

# Fluid Rotary Unions

*Product Guide*



**MOOG**

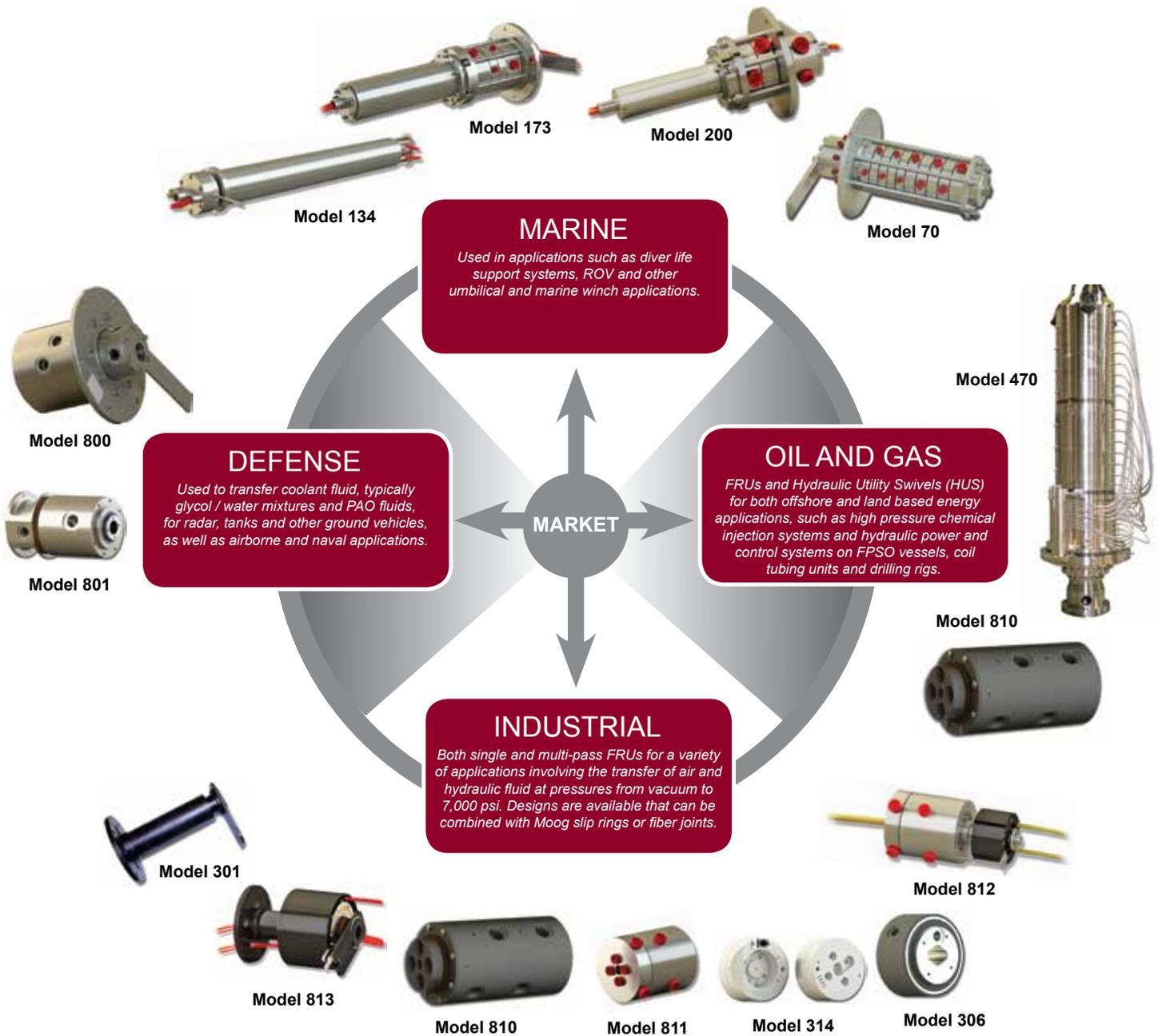
# Fluid Rotary Unions (FRUs)

## Product Overview

A Fluid Rotary Union (FRU) functions as a rotary interface for fluid carrying conduit between stationary and rotating equipment. The fluid being conveyed can be liquid or gas with positive or negative pressure.

Moog has manufactured FRUs for various applications since the mid 1970s. Configurations vary significantly and include stand-alone units as well as assemblies combining a FRU with Electrical Slip Rings (ESR) and / or Fiber Optic Rotary Joints (FORJ).

Moog has produced FRU assemblies having up to 36 ports rated at pressures up to 15,000 psi. Seal leakage rates vary depending on materials. Seals are selected based on chemical compatibility, design pressure, design temperature, required service life and acceptable leakage rate. Leak collection can be supplied to eliminate any risk of cross-contamination, or where warranted by environmental concerns or personnel safety.



# Fluid Rotary Unions (FRUs)

## Product Range

Moog offers a complete product line of fluid rotary solutions for the most demanding applications. Specific applications include:

- Diving Life Support Systems
- Wind Energy Turbine Pitch Control
- Hydraulic Lift Systems
- Cooling Systems
- FPSO Hydraulic Power and Control Systems
- Semiconductor Applications
- Chemical Injection Systems
- Industrial Indexing Tables
- Vehicle Turrets
- Radar Antennas

## Advancing Technology

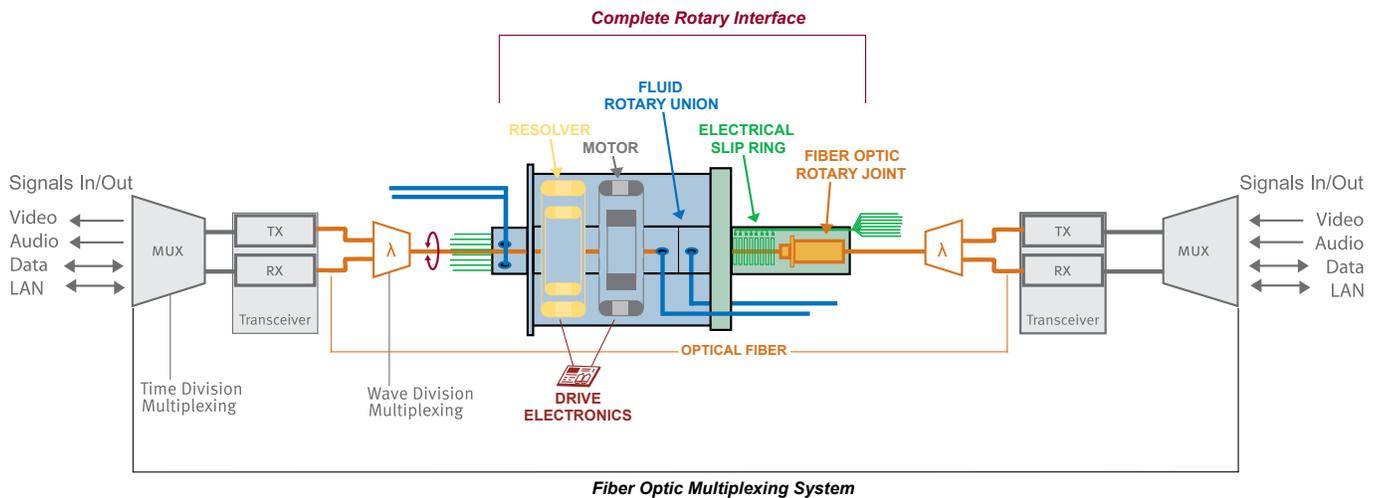
Moog continues to advance its fluid rotary union technology with continued research and development. The main objective is to create a FRU with improved efficiency and long life.



Using a state of the art test facility, various seal recipes are continuously being evaluated. The tests are closely monitored to record even the most miniscule leakage, change in pressure, temperature or torque. This information is helping Moog become an industry leader in fluid rotary union technology.

## Complete Rotary Interface

Our existing commercial off-the-shelf products deliver a complete rotary interface. Often, a FRU is part of a more comprehensive rotary interface, consisting of an electrical slip ring, fiber optic rotary joint, resolver, motor, servo drive electronics, RF joint and multiplexers. These rotary interface solutions can be provided to meet unique environmental requirements, from deep space to kilometers below the ocean surface. Integration of FRUs into more complete rotary interface assemblies allows optimum performance at the lowest cost to the customer.



## Custom Designs

Quite often, a standard off-the-shelf unit does not perfectly match the requirements of an application. In these situations, a custom design must be used. Moog is an ISO 9001 (2008 certification) registered facility with a strong multidisciplinary engineering group. For this reason, very challenging fluid rotary unions for non-standard applications can be created.

### Strong Multidisciplinary Engineering Group

- ISO 9001: 2008 certification

### Mechanical Design

- 3D Modeling - Pro/ENGINEER®
- AutoCAD®
- FEA Stress Analysis

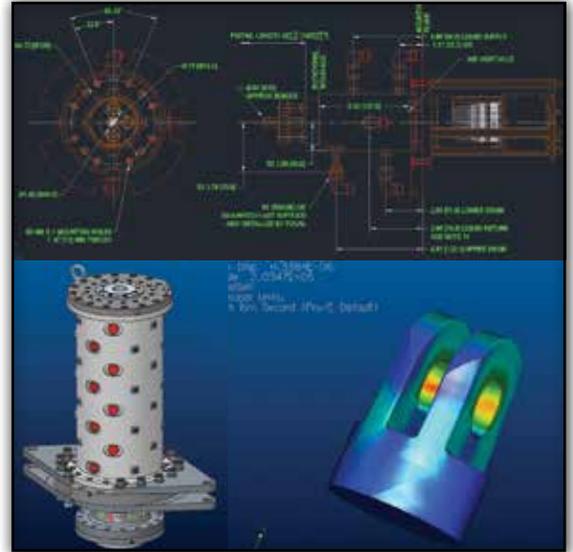
**Call or email our knowledgeable Application Engineers for more information: 902-468-2263 or [mcg@moog.com](mailto:mcg@moog.com)**

# Fluid Rotary Unions (FRUs)

## Custom Design Parameters

To design a completely custom unit, engineers require the following information:

- Description of the application
- Number of ports and port size
- What is the fluid
- Flow rate of the fluid
- Fluid pressure
- Fluid temperature
- Ambient temperature
- Duty cycle and RPM (example: 50 rpm, continuous)
- Is a through-bore or wire pass required? If so, what is the diameter of the wire bundle
- Does the unit require any special environmental sealing
- Is leak collection required
- What is the allowable leakage rate
- Are there any space limitations



## Quick Selection Guide

Model		70	173	200	800	801	301	813	810	811	812	306	314	470	Custom
Number of Ports	1	X	X	X			X	X				X	X	X	X
	2 - 4	X	X	X	X	X			X	X	X			X	X
	> 4	X	X	X										X	X
Port Sizes (inches)	1/8 - 1	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	> 1 - 2													X	X
	> 2 - 3													X	X
	> 3													X	X
Pressure (PSI)	vacuum - 100	X	X	X			X	X	X	X	X	X	X	X	X
	> 100 - 7,000	X	X	X	X	X	X	X	X			X		X	X
	< 15,000													X	X
RPM	0 - 1	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	> 1 - 10	X	X	X	X	X	X	X	X	X	X	X	X		X
	> 10 - 100	X	X	X	X	X	X	X	X	X	X	X	X		X
	> 100 - 200						X	X				X	X		X
	> 200 - 2,000						X	X				X			X
Leak Collection		X	X	X	X	X									
Hybrid Option		X	X	X	X	X	X	X	X	X	X	X	X	X	X

**NOTE:** The information above is to be used as a selection guide only and may not represent actual design limitations. See model specific data sheets for more detailed information. Other configurations are possible, please consult the factory for more information.

Manufactured in a ISO 9000-2000 registered facility. Specifications and information are subject to change without prior notice.  
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