SIME Brakes
Industrial Braking Systems




Stromag®
Altra Industrial Motion

Stromag

Founded in 1932, Stromag has grown to become a globally recognized leader in the development and manufacture of innovative power transmission components for industrial drivetrain applications. Stromag engineers utilize the latest design technologies and materials to provide creative, energy-efficient solutions that meet their customer's most challenging requirements.

Stromag's extensive product range includes flexible couplings, disc brakes, limit switches, an array of hydraulically, pneumatically, and electrically actuated brakes, and a complete line of electric, hydraulic and pneumatic clutches.

Stromag engineered solutions improve drivetrain performance in a variety of key markets including energy, off-highway, metals, marine, transportation, printing, textiles, and material handling on applications such as wind turbines, conveyor systems, rolling mills, agriculture and construction machinery, municipal vehicles, forklifts, cranes, presses, deck winches, diesel engines, gensets and stage machinery.

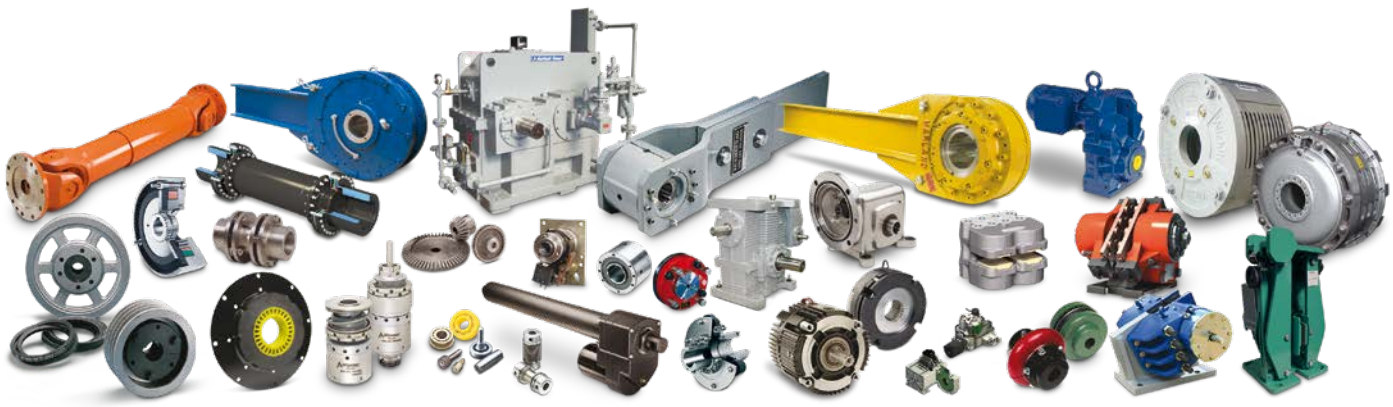
VISIT US ON THE WEB AT **STROMAG.COM**

Altra Industrial Motion

Altra is a leading multinational designer, producer and marketer of a wide range of mechanical power transmission products. We sell our products in over 70 countries throughout the world. Our products are frequently used in critical applications, such as fail-safe brakes for elevators, wheelchairs and forklifts, and in high-volume manufacturing processes, where the reliability and accuracy of our products are critical in both avoiding costly down time and enhancing the overall efficiency of manufacturing operations.

Our products are marketed under a variety of well recognized and established manufacturing brand names. These leading brands are Ameridrives, Boston Gear, Warner Electric, Formsprag Clutch, TB Wood's, Industrial Clutch, Kilian, Marland Clutch, Nuttall Gear, Stieber Clutch, Twiflex, Huco, Bibby Turboflex, Matrix, Inertia Dynamics, Delroyd Worm Gear, Warner Linear, Wichita Clutch, Lamiflex Couplings, Svendborg Brakes, Guardian Couplings and Stromag.

VISIT US ON THE WEB AT **ALTRAMOTION.COM**



SIME Brakes

SECURITY - QUALITY - RELIABILITY

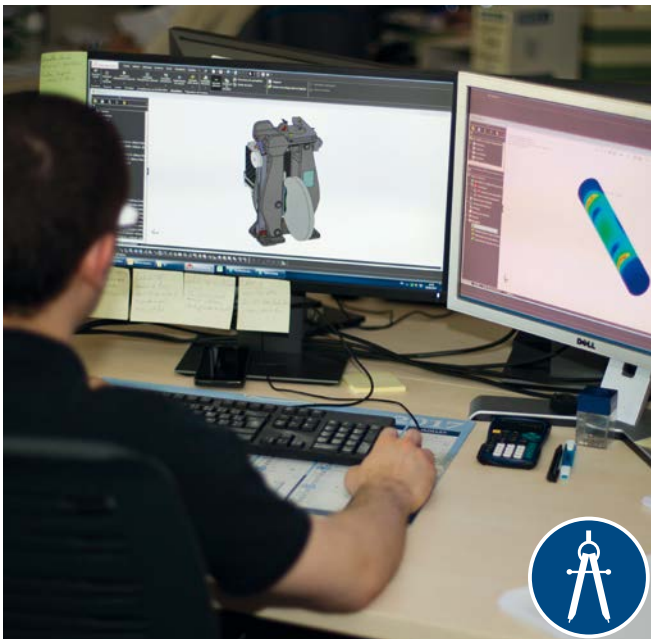
With more than 60 years of experience, Stromag provide high efficiency braking systems to equip steel industries, nuclear plants, port cranes, offshore winches and mass transports throughout the world.

Quality and innovation have always been the two essential features in the development of the company. Therefore Stromag provide disc brakes certified by recognized authorities such as DNV, ABS, TUV, Loyd's Register and EDF.

In 2016, ISO 9001 certification of our Quality management system was renewed under the version V2008 and our Safety management system was awarded OHSAS 18001 - V2007 certification.

Whatever the application, Stromag meet the global supply requirements with standard or fully customised braking systems solutions.

OUR KNOW-HOW AT YOUR DISPOSAL



RESEARCH & DEVELOPMENT DEPARTMENT

In a mutually beneficial way, Stromag create a strong relationship with their customers in order to understand their needs and provide them the best solution.
With in-depth knowledge and experience in all key applications and markets, our teams keep constantly abreast of every changing needs and market development.

TRAINING

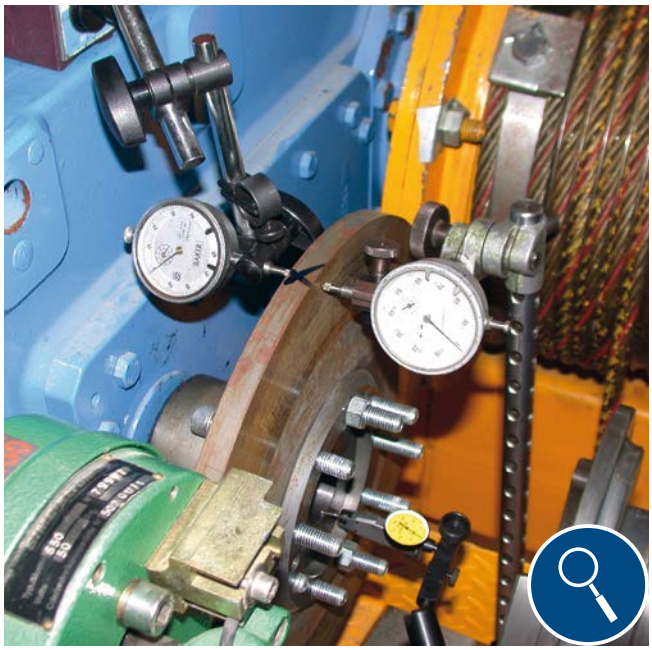
After sales service team can provide to its customers training sessions : upgrade operations on-site or trainings in the production center in La Guerche (France). Each training consists of two parts : theoretical in a classroom / practical in the work-shop.
Topics : products operation, periodic maintenance, settings, fault diagnosis.

BENEFITS

- A team of experts at your disposal
- Reactivity of the interventions
- Study of the specific requirements
- Secured installation

- Optimal operation of the braking systems
- Preventive maintenance
- Expertise sustainability

Reactivity, availibility and listening at the customer are values which define our teams. We put all our experience and knowledge at your disposal:

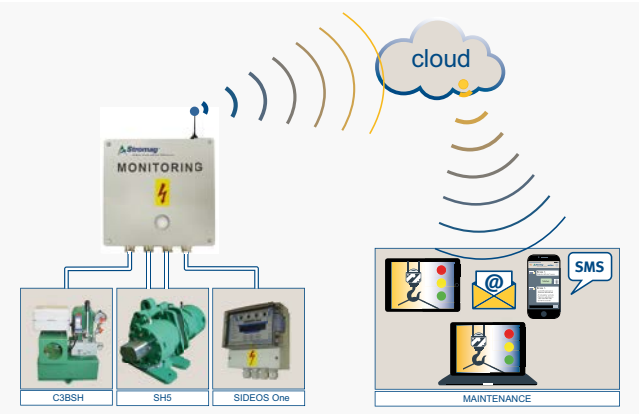


DIAGNOSIS

The After Sales team shares its “know-how” with companies having an important fleet to help them to realise a self-diagnosis on their brakes systems to achieve their maximal reliability in compliance with the safety regulations. The diagnosis takes place in two stages : a complete on-site examination of the different devices and a detailled report with synthesis for a global visibility.

INTERVENTION

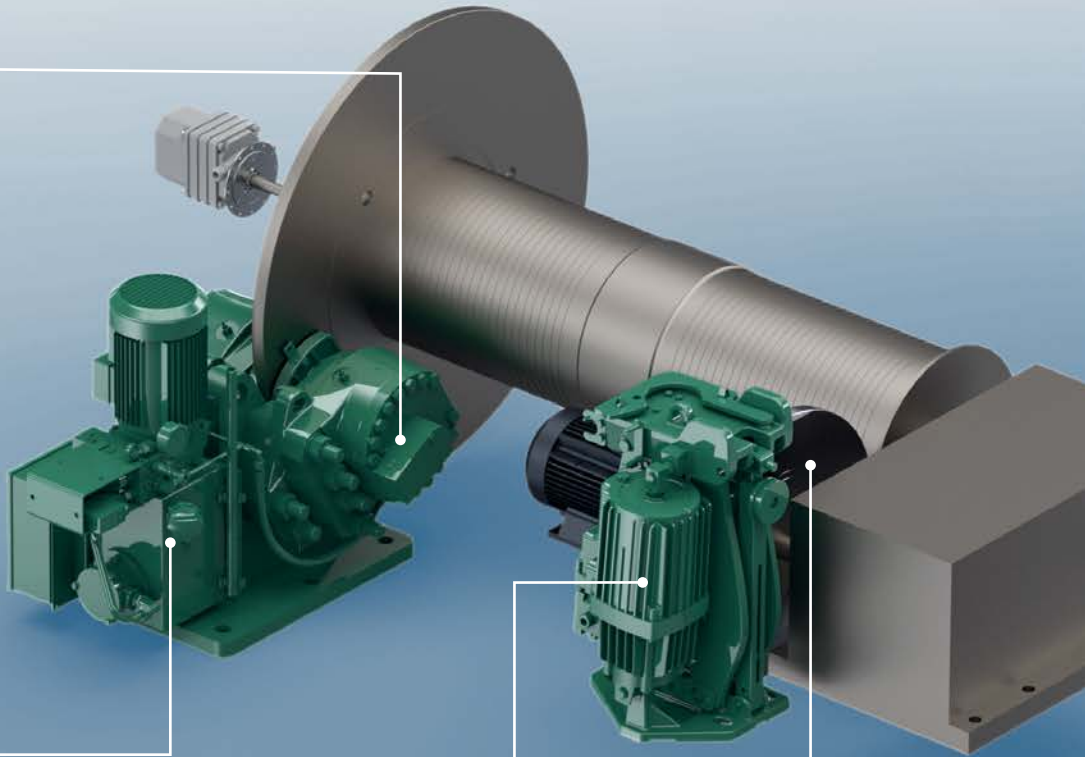
Stromag has many sub-structures in France and worldwide ; these allow our After Sales Service Department to operate very fast in the customer sites. Each member or our team has a qualified engineering background which means they are totally able to help and advise customers technically and commercially.



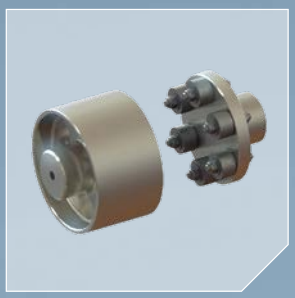
Stromag developed a Monitoring system which allows to connect your braking system to one or several monitoring modules.
CAN Bus enables an easy connection, transmission and processing of a great quantity of data.
The modules offer a high degree of adaptability and allow utilisation of transmission means as : SD cards, mobile telephone, internet.

SIME Brakes PRODUCTS

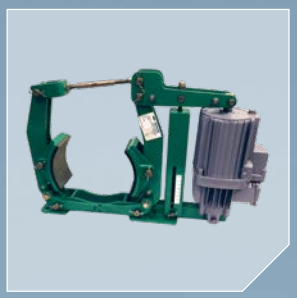
Hydraulic
emergency brakes



Hydraulic
Power Packs

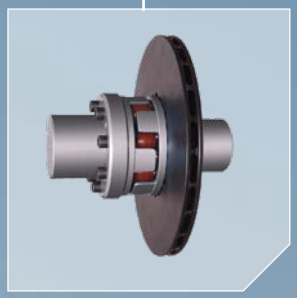


Drums &
couplings



Drum brakes
with thrustor

Disc brakes
with thrustor



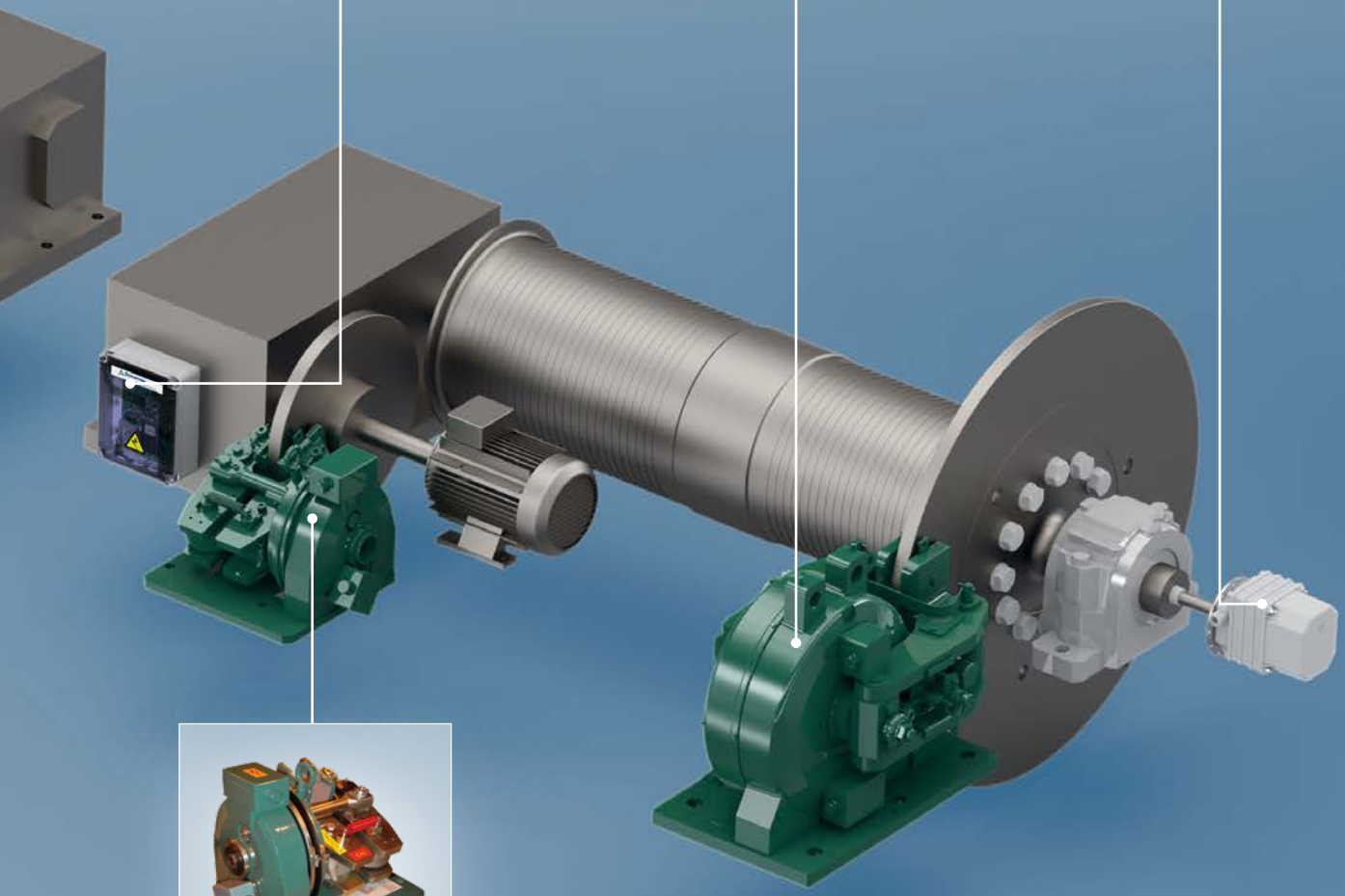
Discs &
couplings

COMPLETE BRAKING SOLUTIONS

Electrical
power units

Electromagnetic
emergency brakes

Safety systems



Electromagnetic
service brakes

SOLUTIONS FOR YOUR APPLICATION

Solutions for
RENEWABLE ENERGIES

- Brakes for wind turbines rotor high and low speed
- Brakes for wind turbines yaw
- Rotorlocks
- Braking systems for tidal turbines
- Hydraulic Power Packs
- Limit switches
- Tailor made solutions

Solutions for
CONSTRUCTION INDUSTRIES

- Hydraulic brakes
- Electromagnetic brakes
- Thrustors brakes
- Drum brakes
- Discs & Couplings
- Hydraulic Power Packs
- Electrical units
- Safety and control systems

Solutions for
PORTS

- Hydraulic brakes
- Electromagnetic brakes
- Thrustors brakes
- Drum brakes
- Discs & Couplings
- Hydraulic Power Packs
- Electrical units
- Safety and control systems

HIGH CUSTOMERS SATISFACTION

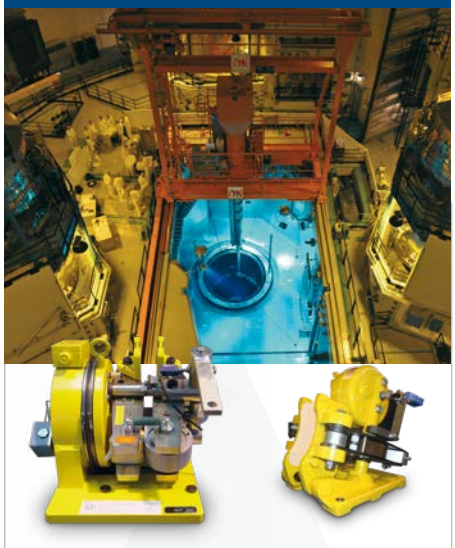
SIME Brakes products and services comply with the requirements of our customers in terms of quality, safety, service life, easy maintenance and delivery times. The quality and environmental policy is an integral part of our company policy.
The certification ISO9001 of our Quality management system is renewed under the version ISO 9001 - V2008 in 2016, combined with OHSAS 18001 - V2007 certification.
With more than 60 years of experience in the supply of high efficiency braking systems, Stromag provides disc brakes certified by recognised organisations such as DNV, ABS, TUV, Loyd's Register and EDF.

Solutions for
STEEL INDUSTRIES

- Hydraulic brakes
- Electromagnetic brakes
- Thrustors brakes
- Drum brakes
- Discs & Couplings
- Hydraulic Power Packs
- Electrical units
- Safety and control systems

Solutions for
MARINE & OFFSHORE

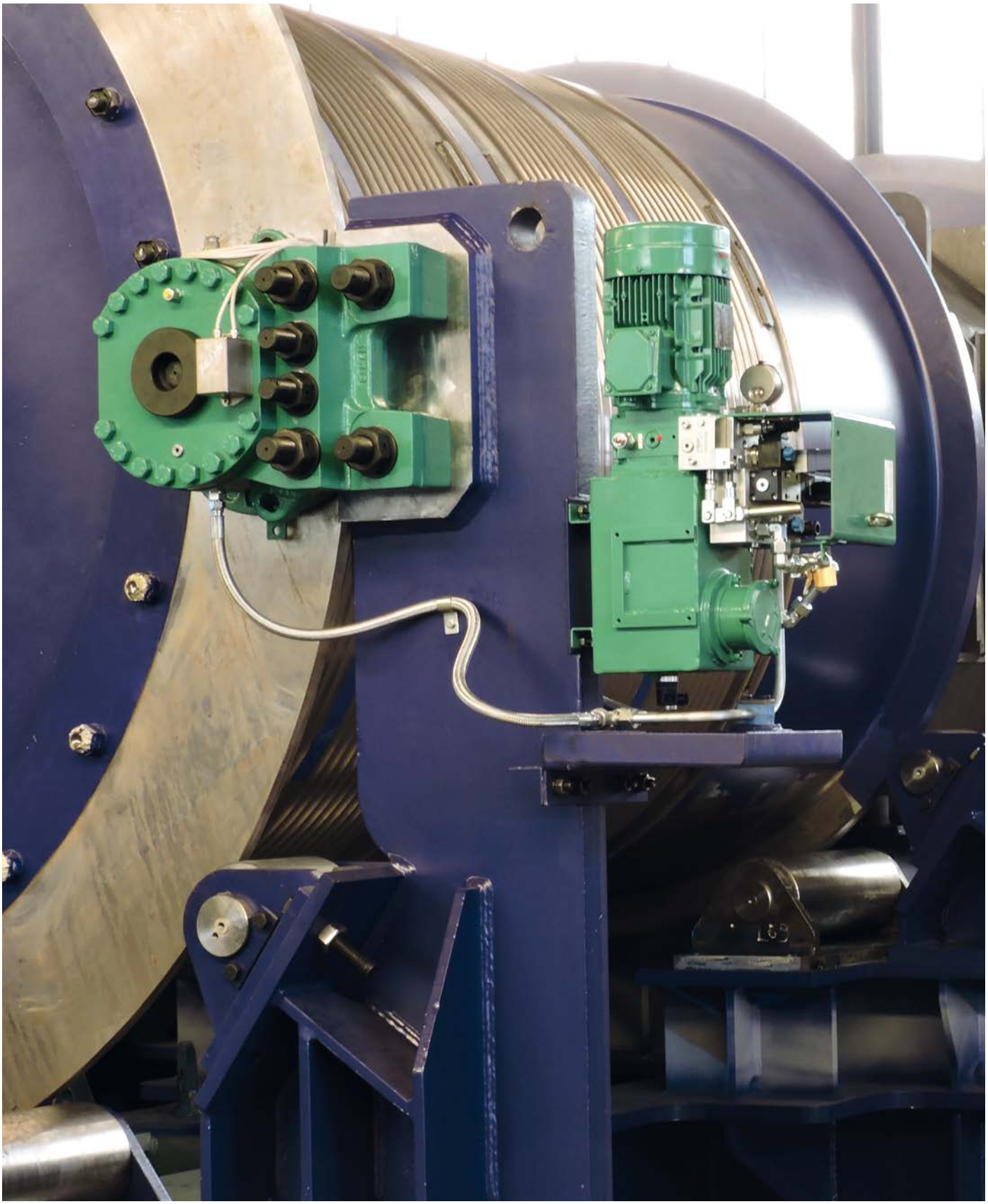
- Hydraulic brakes
- Electromagnetic brakes
- Thrustors brakes
- Drum brakes
- Discs & Couplings
- Hydraulic Power Packs
- Electrical units
- Monitoring systems



Solutions for
NUCLEAR INDUSTRIES

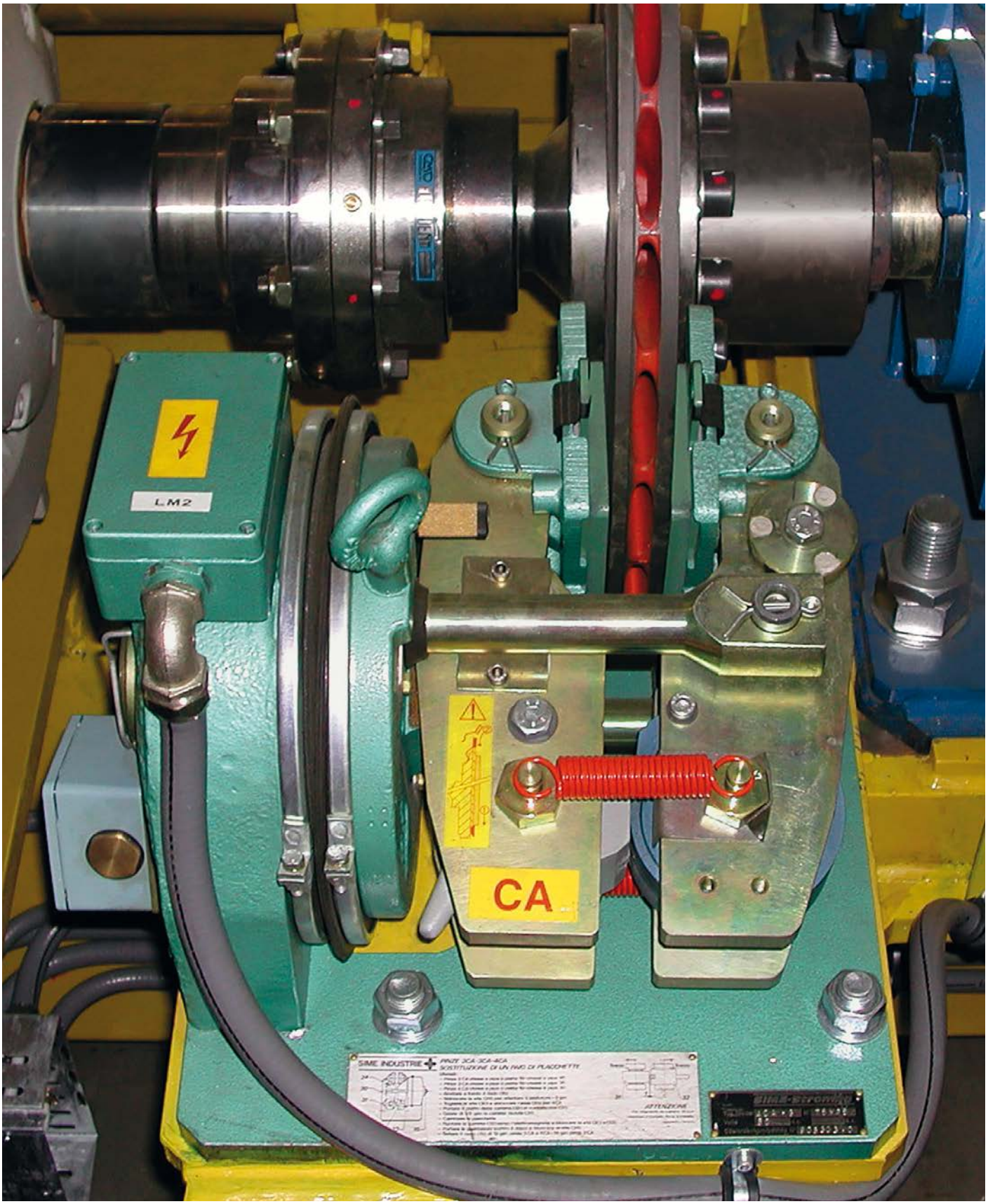
- Hydraulic brakes
- Electromagnetic brakes
- Thrustors brakes
- Drum brakes
- Discs & Couplings
- Hydraulic Power Packs
- Electrical units
- Monitoring systems

Content



CONTENT

SERVICE BRAKES



Service Brakes

ELECTROMAGNETIC BRAKES

Braking torque (kN.m)

0 2 4 6 8 10 12 14 16 18 20 22 24 26

645-650-660
5K / 45 K
discs
Ø175 to 625

1CA2-2CA2
3CA2-4CA2
discs
Ø445 to 995

DRUM BRAKES

Braking torque (kN.m)

0 2 4 6 8 10 12 14 16 18 20 22 24 26

FNS-VS
SDB
drums
Ø160 to 710

FED-A
drums
Ø150 to 750

HYDRAULIC BRAKES

Braking torque (kN.m)

0 2 4 6 8 10 12 14 16 18 20 22 24 26

2TB-3TB-4TB
discs
Ø445 to 995

1TSA-1TXA
discs
Ø625 to 995

THRUSTOR BRAKES

Braking torque (kN.m)

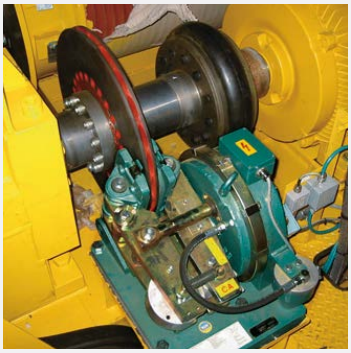
0 2 4 6 8 10 12 14 16 18 20 22 24 26

TDXB I and II
FAV 10 to 50
discs
Ø220 to 995

Service Brakes

APPLICATIONS

- STEEL CRANES
- PORT CRANES
- NUCLEAR CRANES
- MASS TRANSPORTS



ELECTROMAGNETIC SERVICE BRAKES

MAIN CHARACTERISTICS

- FAILSAFE BRAKE BY SPRING APPLICATION
- ELECTROMAGNETIC RELEASE
- OPENING PROVING SWITCH

OPTIONS

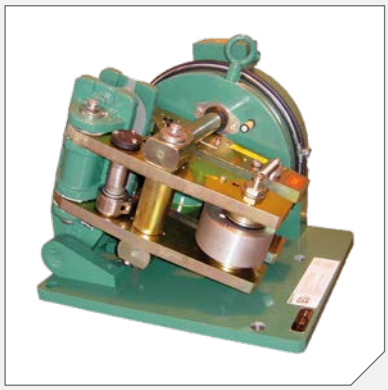
- MECHANICAL RELEASE LEVER
- HYDRAULIC RELEASE
- CLOSING PROVING SWITCH
- MANUAL RELEASE CONTROL SWITCH
- HIGH TEMPERATURE, IRON AND STEEL CONDITIONS

645-650-660

- Association with discs Ø175 to 625
- Manual wear compensation
- Option:
  Mounting on a vertical axis disc

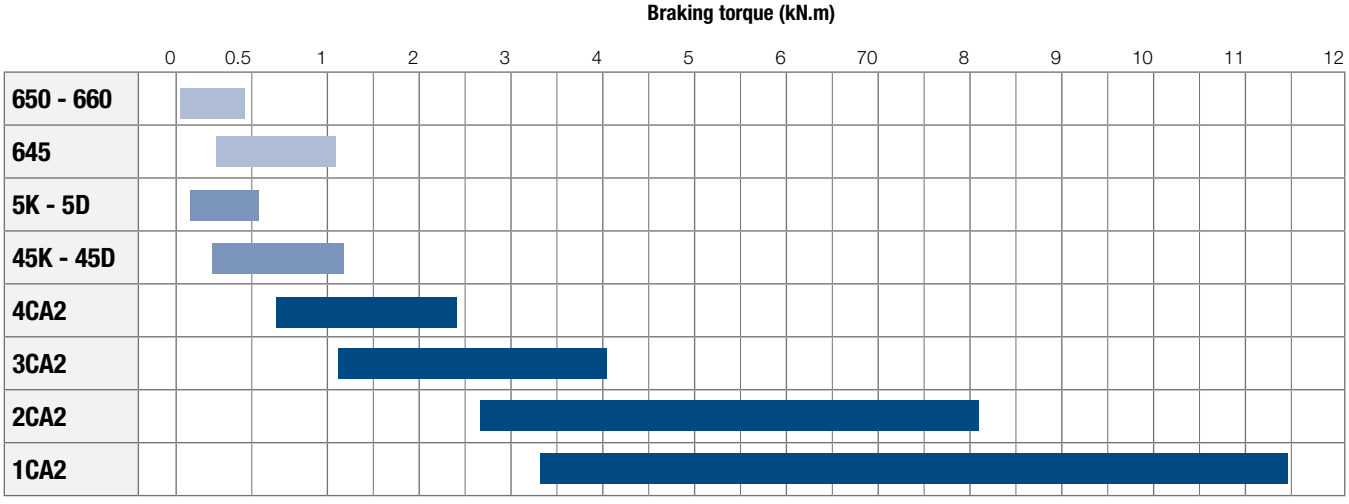
5K - 5D
45K - 45D

- Association with discs Ø315 to 625
- Automatic wear compensation
- Option:
  Mounting on a vertical axis disc



4CA2 - 3CA2
2CA2 - 1CA2

- Association with discs Ø445 to 995
- Automatic wear compensation
- Left and right hand calipers
- Option: Manual wear compensation



Service Brakes

DISC BRAKE - 650 AND 660 CALIPERS

Revision number: T03150-01-F **Revision date: 21.03.2016**

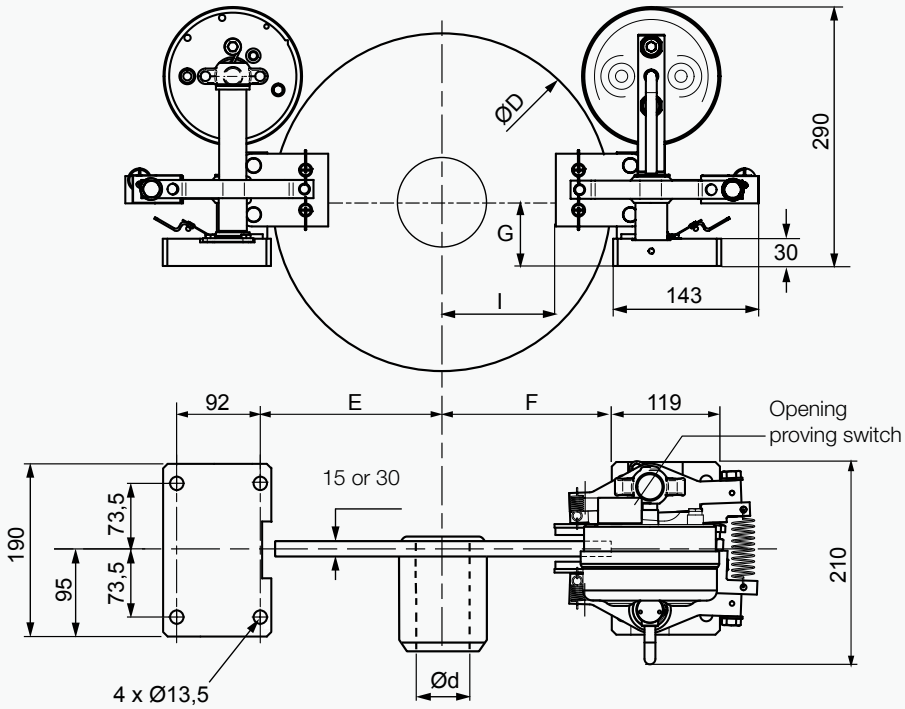
Fail safe braking
Spring application
Electromagnetic release
Manual lining wear compensation
Brake pads with wear indicator
Opening proving switch for PLC
With coil supply wire: 2 x 2mm², length 2m

Conditions of use:
- Ambiant temperature -10°C to +60°C
- Relative humidity ≤ 70%
- Dust in atmosphere ≥ 65µ

Other conditions, consult SIME-Stromag.

Use:
- Service brake for application ≤ 150 stops/h

Options:
- Manual release lever or hydraulic release
- Mounting on vertical axis disc
- Marine protection
- Closing proving switch
- Manual release switch



Opening proving switch :
250VAC maxi., 5A maxi., with interrupting capacity: 50VA maxi.
220VDC maxi., 5A maxi., with interrupting capacity: 50W maxi.

Compatible with PLC (Programmable Logic Controllers). An opening switch used with other equipment than PLC must not be reused with a PLC.

The opening switch is delivered with 3 x 0.75mm² cable, length 2m

Weight: 19 kg
Dimensions in mm

Response time at nominal torque : see the leaflet of the associated electrical power supply.

Discs			Thickness 15 mm									Thickness 30 mm						
Maximum speed of the disc for nominal torque		tr/mn	5000	4300	3600	3000	2400	2100	1900	1800	1500	3000	2700	2400	2100	1900	1800	1500
D		mm	175	220	260	315	395	445	495	550	625	315	355	395	445	495	550	625
d		mm	0-40	0-55	0-75	0-75	0-75	0-75	0-100	0-100	0-100	0-50	0-60	0-70	0-70	0-100	0-100	0-100
E		mm	118	128	143	173	213	238	263	293	328	173	193	213	238	263	293	328
F		mm	106	116	131	161	201	226	251	281	316	161	181	201	226	251	281	316
G		mm	85	85	85	75	60	50	45	45	25	75	60	60	50	45	45	25
I (approx. dimension)		mm	43	53	68	98	138	163	188	218	253	98	118	138	163	188	218	253
Caliper 650 : Nominal torque for 1 caliper adjustable from 100% to 50%		N.m	110	130	150	190	260	300	350	390	460	190	220	260	300	350	390	460
Max. reaction on shaft	1 caliper	N	1600									1600						
	2 calipers	N	0			260	570	580	560	510	680	260	550	570	580	560	510	680
Caliper 660 : Nominal torque for 1 caliper adjustable from 100% to 60%		N.m	55	65	75	95	130	150	175	195	230	95	110	130	150	175	195	230
Max. reaction on shaft	1 caliper	N	800									800						
	2 calipers	N	0			130	285	290	280	255	340	130	275	285	290	280	255	340

DISC BRAKE - 645 CALIPER

Revision number: T03250-01-D **Revision date: 21.03.2016**

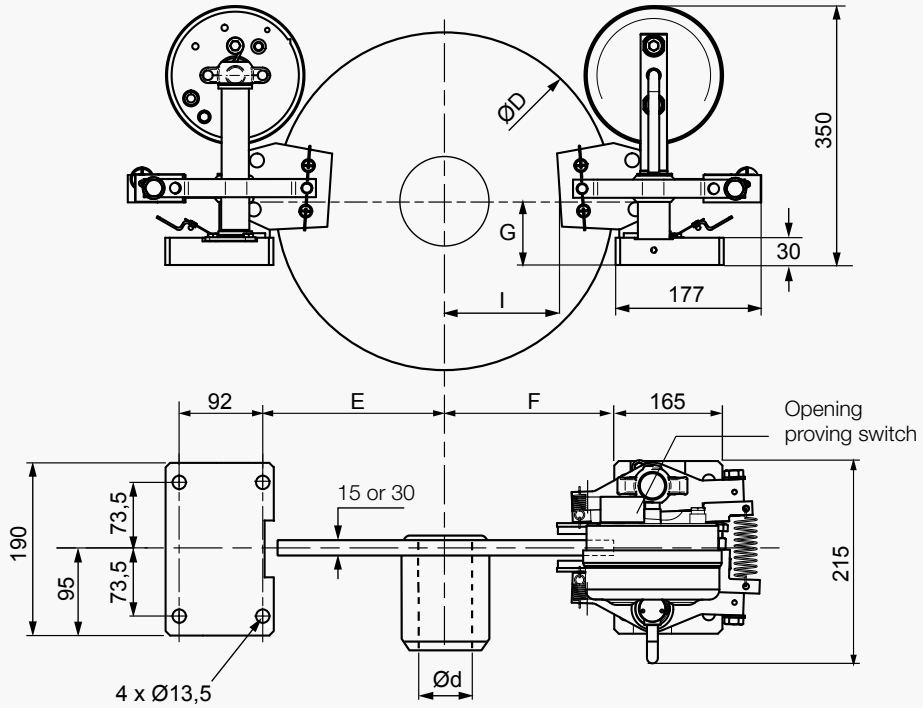
Fail safe braking
Spring application
Electromagnetic release
Manual wear compensation
Brake pads with wear indicator
Opening proving switch for PLC
With coil supply wire: 2 x 2mm², length 2m

Conditions of use:
- Ambiant temperature -10°C to +60°C
- Relative humidity ≤ 70%
- Dust in atmosphere ≥ 65µ

Other conditions, consult us.

Use:
- Service brake for application ≤ 150 stops/h

Options:
- Manual release lever or hydraulic release
- Mounting on vertical axis disc
- Marine protection
- Closing proving switch
- Manual release switch



Opening proving switch :

250VAC maxi., 5A maxi., with interrupting capacity: 50VA maxi.

220VDC maxi., 5A maxi., with interrupting capacity: 50W maxi.

Compatible with PLC (Programmable Logic Controllers). An opening switch used with other equipment than PLC must not be reused with a PLC.

Weight: 35 kg
Dimensions in mm

Response time at nominal torque : see the leaflet of the associated electrical power supply.

Designation	Discs		solid and thickness 15 mm						self-ventilated and thickness 30 mm						
Nominal torque for 1 caliper adjustable from -30% to +20%		N.m	380	520	600	700	780	920	380	440	520	600	700	780	920
Maximum speed of the disc for nominal torque		rpm	3000	2400	2100	1900	1800	1500	3000	2700	2400	2100	1900	1800	1500
D		mm	315	395	445	495	550	625	315	355	395	445	495	550	625
d		mm	0-75	0-75	0-75	0-100	0-100	0-100	0-50	0-60	0-70	0-70	0-100	0-100	0-100
E		mm	173	213	238	263	293	328	173	193	213	238	263	293	328
F		mm	161	201	226	251	281	316	161	181	201	226	251	281	316
G		mm	95	80	70	65	65	45	95	80	80	70	65	65	45
l (approx. dimension)		mm	76	116	141	166	196	231	76	96	116	141	166	196	231
Max. reaction on shaft	1 caliper	N	3850						3850						
	2 calipers	N	405	405	810	895	780	1230	405	515	450	810	895	780	1230

Service Brakes

DISC BRAKE - 5K AND 5KR CALIPERS

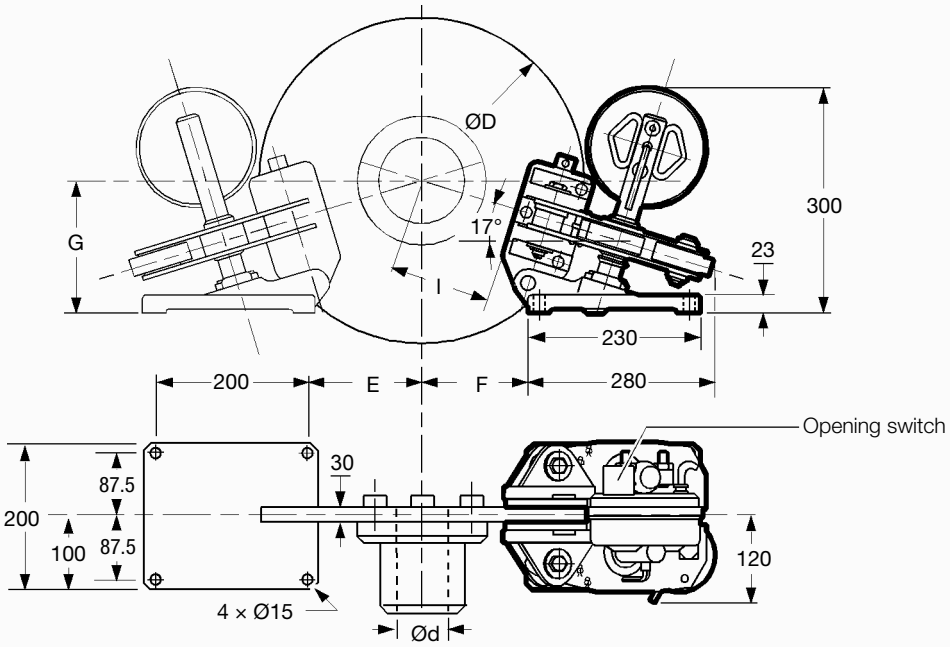
Revision number: T03350-01-D **Revision date: 21.03.2016**

Fail safe braking
Spring application
Electromagnetic release
Automatic wear compensation
Detection of full lining wear
Brake pads with wear indicator
Opening proving switch
With coil supply wire: 2 × 2mm², length 2m

Conditions of use:
- Ambiant temperature - 10°C to + 60°C
- Relative humidity ≤ 70 %
- Dust in atmosphere ≥ 65 µ

Other conditions, consult us.

Options:
- Manual release lever
- Hydraulic release
- Marine protection
- Vertical mounting
- Reduced torque
- Closing proving switch
- Manual release switch



Opening proving switch :

250VAC maxi., 5A maxi., with interrupting capacity: 50VA maxi.

220VDC maxi., 5A maxi., with interrupting capacity: 50W maxi.

Compatible with PLC (Programmable Logic Controllers). An opening switch used with other equipment than PLC must not be reused with a PLC.

The opening switch is delivered with 3 x 0.75mm² cable, length 2m

Weight: 27 kg
Dimensions in mm

Response time at nominal torque : see the leaflet of the associated electrical power supply.

Discs			315	355	395	445	495	550	625
Maximum speed of the disc for nominal torque		rpm	3000	2700	2400	2100	1900	1800	1500
D		mm	315	355	395	445	495	550	625
d		mm	0-50	0-60	0-70	0-70	0-100	0-100	0-100
E		mm	100	120	140	160	190	220	255
F		mm	85	105	125	145	175	205	240
G		mm	160	164	170	180	185	195	205
I (approx. dimension)		mm	72	92	113	135	160	197	233
Caliper 5K :									
Nominal torque for 1 caliper adjustable from - 50% to +20%		N.m.	190	220	260	300	350	390	460
Maximum reaction on shaft	1 caliper 2 calipers	N N	1950 1150						
Caliper 5KR :									
Nominal torque for 1 caliper adjustable from 100% to -50%		N.m.	95	110	130	150	175	195	230
Maximum reaction on shaft	1 caliper 2 calipers	N N	815 480						

DISC BRAKE - 5KE CALIPER

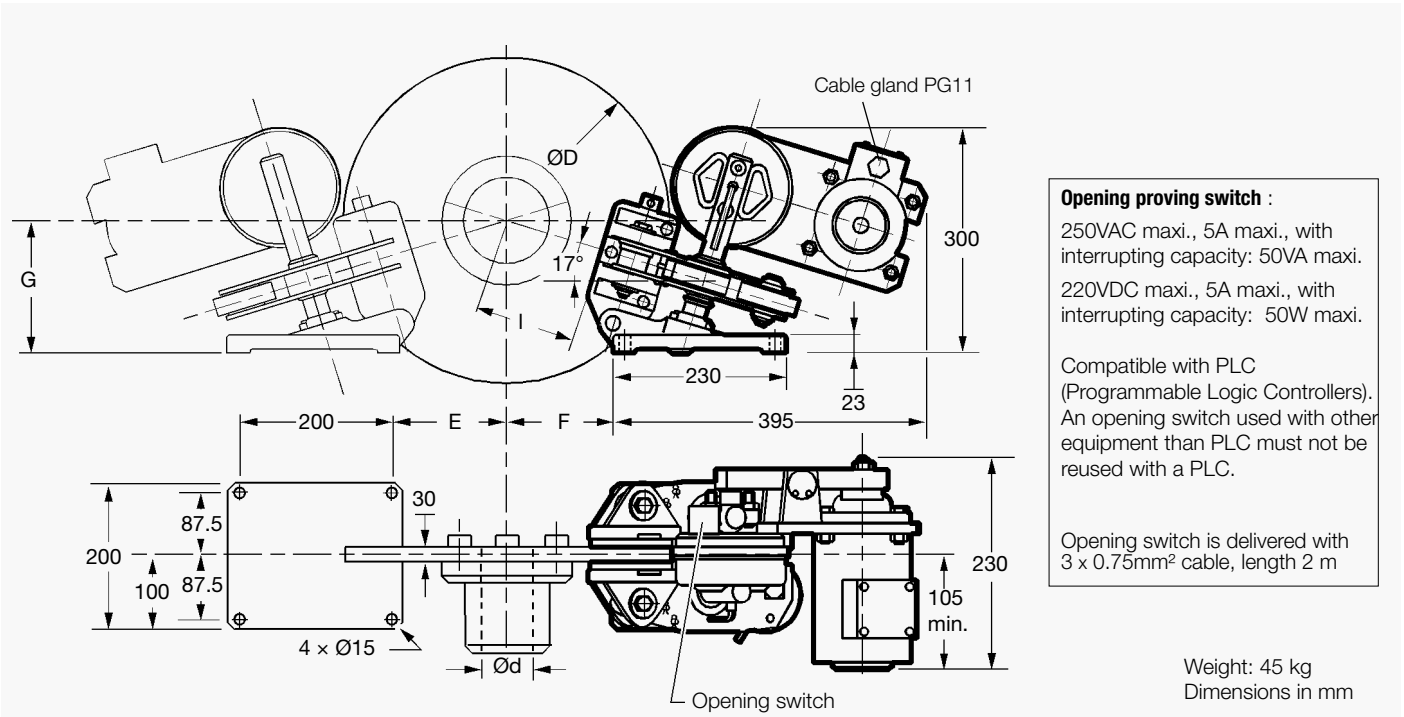
Revision number: T03400-01-D **Revision date: 21.03.2016**

Fail safe braking
Spring application
Electromagnetic release
Electrical progressive braking
Automatic wear compensation
Detection of full lining wear
Opening proving switch
With coil supply wire: 2 × 2mm², length 2m

Conditions of use:
- Ambiant temperature - 10°C to + 60°C
- Relative humidity ≤ 70 %
- Dust in atmosphere ≥ 65 µ

Other conditions, consult us.

Options:
- Hydraulic release
- Marine protection
- Vertical mounting



Opening proving switch :

250VAC maxi., 5A maxi., with interrupting capacity: 50VA maxi.

220VDC maxi., 5A maxi., with interrupting capacity: 50W maxi.

Compatible with PLC (Programmable Logic Controllers). An opening switch used with other equipment than PLC must not be reused with a PLC.

Opening switch is delivered with 3 x 0.75mm² cable, length 2 m

Weight: 45 kg
Dimensions in mm

Response time at nominal torque : see the leaflet of the associated electrical power supply.

Discs			315	355	395	445	495	550	625
Progressive torque for 1 caliper adjustable from 0% to 100% ✱		N.m	190	220	260	300	350	390	460
Nominal torque for 1 caliper adjustable from 100% to -50%		N.m	190	220	260	300	350	390	460
Maximum speed of the disc for nominal torque		rpm	3000	2700	2400	2100	1900	1800	1500
D		mm	315	355	395	445	495	550	625
d		mm	0-50	0-60	0-70	0-70	0-100	0-100	0-100
E		mm	100	120	140	160	190	220	255
F		mm	85	105	125	145	175	205	240
G		mm	160	164	170	180	185	195	205
I (approx. dimension)		mm	72	92	113	135	160	197	233
Maximum reaction on shaft	1 caliper	N	1950						
	2 calipers	N	1150						

✱ For electro with working rate of 40%

Service Brakes

DISC BRAKE - 5D AND 5DR CALIPERS

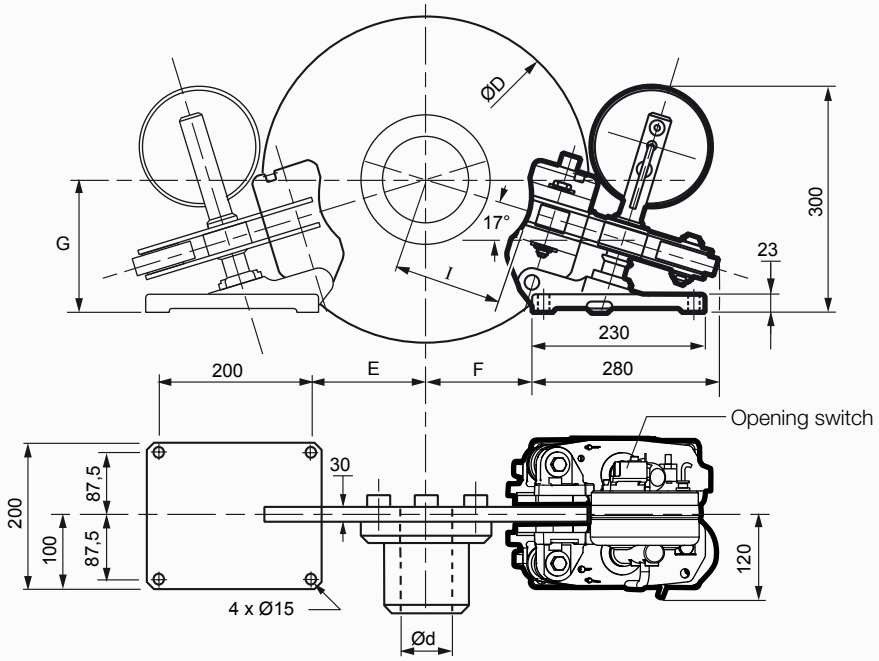
Revision number: T03360-01-E **Revision date: 21.03.2016**

Fail safe braking
Spring application
Electromagnetic release
Automatic wear compensation
Brake pads with wear indicator
Opening proving switch
With coil supply wire: 2 × 2mm², length 2m

Conditions of use:
- Ambiant temperature - 10°C to + 60°C
- Relative humidity ≤ 70 %
- Dust in atmosphere ≥ 65 µ

Other conditions, consult us.

Options:
- Manual release lever
- Hydraulic release
- Marine protection
- Vertical mounting
- Reduced torque
- Closing proving switch
- Manual release switch



Opening proving switch :

250VAC maxi., 5A maxi., with interrupting capacity: 50VA maxi.

220VDC maxi., 5A maxi., with interrupting capacity: 50W maxi.

Compatible with PLC (Programmable Logic Controllers). An opening switch used with other equipment than PLC must not be reused with a PLC.

The opening switch is delivered with 3 x 0.75mm² cable, length 2m

Weight: 27 kg
Dimensions in mm

Response time at nominal torque : see the leaflet of the associated electrical power supply.

Discs			220 M30	260 M30	315 M30	315	355	395	445	495	550	625
Maximum speed of the disc for nominal torque		rpm	4300	3600	3000	3000	2700	2400	2100	1900	1800	1500
D		mm	220	260	315	315	355	395	445	495	550	625
d		mm	20-55	30-55	35-60	0-50	0-60	0-70	0-70	0-100	0-100	0-100
E		mm	65	80	100	100	120	140	160	190	220	255
F		mm	50	65	85	85	105	125	145	175	205	240
G		mm	150	153	160	160	164	170	180	185	195	205
l (approx. dimension)		mm	51	68	88	88	108	128	151	176	213	248
Caliper 5D :												
Nominal torque for 1 caliper adjustable from - 50% to +20%		N.m.	130	150	190	190	220	260	300	350	390	460
Maximum reaction on shaft	1 caliper	N	1950									
	2 calipers	N	1150									
Caliper 5DR :												
Nominal torque for 1 caliper adjustable from 100% to -50%		N.m.	65	75	95	95	110	130	150	175	195	230
Maximum reaction on shaft	1 caliper	N	815									
	2 calipers	N	480									

DISC BRAKE - 5DE CALIPER

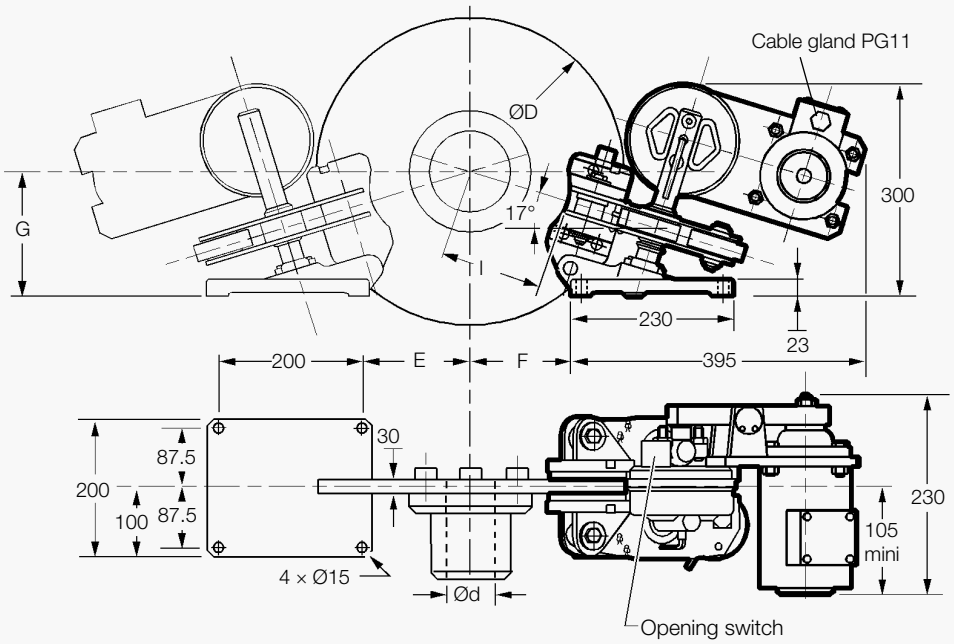
Revision number: T03410-01-D **Revision date: 22.03.2016**

Fail safe braking
Spring application
Electromagnetic release
Electrical progressive braking
Automatic wear compensation
Detection of full lining wear
Opening proving switch
With coil supply wire: 2 × 2mm², length 2m

Conditions of use:
- Ambiant temperature - 10°C to + 60°C
- Relative humidity ≤ 70 %
- Dust in atmosphere ≥ 65 µ

Other conditions, consult us.

Options:
- Hydraulic release
- Marine protection
- Vertical mounting



Opening proving switch :

250VAC maxi., 5A maxi., with interrupting capacity: 50VA maxi.

220VDC maxi., 5A maxi., with interrupting capacity: 50W maxi.

Compatible with PLC (Programmable Logic Controllers). An opening switch used with other equipment than PLC must not be reused with a PLC.

Opening switch is delivered with 3 x 0.75mm² cable, length 2 m

Weight: 45 kg
Dimensions in mm

Response time at nominal torque : see the leaflet of the associated electrical power supply.

Discs		220M30	260M30	315M30	315	355	395	445	495	550	625
Progressive torque for 1 caliper adjustable from 0% to 100% ✱	N.m	130	150	190	190	220	260	300	350	390	460
Nominal torque for 1 caliper adjustable from 100% to -50%	N.m	130	150	190	190	220	260	300	350	390	460
Maximum speed of the disc for nominal torque	rpm	4300	3600	3000	3000	2700	2400	2100	1900	1800	1500
D	mm	220	260	315	315	355	395	445	495	550	625
d	mm	20-55	30-55	35-60	0-50	0-60	0-70	0-70	0-100	0-100	0-100
E	mm	65	80	100	100	120	140	160	190	220	255
F	mm	50	65	85	85	105	125	145	175	205	240
G	mm	150	153	160	160	164	170	180	185	195	205
I (approx. dimension)	mm	51	68	88	88	108	128	151	176	213	248
Maximum reaction on shaft	1 caliper N	1950									
	2 calipers N	1150									

✱ For electro with working rate of 40%

Service Brakes

DISC BRAKE - 45K and 45D calipers

Revision number: T00140-01-I **Revision date: 21.03.2016**

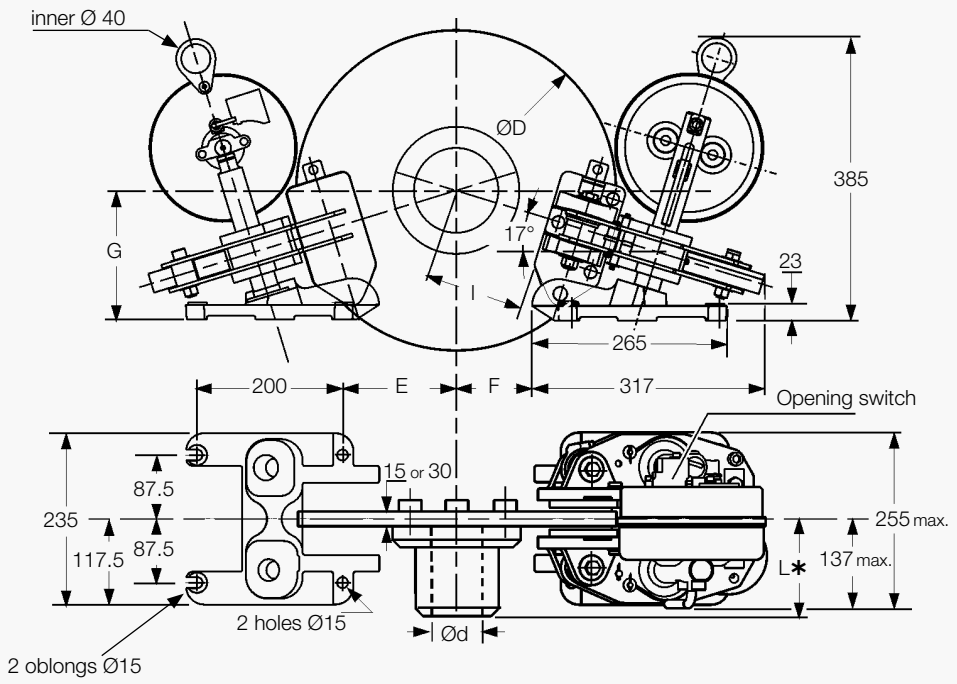
Fail safe braking
Spring application
Electromagnetic release
Automatic linings wear compensation
Opening proving switch
Coil with supply wire: 2 × 2mm², length 2m
Association with 30mm thick discs (or 15mm in option)
Shoes DIN (caliper 45D) for discs thickness 30mm only.

Conditions of use :
- Ambiant temperature -20°C to + 60°C
- Relative humidity ≤ 70 %
- Dust in atmosphere ≥ 65 µ

Other conditions, consult us.

Use:
- Service brake for application ≤ 600 cycles / h
  Possibility of quick manoeuvres :
  1000 cycles/h during 15s every 2 mn

Options:
- Mechanical release lever or hydraulic release
- Manual wear compensation (RM)
- Marine protection
- SIDHT steel industry high temperature
- Bearing brackets for mounting in place of a caliper 645.
- Mounting on a vertical axis disc.
- Closing proving switch
- Manual release switch



Nota :
The 45K-RM and 45D-RM calipers (manual wear compensation option) have the same overall dimensions as the 45K and 45D calipers with automatic wear compensation.

∗ ATTENTION
For discs Ø315 to 395, the length of 137 max. is higher than the length L of the standard hub. Provide space at the rear of the hub by means of a spacer.

Opening proving switch :
250VAC maxi., 5A maxi., with interrupting capacity: 50VA maxi.
220VDC maxi., 5A maxi., with interrupting capacity: 50W maxi.

Compatible with PLC (Programmable Logic Controllers). An opening switch used with other equipment than PLC must not be reused with a PLC.

Weight: 41 kg
Dimensions in mm

Response time at nominal torque : see the leaflet of the associated electrical power supply.
Caliper delivered in standard with WS1-5 lining.
For energy applications. use WS1-3 (torque loss of 20%).

Designation		Discs	solid and thickness 15 mm (option)							ventilated and thickness 30 mm						
D Disc diameter		mm	**315**	**355**	**395**	**445**	**495**	**550**	**625**	**315**	**355**	**395**	**445**	**495**	**550**	**625**
Nominal torque for 1 caliper adjustable from -30% to +20%		N.m	410	470	560	650	750	840	990	410	470	560	650	750	840	990
Maximum speed of the disc for nominal torque		r.p.m.	3000	2700	2400	2100	1900	1800	1500	3000	2700	2400	2100	1900	1800	1500
d		mm	0-75	0-75	0-75	0-75	0-100	0-100	0-100	0-50	0-60	0-70	0-70	0-100	0-100	0-100
E		mm	100	120	140	160	190	220	255	100	120	140	160	190	220	255
F		mm	50	70	90	110	140	170	205	50	70	90	110	140	170	205
G		mm	160	164	170	180	185	195	205	160	164	170	180	185	195	205
I (calipers **45K. 45K-RM**)		mm	75	95	116	138	168	200	236	75	95	116	138	168	200	236
I (caliper **45D**)		mm								75	95	116	138	168	200	236
I (caliper **45D-RM**)		mm								96	116	137	159	189	221	257
Maximum reaction on shaft	1 Caliper	N	4200													
	2 Calipers	N	2450													

DISC BRAKE - 4CA2 CALIPER

Revision number: T10049-01-D **Revision date: 22.03.2016**

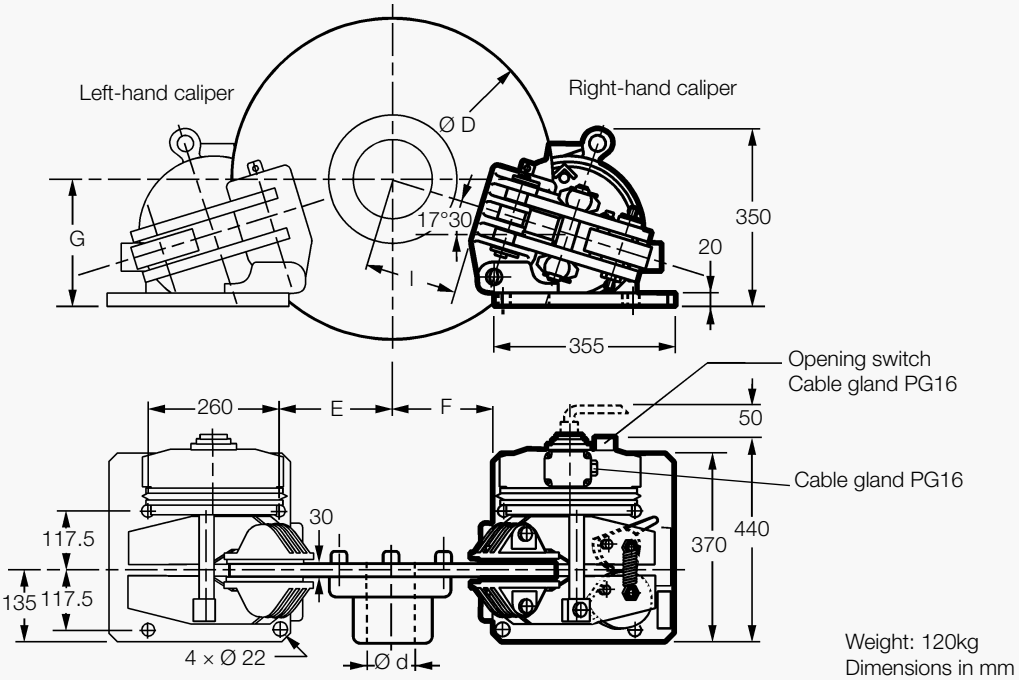
Fail safe braking
Braking by spring application
Electromagnetic release
Automatic wear compensation
Opening proving switch
Brake pads with wear indicator

Working conditions:
- Ambient température: -10°C to +60°C
- Relative humidity ≤ 70%
- Dust in atmosphere ≥ 65µ

Other conditions, consult us.

Use:
Any application up to 1000act/h

Options:
- Manual release lever
- Hydraulic release
- Manual wear compensation
- Flameproof protection
- Marine protection
- Closing proving switch
- Switch on release nut



Response time at nominal torque : see the leaflet of the associated electrical power supply.

Discs			445	495	550	625	705	795
Nominal torque for 1 caliper adjustable from -30 to +20%		N.m	950	1100	1270	1500	1750	2000
Maximum disc speed for nominal torque		r.p.m.	2100	1900	1800	1500	1300	1200
D		mm	445	495	550	625	705	795
d		mm	0-70	0-100	0-100	0-100	0-120	0-130
E		mm	130	160	180	215	255	295
F		mm	110	140	160	195	235	275
G		mm	225	235	240	250	260	275
I (approx. dimension)		mm	90	125	145	180	225	265
Maximum reaction on shaft	1 caliper	N	7400					
	2 calipers	N	4450					

Opening proving switch :

250VAC maxi., 5A maxi., with interrupting capacity: 50VA maxi.

220VDC maxi., 5A maxi., with interrupting capacity: 50W maxi.

Compatible with PLC (Programmable Logic Controllers). An opening switch used with other equipment than PLC must not be reused with a PLC.

Service Brakes

DISC BRAKE - 3CA2 CALIPER

Revision number: T10050-01-C **Revision date: 19.04.2016**

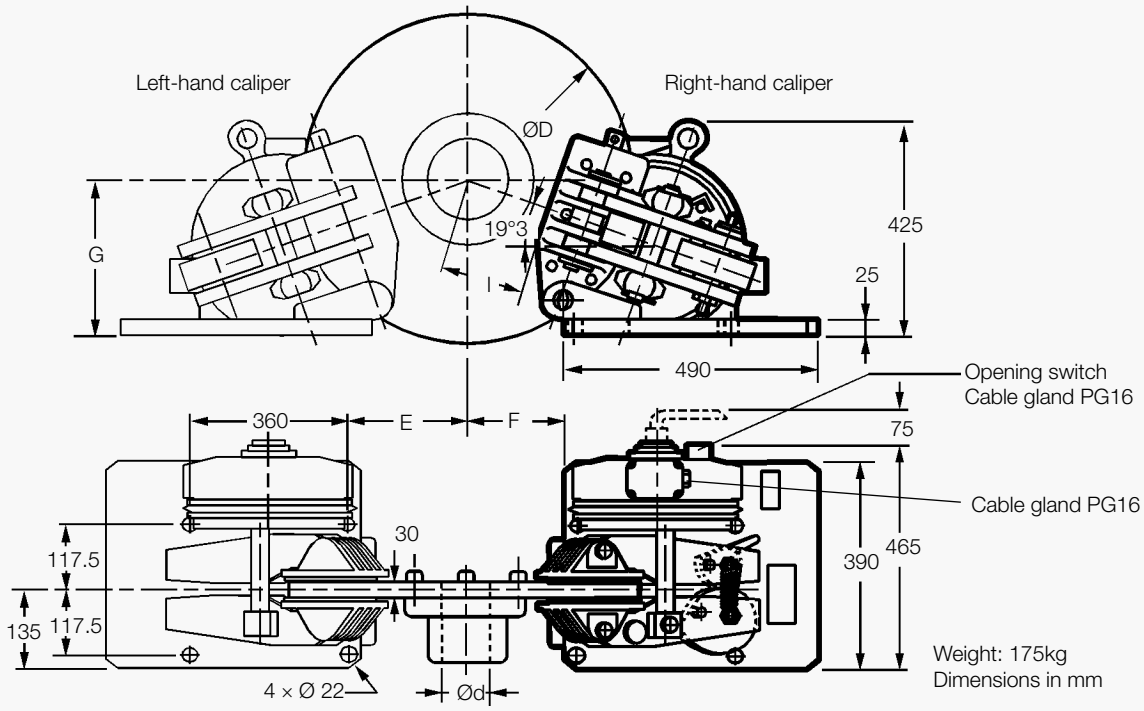
Fail safe braking
Braking by spring application
Electromagnetic release
Automatic wear compensation
Opening proving switch
Brake pads with wear indicator

Working conditions:
- Ambient température: -10°C to +60°C
- Relative humidity ≤ 70%
- Dust in atmosphere ≥ 65µ

Other conditions, consult us.

Use:
Any application up to 1000act/h

Options:
- Manual release lever
- Hydraulic release
- Manual wear compensation
- Load regulated lowering
- Flameproof protection
- Marine protection
- Closing proving switch
- Switch on release nut



Response time at nominal torque : see the leaflet of the associated electrical power supply.

Discs			445	495	550	625	705	795
Nominal torque for 1 caliper adjustable from -30 to +20%		N.m	1600	1850	2100	2500	2900	3350
Maximum disc speed for nominal torque		r.p.m.	2100	1900	1800	1500	1300	1200
D		mm	445	495	550	625	705	795
d		mm	0-70	0-100	0-100	0-100	0-120	0-130
E		mm	100	120	150	185	225	265
F		mm	80	100	130	165	205	245
G		mm	285	295	305	315	330	345
I (approx. dimension)		mm	90	115	145	180	225	265
Maximum reaction on shaft	1 caliper	N	12300					
	2 calipers	N	7400					

Opening proving switch :

250VAC maxi., 5A maxi., with interrupting capacity: 50VA maxi.

220VDC maxi., 5A maxi., with interrupting capacity: 50W maxi.

Compatible with PLC (Programmable Logic Controllers). An opening switch used with other equipment than PLC must not be reused with a PLC.

DISC BRAKE - 2CA2 AND 1CA2 CALIPERS

Revision number: T10051-01-C / T10065-01-B **Revision date: 22.03.2016 / 23.07.2012**

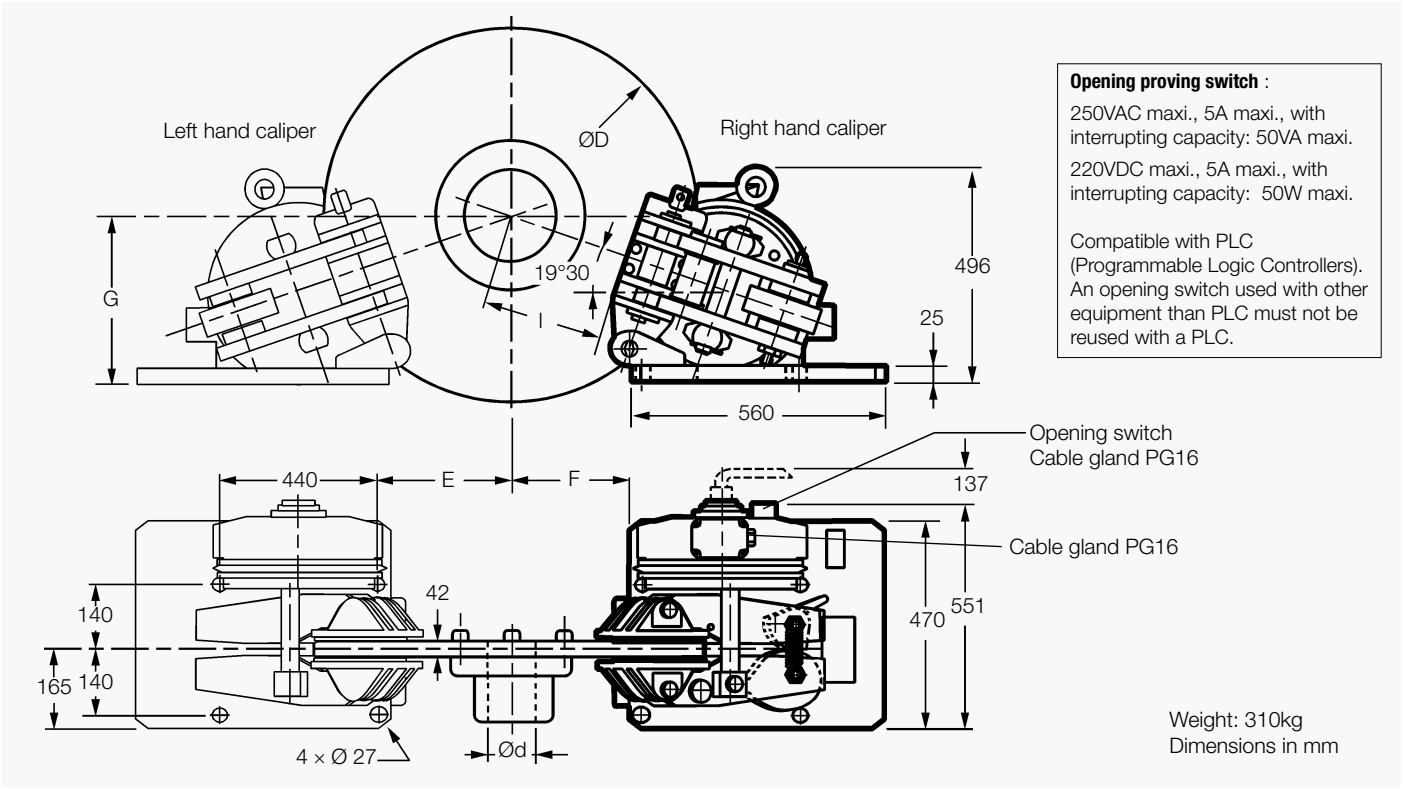
Fail safe braking
Braking by spring application
Electromagnetic release
Automatic wear compensation
Opening proving switch

Working conditions:
- Ambient température: -10°C to +60°C
- Relative humidity ≤ 70%
- Dust in atmosphere ≥ 65µ

Other conditions, consult us.

Use:
Any application up to 600act/h

Options:
- Brake pads with wear indicator
- Manual wear compensation
- Hydraulic release
- Load regulated lowering
- Flameproof protection
- Marine protection.



Opening proving switch :

250VAC maxi., 5A maxi., with interrupting capacity: 50VA maxi.

220VDC maxi., 5A maxi., with interrupting capacity: 50W maxi.

Compatible with PLC (Programmable Logic Controllers). An opening switch used with other equipment than PLC must not be reused with a PLC.

Weight: 310kg
Dimensions in mm

Discs		625	795	995
D	mm	625	795	995
d	mm	40-140	40-180	40-180
E	mm	157	250	345
F	mm	127	220	315
G	mm	353	385	415
l (approx. dimension)	mm	174	268	368

Response time at nominal torque : see the leaflet of the associated electrical power supply.

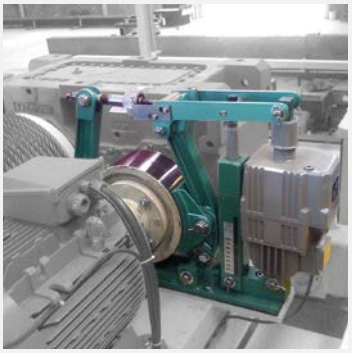
Discs			625	795	995
2CA2					
Nominal torque for 1 caliper adjustable from -30 to +20%		N.m	3 800	5 150	6 700
Maximum disc speed for nominal torque		r.p.m.	1 500	1 200	900
Maximum reaction on shaft	1 caliper	N	18 600		
	2 calipers	N	12 600		

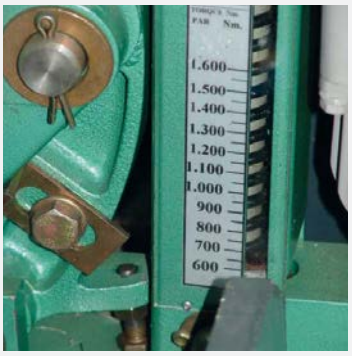
Discs			625	795	995
1CA2					
Nominal torque for 1 caliper adjustable from -50 to 100%		N.m	6 610	8 800	11 370
Maximum disc speed for nominal torque		r.p.m.	310	250	200
Maximum reaction on shaft	1 caliper	N	25 700		
	2 calipers	N	16 300		

Service Brakes

APPLICATIONS

- MINING
- HYDRO POWER
- OIL & GAS
- HARBOUR & SHIPPING
- STEEL
- POWER
- CEMENT





DRUM BRAKES

MAIN CHARACTERISTICS	OPTIONS
• FAILSAFE BRAKES • SPRING APPLIED ELECTROHYDRAULIC THRUSTOR RELEASED • ADJUSTABLE BRAKING TORQUE	• AUTOMATIC WEAR COMPENSATION • OPENING PROVING SWITCH • HAND RELEASE LEVER • HIGH TEMPERATURE, SPECIAL PROTECTION, DELAY. ...

SDB

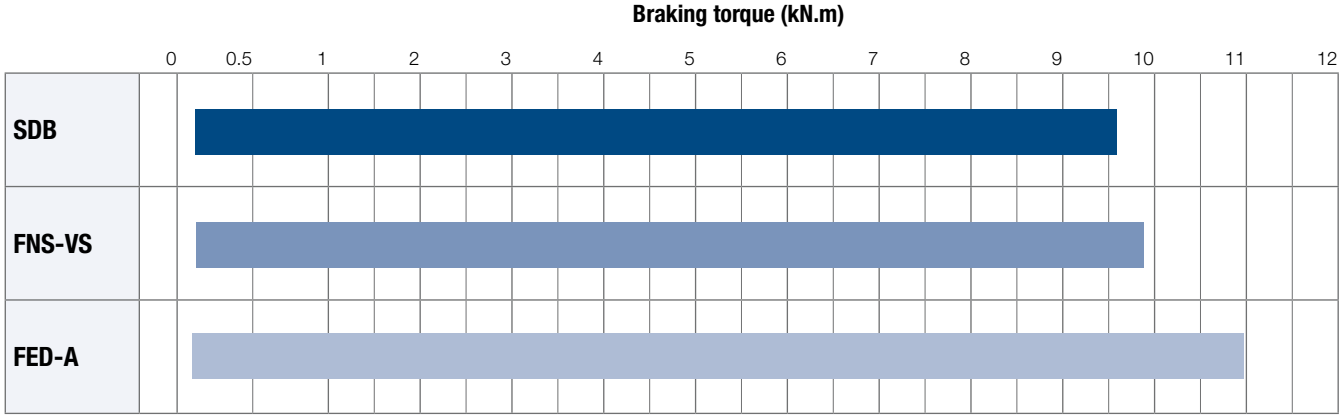
- Ass. with drums Ø 160 to 710
- Standard DIN 15435
- Vertical spring with scale for torque adjustment

FNS-VS

- Ass. with drums Ø 160 to 710
- Standard DIN 15435
- Vertical spring with scale for torque adjustment
- Option: ATEX certificat / thrustor

FED-A

- Ass. with drums Ø150 to 750
- Standard SIME
- Horizontal spring
- Option: ATEX certificat / thrustor



NOTES

DRUM BRAKE - SDB BRAKES

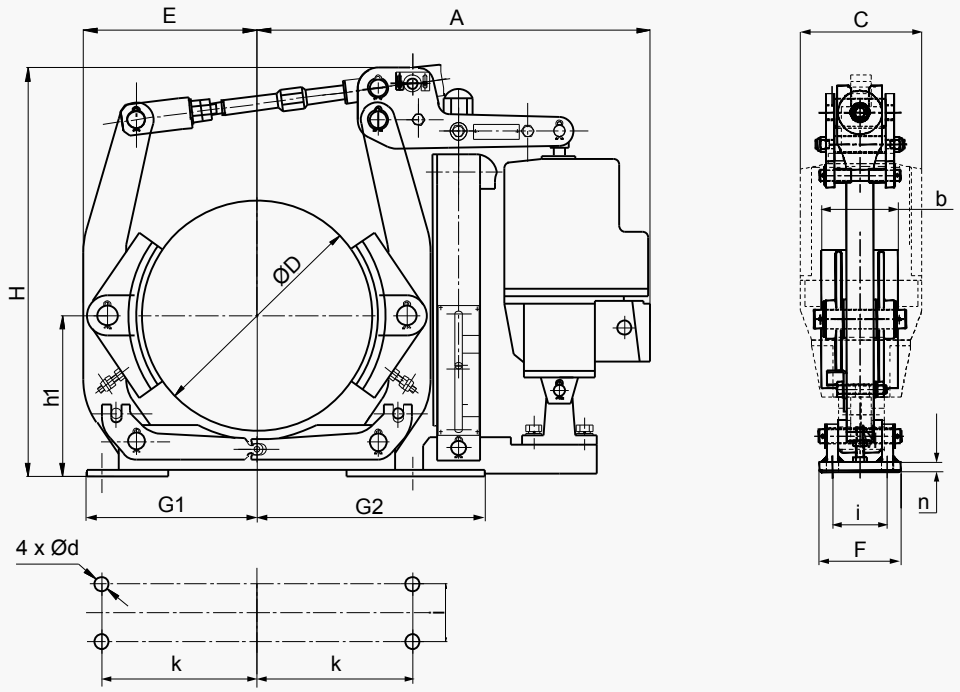
Revision number: T10110-01-D **Revision date: 31.10.2017**

Standard DIN 15435
Standard voltage 230/400 VAC 50Hz

Self lubricated bushings at main hinge points
Brake shoe auto-aligning device
Galvanized steel spindles and hinges
Non abestos organic linings
Scale for torque adjustment

Operating conditions

- Ambient temperature : -20°C to 50°C
- Relative humidity no higher than 90%



BRAKE TYPE	THRUSTOR	TORQUE (N.m.)		WEIGHT (kg)	DIMENSIONS (mm)													
		min.	max.		A	b	C	D	d	E	F	G1	G2	H	h1	i	k	n
SDB 160	TS 230/5	80	160	28	428	65	160	160	14	140	85	145	195	418	132	55	130	8
SDB 200	TS 230/5	110	260	35	470	70	160	200	14	172	90	165	255	490	160	55	145	10
	TS 300/5	140	380	38														
SDB 250	TS 230/5	140	300	45	533	90	160	250	18	202	110	200	290	583	190	65	180	12
	TS 300/5	180	380	48														
	TS 500/6	300	600	53	570		195											
SDB 315	TS 230/5	180	340	70	670	110	160	315	18	253	115	245	330	585	230	80	220	14
	TS 300/5	250	500	70														
	TS 500/6	315	770	75			195											
	TS 800/6	630	1200	80														
SDB 400	TS 500/6	400	960	138	695	140	195	400	22	310	160	310	420	715	280	100	270	14
	TS 800/6	630	1500	140														
	TS 1210/6	1000	2400	155	810		240							775				
SDB 500	TS 800/6	800	1920	176	925	180	240	500	22	380	180	365	535	803	340	130	325	21
	TS 1210/6	1250	3000	204										830				
	TS 2010/6	2000	4800	204														
SDB 630	TS 1210/6	1800	3780	310	1150	225	240	630	27	465	220	450	600	1025	420	170	400	20
	TS 2010/6	2500	6000	310														
	TS 3010/6	4000	8500	315														
SDB 710	TS 2010/6	3150	6000	435	1180	225	240	710	27	520	240	500	630	1135	470	190	450	25
	TS 3010/6	5000	9600	441														

Service Brakes

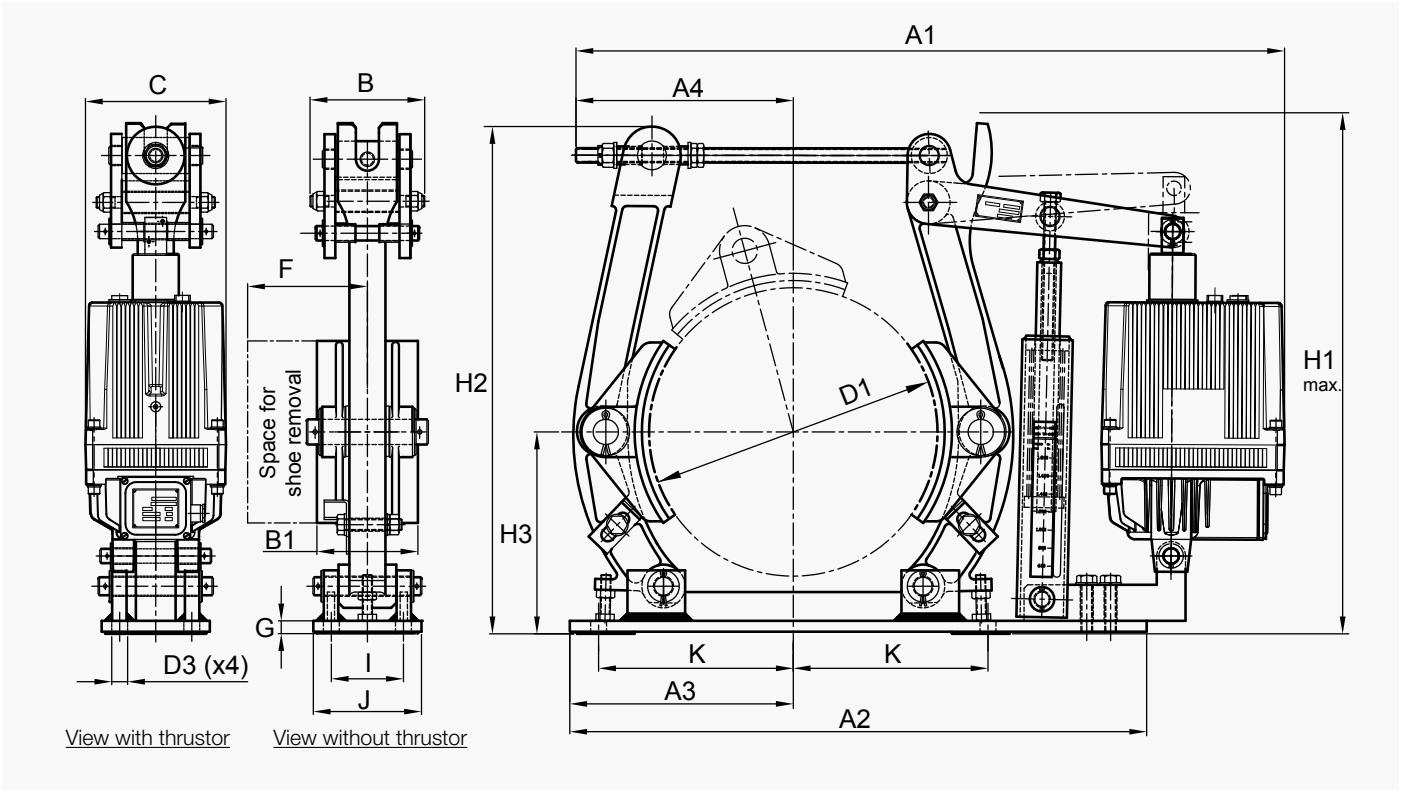
DRUM BRAKE - FNS-VS 160 TO 400 BRAKES

Revision number: T03109-01-E **Revision date: 27.07.2016**

Standard DIN 15435

Spring application
Thrustor release
Protection level : C3M
Voltage : 230 / 400V 50 Hz
Other voltages, consult us.

AT	High temperature
BT	Low temperature
ATEX	Certificat ATEX / Thrustor
BI	Stainless steel bolts
CSA	Opening proving switch
DD	Lining wear indicators
DM	Hand release lever
LM	Locking lever to hold the brake open
PE	Special paint : color / > C3M
PL	Padlock for the locking lever
PR	Reduced torque
RA	Automatic lining wear compensation
VD	Descent valve
	Brake not fitted with the thrustor



BRAKE TYPE	THRUSTOR VS	TORQUE N.m.		WEIGHT kg	DRUM WIDTH	SHOE WIDTH	DIMENSIONS															
		min.	max.			B1	D1	D3	H3	I	K	A1	A2	A3	A4	B	C	F	G	H1	H2	J
160	I-256	118	235	28	60	65	160	11	130	55	120	614	420	140	177	116	160	110	20	424	364	90
200	I-256	125	250	29	75	70	200	14	160	55	145	664	510	185	178	116	160	125	19	405	355	90
	I-356	188	375	34								674								497		
250	I-256	128	255	35	95	90	250	18	190	65	180	710	580	220	210	116	160	130	13	425	413	100
	I-356	235	470	40								760								499		
315	I-356	275	550	59	118	110	315	18	230	80	220	769	690	260	223	159	160	180	18	595	588	120
	II-506	438	875	62								820					195			620		
	II-806	700	1400	63								820					195			635		
400	II-506	450	900	85	150	140	400	22	280	100	270	980	800	310	307	159	195	210	18	710	704	150
	II-806	760	1520	87								990				159	195			710		
	III-1306	1350	2700	107								975				164	240			775		

For higher torque, please consult us. Some types may present little differences in the form with the drawing

DRUM BRAKE - FNS-VS 500 TO 710 BRAKES

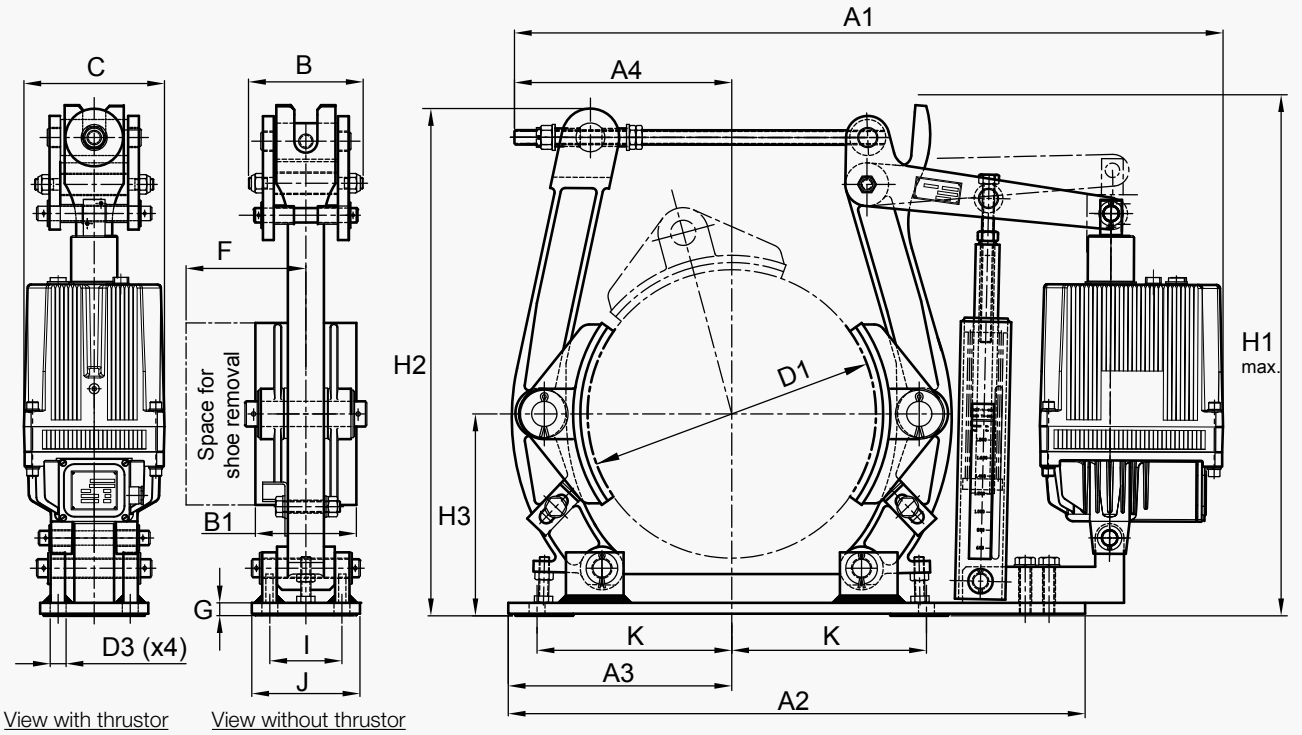
Revision number: T03109-01-E **Revision date: 27.07.2016**

Standard DIN 15435

Spring application
Thrustor release
Protection level : C3M
Voltage : 230 / 400V 50 Hz
Other voltages, consult us.

AT	High temperature
BT	Low temperature
ATEX	Certificat ATEX / Thrustor
BI	Stainless steel bolts
CSA	Opening proving switch
DD	Lining wear indicators
DM	Hand release lever

LM	Locking lever to hold the brake open
PE	Special paint : color / > C3M
PL	Padlock for the locking lever
PR	Reduced torque
RA	Automatic lining wear compensation
VD	Descent valve
	Brake not fitted with the thrustor



BRAKE TYPE	THRUSTOR VS	TORQUE N.m.		WEIGHT kg	DRUM WIDTH	SHOE WIDTH	DIMENSIONS														
		min.	max.			B1	D1	D3	H3	I	K	A1	A2	A3	A4	B	C	F	G	H1	H2	J
500	II-806	800	1600	125	190	180	500	22	340	130	325	1039	940	365	312	190	195	250	23	820	803	180
	III-1306	1325	2650	145								1060			325		240					
	III-2006	2125	4250	147								1060			325		240					
630	III-1306	1450	2900	240	236	225	630	27	420	170	400	1240	1150	460	435	230	240	305	23	955	940	220
	III-2006	2325	4650	242								1240			435							
	III-3006	3725	7450	244								1240			435							
	III-3012	3875	7750	258								1325			427							
710	III-2006	2875	5750	323	265	255	710	27	470	190	450	1405	1280	510	470	250	240	340	29	1085	1067	250
	III-3006	4300	8600	324								1405										
	III-3012	4950	9900	338								1570										

For higher torque, please consult us. Some types may present little differences in the form with the drawing

Service Brakes

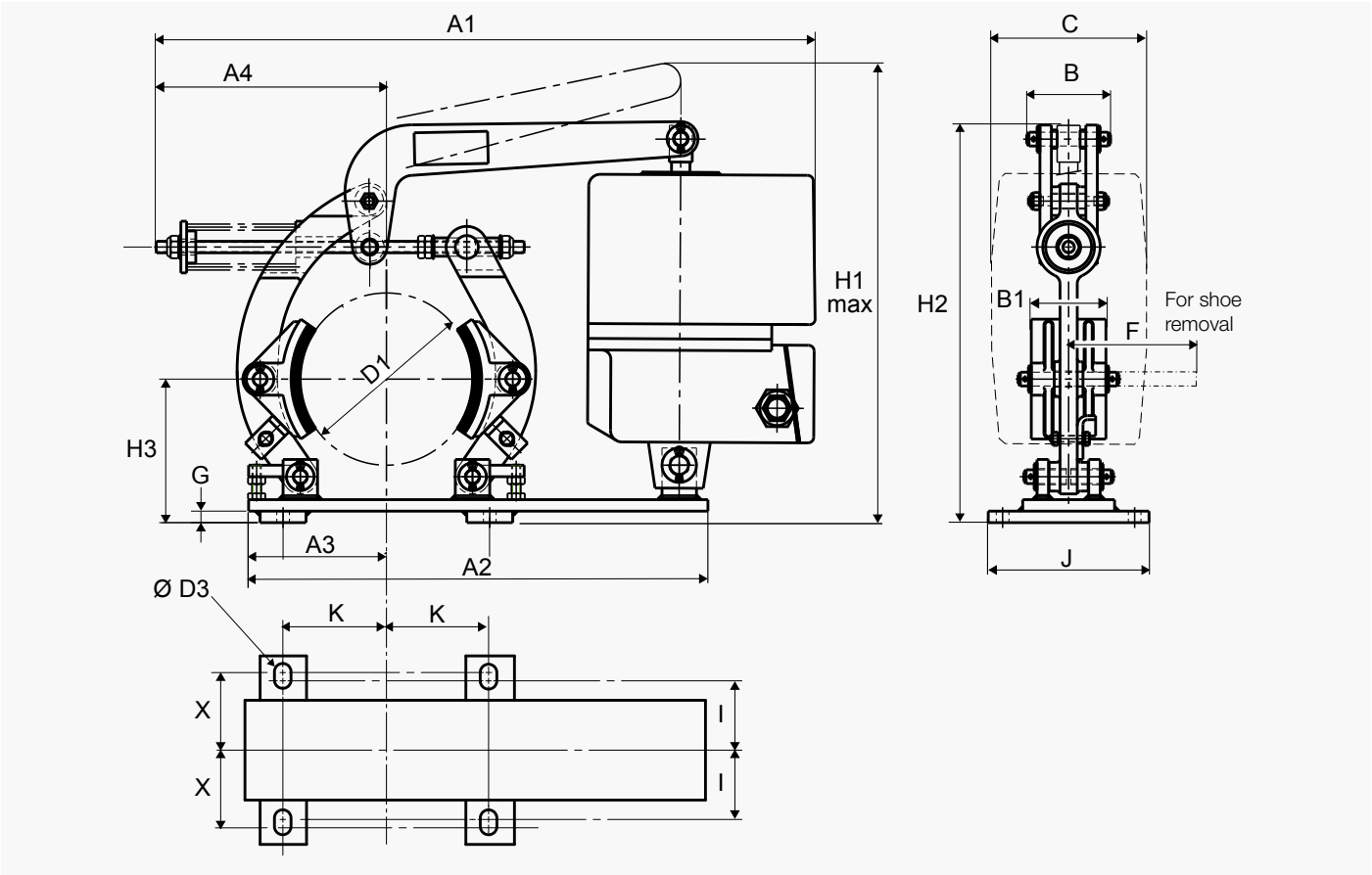
DRUM BRAKE - FED-A 150 BRAKE

Revision number: T03409-01-H **Revision date: 14.06.2016**

Standard SIME

Spring application
Thrustor release
Protection level : C3M
Voltage : 230 / 400V 50 Hz
Other voltages, consult us.

AT	High temperature
BT	Low temperature
ATEX	Certificat ATEX / Thrustor
BI	Stainless steel bolts
CSA	Opening proving switch
DD	Lining wear indicators
DM	Hand release lever
LM	Locking lever to hold the brake open
PE	Special paint : color / > C3M
PL	Padlock for the locking lever
PR	Reduced torque
RA	Automatic lining wear compensation
VD	Descent valve
	Brake not fitted with the thrustor



Some types may present little differences in the form with the drawing.

BRAKE TYPE	THRUSTOR VS	TORQUE N.m.		WEIGHT kg	WIDTH		DIMENSIONS																
		min.	max.		DRUM	SHOE B1	D1	D3	H3	A1	A2	A3	A4	B	C	F	G	H1	H2	I	J	K	X
150	I-256	65	130	24	80	65	150	11	125	577	400	120	201	73	160	70	10	411	351	57.5	160	90	67.5

DRUM BRAKE - FED-A 200 AND 250 BRAKES

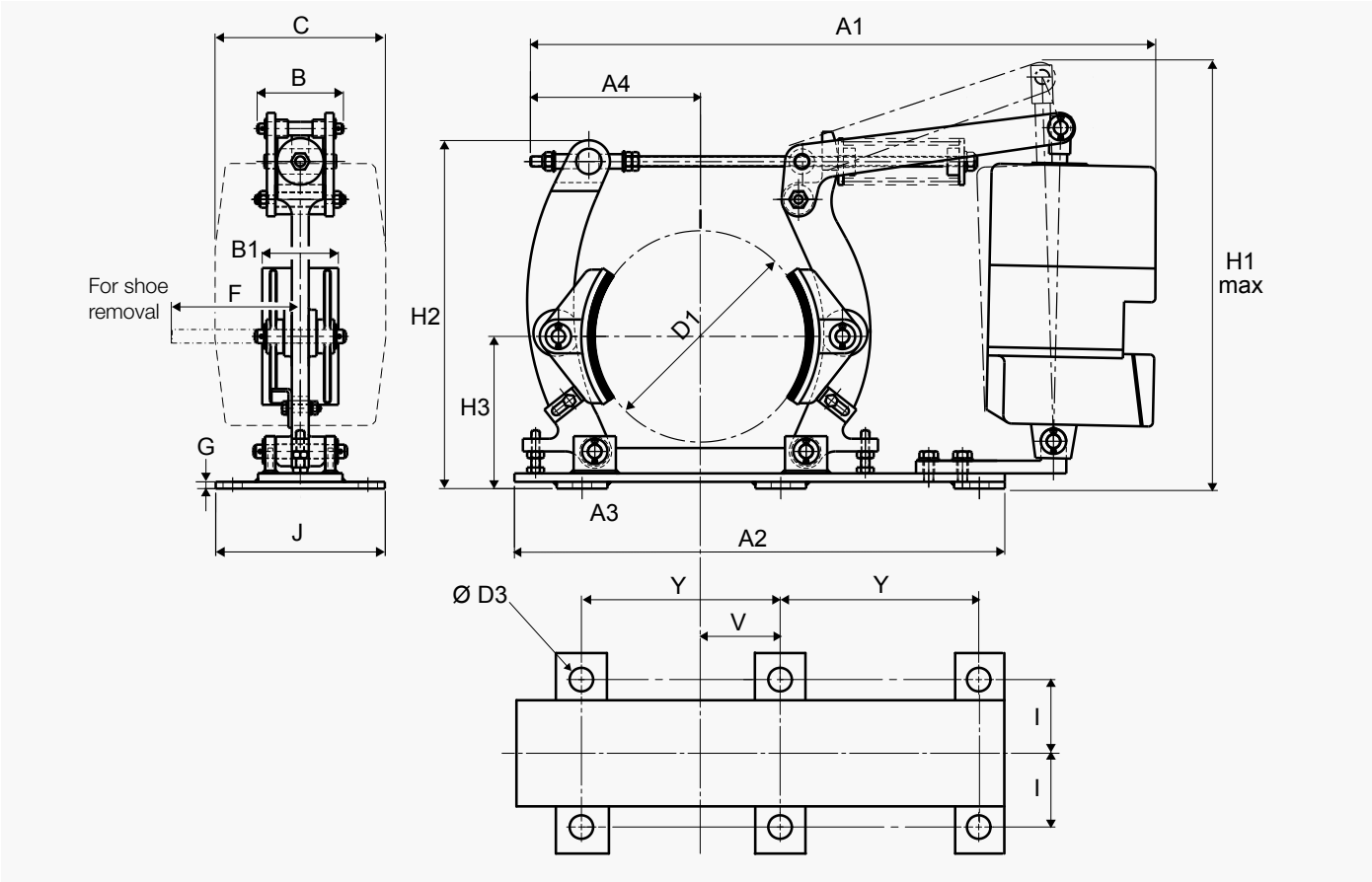
Revision number: T03409-01-H **Revision date: 14.06.2016**

Standard SIME

Spring application
Thrustor release
Protection level : C3M
Voltage : 230 / 400V 50 Hz
Other voltages, consult us.

AT	High temperature
BT	Low temperature
ATEX	Certificat ATEX / Thrustor
BI	Stainless steel bolts
CSA	Opening proving switch
DD	Lining wear indicators
DM	Hand release lever

LM	Locking lever to hold the brake open
PE	Special paint : color / > C3M
PL	Padlock for the locking lever
PR	Reduced torque
RA	Automatic lining wear compensation
VD	Descent valve
	Brake not fitted with the thrustor



Some types may present little differences in the form with the drawing.

BRAKE TYPE	THRUSTOR VS	TORQUE N.m.		WEIGHT kg	WIDTH		DIMENSIONS																
					DRUM	SHOE																	
		min.	max.			B1	D1	D3	H3	A1	A2	A3	A4	B	C	F	G	H1	H2	I	J	V	Y
200	I-256	135	270	30	80	70	200	16	160	675	510	185	197	116	160	125	9	404	355	65	160	61	175
	I-356	175	350	35						687			202					497					
250	I-256	165	330	36	90	90	250	18	180	690	580	220	201	107	160	130	9	423	413	80	160	95	235
	I-356	250	500	41						745			205					505					

Service Brakes

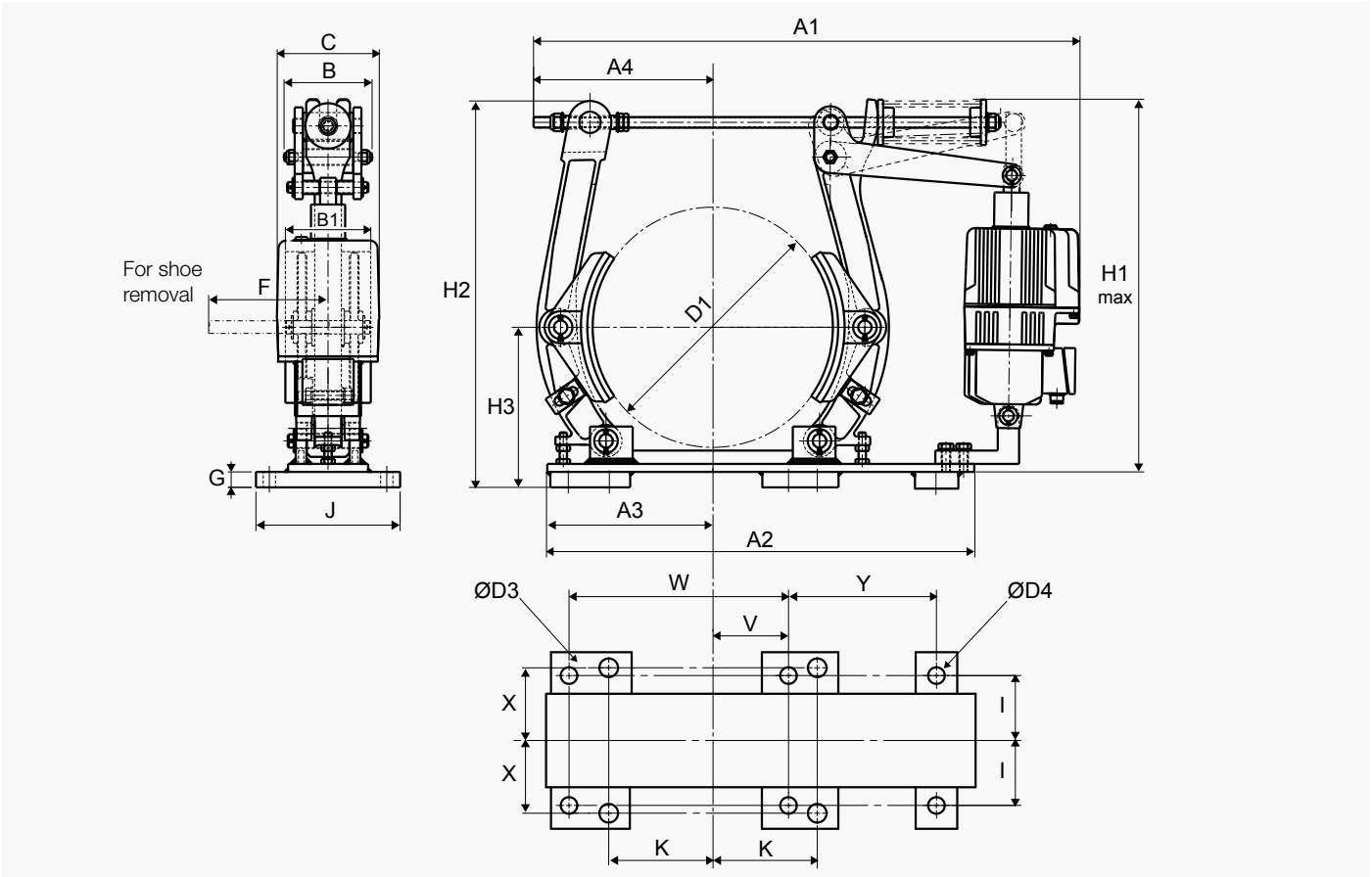
DRUM BRAKE - FED-A 350 AND 450 BRAKES

Revision number: T03409-01-H **Revision date: 14.06.2016**

Standard SIME

Spring application
Thrustor release
Protection level : C3M
Voltage : 230 / 400V 50 Hz
Other voltages, consult us.

AT	High temperature
BT	Low temperature
ATEX	Certificat ATEX / Thrustor
BI	Stainless steel bolts
CSA	Opening proving switch
DD	Lining wear indicators
DM	Hand release lever
LM	Locking lever to hold the brake open
PE	Special paint : color / > C3M
PL	Padlock for the locking lever
PR	Reduced torque
RA	Automatic lining wear compensation
VD	Descent valve
	Brake not fitted with the thrustor



Some types may present little differences in the form with the drawing.

BRAKE TYPE	THRUSTOR VS	TORQUE N.m.		WEIGHT kg	WIDTH		DIMENSIONS																			
					DRUM	SHOE																				
		min.	max.			B1	D1	D3	D4	H3	A1	A2	A3	A4	B	C	F	G	H1	H2	I	J	K	V	W	X	Y
350	I-356	325	650	61	130	110	350	20.5	20	250	855	690	260	263	160	160	180	28	615	613	105	230	145	105	335	90	335
	II-506	500	1000	64							920			278		195			644							
	II-806	800	1600	65							960			291		195			659							
450	II-506	625	1250	88	170	160	450	23	23	300	1045	800	310	326	165	195	190	29	728	724	107.5	270	190	238	603	110	302
	II-806	850	1700	90							1055			336		195			728							
	III-1306	1375	2750	110							1080			360		240			803							

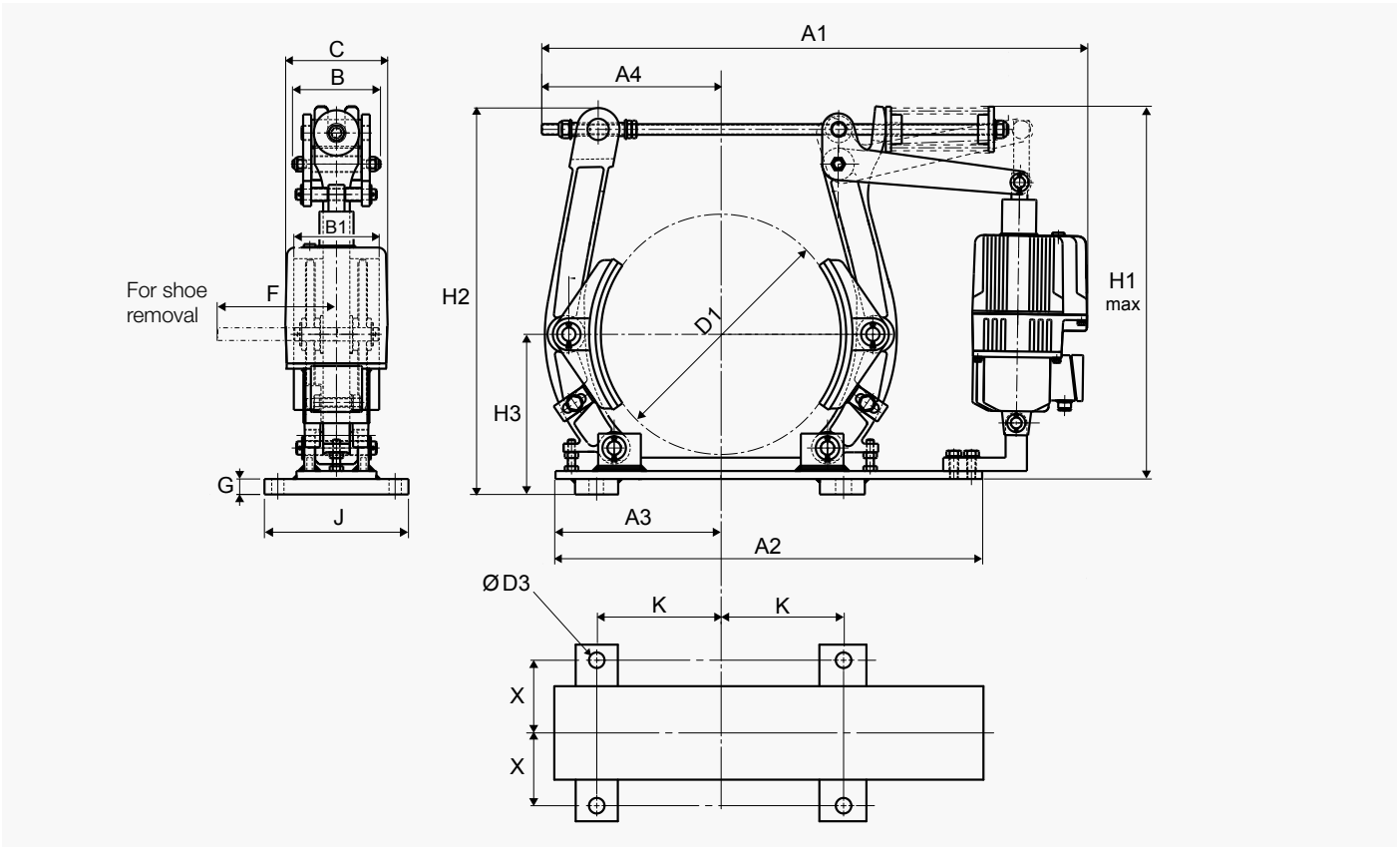
DRUM BRAKE - FED-A 530 TO 750 BRAKES

Revision number: T03409-01-H **Revision date: 14.06.2016**

Standard SIME

Spring application
Thrustor release
Protection level : C3M
Voltage : 230 / 400V 50 Hz
Other voltages, consult us.

AT	High temperature
BT	Low temperature
ATEX	Certificat ATEX / Thrustor
BI	Stainless steel bolts
CSA	Opening proving switch
DD	Lining wear indicators
DM	Hand release lever
LM	Locking lever to hold the brake open
PE	Special paint : color / > C3M
PL	Padlock for the locking lever
PR	Reduced torque
RA	Automatic lining wear compensation
VD	Descent valve
	Brake not fitted with the thrustor



Some types may present little differences in the form with the drawing.

BRAKE TYPE	THRUSTOR VS	TORQUE N.m.		WEIGHT kg	WIDTH		DIMENSIONS														
					DRUM	SHOE															
		min.	max.			B1	D1	D3	H3	A1	A2	A3	A4	B	C	F	G	H1	H2	J	K	X
530	II-806	925	1850	131	195	180	530	25	355	1145	940	365	383	190	195	240	23	833	823	290	235	120
	III-1306	1475	2950	151						1145			396		240			833				
	III-2006	2325	4650	153						1150			381		240			838				
600	III-1306	1575	3150	242	210	190	600	28	400	1175	1150	460	394	230	240	290	22	947	929	310	272	127
	III-2006	2450	4900	244						1207			424					947				
	III-3006	3275	6550	246						1207			424					949				
	III-3012	4400	8800	260						1330			424					957				
750	III-2006	3025	6050	328	230	210	750	31	475	1375	1280	510	470	250	240	330	34	1084	1071	350	338	145
	III-3006	4000	8000	329						1375			470					1084				
	III-3012	5475	10950	343						1545			504					1084				

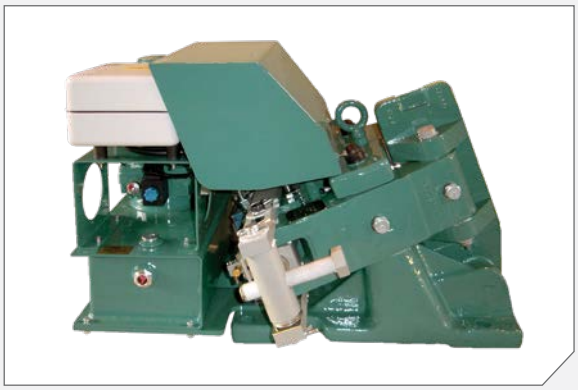
Service Brakes

APPLICATIONS

- PORT CRANES
- ALL HOISTING APPLICATIONS
- TRAVELLING CONTROL
- MASS TRANSPORT
- STEEL CRANES :
  CHARGING AND LADDLE CRANES
  SLAG AND SCRAP CRANES
- BELT CONVEYORS - MINES

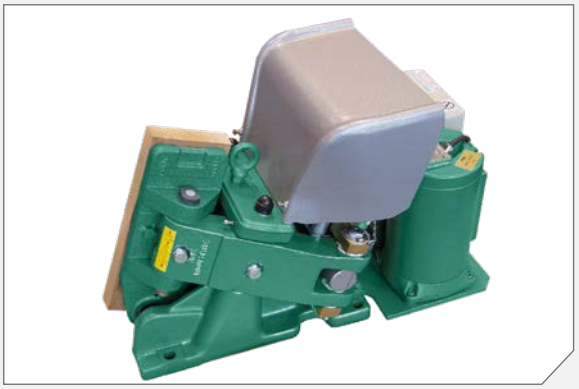
HYDRAULIC SERVICE BRAKES

MAIN CHARACTERISTICS	OPTIONS
• FAILSAFE BRAKES • BRAKING BY HYDROSPRING® SYSTEM • INTEGRAL ELECTRICAL CONNECTIONS • INTEGRAL HYDRAULICAL CONNECTIONS • AUTOMATIC WEAR COMPENSATION	• ADJUSTABLE DELAY OF BRAKE CLOSING • MARINE PROTECTION



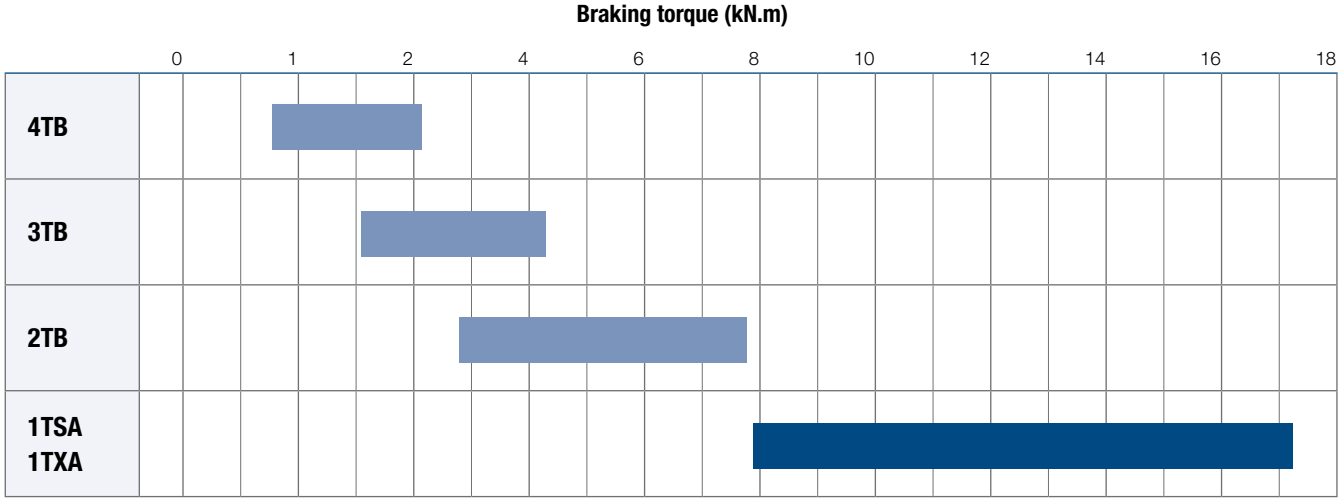
2TB - 3TB - 4TB

- Association with discs Ø445 to 995
- Options:
  Torque setting
  Controlled braking torque /stepped braking torque
  Protective cover



1TSA - 1TXA

- Association with discs Ø625 to 995
- Torque setting



Service Brakes

DISC BRAKE - 1TSA AND 1TXA CALIPERS

Revision number: T03681-01-A **Revision date: 15.02.2007**

Fail safe
Braking by HYDROSPRING® system
Electrico-hydraulically released
Integral hydraulic power unit
Self contained electrical system
Lining wear compensation
Opening proving switch
Torque setting

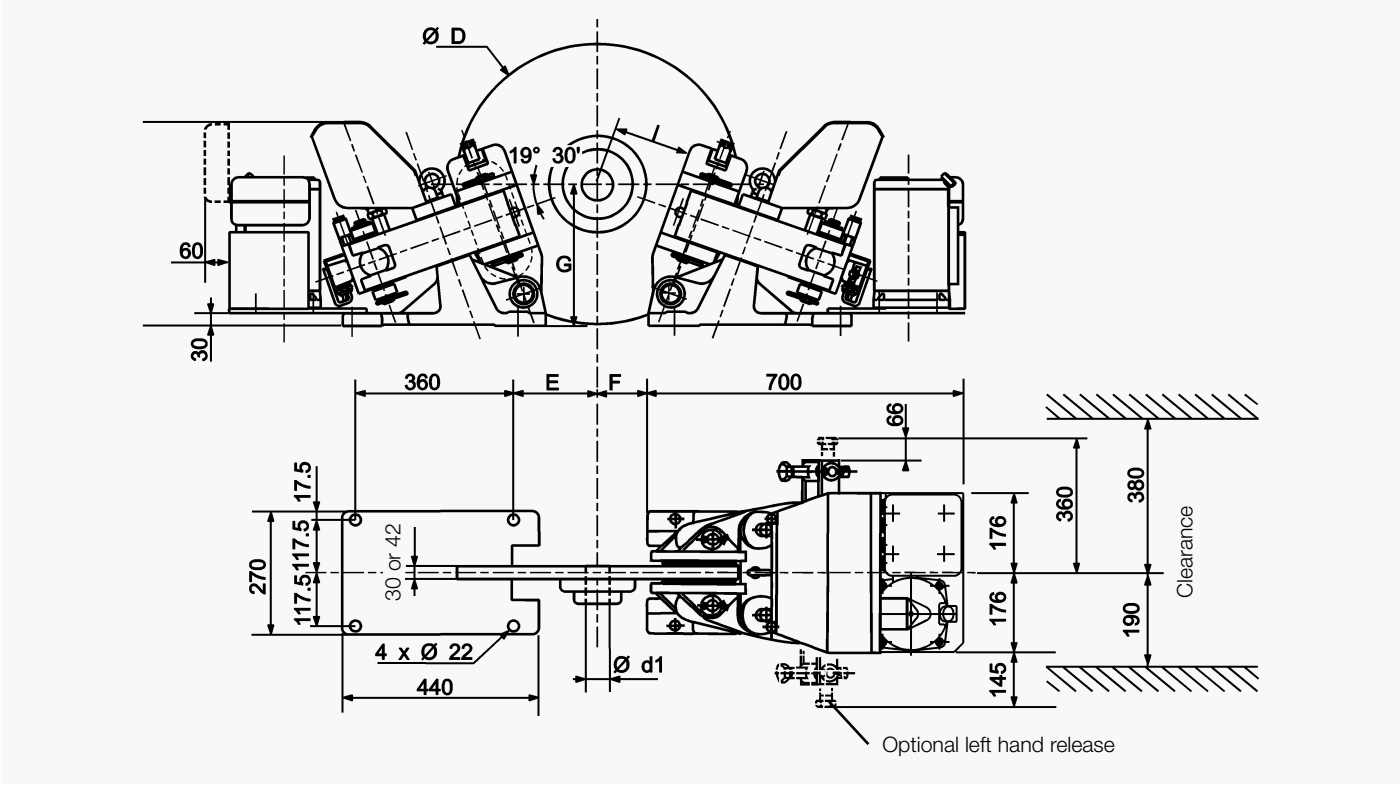
Operating conditions :
- Ambient temperature : -10° C to +50° C
- Relative humidity ≤ 70%
- Dust in atmosphere ≥ 65µ

Other conditions, consult us.

- **1TXA**:

Mounting of 2 calipers per disc, consult us.

Options:
- Linings with wear detection
- Adjustable delay brake closing system from 0.25 to 20 sec.
- Switch for PLC
- Marine protection



Weight: 160 kg
Response time at nominal torque ≤ 0.25 sec.

Caliper inclination from horizontal ± 15° maxi.
Other inclination, consult us.

Disc	Ø	mm	625		705	795		995
	Thickness	mm	30	42	30	30	42	42
Nominal torque for 1 caliper	**1TSA**	N.m	7920		9180	10620		14040
	1TXA	N.m	9780		11300	13100		17300
Disc speed for the nominal torque ✱		r.p.m.	≤ 1500		≤ 1300	≤ 1200		≤ 900
D		mm	625		705	795		995
E		mm	185		225	265		365
F		mm	125		165	205		305
G		mm	315		330	345		380
I		mm	180		225	265		370
1TSA								
Ø d_1 min. for:	1 caliper (1 key) O	mm	97	97	100	111	111	130
	2 calipers (2 keys) O	mm	--	120	--	--	135	170
1TXA								
Ø d_1 min. for:	1 caliper (1 key)	mm	104	104	111	125	125	145
	1 caliper (shrink fit)	mm	104	104	107	110	110	118
Maximum reaction on shaft:	1TSA ■	N	32 400					
	1TXA	N	40 000					

Electric data :
- 3 phases AC supply
- Voltages :
  230V / 400V ±10% 50Hz
  415V ±5% 50Hz
  460V ±5% 60Hz
- Maximum comsumption: 775 W
- Electrical casing: IP 55
  DC supply, other voltages and conditions: consult us.
- Opening proving switch:
  240V, 3A, 10VA AC
  250V, 0.3A, 10W DC

✱ For higher speed, consult us.
O or shrink fit
■ Mounting with 2 calipers: multiply by 0.6

DISC BRAKE - 2TB. 3TB AND 4TB CALIPERS

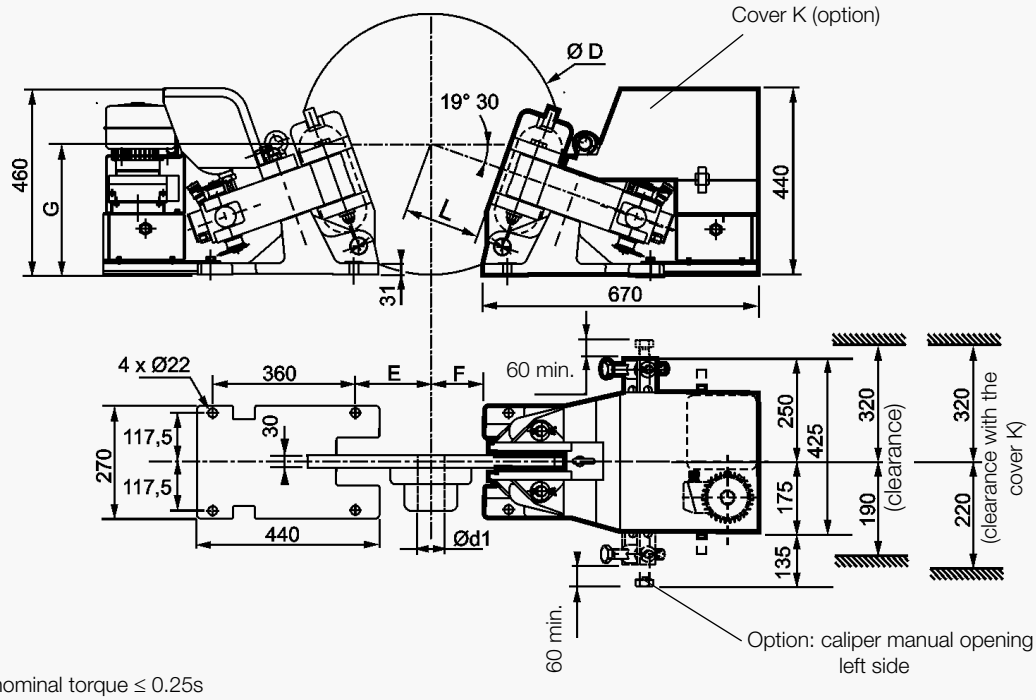
Revision number: T03664-01-C **Revision date: 24.08.2012**

Fail safe
Braking by HYDROSPRING® system
Electrico-hydraulically released
Integral hydraulic power unit
Self contained electrical system
Lining wear compensation
Opening proving switch

Operating conditions:
- Ambient temperature : -10°C to +50°C
- Relative humidity ≤ 70%
- Dust in atmosphere ≥ 65µ

Other conditions, consult us.

Options:
- Torque setting • Detection of full lining wear
- Adjustable delay brake closing system from 0.25 to 20secs
- Controlled braking torque **
- Marine protection • Protective cover K
- Stepped braking torque **
- Redundant circuit with 2 solenoid valves



Weight:160 kg
Response time at nominal torque ≤ 0.25s
Permissible inclination of the caliper ± 45° maximum
Other mountings: consult us.

Discs			445	495	550	625	705	795	995
Nominal torque for 1 caliper:	**2TB**	N.m	2800	3250	3700	4400	5100	5900	7800
	3TB	N.m	1550	1800	2050	2450	2850	3250	4300
	4TB	N.m	775	900	1030	1230	1430	1630	2150
Maximum disc speed for nominal torque *		rpm	2100	1900	1800	1500	1300	1200	900
D		mm	445	495	550	625	705	795	995
E		mm	100	120	150	185	225	265	365
F		mm	40	60	90	125	165	205	305
G		mm	285	295	305	315	330	345	380
L		mm	90	130	145	180	225	265	370
d1 min. keyed for 1 caliper (steel St 70):	**2TB**	mm	73	75	77	80	82	87	92
	3TB	mm	60	62	63	66	67	71	76
	4TB	mm	48	49	50	52	53	57	58
d1 min. keyed for 2 calipers (steel St 70):	**2TB**	mm	79	83	87	92	96	101	110
	3TB	mm	65	68	71	75	79	82	91
	4TB	mm	53	55	57	60	63	66	69
Maximum reaction on shaft ■:	**2TB**	N	18000						
	3TB	N	10000						
	4TB	N	5000						

■ Mounting with 2 calipers, multiply by 0.6

*For higher speeds, consult us.
** Increased dimensions, consult us.

Electric data:
- Power unit motor:
3 phases:
230/400 V ±10%, 50 Hz,
0.37 kW, 4 poles
for mains:
230/400 V 50 Hz
or 415 V 50 Hz
or 460 V 60 Hz
- Options motor:
400/690 V ±10% 50Hz
255/440 V ±10% 50Hz
290/500 V ±10% 50Hz
280/480 V ±10% 60Hz
330/575 V ±10% 60Hz
- Other voltages, consult us.
- Electrical casing IP55
- Opening switch:
240 V, 3 A, 10 VA AC
250 V, 0.3 A, 10 W DC

Service Brakes

APPLICATIONS

- PORT CRANES
- HOIST, GANTRY AND TROLLEY MOTIONS
- BELT CONVEYORS
- MINES
- IRON AND STEEL INDUSTRY
- LADLE CRANES

THRUSTOR SERVICE BRAKES

MAIN CHARACTERISTICS

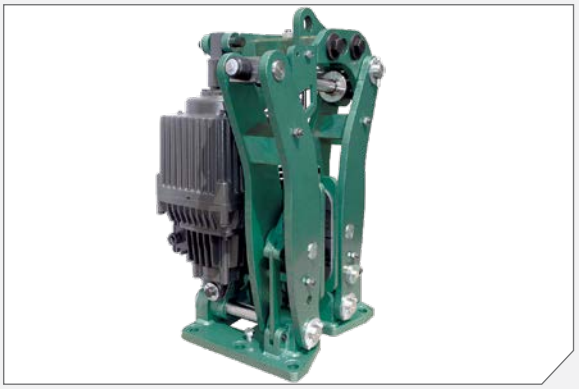
- FAILSAFE BRAKES
- SPRING APPLIED
- ELECTROHYDRAULIC THRUSTOR RELEASED
- ADJUSTABLE BRAKING TORQUE

OPTIONS

- LINING FULL WEAR CONTROL SWITCH
- HIGH TEMPERATURE STEEL WORKS (SIDHT)
- HIGH TEMPERATURE THRUSTOR (HT)

TDXB.I - TDXB.II

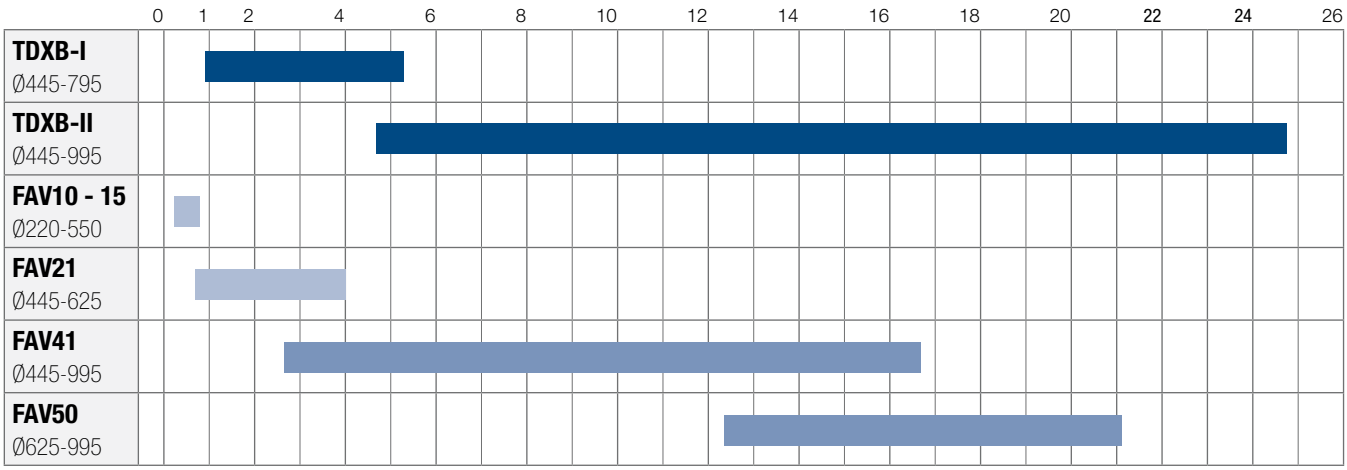
- Lining wear manual compensation
- Self-centering
- Options:
  Opening and closing proximity switches
  Lining wear automatic compensation



FAV10 - FAV15 - FAV21 - FAV40 - FAV50

- Lining wear automatic compensation
- Auto centering
- Thrustor stroke and opening proving switches
- Options: Monitoring module

Braking Torque (kN.m)



Service Brakes

DISC BRAKE - TDXB-I BRAKE

Revision number: T10121-01-D **Revision date: 30.06.2017**

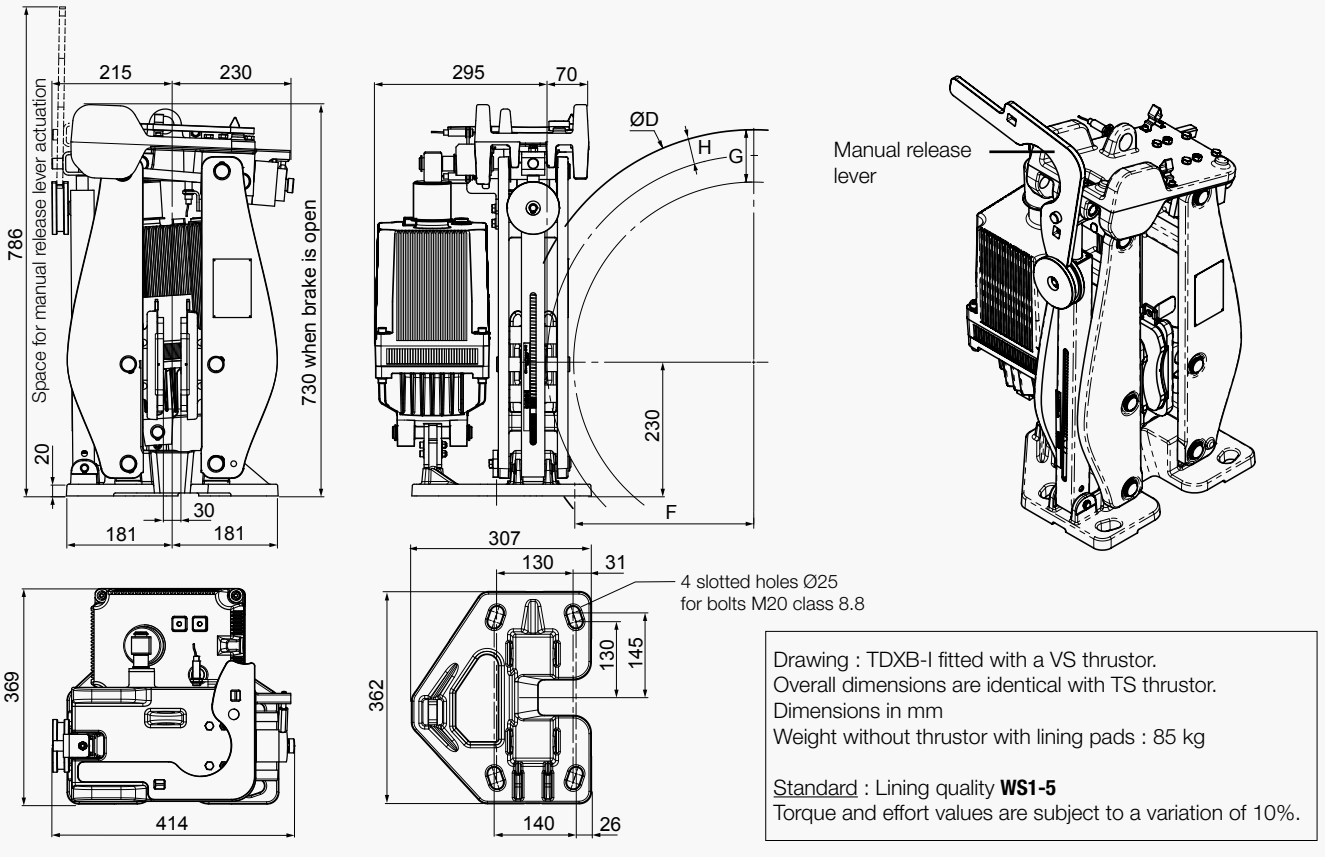
Fail safe
Spring application / Thrustor release
Self-centering
Lining wear manual compensation
Opening sensor
Low maintenance Teflon bushes
Lining full wear indicators
Manual release lever
Thrustors TS

Operating conditions:
- Ambient temperature: -25°C to +50°C
- Relative humidity ≤ 70%
- Dust in atmosphere ≥ 65µ

Other conditions: consult us.

Use:
- Service brake

Options :
- Lining wear automatic compensation
- Closing sensor
- Thrustor limit stroke sensor
- SIDHT : High Temperature Steel works
- Custom color
- Thrustors VS



Drawing : TDXB-I fitted with a VS thrustor.
Overall dimensions are identical with TS thrustor.
Dimensions in mm
Weight without thrustor with lining pads : 85 kg

Standard : Lining quality **WS1-5**
Torque and effort values are subject to a variation of 10%.

DISCS (ØD)			355	395	445	495	550	625	705	795
NOMINAL TORQUE. 1 caliper ✱	**TDXB-I 1**	N.m	945	1057	1121	1291	1477	1731	2002	2307
	TDXB-I 2	N.m	1562	1747	1854	2134	2442	2862	3310	3814
	TDXB-I 3	N.m	2176	2434	2582	2972	3401	3986	4610	5312
MAXIMUM DISC SPEED for nominal torque ✱✱		rpm	2700	2400	2100	1900	1800	1500	1350	1200
Maximum linear speed		m/s	50							
F		mm	110	120	131	156	184	221	261	306
		mm	D/2-67.5	D/2-77.5	D/2-91.5					
G		mm	94	104	136					
H		mm	38	41.5	57					
MAXIMUM REACTION ON SHAFT	**TDXB-I 1**	N	6776							
	TDXB-I 2	N	11200							
	TDXB-I 3	N	16000							

✱ Nominal torque is adjustable from 100% to 70%
✱✱ For higher speeds, consult Stromag France

DISC BRAKE - TDXB-II BRAKE

Revision number: T10122-01-C **Revision date: 30.06.2017**

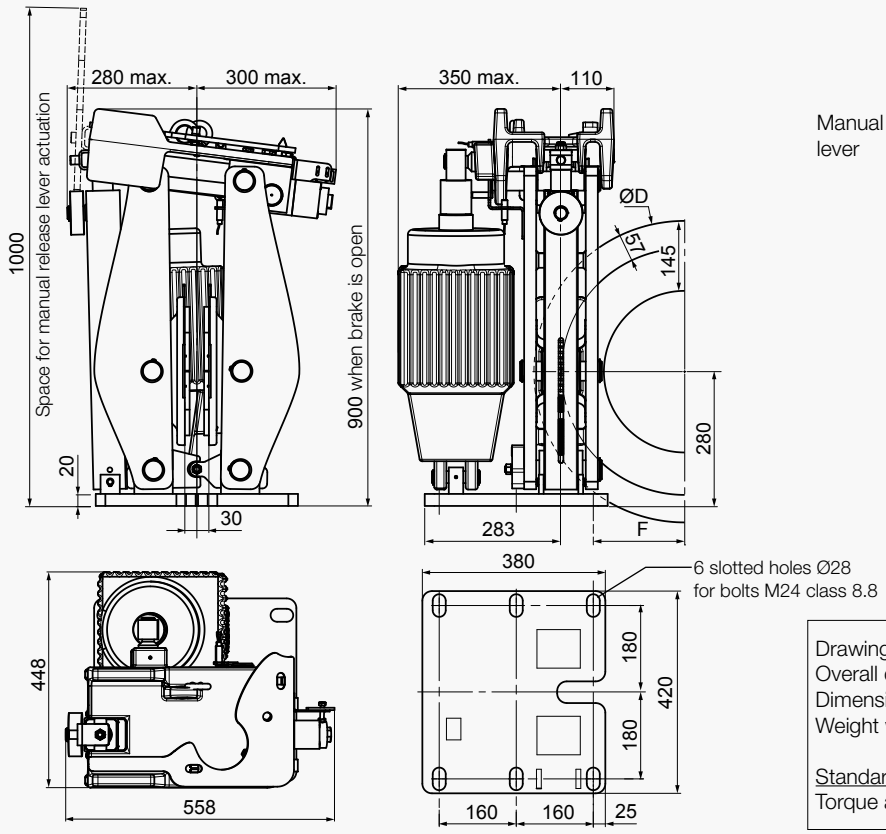
Fail safe
Spring application / Thrustor release
Self-centering
Lining wear manual compensation
Opening sensor
Low maintenance Teflon bushes
Lining full wear indicators
Manual release lever
Thrustors TS

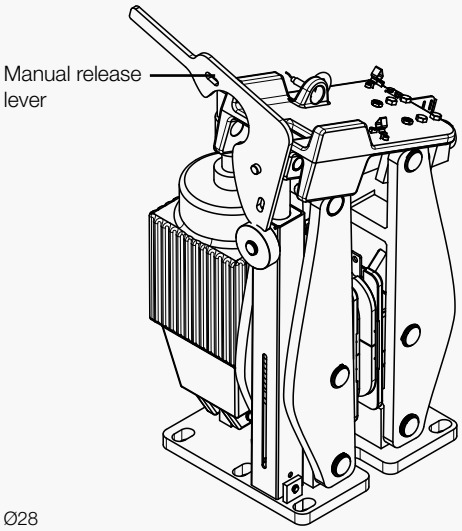
Operating conditions:
- Ambient temperature: -25°C to +50°C
- Relative humidity ≤ 70%
- Dust in atmosphere ≥ 65µ

Other conditions: consult us.

Use:
- Service brake

Options :
- Lining wear automatic compensation
- Closing sensor
- Thrustor limit stroke sensor
- SIDHT : High Temperature Steel works
- Custom color
- Thrustors VS





Drawing : TDXB-II fitted with a TS thrustor.
Overall dimensions are identical with VS thrustor.
Dimensions in mm
Weight without thrustor with lining pads : 190 kg

Standard : Lining quality **WS1-5**
Torque and effort values are subject to a variation of 10%.

DISCS (ØD)			445	495	550	625	705	795	995
NOMINAL TORQUE. 1 caliper ✱	**TDXB-II 1**	N.m	4690	5390	6160	7210	8330	9590	12390
	TDXB-II 2	N.m	6700	7700	8800	10300	11900	13700	17700
	TDXB-II 3	N.m	9380	10780	12320	14420	16660	19180	24780
MAXIMUM DISC SPEED for nominal torque ✱✱		rpm	640	580	520	460	400	360	290
Maximum linear speed		m/s	30						
F		mm	93	118	145	183	255	268	368
		mm	D/2-129.5						
MAXIMUM REACTION ON SHAFT	**TDXB-II 1**	N	28000						
	TDXB-II 2	N	40000						
	TDXB-II 3	N	56000						

✱ Nominal torque is adjustable from 100% to 70%
✱✱ For higher speeds, consult Stromag France

Service Brakes

DISC BRAKE - FAV10-FAV15 BRAKES

Revision number: T10022-01-I **Revision date: 23.05.2013**

Fail safe
Spring application / Thrustor release
Manual centering
Lining wear compensation
Linings with wear indicator wires
Thrustor stroke control switch
Opening proving switch
Stainless steel pins
Manual release lever
Protection class C5 standard ISO12944-2

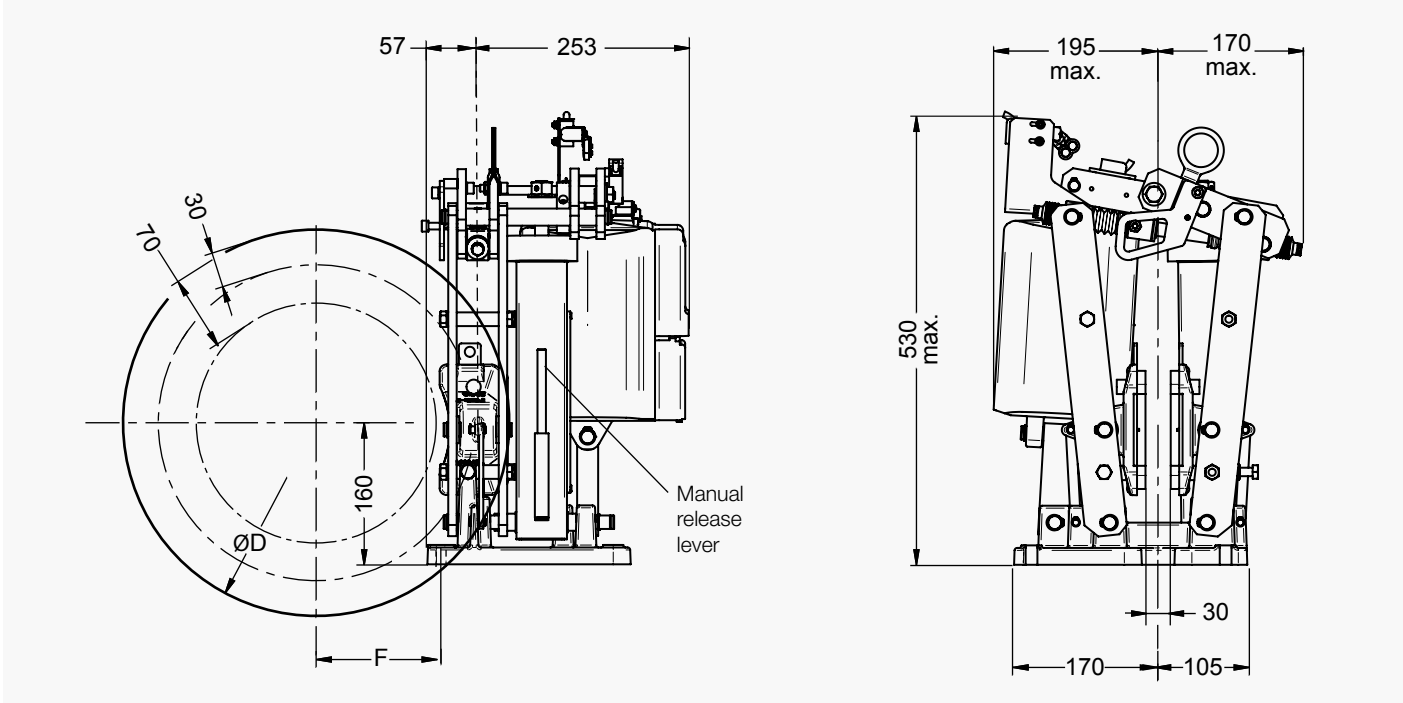
Operating conditions:
- Ambient temperature: -20°C to +50°C
- Relative humidity ≤ 70%
- Dust in atmosphere ≥ 65µ

Other conditions: consult us.

Use:
- Service brake

Options :
- SIDHT : Steel works High Temperature
- HT : High Temperature Thrustor
- Thrustor :

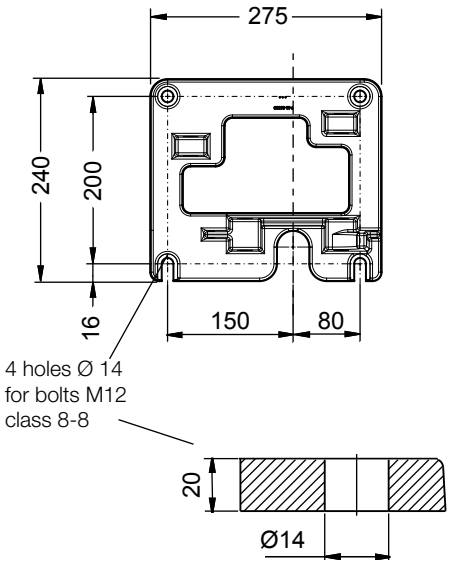
VS-I-256 or Ed23/5 - 230/400V (FAV10)
VS-I-356 or Ed30/5 - 230/400V (FAV15)



Weight without thrustor: 27 kg
Weight with thrustor : FAV10 : 40 kg. FAV15 : 44 kg
Torque and effort values are subject to a variation of ±10%

FAV10 and FAV15 calipers are associated with linings type **WS1-5.**

Discs (ØD)			220	260	315	355	395	445	495	550
Nominal torque. 1 caliper ✱	FAV10	N.m.	221	275	349	403	457	525	592	661
	FAV15	N.m.	265	330	410	485	550	630	710	795
Maximum disc speed for nominal torque ✱✱		rpm	4300	3600	3000	2700	2400	2100	1900	1800
F		mm	47	66	93	113	135	160	185	213
Maximum reaction on shaft	FAV10	N	2700							
	FAV15	N	3200							



✱ Braking torque is adjustable from 100% to 70% of nominal torque, friction factor µ =0.37
✱✱ For higher speeds, consult Stromag France

DISC BRAKE - FAV21-VS BRAKE

Revision number: T10044-02-E **Revision date: 08.11.2017**

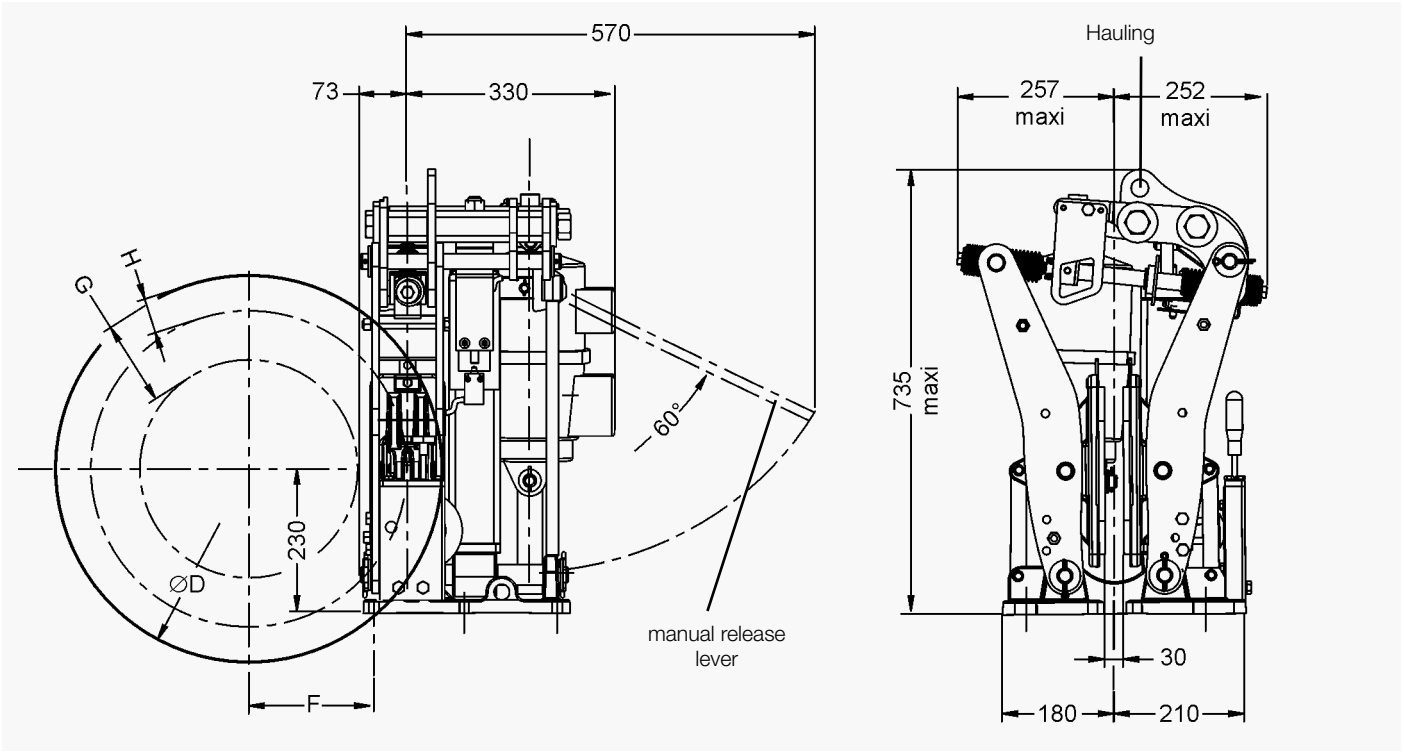
Fail safe
Spring application / Thrustor release
Auto centering
Lining wear compensation
Thrustor stroke control switch
Opening proving switch
Stainless steel pins

Operating conditions:
- Ambient temperature: -20°C to +50°C
- Relative humidity ≤ 70%
- Dust in atmosphere ≥ 65µ

Other conditions: consult us

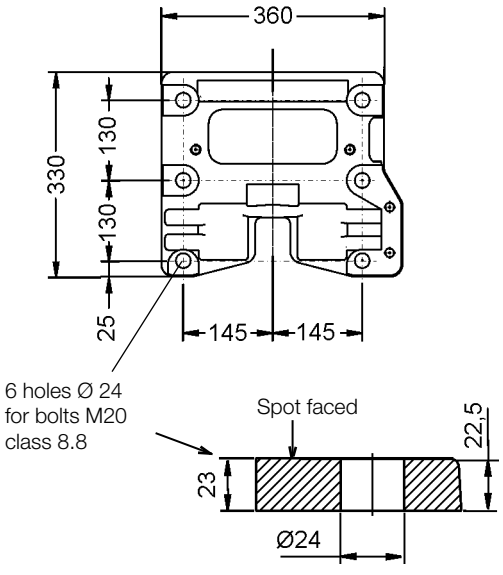
Use:
- Service brake

Options :
- Lining full wear control switch
- MSF : Monitoring modul for FAV
- SIDHT : High Temperature Steel works
- HT : High Temperature Thrustor
- Manual release lever
- Thrustors Ed50/6 - Ed80/6



Weight with thrustor and lining pads : 130 kg
Torque and effort values are subject to a variation of ±10%
Lining quality **WS1-5** in standard.

Discs (ØD)			355	395	445	495	550	625	705
Nominal torque ✱. 1 caliper	**FAV213 VS II 1306**	N.m.	-	-	2260	2590	2990	3450	4000
	FAV212 VS II 806	N.m.	1300	1500	1700	1950	2250	2600	-
	FAV211 VS II 506	N.m.	700	750	900	1000	1150	1350	-
Max. disc speed for nominal torque ✱✱		rpm	2700	2400	2100	1900	1800	1500	1500
F		mm	122	142	118	143	170	208	248
F		mm	(D/2-56)		(D/2-105)				
G		mm	67		136				
H		mm	32		57				
Maximum reaction on shaft	**FAV213 VS II 1306**	N	-		13600				
	FAV212 VS II 806	N	9100		10200				-
	FAV211 VS II 506	N	4500		5300				-



✱ Nominal torque is adjustable from 100% to 70%
✱✱ For higher speeds, consult Stromag France

Service Brakes

DISC BRAKE - FAV41-VS BRAKE

Revision number: T03524-02-D **Revision date: 08.11.2017**

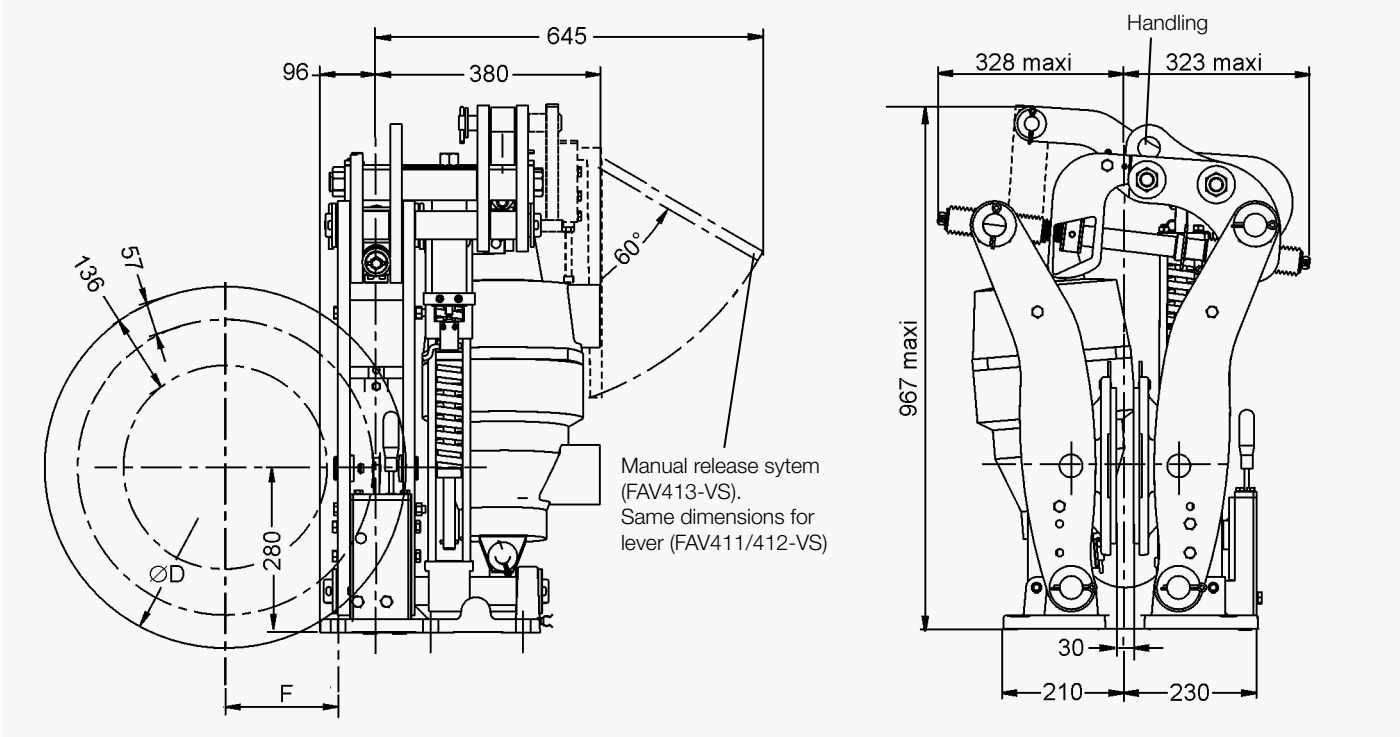
Fail safe
Spring application / Thrustor release
Auto centering
Lining wear compensation
Thrustor stroke control switch
Opening proving switch
Stainless steel pins
Manual release lever for FAV411/412-VS
Manual release system for FAV413-VS

Operating conditions:
- Ambient temperature: -20°C to +50°C
- Relative humidity ≤ 70%
- Dust in atmosphere ≥ 65µ

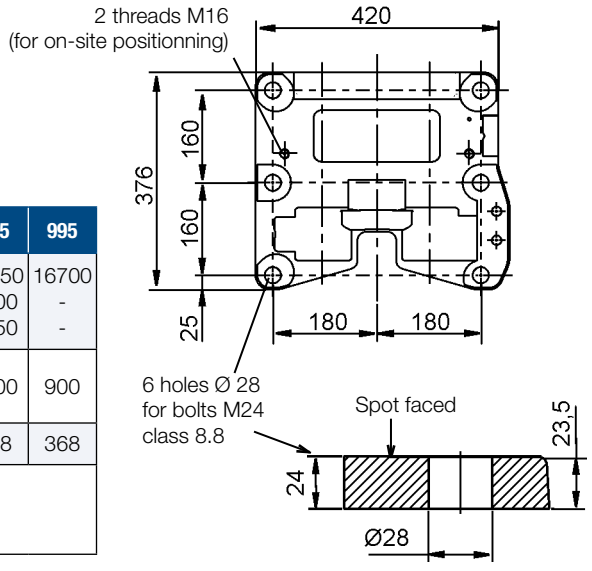
Other conditions: consult us

Use:
- Service brake

Options :
- Lining full wear control switch
- MSF : Monitoring modul for FAV
- SIDHT : High Temperature Steel works
- HT : High Temperature Thrustor
- Thrustors : Ed301/10 - Ed201/10 - Ed121/10



Weight without thrustor : 180 kg / Weight with thrustor : 222 kg
Torque and effort values are subject to a variation of ±10%
The disc run-out must not exceed 0.08 % of the maximum radius and the disc axial displacement must be smaller than 0.5 mm.
Lining quality **WS1-5** in standard.



Discs (ØD)		445	495	550	625	705	795	995
Nominal torque. 1 caliper ✱ (N.m)	**FAV413 VS-III-3010**	-	-	-	9700	11200	12950	16700
	FAV412 VS-III-2010	-	4960	5650	6600	7650	8800	-
	FAV411 VS-III-1310	2650	3050	3500	4100	4750	5450	-
Maximum disc speed for nominal torque (rpm) ✱✱		2100	1900	1800	1500	1300	1200	900
F (mm) (F=D/2-130)		93	118	145	183	223	268	368
Maximum reaction on shaft (N)	**FAV413 VS-III-3010**	38000						
	FAV412 VS-III-2010	26000						
	FAV411 VS-III-1310	16000						

✱ Nominal torque is adjustable from 100% to 70%
✱✱ For higher speeds, consult Stromag France

DISC BRAKE - FAV50 / FAV50-VS BRAKES

Revision number: T03525-01-D / T03525-02-E **Revision date: 08.11.2017 / 08.11.2017**

Fail safe
Spring application / Thrustor release
Auto centering
Lining wear compensation
Thrustor stroke control switch
Opening proving switch
Stainless steel pins
Manual release system

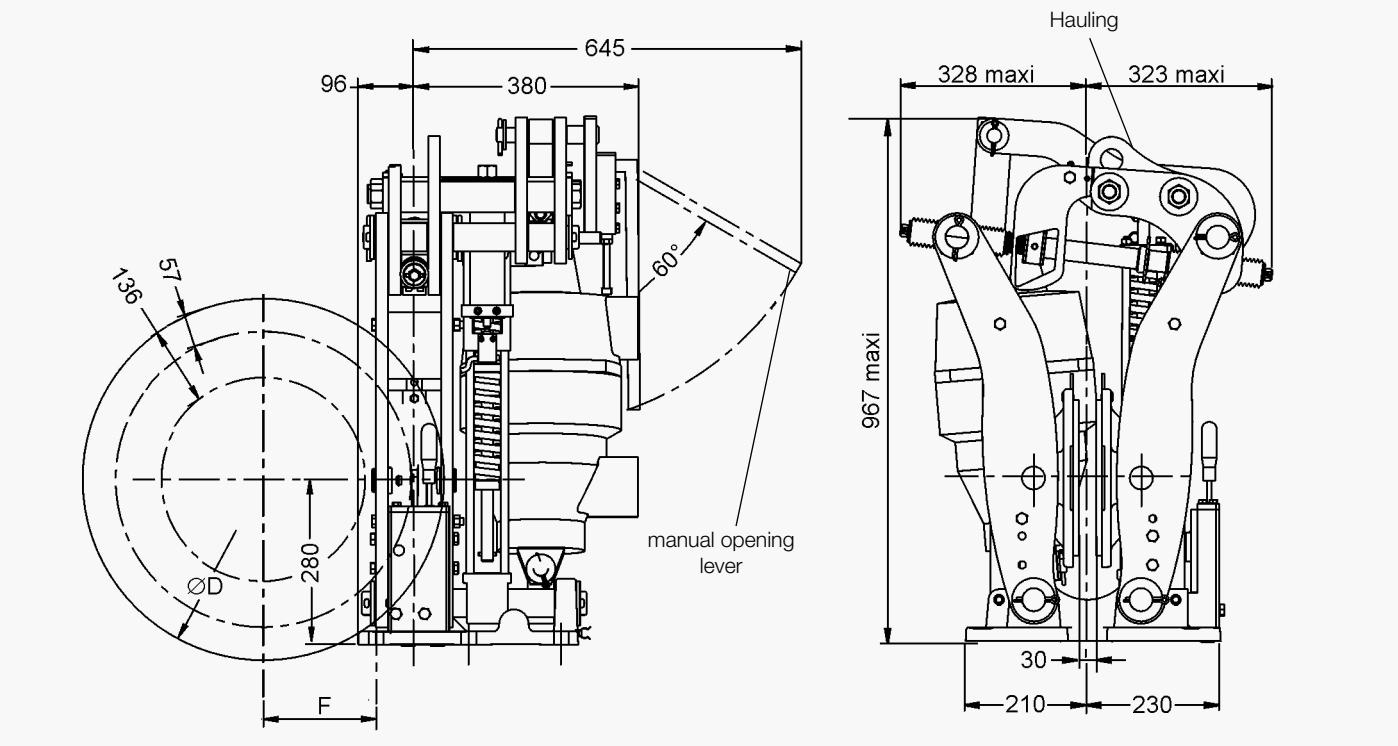
Operating conditions:
- Ambient temperature: -20°C to +50°C
- Relative humidity ≤ 70%
- Dust in atmosphere ≥ 65µ

Other conditions: consult us.

Use:
- Service brake

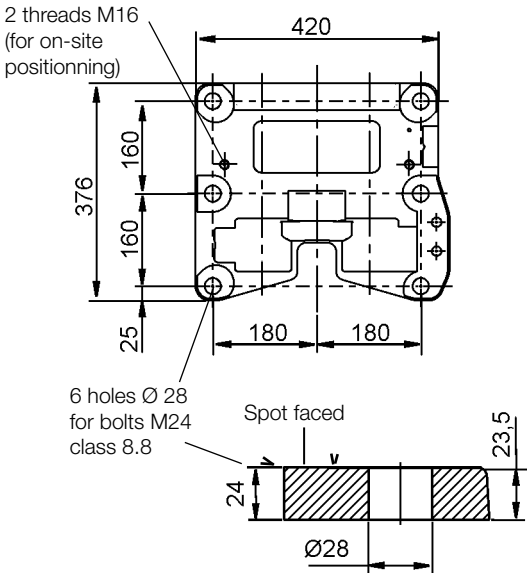
Options :
- Lining full wear control switch
- MSF : Monitoring modul for FAV
- SIDHT : High Temperature Steel works
- HT : High Temperature Thrustor

FAV50 : Thrustor **Ed-301/100**
FAV50-VS : Thrustor **VS-III-3010**



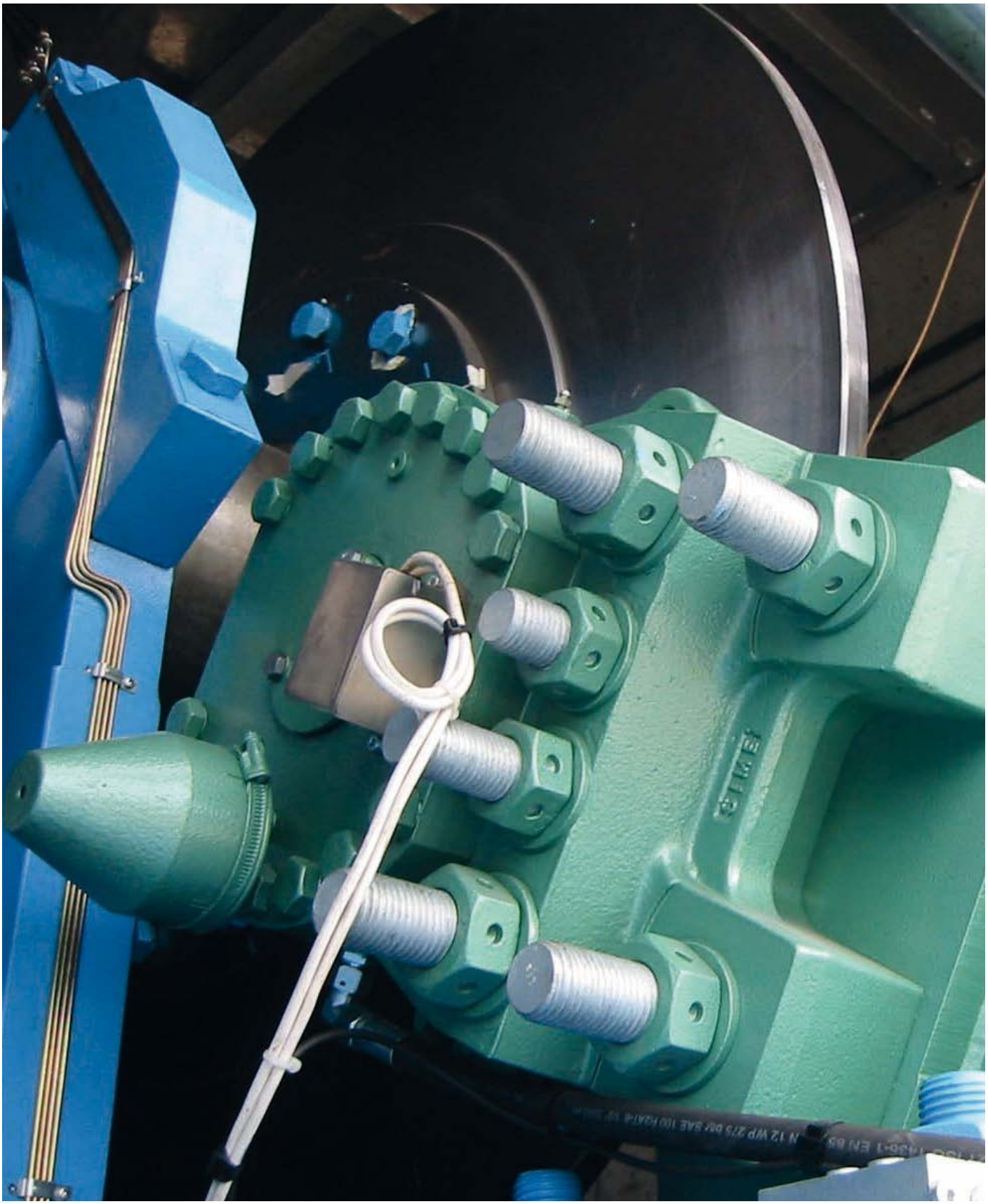
Weight without thrustor: 180 kg
Weight with thrustor of **FAV503** : 220 kg. **FAV503-VS** : 224 kg.
Torque and effort values are subject to a variation of ±10%
Lining quality **WS1-5** in standard.

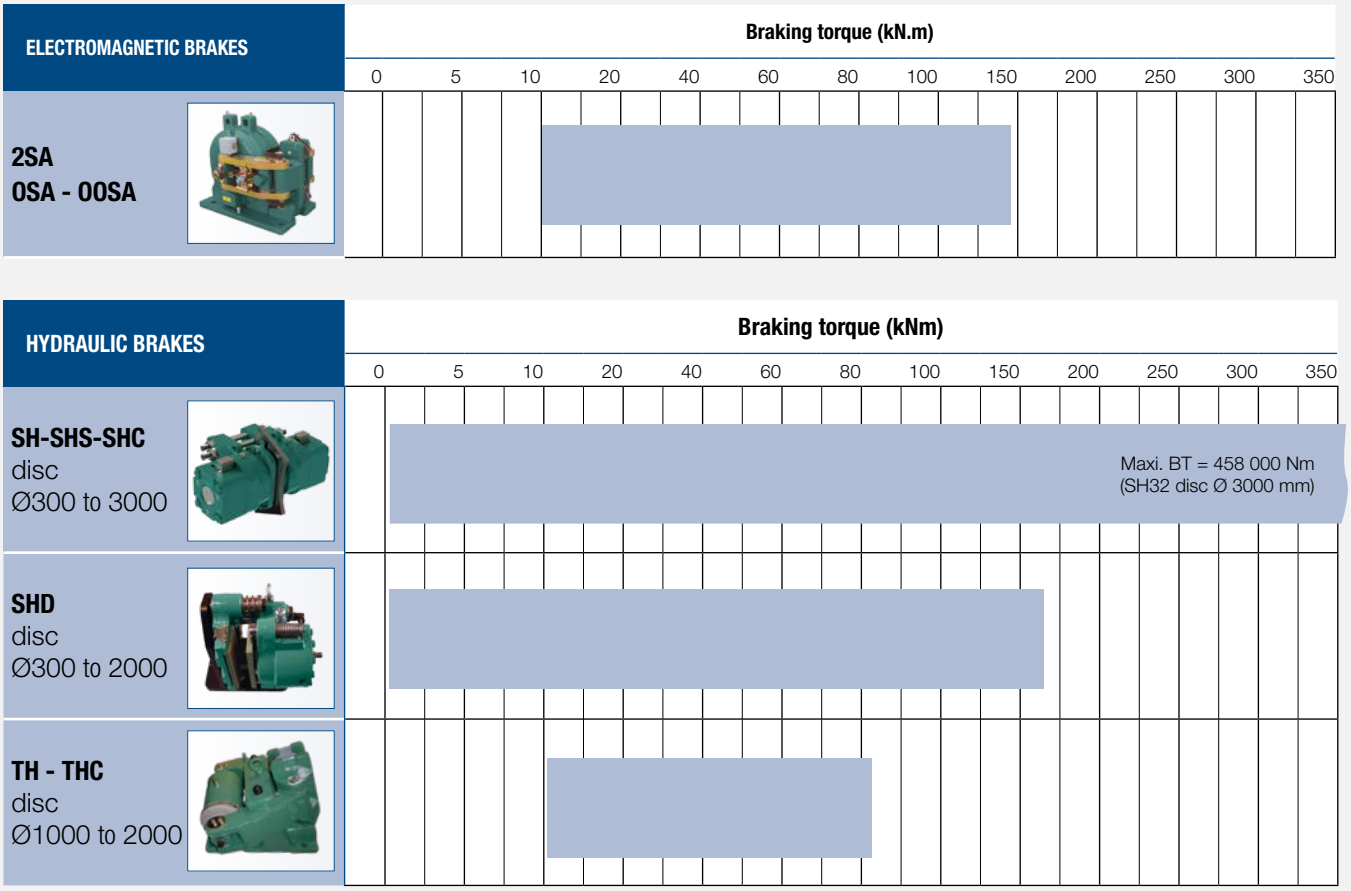
Discs (ØD)		625	705	795	995
Nominal torque. 1 caliper ✱ (N.m)	**FAV503 / FAV503-VS**	12360	14270	16500	21270
Maximum disc speed for nominal torque (rpm) ✱✱		1500	1300	1200	900
F (mm) (F=D/2-130)		183	223	268	368
Maximum reaction on shaft (N)	**FAV503 / FAV503-VS**	48 400			



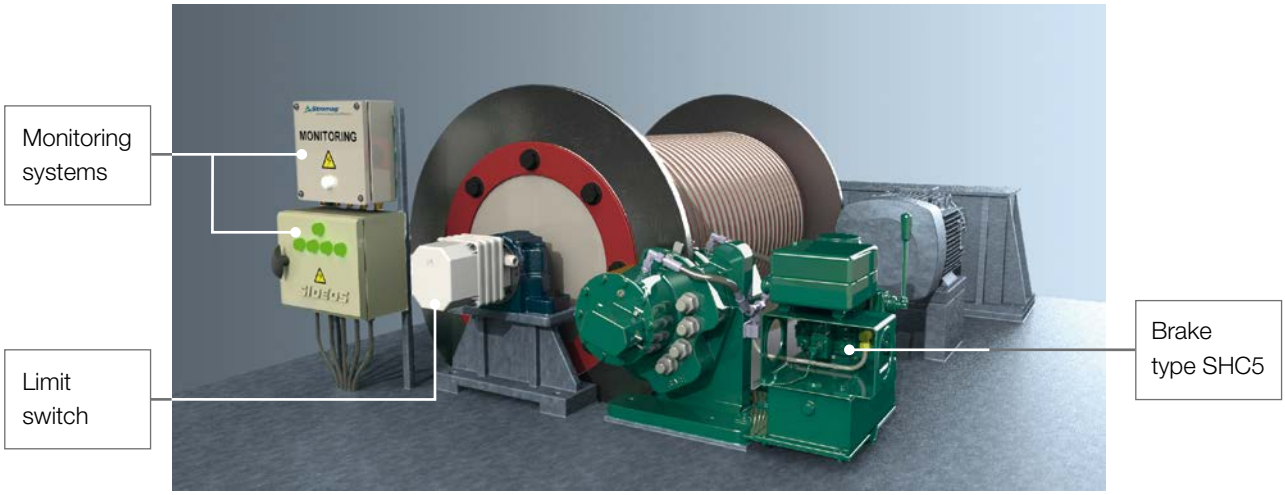
✱ Nominal torque is adjustable from 100% to 70%
✱✱ For higher speeds, consult Stromag France

EMERGENCY BRAKES





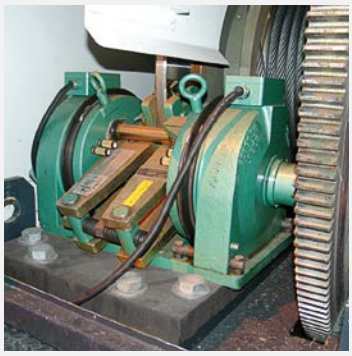
A COMPLETE BRAKING SOLUTION



Emergency Brakes

APPLICATIONS

- STEEL INDUSTRY
- NUCLEAR PLANTS



ELECTROMAGNETIC EMERGENCY BRAKES

MAIN CHARACTERISTICS	OPTIONS
• FAILSAFE BRAKE BY SPRING APPLICATION • ELECTROMAGNETIC RELEASE • MANUAL LINING WEAR COMPENSATION • OPENING PROVING SWITCH • DETECTION OF FULL LINING WEAR	• LOAD REGULATED LOWERING

2SA

Air gap switch

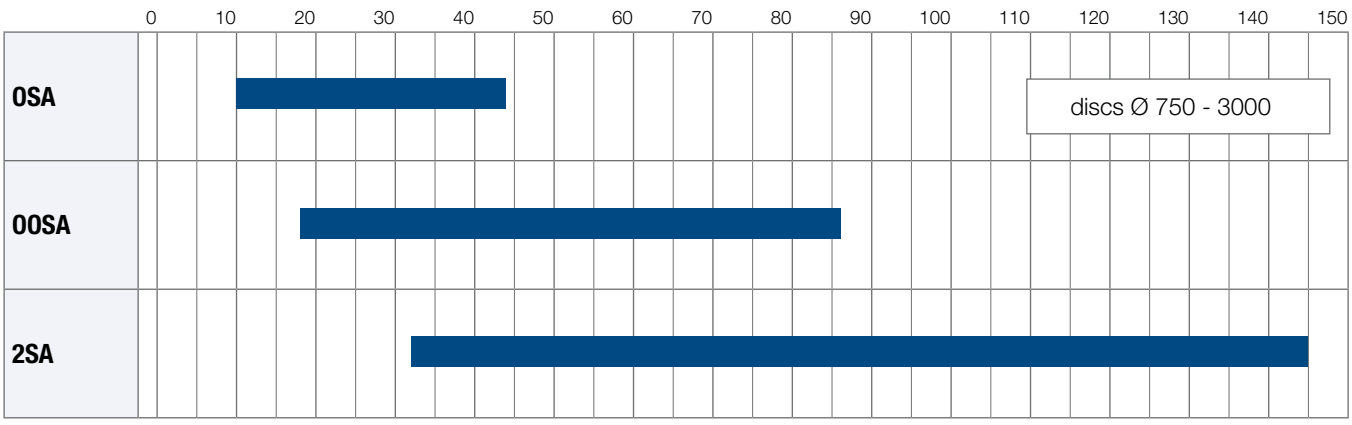
0SA

• Option :
Manual release lever
Hydraulic release
Mounting on a vertical axis disc
Flameproof / Marine protection...

00SA

• Option :
Manual release lever
Hydraulic release
Flameproof protection
Marine protection

Braking torque (kN.m)



Emergency Brakes

DISC BRAKE - OSA CALIPER

Revision number: T03750-01-F **Revision date: 22.03.2016**

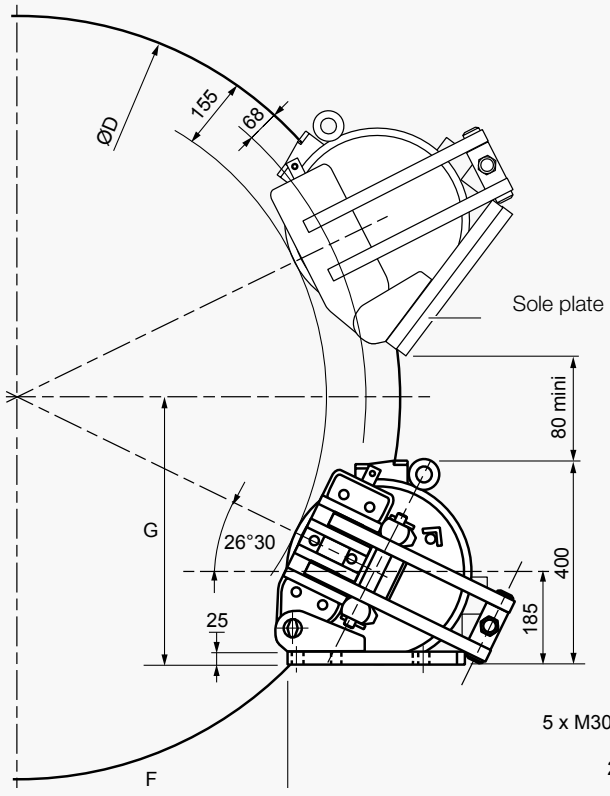
Fail safe braking
Braking by spring application
Electromagnetic release
Manual lining wear compensation
Detection of full lining wear
Opening proving switch

Operating conditions:
- Ambiant temperature: -10°C to +60°C
- Relative humidity ≤ 70%
- Dust in atmosphere ≥ 65µ

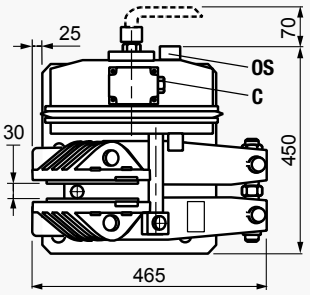
Other conditions, consult us.

Use:
The brake should be applied only in case of emergency stop, overspeed or shutdown of electric mains.

Options:
- Manual release lever
- Hydraulic release
- Load regulated lowering
- Flameproof protection
- Marine protection
- Mounting on a vertical axis disc

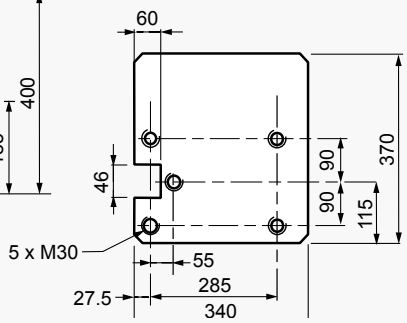


Right hand caliper



Nota: the left or right hand positionning is to be precised

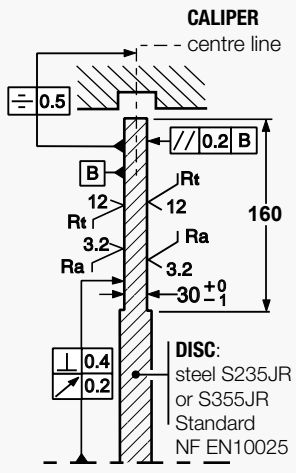
Sole plate location - top view



C = Cable gland PG16
OS = Opening switch, cable gland PG16

Weight: 200 kg
Dimensions in mm

Support and disc installation



Response time at nominal torque :
see the leaflet of the associated electrical power supply.
Force values are subject to a variation of ±10%.

Designation	Caliper		OSA
	Lining ∗		US2-1
Braking force BF	Static	N	27 900
	Dynamic	N	31 000
Linear speed of the disc		m/s	≤ 10
Dynamic braking torque BT (N.m) for 1 caliper and disc ØD (mm)	1000 mm	N.m	13 400
	1200 mm	N.m	16 500
	1500 mm	N.m	21 100
	2000 mm	N.m	28 900
BT for other ØD (mm)		N.m	BT = BF (D/2000 - 0.068)
F		mm	F = (0.4475 × ØD) - 150
G		mm	G = 196 + (0.2231 × ØD)

Opening proving switch :

250VAC maxi., 5A maxi., with interrupting capacity : 50VA maxi
220VDC maxi., 5A maxi., with interrupting capacity : 50W maxi

Compatible with PLC (Programmable Logic Controllers).
An opening switch used with other equipment than PLC must not be reused with a PLC.

∗ **US2-1**: disc temperature during one braking ≤ 150°C
US2-5: disc temperature during one braking ≤ 350°C. optional. consult us.

DISC BRAKE - OOSA CALIPER

Revision number: T03770-01-E **Revision date: 22.03.2016**

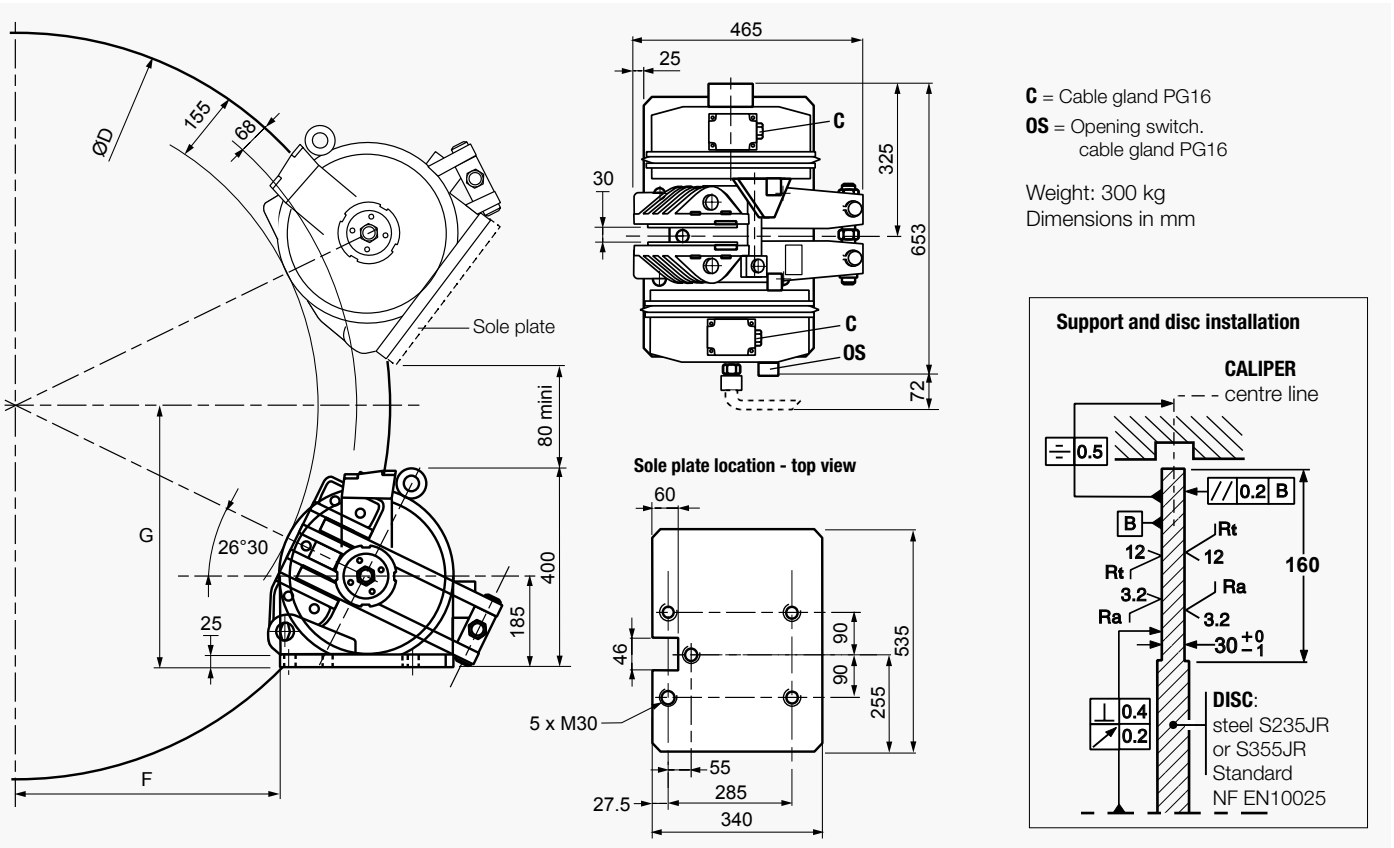
Fail safe braking
Braking by spring application
Electromagnetic release
Manual lining wear compensation
Detection of full lining wear
Opening proving switch

Operating conditions:
- Ambiant temperature: -10°C to +60°C
- Relative humidity ≤ 70%
- Dust in atmosphere ≥ 65µ

Other conditions, consult us.

Use:
The brake should be applied only in case of emergency stop, overspeed or shutdown of electric mains.

Options:
- Manual release lever
- Hydraulic release
- Load regulated lowering
- Flameproof protection
- Marine protection



Response time at nominal torque :
see the leaflet of the associated electrical power supply.
Force values are subject to a variation of ±10%.

Designation	Caliper		OOSA
	Lining ∗		US2-1
Braking force BF	Static Dynamic	N N	54 000 60 000
Linear speed of the disc		m/s	≤ 10
Dynamic braking torque BT (N.m) for 1 caliper and 1 disc ØD (mm)	1000 mm 1200 mm 1500 mm 2000 mm	N.m N.m N.m N.m	25 900 31 900 40 900 55 900
BT for other ØD (mm)		N.m	BT = BF (D/2000 - 0.068)
F		mm	F = (0.4475 × ØD) - 150
G		mm	G = 196 + (0.2231 × ØD)

Opening proving switch :

250VAC maxi., 5A maxi., with interrupting capacity : 50VA maxi

220VDC maxi., 5A maxi., with interrupting capacity : 50W maxi

Compatible with PLC (Programmable Logic Controllers).
An opening switch used with other equipment than PLC must not be reused with a PLC.

∗ **US2-1**: disc temperature during one braking ≤ 150°C
US2-5: disc temperature during one braking ≤ 350°C. optional. consult us.

NOTES

DISC BRAKE - 2SA CALIPER

Revision number: T03781-01-D **Revision date: 22.03.2016**

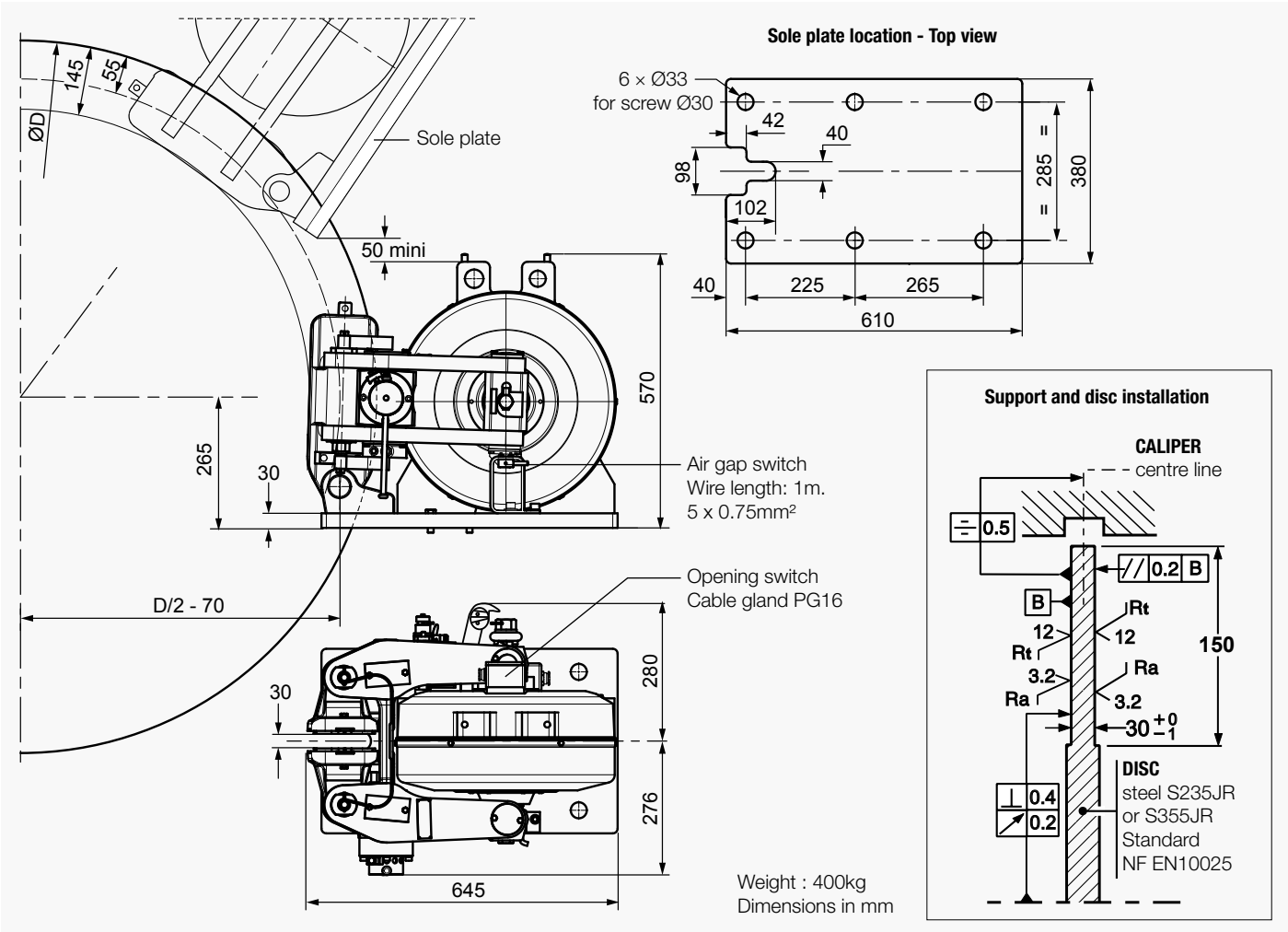
Fail safe braking
Braking by spring application
Electromagnetic release
Manual lining wear compensation
Opening proving switch
Air gap switch

Operating conditions:
- Ambiant temperature: -10°C to +60°C
- Relative humidity ≤ 70%
- Dust in atmosphere ≥ 65µ

Other conditions, consult us.

Use:
The brake should be applied only in case of emergency stop, overspeed or shutdown of electric mains.

Options:
- Detection of full lining wear
- Load regulated lowering



Torque and force values are subject to a variation of ±10%
Response time at nominal torque :
see the leaflet of the associated electrical power supply.

Designation	Caliper	2SA	
	Lining ∗	US2-1	US2-5
Braking force BF for 1mm of air gap disc/lining	Static N	90 000	84 600
	Dynamic N	100 000	94 000
Linear speed of the disc	m/s	≤ 10	≤ 10
Dynamic braking torque BT for 1 caliper and disc ØD (mm)	N.m	BT = BF(D/2000 - 0.055)	

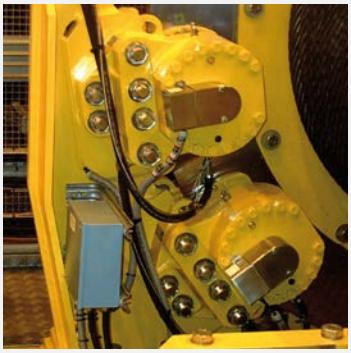
- **Opening proving switch**:
  250VAC maxi., 5A maxi., with interrupting capacity : 50VA maxi
  220VDC maxi., 5A maxi., with interrupting capacity : 50W maxi
  Compatible with PLC (Programmable Logic Controllers).
  An opening switch used with other equipment than PLC must not be reused with a PLC.
- **Air gap switch**:
  240V. 3A AC
  250V. 0.27A DC

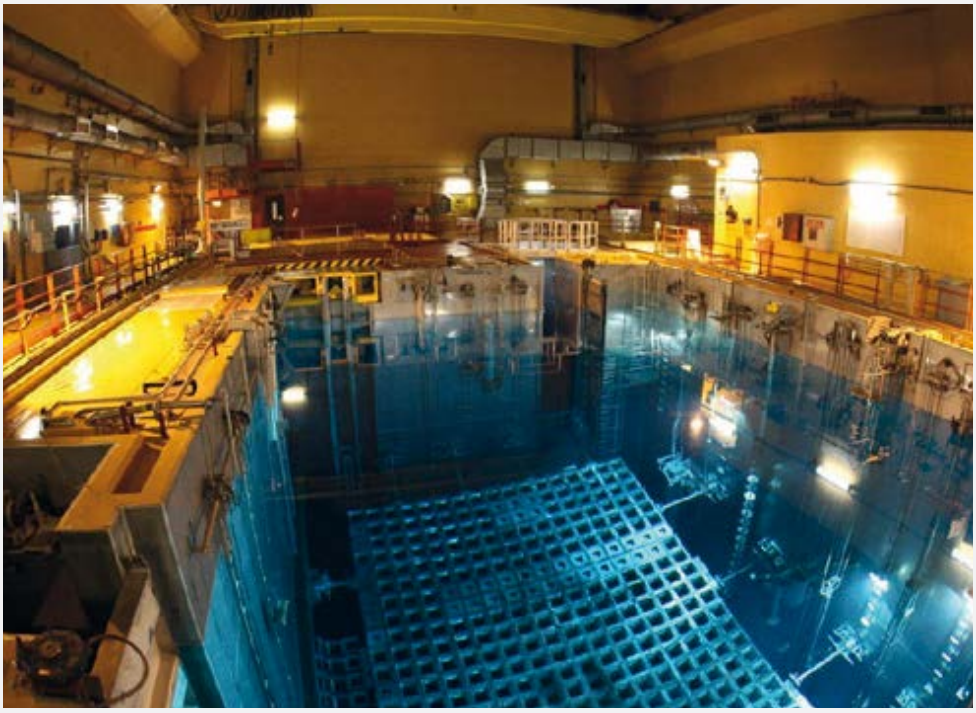
∗ **US2-1**: disc temperature during one braking ≤ 150°C
US2-5: tdisc temperature during one braking ≤ 350°C

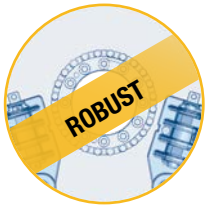
Emergency Brakes

APPLICATIONS

- STEEL CRANES
- PORT CRANES
- NUCLEAR CRANES
- OFFSHORE APPLICATIONS
- BOATLIFTS
- MINES AND CONVEYORS







HYDRAULIC EMERGENCY BRAKES TYPE SH

MAIN CHARACTERISTICS

- FAILSAFE BRAKE BY SPRING APPLICATION
- HYDRAULIC RELEASE
- OPENING PROVING SWITCH
- LINING WEAR INDICATORS

OPTIONS

- LINING WEAR PROVING SWITCH
- PROGRESSIVE BRAKING SYSTEM
- OFFSHORE PROTECTION
- LINING TEMPERATURE SENSOR
- HIGH TEMPERATURE, IRON AND STEEL CONDITIONS

SH

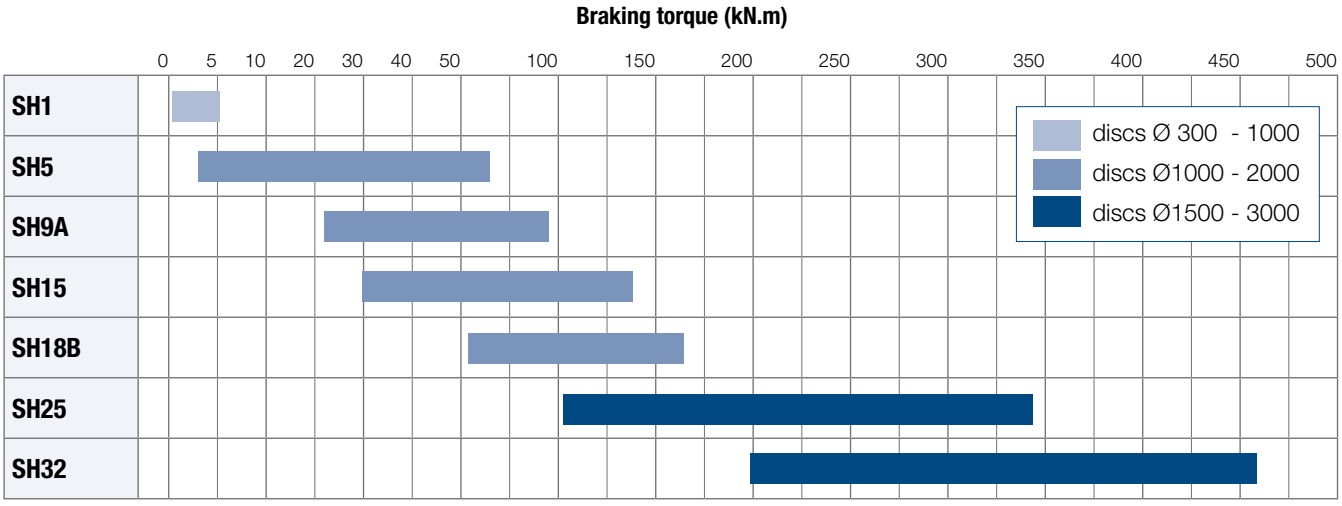
- Association with disc thicknesses : depending on the type of caliper : 12.7 - 15 - 20 - 30 or 42 mm.

SHS

- Caliper mounted on a support
- Tailor-made solutions for any installation : banana supports

SHC

- Caliper and Hydraulic Power Pack mounted on the same support
- Option: Electrical unit



Emergency Brakes

DISC BRAKE - SH1 CALIPER

Revision number: T10097-01-G **Revision date: 12.01.2016**

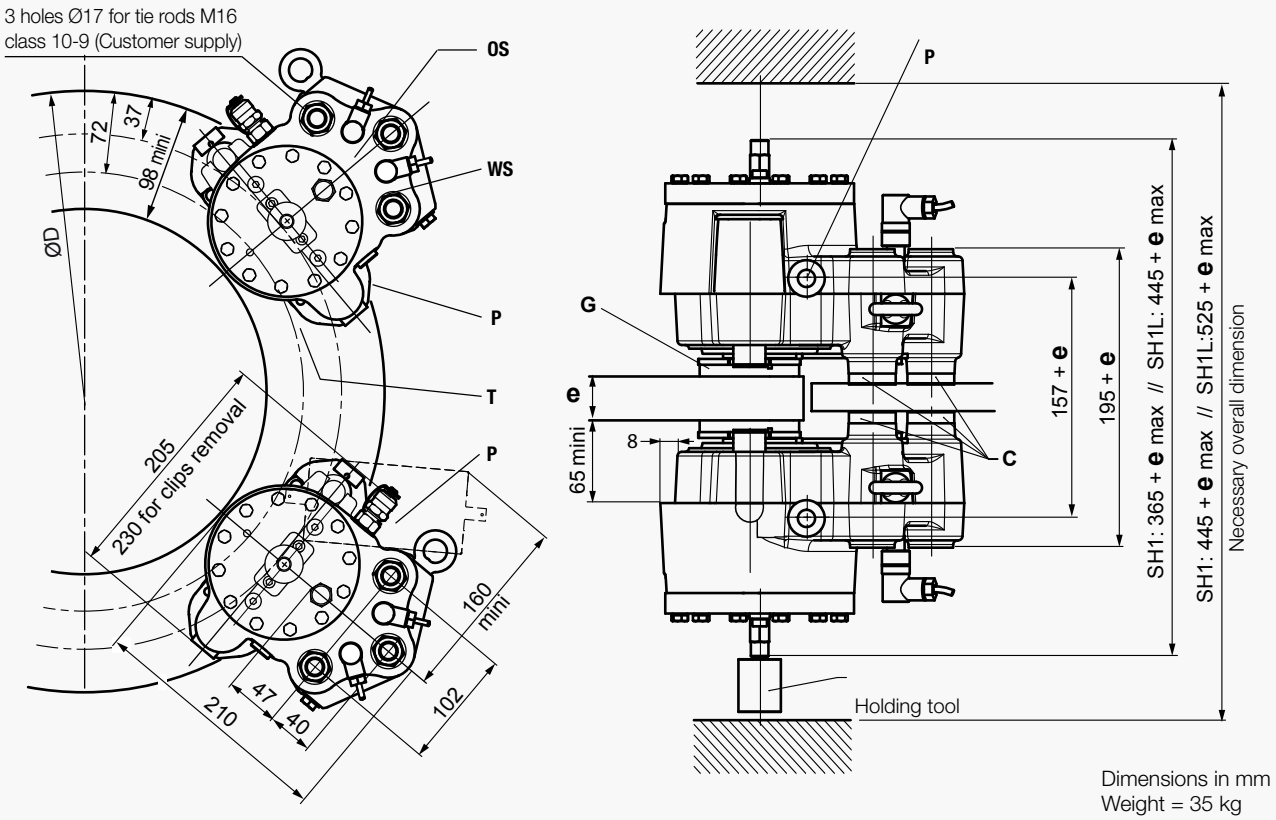
Emergency brake
Fail to safe
Spring application
Hydraulic release
Linings with wear indicators
Holding tool for maintenance operation
Manual wear centering and compensation
Association with discs thickness:
12.7 (1/2"), 15, 20 and 30mm.
Lining pads type **US2-1** or **ES3-7**
Lining pads with full wear indicators
Protection C5-M M

Operating conditions:
- Ambient temperature:
  Dynamic braking : -30°C to +70°C
  Brake applied (parking): -40°C to +70°C
- Relative humidity: ≤ 70%
- Dust in atmosphere ≥ 65µm

Other conditions: consult us.

Use:
- The brake should be applied only in case of emergency stop, overspeed or shutdown of electric mains.
  Other use, consult us.

Options:
- Opening proving switch (**OS**)
- Lining wear proving switch (**WS**)
- All non-standard disc thickness > 12.7mm (1/2")
- Lining temperature sensor (**T**)
- **SH1L** : caliper requiring no manual wear compensation:
  - braking force before lining wear = +10% maxi.
  - braking force after lining wear = -10% maxi.



Dimensions in mm
Weight = 35 kg

Electrical data:

Inductive switches of opening and wear (options):
3 wires PNP NO
12 to 24 VDC 200mA
with male connector M12 / 5 positions
according to standard IEC61076-2-101 / code A

Sensor PT100 (option)
Detection of the temperature threshold : 100°C ± 5
Cable length = 2.5 meters
2 wires red/yellow

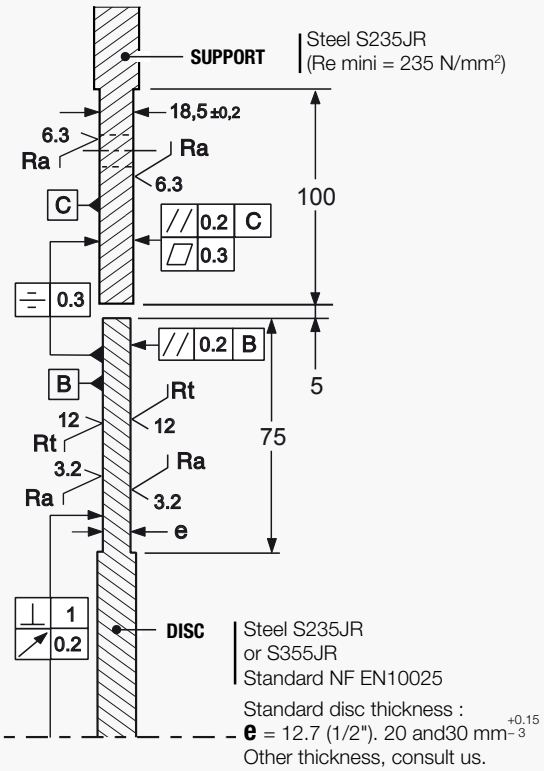
R	136.6 Ω	95°C
	138.5 Ω	100°C
	140.4 Ω	105°C

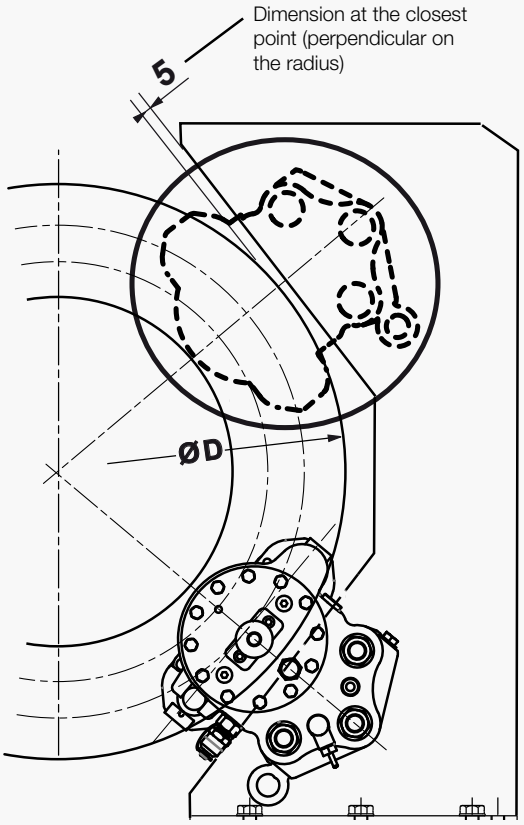
C = Spacers according to disc thickness
G = Linings : Thickness of new lining 8 mm
Thickness to wear 6 mm
Each 1mm of wear on each side: manual centering and compensation
OS = Opening switch (option)
WS = Lining wear switch (option)
P = 2 oil ports 1/4"G per half-caliper
Bleeder screws delivered separately
T = PT100 sensors (option)
ØD = Disc diameter = 300 mm minimum
e = Disc thickness

DISC BRAKE - SH1 CALIPER

Revision number: T10097-01-G **Revision date: 12.01.2016**

Disc and support :





Torque and effort values are subject to a variation of ±10% - Closing time at nominal torque ≤ 0.3s

Designation	Caliper SH1-		5	4	3	2	1	5	4	3	2	1
	Lining ∗		US2-1					ES3-7				
Braking force BF for air gap disc/lining of 2x1mm	**Dynamic**	N	11 000	8 000	6 000	4 000	3 000	11 000	8 000	6 000	4 000	2 000
	Static	N	9 680	7 040	5 280	3 520	2 640	9 900	7 200	5 400	3 600	1 800
Linear speed of the disc ●		m/s	≤ 10					≤ 50				
Dynamic braking torque BT (m.N) for 1 caliper and disc ØD (mm) / 300 ≤ D ≤ 1000 mm		N.m	BT = BF (D/2000-0.037)									
Regulation pressure	Minimum Maximum	bar bar	150 170									
Setting pressure limit valve of hydraulic unit		bar	190									
Total volume of oil displaced for air gap disc/lining of:	2 x 1mm (nominal opening)	cm^3	5 cm^3									
	2 x 3mm (wear+opening)	cm^3	13 cm^3									
	2 x 7mm **SH1L** (wear+open.)	cm^3	29 cm^3									

∗ **ES3-7**: disc temperature during one braking ≤ 600°C
US2-1: disc temperature during one braking ≤ 100°C

● For higher speed, consult us.

Emergency Brakes

DISC BRAKE - SHS1 AND SHC1 CALIPERS

Revision number: T10099-01-F **Revision date: 10.06.2016**

Emergency brake
Fail to safe
Spring application
Hydraulic release
Holding tool for maintenance operation
Manual wear centering and compensation
Possible association possible with discs thickness: 12.7 to 30 mm.
Lining pads type **US2-1** or **ES3-7**
Lining pads with full wear indicators
Protection : Caliper **SHS1** : C5-M M
HPP **CE1L** : C4 M

Operating conditions:
- Ambient temperature:
  Caliper **SHS1**:
  Dynamic braking : -30°C to +70°C
  Brake applied (parking): -40°C to +70°C
  HPP **CE1L** : -20°C to +70°C
- Relative humidity: ≤ 70%
- Dust in atmosphere ≥ 65µm

Other conditions: consult us.

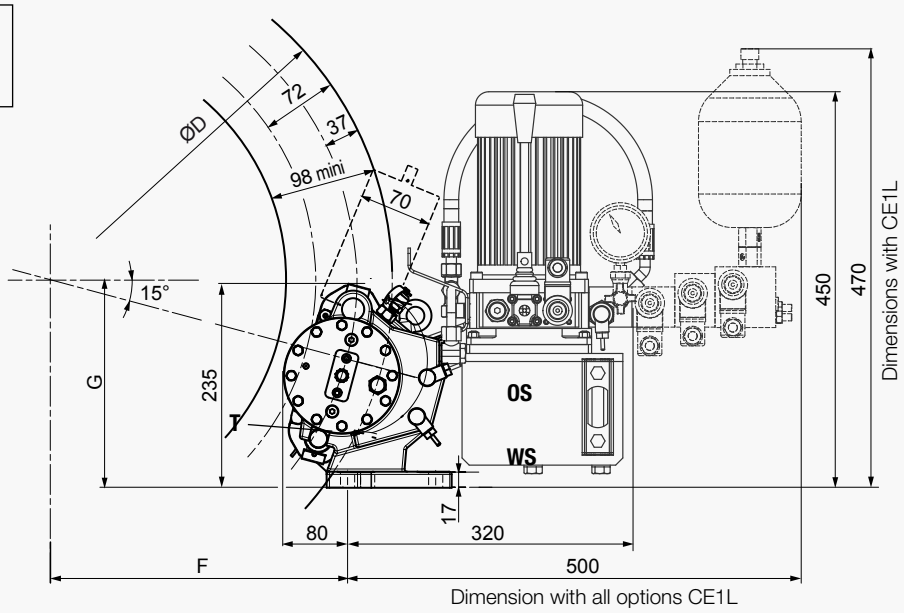
Use:
- The brake should be applied only in case of emergency stop, overspeed or shutdown of electric mains.
  Other use, consult us.

Options:
- Opening proving switch (**OS**)
- Lining wear proving switch (**WS**)
- Lining temperature sensor (**T**)
- **SHS1L - SHC1L** : caliper with no need of manual wear compensation:
  - braking force before lining wear = +10% maxi.
  - braking force after lining wear = -10% maxi.
- **CE1L** HPP options : see "Installation and maintenance" leaflet quoted below.

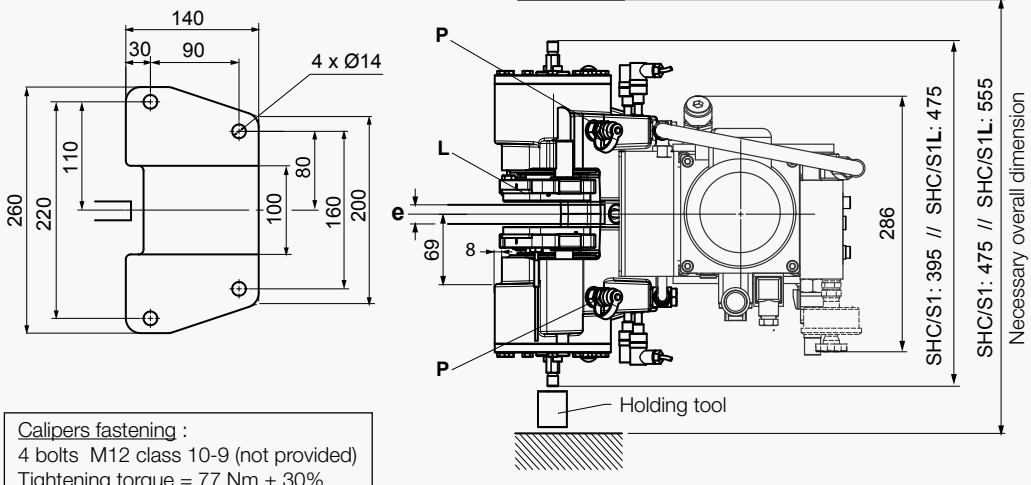
SHS1 = **SH1** caliper with integral support
SHC1 = **SH1** caliper with integral **CE1L** hydraulic power pack.

L = Linings :
Thickness of new lining 8 mm
Thickness to wear 6 mm
Each 1 mm of wear on each side: manual centering and compensation
OS = Opening proving switch (option)
WS = Wear proving switch (option)
P = Oil ports 1/4"G
Bleeder screws delivered separately
T = PT100 sensors (option)
ØD : from 300 to 1000 mm
e = disc thickness

Dimensions in mm
Weight : **SHC1** = 61 kg **SHC1L** = 68 kg
SHS1 = 39 kg **SHS1L** = 46 kg



Dimension with all options CE1L

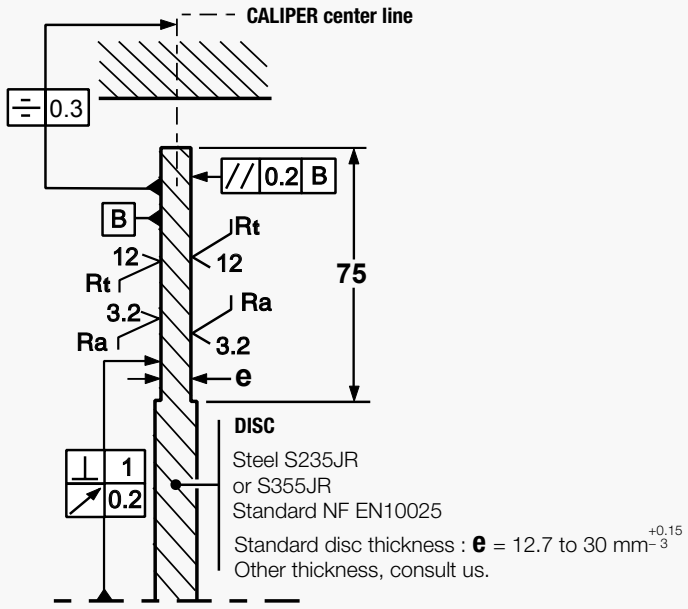


Calipers fastening :
4 bolts M12 class 10-9 (not provided)
Tightening torque = 77 Nm ± 30%

DISC BRAKE - SHS1 AND SHC1 CALIPERS

Revision number: T10099-01-F **Revision date: 10.06.2016**

Installation instructions :



DISC

Steel S235JR
or S355JR
Standard NF EN10025

Standard disc thickness : **e** = 12.7 to 30 mm $^{+0.15}_{-3}$
Other thickness, consult us.

Electrical data:

Opening and wear inductive switches (options)

3 wires PNP NO
12 to 24 VDC 200mA
with connector M12 / 5 positions
according to standard IEC61076-2-101 / code A

Sensor PT100 (option)

Detection of the temperature threshold : 100°C ± 5
- R = 136.6 Ω at 95 °C
- R = 138.5 Ω at 100°C
- R = 140.4 Ω at 105°C

Cable length = 2.5 meters
2 wires red/yellow

Torque and effort values are subject to a variation of ±10% - Closing time at nominal torque ≤ 0.3s

Designation	Caliper SHS1- SHC1-		5	4	3	2	1	5	4	3	2	1
	Lining ∗		US2-1					ES3-7				
Braking force BF for air gap disc/lining of 2x1mm	**Dynamic**	N	11 000	8 000	6 000	4 000	3 000	11 000	8 000	6 000	4 000	2 000
	Static	N	9 680	7 040	5 280	3 520	2 640	9 900	7 200	5 400	3 600	1 800
Linear speed of the disc ●		m/s	≤ 10					≤ 50				
Dynamic braking torque BT (m.N) for 1 caliper and disc ØD (mm) 300 ≤ D ≤ 1000 mm		N.m	BT = BF (D/2000-0.037)									
Regulation pressure	Minimum Maximum	bar bar	150 170									
Setting pressure limit valve of HPP		bar	190									
F G			F = (0.483 x D) - 14 G = (0.129 x D) + 118									

∗ **ES3-7**: disc temperature during one braking ≤ 600°C
US2-1: disc temperature during one braking ≤ 100°C

● For higher speed, consult us.

Emergency Brakes

DISC BRAKE - SH5 CALIPER

Revision number: T03865-02-C **Revision date: 23.09.2010**

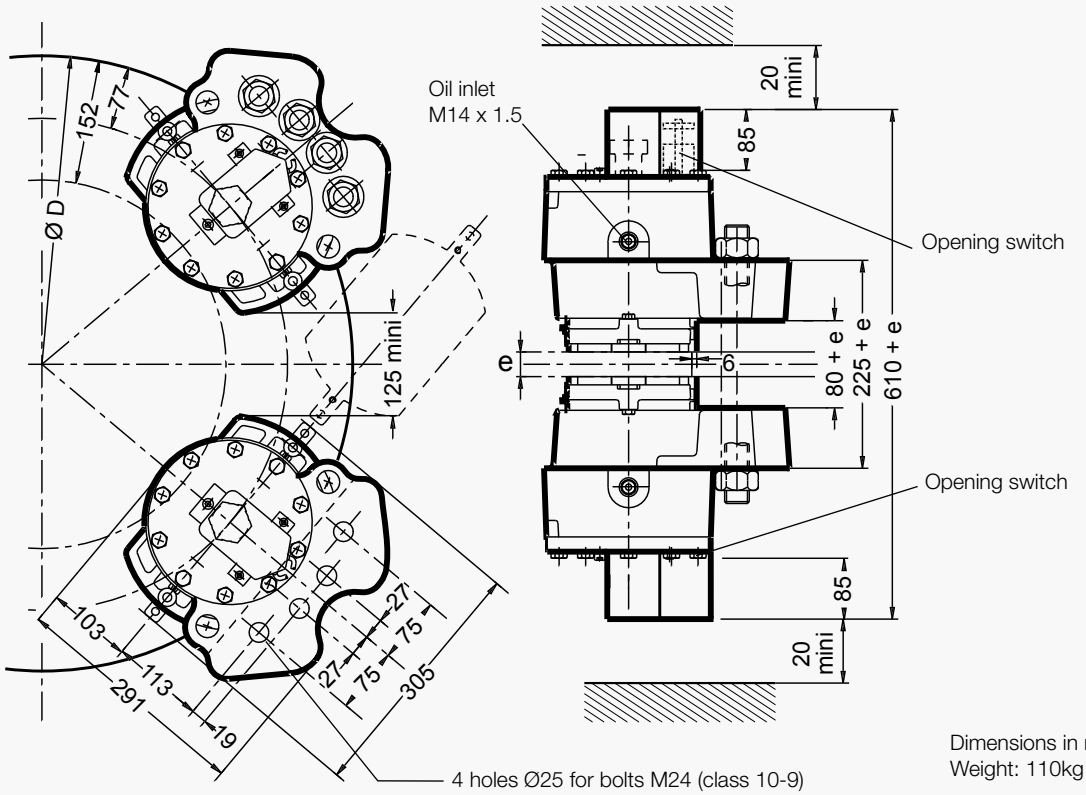
Emergency brake
Fail safe
Spring application
Hydraulic release
Opening proving switches
Lining wear detector

Operating conditions :
- Ambient temperature: -10°C to +60°C
- Relative humidity: ≤ 70%
- Dust in atmosphere ≥ 65µ

Other conditions: consult us.

Use :
- The brake should be applied only in case of emergency stop, overspeed or shutdown of electric mains. Other use, consult us.

Options :
- Automatic lining wear compensation (WACS)
- Lining wear control switch
- Progressive braking system
- Marine protection
- Caliper on support with integral hydraulic power unit



Dimensions in mm
Weight: 110kg

Opening proving switch :

250VAC maxi., 5A maxi.,
with interrupting capacity: 50VA maxi.

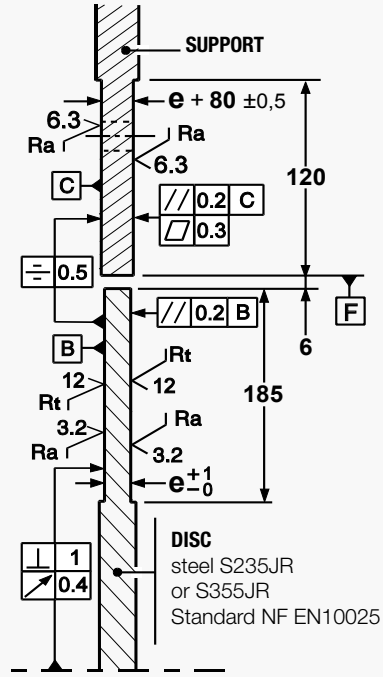
220VDC maxi., 5A maxi.,
with interrupting capacity: 50W maxi.

Compatible with PLC
(Programmable Logic Controllers).
An opening switch used with other equipment than PLC must not be reused with a PLC.

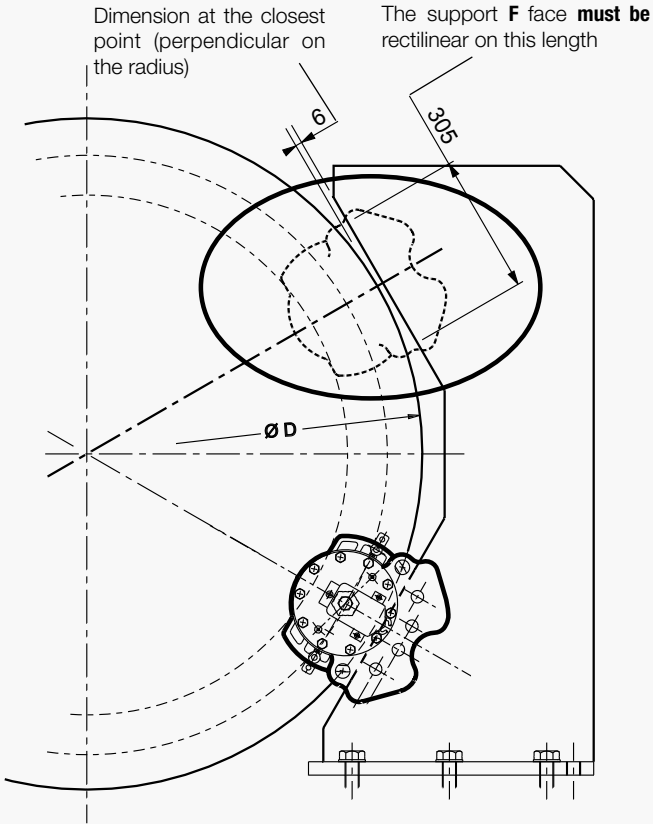
DISC BRAKE - SH5 CALIPER

Revision number: T03865-02-C **Revision date: 23.09.2010**

Disc and support :



Standard disc thickness: 30 ≤ e ≤ 50 mm.
Other thickness, consult us. Dimensions in millimetre



Torque and effort values are subject to a variation of ±10%

Response time at nominal torque : see the leaflet n° G08555-01

Désignation	caliper		SH5-6		SH5-5		SH5-4		SH5-3		SH5-2	
	Lining ✳		US2-1	WS1-3	US2-1	WS1-3	US2-1	WS1-3	US2-1	WS1-3	US2-1	WS1-3
Braking force BF for 1mm of air gap disc/lining	Static	N	63 000	43 200	51 300	35 100	37 800	25 900	21 200	14 500	9 600	6 500
	Dynamic	N	70 000	48 000	57 000	39 100	42 000	28 800	23 600	16 200	10 700	7 300
Linear speed of the disc		m/s	≤ 10	≤ 50	≤ 10	≤ 50	≤ 10	≤ 50	≤ 10	≤ 50	≤ 10	≤ 50
Dynamic braking torque BT (N.m) for 1 caliper and disc ØD (mm)	995 mm	N.m	29430	20 180	23 960	16 440	17 660	12 110	9 920	6 810	4 490	3 070
	1200 mm	N.m	36610	25 100	29 810	20 440	21 960	15 060	12 340	8 470	5 590	3 810
	1500 mm	N.m	47110	32 300	38 360	26 310	28 260	19 380	15 880	10 900	7 200	4 910
	2000 mm	N.m	64610	44 300	52 610	36 080	38 760	26 580	21 780	14 950	9 870	6 730
BT for other ØD (mm)		N.m	BT = BF (D/2000 - 0.077)									
Regulation pressure	minimum	bar	180		140		110		85		40	
	maximum	bar	200		160		140		115		60	
Setting pressure of the limit valve of hydraulic power unit		bar	210		190		165		140		80	
Total volume of oil displaced		cm^3	35 for one stroke disc/lining (nominal wear and opening)									

✳ **US2-1**: disc temperature during one braking ≤ 150°C
WS1-3: disc temperature during one braking ≤ 600°C
US2-5: disc temperature during one braking ≤ 350°C, optional, consult us.

Emergency Brakes

DISC BRAKE - SHC5 CALIPER

Revision number: T03867-02-D **Revision date: 26.10.2011**

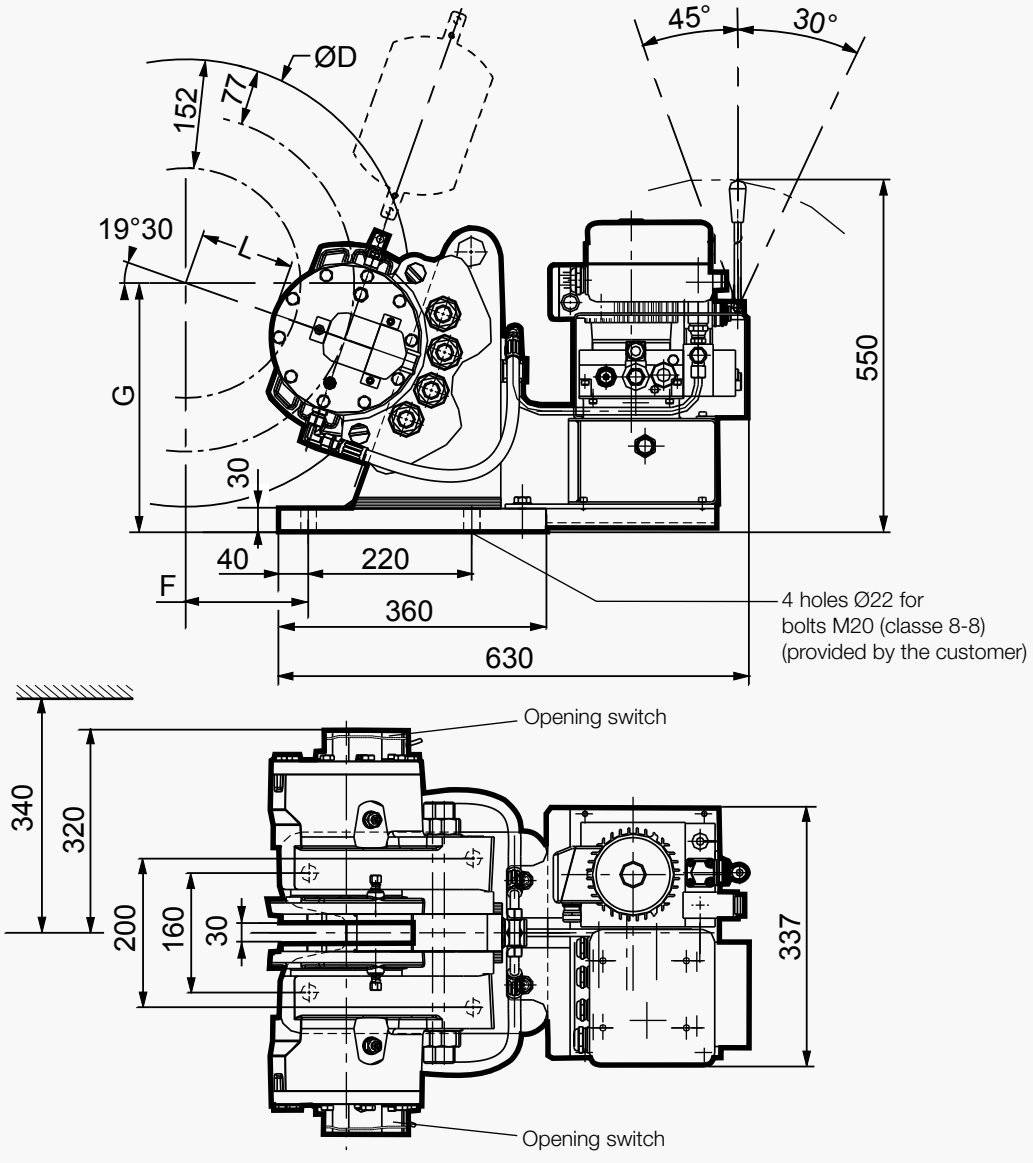
Emergency brake
Fail to safe
Spring application
Hydraulic release
Integral hydraulic power unit
Self contained electrical system
Opening proving switches
Lining wear detector

Operating conditions:
- Ambient temperature: -10°C to +50°C
- Relative humidity: ≤ 70%
- Dust in atmosphere ≥ 65µ

Other conditions: consult Stromag France.

Use:
- The brake should be applied only in case of emergency stop, overspeed or shutdown of electric mains. Other use, consult us.

Options:
- Automatic lining wear compensation (WACS)
- Lining wear control switch
- Progressive braking system
- Marine protection

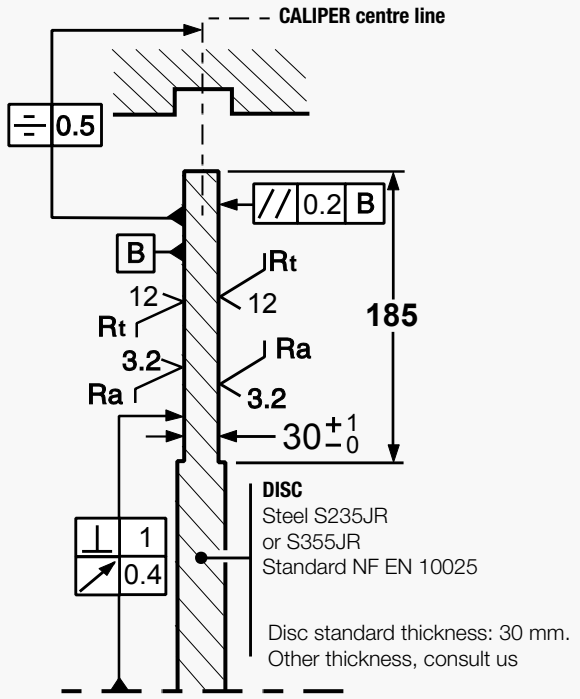


Dimensions in mm
Weight: 185 kg

DISC BRAKE - SHC5 CALIPER

Revision number: T03867-02-D **Revision date: 26.10.2011**

Installation instructions



Dimensions in mm.

Electrical data

- Motor voltages :

  3 phases : 230/400 VAC 50 Hz
  0.37 kW. 4 poles

  for mains:
  220-230-240VAC ±10% 50Hz
  or 380-400-415VAC ±10% 50Hz

- Options motor :

  440 VAC 50Hz
  500 VAC 50Hz
  480 VAC 60Hz
  575 VAC 60Hz

- Other voltages. consult us.

- Electrical casing IP55

- Opening switch :

  250VAC maxi., 5A maxi.,
  with interrupting capacity: 50VA maxi.

  220VDC maxi., 5A maxi.,
  with interrupting capacity: 50W maxi.

  Compatible with PLC
  (Programmable Logic Controllers).
  An opening switch used with other equipment than PLC must not be reused with a PLC.

Torque and effort values are subject to a variation of ±10%
Response time at nominal torque : see the leaflet n° G08555-01.

Désignation	caliper		SHC5-6		SHC5-5		SHC5-4		SHC5-3		SHC5-2	
	Lining ✳		US2-1	WS1-3	US2-1	WS1-3	US2-1	WS1-3	US2-1	WS1-3	US2-1	WS1-3
Braking force BF for 1mm of air gap disc/lining	Static	N	63 000	43 200	51 300	35 100	37 800	25 900	21 200	14 500	9 600	6 500
	Dynamic	N	70 000	48 000	57 000	39 100	42 000	28 800	23 600	16 200	10 700	7 300
Linear speed of the disc		m/s	≤ 10	≤ 50	≤ 10	≤ 50	≤ 10	≤ 50	≤ 10	≤ 50	≤ 10	≤ 50
Dynamic braking torque BT (N.m) for 1 caliper and disc ØD (mm)	995 mm	N.m	29430	20 180	23 960	16 440	17 660	12 110	9 920	6 810	4 490	3 070
	1200 mm	N.m	36610	25 100	29 810	20 440	21 960	15 060	12 340	8 470	5 590	3 810
	1500 mm	N.m	47110	32 300	38 360	26 310	28 260	19 380	15 880	10 900	7 200	4 910
	2000 mm	N.m	64610	44 300	52 610	36 080	38 760	26 580	21 780	14 950	9 870	6 730
BT for other ØD (mm)		N.m	BT = BF (D/2000 - 0.077)									
Setting pressure of the limit valve of hydraulic power unit		bar	210		190		165		140		80	
F		mm	F = (0.4719 x D) - 122.5									
G		mm	G = (0.1652 x D) + 232.5									
L		mm	L = (D / 2) - 181									

✳ **US2-1**: disc temperature during one braking ≤ 150°C
WS1-3: disc temperature during one braking ≤ 600°C
US2-5: disc temperature during one braking ≤ 350°C, optional, consult us.

Emergency Brakes

DISC BRAKE - SH9A CALIPER

Revision number: T10077-01-B **Revision date: 30.05.2013**

Emergency brake
Fail safe
Spring application
Hydraulic release
Opening proving switches.

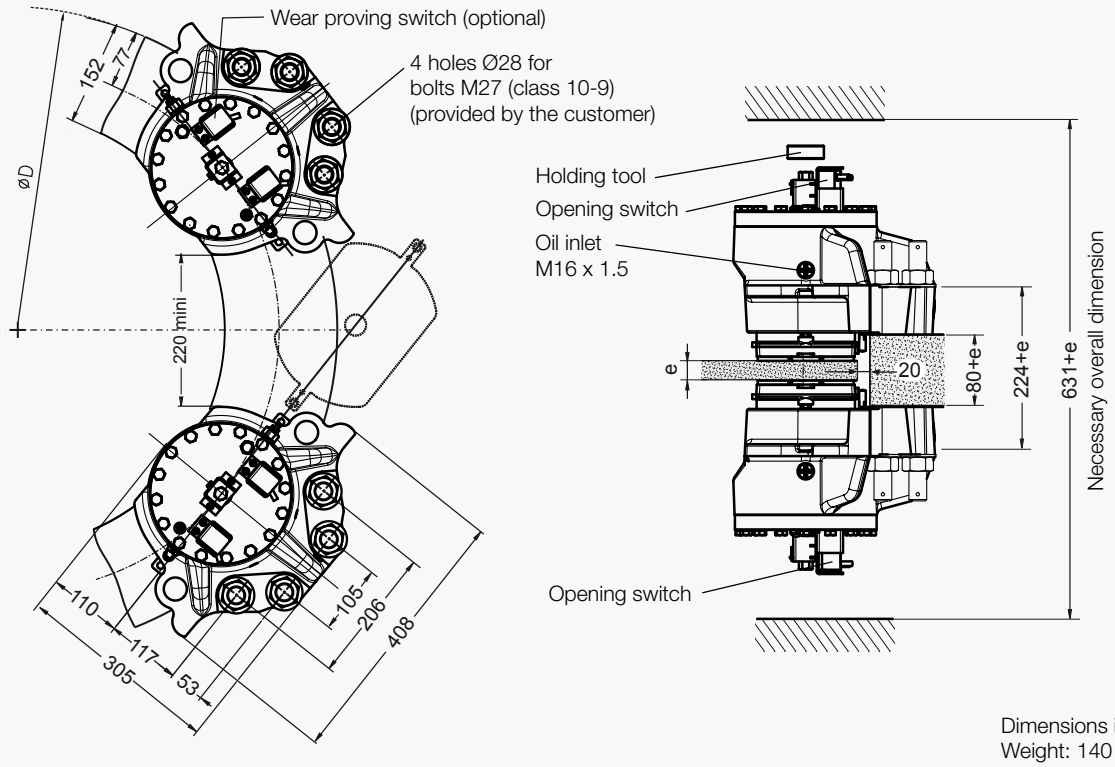
Operating conditions:
- Ambient temperature: -10°C to +60°C
- Relative humidity: ≤ 70%
- Dust in atmosphere ≥ 65µ

Other conditions: consult us.

Use:
- The brake should be applied only in case of emergency stop, overspeed or shutdown of electric mains. Other use, consult us.
- US2-1. US2-5 for low energy braking ≤ 1 MJ
- EF3-1 for high energy braking ≤ 15 MJ

Other use. consult us

Options:
- Lining wear control switch
- Switch for P.L.C. (induction sensor)
- Marine protection
- Caliper on support with integral HPP
- Option GF



Dimensions in mm
Weight: 140 kg

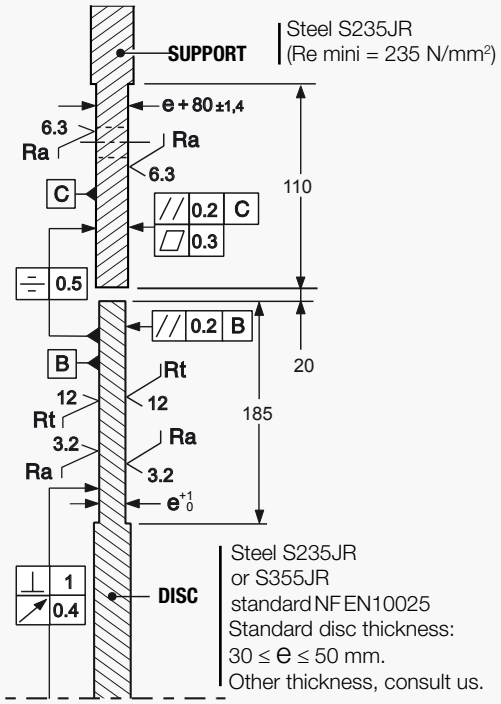
Opening proving switch:

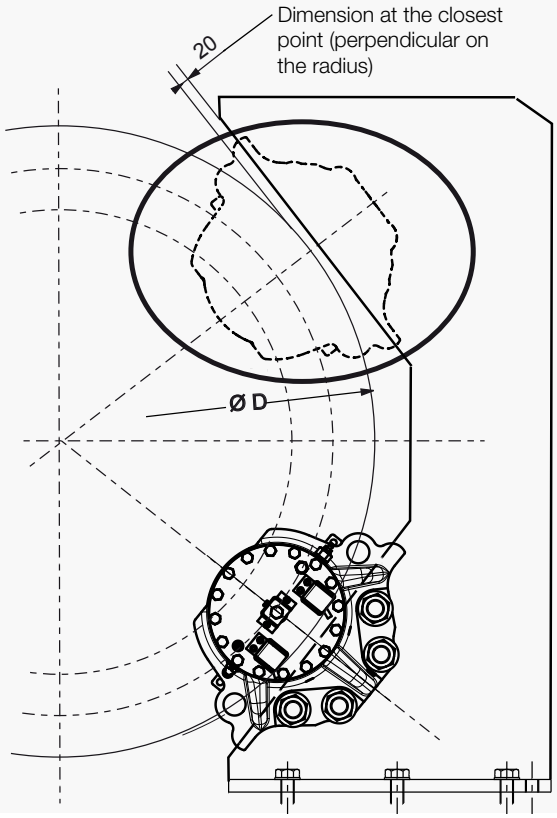
240V 1.5A AC
250V 0.1A DC
with a 5 x 0.75mm² wire
of 5m length

DISC BRAKE - SH9A CALIPER

Revision number: T10077-01-B **Revision date: 30.05.2013**

Disc and support :





Torque and effort values are subject to a variation of ±10%
Response time at nominal torque ≤ 0.3s

Designation	Caliper		SH9A-3			SH9A-2			SH9A-1		
	Lining ∗		US2-1	US2-5	EF3-1	US2-1	US2-5	EF3-1	US2-1	US2-5	EF3-1
Braking force BF for 1mm air gap	Static	N	94 500	90 000	70 500	80 100	76 200	60000	66 150	63 000	49 600
	Dynamic	N	105 000	100 000	78 200	89 000	84 700	66 500	73 500	70 000	55 000
Linear speed of the disc for BF		m/s	≤10	≤30	≤ 50●	≤10	≤30	≤ 50●	≤10	≤30	≤ 50●
Dynamic braking torque BT (N.m) for 1 caliper and disc ØD (mm) ∗∗	995 mm	N.m	44 150	42 050	32 880	37 420	35 620	27 960	30 910	29 440	23 130
	1500 mm	N.m	70 670	67 300	52 630	59 900	57 000	44 750	49 470	47 110	37 020
	2000 mm	N.m	96 920	92 300	72 180	82 150	78 180	61 380	67 840	64 610	50 770
BT for other ØD (mm)		N.m	BT = BF (D/2000 - 0.077)								
Regulation pressure	Minimum Maximum	bar	180 200			150 180			110 140		
Setting pressure of HPP limit valve		bar	225			210			165		
Total volume of oil displaced		cm^3	55 for one disc/linings stroke (nominal wear and opening)								

∗ **US2-1**: disc temperature during one braking ≤ 150°C
US2-5: disc temperature during one braking ≤ 350°C
EF3-1: High energy braking, disc temperature during one braking ≤ 600°C

∗∗ For disc ØD < 995 mm, consult us.
● For higher speed, consult us.

Emergency Brakes

DISC BRAKE - SHC9A CALIPER

Revision number: T10078-01-B **Revision date: 13.06.2014**

Emergency brake
Fail to safe
Spring application
Hydraulic release
Integral hydraulic power unit
Self contained electrical system
Opening proving switches
Protection class C3L standard ISO12944-2

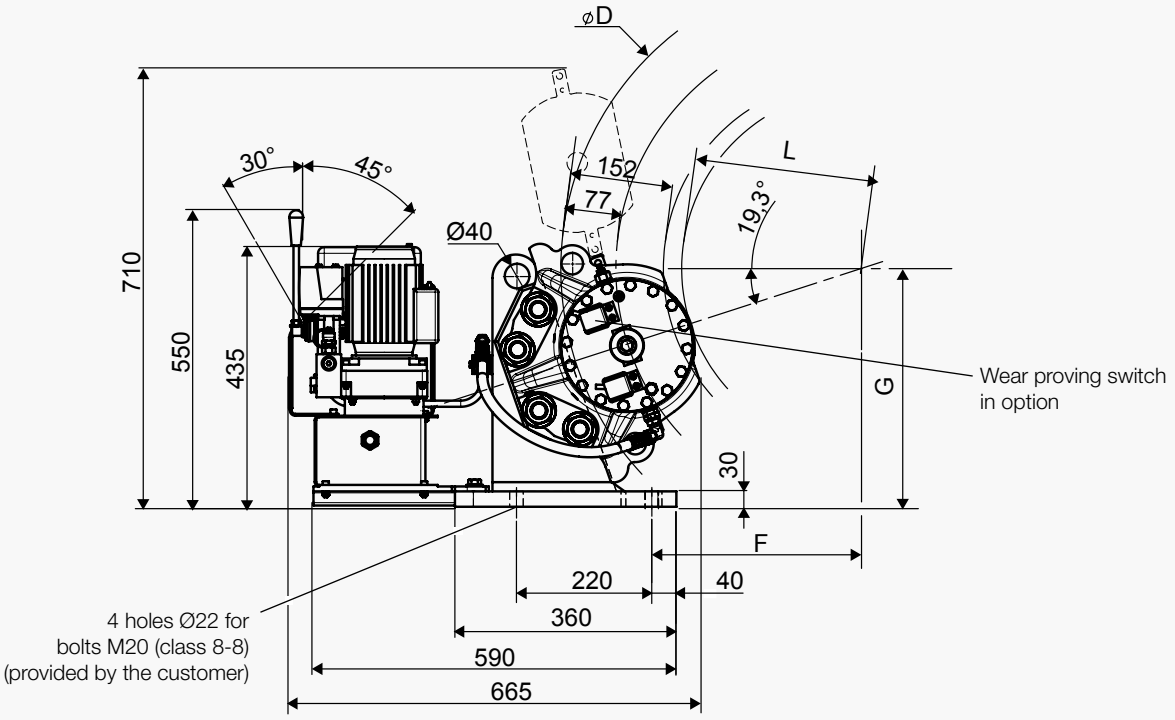
Operating conditions:
- Ambient temperature: -10°C to +60°C
- Relative humidity: ≤ 70%
- Dust in atmosphere ≥ 65µ

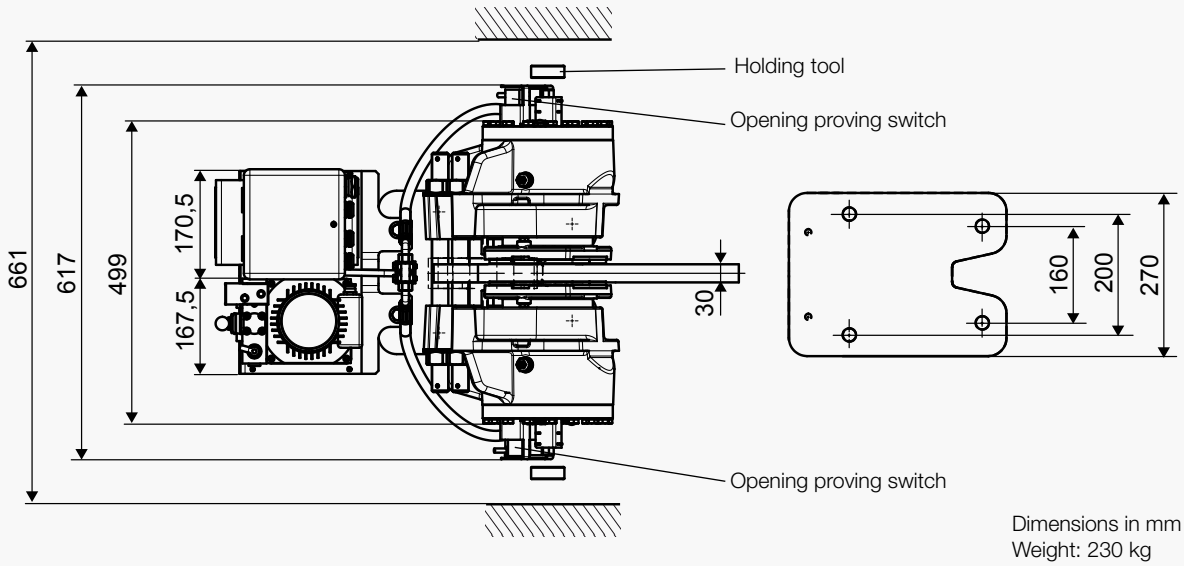
Other conditions: consult us.

Options:
- Lining wear control switch
- Switch for P.L.C.
- Protection class C4M standard ISO12944-2

Use:
- The brake should be applied only in case of emergency stop, overspeed or shutdown of electric mains.
- US2-1. US2-5 for low energy braking ≤ 1 MJ
- EF3-1 for high energy braking ≤ 15 MJ

Other use, consult us



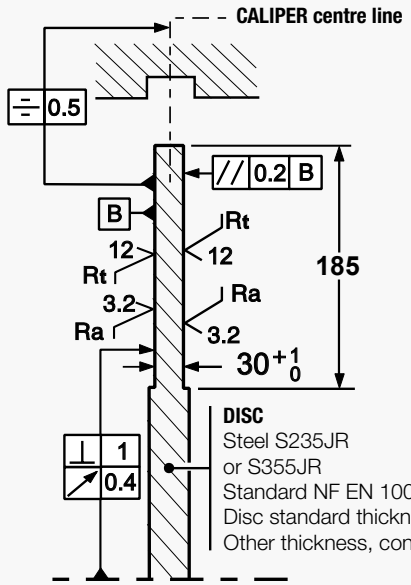


Dimensions in mm
Weight: 230 kg

DISC BRAKE - SHC9A CALIPER

Revision number: T10078-01-B **Revision date: 13.06.2014**

Installation instructions



Dimensions in mm.

Electrical data

- Motor voltages:
  3 phases:
  230/400 V ±10%. 50 Hz
  0.37 kW
  for voltage of 3 phases mains:
  230 V 50 Hz
  or 400 V 50 Hz
  or 415 V 50 Hz
  or 440 V 60 Hz
  or 460 V 60 Hz
- Options voltage of 3 phases mains:
  440 V ±10% 50Hz
  500 V ±10% 50Hz
  480 V ±10% 60Hz
- Other voltages, consult us.
- Electrical casing IP55

- Opening switch:
  240V. 1.5A AC
  220V. 0.1A DC
  with cable 5 x 0.75mm² length 5m

Torque and effort values are subject to a variation of ±10%
Closing time at nominal torque ≤ 0.3s

Designation	Caliper		SHC9A-3			SHC9A-2			SHC9A-1		
	Lining ∗		US2-1	US2-5	EF3-1	US2-1	US2-5	EF3-1	US2-1	US2-5	EF3-1
Braking force BF for 1mm air gap	Static	N	94 500	90 000	70 500	80 100	76 200	60 000	66 150	63 000	49 600
	Dynamic	N	105 000	100 000	78 200	89 000	84 700	66 500	73 500	70 000	55 000
Linear speed of the disc for BF		m/s	≤10	≤30	≤ 50●	≤10	≤30	≤ 50●	≤10	≤30	≤ 50●
Dynamic braking torque BT (N.m) for 1 caliper and disc ØD (mm) ∗∗	995 mm	N.m	44 150	42 050	32 880	37 420	35 620	27 960	30 910	29 440	23 130
	1500 mm	N.m	70 670	67 300	52 630	59 900	57 000	44 750	49 470	47 110	37 020
	2000 mm	N.m	96 920	92 300	72 180	82 150	78 180	61 380	67 840	64 610	50 770
BT for other ØD (mm)		N.m	BT = BF (D/2000 - 0.077)								
Regulation pressure	Minimum Maximum	bar	180 200			150 180			110 140		
Setting pressure of limit valve of hydraulic power unit		bar	225			210			165		
F G L		mm mm mm	F = (0.4719 x D) - 113 G = (0.1652 x D) + 236.7 L = (D / 2) - 190								

∗ **US2-1**: disc temperature during one braking ≤ 150°C
US2-5: disc temperature during one braking ≤ 350°C
EF3-1: High energy braking, disc temperature during one braking ≤ 600°C

∗∗ For disc ØD < 995 mm, consult us

● For higher speed, consult us.

Emergency Brakes

DISC BRAKE - SH15 CALIPER

Revision number: T03905-01-B **Revision date: 01.10.2010**

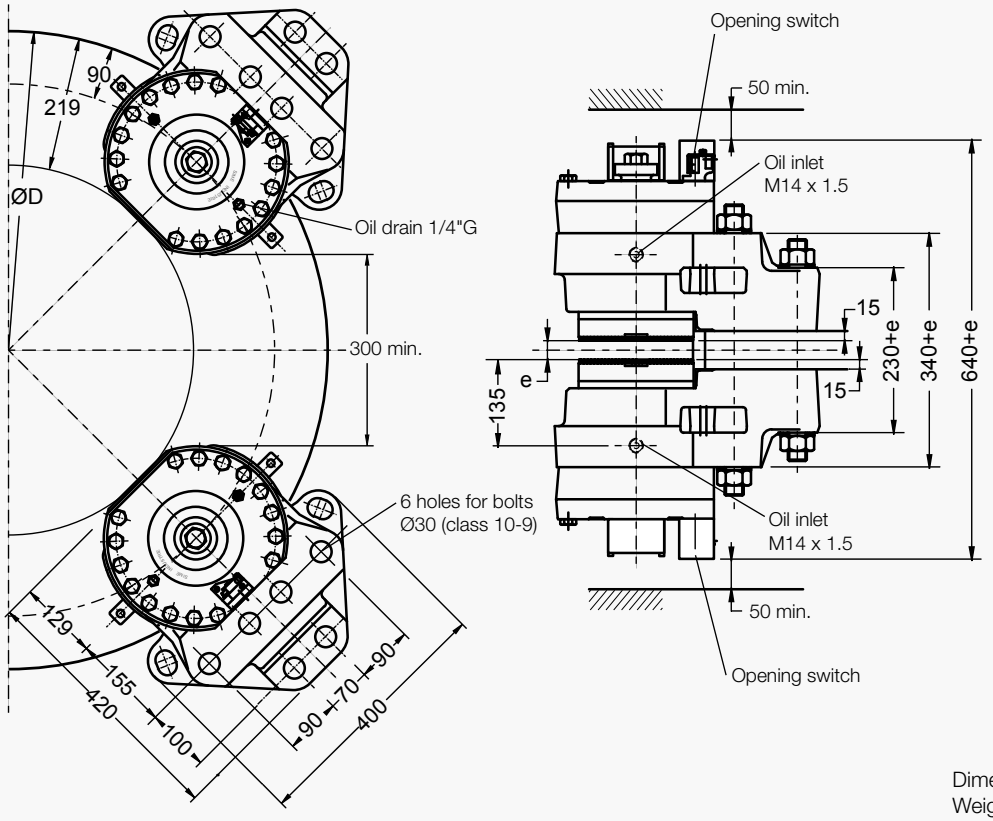
Emergency brake
Fail safe
Spring application
Hydraulic release
Opening proving switches
Lining wear detector

Operating conditions:
- Ambient temperature: -10°C to +60°C
- Relative humidity: ≤ 70%
- Dust in atmosphere ≥ 65µ

Other conditions: consult us.

Use:
- The brake should be applied only in case of emergency stop, overspeed or shutdown of electric mains, Other use. consult us.

Options:
- Lining wear control switch
- Progressive braking system
- Marine protection
- Caliper on support with integral hydraulic power pack



Dimensions in mm
Weight: 250kg

Opening proving switch :

250VAC maxi., 5A maxi.,
with interrupting capacity: 50VA maxi.

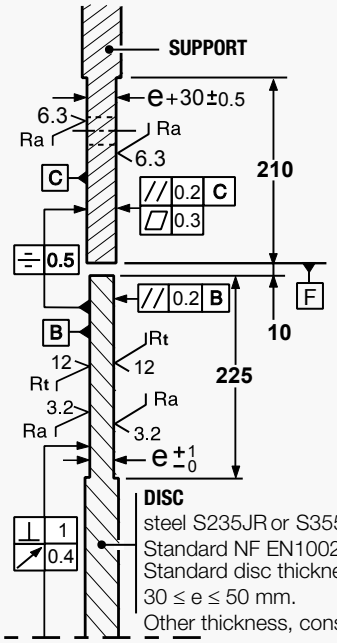
220VDC maxi., 5A maxi.,
with interrupting capacity: 50W maxi.

Compatible with PLC
(Programmable Logic Controllers).
An opening switch used with other equipment than PLC must not be reused with a PLC.

DISC BRAKE - SH15 CALIPER

Revision number: T03905-01-B **Revision date: 01.10.2010**

Disc and support

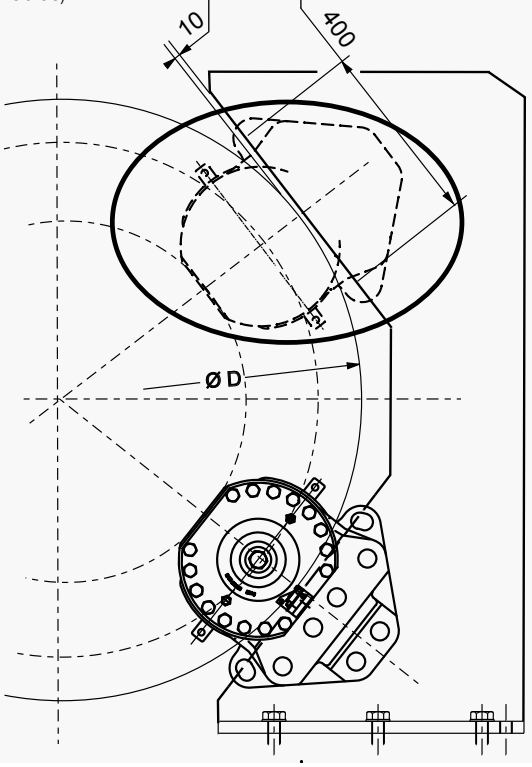


steel S235JR or S355JR
Standard NF EN10025
Standard disc thickness:
30 ≤ e ≤ 50 mm.
Other thickness, consult us.

Dimensions in mm

Dimension at the closest point (perpendicular on the radius)

The support **F** face **must be** rectilinear on the length.



Torque and effort values are subject to a variation of ±10%

Response time at nominal torque : see the leaflet n° G08555-01

Designation	Caliper		SH15-3		SH15-2		SH15-1	
	Lining ✳		US2-1	US2-4	US2-1	US2-4	US2-1	US2-4
Braking force BF for 1mm of air gap disc/lining	Static	N	133 000	99 000	110 000	80 000	90 000	66 000
	Dynamic	N	150 000	110 000	120 000	88 000	100 000	73 000
Linear speed of the disc		m/s	≤ 10	≤ 50	≤ 10	≤ 50	≤ 10	≤ 50
Dynamic braking torque BT (N.m) for 1 caliper and disc ØD	1000 mm	N.m	61 500	45 100	49 200	36 080	41000	29930
	1200 mm	N.m	76 500	56 100	62 200	44 880	51 000	37 230
	1500 mm	N.m	99 000	72 600	79 200	58 080	66 000	48 180
	2000 mm	N.m	136 500	100 100	109 200	80 080	91 000	66 430
BT for other ØD (mm)		N.m	BT = BF (D/2000 - 0.09)					
Regulation pressure	minimum	bar	150		140		110	
	maximum	bar	180		160		140	
Setting pressure of limit valve of the hydraulic unit		bar	205		205		165	
Total volume of oil displaced		cm^3	85 for one stroke disc/lining (nominal wear and opening)					

✳ **US2-1**: disc temperature during one braking ≤ 150°C
US2-4 : disc temperature during one braking ≤ 600°C

US2-5: disc temperature during one braking ≤ 350°C, optional, consult us.

Emergency Brakes

DISC BRAKE - SHC15 CALIPER

Revision number: T03906-03-B **Revision date: 05.10.2010**

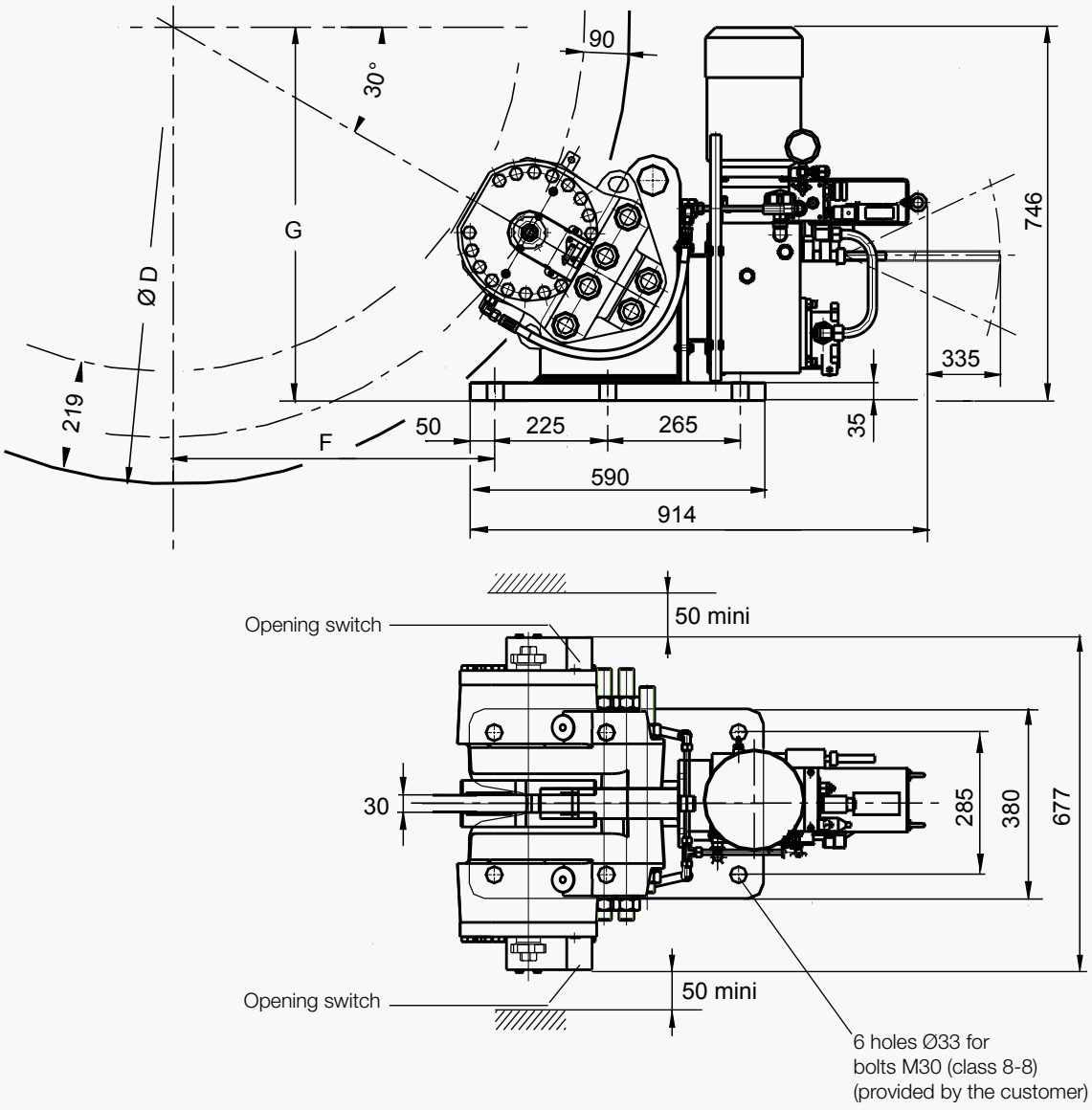
Emergency brake
Fail safe
Spring application
Hydraulic release
Integral hydraulic power pack
Opening proving switches
Lining wear detector

Operating conditions:
- Ambient temperature: -10°C to +60°C
- Relative humidity: ≤ 70%
- Dust in atmosphere ≥ 65µ

Other conditions: consult us.

Use:
- The brake should be applied only in case of emergency stop, overspeed or shutdown of electric mains. Other use, consult us.

Options:
- Lining wear control switch
- Progressive braking system
- Marine protection
- Self contained electric system

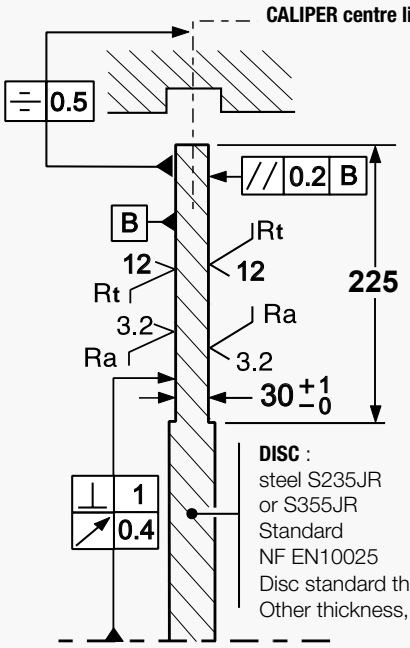


Dimensions in mm
Weight: 435kg

DISC BRAKE - SHC15 CALIPER

Revision number: T03906-03-B **Revision date: 05.10.2010**

Installation instructions



DISC :
steel S235JR
or S355JR
Standard
NF EN10025
Disc standard thickness: 30 mm.
Other thickness, consult us

Dimensions in mm

Electrical data

- Motor voltages :

  3 phases : 230/400VAC ±10% 50Hz
  2.2kW, 4 poles

- Options motor :

  690VAC ±10% 50Hz
  500VAC ±10% 50Hz
  230/400VAC ±10% 50Hz with PTC sensor
  Other voltage, consult us.

- Opening switch :

  250VAC maxi., 5A maxi.,
  with interrupting capacity: 50VA maxi.
  220VDC maxi., 5A maxi.,
  with interrupting capacity: 50W maxi.
  Compatible with PLC
  (Programmable Logic Controllers).
  An opening switch used with other equipment than PLC must not be reused with a PLC.

Torque and effort values are subject to a variation of ±10%
Response time at nominal torque : see the leaflet n° G08555-01.

Designation	Caliper		SHC15-3		SHC15-2		SHC15-1	
	Lining ✳		US2-1	US2-4	US2-1	US2-4	US2-1	US2-4
Braking force BF for 1mm of air gap disc/lining	Static	N	133 000	99 000	110 000	80 000	90 000	66 000
	Dynamic	N	150 000	110 000	120 000	88 000	100 000	73 000
Linear speed of the disc		m/s	≤ 10	≤ 50	≤ 10	≤ 50	≤ 10	≤ 50
Dynamic braking torque BT (N.m) for 1 caliper and disc ØD	1000 mm	N.m	61 500	45 100	49 200	36 080	41 000	29 930
	1200 mm	N.m	76 500	56 100	62 200	44 880	51 000	37 230
	1500 mm	N.m	99 000	72 600	79 200	58 080	66 000	48 180
	2000 mm	N.m	136 500	100 100	109 200	80 080	91 000	66 430
BT for other ØD (mm)		N.m	BT = BF (D/2000 - 0.09)					
F G		mm mm	F = (0.433 x D) -154.2 G = (0.250 x D) + 286.2					
Setting pressure of limit valve of the hydraulic unit		bar	205		205		165	

✳ **US2-1**: disc temperature during one braking ≤ 150°C
US2-4 : disc temperature during one braking ≤ 600°C

US2-5: disc temperature during one braking ≤ 350°C, optional, consult us.

Emergency Brakes

DISC BRAKE - SH18B CALIPER

Revision number: T03907-01-B **Revision date: 08.10.2010**

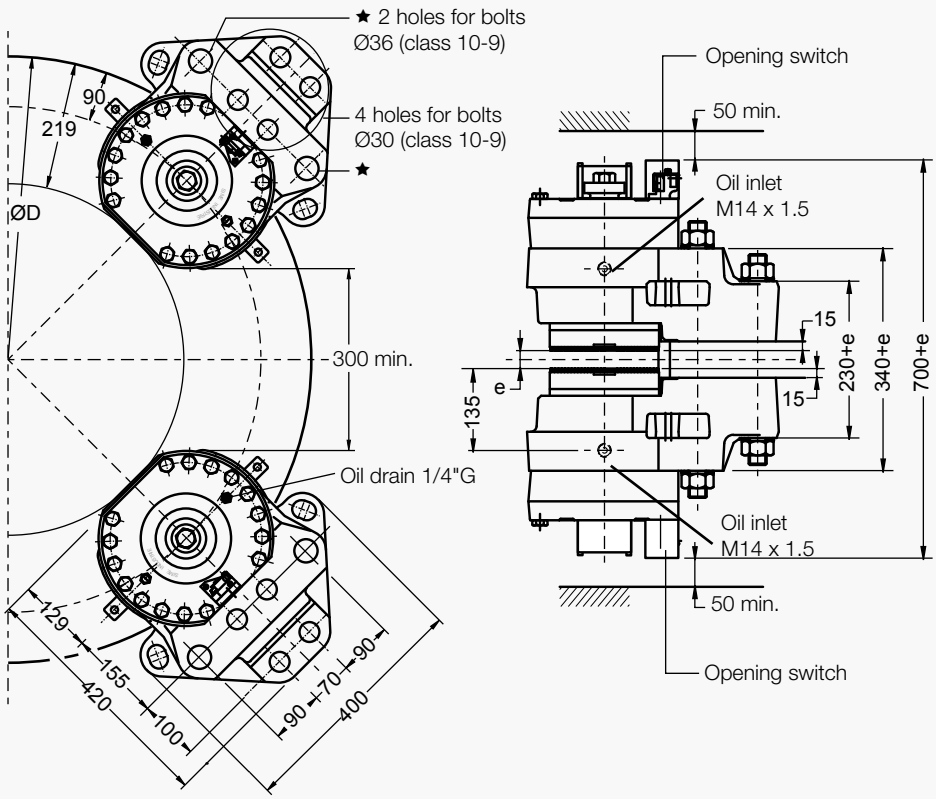
Emergency brake
Fail safe
Spring application
Hydraulic release
Opening proving switches
Lining wear detector

Operating conditions:
- Ambient temperature: -10°C to +60°C
- Relative humidity: ≤ 70%
- Dust in atmosphere ≥ 65µ

Other conditions: consult us.

Use:
- The brake should be applied only in case of emergency stop, overspeed or shutdown of electric mains. Other use, consult us.

Options:
- Lining wear control switch
- Progressive braking system
- Marine protection
- Caliper on support with integral hydraulic power pack



Dimensions in mm
Weight: 270kg

Opening proving switch :

250VAC maxi., 5A maxi.,
with interrupting capacity: 50VA maxi.

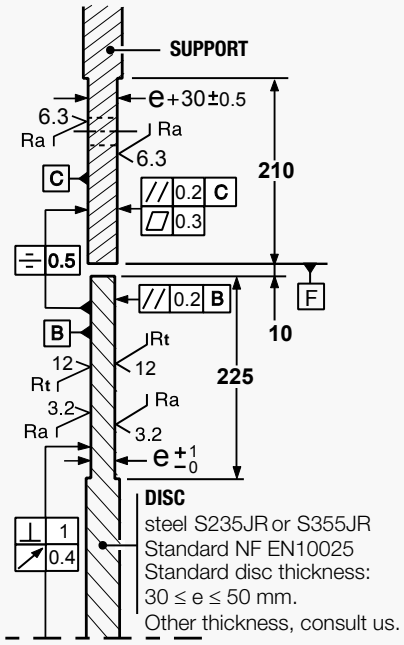
220VDC maxi., 5A maxi.,
with interrupting capacity: 50W maxi.

Compatible with PLC
(Programmable Logic Controllers).
An opening switch used with other equipment than PLC must not be reused with a PLC.

DISC BRAKE - SH18B CALIPER

Revision number: T03907-01-B **Revision date: 08.10.2010**

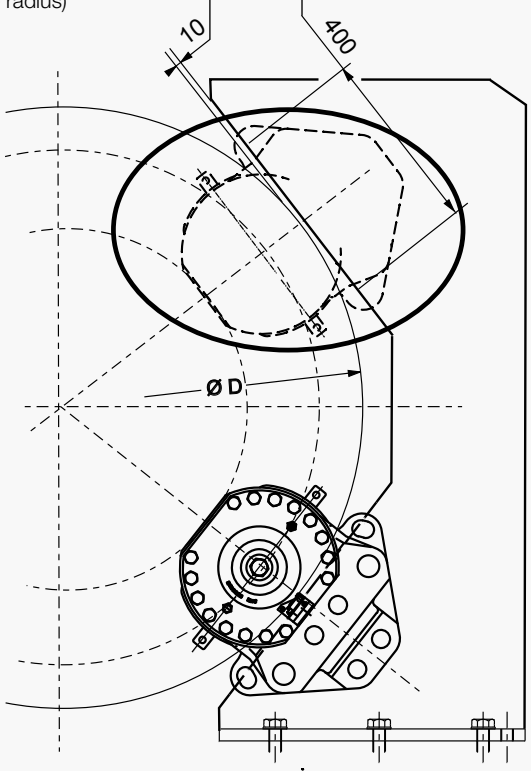
Disc and support



Dimensions in mm

Dimension at the closest point (perpendicular on the radius)

The support **F** face **must be** rectilinear on the length.



Torque and effort values are subject to a variation of ±10%
Response time at nominal torque : see the leaflet n° G08555-01

Designation	Caliper		SH18B	
	Lining ✳		US2-1	US2-4
Braking force BF for 1mm of air gap disc/ lining	Static	N	160 000	117 400
	Dynamic	N	180 000	130 500
Linear speed of the disc		m/s	≤ 10	≤ 50
Dynamic braking torque BT (N.m) for 1 caliper and disc ØD	1000 mm	N.m	73 800	53 500
	1200 mm	N.m	91 800	66 500
	1500 mm	N.m	118 800	86 100
	2000 mm	N.m	163 800	118 700
BT for other ØD (mm)		N.m	BT = BF (D/2000 - 0.09)	
Regulation pressure	minimum	bar	180	
	maximum	bar	200	
Setting pressure of limit valve of the hydraulic unit		bar	225	
Total volume of oil displaced		cm^3	85 for one stroke disc/lining (nominal wear and opening)	

✳ **US2-1**: disc temperature during one braking ≤ 150°C
US2-4: disc temperature during one braking ≤ 600°C
US2-5: disc temperature during one braking ≤ 350°C, optional, consult us.

Emergency Brakes

DISC BRAKE - SHC18B CALIPER

Revision number: T03907-03-B **Revision date: 15.10.2010**

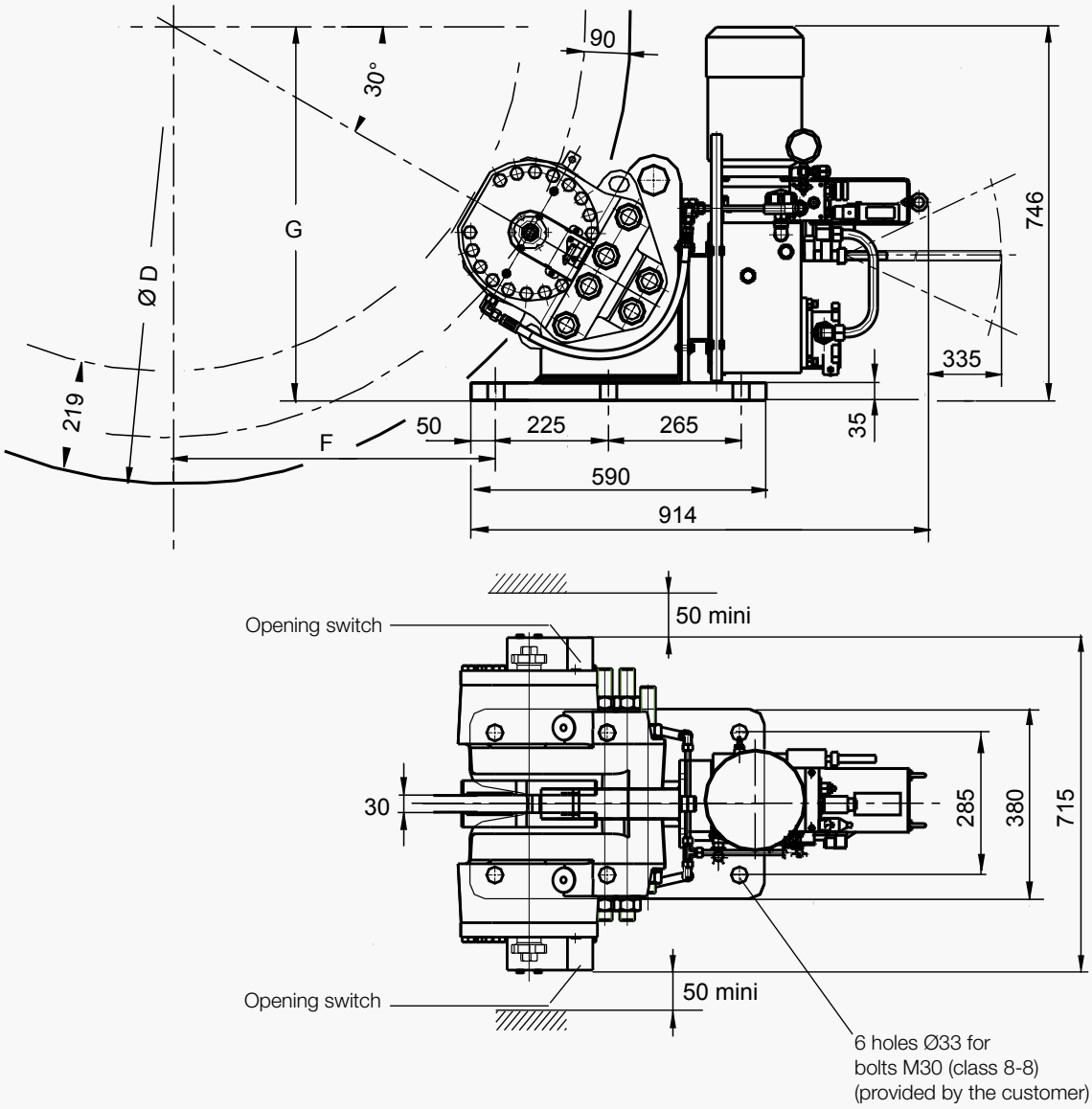
Emergency brake
Fail safe
Spring application
Hydraulic release
Integral hydraulic power pack
Opening proving switches
Lining wear detector

Operating conditions:
- Ambient temperature: -10°C to +60°C
- Relative humidity: ≤ 70%
- Dust in atmosphere ≥ 65µ

Other conditions: consult us.

Use:
- The brake should be applied only in case of emergency stop, overspeed or shutdown of electric mains. Other use, consult us.

Options:
- Lining wear control switch
- Progressive braking system
- Marine protection

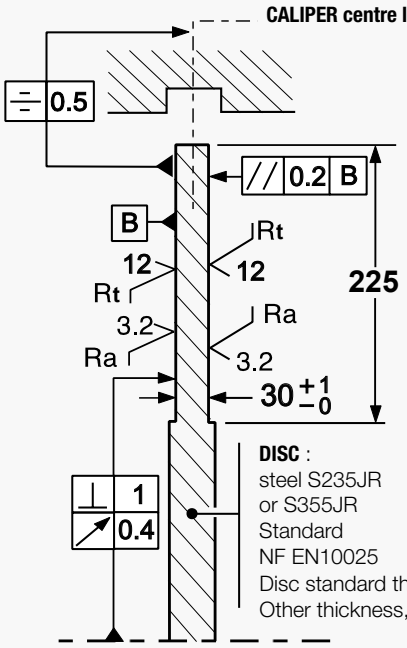


Dimensions in mm
Weight: 450kg

DISC BRAKE - SHC18B CALIPER

Revision number: T03907-03-B **Revision date: 15.10.2010**

Installation instructions



DISC :
steel S235JR
or S355JR
Standard
NF EN10025
Disc standard thickness: 30 mm.
Other thickness, consult us

Dimensions in mm

Electrical data

- Motor voltages :

  3 phases : 230/400VAC ±10% 50Hz
  2.2kW. 4 poles

- Options motor :

  690VAC ±10% 50Hz
  500VAC ±10% 50Hz
  230/400VAC ±10% 50Hz with PTC sensor
  Other voltage, consult us.

- Opening switch :

  250VAC maxi., 5A maxi.,
  with interrupting capacity: 50VA maxi.
  220VDC maxi., 5A maxi.,
  with interrupting capacity: 50W maxi.
  Compatible with PLC
  (Programmable Logic Controllers).
  An opening switch used with other equipment than PLC must not be reused with a PLC.

Torque and effort values are subject to a variation of ±10%
Response time at nominal torque : see the leaflet n° G08555-01.

Designation	Caliper		SHC18B	
	Lining ✳		US2-1	US2-4
Braking force BF for 1mm of air gap disc/lining	Static	N	160 000	117 400
	Dynamic	N	180 000	130 500
Linear speed of the disc		m/s	≤ 10	≤ 50
Dynamic braking torque BT (N.m) for 1 caliper and disc ØD	1000 mm	N.m	73 800	53 500
	1200 mm	N.m	91 800	66 500
	1500 mm	N.m	118 800	86 100
	2000 mm	N.m	163 800	118 700
BT for other ØD (mm)		N.m	BT = BF (D/2000 - 0.09)	
F		mm	F = (0.433 x D) -154.2	
G		mm	G = (0.250 x D) + 286.2	
Setting pressure of limit valve of the hydraulic unit		bar	225	

✳ **US2-1**: disc temperature during one braking ≤ 150°C
US2-4 : disc temperature during one braking ≤ 600°C

US2-5: disc temperature during one braking ≤ 350°C, optional, consult us.

Emergency Brakes

DISC BRAKE - SH25 CALIPER

Revision number: T03915-01-B **Revision date: 21.10.2010**

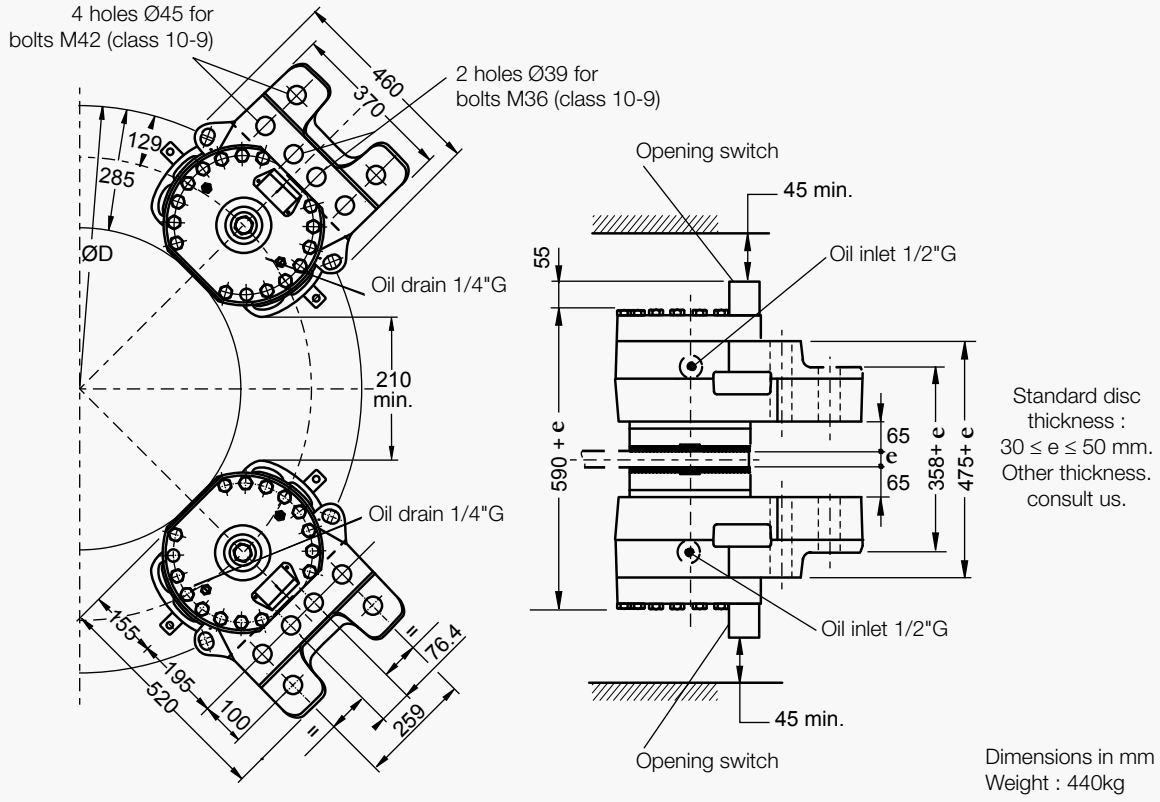
Emergency brake
Fail safe
Spring application
Hydraulic release
Opening proving switches
Lining wear detector

Operating conditions:
- Ambient temperature: -10°C to +60°C
- Relative humidity: ≤ 70%
- Dust in atmosphere ≥ 65µ

Other conditions: consult us.

Use:
- The brake should be applied only in case of emergency stop, overspeed or shutdown of electric mains. Other use, consult us.

Options:
- Lining wear control switch
- Progressive braking system
- Marine protection
- Caliper on support with integral hydraulic power pack



Opening proving switch :

250VAC maxi., 5A maxi.,
with interrupting capacity: 50VA maxi.

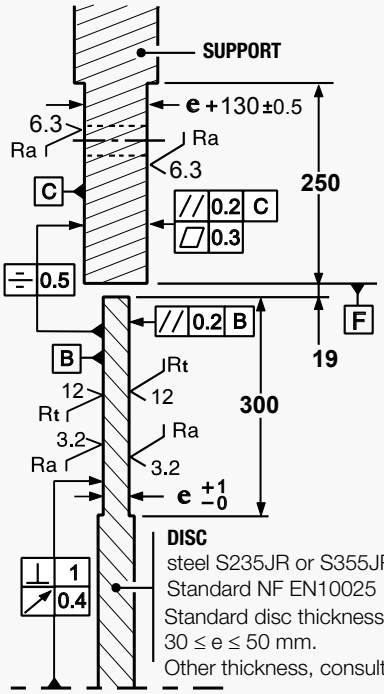
220VDC maxi., 5A maxi.,
with interrupting capacity: 50W maxi.

Compatible with PLC
(Programmable Logic
Controllers).
An opening switch used with other equipment
than PLC must not be reused with a PLC.

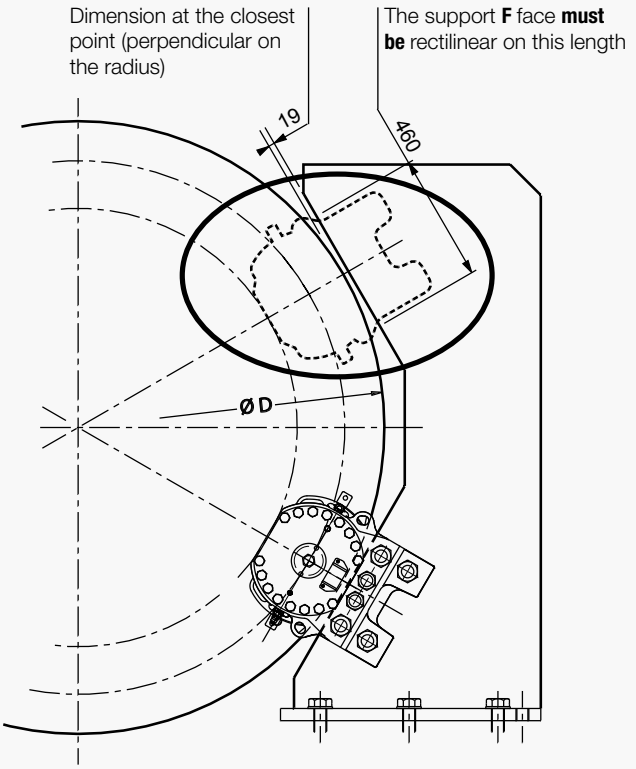
DISC BRAKE - SH25 CALIPER

Revision number: T03915-01-B **Revision date: 21.10.2010**

Disc and support



Dimensions in mm.



Torque and effort values are subject to a variation of ±10%
Response time at nominal torque : see the leaflet n° G08555-01

Designation	Caliper		SH25-2		SH25-1	
	Lining ✳		US2-1	US2-4	US2-1	US2-4
Braking force BF for 1mm of air gap disc/lining	Static N	N	225 000	165 000	160 000	120 000
	Dynamic N	N	250 000	184 000	180 000	134 000
Linear speed of the disc		m/s	≤ 10	≤ 50	≤ 10	≤ 50
Dynamic braking torque BT (N.m) for 1 caliper and disc ØD (mm)	1500 mm	N.m	155 250	114 260	111 780	83 210
	2000 mm	N.m	217 750	160 260	156 780	116 710
	2500 mm	N.m	280 250	206 260	201 780	150 210
	3000 mm	N.m	342 750	252 260	246 780	183 710
BT for other ØD (mm)		N.m	BT = BF (D/2000 - 0.129)			
Regulation pressure	minimum	bar	180		140	
	maximum	bar	200		160	
Setting pressure limit valve of hydraul. Unit		bar	225		205	
Total volume of oil displaced		cm^3	140 for one stroke disc/lining (nominal wear and opening)			

✳ **US2-1**: disc temperature during one braking ≤ 150°C
US2-4: disc temperature during one braking ≤ 600°C
US2-5: tdisc temperature during one braking ≤ 350°C, optional, consult us.

Emergency Brakes

DISC BRAKE - SHC25 CALIPER

Revision number: T03916-02-C **Revision date: 15.06.2011**

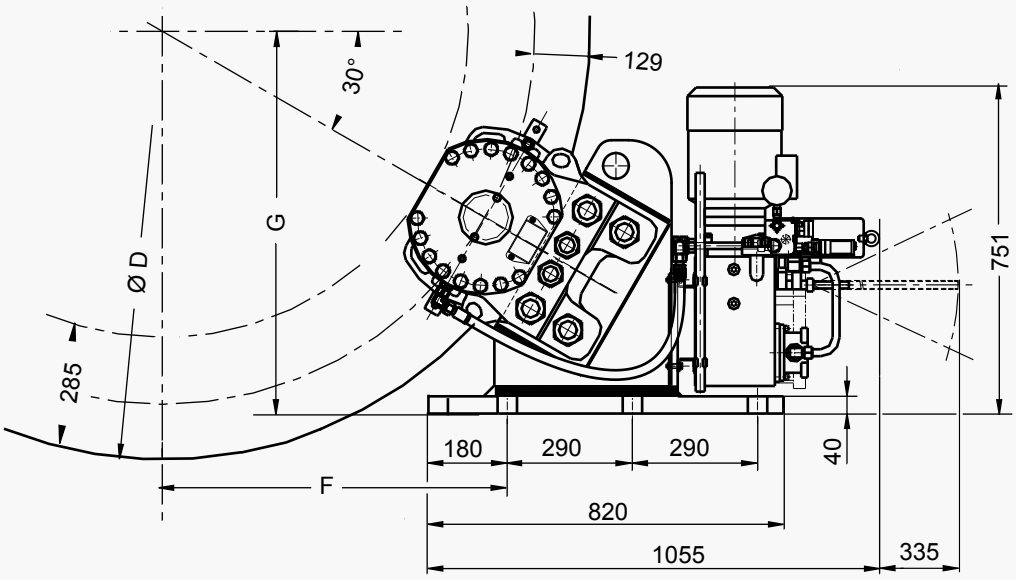
Emergency brake
Fail safe
Spring application
Hydraulic release
Integral hydraulic power unit
Opening proving switches
Lining wear detector

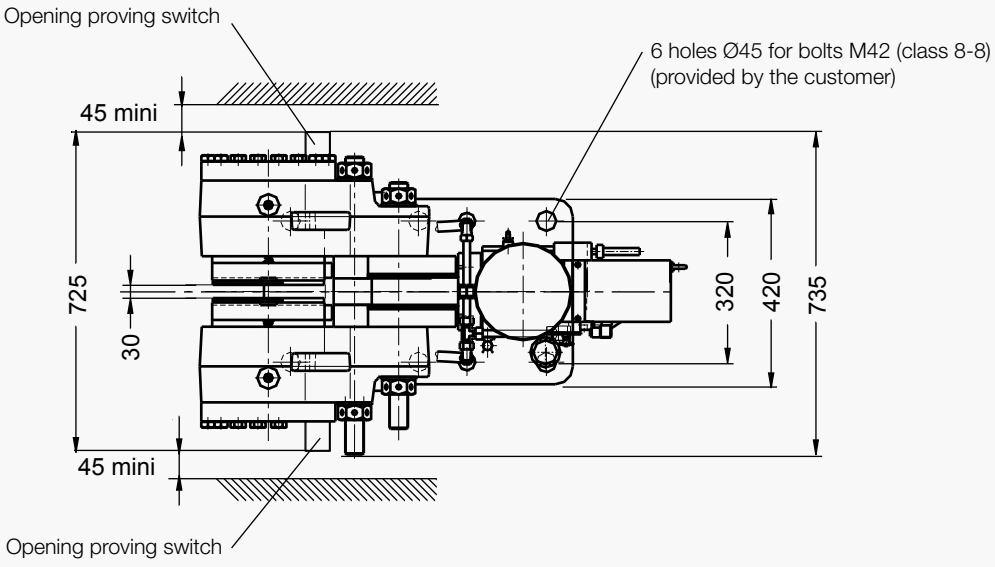
Operating conditions:
- Ambient temperature: -10°C to +60°C
- Relative humidity: ≤ 70%
- Dust in atmosphere ≥ 65µ

Other conditions: consult us.

Use:
- The brake should be applied only in case of emergency stop, overspeed or shutdown of electric mains. Other use, consult us.

Options:
- Lining wear control switch
- Progressive braking system
- Marine protection
- Self contained electric system



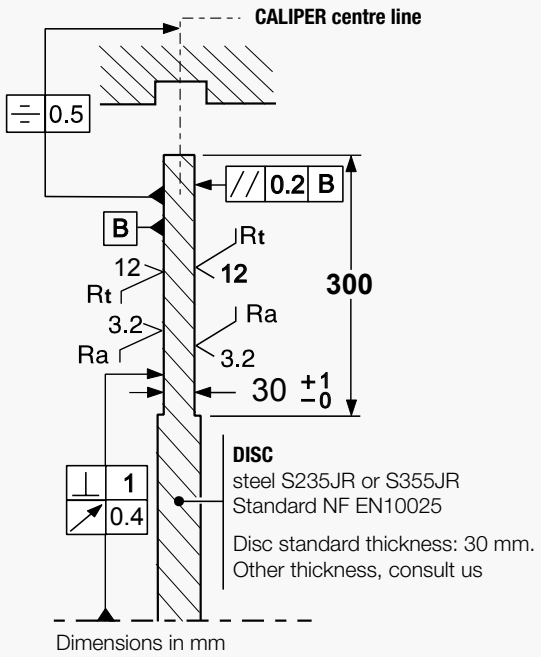


Dimensions in mm
Weight: 770 kg

DISC BRAKE - SHC25 CALIPER

Revision number: T03916-02-B **Revision date: 15.06.2011**

Installation instructions



Dimensions in mm

Electrical data

- Motor voltages :

  3 phases : 230/400VAC ±10% 50Hz
  2.2kW. 4 poles

- Options motor :

  690VAC ±10% 50Hz
  500VAC ±10% 50Hz
  230/400VAC ±10% 50Hz with PTC sensor.
  Other voltage, consult us.

- Opening switch :

  250VAC maxi., 5A maxi.,
  with interrupting capacity: 50VA maxi.
  220VDC maxi., 5A maxi.,
  with interrupting capacity: 50W maxi.
  Compatible with PLC
  (Programmable Logic Controllers).
  An opening switch used with other equipment than PLC must not be reused with a PLC.

Torque and effort values are subject to a variation of ±10%
Response time at nominal torque : see the leaflet n° G08555-01.

Designation	Caliper		SHC25-2		SHC25-1	
	Lining ✳		US2-1	US2-4	US2-1	US2-4
Braking force BF for 1mm of air gap disc/lining	Static	N	225 000	165 000	160 000	120 000
	Dynamic	N	250 000	184 000	180 000	134 000
Linear speed of the disc		m/s	≤ 10	≤ 50	≤ 10	≤ 50
Dynamic braking torque BF (N.m) for 1 caliper and a disc ØD (mm)	1500 mm	N.m	155 250	114 260	111 780	83 210
	2000 mm	N.m	217 750	160 260	156 780	116 710
	2500 mm	N.m	280 250	206 260	201 780	150 210
	3000 mm	N.m	342 750	252 260	246 780	183 710
BT for other ØD (mm)		N.m	BT = BF (D/2000 - 0.129)			
F		mm	F = (0.433 x D) - 62			
G		mm	G = (0.250 x D) + 390			
Maximum setting pressure limit valve of hydraulic power unit		bar	225		205	

✳ **US2-1** : disc temperature during one braking ≤ 150°C
US2-4 : disc temperature during one braking ≤ 600°C

US2-5 : disc temperature during one braking ≤ 350°C, optional, consult us.

Emergency Brakes

DISC BRAKE - SH32 CALIPER

Revision number: T10040-01-C **Revision date: 15.06.2012**

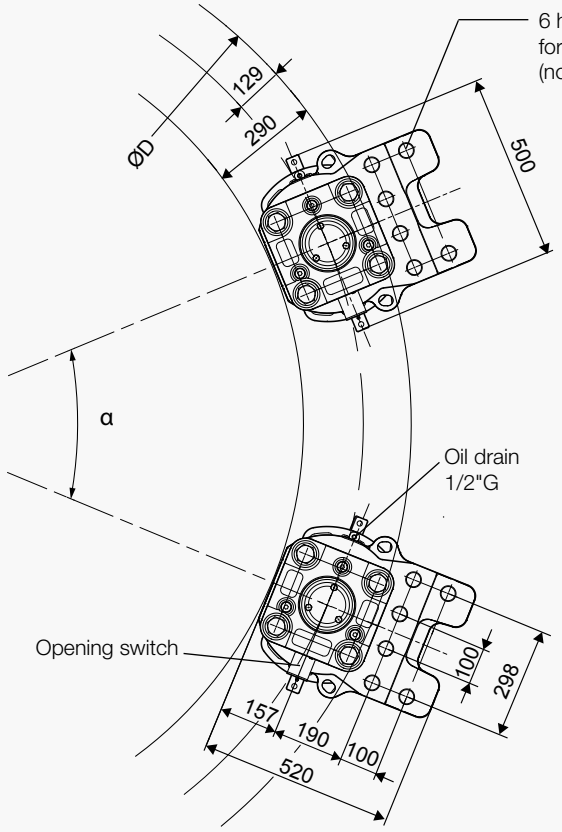
Emergency brake
Fail safe
Spring application
Hydraulic release
Opening proving switches
Lining wear indicator wires

Operating conditions:
- Ambient temperature: -10°C to +60°C
- Relative humidity: ≤ 70%
- Dust in atmosphere ≥ 65µ

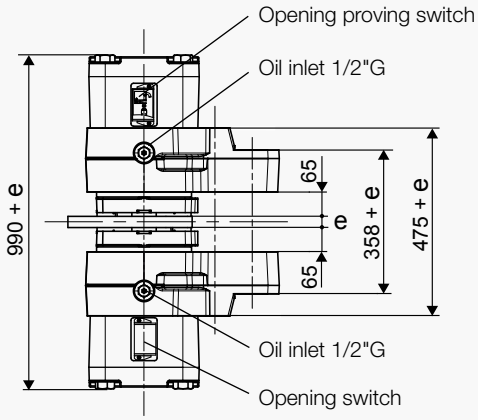
Other conditions: consult us.

Use:
- The brake should be applied only in case of emergency stop, overspeed or shutdown of electric mains. Other use, consult us.

Options:
- Lining wear proving switches
- Progressive braking system
- Marine protection



Disc ØD	1000	1500	2000	2500	3000
α	≥ 95°	≥ 70°	≥ 53°	≥ 45°	≥ 38°



Standard disc thickness : 30 ≤ e ≤ 50 mm. Other thickness. consult us.

Dimensions in mm
Weight : 600 kg

Opening proving switches
Wear proving switches (optional) :

250VAC maxi., 5A maxi.,
with interrupting capacity: 50VA maxi.

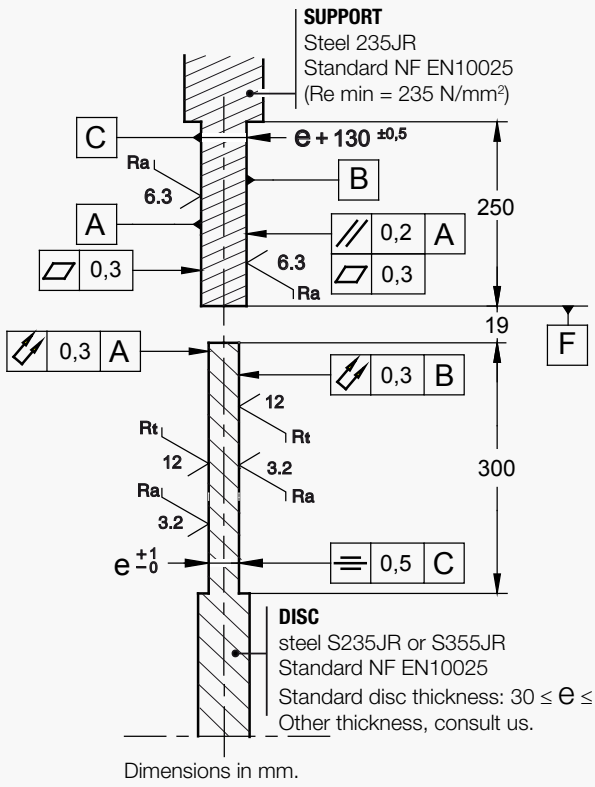
220VDC maxi., 5A maxi.,
with interrupting capacity: 50W maxi.

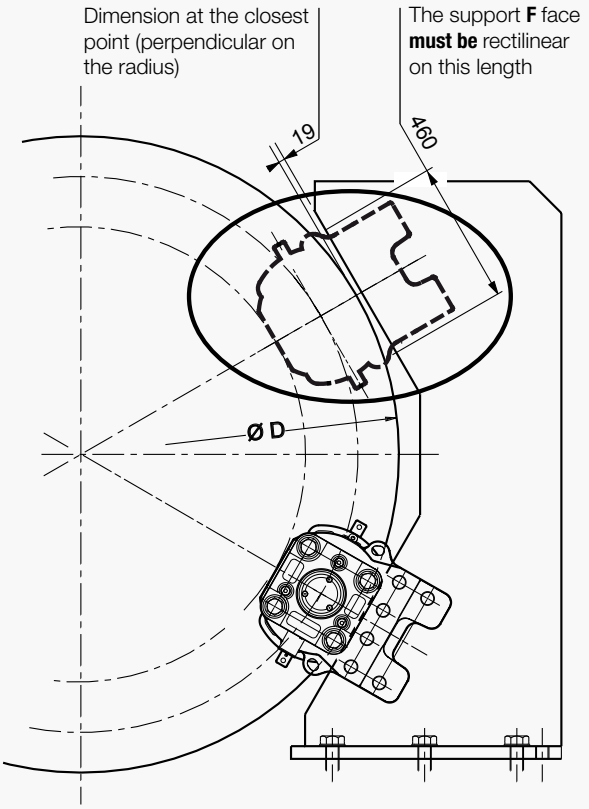
Compatible with PLC (Programmable Logic Controllers).
An opening switch used with other equipment than PLC must not be reused with a PLC.

DISC BRAKE - SH32 CALIPER

Revision number: T10040-01-C **Revision date: 15.06.2012**

Disc and support





IMPORTANT

BRAKING FORCE and **TORQUE** values correspond to lining quality **US2-1** and disc steel S235JR or S355JR (standard NF EN10025), these values are subject to a variation of ±10%.

Response time at nominal torque ≤ 0.3s

Designation	Caliper		SH32
	Lining		US2-1
BRAKING FORCE BF for air gap disc/lining of **2 x 1.5 mm**		**Dynamic** N Static N	**333 800** 300 000
BRAKING FORCE BF for air gap disc/lining of **2 x 2 mm**		**Dynamic** N Static N	**320 000** 288 000
Linear speed of the disc		m/s	≤ 10
DYNAMIC BRAKING TORQUE BT for 1 caliper and disc ØD (mm)		N.m	BT = BF (D/2000 - 0.129)
Regulation pressure	minimum maximum	bar bar	180 200
Setting pressure limit valve of hydraulic unit		bar	225
Total volume of oil displaced for air gap disc/lining of 2 x 2 mm		cm^3	191 for one stroke disc/lining

Emergency Brakes

APPLICATIONS

SHD:
- TOWER CRANES - BOOM CRANES
- OFFSHORE APPLICATIONS
- WINDTURBINES

TH/THC9:
- AERONAUTIC APPLICATIONS
- PORT CRANES

HYDRAULIC EMERGENCY BRAKES TYPES SHD / TH

MAIN CHARACTERISTICS	OPTIONS
• FAILSAFE BRAKE BY SPRING APPLICATION. • HYDRAULIC RELEASE • OPENING PROVING SWITCH • LINING WEAR INDICATORS	• LINING WEAR PROVING SWITCH

SHD

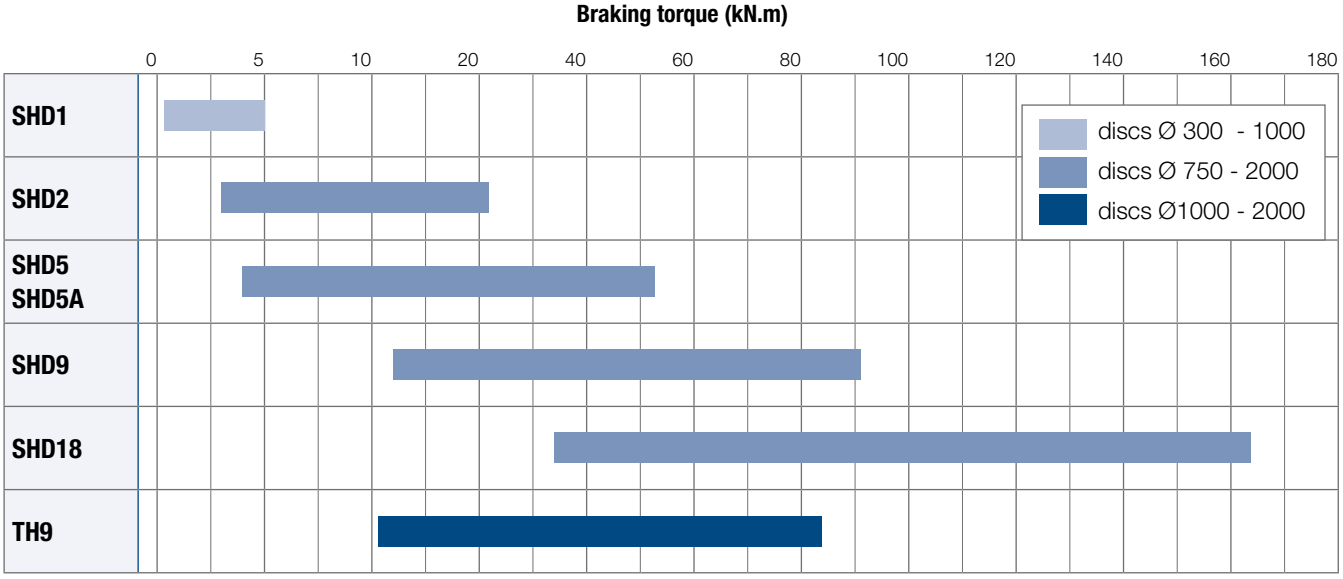
- Single-spring hydraulical caliper
- A large range from SHD1 to SHD18
- Options:
  Automatic lining wear compensation
  Manual release tool - Positive braking
  Integrated HPP - Marine protection

TH9

- Option :
  Disc thickness 42 mm

THC9

- Caliper and Hydraulic Power Pack mounted on the same support
- Option: Electrical unit



Emergency Brakes

DISC BRAKE - SHD1 CALIPER

Revision number: T10098-01-E **Revision date: 12.01.2016**

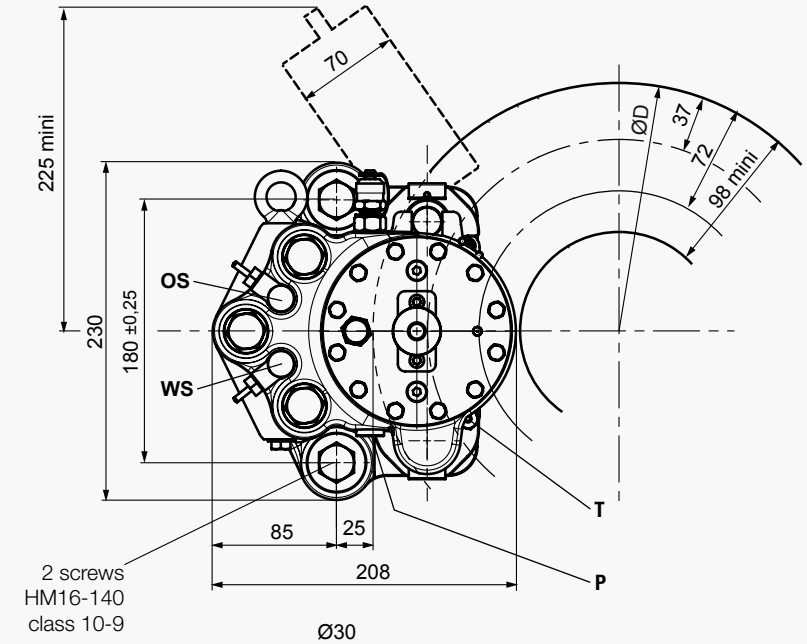
Emergency brake
Fail to safe
Spring application
Hydraulic release
Mechanical holding of the brake in open position for pads changing
Manual wear centering and compensation
Possible association with discs thickness: 12.7 (1/2"), 20 and 30mm.
Lining pads type **US2-1** or **ES3-7**
Lining pads with full wear indicators
Protection C5-M M

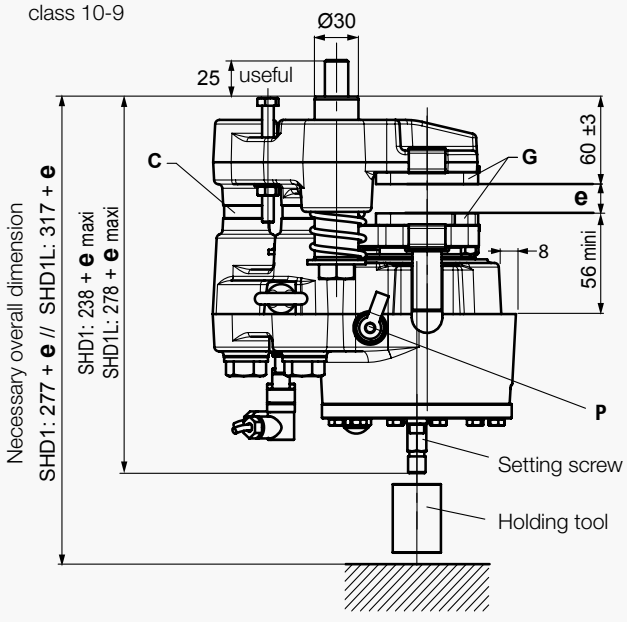
Operating conditions:
- Ambient temperature:
  Dynamic braking : -30°C to +70°C
  Brake applied (parking): -40°C to +70°C
- Relative humidity: ≤ 70%
- Dust in atmosphere ≥ 65µm

Other conditions: consult us.

Use:
- The brake should be applied only in case of emergency stop, overspeed or shutdown of electric mains. Other use, consult us.

Options:
- Opening proving switch (**OS**)
- Lining wear proving switch (**WS**)
- All non-standard disc thickness > 12.7mm (1/2")
- Lining temperature sensor (**T**)
- **SHD1L** : caliper with manual wear compensation at half wear:
  - braking force before wear = +10% maxi.
  - braking force at half wear = -10% maxi.





C = Spacers according to disc thickness
G = Linings : Thickness of new lining 8 mm
Thickness to wear 6 mm
Each 1 mm of wear on each side: manual centering and compensation
OS = Opening proving switch (option)
WS = Wear proving switch (option)
P = 2 oil ports 1/4"G
Bleeder screw delivered separately
T = PT100 sensor (option)
ØD : from 300 to 1000 mm
e = disc thickness

Dimensions in mm
Weight = 24 kg

Electrical data

Inductive switches of opening and wear (options):
3 wires PNP NO
12 to 24 VDC 200mA
with connector M12 / 5 positions
according to standard :
IEC61076-2-101 / code A

Sensor PT100 (option)

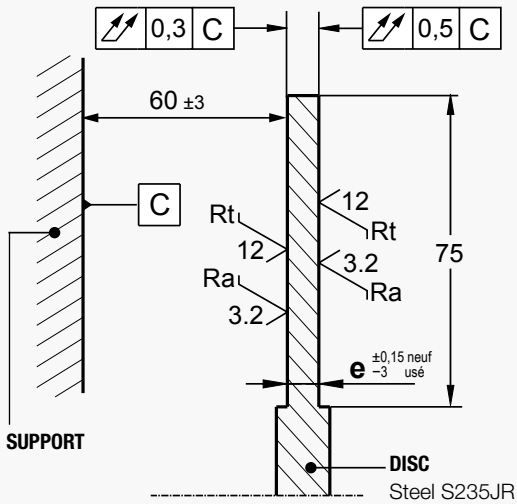
Detection of the temperature threshold :
100°C ± 5
- R = 136.6 Ω at 95 °C
- R = 138.5 Ω at 100°C
- R = 140.4 Ω at 105°C

Cable length = 2.5 meters
2 wires red/yellow

DISC BRAKE - SHD1 CALIPER

Revision number: T10098-01-E **Revision date: 12.01.2016**

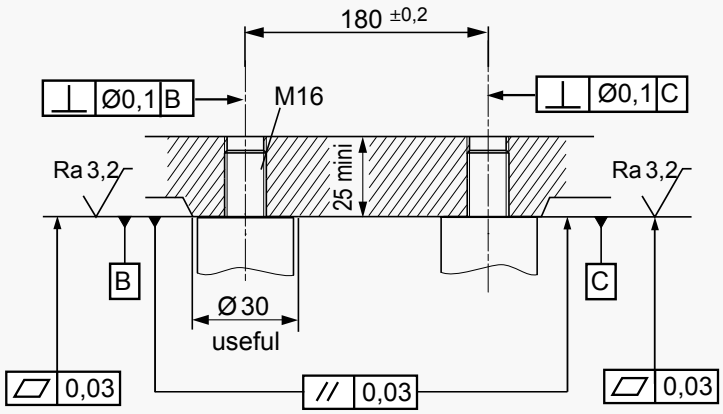
Installation instructions :



Steel S235JR or S235JR
Standard NF EN10025

Standard disc thickness :
e = 12.7 (1/2"), 20 and 30 mm $^{+0.15}_{-3}$
Other thickness, consult us.

Support machining tolerances :



Torque and effort values are subject to a variation of ±10%
Closing time at nominal torque ≤ 0.3s

Designation	Caliper SHD1-		5	4	3	2	1	5	4	3	2	1
	Lining ∗		ES3-7					US2-1				
Braking force BF for air gap disc/lining of 2x1mm	**Dynamic**	N	11 000	8 000	6 000	4 000	2 000	11 000	8 000	6 000	4 000	3 000
	Static	N	9 900	7 200	5 400	3 600	1 800	9 680	7 040	5 280	3 520	2 640
Linear speed of the disc ●		m/s	≤ 50					≤ 10				
Dynamic braking torque BT (m.N) for 1 caliper and disc ØD (mm) / 300 ≤ D ≤ 1000 mm		N.m	BT = BF (D/2000-0.037)									
Regulation pressure	Minimum Maximum	bar bar	150 170									
Setting pressure limit valve of hydraulic unit		bar	190									
Total volume of oil displaced for air gap disc/lining of:	2 x 1mm (nominal opening)		5 cm³									
	2 x 2mm (wear+opening)	cm³	9 cm³									
	2 x 4mm **SHD1L** (wear+open.)	cm³	18 cm³									

∗ **ES3-7**: disc temperature during one braking ≤ 600°C
US2-1: disc temperature during one braking ≤ 100°C

● For higher speed, consult us.

Emergency Brakes

DISC BRAKE - SHD2 CALIPER

Revision number: T03851-05-B **Revision date: 04.09.2012**

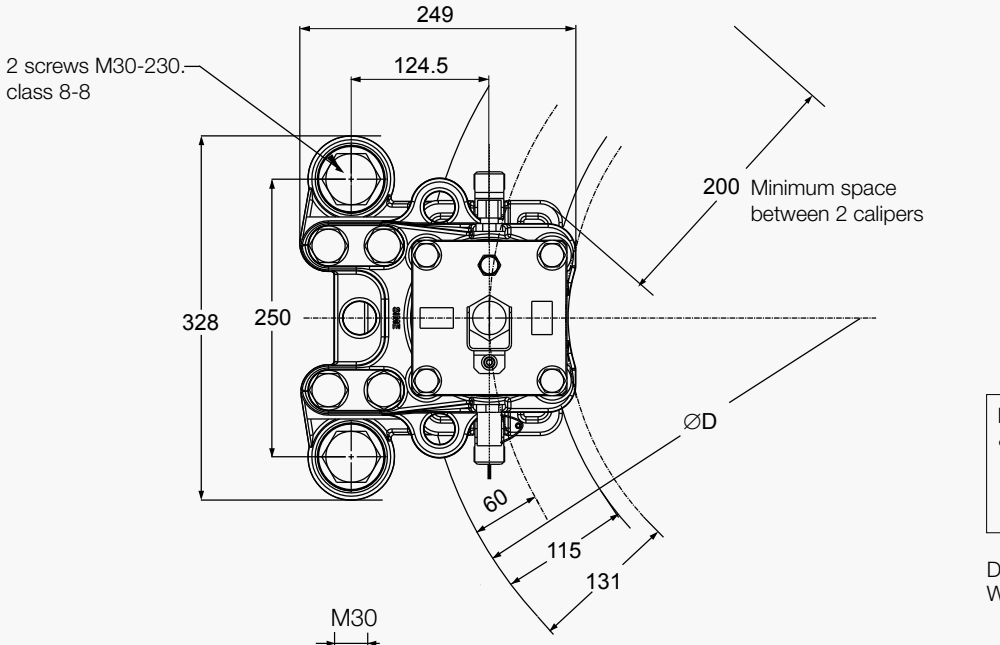
Spring application
Hydraulic release
Opening proving switch (compatible for PLC)
Lining wear proving switch (compatible for PLC)
Marine protection

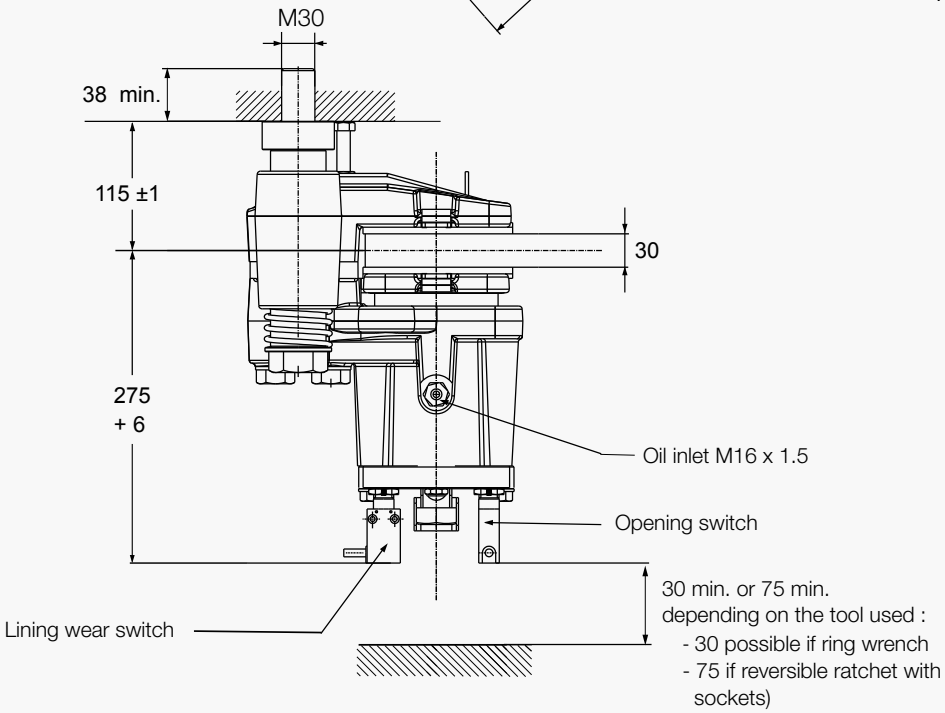
Working conditions:
- Ambient temperature: -20°C to +60°C
- Relative humidity ≤ 70%
- Dust in atmosphere ≥ 65µ

Other conditions, consult us.

Use:
- Emergency stopping brake in case of overspeed or loss of electrical supply

Options :
- Thermistors for detection of the maximum temperature of the disc





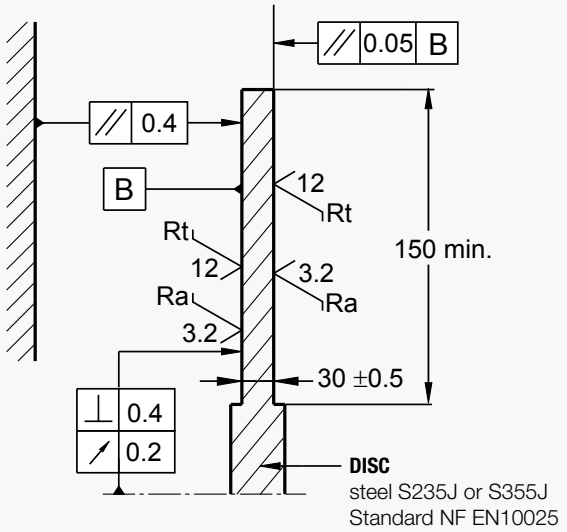
Electrical data :
- Proving switches:
  240V. 5A. 50VA AC
  220V. 5A. 50W CC

Dimensions in mm
Weight : 60 kg

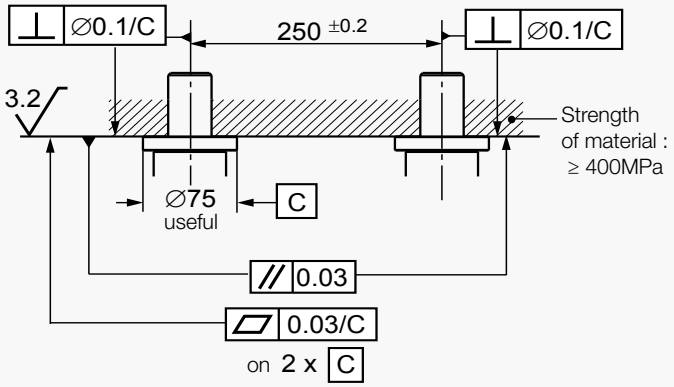
DISC BRAKE - SHD2 CALIPER

Revision number: T03851-05-B **Revision date: 04.09.2012**

Installation instructions :



Support machining tolerances :



Response time at nominal torque < 0.3s
Torque and effort values are subject to a variation of ± 10%

Designation	Caliper		SHD2-3	SHD2-2	SHD2-1
	Lining		ES3-7		
Braking force BF for air gap disc/lining of 2x1mm	**Dynamic**	N	23 000	15 400	10 540
Linear speed of the disc ●		m/s	< 50		
Dynamic braking torque BT (m.N) for 1 caliper and disc ØD (mm)	630 mm	N.m	5 870	3 930	2 690
	710 mm	N.m	6 790	4 540	3 110
	800 mm	N.m	7 820	5 240	3 580
	1000 mm	N.m	10 120	6 780	4 640
		N.m	BT = BF (D/2000 - 0.06)		
Regulation pressure	Minimum Maximum	bar bar	180 200	110 140	85 115
Setting pressure limit valve of hydraulic unit		bar	210	165	140
Total volume of oil displaced Max. oil volume of the jack		cm^3 cm^3	8 per stroke (for a nominal disc/lining stroke of 1 mm per side) 45		

● For higher speed, consult us.

Emergency Brakes

DISC BRAKE - SHD5 CALIPER

Revision number: T03861-08-A **Revision date: 29.11.2010**

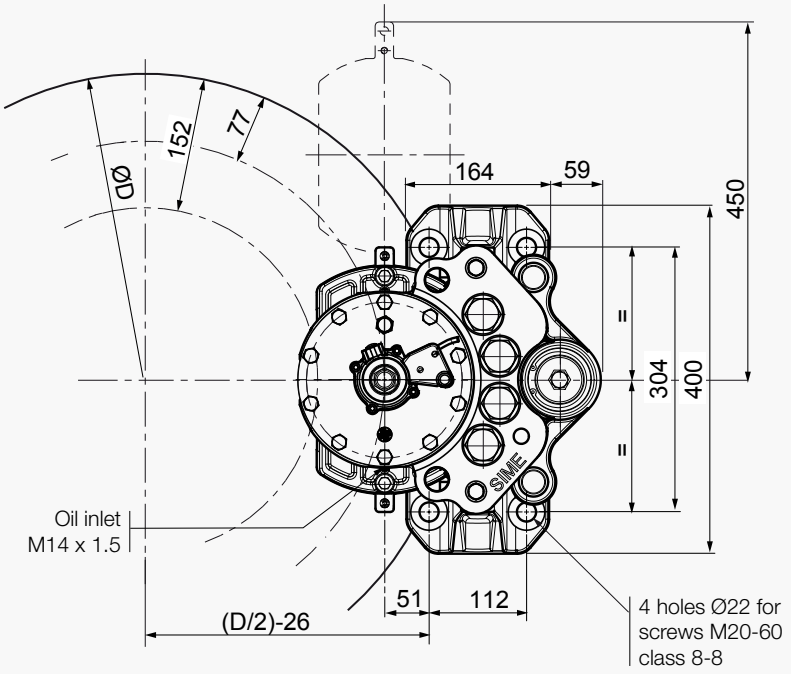
Fail safe braking
Braking by spring application
Hydraulic release
Opening proving switch
Lining wear proving switch

Working conditions:
- Ambient temperature: -20°C to +60°C
- Relative humidity ≤ 70%
- Dust in atmosphere ≥ 65µ

Other conditions, consult us.

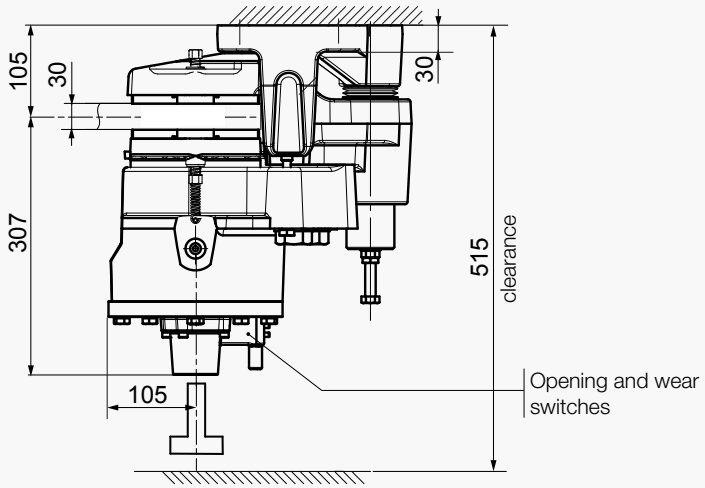
Use:
- Emergency stopping brake in case of overspeed or loss of electrical supply

Options:
- Automatic lining wear compensation (WACS)
- Manual release tool (DM)
- Positive braking
- Detection of full lining wear
- Temperature detection of the linings
- Switch for PLC
- Marine protection



Opening and wear proving switches :
240V. 5A. 50VA AC
220V. 5A. 50W DC
2 m length cable (3 x 0.75 mm²)

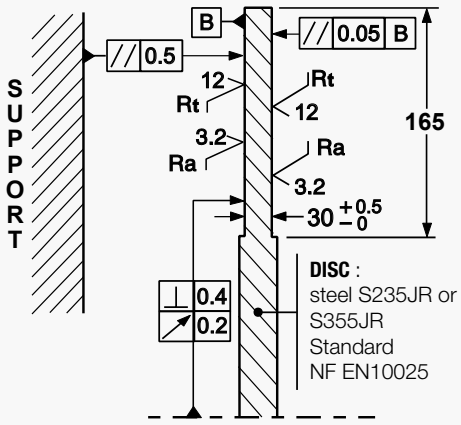
Dimensions in mm
Weight: 105 kg



DISC BRAKE - SHD5 CALIPER

Revision number: T03861-08-A **Revision date: 29.11.2010**

Installation instructions :



Torque and effort values are subject to a variation of ±10%
Response time at nominal torque ≤ 0.3s

Designation	Caliper		SHD5-6	SHD5-5	SHD5-4	SHD5-3	SHD5-2	SHD5-1
	Lining		WS1-3					
Braking force BF for 1.25 mm of air gap disc/lining	Dynamic	N	33 000	27 000	23 000	18 000	15 000	13 500
Linear speed of the disc for BF		m/s	< 50					
Dynamic braking torque BT (N.m) for a caliper mounted on a disc ØD (mm)	710 mm	N.m.	9 180	7 500	6 400	5 000	4 170	3 760
	1000 mm	N.m.	13 960	11 420	9 730	7 610	6 350	5 720
	1500 mm	N.m.	22 210	18 170	15 480	12 110	10 100	9 090
		N.m	BT = BF (D/2000 - 0.077)					
Regulation pressure	Min.	bar	110	110	85	60	60	60
	Max.	bar	140	140	115	80	80	80
Setting pressure limit valve hydraul. pack		bar	165	165	140	105	105	105
Total volume of oil displaced		cm^3	15.9 per stroke (for nominal disc/lining stroke of 1.25 mm per side)					
Max. oil volume of the jack		cm^3	76					

Emergency Brakes

DISC BRAKE - SHD5A-M2 CALIPER

Revision number: T10131-02-B **Revision date: 01.12.2017**

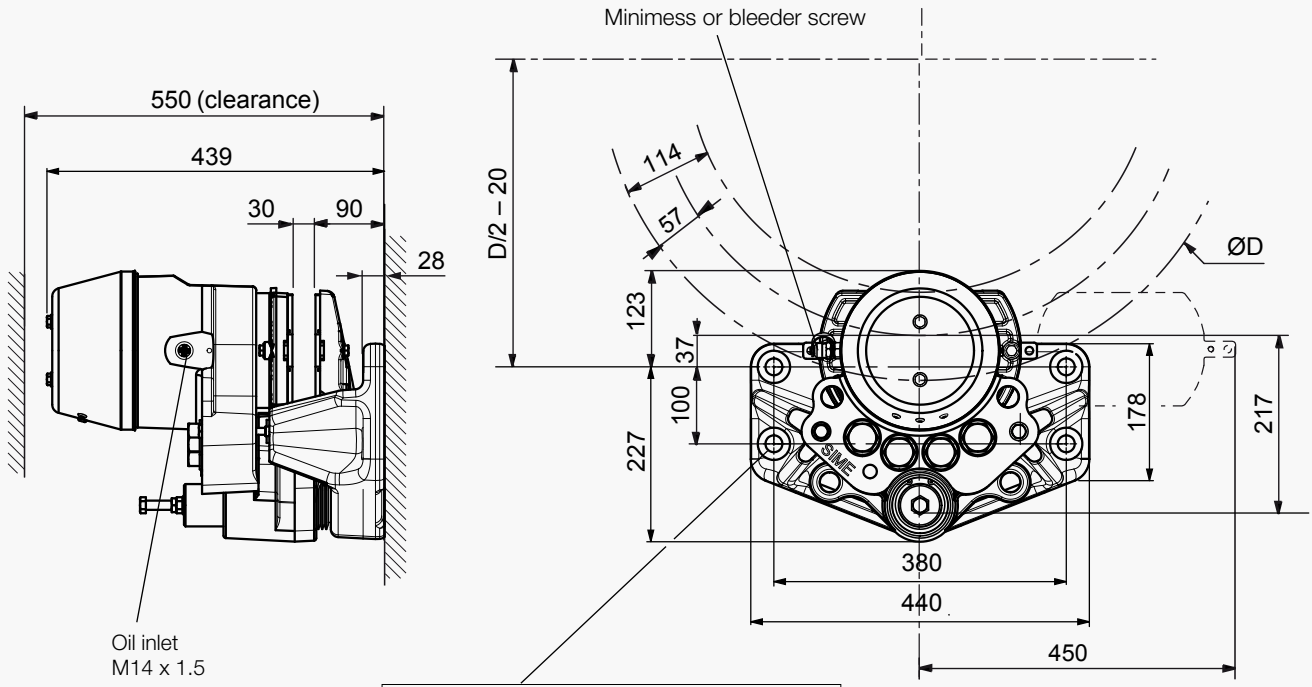
Fail safe braking
Braking by spring application
Hydraulic release
Opening proximity switch
Holding tool
Detection of full lining wear
Protection level C3-H standard ISO 12944-2
VCI packing

Working conditions:
- Ambient temperature: -10°C to +60°C
- Relative humidity ≤ 70%
- Dust in atmosphere ≥ 65µ

Other conditions. consult us.

Use:
- Emergency stopping brake in case of overspeed or loss of electrical supply
- Service life : 100 000 cycles

Options:
- Wear proximity switch
- Closing proximity switch
- Low temperature:
  - dynamic braking: -30°C to +60°C
  - brake closed (park position): -40°C to +60°C
- Protection level C5M-H



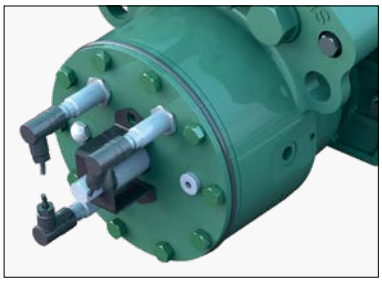
Weight: 108 kg
Dimensions in mm

Electrical data :

Opening proximity switch:

3 wires PNP NO
10 to 58 VDC 200 mA
delivered with connector M12

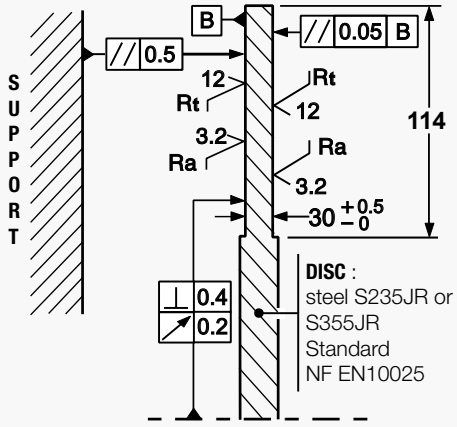
Closing and wear switches: optional



DISC BRAKE - SHD5A-M2 CALIPER

Revision number: T10131-02-B **Revision date: 01.12.2017**

Installation instructions :



Torque and effort values are subject to a variation of ±10%
Response time at nominal torque ≤ 0.3s

Designation	Caliper SHD5A-...-M2		1	2	3	4	5	6	7	8
	Lining		US2-1							
Braking force BF for 1.25 mm of air gap disc/lining	Dynamic	N	15 500	17 700	20 000	28 000	33 000	41 000	48 000	56 000
Linear speed of the disc for BF		m/s	< 10							
Dynamic braking torque BT (N.m) for a caliper mounted on a disc ØD (mm)		N.m	BT = BF (D/2000 - 0.057)							
Regulation pressure	Min.	bar	60	60	85	85	110	140	140	180
	Max.	bar	80	80	115	115	140	160	160	200
Setting pressure limit valve hydraul. pack		bar	105	105	140	140	165	190	190	225
Total volume of oil displaced		cm^3	12.7 per stroke (for nominal disc/lining stroke of 1 mm per side)							
Max. oil volume of the jack		cm^3	76							

Emergency Brakes

DISC BRAKE - SHD9 CALIPER

Revision number: T10042-01-E **Revision date: 31.08.2017**

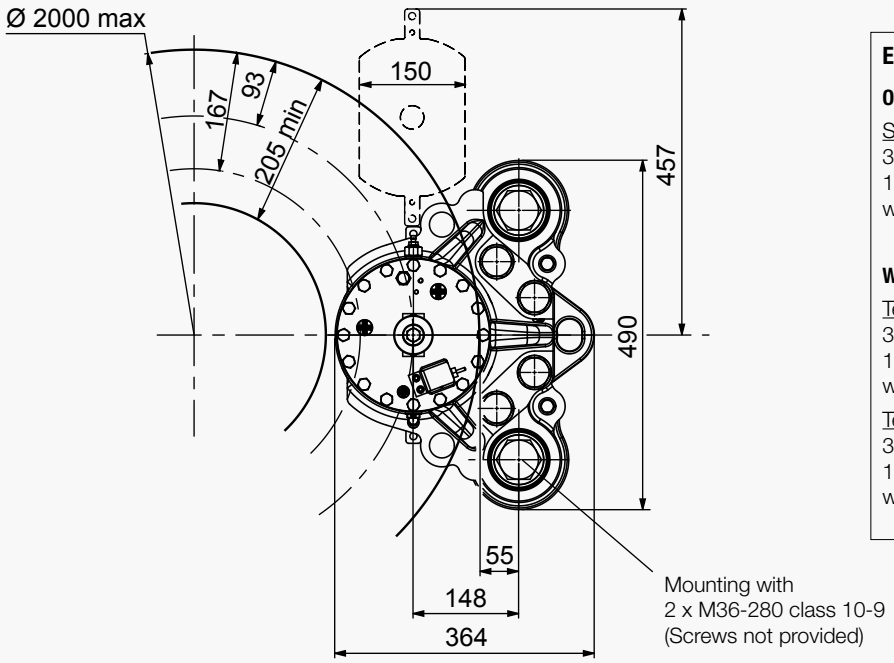
Fail safe braking
Braking by spring application
Hydraulic release
Opening proximity switch for PLC
(induction sensor)
Lining wear detectors
Association with discs thichness 30 mm

Working conditions :
- Ambient temperature: -10°C to +60°C
- Relative humidity ≤ 70%
- Dust in atmosphere ≥ 65µm

Other conditions, consult us.

Use :
- Emergency stopping brake in case of overspeed or loss of electrical supply

Option :
- Lining wear proximity switch
- Discs thickness 24 ≤ **e** < 30 mm.
- Option GF :
  Ambient temperature:
  - Dynamic braking : -30°C to +60°C
  - Parking braking : -40°C to +60°C
- Marine protection



Electrical data :

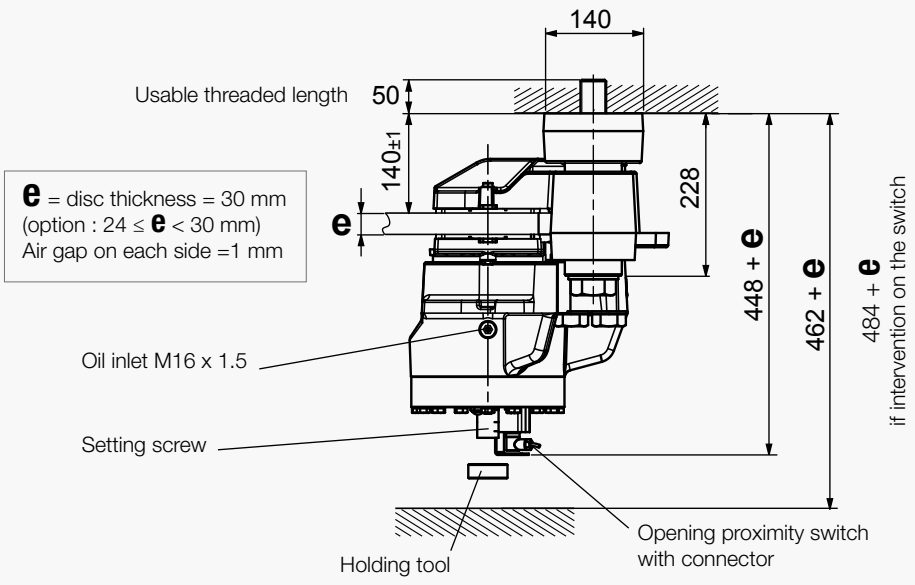
Opening proximity switch

Standard caliper and caliper option GF
3 wires PNP NO
10 to 58 VDC 200 mA
with connector M12

Wear proximity switch (option):

Temperature -10°C to +60°C
3 wires PNP NO
10 to 58 VDC 200 mA
with connector M12

Temperature -40°C to +60°C / Option GF
3 wires PNP NO
10 to 36 VDC 200 mA
with connector M12



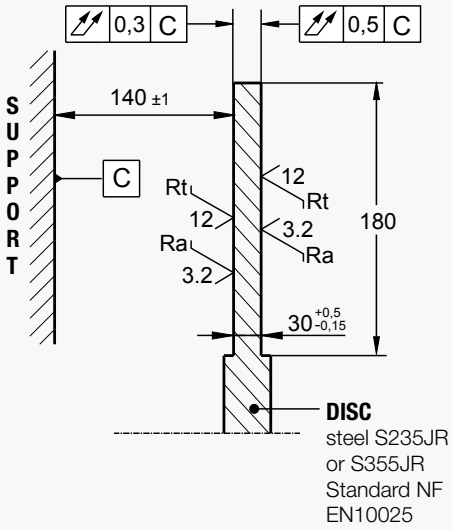
e = disc thickness = 30 mm
(option : 24 ≤ **e** < 30 mm)
Air gap on each side =1 mm

Weight: 148 kg
Dimensions in mm

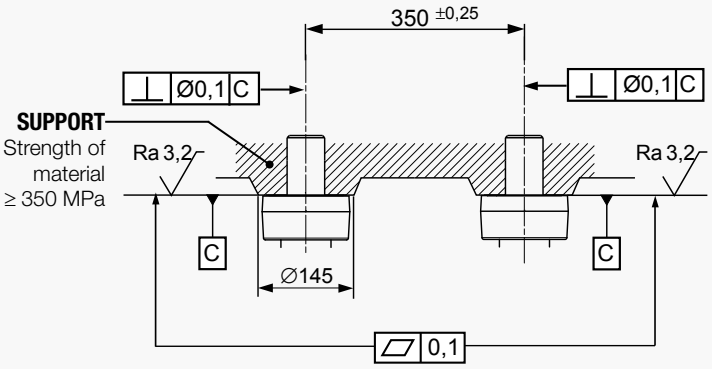
DISC BRAKE - SHD9 CALIPER

Revision number: T10042-01-E **Revision date: 31.08.2017**

Installation instructions :



Support machining tolerances :



Torque and effort values are subject to a variation of ±10%
Response time at nominal torque ≤ 0.3s

Designation	Caliper		SHD9-6		SHD9-5		SHD9-4		SHD9-3		SHD9-2		SHD9-1	
	Lining ✳		US2-1	US2-5	US2-1	US2-5	US2-1	US2-5	US2-1	US2-5	US2-1	US2-5	US2-1	US2-5
Braking force BF for air gap disc/lining of 2x1mm	**Dynamic**	N	100 000	87 000	90 000	78 300	80 000	69 600	70 000	61 000	60 000	52 300	50 000	43 500
	Static	N	88 000	78 300	79 200	70 500	70 400	62 600	61 600	54 900	52 800	47 000	44 000	39 100
Linear speed of the disc		m/s	≤ 10											
Dynamic braking torque BT (m.N) for 1 caliper and disc ØD (mm) / D max ≤ 2000mm		N.m	BT = BF (D/2000 - 0.093)											
Regulation pressure	Minimum Maximum	bar bar	180 200		170 190		150 170		120 140		110 130		90 110	
Setting pressure limit valve of hydraulic pack		bar	220		210		190		160		160		130	
Total volume of oil displaced for air gap disc/lining of:														
2 x 1mm (nominal opening)		cm^3	28											
2 x 1.5mm (nominal opening and wear before setting)		cm^3	39											

✳ **US2-1**: disc temperature during one braking ≤ 150°C
US2-5: disc temperature during one braking ≤ 350°C.

Emergency Brakes

DISC BRAKE - SHD18 CALIPER

Revision number: T10129-01-A **Revision date: 13.01.2017**

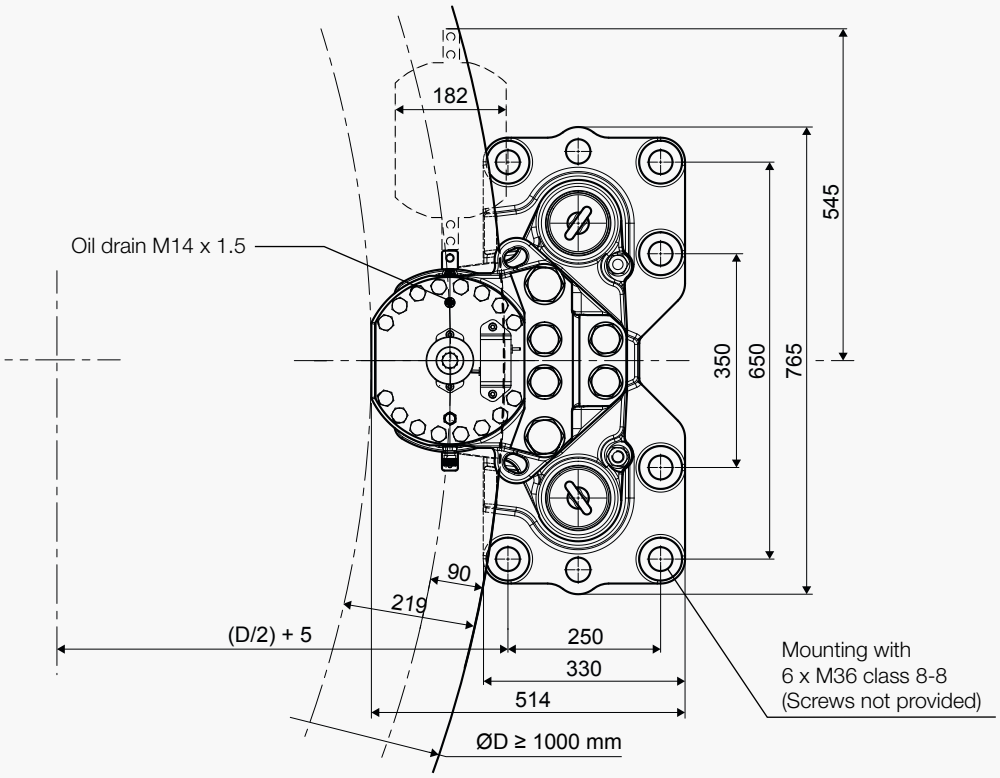
Fail safe braking
Braking by spring application
Hydraulic release
Opening proximity switch for PLC
(induction sensor)
Full lining wear indicators
Association with discs thichness 30 mm
Protection level C3 L standard NF ISO9223

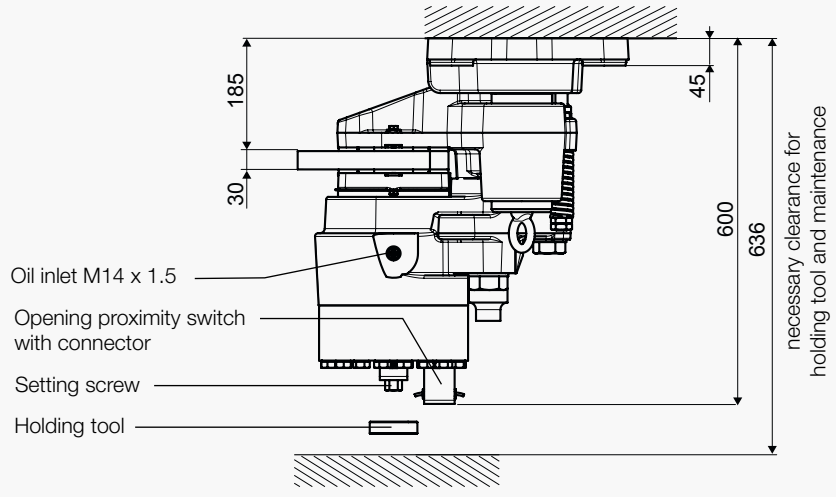
Working conditions :
- Ambient temperature: -20°C to +60°C
- Relative humidity ≤ 70%
- Dust in atmosphere ≥ 70µm

Other conditions, consult us.

Use :
- Emergency stopping brake in case of overspeed or loss of electrical supply

Option :
- Lining wear proximity switch
- Protection level C5-M M standard NF ISO9223





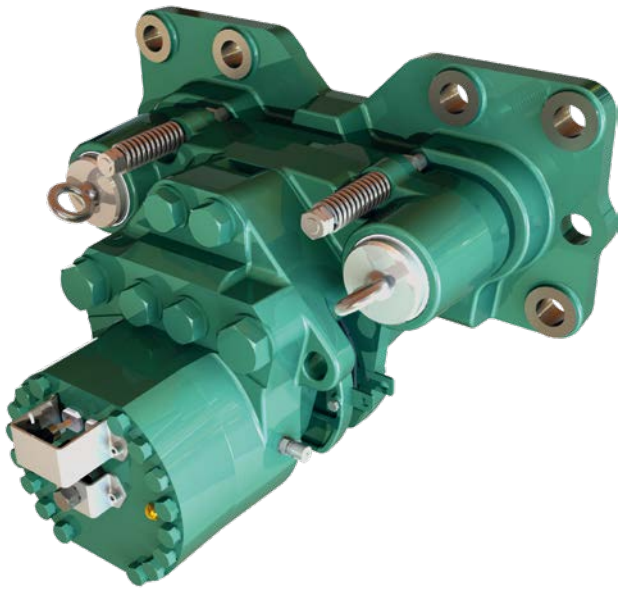
Electrical data :

Opening proximity switch
and wear proximity switch (option):
3 wires PNP NO
10 to 58 VDC 200 mA
with connector M12

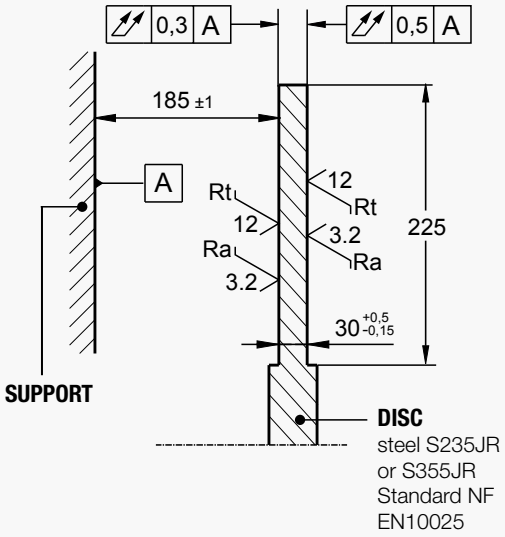
Dimensions in mm
Weight: 395 kg

DISC BRAKE - SHD18 CALIPER

Revision number: T10129-01-A **Revision date: 13.01.2017**



Installation instructions :



Torque and effort values are subject to a variation of ±10%
Response time at nominal torque ≤ 0.3s

Designation	Caliper		SHD18-3	SHD18-2	SHD18-1
	Lining ✳		US2-1		
Braking force BF for air gap disc/lining of 2x1mm	Dynamic	N	180 000	150 000	120 000
	Static	N	162 000	135 000	108 000
Linear speed of the disc		m/s	≤ 10		
Dynamic braking torque BT (m.N) for 1 caliper and disc ØD (mm) / D max ≤ 2000mm		N.m	BT = BF (D/2000 - 0.09)		
Regulation pressure	Minimum Maximum	bar bar	195 205	160 170	130 140
Setting pressure limit valve of hydraulic unit		bar	225	190	160
Total volume of oil displaced for air gap disc/lining of: 2 x 1 mm (nominal opening) 2 x 2 mm (nominal opening + wear before setting)		 cm^3 cm^3	 48 82		

✳ **US2-1**: disc temperature during one braking ≤ 150°C

Emergency Brakes

DISC BRAKE - TH9 CALIPER

Revision number: T03830-01-C **Revision date: 13.12.2010**

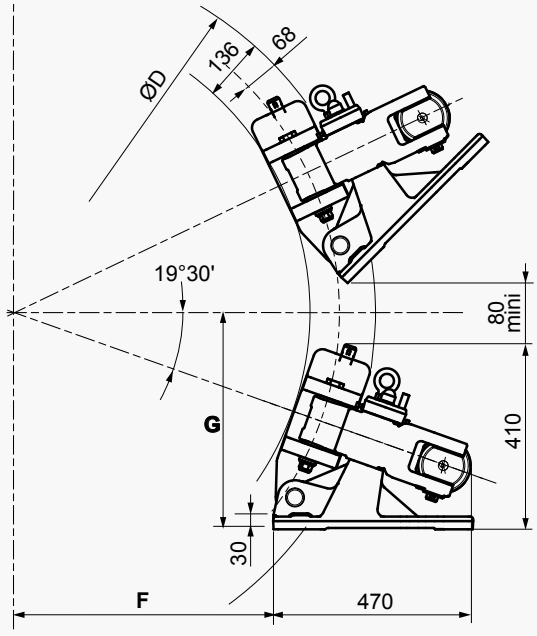
Fail safe
Spring applied
Hydraulic release (mineral oil)
Opening proving switch
Wear proving switch
Lining wear detector

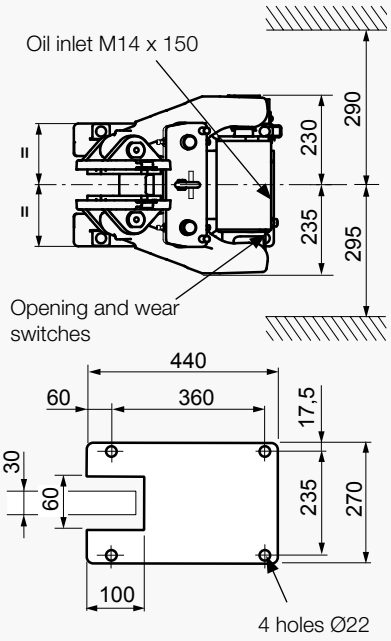
Working:
- Ambient temperature: -10°C to +60°C
- Relative humidity ≤ 70%
- Dust in atmosphere ≥ 65µ

Other conditions, consult us.

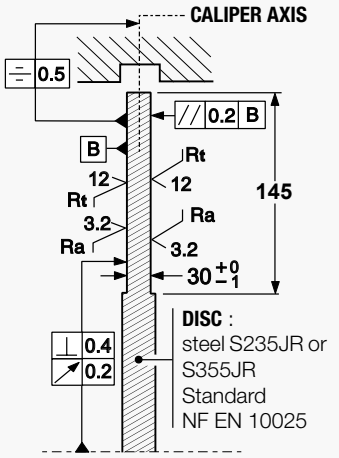
Use:
Service brake to operate with full or variable torque
Emergency brake in case of overspeed or loss of electrical supply

Option:
Disc thickness 42 mm





Installation instructions



Weight: 140 kg
Dimensions in mm

Designation	Caliper		TH9-3		TH9-2		TH9-1	
	Lining ✳		US2-1	WS1-3	US2-1	WS1-3	US2-1	WS1-3
Braking force BF for 1mm of air gap disc/lining	Static N		81 000	54 000	52 650	38970	28 350	22 140
	Dynamic N		90 000	60 000	58 500	43 300	31 500	24 600
Linear speed of the disc		m/s	≤10	≤50	≤10	≤50	≤10	≤50
Dynamic braking torque BT (N.m) for 1 caliper and a disc ØD (mm)	1000 mm	Nm	38 880	25 920	25 270	18 700	13 600	10 620
	1200 mm	Nm	47 880	31 920	31 120	23 030	16 750	13 080
	1500 mm	Nm	61 380	40 920	39 890	29 530	21 480	16 770
	2000 mm	Nm	83 880	55 920	54 520	40 350	29 350	22 920
BT for other ØD (mm)		Nm	BT = BF (D/2000 - 0.068)					
Positioning when D<3000mm Above it. consult us	F	mm	(0.4713 x D) - 172					
	G	mm	(0.1669 x D) + 212					
Regulation pressure	minimum	bar	140		85		60	
	maximum	bar	160		115		80	
Setting pressure limit valve of hydr. unit		bar	190		140		105	
Total volume of oil displaced		cm^3	58 for one stroke disc/lining (nominal wear and opening)					

Torque and force values are subject to a variation of ±10%.

Response time at nominal torque : see leaflet n° G08555-01.

Opening and wear switches :

250VAC maxi., 5A maxi.,
with interrupting capacity: 50VA maxi.

220VDC maxi., 5A maxi.,
with interrupting capacity: 50W maxi.

Compatible with PLC
(Programmable Logic Controllers).
A switch used with other equipment than PLC must not be reused with a PLC.

Opening and wear switches are delivered with wire 5 x 0.75mm^2 and length 1m each

✳ **US2-1**: disc temperature during one braking ≤ 150°C
WS1-3: disc temperature during one braking ≤ 600°C
US2-5: disc temperature during one braking ≤ 350°C, optional, consult us.

DISC BRAKE - THC9B CALIPER

Revision number: T03836-01-C **Revision date: 24.08.2012**

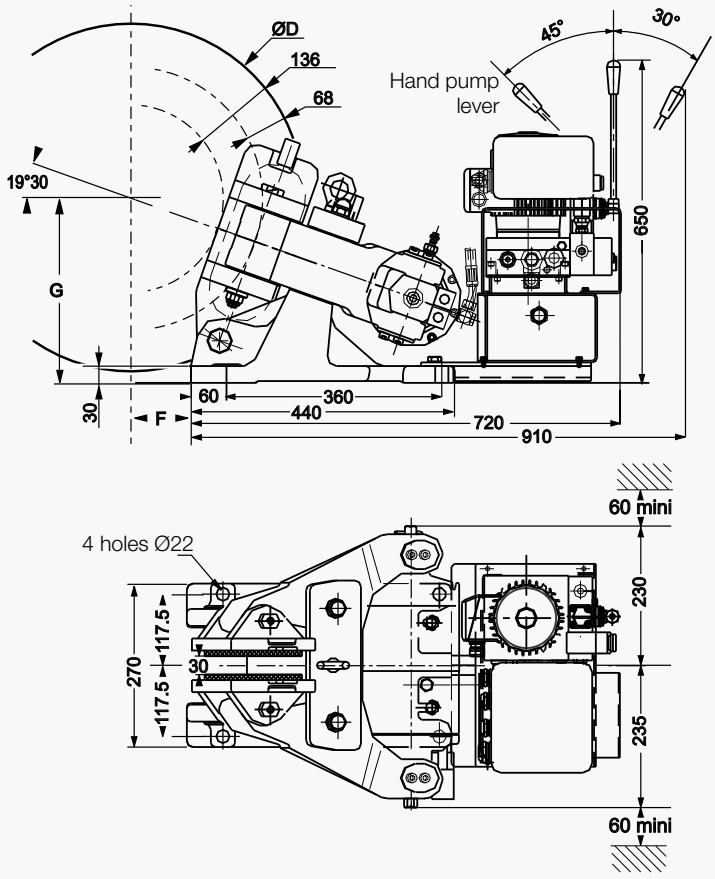
Fail safe
Spring application
Hydraulic release
Integral hydraulic power unit
Self contained electric system
Opening proving switch
Lining wear control switch
Lining wear detector

Operating conditions:
- Ambient temperature: -10°C to +60°C
- Relative humidity: ≤ 70%
- Dust in atmosphere ≥ 65µ

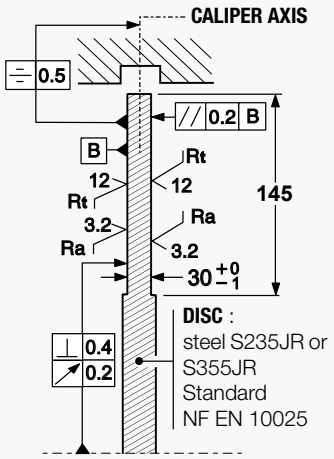
Other conditions, please contact us.

Use:
The brake should be applied only in case of emergency stop, overspeed or shutdown of electric mains. Other use, please contact us.

Options:
- Progressive braking system
- Disc thickness 42 mm



Installation instructions



Permissible inclination of the caliper :
±15° maximum regarding the horizontal.
For other mounting, please contact us.

Weight: 180 kg
Dimensions in mm

Designation	Caliper		TH9-3		TH9-2		TH9-1	
	Lining ✳		US2-1	WS1-3	US2-1	WS1-3	US2-1	WS1-3
Braking force BF for 1mm of air gap disc/lining	Static	N	81 000	54 000	52 650	38 970	28 350	22 140
	Dynamic	N	90 000	60 000	58 500	43 300	31 500	24 600
Linear speed of the disc		m/s	≤10	≤50	≤10	≤50	≤10	≤50
Dynamic braking torque BT (N.m) for 1 caliper and a disc ØD (mm)	1000 mm	Nm	38 880	25 920	25 270	18 700	13 600	10 620
	1200 mm	Nm	47 880	31 920	31 120	23 030	16 750	13 080
	1500 mm	Nm	61 380	40 920	39 890	29 530	21 480	16 770
	2000 mm	Nm	83 880	55 920	54 520	40 350	29 350	22 920
BT for other ØD (mm)		Nm	BT = BF (D/2000 - 0.068)					
Positioning when D<3000mm Above it. consult us	F	mm	(0.4713 x D) - 172					
	G	mm	(0.1669 x D) + 212					
Setting pressure limit valve of hydr. pack		bar	190		140		105	

✳ **US2-1**: disc temperature during one braking ≤ 150°C
WS1-3: disc temperature during one braking ≤ 600°C
US2-5: disc temperature during one braking ≤ 350°C, optional, consult us.

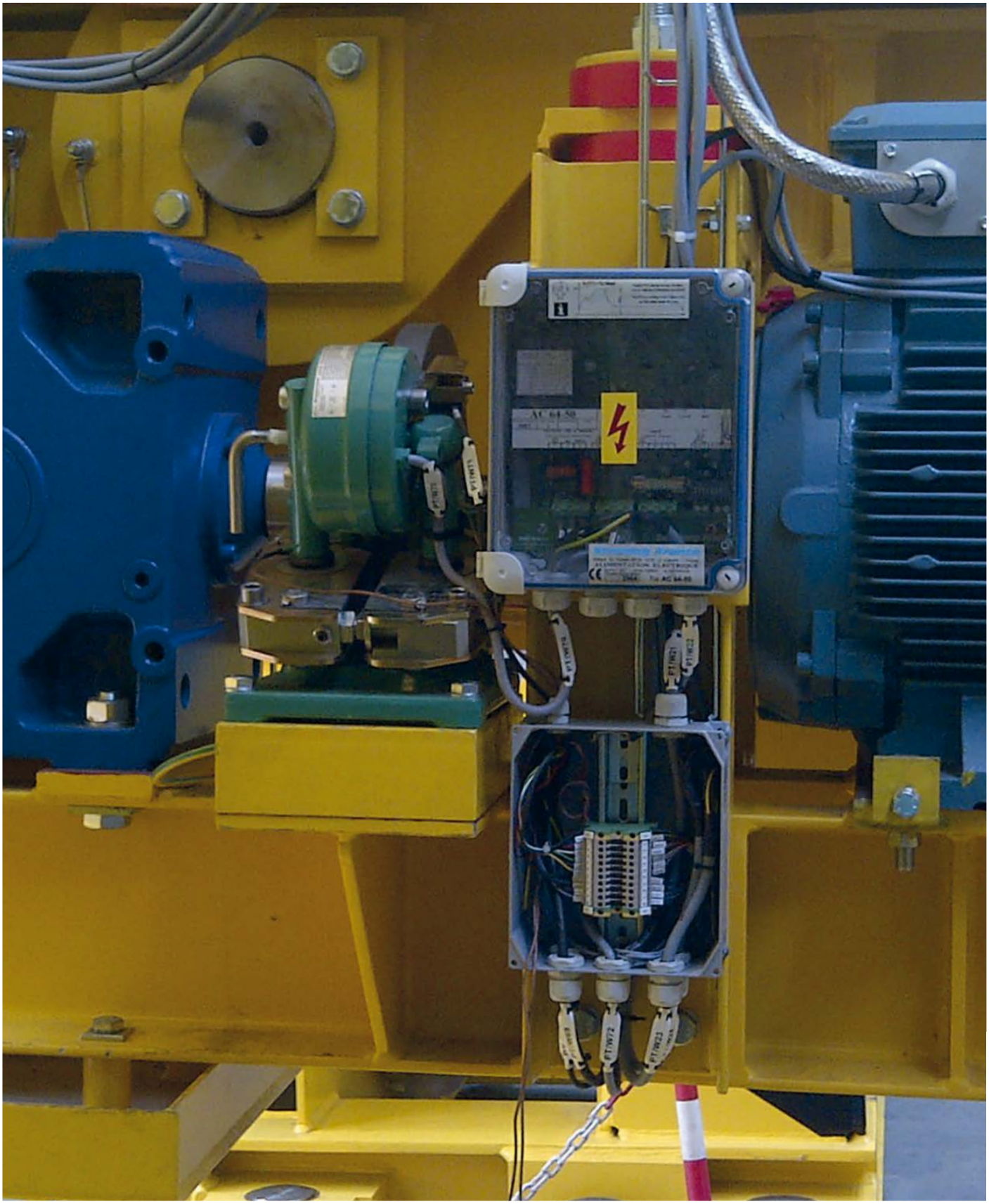
Electrical data:

HPP motor: 3 phases: 230/400V ±10%
50Hz 0.37kW, 4 poles
for mains: 230/400 V 50 Hz
or 415 V 50 Hz or 460 V 60 Hz

Motor option: 400/690V ±10% 50Hz
255/440V ±10% 50Hz
290/500V ±10% 50Hz
280/480V ±10% 60Hz
330/575V ±10% 60Hz
Other voltage, please contact us.
Electrical casing IP55

Opening and wear proving switches:
U mini 24V AC or DC
U maxi 250V AC ou 220 V DC
I mini 0.1A AC or DC
I maxi 5A AC or DC
interrupting capacity :
mini :2.4VA AC or 2.4W DC
maxi : 50VA (AC) ou 50W (DC)

ELECTRICAL POWER UNITS



MAIN CHARACTERISTICS

- DESIGNED TO GIVE OPTIMUM PERFORMANCE FROM THE ELECTROMAGNETIC CALIPERS
- AC LINE SUPPLY: AB8, AC64, AC32, AS100, 4200 AND 4205
- DC LINE SUPPLY: DC64, DC32 AND DS100
- HIGH "CALL" VOLTAGE TO REDUCE OPENING RESPONSE TIME
- AUTOMATIC REDUCTION TO AN ECONOMICAL "HOLD" VOLTAGE
- A "CUT-OUT" CIRCUIT GIVING A VERY SHORT BRAKE ACTION

AC64 & AC32

- Simplicity of adjustment and use.
- Weights and size reduced.
- Quick diagnosis of fault through the use of 6 LEDS.

AS100

- Available in:
- Polycabornate enclosure (CP): IP66, IK8
- or Steel enclosure (CA): IP66, IK9

4200 & 4205 / AB8

- **4205** unit enables electrically controlled lowering.
- **AB8** unit is used with "E" series calipers for progressive braking torque control.

POWER UNITS	CALIPERS											
	660	650	650E	645 - 45K	5D - 5DR	5DE	4CA2	3CA2	2CA2 - 1CA2	OSA	OOSA	2SA
AC64 - DC64	■	■	■	■	■	■	■					
AC32 - DC32							■	■	■			
AS100 - DS100										■	■	
4200							■	■		■	■	■
4205							■	■		■	■	■
AB8			■			■						

Electrical Power Units

DISC BRAKE - ELECTRICAL POWER UNIT AC64-50 CA

Revision number: T04560-01-D **Revision date: 20.07.2011**

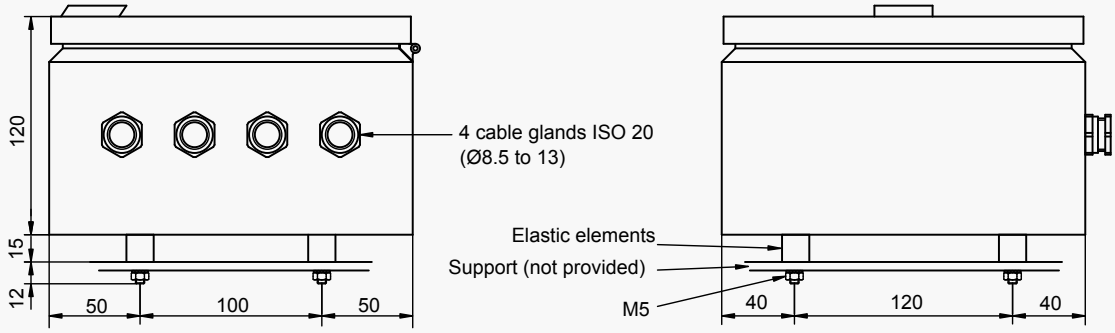
Compact power supply operating on alternating single or two-phase mains.
For SIME Disc Brakes with 50 V coil.
type : 660/650-5K/5D-645-45K-4WD-4CA2
Steel case

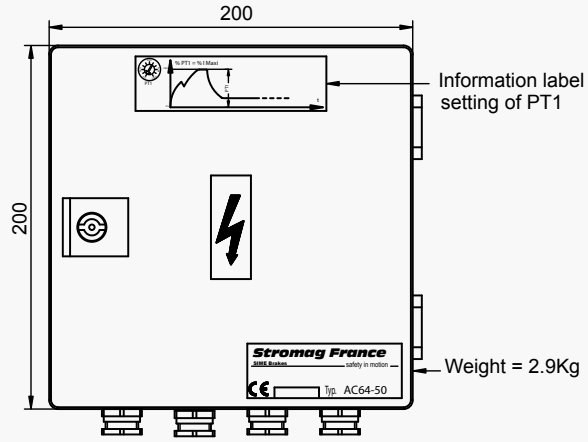
Operating Conditions:
- Casing protection standard IP66 IK09
- Ambient temperature : -20°C to +60°C

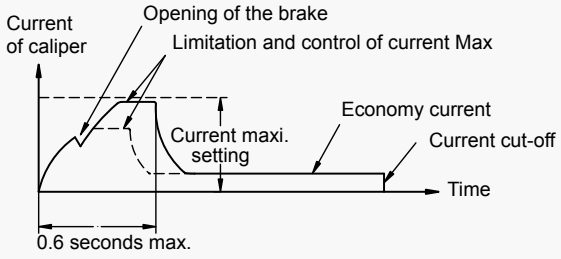
Electrical Data :
Single or two-phase mains AC
230 to 500V AC ± 10% 50/60Hz

EC marking of conformity :
- 2006/95/EC directive BT (standard EN60204-1)
- 2004/108/EC directive CEM
(standards EN61000-6-2 EN61000-6-4)

Options:
- Closure delay of the caliper
- Disengageable closure delay of the caliper (cannot be combined with anti-condensation)
- Anti-condensation kit
- Polycarbonate case IP66 IK08







Time of calipers closing (time between mains cut-off and application of 66% of nominal torque).

Caliper	660-5KR-5DR	650-650E 5K-5D-5KE-5DE	645-45K	4WD	4CA2
Tr 66 (ms)	100	100	120	300	200

Caliper			660-650-650E		5K-5D-5KR/DR 5KE-5DE		645		45K		4WD		4CA2
Maximum number of calipers			2		2		2		2		2		1
Resistance at 20°C per caliper		Ω	6.68		6.68		4.52		4.52		4.52		3.08
Maximum number of actuations per hour and ambient temperature θ	θ ≤40°C		150		1000		150		1000		60		1000
	40°C<θ ≤60°C		150		600		150		600		60		600
Mains current absorbed per caliper	Max	A	4		4		6		6		6		9
	Economy	A	0.6		0.6		0.75		0.75		0.75		1
Maximum return resistance of the cable connecting the caliper to the power supply		Ω	2		2		1		1		1		1 ✱
Max. length of the connecting cable (Power supply - caliper) for 1 caliper per cable. depending on cable section	2.5 mm²	m	100		100		50		50		50		50 ✱
	4 mm²	m	160		160		80		80		80		80 ✱
	6 mm²	m	240		240		120		120		120		120 ✱
Protection to be provided in head of control contactor on mains input	Number of caliper		1	2	1	2	1	2	1	2	1	2	1
	Fuse aM	A	1	2	1	2	2	4	2	4	2	4	4
	Circuit-breaker curve C	A	1	2	1	2	2	4	2	4	2	4	4

DISC BRAKE - ELECTRICAL POWER UNIT AC64-50 CP

Revision number: T04500-01-D **Revision date: 19.07.2011**

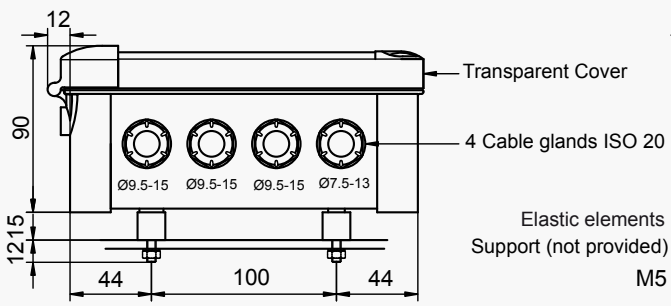
Compact power supply operating on alternating single or two-phase mains.
For S Disc Brakes with 50 V coil.
type : 660/650-5K/5D-645-45K-4WD-4CA2
Polycarbonate case

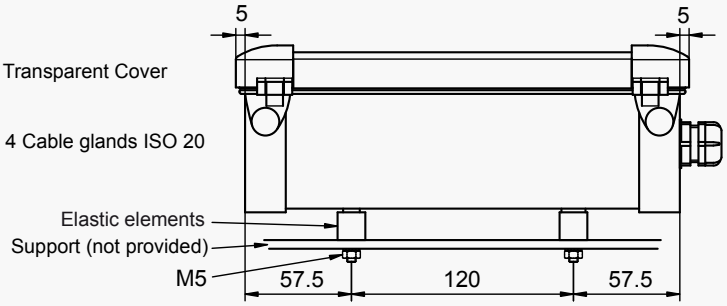
Operating Conditions:
- Casing protection standard IP66 IK08
- Ambient temperature : -20°C to +60°C

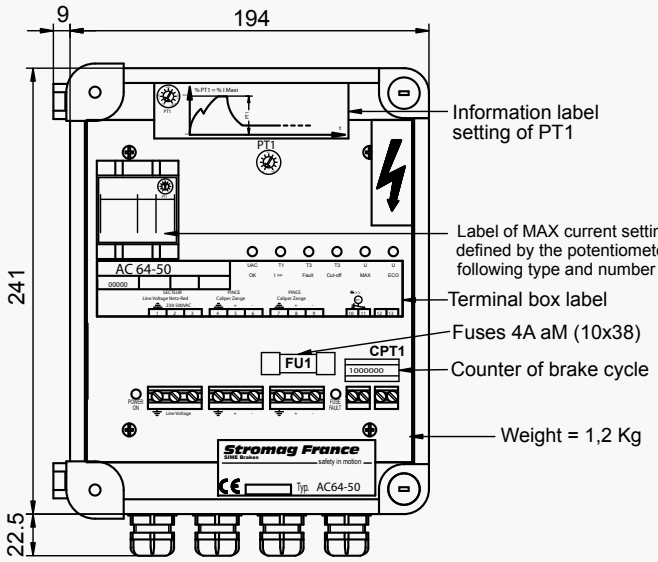
Electrical Data :
Single or two-phase mains AC
230 to 500V AC ± 10% 50/60Hz

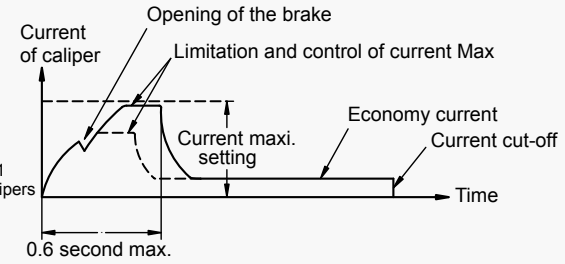
EC marking of conformity :
2006/95/EC directive BT (standard EN60204-1)
2004/108/EC directive CEM
(standards EN61000-6-2 EN61000-6-4)

Options:
- Closure delay of the caliper
- Disengageable closure delay of the caliper (cannot be combined with anti-condensation)
- Anti-condensation kit
- Steel case IP66 IK09









Time of calipers closing (time between mains cut-off and application of 66% of nominal torque).

Caliper	660-5KR-5DR	650-650E 5K-5D-5KE-5DE	645-45K	4WD	4CA2
Tr 66 (ms)	100	100	120	300	200

ELECTRICAL DANGER : THIS PRODUCT IS NOT INSULATED
Control and power electronic of power supply is not insulated and is under mains voltage. The power supply must be installed by qualified personnel, used to handle this equipment type and aware of risks inherent in their utilization.

✱ If the ambient temperature of the caliper 4CA2 is higher than 60°C, the maximum return resistance and the maximum length of the connecting cable given in the above table must be divided by 2.

Electrical Power Units

DISC BRAKE - ELECTRICAL POWER UNIT AC32-50 CA

Revision number: T10005-02-C **Revision date: 22.02.17**

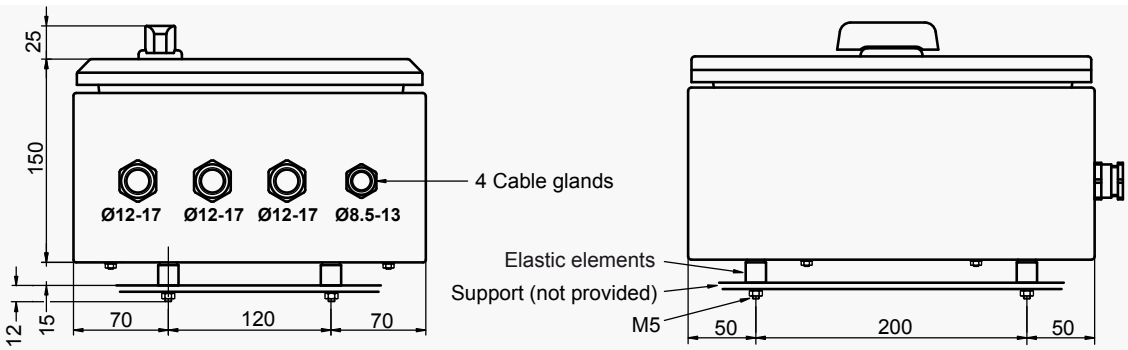
Compact power supply operating on alternating single or two-phase mains.
For SIME disc brakes with 50 V coil.
type : 4CA2 - 3WD - 3CA2 - 2CA2 - 1CA2
Steel case

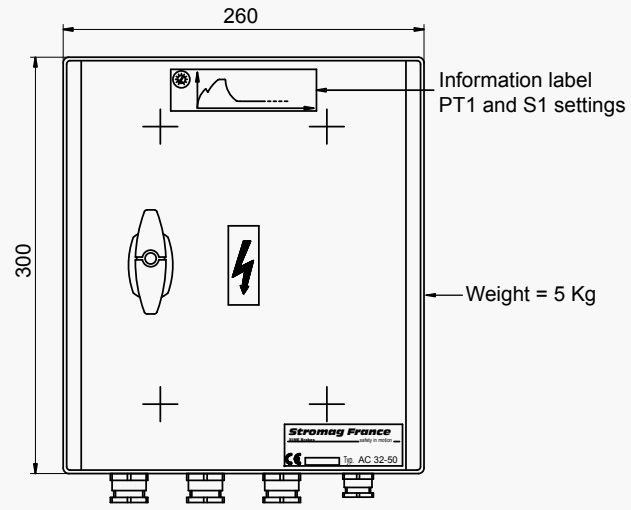
Operating Conditions:
- Casing protection standard IP66 IK10
- Ambient temperature : -20°C to +60°C

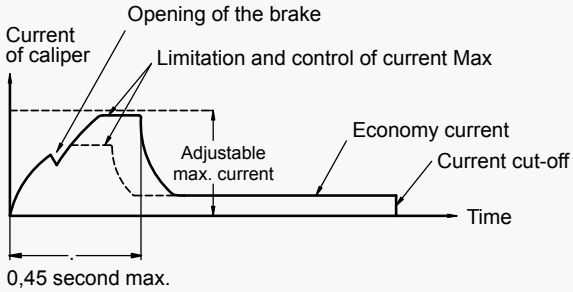
Electrical Data :
Single or two-phase mains AC
230 to 500V AC ± 10% 50/60Hz

EC marking of conformity :
- 2006/95/CE directive Low Voltage (standard EN60204-1)
- 2004/108/CE directive EMC (standards EN61000-6-2 and EN61000-6-4)

Options:
- Closure delay of the caliper
- Disengageable closure delay of the caliper (cannot be combined with anti-condensation)
- Anti-condensation kit
- Polycarbonate case IP66 IK08







Time of calipers closing between mains cut-off and application of 66% of nominal torque.

Caliper	4CA2	3WD	3CA2	2CA2 - 1CA2
Tr 66 (ms)	200	200	265	190

Caliper			4CA2	3WD	3CA2	2CA2 1CA2	2CA2 + 20% 1CA2 + 20%
Maximum number of calipers			2	1	1	1	
Resistance at 20°C per caliper		Ω	3.08	1.63	1.01	0.75	
Maximum number of actuations per hour and ambient temperature θ	θ ≤40°C		1000	60	1000	1000	600
	40°C<θ ≤60°C		600	60	600	600	300
Mains current absorbed per caliper	Max	A	9	16	20	28.2	
	Economy	A	1	1.5	2	3.3	
Maximum connecting cable return resistance between caliper and supply unit		Ω	1	0.75	1	0.5	
Maximum connecting cable length (caliper-input) according to the cable section	2.5mm²	m	50	35	50	25	
	4mm²	m	80	60	80	40	
	6mm²	m	120	90	120	60	
	10mm²	m	205	155	205	100	
Protection to be provided in head of control contactor on mains input	Fuse aM	A	6	4	6	8	
	Circuit-breaker curve C	A	8	6	10	12	

DISC BRAKE - ELECTRICAL POWER UNIT AC32-50 CP

Revision number: T10005-01-D **Revision date: 22.02.2017**

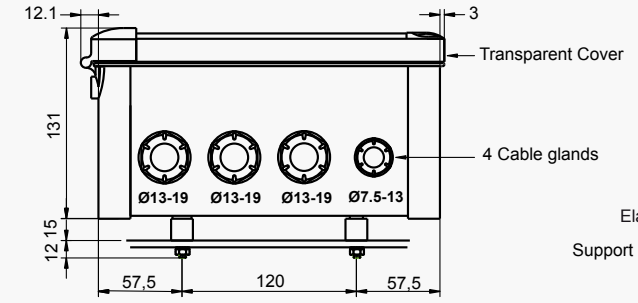
Compact power supply operating on alternating single or two-phase mains.
For SIME disc brakes with 50 V coil.
type : 4CA2 - 3WD - 3CA2 - 2CA2 - 1CA2
Polycarbonate case

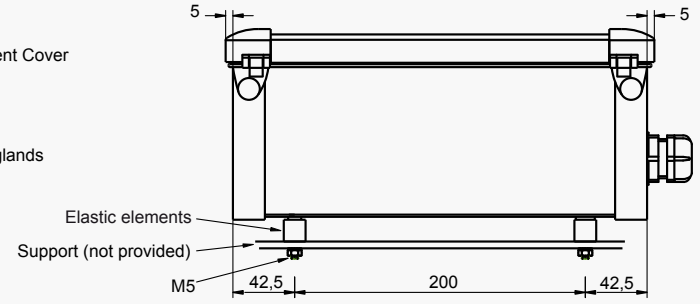
Operating Conditions:
- Casing protection standard IP66 IK08
- Ambient temperature : -20°C to +60°C

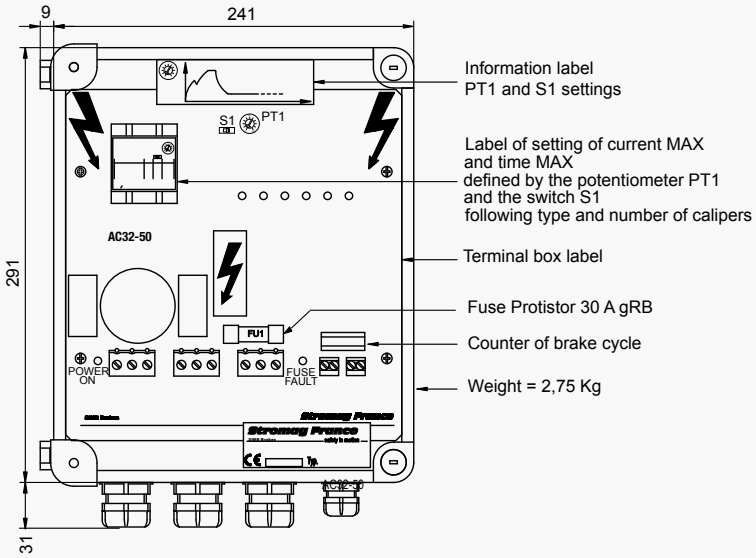
Electrical Data :
Single or two-phase mains AC
230 to 500V AC ± 10% 50/60Hz

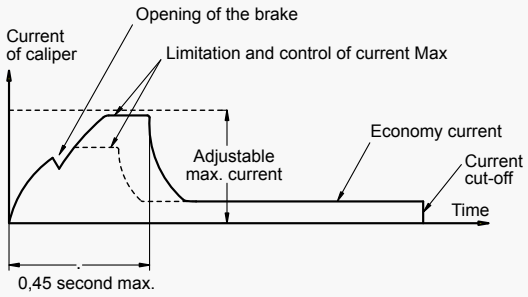
EC marking of conformity :
- 2006/95/CE directive Low Voltage (standard EN60204-1)
- 2004/108/CE directive EMC (standards EN61000-6-2 and EN61000-6-4)

Options:
- Closure delay of the caliper
- Disengageable closure delay of the caliper (cannot be combined with anti-condensation)
- Anti-condensation kit
- Steel case IP66 IK10









Time of calipers closing between mains cut-off and application of 66% of nominal torque.

Caliper	4CA2	3WD	3CA2	2CA2 - 1CA2
Tr 66 (ms)	200	200	265	190

ELECTRICAL DANGER : THIS PRODUCT IS NOT INSULATED
Control and power electronic of power supply is not insulated and is under mains voltage. The power supply must be installed by qualified personnel, used to handle this equipment type and aware of risks inherent in their utilization.

Electrical Power Units

DISC BRAKE - ELECTRICAL POWER UNIT AS100-50 CA

Revision number: T10035-02-B **Revision date: 19.10.2015**

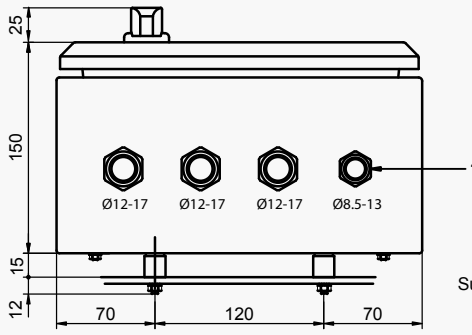
Compact power supply operating on alternating single or two-phase mains.
For SIME disc brakes with 50 V coil.
type : OSA - OOSA
Steel case

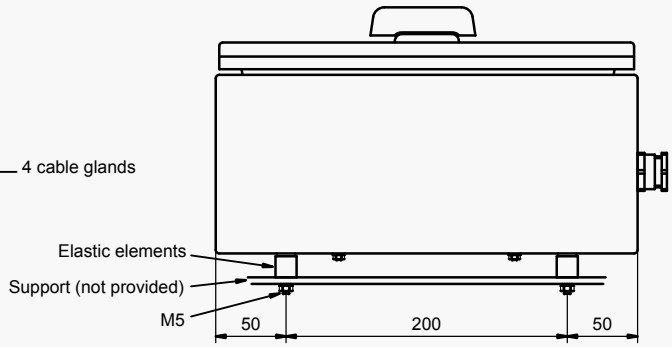
Operating Conditions:
- Casing protection standard IP66 IK10
- Ambient temperature : -20°C to +60°C

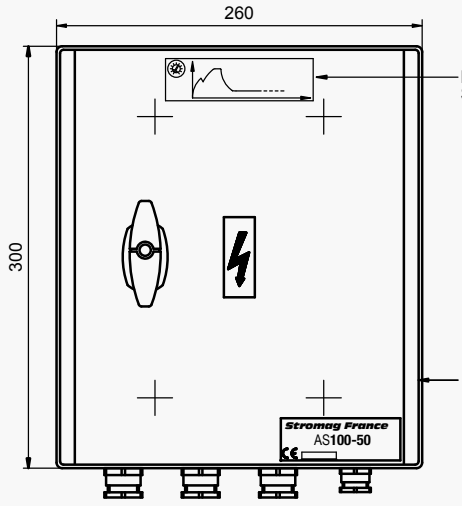
Electrical Data :
Single or two-phase mains AC
230 to 500V AC ± 10% 50/60Hz

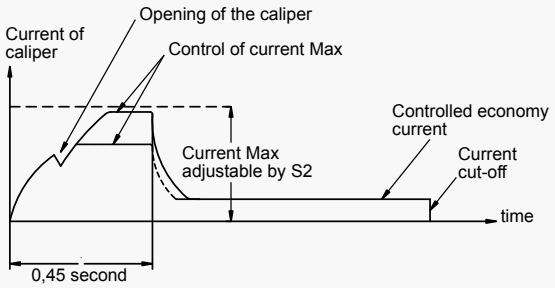
EC marking of conformity :
- 2006/95/CE directive Low Voltage (standard EN60204-1)
- 2004/108/CE directive EMC (standards EN61000-6-2 and EN61000-6-4)

Options:
- Closure delay of the caliper
- Disengageable closure delay of the caliper (cannot be combined with anti-condensation)
- Anti-condensation kit
- Steel case IP66 IK08









Time of calipers closing between the mains cut-off and the application of 66% of nominal torque.

Caliper	0SA	00SA
Tr 66 (ms)	160	160

Caliper			0SA		00SA
Maximum number of calipers			1	2	1
Resistance at 20°C per electromagnet		Ω	1.01	1.01	1.01
Maximum number of actuations per hour and ambient temperature θ	θ ≤60°C		100	100	100
Mains current absorbed	Max	A	28	36	36
	Economy	A	3.5	3.6	3.6
Maximum connecting cable return resistance between caliper and supply unit		Ω	3.5	1	1
Maximum connecting cable length (caliper input) according to the cable section	2.5 mm²	m	170	50	50
	4 mm²	m	275	80	80
	6 mm²	m	415	120	120
	10 mm²	m	715	205	205
Protection to be provided in head of control contactor on mains input	Fuse aM	A	6	8	8
	Circuit-breaker curve C	A	16	16	16

DISC BRAKE - ELECTRICAL POWER UNIT AS100-50 CP

Revision number: T10035-01-B **Revision date: 19.10.2015**

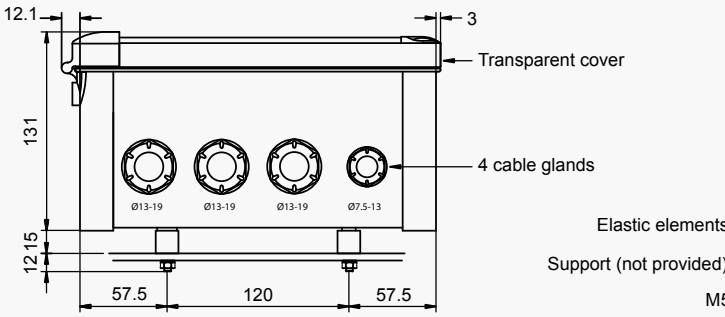
Compact power supply operating on alternating single or two-phase mains.
For SIME disc brakes with 50 V coil.
type : OSA - OOSA
Polycarbonate case

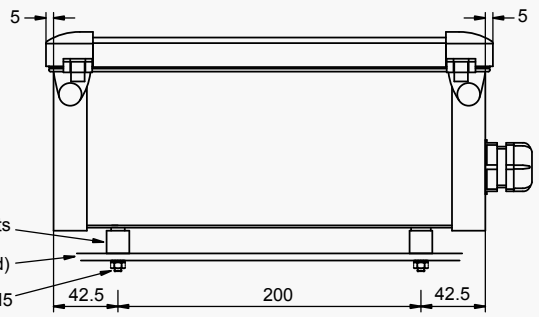
Operating Conditions:
- Casing protection standard IP66 IK08
- Ambient temperature : -20°C to +60°C

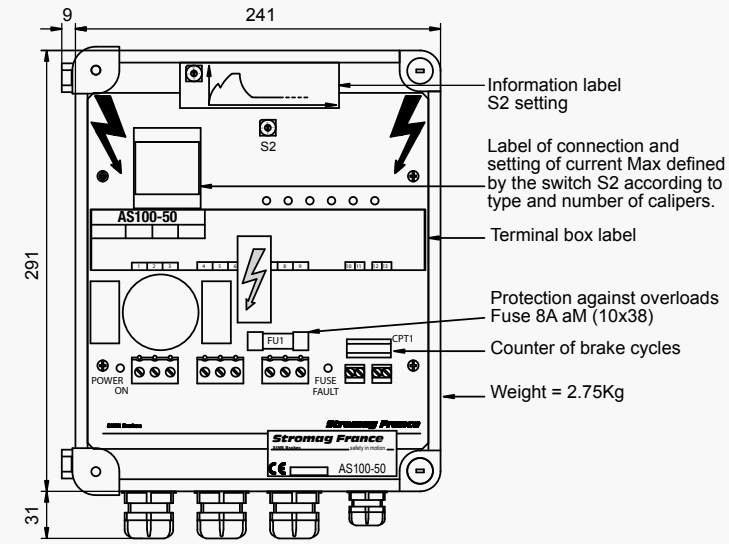
Electrical Data :
Single or two-phase mains AC
230 to 500V AC ± 10% 50/60Hz

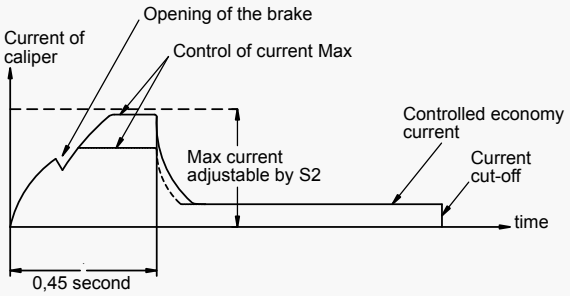
EC marking of conformity :
- 2006/95/CE directive Low Voltage (standard EN60204-1)
- 2004/108/CE directive EMC (standards EN61000-6-2 and EN61000-6-4)

Options:
- Closure delay of the caliper
- Disengageable closure delay of the caliper (cannot be combined with anti-condensation)
- Anti-condensation kit
- Steel case IP66 IK10









Time of calipers closing between the mains cut-off and application of 66% of nominal torque.

Caliper	0SA	00SA
Tr 66 (ms)	160	160

ELECTRICAL DANGER : THIS PRODUCT IS NOT INSULATED
Control and power electronic of power supply is not insulated and is under mains voltage. The power supply must be installed by qualified personnel, used to handle this equipment type and aware of risks inherent in their utilization.

Electrical Power Units

DISC BRAKE - ELECTRICAL POWER UNIT DC64-50 CP

Revision number: T04530-01-E **Revision date: 15.11.2017**

Compact power supply operating on direct mains.
For SIME disc brakes with 50V coil.
type : 660/650-5K/5D-645-45K-4WD-4CA2
Polycarbonate case

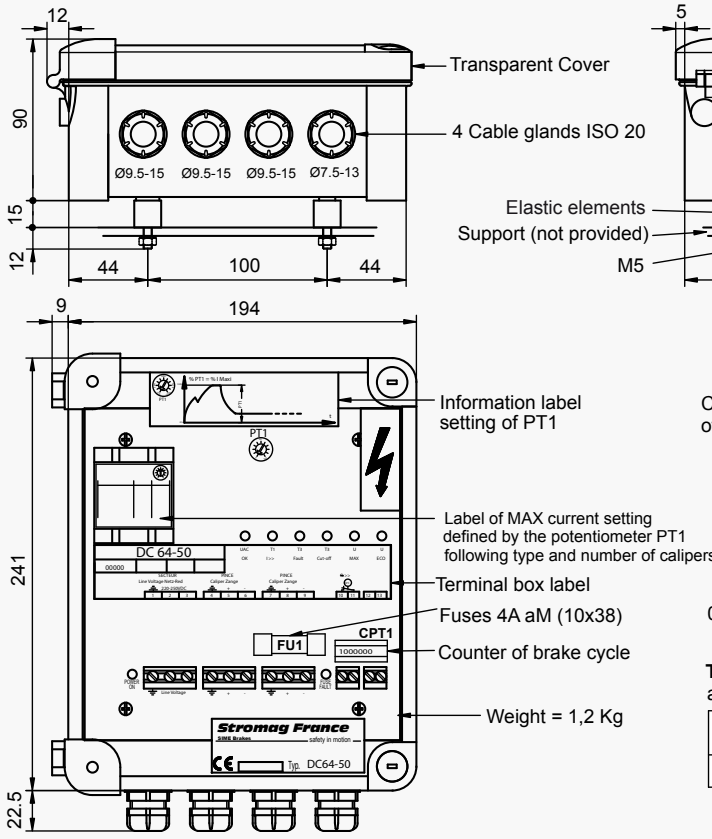
Operating conditions:
- Casing protection standard IP66 IK08
- Ambient temperature : -20°C to +60°C

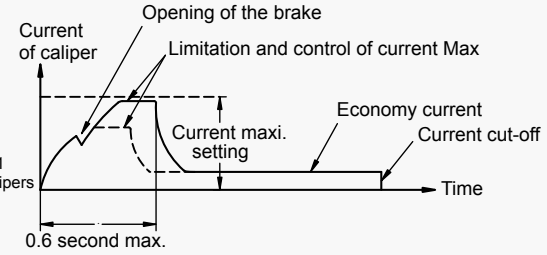
Electrical data :
Mains DC : 110 to 275 V DC ± 10%
Possible operation in 115 V AC ± 20%

EC marking of conformity :
2006/95/EC directive BT (standard EN60204-1)
2004/108/EC directive CEM (EN61000-6-2 EN61000-6-4)

Options:
- Closure delay of the caliper
- Disengageable closure delay of the caliper (cannot be combined with anti-condensation)
- Anti-condensation kit
- Steel case IP66 IK09

ELECTRICAL DANGER : THIS PRODUCT IS NOT INSULATED
Control and power electronic of power supply is not insulated and is under mains voltage.





Time of calipers closing (time between mains cut-off and application of 66% of nominal torque).

Caliper	660-5KR-5DR	650-650E 5K-5D-5KE-5DE	645-45K	4WD	4CA2
Tr 66 (ms)	100	100	120	300	200

Caliper			660-650-650E		5K-5D-5KR-5DR 5KE-5DE		645		45K		4WD		4CA2
Maximum number of calipers			2		2		2		2		2		1
Resistance at 20°C per caliper		(Ω)	6.68		6.68		4.52		4.52		4.52		3.08
Maximum number of actuations per hour and ambient temperature θ	θ ≤40°C		150		1000		150		1000		60		1000
	40°C<θ ≤60°C		150		600		150		600		60		600
Mains current absorbed per caliper	Max	(A)	3.5		3.5		5		5		5		9
	Economy	(A)	0.4		0.4		0.5		0.5		0.5		0.75
Maximum return resistance of the cable connecting the caliper to the power supply		(Ω)	2		2		1		1		1		1 ✱
Max. length of the connecting cable (Power supply - caliper) for 1 caliper per cable, depending on cable section	2.5 mm²	(m)	100		100		50		50		50		50 ✱
	4 mm²	(m)	160		160		80		80		80		80 ✱
	6 mm²	(m)	240		240		120		120		120		120 ✱
Protection to be provided in head of control contactor on mains input	Number of caliper		1	2	1	2	1	2	1	2	1	2	1
	Fuse aM	(A)	1	2	1	2	2	4	2	4	2	4	4
	Circuit-breaker curve C	(A)	1	2	1	2	2	4	2	4	2	4	4

✱ If the ambient temperature of the caliper 4CA2 is higher than 60°C.
the maximum return resistance and the maximum length of the connecting cable given in the above table must be divided by 2.

DISC BRAKE - ELECTRICAL POWER UNIT DC32-50 CP

Revision number: T10007-01-F **Revision date: 22.02.2017**

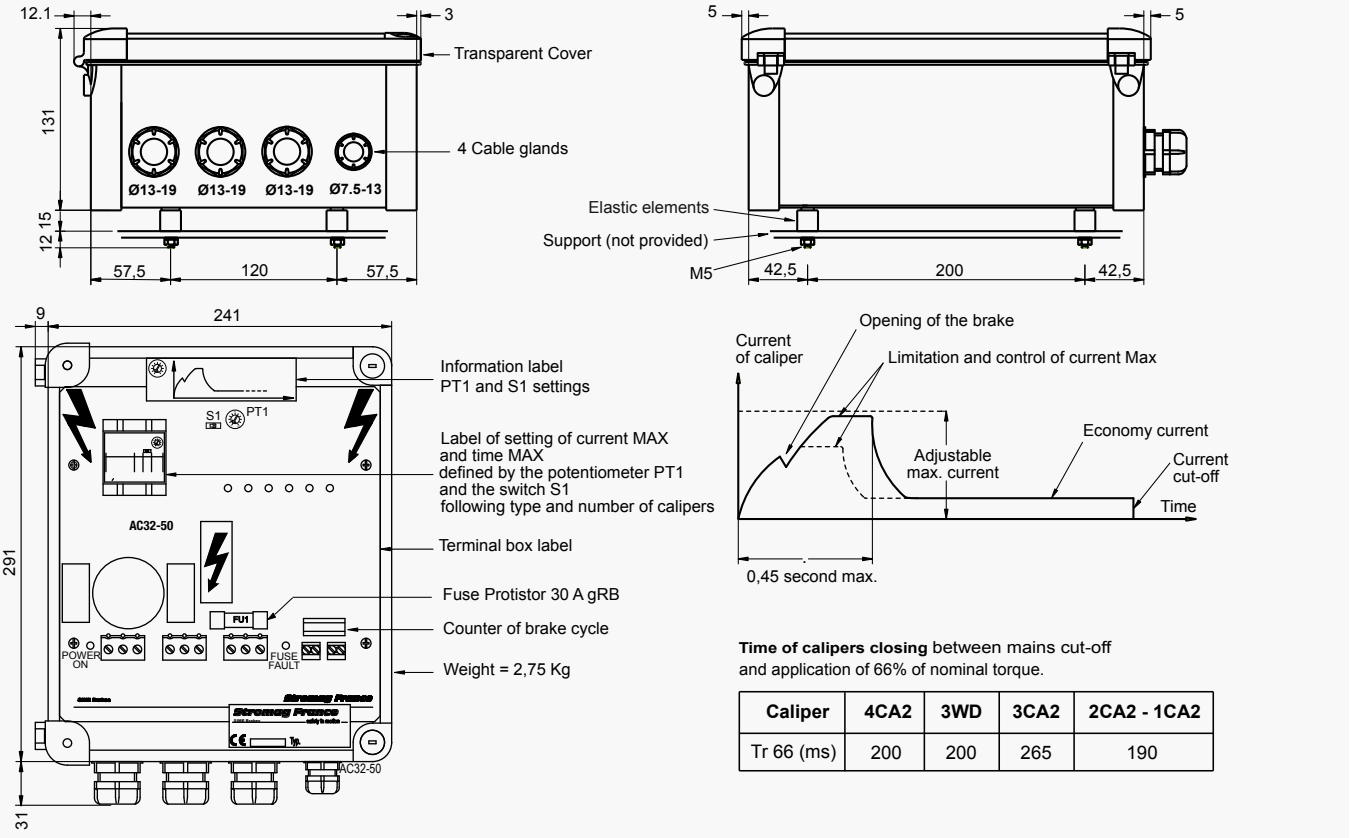
Compact power supply operating on direct mains.
For SIME disc brakes with 50V coil.
type : 4CA2 - 3WD - 3CA2 - 2CA2
Polycarbonate case

Operating conditions:
- Casing protection standard IP66 IK08
- Ambient temperature : -20°C to +60°C

Electrical data :
Mains DC : 110 to 275V DC ± 10%
Possible operation in 115 V AC ± 20%

EC marking of conformity :
- 2006/95/CE directive Low Voltage (standard EN60204-1)
- 2004/108/CE directive EMC (standards EN61000-6-2 and EN61000-6-4)

Options:
- Closure delay of the caliper
- Disengageable closure delay of the caliper (cannot be combined with anti-condensation)
- Anti-condensation kit
- Steel case IP66 IK10



Time of calipers closing between mains cut-off and application of 66% of nominal torque.

Caliper	4CA2	3WD	3CA2	2CA2 - 1CA2
Tr 66 (ms)	200	200	265	190

ELECTRICAL DANGER : THIS PRODUCT IS NOT INSULATED
Control and power electronic of power supply is not insulated and is under mains voltage. The power supply must be installed by qualified personnel, used to handle this equipment type and aware of risks inherent in their utilization.

Caliper			4CA2	3WD	3CA2	2CA2 1CA2	2CA2 + 20% 1CA2 + 20%
Maximum number of calipers			2	1	1	1	
Resistance at 20°C per caliper		(Ω)	3.08	1.63	1.01	0.75	
Maximum number of actuations per hour and ambient temperature θ	θ ≤40°C		1000	60	1000	1000	600
	40°C<θ ≤60°C		600	60	600	600	300
Mains current absorbed per caliper	Max	(A)	9.9	18	24.1	36.9	
	Economy	(A)	1.5	1.6	1.8	2.3	
Maximum connecting cable return resistance between caliper and supply unit		(Ω)	1	0.75	1	0.5	
Max. length of the connecting cable (Power supply/ caliper) for 1 caliper per cable. depending on cable section	2.5mm²	(m)	50	35	50	25	
	4mm²	(m)	80	60	80	40	
	6mm²	(m)	120	90	120	60	
	10mm²	(m)	205	155	205	100	
Protection to be provided in head of control contactor on mains input	Fuse aM	(A)	6	6	6	10	
	Circuit-breaker curve C	(A)	8	8	10	16	

Electrical Power Units

DRUM BRAKE - ELECTRICAL POWER UNIT AFM450 CP

Revision number: T04520-01-D **Revision date: 21.07.2011**

Compact power supply operating on alternating single or two-phase mains.
For SIME drum brakes with 110V coil.
type : 200 - 250 - 350 - 450
Polycarbonate case

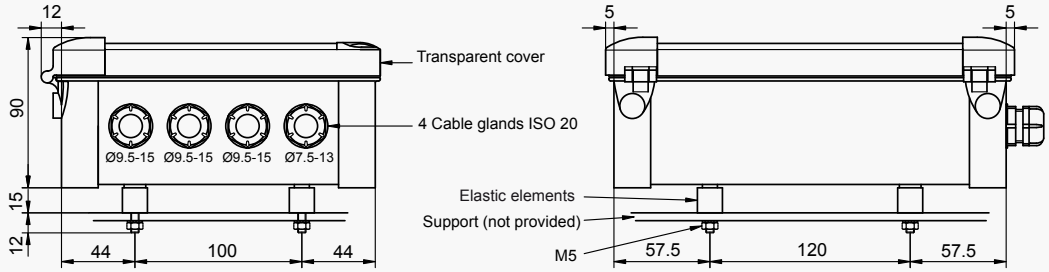
Operating conditions:
- Casing protection standard IP66 IK08
- Ambient temperature : -20°C to +60°C

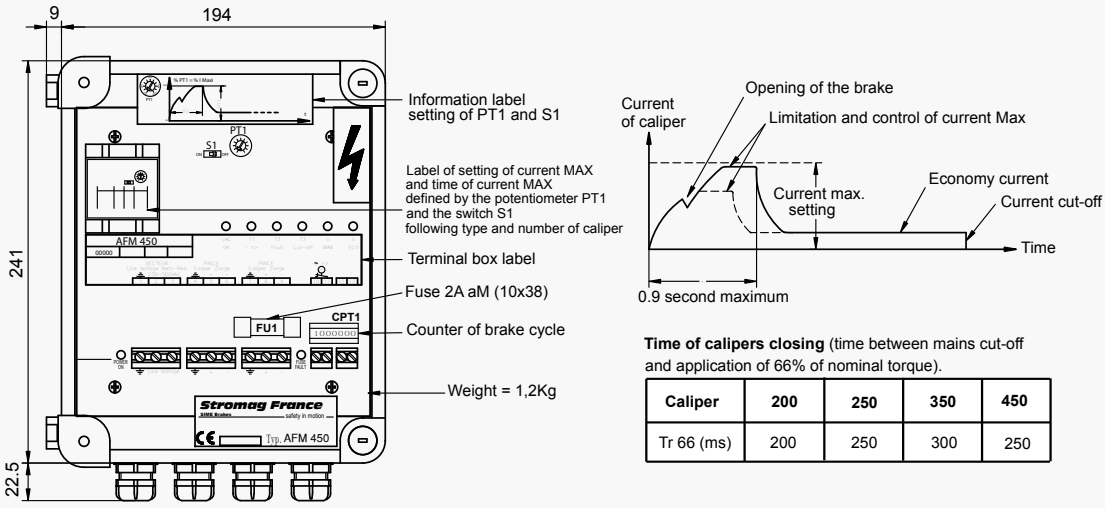
Electrical data :
Single or two-phase mains AC
230 to 500V AC ± 10% 50/60Hz

EC marking of conformity :
2006/95/EC directive BT (standard EN60204-1)
2004/108/EC directive CEM
(standards EN61000-6-2 EN61000-6-4)

ELECTRICAL DANGER : THIS PRODUCT IS NOT INSULATED
Control and power electronic of power supply is not insulated and is under mains voltage.

Options:
- Closure delay of the caliper
- Disengageable closure delay of the caliper (cannot be combined with anti-condensation)
- Anti-condensation kit
- Steel case IP66 IK09





Time of calipers closing (time between mains cut-off and application of 66% of nominal torque).

Caliper	200	250	350	450
Tr 66 (ms)	200	250	300	250

FEM type			200	250	350	450
Maximum number of calipers			1	1	1	1
Resistance at 20°C per caliper		(Ω)	88	76.3	52.8	40.9
Maximum number of actuations per hour and ambient temperature θ	θ ≤ 60°C		700	700	700	600
Mains current absorbed per caliper	Max	(A)	1.5	1.8	3	3.5
	Economy	(A)	0.25	0.3	0.5	0.6
Maximum connecting cable return resistance between caliper and supply unit		(Ω)	5	5	5	5
Max. length of the connecting cable (Power supply - caliper) for 1 caliper per cable, depending on cable section	2.5 mm^2	(m)	250	250	250	250
	4 mm^2	(m)	400	400	400	400
Protection to be provided on head control contactor on mains input	Fuse aM	(A)	1	1	1	1
	Circuit-breaker curve C	(A)	1	1	1	1

DRUM BRAKE - ELECTRICAL POWER UNIT AFM750 CP

Revision number: T10009-01-C **Revision date: 01.12.2014**

Compact power supply operating on alternating single or two-phase mains.
For SIME drum brakes with 110V coil.
type FEM : 530 - 600 - 750
Polycarbonate case

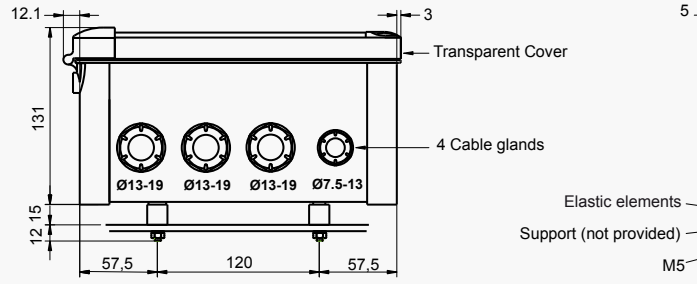
Operating conditions:
- Casing protection standard IP66 IK08
- Ambient temperature : -20°C to +60°C

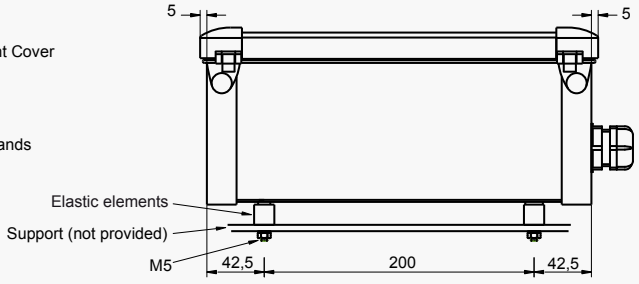
Electrical data :
Single or two-phase mains AC
230 to 500V AC ± 10% 50/60Hz

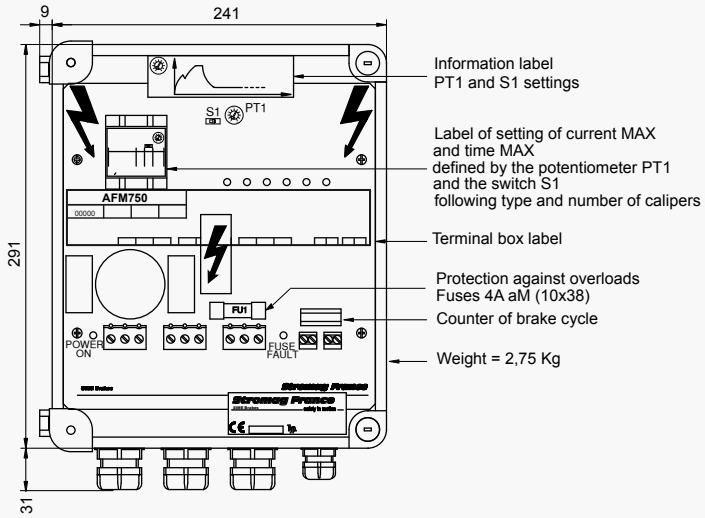
EC marking of conformity :
2006/95/EC directive BT (standard EN60204-1)
2004/108/EC directive CEM
(standards EN61000-6-2 EN61000-6-4

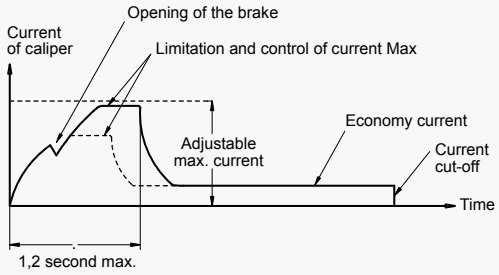
ELECTRICAL DANGER : THIS PRODUCT IS NOT INSULATED
Control and power electronic of power supply is not insulated and is under mains voltage.

Options:
- Closure delay of the caliper
- Disengageable closure delay of the caliper (cannot be combined with anti-condensation)
- Anti-condensation kit
- Steel case IP66 IK10









Time of calipers closing between mains cut-off and application of 66% of nominal torque.

Caliper	FEM 530	FEM 600	FEM 750
Tr 66 (ms)	280	280	250

FEM type			530	600	750
Maximum number of calipers			1	1	1
Resistance at 20°C per caliper		(Ω)	28.2	29.5	18.5
Maximum number of actuations per hour and ambient temperature θ	θ ≤ 60°C		600	600	600
Mains current absorbed per caliper	Max	(A)	6	6	7.2
	Economy	(A)	0.8	0.8	1.5
Maximum connecting cable return resistance between caliper and supply unit		(Ω)	3	3	2
Maximum connecting cable length (caliper-input) according to the cable section	2.5 mm²	(m)	150	150	100
	4 mm²	(m)	240	240	160
	6 mm²		355	355	240
Protection to be provided on head control contactor on mains input	Fuse aM	(A)	2	2	2
	Circuit-breaker curve C	(A)	4	4	4

Electrical Power Units

DISC BRAKE - ELECTRICAL POWER UNIT DS100-50 CP

Revision number: T10037-01-B **Revision date: 15.11.2016**

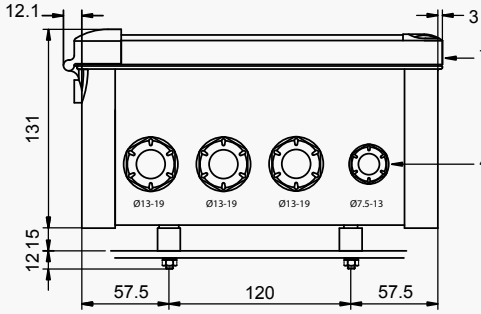
Compact power supply operating on direct mains.
For SIME disc brakes with 50 V coil type : OSA - OOSA
Polycarbonate case

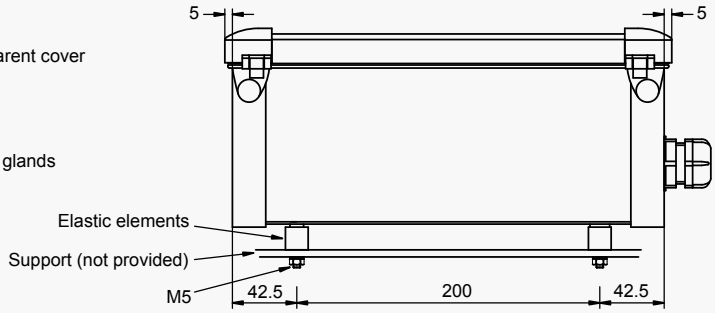
Operating Conditions:
- Casing protection standard IP66 IK08
- Ambient temperature : -20°C to +60°C

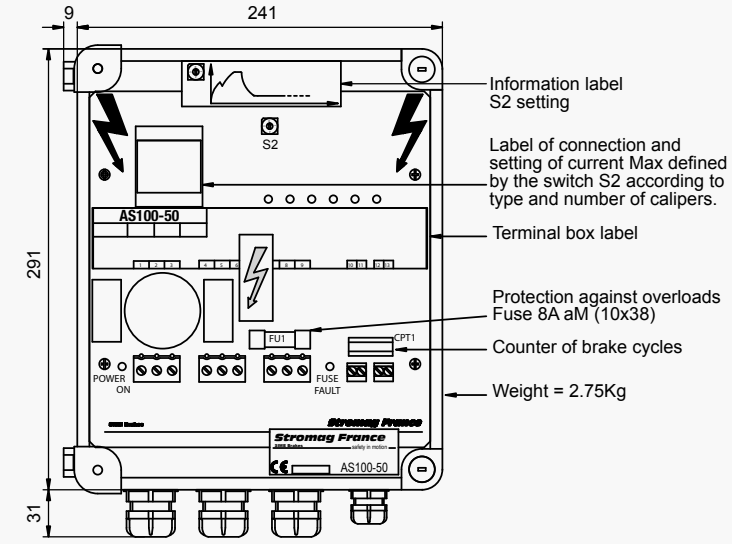
Electrical Data :
Mains DC : 110 to 275V DC ± 10%
Possible operation in 115 V AC ± 20%

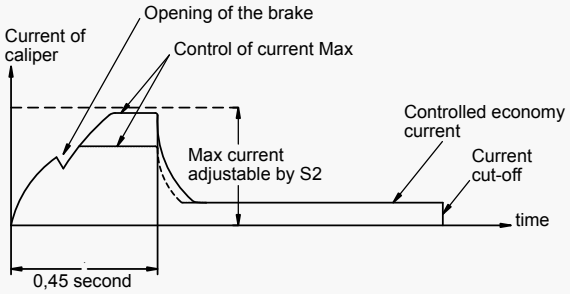
EC marking of conformity :
- 2006/95/CE directive Low Voltage (standard EN60204-1)
- 2004/108/CE directive EMC (standards EN61000-6-2 and EN61000-6-4)

Options:
- Closure delay of the caliper
- Disengageable closure delay of the caliper (cannot be combined with anti-condensation)
- Anti-condensation kit
- Steel case IP66 IK10









Time of calipers closing between the mains cut-off and application of 66% of nominal torque.

Caliper	0SA	00SA
Tr 66 (ms)	160	160

ELECTRICAL DANGER : THIS PRODUCT IS NOT INSULATED
Control and power electronic of power supply is not insulated and is under mains voltage.
The power supply must be installed by qualified personnel. used to handle this equipment type and aware of risks inherent in their utilization.

Caliper			0SA	0SA	00SA
Maximum number of calipers			1	2	1
Resistance at 20°C per electromagnet		Ω	1.01	1.01	1.01
Maximum number of actuations per hour and ambient temperature θ	θ ≤60°C		100	100	100
Mains current absorbed	Max	A	33	38	38
	Economy	A	2.6	3.3	3.3
Maximum connecting cable return resistance between caliper and supply unit		Ω	3.5	1	1
Maximum connecting cable length (caliper-input) according to the cable section	2.5 mm²	m	170	50	50
	4 mm²	m	275	80	80
	6 mm²	m	415	120	120
	10 mm²	m	715	205	205
Protection to be provided in head of control contactor on mains input	Fuse aM	A	8	8	8
	Circuit-breaker curve C	A	16	16	16

DISC BRAKE - ELECTRICAL POWER UNIT TYPE 4200

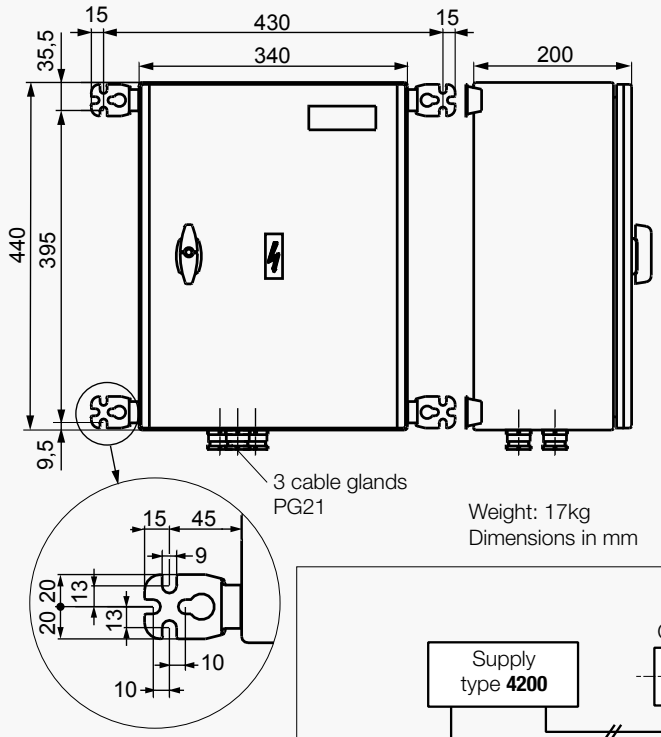
Revision number: T04800-01-C **Revision date: 21.10.2015**

2 presentations are available:
- C for casing protected version
- P for plate mounted version

Note:
if 2 calipers are driven by the same power supply (or the 2 coils of the caliper OOSA) they must be connected in series (refer to the installation and maintenance leaflet)

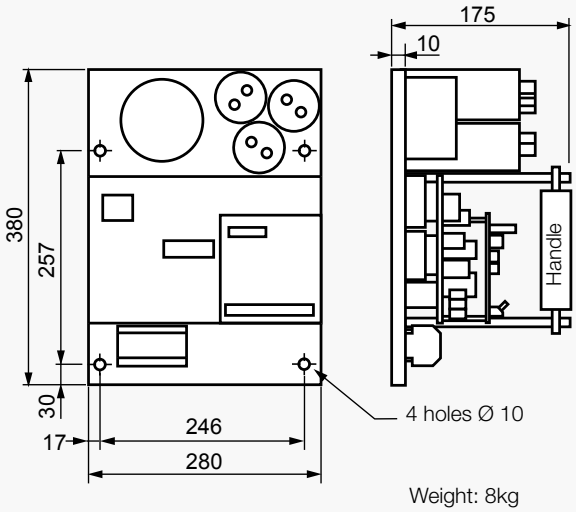
Operating conditions:
- Line voltage:
  - direct: 115V to 600VDC ± 10%
  - single or three phases: 115V to 500VAC ± 10% 50/60Hz
- Ambiant temperature: -20°C to +55°C

Type C4200 casing protected version (casing IP 66 standard EN60529)

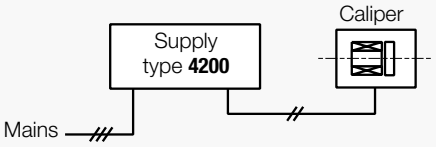


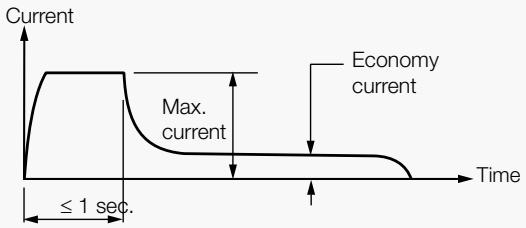
Weight: 17kg
Dimensions in mm

Type P4200 plate mounted version (for cabinet assembly)



Weight: 8kg
Dimensions in mm





CALIPER	Type		4CA		3CA		OSA		OOSA	2SA	
	Number		1	2	1	2	1	2	1	1	2
Maximum number of actuations per hour at 40°C			700		1000		100			100	
Power consumption of the power supply	Maximum	W	1695	3215	1355	2480	2850	5380	5380	8205	15 815
	Economy	W	105	140	130	175	305	480	480	205	300
Max. connecting cable return resistance caliper to supply unit (for 1 coil)		Ω	1		1		1			1	1
Delayed fuse rating to be provided between power supply and mains :											
direct :	115 VDC	A	25		25		25				
	230 VDC	A	25		25		25			35	
	400 to 600 VDC	A	25		25		25			35	35
single phase :	115 VAC	A	25		25		25				
	230 VAC	A	25		25		25			35	
	400 VAC	A	25		25		25			35	35
	500 VAC	A	25		25		25			25	25
3 phases :	230 VAC	A	25		25		25			25	
	400 VAC	A	16		16		16			25	25
	500 VAC	A	16		16		16			16	16

Forbidden association

Electrical Power Units

DISC BRAKE - ELECTRICAL POWER UNIT TYPE 4205

Revision number: T04810-01-B **Revision date: 21.10.2015**

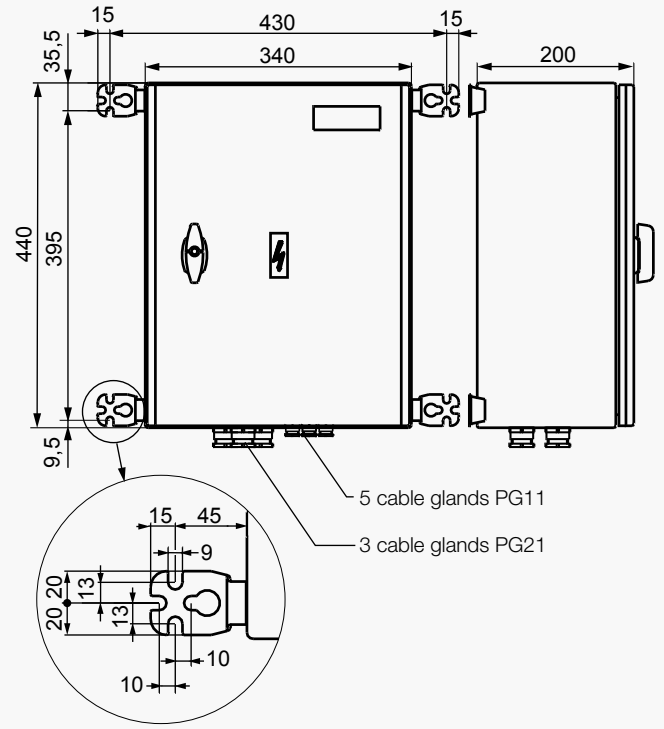
Designed for normal control or progressive release of electrical calipers to perform lowering maneuvers.

2 presentations are available:
- C for casing protected version
- P for plate mounted version

Operating conditions:
- Line voltage:
  - direct: 115V to 600VDC ± 10%
  - single or three phases: 115V to 500VAC ± 10% 50/60Hz
- Ambiant temperature: -20°C to +55°C

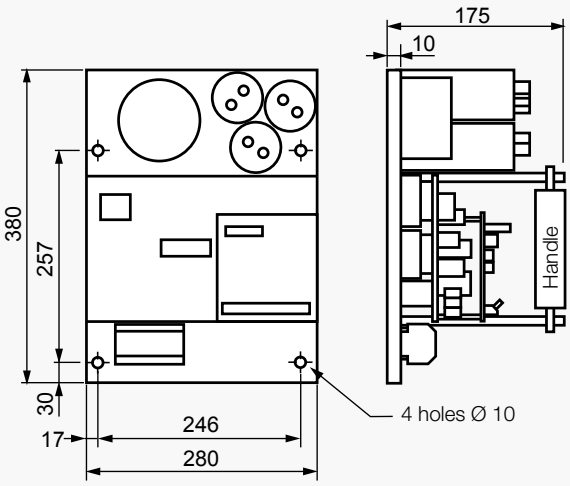
Type C4205 casing protected version (casing IP 66 EN60529)

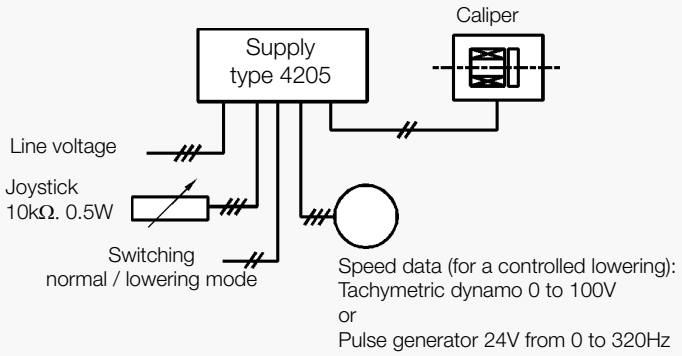
Weight: 17kg

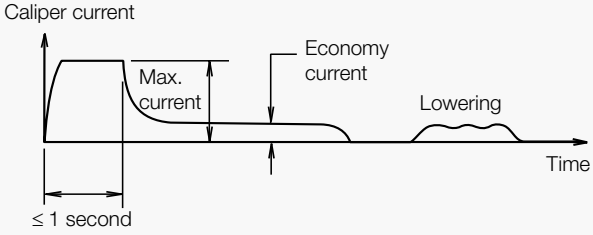


Type P4205 plate mounted version (for cabinet assembly)

Weight: 8kg







DISC BRAKE - ELECTRICAL POWER UNIT TYPE 4205

Revision number: T04810-01-B **Revision date: 21.10.2015**

Notes:

- Lowering a load is performed manually, with or without vertical speed control, by progressively releasing the calipers (between 100% and 50% of the nominal torque)
- 2 calipers driven by the same power supply (or the 2 coils of the caliper OOSA) must be connected in series (refer to the installation and maintenance leaflet)
- For lowering with calipers 4CA2, contact us.

Note : by insulated kinematics (e.g.: a drum), the lowering command is performed only for one of the **4205** electrical supply units. This unit is called the "master".
One "master" unit can drive up to 5 "slave" units.

CALIPER	Type		4CA2		3CA2		OSA		OOSA	2SA	
	Number		1	2	1	2	1	2	1	1	2
Maximum number of actuations per hour at 40°C			700		1000		100			100	
Power consumption of the power supply	Maximum	W	1695	3215	1355	2480	2850	5380	5380	8205	15 815
	Economy	W	105	140	130	175	305	480	480	205	300
Max. connecting cable return resistance caliper to supply unit (for 1 coil)		Ω	1		1		1			1	1
Delayed fuse rating to be provided between power supply and mains :											
direct :	115 VDC	A	25		25		25				
	230 VDC	A	25		25		25			35	
	400 to 600 VDC	A	25		25		25			35	35
single phase :	115 VAC	A	25		25		25				
	230 VAC	A	25		25		25			35	
	400 VAC	A	25		25		25			35	35
	500 VAC	A	25		25		25			25	25
3 phases :	230 VAC	A	25		25		25			25	
	400 VAC	A	16		16		16			25	25
	500 VAC	A	16		16		16			16	16

Forbidden association

NOTES

DISC BRAKE - ELECTRICAL POWER UNIT TYPE AB8

Revision number: T04400-01-B **Revision date: 21/07/2016**

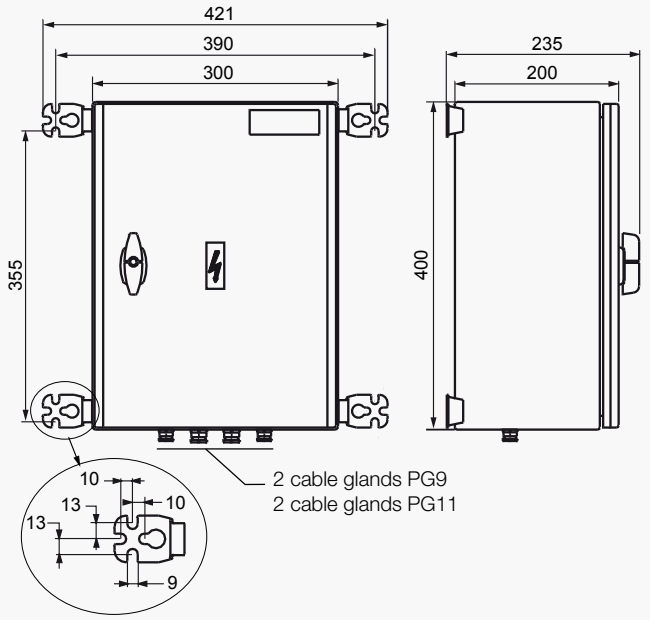
Designed for control of the progressive braking effort by means of a foot pedal.
2 presentations are available:
- casing protected version C
- plate mounted version P

Matching CE markings:
- 73/23/CEE BT directive
- 89/336/CEE CEM directive

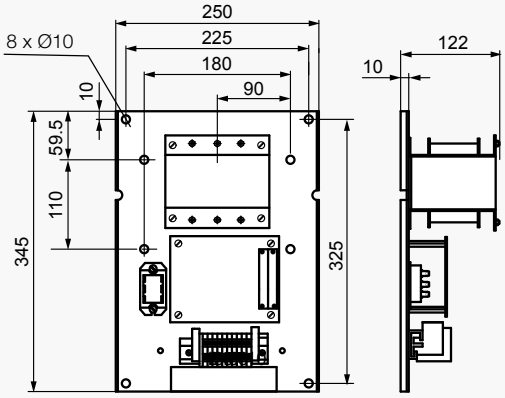
(specifications EN50081-2 EN50082-2 EN6 0204-1)

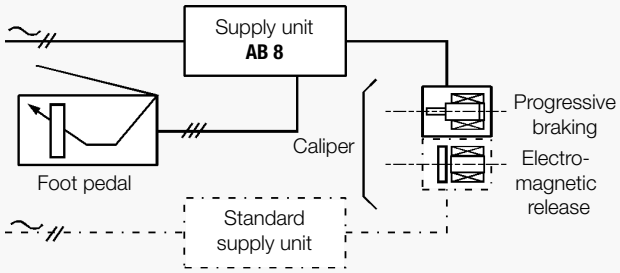
Working conditions:
- Voltage(single phase)
  230/400V
  or 400/415V
  or 400/440V ± 10% 50/60Hz
  or 400/460V
  or 400/500V
- Working ambient temperature: -20°C to +60°C

Type C AB8 protected version (casing IP 669 standard DIN 40050) Weight: 16 kg



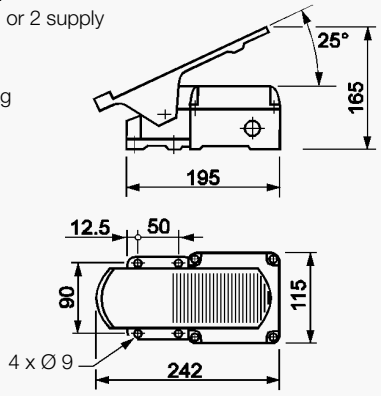
Type P AB8 plate mounted version (for cabinet assembly) Weight : 8 kg





Control pedal:
it can drive 1 or 2 supply units AB8

Weight: 1.9kg



Caliper		650 E - 5 KE - 5 DE	
Number of calipers		**1**	**2**
Power consumption in Watts for an output voltage of 20V DC		115	230
Voltage		3 to 24V DC	
Maximum connecting cable return resistance (caliper to supply unit)	Ω	0.5	0.5
Primary fuse DIN "NH" type. "aM" class to be provided	230 V	1A	2A
	400/415 V	1A	2A
	440/460/500 V	1A	2A

HYDRAULIC POWER PACKS

Hydraulic Power Packs

HYDRAULIC POWER PACKS	TANK	MAX. PRESSURE	ASSOCIATED CALIPERS	MAIN CHARACTERISTICS
CE1L 	2.5 L	190 bars	SH1 - SHD1	• Vertical installation • Options : PAM : Hand pump with manometer OP1 : Enhanced security return circuit Y1-3 : Stepped braking torque application Y2 : Progressive braking torque application Electrical indicators (oil temperature and level)
C3BSH 	4 L	180 bars	SHD2 - SHD5 SH5-SH9 TH9	• Vertical installation • Options : MS : Special voltages motor OP1 / Y1-3 Z1-Z2 : Delayed braking R : Braking torque adjustment AF : Lowering device
CSH 	6 L	200 bars	SHD5 - SHD9	• Vertical installation • Customer-fitted solutions : Application of full braking force Adjustable and progressive application fo the braking force with non-application of the full braking force at beginning of the braking • Electrical indicators (clogging, oil temperature and level)
CE8L 	8 L	225 bars	SHD2 - SHD5 SH5-SH9 SH15 - SH18B SH25 TH9	• Horizontal or vertical installation. • Options : MS / OP1 OP2 : Manual lowering with dead man safety device OP3 : Manual lowering with overspeed detection OP4 : Indicator of the valves position CS2EV : Monitoring device of the 2 solenoid valves (OP1) Y5 : Regulated braking or lowering of the load OP6 : Tightness for Iron and steel industry Drip tray for HPP mounted horizontally Electrical power unit integrated to the HPP Electrical indicators : clogging, oil level and temperature...
CE12L 	12 L	225 bars	SH15 - SH18B SH25 - SH32	
ST210 	63 L	225 bars	SH15 - SH18B SH25 - SH32	• Vertical installation. • Options : MS / OP1 / OP2 / OP3 / OP4 / OP6 OP9 : Output pressure switch Electrical power unit integrated to the HPP Electrical indicators : clogging, oil level and temperature...

Hydraulic Power Packs

DISC BRAKE - CE1L HYDRAULIC POWER PACK

Revision number: T10107-01-C **Revision date: 08.06.2016**

Association with 1 or 2 caliper(s) of **SH1** range
Maximal utilization pressure : 190 bars
Reservoir maximum oil volume : 2.5 L
Vertical installation

Operating conditions:

- Ambient temperature: -20°C to +70°C
- Relative humidity: ≤ 70%
- Dust in atmosphere ≥ 65µm
- C4M anti-corrosive protection level
- IP55 tightness level

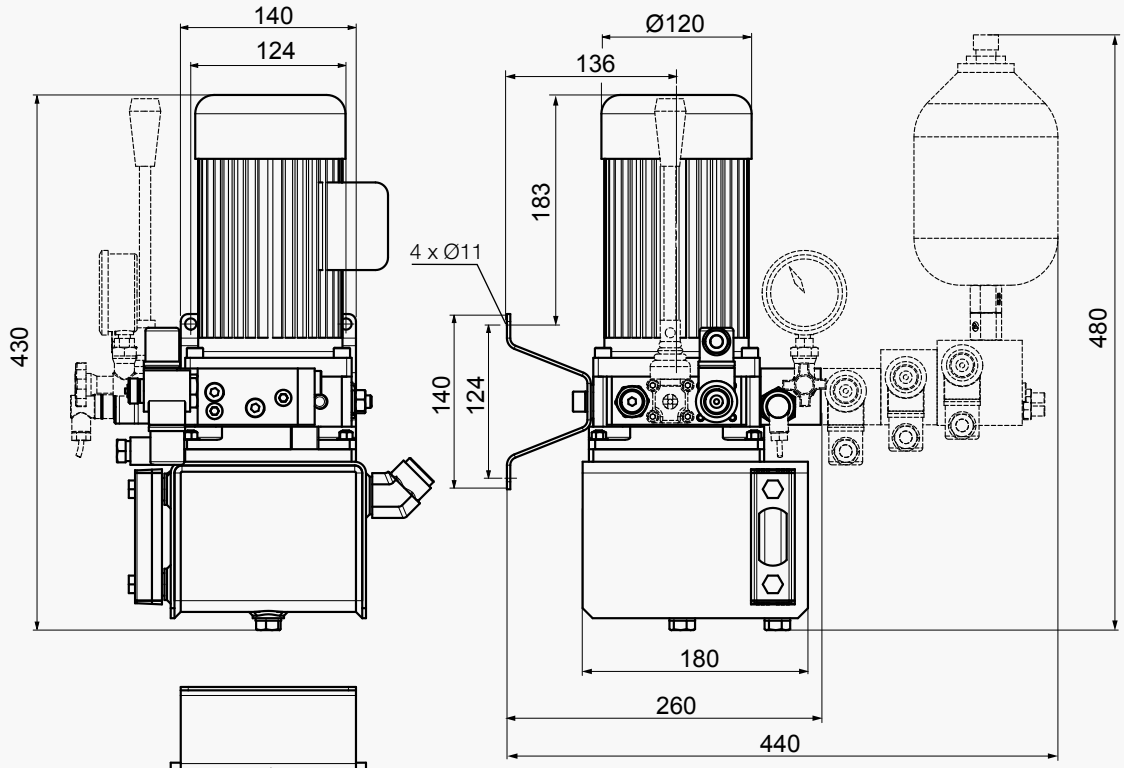
Other conditions: consult us.

Use:

- Service life : 200 000 operations minimum
- Frequency of operation : 60 op. / hour maxi.

Options:

PAM	Hand pump with manometer
OP1	Enhanced security return circuit by 2 solenoid valves
OP7-8	Electrical indicators of oil temperature and minimum level
Y1-3	Caliper closing with stepped braking torque application
Y2	Caliper closing with progressive braking torque application



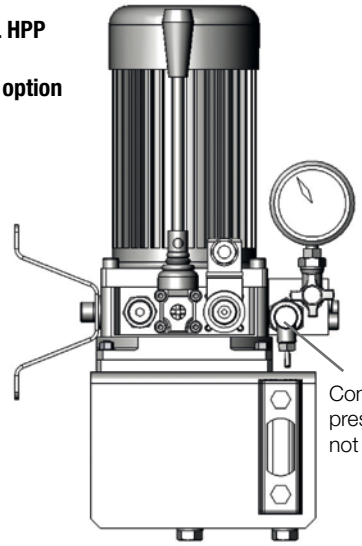
Overall dimension of CE1L with OP1 and Y2 options

Dimensions in mm
Weight : 29 kg with all options
20 kg without options

DISC BRAKE - CE1L HYDRAULIC POWER PACK

Revision number: T10107-01-C **Revision date: 08.06.2016**

CE1L HPP with PAM option



Electrical data:

Motor M

230/400VAC 50Hz 0.37 kW
4 poles 1500rpm

For mains 3 phases
Frequency 50 Hz
220-230-240VAC ±10% 50Hz
380-400-415VAC ±10% 50Hz
Frequency 60 Hz
480VAC ±10% 60Hz

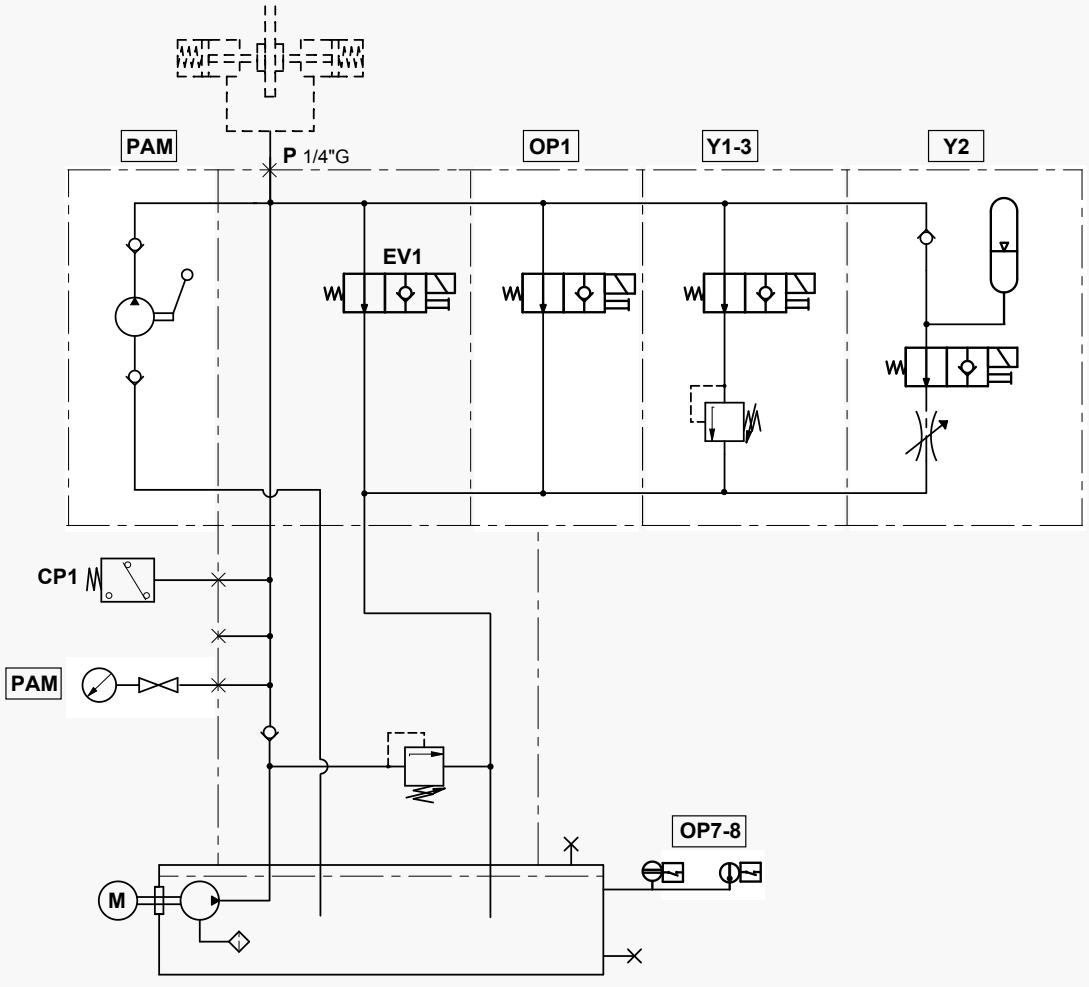
Solenoid valve EV1

Coil under 24VDC

Pressure switch CP1

- Electrical design : DC PNP
- Operating voltage : 9.6...32 VDC
- Current consumption : < 25 mA
- Insulation resistance : > 100 MΩ
- Current rating : 500 mA
- 2 switching outputs normally open / closed complementary
- Connector M12 / 5 positions in accordance with IEC61076-2-101 standard / code A (not delivered)

Flow diagram



Hydraulic Power Packs

DISC BRAKE - C3BSH-ATH2 HYDRAULIC POWER PACK

Revision number: T05226-01-E **Revision date: 20.02.2014**

Association with 1 caliper of **TH9**. **SH5** or **SH9A** range.
Maximal utilization pressure : 225 bars
Reservoir maximum oil volume : 4 L
Integrated electrical unit

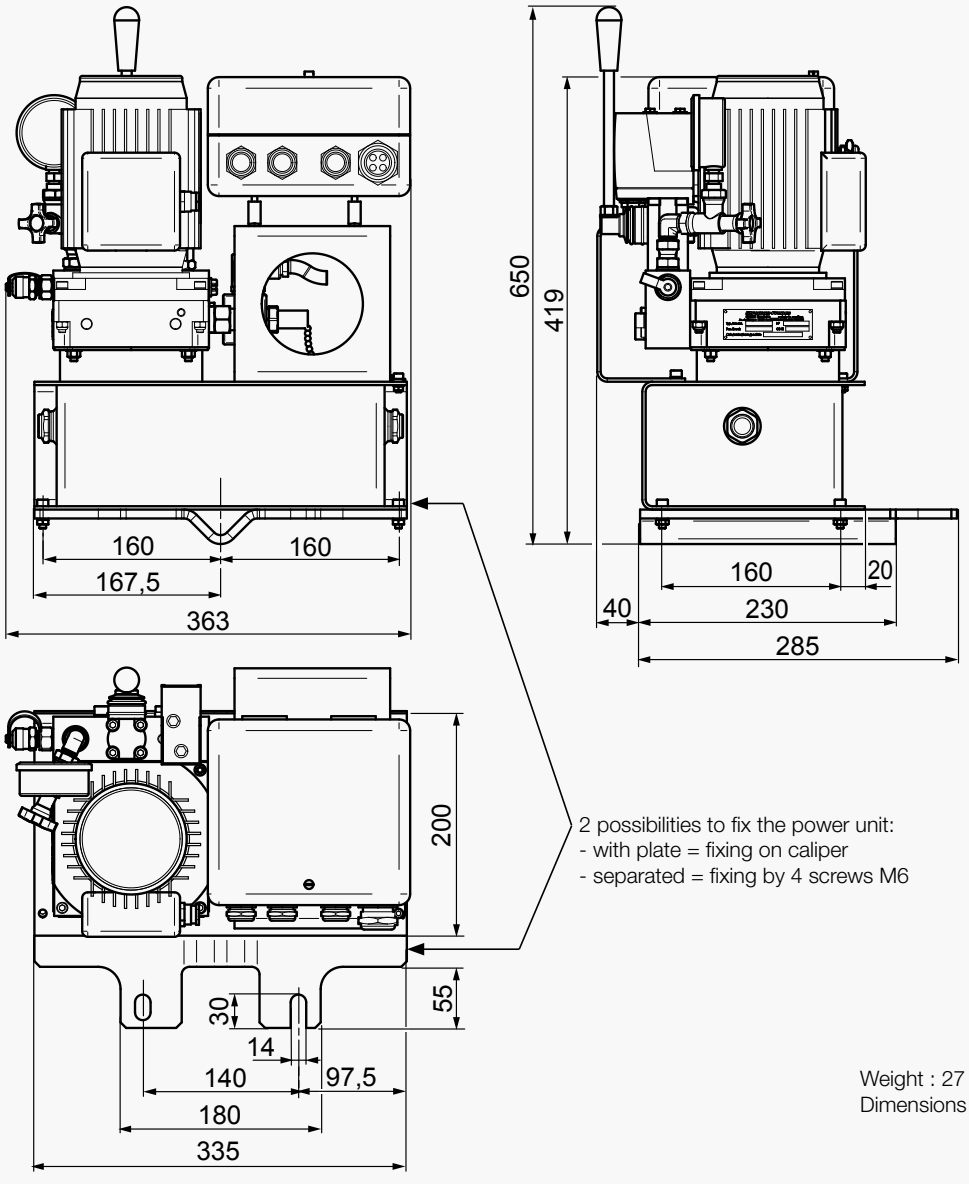
Operating conditions:
- Ambient temperature: -10°C to +50°C
- Relative humidity: ≤ 70%
- Dust in atmosphere ≥ 65µm
- Protection required against vertically falling water

Other conditions: consult us.

Use:
- Frequency of operation : 100 op. / hour maxi. Except for SH5-6 and SH9-3 calipers : frequency of operation : 60 op. /hour maxi.

Options:

MS	Special motor
OP1	Enhanced security return circuit by 2 solenoid valves
R	Braking torque adjustment
AF	Manual lowering with a dead man safety design
OP6	Tight HPP for iron and steel industry
Y1-3	Caliper closing with stepped braking torque application
Z1-Z2	Delayed braking



Weight : 27 kg without oil
Dimensions in mm

DISC BRAKE - C3BSH-ATH2 HYDRAULIC POWER PACK

Revision number: T05226-01-E **Revision date: 20.02.2014**

Electrical data

Motor M100

230/400VAC 50Hz 0.37 kW
4 poles 1500rpm

For mains 3 phases
Frequency 50 Hz
220-230-240VAC ±10% 50Hz
380-400-415VAC ±10% 50Hz
Frequency 60 Hz
480VAC ±10% 60Hz

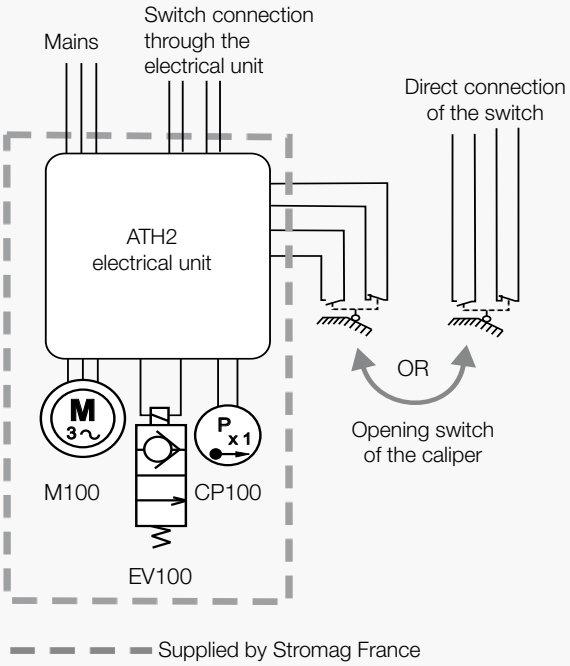
Solenoid valve EV100

Coil under 48 VRAC

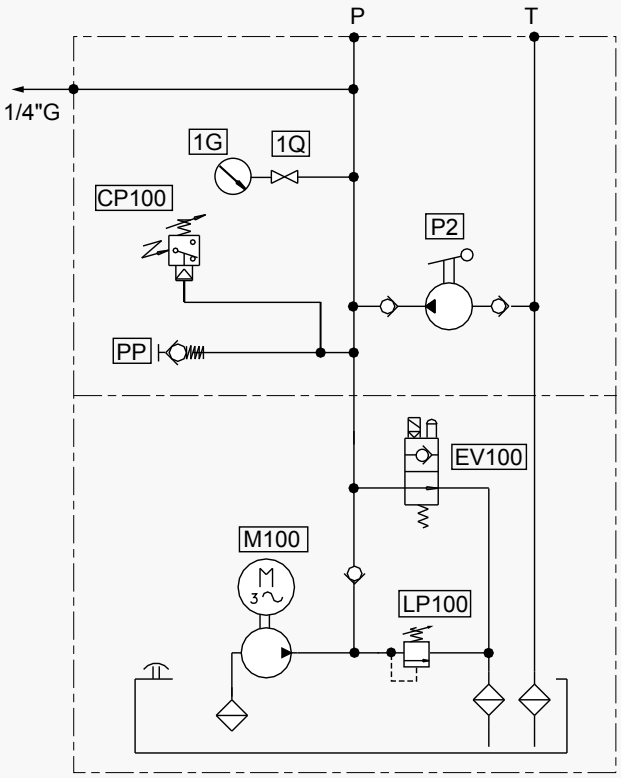
Pressure switch CP100

- Protection: IP 65
- 240 V AC. 1.5 A
- 250 V DC - 0.1 A

Electrical unit connections



Flow diagram



Hydraulic Power Packs

DISC BRAKE - CSH-02 HYDRAULIC POWER PACK

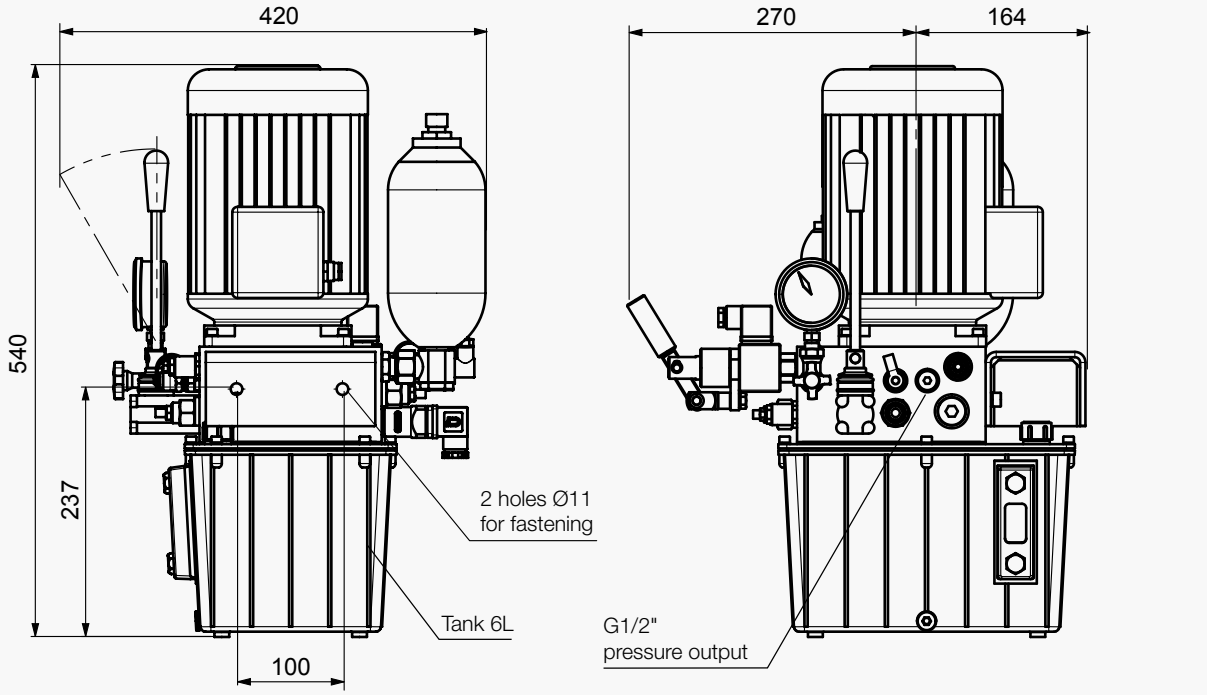
Revision number: T10123-02-C **Revision date: 06.07.17**

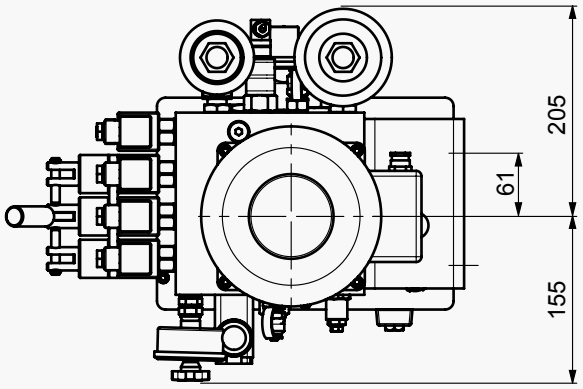
Association with 1 or 2 **SHD9-4-03** caliper(s)
Motor 0.75 kW at 1500 rpm
Maximal utilization pressure : 190 bars
Electrical indicators of oil temperature and level (OP7-8)
Vertical installation

Operating conditions:
- Ambient temperature: -10°C to +50°C
- Relative humidity: ≤ 100%
- C4M L anti-corrosive protection level (according to ISO12944 standards)
- IP55 tightness level

Other conditions: consult us.

Use:
- Service life : 200 000 operations
- Frequency of operation : 60 op. / hour maxi.

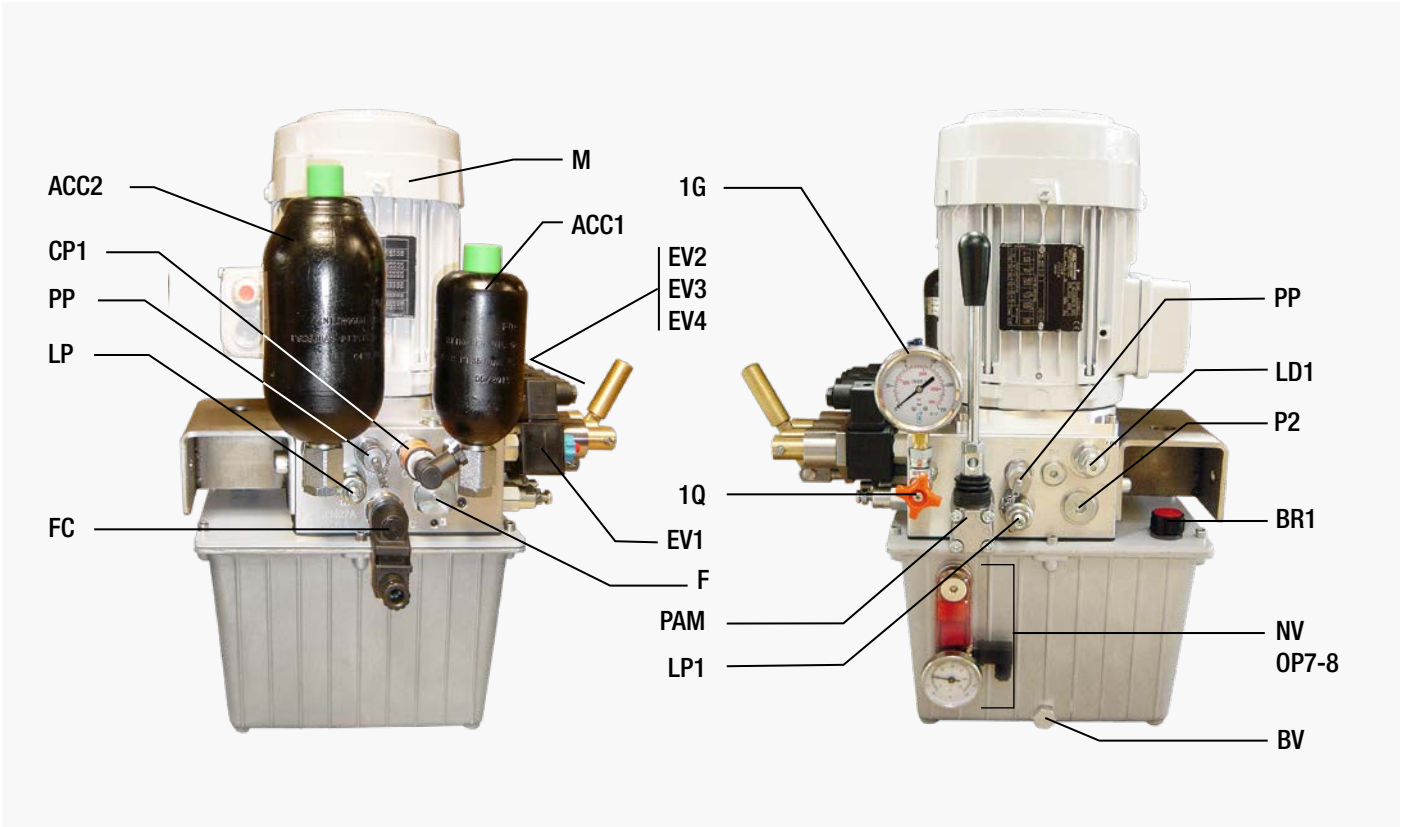




Dimensions in mm
Weight without oil : 43 kg
Tank volume : 6 L

DISC BRAKE - CSH-02 HYDRAULIC POWER PACK

Revision number: T10123-02-C **Revision date: 06.07.17**



Electrical data:

Motor M

230/400VAC 50Hz 0.75 kW
4 poles 1500rpm

For mains 3 phases
Frequency 50 Hz
220-230-240VAC ±10% 50Hz
380-400-415VAC ±10% 50Hz
Frequency 60 Hz
265-277-290VAC ±10% 60Hz
440-460-480VAC ±10% 60HZ

Solenoid valves EV1-EV2-EV3-EV4

Coil under 24VDC with rectifier

Pressure switch CP1

- Electrical design : DC PNP
- Operating voltage : 9.6...32 VDC
- Current consumption : < 25 mA
- Insulation resistance : > 100 MΩ
- Current rating : 500 mA
- 2 switching outputs normally open / closed complementary
- Connector M12 / 5 positions in accordance with IEC61076-2-101 standard / code A (not delivered)

Clogging indicator FC (NC)

- Calibration : 5 bars
- Supply voltage : 30 VDC
- Resistive load : 5A / Inductive load : 5A

Electrical indicators of oil temperature and level OP7-8

Integrated to the visual oil level. the electrical indicators provide a temperature signal by means of a thermostat (NC) preset at 70°C (OP7) and a minimum oil level electric signal (INV) (OP8).

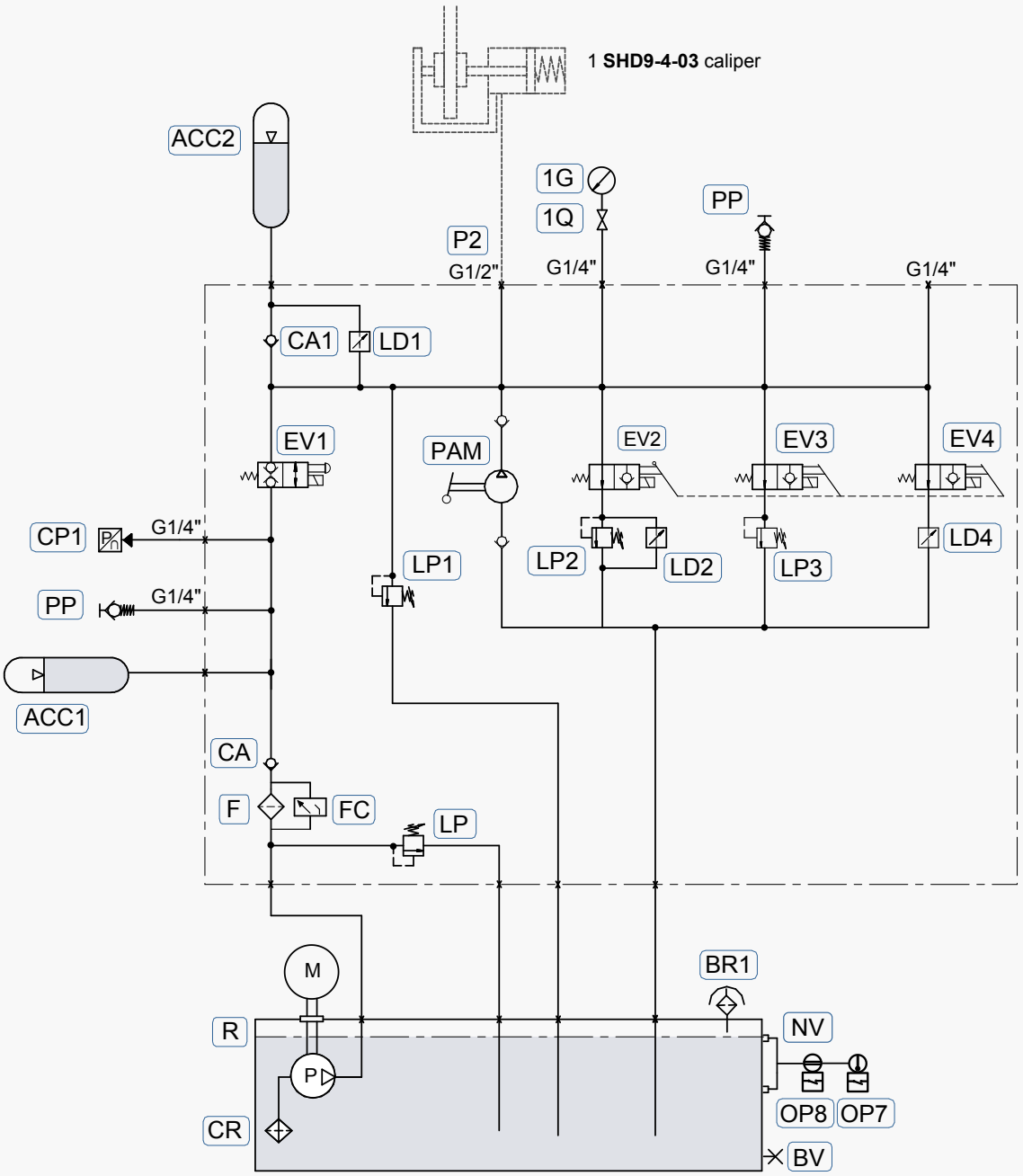
Electric part is completely separate from oil and insulated.

- Power commutable in DC : 40 W
- Power commutable in AC : 40 V.A.
- Current strength in DC - AC : 2 A
- Commutable voltage : 230 VDC/VAC
- Connector provided

DISC BRAKE - CSH-02 HYDRAULIC POWER PACK

Revision number: T10123-02-C **Revision date: 06.07.17**

Flow diagram



NOTES

Hydraulic Power Packs

DISC BRAKE - CE8L HYDRAULIC POWER PACK

Revision number: T05570-01-D **Revision date: 26.02.2015**

Maximal utilization pressure : 225 bars
Reservoir maximum oil volume : 8 L
Vertical or horizontal installation

Operating conditions:
- Ambient temperature: -10°C to +60°C
- Relative humidity: ≤ 70%
- Dust in atmosphere ≥ 65µm
- Protection required against vertically falling waters

Other conditions: consult us.

Use:
- Frequency of operation : 100 op. / hour maxi.

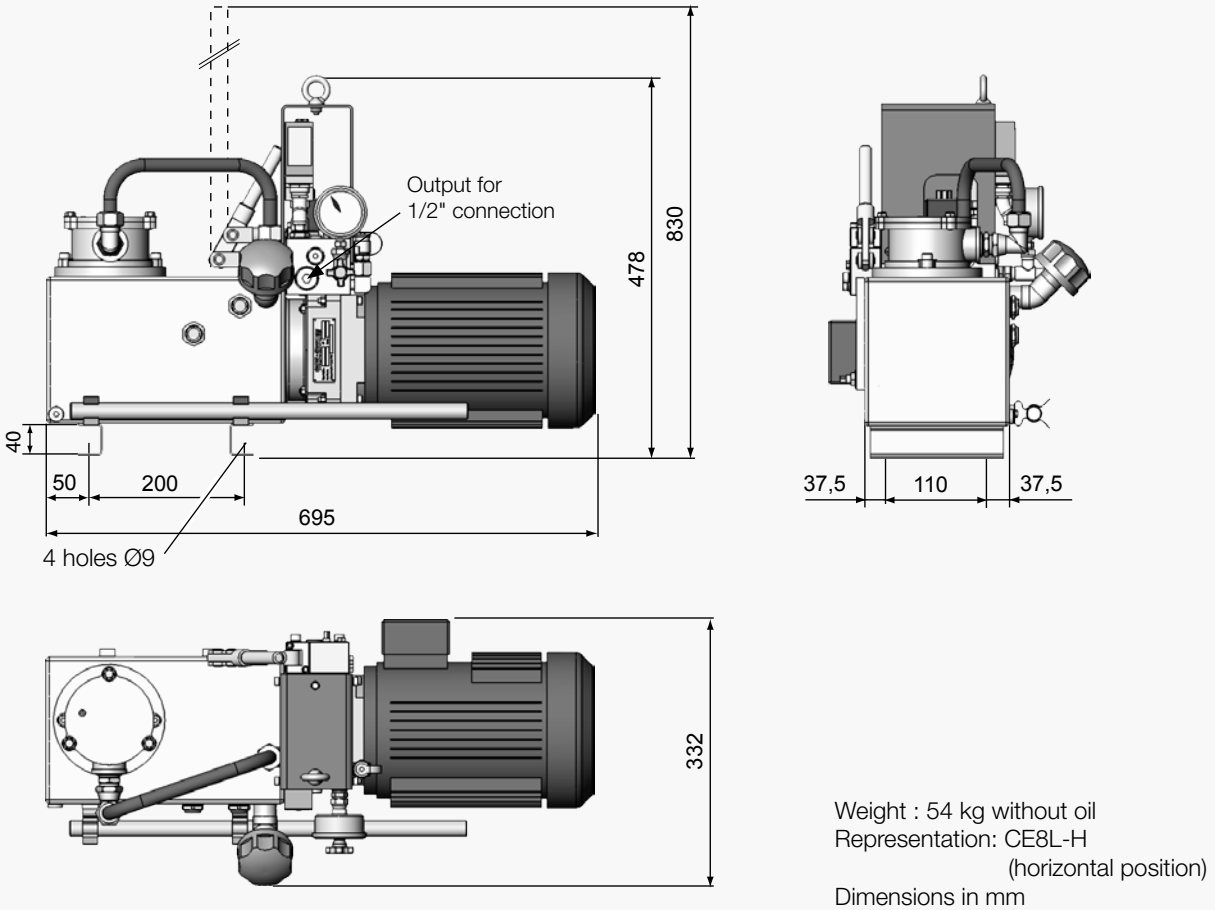
Association with the calipers :

CE8L-20	SH25-2. SH18B. SH9-3. SH5-6
CE8L-18	SH15-3. SH9-2
CE8L-16	SH25-1. SH15-2. SH5-5. TH9-3
CE8L-14	SH15-1. SH9-1. SH5-4
CE8L-11	SH5-3. TH9-2

Options :

MS	Motor 290/500VAC 50Hz or Motor 230/400 VAC with PTC sensor
EVS	EV coils voltage different from the standard
K1 or K2	Integrated electrical power unit
OP1	Enhanced security return circuit by 2 solenoid valves
CS2EV	Monitoring device of the 2 solenoid valves (of OP1)
OP1-OP2	Manual lowering with a dead man safety device.

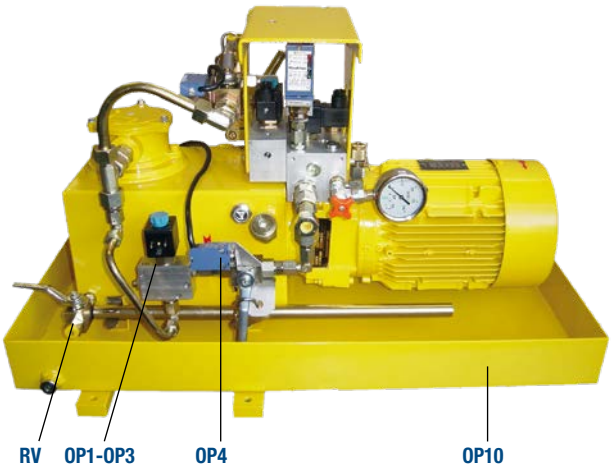
OP1-OP3	Manual lowering with overspeed safety by solenoid valve 24VDC.
OP4	Indicator switch of the position of the control valve(s)
OP5	Visual or electrical clogging Indicator
OP6	HPP for iron and steel industry
OP8	Electrical indicator of oil minimum level
OP10	Drip tray for horizontal HPP
RV	Drain valve for reservoir
Y5	Regulated braking



Weight : 54 kg without oil
Representation: CE8L-H
(horizontal position)
Dimensions in mm

DISC BRAKE - CE8L HYDRAULIC POWER PACK

Revision number: T05570-01-D **Revision date: 26.02.2015**



Electrical data:

Motor M

230/400VAC 50Hz 2.2 kW
4 poles 1500rpm

For mains 3 phases
Frequency 50 Hz
220-230-240VAC ±10% 50Hz
380-400-415VAC ±10% 50Hz
Frequency 60 Hz
480VAC ±10% 60Hz

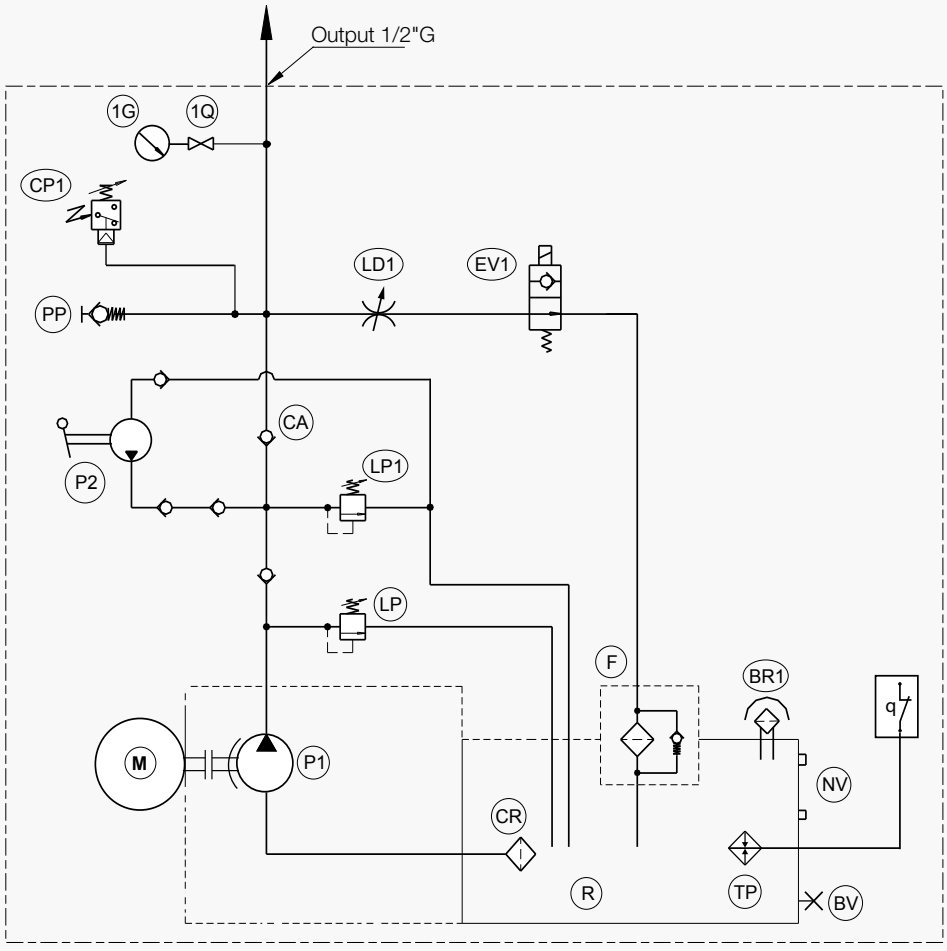
Solenoid valve EV1

Coil under 230VRAC 50 or 60 Hz
single phase. 20W
Protection IP55

Pressure switch CP1

- Single-pole and snap-acting contact "OC"
- Protection: IP 66
- 240 V AC. 1.5 A
- 250 V DC. 0.1 A

Flow diagram



Hydraulic Power Packs

DISC BRAKE - CE12L HYDRAULIC POWER PACK

Revision number: T10001-01-F **Revision date: 26.02.2015**

Maximal utilization pressure : 225 bars
Reservoir maximum oil volume : 12 L
Vertical or horizontal installation

Operating conditions:
- Ambient temperature: -20°C to +60°C
- Relative humidity: ≤ 100%
- Dust in atmosphere ≥ 30µm
- Protection required against vertically falling waters

Other conditions: consult us.

Use:
- Frequency of operation : 100 op. / hour maxi.

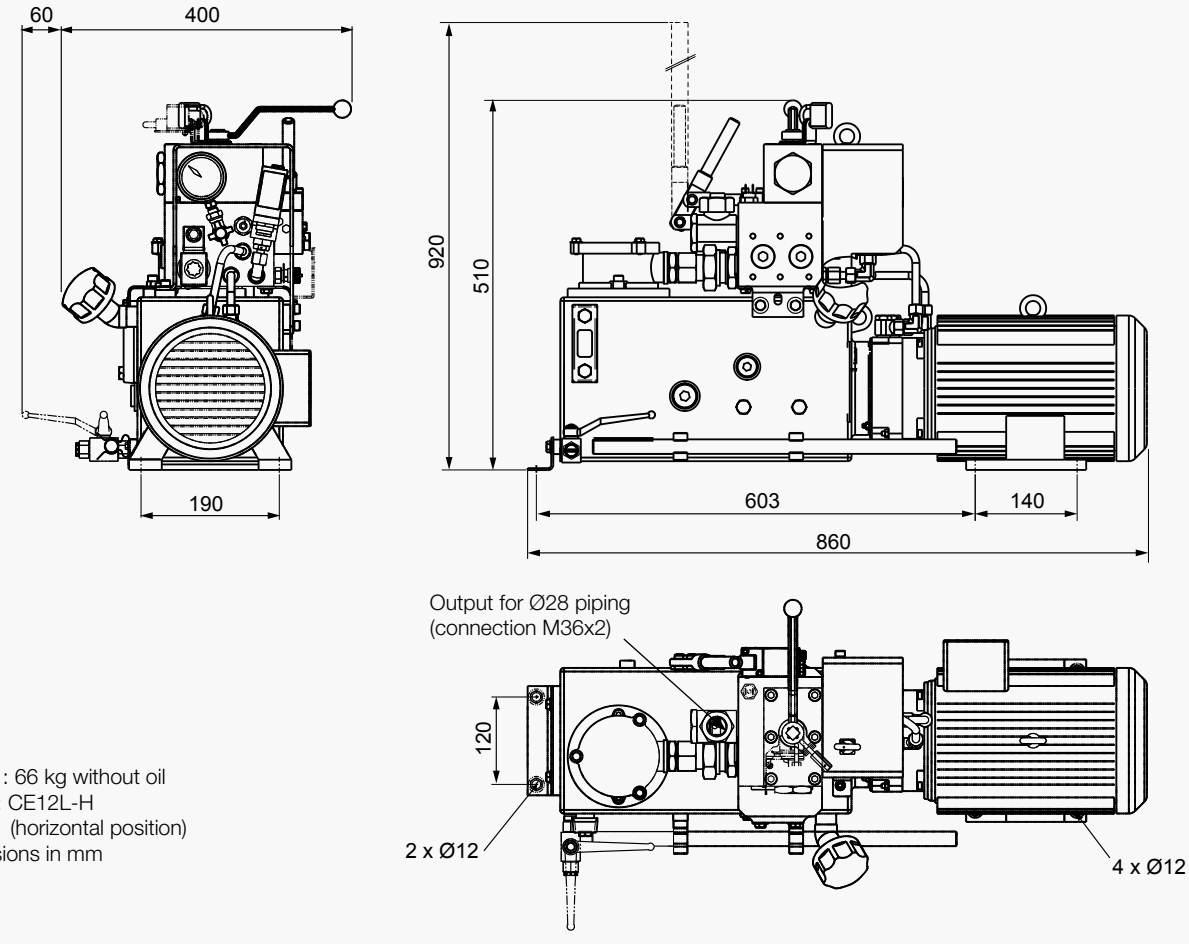
Association with the calipers :

CE12L-20	SH25-2. SH18B
CE12L-18	SH15-3
CE12L-16	SH25-1. SH15-2
CE12L-14	SH15-1

Options :

MS	Motor 500VAC 50Hz or Motor 230/400 VAC with PTC sensor
EVS	EV coils voltage different from the standard
K4	Integrated electrical power unit
OP1	Enhanced security return circuit by 2 solenoid valves
CS2EV	Monitoring device of the 2 solenoid valves (of OP1)
OP1-OP2	Manual lowering with a dead man safety device.

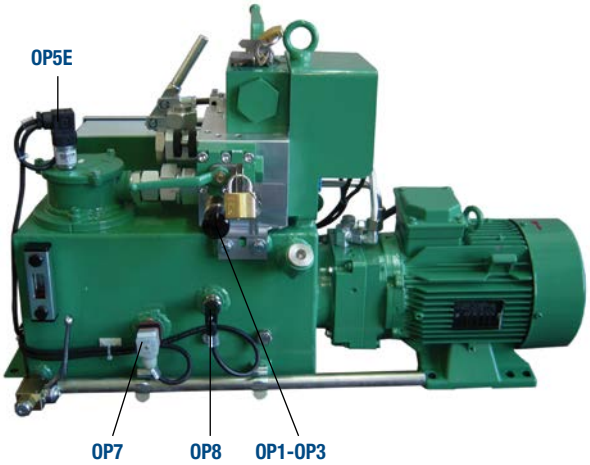
OP1-OP3	Manual lowering with overspeed safety by solenoid valve 24VDC.
OP4	Indicator switch of the position of the control valve(s)
OP5	Visual (OP5) or electrical (OP5E) clogging Indicator
OP6	HPP for iron and steel industry
OP7	Electrical indicator of oil temperature
OP8	Electrical indicator of oil minimum level
OP10	Drip tray for horizontal HPP
Y5	Regulated braking



Weight : 66 kg without oil
Model : CE12L-H
(horizontal position)
Dimensions in mm

DISC BRAKE - CE12L HYDRAULIC POWER PACK

Revision number: T10001-01-F **Revision date: 26.02.2015**



Electrical data:

Motor M

230/400VAC 50Hz 4 kW
4 poles 3000rpm

For mains 3 phases
Frequency 50 Hz
220-230-240VAC ±10% 50Hz
380-400-415VAC ±10% 50Hz
Frequency 60 Hz
220-230-240VAC ±10% 60Hz
440-460-480VAC ±10% 60Hz

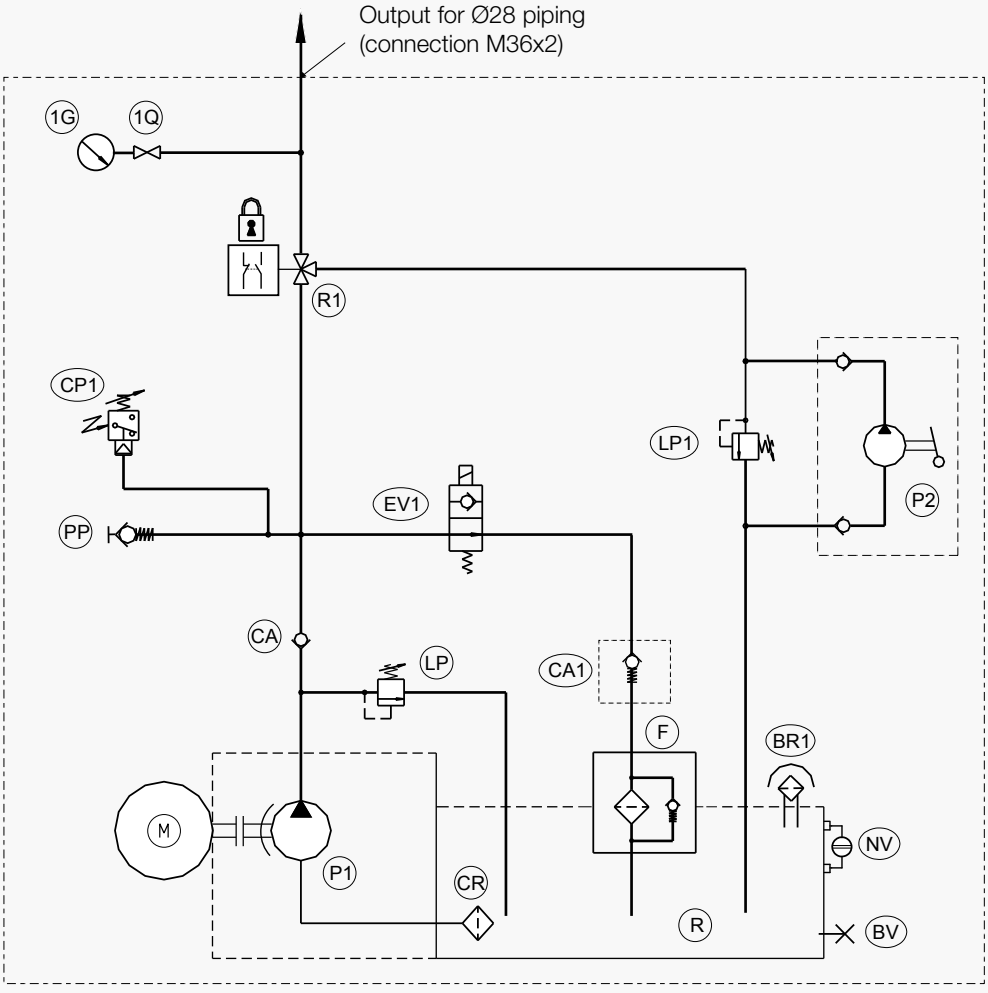
Solenoid valve EV1

Coil under 230VRAC 50 or 60 Hz
single phase, 20W
Protection IP55

Pressure switch CP1

- Single-pole and snap-acting contact "OC"
- Protection: IP 66
- 240 V AC. 1.5 A
- 250 V DC. 0.1 A

Flow diagram



DISC BRAKE - ST210 HYDRAULIC POWER PACK

Revision number: T05100-01-A **Revision date: 20.04.2002**

Maximal utilization pressure : 225 bars
Reservoir volume : 78 L :
mimimum oil volume = 42 L
maximum oil volume = 63 L

Operating conditions:
- Ambient temperature: -10°C to +50°C
- Relative humidity: ≤ 70%
- Particle size ≥ 40µm
- Protection required against direct harm such as vertical falling waters, sea spray or flams.

Other conditions: consult us.

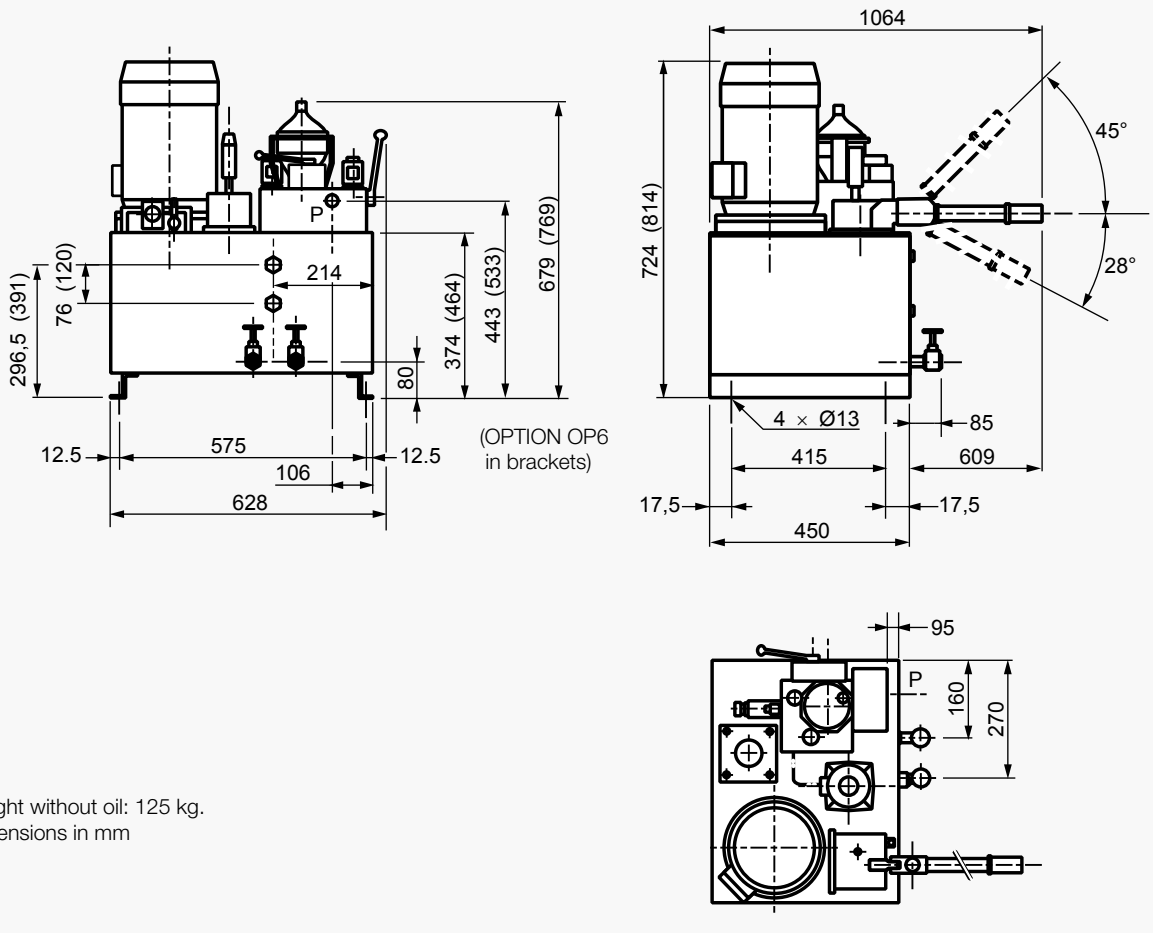
Association with the calipers :

ST210-20	SH25-2. SH18B
ST210-17	SH15-3
ST210-15	SH25-1
ST210-13	SH15-2
ST210-10	SH15-1

Options :

MS	50 Hz : 240/415 V - 500 V 60 Hz : 260/460 V - 254/440 V
EVS	EV coils voltage different from the standard
K	Electrical unit (consult us)
OP1	Enhanced security return circuit by 2 solenoid valves
OP1-OP2	Manual lowering with a dead man safety device.
OP1-OP3	Manual lowering with overspeed safety by solenoid valve 24VDC.

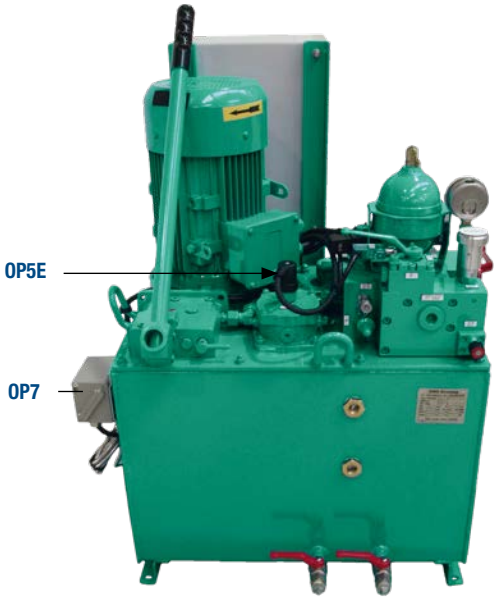
OP4	Indicator switch of the position of the control valve(s)
OP5	Visual (OP5) or electrical (OP5E) clogging Indicator
OP6	HPP for iron and steel industry
OP7	Electrical indicator of oil temperature
OP8	Electrical indicator of oil minimum level
OP9	Output pressure switch



Weight without oil: 125 kg.
Dimensions in mm

DISC BRAKE - ST210 HYDRAULIC POWER PACK

Revision number: T05100-01-A **Revision date: 20.04.2002**



Electrical data:

Motor

230/400VAC ±5% 50Hz 4 kW
280/480VAC ±5% 60Hz
4 poles 3000 rpm
Protection: IP 55 classe F

For mains 3 phases
Frequency 50 Hz
220-230-240VAC ±10% 50Hz
380-400-415VAC ±10% 50Hz
Frequency 60 Hz
220-230-240VAC ±10% 60Hz
440-460-480VAC ±10% 60Hz

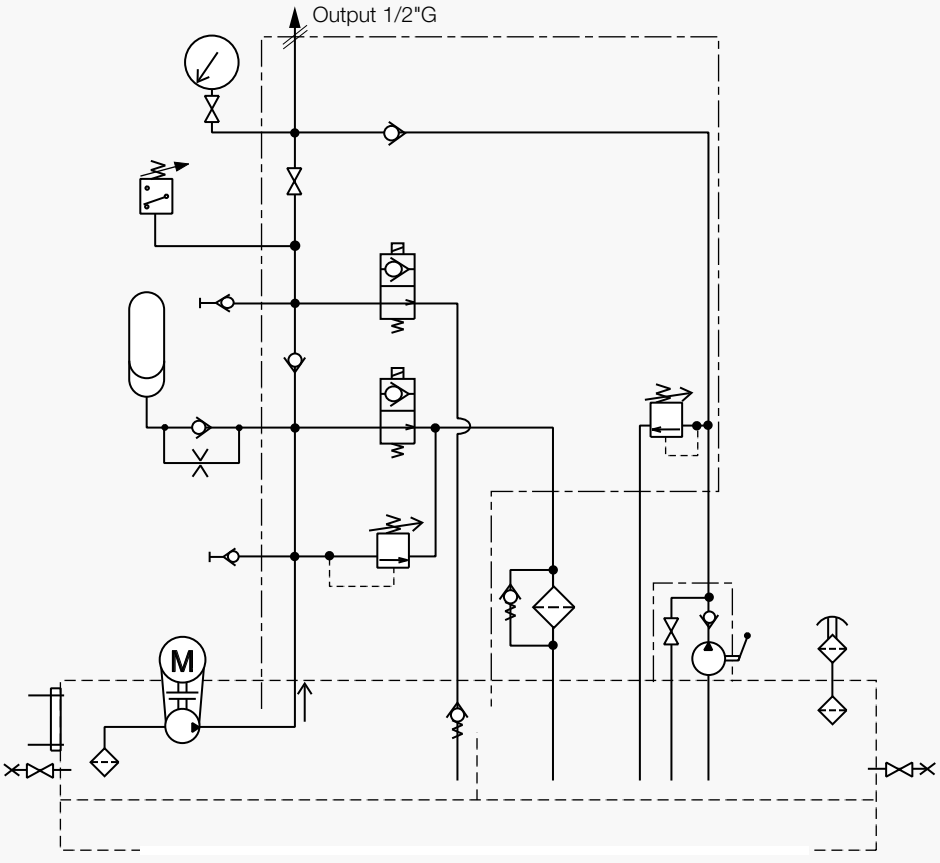
Solenoid valves

- Power: 17 W, coil class H.
- 12 and 24 VDC.
- 24VRAC, 110VRAC and 220VRAC

Pressure switch

- Cable gland PG11
- Protection: IP 65
- Watertight housing
- Terminal box

Flow diagram



CONTROL AND SAFETY SYSTEMS

Safety systems

BRAKING SOLUTIONS FOR	APPLICATIONS
• MONITORING THE HOISTING SPEED • REGULATED DECELERATION • SPEED REGULATION CONTROL • CONSTANT DECELERATION • SAFETY PERFORMANCE LEVEL PL d to PL e	• MASS TRANSPORTS : CABLEWAY, PASSENGERS ELEVATORS FUNICULARS, CHAIRLIFTS... • STEEL INDUSTRY LADLE CRANE • BELT CONVEYORS

SIDEOS One

- SAFETY SYSTEM
- configurable and secure module for speed monitoring.
- fitted with an efficient auto-control system.

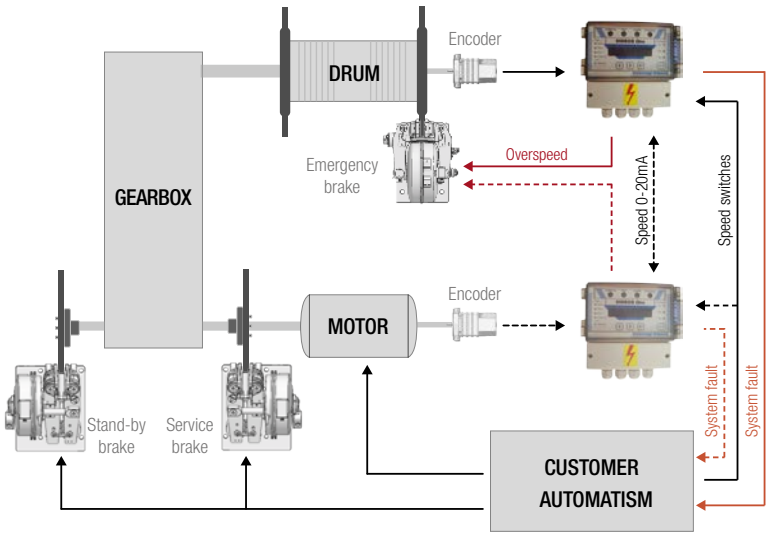
CRD® / CRV®

- CONTROL SYSTEMS
- speed regulation with **CRV®** module.
- setting of the deceleration rate on the **CRD®** module.

AFR5

- MONITORING. CONTROL SYSTEMS for regulated braking.
- SAFETY SYSTEMS adapted to the customer installation.
- includes **SIDEOS One** and **CRD®** modules

ASSOCIATION OF 2 SIDEOS One - Detection of any kinematic linkage break



Safety systems

DISC BRAKE - SIDEOS ONE

Revision number: T10054-01-E **Revision date: 12.09.2013**

Programmable and secure module for speed monitoring. fitted with an efficient auto control system (DC>99%) which secures the overall operation of the overspeed detection system.

Conform to the machine security standards :
NF EN ISO 13489-1
Performance level PL=d to PL=e
Category : 2 to 4
MTTFd = high DC = high

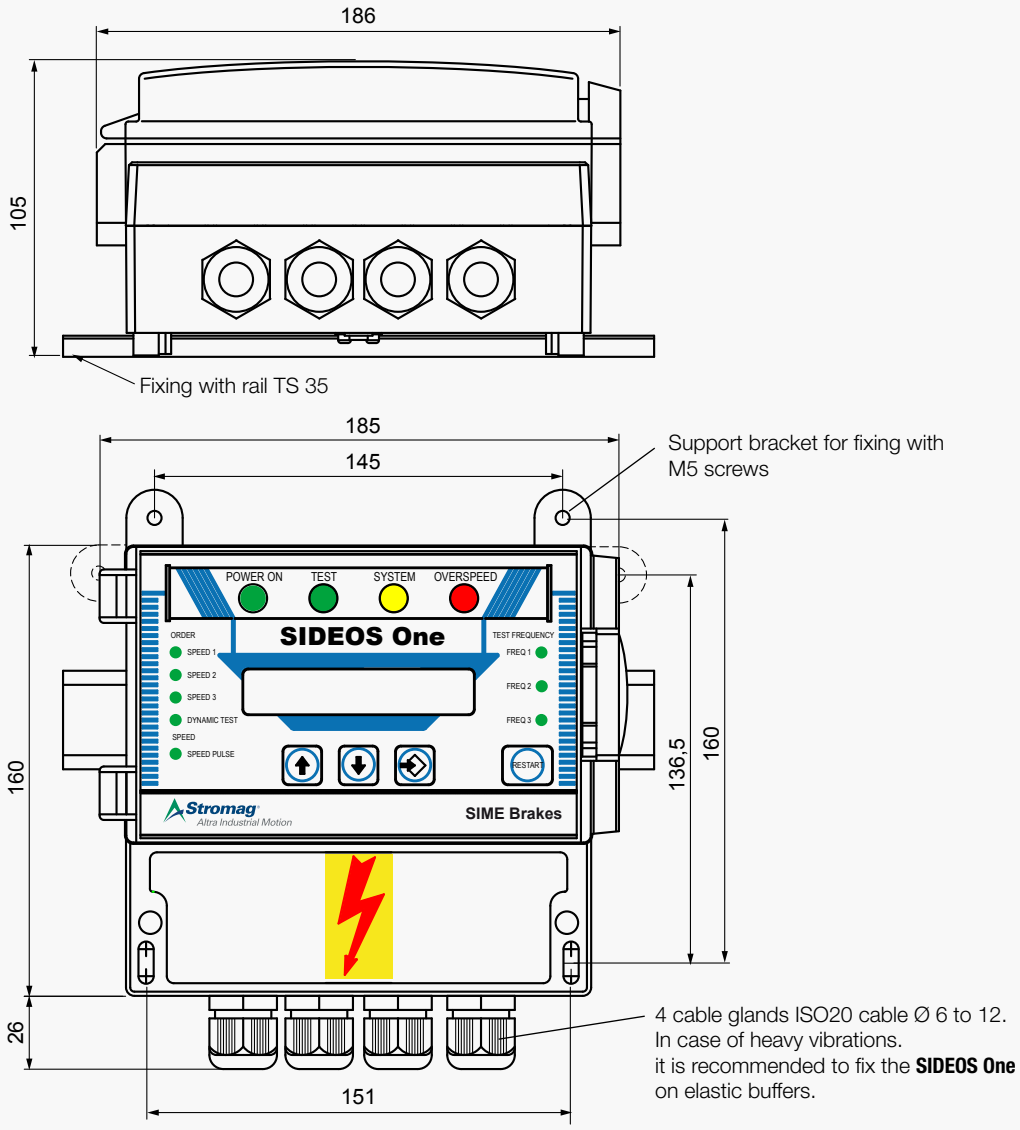
Operating conditions :
- Ambient temperature : -20°C to +60°C
- IP65 protected electrical casing

Electrical data :
- 1 available version
  AC : 115/230 V AC ± 10% 50/60Hz
- Other voltages : consult us

EC marking of conformity :
- 2006/42/EC directive Machine
- 2006/95/EC Low voltage directive (standard NF EN 60204-1)
- 2004/108/EC EMC directive (standards NF EN 61000-6-2. NF EN 61000-6-4)

Options :
- Steel casing IP66 IK10
- Anti-condensation kit

The **SIDEOS One** can be installed in a control enclosure on an DIN rail of 35mm, or fixed with M5 screws, see the drawing below.



When required by the application, Stromag France provides steel casing which allows **SIDEOS One** and other functions integration according to your requirements.

DISC BRAKE - SIDEOS ONE

Revision number: T10054-01-E **Revision date: 12.09.2013**

The **SIDEOS One** module is a secure and programmable monitoring system of the speed.

It monitors :
- the speed,
- the stop,
- the rotation direction,
- the kinematic linkage,
- the signals of the incremental encoder,
- the external speed signal 0-20mA,
- the control contacts indicating the speed to monitor,
- the control contacts indicating the rotation direction to monitor,
- the system fault and overspeed outputs,
- the internal signals (Autotest – Dynamic Test – Cross monitoring).

It secures the overall operation of the speed monitoring system by means of :
- a detection of all the external failures (DC≥ 99%),.
- a redundant internal design and a cross-monitoring of the internal system operation,
- a dynamic test of the overspeed function. every 360 tops of the encoder (DYNAMIC TEST),
- a secure cut-off and wiring of the supply of the output contactors,
- an autotest (TEST) allowing the detection of all the internal faults which can occure on the monitoring system (diagnostic coverage > 99%),
- a secure restart control (RESTART).

It allows to obtain, when installation is correct, a speed monitoring system secure up to the category 4 with the performance level of PL= e according to the standard ISO/IEC 13849-1.

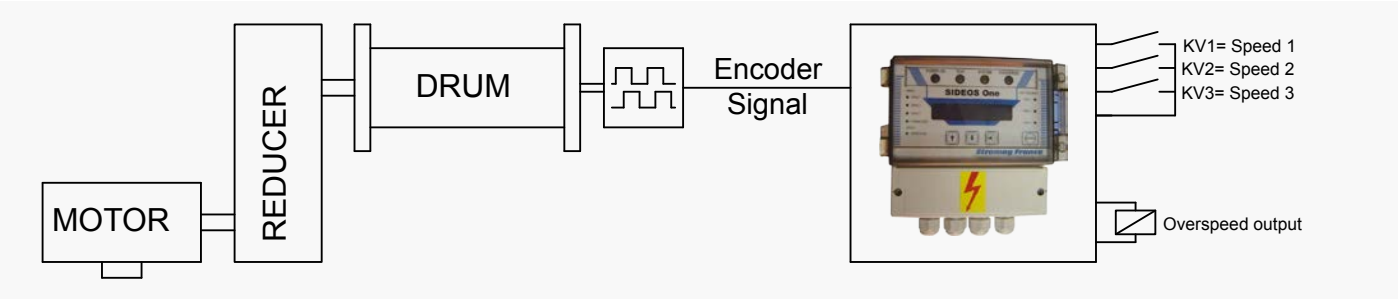
It simplifies the intégration of a secure overspeed detection system in the machine control.

It provides :
- a speed signal (0 - 20mA)
- an alphanumeric display to visualize :
  - the speed,
  - the active overspeed threshold,
  - a diagnosis support,
  - a history of the last faults.

DISC BRAKE - SIDEOS ONE

Revision number: T10054-01-E **Revision date: 12.09.2013**

1 - Speed monitoring : OVERSPEED

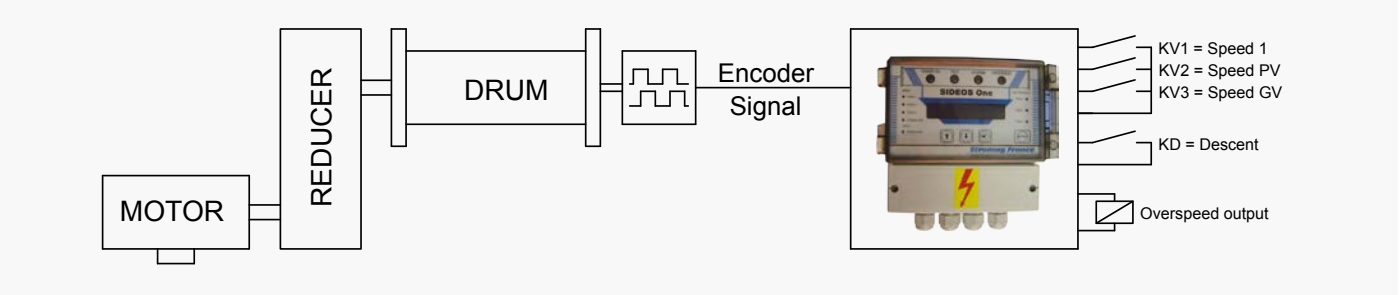


The **SIDEOS One** monitors up to 3 thresholds of installation overspeed and triggers the overpeed output if the speed detected on the encoder input is higher than the active overspeed threshold (speed contact KV closed).

2 - Stop monitoring : STATIC SLIPPING

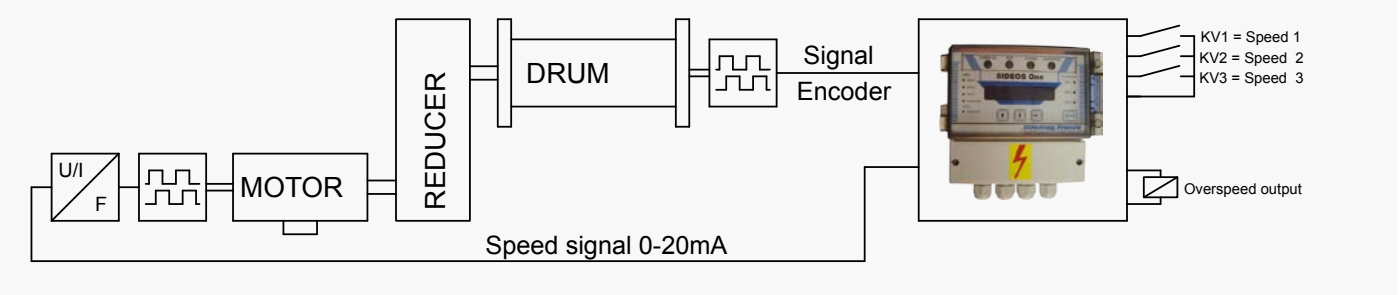
The **SIDEOS One** monitors the stop of the installation and triggers the overspeed output if a speed is detected on the encoder input when the contact KV1 is closed.

3 - Monitoring of the rotation direction : DYNAMIC SLIPPING



The **SIDEOS One** monitors the rotation direction of the installation and triggers the overspeed output if the rotation direction detected on the encoder input is different from the rotation direction indicated to the **SIDEOS One**.

4 - Monitoring of the kinematic linkage : DIFFERENTIAL SPEED



The **SIDEOS One** monitors the kinematic linkage of the installation and triggers the overspeed output in case of detection of the linkage breaking motor GV / drum PV, if the speed indicated on the speed signal input GV (15mA at nominal speed) is different from the speed signal from the encoder PV (15mA at nominal speed).

NOTES

DISC BRAKE - CONSTANT DECELERATION WITH CRD MODULE

Revision number: M08950-01-C **Revision date: 03.06.2015**

1 - PRESENTATION

The **CRD®** module, combined with **5KE. 650E. TY5. TH** and **SH** type brakes allows a constant deceleration regulated braking (fig. 1) whatever the speed, the load and the kind of load, driving or resisting.

Applications: cableways, chairlifts, funiculars, lifts, belt conveyors, transporters ... .

2 - PRINCIPLE

CRD® system (fig. 2) consists of:

- 1 or more brakes (progressive brakes type **5KE. 650E. TY5. TH** and **SH**).
- 1 hydraulic pack (**STE210Y5. CE8L-RY5**) or 1 electric power supply (AB8. ATP2. ATP24).
- 1 (or more) speed sensors (tachometric dynamo..).
- 1 **CRD®** module, it may be integrated into an **AFR5** enclosure supplied by Stromag France.

Two **CRD®** versions exist:

- **CRD-R**: a deceleration regulation board (fig.8) monitors power units type AB8, ATP2, ATP24 or an electronic amplifier for a proportional pressure limiter of an hydraulic power unit, customer suply the reference speed signal.
- **CRD-RC**: to the regulation board is connected a deceleration control board, fully independant from the regulation board (power suply. speed signal. scale and command).

Fig. 1

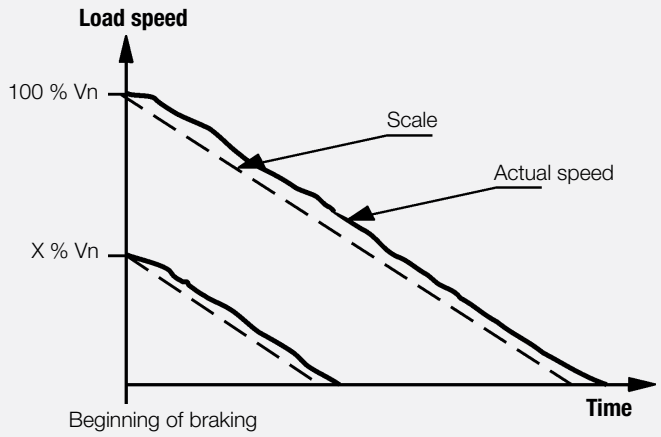
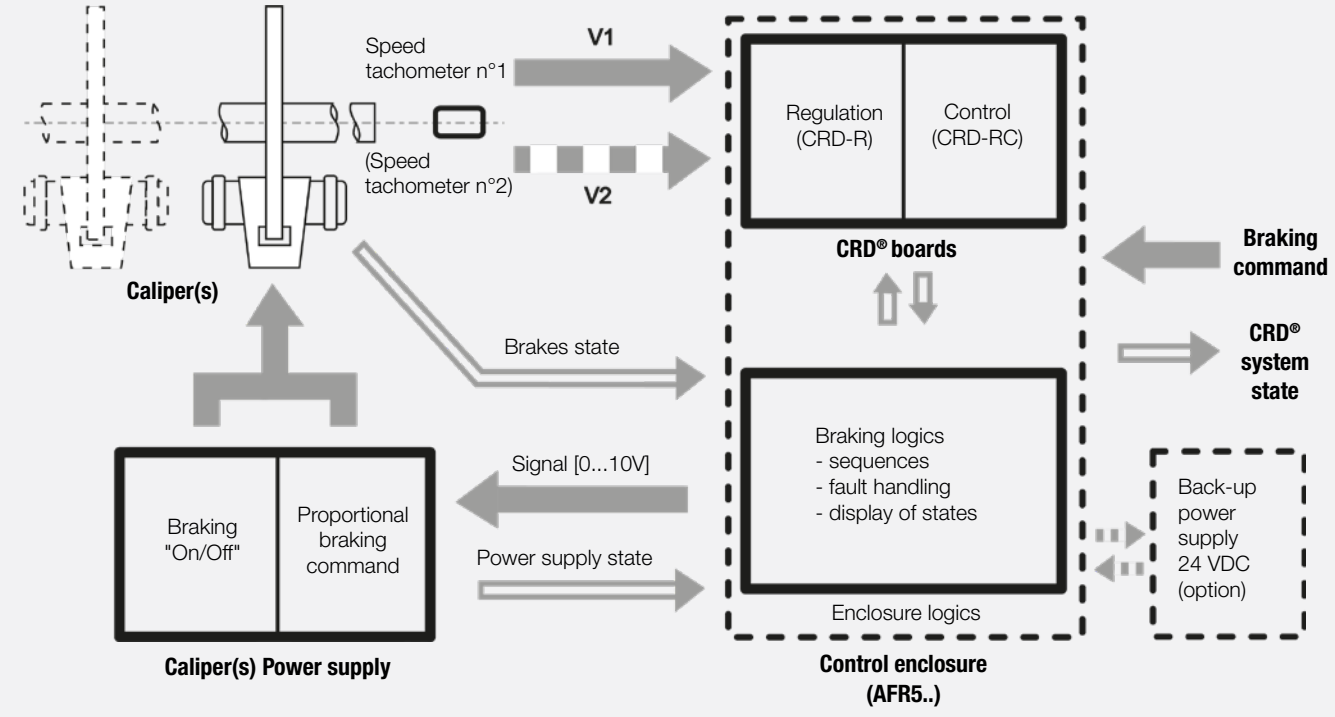


Fig. 2



DISC BRAKE - CONSTANT DECELERATION WITH CRD MODULE

Revision number: M08950-01-C **Revision date: 03.06.2015**

3 - OPERATION

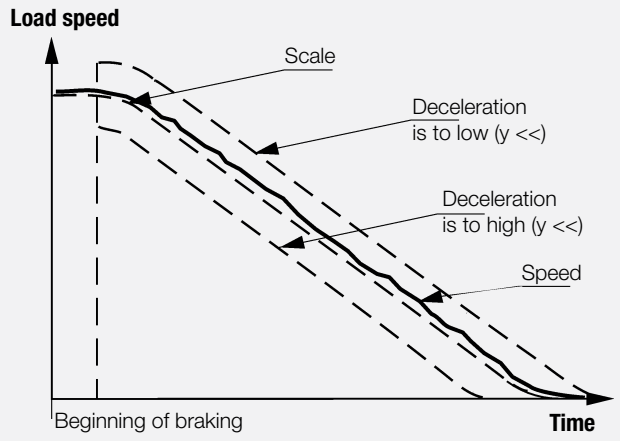
3-1 Deceleration regulation

CRD® module allows a deceleration regulation according to a scale at the time of a normal or an emergency braking.

3-2 Deceleration control (CRD-RC version only)

Using a second speed sensor connected to "deceleration fault control board" insures that first board operating is correct (detected mis-functioning: braking is too low or too high. mecanical shaft or gear box failure. failure of a speed sensor or damaged wires).

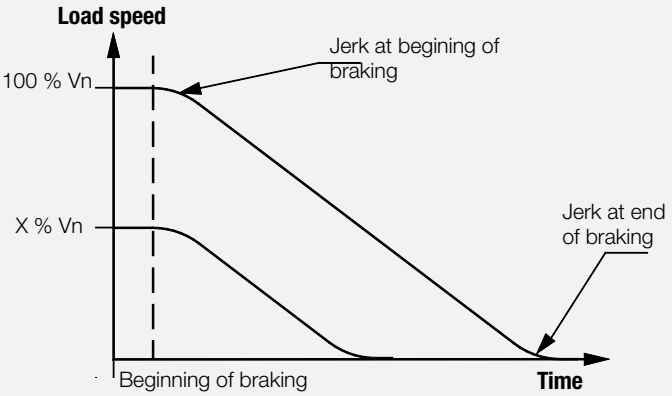
Fig. 3



3-3 "S" curve deceleration

CRD® module allows user to select JERKS at begining and/or end of braking; duration of these "S" curves may be adjusted.

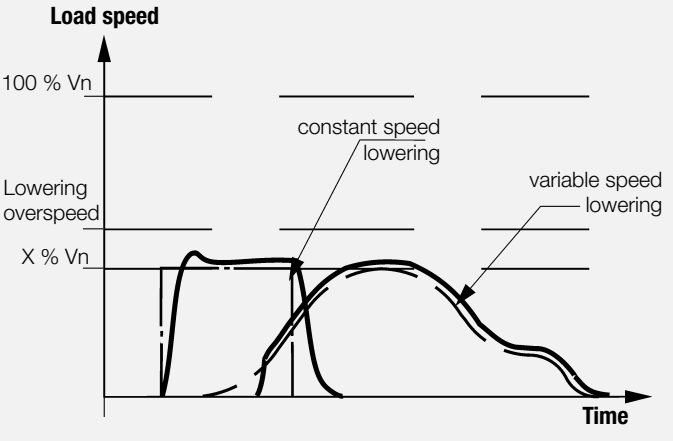
Fig. 4



3-4 Lowering

CRD® module provides lowering function (load is let down on command after a full successful braking. for security purpose) to X % of nominal speed (setting between 5 and 20%), at constant speed, or at variable speed (operator controlled auto "0" recentering joystick).

Fig. 5



DISC BRAKE - CONSTANT DECELERATION WITH CRD MODULE

Revision number: M08950-01-C **Revision date: 03.06.2015**

4 - PHYSICAL CARACTERISTICS OF CRD® MODULE

This equipment receives speed signal from the speed sensor(s) and delivers an output signal (0...10V.) while following an internal or external speed scale. board(s) are:

4-1 In separate casing

- **dimensions**: see fig. 6a (**CRD-R**) & fig. 6b (**CRD-RC**); Location - enclosure must be installed onto a vertical support - will allow natural ventilation.
- **Environment**: Ambient temperature: -10°C to +50°C.
- The IP 559 casing is equiped with 5 cable glands PG 11 (**CRD-R**) or 5 cable glands PG 11 and 4 cable glands PG 9 (**CRD-RC**).
- **Mains power suply**: 230V AC ±10% 50/60Hz or 24V DC (20 to 30 V DC). Power consumption: 5W maxi. per board.

4-2 Inside control casing

- **dimensions**: see fig. 7a (**CRD-R**) & fig. 7b (**CRD-RC**);
- **Environment**: Ambiant temperature: -10°C to +50°C.
- **Mains power suply**: 230V AC ±10% 50/60Hz or 24V DC (20 to 30 V DC). Power consumption: 5W maxi. per board.

5 - EQUIPMENT

Necessary equipment for braking will include:

5-1 Brakes

1.2. 4.... electrohydraulic calipers (type **TY5**. **TH** or **SH**) or electromagnetic (type **650E**. **5KE**).

5-2 Electric power supply (case of electromagnetic brakes)

Power supply associated to the brake will be capable of braking regulation (type **AC64-50** associated with **AB8** module).

5-3 Hydraulic power pack (hydraulic brakes SH or TH type)

Hydraulic power pack will be capable of regulating deceleration (for exemple: **STE 210 Y5** with proportional pressure limiter). An alternate motor may optionally be added (24 V. DC) to the main motor supplied by Mains, allowing deceleration regulation in case of Mains failure (**M2** option).

5-4 AFR5 Control casing (SH and TH brakes)

Initiate deceleration regulation, controls its logics and faults to keep all electrical components secure.

5-5 Back-up power supply (M2 option)

In case of mains failure, the need for deceleration regulation may involve installing a back-up power supply - Stromag France or customer supplied.

Fig. 6a

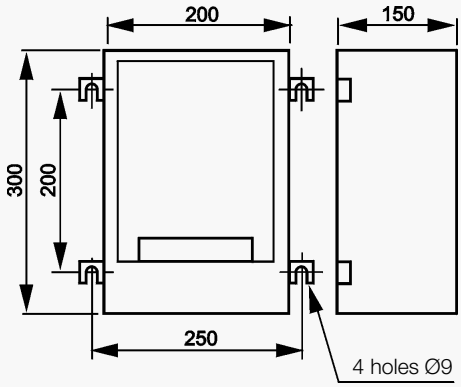


Fig. 6b

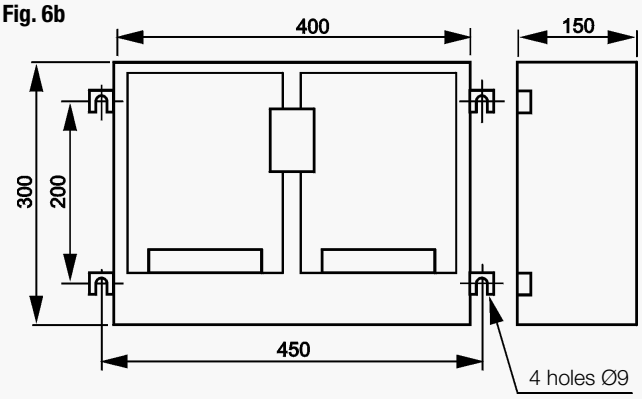


Fig. 7a

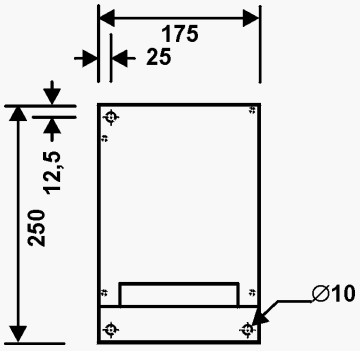
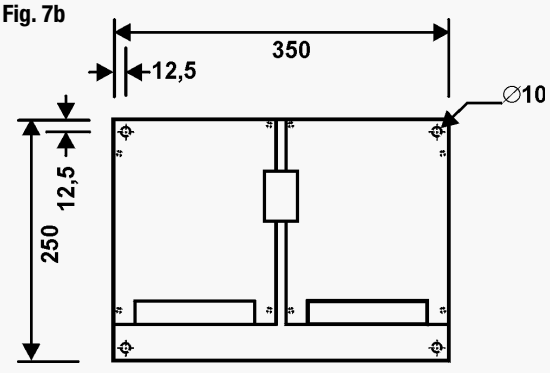


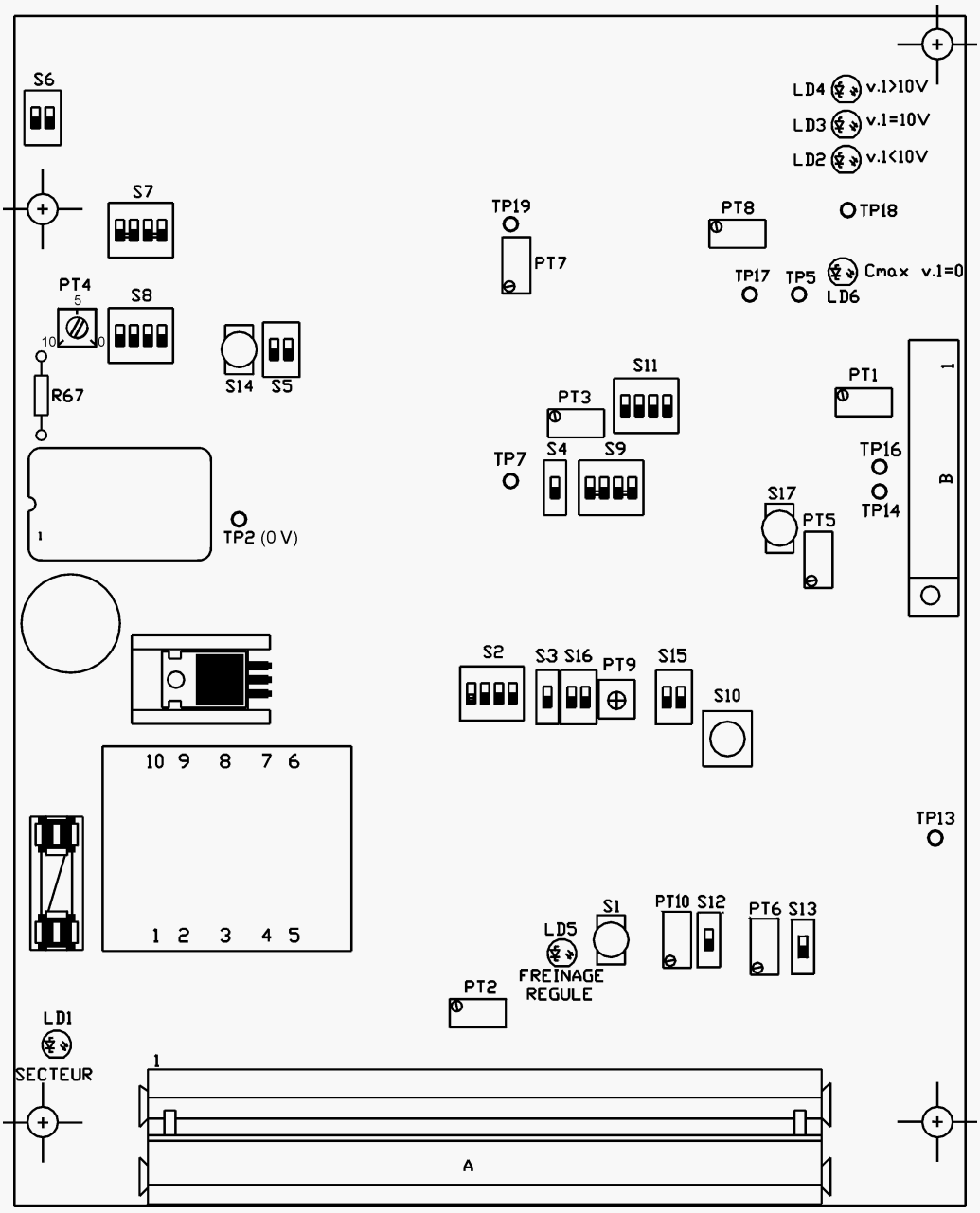
Fig. 7b



DISC BRAKE - CONSTANT DECELERATION WITH CRD MODULE

Revision number: M08950-01-C **Revision date: 03.06.2015**

Fig. 8 **DECELERATION REGULATION BOARD**



Switches list

S1: ramp simulation (green push button)
S2: speed signal frequency range
S3: speed signal selection: voltage or frequency
S4: selection of speed signal amplification
S5: speed signal filtration
S6: "S" curve/jerk at beginning of ramp
S7: "S" curve/jerk at end of ramp
S8: ramp time
S9: regulation amplification = function P
S10: TP16 output manual command to 10V. (black push button)
S11: regulation filtration = function I
S12: AB8 or ATP output selection
S13: internal/external lowering potentiometer selection
S14: fault simulation (red push button)
S15: regulation filtration = function I
S16: regulation derivative : function D
S17: TP16 output manual command to 0.3V (+ action on S10) (black push button)

Potentiometers list

PT1: (factory setting)
PT2: speed signal adjustment
PT3: speed signal amplification
PT4: ramp time fine tuning
PT5: "bias" lock
PT6: internal potentiometer for "external scale"
PT7: brake running-up (forecast of hydraulical delay)
PT8: speed is nil setting
PT9: function D ajustment
PT10: ajustment of the maximum value of the external potentiometer

DISC BRAKE - SPEED REGULATION WITH CRV MODULE

Revision number: M08955-01-B **Revision date: 03.06.2015**

1 - PRESENTATION

Speed regulation with **CRV**, in combination with brakes type **5KE**, **650E**, **TY5**, **TH** and **SH**. provides a regulated speed braking whatever the load quantity and load specificity, pulling or resisting.

Use: lowering, speed regulation.

Applications: cableways, chairlifts, funiculars, lifts, belt conveyors, transporters, cranes, etc...

2 - PRINCIPLE

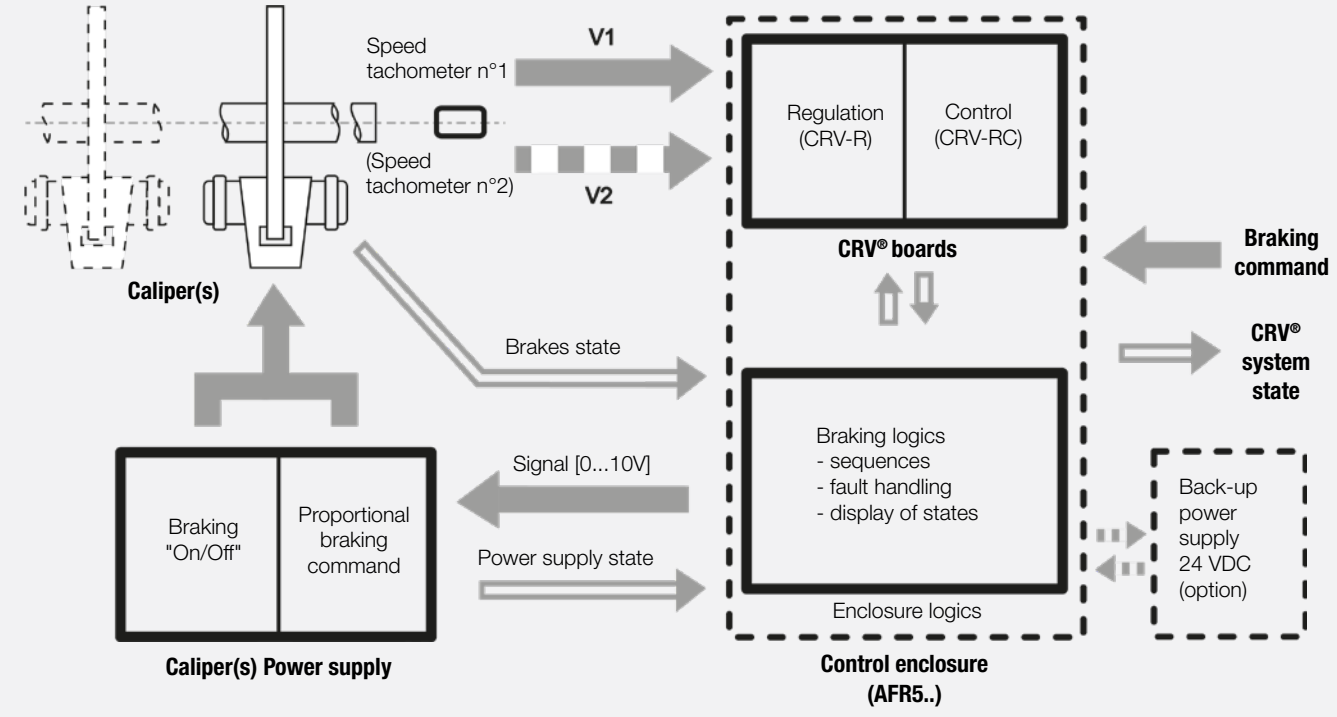
CRV system (fig. 1) consists of:

- 1 or more brakes (progressive brakes type **5KE. 650E. TY5. TH** and **SH**);
- 1 hydraulic pack (**STE210Y5. CE8L-RY5**) or 1 electric power supply (AB8. ATP2. ATP24).
- 1 (or more) speed sensors (tachometric dynamo..).
- 1 **CRV** module, it may be integrated into an AFR5 enclosure supplied by Stromag France.

Two **CRV®** versions exist:

- **CRV-R:** a speed regulation board (fig. 8) monitors power units type AB8, ATP2, ATP24 or an electronic amplifier for a proportional pressure limiter of an hydraulic power unit ; customer suply the reference speed signal.
- **CRV-RC:** to the regulation board is connected a speed control board, fully independant from the regulation board (power suply, speed signal, scale and command).

Fig. 2



DISC BRAKE - SPEED REGULATION WITH CRV MODULE

Revision number: M08955-01-B **Revision date: 03.06.2015**

3 - OPERATION

3-1 Lowering - fig.2

CRV module allows choosing a lowering (regulated load lowering after stop. for security purpose) at X % of nominal speed, (setting between 5 and 20%), at constant speed, or at variable speed (potentiometer with automatic "0" restoring adjusted by operator).

3-2 Speed regulation - fig.3

CRV module allows a speed regulation set at X% of nominal speed (constant speed, factory set between 5 and 100% of nominal speed), failure of a speed sensor or damaged wires).

3-3 Speed control (CRV-RC only)

Using an additional speed sensor connected to "speed control" board allows a monitoring of the regulation (detected anomalies: speed too high or too low, mechanical breakdown of shafts or gearbox, speed sensor anomaly or damaged wiring).

Fig. 2

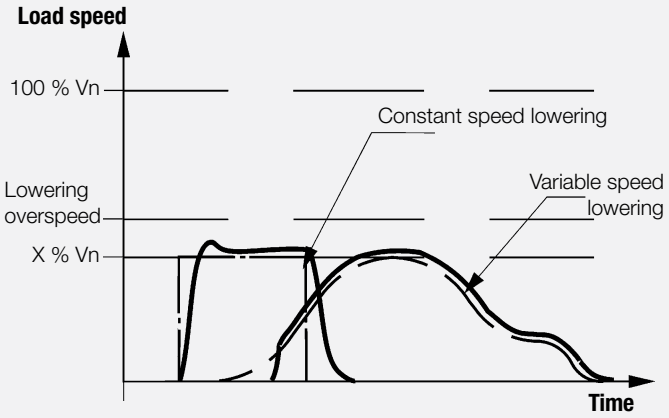
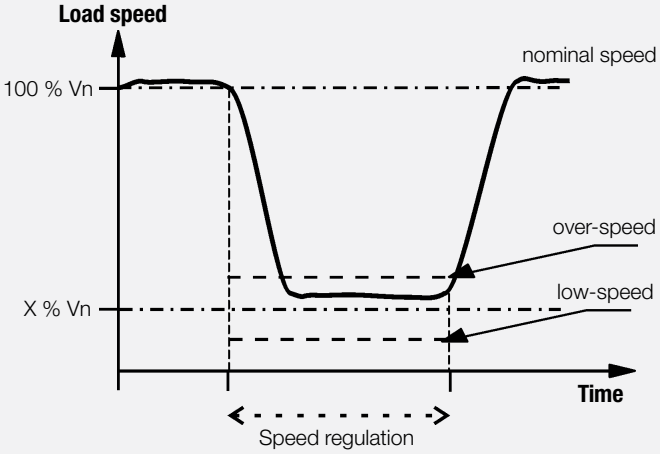
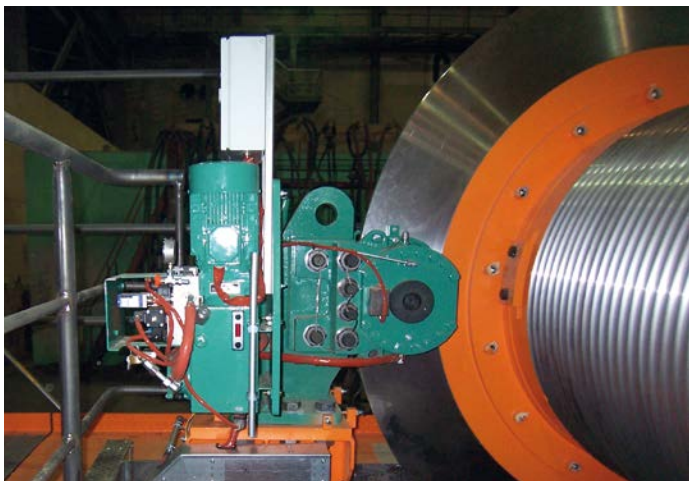


Fig. 3





DISC BRAKE - SPEED REGULATION WITH CRV MODULE

Revision number: M08955-01-B **Revision date: 03.06.2015**

4 - PHYSICAL CARACTERISTICS OF CRV® MODULE

This equipment receives speed signal from the speed sensor(s) and delivers an output signal (0...10V.) while following an internal or external speed scale. board(s) are:

4-1 In separate casing

- **dimensions**: see fig. 4 (**CRV-R**) & fig. 5 (**CRV-RC**); Location - enclosure must be installed onto a vertical support - will allow natural ventilation.
- **Environment**: Ambient temperature: -10°C to +50°C.
- The IP 559 casing is equiped with 5 cable glands PG 11 (**CRV-R**) or 5 cable glands PG 11 and 4 cable glands PG 9 (**CRV-RC**).
- **Mains power suply**: 230V AC ±10% 50/60Hz or 24V DC (20 to 30 V DC). Power consumption: 5W maxi. per board.

4-2 Inside control casing

- **dimensions**: see fig. 6 (**CRV-R**) & fig. 7 (**CRV-RC**);
- **Environment**: Ambiant temperature: -10°C to +50°C.
- **Mains power suply**: 230V AC ±10% 50/60Hz or 24V DC (20 to 30 V DC). Power consumption: 5W maxi. per board.

5 - EQUIPMENT

Necessary equipment for braking will include:

5-1 Brakes

1.2. 4.... electrohydraulic calipers (type **TY5**. **TH** or **SH**) or electromagnetic (type **650E**. **5KE**).

5-2 Electric power supply (case of electromagnetic brakes)

Power supply associated to the brake will be capable of braking regulation (type **AC64-50** associated with **AB8** module).

5-3 Hydraulic power pack (hydraulic brakes SH or TH type)

Hydraulic power pack will be capable of regulating deceleration (for example: **STE 210 Y5** or **CE8L-Y5** with proportional pressure limiter). On the **STE210Y5**. to the main motor supplied by Mains, an alternate motor may optionally be added (24 V. DC) to the main motor supplied by Mains, allowing speed regulation in case of Mains failure (**M2** option).

5-4 AFR5 Control casing (SH and TH brakes)

Initiate speed regulation, controls its logics and faults to keep all electrical components secure.

5-5 Back-up power supply (M2 option)

In case of mains failure, the need for speed regulation may involve installing a back-up power supply - Stromag France or customer supplied.

Fig. 4

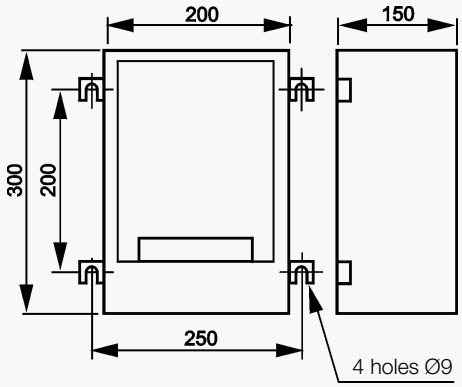


Fig. 5

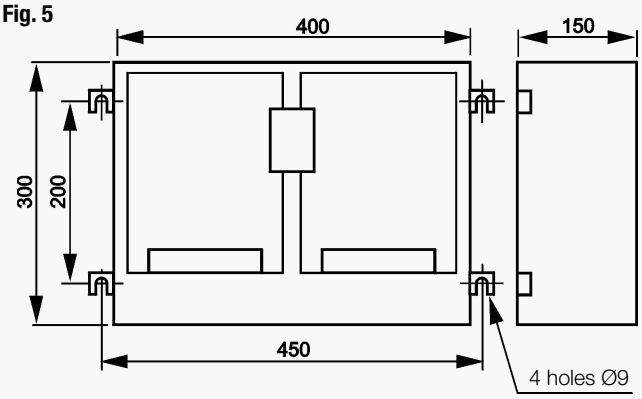


Fig. 6

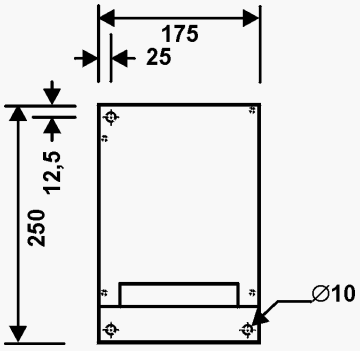
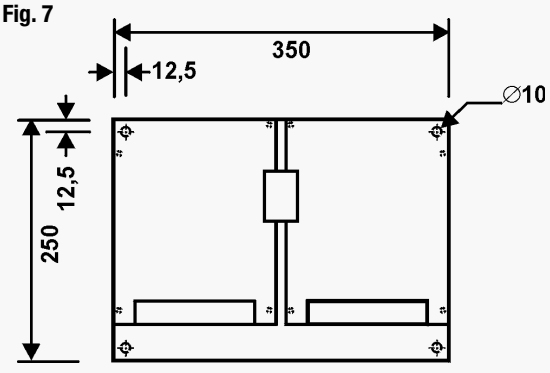


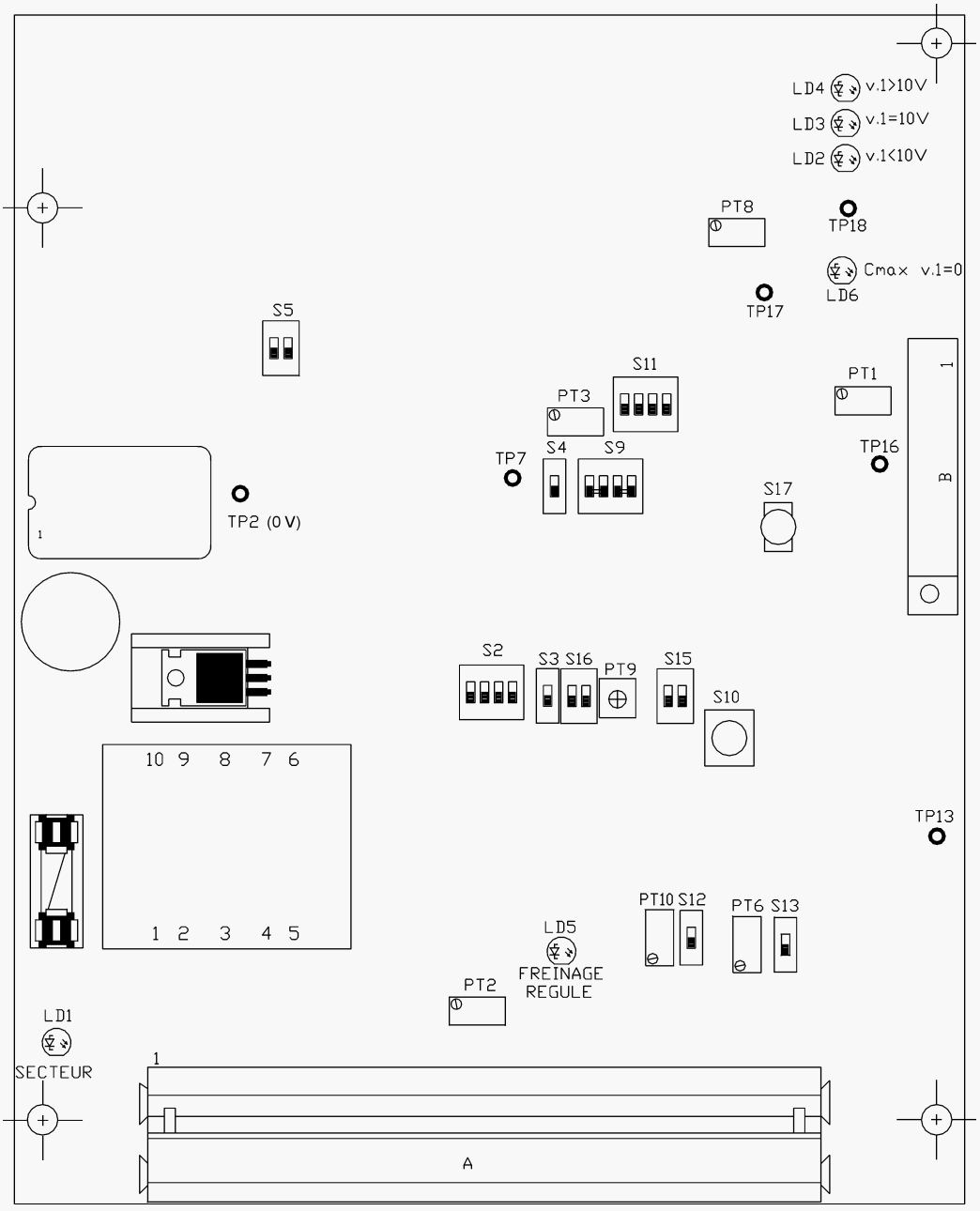
Fig. 7



DISC BRAKE - SPEED REGULATION WITH CRV MODULE

Revision number: M08955-01-B **Revision date: 03.06.2015**

Fig. 8 **SPEED REGULATION BOARD**



Switches list

S2: speed signal frequency range
S3: speed signal selection: voltage or frequency
S4: selection of speed signal amplification
S5: speed signal filtration
S9: regulation amplification = function P
S10: TP16 output manual command to 10V. (black push button)
S11: regulation filtration = fonction I
S12: AB8 or ATP output selection
S13: internal/external lower--ing potentiometer selection
S15: regulation filtration = fonction I
S16: regulation derivative = fonction D
S17: TP16 output manual command to 0.3 V + action on S10 (black pushbutton)

Potentiometers list

PT1: (factory setting)
PT2: speed signal adjustment
PT3: speed signal amplification
PT6: internal potentiometer for scale
PT8: speed is nil setting
PT9: Ajustment of function D
PT10: Maximum value adjustment of the external potentiometer

Safety systems

DISC BRAKE - AFR5 CONTROL ENCLOSURES

Revision number: M10105-01-E **Revision date: 03.06.2015**

AFR5 control enclosures are designed for controlling and monitoring regulated braking systems.

They allow different braking modes :

- Constant deceleration (**CRD®** module)
  ex. : Cableway : Pic du Midi (Bagnères de Bigorre)
- Constant deceleration and speed regulation (**CRD®** module)
  ex. : Passengers elevator : Eiffel Tower in Paris
- Normal operation (AoN) and speed regulation for load lowering (**CRV®** module)
  ex. : Steel industry ladle crane : HKM (Deuschland)

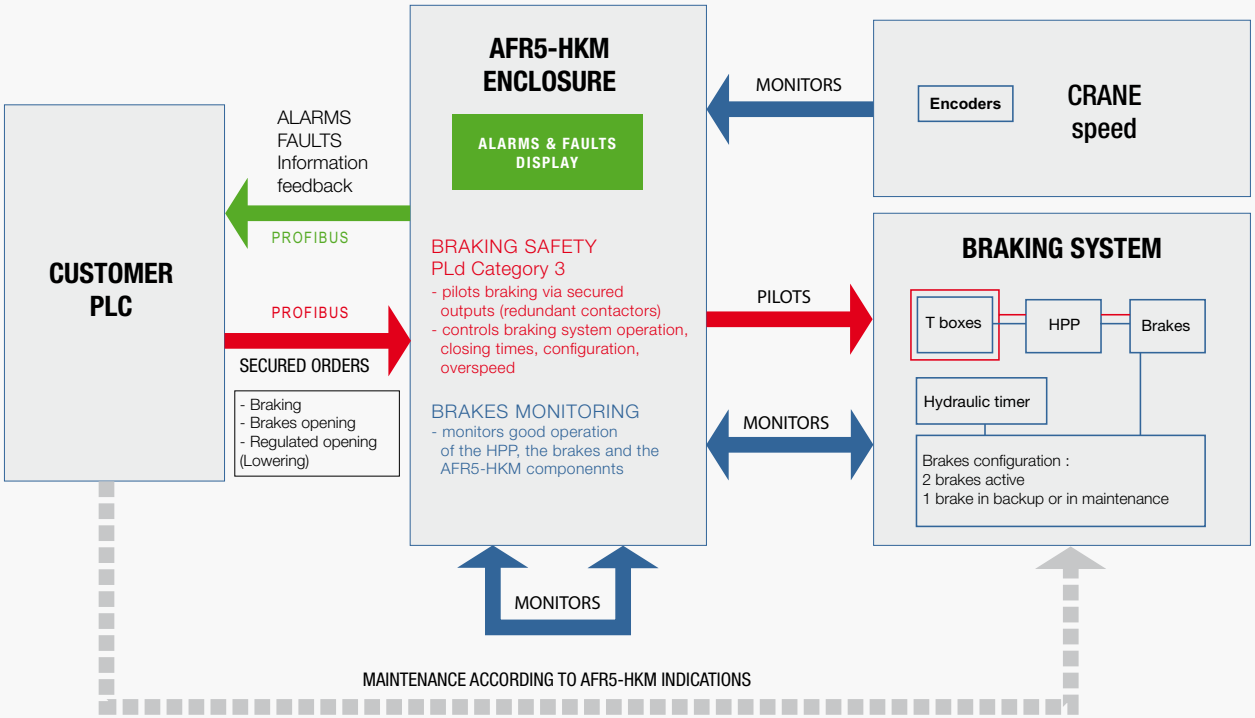
They can be designed to ensure a safety performance level up to PL d to the braking system.

They can includes :

- an Ethernet line towards the customer PLC,
- the braking management in case of power supply loss or regulated braking fault,
- the speed monitoring (**SIDEOS One**),
- the control of standby brakes or/and Hydraulic Power Packs to ensure the operation continuity in case of failure of one part of the braking system,
- a Human Machine Interface or Module.

Here is, for example, the diagram of the AFR5-HKM enclosure :
All or Nothing braking - Load lowering - Performance level PLd - Standby brakes - Data transmission to the customer PLC via ProFibus and secured ProFiBus.

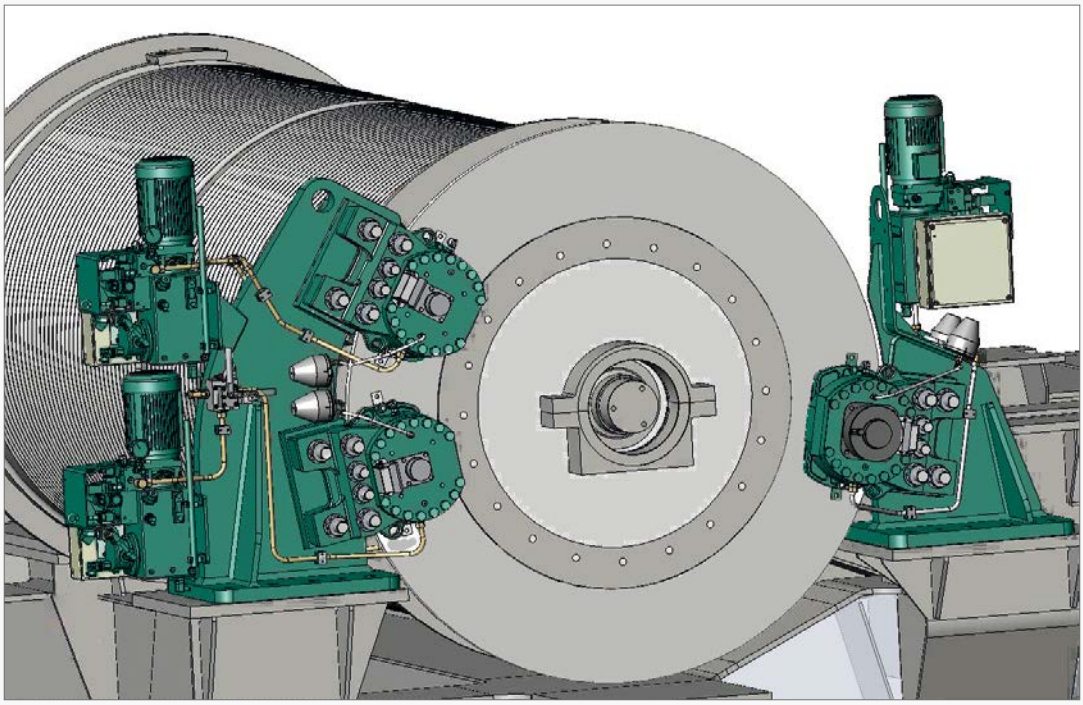
AFR5-HKM enclosure principle

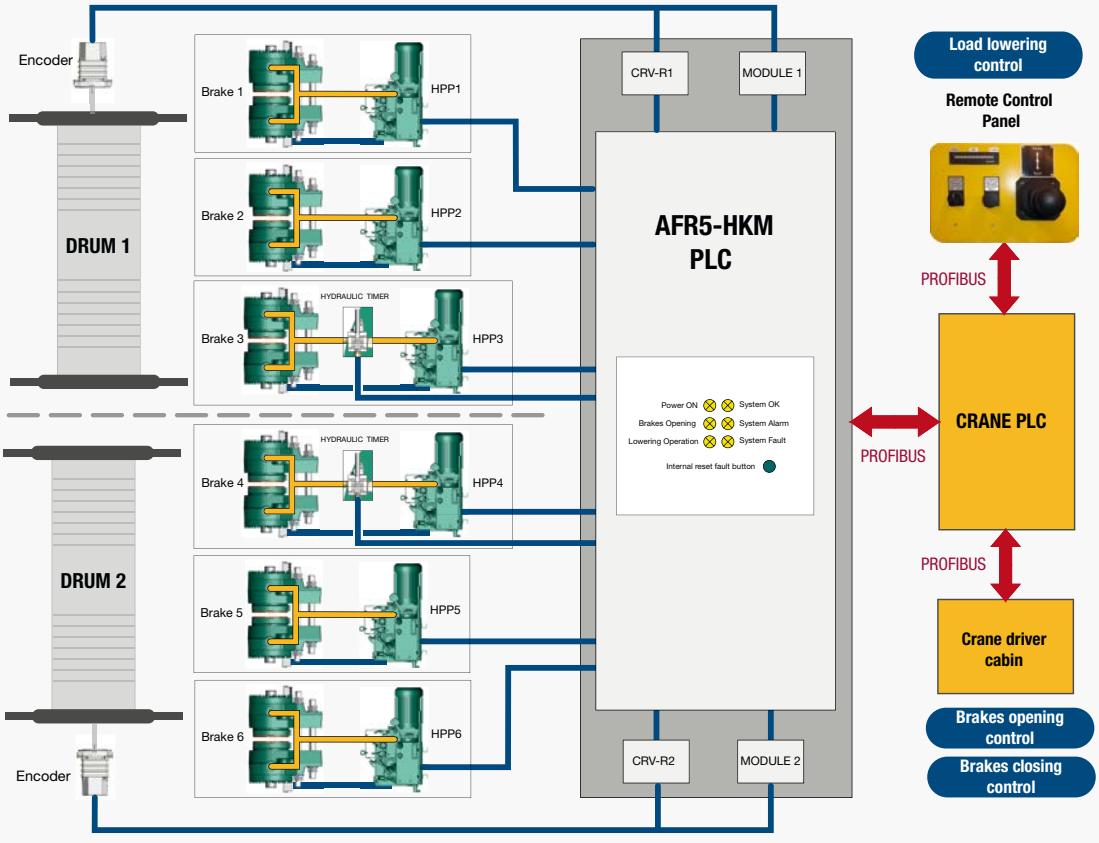


DISC BRAKE - AFR5 CONTROL ENCLOSURES

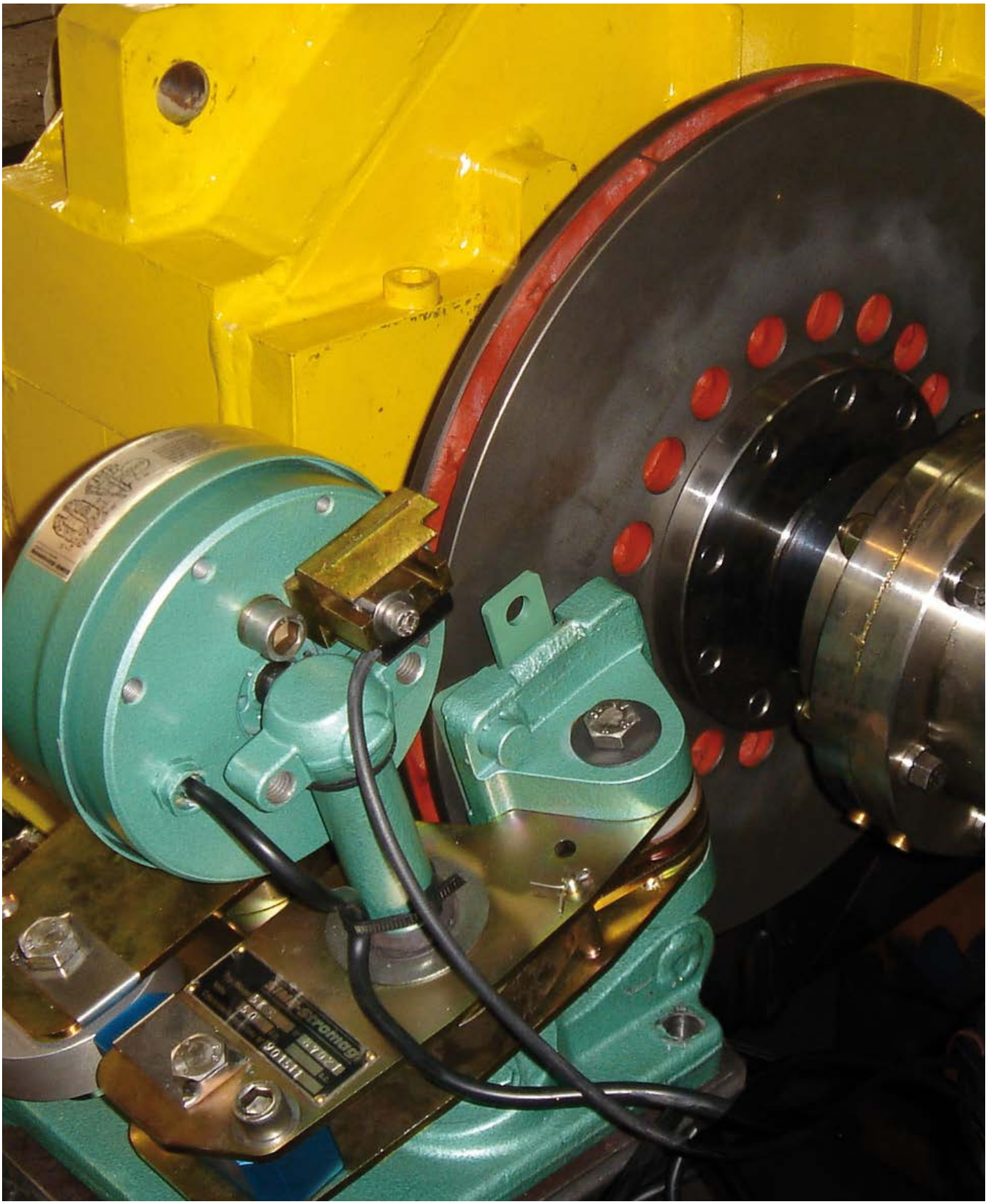
Revision number: M10105-01-E **Revision date: 03.06.2015**

HKM Braking System monitored and controlled by AFR5-HKM enclosure





DISCS & DRUMS



MAIN CHARACTERISTICS

- DISCS ARE AVAILABLE ALONE OR WITH HUBS
- ALL DISCS CAN BE ASSOCIATED WITH THE DIFFERENT TYPES OF FLEXIBLE COUPLINGS
- DESIGNED TO RUN AT PERMANENT TEMPERATURE OF 200°C

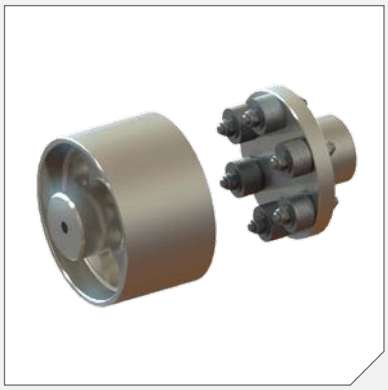
- DRUMS ARE AVAILABLE ALONE OR WITH HUB
- DRUMS ARE ASSOCIATED WITH THE SIME BRAKES TYPES FNS AND SDB STANDARD DIN 15435

MONOBLOC & SOLID DISCS

- for low energy applications.

AUTO-VENTILATED DISCS

- comply with NF S 472 B standard.
- for high frequency and heavy duty braking cycles.
- high capacity of energy dissipation.



DRUMS

- flanged hub fitted with rubber bushes.
- uniform distribution of loads. even in case of misalignement.
- reduction of resonance effects at critical velocity.

Discs thicknesses and diameters

DISCS	Diameter ➔	Ø 175	Ø 220	Ø 260	Ø 315	Ø 355	Ø 395	Ø 445	Ø 495	Ø 550	Ø 625	Ø 705	Ø 795	Ø 995
SOLID	Th. 15 mm	■	■	■	■		■	■	■	■	■			
MONOBLOC	Th. 30 mm		■	■	■									
VENTILATED	Th. 30 mm				■	■	■	■	■	■	■	■	■	
	Th. 42 mm										■		■	■

Drums widths and diameters

DRUMS	Diameter	Ø 160	Ø 200	Ø 250	Ø 315	Ø 400	Ø 500	Ø 630	Ø 710
	Width	60	75	95	118	150	190	236	265

DISC BRAKE - DISCS

Revision number: T08020-01-F **Revision date: 27.07.2017**

DISCS OF BRAKES CHARACTERISTICS

1 - Dimensions

Refer to leaflets "Technical data and dimensions" relevant to the type of disc used.
For a new disc. the tolerance of the thickness dimension is :

±0.15

2 - Materials

Ventilated discs : Cast iron type EN-GJS-400-18-LT ou EN-GJS-350-22

Solid discs : Steel S355 K2

Hubs : Steel 25/34/42CrMo4

3 - Surface quality of the contact zone with lining

(table 1)

Friction surface : Ra 1.6 to 3.2 in all directions
Centring zone : Idem

4 - Balancing

Only bare discs (except monoblocs).

Discs are balanced in "static" quality G6.3 :
- at the speed of 1800 rpm for discs Ø ≤ 550 mm.
- at the maximum sped indicated in the "technical data" leaflets for discs Ø > 550 mm

The correction area is placed between the hub and the little diameter of the friction surface (see table 1).
For balancing with hub. with half-coupling or at high speed. consult us.

Table 1 - Dimensions of the friction surface

EXTERNAL DIAMETER	INNER DIAMETER				
	Thickness 15	Thickness 30			Thickness 42
	Monobloc disc	Monobloc disc	Ventilated disc	Solid disc	Ventilated disc
175	85	---	---	---	---
220	105	90	---	---	---
260	132	136	---	**---**	---
315	130	180	165	130	---
355	---	---	206	155	---
395	157	---	246	246	---
445	207	---	216	185	---
495	300	---	256	256	---
550	350	---	325	314	---
625	430	---	387	387	370
705	---	---	462	462	---
795	---	---	542	542	542
995	---	---	---	600	745

DISC BRAKE - DISCS

Revision number: T08020-01-F **Revision date: 27.07.2017**

5 - Wear limit before the replacement of the disc

DANGER !

In case of an excessive wear of the disc the brake can operate out of its nominal range of setting and consequently lead to a loss of braking force.

The table 2 sums up the discs minimum thicknesses as before their replacement.

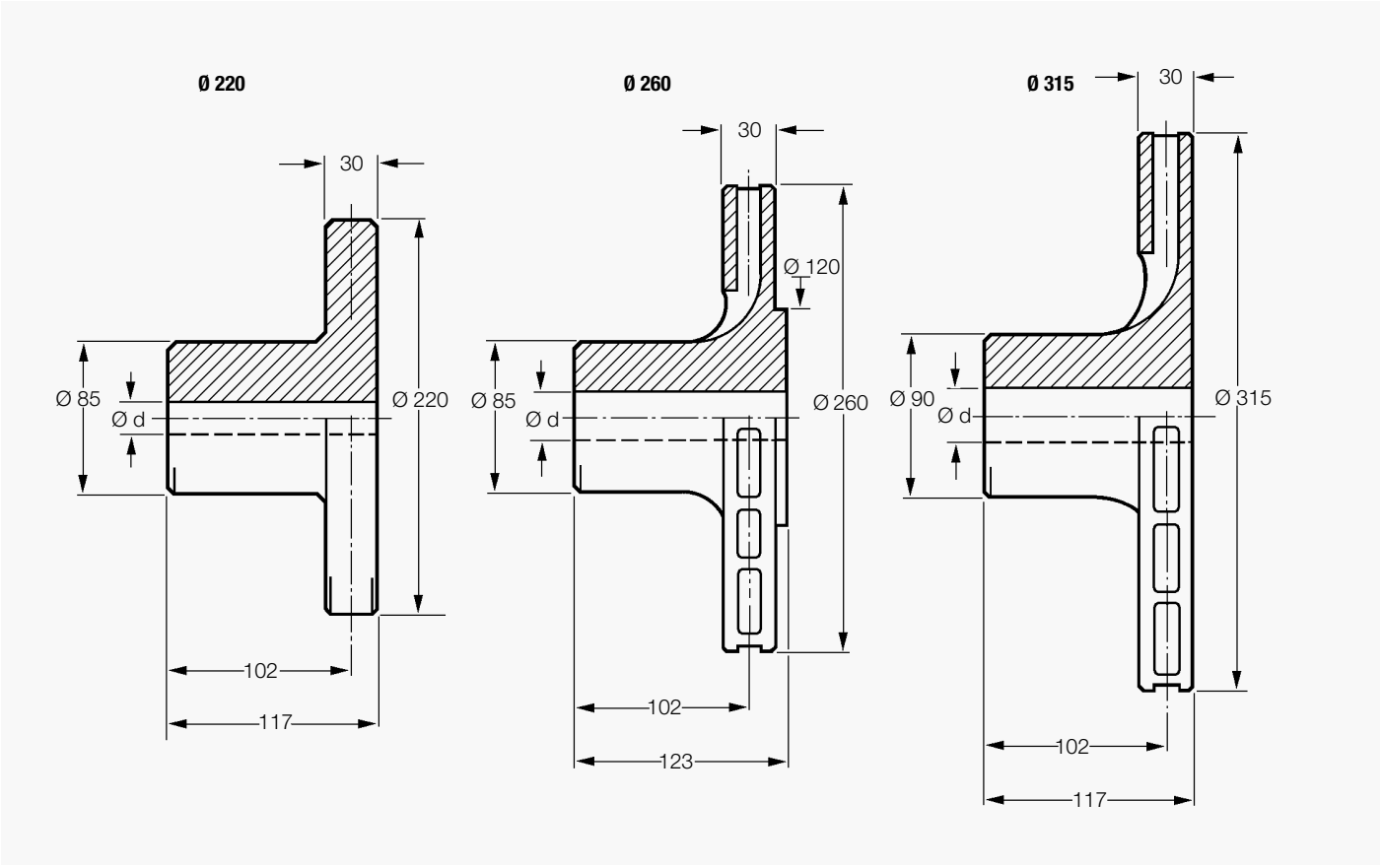
Table 2

Type of disc	Thickness unused (± 0.15)	Minimum thickness before replacement	Minimum web before replacement
	mm	mm	mm
Monobloc discs	30	27	6.5
Ventilated discs	30	27	6
	42	39	with core of 16 : 11 with core of 23 : 8
Solid discs	15	13	
	30	27	
	42	39	

DISC BRAKE - MONOBLOC DISCS

Revision number: T02160-01-A **Revision date: 02.05.2003**

Diametres: 220. 260 and 315 mm.
Thickness: 30 mm.

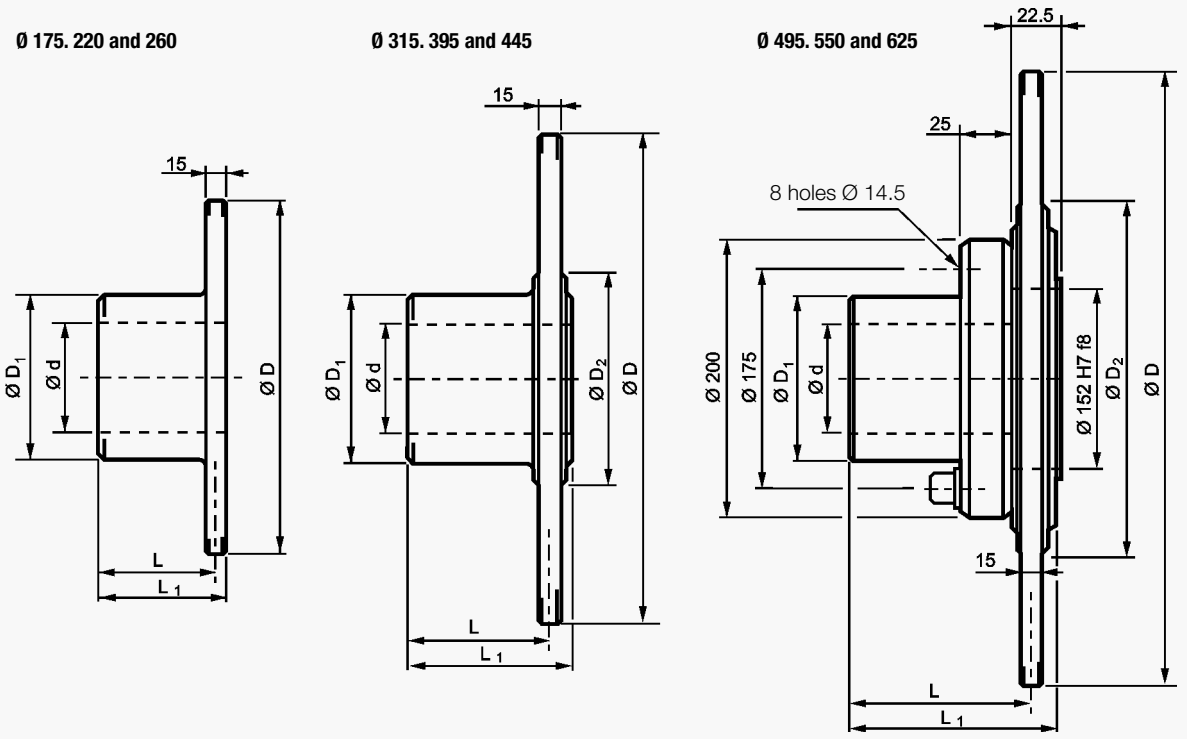


Designation		Ø	220 M 30	260 M 30	315 M30
J		kg/m²	0.055	0.070	0.14
Weight		kg	11.2	10	12
Maximum speed		rpm	4300	3600	3000
d max.	keyed	mm	55	55	60
	shrink fit	mm	55	55	60

DISC BRAKE - SOLID DISCS

Revision number: T02100-01-A **Revision date: 01.03.2001**

Thickness: 15 mm



Designation		175 P 15	220 P 15	260 P 15	315 P 15	395 P 15	445 P 15	495 P 15	550 P 15	625 P 15
J	kg/m²	0.01	0.03	0.06	0.13	0.30	0.48	0.77	1.16	1.93
Weight	kg	4	7.6	13	18	24	28	43	49	59
Maximum speed	tr/mn	5000	4300	3600	3000	2400	2100	1900	1800	1500
D	mm	175	220	260	315	395	445	495	550	625
D_1	mm	75	95	120	120	120	120	150	150	150
D_2	mm	-	-	-	130	200	207	257	312	387
L	mm	55	65	85	102	102	102	135	135	135
L_1	mm	62.5	72.5	92.5	117	117	117	150	150	150
d max. keyed	mm	0-40	0-55	0-75	0-75	0-75	0-75	0-100	0-100	0-100
shrink fit	mm	40	65	80	80	80	80	100	100	100

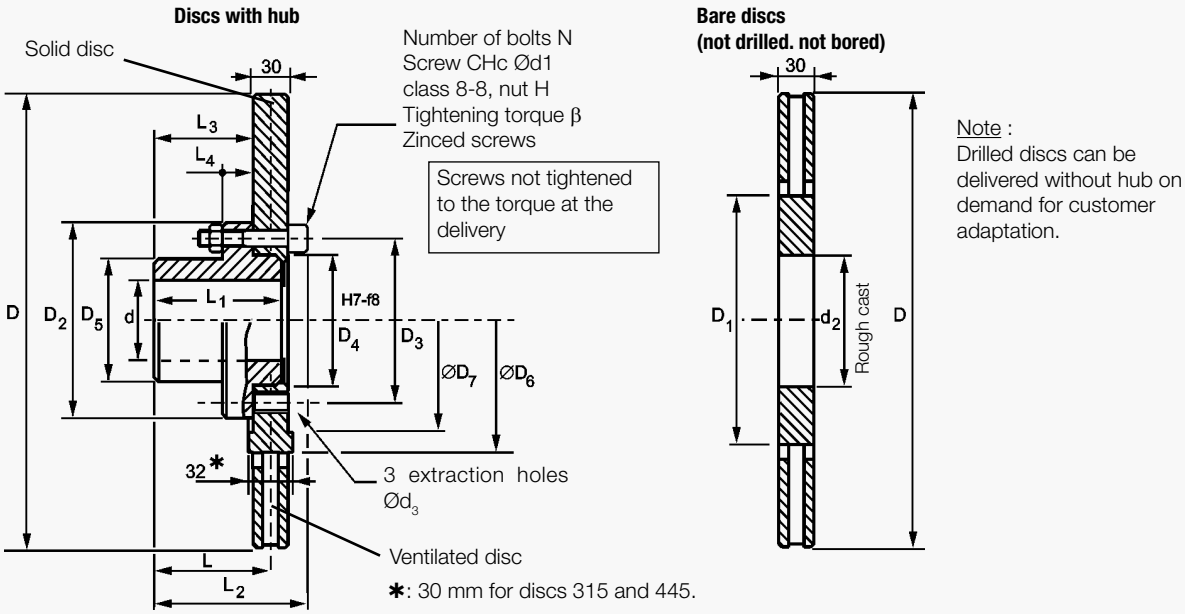
DISC BRAKE - VENTILATED AND SOLID DISCS

Revision number: T02220-01-B **Revision date: 26.11.2010**

Diameter from 315 to 995 mm for solid discs P30
Diameter from 315 to 795 mm for ventilated discs V30
Thickness : 30mm

Material of discs and hubs
Protection of discs
Balancing
see leaflet T08020-01

Note : hubs are not balanced.



Designation		Type	315		355		395		445		495	
			P30	V30	P30	V30	P30	V30	P30	V30	P30	V30
J	Disc + hub	kg.m²	0.234	0.148	0.379	0.243	0.588	0.352	0.94	0.581	1.492	0.968
	Bare disc	kg.m²	0.225	0.139	0.362	0.226	0.56	0.324	0.896	0.537	1.367	0.843
Weight	Disc + hub	kg	21.7	14.7	27.5	18.5	34	23	46.5	31.5	65	47
	Bare disc	kg	17	10	21	12	27	16	34	19	41	23
Maximum speed		rpm	3000		2700		2400		2100		1900	
Maximum braking torque ■		N.m	1720		2987		4594		8798		14321	
D		mm	315		355		395		445		495	
D1		mm	139		172		177		184		230	
D2		mm	125		145		165		175		220	
D3		mm	105		125		140		146		190	
D4		mm	85		105		115		120		160	
D5		mm	80		95		105		110		150	
D6		mm	-	-	-	173	-	246	-	-	-	256
D7		mm	-	-	-	151	-	171	-	-	-	226
L		mm	102		102		102		135		135	
L1		mm	107		107		107		140		140	
L2		mm	127		129		131		166		168	
L3		mm	87		87		87		120		120	
L4		mm	28		28		28		30		38	
Bore maxi. d ✱✱	keyed	mm	50		60		70		75		100	
	shrink fit	mm	50		60		70		75		100	
d1		mm	M10		M12		M14		M16		M18	
d2		mm	76.5		96.5		106.5		111.5		151.5	
d3		mm	M10		M12		M14		M16		M18	
N			9		9		9		12		12	
Tightening torque β		N.m	49		86		135		210		290	

■ Maximum braking torque allowed by the bolts of disc and hub assembling.

STOP **ATTENTION !**
The torque transmissible by shaft and keying must be checked.

✱✱ Tolerance on d and keying on Customer demand.

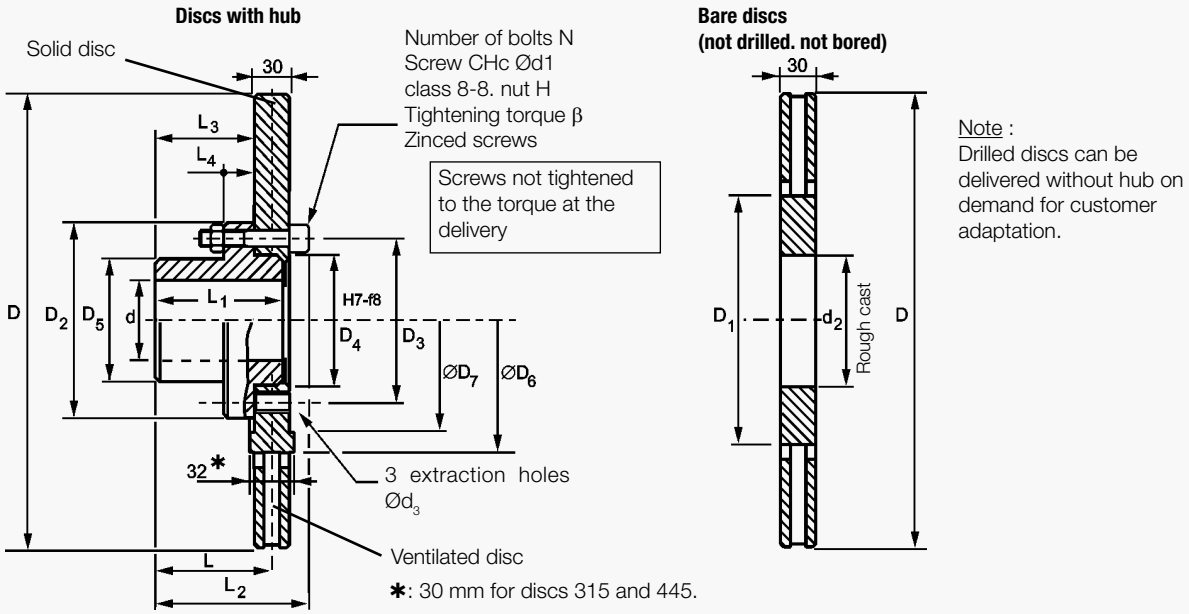
DISC BRAKE - VENTILATED AND SOLID DISCS

Revision number: T02220-01-B **Revision date: 26.11.2010**

Diameter from 315 to 995 mm for solid discs P30
Diameter from 315 to 795 mm for ventilated discs V30
Thickness : 30mm

Material of discs and hubs
Protection of discs
Balancing
see leaflet T08020-01

Note : hubs are not balanced.



Designation		Type	550		625		705		795		995
			P30	V30	P30	V30	P30	V30	P30	V30	P30
J	Disc + hub	kg.m²	2.22	1.28	3.676	2.23	5.99	3.76	9.72	6.14	23.86
	Bare disc	kg.m²	2.09	1.15	3.506	2.06	5.69	3.46	9.23	5.65	22.51
Weight	Disc + hub	kg	76	53	87.5	60.5	105	72	175.5	135.5	243
	Bare disc	kg	52	29	68	41	86	53	110	70	170
Maximum speed		rpm	1800		1500		1300		1200		900
Maximum braking torque ■		N.m	14321		19915		27905		36384		73897
D		mm	550		625		705		795		995
D1		mm	275		343		418		498		-
D2		mm	220		235		265		300		380
D3		mm	190		205		230		260		330
D4		mm	160		170		195		220		280
D5		mm	150		150		180		210		260
D6		mm	-	314	-	387	-	462	-	542	-
D7		mm	-	226	-	246	-	271	-	310	-
L		mm	135		135		135		135		135
L1		mm	140		140		140		140		140
L2		mm	168		170		172		174		174
L3		mm	120		120		120		120		120
L4		mm	38		38		40		40		40
Bore maxi. d **	keyed	mm	100		100		125		140		180
	shrink fit	mm	100		100		125		140		180
d1		mm	M18		M20		M22		M24		M30
d2		mm	151.5		161.5		185.5		211.5		211.5
d3		mm	M18		M20		M22		M24		M30
N			12		12		12		12		12
Tightening torque β		N.m	290		410		550		710		1450

■ Maximum braking torque allowed by the bolts of disc and hub assembling.

STOP **ATTENTION !**
The torque transmissible by shaft and keying must be checked.

** Tolerance on d and keying on Customer demand.

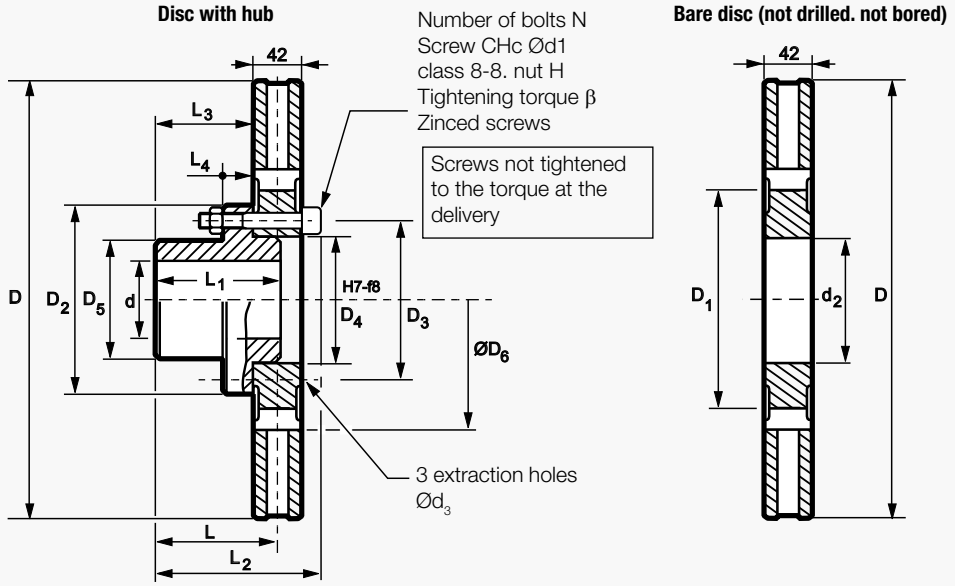
DISC BRAKE - VENTILATED AND SOLID DISCS

Revision number: T02220-01-B **Revision date: 26.11.2010**

Diameter 625 - 795 - 995
Thickness : 42mm

Material of discs and hubs
Protection of discs
Balancing
] see leaflet T08020-01

Note : hubs are not balanced.



Designation		Type	625V42	795V42	995V42
J	Disc + hub	kg.m²	2.92	7.85	21.3
	Bare disc	kg.m²	2,5	6,5	20
Weight	Disc + hub	kg	90	150	250
	Bare disc	kg	45	77	177
Maximum speed		tr/mn	1500	1200	900
Maximul braking torque ■		N.m	36 384	73 897	73 897
D		mm	625	795	995
D1		mm	302	486	694
D2		mm	300	380	380
D3		mm	260	330	330
D4		mm	220	280	280
D5		mm	210	260	260
D6		mm	370	542	745
D7		mm	-	-	-
L		mm	141	141	141
L1		mm	140	140	140
L2		mm	186	186	186
L3		mm	120	120	120
L4		mm	40	40	40
Bore maxi. d **	keyed	mm	40-140	40-180	40-180
	shrink fit	mm	140	180	180
d1		mm	M24	M30	M30
d2		mm	211	211	211
d3		mm	M24	M30	M30
N			12	12	12
Tightening torque β		N.m	710	1450	1450

■ Maximum braking torque allowed by the bolts of disc and hub assembling.

STOP **ATTENTION !**
The torque transmissible by shaft and keying must be checked.

** Tolerance on d and keying on Customer demand.

NOTES

DISC BRAKE - VENTILATED / SOLID DISCS - LONG HUBS

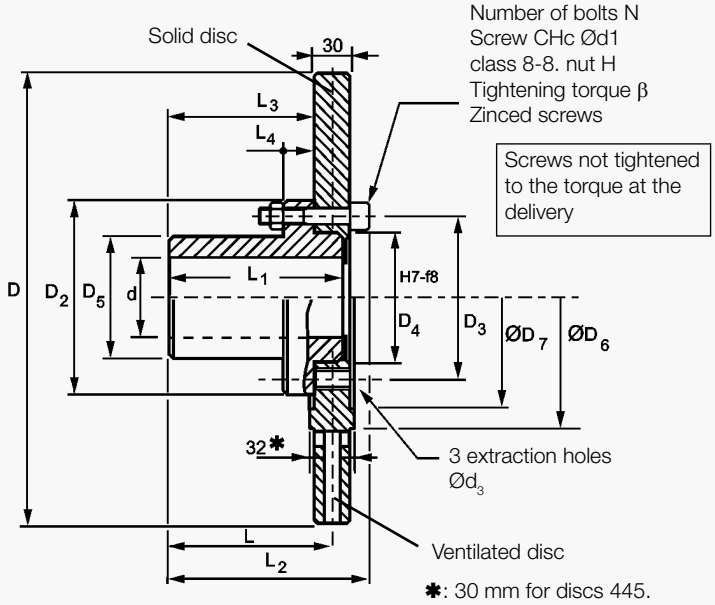
Revision number: T02222-01-D **Revision date: 07.01.2014**

For TDXB and FAV brakes
MLP - diameter from 355 to 995 mm for solid discs P30
MLV - diameter from 355 to 795 mm for ventilated discs V30
Thickness : 30mm

Material of discs and hubs
Protection of discs
Balancing
see leaflet T08020-01

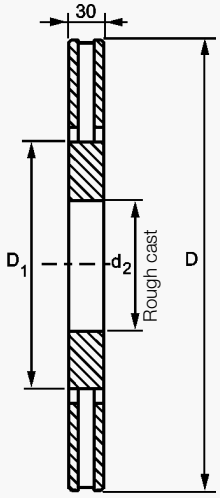
Note : hubs are not balanced.

Discs with hubs



✱: 30 mm for discs 445.

Bare discs (not drilled. not bored)



Note :
Drilled discs can be delivered without hub on demand for customer adaptation.

Designation		Type	315		355		395		445		495		550	
			P30	V30	P30	V30	P30	V30	P30	V30	P30	V30	P30	V30
J	Disc + hub	kg.m²	0.245	0.159	0.382	0.246	0.593	0.357	0.946	0.587	1.515	0.991	2.243	1.303
	Bare disc	kg.m²	0.225	0.139	0.362	0.226	0.56	0.324	0.896	0.537	1.367	0.843	2.09	1.15
Weight	Disc + hub	kg	22.5	15.5	30.5	21.5	37.6	26.6	51	36	73	55	84	61
	Bare disc	kg	17	10	21	12	27	16	34	19	41	23	52	29
Maximum speed		rpm	3000		2700		2400		2100		1900		1800	
Maximum braking torque ■		N.m	1720		2987		4594		8798		14321		14321	
D		mm	315		355		395		445		495		550	
D1		mm	139		172		177		184		230		275	
D2		mm	125		145		165		175		220		220	
D3		mm	105		125		140		146		190		190	
D4		mm	85		105		115		120		160		160	
D5		mm	80		95		105		110		150		150	
D6		mm	-	-	-	173	-	246	-	-	-	256	-	314
D7		mm	-	-	-	151	-	171	-	-	-	226	-	226
L		mm	135		155		155		195		195		195	
L1		mm	140		160		160		200		200		200	
L2		mm	160		182		182		226		228		228	
L3		mm	120		140		140		180		180		180	
L4		mm	28		28		28		30		38		38	
Bore maximum d keyed ✱✱		mm	50		60		70		75		100		100	
d1		mm	M10		M12		M14		M16		M18		M18	
d2		mm	76.5		96.5		106.5		111.5		151.5		151.5	
d3		mm	M10		M12		M14		M16		M18		M18	
N			9		9		9		12		12		12	
Tightening torque α		N.m	49		86		135		210		290		290	

■ Maximum braking torque allowed by the bolts of disc and hub assembling.

STOP **ATTENTION !**
The torque transmissible by shaft and keying must be checked.

✱✱ Tolerance on d and keying on Customer demand.

DISC BRAKE - VENTILATED / SOLID DISCS - LONG HUBS

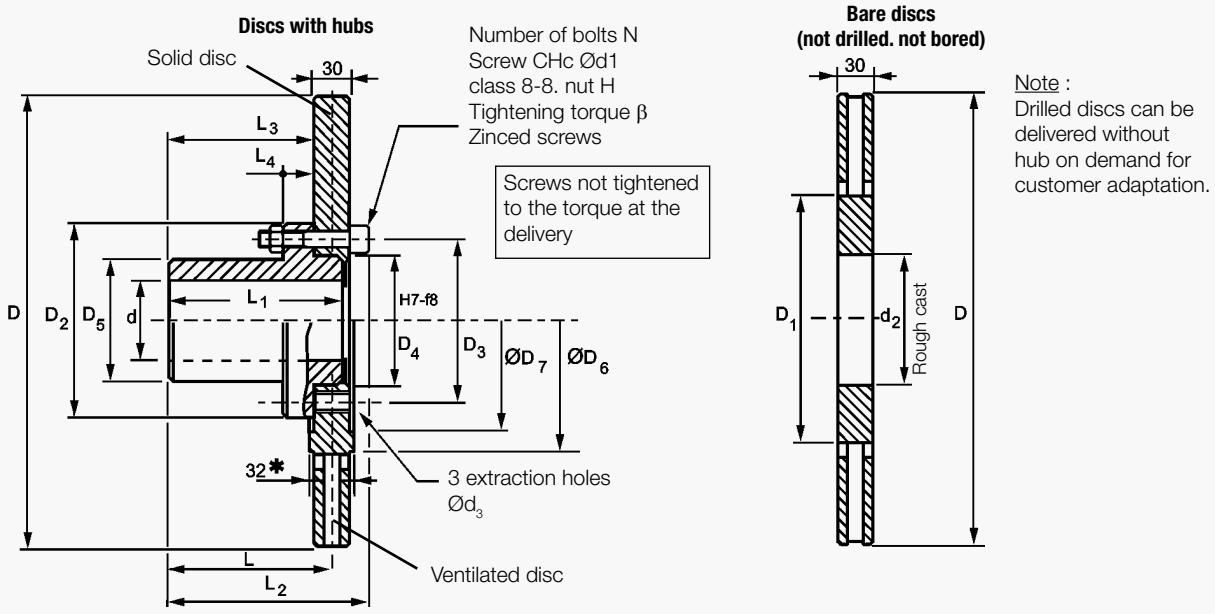
Revision number: T02222-01-D **Revision date: 07.01.2014**

For TDXB and FAV brakes
MLP - diameter from 355 to 995 mm for solid discs P30
MLV - diameter from 355 to 795 mm for ventilated discs V30
Thickness : 30mm

The discs 625-2 and 705-2 are with the same hub and fixing than 795.

Material of discs and hubs
Protection of discs
Balancing
→ see leaflet T08020-01

Note : hubs are not balanced.



✱: 30 mm for discs 445.

Designation		Type	625		625-2		705		705-2		795		995
			P30	V30	P30	V30	P30	V30	P30	V30	P30	V30	P30
J	Disc + hub	kg.m²	3.699	2.253	4.02	2.574	6.038	3.808	6.13	3.9	9.802	6.222	23.9
	Bare disc	kg.m²	3.506	2.06	3.45	2.004	5.69	3.46	5.62	3.39	9.23	5.65	22.5
Weight	Disc + hub	kg	96	69	116.5	89.5	117	84	136	103	191	151	271
	Bare disc	kg	68	41	63	36	86	53	82.5	49.5	110	70	170
Maximum speed		rpm	1500		1500		1300		1300		1200		900
Maximum braking torque ■		N.m	19915		36384		27905		36384		36384		73897
D		mm	625		625		705		705		795		995
D1		mm	343		343		418		418		498		-
D2		mm	235		300		265		300		300		380
D3		mm	205		260		230		260		260		330
D4		mm	170		220		195		220		220		280
D5		mm	150		210		180		210		210		260
D6		mm	-	387	-	387	-	462	-	462	-	542	-
D7		mm	-	246	-	305	-	271	-	440	-	310	-
L		mm	195		195		195		195		195		235
L1		mm	200		200		200		200		200		244
L2		mm	230		234		232		234		234		280
L3		mm	180		180		180		180		180		220
L4		mm	38		40		40		40		40		50
Bore maximum d keyed ✱✱		mm	100		140		125		140		140		180
d1		mm	M20		M24		M22		M24		M24		M30
d2		mm	161.5		161.5		185.5		185.5		211.5		211.5
d3		mm	M20		M24		M22		M24		M24		M30
N			12		12		12		12		12		12
Tightening torque β		N.m	410		710		550		710		710		1450

■ Maximum braking torque allowed by the bolts of disc and hub assembling.

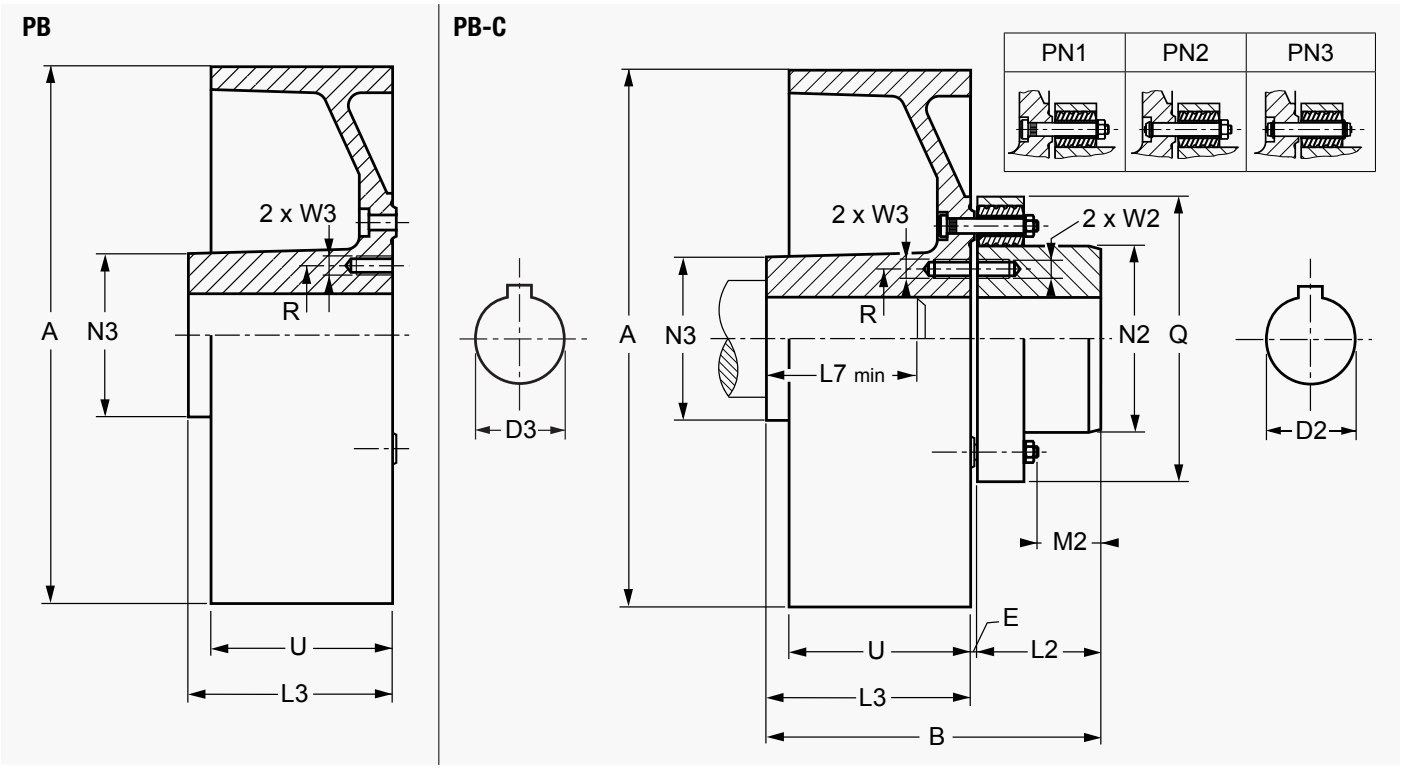
STOP **ATTENTION !**
The torque transmissible by shaft and keying must be checked.

✱✱ Tolerance on d and keying on Customer demand.

DRUM BRAKE - DRUMS SERIE PB & PB-C

Revision number: T01350-01-B **Revision date: 31.05.2016**

Drums material :
ØA ≤ 400 mm : EN-GJL-250
ØA > 400 mm : EN-GJS-500-7



Designation		PB or PB-C...	200	250	315	400	500	630	710
J ⊡	coupling + drum	kgm²	0.062	0.156	0.426	1.310	4.02	10.82	21.45
	drum alone	kgm²	0.052	0.137	0.393	1.229	3.718	10.518	19.958
Weight ⊡	coupling + drum	kg	16.1	27.7	43.5	83	160	235	415
	drum alone	kg	12.5	22.6	35.9	70.1	130.5	205.5	333.4
Nominal torque		Nm	400	630	1000	2500	6100	6100	21000
Rotation speed nmax. ✱		rpm	3400	2750	2200	1700	2200	1800	1500
Dimensions in mm	**A**		200	250	315	400	500	630	710
	B		183.5	223.5	248.5	299	404	429	515.5
	E		3.5	3.5	3.5	4	4	4	5.5
	L2		60	75	90	110	150	150	220
	L3		120	145	155	185	250	275	290
	L7 min		72	87	93	110	150	165	175
	M2		21.5	36.5	51.5	51	91	91	148
	N2		95	116	127	160	202	202	290
	N3		95	116	127	160	202	202	195
	Q		**155**	**175**	**200**	**245**	**315**	**315**	**460**
	U		75	95	118	150	190	236	265
	R2		80	95	105	135	165	165	232
	R3		80	95	105	135	165	165	165
	W2		M8	M10	M10	M12	M12	M12	M20
	W3		M10	M12	M12	M16	M20	M20	M20
Bores in mm	**D2**	min / max ✪	19/60	28/75	35/80	35/100	100/125	100/125	140/200
	D3	min / max ✪	19/60	28/75	28/80	35/100	45/125	55/125	55/125
Pins	Number / size		6 /PN1	8 /PN1	10 /PN1	9 /PN2	16/PN2	16/PN2	18/PN3

Without specification on the order, couplings are delivered without boring.

✱ For speeds > nmax.. consult us.

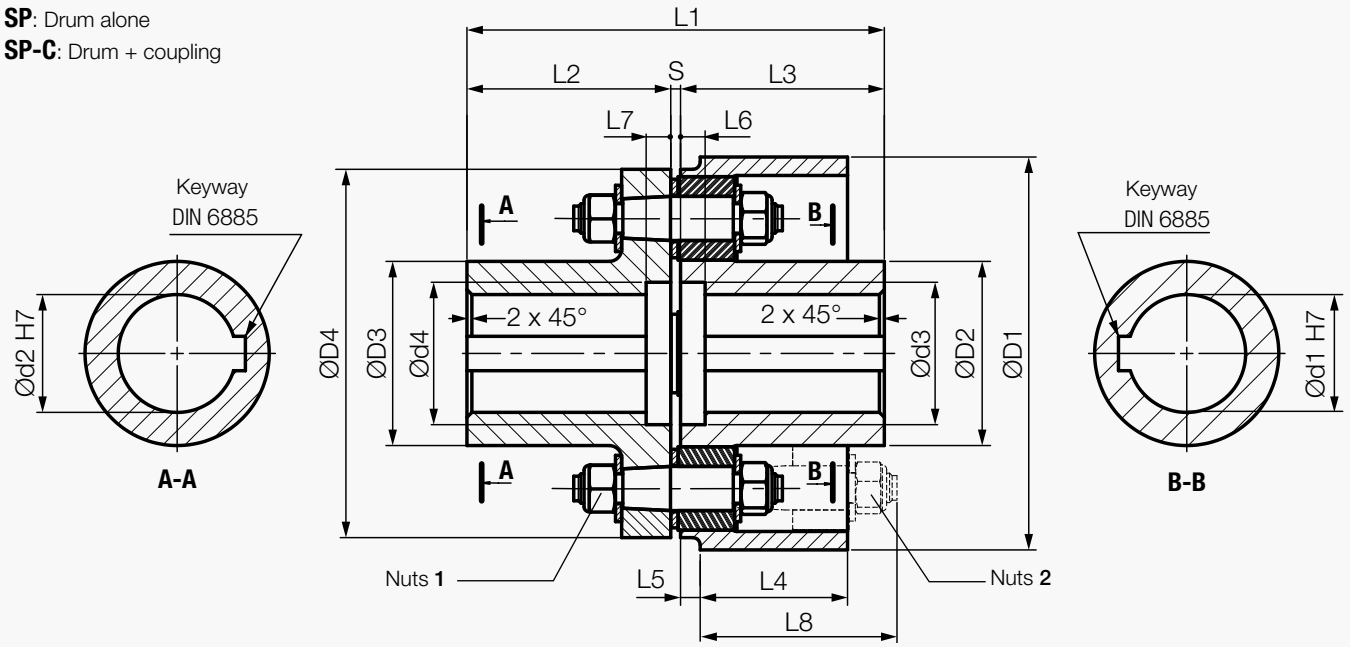
⊡ For maximum bore.

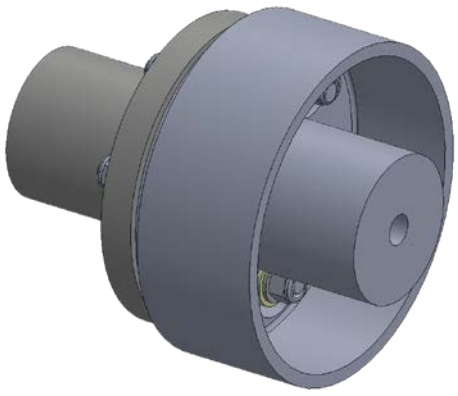
✪ Maximum bores for keyways according to ISO R773.

DRUM BRAKE - DRUMS SERIE SP & SP-C

Revision number: T10145-01-B **Revision date: 24.11.2017**

SP: Drum alone
SP-C: Drum + coupling

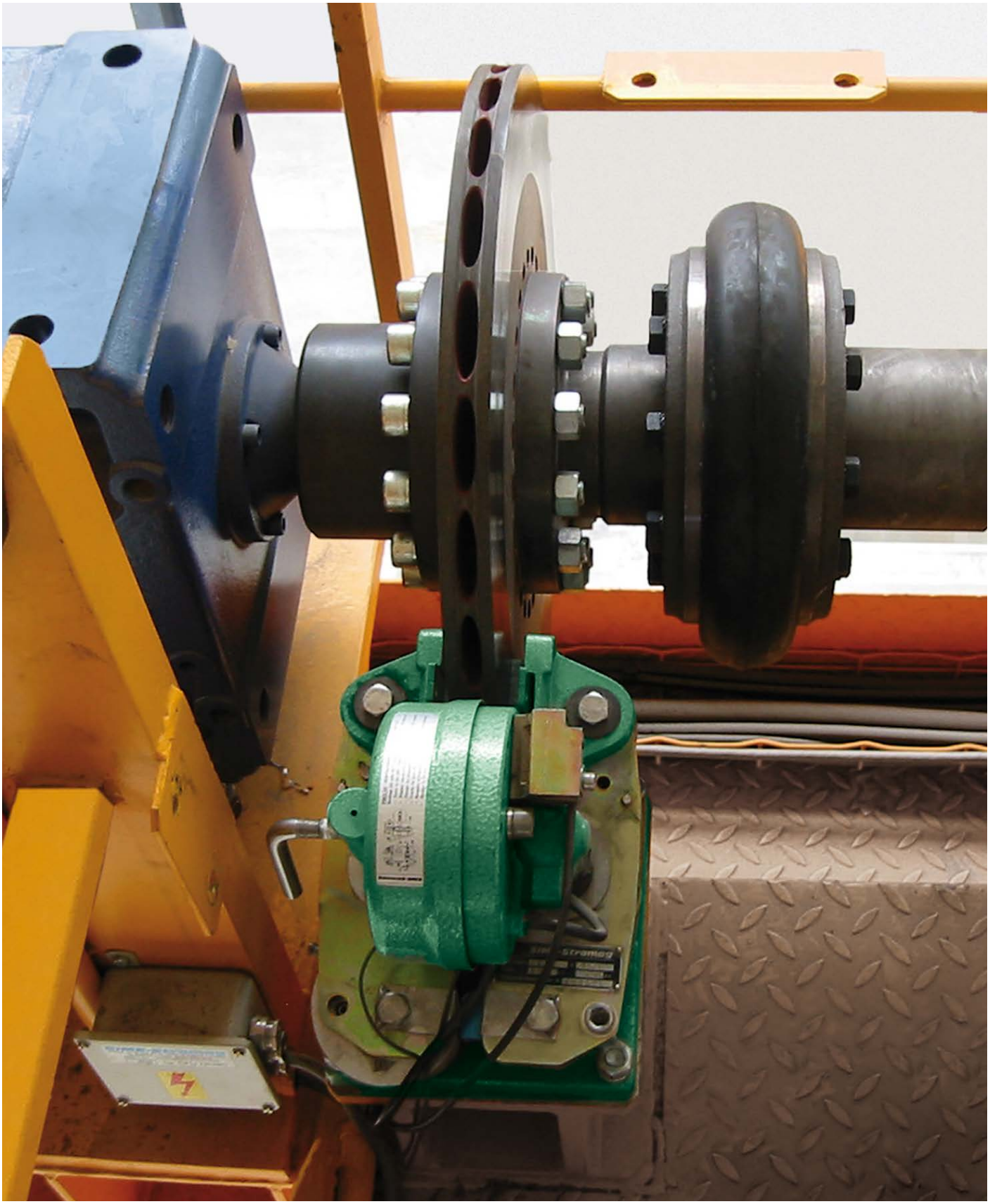




Designation	SP... or SP-C...		160	200	250	315	400	500
Weight ∗		kg	10.8	20.2	36	63	112	189
Inertia ∗		kgm²	0,026	0,067	0,195	0,54	1,850	4,900
T_{CN}		Nm	270	550	1000	2000	3500	6500
$T_{Cmax.}$		Nm	540	1100	2000	4000	7000	13000
Speed max.		rpm	4800	3900	3200	2500	2000	1600
Dimensions in mm	**ØD1**		160	200	250	315	400	500
	ØD2		75	90	110	145	170	200
	ØD3		75	90	110	145	170	200
	ØD4		150	185	225	280	335	410
	Ød1	min.	–	25	30	40	50	60
		max.	48	55	65	90	100	120
	Ød2	min.	–	25	30	40	50	60
		max.	48	55	65	90	100	120
	Ød3		58	66	83	104	120	140
	Ød4		58	66	83	104	120	140
	L1		170	224	294	311	355	386
	L2		83	110	145	153	175	190
	L3		83	110	145	153	175	190
	L4		60	75	95	118	150	190
	L5		8	10	10	15	0	0
	L6		10	15	17	23	30	30
	L7		10	15	17	23	30	30
	L8		150	165	195	220	250	290
	S		4	4	4	5	5	6
Tightening Torque	Nuts **1**	N.m	15	15	40	40	240	240
	Nuts **2**	N.m	15	15	40	40	240	240

∗ *drum + coupling*

DISC COUPLINGS



Disc couplings

MAIN CHARACTERISTICS

- IN ASSOCIATION WITH OUR MONOBLOC, SOLID AND VENTILATED DISCS
- 3 TYPES OF DISC COUPLINGS FOR A COMPLETE BRAKING SYSTEM SOLUTION

OPTIONS

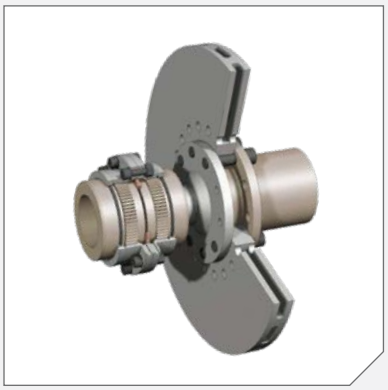
- LONG HUB ON MOTOR SIDE : SDKL .. SVKL .. SMLDF
- LONG HUB ON GEAR BOX SIDE : SDF-ML
- LONG HUBS ON MOTOR AND GEAR BOX SIDES : SDKL/SVKL-ML .. SMLDF-ML

PERIFLEX

- Highly-flexible rubber-fabric couplings
- Precise workmanship
- Monobloc. solid and ventilated discs : th.15 - 30 mm. Ø 175 - 795
- Torque range: 50 to 15.000 Nm
- Ambient temperature: -50°C to +80°C

Benefits include

- Compensate extremely large offsets in every direction
- Allow radial mounting and dismantling without moving the machines
- Make torque transmission free from backlash
- Absorb torque peaks and damp occuring vibrations

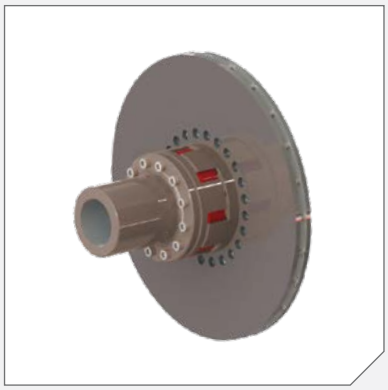


SDF

- All steel coupling
- Two flanged sleeves with internal spur gear teeth
- Solid and ventilated discs : th. 30 mm. Ø 315 - 995
- Torque range: 1.500 to 36.700 Nm
- High misalignements = 1°30' per gear
- Ambient temperature: -20°C to +100°C

Benefits include

- Disc mounting and dismounting without moving the machines back
- Closely controlled quality of the gearing profile for minimum end float and best alignment



E - SVK - SDK

- Highly-Flexible coupling
- Fitted with a cam ring and a flexible element (shore A or shore D).
- Discs : E: th.15 - 30 mm. Ø 175 - 625
  SVK/SDK: th. 30 mm. Ø 315 - 995
- Torque range:
  - E: 200 to 3.100 Nm
  - SVK/SDK: 630 to 40.050 Nm
- Ambient temperatures:
  - E: -40°C to +120°C
  - SVK/SDK: -30°C to +80°C

Benefits include

- Easy assembly
- Easy dismantling of the complete coupling and cam Ring
- Damping of torsional vibrations
- Noise reduction and shock load accomodation
- No lubrification requirements

Disc couplings

DISC BRAKE - FLEXIBLE DISC COUPLING PNF-PNQ-PND

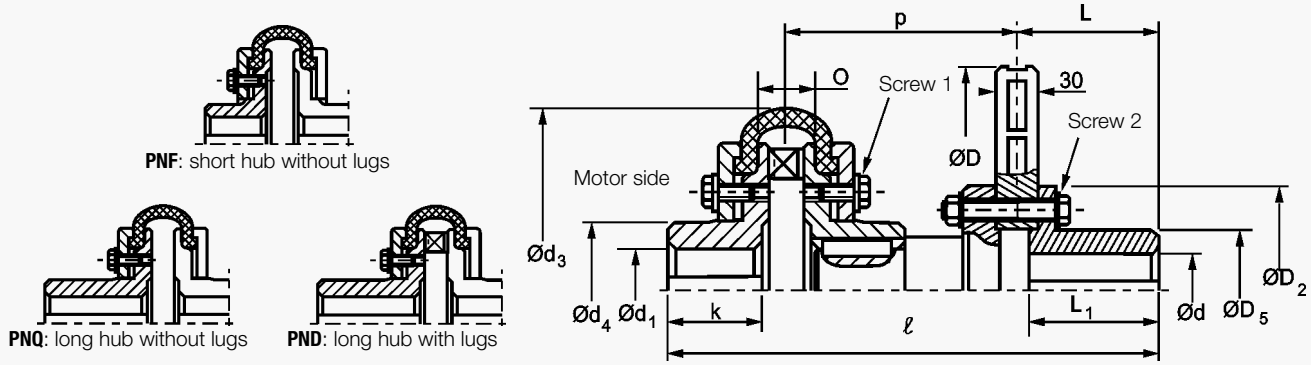
Revision number: T02805-01-D **Revision date: 15.05.2012**

Flexible coupling **PNF. PNQ** and **PND** series
Discs thickness: 30mm
Rubber element and disc can be both removed without moving motor or gearbox back.

Use:
PNF and PNQ for horizontal motions only.
PND with lugs. compulsory for hoisting.

Option:
Solid Disc

Screws 1 and 2 not tightened to the torque at the delivery



Designation		Disc	315V30		355V30			395V30			445V30				495V30					
		Coupling PNF. PNQ and PND	25	50	25	50	100	50	100	200	100-1	100-2	200-1	200-2	100-1	100-2	200-1	200-2	300-1	300-2
Assembly	Nominal torque Cn	N.m	300	600	300	600	1200	600	1200	2500	1200	1200	2500	2500	1200	1200	2500	2500	4000	4000
	Coupling Maximum torque Cmax	N.m	900	1800	900	1800	3600	1800	3600	7500	3600	3600	7500	7500	3600	3600	7500	7500	12000	12000
	For use with calipers type		650-5K	645-5K	650	5K 650	645		645-5K		645-5K	4CA2	645-5K	4CA2	645-5K	4CA2	645-5K	4CA2	645-5K	4CA2
	Maximum speed	tr/mn	3000	2500	2700	2500	2500	2400	2400	2000	2100	2100	2000	2000	1900	1900	1900	1900	1900	1900
	J:																			
	PNF	kgm²	0.180	0.240	0.283	0.333	0.456	0.370	0.589	1.08	0.776	0.656	1.475	1.545	1.266	1.272	1.655	1.68	1.60	1.62
	PNQ	kgm²	0.182	0.252	0.286	0.344	0.483	0.382	0.616	1.116	0.803	0.683	1.516	1.586	1.293	1.299	1.696	1.721	1.64	1.65
	PND	kgm²	0.187	0.267	0.291	0.360	0.512	0.397	0.645	1.140	0.832	0.71	1.541	1.61	1.322	1.328	1.721	1.746	1.66	1.67
	Weight:																			
	PNF	kg	29.3	35.5	34.8	43	57	45.5	63	93	74	71	94	96	95	98.5	118	128	128.5	131
	PNQ	kg	31.3	38.5	36.8	46	67	48.5	73	103	84	81	104	106	105	108.5	128	138.5	140	142.5
	PND	kg	32.4	40.7	37.9	48.2	68.7	50.7	74.7	107.5	85.7	82.7	108.5	110.5	106.7	110	132.5	142.5	141.5	144
	ℓ																			
	PNF	mm	315	350	315	340	380	340	380	402	413	515	435	568	400	443	435	525	562	582
	PNQ. PND	mm	366	393	366	383	445	383	445	467	478	580	500	633	465	508	500	590	622	642
Disc	D	mm	315		355			395			445				495					
	D_2	mm	125		145			165			175				220					
	D_5	mm	80		95			105			110				150					
	L	mm	102		102			102			135				135					
	L_1	mm	107		107			107			140				140					
	d max. keyed	mm	50		60			70			70				100					
	d max. for shrink fit	mm	50		60			70			70				100					
Coupling	d_3	mm	210	263	210	263	310	263	310	370	310	310	370	370	310	310	370	370	402	402
	d_4	mm	80	95	80	95	125	95	125	150	125	125	150	150	125	125	150	150	160	160
	k PNF	mm	59	67	59	67	75	67	75	85	75	75	85	85	75	75	85	85	95	95
	k PNQ. PND	mm	110	110	110	110	140	110	140	150	140	140	150	150	140	140	150	150	155	155
	O	mm	38	44	38	44	42	44	42	48	42	42	46	46	42	42	46	46	50	50
	p	mm	138	161	138	151	178	151	178	192.5	178	280	192.5	325.5	165	208	192.5	282.5	305	325
	d_1 max. keyed PNF	mm	55	65	55	65	90	65	90	100	90	90	100	100	90	90	100	100	110	110
	d_1 max. keyed PNQ	mm	55	65	55	65	90	65	90	100	90	90	100	100	90	90	100	100	110	110
	d_1 max. keyed PND	mm	55	65	55	65	85	65	85	100	85	85	100	100	85	85	100	100	110	110
	d_1 max. for shrink fit	mm	50	60	50	60	80	60	80	90	80	80	90	90	80	80	90	90	100	100
Tightening torque on screw 1		N.m	20	25	20	25	45	25	45	55	45	45	55	55	45	45	55	55	60	60
Tightening torque on screw 2		N.m	49	49	86	86	86	135	135	135	210	210	210	210	290	290	290	290	290	290
Maximum permissible torque Ct and working conditions (ambient temperature ≤ 40°C)			>300 start/h : Ct=Cn/2.5 ≤300 start/h à 120 start/h : Ct=Cn/2 ≤120 start/h : Ct=Cn/1.5								NOTA : For shrink fit, k and ℓ are modified (consult us) At the delivery, screws 1 and 2 are not tightened to the torque In each case : engine start coupling Cd<Cmax									

DISC BRAKE - FLEXIBLE DISC COUPLING PNF-PNQ-PND

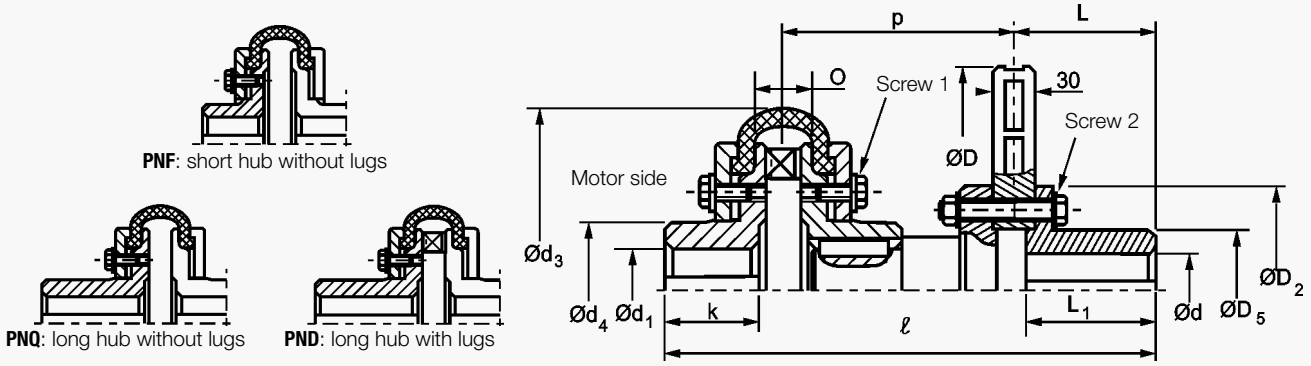
Revision number: T02805-01-D **Revision date: 15.05.2012**

Flexible coupling **PNF. PNQ** and **PND** series
Discs thickness: 30mm
Rubber element and disc can be both removed without moving motor or gearbox back.

Use:
PNF and PNQ for horizontal motions only.
PND with lugs. compulsory for hoisting.

Option:
Solid Disc

Screws 1 and 2 not tightened to the torque at the delivery



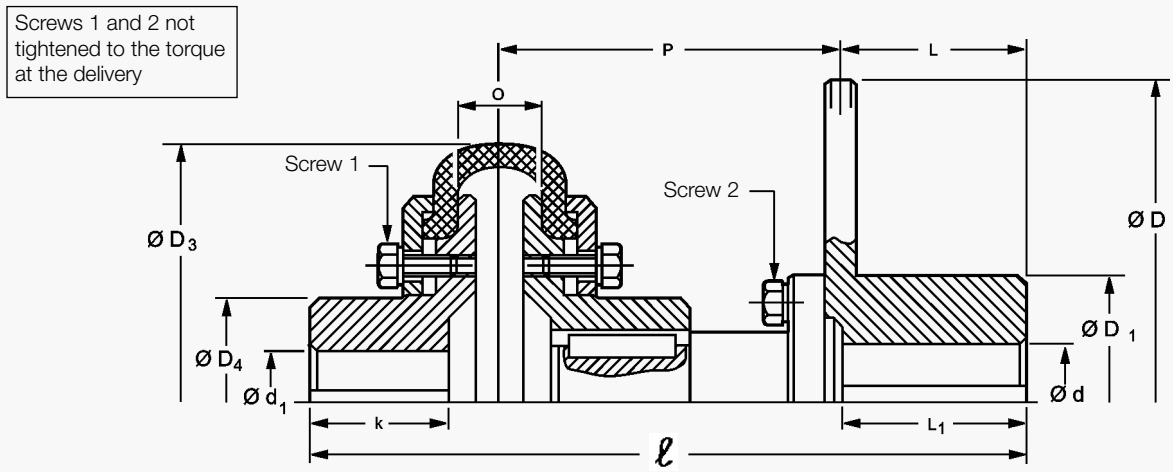
Designation			Disc	550 V 30						625 V 30			705 V 30		795 V 30		
	Coupling PNF. PNQ and PND			100	200-1	200-2	300-1	300-2	300-3	200	300	400	400	800	400	800	1500
Assembly	Coupling Nominal torque	Cn	N.m	1200	2500	2500	4000	4000	4000	2500	4000	6000	6000	10000	6000	10000	15000
	Coupling Maximum torque	Cmax	N.m	3600	7500	7500	12000	12000	12000	7500	12000	18000	18000	30000	18000	30000	45000
	For use with calipers type			645 5K	645 5K	4CA2	645 5K	4CA2	3CA2	4CA2	3CA2		3CA2		3CA2		
	Maximum speed		tr/mn	1800	1800	1800	1800	1800	1800	1500	1500	1500	1300	1250	1200	1200	900
	J:																
	PNF		kgm²	1.68	2.03	2.04	1.95	1.97	1.99	2.49	3.34	4.15	5.43	7.39	7.85	9.82	17.92
	PNQ		kgm²	1.70	2.07	2.08	1.98	2.00	2.03	2.53	3.38	4.25	5.52	7.54	7.95	9.96	18.17
	PND		kgm²	1.73	2.10	2.11	2.00	2.03	2.06	2.56	3.40	4.33	5.61	7.81	8.05	10.24	18.42
	Weight:																
	PNF		kg	101	124	126	123	131.5	134.5	137	151	182	191	258	207	283	587
	PNQ		kg	111	134.5	136.5	134	142.5	145.5	147.5	162.5	202	211	281	227	305.5	623.5
	PND		kg	112.7	138.5	140.5	136	144.5	148.5	151.5	164	206	215	297.5	231	322.5	641.5
	ℓ																
	PNF		mm	400	435	450	470	535	580	450	470	575	495	635	495	635	810
	PNQ. PND		mm	465	500	515	530	595	640	515	530	655	575	715	575	715	905
Disc	D		mm	550						625			705		795		
	D_2		mm	220						235			265		300		
	D_5		mm	150						150			180		210		
	L		mm	135						135			135		135		
	L_1		mm	140						140			140		140		
	d max. keyed		mm	100						100			120		130		
	d max. for shrink fit		mm	100						100			120		130		
Coupling	d_3		mm	310	370	370	402	402	402	370	402	450	450	550	450	550	700
	d_4		mm	125	150	150	160	160	160	150	160	180	180	210	180	210	270
	k PNF		mm	75	85	85	95	95	95	85	95	110	110	130	110	130	160
	k PNQ. PND		mm	140	150	150	155	155	155	150	155	190	190	210	190	210	255
	O		mm	42	46	46	50	50	50	46	50	70	70	120	70	120	150
	p		mm	165	192.5	207.5	213	278	323	207.5	213	300	220	320	220	320	400
	d_1 max. keyed PNF		mm	90	100	100	110	110	110	100	110	110	110	130	110	130	18
	d_1 max. keyed PNQ		mm	90	100	100	110	110	110	100	110	120	120	120	120	140	180
	d_1 max. keyed PND		mm	90	100	100	110	110	110	100	110	120	120	120	120	140	180
	d_1 max. for shrink fit		mm	80	90	90	100	100	100	80	100	105	105	120	105	120	170
Tightening torque for screw 1			N.m	45	55	55	60	60	60	55	60	110	110	200	110	200	240
Tightening torque for screw 2			N.m	290	290	290	290	290	290	410	410	410	550	550	710	710	710
Maximum permissible torque Ct and working conditions (ambient temperature ≤ 40°C)				>300 start/h : Ct=Cn/2.5 ≤300 start/h à 120 start/h : Ct=Cn/2 ≤120 start/h : Ct=Cn/1.5						NOTA : For shrink fit, k and ℓ are modified (consult us) At the delivery, screws 1 and 2 are not tightened to the torque In each case : engine start coupling Cd<Cmax							

DISC BRAKE - FLEXIBLE DISC COUPLING PNK

Revision number: T02561-01-B **Revision date: 25.11.2010**

Flexible coupling **PNK** series
Solid disc thickness 15 mm
Rubber element and disc can both be removed without disturbing motor or gearbox
Without lug.

Use:
For horizontal motions
For hoist motions, please consult us.



Designation		Disc	175P15			220P15			260P15		315P15		395P15		445P15		495P15	550P15	625P15	
		Flexible coupling PNK	2	6	16	2	6	16	6	16	16	40	40	63	40	63	63	125	125	160
Assembly	Coupling Nominal torque Cn Nm Max. torque Cmax Nm		50 150	100 300	200 600	50 150	100 300	200 600	100 300	200 600	200 600	400 1200	400 1 200	800 2400	400 1200	800 2400	800 2400	1600 4800	1600 4800	2000 6000
	combined caliper		660		650	660		650	660	650	650	645	650	645	650	645	645	645	645	
	Maximum speed	tr/mn	5000	5000	4000	4300	4300	4000	3600	3600	3000	3000	2400	2400	2100	2100	1900	1800	1500	1500
	J kgm² Fl. coupling and disc		0.011	0.013	0.023	0.030	0.042	0.045	0.066	0.076	0.146	0.168	0.338	0.408	0.520	0.595	0.89	1.42	2.19	2.58
	Weight	kg	6	7.4	11	9.4	11.6	15.3	18	21.4	26	31.5	38.5	46	42	51	69	89	100	120
	ℓ	mm	185	215	250	195	225	250	245	265	295	340	340	370	340	370	410	460	460	435
Disc	D D_1 L L_1 Bore d max. keyed Bore d max. shrink fit ✱	mm mm mm mm mm mm	175 75 55 58.5 40 35			220 95 65 68.5 55 50			260 120 85 88.5 75 65		315 120 102 112 75 65		395 120 102 112 75 65		445 120 102 112 75 65		495 150 135 145 100 90	550 150 135 145 100 90	625 150 135 145 100 90	
Flexible coupling	D_3 D_4 k O P Bore max. d_1 keyed Bore max. d_1 shrink fit ✱	mm mm mm mm mm mm mm	104 40 30 16 95 28 28	136 55 45 18 105 38 38	178 70 50 35 130 48 42	104 40 30 16 95 28 28	136 55 45 18 105 38 38	178 70 50 35 120 48 42	136 55 45 18 105 38 38	178 70 50 35 115 48 42	178 70 50 35 128 48 42	210 92 65 38 158 65 60	210 92 65 38 158 65 60	263 107 75 44 173 75 70	210 92 65 38 158 65 60	263 107 75 44 173 75 70	263 107 75 44 180 75 70	310 140 100 42 205 100 90	310 140 100 42 205 100 90	370 150 85 46 192.5 100 90
Tightening torque in Nm	Screw 1 Screw 2	mm mm	4 25	6 25	15 25	4 25	6 25	15 25	6 25	15 25	15 49	20 69	20 86	25 120	20 86	25 120	25 210	45 210	45 210	55 295

Max. transmissible torque (Ct) and working conditions (ambient temperature ≤ 40°C)

> 300 starts/ hour: Ct = Cn / 2.5
≤ 300 starts/ hour to 120 starts/ hour: Ct = Cn / 2
≤ 120 starts/ hour: Ct = Cn / 1.5

✱ For shrink fit, dimensions k and ℓ are altered (consult us)
In each case, motor starting torque Cd<Cmax

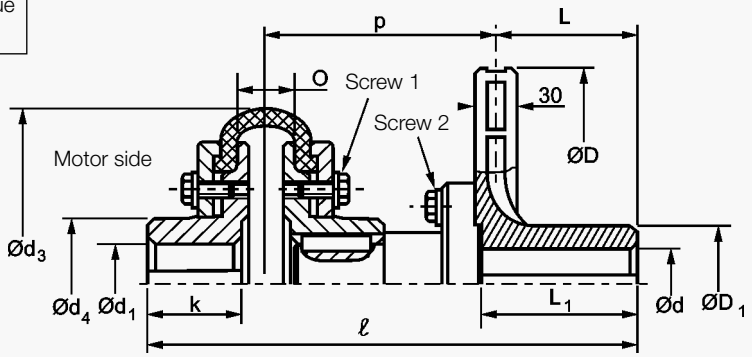
DISC BRAKE - FLEXIBLE DISC COUPLING PNM

Revision number: T02661-01-B **Revision date: 25.11.2010**

Coupling **PNM** series
Monobloc disc with thickness: 30mm
Rubber element and disc can both be removed without moving motor or gearbox back
Without lug

Use:
For horizontal motions.
For hoist motions, consult us.

Screws 1 and 2 not tightened to the torque at the delivery



Designation			220M30			260M30			315M30		
	Coupling PNM		2	6	16	6	16	40	16	40	63
Assembly	Nominal coupling torque Cn	Nm	50	100	200	100	200	400	200	400	800
	Maximum coupling torque Cmax	Nm	150	300	600	300	600	1200	600	1200	2400
	For use with calipers		650 - 5D			650 - 5D			650 - 5D - 5K		
	Maximum speed	tr/mn	4300	4300	4000	3600	3600	3600	3000	3000	3000
	J	kgm²	0.056	0.06	0.07	0.072	0.085	0.107	0.155	0.178	0.248
	Weight	kg	13	15.2	19	15	18.4	22.5	20	25.5	33.5
	ℓ	mm	244.5	277	309.5	275.5	295.5	332	295	340	358
Disc	D	mm	220			260			315		
	D_1	mm	85			85			90		
	L	mm	102			102			102		
	L_1	mm	112			112			112		
	d min.	mm	20			30			35		
	d max. keyed	mm	55			55			60		
Coulping	d_3	mm	104	136	178	136	178	210	178	210	263
	d_4	mm	40	55	70	55	70	92	70	92	107
	k	mm	30	45	50	45	50	65	45	65	75
	O	mm	16	18	35	18	35	38	35	38	44
	p	mm	107.5	120	142.5	118.5	128.5	150	128	158	161
	d_1 max. keyed	mm	28	38	48	38	48	65	48	65	75
	Tightening torque of screws 1	Nm	4	6	15	6	15	20	20	20	20
	Tightening torque of screws 2	Nm	25	25	25	25	25	69	49	69	69
Maximum permissible torque Ct and working conditions (ambient temperature ≤ 40°C)			>300 start/h : Ct=Cn/2.5 ≤300 start/h at 120 start/h : Ct=Cn/2 ≤120 start/h : Ct=Cn/1.5					In each case, motor starting torque Cd < Cmax Other versions, consult us.			

Disc couplings

DISC BRAKE - GEAR DISC COUPLING SDF

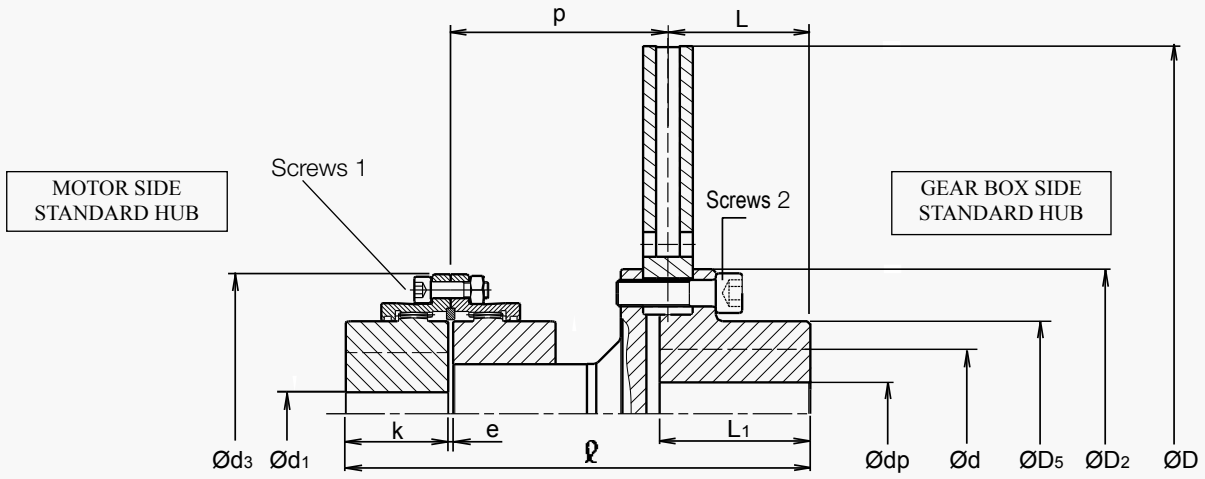
Revision number: T10004-01-D **Revision date: 15.09.2017**

Gear coupling type **SDF**
Solid discs (**P**) and ventilated discs (**V**) thickness 30mm
Disc mounting and dismounting without moving the machines back.

Material and balancing of the discs : see the discs "technical data" leaflet.

Hub and coupling : oiling protection.

In standard. only the disc is balanced. The assembly is balanced on demand. (parts angularly matched).



Degrease faces in contact between disc, hub and coupling

Designation				Disc	315 P30/*V30*		355 P30/*V30*		395 P30/*V30*			
				SDF	68		68		68		80	
Assembly	J	P30	*V30*	kg.m²	0.246	0.16	0.391	0.255	0.604	0.368	0.622	0.386
	Weight	P30	*V30*	kg	32	25	39	30	47.5	36.5	53	42
	ℓ			mm	274		274		274		286	
	Maximum speed			rpm	3000		2700		2400			
	Maximum braking torque			N.m	Tb ≤ Tp (Tb = maximum braking torque. Tp = maximum peak torque)							
	For use with calipers				Check that D – D2 > width of the caliper braking surface (ex.: 4CA2 and 3CA2 not associated to discs D < 445) Check that the caliper nominal braking torque is ≤ Tp							
Disc	D			mm	315		355		395			
	D2			mm	124		145		165			
	D5			mm	82		100		112			
	L			mm	102		102		102			
	L1			mm	107		107		107			
	dp			mm	--		--		--			
	d maximum keyed			mm	55		70		75			
	d max. shrink fit			mm	50		60		70			
	Tightening torque screw 2 ✱			N.m	49		86		135			
Coupling	d3			mm	140		140		140		169	
	e			mm	3		3		3		3	
	k			mm	50		50		50		62	
	p			mm	120.5		120.5		120.5		120.5	
	d1 maximum keyed			mm	68		68		68		80	
	d1 max. shrink fit			mm	63		63		63		75	
	Tightening torque screws 1 ✱			N.m	33		33		33		60	
	Maximum peak torque (Tp)			N.m	1500		2200		2200			
	Transmissible torque (Tt)			N.m	750		1100		1100			
					In every case : Ts < Tp (Ts : motor starting torque)							

✱: greased under head and on thread

DISC BRAKE - GEAR DISC COUPLING SDF

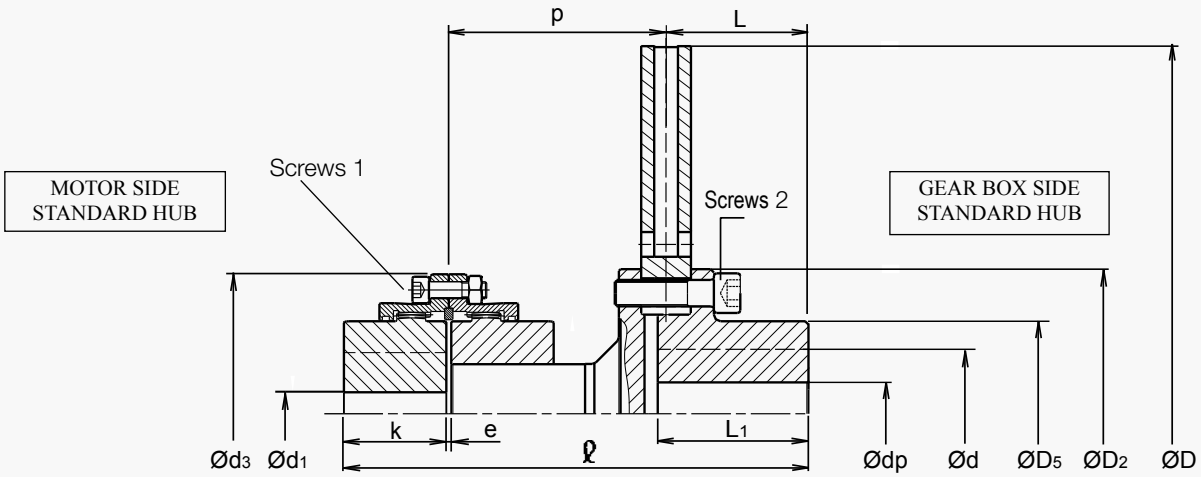
Revision number: T10004-01-D **Revision date: 15.09.2017**

Gear coupling type **SDF**
Solid discs (**P**) and ventilated discs (**V**) thickness 30mm
Disc mounting and dismounting without moving the machines back.

Material and balancing of the discs : see the discs "technical data" leaflet.

Hub and coupling : oiling protection.

In standard. only the disc is balanced. The assembly is balanced on demand. (parts angularly matched).



Degrease faces in contact between disc, hub and coupling

Designation				Disc	445 P30/*V30*						495 P30/*V30*					
				SDF	68		80		100		80		100		115	
Assembly	J	P30	*V30*	kg.m²	0.945	0.586	0.964	0.605	1.012	0.653	1.524	1	1.574	1.05	1.664	1.14
	Weight	P30	*V30*	kg	58	43	64	49	74	59	86	68	97	79	112	94
	ℓ			mm	307		332		361		347		380		410	
	Maximum speed			rpm	2100						1900					
	Maximum braking torque			N.m	Tb ≤ Tp (Tb = maximum braking torque. Tp = maximum peak torque)											
	For use with calipers				Check that D – D2 > width of the caliper braking surface (ex.: 4CA2 and 3CA2 not associated to discs D < 445) Check that the caliper nominal braking torque is ≤ Tp											
Disc	D			mm	445						495					
	D2			mm	175						218					
	D5			mm	112						155					
	L			mm	135						135					
	L1			mm	140						140					
	dp			mm	--						30					
	d maximum keyed			mm	80						110					
	d max. shrink fit			mm	70						100					
	Tightening torque screw 2 ✱			N.m	210						290					
Coupling	d3			mm	140		169		200		169		200		228	
	e			mm	3		3		5		3		5		5	
	k			mm	50		62		76		62		76		90	
	p			mm	120.5		133.5		147.5		148.5		166.5		182.5	
	d1 maximum keyed			mm	68		80		100		80		100		115	
	d1 max. shrink fit			mm	63		75		92		75		92		106	
	Tightening torque screws 1 ✱			N.m	33		60		60		60		60		95	
	Maximum peak torque (Tp)			N.m	2200		3800		6000		3800		6000		9400	
	Transmissible torque (Tt)			N.m	1100		1900		3000		1900		3000		4700	
					In every case : Ts < Tp (Ts : motor starting torque)											

✱: greased under head and on thread

Disc couplings

DISC BRAKE - GEAR DISC COUPLING SDF

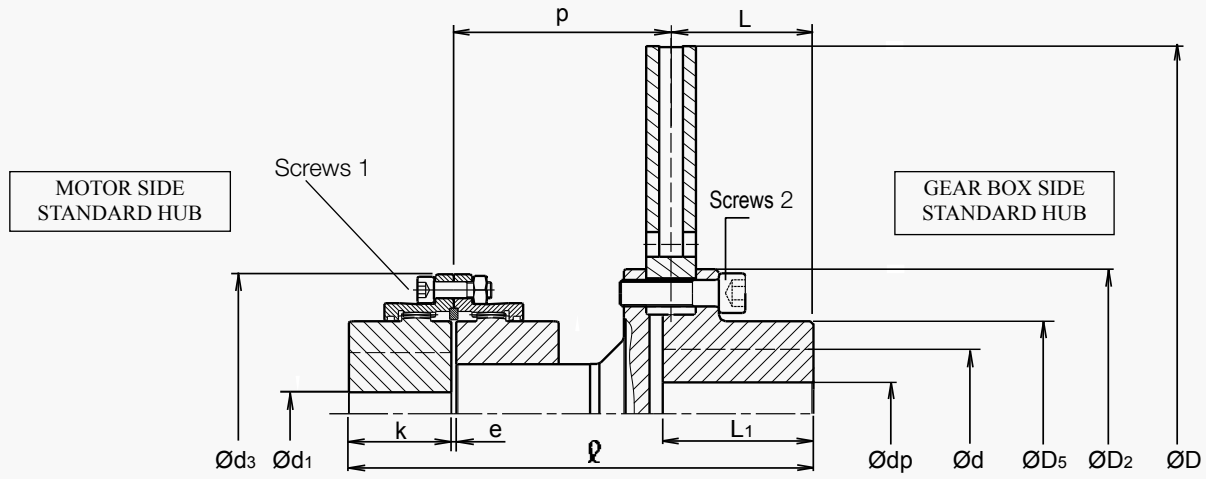
Revision number: T10004-01-D **Revision date: 15.09.2017**

Gear coupling type **SDF**
Solid discs (**P**) and ventilated discs (**V**) thickness 30mm
Disc mounting and dismounting without moving the machines back.

Material and balancing of the discs : see the discs "technical data" leaflet.

Hub and coupling : oiling protection.

In standard. only the disc is balanced. The assembly is balanced on demand. (parts angularly matched).



Degrease faces in contact between disc, hub and coupling

Designation				Disc	550 P30/*V30*						625 P30/*V30*							
				SDF	80		100		115		100		115		135		150	
Assembly	J	P30	*V30*	kg.m²	2.247	1.307	2.297	1.357	2.387	1.447	3.775	2.329	3.863	2.417	4.065	2.619	4.352	2.906
	Weight	P30	*V30*	kg	97	74	108	85	123	100	131	104	145	118	167	140	195	168
	ℓ			mm	347		380		410		380		410		441		483	
	Maximum speed			rpm	1800						1500							
	Maximum braking torque			N.m	Tb ≤ Tp (Tb = maximum braking torque. Tp = maximum peak torque)													
	For use with calipers				Check that D – D2 > width of the caliper braking surface (ex.: 4CA2 and 3CA2 not associated to discs D < 445) Check that the caliper nominal braking torque is ≤ Tp													
Disc	D			mm	550						625							
	D2			mm	218						238							
	D5			mm	155						168							
	L			mm	135						135							
	L1			mm	140						140							
	dp			mm	30						30							
	d maximum keyed			mm	110						120							
	d max. shrink fit			mm	100						105							
	Tightening torque screw 2 ✱			N.m	290						410							
Coupling	d3			mm	169		200		228		200		228		266		298	
	e			mm	3		5		5		5		5		6		6	
	k			mm	62		76		90		76		90		105		120	
	p			mm	148.5		166.5		182.5		166.5		182.5		198		225	
	d1 maximum keyed			mm	80		100		115		100		115		135		150	
	d1 max. shrink fit			mm	75		92		106		92		106		125		140	
	Tightening torque screws 1 ✱			N.m	60		60		95		60		95		171		235	
	Maximum peak torque (Tp)			N.m	3800		6000		9400		6000		9400		13800		20700	
	Transmissible torque (Tt)			N.m	1900		3000		4700		3000		4700		6900		10350	
					In every case : Ts < Tp (Ts : motor starting torque)													

✱: greased under head and on thread

DISC BRAKE - GEAR DISC COUPLING SDF

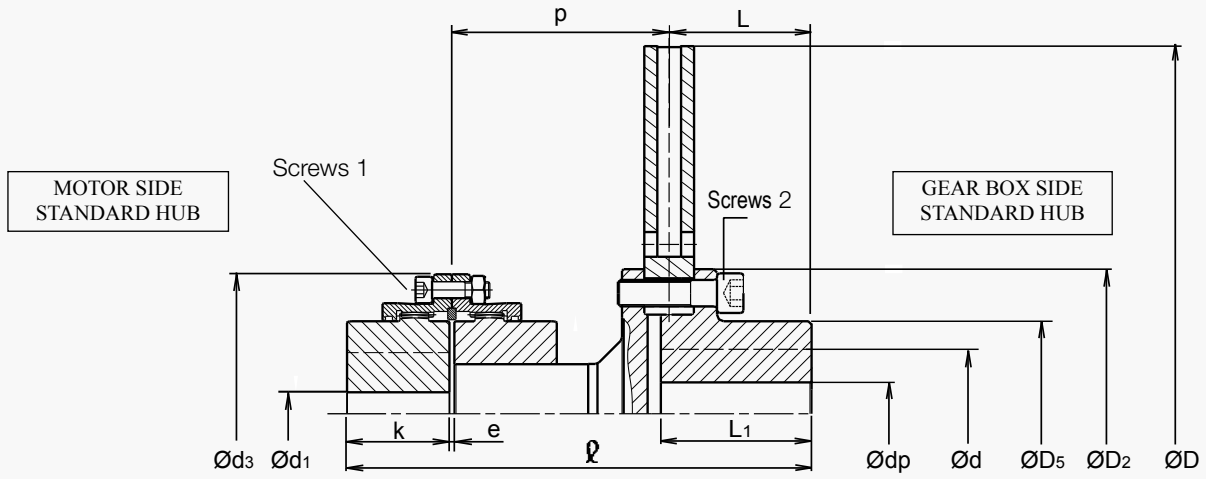
Revision number: T10004-01-D **Revision date: 15.09.2017**

Gear coupling type **SDF**
Solid discs (**P**) and ventilated discs (**V**) thickness 30mm
Disc mounting and dismounting without moving the machines back.

Material and balancing of the discs : see the discs "technical data" leaflet.

Hub and coupling : oiling protection.

In standard. only the disc is balanced. The assembly is balanced on demand. (parts angularly matched).



Degrease faces in contact between disc, hub and coupling

Designation				Disc	705 P30/*V30*								795 P30/*V30*					
				SDF	115		135		150		170		135		150		170	
Assembly	J	P30	*V30*	kg.m²	6.165	3.935	6.37	4.14	6.655	4.425	7.153	4.923	10.092	6.512	10.378	6.798	10.872	7.292
	Weight	P30	*V30*	kg	173	140	196	163	223	190	259	226	233	193	260	220	295	255
	ℓ			mm	410		441		483		513		441		483		513	
	Maximum speed			rpm	1300								1200					
	Maximum braking torque			N.m	Tb ≤ Tp (Tb = maximum braking torque. Tp = maximum peak torque)													
	For use with calipers				Check that D – D2 > width of the caliper braking surface (ex.: 4CA2 and 3CA2 not associated to discs D < 445) Check that the caliper nominal braking torque is ≤ Tp													
Disc	D			mm	705								795					
	D2			mm	268								300					
	D5			mm	190								216					
	L			mm	135								135					
	L1			mm	140								140					
	dp			mm	30								30					
	d maximum keyed			mm	135								150					
	d max. shrink fit			mm	120								135					
	Tightening torque screw 2 ✱			N.m	550								710					
Coupling	d3			mm	228		266		298		330		266		298		330	
	e			mm	5		6		6		8		6		6		8	
	k			mm	90		105		120		135		105		120		135	
	p			mm	182.5		198		225		239		198		225		239	
	d1 maximum keyed			mm	115		135		150		170		135		150		170	
	d1 max. shrink fit			mm	106		125		140		160		125		140		160	
	Tightening torque screws 1 ✱			N.m	95		171		235		235		171		235		235	
	Maximum peak torque (Tp)			N.m	9400		13800		25300		29200		13800		25300		36700	
	Transmissible torque (Tt)			N.m	4700		6900		12650		14600		6900		12650		18350	
					In every case : Ts < Tp (Ts : motor starting torque)													

✱: greased under head and on thread

DISC BRAKE - GEAR DISC COUPLING SMLDF

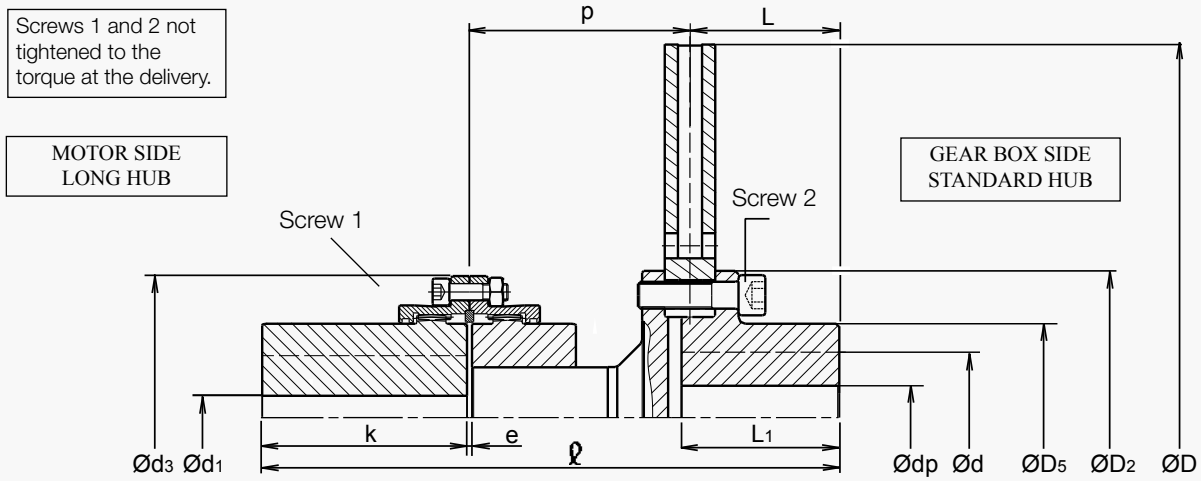
Revision number: T10004-03-A **Revision date: 10.03.2010**

Gear coupling type **SMLDF**
Long hub on motor side
Solid discs (**P**) and ventilated discs (**V**)
thickness 30mm
Disc mounting and dismounting without moving the machines back.

Material and balancing of the discs : see the discs "technical data" leaflet.

Hub and coupling : oiling protection.

In standard. only the disc is balanced.
The assembly is balanced on demand. (parts angularly matched).



Degrease faces in contact between disc, hub and coupling.

Designation			Disc	315 P30/*V30*		355 P30/*V30*		395 P30/*V30*			
			SDF	68		68		68		80	
Assembly	**J** **P30** ***V30***		kg.m²	0.25	0.164	0.395	0.259	0.608	0.372	0.63	0.394
	Weight **P30** ***V30***		kg	35.5	28.5	42.5	33.5	51	40	58.2	47.2
	ℓ		mm	339		339		339		354	
	Maximum speed		rpm	3000		2700		2400			
	Maximum braking torque		N.m	Tb ≤ Tp (Tb = maximum braking torque. Tp = maximum peak torque)							
	For use with calipers			Check that D – D2 > width of the caliper braking surface (ex.: 4CA2 and 3CA2 not associated to discs D < 445) Check that the caliper nominal braking torque is ≤ Tp							
Disc	D		mm	315		355		395			
	D2		mm	124		145		165			
	D5		mm	82		100		112			
	L		mm	102		102		102			
	L1		mm	107		107		107			
	dp		mm	--		--		--			
	d maximum keyed		mm	55		70		75			
	d max. shrink fit		mm	50		60		70			
	Tightening torque screw 2 ✱		N.m	49		86		135			
Coupling	d3		mm	140		140		140		169	
	e		mm	3		3		3		3	
	k		mm	115		115		115		130	
	p		mm	120.5		120.5		120.5		120.5	
	d1 maximum keyed		mm	68		68		68		80	
	d1 max. shrink fit		mm	63		63		63		75	
	Tightening torque screws 1 ✱		N.m	33		33		33		60	
	Maximum peak torque (Tp)		N.m	1500		2200		2200			
	Transmissible torque (Tt)		N.m	750		1100		1100			
				In every case : Ts < Tp (Ts : motor starting torque)							

✱: greased under head and on thread

DISC BRAKE - GEAR DISC COUPLING SMLDF

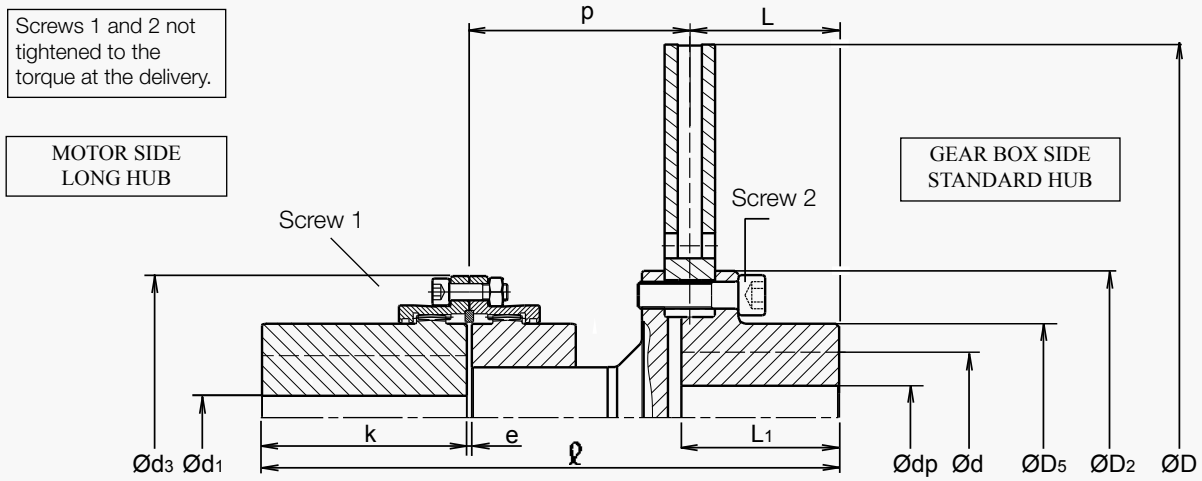
Revision number: T10004-03-A **Revision date: 10.03.2010**

Gear coupling type **SMLDF**
Long hub on motor side
Solid discs (**P**) and ventilated discs (**V**) thickness 30mm
Disc mounting and dismounting without moving the machines back.

Material and balancing of the discs : see the discs "technical data" leaflet.

Hub and coupling : oiling protection.

In standard. only the disc is balanced. The assembly is balanced on demand. (parts angularly matched).



Degrease faces in contact between disc, hub and coupling.

Designation			Disc	445 P30/*V30*						495 P30/*V30*					
			SDF	68		80		100		80		100		115	
Assembly	**J**	**P30** / ***V30***	kg.m²	0.949	0.59	0.972	0.613	1.032	0.673	1.532	1.008	1.594	1.07	1.702	1.178
	Weight	**P30** / ***V30***	kg	61.5	46.5	69.2	54.2	82.5	67.5	91.2	73.2	105.5	87.5	124.3	106.3
	ℓ		mm	372		400		435		415		454		490	
	Maximum speed		rpm	2100						1900					
	Maximum braking torque		N.m	Tb ≤ Tp (Tb = maximum braking torque. Tp = maximum peak torque)											
	For use with calipers			Check that D – D2 > width of the caliper braking surface (ex.: 4CA2 and 3CA2 not associated to discs D < 445) Check that the caliper nominal braking torque is ≤ Tp											
Disc	D		mm	445						495					
	D2		mm	175						218					
	D5		mm	112						155					
	L		mm	135						135					
	L1		mm	140						140					
	dp		mm	--						30					
	d maximum keyed		mm	80						110					
	d max. shrink fit		mm	70						100					
	Tightening torque screw 2 ✱		N.m	210						290					
Coupling	d3		mm	140		169		200		169		200		228	
	e		mm	3		3		5		3		5		5	
	k		mm	115		130		150		130		150		170	
	p		mm	120.5		133.5		147.5		148.5		166.5		182.5	
	d1 maximum keyed		mm	68		80		100		80		100		115	
	d1 max. shrink fit		mm	63		75		92		75		92		106	
	Tightening torque screws 1 ✱		N.m	33		60		60		60		60		95	
	Maximum peak torque (Tp)		N.m	2200		3800		6000		3800		6000		9400	
	Transmissible torque (Tt)		N.m	1100		1900		3000		1900		3000		4700	
				In every case : Ts < Tp (Ts : motor starting torque)											

✱: greased under head and on thread

DISC BRAKE - GEAR DISC COUPLING SMLDF

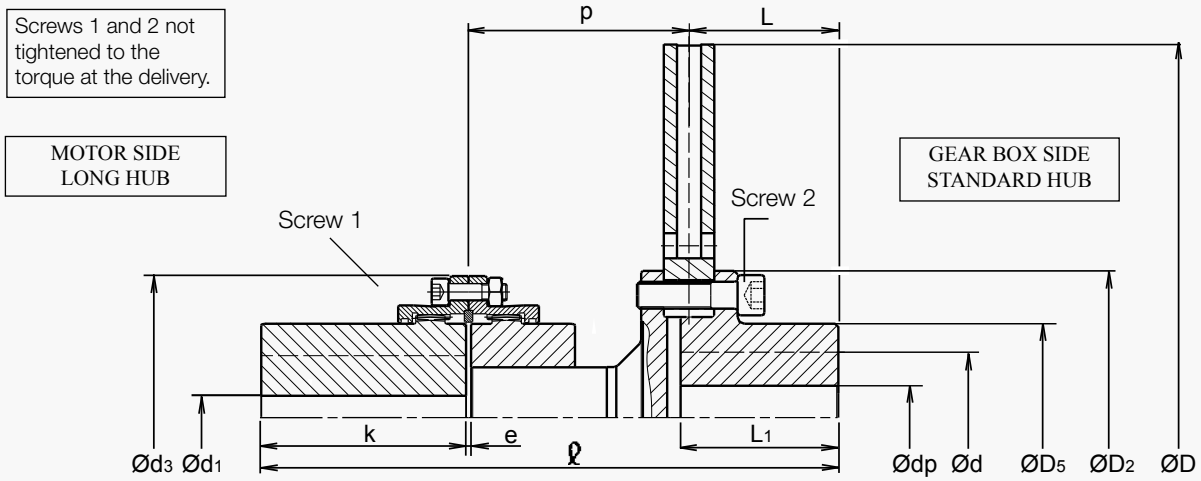
Revision number: T10004-03-A **Revision date: 10.03.2010**

Gear coupling type **SMLDF**
Long hub on motor side
Solid discs (**P**) and ventilated discs (**V**) thickness 30mm
Disc mounting and dismounting without moving the machines back.

Material and balancing of the discs : see the discs "technical data" leaflet quoted in the bottom of the page.

Hub and coupling : oiling protection.

In standard. only the disc is balanced. The assembly is balanced on demand. (parts angularly matched).



Degrease faces in contact between disc, hub and coupling.

Designation				Disc	550 P30/*V30*						625 P30/*V30*							
				SDF	80		100		115		100		115		135		150	
Assembly	J	P30	*V30*	kg.m²	2.255	1.315	2.317	1.377	2.425	1.485	3.795	2.349	3.901	2.455	4.14	2.694	4.488	3.042
	Weight	P30	*V30*	kg	102.2	79.2	116.5	93.5	135.3	112.3	139.5	112.5	157.3	130.3	185	158	221	194
	ℓ			mm	415		454		490		454		490		521		578	
	Maximum speed			rpm	1800						1500							
	Maximum braking torque			N.m	Tb ≤ Tp (Tb = maximum braking torque. Tp = maximum peak torque)													
	For use with calipers				Check that D – D2 > width of the caliper braking surface (ex.: 4CA2 and 3CA2 not associated to discs D < 445) Check that the caliper nominal braking torque is ≤ Tp													
Disc	D			mm	550						625							
	D2			mm	218						238							
	D5			mm	155						168							
	L			mm	135						135							
	L1			mm	140						140							
	dp			mm	30						30							
	d maximum keyed			mm	110						120							
	d max. shrink fit			mm	100						105							
	Tightening torque screw 2 ✱			N.m	290						410							
Coupling	d3			mm	169		200		228		200		228		266		298	
	e			mm	3		5		5		5		5		6		6	
	k			mm	130		150		170		150		170		185		215	
	p			mm	148.5		166.5		182.5		166.5		182.5		198		225	
	d1 maximum keyed			mm	80		100		115		100		115		135		150	
	d1 max. shrink fit			mm	75		92		106		92		106		125		140	
	Tightening torque screws 1 ✱			N.m	60		60		95		60		95		171		235	
	Maximum peak torque (Tp)			N.m	3800		6000		9400		6000		9400		13800		20700	
	Transmissible torque (Tt)			N.m	1900		3000		4700		3000		4700		6900		10350	
					In every case : Ts < Tp (Ts : motor starting torque)													

✱: greased under head and on thread

DISC BRAKE - GEAR DISC COUPLING SMLDF

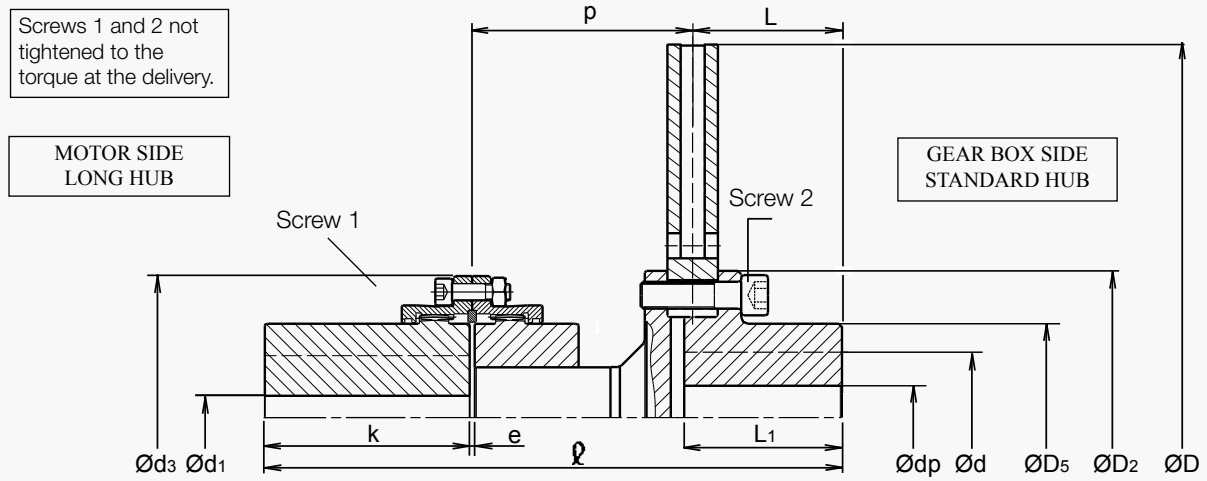
Revision number: T10004-03-A **Revision date: 10.03.2010**

Gear coupling type **SMLDF**
Long hub on motor side
Solid discs (**P**) and ventilated discs (**V**) thickness 30mm
Disc mounting and dismounting without moving the machines back.

Material and balancing of the discs : see the discs "technical data" leaflet.

Hub and coupling : oiling protection.

In standard. only the disc is balanced. The assembly is balanced on demand. (parts angularly matched).



Degrease faces in contact between disc, hub and coupling.

Designation				Disc	705 P30/*V30*								795 P30/*V30*					
				SDF	115		135		150		170		135		150		170	
Assembly	J	P30	*V30*	kg.m²	6.203	3.973	6.445	4.215	6.791	4.561	7.419	5.189	10.167	6.587	10.514	6.934	11.138	7.558
	Weight	P30	*V30*	kg	185.3	152.3	214	181	249	216	297	264	251	211	286	246	333	293
	ℓ			mm	490		521		578		623		521		578		623	
	Maximum speed			rpm	1300								1200					
	Maximum braking torque			N.m	Tb ≤ Tp (Tb = maximum braking torque. Tp = maximum peak torque)													
	For use with calipers				Check that D – D2 > width of the caliper braking surface (ex.: 4CA2 and 3CA2 not associated to discs D < 445) Check that the caliper nominal braking torque is ≤ Tp													
Disc	D			mm	705								795					
	D2			mm	268								300					
	D5			mm	190								216					
	L			mm	135								135					
	L1			mm	140								140					
	dp			mm	30								30					
	d maximum keyed			mm	135								150					
	d max. shrink fit			mm	120								135					
	Tightening torque screw 2 ✱			N.m	550								710					
Coupling	d3			mm	228		266		298		330		266		298		330	
	e			mm	5		6		6		8		6		6		8	
	k			mm	170		185		215		245		185		215		245	
	p			mm	182.5		198		225		239		198		225		239	
	d1 maximum keyed			mm	115		135		150		170		135		150		170	
	d1 max. shrink fit			mm	106		125		140		160		125		140		160	
	Tightening torque screws 1 ✱			N.m	95		171		235		235		171		235		235	
	Maximum peak torque (Tp)			N.m	9400		13800		25300		29200		13800		25300		36700	
	Transmissible torque (Tt)			N.m	4700		6900		12650		14600		6900		12650		18350	
					In every case : Ts < Tp (Ts : motor starting torque)													

✱: greased under head and on thread

DISC BRAKE - GEAR DISC COUPLING SDF-ML

Revision number: T10004-02-F **Revision date: 07.01.2014**

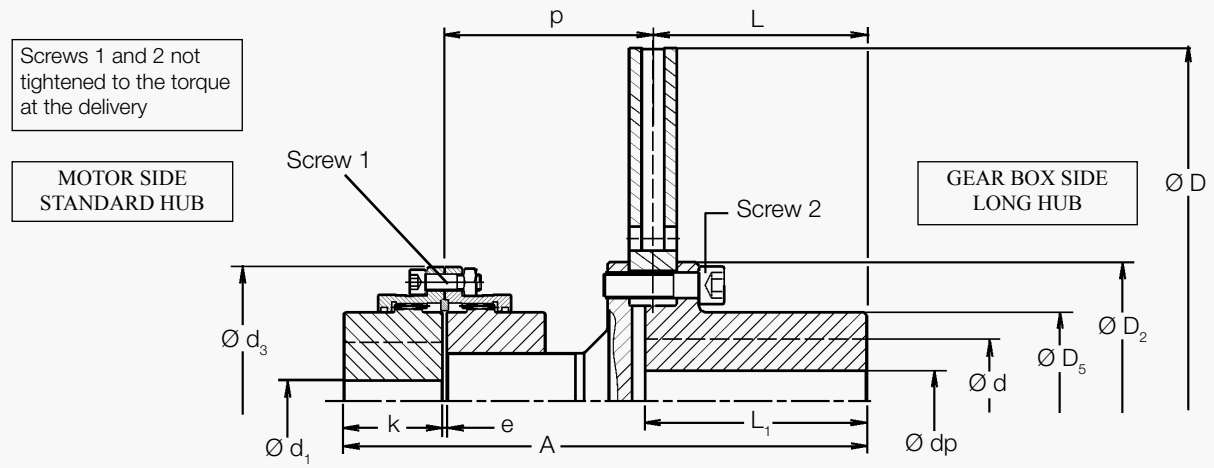
Gear coupling type **SDF-MLP** for solid discs (**P**) diameter : 315 to 995 mm
Gear coupling type **SDF-MLV** for ventilated discs (**V**) diameter : 315 to 795 mm.
Long hub on disc side / Discs thickness 30 mm.

Disc mounting and dismounting without moving the machines back.

Material and balancing of the discs : see the discs leaflet T08020-01.

Hub and coupling : oiling protection.

In standard. only the disc is balanced. The assembly is balanced on demand. (parts angularly matched).



Degrease faces in contact between disc, hub and coupling

Designation				Disc	315 P30/V30		355 P30/V30		395 P30/V30				445 P30/V30					
				SDF	68		68		68		80		68		80		100	
Assembly	J	P30	V30	kg.m²	0.245	0.159	0.396	0.26	0.606	0.37	0.624	0.388	0.95	0.591	0.969	0.61	1.019	0.66
	Weight	P30	V30	kg	34.2	27.2	43	34	52.5	41.5	59.1	48.1	62.1	47.1	69.2	54.2	79.8	64.8
	A			mm	307		327		327		339		367		392		421	
	Maximum speed			rpm	3000		2700		2400				2100					
	Maximum braking torque			N.m	Tb ≤ Tp (Tb = maximum braking torque. Tp = maximum peak torque)													
	For use with calipers				Check that D – D2 > width of the caliper braking surface (ex.: 4CA2 and 3CA2 not associated to discs D < 445) Check that the caliper nominal braking torque is ≤ Tp													
Disc	D			mm	315		355		395				445					
	D2			mm	125		145		165				175					
	D5			mm	80		100		112				112					
	L			mm	135		155		155				195					
	L1			mm	140		160		160				200					
	dp			mm	--		--		--				--					
	d maximum keyed			mm	55		70		75				80					
	d max. shrink fit			mm	50		60		70				70					
	Tightening torque screw 2 ✱			N.m	49		86		135				210					
Coupling	d3			mm	140		140		140		169		140		169		200	
	e			mm	3		3		3		3		3		3		5	
	k			mm	50		50		50		62		50		62		76	
	p			mm	120.5		120.5		120.5		120.5		120.5		133.5		147.5	
	d1 maximum keyed			mm	68		68		68		80		68		80		100	
	d1 max. shrink fit			mm	63		63		63		75		63		75		92	
	Tightening torque screws 1 ✱			N.m	33		33		33		60		33		60		60	
	Maximum peak torque (Tp)			N.m	1500		2200		2200				2200		3800		6000	
	Transmissible torque (Tt)			N.m	750		1100		1100				1100		1900		3000	
					In every case : Ts < Tp (Ts : motor starting torque))													

✱: greased under head and on thread

DISC BRAKE - GEAR DISC COUPLING SDF-ML

Revision number: T10004-02-F **Revision date: 07.01.2014**

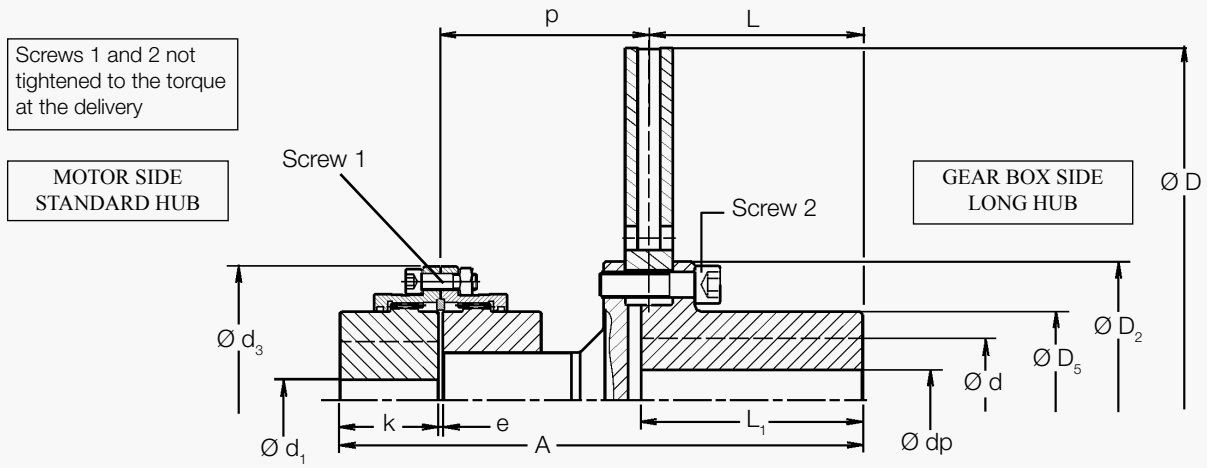
Gear coupling type **SDF-MLP** for solid discs (**P**) diameter : 315 to 995 mm
Gear coupling type **SDF-MLV** for ventilated discs (**V**) diameter : 315 to 795 mm.
Long hub on disc side / Discs thickness 30 mm.

Disc mounting and dismounting without moving the machines back.

Material and balancing of the discs : see the discs leaflet T08020-01.

Hub and coupling : oiling protection.

In standard. only the disc is balanced. The assembly is balanced on demand. (parts angularly matched).



Degrease faces in contact between disc, hub and coupling

Designation				Disc	495 P30/V30						550 P30/V30					
				SDF	80		100		115		80		100		115	
Assembly	J	P30	V30	kg.m²	1.547	1.023	1.599	1.075	1.688	1.164	2.27	1.33	2.322	1.382	2.411	1.471
	Weight	P30	V30	kg	96.1	78.1	108.1	90.1	122.2	104.2	107.1	84.1	119.1	96.1	133.2	110.2
	A			mm	407		440		470		407		440		470	
	Maximum speed			rpm	1900						1800					
	Maximum braking torque			N.m	Tb ≤ Tp (Tb = maximum braking torque. Tp = maximum peak torque)											
	For use with calipers				Check that D – D2 > width of the caliper braking surface (ex.: 4CA2 and 3CA2 not associated to discs D < 445) Check that the caliper nominal braking torque is ≤ Tp											
Disc	D			mm	495						550					
	D2			mm	218						218					
	D5			mm	155						155					
	L			mm	195						195					
	L1			mm	200						200					
	dp			mm	30						30					
	d maximum keyed			mm	110						110					
	d max. shrink fit			mm	100						100					
	Tightening torque screw 2 ✱			N.m	290						290					
Coupling	d3			mm	169		200		228		169		200		228	
	e			mm	3		5		5		3		5		5	
	k			mm	62		76		90		62		76		90	
	p			mm	148.5		166.5		182.5		148.5		166.5		182.5	
	d1 maximum keyed			mm	80		100		115		80		100		115	
	d1 max. shrink fit			mm	75		92		106		75		92		106	
	Tightening torque screws 1 ✱			N.m	60		60		95		60		60		95	
	Maximum peak torque (Tp)			N.m	3800		6000		9400		3800		6000		9400	
	Transmissible torque (Tt)			N.m	1900		3000		4700		1900		3000		4700	
					In every case : Ts < Tp (Ts : motor starting torque))											

✱: greased under head and on thread

DISC BRAKE - GEAR DISC COUPLING SDF-ML

Revision number: T10004-02-F **Revision date: 07.01.2014**

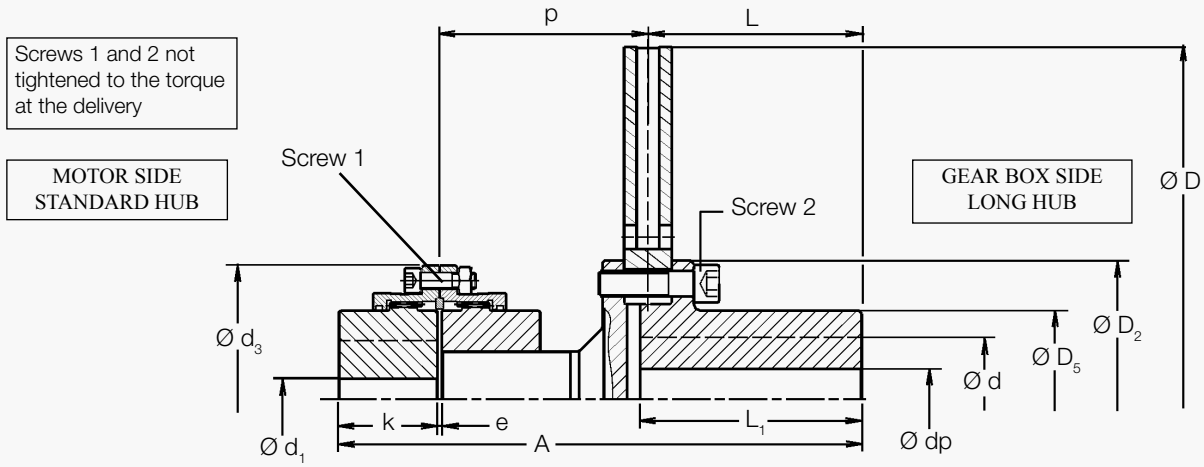
Gear coupling type **SDF-MLP** for solid discs (**P**) diameter : 315 to 995 mm
Gear coupling type **SDF-MLV** for ventilated discs (**V**) diameter : 315 to 795 mm.
Long hub on disc side / Discs thickness 30 mm.

Disc mounting and dismounting without moving the machines back.

Material and balancing of the discs : see the discs leaflet T08020-01.

Hub and coupling : oiling protection.

In standard. only the disc is balanced. The assembly is balanced on demand. (parts angularly matched).



Degrease faces in contact between disc, hub and coupling

Designation				Disc	625 P30/V30								625-2 P30/V30					
				SDF	100		115		135		150		150		170		190	
Assembly	J	P30	V30	kg.m²	3.806	2.36	3.843	2.397	4.11	2.664	4.431	2.985	4.735	3.289	5.286	3.84	6.028	4.582
	Weight	P30	V30	kg	142.5	115.5	157	130	186.1	159.1	219.3	192.3	245.2	218.2	290.6	263.6	307.5	280.5
	A			mm	440		470		501		543		543		573		585	
	Maximum speed			rpm	1500								1200					
	Maximum braking torque			N.m	Tb ≤ Tp (Tb = maximum braking torque. Tp = maximum peak torque)													
	For use with calipers				Check that D – D2 > width of the caliper braking surface (ex.: 4CA2 and 3CA2 not associated to discs D < 445) Check that the caliper nominal braking torque is ≤ Tp													
Disc	D			mm	625								625					
	D2			mm	238								300					
	D5			mm	168								216					
	L			mm	195								195					
	L1			mm	200								200					
	dp			mm	30								30					
	d maximum keyed			mm	120								150					
	d max. shrink fit			mm	105								135					
	Tightening torque screw 2 ✱			N.m	410								710					
Coupling	d3			mm	200		228		266		298		298		330		368	
	e			mm	5		5		6		6		6		8		8	
	k			mm	76		90		105		120		120		135		150	
	p			mm	166.5		182.5		198		225		225		239		236	
	d1 maximum keyed			mm	100		115		135		150		150		170		190	
	d1 max. shrink fit			mm	92		106		125		140		140		160		175	
	Tightening torque screws 1 ✱			N.m	60		95		171		235		235		235		370	
	Maximum peak torque (Tp)			N.m	6000		9400		13800		20700		25300		36700		52500	
	Transmissible torque (Tt)			N.m	3000		4700		6900		10350		12650		18350		26250	
					In every case : Ts < Tp (Ts : motor starting torque)													

✱: greased under head and on thread

DISC BRAKE - GEAR DISC COUPLING SDF-ML

Revision number: T10004-02-F **Revision date: 07.01.2014**

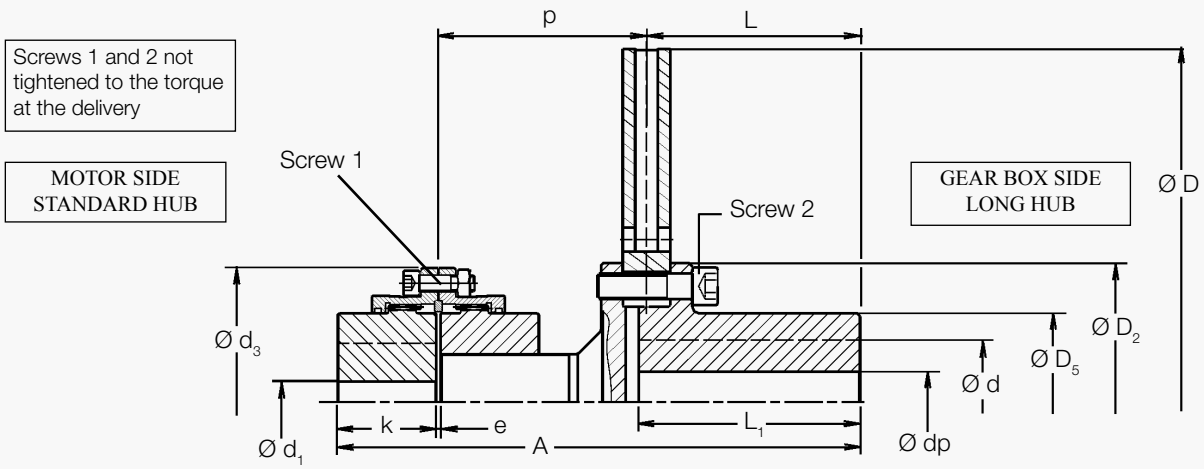
Gear coupling type **SDF-MLP** for solid discs (**P**) diameter : 315 to 995 mm
Gear coupling type **SDF-MLV** for ventilated discs (**V**) diameter : 315 to 795 mm.
Long hub on disc side / Discs thickness 30 mm.

Disc mounting and dismounting without moving the machines back.

Material and balancing of the discs : see the discs leaflet T08020-01.

Hub and coupling : oiling protection.

In standard. only the disc is balanced. The assembly is balanced on demand. (parts angularly matched).



Degrease faces in contact between disc, hub and coupling

Designation				Disc	705 P30/V30								705-2 P30/V30					
				SDF	115		135		150		170		150		170		190	
Assembly	J	P30	V30	kg.m²	6.151	3.921	6.448	4.218	6.739	4.509	7.271	5.041	6.905	4.675	7.456	5.226	8.198	5.968
	Weight	P30	V30	kg	191.1	158.1	220.4	187.4	250.6	217.6	292.4	259.4	264.7	231.7	310.1	277.1	327	294
	A			mm	470		501		543		573		543		573		585	
	Maximum speed			rpm	1300								1200					
	Maximum braking torque			N.m	Tb ≤ Tp (Tb = maximum braking torque. Tp = maximum peak torque)													
	For use with calipers				Check that D – D2 > width of the caliper braking surface (ex.: 4CA2 and 3CA2 not associated to discs D < 445) Check that the caliper nominal braking torque is ≤ Tp													
Disc	D			mm	705								705					
	D2			mm	268								300					
	D5			mm	190								216					
	L			mm	195								195					
	L1			mm	200								200					
	dp			mm	30								30					
	d maximum keyed			mm	135								150					
	d max. shrink fit			mm	120								135					
	Tightening torque screw 2 ✱			N.m	550								710					
Coupling	d3			mm	228		266		298		330		298		330		368	
	e			mm	5		6		6		8		6		8		8	
	k			mm	90		105		120		135		120		135		150	
	p			mm	182.5		198		225		239		225		239		236	
	d1 maximum keyed			mm	115		135		150		170		150		170		190	
	d1 max. shrink fit			mm	106		125		140		160		140		160		175	
	Tightening torque screws 1 ✱			N.m	95		171		235		235		235		235		370	
	Maximum peak torque (Tp)			N.m	9400		13800		25300		29200		25300		36700		52500	
	Transmissible torque (Tt)			N.m	4700		6900		12650		14600		12650		18350		26250	
					In every case : Ts < Tp (Ts : motor starting torque))													

✱: greased under head and on thread

DISC BRAKE - GEAR DISC COUPLING SDF-ML

Revision number: T10004-02-F **Revision date: 07.01.2014**

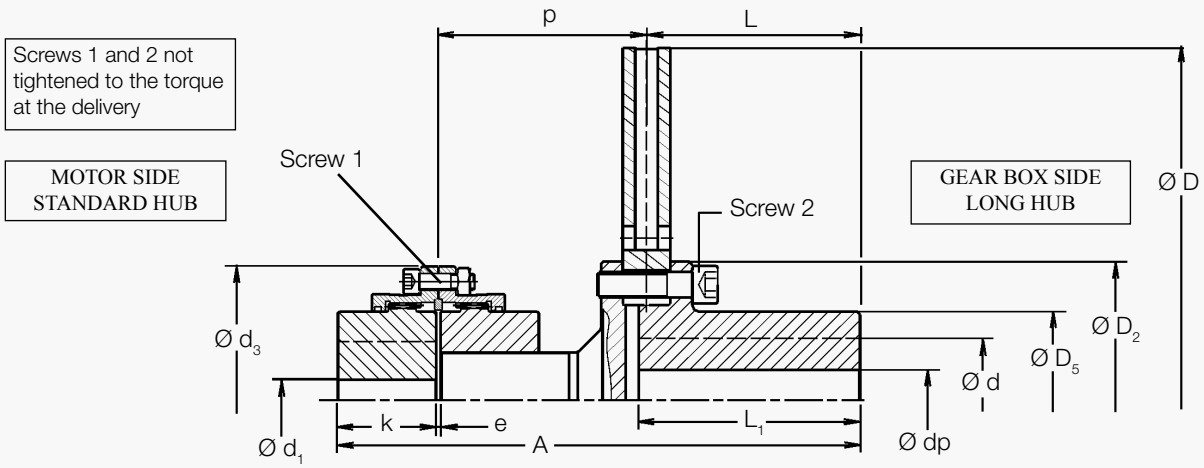
Gear coupling type **SDF-MLP** for solid discs (**P**) diameter : 315 to 995 mm
Gear coupling type **SDF-MLV** for ventilated discs (**V**) diameter : 315 to 795 mm.
Long hub on disc side / Discs thickness 30 mm.

Disc mounting and dismounting without moving the machines back.

Material and balancing of the discs : see the discs leaflet T08020-01.

Hub and coupling : oiling protection.

In standard. only the disc is balanced. The assembly is balanced on demand. (parts angularly matched).



Degrease faces in contact between disc, hub and coupling

Designation				Disc	795 P30/V30								995P30		
				SDF	135		150		170		190		150	170	190
Assembly	J	P30	V30	kg.m²	10.213	6.633	10.515	6.935	11.066	7.486	11.808	8.228	25.08	25.623	26.54
	Weight	P30	V30	kg	261.6	221.6	292.2	252.2	337.6	297.6	354.5	314.5	424.7	451.1	505.2
	A			mm	501		543		573		585		595	610	650
	Maximum speed			rpm	1200								900		
	Maximum braking torque			N.m	Tb ≤ Tp (Tb = maximum braking torque. Tp = maximum peak torque)										
	For use with calipers				Check that D – D2 > width of the caliper braking surface (ex.: 4CA2 and 3CA2 not associated to discs D < 445) Check that the caliper nominal braking torque is ≤ Tp										
Disc	D			mm	795								995		
	D2			mm	300								388		
	D5			mm	216								276		
	L			mm	195								235		
	L1			mm	200								240		
	dp			mm	30								58		
	d maximum keyed			mm	150								190		
	d max. shrink fit			mm	135								180		
	Tightening torque screw 2 ✱			N.m	710								1450		
Coupling	d3			mm	266		298		330		368		298	330	368
	e			mm	6		6		8		8		6	8	8
	k			mm	105		120		135		150		120	135	150
	p			mm	198		225		239		236		237	236	261
	d1 maximum keyed			mm	135		150		170		190		150	170	190
	d1 max. shrink fit			mm	125		140		160		175		140	160	175
	Tightening torque screws 1 ✱			N.m	171		235		235		370		235	235	370
	Maximum peak torque (Tp)			N.m	13800		25300		36700		52500		29200	38000	52500
	Transmissible torque (Tt)			N.m	6900		12650		18350		26250		14600	19000	26250
					In every case : Ts < Tp (Ts : motor starting torque)										

✱: greased under head and on thread

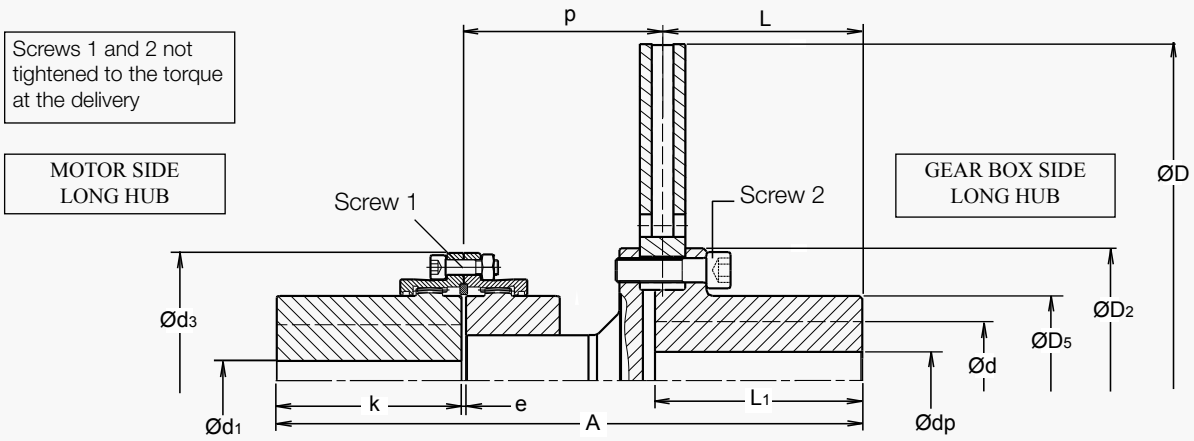
DISC BRAKE - GEAR DISC COUPLING SMLDF-ML

Revision number: T10004-04-B **Revision date: 07.01.2014**

Gear coupling type **SMLDF-MLP** for solid discs (**P**) Ø 315 to 995 mm
Gear coupling type **SMLDF-MLV** for ventilated discs (**V**) Ø 315 to 795 mm.
Long hubs on gear box side and motor side
Discs thickness 30 mm

Disc mounting and dismounting without moving the machines back.

Material and balancing of the discs : see the discs leaflet T08020-01.
Hub and coupling : oiling protection.
In standard. only the disc is balanced.
The assembly is balanced on demand. (parts angularly matched).



Degrease faces in contact between disc, hub and coupling

Designation				Disc	315 P30/V30		355 P30/V30		395 P30/V30				445 P30/V30					
				SDF	68		68		68		80		68		80		100	
Assembly	J	P30	V30	kg.m²	0.249	0.163	0.4	0.264	0.61	0.374	0.632	0.396	0.954	0.595	0.977	0.618	1.039	0.68
	Weight	P30	V30	kg	37.7	30.7	46.5	37.5	56	45	64.3	53.3	65.6	50.6	74.4	59.4	88.3	73.3
	A			mm	372		392		392		407		432		460		495	
	Maximum speed			rpm	3000		2700		2400				2100					
	Maximum braking torque			N.m	Tb ≤ Tp (Tb = maximum braking torque. Tp = maximum peak torque)													
	For use with calipers				Check that D – D2 > width of the caliper braking surface (ex.: 4CA2 and 3CA2 not associated to discs D < 445) Check that the caliper nominal braking torque is ≤ Tp													
Disc	D			mm	315		355		395				445					
	D2			mm	124		145		165				175					
	D5			mm	82		100		112				112					
	L			mm	135		155		155				195					
	L1			mm	140		160		160				200					
	dp			mm	--		--		--				--					
	d maximum keyed			mm	55		70		75				80					
	d max. shrink fit			mm	50		60		70				70					
	Tightening torque screw 2 ✱			N.m	49		86		135				210					
Coupling	d3			mm	140		140		140		169		140		169		200	
	e			mm	3		3		3		3		3		3		5	
	k			mm	115		115		115		130		115		130		150	
	p			mm	120.5		120.5		120.5		120.5		120.5		133.5		147.5	
	d1 maximum keyed			mm	68		68		68		80		68		80		100	
	d1 max. shrink fit			mm	63		63		63		75		63		75		92	
	Tightening torque screws 1 ✱			N.m	33		33		33		60		33		60		60	
	Maximum peak torque (Tp)			N.m	1500		2200		2200				2200		3800		6000	
	Transmissible torque (Tt)			N.m	750		1100		1100				1100		1900		3000	
					In every case : Ts < Tp (Ts : motor starting torque)													

✱: greased under head and on thread

Disc couplings

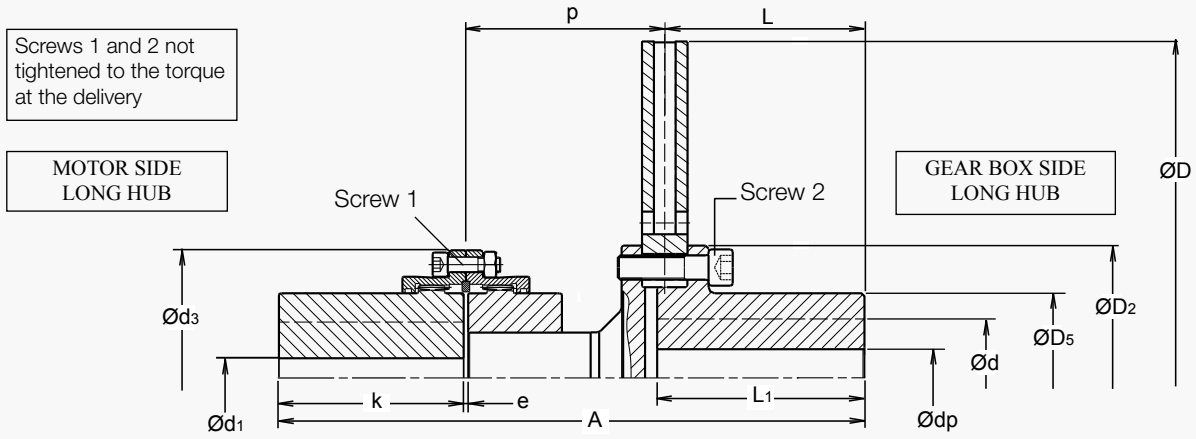
DISC BRAKE - GEAR DISC COUPLING SMLDF-ML

Revision number: T10004-04-B **Revision date: 07.01.2014**

Gear coupling type **SMLDF-MLP** for solid discs (**P**) Ø 315 to 995 mm
Gear coupling type **SMLDF-MLV** for ventilated discs (**V**) Ø 315 to 795 mm.
Long hubs on gear box side and motor side
Discs thickness 30 mm

Disc mounting and dismounting without moving the machines back.

Material and balancing of the discs : see the discs leaflet T08020-01.
Hub and coupling : oiling protection.
In standard. only the disc is balanced.
The assembly is balanced on demand. (parts angularly matched).



Degrease faces in contact between disc, hub and coupling

Designation				Disc	495 P30/V30						550 P30/V30					
				SDF	80		100		115		80		100		115	
Assembly	J	P30	V30	kg.m²	1.555	1.031	1.619	1.095	1.726	1.202	2.278	1.338	2.342	1.402	2.449	1.509
	Weight	P30	V30	kg	101.3	83.3	116.6	98.6	134.5	116.5	112.3	89.3	127.6	104.6	145.5	122.5
	A			mm	475		514		550		475		514		550	
	Maximum speed			rpm	1900						1800					
	Maximum braking torque			N.m	Tb ≤ Tp (Tb = maximum braking torque. Tp = maximum peak torque)											
	For use with calipers				Check that D – D2 > width of the caliper braking surface (ex.: 4CA2 and 3CA2 not associated to discs D < 445) Check that the caliper nominal braking torque is ≤ Tp											
Disc	D			mm	495						550					
	D2			mm	218						218					
	D5			mm	155						155					
	L			mm	195						195					
	L1			mm	200						200					
	dp			mm	30						30					
	d maximum keyed			mm	110						110					
	d max. shrink fit			mm	100						100					
	Tightening torque screw 2 ✱			N.m	290						290					
Coupling	d3			mm	169		200		228		169		200		228	
	e			mm	3		5		5		3		5		5	
	k			mm	130		150		170		130		150		170	
	p			mm	148.5		166.5		182.5		148.5		166.5		182.5	
	d1 maximum keyed			mm	80		100		115		80		100		115	
	d1 max. shrink fit			mm	75		92		106		75		92		106	
	Tightening torque screws 1 ✱			N.m	60		60		95		60		60		95	
	Maximum peak torque (Tp)			N.m	3800		6000		9400		3800		6000		9400	
	Transmissible torque (Tt)			N.m	1900		3000		4700		1900		3000		4700	
					In every case : Ts < Tp (Ts : motor starting torque))											

✱: greased under head and on thread

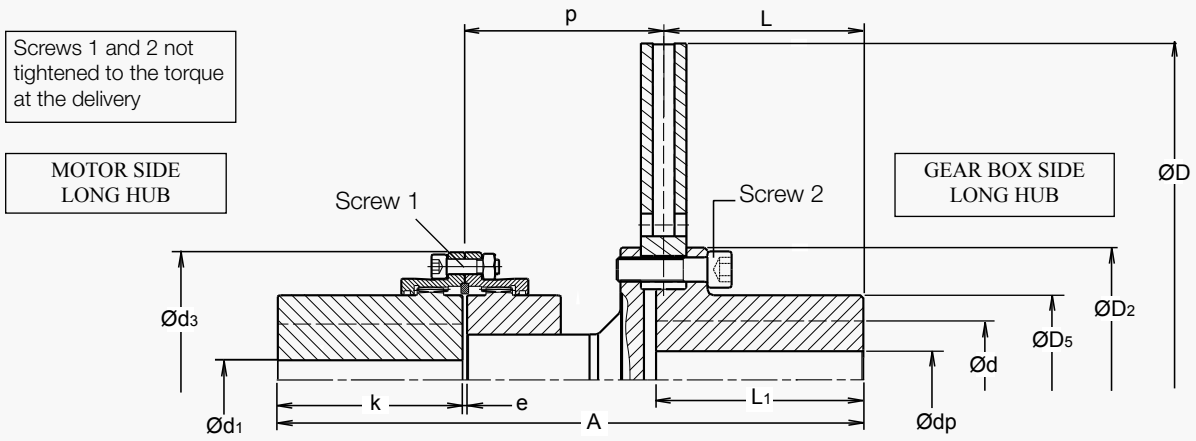
DISC BRAKE - GEAR DISC COUPLING SMLDF-ML

Revision number: T10004-04-B **Revision date: 07.01.2014**

Gear coupling type **SMLDF-MLP** for solid discs (**P**) Ø 315 to 995 mm
Gear coupling type **SMLDF-MLV** for ventilated discs (**V**) Ø 315 to 795 mm.
Long hubs on gear box side and motor side
Discs thickness 30 mm

Disc mounting and dismounting without moving the machines back.

Material and balancing of the discs : see the discs leaflet T08020-01.
Hub and coupling : oiling protection.
In standard. only the disc is balanced.
The assembly is balanced on demand. (parts angularly matched).



Degrease faces in contact between disc, hub and coupling

Designation				Disc	625 P30/V30								625-2 P30/V30					
				SDF	100		115		135		150		150		170		190	
Assembly	J	P30	V30	kg.m²	3.826	2.38	3.881	2.435	4.185	2.739	4.567	3.121	4.871	3.425	5.552	4.106	6.552	5.106
	Weight	P30	V30	kg	151	124	169.3	142.3	204.1	177.1	245.3	218.3	271.2	244.2	328.6	301.6	360.6	333.7
	A			mm	514		550		581		638		638		683		730	
	Maximum speed			rpm	1500								1200					
	Maximum braking torque			N.m	Tb ≤ Tp (Tb = maximum braking torque. Tp = maximum peak torque)													
	For use with calipers				Check that D – D2 > width of the caliper braking surface (ex.: 4CA2 and 3CA2 not associated to discs D < 445) Check that the caliper nominal braking torque is ≤ Tp													
Disc	D			mm	625								625					
	D2			mm	238								300					
	D5			mm	168								216					
	L			mm	195								195					
	L1			mm	200								200					
	dp			mm	30								30					
	d maximum keyed			mm	120								150					
	d max. shrink fit			mm	105								135					
	Tightening torque screw 2 ✱			N.m	410								710					
Coupling	d3			mm	200		228		266		298		298		330		368	
	e			mm	5		5		6		6		6		8		8	
	k			mm	150		170		185		215		215		245		295	
	p			mm	166.5		182.5		198		225		225		239		236	
	d1 maximum keyed			mm	100		115		135		150		150		170		190	
	d1 max. shrink fit			mm	92		106		125		140		140		160		175	
	Tightening torque screws 1 ✱			N.m	60		95		171		235		235		235		370	
	Maximum peak torque (Tp)			N.m	6000		9400		13800		20700		25300		36700		52500	
	Transmissible torque (Tt)			N.m	3000		4700		6900		10350		12650		18350		26250	
					In every case : Ts < Tp (Ts : motor starting torque)													

✱: greased under head and on thread

Disc couplings

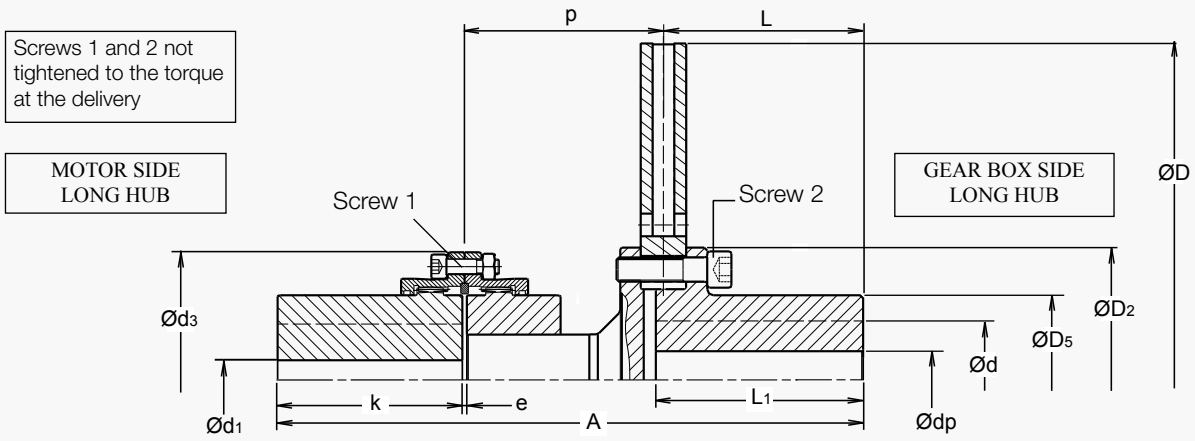
DISC BRAKE - GEAR DISC COUPLING SMLDF-ML

Revision number: T10004-04-B **Revision date: 07.01.2014**

Gear coupling type **SMLDF-MLP** for solid discs (**P**) Ø 315 to 995 mm
Gear coupling type **SMLDF-MLV** for ventilated discs (**V**) Ø 315 to 795 mm.
Long hubs on gear box side and motor side
Discs thickness 30 mm

Disc mounting and dismounting without moving the machines back.

Material and balancing of the discs : see the discs leaflet T08020-01.
Hub and coupling : oiling protection.
In standard. only the disc is balanced.
The assembly is balanced on demand. (parts angularly matched).



Degrease faces in contact between disc, hub and coupling

Designation				Disc	705 P30/V30								705-2 P30/V30					
				SDF	115		135		150		170		150		170		190	
Assembly	J	P30	V30	kg.m²	6.189	3.959	6.523	4.293	6.875	4.645	7.537	5.307	7.041	4.811	7.722	5.492	8.722	6.492
	Weight	P30	V30	kg	203.4	170.4	238.4	205.4	276.6	243.6	330.4	297.4	290.7	257.7	348.1	315.1	380.2	347.2
	A			mm	550		581		638		683		638		683		730	
	Maximum speed			rpm	1300								1200					
	Maximum braking torque			N.m	Tb ≤ Tp (Tb = maximum braking torque. Tp = maximum peak torque)													
	For use with calipers				Check that D – D2 > width of the caliper braking surface (ex.: 4CA2 and 3CA2 not associated to discs D < 445) Check that the caliper nominal braking torque is ≤ Tp													
Disc	D			mm	705								705					
	D2			mm	268								300					
	D5			mm	190								216					
	L			mm	195								195					
	L1			mm	200								200					
	dp			mm	30								30					
	d maximum keyed			mm	135								150					
	d max. shrink fit			mm	120								135					
	Tightening torque screw 2 ✱			N.m	550								710					
Coupling	d3			mm	228		266		298		330		298		330		368	
	e			mm	5		6		6		8		6		8		8	
	k			mm	170		185		215		245		215		245		295	
	p			mm	182.5		198		225		239		225		239		236	
	d1 maximum keyed			mm	115		135		150		170		150		170		190	
	d1 max. shrink fit			mm	106		125		140		160		140		160		175	
	Tightening torque screws 1 ✱			N.m	95		171		235		235		235		235		370	
	Maximum peak torque (Tp)			N.m	9400		13800		25300		29200		25300		36700		52500	
	Transmissible torque (Tt)			N.m	4700		6900		12650		14600		12650		18350		26250	
					In every case : Ts < Tp (Ts : motor starting torque))													

✱: greased under head and on thread

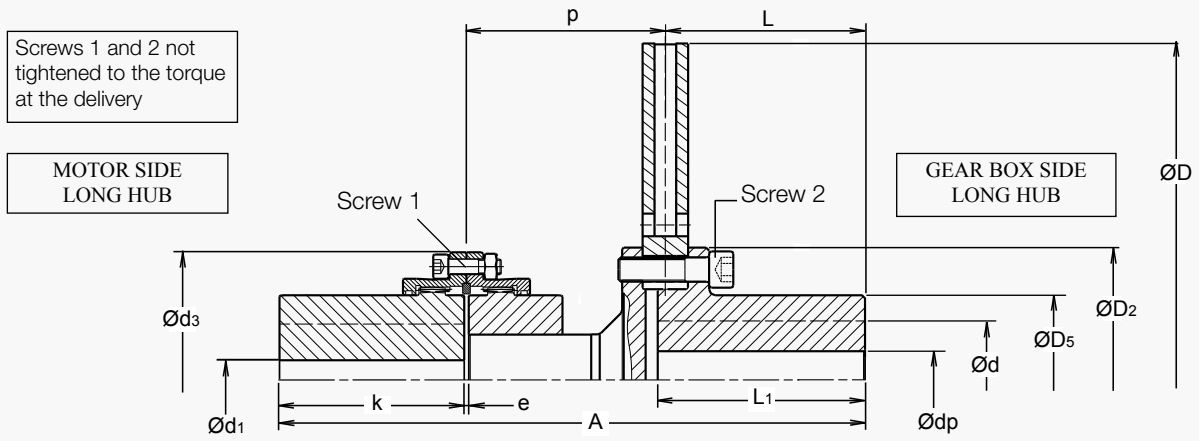
DISC BRAKE - GEAR DISC COUPLING SMLDF-ML

Revision number: T10004-04-B **Revision date: 07.01.2014**

Gear coupling type **SMLDF-MLP** for solid discs (**P**) Ø 315 to 995 mm
Gear coupling type **SMLDF-MLV** for ventilated discs (**V**) Ø 315 to 795 mm.
Long hubs on gear box side and motor side
Discs thickness 30 mm

Disc mounting and dismounting without moving the machines back.

Material and balancing of the discs : see the discs leaflet T08020-01.
Hub and coupling : oiling protection.
In standard. only the disc is balanced.
The assembly is balanced on demand. (parts angularly matched).



Degrease faces in contact between disc, hub and coupling

Designation				Disc	795 P30/V30								995P30		
				SDF	135		150		170		190		150	170	190
Assembly	J	P30	V30	kg.m²	10.288	6.708	10.651	7.071	11.332	7.752	12.332	8.752	25.22	25.89	26.807
	Weight	P30	V30	kg	279.6	239.6	318.2	278.2	375.6	335.6	407.7	367.7	447.6	484.8	539
	A			mm	581		638		683		730		690	720	795
	Maximum speed			rpm	1200								900		
	Maximum braking torque			N.m	Tb ≤ Tp (Tb = maximum braking torque. Tp = maximum peak torque)										
	For use with calipers				Check that D – D2 > width of the caliper braking surface (ex.: 4CA2 and 3CA2 not associated to discs D < 445) Check that the caliper nominal braking torque is ≤ Tp										
Disc	D			mm	795								995		
	D2			mm	300								388		
	D5			mm	216								276		
	L			mm	195								235		
	L1			mm	200								240		
	dp			mm	30								58		
	d maximum keyed			mm	150								190		
	d max. shrink fit			mm	135								180		
	Tightening torque screw 2 ✱			N.m	710								1450		
Coupling	d3			mm	266		298		330		368		298	330	368
	e			mm	6		6		8		8		6	8	8
	k			mm	185		215		245		295		215	245	295
	p			mm	198		225		239		236		237	236	261
	d1 maximum keyed			mm	135		150		170		190		150	170	190
	d1 max. shrink fit			mm	125		140		160		175		140	160	175
	Tightening torque screws 1 ✱			N.m	171		235		235		370		235	235	370
	Maximum peak torque (Tp)			N.m	13800		25300		36700		52500		29200	38000	52500
	Transmissible torque (Tt)			N.m	6900		12650		18350		26250		14600	19000	26250
					In every case : Ts < Tp (Ts : motor starting torque)										

✱: greased under head and on thread

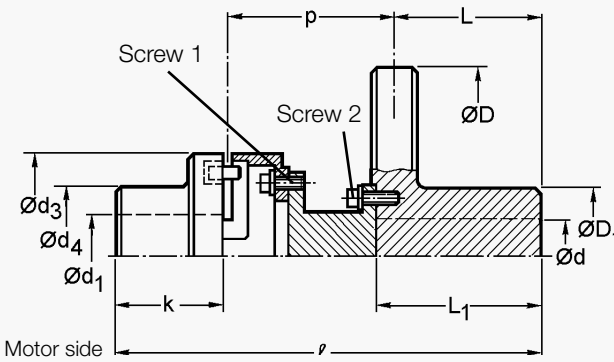
DISC BRAKE - FLEXIBLE DISC COUPLING E

Revision number: T02580-01-B **Revision date: 25.11.2010**

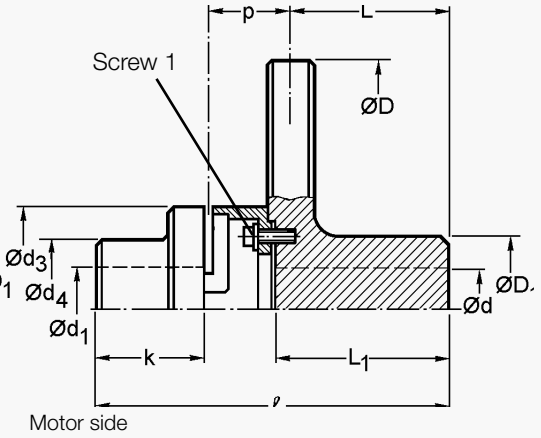
Flexible coupling "NORMEX" E series
Solid discs Ø 175 to **395**
Disc thickness: 15 mm

Screws 1 and 2 not tightened to the torque at the delivery

175 P 15 - 220 P 15



260 P 15 - 315 P 15 - 395 P 15



Degrease faces in contact between disc and coupling.

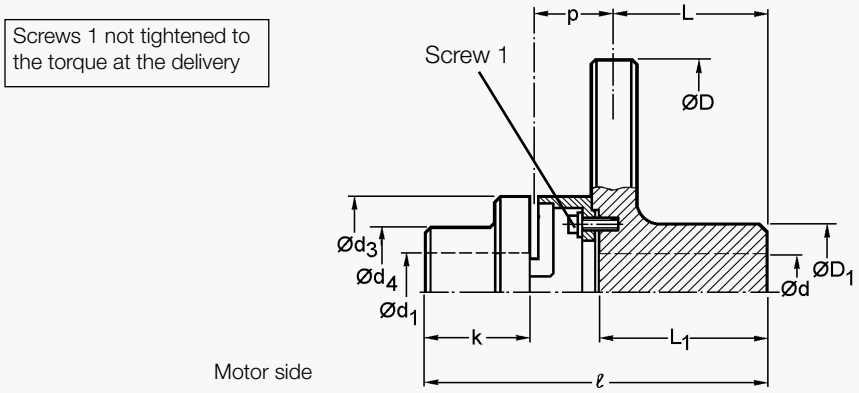
Designation		Disc type	175 P 15		220 P 15		260 P 15		315 P 15			395 P 15		
		Coupling	97	112	112	128	112	128	112	128	148	128	148	168
Assembly	J	kgm²	0.017	0.019	0.038	0.042	0.065	0.070	0.13	0.135	0.14	0.31	0.315	0.335
	Weight	kg	8	9.5	12.5	15.5	18	21	22	24	28	30	34	39
	For use with caliper	Type	660-650		660-650		660-650		660-650			660-650		
	Maximum speed	t/mn	5000		4 300		3 600		3 000			2 400		
	ℓ	mm	183	244	211	244	190	201	214.5	225.5	230	225.5	230	245
Disc	D	mm	175	175	220	220	260	260	315	315	315	395	395	395
	D_1	mm	75	75	95	95	120	120	120	120	120	120	120	120
	L	mm	55	55	65	65	85	85	102	102	102	102	102	102
	L_1	mm	58.5	58.5	68.5	68.5	88.5	88.5	113	113	112	112	112	112
	d max. keyed	mm	44		55		55		60		65	60	65	
	d max. for shrink fit	mm	40		55		55		60		65	60	65	
Coupling	d_3	mm	97	112	112	128	112	128	112	128	148	128	148	168
	d_4	mm	69	79	79	90	79	90	79	90	107	90	107	124
	K	mm	50	60	60	70	60	70	60	70	80	70	80	90
	p	mm	76.5	127.25	84.25	107.25	43.25	44.25	50.75	51.75	46.25	51.75	46.25	51.25
	d_1 max. keyed	mm	42	48	48	55	48	55	48	55	65	55	65	75
	Peak max. torque (Cp)	Nm	200	310	310	500	310	500	310	500	800	500	800	1300
	Max. permissible torque (Ct) and working conditions (Ambient temperature ≤ 40 °C)		150 starts/ hour 8 h/24 h - Ct ≤ Cp/2.5 300 starts/ hour 8 h/24 h - Ct ≤ Cp/3.2 600 starts/ hour 8 h/24 h - Ct ≤ Cp/4						In every case: Cd < Cp (Cd motor starting torque) (Ct: motor nominal torque)					
	Tightening torque on screws (1) and (2) ✱	Nm	10	25	25	25	25	25	25	25	49	25	49	86

✱: stopped with normal glue

DISC BRAKE - FLEXIBLE DISC COUPLING E

Revision number: T02580-01-B **Revision date: 25.11.2010**

Flexible coupling "NORMEX" E series
Solid discs Ø 445 to 625
Disc thickness: 15 mm



Degrease faces in contact between disc and coupling.

Designation		Disc type	445 P 15				495 P 15			550 P 15				625 P 15		
		Coupling	128	148	168	194	148	168	194	148	168	194	214	168	194	214
Assembly	J	kgm²	0.49	0.495	0.515	0.55	0.785	0.815	0.84	1.175	1.205	1.23	1.30	1.975	2	2.07
	Weight	kg	33	37	43	51	52	58	66	58	64	72	80	74	82	90
	For use with caliper	Type	660-650-645				660-650-645			660-650-645				660-650-645		
	ℓ	mm	225.5	230	245	260	263	278	293	263	278	293	308	278	293	308
Disc	D	mm	445	445	445	445	495	495	495	550	550	550	550	625	625	625
	D_1	mm	120	120	120	120	150	150	150	150	150	150	150	150	150	150
	L	mm	102	102	102	102	135	135	135	135	135	135	135	135	135	135
	L_1	mm	112	112	112	112	145	145	145	145	145	145	145	145	145	145
	d max. keyed	mm	60	65	65		65	70	70	65	70	70	90	70	70	90
	d max. for shrink fit	mm	60	65	65		65	70	70	65	70	70	90	70	70	90
Coupling	d_3	mm	128	148	168	194	148	168	194	148	168	194	214	168	194	214
	d_4	mm	90	107	124	140	107	124	140	107	124	140	157	124	140	157
	k	mm	70	80	90	100	80	90	100	80	90	100	110	90	100	110
	p	mm	51.75	46.25	51.25	56.25	46.25	51.25	56.25	46.25	51.25	56.25	61	51.25	56.25	61
	d_1 max. keyed	mm	55	65	75	85	65	75	85	65	75	85	95	75	85	95
	Peak max. torque (Cp)	Nm	500	800	1300	2000	800	800	2000	2000	1300	2000	3100	1300	2000	3100
	Max. permissible torque (Ct) and working conditions (Ambient temperature ≤ 40 °C)		150 starts / hour 8 h/24 h - Ct ≤ Cp/2.5 300 starts / hour 8 h/24 h - Ct ≤ Cp/3.2 600 starts / hour 8 h/24 h - Ct ≤ Cp/4							In every case: Cd < Cp (Cd motor starting torque) (Ct: motor nominal torque)						
	Tightening torque on screw (1) ✱	Nm	25	49	86	86	49	86	86	49	86	86	135	86	86	135

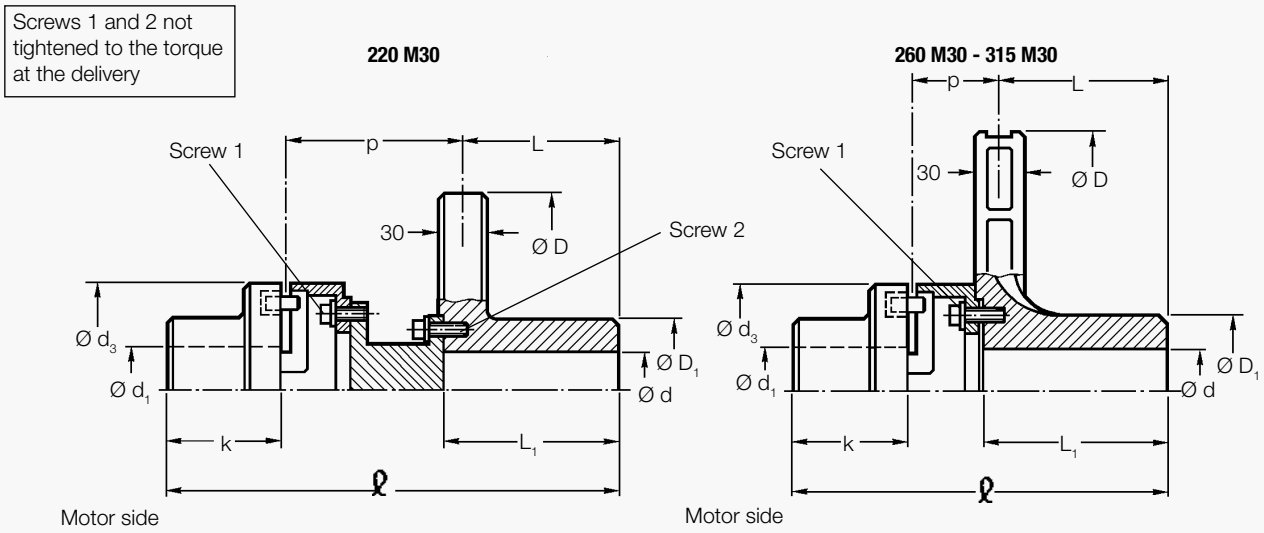
✱: stopped with normal glue

Disc couplings

DISC BRAKE - FLEXIBLE DISC COUPLING E

Revision number: T02680-01-B **Revision date: 25.11.2010**

Flexible coupling E series
Monobloc discs Ø 220 - 260 - 315
Disc thickness: 30 mm



Degrease faces in contact between disc and coupling.

Designation			Disc	220 M 30		260 M 30		315 M 30		
			Flexible coupling	112	128	112	128	112	128	148
Assembly	J	kgm²		0.063	0.067	0.078	0.09	0.145	0.155	0.160
	Weight	kg		16.2	19.2	15	18	17	20	24.5
	For use with calipers	Type		650-5D		650-5D		650-5D-5K		650-5D
	Maximum speed	r.p.m.		4 300		3 600		3 000		
	ℓ	mm		313.5	323.5	220.5	231.5	231.5	225.5	230
Disc	D	mm		220		260		315		
	D_1	mm		85		85		90		
	L	mm		102		102		102		
	L_1	mm		113		120		113		
	d (pilot bore)	mm		20		30		35		
	d maxi keyed	mm		55		55		60		
	d maxi shrink fitted	mm		55		55		60		
Coupling Pb75	k	mm		60	70	60	70	60	70	80
	p	mm		149.75	149.75	56.75	57.75	50.75	51.75	46.25
	d_3	mm		112	128	112	128	112	128	148
	d_1 maxi keyed	mm		48	55	48	55	48	55	65
	d_1 maxi shrink fitted	mm		-	-	-	-	-	-	-
	Peak maxi. torque (Cp)	N.m		310	500	310	500	310	500	800
	Transmissible torque (Ct) and working conditions (ambient temperature ≤ 40°C) (Ct: motor nominal torque)			150 starts/hour 300 starts/hour 600 starts/hour (in every case: Cd < Cp)		8 h/24 h - Ct ≤ Cp/2.5 8 h/24 h - Ct ≤ Cp/3.2 8 h/24 h - Ct ≤ Cp/4		(Cd: motor starting torque)		
	Tightening torque of screws (1) and (2) ✱	Nm		20	20	20	20	20	20	44

✱: stopped with normal glue

DISC BRAKE - FLEXIBLE DISC COUPLING SVK AND SDK

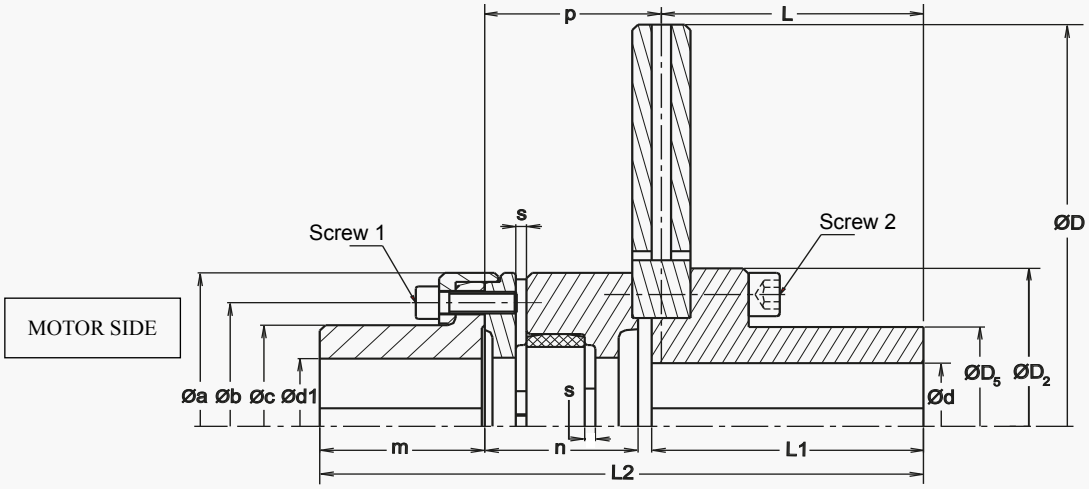
Revision number: T02810-01-A **Revision date: 15.01.2004**

Flexible couplings series SVK and SDK
Ventilated Discs thickness : 30 mm
Disc mounting and dismounting without moving the machines back

- Rubber element V
- Rubber element D

(specify type of rubber element with order)

Option:
- Solid disc



Degrease faces in contact between disc and coupling.

	Disc Ø V30		315	315	355	395	445	445	495	550	550	625	705	705	795	705	795
	Flexible coupling SVK/SDK		**125**	**145**		**170**		**200**	**230**		**260**			**300**		**400**	
Assembly	J	kg.m²	0.159	0.174	0.26	0.404	0.633	0.704	1.183	1.495	1.713	2.663	4.193	4.53	6.91	6.524	8.904
	Weight	kg	20	24	28	36	45	53	77	83	109	117	128	147	210	222	286
	For use with calipers		650-5	650-5	650-5 645	650-5 645	650-5 645	650-5 645	650-5 645-4	650-5 645-4-3	650-5 645-4-3	650-5 645-4-3	4-3	4-3 2TB	4-3	2TB 1TSA	2TB 1TSA
	Maximum speed	r.p.m.	3000	3000	2700	2400	2100	2100	1800	1800	1800	1500	1300	1300	1200	1300	1200
	L2		244	264.5	264.5	278	311	336	350	350	386.5	386.5	386.5	417.5	417.5	464	464
Disc	ØD	mm	315	315	355	395	445	445	495	550	550	625	705	705	795	705	795
	$ØD_2$	mm	125	125	145	165	175	175	220	220	220	235	265	265	300	265	300
	$ØD_5$	mm	80	80	95	105	110	110	150	150	150	150	180	180	210	180	210
	Ød max keyed or shrink fit	mm	50	50	60	70	70	70	100	100	100	100	120	120	130	120	130
	L	mm	102	102	102	102	135	135	135	135	135	135	135	135	135	135	135
	L1	mm	107	107	107	107	140	140	140	140	140	140	140	140	140	140	140
Coupling	Øa	mm	129	153	153	170	170	210	230	230	260	260	260	300	300	400	400
	Øb	mm	100	121	121	137	137	161	184	184	212	212	212	248	248	328	328
	Øc	mm	80	100	100	112	112	126	140	140	168	168	168	190	190	240	240
	Ød1 max keyed	mm	55	70	70	80	80	90	100	100	120	120	120	125	125	150	150
	m	mm	66	75	75	85	85	100	105	105	125	125	125	145	145	175	175
	n	mm	63	74.5	74.5	78	78	88	97	97	113.5	113.5	113.5	124.5	124.5	141	141
	p	mm	76	87.5	87.5	91	91	101	110	110	126.5	126.5	126.5	137.5	137.5	154	154
	s	mm	6	6.5	6.5	7.5	7.5	8.5	9.5	9.5	9.5	9.5	9.5	10	10	10.5	10.5
	Max. torque Cmax in Nm — Rubber element	V	630	1050		1660		2880	4500		7200			10400		23400	
		D	1110	1800		2850		4950	7740		11940			17550		40050	
Transmissible torque (Ct) (Ct: motor nominal torque)			Ct ≤ Cmax/k Cd < Cmax			k min.temperature: rate:			k=3	< 40°c ≤ 120starts/h	k=4		< 80°c ≤ 240starts/h	k=6		≤ 80°C ≤ 600starts/h	
Tightening torque ✱	Screw 1	Nm	45	45	45	75	75	185	185	185	370	370	370	370	370	640	640
	Screw 2	Nm	49	49	86	135	210	210	290	290	290	410	550	550	710	550	710

✱ Screws greased under head and on thread.

Cd: motor starting torque. In all cases. Cd < Cmax

Disc couplings

DISC BRAKE - FLEXIBLE DISC COUPLING SVKL AND SDKL

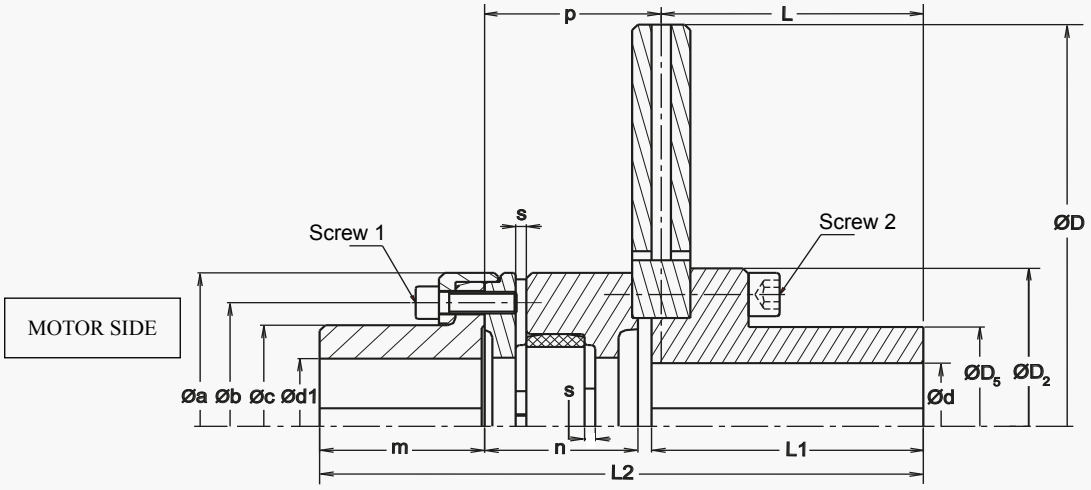
Revision number: T02815-01-A **Revision date: 15.01.2004**

Flexible couplings series SVKL and SDKL
Ventilated Discs thickness : 30 mm
Disc mounting and dismounting without moving the machines back

- Rubber element V
- Rubber element D

(specify type of rubber element with order)

Option:
- Solid disc



Degrease faces in contact between disc and coupling.

	Disc Ø V30			315	315	355	395	445	445	495	550	550	625	705	705	795	705	795
	Flexible coupling SVKL/SDKL			125	145		170		200	230		260			300		400	
Assembly	J		kg.m²	0.161	0.177	0.26	0.41	0.64	0.709	1.2	1.512	1.76	2.71	4.24	4.59	6.97	6.788	9.168
	Weight		kg	21.5	26	30	40	49	55.5	84	90	122	130	141	160	223	259	323
	For use with calipers			650-5	650-5	650-5 645	650-5 645	650-5 645	650-5 645	650-5 645-4	650-5 645-4-3	650-5 645-4-3	650-5 645-4-3	4-3	4-3 2TB	4-3	2TB 1TSA	2TB 1TSA
	Maximum speed		r.p.m.	3000	3000	2700	2400	2100	2100	1800	1800	1800	1500	1300	1300	1200	1300	1200
	L2			286.5	298	298	331.5	364.5	364.5	412.5	412.5	469	469	469	480	480	576.5	576.5
Disc	ØD		mm	315	315	355	395	445	445	495	550	550	625	705	705	795	705	795
	$ØD_2$		mm	125	125	145	165	175	175	220	220	220	235	265	265	300	265	300
	$ØD_5$		mm	80	80	95	105	110	110	150	150	150	150	180	180	210	180	210
	Ød max keyed or shrink fit		mm	50	50	60	70	70	70	100	100	100	100	120	120	130	120	130
	L		mm	102	102	102	102	135	135	135	135	135	135	135	135	135	135	135
	L1		mm	107	107	107	107	140	140	140	140	140	140	140	140	140	140	140
Coupling	Øa		mm	129	153	153	170	170	210	230	230	260	260	260	300	300	400	400
	Øb		mm	100	121	121	137	137	161	184	184	212	212	212	248	248	328	328
	Øc		mm	80	100	100	112	112	126	140	140	168	168	168	190	190	240	240
	Ød1 max keyed		mm	55	70	70	80	80	90	100	100	120	120	120	125	125	150	150
	m		mm	108.5	108.5	108.5	138.5	138.5	128.5	167.5	167.5	207.5	207.5	207.5	207.5	207.5	287.5	287.5
	n		mm	63	74.5	74.5	78	78	88	97	97	113.5	113.5	113.5	124.5	124.5	141	141
	p		mm	76	87.5	87.5	91	91	101	110	110	126.5	126.5	126.5	137.5	137.5	154	154
	s		mm	6	6.5	6.5	7.5	7.5	8.5	9.5	9.5	9.5	9.5	9.5	10	10	10.5	10.5
	Max. torque Cmax in Nm	Rubber element	V	630	1050		1660		2880	4500		7200			10400		23400	
			D	1110	1800		2850		4950	7740		11940			17550		40050	
Transmissible torque (Ct) (Ct: motor nominal torque)				Ct ≤ Cmax/k Cd < Cmax			k min.temperature: rate:			k=3	< 40°c ≤ 120starts/h			k=4	< 80°c ≤ 240starts/h		k=6	≤ 80°C ≤ 600starts/h	
Tightening torque ✱	Screw 1		Nm	45	45	45	75	75	185	185	185	370	370	370	370	370	640	640
	Screw 2		Nm	49	49	86	135	210	210	290	290	290	410	550	550	710	550	710

✱ Screws greased under head and on thread.

Cd: motor starting torque. In all cases, Cd < Cmax

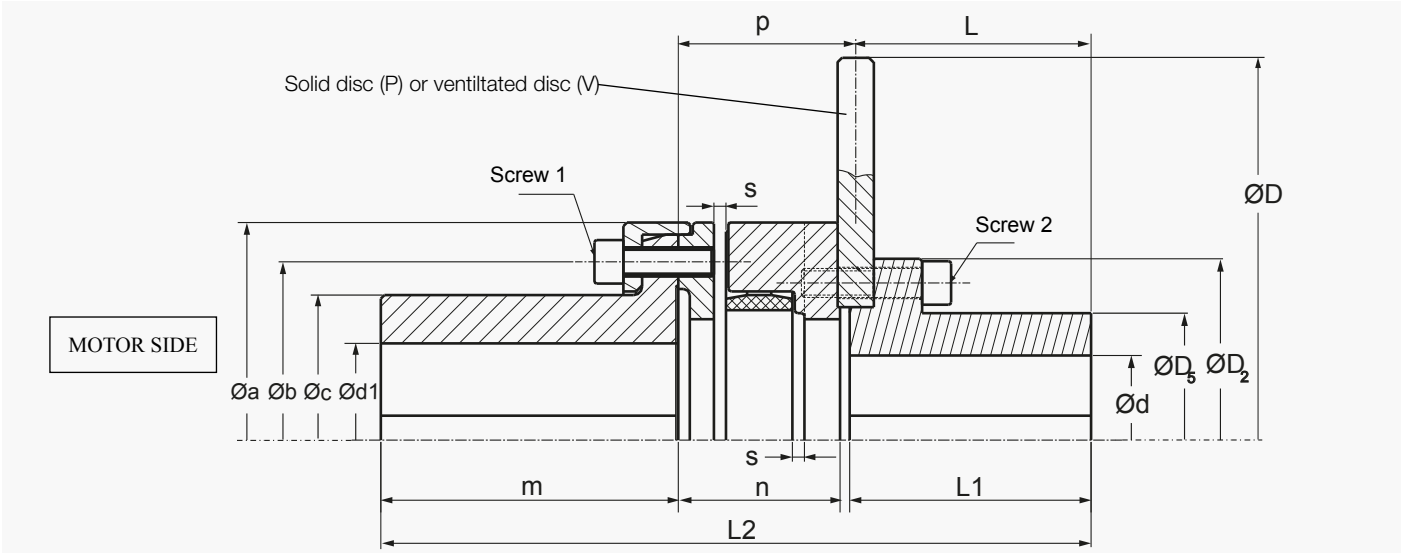
DISC BRAKE - FLEXIBLE DISC COUPLING SDKL/SVKL-ML

Revision number: T02827-01-A **Revision date: 15.01.2004**

Flexible couplings serie **SDKL / SVKL-MLP** for solid disc (P) diameter 355 to 995 mm
Flexible couplings serie **SDKL / SVKL-MLV** for ventilated (V) diameter 355 to 795 mm
For **TDXB** and **FAV** brakes

Discs thickness 30 mm
Disc mounting and dismounting without moving the machines back

- Rubber element V
- Rubber element D
  (specify the type of element with order)



Degrease faces in contact between disc, hub and coupling.

	Disc Ø ... P30/V30		355		395		445		495		550		550		625...-1		625...-2	
	SDKL/SVKL-ML		145		170		170		230		230		260		260		300	
Assembly	J P30 | V30	kg.m²	**0.396**	0.26	**0.646**	0.41	**0.999**	0.64	**1.724**	1.2	**2.447**	1.507	**2.7**	1.76	**4.116**	2.67	**4.41**	2.964
	Weight P30 | V30	kg	**42**	33	**57**	46	**68.5**	53.5	**110**	92	**121**	98	**157**	134	**173**	146	**187**	160
	Maximum speed	r.p.m.	2 700		2 400		2 100		1 800		1 800		1 800		1 500		1 500	
	L2		351		384.5		424.5		472.5		472.5		529		529		540	
Disc	ØD	mm	355		395		445		495		550		550		625		625	
	$ØD_2$	mm	145		165		175		220		220		220		235		300	
	$ØD_5$	mm	95		105		110		150		150		150		150		210	
	Ød max keyed or shrink fit	mm	60		70		75		110		110		110		110		140	
	L	mm	155		155		195		195		195		195		195		195	
	L1	mm	160		160		200		200		200		200		200		200	
Coupling	Øa	mm	153		170		170		230		230		260		260		300	
	Øb	mm	121		137		137		184		184		212		212		248	
	Øc	mm	100		112		112		140		140		168		168		190	
	Ød1 max keyed	mm	70		80		80		100		100		120		120		125	
	m	mm	108.5		138.5		138.5		167.5		167.5		207.5		207.5		207.5	
	n	mm	74.5		78		78		97		97		113.5		113.5		124.5	
	p	mm	87.5		91		91		110		110		126.5		126.5		137.5	
	s	mm	6.5		7.5		7.5		9.5		9.5		9.5		9.5		10	
	Max. torque Cmax in Nm — Rubber element	V	1 050		1 660		1 660		4 500		4 500		7 200		7 200		10 400	
		D	1 800		2 850		2 850		7 740		7 740		11 940		11 940		17 550	
Transmissible torque (Ct) (Ct: motor nominal torque)			Ct ≤ Cmax/k Cd < Cmax				k min.temperature rate:		k=3 < 40°c ≤ 120starts/h				k=4 < 80°c ≤ 240starts/h		k=6 ≤ 80°C ≤ 600starts/h			
Tightening torque ✱	Screw 1	Nm	45		75		75		185		185		370		370		370	
	Screw 2	Nm	86		135		210		290		290		290		410		710	

✱ Screws greased under head and on thread.

Cd: motor starting torque. In all cases, Cd < Cmax

DISC BRAKE - FLEXIBLE DISC COUPLING SDKL/SVKL-ML

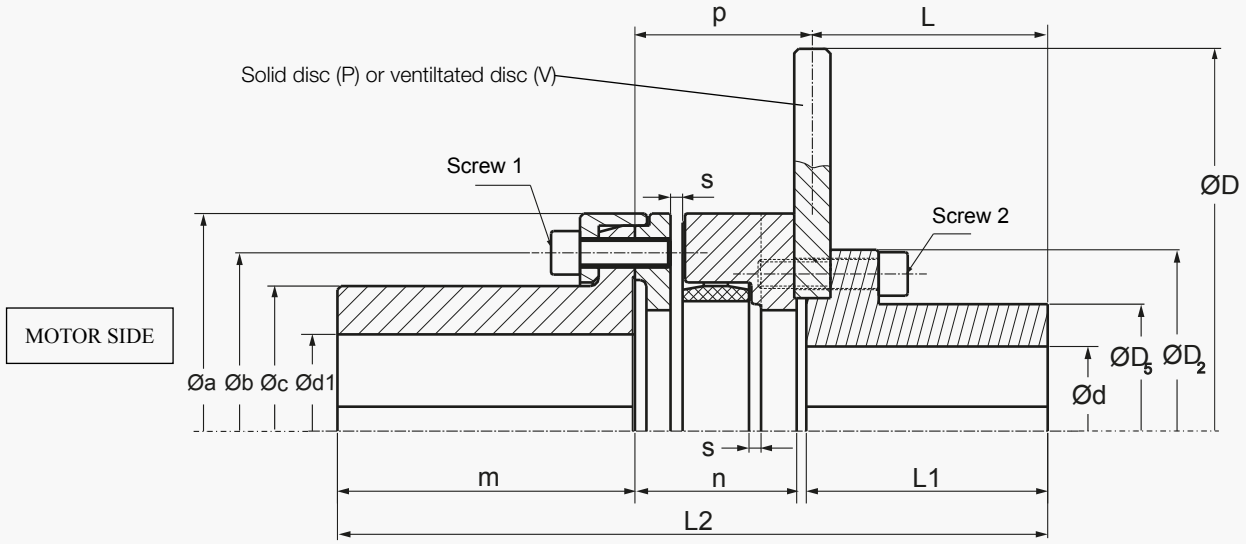
Revision number: T02827-01-A **Revision date: 15.01.2004**

Flexible couplings serie **SDKL / SVKL-MLP** for solid disc (P) diameter 355 to 995 mm
Flexible couplings serie **SDKL / SVKL-MLV** for ventilated (V) diameter 355 to 795 mm
For **TDXB** and **FAV** brakes

Discs thickness 30 mm
Disc mounting and dismounting without moving the machines back

- Rubber element V
- Rubber element D

(specify the type of element with order)



Degrease faces in contact between disc, hub and coupling.

	Disc Ø ... P30/V30			705...-1		705...-2		705...-2		795		795		995 P30		995 P30	
	SDKL / SVKL			260		300		360		300		360		360		400	
Assembly	J P30 | V30		kg.m²	**6.3**	4.07	**6.58**	4.35	**8.354**	6.124	**10.19**	6.61	**11.964**	8.384	**26.14**		**26.58**	
	Weight P30 | V30		kg	**191**	158	**206.5**	173.5	**281.2**	248.2	**234**	194	**308.7**	268.7	**412**		**442**	
	Maximum speed		r.p.m.	1 300		1 300		1 300		1 200		1 200		900		900	
	L2			529		540		588.5		540		588.5		628.5		636.5	
Disc	ØD		mm	705		705		705		795		795		995		995	
	$ØD_2$		mm	265		300		300		300		300		380		380	
	$ØD_5$		mm	180		210		210		210		210		260		260	
	Ød max keyed or shrink fit		mm	125		140		140		140		140		140		140	
	L		mm	195		195		195		195		195		235		235	
	L1		mm	200		200		200		200		200		240		240	
Coupling	Øa		mm	260		300		360		300		360		360		400	
	Øb		mm	212		248		295		248		295		295		328	
	Øc		mm	168		190		240		190		240		240		240	
	Ød1 max keyed		mm	120		125		160		125		160		160		150	
	m		mm	207.5		207.5		246.5		207.5		246.5		246..5		247.5	
	n		mm	113.5		124.5		134		124.5		134		134		141	
	p		mm	126.5		137.5		147		137.5		147		147		154	
	s		mm	9.5		10		10		10		10		10		10.5	
	Max. torque Cmax in Nm	Rubber element	V	7 200		10 400		19 500		10 400		19 500		19 500		23 400	
			D	11 940		17 550		29 100		17 550		29 100		29 100		40 050	
Transmissible torque (Ct) (Ct: motor nominal torque)				Ct ≤ Cmax/k Cd < Cmax		k min.temperature: rate:		k=3	< 40°c ≤ 120starts/h		k=4	< 80°c ≤ 240starts/h			k=6	≤ 80°C ≤ 600starts/h	
Tightening torque ✱	Screw 1		Nm	370		370		640		370		640		640		640	
	Screw 2		Nm	550		710		710		710		710		1450		1450	

✱ Screws greased under head and on thread.

Cd: motor starting torque. In all cases, Cd < Cmax

NOTES

BARREL-ROLLER COUPLINGS

Barrel-roller couplings

APPLICATIONS

- HOISTING DEVICE OF CRANES AND CONVEYORS INSTALLATIONS
- STEEL INDUSTRY
- HOISTING, GANTRY, STACKER AND CONTAINERS CRANES

MAIN CHARACTERISTICS

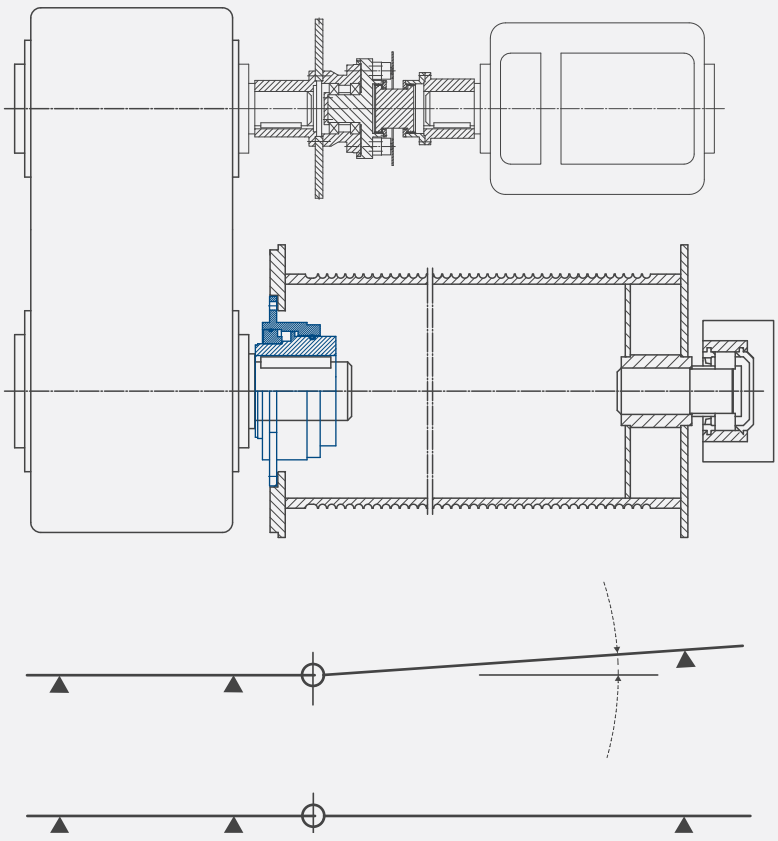
- CONNECT THE SLOW ROTATING SHAFT OF A GEARBOX TO THE ROPE DRUM OF HOISTING INSTALLATIONS
- CANCEL ALL THE CONSEQUENTIAL DISADVANTAGE OF A RIGID CONNECTION
- COMPENSATION OF ANGULAR AND AXIAL MISALIGNEMENT

BCS COUPLINGS

- All-steel design
- Connection between hub and sleeve performed by barrel rollers
- Possibility to disassemble the hub from the sleeve
- Roller seats, inside the sleeve, are precisely machined and hardened

Benefits include

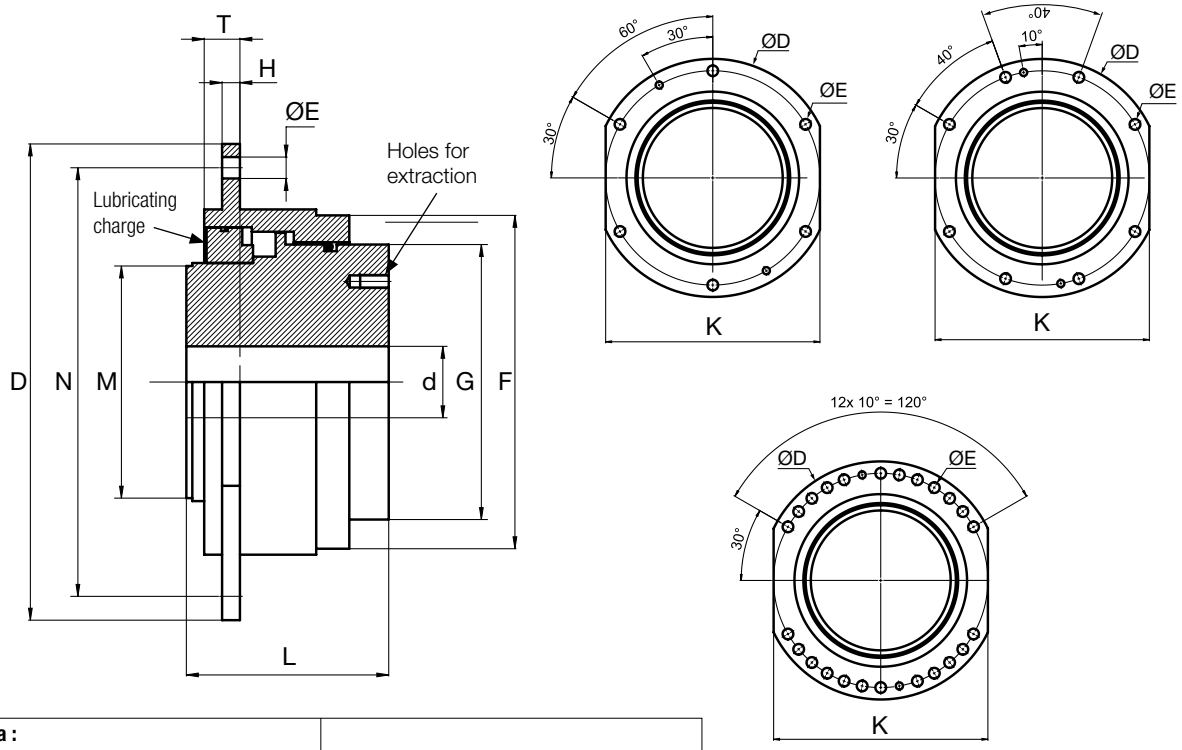
- Consent elevated radial loads proper to the rope drum of a hoisting crane
- Easy mounting :
  - hub fitted on the shaft of the gearbox
  - sleeve bolted directly on the rope drum
  - the 2 parts of the coupling are separately assembled in their axial working position
- Wear minimized



DRUMS - BARREL-ROLLER COUPLINGS TYPE BCS

Revision number: T10144-01-B **Revision date: 23.11.17**

Steel coupling designed to connect the slow rotating shaft of a gearbox to the rope drum of hoisting equipment.



Nota : For bore finishing, reference centering diameter is concentric to barrel rollers pitch circle.	The dimensions **L** are the standard length of the couplings type **BCS**. For different lengths, conult us.

COUPLING type BCS...		**140**	**160**	**180**	**200**	**220**	**240**	**260**	**280**	**310**	**340**	**400**	**420**	**450**	**530**	**560**	**600**	**670**	**730**
Bore **d** (mm)	pilot	30	30	30	50	50	60	60	60	70	70	90	90	100	100	120	120	140	140
	max	65	80	85	95	105	115	130	140	160	175	210	220	235	290	310	330	375	410
Dimensions (mm)	**D**	230	250	280	320	340	360	380	400	420	450	510	550	580	650	680	710	780	850
	M	90	110	120	135	145	163	183	195	225	255	310	325	350	425	455	490	555	615
	F h6	140	160	180	200	220	240	260	280	310	340	400	420	450	530	560	600	670	730
	T	42	42	42	45	45	45	45	45	45	60	60	60	60	65	65	81	81	81
	L	90	95	100	110	125	130	145	170	175	185	220	240	260	315	350	380	410	450
	H	12	12	12	15	15	15	15	15	15	20	20	20	20	25	25	25	25	25
	N	200	220	250	280	300	320	340	360	380	400	460	500	530	600	630	660	730	800
	G	110	130	142	157	175	195	215	231	261	286	346	361	386	461	491	526	591	651
	Ø **E** H8	14	14	14	18	18	18	18	18	18	24	24	24	24	24	24	28	28	28
	N° holes	6	6	6	6	6	6	6	6	6	6	6	6	8	8	24	24	24	24
	K h9	200	220	250	280	300	320	340	360	380	400	460	500	530	580	600	640	700	760
Weight (kg)		13	16	24	29	35	42	54	67	90	108	150	190	230	395	460	520	740	890
Nominal torque max. (daNm)		50	400	780	1350	1600	1850	2200	3200	4000	5100	7700	11250	13000	19000	31000	42000	54000	75000
Radial force (daN)		1200	1400	1800	2500	3100	3700	4200	5200	6300	7950	11250	12300	14500	20200	25000	30000	34000	39000

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