



# Specimas Slipring Columns

## The Cavotec Group

Cavotec is the name of a group of companies specialized in power supply technology for cranes and other industrial equipment. It is formed by 6 manufacturing companies located in Canada, Germany, Italy, Sweden and UK, and by 18 Cavotec sales companies which, together with a network of Distributors, serve more than 30 countries in five continents. Each manufacturing company, no matter where it is located, aims at being a market leader in its field by providing innovative and reliable products to Group customers. Although they manufacture different products in different countries, they are globally supported and coordinated by the Cavotec Group in their product development and marketing activities. Each sales company, and each distributor, has a policy aiming at better serving its local market with the full support of the Cavotec Group.

## Our aim is to be local everywhere

Great emphasis is put in providing the highest quality not only in the selected products, but also in service and backing to their customers. Our philosophy in fact is to be local everywhere.

## Our fields of activity are



**Mining,  
tunnelling**



**Steel Mills**



**Forestry**



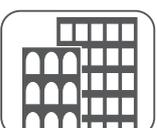
**Ports,  
Terminals**



**Robots,  
Automation**



**Offshore**



**Constructions**

## Cavotec Sales Companies

The products manufactured by Specimas described in the following pages, as well as other quality products in the field of crane and power technology, are distributed around the world by the Cavotec sales companies and by a network of selected Group distributors.



This brochure gives examples only of standard solutions of slipring columns. For more detailed information contact your nearest Cavotec sales company or Specimas.

# The Slipping Columns

Specimas slipping columns are renowned for quality, innovative design and outstanding reliability. Thousands of units have been installed in the last 35 years in all parts of the world, in all types of harsh industrial environments.

## Field of application

Applications include dockside cranes, ships, mobile cranes, pedestal cranes, access platforms, turntables and a wide variety of mechanical handling equipment.

## Main advantages:

### 1. Reliability

The outstanding reliability of Specimas slipping columns is due to many innovative technical solutions backed by years of experience in this specialised field.

### 2. Resistance to corrosion

The extensive use of stainless steel for all mechanical parts, from the frame down to the fixings, guarantees an excellent mechanical resistance even in particularly hostile climates and environments, without maintenance.

### 3. Flexibility

A unique characteristic of the slipping columns is the possibility to meet almost any requirements by using a wide range of components especially developed and manufactured by Specimas.

### 4. Compactness

The special design of the Specimas rings enable the construction of very compact sections, still ensuring a high degree of electrical insulation and a perfect contact.

### 5. Wiring facilities

All side panels on the Specimas slipping column can easily be removed thus providing good access for wiring to rings and brushgear. The signal rings are, as standard, prewired to a numbered terminal block.

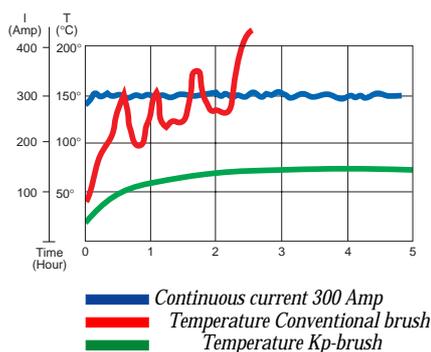
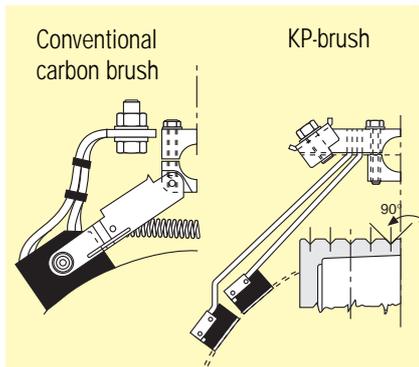
## KP Brush

Stand still slipping applications often require a high degree of derating of the amperage carrying capacity of conventional carbon brushgear. Increasing the physical size of the brushes is not always a solution, since the actual contact area does not increase proportionally. Specimas has overcome this (problem by developing a multicontact brushgear which has

effectively doubled the capacity. This is achieved by dividing the brush into independent sections, thus ensuring an increased effective contact area. The diagram shows a comparison between a conventional brushgear (BG) and a multi-contact brushgear (KP) of the same physical size carrying 300 Amp continuous.



A Specimas slipping dated 1999.



A Specimas slipping dated 1965.

# KK 135

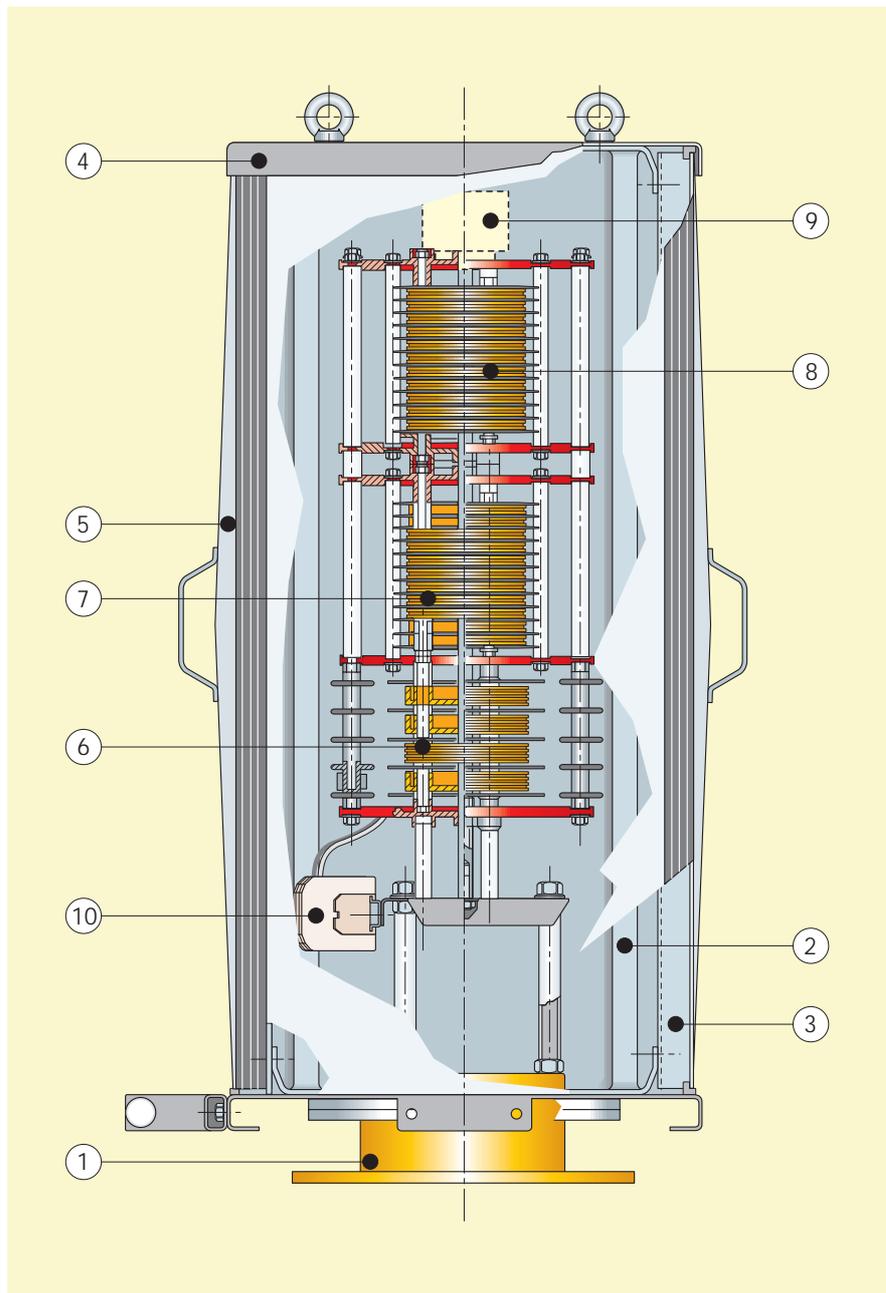
max ring diameter 135mm  
max current up to 400A

This type is normally used for cranes with a nominal current handling capacity of up to 400 Amp. All power and signal rings with a diameter of 135 mm are prewired to a common terminal block. Nominal voltage for signals 600 V and for power 1000 V. Ring formation is normally divided into 3 sections for power, auxiliary and signals.

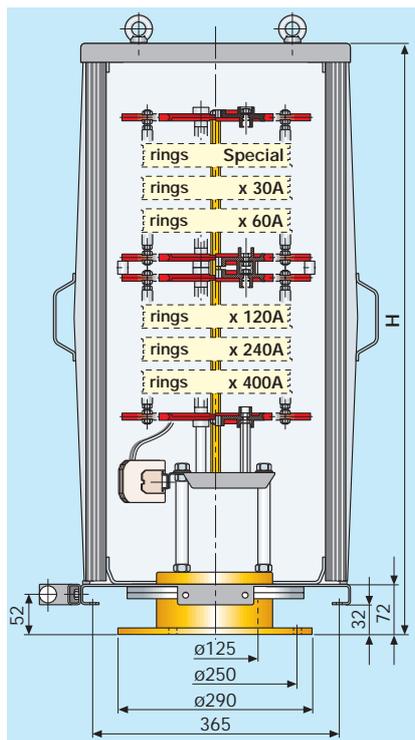
Slipping columns are available in open version or closed with stainless steel side panels. (IP44 or on request IP55). The strong base bearing, with a 125 mm centre passage, makes it also possible to mount the column upside down.



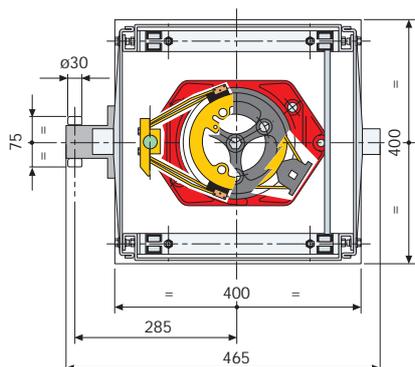
- ① Pedestal base bearing
- ② Inside frame work
- ③ Stainless steel panels
- ④ Cover
- ⑤ Doors
- ⑥ Power ring pack (400A)
- ⑦ Auxiliary power ring pack (240, 120A)
- ⑧ Control ring pack (60, 30A)
- ⑨ Options, see page 13
- ⑩ Terminals



## Technical characteristics of KK 135



- Rated voltage:** 1000 V AC/600 V AC (control rings)
- Test voltage:** 3000 V AC/2000 V AC
- Brushgear:** multi-contact copper/graphite brushes
- Rings:** brass rings with V-shaped grooves
- Wiring:** all rings pre-wired onto terminal block
- Insulation matl:** makrolon/glass-fibre
- Cable glands:** available on request for mounting on side panels/top cover
- Construction:** modular design with independent sections for power/control
- Bearing:** heavy duty base ball bearing with large cable passage
- Housing:** side panels and doors in stainless steel sheet as standard
- Protection:** IP44 type BC – IP55 type BD optional
- Accessories:** self-regulating heating element available on request



### Notes:

- (1) silver plated with screened cable (connection of screen to be specified)
  - (2) max. 36 poles/section;
  - (3) max. 12 poles/section;
  - (4) max. 7 poles;
- Use additional sections if required  
\* Subject to confirmation

Format	Current rating		Rings		Brushgear	
Nr. of poles	Nominal 60% ED (Amp)	Continuous 100% ED (Amp) Slipping rotating	Nr. & dia of ring (mm)	Max. cable section (mm <sup>2</sup> )	Nr. & type of brushes	Max. cable section (mm <sup>2</sup> )
	30 S (silverplated)	12	1 x 130 (1)	1 x 2,5	1 x Kp2	1 x 2,5
	30	12	1 x 130	1 x 2,5	1 x Kp2	1 x 2,5
	60	25	1 x 130	1 x 10	1 x Kp3	1 x 10
	120/240	60/120	1 x 130	1 x 25	1 x Kp4/Kp8	1 x 25
	400	200	1 x 135	1 x 70	1 x Kp12	1 x 70

Housing		
Section	Height (mm) Pitch x Nr poles + K	Subtotal
B (2)	7.5 x	} + 80=
B (2)	7.5 x	
B (3)	15 x	
B (3)	15 x	
A (4)	33 x	

Weight*	kg	Housing dimensions* (std)	H <sub>1</sub>	H <sub>2</sub>	H <sub>3</sub>	H <sub>4</sub>
Bearing	14	Base	mm	400x400	400x400	400x400
Housing		Height	mm	830	1080	1330
Sliprings		Weight	kg	32	40	48

Total	
A + B + 380	=
Housing top clearance (C)	= 60
Height calculated H	=

### Specimas slipping assembly type:

KK 135

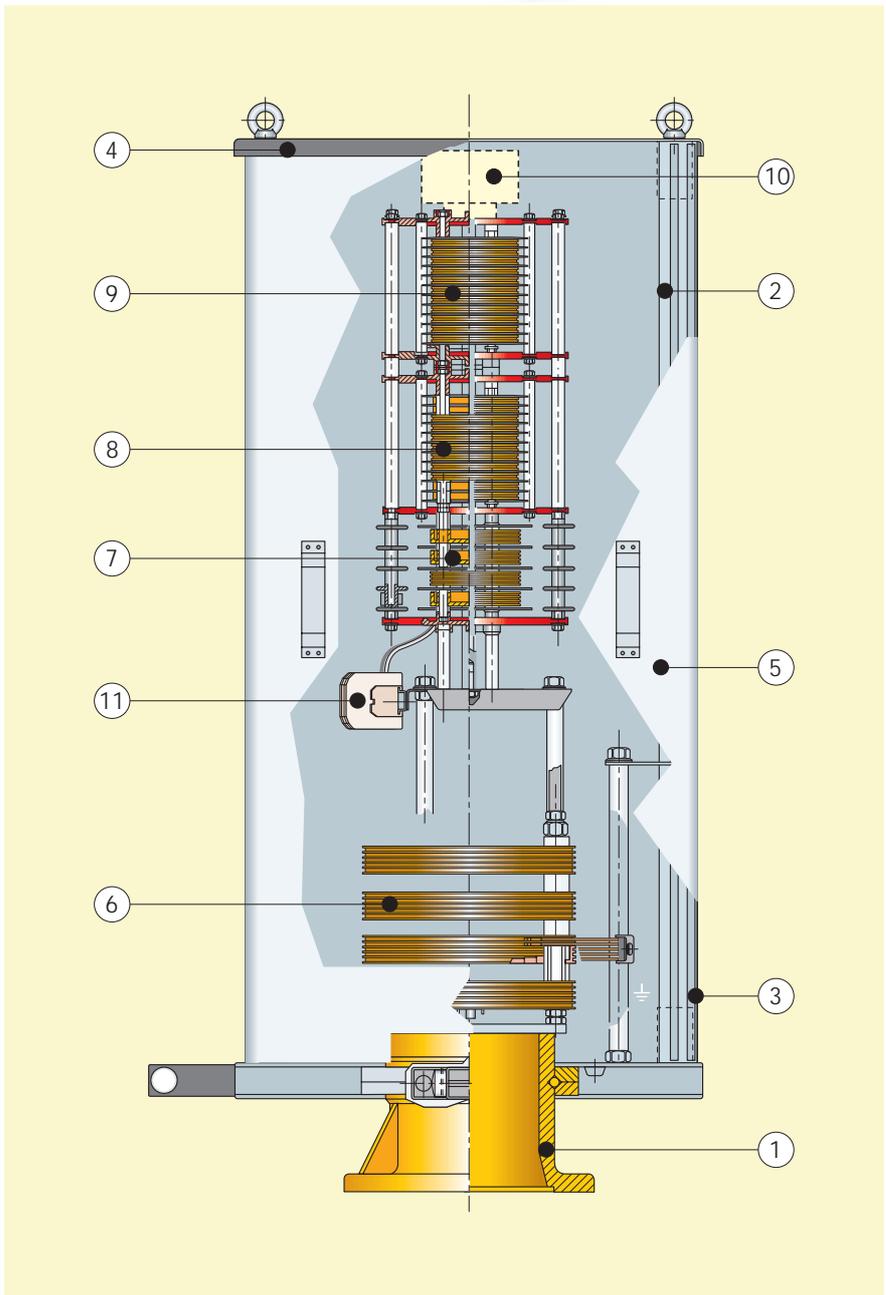
Version	Earth	Power	Aux. power	Control	Silver
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# KK 270

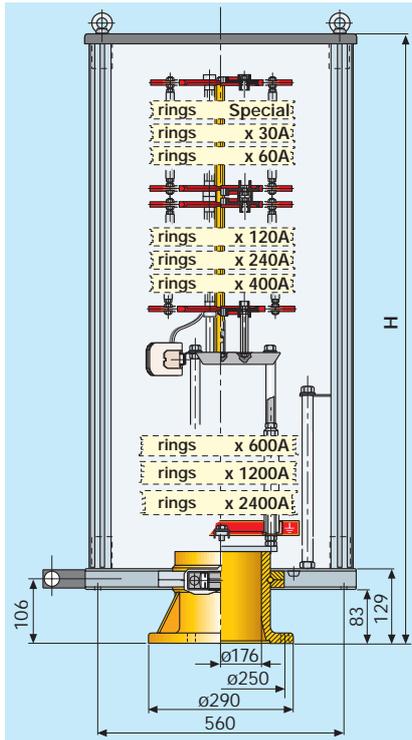
max ring diameter 270mm  
max current up to 2400A

A series of larger slipring columns for dockside cranes with a maximum nominal amperage of 2400 Amp and voltage up to 1000V. The power section consists of 270 mm diameter rings which are wired directly on the ring. The 130 mm diameter signal and auxiliary rings are prewired to a separate terminal block. Slipring columns are available in open version or closed with stainless steel side panels. (IP44 or on request IP55).

The strong base bearing, with a 180 mm centre passage, makes it also possible to mount the columns upside down. Cable entry to brushes can be fitted to side panels or top cover.

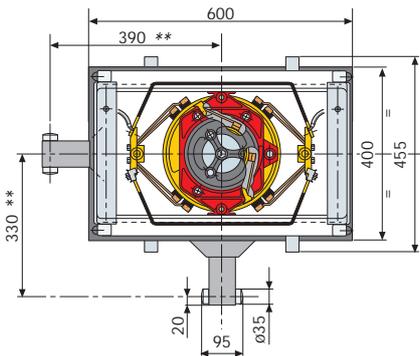


- ① Pedestal base bearing
- ② Inside frame work
- ③ Stainless steel panels
- ④ Cover
- ⑤ Doors
- ⑥ Power ring pack (600 to 2400A)
- ⑦ Auxiliary power ring pack (400A)
- ⑧ Auxiliary power ring pack (240, 120A)
- ⑨ Control ring pack (60, 30A)
- ⑩ Options, see page 13
- ⑪ Terminals



## Technical characteristics of KK 270

- Rated voltage:** 1000 V AC/600 V AC (control rings)
- Test voltage:** 3000 V AC/2000 V AC
- Brushgear:** multi-contact copper/graphite brushes
- Rings:** brass rings with V-shaped grooves
- Wiring:** control/aux. power rings pre-wired onto terminal block
- Insulation mat:** makrolon/glass-fibre
- Cable glands:** available on request for mounting on side panels/top cover
- Construction:** modular design with independent sections for power/control
- Bearing:** heavy duty base ball bearing with large cable passage
- Housing:** side panels and doors in stainless steel sheet as standard
- Protection:** IP44 type CC – IP55 type CD optional
- Accessories:** self-regulating heating element available on request



- Notes:**
- (1) silver plated with screened cable (connection of screen to be specified)
  - (2) max. 36 poles/section;
  - (3) max. 12 poles/section;
  - (4) max. 7 poles;
  - (5) earth= one ring size smaller
- Use additional sections if required  
 \* Subject to confirmation  
 \*\* Optional location of driving arm

Format	Current rating		Rings		Brushgear		
	Nr. of poles	Nominal 60% ED (Amp)	Continuous 100% ED (Amp) Slipping rotating	Nr. & dia of ring (mm)	Max. cable section (mm <sup>2</sup> )	Nr. & type of brushes	Max. cable section (mm <sup>2</sup> )
		30 S (silverplated)	12	1 x 130 (1)	1 x 2,5	1 x Kp2	1 x 2,5
		30	12	1 x 130	1 x 2,5	1 x Kp2	1 x 2,5
		60	25	1 x 130	1 x 10	1 x Kp3	1 x 10
		120/240	60/120	1 x 130	1 x 25	1 x Kp4/Kp8	1 x 25
		400	200	1 x 135	1 x 70	1 x Kp12	1 x 70
		600	300	1 x 270	2 x 150	1 x Kp20	2 x 150
		1200	600	1 x 270 (5)	2 x 150	2 x Kp20	2 x 150
		2400	1200	2 x 270 (5)	4 x 150	4 x Kp20	4 x 150

Housing		
Section	Pitch	Height (mm) Nr poles + K = Subtotal
C (2)	7.5 x	} + 80 =
C (2)	7.5 x	
B (3)	15 x	} + 80 =
B (3)	15 x	
B (4)	33 x	
A	50 x	} =
A	50 x	
A	85 x	

Weight*	kg	Housing dimensions* (std)	H <sub>1</sub>	H <sub>2</sub>	H <sub>3</sub>	H <sub>4</sub>
Bearing	25	Base	mm	400x600	400x600	400x600
Housing		Height	mm	1130	1380	1630
Sliprings		Weight	kg	60	70	80

Total		
A + B + C + 460	=	
Housing top clearance (C)	=	60
Height calculated H	=	

### Specimas slipping assembly type:

KK 270

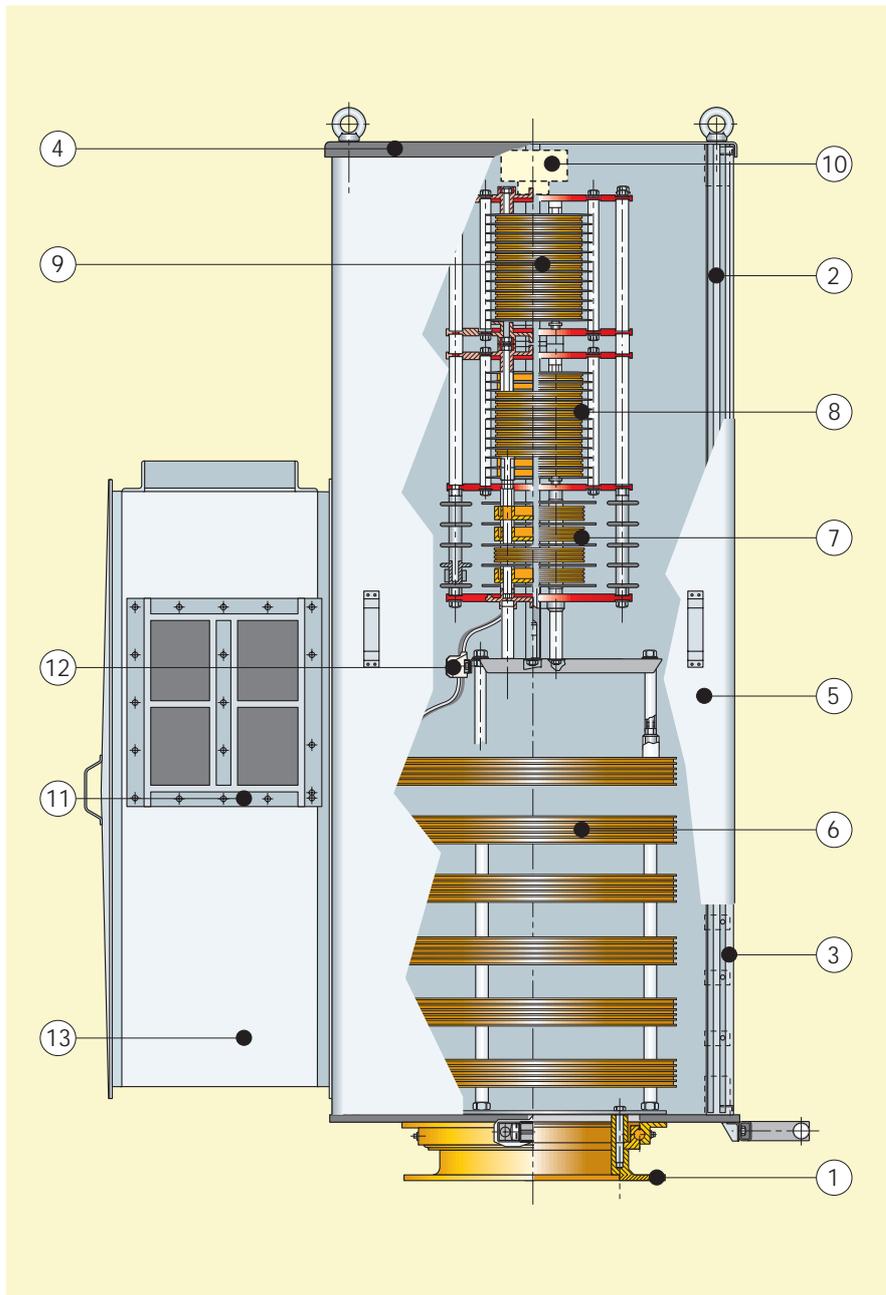
Version	Earth	Power	Aux. power	Control	Silver

# KK 450

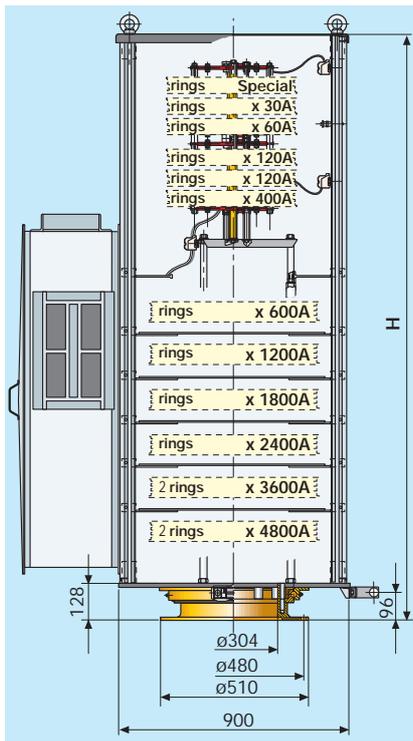
max ring diameter 450mm  
max current up to 4800A

Slipring KK450 is the largest size available in the KK series. Max. current rating is 4800 A. The large diameter of power rings and ball bearing base offer an ample passage for power cables. The construction is similar to KK135 and KK270 sliprings, that is with stainless steel removable side panels and doors in IP44 version, or IP55 on

request, with a reinforced internal frame. Optional cable inlet box may be provided fitted on side panel. Auxiliary and control rings are assembled as a modular assembly and prewired to terminal blocks.

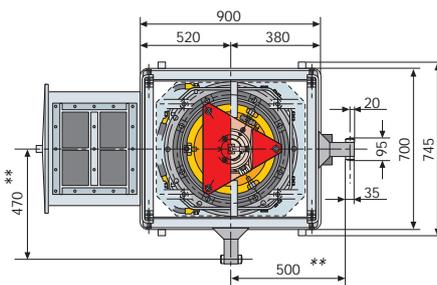


- ① Pedestal base bearing
- ② Inside frame work
- ③ Stainless steel panels
- ④ Cover
- ⑤ Doors
- ⑥ Power ring pack (600 to 4800A)
- ⑦ Auxiliary power ring pack (400A)
- ⑧ Auxiliary power ring pack (240, 120A)
- ⑨ Control ring pack (60, 30A)
- ⑩ Options, see page 13
- ⑪ Frame type cable entry
- ⑫ Terminals
- ⑬ Optional cable inlet box



## Technical characteristics of KK 450

- Rated voltage:** 1000 V AC/600 V AC (control rings)
- Test voltage:** 3000 V AC/ 2000 V AC
- Brushgear:** multi-contact copper/graphite brushes
- Rings:** brass rings with V-shaped grooves
- Wiring:** control/aux. power rings pre-wired onto terminal block
- Insulation matl:** makrolon/glass-fibre
- Cable glands:** available on request for mounting on side panels/cable inlet box
- Construction:** modular design with independent sections for power/control
- Bearing:** heavy duty base ball bearing with large cable passage
- Housing:** side panels and doors in stainless steel sheet as standard
- Protection:** IP44 type CC – IP55 type CD optional
- Accessories:** self-regulating heating element available on request



- Notes:**
- (1) silver plated with screened cable (connection of screen to be specified);
  - (2) max. 36 poles/section;
  - (3) max. 12 poles/section;
  - (4) max. 7 poles;
  - (5) earth= one ring size smaller
  - \* Subject to confirmation
  - \*\* Optional location of driving arm
- Use additional sections if required

Format	Current rating		Rings		Brushgear		
	Nr. of poles	Nominal 60% ED (Amp)	Continuous 100% ED (Amp) Slipping rotating	Nr. & dia of ring (mm)	Max. cable section (mm <sup>2</sup> )	Nr. & type of brushes	Max. cable section (mm <sup>2</sup> )
		30 S (silverplated)	12	1 x 130 (1)	1 x 2,5	1 x Kp2	1 x 2,5
		30	12	1 x 130	1 x 2,5	1 x Kp2	1 x 2,5
		60	25	1 x 130	1 x 10	1 x Kp3	1 x 10
		120/240	60/120	1 x 130	1 x 25	1 x Kp4/Kp8	1 x 25
		400	200	1 x 135	1 x 70	1 x Kp12	1 x 70
		600	300	1 x 450	2 x 185	1 x Kp20/2 x BG450	2 x 150
		1200	600	1 x 450 (5)	2 x 185	2 x Kp20/4 x BG450	2 x 185
		1800	900	1 x 450 (5)	3 x 185	3 x Kp20	3 x 185
		2400	1200	2 x 450 (5)	4 x 185	4 x Kp20	4 x 185
		3600	1800	2 x 450 (5)	6 x 185	6 x Kp20	6 x 185
		4800	2400	2 x 450 (5)	8 x 185	8 x Kp20	8 x 185

Housing		
Section	Height (mm) Pitch x Nr poles + K	Subtotal
C (2)	7.5 x	} + 80 =
C (2)	7.5 x	
B (3)	15 x	} + 80 =
B (3)	15 x	
B	33 x	
A	50 x	} =
A	50 x	
A	50 x	
A	50 x	
A	85 x	

Weight*	kg	Housing dimensions* (std)	H
Bearing	25	Base (To check dimension ask Specimas)	mm 700 x 900
Housing		Height (To check dimension ask Specimas)	mm
Sliprings		Weight	Kg

Total		
A + B + C + 460	=	
Housing top clearance (C)	=	60
Height calculated H	=	

### Specimas slipping assembly type:

KK 450

Version	Earth	Power	Aux. power	Control	Silver
<input type="checkbox"/>					

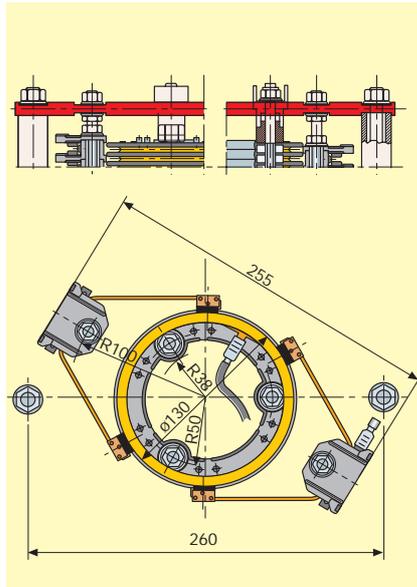
# Dimensions of rings and brushes.

The following drawings show the available ring kits from nominal amperage rating of 30A to 4800A. Control rings (30A) plus auxiliary power rings up to 400A, are built in modular assemblies by means of 3 insulated studs. The single kit consists of one ring with an insulator spacer and one brush with its insulator. The brushes are fixed to two insulated tie-rods. The complete package is guided by means of special ball bearings which support the package and guide the rotating assembly. The special ball bearing can also be supplied with push on terminals for the signal rings.

Power rings may be provided with more than one brush connected together with copper busbars, in order to increase the allowable amperage rating. Main dimensions are given in the drawings. Ring kits from 30A up to 400A can be used in all slipping box sizes. Power rings  $d = 270\text{mm}$  from 600A up to 2400 A are used in slipping size KK270. Power rings  $d = 450\text{mm}$  from 600A up to 4800A can be fit only inside the slipping size KK450.

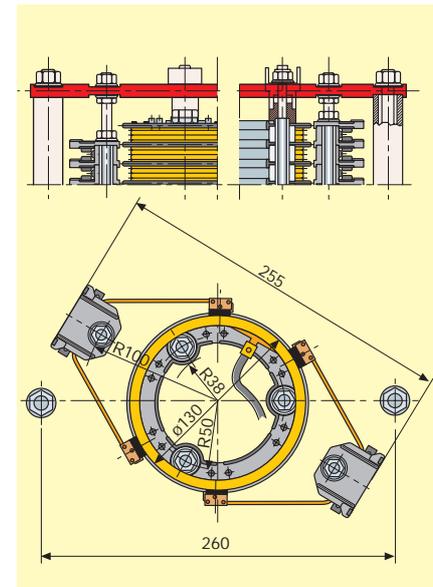
## 30A, max 600V - $\varnothing$ 130mm

Brush KP2 (also silver plated)  
 $p = 7,5\text{mm}$   
 $s = 3\text{mm}$



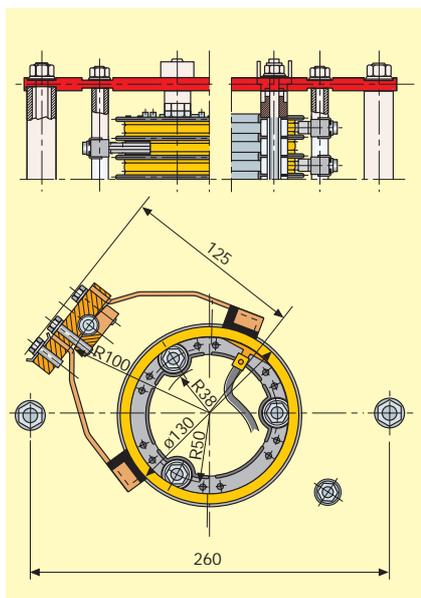
## 60A, max 600V - $\varnothing$ 130mm

Brush KP3  
 $p = 15\text{mm}$   
 $s = 10\text{mm}$



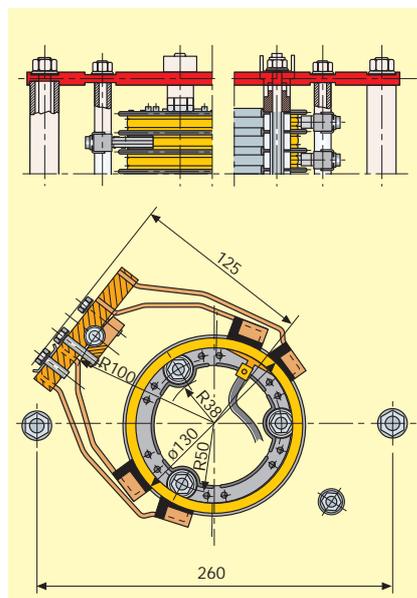
## 120A, max 600V - $\varnothing$ 130mm

Brush KP4  
 $p = 15\text{mm}$   
 $s = 10\text{mm}$



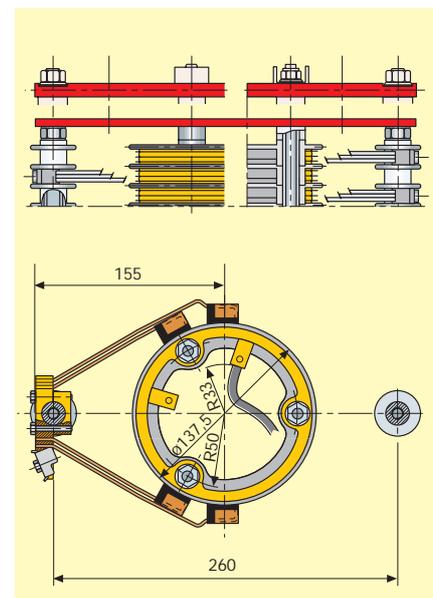
## 240A, max 600V - $\varnothing$ 130mm

Brush KP8  
 $p = 15\text{mm}$   
 $s = 10\text{mm}$



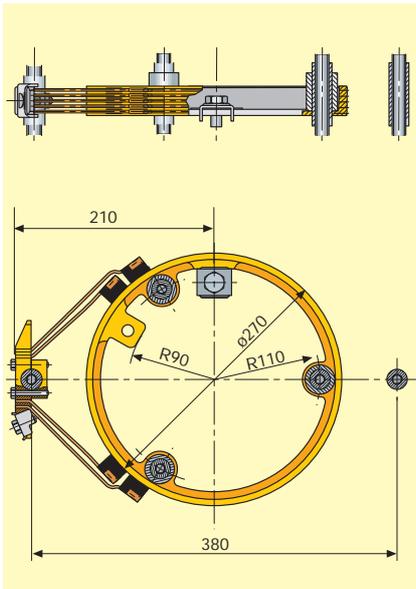
## 400A, max 1000V - $\varnothing$ 137,5mm

Brush KP12  
 $p = 35\text{mm}$   
 $s = 5\text{mm}$   
 $h = 20\text{mm}$



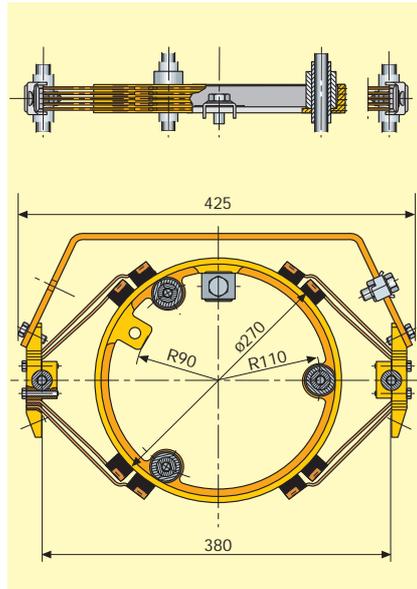
**600A, max 1000V - Ø 270mm**

Brush KP20  
 p=50mm  
 s= 5mm  
 h= 30mm



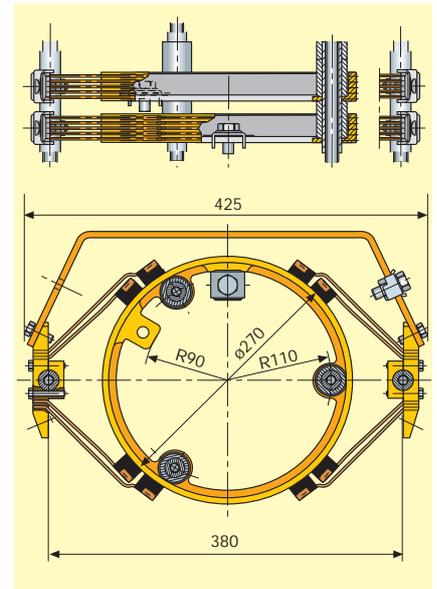
**1200A, max 1000V - Ø 270mm**

Brush 2 x KP20  
 p=50mm  
 s= 5mm  
 h= 30mm



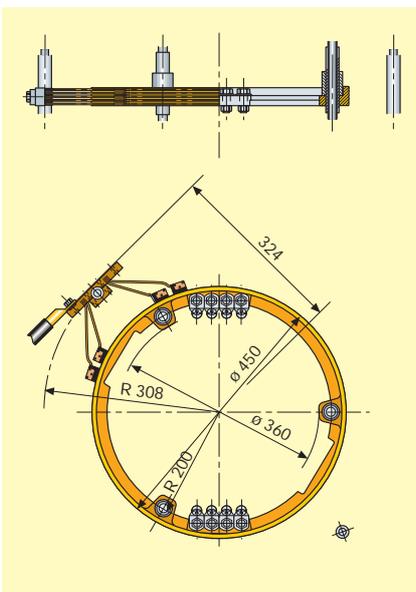
**2400A, max 1000V - Ø 270mm**

N° 2 rings of 1200A  
 Brush 2 x KP20 each ring  
 p=85mm  
 s= 5mm  
 h= 30mm



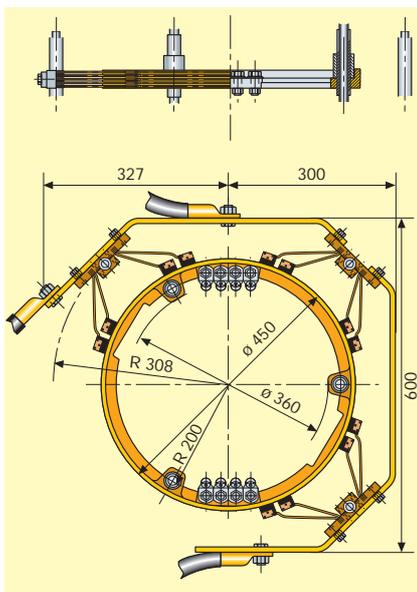
**600A, max 1000V - Ø 450mm**

Brush KP20  
 p=50mm  
 s= 5mm  
 h= 30mm



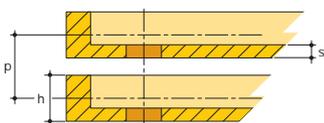
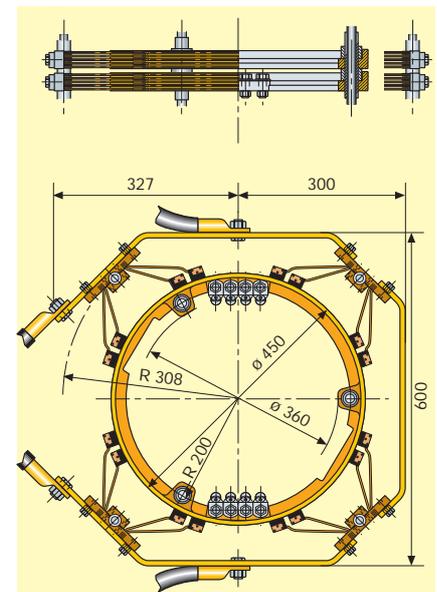
**1800A, max 1000V - Ø 450mm**

Brush KP20  
 p=50mm  
 s= 5mm  
 h= 30mm



**4800A, max 1000V - Ø 450mm**

N° 2 rings of 2400A  
 Brush 4 x KP20 each ring  
 p=85mm  
 s= 5mm  
 h= 30mm



**Note:** p= ring pitch • s= fixing lug thickness • h= ring total height

# Rings and brushes data

Ring type	Ø	(2) 130/30	(2) (4) 130/30s	(2) 160/30	270/30	130/60	130/120	130/240	135/400	270/600	270/1200 <sup>(9)</sup>	450/600 <sup>(10)</sup>	450/1200	450/1800	450/2400
Nominal Amp.	A	30	30	30	30	60	120	240	400	600	1200	600	1200	1800	2400
Amp. 100% ED <sup>(1)</sup>	A	12	12	12	12	25	60	120	200	300	600	300	600	900	1200
Brush holder assembly type		Kp2	Kp2 Kp2/silver	Kp2/160	Kp2/270	Kp3	Kp4	Kp8	Kp12	Kp20/270	2 x Kp20	Kp20/450	2 x Kp20	3 x Kp20	4 x Kp20
No. of brush holder ass'y <sup>(3)</sup>		1(2)	1	1(2)	1(3)	1	1	1	1	1	2	1	2	3	4
Cable size	mm <sup>2</sup>	2,5	2,5	2,5	6	10	25	35	70	2x150	2x150	2x150	2x185	3x185	4x185
Resistance <sup>(5)</sup>	mOhm	<40±10	<5±0,5	<40±10	<40±10	<10±2	<1,5±1	<1,5±1	<1,5±1	<1±1		<1±1			
Mech. life revs.		>50E <sup>6</sup>	>25E <sup>6</sup>	>40E <sup>6</sup>	>20E <sup>6</sup>	>2E <sup>6</sup>		>2E <sup>6</sup>							
Brush press. <sup>(6)</sup>	N	3	3	3	3	3	8	8	9,5-7	10-6		10-6			
Torque	Ncm	20	20	20	20	40	150	175	200	750	1500	1250	2500	3750	5000
Ring section <sup>(7)</sup>	mm <sup>2</sup>	13,7	13,9	12,2	108	49,2	48	48	130	262		312			
Brush arm section <sup>(8)</sup>	mm <sup>2</sup>	6,28	6,28	6,28	6,28	18,84	28,2	56,4	84,8	140		140			
Brush carbon size		16x12x2	16x12x2 12x10x2	16x12x2	16x12x2	16x12x2	25x15x3	25x15x3	25x15x3	25x15x3		25x15x3			
No. of carbons		2	2	2	2	6	4	8	12	20		20			

## Notes to brush/ring data:

- (1) If sliprings operate in standstill for long periods: refer to Specimas.
- (2) Brushes are always mounted on 2 studs at 120° angle, ring pitch= 7.5 mm, brush pitch= 15 mm
- (3) Normally mounted quantity ( )= option for special applications
- (4) Silver plated ring with copper graphite or silver-graphite brush
- (5) Resistance from cable entry to cable exit
- (6) Pressure of each brush arm
- (7) Ring material is brass
- (8) Brush arm is phosphor bronze
- (9) Also available 2400 A: two rings in parallel
- (10) Also available 3600 A and 4800 A: two rings in parallel 1800 A and two rings in parallel 2400 A



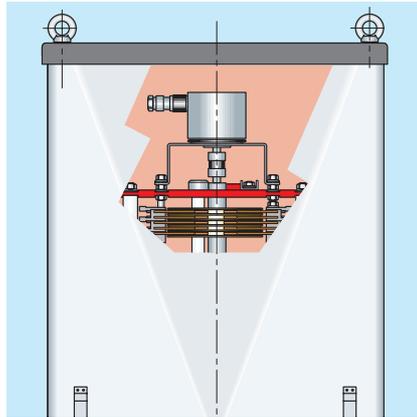
# Optional equipment for type KK135, KK 270, KK450

The modular design of slipring makes it suitable to combine with optional devices as specified by the client.

Extra devices are generally mercury wetted signal sliprings such as Mercotac or gold plated signal slipring capsules such as Aurotac (refer to the specific catalogues) or swivels for air, water and oil.

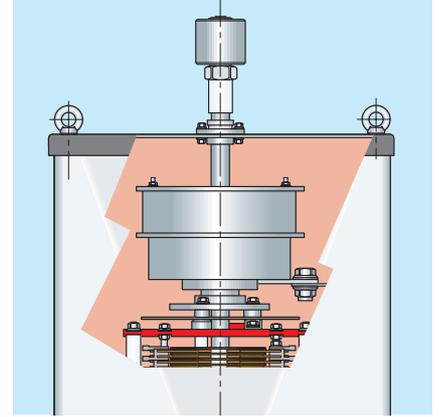
In some cases it is possible to combine slipring columns with fiber optic rotary joints.

## Encoder



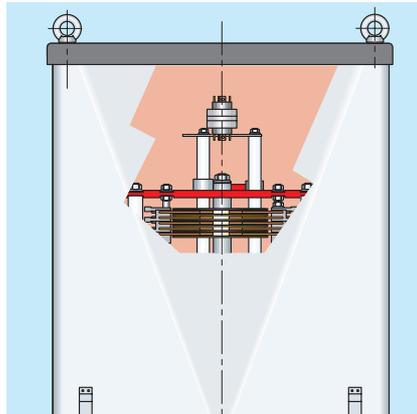
*An encoder is mounted on the ring assembly top and driven by means of an elastic joint.*

## Pneumatic swivel



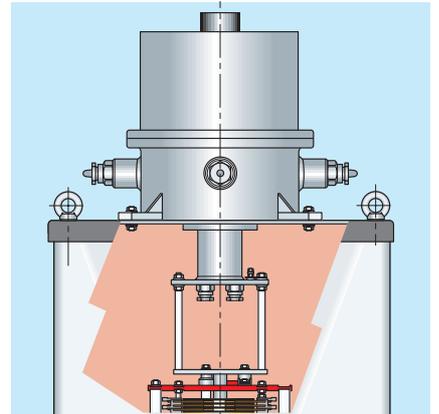
*A pneumatic swivel - the tube is inserted inside the ring assembly.*

## Mercotac/Aurotac



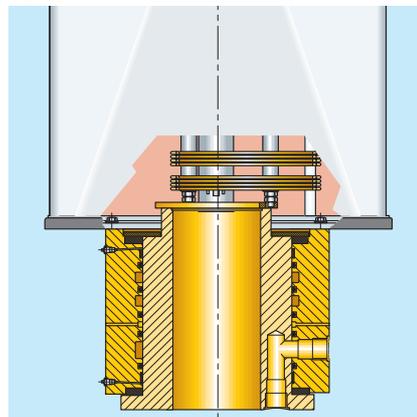
*A signal slipring capsule Mercotac or Aurotac is arranged on top of the ring assembly.*

## Ex-proof slipring



*An ex-proof slipring is fit on the slipring housing cover and driven by a stainless steel tube which is also the ex-proof collector cable conduit. Designed for easy maintenance.*

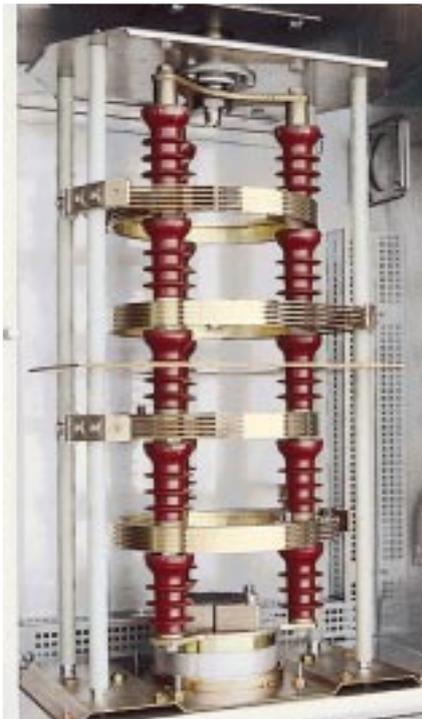
## Hydraulic swivel



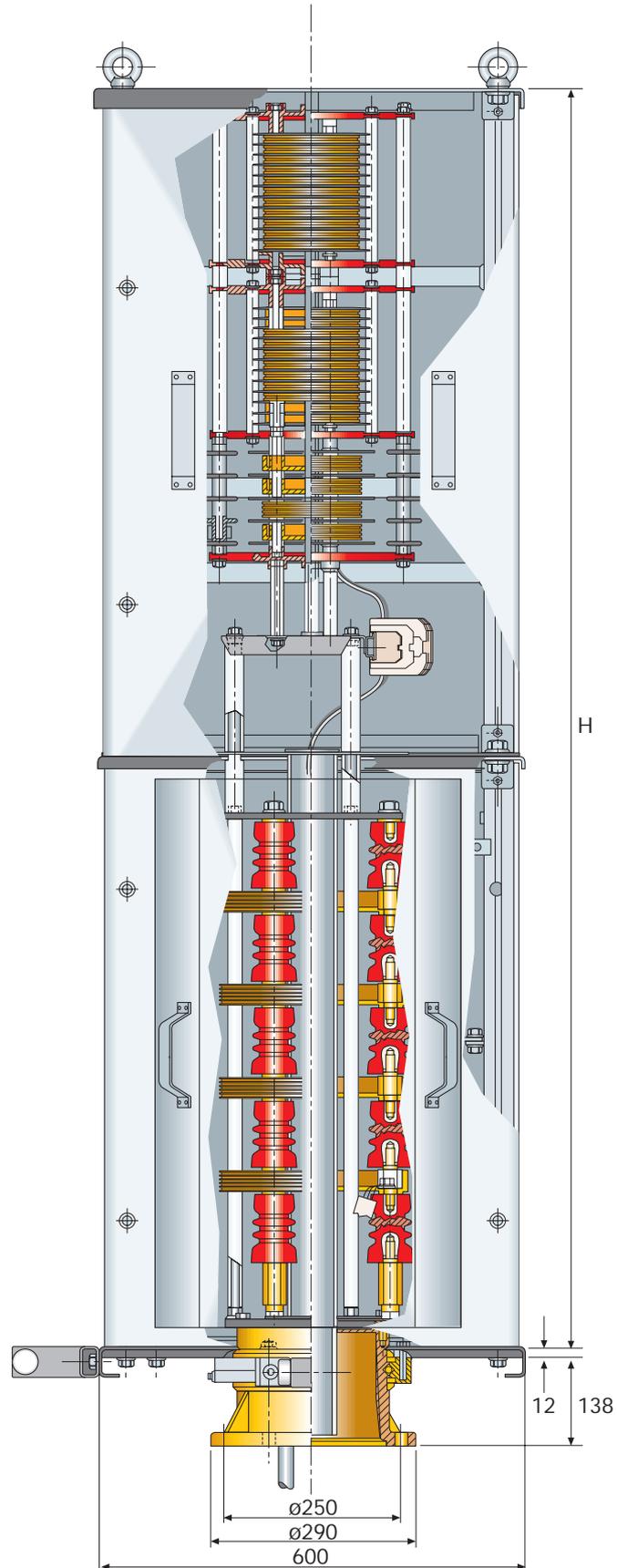
*Oil, swivel (designed by Specimas according to client specifications) is fitted below the slipring and becomes also base bearing.*

# Medium voltage Slipring

Medium voltage slipring are also available (3kV up to 10kV). Medium voltage section is segregated from the control section which is arranged on the top inside a separated enclosure. A stainless steel tube through the medium voltage section, safeguards the control cables. Rings and brushes are the same components as used in the low voltage sliprings, but the pitch is suitable for the operating voltage: resin cast medium voltage insulators are used in the assembly.



*A medium voltage slipring with three phase rings plus earth, assembled by means of insulators suitable for 6 kV operating voltage.*



# Slipring Columns with central hollow passage

## Description

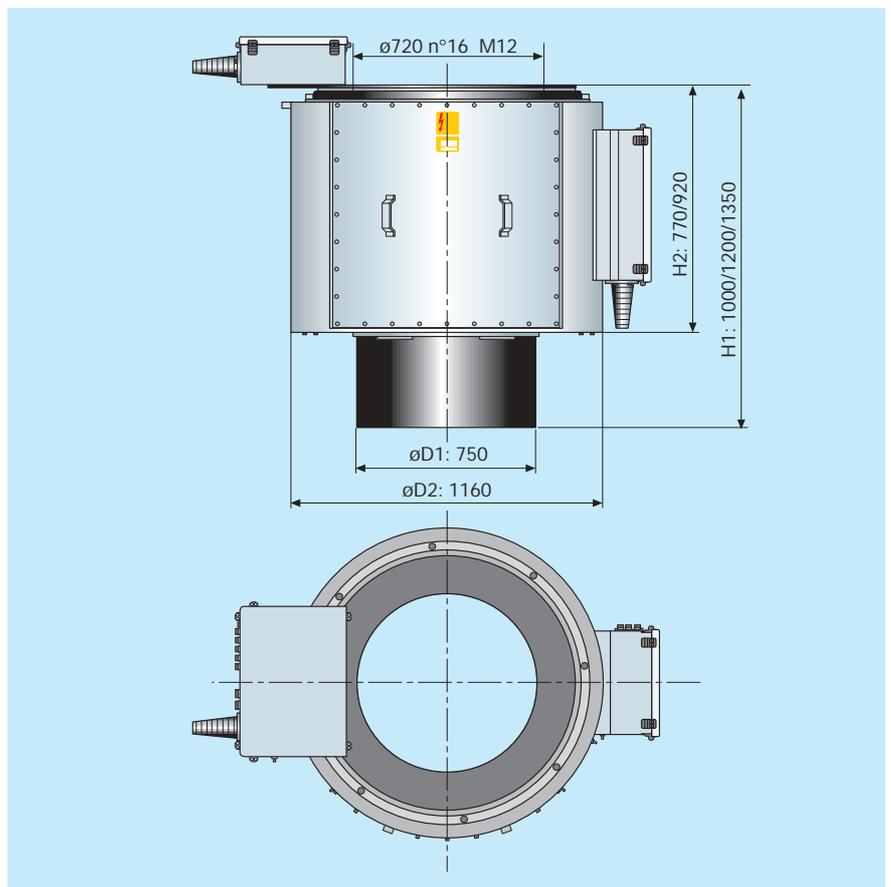
The slipring column is a single assembly built on a robust base-bearing. The ring column is connected to the inner ring of this base-bearing whilst the brushgear assembly is mounted on an internal structure bolted to a base plate fixed onto the outer ring of the base-bearing. The housing is built with a central hollow passage as required by client. A lateral door is supplied for access to rings and brushes. Cabling is made on both sides in designated terminal boxes. Optional client specified components can be mounted in the connection boxes if space is available.

## Installation

The slipring assembly is designed to be installed in a vertical position. The housing, supporting the brushgear assembly, is provided with a driving-fork which drives the rotating part of the slipring through a non-rigid system, in order to compensate for possible mounting misalignments between slipring and containing structure. It is important therefore to maintain this flexibility also in case a different driving system is adopted.



The lower part of the picture shows the power rings with copper bars which connect the brushes. In the upper section 28 control rings are arranged. Both rings and brushes may be prewired to junction boxes (see above illustration). A slewing ring allows an accurate and silent movement. Central passage diameter, enclosure height and other main dimensions may be designed on request to meet customer requirements.



# High power Slipring Columns and special applications

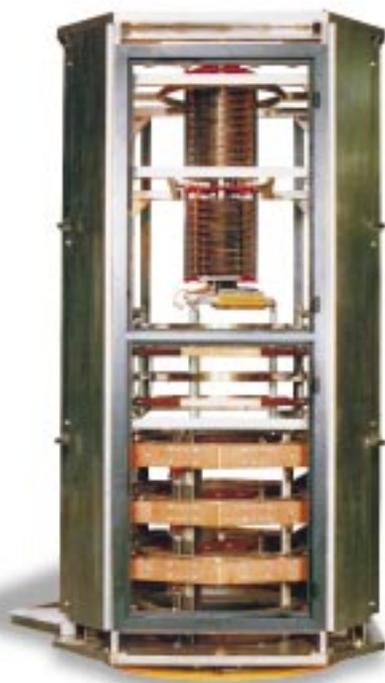
Specimas special sliprings for high power applications are at work in severe environmental conditions all over the world: in nuclear plants, steel plants and offshore applications.

The design is customized according to the extreme performances required such as resistance to high vibrations, high temperature, corrosive atmosphere, etc.

Ring diameters over 2000 mm with high amperages and incorporated swivels for air, water or oil.

Also auxiliary power sliprings, signal sliprings with silver or gold plating and fibre optic transmission are some of the high technology features that can be combined with these high power slipring units.

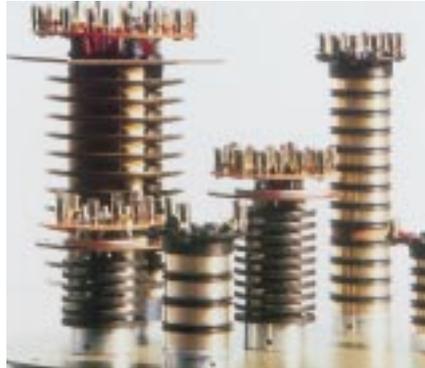
Approval tests have been carried out by several certification companies such as DNV, Bureau Veritas, Germanische Lloyd.



*Specimas custom-built slipring column for phase currents over 3000 Amps.*

# Other Cavotec Sliprings

The range of sliprings distributed by the Cavotec sales companies includes not only the sliprings columns manufactured by Specimas and illustrated in this catalogues, but also the Alfo sliprings with a range up to 150A, the Mercotac and the Aurotac connectors.



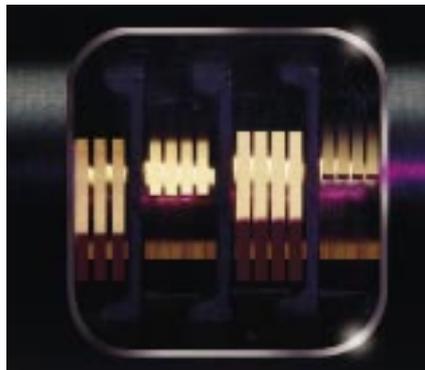
## Alfo GSK-units

Compact modular design and 2 main ranges up to 150 A. High-strength IP65 GRP boxes. Multi-layer silver-rhodium rings/brushes transfer delicate mA control signals reliably, with high sensitivity and low noise level. Max voltage 690V. These strong and reliable units are used in numerous different automation applications, waste-water processing units, lifts etc.



## Mercotac connectors

Mercotac combines mercury with compatible metals to form highly reliable rotating electrical connections for up to 8 channels with low resistance and capacitance. They are ideal for transmitting signal and control circuits, in applications where high revolutions per minute, low (electrical) noise, and low resistance prohibit the use of conventional sliprings. Durable, compact, maintenance free ball bearing construction.



## Aurotac connectors

Main features are: goldplated contact surfaces, small size and strong construction that stands up to a demanding environment. The reliable contacts can transfer extremely sensitive digital and analog signals as well as RS/RF connections and up to 25 Amps power. As well as being excellent for applications where there is no room for larger units, they can also be mounted as an extension on Specimas and Alfo sliprings to handle the most demanding signals.

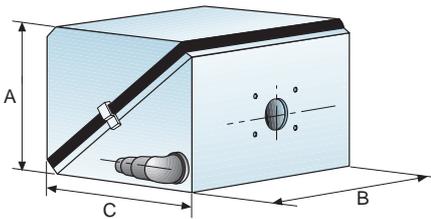


## Fiber optic rotary accumulators (GFO)

Specimas has developed a fibre optic rotary accumulator of heavy-duty design for rugged environment. The system can also be used as a stand-alone rotary accumulator. The signal transmission is uninterrupted: the only losses are due to the fibres and connectors themselves. This unit is supplied with a limited number of revolutions (40 or 80).

# Standard K-type Sliprings

Specimas standard K-range sliprings which as standard are used on all Specimas cable reels, can frequently also be used, with a support bearing or hydraulic swivel, as a stand-alone vertical slipring assembly.



## Standard K-type sliprings LOW VOLTAGE

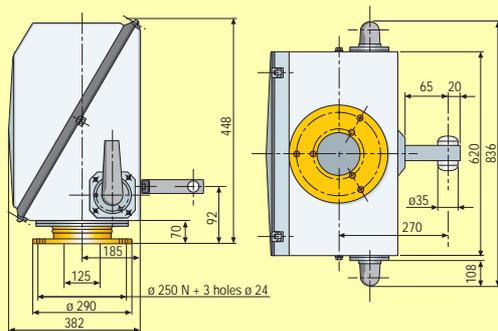
Slipring type	Nominal rating	Continuous rating	Nominal Tension	Max cable section	Ring dia	Type of brushgear	n° of brushgear	Weight	Housing dimension
	A	A	V	mm <sup>2</sup>	mm			Kg	A x B x C
K12	30	12	600	1 x 2,5	130	Kp2	1	9	242 x 370 x 242
K24	30	12	600	1 x 2,5	130	Kp2	1	14	271 x 456 x 359
K37	30	12	600	1 x 2,5	130	Kp2	1	16	275 x 456 x 461
K48	30	12	600	1 x 2,5	130	Kp2	1	22	275 x 456 x 625
K406	60	25	600	1 x 10	130	Kp3	1	8	242 x 370 x 242
K412 <sup>(1) (2)</sup>	120	60	600	1 x 25	130	Kp4	1	8	242 x 370 x 242
K412/4	120/30	60/12	600	1 x 25/1 x 2,5	130/130	Kp4/Kp2	1	9	242 x 370 x 242
K424 <sup>(1) (2)</sup>	240	120	600	1 x 2,5	130	Kp8	1	9	242 x 370 x 242
K440 <sup>(1) (2)</sup>	400	200	1000	1 x 70	135	Kp12	1	12	272 x 456 x 272
K440/4	400/30	200/12	1000	1 x 70/1 x 2,5	135/130	Kp12/Kp2	1	14	271 x 456 x 359
K450 <sup>(1) (2)</sup>	500	250	1000	1 x 120	170	Kp20	1	15	289 x 538 x 499
K460 <sup>(1) (2)</sup>	600	300	1000	1 x 150	270	Kp20	1	35	382 x 642 x 377
K4120 <sup>(2)</sup>	1200	600	1000	2 x 150	270	Kp20	2	40	382 x 642 x 377
K4121 <sup>(2)</sup>	1200	600	1000	2 x 150	270	Kp20	2	45	487 x 788 x 480
K4240 <sup>(2)</sup>	2400	1200	1000	4 x 185	270	Kp20	4	70	500 x 788 x 776

<sup>(1)</sup> These collectors are also available with a 5th. power ring: K512 - K524 - K540 - K560

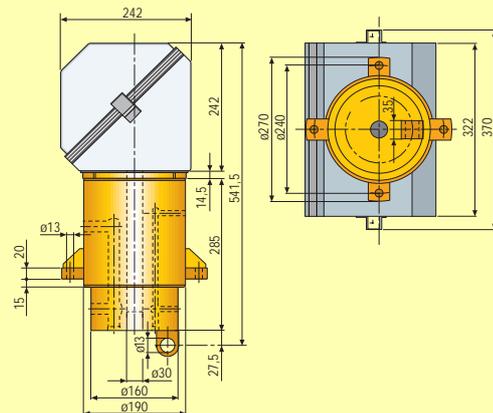
<sup>(2)</sup> These collectors can be supplied with a pilot ring 30Amp. - /1

## Examples:

**Slipring KS 460**



**Slipring K12/B3 x 1"**



# Applications

## Slipring units for marine applications

Two heave compensated cranes are mounted on the deck of this Stena Seawell multipurpose vessel designed for a variety of subsea operations.

With a total power of 2240 HP ensuring a lifting capacity of 150 tons, they can operate either independently, or in a twin mode automatically synchronized. Mounted inside the revolving tower there is a set of 3 Specimas slipring units. The one at the base supplies the electrical power and controls, the other two, one for each crane, provide both electrical and hydraulic connections. Reliability is vital in this slipring application.



## Slipring units for applications requiring customized design

A Specimas custom-built slipring column – phase current over 3000 Amps – is at work on a floating grab crane. The crane unloads coal at the Frans Swartouw terminal, Port of Rotterdam. On top of the power rings there are more than 80 silver coated control rings used for the transfer of signals monitoring the ballast of the floating crane.

