



Lightweight, Compact Rotary Unions

SPS Series

SINGLE FLOW PASSAGE CONNECTION SIZE OPTIONS

1/4"

1/2"

1"

2"

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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.

See examples at www.dsti.com/industries

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.*

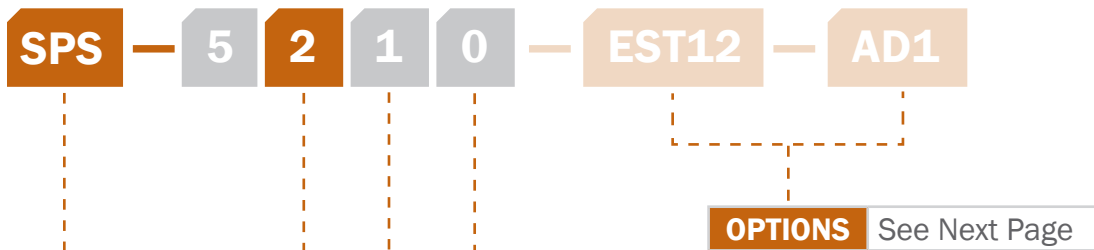
Overview

- + Single Flow Passage (1/4", 1/2", 1" & 2")
- + Lightweight, Compact Design
- + Low Rotation Torque
- + Stainless Steel Shaft / Hardcoat Anodized Aluminum Housing
- + NPT Connections
- + 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 hardcoat anodized aluminum housing. All SPS Series models come standard with a male NPT threaded shaft connection, a female NPT threaded housing connection and two tapped holes on the end of housing for easy equipment integration.

How to Order: Create your Part Number



0 No Thru-bore

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

1 1 Flow Passages

2 1/4"-18 NPT Connections

4 1/2"-14 NPT Connections

6 1"-11.5 NPT Connections

9* 2"-11.5 NPT Connections

***NOTE** Electrical Slip Ring Not Compatible with SPS-5910 (2") Rotary Union

SPS SPS Series (NPT Connection)

PART NUMBER CONFIGURATIONS

SPS-5210

- SPS 1 Passage with a 1/4"-18 NPT Connections

SPS-5410

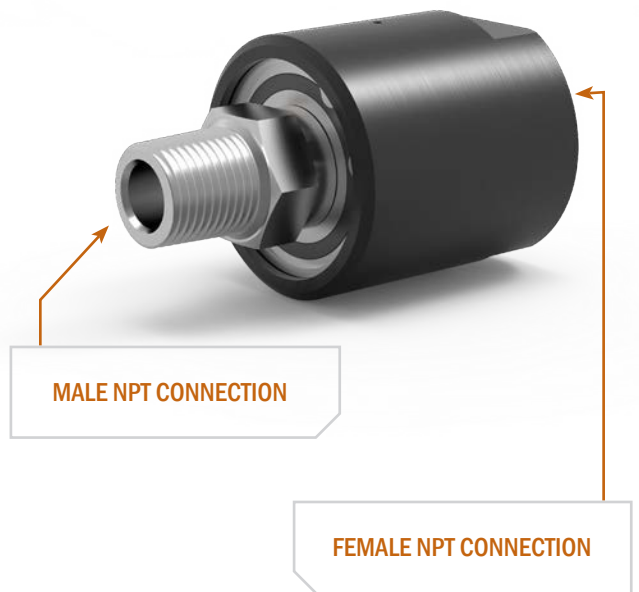
- SPS 1 Passage with a 1/2"-14 NPT Connections

SPS-5610

- SPS 1 Passage with a 1"-11.5 NPT Connections

SPS-5910

- SPS 1 Passage with a 2"-11.5 NPT Connections



How to Order: Choose your Options

SPS — 5 2 1 0 — EST12 — AD1

OPTIONAL ELECTRICAL SLIP RINGS¹

AD1 Slip Ring Adapter 1

AD2 Slip Ring Adapter 2

NOTE See chart below to determine the adapter required for your slip ring selection.

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	240	100 Mbps	AD1
ESET8 ³	8	Ethernet Only	240	1 Gbps	AD1
ESET68 ³	14	(6x) 10A, (1x) Ethernet	600 ⁵	1 Gbps	AD2
ESET128 ³	20	(12x) 10A, (1x) Ethernet	600 ⁵	1 Gbps	AD2
ESET184 ²	22	(18x) 10A, (1x) Ethernet	600 ⁵	100 Mbps	AD2

¹ See Electrical Slip Ring Options on page 10-11 for full specs

² 100 BaseT Ethernet connections

³ 1000 BaseT Ethernet connections

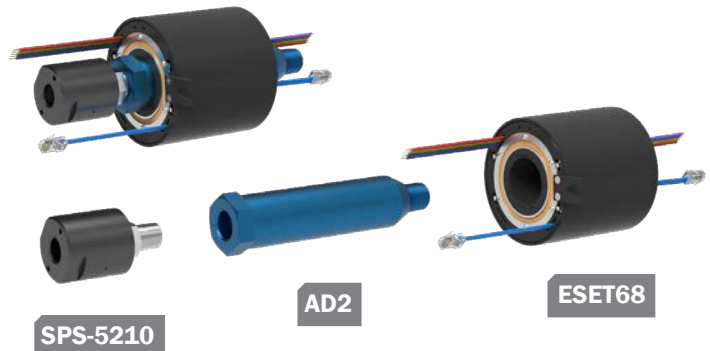
⁴ In order to successfully transfer digital data signals, a variety of conditions must be met. Please consult with DSTI for approval.

⁵ 600V max on 16 AWG power circuits, 240v maximum on Ethernet cable.

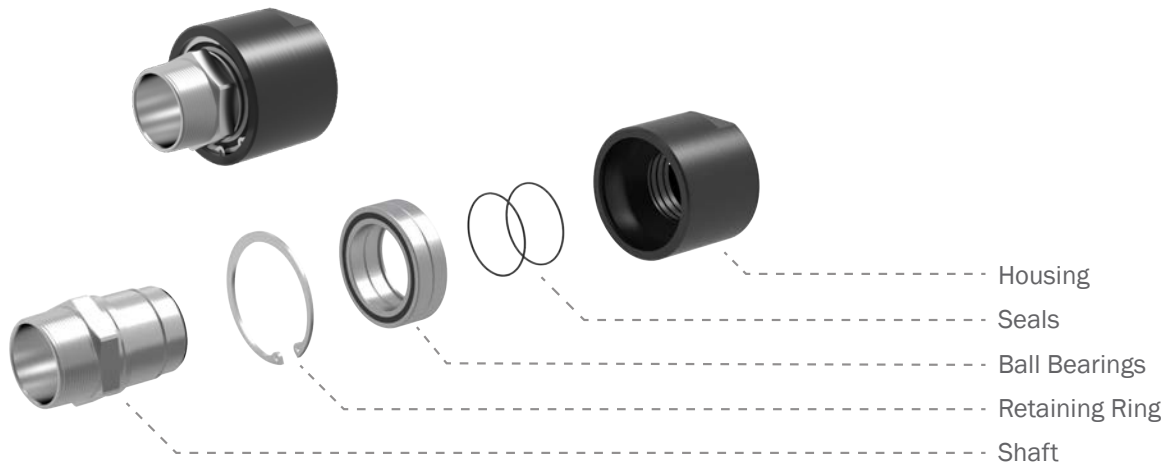
SPS + SLIP RING EXAMPLE

SPS-5210-ESET68-AD2

- SPS 1-Passage, 1/2"-14 NPT Connection, Optional ESET68 Electrical Slip Ring and Adapter (AD2)



Specifications & Operating Information



Flow Passage Options	1
Media Types	Air/Gas, DI/Tap Water ⁵ , Coolant, Oil/Hydraulic ⁴ , Water/Glycol ⁵
Passage Sizes	.25"(6.4mm) .50"(12.7mm) 1.00"(25.4mm) 2.00"(50.8mm)
Connection Types	National Pipe Thread Taper (NPT)
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 5}
Body Material Type	Aluminum (Housing) 304 Stainless Steel (Shaft)
Platings and Coatings	Black Hardcoat Anodize (Housing)
Slip Ring Options	See Pages 6 & 10-11 Custom options also available
Mounting Options	Tapped holes are provided on the housing in addition to the female NPT connection and a male NPT connection on the shaft

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.

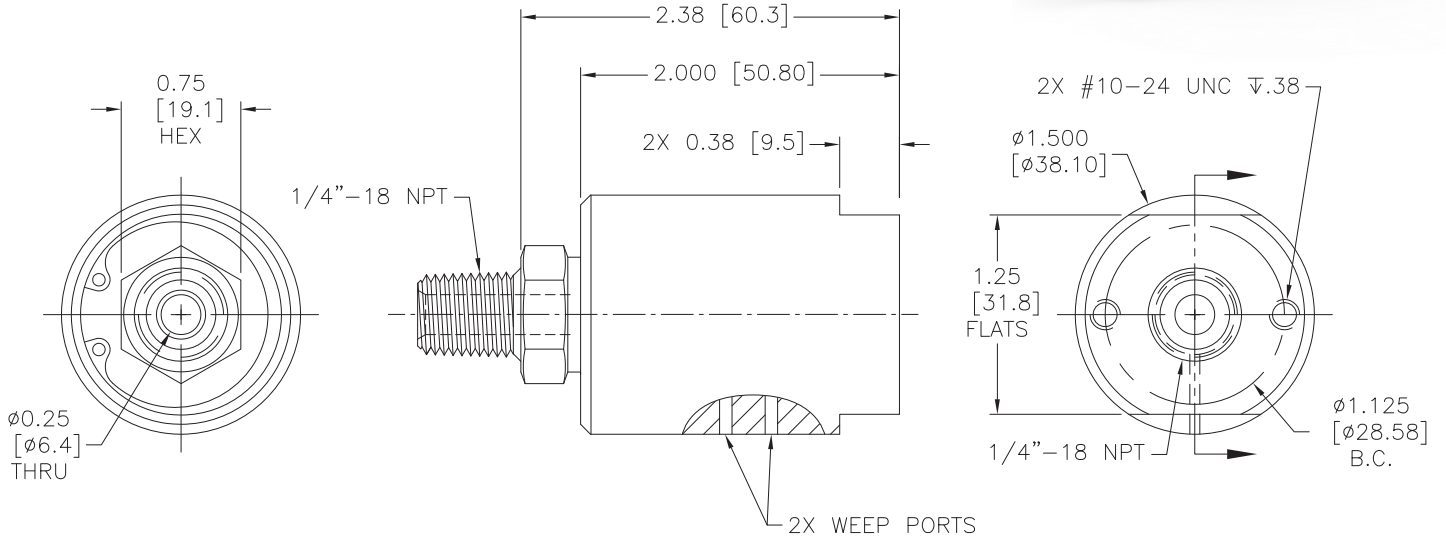
³ Applications above 220° F (105° C) require alternative seal materials. Please consult with DSTI.

⁴ Oil/Hydraulic media must be petroleum-based.

⁵ Water service limited to 212° F (100° C). Temperatures above that require alternative seal materials. Please consult with DSTI.

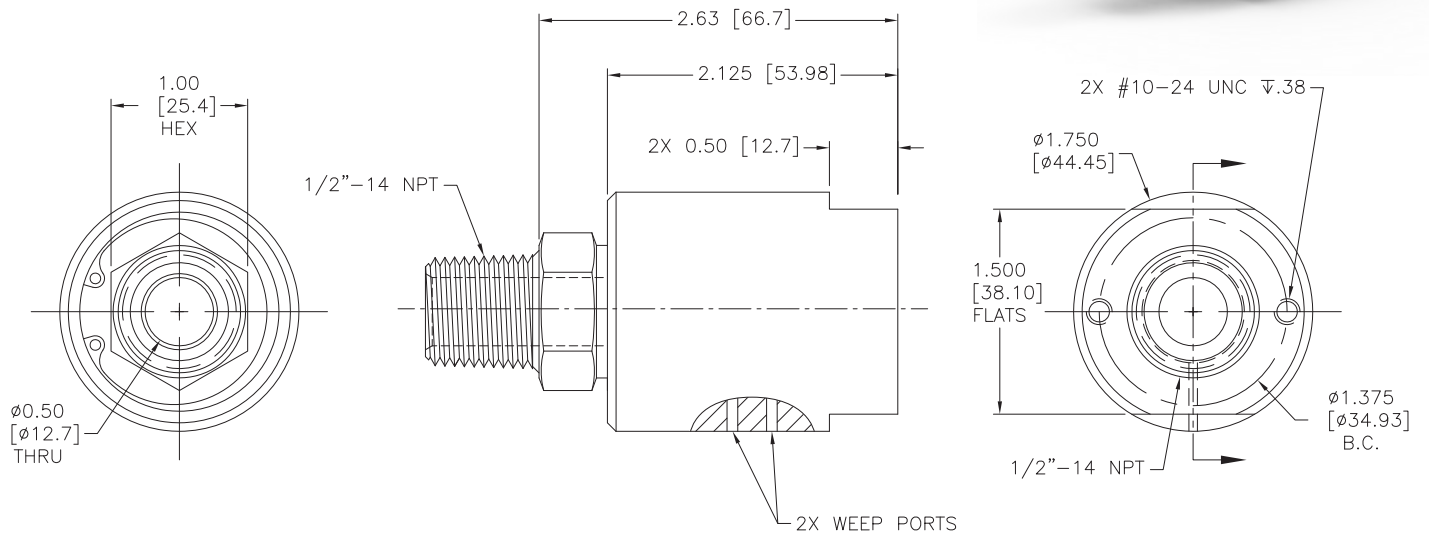
SPS-5210

1/4"-18 NPT Connections



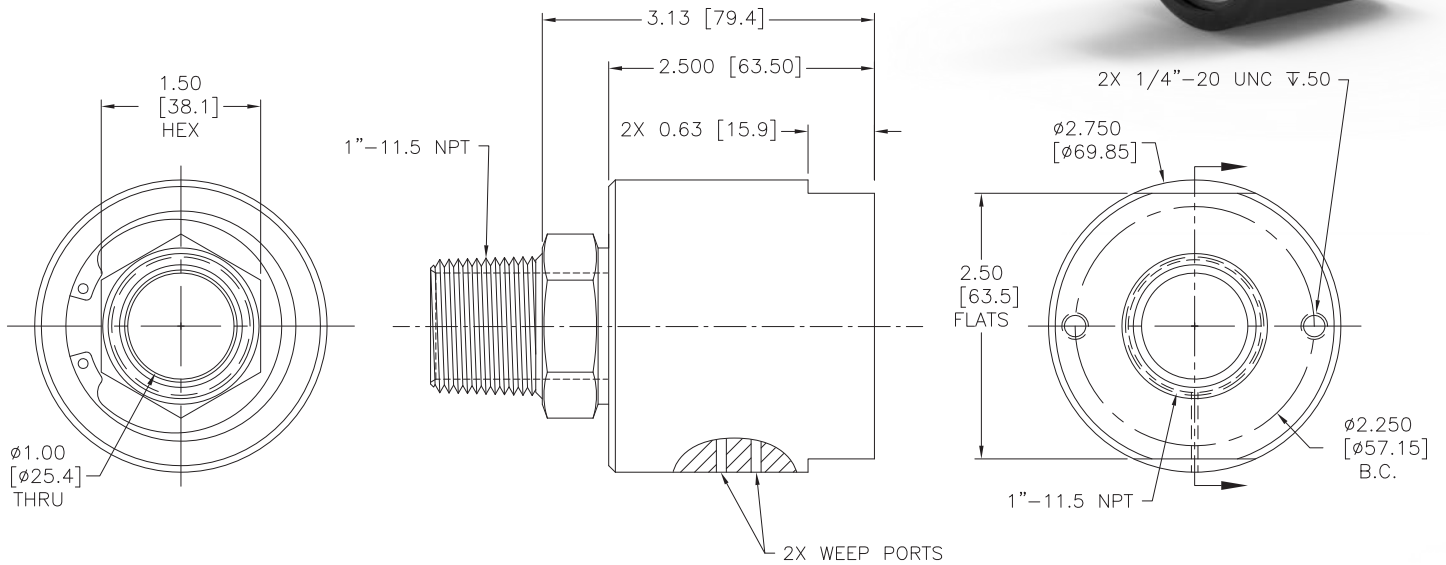
SPS-5410

1/2"-14 NPT Connections



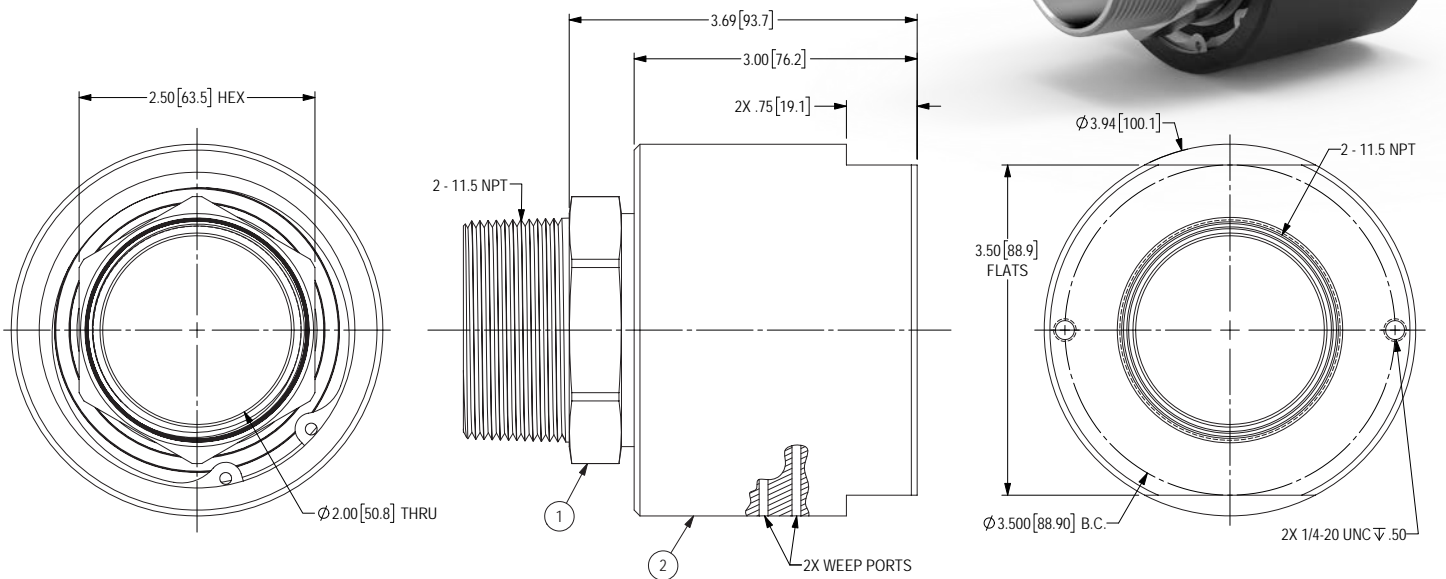
SPS-5610

1"-11.5 NPT Connections



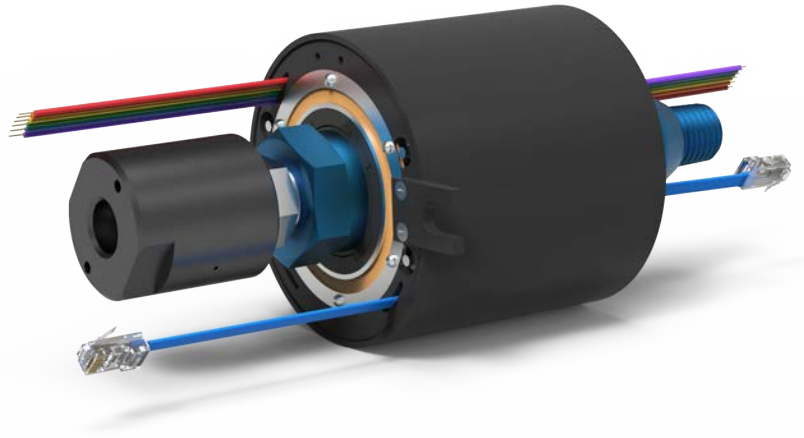
SPS-5910

2"-11.5 NPT Connections



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	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	240	100 Mbps	2.13" [54.1mm]	AD1
ESET8 ³	8	Ethernet Only	240	1 Gbps	3.07" [78.0mm]	AD1
ESET68 ³	14	(6x) 10A, (1x) Ethernet	600 ⁵	1 Gbps	4.01" [101.9mm]	AD2
ESET128 ³	20	(12x) 10A, (1x) Ethernet	600 ⁵	1 Gbps	4.94" [125.5mm]	AD2
ESET184 ²	22	(18x) 10A, (1x) Ethernet	600 ⁵	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

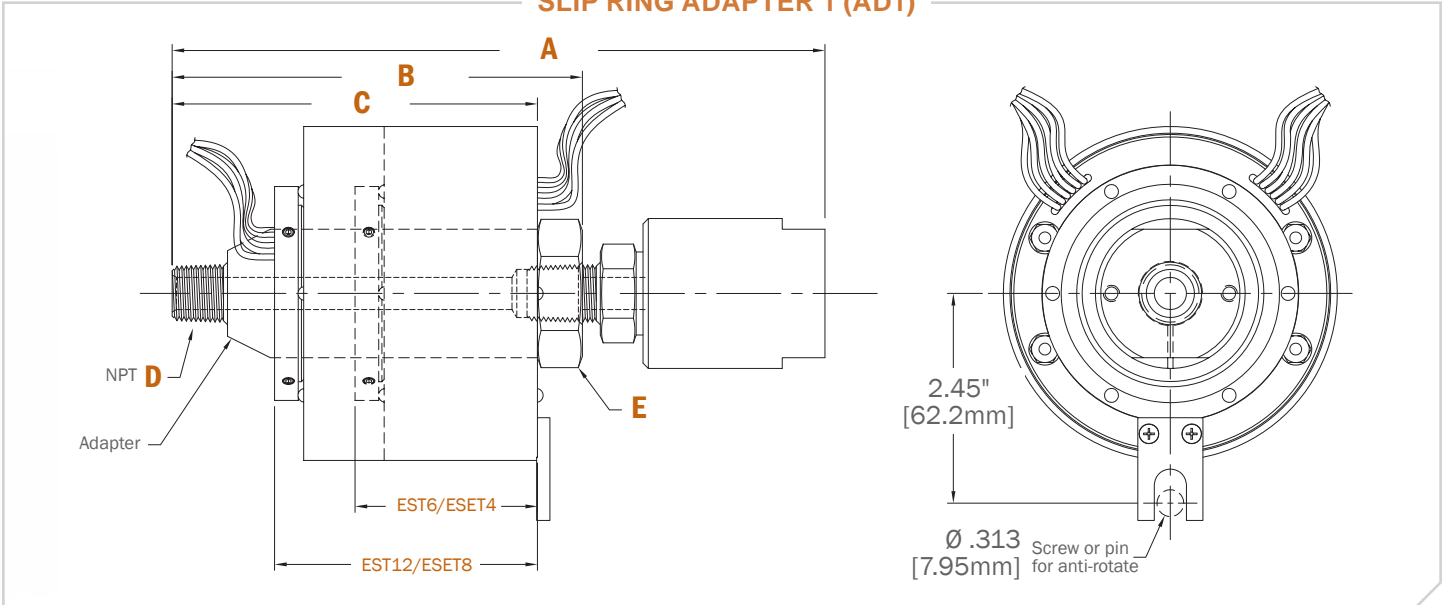
⁴ In order to successfully transfer digital data signals, a variety of conditions must be met. Please consult with DSTI for approval.

For the most reliable transfer of digital data signals, see our Ethernet slip ring options.

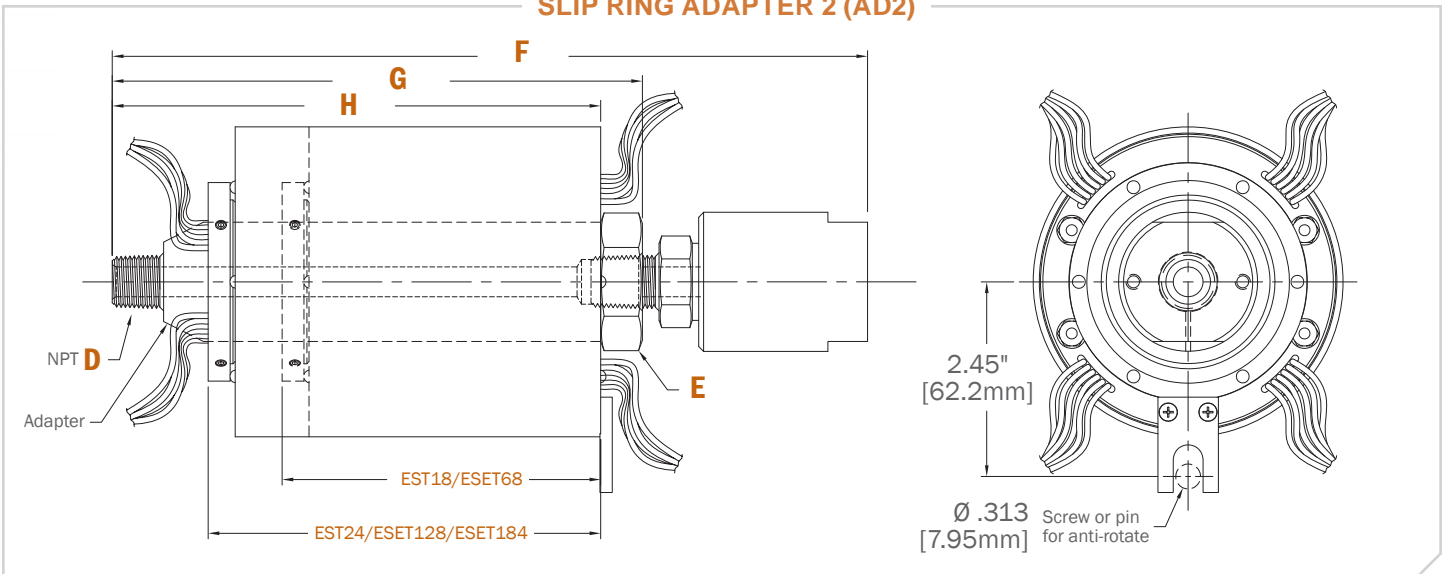
⁵ 600V max on 16 AWG power circuits, 240v maximum on Ethernet cable.

Electrical Slip Ring & Adapter: Dimensions

SLIP RING ADAPTER 1 (AD1)



SLIP RING ADAPTER 2 (AD2)



PART #	SPS-5210	SPS-5410	SPS-5610	SPS-5910
A	7.4" [187mm]	7.9" [201mm]	8.7" [221mm]	Not Compatible with Slip Ring Integration
B	4.79" [121.7mm]	4.98" [126.4mm]	5.20" [132.0mm]	
C	4.3" [108mm]	4.5" [113mm]	4.7" [119mm]	
D	¼"-18	½"-14	1"-11.5	
E	1.50" [38.1mm]	1.50" [38.1mm]	1.50" [38.1mm]	
F	9.3" [235mm]	9.8" [248mm]	10.6" [268mm]	
G	6.67" [169.5mm]	6.86" [174.2mm]	7.08 [179.8mm]	
H	6.1" [156mm]	6.3" [161mm]	6.6" [166mm]	

PART #	SLIP RING 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]

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 INSTALLATION PRACTICE:

DSTI does not recommend mounting the rotary union with both the shaft & housing components solidly mounted 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 prevent the stator from rotating is typically not recommended, however the SPS Series features a low-torque design which in most circumstances will allow the supply lines or hoses to act as a means of preventing the stator from rotating. It is recommended to monitor the equipment while running to ensure no hose damage occurs. If the stator is not easily held in place during operation, an anti-rotation arm that attaches to the stationary part of the rotary union and rests against part of the equipment framework may be necessary.

SHAFT MOUNTING, CONNECTIONS:

When mounting the shaft make sure the fitting is properly tightened so that rotation does not loosen the connection and use pipe thread sealant as required. The fitting needs to be concentric to the center line of the rotary union shaft to assure proper function. See figure 1 for mounting example.

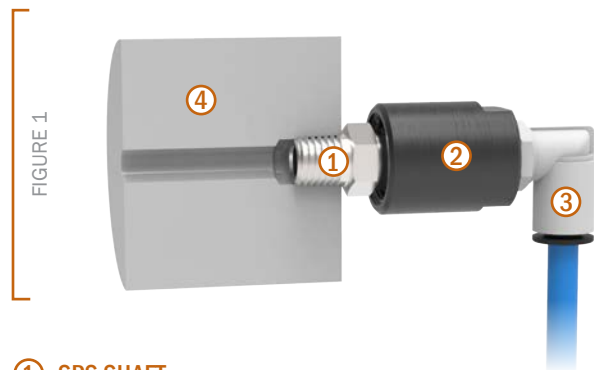
THESE INSTRUCTIONS ARE INTENDED TO BE USED AS A GENERAL GUIDE, PLEASE CONSULT DSTI TO DISCUSS ANY SPECIFIC QUESTIONS RELATED TO YOUR INSTALLATION.

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.

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.



- ① SPS SHAFT
- ② SPS HOUSING
- ③ PNEUMATIC FITTING & LINE EXAMPLE
- ④ CUSTOMER INTERFACE EXAMPLE

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 of consequential damages of any kind in connection with the sale, use or repair of any product purchased from DSTI. Warranty is subject to change.



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