Lightweight, Compact Rotary Unions

SPS Series

SINGLE FLOW PASSAGE CONNECTION SIZE OPTIONS

\[ \frac{1}{8} \, \frac{1}{4} \, \frac{3}{8} \, \frac{1}{2} \, \frac{3}{4} \, 1 \]
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.

Learn more at [www.dsti.com](http://www.dsti.com).

DID YOU KNOW?

DSTI products can be purchased Online at [store.dsti.com](http://store.dsti.com).
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
- 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.

PRODUCT DOWNLOADS
For Catalogs, Brochures, Models and Drawings visit www.dsti.com/downloads
How to Order: Create your Part Number

SPS 5 3 1 0 — ESET12 — AD1

OPTIONS See Next Page

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

0 No Thru-bore

1 1 Flow Passages

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

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)
### How to Order: Choose your Options

**SPS — 5 3 1 0 — ESET12 — ADx**

**OPTIONAL ELECTRICAL SLIP RINGS**

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

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

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

<table>
<thead>
<tr>
<th>Media Types</th>
<th>Air/Gas&lt;sup&gt;4&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passage Sizes</td>
<td>.156” (3.962mm)</td>
</tr>
<tr>
<td>Connection Types</td>
<td>National Pipe Thread Taper (NPT)</td>
</tr>
<tr>
<td>Max. Operating Pressure</td>
<td>600 PSI (40 BAR)&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
<tr>
<td>Max. Vacuum</td>
<td>30 HG&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
<tr>
<td>Max. Rotational Speed</td>
<td>500 RPM&lt;sup&gt;2&lt;/sup&gt;</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>0º F to 220º F (-18º C to 105º C)&lt;sup&gt;3&lt;/sup&gt;</td>
</tr>
<tr>
<td>Body Material Type</td>
<td>Aluminum (Housing)</td>
</tr>
<tr>
<td>Platings and Coatings</td>
<td>Blue Anodize (Housing)</td>
</tr>
<tr>
<td>Slip Ring Options</td>
<td>See Page 6 &amp; 14</td>
</tr>
<tr>
<td>Mounting Options</td>
<td>Tapped holes are provided on the housing with male NPT thread connection for shaft mounting.</td>
</tr>
</tbody>
</table>

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

<sup>2</sup> 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.

<sup>3</sup> Applications above 220º F (105º C) require alternative seal materials. Please consult with DSTI.

<sup>4</sup> 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

<table>
<thead>
<tr>
<th>PART #</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPS-5210</td>
<td>.75*</td>
<td>.25*</td>
<td>2.38&quot;</td>
<td>2.000&quot;</td>
<td>.38&quot;</td>
<td>1.25&quot;</td>
<td>1.500&quot;</td>
<td>#10-24</td>
<td>1.125&quot;</td>
</tr>
<tr>
<td>SPSM-5210</td>
<td>19.1mm</td>
<td>6.4mm</td>
<td>60.3mm</td>
<td>50.80mm</td>
<td>9.5mm</td>
<td>31.8mm</td>
<td>38.10mm</td>
<td>M5x0.8</td>
<td>28.58mm</td>
</tr>
</tbody>
</table>
3/8" Connection: Dimensions

<table>
<thead>
<tr>
<th>PART #</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPS-5310</td>
<td>1.00&quot;</td>
<td>.38&quot;</td>
<td>2.63&quot;</td>
<td>2.125&quot;</td>
<td>.50&quot;</td>
<td>1.50&quot;</td>
<td>1.750&quot;</td>
<td>#10-24</td>
<td>1.375&quot;</td>
</tr>
<tr>
<td>SPSM-5310</td>
<td>25.4mm</td>
<td>9.5mm</td>
<td>66.7mm</td>
<td>53.98mm</td>
<td>12.7mm</td>
<td>38.1mm</td>
<td>44.45mm</td>
<td>M5x0.8</td>
<td>34.93mm</td>
</tr>
</tbody>
</table>
**1/2" Connection: Dimensions**

![Diagram of 1/2" Connection]

<table>
<thead>
<tr>
<th>PART #</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPS-5410</td>
<td>1.00&quot;</td>
<td>.50&quot;</td>
<td>2.63&quot;</td>
<td>2.125&quot;</td>
<td>.50&quot;</td>
<td>1.25&quot;</td>
<td>1.750&quot;</td>
<td>#10-24</td>
<td>1.375&quot;</td>
</tr>
<tr>
<td>SPSM-5410</td>
<td>25.4mm</td>
<td>12.7mm</td>
<td>66.7mm</td>
<td>53.98mm</td>
<td>12.7mm</td>
<td>38.10mm</td>
<td>44.45mm</td>
<td>M5x0.8</td>
<td>34.93mm</td>
</tr>
</tbody>
</table>

- Ø B : hex thru
- Ø G : flats
- Ø I : b.c.
- 1/2"-14 NPT
- [R1/2"-14 BSPT]
- thread .38 dp.
- [9.7 dp.] (2x)
- 1/2"-14 NPT
- [Rc1/2"-14 BSPT]
- ball bearings
- o-ring seal
- weep port

Dynamic Sealing Technologies, Inc | phone 866.700.3784 | web www.dsti.com | store store.dsti.com
3/4" Connection: Dimensions

<table>
<thead>
<tr>
<th>PART #</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPS-5510</td>
<td>1.50&quot;</td>
<td>.75&quot;</td>
<td>3.13&quot;</td>
<td>2.50&quot;</td>
<td>.63&quot;</td>
<td>2.50&quot;</td>
<td>2.750&quot;</td>
<td>1/4&quot;-20</td>
<td>2.250&quot;</td>
</tr>
<tr>
<td>SPSM-5510</td>
<td>38.1mm</td>
<td>19.1mm</td>
<td>3.13mm</td>
<td>63.50mm</td>
<td>15.9mm</td>
<td>63.5mm</td>
<td>69.85mm</td>
<td>M6x1.0</td>
<td>57.15mm</td>
</tr>
</tbody>
</table>
1" Connection: Dimensions

<table>
<thead>
<tr>
<th>PART #</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPS-5610</td>
<td>1.50&quot;</td>
<td>1.00&quot;</td>
<td>3.13&quot;</td>
<td>2.500&quot;</td>
<td>.63&quot;</td>
<td>2.50&quot;</td>
<td>2.750&quot;</td>
<td>1/4&quot;-20</td>
<td>2.250&quot;</td>
</tr>
<tr>
<td>SPSM-5610</td>
<td>38.1mm</td>
<td>25.4mm</td>
<td>3.13mm</td>
<td>63.50mm</td>
<td>15.9mm</td>
<td>63.5mm</td>
<td>69.85mm</td>
<td>M6x1.0</td>
<td>57.15mm</td>
</tr>
</tbody>
</table>
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

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

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)

SLIP RING ADAPTER 2 (AD2)

ELECTRICAL SLIP RINGS

<table>
<thead>
<tr>
<th>PART #</th>
<th>LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>EST6</td>
<td>2.13” [54.1mm]</td>
</tr>
<tr>
<td>EST12</td>
<td>3.07” [78.0mm]</td>
</tr>
<tr>
<td>EST18</td>
<td>4.01” [101.9mm]</td>
</tr>
<tr>
<td>EST24</td>
<td>4.94” [125.5mm]</td>
</tr>
<tr>
<td>ESET4</td>
<td>2.13” [54.1mm]</td>
</tr>
<tr>
<td>ESET8</td>
<td>3.07” [78.0mm]</td>
</tr>
<tr>
<td>ESET68</td>
<td>4.01” [101.9mm]</td>
</tr>
<tr>
<td>ESET128</td>
<td>4.94” [125.5mm]</td>
</tr>
<tr>
<td>ESET184</td>
<td>4.94” [125.5mm]</td>
</tr>
</tbody>
</table>

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] |

Dynamic Sealing Technologies, Inc  phone 866.700.3784  web www.dsti.com  store store.dsti.com
Installation & Mounting

PREPARATION:
Remove the rotary union from the shipping container.
Inspect the entire assembly, including all passage
connctions 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.

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
rotation at the maximum operating speed there is no
visible movement of the rotary union assembly due to
misalignment.

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 it's 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 it's 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.
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.

To see examples of our customized solutions, please visit: www.dsti.com/industries