



## High Power Cable for CO<sub>2</sub> Laser Radiation Delivery

### Contents

1. Specifications	1
2. Installation of the Cable	2
3. Handling Instructions	2
4. Cleaning	3
5. Storage	3

### 1. Specifications

HP cable for CO<sub>2</sub> laser enables the efficient delivery of CO<sub>2</sub> laser radiation. The cable is assembled with SMA-connectors and can be connected to CO<sub>2</sub> lasers with a special lens coupler. Distal termination of the cable can be supplied with a focusing handpiece.

Polycrystalline fiber cables are assembled with Mid Infra-red transmitting silver halogenide polycrystalline fiber.

HWG cables are assembled with Hollow Silica glass Waveguide optimized for CO<sub>2</sub> laser wavelength transmission.

#### Specification of PIR Cable Materials

Material of the fiber	Silver chloride-silver bromide or HWG
Outer protective tubing	PEEK or metal PVC coated
SMA ferrules	Titanium
Connector material (except for ferrules)	Brass

**Caution!** Epoxy in standard cable can withstand no more than 80°C. Please take care not to overheat the connectors.

For higher working temperatures please ask about our custom cable designs.

## 2. Installation of the Cable

- First make the initial alignment of the lens and fiber end:  
Insert the SMA ferrule (found in the alignment kit) into the SMA adapter, switch the laser to low power mode and align the position of the lens or the connector to focus the beam into the ferrule. Make sure the beam goes through the ferrule hole.
- Remove the ferrule out of the adaptor/positioner and fix the short alignment cable into the adaptor. Align the lens or cable connector to get the maximal signal.
- After the alignment you can use the cable first at low power, then increase the input laser power.

## 3. Handling Instructions

*Handle the fiber optic cable with care!*

The cable contains optical fiber which is flexible but can be damaged through shock of the connector or fiber protective sleeve. Also, the bending radius of these fibers are limited, i.e., not less than:

- 30cm diameter for PIR 900/1000 fiber or HWG 1000 cable
- 20cm diameter for PIR600/700 fiber or HWG 750 cable
- 15cm diameter for PIR 400/500 fiber or HWG 500 cable

**Caution!** The bending of the cable to a smaller diameter results in irretrievable increase of the output beam divergence.

- Do not bend the cable less than specified diameter
- Put protective caps onto both ends of the cable when not in use
- Plug/unplug the cable by gripping the connector, not the cable jacket.
- Hold the cable at both ends when carrying
- Avoid dropping the cable
- Prevent springing the connectors onto a hard surface.
- Avoid any contact of fiber ends with metal dust or metal parts
- Keep the cable in the original box when not in use

## 4.1 Cleaning the PIR Cable

- Dust can be removed from fiber ends using air flow.
- Do not touch fiber ends with hard tools, fingers or napkins.
- Visually inspect fiber ends. Small scratches can be disregarded as they do not interfere with long wavelength radiation.

## 4.2 Cleaning the HWG Cable

- In general, HWG ends do not need any cleaning.
- Careful purging with a low rate/low pressure air flow is acceptable.

## 5. Storage

- Put protective caps onto connectors.
- Place the cable into the storage box when not in use or place it in a suitable location for safe storage.