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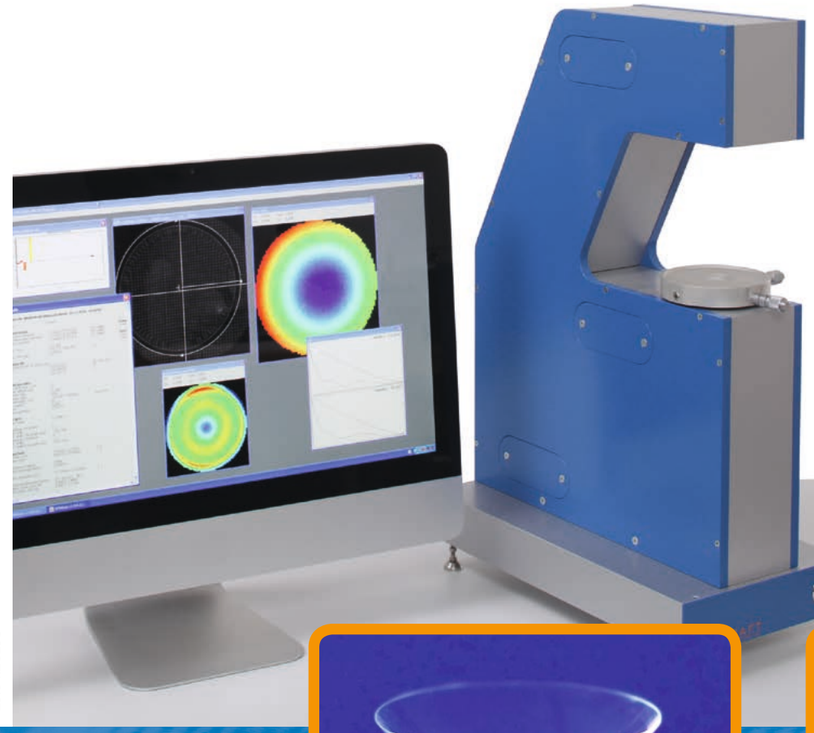
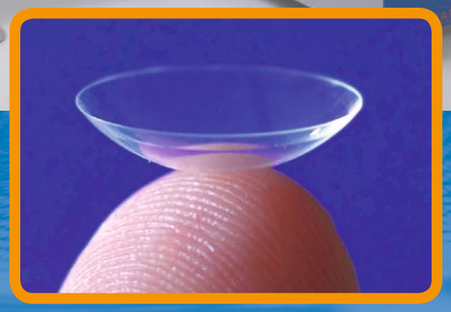
| **Systems and options** (see product datasheet for detailled information) | |
|---|---|
| SHS**Ophthalmic base** | Table top version with HR or UHR resolution |
| SHS**Ophthalmic matrix** | Stand-alone workstation with full automation |
| SHS**Works** autoIOL, autoCL | Detection of dimension of lens under test, position, alignment, marks |
| SHS**Ophthalmic** autoXY | Motorized alignment interface for cuvettes (SHS**Works** autoIOL/autoCL required) |
| SHS**Ophthalmic** darkILLU | Bright- and darkfield illumination head |
| Verification lens set | Lenses (NIST traceable as option), stops, tweezer, cloth |
| Cuvette | Plano standard cuvette, multi lens cuvette |
| VCCam | Inspection camera with up to 4 Megapixel available |
| Barcode reader | Handheld barcode reader for input of serial numbers etc. |

# SHS**Ophthalmic base**

## Universal test system for contacts and IOLs





13.04.2015e

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Know your quality – Optical metrology made by OPTOCRAFT

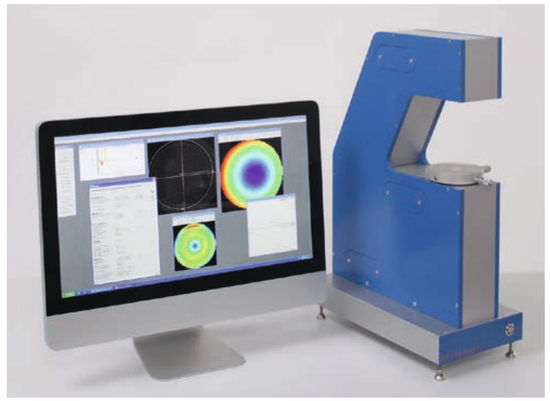
# SHS**Ophthalmic base**
## Universal test system for ophthalmic lenses

### SHS**Ophthalmic base**

The SHS**Ophthalmic base** addresses the needs of quality control in the ophthalmic market:

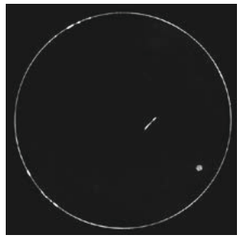
- High speed and accuracy
- Ease of use
- Low inter-operator variability

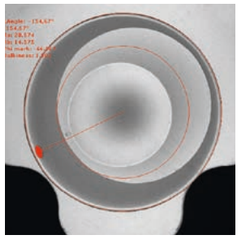
SHS**Ophthalmic base** is available as a table top system and a stand alone workstation. Its software and hardware have been designed to fit perfectly together.
The customer can choose from several options to fit the system seemlessly to the processes and environment in R&D and production.



### Advanced defect recognition

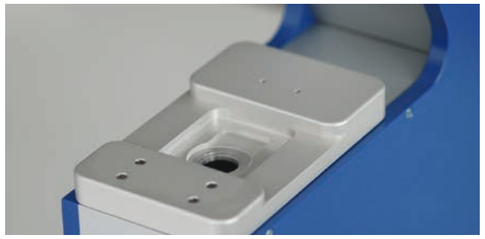
SHS**Ophthalmic** darkILLU (optional)
- Dual illumination head: bright and dark field mode
- Visualization of defects and markings





### Automated alignment

SHS**Ophthalmic** autoXY (optional)
- Fully integrated motorized xy-stage for the SHS**Ophthalmic** table top system
- Alignment of the sample
- Offers further improved ease of use and reliability



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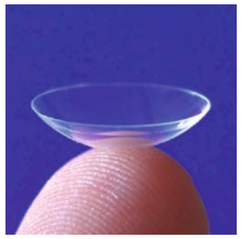
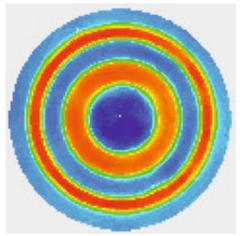
### Contact lens measurement

**Measurement of:**
- Soft lenses
- RGP lenses

**Measured data:**
- Power (SPH, CYL, AXIS, PRISM)
- Imaging quality
- Power map

SHS**Works** autoCL (optional)
**Automated evaluation for contact lenses**
- Diameter (max., min., mean)
- Position, alignment
- Tick marks (dot, stripe, crow feet, etc.)



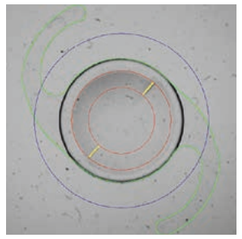


### Intra-ocular lens measurement

**Measurement of:**
- Spheric, toric and aspheric lenses

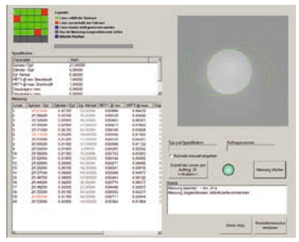
**Measured data:**
- Power (SPH, CYL, AXIS)
- MTF
- Asphericity

SHS**Works** autoIOL (optional)
**Automated evaluation for IOL**
- Matching of haptic design files (*.dxf files)
- Diameter of haptic and optics zone
- Position, alignment
- Orientation marks



### SHS**Ophthalmic matrix**

**This automated system offers:**
- Single touch operation
- Automation with multiple-lens cuvette
- High speed (down to 2 sec / lens)
- Customizable workflow schemes



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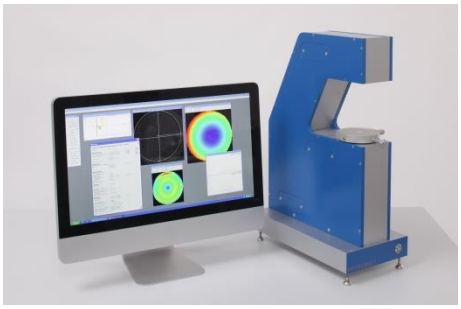
# SHS**Ophthalmic base HR**

## Technical specification

The SHSOphthalmic base is a unique test system specialised for quality control of contact lenses and IOLs. It improves workflow with its operational speed, flexibility and ease of use. The basic functionality is to measure refractive power, power map, imaging quality, lens diameter and to visualize cosmetic defects.
Contact lenses can be measured both in air (RGP) and in liquid (soft CL), intra-ocular lenses can be measured in liquid.



| SHS**Ophthalmic base** | |
|---|---|
| Technology | Wave-front sensor and image processing technology |
| Functionality | Measurement of sphere, cylinder, axis, power map, wave aberrations (Zernike)<br>Lens diameter<br>Toric mark detection[a] |
| Software license | SHSWorks PRO |
| Wavelength refractive data | 546 nm ± 10 nm |
| Sample stage | manual xy-stage |
| Lens spherical power | – 30dpt ... +34dpt in air[b] |
| Lens cylinder power | – 10dpt ... +0dpt in air[b,c] |
| Field of view | Refractive data: 6.0 mm[d]<br>Lens image: 16 mm[d] |
| Lateral resolution | Refractive data: 60 x 60 measurement points<br>VCCam: 1000×1000 pixels |
| Power reproducibility[e] | < 0.02 dpt (1 σ, as measured, lens moved) |
| Power repeatability[e] | < 0.002 dpt (1 σ, as measured, lens not moved) |
| Power accuracy[e] | +/– 0.05dpt |
| Wavefront accuracy (design data) on 4.5mm pupil | +34 ... +25 dpt: lambda/30 (rms)<br>+25...– 10 dpt: lamda/60 (rms),<br>– 10 ... – 20 dpt: lamda/20 (rms)<br>– 10 ... – 30 dpt: lamda/7 (rms)<br>The stated ranges refer to measurement "in air", e.g. hard lenses in air. Contact Lens measurement in liquid typically covers the "in air" range of –8...+8 dpt for much higher nominal power of the lenses. |
| Measurement duration | 0.25 sec (data acquisition, evaluation and display of results) |
| Dimensions / Weight | ≈ 200 × 400 × 580 mm³ (W×D×H) / 20 kg |
| PC and color display | Included, Operation System: Windows 10 64bit (English or German) |
| Documentation | CE certificate, calibration certificate, user manual, etc. |
| Accessories | Plano cuvette with V-groove for CL and inlay[f] for IOL<br>Measurement glass for rigid lenses in air<br>Instrument cover |

[a] Typical marks implemented as standard, specific mark types can be implemented upon request, see options
[b] For measurements in cuvette/saline solution this corresponds to a power range of min. – 100 ... +100 dpt (prescription power value), depends on refractive index of the lens
[c] Maximum power in strongest and weakest meridian is as stated in "Lens spherical power",
[d] ± 3 %,
[e] executed with verification lenses in air
[f] To achieve good R&R values the usage of haptic inlays is recommended. Haptic inlays specialized for IOLs can be developed in cooperation with Optocraft.

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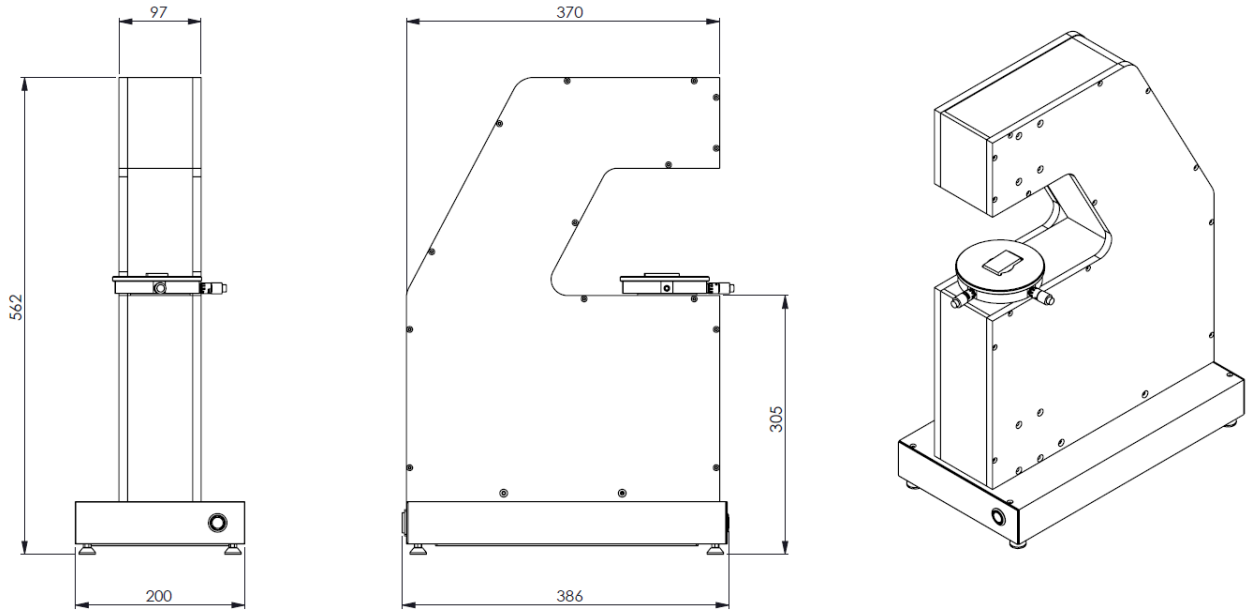
| Options and optional services | |
|---|---|
| Barcode reader | Device to read the bar code into an input field |
| Custom mark types | Automatic recognition for custom mark type |
| Verification set | Optical elements (lenses, prism, stop) to check the system status, tweezers, cloth |
| Plano cuvette | For measurement of lenses in liquid |
| V-groove | For lens pre-centration in plano cuvette |
| Measurement glass | For measurement of rigid lenses and verification lenses in air |
| Installation | Installation of the instrument at customer site |
| Training | Typical content: operator and/or supervisor training |
| Service, consulting | Upon specific customer requests beyond standard service/support |

## Outline drawing

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