



1030 nm to 1090 nm

# QD Fiber Optic Cable

## High-Power Beam Delivery

The QD fiber optic cable fulfills the European Automotive Industry standard interface. The innovative connector design includes a built-in photodiode that can detect coupling losses on the input side and back reflection from the work piece on the output side.

The QD fiber connector is water-cooled to optimize the performance, including its superior power loss capability. The built-in mode stripper generates a well-defined beam without any cladding power. With the reinforced and extremely durable fiber hose it is well-suited for dynamic robot applications.

### FEATURES & BENEFITS

- Up to 20 kW (CW)
- Mode-stripper
- AR-coated end cap
- Scattered light detection
- Superior power loss handling
- Round or square fiber core
- Plug-and-play within 10  $\mu\text{m}$

### APPLICATIONS

- Welding
- Cutting
- Surface Treatment
- Cladding
- 3D Additive Manufacturing



SPECIFICATIONS	QD
Maximum Power CW (kW)	20
Wavelength (nm)	1030 to 1090
Numerical Aperture NA <sub>fiberacc</sub>	0.05 to 0.20
Fiber Core Dimensions (μm)	≤1000
Fiber Concentricity (μm)	≤10
Z-position Tolerance (μm)	±50
Pointing/Angular Deviation <sup>1</sup> (mrad)	
Core Diameter >200 μm	≤10
Core Diameter ≤200 μm	≤20
Power Loss Capability <sup>2</sup> (kW)	
10 seconds	2.0
10 minutes	1.0
Continuously	0.5
Transmission Losses <sup>3</sup> (%)	<3
FIBER CABLE PROPERTIES	
Cable Lengths (m)	≤200
Maximum Torsion (°/m)	90
COOLING	
Cooling Method	Water
Flow Rate (l/min)	2.0
Maximum Input Pressure (bar)	8
Pressure Drop (bar at 2.0 l/min)	1.1
SAFETY INTERLOCK	
Interlock Circuit Resistance	3.3 kOhm ±5% +2 Ohm/m cable length
Thermoswitch	Yes, 70°C ±5°C, reset temp >30°C
DIMENSIONS & WEIGHT	
Dimensions	See pages 3 to 4
Weight (kg)	
Fiber Connector	0.6
Per Meter Fiber Cable	0.2
ENVIRONMENTAL CONDITIONS	
Humidity (% RH)	<80
Operating Temperature (°C)	5 to 50 (non-condensing)
Storage Temperature (°C)	-20 to 70
COMPLIANCE INFORMATION	
RoHS	Directives 2011/65/EU and 2015/863/EU
REACH	Directive EC no 1907/2006

<sup>1</sup> Pigtail fibers: Cladding diameter up to and equal 500 μm: ≤20 mrad.

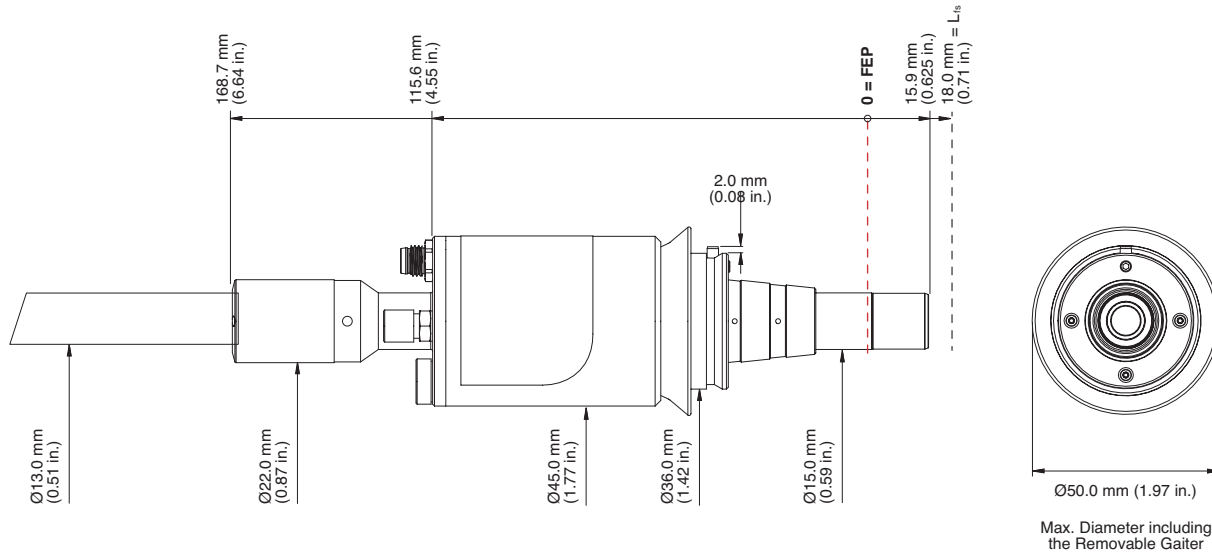
<sup>2</sup> Within specified fiber NA.

<sup>3</sup> ≤100 m cable length.

## MECHANICAL SPECIFICATIONS

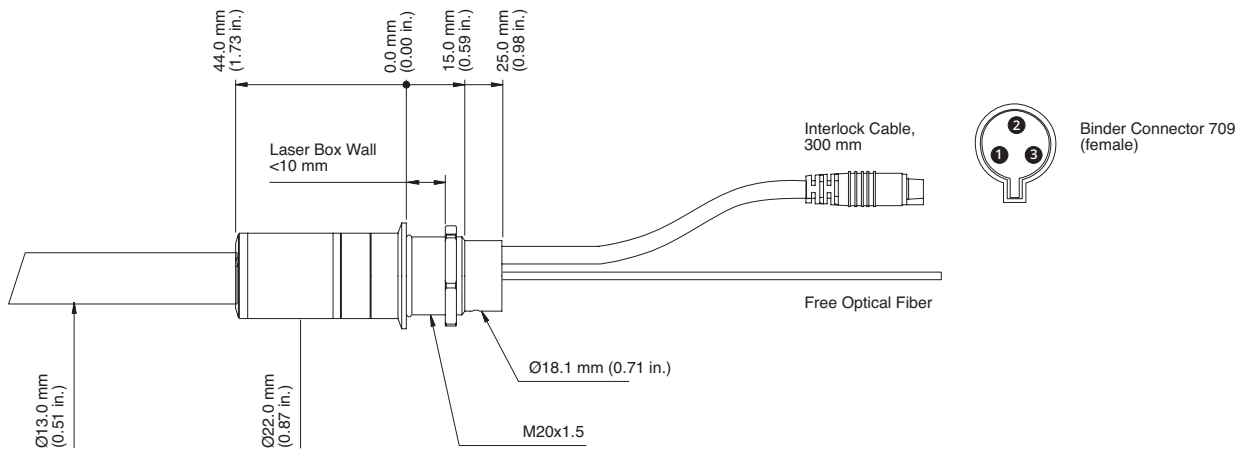
### Connector Dimensions

QD



L<sub>fs</sub> = Free Space in Front of Connector  
 FEP = Fiber End Plane

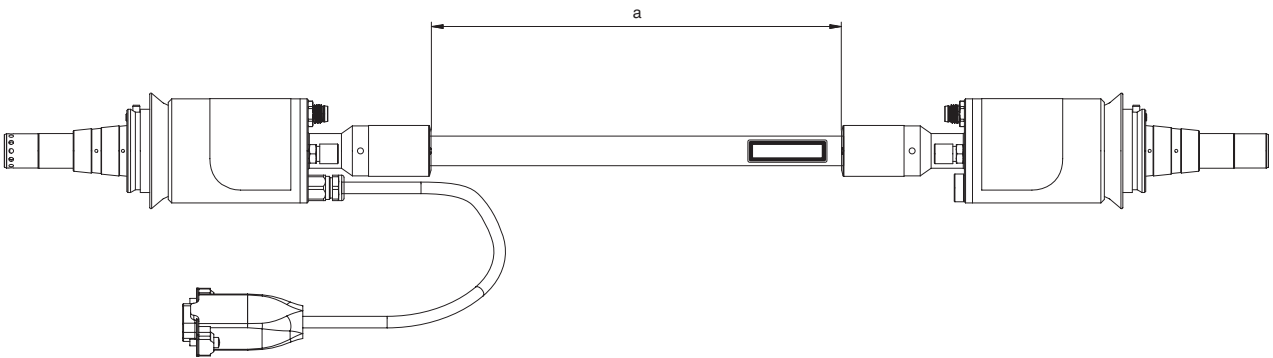
### Pigtail Ending



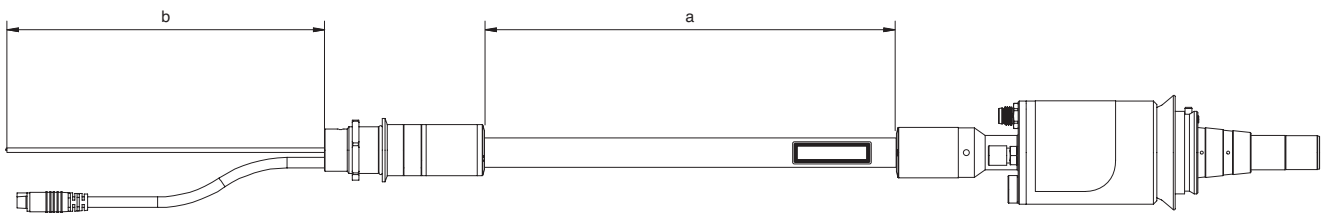
## MECHANICAL SPECIFICATIONS

### Length Definitions

#### Two Connectors



#### One Connector (Pigtail)



a = Fiber Cable Length  
b = Free Optical Fiber Length

## PART NUMBERS

### Circular Fiber Core, Two Connectors

	5m	10m	15m	20m	30m	35m	50m
<b>50 μm</b>	2214310	2214311	2214312	2214313	2214314	2214315	2214316
<b>100 μm</b>	2214319	2214320	2214321	2214322	2214323	2214324	2214325
<b>150 μm</b>	2214328	2214329	2214330	2214331	2214332	2214333	2214334
<b>200 μm</b>	2214337	2214338	2214339	2214340	2214341	2214342	2214343
<b>300 μm</b>	2214346	2214347	2214348	2214349	2214350	2214351	2214352
<b>400 μm</b>	2214355	2214356	2214357	2214358	2214359	2214360	2214361
<b>600 μm</b>	2214365	2214366	2214367	2214368	2214369	2214370	2214371
<b>800 μm</b>	2214375	2214376	2214377	2214378	2214379	2214380	2214381
<b>1000 μm</b>	2214384	2214385	2214386	2214387	2214388	2214389	2214390

### Circular Fiber Core, One Output Connector (Pigtail)

	2m	3m	5m	10m	15m	20m	25m
<b>20/395 μm</b>	2214282	2214283	2214284	2214285	2214286	2214287	2214288
<b>50/360 μm</b>	2214291	2214292	2214293	2214294	2214295	2214296	2214297
<b>100/360 μm</b>	2214300	2214301	2214302	2214303	2214304	2214305	2214306

Note: Free fiber length b>1.0m.

### Square Formed Fiber Core, Two Connectors

	5m	10m	15m	20m	30m	35m	50m
<b>100x100 μm</b>	2214393	2214394	2214395	2214396	2214397	2214398	2214399
<b>200x200 μm</b>	2214402	2214403	2214404	2214405	2214406	2214407	2214408
<b>400x400 μm</b>	2214411	2214412	2214413	2214414	2214415	2214416	2214417
<b>600x600 μm</b>	2214420	2214421	2214422	2214423	2214424	2214425	2214426
<b>800x800 μm</b>	2214429	2214430	2214431	2214432	2214433	2214434	2214435
<b>1000x1000 μm</b>	2214439	2214440	2214441	2214442	2214443	2214444	2214445

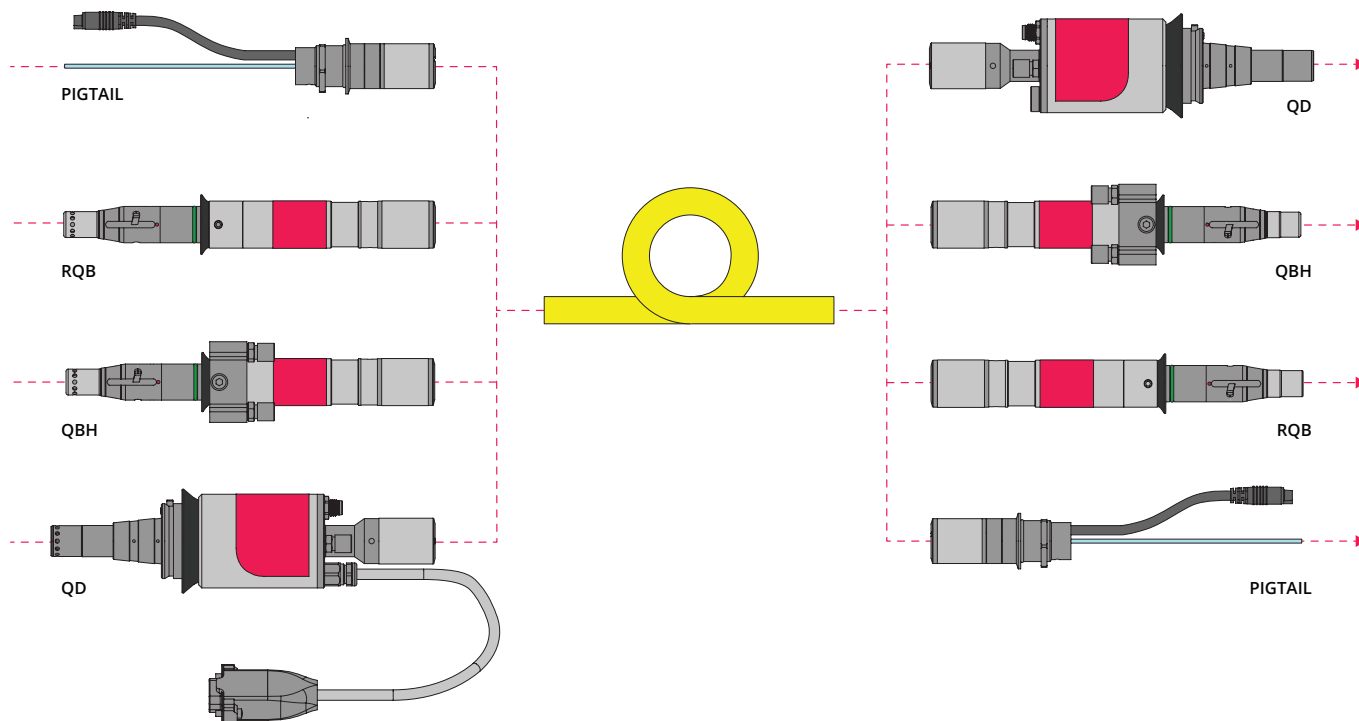
*Customized lengths and dimensions are available upon request.*

### Fiber Optic Cable Accessories

Accessory	Part Number
QD Protection Window, Input Side, 1030 to 1090 nm	2217239
QD Protection Window, Output Side, 1030 to 1090 nm	2216860

## HYBRID FIBERS

The flexible Coherent fiber cable design makes it possible for us to not only offer fiber cables with same type of connectors on both sides but also hybrid fibers where customer select input and output connectors. For many end-users, this is a simple and cost-efficient way to connect laser and process head even in cases where they don't share the same fiber interface. For pigtail fibers, it is possible to have the pigtail termination for splicing at either input or output side of the fiber cable.



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Coherent offers a limited warranty for all QD Fiber Optic Cables. For full details of this warranty coverage, please refer to the Service section at [www.coherent.com](http://www.coherent.com) or contact your local Sales or Service Representative. MC-004-21-0M1021Rev.B Copyright ©2021 Coherent, Inc.