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# ENDOSCOPIC TELESCOPES

INGENIOUS

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# 1. DEFINITION - ENDOSCOPY

INGENIOUS

- Is a minimal invasive surgery procedure (MIS)
- Is the examination and inspection of the interior of body organs, joints or cavities through an **endoscope**
- It allows physicians to peer through the body's passageways

# 1. DEFINITION - ENDOSCOPE

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- Is an optic instrument using fiber optics and powerful **lens** systems.
- It provides lighting and visualization of the interior body.
- Magnification of the image or angulation of the reflected light

# 1. DEFINITION - ENDOSCOPE

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## WHY DO WE USE A TELESCOPE?

- Small diameter for small incision operations
- Compatible to surgical instruments
- First image detector
- Telescope is connected to Camera Head Unit in order to transmit light

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# 2. KEY COMPONENTS FOR IMAGING SYSTEM

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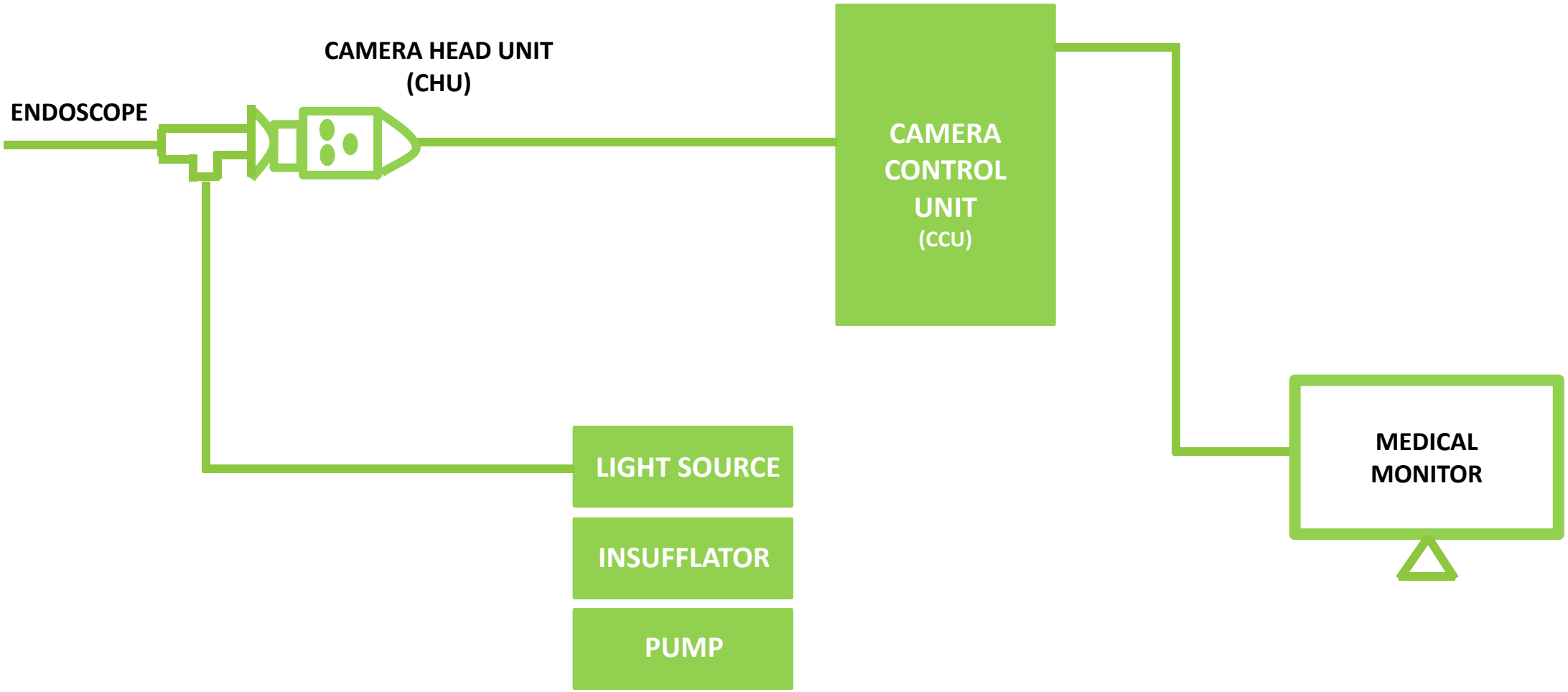




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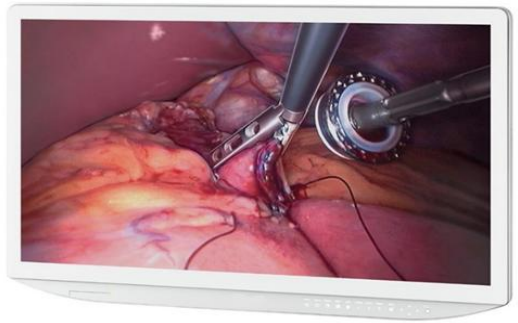
# 2. KEY COMPONENTS FOR IMAGING SYSTEM

INGENIOUS



MEDICAL MONITOR

LIGHT SOURCE

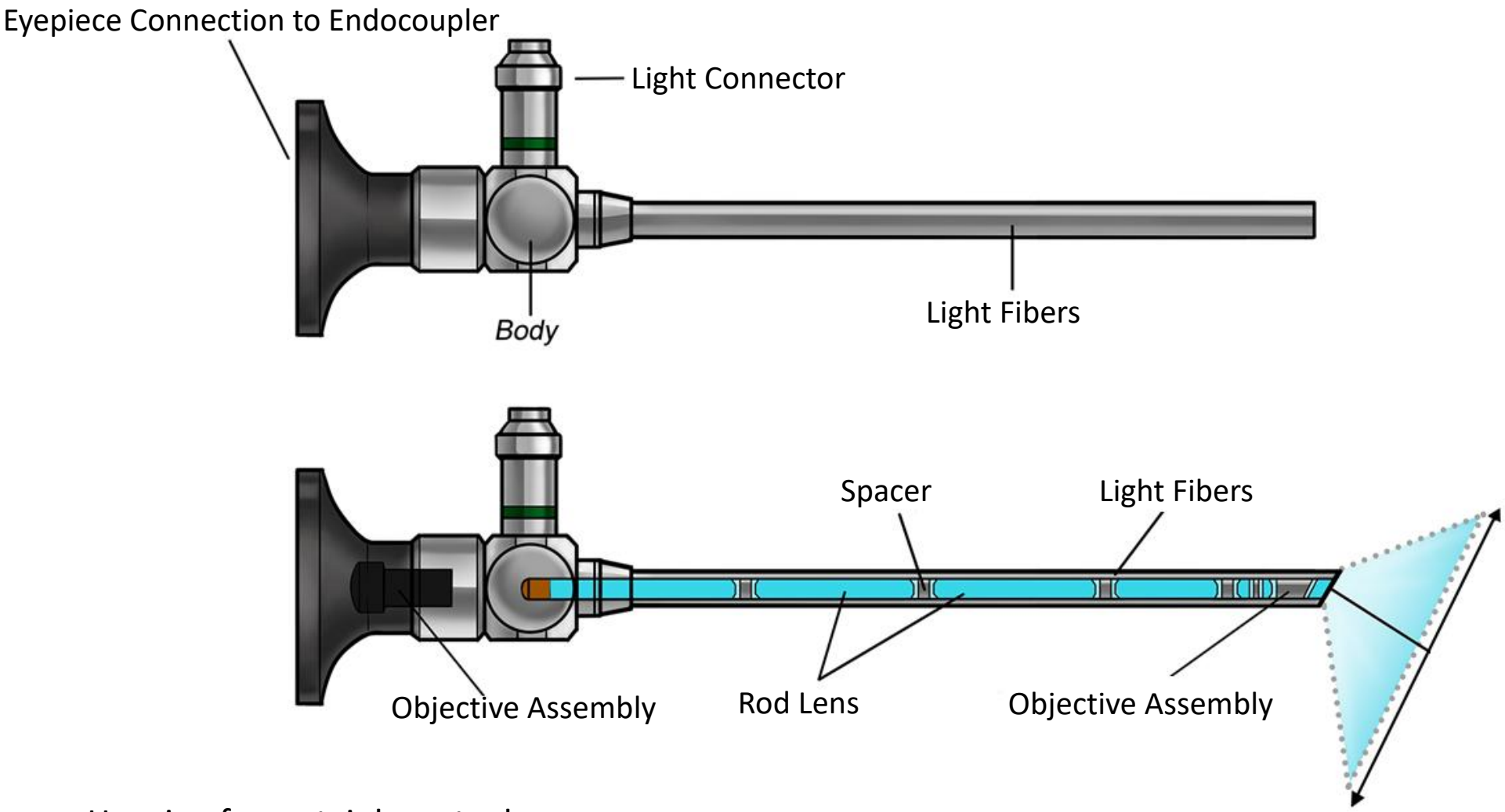

CAMERA CONTROL UNIT (CCU)

CAMERA HEAD UNIT (CHU)

ENDOSCOPIC TELESCOPE

# 3. ENDOSCOPE CONSTRUCTION






- Housing from stainless steel
- Junction laserwelded and soldered

# 4. ENDOSCOPE PARAMETERS - DOV

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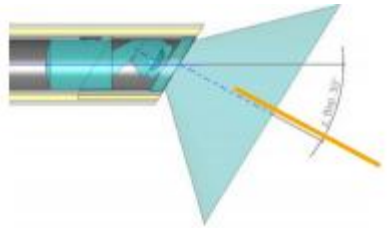
- DOV is the angle between the optical axis of the eye and optical axis of the objective/ endoscope.
- A color-coded ring situated on the light guide connector indicates the direction of view of the endoscope.

**Direction of view (DOV) DOV 0° or 30 °**



DOV 0°

DOV 30°

| Color | Direction of View |
|---|---|
| Green | 0° |
| Red | 30° |
| Black | 45° |
| Yellow | 70° |

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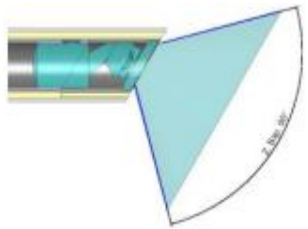
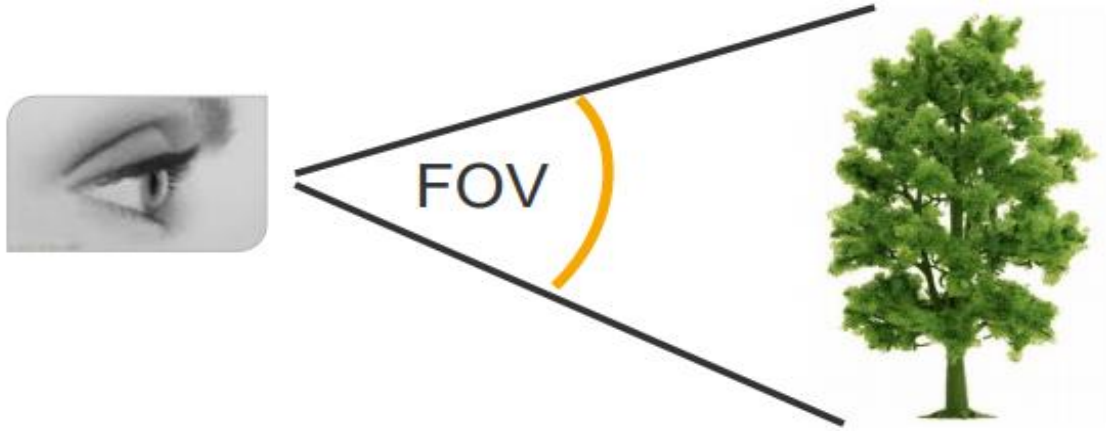
- FOV Describes the visible sector of the image.

**Field of view (FOV) 70º**

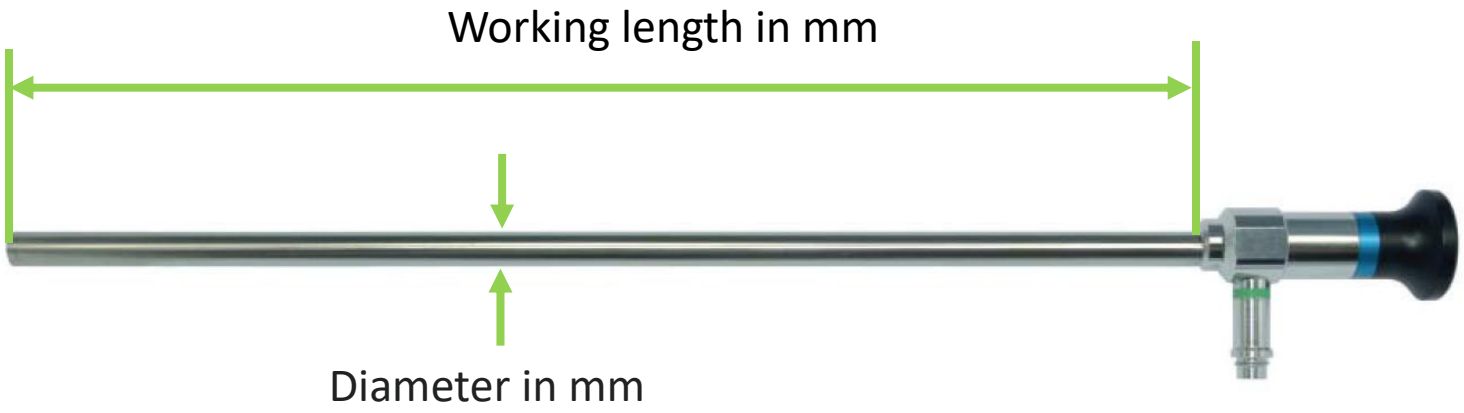


**FOV:**

1. Standard field of view
2. Wide angle field of view



# 5. ENDOSCOPE SPECIFICATIONS – WORKING LENGTH & DIAMETER




The surgeon select the appropriate diameter and length of telescope depending on the type of surgery .

# 5. ENDOSCOPE SPECIFICATIONS – INSTRUMENT LOCKING

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Locking for Instrument connection

Locking for Light cable with different adapters

# 6. TYPES OF ENDOSCOPES

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INGENIOUS medical offers the below telescopes:

A. LAPAROSCOPES

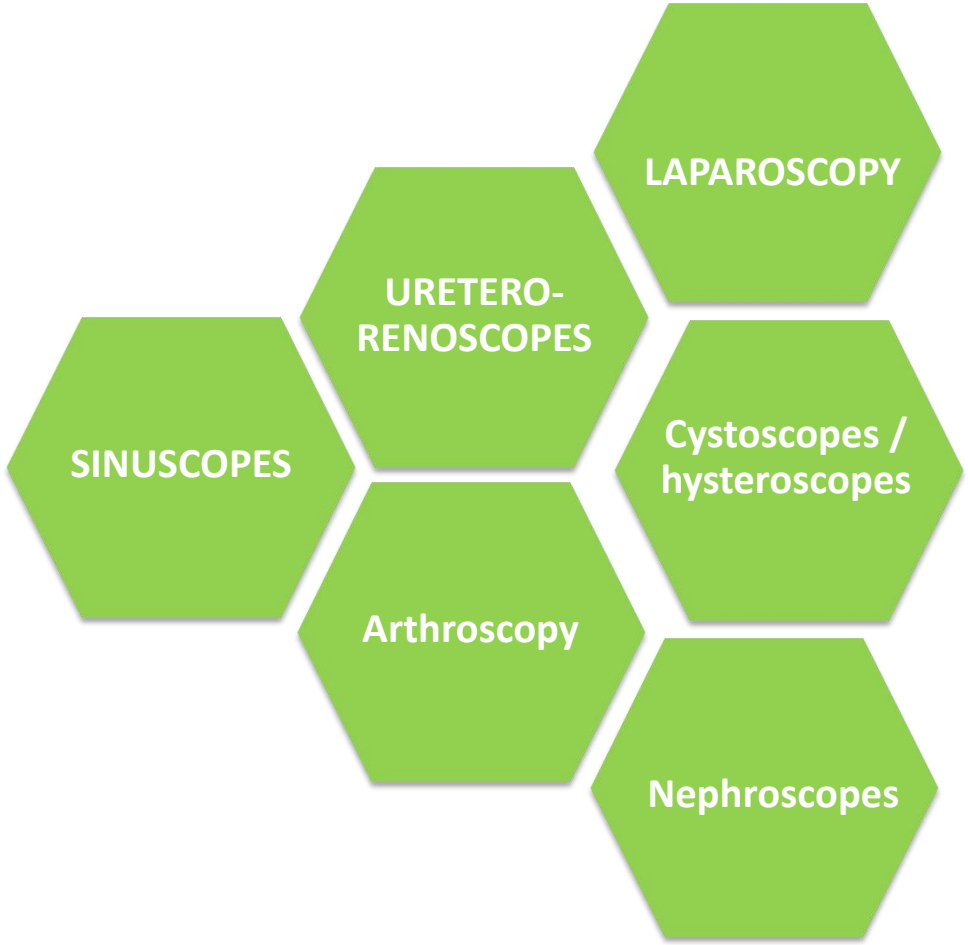
B. CYSTOSCOPES / HYSTEROSCOPES

C. NEPHROSCOPES

D. URETER-RENOSCOPES

E. ARTHROSCOPES

F. SINUSCOPES

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# 6. TYPES OF TELESCOPES - LAPAROSCOPE

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- Used for laparoscopic diagnostic and surgical procedures
- A special emphasis was placed on creating a homogenous and sharp-edged illumination
- Together with the optimized optical system, the result is a very bright image with rich contrast
- The system was designed so that the illumination fibers are fastened strain-free which leads to an improved lifetime.

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# 6. TYPES OF TELESCOPES – LAPAROSCOPE

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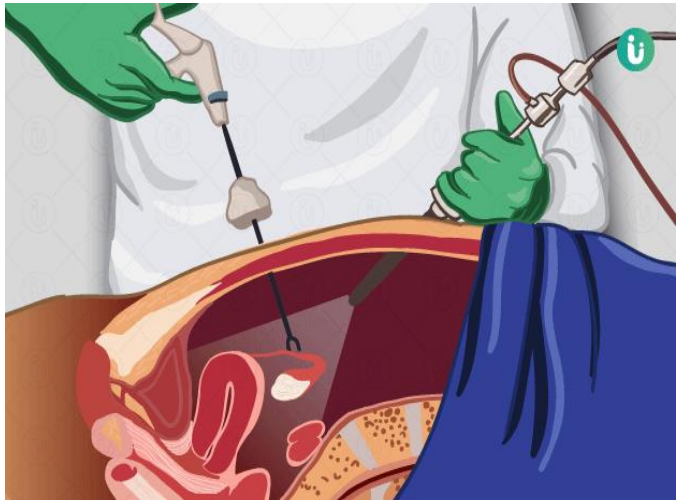
## LAPAROSCOPES diameter 2.0 mm, working length 258 mm

- Direction of view 0°, wide angle
- Direction of view 30°, wide angle



## LAPAROSCOPES diameter 5.0 mm, working length 312 mm

- Direction of view 0°, wide angle
- Direction of view 30°, wide angle

## LAPAROSCOPES diameter 10.0 mm, working length 344 mm

- Direction of view 0°, wide angle
- Direction of view 30°, wide angle
- Direction of view 45°, wide angle

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# 6. TYPES OF TELESCOPES - CYSTOSCOPES / HYSTEROSCOPES

INGENIOUS

- Used for urology and hysteroscopy procedures
- A special emphasis was placed on creating a homogenous and sharp-edged illumination
- Together with the optimized optical system, the result is a very bright image with rich contrast
- The system was designed so that the illumination fibers are fastened strain-free which leads to an improved lifetime.

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# 6. TYPES OF TELESCOPES - CYSTOSCOPES / HYSTEROSCOPES

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## CYSTOSCOPES / HYSTEROSCOPES diameter 2.7 mm, working length 205 mm

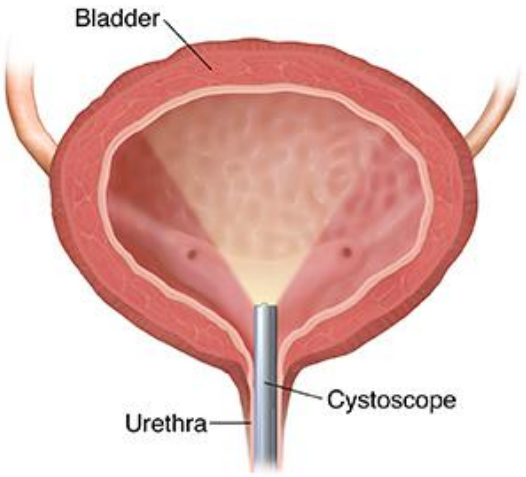
- Direction of view 0°, Standard
- Direction of view 30°, Standard

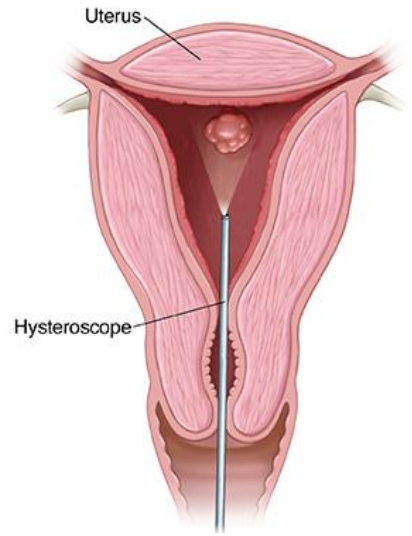
## CYSTOSCOPES / HYSTEROSCOPES diameter 2.9 mm, working length 302 mm

- Direction of view 0°, wide angle
- Direction of view 30°, wide angle

## CYSTOSCOPES / HYSTEROSCOPES diameter 4.0 mm, working length 302 mm

- Direction of view 0°, Standard / wide angle
- Direction of view 12°, Standard angle
- Direction of view 30°, Standard / wide angle
- Direction of view 70°, wide angle



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# 6. TYPES OF TELESCOPES - URETERO-RENOSCOPES

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- URS is constructed for smooth and gentle insertion
- of the special ocular construction, there is no need for camera re-focusing and no loss of picture
- Offered with detachable instrument channel
- Standard and mini URS are available

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# 6. TYPES OF TELESCOPES - URETERO-RENOSCOPES

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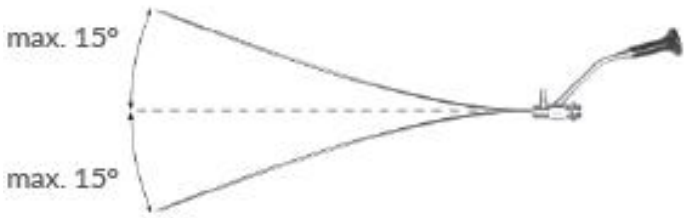
## STANDARD URS

- Working diameter 7.5 / 9.8 FR, working length 310 mm
- Working diameter 7.5 / 9.8 FR, working length 425 mm

## MINI URS

- Working diameter 6 / 7.5 FR, working length 310 mm
- Working diameter 6 / 7.5 FR, working length 425 mm







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# 6. TYPES OF TELESCOPES - NEPHROSCOPES

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- Used for percutaneous nephroscopy
- Offered with detachable instrument channel
- Compatible with 18.5 Fr. and 24 Fr. nephroscopy sheaths

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# 6. TYPES OF TELESCOPES - NEPHROSCOPES

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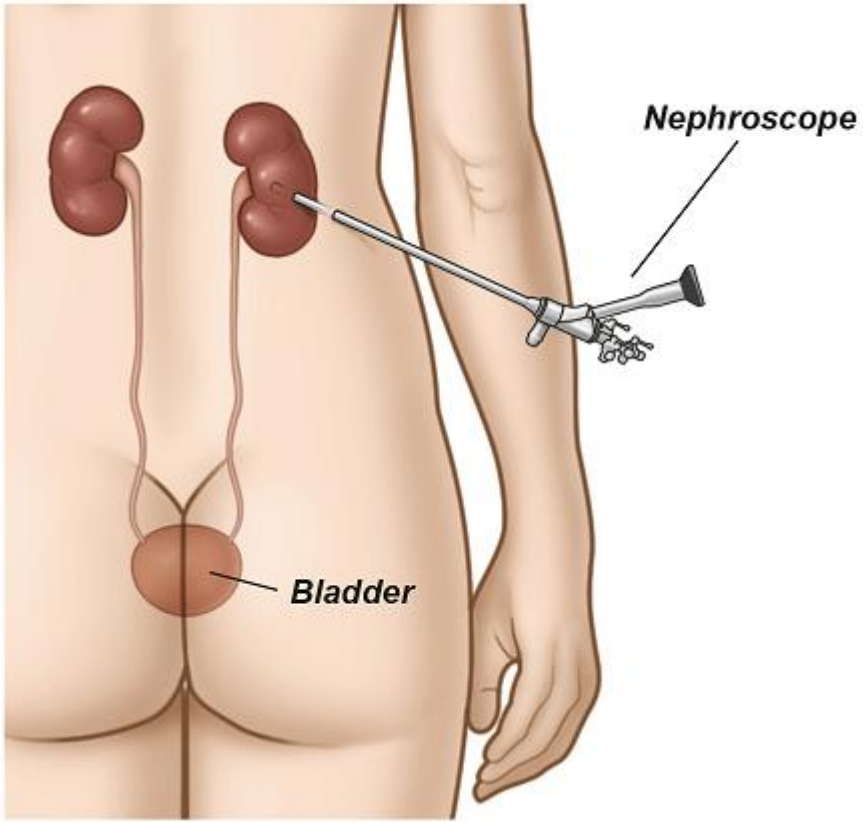
## STANDARD NEPHROSCOPES

- Working diameter 19 FR, working length 220 mm

## MINI NEPHROSCOPES

- Working diameter 13.5 FR, working length 220 mm
- Working diameter 13.5 FR, working length 310 mm




https://patients.uroweb.org/treatments/percutaneous-nephrolithotomy-pcnl/



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# 6. TYPES OF TELESCOPES - ARTHROSCOPES

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- Used for small joints or for knee, shoulder and hip

- High image quality, robustness, and state-of-the-art construction

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# 6. TYPES OF TELESCOPES - ARTHROSCOPES

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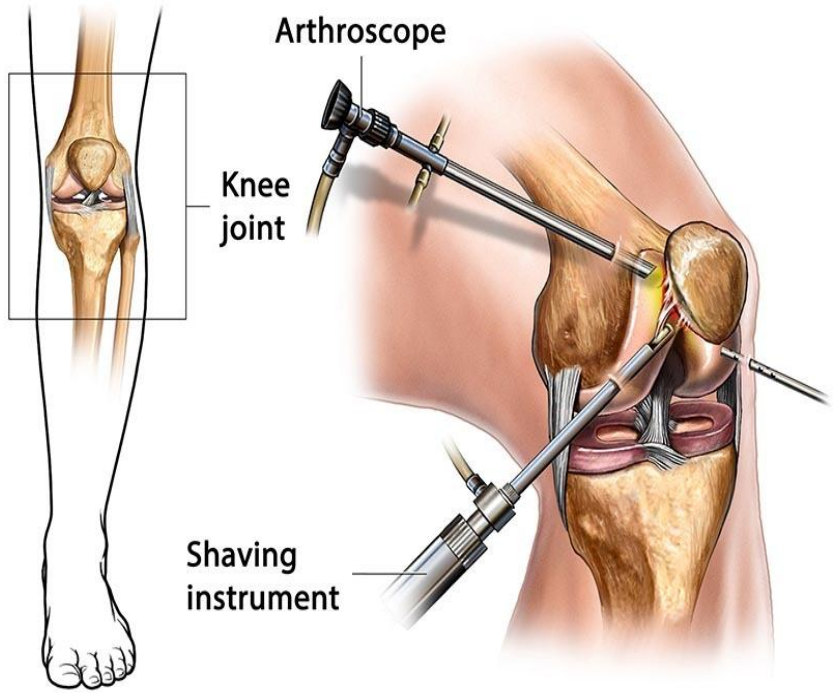
## Arthroscope diameter 2.7 mm, working length 187 mm

- Direction of view 0°, Standard
- Direction of view 30°, Standard
- Direction of view70°, Wide angle

## Arthroscope diameter 4.0 mm, working length 175 mm

- Direction of view 0°, wide angle
- Direction of view 30°, wide angle
- Direction of view 45°, wide angle
- Direction of view 70°, wide angle



# 6. TYPES OF TELESCOPES - SINUSCOPES

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- Used to examine nasal and sinus passages.

- High image quality, robustness, and state-of-the-art construction.

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# 6. TYPES OF TELESCOPES - SINUSCOPES

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## SINUSCOPES diameter 2.7 mm, working length 110 mm

- Direction of view 0°, Standard
- Direction of view 30°, Standard
- Direction of view 70°, Standard

## SINUSCOPES diameter 4.0 mm, working length 175 mm

- Direction of view 0°, wide angle
- Direction of view 30°, wide angle
- Direction of view  30°, Standard
- Direction of view 70°, wide angle

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## GENERAL REPROCESSING PROCEDURE:

1. Pre-cleaning immediately after use
2. Cleaning (manual or automated)
3. Sterilization

| Pre-Vacuum Process | Regular Cycles | WHO Cycle |
|---|---|---|
| Temperature (°C/°F) | 134/273 | 134/273 |
| Holding time (min) | 4 | 18 |
| Drying time | 30 | 30 |

AUTOMATED CLEANING AND PRE-VACUUM STEAM STERILIZATION CONFIRMS THE MOST RELIABLE RESULTS

# 9. CAUTIONS

Don’t use pliers to remove adapter

Brush thread carefully

Brush thread carefully

Remove light connection adapters with rubber and clean surface with bud

Don’t use sharp edge instrument for cleaning

Only use of cotton bud or tissue and alcohol for ALL cleaning

# 10. TAKE HOME MESSAGE - TELESCOPES

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## LIFE CYCLE

ILLUMINATION FIBERS ARE FASTENED STRAIN FREE. NO TENSILE STRESS WHILE AUTOCLAVATION

## OPTICS

INCREASED DEPTH OF FIELD HELPS IN CHANGING WORKING DISTANCE W/T REFOCUSING

## UNIVERSAL CONNECTIVITY

COMPATIBLE TO ALL CAMERA HEADS FROM ANY SUPPLIER

## MINIMAL REFLECTION

BLACK MATT ROUGH SURFACE MINIMIZE THE LIGHT REFLECTION

## BEST IMAGE QUALITY

SUPERIOR LENS MATERIAL

## VARIETY OF MODELS

DIFFERENT DIAMETERS & WORKING LENGTHS

## ILLUMINATION

HOMOGENOUS AND SHARP-EDGED ILLUMINATION

## PATIENT SAFETY

SMOOTH EDGE TO AVOID TISSUE DAMAGE

## MULTI – STERILIZATION MODES

HIGH & LOW TEMPERATURE STERILIZATION PROCEDURE

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# THANK YOU

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