

SIME Brakes Industrial Braking Systems

Service Brakes

APPLICATIONS

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

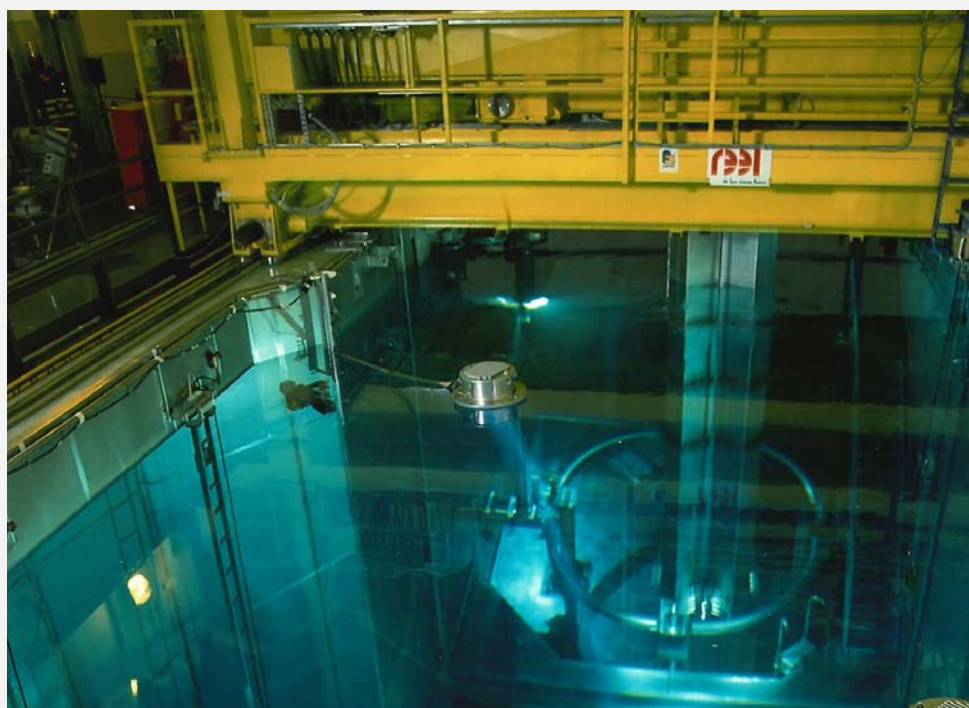
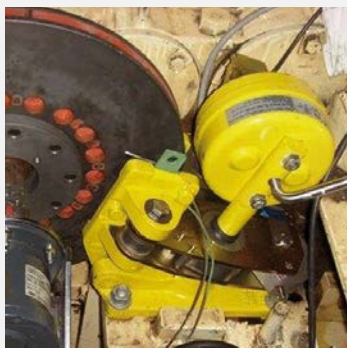


Photo courtesy of EDF



ELECTROMAGNETIC SERVICE BRAKES

MAIN CHARACTERISTICS	OPTIONS
• FAILSAFE BRAKE BY SPRING APPLICATION • ELECTROMAGNETIC RELEASE • OPENING PROVING SWITCH	• 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



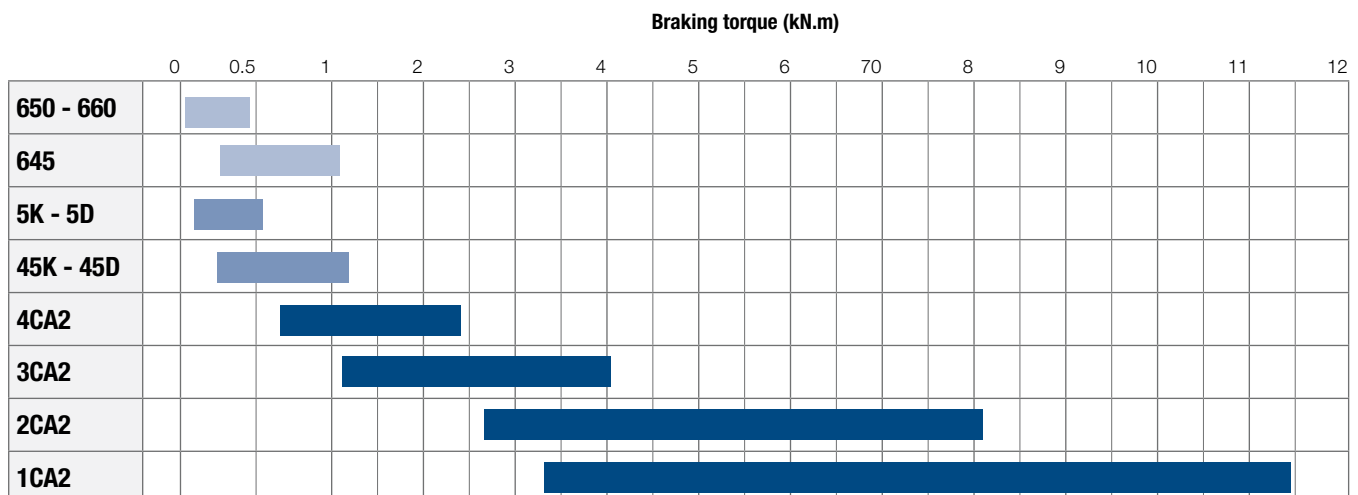
**5K - 5D
45K - 45D**

- 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



SIME Brakes Industrial Braking Systems

Service Brakes

DISC BRAKE - 650 AND 660 CALIPERS

Revision number: T03150-01-G

Revision date: 10.04.2018

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:

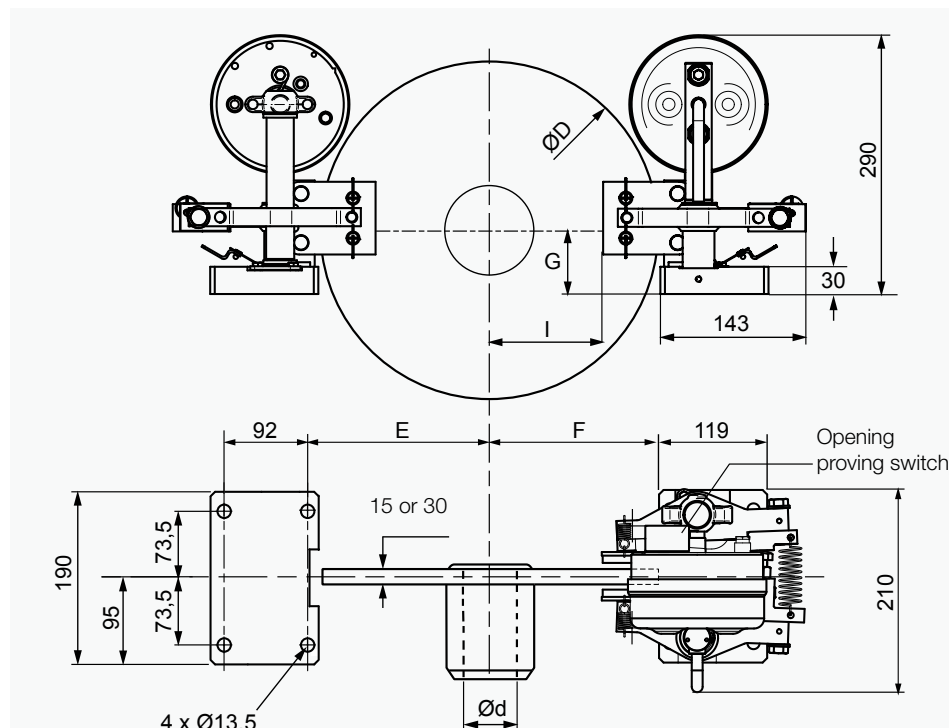
- Ambient temperature -10°C to +60°C
- Relative humidity ≤ 70%
- Dust in atmosphere ≥ 65μ
- Other conditions, consult SIME-Stromag.

Use:

- Service brake for application ≤ 150 stops/h

Options:

- Lowering system with lever
- Hydraulic lowering system
- 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-E

Revision date: 10.04.2018

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:

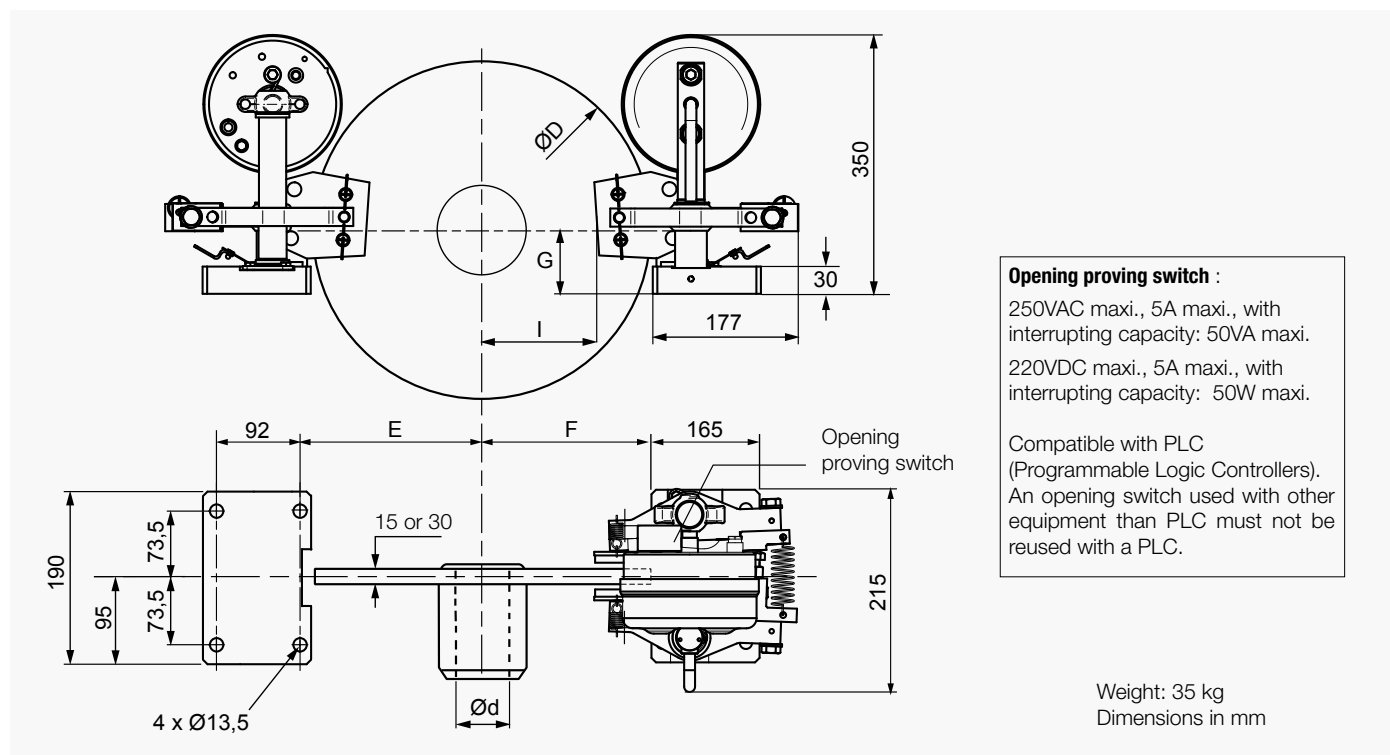
- Ambient temperature -10°C to +60°C
- Relative humidity ≤ 70%
- Dust in atmosphere ≥ 65μ
- Other conditions, consult us.

Use:

- Service brake for application ≤ 150 stops/h

Options:

- Lowering system with lever
- Hydraulic lowering system
- Mounting on vertical axis disc
- Marine protection
- Closing proving switch
- Manual release switch



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		
I (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-E

Revision date: 09.04.2018

Fail safe braking / Spring application

Electromagnetic release

Automatic wear compensation

Detection of full lining wear

Brake pads with wear indicator

Opening proving switch

Association with discs th. 30mm (or 15mm in option)

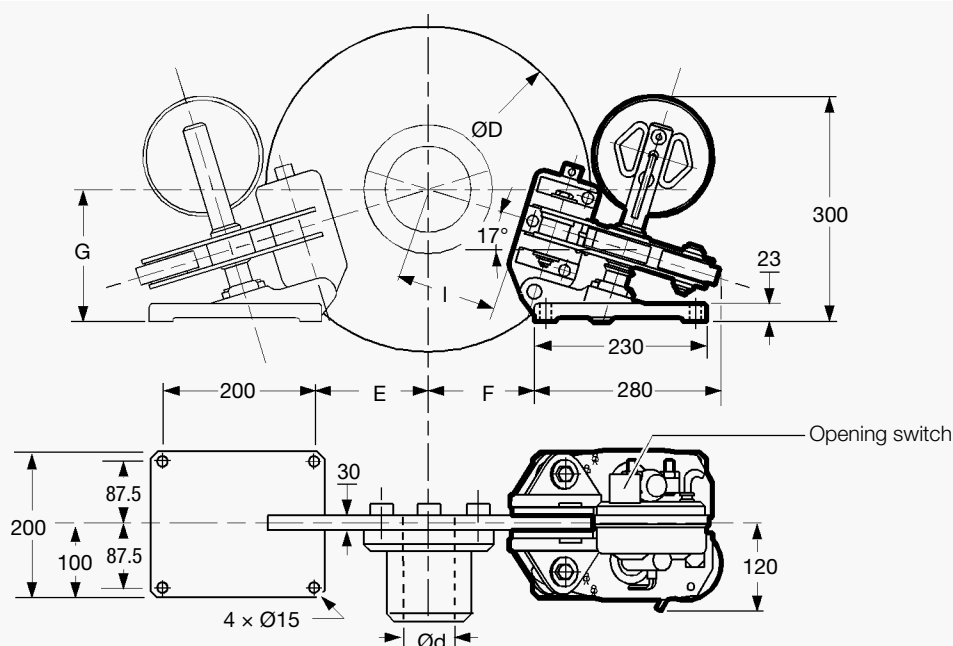
With coil supply wire: 2 × 2mm², length 2m

Conditions of use:

- Ambient temperature - 10°C to + 60°C
- Relative humidity ≤ 70 %
- Dust in atmosphere ≥ 65 µ
- Other conditions, consult us.

Options:

- Lowering system with lever
- Hydraulic lowering system
- Marine protection
- Vertical mounting
- Reduced torque
- Closing proving switch
- Manual release switch
- Association with discs th. 15mm



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 × 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 N 2 calipers 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 N 2 calipers N	815 480						

DISC BRAKE - 5KE CALIPER

Revision number: T03400-01-D

Revision date: 21.03.2016

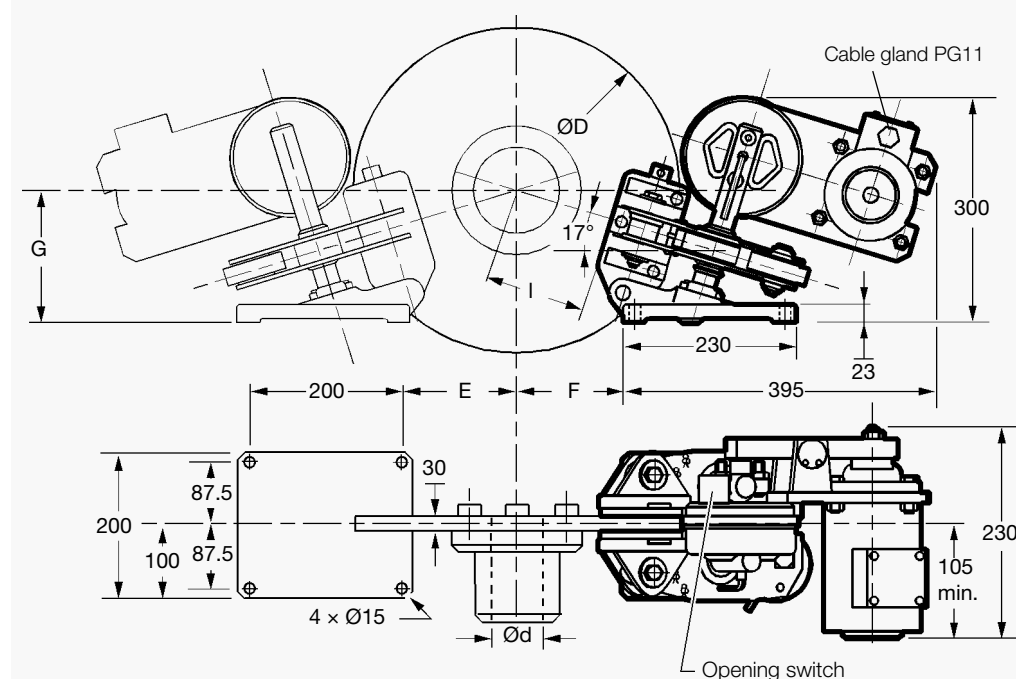
Fail safe braking
Spring application
Electromagnetic release
Electrical progressive braking
Automatic wear compensation
Detection of full lining wear
Opening proving switch
With coil supply wire: 2 x 2mm², length 2m

Conditions of use:

- Ambient 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

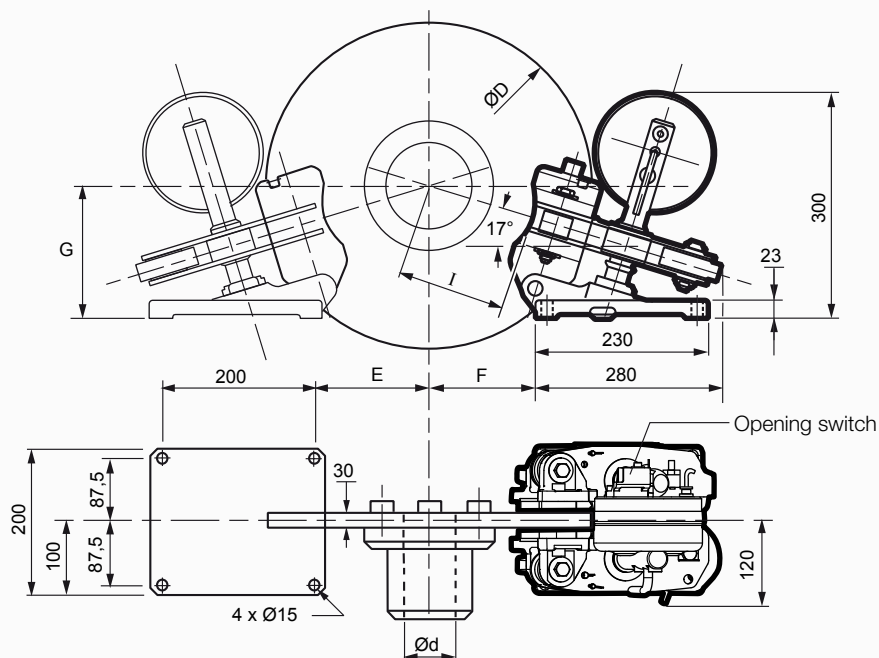
With coil supply wire: 2 x 2mm², length 2m

Conditions of use:

- Ambient 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
I (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 2 calipers N	1950 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 2 calipers N	815 480									

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

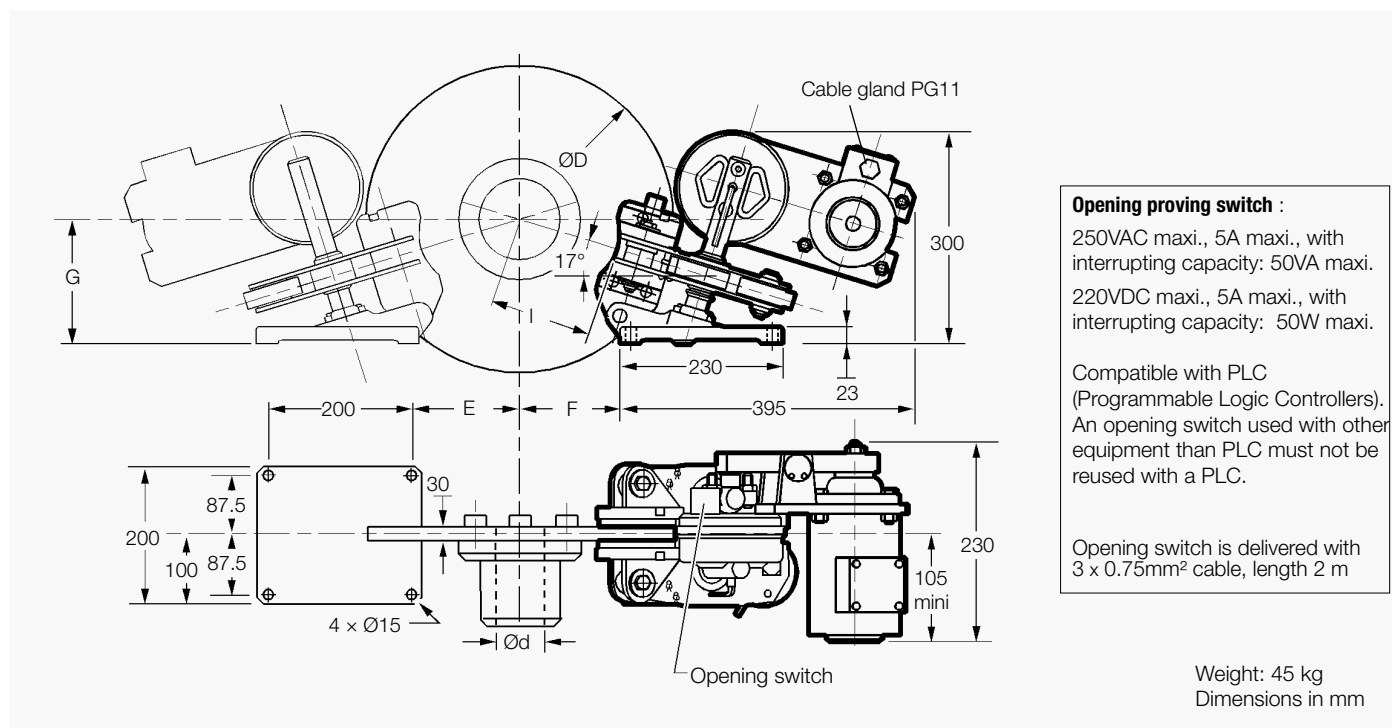
With coil supply wire: 2 x 2mm², length 2m

Conditions of use:

- Ambient 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



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-J

Revision date: 10.04.2018

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

Conditions of use :

- Ambient temperature -20°C to $+60^\circ\text{C}$
- Relative humidity $\leq 70\%$
- Dust in atmosphere $\geq 65\mu$
- 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:

- Lowering system with lever
- Hydraulic lowering system
- 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 $\varnothing 315$ 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.

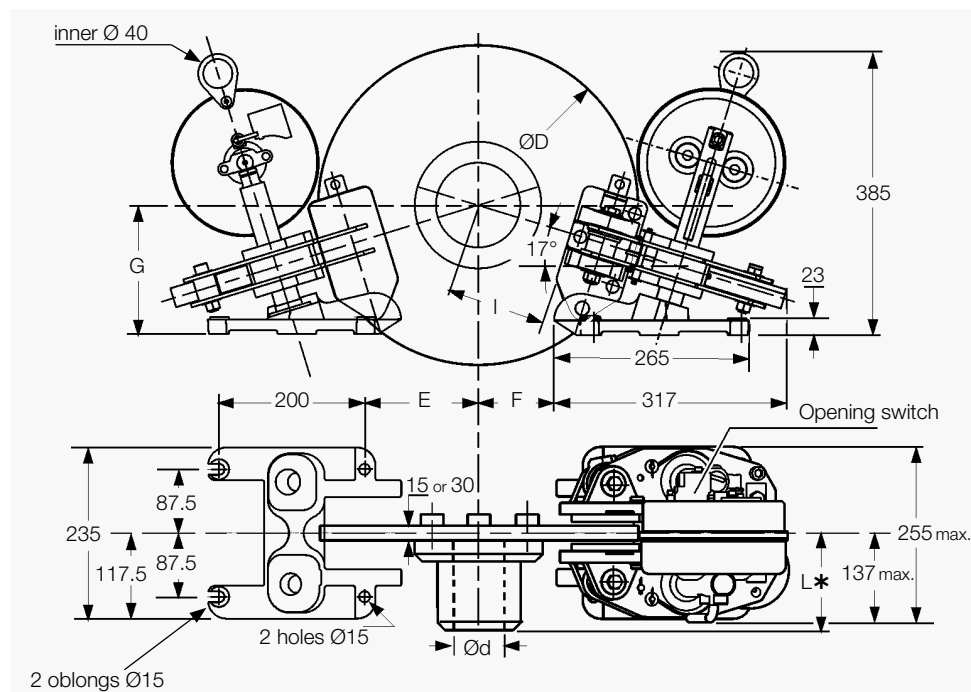
Opening proving switch :

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:

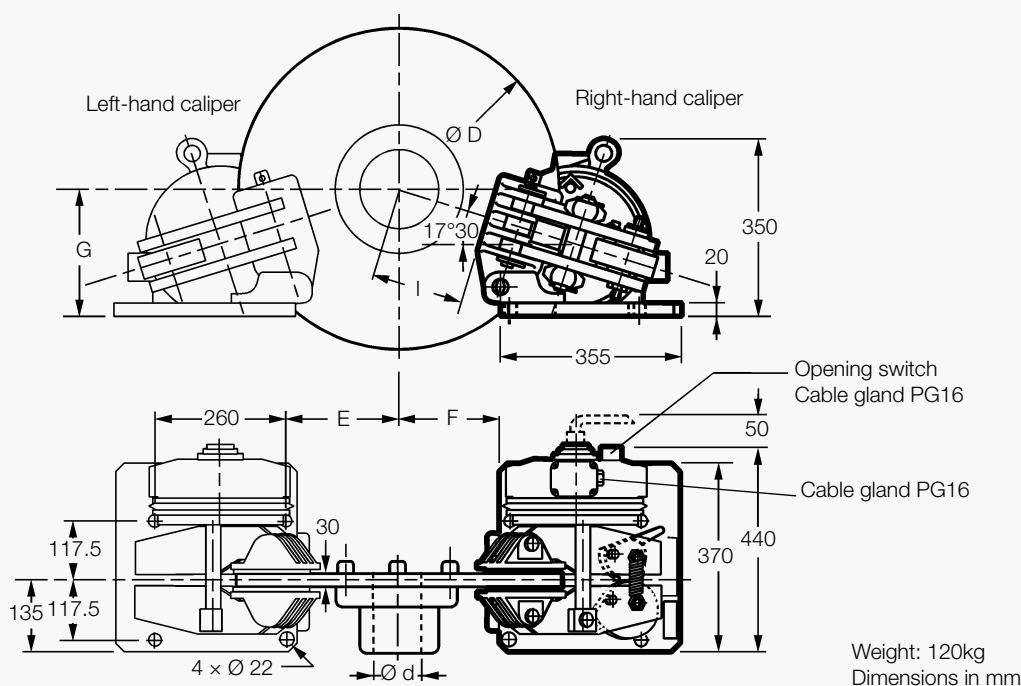
- Ambient temperature: -10°C to +60°C
 - Relative humidity ≤ 70%
 - Dust in atmosphere ≥ 65µ
- Other conditions, consult us.

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					
	2 calipers	N					

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-D

Revision date: 09.04.2019

Fail safe braking

Braking by spring application

Electromagnetic release

Automatic wear compensation

Opening proving switch

Brake pads with wear indicator

Working conditions:

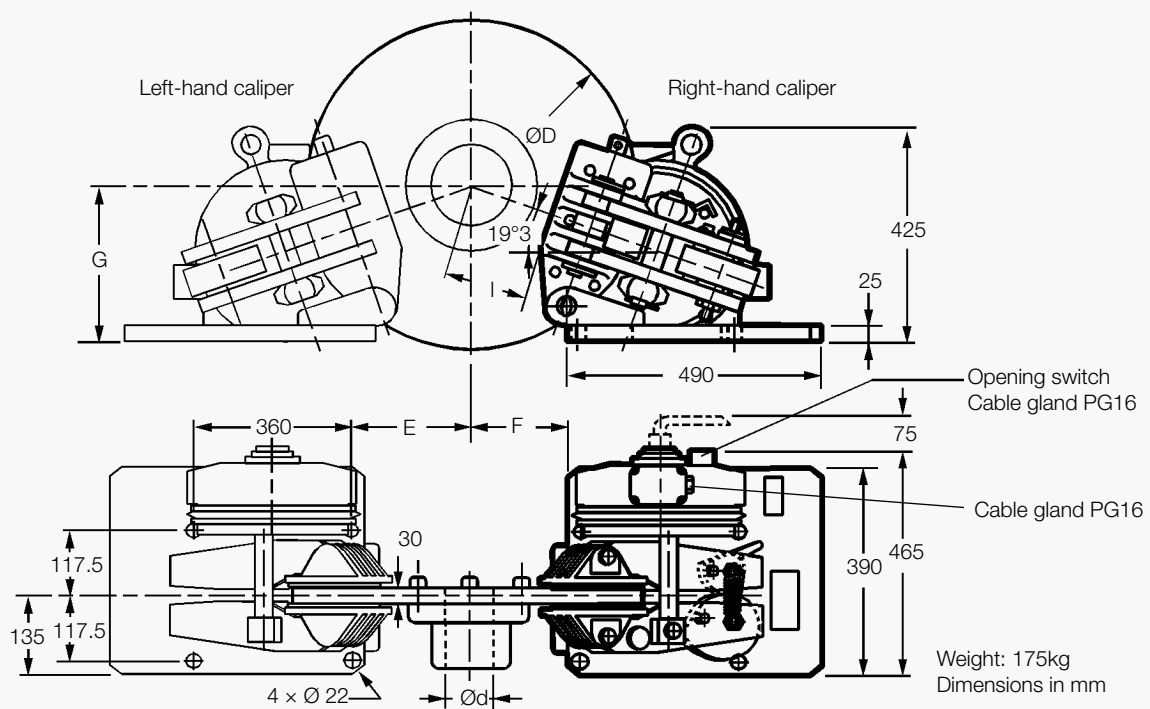
- Ambient temperature: -10°C to +60°C
- Relative humidity ≤ 70%
- Dust in atmosphere ≥ 65µ
- Other conditions, consult us.

Use:

Any application up to 1000act/h

Options:

- Manual release lever
- Hydraulic release
- Manual wear compensation
- Load regulated lowering
- Steelworks flameproof protection
- Marine protection / • Special paint
- 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.