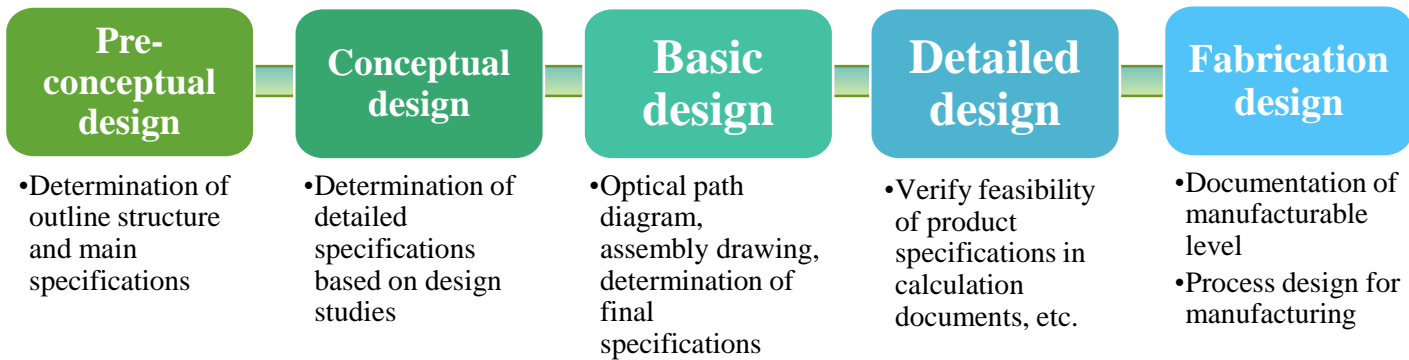
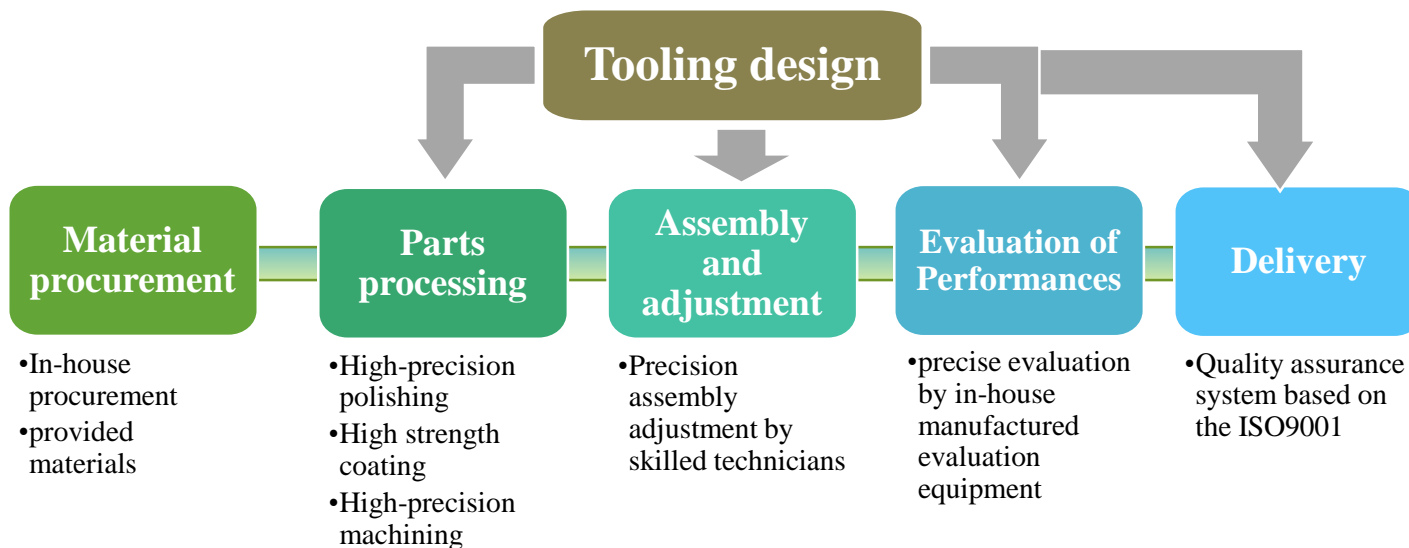


# Introduction to Optical System Design and Manufacturing

## Design process



## Manufacturing process



**We can participate and propose in all stages of the process from planning to realization of products.**

**For example:**

- feasibility study of pre-conceptual design
- optical design from conceptual design stage to fabrication design stage
- detailed design and fabrication design based on the provided basic design
- making high-precision lenses and machine parts based on the provided drawings

**We offer optimal solutions for optical products fabrication, based on our decades of experience in designing and manufacturing UV and DUV optical systems.**



**KYOCERA SOC Corporation**

Optical components, optical systems, lasers

Inquiry:

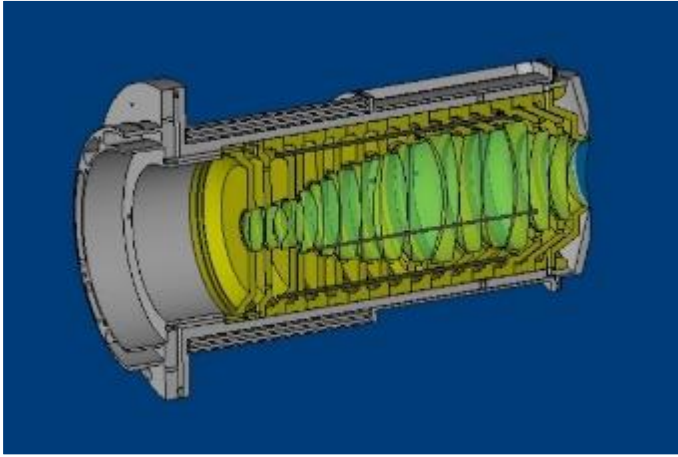
TEL: +81-45-931-6592

URL: <https://www.ksoc.co.jp/en/shiryo/>

Responsible for sales: Kobayashi and Kimura

# Product example

## [High Precision DUV Objective Lens]



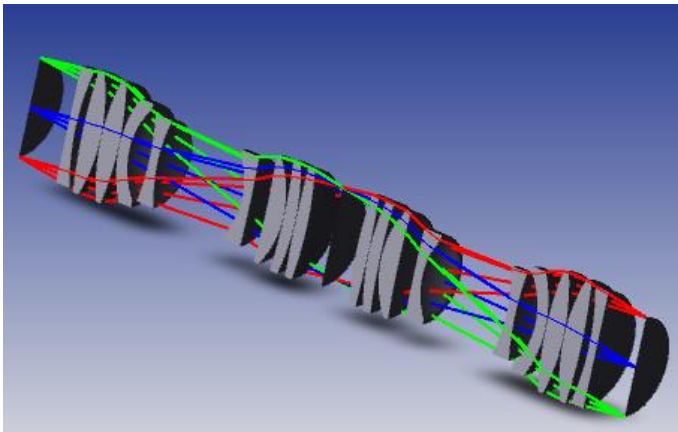
### <Example of specifications>

- Wavelength 266nm
- Field of view  $\phi 0.4\text{mm}$
- NA 0.9
- Transmitted wavefront aberration  $\leq 0.03\lambda_{\text{rms}}$

### <Applicable range >

- Wavelength: 157 nm to near infrared
- NA: ~0.95
- Aberration performance:  
transmission wavefront aberration  $0.02\lambda_{\text{rms}}$
- Machining accuracy  
Lens surface accuracy PV  $\lambda/30$   
(available for various materials)  
Mechanical parts machining accuracy  $\leq 1\mu\text{m}$
- Assembly accuracy shift  $\leq 1\mu\text{m}$   
tilt  $\leq 1$  arcsecond

## [Large Projection Exposure Lens]



### <Example of specifications>

- Wavelength i-line
- Exposure area  $\phi 200\text{mm}$
- Projected magnification 1x NA0.15
- Transmitted wavefront aberration  $\leq 0.05\lambda_{\text{rms}}$
- Distortion  $\leq 0.5\mu\text{m}$

### <Applicable range >

- Wavelength: g, h, i line
- Resolution: 1.5 $\mu\text{mL/S}$
- Exposure area:  $\sim\phi 360\text{mm}$
- Magnification 0.1x (reduced projection) to 2.0x (enlarged projection)
- Max. overall length 1.5m
- Lens max.  $\phi 410\text{mm}$ , Lens barrel  $\phi 650\text{mm}$
- Supports aberration correction mechanism by lens drive



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