

ALL *in* ONE



EASYTEAR®

VIEW+

HDW_{cam}

The professional system for diagnosis of dry eye



ALL in ONE the professional system for diagnosis of dry eye

The ALL in ONE system comprises the VIEW+ dacrioscope, the HDWcam Wi-Fi video camera, and the Tear Film analyzer software.

They were conceived, designed, and developed entirely in Italy by EasyTear®. This exclusive innovation provides easy observation and advanced analysis of the tear film, the Meibomian glands, and the anterior segment of the eye. There are specific tests for **dry eye diagnosis in just a few minutes** with obvious advantages for professional operators.

The distinguishing feature of EasyTear® VIEW+ is having three specific LEDs (white, blue, and infrared) and 5 luminosity levels that can be dimmed to avoid dazzling the patient's eye and minimize alterations to the tear film during examination.

The **new HDWcam Wi-Fi digital video camera** was developed specifically for the VIEW+ dacrioscope and makes it possible to take photographs and high-resolution videos transmitted over Wi-Fi to a PC for live viewing on the monitor. The special CMOS sensor of the HDWcam video camera can be used with all three LED light wavelengths of the EasyTear® VIEW+ instrument.

The design, dimensions, ease and practicality of use thanks to rechargeable batteries and Wi-Fi, are fundamental characteristics that make the new HDWcam device the best device in its class. The yellow filter incorporated into the HDWcam device enables BUT testing with fluorescein and application of contact-lenses.

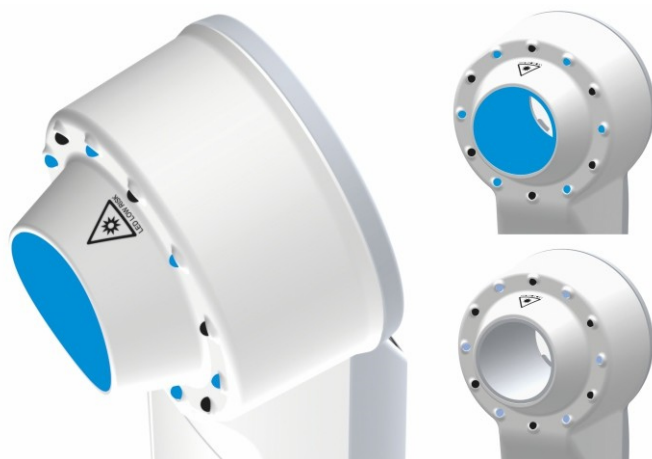
The ALL in ONE system comprising HDWcam and VIEW+ is very compact and practical thanks to the use of rechargeable batteries. The combination of the two devices with a specific interlock offers easy and practical use of the ALL in ONE system even with one hand.



The new Gold Standard for advanced examination of tear film

EasyTear® instruments are used in many clinical optometry laboratories in various Universities around the world: in the renowned Ocular Research & Education (CORE) in Canada directed by Prof. Lyndon Jones, at The Hong Kong Polytechnic University, in USA, Spain, England, Italy and in many other countries.

VIEW +

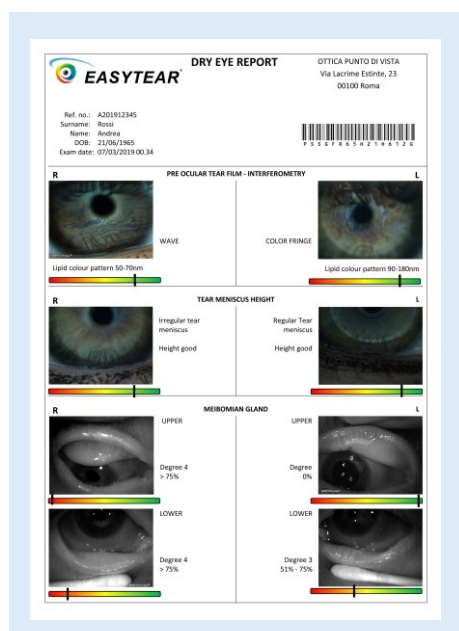
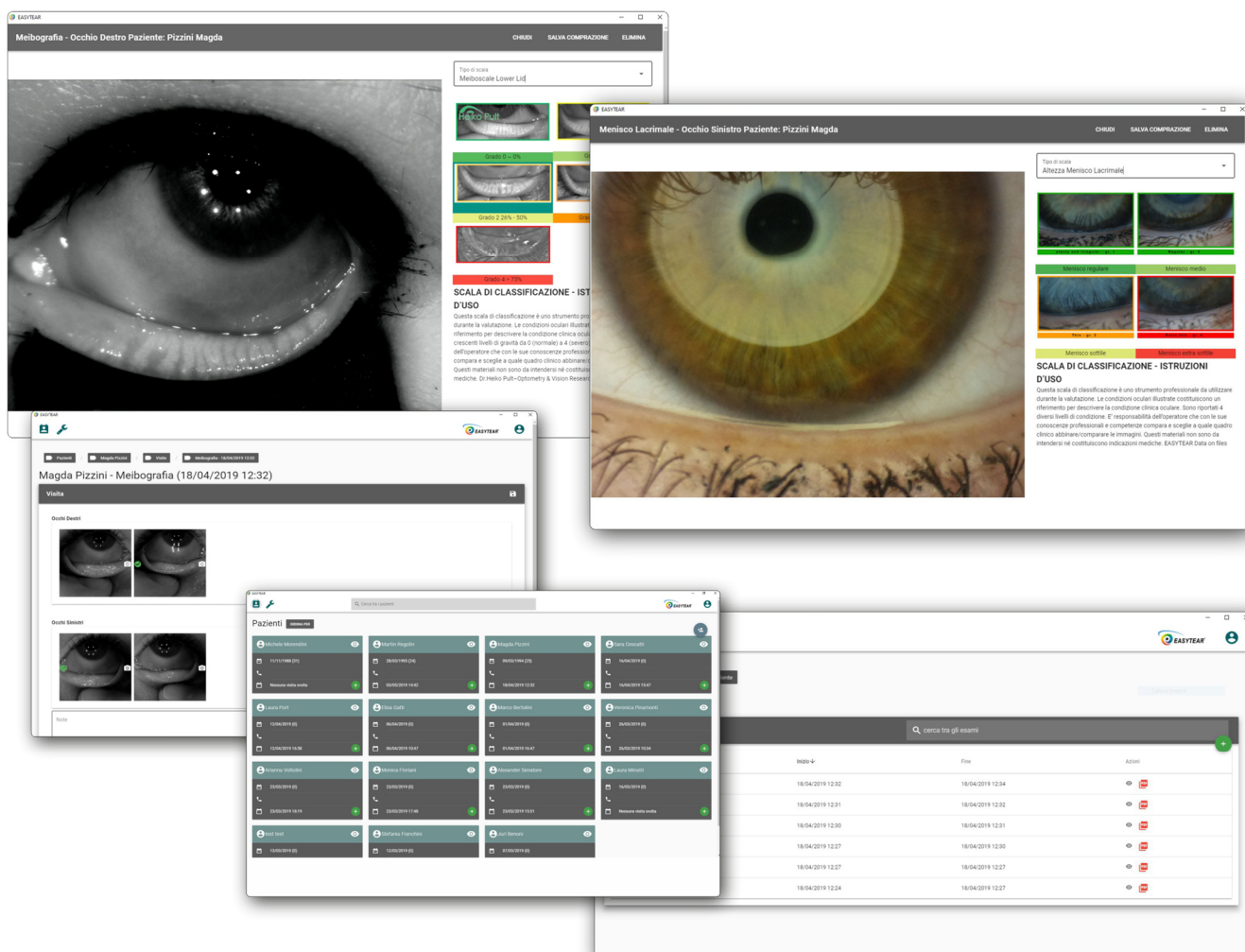


HDWcam



TEAR FILM analyzer software

The **Tear Film analyzer** software, included with the HDWcam device, is intuitive to use and provides quick detailed examinations. Its functions include database, dry eye screening examination sequence, automatic settings according to examination type, and consultation history. Users are given easy comparison with images scaled according to international classifications, and DRY EYE REPORT printouts for the diagnosis/screening of the dry eye type category.



Operation of the ALL in ONE system and Tear Film analyzer Software

WHITE LEDs

The VIEW+ dacrioscope incorporates a series of white LEDs that combine with a special diffuser to generate wide corneal reflection for in vivo observation of the variable condition of the tear film and the anterior segment of the eye.

Lipid layer analysis

Definition of evaporative dry eye (EDE)

Observing the phenomenon of interference fringes enables calculation of the thickness of the lipid layer secreted by the Meibomian glands, quickly and precisely classifying it into 5 different categories (LLT).

The non-invasive break-up time (NIBUT) can be assessed, with non-invasive in vivo observation of pre contact-lens film dry-up time directly on the eye (NIDUT). Quick and very easy image or video acquisition with HDWcam enables the operator to classify and quantify each individual condition according to international grading scales.

Tear meniscus

Definition of aqueous component deficiency (ADDE)

The aqueous layer on the tear meniscus is assessed, categorizing the possible associated problems into different species/classes/groups.

The acquisition of multiple images enables direct non-invasive assessment of the aqueous tear content without reflex tearing.

Grids

The VIEW+ dacrioscope is supplied with a kit of 6 grids of different graphic designs to better highlight the drying of tears on the eye (NIBUT), pre contact-lens dehydration (NIDUT), and regularity of the corneal surface.

BLUE LEDs

The blue LEDs of the VIEW+ dacrioscope provide a wide zone of illumination over the entire anterior segment of the eye.

Fluorimetry

The VIEW+ dacrioscope incorporates six blue LEDs that, with fluorescein, enable a detailed analysis of the mucin layer and observation of conjunctival or corneal staining. With HDWcam, real time video becomes a fundamental tool for contact-lens opticians, revealing the movement of contact-lenses, the distribution of tear film below the lens, and the dehydration of the external face of the contact-lens. It is also possible to assess the tear film

break-up time (BUT), making it possible to quantify tear stability and quality.

The Tear Film analyzer software offers comparison of the observed conditions against an assessment scale.

INFRARED LEDs

Meibography

Thanks to the infrared illumination of VIEW+, the upper and lower eyelid Meibomian glands can be captured by HDWcam and analyzed by the Tear Film analyzer software.

The tarsal conjunctiva is the palpebral sector observed in order to best assess dysfunction of the Meibomian glands (MGD).

This condition can cause or exacerbate dry eye symptoms and eyelid inflammation. The glands become blocked with solid secretions and if chronically clogged they ultimately become incapable of secreting lipids, inducing permanent changes in the tear film.

With the ALL in ONE system, the Meibomian glands can easily be observed and compared with previous examinations of the patient/user to quantify the patients loss or their drop out (MGD).

A practical MGD lever to facilitate eyelid eversion is provided as an accessory with the HDWcam device.

The tear Film analyzer software allows comparison of the glands against a reference assessment scale.



The features of EASYTEAR® VIEW+

EasyTear® VIEW+ is very easy to use. It has a display and three intuitive buttons with simple icons for choosing the type of illumination and regulating across 5 levels with the help of an electronic control system. It has a seconds timer allowing calculation of average times for the specific analytic tests for blinking, NIBUT, BUT, NIDUT.



1. On/off switch and luminous intensity adjustment

2. Selection of LED illumination type (white, blue, IR)

3. Seconds timer, average of measured times, and zeroing timer

Yellow filter: used in combination with the blue LEDs and instillation of fluorescein. Serves for conducting the BUT test and assessing application of contact-lenses

6 grid kit
with different graphic designs to better highlight the drying of tears on the eye (NIBUT), pre-lens (NIDUT) and the regularity of the corneal surface

24V transformer: interchangeable plugs EU/UK/US/AU
Input: 100-240V, 50-60Hz
Output: 24V/0.5A
Cable: 2 m with "L" jack
Certified CE, RoHS, FCC, SAA, BEAB, UL

2 battery kit
9V Energizer rechargeable battery 175 mAh

Battery charging base
Practical support base for recharging batteries and ensuring constant efficient operation

Universal support
suitable for all slit lamps





EASYTEAR® VIEW+ offers a series of screening tests for dry eye syndrome

Movement and stability of the tear film

Assessment of interference fringes and lipid layer thickness in the tear film (LLT)

Quality and stability of the tear film

Observing tear meniscus to establish tear volume

Use fluorescein to observe conjunctival or corneal staining and assess the application of contact-lenses

Use the grids to assess the regularity of the corneal surface

Non-invasive assessment of tear film breakup (NIBUT)

Assessment of tear film breakup time (BUT)

In vivo observation of dehydration of the pre contact-lens film directly on the eye (NIDUT)

The integrity of the Meibomian glands (parameter that indicates lipid dysfunction)

Observe the eyelid margins and the presence of Demodex

Correlations with tear pathologies (Sjögren syndrome)

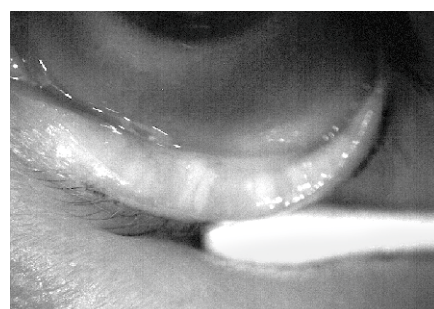
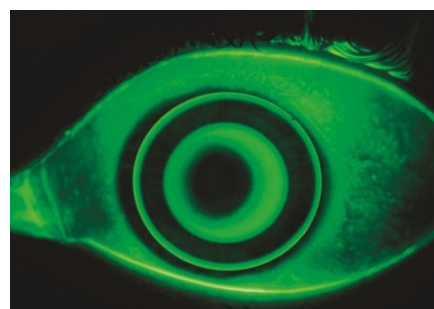
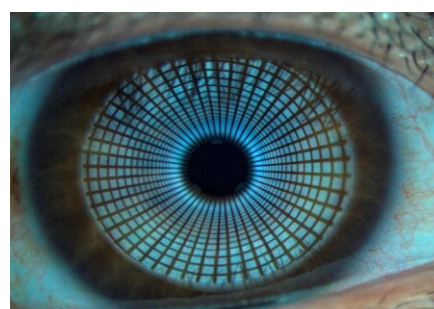


HELP TO REDUCE CONTACT LENS DROPOUT

The success of using contact-lenses depends on the comfort of the wearer, which in turn is closely linked to the function of the tear film.

The identification and treatment of eyes with tear issues in contact-lens users, both new and established, is fundamental for successful implementation. In line with the specifications of TFOS DEWS, the ALL in ONE system by EasyTear® enables assessment of tear alterations with analysis of the lipid interference fringes, the tear meniscus, and the Meibomian glands. The contact-lens specialist can use the collected information to choose the most appropriate polymer for the contact-lenses to best customize and satisfy individual customers. Furthermore, in routine checks on contact-lens users it is possible to use tear observations for early intervention in order to reduce drop-outs and sustain use of contact-lenses in complete safety.







TESTED AT TWO ITALIAN UNIVERSITIES

The EasyTear® VIEW+ dacrioscope was tested at two Italian universities to corroborate the effectiveness and functionality of the instrument: The degree course in optics and optometry at the University of Milano-Bicocca validated the effectiveness of the white LED illumination system with **precise levels of illumination to minimize the reflex tearing induced by examination**. EasyTear® VIEW+ was found to be better than the original Tearscope® in terms of luminosity. It is capable of easily revealing the lipid layer interference fringes in the tear film. The validation included the blue LEDs, confirming the good diffusion features of the light and wide field of observation of the slit lamp. The study was conducted by Dr. Luca Benzoni, Dr. Rossella Fonte, and Dr. Silvia Tavazzi who directed the project. The University of Salento operated at the Lecce contact-lens research center under the scientific supervision of Prof. Giancarlo Montani to validate the infrared LED illumination system integrated into EasyTear® VIEW+. Ease of use for observing the Meibomian glands was compared with other existing devices.

HARDWARE REQUIREMENTS (minimum for DED Software)

Intel® Pentium® Core™ i5 3.00 Ghz SSD Hard
drive
4 GB RAM
Screen resolution FHD 1920x1080
2 USB ports
Microsoft® Windows® 10 (32 o 64 bit)



COMPATIBLE WITH ANY SLIT LAMP

The EasyTear® VIEW+ instrument has a large through hole enabling binocular observation with the slit lamp.

Even the smallest details are better assessed in three dimensional vision.

Considering the need for very close observation of very small details and variations in tearing, the VIEW+ and HDWcam devices were designed for use on dedicated fixed stations or fitted on slit lamps of any type or brand with a universal bracket, however it is also possible to use them freehand.

The latter is very useful for example in cases when remaining still on the chin rest is difficult for certain patients during testing (e.g. the disabled, children, etc.), or when it is necessary to quickly check a contact-lens application without moving the patient from one work station to another, or during home visits.

HDWcam TECHNICAL FEATURES

Image resolution	5 MP
CMOS	Colours and infrared
Acquisition mode	Photo, video
Focus	Manual focus
ISO management	Automatic

Contacts

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Authorized distributor:

Instrument invented, developed, and patented
by Gianfranco Passuello. All rights reserved.

100%  **MADE IN ITALY**

EASY TEAR® view+ is an instrument bearing the EC mark, Medical Device Class 1 registered by the Italian Ministry of Health pursuant to Directive EEC 93/42 as BD/RDM n.1401945. Compliant under CLASS 1 electrical medical devices standard EN 60601-1. Compliant under group 1 of standards EN 62471 and EN 15004-2. Internationally patented device.

The technical specifications of the instrument and accessories can be



improved at any time without prior warning. For an updated description you are advised to visit the website www.easytear.it

1. Willcox MDP, Argüeso P, Georgiev G, Holopainen J, Laurie G, Millar T, et al. TFOS DEWS II Tear Film report. Ocul Surf 2017;15:366-403.