MOBILE
ELECTRIFICATION

SLIP RINGS Technical Manual

AERO-MOTIVE® PRODUCTS

2 Selecting Aero-Motive Slip Rings

4-13 Low Amperage Slip Rings

up to 75 Amps and 600 Volts

CONTENTS

To Order

Select the slip ring matching your requirements from the selection charts on the following pages. The slip rings are designed and manufactured to perform a specific predetermined function based on the following criteria for model selection.

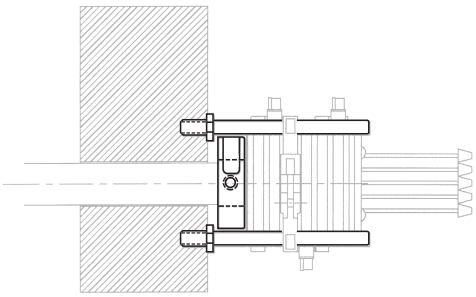
		PAGE	SERIES
Amperage	Milliamps	7, 8	AG20, AG30, AG200, AG300
	up to 30 amps	4, 5	SR20, SR200
	up to 35 amps	4, 5	SR30, SR300
	up to 75 amps	4, 5	SR40, SR400
	up to 200 amps	12	SR900

Number of Conductors	Check individual section base on amperage and bore.		
Voltage	up to 600 volts	4-12	All other slip rings.

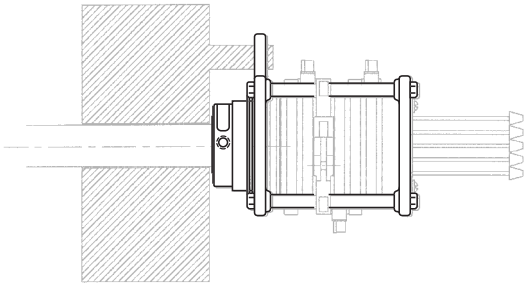
Center Bore	.875" dia.	4, 5, 7, 8	SR20, AG20, SR200, AG200
	1.5" dia.	4, 7, 8	SR30, AG30, SR300, AG300, SR40, SR400, SR900
	2.0" dia.	5	SR900 (special),
	Larger than	14	Pow-R-Feed

Maximum Wire Size	#16	8	AG300, AG200
	#12	5	SR200
	#10	5	SR300
	#4	5	SR400
	#1	14	SR900

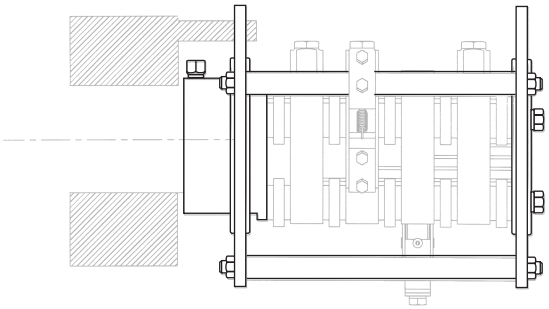
Type of Slip Ring



Component Kits Slip Rings 30, 35 and 75amp type
Component kit slip rings are for applications where size is critical. The component slip ring has a shorter overall length (about 1.5" shorter than the self-contained kit). It also uses fewer components and so a more economical choice. However, it does require extra work to mount. The brush studs must be mounted to a plate to assure proper alignment of the brushes to the ring. Also, since the brush studs are secured on only one end, there are limits to length of the slip ring and to the number of conductors available. The lead wire connection is at the end of the slip ring.



Self-Contained Slip Rings 30, 35 and 75amp type
Self-contained slip rings are the most frequently purchased slip ring since they are very easy to mount. The slip ring installs on a shaft (at least ⅔ the length of the ring itself). The brush assembly movement is guided by a ⅜" drive pin that engages in the drive plate. There are no brush studs to mount to your machine. These slip rings offer a greater number of conductors and are more easily replaced. The lead wire connection is at the end of the slip ring.



Air Gap Slip Rings
Air Gap slip rings are commonly used when amperage requirements exceed the 75amp type slip ring capacity. The air gap design offers greater cooling capacity and greater flash-over separation. With higher currents more heat is generated but the air gap design allow the rings to dissipate heat quickly. The greater flash over distance helps resist shorting out when voltage spikes occur. The modular design also allows easy replacement of damaged parts without having to replace the complete unit. The mainshaft only engages into the hub of these slip rings. Lead wires are connected directly to the ring.

Special Slip Rings
Sometimes applications require slip rings with a combination of power and control in one unit. For instance, it is possible to put silver and standard copper on one slip ring. Or if a 75amp and 35amp combination is needed we can combine those 1.5" bore slip rings into one unit. We also, on occasion, install a small self-contained slip ring on the end of an Air-Gap unit. In some instances, customers request extra long leads on a slip ring. The combinations are almost limitless. Please submit your requirements for a quotation.

SR Series Component Kits

- Copper graphite brushes with braided copper shunts provide maximum conductivity.
- Copper alloy rings offer maximum conductivity.
- Stainless steel compression brush springs provide constant positive brush contact.
- Brush holders feature phenolic, hinged stainless steel mounting clips for easy installation and proper alignment.
- Insulators are shock and moisture proof with high dielectric strength.
- Zinc plated mounting studs for corrosion resistance.
- Hub is anodized aluminum.
- Maximum operating temperature is 248°F, 120°C.
- Continuous speed is 125 RPM.

Component Kit (Horizontal or Vertical Mounting)

Locate four brush stud holes on the mounting surface in accordance with the tolerances shown on the dimensional drawings. Mount the Slip Ring by sliding the mounting hub over the mainshaft and secure it tightly with set screws provided. Screw the four brush studs into the mounting surface and tighten securely. Fasten brushes and holders to studs, installing one brushholder every 90° around the Slip Ring. Either the mounting surface or the mainshaft may rotate.

After Slip Ring, studs, brushes, and holders are mounted, connect one set of lead wires to brush terminals and then to equipment connected to Slip Ring. Fasten second set of lead wires to ring buss leads and run them through the mainshaft to power supply. Always check continuity through brush and ring connections before connecting power.
Fuse protection should also be provided.

Model Selection

All SR20 Rings have the following dimensions: A=.438(11) B=0.875(22) C=24(609) E=2.125(54) F=3.004(76) G=6.376(162)

Model	No. Cond.	AMP	Volt	Bore Sz.	Lead Wire Sz.	Dim D In.	mm
SR 22	2	30	600	.875	#12	2.656	68
SR 23	3	30	600	.875	#12	2.656	68
SR 24	4	30	600	.875	#12	2.656	68
SR 25	5	30	600	.875	#12	3.094	79
SR 26	6	30	600	.875	#12	3.530	90
SR 27	7	30	600	.875	#12	3.937	101
SR 28	8	30	600	.875	#12	4.406	112
SR 29	9	30	600	.875	#14	4.842	123
SR 210	10	30	600	.875	#14	5.281	134
SR 211	11	30	600	.875	#14	5.720	145
SR 212	12	30	600	.875	#14	6.156	156

All SR30 Rings have the following dimensions: A=.438(11) B=1.500(38) C=24(609) E=3.085(78) F=4.361(111) G=6.75(171)

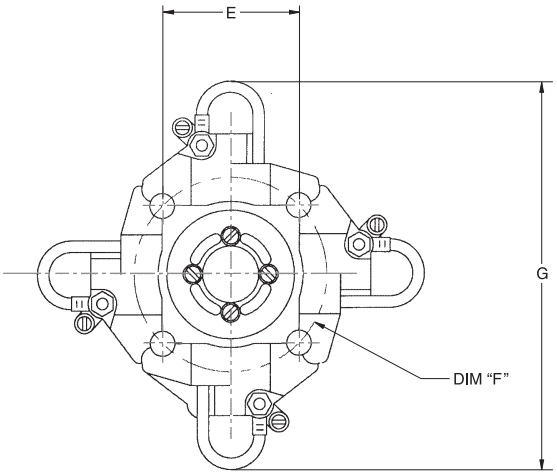
Model	No. Cond.	AMP	Volt	Bore Sz.	Lead Wire Sz.	Dim D In.	mm
SR 32	2	35	600	1.5	#10	2.656	
SR 33	3	35	600	1.5	#10	2.656	68
SR 34	4	35	600	1.5	#10	2.656	68
SR 35	5	35	600	1.5	#10		
SR 36	6	35	600	1.5	#10	3.530	89
SR 37	7	35	600	1.5	#10		
SR 38	8	35	600	1.5	#10	4.406	112
SR 39	9	35	600	1.5	#10		

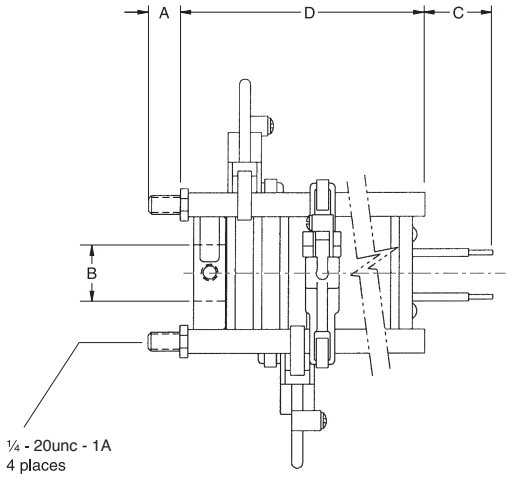
All SR40 Rings have the following dimensions: A=.44(11) B=1.50(38) C=1.25(31.8) E=3.085(78) F=4.361(111) G=7.0(178)

Model	No. Cond.	AMP	Volt	Bore Sz.	Max Lead Wire Sz.	Dim D In.	mm
SR 42	2	75	600	1.5	#4	2.6	68
SR 43	3	75	600	1.5	#4	3.5	90
SR 44	4	75	600	1.5	#4	4.4	112

Dimensions

Dimensions are shown in
decimal inches and millimeters





SR Series Self-Contained Models

- Copper graphite brushes with braided copper shunts provide maximum conductivity.
- Copper alloy rings offer maximum conductivity.
- Stainless steel compression brush springs provide constant positive brush contact.
- Brush holders feature phenolic, hinged stainless steel mounting clips for easy installation and proper alignment.
- Insulators are shock and moisture proof with high dielectric strength.
- Anodized extruded aluminum mounting studs for corrosion resistance.
- Lexan bearing support end plates provide trouble free rotation.
- Anodized aluminum Hub.
- Maximum operating temperature is 248°F, 120°C.
- Continuous speed is 125 RPM.

Self Contained (Horizontal Mounting*)

Mount the Slip Ring Assembly by sliding the mounting hub over the mainshaft and secure it tightly with set screws provided. The drive stud must protrude through the hole on the Slip Ring drive plate, allowing for a .500 inch maximum clearance to the first brush in line (Note: Less clearance could cause an electrical failure, fire injury, or other damage). Drive stud should not exceed .375 inch in diameter for 30, 35, 75 amp rings or .625 inch in diameter for 200, 300 amp rings.

After Slip Ring is mounted, connect one set of lead wires to brush terminals and then to equipment connected to Slip Ring. Fasten second set of lead wires to ring buss leads and run them through the mainshaft to power supply. Always check continuity through brush and ring connections before connecting power.
Fuse protection should also be provided.

* Vertical mounting can also be used up to 16 conductors for the self-contained Slip Ring. Consult local sales representative or the factory for larger models to be used in vertical applications.

Model Selection

All SR20 Rings have the following dimensions: A=.438(11.1) B=.938(23.8) C=.875(22.2) F=24(609) H=1.50(38.1) I=6.38(162)

Model	No. Cond.	AMP	Volt	Bore Sz.	Lead Wire Sz.	Dim. D In.	mm
SR 202	2	30	600	.875	#12	3.602	92
SR 204	4	30	600	.875	#12	4.445	113
SR 206	6	30	600	.875	#12	5.288	134
SR 208	8	30	600	.875	#12	6.132	156
SR 2010	10	30	600	.875	#12	6.945	176
SR 2012	12	30	600	.875	#12	7.743	197
SR 2014	14	30	600	.875	#14	8.594	218
SR 2016	16	24	600	.875	#14	9.445	240
SR 2018	18	24	600	.875	#16	10.280	261
SR 2020	20	14	600	.875	#16	11.116	282
SR 2022	22	14	600	.875	#16	11.897	302
SR 2024	24	14	600	.875	#16	12.679	322
SR 2028	28	12	600	.875	#16	14.319	364

All SR400 Rings have the following dimensions: A=.313(7.9) B=1.060(26.9) C=1.50(38.1) F=1.25(32) H=2.625(66.7) I=7.0(178)

Model	No. Cond.	AMP	Volt	Bore Sz.	Max Lead Wire Sz.	Dim. D In.	mm
SR 402	2	75	600	1.5	#4	4.2	107
SR 403	3	75	600	1.5	#4	4.9	126
SR 404	4	75	600	1.5	#4	5.6	143
SR 405	5	75	600	1.5	#6	6.3	160
SR 406	6	75	600	1.5	#6	7.0	178

All SR300 Rings have the following dimensions: A=.313(7.9) B=1.060(26.9) C=1.50(38.1) F=24(609) H=2.625(66.7) I=6.75(171)

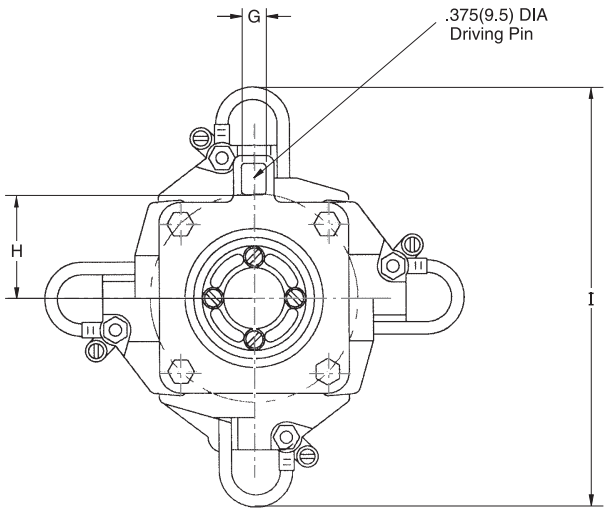
Model	No. Cond.	AMP	Volt	Bore Sz.	Lead Wire Sz.	Dim. D In.	mm
SR 302	2	35	600	1.5	#10	3.664	93
SR 303	3	35	600	1.5	#10	4.085	104
SR 304	4	35	600	1.5	#10	4.5	115
SR 306	6	35	600	1.5	#10	5.3	136
SR 308	8	35	600	1.5	#10	6.1	157
SR 310	10	35	600	1.5	#10	7.0	178
SR 312	12	35	600	1.5	#10	7.8	199
SR 314	14	35	600	1.5	#10	8.678	220
SR 316	16	32	600	1.5	#10	9.5	242
SR 318	18	32	600	1.5	#10	10.35	263
SR 320	20	32	600	1.5	#10	11.1	284
SR 322	22	24	600	1.5	#12	12.084	307
SR 324	24	24	600	1.5	#12	12.9	330
SR 326	26	21	600	1.5	#12	13.802	351
SR 328	28	21	600	1.5	#12	14.6	372
SR 330	30	17	600	1.5	#14	15.474	393
SR 332	32	17	600	1.5	#14	16.3	415
SR 334	34	17	600	1.5	#14	17.162	436
SR 336	36	17	600	1.5	#14	18.0	457

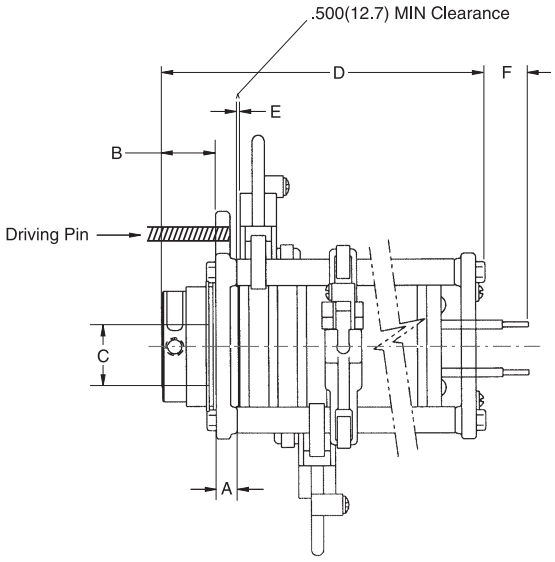
* For multi-conductor slip rings beyond 16 conductor, derating is required as indicated. For further info. contact your local sales representative or the factory.

For multiconductor service, slip rings must be derated as required by code. For further information, contact factory.

Dimensions

Dimensions are shown in decimal inches and millimeters





Silver Slip Rings – AG Series

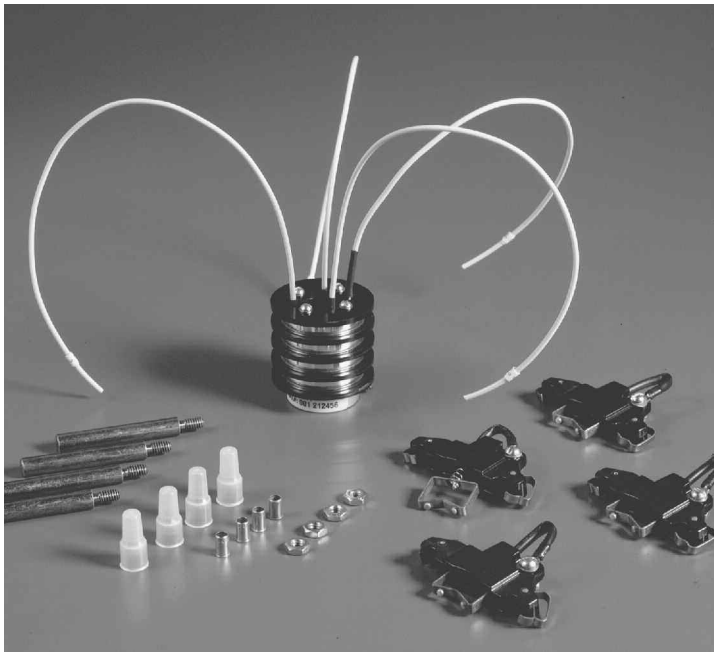
Aero-Motive Silver Slip Rings are used to provide minimum resistance and signal distortion when amperage or voltage (or both) are at low levels.

Aero-Motive tests on Silver Slip Rings show that the average resistance measured from ring to brush assembly was .005 ohms-constant, with no measurable change in resistance during rotation or breakaway. Test also indicated the noise level at zero, peak-to-peak, at 100 K hertz.

For discrete applications, Silver Slip Rings should be tested to determine if they meet specific requirements.

Silver Slip Rings have been used in many applications involving: TV Circuits, Voice Communication, Thermocouples, Strain Gauge, and Low Current Signals.

AG Series Component Kits



- Brushes with silver contacts and braided copper shunts provide lower contact resistance.
- Silver plated rings offer maximum conductivity and signal quality due to non-corrosive material.
- Stainless steel compression brush springs provide constant positive brush contact.
- Brush holders feature phenolic, hinged stainless steel mounting clips for easy installation.
- Insulators are shock and moisture proof with high dielectric strength.
- Zinc plated mounting studs for corrosion resistance.
- Anodized aluminum hub.
- Maximum operating temperature is 248°F, 120°C.
- Intermittent duty, 125RPM max. Contact factory for continuous duty option.

Model Selection

All AG20 Rings have the following dimensions: A=.438(11.1) B=.875(22.3) C=24(609) E=2.125(54) F=3.0(76) G=6.38(162)

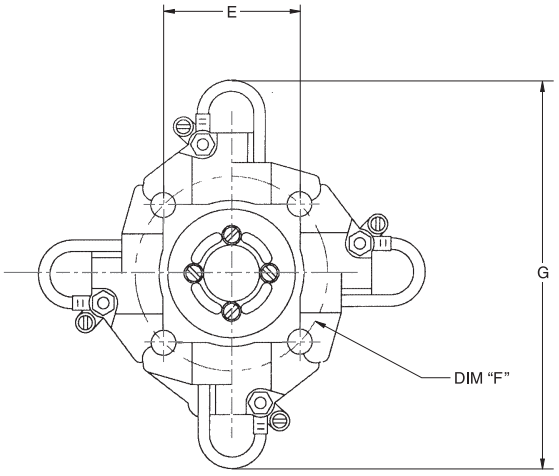
Model	No. Cond.	AMP	Volt	Bore Sz.	Lead	Dim. D In.	Dim. D mm
AG 23	3	5	600	.875	#16	2.656	68
AG 24	4	5	600	.875	#16	2.656	68
AG 26	6	5	600	.875	#16	3.530	90
AG 28	8	5	600	.875	#16	4.406	112
AG 210	10	5	600	.875	#16	5.281	134
AG 212	12	5	600	.875	#16	6.156	156

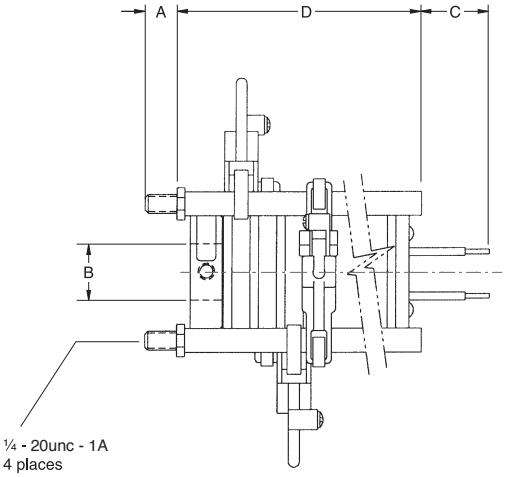
All AG30 Rings have the following dimensions: A=.438(11.1) B=1.50(38.1) C=24(609) E=3.09(78) F=4.36(111) G=6.751(171)

Model	No. Cond.	AMP	Volt	Bore Sz.	Lead	Dim. D In.	Dim. D mm
AG 33	3	5	600	1.5	#16	2.656	68
AG 34	4	5	600	1.5	#16	2.656	68
AG 36	6	5	600	1.5	#16	3.530	90
AG 38	8	5	600	1.5	#16	4.406	112

Dimensions

Dimensions are shown in
decimal inches and millimeters





AG Series Self-Contained Models

- Brushes with Silver Contacts and braided copper shunts provide lower contact resistance.
- Silver plated rings offer lower contact resistance.
- Stainless steel compression brush springs provide positive brush contact.
- Brush holders feature phenolic, hinged stainless steel mounting clips for easy installation.
- Insulators are shock and moisture proof with dielectric strength.
- Extruded Anodized aluminum mounting studs for corrosion resistance.
- Anodized aluminum hub.
- Maximum operating temperature is 248°F, and 120°C.
- Intermittent duty, 125 RPM. For higher speeds and higher amperage consult factory.

Model Selection

All AG20 Rings have the following dimensions: A=.438(11.1) B=.938(23.8) C=.875(22.2) F=24(609) H=1.50(38.1) I=6.38(162)

Model	No. Cond.	AMP	Volt	Bore Sz.	Lead	Dim D In.	Dim D mm
AG 204	4	5	600	.875	#16	4.445	113
AG 206	6	5	600	.875	#16	5.288	134
AG 208	8	5	600	.875	#16	6.132	156
AG 2010	10	5	600	.875	#16	6.945	176
AG 2012	12	5	600	.875	#16	7.743	197
AG 2016	16	5	600	.875	#16	9.445	240
AG 2020	20	5	600	.875	#16	11.116	282
AG 2024	24	5	600	.875	#16	12.679	322
AG 2028	28	5	600	.875	#16	14.319	364

* For multiconductor slip rings beyond 16 conductors, derating is required as indicated. For further information, contact the factory.

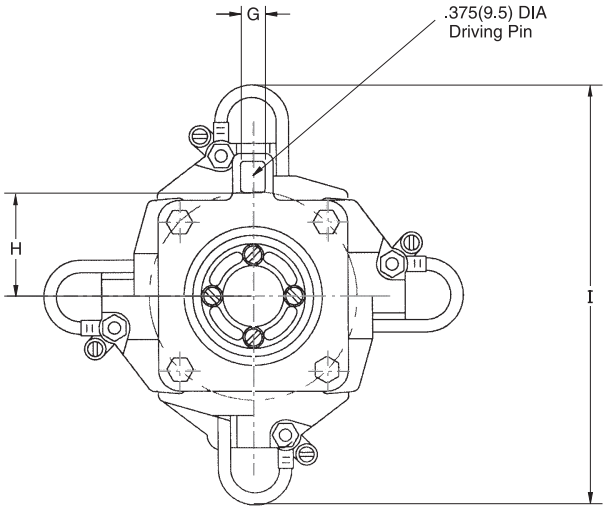
All AG300 Rings have the following dimensions: A=.3138(7.9) B=1.060(26.9) C=1.50(38.1) F=24(609) G=.375(9.5) H=2.625(66.7) I=6.75(171)

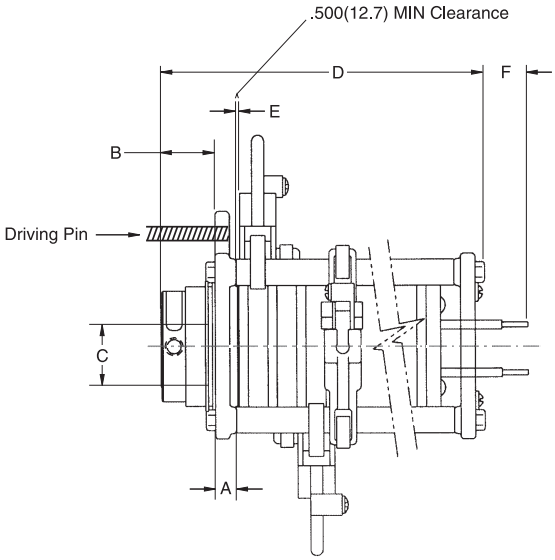
Model	No. Cond.	AMP	Volt	Bore Sz.	Lead	Dim D In.	Dim D mm
AG 304	4	5	600	1.5	#16	4.507	115
AG 306	6	5	600	1.5	#16	5.350	136
AG 308	8	5	600	1.5	#16	6.194	157
AG 310	10	5	600	1.5	#16	7.007	178
AG 312	12	5	600	1.5	#16	7.849	199
AG 316	16	5	600	1.5	#16	9.507	242
AG 320	20	5	600	1.5	#16	11.193	284
AG 324	24	5	600	1.5	#16	12.974	330
AG 328	28	5	600	1.5	#16	14.631	372
AG 332	32	5	600	1.5	#16	16.318	414.5
AG 336	36	5	600	1.5	#16	18.005	457.3

For multiconductor service, slip rings must be derated as required by code. For further information, contact factory.

Dimensions

Dimensions are shown in decimal inches and millimeters





ISRC Series Enclosed Models

- Die-Cast aluminum housing is light weight and provides strength.
- Dome shaped PVC cover allows condensation to run down the sides away from electrical components.
- Multiple hole breather drain, located in the bottom of sloped housing, relieves liquid buildup.
- Three-clamp cover attachment (retained in housing- will not drop or become lost when cover is removed) allow fast access to slip ring for hookup or service.
- Steel mainshaft with bright nickel plating prevents galling and corrosion and provides smooth trouble-free rotation.
- Copper graphite brushes with braided copper shunts provide maximum conductivity.
- Copper alloy rings offer maximum conductivity.
- Stainless steel, compression brush springs provide constant positive brush contact, resists corrosion.
- Brush holders feature phenolic, hinged stainless steel mounting clips – easy to install, resists corrosion.
- Phenolic insulators are shock and moisture proof with high dielectric strength.
- Gray enamel finish is weather resistant for lasting protection.
- **Maximum Operating Data**

  Temperature - 248°F., 120°C, 10 RPM.

  Duty-continuous.

  Max. wire size #10 AWG.

Enclosed (Vertical Mounting)

For weather-tight operation, the enclosed Slip ring must be installed with the mainshaft vertical and pointed down to allow the breather drain to function properly. A one-inch NPT female thread is provided in the mainshaft for mounting in the mainshaft connection on their equipment.

After Slip Ring is mounted, connect one set of lead wires to brush terminals and then to equipment connected to Slip Ring. Fasten second set of lead wires to ring buss leads and run them through the mainshaft to power supply. A watertight connector must be used in conjunction with the lead wires and any holes not utilized should be plugged to properly seal the housing. If a light weight flexible cable is used for lead-in, it may be necessary to add an external means of driving the housing to avoid strain on the lead-in cable. Always check continuity through the brush and ring connections before connecting power. Fuse protection should also be provided.

The enclosed Slip Ring can be mounted horizontally, but will not be weather-tight in that position.

Model Selection

Model	No. Cond.	Volt	Lead Wire	5 Amps.	30 Amps.
ISRC 34	4	600	#10		4
ISRC 36	6	600	#10	2	4
ISRC 38	8	600	#10	4	4
ISRC 310	10	600	#10	6	4
ISRC 311	11	600	#10	7	4
ISRC 312	12	600	#10	8	4
ISRC 314	14	600	#10	10	4
ISRC 315	15	600	#10	11	4

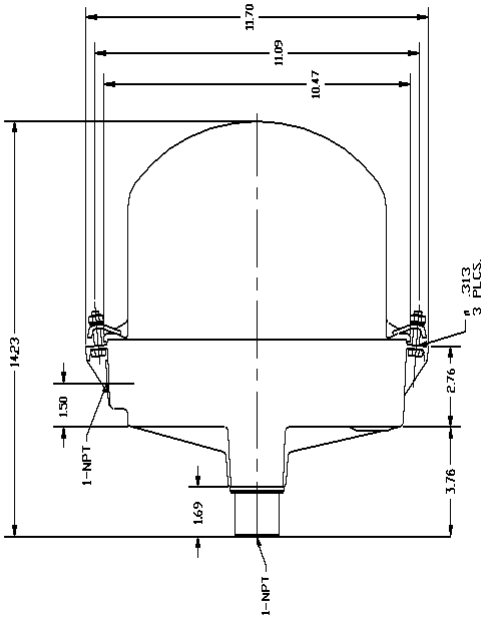
Silver Plated Rings and Silver Graphite Brush contacts – For applications requiring low levels of amperage or voltage, primarily for instrumentation or control circuits.

75 Amp Rings – Slip rings rated at 75 amps or combinations (75 amp. and 30 amp.) are available to meet your requirements.

Double Brush – Two brushes can be installed on each ring for additional brush to ring contact surface, or for connecting additional wires.

Dimensions

Dimensions are shown in decimal inches and millimeters



SR900 Series Air Gap

- Copper graphite brushes, two per ring, braided copper shunts provide maximum conductivity.
- Copper alloy rings allows maximum conductivity.
- Stainless steel compression brush springs provide constant positive brush contact.
- Zinc plated steel brushholders resist corrosion.
- Low tracking, high dielectric strength insulators, allows excellent ventilation and heat dissipation.
- Mounting studs are made of zinc plated steel, that resist corrosion.
- Ball bearing supports allows for a smooth trouble free rotation.
- Drive collar is zinc plated with two set screws for easy installation.
- Heavy duty construction eliminates dirt buildup between rings, and can with stand high voltage surges without damage.
- Maximum operating temperature is 248ºF, 120ºC.
- Continuous speed is 125 RPM.

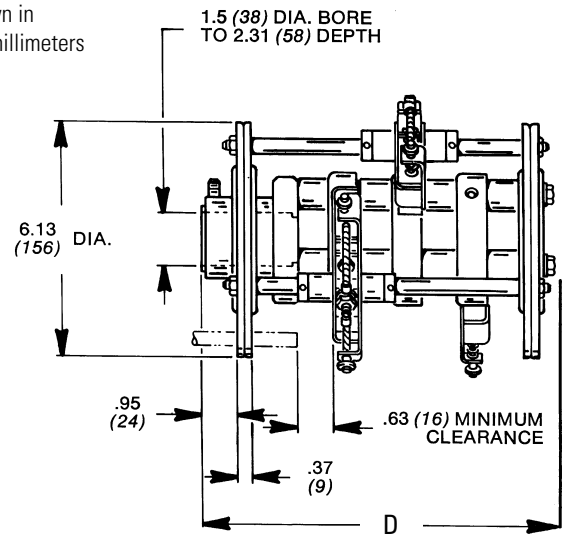
Model Selection

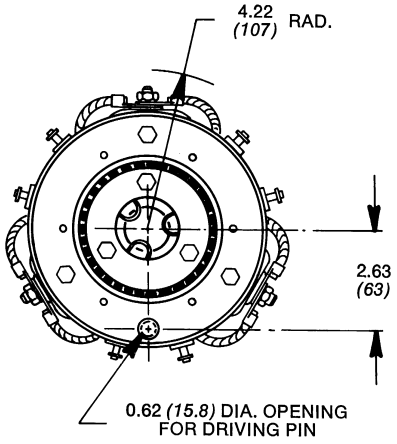
Model	No. Cond.	AMP	Volt	Bore Sz.	Max Lead Wire Size	Dim D In.	Dim D mm
SR 902	2	200	600	1.5	#1	7.2	182
SR 903	3	200	600	1.5	#1	8.7	222
SR 904	4	200	600	1.5	#1	10.3	262
SR 905	5	200	600	1.5	#1	11.9	302
SR 906	6	200	600	1.5	#1	13.4	343

Dimensions

SR 900

Dimensions are shown in decimal inches and millimeters





Custom Slip Rings

Aero-Motive can offer many custom options since our product line is very modular and is easily engineered into unique combinations. Such options can include:

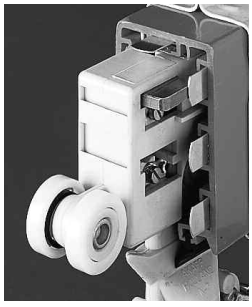
- Longer lead wires on SR300/SR200 series (standard length is about 2")
- Combination silver and standard rings
- Combination 75amp (SR400) and 35amp (SR300) rings
- Combination SR/AG200 and SR900 slip rings
- Combination SR/AG200 and KR series slip rings
- Through-bore type design
- Special lead wire
- Enclosed slip rings
- Double brushes
- Solid silver-graphite brushes for long-life

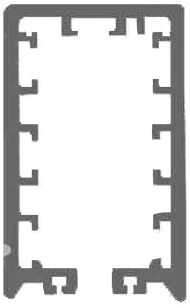
Circular Pow-R-Feed Systems

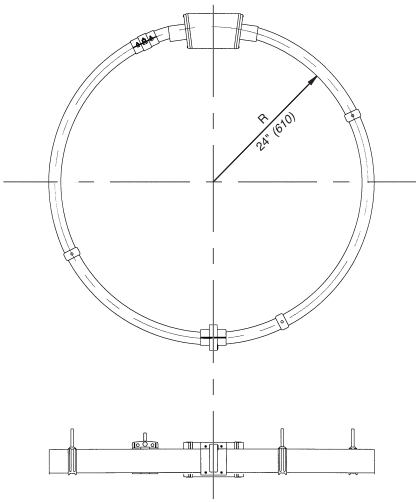
Aero-Motive Pow-R-Feed systems consist of a trolley with spring loaded brush contracts running inside a PVC enclosure with up to 7 separate copper conductor strips. The enclosure is suspended from above and the trolley is drawn by the rotating portion of the equipment.

Advantages:

- Large diameters. 48 inches is standard – larger available.
- Compact enclosure houses 4 or 6 conductors. A seventh conductor can be added if necessary. (consult factory)
- Housing design prevents accidental contact with live electrical components.
- Sealing strips prevent entrance of dust dirt and splashing water.
- Can easily be retrofitted on existing equipment.







AMP RATING	4 POLES	6 POLES
30	CPF34	CPF36
60	CPF64	CPF66
90	CPF94	CPF96

Larger diameters, higher amperage and 7 conductor can be provided.
Call Aero-Motive for more systems and literature.

Capacity: 600 Volts, 50, 80, or 125 amp conductor strips.
24 RPM max. speed. Higher speeds available on larger diameters.

Selecting the Proper Lead Wire

Due to the great variety of electrical applications, types (and manufacturers) of controls, it is impossible for the slip ring manufacturer to select lead wire for any specific requirement. As the user, or specifying engineers, are closest to all details involved in any particular requirement, the responsibility for selecting lead wire must be left in their hands. To assist in that selection, the charts shown on this page and the following procedure are offered as a guide.

For more complete data or specific details, please refer to the National Electric Code.

To select lead wire:

(a) Determine motor horsepower. (HP)
(b) Using Chart A for alternating current (AC) or Chart B for direct current (DC), find the proper horsepower in the left hand column.
(c) On the line showing proper horsepower, move to the right until reaching the column headed by the operating voltage to be used.
(d) At this intersection the maximum ampere load is listed. For example, a 100 HP motor, operating at 460 volts three-phase alternating current, draws 124 amperes.
(e) Once maximum ampere load is known, we can determine the size of lead wire (AWG) required by using Chart C, the ampacity chart. In the above example,124 amperes calls for #1/0 cable at 60°C; #1 at 75°C, etc.
(g) **Caution:** Voltage drop and power factor corrections frequently require an increase in size of conductors required.

Chart A — THREE PHASE, ALTERNATING CURRENT MOTORS (AC)

Full-Load Current

INDUCTION TYPE, SQUIRREL-CAGED AND WOUND-ROTOR AMPERES

HP	115V	230V	460V	575V	2300V
.5	4	2	1	.8	
.75	5.6	2.8	1.4	1.1	
1	7.2	3.6	1.8	1.4	
1.5	10.4	5.2	2.6	2.1	
2	13.6	6.8	3.4	2.7	
3		9.6	4.8	3.9	
5		15.2	7.6	6.1	
7.5		22	11	9	
10		28	14	11	
15		42	21	17	
20		54	27	22	
25		68	34	27	
30		80	40	32	
40		104	52	41	
50		130	65	52	
60		154	77	62	16
75		192	96	77	20
100		248	124	99	26
125		312	156	125	31
150		360	180	144	37
200		480	240	192	49

Chart B — DIRECT-CURRENT MOTORS (DC)

Motors running at base speed — Full load current in amperes

Ampature Voltage Rating*

HP	120V	240V
.25	3.1	1.6
.33	4.1	2.0
.5	5.4	2.7
.75	7.6	3.8
1	9.5	4.7
1.5	13.2	6.6
2	17	8.5
3	25	12.2
5	40	20
7.5	58	29
10	76	38

HP	120V	240V
15		55
20		72
25		89
30		106
40		140
50		173
60		206
75		255
100		341
125		425
150		506
200		675

* These are average direct-current quantities

Chart C — ALLOWABLE AMPACITIES OF INSULATED COPPER CONDUCTORS

Based on 3 conductor cable, 30°C (86°F) ambient temperature

TEMPERATURE RATING OF CONDUCTOR

Size AWG	60°C 140°F	75°C 167°F	85°C 185°F	90°C 194°F
18				21
16			22	22
14	15	15	25	25
12	20	20	30	30
10	30	30	40	40
8	40	45	50	50
6	55	65	70	70
4	70	85	90	90
3	80	100	105	105
2	95	115	120	120
1	110	130	140	140
1/0	125	150	155	155
2/0	145	175	185	185
3/0	165	200	210	210
4/0	195	230	235	235
250	215	255	270	270
300	240	285	300	300
350	240	310	325	325
400	280	335	360	360
500	320	380	405	405

Important Lead Wire Selection Data

Maximum Number of Conductors in Conduit or Mounting Shaft

AWG Wire Size	Number of Conductors - Shaft ID, Conduit NPT Entrance .50"	.75"	1.00"	1.25"	1.50"	2.00"	2.50"
14	13	24	39	69	94	154	
12	10	18	29	51	70	114	164
10	6	11	18	32	44	73	104
8	3	5	9	16	22	36	51
6	1	4	6	11	15	26	37
4	1	2	4	7	9	16	22
3	1	1	3	6	8	13	19

AWG Wire Size	Number of Conductors - Shaft ID, Conduit NPT Entrance .50"	.75"	1.00"	1.25"	1.50"	2.00"	2.50"
2	1	1	3	5	7	11	16
1	1	1	3	5	8	12	
1/0	1	1	3	4	7	10	
2/0	1	1	2	3	6	8	
3/0	1	1	1	3	5	7	
4/0	1	1	1	2	4	6	

Slip Ring Ratings

To obtain the ampere ratings listed below, the proper lead wire size must be used with the slip rings. Ratings are based on two conductor assembles and must be derated fro multiconductor service. Ratings are established for slip rings only, operating in approved enclosures. For additional information, contact your local sales representative or the factory. Ratings based on two conductor assembles.

	Ampere Rating		
Catalog No.	Maximum Load (30 minutes)	Continuous Duty Cycle	Maximum Operating Temperature
SR 2X	40	30	248° F, 120° C
SR 3X	50	35	248° F, 120° C

AERO-MOTIVE®