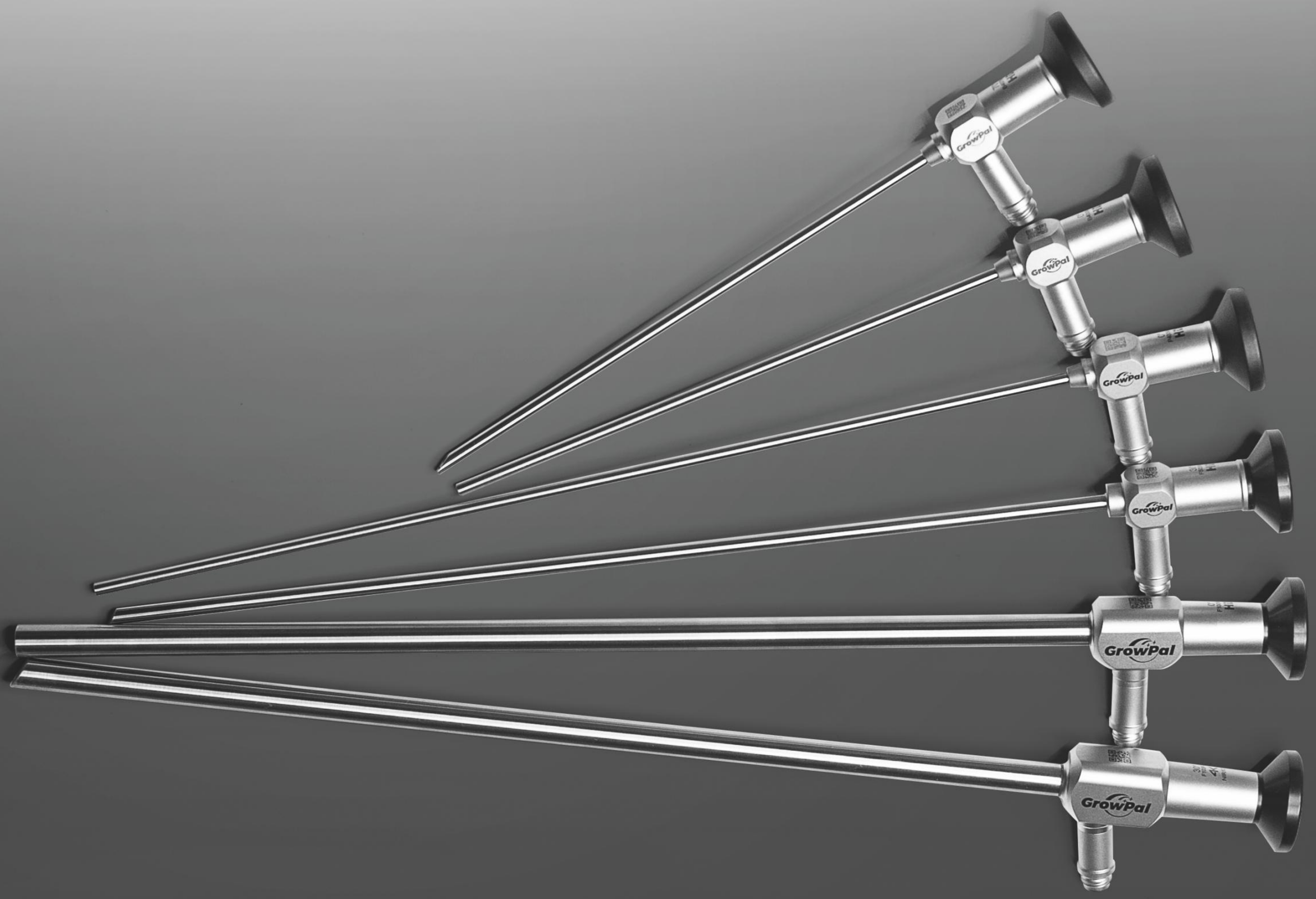
# THE GROWPAL® RIGID ENDOSCOPE

Maximum Service Life!




**WS MEDTECH**
**Focusing on MIS Endoscopy**
www.growpal-medtech.com

GrowPal
RIGID ENDOSCOPY

# FULL AUTOCLAVABLE
# HD/4K/ICG/3D RIGID ENDOSCOPES

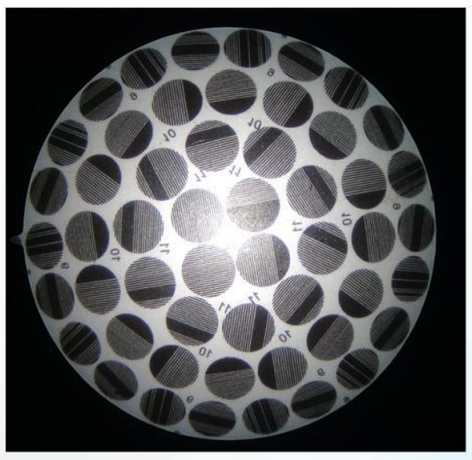
Minimally invasive surgery (Endo-surgery) procedures require a camera system with a consistently high quality image. Endoscopes are one of the most important links in the optical chain, and pushing to perfrom a bright,sharp surgical image for the surgons. WS MEDTECH (GrowPal®) is absorbed in medical optics, offers medical rigid endoscopes (HD, 4K, NIR/ICG, 3D Laparoscope, Rhinoscope, Otoscope, Arthroscope, Cystoscope, Hysteroscope ...) and the accessories. We have solid optical technology and stable production lines, mainly providing OEM production for **FIRST TIER** brands. WS MEDTECH is committed to manufacturing first class medical optical products and exploring better solutions that benifits patients and doctors.

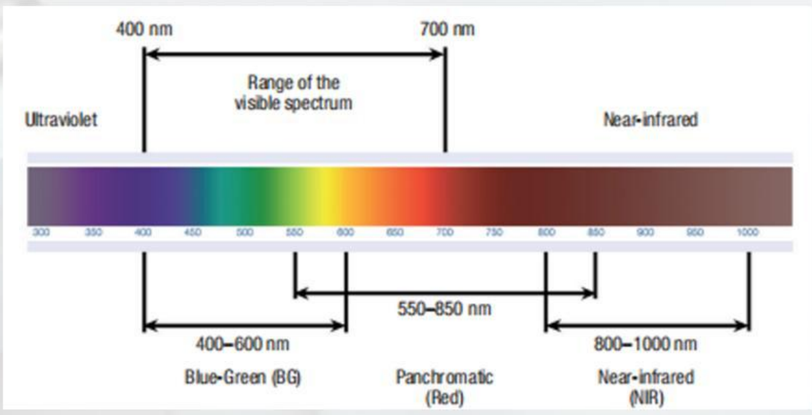
| | | FULL AUTOCLAVABLE | HD | 4K | | NIR/ICG | 3D |
|---|---|---|---|---|---|---|---|
| LAPAROSCOPE | 10mm | • | •(UHD) | •4K | •4KO | • | • |
| | 5mm | • | • | | | | |
| | 5.5mm | • | | | | • | |
| RHINOSCOPE (SINUSCOPE) | 4mm | • | • | | | • | |
| | 3mm | • | • | | | | |
| ARTHROSCOPE | 4mm | • | • | | | | |
| | 3mm | • | • | | | | |
| CYSTOSCOPE / RESECTOSCOPE / HYSTEROSCOPE | 4mm | • | • | | | • | |
| | 2.9mm | • | • | | | | |
| OTOSCOPE | 2.7mm | • | • | | | | |
| | 4mm | • | • | | | | |

*Various minority endoscopes are availabie

## * 4K IMAGE
### Outstanding image quality

The endoscopes have been optimized to deliver excellent contrast and high resolution. The true colour 4K lens system allows for definition and clarity of finest structures in the entire endoscopic field.






## * NIR/ICG
### Near-Infrared Fluorescence

The use of indocyanine green (ICG) together with light at wavelengths in the near infrared range (NIR) permits visualizing anatomic structures.

## * FULL AUTOCLAVABLE,MAXIMUM DURABILITY
### 134°C/273°F minimum 200 times

Autoclavable GrowPal products are meet the following standards:
- US standard ANSI/AMMI ST46
- European standard EN 285

Avoid the risk of cross-contamination while greatly improving product durability.

# HD/4K/ICG Laparoscope

## SEE CLEARER, SEE BRIGHTER

Measuring the endoscope's image quality requires several metrics to characterize clarity, distortion and optical transmission.The most objective metric for resolution is the modulation transfer function (MTF). The higher the measurement, the more contrast or clarity between features in the image.
The right image shows the 4K laparoscope MTF curve value of GrowPal® endoscope, some German and most Chinese brands'.

GrowPal® laparoscope has equally excellent performance in distortion and optical transmission performance indicators, delivering bright and transparent surgical images to surgons.

Resolution Comparison

### 4K LAPAROSCOPE

F100W4 F103W4
F550W4 F553W4

### HD/UHD LAPAROSCOPE




F100WUH F100WUH
F500WH F500WH

Welding Sealed Optical system
Maximum Durability
Autoclave sterilization 200times (minimum)

### 4KO LAPAROSCOPE




F100W4O F103W4O

### HD/UHD image

| Direction of view | Model | Diameter | Length | Field of view | |
|---|---|---|---|---|---|
| 0° | F500WH<br>F100WUH | 5mm<br>10mm | 305mm<br>327mm | 68°<br>73° | HD<br>UHD |
| 30° | F503WH<br>F103WUH | 5mm<br>10mm | 305mm<br>327mm | 68°<br>73° | HD<br>UHD |

### 4KO image

| Direction of view | Model | Diameter | Length | Field of view |
|---|---|---|---|---|
| 0° | F100W4O | 10mm | 327mm | 73° |
| 30° | F103W4O | 10mm | 327mm | 73° |

### 4K image

| Direction of view | Model | Diameter | Length | Field of view |
|---|---|---|---|---|
| 0° | F550W4<br>F100W4 | 5.5mm<br>10mm | 305mm<br>325mm | 72°<br>80° |
| 30° | F553W4<br>F103W4 | 5.5mm<br>10mm | 305mm<br>325mm | 72°<br>80° |

### NIR/ICG 4K image

| Direction of view | Model | Diameter | Length | Field of view |
|---|---|---|---|---|
| 0° | F550F4<br>F100F4 | 5.5mm<br>10mm | 305mm<br>325mm | 72°<br>80° |
| 30° | F553F4<br>F103F4 | 5.5mm<br>10mm | 305mm<br>325mm | 72°<br>80° |

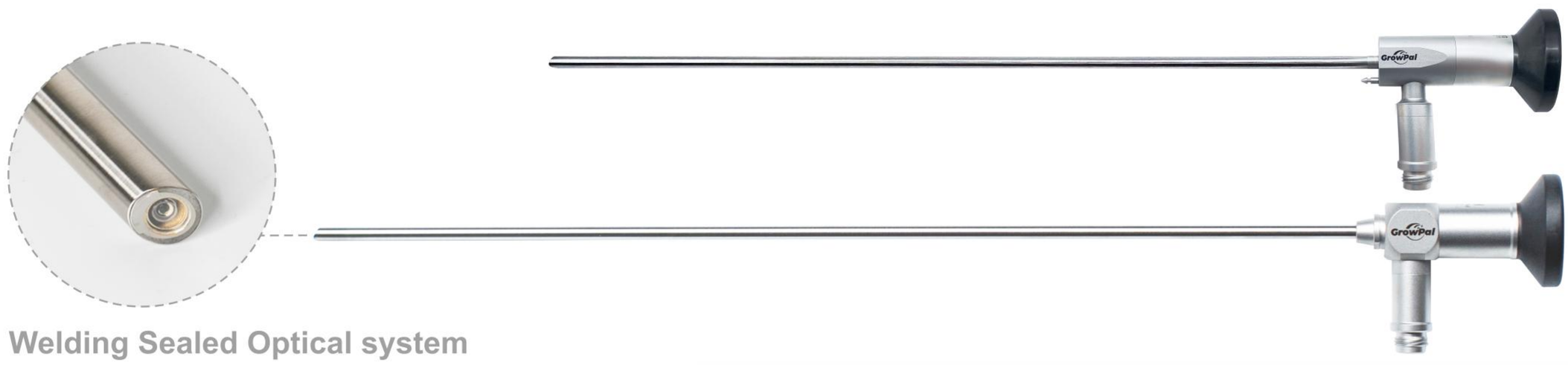


### NIR/ICG 4K LAPAROSCOPE

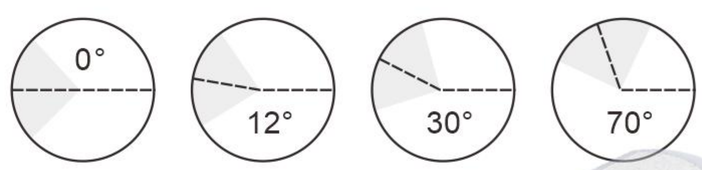


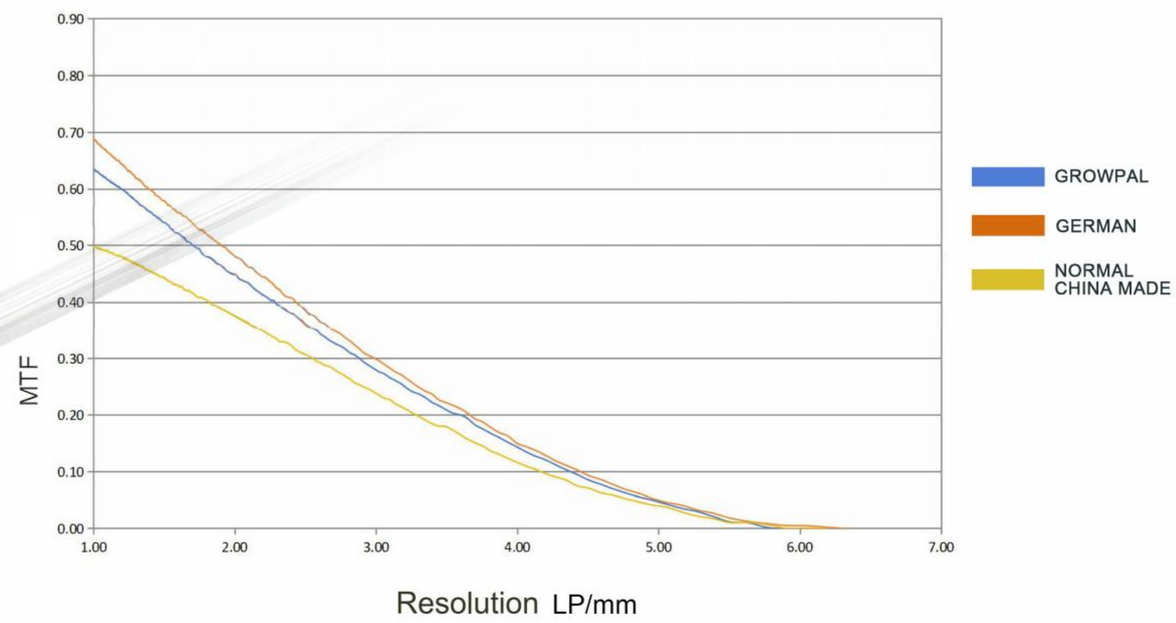

F100F4 F103F4
F550F4 F553F4

# HD/ICG Cystoscope/Resectoscope/Hysteroscope



Welding Sealed Optical system
Maximum Durability
Autoclave sterilization 200times (minimum)






Resolution Comparson

## HD image

| Direction of view | Model | Diameter | Length | Field of view |
|---|---|---|---|---|
| 0° | P400WH | 4mm | 302mm | 68° |
| | P290WH | 2.9mm | 302mm | 80° |
| 12° | P401WH | 4mm | 302mm | 68° |
| | P291WH | 2.9mm | 302mm | 80° |
| 30° | P403WH | 4mm | 302mm | 60° |
| | P293WH | 2.9mm | 302mm | 80° |
| | P403WH-CH | 4mm | 302mm | 68°(NOT for resectoscopy) |
| 70° | P407WH | 4mm | 302mm | 70° |

＊80° wide angle hysteroscope available

## NIR/ICG HD image

| Direction of view | Model | Diameter | Length | Field of view |
|---|---|---|---|---|
| 0° | P400FH | 4mm | 302mm | 68° |
| 12° | P401FH | 4mm | 302mm | 68° |
| 30° | P403FH | 4mm | 302mm | 60° |
| 70 | P407FH | 4mm | 302mm | 68° |

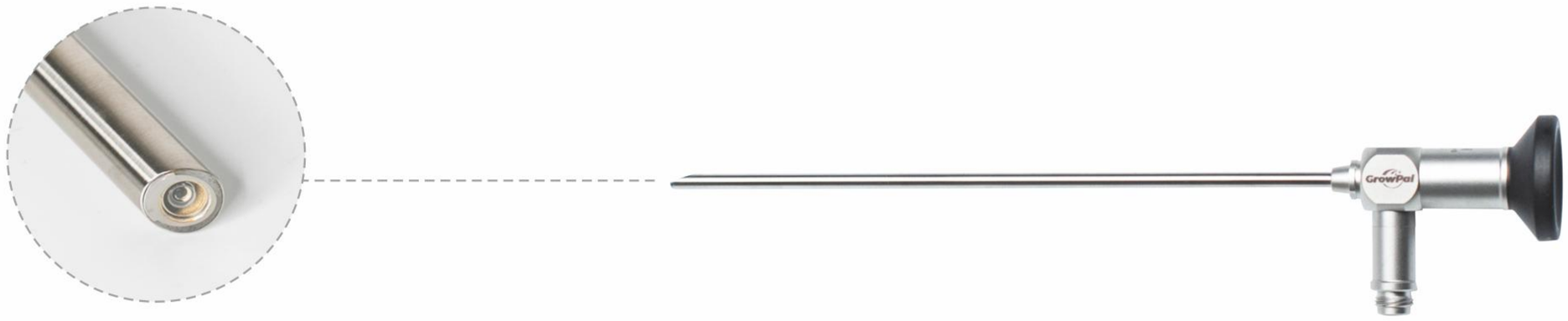
## Cystoscope/Hysteroscope/Resectoscope

Olympus Instr compatible

## HD image

| Direction of view | Model | Diameter | Length | Field of view |
|---|---|---|---|---|
| 0° | P400WHO | 4mm | 283mm | 68° |
| | P290WHO | 2.9mm | 283mm | 80° |
| 12° | P401WHO | 4mm | 283mm | 68° |
| | P291WHO | 2.9mm | 283mm | 80° |
| 30° | P403WHO | 4mm | 283mm | 68° |
| | P293WHO | 2.9mm | 283mm | 80° |
| 70° | P407WHO | 4mm | 283mm | 68° |

# HD/ICG Sinuscope/Arthroscope/Otoscope



Welding Sealed Optical system
Maximium Durability
Autoclave sterilization 200times (minimum)

Resolution Comparson

## Sinuscope

### HD image

| Direction of view | Model | Diameter | Length | Field of view |
|---|---|---|---|---|
| 0° | B400WH | 4mm | 175mm | 70° |
| | B300WH | 3mm | 175mm | 80° |
| 30° | B403WH | 4mm | 175mm | 70° |
| | B303WH | 3mm | 175mm | 80° |
| 70° | B407WH | 4mm | 175mm | 70° |

Sinuscope HD NIR/ICG available

## Otoscope

### HD image

| Direction of view | Model | Diameter | Length | Field of view |
|---|---|---|---|---|
| 0° | E270WHM | 2.7mm | 110mm | 80° |
| 0° | E270WHS | 2.7mm | 90mm | 80° |
| 0° | E270WHL | 2.7mm | 140mm | 80° |

＊30° available

## Arthroscope

### HD image

| Direction of view | Model | Diameter | Length | Field of view |
|---|---|---|---|---|
| 0° | G400WH | 4mm | 175mm | 90° |
| | G300WH | 3mm | 175mm | 80° |
| 30° | G403WH | 4mm | 175mm | 90° |
| | G303WH | 3mm | 175mm | 80° |
| 70° | G407WH | 4mm | 175mm | 90° |

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