ENGINEERING CATALOGUE

MT203 GB

DEUBLIN

HOERBIGER Rotary Solutions

ROTATING UNIONS

for Machine Tools, Machining Centre, and Transfer Lines

www.deublin.com

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 rotating union?
3. What is the maximum pressure required?
4. What is the maximum spindle speed required?

1 No of inputs	2 Fluid(s) to Transfer	3 Max. Pressure	4 Maximum Speed (rpm) up to 12.000	up to 15.000	up to 20.000	up to 36.000	over 36.000
Single	Coolant or MQL (always present during rotation)	up to 105 bar	1116 series (p. 13) up to 70 bar	1101 series (p. 12) 1005 series (p. 11)	Contact Deublin		
		up to 200 bar	1117 series (p. 25, 29)				
		up to 210 bar	1108 series (p. 14-15, 23)			Contact Deublin	
	Coolant or MQL – unlimited dry run possible – (rotation with no coolant is possible)	up to 150 bar	Serie 902 (p. 20) up to 70 bar	1109 and 1111 series (p. 16 und 17)		1109 series (p. 17)	
			1121 series (p. 26, 29)				
	Coolant or MQL or Compressed Air – dry run possible – (operation without coolant possible)	up to 150 bar	1114 series (p. 18, 19, 23)				
			1154 series (p. 28-29) und 1124 series (p. 27, 29)				
	Compressed Air only (and Vacuum – 7000 series)	up to 10 bar	1115 and 7000 series (p. 21) up to 18.000 rpm			Contact Deublin	
	Multi-media Hydraulic, Coolant, Lubricant, MQL, Compressed Air (for defined dry run cycles)	up to 70 bar	1005 and 1101 series (p. 22) up to 10.000 rpm 1116 series (p. 22)	Contact Deublin			
	Leakage sensor technology	SpindleShield® series 1103, 1113 (p. 24)					

No of inputs	Fluid(s) to Transfer	Max. Pressure	up to 7.000	up to 12.000	over 12.000
Multiple	Hydraulic Oil + Hydraulic Oil	up to 100 bar	2620-00x-xxx (p. 30)		Contact Deublin
		up to 140 bar	2620-04x-xxx (p. 31)		
	Hydraulic Oil + Compressed Air	up to 40 bar	2620-30x-xxx 2620-32x-xxx (p. 30)		
		up to 70 bar	2620-10x-xxx 2620-12x-xxx (p. 30)	2620-34x-xxx 2620-36x-xxx (p. 31)	
		up to 140 bar	2620-14x-xxx, 2620-16x-xxx (p. 30)		
	Coolant or MQL + Compressed Air	up to 40 bar	2620-40x-xxx 2620-42x-xxx (p. 30)		
		up to 70 bar	2620-20x-xxx 2620-22x-xxx (p. 30)	2620-44x-xxx 2620-46x-xxx (p. 31)	
		up to 140 bar	2620-24x-xxx 2620-26x-xxx (p. 31)		
	Coolant + Hydraulic Oil (no mixture of fluids)	up to 140 bar	2630-1xx-xxx (p. 32) up to 10.000 rpm		
	Compressed Air + Compressed Air	up to 10 bar	2620-5xx-xxx (p. 30-31)		
	Coolant +Oil + Compressed Air	up to 140 bar	2630, 2640, 2650 series (p. 32) up to 10.000 rpm		
	Multi-media Hydraulic, Coolant, Cooling Water, MQL, Compressed Air, Vacuum	up to 200 bar	Serie Hybrid-Mehrkanal (p. 33) up to 5.000 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.

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HOW TO GET THE MOST VALUE FROM THIS CATALOGUE

If you are less familiar with machine tool applications of rotating 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 rotating unions in machine tools.

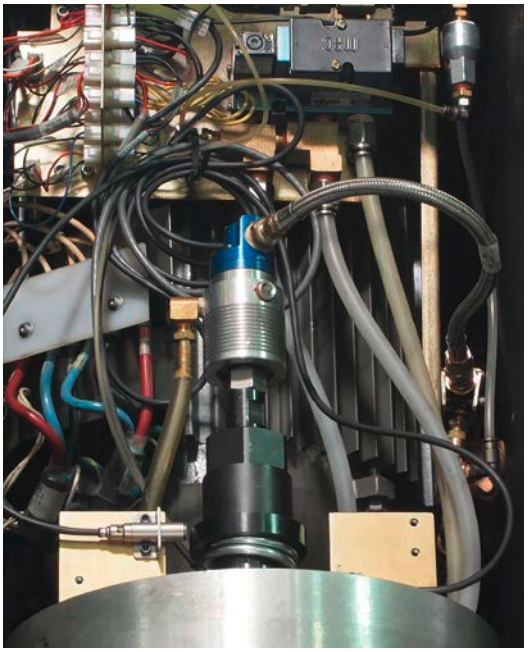
If you understand completely the principles of designing machines to use rotating unions, please use either the Selection Chart on the inside cover or Table of Contents to find the appropriate product page. These pages contain dimensions, performance data, and other necessary application information.

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 catalogue. Unions in this catalogue are representative

of most common applications, but other variations are available. Deublin can customise 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 1109 on vertical machining center.

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Please see page 6 for further explanations to the individual series.

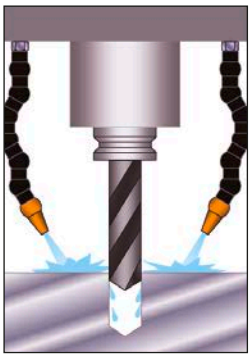
OPERATING PRINCIPLES OF ROTATING UNIONS

Advantage of Through-Spindle Coolant (TSC)

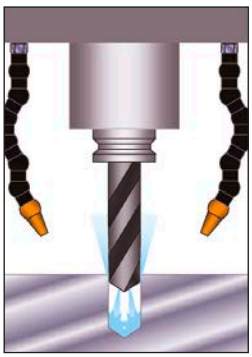
Nearly all modern machine tools and machining centres are equipped with so-called “flood coolant”. High-speed cutting tools require both cooling and lubrication to reduce the rate of tool wear and to prevent overheating, which degrade the tool’s strength. Flood coolant systems spray coolant fluid onto 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 rotating 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



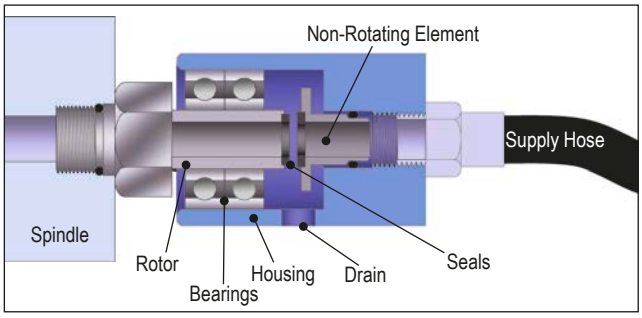
Through-Spindle Coolant

How Rotating Unions Work

A rotating 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 Rotating 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 catalogue for details.

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

Parts of a Rotating Union



As shown in the picture above, a typical rotating 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.

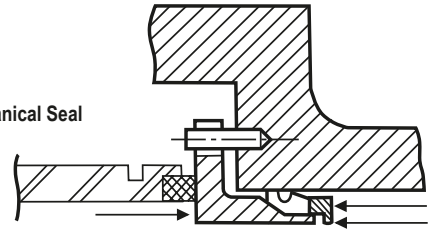
Seals are the heart of the rotating union. They must contain very high pressures while rotating at very high speeds. At 20,000 rpm, for example, the seals of a Deublin 1121 series coolant union are moving at a relative speed of nearly 16 feet per second (5 metres per second), while containing 2030 psi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



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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?

Rotating 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 rotating 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.

"Controlled Leakage": The opposite of closed seals, controlled leakage seals always have a small gap between the seals, even when pressure is applied. For this reason, controlled leakage unions are excellent for high-speed applications with pressurised dry air. Controlled leakage unions generally are not suitable for coolant fluid applications.

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®: The latest in a series of Deublin innovations, 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.

"All-Media": This technology gives the machine designer complete control over seal opening and closing. By controlling how pressure is applied to the union's multiple connections, the machine designer can cause the seals to separate when necessary (for example, to transfer pressurised dry air) or close when appropriate (to transfer coolant fluid or oil mist). A drain line generally is required.

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

<table>
<tr><th rowspan="2">Media</th><th colspan="5">Seal Technology</th></tr>
<tr><th>„Closed Seal“
(1005, 1101, 1108, 1116, 1117 series)</th><th>Pop-Off®
(902, 1109, 1110, 1111, 1121, 1151 series)</th><th>„All-Media“
(1139 serie)</th><th>AutoSense®
(1114, 1124, 1154 series)</th><th>„Controlled Leakage“
(1115, 7000 series)</th></tr>
<tr><td>No pressure</td><td rowspan="2">Dry run possible depending on model</td><td colspan="3">Seals open automatically to prevent dry running</td><td rowspan="3"></td></tr>
<tr><td>Compressed Air</td><td>Not recommended with rotation</td><td colspan="3">Micro-gap between seals to prevent dry run damages</td></tr>
<tr><td>MQL</td><td colspan="3" rowspan="3">Seals are closed</td><td rowspan="2"></td></tr>
<tr><td>Coolant
– water soluble –</td><td rowspan="2"></td></tr>
<tr><td>Cutting Oil
– not water soluble –</td><td colspan="2">Not recommended</td></tr>
</table>

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

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MOUNTING TOLERANCES

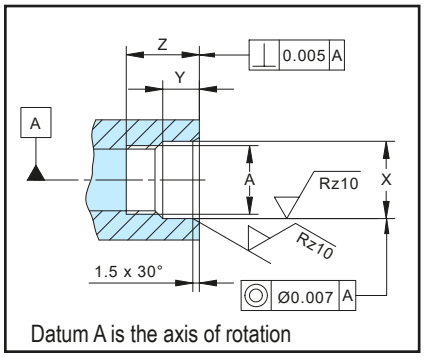
The interface between spindle and union must be manufactured to precise tolerance to ensure accurate, vibration-free operation. Bearingless unions and rotor-mounted, bearing-supported unions require the spindle end to be machined according to the following dimensions and tolerances:

Table shows reference data:
Please refer to the dimensions on the individual drawing when dimensioning the spindle.

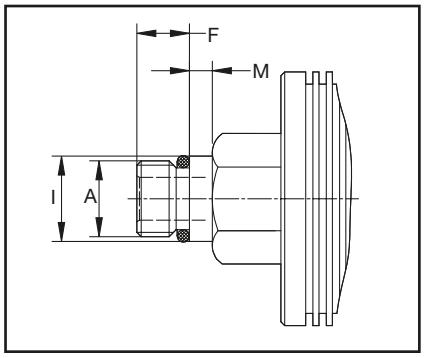
Rotor Connection			Rotor Pilot		Spindle End			Tightening Torque
A	F	H	I	M	X	Y	Z	
5/8-18 UNF	9/16"	15/16"	0.6555" / 0.6553"	3/16"	0.6560" / 0.6556"	9/32"	13/16"	35 Nm
5/8-18 UNF	9/16"	15/16"	0.6249" / 0.6246"	3/32"	0.6254" / 0.6250"	3/16"	9/16"	35 Nm
M16 x 1.5	11	24	17.993 / 17.988	5	18.000 / 17.995	8.5	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.

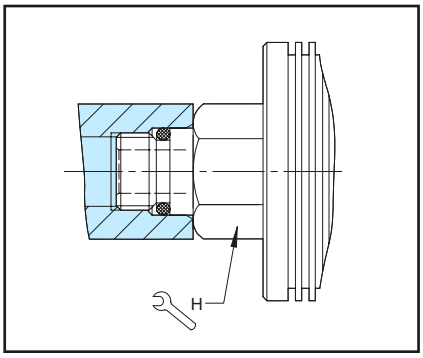
Spindle End



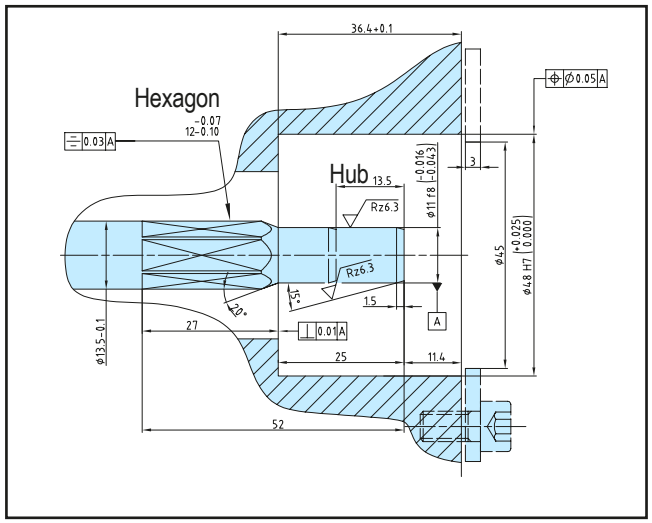
Rotor End

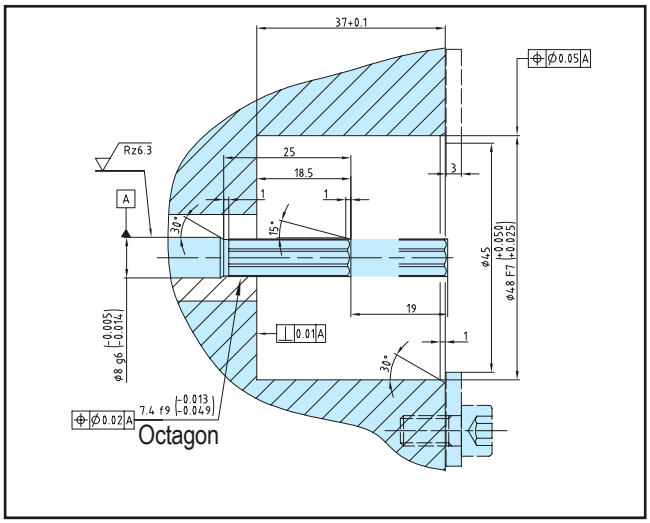


Installed Rotor



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



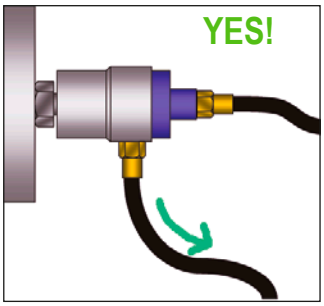


DRAIN AND SUPPLY HOSE CONNECTIONS

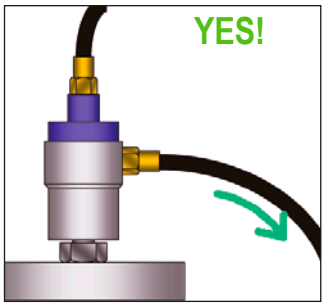
Drain Connections

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.

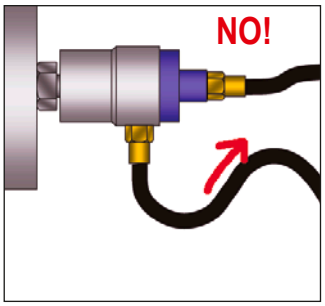
Deublin designs are very advanced, but even Deublin must obey the law of gravity! Therefore, it is critical that all drainage hoses and paths slope downward continuously, as shown in the diagrams below.



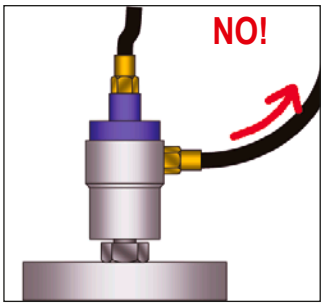
Drain hose always slopes downward



Drain hose always slopes downward



Part of drain hose slopes up

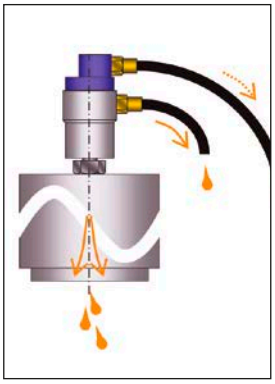


Drain hose slopes up from union

Supply Connection

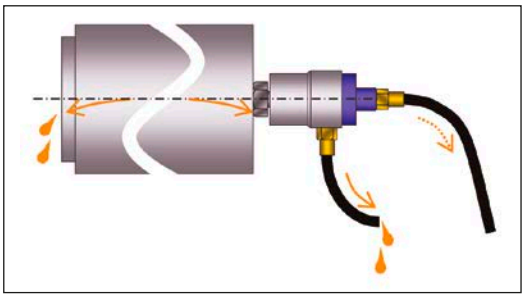
Deublin Pop-Off®, AutoSense®, and "All-Media" unions offer unlimited "dry running" at high speeds. By allowing the seal faces to separate when coolant pressure is removed, seal wear during unpressurised operation is completely eliminated. One consequence is that the seals separate during tool changes,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



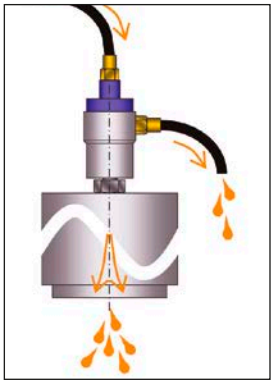
When the supply line runs down from the rotating union, any coolant between union and control valve will remain in the hose during tool change. This reduces the amount of drainage from both the spindle nose and the union drain line.

Tool change with vertical spindle



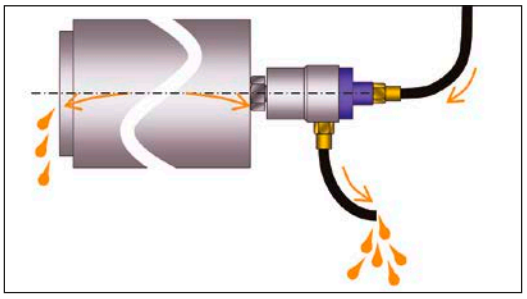
Tool change with horizontal spindle

Supply Hose Slopes Up from Union



When the supply line runs up from the rotating 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 vertical spindle



Tool change with horizontal spindle

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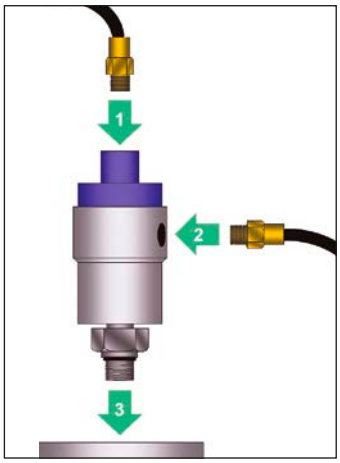
INSTALLATION TECHNIQUES



Installing a Deublin Rotating 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

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

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

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

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

Examples of INCORRECT Installations

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

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

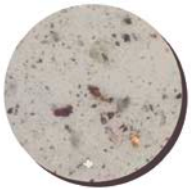
WRONG: Union housing is rigidly attached to the spindle. Without 100 % perfect alignment, this creates a side load leading to early bearing failure.

WRONG: Bend in supply hose is too tight. When pressurised, 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 rotating 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

THREAD EQUIVALENCE

Parallel or "straight" threads are indicated in this catalogue 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 ¼
G ¼ cyl
PF ¼
R ¼ Tr
¼ BSP
Rp ¼

Tapered threads are indicated in this catalogue by the symbols "PT" and "NPT". British Standard Taper threads are known by several other names, including: BSPT, BSPTr, 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 ¼ keg
G ¼ co
PT ¼
R ¼
Rc ¼
¼ BSPT

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DEUBLIN

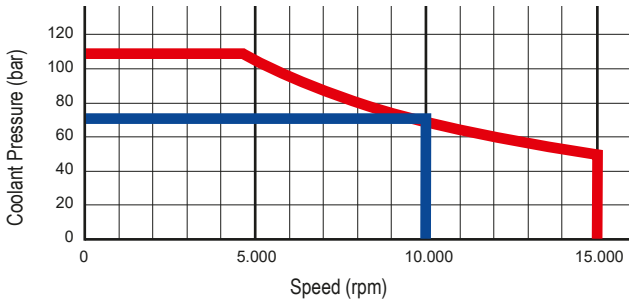
1005 Series “Closed Seal” Rotating Unions for Continuous Coolant Service

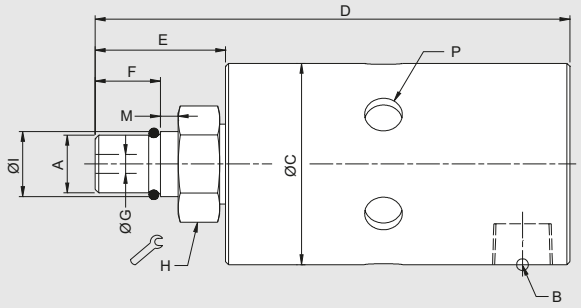
- Single passage for coolant or MQL
- Closed seals for transfer line and similar applications
- Full-flow design has no obstructions to trap swarf or debris
- Bearing-supported with threaded rotor for easy installation
- Labyrinth system and large vents to protect ball bearings
- Balanced mechanical seals made from silicon carbide for long life even under difficult operating conditions
- Anodised housing and stainless steel rotor 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	15.000 min^{-1}	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 Catalogue.

	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	1005-402-401	⅛ NPT	34	80	6.4	M10 x 1 RH	22	11	3.2	17	10.994 / 10.989	3
	1005-402-448	⅛ NPT	34	80	6.4	M10 x 1 LH	22	11	3.2	17	10.994 / 10.989	3
R.	1005-704-434*	⅛ NPT	34	80	3 x Rp ⅛	M10 x 1 RH	22	11	3.4	17	10.994 / 10.989	5

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

This series includes additional models.
Contact Deublin at +49 (0) 6131-4998-0 or info@deublin.de

DEUBLIN

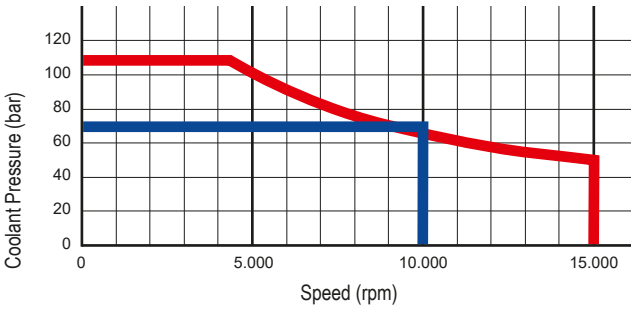
1101 Series “Closed Seal” Rotating Unions for Coolant Service

- 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
- Anodised aluminium components resist corrosion

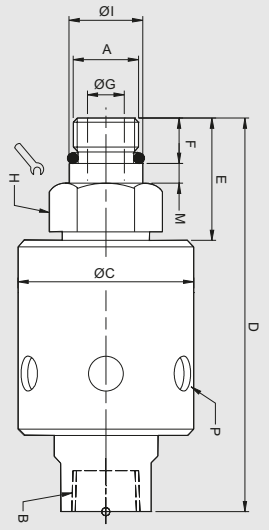
Operating Data

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	15.000 min^{-1}	15,000 rpm
Max. Pressure	105 bar	1,523 psi
Max. Flow	20 l/min	5.3 gpm
Max. Temperature	71 °C	160 °F

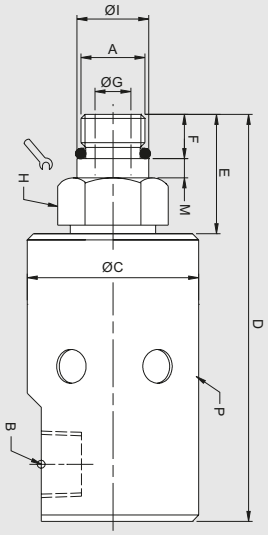
DO NOT RUN DRY



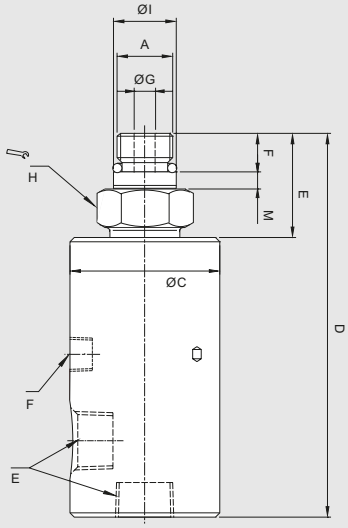
Axial Connection



Radial Connection



Axial / 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 Lenght
A+R	1101-202-651*	Rc ⅜	43	110	3 x Rc ⅛	M16 x 1,5 LH	33	11	6	24	17,993 / 17,988	5
Axial	1101-235-343	⅜ NPT	43	96	9	M16 x 1.5 LH	30	11	6	24	17.993 / 17.988	5
	1101-235-424	⅜ NPT	43	93	9	M10 x 1 LH	27	11	3.2	24	10.994 / 10.989	3
	1101-359-343	G ⅜	43	96	9	M16 x 1.5 LH	30	11	6	24	17.993 / 17.988	5
R.	1101-195-343	G ⅜	43	102	9	M16 x 1.5 LH	30	11	6	24	17.993 / 17.988	5
Radial	1101-265-343**	G ¼	43	95	3 x R ⅛	M16 x 1.5 LH	30	11	6	24	17.993 / 17.988	5
	1101-265-644**	G ¼	43	91	3 x R ⅛	Flange TK-Ø 21	26	14.5	6	4 x M4	Ø 30.01 H6	8

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

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

This series includes additional models.
Contact Deublin at +49 (0) 6131-4998-0 or info@deublin.de

DEUBLIN

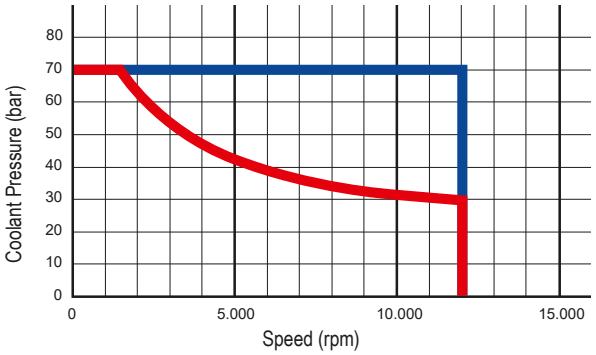
1116 Series “Closed Seal” Rotating Unions for Coolant Service

- 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
- Anodised aluminium housing resists corrosion

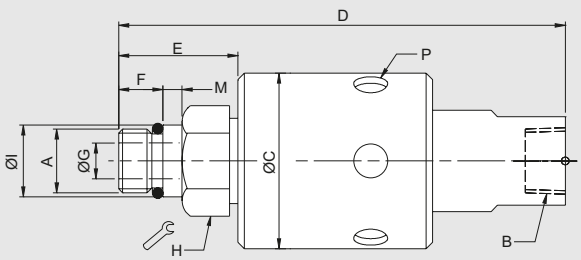
Operating Data

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	12.000 min^{-1}	12,000 rpm
Max. Pressure	70 bar	1,015 psi
Max. Flow	82 l/min	21.6 gpm
Max. Temperature	71 °C	160 °F

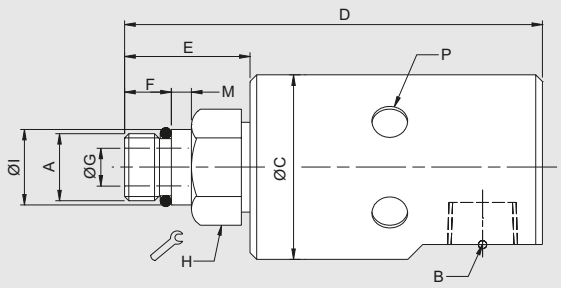
DO NOT RUN DRY



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	1116-048-463	¼ NPT	44	112	9	M16 x 1.5 LH	30	11	9	24	17.993 / 17.988	5
Axial	1116-063-463*	G ⅜	44	112	9	M16 x 1.5 LH	30	11	9	24	17.993 / 17.988	5
Axial	1116-485-463	G ¼	44	112	9	M16 x 1.5 LH	30	11	9	24	17.993 / 17.988	5
Axial	1116-610-463	G ⅜	44	112	9	M16 x 1.5 LH	30	11	9	24	17.993 / 17.988	5
Radial	1116-090-064	⅜ NPT	44	106	9	⅝-18 UNF RH	33	14	9	24	0.6555" / 0.6553"	5
Radial	1116-090-463	⅜ NPT	44	102	9	M16 x 1.5 LH	30	11	9	24	17.993 / 17.988	5
Radial	1116-516-463*	G ⅜	44	102	9	M16 x 1.5 LH	29	11	9	24	17.993 / 17.988	5
Radial	1116-555-463	G ⅜	44	102	9	M16 x 1.5 LH	29	11	9	24	17.993 / 17.988	5
R.	1116-987-463**	G ⅜	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. For further information please contact Deublin.

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

This series includes additional models.
Contact Deublin at +49 (0) 6131-4998-0 or info@deublin.de

DEUBLIN

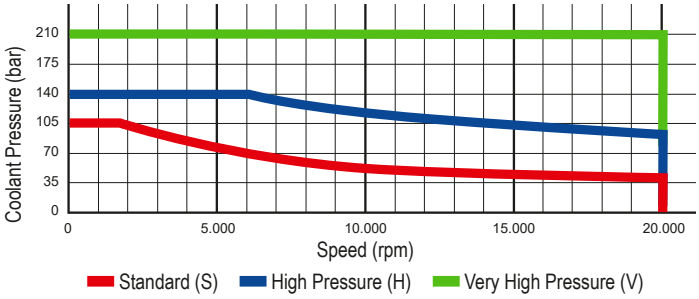
1108 Series “Closed Seal” Rotating Unions for Coolant Service

- 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
- Aluminium housing, endcap anodised resists corrosion

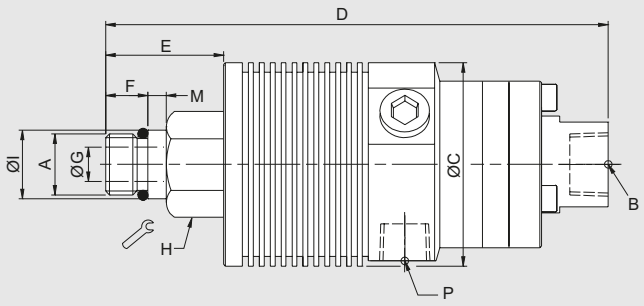
Operating Data

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	20.000 min^{-1}	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
	2,7 l/min	0.7 gpm	Very High Pressure (VHP)
Max. Temperature	71 °C	160 °F	

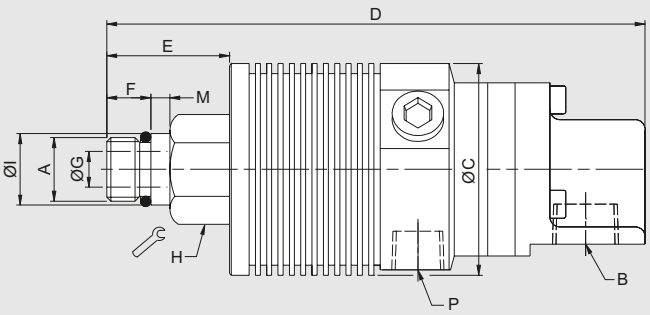
DO NOT RUN DRY



Axial Connection



Radial Connection



	Ordering Number	B Supply Connection	C Overall Diameter	D Overall Length	P Vent 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
S	1108-002-153	⅜ NPT Axial	44	132	9	M16 x 1.5 LH	31	11	9	24	17.993 / 17.988	5
S	1108-011-153	G ⅜ Radial	44	135	9	M16 x 1.5 LH	31	11	9	24	17.993 / 17.988	5
H	1108-034-212	G ¼ Axial	53	129	G ¼	M16 x 1.5 LH	31	11	9	24	17.993 / 17.988	5
H	1108-058-212	G ¼ Radial	53	135	G ¼	M16 x 1.5 LH	31	11	9	24	17.993 / 17.988	5
V	1108-093-559	¼ NPT Axial	44	132	9	M16 x 1.5 LH	31	11	9	24	17.993 / 17.988	5

This series includes additional models.
Contact Deublin at +49 (0) 6131-4998-0 or info@deublin.de

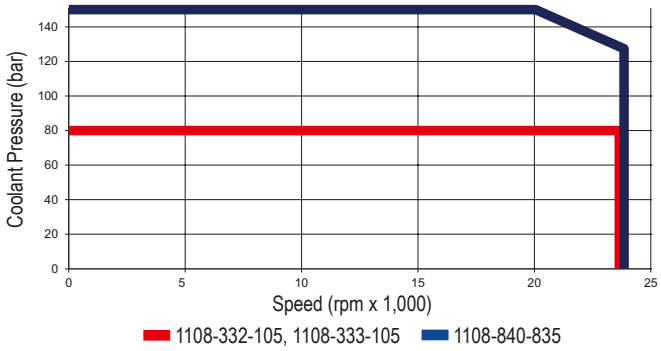
DEUBLIN

1108 Series „Closed Seal” Bore-Mounted Rotating Unions for Coolant Service

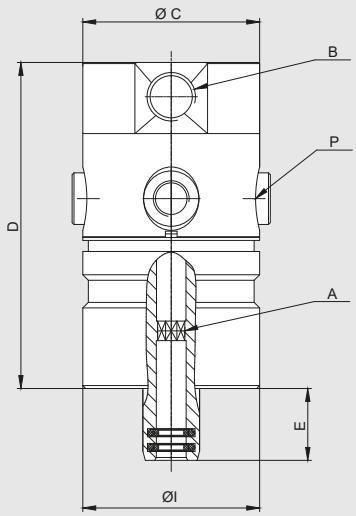
- Single passage for coolant or MQL
- Dry-running cycles and compressed air applications under rotation possible depending on the model (see *)
- Closed seals
- Accepts up to 19 mm of draw bar movement
- Full-flow design has no obstructions to trap swarf or debris
- Labyrinth system and large vents to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

Operating Data

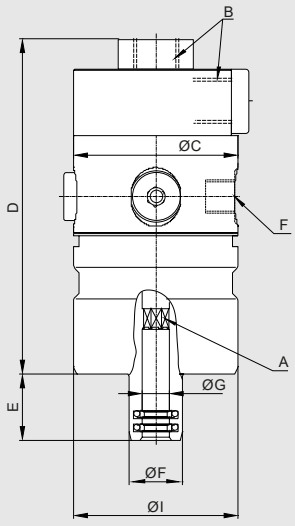
Media	Water-based Coolant MQL (oil mist) up to 10 bar (145 psi)	
Filtration	ISO 4406:2017 Class 17/15/12, max. 60 micron	
Max. Speed	see graph/table	
Max. Pressure	150 bar	2,176 psi
Max. Flow	24,3 l/min	6.4 gpm
Max. Temperature	71 °C	160 °F



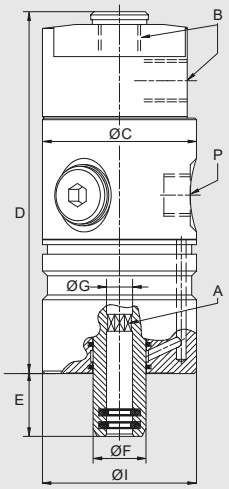
1108-332-105



1108-333-105



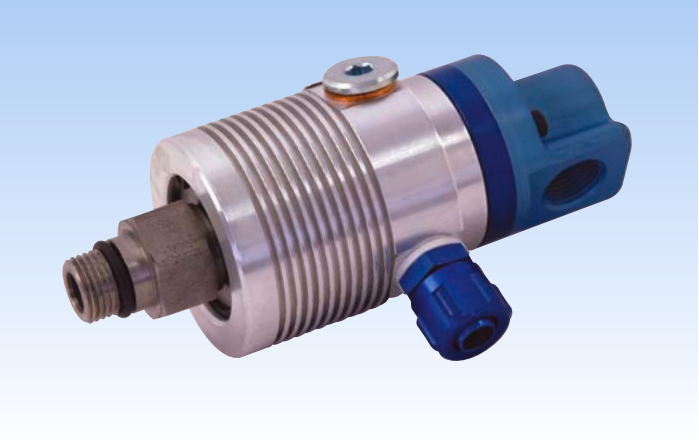
1108-840-835



	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)
	1108-332-105*	G ¼ Radial	48	88,5	G ⅛ (4x90°)	Octagon 7.4 D10	19.5	15.4	8.1 F9	48 h7	24,000	80
	1108-333-105*	G ¼ Axial & Radial	48	98	G ⅛ (4x90°)	Octagon 7.4 D10	19.5	15.4	8.1 F9	48 h7	24,000	80
	1108-840-835	G ¼ Axial & Radial	48	112	G ¼ (3x120°)	Octagon 7.4 D10	19.5	15.9	8.1 F9	48 g6	24,000	150

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

This series includes additional models.
Contact Deublin at +49 (0) 6131-4998-0 or info@deublin.de



DEUBLIN

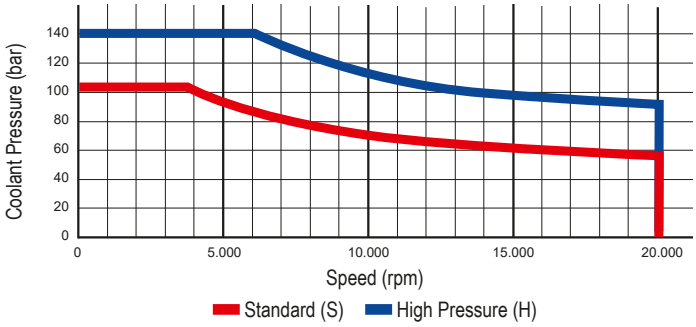
1109 Series Pop-Off®
Rotor-Mounted Rotating Unions
for Coolant Service with unlimited Dry Running

- 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
- Aluminium housing, endcap anodised resists corrosion

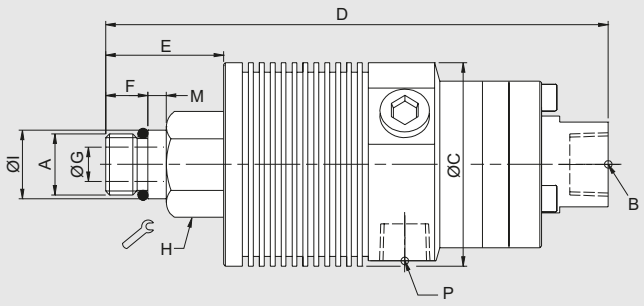
Operating Data

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	20.000 min^{-1}	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
Max. Temperature	71 °C	160 °F	

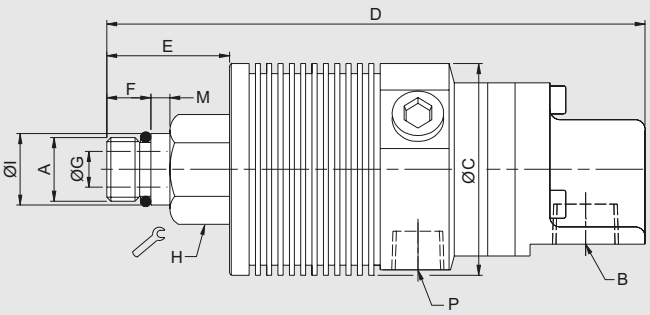
NO COMPRESSED AIR
WITH ROTATION



Axial Connection

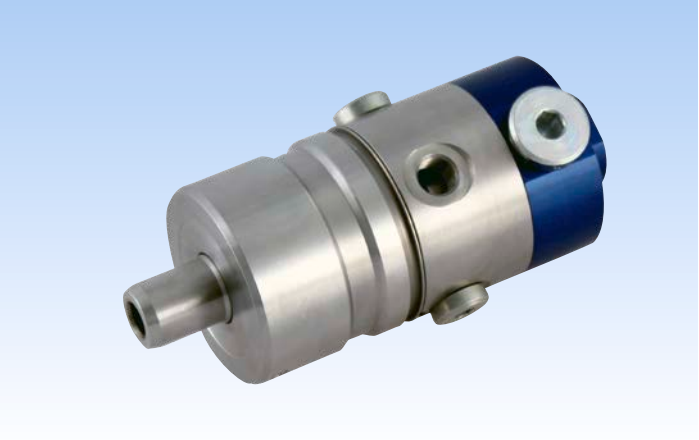


Radial Connection



	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
S	1109-021-188	G ⅜ Axial	53	129	G ¼	M16 x 1.5 LH	31	11	9	24	17.993 / 17.988	5
S	1109-010-165	⅜ NPT Radial	53	138	¼ NPT	⅝-18 UNF LH	34	14	9	15⁄16"	0.6555" / 0.6553"	5
S	1109-020-188	G ⅜ Radial	53	135	G ¼	M16 x 1.5 LH	31	11	9	24	17.993 / 17.988	5
S	1109-040-188	⅜ PT Radial	53	135	¼ PT	M16 x 1.5 LH	31	11	9	24	17.993 / 17.988	5
H	1109-024-212	G ¼ Axial	53	129	G ¼	M16 x 1.5 LH	31	11	9	24	17.993 / 17.988	5
H	1109-023-212	G ¼ Radial	53	135	G ¼	M16 x 1.5 LH	31	11	9	24	17.993 / 17.988	5

This series includes additional models.
Contact Deublin at +49 (0) 6131-4998-0 or info@deublin.de



DEUBLIN

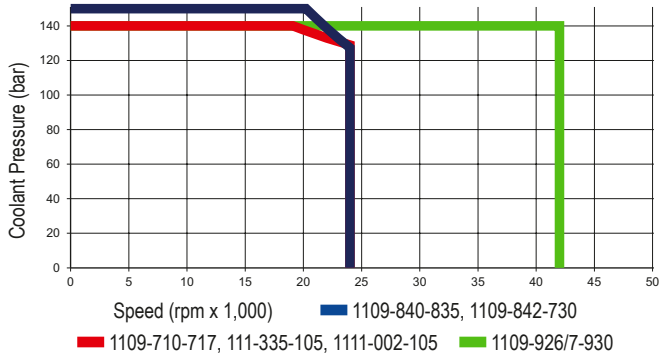
1109 and 1111 Series Pop-Off®
Bore-Mounted Rotating Unions
for Coolant Service with unlimited Dry Running

- 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
- Anodised aluminium resist corrosion

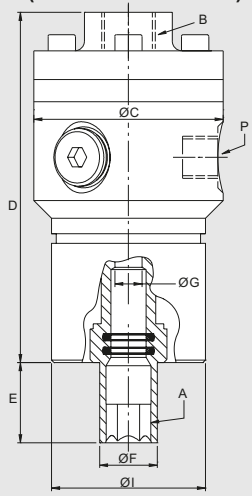
Operating Data

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 graph/table	
Max. Pressure	140 bar	2,031 psi
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

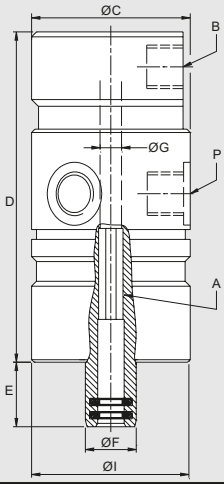
NO COMPRESSED AIR
WITH ROTATION



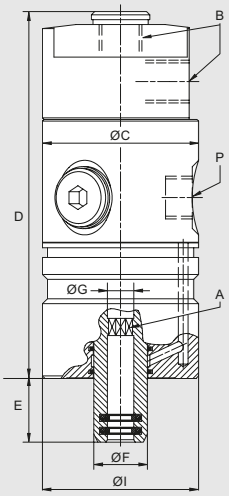
Axial Connection
(1109-710-717 shown)



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 ¼ Radial	48	88.5	4 x G ⅛	Octagon 7.4 D10	19.5	15.4	8.1 F9	48 h7	24,000	140
	1111-335-105	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
	1109-710-717	G ⅜ Axial	59	109	G ¼	Hexagon 12 D10	25.0	18.0	11 H7	48 g6	24,000	140
	1109-840-835	G ¼ Axial & Radial	48	112	G ¼	Octagon 7.4 D10	19.5	15.9	8.1 F9	48 g6	24,000	150
	1109-842-730	G ⅜ Axial & Radial	48	116	G ¼	Octagon 9.25 D10	19.5	16	10 F9	48 g6	24,000	150
	1109-926-930	G ¼ Radial	48	93	G ¼	Octagon 7.4 D10	19.5	15.4	8.1 F9	48 h7	42,000	140
	1109-927-930	G ¼ Axial	48	93	G ¼	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.

This series includes additional models.
Contact Deublin at +49 (0) 6131-4998-0 or info@deublin.de

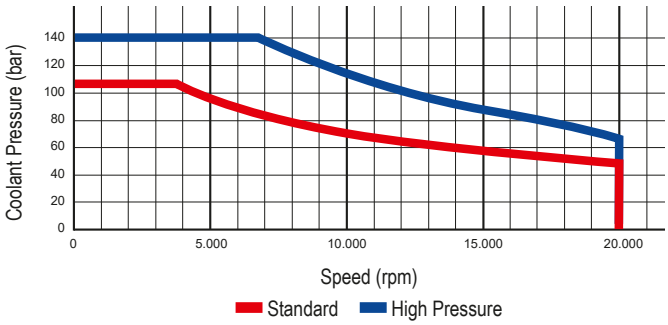
DEUBLIN

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

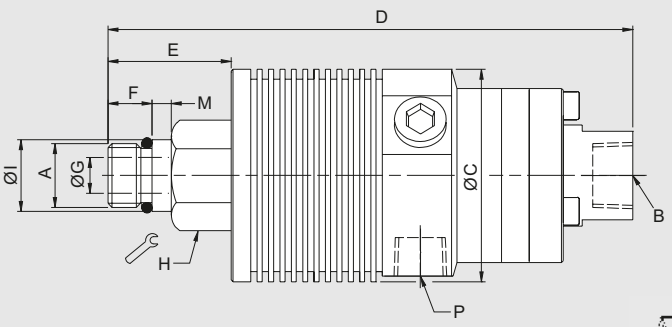
- Single passage for both coolant and dry air
- Patented AutoSense® technology automatically changes between closed seals and controlled leakage operation in response to the kind of media
- Threaded rotor for easy installation
- Full-flow design has no obstructions to trap swarf or debris
- Labyrinth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

Operating Data

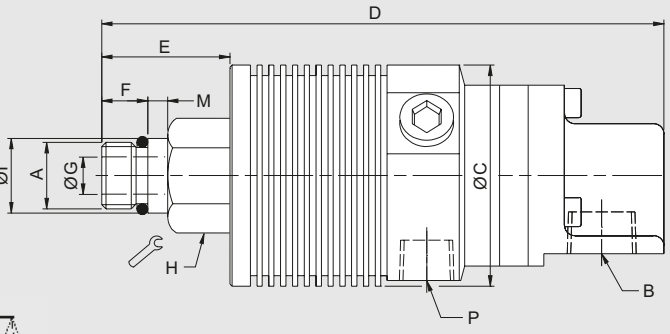
Media	Water-based Coolant MQL (oil mist) up to 10 bar (145 psi) Air up to 10 bar (145 psi)		
Filtration	ISO 4406:2017 Class 17/15/12, max. 60 micron		
Max. Speed	20.000 min^{-1}	20,000 rpm	
Max. Pressure	see chart		
Max. Flow	82 l/min	21.6 gpm	Standard
	24,3 l/min	6.4 gpm	High Pressure
Max. Temperature	71 °C	160 °F	



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	1114-021-188	G ⅜ Axial	53	131	G ¼	M16 x 1.5 LH	31	11	9	24	17.993 / 17.988	5
Standard	1114-020-188	G ⅜ Radial	53	137	G ¼	M16 x 1.5 LH	31	11	9	24	17.993 / 17.988	5
Standard	1114-040-188	⅜ PT Radial	53	137	¼ PT	M16 x 1.5 LH	31	11	9	24	17.993 / 17.988	5
High Pressure	1114-024-212	G ¼ Axial	53	131	G ¼	M16 x 1.5 LH	31	11	9	24	17.993 / 17.988	5
High Pressure	1114-044-212	¼ PT Axial	53	131	¼ PT	M16 x 1.5 LH	31	11	9	24	17.993 / 17.988	5
High Pressure	1114-023-212	G ¼ Radial	53	137	G ¼	M16 x 1.5 LH	31	11	9	24	17.993 / 17.988	5

This series includes additional models.
Contact Deublin at +49 (0) 6131-4998-0 or info@deublin.de

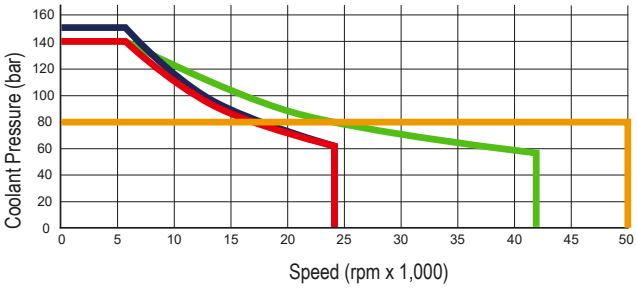
DEUBLIN

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

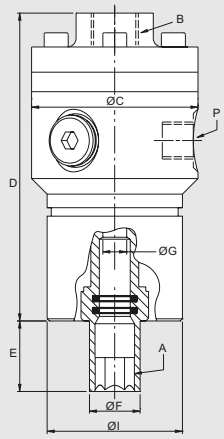
- Single passage for both coolant and dry air
- Patented AutoSense® technology automatically changes between closed seals and controlled leakage operation in response to the kind of media
- Bore-mounted design for easy installation
- Accepts up to 19 mm of axial drawbar movement
- Labyrinth system and 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
- Anodised aluminium and stainless steel parts resist corrosion

Operating Data

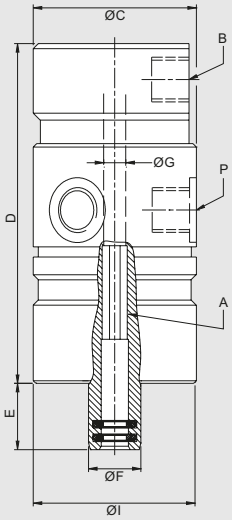
Media	Water-based Coolant MQL (oil mist) up to 10 bar (145 psi) Air up to 10 bar (145 psi)	
Filtration	ISO 4406:2017 Class 17/15/12, max. 60 micron	
Max. Speed	see chart/table	
Max. Pressure	see chart/table	
Max. Flow		
1114-710-xxx	82 l/min	21.6 gpm
1114-842-730	82 l/min	21.6 gpm
1114-331-105	24,3 l/min	6.4 gpm
1114-92x-930	24,3 l/min	6.4 gpm
Max. Temperature	71 °C	160 °F



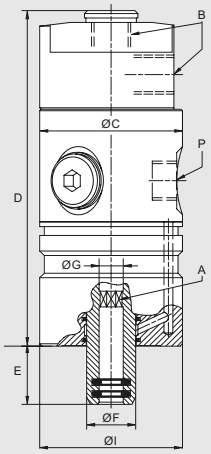
Axial Connection (1114-710-717 shown)



Radial Connection



1114-842-730 shown



PATENTED

	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)
	1114-336-334	G ⅛ Axial & Radial	32	93	RP ⅛ (5x72°)	Hexagon 4.5 D10	11	11.5	5.1 H10	32 h7	50,000	80
	1114-331-105	G ¼ Radial	48	88.5	4x G ⅛	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	18	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	10 F9	48 g6	24,000	150
	1114-927-930	G ¼ Axial	48	95	G ¼	Octagon 7.4 D10	19.5	15.4	8.1 F9	48 h7	36,000	140
	1114-926-930	G ¼ Radial	48	95	G ¼	Octagon 7.4 D10	19.5	15.4	8.1 F9	48 h7	36,000	140

This series includes additional models.
Contact Deublin at +49 (0) 6131-4998-0 or info@deublin.de

DEUBLIN

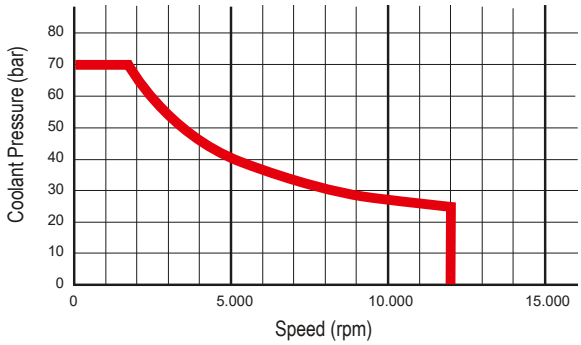
902 Series Pop-Off® Rotating Unions for Coolant Service with unlimited Dry Running

- 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
- Aluminium housing, endcap anodised resists corrosion

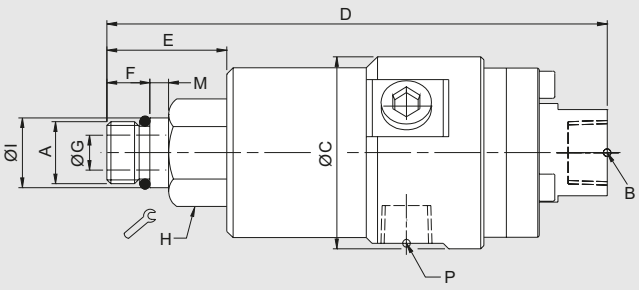
Operating Data

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	12.000 min^{-1}	12,000 rpm
Max. Pressure	70 bar	1,015 psi
Max. Flow	82 l/min	21.6 gpm
Max. Flow [1]	24,3 l/min	6.4 gpm
Max. Temperature	71 °C	160 °F

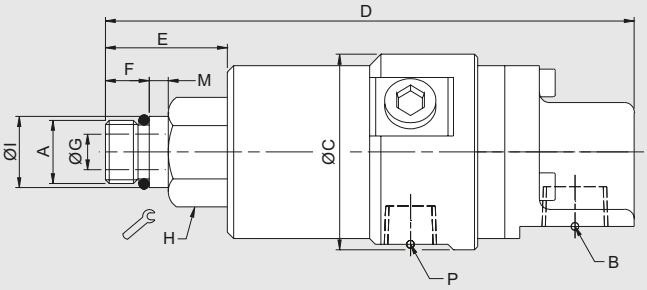
NO COMPRESSED AIR WITH ROTATION



Axial Connection



Radial Connection

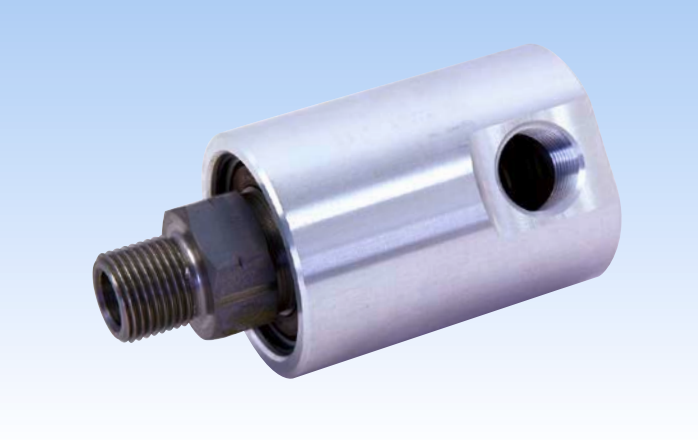


	Ordering Number	B Supply Connection	C Overall Diameter	D Overall Length	P Drain Size Ø (3 x 120°)	A Rotor Connection	E Rotor Length	F Thread Length	G Bore Diameter	H Across Flats	I Pilot Diameter	M Pilot Length
Axial	902-121-188	G ⅜	49.5	129	G ¼	M16 x 1.5 LH	33	11	9	24	17.993 / 17.988	5
	902-138-188[1]	G ⅜	49.5	129	G ¼	M16 x 1.5 LH	33	11	9	24	17.993 / 17.988	5
	902-141-188	⅜ PT	49.5	129	¼ PT	M16 x 1.5 LH	33	11	9	24	17.993 / 17.988	5
Radial	902-120-188	G ⅜	49.5	135	G ¼	M16 x 1.5 LH	33	11	9	24	17.993 / 17.988	5
	902-137-188[1]	G ⅜	49.5	135	G ¼	M16 x 1.5 LH	33	11	9	24	17.993 / 17.988	5
	902-140-188	⅜ PT	49.5	135	¼ PT	M16 x 1.5 LH	33	11	9	24	17.993 / 17.988	5
	902-225-101*	G ⅜	49.5	135	G ¼	Two-Flat 12	26	–	9	–	11.984 / 11.966	16
	902-120-104	G ⅜	49.5	137	G ¼	Female Ø 12	34	–	9	24	12.027 / 12.000	32
	902-253-220*	G ⅜	46.8	139	G ¼	Hexagon 11	34	–	9	–	12.984 / 12.957	21

* Bore-mounted design

[1] See flow information

This series includes additional models.
Contact Deublin at +49 (0) 6131-4998-0 or info@deublin.de



DEUBLIN

7000 and 1115 Series
"Controlled Leakage" Rotating Unions for Dry Air or Vacuum at High Speed

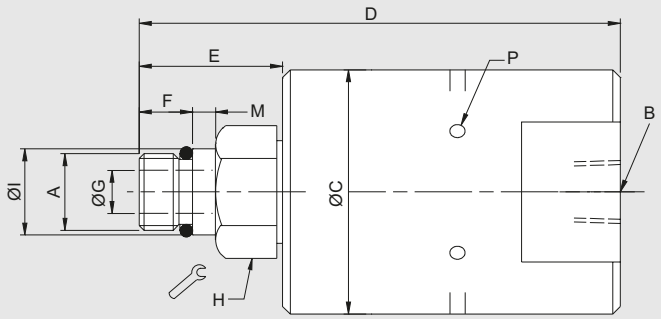
- Single passage for dry or lubricated air
- Bearings are lubricated for life
- Full-flow design has no obstructions to trap swarf or debris
- Threaded rotor for easy installation
- Balanced mechanical seals made from silicon carbide for long life even under difficult operating conditions
- Aluminium and stainless steel parts resist corrosion

Operating Data

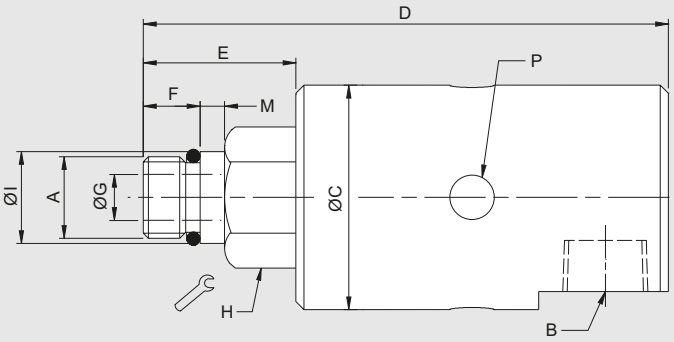
Media	Compressed Air	
7000-027-468	Vacuum	
Max. Speed		
1115-114-xxx	15.000 min^{-1}	15,000 rpm
1115-680-xxx	15.000 min^{-1}	15,000 rpm
7000-xxx-xxx	18.000 min^{-1}	18,000 rpm
Max. Pressure	10 bar	145 psi
Max. Flow		
1115-114-xxx	2.460 Nl/min	87 SCFM
1115-680-xxx	2.460 Nl/min	87 SCFM
7000-xxx-xxx	1.060 Nl/min	37 SCFM
Max. Temperature	120 °C	250 °F

OK
DRY AIR SERVICE

Axial Connection (7000 series)



Radial Connection (1115 series)



	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 Connection	7000-003-117	¼ PT	51	97	3	M16 x 1.5 RH	26	11	6	24	17.993 / 17.988	5
	7000-003-118	¼ PT	51	97	3	M16 x 1.5 LH	26	11	6	24	17.993 / 17.988	5
	7000-003-224	¼ PT	51	100	3	⅝-18 UNF RH	30	14	6	15⁄16"	0.6555" / 0.6553"	5
	7000-003-225	¼ PT	51	100	3	⅝-18 UNF LH	30	14	6	15⁄16"	0.6555" / 0.6553"	5
	7000-027-468[A]	⅜ NPT	51	100	3	⅝-18 UNF LH	30	14	9	15⁄16"	0.6555" / 0.6553"	5

	Ordering Number	B Supply Connection	C Overall Diameter	D Overall Length	P Vent Size Ø (4 x 90°)	A Rotor Connection	E Rotor Length	F Thread Length	G Bore Diameter	H Across Flats	I Pilot Diameter	M Pilot Length
Radial Conn.	1115-114-402	G ⅜	44	106	9	⅝-18 UNF LH	33	14	9	15⁄16"	0.6555" / 0.6553"	5
	1115-114-583	G ⅜	44	103	9	M16 x 1.5 LH	30	11	9	24	17.993 / 17.988	5
	1115-680-402	⅜ NPT	44	106	9	⅝-18 UNF LH	33	14	9	15⁄16"	0.6555" / 0.6553"	5
	1115-680-403	⅜ NPT	44	106	9	⅝-18 UNF RH	33	14	9	15⁄16"	0.6555" / 0.6553"	5

Note A: Modell 7000-027-468 is designed for vacuum and compressed air service.

This series includes additional models.
Contact Deublin at +49 (0) 6131-4998-0 or info@deublin.de

DEUBLIN

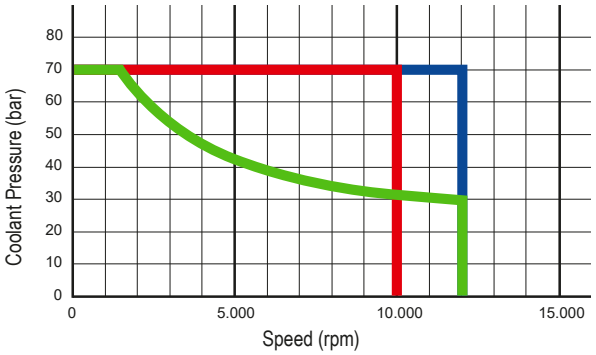
1005/1101/1116 Series Rotating Unions for Multi-Media-Application

- Single passage for clamping, unclamping, lubricating, cooling and sensoring
- 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
- Anodised aluminium housing resists corrosion

Operating Data

Filtration	ISO 4406:2017 Class 17/15/12, max. 60 micron	
Max. Speed*	10.000 min^{-1}	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

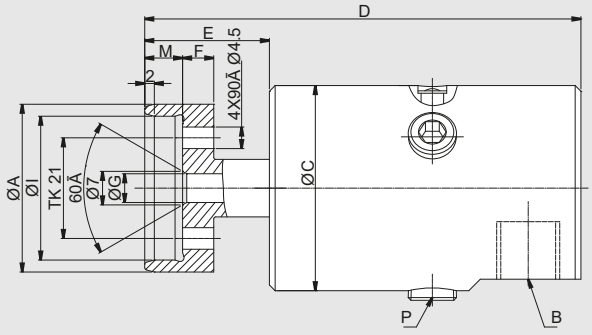
* 1116 series: max. 3,500 rpm for compressed air and hydraulic service



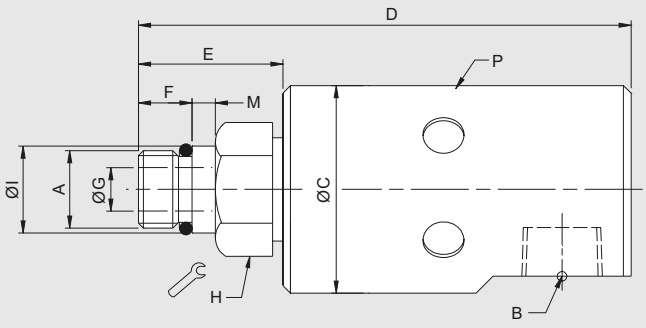
DEFINED DRY RUN

MULTI-MEDIA-APPLICATION

1101-265-644



Radial Connection



	Ordering Number	B Supply Connection B	Flow Coolant l/min	D Overall Length	C Overall Diameter	P Drain 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
	1005-704-434	⅛ NPT Radial	11	80	34	3 x Rp ⅛	M10 x 1 RH	22	11	3.4	17	10.994 / 10.989	5
	1101-265-239	G ¼ Radial	20	98	43	3 x Rp ⅛	⅝-18 UNF RH	33	14.3	6.4	24	0.6555" / 0.6553"	5
	1101-265-343	G ¼ Radial	20	95	43	3 x Rp ⅛	M16 x 1.5 LH	30	11.1	6	24	17.993 / 17.988	5
	1101-265-644	G ¼ Radial	20	91	43	3 x Rp ⅛	Flange 35 h8	26	6.5	6	4xM4	30.01 H6	8
	1116-987-463	G ⅜ Radial	82	102	44	6 x 8.5	M16 x 1.5 LH	30	11	8.5	24	17.993 / 17.998	5
	1116-516-463*	G ⅜ Radial	82	102.4	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 ⅜ Axial	82	112	44	6 x 8.5	M16 x 1.5 LH	30	11	9	24	17.993 / 17.998	5

* Not allowed for operation with hydraulic.

This series includes additional models.
Contact Deublin at +49 (0) 6131-4998-0 or info@deublin.de

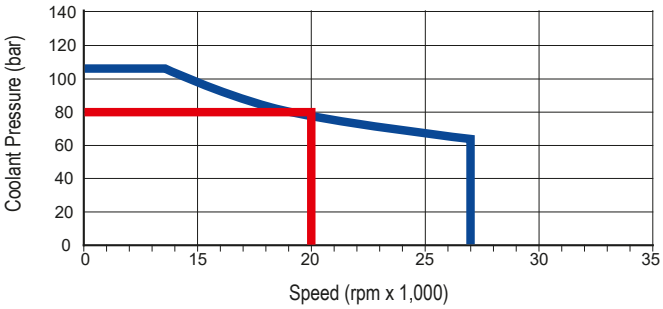
DEUBLIN

Rotating Unions Flange Design
Bore-Mounted for Various Media

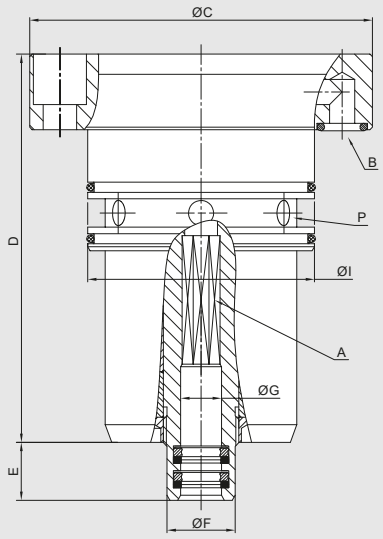
- Single passage available with all sealing technologies
- Accepts up to 19 mm of drawbar movement
- Full-flow design has no obstructions to trap swarf or debris
- Labyrinth system and large vents to protect ball bearings
- Balanced mechanical seals made from silicon carbide for long life even under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

Operating Data

Sealing Technology (depending on model)	AutoSense®, Closed Seal, Pop-Off®	
Media (depending on model)	Coolant – water based; 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	27.000 min^{-1}	27,000 rpm



Flange Connection



	Ordering Number	Sealing Technology	B Supply Connection	C Overall Diameter	D Overall Length	P Drain Size Ø	A Rotor Connection	E Rotor Length	F Rotor OD	G Bore Diameter	I Pilot Diameter	Max. Speed (rpm)	Max. Pressure (bar)
	1108-310-304	Closed Seal	Ø5 Flange	84	84	4 x Ø5	Hexagon 11	34	24	14.1H7	49 f7	20,000	80
	1114-935-793	AutoSense®	Ø5 Flange	68	77	6 x Ø5	Octagon 7.4 D10	11.5	13.5	8.1F9	45 h7	27,000	105

This series includes additional models.
Contact Deublin at +49 (0) 6131-4998-0 or info@deublin.de

DEUBLIN

Rotating Union 1103 and 1113 series with SpindleShield®

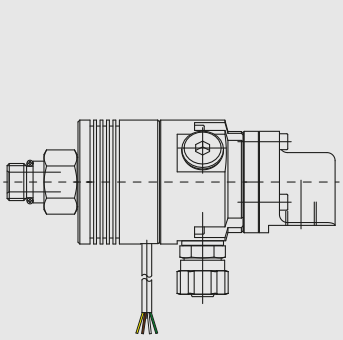
- Single passage
- For all union designs, bore-mounted, rotor-mounted, bearingless
- For all seal technologies, AutoSense®, Pop-Off®, Closed Seal
- Patented technology warns the machine of leakage due to excessive seal wear with test function and media detection
- Wide operating voltage and temperature range
- Anodised aluminium housing resists corrosion
- CE-certified
- Optional available is a SpindleShield® model without cable

Operating Data

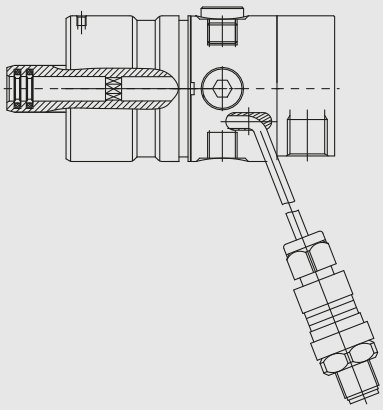
The operating data correspond to the respective basic models (see catalog pages 15 to 19 and table below)

Leak Sensor Features

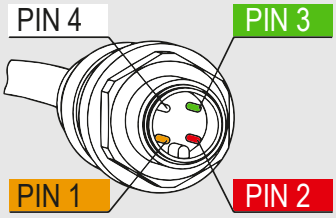
- Media detection water-based coolant
- Reverse polarity protection
- Output short circuit protection
- ESD protection
- Integrated leak sensor test function
- Less than 50 µA standby mode current
- Fail safe design



Available with free cable end



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
Bore-mounted	1103-840-835	Pop-Off®	1109-840-835	17
	1103-302-105	Pop-Off®	1111-002-105	17
	1103-431-105	AutoSense®	1114-331-105	19
	1103-442-730	AutoSense®	1114-842-730	19
	1113-840-835	Closed Seal	1108-840-835	15
Rotor	1103-440-188*	AutoSense®	1114-020-188	18

* Model without plug, with free cable end

	Parameter	Min	Max	Unit	Notes
Specification of Sensor	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 V_{out}	14.2	27.2	V	$V_{out} = V_{in}$ -0.8 V

This series includes additional models.
Contact Deublin at +49 (0) 6131-4998-0 or info@deublin.de

DEUBLIN

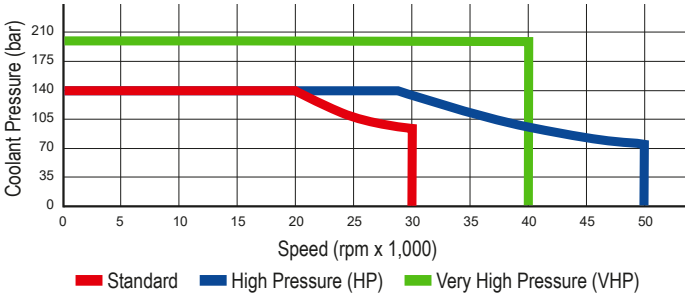
1117 Series Bearingless "Closed Seal" Rotating Unions for Continuous Coolant Service

- 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
- Anodised aluminium housing resists corrosion
- Designs acc. to DIN ISO 69002 available; see table

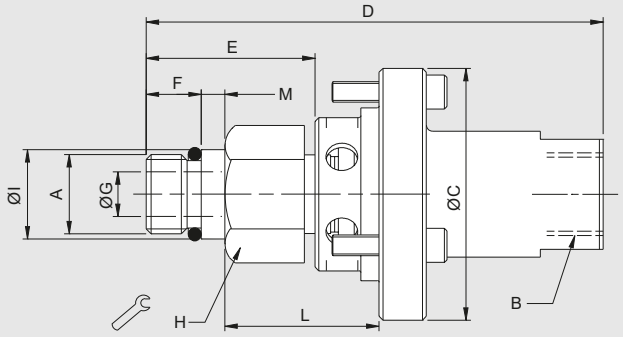
Operating Data

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		
Max. Flow	82 l/min	21.6 gpm	Standard
	24,3 l/min	6.4 gpm	High Pressure (HP)
	2,7 l/min	0.7 gpm	Very High Pressure (VHP)
Max. Temperature	71 °C	160 °F	

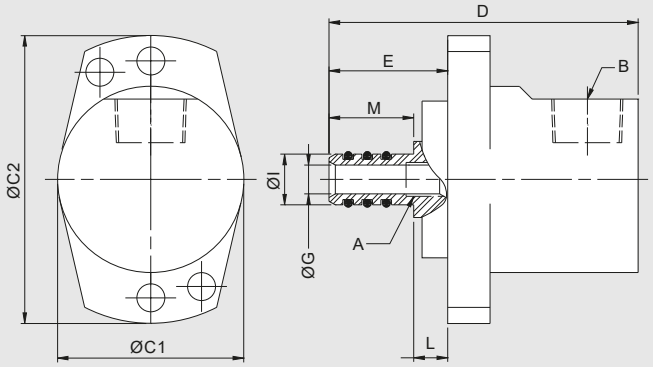
DO NOT RUN DRY



Axial Connection



Radial Connection



		Ordering Number	B Supply Connection	C Overall Diameter	D Overall Length	L Mounting Distance	A Rotor Connection	E Rotor Length	G Bore Diameter	H Across Flats	I Pilot Diameter	M Pilot Length	Max. Speed (rpm)
Standard	Radial	1117-711[A]	⅜ NPT	44 x 68	73	8.0 / 7.5	12 f7	28	7	–	11.984 / 11.966	20	10,000
		1117-792	G ⅜	44	72	7.5 / 7.0	12 f7	21	7	–	11.984 / 11.966	20	30,000
	Axial Connection	1117-002-116	⅜ NPT	51	92	31.7 / 30.5	M16 x 1.5 LH	34	9	24	17.993 / 17.988	5	30,000
		1117-058-116	G ⅜	51	92	31.7 / 30.5	M16 x 1.5 LH	34	9	24	17.993 / 17.988	5	30,000
		1117-789	25 f7	36 x 52	56	23.7 / 23.3	12 f7	28	7	–	11.984 / 11.996	20	30,000
DIN ISO 69002		1117-571-572	G ⅜	44	67.5	11.5	M14 x 15 LH	16	Tube-I Ø4	22	15.993 / 15.988	5	30,000
		1117-571-573	G ⅜	44	67.5	11.5	M14 x 15 LH	16	Tube-I Ø5	22	15.993 / 15.988	5	30,000
		1117-571-574	G ⅜	44	67.5	11.5	M14 x 15 LH	16	Tube-I Ø6	22	15.993 / 15.988	5	30,000
		1117-571-575	G ⅜	44	67.5	11.5	M16 x 15 LH	16	Tube-I Ø8	22	17.993 / 17.988	5	30,000
HP		1117-490-493	⅜ PT	54	105	39.6 / 38.6	M12 x 1.25 LH	40	5	18	14.000 / 13.995	5	50,000
VHP		1117-063-294	G ¼	51	92	31.7 / 30.5	M16 x 1.5 LH	34	5	24	17.993 / 17.988	5	40,000

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

This series includes additional models.
Contact Deublin at +49 (0) 6131-4998-0 or info@deublin.de

DEUBLIN

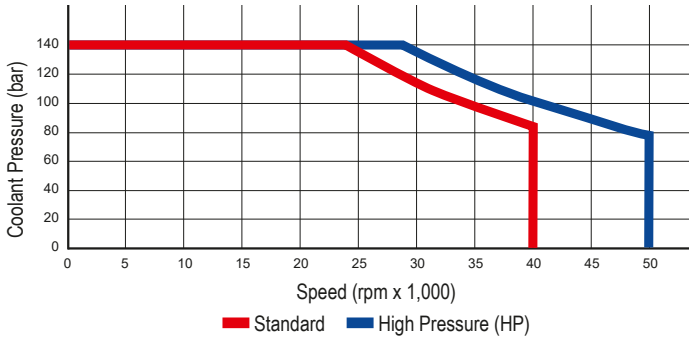
1121 Series Bearingless Pop-Off® "Micro Stroke" Rotating Unions for Coolant Service with unlimited Dry Running

- 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
- Anodised aluminum housing resists corrosion

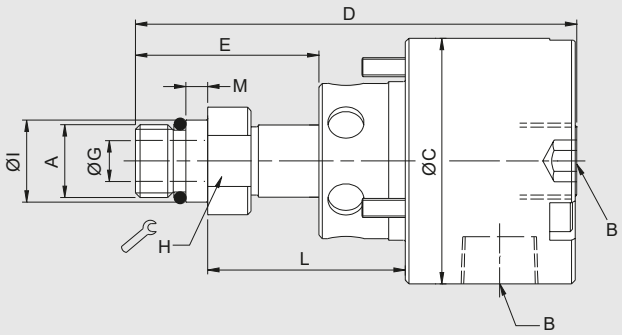
Operating Data

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^{-1}	40,000 rpm	Standard
	50.000 min^{-1}	50,000 rpm	High Pressure (HP)
Max. Pressure	140 bar	2,031 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	

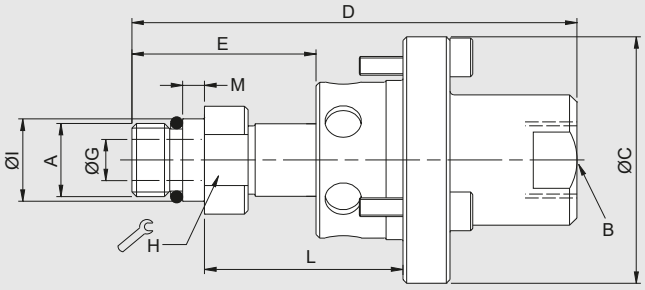
NO COMPRESSED AIR WITH ROTATION



Axial / Radial Connection



Axial Connection



	Connection	Ordering Number	B Supply Connection	C Overall Diameter	D Overall Length	L Mounting Distance	A Rotor Connection	E Rotor Length	G Bore Diameter	H Across Flats	I Pilot Diameter	M Pilot Length	Max. Speed (rpm)
Standard	Radial	1121-271-273	G ⅜	54	85	31.5 / 30.5	M16 x 1.5 LH	28	7	24	17.993 / 17.988	5	30,000
		1121-300-345	⅜ PT	54	97	44.0 / 43.0	M16 x 1.5 LH	40	9	21	17.993 / 17.988	5	40,000
		1121-330-327	⅜ PT	54	94	39.6 / 38.6	M12 x 1.25 LH	37	6	18	14.000 / 13.995	5	40,000
		1121-330-345	⅜ PT	54	97	44.0 / 43.0	M16 x 1.5 LH	40	9	21	17.993 / 17.988	5	40,000
	Axial/Radial	1121-380-327	G ⅜ Radial ¼ PT Axial	54	98	39.6 / 38.6	M12 x 1.25 LH	37	6	18	14.000 / 13.995	5	40,000
		1121-380-345	G ⅜ Radial ¼ PT Axial	54	102	44.0 / 43.0	M16 x 1.5 LH	40	9	21	17.993 / 17.988	5	40,000
	Axial	1121-400-327	⅜ PT	54	94	39.6 / 38.6	M12 x 1.25 LH	37	6	18	14.000 / 13.995	5	40,000
		1121-400-345	⅜ PT	54	98	44.0 / 43.0	M16 x 1.5 LH	40	9	21	17.993 / 17.988	5	40,000
HP		1121-410-493	⅜ PT	54	105	39.6 / 38.6	M12 x 1.25 LH	40	5	18	14.000 / 13.995	5	50,000
		1121-430-431	⅜ PT	54	108	44.0 / 43.0	M16 x 1.5 LH	43	5	21	17.993 / 17.988	5	50,000

This series includes additional models.
Contact Deublin at +49 (0) 6131-4998-0 or info@deublin.de

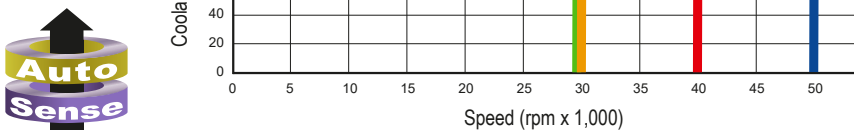
DEUBLIN

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

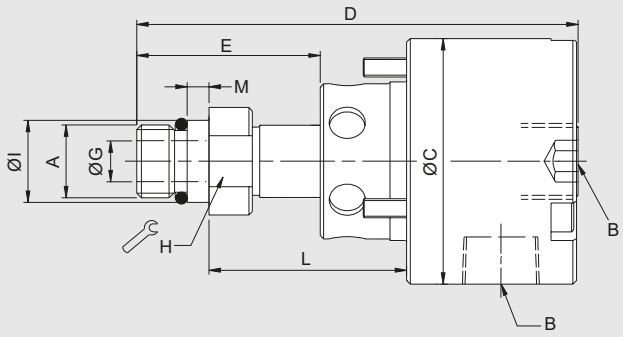
- Single passage for coolant and compressed air
- Patented AutoSense® technology, changes automatically between closed seals and controlled leakage, depending on media
- Full-flow design has no obstructions to trap swarf or debris
- Balanced mechanical seals made from silicon carbide for long life even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

Operating Data

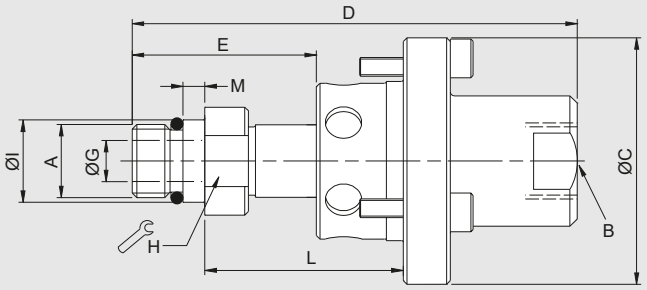
Media	Water-based Coolant MQL (oil mist) up to 10 bar (145 psi)
Filtration	ISO 4406:2017 Class 17/15/12, max. 60 micron
Max. Speed	see graphic/table
Max. Pressure	see graphic/table
Max. Flow	Coolant see table
Max. Temperature	71 °C 160 °F



Axial / Radial Connection



Axial Connection



PATENTED

Coolant	Connection	Ordering Number	B Supply Connection	C Overall Diameter	D Overall Length	L Mounting Distance	A Rotor Connection	E Rotor Length	G Bore Diameter	H Across Flats	I Pilot Diameter	M Pilot Length	Max. Speed (rpm)
15 l/min	Radial	1124-850-847	G ¼	68	101	2	M8 x 0.5 LH	28	4	13	8.995 / 8.991	20	40,000
24.3 l/min	Axial	1124-270-022	G ¼	45	63	13.9	M10 x 1 LH	29	5	14	10.994 / 10.989	7	50,000
82 l/min	Radial	1124-031-590	G ⅜	58	76	21.5	M16 x 1.5 LH	24.5	8.5	19	17.993 / 17.988	5	30,000
38 l/min	Axial	1124-036-301	PT ⅜	54	97	43	M16 x 1.5 LH	40	8.5	24	17.993 / 17.988	5	30,000
24.3 l/min	Radial / Axial	1124-800-780	2 x G ⅜	54	106	41.5	M16 x 1.5 LH	40	5	19	17.993 / 17.988	5	30,000

This series includes additional models.
Contact Deublin at +49 (0) 6131-4998-0 or info@deublin.de

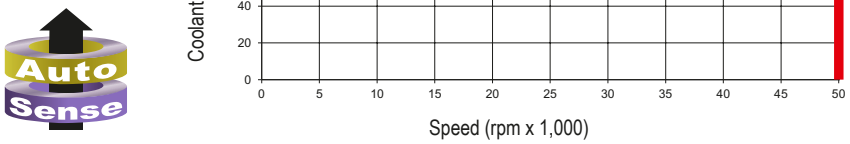
DEUBLIN

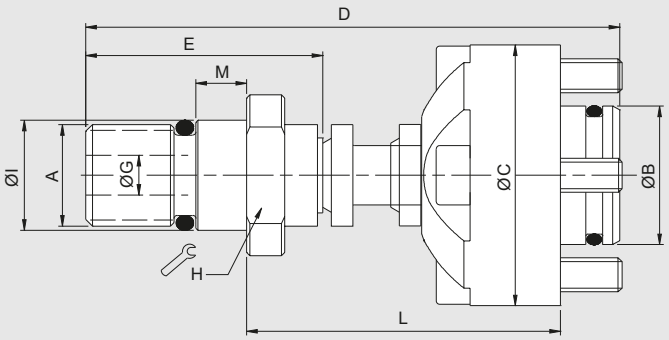
1154 Series Bearingless AutoSense® "Long Stroke" Rotating Unions for Coolant and Air Service, with unlimited Dry Running

- 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
- Anodised aluminium housing resists corrosion

Operating Data

Media	Water-based Coolant MQL (oil mist) up to 10 bar (145 psi) Air up to 10 bar (145 psi)	
Filtration	ISO 4406:2017 Class 17/15/12, max. 60 micron	
Max. Speed	50.000 min^{-1}	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





PATENTED

	Ordering Number	B Supply Connection	C Overall Diameter	D Overall Length[B]	L Mounting Distance	A Rotor Connection	E Rotor Length	G Bore Diameter	H Across Flats	I Pilot Diameter	M Pilot Length	Max. Speed (rpm)
Axial Connection	1154-002-105	16.4 Counterbore	31	72	49.0 / 42.0	M8 x 1 RH	37	4	15	8.995 / 8.991	3.5	50,000
	1154-002-109	16.4 Counterbore	31	63	37.0 / 30.0	M12 x 1 RH	28	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	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	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	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	5	15	12.994 / 12.989	6	50,000
	1154-004-109	30 Counterbore	48.5	69	42.0 / 35.0	M12 x 1 RH	28	5	15	12.994 / 12.989	6	50,000
	1154-005-109	16.4 Counterbore	31	87	49.0 / 42.0	M12 x 1 RH	28	5	15	12.994 / 12.989	6	50,000
	1154-012-109[A]	16.4 Counterbore	31	63	37.0 / 30.0	M12 x 1 RH	28	5	15	12.994 / 12.989	6	50,000
	1154-012-133[A]	16.4 Counterbore	31	65	37.0 / 30.0	M16 x 1.5 LH	30	5	19	17.994 / 17.989	6	50,000

Note A: 1154-012-xxx includes a spring to fully retract the non-rotating element when pressure is discontinued.
Note B: Overall Length (D) is at maximum Mounting Distance (L).

This series includes additional models.
Contact Deublin at +49 (0) 6131-4998-0 or info@deublin.de

DEUBLIN

Bearingless Rotating Union Cartridge Design
Compact Bearingless Rotating Union for smallest installation space

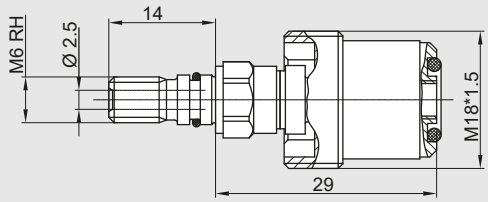
- Single passage available with almost all sealing technologies
- Design with additional functions: e.g. "long stroke" stator with hub to allow drawbar movement even when rotating union is mounted onto the clamping unit
- Full-flow design has no obstructions to trap swarf or debris
- Balanced mechanical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

Operating Data

Sealing Technology (depending on model)	AutoSense®, Closed Seal, Pop-Off®
Media (depending on model)	Coolant – water-based; Cutting Oil Compressed Air up to 10 bar, up to 145 psi MQL (oil mist) up to 10 bar, up to 145 psi

Examples

1121-251-434

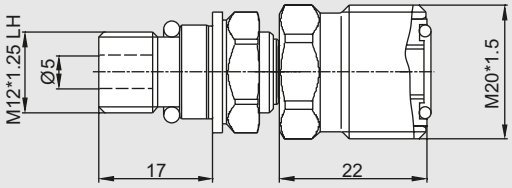


Features
- Pop-Off®
- Single passage
- Seals SIC/SIC

Operating Data

Speed	150,000 rpm
Pressure	180 bar
Media	Coolant / Cutting Oil
Dry run	Yes
Max. Flow	7.4 l/min

1117-593-589

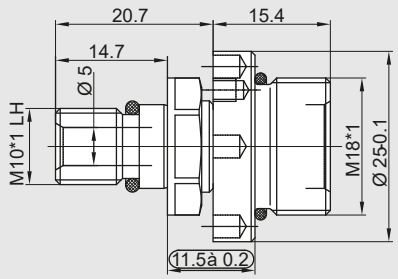


Features
- Closed Seal
- Single passage
- Seals CG/SIC

Operating Data

Speed	30,000 rpm
Pressure	140 bar
Media	Coolant / Cutting Oil
Dry run	No
Max. Flow	7.4 l/min

1124-259-260

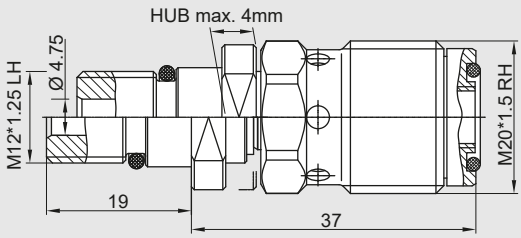


Features
- AutoSense®
- Single passage
- Seals SIC/SIC

Operating Data

Speed	30,000 rpm
Pressure	140 bar / 10 bar
Media	Coolant / Compressed Air
Dry run	Yes
Max. Flow	7.4 l/min

1154-170-137

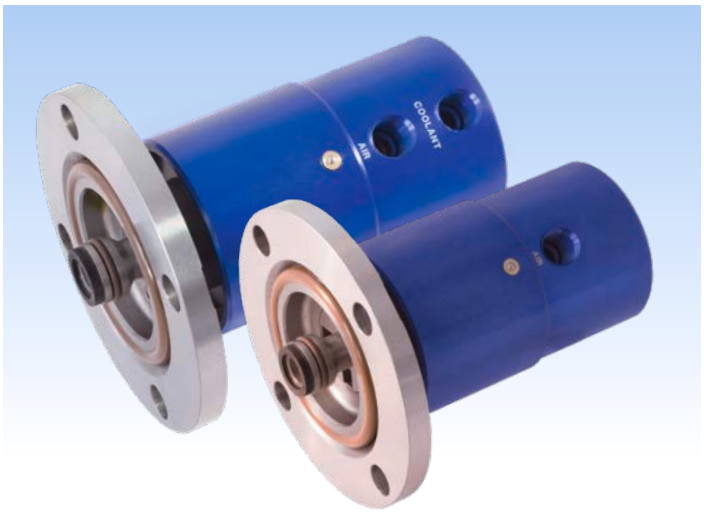


Features
- AutoSense®
- Single passage
- Seals SIC/SIC
- Hub max. 4 mm

Operating Data

Speed	40,000 rpm
Pressure	140 bar / 10 bar
Media	Coolant / Compressed Air
Dry run	Yes
Max. Flow	7.4 l/min

This series includes additional models.
Contact Deublin at +49 (0) 6131-4998-0 or info@deublin.de



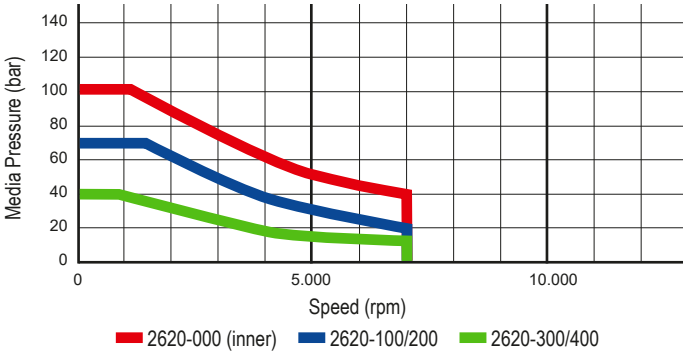
DEUBLIN

2620 Series 2-Passage Rotating Unions for Various Media

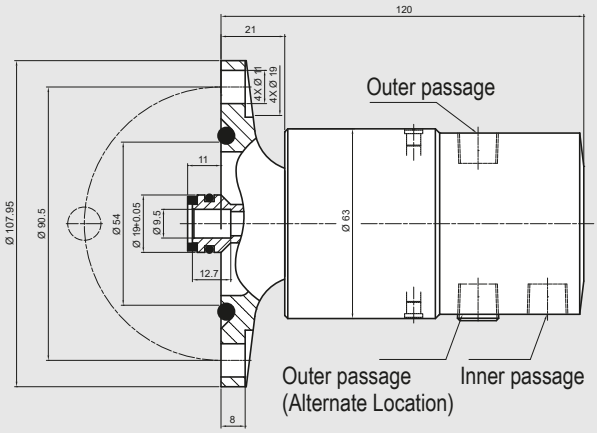
- Two independent passages for applications such as clamping and unclamping
- Balanced mechanical seals for each passage provide long life and reduced torque even at maximum pressure
- Closed seals provide continuous containment of media
- Labyrinth protection for ball bearings

Operating Data

Media	see chart	
Filtration	ISO 4406:2017 Class 17/15/12, max. 60 micron	
Max. Speed	7.000 min^{-1}	7,000 rpm
Max. Pressure	see chart/table	
Max. Flow	69 l/min	18.2 gpm (per passage)
Max. Temperature	71 °C	160 °F



2620-XXX-252



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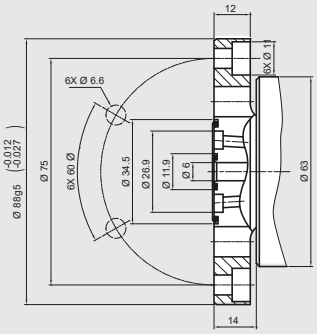
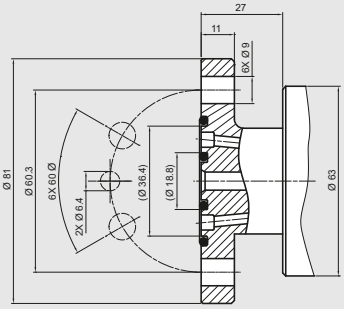


2620-XXX-157



With Ø 108 mm flanged rotor		With Ø 88 mm flanged rotor			With Ø 81 mm flanged rotor		Inner Passage		Outer Passage		Notes
Ordering Number	Supply Connections Inner and outer Passage	Ordering Number	Supply Connections Inner Passage	Supply Connections Outer Passage	Ordering Number	Supply Connections Inner and outer Passage	Media	Max. Pressure [bar]	Media	Max. Pressure [bar]	
2620-000-252	¼ NPT	2620-002-940	G ¼	G ¼	2620-000-157	¼ NPT	Hydraulic Oil	100	Hydraulic Oil	30	
2620-100-252	¼ NPT	2620-102-940	G ⅜	G ⅛	2620-100-157	¼ NPT	Hydraulic Oil	70	Compressed Air	6	Compressed air seals may be lubricated through oil cup or by using oiled compressed air.
2620-120-252	¼ NPT	2620-122-940	G ⅜	G ⅛	2620-120-157	¼ NPT	Hydraulic Oil	70	Compressed Air	10	
2620-200-252	¼ NPT	2620-202-940	G ⅜	G ⅛	2620-200-157	¼ NPT	Coolant	70	Compressed Air	6	
2620-220-252	¼ NPT	2620-222-940	G ⅜	G ⅛	2620-220-157	¼ NPT	Coolant	70	Compressed Air	10	
2620-300-252	¼ NPT	2620-302-940	G ¼	G ¼	2620-300-157	¼ NPT	Compressed Air	6	Hydraulic Oil	40	Compressed air seals require no external lubrication.
2620-320-252	¼ NPT	2620-322-940	G ¼	G ¼	2620-320-157	¼ NPT	Compressed Air	10	Hydraulic Oil	40	
2620-400-252	¼ NPT	2620-402-940	G ¼	G ¼	2620-400-157	¼ NPT	Compressed Air	6	Coolant	40	
2620-420-252	¼ NPT	2620-422-940	G ¼	G ¼	2620-420-157	¼ NPT	Compressed Air	10	Coolant	40	
2620-500-252*	¼ NPT	2620-502-940*	G ⅜	G ⅛	2620-500-157*	¼ NPT	Compressed Air	6	Compressed Air	6	Consult Deublin regarding maximum speed.
2620-520-252	¼ NPT	2620-522-940	G ⅜	G ⅛	2620-520-157	¼ NPT	Compressed Air	10	Compressed Air	10	

* Inner passage allowed for operation with hydraulic 70 bar and coolant 70 bar.

This series includes additional models.
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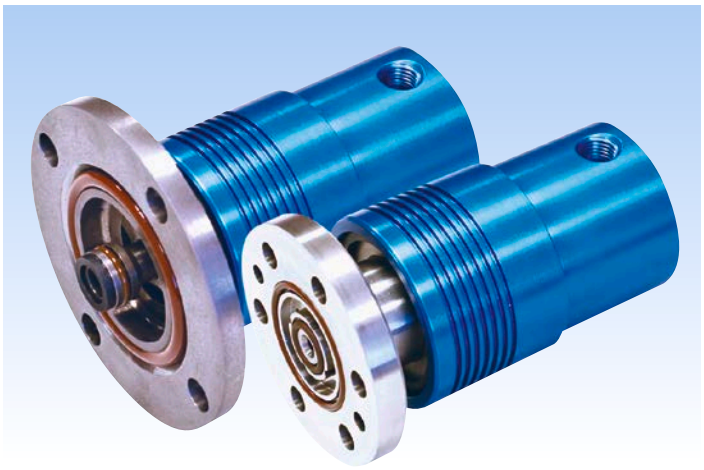


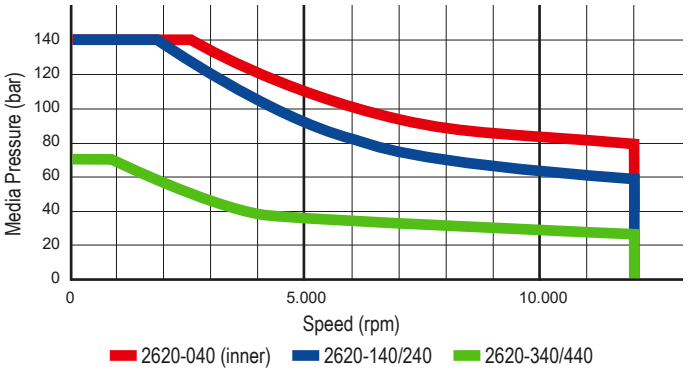
DEUBLIN

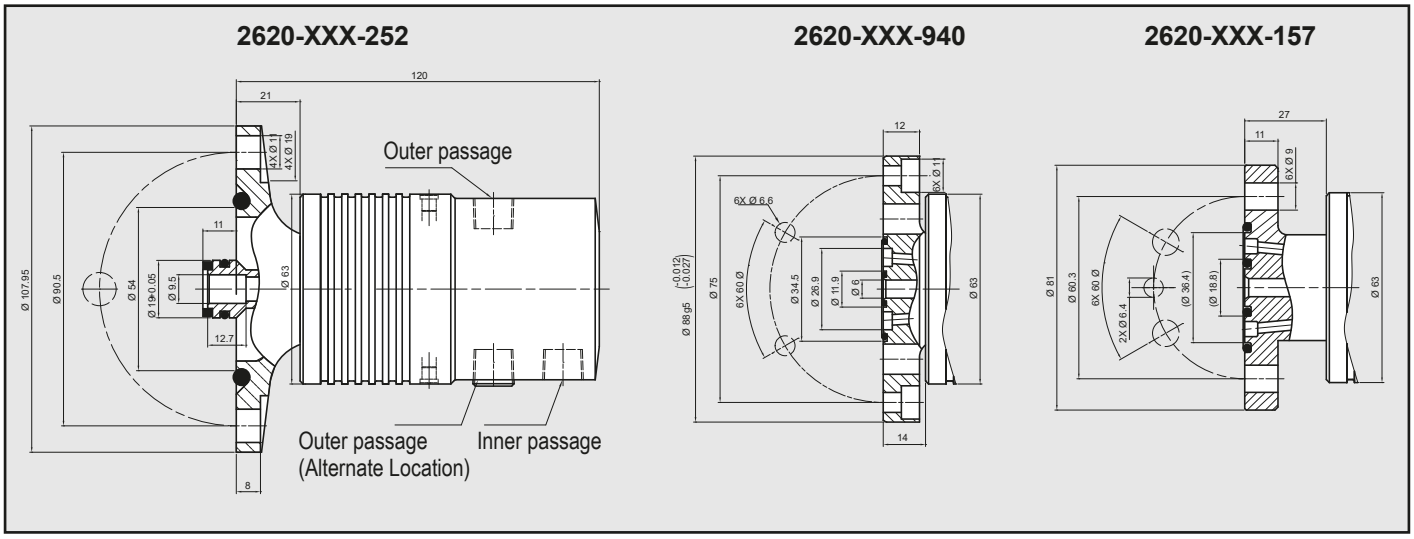
2620 Series 2-Passage Rotating Unions for Various Media

- 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^{-1}	12,000 rpm
Max. Pressure	see chart/table	
Max. Flow	69 l/min	18.2 gpm (per passage)
Max. Temperature	71 °C	160 °F





With Ø 108 mm flanged rotor		With Ø 88 mm flanged rotor			With Ø 81 mm flanged rotor		Inner Passage		Outer Passage		Notes
Ordering Number	Supply Connections Inner and outer Passage	Ordering Number	Supply Connections Inner Passage	Supply Connections Outer Passage	Ordering Number	Supply Connections Inner and outer Passage	Media	Max. Pressure [bar]	Media	Max. Pressure [bar]	
2620-040-252	¼ NPT	2620-042-940	G ¼	G ¼	2620-040-157	¼ NPT	Hydraulic Oil	140	Hydraulic Oil	70	
2620-140-252	¼ NPT	2620-142-940	G ⅜	G ⅛	2620-140-157	¼ NPT	Hydraulic Oil	140	Compressed Air	6	Compressed air seals may be lubricated through oil cup or by using oiled compressed air.
2620-160-252	¼ NPT	2620-162-940	G ⅜	G ⅛	2620-160-157	¼ NPT	Hydraulic Oil	140	Compressed Air	10	
2620-240-252	¼ NPT	2620-242-940	G ⅜	G ⅛	2620-240-157	¼ NPT	Coolant	140	Compressed Air	6	
2620-260-252	¼ NPT	2620-262-940	G ⅜	G ⅛	2620-260-157	¼ NPT	Coolant	140	Compressed Air	10	
2620-340-252	¼ NPT	2620-342-940	G ¼	G ¼	2620-340-157	¼ NPT	Compressed Air	6	Hydraulic Oil	70	Compressed air seals require no external lubrication.
2620-360-252	¼ NPT	2620-362-940	G ¼	G ¼	2620-360-157	¼ NPT	Compressed Air	10	Hydraulic Oil	70	
2620-440-252	¼ NPT	2620-442-940	G ¼	G ¼	2620-440-157	¼ NPT	Compressed Air	6	Coolant	70	
2620-460-252	¼ NPT	2620-462-940	G ¼	G ¼	2620-460-157	¼ NPT	Compressed Air	10	Coolant	70	

This series includes additional models.
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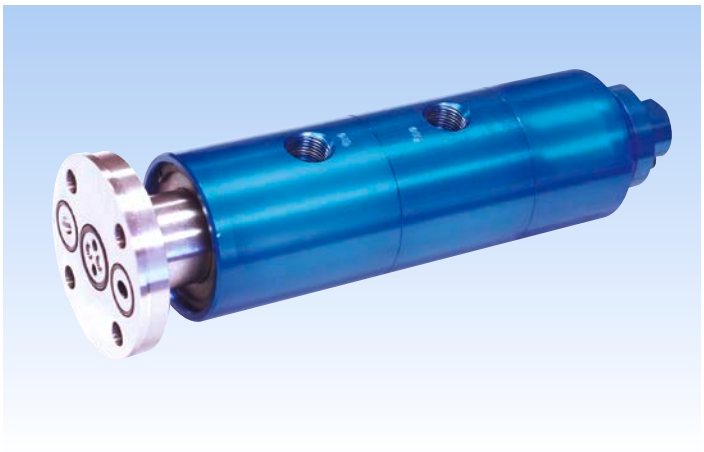


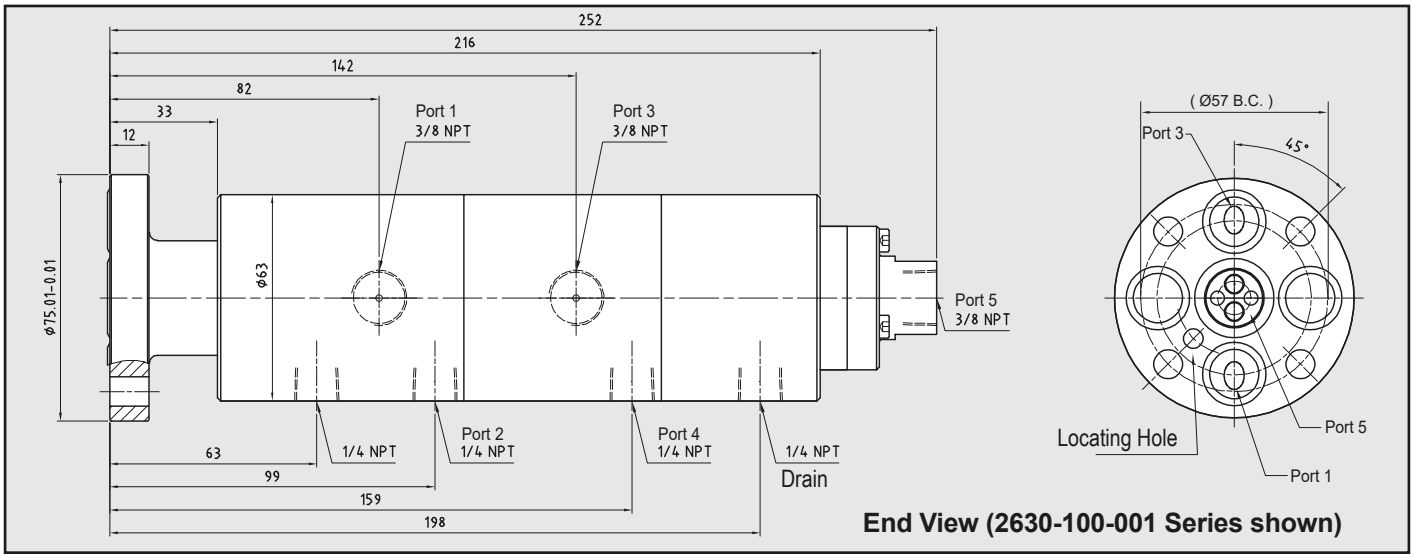
DEUBLIN

2630/2640/2650 Series 3 to 5-Passage Rotating 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. 60 micron	
Max. Speed	10.000 min^{-1}	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

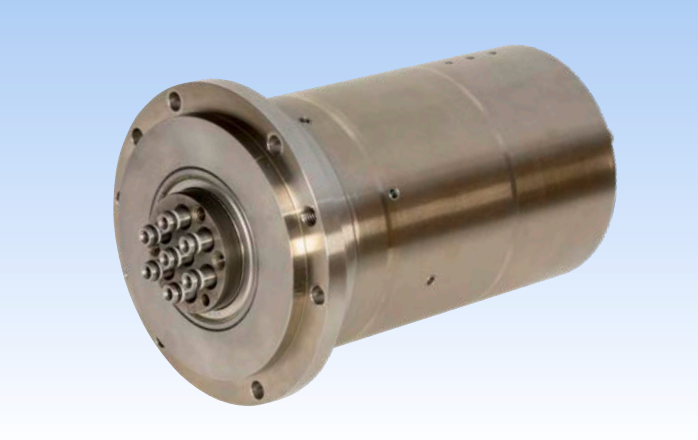


End View (2630-100-001 Series shown)

Number of Passages	Ordering Number	Port #1	Port #2	Port #3	Port #4	Port #5
3	2630-000-001	Hydraulic or Cooling Oil	Drain	Water	Drain	Coolant / MQL / Compressed Air[A]
	2630-100-001	Hydraulic or Cooling Oil	Drain	Hydraulic or Cooling Oil	Drain	Coolant / MQL / Compressed Air[A]
	2630-200-001	Hydraulic or Cooling Oil	Compressed Air[B]	Coolant	Drain	–
	2630-300-001	–	Compressed Air[B]	Coolant	Compressed Air[B]	–
	2630-400-001	–	Compressed Air[B]	Coolant	Drain	Coolant / MQL / Compressed Air[A]
4	2640-000-001	Hydraulic or Cooling Oil	Compressed Air[B]	Coolant	Drain	Coolant / MQL / Compressed Air[A]
	2640-100-001	Hydraulic or Cooling Oil	Compressed Air[B]	Hydraulic or Cooling Oil	Drain	Coolant / MQL / Compressed Air[A]
5	2650-000-001	Hydraulic or Cooling Oil	Compressed Air[B]	Coolant	Compressed Air[B]	Hydraulic or Cooling 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.

This series includes additional models.
Contact Deublin at +49 (0) 6131-4998-0 or info@deublin.de



DEUBLIN

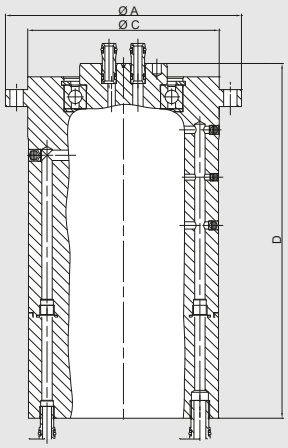
Hybrid-Multi-Passage Series up to 10-Passages for various Media

- Independent channels for various applications, e.g. clamping/ unclamping, tool clamping, cooling and work piece sensoring
- 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)

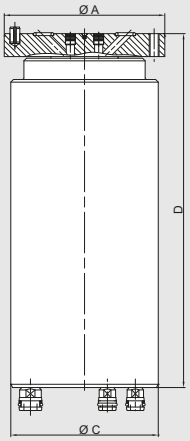
Operating Data

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

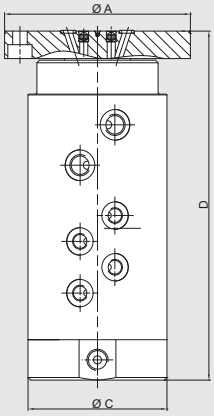
Bore-mounted Axial Connection
Connection 1



Rotor-mounted Axial Connection
Connection 2



Rotor-mounted Radial Connection
Connection 3



Passages	Connection	Ordering Number	Max. Speed [rpm]	Media	D Overall Length	C Overall Diameter	A Ø Flange
3	3	SP0301	500	3x Compressed Air	128	86	64 f7
3	1	SP0562	500	2x Hydraulic, 1x Compressed Air	147	129	159
4	2	SP0673	1,000	2x Hydraulic, 2x Cooling Water	260	88	85 g6
4	2	SP0575	400	2x Hydraulic, 2x Compressed Air	157	90	98 g7
4	2	SP0570	1,000	4x Hydraulic	157	90	98 g7
4	2	SP0653	1,200	4x Compressed Air when stationary	157	90	98 g7
4	1	SP0599	500	2x Hydraulic, 2x Compressed Air	171	129	159
5	2	SP0664	2,500	3x Hydraulic, 2x Compressed Air	245	110	132 g7
5	2	SP0592	250	4x Hydraulic, 1x Compressed Air	190	90	98 g7
5	3	SP0726	500	4x Compressed Air, 1x Vacuum	182	85	95 g6
6	3	SP0591	600	2x Hydraulic, 4x Compressed Air	216	86	115 g6
6	3	SP0896	500	3x Hydraulic, 2x Compressed Air, 1x Coolant	235	90	98 g7
6	1	SP0668	5,000	2x Hydraulic, 2x Cooling Water, 1x Air, 1x Coolant	347	89	86 f7
7	1	SP0629	500	5x Hydraulic, 2x Compressed Air	240	129	159
7	1	SP0856	20	4x Hydraulic, 2x Compressed Air, 1x Vacuum	240	129	159
8	2	SP0667	800	5x Hydraulic, 2x Compressed Air, 1x Vacuum	280	115	134 g6
9	2	SP0669	1,000	8x Hydraulic, 1x Compressed Air	332	134	134 g6
10	2	MPSS-000037	35	8x Hydraulic, 2x Compressed Air	342	164	94 f8

This series includes additional models.
Contact Deublin at +49 (0) 6131-4998-0 or info@deublin.de

WARRANTY AND OTHER IMPORTANT INFORMATION

Service and Support

Rotating unions are critical to the performance of your machining centres, so Deublin products are designed for maximum reliability. Deublin service is just as reliable. To provide you with local and emergency service, Deublin has a worldwide service network of wholly-owned divisions and authorised distributors. Whether you need a spare part, new product, technical advice, or help with a design project, Deublin's experienced customer service representatives and application engineers are available to provide immediate assistance.

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 Rotating 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.

Important Notice

The Deublin Rotating Union is a precision-made piece of equipment and must be handled accordingly. It is a rotating sealing device – not just a plumbing union. Improper use or installation can result in premature leakage or failure. While Deublin unions are of the highest quality and precision, they are "wear and tear" items. It is important that they are periodically inspected and, as the seals wear out, replaced or repaired to avoid the consequences of leakage.

Deublin unions never must be used for applications other than as specified in the catalogue. Deublin unions should not be used to convey flammable media (flash point ≤ 60 °C or 140 °F) as leakage may result in explosions or fires. Deublin unions should be used in accordance with standard safety guidelines for the media, and in a well-ventilated area. The use of our product on hazardous or corrosive media is strictly forbidden.

For applications other than as stated in the catalogue, contact Deublin's Engineering Department for recommendations.

These instructions are provided as general guidelines. They do not contain exhaustive information about the installation, use or maintenance of unions. Purchasers and users of Deublin unions should be certain that they have reviewed Deublin's catalogue and have sufficient experience and training in the use of unions before attempting installation or use of Deublin products. The principal responsibility for the safe and effective use of Deublin unions rests with the user and its employees. Deublin will provide, upon request, whatever assistance it can to advise users about the use of its products and about any difficulties or problems which are brought to its attention.

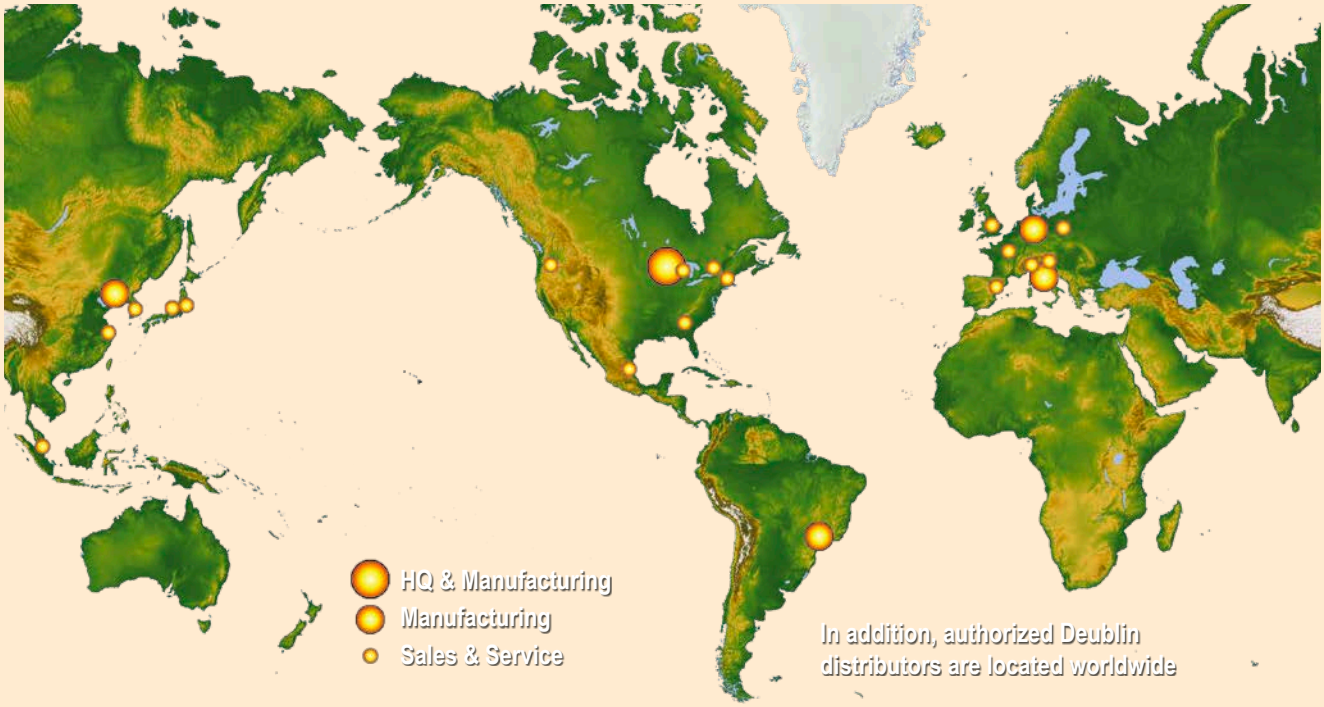
Factory Testing

All Deublin Rotating Unions are factory-tested under pressure prior to shipment. This thorough check ensures that each Deublin union performs as intended. Deublin Rotating Unions can be installed with the confidence that they will operate to your complete satisfaction.

GETTING TECHNICAL OR DESIGN ASSISTANCE FROM *DEUBLIN*

Since 1945, Deublin has grown to the world's largest manufacturer of rotating unions. Today, Deublin's international headquarters is located in Waukegan, Illinois, with manufacturing facilities and sales offices located in 14 countries on four continents. Deublin's state-of-the-art manufacturing facilities feature the latest technologies, including multi-axis CNC, robotics, single point threading, and cylindrical grinding.

Advanced machining techniques and proprietary processes allow Deublin to achieve the most precise tolerances in the industry, and to ensure superior performance and union life. Our worldwide distribution network allows machine operators all over the world to specify Deublin unions when purchasing equipment made in another country. We are manufacturers ourselves, so we understand the importance of fast response time to keep your manufacturing process rolling. Wherever you are located, Deublin has a stocking distributor nearby to meet your requirements – quickly.



The Deublin Performance System (DPS)® focuses production on customer's demand. Through demand-oriented production, balancing of available resources and avoidance of non-value-adding activities the entire production process at Deublin is tailored to the customer's own requirements. **Today a wide range of models can be dispatched within 3 working days.**

Kanban Conveyance Line

Assembly Cell

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 constant growth through the years, and for this we are grateful to our many loyal customers.

Today, Deublin is the world's largest manufacturer of rotating unions, with state-of-the-art factories, technical sales and service, and local stocking in 14 countries on four continents, as well as a worldwide distribution network operating from 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 Solutions division.

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

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


Mainz, Germany

Monteveglio, Italy


Dalian, China

DEUBLIN
HOERBIGER Rotary Solutions

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