SEILER IQ

LED Dental Microscope Slim Model

User's Manual

SEILER
PRECISION MICROSCOPES

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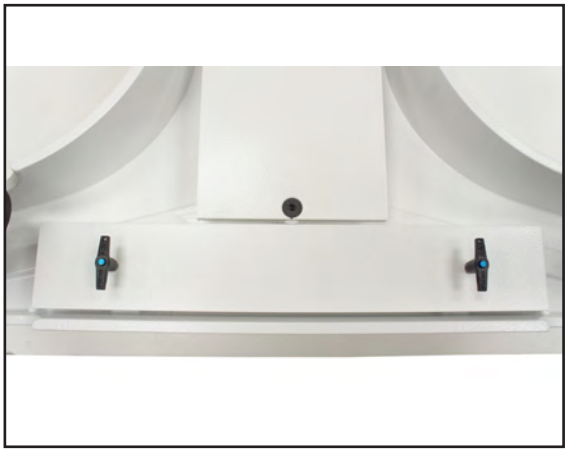
Installation & Assembly



1. Remove the base from the box and set base bottom up (casters facing up) on the cardboard or foam from the box for cushion.
2. Remove the base weights from the weights box and insert the weights one at a time into the bottom of the base.

   Align the pins with the holes and depress the thumb lock button to put the weights into place.

   Flip the base over so that the top center post is facing upward.

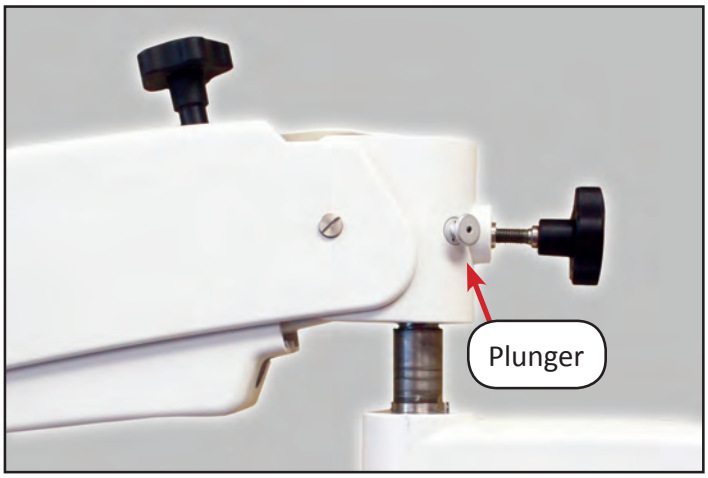
   ** Be sure to check to make sure that the weights are secured before flipping the base over.*

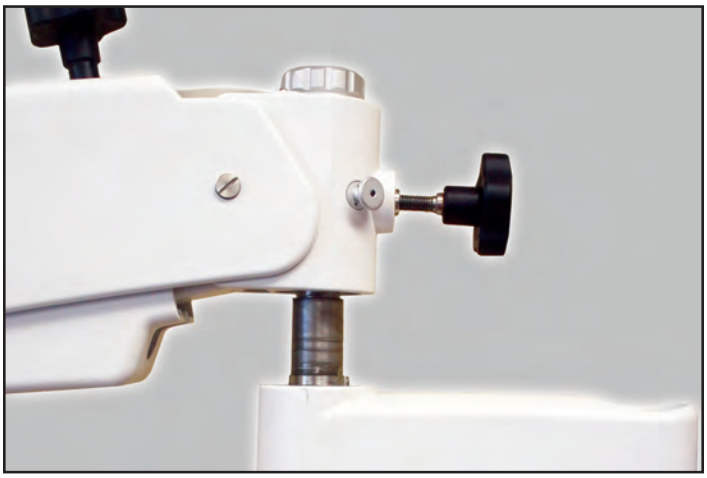
3. Remove the pole from the packaging and insert pole into the center post hole in the base. Align the two indention marks in the pole to the holes in the base center post hole collar.
4. Once the pole is secured into the base, insert the Light Housing/Light Source portion of the microscope into the top of the pole. This is where the illumination system is housed. Make sure that the light source is secured while inserting the light source into the pole.

Once the pole is in the collar and indentions are aligned, use the provided Allen Wrench to tighten the two Allen bolts in the base center post collar to secure the pole.

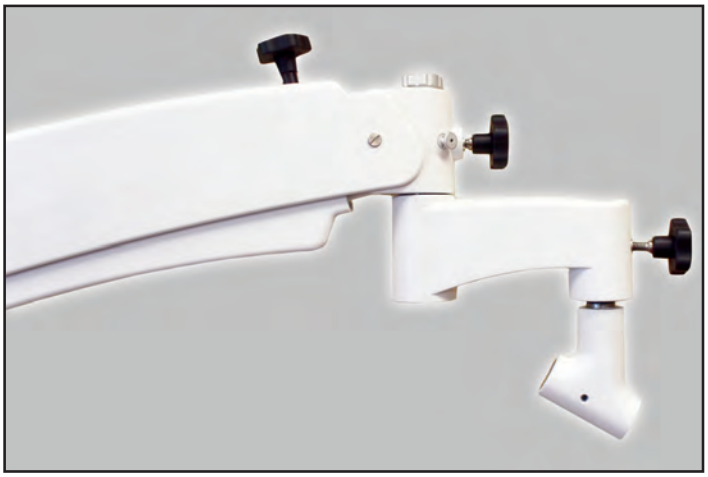
5. Next insert the Pantographic Arm into the light source arm.

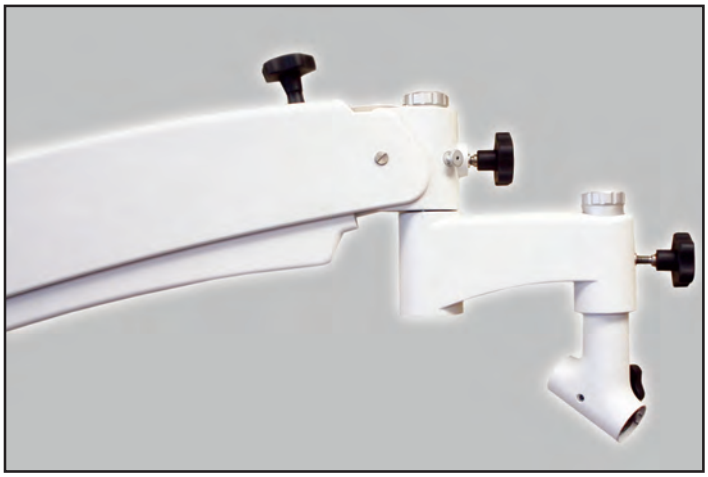
6. Place the Liquid Light Guide cable through the bottom cover.



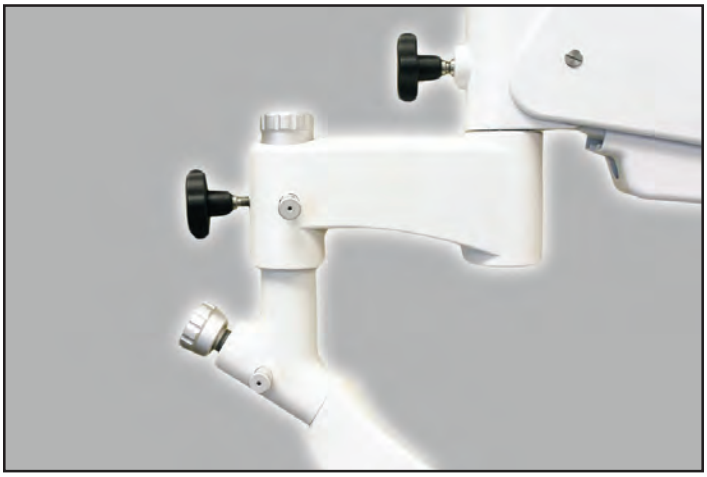


7. After the Pantographic Arm is inserted and the Liquid Light Guide cable is secure, add the extension piece into the top of the Pantographic Arm on the under side. Be sure to loosen the black knob and pull plunger on the Pantographic Arm in order to insert the extension arm. Screw on the white locking knob.

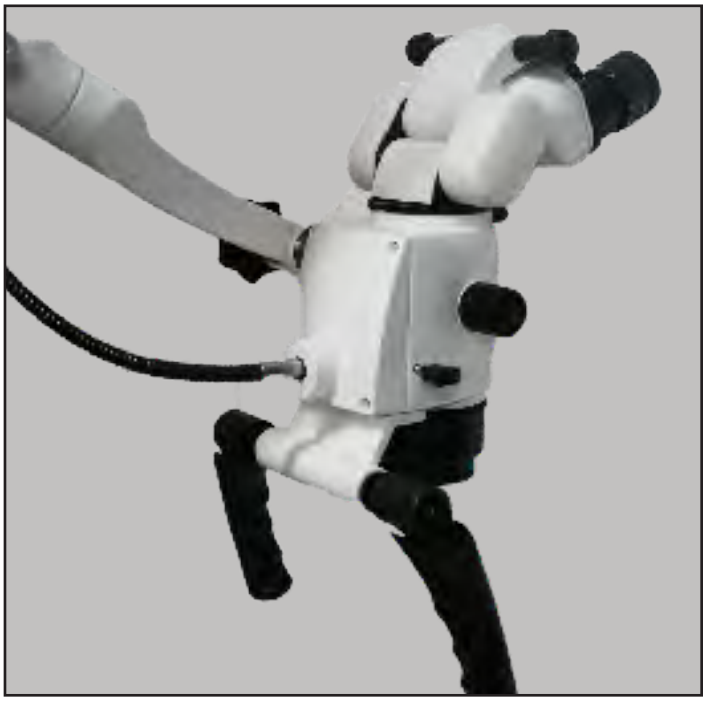




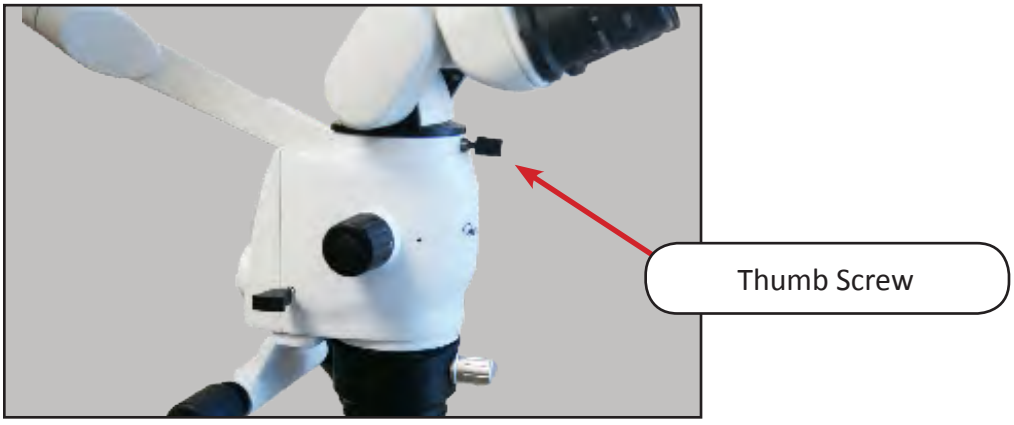
8. Next, insert the 45 degree coupler into the extension arm. Screw down the white locking knob.



9. Insert the Angle Arm into the 45 degree coupler coming off the optic pod. Screw down the white knob.



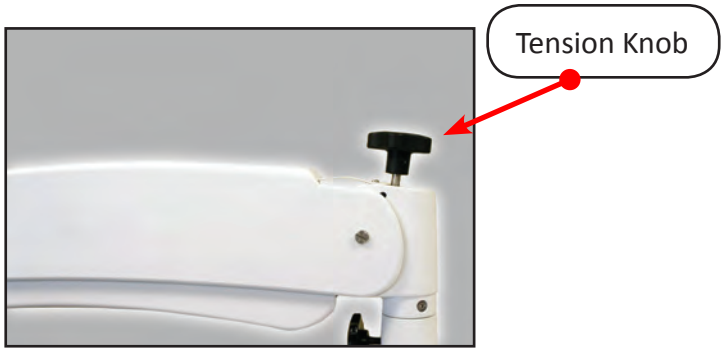
10. Insert the Liquid Light Guide cable into the light port opening on the Optical Pod.



11. Secure the Binocular Head onto the Optical Pod by tightening the thumb screw.

PANTOGRAPHIC ARM BALANCING

NOTE: Pantographic Arm may need tension adjusted (black knob on top, turn counter-clockwise to add tension, clockwise to release tension). This may need to be done if camera/ video are added to the scope. This will increase or decrease the tension to desired function for user. The Pantographic Arm may have to be in the horizontal position to make adjustments.



LED Illumination Instructions

1. INTRODUCTION

Congratulations on the purchase of your new SSL-2000 Light Source! This user-friendly LED light source is a high efficiency light source utilizing state of-the-art superior illumination technology. It offers a variety of features such as:

- 6500º K daylight brightness for good color definition
- Quiet operation
- Long life, 50,000 hrs.
- Compact and light weight
- Pulse-width Modulation (PWM) Electrical Dimming

This section of the manual will help you to install the device and optimally integrate it with other components of your system. It will also instruct you how to operate the LED Light Source and how to keep it clean. It will give you maintenance and service guidelines as well as recommendations for best performance results.

1.1 INDICATIONS FOR USE: The LED Light Source is used to illuminate the site of surgery during minimally invasive surgical procedures. The light is transmitted from the light source through a fiber optic cable and a scope.

2. WARNINGS

To prevent fire or electric shock, do not open or expose the LED light source unit to rain or moisture. Refer all servicing to qualified personnel only.

Not suitable for use in presence of flammable anesthetic mixture with air or with oxygen or nitrate oxide.

To prevent any potential electro-magnetic interference, do not use any kind of cellular phone near the light source.

This product should be used only with type BF endoscopic instruments which have been certified according to IEC 601-1 for medical equipment and IEC 601-2-18 for endoscopic equipment.

Caution: This product is not provided as sterile.

Caution: All devices connecting to the LED Light Source must be classified as medical equipment. When additional information processing equipment is connected to the LED Light Source, the operator must determine that all equipment complies with the appropriate end-product standards (such as IEC 60950 or IEC 60065 and the Standard for Medical System, IEC 60601-1-1).

Caution: The LED Light source can cause permanent eye damage if viewed directly with unprotected eye. To reduce the chance of eye damage, set the intensity control always to the minimum level and plug the fiber optic cable into the unit before turning on the power.

EQUIPMENT CONNECTION

Caution: The fiber optic cable must be a NON-CONDUCTIVE CABLE. It should not have conductive shielding or any other conductive connection between the patient and equipment. Such connection will impair safety of the equipment. It must be rinsed free of soaking/disinfectant solution and dried before plugging into the LED light source receptacle. Ensure the optical surface is clean before engaging into the light source.

3. SPECIFICATIONS

Item	Specification
Light Source Type	LED (Light Emitting Diode)
Power	50 Watt
Color Temperature	6500^{o} K
Led life	50,000 hours (typical)
Light guide adapter	
Brightness control	PWM (Pulse-width Modulation) – 0-100% Dimming
Input voltage	100-240V AC, 50/60 Hz
Rated Power	52 watt
Regulatory Approvals	UL60601-1,CAN/CSA C22.2 No.601.1 (SUP1+AM2),EN 60601-1-2 and CE marked
Equipment Class	Class I, BF-type
Mode of Operation	Continuous operation
Water Resistant	Not Protected Equipment, IPX0
Operating Environment Temperature Relative Humidity Air Pressure	 +0° to +40° C (32° to 104° F) 0 to 85%rh, non condensing 700 to 1060 hPa
Storage Environment Temperature Relative Humidity Air Pressure	 -20° to +60° C (-4° to 140° F) 30 to 95%rh, non condensing 700 to 1060 hPa
Dimensions	4.65” W x 3.32” H x 7.25” D
Weight	2.5 lbs./1.14 kg

4. OPERATING ELEMENTS, SYMBOLS AND FUNCTIONS

4.1 FRONT PANEL

No.	Name	Function
1	Power switch	Turns the light source on and off. Fan will operate
2	Light Guide Adapter	
3	Intensity Control	Electronically controls the light output

4.2 REAR PANEL

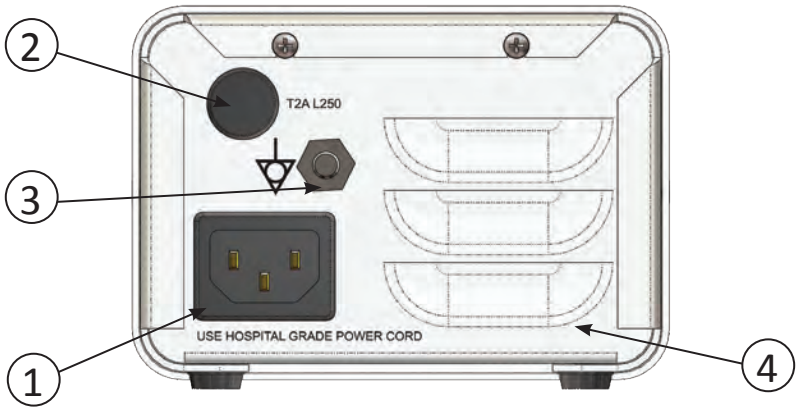


Figure 2. LED Light Source Rear Panel

No.	Name	Function
1	AC main inlet	Accepts AC power cord
2	Fuse	2A, 250V (1/4” x 1 ¼”) time delay
3	Grounding Connector	For potential equalization
4	Venting grids	Allows adequate ventilation and cooling of the light source

4.3 Bottom Panel

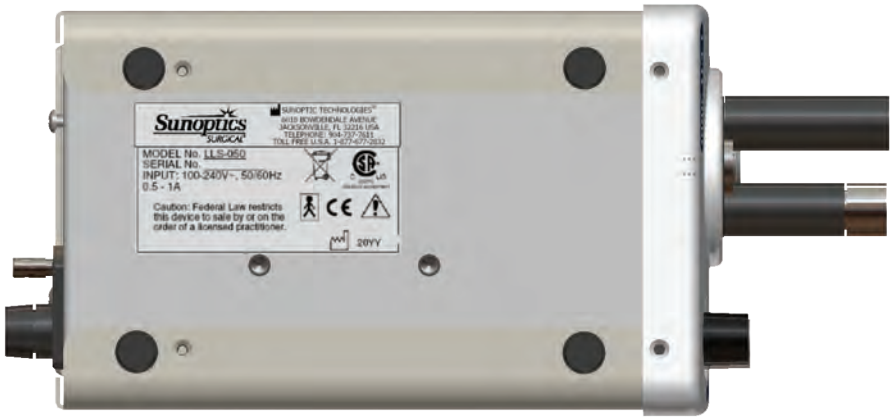


Figure 3. LED Light Source Product Label

5. INSTALLATION

5.1 SETTING UP THE LED LIGHT SOURCE

Place the LED light source on a stable surface (cart, counter, stand, etc.).

NOTE: Avoid places where the light source may be splashed with liquid.
Absolutely DO NOT use in any environment with explosive or flammable gases.
DO NOT block the venting grids of the LED light source.

Make sure the power switch is in OFF position.
Connect AC power cord to the power inlet located on the rear panel of the light source.

CAUTION: Use only cords provided with the light source.
Plug the AC power cord into a wall outlet using the three-prong plug supplied with the unit.
CAUTION: To prevent electric shock, connect power cords of peripheral equipment through medical isolation transformers.

NOTE: When using medical isolation transformer, be sure to check the transformer power ratings.
Make sure that the power cord is connected to the main power with three-prong plug (USA use UL2601-1 rated isolation transformers and/or power strips only).

CAUTION: When used in clinical or residential areas near radio or TV units, this equipment may be subjected to radio interference. To avoid adverse electromagnetic effects, DO NOT operate this equipment near RF energy equipment.

5.2 CONNECTING THE FIBER OPTIC CABLE

Turn intensity control to the minimum setting. Connect the light cable to the instrument and then plug the light cable endfitting into the port on the front panel.

6. OPERATION

6.1 POWERING UP THE LED LIGHT SOURCE

To operate the LED light source: Turn on the power switch. The indicator on power switch will light.

6.2 LIGHT BRIGHTNESS DISPLAY AND CONTROL

The light brightness adjustment enables the user to obtain a brighter or darker illumination of the object of observation. Adjust the light intensity by turning the intensity control knob.

7. CLEANING

NOTE: Always disconnect the power cord before cleaning the system.

The unit can be cleaned with any cleaning agent, which is used for external cleaning of electric equipment, according to instructions given by the manufacturer of the cleaning solution.

Do not allow excessive moisture or liquids to come in direct contact with the unit.

Do not use cleaning agents that are not permitted for use with plastics, i.e., ammonia, acetone, salty acids (HCl), etc.

Do not allow cleaning agents or liquids to enter the unit outlets.

8. DISINFECTION

8.1 DISINFECTING THE UNIT

NOTE: Always disconnect the power cord before cleaning the system.

Use any disinfectant agents which are commonly applied while disinfecting surfaces of electric medical equipment. Such

disinfectant agents are usually in the form of sprays or damp cloths.

Follow the instructions given by the manufacturer of the disinfectant solution.

9. SERVICING AND REPAIR
Defective items of equipment are to be serviced and repaired exclusively by persons authorized by the manufacturer. All repair work shall employ original manufacturer's parts only.

9.1 FUSE REPLACEMENT
CAUTION: Always disconnect power cord and turn main switch off before fuse replacement.

Turn light source off and unplug power cord. On back of unit remove fuse by turning fuse cover and pulling out fuse.

Replace fuse with 2 AMP (1/4" x 1 ¼") time delay 250V rated fuse. Insert back into fuse housing.

Re-connect the power cord and turn the LED light source on according to section 6.1.

9.2 LIMITED WARRANTY
Your LED light source carries a 1-year warranty from the date of shipment on workmanship and all defects of material, excluding replaceable sweatbands, headband, fiberoptic cable and lamps. Should your product prove to have such defects within one year of the shipment. Seiler Instrument will repair or replace the product or component part without charge. Should your LED Light Source product(s) need servicing under this warranty, please contact, Seiler Instrument return authorization documentation. You should carefully pack unit in a sturdy carton and ship it to the factory. Please include a note describing the defects, your name, telephone number and a return address. Warranty does not cover equipment subject to misuse, accidental damage, normal wear and tear or if transferred to a new owner without authorization from Seiler Instrument. This warranty gives you specific legal rights and you may also have other rights that vary from state to state.

POST WARRANTY REPAIRS: You may return your product(s) for repair, shipping prepaid to the factory. Your product will be inspected and an estimate of repair charges will be submitted to you for approval. Payment must be received before repairs are completed.

- In the US: 800-489-2282 (toll free)
- FAX number: 314-968-3601
- Customer Service: 314-218-6336

10. END OF PRODUCT LIFE
We encourage our customers to recycle this product whenever possible. Disposal of this unit must be performed in accordance with the applicable local environmental regulations.

In the United States a list of recyclers in your area can be found at: http:/www.eiae.org/.

Please contact customer service to issue a return authorization to return product to manufacturer at the end of product life.

11. TROUBLESHOOTING

Problem	Solution
The power indicator (refer to 4.1) is not lit.	A. Check that the AC power cord is properly connected. B. Check the unit fuses. If necessary, replace.
The power indicator is lit, but the lamp will not ignite.	Turn intensity control know clockwise to increase light output intensity.

LED Warranty

Limited Guarantee / Warranty

Seiler Instrument warrants this product to be free from defect in material and workmanship for a period of 12 months following original purchase. The warranty excludes lamps, lamp sockets, and any other items that have been misused, neglected, damaged, altered, or used in any manner inconsistent with the instructions in this manual.

Seiler Instrument's obligations under this warranty are limited to the repair, replacement, or reimbursement of the product only, and, in no event, is Seiler Instrument liable for any consequential or special damages, or costs related to the transportation, installation, or any other costs related to a warranted product.

Interpupillary Distance Adjustment

Looking through the eyepieces on the binocular head, adjust the Interpupillary distance as shown in the image below, until the end user is the Field of View in one single image.

0-220^{o} BINOCULAR MICROSCOPE HEAD

STRAIGHT/FIXED INCLINE BINOCULAR MICROSCOPE HEAD

Parfocalizing

STEPS:
Set both eyepieces at 0

Take a piece of paper and draw an "X" on it. Place that piece of paper onto a flat area at the recommended focal length (10" with 250mm, 12" with 300mm objective). Adjust the eyepiece until you get a single solid image.

Set the scope to the highest power and position the scope to where the "X" is as sharp as possible.

Then go to the lowest power without moving the microscope's physical position and one eye at a time focus the eyepieces.

Look through the scope and focus on the "X" and change the magnification levels to make sure each setting stays in focus. If the scope goes out of focus start the process over again.

Once the image is clear in both eyes, this completes the Parfocalizing Process.

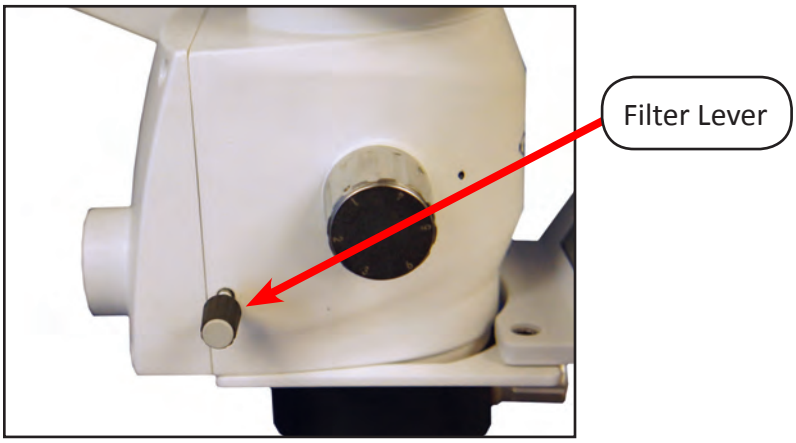
Magnification Chart for Three Step

MAGNIFICATION TABLE FOR THREE STEP

Objective Lens (CMO)		175				200				250				300				400			
	position of button	magnification		field		magnification		field		magnification		field		magnification		field		magnification		field	
eyepiece		f 135	f170	f 135	f170	f 135	f170	f 135	f170	f 135	f170	f 135	f170	f 135	f170	f 135	f170	f 135	f170	f 135	f170
10x/18mm (4140011/6156010)	1 (0.6x)	4.82	6.07	37.36	29.66	4.22	5.31	42.67	33.89	3.38	4.25	53.33	42.35	2.81	3.54	64.01	50.89	2.11	2.66	85.35	67.77
	2 (1x)	7.71	9.71	23.35	18.54	6.75	8.50	26.67	21.18	5.40	6.80	33.33	26.47	4.50	5.66	40.00	31.80	3.38	4.25	53.33	42.35
	3 (1.6x)	12.34	15.54	14.59	11.59	10.80	13.60	16.67	13.24	8.64	10.88	20.83	16.54	7.20	9.06	25.00	19.88	5.40	6.80	33.33	26.47
12.5x/16mm (6122012)	1 (0.6x)	6.02	7.59	33.21	26.37	5.27	6.64	37.93	30.12	4.22	5.31	47.41	37.65	3.52	4.42	56.90	45.24	2.64	3.32	75.87	60.24
	2 (1x)	9.64	12.14	20.75	16.48	8.44	10.63	23.70	18.82	6.75	8.50	29.63	23.53	5.63	7.08	35.56	28.27	4.22	5.31	47.41	37.65
	3 (1.6x)	15.42	19.42	12.97	10.30	13.50	17.00	14.81	11.76	10.80	13.60	18.52	14.71	9.00	11.32	22.22	17.67	6.75	8.50	29.63	23.53
12.5x/18mm (6131012)	1 (0.6x)	6.02	7.59	37.36	29.66	5.27	6.64	42.67	33.89	4.22	5.31	53.33	42.35	3.52	4.42	64.01	50.89	2.64	3.32	85.35	67.77
	2 (1x)	9.64	12.14	23.35	18.54	8.44	10.63	26.67	21.18	6.75	8.50	33.33	26.47	5.63	7.08	40.00	31.80	4.22	5.31	53.33	42.35
	3 (1.6x)	15.42	19.42	14.59	11.59	13.50	17.00	16.67	13.24	10.80	13.60	20.83	16.54	9.00	11.32	25.00	19.88	6.75	8.50	33.33	26.47
16x/16mm (6120016/6130016)	1 (0.6x)	7.71	9.71	33.21	26.37	6.75	8.50	37.93	30.12	5.40	6.80	47.41	37.65	4.50	5.66	56.90	45.24	3.37	4.25	75.87	60.24
	2 (1x)	12.34	15.54	20.75	16.48	10.80	13.60	23.70	18.82	8.64	10.88	29.63	23.53	7.20	9.06	35.56	28.27	5.40	6.80	47.41	37.65
	3 (1.6x)	19.74	24.86	12.97	10.30	17.28	21.76	14.81	11.76	13.82	17.41	18.52	14.71	11.52	14.49	22.22	17.67	8.64	10.88	29.63	23.53
20x/12mm (6131020)	1 (0.6x)	9.64	12.14	24.91	19.78	8.44	10.62	28.45	22.59	6.75	8.50	35.56	28.24	5.62	7.07	42.67	33.93	4.22	5.31	56.90	45.18
	2 (1x)	15.42	19.42	15.56	12.36	13.50	17.00	17.78	14.12	10.80	13.60	22.22	17.65	9.00	11.32	26.67	21.20	6.75	8.50	35.56	28.24
	3 (1.6x)	24.67	31.07	9.73	7.72	21.60	27.20	11.11	8.82	17.28	21.76	13.89	11.03	14.40	18.11	16.67	13.25	10.80	13.60	22.22	17.65
illuminated field		65				72				90				108				144			

The Color Filter and Cleaning

There is a lever installed on the side of the microscope body to put in front of the lamp luminous flux an orange and green filter.



Cleaning

The objective, placed in front of the field under clinical or surgical treatment, is exposed to blood and topical medicine spots, etc. The spots dim the passage of the light, with loss of brightness in the optical observation.

Alcohol or ether applied with a clean cotton swab can be used to remove all smudges. Use a soft CIRCULAR movement. Use your laboratory's prescribe procedures to remove blood stains or other contaminants from your equipment.

If the objective is blotched too much, change the cotton swab in each circular friction, avoiding spreading again the impurities.

The Objective lens can be protected by use of an objective protector (6132000). It is placed under pressure in the external margin of the objective lens and protects it against eventual blows of the surgical tools and against contamination.

The metallic parts (chrome-plated or painted) are cleaned with cotton, alcohol and ether.

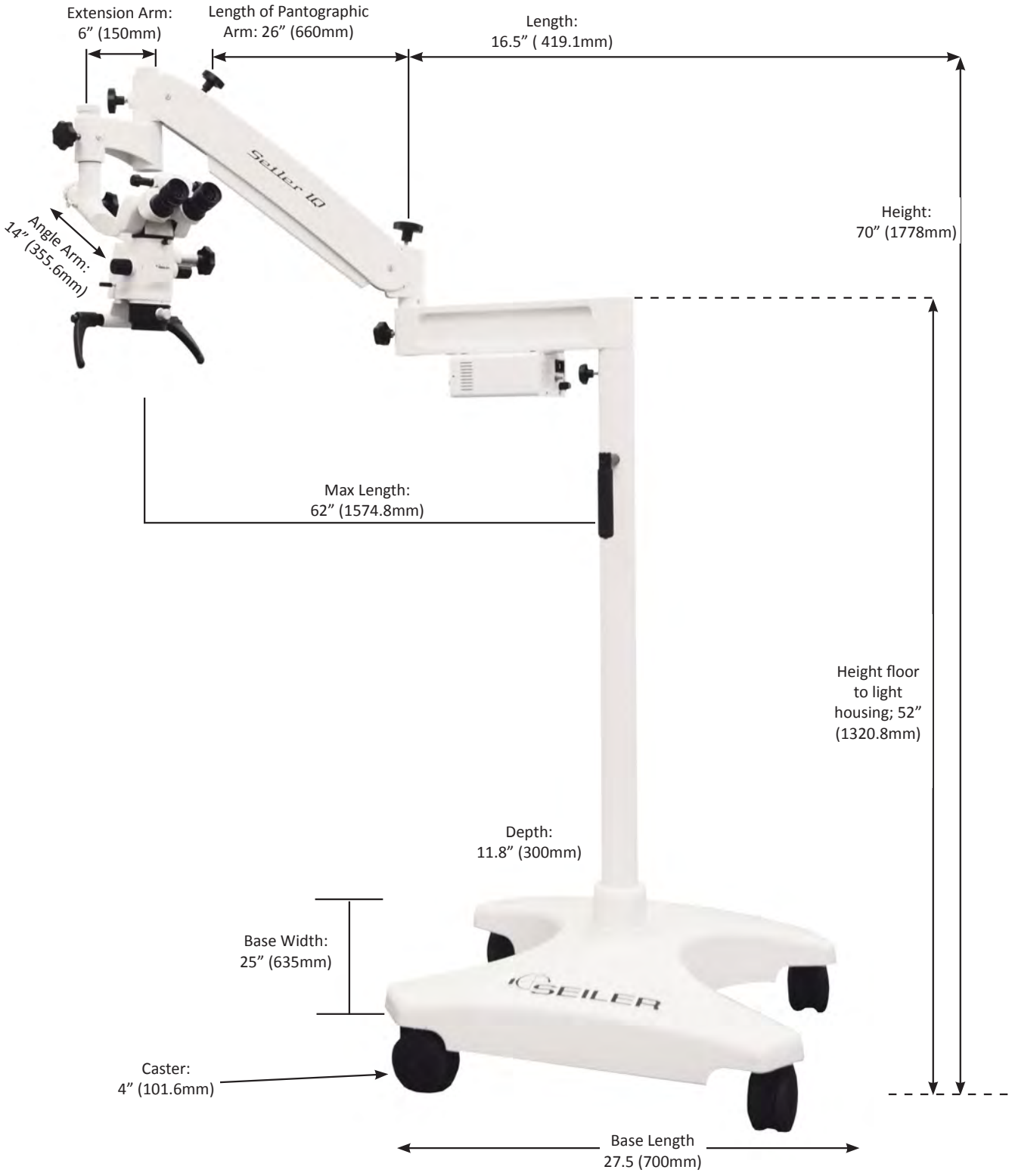
Lubrication

After some years of use we recommend lubrication of the "dovetail", the sliding orthogonal rules for X-Y translation. Apply here, with a cotton swab a delicate oil film.

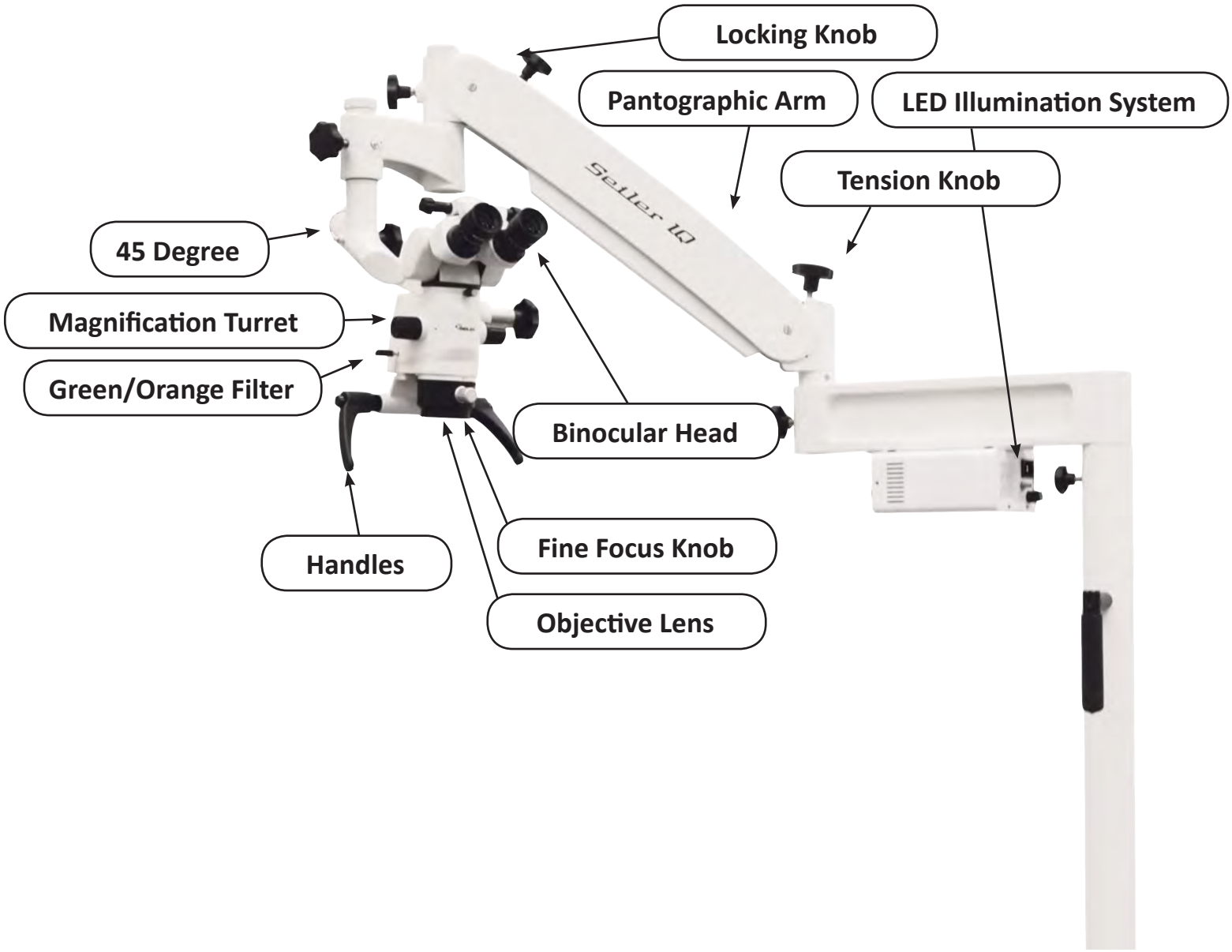
Do not exaggerate the lubrication. It is self-defeating, and if the microscope is operated inclined to the front, for sure the oil excess will come out through the front.

For lubrication use light film of mineral oil.

Dimensions


Extension Arm:
6” (150mm)
Length of Pantographic
Arm: 26” (660mm)
Length:
16.5” (419.1mm)
Seiler 10
Angle Arm:
14” (355.6mm)
Height:
70” (1778mm)
Max Length:
62” (1574.8mm)
Height floor
to light
housing; 52”
(1320.8mm)
Depth:
11.8” (300mm)
Base Width:
25” (635mm)
SEILER
Caster:
4” (101.6mm)
Base Length
27.5 (700mm)

Parts Breakdown



General Specific Details			
		Seiler IQ	
Vertical Optical Working Distance	Minimum Possible	175 mm	6.89 in
	Maximum Possible	400 mm	15.75 in
Microfocus vertical adjustment range:		13mm	
* Microscope Weight (Floor Model):		237 lbs	108 kg
*Including Packaging		(3 boxes)	

Electrical Details	
Power Supply	90 – 264VAC – automatic selection Power supply
Axillary Power Jack	12vDC – 2.1mm female connector – 500ma Rating
Fuses:	3amp – 5x20mm Cylindrical Slo-Blo – 250VAC
Illumination Bulb:	LED

Optical Details		
	Standard Setup	**Optional Setup**
Objective Lens	f = 250mm	175 – 400 mm
Eyepieces	10x	12.5x, 26x, 20x
Diopter Setting	-6 to +6	NA
Field of Vision	9 - 72 mm	* 4.95 - 105.88 mm

Optical Details		
Seiler IQ	4.2x, 7x, 11x	** Max low: 2.55x-Max High: 31.04x

* Depends on Eyepieces and Objective Lens

** Max low refers to the lowest power able to be achieved by combination of eyepiece and objective lens magnification. Max High is the maximum power able to be achieved through combination of eyepiece and objective lens magnification.

Owner's Record

Model Number _____

Serial Number _____

Date Purchased _____

Location Purchased _____

Notes

We are here to serve you!

If you have any questions regarding Seiler's products or services, please feel free to contact us.

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