

# Focal Slip Rings

## Electrical Slip Ring Model 180



This compact electrical slip ring is designed for small systems including ROV systems, oceanographic instrumentation, sonar systems and underwater video cameras. The model 180 is rugged and designed for the marine environment backed by ISO 9000 quality. The housing is stainless steel and the bearings are seated for life. The unit is available with up to 60 circuits, rated 1.000 V at 7 Amp with a maximum rating of 100 Amp per unit. Signal noise is less than 1 microvolt RMS. Options include a bidirectional 1 or 2 fibre optic rotary joint, EEX certification and an electromechanical swivel rated for 3 ton. Design life exceeds 5 million rotations at a maximum of 1.000 rpm.

## Electrical Slip Ring Model 176



This unit is normally supplied with a combination of high voltage and low noise signal circuits and fibre optic passes. Units are also available with integrated fluid rotary unions. The model 176 is used on ROV systems, diving bell handling systems, trenchers, single point moorings, oceanographic systems and geophysical streamer and airgun applications. Power circuits are rated to 5.000 V at 20 Amp with a maximum rating of 760 A per unit and wide band signal circuits have very low insertion loss, crosstalk and VSWR. Units are available for hazardous areas with the appropriate EEX certification and can also be oil filled and pressure compensated for underwater use such as in ROV tether management systems.

## Electrical Slip Ring Model 159



This unit has all the features of the Model 176 with the exception of a higher power rating 3.500 V (power rings rated) at 60 Amp with a maximum rating of 660 A per unit. This unit meets the demand of the work class ROV industry where power requirements have increased dramatically over the past years. Purged units are available for all hazardous environments and pressure compensated units are available for underwater use - e.g. on ROV tether management and trencher systems.

## Fibre Optic Rotary Joint Model 190 and 242



The Model 190 is a multimode unit with up to 21 passes with typical insertion losses of less than 5 dB. The 190 can be integrated with the standard range of Focal electrical and fluid rotary units. The 190 has the same advantages as the 197 unit and can be fluid filled and pressure compensated. The Model 242 is a singlemode unit that can be delivered with up to 6 passes. Applications include winches for ROV systems, dipping sonars, towed arrays, industrial robotics, turrets, crane, submarine telescopes and wind turbines. The unit meets a number of demanding MIL specifications including MIL STD 167-1 for vibration and MIL STD 810 D functional shock (40 g)



### Fluid Rotary Union Model 70

Developed as an industry standard for the saturation diving market, the Model 70 has found new applications in the geophysical and hydraulic control markets. The unit can be combined with electrical and optical slip rings to produce customized units for special applications. The unit is available with up to 11 passes for gases and liquids compatible with 316 stainless steel, Ferralium 255, Rulon J and Viton. All passes can be rated to 200 bar stationary and 68 bar rotating at up to 10 rpm. Standard ports are from ¼" to 1" and standard fittings are S.A.E. straight threads UNF. Helium leakage is less than 10 litres per hour per seal at maximum rotation pressure of 68 bar. There is no leakage between ports.



### Fibre Optic Rotary Joint Model 197

The Model 197 is a single pass Fibre Optic Rotary Joint (FORJ). The unit is bidirectional and allows the transfer of optical signals across a rotational interface. The 197 offers a high bandwidth and immunity to electromagnetic interference and can be integrated into the standard electrical and fluid slip rings. The unit can also be pressure compensated for submersible applications. Model 197 is used in a very broad range of applications including ROV handling systems, dipping sonars, towed arrays, wind turbines and industrial robotics. The unit has a maximum insertion loss of 3,0 dB.



### Fibre Optic Rotary Joint Model 285 and 286

The Model 285 is a single-pass single mode fiber optic rotary joint and the Model 286 is a single-pass, multimode fiber optic rotary joint. It is passive and bi-directional and allows the transfer of optical signals across rotational interfaces. With a body diameter of only 9.5 mm and a length of 26 mm and 19 mm, the Model 285 and 286 is ideally suited to applications where size and weight are critical issues.



### Fibre Optic Rotary Joint Model 215

The FO215 is an ultra-compact, two pass, multimode fiber optic rotary joint (FORJ). It is passive and bidirectional, and allows the transfer of optical signals on two separate optical fibers across rotational interfaces. The FO215 can be combined with our electrical and fluid slip rings, giving a single, compact package for optical signals, electrical power and fluid transfer.



### FPSO Slip Ring

Focal manufacture large composite slip rings for FPSO (Floating Production Storage Offloading) applications. These large units can exceed 8 metres in height and weigh over 25 ton. A typical example, used on a Submerged Turret Production system, transmitting high power at 18,5 MW, including multi pass hydraulic lines and signal rings rated at 500 V at 5 Amp. The complete unit is certified explosion proof for use in Zone 1 hazardous locations. Can be certified to IP68/20 metres.