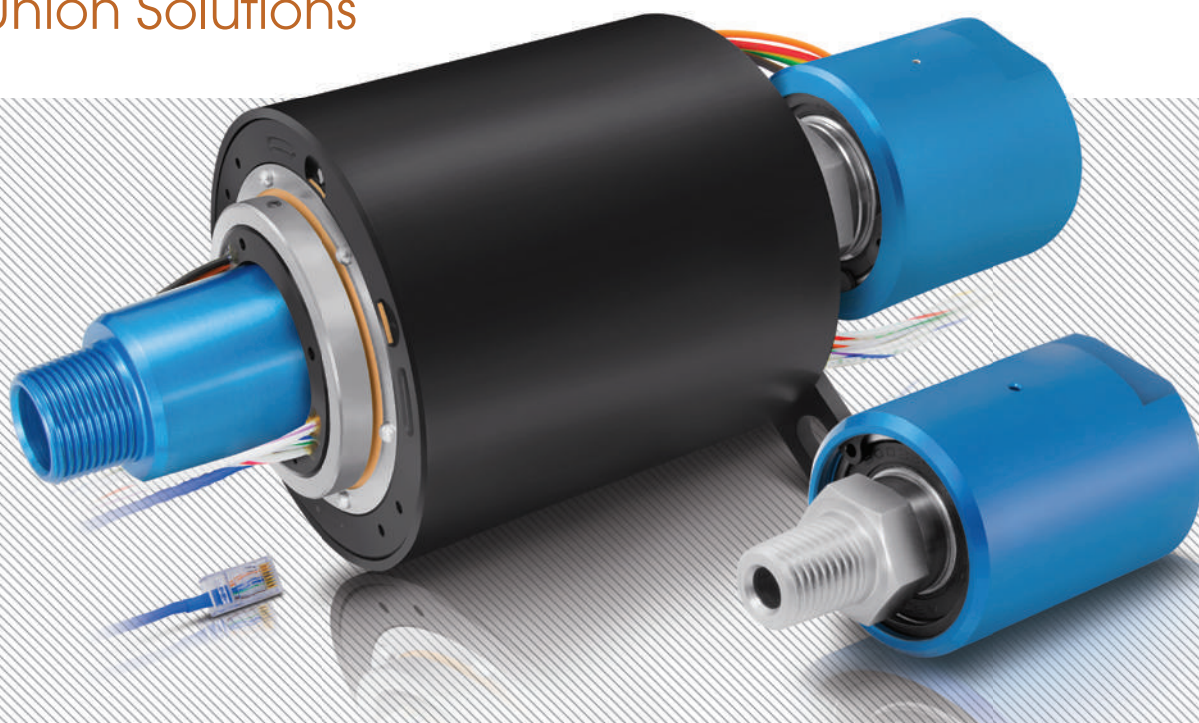


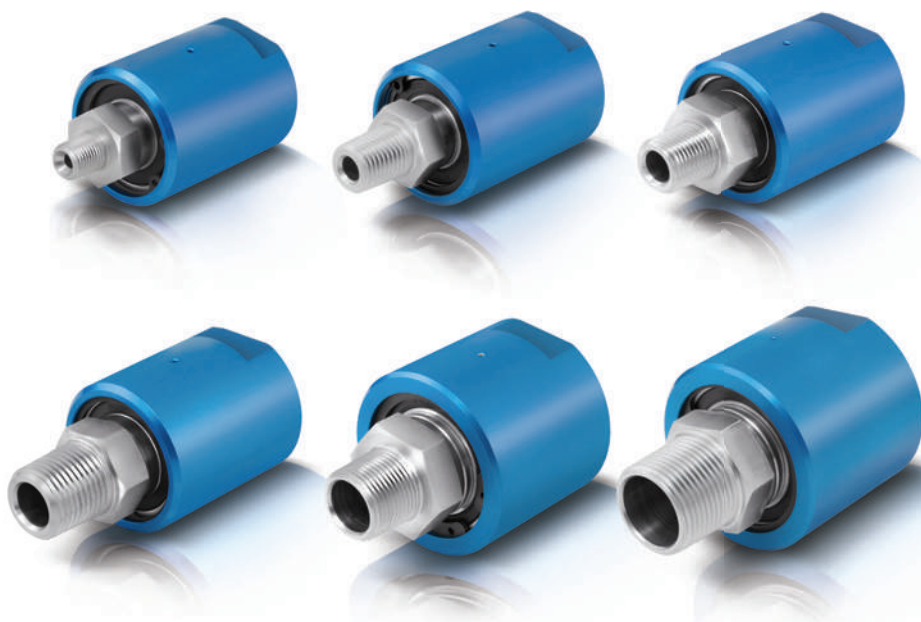
**LIGHTWEIGHT + COMPACT**  
**Rotary Union Solutions**



# SPS Series

**NPT CONNECTION  
SIZE OPTIONS**

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



# SPS SERIES

## Contents

- 3** What is a Rotary Union?
- 4** SPS Series 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 Options
- 15** Installation and Mounting

## About DSTI

Dynamic Sealing Technologies, Inc. (DSTI) is a global leader in rotary unions and swivel joints used to provide reliable fluid transfer and sealing for energy, defense and industrial applications.

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

## Did You Know?

» DSTI Exports Rotary Union Products to Over 50 Countries



## 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.

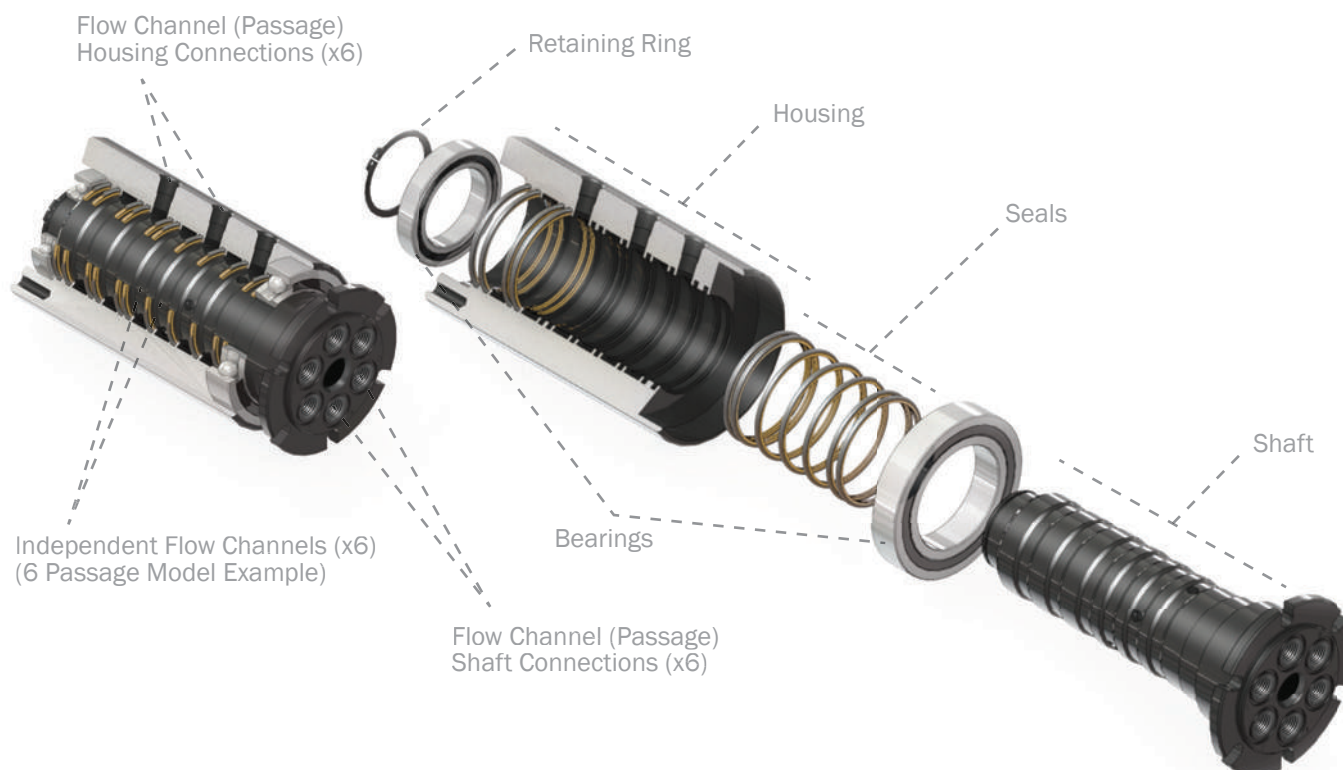
See examples at [www.dsti.com/industries](http://www.dsti.com/industries)

## 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.*



# SPS SERIES

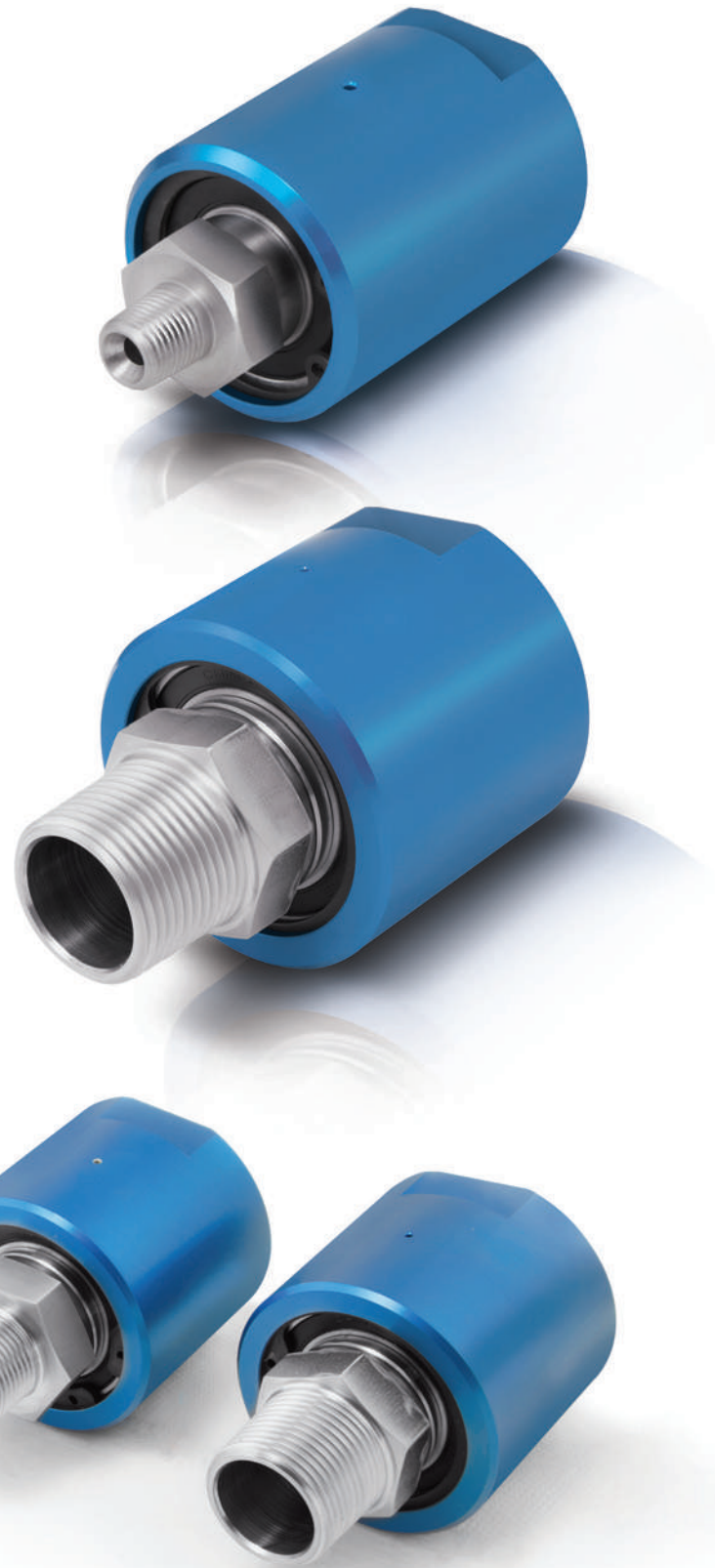
## SPS Series Overview

- + Lightweight / Corrosion-resistant
- + Stainless Steel Shaft / Aluminum Housing
- + Electrical Slip Ring Options Available
- + NPT Connections [BSPT Available]
- + 500 RPM Max. Rotational Speed
- + Exclusive DSTI Sealing Technology
- + Modified Or Specialized Configurations Available

## ON THE WEB

Download STEP, DWG, and PDF resources.  
View interactive 3D models and more!

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



## How to Order: Create your Part Number

**EXAMPLE**

**SPS** — **5** **3** **1** **0** — **ESET12** — **AD1**

**OPTIONS** See Next Page

**0** No Thru-bore

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

**1** 1 Flow Passages

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

**5** Product Series (SPS )

|             |                              |
|-------------|------------------------------|
| <b>SPS</b>  | SPS Series (NPT Connection)  |
| <b>SPSM</b> | SPS Series (BSPT Connection) |

### EXAMPLES

#### SPS-5110

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

#### SPS(M)-5310

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



# SPS SERIES

## How to Order: Choose your Options

### EXAMPLE



Optional Electrical Slip Rings<sup>1</sup>  
(see Electrical Slip Ring Options on  
page 14 for full specifications)

### ADx Adapter For EST and ESET Series Slip Rings

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

| PART #               | # OF CIRCUITS | MAX AMPS/CIRCUIT           | MAX VOLTS/CIRCUIT |
|----------------------|---------------|----------------------------|-------------------|
| EST6                 | 6             | 10                         | 600               |
| EST12                | 12            | 10                         | 600               |
| EST18                | 18            | 10                         | 600               |
| EST24                | 24            | 10                         | 600               |
| ESET4 <sup>2</sup>   | 4             | Ethernet Only              | 600               |
| ESET8 <sup>3</sup>   | 8             | Ethernet Only              | 600               |
| ESET68 <sup>3</sup>  | 14            | (6x) 10A<br>(1x) Ethernet  | 600               |
| ESET128 <sup>3</sup> | 20            | (12x) 10A<br>(1x) Ethernet | 600               |
| ESET184 <sup>2</sup> | 22            | (18x) 10A<br>(1x) Ethernet | 600               |

**NOTE** Slip Ring models  
require Adapter 1 (AD1)

**NOTE** Slip Ring models  
require Adapter 2 (AD2)

**NOTE** Slip Ring models  
require Adapter 1 (AD1)

**NOTE** Slip Ring models  
require Adapter 2 (AD2)

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

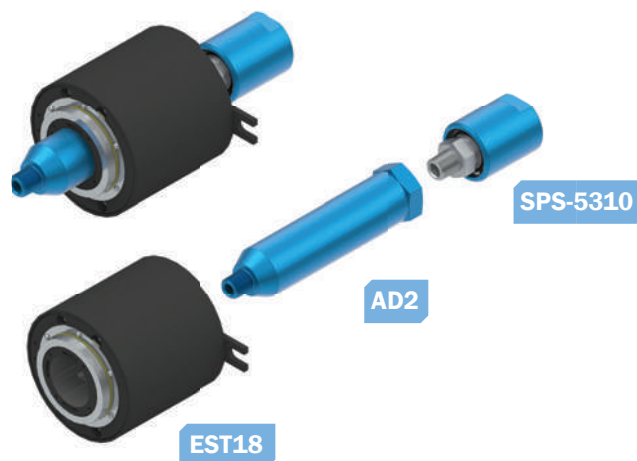
<sup>2</sup> 100 BaseT Ethernet connections

<sup>3</sup> 1000 BaseT Ethernet connections

### EXAMPLE

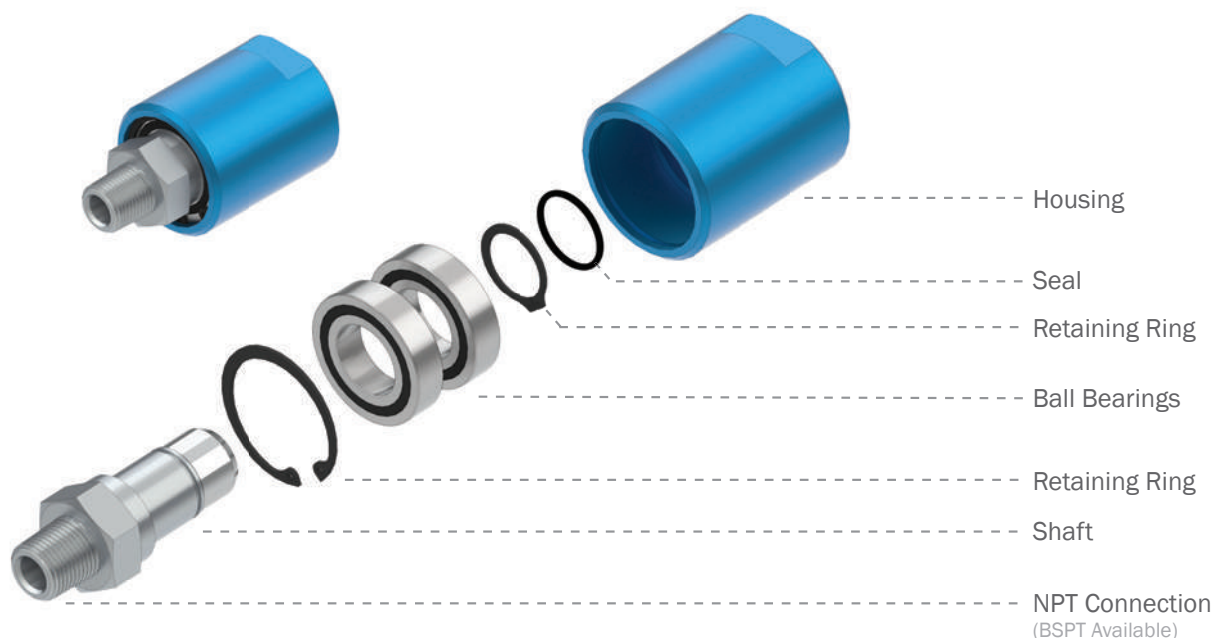
#### SPS-5310-EST18-AD2

- SPS 1 Passage with a 3/8"-18 NPT connection, an optional EST18 electrical thru bore slip ring and an adapter.





## Specifications & Operating Information



| Flow Passage Options    | 1  |
|-------------------------|--|
| Media Types             | Air/Gas, Chemical, Oil, Water/Glycol <sup>4</sup>  |
| Passage Sizes           | 0.156"(3.962mm)   0.250"(6.350mm)   0.375"(9.525mm)   0.500"(12.70mm)<br>0.750"(19.050mm)   1.000"(25.400mm) |
| Connection Types        | National Pipe Thread Taper (NPT)   British Standard Pipe Taper thread (BSPT)                                 |
| Max. Operating Pressure | 600 PSI (40 BAR) <sup>1</sup>  |
| Max. Vacuum             | 30 HG  |
| Max. Rotational Speed   | 500 RPM <sup>2</sup>   |
| Operating Temperature   | 0° F to 220° F (-18° C to 105° C) <sup>3</sup>   |
| Body Material Type      | Aluminum   |
| Platings and Coatings   | Shaft: 304 Stainless Steel   Housing: Blue Anodize   |
| Slip Ring Options       | See Page 6   Custom options also available. Please consult with DSTI   |
| Mounting Options        | Tapped holes are provided on the housing with male NPT thread connection for shaft mounting.                 |

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

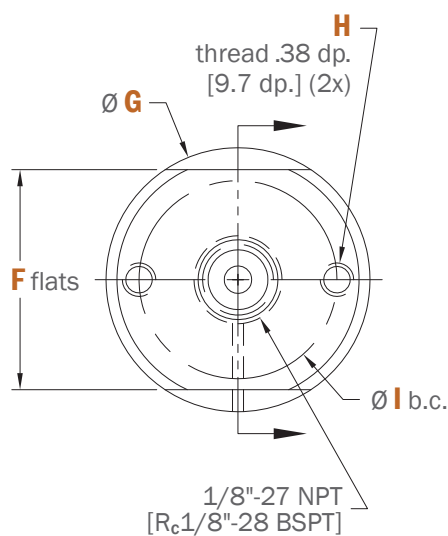
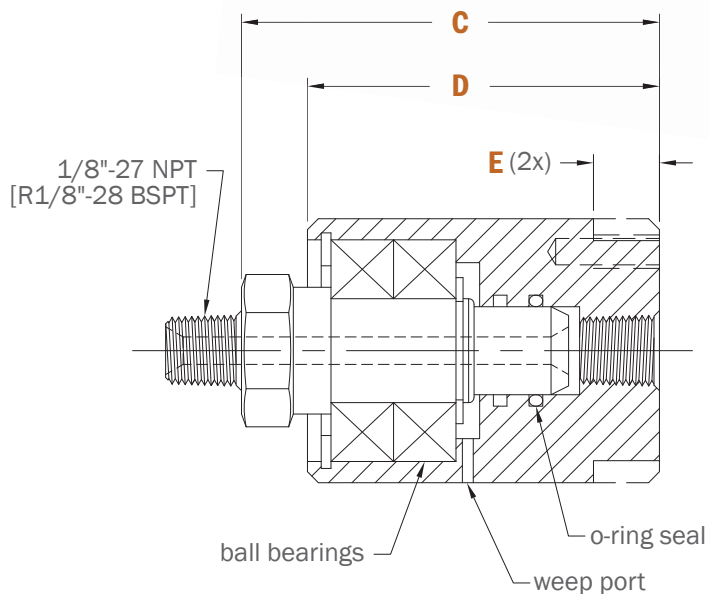
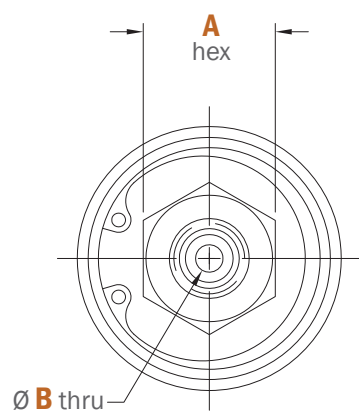
<sup>2</sup> Operational life is dependent upon both rotational speed and duty cycle. Contact DSTI if your application requires operating close to the maximum rotational speed with a continuous duty cycle.

<sup>3</sup> High temperature applications may require alternative seal materials. Please consult with DSTI.

<sup>4</sup> Use of liquid media with SPS Series rotary unions should be considered at the customer's own risk.

# SPS SERIES

## SPS 1/8" Connection: Dimensions

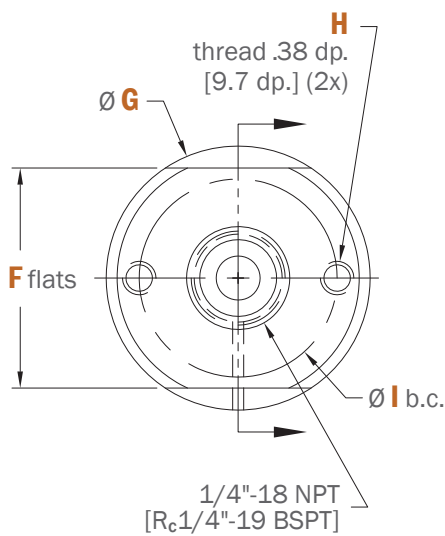
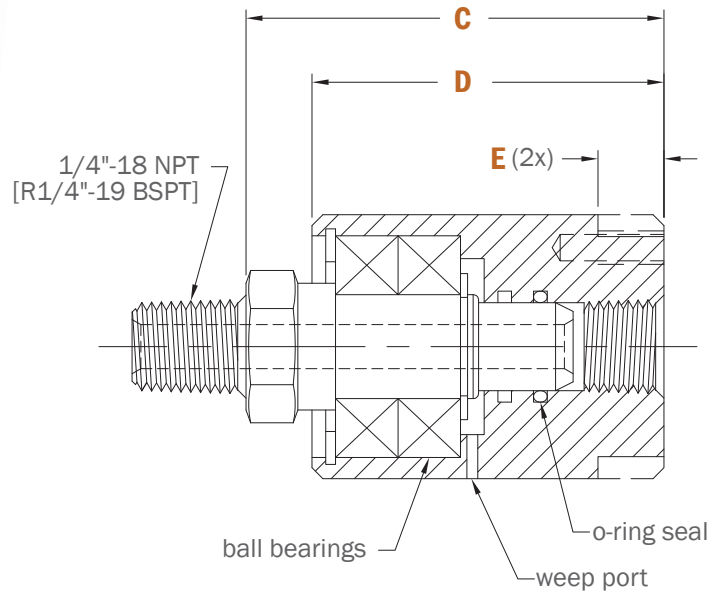
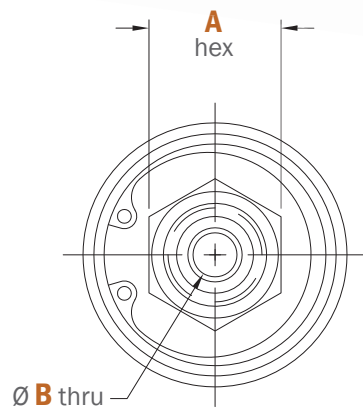


| P/N | SPS-5110 [SPSM-5110] |
|-----|----------------------|
| A   | 0.75" [19.1mm]       |
| B   | 0.16" [4.0mm]        |
| C   | 2.38" [60.3mm]       |
| D   | 2.00" [50.80mm]      |
| E   | 0.38" [9.5mm]        |
| F   | 1.25" [31.8mm]       |
| G   | 1.500" [38.10mm]     |
| H   | #10-24 UNC [M5x0.8]  |
| I   | 1.125" [28.58mm]     |





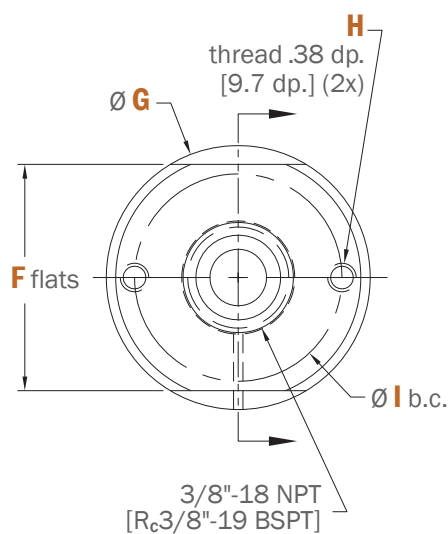
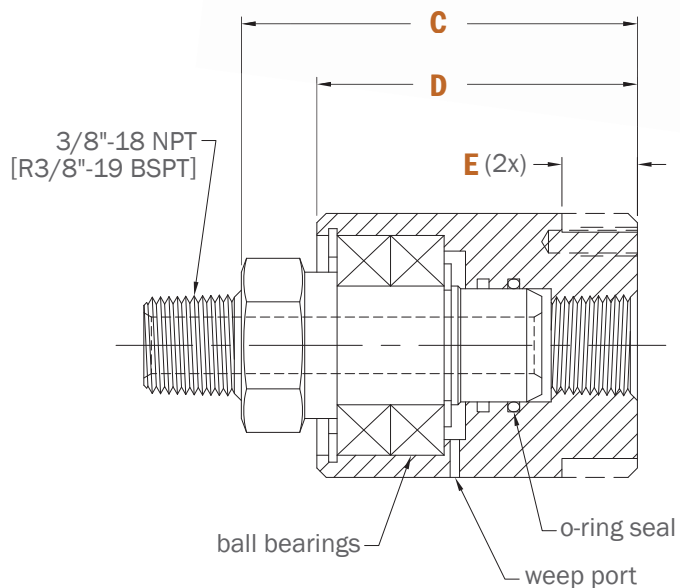
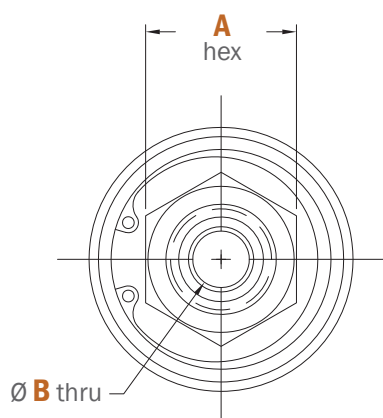
## SPS 1/4" Connection: Dimensions



| P/N      | SPS-5210 [SPSM-5210] |
|----------|----------------------|
| <b>A</b> | 0.75" [19.1mm]       |
| <b>B</b> | 0.25" [6.4mm]        |
| <b>C</b> | 2.38" [60.3mm]       |
| <b>D</b> | 2.000" [50.80mm]     |
| <b>E</b> | 0.38" [9.5mm]        |
| <b>F</b> | 1.25" [31.8mm]       |
| <b>G</b> | 1.500" [38.10mm]     |
| <b>H</b> | #10-24 UNC [M5x0.8]  |
| <b>I</b> | 1.125" [28.58mm]     |

# SPS SERIES

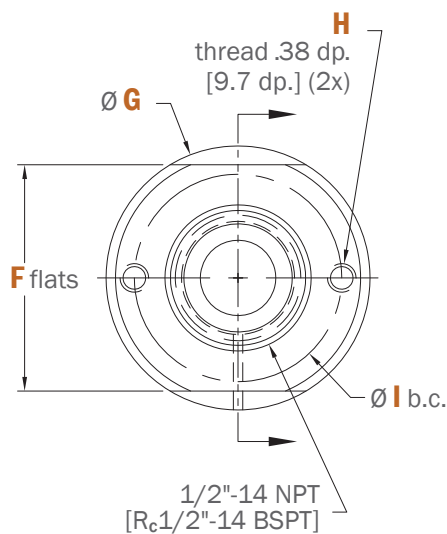
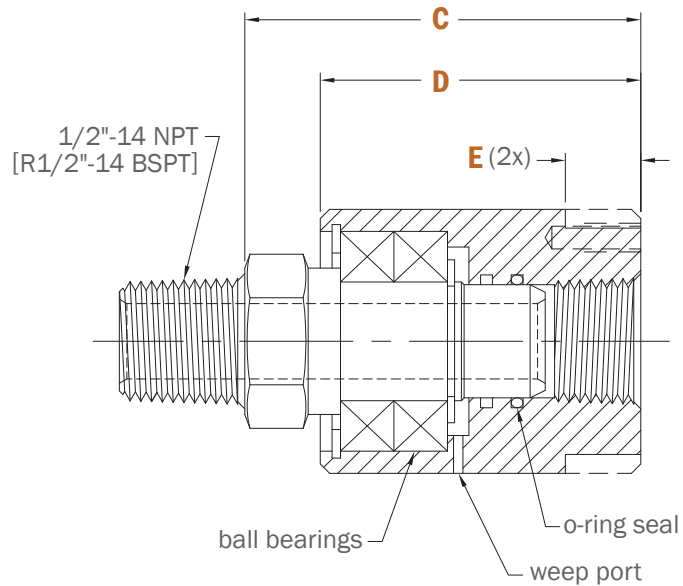
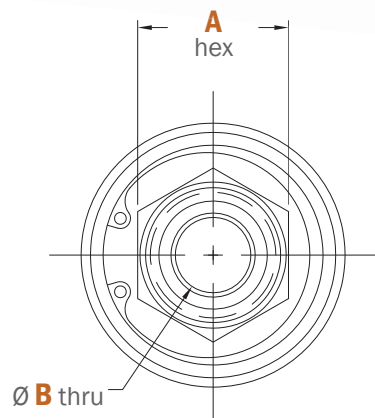
## SPS 3/8" Connection: Dimensions



| P/N | SPS-5310 [SPSM-5310] |
|-----|----------------------|
| A   | 1.00" [25.4mm]       |
| B   | 0.38" [9.5mm]        |
| C   | 2.63" [66.7mm]       |
| D   | 2.125" [53.98mm]     |
| E   | 0.50" [12.7mm]       |
| F   | 1.50" [38.1mm]       |
| G   | 1.750" [44.45mm]     |
| H   | #10-24 UNC [M5x0.8]  |
| I   | 1.375" [34.93mm]     |



## SPS 1/2" Connection: Dimensions

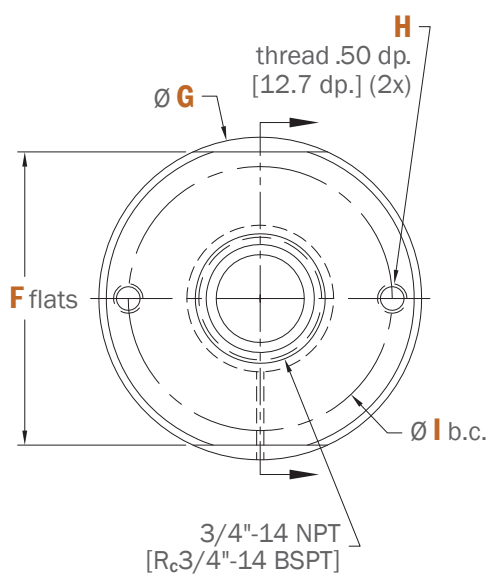
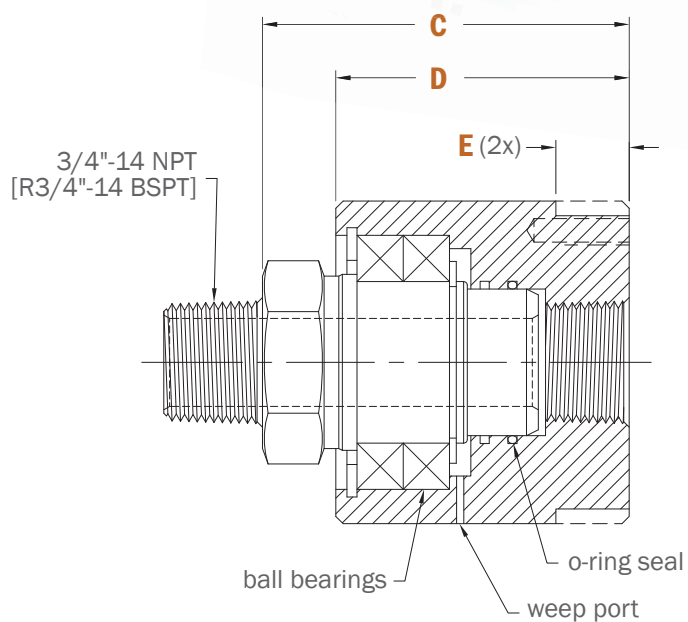
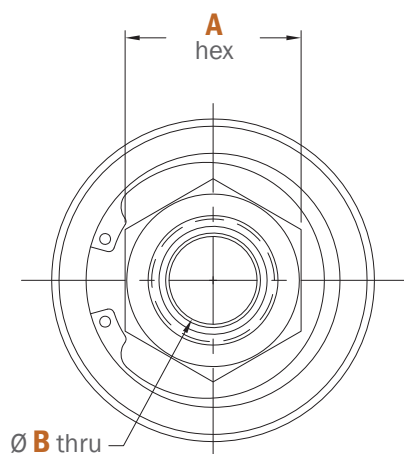


| P/N | SPS-5410 [SPSM-5410] |
|-----|----------------------|
| A   | 1.00" [25.4mm]       |
| B   | 0.50" [12.7mm]       |
| C   | 2.63" [66.7mm]       |
| D   | 2.125" [53.98mm]     |
| E   | 0.50" [12.7mm]       |
| F   | 1.25" [31.8mm]       |
| G   | 1.750" [44.45mm]     |
| H   | #10-24 UNC [M5x0.8]  |
| I   | 1.375" [34.93mm]     |

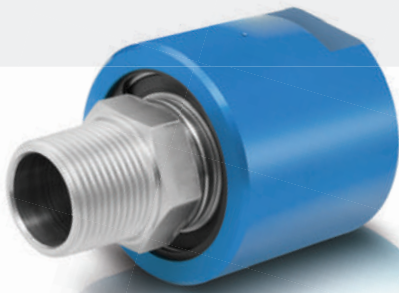


# SPS SERIES

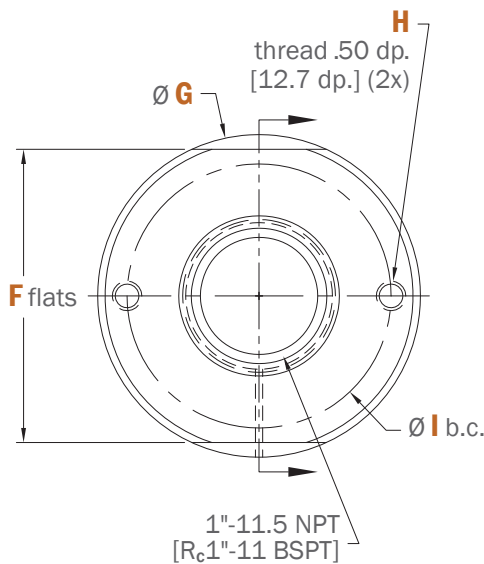
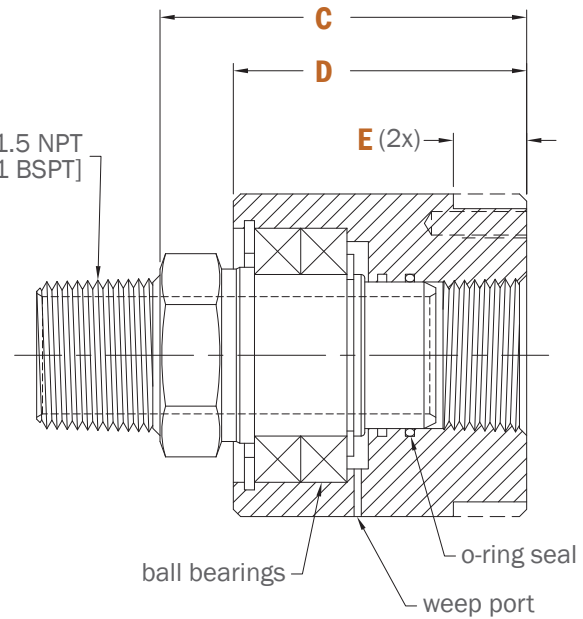
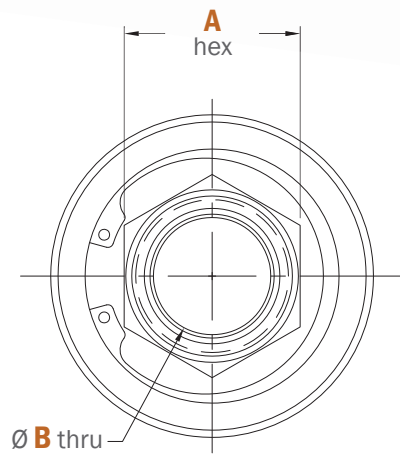
## SPS 3/4" Connection: Dimensions



| P/N      | SPS-5510 [SPSM-5510] |
|----------|----------------------|
| <b>A</b> | 1.50" [38.1mm]       |
| <b>B</b> | 0.75" [19.1mm]       |
| <b>C</b> | 3.13" [79.4mm]       |
| <b>D</b> | 2.500" [63.50mm]     |
| <b>E</b> | 0.63" [15.9mm]       |
| <b>F</b> | 2.50" [63.5mm]       |
| <b>G</b> | 2.750" [69.85mm]     |
| <b>H</b> | 1/4"-20 UNC [M6x1.0] |
| <b>I</b> | 2.250" [57.15mm]     |



## SPS 1" Connection: Dimensions

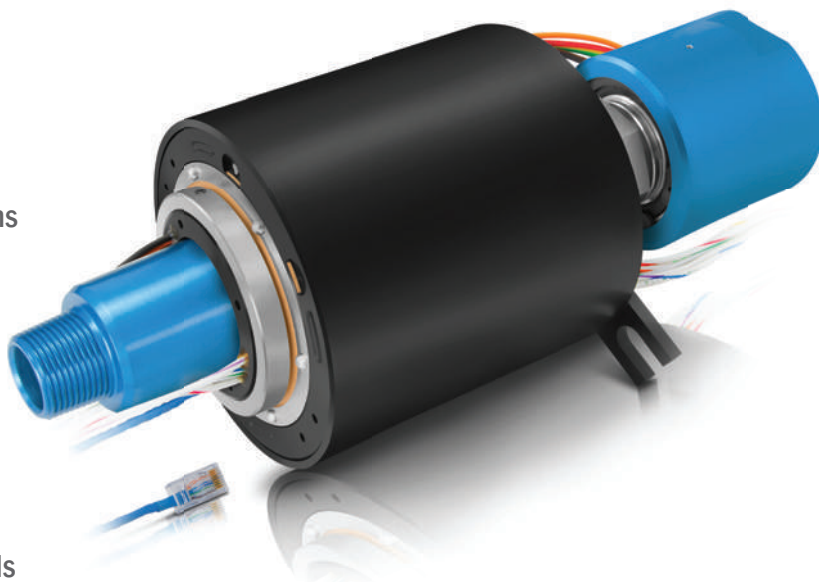


| P/N      | SPS-5610 [SPSM-5610] |
|----------|----------------------|
| <b>A</b> | 1.50" [38.1mm]       |
| <b>B</b> | 1.00" [25.4mm]       |
| <b>C</b> | 3.13" [79.4mm]       |
| <b>D</b> | 2.500" [63.50mm]     |
| <b>E</b> | 0.63" [15.9mm]       |
| <b>F</b> | 2.50" [63.5mm]       |
| <b>G</b> | 2.750" [69.85mm]     |
| <b>H</b> | 1/4"-20 UNC [M6x1.0] |
| <b>I</b> | 2.250" [57.15mm]     |

# SPS SERIES

## Electrical Slip Ring 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
- + Transfers Analog and Digital Signals
- + Supplied Terminated With RJ45 Connectors
- + Compatible With a Range of Data Bus Protocols



### AVAILABLE SLIP RINGS<sup>1</sup>

| PART #               | # OF CIRCUITS | MAX AMPS/CIRCUIT           | MAX VOLTS/CIRCUIT |
|----------------------|---------------|----------------------------|-------------------|
| EST6                 | 6             | 10                         | 600               |
| EST12                | 12            | 10                         | 600               |
| EST18                | 18            | 10                         | 600               |
| EST24                | 24            | 10                         | 600               |
| ESET4 <sup>2</sup>   | 4             | Ethernet Only              | 600               |
| ESET8 <sup>3</sup>   | 8             | Ethernet Only              | 600               |
| ESET68 <sup>3</sup>  | 14            | (6x) 10A<br>(1x) Ethernet  | 600               |
| ESET128 <sup>3</sup> | 20            | (12x) 10A<br>(1x) Ethernet | 600               |
| ESET184 <sup>2</sup> | 22            | (18x) 10A<br>(1x) Ethernet | 600               |

**NOTE** Slip Ring models require Adapter 1 (AD1)

**NOTE** Slip Ring models require Adapter 2 (AD2)

**NOTE** Slip Ring models require Adapter 1 (AD1)

**NOTE** Slip Ring models require Adapter 2 (AD2)

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

<sup>2</sup> 100 BaseT Ethernet connections

<sup>3</sup> 1000 BaseT Ethernet connections



# Installation & Mounting

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

## 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, 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.



## WARRANTY:

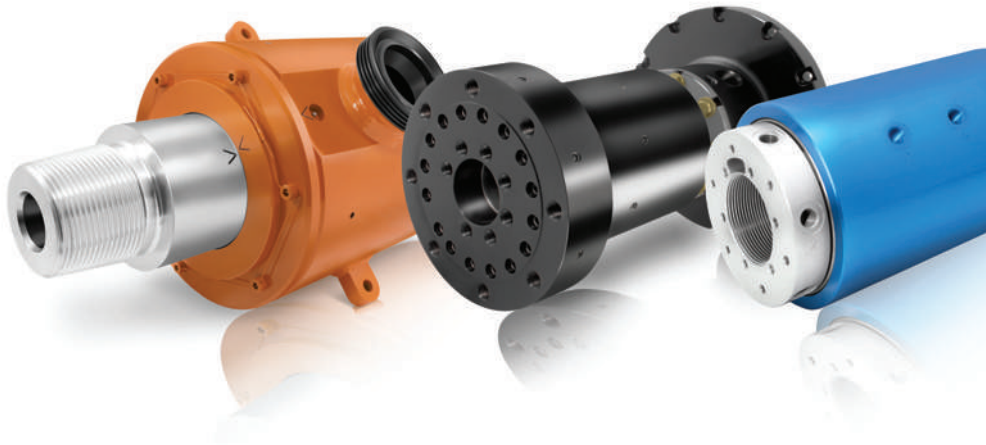
*DSTI Warrants, for a period of 2 years from the date of original delivery, its products to be free from defects in material and workmanship. DSTI's obligation under this warranty is limited to repair or replacement at its factory of any part or parts of said products which shall be returned to DSTI 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 to your Needs

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 specialized solutions, please visit:

[www.dsti.com/industries](http://www.dsti.com/industries)



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CAD/PDF downloads, please visit:

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