DEUBLIN
HOERBIGER Rotary Solutions

ROTARY UNIONS

High Pressure Hydraulic Unions for Wind Energy Applications

HIGH PRESSURE HYDRAULIC UNIONS FOR WIND ENERGY APPLICATIONS

Helping Realize the Promise of Wind Energy

Wind energy is a rapidly-growing option to traditional utility scale power generation alternatives, which are increasingly challenged by environmental, geopolitical and economic issues. The potential is enormous.

In the United States, as public demand for clean energy grows, and as the cost of producing energy from the wind continues to decline, it is likely that wind energy will provide a significant and growing portion of the nation's energy supply.

To realize these goals, problems must be solved – among them, improved reliability and operability of wind systems.

Unparalleled Functionality and Reliability

As the proven leader for the manufacture of precision rotary unions for wind turbine hydraulic pitch control, Deublin Engineering continues to focus on reliability and performance.

Our hydraulic rotary unions for wind energy applications are available in configurations ranging from monoflow to four-passage designs, with central passages for cable connection to electrical slip rings. Each DEUBLIN rotary union employs a proprietary, controlled leakage sealing technology. Durability features such as water resistant construction and hardened stainless steel rotors provide unparalleled lifecycle reliability over millions of cycles. This significantly reduces downtime and maintenance costs for both on- and off-shore operations.

All unions are 100% factory tested under operating pressures to ensure that each union is completely operational upon receipt and ready to install. But testing is just the beginning of Deublin's commitment to quality.

Quality Credentials

Deublin pursues its design and manufacturing missions with a passionate belief in the premise that quality is designed in, not inspected in – a philosophy that is at the heart of its inde-pendently registered ISO 9001 compliant Quality Management System. This recognition offers assurance that our customers' end-use environment, performance requirements and reliability expectations are always captured and expressed in our product designs, as well as at every stage of development and manufacture. It means that "lessons learned" in hundreds of product applications are projected forward into continual improvement of both our product and processes. Our ISO 9001 recognition is therefore simply more evidence of Deublin's unmatched reputation for customer satisfaction and product quality.

In addition, Deublin is certified as an Authorized Economic Operator (AEO), which provides assurance that Deublin's supply chain is approved as both secure and customs-reliable. This recognition fast-tracks the flow of goods and materials worldwide – a customer service advantage for all of our supply chain partners.

DNV

DET NORSKE VERITAS

MANAGEMENT SYSTEM CERTIFICATE

DEUBLIN COMPANY

ISO 9001:2008

Electrical Slip Rings Now Available

DEUBLIN provides Slip Rings for the demanding requirements of electric or hydraulic wind turbine pitch control applications.

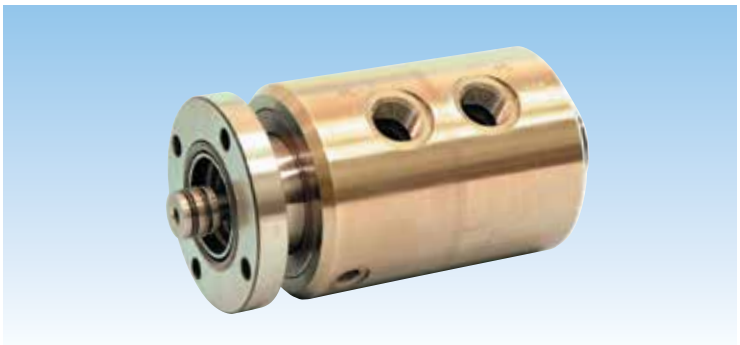
DEUBLIN Slip Rings deliver an integrated and optimized system with special material configurations that are rated for millions of cycles, and years of trouble-free operation. *Request Brochure SR102 US.*

+1-847-689-8600

Rotary Union for Wind Turbines, DN 15 – 40, 1 - 4 Passages

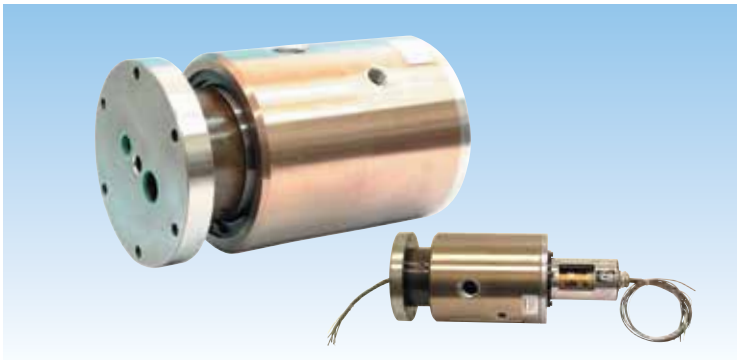
7100-733

- Monoflow design
- Self-supported rotating union
- Threaded type rotor
- Hydrostatic bearing design
- Wear-resistant bearing
- Vent for controlled leakage, depending on pressure
- Shaft seal for secondary sealing
- Stainless steel housing
- Hardened steel rotor



7100-376 / 7100-730 / 7100-741

- Duoflow design
- Flange rotor
- Coaxial media passage



7100-700

- Duoflow design
- Flange rotor
- Parallel media passage
- Central passage for cable
- Connection for electrical slip ring

Special designs:

- Three passage design
- Eccentric cable passage
- Drain line in rotor
- SAE housing connection

7100-736 / 7100-1001

- Four passage design
- Flange rotor
- Parallel media passage
- Central passage for cable
- Connection for electrical slip ring

7100-1005

- Four passage design
- Flange rotor
- Parallel media passage
- Central passage for cable
- Connection for electrical slip ring
- Single piece housing

Following are some additional typical hydraulic unions for wind energy applications:

7100-970	899-200-201	899-221-201
7100-1018	899-210-201	SP0037

Rotating Union 7100 Series
DN 8, 1 - 4 passages

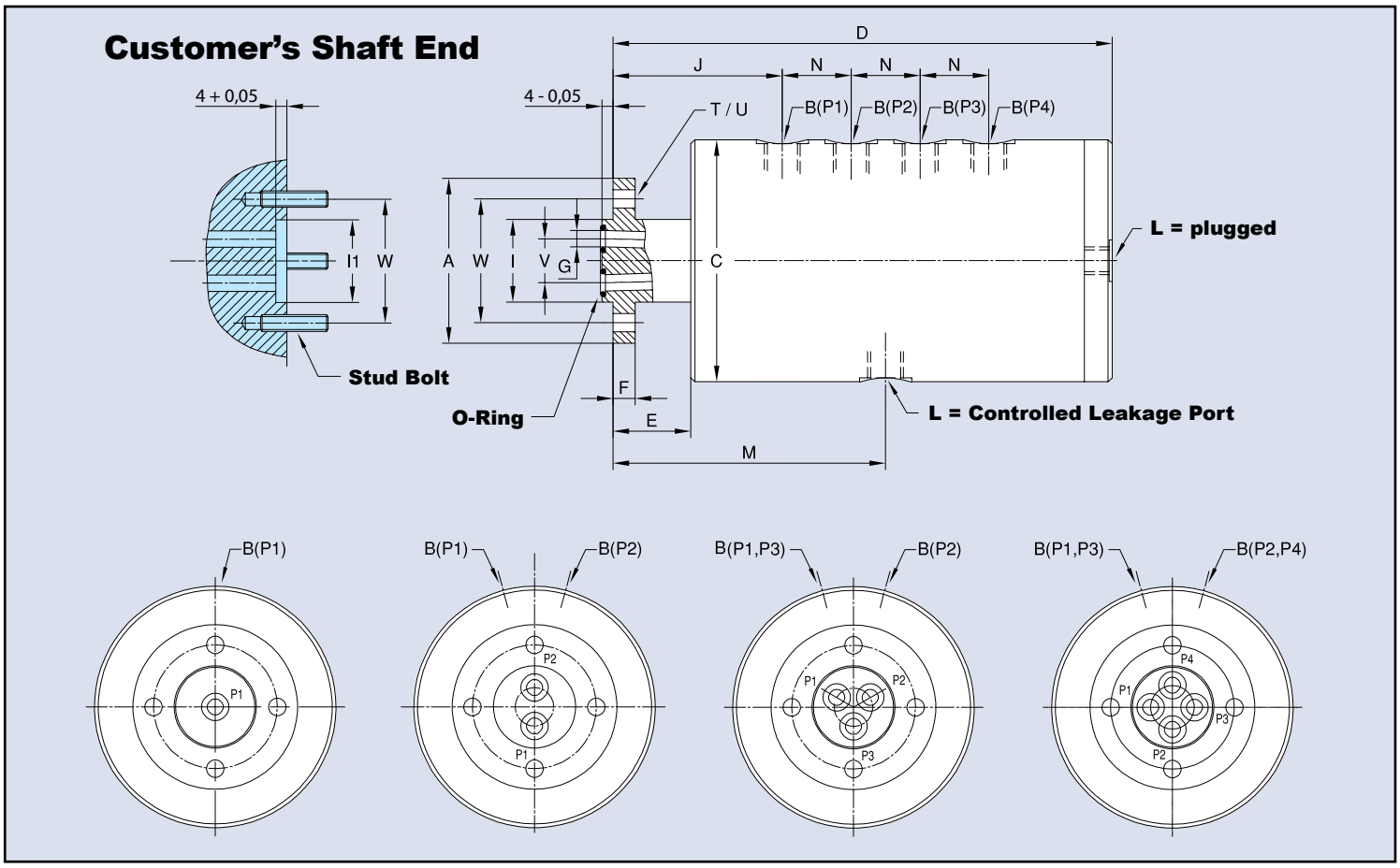
- Self-supported rotating union
- Hydrostatic bearing design
- Ball bearing supported
- Vent for controlled leakage, depending on pressure
- Shaft seal for secondary sealing
- Aluminium housing
- Steel rotor, coated
- Special designs for higher speeds

For further information please contact ***DEUBLIN*** or your local representative.

Operating Data

Max. Hydraulic Pressure	2,900 PSI	200 bar
Min. Hydraulic Pressure	40 PSI	3 bar
Max. Speed	3,000 RPM	3 000 min^{-1}
Max. Temperature	60 °C	> 60 °C consult ***DEUBLIN***

Required Oil Cleanliness: class 17/15/12, ISO 4406



DN	B	Ordering No.	A Rotor Connections	C ø	D	E	F	G ø	I ø	I1 ø	J	L	M	N	T	U ø	V ø	W ø	kg
1 x 8	**1 x G 1/4**	7100-737	Flange Ø 60	88	110	28	8	1 x 6	30 f7	30 H7	61,5	G 1/4	74,5	–	4x90°	6,6	14	45	2,0
2 x 8	**2 x G 1/4**	7100-739	Flange Ø 60	88	135	28	8	2 x 6	30 f7	30 H7	61,5	G 1/4	99	1 x 25	4x90°	6,6	14	45	2,6
3 x 8	**3 x G 1/4**	7100-740	Flange Ø 60	88	160	28	8	3 x 6	30 f7	30 H7	61,5	G 1/v	74	2 x 25	4x90°	6,6	14	45	3,1
4 x 8	**4 x G 1/4**	7100-900	Flange Ø 60	88	185	28	8	4 x 6	30 f7	30 H7	61,5	G 1/v	99	3 x 25	4x90°	6,6	14	45	3,6

Rotating Union 7100 Series
DN 8 - 20, Duoflow

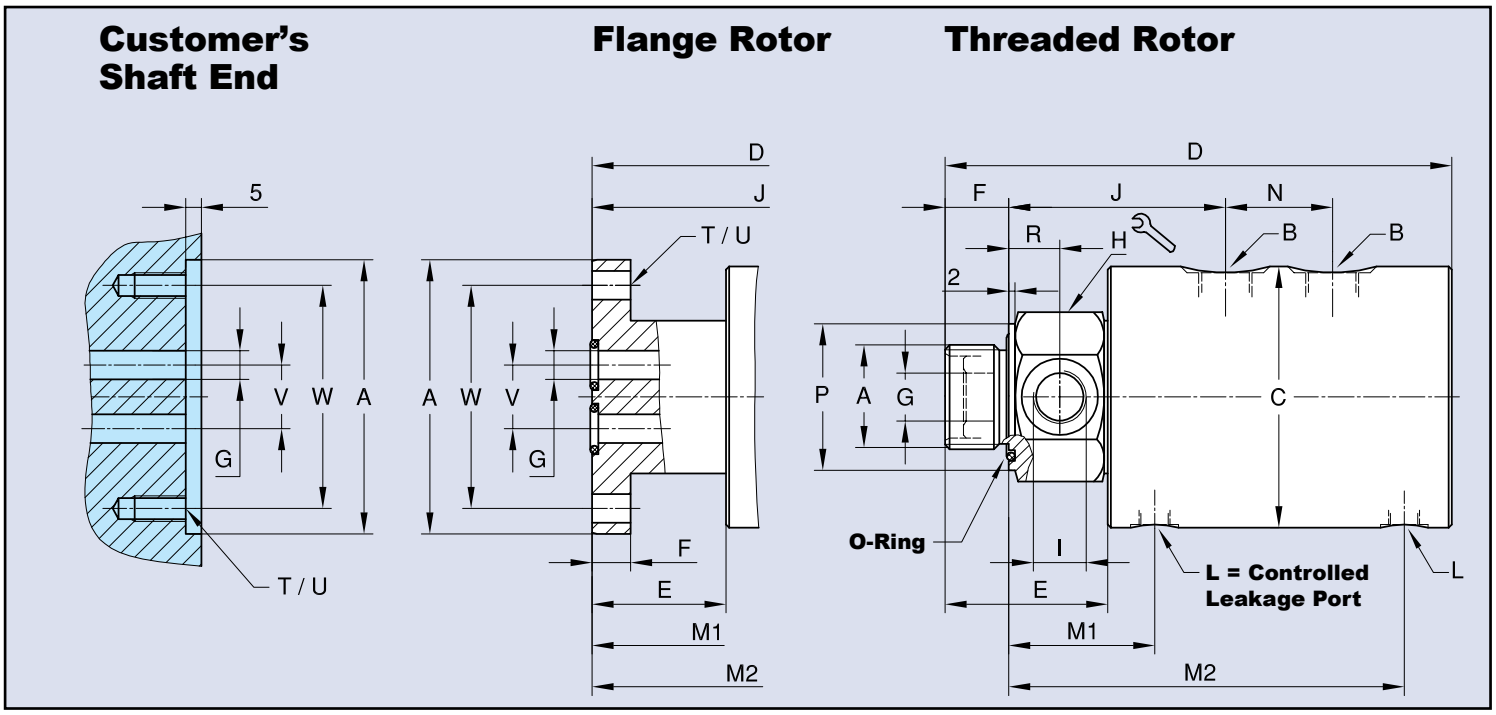
- Duoflow design
- Self-supported rotating union
- Hydrostatic bearing design
- Wear-resistant bearing
- Vent for controlled leakage, depending on pressure
- Shaft seal for secondary sealing
- Stainless steel housing
- Hardened steel rotor

For further information please contact ***DEUBLIN*** or your local representative.

Operating Data

Max. Hydraulic Pressure	3,630 PSI	250 bar
Min. Hydraulic Pressure	40 PSI	3 bar
Max. Speed	500 RPM	500 min^{-1}
Max. Temperature	60 °C	> 60 °C consult ***DEUBLIN***

Required Oil Cleanliness: class 17/15/12, ISO 4406



DN	B	Ordering No.	A Rotor Connections	C ø	D	E	F	G ø	H	I	J	L	M1/M2	N	P ø	R	T	U ø	V ø	W ø	kg
2 x 8	2 x G 1/4	7100-773	G 3/4 RH	82	176	46	17	6,4	46	G 1/4	76	G 1/8	49,5/137,5	36	46	15	–	–	–	–	4,5
2 x 8	2 x G 1/4	7100-852	Flange ø 86 g6/H7	82	172	42	12	9	–	–	89	G 1/8	63/151	36	–	–	4x90°	9 M8	20	70	4,5
2 x 10	2 x G 3/8	7100-777	G 1 RH	82	181	51	20	8	46	G 3/8	78	G 1/8	52/140	36	46	16	–	–	–	–	4,4
2 x 10	2 x G 3/8	7100-853	Flange ø 86 g6/H7	82	172	42	12	9	–	–	89	G 1/8	63/151	36	–	–	4x90°	9 M8	20	70	4,4
2 x 15	2 x G 1/2	7100-711	G 1 1/4 RH	109	244	70	26	15	55	G 1/2	101	G 1/4	70,5/180,5	50	55	18	–	–	–	–	11
2 x 15	2 x G 1/2	7100-854	Flange ø 108 g6/H7	109	230	56	16	12,5	–	–	113	G 1/4	82,5/192,5	50	–	–	4x90°	11 M10	20,5	88	11
2 x 20	2 x G 3/4	7100-713	G 1 1/2 RH	109	249	75	28	17,5	65	G 3/4	106	G 1/4	73,5/183,5	50	65	20	–	–	–	–	12
2 x 20	2 x G 3/4	7100-855	Flange ø 148 g6/H7	148	288	78	25	19	–	–	153	2x G 1/2	110,5/253	60	–	–	6x60°	13,5 M12	33	126	28

Rotating Union 20504 Series
DN 8, Duoflow

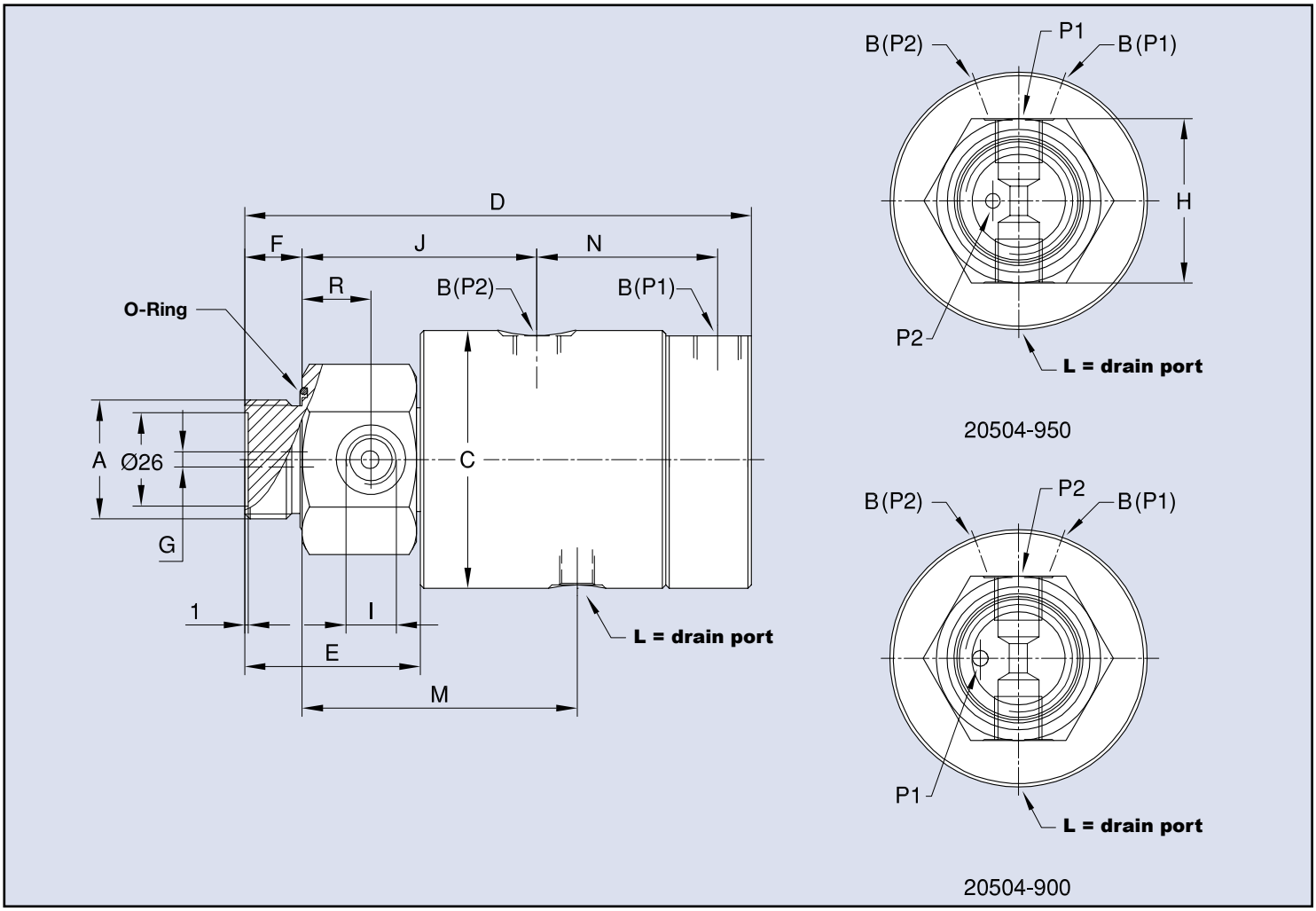
- Duoflow design
- Self-supported rotating union
- P1 pressure channel
- High-wear resistant balanced mechanical seal Silicon Carbide/Silicon Carbide for high pressure passage (P1)
- P2 channel for release, during standstill
- Carbon-filled PTFE seals
- Shaft seal in seal cavity
- Drain passage prevents interpassage leakage
- Housing connections radial
- Aluminium housing
- Stainless steel rotor, hardened
- Main application: Coil Winding

For further information please contact ***DEUBLIN*** or your local representative.

Operating Data

Max. Hydraulic Pressure	3,050 PSI	210 bar
Max. Speed	250 RPM	250 min^{-1}
Max. Temperature	60 °C	> 60 °C consult ***DEUBLIN***

Required Oil Cleanliness: class 17/15/12, ISO 4406



DN	B	Ordering No.	A Rotor Connections	C ø	D	E	F	G ø	H	I	J	L	M	N	R	kg
2 x 8	2 x G 1/4	20504-900	G 1 RH	72	141,5	49	16	4,3	46	G 1/4	65,5	G 1/8	77	50,5	19	1,7
2 x 8	2 x G 1/4	20504-950	G 1 RH	72	141,5	49	16	4,3	46	G 1/4	65,5	G 1/8	77	50,5	19	1,7

IMPORTANT INFORMATION

A ***DEUBLIN*** Union is a precision-made piece of equipment and must be handled accordingly. Sealing between the rotating device - rotor - and the static device - stator - is mainly accomplished via floating seals. Improper use could result in premature leakage or failure. Although ***DEUBLIN*** Unions are of the highest quality and precision they are, by their very nature, a “wear and tear” product. It‘s important that they should be inspected periodically. Moreover, when seals wear out, the rotating union must be replaced or repaired to avoid subsequent leakage. Once a union begins to leak, it is paramount that the union be repaired immediately. Never work with leaking unions!

DEUBLIN Unions must never be used for applications other than those specified in the catalogue. It is strictly prohibited to use ***DEUBLIN*** Unions with hydrocarbons or other flammable media as leakage may result in a fire or explosion. The use of our product on exotic or corrosive media is strictly prohibited without our prior approval. For applications other than those stated in the catalogue, the ***DEUBLIN*** Engineering Department should be contacted for proper instructions. These instructions are provided by ***DEUBLIN*** as general guidelines and do not contain exhaustive information about the installation, use or maintenance of unions.

Operating instructions and installation manuals are available in the German and English languages for the greater part of ***DEUBLIN*** products. Buyers and users of ***DEUBLIN*** Unions should be certain that they have reviewed all of DEUBLIN’s product information. The operating and installation instructions must be strictly adhered to when installing ***DEUBLIN*** unions.

Factory Testing

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

Warranty

The buyer‘s warranty rights assume that the product shipped be inspected upon receipt and all defects reported to ***DEUBLIN*** in writing immediately or for no longer than a period of 2 weeks. 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.

Lubrication and Maintenance

Depending on the ***DEUBLIN*** product series and the operating parameters all ***DEUBLIN*** Unions are lubricated for life. The unions equipped with oil cups should be lubricated periodically with 4 to 5 drops of high quality SAE 30 motor oil, approximately once a month or in extreme severe conditions (high RPM’s) once a week.

Filtering

The service life of the seal is largely determined by filter quality and thus of vital importance for the perfect operation of the rotating union. We recommend a filtering of min. 60 µm. It goes without saying that all installation and operating instructions must be carefully reviewed and strictly adhered to.

Repair Service and Maintenance of DEUBLIN Unions by DEUBLIN

Use only DEUBLIN spare parts for repair of the DEUBLIN Rotating Unions. Prior to repair contact DEUBLIN or any authorised DEUBLIN representative. You can find a local DEUBLIN representative at the following internet site: www.deublin.com.

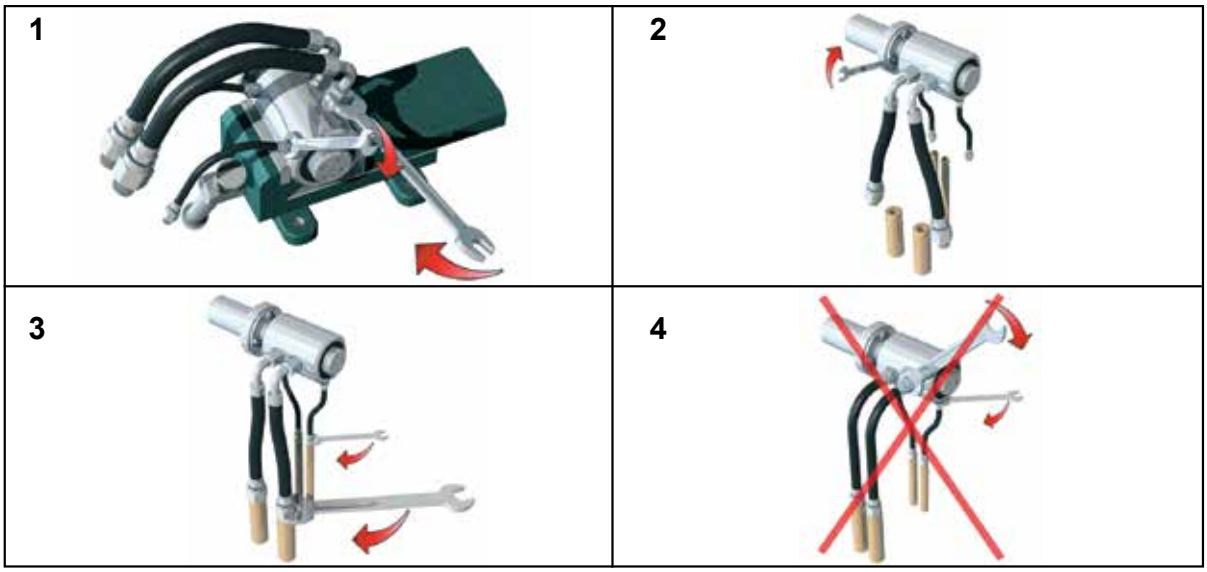
Most unions can be reconditioned in the field by use of DEUBLIN Repair or Rebuilding Kits. Generally, we recommend having the DEUBLIN Rotating Unions repaired by DEUBLIN. Repair Service is available at all DEUBLIN factories. Factory rebuilt unions carry a “New-Union-Warranty”.

Tension-free Installation

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

WARNING DEUBLIN unions should not be used to convey flammable media (flash point ≤ 140°F or 60°C) as leakage may result in explosions or fires. DEUBLIN unions should be used in accordance with standard safety guidelines for the media, and in a well-ventilated area. The use of our product on hazardous or corrosive media is strictly forbidden.

Instructions for Hose Installation and Assembly of DEUBLIN Rotating Unions - see example 7100 series below



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

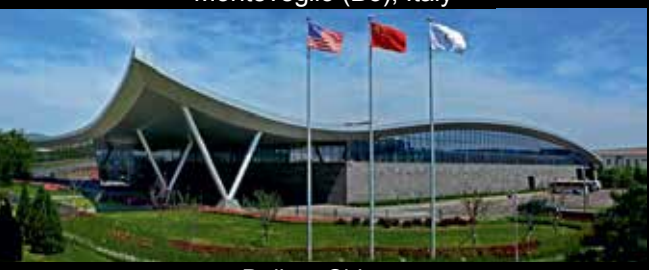
Today, Deublin is the world's largest manufacturer of Rotary Unions, with state-of-the-art factories, technical sales and services, and local stocking in 14 countries on for four continents, as well as a worldwide distribution network operating in more than 60 countries. Our global organization and extensive catalog of field-tested products ensure a precise match between each customer's requirements and an engineered solution. Deublin has been part of the HOERBIGER Group since 2019 and forms the core ot the Rotary Solution division.

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

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

Mainz, Germany

Monteveglio (Bo), Italy


Dalian, China

DEUBLIN
HOERBIGER Rotary Solutions

SERVICE AND STOCK ARE AVAILABLE THROUGHOUT THE WORLD

www.deublin.com

AMERICA

DEUBLIN USA
2050 Norman Drive
Waukegan, IL 60085-6747 U.S.A.
Phone: +1 847 689 8600
Fax: +1 847 689 8690
E-mail: Info-US@deublin.com

DEUBLIN Brazil
Juntas Rotativas de Precisão Ltda.
Av. Fagundes de Oliveira, 538 - A11 - Piraporinha
CEP: 09950-300 - Diadema - SP - Brasil
Tel: +55 11-2455 3245
Fax: +55 11-2455 2358
E-mail: info-BR@deublin.com

DEUBLIN Mexico
Norte 79-A No. 77, Col. Claveria
02080 Mexico, D.F.
Phone: +52 55-5342 0362
Fax: +52 55-5342 0157
E-mail: Info-MX@deublin.com

ASIA

DEUBLIN China
No. 2, 6th DD Street,
DD Port, Dalian, 116620, China
Phone: +86 411-8754 9678
Fax: +86 411-8754 9679
E-mail: Info-CN@deublin.com

Room 15A07, Wangjiao Plaza
No. 175 East Yan'an Road, Huangpu District
Shanghai 200002
Phone: +86 21-5298 0791
Fax: +86 21-5298 0790
E-Mail: Info-CN@deublin.com

DEUBLIN Asia Pacific
51 Goldhill Plaza,
#17-02 Singapore 308900
Phone: +65 6259-92 25
Fax: +65 6259-97 23
E-mail: Info-SG@deublin.com

DEUBLIN Japan
2-13-1, Minamihanayashiki, Kawanishi City
Hyogo 666-0026, Japan
Phone: +81 72-757 0099
Fax: +81 72-757 0120
E-mail: Info-JP@deublin.com

2-4-10-3F, Ryogoku, Sumida-ku,
Tokyo 130-0026, Japan
Phone: +81 35-625 0777
Fax: +81 35-625 0888
E-mail: Info-JP@deublin.com

4-1-13-201 Sakae,
Ichinomiya, Aichi 491-0858, Japan
Phone: +81 586-73 0222
Fax: +81 586-73 0223
E-mail: Info-JP@deublin.com

DEUBLIN Korea
Star Tower #1003, Sangdaewon-dong 223-25,
Jungwon-gu, Seongnam-si, Gyeonggi-do,
South Korea
Phone: +82-31-8018 5777
Fax: +82-31-8018 5780
e-mail: Info-KR@deublin.com

EUROPE

DEUBLIN Germany
Florenz - Allee 1
55129 Mainz, Germany
Phone: +49 6131-49980
E-mail: Info-DE@deublin.com

DEUBLIN Italy
Via Guido Rossa, 9 - Loc. Monteveglio 40053
Comune di Valsamoggia (BO), Italy
Phone: +39 051-835611
Fax: +39 051-832091
E-mail: Info-IT@deublin.com

DEUBLIN Austria
Lainzer Straße 35
1130 Wien, Austria
Phone: +43 1-8768450
Fax: +43 1-876845030
E-mail: Info-AT@deublin.com

DEUBLIN France
61 Bis, Avenue de l'Europe
Z.A.C de la Malnoue
77184 Emerainville, France
Phone: +33 1-64616161
Fax: +33 1-64616364
E-mail: Info-FR@deublin.com

DEUBLIN Poland
ul. Bierutowska 57-59
51-317 Wrocław, Poland
Phone: +48 71-3528152
Fax: +48 71-3207306
E-mail: Info-PL@deublin.com

DEUBLIN Spain
CLola Anglada, 20
08228 Les Fonts (Terrassa), Spain
Phone: +34 93-221 1223
E-mail: Info-ES@deublin.com

DEUBLIN United Kingdom
6 Sopwith Park, Royce Close, West Portway
Andover SP10 3TS, UK
Phone: +44 1264-33 3355
Fax: +44 1264-33 3304
E-mail: Info-UK@deublin.com

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