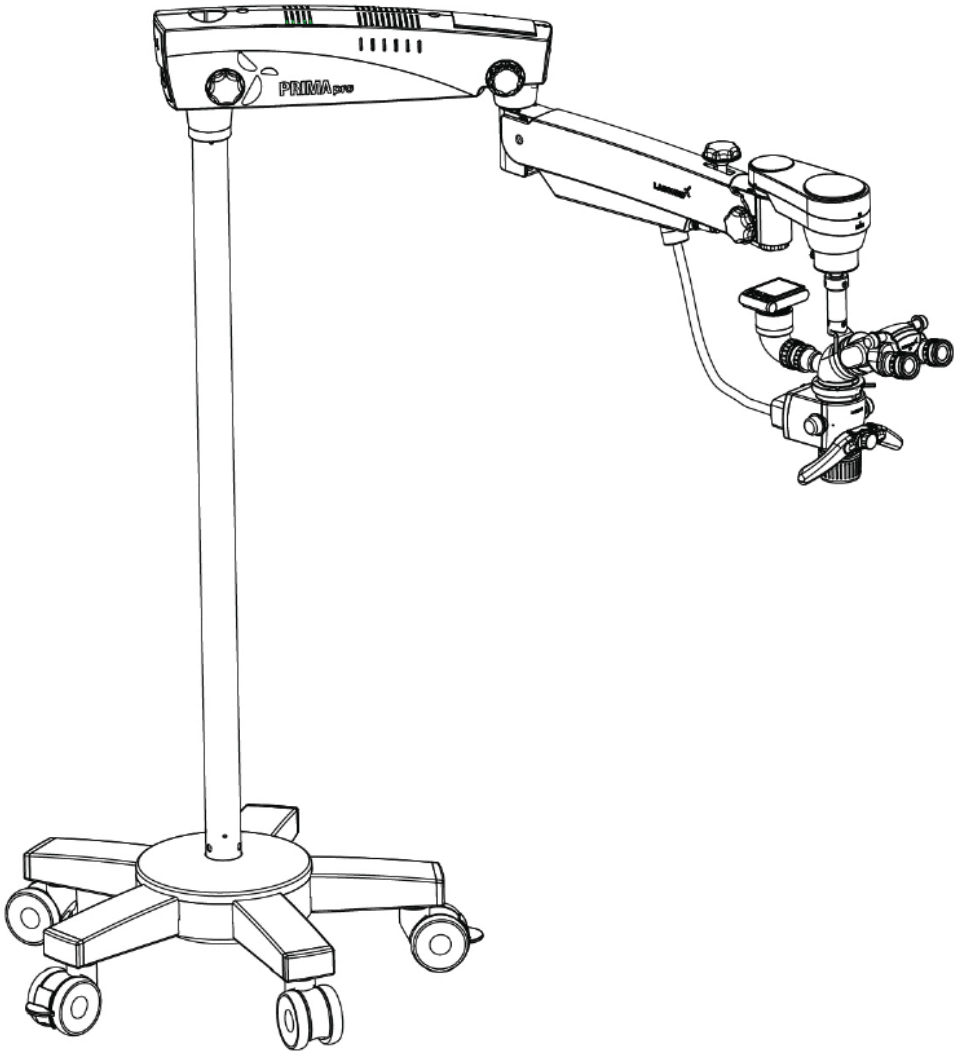
Prima Pro

Dental Operating Microscope

User Manual



To ensure correct use of this instrument and to avoid injury during operation, read this manual completely before use.

6183600-795

Prima Pro

Issue 1.8
Printed Feb. 2026

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LABOMED products are designed and manufactured under quality processes that meet the quality management system requirements of ISO 13485.

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1. INTRODUCTION AND INTENDED USE

The LABOMED Prima Pro is a surgical and diagnostic microscope that adapts to a range of surgical needs, giving consistent visualization during all intraoperative phases of dental surgery with a magnified view of the surgical field, without compromising performance.
The microscope provides very high optical image quality, good depth of focus and wide field of view for precise surgery. Illumination control, electromagnetically controlled positioning of the magnification changer and adjustment of the observation head reduce the surgeon's fatigue and allow comfortable use over long periods.

Key features of this microscope:

1. **The observation head is easily positioned with the suspension arm.**
2. **An advanced 6-step magnification changer provides the optimal magnification for each procedure.**
3. **Cold-light illumination from a high-intensity 50 W LED is built into the magnification changer. Brightness is adjustable to the most suitable level with the intensity control knob, ergonomically located at the front of the magnification changer.**
4. **The effortless ABA (Automatic Balancing Arm) articulation system uses an electromagnetic brake for full flexibility in setting the microscope's viewing angle and position.**
5. **The LABOMED NuVar CMO with variable working distance is standard, so each user can easily set a comfortable working distance.**
6. **The dual iris diaphragm increases depth of field, which is particularly valuable for photography.**
7. **The rigid star base with 3 lockable caster wheels gives the instrument stability and mobility.**

Report any serious incident involving this device to Labotech Microscopes India Pvt. Ltd. or to your national health authority.

INTENDED USE:

The Prima Pro surgical microscope is an AC-powered device intended for use during diagnosis and surgery to provide a magnified view of the surgical field.

NOTE: Use the Prima Pro only as specified in its intended use.

CONFIGURATIONS

Microscope	Catalogue No.
Prima Pro (Floor Stand)	6183601
Prima Pro (Wall Mount)	6183602
Prima Pro (Ceiling Mount)	6183603

2. PRODUCT DESCRIPTION (FLOOR STAND)

Catalogue No. 6183601
Model: Prima Pro

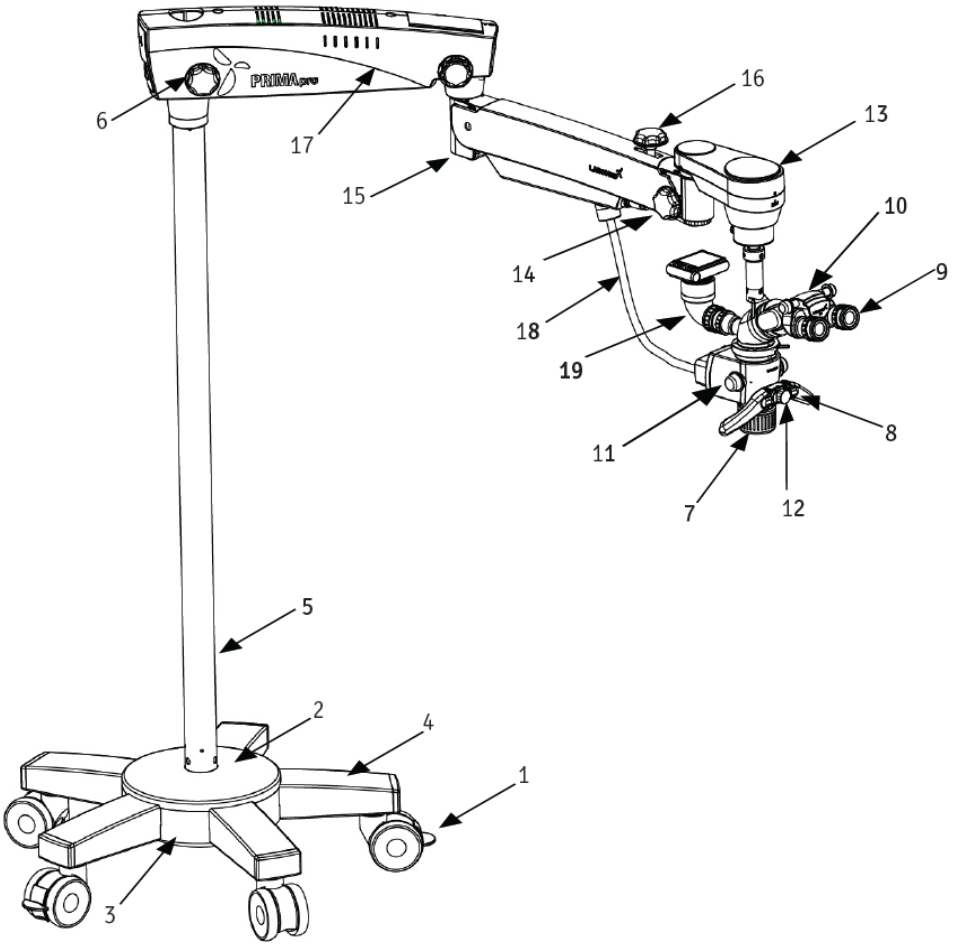


Fig. 1

1. **Caster Wheels With Brakes**
2. **Star Base Top**
3. **Star Base Bottom**
4. **Star Base Leg**
5. **Column**
6. **Swivel Arm Locking Knob**
7. **Common Main Objective with Fine Focusing**
8. **Two-Hand Release (Electromagnetic Clutch)**
9. **Eyepieces**
10. **Ergo Head 0°-210° Tiltable**
11. **Step Magnification Knob**
12. **Illumination Control Knob**
13. **ABA (Auto Balancing Arm) Electromagnetic Clutch**
14. **Auto Balancing Arm Locking Knob**
15. **Suspension Arm Spring Tension Adjustment**
16. **Suspension Arm Movement Locking Knob**
17. **Swivel Arm**
18. **Wire Mesh with Fiber Light Guide Inside**
19. **Rear View Camera Adapter**

3. PRODUCT DESCRIPTION (CEILING MOUNT)

Catalogue No. 6183603
Model: Prima Pro

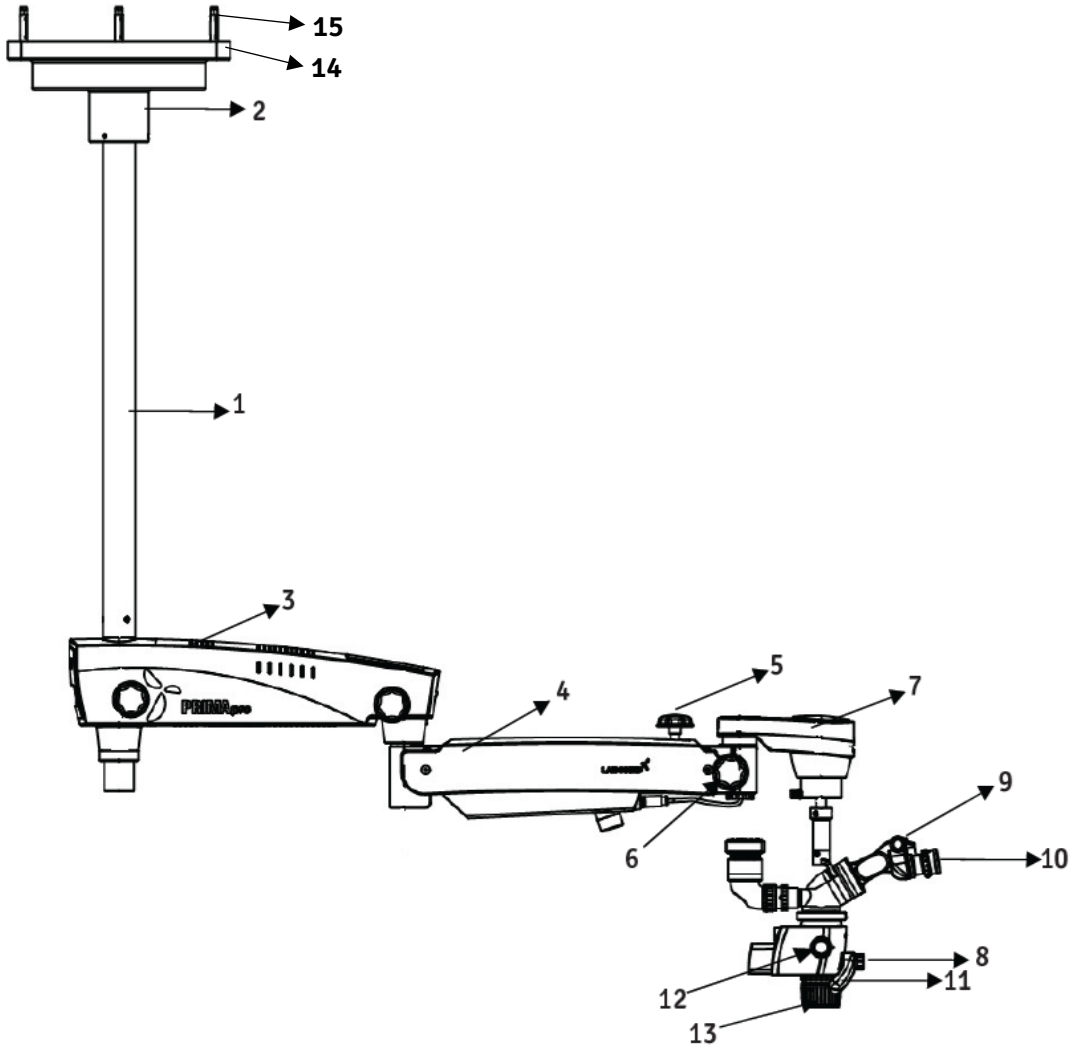


Fig. 2

1. **Column**
2. **Cover Mount (to be used in false ceiling only)**
3. **Swivel Arm**
4. **Suspension Arm**
5. **Suspension Arm Hydraulic Movement Lock Knob**
6. **Auto Balancing Arm Lock Knob**
7. **ABA (Auto Balancing Arm) Electromagnetic Clutch**
8. **Illumination Control Knob**
9. **Ergo Head 0°-210° Tiltable**
10. **Eyepieces**
11. **Two-Hand Release Electromagnetic Clutch**
12. **Step Magnification Knob**
13. **Common Main Objective With Fine Focusing**
14. **Master Ceiling Plate**
15. **Anchoring Bolts**

4. INSTALLATION REFERENCES (CEILING MOUNT)

CEILING MOUNT (STANDARD ARM)

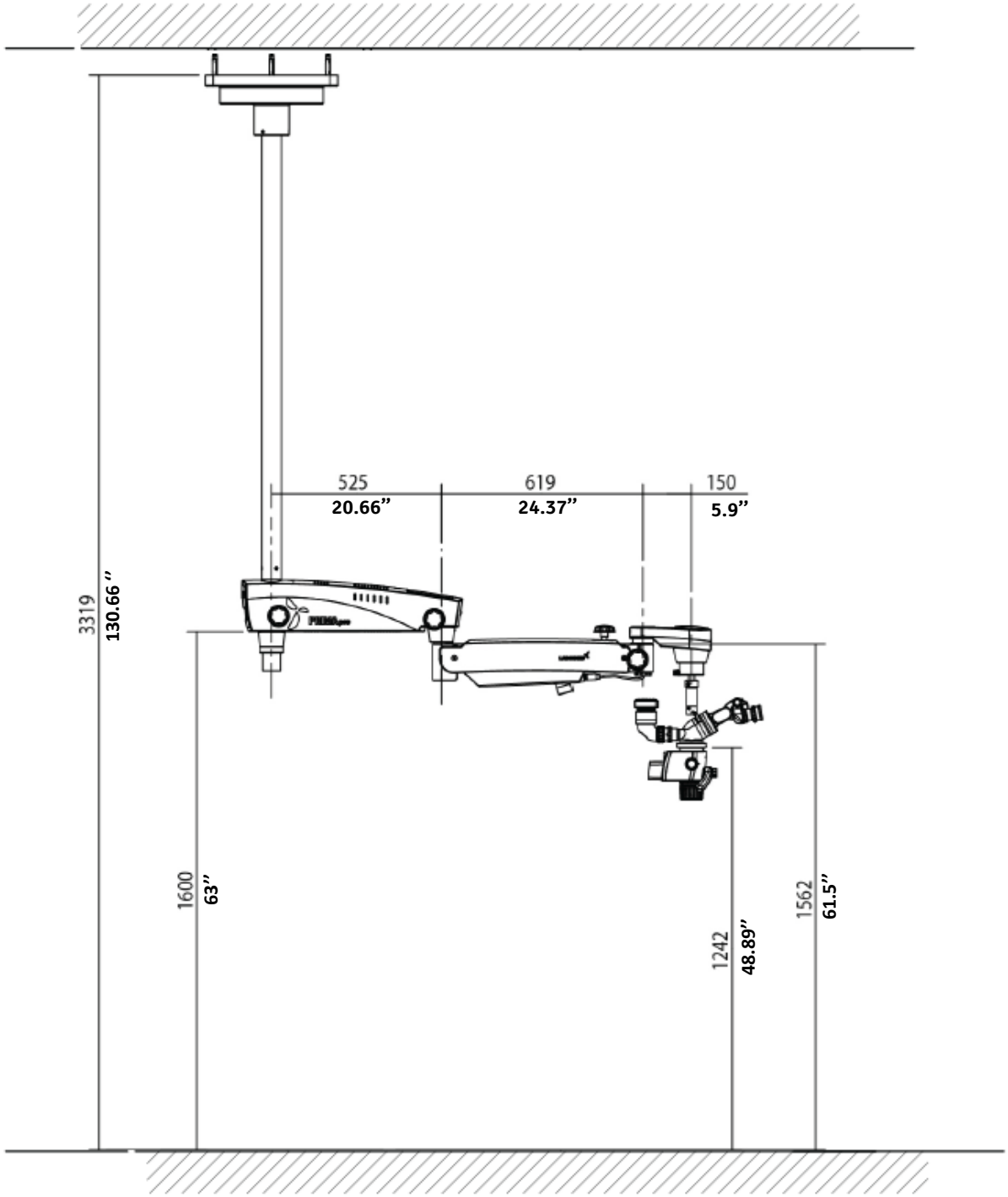


Fig. 3

REQUIRED COLUMN LENGTH FORMULA = (CEILING HEIGHT - 1760 mm)

EXAMPLE: COLUMN LENGTH = 3319 mm - 1760 mm = 1559 mm (61.37 inches)

INSTALLATION REFERENCES (CEILING MOUNT) continued

CEILING MOUNT SYSTEM FOR 10 FEET CEILING HEIGHT

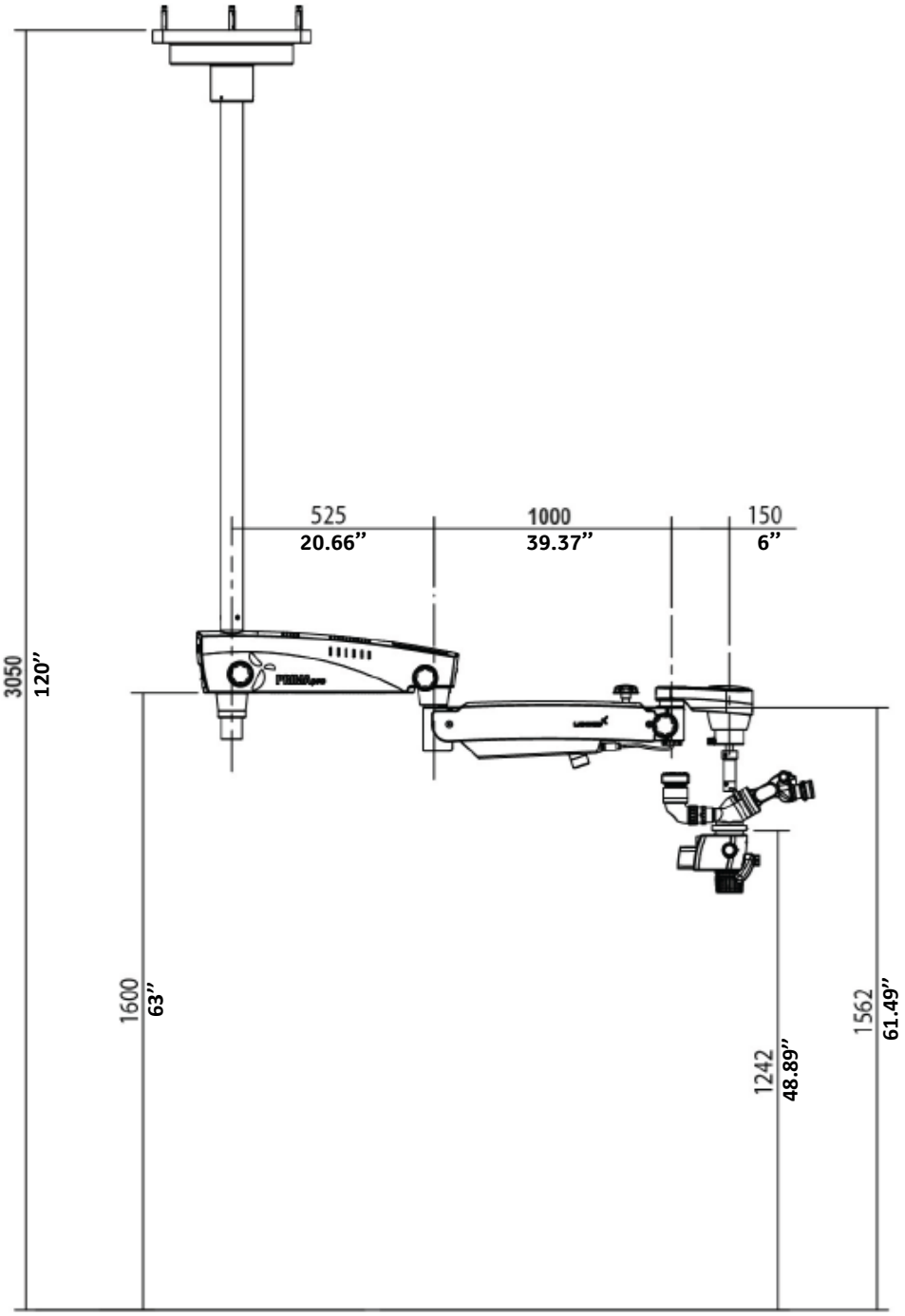


Fig. 4

INSTALLATION REFERENCES (CEILING MOUNT) continued

MARKING REFERENCE

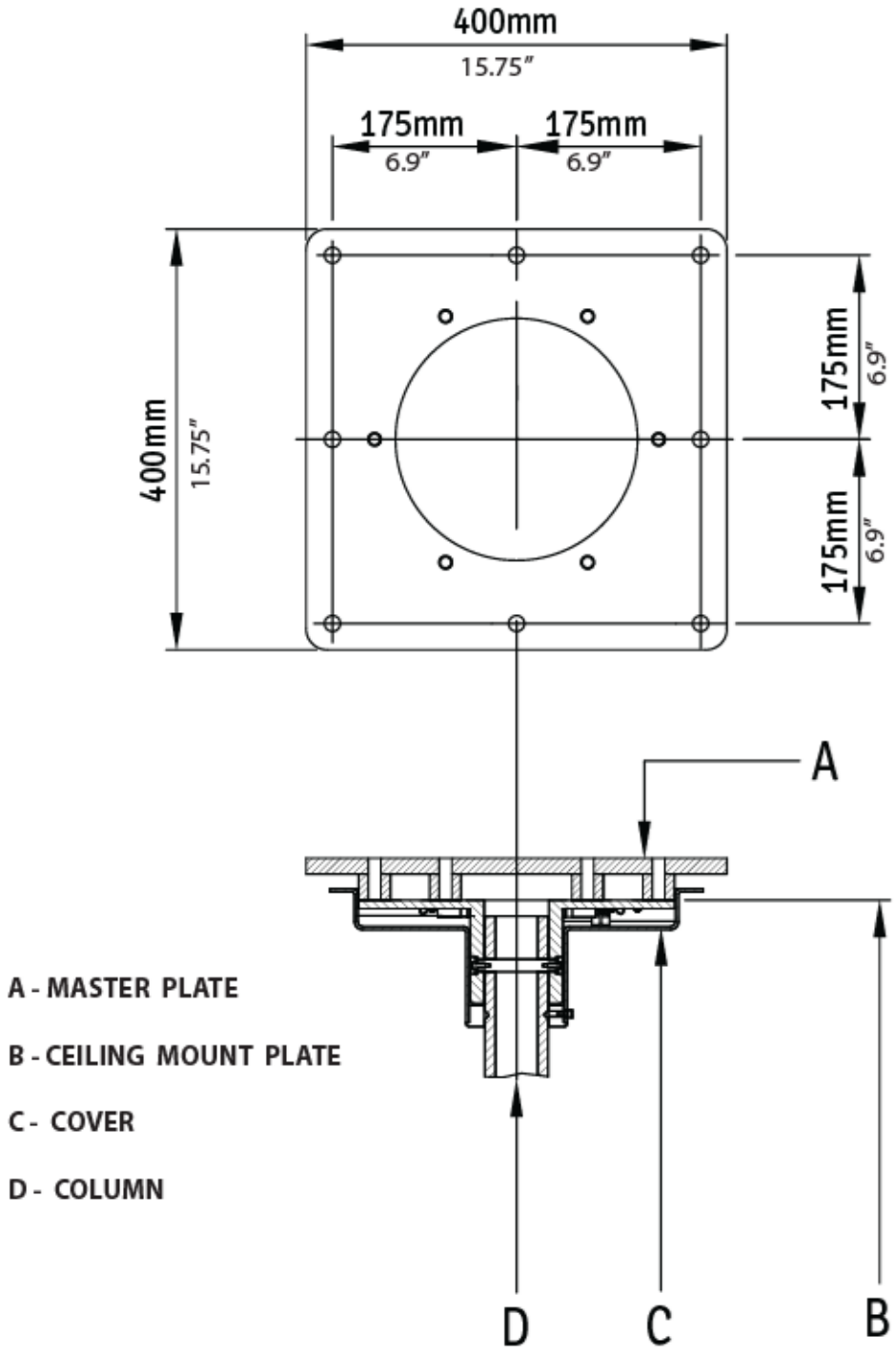


Fig. 5

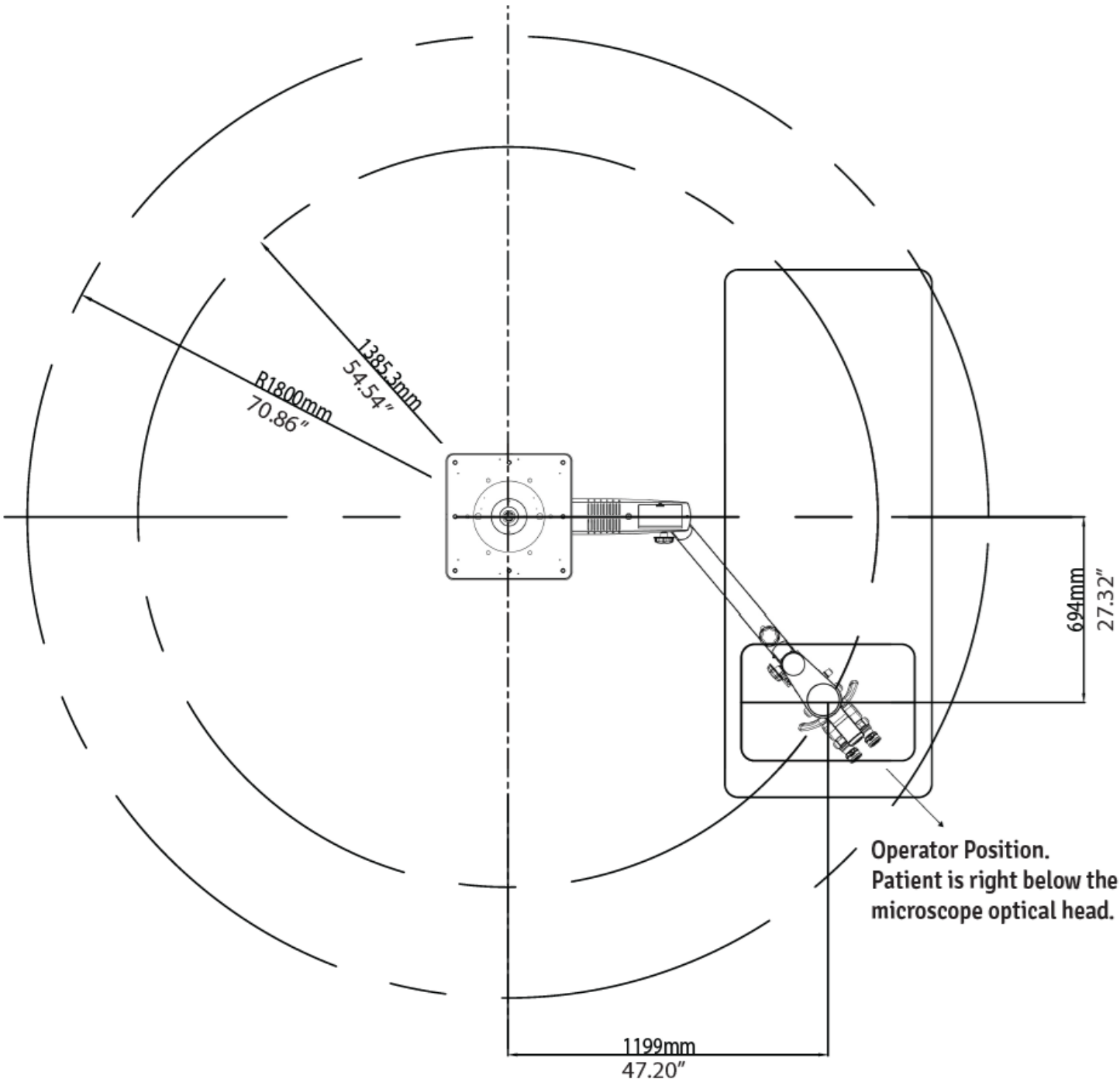

R1800mm
70.86"
1385.3mm
54.54"
694mm
27.32"
Operator Position.
Patient is right below the
microscope optical head.
1199mm
47.20"

Fig. 6

INSTALLATION REFERENCES (CONCRETE CEILING MOUNT) continued

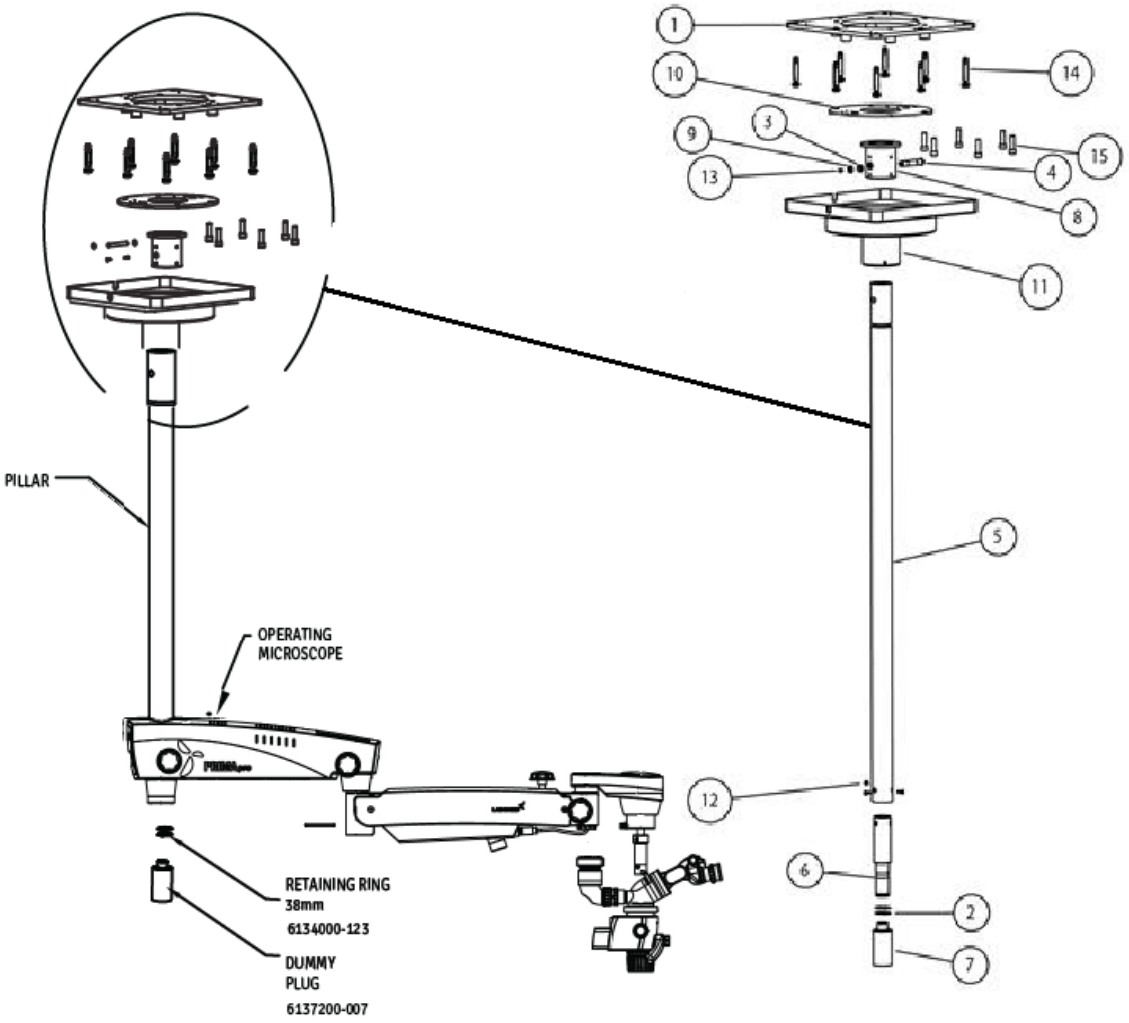


Fig. 7

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	6129004-801	MASTER PLATE
2	2	6134000-123	RETAINING RING DIA 38
3	1	6136000-147	CHECK NUT
4	1	6137200-003	PIN
5	1	6137200-004	PILLAR
6	1	6137200-005	FRONT SHAFT
7	1	6137200-007	DUMMY PLUG
8	1	6137200-012	FLANGE BUSH
9	1	6137200-013	WASHER
10	1	6137200-804	ASSLY CEILING MOUNT PLATE
11	1	6137200-805	ASSLY CEILING COVER PRIMA
12	3	SS-800	SOCKET FLAT HEAD SCREW M6x16
13	1	SS-802	M5x10 CSK HEAD SCREW
14	8	SS-854	RAVAL PLUG M10
15	6	SS-921	M12x 40-SOCKET HEAD CAP SCREW

5. CEILING MOUNT INSTALLATION

5.a. DROP CEILING APPLICATIONS

Many newer buildings use drop ceilings. In this type of application, all supporting structures and electrical service (115/230 VAC, 15 A) are the customer's responsibility and must be completed before the installation.

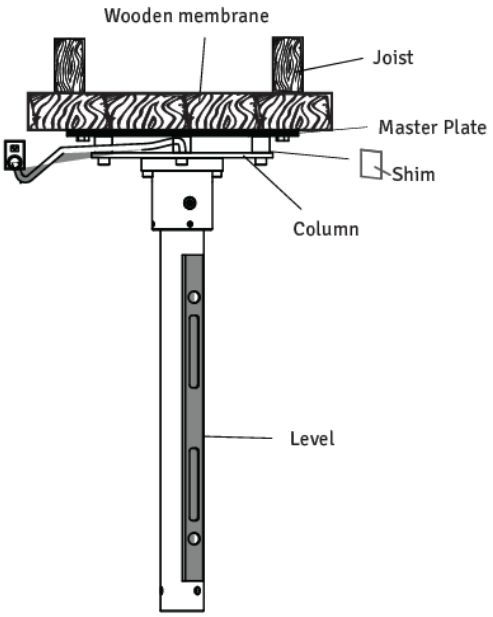
WARNING: THE SUPPORTING STRUCTURE FOR THE CEILING MOUNT AND WALL MOUNT INSTALLATION MUST BE CAPABLE OF SUPPORTING A MINIMUM WEIGHT OF 220 LB (100 kg) AND BE LATERALLY AND VERTICALLY STABLE AND FREE FROM VIBRATION.

WARNING:

- **CEILING MOUNT, COLUMN ASSEMBLY AND MICROSCOPE TOGETHER CAN WEIGH UP TO APPROXIMATELY 60 KG.**
- **TO AVOID PERSONAL INJURY, TWO (2) PEOPLE ARE REQUIRED FOR INSTALLATION.**

PROCEDURE:

1. **Make sure there is a 350 mm diameter hole in the drop ceiling to mount the master ceiling plate.**
2. **On a wooden ceiling, install the LABOMED ceiling mount system by fixing a flat wooden membrane at least 90 mm thick to the joists, then mount the master ceiling plate to the wooden membrane as shown in Fig. 8.**
3. **Using the paper template provided, mark the positions of the eight (8) mounting holes on the wooden membrane (see figure).**
4. **Drill eight (8) 1/4" (6 mm) pilot holes, either directly into the joist or into the additional wooden membrane, depending on the ceiling.**
5. **Place a 10 mm flat washer over each of the eight M10 × 100 mm hex head lag screws.**
6. **With the flat side of the master plate facing the ceiling, line up the (6) holes with the pilot holes in the mounting surface and insert the hex head lag screws into the holes.**
7. **Tighten the master plate with a 17 mm hex socket wrench.**
8. **Position and align the ceiling mount against the master plate and insert six M12 × 40 socket head bolts.**
9. **Tighten all bolts slightly with a 10 mm Allen key.**
10. **Use a level to make sure the column assembly is vertical. See Section 5.b, "Leveling the Ceiling Mount System", to correct any leveling problems.**
11. **After leveling the column, tighten all six bolts to full torque.**
12. **Steps 1 to 11 above are the responsibility of the customer. A LABOMED representative will then complete the microscope installation.**
13. **Power up the system with the cable provided. Make sure the AC outlet is hospital grade and properly grounded.**
14. **Put the drop ceiling tile back into place.**



Standard Ceiling Mount
Fig. 8

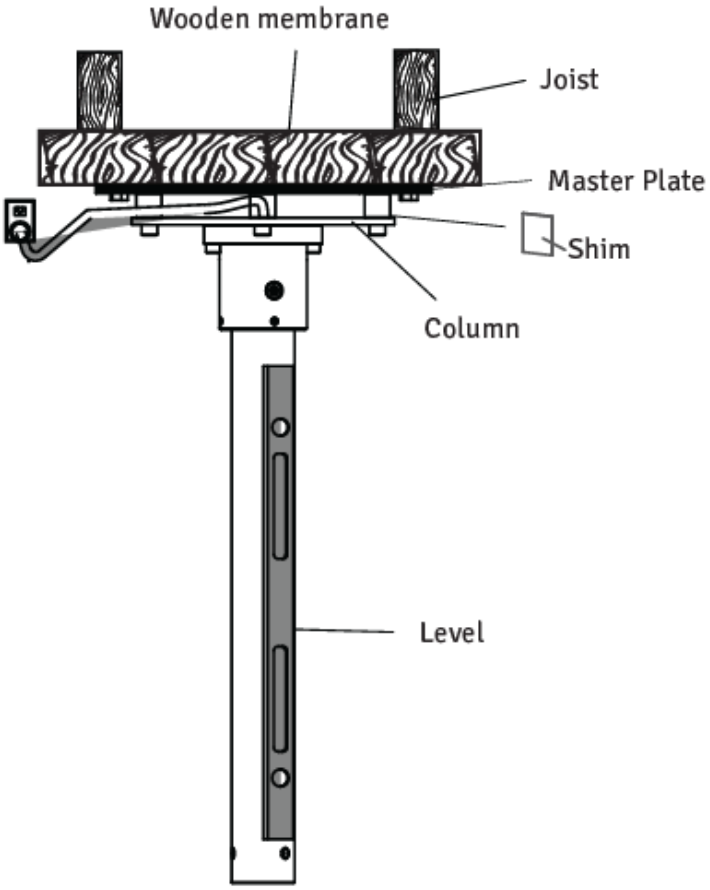
CEILING MOUNT INSTALLATION (continued)

5.b. LEVELING THE CEILING MOUNT SYSTEM

After installation, the ceiling mount column must be plumb. The column must be perfectly vertical to prevent the microscope system from drifting from side to side. Proceed as follows:

1. **Use the 10 mm Allen key to slightly loosen all six (6) M10 bolts.**
2. **Place a level across the bottom of the ceiling mount, as shown in the figure, to check vertical alignment. Use shims as required and adjust the RAWL bolts or lag bolts until the column is vertical.**
3. **Tighten all screws securely.**

NOTICE: Shims and shim materials are supplied by the customer, not by LABOMED. Many shims and shim materials are available commercially; no specific type or brand is required.



Standard Ceiling Mount
Fig. 9

CEILING MOUNT INSTALLATION (continued)

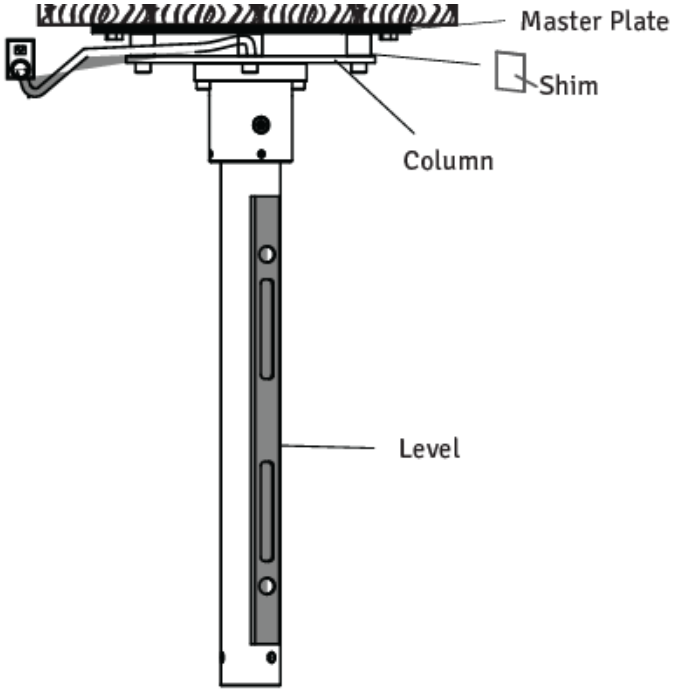
5.c. INSTALLING THE CEILING MOUNT ON CONCRETE CEILINGS

Fixing the master plate:

1. **Use the paper template provided to mark the anchor positions for the master plate.**
2. **Drill the eight (8) mounting holes, 14 mm in diameter and 100 mm deep.**
3. **Place a 10 mm flat washer and a split washer over each of the eight M10 × 75 hex head RAWL plugs.**
4. **With the flat surface of the master plate facing the ceiling, align its 8 holes with the holes in the ceiling.**
5. **Insert the hex head RAWL screws into the holes and fully tighten the master plate with a 17 mm hex socket wrench.**

Installing the ceiling mount:

6. **Position the ceiling mount against the master plate, align the 6 mounting holes and insert six M12 × 40 socket head bolts.**
7. **Tighten all bolts slightly with a 10 mm Allen key.**
8. **Use a level to make sure the column assembly is vertical. See Section 5.b, "Leveling the Ceiling Mount System", to correct any leveling problems.**
9. **Fully tighten all bolts with the 10 mm Allen key.**
10. **Steps 1 to 9 above are the responsibility of the customer. A LABOMED representative will then complete the microscope installation.**
11. **Power up the system with the cable provided. Make sure the AC outlet is hospital grade and properly grounded.**
12. **Put the drop ceiling tile back into place.**



Standard Ceiling Mount
Fig. 10

CEILING MOUNT INSTALLATION (continued)

5d. Construction requirements for ceiling mount installation on concrete ceilings

1. **Install the ceiling mount exactly as described in this manual.**
2. **The responsible construction specialist must confirm in writing that the applicable regional and local codes and regulations have been met and that the points below have been observed. The customer must keep this confirmation on record and provide a copy to the LABOMED representative or dealer.**
3. **The ceiling on which the mount is installed must have the following load capacity:**
   Perpendicular torque: minimum 1500 Nm.
   Torque: perpendicular to the ceiling, 1500 Nm minimum.
   Also take into account any additional loads acting on the ceiling and any other loads anchored in it.
4. **The master plate should be installed during construction.**
5. **A minimum edge distance of 16" is required on all sides.**
6. **The ceiling plate must be aligned in a parallel position (max. deviation ±1°).**

Note:

1. **If an existing ceiling mount is replaced, never reuse the old anchors. New anchor holes must be drilled. When calculating the effective strength of the new anchors, make sure to take into account the weakening effect of the old holes in the ceiling.**
2. **Based on the above, the person responsible for the building must decide on, and take responsibility for, the most suitable anchoring method.**

CEILING MOUNT INSTALLATION (continued)

5.e. CONTROL AND POWER SUPPLY OF THE SYSTEM

NOTE:
The maximum weight of the surgical microscope, including accessories, must not exceed 60 kg and the respective weight of our accessory equipment is given in the price list.

The weight of the mount, including the surgical microscope, is as follows:

Ceiling mount kit	**: 18 kg**
Column	**: 8 kg**
Surgical microscope	**: 22 kg**
Total	**: 48 kg**

Power Line	**: 3 × 1.5 mm²**
Fuse	**: 4.0 A**
Power Consumption	**: max. 200 W**

NOTE:
A socket with a properly installed protective earth connection must be provided at the installation site near the ceiling flange. The terminals for power connection are on the ceiling mount.

Potential equalization: take the necessary measures in the building to include the instrument in the protective potential-equalization system.

NOTE:
The series 6183000 suspension systems, including the components listed here, comply with the safety requirements of CE, EU MDR 2017/745 and IEC 60601-1-3.2.

Installation of the flange and installation of conduits and electrical lines are the customer's responsibility.

List of Contents: Ceiling Kit

1. **RAWL Plugs : 06 pcs**
2. **Washers : 06 pcs**
3. **Ceiling Mount : 01 pcs**
4. **Column : 01 pcs**
5. **Ceiling Mount Cover : 01 pcs**

6. PRODUCT DESCRIPTION (WALL MOUNT)

Catalogue No. 6183602
Model: Prima Pro

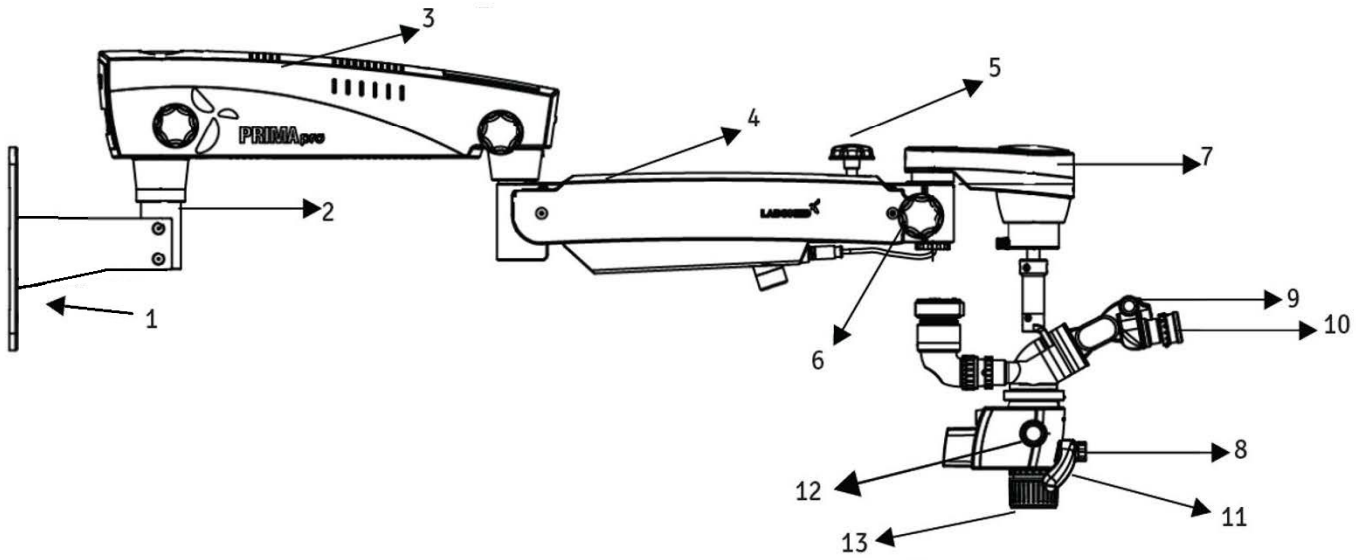


Fig. 11

1. **Wall Mount Bracket**
2. **Mount Shaft**
3. **Swivel Arm**
4. **Suspension Arm**
5. **Suspension Arm Hydraulic Movement Lock Knob**
6. **Auto Balancing Arm Lock Knob**
7. **ABA (Auto Balancing Arm) Electromagnetic Clutch**
8. **Illumination Control Knob**
9. **Ergo Head 0°-210° Tiltable**
10. **Eyepieces**
11. **Two-Hand Release (Electromagnetic Clutch)**
12. **Step Magnification Knob**
13. **Common Main Objective With Fine Focusing Ring**

7. INSTALLATION REFERENCES (WALL MOUNT)

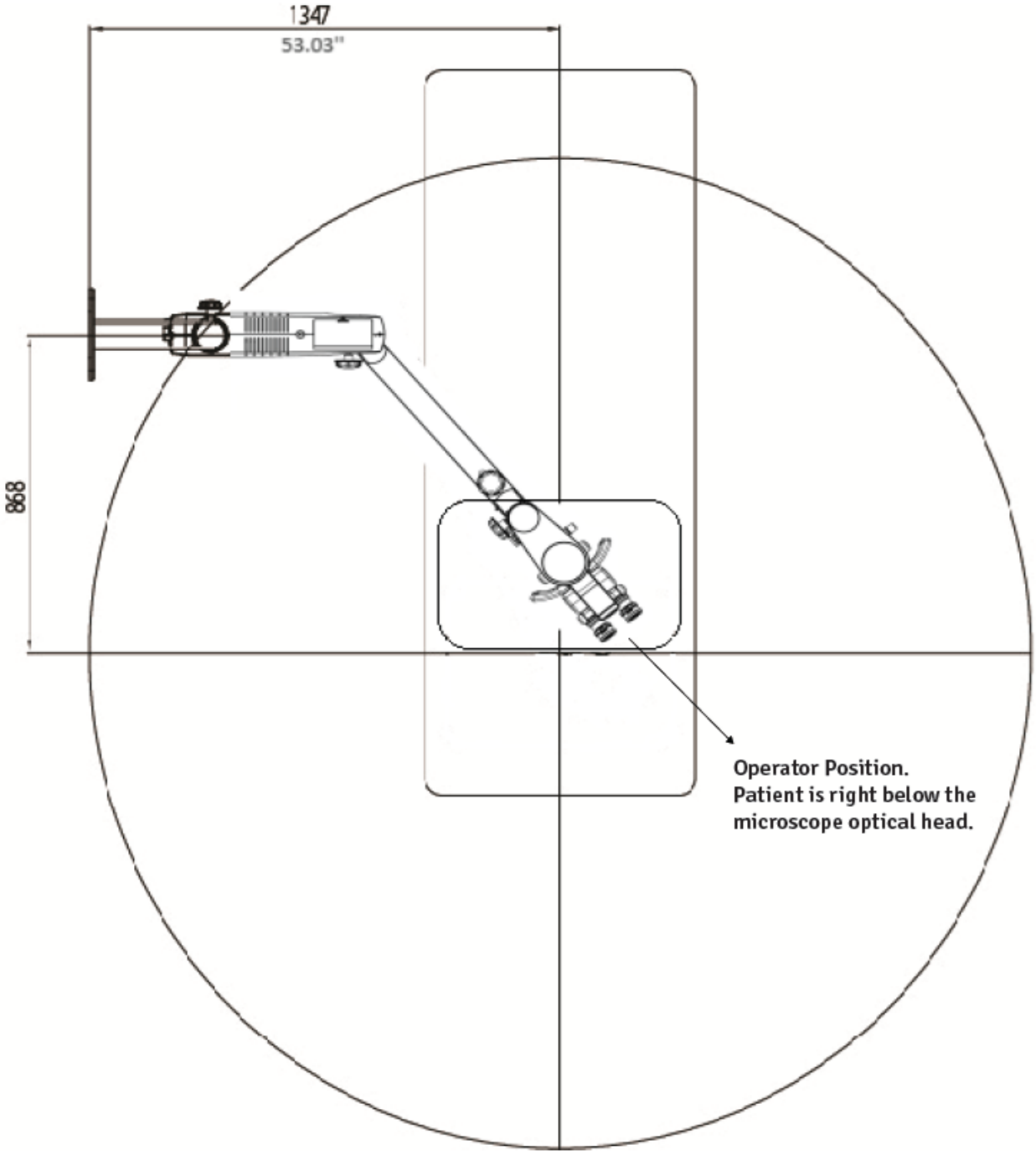


Fig. 12

INSTALLATION REFERENCES (WALL MOUNT) continued

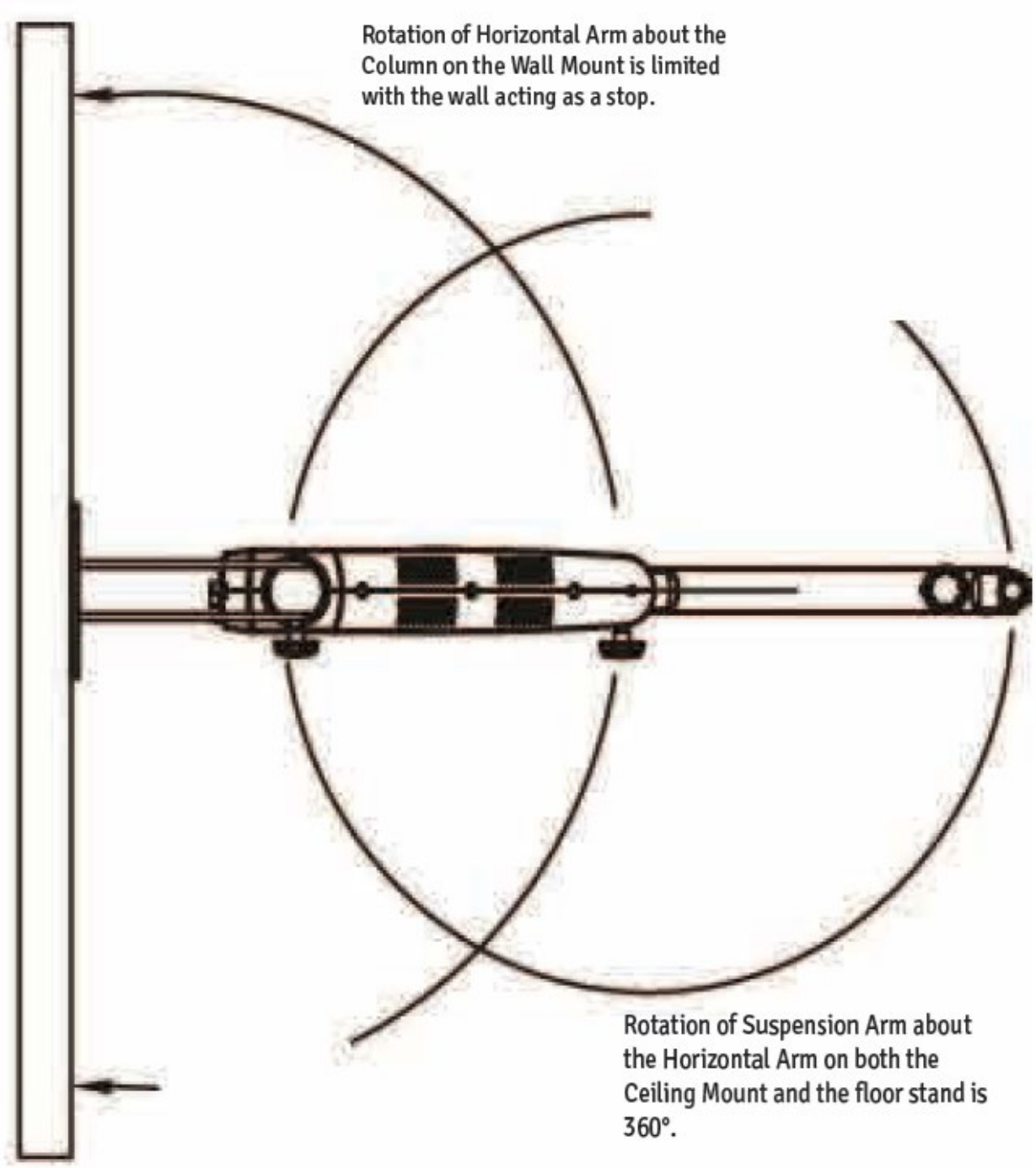
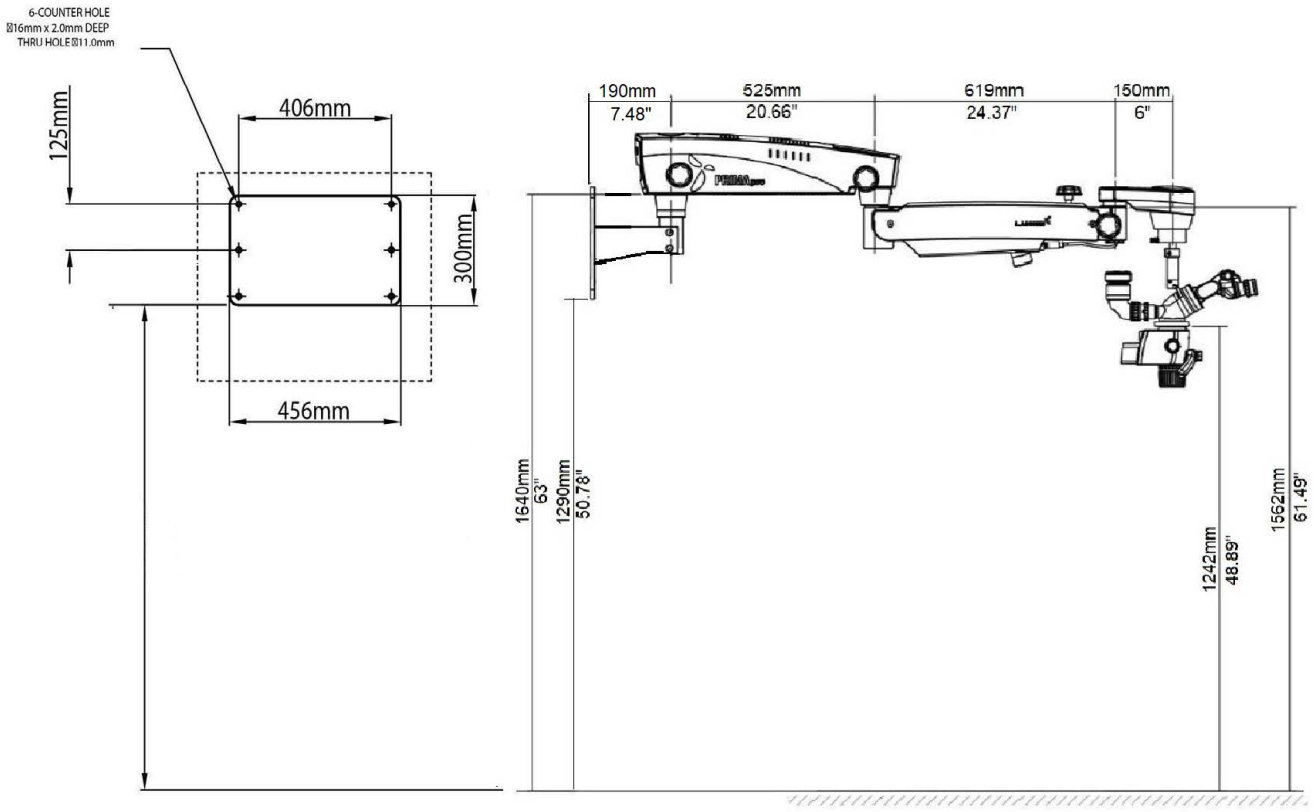


Fig. 13

INSTALLATION REFERENCES (WALL MOUNT) continued

Prima Pro Wall Mount Horizontal with Standard Suspension Arm



Prima Pro Wall Mount Horizontal with Standard Suspension Arm and Extensions

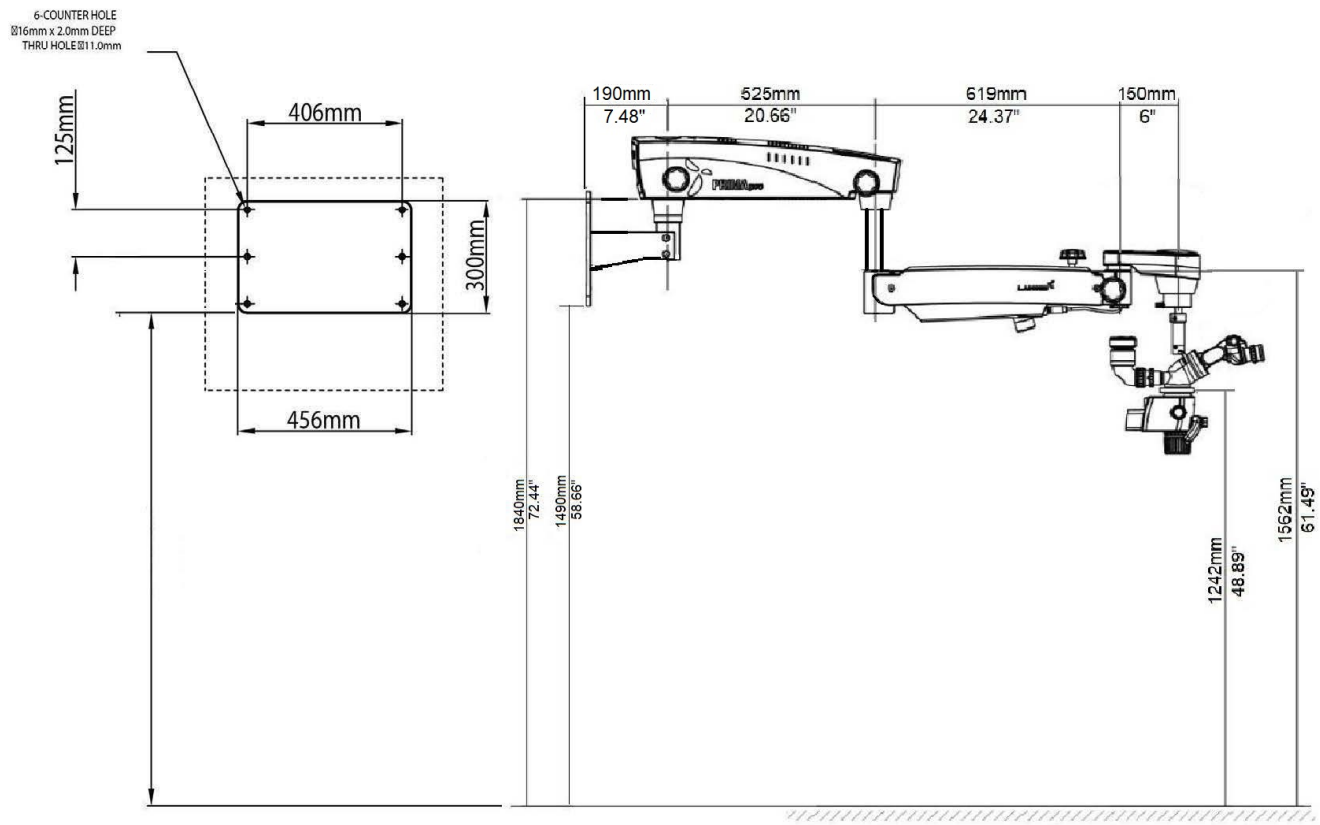
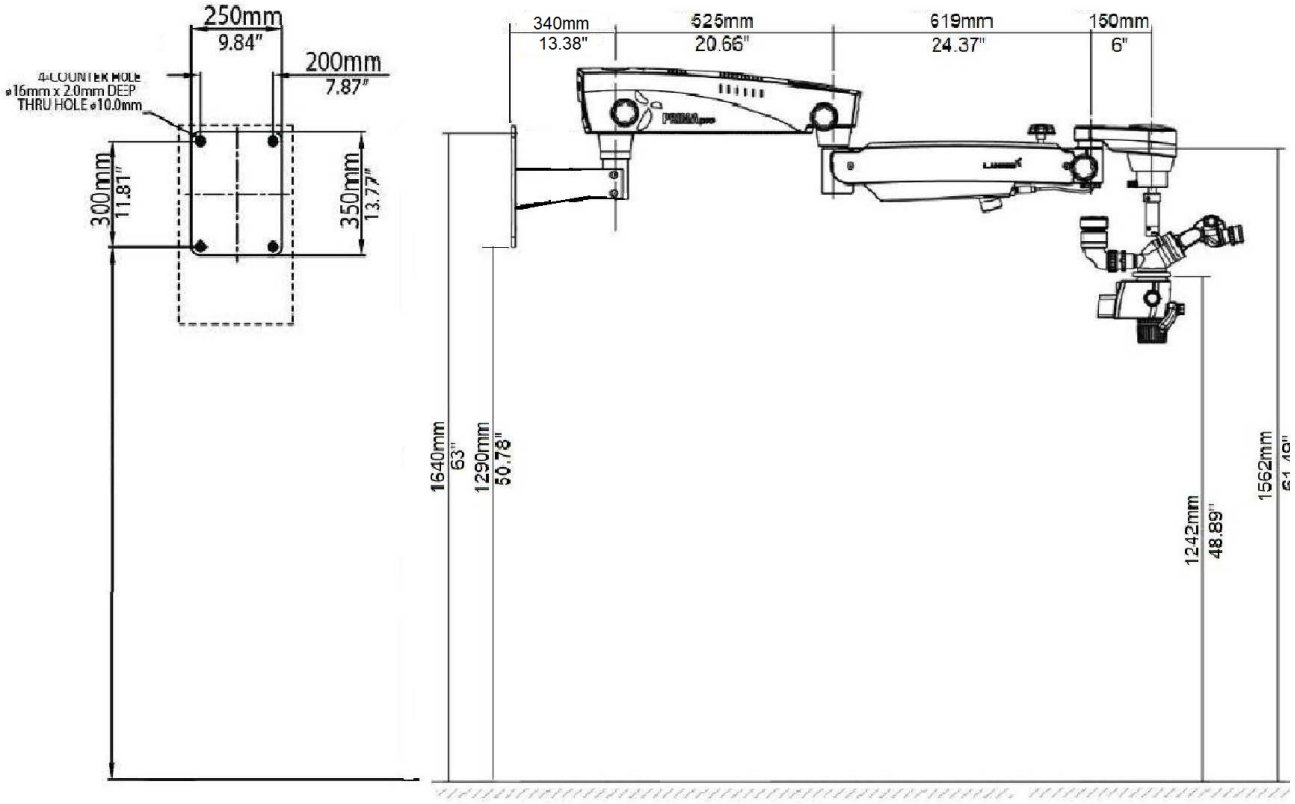


Fig. 14

INSTALLATION REFERENCES (WALL MOUNT) continued

Prima Pro Wall Mount Vertical with Standard Suspension Arm



Prima Pro Wall Mount Vertical with Standard Suspension Arm and Extensions

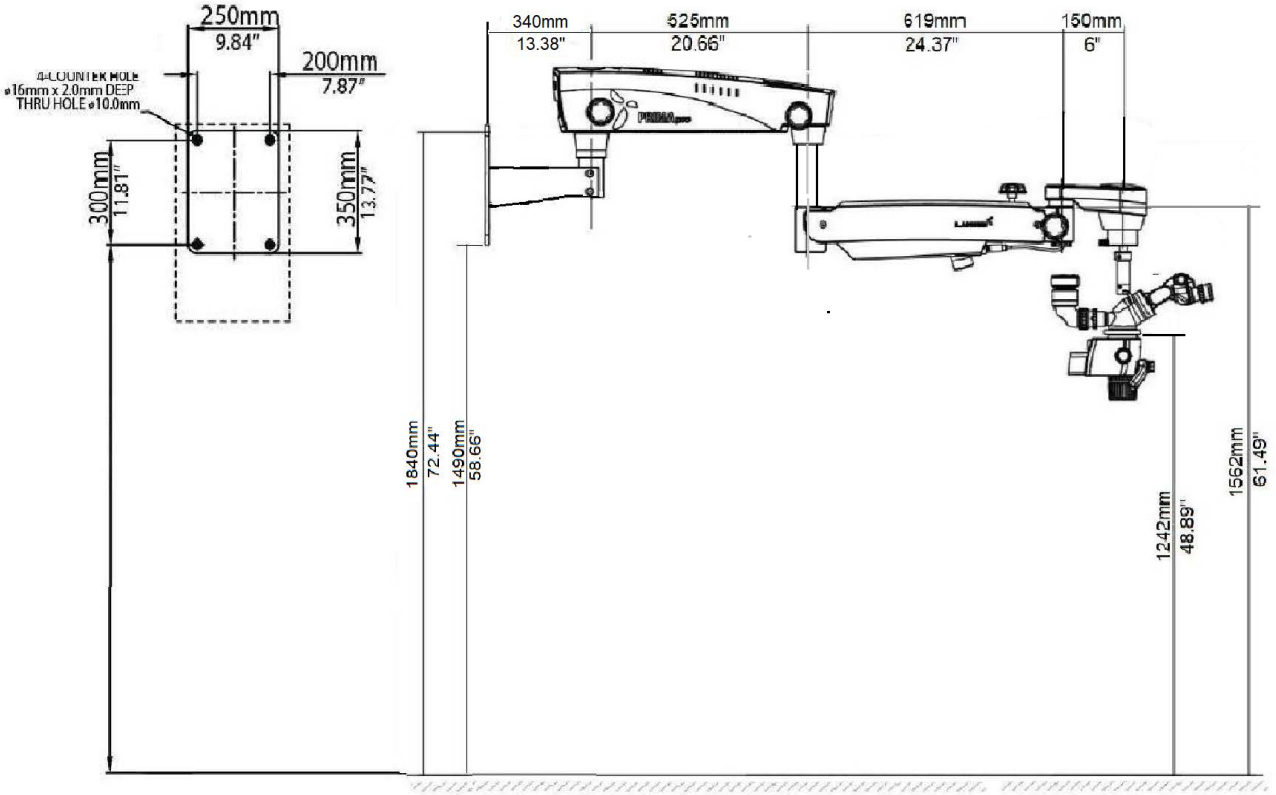


Fig. 14a

INSTALLATION REFERENCES (WALL MOUNT HORIZONTAL)

7a. Horizontal Wall Mount: MARKING REFERENCE

Anchoring the Wall Mount

Reference

A. Paper Template for Marking
B. Wall Mount Assembly
C. Distance from floor: choose the height for the ordered configuration from Figure 14.

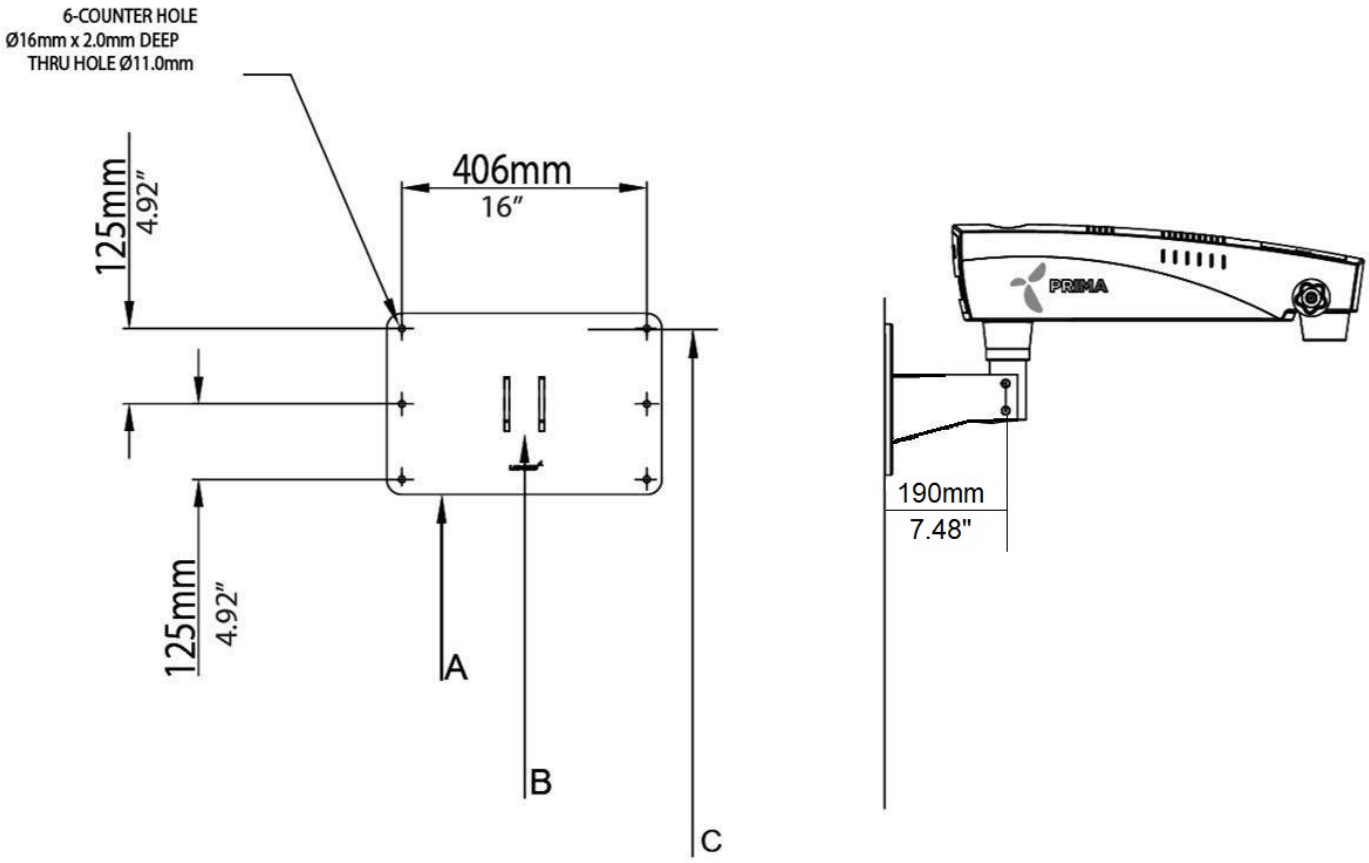


Fig. 15

INSTALLATION REFERENCES (WALL MOUNT VERTICAL)

7b. Vertical Wall Mount: MARKING REFERENCE

Anchoring the Wall Mount

Reference

A. Paper Template for Marking
B. Wall Mount Assembly
C. Distance from floor: choose the height for the ordered configuration from Figure 14.

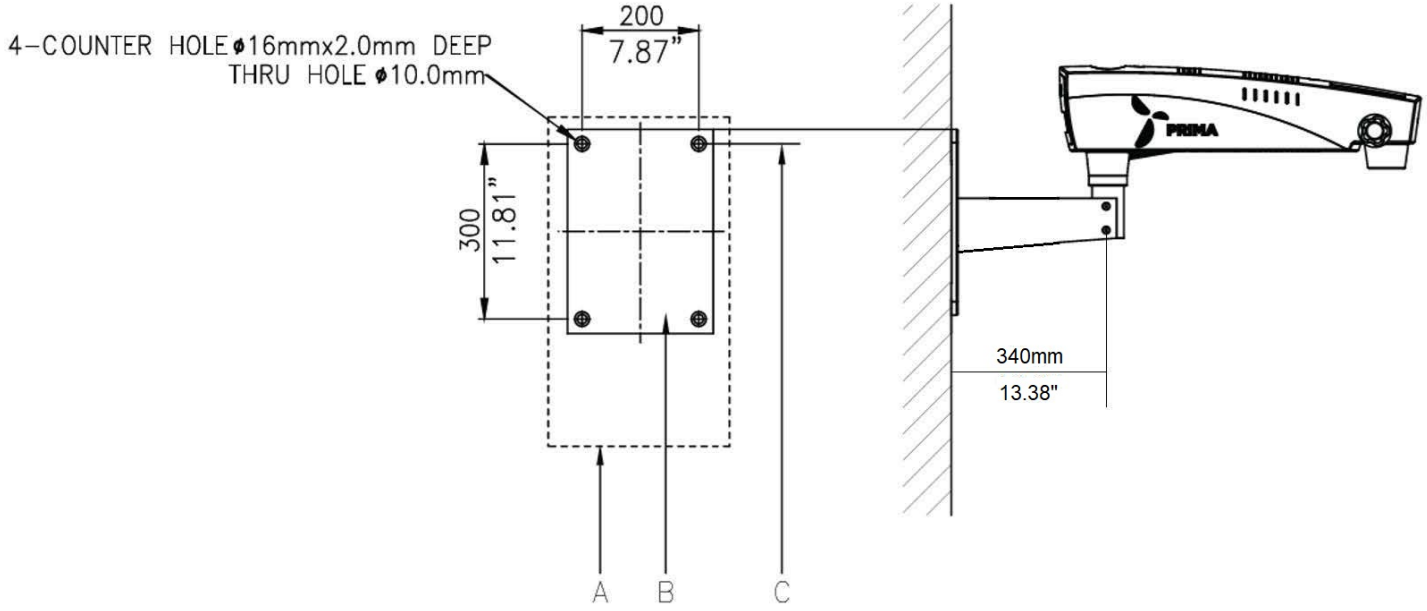


Fig. 15a

INSTALLATION REFERENCES (WALL MOUNT)

Wall Mount: Alternative Installation to the Patient's Side (with Standard Suspension Arm)

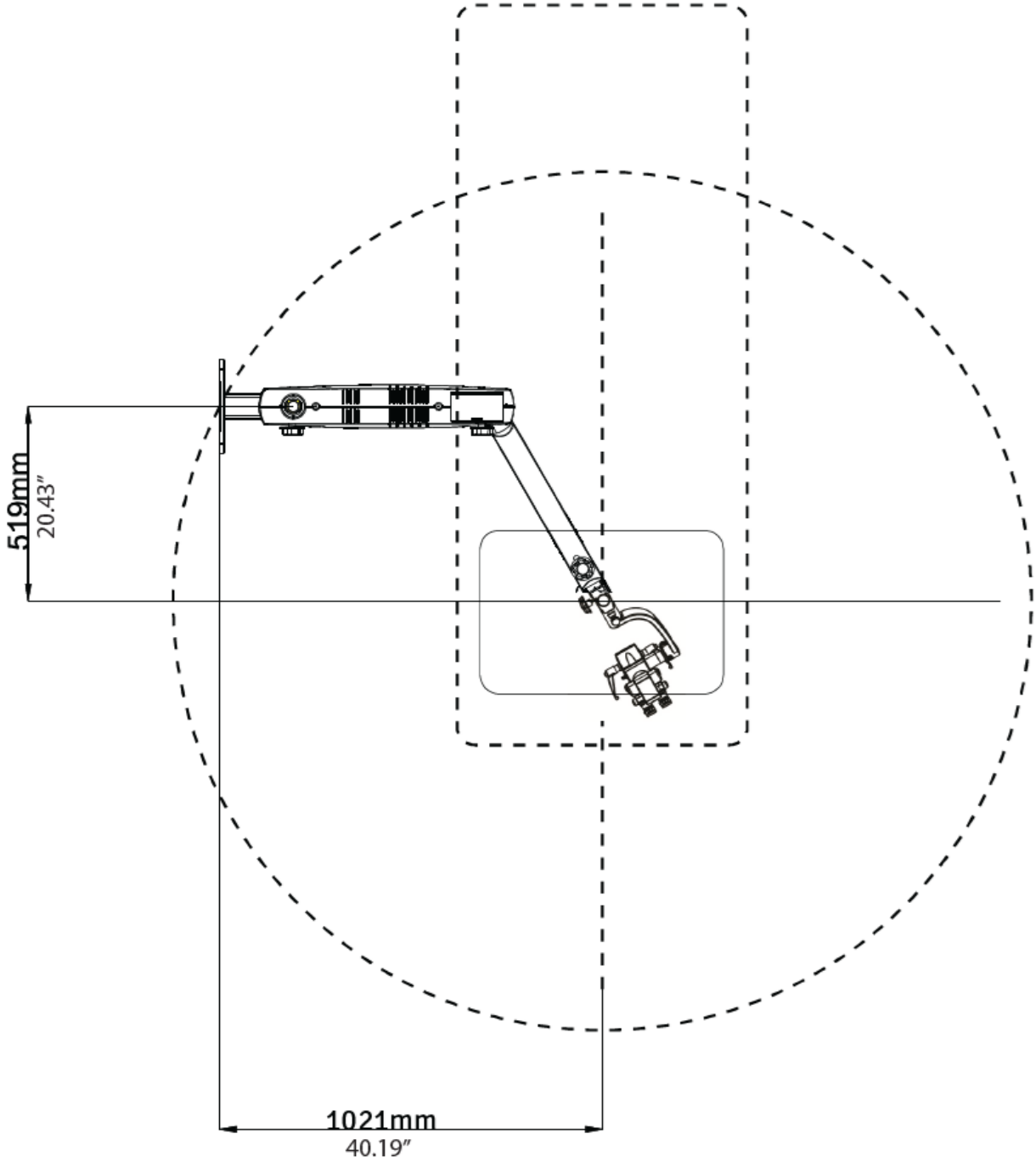
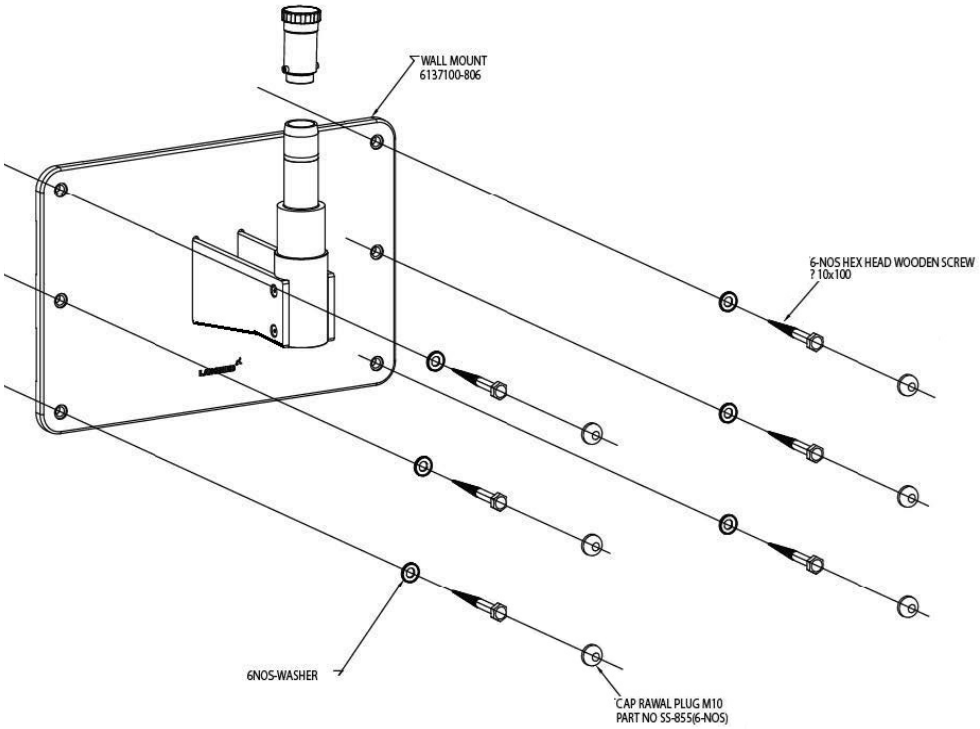


Fig. 16

HORIZONTAL WALL MOUNT INSTALLATION REFERENCES (WOODEN WALL)



VERTICAL WALL MOUNT INSTALLATION REFERENCES (WOODEN WALL)

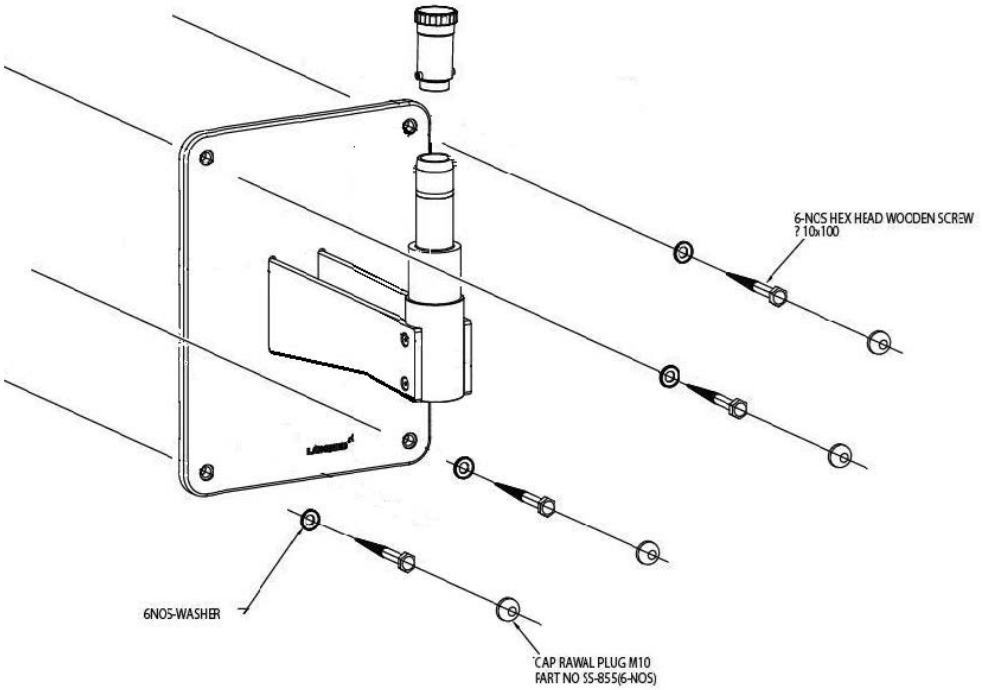
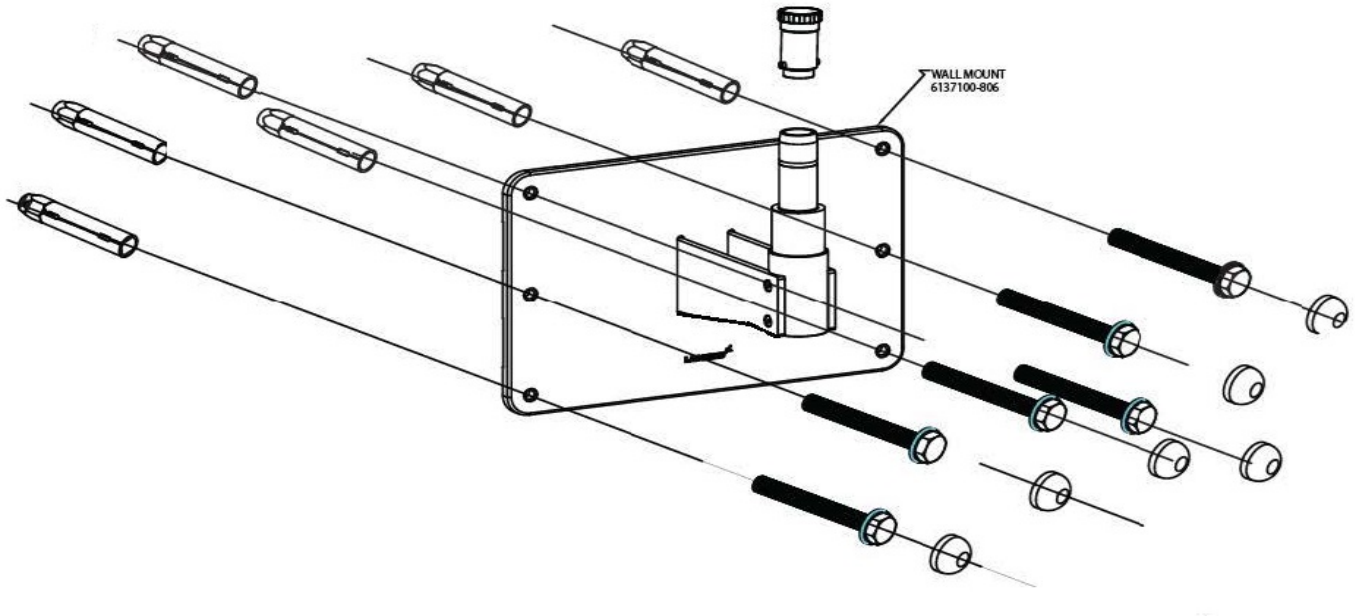


Fig. 17

HORIZONTAL WALL MOUNT INSTALLATION REFERENCES (SOLID BRICK WALL)



VERTICAL WALL MOUNT INSTALLATION REFERENCES (SOLID BRICK WALL)

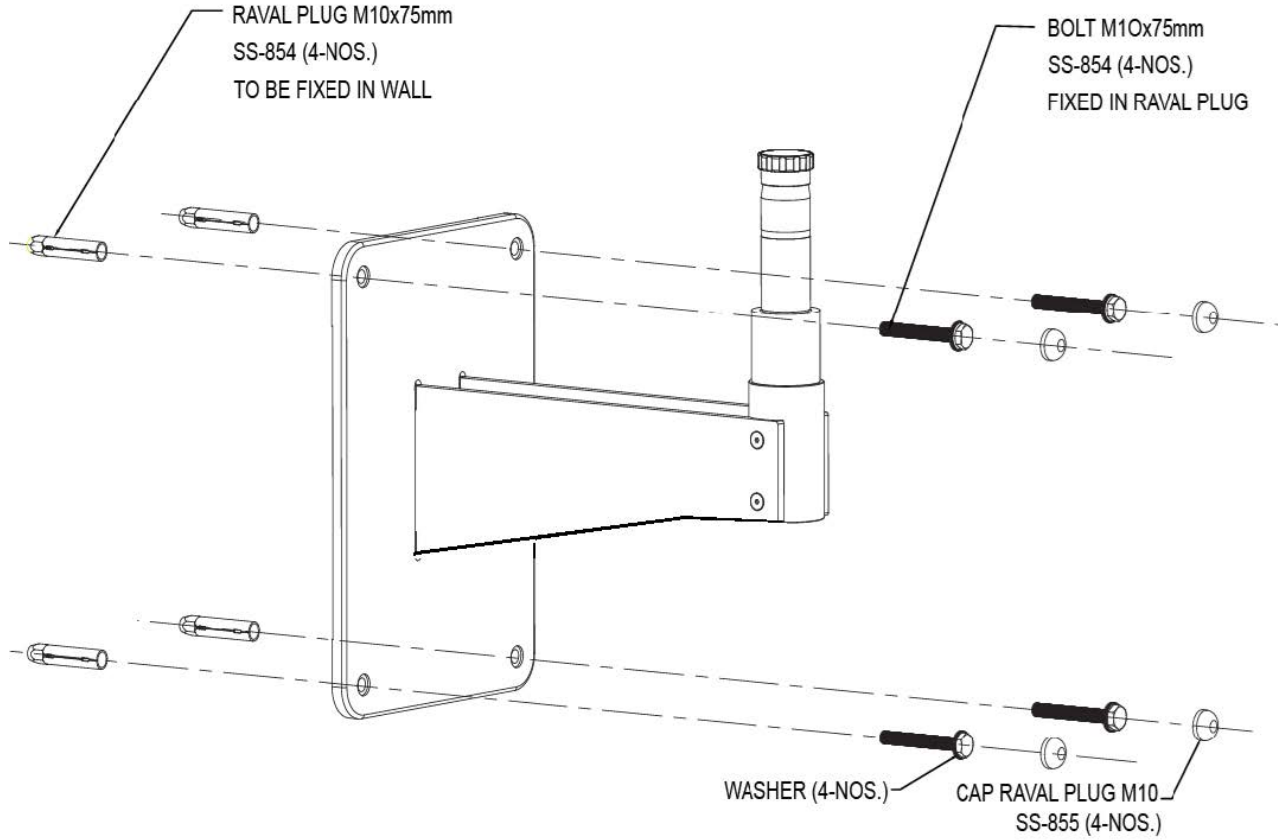


Fig. 18

8. INSTALLATION PREPARATION (WALL MOUNT)

WALL MOUNT INSTALLATION

Before installing a LABOMED wall mount microscope, make sure there is enough space for the selected configuration. See Figures 15 and 15a.

Measure the distance between stud centers. The LABOMED wall mount is designed to mount directly on a wall with wood studs at 406 mm (16”) centers, or on a solid brick or concrete wall at least 229 mm (9”) thick.

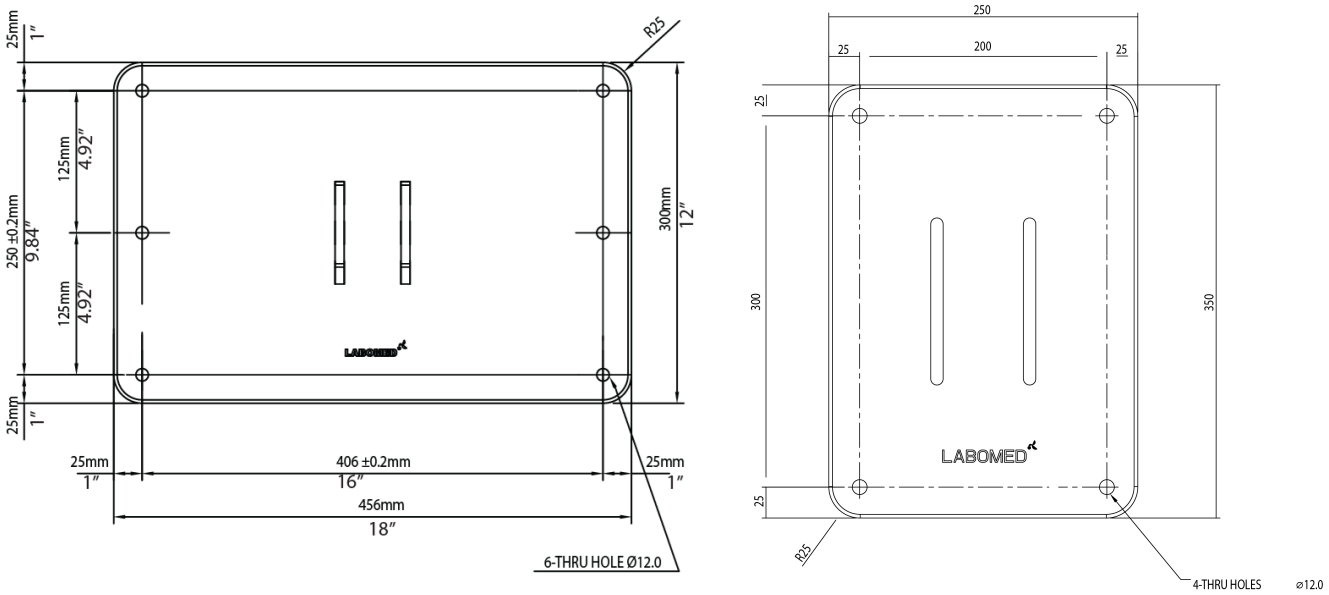


Fig. 19

LIST OF CONTENTS

1. **Paper Template for Marking – 1**
2. **Wall Mount Assembly – 1**
3. **Hex Lag Bolts (for Wooden Walls) – 6**
4. **Plain Washer – 6**
5. **RAWL Anchor Bolts (for Masonry Walls) – 6**
6. **Cap Set Bolt – 6**

WALL MOUNT INSTALLATION PROCEDURE

WALL MOUNT INSTALLATION ON STANDARD 16” (406 MM) WOODEN STUD SPACING

To secure the wall mount system to wooden wall studs at 16” (406 mm) centers, use 3/8" × 4" hex head lag screws.

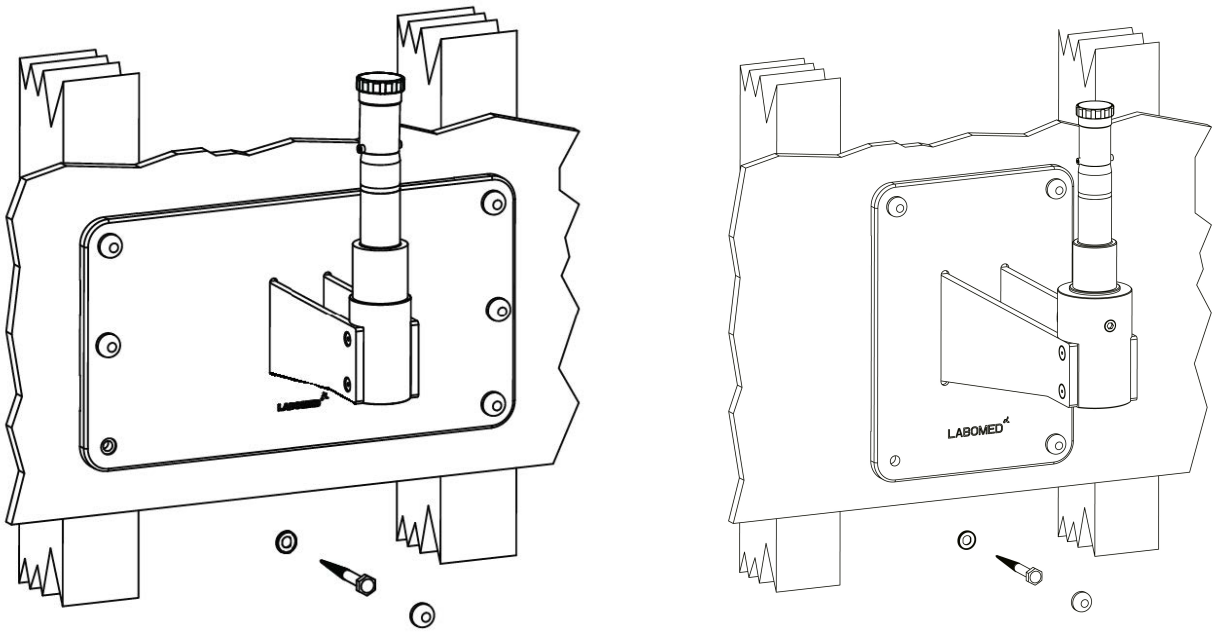


Fig. 20

WARNING: THE MOUNTING HARDWARE SUPPLIED FOR WOODEN WALLS IS NOT DESIGNED FOR WALLS WITH STEEL STUDS OR FOR CINDER BLOCK OR MASONRY WALLS.

WALL MOUNT INSTALLATION PROCEDURE (continued)

LEVELING THE WALL MOUNT PLATE ASSEMBLY

After installation, the wall mount (6137100-806) must be level both horizontally and vertically. Leveling the wall mount assembly prevents the microscope system from drifting from side to side when it is used at full extension.

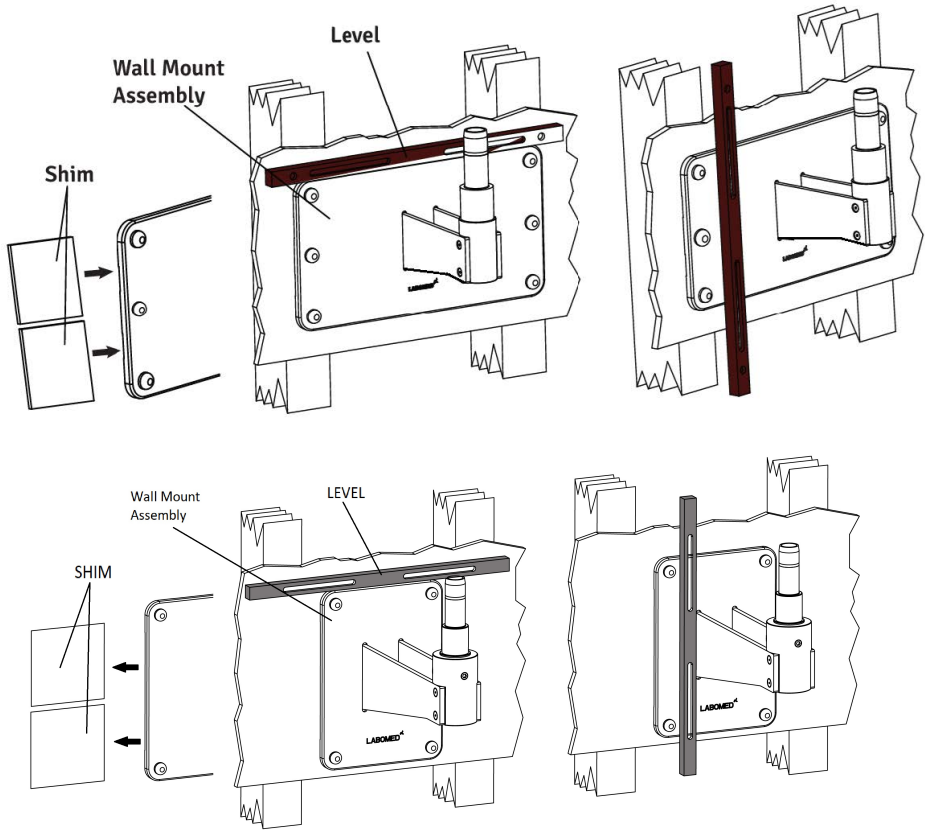


Fig. 21

1. **Slightly tighten the bolts on the top side, leaving the bottom bolts slightly loose.**
2. **Place a level across the top of the back plate to check horizontal alignment. See Figure 21.**
3. **Use a 17 mm socket and ratchet to slightly loosen the 3/8” × 4" hex head lag screws in the corners of the back plate.**
4. **Adjust the back plate until it is level and tighten the three bottom lag screws, leaving the top lag screws slightly loose.**
5. **Place a level vertically along the face of the wall mount, on both sides, to make sure it is perpendicular to the floor. See Figure 21.**
6. **If the wall mount is not perpendicular, insert shim material between the wall mount and the wall next to the lag screws (see Figure 21). Check with the level and tighten the lag screws once the mount is level.**
7. **Check the other side, insert shims as needed, then tighten the lag screws.**
8. **When the wall mount is level both horizontally and vertically, securely tighten all six lag screws.**

WALL MOUNT INSTALLATION PROCEDURE (continued)

WALL MOUNT INSTALLATION ON A SOLID BRICK MASONRY WALL, MINIMUM 9" THICK

To secure this wall mount to a solid brick wall, use the six (6) M10 × 75 mm RAWL anchor bolts provided. See the figure below.

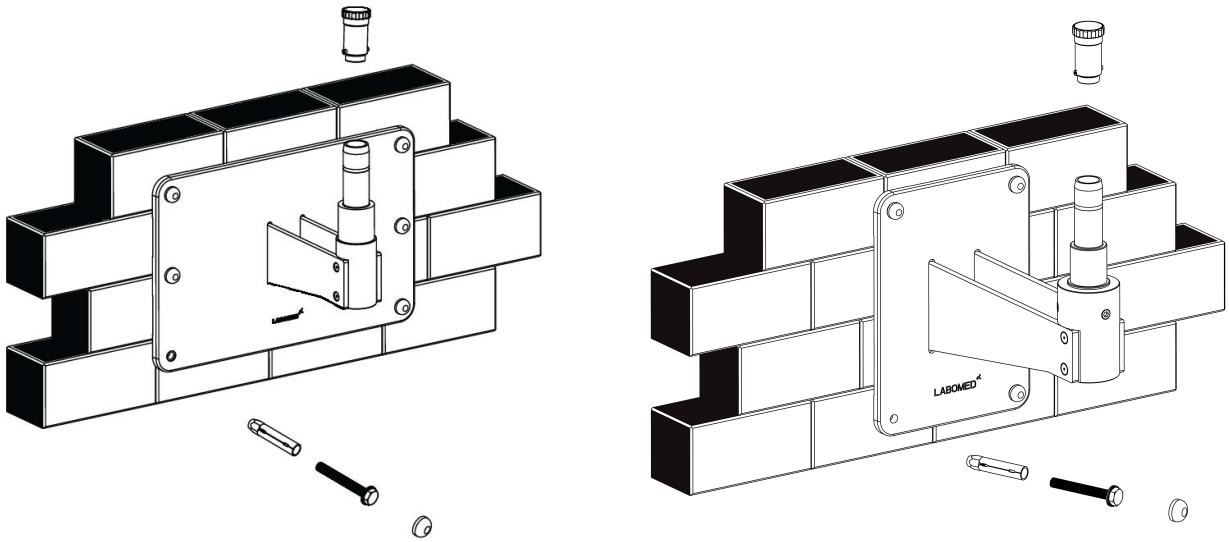


Fig. 22

1. **Determine the desired location on the wall where the microscope is to be mounted.**
2. **Tape the paper template to the wall. Mark the six (6) holes, making sure the template is straight.**
3. **Using a 16 mm masonry drill bit, drill six (6) 16 mm holes, at least 65 mm deep, at the marked positions.**
4. **Use the 10 mm × 75 mm RAWL anchor bolts.**
5. **Place the RAWL bolts through the holes and carefully insert the bolts into the wall.**
6. **Remove the threaded bolt.**
7. **Position the wall mount against the wall. Place a flat washer under the head of each bolt and thread the six (6) RAWL bolts in the wall.**
8. **Using a 17 mm socket and ratchet, tighten the six (6) RAWL bolts to secure the wall mount in position, making sure its top edge and front face are level.**

NOTICE: Shims and shim materials are supplied by the customer, not by LABOMED. Many shim materials are available commercially; no specific type or brand is implied.

WALL MOUNT INSTALLATION PROCEDURE (continued)

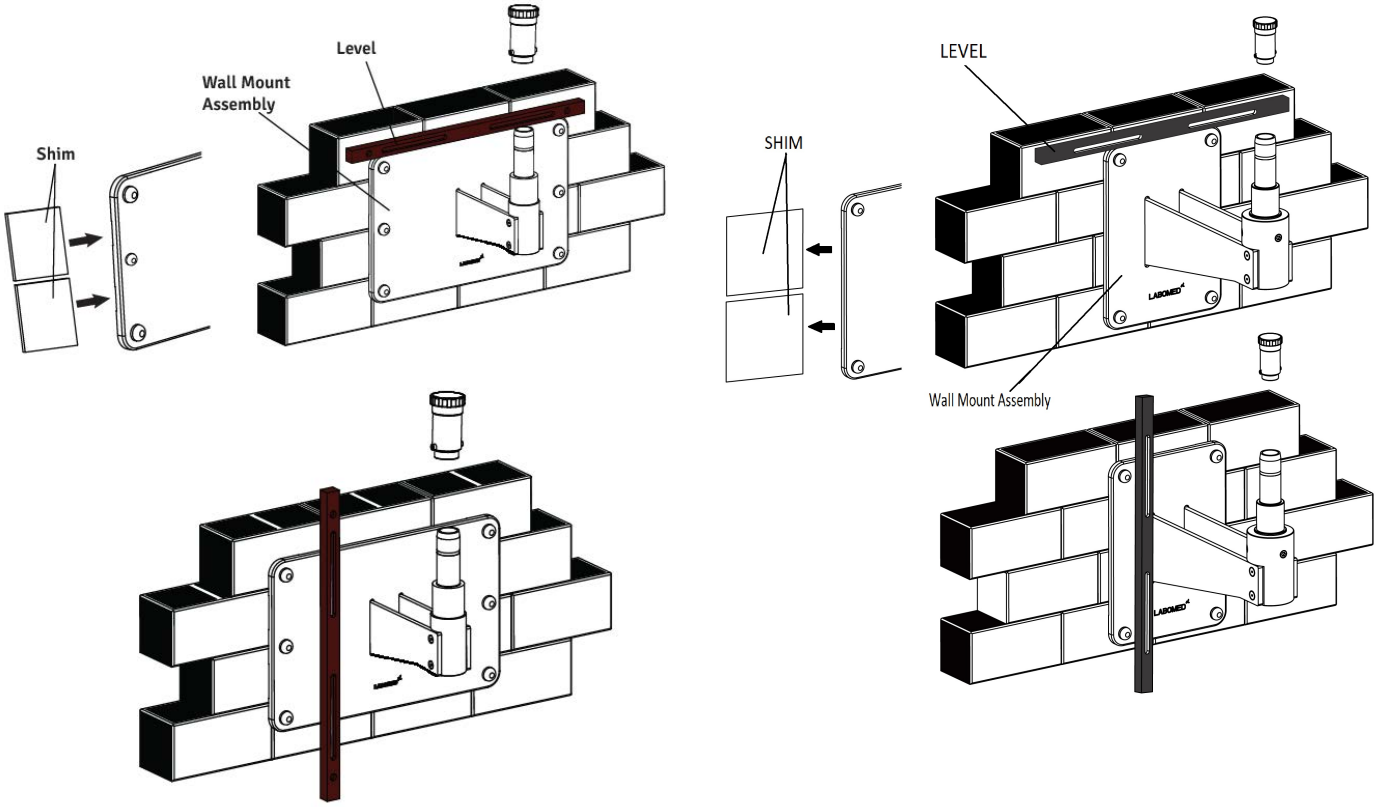


Fig. 23

WALL MOUNT INSTALLATION PROCEDURE (continued)

LEVELING THE WALL MOUNT ON MASONRY WALL

1. Slightly tighten the bolts on the top side, leaving the bottom bolts slightly loose.
2. Place a level across the top of the back plate to check horizontal alignment. See Figure 23.
3. Use a 17 mm socket and ratchet to slightly loosen the six (6) toggle bolts in the corners of the back plate.
4. Adjust the wall mount until it is level and tighten the three bottom RAWL bolts, leaving the top toggle bolts slightly loose.
5. Place a level vertically along the face of the back plate, on both sides, to make sure it is perpendicular to the floor. See Figure 23.
6. If the back plate is not perpendicular, insert shim material between the back plate and the wall next to the RAWL bolts. Check with the level and tighten the toggle bolts once the mount is level.
7. Check the other side, insert shims as needed, then tighten the toggle bolts. See Figure 23.
8. When the back plate is level, both horizontally and vertically, securely tighten all six toggle bolts.

INSTALLING THE HORIZONTAL ARM ASSEMBLY

1. Open the microscope arm box and take out the arm.
2. Unscrew the threaded plug from the wall mount shaft, as shown in Fig. 23.
3. Assemble the arm on the wall mount shaft (see Fig. 22) and reinstall the threaded plug.
4. Complete the installation as shown in Fig. 1, 2, 3 or 4, as ordered.

WALL MOUNT INSTALLATION PROCEDURE (continued)

CONSTRUCTION REQUIREMENTS FOR THE WALL MOUNT

1. **Install the wall mount assembly only as described in this manual.**
2. **The responsible construction specialist must confirm in writing that the applicable regional and local codes and regulations have been met and that the points below have been observed. The customer must keep this confirmation with the wall mount records and provide a copy to the LABOMED representative or dealer.**
3. **The wall on which the mount is installed must have the following load capacity:**
   Perpendicular torque: minimum 1500 Nm

   Also take into account any additional loads acting on the wall.

4. **The wall mount must be aligned in a parallel position (max. deviation ±1°).**

NOTE:
If an existing wall mount is replaced, never reuse the old anchors. New anchor holes must be drilled. When calculating the effective strength of the new anchors, make sure to take into account the weakening effect of the old holes in the wall.

Based on the above, the person responsible for the building must decide on, and take responsibility for, the most suitable anchoring method.

WALL MOUNT INSTALLATION PROCEDURE (continued)

CONTROL AND POWER SUPPLY OF THE SYSTEM

NOTE:
The maximum weight of the surgical microscope, including accessories, must not exceed 50 kg and the respective weight of our accessory equipment is given in the price list.

The weight of the mount, including the surgical microscope, is as follows:

Wall mount kit	**:**	**12 kg**
Surgical microscope	**:**	**22 kg**
Total	**:**	**34 kg**

Power Line	**: 3 × 1.5 mm²**
Fuse	**: 4.0 A**
Power Consumption	**: max. 200 W**

NOTE:
A socket with a properly installed protective earth connection must be provided at the installation site.

Potential equalization: take the necessary measures in the building to include the instrument in the protective potential-equalization system.

NOTE:
The series 6183000 suspension systems, including the components listed here, comply with the safety requirements of CE, MDR 2017/745 and IEC 60601-1-3.2.

Installation of the flange and installation of conduits and electrical lines are the customer's responsibility.

List of Contents: Wall Mount Kit

1. **RAWL Plugs : 06 pcs**
2. **Washers : 06 pcs**
3. **Wall Mount : 01 pcs**

9. WARNINGS AND CAUTIONS

LABOMED is not responsible for the safety and reliability of this instrument when:

- **Assembly, disassembly, repair, or modification is made by unauthorized dealers or persons.**
- **The instrument is not used in accordance with this user manual.**

A WARNING is an instruction that draws attention to the risk of injury or death.

WARNING: USERS OF THIS EQUIPMENT SHOULD BE THOROUGHLY TRAINED IN THE APPROPRIATE MEDICAL PROCEDURES. FURTHERMORE, THEY SHOULD TAKE THE TIME TO READ AND UNDERSTAND THESE INSTRUCTIONS BEFORE PERFORMING ANY PROCEDURE. THEY SHOULD ALSO READ AND UNDERSTAND THE INSTRUCTIONS FOR ANY OTHER EQUIPMENT USED IN CONJUNCTION WITH THIS MICROSCOPE (E.G., ELECTROSURGICAL GENERATORS). FAILURE TO DO SO MAY RESULT IN INJURY TO THE PATIENT AND/OR DAMAGE TO THE MICROSCOPE.

WARNING: THIS INSTRUMENT SHOULD BE USED IN STRICT ACCORDANCE WITH THE INSTRUCTIONS OUTLINED IN THIS USER'S GUIDE. THE SAFETY OF THE OPERATOR AND THE PERFORMANCE OF THE INSTRUMENT CANNOT BE GUARANTEED IF USED IN A MANNER NOT SPECIFIED BY LABOMED.

WARNING: DO NOT REPAIR OR SERVICE THIS INSTRUMENT WITHOUT AUTHORIZATION FROM THE MANUFACTURER. ANY REPAIR OR SERVICE TO THIS INSTRUMENT MUST BE PERFORMED BY EXPERIENCED PERSONNEL OR DEALERS WHO ARE TRAINED BY LABOMED OR SERIOUS INJURY TO THE OPERATOR OR PATIENT MAY OCCUR.

WARNING: MODIFICATIONS TO THIS INSTRUMENT ARE NOT ALLOWED. ANY MODIFICATION TO THIS UNIT MUST BE AUTHORIZED BY LABOMED. UNAUTHORIZED MODIFICATIONS MAY CAUSE SERIOUS INJURY TO THE OPERATOR OR PATIENT.

WARNING: IF THIS INSTRUMENT IS MODIFIED, APPROPRIATE INSPECTION AND TESTING MUST BE CONDUCTED TO ENSURE CONTINUED SAFE USE OF THIS INSTRUMENT.

WARNING: ENSURE THAT THE VOLTAGE APPLIED TO THE UNIT IS THE SAME AS THE VOLTAGE THAT IS INDICATED ON THE DATA PLATE OR DAMAGE TO THE UNIT MAY OCCUR.

WARNING: WHERE THE SUPPLY VOLTAGE FLUCTUATES, A CONSTANT-VOLTAGE STABILIZER OR UPS IS RECOMMENDED FOR SAFE AND EFFICIENT USE OF THE DEVICE.

WARNING: THIS INSTRUMENT MUST BE PLUGGED INTO AN OUTLET WITH AN EARTH GROUND. DO NOT REMOVE OR DEFEAT THE EARTH GROUND CONNECTION ON POWER INPUT CONNECTOR OR THE UNIT'S POWER CORD OF THIS INSTRUMENT OR DAMAGE TO IT AND/OR INJURY TO THE OPERATOR OR PATIENT MAY OCCUR.

WARNING: THE EQUIPMENT OR SYSTEM SHOULD NOT BE USED ADJACENT TO OR STACKED WITH OTHER EQUIPMENT AND THAT IF ADJACENT OR STACKED USE IS NECESSARY, THE EQUIPMENT OR SYSTEM SHOULD BE OBSERVED TO VERIFY NORMAL OPERATION IN THE CONFIGURATION IN WHICH IT WILL BE USED.

WARNINGS AND CAUTIONS (continued)

WARNING: THIS INSTRUMENT IS NOT SUITABLE FOR USE IN THE PRESENCE OF FLAMMABLE ANESTHETIC MIXTURES WITH OXYGEN OR NITROUS OXIDE.

WARNING: LED RADIATION - DO NOT STARE DIRECTLY INTO THE BEAM WHEN THE MICROSCOPE IS IN THE ON POSITION.

WARNING: THE USE OF ACCESSORIES OR CABLES OTHER THAN THOSE SPECIFIED, WITH THE EXCEPTION OF THOSE SOLD BY THE MANUFACTURER AS REPLACEMENT PARTS FOR THE INTERNAL COMPONENTS, MAY RESULT IN INCREASED EMISSIONS OR DECREASED IMMUNITY OF THE EQUIPMENT OR SYSTEM.

A CAUTION is an instruction that draws attention to the risk of damage to the product.



CAUTION: THE INTERNAL CIRCUITRY OF THE INSTRUMENT CONTAINS ELECTROSTATIC-SENSITIVE DEVICES (ESD) THAT MAY BE SENSITIVE TO STATIC CHARGES PRODUCED BY THE HUMAN BODY. DO NOT REMOVE THE COVERS WITHOUT TAKING PROPER ESD PRECAUTIONS.

CAUTION: DO NOT USE SOLVENTS OR STRONG CLEANING SOLUTIONS ON ANY PART OF THIS INSTRUMENT, AS DAMAGE TO THE UNIT MAY OCCUR. SEE THE CARE AND MAINTENANCE SECTION FOR DETAILED CLEANING INSTRUCTIONS.

CAUTION: MEDICAL ELECTRICAL EQUIPMENT NEEDS SPECIAL PRECAUTIONS WITH RESPECT TO ELECTROMAGNETIC COMPATIBILITY (EMC) AND NEEDS TO BE INSTALLED AND SERVICED ACCORDING TO THE EMC INFORMATION PROVIDED IN THE ACCOMPANYING DOCUMENTS.

CAUTION: PORTABLE AND MOBILE RF COMMUNICATIONS EQUIPMENT CAN AFFECT MEDICAL ELECTRICAL EQUIPMENT.

CAUTION: THIS INSTRUMENT IS NOT TO BE USED NEAR HIGH-FREQUENCY EMITTING SURGICAL EQUIPMENT.

CAUTION: DO NOT CONNECT ANY EQUIPMENT TO THE DEVICE OTHER THAN THOSE INTENDED FOR USE WITH THE DEVICE.

CAUTION: DO NOT USE A CONVERTER ADAPTER THAT WILL CONVERT THE THREE-PRONG AC PLUG TO A TWO-PRONG LINE PLUG. THE POWER SUPPLY IN THIS MICROSCOPE WILL NOT BE PROPERLY GROUNDED, AND ELECTRIC SHOCK MAY RESULT.

CAUTION: REMOVE THE AC POWER PLUG FROM THE WALL SOCKET WHILE CHECKING FOR A BLOWN FUSE.

CAUTION: DO NOT ROLL THE MICROSCOPE OVER CABLES OR HOLES.

CAUTION: DO NOT REMOVE FERRITE BEADS IF APPLIED TO CABLES.

CAUTION: DO NOT OPERATE THE DEVICE WITHOUT THE SILICONE COVERS ON THE HANDLES AND ALL KNOBS.

10. EXPLANATION OF SYMBOLS

Caution:
Observe all warning labels and notes!
If a label is missing from your instrument or has become illegible, contact us or an authorized representative for replacement labels.

Brightness control: once the illumination is switched on, the user can adjust brightness continuously by turning the knob.

Accompanying documents must be consulted.

Compliance with the Medical Device Regulation (EU) 2017/745 (MDR).

Protective earth.

This way up: indicates the correct upright position of the transport package.

Keep dry: keep the transport package away from rain.

Manufacturer.

Fragile: the contents of the transport package are fragile; handle with care.

Electromagnetic interference can occur in the vicinity of devices carrying this symbol.

Alternating current.

Recycling of packaging materials.

Do not overbalance by more than 5°.

Separate disposal of waste electrical equipment.

Unsafe for use with MR (Magnetic Resonance).

Permissible humidity range during transport and storage.

Permissible pressure range during transport and storage.

The product complies with US and Canadian safety requirements.

Permissible temperature range during transport and storage.

Medical Device.

Authorized European representative

Serial no. (YY year, MM month, XXXX serial no.)

Model no.

Fuse

Max. safe load 12 kg

IP 20 Ingress protection

11. STANDARDS AND DIRECTIVES

The instrument described in this user manual has been designed in compliance with the following standards:

ISO 8600-3 First edition 1997-07-01 AMENDMENT 1 Optics and optical instruments. Medical endoscopes and endoscopic accessories. Part 3: Determination of field of view and direction of view of endoscopes with optics.

ISO 8600-5 First edition 2005-03-15 Optics and photonics. Medical endoscopes and endotherapy devices. Part 5: Determination of optical resolution of rigid endoscopes with optics.

ISO 13485 quality management systems, approved by UL.

ISO 14971: Risk management for medical devices.

DIRECTIVES / REGULATIONS:

Regulation (EU) 2017/745 (MDR)

IEC 60601-1-3.2

IEC 60601-1-2 ed. 4.1

EN 55011:2007

CLASSIFICATIONS

For Europe, per MDR 2017/745, the unit is a Class I instrument, per Rule 13, Annex VIII.

For the United States, the FDA classification is Class I.

Observe all applicable accident prevention regulations.

IP code: IP 20

12. CONDITION OF THE INSTRUMENT ON DELIVERY

The device is delivered in pre-assembled modules, together with one installation kit and one user manual.

When unpacking the device, check for the following:

1. **Mobile base with braked caster wheels, or the mounting system ordered.**
2. **Column, depending on the type of mount ordered.**
3. **Swivel arm and suspension arm assembly with fiber-optic cable.**
4. **Inclined coupling with magnification changer assembly and objective, as ordered.**
5. **Observation head (inclined or Ergo), as ordered.**
6. **Pair of eyepieces, as ordered.**
7. **Power cord.**
8. **Installation kit:**
    A. **Allen wrench 5 mm**
    B. **Allen wrench 8 mm**
9. **User manual.**

13. INSTALLATION OF THE BASE (MOBILE STAND)

1. **Open the box containing the star base bottom and the wooden support block, as shown in Fig. 24.**



Fig. 24

2. **Take the wooden support block and the star base bottom out of the box and place the base on the wooden support. See Fig. 25.**



Fig. 25

3. **See Fig. 26. Open the other two boxes, take out the 5 base legs and fix them to the star base bottom with an 8 mm Allen wrench. Then take out the top plate, place it on the assembled base and fix the guide plug with a 4 mm Allen wrench, as shown in Fig. 27.**



Fig. 26

4. **The assembled base is shown in Fig. 28.**

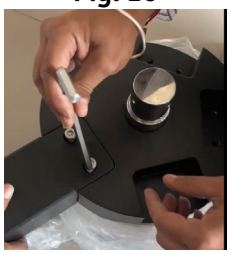


Fig. 27

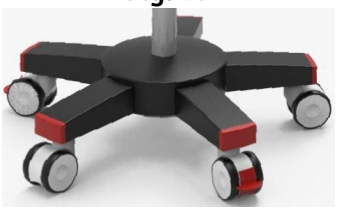


Fig. 28

INSTALLATION OF THE BASE (MOBILE STAND) continued

5. Open the microscope box and take out the column. Mount the column on the guide plug in the base by aligning the corresponding holes in the column (A) and shaft (B). Secure it with three (3) M6 × 16 mm Allen screws (C) using a 4 mm Allen key, as shown in Fig. 29.

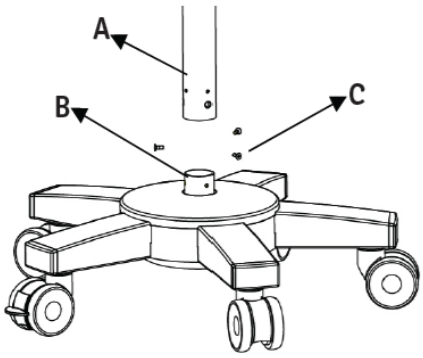


Fig. 29

6. Take the arm assembly out of the same box and proceed as follows (see Fig. 30):
   a. Make sure the swivel arm lock knob (D) is slightly loosened.
   b. Mount the arm assembly on shaft (F).
   c. Align the three holes (E) with the tapped holes on shaft (F).
   d. With a 4 mm Allen wrench, tighten the two M6 × 16 mm Allen screws (G).

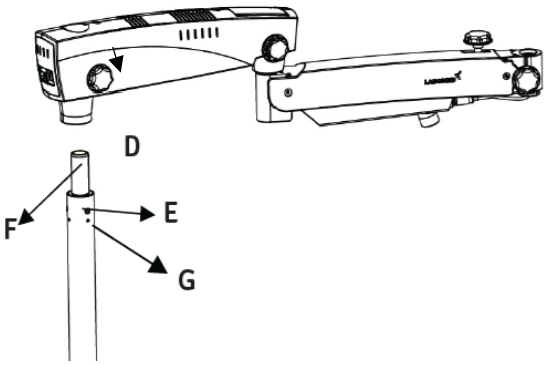


Fig. 30

7. Open the next box and take out the ABA carrier assembly. See Fig. 31.
   a. Insert the Auto Balancing Arm (ABA) shaft (H) into the suspension arm.
   b. Lock the Auto Balancing Arm (ABA) with the threaded knob (I).
   c. Make sure the safety screw (1) is installed and tightened.
   d. Make sure the magnification changer handles (K) have their silicone covers.

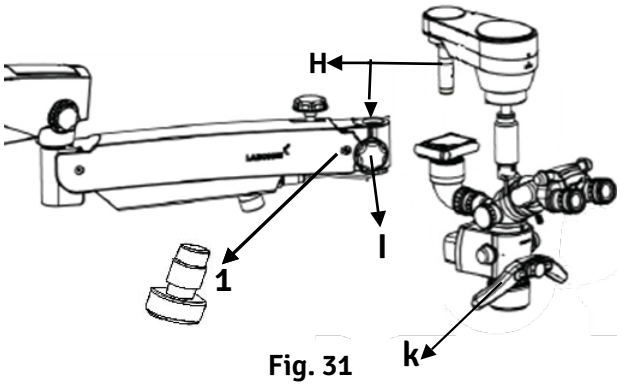


Fig. 31

CAUTION: Do not operate the device without the silicone covers on the handles and all knobs.

14. MICROSCOPE INSTALLATION

8. Install the standard accessories on the carrier assembly as follows:

a. Open the box and take out the ABA arm (A) with the mount for the DBS. Loosen the 2 M4 grub screws of mount (1) with a 2 mm Allen key and fit the Double Beam Splitter, inclined (B) or SBS-R Single Beam Splitter Rear View (C) as received, onto the mount (1) by retightening the 2 M4 grub screws. See Fig. 32.

b. Fit the magnification changer (D) on (B) or (C) with a 2 mm Allen key. See Fig. 32.

c. Remove the end cap from the Double Beam Splitter, inclined, or SBS-R by turning the ring counterclockwise, and fit the DSLR camera adapter (E) by matching the slot, then turn the ring clockwise to tighten it. Loosen the M4 grub screw with a 2 mm Allen key on the DSLR adapter and fit the supplied mount (Canon, Nikon or Sony) (E.1). Retighten the M4 grub screw to secure the mount. See Fig. 32.

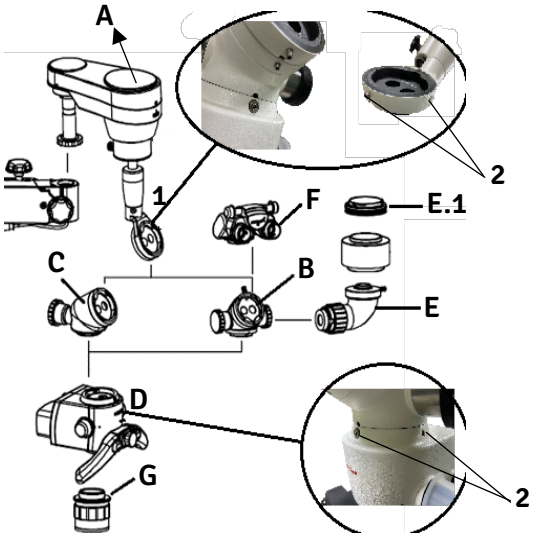


Fig. 32

d. Fit the Ergo head 0°–210° tiltable binocular (F) on the magnification changer (D) with a 2 mm Allen key. See Fig. 32.

e. Fit the NuVar variable objective (G) by turning it clockwise. See Fig. 32.

f. Set both eyepieces to (0) diopter. See Fig. 33.


Fig. 33

Note: Make sure the accessories are fitted correctly for the best visual results.

9. Mount the light guide as follows:

a. The light guide comes pre-routed through the swivel and suspension arm in a wire mesh (which houses the LED illumination system and fiber-optic cable).

b. A wire mesh for cable routing is permanently fixed to the suspension arm at point (5). See Fig. 34.

c. Fold and gather the wire mesh with the back cover and connect the 5-pin male/female connector (2) for illumination control, following the label guidance. Then insert the fiber-optic cable into the light guide (3). See Fig. 34. ⚠ The fiber cable must index into position when inserted into the fiber-optic mount.

d. Fix the back cover (4) with screws. Then connect the 4-pin male/female connector (1) to power the ABA (Auto Balancing Arm) electromagnetic clutch. See Fig. 34.

e. Make sure the light guide is routed through the wire mesh into the carrier system so that the microscope is unobstructed and can move through its entire range of movement without stretching, kinking, or twisting the light guide.

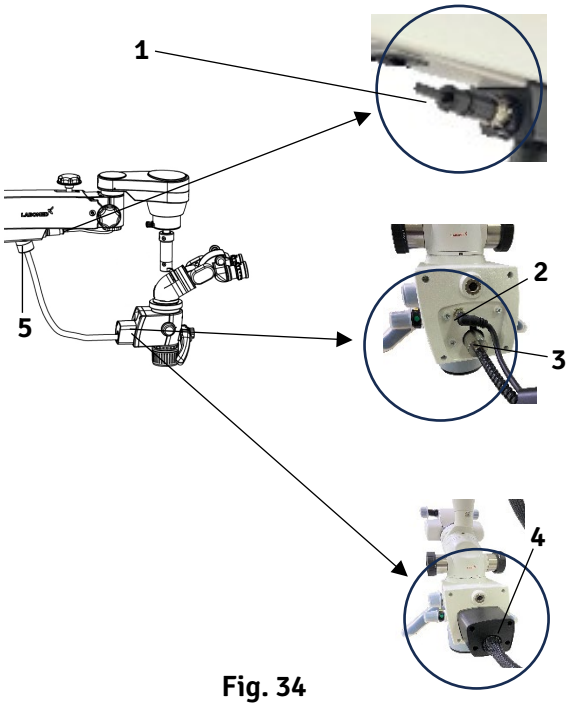


Fig. 34

15. ELECTRICAL CONNECTIONS

1. **Connect the power cable to the AC inlet socket (1) on the back of the swivel arm, as shown in Fig. 35. Switch on the power with the ON/OFF switch (2).**

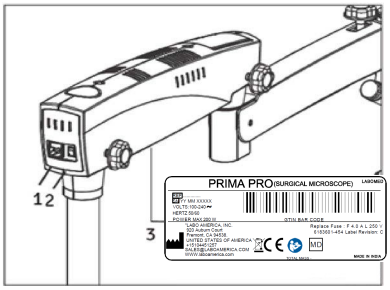


Fig. 35

Note: The power supply has a universal input of 100–240 V AC, 50/60 Hz. To connect it, follow the instructions on the electrical label (3) at the bottom of the arm, as shown in Fig. 35.

Note: If the voltage at the installation site fluctuates by more than ±10% of the rated voltage, use a voltage stabilizer to protect the power supply.

1. **REPLACING THE ILLUMINATION SOURCE**
   Switch off the microscope. Open the swivel arm covers and replace the illumination assembly (A) with a new assembly. Refit the arm covers. See Fig. 36.

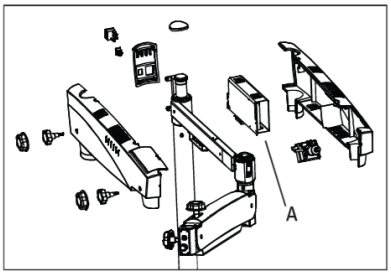


Fig. 36

2. **FUSE REPLACEMENT**
   The fuse is located in the AC inlet, near the ON/OFF switch. Use a flat-head screwdriver to open the fuse compartment.
   Two fuses are provided: one live fuse and one spare fuse. Replace the blown fuse with the spare fuse and close the fuse compartment. For the fuse rating, see the label shown in Fig. 37.

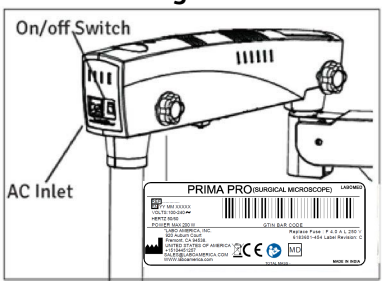
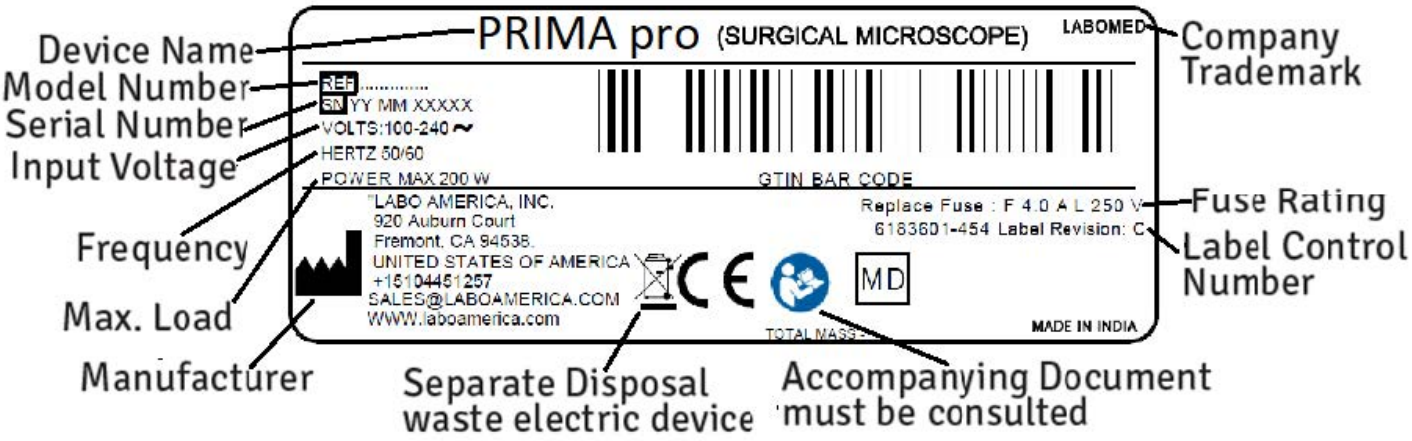


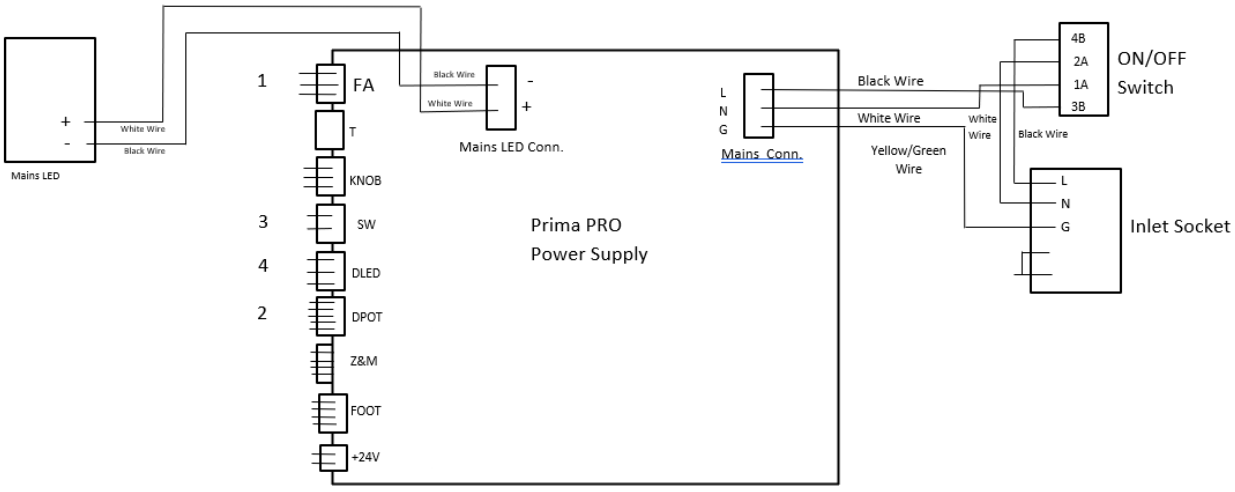
Fig. 37

ELECTRICAL CONNECTIONS (continued)

3. DATA PLATE OF THE PRIMA PRO MICROSCOPE



4. PRIMA PRO WIRING DIAGRAM



Wire Marking No.	Power Supply Marking	Description
1	FAN	Main LED Fan Wire
2	DPOT+Z&M	Digital potentiometer
3	SW	Limit Switch Wire
4	DLED	Dual LED Wire

16. CONTROL ELEMENTS

1. **ON/OFF SWITCH**

The switch is on the back of the swivel arm (see Fig. 35). In the ON position (2), the microscope is on and the cooling fan runs.

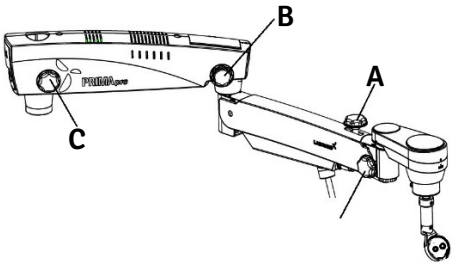


Fig. 38

⚠ **Set the intensity control knob to minimum before switching on the system.**

To preserve LED life, switch off the instrument when the microscope is not in use for a long time.

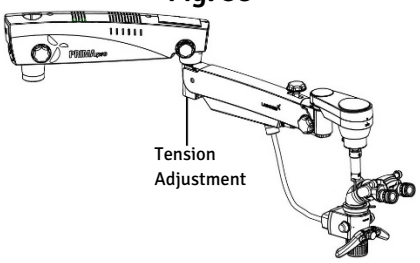


Fig. 39

Note: Blinking or No-Light

2. **INTENSITY CONTROL KNOB**
The knob (A) is at the front of the magnification changer (Fig. 40). Adjust the brightness of the field of view as desired with the intensity control knob.

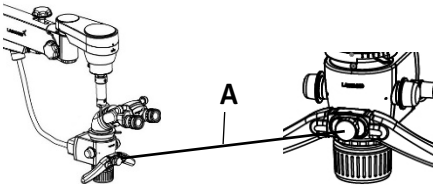


Fig. 40

3. **12 VOLT DC CONNECTOR**
Connector X supplies power to the camera. It is at the back of the magnification changer housing. See Fig. 41.



Fig. 41

4. **SWIVEL ARM LOCKING KNOB**
Knob (C) in Fig. 38 locks the swivel arm in the desired position after initial focusing on the working area, when turned clockwise.

5. **SUSPENSION ARM LOCKING KNOB**
Knob (B) in Fig. 38 locks the rotation of the suspension arm in the desired position when turned clockwise.

6. **SUSPENSION UP/DOWN MOVEMENT LOCKING KNOB**
Knob (A) in Fig. 38 locks the up/down movement of the suspension arm at the desired height when turned clockwise.

7. **ADJUSTING TENSION ON ROTARY MOTION OF INCLINED CARRIER**
See Section 20, Tension Adjustment, for more details.

CONTROL ELEMENTS (continued)

8. FILTER CHANGE KNOB

See Fig. 42 (L). The filter change knob is on the left side of the magnification changer housing. Turn it to select yellow, blue, green, Truelux or no filter.

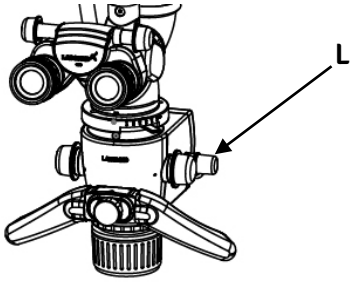


Fig. 42

9. BRAKES

Lock the stand against unwanted movement by pressing down the three brakes on the caster wheels. To release, press the upper part of the brake. See (M) in Fig. 43.

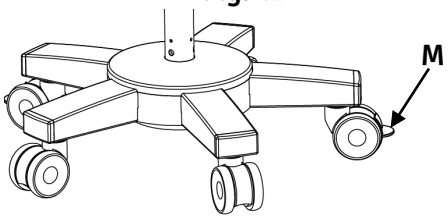


Fig. 43

10. LED FEATURES

Single-chip white LED with over 2250 lumens. Lumen maintenance above 70% after 60,000 hours. Environmentally friendly, RoHS compliant. Typical spectrum: 400–700 nm.

17. INSTRUCTIONS FOR USING THE MICROSCOPE

WARNING: INSTRUMENT IS UNSAFE FOR MRI ENVIRONMENT.

SETTING UP THE MICROSCOPE

1. After setting up the microscope over the working area, lock all brakes on the base wheels for stability.

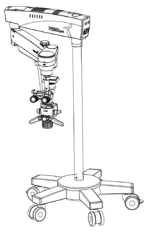


Fig. 44

2. The microscope tension is factory-preset for the ordered configuration, but the user can adjust the up/down force by turning the Allen screw clockwise or counterclockwise with an 8 mm Allen wrench. See Section 20 for details. See Fig. 55 for the exact location of the tension adjusting screw.

3. After focusing on the area of interest, lock the up/down movement of the suspension arm with locking knob (B) in Fig. 45.

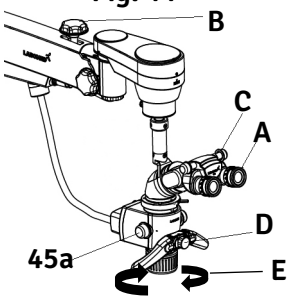


Fig. 45

4. Adjust the position of the Ergo head as required.

5. Adjust the interpupillary distance on the IPD scale (C) as required.

6. Set both eyepieces (A) to zero diopter.

7. Illumination is controlled with the control knob (D) in Fig. 45. Turn it clockwise or counterclockwise for the desired illumination level.

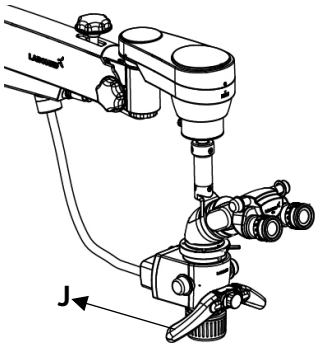


Fig. 46

SETTING THE MAGNIFICATION

1. Select the highest magnification with one of the rotating knobs (45a) on the magnification changer.

2. Fine focusing is done with the CMO (E) fine-focus ring.

3. Center the focused area exactly in the field of view with the manual handles (J). See Fig. 46.

4. Make sure the magnification changer is engaged in the index point at the click stop position.

5. Once focused at the highest magnification, the image stays in focus at every magnification; only fine focusing is required for a sharp image.

MAIN MICROSCOPE

The standard objective is the NuVar 10 variable working distance CMO (300 to 400 mm).

The NuVar 20 CMO (200 to 400 mm) is available as an option on request. For details of NuVar, see the brochure.

The ergonomic 210° binocular tube is provided for the main surgeon. The large tilt range allows work with minimum fatigue.

The standard equipment includes 10x eyepieces (12.5x optional).

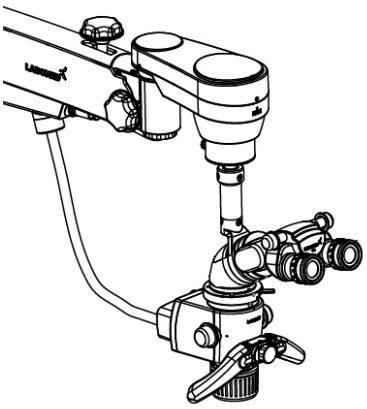


Fig. 47

CHANGING THE OBJECTIVES AND EYEPIECES

1. **To remove an objective, turn it counterclockwise. To fit it, thread it in clockwise.**
2. **To install the eyepieces, insert them in the eye tubes of the observation head.**

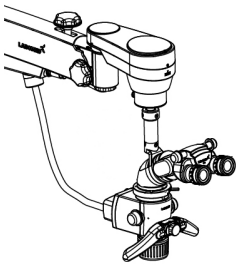


Fig. 48

18. SYSTEM CONFIGURATION DIAGRAM (Prima Pro, part no. 6183601)

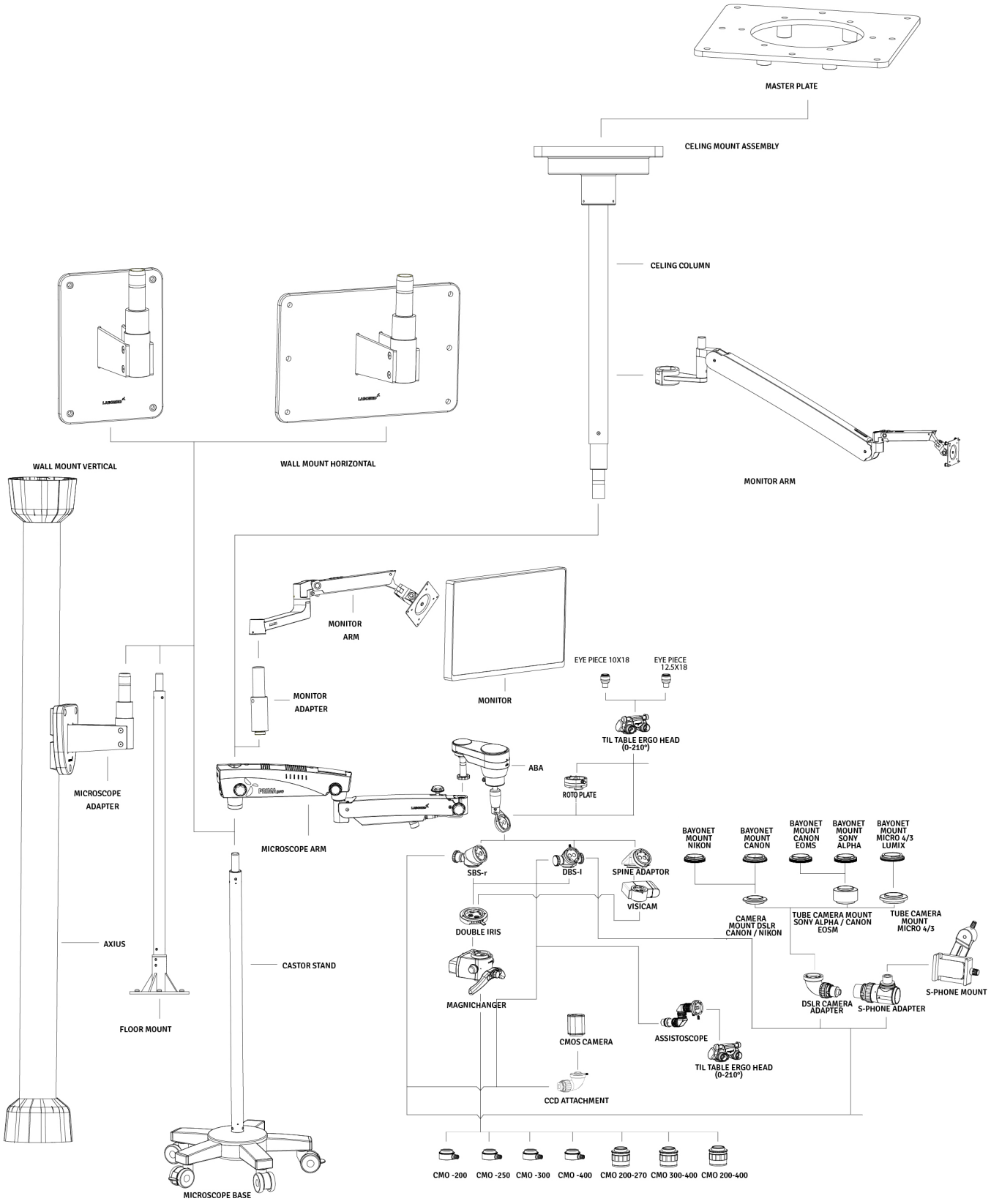


Fig. 49

19. THERMAL CUT-OFF

The instrument is designed with safety provisions. Fans in the electrical box provide natural and forced air circulation to cool the electronic components. The instrument also has a built-in safety mechanism, the automatic thermal cut-off, which is triggered by thermistors when the LED temperature rises above 80 °C. The thermistor then limits the current to the circuit, and the LED blinks to indicate high temperature. Let the LED cool down before switching it on again.

20. TENSION ADJUSTMENT

When additional accessories are mounted, compensate for the extra load on the suspension arm by turning the tension control screw on the suspension arm clockwise or counterclockwise. See Fig. 50.

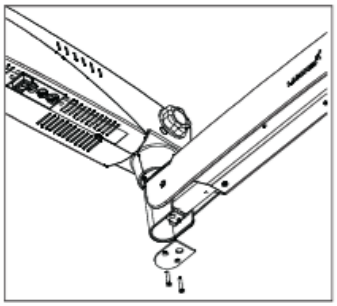


Fig. 50

1. **Unscrew and remove the plate.**

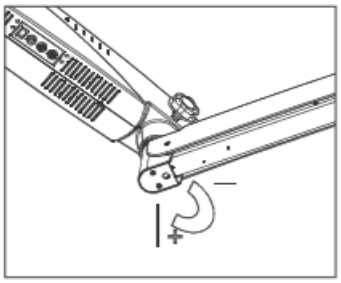


Fig. 51

2. **Loosen the two Allen bolts with a 4 mm Allen wrench, as shown in Fig. 51.**
3. **Insert an 8 mm hex wrench in bolt (A), shown in Fig. 52, and turn it clockwise to increase the tension on the gas spring as required.**
4. **Re-tighten the two screws.**
5. **Refit the plate.**

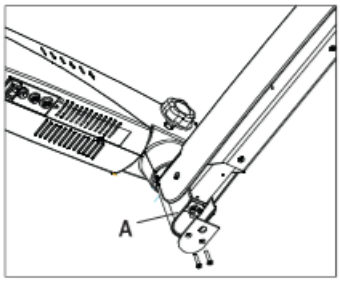
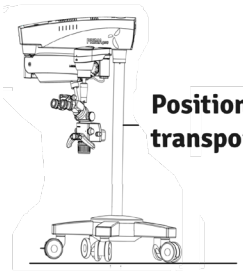
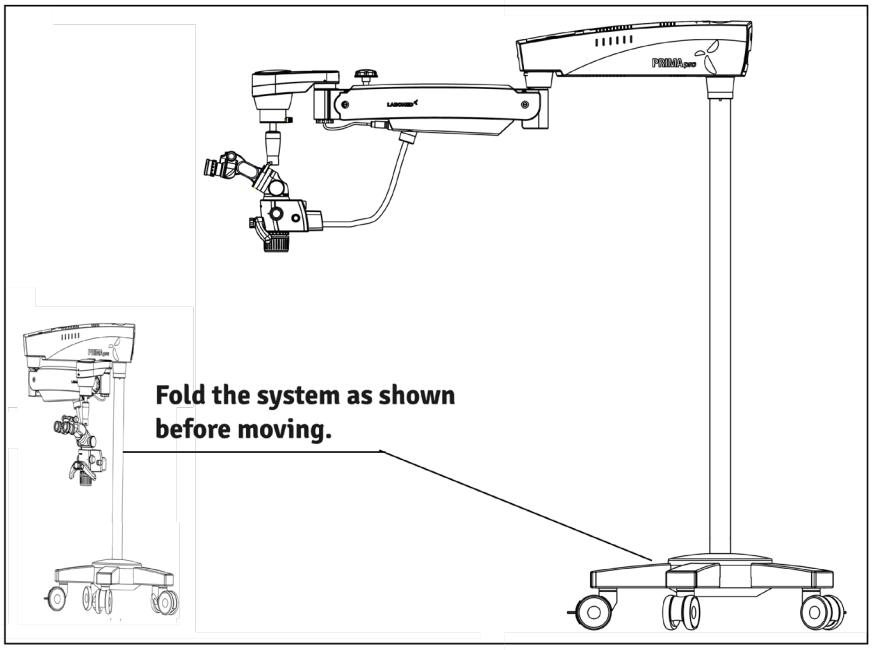


Fig. 52

21. MOVING THE SYSTEM



Position of the system for safe transportation.



Fold the system as shown before moving.

RELOCATING THE STAND

1. Turn off the unit at the power switch.
2. Disconnect the power cable.
3. Remove the video cable from the video modules (e.g., video monitor, USB monitor) and the camera control unit.
4. Release the locks by lifting their red parts.
5. Bring the unit into its moving position.
6. Watch the height when passing through doorways.
7. Avoid collisions of any kind.
8. Do not move the stand over steps or edges: it may topple.
9. Be extremely careful when moving over slopes.
10. Do not park the stand on slopes.
11. Press the locks down.
12. Check whether the stand is locked in position.

22. CARE AND MAINTENANCE

This instrument is a high-grade technological product and needs no special periodic maintenance if it is handled carefully. To ensure optimum performance and safe working order, however, its safe functioning must be checked once every 12 months as shown in the table below. We recommend having this check carried out by our service representative as part of regular maintenance. If a failure occurs that you cannot correct with the troubleshooting table, attach an "out of order" sign to the instrument and contact our service representative for service parts, circuit diagrams and other support.

Surgical Microscope Maintenance/Servicing Check

Microscope: - **Owner: -** **Month: -** **Year:-**

Date of Purchase:

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
DAILY AFTER USE																															
Wipe of any oily marks/finger prints from eye piece & CMO other Optical parts with lens paper																															
Turn off Microscope																															
Replace Dust Cover																															
Each Month																															
Clean microscope body with water moistened tissue																															
Use lens cleaning fluid on lens tissue to wipe lenses																															
Remove Fibre Optical Cable and clean																															
6 monthly																															
Service Inspection																															
Smooth Function of Locking Knobs																															
Smooth Functioning of Torque Adjustment Mechanism on Suspension Arm																															
Rotary Motion of Carrier																															
INITIALS																															

CARE INSTRUCTIONS:

- Keep accessories free of dust when not in use, e.g. with a dust cover.
- Remove dust with a rubber air blower and a soft brush.
- Use special optics cleaning cloths and pure alcohol for cleaning lenses and eyepieces.
- Protect the microscope from moisture, fumes, acids and cosmetic materials. Do not store chemicals close to the instrument.
- Protect it from improper handling. Never install other devices or sockets, and never unscrew the optical system or mechanical parts unless explicitly instructed to do so in this manual.
- Protect the microscope from oil and grease. Never oil or grease the guide surfaces or mechanical parts.
- Remove coarse contamination using a damp disposable cloth.
- Use disinfectants based on aldehydes, alcohols or quaternary ammonium compounds.

CARE AND MAINTENANCE (continued)

- Camera: clean optical components with a lint-free cloth moistened with a little methanol or glass cleaner. Do not use ethanol or spirit.
- Do not clean products or optical components in a cleaning/disinfecting device or ultrasonic bath.
- LABOMED MaxLite coatings are fungus resistant. If you clean as described above, the coatings will not be damaged.

TROPICAL ENVIRONMENT/FUNGUS:

LABOMED builds safety precautions into its manufacturing techniques and materials. Other preventive measures include:

- Keep optical parts clean.
- Use and store them in a clean environment only.
- Store under UV light when not in use.
- Use in continuously climate-controlled rooms only.
- Keep moisture away with silica gel and a plastic cover.

OCCUPATIONAL SAFETY AND HEALTH PROTECTION:

Observe occupational safety and health protection for persons who process contaminated products.

Current regulation of hospital hygiene and prevention of infection must be observed in the preparation, cleaning and disinfection of the products.

INSTRUCTIONS

WORKPLACE:

Remove surface contamination with a paper towel.

REPROCESSING:

Reprocess the product immediately after use, or as required, following the cleaning instructions below.

CLEANING & SERVICING:

Needed: water, detergent, spirit, microfiber cloth

- Take a linen or other soft cloth. Moisten it slightly with running tap water (<40 °C) and a little detergent, and clean the metallic and plastic parts.
- Clean all optical components with spirits or alcohol.
- Dry optical components using a microfiber cloth; dry the rest of the product using a paper towel.
- For servicing, contact the LABOMED after-sales service department.

AUTOCLAVING:

The rubber caps, sleeves and grips supplied by LABOMED should be autoclaved with the following program:

Temperature:	134 °C
Time:	10 minutes
Instrument:	Standard autoclave

23. CLEANING AND DISINFECTION

THE FOLLOWING DISINFECTANTS ARE RECOMMENDED FOR CLEANING AND DISINFECTION

1. For cleaning and disinfecting the external painted, powder coated, anodized, plastic, screen-printed and bare metal parts:
Use ordinary household bleach (sodium hypochlorite 5%) at a strength of 5000 ppm (10 parts water to 1 part bleach).

2. For cleaning of optical surfaces:
Use 70% isopropyl alcohol.

PROCEDURE

- **Take a muslin cloth.**
- **Moisten it slightly.**
- **Clean or disinfect the surface gently, without much hand pressure, drawing the cloth from one end to the other. Do not rub the parts.**

NOTE:

1. **Wear a mask and gloves during cleaning and disinfection.**
2. **The muslin cloth must not be dripping wet, to prevent seepage and rusting of moving or bare parts.**
3. **Alcohol is flammable; use it as a surface disinfectant only in well-ventilated spaces.**

24. AMBIENT REQUIREMENTS

For Operation	**Temperature** **Rel. Humidity** **(without condensation)** **Air Pressure**	**+10°C...+40°C** **30%.....90%** **700hPa.....1,060hPa**

For Transport and Storage	**Temperature** **Rel. Humidity** **(without condensation)** **Air Pressure**	**-40°C...+70°C** **10%.....100%** **500hPa.....1,060hPa**

The device is subject to the conformity assessment procedure of Article 52(7), with technical documentation in accordance with Annexes II and III of Regulation (EU) 2017/745. These devices are Class I (without a measuring function and non-invasive) per Rule 1, Annex VIII of MDR 2017/745. The CE mark on the microscope indicates conformity with the legal requirements.

25. DISPOSAL

Dispose of the instrument in accordance with applicable local laws and regulations.

26. TROUBLESHOOTING TABLE

Problem	Possible Cause	Remedy
No illumination	Power cable not plugged in	Plug in the power cable
	Power switch in OFF position	Set the power switch to ON
	Defective instrument fuse	Replace the fuse
	Defective power cable	Replace the power cable
	Mains power failure	Contact the in-house technician
	Failure of suspension system electronics	Contact the service department
	Light guide not fully inserted in the microscope arm	Insert the light guide fully for maximum illumination
Insufficient illumination	Brightness set too low	Adjust the brightness control knob
	Light guide not fully inserted in the microscope arm	Insert the light guide fully for maximum illumination
	Defective light guide (illumination not uniform)	Replace the light guide
Surgical field illumination not working	Surgical field illumination not working	Insert the light guide as far as it will go
	Failure of electronics	Illuminate the surgical field with an alternative light source and contact the service department
	Switched off by limit switch on the suspension arm	Move the suspension system into the working position
Insufficient illumination (continued)	The thermal cut-off in the lamp housing is contaminated	Clean the thermal cut-off with a dry brush or blow it clean with compressed air
	Defective fan; failure of system electronics	Contact the service department
Up and down motion of the suspension system is stiff	The friction adjustment screw on the suspension system is tightened too firmly	Loosen the friction adjustment screw on the suspension system as needed
Stand is unstable	The wheel brakes are not engaged	Engage the brakes
No image is visible in the field of view	Magnification changer is not indexed correctly	Index the magnification changer

27. TECHNICAL SPECIFICATIONS

	Binocular tubes	**Ergo viewing tube 0°–210° (tiltable), IPD 49–78 mm** **Optional: Straight viewing tube 90°, IPD 45–78 mm**
	Eyepieces	**WF 10x/18 mm with eye guards, diopter adjustment ±5 D and diopter lock** **Optional: WF 12.5x/18 mm, diopter adjustment ±5 D, fixed eye guards**
	Magnification changer	**6 steps: 0.3x, 0.5x, 0.8x, 1.3x, 2.0x and 3.0x**
	FOV (field of view)	**80.20 – 8.80 mm**
	Magnification range	**2.7x – 17.0x**
	Objective	**NuVar 10 (300–400 mm), manual fine focus**
	Built-in filters	**Yellow, green, blue, Truelux**
	Microscope carrier	**360° ABA Carrier**
	Accessories	**Double iris, double beam splitter, RotoPlate, Proline range of camera adapters and rear-view camera adapter, smartphone adapter, assistant binocular attachment**
	Light source	**50 W LED; maximum intensity 100,000 lux**
	Power consumption	**200 W maximum**
	Input voltage	**100–240 V; 50/60 Hz**
	Stand	**Stable, sturdy star-base stand with 3 lockable wheels**
	Stand height in horizontal position	**1100 mm**
	Base (dimensions)	**730 mm diameter**
	Stand height	**1733 mm**
	Net weight	
	Microscope arm with magnification changer, head and eyepieces	**22 kg**
	Star-base	**100 kg**
	Floor column	**9 kg**
	Ceiling mount column (for standard 3 m ceiling mount)	**8 kg**
	Wall mount bracket	**12 kg**
	Ceiling mount bracket	**18 kg**

28. GUIDANCE TABLES

Guidance and Manufacturer's Declaration
Electromagnetic Emissions
All Equipment and Systems

Guidance and Manufacturer's Declaration - Electromagnetic Emissions

The Prima Pro is intended for use in the electromagnetic environment specified below. The customer or user of the Prima Pro should ensure that it is used in such an environment.

Emissions Test	Compliance	Electromagnetic Environment Guidance
RF Emissions CISPR 11	Group 1 Class A	The Prima Pro uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
Harmonics IEC 61000-3-2	Class A	The Prima Pro is suitable for use in all establishments other than domestic establishments, and those directly connected to the public low voltage power network that supplies buildings used for domestic purposes.
Flicker IEC 61000-3-3	Complies	

GUIDANCE TABLES (continued)

Guidance and Manufacturer's Declaration
Electromagnetic Immunity
All Equipment and Systems

Guidance and Manufacturer's Declaration - Electromagnetic Immunity
The Prima Pro is intended for use in the electromagnetic environment specified below. The customer or user of the Prima Pro should ensure that it is used in such an environment.

Immunity Test	IEC 60601 Test level	Compliance Level	Electromagnetic Environment Guidance
ESD IEC 61000-4-2	±6 kV contact ±8 kV air	±6 kV contact ±8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
EFT IEC 61000-4-4	±2 kV mains ±1 kV I/Os	±2 kV mains ±1 kV I/Os	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±1 kV differential ±2 kV common	±1 kV differential ±2 kV common	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, Dropouts, IEC 61000-4-11	>95% Dip for 0.5 Cycle 60% Dip for 5 Cycles 30% Dip for 25 Cycles >95% Dip for 5 Seconds	>95% Dip for 0.5 Cycle 60% Dip for 5 Cycles 30% Dip for 25 Cycles >95% Dip for 5 Seconds	Mains power quality should be that of a typical commercial or hospital environment. If the user of the Prima Pro requires continued operation during power mains interruptions, it is recommended that the unit be powered from an uninterruptible power supply or battery.
Power Frequency 50/60 Hz Magnetic Field IEC 61000-4-8	3 A/m	3 A/m	Power-frequency magnetic fields should be at levels typical of a commercial or hospital environment.

GUIDANCE TABLES (continued)

Guidance and Manufacturer's Declaration
Electromagnetic Immunity
Equipment and Systems that are NOT Life-Supporting
Guidance and Manufacturer's Declaration - Electromagnetic Immunity

The Prima Pro is intended for use in the electromagnetic environment specified below. The customer or user of the Prima Pro should ensure that it is used in such an environment.

Immunity Test	IEC 60601 Test level	Compliance Level	Electromagnetic Environment Guidance
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz–80 MHz	(V1) = 3 Vrms	Portable and mobile RF communications equipment should be used no closer to any part of the Prima Pro, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.
Radiated RF IEC 61000-4-3	80 MHz to 2.5 GHz @ 3 V/m	(E1) = 3 V/m	**Recommended Separation Distance:**
			d=(3.5/V1)(Sqrt P)
			d=(3.5/E1)(Sqrt P)
			80 to 800 MHz
			d=(7/E1)(Sqrt P)
			800 MHz to 2.5 GHz
			Where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in meters (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, should be less than the compliance levels in each frequency range. Interference may occur in the vicinity of equipment  marked with the following symbol.

Note 1: At 80 MHz and 800 MHz, the higher frequency range applies.
Note 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.
***Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast, and TV broadcast, cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength where the ME equipment or ME system is used exceeds the applicable RF compliance level, the ME equipment or ME system should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the ME equipment or ME system. *Over the frequency range 150 kHz to 80 MHz, field strengths should be less than [V1] V/m.**

GUIDANCE TABLES (continued)

Recommended separation distances between portable and mobile RF communications equipment and the Prima Pro, for ME equipment and ME systems that are not life-supporting.

Guidance and Manufacturer's Declaration - Electromagnetic Immunity

Recommended separation distances between portable and mobile RF communications equipment and the Prima Pro

The Prima Pro is intended for use in electromagnetic environments in which radiated RF disturbances are controlled. The customer or user of the Prima Pro can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the Prima Pro as recommended below, according to the maximum output power of the communications equipment.

Max. output power of transmitter (W)	Separation (m) 150 kHz to 80 MHz d=(3.5/V1) (Sqrt P)	Separation (m) 80 MHz to 800 MHz d=(3.5/E1) (Sqrt P)	Separation (m) 800 MHz to 2.5 GHz d = (7/E1) (Sqrt P)
0.01	0.1166	0.1166	0.2333
0.1	0.3689	0.3689	0.7378
1	1.1666	1.1666	2.3333
10	3.6893	3.6893	7.3786
100	11.6666	11.6666	23.3333

For transmitters rated at a maximum output power not listed above, the recommended separation distance (d) in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

Note 1: At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.

Note 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

29. GLOSSARY

Ametropia Compensation	**Compensation of near- or farsightedness, set for each eye with the two individual eyepieces (range: +5 to -5 diopters).**
Working Distance	**Distance from the front lens to the object plane (300–400 mm with the standard NuVar 10).**
Color Temperature	**The color characteristic of a light source. Color temperature sets the color of a light source as warmer or colder relative to natural light. It is measured in kelvin (K).**
Light Field Diameter	**The size of the field illuminated at the working distance.**
Field of View Diameter	**The visible area of an object seen through the microscope. The higher the magnification, the smaller the field of view, and vice versa.**
Illumination Intensity	**The luminous flux from a light source falling on a given area. It is measured in lux (lx).**
LED	**Light-emitting diode: an electronic semiconductor device that emits light when an electric current passes through it.**
Eyepiece	**The optical part facing the eyes, through which the magnified image produced by the microscope is viewed.**
DSLR Camera	**(Digital single-lens reflex) camera with a digital imaging sensor.**
CCD Camera	**(Charge-coupled device) camera with a technology that stores a charge and moves it out of the photosensor in an organized way.**
CMOS Camera	**(Complementary metal-oxide semiconductor) camera whose image sensor is a silicon chip that captures and reads light.**
DBS	**(Double Beam Splitter) splits the light beam in two directions (one to the eyes, one to a side port) for simultaneous viewing and photography, videography or co-observation. Light is distributed 70% to the eyes and 30% to the side ports.**
DBSi	**(Double Beam Splitter, inclined) splits the light beam in two directions (one to the eyes, one to a side port) for simultaneous viewing and photography, videography or co-observation. The 30° inclination provides a longer working distance and convenient space for mounting digital cameras.**
SBS-R	**Single beam splitter, rear view**
ABA	**Automatic Balancing Arm (electromagnetic clutch)**
True Lux	**Improves depth perception in work ranging from restorative dentistry to periodontal surgery and endodontics, aiding accurate judgment of tissue structures with reliable, consistent light.**
Blue Filter	**1. Enhance visualization of root canal orifices and pulp chamber details. 2. Differentiate dental materials and ensure complete removal during procedures.**
Yellow Filter	**1. Protect the surgeon's eyes from phototoxicity by filtering harmful blue wavelengths. 2. Prevent premature hardening of dental composite resin.**
Depth of Focus	**Depth of focus is a lens optics concept that measures the tolerance of placement of the image plane in relation to the lens.**

30. WARRANTY

This product is warranted by LABOMED against defective material and workmanship under normal use for a period of one year from the date of invoice to the original purchaser. (An authorized dealer shall not be considered the original purchaser.) Under this warranty, LABOMED's obligation is to repair or replace the defective part or product at LABOMED's discretion.

This warranty applies to new products and does not apply to a product that has been tampered with, altered in any way, misused, damaged by accident or negligence, or which has had the serial number removed, altered, or effaced. Nor shall this warranty be extended to a product installed or operated in a manner not in accordance with the applicable LABOMED instruction manual, nor to a product which has been sold, serviced, installed, or repaired other than by a LABOMED factory or authorized LABOMED dealer.

All claims under this warranty must be in writing and directed to the LABOMED factory or its authorized dealer for this device making the original sale and must be accompanied by a copy of the purchaser's invoice.

This warranty is in lieu of all other warranties implied or expressed. All implied warranties of merchantability or fitness for a particular use are hereby disclaimed. No representative or other person is authorized to make any other obligations for a LABOMED product. LABOMED shall not be liable for any special, incidental, or consequential damages for any negligence, breach of warranty, strict liability, or any other damages resulting from or relating to design, manufacture, sale, use, or handling of the product.

PRODUCT CHANGES

LABOMED reserves the right to make changes in design or to make additions to or improvements in its products without obligation to add such to products previously manufactured.

CLAIMS FOR SHORTAGES

We use extreme care in selection, checking, rechecking, and packing to eliminate the possibility of error. If any shipping errors are discovered:

1. **Carefully go through the packing material to be sure nothing was inadvertently overlooked when the unit was unpacked.**
2. **Call the dealer you purchased the product from and report the shortage. The materials are packed at the factory and none should be missing if the box has never been opened.**
3. **Claims must be filed within 30 days of purchase.**

CLAIMS FOR DAMAGES IN TRANSIT

Our shipping responsibility ceases with the safe delivery in good condition to the transportation company. Claims for loss or damage in transit should be made promptly and directly to the transportation company.

If, upon delivery, the outside of the packing case shows evidence of rough handling or damage, the transportation company's agent should be requested to make a "Received in Bad Order" notation on the delivery receipt. If within 48 hours of delivery, concealed damage is noted upon unpacking the shipment and no exterior evidence of rough handling is apparent, the transportation company should be requested to make out a "Bad Order" report. This procedure is necessary in order for the dealer to maintain the right of recovery from the carrier.

Liability release for wall and/or ceiling installations:

By signing below, the purchaser confirms that the correct and secure installation of mounting plates and hardware for the LABOMED Prima microscope(s) purchased is the sole responsibility of the purchaser and the appointed contractor, and will comply with applicable building codes and good practices. Labo America, Inc. and all of its affiliates will be held harmless and will not bear any liability for damage and/or injury caused by improperly installed and secured mounting plates and hardware.

Purchaser's name and address:

Project location (if different from above):

Licensed contractor/company name and details (address, license no., phone number):

Client signature:

Contractor signature:

Date:

Date:

Labo America, Inc.
920 Auburn Court,
Fremont, CA 94538

Global: sales@laboamerica.com
www.laboamerica.com

Revision History

Rev. No.	Date of Release	DCR #	Change	App. By
1.0	January 2024	New development	New revision	S.Bal
1.1	August 2024	DCR/11/2024	Regulatory information	S.Bal
1.2	Sep. 2024	DCR/12/2024	Symbols updated per EU MDR 2017/745 & ISO 15223	S Bal
1.3	Jan. 2025	DCR/01/2025	Max. safe load symbol added	S Bal
1.4	March 2025	DCR/07/2025	Wall mount diagrams added for clarity	S Bal
1.5	June 2025	DCR/14/2025	corrected (MDR Regulation (EU) 2017/745) and caution for fiber-optic cable indexing added	S.bal
1.6	July 2025	DCR/16/2025	Silicone cover instructions added	S.bal
1.7		ECR/22/2025	Ceiling mount details updated	S.bal
1.8	Feb. 2026	DCR/04/2026	IP code added	S.bal

Manufacturer: Labotech Microscopes India Pvt. Ltd.
Sales and Distribution:
Labo America Inc.
920 Auburn Court
Fremont, CA
94538
U.S.A.

Phone: 510-445-1257

Email:
sales@laboamerica.com
www.laboamerica.com

EC REP

Labomed Europe b.v
Essebaan 50
2908 LK Capelle aan den IJssel
The Netherlands
Tel: +31 (0)10 4584222

E-mail: info@labomedeurope.com
www.labomedeurope.com

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Labo America Inc.
Registered to ISO 9001:2015
BR Number 10005565

A16372 ISO 13485:2016
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