

### Rotating Multi-Pin Electrical Connectors

*Do you want a superior connection or an ordinary slip ring assembly?*

**Choose TEMPCO's Rotating Electrical Connectors for Higher Operating Efficiencies . . .**

#### Design Features

- \* Superior to conventional slip rings
- \* Extremely low electrical noise
- \* Less than 1 milliohm resistance
- \* Sealed, ball bearing construction
- \* Increased reliability, no maintenance
- \* Durable, compact, low cost



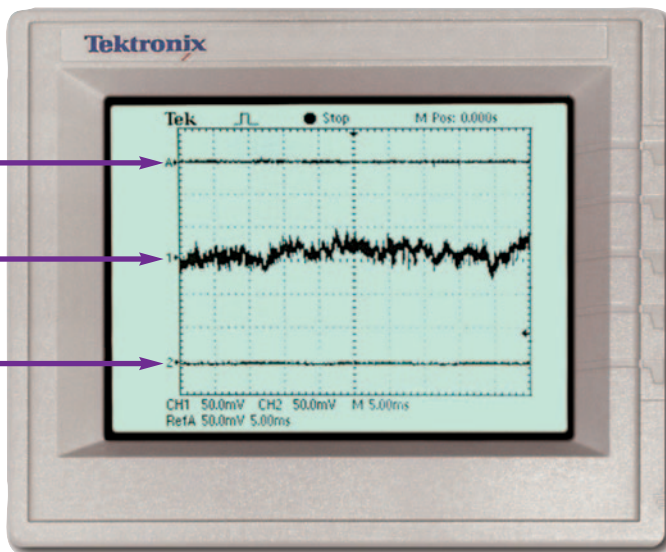
### Multi-Pin Rotating Connectors Offer Superior Performance

Slip rings require maintenance and lose signal quality over time due to wear and debris on the brushes and commutator. **Tempco's Rotating Electrical Connectors** are maintenance free. They last much longer than slip ring assemblies, and the signal does not degrade over time.

Slip rings introduce electrical noise into the signal being transmitted, as shown on the oscilloscope below. **Tempco's Rotating Electrical Connectors** transmit with near zero electrical noise, so the same connector style can be used for power and signal transmission, saving money.

Slip rings typically last for a few million revolutions. **Tempco's Rotating Electrical Connectors** typically last hundreds of millions of revolutions. In many applications they can last over a billion revolutions.

The superior performance of **Tempco's Rotating Electrical Connectors** is attributable to the unique design of the connector. The electrical conduction path is a liquid metal that is molecularly bonded to the contacts. This creates a connection that is constant and unchanged for the life of the connector.



#### Typical Applications

- ➔ Heating Elements
- ➔ Lamps
- ➔ Thermocouples
- ➔ Signs
- ➔ Rotating Antennas
- ➔ Displays
- ➔ Turntables
- ➔ Packaging Equipment
- ➔ Cable Reels
- ➔ Robotics
- ➔ Instrumentation
- ➔ Strain Gauges
- ➔ Testing and Control Devices
- ➔ Heated Rollers

#### Ordering Information

Order by the part number of the rotating connector and accessories that match your requirements.

**Standard lead time is stock to 4 weeks.**

**⚠ WARNING:** Cancer and Reproductive Harm - [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

### SINGLE CONDUCTOR

#### 1 Conductor, 10 Amp

#### Model 110

Part No.	Conductors	Description	VOLTAGE AC/DC	AMP RATING AT 240 VAC	MAX FREQ. MHz	CONTACT RESISTANCE	MAX OP. RPM	TEMPERATURE Max.F(C) / Min.F(C)	ROTATION Torque (gm-cm)	CIRCUIT SEPARATION
MER00110	1	Standard Model	N/A	10	200	<1mΩ	3600	140(60)/-20(-29)	35	N/A
MER00112	1	Stainless Steel Bearing	N/A	10	200	<1mΩ	3600	140(60)/-20(-29)	35	N/A
MER00113	1	Low Torque	N/A	10	200	<1mΩ	1200	140(60)/-20(-29)	10	N/A

#### ACCESSORIES



**MER90002** one-contact receptacle



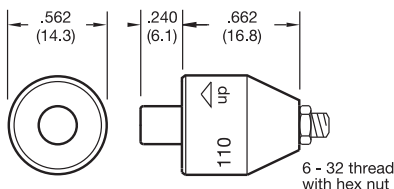
**MER90003** one-contact receptacle w/ 6" wire



**MER90004** ring terminal (12-10 AWG)

**MER90001** one-contact cap w/solder lug

Receptacle used for mounting to rotating device.  
Accessories required for wire connections. Order separately.



Inch (mm)



#### 1 Conductor, 10 Amp

#### Model 110-T

Part No.	Conductors	Description	VOLTAGE AC/DC	AMP RATING AT 240 VAC	MAX FREQ. MHz	CONTACT RESISTANCE	MAX OP. RPM	TEMPERATURE Max.F(C) / Min.F(C)	ROTATION Torque (gm-cm)	CIRCUIT SEPARATION
MER00111	1	Standard Model	N/A	10	200	<1mΩ	3600	140(60)/-20(-29)	35	N/A
MER00115	1	Stainless Steel Bearing	N/A	10	200	<1mΩ	3600	140(60)/-20(-29)	35	N/A
MER00114	1	Low Torque	N/A	10	200	<1mΩ	1200	140(60)/-20(-29)	10	N/A

#### ACCESSORIES



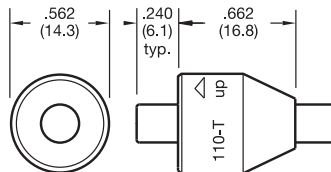
**MER90002** one-contact receptacle



**MER90003** one-contact receptacle w/ 6" wire

**MER90001** one-contact cap w/ solder lug

Receptacle used for mounting to rotating device.  
Accessories required for wire connections. Order separately.



Inch (mm)



#### 1 Conductor, 250 Amp

#### Model 1250

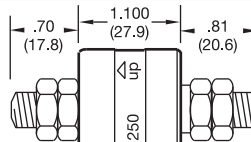
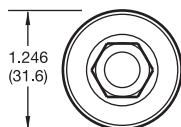
Part No.	Conductors	Description	VOLTAGE AC/DC	AMP RATING AT 240 VAC	MAX FREQ. MHz	CONTACT RESISTANCE	MAX OP. RPM	TEMPERATURE Max.F(C) / Min.F(C)	ROTATION Torque (gm-cm)	CIRCUIT SEPARATION
MER01250	1	Standard Model	N/A	250	200	<1mΩ	1200	140(60)/-20(-29)	250	N/A
MER01251	1	Stainless Steel Bearing	N/A	250	200	<1mΩ	1200	140(60)/-20(-29)	250	N/A
MER01252	1	Metric Thread (10x1.5)	N/A	250	200	<1mΩ	1200	140(60)/-20(-29)	250	N/A
MER01253	1	Metric Thread & Stainless Steel Bearing	N/A	250	200	<1mΩ	1200	140(60)/-20(-29)	250	N/A
MER01254	1	Stainless Steel Body & Bearing	N/A	250	200	<1mΩ	1200	140(60)/-20(-29)	250	N/A
MER01255	1	Metric Thd., Stainless Steel Body & Bearing	N/A	250	200	<1mΩ	1200	140(60)/-20(-29)	250	N/A

#### ACCESSORIES



**MER90106**  
Boot Kit  
For dust and splash protection  
IP51

Inch (mm)



3/8-16 thd. typ.  
(10x1.5) Metric MER01252 and MER001253



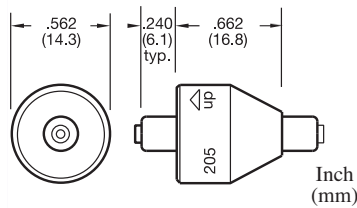
## Rotating Electrical Connectors

### 2 & 3 CONDUCTORS

#### 2 Conductors, 4 Amp

#### Model 205

Part No.	Conductors	Description	VOLTAGE AC/DC	AMP RATING AT 240 VAC	MAX FREQ. MHz	CONTACT RESISTANCE	MAX OP. RPM	TEMPERATURE Max.F(C) / Min.F(C)	ROTATION Torque (gm-cm)	CIRCUIT SEPARATION
MER00205	2	Standard Model	0-250	4	200	<1mΩ	2000	140(60)/45(7)	75	>25MΩ
MER00208	2	Stainless Steel Bearing	0-250	4	200	<1mΩ	2000	140(60)/45(7)	75	>25MΩ
MER00207	2	Low Torque/Low Temp.	0-250	4	200	<1mΩ	1200	140(60)/-20(-29)	20	>25MΩ
MER00210	2	Low Temp. Stainless Steel Bearing	0-250	4	200	<1mΩ	1200	140(60)/-20(-29)	75	>25MΩ
MER00206	2	High RPM	0-250	4	200	<1mΩ	3600	140(60)/45(7)	35	>25MΩ
MER00209	2	High RPM Stainless Steel Bearing	0-250	4	200	<1mΩ	3600	140(60)/45(7)	35	>25MΩ



#### ACCESSORIES

**MER90015** two-contact receptacle w/ one 6" wire

**MER90005** two-contact receptacle w/ two 6" wires

**MER90006** two-contact receptacle w/ two solder holes

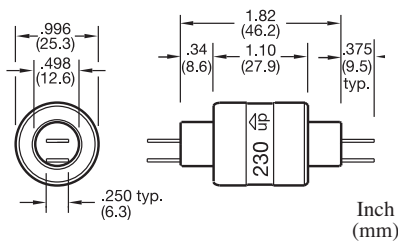
Receptacle used for mounting to rotating device.  
Accessories required for wire connections. Order separately.

**MER90007** two-contact cap w/ solder lugs

#### 2 Conductors, 30 Amp

#### Model 230

Part No.	Conductors	Description	VOLTAGE AC/DC	AMP RATING AT 240 VAC	MAX FREQ. MHz	CONTACT RESISTANCE	MAX OP. RPM	TEMPERATURE Max.F(C) / Min.F(C)	ROTATION Torque (gm-cm)	CIRCUIT SEPARATION
MER00230	2	Standard Model	0-250	30	200	<1mΩ	1800	140(60)/-20(-29)	200	>25MΩ
MER00231	2	Stainless Steel Bearing	0-250	30	200	<1mΩ	1800	140(60)/-20(-29)	200	>25MΩ



Includes (2) MER90009 and (2) MER90010

#### ACCESSORIES

**MER90010** Terminal 16-14 AWG

**MER90101** Boot Kit For dust and splash protection IP51

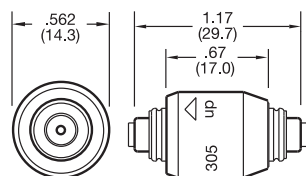
**MER90009** Terminal 16-14 AWG

Terminals for other wire gauges available.

#### 3 Conductors, 4 Amp

#### Model 305

Part No.	Conductors	Description	VOLTAGE AC/DC	AMP RATING AT 240 VAC	MAX FREQ. MHz	CONTACT RESISTANCE	MAX OP. RPM	TEMPERATURE Max.F(C) / Min.F(C)	ROTATION Torque (gm-cm)	CIRCUIT SEPARATION
MER00305	3	Stainless Steel Bearing Standard	0-250	4	200	<1mΩ	1800	140(60)/45(7)	100	>25MΩ
MER00316	3	Low Temperature	0-250	4	200	<1mΩ	1000	140(60)/-20(-29)	100	>25MΩ



#### ACCESSORIES

**MER90014** three-contact receptacle w/ three 6" wires

**MER90013** three-contact cap w/ solder lugs

Receptacle used for mounting to rotating device.  
Accessories required for wire connections. Order separately.

### 3 & 4 CONDUCTORS

#### 3 Conductors, Combination 4 Amp & 30 Amp

#### Model 331

Part No.	Conductors	Description	VOLTAGE AC/DC	AMP RATING AT 240 VAC	MAX FREQ. MHz	CONTACT RESISTANCE	MAX OP. RPM	TEMPERATURE Max.F(C) / Min.F(C)	ROTATION Torque (gm-cm)	CIRCUIT SEPARATION
MER00331	3	Standard Model	0-250	2@4 / 1@30	100	<1mΩ	1800	140(60)/-20(-29)	200	>25MΩ
MER00333	3	Stainless Steel Bearing	0-250	2@4 / 1@30	100	<1mΩ	1800	140(60)/-20(-29)	200	>25MΩ

#### ACCESSORIES



**MER90010**  
Terminal  
16-14 AWG



**MER90101**  
Boot Kit  
For dust and splash protection  
IP51

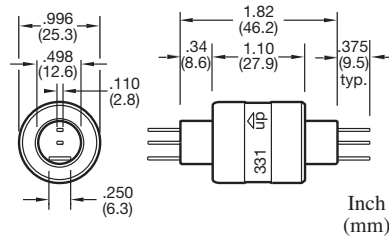


**MER90009** Terminal  
16-14 AWG



**MER90008** Terminal  
22-18 AWG

Terminals for other wire gauges available.



Includes (1) MER90010,  
(1) MER90009 and (4) MER90008



#### 3 Conductors, 30 Amp

#### Model 330

Part No.	Conductors	Description	VOLTAGE AC/DC	AMP RATING AT 240 VAC	MAX FREQ. MHz	CONTACT RESISTANCE	MAX OP. RPM	TEMPERATURE Max.F(C) / Min.F(C)	ROTATION Torque (gm-cm)	CIRCUIT SEPARATION
MER00330	3	Standard Model	0-250	30	100	<1mΩ	1200	140(60)/-20(-29)	300	>25MΩ
MER00332	3	Stainless Steel Bearing	0-250	30	100	<1mΩ	1200	140(60)/-20(-29)	300	>25MΩ

#### ACCESSORIES



**MER90010**  
Terminal  
16-14 AWG



**MER90102**  
Boot Kit  
For dust and splash protection  
IP51

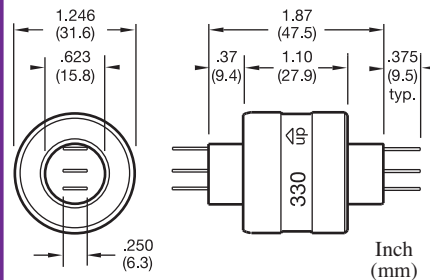


**MER90021**  
Shrink Tube



**MER90019**  
Terminal 16-14 AWG

Terminals for other wire gauges available.



Includes (3) MER90010,  
(3) MER90019 and (3) MER90021



#### 4 Conductors, Combination 4 Amp & 30 Amp

#### Model 430

Part No.	Conductors	Description	VOLTAGE AC/DC	AMP RATING AT 240 VAC	MAX FREQ. MHz	CONTACT RESISTANCE	MAX OP. RPM	TEMPERATURE Max.F(C) / Min.F(C)	ROTATION Torque (gm-cm)	CIRCUIT SEPARATION
MER00430	4	Standard Model	0-250	2@4 / 2@30	100	<1mΩ	1200	140(60)/-20(-29)	400	>25MΩ
MER00431	4	Stainless Steel Bearing	0-250	2@4 / 2@30	100	<1mΩ	1200	140(60)/-20(-29)	400	>25MΩ

#### ACCESSORIES



**MER90022** Plug Assembly  
12-in. wires, 14 AWG & 18 AWG  
SUITABLE FOR UP TO 20 AMPS



**MER90102**  
Boot Kit  
For dust and splash protection  
IP51



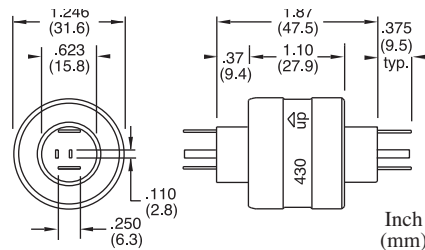
**MER90010**  
16-14 AWG



**MER90009**, 16-14 AWG



**MER90008**, 22-18 AWG



Includes (2) MER90009,  
(2) MER90010 and (4) MER90008

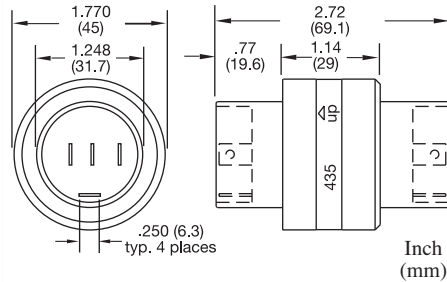


### 4, 6 & 8 CONDUCTORS

#### 4 Conductors, 30 Amp, High Voltage

#### Model 435

Part No.	Conductors	Description	VOLTAGE AC/DC	AMP RATING AT 500 VAC	MAX FREQ. MHz	CONTACT RESISTANCE	MAX OP. RPM	TEMPERATURE Max.F(C) / Min.F(C)	ROTATION Torque (gm-cm)	CIRCUIT SEPARATION
MER00435	4	High Voltage Model	0-500	30	100	<1mΩ	300	140(60)/-20(-29)	850	>50MΩ
MER00436	4	High Voltage Stainless Steel Bearing	0-500	30	100	<1mΩ	300	140(60)/-20(-29)	850	>50MΩ



Includes (4) MER90009 and (4) MER90010

#### ACCESSORIES

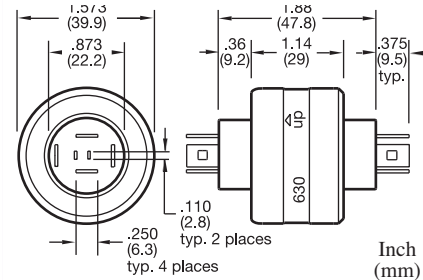


Terminals for other wire gauges available.

#### 6 Conductors, Combination 4 Amp & 30 Amp

#### Model 630

Part No.	Conductors	Description	VOLTAGE AC/DC	AMP RATING AT 240 VAC	MAX FREQ. MHz	CONTACT RESISTANCE	MAX OP. RPM	TEMPERATURE Max.F(C) / Min.F(C)	ROTATION Torque (gm-cm)	CIRCUIT SEPARATION
MER00630	6	Standard Model	0-250	2@4/4@30	100	<1mΩ	300	140(60)/-20(-29)	700	>25MΩ
MER00631	6	Stainless Steel Bearing	0-250	2@4/4@30	100	<1mΩ	300	140(60)/-20(-29)	700	>25MΩ



Includes (4) MER90008, (4) MER90010, (4) MER90019 and (4) MER90021

#### ACCESSORIES

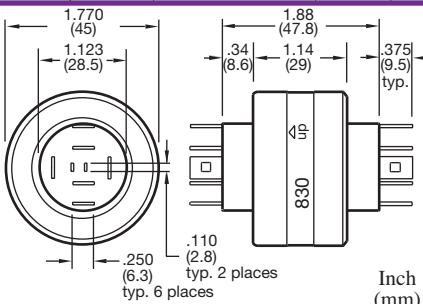


Terminals for other wire gauges available.

#### 8 Conductors, Combination 4 Amp & 30 Amp

#### Model 830

Part No.	Conductors	Description	VOLTAGE AC/DC	AMP RATING AT 240 VAC	MAX FREQ. MHz	CONTACT RESISTANCE	MAX OP. RPM	TEMPERATURE Max.F(C) / Min.F(C)	ROTATION Torque (gm-cm)	CIRCUIT SEPARATION
MER00830	8	Standard Model	0-250	2@4/6@30	100	<1mΩ	200	140(60)/-20(-29)	1000	>25MΩ
MER00831	8	Stainless Steel Bearing	0-250	2@4/6@30	100	<1mΩ	200	140(60)/-20(-29)	1000	>25MΩ



Includes (4) MER90008, (6) MER90010, (6) MER90019 and (6) MER90021

#### ACCESSORIES



Terminals for other wire gauges available.

### TECHNICAL INFORMATION

#### MOUNTING

- Rotating connectors may be used in any position between vertical and 90° horizontal. The UP arrow should not point below horizontal.
- Model 110, 110-T, 205 and 305 connectors use the knurled receptacle inserted into the rotating member for mounting. This receptacle holds the rotating connector.
- Larger rotating 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 .005" TIR.
- Rotating connectors are not designed to carry mechanical loads. One end should be allowed to float, attached only by the connecting wires.

#### CONNECTION

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

#### TEMPERATURE

- Provide thermal insulation where necessary to prevent the connector temperature from exceeding 140°F (60°C). Rotating electrical connectors contain plastic materials that are sensitive to heat.
- Overheating will cause connector failure and voids the warranty.

#### VIBRATION/SHOCK

- Vibration or mechanical shock will reduce connector life or cause failure.
- If vibration or shock is present, we suggest a flexible isolating mounting.

#### FOOD APPLICATIONS

- Rotating electrical connectors are factory sealed but do contain mercury and other fluids.
- As a precaution, a protective housing is suggested to isolate the rotating connector from the food product.

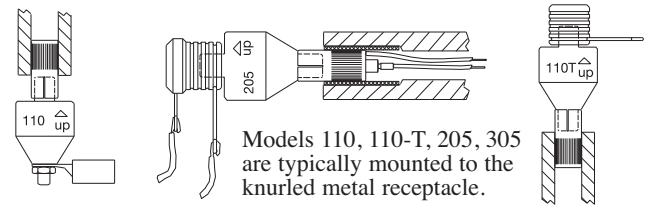
#### BOOT KIT

- The boot kit is not watertight or intended for waterproofing but is designed to give protection to the wire terminals from splashing water or dust. The protection rating is IP51.

#### RECYCLING

Rotating electrical connectors contain mercury and should not be disposed of in the trash but only through mercury recycling programs. Tempco offers a mercury recycling service for this purpose. Ship spent connectors to our facility by UPS ground enclosed in a plastic bag. Include paperwork stating "for recycling" with your company name, phone and fax numbers. Do not send through the U.S. Mail.

### Suggested Mounting Methods



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

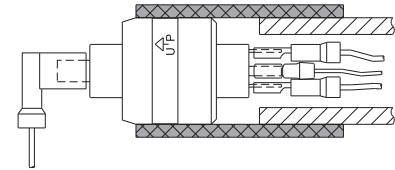
#### Receptacle Mount Hole Dimensions

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  $\begin{matrix} +.001" (+.025) \\ -.000" (-.000) \end{matrix}$

### Typical Body Mount

#### Body Mount Hole Dimensions



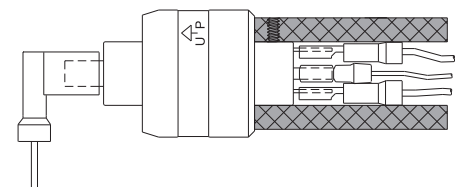
MODEL	HOLE DIAMETER Ø	DEPTH*
230, 331	.998" (25.35)	.80" (20)
330, 430, 1250	1.248" (31.70)	.80" (20)
630	1.575" (40.00)	.80" (20)
435, 830	1.772" (45.00)	.80" (20)

Inch (mm) Tolerances Ø  $\begin{matrix} +.001" (+.025) \\ -.000" (-.000) \end{matrix}$

\*Minimum additional depth for disconnect clearance is 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-metric Stud	10 x 1.5 metric	.81" (20.5)

Inch (mm) Tolerances Ø  $\begin{matrix} +.001" (+.025) \\ -.000" (-.000) \end{matrix}$

\*Minimum additional depth for disconnect clearance is 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.

