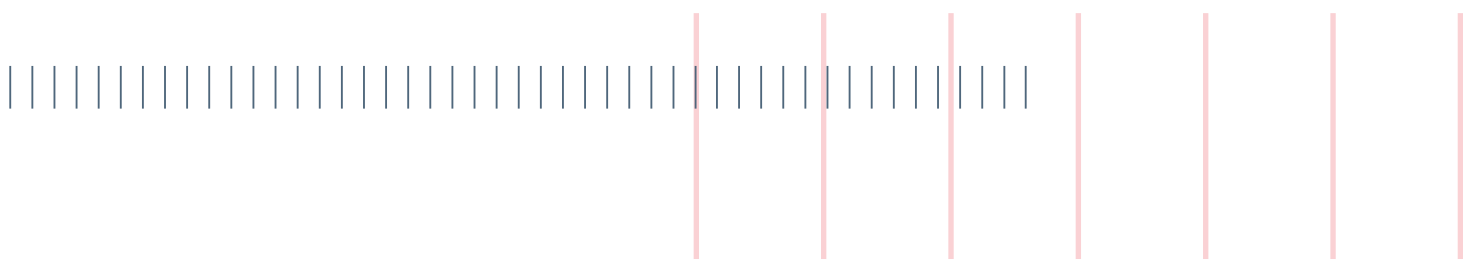
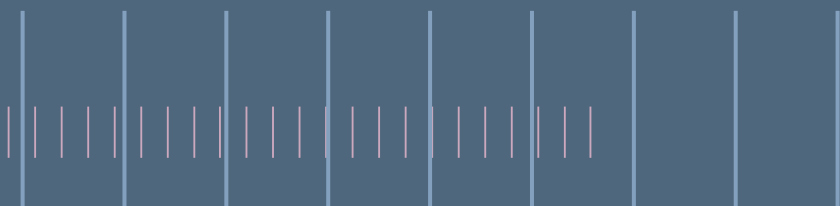


# This is Sophi.



# Sometimes one must do many things from a completely new perspective.

This is the idea behind Sophi. We have redefined the requirements of a perfect Phaco-System by focusing on the points of view of the surgeon, the surgical team and all other involved parties. The result is a high-end device which sets new standards.



# Just view completely

The concept of Sophi is based on 3 pillars:

## Mobility

Sophi is the first wireless Phaco-System to offer the surgical team high flexibility and mobility. This means ease of handling in the operating room and increased usability.

## Simplicity

Sophi's design is simple and straightforward. The complexity is inside the device, which allows for simple user handling, helps to save time and increases productivity.

## Safety

Sophi opens up new avenues in hygiene and safety. The Clean Venturi and automated Cassette Slot-In-System reduce the risk of contamination. The IOP Control Pump is designed for high chamber stability.

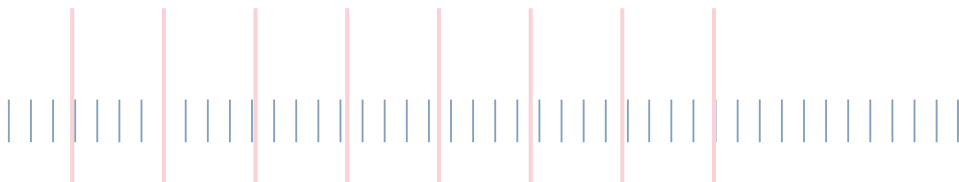
## Efficiency

Altogether, the benefits of Sophi's 3-Pillar-Concept facilitate simpler, safer and faster operating procedures – before, during and after surgery. This significantly increases efficiency and therefore also yields economic benefits.

# Sophi is not an evolution but a revolution.

Sophi is not just an advancement of existing technology, but also a complete innovation. The smallest details have been designed with the aim of making the work of ophthalmologists and the surgical team simpler, safer and more efficient.

The result is a revolutionary high-end surgical device which skillfully combines innovative concepts and the latest technology.





**Infusion Level Guard**  
A warning appears when the level of infusion liquid is low

**Sensory Information Assistance**  
- Voice Information Assistance  
Text2Speech  
- LED Information Assistance

**Usability**  
Fast set-up of the operating room, thanks to the rotatable display, central braking system and wireless power supply.

**Triple Pump Fluidics**  
- IOP Control Pump infusion  
- Peristaltic Pump aspiration  
- Clean Venturi aspiration

**Instruments**  
- Efficient Sinus Phaco  
- Vitrectomy pneumatic  
- Diathermy

**Easy Connectivity**  
Bluetooth, Wi-Fi, NFC, Easy Charge

**Ease of Use**  
Simple, clear and well laid out. You see only the information you currently require.

**Video-Inlay 2 Display**  
Microscope images transmitted to display through Wi-Fi.

**Lean Cassette System**  
- Automatic Slot-In-System  
- Multi Sensor System, which enables Express-Priming  
- Cassette handle which simplifies the insertion of cassettes

**Tray**  
The tray can be clipped on to the left or right of the device, and the height position is freely selectable.

**Easy Move**  
A fully charged battery lasts for up to 20 surgeries. Thanks to the integrated air compressor, external pneumatic tubes are unnecessary.

**Foot pedal**  
Smaller than Sophi, but not less sophisticated: Wireless, dual linear, four rocker switches, freely programmable, simple charging process in the foot pedal parking position through inductive charging.

# We have freed Sophi of disturbing cables and tubes

Set up, operate, rearrange – again and again. One wants a device which can be moved easily and conveniently. We have used the possibilities of modern technology, and freed Sophi of disturbing cables and tubes. This revolutionary step gives you more flexibility and constitutes a crucial workflow improvement in the operating room.



## **Easy Move: The first battery-powered Phaco-System**

With Sophi, not only the foot pedal works without cables, but the entire device. It requires neither a power cable nor data cables. Sophi is mobile and it is exactly this mobility which simplifies your work and therefore improves efficiency.



## **Tubeless: Integrated compressor**

The compressors for vitrectomy and for Clean Venturi aspiration are also integrated into the device. Therefore, the usual bulky and inflexible tube to the external compressor becomes superfluous.



## **Flexibility: Freedom thanks to mobility**

Sophi is incredibly adaptable. The 180° rotatable display and freedom to choose the tray position facilitates setting up the operating room. Moving the device is very simple too: Release Mono-Brake Handle, move Sophi to the desired location, apply the brake – done.



## **Easy Connectivity: Ready for the future**

These days a wireless connection of the foot pedal over Bluetooth is standard. However, Sophi can do much more! Sophi enables you to transmit live microscope images to the display over Wi-Fi.



# phi of and tubes.



# Sophi is very flexible and versatile.



## Easy Move

The basis of the Easy-Move Concept is the elimination of both the power cable and pneumatic tube during device use. This is enabled by a high-power battery, which feeds the device with energy throughout the day.



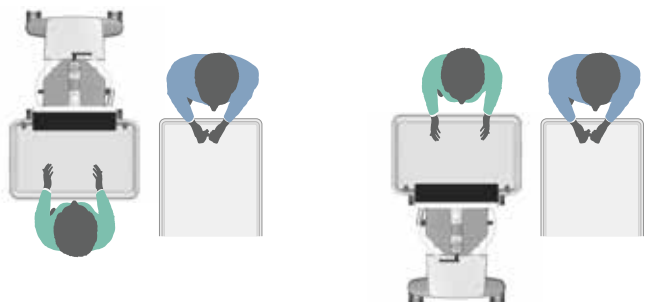
## Mono-Brake System

A simple hand movement suffices to lock or release all four wheels. The integrated ergonomic handle located around the device allows for the flexible movement of Sophi from all sides.

*Examples of classic set-ups in the operating room:*

## Set up your operating room freely according to your needs

Thanks to the flexible arrangement options of the display and tray, you can adapt the set-up of the device to your individual requirements.







**Bluetooth foot pedal with inductive charging**

Sophi makes it easy for you – including the charging of the foot pedal. After a day of surgery, you simply attach the foot pedal to the charging station, which automatically charges the battery by induction – with neither cable nor sensitive contacts.

**Easy Move, also in darkness**

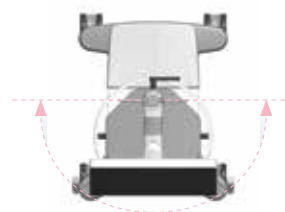
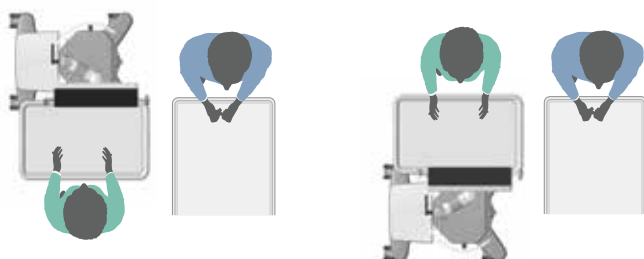
Sophi's foot pedal comes with integrated LED lighting, which enables you to accurately move the foot pedal under the surgical table. Easy Move has a further benefit: You can move the foot pedal over the floor like a hovercraft.



**Video transmission over Wi-Fi**

Sophi also assists with the communication between surgeon and assistant. The video is transmitted to the display, which enables the assistant to follow the surgeon's work in real time. Therefore, the assistant is kept informed throughout the surgery, and is more mobile, as looking through the microscope is unnecessary.

*Countless other set-ups possible, thanks to the 180° rotatable display and the adjustable tray.*



# The secret of Sophi designing complex

The surgical team should be able to focus entirely on the surgery. Sophi assists you to do just this. Modern assistance systems and clever control elements create a simple surgery process.

Sophi can be parametrized intuitively, assists you with intelligent sensor technology, and automatically adjusts parameters in critical situations.



## **Slim Design**

Sophi wins through its slim, reduced design. Nonetheless, everything needed for both ergonomic and safe usage is in place. Clear shapes, high-quality materials and numerous innovative solutions make Sophi a system which sets new benchmarks.



## **Sensory Information Assistance**

Sophi communicates with you, not only on the display, but also verbally with Text2Speech, and visually with color-changing LED projection. All surgical team member receive exactly the information needed to execute their tasks in a focused and efficient manner.

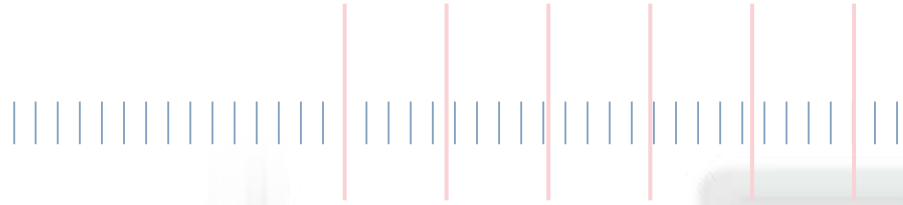


## **Ease of Use**

Sophi is easy, clear and quick to operate. The booting of the system is very fast, and thanks to the Multi-Surgeons Settings, configured according to your wishes and needs.



# ni is xity simply.



# Usability at the highest level.

## **LED Mode Indication**

Sophi communicates with you and delivers to the assistant and the surgeon the exact information needed before, during and after surgery. Therefore, each team member can focus fully on his/her tasks.

The assistant receives important parameters in a clear and simple format on the display. The surgeon can see Sophi's current mode at a glance, thanks to the LED Mode Indication.

## **Voice Information Assistance**

You can also use the voice module to have your settings read out loud. Thanks to Text2Speech, even in your own words.



## **Charge indicator with light projection**

Various other important items of information are shown on the foot pedal's LED display and with color-changing light projection on the floor. A quick glance is enough to know whether Sophi is still charging, or whether the wireless comfort can be used again.

## **Intuitive Graphical User Interface**

The Intuitive Graphical User Interface shown on the high-resolution 19-inch display enables clear and simple handling.



### Multi-Surgeons Settings

The Multi-Surgeons Settings offer individual and easily programmable parameters that are adaptable to the requirements of each surgeon and surgery. Up to 50 surgeons can be logged and password-protected.



### Dual Linear Wireless Foot Pedal

Sophi is activated and controlled by the foot pedal. All control functions are arranged ergonomically and within easy reach. You will also find a position for foot relaxation.

# We packed a lot of a sophisticated sy

The most efficient way to make a system safe is to eliminate uncertainty systematically. This is exactly what we have done with Sophi.

We have reviewed the entire process chain and developed an integrated safety system that complies with the highest standards with regard to process stability, precision and hygiene.



## **Triple Pump Fluidics**

The centerpiece of every Phaco device is the pumping system for stable chamber fluidics, or with regard to Sophi, more precisely: the pumping systems, as Sophi has three combined into one.

1. IOP Control Pump for stable infusion pressure
2. Peristaltic Pump to control the flow and vacuum
3. Clean Venturi Pump which protects against contamination by the patient's eye fluids



## **Efficient Sinus Phaco**

The less energy a Phaco handpiece requires, the less heat is projected into the eye. That is why Sophi controls the handpiece with a sinusoidal signal, which considerably reduces the energy needed, thereby protecting the eye.



## **Lean Cassette System**

Each detail of Sophi focuses on safety – without compromises. Sophi offers an automatic Cassette Slot-In System which reduces the risk of contact between sterile and unsterile areas during loading.

# safety into stem.



# Safety at competitive cost.

## Triple Pump Fluidics

When it comes to the pumping system, Sophi is impressively innovative. Sophi controls fluidics with three perfectly aligned pumping systems.

### 1. IOP Control Pump

In addition to the gravity infusion, Sophi also comes with an optional active IOP Control Pump. Thanks to this additional peristaltic pump, Sophi controls both the flow and pressure of irrigation.

As the device is not only aware of the pressure and flow, but also of the tubing system and instruments, the infusion pressure at the instrument tip remains stable in the anterior chamber of the eye. Thanks to the rapid response time, Sophi can also be operated in the Occlusion Mode.

### 2. Peristaltic Pump

With the peristaltic pump, the surgeon can control the flow and vacuum selectively. The concept of the pump design focuses not only on performance, but especially on stability, given that the essential element of a Phaco-System is chamber stability after breaking the occlusion.



### 3. Clean Venturi Pump

The Venturi Pump is a real world first. The unique feature is a sealing foil which is part of the cassette and prevents contamination of the device and hospital air with the patient's eye fluids. Thanks to this innovative solution, Sophi's Clean Venturi is not only very hygienic, but also very fast and safe. A further benefit is that Sophi needs significantly less power to create the desired vacuum. This benefit enables the integration of the air compressor into the device.





### Cassette system

Sophi is equipped with an automatic Cassette Slot-In-System which eases handling during surgery preparation, and prevents the assistant from being contaminated by the non-sterile device while inserting the sterile cassette.

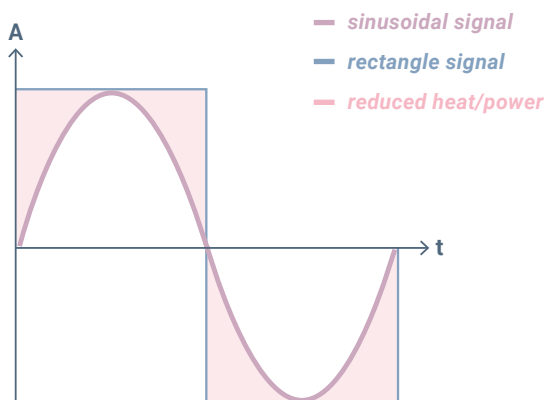
Sophi's cassette system has even more benefits. For example, Sophi automatically recognizes the transition between air and infusion liquids within the cassette, which considerably reduces the Prime-Time.

*By way of a 2D-Code, Sophi can detect whether the cassette is sterile and ready for use.*



### Efficient Sinus Phaco

Power loss in a Phaco handpiece can result in an increased temperature of the infusion liquid. To avoid this, Sophi works with a system which requires significantly less energy, hence releasing less heat. This is made possible by an efficient sinus control, which requires less energy to generate the same power amplitude, compared to other solutions. This results in improved safety for the eye and also has a positive effect on the handpiece lifespan.



### Infusion Level Guard

For monitoring purposes and to take pressure off the surgical team, Sophi has an Infusion Level Guard, which automatically and continually measures the liquid level of the infusion bottle or infusion bag, and which alerts the user in good time to change the infusion. This Infusion Level Guard works independently and with both glass or synthetic containers.



# Efficiency at the highest level.

The term “Lean Production” gained significant commercial importance in the mid-eighties. The core objective of “Lean Production” – also known as “integrated socio-technical system” – is the elimination of waste. This is the philosophy behind Sophi’s design.



### Our principles for more efficiency

- no time wasted by bulky control elements
- no time wasted by unnecessary processes and waiting times
- no time or storage space wasted during transportation
- no time wasted by errors or incorrect handling
- no time wasted by misleading or incomplete information
- no wasting of materials
- no wasting of energy

A consistent implementation of these principles yields not only economic benefits, but also contributes to quality improvement and energy savings. Your energy and that of the whole surgical team!

With Sophi the “lean thought” was consistently implemented and reflects in the 3-Pillar-Concept: Mobility – Simplicity – Safety

## Mobility

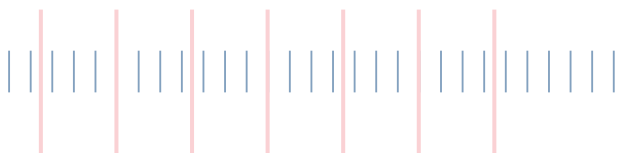
- Energy supply and communication without cables or pneumatic tubes
- Positioning of the device from all sides possible, through a central braking system
- Flexibility achieved through a rotatable and tiltable display and tray
- Easy Move foot pedal
- Lean and slim device

## Simplicity

- No superfluous control elements
- Easy Handling
- Video-Inlay 2 Display
- Reduced and clear information systems
- Easy Connectivity

## Safety

- Cassette Slot-In-System to reduce contamination risks
- Active IOP Control Pump
- Infusion Level Guard
- Efficient Sinus Phaco to reduce heat build-up in handpiece
- Clean Venturi for optimized hygiene of the device and operating room
- Cassette Control Guard to monitor the cassette's expiry date
- Error prevention through design, e.g. incorrect connection of tubes is impossible (Poka-Yoke)



# This AG – the name speaks for itself.

This AG was founded in 2014 as a start-up high-tech company comprising proven experts who have significant knowledge and practical experience in industrial medical R&D and production. The name "This" stands for "Think in System" and reflects both our mindset and the way we design and produce ophthalmic systems: systematically, logically and holistically.



## **Systematic thinking is not restricted to technology**

When we at "This" speak of thinking in terms of systems, we refer not only to the system of the device, but also to everyone working with that device in the field. Learning from surgeons and surgical teams, our engineers, customer service and sales teams have the desire to know and understand each work process around our device in detail, which enables them to drive innovation and optimization forward.

This AG is not only responsible for the design, but also for the manufacture, license and sale to local distributors worldwide. As an end-user, you can benefit from a knowledgeable distributor near you.



## **Three words – one brand**

The Sophi brand comprises three words which get to the heart of our ambition with regard to quality and innovation: *swiss ophthalmology innovation*. Sophi is an entire new design with numerous ideas and solutions which are unique in their implementation and combination.

With This AG we generated a platform for realizing new revolutionary ideas.

# Technical Data

|  |                              |  |
|--|------------------------------|--|
| <b>Phacoemulsification</b>                         | Handpiece type               | Piezoelectric  |
|  | Application part             | BF   |
|  | Frequency                    | 38 .. 41 kHz   |
|  | Signal form                  | Sine wave  |
|  | Power                        | 25 W ± 5 W at 1100 Ω and 100 % performance                                     |
|  | Stroke                       | 0 .. 90 µm by ± 20 %   |
|  | Modulation                   | Continuous, pulse, burst   |
| <b>Irrigation</b>                                  | Gravity                      | Automatic infusion pole  |
|  | Active infusion              | With separate peristaltic pump (IOP Control Pump)                              |
| <b>Aspiration</b>                                  | Peristaltic                  | Flow 0 .. 60 ml/min  |
|  |                              | Vacuum 0 .. 650 mmHg   |
|  | Clean Venturi                | Vacuum and patient's eye fluids are separated by a foil to avoid contamination |
|  |                              | Vacuum 0 .. 650 mmHg, variable rise time: 0 .. 10 s                            |
| Reflux   | 15 ml/min                    |  |
| <b>Diathermy</b>                                   | Type                         | Bipolar coagulation  |
|  | Handpiece type               | Bipolar forceps, bipolar pencil  |
|  | Application part             | BF   |
|  | Frequency                    | 500 kHz  |
|  | Power                        | Continuous 0 .. 10 W at 50 Ω   |
|  | Modulation                   | Pulse 3 ms, pause 30 ms  |
| <b>Vitrectomy</b>                                  | Handpiece type               | Guillotine cutter  |
|  | Cutting rate                 | 30 .. 2'000 cuts/min   |
|  | Cutting mode                 | Linear proportional, fixed   |
|  | Compressor                   | Integrated compressor (external compressor optional)                           |
|  | Pressure                     | 25 PSI (1.7 bar)   |
| <b>Foot pedal</b>                                  | Type                         | Wireless, dual linear, heel pressure (reflux)                                  |
|  |                              | 4 rocker switches (up/down)  |
|  | Easy Move                    | Switch between gliding / fixation  |
|  | Illumination                 | When Easy Move is activated  |
|  | Battery                      | Fully charged battery lasts for up to 50 surgeries                             |
|  |                              | Inductive charging station on the device                                       |
|  | Status display               | Traffic light system displays charging status and errors                       |
|  | Wireless standard            | Bluetooth LE   |
| Cable link   | CAN-Bus                      |  |
| <b>Dimension</b>                                   | Device                       | 59 x 49 x 164 cm (w/o tray)  |
|  | Weight                       | 70 kg (w/o battery)  |
|  | Battery weight               | 4.5 kg (per battery, 2 required)   |
|  | Foot pedal weight            | 5.0 kg   |
| <b>Graphical user interface</b>                    | Screen size                  | 19", TFT, IPS, LED Backlight   |
|  | Languages                    | English, Deutsch, Français, Italiano, Español                                  |
|  | Max. no. of surgeons         | 50   |
|  | Max. no. of surgery settings | 150  |
| <b>Electrical specifications</b>                   | Frequency                    | 50 .. 60 Hz  |
|  | Supply voltage               | 100 .. 240VAC  |
|  | Power consumption            | Max. 250 VA (w/o battery charge); max. 500 VA (with battery charge)            |
|  | Fuse                         | 2 pieces 8A, 250 V   |
|  | Duty time                    | Continuous operation with power supply cable                                   |
| Fully charged battery lasts for up to 20 surgeries |                              |  |
| <b>External air supply</b>                         | Optional                     | 4 .. 10 bar, 10 l/min, oil free  |

**sophi** swiss  
ophthalmology  
innovation

**www.sophi.info**

**This**  
Think in System

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