

## Rotating Electrical Connectors



Manufactured by **Mercotac**

# Rotating Electrical Connectors

## Who we are

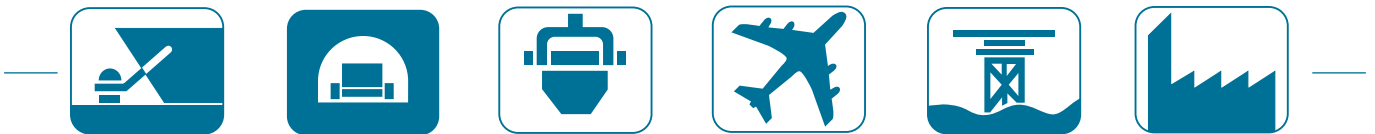
Cavotec is a multi-national group of companies serving the following industries: mining and tunnelling, ports and maritime, steel and aluminium, energy and offshore, airports, general industry and automation. In the early 1960's our main focus was the design and production of motorised cable reels primarily for manufacturers of tower cranes, harbour cranes and mining equipment. Today, Cavotec is connecting mobile equipment around the world in many diverse applications.

## Where we are

The Cavotec Group consists of 7 manufacturing "Centres of Excellence" located in Canada, France, Germany, Italy, Norway and Sweden and by 5 local manufacturing units located in Australia, China, Germany and the USA. For the distribution of products and providing support to customers Cavotec has 27 sales companies which, together with a network of distributors, serve more than 30 countries in five continents. The ultimate objective is to be perceived as "local everywhere".

## How we work

Our aim is to work closely with our customers in order to build long-term partnerships. To achieve this aim we have created a working environment that attracts the best people, encourages them to stay and brings out their best qualities. By producing totally reliable systems and backing them with efficient service, we strive to create true customer satisfaction.



## Mercotac

Mercotac Inc. was founded in 1978 to manufacture unique, high quality but low cost rotating electrical connectors. Since then, the design and manufacturing process has been continually improved and the product line expanded. Mercotac rotating electrical connectors have been developed to meet the needs of a large variety of industrial machinery applications.

The demand for Mercotac connectors continues to expand with the increasing use of electronics and computer controls and the necessity for always improving slip ring technology. By utilizing the latest technology equipment available, together with time-tested quality control measures, the company guarantees high-quality and reliable connectors.

Mercotac Inc. is an established name in the market, providing customers with uniquely designed rotating electrical connectors that guarantee satisfaction every time.

# Cavotec Group Organisation

As shown here the Cavotec Group is organised to support its customers around the world through its manufacturing units and sales companies.

Each Cavotec 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.

Each Cavotec sales company, in the 27 countries where they operate, aims at better serving its local market following the Group philosophy "to be local everywhere".

## Manufacturing network

### Centres of Excellence

#### France

##### Cavotec RMS

Spring Driven Reels

#### Germany

##### Cavotec Alfo

Spring Driven Reels

Slipring Columns

##### Cavotec Fladung

Aircraft Support Systems

Security Systems

#### Italy

##### Cavotec Specimas

Motorized Cable Reels

Panzerbelt Cable Protection

Slipring Columns

#### Norway

##### Cavotec Micro-control

Radio Remote Controls

#### Sweden

##### Cavotec Connectors

Electrical Plugs & Sockets

#### New Zealand

##### Cavotec MoorMaster

Automated Mooring Systems

### Local Manufacturing

#### Australia

##### Cavotec Australia

Motorized Cable Reels

#### China

##### Cavotec China

Product Assembly

#### Germany

##### Cavotec Micro-control

Radio Remote Controls

#### Sweden

##### Cavotec Sweden

Product Assembly

#### USA

##### Cavotec USA

Product Assembly

### Group Partners

#### Belgium

##### Gantry

Crane Rail Systems

#### Italy

##### Brevetti Stendalto

Cable Chains

##### Prysmian (Pirelli)

Flexible Cables

##### Tratos Cavi

Flexible Cables

## Sales network

### Cavotec Sales Companies

Cavotec Australia

Cavotec Belgium\*

Cavotec BeNeLux

Cavotec Brazil\*

Cavotec Canada

Cavotec Chile

Cavotec China

Cavotec Denmark

Cavotec Finland

Cavotec France

Cavotec Germany

Cavotec Hong Kong

Cavotec India

Cavotec Italy

Cavotec Korea

Cavotec Latin America

Cavotec Mexico

Cavotec Middle East

Cavotec Norway

Cavotec Russia\*

Cavotec Singapore

Cavotec South Africa

Cavotec Sweden

Cavotec Turkey

Cavotec UK & Ireland

Cavotec USA

\* Branch Office

# General Information

Mercotac® designs and manufactures a range of unique rotating electrical connectors. 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 slip rings. This durable, compact, maintenance-free ball bearing construction is useful in areas such as:

- **computers**
- **instrumentation**
- **thermocouplings**
- **cable reels**
- **strain gauges**
- **packaging equipment**
- **robotics**
- **turntables**
- **advanced lighting**
- **wind mills**
- **video and telephone**
- **testing and control devices**

## Helpful hints

Although Mercotac rotating electrical connectors are manufactured to the most exacting standards, there are some important matters to remember when installing and using these connectors.

The Mercotac connector can be held or mounted on the body or plastic collar and is not designed to carry any sort of mechanical load. One end of the connector should be allowed to float, attached only by the connecting wires.

In most cases it is preferable to mount the connector with the body rotating to reduce any mechanical loads on the bearing. Mounting eccentricity should be limited to .13mm (.005")

The Mercotac connector contains plastic materials which are sensitive to heat. Overheating of these elements will result in severely reduced operating life or complete connector failure. We recommend providing thermal insulation where necessary to prevent the temperature of the unit exceeding 60°C (140°F)

Do not solder on the connector or bend the tabs as this will result in connector failure and the warranty will be voided. Vibration or mechanical shock will also reduce operating life or cause connector failure, therefore some installations should be fitted with additional shock isolation.

## Food and packaging applications

Mercotac connectors are often used in food preparation or packaging applications. As the connectors contain mercury and other fluids, it is strongly recommended to fully isolate the connector from any possibility of leakage contaminating the application.

Short circuit failure in connection with a Mercotac connector could result in leakage. To reduce risk of contamination in such an event the use of a protective is recommended.

## Operating temperature

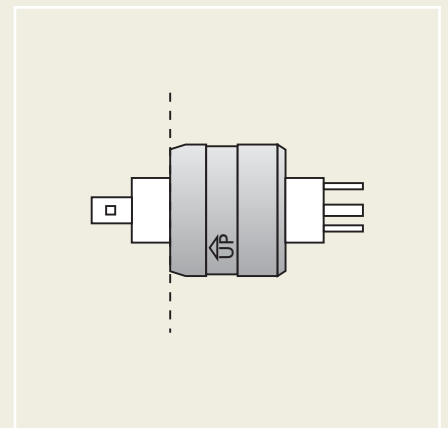
Mercotac connectors contain several plastic materials which are sensitive to heat. To prevent these elements in the Mercotac connector from exceeding 60°C (140°F) thermal insulation should be provided.

Overheating will result in operational failure and voids the warranty.

## Recycling

As Mercotac connectors contain metallic mercury they should be disposed of properly through approved recycling or mercury recovery programs.

The Cavotec Group, together with Mercotac Inc., offers to forward spent connectors to a specialised mercury recovery facility. Please ensure to wrap and package the units in accordance with laws and regulations. Make sure to state on your paperwork "For Recycling" and to clearly identify shipments with company name and contact information.



*Reversible unit will operate in any position ("UP" arrow not to point below horizontal).*

## SPECIFICATIONS

### Modular



Model No.	Code	Conductors	Voltage Range AC/DC	Current Rating 240 VAC AMP.	Max Freq. MHz	Mercury Contact Resist.	Max RPM	Operating Temp. Max. / Min. °C / °C	Rotation Torque (x103 Nm)	Circuit Separation
1250	MM01-12500-00	1	n/a	250	200	<1mΩ	1200	60 / -29	250	—
230	MM02-02300-00	2	0-250	30	200	<1mΩ	1800	60 / -29	200	>25MΩ
330	MM03-03300-00	3	0-250	30	100	<1mΩ	1200	60 / -20	300	>25MΩ
sm./lg. tab										
331	MM03-03310-00	3	0-250	4 / 30	100	<1mΩ	1800	60 / -29	200	>25MΩ
430	MM04-04300-00	4	0-250	4 / 30	100	<1mΩ	1200	60 / -29	400	>25MΩ
435	MM04-04350-00	4	0-250	30	100	<1mΩ	300	60 / -29	850	>25MΩ
630	MM06-06300-00	6	0-250	4 / 30	100	<1mΩ	300	60 / -29	700	>25MΩ
830	MM08-08300-00	8	0-250	4 / 30	100	<1mΩ	200	60 / -29	1000	>25MΩ

### Coaxial



Model No.	Code	Conductors	Voltage Range AC/DC	Current Rating 240 VAC AMP.	Max Freq. MHz	Mercury Contact Resist.	Max RPM	Operating Temp. Max. / Min. °C / °C	Rotation Torque (x103 Nm)	Circuit Separation
110	MM01-01100-00	1	—	10	200	<1mΩ	3600	60 / -29	35	—
110-L	MM01-0110L-00	1	—	10	200	<1mΩ	1200	60 / -29	10	—
110-T	MM01-0110T-00	1	—	10	200	<1mΩ	3600	60 / -29	35	—
110-TL	MM01-0110TL-00	1	—	10	200	<1mΩ	1200	60 / -29	10	—
205	MM205-02050-00	2	0-250	4	200	<1mΩ	2000	60 / 7	75	>25MΩ
205-L	MM205-0205L-00	2	0-250	4	200	<1mΩ	1200	60 / -29	20	>25MΩ
205-H	MM205-0205H-00	2	0-250	4	200	<1mΩ	3600	60 / 7	35	>25MΩ
305	MM305-03050-00	3	0-250	4	200	<1mΩ	1800	60 / 7	100	>25MΩ

NOTE: Model numbers with suffix "SS" denote Stainless Steel ball bearing

# Modular Series

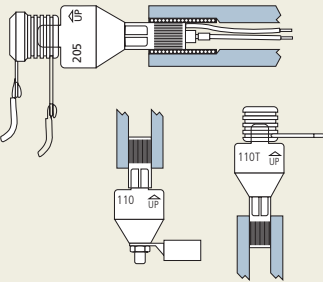
## Mounting guidelines

- Mercotac connectors can be positioned between vertical and 90 horizontal. The UP arrow should not point below horizontal.
- The models 110, 110-T, 205, and 305 use the knurled receptacle inserted into the rotating member for mounting. This receptacle holds the actual connector.
- Larger connectors use either the body or the plastic collar for mounting to the rotating member.
- In horizontal applications, mount the connector with the body rotating to reduce mechanical loads on the bearing.
- Limit mounting eccentricity to a maximum of the TIR.
- The connectors are not designed to carry mechanical loads. One end should be allowed to float, attached only by the connecting wires.

## Connection guidelines

- Use stranded wires of ample length and flexibility to avoid mechanical loads.
- Terminal accessories are quick push-on disconnects which crimp onto the connecting wires and push onto the tabs.
- Do not solder wires to the connector or bend tabs as it can cause connector failure and void the warranty.
- Provide overload protection to the electrical circuit containing the connector.
- If wire wrapping occurs from too much connector torque, use a torque arm positioned to float against a fixed stop.

## Suggested mounting methods

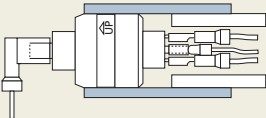


### Receptacle mount-hole dimensions

Model	Hole diameter Ø	Depth
591, 592, 5920, 594	.283" (7.19)	.35" (8.89)
593	.408" (10.36)	.35" (8.89)
Inch (mm)	Tolerances Ø	± .001" (± .025") - .000 (- .000)

Models 110, 110-T, 205, 305 are typically mounted to the knurled metal receptacle.

## Typical body mount

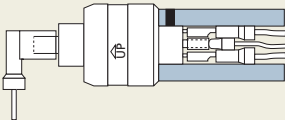


### Body mount-hole dimensions

Model	Hole diameter Ø	Depth
230, 331	.998" (25.35)	.80" (20)
330, 430, 1250	1.248" (31.70)	.80" (20)
630	1.575" (40.00)	.80" (20)
435, 830	1.772" (45.00)	.80" (20)
Inch (mm)	Tolerances Ø	± .001" (± .025") - .000 (- .000)

\* Minimum additional depth for disconnects clearance 1.4" (35.5)

## Typical collar mount

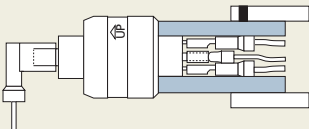


### Collar mount-hole dimensions

Model	Hole diameter Ø	Depth
230, 331	.500" (12.70)	.40" (10)
330, 430	.625" (15.88)	.40" (10)
430 w/plug	.625" (15.88)	1.40" (36)
630	.875" (22.23)	.40" (10)
830	1.125" (28.58)	.40" (10)
435	1.250" (31.75)	.80" (20)
1250 Stud	3/8" - 16 UNC	.81" (20.5)
1250-M Stud	10 x 1.5 metric	.81" (20.5)
Inch (mm)	Tolerances Ø	± .001" (± .025") - .000 (- .000)

\* Minimum additional depth for disconnects clearance 1.4" (35.5)

## Insulating collar mount

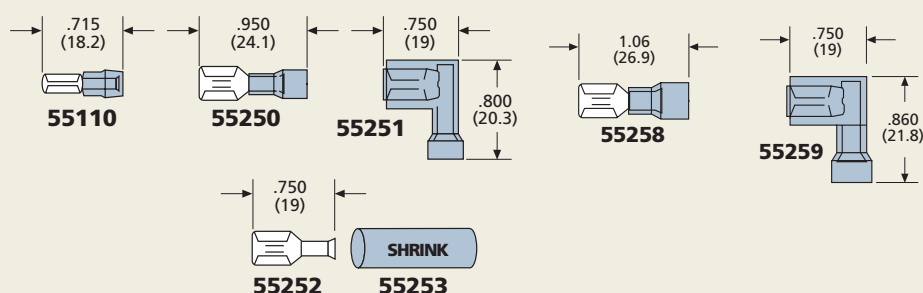


Mounting with an insulating collar may be required to insulate connector from conducted heat. Soft-mounting with rubber type material is needed if unit will be subjected to vibration.

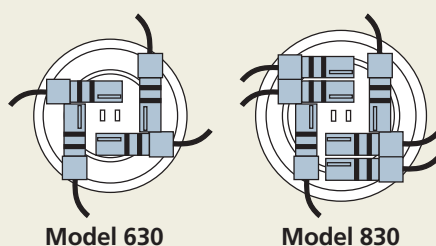
## Modular Model Disconnects

Disconnect 55110 should be used for 18-22 AWG wire while disconnects 55250, 55251 and 55252 should be used for 14-16 AWG wire.

Heavy duty disconnects 55258 and 55259 should be used for 10-12 AWG wire.

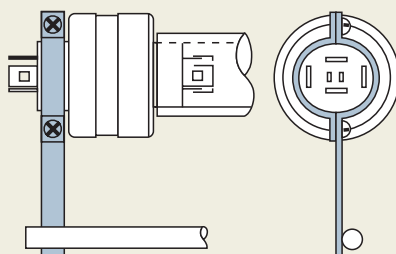


It is recommended to provide over-current protection (fuse) on the wires attached to the connector. Use standard wire of ample length and flexibility to avoid mechanical loads.



In most cases the wires are sufficient to restrain any turning of the Mercotac connector. In some cases a floating "torque arm" attached to the stationary end can be used if the wires are not sufficiently stiff.

Take care not to ever rigid mount both ends of the connector. This will result in "working" the bearing and cause connector failure.



Configuration of right angle disconnects on models 630 and 830.

## Boot Kits

A rubber Boot Kit with an attached plastic bushing provides good protection to the wire terminals against spray water, oil and dirt. The design allows it to be used on either

end of the unit. A rating of IP51 can be achieved through the close fit of the bushing. The tip of the boot can be cut off to accommodate wires. For corrosive atmospheres or where

subject to water splash the stainless steel ball bearing is also advisable.

**Note:** this Boot Kit is not water-tight nor intended for water-proofing.

# Modular Series

## Hole diameter for collar mount for:

230 - 331:	12,7 mm	10,16 mm DEEP*
330 - 430:	15,87 mm	10,16 mm DEEP*
630:	22,22 mm	10,16 mm DEEP*
830:	28,57 mm	10,16 mm DEEP*
1250 threaded stud:	3/8-16 UNC	20,57 mm DEEP*

## Hole diameter for body mount for:

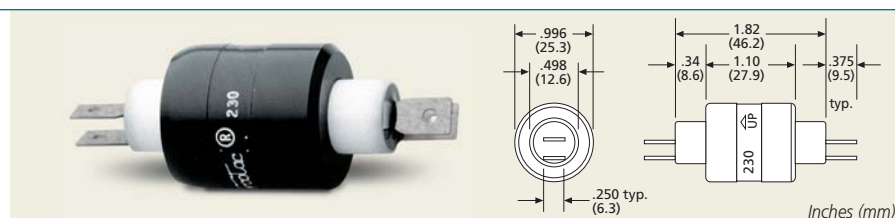
230 - 331:	25,34 mm	10,16 mm DEEP*
330 - 430 - 1250:	31,69 mm	10,16 mm DEEP*
630:	40,00 mm	10,16 mm DEEP*
830:	45,00 mm	10,16 mm DEEP*

\*Minimum additional depth for disconnects: 25,4 mm

### 230/230 SS\*

2 conductors: 2x30 Amp.  
Disconnects included: 4 lg.

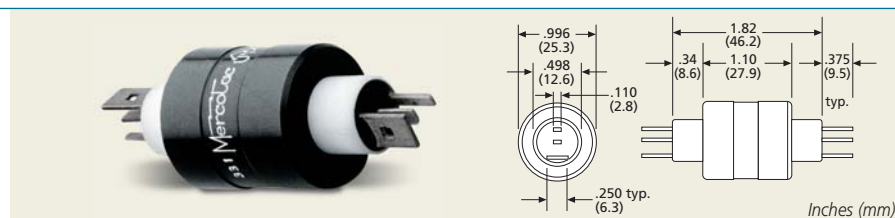
230	230 SS *
MM02-02300-00	MM02-02300-50



### 331/331 SS\*

3 conductors: 2x4 Amp. + 1x30 Amp.  
Disconnects included: 4 sm., 2 lg.

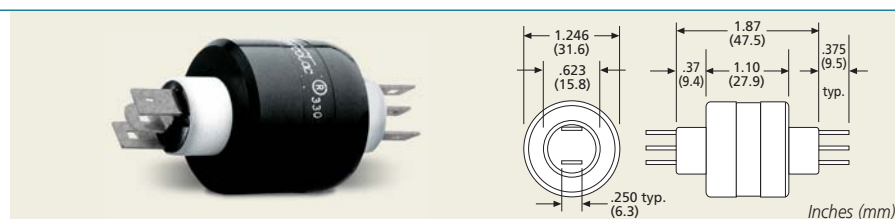
331	331 SS*
MM03-03310-00	MM03-03310-50



### 330/330 SS\*

3 conductors: 3x30 Amp.  
Disconnects included: 6 lg.

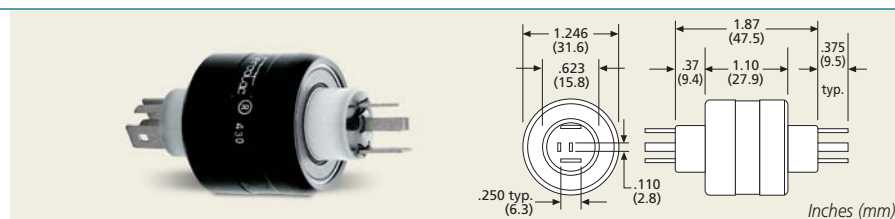
330	330 SS*
MM03-03300-00	MM03-03300-50



### 430/430 SS\*

4 conductors: 2x4 Amp. + 2x30 Amp.  
Disconnects included: 4 sm., 4 lg.

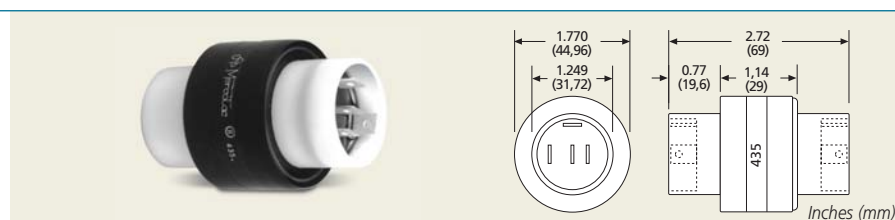
430	430 SS*
MM04-04300-00	MM04-04300-50



### 435/435 SS\*

4 conductors: 4x30 Amp.  
Disconnects included: 14-16 awg. wire.

435	435 SS*
MM04-04350-00	MM04-04350-50



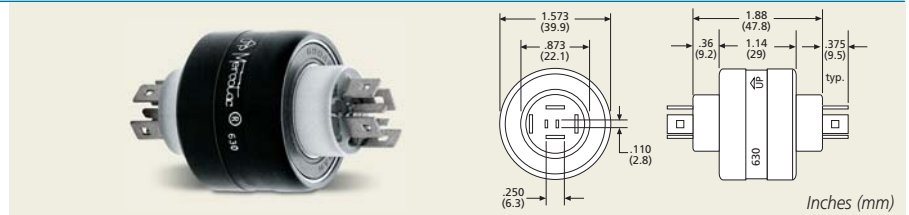
\*SS indicates Stainless Steel ball bearing.



### 630/630 SS\*

6 conductors: 2x4 Amp. + 4x30 Amp.  
Disconnects included: 4 sm., 8 lg.

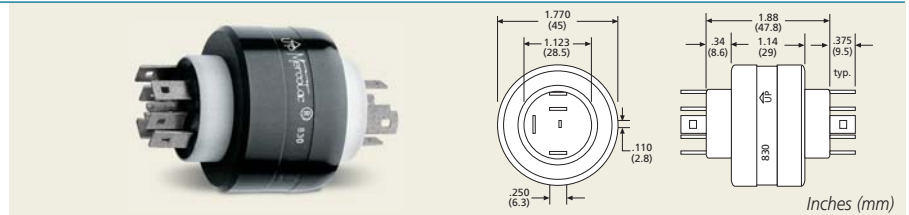
630	630 SS*
MM06-06300-00	MM06-06300-S0



### 830/830 SS\*

8 conductors: 2x4 Amp. + 6x30 Amp.  
Disconnects included: 4 sm., 12 lg.

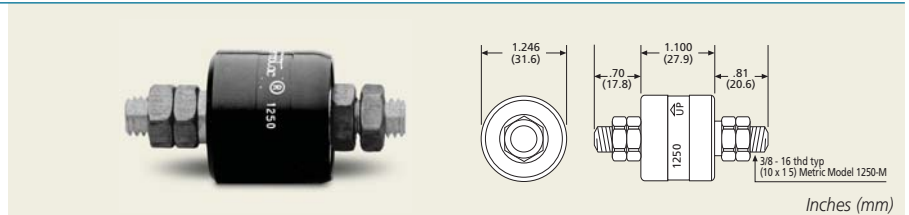
830	830 SS*
MM08-08300-00	MM08-08300-S0



### 1250/1250 SS\* / 1250 M

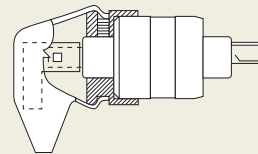
1 conductor: 1x250 Amp.  
Available with metric threads (1250-M)  
4 Jam Nuts included

1250	1250 SS*
MM01-12500-00	MM01-12500-S0
<b>1250 M</b>	
MM01-12500-M0	

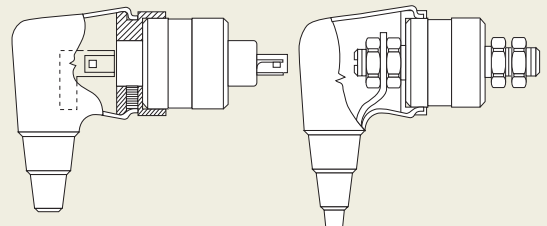


### Accessories

For Mercotac® models:  
230 order BOOT KIT # 57230  
331 order BOOT KIT # 57230



For Mercotac® models:  
1250 order BOOT KIT # 57125  
330 order BOOT KIT # 57430  
430 order BOOT KIT # 57430  
435 order BOOT KIT # 57435  
630 order BOOT KIT # 57630  
830 order BOOT KIT # 57830



Appropriate disconnects supplied with boot kits for 630 and 830 models.

# Coaxial Series

## Coaxial design models

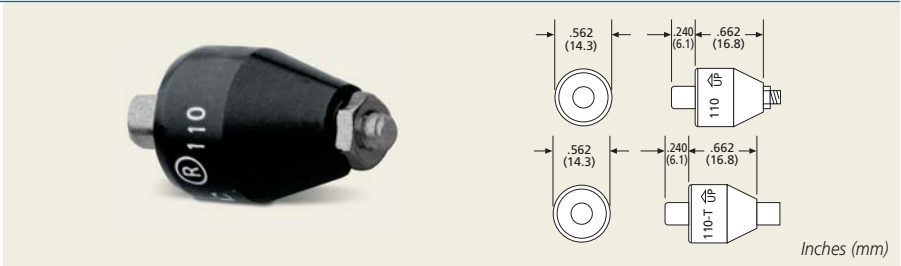
The light duty and compact models with one, two or three conductors are ideally suited to provide a trouble-free connection for rotating instrumentation, thermo couplers, strain gauges and plating and testing equipment.



## 110/110 SS\*/110 L/110 T/110 TL

1 conductors: 1 x 10 Amps.

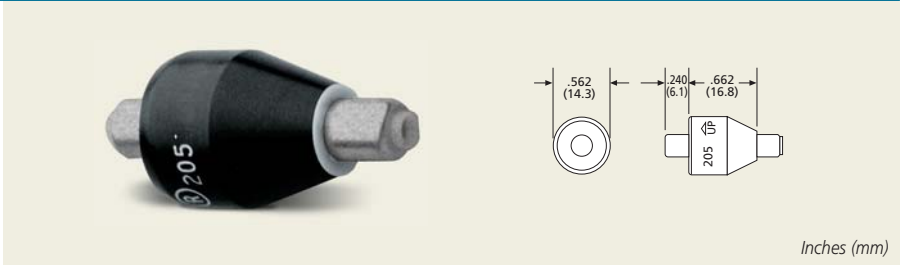
110	110 SS*
MM01-01100-00	MM01-01100-S0
110 L	110T
MM01-0110L-00	MM01-0110T-00
110 TL	
MM01-0110TL-00	



## 205/205 H/205 L/205 SS\*

2 conductors: 2 x 4 Amps.

205	205 H
MM02-02050-00	MM02-0205H-00
205 L	205 SS*
MM02-0205L-00	MM02-02050-S0



## 305/305 SS\*

3 conductors: 3 x 4 Amps.

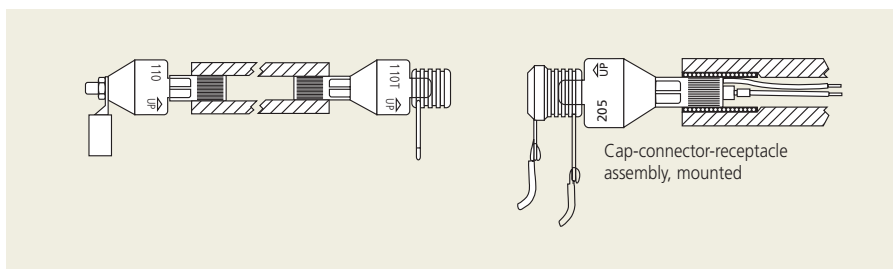
305	305 SS*
MM03-03050-00	MM03-03050-S0



\*SS indicates Stainless Steel ball bearing

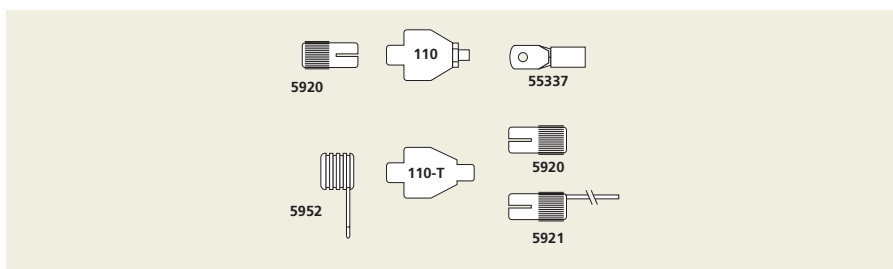
Mercotac connectors can be used for many different types of application and there are several accessories that can be ordered separately from your local Cavotec company.

Please remember that all Mercotac connectors, except the 110 model, are fully reversible. This allows for several different arrangements to suit specific application requirements.



Single conductor units are available in two different styles. The 110-T (top) will work in any position.

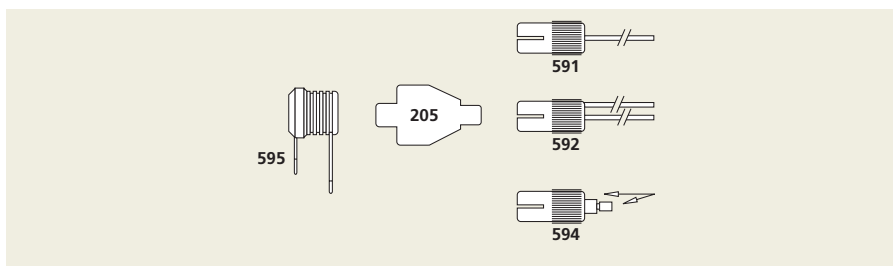
The 110 with the threaded 6-32 stud, specially designed for bottom mount, can also be used horizontally.



#### Ring Connector (55337)

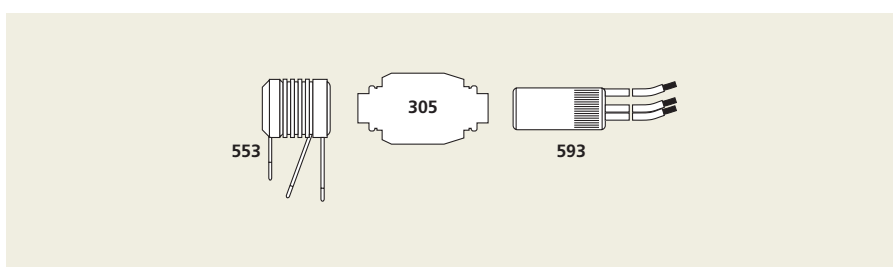
One-contact receptacles:  
(5920) W/O wire  
(5921) W/6" lead

One-contact cap:  
(5952) W/Solder lug



Two-contact cap:  
(595) W/Two solder lugs

Two-contact receptacles:  
(591) W/One 6" lead  
(592) W/Two 6" leads  
(594) W/Two Solder Holes for users' wires.



Three-contact cap:  
(553) W/Three Solder lugs

Three-contact receptacle:  
(593) W/Three 6" leads

Head Office

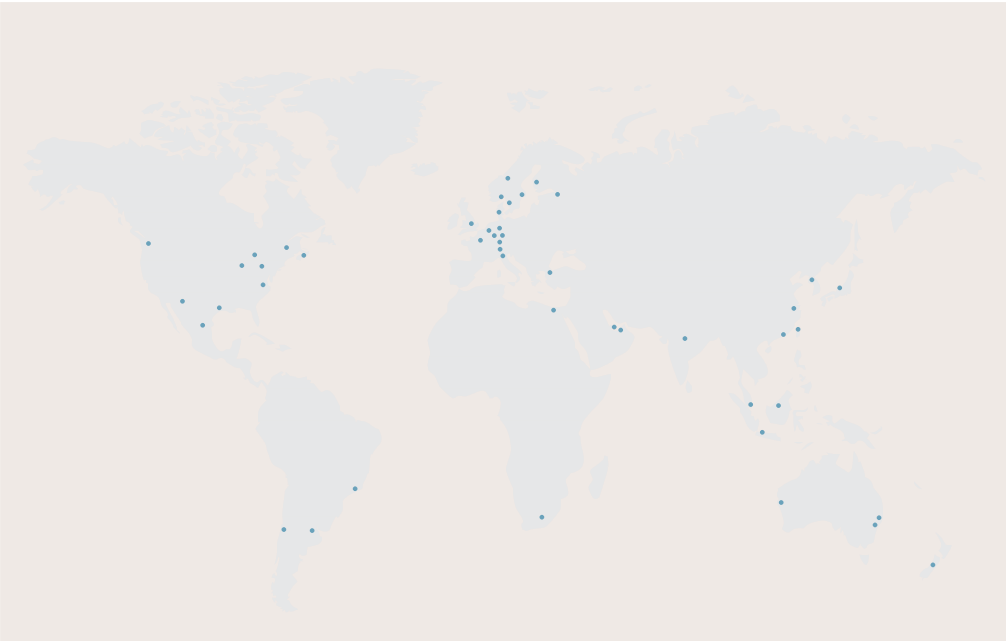
**Cavotec MSL Holdings Ltd.**  
Cavotec MSL is listed on the **NZX**

Corporate Office

**Cavotec (Swiss) SA**  
Via Serafino Balestra 27  
CH-6900 Lugano, Switzerland

We are present in

- |           |                 |
|-----------|-----------------|
| Argentina | Luxemburg       |
| Australia | Malaysia        |
| Belgium   | Mexico          |
| Brazil    | The Netherlands |
| Canada    | New Zealand     |
| Chile     | Norway          |
| China     | Russia          |
| Denmark   | Saudi Arabia    |
| Egypt     | Singapore       |
| Finland   | South Africa    |
| France    | Sweden          |
| Germany   | Switzerland     |
| Hong Kong | Taiwan          |
| India     | Turkey          |
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| Italy     | U.K.            |
| Japan     | U.S.A.          |
| Korea     |                 |



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or contact us directly at [info@cavotec.com](mailto:info@cavotec.com)