				Braking torque M in Nm					
D2	D3	R1	C	Mmin	Mmax	Mmin	Mmax	Mmin	Mmax
560	265	140	564	2500	4000	4000	7000	5000	10000
630	345	181	605	3000	4500	4500	8000	6000	11500
710	425	221	645	3500	5500	5000	9000	7000	13000
800	515	266	690	4000	6000	6000	10500	8000	15000
900	615	316	740	5000	7000	7000	12000	9000	17500
1000	715	366	790	5500	8000	7500	13500	10000	19500

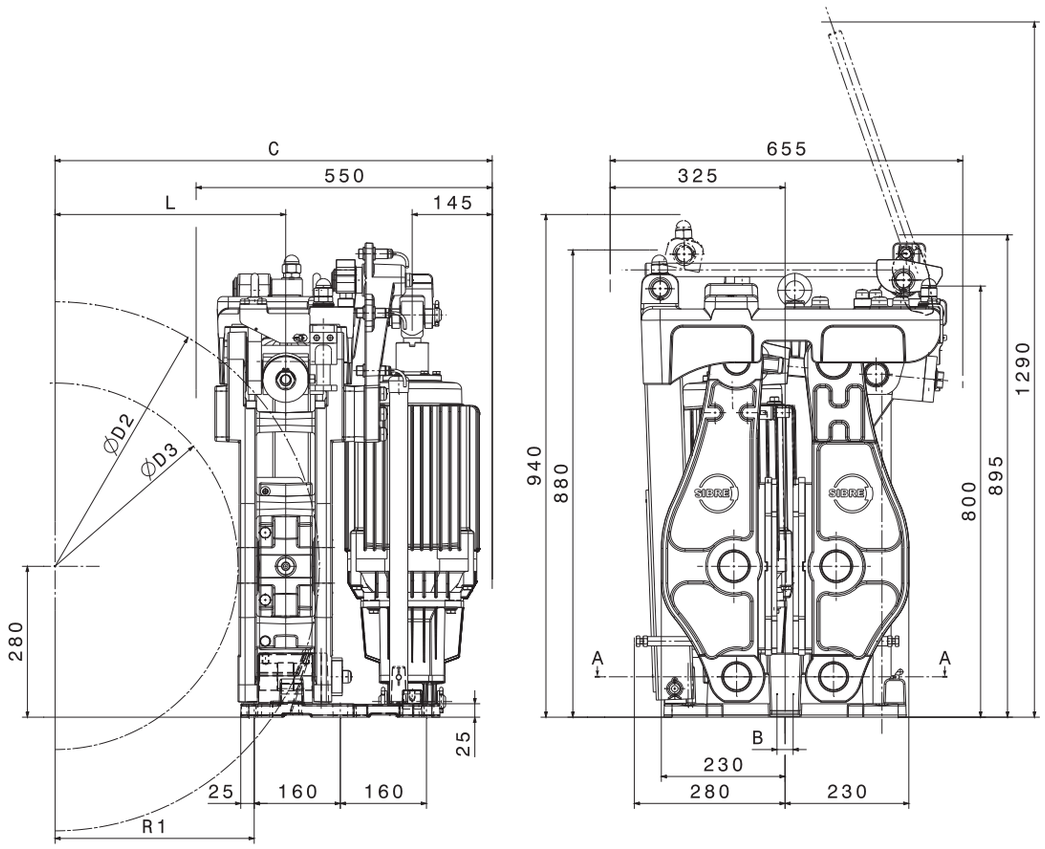
- Brake linings of sintered material with standard brake disc material S355J2G3
- The specified braking torques are based on an average friction coefficient μm = 0,4 with grinded and optimum conditioned brake linings up to a sliding speed of 60 m/s. Deviating parameters can reduce the friction-coefficient.
- Please contact us when using thrusters with lifting- and/ or lowering valves.
- Weight without thruster: 250 kg.

- **Available options:**
  - Special executions for low and high ambient temperature
  - Manual release
  - Inductive sensors for indication “brake open”, “brake closed” and/ or “pad wear”.
  - Temperature sensor for brake linings
  - Load cell for monitoring of clamping force



DISC BRAKE
USB5-V

M 1501 464 E-EN-2019-05



Schnitt A-A
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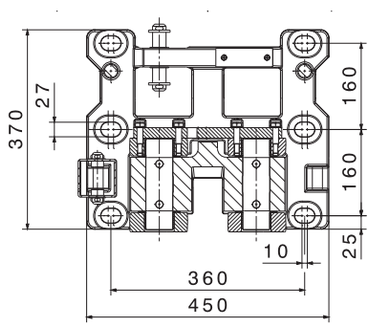


D2: Outer disc diameter
D3: Max. coupling or hub-Ø
B: Disc width = 30 mm, others on request
L: R1 + 58,5 mm

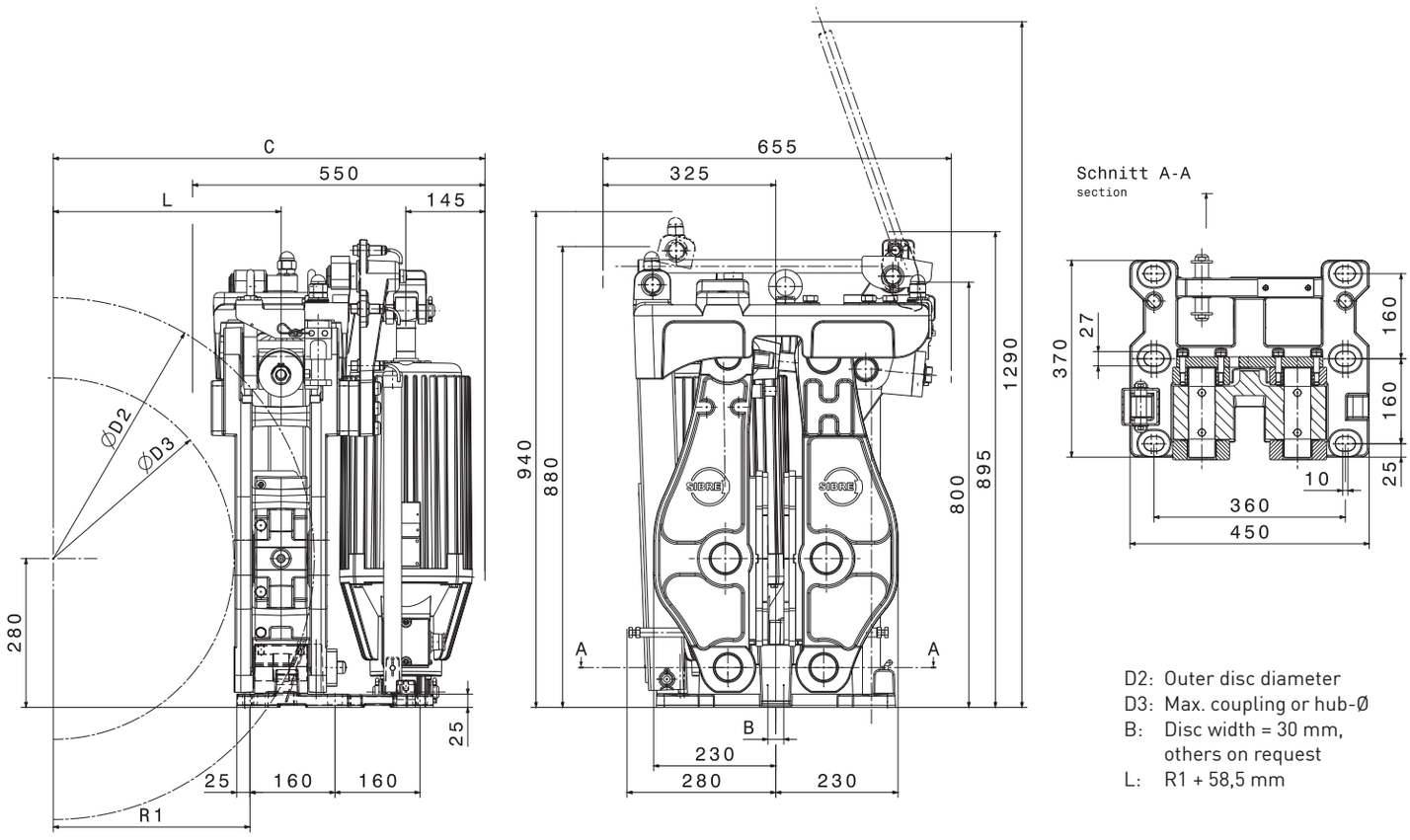
Thruster type				201/12		301/12		400/8		500/8	
Dimensions in mm				Braking torque M in Nm							
D2	D3	R1	C	Mmin	Mmax	Mmin	Mmax	Mmin	Mmax	Mmin	Mmax
630	310	185	620	6000	9000	8000	12500	8000	15500	7000	16500
710	390	225	660	7500	10500	9000	14500	9000	18000	8500	19500
800	480	270	705	8500	12000	10500	16500	10500	21000	10000	22500
900	580	320	755	9500	13500	12000	19000	12000	24000	11000	25500
1000	680	370	805	11000	15500	14000	21500	14000	27000	12500	29000

- Brake linings of sintered material with standard brake disc material S355J2G3
- The specified braking torques are based on an average friction coefficient μm = 0,4 with grinded and optimum conditioned brake linings up to a sliding speed of 60 m/s. Deviating parameters can reduce the friction-coefficient.
- Please contact us when using thrusters with lifting- and/ or lowering valves.
- Weight without thruster: 285 kg.
- Thruster position: For 500/8 as shown, all others turned by 180°

- **Available options:**
  - Special executions for low and high ambient temperature
  - Manual release
  - Inductive sensors for indication “brake open”, “brake closed” and/ or “pad wear”.
  - Temperature sensor for brake linings
  - Load cell for monitoring of clamping force

DISC BRAKE
USB5-V – ELHY

M 1501 465 E-EN-2019-05

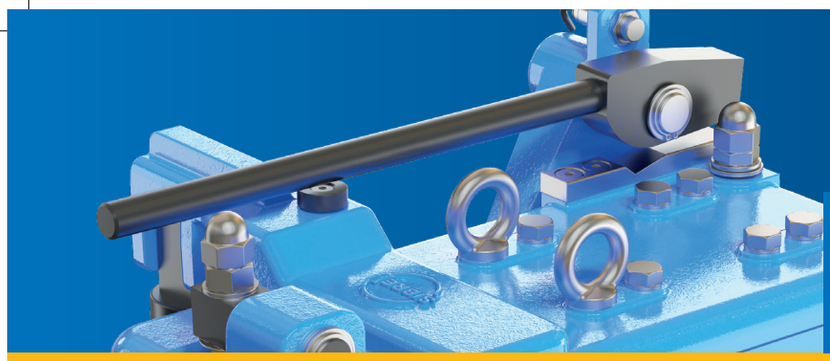


D2: Outer disc diameter
D3: Max. coupling or hub-Ø
B: Disc width = 30 mm, others on request
L: R1 + 58,5 mm

Thruster type				2000/120		3000/120		6300/120	
Dimensions in mm				Braking torque M in Nm					
D2	D3	R1	C	Mmin	Mmax	Mmin	Mmax	Mmin	Mmax
630	310	185	620	5500	8500	8000	12500	8000	15500
710	390	225	660	6500	10000	9000	14500	9000	18000
800	480	270	705	7500	11500	10500	16500	10500	21000
900	580	320	755	8500	13000	12000	19000	12000	24000
1000	680	370	805	9500	15000	14000	21500	13500	27500

- Brake linings of sintered material with standard brake disc material S355J2G3
- The specified braking torques are based on an average friction coefficient μm = 0,4 with grinded and optimum conditioned brake linings up to a sliding speed of 60 m/s. Deviating parameters can reduce the friction-coefficient.
- Please contact us when using thrusters with lifting- and/ or lowering valves.
- Weight without thruster: 285 kg.

- **Available options:**
  - Special executions for low and high ambient temperature
  - Manual release
  - Inductive sensors for indication “brake open”, “brake closed” and/ or “pad wear”.
  - Temperature sensor for brake linings
  - Load cell for monitoring of clamping force



MONITORING SYSTEM
SSM

M1501 472E-EN-01/2020

FEATURES

- One SSM can handle up to 4 brakes (Brake 2, 3 & 4 have to be equipped with an auxilia-ry enclosure by using a cable type 14x1 mm²)
- Power supply 24 V - DC
- Industrial 5“ TFT- Touchscreen
- Ambient temperature range -15 °C - +70 °C
- Main enclosure 200x200x120 mm & Auxiliary enclosure 110x110x55 mm, IP 54
- Brake operation cycle counter and operating hours counter
- Digital sensor signals can be directly connected to the main PLC
- Options:
  - Stainless steel housing
  - ProfiNet
  - ProfiBus
  - CanBus

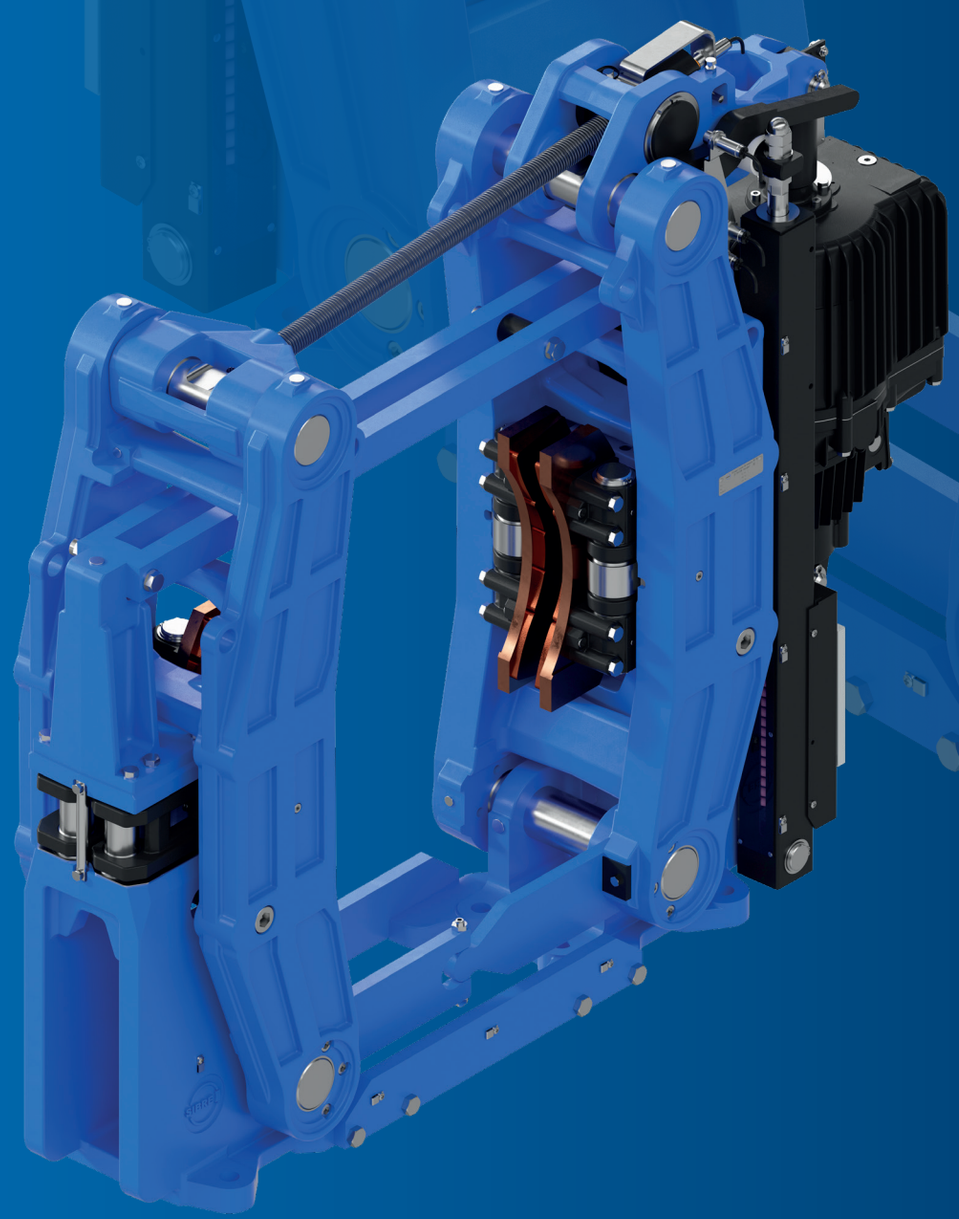
  } All global system data and live data of the brakes are transferred by BUS system to the main PLC

PARTS OF SSM

- Digital sensors (inductive) to indicate the status
  - Brake open
  - Brake closed

  } Brake open OR Brake closed is necessary
  - Manual release
  - Pad wear
- Pad temperature (2x Pt100)
- Analog sensors (4-20 mA)
  - Reserve stroke
  - Clamping force OR braking torque

NOTES

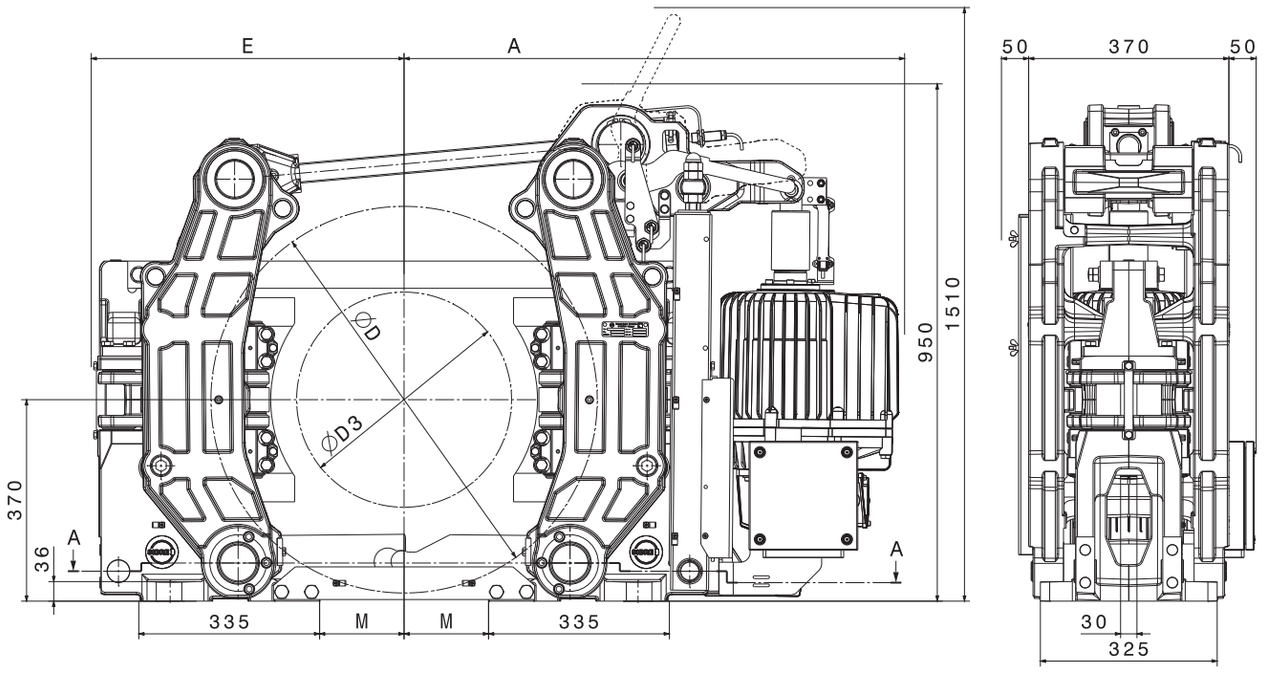


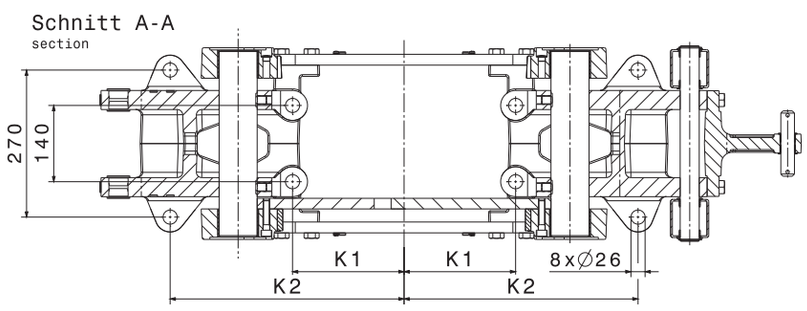
TWIN-CALIPER DISC BRAKE

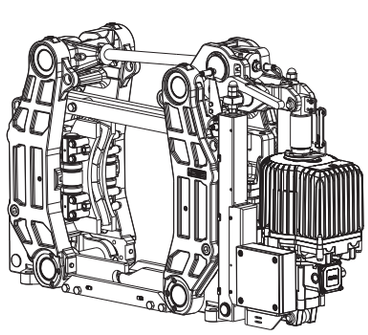
TWIN-CALIPER DISC BRAKE

TEXU G 630 - 710

M 1501 468 E-EN-2019-09







brake type	torque range µm=0,4*1 [Nm]	Ø D	Ø D_3 max	E	A	M	K_1	K_2	kg*2
TEXU 630 Ed630/10	13000 - 21000	630	395	535	880	115	165	390	680
TEXU 710 Ed630/10	15000 - 24000	710	395	575	920	155	205	430	685

STANDARD

- pins and rods stainless
- pivot points with DU-bushings
- sinter-linings
- split base plate for easy assembly

OPTIONS

- proximity switches „open“, „closed“, „padwear-limit“, „man. release applied“
- analogue sensors „reserve stroke“, „scale value“
- manual release
- temperature sensors PT100 for brake lining temperature
- terminal-box

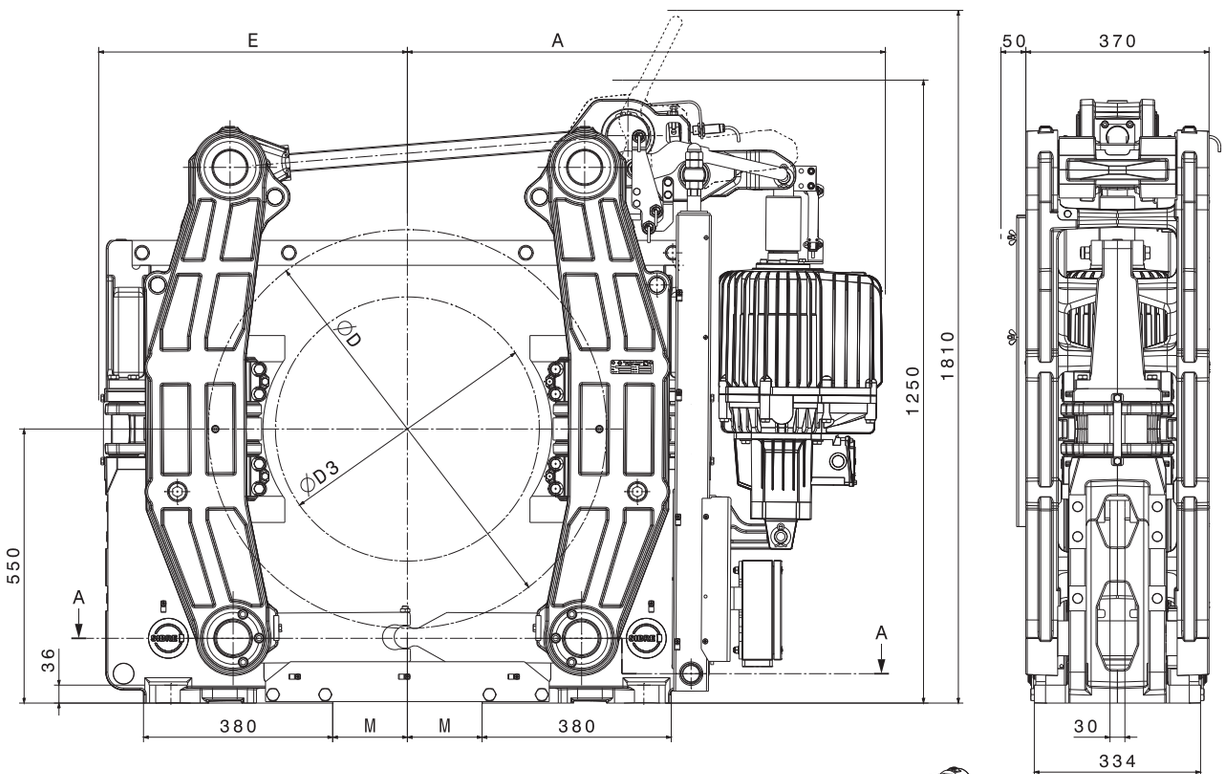
*1 = the coefficient of friction µ can be subject to variation caused by several operating factors such as sliding speed, surface pressure, thermal load, disc surface etc. The indicated torques are to be considered for circumferential speeds of up to 65 m/sec and short peak temperatures of up to 650°C. Please contact us for details.

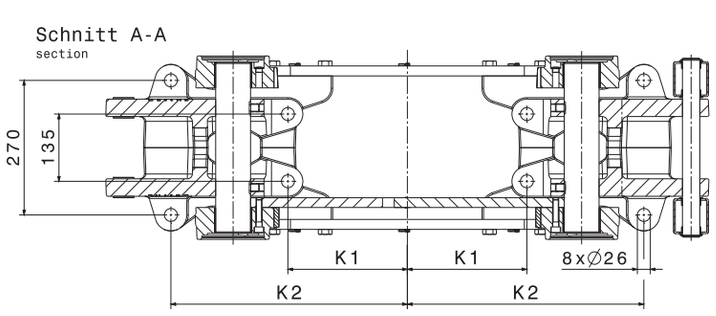
*2 = other hub diameters on request

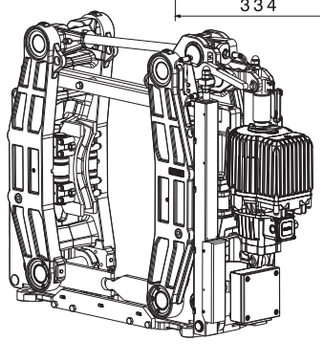
TWIN-CALIPER DISC BRAKE

TEXU G 800 - 1000

M 1501 469 E-EN-2019-08







brake type	torque range µm=0,4*1 [Nm]	Ø D	Ø D_3 max	E	A	M	K_1	K_2	kg*2
TEXU 800 Ed630/10	10000 - 27000	800	530	620	960	150	240	475	880
TEXU 900 Ed630/10	11000 - 30000	900	630	670	1010	200	290	525	890
TEXU 1000 Ed630/10	12000 - 33000	1000	630	720	1060	250	340	575	900

STANDARD

- pins and rods stainless
- pivot points with DU-bushings
- sinter-linings
- split base plate for easy assembly

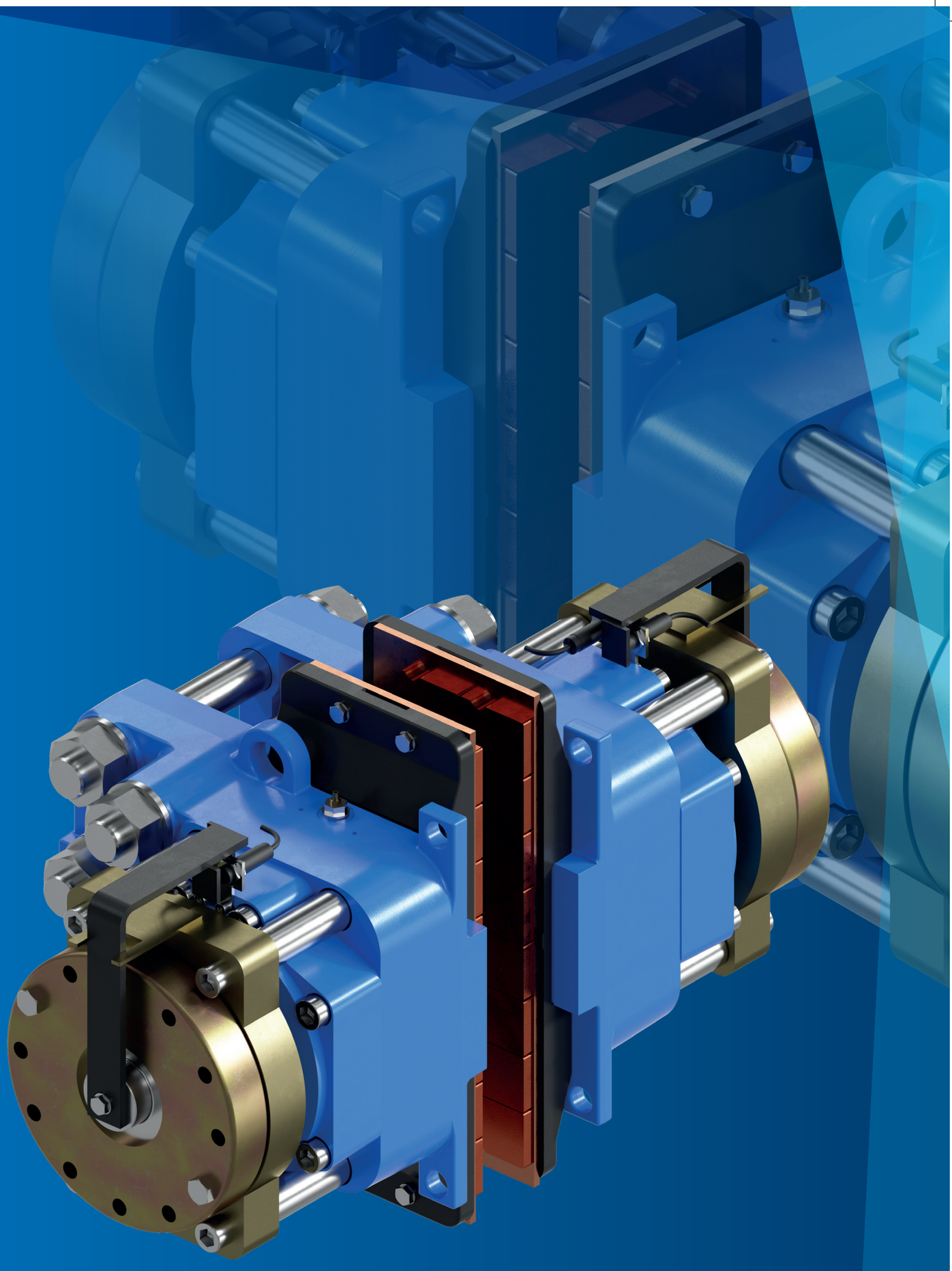
OPTIONS

- proximity switches „open“, „closed“, „padwear-limit“, „man. release applied“
- analogue sensors „reserve stroke“, „scale value“
- manual release
- temperature sensors PT100 for brake lining temperature
- terminal-box

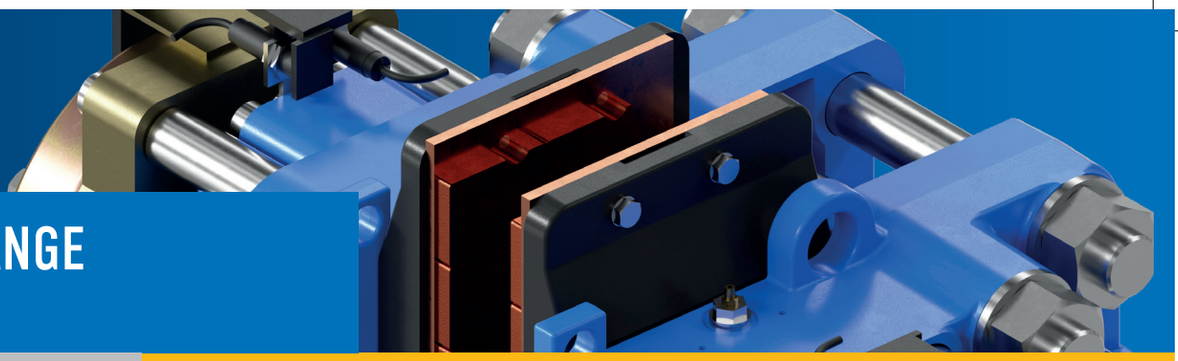
*1 = the coefficient of friction µ can be subject to variation caused by several operating factors such as sliding speed, surface pressure, thermal load, disc surface etc. The indicated torques are to be considered for circumferential speeds of up to 65 m/sec and short peak temperatures of up to 650°C. Please contact us for details.

*2 = weight without thruster

NOTES



CALIPER BRAKE



PRODUCT RANGE
SHI

EN-2016-02

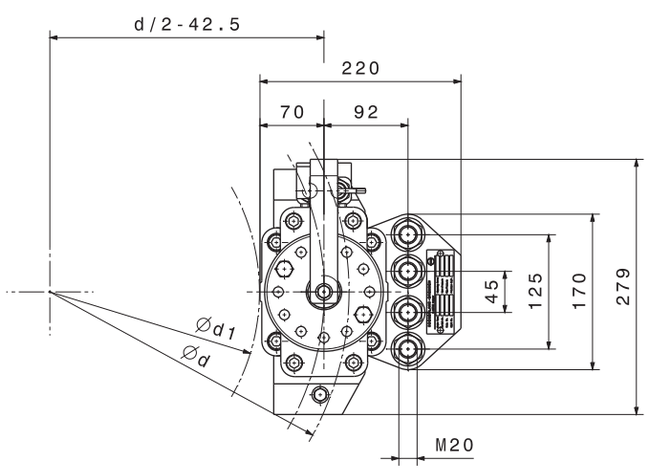
BRAKE TYPE	FOR CLAMPING FORCE	AIR GAP RANGE	REQ. RELEASE PRESSURE
SHI 282	465 – 555 kN	1 – 3 mm	165 bar
SHI 281	395 – 455 kN	1 – 3 mm	135 bar
SHI 252	360 – 440 kN	1 – 3 mm	140 bar
SHI 251	270 – 335 kN	1 – 3 mm	105 bar
SHI 232	270 – 300 kN	2 – 3 mm	170 bar
SHI 231	225 – 240 kN	2 – 3 mm	130 bar
SHI 202	200 – 240 kN	1 – 3 mm	160 bar
SHI 201	150 – 170 kN	1 – 3 mm	115 bar
SHI 162	128 – 190 kN	1 – 3 mm	170 bar
SHI 161	88 – 108 kN	1 – 3 mm	90 bar
SHI 107	94 – 140 kN	1 – 3 mm	175 bar
SHI 106	88 – 110 kN	1 – 3 mm	145 bar
SHI 105	74,4 – 83,2 kN	1 – 3 mm	95 bar
SHI 104	62,7 – 74,1 kN	1 – 3 mm	80 bar
SHI 103	48,8 – 55,4 kN	1 – 3 mm	60 bar
SHI 75-6	44,4 – 49,8 kN	1 – 3 mm	135 bar
SHI 75-5	37,0 – 44,5 kN	1 – 3 mm	120 bar
SHI 75-4	24,6 – 30,6 kN	1 – 3 mm	80 bar
SHI 75-3	22,4 – 25,4 kN	1 – 3 mm	65 bar
SHI 75-2	19,0 – 22,4 kN	1 – 3 mm	55 bar
SHI 75-1	17,6 – 18,3 kN	1 – 3 mm	45 bar
SHI 282 FC	465 – 510 kN	1 – 1,5 mm	165 bar
SHI 281 FC	395 – 425 kN	1 – 1,5 mm	135 bar
SHI 252 FC	360 – 400 kN	1 – 1,5 mm	140 bar
SHI 251 FC	270 – 302 kN	1 – 1,5 mm	105 bar
SHI 232 FC	270 – 300 kN	1 – 1,5 mm	170 bar
SHI 231 FC	225 – 240 kN	1 – 1,5 mm	130 bar
SHI 202 FC	200 – 220 kN	1 – 1,5 mm	160 bar
SHI 201 FC	150 – 160 kN	1 – 1,5 mm	115 bar
SHI 162 FC	128-160 kN	1 - 1,5mm	170 bar
SHI 161 FC	88-98 kN	1 - 1,5mm	90 bar
SHI 107 FC	94,0 – 115,0 kN	1 – 1,5 mm	175 bar
SHI 106 FC	88,0 – 98,0 kN	1 – 1,5 mm	145 bar
SHI 105 FC	74,4 – 77,0 kN	1 – 1,5 mm	95 bar
SHI 104 FC	62,7 – 68,7 kN	1 – 1,5 mm	80 bar
SHI 103 FC	48,8 – 52,2 kN	1 – 1,5 mm	60 bar
SHI 75-6 FC	44,4 – 47,3 kN	1 – 1,5 mm	135 bar
SHI 75-5 FC	37,0 – 41,0 kN	1 – 1,5 mm	120 bar
SHI 75-4 FC	24,6 – 27,6 kN	1 – 1,5 mm	80 bar
SHI 75-3 FC	22,4 – 23,9 kN	1 – 1,5 mm	65 bar
SHI 75-2 FC	19,0 – 20,7 kN	1 – 1,5 mm	55 bar
SHI 75-1 FC	17,6 – 17,9 kN	1 – 1,5 mm	45 bar

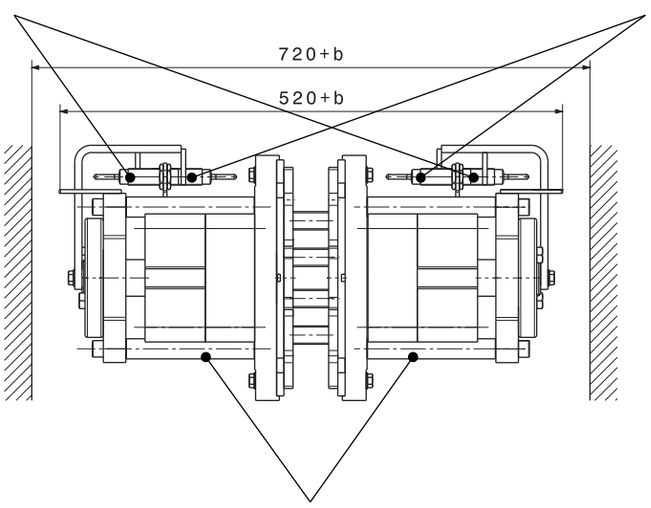
CALIPER BRAKE
SHI 75

M 1501 306 E-EN-2017-01

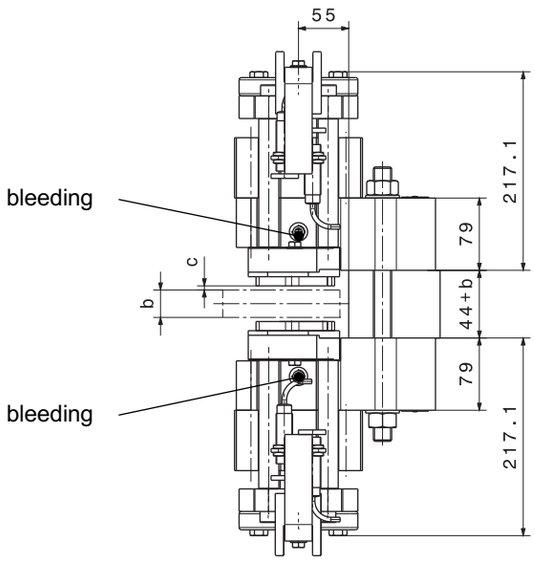
optional: proximity switch "brake open / closed"

optional: proximity switch "lining wear"





hydraulic connection M14x1.5



manual release device is optionally available

SHI-Type 75-			1	2	3	4	5	6
Clamping Force F_A								
F_A	with airgap c = 1 mm	kN	18,3	22,4	25,4	30,6	44,5	49,8
F_A	with airgap c = 2 mm	kN	17,9	20,7	23,9	27,6	41,0	47,3
F_A	with airgap c = 3 mm	kN	17,6	19,0	22,4	24,6	37,0	44,4
Torque Calculation								
M_{Br}	braking torque	Nm	2 x FA x μ x (d/2-42,5)					
Hydraulic								
PL	release pressure	bar	45	55	65	80	120	135
P_{max}	max. pressure	bar	85	85	110	110	150	175
V_{max}	volume at c= 2,0 mm	ltr	0,032					
Brake Discs								
b	disc thickness	mm	≥ 20					
d	disc-Ø	mm	≥ 400					
d_1	max. hub / drum-Ø	mm	d-230mm					
Dimensions								
L x W x H = 220 x (520+b) x 279 mm								
weight: 80 kgs								

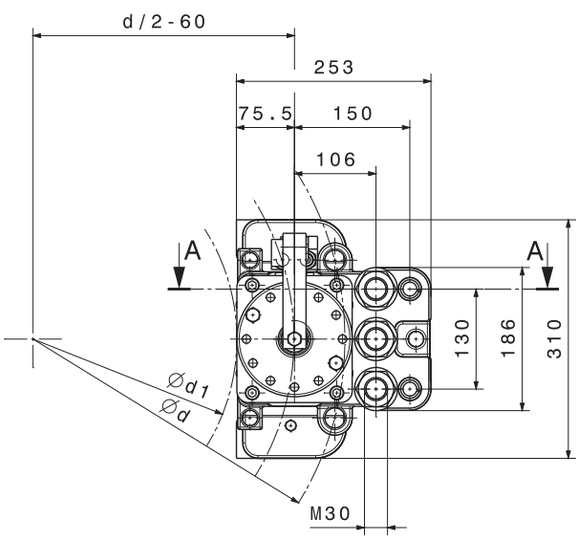
Mounting Studs			
n	quantity		4
	size, grade		M20, 12.9
M_A	fastening torque	Nm	690 at μ=0,14
Linings			
	material		sinter
	friction coefficient*		0,4

*average friction coefficient with standard material combination and a circumferential speed up to 15 m/s

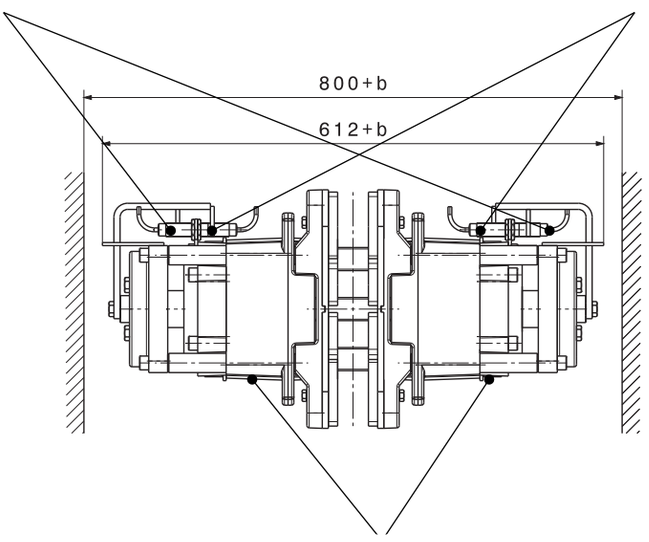
CALIPER BRAKE
SHI 103

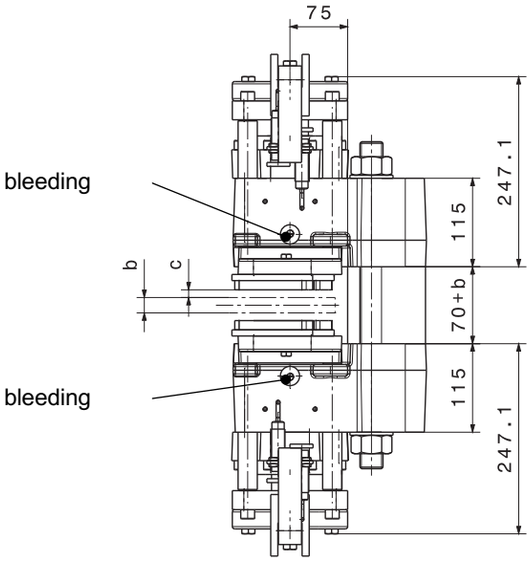
M 1501 101 01 E-EN-2017-01

optional: proximity switch "brake open / closed"



optional: proximity switch "lining wear"





manual release device is optionally available

SHI-Type			103
Clamping Force FA			
F_A	with airgap c = 1 mm	kN	55,4
F_A	with airgap c = 2 mm	kN	52,2
F_A	with airgap c = 3 mm	kN	48,8
Torque Calculation			
M_{Br}	braking torque	Nm	2 x FA x μ x (d/2-60)
Hydraulic			
PL	release pressure	bar	60
P_{max}	max. pressure	bar	110
V_{max}	volume at c= 2,0 mm	ltr	0,046
Brake Discs			
b	disc thickness	mm	⩾ 20
d	disc-Ø	mm	⩾ 650
d_1	max. hub or drum-Ø	mm	d-280mm
Dimensions			
L x B x H = 253 x (612+b) x 310 mm			
weight: 130 kgs			

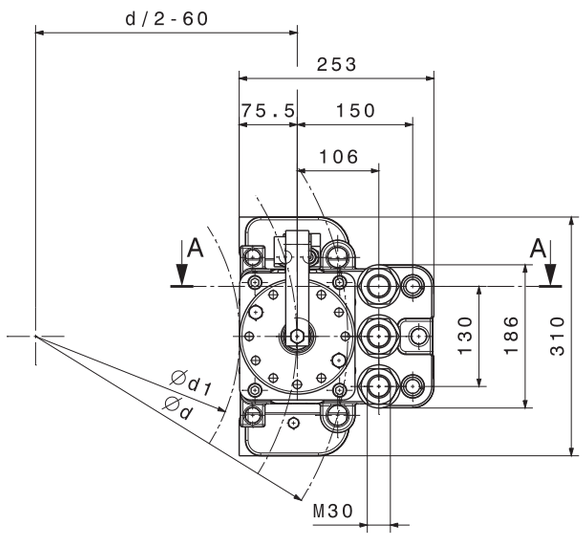
Mounting Studs			
n	quantity		3
	size, grade		M30, 8.8
M_A	fastening torque	Nm	1450 at μ=0,14
Linings			
	material		sinter
	friction coefficient*		0,4

*average friction coefficient with standard material combination and a circumferential speed up to 15 m/s

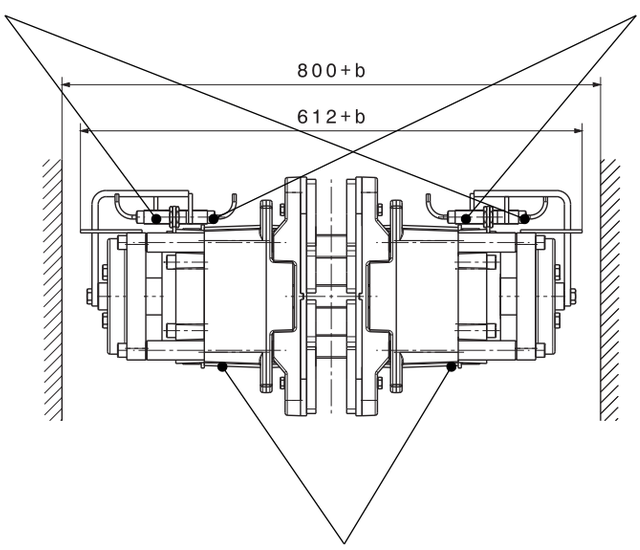
CALIPER BRAKE
SHI 104 & 105

M 1501 101 01 E-EN-2017-01

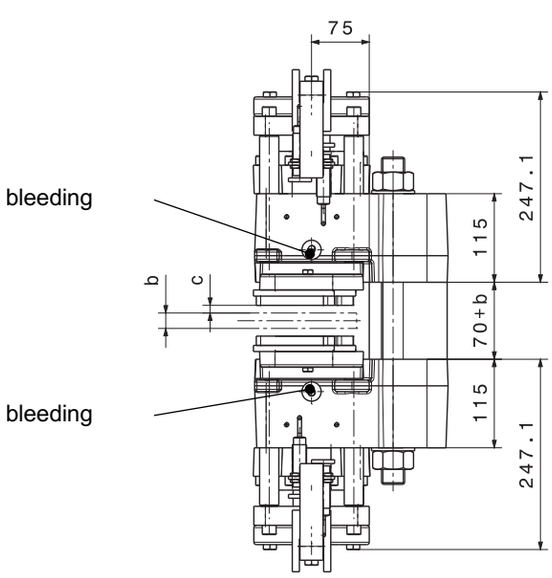
optional: proximity switch "brake open / closed"



optional: proximity switch "lining wear"



hydraulic connection M16x1.5



manual release device is optionally available

SHI-Type			104	105
Clamping Force FA				
F_A	with airgap c = 1 mm	kN	74,1	83,2
F_A	with airgap c = 2 mm	kN	68,7	77,0
F_A	with airgap c = 3 mm	kN	62,7	74,4
Torque Calculation				
M_{Br}	braking torque	Nm	2 x FA x μ x (d/2-60)	
Hydraulic				
PL	release pressure	bar	80	95
P_{max}	max. pressure	bar	110	150
V_{max}	volume at c= 2,0 mm	ltr	0,046	
Brake Discs				
b	disc thickness	mm	⩾ 20	
d	disc-Ø	mm	⩾ 650	
d1	max. hub or drum-Ø	mm	d-280mm	
Dimensions				
L x B x H = 253 x (612+b) x 310 mm				
weight: 130 kgs				

Mounting Studs			
n	quantity		3
	size, grade		M30, 12.9
M_A	fastening torque	Nm	2400 at μ=0,14

Linings		
	material	sinter
	friction coefficient*	0,4

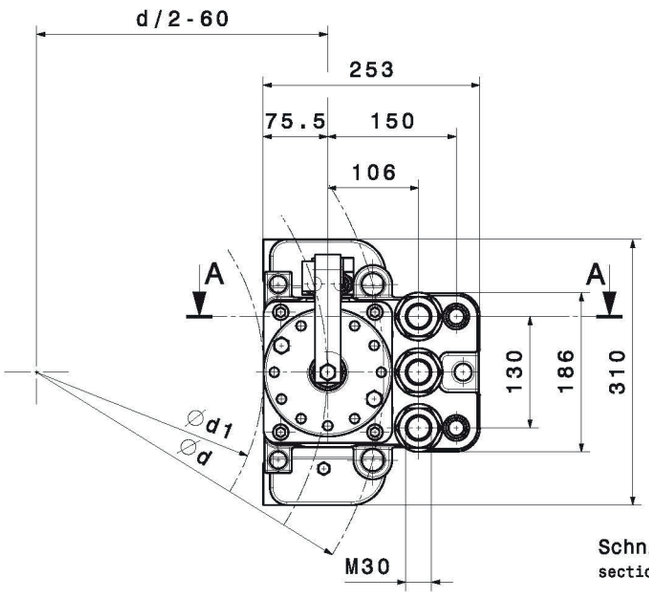
*average friction coefficient with standard material combination and a circumferential speed up to 15 m/s

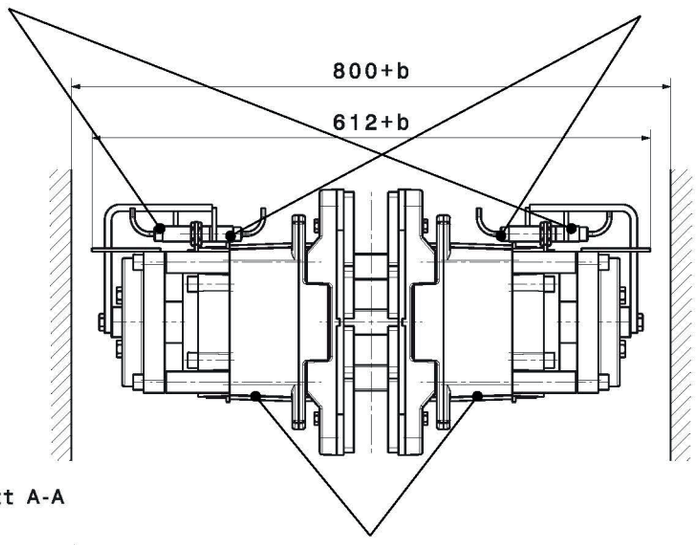
CALIPER BRAKE
SHI 106 & 107

M 1501 101 01 E-EN-2017-01

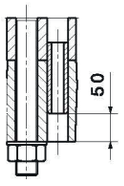
optional: proximity switch "brake open / closed"

optional: proximity switch "lining wear"

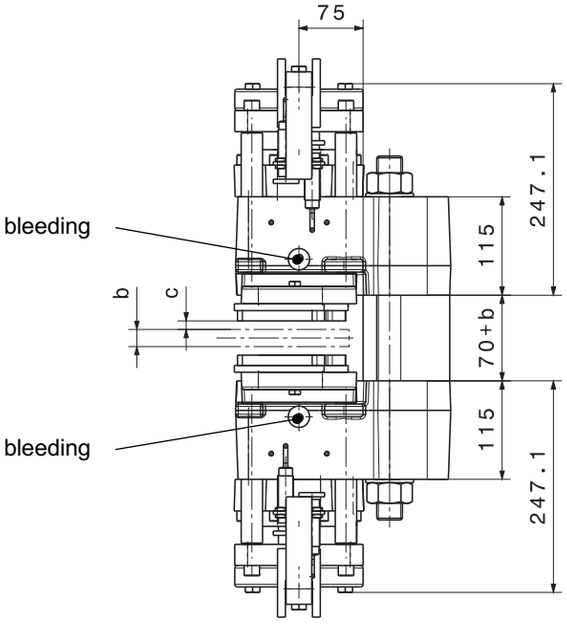




Schnitt A-A
section



hydraulic connection M16x1.5



manual release device is optionally available

SHI-Type			106	107
Clamping Force F_A				
F_A	with airgap c = 1 mm	kN	110	140
F_A	with airgap c = 2 mm	kN	98	115
F_A	with airgap c = 3 mm	kN	88	94
Torque Calculation				
M_{Br}	braking torque	Nm	2 x FA x μ x (d/2-60)	
Hydraulic				
PL	release pressure	bar	145	175
P_{max}	max. pressure	bar	175	205
V_{max}	volume at c= 2,0 mm	ltr	0,046	
Brake Discs				
b	disc thickness	mm	⩾ 20	
d	disc-Ø	mm	⩾ 650	
d_1	max. hub or drum-Ø	mm	d-280mm	
Dimensions				
L x B x H = 253 x (612+b) x 310 mm				
weight: 130 kgs				

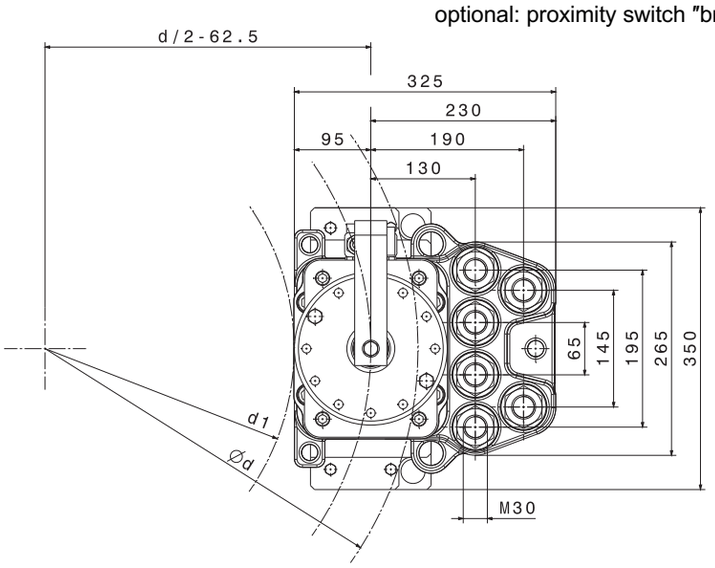
Mounting Studs			
n	quantity size, grade		3x M30, 12.9 + 4x DIN1481 Ø30x100
M_A	fastening torque	Nm	2400 at μ=0,14
Linings			
	material		sinter
	friction coefficient*		0,4

*average friction coefficient with standard material combination and a circumferential speed up to 15 m/s

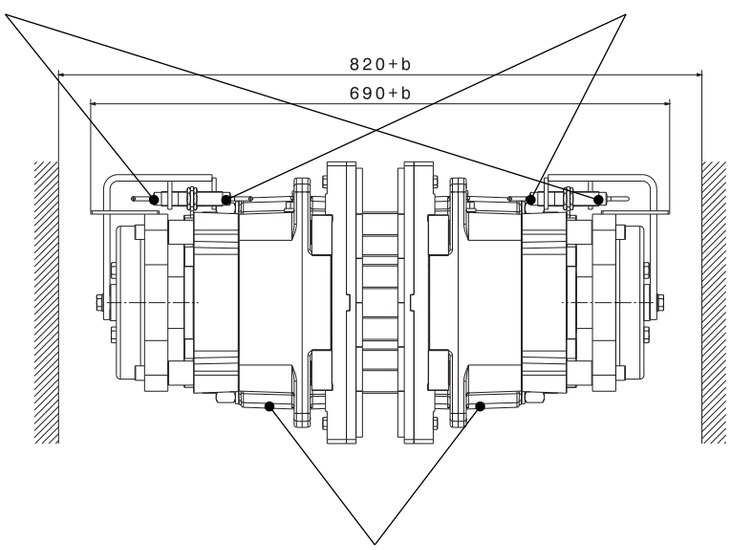
CALIPER BRAKE
SHI 161 & 162

M 1501 393 E-EN-2017-01

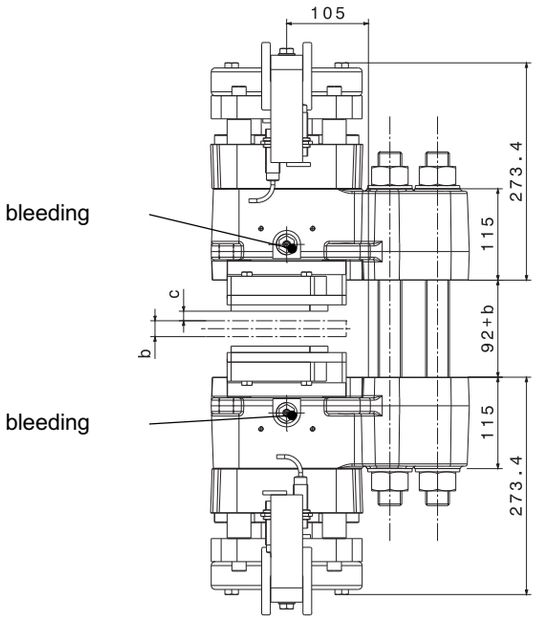
optional: proximity switch "brake open / closed"



optional: proximity switch "lining wear"



hydraulic connection G ½"



manual release device is optionally available

SHI-Type			161	162
Clamping Force F_A				
F_A	with airgap c = 1 mm	kN	108	190
F_A	with airgap c = 2 mm	kN	98	160
F_A	with airgap c = 3 mm	kN	88	128
Torque Calculation				
M_{Br}	braking torque	Nm	$2 \times F_A \times \mu \times (d/2-62,5)$	
Hydraulic				
PL	release pressure	bar	90	170
P_{max}	max. pressure	bar	150	205
V_{max}	volume at c= 2,0 mm	ltr	0,062	
Brake Discs				
b	disc thickness	mm	≥ 20	
d	disc-Ø	mm	≥ 900	
d1	max. hub or drum-Ø	mm	d-325 mm	
Dimensions				
L x B x H = 325 x (690+b) x 350 mm				
weight: 230 kgs				

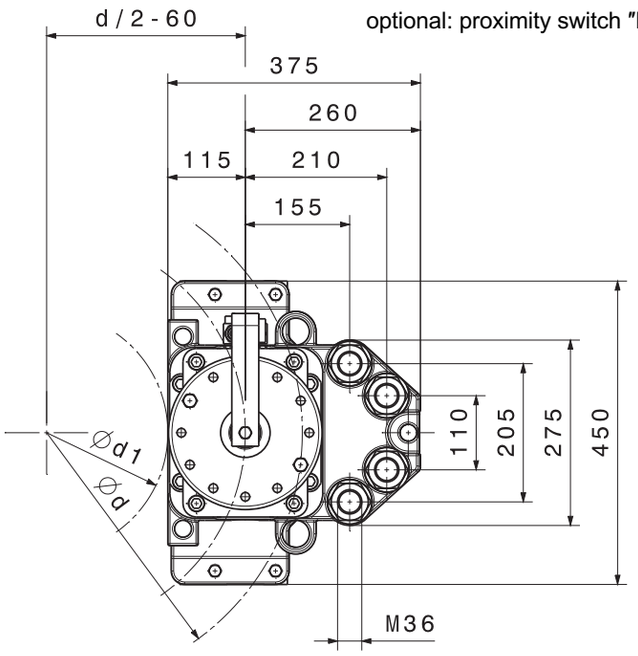
Mounting Studs			
n	quantity		6
	size, grade		M30, 12.9
M_A	fastening torque	Nm	2200 at μ=0,14

Linings		
	material	sinter
	friction coefficient*	0,4

*average friction coefficient with standard material combination and a circumferential speed up to 15 m/s

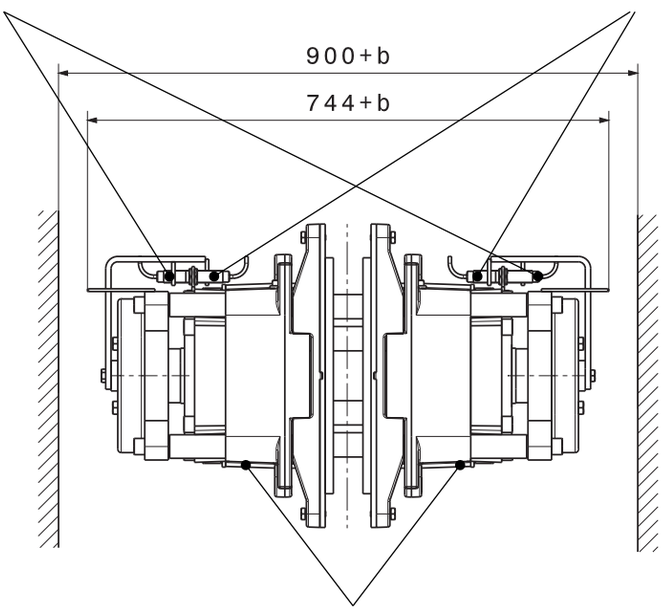
CALIPER BRAKE
SHI 201 & 202

M 1501 201 01 E-EN-2017-01

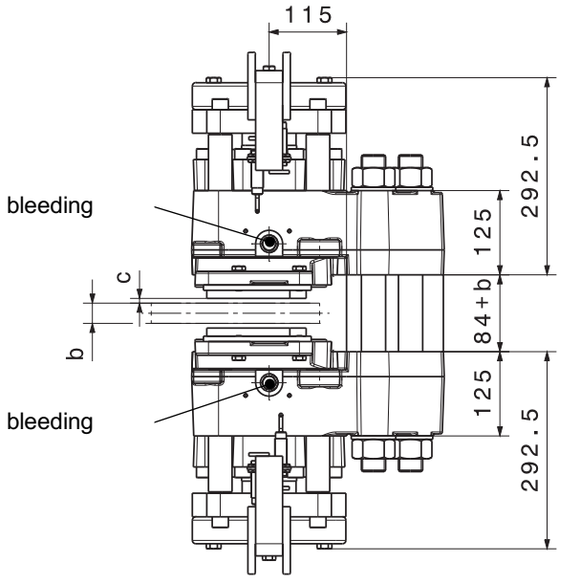


optional: proximity switch "brake open / closed"

optional: proximity switch "lining wear"



hydraulic connection G ½"



manual release device is optionally available

SHI-Type			201	202
Clamping Force F_A				
F_A	with airgap c = 1 mm	kN	170	240
F_A	with airgap c = 2 mm	kN	160	220
F_A	with airgap c = 3 mm	kN	150	200
Torque Calculation				
M_{Br}	braking torque	Nm	2 x FA x μ x (d/2-60)	
Hydraulic				
PL	release pressure	bar	115	160
P_{max}	max. pressure	bar	150	205
V_{max}	volume at c= 2,0 mm	ltr	0,071	
Brake Discs				
b	disc thickness	mm	≥ 20	
d	disc-Ø	mm	≥ 1100	
d_1	max. hub or drum-Ø	mm	d-360 mm	
Dimensions				
L x B x H = 375 x (744+b) x 450 mm				
weight: 300 kgs				

Mounting Studs			
n	quantity		4
	size, grade		M36, 12.9
M_A	fastening torque	Nm	4280 at μ=0,14

Linings		
	material	sinter
	friction coefficient*	0,4

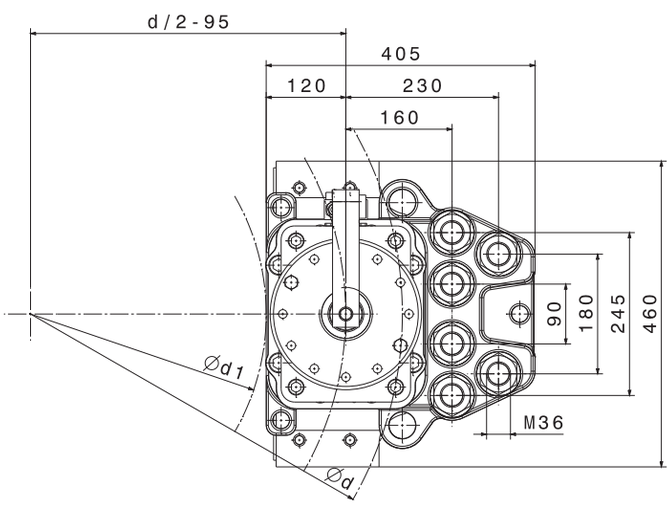
*average friction coefficient with standard material combination and a circumferential speed up to 15 m/s

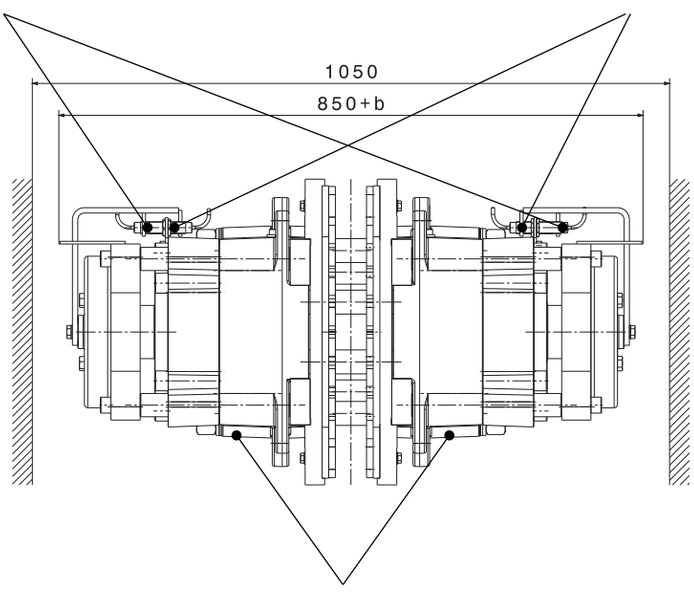
CALIPER BRAKE
SHI 231 & 232

M 1501 371 E-EN-2017-01

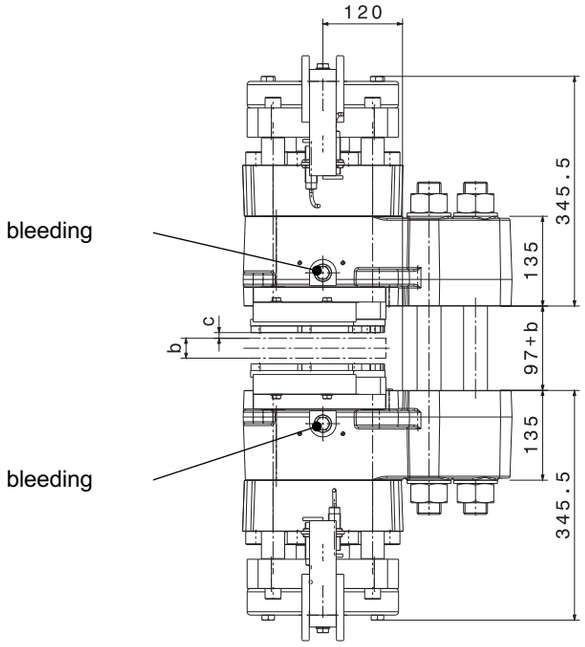
optional: proximity switch "brake open / closed"

optional: proximity switch "lining wear"





hydraulic connection G ½"



manual release device is optionally available

Mounting Studs			
n	quantity		6
	size, grade		M36, 12.9
M_A	fastening torque	Nm	4000 at μ=0,14

Linings		
	material	sinter
	friction coefficient*	0,4

SHI-Type			231	232
Clamping Force F_A				
F_A	with airgap c = 2 mm	kN	240	300
F_A	with airgap c = 3 mm	kN	225	270
Torque Calculation				
M_{Br}	braking torque	Nm	2 x F_A x μ x (d/2-95)	
Hydraulic				
PL	release pressure	bar	130	170
P_{max}	max. pressure	bar	175	205
V_{max}	volume at c= 2,0 mm	ltr	0,102	
Brake Discs				
b	disc thickness	mm	⩾ 20	
d	disc-Ø	mm	⩾ 1100	
d1	max. hub or drum-Ø	mm	d-440 mm	
Dimensions				
L x B x H = 405 x (850+b) x 460 mm				
weight: 415 kgs				

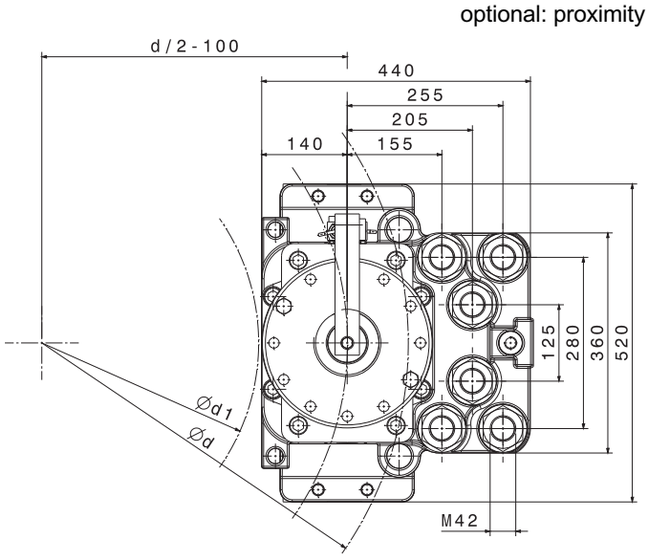
*average friction coefficient with standard material combination and a circumferential speed up to 15 m/s

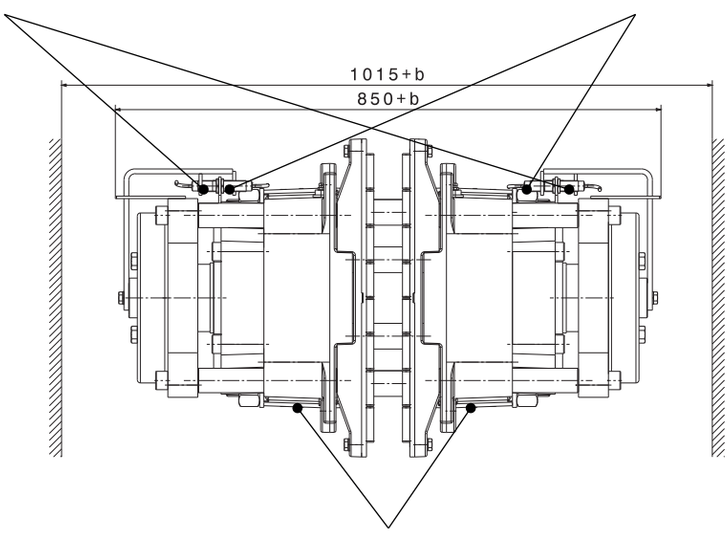
CALIPER BRAKE
SHI 251 & 252

M 1501 428 E-EN-2017-01

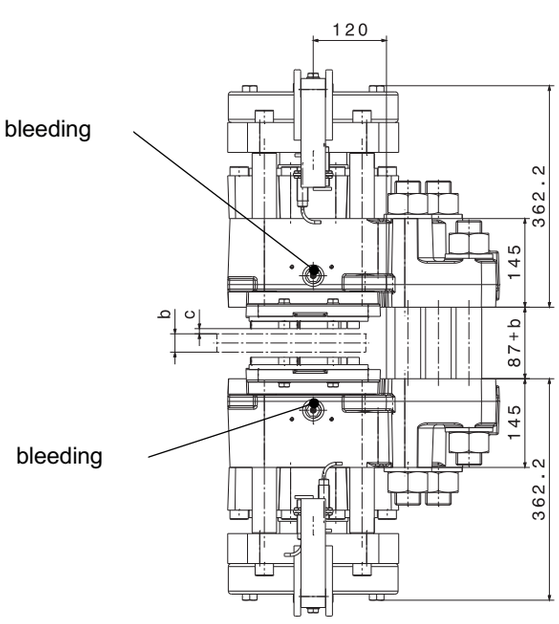
optional: proximity switch "brake open / closed"

optional: proximity switch "lining wear"





hydraulic connection G ½"



manual release device is optionally available

SHI-Type			251	252
Clamping Force F_A				
F_A	with airgap c = 1 mm	kN	335	440
F_A	with airgap c = 2 mm	kN	302	400
F_A	with airgap c = 3 mm	kN	270	360
Torque Calculation				
M_{Br}	braking torque	Nm	2 x FA x μ x (d/2-100)	
Hydraulic				
PL	release pressure	bar	105	140
P_{max}	max. pressure	bar	150	175
V_{max}	volume at c= 2,0 mm	ltr	0,142	
Brake Discs				
b	disc thickness	mm	≥ 20	
d	disc-Ø	mm	≥ 1200	
d_1	max. hub or drum-Ø	mm	d-490 mm	
Dimensions				
L x B x H = 440 x (850+b) x 520 mm				
weight: 610 kgs				

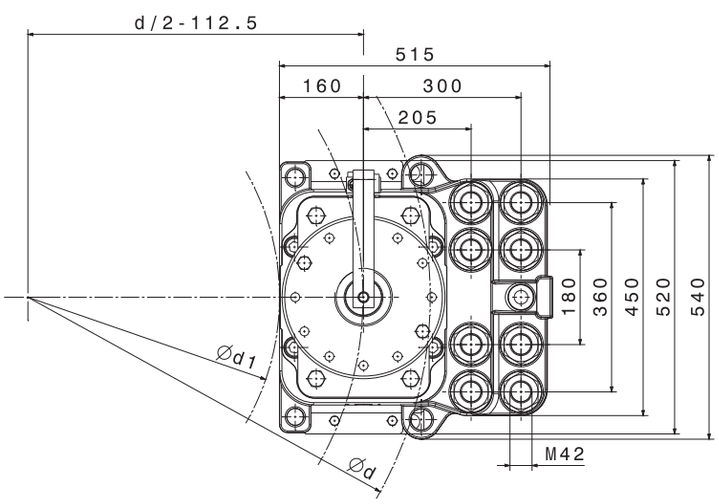
Mounting Studs			
n	quantity		6
	size, grade		M42, 12.9
M_A	fastening torque	Nm	6000 at μ=0,14
Linings			
	material		sinter
	friction coefficient*		0,4

*average friction coefficient with standard material combination and a circumferential speed up to 15 m/s

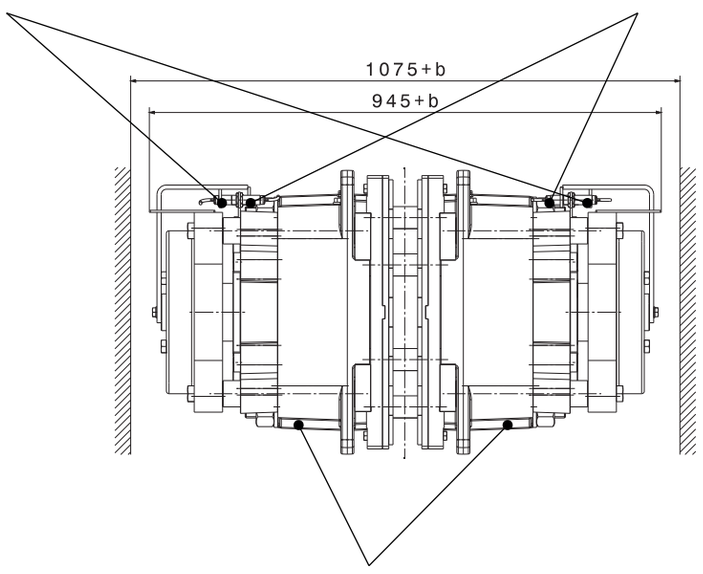
CALIPER BRAKE
SHI 281 & 282

M 1501 427 E-EN-2017-01

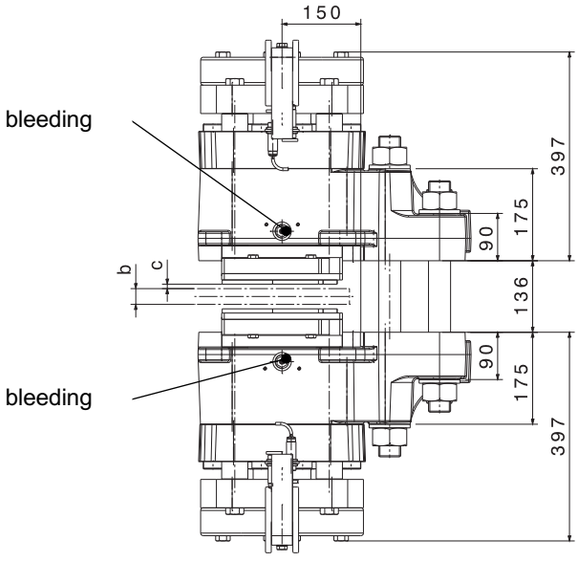
optional: proximity switch "brake open / closed"



optional: proximity switch "lining wear"



hydraulic connection G ½"



manual release device is optionally available

SHI-Type			281	282
Clamping Force F_A				
F_A	with airgap c = 1 mm	kN	455	555
F_A	with airgap c = 2 mm	kN	425	510
F_A	with airgap c = 3 mm	kN	395	465
Torque Calculation				
M_{Br}	braking torque	Nm	2 x F_A x μ x (d/2-112,5)	
Hydraulic				
PL	release pressure	bar	135	165
P_{max}	max. pressure	bar	175	205
V_{max}	volume at c= 2,0 mm	ltr	0,181	
Brake Discs				
b	disc thickness	mm	⩾ 30	
d	disc-Ø	mm	⩾ 1600	
d1	max. hub or drum-Ø	mm	d-545mm	
Dimensions				
L x W x H = 515 x (945+b) x 540 mm				
weight: 900 kgs				

Mounting Studs			
n	quantity		6
	size, grade		M36, 12.9
M_A	fastening torque	Nm	4000 at μ=0,14

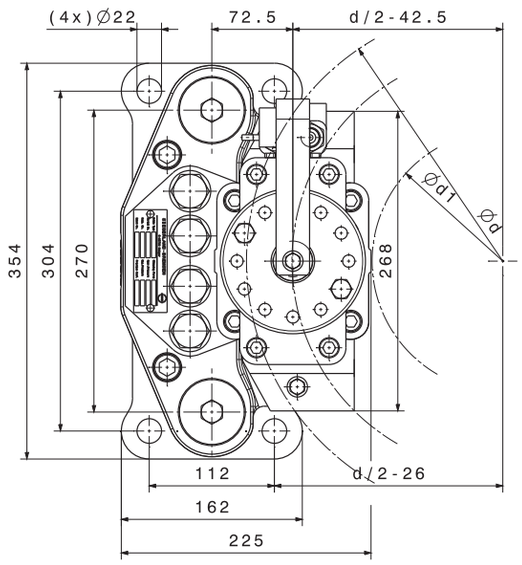
Linings		
	material	sinter
	friction coefficient*	0,4

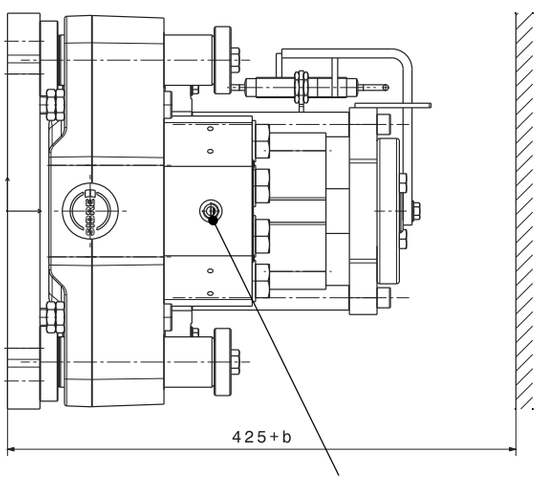
*average friction coefficient with standard material combination and a circumferential speed up to 15 m/s

CALIPER BRAKE

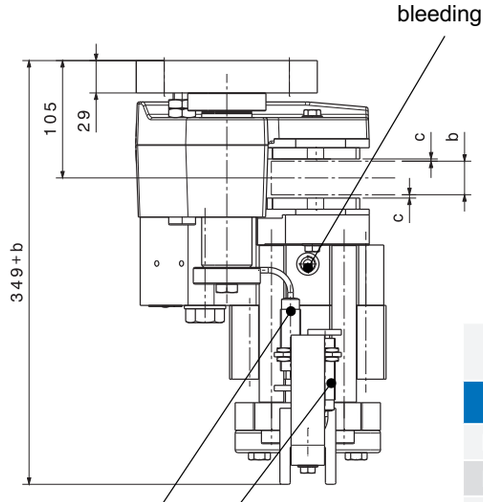
SHI 75 FC with flange

M 1501 385 E-EN-2016-12





hydraulic connection M14x1.5



optional: proximity switch
"lining wear"

optional: proximity switch
"brake open/ close"

manual release device is optionally available

SHI-Type			1	2	3	4	5	6
Clamping Force F_A								
F_A	with airgap c = 1,0 mm	kN	17,9	20,7	23,9	27,6	41,0	47,3
F_A	with airgap c = 1,25 mm	kN	17,7	19,9	23,1	26,1	39,1	46,0
F_A	with airgap c = 1,5 mm	kN	17,6	19,0	22,4	24,6	37,0	44,4
Torque Calculation								
M_{Br}	braking torque	Nm	2 x FA x μ x (d/2-42,5)					
Hydraulic								
PL	release pressure	bar	45	55	65	80	120	135
P_{max}	max. pressure	bar	85	85	110	110	150	175
V_{max}	volume at c= 1,5 mm	ltr	0,024					
Brake Discs								
b	disc thickness	mm	20 ⩽ b ⩽ 40					
d	disc-Ø	mm	400 ⩽ d ⩽ 2000					
d_1	max. hub or drum-Ø	mm	d-230 mm					
Dimensions								
L x B x H = 225 x (349+b) x 354 mm								
max. weight: 85 kgs								

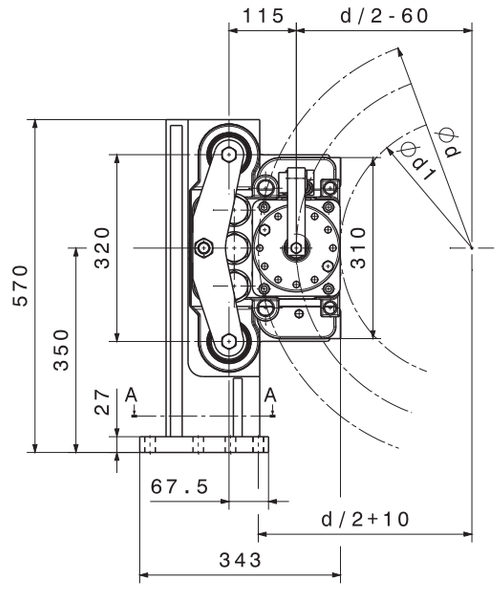
Mounting Studs			
n	quantity		4
	size, grade		M20, 12.9
M_A	fastening torque	Nm	690 at μ = 0,14
Linings			
	material		sinter
	friction coefficient*		0,4

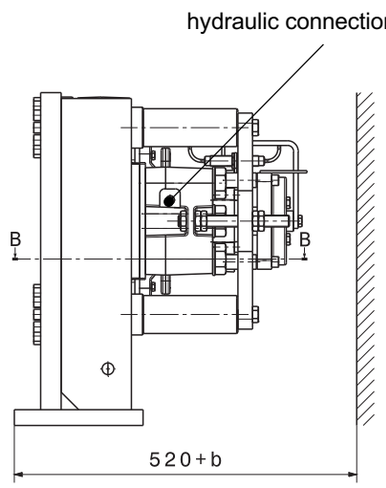
*average friction coefficient with standard material combination and a circumferential speed up to 15 m/s

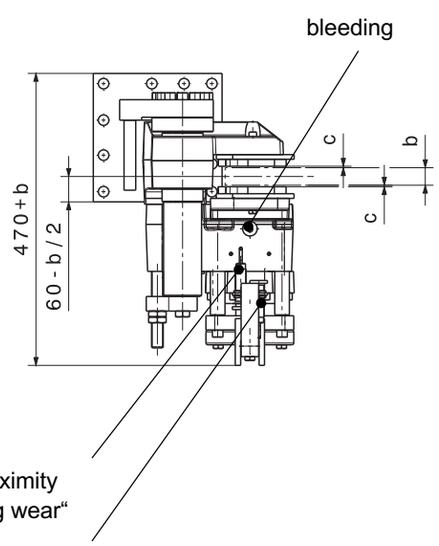
When ordering please advise: right hand version, as shown; left hand version, mirror inverted!

CALIPER BRAKE
SHI 100 FC with console

M 1501 295 E-EN-2016-12



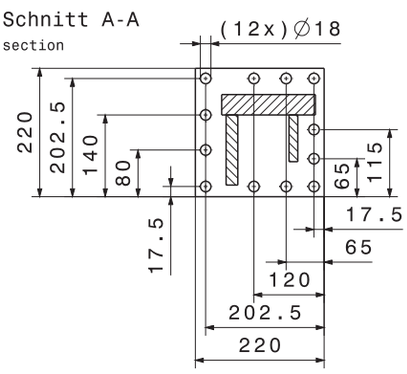




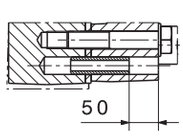
optional: proximity switch "lining wear"

optional: proximity switch "brake open/ close"

Schnitt A-A
section



Schnitt B-B
section



manual release device is optionally available

Mounting Studs					
Type SHI FC			101 – 103	104 – 105	106 – 107
n	quantity		12	12	12
	size, grade		M16, 12.9	M16, 12.9	M16, 12.9
M_A	fastening torque	Nm	355 at μ = 0,14	355 at μ = 0,14	355 at μ = 0,14
Linings					
	material		sinter		
	friction coefficient*		0,4		

*average friction coefficient with standard material combination and a circumferential speed up to 15 m/s

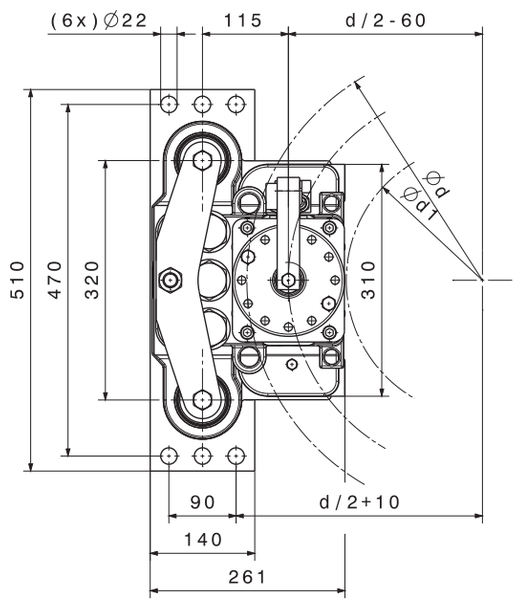
SHI-Type			1	2	3	4	5	6	7
Clamping Force F_A									
F_A	with airgap c = 1,0 mm	kN	28,0	43,7	52,2	68,7	77,0	98,0	115,0
F_A	with airgap c = 1,5 mm	kN	27,0	41,3	48,8	62,7	74,4	88,0	94,0
Torque Calculation									
M_{Br}	braking torque	Nm	2 x FA x μ x (d/2-60)						
Hydraulic									
PL	release pressure	bar	35	50	60	80	95	145	175
P_{max}	max. pressure	bar	110	110	110	110	150	175	205
V_{max}	volume at c= 1,5 mm	ltr	0,034						
Brake Discs									
b	disc thickness	mm	20 ≤ b ≤ 40						
d	disc-Ø	mm	650 ≤ d ≤ 3000						
d_1	max. hub or drum-Ø	mm	d-280 mm						
Dimensions									
L x B x H = 343 x (470+b) x 570 mm									
max. weight: 180 kgs									

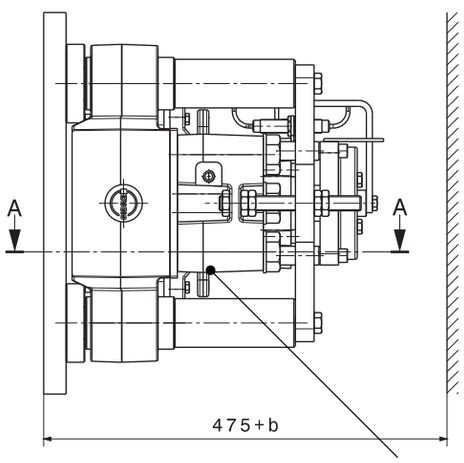
When ordering please advise: right hand version, as shown; left hand version, mirror inverted!

CALIPER BRAKE

SHI 100 FC with flange

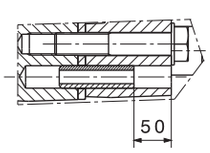
M 1501 294 E-EN-2016-12

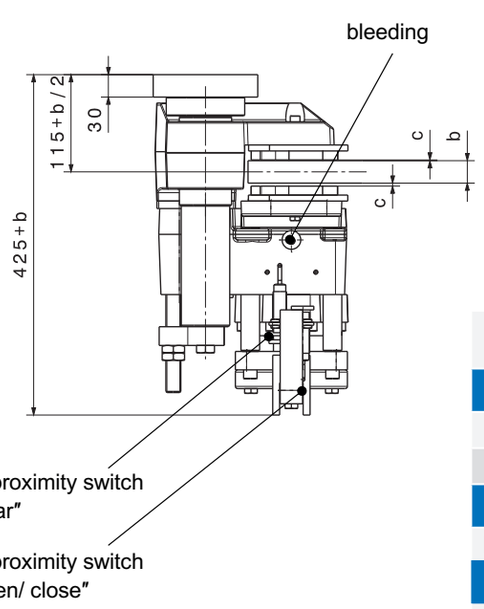




Schnitt A-A
section

hydraulic connection M14x1.5





optional: proximity switch
"lining wear"

optional: proximity switch
"brake open/ close"

manual release device
is optionally available

SHI-Type			1	2	3	4	5	6	7
Clamping Force F_A									
F_A	with airgap c = 1,0 mm	kN	28,0	43,7	52,2	68,7	77,0	98,0	115,0
F_A	with airgap c = 1,5 mm	kN	27,0	41,3	48,8	62,7	74,4	88,0	94,0
Torque Calculation									
M_{Br}	braking torque	Nm	2 x FA x μ x (d/2-60)						
Hydraulic									
PL	release pressure	bar	35	50	60	80	95	145	175
P_{max}	max. pressure	bar	110	110	110	110	150	175	205
V_{max}	volume at c= 1,5 mm	ltr	0,034						
Brake Discs									
b	disc thickness	mm	20 ≤ b ≤ 40						
d	disc-Ø	mm	650 ≤ d ≤ 3000						
d_1	max. hub or drum-Ø	mm	d-280 mm						
Dimensions									
L x B x H = 261 x (425+b) x 510 mm									
max. weight: 155 kgs									

Mounting Studs					
Type SHI FC			101 – 103	104 – 105	106 – 107
n	quantity		6	6	6
	size, grade		M20, 12.9	M20, 12.9	M20, 12.9
M_A	fastening torque	Nm	690 at μ = 0,14	690 at μ = 0,14	690 at μ = 0,14

Linings		
	material	sinter
	friction coefficient*	0,4

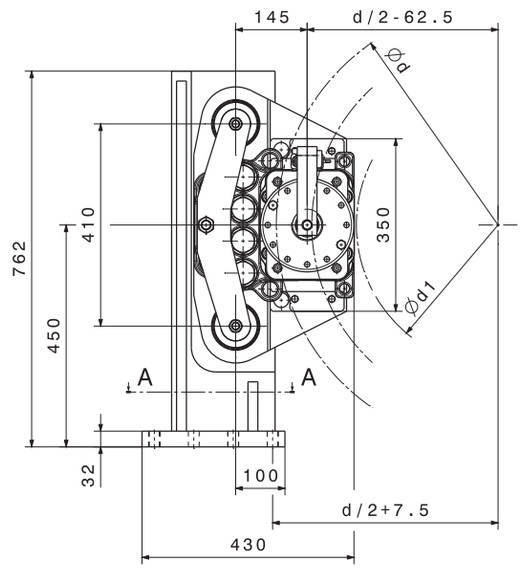
*average friction coefficient with standard material combination and a circumferential speed up to 15 m/s

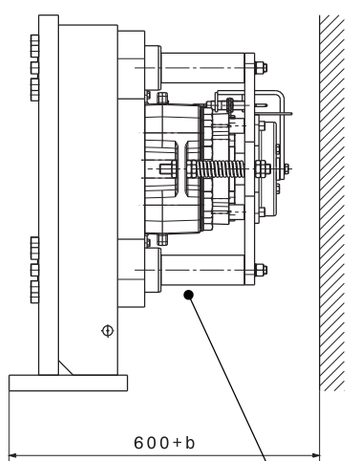
When ordering please advise: right hand version, as shown; left hand version, mirror inverted!

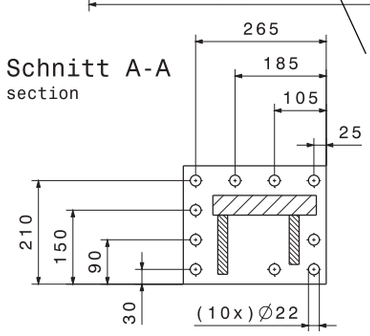
CALIPER BRAKE

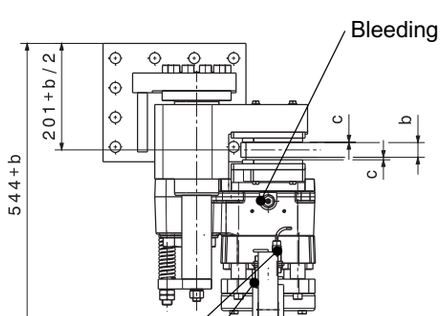
SHI 160 FC with console

M 1501 455 E-EN-2018-01









manual release device
is optionally available

Optional limit switch:
Lining wear

Optional limit switch:
Brake open/ close

Mounting Studs			
n	quantity		8
	size, grade		M24, 10.9
M_A	fastening torque	Nm	1000 bei µ=0,14

Linings		
	material	sinter
	friction coefficient*	0,4

SHI-Type			161 FC	162 FC
Clamping Force F_A				
F_A	with airgap c = 1,0 mm	kN	98	160
F_A	with airgap c = 1,5 mm	kN	88	128
Torque Calculation				
M_{Br}	braking torque	Nm	2 x FA x µ x (d/2-62.5)	
Hydraulic				
PL	release pressure	bar	90	170
P_{max}	max. pressure	bar	150	205
V_{max}	volume at c= 1,5 mm	ltr	0,038	
Brake Discs				
b	disc thickness	mm	20 ≤ b ≤ 40	
d	disc-Ø	mm	≥ 900	
d_1	max. hub or drum-Ø	mm	d - 325	
Dimensions				
L x B x H = 430 x (544+b) x 762 mm				
max. weight: 328 kgs				

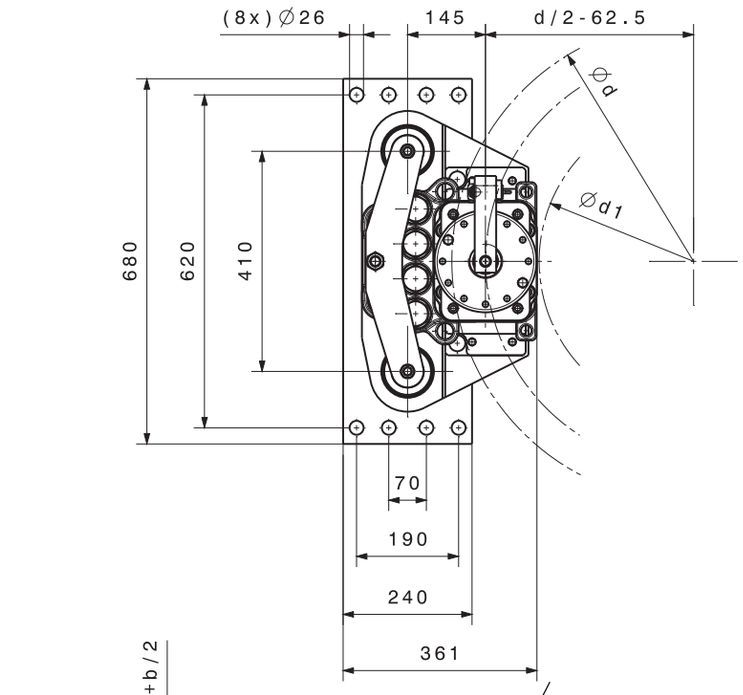
*average friction coefficient with standard material combination and a circumferential speed up to 15 m/s

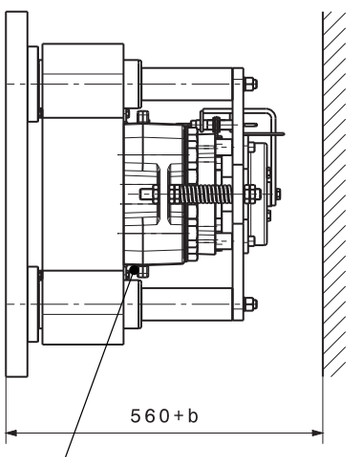
When ordering please advise: right hand version, as shown; left hand version, mirror inverted!

CALIPER BRAKE

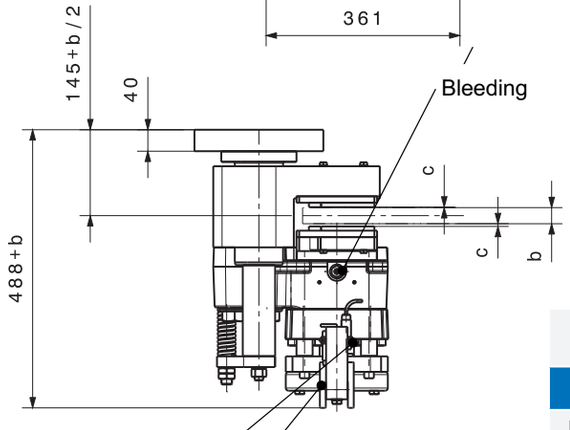
SHI 160 FC with flange

M 1501 454 E-EN-2018-01





Hydraulic connection G ½"



Optional limit switch:
Lining wear

Optional limit switch:
Brake open/ close

manual release device
is optionally available

SHI-Type			161 FC	162 FC
Clamping Force F_A				
F_A	with airgap c = 1,0 mm	kN	98	160
F_A	with airgap c = 1,5 mm	kN	88	128
Torque Calculation				
M_{Br}	braking torque	Nm	2 x FA x μ x (d/2-62.5)	
Hydraulic				
PL	release pressure	bar	90	170
P_{max}	max. pressure	bar	150	205
V_{max}	volume at c= 1,5 mm	ltr	0,038	
Brake Discs				
b	disc thickness	mm	20 ≤ b ≤ 40	
d	disc-Ø	mm	≥ 900	
d_1	max. hub or drum-Ø	mm	d - 325	
Dimensions				
L x B x H = 361 x (488+b) x 680 mm				
max. weight: 300 kgs				

Mounting Studs			
n	quantity		8
	size, grade		M24, 10.9
M_A	fastening torque	Nm	1000 bei μ=0,14

Linings		
	material	sinter
	friction coefficient*	0,4

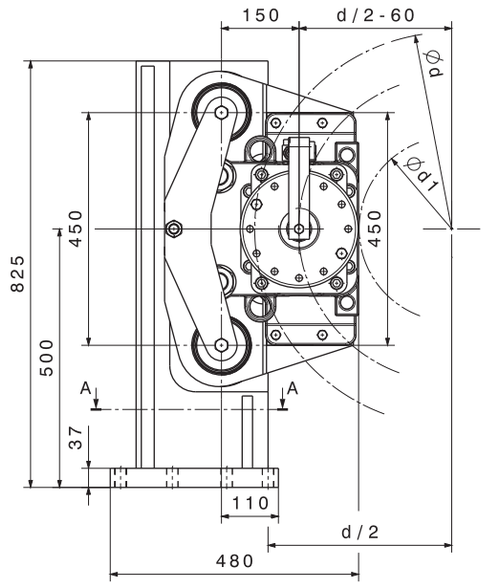
*average friction coefficient with standard material combination and a circumferential speed up to 15 m/s

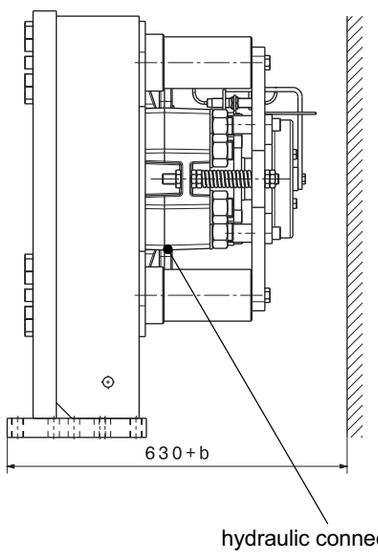
When ordering please advise: right hand version, as shown; left hand version, mirror inverted!

CALIPER BRAKE

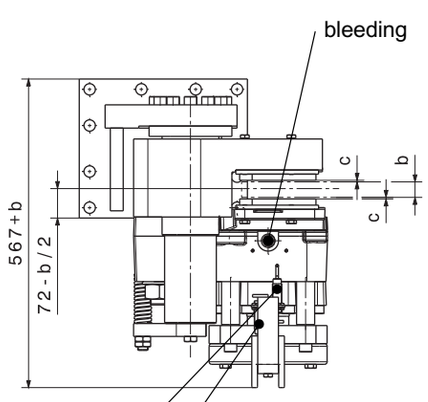
SHI 200 FC with console

M 1501 332 E-EN-2016-12



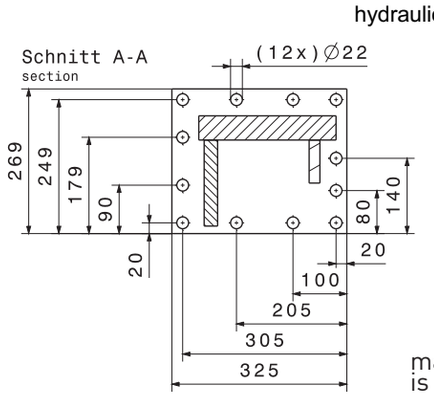


hydraulic connection G ½"



optional: proximity switch "lining wear"

optional: proximity switch "brake open / close"



manual release device is optionally available

Mounting Studs			
n	quantity		12
	size, grade		M20, 10.9
M_A	fastening torque	Nm	580 at μ=0,14

Linings		
	material	sinter
	friction coefficient*	0,4

SHI-Type			201 FC	202 FC
Clamping Force F_A				
F_A	with airgap c = 1,0 mm	kN	160	220
F_A	with airgap c = 1,5 mm	kN	150	200
Torque Calculation				
M_{Br}	braking torque	Nm	2 x FA x μ x (d/2-60)	
Hydraulic				
PL	release pressure	bar	115	160
P_{max}	max. pressure	bar	150	205
V_{max}	volume at c= 1,5 mm	ltr	0,053	
Brake Discs				
b	disc thickness	mm	20 ≤ b ≤ 40	
d	disc-Ø	mm	≥ 1100	
d_1	max. hub or drum-Ø	mm	d - 360	
Dimensions				
L x W x H = 480 x (567+b) x 825 mm				
max. weight: 485 kgs				

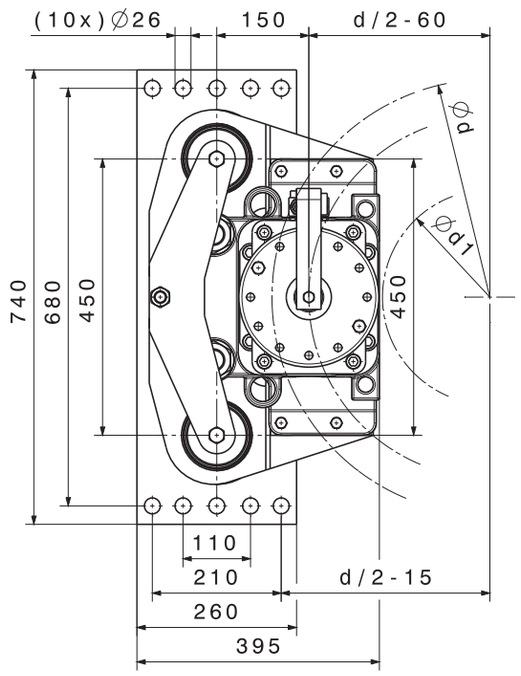
*average friction coefficient with standard material combination and a circumferential speed up to 15 m/s

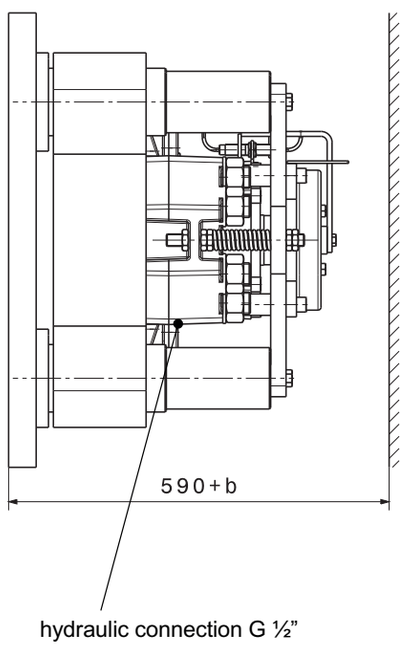
When ordering please advise: right hand version, as shown; left hand version, mirror inverted!

CALIPER BRAKE

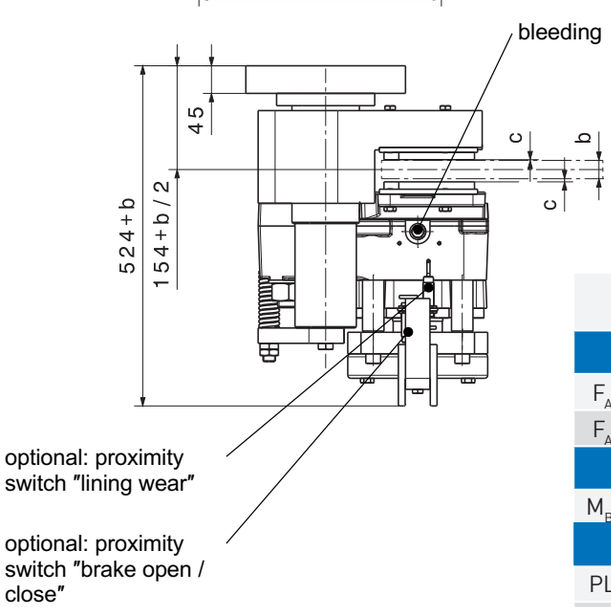
SHI 200 FC with flange

M 1501 431 E-EN-2016-12





hydraulic connection G ½"



manual release device is optionally available

SHI-Type			201 FC	202 FC
Clamping Force F_A				
F_A	with airgap c = 1,0 mm	kN	160	220
F_A	with airgap c = 1,5 mm	kN	150	200
Torque Calculation				
M_{Br}	braking torque	Nm	2 x FA x μ x (d/2-60)	
Hydraulic				
PL	release pressure	bar	115	160
P_{max}	max. pressure	bar	150	205
V_{max}	volume at c= 1,5 mm	ltr	0,053	
Brake Discs				
b	disc thickness	mm	20 ≤ b ≤ 40	
d	disc-Ø	mm	≥ 1100	
d_1	max. hub or drum-Ø	mm	d - 360	
Dimensions				
L x W x H = 395 x (524+b) x 740 mm				
max. weight: 430 kgs				

Mounting Studs			
n	quantity		10
	size, grade		M24, 10.9
M_A	fastening torque	Nm	1000 at μ=0,14

Linings		
	material	sinter
	friction coefficient*	0,4

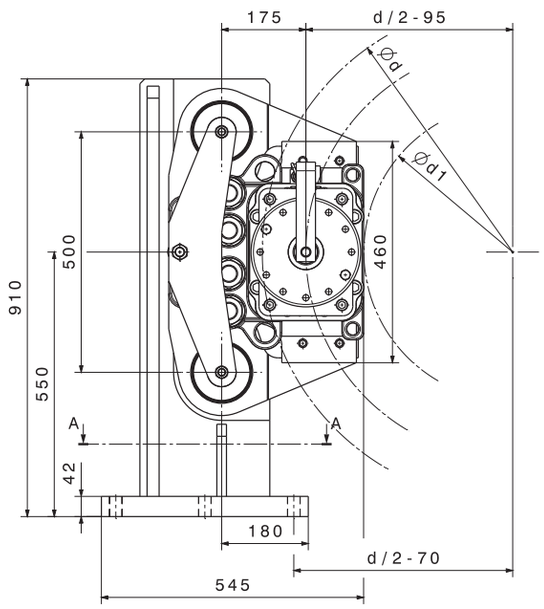
*average friction coefficient with standard material combination and a circumferential speed up to 15 m/s

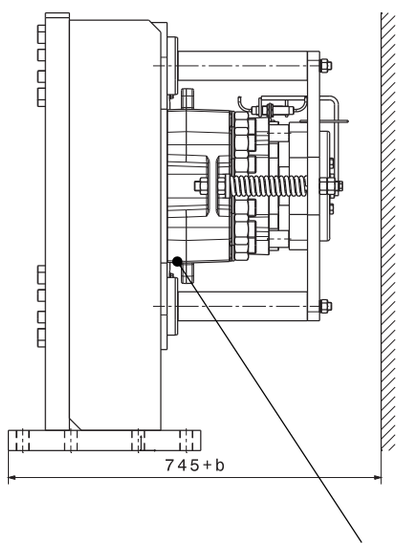
When ordering please advise: right hand version, as shown; left hand version, mirror inverted!

CALIPER BRAKE

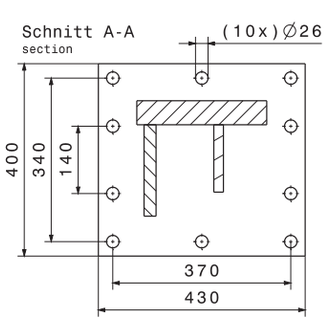
SHI 230 FC with console

M 1501 395 E-EN-2016-12

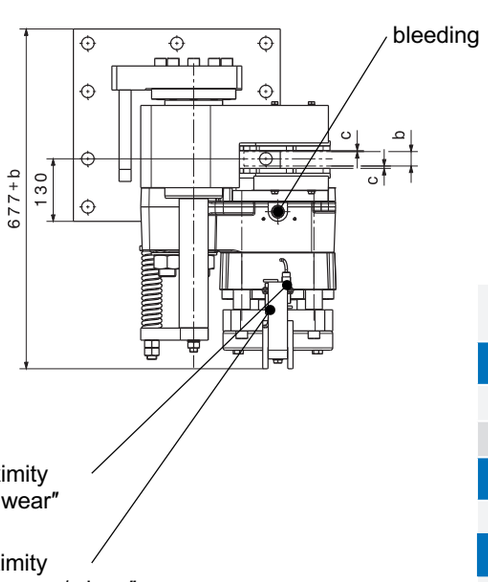




hydraulic connection G ½”



manual release device
is optionally available



optional: proximity
switch ”lining wear”

optional: proximity
switch ”brake open / close”

SHI-Type			231 FC	232 FC
Clamping Force F_A				
F_A	with airgap c = 1,0 mm	kN	240	300
F_A	with airgap c = 1,5 mm	kN	225	270
Torque Calculation				
M_{Br}	braking torque	Nm	2 x F_A x μ x (d/2-95)	
Hydraulic				
PL	release pressure	bar	130	170
P_{max}	max. pressure	bar	175	205
V_{max}	volume at c= 1,5 mm	ltr	0,076	
Brake Discs				
b	disc thickness	mm	20 ≤ b ≤ 40	
d	disc-Ø	mm	900 ≤ d ≤ 2400	
d_1	max. hub or drum-Ø	mm	d - 440	
Dimensions				
L x W x H = 545 x (677+b) x 910 mm				
max. weight: 660 kgs				

Mounting Studs			
n	quantity		10
	size, grade		M24, 8.8
M_A	fastening torque	Nm	710 at μ=0,14
Linings			
	material		sinter
	friction coefficient*		0,4

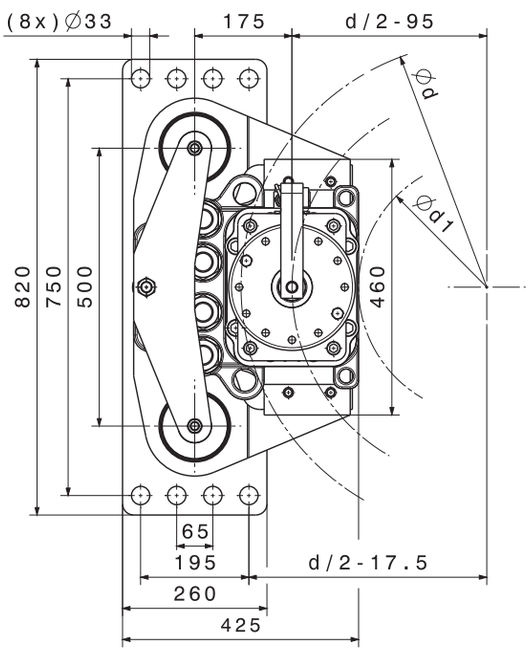
*average friction coefficient with standard material combination and a circumferential speed up to 15 m/s

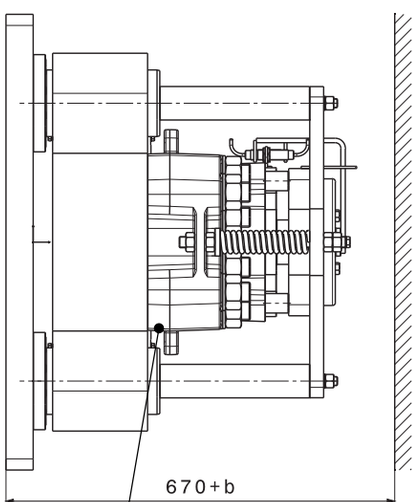
When ordering please advise: right hand version, as shown; left hand version, mirror inverted!

CALIPER BRAKE

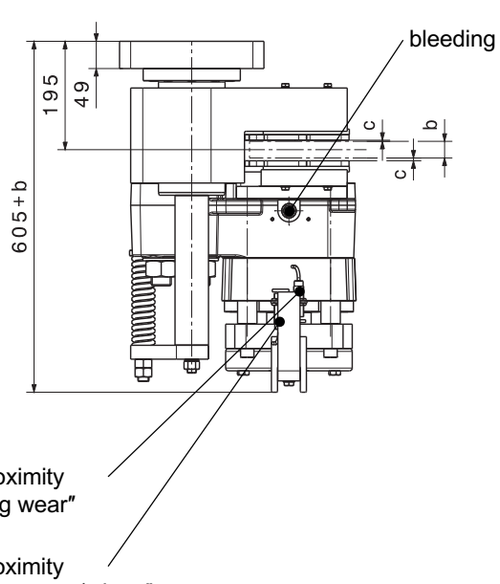
SHI 230 FC with flange

M 1501 394 E-EN-2016-12





hydraulic connection G ½"



optional: proximity switch "lining wear"

optional: proximity switch "brake open / close"

manual release device is optionally available

SHI-Type			231 FC	232 FC
Clamping Force F_A				
F_A	with airgap c = 1,0 mm	kN	240	300
F_A	with airgap c = 1,5 mm	kN	225	270
Torque Calculation				
M_{Br}	braking torque	Nm	2 x F_A x μ x (d/2-95)	
Hydraulic				
PL	release pressure	bar	130	170
P_{max}	max. pressure	bar	175	205
V_{max}	volume at c= 1,5 mm	ltr	0,076	
Brake Discs				
b	disc thickness	mm	20 ≤ b ≤ 40	
d	disc-Ø	mm	900 ≤ d ≤ 2400	
d_1	max. hub or drum-Ø	mm	d - 440	
Dimensions				
L x W x H = 425 x (605+b) x 820 mm				
max. weight: 558 kgs				

Mounting Studs			
n	quantity		8
	size, grade		M30, 10.9
M_A	fastening torque	Nm	2000 at μ=0,14
Linings			
	material		sinter
	friction coefficient*		0,4

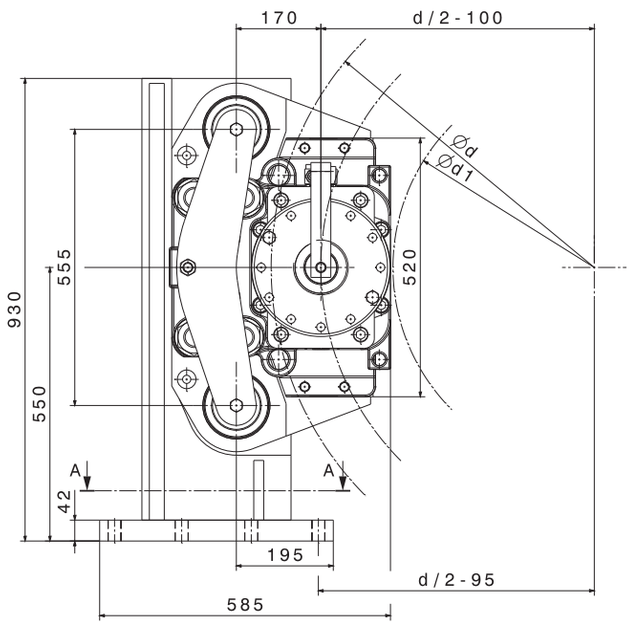
*average friction coefficient with standard material combination and a circumferential speed up to 15 m/s

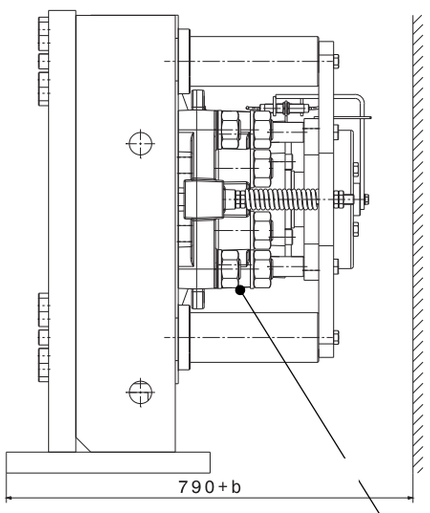
When ordering please advise: right hand version, as shown; left hand version, mirror inverted!

CALIPER BRAKE

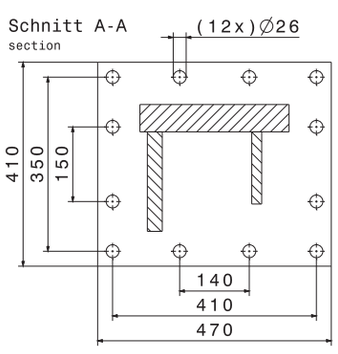
SHI 250 FC with console

M 1501 430 E-EN-2016-12

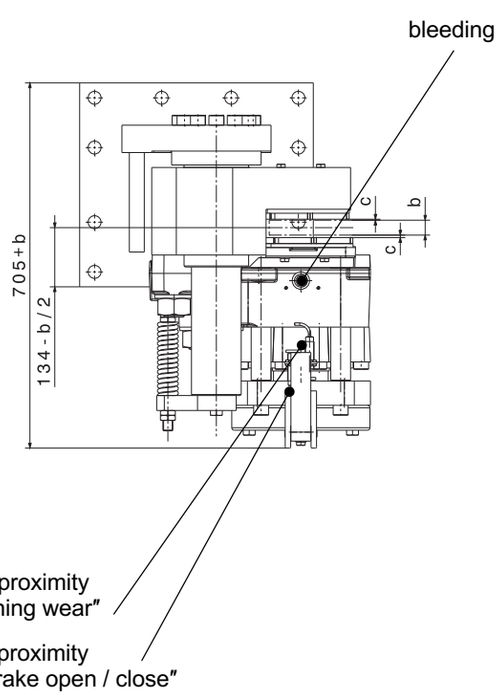




hydraulic connection G ½"



manual release device
is optionally available



SHI-Type			251 FC	252 FC
Clamping Force F_A				
F_A	with airgap c = 1,0 mm	kN	302	400
F_A	with airgap c = 1,5 mm	kN	270	360
Torque Calculation				
M_{Br}	braking torque	Nm	2 x FA x μ x (d/2-100)	
Hydraulic				
PL	release pressure	bar	105	140
P_{max}	max. pressure	bar	205	205
V_{max}	volume at c= 1,5 mm	ltr	0,106	
Brake Discs				
b	disc thickness	mm	20 ≤ b ≤ 40	
d	disc-Ø	mm	1300 ≤ d ≤ 2200	
d_1	max. hub or drum-Ø	mm	d-490	
Dimensions				
L x B x H = 585 x (705+b) x 930 mm				
max. weight: 810 kgs				

Mounting Studs			
n	quantity		12
	size, grade		M24, 12.9
M_A	fastening torque	Nm	1200 at μ=0,14

Linings		
	material	sinter
	friction coefficient*	0,4

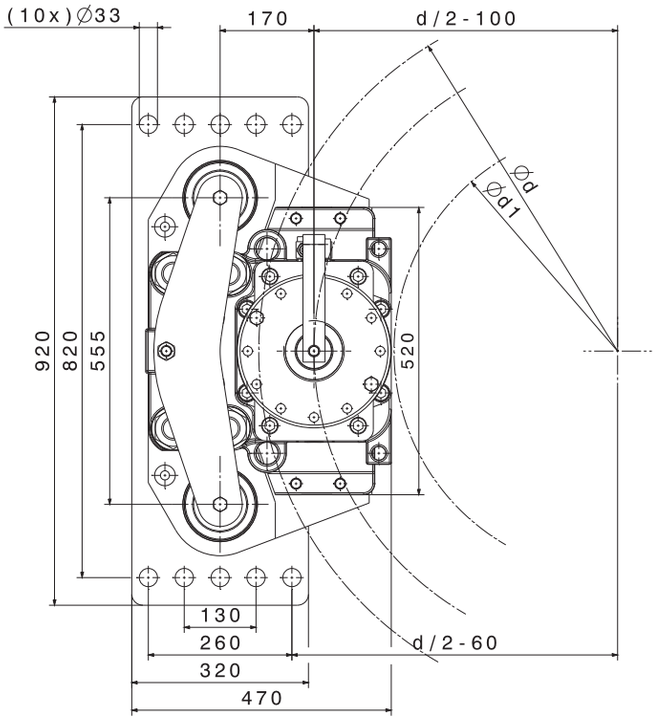
*average friction coefficient with standard material combination and a circumferential speed up to 15 m/s

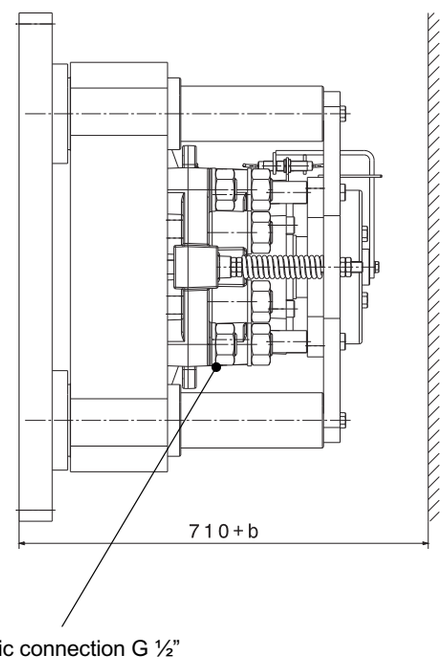
When ordering please advise: right hand version, as shown; left hand version, mirror inverted!

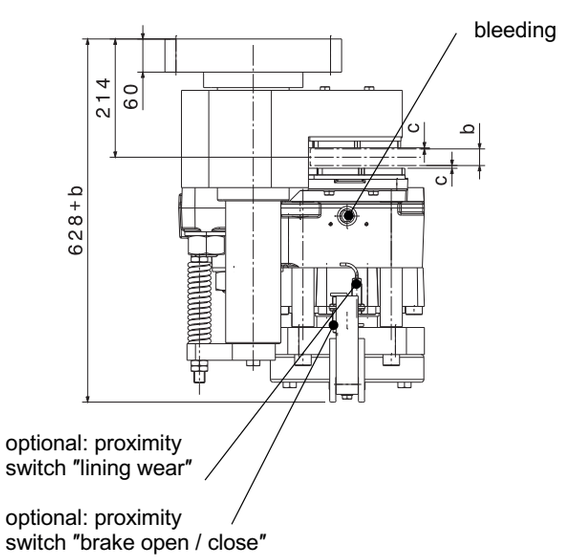
CALIPER BRAKE

SHI 250 FC with flange

M 1501 429 E-EN-2016-12







manual release device is optionally available

SHI-Type			251 FC	252 FC
Clamping Force F_A				
F_A	with airgap c = 1,0 mm	kN	302	400
F_A	with airgap c = 1,5 mm	kN	270	360
Torque Calculation				
M_{Br}	braking torque	Nm	2 x FA x μ x (d/2-100)	
Hydraulic				
PL	release pressure	bar	105	140
P_{max}	max. pressure	bar	205	205
V_{max}	volume at c= 1,5 mm	ltr	0,106	
Brake Discs				
b	disc thickness	mm	20 ≤ b ≤ 40	
d	disc-Ø	mm	1300 ≤ d ≤ 2200	
d_1	max. hub or drum-Ø	mm	d-490	
Dimensions				
L x B x H = 470 x (628+b) x 920 mm				
max. weight: 730 kgs				

Mounting Studs			
n	quantity		10
	size, grade		M30, 12.9
M_A	fastening torque	Nm	2400 at μ=0,14
Linings			
	material		sinter
	friction coefficient*		0,4

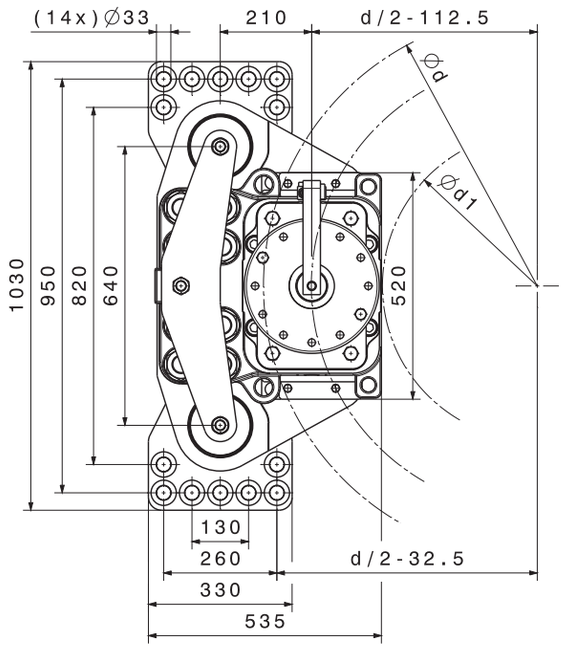
*average friction coefficient with standard material combination and a circumferential speed up to 15 m/s

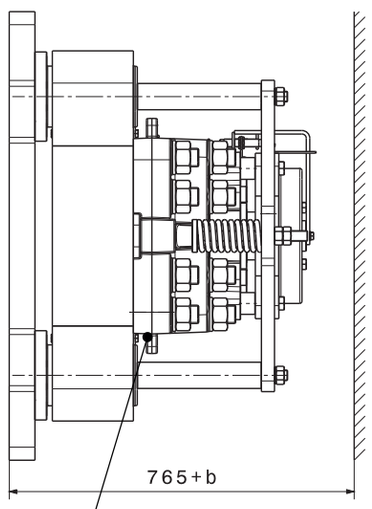
When ordering please advise: right hand version, as shown; left hand version, mirror inverted!

CALIPER BRAKE

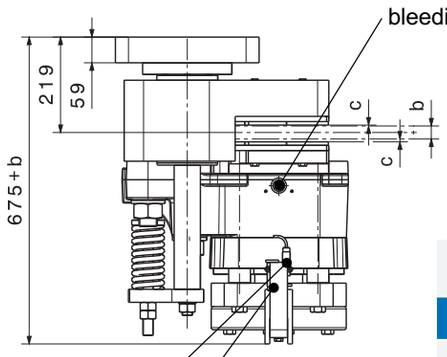
SHI 280 FC with flange

M 1501 433 E-EN-2016-12





hydraulic connection G ½"



manual release device
is optionally available

optional: proximity
switch "lining wear"

optional: proximity
switch "brake open / close"

SHI-Type			281 FC	282 FC
Clamping Force F_A				
F_A	with airgap c = 1,0 mm	kN	425	510
F_A	with airgap c = 1,5 mm	kN	395	465
Torque Calculation				
M_{Br}	braking torque	Nm	2 x F_A x μ x (d/2-112.5)	
Hydraulic				
PL	release pressure	bar	135	165
P_{max}	max. pressure	bar	175	205
V_{max}	volume at c= 1,5 mm	ltr	0,09	
Brake Discs				
b	disc thickness	mm	30 ≤ b ≤ 40	
d	disc-Ø	mm	1600 ≤ d ≤ 5000	
d_1	max. hub or drum-Ø	mm	d - 545	
Dimensions				
L x W x H = 535 x (675+b) x 1030 mm				
max. weight: 965 kgs				

Mounting Studs			
n	quantity		14
	size, grade		M30, 10.9
M_A	fastening torque	Nm	2000 at μ=0,14
Linings			
	material		sinter
	friction coefficient*		0,4

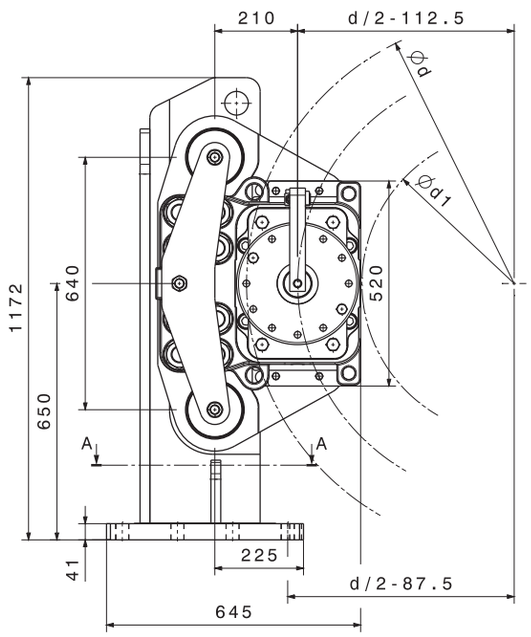
*average friction coefficient with standard material combination and a circumferential speed up to 15 m/s

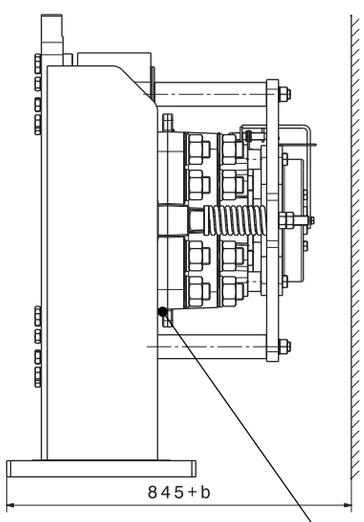
When ordering please advise: right hand version, as shown; left hand version, mirror inverted!

CALIPER BRAKE

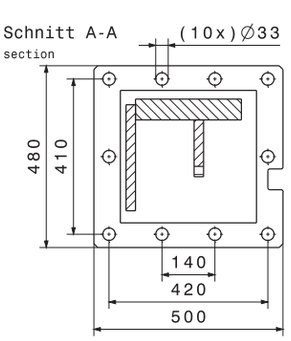
SHI 280 FC with console

M 1501 432 E-EN-2016-12

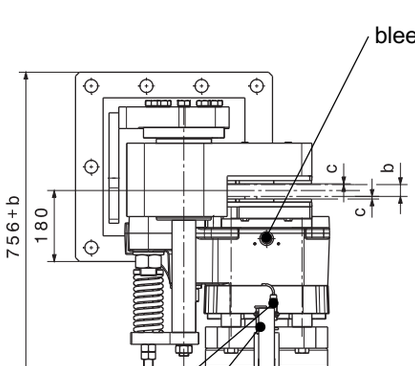




hydraulic connection G ½"



manual release device
is optionally available



optional: proximity
switch "lining wear"

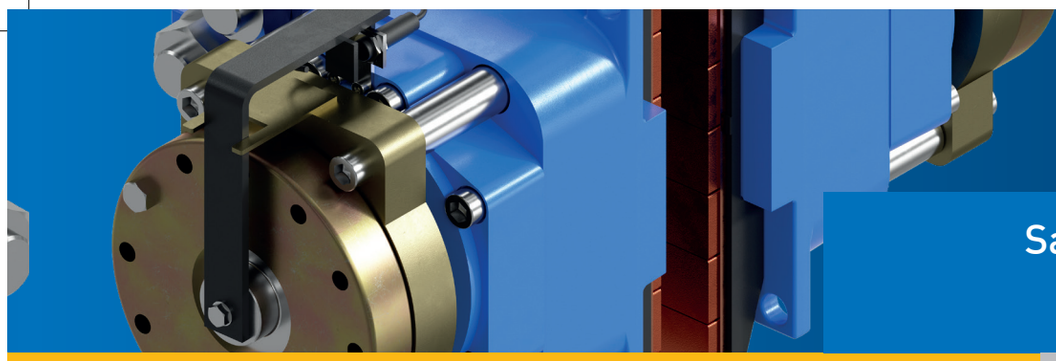
optional: proximity
switch "brake open / close"

SHI-Type			281 FC	282 FC
Clamping Force F_A				
F_A	with airgap c = 1,0 mm	kN	425	510
F_A	with airgap c = 1,5 mm	kN	395	465
Torque Calculation				
M_{Br}	braking torque	Nm	2 x F_A x μ x (d/2-112.5)	
Hydraulic				
PL	release pressure	bar	135	165
P_{max}	max. pressure	bar	175	205
V_{max}	volume at c= 1,5 mm	ltr	0,09	
Brake Discs				
b	disc thickness	mm	30 ≤ b ≤ 40	
d	disc-Ø	mm	1600 ≤ d ≤ 5000	
d_1	max. hub or drum-Ø	mm	d - 545	
Dimensions				
L x W x H = 645 x (756+b) x 1172 mm				
max. weight: 1120 kgs				

Mounting Studs			
n	quantity		10
	size, grade		M30, 8.8
M_A	fastening torque	Nm	1450 at μ=0,14
Linings			
	material		sinter
	friction coefficient*		0,4

*average friction coefficient with standard material combination and a circumferential speed up to 15 m/s

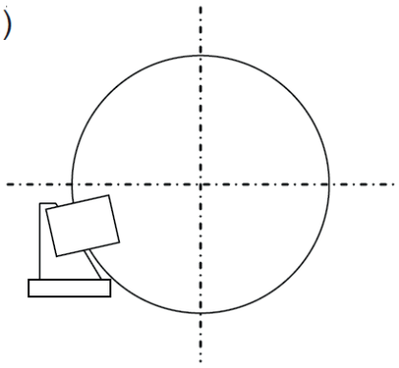
When ordering please advise: right hand version, as shown; left hand version, mirror inverted!



Sample Arrangements
SHI

M 1501 319 E-EN-2006-07

1.)



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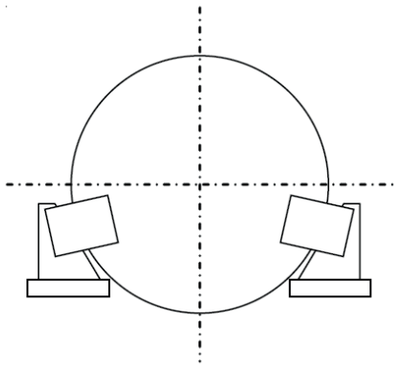

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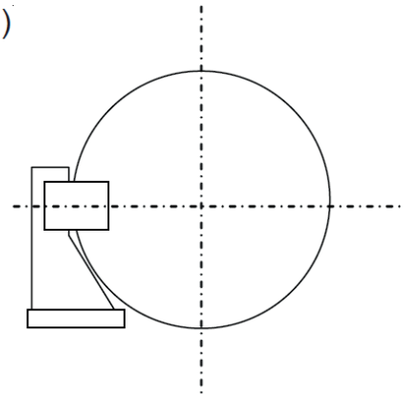

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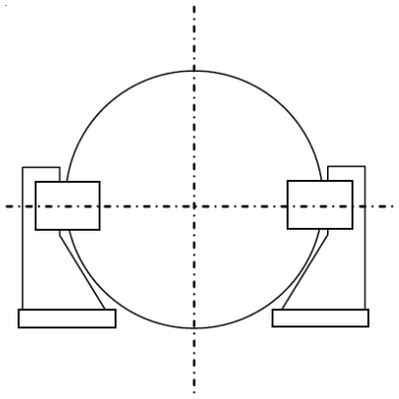

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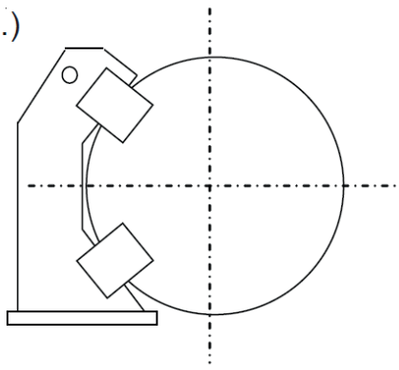

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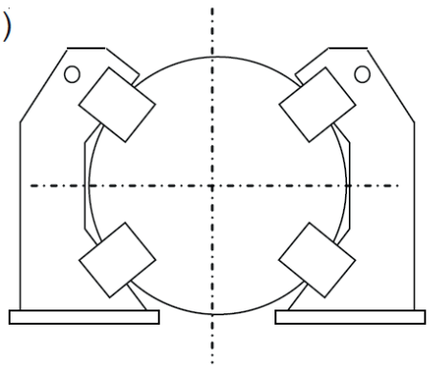
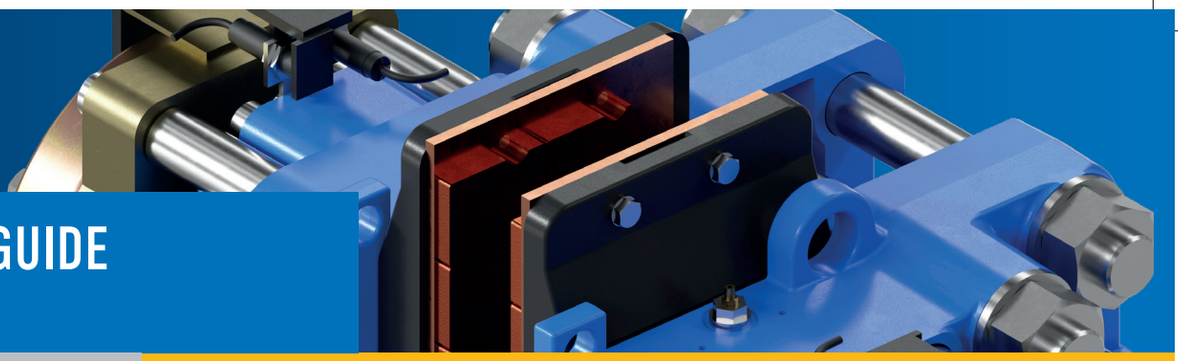




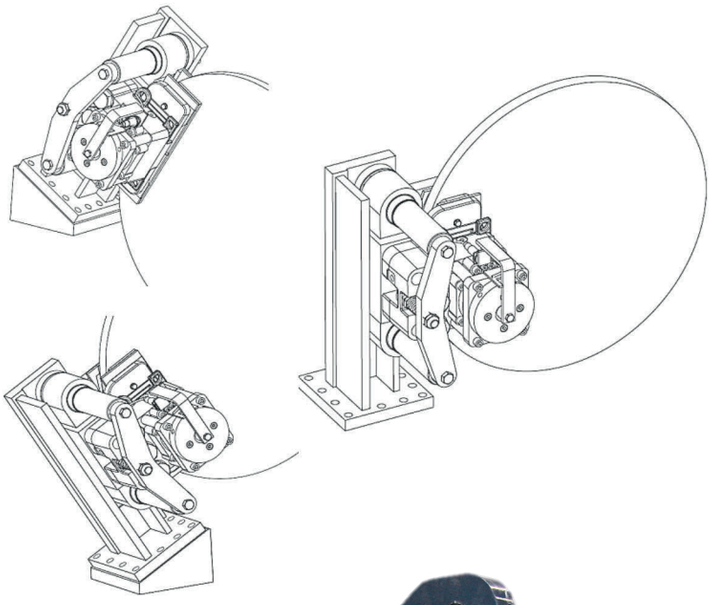
SELECTION GUIDE
HPU

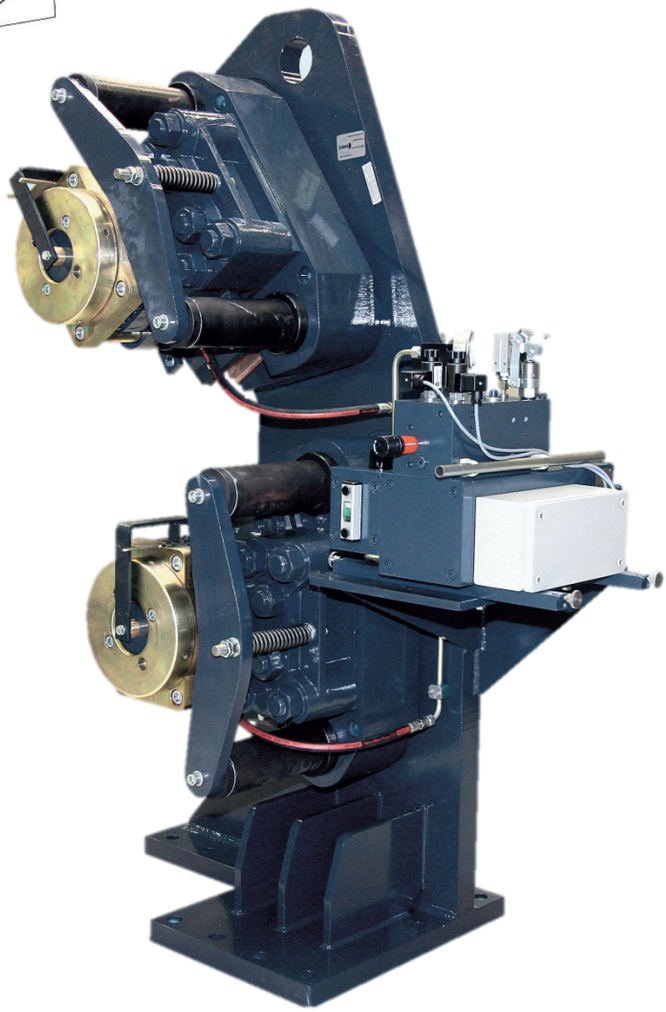
EN-2016-02

BRAKE TYPE	RECOMMENDED HYDRAULIC POWER UNIT	
	<= 50 c / h	<= 200 c / h
SHI 282 & SHI 282 FC	V 2.1.C *)	V 3.C
SHI 281 & SHI 281 FC	V 2.1.D *)	V 3.D
SHI 252 & SHI 252 FC	V 2.1.D *)	V 3.D
SHI 251 & SHI 251 FC	V 2.1.B *)	V 3B
SHI 232 & SHI 232 FC	V 2.1.C *)	V 3.C
SHI 231 & SHI 231 FC	V 2.1.D*)	V 3.D
SHI 202 & SHI 202 FC	V 2.1.C *)	V 3.C
SHI 201 & SHI 201 FC	V 2.1.B *)	V 3.B
SHI 162 & SHI 162 FC	V 2.1.C *)	V 3.C
SHI 161 & SHI 161 FC	V2.1.B *)	V 3.B
SHI 107 & SHI 107 FC	V 2.1.C *)	V 3.C
SHI 106 & SHI 106 FC	V 2.1.D *)	V 3.D
SHI 105 & SHI 105 FC	V 2.1.B *)	V 3.B
SHI 104 & SHI 104 FC	V 2.1.A *)	V 3.A
SHI 103 & SHI 103 FC	V 2.1.A *)	V 3.A
SHI 75-6 & SHI 75-6 FC	V 2.1.D *)	V 3.D
SHI 75-5 & SHI 75-5 FC	V 2.1.B *)	V 3.B
SHI 75-4 & SHI 75-4 FC	V 2.1.A *)	V 3.A
SHI 75-3 & SHI 75-3 FC	V 2.1.A *)	V 3.A
SHI 75-2 & SHI 75-2 FC	V 2.1.E *)	V 3.E
SHI 75-1 & SHI 75-1 FC	V 2.1.E*)	V 3.E
CB8-H	V 2.1.C *)	V 3.C
RPS 600	V 3.C	-
RPS 450	V 3.D	-
RPS 300	V 3.C	-
RPS 200	V 3.B	-
RHI 105 FC	V 3.B	-
RHI 104 FC	V 3.A	-
RHI 103 FC	V 3.A	-
RHI 102 FC	V 3.E	-
RHI 101 FC	V 3.E	-
RHI 125	V 3.B	-
RHI 85	V 3.B	-
RHI 70	V 3.B	-
RHI 56	V 3.B	-
RHI 30	V 3.B	-

*) recommendation: for power packs V2 we recommend to connect up to two brakes per power pack

Samples for console mounted
SHI-FC



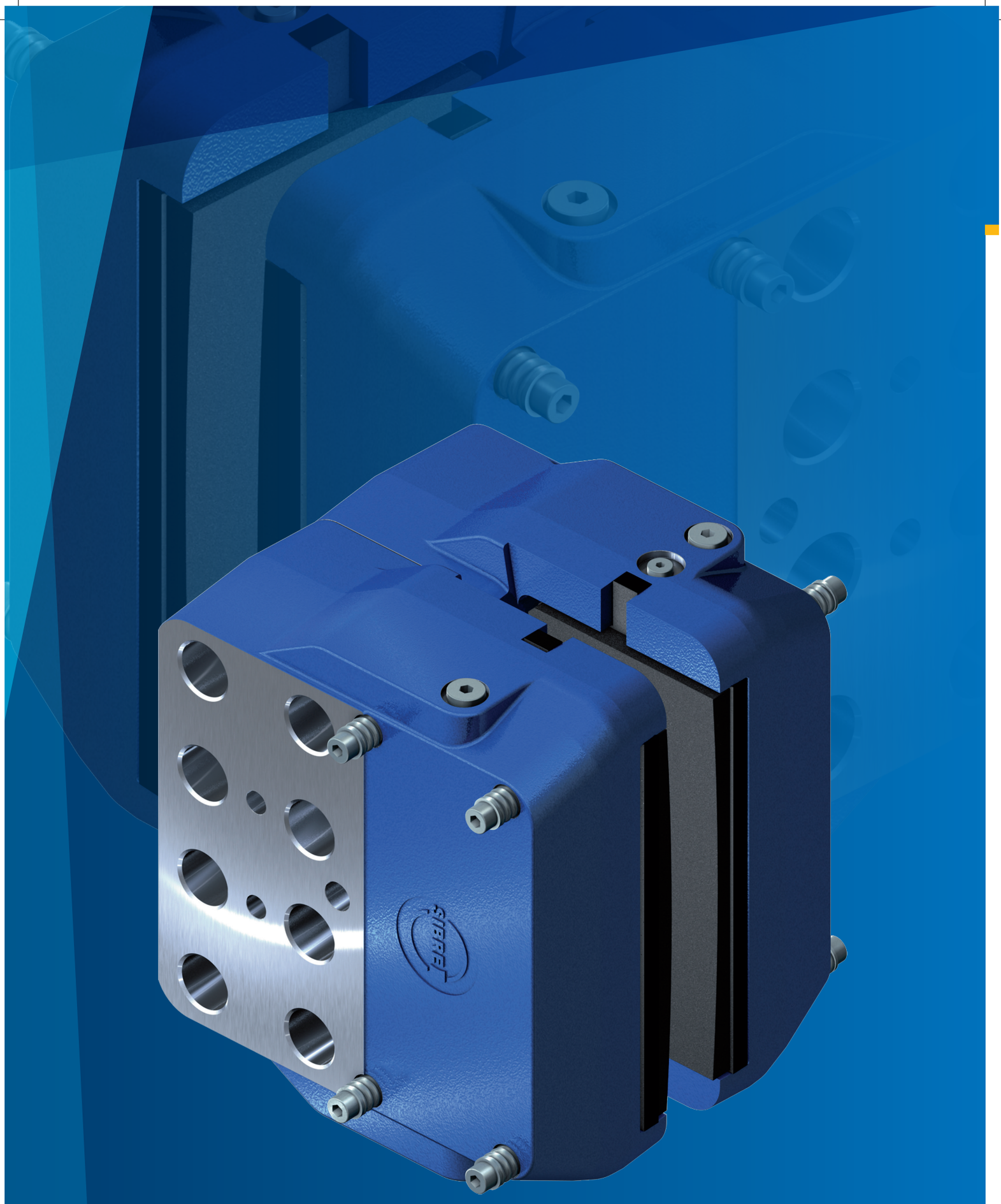


TECHNICAL DATA
SHI & SHI-FC

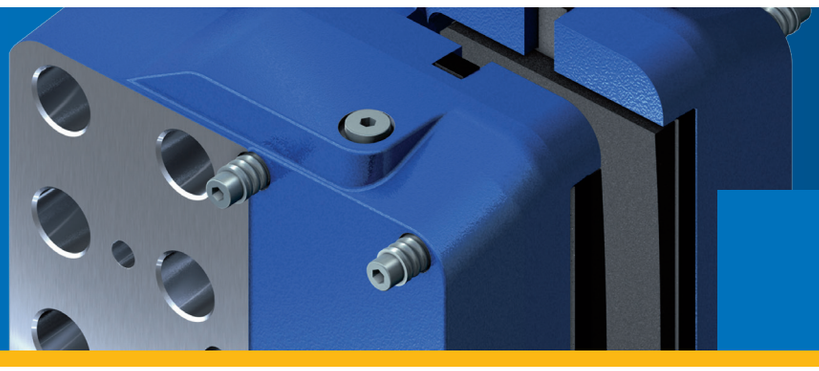
M 1501 364 E-EN 2016-02

TYPE	req. rel. PRES-SURE [bar]	max. OPERATING PRESSURE (pressure limit) [bar]	SPRING FORCE each side, released [kN]	PISTON AREA each side [cm²]	CLEARANCE C, adjustable from - to [mm]	max. OIL VOLUME at C_{max} [cm³]	CLOSING TIME [Sec]	Recommend TUBE DIAMETER [mm]	Recommend VALVE SIZE min. [Ltr/Min]	OPENING TIME C_{max} [Sec]	PUMP FLOW RATE [Ltr/Min]	Ambient TEMPER-ATURE [°C]
SHI 75-1 {FC}	45	85	21	50,3	1,0-3,0 {1,0-1,5}	30,2 {15,1}	~0,2	10x1	30	~0,6	3,0	-25+70
SHI 75-2 {FC}	55	85	26									
SHI 75-3 {FC}	65	110	30									
SHI 75-4 {FC}	80	110	37									
SHI 75-5 {FC}	120	150	56									
SHI 75-6 {FC}	135	175	61									
SHI 103 {FC}	60	110	62	113	1,0-3,0 {1,0-1,5}	67,8 {33,9}	~0,2	12x1,5	40	~1,0	5,8	-25+70
SHI 104 {FC}	80	110	84									
SHI 105 {FC}	95	205	98,5									
SHI 106 {FC}	145	175	150									
SHI 107 {FC}	175	205	189									
SHI 161 {FC}	90	150	129	153	1,0-3,0 {1,0-1,5}	93 {46,5}	~0,2	18x2	100	~0,8	9,0	-25+70
SHI 162 {FC}	170	205	252									
SHI 201 {FC}	115	150	185	177	1,0-3,0 {1,0-1,5}	106,2 {53,1}	~0,2	18x2	100	~0,9	9,0	-25+70
SHI 202 {FC}	160	205	260									
SHI 231 {FC}	130	175	300	254	2,0-3,0 {1,0-1,5}	153 {76,5}	~0,25	18x2	100	~1,2	9,0	-25+70
SHI 232 {FC}	170	205	385									
SHI 251 {FC}	105	150	367	380	1,0-3,0 {1,0-1,5}	228 {114}	~0,25	18x2	100	~0,9	9,0	-25+70
SHI 252 {FC}	140	175	480									
SHI 281 {FC}	135	175	529	452	1,0-3,0 {1,0-1,5}	272 {136}	~0,3	18x2	100	~1,9	9,0	-25+70
SHI 282 {FC}	165	205	651									

NOTES

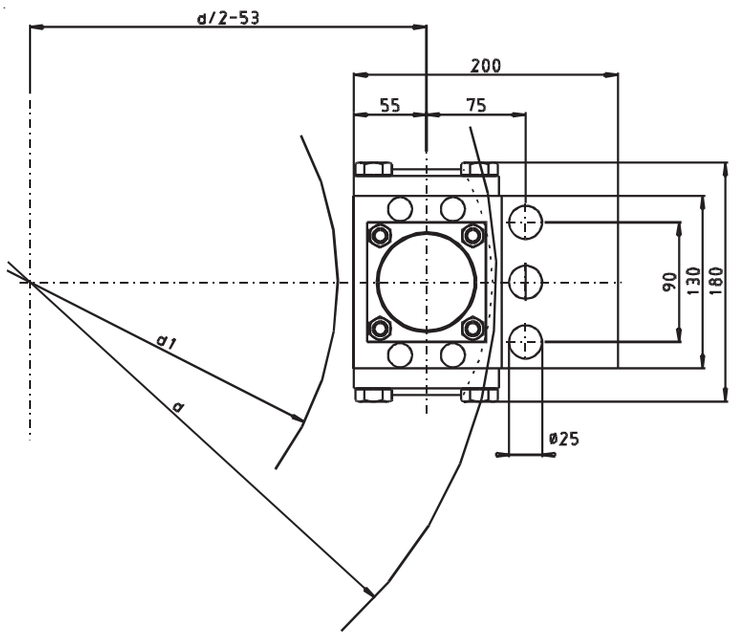


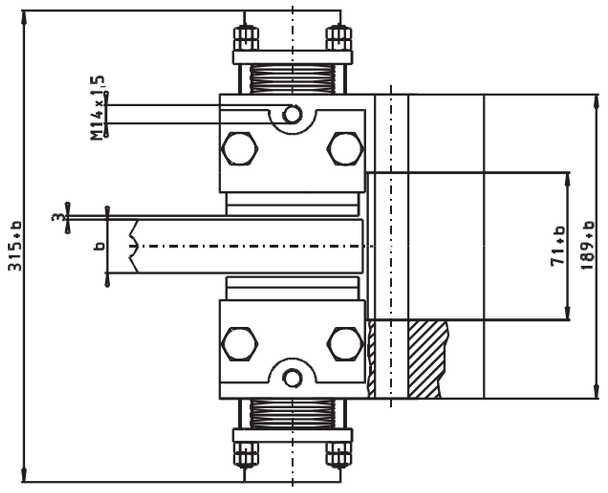
DISC BRAKE



DISC BRAKE
SHD 60

M 1400 60 02 E-DE-EN





A = piston area 0,442 dm2

p = maximum work pressure 160 bar

d1 = hub or drum - Ø, max.: d - 240 mm

d = brake disc - Ø in mm

μ = friction coefficient : 0.4

F_R = restoring spring force : 4.1 kN each piston

requested mounting screws,strength and torque :

3 x M24 ; 12.9 ; M_a = 1200 Nm

TORQUE CALCULATION

$$M_{Br} = 2 \times (A \times p - F_R) \times \mu ({}^{d}/_{2} - 53)$$

SAMPLE CALCULATION

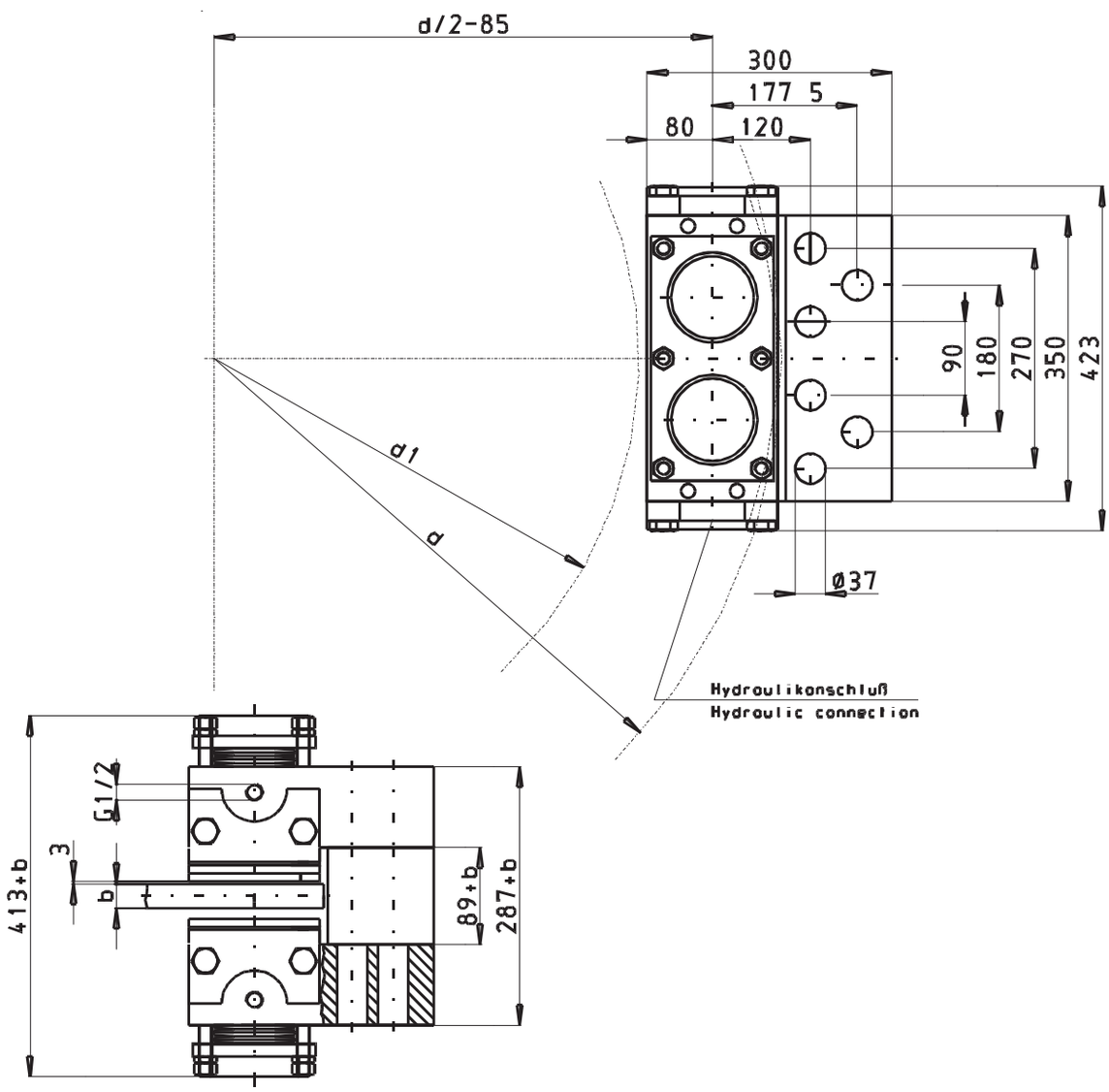
SHD 60, disc-Ø = 600 mm

M_{Br} = 2 x (0,442 x 160 - 4,1) x 0,4 x (600/2 - 53)

M_{Br} = 13164 Nm

DISC BRAKE
SHD 160

M 1400 160 05 E-DE-EN



b = brake disc width

d = brake disc - Ø in mm

d1 = hub or drum - Ø, max.: d - 350mm

A = piston area 2.44 dm2 / 2 = 1.22 dm2

p = maximum work pressure 200 bar

pressure limit 220 bar

μ = friction coefficient : 0.4

lining surface : 588 cm^2 per side

F_R = restoring spring force : 17 kN each piston

requested mounting screws, strength and torque :

6 x M36 ; 12.9 ; M_a = 4280 Nm

TORQUE CALCULATION

$$M_{Br} = 2 \times (2 \times A \times p - 2F_R) \times \mu \times ({}^{d}/_{2} - 85)$$

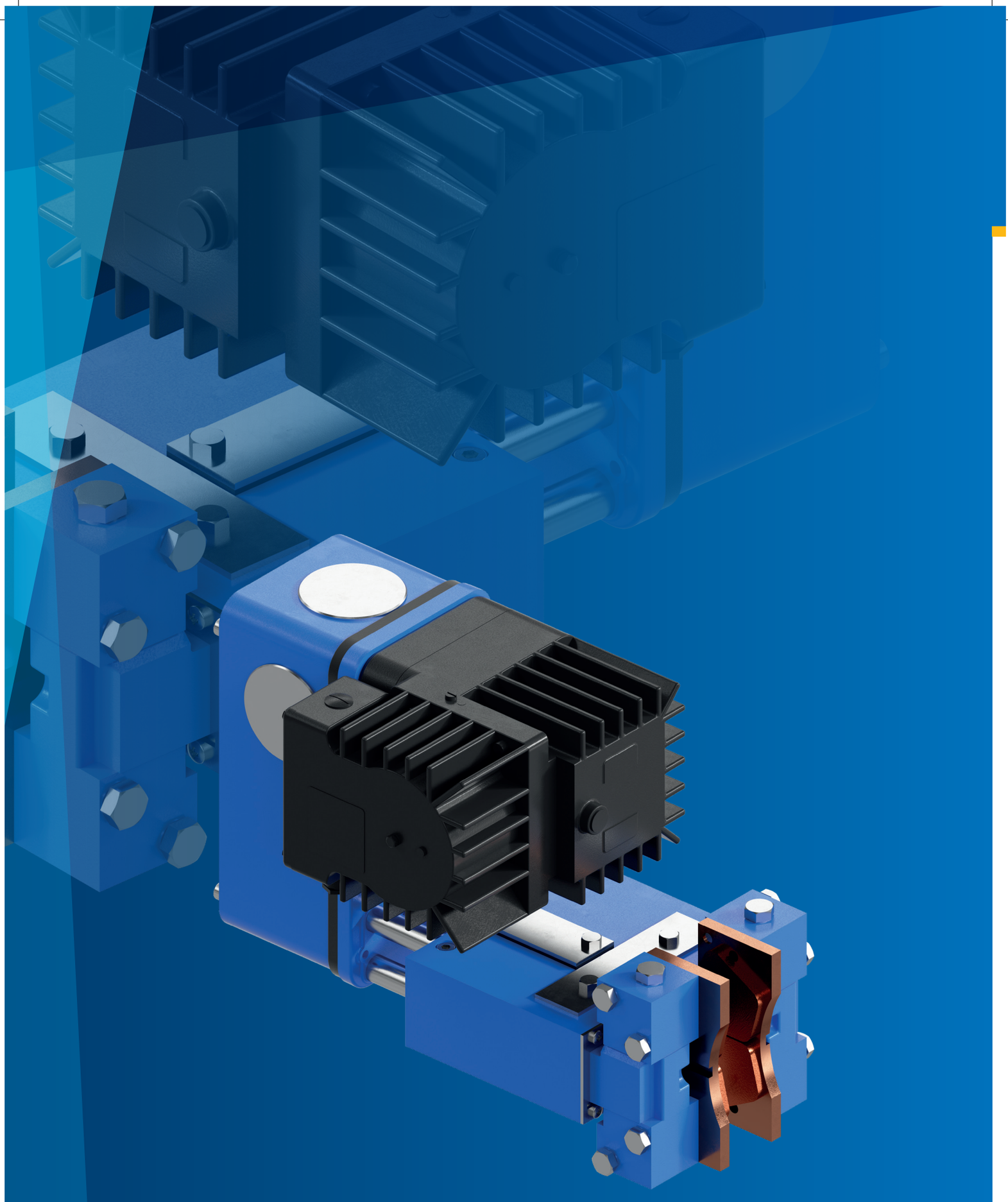
SAMPLE CALCULATION

SHD 160, disc-Ø = 1400 mm

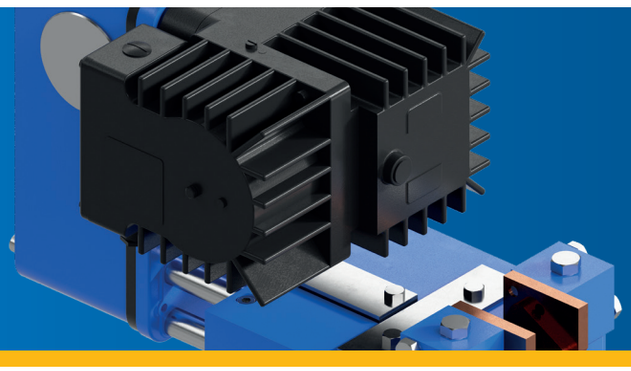
M_{Br} = 2 x (2 x 1,22 dm^2 x 180 bar - 2 x 17 kN) x 0,4 x (1400 mm/2 - 85 mm)

M_{Br} = 199 358 Nm

NOTES

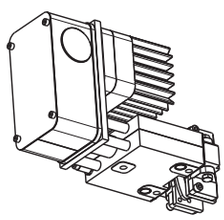


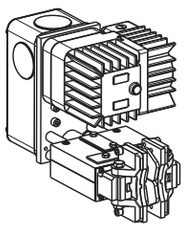
COMPACT CALIPER BRAKE

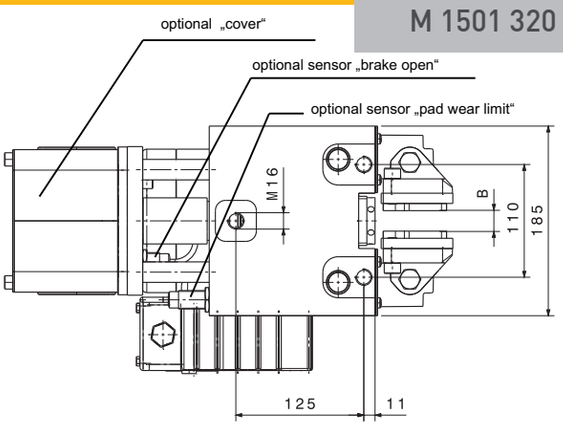


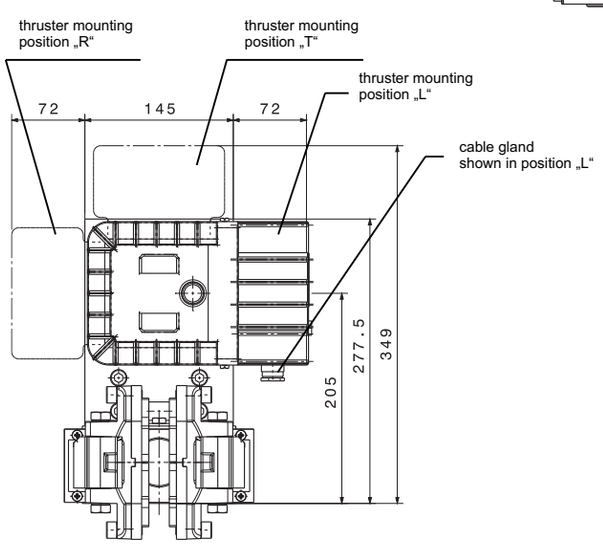
COMPACT CALIPER BRAKE
CB8-E

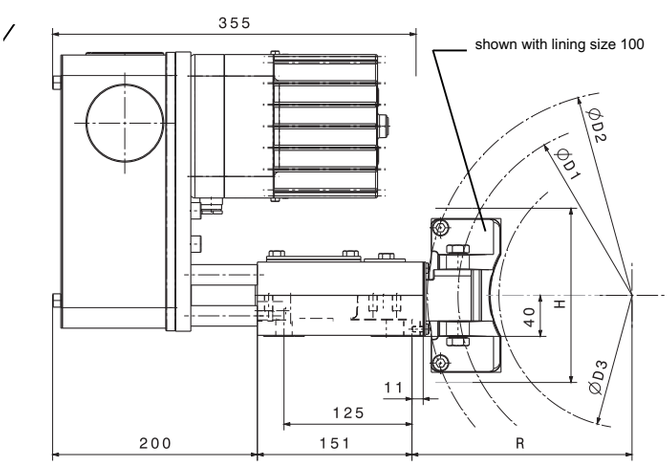
M 1501 320 E-EN-2015-05











COMPACT CALIPER BRAKE CB8-E
FAIL-SAFE, ELECTRO-HYDRAULIC RELEASE

options: manual release, sensors „open“ and „pad wear limit“, closing delay
B = disc width in mm, standard = 20 mm, optional: 12,7; 16; 25; 30
Ø D2 = outer disc diameter in mm
linings: = size 50 standard: organic (suitable for max.circumferential speed vmax= 35m/sec.)
= size 50 optional: Sinter
= size 100 standard: Sinter (for discs D2 ≥ Ø250)
weight = 25 kg (without thruster)
= 35 kg (including thruster)

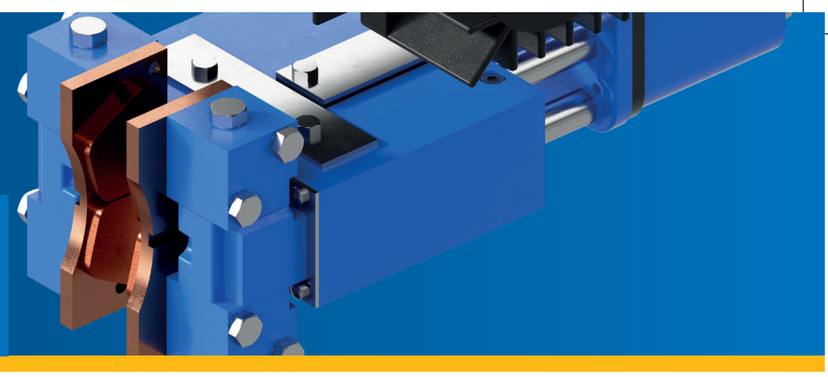
TECHNICAL DATA FOR THRUSTER EDC 100/30

motor power:	250 W
voltages:	230, 400, 500& 690 V, 3~, 50 Hz, other voltages and 60 Hz upon request
current consumption:	0,45 A at 400 V, 3~, 50 Hz
oil volume:	1,5 l
release time:	approx. 0,8 sec. (at max. MBr)
closing time:	approx. 0,25 sec.(at max. MBr)
operating cycles:	S3 – 60 % ED, 240 c/h
for ambient temp.:	-25°C to +50°C
NOTE:	other ambient temperatures and operating cycles upon request

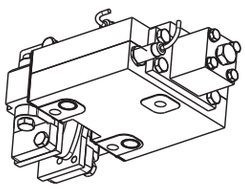
(H* for B > 25 mm)

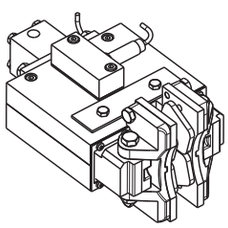
	dimensions depending on selected lining size				
CB8-E	ØD1	ØD3	R		H (H*)
-50 (with lining size 50)	ØD2 – 46	ØD2 – 110	D2 /2 + 19,5		110 (130)
-100 (with lining size 100)	ØD2 – 60	ØD2 – 140	D2 /2 + 15		152 (170)
	braking torque in Nm (μ = 0,4) on disc-Ø D2, adjustable from / to				
	Ø 200	Ø 250	Ø 315	Ø 400	Ø 500
CB8-E-50	80-300	110-400	140-530	180-700	n.a.
CB8-E-100	n.a.	350-680	460-910	620-1220	800-1580

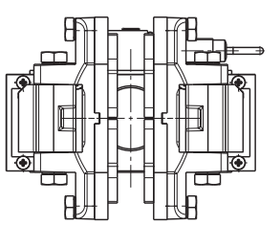
COMPACT CALIPER BRAKE
CB8-H

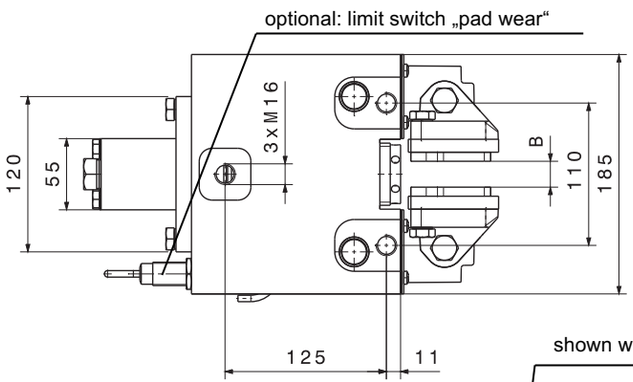


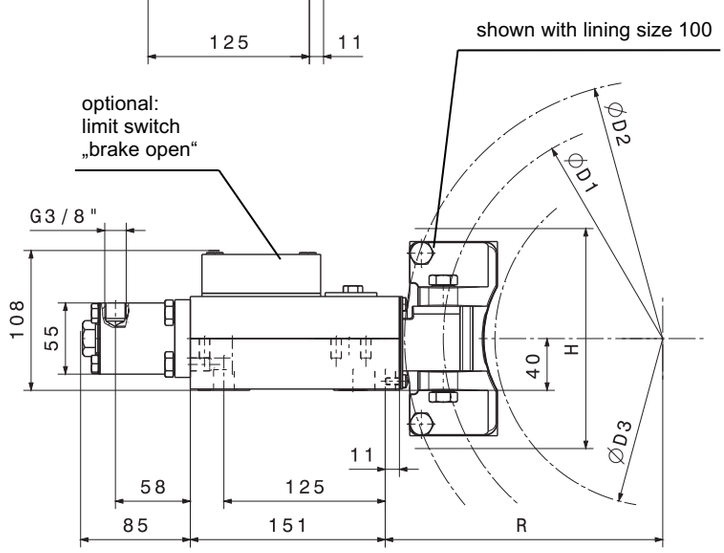
M 1501 331 E-EN-2015-10











COMPACT CALIPER BRAKE CB8-H
FAIL-SAFE, ELECTRO-HYDRAULIC RELEASE

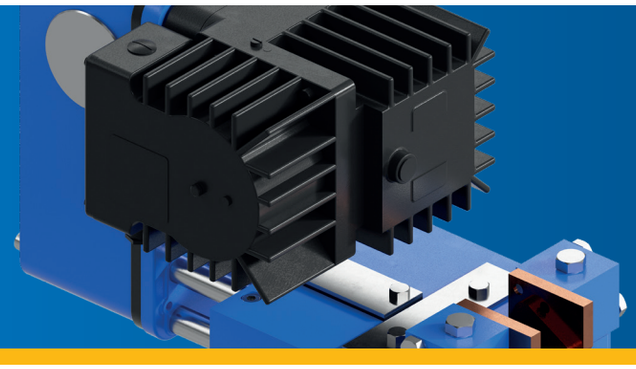
options: manual release, sensors „open“ and „pad wear limit“, closing delay
B = disc width in mm, standard = 20 mm, optional: 12,7; 16; 25; 30
Ø D2 = outer disc diameter in mm
linings: = size 50 standard: organic (suitable for max.circumferential speed v_{max} = 35m/sec.)
= size 50 optional: Sinter
= size 100 standard: Sinter (for discs D2 ≥ Ø250)
weight = 22 kg

TECHNICAL DATA FOR INTEGRATED HYDRAULIC CYLINDER

release pressure: 30 bar
max. pressure: 90 bar
piston diameter: 35 mm
max. stroke: 13 mm

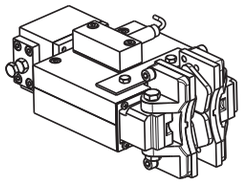
(H* for B > 25 mm)

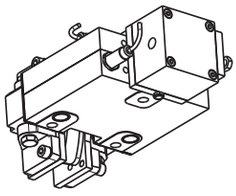
	dimensions depending on selected lining size				
CB8-H	ØD1	ØD3	R		H (H*)
-50 (with lining size 50)	ØD2 – 46	ØD2 – 110	D2 /2 + 19,5		110 (130)
-100 (with lining size 100)	ØD2 – 60	ØD2 – 140	D2 /2 + 15		152 (170)
	braking torque in Nm (μ = 0,4) on disc-Ø D2, adjustable from / to				
	Ø 200	Ø 250	Ø 315	Ø 400	Ø 500
CB8-H-50	80-300	110-400	140-530	180-700	n.a.
CB8-H-100	n.a.	350-680	460-910	620-1220	800-1580

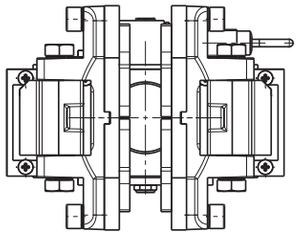


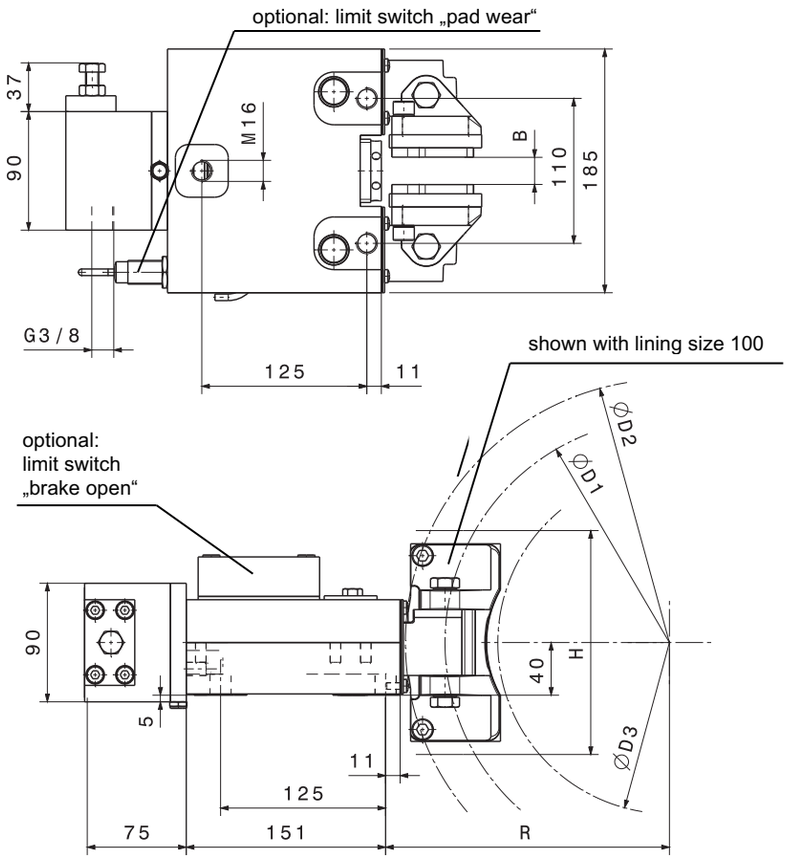
COMPACT CALIPER BRAKE
CB8-P

M 1501 381 E-EN-2015-05









COMPACT CALIPER BRAKE CB8-P
FAIL-SAFE, ELECTRO-HYDRAULIC RELEASE

options: manual release, sensors „open“ and „pad wear limit“, closing delay
B = disc width in mm, standard = 20 mm, optional: 12,7; 16; 25; 30
Ø D2 = outer disc diameter in mm
linings: = size 50 standard: organic (suitable for max.circumferential speed v_{max} = 35m/sec.)
= size 50 optional: Sinter
= size 100 standard: Sinter (for discs D2 ≥ Ø250)
weight = 26 kg

TECHNICAL DATA FOR INTEGRATED PNEUMATIC CYLINDER

release pressure: 6 bar
piston diameter: 80 mm
max. stroke: 13 mm

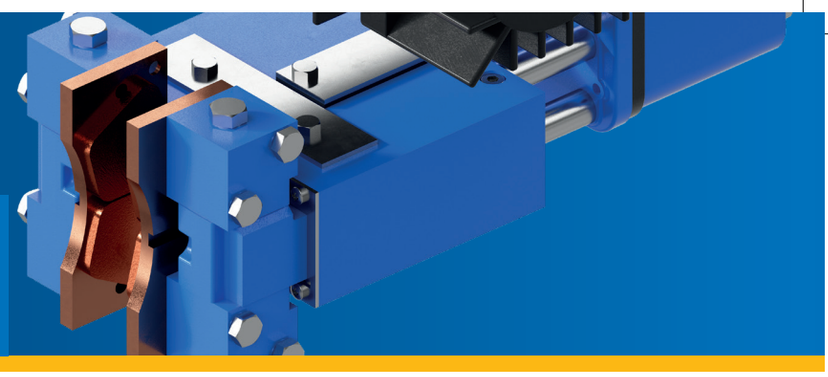
(H* for B > 25 mm)

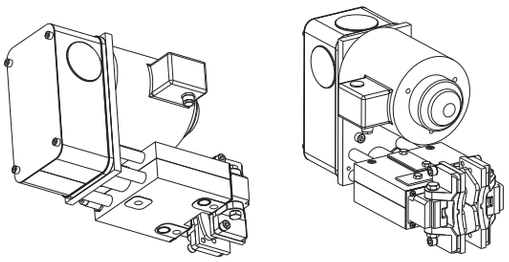
	dimensions depending on selected lining size				
CB8-P	**ØD1**	**ØD3**	**R**		**H (H*)**
-50 (with lining size 50)	ØD2 – 46	ØD2 – 110	D2 /2 + 19,5		110 (130)
-100 (with lining size 100)	ØD2 – 60	ØD2 – 140	D2 /2 + 15		152 (170)
	braking torque in Nm (μ = 0,4) on disc-Ø D2, adjustable from / to				
	Ø 200	Ø 250	Ø 315	Ø 400	Ø 500
CB8-P-50	80-300	110-400	140-530	180-700	n.a.
CB8-P-100	n.a.	350-680	460-910	620-1220	800-1580

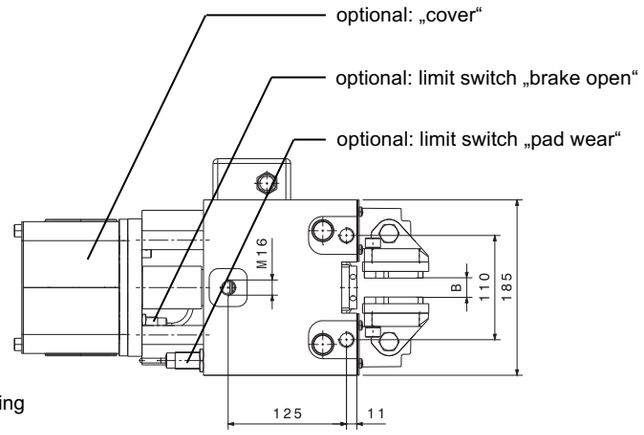
COMPACT CALIPER BRAKE

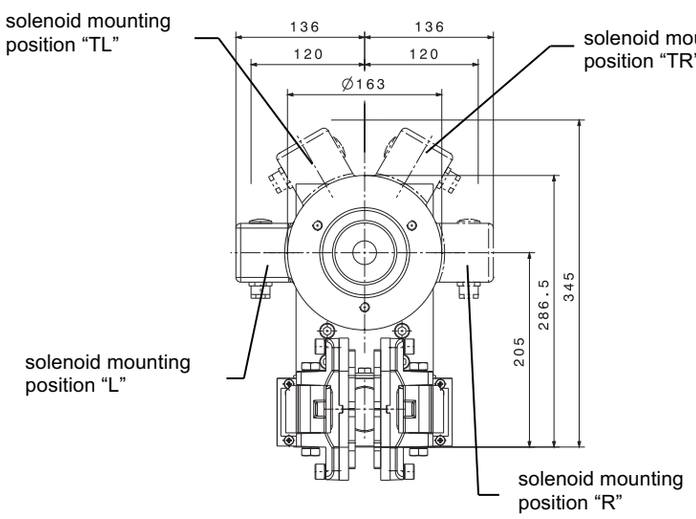
CB8-M, solenoid released

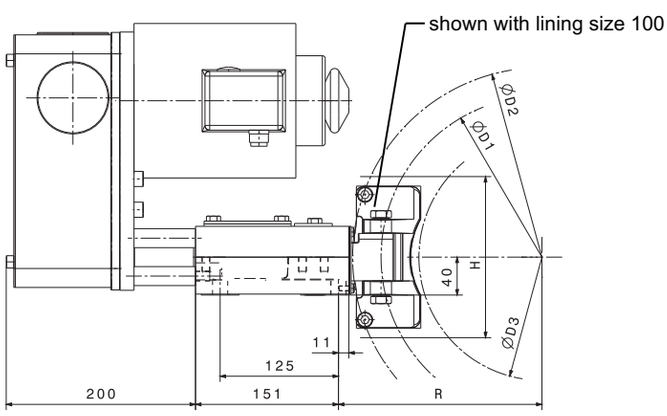
M 1501 346 E-EN-2015-05











OPTIONS

options: protective cover, manual release, limit switches „brake open“ & „pad wear“ solenoid mounting position selectable between “L”, “TL”, “TR” or “R”

B = disc width in mm, standard = 20 mm, optional: 12,7; 16; 25; 30

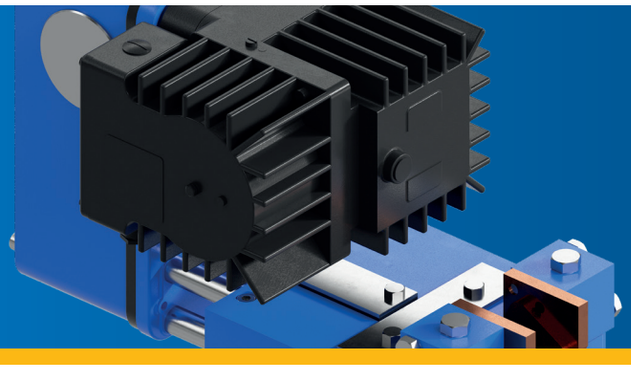
Ø D2 = outer disc diameter in mm

linings: = size 50 standard: organic (suitable for max.circumferential speed v_{max} = 35m/sec.)
= size 50 optional: Sinter
= size 100 standard: Sinter (for discs D2 ≥ Ø250)

weight = 22 kg

(H* for B > 25 mm)

	dimensions depending on selected lining size				
CB8-M	**ØD1**	**ØD3**	**R**		**H (H*)**
3-50 with lining size 50	ØD2 – 46	ØD2 – 110	D2 /2 + 19,5		110 (130)
4-100 with lining size 100	ØD2 – 60	ØD2 – 140	D2 /2 + 15		152 (170)
	braking torque in Nm (μ = 0,4) on disc-Ø D2, adjustable from / to				
	Ø 200	Ø 250	Ø 315	Ø 400	Ø 500
CB8-M-50	80-300	110-400	140-530	180-700	n.a.
CB8-M-100	n.a.	350-680	460-910	620-1220	800-1580



SOLENOID CONTROL UNIT SCU
for GH-type solenoids

M 1501 280 E-EN-2009-06

MODE OF OPERATION

GENERAL NOTES

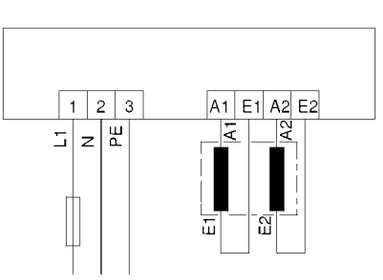
When operating the dual coil solenoids series GH via Solenoid Control Unit, they are working with a starting force equivalent to a 25 % ED duty factor coil. The holding force is equivalent to a 100 % ED duty factor coil. By energizing the solenoid via Solenoid Control Unit, both solenoid coils are connected in parallel. Thus the solenoid is working with high force during opening the brake. After having reached the brake open position within a preset time of approx. 1 – 1,5 sec., the coil connection is switched to series by means of the integrated circuit board.

CONNECTING AT SITE

The supply voltage is connected to the SCU at its terminals ~ and PE using 1,5 mm² cross section conductors. For connecting the solenoid with the SCU via terminals A1/E1 and A2/E2 conductors with a 2,5 mm² cross section are to be applied.

Solenoid Control Unit type	SCU 3,50	SCU 3.60
for Input voltage	200-240 V AC	110-120 V AC
output voltage	205 V DC	102 V DC
protection class	IP 65	
ISO-housing dimensions L x W x H [mm]	110 x 160 x 100	
weight [kgs]	0,9	
output current (cold, coils in parallel)	2 – 10 A	

Connection Diagram

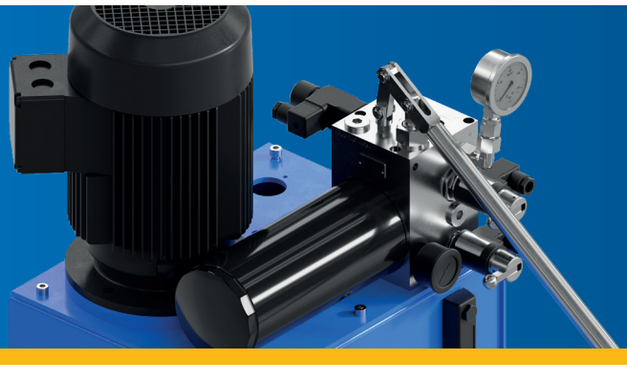


Fuse and wiring diameter according rated current

WARNING

- The device must only be used for the described purposes.
- Installation and commissioning must be carried-out by sufficient skilled staff.
- All applicable standards and regulation must be kept, especially the DIN VDE.
- Nominal voltage and current must not be increased.

HYDRAULIC POWER UNIT



HYDRAULIC POWER UNIT
FOR DISC BRAKES SHI

M 1501 261 E-EN-2005-08

MODE OF OPERATION

RELEASING THE BRAKE
If the 2/2 directional seat valve is energized, it is in closed position. The hydraulic pump motor starts working. Thus, the hydraulic pressure is increased up to the value adjusted with pressure switch. When reaching the adjusted pressure, the caliper is fully released.
The caliper release time is approximate 1 s from energizing of hydraulic pump motor and 2/2 directional seat valve.

BRAKE IN RELEASED POSITION
The higher order control system switches off the hydraulic pump motor with motor contactor via control signal from pressure switch. The caliper remains in released position due to check valve and the 2/2 directional seat valve is set to closed position (energized).

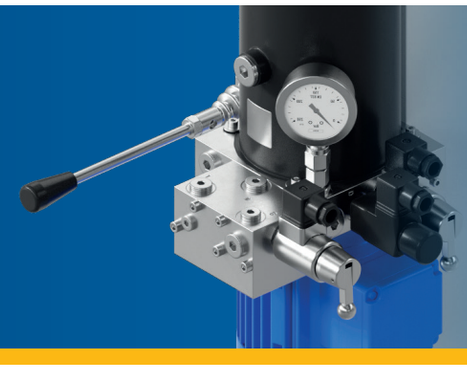
LOSS OF PRESSURE
The hydraulic system pressure could drop under the value adjusted on pressure switch due to possible leakage of hydraulic piping. The motor contactor switches on the hydraulic pump motor via control signal from the higher order control system. Thus, the hydraulic pressure is increased up to the value adjusted with pressure switch.

CLOSING THE BRAKE
For closing the brake, the 2/2 directional seat valve and the hydraulic pump motor are disenergized simultaneuously. Thus the hydraulic pressure returns to the reservoir and the caliper is applied immediately. The closing times of the brakes in data sheet M 1501 364 E are valid after switch off power supply. In case of emergency switch off or power failure the brake closes as discribed above.

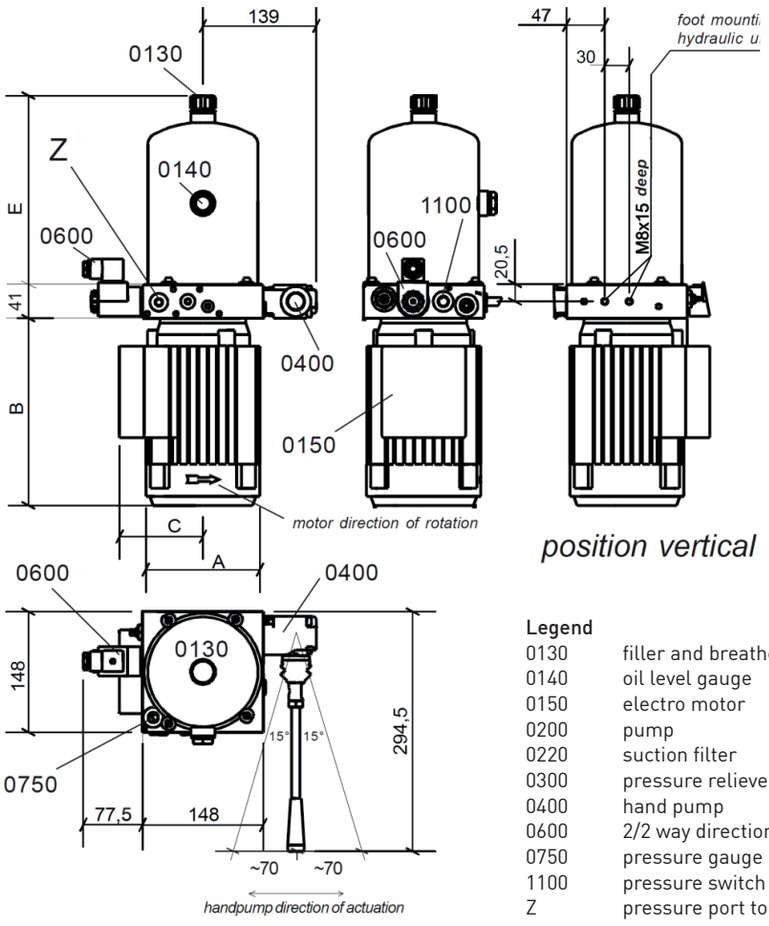
EMERGENCY CONDITION
The hand pump is designed for an operating under emergency condition.
For releasing the caliper by hand pump the 2/2 directional seat valve must be closed manually in order to close the return line.

SAFETY DRIVE
It's necessary to control from the customer control system to switch off the pump motor in every case after approx. 15 s (depends on the system). If the pressure switch don't react after approx. 15 s there is a system failure. This failure is to report from the customer control system.

HYDRAULIC POWER UNIT
V2



M 1501 263 E-EN 2016-02

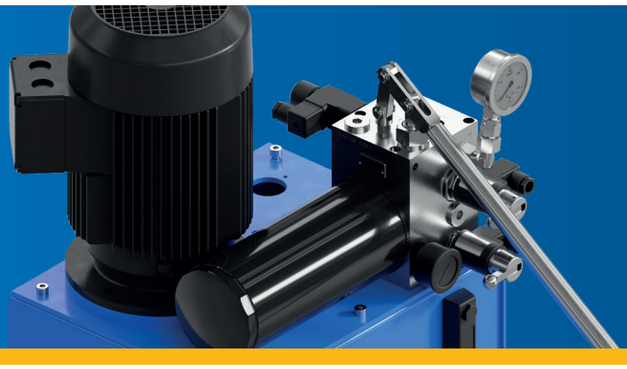


Legend

0130	filler and breather screw
0140	oil level gauge
0150	electro motor
0200	pump
0220	suction filter
0300	pressure relieve valve
0400	hand pump
0600	2/2 way directional seat valve
0750	pressure gauge
1100	pressure switch
Z	pressure port to brake G3/8“

TECHNICAL DATA

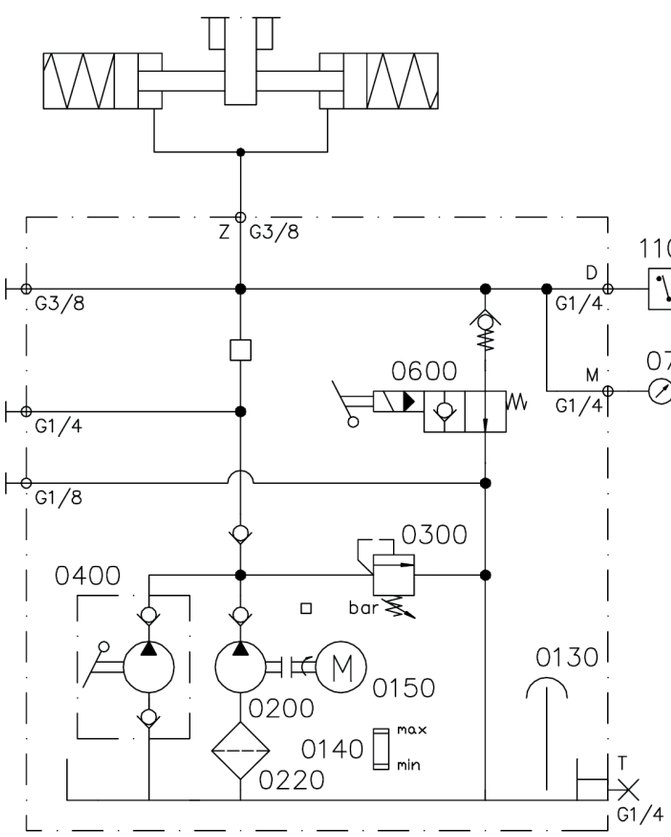
• weight without oil-filling	approx.. 15 kg
• tank volume	4 ltr.
• ambient temperature ranges	-15°C ... +40°C in standard version others upon request
• humidity	⩽ 90%
• recommended operating fluid	HLP Hydraulic oil acc DIN51524-T2 - for standard version: HLP Synth 32 - others version: upon request
• protection class	IP55
• max. no. of operating cycles per hour	50
• motor	rotating clockwise when looking at ventilator:
• supply voltage range	50 Hz / 380-420 V 60 Hz / 440-480 V
• valve voltages	P = 24 V DC (Standard) V = 115 V AC ; 50/60 Hz (optional) W = 230 V AC ; 50/60 Hz (optional) (others upon request)
• valve capacity per valve	35 l/min at △p 10 bar
• mounting position of HPU	vertical



HYDRAULIC POWER UNIT
V2

M 1501 263 E-EN 2016-02

TYPE	PRESSURE SWITCH		PRESSURE RELIEVE valve setting (DBV)	RELEASE PRESSURE	PUMP CAPACITY	MOTOR POWER kW	MOTOR POWER kW
	min	max					
	bar		bar	bar	l/min	S1	S3 (20%)
V2.1-E	55	70	85	55	9,0	1,5	2,2
V2.1-A	80	95	110	80	9,0	1,5	2,2
V2.1-B	120	135	150	120	7,2	1,5	2,2
V2.1-D	145	160	175	145	5,8	1,5	2,2
V2.1-C	175	190	205	175	5,8	1,5	2,2

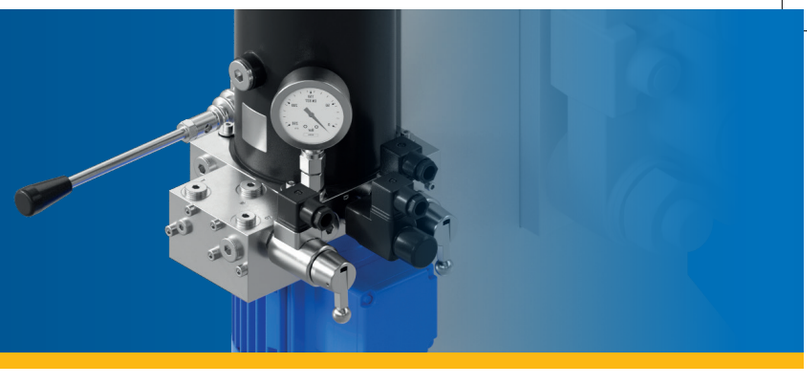


Legend

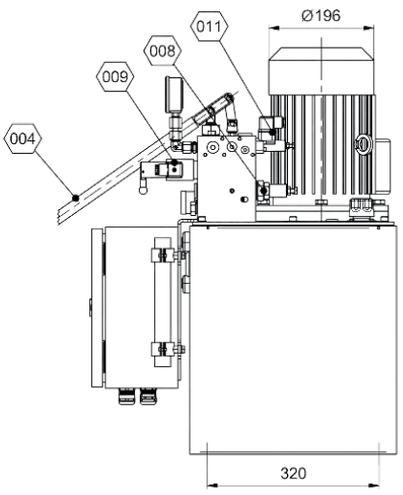
0130	filler and breather screw
0140	oil level gauge
0150	electro motor
0200	pump
0220	suction filter
0300	pressure relieve valve
0400	hand pump
0600	2/2 way directional seat valve
0750	pressure gauge
1100	pressure switch
Z	pressure port to brake G3/8“

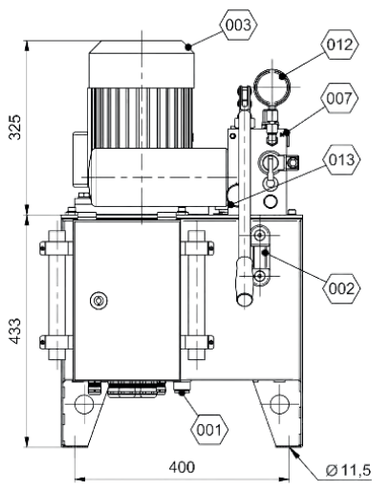
TYPE	SUITABLE FOR				
V2.1-E	SHI 102	SHI 101	SHI 75-2	SHI 75-1	
V2.1-A	SHI 104	SHI 103	SHI 75-4	SHI 75-3	
V2.1-B	SHI 251	SHI 201	SHI 161	SHI 105	SHI 75-5
V2.1-D	SHI 281	SHI 252	SHI 231	SHI 106	SHI 75-6
V2.1-C	SHI 282	SHI 232	SHI 202	SHI 162	SHI 107
	CB8-H				

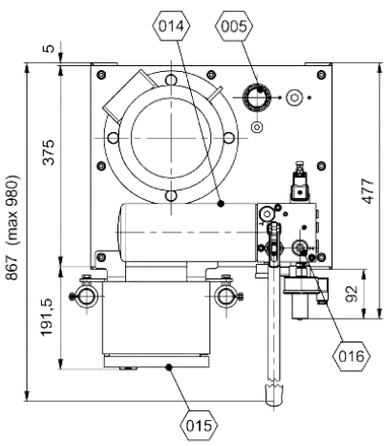
HYDRAULIC POWER UNIT
H-SF 3



M 1501 478 E-EN-02/2020

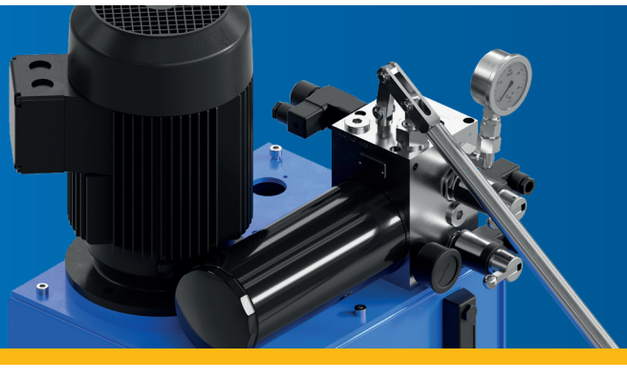






TECHNICAL DATA

TYPE		V3A	V3B	V3C	V3D	V3E
Release pressure [bar]		80	120	175	145	55
Pressure relieve valve setting [bar]		110	150	205	175	85
Pressure switch [bar]	min.	80	120	175	145	55
	max.	95	135	190	160	70
Pump capacity [l/min]		20	13	9	9	20
Operating fluid acc. DIN 51524- T2 (standard version)		HLP Synth 15 (ambient temp. range -25 °C - +30 °C)				
		HLP Synth 30 (ambient temp. range -15 °C - +50 °C)				
Motor		3 kW; 1425 min-1; 3x400 V; 50 Hz; 6,7 A				
Valve voltage	P	24 V DC 30 W				
	V	110 V AC 50/ 60 Hz 30 W				
	W	230 V AC 50/ 60 Hz 30 W				
Valve capacity	EM 41S	160 l/min at Δp = 8 bar				
	EM 21S	40 l/min at Δp = 9 bar				
Tank volume [l]		30				
Ambient temperature ranges	- Standard version	-25 °C - +50 °C				
	L low temperature	-40 °C - +30 °C				
	T high temperature	-15 °C - +75 °C				
Max. no. of operating cycles [c/h]		90				
Protection class		IP 55				
Weight without oil-filling [kg]		approx. 71				



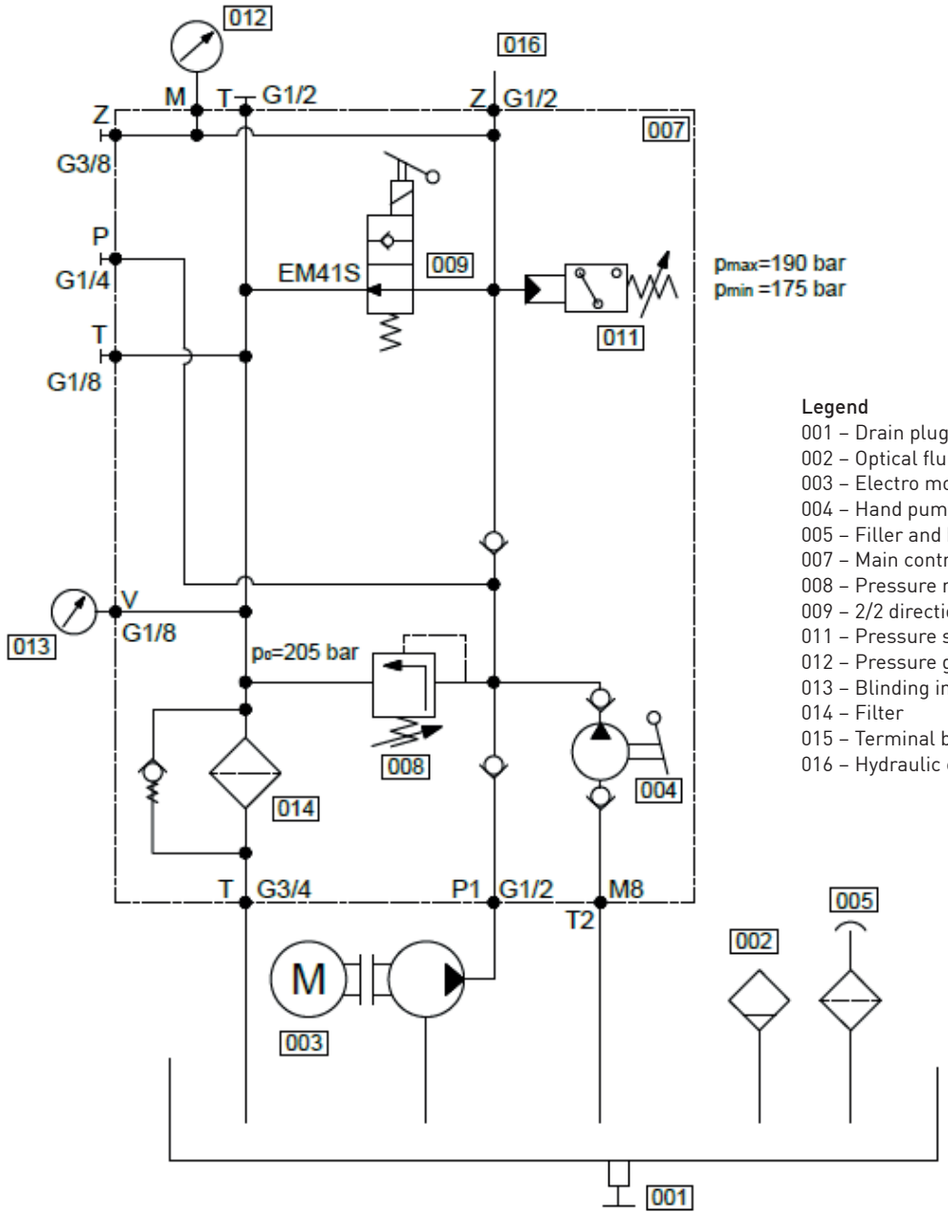
HYDRAULIC POWER UNIT
H-SF 3

M 1501 478 E-EN-02/2020

OPTIONS

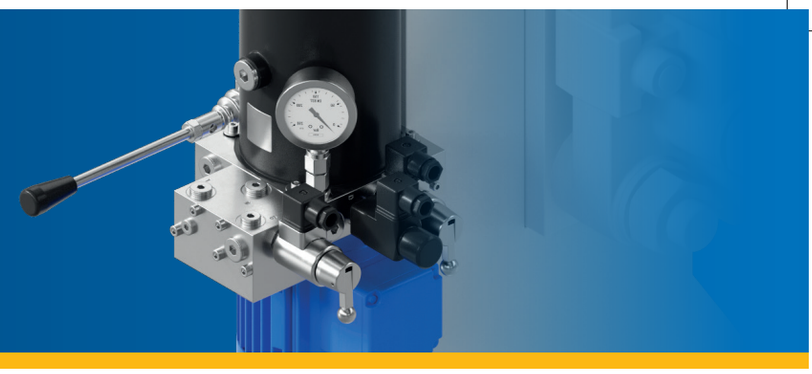
- High and low temperature version
- Stainless steel version
- Terminal box
- Level and temperature switch
- Parallel valve

HYDRAULIC SCHEME



Legend

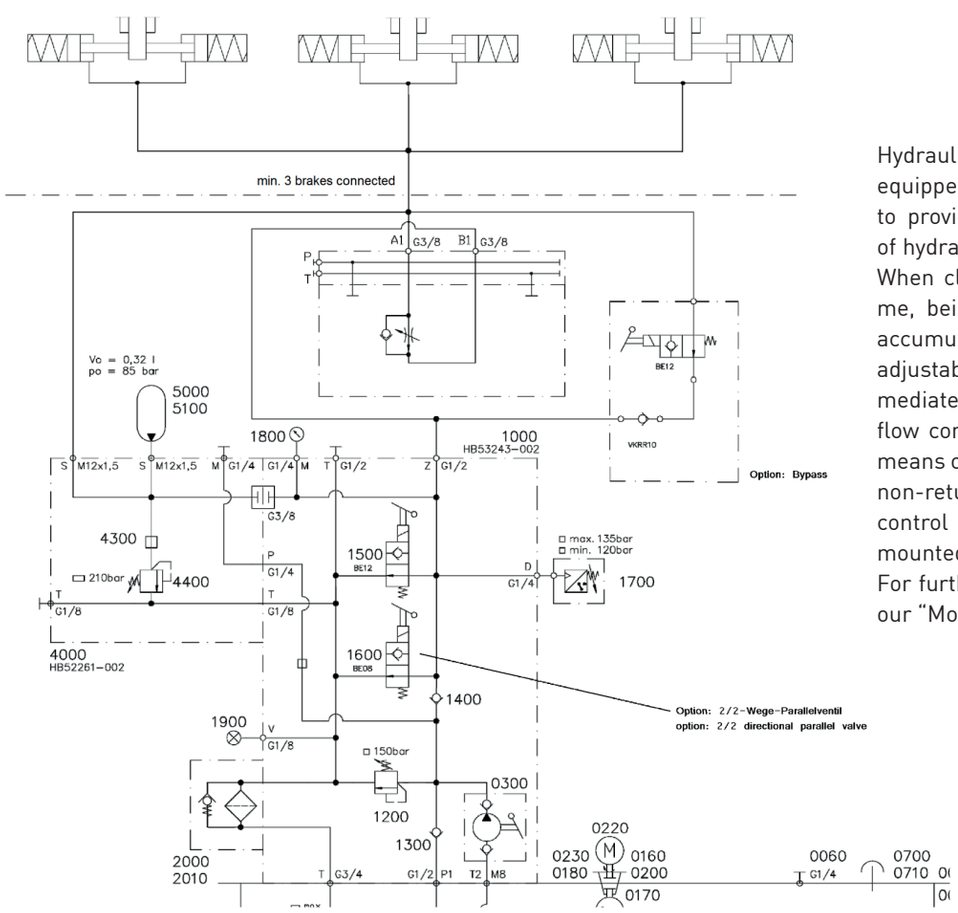
001 – Drain plug G 1/2"
002 – Optical fluid level gauge
003 – Electro motor
004 – Hand pump
005 – Filler and breather screw
007 – Main control block
008 – Pressure relief valve
009 – 2/2 directional seated valve
011 – Pressure switch
012 – Pressure gauge
013 – Blinding indicator
014 – Filter
015 – Terminal box
016 – Hydraulic connection G 1/2"



HYDRAULIC POWER UNIT
H-SF 3-SB

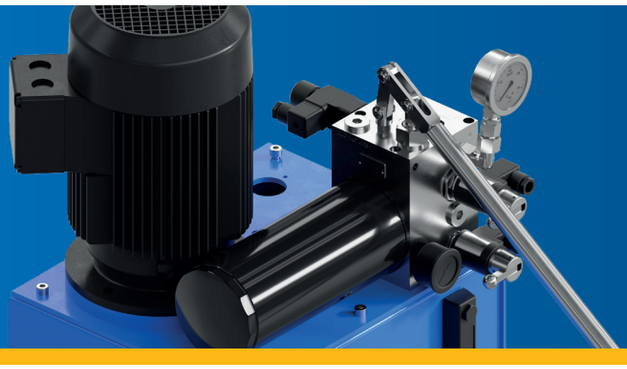
M 1501 324 E-EN 2016-02

TYPE	PRESSURE SWITCH		PRESSURE RELIEVE valve setting (DBV)	RELEASE PRESSURE	PUMP CAPACITY	MOTOR POWER
	min	max				
	bar		bar	bar	l/min	kW
V3-SB E	55	70	85	55	20	3.0
V3-SB A	80	95	110	80	20	3,0
V3-SB B	120	135	150	120	13	3.0
V3-SB D	145	160	175	145	9	3,0
V3-SB C	175	190	205	175	9	3.0



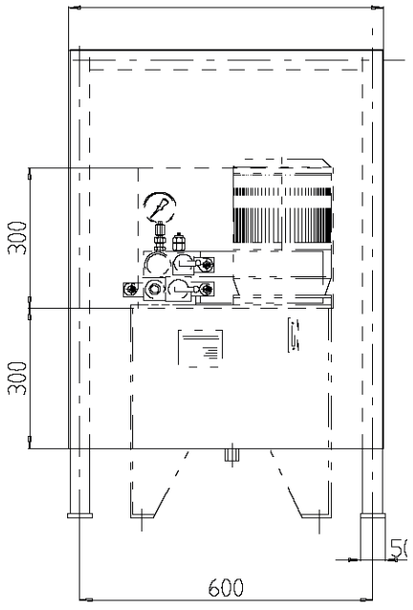
Hydraulic power packs V3-SB are equipped with additional components to provide an adjustable closing time of hydraulically released storm brakes. When closing the brakes the oil-volume, being increased by an additional accumulator, is pressed through an adjustable flow control valve. For immediate closing of storm brakes, the flow control valve can be bypassed by means of an optional 2/2 port valve with non-return valve. Accumulator, flow control valve and optional bypass are mounted on the power pack manifold. For further information please refer to our “Mode of Operation M 1501 261E”.

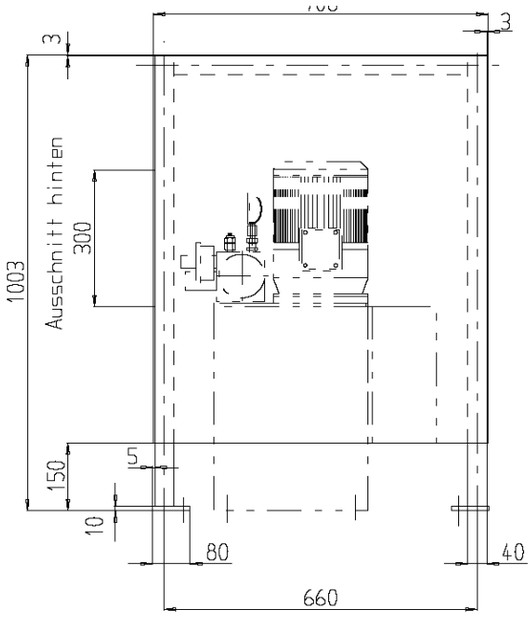
TYPE	SUITABLE FOR					
V3-SB E	RHI 102	RHI 101				
V3-SB A	RHI 104	RHI 103				
V3-SB B	RHI 125	RHI 105	RHI 85	RHI 70	RHI 56	RHI 30
V3-SB C	RPS 600	RPS 450	RPS 300	RPS 200		

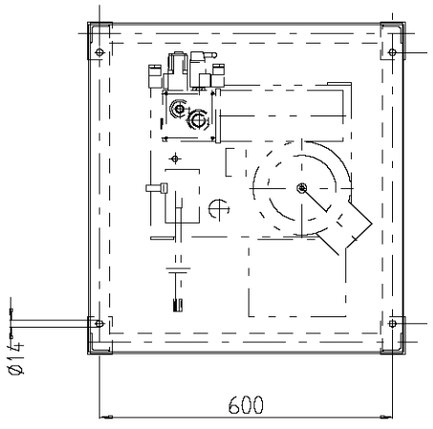


HYDRAULIC POWER UNIT
COVER FOR H-SF 3

M 1501 311 E-EN-2004-12







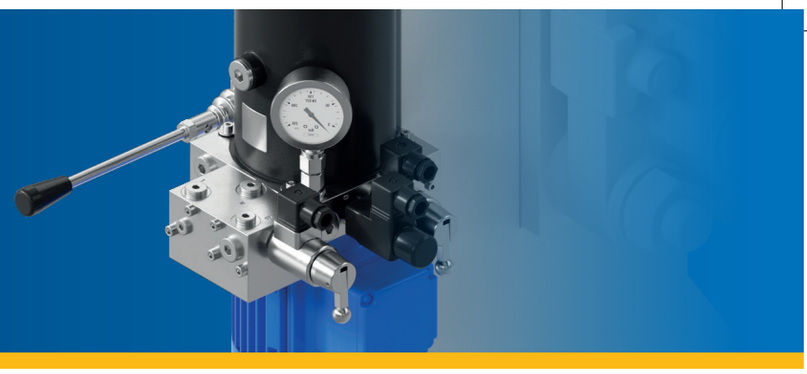
Cover for Hyd. Power Packs V3 **with removable** front plate and rear-side inspection window

- robust welded steel structure with bolted cover plates
- available in powder coated steel version (version A) or completely made of stainless steel (version B)

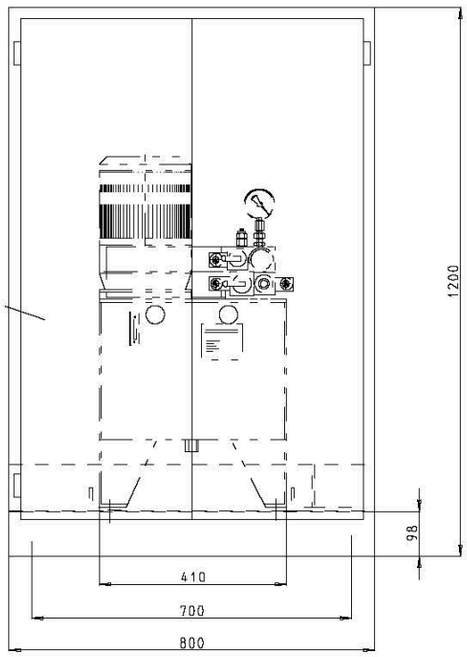
ORDERING INSTRUCTIONS
When ordering please advise:

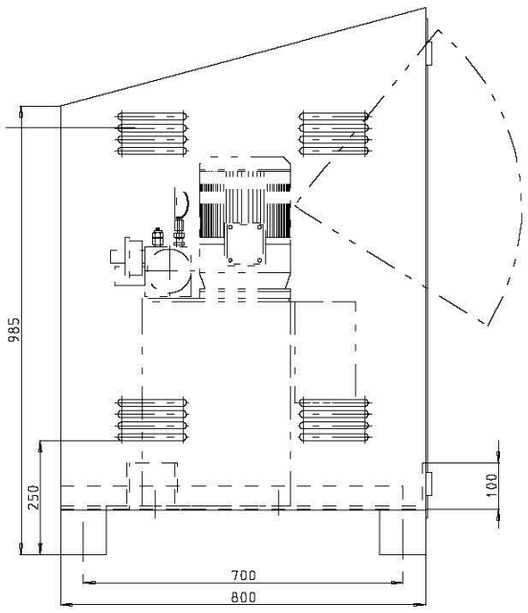
Cover for Hydr. Power Pack V3
- acc. to data sheet M 1501 311 E
- version A (powder coated)
- version B (stainless steel)

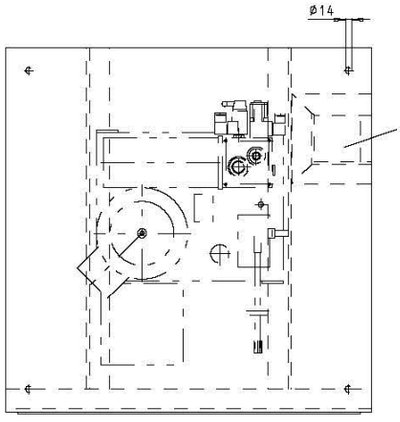
HYDRAULIC POWER UNIT
HOUSING FOR H-SF 3



M 1501 312 E-EN-2004-12



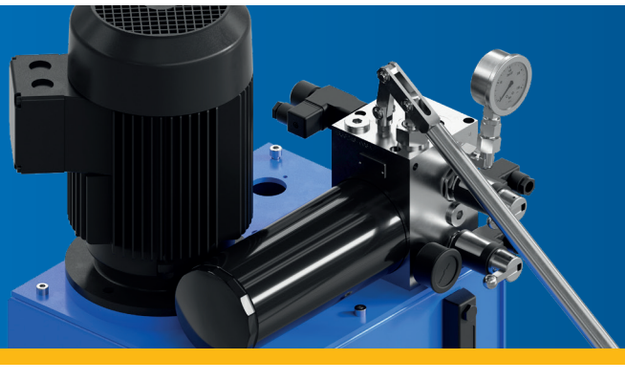




Housing for Hydr. Power Packs Version V3
- with two big-size doors for easy access for operating and maintenance
- housing bottom built as oil tray for up to 30 ltr. of oil
- available in powder coated steel version (version A) or completely made of stainless steel (version B)

ORDERING INSTRUCTIONS
When ordering please advise:

Cover for Hydr. Power Pack V3
- acc. to data sheet M 1501 312 E
- version A (powder coated)
- version B (stainless steel)



HYDRAULIC POWER UNIT
HPU SELECTION GUIDE

EN-2017-12

BRAKE TYPE	RECOMMENDED HYDRAULIC POWER UNIT	
	<= 50 c / h	<= 200 c / h
SHI 282 & SHI 282 FC	V 2.1.C *)	V 3.C
SHI 281 & SHI 281 FC	V 2.1.D *)	V 3.D
SHI 252 & SHI 252 FC	V 2.1.D *)	V 3.D
SHI 251 & SHI 251 FC	V 2.1.B *)	V 3B
SHI 232 & SHI 232 FC	V 2.1.C *)	V 3.C
SHI 231 & SHI 231 FC	V 2.1.D*)	V 3.D
SHI 202 & SHI 202 FC	V 2.1.C *)	V 3.C
SHI 201 & SHI 201 FC	V 2.1.B *)	V 3.B
SHI 162 & SHI 162 FC	V 2.1.C *)	V 3.C
SHI 161 & SHI 161 FC	V2.1.B *)	V 3.B
SHI 107 & SHI 107 FC	V 2.1.C *)	V 3.C
SHI 106 & SHI 106 FC	V 2.1.D *)	V 3.D
SHI 105 & SHI 105 FC	V 2.1.B *)	V 3.B
SHI 104 & SHI 104 FC	V 2.1.A *)	V 3.A
SHI 103 & SHI 103 FC	V 2.1.A *)	V 3.A
SHI 75-6 & SHI 75-6 FC	V 2.1.D *)	V 3.D
SHI 75-5 & SHI 75-5 FC	V 2.1.B *)	V 3.B
SHI 75-4 & SHI 75-4 FC	V 2.1.A *)	V 3.A
SHI 75-3 & SHI 75-3 FC	V 2.1.A *)	V 3.A
SHI 75-2 & SHI 75-2 FC	V 2.1.E *)	V 3.E
SHI 75-1 & SHI 75-1 FC	V 2.1.E*)	V 3.E
CB8-H	V 2.1.C *)	V 3.C
RPS 600	V 3.C	-
RPS 450	V 3.D	-
RPS 300	V 3.C	-
RPS 200	V 3.B	-
RHI 105 FC	V 3.B	-
RHI 104 FC	V 3.A	-
RHI 103 FC	V 3.A	-
RHI 102 FC	V 3.E	-
RHI 101 FC	V 3.E	-
RHI 125	V 3.B	-
RHI 85	V 3.B	-
RHI 70	V 3.A	-
RHI 56	V 3.A	-
RHI 30	V 3.E	-

*) recommendation: for power packs V2 we recommend to connect up to two brakes per power pack

NOTES

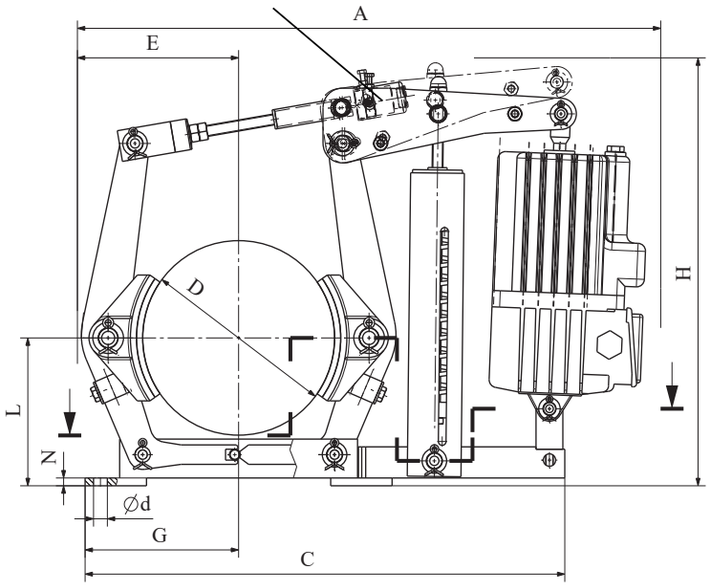
DRUM BRAKE

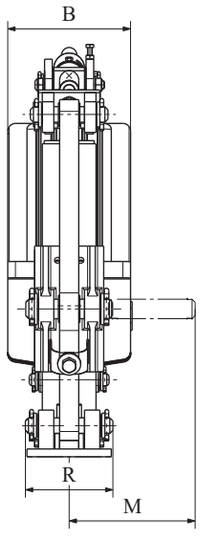
DRUM BRAKE
TE

M 900 1000 E-EN-2008-02

acc. to DIN 15435 | spring applied, thruster released

option: lining wear compensator



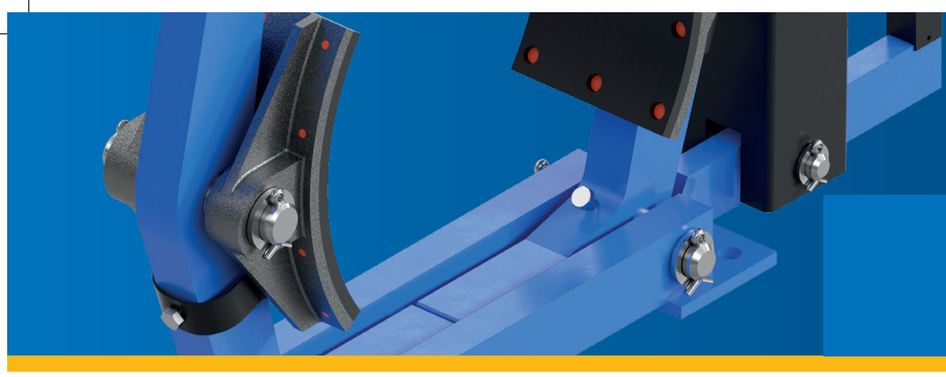


WHEN ORDERING PLEASE ADVISE:
- brake type and thruster e.g. TE 250/23/5
- power supply voltage for thruster
- with our without lining wear compensator
- options

THRUSTER SIZES	
1 = Ed 23/5	10 = EB 220-50
2 = Ed 30/5	20 = EB 300-50
3 = Ed 50/6	30 = EB 500-60
4 = Ed 80/6	40 = EB 800-60
5 = Ed 121/6	50 = EB 1250-60
6 = Ed 201/6	60 = EB 2000-60
7 = Ed 301/6	70 = EB 3000-60

BRAKE-TYPE	Thruster SIZE	TORQUE RANGE in Nm at μ = 0,4	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	d	kg*
TE 200	1 / 10	50 – 300	640	160	515	200	170	90	160	475	55	145	160	115	10	75	70	96	14	19
	2 / 20	85 – 400	640	160						475										
TE 250	1 / 10	40 – 325	760	160	625	250	210	110	200	550	65	180	190	133	10	95	90	113	18	30
	2 / 20	40 – 450	760	160						550										
	3 / 30	100 – 850	800	195						560										
TE 315	1 / 10	70 – 420	885	160	735	315	260	125	240	650	80	220	230	160	10	118	110	135	18	50
	2 / 20	70 – 550	885	160						650										
	3 / 30	75 – 1050	925	195						660										
	4 / 40	90 – 1700	925	195						660										
TE 400	2 / 20	80 – 575	1030	160	900	400	310	160	300	765	100	270	280	199	12	150	140	167	22	85
	3 / 30	100 – 1100	1075	195						775										
	4 / 40	100 – 1800	1075	195						775										
	5 / 50	125 – 2750	1075	240						775										
TE 500	3 / 30	200 – 1400	1225	195	1025	500	385	190	355	870	130	325	340	242	13	190	180	202	22	130
	4 / 40	200 – 2200	1225	195						870										
	5 / 50	200 – 3400	1215	240						870										
	6 / 60	200 – 5400	1215	240						870										
TE 630	5 / 50	500 – 3300	1365	240	1190	630	465	250	440	1000	170	400	420	295	15	236	225	244	27	206
	6 / 60	500 – 5500	1365	240						1000										
	7 / 70	500 – 8200	1365	240						1000										
TE 710	5 / 50	500 – 3800	1500	240	1302	710	525	270	490	1100	190	450	470	332	15	265	255	276	27	268
	6 / 60	500 – 6300	1500	240						1100										
	7 / 70	500 – 9400	1500	240						1100										

* kg without thruster



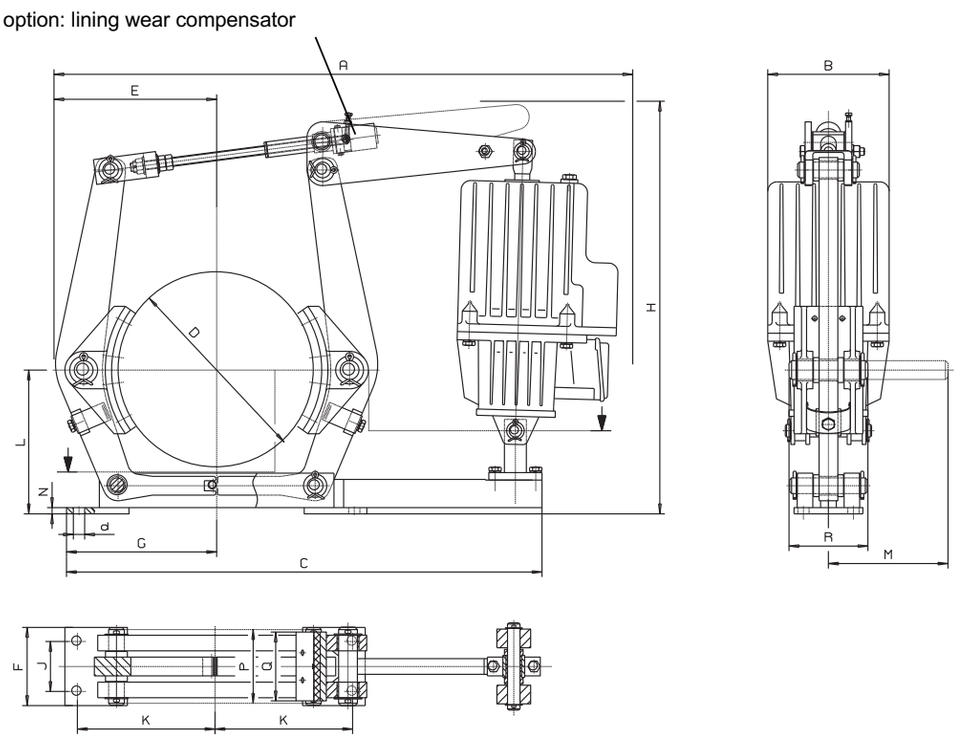
DRUM BRAKE
TEc

M 900 2000 E-EN-2001-08

acc. to DIN 15435 | spring applied, thruster released

WHEN ORDERING PLEASE ADVISE:
- brake type and thruster e.g. TE 250/23/5
- power supply voltage for thruster
- with our without lining wear compensator
- options

THRUSTER SIZES	
1 = Ed 23/5c	10 = EB 220-50c
2 = Ed 30/5c	20 = EB 300-50c
3 = Ed 50/6c	30 = EB 500-60c
4 = Ed 80/6c	40 = EB 800-60c
5 = Ed 121/6c	50 = EB 1250-60c
6 = Ed 201/6c	60 = EB 2000-60c
7 = Ed 301/6c	70 = EB 3000-60c



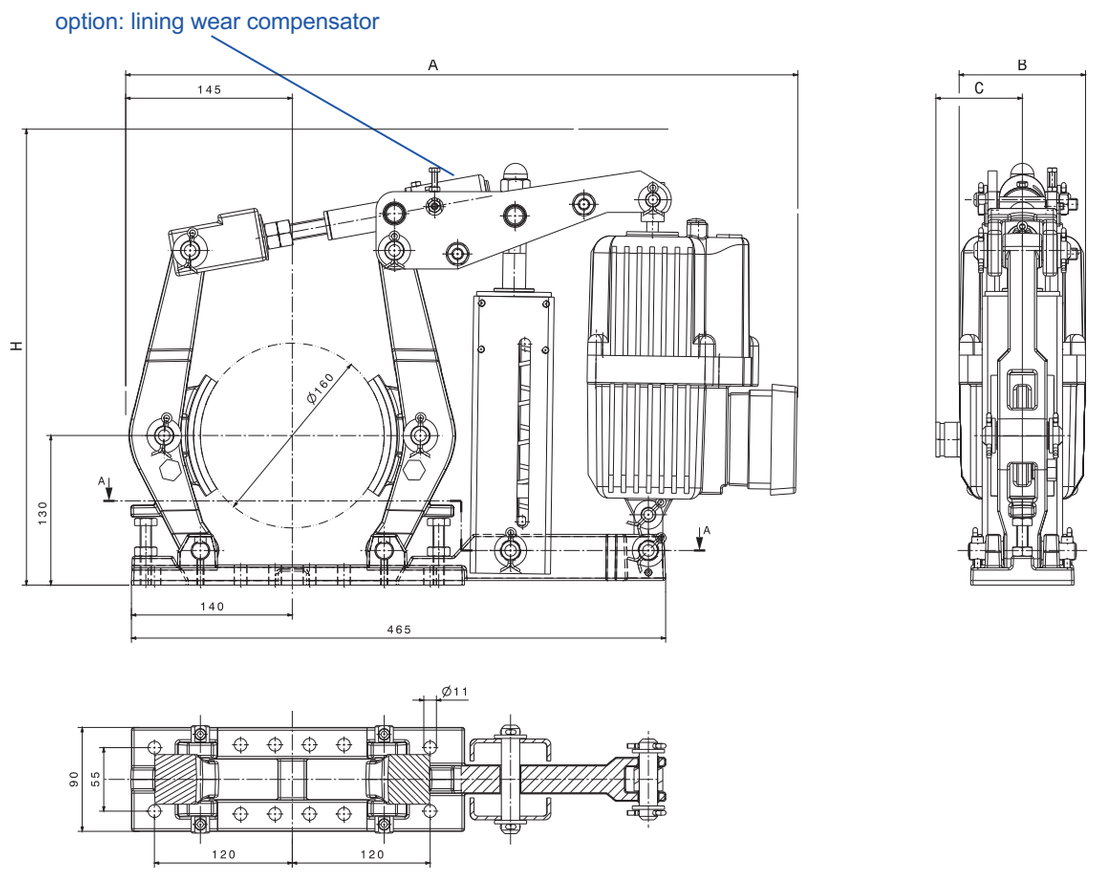
BRAKE-TYPE	Thruster SIZE	TORQUE RANGE in Nm at μ = 0,4	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	d	kg*
TEc 200	1 / 10	245	640	160	515	200	170	90	160	475	55	145	160	115	10	75	70	96	14	16
	2 / 20	360	640	160						475										
TEc 250	1 / 10	265	760	160	625	250	210	110	200	550	65	180	190	133	10	95	90	113	18	27
	2 / 20	405	760	160						550										
	3 / 30	780	800	195						560										
TEc 315	1 / 10	345	885	160	735	315	260	125	240	650	80	220	230	160	10	118	110	135	18	46
	2 / 20	495	885	160						650										
	3 / 30	965	925	195						660										
	4 / 40	1595	925	195						660										
TEc 400	2 / 20	515	1030	160	900	400	310	160	300	765	100	270	280	199	12	150	140	167	22	80
	3 / 30	1010	1075	195						775										
	4 / 40	1690	1075	195						775										
	5 / 50	2640	1075	240						775										
TEc 500	3 / 30	1290	1225	195	1025	500	385	190	355	870	130	325	340	242	13	190	180	202	22	125
	4 / 40	2060	1225	195						870										
	5 / 50	3265	1215	240						870										
	6 / 60	5130	1215	240						870										
TEc 630	5 / 50	3170	1365	240	1190	630	465	250	440	1000	170	400	420	295	15	236	225	244	27	200
	6 / 60	5225	1365	240						1000										
	7 / 70	7380	1365	240						1000										
TEc 710	5 / 50	3650	1500	240	1302	710	525	270	490	1100	190	450	470	332	15	265	255	276	27	262
	6 / 60	5985	1500	240						1100										
	7 / 70	8460	1500	240						1100										

* kg without thruster

DRUM BRAKE
TE 160

M 1501 293 E-EN-2020-01

spring applied, thruster released

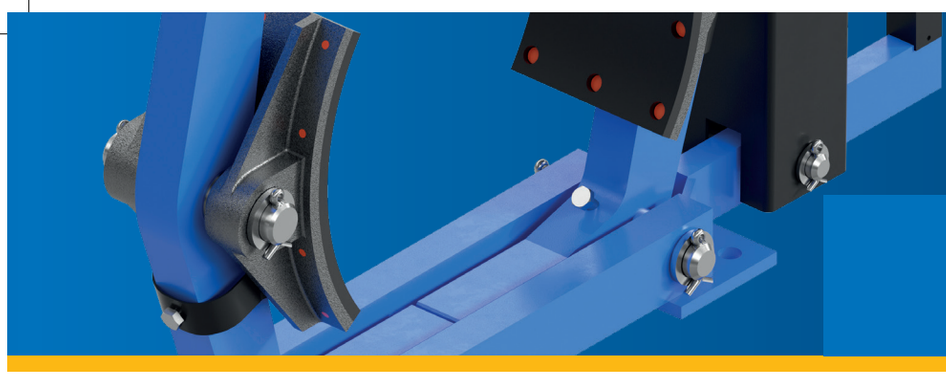


WHEN ORDERING PLEASE ADVISE:

- order-no., e.g. for TE 160/220/50
- power supply voltage of thruster
- with or without autom. wear compensator
- optional features such as limit switch manual release, drum, coupling, covering cap

THRUSTER SIZES	
1 = Ed 12/4	10 = EB 120-40
2 = Ed 23/5	20 = EB 220-50

BRAKE-TYPE	Thruster UNIT	MBR. (NM) TORQUE μ = 0,4	A	B	C	H
TE 160	1 / 10	45 - 125	575	110	73	395
	2 / 20	55 - 230	610	162	100	400

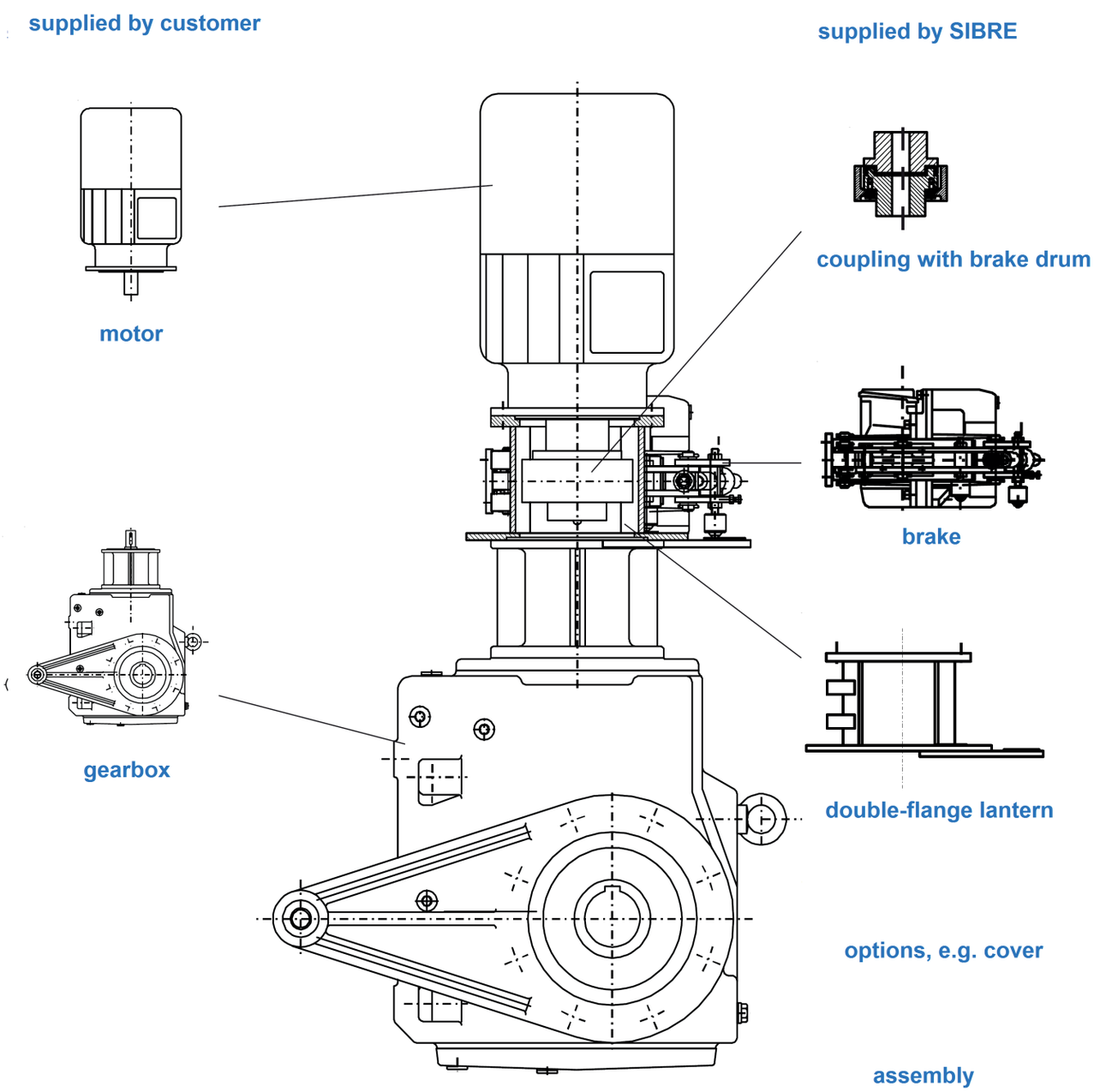


DRUM BRAKE
TE 160

spring applied, thruster released

M 1501 293 E-EN-2020-01

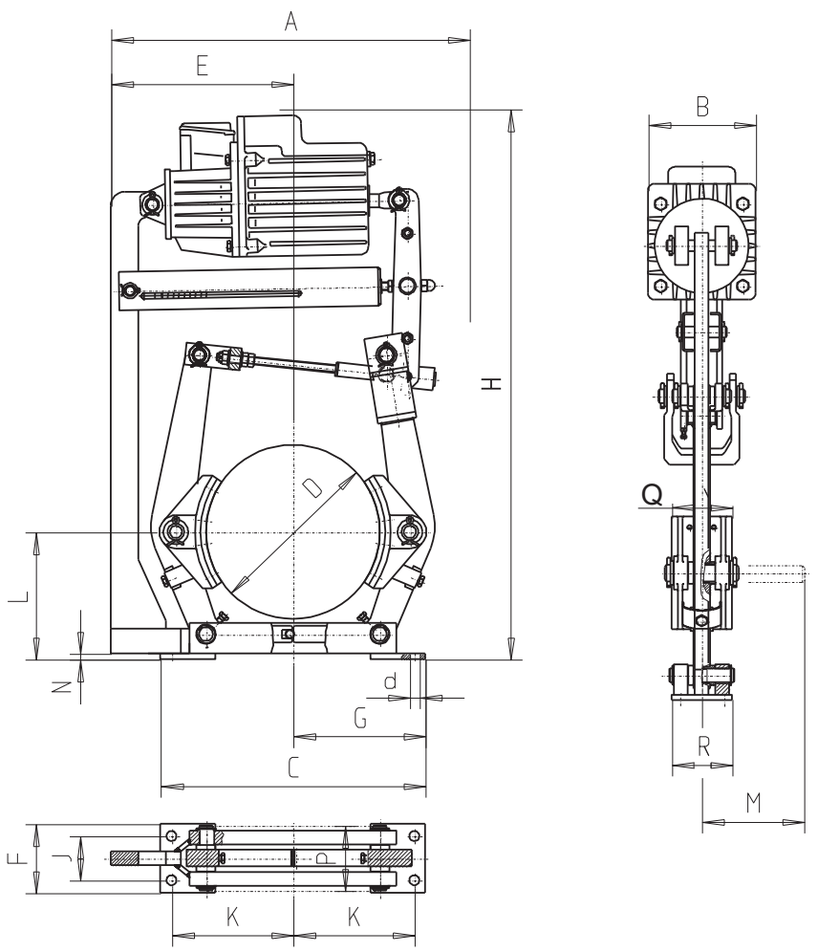
The drum brake TE 160 offer a particularly usability for compact-drives, e. a. vertical mounting, travel drives. Our scope of supply is beneath the brake also mounting console for adapting gearbox and motor as well as coupling/brake-drum and steel-cover.



DRUM BRAKE
SBH

M 500 6500 E-EN-2017-05

acc. to DIN 15435 | spring applied, thruster released



WHEN ORDERING PLEASE ADVISE:

- brake type and thruster e.g. SBH 250/23/5
- voltage and frequency for thruster
- with or without lining wear compensator
- options (switches, manual release lever, etc.)

THRUSTER SIZES	
1 = Ed 23/5	10 = EB 220-50
2 = Ed 30/5	20 = EB 300-50
3 = Ed 50/6	30 = EB 500-60
4 = Ed 80/6	40 = EB 800-60
5 = Ed 121/6	50 = EB 1250-60

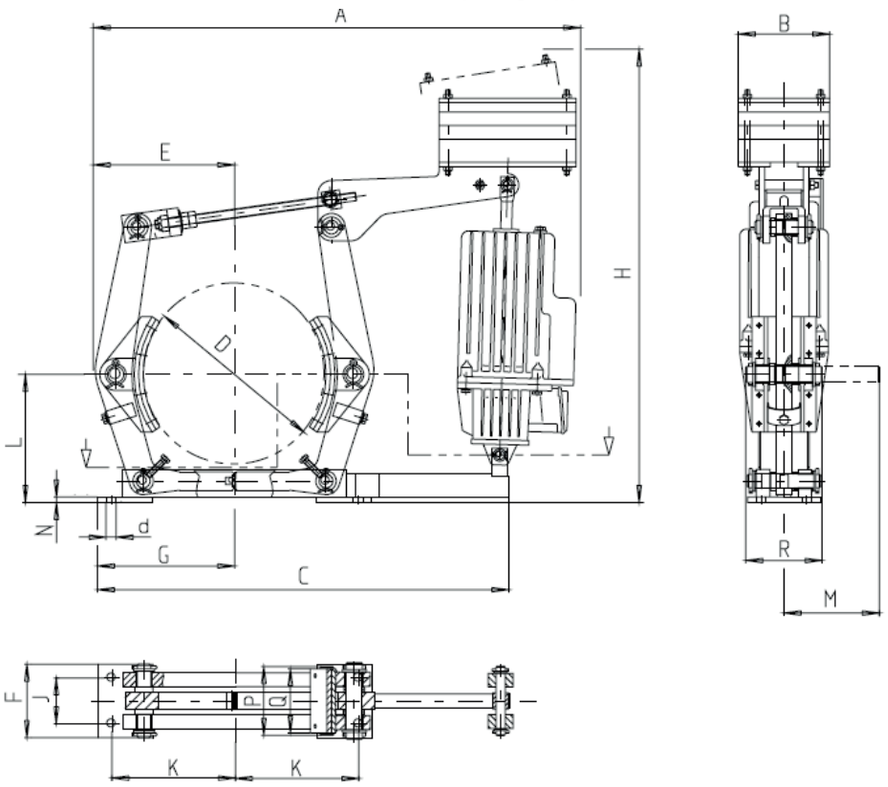
BRAKE-TYPE	Thruster SIZE	TORQUE RANGE in Nm at μ = 0,4	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	d	kg*
SBH 200	1 / 10	50 - 325	520	160	320	200	270	90	160	750	55	145	160	130	10	75	70	96	14	28
	2 / 20	50 - 425		160																
SBH 250	1 / 10	50 - 325	530	160	400	250	284	110	200	870	65	180	190	155	10	95	90	113	18	40
	2 / 20	50 - 425	530	160						870										
	3 / 30	50 - 850	570	195						910										
SBH 315	1 / 10	50 - 475	640	160	480	315	330	125	240	965	80	220	230	185	15	118	110	135	18	52
	2 / 20	50 - 600	640	160						965										
	3 / 30	150 - 1200	650	195						995										
	4 / 40	150 - 1950	650	195						995										
SBH 400	2 / 20	150 - 600	760	160	600	400	407	160	300	1050	100	270	280	230	15	150	140	167	22	82
	3 / 30	150 - 1200	760	195						1085										
	4 / 40	150 - 1950	760	195	600	400	490	160	300	1085	100	270	280	230	15	150	140	167	22	88
	5 / 50	150 - 2250	840	240						1095										
SBH 500	3 / 30	400 - 1420	900	195	710	500	490	190	355	1330	130	325	340	285	13	190	180	190	22	130
	4 / 40	400 - 2300	900	195						1330										
	5 / 50	400 - 3400	900	240						1330										
	6 / 60	400 - 5700	900	240						1330										

* kg without thruster

DRUM BRAKE
SBG

M 500 5000 E-EN-2007-01

acc. to DIN 15435 | spring applied, thruster released



WHEN ORDERING PLEASE ADVISE:

- brake type and thruster e.g. SBG 250/23/5
- voltage and frequency for thruster
- with or without lining wear compensator
- options (switches, manual release lever, etc.)

THRUSTER SIZES	
1 = Ed 23/5	10 = EB 220-50
2 = Ed 30/5	20 = EB 300-50
3 = Ed 50/12	30 = EB 500-120
4 = Ed 80/12	40 = EB 800-120
5 = Ed 121/12	50 = EB 1250-120
6 = Ed 201/12	60 = EB 2000-120
7 = Ed 301/12	70 = EB 3000-120

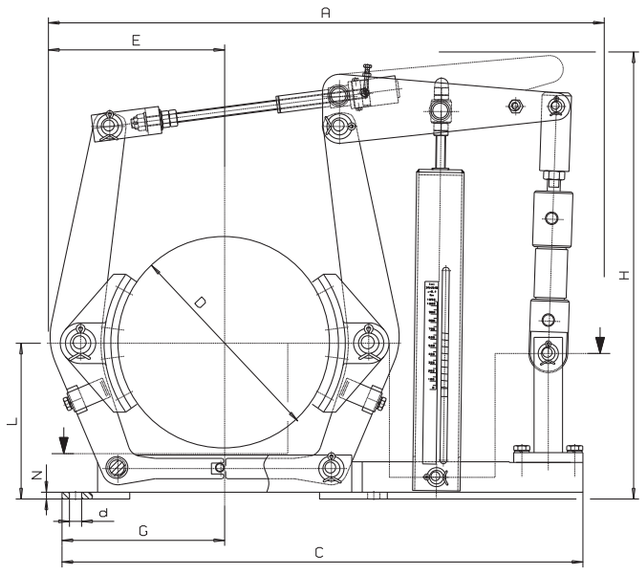
BRAKE-TYPE	Thruster SIZE	TORQUE RANGE in Nm at μ = 0,4	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	d	kg*
SBG 200	1 / 10	50 - 300	650	160	515	200	170	90	160	620	55	145	160	115	10	75	70	96	14	45
	2 / 20	85 - 400	650	160						660										50
SBG 250	1 / 10	40 - 325	750	160	625	250	210	110	200	680	65	180	190	133	10	95	90	113	18	57
	2 / 20	40 - 450	750	160						710										62
	3 / 30	100 - 850	785	195						835										82
SBG 315	1 / 10	70 - 420	880	160	735	315	260	125	240	770	80	220	230	160	10	118	110	135	18	66
	2 / 20	70 - 550	880	160						800										73
	3 / 30	75 - 1050	880	195						830										93
	4 / 40	90 - 1700	880	195						920										123
SBG 400	2 / 20	80 - 575	965	195	900	400	310	160	300	900	100	270	280	199	12	150	140	167	22	103
	3 / 30	100 - 1100	1005	195						940										123
	4 / 40	100 - 1800	1005	195						1000										153
	5 / 50	125 - 2750	1040	240						1050										195
SBG 500	3 / 30	200 - 1400	1185	220	1025	500	385	190	355	1040	130	325	340	242	13	190	180	202	22	173
	4 / 40	200 - 2200	1185	220						1090										203
	5 / 50	200 - 3400	1175	240						1180										243
	6 / 60	200 - 5400	1175	300						1230										323
SBG 630	5 / 50	500 - 3300	1330	240	1190	630	465	250	440	1300	170	400	420	295	15	236	225	244	27	347
	6 / 60	500 - 5500	1330	300						1350										427
	7 / 70	500 - 8200	1375	350						1350										527
SBG 710	5 / 50	500 - 3800	1465	240	1302	710	525	270	490	1400	190	450	470	332	15	265	255	276	27	380
	6 / 60	500 - 6300	1465	300						1450										460
	7 / 70	500 - 9400	1540	350						1450										560

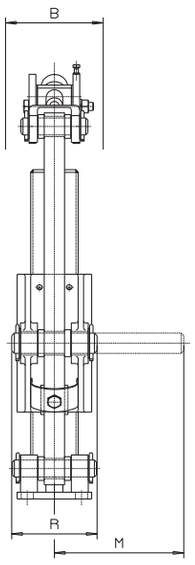
* kg without thruster

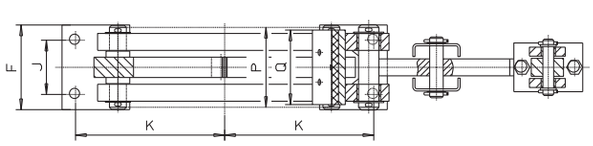
DRUM BRAKE
THi

M 900 1200 E-EN-2001-08

acc. to DIN 15435 | spring applied, thruster released





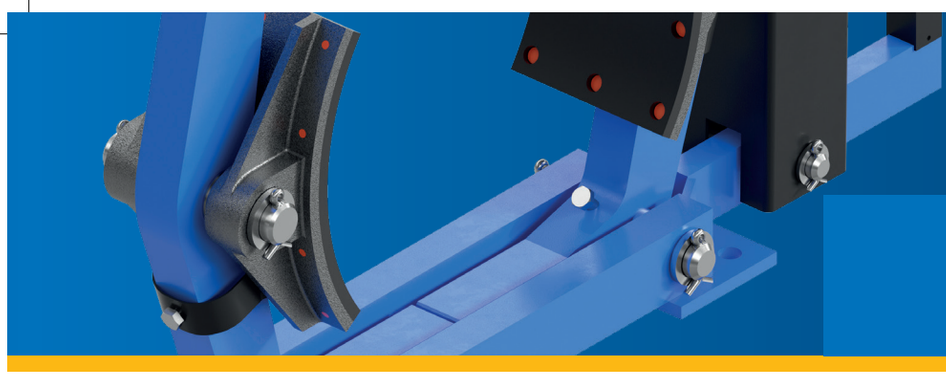


WHEN ORDERING PLEASE ADVISE:
- brake type and brake torque e.g. THI 200-50-300
- with or without wear compensation
- options

Necessary volume flow: 8 l / min.

BRAKE-TYPE	Requested PRESSURE (bar)	MBR. (Nm) TORQUE μ = 0,4	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	d	kg*
THi 200	6	50 - 300	535	95	515	200	170	90	160	475	55	145	160	115	10	75	70	96	14	19
	10	85 - 400	540	95						475										
THi 250	6	40 - 325	660	110	625	250	210	110	200	550	65	180	190	133	10	95	90	113	18	30
	10	40 - 450	660	110						550										
	15	100 - 850	665	110						560										
THi 315	6	70 - 420	780	130	735	315	260	125	240	650	80	220	230	160	10	118	110	135	18	50
	10	70 - 550	780	130						650										
	15	75 - 1050	785	130						660										
	20	90 - 1700	790	130						660										
THi 400	10	80 - 575	935	160	900	400	310	160	300	765	100	270	280	199	12	150	140	167	22	85
	15	100 - 1100	940	160						775										
	20	100 - 1800	945	160						775										
	30	125 - 2750	955	160																
THi 500	15	200 - 1400	1090	200	1025	500	385	190	355	870	130	325	340	242	13	190	180	202	22	130
	20	200 - 2200	1095	200						870										
	30	200 - 3400	1100	200						870										
	50	200 - 5400	1110	200						870										
THi 630	30	500 - 3300	1245	240	1190	630	465	250	440	1000	170	400	420	295	15	236	225	244	27	206
	50	500 - 5500	1250	240						1000										
	70	500 - 8200	1260	240						1000										
THi 710	30	500 - 3800	1385	260	1302	710	525	270	490	1100	190	450	470	332	15	265	255	276	27	268
	50	500 - 6300	1390	260						1100										
	70	500 - 9400	1400	260						1100										

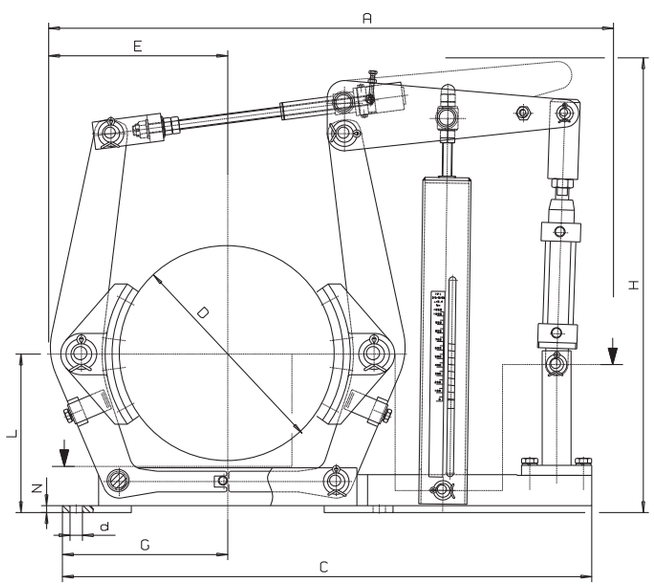
* kg without thruster

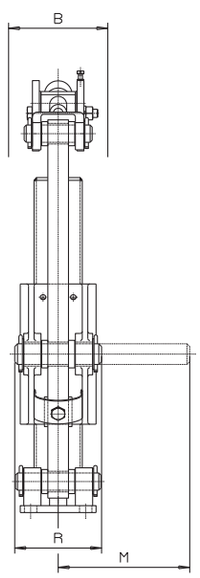


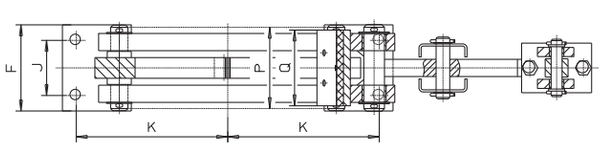
DRUM BRAKE
TPi

M 900 1600 E-EN-2003-02

acc. to DIN 15435 | spring applied, thruster released







WHEN ORDERING PLEASE ADVISE:
- brake type and brake torque e.g. TPi 200/25/60
- with or without wear compensation
- options

Required pressure: 6 bar

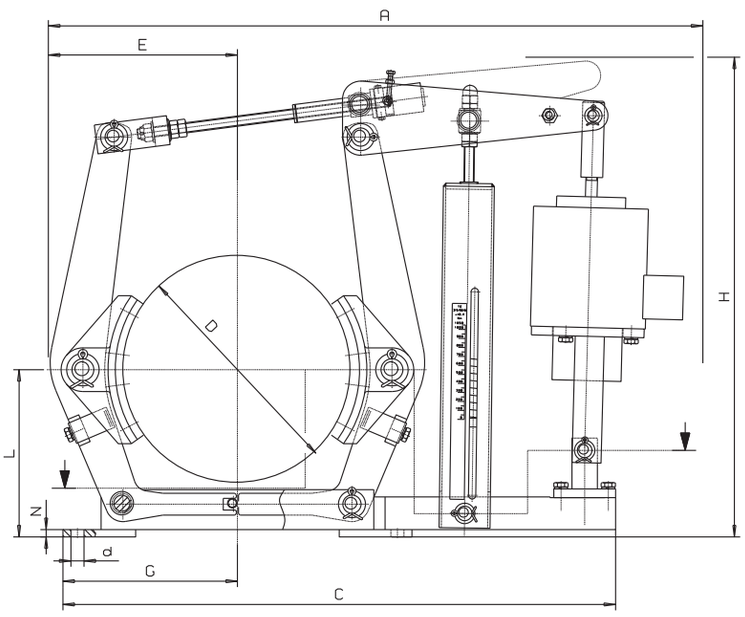
BRAKE-TYPE	PNEUMATIC CYLINDER	MBR. (NM) TORQUE μ = 0,4	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	d	kg*
TPi 200	Ø 25/50	50 - 300	535	95	515	200	170	90	160	475	55	145	160	115	10	75	70	96	14	19
	Ø 32/50	85 - 400	540	95						475										
TPi 250	Ø 25/50	40 - 325	660	110	625	250	210	110	200	550	65	180	190	133	10	95	90	113	18	30
	Ø 32/50	40 - 450	660	110						550										
	Ø 40/80	100 - 850	665	110						560										
TPi 315	Ø 25/50	70 - 420	780	130	735	315	260	125	240	650	80	220	230	160	10	118	110	135	18	50
	Ø 32/50	70 - 550	780	130						650										
	Ø 40/80	75 - 1050	785	130						660										
	Ø 50/80	90 - 1700	790	130						660										
TPi 400	Ø 32/50	80 - 575	935	160	900	400	310	160	300	765	100	270	280	199	12	150	140	167	22	85
	Ø 40/80	100 - 1100	940	160						775										
	Ø 50/80	100 - 1800	945	160						775										
	Ø 63/80	125 - 2750	955	160						775										
TPi 500	Ø 40/80	200 - 1400	1090	200	1025	500	385	190	355	870	130	325	340	242	13	190	180	202	22	130
	Ø 50/80	200 - 2200	1095	200						870										
	Ø 63/80	200 - 3400	1100	200						870										
	Ø 80/80	200 - 5400	1110	200						870										
TPi 630	Ø 63/80	500 - 3300	1245	240	1190	630	465	250	440	1000	170	400	420	295	15	236	225	244	27	206
	Ø 80/80	500 - 5500	1250	240						1000										
	Ø100/80	500 - 8200	1260	240						1000										
TPi 710	Ø 63/80	500 - 3800	1385	260	1302	710	525	270	490	1100	190	450	470	332	15	265	255	276	27	268
	Ø 80/80	500 - 6300	1390	260						1100										
	Ø100/80	500 - 9400	1400	260						1100										

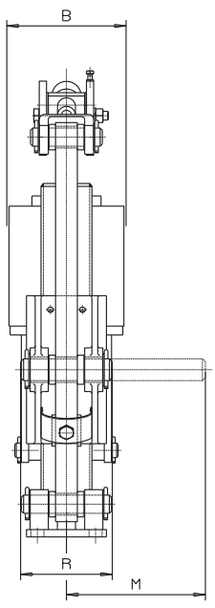
* kg without thruster

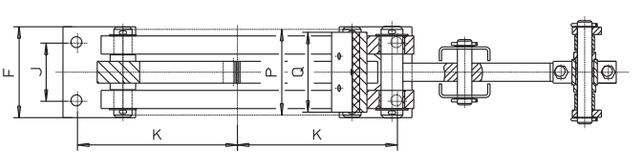
DRUM BRAKE
TMB

M 900 6000 E-EN-2001-08

acc. to DIN 15435 | spring applied, thruster released





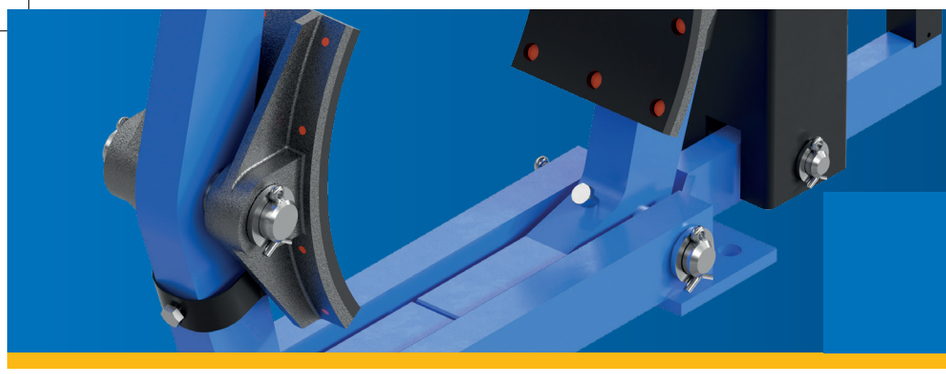


WHEN ORDERING PLEASE ADVISE:
- brake type and solenoid with brake torque e.g. TMB 200/GH115-40 Nm
- power supply voltage of solenoid
- with or without wear compensation
- options

To achieve the torque values as indicated under "25%" the solenoid needs to be connected with SCU as per data sheet M 1501 376 E.

BRAKE-TYPE	Mbr (Nm) / torque at duty cycle		SOLENOID TYPE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	d	kg*
	25 %	100 %																			
TMB 200	170 Nm	40 Nm	GH 115	630	115	515	200	170	90	160	480	55	145	160	115	10	75	70	150	14	25
	380 Nm	120 Nm	GH 140	645	140																
TMB 250	380 Nm	130 Nm	GH 140	765	140	625	250	210	110	200	570	65	180	190	133	10	95	90	155	18	37
	790 Nm	290 Nm	GH 160	770	160																
TMB 315	475 Nm	130 Nm	GH 140	890	140	735	315	260	125	240	650	80	220	230	160	10	118	110	155	18	49
	1100 Nm	360 Nm	GH 160	895	160																
	1600 Nm	550 Nm	GH 180	910	180																
TMB 400	1100 Nm	360 Nm	GH 160	1040	160	900	400	310	160	300	765	100	270	280	199	12	150	140	180	22	80
	1700 Nm	575 Nm	GH 180	1055	180																
	2750 Nm	900 Nm	GH 215	1075	215																
TMB 500	1850 Nm	550 Nm	GH 160	1200	160	1025	500	385	190	355	870	130	325	340	242	13	190	180	185	22	130
	2750 Nm	920 Nm	GH 180	1210	180																
	3750 Nm	1150 Nm	GH 215	1230	215																
TMB 630	2500 Nm	450 Nm	GH 180	1360	180	1190	630	465	250	440	1000	170	400	420	295	15	236	225	215	27	206
	3300 Nm	650 Nm	GH 215	1380	215																
	5500 Nm	2000 Nm	GH 245	1400	245																
TMB 710	2900 Nm	600 Nm	GH 180	1500	180	1302	710	525	270	490	1100	190	450	470	332	15	265	255	215	27	268
	3800 Nm	800 Nm	GH 215	1520	215																
	6300 Nm	2200 Nm	GH 245	1540	245																

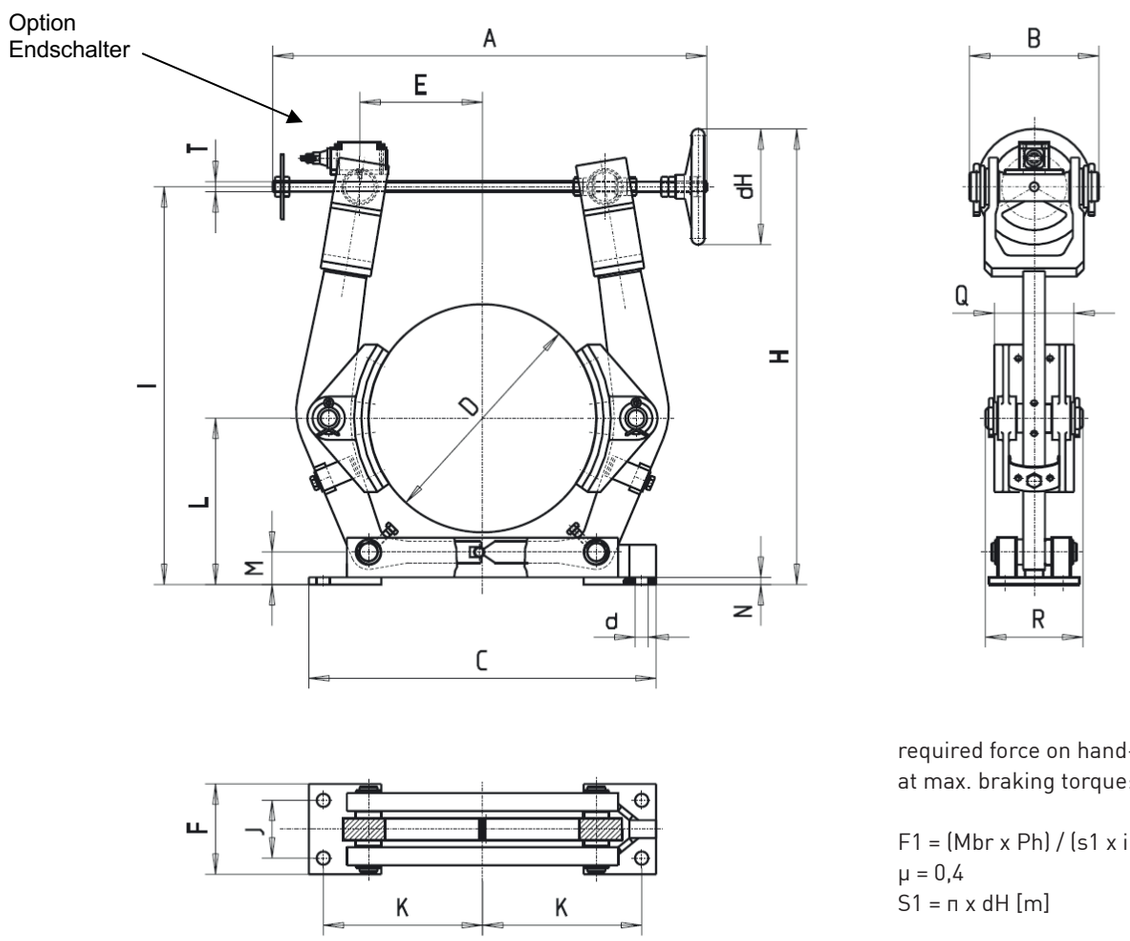
* kg without thruster



DRUM BRAKE
SBM

M 1501 104 E-EN-2007-09

acc. to DIN 15435 | with handwheel



required force on hand-wheel
at max. braking torque:

F1 = (Mbr x Ph) / (s1 x i Hebel x μ x η x D)
μ = 0,4
S1 = π x dH [m]

SBM 250 – 315 η = 0,2485
SBM 400 – 500 η = 0,2225
SBM 630 – 710 η = 0,2225

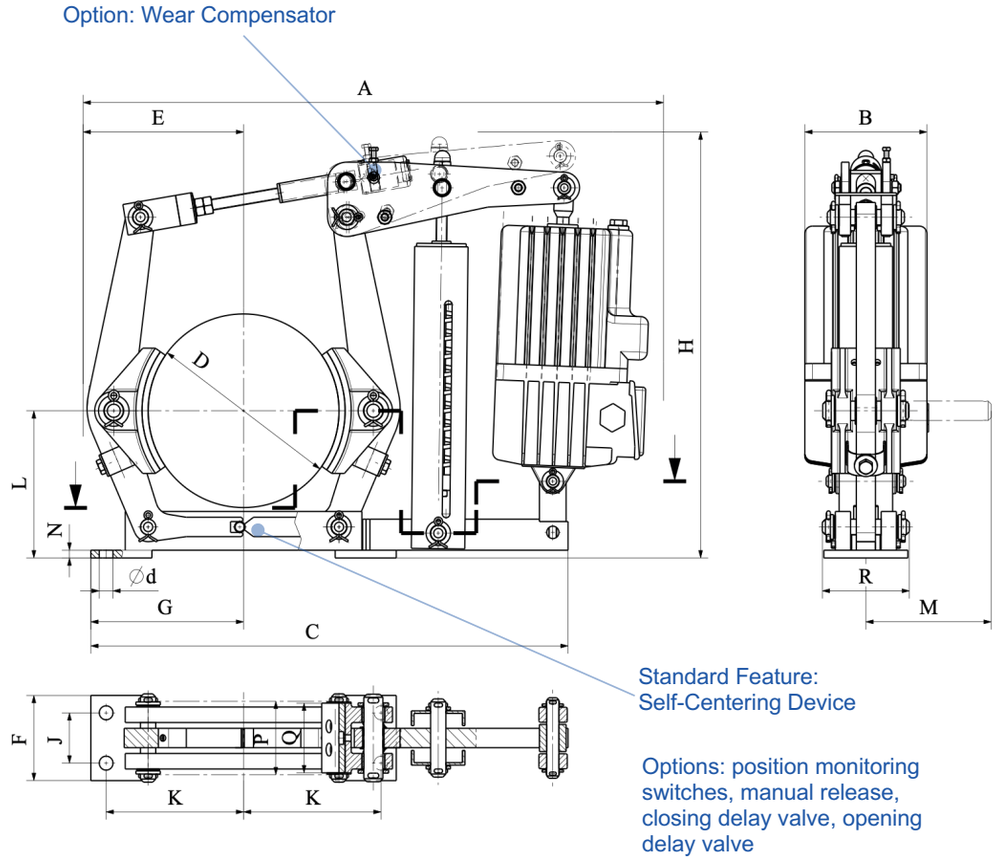
BRAKE-TYPE	A	B	C	D	E	F	H	J	K	L	M	N	P	Q	R	T	dH	d	S1 [m]	i le-ver	Thread pitch PH [m]	Braking torque MBr [Nm]	Hand force N1 [N]
SBM 200	440	132	320	200	110	90	428	365	55	145	160	40	10	70	96	M14	125	14	0,3925	2,71	0,002	400	ca. 40
SBM 250	520	158	400	250	135	110	510	400	65	180	190	40	10	90	113	M14	140	18	0,4396	2,66	0,002	850	ca. 60
SBM 315	600	180	480	315	170	125	630	550	80	220	230	45	10	110	135	M14	160	18	0,5024	2,73	0,002	1700	ca. 80
SBM 400	730	213	600	400	212	160	692	602	100	270	280	47	12	140	167	M20	180	22	0,5652	2,38	0,0025	2750	ca. 160
SBM 500	870	267	710	500	262	190	830	730	130	325	340	50	13	180	202	M20	200	22	0,628	2,35	0,0025	5400	ca. 205
SBM 630	1000	332	880	630	327	250	985	860	170	400	420	60	15	225	244	M24	250	27	0,785	2,22	0,003	8200	ca. 250
SBM 710	1080	356	980	710	370	270	1085	965	190	450	470	65	15	255	276	M24	250	27	0,785	2,22	0,003	9400	ca. 255

The data sheet includes the limit switch for indication brake released, but no more accessories.
Possible dimensional discrepancies are to be considered.

DRUM BRAKE
TE-I

M 1501 314 E-EN-2012-08

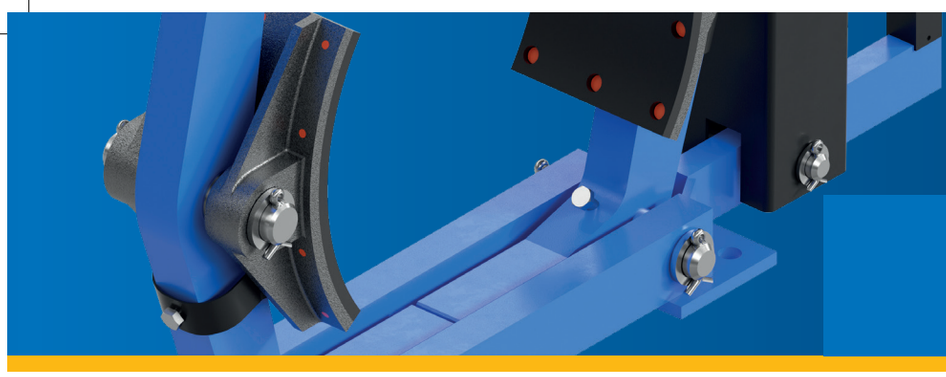
for Ed-thruster | per AISE 11 standard



BRAKE TYPE with Eldro	Nm with μ = 0,4			A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	d	kg*
	min	Max. 1	Max. 2																		
TE-I 8/23/5	50	200	300	640	160	515	203	170	190	160	475	146	83	178	125	10	87,4	82,4	83	17,5	19
TE-I 8/30/5	85	-	400																		
TE-I 10/23/5	40	300	325	760	160	595	254	210	202	170	570	158	102	213	153	33	107	101,6	113	17,5	30
TE-I 10/30/5	40	-	450																		
TE-I 10/50/6	100	-	850	800	195						580										
TE-I 13/23/5“	70	-	420	885	160	700	330	270	286	206	660	228	146	251	176	37	146	140	126	21,5	50
TE-I 13/30/5“	70	-	550																		
TE-I 13/50/6“	75	800	1050	925	195						670										
TE-I 13/80/6“	90	-	1700																		
TE-I 16/30/5	80	-	575	1030	160	860	406	315	328	260	765	274	190	308	251	32	172	165	167	26	85
TE-I 16/50/6	100	-	1100	1075	195						795										
TE-I 16/80/6	100	1400	1800																		
TE-I 16/121/6	125	-	2750		240																
TE-I 19/50/6	200	-	1400	1190	195	962	483	385	400	292	870	330	235	337	303	13	222	216	202	26	130
TE-I 19/80/6	200	-	2300																		
TE-I 19/121/6	200	2800	3400	1225	240																
TE-I 19/201/6	200	-	5400																		
TE-I 23/121/6	500	-	3300	1365	240	1138	584	460	485	388	1030	406	298	403	348	15	286	280	232	33	206
TE-I 23/201/6	500	5450	5500																		
TE-I 23/301/6	500	-	8200																		

Max. 1 = max torque for AISE-Applications | Max. 2 = max. torque for General Applications

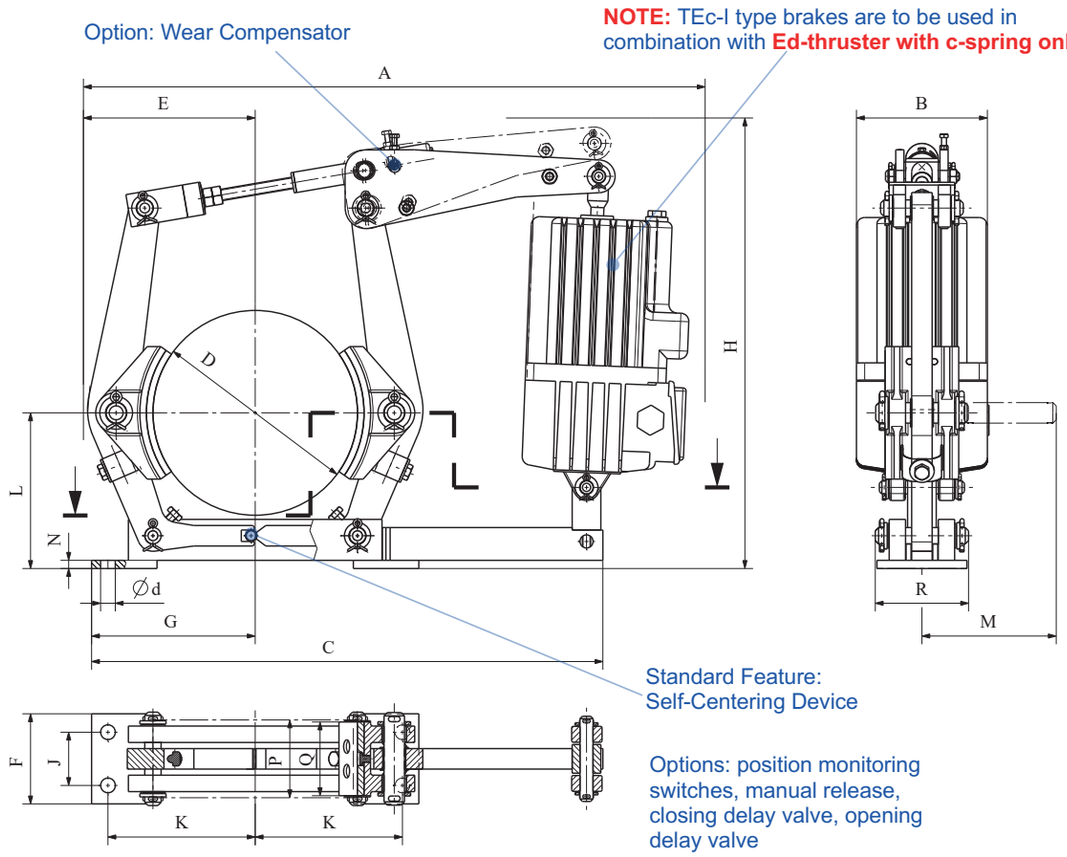
* kg without thruster



DRUM BRAKE
TEc-I

M 1501 383 E-EN-2012-08

for Ed-thruster with C-spring only | per AISE 11 standard



BRAKE TYPE with Eldro	Nm with μ = 0,4			A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	d	kg*
	min	Max. 1	Max. 2																		
TEc-I 8/23/5	50	200	300	640	160	515	203	170	190	160	475	146	83	178	125	10	87,4	82,4	83	17,5	16
TEc-I 8/30/5	85	-	400																		
TEc-I 10/23/5	40	300	325	760	160	595	254	210	202	170	570	158	102	213	153	33	107	101,6	113	17,5	27
TEc-I 10/30/5	40	-	450																		
TEc-I 10/50/6	100	-	850	800	195						580										
TEc-I 13/23/5	70	-	420	885	160	700	330	270	286	206	660	228	146	251	176	37	146	140	126	21,5	46
TEc-I 13/30/5	70	-	550																		
TEc-I 13/50/6	75	800	1050	925	195						670										
TEc-I 13/80/6	90	-	1700																		
TEc-I 16/30/5	80	-	575	1030	160	860	406	315	328	260	765	274	190	308	251	32	172	165	167	26	80
TEc-I 16/50/6	100	-	1100	1075	195						795										
TEc-I 16/80/6	100	1400	1800																		
TEc-I 16/121/6	125	-	2750		240																
TEc-I 19/50/6	200	-	1400	1190	195	962	483	385	400	292	870	330	235	337	303	13	222	216	202	26	125
TEc-I 19/80/6	200	-	2300																		
TEc-I 19/121/6	200	2800	3400	1225	240																
TEc-I 19/201/6	200	-	5400																		
TEc-I 23/121/6	500	-	3300	1365	240	1138	584	460	485	388	1030	406	298	403	348	15	286	280	232	33	200
TEc-I 23/201/6	500	5450	5500																		
TEc-I 23/301/6	500	-	8200																		

Max. 1 = max torque for AISE-Applications | Max. 2 = max. torque for General Applications

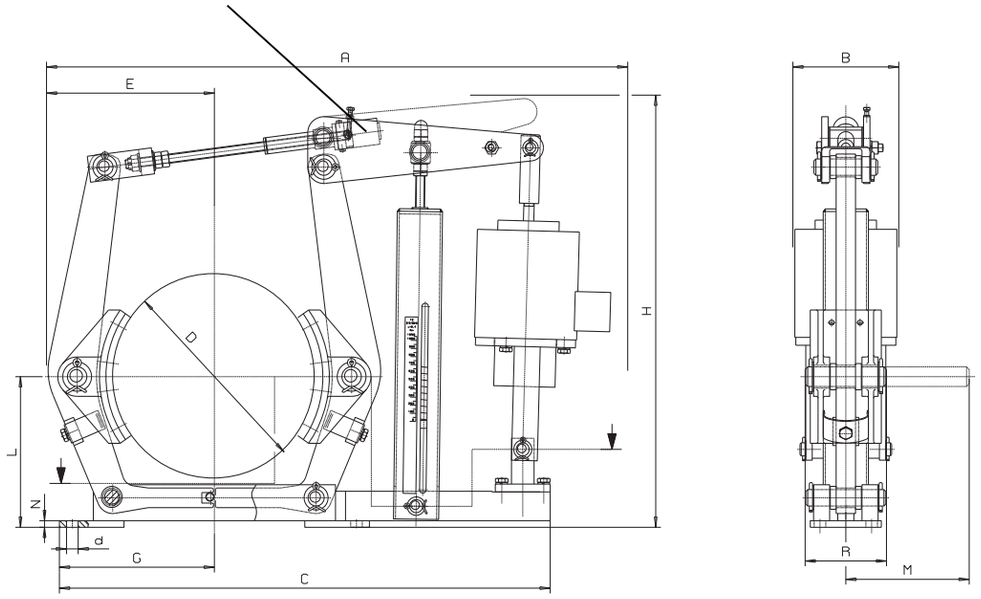
* kg without thruster

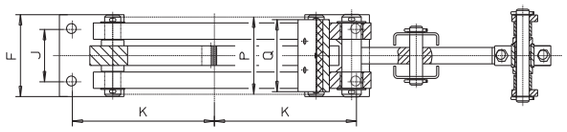
SHOE BRAKE
TM-I 40 – TM-I 60

M 1501 372 E-EN-2010-03

spring applied, solenoid released | per AISE 11 standard

option:
wear compensator device





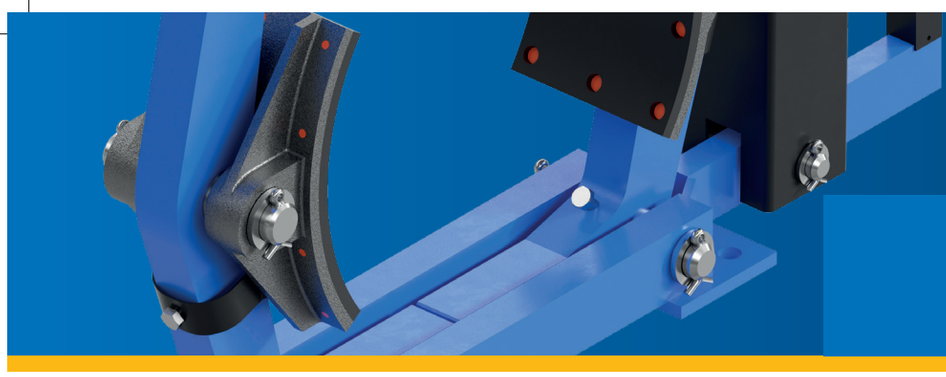
- suitable for ambient temperature range of 0 – 40° C and relative humidity of max. 70 % non-condensating.

WHEN ORDERING PLEASE ADVISE:
- brake type and solenoid size, e.g. TM-I-40-13-GH160
- with or without wear compensator device
- options
- input voltage for SCU

BRAKE-TYPE	SOLE-NOID SIZE	TORQUE RANGE IN NM AT μ = 0,4	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	d	kgs*
TM-I 8	GH 140	50 – 300	640	160	515	203	170	190	160	475	146	83	178	115	10	83	76	96	17,5	19
TM- I-10	GH 140	40 – 325	760	160	595	254	210	202	170	570	158	102	213	133	33	95	89	113	17,5	30
	GH 160	40 – 450																		
	GH 180	100 – 850	800	195						580										
TM- I 13	GH 140	70 – 550	885	160	700	330	260	286	206	650	228	146	251	160	37	146	140	135	21,5	50
	GH 160	75 – 1050	925	195						660										
	GH 180	90 – 1700																		
TM- I 16	GH 140	80 – 575	1030	160	860	406	315	328	260	765	274	190	308	199	32	172	165	167	26	85
	GH 160	100 – 1100	1075	195						775										
	GH 180	100 – 1800																		
	GH 215	125 – 2750		240																
TM- I 19	GH 160	200 – 1400	1225	195	1025	482	385	419	292	870	330	235	337	242	13	222	216	202	27	130
	GH 180	200 – 2300																		
	GH 215	200 – 3400	1215	240																
TM- I 23	GH 215	500 – 3300	1365	240	1190	584	465	485	388	1000	406	298	403	295	15	286	279	244	33	206
	GH 245	500 – 5500																		

The solenoids used for operation of shoe brakes TM-I are to be connected via SCU solenoid control unit SCU as per data sheet M 1501376, page 1+2. Indicated torques are only available in combination with SCU.

* kg without thruster

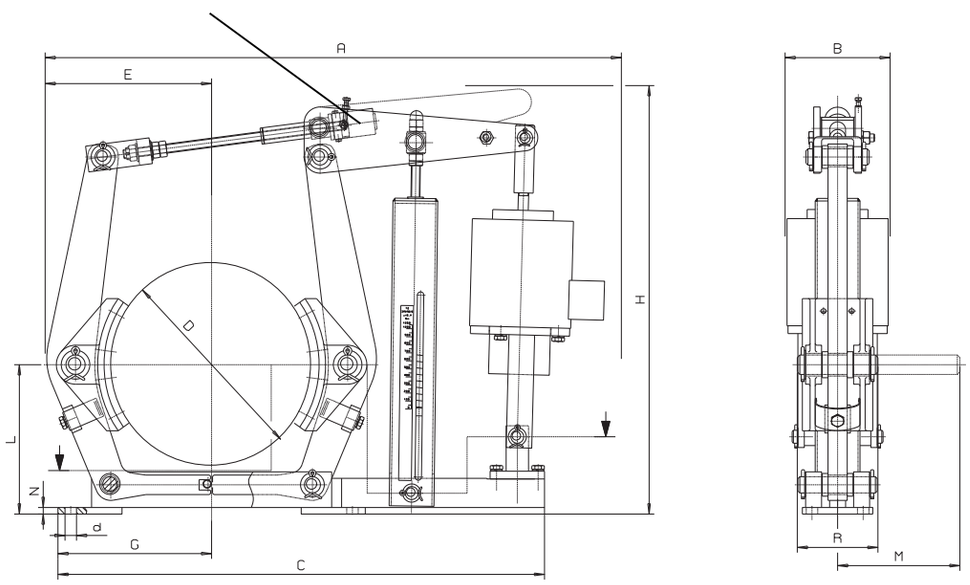


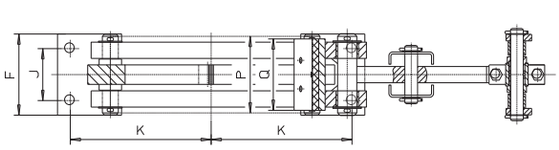
SHOE BRAKE
TM-I 40 – TM-I 60

M 1501 372 E-EN-2010-03

spring applied, solenoid released | per AISE 11 standard

option:
wear compensator device





- suitable for ambient temperature range of 0 – 60° C and relating humidity of max. 70 % non-condensating.

WHEN ORDERING PLEASE ADVISE:
- brake type and solenoid size and torque, e.g. TM-I-60-13-GH160
- with or without wear compensator device
- options
- input voltage for SCU

BRAKE-TYPE	SOLE-NOID SIZE	TORQUE RANGE IN NM AT μ = 0,4	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	d	kgs*
TM-I 8	GH 140	50 – 300	640	160	515	203	170	190	160	475	146	83	178	115	10	83	76	96	17,5	19
TM- I-10	GH 140	40 – 325	760	160	595	254	210	202	170	570	158	102	213	133	33	95	89	113	17,5	30
	GH 160	40 – 450																		
	GH 180	100 – 850	800	195						580										
TM- I 13	GH 140	70 – 550	885	160	700	330	260	286	206	650	228	146	251	160	37	146	140	135	21,5	50
	GH 160	75 – 1050	925	195						660										
	GH 180	90 – 1700																		
TM- I 16	GH 140	80 – 575	1030	160	860	406	315	328	260	765	274	190	308	199	32	172	165	167	26	85
	GH 160	100 – 1100	1075	195						775										
	GH 180	100 – 1800																		
	GH 215	125 – 2750		240																
TM- I 19	GH 160	200 – 1400	1225	195	1025	482	385	419	292	870	330	235	337	242	13	222	216	202	27	130
	GH 180	200 – 2300																		
	GH 215	200 – 3400	1215	240																
TM- I 23	GH 215	500 – 3300	1365	240	1190	584	465	485	388	1000	406	298	403	295	15	286	279	244	33	206
	GH 245	500 – 5500																		

The solenoids used for operation of shoe brakes TM-I are to be connected via SCU solenoid control unit SCU as per data sheet M 1501376, page 1+2. Indicated torques are only available in combination with SCU.

* kg without thruster

SOLENOID CONTROL UNIT
SCU

M 1501 376 E-EN-2010-03

MODE OF OPERATION

GENERAL NOTES

When operating the dual coil solenoids series GH via Solenoid Control Unit, they are working with a starting force for a short time. The holding force is equivalent to a 100 % ED duty factor coil. By energizing the solenoid via Solenoid Control Unit, both solenoid coils are connected in parallel. Thus the solenoid is working with high force during opening the brake. After having reached the brake open position within a preset time of approx. 1 – 1,5 sec., the coil connection is switched to series by means of the integrated circuit board.

CONNECTING AT SITE

The supply voltage is connected to the SCU at its terminals ~ and PE using adequate cross section conductors. For connecting the solenoid with the SCU via terminals A1/E1 and A2/E2 conductors with a 2,5 mm² cross section are to be applied.

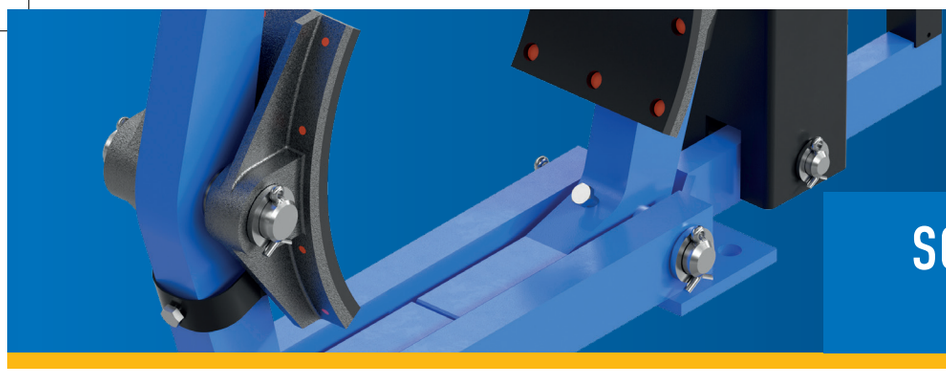
SCU 3.50 & 3.60

SCU 3.30

Solenoid Control Unit type	SCU 3.30	SCU 3.50	SCU 3.60
for Input voltage	> 240 V AC, 2 phase	200-240 V AC, 1 phase	110-120 V AC, 1 phase
output voltage	205 V DC	205 V DC	102 V DC
protection class	IP54	IP 65	
ISO-housing dimensions L x W x H [mm]	200 x 300 x 155	110 x 160 x 100	
weight [kgs]	15 kg	0,9	
output current (cold, coils in parallel)	2 – 10 A	2 – 10 A	

WARNING

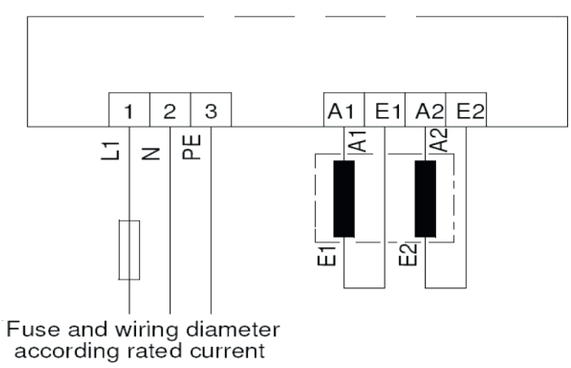
- The device must only be used for the described purposes.
- Installation and commissioning must be carried-out by sufficient skilled staff.
- All applicable standards and regulation must be kept, especially the DIN VDE.
- Nominal voltage and current must not be increased.



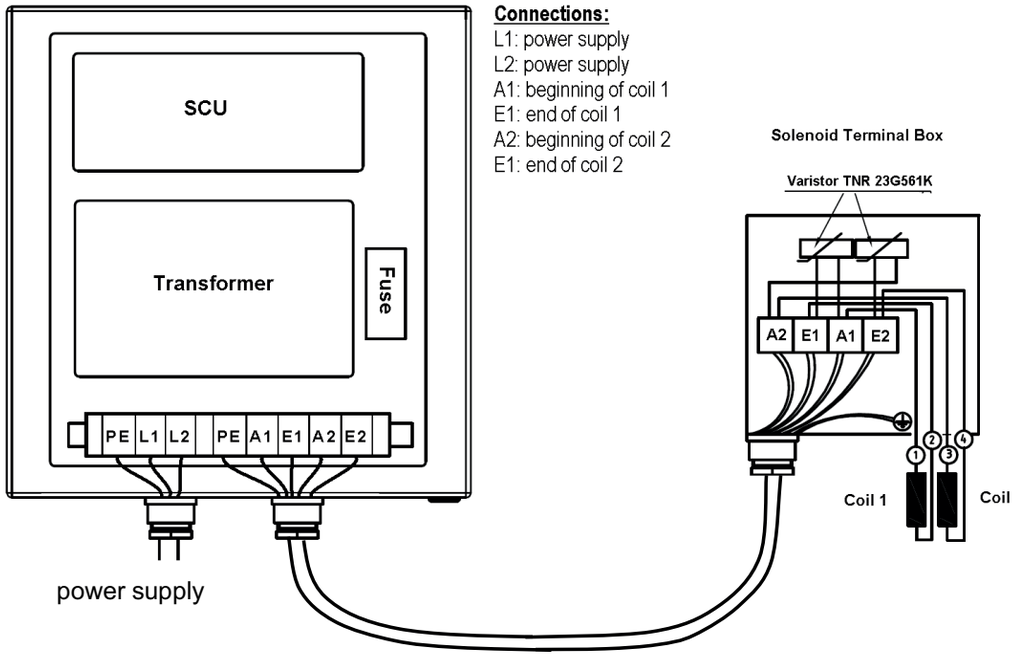
SOLENOID CONTROL UNIT
SCU

M 1501 376 E-EN-2010-03

CONNECTION DIAGRAM for SCU 3.50 & SCU 3.60 (single phase AC input)



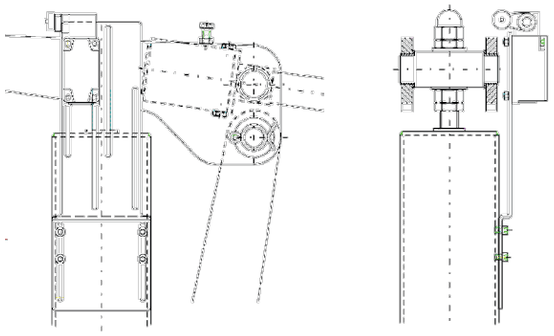
CONNECTION DIAGRAM SAMPLE for SCU 3.30 (two phase AC input)



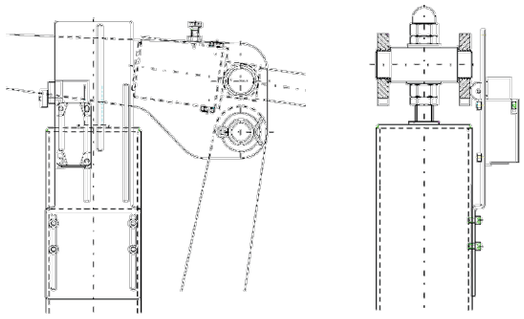
DRUM BRAKE
OPTIONS

M 1501 206 E-EN-2011-08

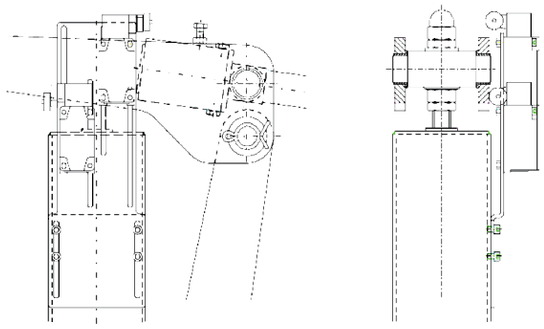
mechanical limit switch „brake open“ as per WN 200/51 with switch Z4VH336-11z



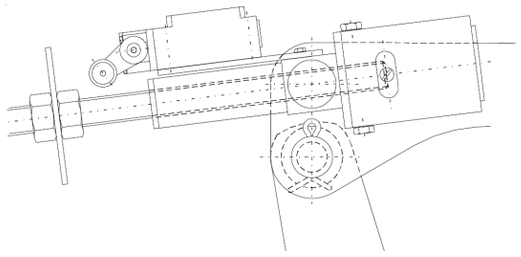
mechanical limit switch „brake closed“ as per WN 200/52 with switch Z4VH336-11z



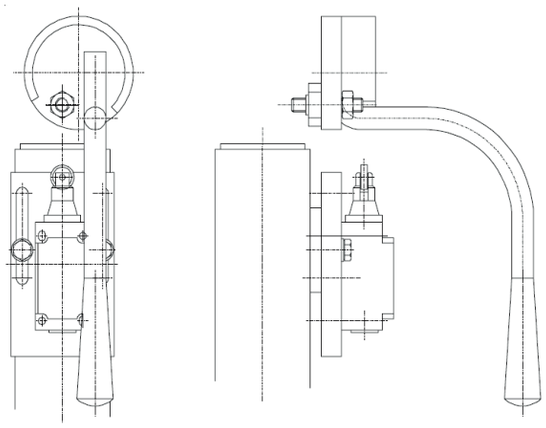
mechanical twin limit switch „open & closed“ as per WN 200/53 with switch Z4VH336-11z

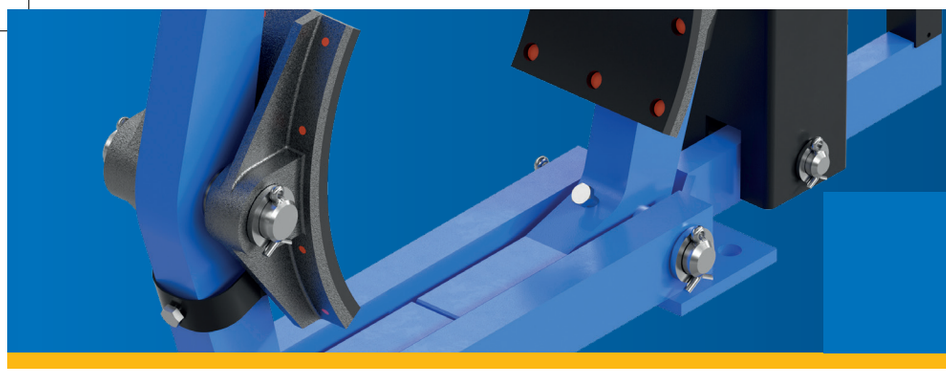


mechanical limit switch „pad wear limit“ as per WN 200/04 with switch Z4VH336-11z



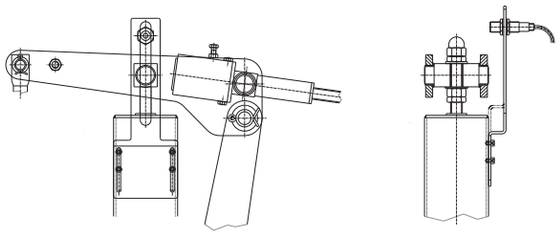
emergency manual release with mechanical limit switch ZR336-11z for indication „manual release engaged“ as per WN 200/03



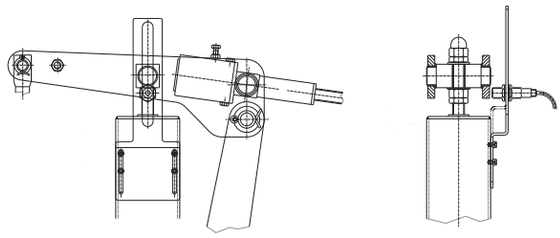


DRUM BRAKE
OPTIONS

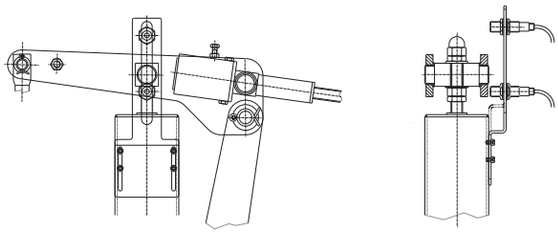
inductive proximity switch „brake open“ as per WN 200/54 with sensor Bi5-M18-AZ3X



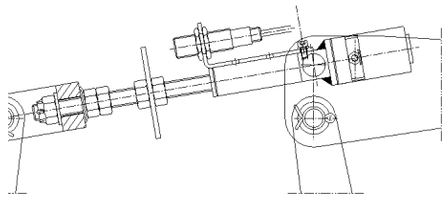
inductive proximity switch „brake closed“ as per WN 200/55 with sensor Bi5-M18-AZ3X



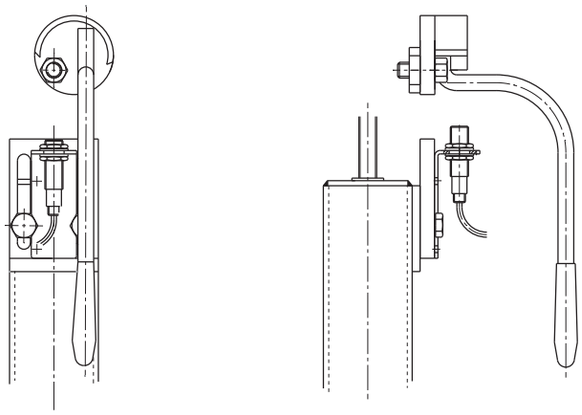
inductive proximity switch „open & closed“ as per WN 200/56 with sensor Bi5-M18-AZ3X



inductive proximity switch „pad wear limit“ as per WN 200/04-1 with sensor Bi5-M18-RZ3X



emergency manual release with inductive proximity switch Bi5-M18-AZ3X for indication „manual release engaged“ as per WN 200/03



DRUM BRAKE
OPTIONS

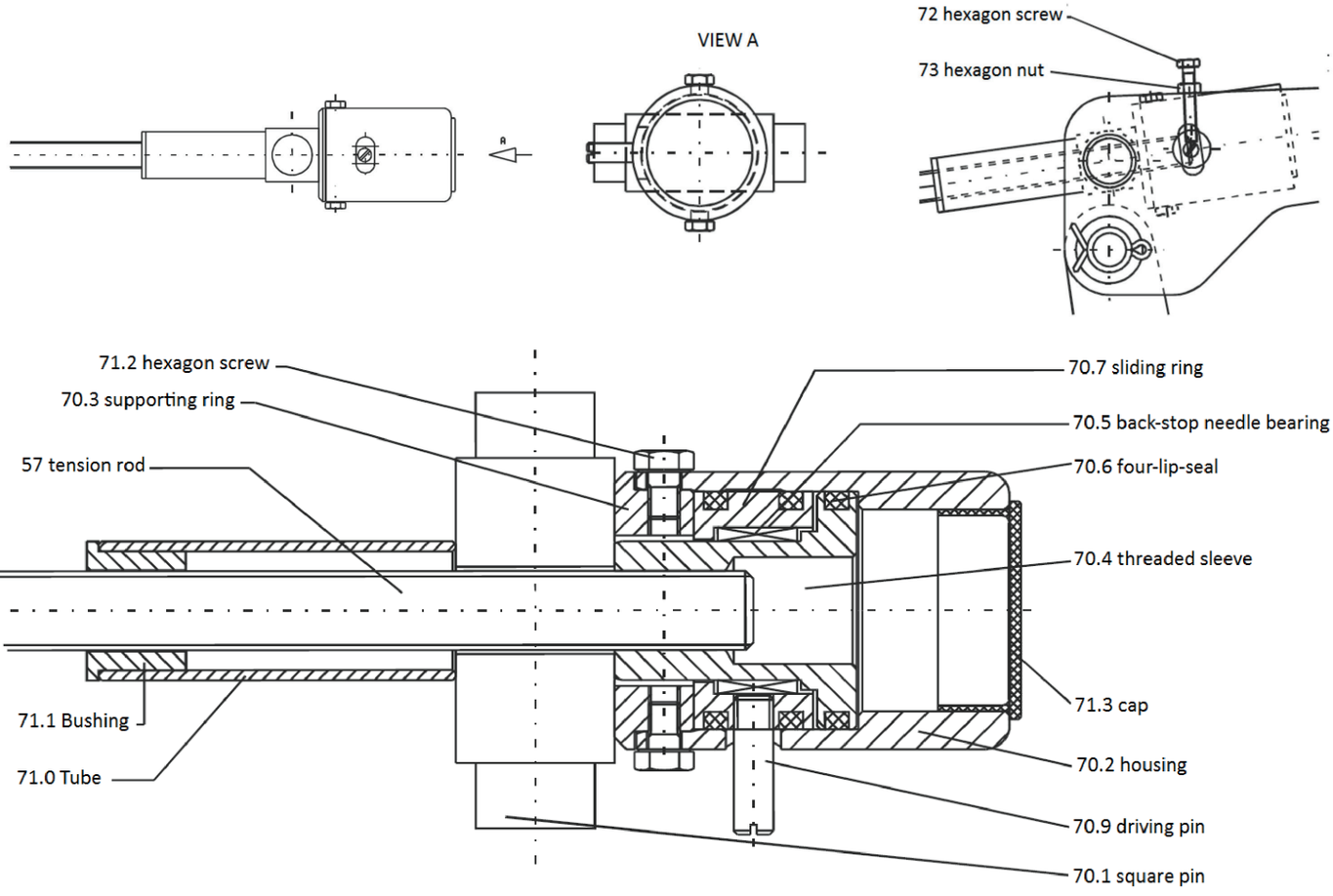
M 1501 272 E-EN-2001-01

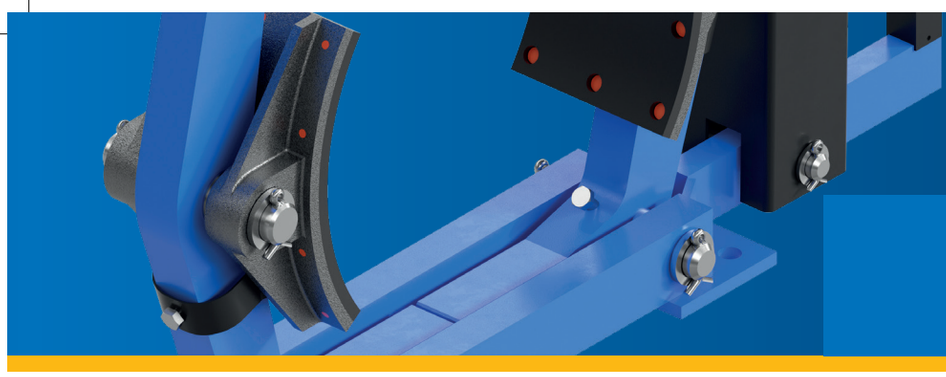
LINING WEAR COMPENSATOR DEVICE

The purpose of this device is to compensate for the wear of brake linings. With correct adjustment, the wear compensator will maintain an almost constant reserve stroke. Inspection of reserve stroke is necessary even with a correct adjustment of wear compensator, especially during commissioning and the inital time of commercial operation.

MODE OF OPERATION

assumption: the wear compensator is correctly adjusted according to our manual. When opening and closing the brake, the position of the drive pin (70.9) remains unchanged, until the reserve stroke of the thruster is reduced due to the wear of the linings. Upon decrease of reserve stroke, the adjusting bolt (72) will contact the drive pin
(70.9) when closing the brake. The drive pin is rotated counter clock-wise by a certain angle. The sliding ring
(70.7) is rotated by the same degree as the drive pin. The threaded sleeve
(70.4) does not move because the back stop needle bearing (70.5) is rotating free in counter clock-wise direction. With the subsequent release of the brake, the edge of the drive pin drilling will contact and rotate the drive pin and the sliding ring in clock-wise direction. When rotated clock-wise, the back stop needle bearing is locked and transfers the rotation onto the threaded sleeve. When rotating the threaded sleeve, the tension rod
(57) is screwed into the wear compensator, reducing the distance between the two brake arms, ergo between the lining surfaces. Thus, the reserve stroke is increased. Depending on the amount of wear per brake application, the wear compensator may need several operating cycles, until the initial reserve stroke level is reached again. At this point, the drive pin will touch the adjusting bolt and the drilling for drive pin respectively when opening and closing the brake, however, there is not further rotation of the drive pin. If the initial reserve stroke level should not be reached again, a re-adjustment of wear compensator is required. If the reserve stroke level should be continuously reduced in spite of having re-adjusted the wear compensator, the wear rate per stop exceeds the compensating capacity of the wear compensator and an additional manual wear compensation is required. The quadring seals
(70.6) avoid any dust or dirt to enter into the system and they generate sufficient friction to protect the device from vibrations.

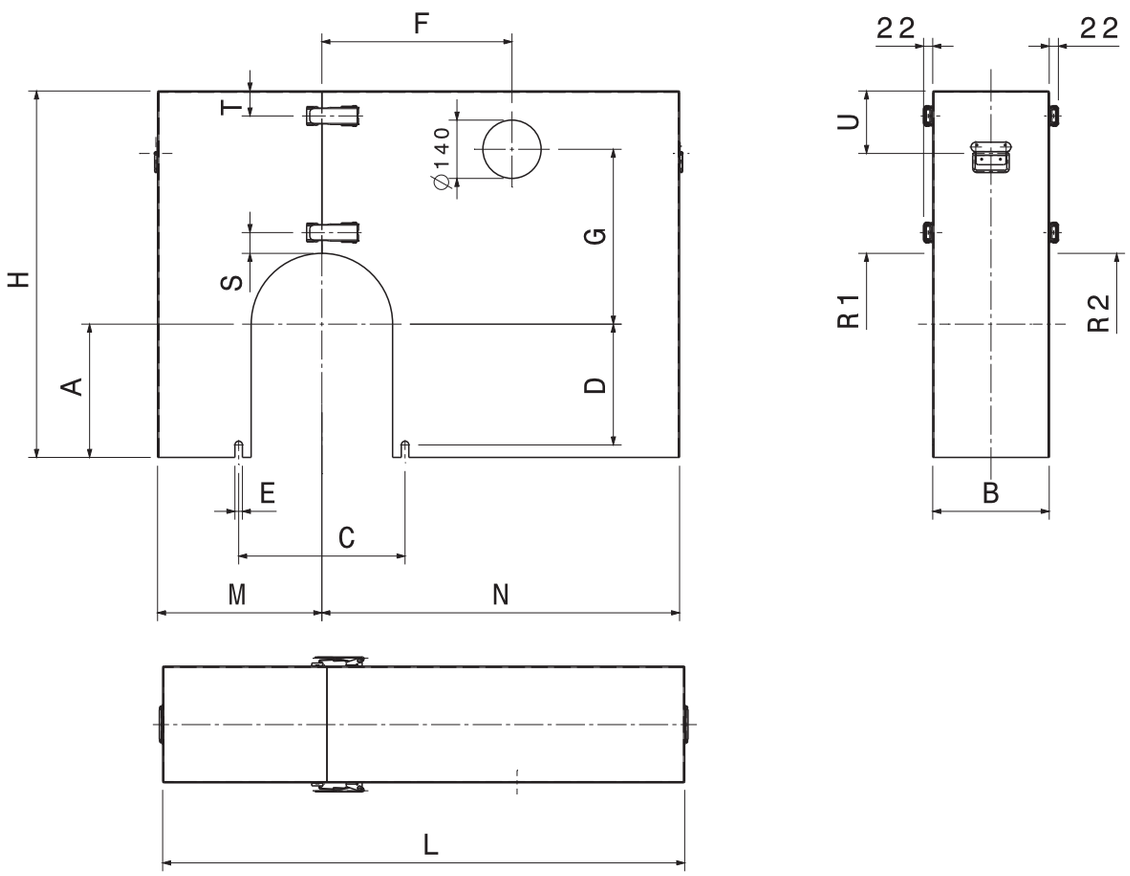




DRUM BRAKE

Protection cover for TE

M 1501 411 E-EN-2016-05



- plate thickness: 2 mm
- all covers are provided with handles
- all covers are split as of type TE 400 **)
- all splitted covers provided with lock
- other dimensions upon request (e.g. if R1, R2 larger than max. value)
- possible option hand lever hole (standard shown, left hand operation) *)
- number of box locks: TE 160-315 = no lock, TE 400 = 1 lock, TE 500-710 = 2 locks

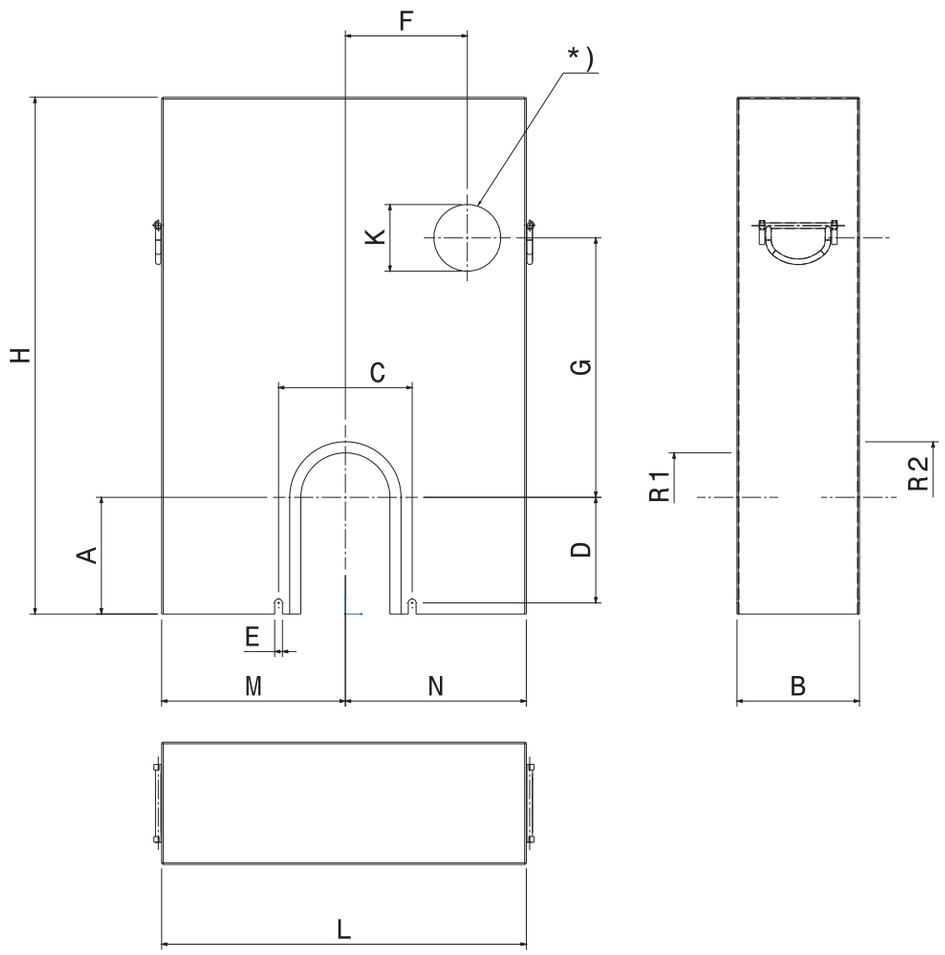
WHEN ORDERING PLEASE ADVISE:
- drum brake type
- dimendion R1
- dimension R2

BRAKE TYPE	A	B	F	C	D	E	H	L	M	N	S	T	U	R1/R2 max.	G	K Ø	Thread rod
TE 160	120	220	190	160	100	8,5	420	640	160	480			100	65	190	140	bolt Ø16
TE 200	155	220	215	140	120	14	540	700	180	520			100	50	235	140	M12 x 105
TE 250	175	220	270	180	150	14	580	830	220	610			100	70	290	140	M12 x 105
TE 315	215	220	317	240	185	14	680	955	270	685			150	100	330	140	M12 x 105
TE 400	260	260	395	320	233	18	790	1105	320	785	60	60	150	140	395	140	M16 x 105
TE 500	320	280	457	400	290	18	880	1255	395	860	60	60	150	170	420	140	M16 x 105
TE 630	400	280	542	510	360	18	1010	1395	470	925	60	60	150	225	475	140	M16 x 105
TE 710	450	280	595	590	405	18	1110	1530	535	995	60	60	150	265	530	140	M16 x 105

DRUM BRAKE

Protection cover for SBH

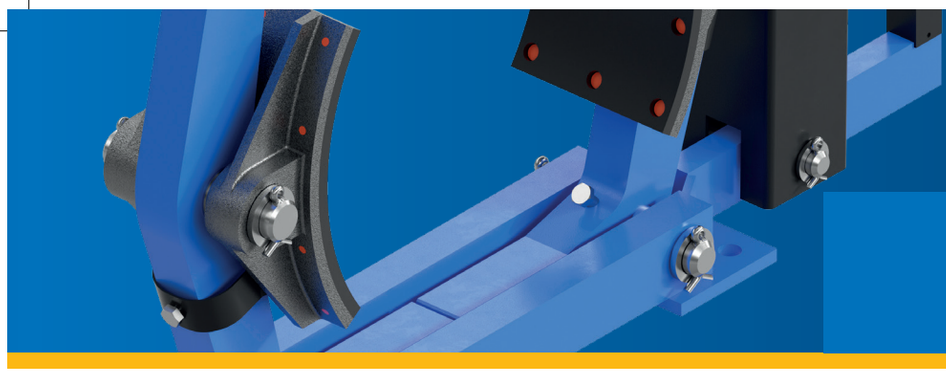
M 1501 1012 E-EN-2007-11



- plate thickness: 2 mm
- all covers are provided with handles
- other dimensions upon request (e.g. if R1, R2 larger than max. value)
- possible option hand lever hole (standard shown, left hand operation) *)

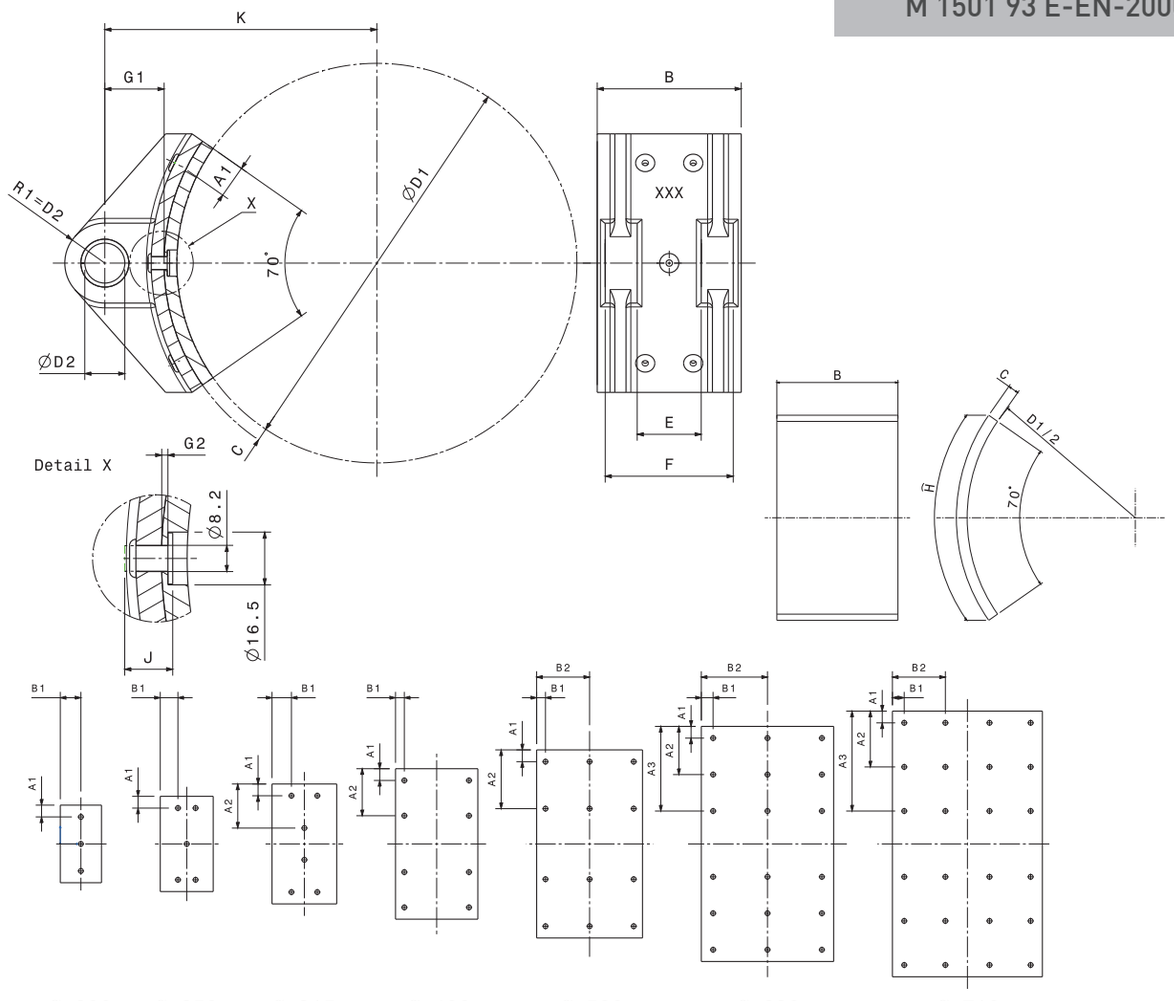
WHEN ORDERING PLEASE ADVISE:
- drum brake type
- dimendion R1
- dimension R2

BRAKE TYPE	A	B	F	C	D	E	H	L	M	N	R1/R2 max.	G	K Ø	Thread rod
SBH 200	155	220	150	140	120	14	775	530	275	255	50	313	130	M12 x 105
SBH 250 / 23;30	175	220	142	180	150	14	875	535	295	240	70	397	130	M12 x 105
SBH 250 / 50	175	220	200	180	150	14	915	600	295	305	70	397	130	M12 x 105
SBH 315 / 23;30	215	220	219	240	185	14	945	665	340	325	100	467	130	M12 x 105
SBH 315 / 50;80	215	220	219	240	185	14	970	665	340	325	100	467	130	M12 x 105
SBH 400	260	260	242	320	233	18	1040	800	420	380	140	494	130	M16 x 105
SBH 400 / 121	260	260	224	320	233	18	1200	910	510	400	140	507	130	M16 x 105



DRUM BRAKE
BRAKE SHOES

M 1501 93 E-EN-2000-04



Ø 200 Ø 250 Ø 315 Ø 400 Ø 500 Ø 630 Ø 710

when order brake shoes please advise:
drum diameter Ø D
material: aluminium, cast iron, fabricated steel with or without drillings for riveting

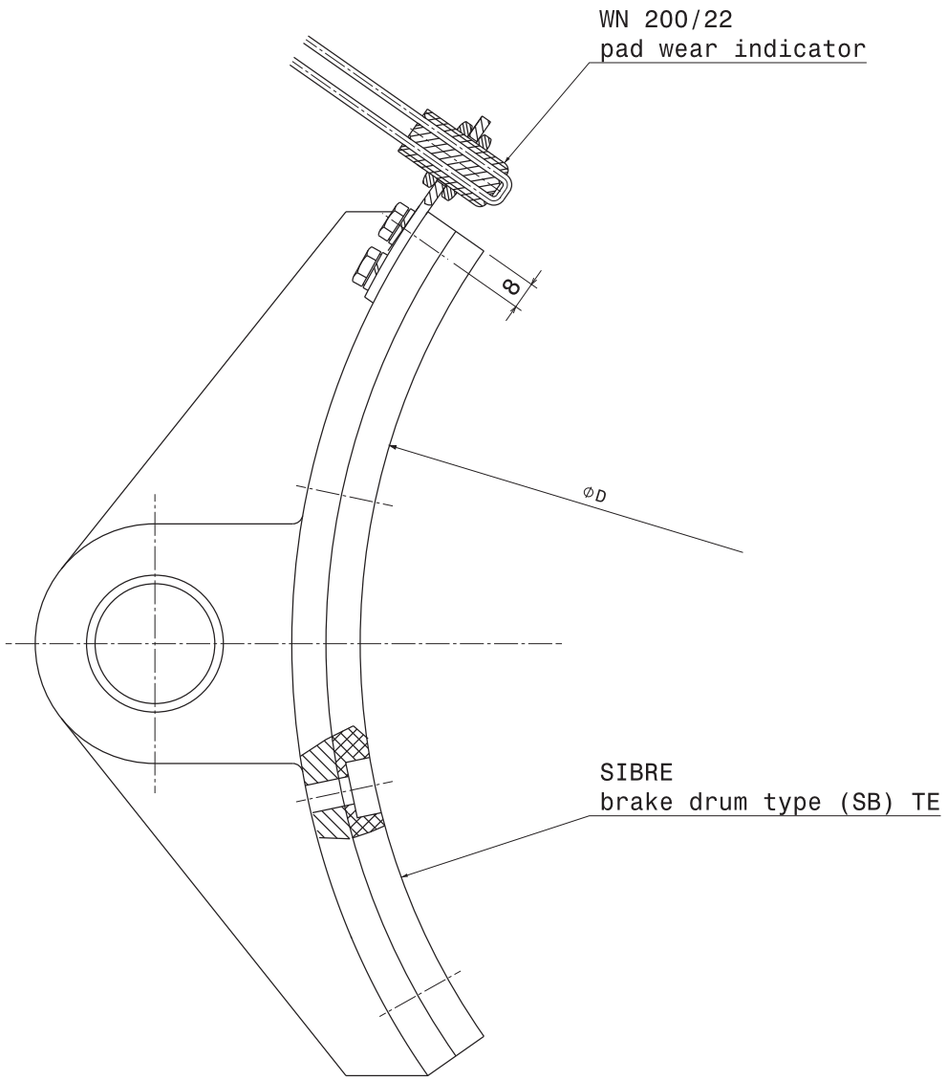
when ordering please advise:
drum diameter Ø D,
friction coefficient μ = 0,4

Ø d1	B	c	Ø d2	e	f	g_1	g_2	h	j	k	drillings for riveting					no. of rivets
											a_1	a_2	a_3	b_1	b_2	
200	70	8	20	35	65	32	2	132	15	140	20	-	-	35	-	3
250	90	8	25	40	80	37	2	162	15	170	20	-	-	30	45	5
315	110	10	30	50	100	44,5	3	204	18	212	20	75	-	33	55	6
400	140	10	35	62	125	50	3	256	18	260	20	80	-	15	-	8
500	180	12	40	80	160	58	3	320	20	320	20	100	-	15	90	12
630	225	12	45	100	200	63	3	400	20	390	20	82	144	20	112,5	18
710	255	15	50	112	224	70	3	452	22	440	20	95	170	20	90	24

DRUM BRAKE
OPTIONS

M 1501 188 b E-EN-2000-03

Brake shoe of SIBRE-drum brake type (SB) TE as per WN 200/22 with pad wear indicator



RECOGNITION OF WEAR

Sensors are provided to measure the brake lining wear for each single brake shoe.
The sensor is mounted above the brake lining and has to be adjusted so that it touches the drum before brake shoe metal can touch the drum surface in condition.
The heart of the sensor is a contact bridge which is cut in case of worn lining by contact with the drum (compare with N.C. (= normal closed) electrical switch).
When the sensor responds, it is clear that residual thickness of lining is no longer sufficient so that replacement of brake lining is required.

NOTES

THRUSTERS

Electro-hydraulic thrusters
ELDRO

M 1501 261 E-EN-2005-08

SIZE	LIFTING FORCE	STROKE	TRUST	BRAKING SPRING FORCE (C-SPRING)	POWER CONSUMP-TION	CURRENT CONSUMP-TION AT 400V/50HZ	DUTY RA-TING AT S3-60% DUTY CYCLE	WEIGHT
	N	Mm	N cm	N	W	A	c/h	Kg
EdC 100/30	1000	30	3000	-	250	0,45	240	10
Ed 23/5	220	50	1100	180	165	0.5	2000	10
Ed 30/5	300	50	1500	270	200	0.5	2000	14
Ed 50/6	500	60	3000	460	210	0.5	2000	23
Ed 50/7	500	70	3500	460	210	0,5	2000	23
Ed 80/6	800	60	4800	750	330	1.2	2000	24
Ed 80/7	800	70	5600	-	330	1.2	2000	24
Ed 121/6	1250	60	7500	1200	330	1.2	2000	39
Ed 125/7	1250	70	8750	-	330	1.1	2000	22
Ed 201/6	2000	60	12000	1900	450	1.3	2000	39
Ed 201/7	2000	70	14000	-	450	1.3	2000	39
Ed 301/6	3000	60	18000	2700	550	1.4	1500	40
Ed 400/6	4000	60	24000	-	550	1.3	600	39
Ed 50/12	500	120	6000	-	210	0.5	1200	26
Ed 80/12	800	120	9600	-	330	1.2	1200	27
Ed 121/12	1250	120	15000	-	330	1.2	1200	39
Ed 201/12	2000	120	24000	-	450	1.3	1200	39
Ed 301/12	3000	120	36000	-	550	1.4	900	40
Ed 301/7	3000	70	21000	2700	550	1.4	1500	39
Ed 185/16	1850	155	29600	-	450	1.3	400	40
Ed 301/15	3000	150	45000	-	550	1.4	400	50
Ed 350/20	3500	200	70000	-	550	1.4	400	50
Ed 400/7	4000	70	28000	-	550	1.3	600	39
Ed 400/8	4000	80	32000	-	550	1.3	600	39
Ed 500/7	5000	70	35000	-	700	1.5	400	50
Ed 500/8	5000	80	40000	-	700	1.6	400	50

Further thrusters with up to 6300 N lifting force and / or 200 mm stroke available upon request.

NOTES

NOTES

SIBRE Siegerland Bremsen - France

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