**FO242**  
*Fiber optic rotary joint*

**Description**  
The FO242 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 6 separate singlemode optical fibers.

The FO242 can be combined with our electrical and/or fluid slip rings giving a single, compact package for optical signals, electrical power and fluid transfer.

Other options include fluid-filling for pressure compensation permitting operation at any ocean depth, and the combination of the FO190 to include up to 19 multimode passes.

**Features**  
- 2 to 6 singlemode channels  
- Can be combined with our electrical slips, fluid unions and the FO190 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  
- Stainless steel and aluminum construction  
- Connectorized interfaces, for easy fiber cable replacement  
- Rugged design  
  - MIL-STD-167-1 ship vibration  
  - MIL-STD-810D functional shock (40 g)

**Typical Applications**  
- Remotely operated vehicles  
- Floating production systems  
- Undersea telemetry  
- Seismic streamers  
- Radar antennas  
- Cable reels
# FO242 Specifications

<table>
<thead>
<tr>
<th>Fiber Size (Microns)</th>
<th>9 / 125 SMF-28</th>
</tr>
</thead>
</table>

## Insertion Loss (dB)

<table>
<thead>
<tr>
<th>Channel</th>
<th>2-pass Typ.</th>
<th>2-pass Max.</th>
<th>3-pass Typ.</th>
<th>3-pass Max.</th>
<th>4-pass Typ.</th>
<th>4-pass Max.</th>
<th>5-pass Typ.</th>
<th>5-pass Max.</th>
<th>6-pass Typ.</th>
<th>6-pass Max.</th>
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<td>4.0</td>
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<td>6.5</td>
<td>7.5</td>
</tr>
</tbody>
</table>

## Rotation Variation

Typical < 0.5 dB  
Maximum < 1.5 dB

## Back Reflection*

Typical 22 dB  
18 dB Minimum

## Wavelengths

1310 / 1550 nm. Consult factory for other wavelengths such as CWDM (18 wavelengths from 1271 nm to 1611 nm in 20 nm increments).

## Rotational Speeds

To 100 rpm dry and 60 rpm fluid filled. Higher rotational speeds should be discussed with the factory.

## Temperature

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

## Dispersion

< 50 fs / nm (calculated)

## Exterior Surfaces

Stainless steel and aluminum

## Vibration

Tested to MIL-STD-167-1 (ships)

## Shock

Tested to MIL-STD-810E

## Connectors

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

## Pressure

Up to 10000 psi (69,000 kPa) for fluid filled version

## Pigtail Length

As required

*Lower back reflection available, consult factory.

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## FO242 Dimensions

<table>
<thead>
<tr>
<th>No. Passes</th>
<th>&quot;L&quot; Length</th>
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</thead>
<tbody>
<tr>
<td>2</td>
<td>5.19 (132)</td>
</tr>
<tr>
<td>3</td>
<td>6.91 (176)</td>
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<tr>
<td>4</td>
<td>8.64 (220)</td>
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<td>5</td>
<td>10.37 (263)</td>
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<tr>
<td>6</td>
<td>12.10 (307)</td>
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</tbody>
</table>

*Dimensions in inches [millimeters]