QD FIBER OPTIC CABLE

Diode Lasers 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

- 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

COHERENT

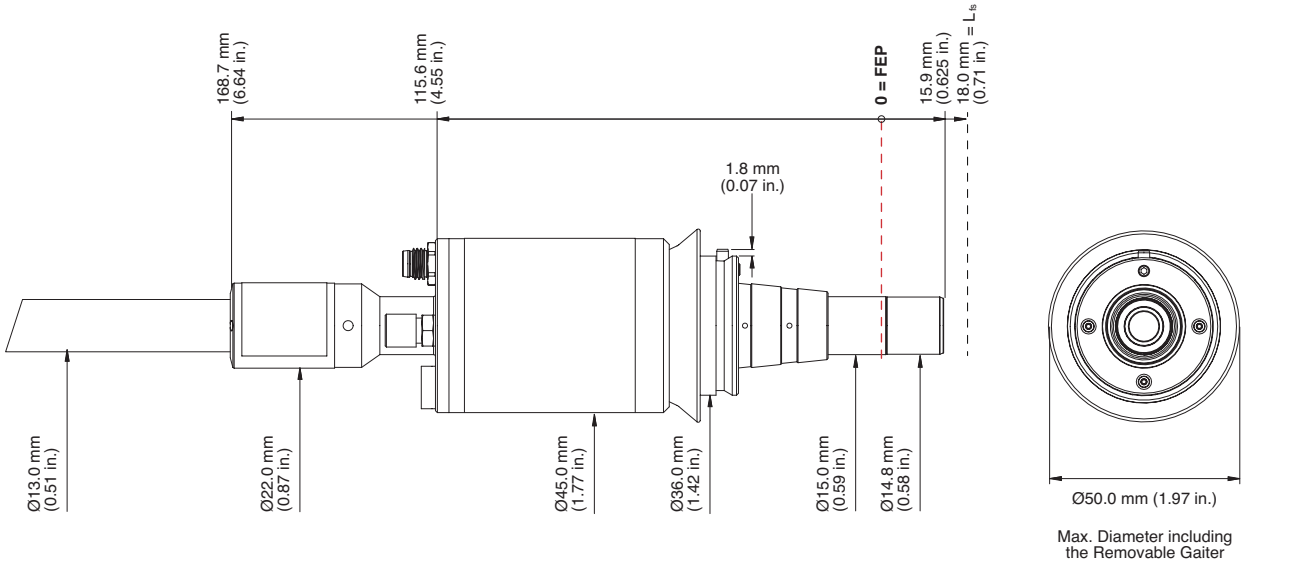
Specifications	QD
Maximum Power CW (kW)	10[1]
Wavelength (nm)	780 to 1100 (diode lasers)
Numerical Aperture $NA_{fiberacc}$	0.05 to 0.20
Fiber Core Dimensions (µm)	≤1000
Fiber Concentricity (µm)	≤10
Z-position Tolerance (µm)	±50
Pointing/Angular Deviation[2] (mrad) Core Diameter >200 µm Core Diameter ≤200 µm	 ≤10 ≤20
Power Loss Capability[3] (kW) 10 seconds 10 minutes Continuously	 2.0 1.0 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)	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 Per Meter Fiber Cable	 0.6 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 mr ad.
3 Within specified fiber NA.
4 ≤100 m cable length.

Mechanical Specifications

Connector Dimensions

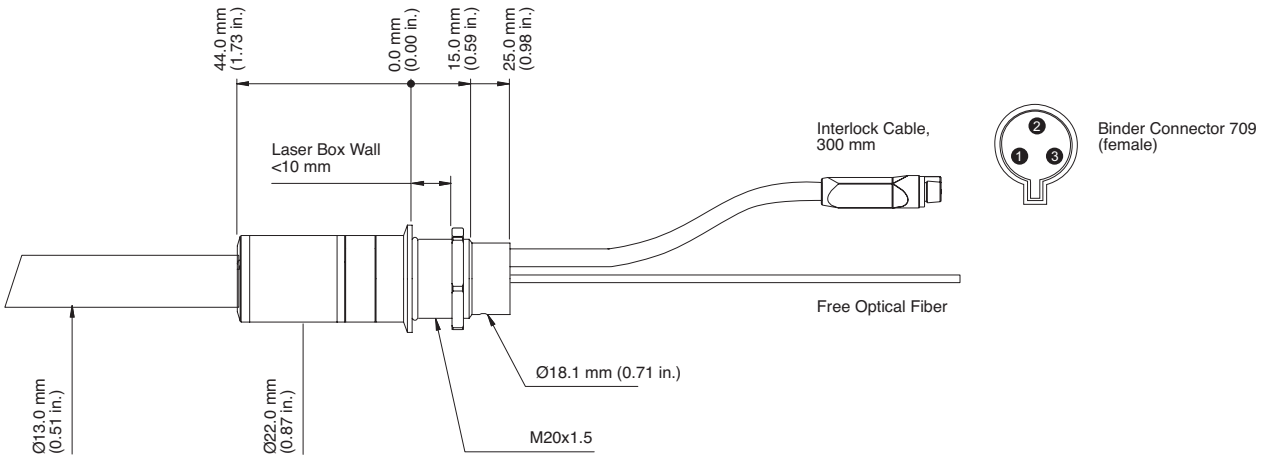
QD



L_{fs} = Free Space in Front of Connector

FEP = Fiber End Plane

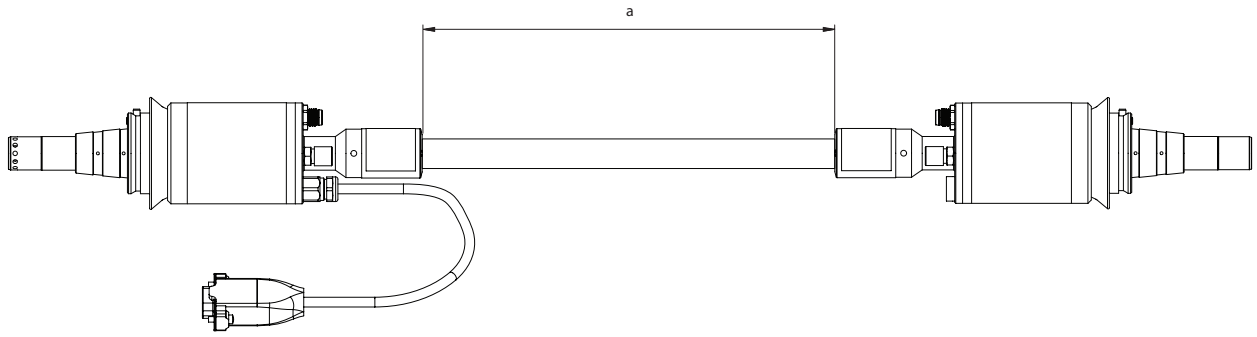
Pigtail Ending



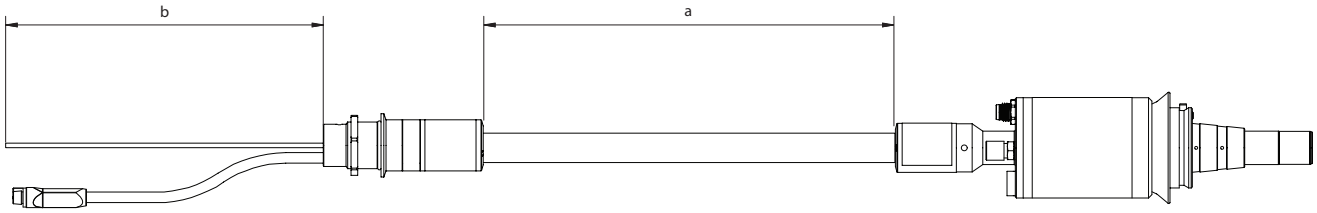
Mechanical Specifications

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	2290840	2290841	2290842	2290843	2290844	2290845	2290846
1000 µm	2290847	2290848	2290849	2290850	2290851	2290852	2290853

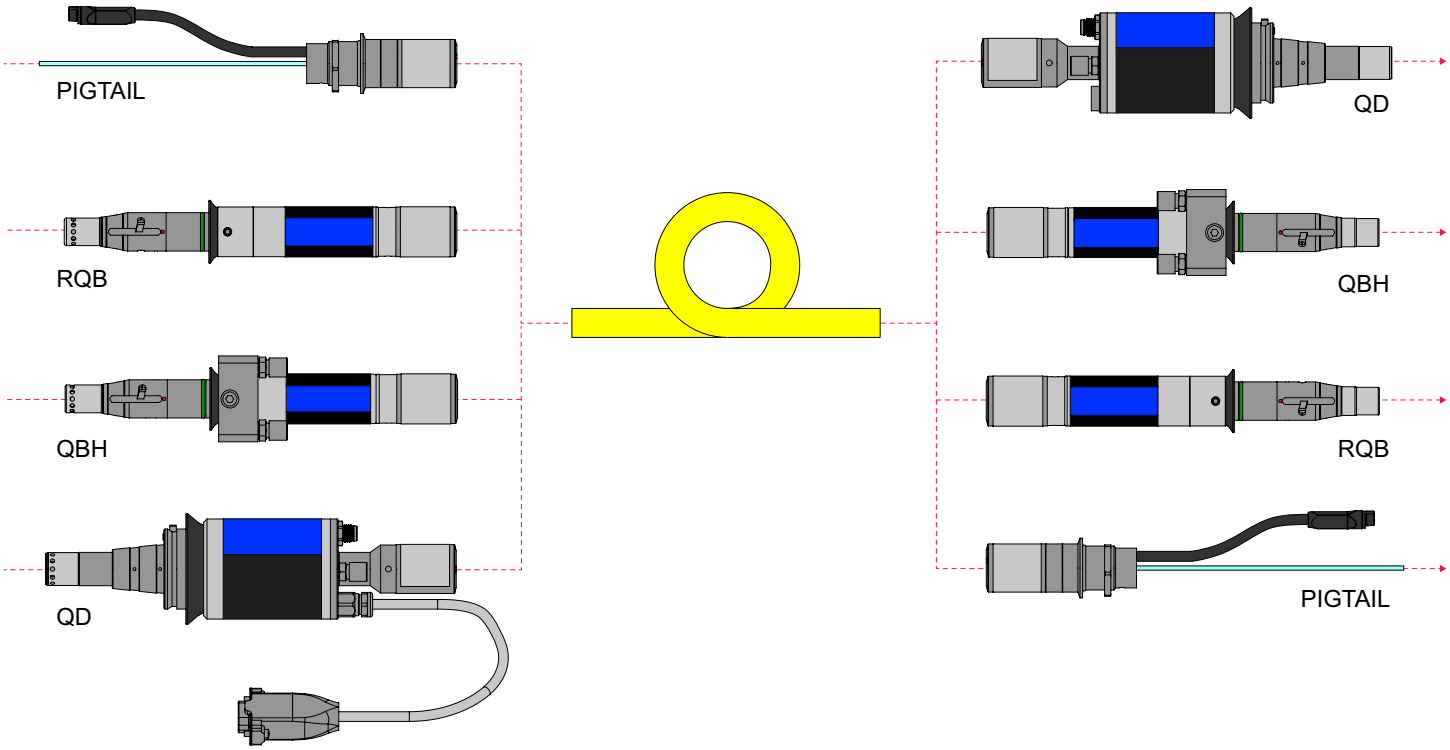
Square Formed Fiber Core, Two Connectors

	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	2290861	2290862	2290863	2290864	2290865	2290866	2290867
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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