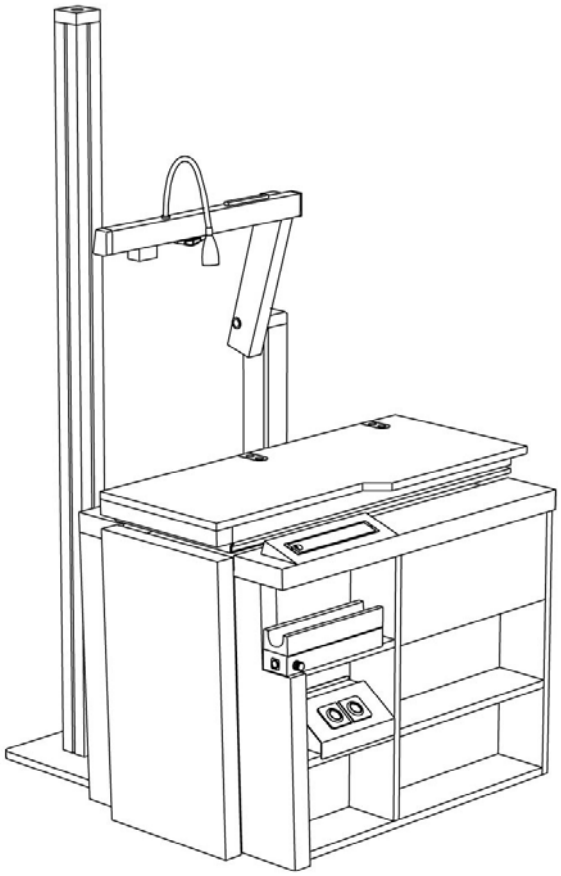
BLOCK OPTIC



Manual
Duoline® 4.0
Examination and refraction unit

Sample illustration

Original manual since 2020

State : October 2021

Subject to technical changes!

Foreword

Thank you for the confidence you have placed in us by purchasing this examination/refraction unit. With the Duoline® 4.0 examination/refraction unit, you have chosen a modern, sophisticated product that has been manufactured and tested according to strict quality criteria. Continuous development may result in changes to the design and scope of delivery. The illustrations in these operating instructions may therefore differ from the delivered unit in individual cases. The illustration shows the right-hand version. For the left-hand version, the arrangement of the unit is correspondingly mirror-inverted. If you have any questions or require further information on your examination/refraction unit, please contact us! Our service team will be happy to assist you.

1 Index

2 General

2.1 Information about the user manual

These manual is an are part of the Duoline® 4.0 examination/refraction unit and must therefore be kept with the Duoline® 4.0 examination/refraction unit. Before working with the Duoline® 4.0 examination/refraction unit, read these manual carefully and familiarize yourself with all the functions.

If you have any questions about the use of this product, please contact our customer service/field staff who will be happy to assist you.

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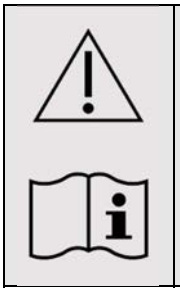
Block Optic accepts no liability for damage resulting from improper operation of the Duoline® 4.0 examination/refraction unit and/or failure to observe the provisions of this operating manual.

Notice:
The illustrations in this manual may be shown differently than the actual delivery and are only for understanding the functions.

2.2 General safety regulations

The Duoline® 4.0 examination/refraction unit is used exclusively in the field of ophthalmology and optometry. The Duoline® 4.0 examination/refraction unit fulfils the requirements of Annex 2 of the Medical Devices Act (MPBetriebV). In addition, the local accident prevention regulations and general safety regulations for the area of application of the unit apply, as do the respective valid regulations of the VDE/EN standard.



WARNING!

Before using the Duoline® 4.0 examination/refraction unit, read this manual carefully.

It contains important handling and safety information for users and patients.

2.3 Explanation of symbols

Important text passages in these operating instructions are specially marked by highlighting and keywords. The following highlighting is used in these operating instructions:

	**FORBIDDEN!** Failure to observe these instructions may endanger the user and/or patient and may damage the Duoline® 4.0 examination/refraction unit.
	**CAUTION!** Indicates a potentially dangerous situation. Observe the precautions marked in this way to avoid endangering persons or damaging property.
	**IMPORTANT!** Indicates important information. Please read this information to maintain the high safety and functional standard of the examination/refraction unit.
	**NOTE!** Indicates information on correct use. Please read this information to avoid operating errors.
	**DANGER!** Indicates a potential danger to life due to electric shock.
	**SECURITY!** During electrical tests, the unit must be disconnected from the power supply and secured against being switched on again.
	**SERVICE!** Service should only be carried out by Block Optic or Block Optic authorised personnel.
	**DISPOSAL!** Disposal information.

2.4 Copyrights and trademarks

All rights to these operating manual, in particular the right of reproduction, distribution and translation, are reserved by Block Optic.Infringements are punishable by law and will result in liability for damages. All rights to the exercise trademarks are reserved by Block Optic.

2.5 Limitation of liability

All information and notes in these operating instructions have been compiled taking into account the applicable standards and regulations, the state of the art and our many years of knowledge and experience.

The company Block Optic assumes no liability for damage caused by

- Failure to follow the manual
- untrained staff
- unauthorised conversions
- Unapproved technical modifications
- Use for visible damage to electrical connections
- Use for electrical or mechanical problems
- a general malfunction
- Use of unauthorised spare parts by Block Optic

have arisen.

2.6 Repair and spare parts

The examination/refraction unit can only be repaired by Block Optic or by a specialist company authorised by Block Optic.

CAUTION!

Non-approved spare parts can impair safety and lead to damage, malfunctions or total failure.
Please use only original spare parts from the manufacturer.

2.7 Warranty conditions

The "General Terms and Conditions of Sale and Delivery" of the company Block Optic. These can be viewed on our website www.block-optic.com.

2.8 Customer service

Our customer service is available for technical information.In addition, our staff are constantly interested in suggestions for improvements resulting from the application and leading to improvements of the examination/refraction unit.

3 Safety

This section serves as an overview of all safety instructions that ensure the smooth and safe operation of the Duoline® 4.0 examination/refraction unit. Compliance with the handling instructions and the safety instructions must be ensured.
Failure to comply may result in danger to the operator and/or patient.

3.1 Manufacturer responsibility

We, as the manufacturer, guarantee that the examination/refraction unit Duoline® 4.0 has been manufactured according to the latest state of the art and the recognised safety rules.
This applies in particular to the:

compliance with the 2014/30/EU	(electromagnetic compatibility)
compliance with the 2017/745/EU	(medical devices)
compliance with the EN 60601-1-2 2015	(Medical electrical devices)
compliance with the EN 55011	(Interference emission)
compliance with the IEC 801	(Interference immunity)

3.2 Operator responsibility

The operator is responsible for the flawless technical condition of the examination/refraction unit. Therefore, the following applies:

- The operator must clearly regulate and define the responsibilities for operation, maintenance and cleaning.
- The operator must comply with the maintenance intervals as described in the operating instructions
- The operator must check the safety devices at regular intervals.
- The operator must check the examination/refraction unit for visible damage at regular intervals.
- In the event of damage, the operator must call Block Optic or a specialist company authorised by Block Optic to repair the damage.

4 Technical specifications

4.1 Space requirement

Depending on the design of the examination/refraction unit, the dimensions may vary. A detailed isometry is provided in the appendix.

Example:

Version	max. dimensions (L x B x H)
Examination/refraction unit with telescopic table for one position	1764 x 1228 x 2000 mm
Examination/refraction unit with telescopic table for two positions incl. Neo chair **with** inclinable backrest	2215 x 1943 x 2000 mm
Examination/refraction unit with telescopic table for two positions incl. Neo chair **without** inclinable backrest	2215 x 1228 x 2000 mm
Examination/refraction unit with telescopic table for three positions incl. Neo chair **with** inclinable backrest	2725 x 1943 x 2000 mm
Examination/refraction unit with telescopic table for three positions incl. Neo chair **without** inclinable backrest	2725 1228x 2000 mm
Minimum and maximum travel distance of the phoropter arm vario function from the ground to the lower edge of the phoropter mount	min.: 1340 mm max.: 1540 mm

NOTE!

A height of 2000 mm is reached without a chart projector at an examination/refraction unit with a chart projector column.

4.2 Connection values

Specification	Value
Line voltage	230 V AC
Frequency	50 Hz
Permissible deviation from the nominal line voltage	5,00 %
Max. Watt	2300 Watt
Stand-by power consumption without power supply and additional devices	13 Watt
Maximum load of the room light connection	450 Watt
Device fuse protection (on site)	Connection to a separate circuit, must be disconnected from the main distribution via 2-pole FI-LS B16/0.03A A protective wire from the potential matching min. 4 mm² to max. 6 mm².
Protection class	I
Risk classification	IIa

4.3 Operating conditions

Specification	Value
Temperature range	+10 °C bis +40 °C
Relative humidity	30 % bis 70 %
Air pressure	700 hPa bis 1060 hPa
Mounting	in dry indoor rooms

4.4 Label

The lable on the examination/refraction unit shows the following information:

	Manufacturer with address
Model	Type name
SN	Serial number
	Year of manufacture
VAC	Line voltage and frequency max.
VA	max. Power draw
CLASS	Risk class
	CE-Label
	Disposal note
	Read manual carefully

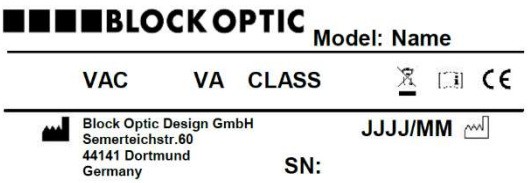


Figure 1: Examination unit label

5 Delivery

5.1 Scope of delivery

The scope of delivery of the examination/refraction unit Duoline® 4.0 varies depending on the equipment variants.The respective scope of delivery is listed in detail on the delivery note.

5.2 Optional accessories

A list of the extensive accessories for the Duoline® 4.0 examination/refraction unit can be obtained from Block Optic or from an authorised Block Optic dealer. You will find a short excerpt in chapter 13

5.3 Wrapping

The Duoline® 4.0 examination/refraction unit can be delivered in a special transport box if required. The dimensions and weight of the packaging are variable depending on the equipment.
Upon delivery, please check the packaging boxes for external damage and observe the enclosed freight instructions!

NOTE!
The packaging weight is min. 275 kg.
Please ensure that all individual parts belonging to the unit are removed completely.

6 Mounting and electrical connection of the examination/refraction unit

6.1 Mounting

The Duoline® 4.0 examination/refraction unit is installed exclusively by Block Optic or by a company authorised by Block Optic.

6.2 Electrical connection

The Duoline® 4.0 examination/refraction unit may only be installed in rooms that meet the requirements of VDE 0100-710.
Depending on the equipment of the Duoline® 4.0 examination/refraction unit, it can be permanently connected to the practice/clinic building installation by means of a PLD or EASY wall connection box.

A: Main switch if the unit
Turning it tot he 0 position switches off the examination/refraction unit completely. All loads that are supplied via the unit are without voltage.

B:Input fuses and fuses of the externally connected loads at the control PLD, see technical appendix.

C:Flexible lead connection for the examination/refraction unit 3.5 metres.

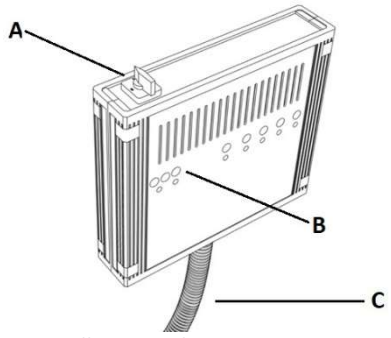


Figure 2: Wall junction box WAK PLD

A:Main switch of the unit
Turning it to position 0 switches off the examination/refraction unit completely. All loads that are supplied via the unit are without voltage..

B:Flexible lead connection for the examination/refraction unit 3.5 metres.

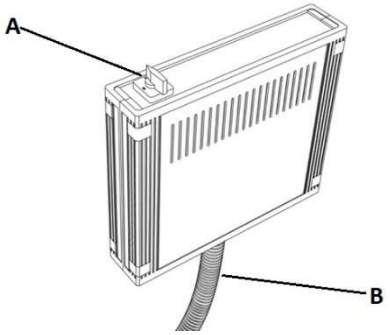


Figure 3: Wall junction box WAK Easy

CAUTION!

The installation of the wall connection box in the house electronics with connection of the external loads may only be carried out by a certified electrical specialist company and not by Block Optic.

FORBIDDEN!

The wall junction box may only be opened by Block Optic or a Block Optic certified electrical contractor.
All adjustments in this item may only done by Block Optic or a specialist company authorised by Block Optic.

The coupling of the examination/refraction unit with non-medical devices (e.g. data processing devices) to a medical-electrical system must not lead to a safety hazard for the patient, user and the environment.

7 Mounting third party devices on or at the examination/refraction unit

NOTE!

The assembly of corresponding devices for diagnostics may only be carried out by the company Block Optic or by the approval of a company authorised by Block Optic.
The safety specifications and regulations for the assembly or the corresponding commissioning can be found in the corresponding instructions for the device.

8 Basic concept

The Duoline® 4.0 examination/refraction unit is used to accommodate the examination/refraction devices commonly used in ophthalmology and optometry. The examination/refraction unit with the installed devices is the central point for the devices and any connected external wiring, e.g. curtain pull or room lighting.
An extension of the examination/refraction unit Duoline® 4.0 is possible according to the modular principle.
Due to the large number of possible combinations, consultation with the Block Optic sales department or a specialist company authorised by Block Optic is required (possible extensions in the appendix).

9 Handling

NOTE!

Before each start-up, the examination/refraction unit and its external lines must be checked for external damage.

All electrical functions are controlled via an ergonomically placed keyboard.

9.1 Keyboard

The keyboard consists of 20 keys and a rotary control for the table-top units (not LED and 230 V).
The on/off button switches the Duoline® 4.0 examination/refraction unit on or into stand-by mode.
The rotary potentiometer is used to adjust the brightness of the connected table-top units up to 12 volts.
The keyboard is available in different versions.

Figure 5: Standard keyboard not illuminated, right

Figure 4: Night design blue illuminated, left

9.2 Functions via the keyboard

9.2.1 Chair function

Figure	Function	Description
	Chair UP	The chair moves upwards by electric motor.
	Chair DOWN	The chair moves downwards by electric motor.
	Chair AUTO DOWN	The chair moves to the basic position by electric motor.
	Seat FORWARD	The seat is moved forward by electric motor (optional).
	Seat BACK	The seat is retracted by electric motor (optional).

	**CAUTION!** The motor of the chair is **not** suitable for continuous up and down operation by the electric motor height adjustment. After continuous operation of the height adjustment for 1.5 minutes, a cooling time of at least 8.5 minutes must be observed. If the height adjustment is operated continuously for longer than 1.5 minutes, this can lead to a defect in the height adjustment.

9.2.2 Table function

Figure	Function	Description
	Pos. 0 (manuel) Pos. 0 (e-motoric)	With a manual unit, the magnet is released to move the table to the home position. With an electromotive table and/or phoropter rail, position 0 is approached.
	Pos. 1 (e-motoric)	The table moves to position 1 by electric motor.
	Pos. 2 (e-motoric)	The table moves to position 2 by electric motor.
	Pos. 3 (e-motoric)	The table moves to position 3 by electric motor.
	Phoropter (motoric)	The phoropter rail moves into the phoropter position by electric motor.

	**NOTE!** The motors for the electromotive movement of the table and phoropter rail are not subject to any travel time restrictions. In normal working mode, this does not require any cooling time.

9.2.3 Illumination function

Figure	Function	Description
	Reading lamp	Pressing the button briefly switches the reading lamp on/off. Pressing the button for a longer time dims the reading lamp.
	Room light	Pressing the button briefly switches the room light on/off. Pressing the button for a longer time dims the room light.
	Fix light	The Fix light is switched on/off
	Maddox	The Maddox Cross is switched on/off.

9.2.4 Various function

Figure	Function	Description
	Curtain UP	The curtain is opened by electric motor.
	Curtain CLOSED	The curtain is closed by electric motor.
Res	Reserve	Can switch any connected function potential-free.
	Vario UP	No function
	Vario DOWN	No function

9.3 Function of the examination unit Duoline® 4.0

9.3.1 Height adjustement of patient chair

The height of the patient chair is adjusted using the three buttons on the keyboard.
A foot switch is also available as an option, please refer to the instructions for the Block Optic patient chair for more details.

NOTE!

Whenever the height of the chair is adjusted or the table is turned, make sure that the patient is not exposed to any danger. Especially when adjusting the height of the chair, the seat shift and footrests are a source of danger. Therefore, make sure that the patient always positions his or her feet on the footrest.

CAUTION!

If the patient's feet are not on the footrest, there is a DANGER OF SQUASHING when the chair is moved downwards.
The footrest does **NOT** serve as a standing aid.

9.3.2 Table and phoropter rail electrotive (optional)

With an electric motor-driven table/phoropter arm, the desired position is approached by pressing the corresponding key on the keyboard.

NOTE!

If an examination/refraction was performed in position 2/3 and this position is not electrical, the table must be moved back from position 2/3 to position 1.
Only then may the table be moved to the home position with the 0 key.
Failure to do so will result in damage to the unit.

The driving behaviour of the electric motor drives can be adjusted by Block Optic's own software "Speedy".
Example :

- Driving behaviour of table and phoropter rail
- Driving speed oft he motors
- Blockage detection of the motors

A: USB A connection for the "Speedy" software

B: Keyboard

C: Charging case

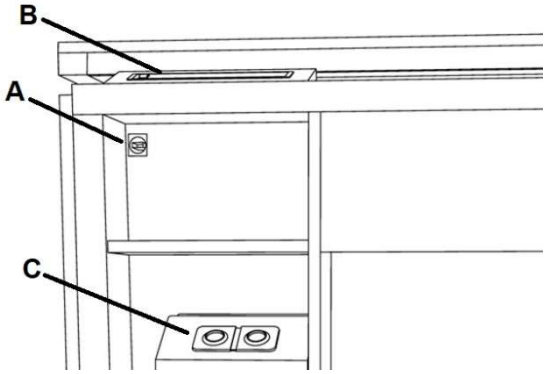


Figure 6: USB port for Speedy software

9.3.3 Table position 1 (manual)

By pulling out on the recessed grip of the hand table, the telescopic table locks into the working position by means of a magnet.
When the examination/refraction is finished, the lock must be released by pressing the Pos. 0 button. At the same time, only then can the table be pushed into the home position.

A: Recessed grip for manual movement in position 1 and 0

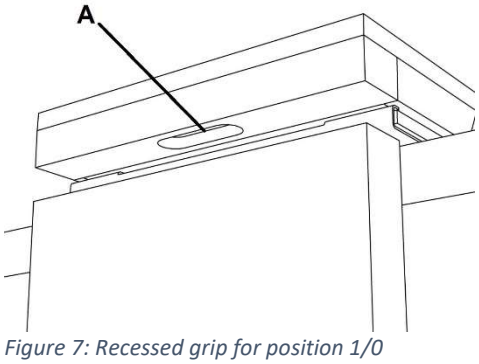


Figure 7: Recessed grip for position 1/0

FORBIDDEN!

Never move the table into position by grasping the headrest.
Please always use the handle.

9.3.4 Table position 2/3 (manual)

To change between the 1st and 2nd/3th table positions, press the locking button on the top plate downwards and at the same time push the top plate into the positions. There, the table automatically engages mechanically.
After the examination/refraction is finished, the top plate is pushed into the 1st position.

NOTE!

If an examination/refraction was performed in position 2, the table must be pushed back from position 2 to position 1.
Only then can the table be moved to the home position by pressing the position 0 button and pushing it at the same time.

A: Release button for the 2nd and 3rd position in the case of a non-electromotive table displacement

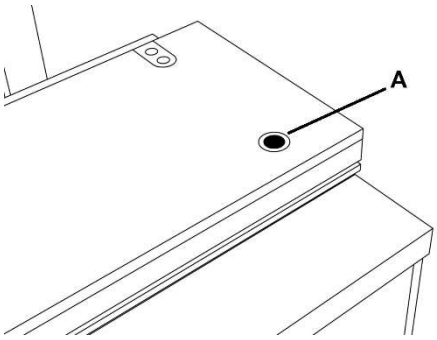


Figure 8: Release button for the 2nd and 3rd position

9.3.5 Phoropter arm with phoropter rail

There are two different versions of the phoropter arm:

- Physiologically pre-inclined phoropter arm (rigid) with phoropter splint (Figure 9)
- Physiologically inclinable phoropter arm (Figure 10)

All variants are available with electric motor or manual movement.

9.3.6 Phoropter arm physiologically pre-inclined (rigid)

The manual phoropter arms physiologically pre-inclined (rigid) and physiologically inclinable are pulled by their handle over the phoropter rail into the working position.
There, this phoropter arm locks in place mechanically.
After completion of the examination/refraction, the phoropter arm is manually pushed back into the basic setting via the phoropter rail, where it also engages mechanically again.

A: Physiologically pre-inclined phoropter arm
B: Handle phoropter arm
C: Reading lamp (optional)
D: Mounting block for phoropter

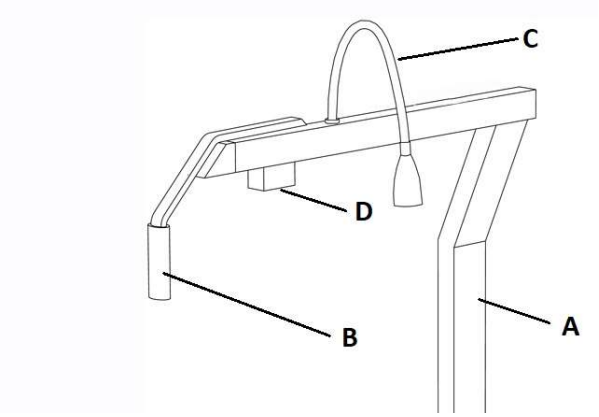


Figure 9: Physiologically pregelatinised phoropter arm (rigid)

9.3.7 Phoropter arm physiologically inclinable

A: Physiologically inclinable phoropter arm
B: Handle phoropter arm
C: Mounting point reading lamp (optional)
D: Mounting block for phoropter
E: Release mechanism for tilt Phoropter arm
F: Pivot point for horizontal tilt
G: Phoropter arm status indicator

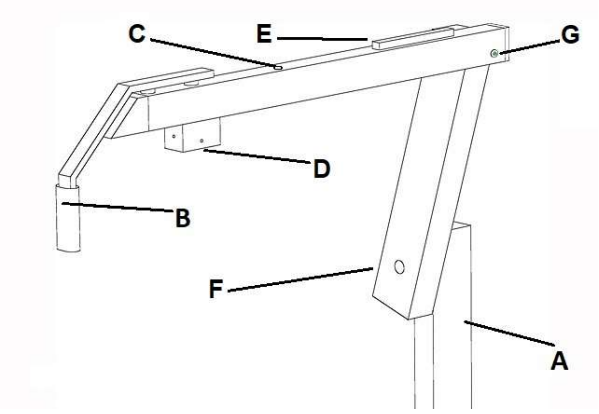


Figure 10: Physiologically inclinable phoropter arm

9.3.8 Vario function phoropter arm (optional)

With the Vario buttons on the phoropter arm, you can adjust the height of the phoropter arm continuously from 1340 mm to 1540 mm. This function is intended for wheelchair patients or to adjust the user's optimal working height.

Vario function Height adjustment from:

A: Vario keyboard for height adjustment
Ca. min.: 1340 mm
Ca.max.: 1540 mm

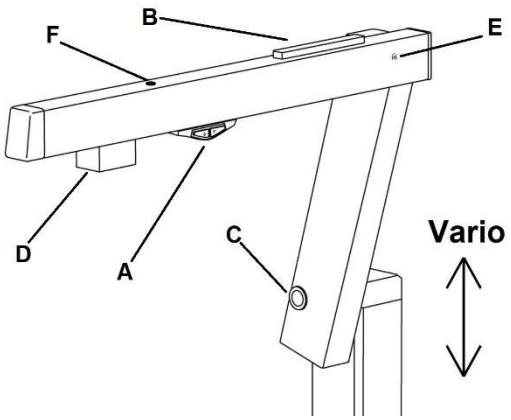
B: Release mechanism for tilt
Phoropter arm

C: Pivot point for horizontal tilt

D: Mounting block for phoropter

E: Phoropter arm status indicator

F: Pick-up point reading lamp (optional)



⚠	**CAUTION!** If you use the Vario function, please make sure that you do not expose the patient to any danger by changing the height. The way fort he movement must be free of objects or obstacles (danger of crushing).

9.3.9 Undulated tray (optional)

The undualted tray is used to hold ophthalmic hand-held devices (Figure 11). The respective power supply is provided by pick up the hand held divice.
This can be regulated via a potentiometer on the undulated tray. With an optional room light control, the room light can be dimmed when the ophthalmic handset is rpicked up from the undulated tray.

9.3.10 Charging case (optional)

The charger, monitors and charges up to two optional battery handles (Figure 11)
These are also charged when the unit is switched off via the keypad.

A: Undulated tray for a wired handset
B: Potentiometer for light control of the handsets
C: Charger for two battery handles

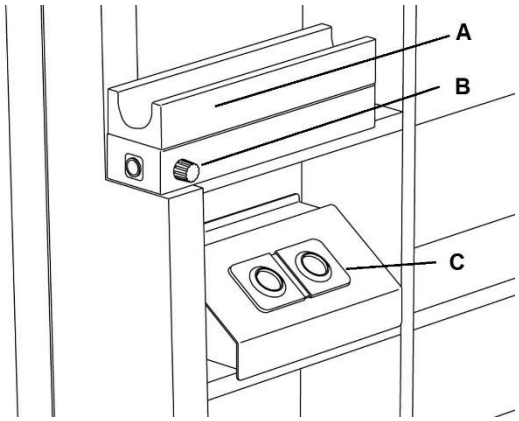


Figure 11: Undulated tray and charging case

9.3.11 Room light (optional)

Depending on the equipment of the examination/refraction unit Duoline® 4.0, the room light can be adjusted to the customer's requirements when the unit is mounted.
The room light reacts to the respective position of the telescopic rail and the phoropter rail with phoropter arm.
A later room light adjustment is possible via the keyboard or by changeover (fixed) in the wall connection box, depending on the design of the control unit.

10 Safety system

NOTE!

When using the telescopic unit table, make sure that the patient rests his hands comfortably on the armrests of the patient chair, as there is a risk of crushing at the headrest holders!
When combining with products from other manufacturers, pay particular attention to the safety requirements. The safety shutdown of the vario and chair function must be guaranteed.
Block Optic accepts no liability for improper use and any resulting damage.

10.1 Interior light control via Dali module

The Block Dali module is individually programmed, according to the examination unit configuration. It is programmed by Block Optic Design GmbH.

10.1.1 Dali module equipment

As usual, the interior light can be changed via the room light button (on/off, dimming).

- *With interior light automatic without memory function*
  The brightness values of the individual positions are set via the Dali software on customer request.
- *With interior light automatic with memory function*
  The brightness values of the individual positions are saved using a key combination on the keyboard.

10.1.2 Process of storing the brightness

- *By electromotive system:*
  1. Set the examination unit in the respective position.
  2. Set the desired brightness value using the room light button.
  3. Press and hold the Maddox/Store button to save. Then press the respective button.
  4. As feedback from the storage, the room light goes out and then moves to the stored brightness.

- *By manual system:*
  1. The table and the phoropter are in the basic position.
  2. Set the desired brightness value using the room light button.
  3. Press and hold the Maddox/Store button to save. Then press the respective button.
  4. As feedback from the storage, the room light goes out and then moves to the stored brightness.
  5. The room light only changes its brightness in the end position of the unit.

10.2 Switch-off bar (ASL)

A safety bar is installed on the underside of the unit table to protect the patient and prevent the patient's thighs from being pinched or crushed. Mechanical contact with the safety bar on the telescopic table causes the chair and Vario drive to stop immediately.

IMPORTANT!

A regular check is absolutely necessary!

NOTE!

If the shut-off bar (ASL) is triggered, the chair will not move upwards and the examination/refraction unit will not move downwards. There must always be a small gap between the shut-off bar and the micro switch (Figure 12).

A: Detailed view ot the switch off bar

B: Movable contact plate of the switch-off bar

C: Microswitch of the switch-off bar with distance to the contact plate

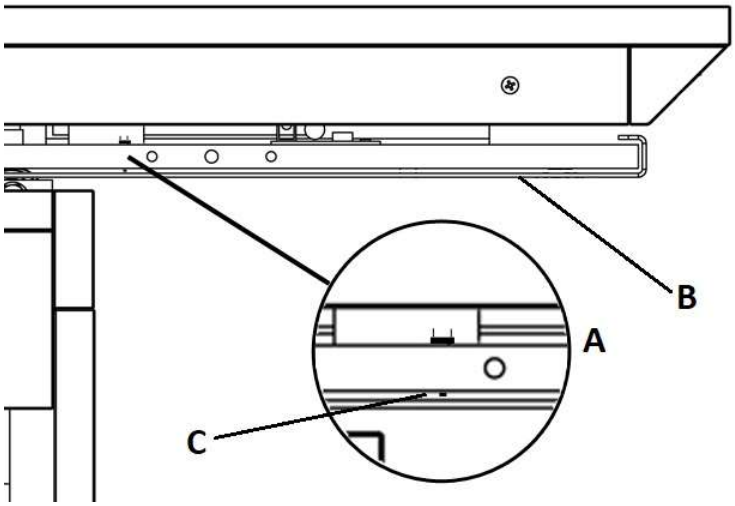


Figure 12: Switch-off bar (ASL)

10.3 Phoropter rail with phoropter arm tilting device (optional)

The tilting device ((Figure 13) enables a physiological reading posture.
The tilting device has a safety device that prevents the movement of the electromotive phoropter rail and the electromotive telescopic optic when the phoropter arm is tilted forward. The travel lock is only released when the phoropter arm is in the home position.

A: Phoropter arm status indicator
Led light green/ phoropter arm in home position
Driving back and forth possible.
Led light off / phoropter arm in reading osition:
Driving forward and backward are blocked.

B: Release mechanism for tilt phoropter arm
Pressing this trigger and pulling it forward/backward allows the phoropter arm to be brought into the reading tilt or home position.

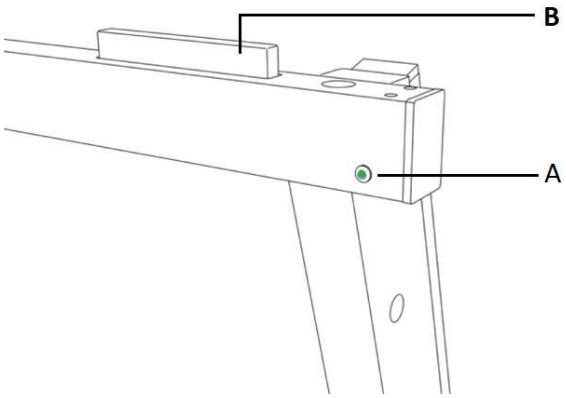


Figure 13: Tilt mechanism

NOTE!
The green LED turns off when the phoropter arm is tilted forward.

10.3.1 Safety and usage instruction for the chair and its function

For the directional movements of the chair (up/down/auto down) and Vario (up/down), you must wait approx one second when pressing the corresponding button for safety reasons.
If the time is less than approx one second, NO movement is carried out.
Permanent repeated pressing of the button (so-called "nervous finger") automatically extends the respective safety release.
If the examination/refraction unit Duoline® 4.0 is equipped with an optional docking station, the following must be done
after actuating the "automatic down" function of the chair, the button for the upward movement must be pressed twice for safety reasons in order to carry out the corresponding change of direction.

11 Repairs

If a fault occurs that is not described in **Fehler! Verweisquelle konnte nicht gefunden werden.** or a repair needs to be carried out, contact Block Optic or a Block Optic authorised service partner directly.

For quick assistance, have the serial number of the unit and, if applicable, a customer number ready. If possible, send us photos or a video of the problem with a short description to support@block-optik.com.

NOTE!

A comprehensive repair may only be carried out by Block Optic or by a specialist company authorised by Block Optic

A trained electrician can be consulted for an initial diagnosis.
This is required:

- the matching circuit documents of the Duoline® 4.0 examination/refraction unit.
- a measuring device with continuity tester for fuses.

They can check the fuses and replace defective fuses.

CAUTION DANGER!

When checking fuses on the Duoline® 4.0 examination/ refraction unit, it must be de-energised and secured against being switched on again.

IMPORTANT!

Only fuses with the same values may be used.

11.1 Possible errors

Errors that the user can correct himself are:

Error	Possible cause/possible solution
Slit lamp without function	Is the table in the correct working position? • Move the table to the correct working position. Is the brightness control set to max? • Move the brightness control to the middle position. Is the slit of the slit lamp open? • Check and change the gap position. Is the slit lamp bulb defective? • Replace bulb.
Unit without function	Is the toggle switch on the wall junction box in position 1? • Check the position of the toggle switch and turn it to pos. 1, (Figure 2), (Figure 3). Is the unit switched on via the keyboard ? • Switch on the unit using the standby button on the membrane keypad,(Figure 5), (Figure 4).
Chair does not go up/ examination/ refraction arm does not go down.	Is the shut-off bar activated (obstacle)? • Remove the obstacle under the switch-off bar (Figure 12). Is the cut-off plate (ASL) hidden? • Check and straighten the cut-off plate (Figure 12).
Phoropter rail with physiological reading inclination of the phoropter arm no longer retracts.	If the phoropter arm is completely tilt back and the green LED on the phoropter arm lights up? • Bring the phoropter arm completely out of the physiological reading inclination so that the LED lights up (Figure 13: Tilt mechanism).

12 Maintenance

12.1 Service

A distinction is made between two service intervals.

NOTE!

To maintain the high safety standard and quality of the Duoline® 4.0 examination/refraction unit, we recommend that the unit be subjected to regular service. For service of the installed examination/refraction devices/supply products, please refer to the operating instructions of the respective device in each case.

Service intervals type A: After max. 1 year Practice and clinic operation	Service intervals type B: Every 2 years
• General check for correct function. • Checking the sliding contacts. • Checking for foreign objects in the uni.t • Checking the safety devices. • Cleaning the rails. • Lubrication of the rails.	• Safety inspection (STK incl. DGUV A3 according to VDE 0751). • Check the condition of all external cables (check for insulation damage). • General check for correct function • Checking the sliding contacts with inspection for foreign bodies. • Checking the safety devices. • - Checking the slipping clutches. • Cleaning the rails. • Lubrication of the rails.

Service on the Duoline® 4.0 examination/refraction unit may only be done by:

	Annual	2 years
Practice and clinic operation	Operator or Block Optic or a company authorised by Block Optic.	Block Optic or a company authorised by Block Optic.

NOTE!

We recommend using WD 40 for cleaning and lubricating the running rails.

12.2 Cleaning and care of the examination unit

The antibacterial coated surfaces of the examination/refraction unit Duoline® 4.0 are wiped with a clean, slightly damp cloth.
Do not use abrasive or aggressive cleaning agents or disinfectants containing solvents.
Block Optic accepts no liability for damage caused by unsuitable cleaning agents.
Please also do not use solvents, chlorides, polishes, chemical cleaners or wax polishes. Please remove ink stains immediately.
Do not use agents containing oil or grease.

IMPORTANT!

When cleaning the examination/refraction unit with moistened cleaning cloths, no moisture may penetrate the keyboard elements.
Set the toggle switch on the wall connection box to position 0 before starting cleaning!
Allow the Duoline® 4.0 examination/refraction unit and the equipment to dry completely before putting it back into operation!

12.2.1 Disinfection oft he surfaces of the examination/refraction unit.

All surfaces can be disinfected by the disinfectant Meliseptol® Foam Pure or Meliseptol® Rapid.
Wet all plastic and painted surfaces completely with Meliseptol® Foam Pure and rub with a clean cloth. Do not rub the surfaces too dry.

IMPORTANT!

Make sure never to wet the keyboard and the connectors in the unit table directly. Please use a clean cloth soaked in disinfectant and wipe afterwards.

Real wood veneer or surfaces with a tactile structure are not suitable for 100% disinfection due to their surface structure, as they are coated with an antibacterial clear varnish. A longer exposure time with a surface wetting with e.g. Meliseptol® Foam Pure or Meliseptol® Rapid and a not complete reabsorption of the residual disinfection liquid would lead to damage in the surface.
Before disinfecting, you should test the corresponding agent for compatibility on an inconspicuous area. The appropriate exposure time must be observed.
You can find more information at https://www.medipolis-intensivshop.de/

13 Optional upgrade options:

13.1.1 Illumination

- DALi-Interface.
- Dim Converter 1-10 V for dimming fluorescent tubes with corresponding ECG.
- Bus coupler for potential-free transmission of external signals.
- Three- or five-channel automatic room light for the telescopic table, phoropter rail and undulating tray.
- Modern "Tolomeo" reading light for the multifunctional column incl. adapter and electrics.
- Reading light with swan neck, mountable on phoropter arm.

13.1.2 Unit

- Holder for glasses or headband ophthalmoscopes.
- Undulating trays for ophthalmic handpieces incl. Electrics.
- Charger for battery-powered hand held devices.
- Voltage tower for supply of external 230 V devices.

13.1.3 Multifunctional column

- Chart projectors incl. projector adapter.
- Reading lamp incl. Adapter.
- Monitor holder.

13.1.4 Phorpter rail with phoropter arm

- Straight.
- Physiologically inclined.
- With tilt device (physiological tilt device).
- Height adjustable phoropter arm.

13.1.5 Chair

- All patient chairs from Block Optic.
- Dditional foot switch for the lifting movement of the patient chair.
- Docking station for a handicapped accessible examination/refraction unit.
- Seat displacement.
- Measuring glass box.
- BriTa (glasses and bag storage).

13.1.6 Desk

- Desks in different shapes and sizes.
- Drawers to hold the set of tasting glasses, suitably installed under the desk leaf.
- Base cabinets for the desk part in various versions.

13.1.7 Table top of the unit

- Table extension for large devices.
- Table extension up to 11 cm for comfortable examination/refractions with slit lamps and magnifying glasses.
- Cable pole incl. holder for the power cable of the slit lamps.
- Cut-out for Haag Streit LED lighting controller in table top or keyboard bar.

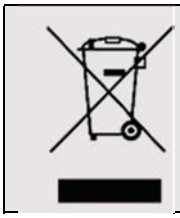
14 Appendix

- Block Optic is certified according to EN ISO 9001.
- The EMC report for the Duoline® 4.0 examination/refraction unit can be requested from Block Optic at any time.

14.1 Classification

EN 60601-1-2	Instrument table according to protection class I
Vario motor operating mode	with interruptions (1.5 min on / 8.5 min off)
Operating mode Table and phoropter arm motors	without interruption

14.2 Disposal



DISPOSAL!

All electrical appliances must be disposed of separately from household waste. For correct disposal, contact Block Optic.
This ensures that valuable raw materials are not wasted and harmful substances are not released into the environment.

14.3 Note and manufacture’s declaration regarding electromagnetic compatibility (EMC)

The Duoline® 4.0 examination/refraction unit fulfils the EMC requirements according to EN 60601-1-2 and is constructed in such a way that the generation and emission of electromagnetic disturbances are limited to such an extent that other devices are not disturbed in their intended operation. The Duoline® 4.0 examination/refraction unit itself has adequate immunity to other electromagnetic disturbances.

WARNING!

Medical electrical equipment and systems are subject to special measures in connection with EMC and must be installed accordingly.
Portable and mobile RF communication equipment, e.g. radio telephones, can affect electrical medical equipment.

14.4 Drawings

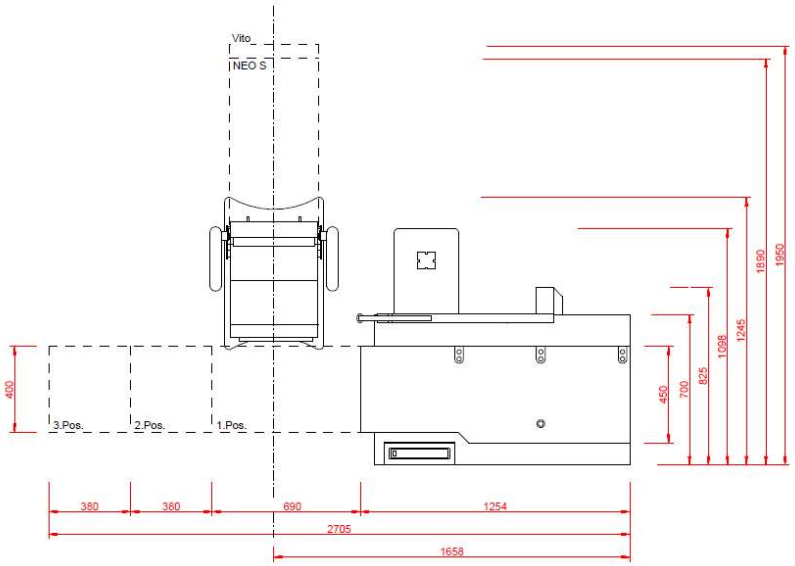


Figure 14: Examination unit Duoline® 4.0 right version for three devices

15 EC declaration of conformity

For the following examination/refraction units of the company Block Optic:

C^{ara}T®, DUOLINE® 4.0, VarioCarat®

INNOVARIO®, IDEO®, SOLO®

it is hereby confirmed that they comply with the requirements laid down in the following European Council Directives on the approximation of the laws of the Member States:

2014/30/EU	electromagnetic compatibility,
2017/745/EU	Medical devices.

Zur Beurteilung der Erzeugnisse wurden folgende Normen herangezogen:

EN 60601-1:2006	Medical electrical equipment,
EN 55011	Interference emission,
IEC 801	Interference immunity.

This declaration becomes the responsibility of the manufacturer:

Block Optic Design GmbH
Semerteichstr. 60
44141 Dortmund
Deutschland

These devices are marked with:

CE

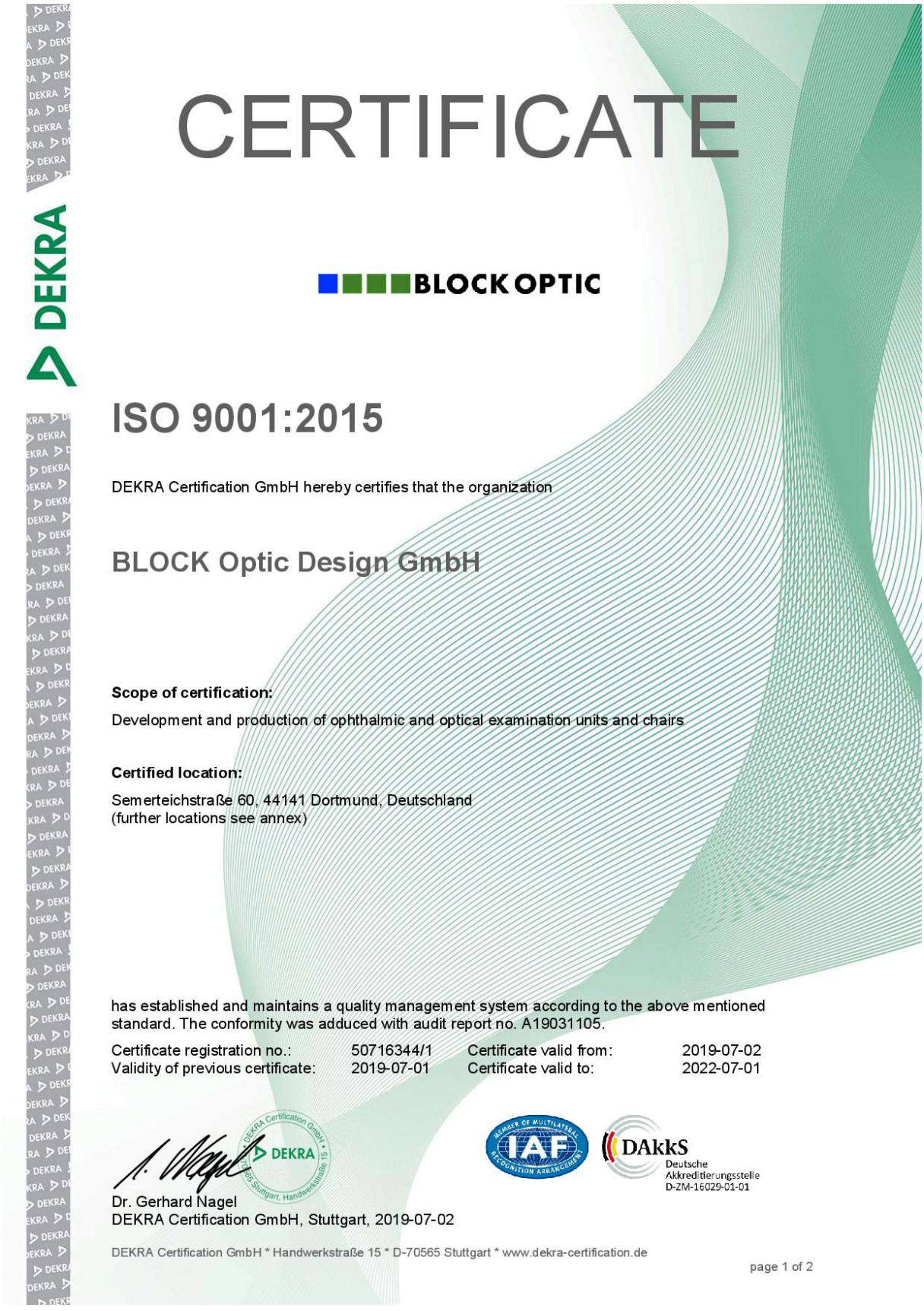
Issued by:

J. Grawunder, managing director

Dortmund, 1. December 2021

(place,date) **(valid signature)**

16 ISO-certificate



CERTIFICATE

BLOCK OPTIC

ISO 9001:2015

DEKRA Certification GmbH hereby certifies that the organization

BLOCK Optic Design GmbH

Scope of certification:

Development and production of ophthalmic and optical examination units and chairs

Certified location:

Semerteichstraße 60, 44141 Dortmund, Deutschland
(further locations see annex)

has established and maintains a quality management system according to the above mentioned standard. The conformity was adduced with audit report no. A19031105.

Certificate registration no.:	50716344/1	Certificate valid from:	2019-07-02
Validity of previous certificate:	2019-07-01	Certificate valid to:	2022-07-01

Dr. Gerhard Nagel
DEKRA Certification GmbH, Stuttgart, 2019-07-02

DEKRA Certification GmbH * Handwerkstraße 15 * D-70565 Stuttgart * www.dekra-certification.de

page 1 of 2

Annex to the Certificate No. 50716344/1

valid from 2019-07-02 to 2022-07-01

The following locations belong to the certificate above:

	Headquarter	Certified location	Scope of certification
	BLOCK Optic Design GmbH	Semerteichstraße 60 44141 Dortmund Deutschland	Development and production of ophthalmic and optical examination units and chairs
	Subsidiaries	**Certified locations**	**Scope of certification**
1.	BLOCK Optic Design GmbH	Industriestraße 6 46342 Velen Deutschland	Development and production of ophthalmic and optical examination units and chairs

Dr. Gerhard Nagel
DEKRA Certification GmbH, Stuttgart, 2019-07-02