



Diode Lasers

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

- 10 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 μm

APPLICATIONS

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



SPECIFICATIONS	QD
Maximum Power CW (kW)	10 ¹
Wavelength (nm)	780 to 1100 (diode lasers)
Numerical Aperture NA _{fiberacc}	0.05 to 0.20
Fiber Core Dimensions (μm)	≤1000
Fiber Concentricity (μm)	≤10
Z-position Tolerance (μm)	±50
Pointing/Angular Deviation ² (mrad)	
Core Diameter >200 μm	≤10
Core Diameter ≤200 μm	≤20
Power Loss Capability ³ (kW)	
10 seconds	2.0
10 minutes	1.0
Continuously	0.5
Transmission Losses ⁴ (%)	<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)	4
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

¹ >10 kW to be validated.

² Pigtail fibers: Cladding diameter up to and equal 500 μm; ≤20 mrad.

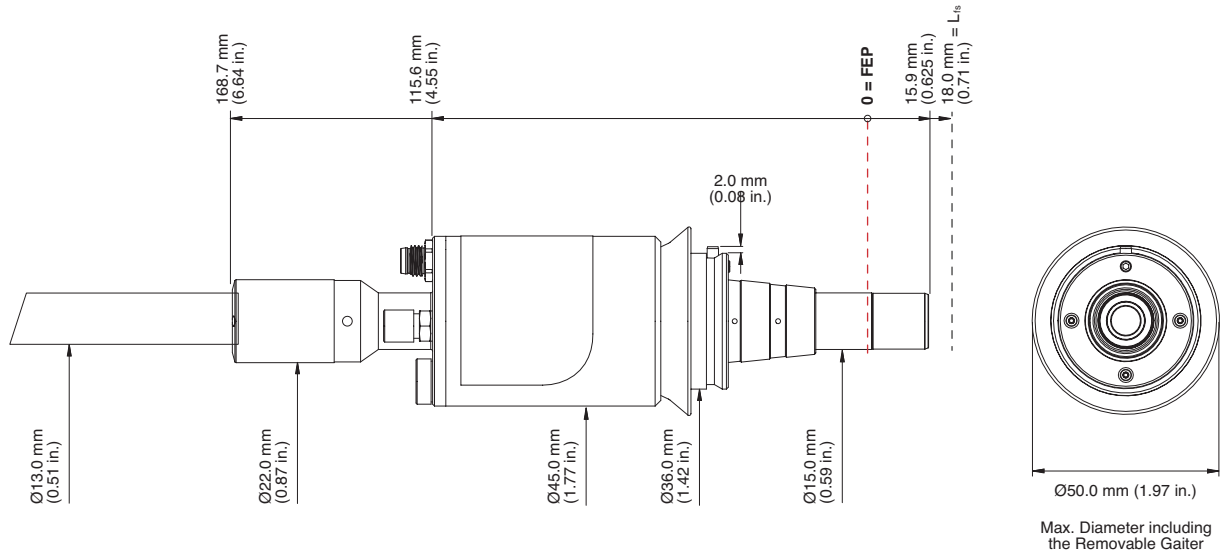
³ Within specified fiber NA.

⁴ ≤100 m cable length.

MECHANICAL SPECIFICATIONS

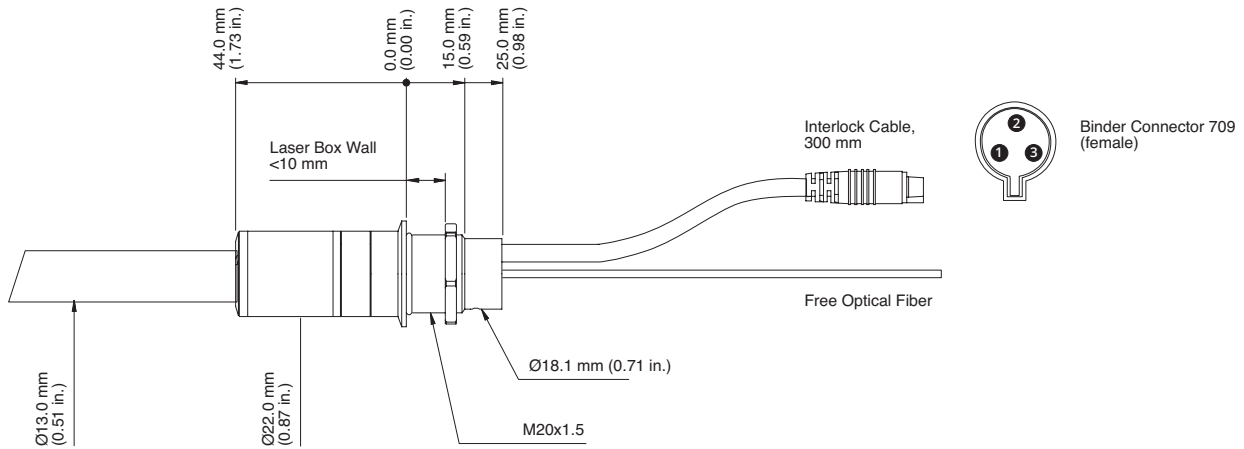
Connector Dimensions

QD



L_{fs} = Free Space in Front of Connector
 FEP = Fiber End Plane

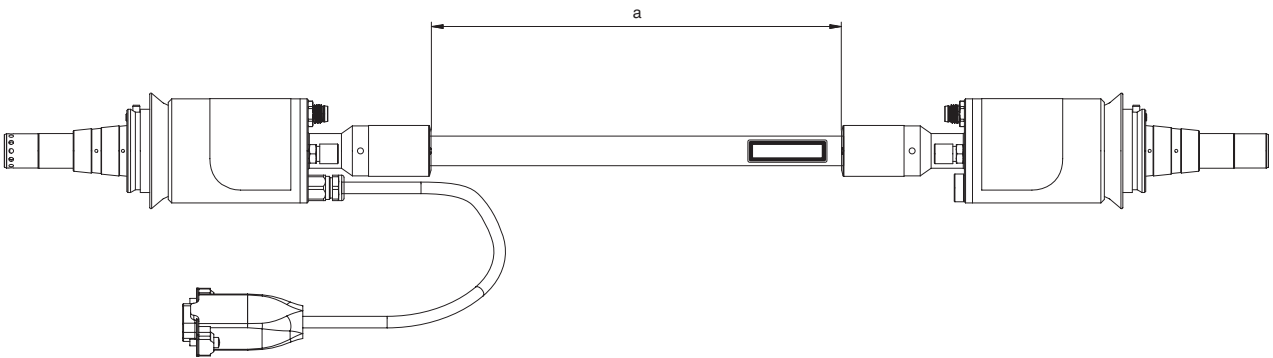
Pigtail Ending



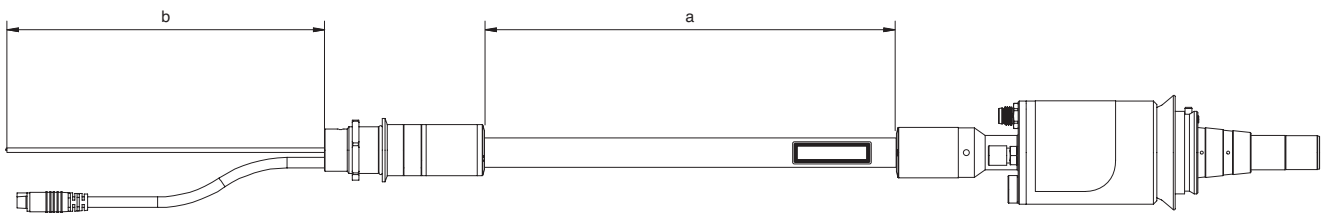
MECHANICAL SPECIFICATIONS

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	25m	30m	50m
50 μm	2216963	2216964	2216965	2216966	2216967	2216968	2216969
100 μm	2216972	2216973	2216974	2216975	2216976	2216977	2216978
150 μm	2216981	2216982	2216983	2216984	2216985	2216986	2216987
200 μm	2216990	2216991	2216992	2216993	2216994	2216995	2216996
300 μm	2216999	2217000	2217001	2217002	2217003	2217004	2217005
400 μm	2217008	2217009	2217010	2217011	2217012	2217013	2217014
600 μm	2217017	2217018	2217019	2217020	2217021	2217022	2217023
800 μm	2217026	2217027	2217028	2217029	2217030	2217031	2217032
1000 μm	2217035	2217036	2217037	2217038	2217039	2217040	2217041

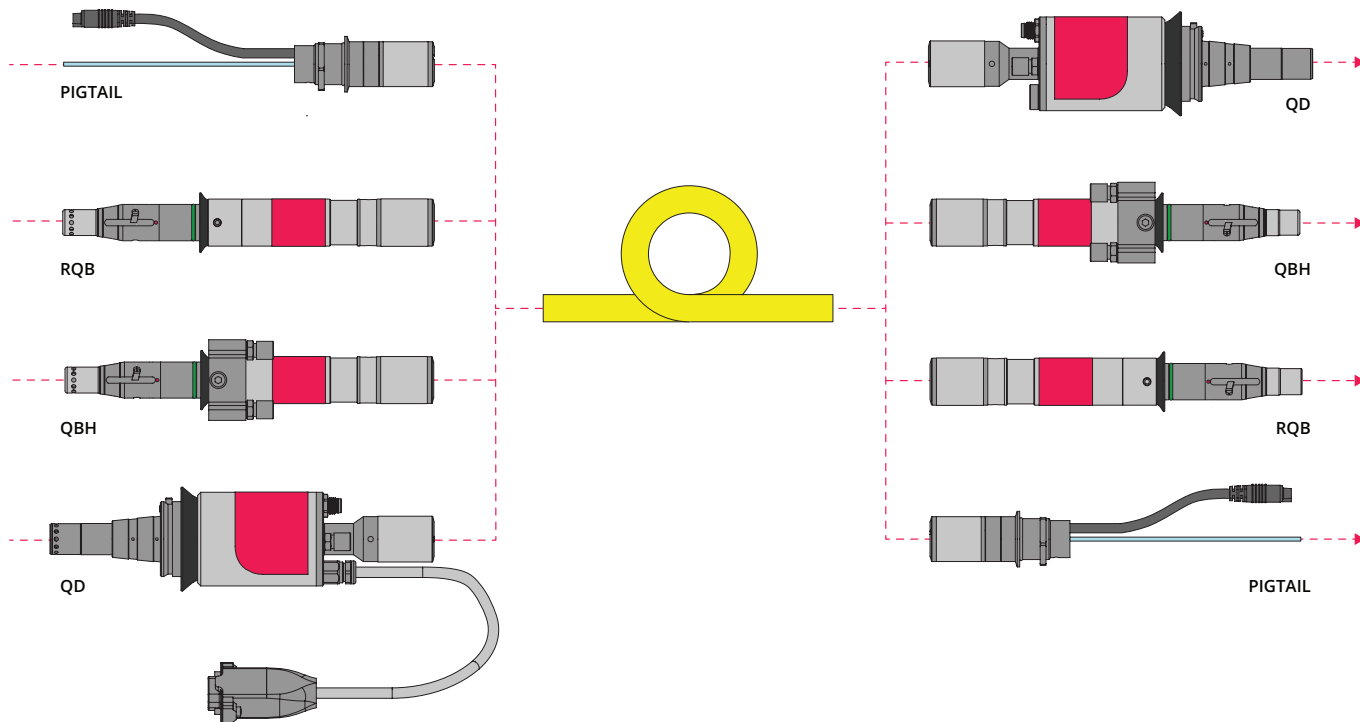
Square Formed Fiber Core, Two Connectors

	5m	10m	15m	20m	25m	30m	50m
100x100 μm	2217044	2217045	2217046	2217047	2217048	2217049	2217050
200x200 μm	2217053	2217054	2217055	2217056	2217057	2217058	2217059
400x400 μm	2217062	2217063	2217064	2217065	2217066	2217067	2217068
600x600 μm	2217071	2217072	2217073	2217074	2217075	2217076	2217077
800x800 μm	2217080	2217081	2217082	2217083	2217084	2217085	2217086
1000x1000 μm	2217089	2217090	2217091	2217092	2217093	2217094	2217095

Customized lengths and dimensions are available upon request.

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 follows a policy of continuous product improvement. Specifications are subject to change without notice. Coherent's scientific and industrial lasers are certified to comply with the Federal Regulations (21 CFR Subchapter J) as administered by the Center for Devices and Radiological Health on all systems ordered for shipment after August 2, 1976.

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 or contact your local Sales or Service Representative. MC-006-21-0M0321 Copyright ©2021 Coherent, Inc.