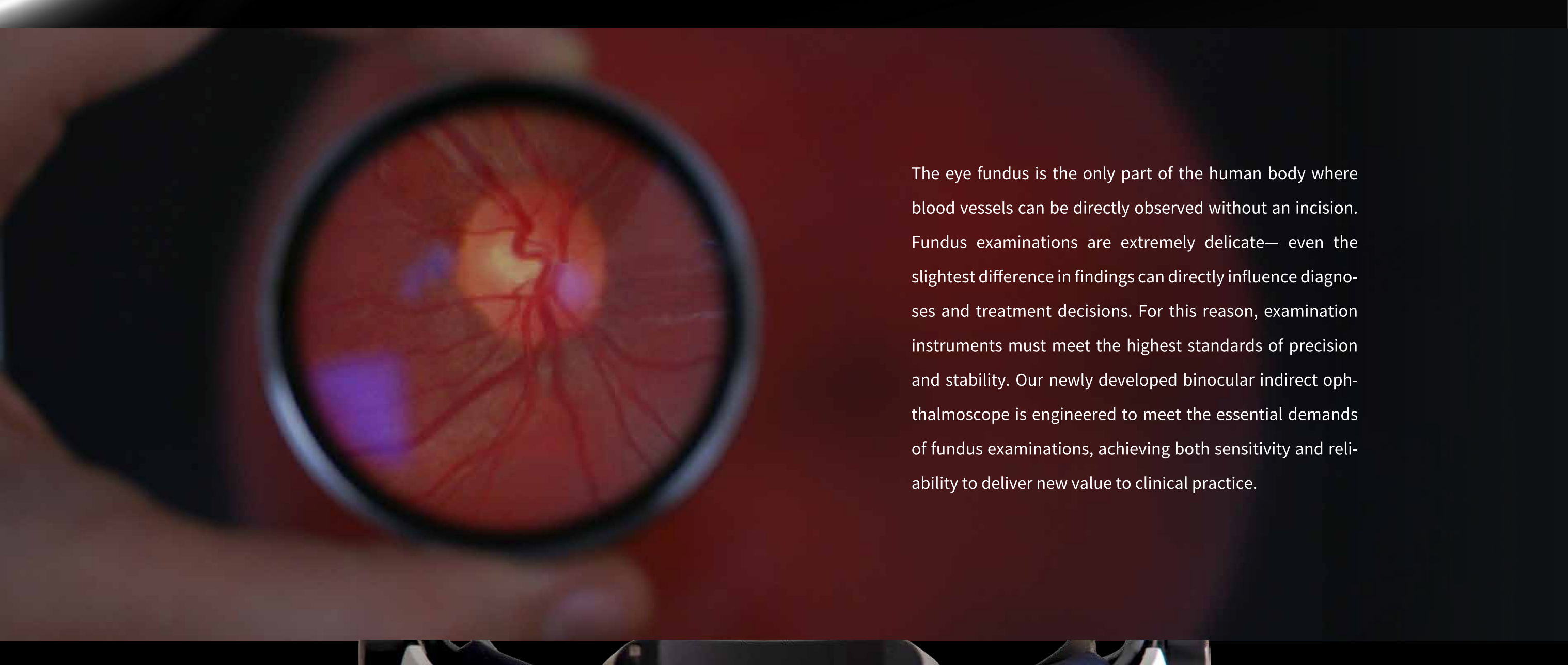
IO-Vega

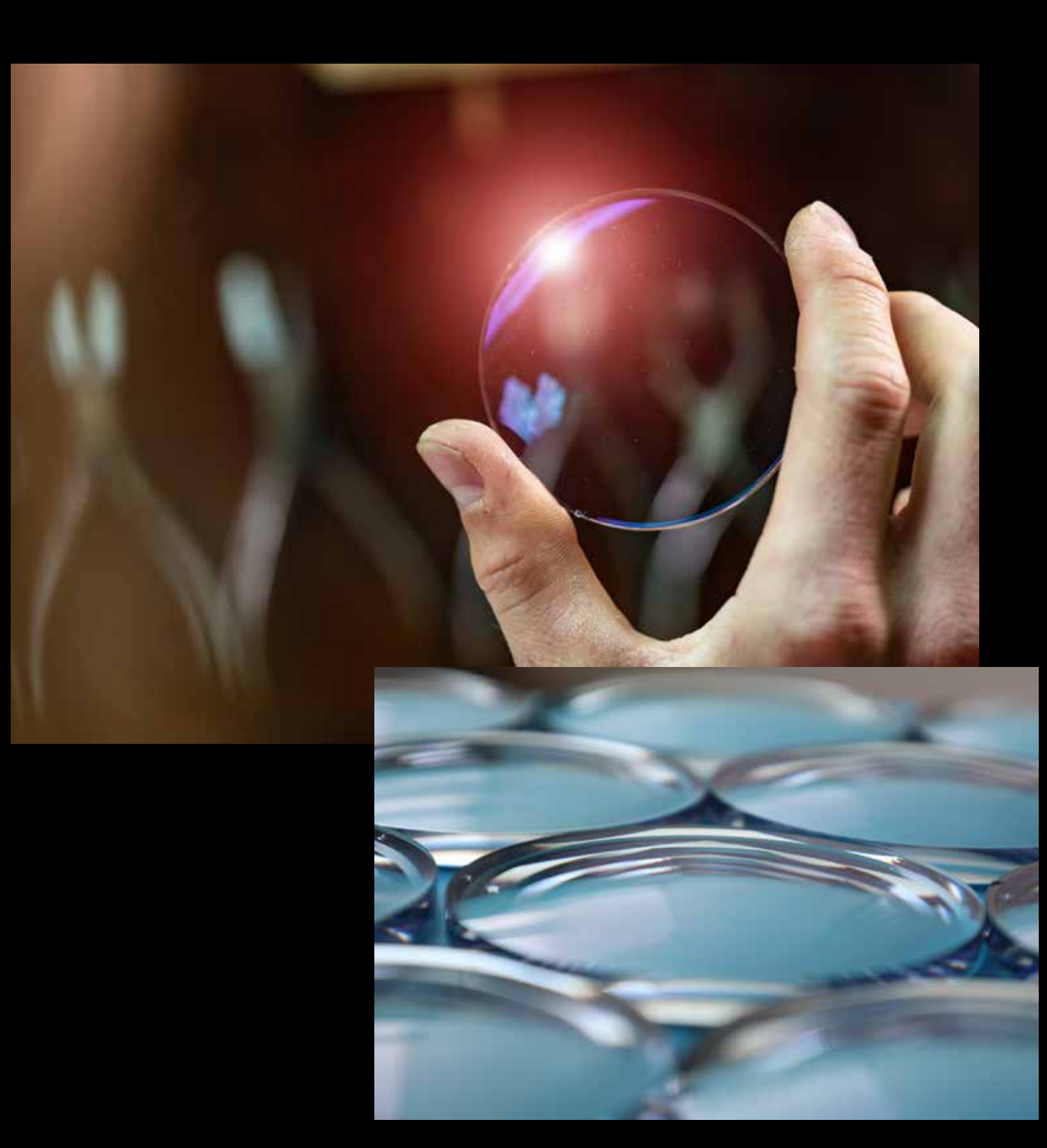
See deeper. See clearer.



The eye fundus is the only part of the human body where blood vessels can be directly observed without an incision. Fundus examinations are extremely delicate— even the slightest difference in findings can directly influence diagnoses and treatment decisions. For this reason, examination instruments must meet the highest standards of precision and stability. Our newly developed binocular indirect ophthalmoscope is engineered to meet the essential demands of fundus examinations, achieving both sensitivity and reliability to deliver new value to clinical practice.

FEATURE —— 01

Pursuit of clarity



01

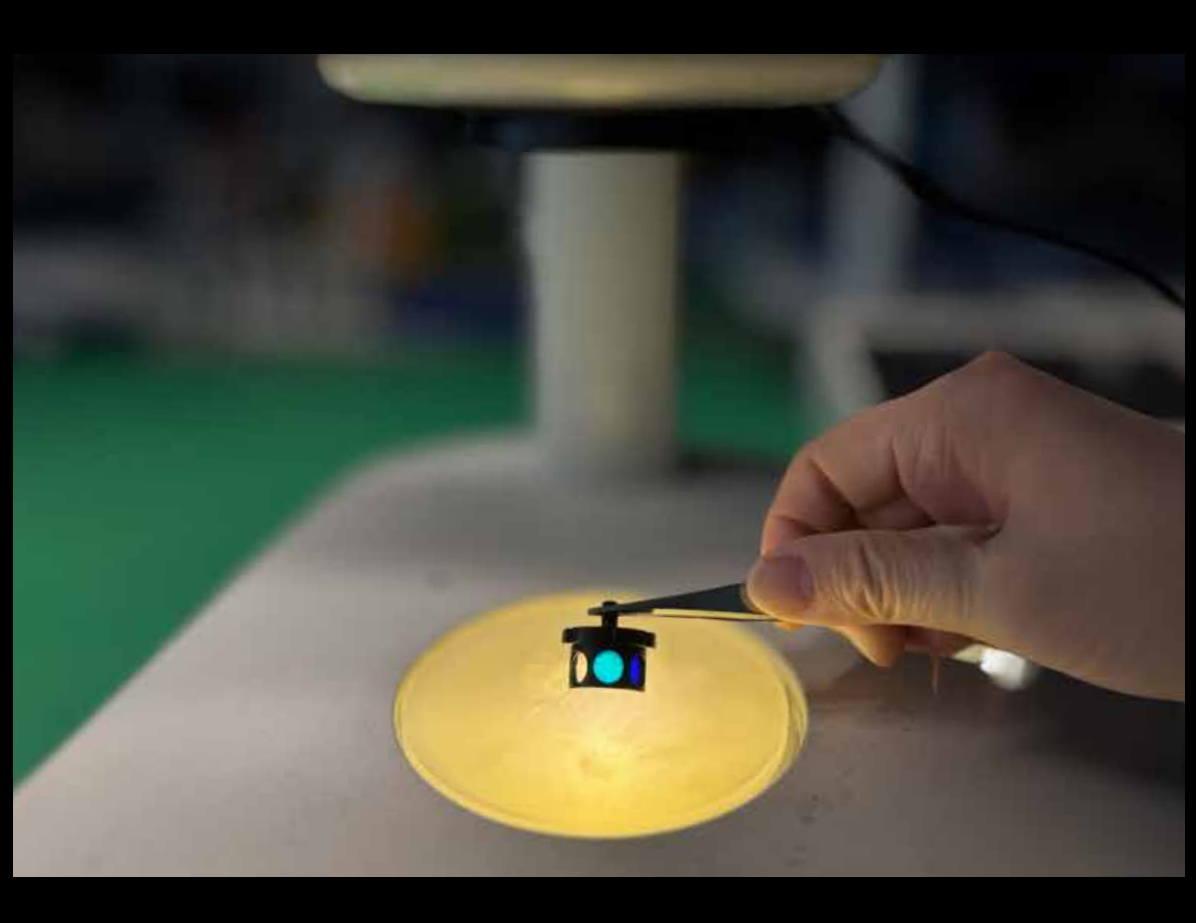
Pushing the Limits of Optical Performance Design Precision & Manufacturing Technology & Adjustment Expertise

Infusing a Vision for Image Quality into Every Lens

In our lens design, we optimize lens geometry to correct optical aberrations and achieve superior image quality. A special multi-coating applied to the lens surface suppresses unwanted reflections, prevents ghosting and flare, enhances light transmittance, and allows only the "true light" essential for diagnosis to pass through. Additionally, anti-reflective treatment is applied to the interior of the lens barrel, refining optical purity across the entire system to its utmost limit.

Refined Structure, Sharpened Precision

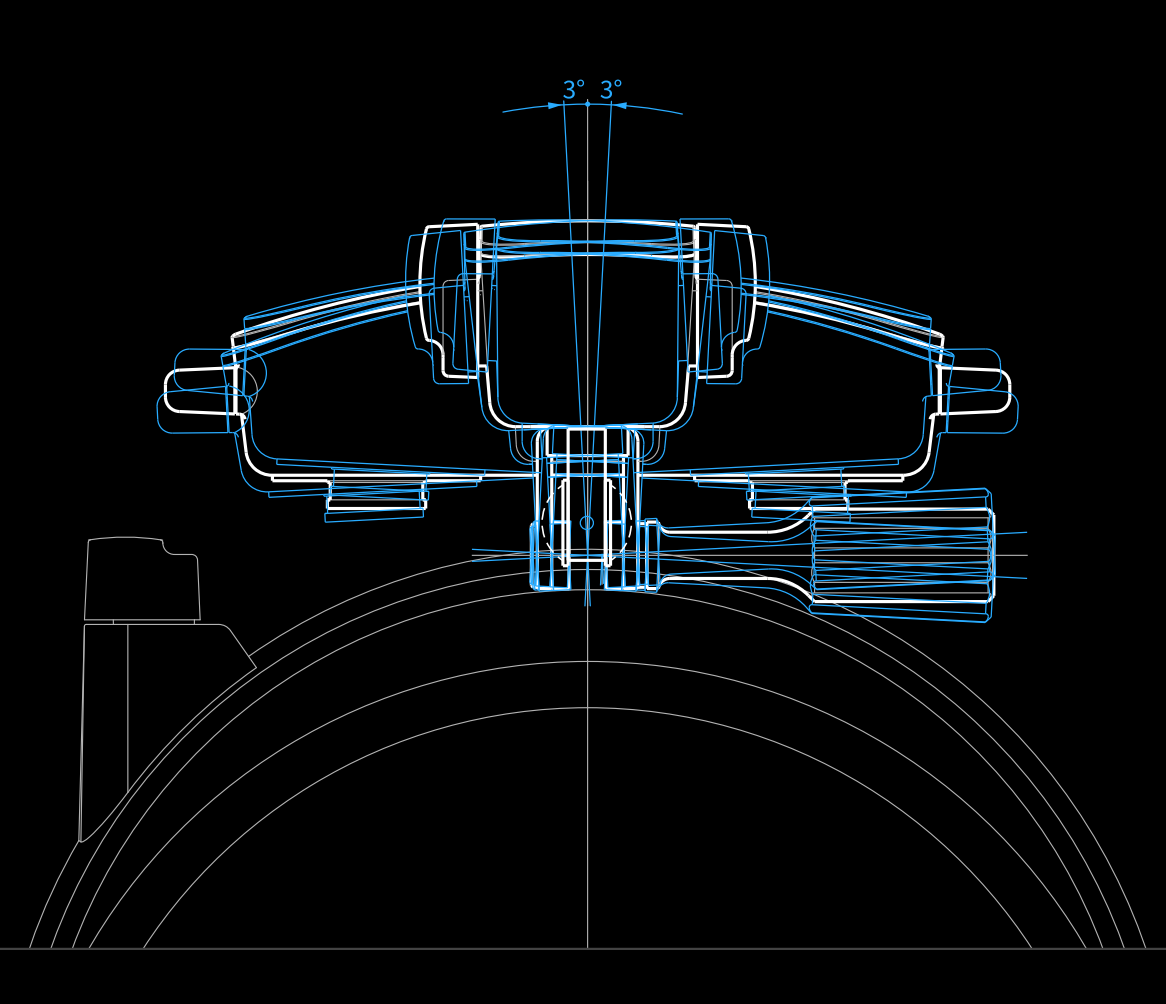
By significantly reducing the number of optical components compared to previous models, we enhanced the machining accuracy of each part.This streamlined structure not only achieves a lighter body but also minimizes variation in the production process—narrowing adjustment ranges and ensuring higher assembly precision.



Perfecting Vision Through Expert Adjustment

In the manufacturing process, elements such as lens curvature, thickness, spacing between lenses, and alignment precision require extremely strict tolerance control. These variations are meticulously eliminated through the skilled craftsmanship of experienced technicians. Specifically, using our proprietary visible-light laser alignment jig, we finely correct minute optical deviations—including optical axis alignment, distortion, and reflection. Optical characteristics are refined to their utmost limits, achieving a level of precision that cannot be captured in technical drawings.

The optical precision that NEITZ proudly upholds is continuously advanced by skilled artisans who carry forward the tradition of optical manufacturing cultivated over more than 70 years since the company's founding.



02

Smooth from Setup to Examination with flip-up mechanism and ball joint.

We've introduced a specially designed ball joint combined with a flip-up mechanism for the first time. Along with vertical adjustment during fitting, it also enables fine horizontal tuning, allowing doctors to easily achieve their optimal field of view.

03

Weight Design for Lasting Comfort

To minimize physical strain on doctors, IO-VEGA's weight design was completely reimagined.The optical and power units are distributed between the front and back to prevent imbalance during use.By positioning the center of gravity near the top of the head, the device reduces stress on the neck and shoulders, allowing for a natural, comfortable posture.This balanced weight distribution helps doctors maintain focus throughout examinations.

The headband features our first use of a magnesium alloy—lightweight yet strong and flexible.Its skeletal structure provides exceptional stability and comfort during wear.With a compact, high-current-density lithium battery unit and a streamlined optical system, IO-VEGA achieves one of the lightest designs in its class.Its weight design embodies ergonomics that balance precision with gentleness—crafted to support the human experience.

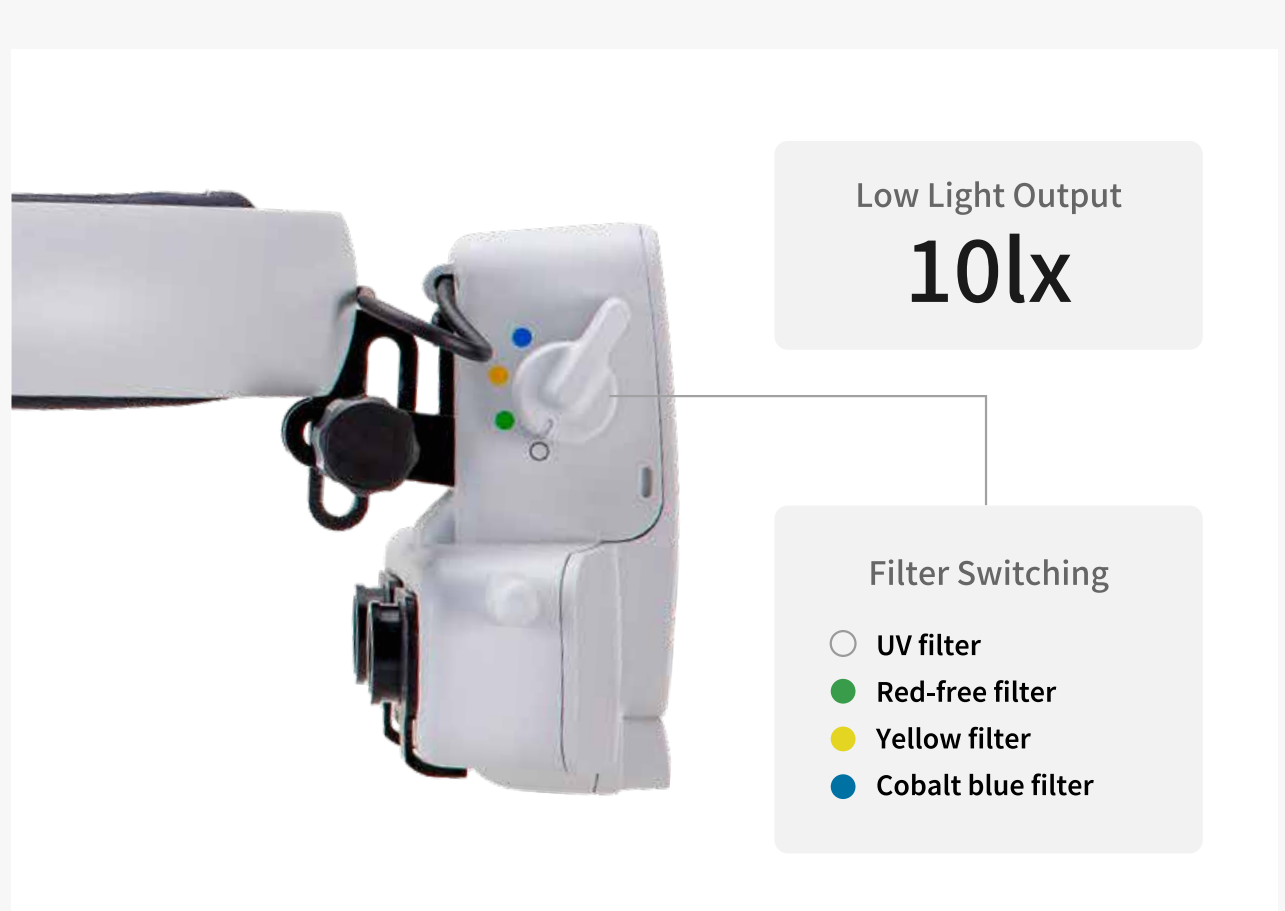
FEATURE —— 02

Patient–friendly

01

A Design That Inspires Patient Confidence

The main body features a bright, low-gloss platinum gray finish that conveys cleanliness and gentleness, helping to reduce any sense of intimidation for patients.Other components are finished in calm, dark tones to express reliability as a precision instrument. The firm curves and sharply defined edges of each part emphasize IO-VEGA's identity as a highly precise optical device—designed to earn patient's trust through both form and function.



○ **UV filter：**
It blocks ultraviolet (UV) light and prevents unnecessary stimulation to the eye fundus.
Effective for fundus observation in patients sensitive to light stimulation such as premature infants and young children.

● **Red-free filter：**
With the red-free filter, the red light is blocked (making it red-free). It thus allows a clearer contrast of retinal vessels and nerve fiber layer.
Effective for detailed observation of the conditions of blood vessels and nerve fibers, such as in glaucoma and diabetic retinopathy.

● **Yellow filter**
The yellow filter blocks the blue light, enhances contrast and clarity of the image.It is suitable for situations requiring observation of the entire retina or detection of subtle changes in color tone.

● **Cobalt blue filter**
This filter emphasizes blue light and s visualizes fluorescence when Used in conjunction with fluorescein.
It is used for observing the anterior segment, such as detecting corneal epithelial disorders and evaluating the tear film.
The cobalt blue filter is also applicable for examinations using specific fluorescent staining in fundus observation.

02

Expanding Diagnostic Possibilities with a Wide Dynamic Range of Light and Versatile Filters

IO-VEGA is equipped with one of the industry's widest dynamic ranges—spanning from extremely low illumination (below 10lx) to high brightness levels (up to 1,800 lx). The ability to achieve low illumination was developed in response to feedback from doctors who emphasized the need for gentler lighting—especially for fundus examinations in newborns and young children, where minimizing pupil constriction is essential. By adopting a PWM (Pulse Width Modulation) lighting circuit, we achieved smooth, flicker-free dimming even at low brightness levels, providing light that is gentle on the patient.

At the same time, to support precise diagnosis and ensure that even subtle abnormalities are not overlooked, IO-VEGA incorporates high–color-rendering, high-brightness LEDs that deliver powerful, clear illumination.The ability to switch instantly and seamlessly between reduced and boosted light levels expands the possibilities of clinical practice.

Additionally, IO-VEGA features a wide range of optical filters, meeting the diverse needs of medical professionals.

03

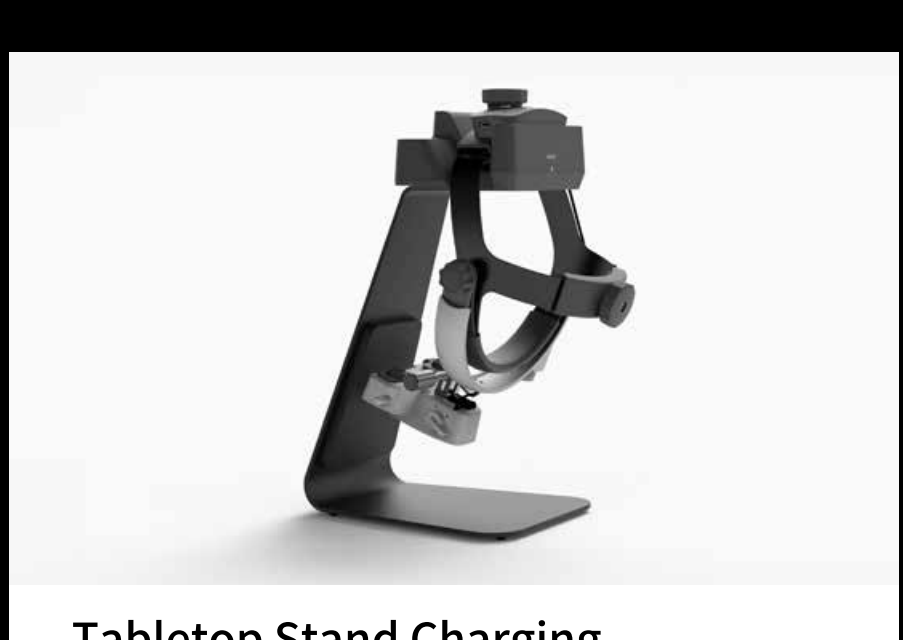
Stay connected with the flip-up mechanism.

To prioritize doctor–patient interaction during examinations, IO-VEGA features a proprietary flip-up mechanism.With its precision-engineered hinge, the optical unit can be smoothly lifted with one hand, instantly clearing the doctor's field of view.This enables natural eye contact, facial communication, and verbal interaction—all without removing the device.

Though a medical instrument, IO-VEGA is designed never to interrupt communication—reflecting our commitment to patient comfort and reassurance.

FEATURE —— 03

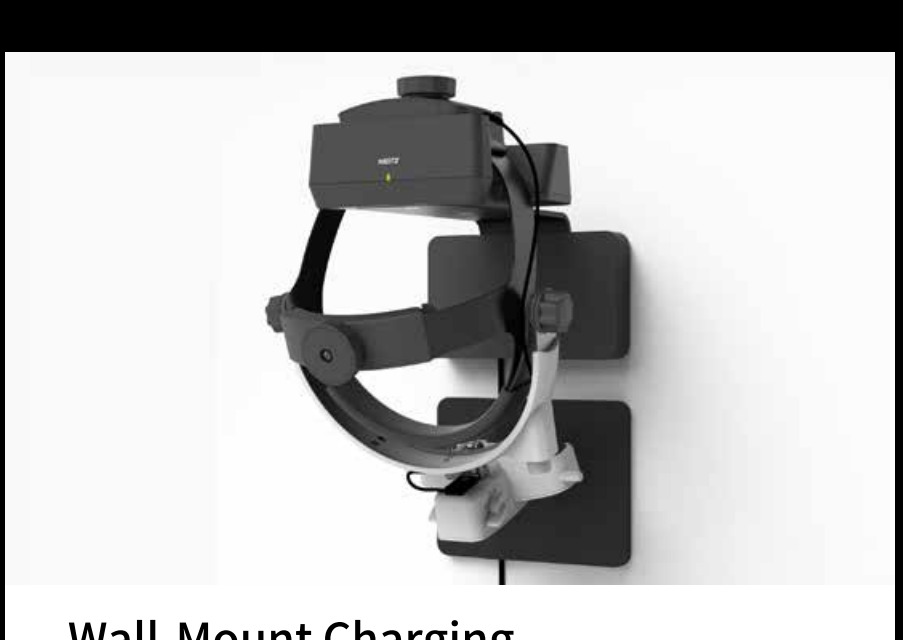
Usable anywhere



Tabletop Stand Charging

Compact Design That Blends Seamlessly into Any Space

The compact design naturally integrates into examination desks and examination spaces.
It provides stable device support with automatic battery charging, while conveying a clean and trustworthy impression.



Wall-Mount Charging

Space-Saving Installation

The wall-mounted charging system makes efficient use of space without disrupting the examination room' s workflow.It securely holds the device in place and automatically charges the internal battery when not in use.

Direct USB Charging (Backup Battery)

Extended Use on the Go

IO-VEGA supports battery relay operation through direct charging of a spare battery.
For extended use outside the clinic, simply carry an AC adapter and the spare battery to ensure continuous operation without interruption.

Direct USB Charging (Main Unit)

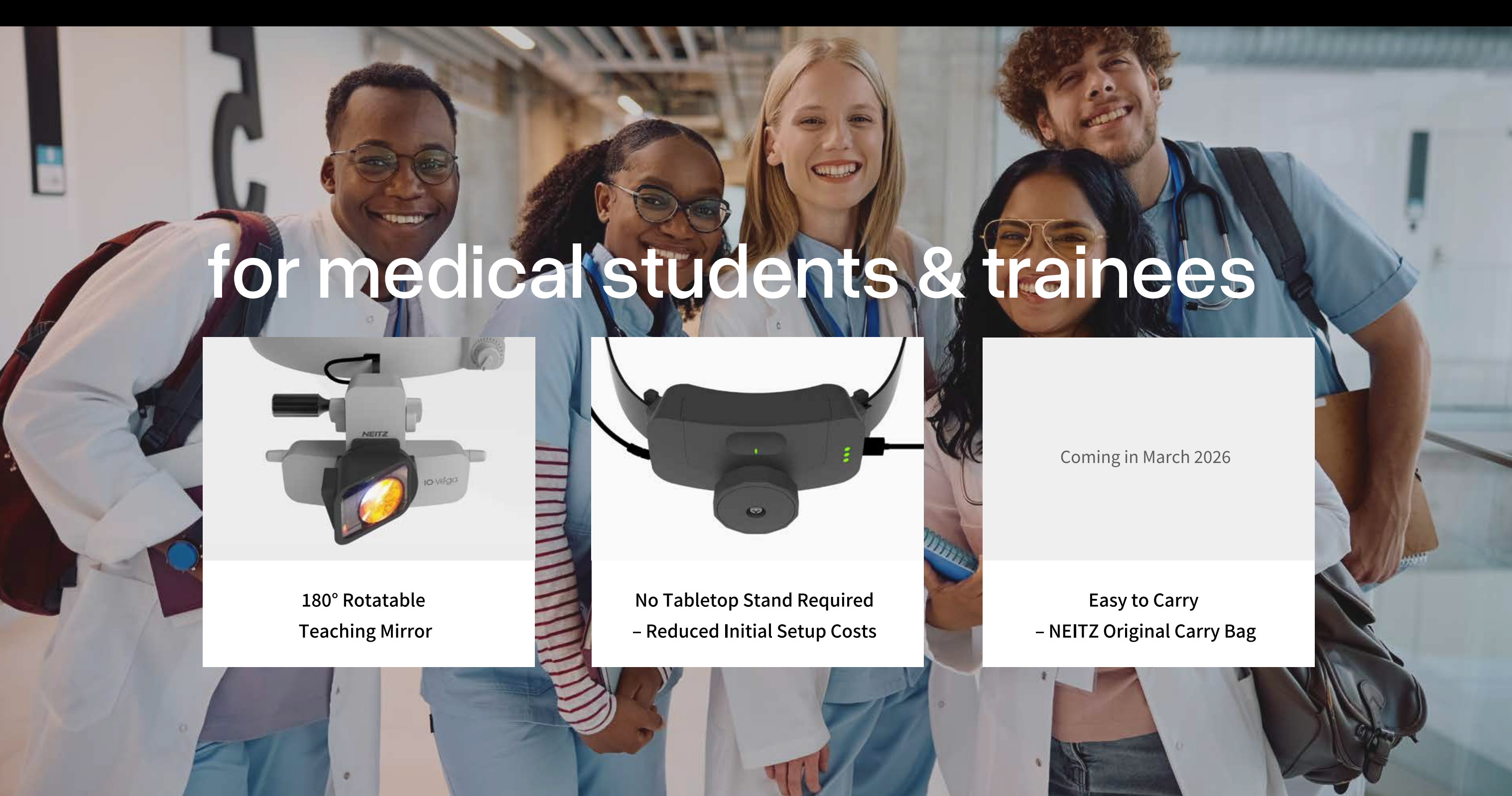
Easy to set up—no stand required

IO-VEGA can be charged directly without the need for a charging stand.This allows for a simple, low-cost setup and easy implementation, even on a small scale.

Charging and Holding System That Combines Safety and Responsiveness

The battery housing used for both the tabletop stand and wall-mount setup, keeps the device in optimal condition during downtime of examination or when not in use. Four built-in safety check functions operate during charging, ensuring a secure and reliable state for every use.

1.Current Monitoring	– Prevents overcurrent and maintains stable charging.
2.Voltage Monitoring	– Detects overvoltage and undervoltage to protect the battery.
3.Temperature Monitoring	– Prevents overheating and contributes to longer device lifespan.
4.Magnetic Detection Sensor	– Automatically recognizes correct placement on the stand and ensuring reliable charging initiation.



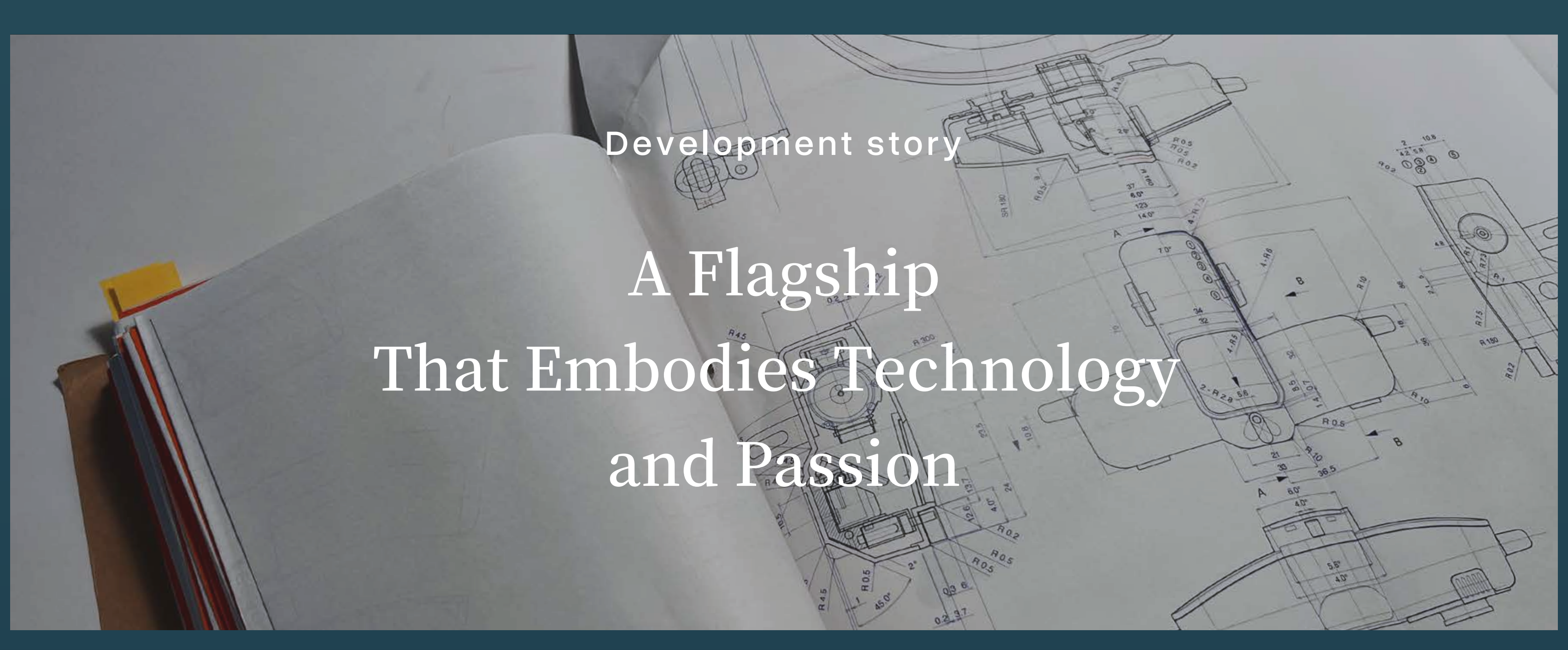
for medical students & trainees

180° Rotatable
Teaching Mirror

No Tabletop Stand Required
– Reduced Initial Setup Costs

Coming in March 2026

Easy to Carry
– NEITZ Original Carry Bag



Development story

A Flagship
That Embodies Technology
and Passion

Story 01

A Fresh Beginning—Inspired by Customer Conversations

In 2010, NEITZ took its first step toward a new challenge.Upon assuming the role of president, Takae Nishizawa made her first priority listening to customers, both in Japan and abroad.“Make it lighter.”
“Make it more beautiful.”
“Make it easier to use.”These earnest requests from the medical field guided NEITZ in a new direction.
This marked the beginning of a journey of renewal, starting with the reconstruction of optical technology.NEITZ began refining its identity once again as “NEITZ of Optics.”
“If we don’t return to optics, there is no future.”This statement, reflecting President Nishizawa’s determination, became the guiding principle for the company’s path forward.Customer voices became the true starting point for NEITZ’s challenge toward the future.

Story 02

Technology × Design—Breathing Life into Innovation

NEITZ’s latest challenge was driven not only by optical technology, but also by meaningful encounters with people.
Meeting world-renowned product designer Hideo Yamamoto brought fresh vitality to NEITZ.
His designs, blending beauty with reassurance, have earned overwhelming support both in Japan and internationally.Through his creative vision, NEITZ’s medical devices were imbued with new life.
Today, NEITZ is once again making its mark on the global stage—as a brand where optical performance meets outstanding design.

Story 03

Setbacks and Rebuilding—Toward the Strongest Team

In 2014, NEITZ unveiled a new binocular indirect ophthalmoscope at the World Ophthalmology Congress (WOC).Its groundbreaking performance and design drew widespread attention, with physicians worldwide eagerly anticipating its release.
However, technical challenges, forced development to be suspended, marking a significant setback for NEITZ.
In response, NEITZ brought in Atsushi Mizuno, a seasoned expert in development management, and reorganized its team.A group of professionals who shared a common mission was formed—dedicated to uncompromising quality and safety.By respecting each other’s expertise, they became a true collective of purpose-driven professionals.This was a moment that could only be described as NEITZ’s “Second Dawn.”

Story 04

Restart—Customer Voices Set Time in Motion Again

Ten years had passed since NEITZ’s development of binocular indirect ophthalmoscope was put on hold.
Yet the voices of customers—hoping for a new model—never ceased.

Encouraged by their unwavering expectations, President Nishizawa made the bold decision to restart development in 2024.
Then, an unexpected email arrived—from product designer Hideo Yamamoto, the very person who had once breathed life into NEITZ’s products:

“I saw your product featured in a TV drama. It reminded me of our collaboration that began in 2012. If there’s anything I can support through design again, please don’t hesitate to reach out.”
A few days later, Yamamoto visited NEITZ’s development lab—for a reunion ten years in the making.In his hands was a thick, well-worn file filled with design sketches of the binocular indirect ophthalmoscope. He, too, had carried the vision of NEITZ’s “unfinished light.”

“Let’s begin again—from here.”

Thus, Yamamoto and NEITZ’s seasoned development team reunited.Technology and form, precision and sensibility—all came together.
From this renewed trajectory emerged NEITZ’s flagship model: IO-VEGA.

Birth ———

IO-Vega

IO-VEGA is the culmination of NEITZ’s optical technology
and the passion of the people behind it.

Story 05

A Name That Embodies Pride—Hopes Entrusted to the Star “VEGA”

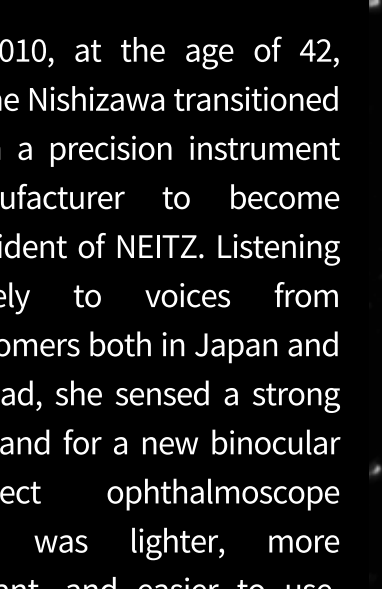
“VEGA” is a star that shines along the extension of Earth’s axis—a future North Star.The name reflects NEITZ’s quiet yet unwavering aspiration: to serve as a guiding light in the world of ophthalmic medical devices.

IO-VEGA is more than a product.It embodies NEITZ’s pride and the very soul of its development team.It stands as NEITZ’s flagship model—where vision, technology, and purpose converge.

Closing—Illuminating the Future

NEITZ’s journey has been a continuous series of challenges and encounters.Each time the company faced adversity, it was the connections with customers—both in Japan and around the world—as well as with countless others, that inspired NEITZ to carry those aspirations forward and take on new challenges.

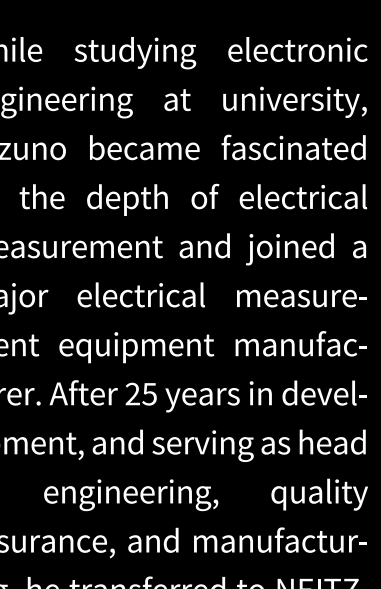
After more than 10 years of effort, IO-VEGA was finally completed.It stands as a testament to NEITZ’s spirit of challenge and a light guiding the future—something the company proudly presents to the world.



NEITZ Inc.
President & CEO

Takae Nishizawa

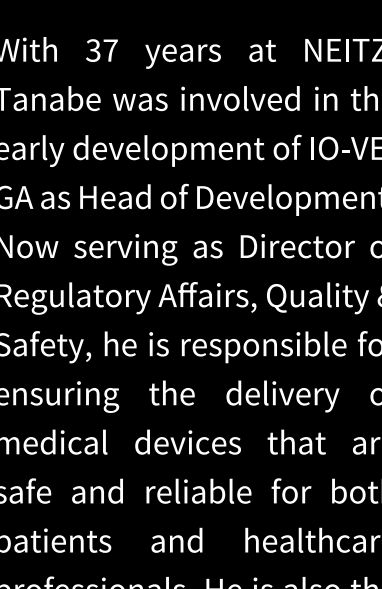
In 2010, at the age of 42, Takae Nishizawa transitioned from a precision instrument manufacturer to become President of NEITZ. Listening closely to voices from customers both in Japan and abroad, she sensed a strong demand for a new binocular indirect ophthalmoscope that was lighter, more elegant, and easier to use. She selected “IO-VEGA” as the development theme and declared the start of the project. Personally engaging with customer feedback, she demonstrated dynamic leadership and assembled the strongest development team in NEITZ history. Her goal: to create a BIO device that more doctors would choose—Made in JAPAN, Made by NEITZ.



NEITZ Inc.
Executive Vice President
& CTO

Atsushi Mizuno

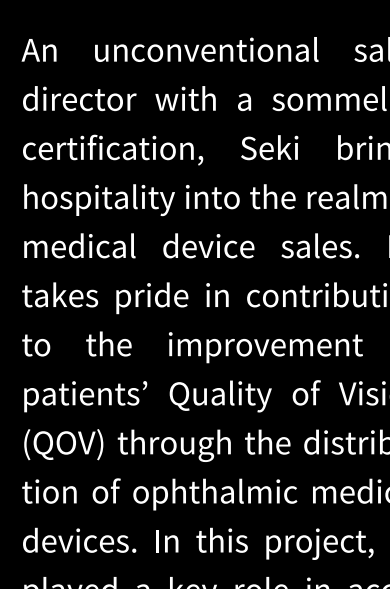
While studying electronic engineering at university, Mizuno became fascinated by the depth of electrical measurement and joined a major electrical measurement equipment manufacturer. After 25 years in development, and serving as head of engineering, quality assurance, and manufacturing, he transferred to NEITZ, a partner company. In this project, he leveraged his expertise in development management to lead a cross-functional concurrent team, uniting members across departments. His mission: to develop a high-spec BIO device that is easy for medical professionals to use and gentle for patients.



NEITZ Inc.
Director of Regulatory,
Quality and Safety Affairs

Atsushi Tanabe

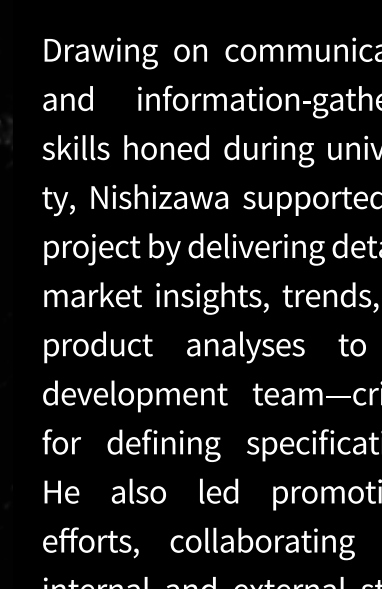
With 37 years at NEITZ, Tanabe was involved in the early development of IO-VEGA as Head of Development. Now serving as Director of Regulatory Affairs, Quality & Safety, he is responsible for ensuring the delivery of medical devices that are safe and reliable for both patients and healthcare professionals. He is also the one who named IO-VEGA, inspired by the hope that just as the star Vega is predicted to become the future North Star, IO-VEGA will shine brightly in the medical field. He contributed to the development through experienced insights and rigorous evaluations to ensure a trustworthy BIO for doctors.



NEITZ Inc.
Director,
Domestic Sales Department

Hiroyuki Seki

An unconventional sales director with a sommelier certification, Seki brings hospitality into the realm of medical device sales. He takes pride in contributing to the improvement of patients’ Quality of Vision (QOV) through the distribution of ophthalmic medical devices. In this project, he played a key role in accurately capturing the real voices and needs of medical professionals and relaying them to management and development teams. As Domestic Sales Director, he aims to expand the use of the new BIO device among doctors and enhance QOV for patients.



NEITZ Inc.
Marketing Specialist

Yoshinobu Nishizawa

Drawing on communication and information-gathering skills honed during university, Nishizawa supported the project by delivering detailed market insights, trends, and product analyses to the development team—critical for defining specifications. He also led promotional efforts, collaborating with internal and external stakeholders to highlight IO-VEGA’s appeal. His goal: to craft impactful promotional strategies that resonate with medical professionals and elevate the NEITZ brand while expanding awareness of IO-VEGA both broadly and deeply.

FAQ

Q. Where is the product manufactured? +

A. It is developed and designed in-house, and manufactured at our dedicated medical device facility in Nagano by specialized staff. This product is genuinely Made in Japan.

Q. Why is the main unit white? +

A. Most conventional binocular indirect ophthalmoscopes are black or gray. White was selected to help reduce the sense of fear or intimidation patients may feel, particularly children. It also integrates well with the interior color schemes of many clinics.

Q. How should the device be cleaned? +

A. Gently wipe the surfaces with the included microfiber cleaning cloth. Excessive fingerprints on the dust-protection glass or eyepiece lenses may lead to reduced optical performance.

Q. Why can the illumination be adjusted to such a low level? +

A. Ophthalmologists reported that the minimum illumination of conventional models was too high for examinations of premature infants, and that a lower level was needed. By reducing the minimum illumination, significantly finer low-light control has been achieved.

Q. Why does the illumination have such a wide dynamic range?t +

A. By using a high color-rendering LED, the maximum illumination has been increased to approximately 150% of previous models, providing clearer and brighter visualization for more precise examination. This expanded range also compensates for brightness reduction when using a teaching mirror.

Q. Is the illumination safe for the patient’s eye? +

A. Yes. It complies with ISO 15004-2, the international safety standard for optical radiation in ophthalmic instruments. It can be used with confidence.

Spec

Light Source	High color-rendering white LED
Interpupillary Distance Adjustment	PD range: 54–74 mm
Aperture Switching	Illumination field diameters Ø72, Ø50, Ø19 mm, diffuser
Filter Switching	UV, red-free, yellow, cobalt blue
Illumination Angle Adjustment	Vertically adjustable using the adjustment lever
Observation Angle Adjustment	Adjustable for large and small pupils
Eyepieces	+1D and +2D diopters (selectable at time of shipment)
Brightness Control	Volume switch with ON/OFF click and half-click at midpoint
Illuminance	・Max: 1150 lx / Min: <10 lx (at 500 mm)
	・Max: 1800 lx / Min: <16 lx (at 400 mm)
Continuous Lighting Timet	・Max brightness: approx. 2.5 hours
	・Medium brightness: approx. 6.5 hours
	・Practical use: approx. 12 hours (based on internal standards)
Battery Pac	Removable from battery housing
	・Built-in lithium-ion rechargeable battery (Rated: 3.7V, 800mAh, 2.96Wh)
Battery Indicator	3-LED indicator on battery housing
	・3 green LEDs: High charge
	・2 green LEDs: Medium charge
	・1 green LED: Low charge
	・1 orange LED: Very low charge
Charging Methods	USB Type-C (main unit and battery pack)
	・Desktop stand charger
	・Wall-mounted charger
Charging Time	Approx. 1.8 hours
Charging Indicator	1-LED indicator on battery pack
	・Bright green: Charging
	・Dim green: Fully charged
Power Consumption	・Discharging: 1.6W
	・Charging: 6VA
Minimum Pupil Diameter	Ø2 mm
Head Circumference Range	530–630 mm (adjustable range of headband)
Dimensions	Approx. 300 × 250 × 170 mm
Weight	Approx. 485 g

Standard Set Configuration

- IO-VEGA Main Unit
- Battery Pack Set (Battery Pack, AC Adapter, USB Type-C Cable)
- Instruction Manual
- Rubber Eyecup

Options

- 20D Aspheric Lens
- Charging Cradle
- Wall-Mount Charging Stand
- Desktop Charging Stand
- Teaching Mirror
- Battery Pack
- AC Adapter
- USB Type-C Cable (1.5 m)
- Spare Battery Pack
- Sponge Pads (Set of 3 Colors)
- Soft Carrying Case
- Voyage Case

Configuration Options

■ **Standard Set**

■ **Set C (for Carry)**
：Standard Set + Carrying Case

■ **Set-D（for Desk）**
：Standard Set + Desktop Charging Stand

■ **Set-W（for Wall）**
：Standard Set + Wall-Mount Charging Stand

■ **Set-V（for Voyage）**
：Standard Set + Voyage Case

■ **Set-S（for Student）**
：Standard Set + Voyage Case + Teaching Mirror

IO-Vega