A rotating union connects a stationary pressurized supply line to a rotating machine part such as a cylinder, roll, spindle, clutch, etc. It can be used to convey virtually any liquid or gas: steam for heating, water or water/glycol solutions for cooling, hydraulic fluids, cutting fluids, air, inert gas, or even vacuum. The task becomes more complicated when more than one media must be conveyed simultaneously. This is the role of a multi-passage union – to provide multiple, independent passages for the same or several different media to different rotating feed points within the same axis. Typically, each passage is isolated from all other passages and different media are not allowed to mix. The key to reliable function of a multi-passage union thus lies in the sealing technology. Different seal types are dictated by the operating conditions – temperature, pressure, rotation speed, torque, medium chemistry and passage size.

Because each application is unique in terms of passage diameter, number of passages, flange configuration and operating conditions, DEUBLIN brings to bear unparalleled engineering expertise and experience to match your operational needs. Whether a standard model can be applied or a custom solution is required, you can rely on DEUBLIN for the optimal solution with long-term performance and reliability.

TYPICAL APPLICATIONS FOR MULTI-PASSAGE UNIONS

- Steel industry: ladle turrets for continuous casting operations
- Plastics & rubber industries: injection and rotary molding operations
- Machining operations: workholding and clamping functions
- Aerospace manufacturing and flight simulators
- Industrial cranes
- Rail transportation
- De-scaling operations
  ...and many more
DEUBLIN Multi-Passage Soft-Seal unions are optimized for the operating parameters of the application such as speed, torque, media pressure, operating temperature, physical size and other factors. Hardened chrome sealing surfaces are standard to ensure minimal wear and long service life.

- Plastomeric Seals – a combination of plastic and elastomer – offer superior resistance to high temperatures and pressures compared to traditional elastomers. Seal geometry and treatment of the rotor mating surface are carefully matched to the media, rotational speed, and pressure of the specific application.

- DEUBLIN’s proprietary seal chemistry and geometry maximize performance including reduced friction and torque, and extended service life. This performance advantage allows DEUBLIN multi-passage soft-seal unions to be used for a wide variety of applications.

**Typical commercial seal design:**
Inner pad may have different cross-sectional geometry depending on media and operating conditions.

**DEUBLIN proprietary seal design:**
Use a variety of materials and geometries depending on media and operating conditions.
DEUBLIN Multi-Passage Soft-Seal rotating unions can be used in the widest variety of applications and media. Typical media includes the following:

- Hydraulic Oil
- Argon
- Water
- Grease
- Water-Glycol
- Coolant
- Air (dry/lubricated)
- Nitrogen
- Vacuum

For media not listed above, please contact DEUBLIN.

### TYPICAL MEDIA & OPERATING CONDITIONS

<table>
<thead>
<tr>
<th>Media</th>
<th>Pressure</th>
<th>Temperature</th>
<th>Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>bar</td>
<td>°C</td>
<td>°F</td>
</tr>
<tr>
<td>Hydraulic Oil</td>
<td>≤ 400</td>
<td>≤ 80</td>
<td>≤ 175</td>
</tr>
<tr>
<td>Water-Glycol</td>
<td>≤ 400</td>
<td>≤ 80</td>
<td>≤ 175</td>
</tr>
<tr>
<td>Water</td>
<td>≤ 300</td>
<td>≤ 80</td>
<td>≤ 175</td>
</tr>
<tr>
<td>Air (dry/lubricated)</td>
<td>≤ 12</td>
<td>≤ 80</td>
<td>≤ 175</td>
</tr>
<tr>
<td>Nitrogen</td>
<td>≤ 12</td>
<td>≤ 80</td>
<td>≤ 175</td>
</tr>
<tr>
<td>Argon</td>
<td>≤ 12</td>
<td>≤ 80</td>
<td>≤ 175</td>
</tr>
<tr>
<td>Coolant</td>
<td>≤ 120</td>
<td>≤ 80</td>
<td>≤ 175</td>
</tr>
</tbody>
</table>

Maximum rotational speed is a function of media, pressure and rotor diameter (see above chart). Note: Typical speeds ≤ 50 RPM

For operating conditions exceeding above parameters, please contact DEUBLIN.

### WARNING

DEUBLIN unions should not be used to convey flammable media (flash point ≤ 140°F or 60°C) as leakage may result in explosions or fires. DEUBLIN unions should be used in accordance with standard safety guidelines for the media, and in a well-ventilated area. The use of our product on hazardous or corrosive media is strictly forbidden.
DEUBLIN offers Multi-Passage Soft-Seal rotating unions that are standard, semi-custom and custom. When possible, DEUBLIN recommends standard models, but will recommend semi-custom or custom models depending on the unique requirements of each application.

Semi-Custom unions can have different port sizes on the same union, SAE port connections and/or larger center bore (up to 50 mm).

Custom unions have no limitation on dimensions, port sizes, port connection specifications and center bore dimensions.

**STANDARD FEATURES**

- **Ports/Passages:** 2 to 8
- **Sizes:** 1/8” to 1/2”, NPT or BSP
- **Materials of Construction:**
  - Flanged rotor: AISI 420 with aluminum housing
  - Bearings: dual, widely-spaced ball bearings ensure smooth running and minimize impact of potential side-loading
- **Optional center bore up to 25 mm (1”) for electrical slip ring wires**

### PORT SIZE

<table>
<thead>
<tr>
<th>Port Size 1/8” – 1/4”</th>
<th>Port Size 3/8” – 1/2”</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A B C D E F G H L M</td>
</tr>
<tr>
<td>Max Ø</td>
<td>25 40 50 50</td>
</tr>
<tr>
<td>Unions Also Available With Central Bore</td>
<td>Max Ø</td>
</tr>
<tr>
<td>Note: all dimensions, except port sizes, in mm</td>
<td></td>
</tr>
</tbody>
</table>
DEUBLIN designs and manufactures a complete range of rotating unions from simple, single channel models used to prevent flex-hoses from twisting, to 12-port unions used on machine tool index tables, to massive, multi-channel unions used for ladle turrets in continuous casting machines. DEUBLIN Multi-Passage Soft-Seal unions are used in applications that may require air, water, oil, grease, argon and other media.

Application: Machine Tool
Passages: 12

Application: General Mechanical
Passages: 4 + 1 drain

Application: Machine Tool index table
Passages: 8 with large center bore

Application: Ladle Turret
Passages: 22
Examples of Applications

Application: Index Table
Passages: 16

Application: Steel Plant
Passages: 5 with large center bore

Multi-Passage Soft-Seal unions can be combined with Electrical Slip Rings

Application: Coil Winding
Passages: 6
Since its establishment in 1945, DEUBLIN has consistently adhered to a policy of producing the best product of its kind in the market. The result of this policy has been constant growth through the years. For this progress we are grateful to our many loyal customers. We cordially invite you to visit our modern manufacturing facilities in Waukegan, Illinois; Mainz, Germany; Monteveglio, Italy; and Dalian, China.

Sincerely,

Donald L. Deubler
Chairman of the Board