

QBH FIBER OPTIC CABLE

Diode Lasers High-Power Beam Delivery

The QBH fiber optic cable is the no.1 fiber interface for industrial high-power lasers. It's a well proven standard compatible with most available tools worldwide. The QBH fiber connector is water-cooled to optimize the performance, including its superior power loss capability. For lower power systems and applications an air-cooled version is available (RQB). 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

- Up to 10 kW (CW)
- Mode-stripper
- AR-coated end cap
- Superior power loss handling
- Round or square fiber core
- Plug-and-play within 10 μ m

APPLICATIONS

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

QBH FIBER OPTIC CABLE

Specifications	QBH	RQB
Maximum Power CW (kW)	10	1.5 (3.0 with external cooler)
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 ¹ (mrad)		
Core Diameter >200 μm	≤10	
Core Diameter ≤200 μm	≤20	
Power Loss Capability ² (kW)		
10 seconds	2.0 (10 s)	0.1 (10 s)
10 minutes	1.0 (10 min.)	0.05 (1 min.)
Continuously	0.5 (continuously)	0.01 (continuously)
Transmission Losses ³ (%)	<3	
Fiber Cable Properties		
Cable Lengths (m)	≤200	
Maximum Torsion (°/m)	90	
Cooling		
Cooling Method	Water	Air (passive), optional: external water-cooler
Flow Rate (l/min)	2.0	N/A
Maximum Input Pressure (bar)	8	N/A
Pressure Drop (bar at 2.0 l/min)	0.9	N/A
Safety Interlock		
Interlock Circuit Resistance ⁴	3.3 kOhm ±5% +2 Ohm/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	0.3	0.1
Per Meter Fiber Cable	0.2	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 Pigtail fibers: Cladding diameter up to and equal 500 μm: ≤20 mrad.

2 Within specified fiber NA.

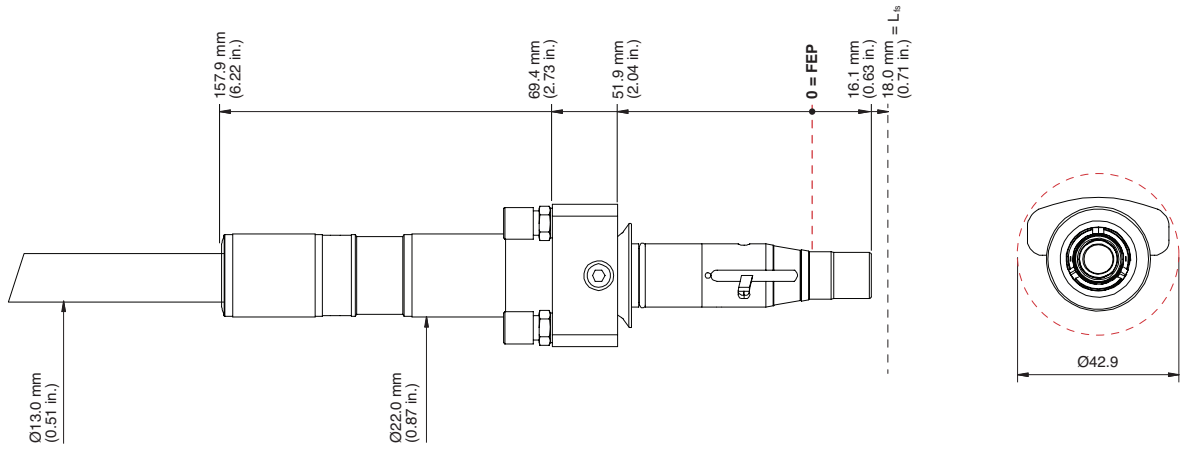
3 ≤100 m cable length.

4 Input pigtail fibers: 2 Ohm/m cable length.

Mechanical Specifications

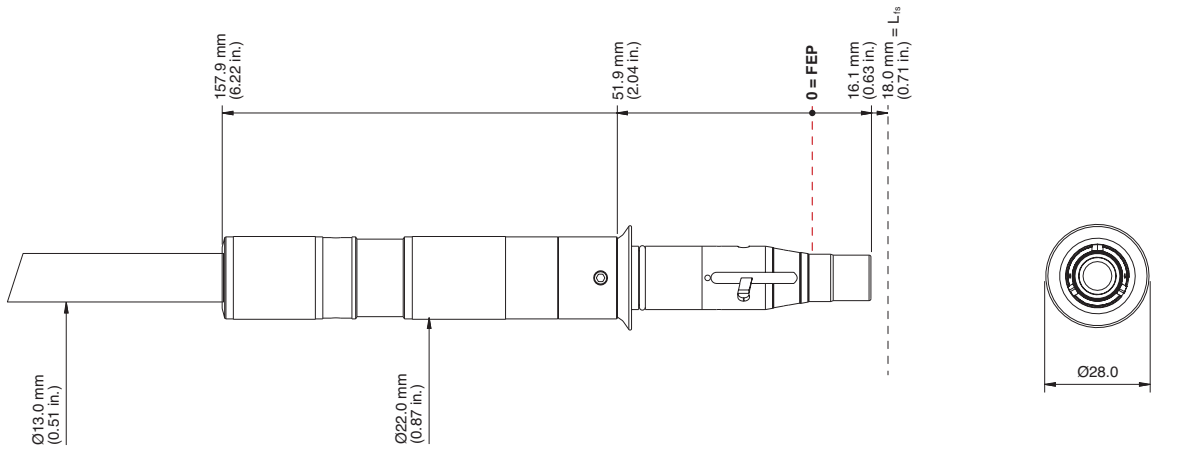
Connector Dimensions

QBH



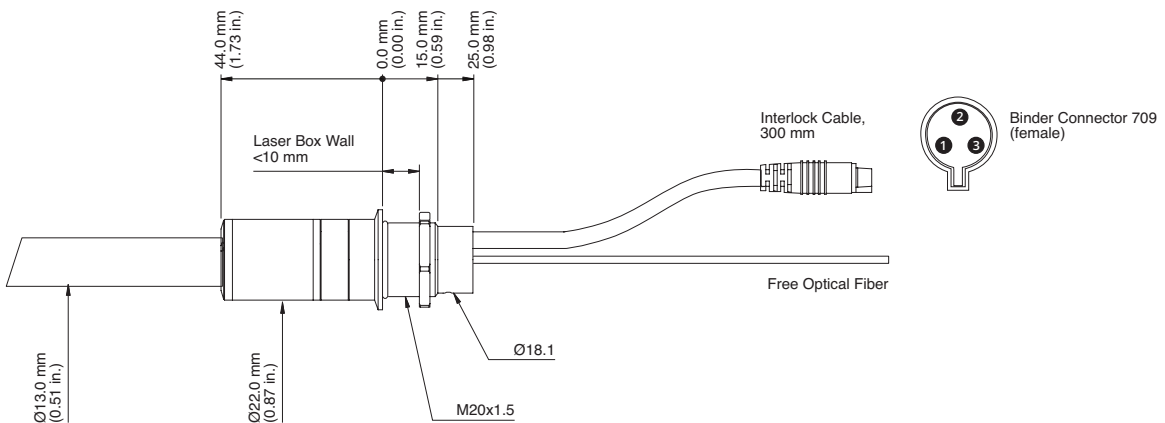
L_{fs} = Free Space in Front of Connector
FEP = Fiber End Plane

RQB



Max. Diameter including the Removable Gaiter

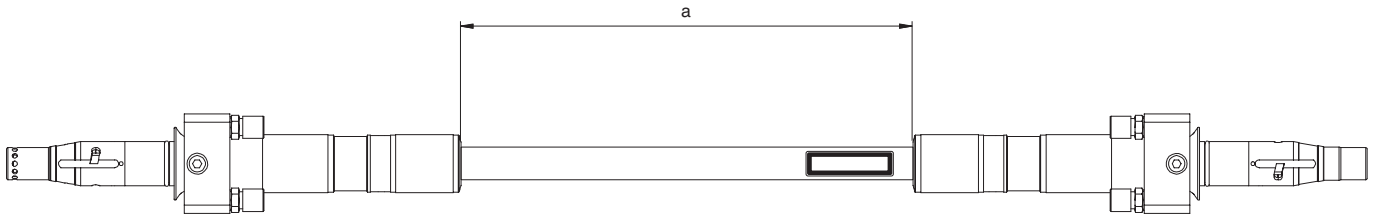
Pigtailing Ending



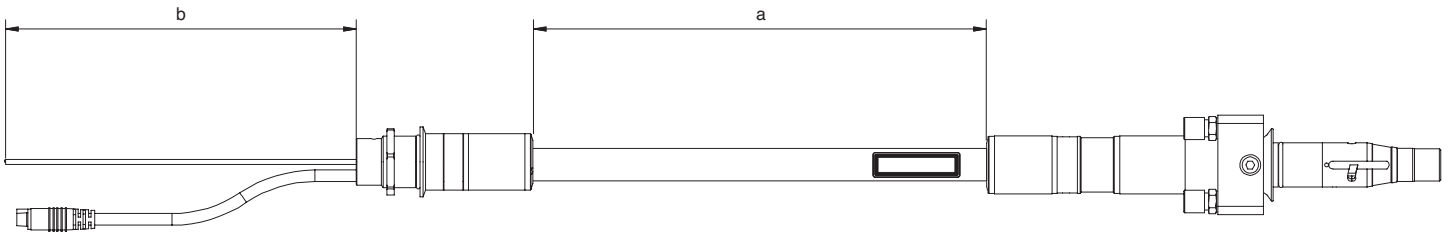
Mechanical Specifications

Length Definitions

Two Connectors



One Connector (Pigtail)



a = Fiber Cable Length

b = Free Optical Fiber Length

QBH Fiber Optic Cables

Circular Fiber Core, Two Connectors

	5m	10m	15m	20m	25m	30m	50m
50 μm	2223338	2223339	2223340	2223341	2223342	2223343	2223344
100 μm	2223345	2223346	2223347	2223348	2223349	2223350	2223351
150 μm	2223352	2223353	2223354	2223355	2223356	2223357	2223358
200 μm	2223359	2223360	2223361	2223362	2223363	2223364	2223365
300 μm	2223366	2223367	2223368	2223369	2223370	2223371	2223372
400 μm	2223373	2223374	2223375	2223376	2223377	2223378	2223379
600 μm	2223380	2223381	2223382	2223383	2223384	2223385	2223386
800 μm	2223387	2223388	2223389	2223390	2223391	2223392	2223393
1000 μm	2223394	2223395	2223396	2223397	2223398	2223399	2223400

Square Formed Fiber Core, Two Connectors

	5m	10m	15m	20m	25m	30m	50m
100x100 μm	2223461	2223462	2223463	2223464	2223465	2223466	2223467
200x200 μm	2223468	2223469	2223470	2223471	2223472	2223473	2223474
400x400 μm	2223475	2223476	2223477	2223478	2223479	2223480	2223481
600x600 μm	2223482	2223483	2223484	2223485	2223486	2223487	2223488
800x800 μm	2223489	2223490	2223491	2223492	2223493	2223494	2223495
1000x1000 μm	2223496	2223497	2223498	2223499	2223500	2223501	2223502

Customized lengths and dimensions are available upon request.

RQB Fiber Optic Cables

Circular Fiber Core, Two Connectors

	5m	10m	15m	20m	25m	30m	50m
50 μm	2289128	2289129	2289130	2289131	2289132	2289133	2289134
100 μm	2289135	2289136	2289137	2289138	2289139	2289140	2289141
150 μm	2289142	2289143	2289144	2289145	2289146	2289147	2289148
200 μm	2289149	2289150	2289151	2289152	2289153	2289154	2289155
300 μm	2289156	2289157	2289158	2289159	2289160	2289161	2289162
400 μm	2289163	2289164	2289165	2289166	2289167	2289168	2289169
600 μm	2289170	2289171	2289172	2289173	2289174	2289175	2289176
800 μm	2289177	2289178	2289179	2289180	2289181	2289182	2289183
1000 μm	2289184	2289185	2289186	2289187	2289188	2289189	2289190

Square Formed Fiber Core, Two Connectors

	5m	10m	15m	20m	25m	30m	50m
100x100 μm	2289235	2289236	2289237	2289238	2289239	2289240	2289241
200x200 μm	2289242	2289243	2289244	2289245	2289246	2289247	2289248
400x400 μm	2289249	2289250	2289251	2289252	2289253	2289254	2289255
600x600 μm	2289256	2289257	2289258	2289259	2289260	2289261	2289262
800x800 μm	2289263	2289264	2289265	2289266	2289267	2289268	2289269
1000x1000 μm	2289270	2289271	2289272	2289273	2289274	2289275	2289276

Customized lengths and dimensions are available upon request.

Fiber Optic Cable Accessories

Accessory	Part Number
QB Protection Window, Input Side, Diode Laser	1412502
QB Protection Window, Output Side, Diode Laser	1412503
RQB External Cooler	101880X01

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.

