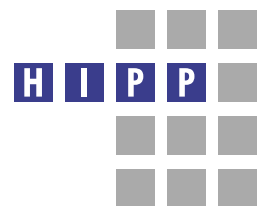


# HIPP ENDOSKOP SERVICE GMBH

>> your requirements are our aims.



>> *HIT - High Illumination Technology*  
*...the first REAL SYSTEM SOLUTION for fibre-light-guides*



# The advantages

- the first System solution for fibre-light-guides, through full compatibility with all device types [xenon- & halogen light source]
- no burn of cable ends through too high temperatures at the light entry side [especialiy by xenon light sources]
- full compalibility to all leading manufacturers of optic- & light sources
- autoclavable till 134°C/273°F & chemical and thetmal desinfection are possible
- transmission increase of appr. 20% till max. 50%

# The system

## >> adapter system [optic side]

ACMI, British



Olympus



Wolf



Storz



## >> adapter system [light source side]



Storz



Wolf



Olympus



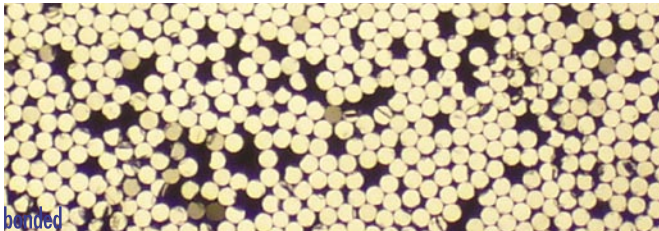
ACMI, British

# Solution for daily application

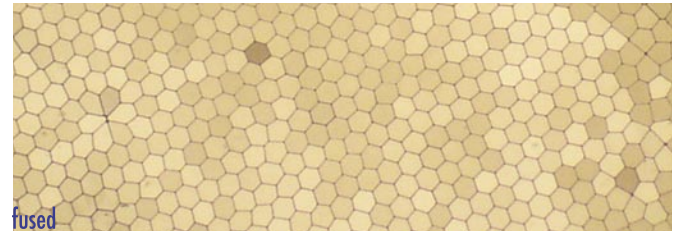
Medical fibre-light-guides serve the flexible light Transmission between light sources and endoscopes. Hospitals usually have got light sources and endoscopes from different manufacturers in use. **With our HIT - fibre-light-guides it is possible to connect light sources and endoscopes from different manufacturers without any problems.**

**Example:** Through the use of a Storz adapter on the light entry side and a Wolf adapter on the endoscope side you are able to connect in a very simple and fast way a light source of Karl Storz with an endoscope from Wolf.

## The difference



A **conventional fibre-light-cable** is made of 80% light fibres and the remaining 20% of the cable is filled out with glue. This high fraction of glue is the reason for the „burns“ of the fibre-light-guides.



The **HIT-fibre-light-guides** are produced by a Special method of production - fusing & pressing. Through the special method of production we reach a fibre tightness of 100%. In this case is a „burn“ of the cable ends impossible.

# Productions process for a conventional fibre-light-guide

A core glass rod with a high refractive index is surrounded by a glass tube with a lower refractive index and softened in a ring kiln at around 1000 °C and then drawn into threads with a diameter of 70 µm. The combination of the two different types of glass means that light can be passed through the fibres using the principle of total reflection. Around 3800 of these light conductors are wrapped in a protective sleeve - made of a spiral of round stainless steel wire, a glass silk mesh hose and a highly robust plastic fibre with a silicon hose - and a holder sleeve and the light inlet and outlet mounts are fitted. The holder sleeve is made of glass fibre reinforced plastic and is resistant to very high voltages. In the event of an accident, this prevents the electric voltage in the cold light source being passed to the patient. The light conductors are glued into the mounts and, once the glue has set, ground and polished using a process which is also used, for example, in the production of lenses for binoculars and glasses.

The 3800-odd light conductors in the 4.8 mm mount have a packing density of around 80 %, i.e. 20 % of the light inlet and outlet area is filled with glue and therefore is not available for the transport of light. This is because circular fibres can only fill out 90 % of an area even if maximum packing density is achieved, because there are always areas in between when three circular areas meet, known as spandrels. The light conductors are then manually inserted into the light inlet and outlet mounts. In order to prevent damage to individual fibres, this can only be done with a relatively loosely packed bundle of fibres, which is why the packing density is just 80 %, as mentioned above.

## Use of and problems with conventional guides

The glued cold light cables are suitable for the use of cold light sources with halogen reflector lamps. Where glued cold light cables are used in conjunction with high-performance xenon light sources - something which is increasingly offered by the market leader in endoscopy - there is a risk that the glued cold-light-

cables could be thermally destroyed at the light inlet. This means the glue burns and the original polished surface of the fibre turns black. **This is particularly serious because a damaged cold light cable could lead to an operation being interrupted.**

# Production process of an HIT - fibre-light-guide

In our tried and tested HIT - fibre-light-guides, a special patented system involving melting and pressing is used instead of gluing. This means there are no glue joins between the individual fibres which could burn at high temperatures. **This**

**means our HIT - fibre-light-guides are resistant to the influence of temperature from high Performance xenon light sources.**

## Everything the customer needs

Relative to area, melted fibre-light-guides have **20 % greater transmission**, as no space is taken up by glue. Instead of the glue, there is an arrangement of perfectly tessellating hexagonal fibres.

Xenon light sources often have collective lenses or aspheres (special lenses) between the burner and the fibre-light-guides. These can cause a very small focal point with increased light intensity at the centre of the focal spot. **If one of these cold light sources is combined with our HIT - fibre-light-guide, the result is**

**increased transmission of about 50 % compared to a glued fibre-light-guide. In today's market, it makes sense to work with HIT - fibre-light-guides** as most hospitals do not explicitly assign specific light sources to fibre-light-guides. Unlike our glued light-guides with a black holder sleeve, our HIT - fibre-light-guides have an orange sleeve which lights up as soon as the cold light source is switched on.

# Which diameter is the right one?

available diameters of fibre-light-guides  
**3,5mm & 4,8 mm**  
[more diameters on request!]

We recommend for example for the:  
**Athroscopy, Urology, Sinuscopy**  
our program of HIT - fibre-light-guides  
with a diameter of 3,5mm!



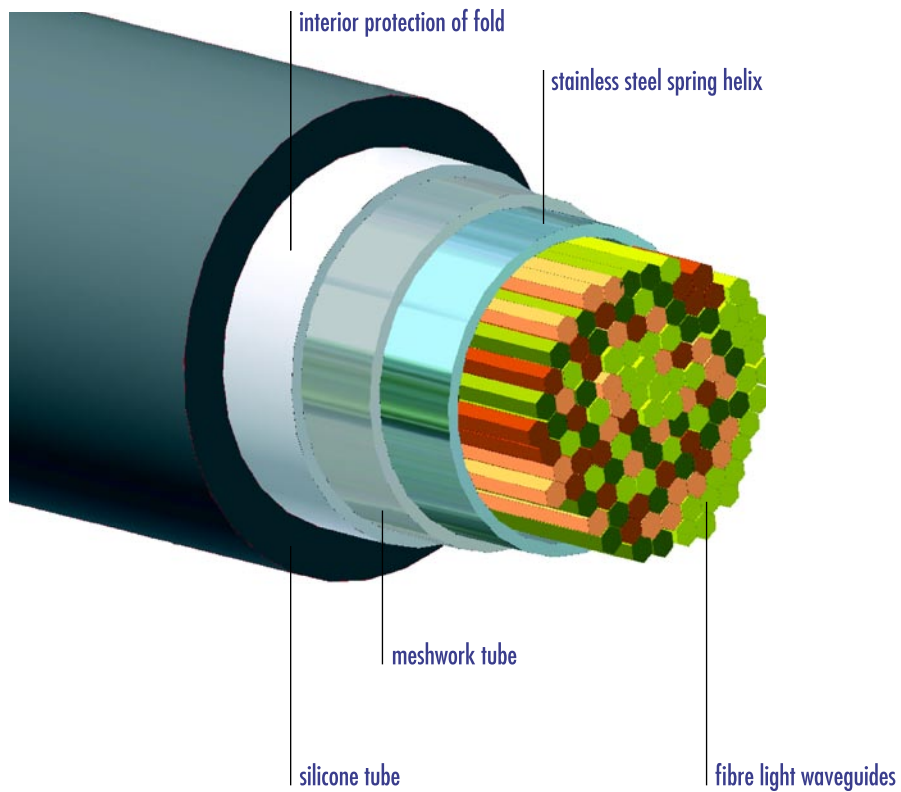
We recommend for example for the:  
**Laparoscopy**  
our program of HIT - fibre-light-guides  
with a diameter of 3,5mm!

compatible types of endoscopes:  
**all on the market available types**  
[related to the state of the art]

*Our whole program of HIT - fibre-light-guides [dia. 3,5 mm & 4,8 mm] is compatible via our adapter system with all types of endoscopes [dia. 4 mm & 10 mm]. In case of proper handling [endoscopes - adapter system - fibre-light-guide - light source] a lost of light isn't recognizable for the human eyes*

*[technical measurement with an Ulbrichkugel]. During numerous tests of the whole system no „burns“ of the light entry side and light admission side had been recognized.*

# How is a HIT - fibre-light-guide constructed



# The adapter system

## >> adapter system [optic side]

14-0065-00	ACMI, British	
13-1035-00	Olympus	
13-1036-00	Wolf	
13-1034-00	Storz	



our adapter is compatible with all following brands:

- Arthrex
- Dyonics
- Stryker
- Linvatec
- Saphir
- Martin
- Medicon
- Gimmi

## >> adapter system [light source side]

	Storz	13-1031-00
	Wolf	13-1033-00
	Olympus	13-1032-00
	ACMI, British	14-0054-00
	Fuji	14-0059-00
	Heine	14-0056-00
	MGB	14-0061-00
	Olympus Spezial	14-0063-00
	Olympus, ACM	14-0060-00
	Pentax	14-0055-00
	Schott	14-0062-00
	Volpi	14-0058-00
	Winter	14-0057-00

*On request we offer you adapters of other manufacturers*

# HIT - fibre-light-guides [fused]

description		article number
HIT - fibre-light-guide [fused]	Ø 3,5 mm, l=1800 mm	14-0037-00
HIT - fibre-light-guide [fused]	Ø 3,5 mm, l=2300 mm	14-0038-00
HIT - fibre-light-guide [fused]	Ø 3,5 mm, l=3000 mm	14-0039-00
HIT - fibre-light-guide [fused]	Ø 3,5 mm, l=3500 mm	14-0040-00
HIT - fibre-light-guide [fused]	Ø 3,5 mm, l=4000 mm	14-0041-00
HIT - fibre-light-guide [fused]	Ø 3,5 mm, l=5000 mm	14-0042-00

description		article number
HIT - fibre-light-guide [fused]	Ø 4,8 mm, l=1800 mm	14-0043-00
HIT - fibre-light-guide [fused]	Ø 4,8 mm, l=2300 mm	14-0044-00
HIT - fibre-light-guide [fused]	Ø 4,8 mm, l=2500 mm	14-0045-00
HIT - fibre-light-guide [fused]	Ø 4,8 mm, l=2650 mm	14-0046-00
HIT - fibre-light-guide [fused]	Ø 4,8 mm, l=3000 mm	14-0047-00
HIT - fibre-light-guide [fused]	Ø 4,8 mm, l=3500 mm	14-0048-00
HIT - fibre-light-guide [fused]	Ø 4,8 mm, l=4000 mm	14-0049-00
HIT - fibre-light-guide [fused]	Ø 4,8 mm, l=5000 mm	14-0050-00

*More lengths, diameters & special designs on request.*

# Conventional fibre-light-guide [bonded]

description		article number
fibre-light-guide [bonded]	Ø 3,5 mm, l=1100 mm	14-0020-00
fibre-light-guide [bonded]	Ø 3,5 mm, l=1800 mm	13-1025-00
fibre-light-guide [bonded]	Ø 3,5 mm, l=2300 mm	13-1026-00
fibre-light-guide [bonded]	Ø 3,5 mm, l=3000 mm	13-1027-00
fibre-light-guide [bonded]	Ø 3,5 mm, l=3500 mm	14-0024-00
fibre-light-guide [bonded]	Ø 3,5 mm, l=4000 mm	14-0025-00
fibre-light-guide [bonded]	Ø 3,5 mm, l=5000 mm	14-0026-00

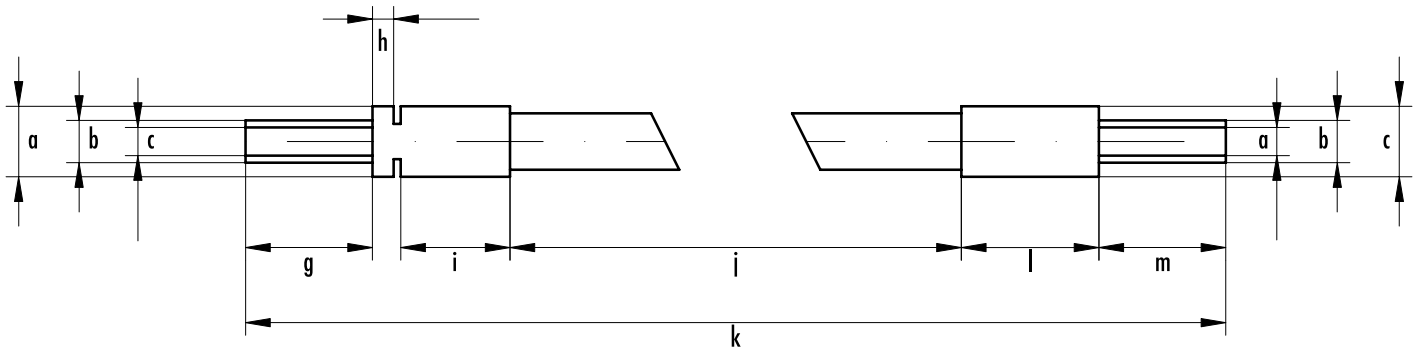
description		article number
fibre-light-guide [bonded]	Ø 4,8 mm, l=1300 mm	14-0027-00
fibre-light-guide [bonded]	Ø 4,8 mm, l=1800 mm	13-1028-00
fibre-light-guide [bonded]	Ø 4,8 mm, l=2300 mm	13-1029-00
fibre-light-guide [bonded]	Ø 4,8 mm, l=2500 mm	14-0030-00
fibre-light-guide [bonded]	Ø 4,8 mm, l=2600 mm	14-0031-00
fibre-light-guide [bonded]	Ø 4,8 mm, l=3000 mm	13-1030-00
fibre-light-guide [bonded]	Ø 4,8 mm, l=3500 mm	14-0033-00
fibre-light-guide [bonded]	Ø 4,8 mm, l=3600 mm	14-0034-00
fibre-light-guide [bonded]	Ø 4,8 mm, l=4000 mm	14-0035-00
fibre-light-guide [bonded]	Ø 4,8 mm, l=5000 mm	14-0036-00

*More lengths, diameters & special designs on request.*

# Custom-made products

- a handhold diameter light entry side.....
- b pipe diameter light entry side .....
- c fibre bundle [mm] light entry side .....
- d fibre bundel [mm] light exit side .....
- e pipe diameter light admission side.....
- f handhold diameter light exit side .....
- g immersion depth light source .....

- h an eventually needed lock .....
- i lenght of the handhold light entry side.....
- j cable lenght between handhold pieces .....
- k cable lenght from end to end .....
- l handhold lenght light exit side .....
- m lenght of the connector light exit side .....
- Further Details .....



# Operating instructions for HIT - fibre-light-guides

Fibre light guides are used to transport light between different cold light sources and endoscopes designed for medical purposes. Glued light cables can be connected to all cold light sources with halogen reflector lamps. Xenon light sources should be operated with fused light cables.

By the use of HIT - fibre-light-guides attend to the following informations:

- Even though they are extremely flexible, the universal light cables are very robustly built
- However, extended Service life can only be guaranteed if the following instructions are followed:
  - do not kink the light cables or bend them in a tight radius
  - do not use disinfectants which contain peracetates or chlorine components
- Light cables can be sterilised with steam or gas
- For steam sterilisation, the effective time should be between 5 and 18 minutes at 134°C
- The following processes must not be used:
  - ultrasound cleaning
  - lightning autoclaving
  - hot air sterilisation

*New cold light cables from the factory must be sterilised before first use!*

# Hipp Endoskop Service GmbH

In July 1996, Hipp Endoskop Service GmbH was founded by Alexander and Frank Hipp. The two brothers are highly experienced in the field of endoscopy. Prior to the incorporation of the Company, their work was focused on the development and repair of endoscopes of all kinds and makes.

Thanks to their own as well as their employees' strong personal commitment, their know-how, creativity, team spirit and the family enterprise's consistency, top quality products may be granted. As the Services offered have been adjusted to meet the markets needs and demands and all products are absolutely compatible with those of all leading manufacturers, Hipp Endoskop Service GmbH has become one of the most renowned Service providers in the field of endoscopy.

## Innovation

When it comes to innovation, we also stick to our credo of **concentration and capability**. Our focus is on constant improvement and the extension of our range of services in accordance with our customers' needs and wishes. As we are in an open and never-ending dialogue with our customers, we always gather up-to-date information on the markets needs. It is exactly this kind of communication which allows us to point the way to the future.

Day by day, we give proof of our expertise in the way we deal with our customers and their needs. Our many years of experience allow us to find Optimum solutions to any given problem and to cooperate with our customers in their implementation. Together with our customers, we are constantly seeking innovative solutions, setting the course for a successful future today.

## Customers benefits

- proximity to customers and reliability
- responsible and committed assignment of the whole team
- a corporate culture that is both, self-contained and open to inspiration from the outside world
- integrated quality management
- a specially developed PPS software increases the productivity and quality
- inventive talent and innovation propensity for the solution of your
- individual problem
- total compatibility to well-known manufacturers guarantees the integration in existing system solution
- our credo: **concentration and capability**

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