

# ROTARY UNIONS

for Machine Tools | Machining Centers | Transfer Lines

Machine Tool Catalog



## 4 Steps to Finding the correct Union Series for your Machine Tool Application

- 1 Does the machine have a single supply connection (for example, coolant) or multiple connections (such as a combination of coolant, air, and hydraulic oil)?
- 2 What fluid or fluids must be transferred by the rotary union?
- 3 What is the maximum pressure required?
- 4 What is the maximum spindle speed required?

| 1<br>No of inputs  | 2<br>Fluid(s) to Transfer   | 3<br>Max. Pressure | 4 Maximum Speed (rpm)                                  |   |   |  |                                  |
|--|---|--------------------|--|---|---|--|----------------------------------|
|  |   |                    | up to 12,000   | up to 15,000  | up to 20,000  | up to 24,000                               | over 24,000                      |
| Single   | Coolant or MQL (always present during rotation)   | up to 105 bar      | 1116 series (p. 13)<br>up to 70 bar                    | 1005 series (p. 11)<br>1101 series (p. 12)                  | Contact Deublin                                       |  |                                  |
|  |   | up to 150 bar      | 1108 series (p. 14) and 1113 series (p. 20)            |   |   | Contact Deublin                            |                                  |
|  |   | up to 180 bar      | 9012-810 series (p. 28) up to 110 bar                  |   | 1117 series (p. 23)                                   |  |                                  |
|  | Coolant or MQL<br>- unlimited dry run possible -<br>(rotation with no coolant is possible)          | up to 140 bar      | 902 series (p. 22)<br>up to 80 bar                     | 1109 series (p. 15)<br>1103 series (p. 20)                  |   | 1111 series (p. 16)<br>1103 series (p. 20) | 1109 series (p. 16)              |
|  |   | up to 150 bar      | 1109 series (p. 16) and 1103 series (p. 20)            |   |   | Contact Deublin                            |                                  |
|  |   | up to 210 bar      | 1121 series (p. 24 and p. 28)                          |   |   |  |                                  |
|  | Coolant or MQL<br>or Compressed Air<br>- dry run possible -<br>(operation without coolant possible) | up to 140 bar      | 1114 series (p. 17) and 1103 series (p. 20)            |   |   | 1114 series (p. 18)<br>1103 series (p. 20) | 1114 series<br>(p. 18 and p. 22) |
|  |   |                    | 993-880 series (p. 28) up to 80 bar                    |   | 1124 series (p. 25 and p. 28) and 1154 series (p. 26) |  |                                  |
|  |   | up to 150 bar      | 1114 series (p. 18) and 1103 series (p. 20)            |   |   | 1124 series (p. 25)                        |                                  |
|  | Coolant, Cutting Oil, MQL,<br>Compressed Air  | up to 140 bar      | 1114 series (p. 19)                                    |   |   |  | 1124 series (p. 19)              |
| Multi-Media<br>Hydraulic, Coolant, Lubricant,<br>MQL, Compressed Air<br>(for defined dry run cycles) |   |                    | up to 70 bar   | 1116 (p. 21) and<br>1005 series (p. 21)<br>up to 10,000 rpm | 1101 series (p. 21)<br>up to 105 bar                  | Contact Deublin                            |                                  |
|  | Leak Sensor Technology  |                    |  |   | up to 150 bar   |  |                                  |
|  |   |                    | SpindleShield® series 1103 and 1113 (p. 20)            |   |   |  |                                  |
| No of inputs   | Fluid(s) to Transfer  | Max. Pressure      | up to 10,000   |   | up to 12,000  |  |                                  |
| Multiple   | Hydraulic Oil +<br>Hydraulic Oil  | up to 40 bar       | 2620-004-252 (p. 29)                                   |   |   |  |                                  |
|  |   | up to 140 bar      | 2620-04x-xxx (p. 29)                                   |   |   |  |                                  |
|  | Hydraulic Oil +<br>Compressed Air   | up to 140 bar      | 2620-16x-xxx (p. 29)                                   |   |   |  |                                  |
|  | Coolant +<br>Compressed Air   | up to 140 bar      | 2620-26x-xxx (p. 29)                                   |   |   |  |                                  |
|  | Compressed Air +<br>Compressed Air  | up to 10 bar       | 2620-52x-xxx (p. 29)                                   |   |   |  |                                  |
|  | Hydraulic Oil + Cooling Oil +<br>Compressed Air + Coolant   | up to 140 bar      | 2630, 2640, 2650 series (p. 30)                        |   | Contact Deublin                                       |  |                                  |
|  | Hydraulic Oil + Cooling Oil +<br>Compressed Air + Coolant   | up to 140 bar      | 260x series (p. 31) up to 7.000 rpm                    |   |   |  |                                  |
|  | Multi-media<br>Hydraulic, Coolant, Cooling<br>Water, MQL, Compressed Air,<br>Vacuum                 | up to 200 bar      | Hybrid-Multi-Passage series (p. 32)<br>up to 6.000 rpm |   |   |  |                                  |

Bearing-supported (one-piece) unions
  Bearingless (two-piece) unions
  Multi-passage unions

**SUBJECT TO BOTH TECHNICAL AND DIMENSIONAL CHANGES WITHOUT PRIOR NOTICE – UNLESS SPECIFICALLY TOLERANCED ALL DIMENSIONS ARE FOR REFERENCE. ALL DIMENSIONS IN MM, EXCEPT AS NOTED OTHERWISE.**

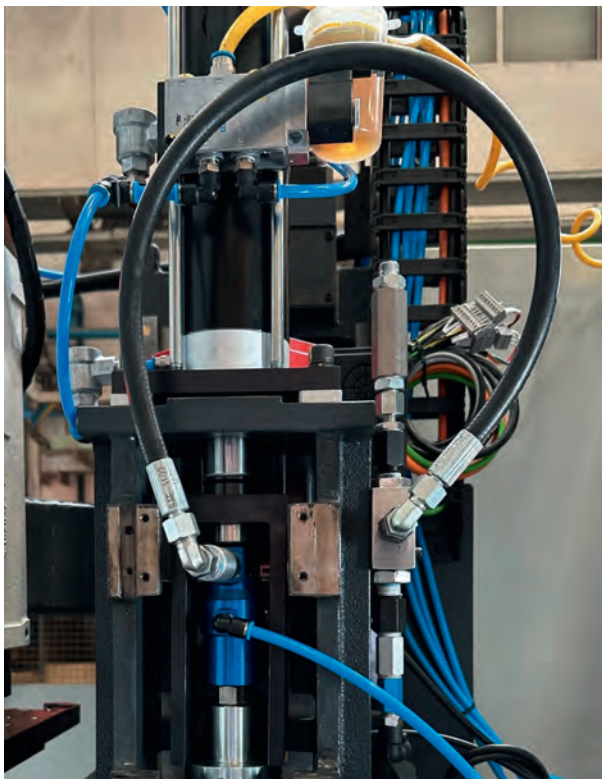
## How to get the most value from this catalog

If you are less familiar with machine tool applications of rotary unions, or if you would like a quick review, first please read the "Information" sections. These sections contain important details about designing, installing and using rotary unions in machine tools.

If you understand completely the principles of designing machines to use rotary unions, please use either the Selection Chart on the inside cover or Table of Contents to find the appropriate product page. These pages contain dimensions, performance data, and other necessary application information.

If you don't see what you need, please contact your local Deublin office directly. Telephone, email, and address information are shown on the back cover of this catalog. Unions in this catalog are representative of most common applications, but other variations are available. Deublin can customize the interface between machine and union, such as hose connections or rotor threading, to your specifications. Also, Deublin easily can develop complete unions to meet special pressure, speed, or media requirements.

*"If you don't see it, we probably have it.  
If we don't have it, we can create it."*



Deublin Rotor-mounted Union on vertical machining center.

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### Bearing-Supported Unions

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|   |       |
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### General Information

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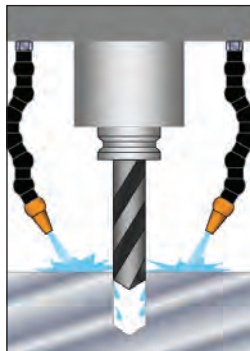
## Operating Principles of Rotary Unions

### Advantage of Through-Spindle Coolant (TSC)

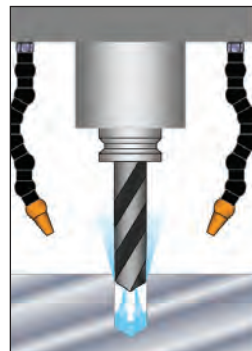
Nearly all modern machine tools and machining centres are equipped with so-called “flood coolant”. High-speed cutting tools require both cooling and lubrication to reduce the rate of tool wear and to prevent overheating, which degrade the tool’s strength. Flood coolant systems spray coolant fluid onto the work piece near the cutting tool. But for many machining operations, such as milling or hole drilling, these systems are less effective at getting coolant fluid to the cutting edge.

Without coolant, the flutes of the cutting tool can become packed with swarf, and the cutting edge loses hardness due to overheating. This leads to excessive wear and short tool life. Poor swarf removal also can cause a poor surface finish on the work piece.

In machining centres with through-spindle coolant (TSC), coolant fluid is conducted directly through the cutting tool to cool the cutting edge, reduce friction, and remove swarf. Coolant flows axially through a rotary union into the spindle and toolholder directly to the heat source. Compared to flood coolant systems, TSC pays for itself in terms of lower operating costs for tools and coolant. Better control of tool overheating also allows faster feed rates and higher productivity.



Flood Coolant



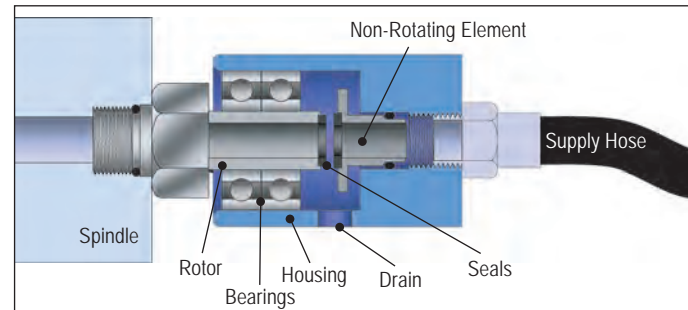
Through-Spindle Coolant

### How Rotary Unions Work

A rotary union is a precision mechanical device used to transfer coolant fluid or media from a stationary source, such as a pump, into a rotating device, such as a spindle with cutting tool. The typical coolant fluid is water-based, consisting of approximately 85–95% water for cooling, 2–12% oil for lubricating the cutting edge, and a small amount of other chemicals for keeping the water and oil mixed and for other purposes. Deublin Rotary Unions also can transfer compressed air/oil mist, known as Minimum Quantity Lubrication (MQL), cutting oils, and even dry air. The exact capabilities vary by model number, so please consult the product pages of this catalog for details.

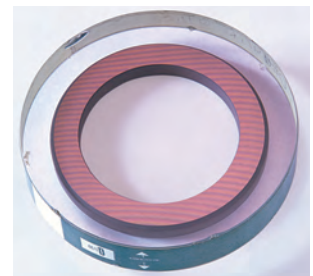
In certain machine tool applications, rotary unions also are used to transfer hydraulic fluid or air for clamping or sensing.

### Parts of a Rotary Union



As shown in the picture above, a typical rotary union consists of a rotor that spins at the same speed as the machine tool spindle, a non-rotating element that closes precisely against the rotor, a housing that connects the supply hose to the non-rotating element, and seals that contain the coolant fluid. Bearing-supported unions connect the rotor to the housing with one or more bearings. Bearingless unions omit these bearings. Depending on the application, the housing may have one or more drain connections.

Seals are the heart of the rotary union. They must contain very high pressures while rotating at very high speeds. At 20,000 rpm, for example, the seals of a Deublin 1121 series coolant union are moving at a relative speed of nearly 16 feet per second (5 metres per second), while containing 2030 psi (140 bar) of fluid pressure!

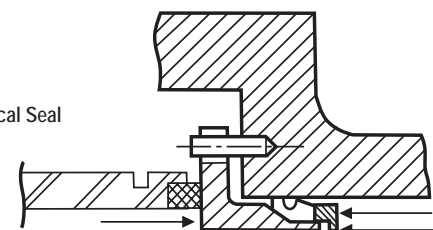


Micro-lapped Deublin seal

For positive sealing, smooth rotation, and long service life, all Deublin seals are micro-lapped with proprietary machines and compounds to achieve an optical flatness of 2 light bands (23 millionths of an inch, or 0.58 microns). In addition, all Deublin coolant unions use seals made from special grades of silicon carbide. Deublin seals therefore have superior resistance to wear and heat accumulation, compared to lesser materials.

Finally, Deublin Rotary Unions are designed with balanced mechanical seals. With this technology, seal contact pressure and thrust load on the spindle are minimised, regardless of operating pressure. This reduces seal wear even further, resulting in longer life and more reliable performance.

Deublin Balanced Mechanical Seal  
Partial line pressure is applied to seal face.



## Selecting the right Union for your Application

### Bearing-supported Rotor-mounted



Example: Deublin 1109 series

### Bearing-supported Bore-mounted



Example: Deublin 1109 series

### Bearingless



Example: Deublin 1117 series

## Bearing or Bearingless?

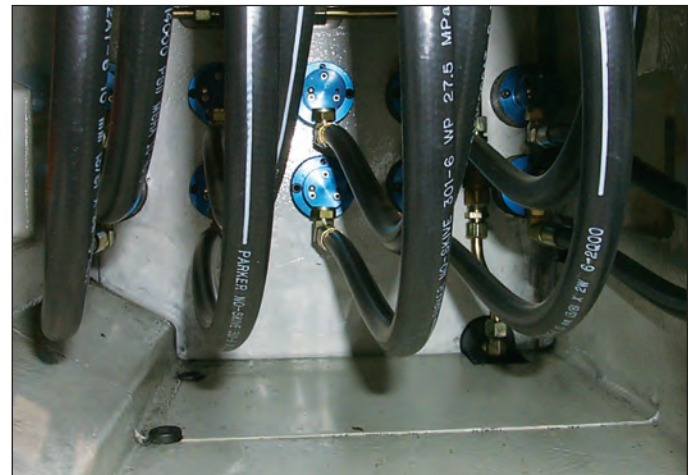
Rotary unions for machine tool applications are available in bearing-supported and bearingless configurations. Each kind has advantages and disadvantages for the machine tool designer.

**Bearing-supported unions** are easy to install and replace, because of their one-piece design. Deublin makes two different mounting styles. The **rotor-mounted** style attaches to the spindle with a threaded rotor. The **bore-mounted** style slides into a precisely machined counterbore at the end of the spindle. A second advantage of both styles is that any leakage is channelled by the housing into a drain line. A third advantage is that rotor-mounted, bearing-supported unions absorb all axial forces (thrust load) on the spindle caused by coolant pressure. For both bore-mounted and bearingless unions, however, coolant pressure creates a certain thrust load on the spindle.

**Bearingless unions** provide the machine tool designer with several advantages. First, eliminating bearings reduces cost while allowing an increase in maximum rpm. Second, since only a small rotor is directly attached to the spindle, there is no possibility for the union's housing to be a source of vibration. Third, without bearings the union is immune to side loading from, for example, too much tension in the coolant supply hose. Fourth, bearingless unions can be very small, ideal for applications with multiple, closely spaced spindles. However, bearingless unions must be installed in two pieces – the rotor and a small housing containing the non-rotating element and connection to the coolant supply. So, during installation, the micro-lapped seal faces are exposed and must be handled carefully.



Deublin 1116 Bearing-Supported Unions on Automotive Transfer Line.



Deublin 1117 Bearingless Unions on Automotive Transfer Line.

## Selecting the right Union for your Application

### Which Deublin Seal Technology?

Deublin offers **five** different seal technologies, in order to provide the best solution for every machining application. Only Deublin can offer such flexibility to the machine tool designer.

**“Closed Seal”**: As the name indicates, the seals stay closed with or without coolant pressure. Therefore, drain lines generally are not required. However, all rotary unions operate with a thin film of media between the seals. Over time, small, nearly invisible quantities of media can migrate across the seal faces. Proper venting provisions therefore should be made. Closed seal unions generally are less affected by extremely contaminated coolant than other designs. However, closed seal unions are suitable for dry running, according to model.

**Pop-Off®**: This kind of seal closes only when pressure is applied. When pressure is removed, the seal faces separate by a very small distance. This eliminates friction and seal wear during operation without coolant, and therefore allows unlimited “dry running” at high speeds. Pop-Off® designs should be considered when machining will occur with and without through-spindle coolant (TSC). Because the seals separate during tool changes, when coolant pressure is off, residual coolant in the supply hose and spindle can drain through the seal faces. Therefore, a Pop-Off® union always requires a downward-pointing drain line to direct such residual coolant into the sump. Also note that Pop-Off® unions are not intended for extended operation with pressurised dry air.

**AutoSense®**: This technology combines the best features of Pop-Off® and controlled leakage designs. Like Pop-Off® designs, AutoSense® seals close when coolant pressure is applied to contain the coolant fluid, and detach from each other without pressure thus allowing unlimited dry running. Like controlled leakage designs, AutoSense® seals handle pressurised dry air by creating a microscopic gap between the seal faces. AutoSense® unions handle coolant, MQL, and dry air, by sensing the kind of media and automatically changing seal operation in response. As with Pop-Off® seals, a drain line generally is required.

**AutoSense Plus®**: The latest in a series of Deublin innovations, this technology combines the best features of AutoSense® and Pop-Off® “Micro Stroke”. The advantage of AutoSense Plus® is that it allows for the use of cutting oil in addition to coolant, MQL, and dry air.

Like the AutoSense® function, AutoSense Plus® senses the type of media and pressure, and automatically changes seal operation in response. The user is able to use all these media with a single connection to the union, and without the need for any additional intervention or control. As with AutoSense® and Pop-Off® seals, a drain line is generally required.

The table below summarizes the operation of each seal technology with different media.

| Media                                | Seal Technology   |   |   |  |
|--------------------------------------|---|---|---|--|
|                                      | “Closed Seal”<br>(1005, 1101, 1108,<br>1116, 1117 series) | Pop-Off®<br>(1109, 1111,<br>1121 series)        | AutoSense Plus®<br>(1114-1xx, 1124-1xx,<br>1154-1xx series) | AutoSense®<br>(1114, 1124, 1154,<br>1159 series) |
| No pressure                          | New enhanced dry run models available, contact Deublin    | Seals open automatically to prevent dry running |   |  |
| Compressed Air                       |   | Not recommended with rotation                   | Micro-gap between seals to prevent dry run damages          |  |
| MQL                                  | Seals are closed  |   |   | Micro-gap, contact Deublin                       |
| Coolant<br>– water soluble –         |   |   |   |  |
| Cutting Oil<br>– not water soluble – |   |   |   |  |

Deublin engineers can help you choose the best technology for your application.

## Mounting Tolerances

The interface between spindle and union must be manufactured to precise tolerance to ensure accurate, vibration-free operation. Bearingless unions and rotor-mounted, bearing-supported

unions require the spindle end to be machined according to the following dimensions and tolerances:

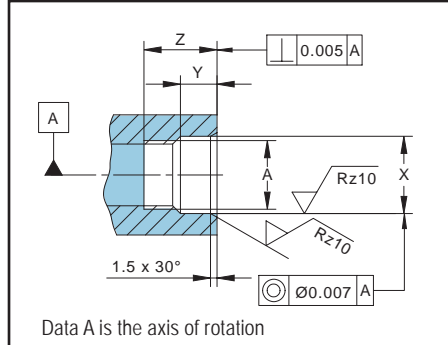
**Table shows reference data:**

Please refer to the dimensions on the individual drawing when dimensioning the spindle.

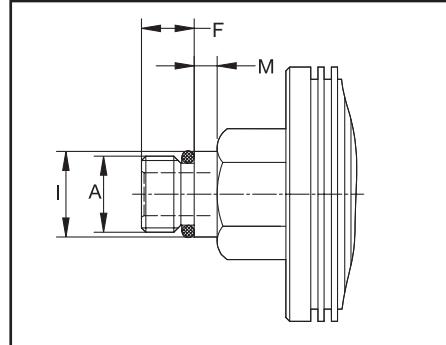
| Rotor Connection     |       |        | Rotor Pilot       |       | Spindle End       |       |        | Tightening Torque |
|----------------------|-------|--------|-------------------|-------|-------------------|-------|--------|-------------------|
| A                    | F     | H      | I                 | M     | X                 | Y     | Z      |                   |
| 5/8-18 UNF           | 9/16" | 15/16" | 0.6555" / 0.6553" | 3/16" | 0.6560" / 0.6556" | 9/32" | 13/16" | 35 Nm             |
| 5/8-18 UNF           | 9/16" | 15/16" | 0.6249" / 0.6246" | 3/32" | 0.6254" / 0.6250" | 3/16" | 9/16"  | 35 Nm             |
| M16 x 1.5            | 11    | 24     | 17.993 / 17.988   | 5     | 18.000 / 17.995   | 8.5   | 17     | 35 Nm             |
| M16 x 1.5            | 11    | 24     | 16.025 / 16.020   | 5     | 16.037 / 16.027   | 7     | 17     | 35 Nm             |
| M14 x 1.5            | 12    | 24     | 14.494 / 14.486   | 5     | 14.508 / 14.500   | 7     | 18     | 25 Nm             |
| M12 x 1.25           | 11    | 24     | 13.994 / 13.989   | 5     | 14.005 / 14.000   | 7     | 17     | 15 Nm             |
| M12 x 1 / M12 x 1.25 | 13    | 15     | 12.994 / 12.989   | 6     | 13.005 / 13.000   | 9     | 23     | 15 Nm             |
| M10 x 1              | 11    | 17     | 10.994 / 10.989   | 3     | 11.008 / 11.000   | 5.2   | 15     | 10 Nm             |
| M8 x 1               | 12.5  | 15     | 8.995 / 8.991     | 3.5   | 9.006 / 9.000     | 6     | 18     | 4 Nm              |

All dimensions in millimetres unless otherwise indicated.

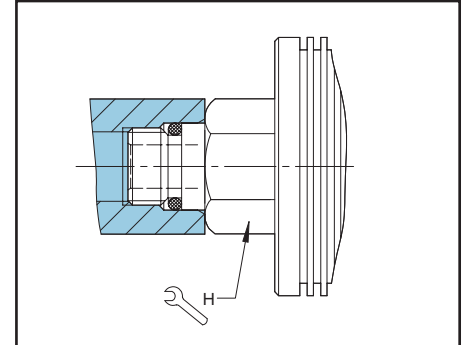
### Spindle End



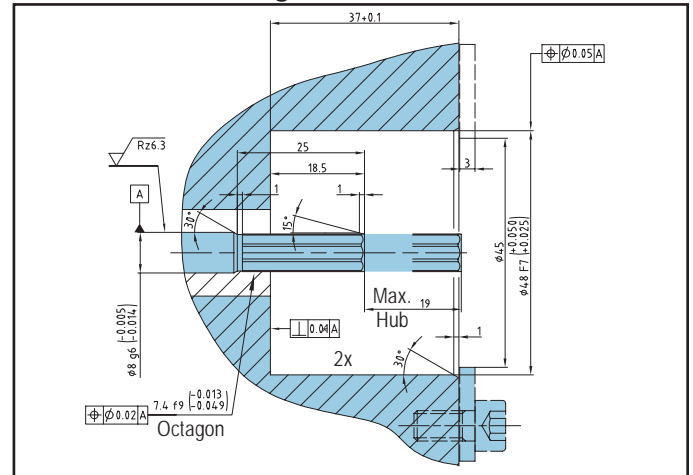
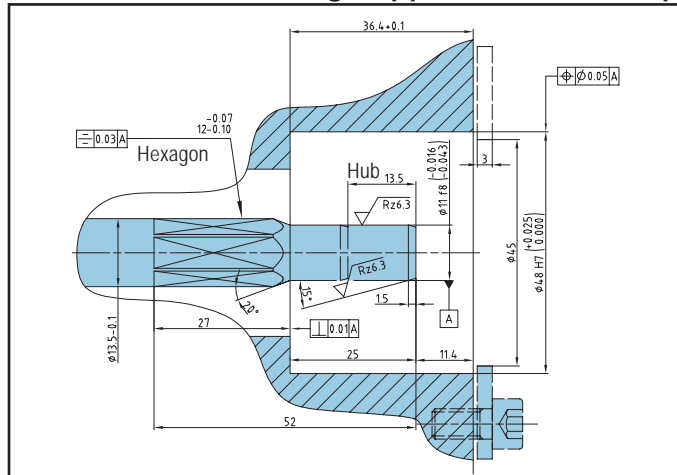
### Rotor End



### Installed Rotor



Bore-mounted, bearing-supported unions require one of the following two interfaces:

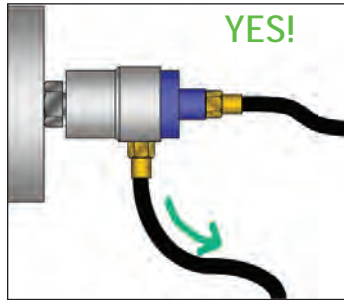


## Drain and supply hose connections

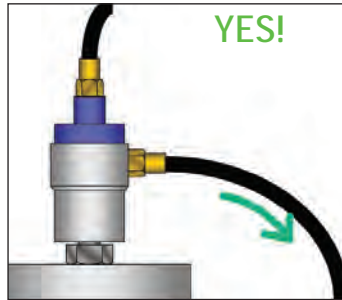
### Drain Connections

All unions, even closed-seal designs, can experience migration of minimal amounts of media across the seal faces. Such media migration keeps the seals well lubricated and avoids the permanent seal damage that comes from dry running. In addition, even the best unions eventually will need replacement. Therefore, the machine tool designer should provide adequate drainage to prevent costly spindle damage.

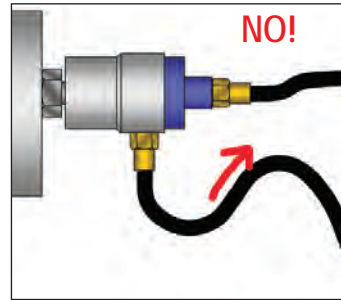
Deublin designs are very advanced, but even Deublin must obey the law of gravity! Therefore, it is critical that all drainage hoses and paths slope downward continuously, as shown in the diagrams below.



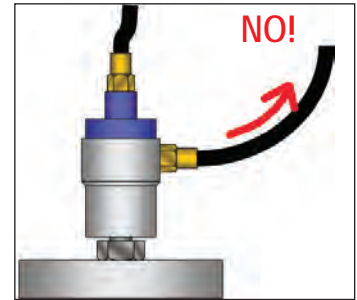
Drain hose always slopes downward



Drain hose always slopes downward



Part of drain hose slopes up



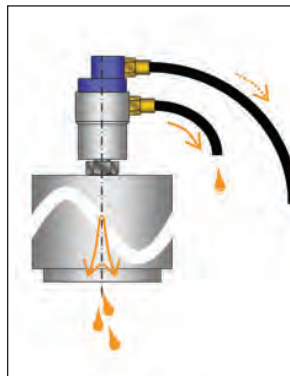
Drain hose slopes up from union

### Supply Connection

Deublin Pop-Off®, AutoSense®, and “All-Media” unions offer unlimited “dry running” at high speeds. By allowing the seal faces to separate when coolant pressure is removed, seal wear during unpressurised operation is completely eliminated. One consequence is that the seals separate during tool changes,

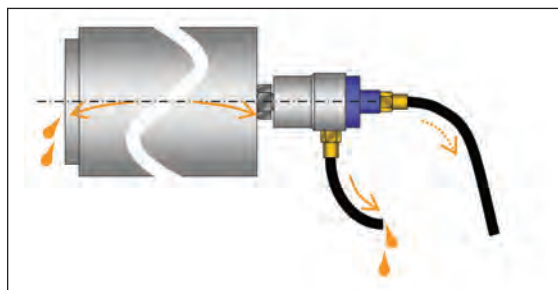
allowing residual coolant in the supply hose and spindle to drain through the seal faces. Careful orientation of the coolant supply hose can dramatically reduce this effect, as shown in the diagrams below.

#### Supply Hose Slopes Down from Union



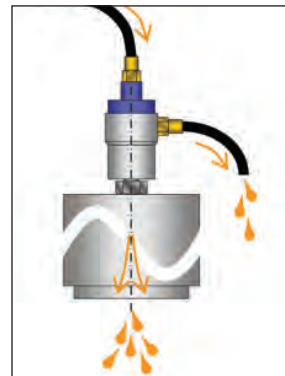
Tool change with vertical spindle

When the supply line runs down from the rotary union, any coolant between union and control valve will remain in the hose during tool change. This reduces the amount of drainage from both the spindle nose and the union drain line.



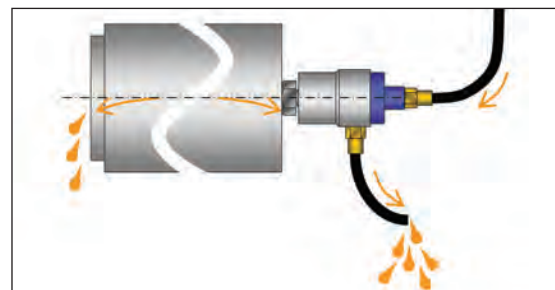
Tool change with horizontal spindle

#### Supply Hose Slopes Up from Union



Tool change with vertical spindle

When the supply line runs up from the rotary union, any coolant between union and control valve will flow down during tool change. This increases the amount of drainage from both the spindle nose and the union drain line.



Tool change with horizontal spindle

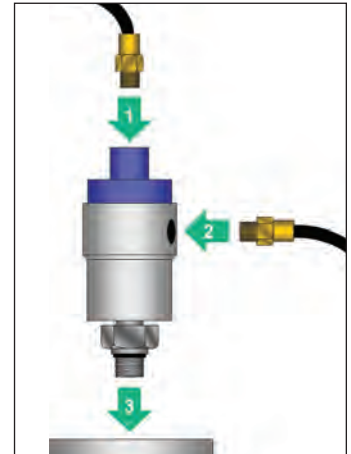


## Installation Techniques

Installing a Deublin Rotary Union is as easy as 1-2-3. For maximum life and reliability, maintenance engineers and service technicians need only to follow a few simple rules.

1. For bearing-supported, rotor-mounted unions, connect both supply and drain hoses to the union before mounting the union on the spindle. Otherwise, bearings in the union may become brinnelled or galled when the hose connections are tightened.
2. Clean thoroughly the mounting surfaces of the spindle before mounting the union. The spindle pilot must be clean, with no chips, no burrs, and no dents. Otherwise, the union may exhibit runout and vibrate during rotation.
3. Make sure the drain hose runs downward continuously, with no "roller coaster" rises that could prevent proper drainage. If the spindle is horizontal, make sure that the union's drain hole is at 6 o'clock, pointing directly down. Deublin unions can do many things, but they can't break the law of gravity!

Following are examples of **correct** and **incorrect** installations, with an explanation of what is correct or incorrect about each example.



### Examples of **CORRECT** Installations



**YES!**

**RIGHT:** Elbow fitting is used to avoid a tight bend in supply hose. Drain hose slopes downward.



**YES!**

**RIGHT:** Flexible hose between rigid supply pipe and union. Drain hose runs straight down.



**YES!**

**RIGHT:** Flexible hose between rigid supply pipe and union. Drain hose runs straight down.



**YES!**

**RIGHT:** Elbow prevents excessive side load on bearings when supply hose is pressurized.

### Examples of **INCORRECT** Installations



**NO!**

**WRONG:** Drain line points up, which can flood the union's bearings.



**NO!**

**WRONG:** Union points up. Coolant contaminants will collect at the bottom and interfere with proper sealing.



**NO!**

**WRONG:** Union housing is rigidly attached to the spindle. Without 100% perfect alignment, this creates a side load leading to early bearing failure.



**NO!**

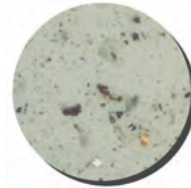
**WRONG:** Bend in supply hose is too tight. When pressurized, the supply hose may create a large side load on the union's bearings.

## Coolant Filtration and Maintenance

Deublin unions are designed to handle the various coolant contaminants found in most manufacturing facilities. To ensure long union life and maximum productivity, however, coolant filtration should conform to ISO 4406:2017 Code 17/15/12, SAE 749 Class 5, or NAS 1638 Class 6, with a maximum particle size of 60 microns. For comparison, pumps (both fixed piston and variable volume) such as those used in coolant systems typically require ISO 4406:2017 Code 16/14/11 or better – in other words, half as much contamination as Deublin.

Only pure water should be used to make up for coolant evaporation. Calcium and magnesium salts in most tap water shorten coolant life, by depleting the chemicals in the coolant, by breaking down the water-oil emulsion, and by encouraging bacterial growth. These salts also can cause residue to build up inside the rotary union, leading to premature failure. One rule

of thumb is that each additional “grain of hardness” (equivalent to 17 ppm or 17 mg/l of calcium carbonate) increases your annual coolant consumption by one percent. Proper coolant maintenance also prolongs tool life and improves the surface finish of your parts.



Unacceptable  
(ISO 21/19/17 at 100x)



Acceptable  
(ISO 16/14/11 at 100x)

| ISO 4406:2017 Code 17/15/12 |                     |
|-----------------------------|---------------------|
| Particle size (µm)          | Particle per 100 ml |
| 4 – 6                       | ≤ 130,000           |
| 6 – 14                      | ≤ 32,000            |
| 14 – 60                     | ≤ 4,000             |

| NAS 1638 Class 6   |                     |
|--------------------|---------------------|
| Particle size (µm) | Particle per 100 ml |
| 5 – 15             | ≤ 64,000            |
| 15 – 25            | ≤ 11,400            |
| 25 – 50            | ≤ 2,025             |
| 50 – 60            | ≤ 360               |

| SAE 749-1963 Class 5 |                     |
|----------------------|---------------------|
| Particle size (µm)   | Particle per 100 ml |
| 5 – 10               | ≤ 87,000            |
| 15 – 25              | ≤ 21,400            |
| 25 – 50              | ≤ 3,130             |
| 50 – 60              | ≤ 430               |



The larger the amount of particles in the media, the higher the wear rate of the rotary union. The residual contamination load should be at a maximum of 100 mg/L respectively at a maximum of 50 mg/L when processing aluminum.

## Thread Equivalence

Parallel or “straight” threads are indicated in this catalog by the symbol “G”. British Standard Parallel threads are known by several other names in different parts of the world. Common symbols for this thread style include: BSP, BSPP, BSSPI, BSPF, BSPG, PF, Rp, and G. British Standard parallel threads also may be referred to as British Gas, British Pipe Parallel or Parallel Fastening Thread. The reference standards are described in ISO 228/1 and JIS B0202.

American Standard Unified threads, indicated by UN or UNF, also are parallel. However, they are not the same as and do not mate with G threads, since the thread angle and shape are different.

The following examples are equivalent parallel threads:

G 1/4  
G 1/4 cyl  
PF 1/4  
R 1/4 Tr  
1/4 BSP  
Rp 1/4

Tapered threads are indicated in this catalog by the symbols “PT” and “NPT”. British Standard Taper threads are known by several other names, including: BSPT, BSPTTr, PS, PT, R, and Rc. British Standard taper threads also may be referred to as Pipe Taper or Conical Thread. The reference standards are described in ISO 7/1 and JIS B0203.

American Standard NPT threads are also tapered, but not the same as PT threads. Both the thread angle and shape are different, so mating NPT with PT may not create a reliable seal.

The following examples are equivalent tapered threads:

R 1/4 keg  
G 1/4 co  
PT 1/4  
R 1/4  
Rc 1/4  
1/4 BSPT



# DEUBLIN

## 1005 Series "Closed Seal" Rotary Unions for Continuous Coolant Service

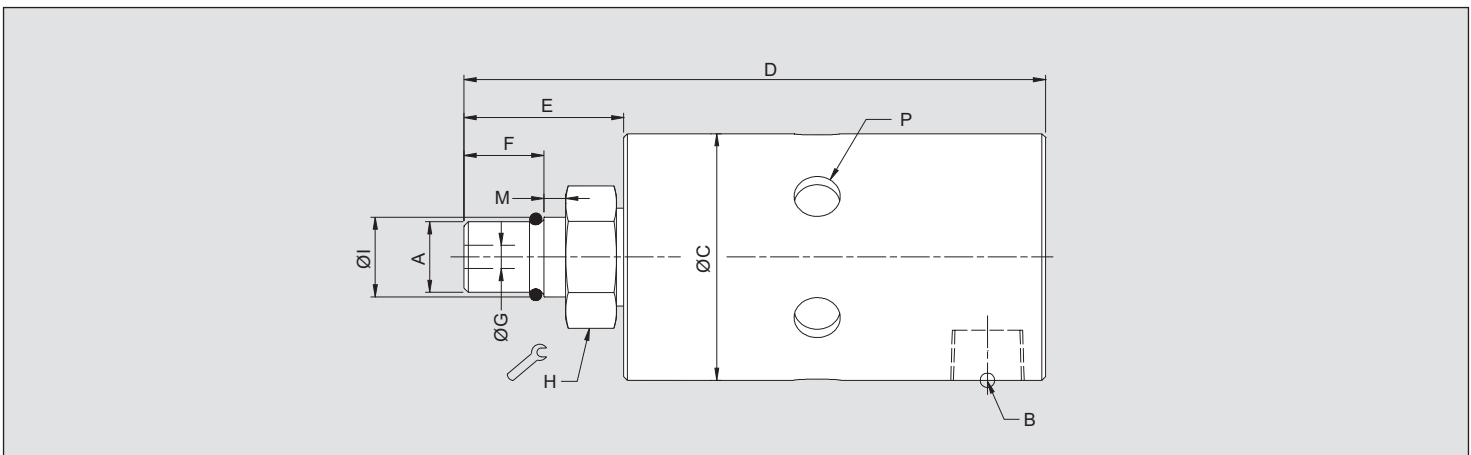
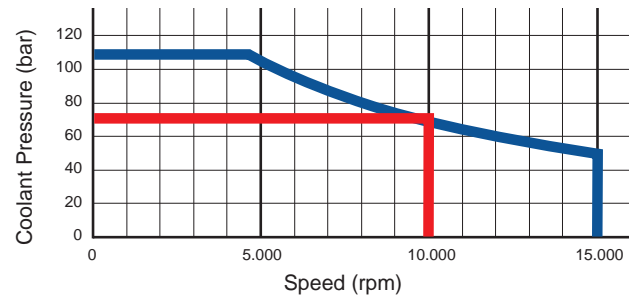
- Single passage for coolant or MQL
- Closed seals for transfer line and similar applications
- Full-flow design has no obstructions to trap swarf or debris
- Bearing-supported with threaded rotor for easy installation
- Labyrinth system and large vents to protect ball bearings
- Balanced mechanical seals made from silicon carbide for long life even under difficult operating conditions
- Anodized housing and stainless steel rotor resist corrosion

### Operating Data

|                  |  |            |
|------------------|--|------------|
| Media            | Water-based Coolant<br>MQL (oil mist) up to 10 bar (145 psi) |            |
| Filtration       | ISO 4406:2017 Class 17/15/12, max. 60 micron                 |            |
| Max. Speed       | 15,000 min <sup>-1</sup>                                     | 15,000 rpm |
| Max. Pressure    | 105 bar  | 1,523 psi  |
| Max. Flow        | 6.7 l/min  | 1.8 gpm    |
| Max. Temperature | 71 °C  | 160 °F     |



DO NOT RUN DRY



Other 1005 models are available for use with oil or dry air. Please refer to the Deublin Engineering Catalog.

|        | Ordering Number | B Supply Connection | C Overall Diameter | D Overall Length | P Vent Size<br>Ø (6 x 60°) | A Rotor Connection | E Rotor Length | F Thread Length | G Bore Diameter | H Across Flats | I Pilot Diameter | M Pilot Length |
|--------|-----------------|---------------------|--------------------|------------------|----------------------------|--------------------|----------------|-----------------|-----------------|----------------|------------------|----------------|
| R.     | 1005-704-434*   | 1/8 NPT             | 34                 | 80               | 3 x Rp 1/8                 | M10 x 1 RH         | 22             | 11              | 3.4             | 17             | 10.994<br>10.989 | 5              |
| Radial | 1005-402-401    | 1/8 NPT             | 34                 | 80               | 6.4                        | M10 x 1 RH         | 22             | 11              | 3.2             | 17             | 10.994<br>10.989 | 3              |
|        | 1005-402-448    | 1/8 NPT             | 34                 | 80               | 6.4                        | M10 x 1 LH         | 22             | 11              | 3.2             | 17             | 10.994<br>10.989 | 3              |

\* Also allowed for hydraulics, compressed air and defined dry run cycles. For further information please contact Deublin.



# DEUBLIN

## 1101 Series "Closed Seal" Rotary Unions for Coolant Service

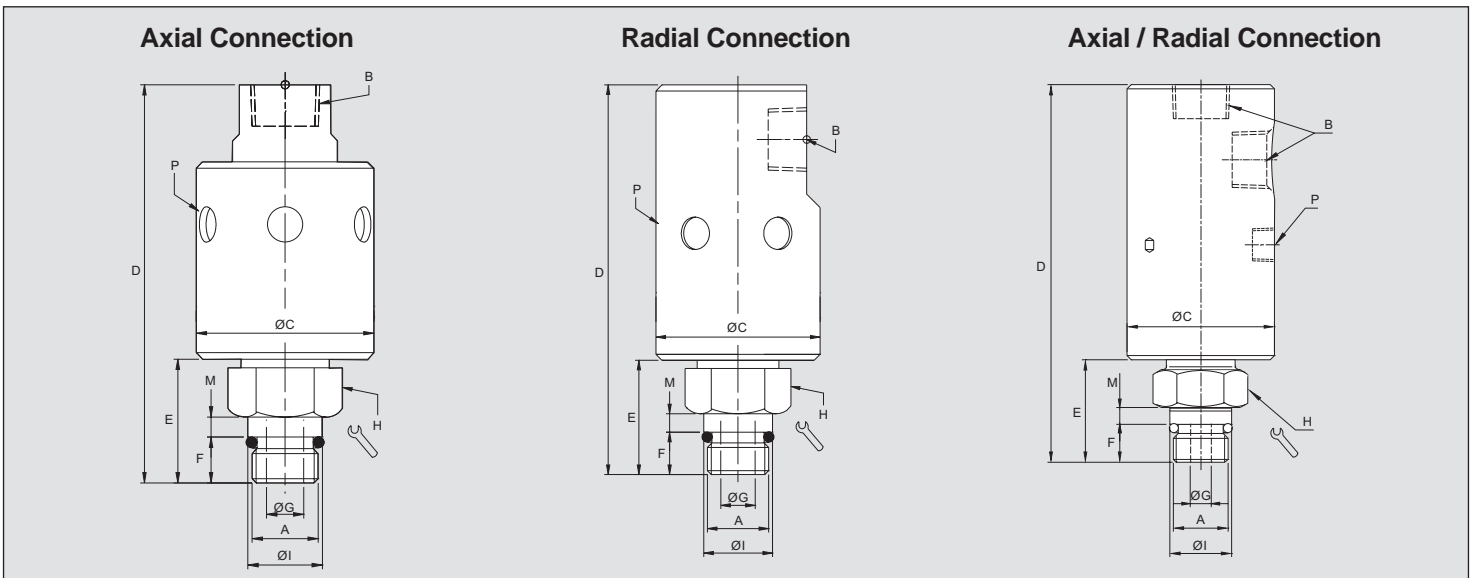
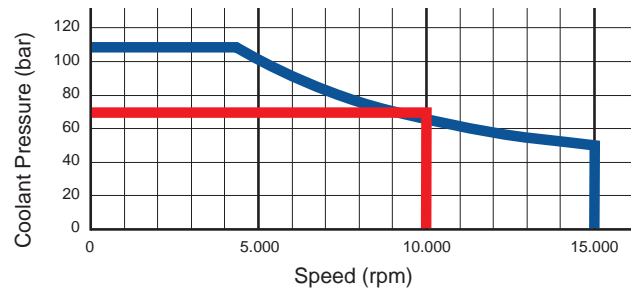
- Single passage for coolant or MQL
- Dry-running cycles and compressed air applications under rotation possible depending on the model (see \*, \*\*)
- Closed seals for transfer line and similar applications
- Full-flow design has no obstructions to trap swarf or debris
- Bearing-supported with threaded rotor for easy installation
- Labyrinth system and large vents to protect ball bearings
- Balanced mechanical seals made from silicon carbide for long life even under difficult operating conditions
- Anodized aluminum components resist corrosion

### Operating Data

|                  |  |            |
|------------------|--|------------|
| Media            | Water-based Coolant<br>MQL (oil mist) up to 10 bar (145 psi) |            |
| Filtration       | ISO 4406:2017 Class 17/15/12, max. 60 micron                 |            |
| Max. Speed       | 15,000 min <sup>-1</sup>                                     | 15,000 rpm |
| Max. Pressure    | 105 bar  | 1,523 psi  |
| Max. Flow up to  | 24.3 l/min   | 6.4 gpm    |
| Max. Temperature | 71 °C  | 160 °F     |



DO NOT RUN DRY



|        | Ordering Number | B Supply Connection | C Overall Diameter | D Overall Length | P Vent Size Ø (6 x 60°) | A Rotor Connection | E Rotor Length | F Thread Length | G Bore Diameter | H Across Flats | I Pilot Diameter | M Pilot Length |
|--------|-----------------|---------------------|--------------------|------------------|-------------------------|--------------------|----------------|-----------------|-----------------|----------------|------------------|----------------|
| Radial | 1101-265-343**  | G 1/4               | 43                 | 95               | 3 x R 1/8               | M16 x 1.5 LH       | 30             | 11              | 6               | 24             | 17.993 / 17.988  | 5              |
|        | 1101-265-644**  | G 1/4               | 43                 | 91               | 3 x R 1/8               | Flange TK-Ø 21     | 26             | 14.5            | 6               | 4 x M4         | Ø 30.01 H6       | 8              |
| A+R    | 1101-632-343    | Rc 3/8              | 43                 | 103              | 3 x Rc 1/8              | M16 x 1.5 LH       | 30             | 11              | 6               | 24             | 17.993 / 17.988  | 5              |
|        | 1101-202-651*   | Rc 3/8              | 43                 | 110              | 3 x Rc 1/8              | M16 x 1.5 LH       | 30             | 11              | 6               | 24             | 17.993 / 17.988  | 5              |
|        | 1101-202-664*   | Rc 3/8              | 43                 | 110              | 3 x Rc 1/8              | M12 x 1.25 LH      | 30             | 11              | 6               | 24             | 13.994 / 13.989  | 5              |
| Axial  | 1101-235-343    | 3/8 NPT             | 43                 | 96               | 9                       | M16 x 1.5 LH       | 30             | 11              | 6               | 24             | 17.993 / 17.988  | 5              |
|        | 1101-235-238    | 3/8 NPT             | 43                 | 100              | 9                       | 5/8-18 UNF LF      | 34             | 14.3            | 6               | 24             | 16.649 / 16.464  | 5              |
|        | 1101-359-343    | G 3/8               | 43                 | 96               | 9                       | M16 x 1.5 LH       | 30             | 11              | 6               | 24             | 17.993 / 17.988  | 5              |
| R.     | 1101-195-343    | G 3/8               | 43                 | 102              | 9                       | M16 x 1.5 LH       | 30             | 11              | 6               | 24             | 17.993 / 17.988  | 5              |

\* Also allowed for compressed air and defined dry run cycles with reduced operating data.

\*\* Also allowed for operation with hydraulic, compressed air and defined dry run cycles with reduced operating data. Please see page 21 multi-media application.



# DEUBLIN

## 1116 Series "Closed Seal" Rotary Unions for Coolant Service

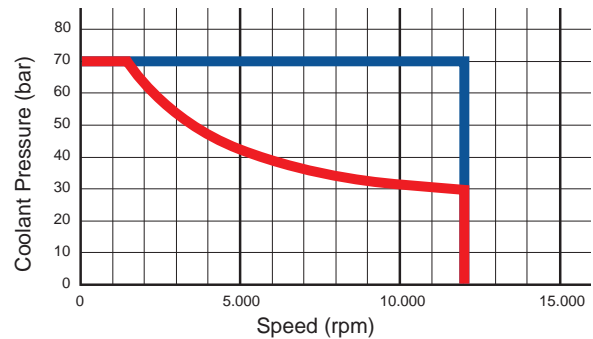
- Single passage for coolant or MQL
- Dry-running cycles and compressed air applications under rotation possible depending on the model (see \*, \*\*)
- Closed seals for transfer line and similar applications
- Full-flow design has no obstructions to trap swarf or debris
- Bearing-supported with threaded rotor for easy installation
- Labyrinth system and large vents to protect ball bearings
- Balanced mechanical seals made from silicon carbide for long life even under difficult operating conditions
- Anodized aluminum housing resists corrosion

### Operating Data

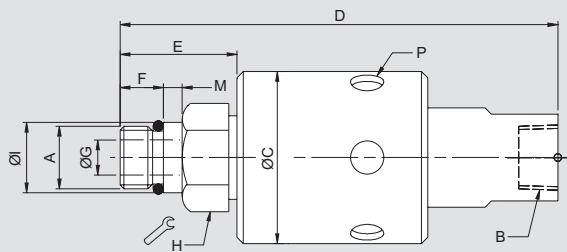
|                  |  |            |
|------------------|--|------------|
| Media            | Water-based Coolant<br>MQL (oil mist) up to 10 bar (145 psi) |            |
| Filtration       | ISO 4406:2017 Class 17/15/12, max. 60 micron                 |            |
| Max. Speed       | 12,000 min <sup>-1</sup>                                     | 12,000 rpm |
| Max. Pressure    | 70 bar   | 1,015 psi  |
| Max. Flow        | 82 l/min   | 21.6 gpm   |
| Max. Temperature | 71 °C  | 160 °F     |



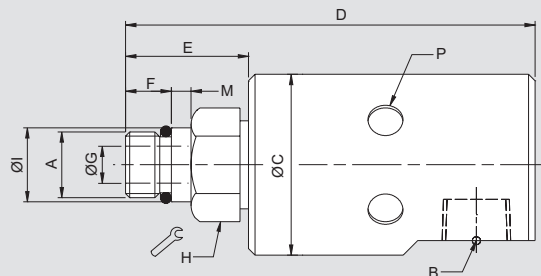
DO NOT RUN DRY



### Axial Connection



### Radial Connection



|        | Ordering Number | B Supply Connection | C Overall Diameter | D Overall Length | P Vent Size Ø (6 x 60°) | A Rotor Connection | E Rotor Length | F Thread Length | G Bore Diameter | H Across Flats | I Pilot Diameter | M Pilot Length |
|--------|-----------------|---------------------|--------------------|------------------|-------------------------|--------------------|----------------|-----------------|-----------------|----------------|------------------|----------------|
| Axial  | 1116-048-059*** | 1/4 NPT             | 44                 | 115              | 9                       | 5/8-18 UNF LH      | 33             | 14              | 9               | 24             | 16.649 / 16.644  | 5              |
|        | 1116-048-463*** | 1/4 NPT             | 44                 | 112              | 9                       | M16 x 1.5 LH       | 30             | 11              | 9               | 24             | 17.993 / 17.988  | 5              |
|        | 1116-063-463*   | G 3/8               | 44                 | 112              | 9                       | M16 x 1.5 LH       | 30             | 11              | 9               | 24             | 17.993 / 17.988  | 5              |
|        | 1116-319-248    | Ø25 Counter Bore    | 44                 | 105              | 3 x 9.5                 | 3/8 NPT            | 30             | 16              | -               | 24             | -                | -              |
|        | 1116-485-463*** | G 1/4               | 44                 | 112              | 9                       | M16 x 1.5 LH       | 30             | 11              | 9               | 24             | 17.993 / 17.988  | 5              |
|        | 1116-600-059    | 3/8 NPT             | 44                 | 115              | 9                       | 5/8-18 UNF LH      | 33             | 14              | 9               | 24             | 16.650 / 16.637  | 5              |
|        | 1116-600-463    | 3/8 NPT             | 44                 | 112              | 9                       | M16 x 1.5 LH       | 30             | 11              | 9               | 24             | 17.994 / 17.989  | 5              |
|        | 1116-610-463    | G 3/8               | 44                 | 112              | 9                       | M16 x 1.5 LH       | 30             | 11              | 9               | 24             | 17.993 / 17.988  | 5              |
| Radial | 1116-090-059    | 3/8 NPT             | 44                 | 105              | 9                       | 5/8-18 UNF LH      | 33             | 14              | 9               | 24             | 16.649 / 16.644  | 5              |
|        | 1116-090-463    | 3/8 NPT             | 44                 | 102              | 9                       | M16 x 1.5 LH       | 30             | 11              | 9               | 24             | 17.993 / 17.988  | 5              |
|        | 1116-516-463*   | G 3/8               | 44                 | 102              | 9                       | M16 x 1.5 LH       | 29             | 11              | 9               | 24             | 17.993 / 17.988  | 5              |
|        | 1116-555-463    | G 3/8               | 44                 | 102              | 9                       | M16 x 1.5 LH       | 29             | 11              | 9               | 24             | 17.993 / 17.988  | 5              |
| R.     | 1116-987-463**  | G 3/8               | 44                 | 102              | 9                       | M16 x 1.5 LH       | 30             | 11              | 9               | 24             | 17.993 / 17.988  | 5              |

\* Also allowed for compressed air and defined dry run cycles with reduced operating data.

\*\* Also allowed for operation with hydraulic, compressed air and defined dry run cycles with reduced operating data. Please see page 21 multi-media application.

\*\*\* For selection of unions with 1/4 connection please contact Deublin engineering for operating data.

For further information please contact Deublin.



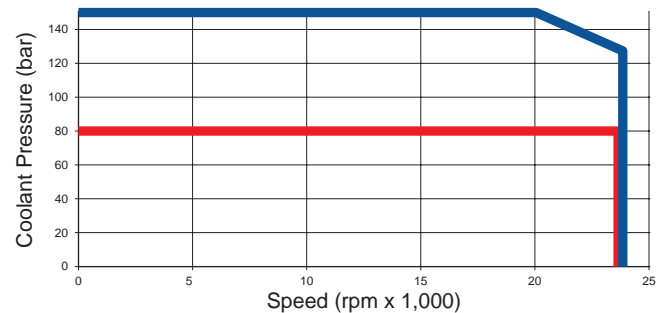
# DEUBLIN

## 1108 Series "Closed Seal" Bore-Mounted Rotary Unions for Coolant Service

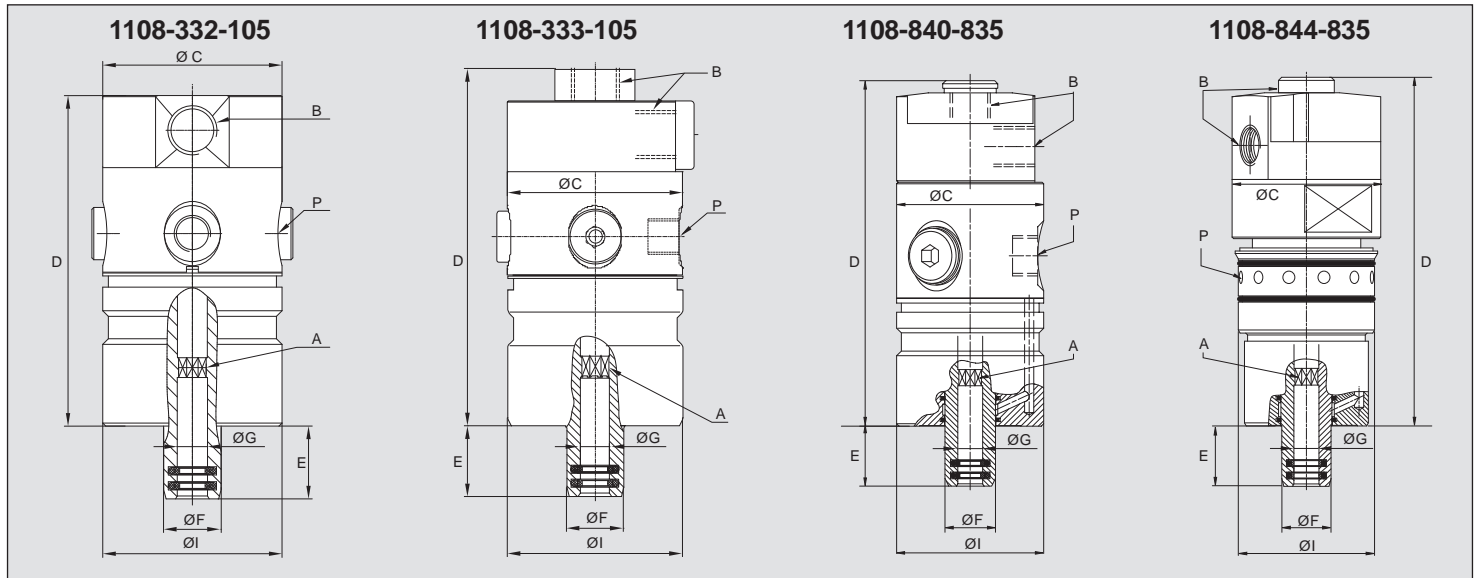
- Single passage for coolant or MQL
- Dry-running cycles and compressed air applications under rotation possible depending on the model (see \*)
- Closed seals
- Accepts up to 19 mm of draw bar movement
- Full-flow design has no obstructions to trap swarf or debris
- Labyrinth system and large vents to protect ball bearing
- Balanced mechanical seals made from silicon carbide for long life even under difficult operating conditions
- Stainless steel housing and rotor
- Anodized aluminum end cap

### Operating Data

|                  |  |            |
|------------------|--|------------|
| Media            | Water-based Coolant<br>MQL (oil mist) up to 10 bar (145 psi) |            |
| Filtration       | ISO 4406:2017 Class 17/15/12, max. 60 micron                 |            |
| Max. Speed       | 24,000 min <sup>-1</sup>                                     | 24,000 rpm |
| Max. Pressure    | see graph/table  |            |
| Max. Flow        | 24.3 l/min   | 6.4 gpm    |
| Max. Temperature | 71 °C  | 160 °F     |

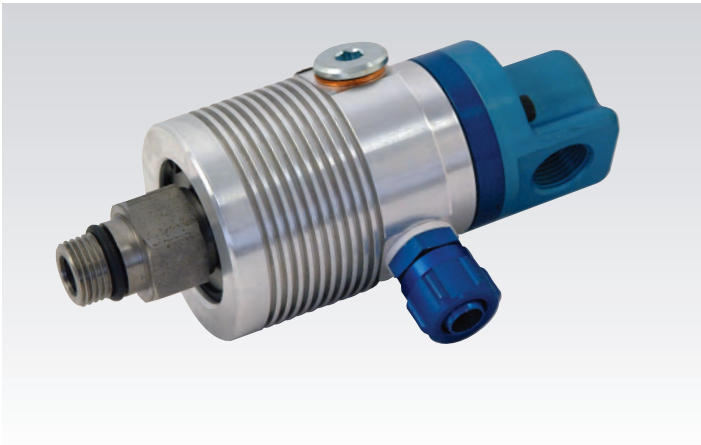


■ 1108-332-105, 1108-333-105    ■ 1108-840-835, 1108-844-835



| Ordering Number | B Supply Connection  | C Overall Diameter | D Housing Length | P Vent Size Ø  | A Rotor Connection | E Rotor Length | F Rotor Overall Diameter | G Bore Diameter | I Pilot Diameter | Maximum Speed (rpm) | Max. Pressure (bar) |
|-----------------|----------------------|--------------------|------------------|----------------|--------------------|----------------|--------------------------|-----------------|------------------|---------------------|---------------------|
| 1108-332-105*   | G 1/4 Radial         | 48                 | 88.5             | G 1/8 (4x90°)  | Octagon 7.4 D10    | 19.5           | 15.4                     | 8.1 F9          | 48 h7            | 24,000              | 80                  |
| 1108-333-105*   | G 1/4 Axial & Radial | 48                 | 98               | G 1/8 (4x90°)  | Octagon 7.4 D10    | 19.5           | 15.4                     | 8.1 F9          | 48 h7            | 24,000              | 80                  |
| 1108-840-835    | G 1/4 Axial & Radial | 48                 | 112              | G 1/4 (3x120°) | Octagon 7.4 D10    | 19.5           | 15.9                     | 8.1 F9          | 48 g6            | 24,000              | 150                 |
| 1108-844-835    | G 1/4 Axial & Radial | 48                 | 113              | 12 x Ø4        | Octagon 7.4 D10    | 19.5           | 15.9                     | 8.1 F9          | 44.000<br>43.959 | 24,000              | 150                 |

\* Also allowed for compressed air and defined dry run cycles with reduced operating data. For further information please contact Deublin.



# DEUBLIN

## 1109 Series Pop-Off® Rotor-Mounted Rotary Unions for Coolant Service with unlimited Dry Running

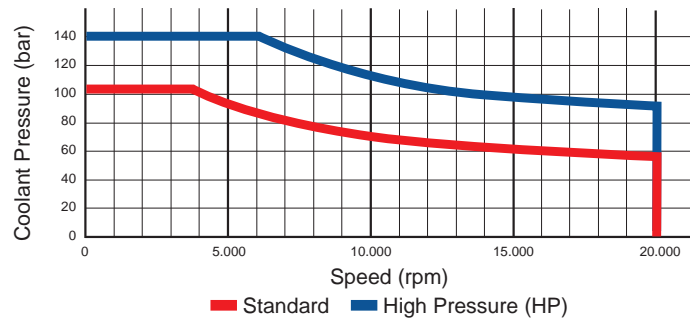
- Single passage for coolant or MQL
- Pop-Off® technology allows unlimited dry running without media pressure
- Full-flow design has no obstructions to trap swarf or debris
- Bearing-supported with threaded rotor for easy installation
- Labyrinth system and large vents to protect ball bearings
- Balanced mechanical seals made from silicon carbide for long life even under difficult operating conditions
- Aluminum housing, endcap anodized resists corrosion

### Operating Data

|                  |  |            |                    |
|------------------|--|------------|--------------------|
| Media            | Water-based Coolant<br>MQL (oil mist) up to 10 bar (145 psi) |            |                    |
| Filtration       | ISO 4406:2017 Class 17/15/12, max. 60 micron                 |            |                    |
| Max. Speed       | 20,000 min <sup>-1</sup>                                     | 20,000 rpm |                    |
| Max. Pressure    | see chart  |            |                    |
| Max. Flow        | 82 l/min   | 21.6 gpm   | Standard           |
|                  | 24.3 l/min   | 6.4 gpm    | High Pressure (HP) |
| Max. Temperature | 71 °C  | 160 °F     |                    |



NO COMPRESSED AIR  
WITH ROTATION



|          | Axial Connection |                     |                    |                  |                           |                    | Radial Connection |                 |                 |                |                  |                |
|----------|------------------|---------------------|--------------------|------------------|---------------------------|--------------------|-------------------|-----------------|-----------------|----------------|------------------|----------------|
|          | Ordering Number  | B Supply Connection | C Overall Diameter | D Overall Length | P Drain Size Ø (3 x 120°) | A Rotor Connection | E Rotor Length    | F Thread Length | G Bore Diameter | H Across Flats | I Pilot Diameter | M Pilot Length |
| Standard | 1109-010-165     | 3/8 NPT Radial      | 53                 | 135              | 1/4 NPT                   | 5/8-18 UNF LH      | 30                | 11              | 9               | 24             | 16.649 / 16.645  | 5              |
|          | 1109-011-165     | 3/8 NPT Axial       | 53                 | 129              | 1/4 NPT                   | 5/8-18 UNF LH      | 30                | 11              | 9               | 24             | 16.649 / 16.645  | 5              |
|          | 1109-020-188     | G 3/8 Radial        | 53                 | 135              | G 1/4                     | M16 x 1.5 LH       | 30                | 11              | 9               | 24             | 17.993 / 17.988  | 5              |
|          | 1109-021-188     | G 3/8 Axial         | 53                 | 129              | G 1/4                     | M16 x 1.5 LH       | 30                | 11              | 9               | 24             | 17.993 / 17.988  | 5              |
|          | 1109-040-188     | 3/8 PT Radial       | 53                 | 135              | 1/4 PT                    | M16 x 1.5 LH       | 30                | 11              | 9               | 24             | 17.993 / 17.988  | 5              |
| HP       | 1109-041-188     | Rc 3/8 Axial        | 53                 | 129              | Rc 1/4                    | M16 x 1.5 LH       | 30                | 11              | 9               | 24             | 17.993 / 17.988  | 5              |
|          | 1109-023-212     | G 1/4 Radial        | 53                 | 135              | G 1/4                     | M16 x 1.5 LH       | 30                | 11              | 9               | 24             | 17.993 / 17.988  | 5              |
|          | 1109-024-212     | G 1/4 Axial         | 53                 | 129              | G 1/4                     | M16 x 1.5 LH       | 30                | 11              | 9               | 24             | 17.993 / 17.988  | 5              |
|          | 1109-043-212     | Rc 1/4 Radial       | 53                 | 135              | Rc 1/4                    | M16 x 1.5 LH       | 30                | 11              | 9               | 24             | 17.993 / 17.988  | 5              |
|          | 1109-044-212     | Rc 1/4 Axial        | 53                 | 129              | Rc 1/4                    | M16 x 1.5 LH       | 30                | 11              | 9               | 24             | 17.993 / 17.988  | 5              |



# DEUBLIN

## 1109 and 1111 Series Pop-Off® Bore-Mounted Rotary Unions for Coolant Service with unlimited Dry Running

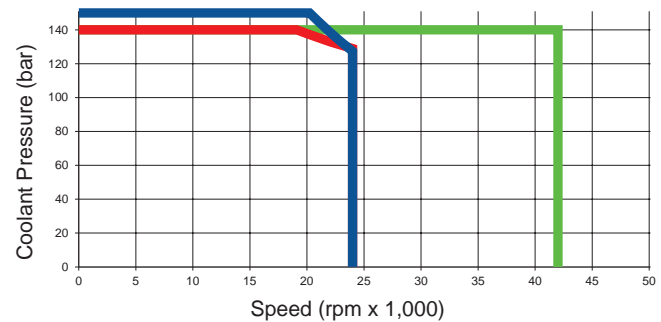
- Single passage for coolant or MQL
- Pop-Off® technology allows unlimited dry running without media pressure
- Accepts up to 19 mm of axial drawbar movement
- Full-flow design has no obstructions to trap swarf or debris
- Bore-mounted design for easy installation
- Labyrinth system and large vents to protect ball bearings
- Balanced mechanical seals made from silicon carbide for long life even under difficult operating conditions
- Housing and rotor of stainless steel
- Anodized aluminum resist corrosion

### Operating Data

|                  |  |                        |
|------------------|--|------------------------|
| Media            | Water-based Coolant                          |                        |
|                  | MQL (oil mist) up to 10 bar (145 psi)        |                        |
| Filtration       | ISO 4406:2017 Class 17/15/12, max. 60 micron |                        |
| Max. Speed       | see chart/table                              |                        |
| Max. Pressure    | see chart/table                              |                        |
| Max. Flow        |  |                        |
|                  | 1109-842-730                                 | 82 l/min      21.6 gpm |
|                  | 1109-710-717                                 | 82 l/min      21.6 gpm |
|                  | 1109-92x-930                                 | 24.3 l/min    6.4 gpm  |
|                  | 1109-8x0-835                                 | 24.3 l/min    6.4 gpm  |
| Max. Temperature | 71 °C  | 160 °F                 |

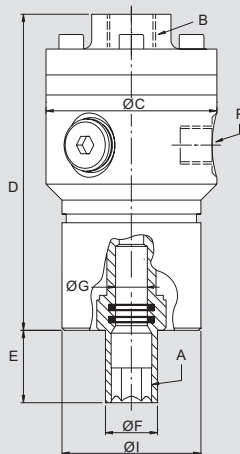


NO COMPRESSED AIR  
WITH ROTATION

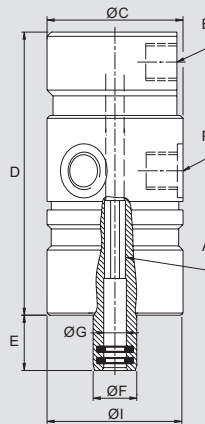


■ 1109-710-717, 1109-710-730, 1111-335-105, 1111-002-105  
■ 1109-840-835, 1109-842-730    ■ 1109-926-930

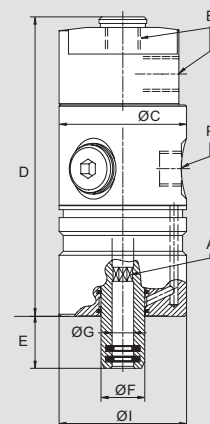
**Axial Connection**  
(1109-710-717 shown)



**Radial Connection**



**Axial / Radial Connection**



| Ordering Number | B Supply Connection  | C Overall Diameter | D Housing Length | P Vent Size Ø (3 x 120°) | A Rotor Connection | E Rotor Length | F Rotor Overall Diameter | G Bore Diameter | I Pilot Diameter | Maximum Speed (rpm) | Max. Pressure (bar) |
|-----------------|----------------------|--------------------|------------------|--------------------------|--------------------|----------------|--------------------------|-----------------|------------------|---------------------|---------------------|
| 1111-002-105*   | G 1/4 Radial         | 48                 | 88.5             | G 1/8 (4x90°)            | Octagon 7.4 D10    | 19.5           | 15.4                     | 8.1 F9          | 48 h7            | 24,000              | 140                 |
| 1111-335-105*   | G 1/4 Axial & Radial | 48                 | 98               | G 1/8 (4x90°)            | Octagon 7.4 D10    | 19.5           | 15.4                     | 8.1 F9          | 48 h7            | 24,000              | 140                 |
| 1109-710-717    | G 3/8 Axial          | 59                 | 109              | G 1/4                    | Hexagon 12 D10     | 25.0           | 18.0                     | 11 H7           | 48 g6            | 24,000              | 140                 |
| 1109-710-730    | G 3/8 Axial          | 59                 | 97               | G 1/4                    | Octagon 9.25 D10   | 19.5           | 20.0                     | 10.1+0.06       | 48 g6            | 24,000              | 140                 |
| 1109-840-835    | G 1/4 Axial & Radial | 48                 | 112              | G 1/4                    | Octagon 7.4 D10    | 19.5           | 15.9                     | 8.1 F9          | 48 g6            | 24,000              | 150                 |
| 1109-842-730    | G 3/8 Axial & Radial | 48                 | 116              | G 1/4                    | Octagon 9.25 D10   | 19.5           | 16.0                     | 10 F9           | 48 g6            | 24,000              | 150                 |
| 1109-926-930    | G 1/4 Radial         | 48                 | 93               | G 1/4                    | Octagon 7.4 D10    | 19.5           | 15.4                     | 8.1 F9          | 48 h7            | 42,000              | 140                 |

\* Ultra-short (0.1 mm) pop-off stroke restricts drainage of residual coolant during tool change.





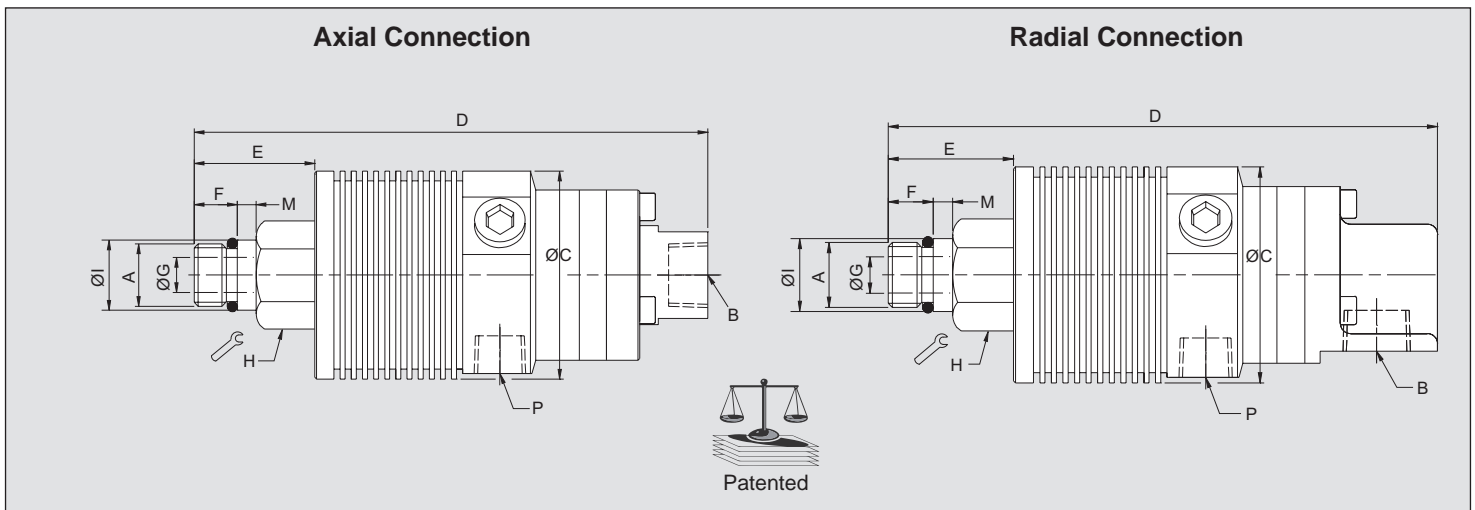
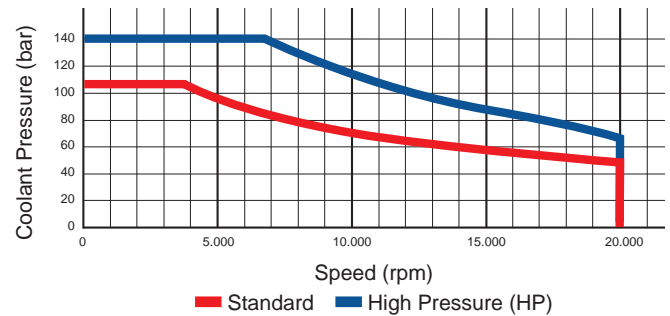
# DEUBLIN

## 1114 Series AutoSense® Rotor-Mounted Rotary Unions for Coolant and Air Service and unlimited Dry Running

- Single passage for both coolant and dry air
- Patented AutoSense® technology automatically changes between closed seals and controlled leakage operation in response to the kind of media
- Threaded rotor for easy installation
- Full-flow design has no obstructions to trap swarf or debris
- Labyrinth system and large vents to protect bearings
- Balanced mechanical seals made from silicon carbide for long life even under difficult operating conditions
- Aluminum housing, endcap anodized resists corrosion

### Operating Data

|                  |  |            |                    |
|------------------|--|------------|--------------------|
| Media            | Water-based Coolant<br>MQL (oil mist) up to 10 bar (145 psi)<br>Air up to 10 bar (145 psi) |            |                    |
| Filtration       | ISO 4406:2017 Class 17/15/12, max. 60 micron   |            |                    |
| Max. Speed       | 20,000 min <sup>-1</sup>   | 20,000 rpm |                    |
| Max. Pressure    | see chart  |            |                    |
| Max. Flow        | 82 l/min   | 21.6 gpm   | Standard           |
|                  | 24.3 l/min   | 6.4 gpm    | High Pressure (HP) |
| Max. Temperature | 71 °C  | 160 °F     |                    |



|          | Ordering Number | B Supply Connection | C Overall Diameter | D Overall Length | P Drain Size Ø (3 x 120°) | A Rotor Connection | E Rotor Length | F Thread Length | G Bore Diameter | H Across Flats | I Pilot Diameter | M Pilot Length |
|----------|-----------------|---------------------|--------------------|------------------|---------------------------|--------------------|----------------|-----------------|-----------------|----------------|------------------|----------------|
| Standard | 1114-010-165    | 3/8 NPT Radial      | 53                 | 137              | 1/4 NPT                   | 5/8-18 UNF LH      | 30             | 11              | 9               | 24             | 16.649 / 16.464  | 5              |
|          | 1114-011-165    | 3/8 NPT Axial       | 53                 | 131              | 1/4 NPT                   | 5/8-18 UNF LH      | 30             | 11              | 9               | 24             | 16.649 / 16.464  | 5              |
|          | 1114-020-188    | G 3/8 Radial        | 53                 | 137              | G 1/4                     | M16 x 1.5 LH       | 30             | 11              | 9               | 24             | 17.993 / 17.988  | 5              |
|          | 1114-021-188    | G 3/8 Axial         | 53                 | 131              | G 1/4                     | M16 x 1.5 LH       | 30             | 11              | 9               | 24             | 17.993 / 17.988  | 5              |
|          | 1114-040-188    | 3/8 PT Radial       | 53                 | 137              | 1/4 PT                    | M16 x 1.5 LH       | 30             | 11              | 9               | 24             | 17.993 / 17.988  | 5              |
|          | 1114-041-188    | Rc 3/8              | 53                 | 131              | Rc 1/4                    | M16 x 1.5 LH       | 30             | 11              | 9               | 24             | 17.993 / 17.988  | 5              |
| HP       | 1114-023-212    | G 1/4 Radial        | 53                 | 137              | G 1/4                     | M16 x 1.5 LH       | 30             | 11              | 9               | 24             | 17.993 / 17.988  | 5              |
|          | 1114-024-212    | G 1/4 Axial         | 53                 | 131              | G 1/4                     | M16 x 1.5 LH       | 30             | 11              | 9               | 24             | 17.993 / 17.988  | 5              |



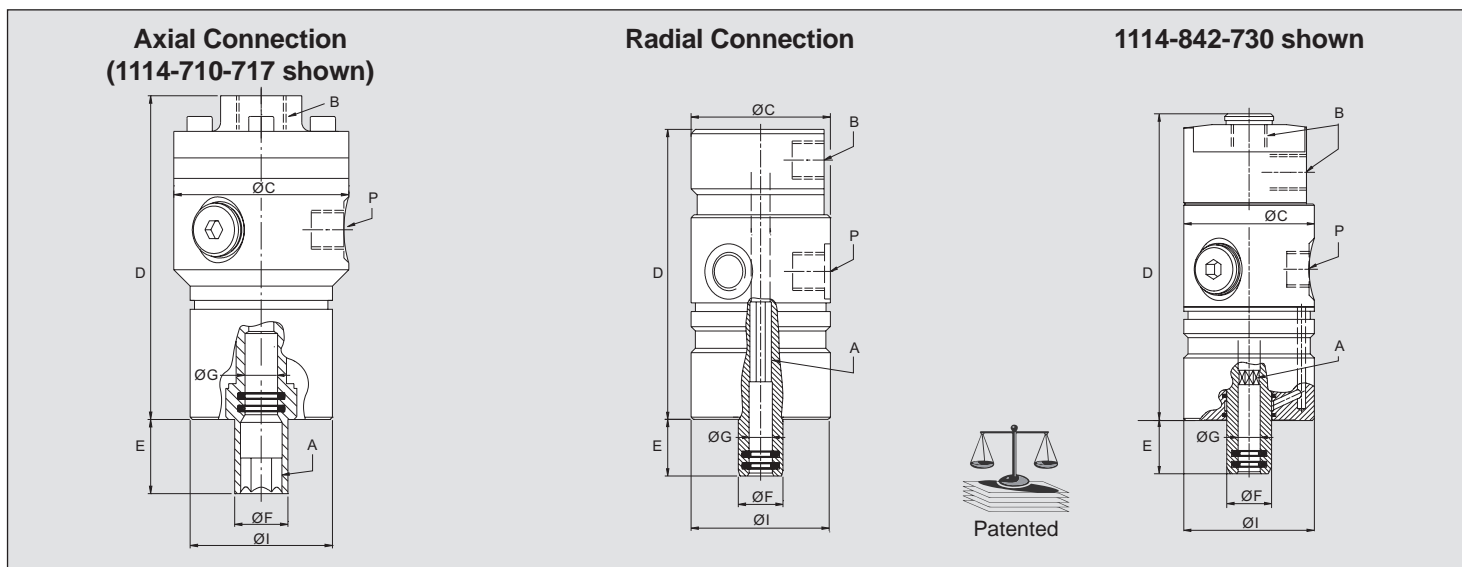
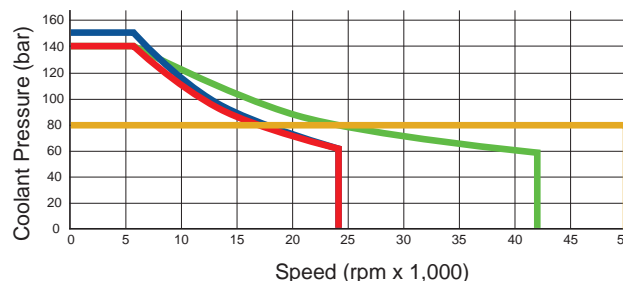
# DEUBLIN

## 1114 Series AutoSense® Bore-Mounted Rotary Unions for Coolant and Air Service and unlimited Dry Running

- Single passage for both coolant and dry air
- Patented AutoSense® technology automatically changes between closed seals and controlled leakage operation in response to the kind of media
- Bore-mounted design for easy installation
- Accepts up to 19 mm of axial drawbar movement
- Labyrinth system and large vents to protect ball bearings
- Full-flow design has no obstructions to trap swarf or debris
- Balanced mechanical seals made from silicon carbide for long life even under difficult operating conditions
- Anodized aluminum and stainless steel parts resist corrosion

### Operating Data

|                  |  |          |
|------------------|--|----------|
| Media            | Water-based Coolant<br>MQL (oil mist) up to 10 bar (145 psi)<br>Air up to 10 bar (145 psi) |          |
| Filtration       | ISO 4406:2017 Class 17/15/12, max. 60 micron   |          |
| Max. Speed       | see chart/table  |          |
| Max. Pressure    | see chart/table  |          |
| Max. Flow        |  |          |
| 1114-710-xxx     | 82 l/min   | 21.6 gpm |
| 1114-842-730     | 82 l/min   | 21.6 gpm |
| 1114-331-105     | 24.3 l/min   | 6.4 gpm  |
| 1114-92x-930     | 24.3 l/min   | 6.4 gpm  |
| Max. Temperature | 71 °C  | 160 °F   |



| Ordering Number | B Supply Connection | C Ø Overall | D Housing Length | P Drain Size Ø (3 x 120°) | A Rotor Connection | E Rotor Length | F Ø Rotor Overall | G Ø Bore | I Ø Pilot | Max. Speed (rpm) | Max. Pressure (bar) |
|-----------------|---------------------|-------------|------------------|---------------------------|--------------------|----------------|-------------------|----------|-----------|------------------|---------------------|
| 1114-331-105    | G ¼ Radial          | 48          | 88.5             | G ⅛ (4x90°)               | Octagon 7.4 D10    | 19.5           | 15.4              | 8.1 F9   | 48 h7     | 24,000           | 140                 |
| 1114-335-105    | G ¼ Axial & Radial  | 48          | 98               | G ⅛ (4x90°)               | Octagon 7.4 D10    | 19.5           | 15.4              | 8.1 F9   | 48 h7     | 24,000           | 140                 |
| 1114-710-717    | G ⅜ Axial           | 59          | 111              | G ¼                       | Hexagon 12 D10     | 25.0           | 18.0              | 11 H7    | 48 g6     | 24,000           | 140                 |
| 1114-842-730    | G ⅜ Axial & Radial  | 48          | 120              | G ¼                       | Octagon 9.25 D10   | 19.5           | 16.0              | 10 F9    | 48 g6     | 24,000           | 150                 |
| 1114-926-930    | G ¼ Radial          | 48          | 95               | G ¼                       | Octagon 7.4 D10    | 19.5           | 15.4              | 8.1 F9   | 48 h7     | 42,000           | 140                 |
| 1114-927-930    | G ¼ Axial           | 48          | 95               | G ¼                       | Octagon 7.4 D10    | 19.5           | 15.4              | 8.1 F9   | 48 h7     | 42,000           | 140                 |
| 1114-336-334    | G ⅛ Axial & Radial  | 32          | 93               | RP ⅛ (5x72°)              | Hexagon 4.5 D10    | 11.0           | 11.5              | 5.1 H10  | 32 h7     | 50,000           | 80                  |



# DEUBLIN

## Rotary Union AutoSense Plus®

- Single passage for “All-Media” application
- Patented AutoSense Plus® technology automatically changes between closed seals and controlled leakage operation in response to the kind of media and pressure
- Full-flow design has no obstructions to trap chips or debris
- Balanced mechanical seals made from silicon carbide for long life even under difficult operating conditions
- AutoSense Plus® technology can be integrated into bearing-supported and bearingless rotary unions

### Operating Data

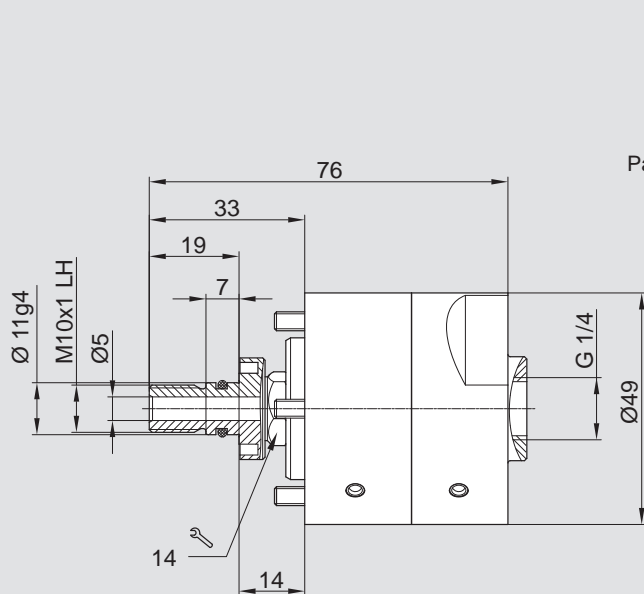
|                  |   |            |
|------------------|---|------------|
| Media            | Water-based Coolant up to 140 bar (2,031 psi)<br>Cutting oil up to 140 bar (2,031 psi)<br>MQL (oil mist) up to 10 bar (145 psi)<br>Air up to 10 bar (145 psi) |            |
| Filtration       | ISO 4406:2017 Class 17/15/12, max. 60 micron  |            |
| Max. Speed       | 50,000 min <sup>-1</sup>  | 50,000 rpm |
| Max. Flow        | 82l/min   | 21.6 gpm   |
| Max. Temperature | 71 °C   | 160 °F     |

### AutoSense Plus® is available in all Rotary Union versions

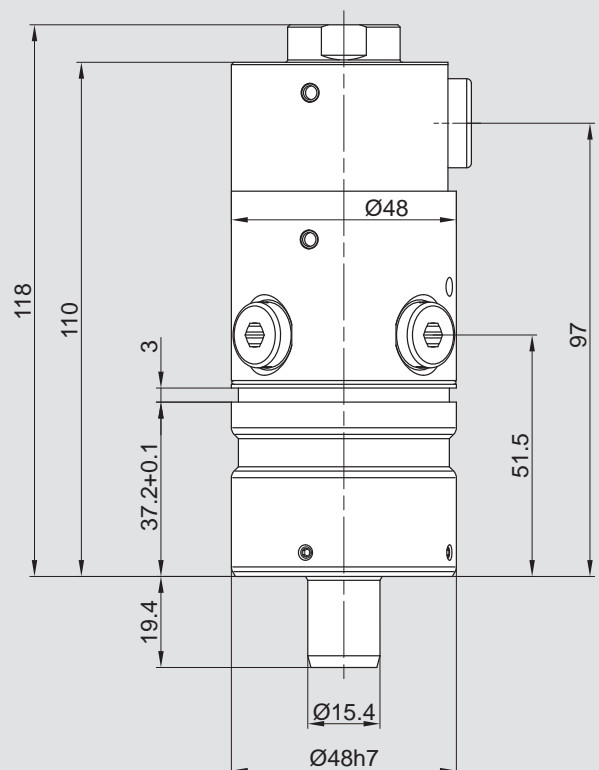
- Rotor-mounted union, bearing supported
- Bore-mounted union, bearing supported
- Bearingless union



1124-1270-022



1114-1335-105





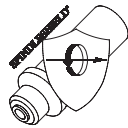
# DEUBLIN

## Rotary Union 1103 and 1113 series with SpindleShield®

- Single passage
- For all union designs, bore-mounted, rotor-mounted, bearingless
- For all seal technologies, AutoSense®, Pop-Off®, Closed Seal
- Patented technology warns the machine of leakage due to excessive seal wear with test function and media detection
- Wide operating voltage and temperature range
- Anodized aluminum housing resists corrosion
- CE-certified
- Optional available is a SpindleShield® model with free cable end

### Operating Data

The Operating Data correspond to the respective basic models (see catalog pages 15 to 19 and table below)



### Leak Sensor Features

- Media detection water-based coolant
- Reverse polarity protection
- Output short circuit protection
- ESD protection
- Integrated leak sensor test function
- Less than 50 µA standby mode current
- Fail safe design

Available with free cable end

Patented

M12 connector male 4 positions A coded

PIN 1: +24 VDC  
PIN 2: Test

PIN 3: Ground  
PIN 4: Signal

|               | Ordering number | Seal technology | Basic model dimensions same as | see catalog page |
|---------------|-----------------|-----------------|--------------------------------|------------------|
| Rotor-mounted | 1103-020-188    | Pop-Off®        | 1109-020-188                   | 15               |
|               | 1103-021-188    | Pop-Off®        | 1109-021-188                   | 15               |
|               | 1103-420-188    | AutoSense®      | 1114-020-188                   | 17               |
|               | 1103-421-188    | AutoSense®      | 1114-021-188                   | 17               |
| Bore-mounted  | 1103-335-105    | Pop-Off®        | 1111-335-105                   | 16               |
|               | 1103-435-105    | AutoSense®      | 1114-335-105                   | 18               |
|               | 1113-333-105    | Closed Seal     | 1108-333-105                   | 14               |
|               | 1103-442-730    | AutoSense®      | 1114-842-730                   | 18               |
|               | 1103-342-730    | Pop-Off®        | 1109-842-730                   | 16               |

| Parameter                         | Min  | Max  | Unit | Notes   |
|-----------------------------------|------|------|------|---|
| Operating voltage                 | 15   | 28   | V    | direct current (DC)                                     |
| Operating temperature             | -30  | 85   | °C   |   |
| ESD-protection on all 4 ports     |      | ±2   | kV   | Human body model (HBM)                                  |
| Maximum current                   |      | 50   | mA   | At 28 V supply  |
| Leakage test function             |      | Yes  |      | Short circuit to system ground test of leakage function |
| Signal Pin 4, output voltage Vout | 14.2 | 27.2 | V    | Vout = Vin - 0.8 V                                      |

Accessory Ordering Number  
1103-WLSB  
(Wireless Leak Sensor Box)





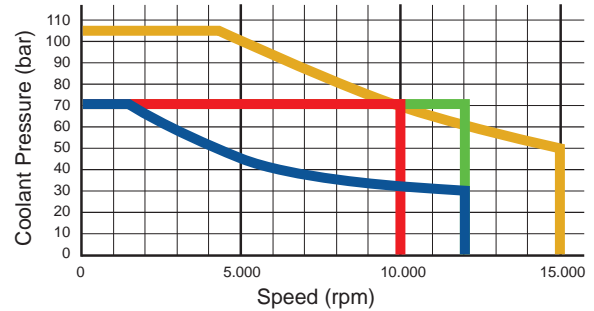
# DEUBLIN

## 1005/1101/1116 Series Rotary Unions for Multi-Media-Application

- Single passage for clamping, unclamping, lubricating, cooling and sensing
- Special design closed seals for multi-media-applications and dry run cycles
- All-purpose design; one model for various applications
- Full-flow design has no obstructions to trap swarf or debris
- Rotor-mounted design for easy installation
- Labyrinth system and large vents to protect ball bearings
- Anodized aluminum housing resists corrosion

### Operating Data

|                  |  |            |
|------------------|--|------------|
| Filtration       | ISO 4406:2017 Class 17/15/12, max. 60 micron |            |
| Max. Speed**     | 10,000 min <sup>-1</sup>                     | 10,000 rpm |
| Max. Pressure    |  |            |
| Hydraulic        | 70 bar                                       | 1,015 psi  |
| Coolant          | 70 bar                                       | 1,015 psi  |
| Lubricant        | 70 bar                                       | 1,015 psi  |
| MQL              | 10 bar                                       | 145 psi    |
| Compressed Air   | 6 bar  | 87 psi     |
| Dry run          | defined dry run cycles                       |            |
| Max. Flow        | Coolant see table                            |            |
| Max. Temperature | 71 °C  | 160 °F     |



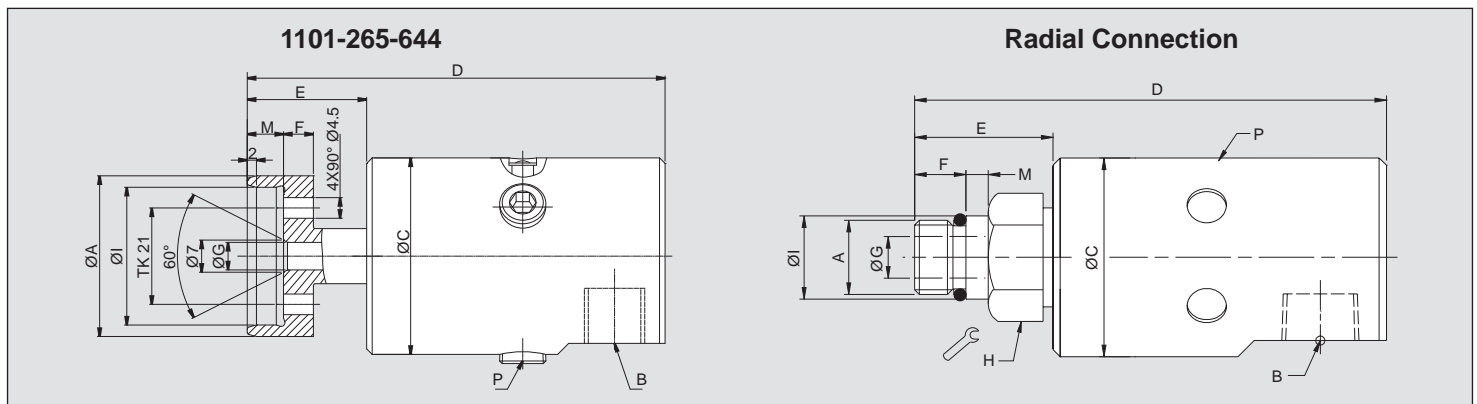
\*\* 1116 series: max. 3,500 rpm for compressed air and hydraulic service



DEFINED DRY RUN



MULTI-MEDIA-APPLICATION



| Ordering Number | B Supply Connection | Flow Coolant l/min | D Overall Length | C Overall Diameter | P Drain Size Ø (6 x 60°) | A Rotor Connection | E Rotor Length | F Length | G Bore Diameter | H Across Flats | I Pilot Diameter | M Pilot Length |
|-----------------|---------------------|--------------------|------------------|--------------------|--------------------------|--------------------|----------------|----------|-----------------|----------------|------------------|----------------|
| 1005-704-434    | 1/8 NPT Radial      | 11                 | 80               | 34                 | 3 x Rp 1/8               | M10 x 1 RH         | 22             | 11       | 3.4             | 17             | 10.994 / 10.989  | 5              |
| 1101-265-343    | G 1/4 Radial        | 20                 | 95               | 43                 | 3 x Rp 1/8               | M16 x 1.5 LH       | 30             | 11       | 6               | 24             | 17.993 / 17.988  | 5              |
| 1101-265-644    | G 1/4 Radial        | 20                 | 91               | 43                 | 3 x Rp 1/8               | Flange 35 h8       | 26             | 6.5      | 6               | 4 x M4         | 30.01 H6         | 8              |
| 1116-516-463*   | G 3/8 Radial        | 82                 | 102              | 44                 | 6 x 8.5 closed           | M16 x 1.5 LH       | 30             | 11       | 8.5             | 24             | 17.993 / 17.998  | 5              |
| 1116-063-463*   | G 3/8 Axial         | 82                 | 112              | 44                 | 6 x 8.5                  | M16 x 1.5 LH       | 30             | 11       | 9               | 24             | 17.993 / 17.998  | 5              |
| 1116-987-463    | G 3/8 Radial        | 82                 | 102              | 44                 | 6 x 8.5                  | M16 x 1.5 LH       | 30             | 11       | 8.5             | 24             | 17.993 / 17.998  | 5              |
| 1101-202-651*   | Rc 3/8              | 24.3               | 110              | 43                 | 3 x Rc 1/8               | M16 x 1.5 LH       | 30             | 11       | 6               | 24             | 17.993 / 17.988  | 5              |
| 1101-202-664*   | Rc 3/8              | 24.3               | 110              | 43                 | 3 x Rc 1/8               | M12 x 1.25 LH      | 30             | 11       | 6               | 24             | 13.994 / 13.989  | 5              |

\* Not allowed for operation with hydraulic.

# DEUBLIN

## Rotary Unions Flange Design Bore-Mounted for Various Media

- Single passage available with all sealing technologies
- Accepts up to 19 mm of drawbar movement
- Full-flow design has no obstructions to trap swarf or debris
- Labyrinth system and large vents to protect ball bearings
- Balanced mechanical seals made from silicon carbide for long life even under difficult operating conditions
- Anodized end cap and stainless steel housing and rotor resist corrosion
- Dry run capability depending on sealing technology and materials possible

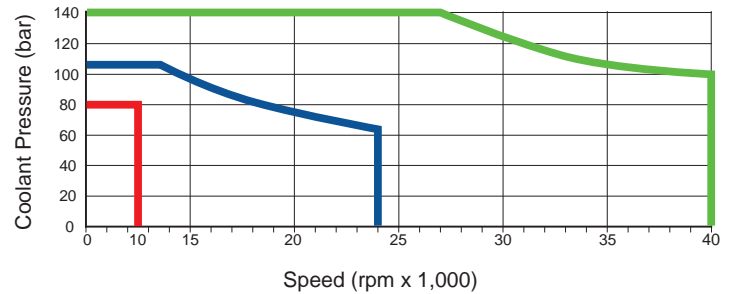


### Operating Data

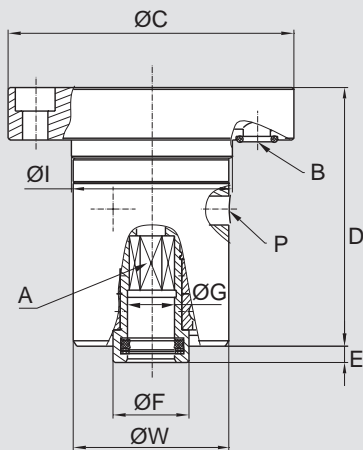
Sealing Technology AutoSense®, Closed Seal, Pop-Off®  
(depending on model)

Media Coolant – water based;  
(depending on model) Cutting Oil  
Compressed Air up to 10 bar, up to 145 psi  
MQL (oil mist) up to 10 bar, up to 145 psi

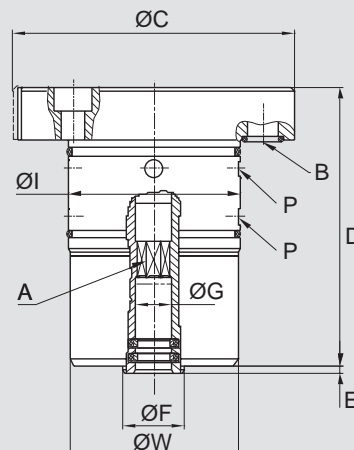
Max. Speed see chart



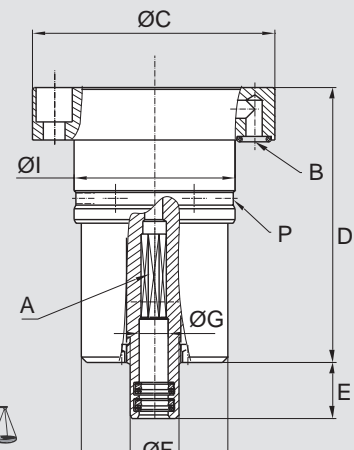
902-551 / 1114-150



1114-938-343



1114-160-318



| Ordering Number | B Supply Connection | C Flange Diameter | D Overall Length | A Rotor Connection | E Rotor Length | F Rotor OD | G Bore Diameter | I Pilot Housing Diameter | P Drain Size Ø | W Housing Ø | Sealing Technology |
|-----------------|---------------------|-------------------|------------------|--------------------|----------------|------------|-----------------|--------------------------|----------------|-------------|--------------------|
| 902-551         | 8                   | 80                | 74               | Hexagon 11 h9      | 4.5            | 21         | 13 H7           | 45 d9                    | 3x Ø8          | 44d9        | Pop-Off®           |
| 1114-150        | 8                   | 80                | 74               | Hexagon 11 h9      | 4.5            | 21         | 13 H7           | 45 d9                    | 3x Ø8          | 44d9        | AutoSense®         |
| 1114-938-343    | 9                   | 79                | 78               | Octagon 9.25 d10   | 2              | 17         | 10.1 F9         | 48 e7                    | 4x Ø5 (2x)     | 47          | AutoSense®         |
| 1114-160-318    | 5                   | 68                | 77               | Octagon 7.4 d10    | 16             | 13.5       | 8.1 H7          | 45 g5                    | 6x Ø3          | 41          | AutoSense®         |



# DEUBLIN

## 1117 Series Bearingless "Closed Seal" Rotary Unions for Continuous Coolant Service

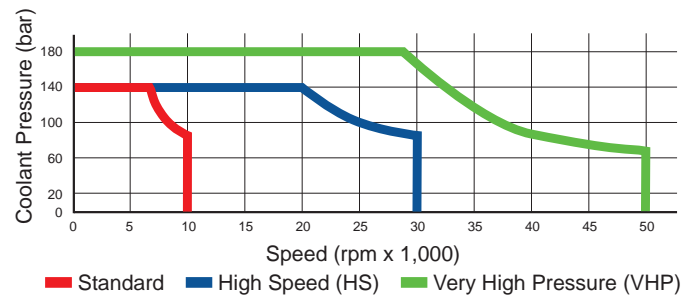
- Single passage for coolant or MQL
- Closed seals for transfer line and similar applications
- Full-flow design has no obstructions to trap swarf or debris
- Balanced mechanical seals made from silicon carbide for long life even under difficult operating conditions
- Compact size can be adapted for custom installations
- Anodized aluminum housing resists corrosion

### Operating Data

|                  |  |          |   |
|------------------|--|----------|---|
| Media            | Water-based Coolant<br>MQL (oil mist) up to 10 bar (145 psi) |          |   |
| Filtration       | ISO 4406:2017 Class 17/15/12, max. 60 micron                 |          |   |
| Max. Speed       | see chart  |          |   |
| Max. Pressure    | see chart  |          |   |
| Max. Flow        | 82 l/min   | 21.6 gpm | Standard                                    |
|                  | 24.3 l/min   | 6.4 gpm  | High Speed (HS)<br>Very High Pressure (VHP) |
| Max. Temperature | 71 °C  | 160 °F   |   |



DO NOT RUN DRY



|     |        | Axial Connection |                     |                    |                  |                     | Radial Connection  |                |                 |                 |                |                  |                |                  |
|-----|--------|------------------|---------------------|--------------------|------------------|---------------------|--------------------|----------------|-----------------|-----------------|----------------|------------------|----------------|------------------|
|     |        | Ordering Number  | B Supply Connection | C Overall Diameter | D Overall Length | L Mounting Distance | A Rotor Connection | E Rotor Length | F Thread Length | G Bore Diameter | H Across Flats | I Pilot Diameter | M Pilot Length | Max. Speed (rpm) |
| S   | Radial | 1117-711A        | 3/8 NPT             | 44 x 68            | 73               | 8.0 / 7.5           | 12 f7              | 28             | -               | 7               | -              | 11.984 / 11.966  | 20             | 10,000           |
|     |        | 1117-792         | G 3/8               | 44                 | 72               | 7.5 / 7.0           | 12 f7              | 21             | -               | 7               | -              | 11.984 / 11.966  | 20             | 30,000           |
| HS  | Axial  | 1117-002-116     | 3/8 NPT             | 51                 | 92               | 31.7 / 30.5         | M16 x 1.5 LH       | 34             | 11              | 9               | 24             | 17.993 / 17.988  | 5              | 30,000           |
|     |        | 1117-058-116     | G 3/8               | 51                 | 92               | 31.7 / 30.5         | M16 x 1.5 LH       | 34             | 11              | 9               | 24             | 17.993 / 17.988  | 5              | 30,000           |
|     |        | 1117-002-111     | 3/8 NPT             | 51                 | 95               | 31.7 / 30.5         | 3/8-18 UNF LH      | 37             | 14              | 9               | 15/16"         | 16.649 / 16.644  | 5              | 30,000           |
| VHP |        | 1117-490-493     | 3/8 PT              | 54                 | 105              | 39.6 / 38.6         | M12 x 1.25 LH      | 40             | 12              | 5               | 18             | 14.000 / 13.995  | 5              | 50,000           |

Note A: Union includes integral lip seals for added spindle protection.



# DEUBLIN

## 1121 Series Bearingless Pop-Off® “Micro Stroke” Rotary Unions for Coolant Service with unlimited Dry Running

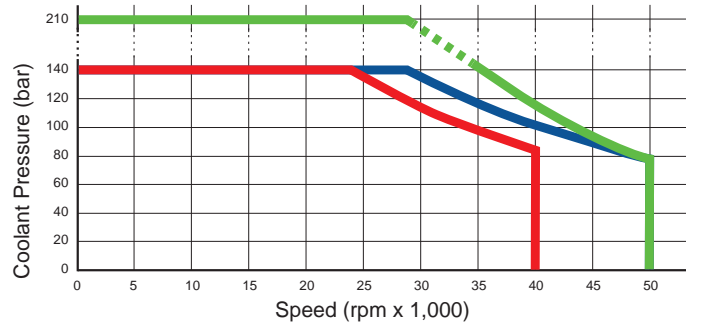
- Single passage for coolant or MQL
- Pop-Off® technology allows unlimited dry running without media pressure
- Ultra-short 0.1 mm pop-off stroke restricts drainage of residual coolant during tool change
- Full-flow design has no obstructions to trap swarf or debris
- Balanced mechanical seals made from silicon carbide for long life even under difficult operating conditions
- Anodized aluminum housing resists corrosion

### Operating Data

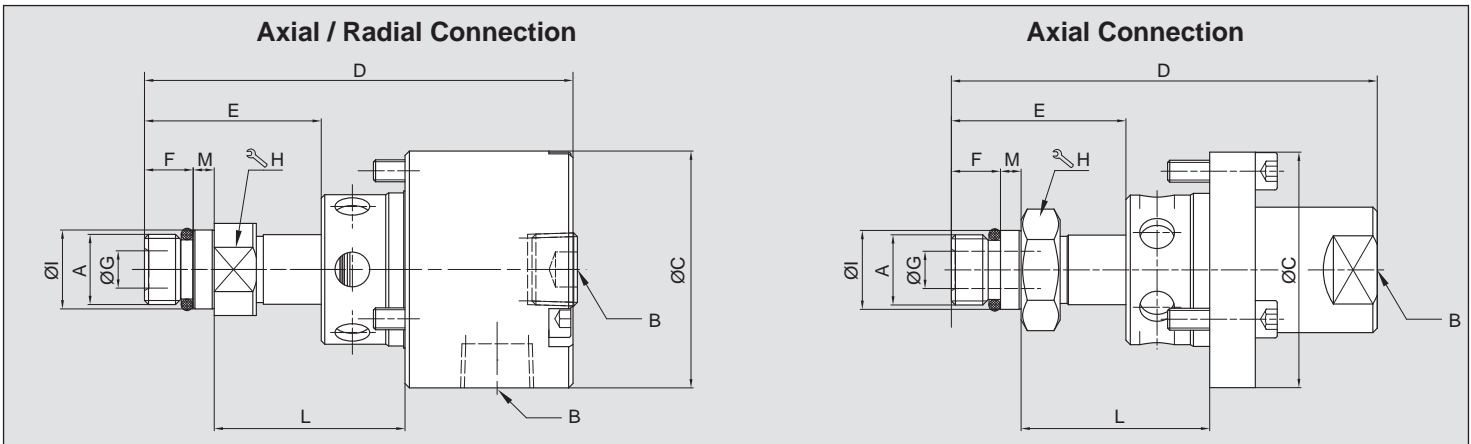
|                  |  |   |
|------------------|--|---|
| Media            | Water-based Coolant                          |   |
|                  | MQL (oil mist) up to 10 bar (145 psi)        |   |
| Filtration       | ISO 4406:2017 Class 17/15/12, max. 60 micron |   |
| Max. Speed       | 40,000 min <sup>-1</sup>                     | 40,000 rpm Standard                                   |
|                  | 50,000 min <sup>-1</sup>                     | 50,000 rpm High Speed (HS) / Very High Pressure (VHP) |
| Max. Pressure    | 210 bar                                      | 3,045 psi   |
| Max. Flow        | 24.3 l/min                                   | 6.4 gpm   |
|                  | 1121-330-327                                 | 38.7 l/min 10.2 gpm                                   |
|                  | 1121-330-345                                 | 82 l/min 21.6 gpm                                     |
| Max. Temperature | 71 °C  | 160 °F  |



NO COMPRESSED AIR  
WITH ROTATION



■ Standard ■ High Speed (HS) ■ Very High Pressure (VHP)



|              | Connect. | Ordering Number | B Supply Connection          | C Overall Diameter | D Overall Length | L Mounting Distance | A Rotor Connection | E Rotor Length | F Thread Length | G Bore Diameter | H Across Flats  | I Pilot Diameter | M Pilot Length | Max. Speed (rpm) |
|--------------|----------|-----------------|------------------------------|--------------------|------------------|---------------------|--------------------|----------------|-----------------|-----------------|-----------------|------------------|----------------|------------------|
| Standard     | Radial   | 1121-300-345    | 3/8 PT                       | 54                 | 97               | 44.0 / 43.0         | M16 x 1.5 LH       | 40             | 11              | 9               | 21              | 17.993 / 17.988  | 5              | 40,000           |
|              |          | 1121-330-327    | 3/8 PT                       | 54                 | 94               | 39.6 / 38.6         | M12 x 1.25 LH      | 37             | 12              | 6               | 18              | 14.000 / 13.995  | 5              | 40,000           |
|              |          | 1121-330-345    | 3/8 PT                       | 54                 | 97               | 44.0 / 43.0         | M16 x 1.5 LH       | 40             | 11              | 9               | 21              | 17.993 / 17.988  | 5              | 40,000           |
|              | A / R    | 1121-300-327    | Rc 3/8 Axial & Radial        | 54                 | 94               | 39.6 / 38.6         | M12 x 1.25 LH      | 37             | 12              | 6               | 18              | 14.000 / 13.995  | 5              | 40,000           |
|              |          | 1121-380-345    | G 3/8 Radial<br>1/4 PT Axial | 54                 | 102              | 44.0 / 43.0         | M16 x 1.5 LH       | 40             | 11              | 9               | 21              | 17.993 / 17.988  | 5              | 40,000           |
|              | Axial    | 1121-205-201    | M24 x 1.5 LH<br>Outer Thread | 35                 | 98               | 54.0 / 50.5         | M16 x 1.5 LH       | 37             | 11              | 9               | 21              | 17.993 / 17.988  | 5              | 40,000           |
|              |          | 1121-400-327    | 3/8 PT                       | 54                 | 94               | 39.6 / 38.6         | M12 x 1.25 LH      | 37             | 12              | 6               | 18              | 14.000 / 13.995  | 5              | 40,000           |
| 1121-400-345 |          | 3/8 PT          | 54                           | 98                 | 44.0 / 43.0      | M16 x 1.5 LH        | 40                 | 11             | 9               | 21              | 17.993 / 17.988 | 5                | 40,000         |                  |
| HS           | A        | 1121-410-493    | 3/8 PT                       | 54                 | 105              | 39.6 / 38.6         | M12 x 1.25 LH      | 40             | 12              | 5               | 18              | 14.000 / 13.995  | 5              | 50,000           |
| VHP          | Axial    | 1121-910-913    | Ø5 Counter Bore              | 18                 | 42               | 30.2 / 29.8         | M5 RH              | 15             | 9               | 1.6             | 8               | 5.496 / 5.492    | 3              | 50,000           |





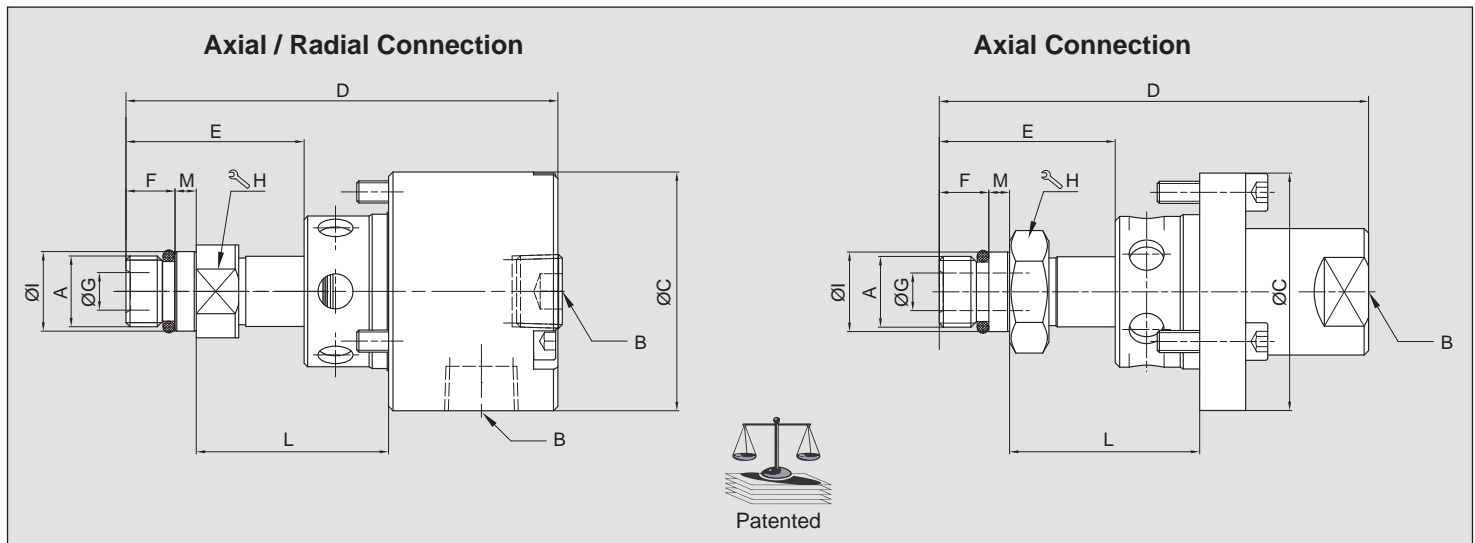
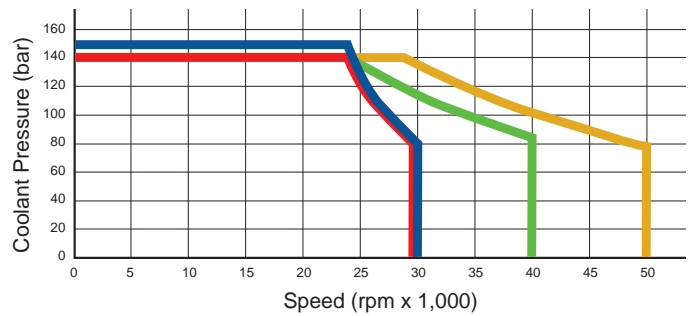
# DEUBLIN

## 1124 Series Bearingless AutoSense® Rotary Union for Coolant and Compressed Air, with unlimited Dry Running

- Single passage for coolant and compressed air
- Patented AutoSense® technology, changes automatically between closed seals and controlled leakage, depending on media
- Full-flow design has no obstructions to trap swarf or debris
- Balanced mechanical seals made from silicon carbide for long life even under difficult operating conditions
- Anodized aluminum housing, resists corrosion
- Available with threaded rotor only

### Operating Data

|                  |  |
|------------------|--|
| Media            | Water-based Coolant                          |
|                  | MQL (oil mist) up to 10 bar (145 psi)        |
| Filtration       | ISO 4406:2017 Class 17/15/12, max. 60 micron |
| Max. Speed       | see graphic/table                            |
| Max. Pressure    | see graphic/table                            |
| Max. Flow        | Coolant see table                            |
| Max. Temperature | 71 °C      160 °F                            |



| Ordering Number | Flow Rate  | B Supply Connection       | C Overall Diameter | D Overall Length | L Mounting Distance | A Rotor Connection | E Rotor Length | F Thread Length | G Bore Diameter | H Across Flats | I Pilot Diameter | M Pilot Length | Max. Speed (rpm) |
|-----------------|------------|---------------------------|--------------------|------------------|---------------------|--------------------|----------------|-----------------|-----------------|----------------|------------------|----------------|------------------|
| 1124-036-301    | 38.0 l/min | PT 3/8 Axial              | 54                 | 97               | 43.0 / 44.0         | M16 x 1.5 LH       | 40             | 11              | 8.5             | 24             | 17.993 / 17.988  | 5              | 30,000           |
| 1124-071-931    | 82.0 l/min | G 3/8 Axial               | 64                 | 75               | 35.4 / 36.3         | M14 x 1 LH         | 33             | 12              | 8.0             | 19             | 14.489 / 14.494  | 7              | 30,000           |
| 1124-205-201    | 82.0 l/min | M24 x 1,5 LH Outer Thread | 35                 | 98               | 54.0 / 51.5         | M16 x 1.5 LH       | 38             | 11              | 8.5             | 21             | 17.993 / 17.988  | 5              | 40,000           |
| 1124-300-345    | 24.3 l/min | Rc 3/8 Radial & Axial     | 54                 | 98               | 41.0 / 46.4         | M16 x 1.5 LH       | 40             | 11              | 8.5             | 21             | 17.993 / 17.988  | 5              | 40,000           |
| 1124-330-240    | 82.0 l/min | Rc 3/8 Radial & Axial     | 54                 | 98               | 42.3 / 44.7         | M16 x 1.5 LH       | 40             | 11              | 8.5             | 17             | 17.993 / 17.988  | 5              | 40,000           |
| 1124-270-022    | 24.3 l/min | G 1/4 Axial               | 45                 | 62               | 14.5 / 13.3         | M10 x 1 LH PT11    | 29             | 12              | 5.0             | 14             | 10.989 / 10.994  | 7              | 50,000           |



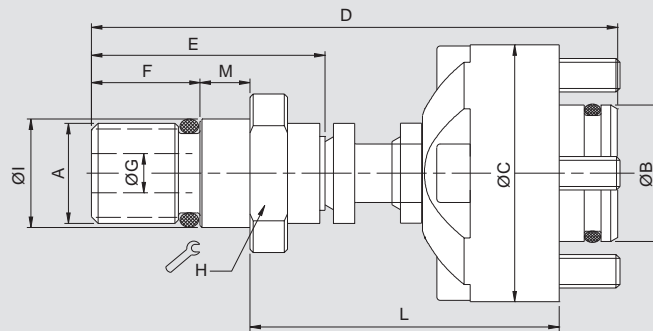
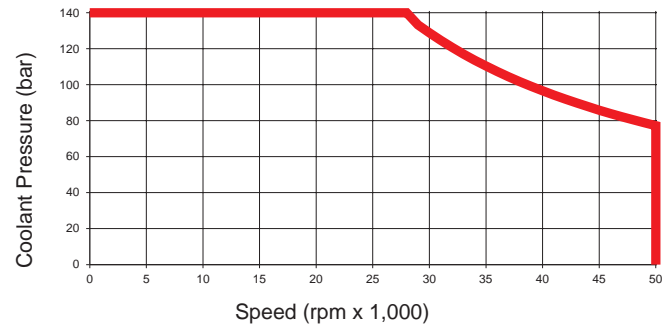
# DEUBLIN

## 1154 Series Bearingless AutoSense® “Long Stroke” Rotary Unions for Coolant and Air Service, with unlimited Dry Running

- Single passage for coolant or MQL
- Patented AutoSense® technology automatically changes between closed seals and controlled leakage operation in response to the kind of media
- Stator with long stroke to track draw bar movement even when the union is mounted on the clamping device
- Full-flow design has no obstructions to trap swarf or debris
- Balanced mechanical seals made from silicon carbide for long life even under difficult operating conditions
- Anodized aluminum housing resists corrosion

### Operating Data

|                  |  |            |
|------------------|--|------------|
| Media            | Water-based Coolant<br>MQL (oil mist) up to 10 bar (145 psi)<br>Air up to 10 bar (145 psi) |            |
| Filtration       | ISO 4406:2017 Class 17/15/12, max. 60 micron   |            |
| Max. Speed       | 50,000 min <sup>-1</sup>   | 50,000 rpm |
| Max. Pressure    | 140 bar  | 2,031 psi  |
| Max. Flow        | 24.3 l/min   | 6.4 gpm    |
| Max. Temperature | 71 °C  | 160 °F     |



|                  | Ordering Number | B Supply Connection | C Overall Diameter | D Overall Length <sup>A</sup> | L Mounting Distance | A Rotor Connection | E Rotor Length | F Thread Length | G Bore Diameter | H Across Flats | I Pilot Diameter | M Pilot Length | Max. Speed (rpm) |
|------------------|-----------------|---------------------|--------------------|-------------------------------|---------------------|--------------------|----------------|-----------------|-----------------|----------------|------------------|----------------|------------------|
| Axial Connection | 1154-002-109    | 16.4 Counterbore    | 31                 | 63                            | 37.0 / 30.0         | M12 x 1 RH         | 28             | 13              | 5               | 15             | 12.994 / 12.989  | 6              | 50,000           |
|                  | 1154-002-133    | 16.4 Counterbore    | 31                 | 65                            | 37.0 / 30.0         | M16 x 1.5 LH       | 30             | 15              | 4               | 19             | 17.994 / 17.989  | 6              | 50,000           |
|                  | 1154-002-140    | 16.4 Counterbore    | 31                 | 63                            | 37.0 / 30.0         | M12 x 1.25 LH      | 28             | 13              | 5               | 15             | 12.994 / 12.989  | 6              | 50,000           |
|                  | 1154-003-107    | 20 Counterbore      | 39                 | 71                            | 40.0 / 33.0         | M12 x 1.25 LH      | 36             | 13              | 5               | 15             | 12.994 / 12.989  | 6              | 50,000           |
|                  | 1154-003-137    | 20 Counterbore      | 38.5               | 62                            | 31.0 / 25.0         | M12 x 1.25 LH      | 27             | 13              | 5               | 15             | 12.994 / 12.989  | 6              | 50,000           |
|                  | 1154-003-163    | 20 Counterbore      | 39                 | 62                            | 32.0 / 25.0         | M16 x 1.5 LH       | 27             | 12              | 5               | 19             | 17.994 / 17.989  | 6              | 50,000           |
|                  | 1154-003-327    | 20 Counterbore      | 39                 | 56                            | 31.0 / 25.0         | M12 x 1.25 LH      | 27             | 13              | 5               | 15             | 14.000 / 13.995  | 6              | 50,000           |

Note A: Overall Length (D) is at maximum Mounting Distance (L).



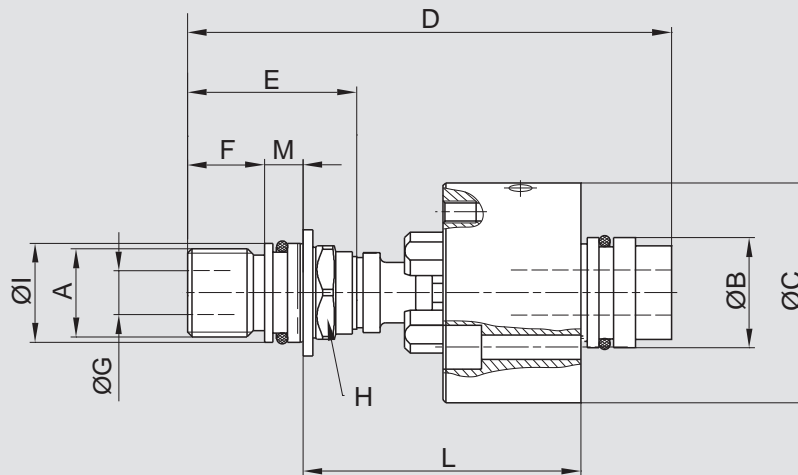
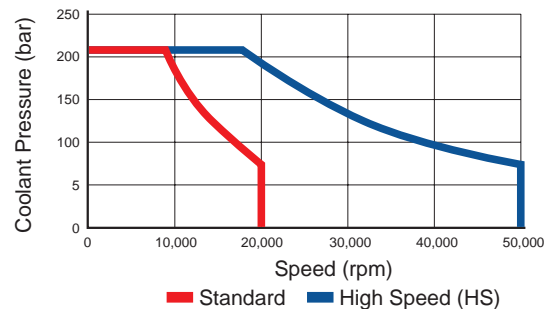
# DEUBLIN

## 1159 Series Bearingless AutoSense® “Long Stroke” Rotary Unions for Coolant and Air Service with CoolControl® Technology

- Single passage for all media
- Patented AutoSense technology automatically changes between closed seals and controlled leakage operation in response to type of media
- Non-rotating element has “stroke” (axial movement) of up to 13.5 mm, to track drawbar movement even when the union is mounted on the clamping device
- CoolControl technology utilizes an air pilot to hold seals closed during axial drawbar movements, thus minimizing coolant leakage during tool change cycles
- Full flow design has no obstructions to trap chips or debris
- Balanced mechanical seals made from silicon carbide

### Operating Data

|                  |   |                     |
|------------------|---|---------------------|
| Media            | Water-based Coolant<br>MQL (oil mist)<br>Air up to 10 bar (145 psi) |                     |
| Filtration       | ISO 4406:2017 Class 17/15/12, max. 60 micron                        |                     |
| Max. Speed       | 50,000 min <sup>-1</sup>  | 50,000 rpm          |
| Max. Pressure    | 210 bar   | 3,045 psi           |
| Max. Flow        | 33 l/min (6 mm bore)  | 8.7 gpm (6 mm bore) |
| Max. Temperature | 71 °C   | 160 °F              |



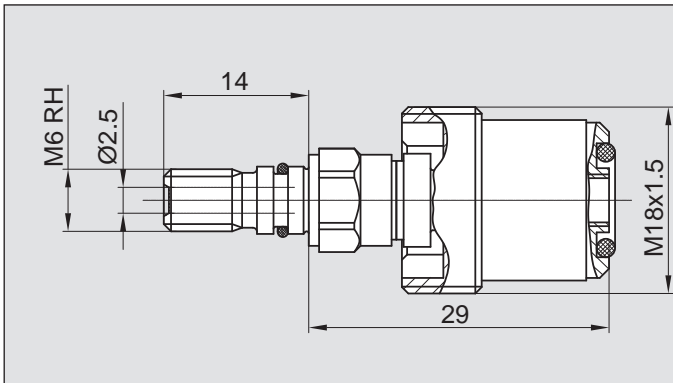
|    | Ordering Number | B Supply Connection | C Overall Diameter | D Overall Length | L Mounting Distance | A Rotor Connection | E Rotor Length | F Thread Length | G Bore Diameter | H Across Flats | I Pilot Diameter | M Pilot Length | Max. Speed (rpm) |
|----|-----------------|---------------------|--------------------|------------------|---------------------|--------------------|----------------|-----------------|-----------------|----------------|------------------|----------------|------------------|
| S  | 1159-026-115    | 20.0 mm Counterbore | 40                 | 88.0             | 50.5 / 38.5         | M16 x 1.5 RH       | 31.9           | 14              | 6.5             | 17             | 17.994 / 17.989  | 7              | 20,000           |
| HS | 1159-024-107    | 16.4 mm Counterbore | 31                 | 55.5             | 31.0 / 26.5         | M8 x 1 LH          | 24.5           | 12.5            | 4               | 12             | 8.995 / 8.991    | 3.5            | 50,000           |
|    | 1159-003-137    | 20.0 mm Counterbore | 38.5               | 79.0             | 30.0 / 23.0         | M12 x 1.25 LH      | 26.9           | 13              | 5               | 15             | 12.994 / 12.990  | 6              | 50,000           |
|    | 1159-020-101    | 16.4 mm Counterbore | 31                 | 79.3             | 45.7 / 34.0         | M12 x 1 RH         | 24.2           | 13              | 6               | 17             | 12.994 / 12.989  | 6              | 50,000           |



# DEUBLIN

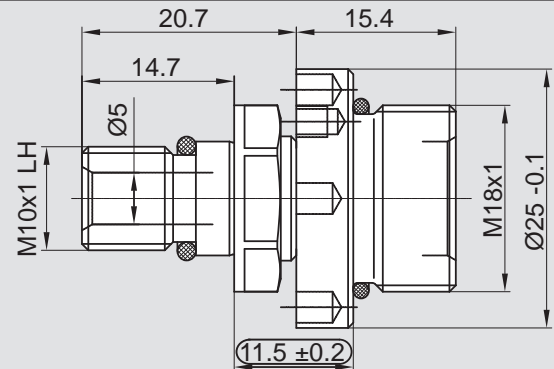
## Bearingless Rotary Union Cartridge Design Compact Bearingless Rotary Union for smallest installation space

- Single passage available with almost all sealing technologies
- Design with additional functions: e.g. "long stroke" stator with hub to allow drawbar movement even when rotary union is mounted onto the clamping unit
- Full-flow design has no obstructions to trap swarf or debris
- Balanced mechanical seals made from silicon carbide / carbon graphite for limited dry run for long life
- Anodized aluminum housing resists corrosion
- Dry run capability depending on sealing technology and materials



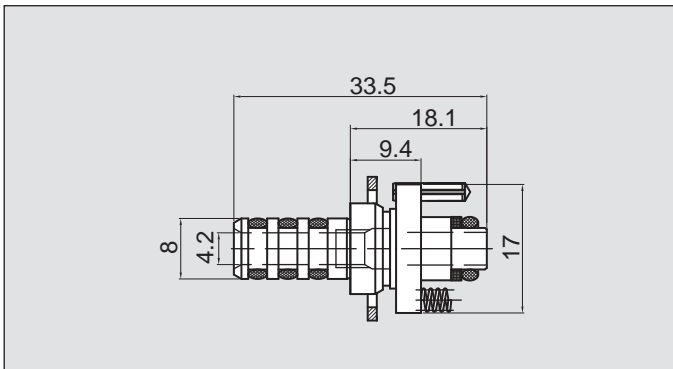
Operating Data / 1121-251-434

|                            |  |             |
|----------------------------|--|-------------|
| Media (depending on model) | Water-based Coolant, Cutting Oil             |             |
| Sealing Technology         | Pop-Off®<br>Seals SIC/SIC                    |             |
| Filtration                 | ISO 4406:2017 Class 17/15/12, max. 60 micron |             |
| Max. Speed                 | 150,000 min <sup>-1</sup>                    | 150,000 rpm |
| Max. Pressure              | 180 bar                                      | 2,707 psi   |
| Max. Flow                  | 7.4 l/min                                    | 2 gpm       |



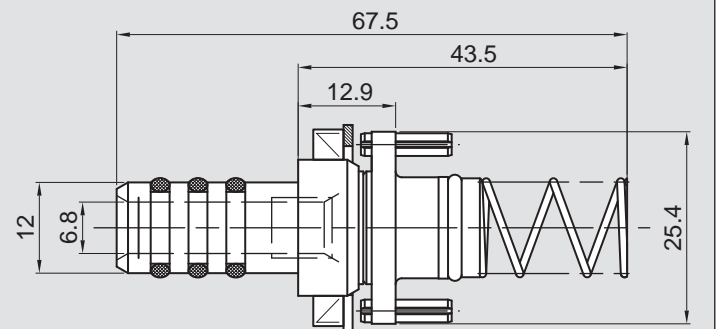
Operating Data / 1124-259-260

|                            |   |                     |
|----------------------------|---|---------------------|
| Media (depending on model) | Water-based Coolant, Compressed Air up to 10 bar, up to 145 psi |                     |
| Sealing Technology         | AutoSense®<br>Seals SIC/SIC                                     |                     |
| Filtration                 | ISO 4406:2017 Class 17/15/12, max. 60 micron                    |                     |
| Max. Speed                 | 30,000 min <sup>-1</sup>  | 30,000 rpm          |
| Max. Pressure              | 140 bar / 10 bar  | 2,031 psi / 145 psi |
| Max. Flow                  | 7.4 l/min   | 2 gpm               |



Operating Data / 993-880

|                            |  |                      |
|----------------------------|--|----------------------|
| Media (depending on model) | Water-based Coolant, Cutting Oil, Compressed Air up to 6 bar |                      |
| Sealing Technology         | Closed Seal – Limited Dry Run<br>Seals CG/SIC                |                      |
| Filtration                 | ISO 4406:2017 Class 17/15/12, max. 60 micron                 |                      |
| Max. Speed                 | 15,000 min <sup>-1</sup>                                     | 15,000 rpm           |
| Max. Pressure              | 80 bar / 6 bar   | 1,160.3 psi / 87 psi |
| Max. Flow                  | 9.4 l/min  | 2.5 gpm              |



Operating Data / 9012-810

|                            |  |              |
|----------------------------|--|--------------|
| Media (depending on model) | Coolant                                      |              |
| Sealing Technology         | Closed Seal<br>Seals SIC/SIC                 |              |
| Filtration                 | ISO 4406:2017 Class 17/15/12, max. 60 micron |              |
| Max. Speed                 | 15,000 min <sup>-1</sup>                     | 15,000 rpm   |
| Max. Pressure              | 110 bar                                      | 1,595.42 psi |
| Max. Flow                  | 49.8 l/min                                   | 13.2 gpm     |



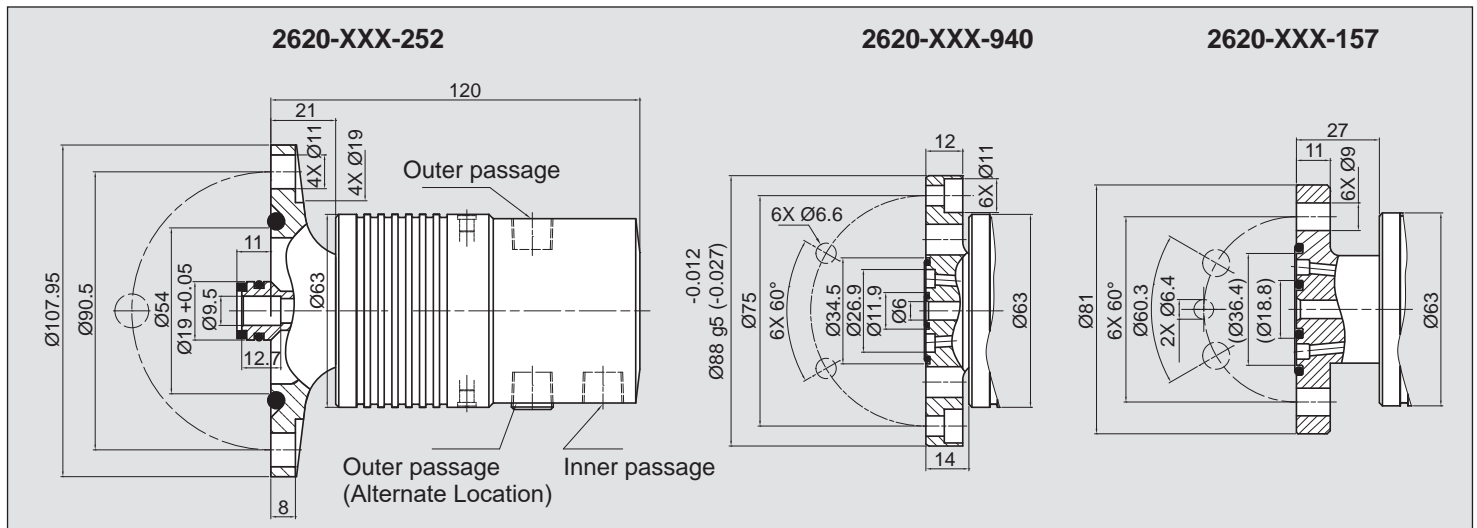
# DEUBLIN

## 2620 Series 2-Passage Rotary Unions for Various Media

- Two independent passages for applications such as clamping and unclamping, work piece sensing, and cooling
- Balanced mechanical seals for each passage provide long life and reduced torque even at maximum pressure
- Closed seals provide continuous containment of media
- Labyrinth protection for ball bearings

### Operating Data

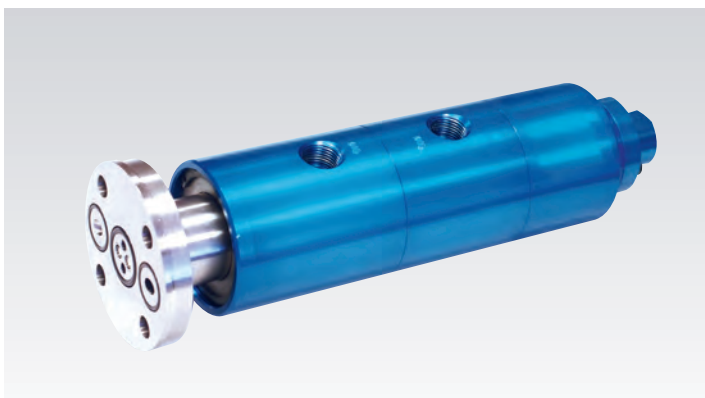
|                  |  |                        |
|------------------|--|------------------------|
| Media            | see chart                                    |                        |
| Filtration       | ISO 4406:2017 Class 17/15/12, max. 60 micron |                        |
| Max. Speed       | 12,000 min <sup>-1</sup>                     | 12,000 rpm             |
| Max. Pressure    | see table                                    |                        |
| Max. Flow        | 69 l/min                                     | 18.2 gpm (per passage) |
| Max. Temperature | 71 °C  | 160 °F                 |



| Inner Passage  |               | Outer Passage  |               | Ordering Number | Supply Connections |               | Ø Flanged Rotor |
|----------------|---------------|----------------|---------------|-----------------|--------------------|---------------|-----------------|
| Media          | Max. Pressure | Media          | Max. Pressure |                 | Inner Passage      | Outer Passage |                 |
| Hydraulic Oil  | 40            | Hydraulic Oil  | 40            | 2620-004-252    | ¼ NPT              | ¼ NPT         | 108             |
| Hydraulic Oil  | 140           | Hydraulic Oil  | 70            | 2620-040-252    | ¼ NPT              | ¼ NPT         | 108             |
|                |               |                |               | 2620-042-940    | G ¼                | G ¼           | 88              |
|                |               |                |               | 2620-040-157    | ¼ NPT              | ¼ NPT         | 81              |
| Hydraulic Oil  | 140           | Hydraulic Oil  | 70            | 2620-045-252    | ¼ NPT              | ¼ NPT         | 108             |
| Hydraulic Oil  | 140           | Compressed Air | 10            | 2620-160-252 *  | ¼ NPT              | ¼ NPT         | 108             |
|                |               |                |               | 2620-162-940 *  | G ⅜                | G ⅛           | 88              |
|                |               |                |               | 2620-160-157 *  | ¼ NPT              | ¼ NPT         | 81              |
| Coolant        | 140           | Compressed Air | 10            | 2620-260-252 *  | ¼ NPT              | ¼ NPT         | 108             |
|                |               |                |               | 2620-262-940 *  | G ⅜                | G ⅛           | 88              |
|                |               |                |               | 2620-260-157 *  | ¼ NPT              | ¼ NPT         | 81              |
| Compressed Air | 10            | Compressed Air | 10            | 2620-520-252 ** | ¼ NPT              | ¼ NPT         | 108             |
|                |               |                |               | 2620-522-940 ** | G ⅜                | G ⅛           | 88              |
|                |               |                |               | 2620-520-157 ** | ¼ NPT              | ¼ NPT         | 81              |

\* Compressed air seals may be lubricated through oil cup or by using oiled compressed air.

\*\* Limited to 7,000 rpm compressed air seals may be lubricated through oil cup or by using oiled compressed air.



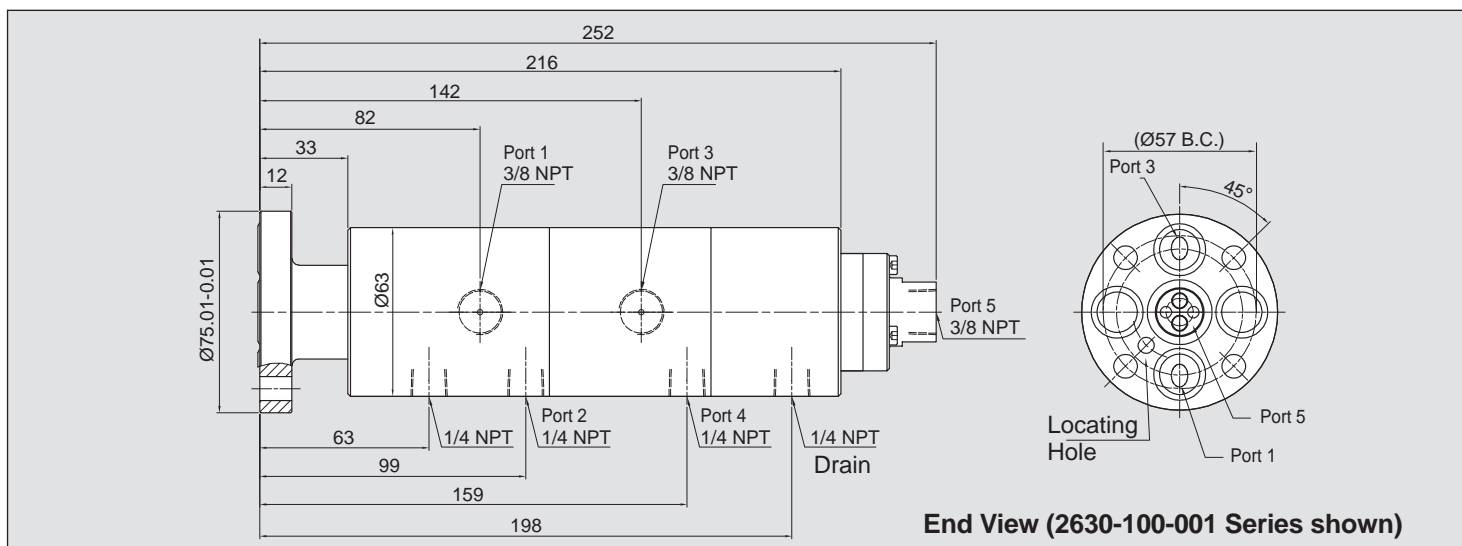
# DEUBLIN

## 2630/2640/2650 Series 3 to 5-Passage Rotary Unions for Various Media

- Three, four or five independent passages for applications such as clamping and unclamping, work piece or tool sensing, and spindle cooling
- Balanced mechanical seals in all passages for low torque and long life even with high speeds and pressures
- Closed seals provide continuous containment of media
- No external lubrication of air seals is required
- Labyrinth protection for ball bearings

### Operating Data

|                       |   |            |
|-----------------------|---|------------|
| Media                 | see table                                       |            |
| Filtration            | ISO 4406:2017 Class 17/15/12, max.<br>60 micron |            |
| Max. Speed            | 10,000 min <sup>-1</sup>                        | 10,000 rpm |
| Max. Pressure         |   |            |
| Coolant or Oil        | 140 bar   | 2,031 psi  |
| Air                   | 10 bar  | 145 psi    |
| Max. Flow per passage |   |            |
| Serie 2630            | 39 l/min  | 10.2 gpm   |
| Serie 2640            | 17 l/min  | 4.5 gpm    |
| Serie 2650            | 17 l/min  | 4.5 gpm    |
| Max. Temperature      | 71 °C   | 160 °F     |

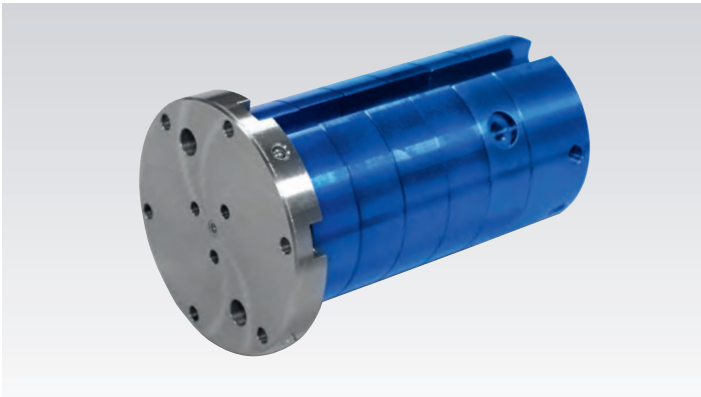


End View (2630-100-001 Series shown)

| Number of Passages | Ordering Number | Port #1                     | Port #2                     | Port #3                                     | Port #4                                     | Port #5                                     |
|--------------------|-----------------|-----------------------------|-----------------------------|---|---|---|
| 3                  | 2630-100-001    | Hydraulic or Cooling Oil    | Drain                       | Hydraulic or Cooling Oil                    | Drain                                       | Coolant / MQL / Compressed Air <sup>A</sup> |
|                    | 2630-200-001    | Hydraulic or Cooling Oil    | Compressed Air <sup>B</sup> | Coolant                                     | Drain                                       | -   |
|                    | 2630-300-001    | -                           | Compressed Air <sup>B</sup> | Coolant                                     | Compressed Air <sup>B</sup>                 | -   |
|                    | 2630-600-001    | Compressed Air <sup>B</sup> | Compressed Air <sup>B</sup> | Coolant / MQL / Compressed Air <sup>A</sup> | -   | -   |
| 4                  | 2640-100-001    | Hydraulic or Cooling Oil    | Compressed Air <sup>B</sup> | Hydraulic or Cooling Oil                    | Drain                                       | Coolant / MQL / Compressed Air <sup>A</sup> |
|                    | 2640-600-001    | Compressed Air <sup>B</sup> | Compressed Air <sup>B</sup> | Compressed Air <sup>B</sup>                 | Coolant / MQL / Compressed Air <sup>A</sup> | -   |
| 5                  | 2650-000-001    | Hydraulic or Cooling Oil    | Compressed Air <sup>B</sup> | Coolant                                     | Compressed Air <sup>B</sup>                 | Hydraulic or Cooling Oil                    |
|                    | 2650-600-001    | Compressed Air <sup>B</sup> | Compressed Air <sup>B</sup> | Compressed Air <sup>B</sup>                 | Compressed Air <sup>B</sup>                 | Coolant                                     |
|                    | 2650-700-001    | Hydraulic Oil               | Hydraulic Oil               | Hydraulic Oil                               | Compressed Air <sup>B</sup>                 | Hydraulic Oil                               |

Note A: This passage operates with AutoSense® technology. With dry air, it operates with controlled leakage, with MQL and coolant, it operates with closed seals.

Note B: This passage operates with closed seals, appropriate for tool or work piece sensing applications.



# DEUBLIN

## 260x Series Multi-Channel High Speed Unions (1000+ RPM) for DDRT\* Applications Requiring Various Media

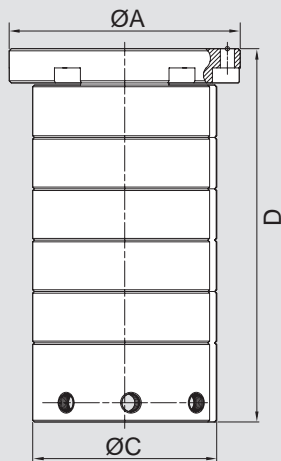
- 3-8 Passages for Various Media
- Applications include clamping and unclamping, work piece or tool sensing, air cleaning, and spindle cooling
- Minimized axial length
- No external lubrication required for air seals
- Balanced mechanical seals in all passages for low torque and long life even with high speeds and pressures
- Closed seals provide continuous containment of media with no by-pass leakage
- Dual precision ball bearings for smooth operation

### Operating Data

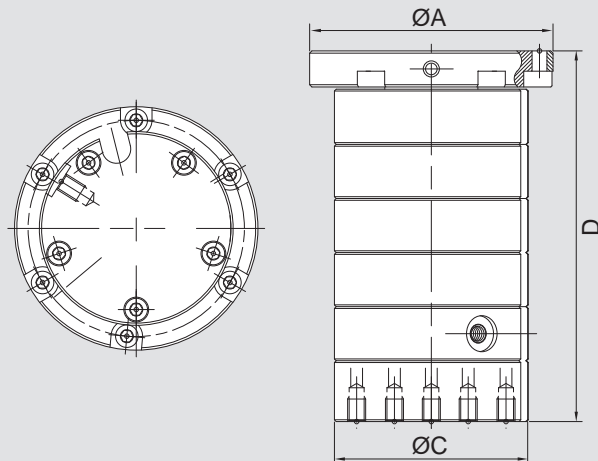
|                  |   |           |
|------------------|---|-----------|
| Media            | Hydraulic Oil<br>Cooling Oil<br>Air up to 10 bar (145 psi)<br>Coolant |           |
| Filtration       | ISO 4406:2017 Class 17/15/12, max.<br>60 micron                       |           |
| Max. Speed       | see table   |           |
| Max. Pressure    |   |           |
| Coolant or Oil   | 140 bar   | 2,031 psi |
| Air              | 10 bar  | 145 psi   |
| Max. Temperature | 71 °C   | 160 °F    |

\* Direct Drive Rotary Table

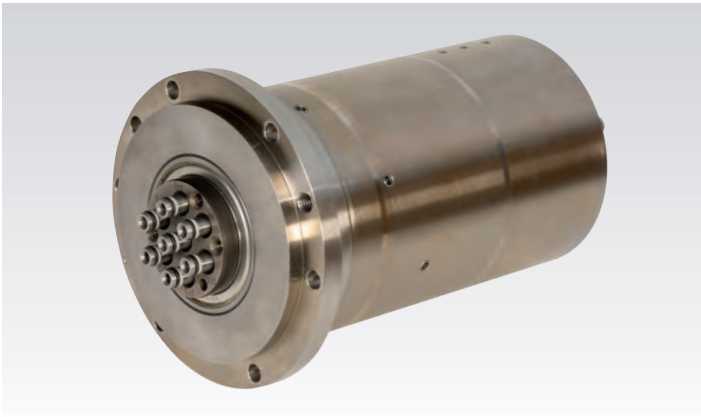
**Rotor-mounted Radial Connection  
Connection 1**



**Rotor-mounted Axial Connection  
Connection 2**



| Number of Passages | Connection | Ordering Number | Max. Speed | Media Channels                           | D Overall Length | C Housing Diameter | A Flange Diameter |
|--------------------|------------|-----------------|------------|--|------------------|--------------------|-------------------|
| 3                  | 1          | 2603-140-108    | 7,000      | 2x Oil, 1x Air                           | 140              | 63                 | 108               |
| 3                  | 1          | 2603-141-108    | 3,000      | 3x Air                                   | 140              | 63                 | 108               |
| 3                  | 1          | 2603-145-108    | 7,000      | 2x Oil, 1x Air                           | 140              | 68                 | 108               |
| 4                  | 2          | 2604-102-108    | 3,000      | 3x Oil, 1x Air                           | 164.5            | 86                 | 108               |
| 6                  | 1          | 2606-075-102    | 2,500      | 2x Cooling Oil, 2x Hydraulic Oil, 2x Air | 163              | 75                 | 75                |
| 6                  | 1          | 2606-250-101    | 1,500      | 4x Oil, 2x Cooling Oil or Coolant        | 212              | 86                 | 100               |
| 8                  | 1          | 2608-200-103    | 1,500      | 3x Oil, 3x Air, 2x Cooling Oil           | 258              | 115                | 158               |



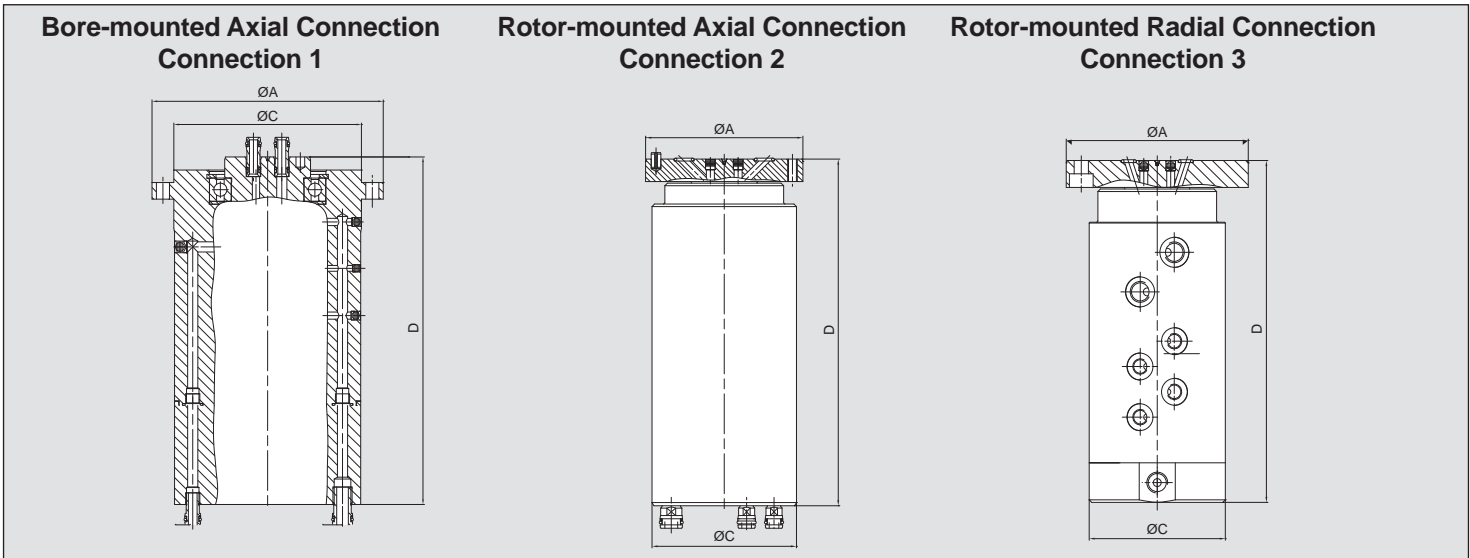
# DEUBLIN

## Hybrid-Multi-Passage Rotary Unions up to 10-Passages for various Media

- Independent channels for various applications, e.g. clamping/unclamping, tool clamping, cooling and work piece sensing
- Combination of various sealing technologies for compact design, high pressures for hydraulic and coolant applications and high flow
- Special balanced sealing technologies for low temperatures and long life
- Various installation options for easy and fast installation through media plug-and-socket connection (Deublin tubes)

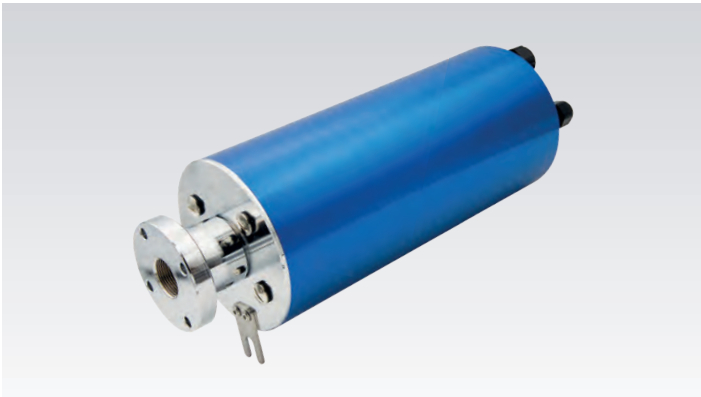
### Operating Data

|                  |                         |           |
|------------------|-------------------------|-----------|
| Max. Speed       | see table               |           |
| Max. Pressure    |                         |           |
| Hydraulic        | up to 200 bar           | 2,900 psi |
| Cooling Water    | up to 6 bar             | 87 psi    |
| Coolant          | up to 140 bar           | 2,030 psi |
| Air, MQL         | up to 10 bar            | 145 psi   |
| Vacuum           | up to 0.07 bar absolute | 1.015 psi |
| Max. Temperature | 71 °C                   | 160 °F    |



| Passages | Connection | Ordering Number | Max. Speed [rpm] | Media  | D Overall Length | C Overall Diameter | A Ø Flange |
|----------|------------|-----------------|------------------|--|------------------|--------------------|------------|
| 3        | 1          | SP0561          | 250              | 2x Hydraulic, 1x Compressed Air                                    | 239              | 128                | 159        |
| 4        | 2          | SP0653          | 1,200            | 4x Compressed Air when stationary                                  | 157              | 90                 | 98 f7      |
| 4        | 2          | SP0653          | 1,200            | 4x Compressed Air when stationary                                  | 157              | 90                 | 98 g7      |
| 5        | 2          | SP0664          | 2,500            | 3x Hydraulic, 2x Compressed Air                                    | 245              | 110                | 132 g7     |
| 5        | 3          | SP0930          | 6,000            | 3x Hydraulic, 2x Compressed Air                                    | 189              | 88                 | 58         |
| 6        | 2          | SP0501          | 600              | 3x Hydraulic, 3x Compressed Air when stationary                    | 205              | 90                 | 98 f7      |
| 6        | 1          | SP0668          | 5,000            | 2x Hydraulic, 2x Cooling Water, 1x Air, 1x Coolant                 | 347              | 89                 | 86 f7      |
| 6        | 3          | 2507G-F132M     | 500              | 4x Hydraulic, 2x Compressed Air                                    | 238              | 110                | 132 g6     |
| 7        | 1          | SP0856          | 20               | 4x Hydraulic, 2x Compressed Air, 1x Vacuum                         | 239              | 128                | 159        |
| 7        | 1          | 2507Z-Q059M     | 500              | 2x Hydraulic, 3x Compressed Air, 2x Vacuum                         | 239              | 128                | 159        |
| 10       | 1          | SP0721          | 20               | 8x Hydraulic, 2x Compressed Air                                    | 239              | 128                | 159        |
| 10       | 3          | 2510G-F132M     | 800              | 4x Hydraulic, 5x Compressed Air when stationary, 1x Compressed Air | 287              | 110                | 132 g6     |





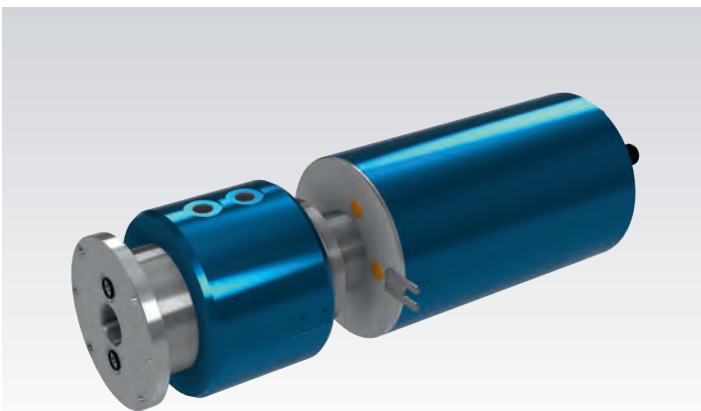
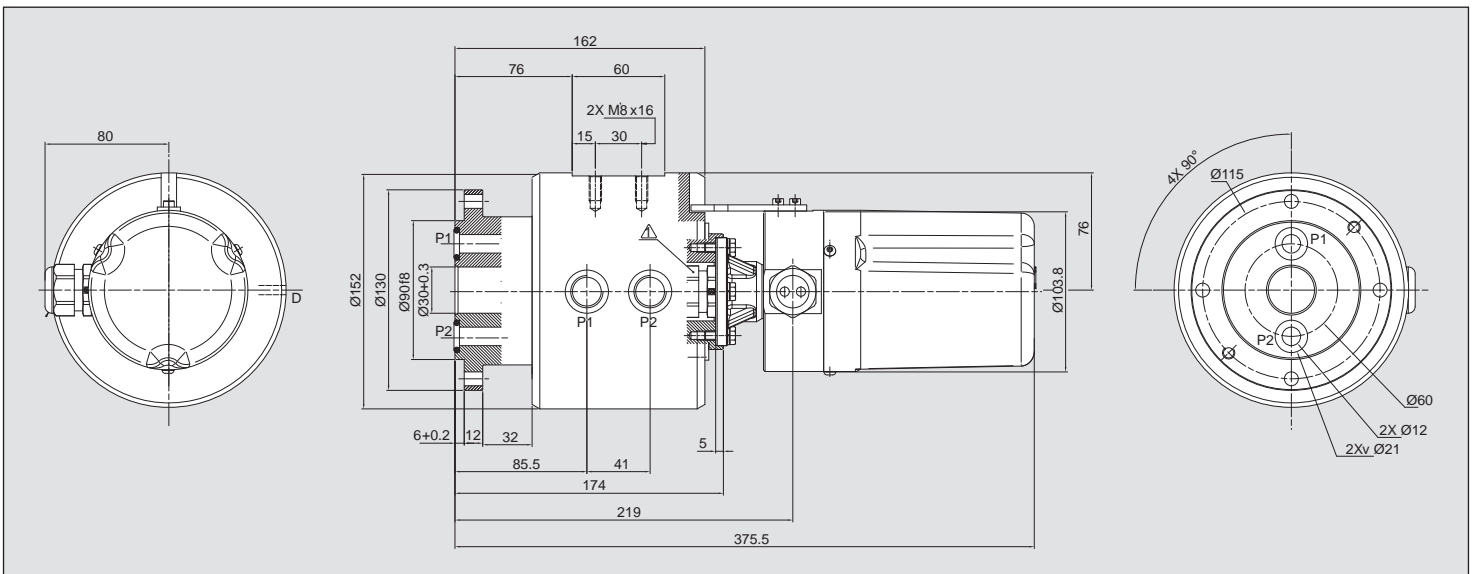
# DEUBLIN

## Slip Ring Series SRC

- For automation of process flow for work piece infeed, positioning, chipping, in milling heads and round tables up to 360° rotation
- Wide range for the transmission of data, signal and power
- Conductor Rings: Gold coated, pure copper inside, manufactured with high precision, no oxidation, very low contact friction
- Application of precious metal only where it is necessary
- Coating optimized in type, class and hardness
- Monofilament Technology: Low contact resistance, low abrasion; for signal and data transmission also for current up to 25A
- Polyfilament Technology: Very low contact resistance; for the transmission of signal and high data rate
- Graphite composite brushes: Longer life, high speed; for high current from 30A to over 100A; speed up to 250 rpm

### Operating Data

|                     |   |
|---------------------|---|
| Features            | axial cable outlet on the housing                 |
| Electrical Channels | up to 99  |
| Max. Current        | Signal 5 A; Power 60 A                            |
| Data Commun. Speed  | 100 Mbps  |
| Conductor Ring      | gold coated                                       |
| Brushes             | Monofilament ( $\leq 25$ A); Graphite ( $> 25$ A) |
| Central Bore        | only SRC-40                                       |
| Protection Class    | IP 55 – max IP 67                                 |
| Max. Speed          | 250 min <sup>-1</sup> / 250 rpm                   |
| Nominal Voltage     | Voltage 880 V AC/DC; Signal 190 V DC              |



## CMB Combo

|                   |   |
|-------------------|---|
| Features          | consists of MPSS Rotary Union and Slip Ring SRC / SRD series                                |
| Media passages    | 1 - 2 - 4 - 6 - 8   |
| Passage dimension | Ø 6 - Ø 10 - Ø 12 mm  |
| Fluids            | depending on the design: air, vacuum or hydraulics, water on request (reduced service life) |
| Speed             | for slow speeds   |
| Central bore      | 30 mm for wire/cables   |
| Drainage          | between the channels  |
| Flange Connection | yes<br>for SRG SRD at the back  |



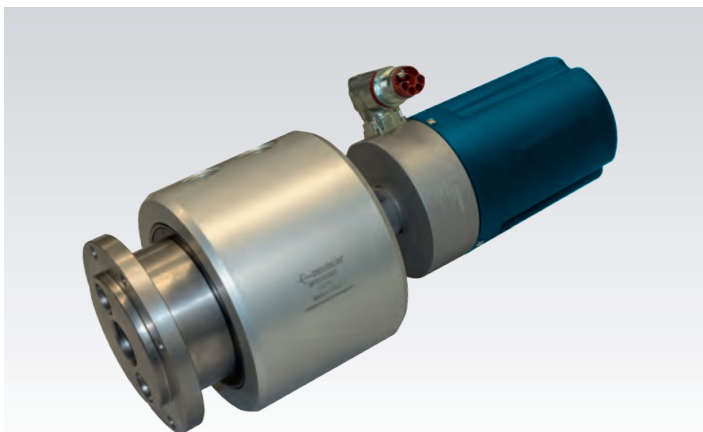
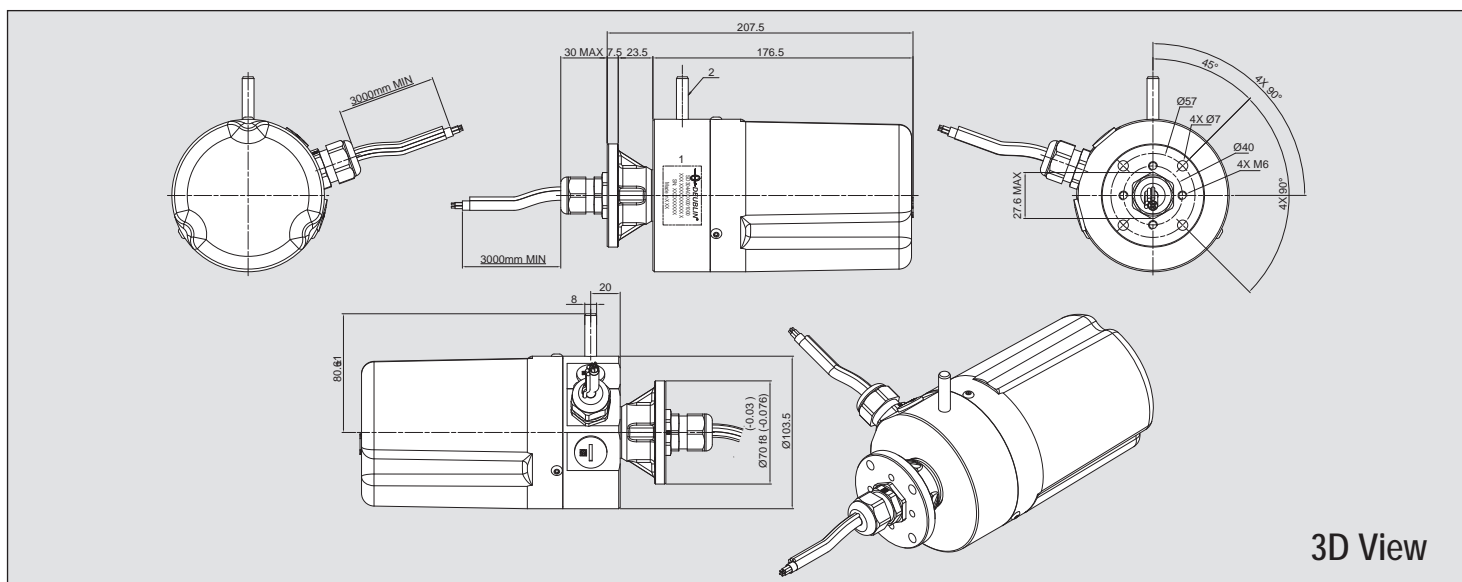
# DEUBLIN

## Slip Ring Series SRD

- For automation of process flow for work piece infeed, positioning, chipping, in milling heads and round tables up to 360° rotation
- Wide range for the transmission of data, signal and power
- Conductor Rings: Gold coated, pure copper inside, manufactured with high precision, no oxidation, very low contact friction
- Application of precious metal only where it is necessary;
- Coating optimized in type, class and hardness
- Monofilament Technology: Low contact resistance, low abrasion; for signal and data transmission also for current up to 25A
- Polyfilament Technology: Very low contact resistance; for the transmission of signal and high data rate
- Graphite composite brushes: Longer life, high speed; for high current from 30A to over 100A; speed up to 250 rpm

### Operating Data

|                     |  |
|---------------------|--|
| Features            | radial cable outlet on the housing     |
| Electrical Channels | up to 32                               |
| Max. Current        | Signal 5 A; Power 60 A                 |
| Data Commun. Speed  | 100 Mbps                               |
| Conductor Ring      | gold coated                            |
| Brushes             | Monofilament (≤25 A); Graphite (>25 A) |
| Central Bore        | only SRD-40                            |
| Protection Class    | IP 55 – max IP 67                      |
| Max. Speed          | 250 min <sup>-1</sup> / 250 rpm        |
| Nominal Voltage     | Voltage 640 V AC/DC;<br>Signal 30 V DC |



## CMB Combo

|                   |  |
|-------------------|--|
| Features          | consists of MPSS Rotary Union and Slip Ring SRC / SRD series                                   |
| Media passages    | 1 - 2 - 4 - 6 - 8  |
| Passage dimension | Ø 6 - Ø 10 - Ø 12 mm   |
| Fluids            | depending on the design: air, vacuum or hydraulics,<br>water on request (reduced service life) |
| Speed             | for slow speeds  |
| Central bore      | 30 mm for wire/cables  |
| Drainage          | between the channels   |
| Flange Connection | yes<br>for SRG SRD at the back   |

## Important Information

A Deublin Rotary Union is a precision-made piece of equipment and must be handled accordingly. Sealing between the rotating device – rotor – and the static device – stator – is mainly accomplished via floating seals. Improper use could result in premature leakage or failure.

Although Deublin Rotary Unions are of the highest quality and precision they are, by their very nature, a “wear and tear” product. It’s important that they should be inspected periodically. Moreover, when seals wear out, the Rotary Union must be replaced or serviced to avoid subsequent leakage. Once a union begins to leak, it is paramount that the union be serviced immediately. Never work with leaking unions!

Deublin Rotary Unions must never be used for applications other than those specified in the catalog. It is strictly prohibited to use Deublin Rotary Unions with hydrocarbons or other flammable media as leakage may result in a fire or explosion. The use of our product on exotic or corrosive media is strictly prohibited without our prior approval. For applications other than those stated in the catalog, Deublin Engineering Department should be contacted for proper instructions. These instructions are provided by Deublin as general guidelines and do not contain exhaustive information about the installation, use or maintenance of unions. Operating instructions and installation manuals are available for Deublin products. Buyers and users of Deublin Rotary Unions should be certain that they have reviewed all of Deublin’s product information. The operating and installation instructions must be strictly followed when installing Deublin Rotary Unions.

### Factory Testing

All Deublin Rotary Unions are factory-tested under pressure prior to shipment. This thorough check ensures that each single Deublin Union is completely operational when you receive it and can – in most cases – be installed with no further consideration.

### Warranty

The buyer’s warranty rights assume that the product shipped be inspected upon receipt and all defects reported to Deublin in writing immediately or for no longer than a period of 2 weeks. Hidden defects must be reported to Deublin in writing immediately upon detection. The warranty is void when the Deublin Rotary Union is tampered with or misused in any way. Otherwise, our General Terms of Sale and Delivery are valid. It cannot be emphasised enough that all dynamic seal components are wear parts.

Deublin will not be held liable for damage resulting from improper use, incorrect warehousing, incorrect transport, faulty assembly, faulty operation, insufficient maintenance, incorrect handling, improper installation by the customer, the use of inappropriate accessories or spare parts and natural abrasion. Please request our General Terms of Sale and Delivery.

### Lubrication and Maintenance

Depending on the Deublin product series and the operating parameters all Deublin Rotary Unions are either lubricated for life or have to be relubricated or serviced according to specially defined intervals. Please follow the respective operating instructions or the general “Relubrication Guide” for Deublin Rotary Unions.

### Filtering

The service life of the seal is largely determined by filter quality and thus of vital importance for the proper operation of the Rotary Union. We recommend filtration of min. 60 µm. All installation and operating instructions must be carefully reviewed and strictly followed.

### Service and Maintenance of Deublin Rotary Unions by Deublin

Use only Deublin spare parts for service of the Deublin Rotary Unions. Prior to service contact Deublin or any authorised Deublin representative. You can find a local Deublin representative at: [www.deublin.com](http://www.deublin.com).

Most unions can be reconditioned in the field by use of Deublin Service Kits. Generally, we recommend having the Deublin Rotary Unions serviced by Deublin. Service is available at all Deublin factories. Factory rebuilt Rotary Unions carry a “New-Union-Warranty”.

### Tension-free Installation

When installing Rotary Unions, special attention has to be paid to a flexible and tension-free hose connection. For additional recommendation please refer to our installation instructions.

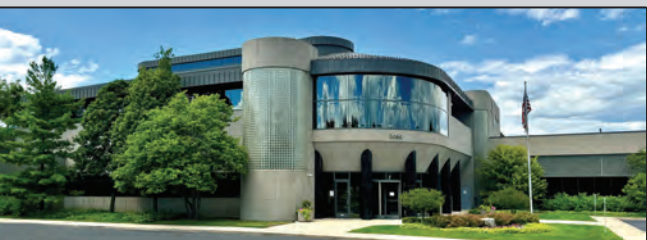
## Warning

Deublin Rotary 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 Rotary 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.

Since its founding in 1945 as a small, family-owned business, Deublin consistently has adhered to a policy of designing and building the best products of their kind in the world. The result of this policy has been continuous growth through the years, and for this we are grateful to our many loyal customers.

Today, Deublin is the world's largest manufacturer of Rotary Unions, with state-of-the-art factories, technical sales and services, and local stocking in 13 countries on four continents, as well as a worldwide distribution network operating in more than 60 countries. Our global organization and extensive catalog of field-tested products ensure a precise match between each customer's requirements and an engineered solution. Deublin has been part of the HOERBIGER Group since 2019 and forms the core of the Rotary Solution division.

We cordially invite you to visit our modern manufacturing facilities in Waukegan, Illinois, USA; Mainz, Germany; Monteveglio, Italy; Dalian, China; and Diadema, Brazil.



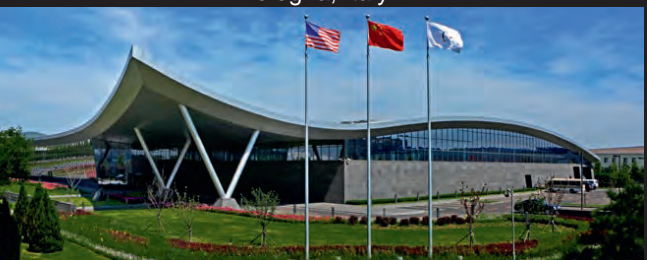
Our Global Headquarters in Waukegan, Illinois, U.S.A.



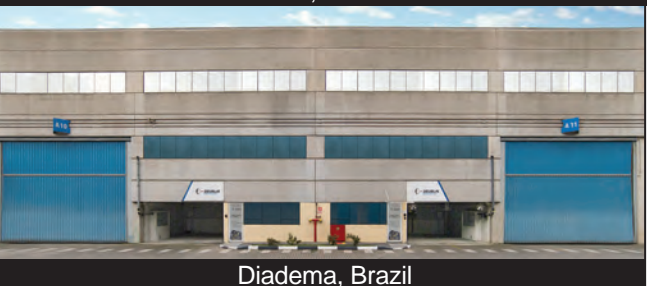
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