

## Model 176

Model 176 electrical slip rings from Focal Technologies are used in a variety of marine, industrial and defense applications worldwide. Typically comprised of power and signal circuits, the Model 176 is known for its superior performance and reliability. Power circuits to 5000 V, 20 A, together with wideband coaxial performance and ISO 9000 quality, make these slip rings ideal for the most demanding environments.

The Model 176 is highly configurable, and can be customized to meet specific power and signal requirements. In addition, Focal's fiber optic rotary joints and fluid rotary unions can be combined with the electrical slip rings to provide a total rotating interface solution.

- Typical uses include:
- Remotely Operated Vehicles
  - Towed Instrument Arrays
  - Industrial Rotary Tables
  - Stacker/Reclaimers
  - Seismic Streamers
  - Rotating Antennas
  - Cable Reels



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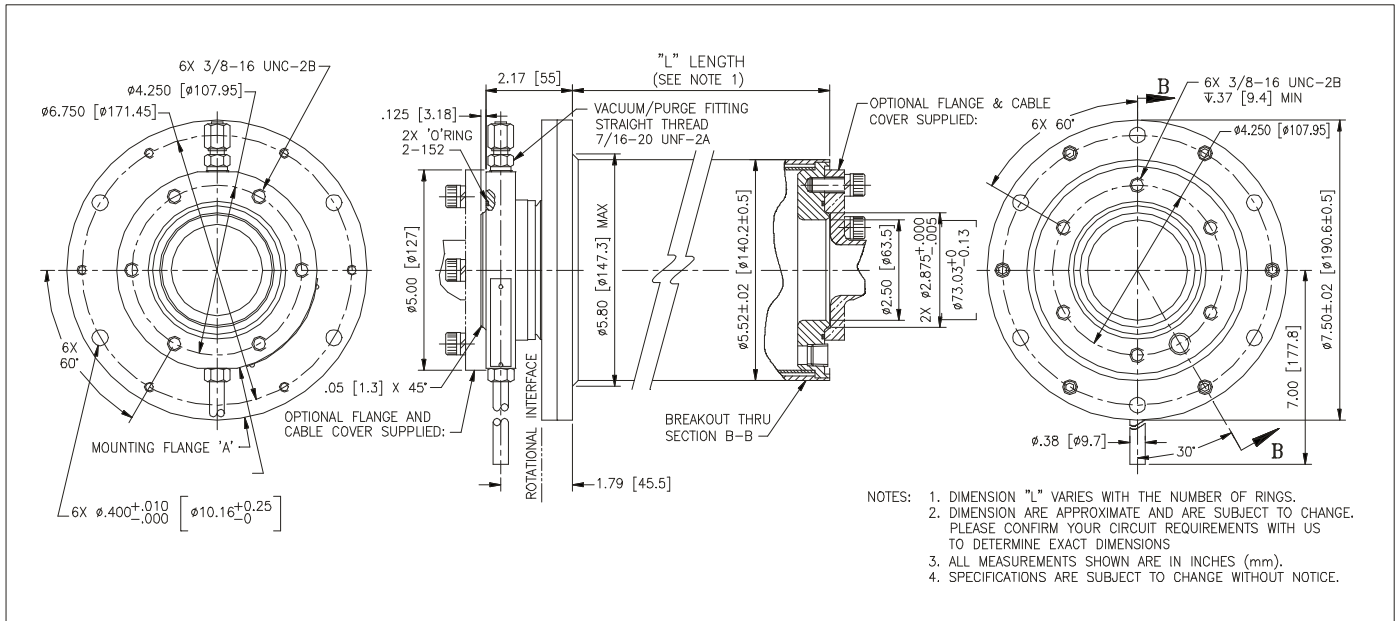
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**FOCAL**  
  
A KAYDON COMPANY



Notes: All measurements shown are in inches [mm]. Specifications subject to change without notice.

## Options

### Hazardous locations:

For use in potentially explosive atmospheres:

- Class I, Group C, D and Class 1, Zone 1, Group IIB (CSA)
- EExd IIB T5 (Nemko)
- Can be supplied with purge fittings for use with a certified purging system
- Can be used as simple apparatus in intrinsically safe systems (EN 50020)
- Can be certified as associated apparatus (EExd [ib] IIB T5) on special order (EN 50020)

### Connectors and Cable:

Supply and installation of customer specific connectors or cable.

### Junction Boxes:

Supply and installation of junction boxes and terminals.

Other options include fluid-filling and pressure compensation for underwater use, shaft encoders and other electronic devices.

Focal Technologies can also combine the Model 176 with fiber optic and/or fluid rotary joints.

For systems requiring higher power slip rings, the Model 159 and Model 129 are two standard models. The Model 159 is rated 60 A per ring and up to 3500 V; the Model 129 is rated 165 A per ring and up to 5000 V. The Model 250 is a generic model for our special high power units. We can supply units rated 11 kV and 800 A. Please refer to the Model 250 specification sheet for more information or call us to discuss your requirement.

## Specifications

### Electrical

Rings: Power rings\* to 5000 V, 20A continuous. Higher amperage circuits by using multiple rings.  
Resistance: Variations less than 2 mΩ RMS.  
Performance: Baseband video performance is not affected by slip ring rotation. Digital data transmission rate is greater than 25 Mbps at a BER of 10<sup>-9</sup>.

### Mechanical

Rotation: 50 rpm (Max)  
Brushes: Four per power ring; two per signal ring  
Typical Service Interval (Max Rating): 5 Million rotations  
Ambient Temperature: -25°C to +55°C  
Exterior: Stainless steel for open deck use

### Terminations

10 ft. [3000 mm] of wire pigtails each end; longer available. Sealing of the wires from the outside environment is necessary. The units have identical flanges at each end for mating to flange adapter assemblies (available from Focal).

### Typical Signal Performance (RG-59 coax)

Insertion Loss:  
Less than 1 dB to 20 MHz  
Less than 2 dB to 50 MHz  
Less than 3 dB to 75 MHz  
Crosstalk:  
Less than -55 dB to 1 MHz  
Less than -45 dB to 10 MHz  
Less than -15 dB to 100 MHz

\* Voltage ratings are based on 25% of the breakdown voltage.