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 fiber optic rotary joints. Contact Focal for any assistance in selecting the best solution for your requirements.

The FO291 is a multi-pass, singlemode fiber optic rotary joint (FORJ). It is passive and bidirectional, and allows the transfer of optical signals across a rotational interface on 2 to 9 separate singlemode optical fibers.

The FO291 can be combined with our electrical and / or fluid slip rings, giving a single, compact package for optical signals, electrical power and fluid transfer, with ISO 9000 quality.

Other options include fluid-filling for pressure compensation permitting operation at any ocean depth, and the combination of the model 190 to include up to a total of 19 multimode passes.

**Features**
- 2 to 9 singlemode channels
- Can be combined with our electrical slip rings, fluid rotary unions and the model 190 multimode fiber optic rotary joint
- Alternative drive coupling arrangements are available (consult factory for specification details)
- Tested to 10,000 psi (69,000 kPa) when fluid-filled
- Aluminum and stainless steel construction
- Connectorized interfaces, for easy fiber cable replacement
- Rugged design
  - MIL-STD-167-1 ship vibration
  - MIL-STD-810 functional shock (40g)

**Benefits**
- Can be integrated into existing slip ring designs
- Passive bidirectional optical transmission
- Can be combined with our electrical slips and fluid unions
- Long life

**Applications**
- Remotely operated vehicles
- Floating production systems
- Undersea telemetry
- Seismic streamers
- Radar antennas
- Cable reels

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## FO291 Specifications

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<tr>
<th>Channel</th>
<th>2-Pass</th>
<th>3-Pass</th>
<th>4-Pass</th>
<th>5-Pass</th>
<th>6-Pass</th>
<th>7-Pass</th>
<th>8-Pass</th>
<th>9-Pass</th>
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### Insertion Loss (dB)

(Typical/Maximum, Includes Rotational Variation)

- **Variation Length “L”, inch [mm]**
  - Channel 1: 3.82 [97.0]
  - Channel 2: 4.70 [119.4]
  - Channel 3: 5.59 [142.0]
  - Channel 4: 6.47 [164.3]
  - Channel 5: 7.36 [186.9]
  - Channel 6: 8.24 [209.3]
  - Channel 7: 9.13 [231.9]
  - Channel 8: 10.01 [254.3]

### Rotational Variation

- Typical < 1.0 dB, maximum < 2.0 dB

### Back Reflection

- Typical > 22dB, minimum > 18 dB

### Wavelengths

- Suitable for operation over full CWDM band (18 wavelengths from 1271nm to 1611nm in 20nm increments), tested at 1310nm and/or 1550nm. Consult factory for other wavelengths such as 900-1100nm band (tested at 1060nm)

### Rotational Speeds

- To 100 rpm dry and 60 rpm fluid filled. Consult factory for higher rotational speeds

### Temperature

- -40 to +60 °C standard. Consult factory for extended range

### Exterior Surfaces

- Stainless steel and aluminum

### Vibration

- Per MIL-STD-167-1A

### Shock

- 40 g / 11 ms sawtooth per MIL-STD-810 Method 516

### Connectors

- FC / PC connector bushings standard (ST connector bushings optional)

### Pressure

- Up to 10,000 psi (69,000 kPa) for fluid filled version

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1. Lower back reflection available, consult factory.

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