

# Introduction of our Technology



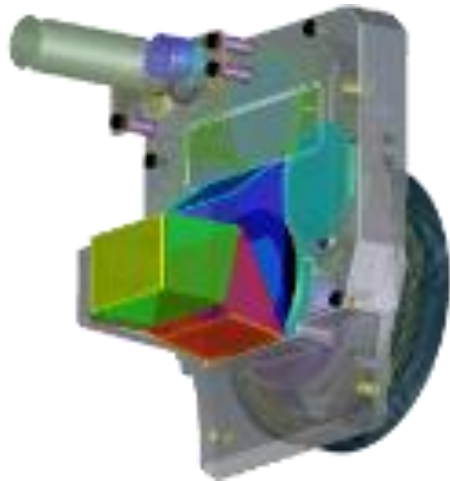
Nov. 2020  
Musashi Optical System Co., Ltd.

# Introduction of our Technology

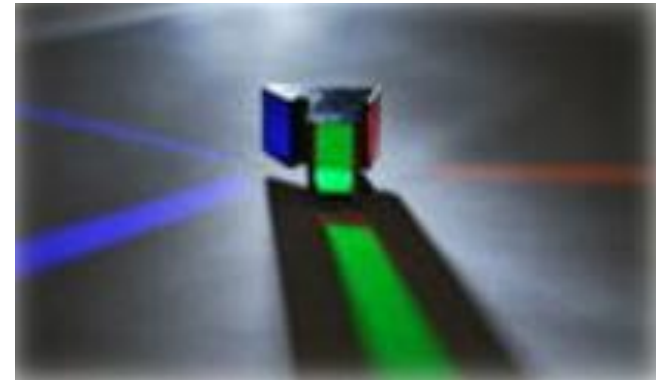
1. Custom optical product design and development examples
  - 1-1) Custom Products Example
  - 1-2) Reference lens for fixing sensor
  - 1-3) 8K adapter lens for rigid endoscope
  - 1-4) Prism that resolves various wavelengths
  - 1-5) Fixing sensors
2. Evaluation facility & equipment for optical performance
  - 2-1) Clean room
  - 2-2) Equipments-1
  - 2-3) Equipments-2

# 1. Custom optical product design / development case

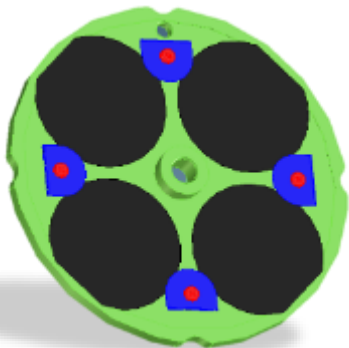
## 1-1) Custom Products Example



**Color separation prism  
with mechanical housing  
and Sensor bonding**



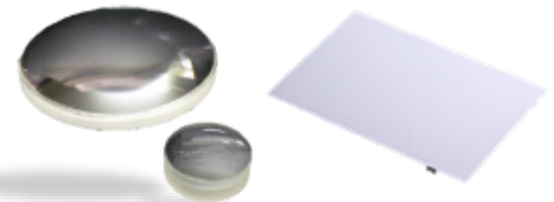
**Color separation prism  
for HD,4K and UV,NIR**



**Filter wheel**



**Effect filters**  
(ND, CC, Cross, IR-Cut, Low pass, etc.)



**Lenses and mirrors  
for EVF**

# 1. Custom optical product design / development case

## 1-2) Reference lens for fixing sensors

**We design, manufacture, and sell a reference lens with high resolution and various aberrations (chromatic aberration, distortion, etc.) for fixing sub-micron order image sensors.**

**By consultation, we can manufacture an evaluation jig set that combines lighting and sensor chucks.**

### **Achievements**

- **For 1/3 type C mount camera**
- **For 2/3 type B4 mount camera**

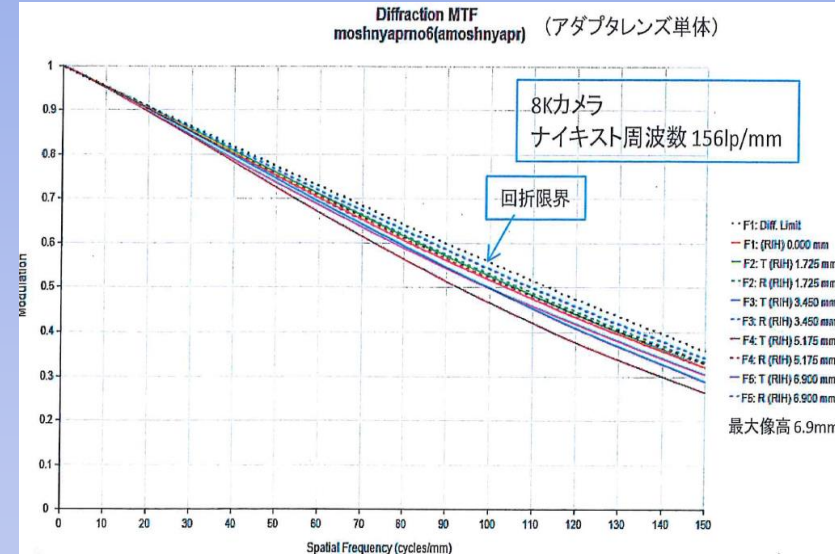
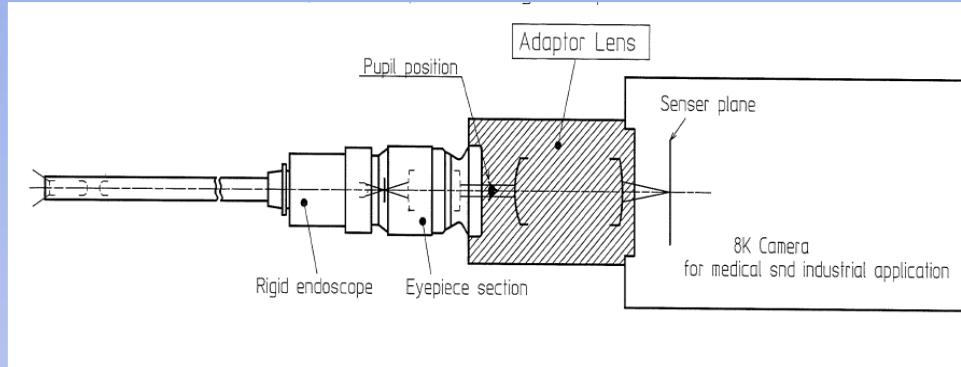


**Example of sensor attaching**

# 1. Custom optical product design / development case

## 1-3) 8K adapter lens for rigid endoscope

We have developed and manufactured 8K adapter lenses for rigid endoscopes used in the field of advanced surgery, and have achieved high resolution (MTF) in the 8K high-definition area.



MTF data (design value)

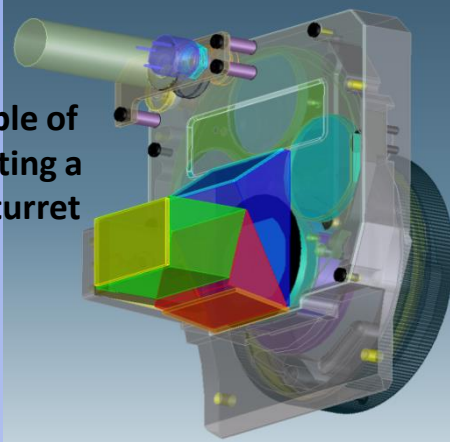
# 1. Custom optical product design / development case

## 1-4) Prism that resolves various wavelengths

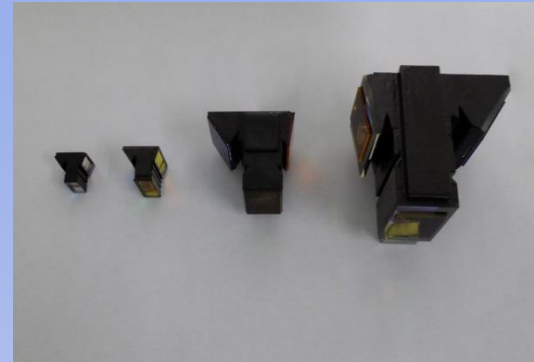
We will propose the shape, spectral characteristics, and peripheral mechanism by optimal design such as glass material, length, width, angle, etc. to suit your camera and sensor.

We have a track record of 2 sensors visible / infrared branch prism, 3 sensors 1/3 " ~ 1.25" prisms, 4 plate dual green prism, etc.

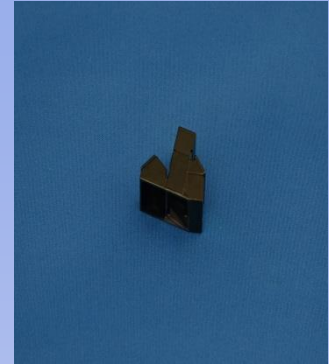
Example of mounting a filter turret



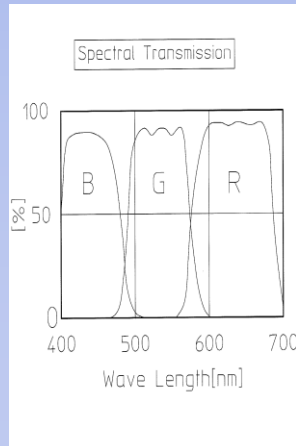
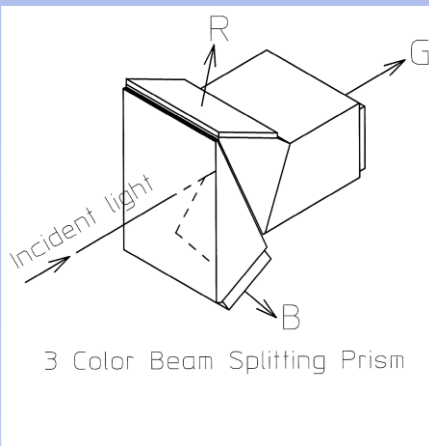
Visible / infrared branching prism



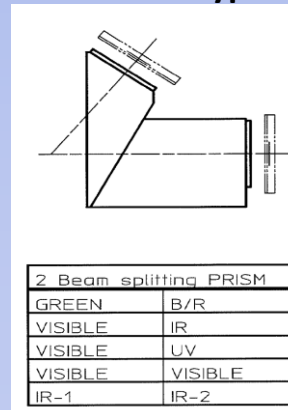
3 plates 1/3 " ~ 1.25" various prisms



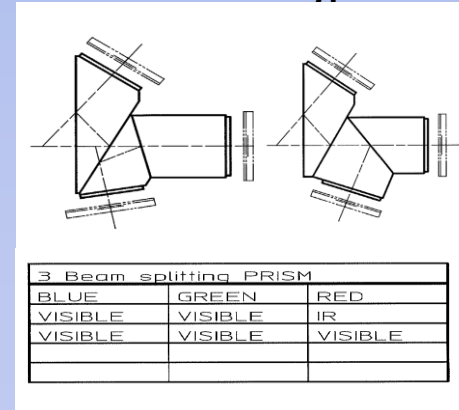
Dual G4 sensors prism



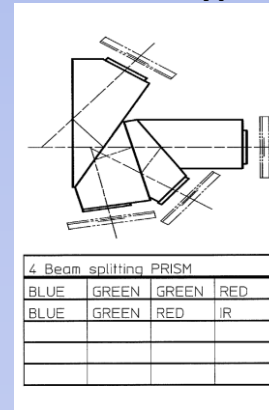
2 sensors type



3 sensors type



4 sensors type



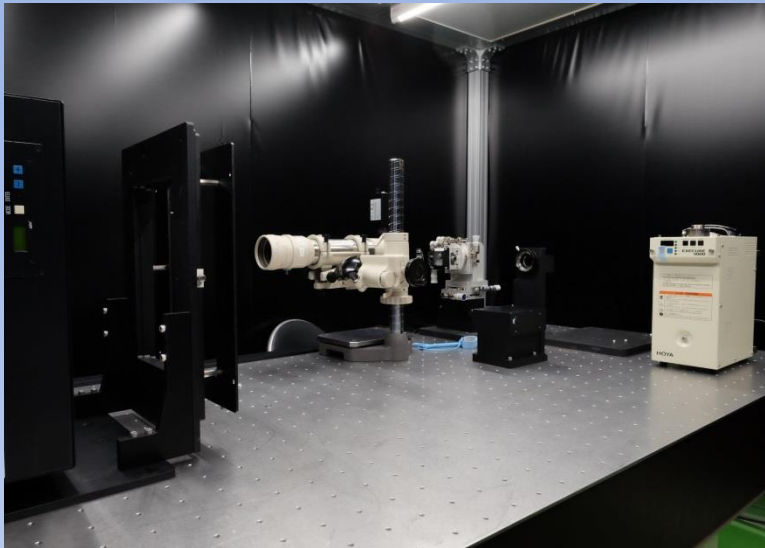


# 1. Custom optical product design / development case

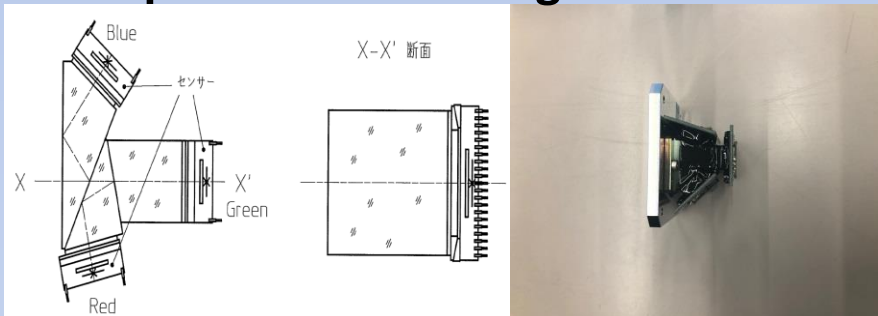
## 1-5) Fixing sensor

In addition to manufacturing Jig lenses for fixing process , we also fix sensors from single sensor to 4 sensors.

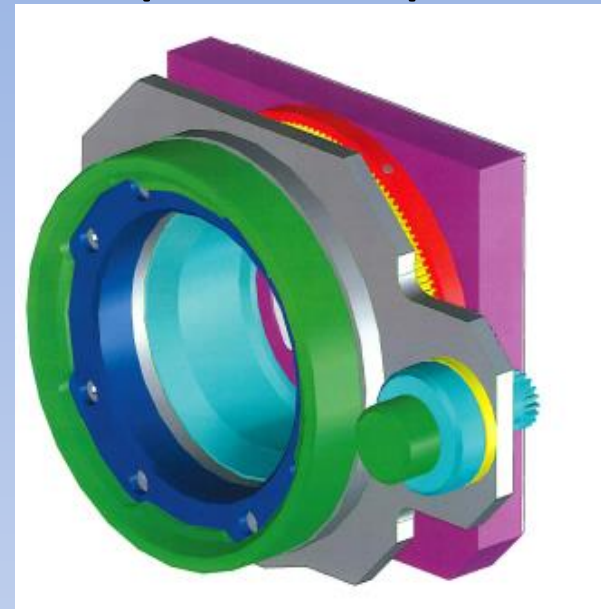
### Example for fixing jig example



### Example of sensor fixing



### Example of stuck product



Single sensor optical system for 8K camera  
(with flange back adjustment mechanism \* patented)

## 2. Evaluation facility & equipment for optical performance

### 2-1) Clean room

**One floor of Ina Production Center has become a clean room.**

**The clean bench has achieved class 100 or less.**

**We are carrying out precision assembly work such as prism.**

**We also accept assembly work in the same room.**



**Air shower**



**Clean Booth  
for Optical assembly**



**Clean Booth  
for Sensor Attachment**



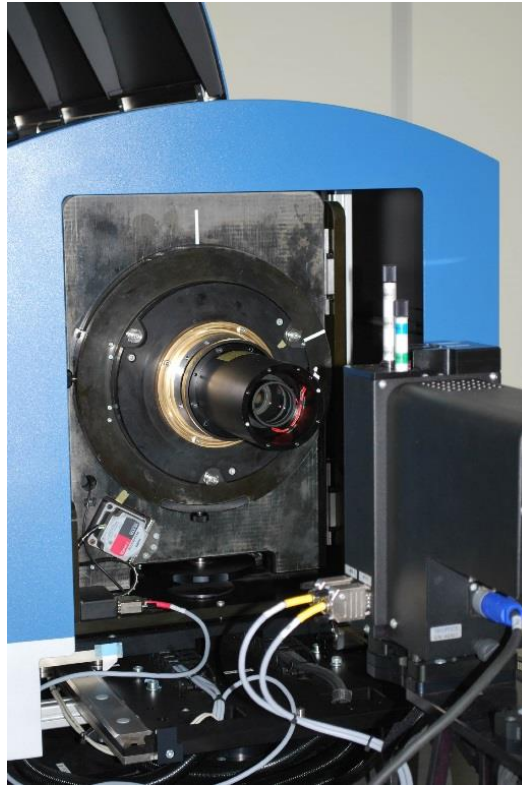
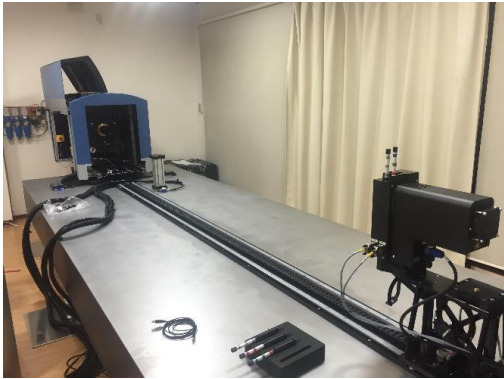
**Clean Booth  
for Optical assembly**



## 2. Evaluation facility & equipment for optical performance

### 2-2) Equipments-1

#### MTF Measurement Equipment



**3-Dimensional Measurement Equipment**



**Image Dimension Measuring System**

## 2. Evaluation facility & equipment for optical performance

### 2-3) Equipments-2



**Microscope System**



**Programable Thermostat  
Chamber 1**



**Programable Thermostat  
Chamber 2**



**3ch-Spectroscopic  
measurement Equipment**



**Oven**

# Company Awards

- **“Saino-kuni Factory” designation (Oct-2017)**
  - by **Governor of Saitama Prefecture**
  - a factory that is superior in technology and environment
- **“The Driving Company for the regional future” Selection (Dec-2017)**
  - by **Ministry of Economy, Trade and Industry**
  - a company that has great influence on the regional economy and is expected to grow



地域未来牽引企業

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Thank you for your attention.

**MUSASHI OPTICAL SYSTEM CO.,LTD.**

