ROTOKOMBI

Standard product range combining
rotary unions and slip rings

MOOG

ABOUT MOOG

Moog Inc. is a worldwide designer, manufacturer and integrator of precision control components and systems. Moog Industrial Group designs and manufactures highly reliable products, solutions and services using innovative motion control and power/data technologies. We combine world class technologies with expert consultative support in a range of applications such as energy, industrial machinery, marine, and simulation and test industries, to name a few. We help performance driven companies design and develop their next generation equipment.

Moog's standard and customized products have a long service life with minimal to no maintenance applications, ideal for demanding requirements in harsh environments. As a market leader, we use innovative engineering to combine and integrate our products, delivering the best solutions to our customers.

MOOG ROTOKOMBI

Thanks to the ROTOKOMBI system you can combine all our rotary unions and slip rings with each other. We can provide you a rotary transmission solution from a single source.

Your benefits with Moog ROTOKOMBI systems
- Liquids, gas, vacuum as well as electrical currents, signals and data
- No interface issues between the individual components
- Huge time and cost savings in the administrative effort
- Customer-specific, modular, compact solutions

Our systems of rotary unions and slip rings ensure that an optimally adapted sealing system is available for any medium. For any type of electrical transmission, a corresponding system is selected to ensure adequate reliability. Thanks to the modular design, individual components can be replaced, retrofitted or upgraded as necessary.

DESIGNED TO SUIT YOUR APPLICATIONS
All components are selected and combined to meet your specific demands, without limitations to the number of electrical poles, media or size. Special solutions such as ATEX/IECEx or certifications according to UL/CSA regulations are also available on request.

This data sheet shows a selection of standard variants - all other versions (e.g. for higher speeds/specific electrical assignments) are available on request. Step files for the components shown are available for download at:
https://www.gat-mbh.de/en/products/rotokombi/

BENEFITS

MOOG ROTARY UNIONS

LEAKAGE-FREE AND WEAR-RESISTANT

The elastomer sealing systems developed inhouse and the special coatings of the shaft ensure minimal wear and reliable operation without leakage of the rotary unions – despite the contacting seal.

MINIMIZED DOWNTIMES

Moog's rotary unions perform with absolute reliability even when subject to extreme loads and the most challenging operating conditions. Engineered to customer specifications, they reduce downtimes at offshore oil and gas production plants to the minimum while at the same time enhancing safety and reliability.

YOUR REQUIREMENTS – OUR SOLUTIONS

Thanks to their special design principle, rotary unions meet any requirement, providing a tailor-made, reliable and profitable solution. Even if demands in terms of pressure, speed, torque and seal diameter are high.

MOOG SLIP RINGS

FOR RELIABLE TRANSMISSION

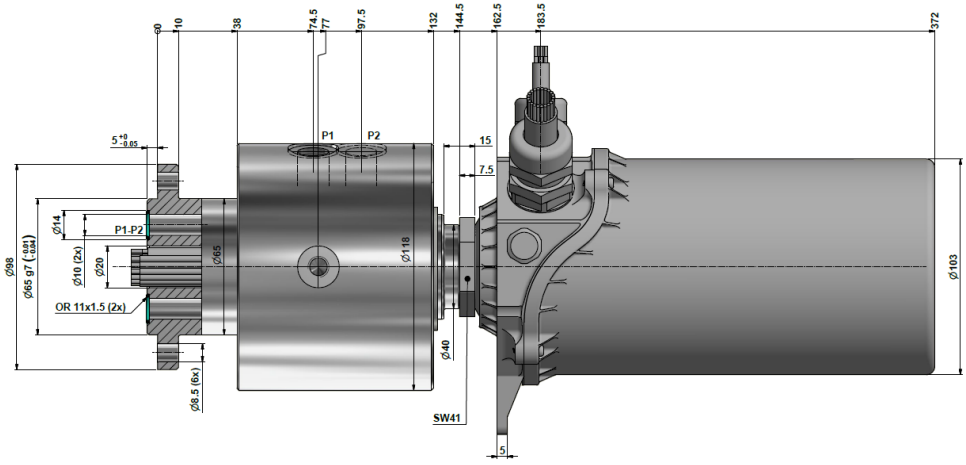
The successful and established technology from Moog makes slip rings a reliable partner for the transmission of power, signals and data. For field-bus or Ethernet communication or the transfer of most delicate analog measuring signals.

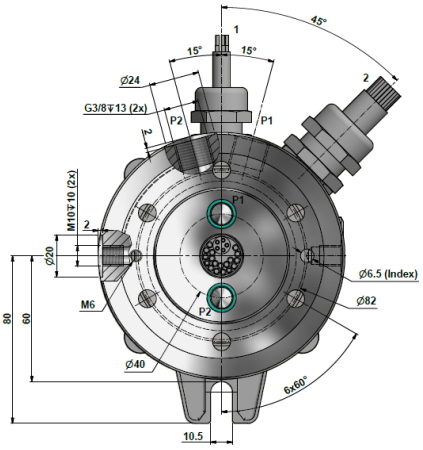
LOW MAINTANANCE AND ULTIMATE DURABILITY

Our evaluated combination of a collector with six contact points and our specially coated slip ring tracks (depending on application requirements) ensures an unsurpassed service life with a consistently high signal quality.
Rugged plastic housings ensure operation even under extreme environmental conditions.

STANDARD AND CUSTOMIZED SOLUTIONS

The rotary unions and slip rings shown here are standard designs covering a wide range of applications. If our standard variants are not suitable for your application or your requirements exceed their performance, please do not hesitate to contact us. We can offer you from a wide portfolio of designs that cover most customized solutions.





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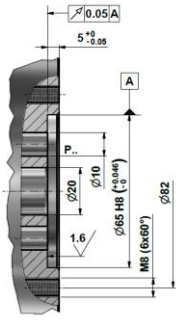
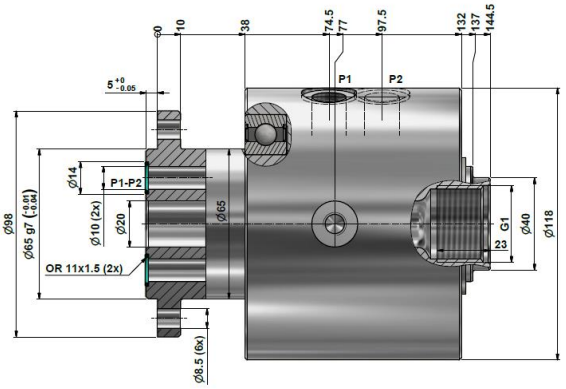
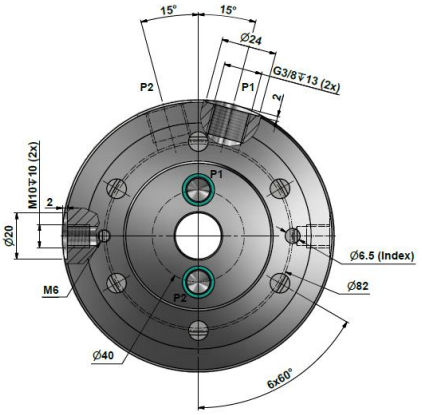
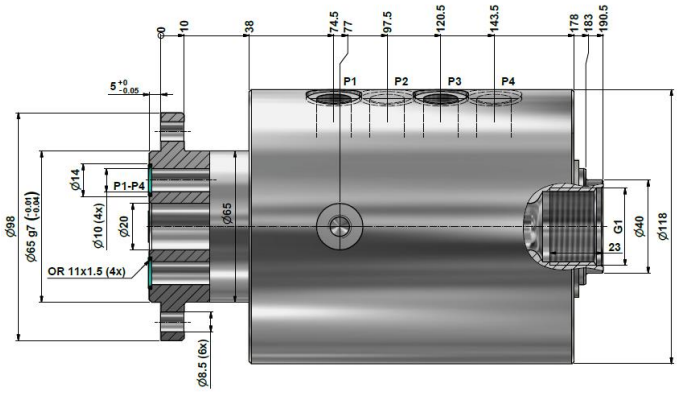
SPECIFICATIONS

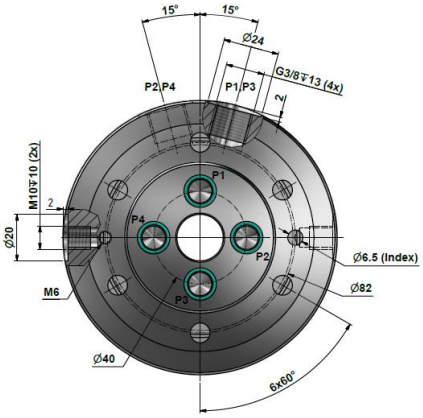
Dimensions for counterpart

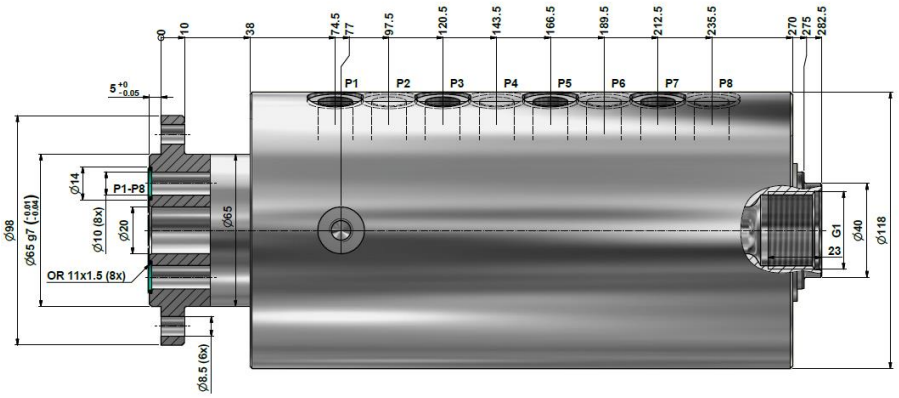


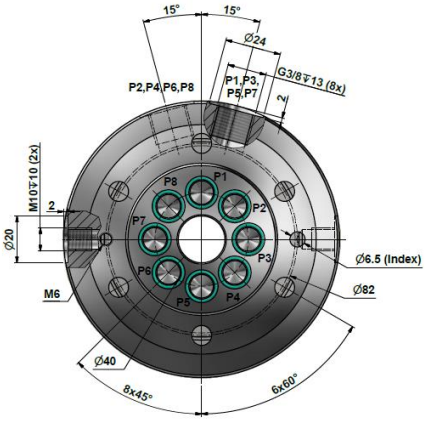












* All rotary unions shown on this page can be combined with all slip rings shown on page 4

Option	M60 X/W/L2-1	M60 X/W/L4-1	M60 X/W/L8-1
Reference drawing	530.2.0.29856 E V02	530.2.0.29856 E V04	530.2.0.29856 E V08
Number of channels	2	4	8
Transferable media	air, water, hydraulic oil		
Max. pressure	see pressure/speed diagram, higher pressures on request		
Max. speed	see pressure/speed diagram, higher revolutions on request		
Operating temperature	-20°C to +80°C		
Humidity	20 to 80% non-condensing		

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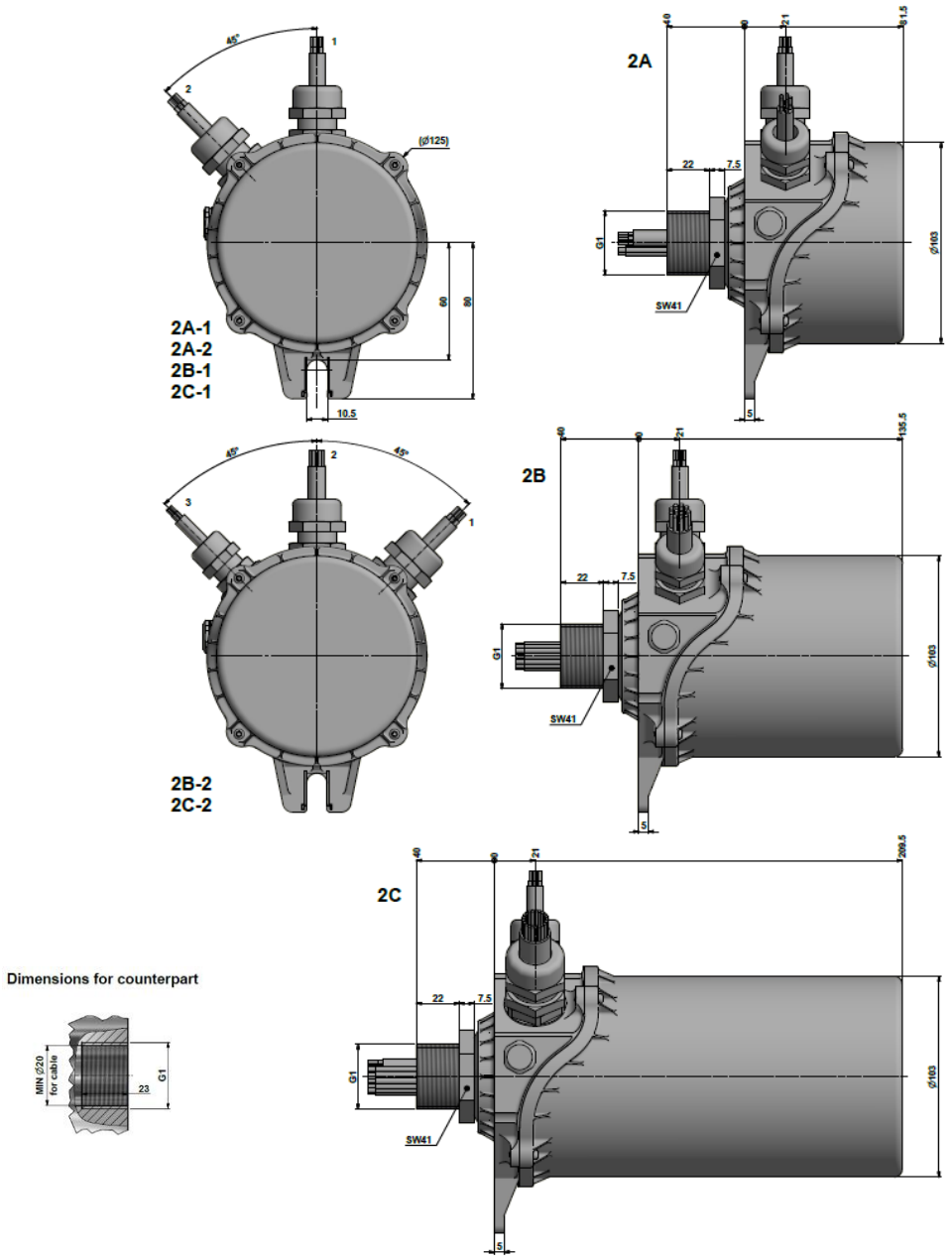
SPECIFICATIONS



* All slip rings shown on this page can be combined with all rotary unions shown on page 3

F 8000 / 2A-1		
Power:	3x	400VAC / 16A
	1x	N
	1x	PE
Signal:	4x	60VAC/120VDC / 5A

F 8000 / 2B-1		
Power:	3x	400VAC / 16A
	1x	N
	1x	PE
Signal:	12x	60VAC/120VDC / 5A

F 8000 / 2C-1		
Power:	3x	400VAC / 16A
	1x	N
	1x	PE
Signal:	18x	60VAC/120VDC / 5A

F 8000 / 2A-2		
Signal 1:	6x	60VAC/120VDC / 5A
Signal 2:	6x	Data (Fast Ethernet, Profinet, DriveCliq, Ethercat (100MBit/s) 100BASE-TX)

F 8000 / 2B-2		
Power:	3x	400VAC / 16A
	1x	N
	1x	PE
Signal 1:	6x	60VAC/120VDC / 5A
Signal 2:	6x	Data (Fast Ethernet, Profinet, DriveCliq, Ethercat (100MBit/s) 100BASE-TX)

F 8000 / 2C-2		
Power:	3x	400VAC / 16A
	1x	N
	1x	PE
Signal 1:	12x	60VAC/120VDC / 5A
Signal 2:	6x	Data (Fast Ethernet, Profinet, DriveCliq, Ethercat (100MBit/s) 100BASE-TX)

IP protection class	IP65
Max. speed	20 rpm
Operating temperature	-30°C to +60°C
Cable length	Housing and shaft side 3m

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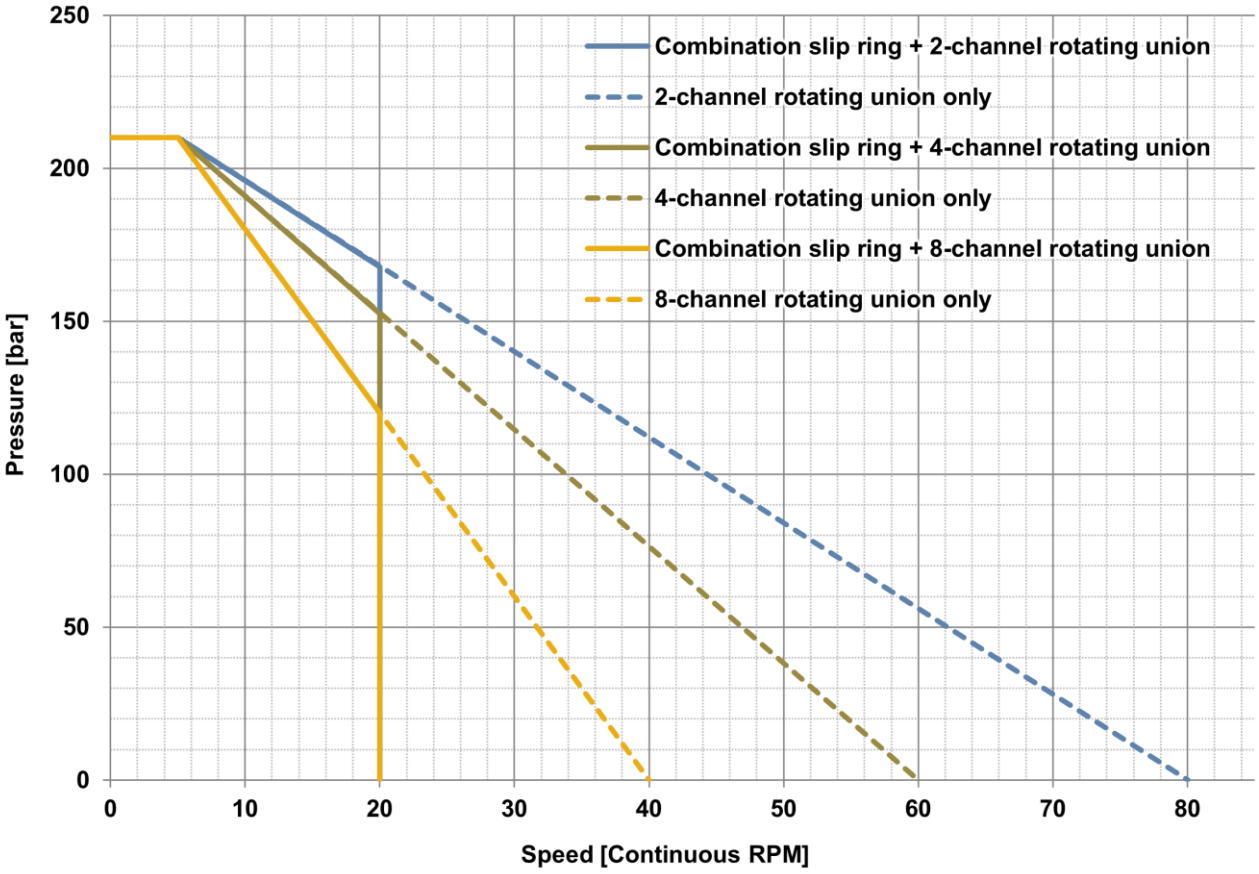
SPECIFICATIONS

Pressure/speed-diagram



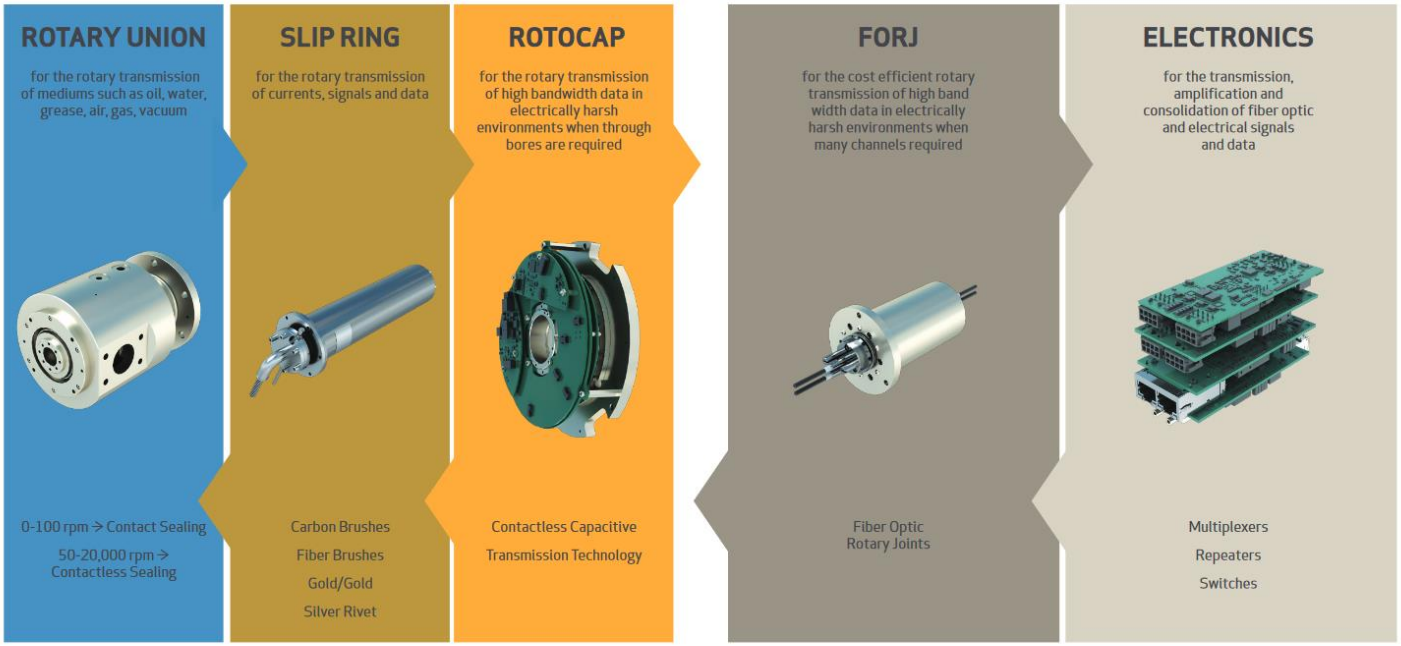
This data is typical and can be used as a general guidline. The real values maybe depending on other operating conditions.

Rotary union technical specification

Shaft material	Coated steel, stainless steel version on request
Housing material	Anodized aluminum, stainless steel version on request
Bearings	Steel roller bearings 2RS to the atmosphere
Transferable media	
Hydraulic fluids (HL, HLP, HVLP, ATF, HETG, HEES, HEPG, HEPR) [1]	
Flame retardant water-containing hydraulic fluids (HFA, HFB, HFC)	
Water [2], water-glycol [2,3]	
Gas (air, nitrogen, other technical gases)	
Mineral oil based lubricating greases	
Chemical products, explosive, flammable and other media on request	
[1] Viscosity	ISO VG 2 to 3200, SAE J300 0W to 60, SAE J 306 70W to 250
[2] Water hardness	Deionized water up to max. 14°dH
[3] Mixing ratio	Water-glycol 80/20 to 50/50

THE POWER OF MOOG: COMPLETE ROTARY SOLUTIONS

In addition to the ROTOKOMBI standard product range, almost all standardized and customized components can be combined within the framework of *THE POWER OF MOOG*. This also includes the components mentioned in the following section, such as ROTOCAP, FORJ and Electronics. Please do not hesitate to contact us for further information. We will be happy to advise you on Moog's solutions.



THE POWER OF MOOG: COMPLETE ROTARY SOLUTIONS

All the above products are available as standalone solutions or can be integrated in various combinations to create limitless, off-the-shelf and highly customized solutions. As the world market leader of integrated solutions, Moog has the ability to combine products to meet our customer's most challenging and unique rotary transfer needs; we call this the *The Power of Moog: Complete Rotary Solutions*.

EXAMPLES OF WAYS TO BUILD AND COMBINE

GAT
In operation since 1978, GAT specializes in electrotechnical transmission, fluid and sealing technologies. We design and manufacture rotary unions, slip rings, air bearings and torsion motors for a wide range of industrial applications.

Both standard and custom GAT products are driven by innovation, research, industry experience and high-technology precision for exceptional accuracy, quality and durability.

We apply stringent quality control testing to all our products, using various performance trials that simulate the customer's application environment, for flawless operation and exceptional product value. In addition, our products are ISO 9001:2015 certified.

GAT became a subsidiary of Moog, Inc. in December 2019.

GAT offers reliable, high quality products, trusted by customers worldwide for over four decades. Get exceptional, tailor-made solutions from development and production to sales – all from a single source.

- Rotary Unions
- Air Bearings
- Slip Rings
- Torsion Motors
- Combined Rotary Unions
- Slip Rings

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MOOG REKOFA
Moog Rekofa designs and manufactures a portfolio of electromechanical systems for the transfer of current, signals and data in rotating devices or structures.

The technology can be combined to include electrical, pneumatic, hydraulic and multi-channel fibre optic transfers and is typically used in wind turbines, automotive, industrial and construction equipment. Rekofa was acquired by Moog Inc. in April 2017 and is certified in accordance to ISO9001 and ISO14001.

Rekofa has been designing and manufacturing current transfer systems for more than 100 years. These systems are distributed globally from its headquarters in Antweiler.

Refoka's products are used wherever there needs to be continuously rotating transfer of currents, data and media to a stationary component.

- Standard Slip Rings
- Fluid Rotary Joints
- Customized Slip Rings
- Hybrid Rotary Solutions
- Signal and Data Transmission
- Cable Reel Drums
- Contactless Solutions (Fiber Optics)
- Industrial Carbon Brushes
- Slip Ring Collectors

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MOOG GLOBAL SUPPORT

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