

# Toroidal Fluid Swivel

Model 470

**Focal Technologies Corporation, a Moog Inc. company, has over 30 years of expertise in supplying standard and custom marine products for harsh environment applications and is a leading manufacturer of high performance and high quality swivels. Contact Focal for any assistance in selecting the best solution for your requirements.**

## Description

The Model 470 is a multi-pass Toroidal Fluid Swivel (TFS) which allows continuous rotation of multiple small bore fluid channels. These are commonly used for hydraulic fluids for controls, transfer of chemicals used in production, such as methanol and scale and corrosion inhibitors and gases (nitrogen, plant and instrument air, vents). Inter-pass mixing is prevented through the use of double seals and an intermediate drain between passes.

Passage sizes from ¼" to 2 ½" are typical. Our patented multi-housing design allows the Model 470 to accommodate a large number of passes (Patent No. US 7,083,200 B2). Most port types can be accommodated; SAE and medium pressure thread & cone are typical. Typical maximum pressure rating is 15 000 psi [1040 bar]. Higher pressure ratings are available.

Ports are sealed with SS plugs or caps to ensure cleanliness during shipping and storage.

All 400 series products are intended for use in swivel stacks of Floating Production Systems (FPS). They are well suited for any application requiring a product that can withstand harsh marine conditions or require long life with minimal maintenance intervals. Designed and manufactured in our ISO 9001 facility under our project management system, products have a two year warranty and come with a complete document package.

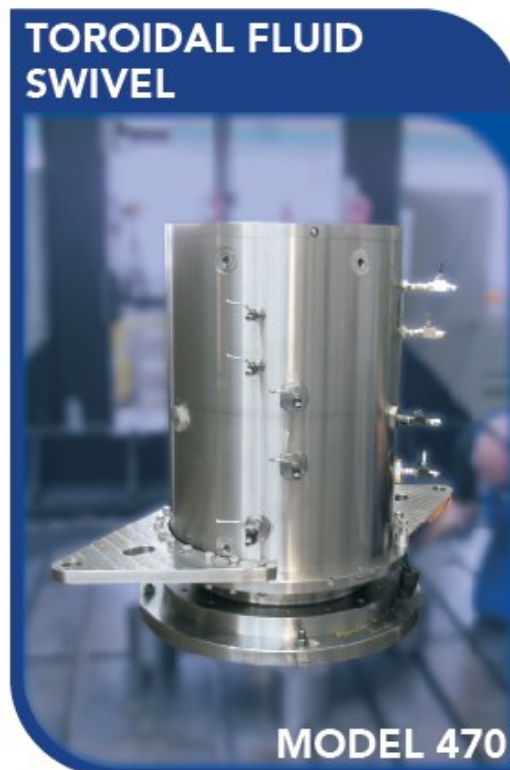
All products can be modified to meet specific requirements. Installation, commissioning and service is available. Contact the factory for details.

## Features

- Custom configured
- ¼" – 2½" ports
- Corrosion resistant materials, 316 and duplex SS
- Rated to 15 000 psi [1040 bar]
- Sealed bearings eliminate the need for periodic service
- Available with a hollow bore for use with electrical and optical swivels

## Options

- Piping/tubing/hoses
- Fittings
- Bearing grease fittings



# Specifications

Hydraulic	
Port Size	1/4" – 2 1/2"
Port Count	Minimum – 2 Maximum – 60, depending on port size
Pressure	Up to 15 000 psi [1040 bar] Depends on port size and port count
Flow Rate	Depends on port size, pressure and allowable pressure drop
Pressure Drop	Depends on port size and flow rate
Fluids	Hydraulic fluids, injection chemicals, vent/ blowdown gases Contact the factory for specific fluids
Interface	
Mounting	Pedestal, designed to meet customer requirements
Drive	Torque ears, customized as required. Other swivels in the stack can be driven from the TFS.
Rotation Rate	1 rpm, max
Torque	Depends on seal diameter, port count and pressure
Port Type	SAE straight thread ORB SAE Code 61 & Code 62 MP thread and cone
Fluid Collection Ports	3/8" SAE straight thread typical
Certifications	
Marine <sup>1)</sup>	DNV GL, ABS, LRS or BV
Environmental	
Temperature	-40 °C to +60 °C (operating) -40 °C to +85 °C (storage)
Vibration	1 g in any direction

<sup>1)</sup> Available on request.

Physical	
Height	Typically up to 13 ft [4 m]
Diameter	Typically up to 3 ft [1 m]
Bore Diameter	Typically up to 16" [400 mm]
Weight	Depends on configuration
Material	316 / 316L stainless steel, duplex stainless steel, shaft hard coated
Drawing	470-XXXX-00
Options	
Fluid Collection	Conduit, fittings, valves and storage reservoir
Ports	Alternate customer specified port types
Bearings	Main bearing grease fittings
Accessories	Supply of hoses, fittings, gauges and similar instruments



All specifications and information are subject to change without notice. Please contact Focal for the latest updates.