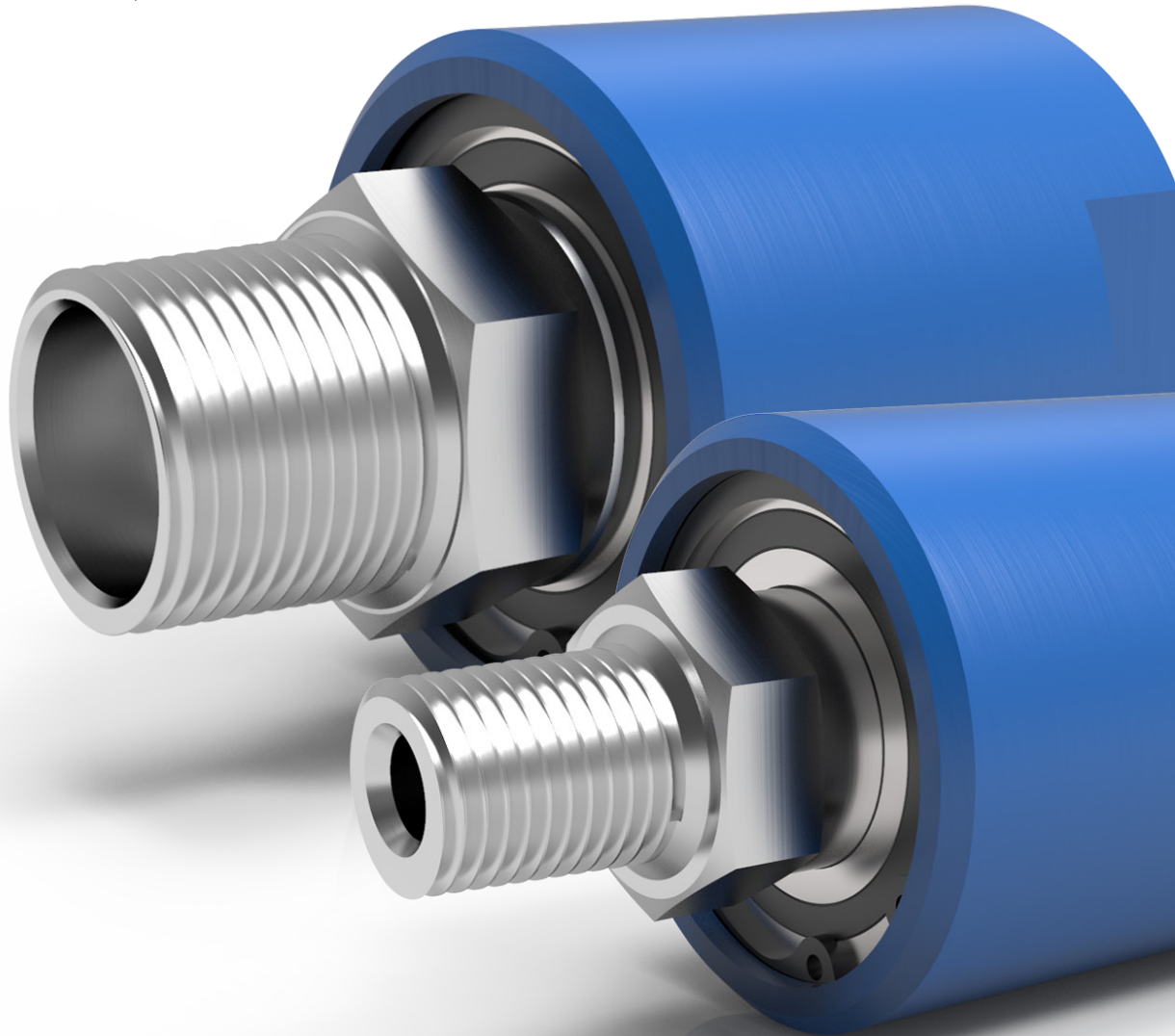




DYNAMIC SEALING TECHNOLOGIES, INC



Lightweight, Compact Rotary Unions

SPS Series

SINGLE FLOW PASSAGE CONNECTION SIZE OPTIONS

- 1/8"
- 1/4"
- 3/8"
- 1/2"
- 3/4"
- 1"

Contents

- 3** What is a Rotary Union?
- 4** Overview
- 5** How To Order
- 7** Specifications & Operating Information
- 8** SPS 1/8" Passage Dimensions
- 9** SPS 1/4" Passage Dimensions
- 10** SPS 3/8" Passage Dimensions
- 11** SPS 1/2" Passage Dimensions
- 12** SPS 3/4" Passage Dimensions
- 13** SPS 1" Passage Dimensions
- 14** Electrical Slip Ring Integration Options
- 15** Installation and Mounting

About DSTI

Dynamic Sealing Technologies, Inc. (DSTI) serves a wide range of global industries as a leader in engineered fluid sealing and transfer solutions for rotating applications.

DSTI core business segments are fluid rotary unions, electrical slip rings, and value-added products and services—providing customers with a single-source solution from design and manufacturing through to testing and qualification—all under one roof. Located in North America and Europe with a team of distribution partners and technical support specialists worldwide.



What is a Rotary Union?

A rotary union (or swivel joint) is a mechanism used to transfer fluid (under pressure or vacuum) from a stationary inlet to a rotating outlet, preserving and isolating the fluid connection.

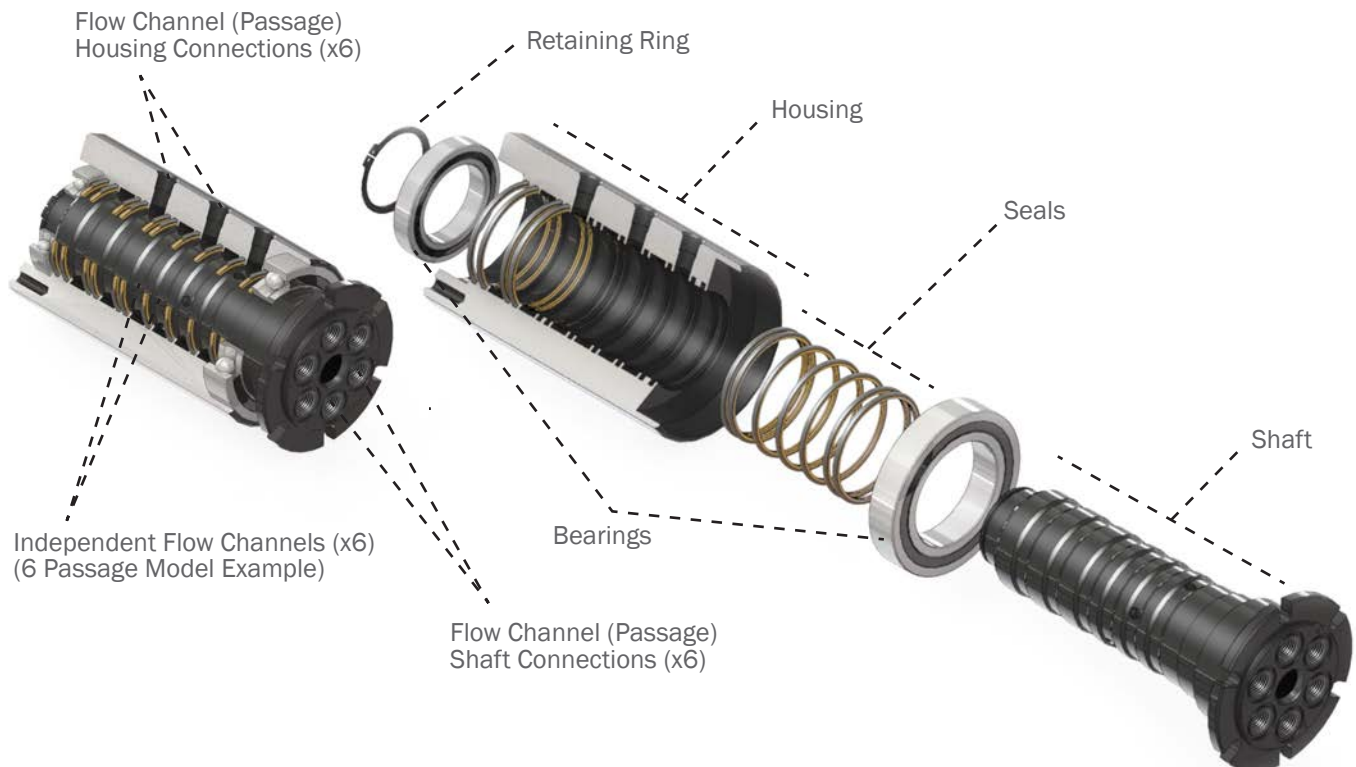
Rotary unions are engineered to endure a wide range of temperatures and pressures for a variety of conditions and environments. In addition, rotary unions may integrate multiple passages and handle different types of fluid simultaneously.

HOW DO I CHOOSE THE BEST ROTARY UNION FOR MY APPLICATION?

Tell us about your requirements so we can make a recommendation:

- 1) Type of media(s) / fluid(s) to be transferred
- 2) Number of independent flow channels (passages)
- 3) Operating pressure
- 4) Operating temperature
- 5) Operating speed
- 6) Shaft & housing connection type
- 7) Flow channel (passage) size
- 8) Torque & load requirements
- 9) Duty cycle*

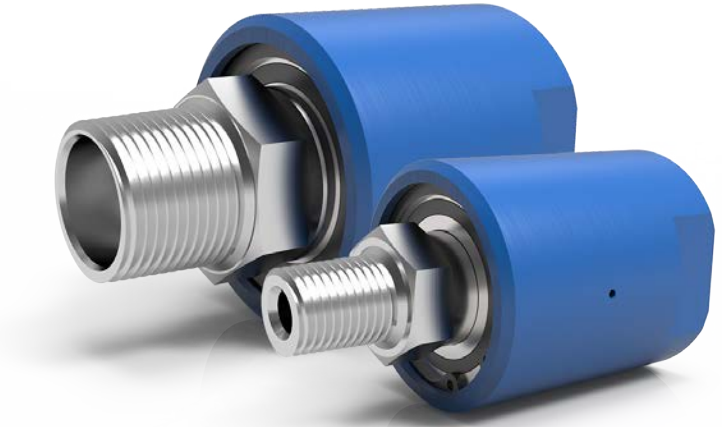
**Does the temperature, speed or pressure fluctuate or change during operation? If so, please provide the detailed ranges for each parameter and time durations of each condition.*



Overview

- + Single Flow Passage
- + Lightweight, Compact Design
- + Stainless Steel Shaft / Aluminum Housing
- + NPT / BSPT Connection Options
- + Cost-effective Fluid Transfer Solution
- + Electrical Slip Ring Integration Available
- + Custom Modifications Available

The SPS Series single passage rotary unions are compact, lightweight and corrosion-resistant featuring a stainless steel shaft and aluminum housing. All SPS Series models come standard with a male threaded shaft and a female threaded housing for easy mounting.



How to Order: Create your Part Number



OPTIONS See Next Page

0 No Thru-bore

NOTE
The SPS Series rotary unions do not include thru-bores

1 1 Flow Passages

- 1** 1/8"-27 NPT [R1/8"-28 BSPT]
- 2** 1/4"-18 NPT [R1/4"-19 BSPT]
- 3** 3/8"-18 NPT [R3/8"-19 BSPT]
- 4** 1/2"-14 NPT [R1/2"-14 BSPT]
- 5** 3/4"-14 NPT [R3/4"-14 BSPT]
- 6** 1"-11.5 NPT [R1"-11 BSPT]

5 Product Series (SPS)

SPS SPS Series (NPT Connection)
SPSM SPSM Series (BSPT Connection)

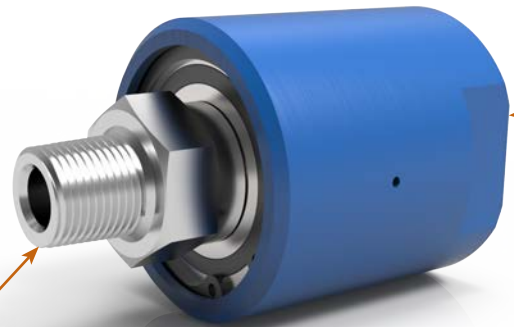
PART NUMBER EXAMPLES

SPS-5110

- SPS 1 Passage with a 1/8"-27 NPT Connection

SPSM-5310

- SPS 1 Passage with a R3/8"-19 BSPT Connection



MALE NPT CONNECTION (SPS Series)
MALE BSPT CONNECTION (SPSM Series)

FEMALE NPT CONNECTION (SPS Series)
FEMALE BSPT CONNECTION (SPSM Series)

How to Order: Choose your Options

SPS — **5** **3** **1** **0** — **ESET12** — **ADx**

OPTIONAL ELECTRICAL SLIP RINGS¹

ADx Slip Ring Adapter

Consult chart below to determine the Adapter required for your Slip Ring option.

PART #	# OF CIRCUITS	MAX AMPS/ CIRCUIT	MAX VOLTS/ CIRCUIT	MAX DATA SPEED	ADAPTER PART #
EST6	6	10	600	Under 50 Mbps ⁴	AD1
EST12	12	10	600	Under 50 Mbps ⁴	AD1
EST18	18	10	600	Under 50 Mbps ⁴	AD2
EST24	24	10	600	Under 50 Mbps ⁴	AD2
ESET4 ²	4	Ethernet Only	600	100 Mbps	AD1
ESET8 ³	8	Ethernet Only	600	1 Gbps	AD1
ESET68 ³	14	(6x) 10A, (1x) Ethernet	600	1 Gbps	AD2
ESET128 ³	20	(12x) 10A, (1x) Ethernet	600	1 Gbps	AD2
ESET184 ²	22	(18x) 10A, (1x) Ethernet	600	100 Mbps	AD2

¹ See Electrical Slip Ring Options on page 14 for full specs

² 100 BaseT Ethernet connections

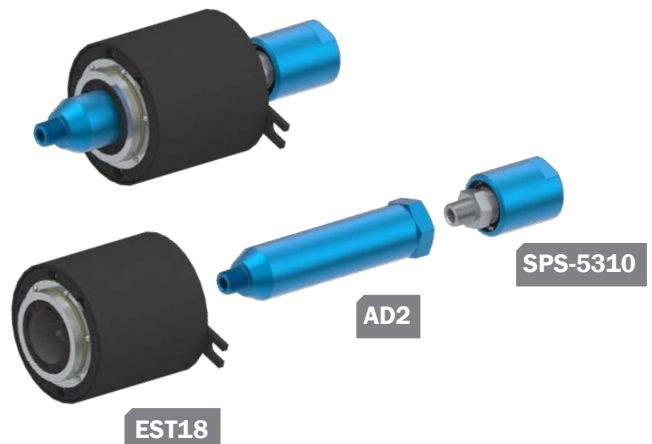
³ 1000 BaseT Ethernet connections

⁴ In order to successfully transfer digital data signals, a variety of conditions must be met. Please consult with DSTI for approval.

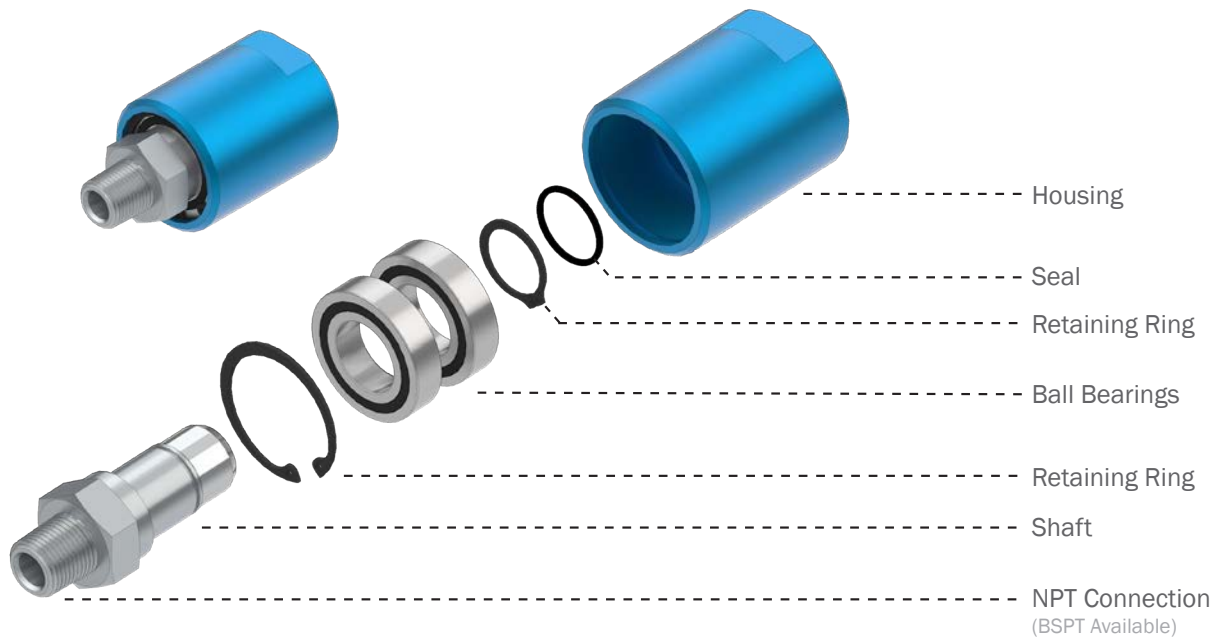
PART NUMBER EXAMPLE

SPS-5310-EST18-AD2

- SPS 1-Passage, 3/8"-18 NPT Connection, Optional EST18 Electrical Slip Ring w/ thru bore and Adapter (AD2)



Specifications & Operating Information



Flow Passage Options	1
Media Types	Air/Gas ⁴
Passage Sizes	.156"(3.962mm) .250"(6.35mm) .375"(9.525mm) .500"(12.7mm) .750"(19.05mm) 1.000"(25.4mm)
Connection Types	National Pipe Thread Taper (NPT) British Standard Pipe Taper thread (BSPT)
Max. Operating Pressure	600 PSI (40 BAR) ¹
Max. Vacuum	30 HG ¹
Max. Rotational Speed	500 RPM ²
Operating Temperature	0° F to 220° F (-18° C to 105° C) ³
Body Material Type	Aluminum (Housing) 304 Stainless Steel (Shaft)
Platings and Coatings	Blue Anodize (Housing)
Slip Ring Options	See Page 6 & 14 Custom options also available
Mounting Options	Tapped holes are provided on the housing with male NPT thread connection for shaft mounting.

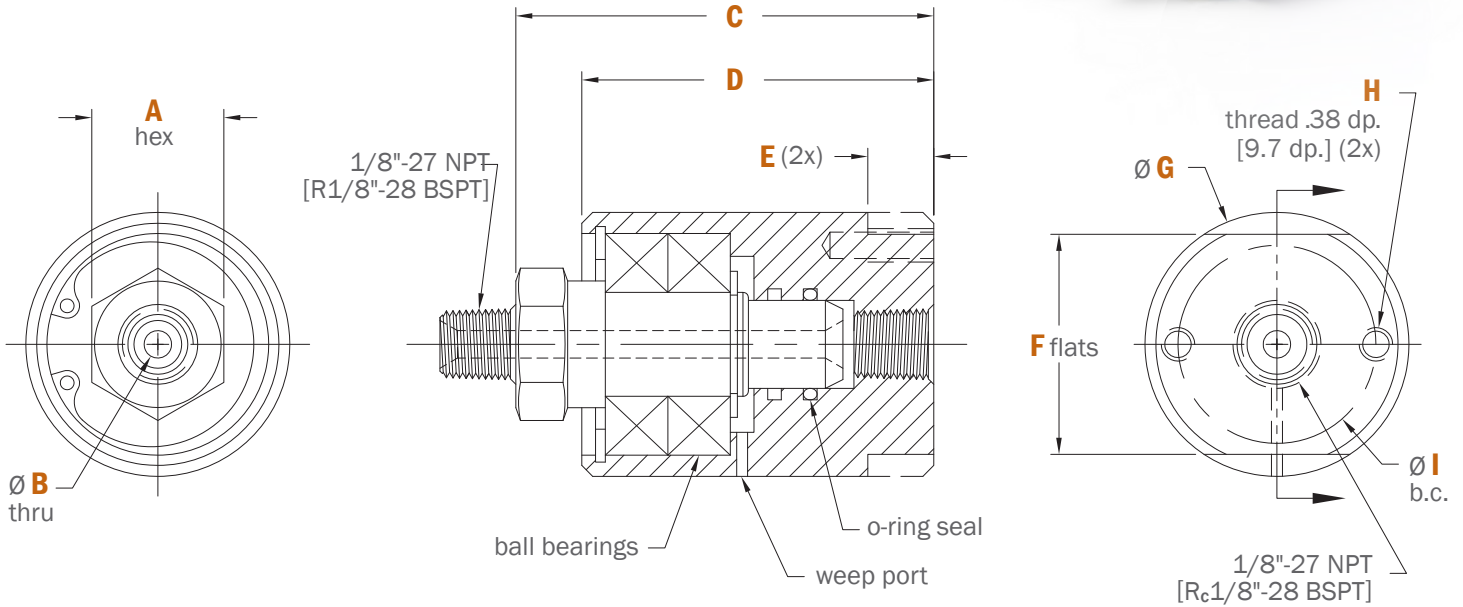
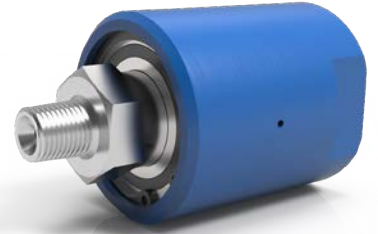
¹ Values are dependent on a combination of all application parameters. Please consult with DSTI.

² Operational life is dependent upon both rotational speed and duty cycle. Contact DSTI if your application requires operating close to the maximum rotational speed with a continuous duty cycle.

³ Applications above 220° F (105° C) require alternative seal materials. Please consult with DSTI.

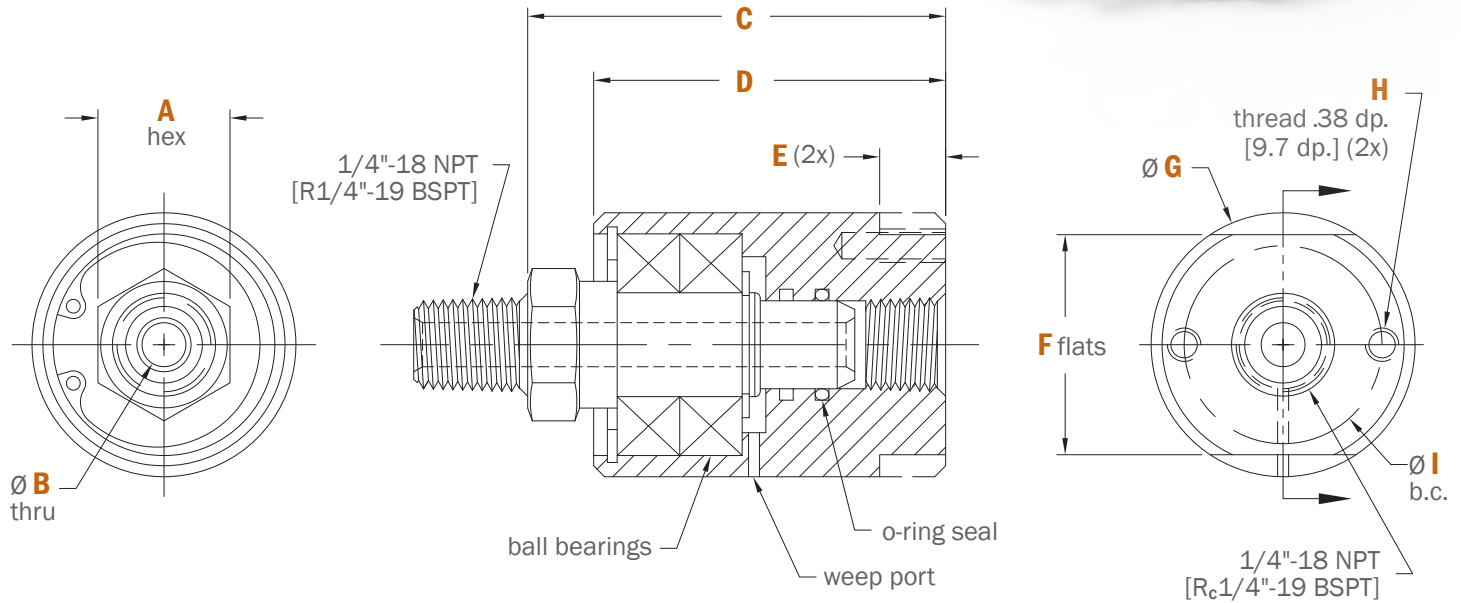
⁴ The use of liquid media is not recommended for this product. Please select from one of our other product lines or consult DSTI if your application requires use of liquid media.

1/8" Connection: Dimensions



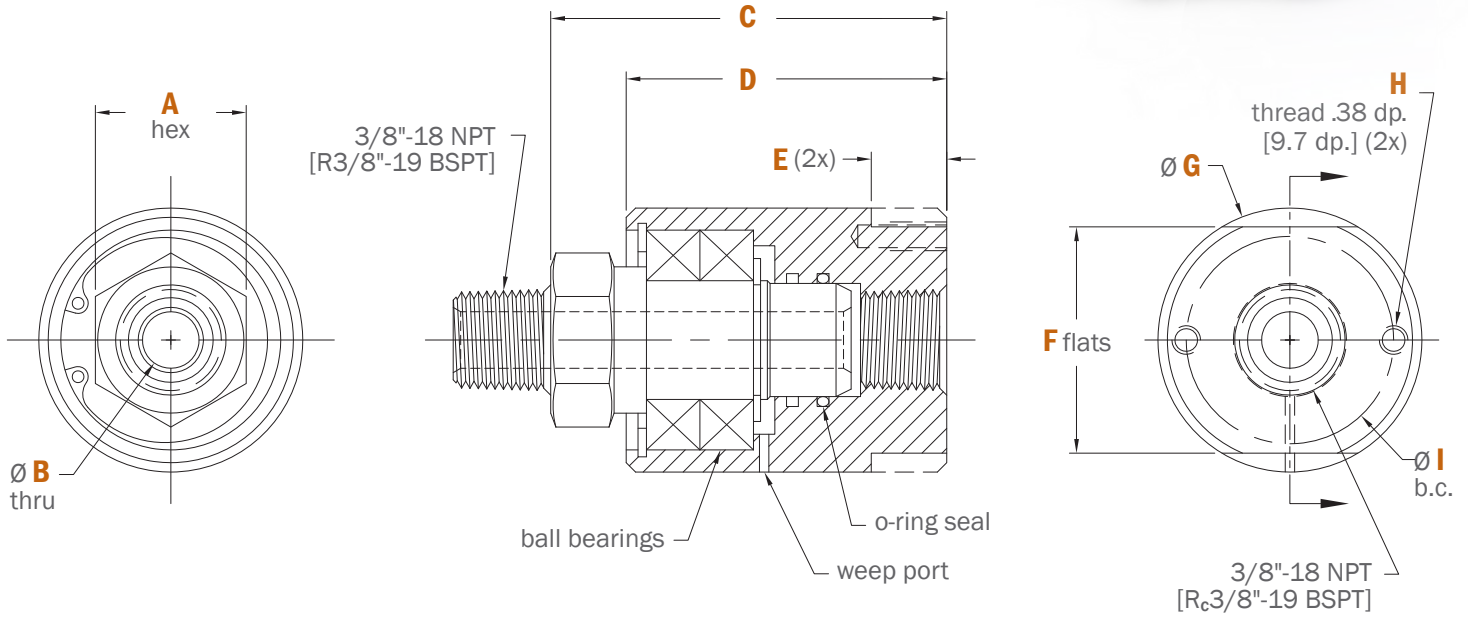
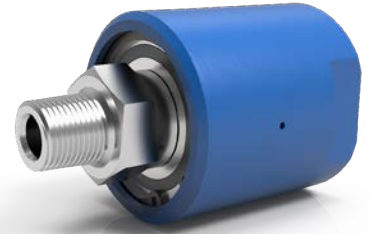
PART #	A	B	C	D	E	F	G	H	I
SPS-5110	.75"	.16"	2.38"	2.000"	.38"	1.25"	1.500"	#10-24	1.125"
SPSM-5110	19.1mm	4.0mm	60.3mm	50.80mm	9.5mm	31.8mm	38.10mm	M5x0.8	28.58mm

1/4" Connection: Dimensions



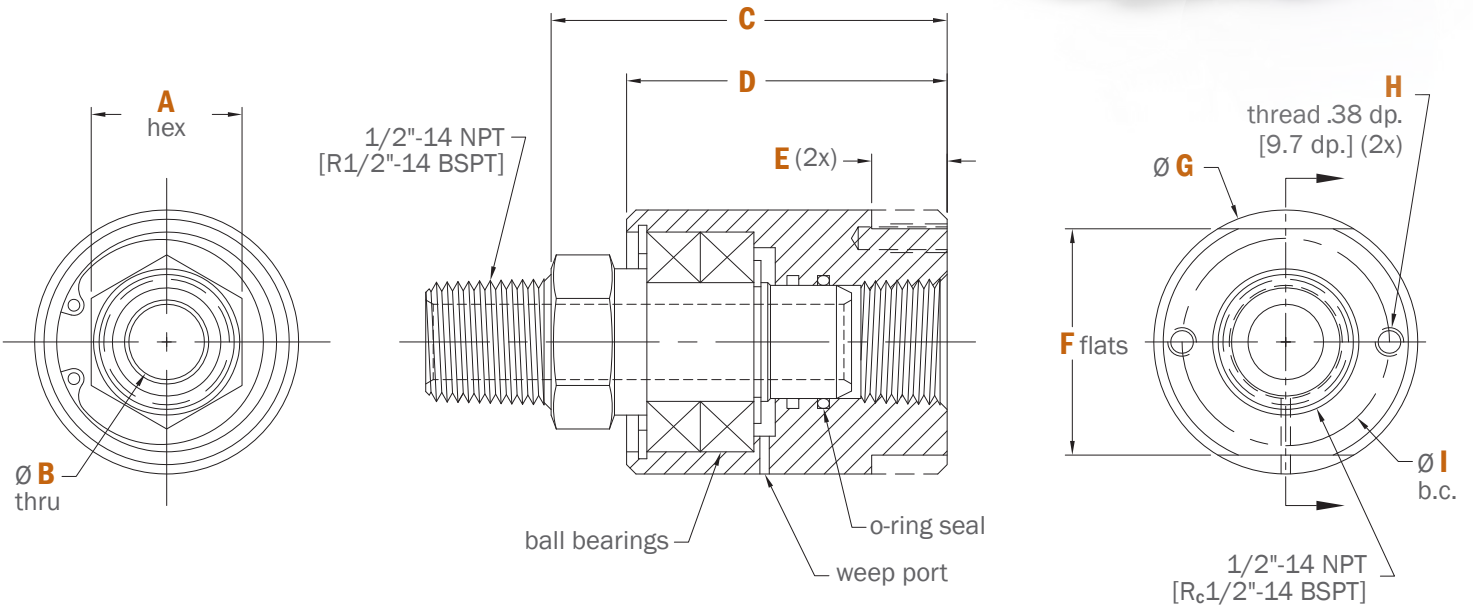
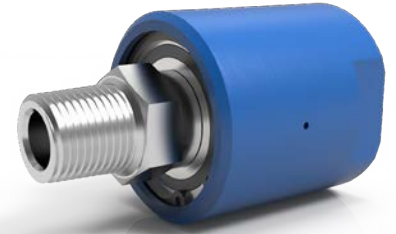
PART #	A	B	C	D	E	F	G	H	I
SPS-5210	.75"	.25"	2.38"	2.000"	.38"	1.25"	1.500"	#10-24	1.125"
SPSM-5210	19.1mm	6.4mm	60.3mm	50.80mm	9.5mm	31.8mm	38.10mm	M5x0.8	28.58mm

3/8" Connection: Dimensions



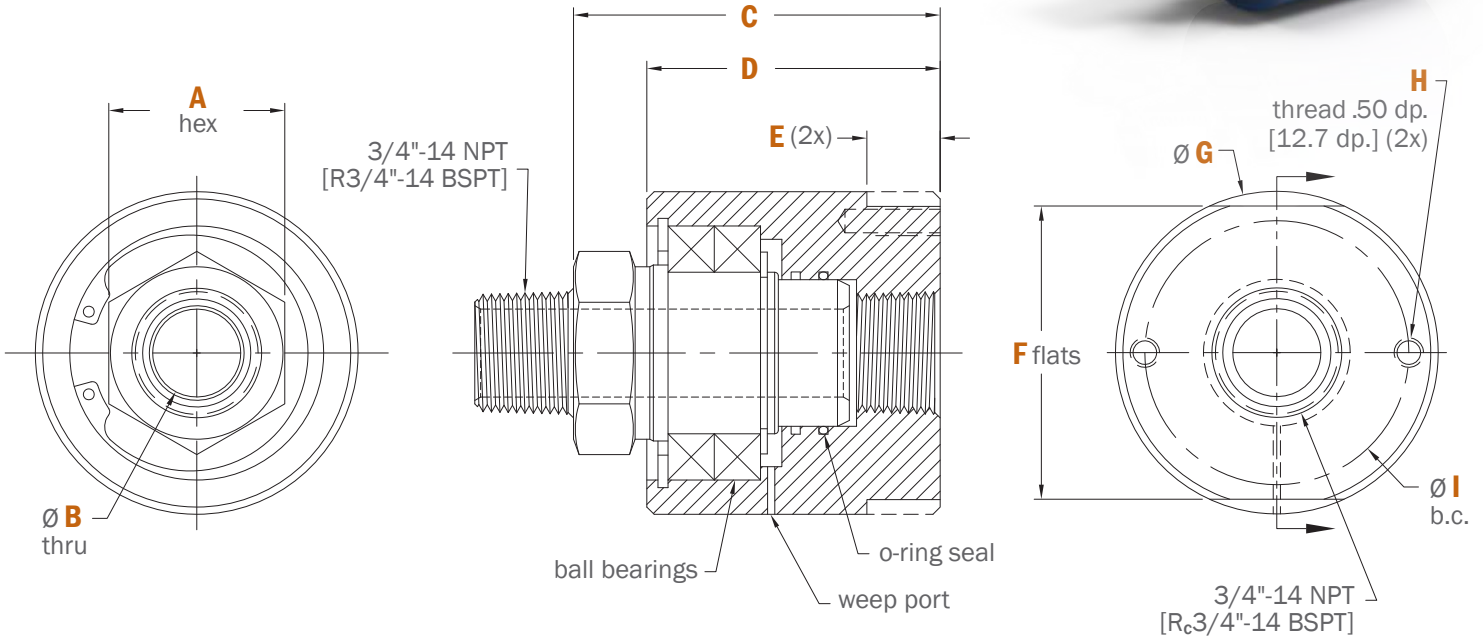
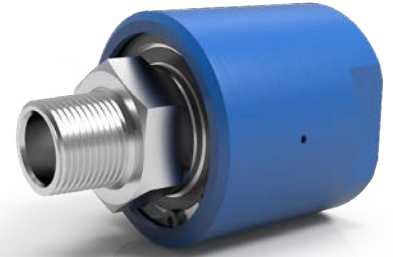
PART #	A	B	C	D	E	F	G	H	I
SPS-5310	1.00"	.38"	2.63"	2.125"	.50"	1.50"	1.750"	#10-24	1.375"
SPSM-5310	25.4mm	9.5mm	66.7mm	53.98mm	12.7mm	38.1mm	44.45mm	M5x0.8	34.93mm

1/2" Connection: Dimensions



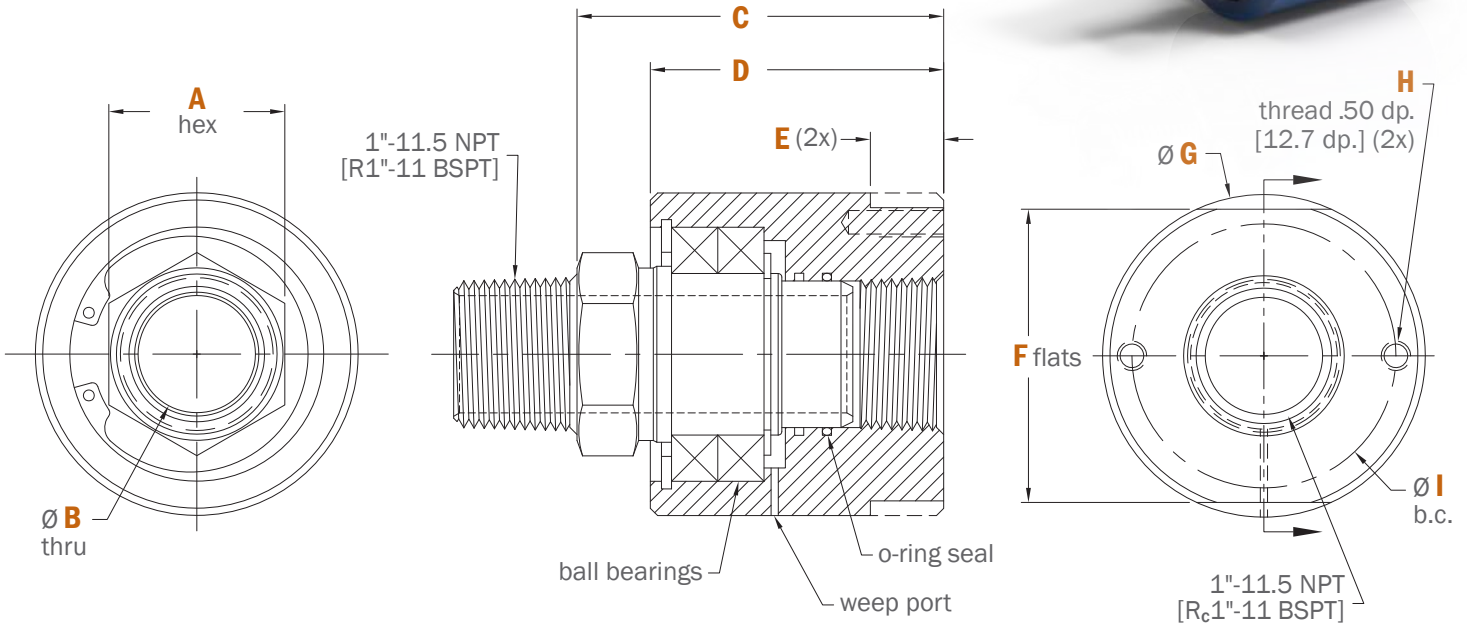
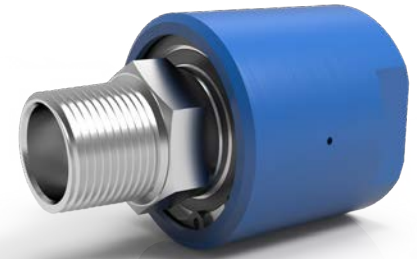
PART #	A	B	C	D	E	F	G	H	I
SPS-5410	1.00"	.50"	2.63"	2.125"	.50"	1.25"	1.750"	#10-24	1.375"
SPSM-5410	25.4mm	12.7mm	66.7mm	53.98mm	12.7mm	38.10mm	44.45mm	M5x0.8	34.93mm

3/4" Connection: Dimensions



PART #	A	B	C	D	E	F	G	H	I
SPS-5510	1.50"	.75"	3.13"	2.500"	.63"	2.50"	2.750"	1/4"-20	2.250"
SPSM-5510	38.1mm	19.1mm	3.13mm	63.50mm	15.9mm	63.5mm	69.85mm	M6x1.0	57.15mm

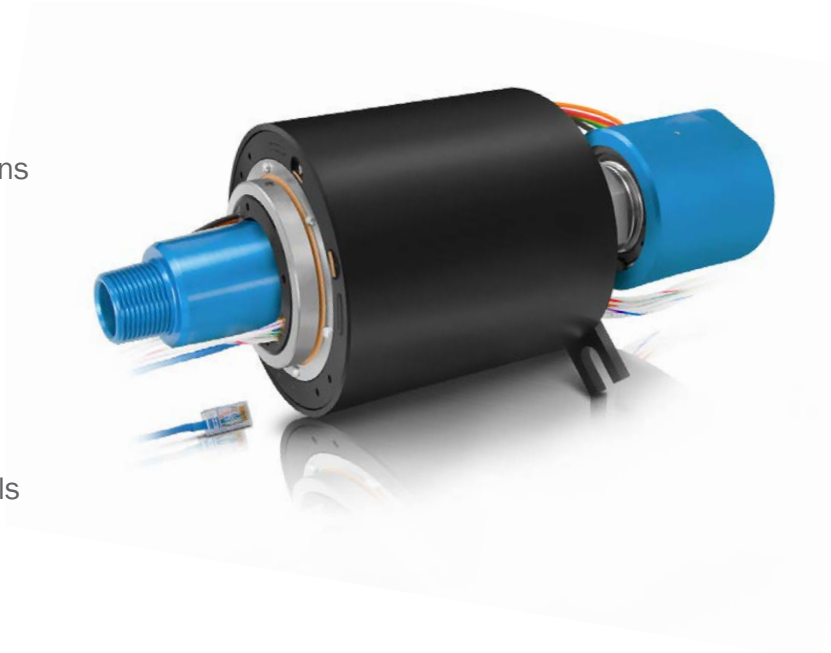
1" Connection: Dimensions



PART #	A	B	C	D	E	F	G	H	I
SPS-5610	1.50"	1.00"	3.13"	2.500"	.63"	2.50"	2.750"	1/4"-20	2.250"
SPSM-5610	38.1mm	25.4mm	3.13mm	63.50mm	15.9mm	63.5mm	69.85mm	M6x1.0	57.15mm

Electrical Slip Ring Integration Options

- + Ethernet Thru-Bore Slip Rings Available
- + Fully Compliant With IEEE 802.3 Formats
- + 100 BaseT & 1000 BaseT Ethernet Connections
- + Unique Fiber Brush Contact Technology
- + Low Contact Force Per Fiber
- + Analog/Digital Transfer
- + RJ45 Connectors With T568B Wiring
- + Compatible With a Range of Data Bus Protocols



AVAILABLE SLIP RINGS¹

PART #	# OF CIRCUITS	MAX AMPS/ CIRCUIT	MAX VOLTS/ CIRCUIT	MAX DATA SPEED	SLIP RING LENGTH	ADAPTER PART #
EST6	6	10	600	Under 50 Mbps ⁴	2.13" [54.1mm]	AD1
EST12	12	10	600	Under 50 Mbps ⁴	3.07" [78.0mm]	AD1
EST18	18	10	600	Under 50 Mbps ⁴	4.01" [101.9mm]	AD2
EST24	24	10	600	Under 50 Mbps ⁴	4.94" [125.5mm]	AD2
ESET4 ²	4	Ethernet Only	600	100 Mbps	2.13" [54.1mm]	AD1
ESET8 ³	8	Ethernet Only	600	1 Gbps	3.07" [78.0mm]	AD1
ESET68 ³	14	(6x) 10A, (1x) Ethernet	600	1 Gbps	4.01" [101.9mm]	AD2
ESET128 ³	20	(12x) 10A, (1x) Ethernet	600	1 Gbps	4.94" [125.5mm]	AD2
ESET184 ²	22	(18x) 10A, (1x) Ethernet	600	100 Mbps	4.94" [125.5mm]	AD2

¹ All EST / ESET slip ring lead wire lengths are 36" (914mm)

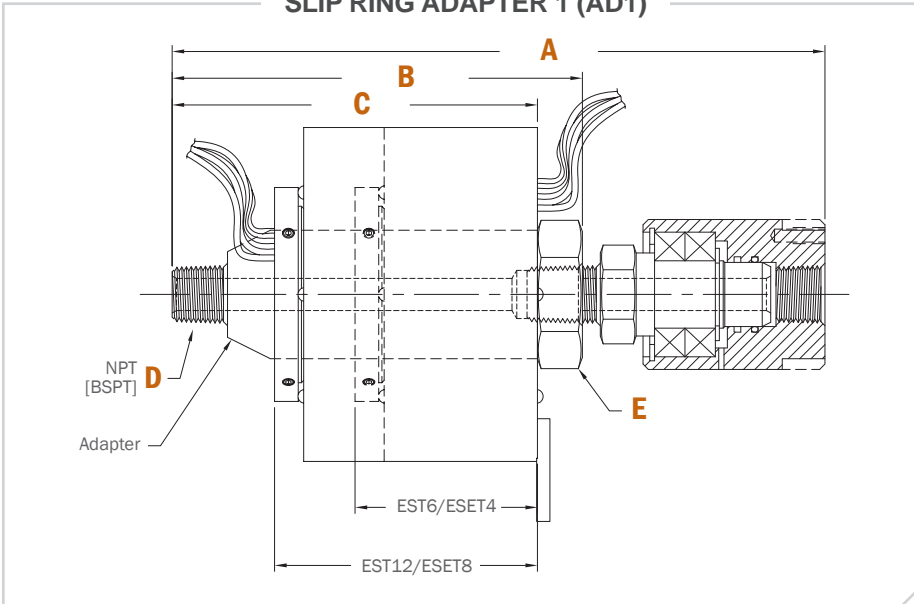
² 100 BaseT Ethernet connections

³ 1000 BaseT Ethernet connections

⁴ In order to successfully transfer digital data signals, a variety of conditions must be met. Please consult with DSTI for approval. For the most reliable transfer of digital data signals, see our Ethernet slip ring options.

Electrical Slip Ring & Adapter: Dimensions

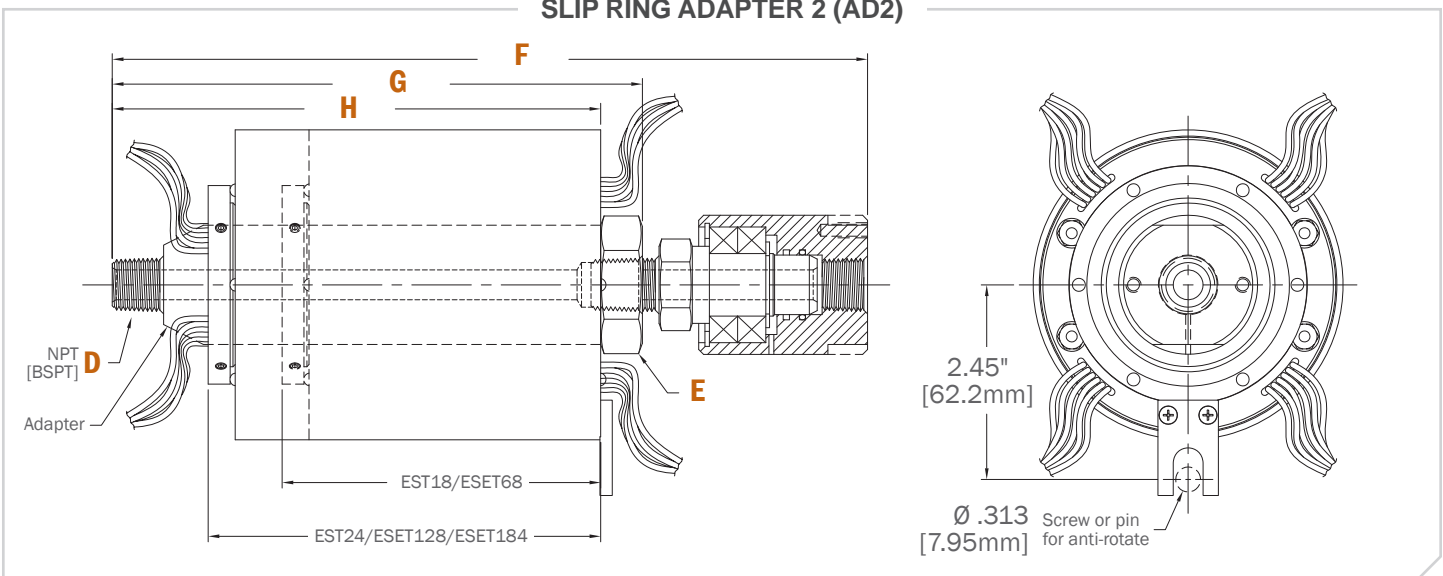
SLIP RING ADAPTER 1 (AD1)



ELECTRICAL SLIP RINGS

PART #	LENGTH
EST6	2.13" [54.1mm]
EST12	3.07" [78.0mm]
EST18	4.01" [101.9mm]
EST24	4.94" [125.5mm]
ESET4	2.13" [54.1mm]
ESET8	3.07" [78.0mm]
ESET68	4.01" [101.9mm]
ESET128	4.94" [125.5mm]
ESET184	4.94" [125.5mm]

SLIP RING ADAPTER 2 (AD2)



PART #	SPS-5110 [SPSM-5110]	SPS-5210 [SPSM-5210]	SPS-5310 [SPSM-5310]	SPS-5410 [SPSM-5410]	SPS-5510 [SPSM-5510]	SPS-5610 [SPSM-5610]
A	7.1" [180mm]	7.4" [187mm]	7.6" [194mm]	7.9" [201mm]	8.5" [215mm]	8.7" [221mm]
B	4.58" [116.2mm]	4.79" [121.7mm]	4.79" [121.7mm]	4.98" [126.4mm]	4.99" [126.7mm]	5.20" [132.0mm]
C	4.1" [103mm]	4.3" [108mm]	4.3" [108mm]	4.5" [113mm]	4.5" [113mm]	4.7" [119mm]
D	1/8"-27 [R1/8"-28]	1/4"-18 [R1/4"-19]	3/8"-18 [R3/8"-19]	1/2"-14 [R1/2"-14]	3/4"-14 [R3/4"-14]	1"-11.5 [R1"-11]
E	1.50" [38.1mm]	1.50" [38.1mm]	1.50" [38.1mm]	1.50" [38.1mm]	1.50" [38.1mm]	1.50" [38.1mm]
F	9.0" [227mm]	9.3" [235mm]	9.5" [241mm]	9.8" [248mm]	10.3" [262mm]	10.6" [268mm]
G	6.46" [164.0mm]	6.67" [169.5mm]	6.67" [169.5mm]	6.86" [174.2mm]	6.87" [174.4mm]	7.08 [179.8mm]
H	5.9" [151mm]	6.1" [156mm]	6.1" [156mm]	6.3" [161mm]	6.3" [161mm]	6.6" [166mm]

Installation & Mounting

PREPARATION:

Remove the rotary union from the shipping container. Inspect the entire assembly, including all passage connections to make sure that they are clean and no visual damage occurred during transport. If the assembly is a rotary union/electrical slip ring, the electrical slip ring may be packaged separately to protect during shipping. If this is the case, mount the electrical slip ring to the rotating union assembly using the supplied hardware.

RECOMMENDED ROTARY UNION INSTALLATION PRACTICE:

DSTI does not recommend mounting the rotary union with both the shaft & housing components solidly bolted into place. One of the two components should be mounted in a manner that allows for some movement in the event of misalignment or run-out during rotation. Using only the supply lines or hoses to fix the stationary component in place is also not recommended. An anti-rotation arm that attaches to the stationary part of the rotary union assembly and rests against part of the equipment framework is recommended (see figure 1.1).

MOUNTING A ROTARY UNION W/ AN ELECTRICAL SLIP RING:

Make sure the electrical wiring is fixed in place and protected from contact with other components or equipment. Care should be taken to make sure the slip ring area remains clean and dry during use.

SHAFT MOUNTING: O-RING MANIFOLD TYPE:

Make sure the rotary union shaft face & equipment mounting surface is clean and free from dents or chips to insure proper installation. Equipment pilot bore needs to be concentric to the center line of the rotary union shaft to assure proper function. Install face mount O-rings into groove or counter bore in rotating union shaft face. General assembly grease can be used as needed to hold O-rings into place during assembly. Align rotary union shaft with equipment pilot bore and flow passages, then insert into place. Bolt assembly into place using tapped holes or mounting flange on rotary union face.

THESE INSTRUCTIONS ARE INTENDED TO BE USED AS A GENERAL GUIDE, PLEASE CONSULT DSTI TO DISCUSS ANY SPECIFIC QUESTIONS RELATED TO YOUR INSTALLATION.

SHAFT MOUNTING, THREADED CONNECTIONS:

When mounting the shaft using threaded connections, make sure all fittings are properly tightened & pipe thread sealant is used as required. Equipment mounting surface needs to be concentric to the center line of the rotary union shaft to assure proper function. After all fittings are in place, bolt assembly into place using tapped holes or mounting flange on rotating union shaft.

INITIAL START-UP:

After rotary union is installed, a dry run is recommended to assure proper mounting of the rotating union assembly. Begin rotation of the equipment, and verify that while rotating at the maximum operating speed there is no visible movement of the rotary union assembly due to misalignment.



FIGURE 1.1

WARRANTY:

DSTI Warrants, for a period of 2 years from the date of original delivery, its products to be free from defects in material and workmanship. DSTI's obligation under this warranty is limited to repair or replacement at its factory of any part or parts of said products which shall be returned to DSTI with transportation charges prepaid and which DSTI's examination shall disclose to its satisfaction to have been defective. Under no circumstances shall DSTI be held liable for loss, damage, cost of repair or consequential damages of any kind in connection with the sale, use or repair of any product purchased from DSTI. Warranty is subject to change.

Engineered Fluid Solutions

At DSTI, our product solutions are directly influenced by the industries we serve. If an existing product isn't a perfect fit for our customers' applications, we provide specialized design and manufacturing services to meet the needs of their specifications.

