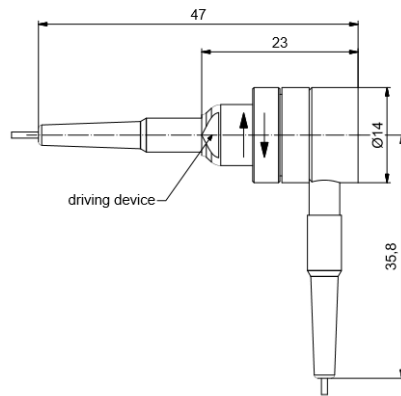


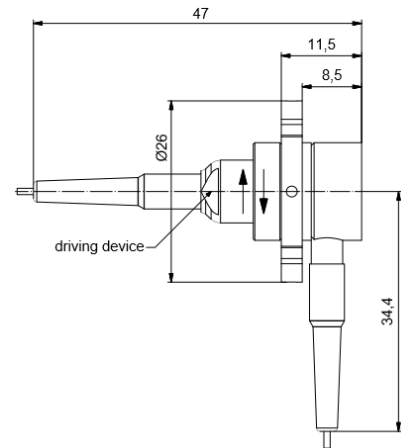
Single-Channel Fiber Optic Rotary Joints (FORJ) 1.14L and 1.14U

SPINNER is the only rotary joint manufacturer that also offers FORJs with an angled output in order to be able to provide a solution for high, customer-specific space requirements. The 1.14L FORJs are based on the 1.14 FORJ type and are a geometrical advancement. In the 1.14L, one output of the fiber is at a 90° angle to the axis of rotation; in the 1.14U, both sides of the rotating coupling exit at a 90° angle to the axis of rotation. Reliable and durable operation is ensured by selected optical components together with high-precision manufacturing. These solutions are necessary for special installation situations, as they significantly reduce the space required. Camera and LIDAR applications in which a gimbal is used are particularly worthy of mention here. The 1.14U is particularly interesting for robots or articulated arms in order to avoid lateral fiber exits (fiber-optic hinge).

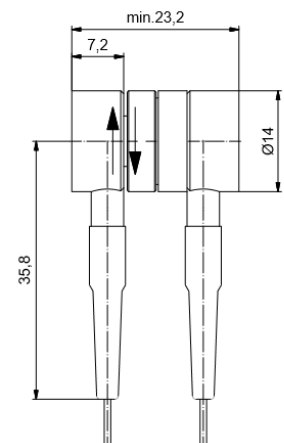
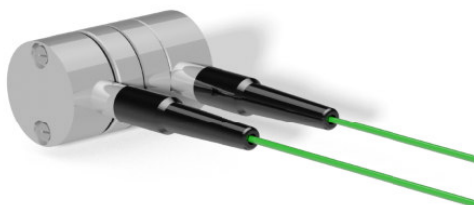
SPINNER FORJ 1.14L



SPINNER FORJ 1.14L with SPINNER FLEXIFLANGE



SPINNER FORJ 1.14U



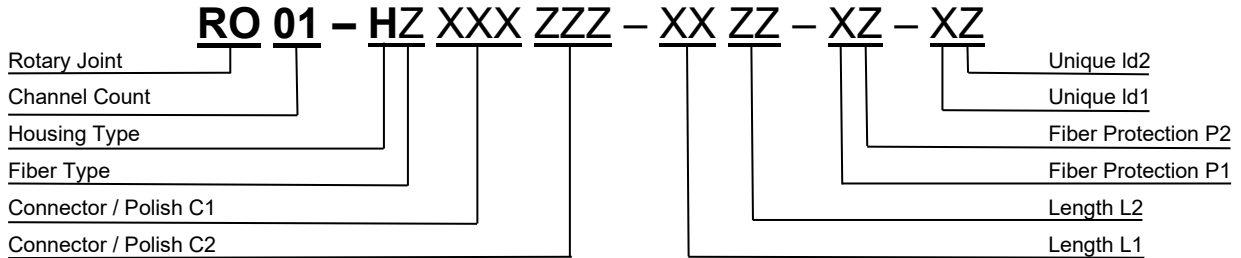
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Single-Channel Fiber Optic Rotary Joints (FORJ) 1.14L and 1.14U

Standard series part number explanation



Rotary Joint	Fiber Optic	Channel Count	Housing Type	Fiber Type	Connector Polish C1	Connector Polish C2	Length L1	Length L2	Fiber Protection P1 / P2	Unique ID1	Unique ID2
R	O	01	- H	Z	- XXX	ZZZ	- XX	ZZ	- XZ	- X	Z
Ø 14L mm (1.14L) IP54 (Standard)			H								
Single-mode E9 / 125 (standard OS1)				S							
Single-mode SMF28 Ultra				U							
Multi-mode G50 / 125 (standard OM2)				M							
Multi-mode G62.5 / 125				N							
Special fiber (e.g. G657, HI1060, etc.)				X							
Connector Type C1 & C2											
Single Mode			Multi Mode								
Connector / Polish			Connector / Polish								
LC / APC (Standard)						LCA	LCA				
LC / UPC						LCU	LCU				
			LC / PC			LCP	LCP				
FC / APC						FCA	FCA				
FC / UPC						FCU	FCU				
FC / PC			FC / PC (Standard)			FCP	FCP				
SC / APC						SCA	SCA				
SC / UPC						SCU	SCU				
SC / PC			SC / PC			SCP	SCP				
ST / UPC						STU	STU				
ST / PC			ST / PC			STP	STP				
Other connectors: LSA, LuxCis, Molex, special, expanded beam etc. unique ID						OTH	OTH				
Length L1 in m [0.2 ... 4.5] (standard 4.5 m for 900µm, 1.5 m for 3 mm and 2 mm)											
Length L2 in m [0.2 ... 4.5] (standard 4.5 m for 900µm, 1.5 m for 3 mm and 2 mm)											
Bare fiber only					5 mm bending radius		0				
Fiber protective tube 900µm buffer					30 mm bending radius (Standard)		1				
Fiber protective tube Kevlar / aramid armor					20 mm bending radius		2				
Metallic protective tube					30 mm bending radius		M				
Special protection (e.g. military grade)							X				
FLEXIFLANGE						Unique identifier					

Example: FORJ 1.14L type with SMF28 Ultra, FC/APC and SC/UPC, 1 m length each side with Kevlar protection.

RO01-HU-FCASCU-1010-22-**

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Single-Channel Fiber Optic Rotary Joints (FORJ) 1.14L and 1.14U

Fiber optic channel characteristics

Channels	1 CH	
Fiber type	Singlemode	Multimode
Fiber model	See fiber list	See fiber list
Wavelength (dependent on fiber model)	450 nm – 1650 nm	450 nm – 1650 nm
Average power capability, max.	500 mW	500 mW
Return Loss, min. / typ. / premium	45 dB / 50 dB / 55 dB	35 dB / 40 dB / 45 dB
Insertion loss, max. / typ. / premium	3.0 dB / 2.0 dB / 1.0 dB	4.0 dB / 2.5 dB / 1.5 dB
Insertion loss variation over rotation, max. / typ. / prem.	1.0 dB / 0.5 dB / 0.3 dB	1.0 dB / 0.5 dB / 0.3 dB

Mechanical characteristics

Rotation speed, max. (1.14L rotor)	20000 rpm
Rotation speed, max. (1.14L stator)	100 rpm
Life, min.	200 x 10 ⁶ revolutions
Torque (room temperature), max.	0.1 Nm
Interface loads, max.	no loads allowed
Case material	copper alloy (corrosion resistant)
Case surface finish	no finish
IP protection level	IP54 per EN 60529 (all interfaces connected with appropriate gaskets)
Weight, approx. (FORJ only, without flexi flanges)	0.06 kg

Environmental conditions

Operation	
Ambient temperature range	-40 °C to +85 °C
Relative humidity, max.	95% (non-condensing)
Storage	
Ambient temperature range	-40 °C to +85 °C
Relative humidity, max.	95% (non-condensing)