

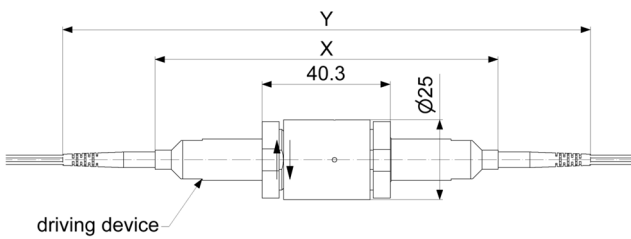
## Multi-Channel Fiber Optic Rotary Joints x.25/2.25L (FORJ)

The mechanical design of the FORJ x.25, available with 2, 3 or 4 channels, makes this fiber optic rotary coupler very compact and the smallest multichannel FORJ currently available. It is available in several configurations: singlemode E9/125 only, multimode 50/125 or 62.5/125, and mixed form with single and multimode fibers. x.25 is offered in IP50 or with a special rotational seal in IP65, where mainly the speed and torque is relevant according to customer requirements. Smaller outer diameters are available. The 2.25 is especially interesting when CWDM (coarse wavelength multiplexing) is used, since one channel can be used for the forward direction and the second channel is used for the backward direction. Furthermore, a premium version 2.25 with high speeds and low insertion loss values is available, which has been optimized for medical applications. Similar to the 1.14L, a 2.25L was also developed, which is intended for camera applications with 4K or 8K cameras. Many such cameras have two single-mode outputs, which should then be decoupled from their positioning via a FORJ that is as compact as possible. SPINNER thus offers an ideal solution for new gimbals with small installation space.

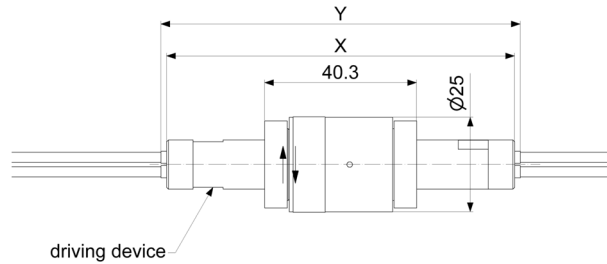
### SPINNER FORJ x.25



buffer version

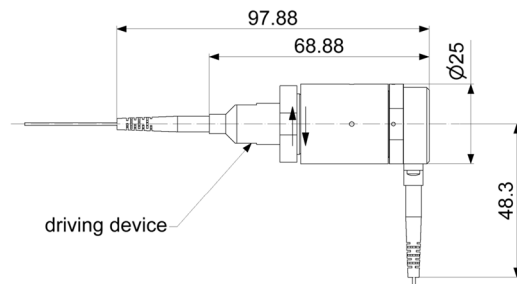


cable version



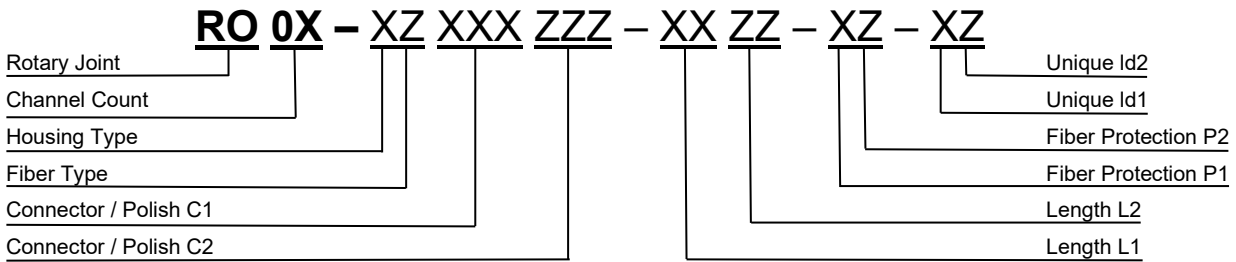
	Number of channels	Length X	Length Y
Cable version	2	92.3	95.3
Buffer version	2	84.5	142.5
Cable version	4	113.7	116.7
Buffer version	4	107.8	165.8

### SPINNER FORJ 2.25L



Multi-Channel Fiber Optic Rotary Joints x.25/2.25L (FORJ)

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	0X	- X	Z	- XXX	ZZZ	- XX	ZZ	- XZ	- X	Z
			Ø 25 mm (Type x.25) IP50	K							
			Ø 25 mm (Type x.25) IP65	D							
			Ø 25 mm (Type 2.25L) IP50	N							
			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							
<b>Connector Type C1 &amp; C2</b>											
<b>Single Mode</b>				<b>Multi Mode</b>							
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:					OTH		OTH				
LSA, LuxCis, Molex, special, expanded beam etc. unique ID											
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 2.25 IP50 type with SMF28 Ultra, FC/APC and SC/UPC, 1 m length each side with Kevlar protection **RO02-KU-FCASCU-1010-22-\*\***

## Multi-Channel Fiber Optic Rotary Joints x.25/2.25L (FORJ)

**Fiber optic channel characteristics**

Channels	Up to 4 CHs	
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. / premium	45 - 55 dB	35 - 45 dB
Insertion loss, max. / premium	3.5 – 1.5 dB	3.5 – 1.5 dB
Insertion loss variation over rotation, max. / premium	1.5 - 0.5 dB	1.5 - 0.5 dB

**Mechanical characteristics**

Rotation speed, max.	Up to 6000 rpm
Life, min.	200 x 10 <sup>6</sup> revolutions
Torque (room temperature), max.	0.01 Nm (depending on IP protection level)
Interface loads, max.	no loads allowed
Case material	stainless steel, copper alloy (corrosion resistant)
Case surface finish	no finish
IP protection level	IP50/IP65 per EN 60529 (all interfaces connected with appropriate gaskets)
Weight, approx.	0.250 kg

**Environmental conditions**

<b>Operation</b>	
Ambient temperature range	-40 °C to +85 °C
Relative humidity, max.	95% - 100%
<b>Storage</b>	
Ambient temperature range	-40 °C to +85 °C
Relative humidity, max.	95% - 100%