Beam Delivery Components for High-Power Lasers

QBH FIBER OPTIC CABLE

1030 nm to 1090 nm

The QBH fiber optic cable is the industry-standard interface for high-power industrial fiber lasers. Its proven design ensures compatibility with a wide range of laser processing systems and tools used worldwide.

The water-cooled QBH connector is designed to maximize performance, including its superior power loss capability. For lower-power laser systems and applications, an air-cooled version (RQB) is also available.

An integrated mode stripper removes residual cladding light, delivering a clean, well-defined output beam. The reinforced, highly durable fiber hose is engineered to withstand demanding industrial environments and is particularly well suited for dynamic robotic applications.



FEATURES

- Up to 15 kW (CW)
- Mode-stripper
- AR-coated end cap
- 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

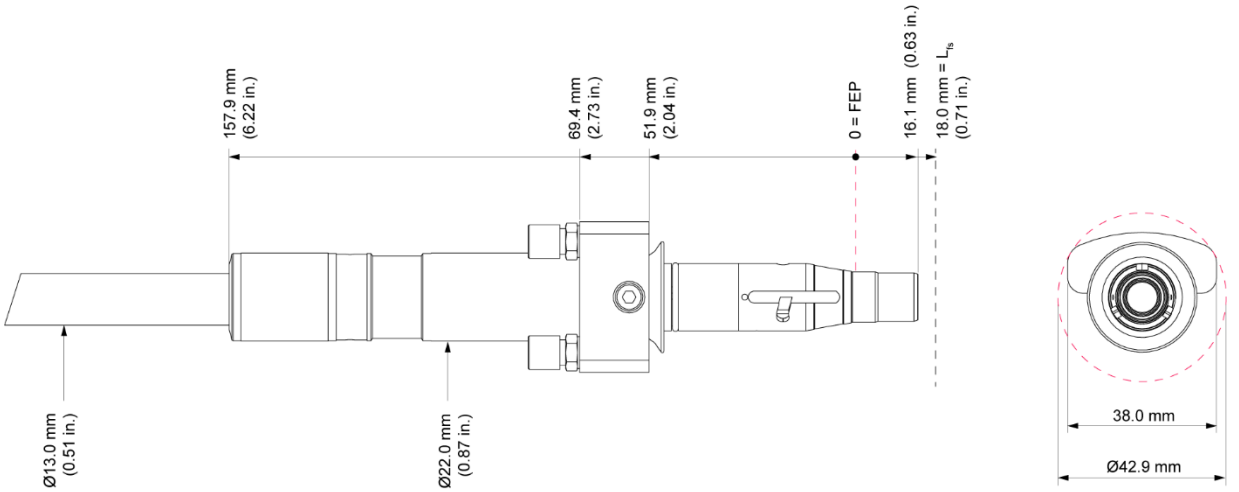
Specifications	QBH	RQB
Maximum Power CW (kW)	15	1.5 (3.0 with external cooler)
Wavelength (nm)	1030 to 1090	
Numerical Aperture $NA_{fiberacc}$	0.05 to 0.20	
Fiber Core Dimensions (µm)	≤1000	
Fiber Concentricity (µm)	≤10	
Z-position Tolerance (µm)	±50	
Pointing/Angular Deviation[1] (mrad) Core Diameter >200 µm Core Diameter ≤200 µm	 ≤10 ≤20	
Power Loss Capability[2] (kW)	2.0 (10 s) 1.0 (10 min.) 0.5 (continuously)	0.1 (10 s) 0.05 (1 min.) 0.01 (continuously)
Transmission Losses[3] (%)	<3	
Fiber Cable Properties		
Cable Lengths (m)	≤200	
Maximum Torsion (°/m)	90	
Cooling		
Cooling Method	Water	Air (passive)
Flow Rate (l/min)	2.0	N/A
Maximum Input Pressure (bar)	8.0	N/A
Pressure Drop (bar)[4]	0.9	N/A
Safety Interlock		
Interlock Circuit Resistance[5]	3.3 kΩ ±5% +2 Ω/m cable length	
Thermoswitch	No	Yes, 70°C ±5°C, reset temp >30°C
Dimensions & Weight		
Dimensions	See pages 3 to 4	
Weight (kg) Fiber Connector Fiber Cable (per meter)	 0.3 0.2	 0.1 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 (EU) 2015/863	
REACH	Regulation (EC) No. 1907/2006	

1. Pigtail fibers: Cladding diameter up to and equal 500 µm: ≤20 mrad.
2. Within specified fiber NA.
3. ≤100 m cable length.
4. At flow rate: 2.0 l/min.
5. Input pigtail fibers: 2 Ω/m cable length.

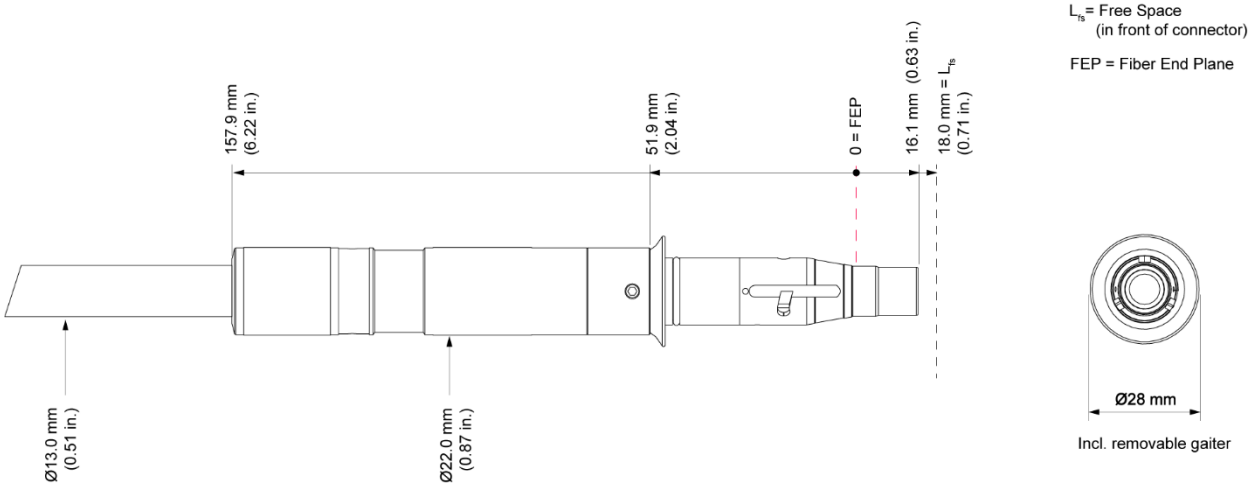
Mechanical Specifications

Connector Dimensions

QBH



RQB

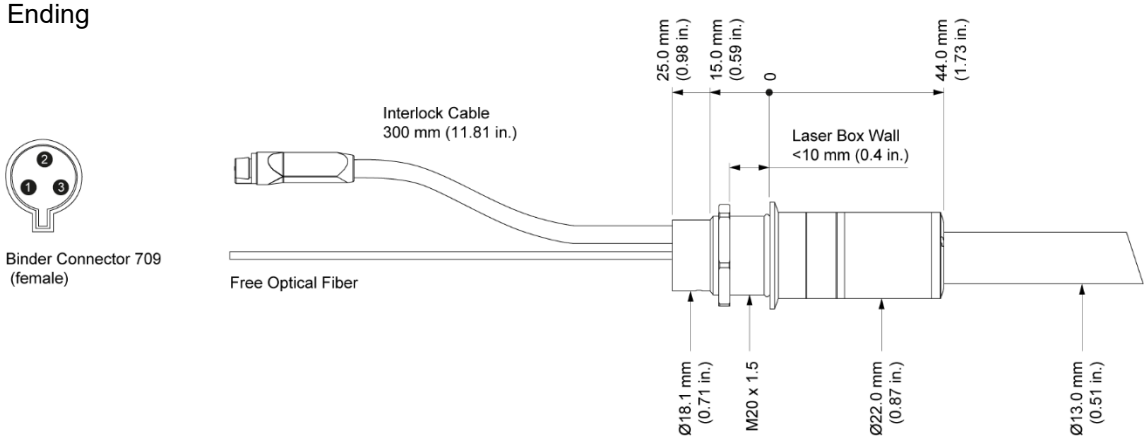


L_{fs} = Free Space
(in front of connector)

FEP = Fiber End Plane

Incl. removable gaiter

Pigtail Ending

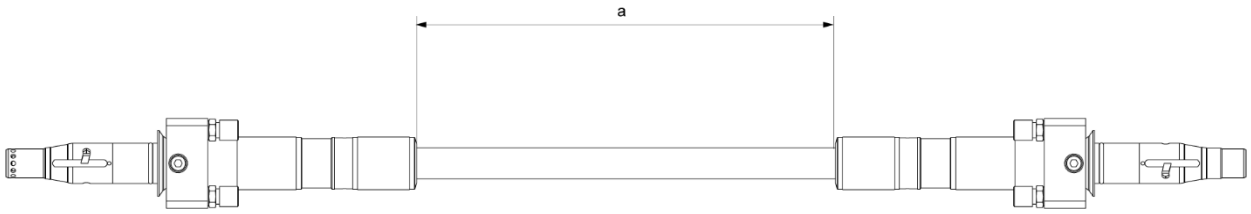


Input Side / Output Side

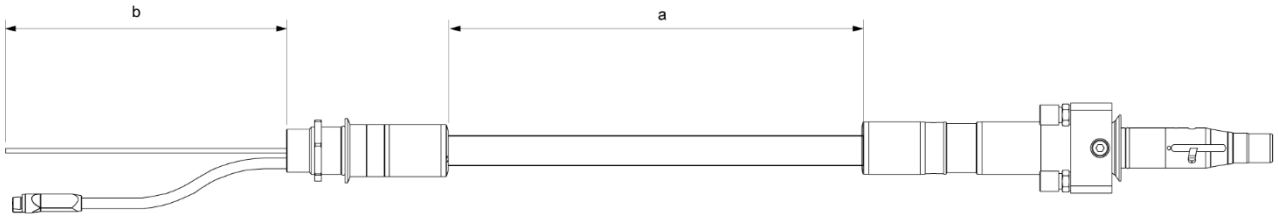


Length Definitions

Two Connectors



One Connector (Pigtail)



a = Fiber Cable Length
b = Free Optical Fiber Length

Part Numbers

QBH Fiber Optic Cables

Circular Fiber Core, Two Connectors

	5 m	10 m	15 m	20 m	30 m	35 m	50 m
50 µm	2223275	2223276	2223277	2223278	2223279	2223280	2223281
100 µm	2223282	2223283	2223284	2223285	2223286	2223287	2223288
150 µm	2223289	2223290	2223291	2223292	2223293	2223294	2223295
200 µm	2223296	2223297	2223298	2223299	2223300	2223301	2223302
300 µm	2223303	2223304	2223305	2223306	2223307	2223308	2223309
400 µm	2223310	2223311	2223312	2223313	2223314	2223315	2223316
600 µm	2223317	2223318	2223319	2223320	2223321	2223322	2223323
800 µm	2223324	2223325	2223326	2223327	2223328	2223329	2223330
1000 µm	2223331	2223332	2223333	2223334	2223335	2223336	2223337

Circular Fiber Core, One Output Connector (Pigtail)

	2 m	3 m	5 m	10 m	15 m	20 m	25 m
20/395 µm	2223240	2223241	2223242	2223243	2223244	2223245	2223246
25/395 µm	2223247	2223248	2223249	2223250	2223251	2223252	2223253
50/360 µm	2223261	2223262	2223263	2223264	2223265	2223266	2223267
100/360 µm	2223268	2223269	2223270	2223271	2223272	2223273	2223274

Note: Free optical fiber length b>1.0m.

Square Formed Fiber Core, Two Connectors

	5 m	10 m	15 m	20 m	30 m	35 m	50 m
100x100 µm	2223416	2223417	2223418	2223419	2223420	2223421	2223422
200x200 µm	2223423	2223424	2223425	2223426	2223427	2223428	2223429
400x400 µm	2223430	2223431	2223432	2223433	2223434	2223435	2223436
600x600 µm	2223437	2223438	2223439	2223440	2223441	2223442	2223443
800x800 µm	2377099	2377100	2377101	2377102	2377103	2377104	2377105
1000x1000 µm	2377106	2377107	2377108	2377109	2377110	2377111	2377112

Customized lengths and dimensions are available upon request.

RQB Fiber Optic Cables

Circular Fiber Core, Two Connectors

	5 m	10 m	15 m	20 m	30 m	35 m	50 m
50 µm	2289065	2289066	2289067	2289068	2289069	2289070	2289071
100 µm	2289072	2289073	2289074	2289075	2289076	2289077	2289078
150 µm	2289079	2289080	2289081	2289082	2289083	2289084	2289085
200 µm	2289086	2289087	2289088	2289089	2289090	2289091	2289092
300 µm	2289093	2289094	2289095	2289096	2289097	2289098	2289099
400 µm	2289100	2289101	2289102	2289103	2289104	2289105	2289106
600 µm	2289107	2289108	2289109	2289110	2289111	2289112	2289113
800 µm	2289114	2289115	2289116	2289117	2289118	2289119	2289120
1000 µm	2289121	2289122	2289123	2289124	2289125	2289126	2289127

Circular Fiber Core, One Output Connector (Pigtail)

	2 m	3 m	5 m	10 m	15 m	20 m	25 m
20/395 µm	2289277	2289278	2289279	2289280	2289281	2289282	2289283
50/360 µm	2289284	2289285	2289286	2289287	2289288	2289289	2289290
100/360 µm	2289291	2289292	2289293	2289294	2289295	2289296	2289297

Note: Free optical fiber length b>1.0m.

Square Formed Fiber Core, Two Connectors

	5 m	10 m	15 m	20 m	30 m	35 m	50 m
100x100 µm	2289192	2289193	2289194	2289195	2289196	2289197	2289198
200x200 µm	2289199	2289200	2289201	2289202	2289203	2289204	2289205
400x400 µm	2289206	2289207	2289208	2289209	2289210	2289211	2289212
600x600 µm	2289213	2289214	2289215	2289216	2289217	2289218	2289219
800x800 µm	2377127	2377128	2377129	2377130	2377131	2377132	2377133
1000x1000 µm	2377134	2377135	2377136	2377137	2377138	2377139	2377140

Customized lengths and dimensions are available upon request

Fiber Optic Cable Accessories

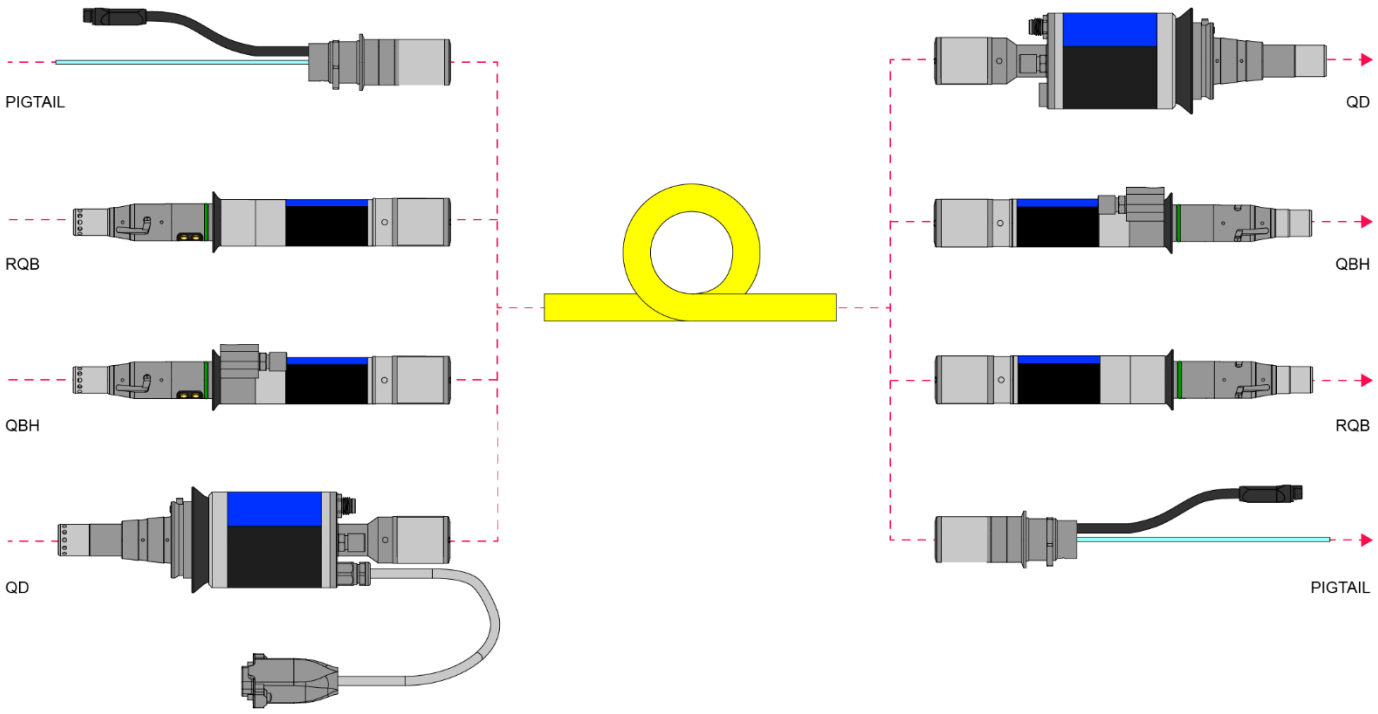
Product Description	Part Number
QB Protection Window, Input Side, 1030 to 1090 nm	1412500
QB Protection Window, Output Side, 1030 to 1090 nm	1412501
RQB External Cooler	101880X01

Hybrid Fibers

The flexible fiber cable design enables both standard configurations with identical connectors at each end and hybrid configurations with different input and output connectors selected to meet application requirements.

Hybrid fibers provide a simple and cost-effective solution for connecting a laser source and processing head that use different fiber interfaces, eliminating the need for additional adapters or interface components.

For pigtail configurations, the splice-ready pigtail termination can be provided on either the input or output side of the fiber cable.



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