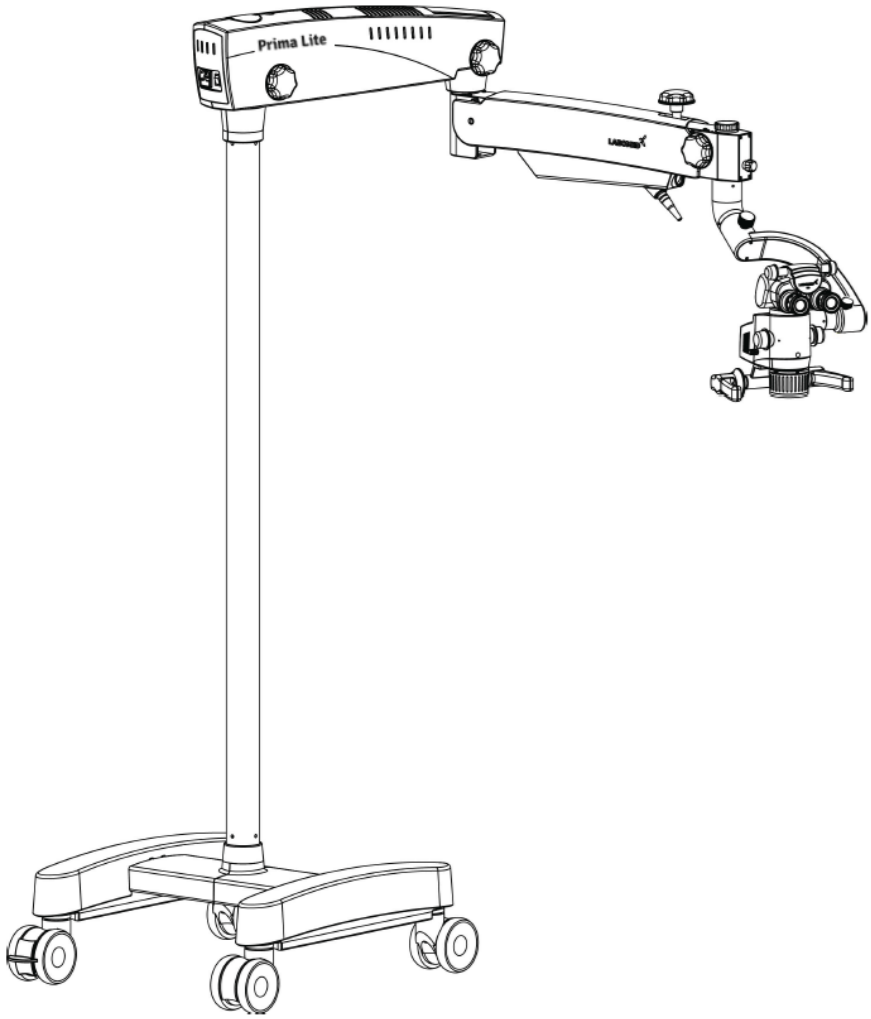
PRIMA lite

Operating Surgical Microscope

User Manual



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

PRIMA lite is a trade name of LABOMED dental microscopes.

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All other trademarks are the property of their respective owners.

The information in this document was accurate at the time of publication. Specifications are subject to change without notice. LABOMED reserves the right to change the product described in this user manual without notice and without incorporating those changes into products already sold.

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 lite is a surgical and diagnostic microscope that adapts to a range of surgical needs. It provides a magnified view of the surgical field and consistent visualization throughout every intraoperative phase of dental surgery, without compromising performance.
The microscope delivers very high optical image quality, good depth of focus and a wide field of view for precise surgery. Illumination control, the built-in tilt and the adjustable observation head help reduce surgeon fatigue and allow comfortable use over long periods.

Key features of this microscope:

1. **The observation head can be positioned easily with the suspension arm.**
2. **An advanced 5-step magnification changer lets the user choose the optimal magnification for each procedure from five magnifications.**
3. **A high-intensity 27 W LED in the magnification changer provides cold-light illumination. The brightness is adjusted with the intensity control knob on the suspension arm, within easy reach of the surgeon.**
4. **When the microscope is not in use, the suspension arm can be folded over the main body for compact storage.**
5. **The rigid H-form base with caster wheels provides stability as well as mobility.**

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

INTENDED USE:

The Prima 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 microscope only for its intended use.

CONFIGURATIONS

Microscope	Catalogue No.
PRIMA lite DENTAL (Floor Stand)	6181501
PRIMA lite DENTAL (Wall Mount)	6181502
PRIMA lite DENTAL (Ceiling Mount)	6181503

2. PRODUCT DESCRIPTION

Catalogue No. 6181501
Model: PRIMA lite

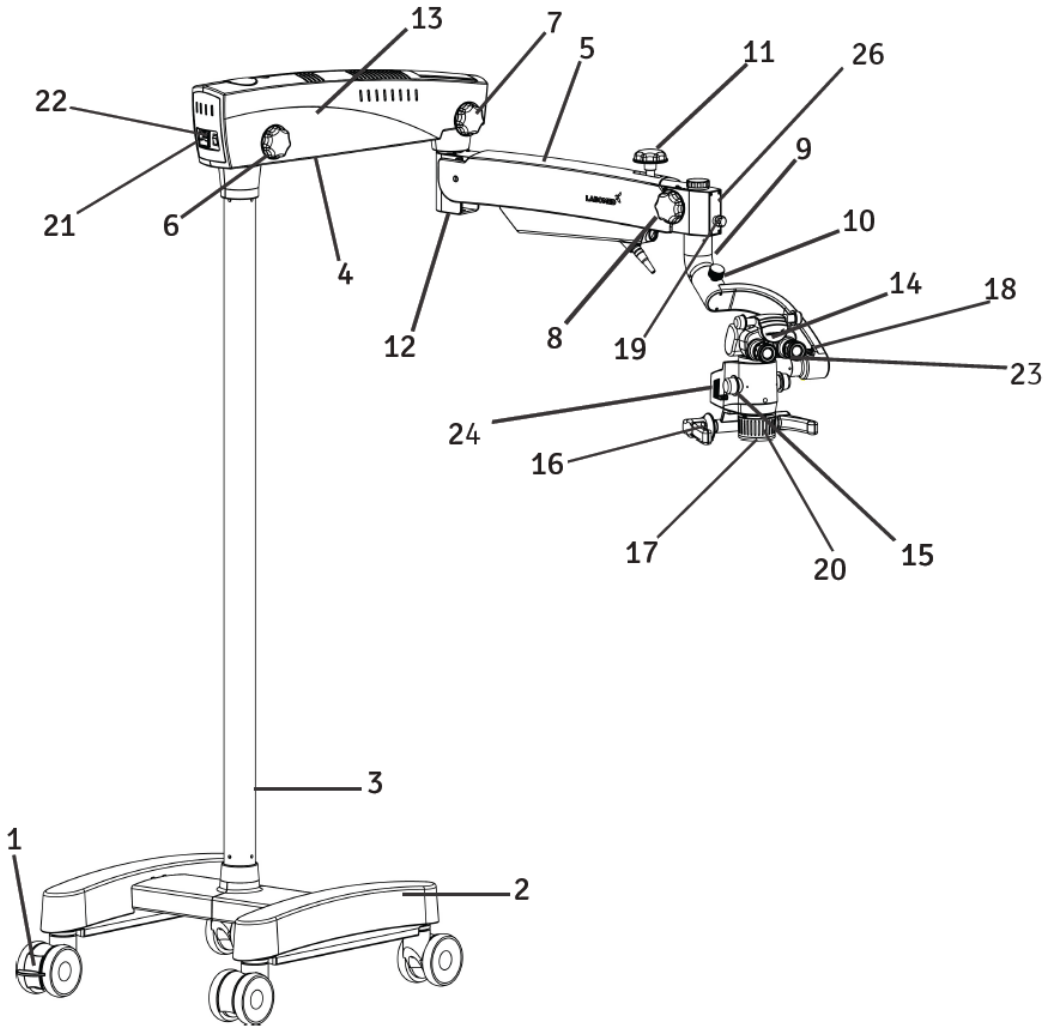


Fig. A

1. Caster wheel with brake
2. H-shaped metal base
3. Column
4. Swivel arm
5. Suspension arm
6. Swivel arm locking knob
7. Suspension arm movement locking knob
8. Inclined coupling locking knob
9. Inclined coupling
10. Fluidic carrier locking knob
11. Suspension arm hydraulic movement lock
12. Suspension arm spring tension adjustment
13. Swivel arm cover
14. Binocular head
15. Magnification changer knob
16. Handle
17. Common main objective (CMO)
18. Magnification changer locking knob
19. Illumination control knob
20. Fine focusing ring
21. ON/OFF switch
22. Power inlet
23. Eyepieces
24. LED assembly

3. DIMENSIONS: CASTER-MOUNTED STAND

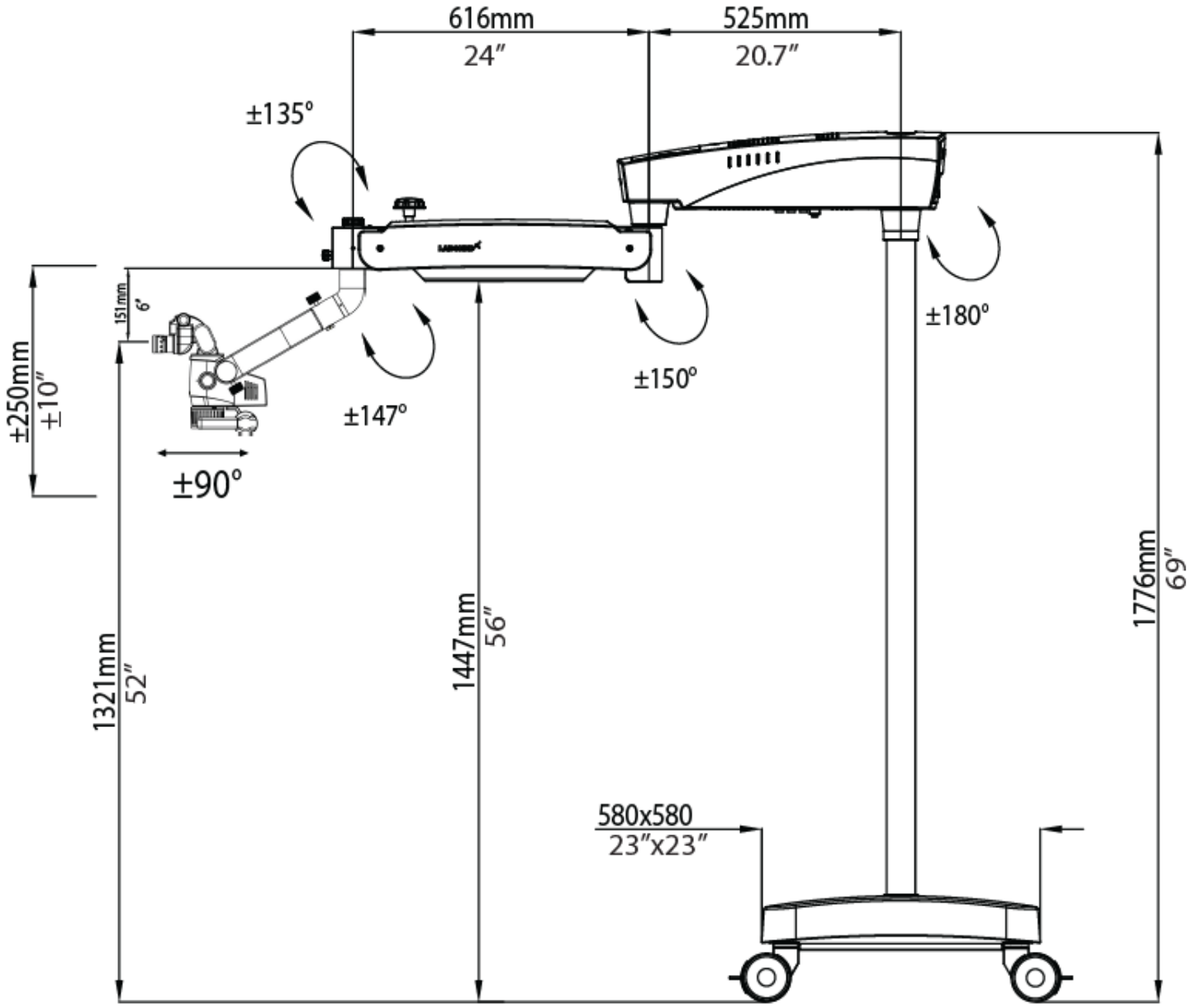


Fig. 1

4. DIMENSIONS: FLOOR-MOUNTED STAND

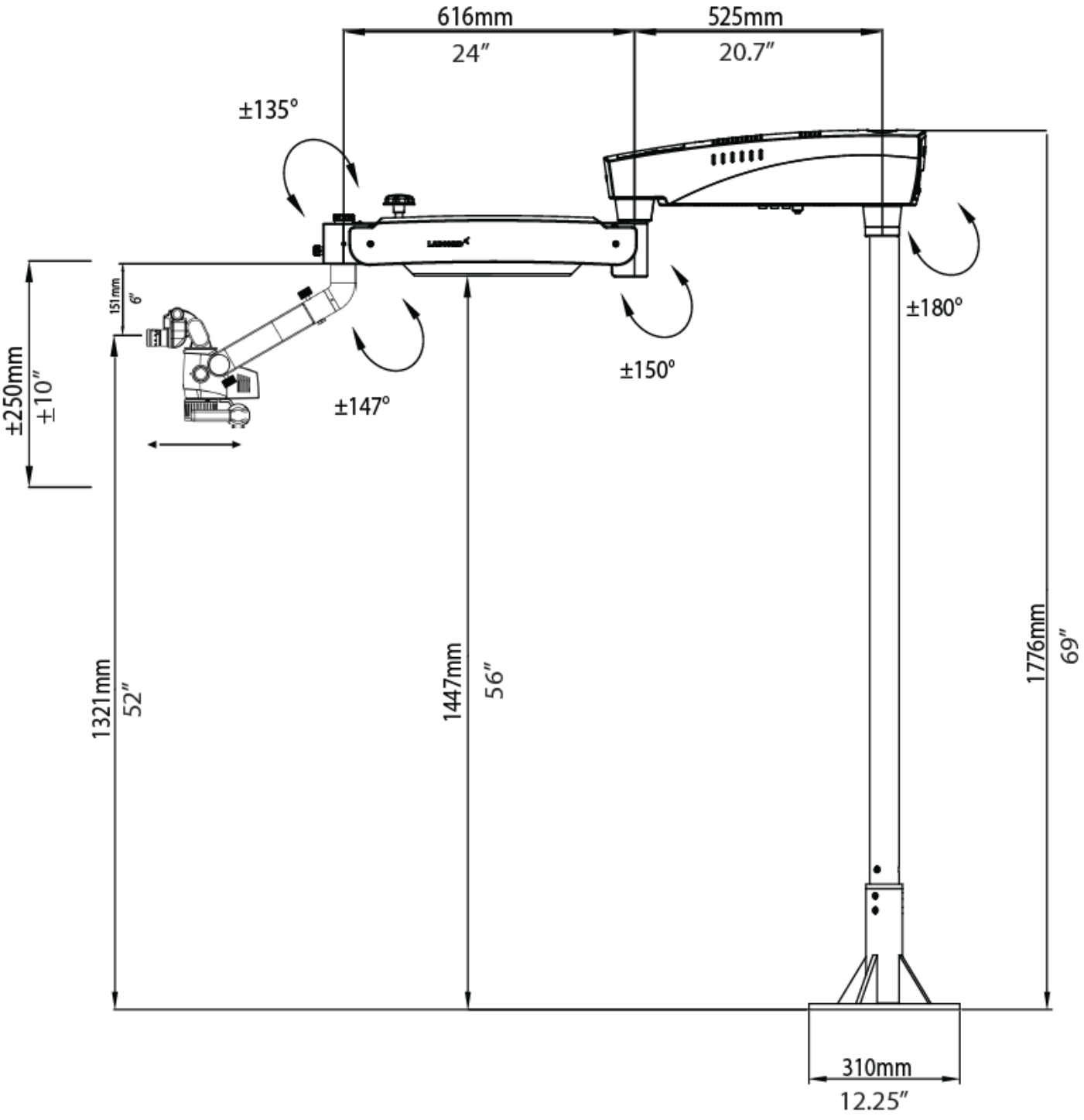


Fig. 2

5. DIMENSIONS: CEILING MOUNT

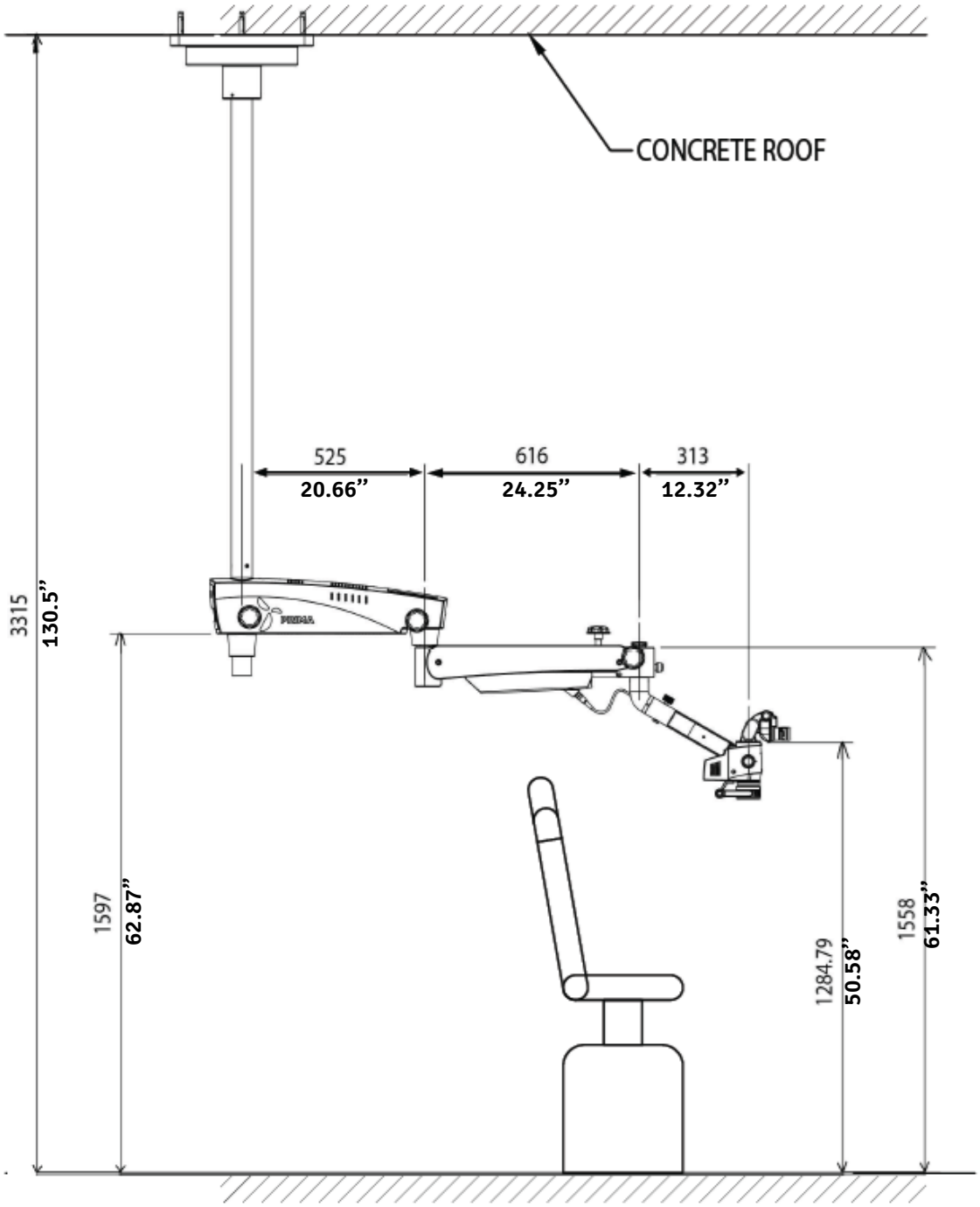
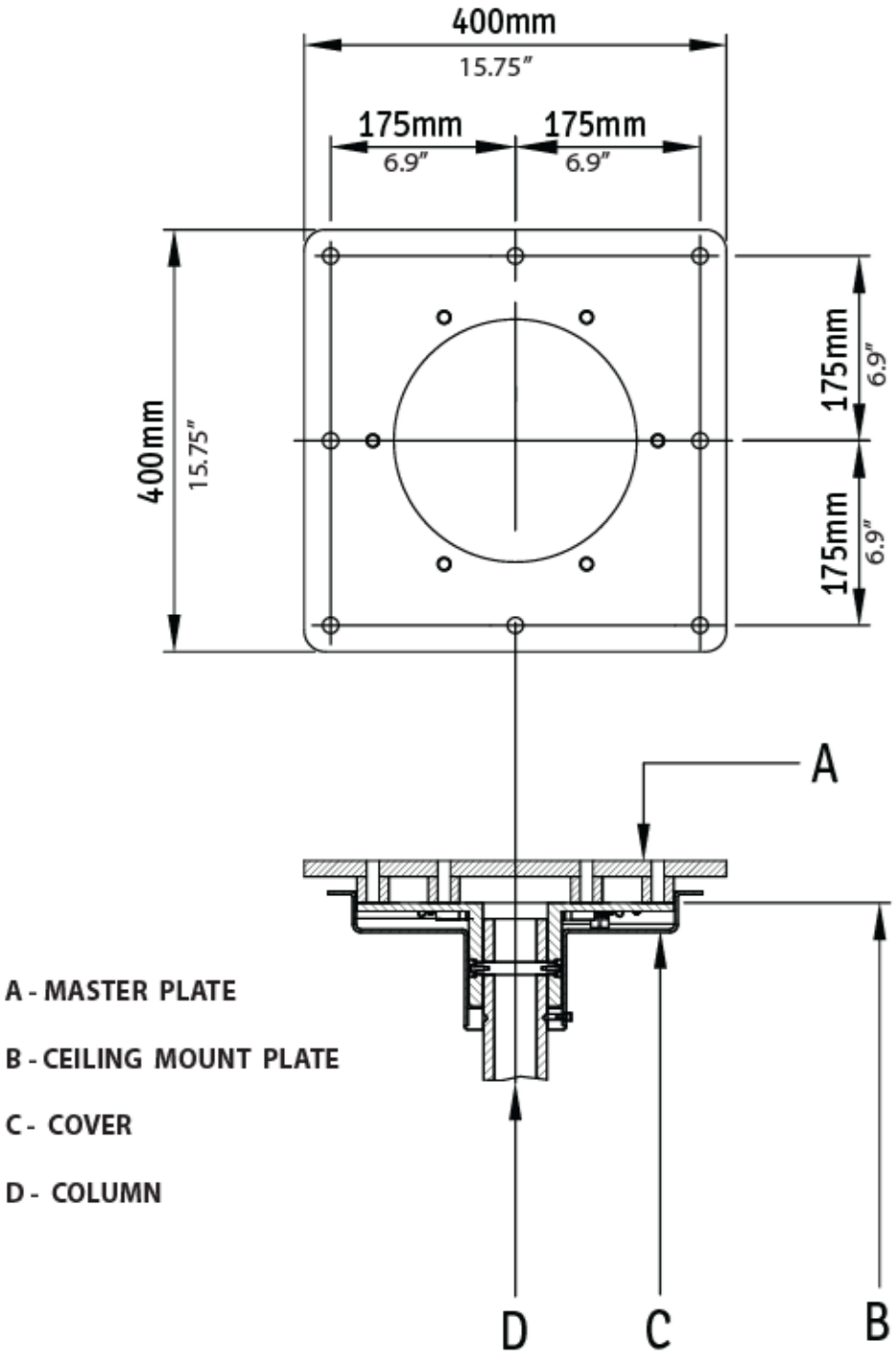


Fig. 3

REQUIRED COLUMN LENGTH: COLUMN LENGTH = CEILING HEIGHT – 1760 mm
EXAMPLE (SEE ABOVE): COLUMN LENGTH = 3315 mm – 1760 mm = 1555 mm (61 in)

6. INSTALLATION REFERENCES (CEILING MOUNT)

MARKING REFERENCE



A - MASTER PLATE

B - CEILING MOUNT PLATE

C - COVER

D - COLUMN

Fig. 4

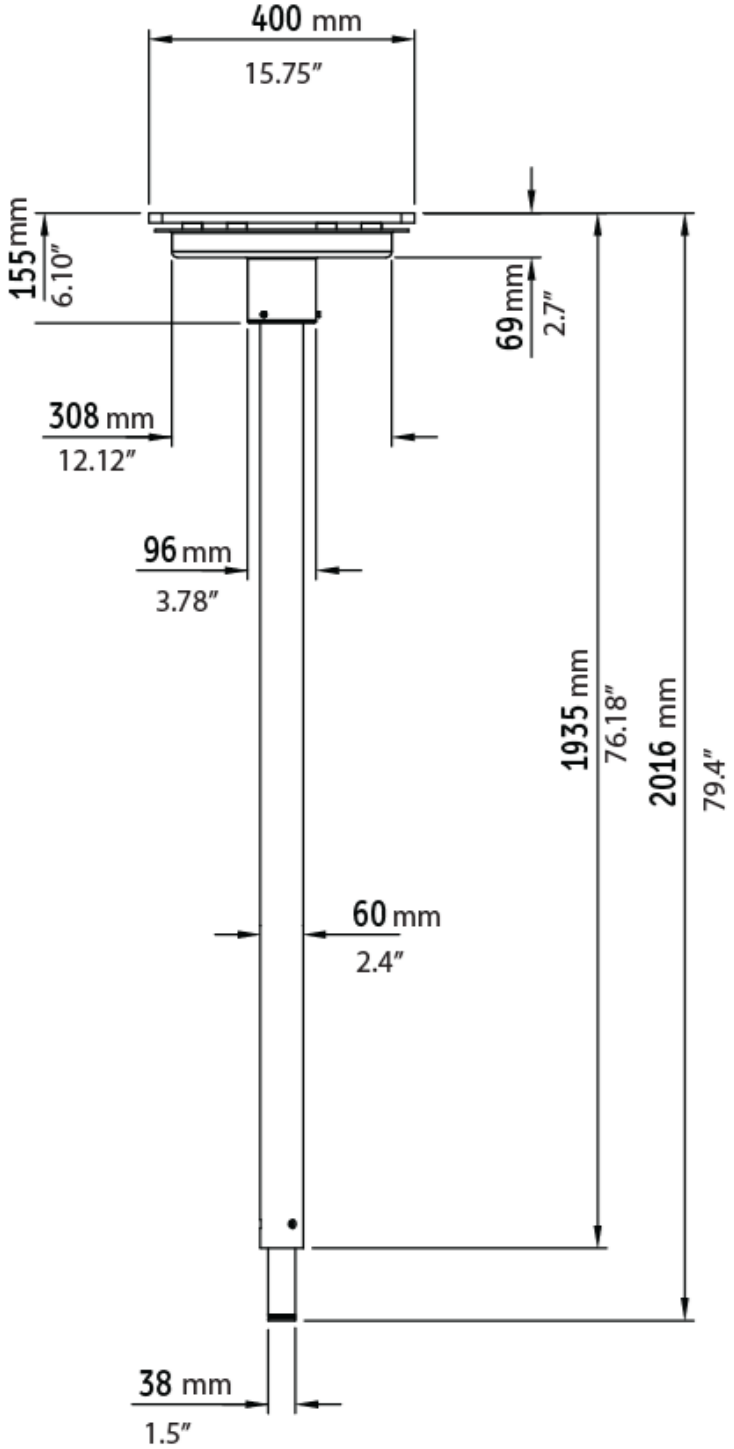

400 mm
15.75″
155 mm
6.10″
69 mm
2.7″
308 mm
12.12″
96 mm
3.78″
1935 mm
76.18″
2016 mm
79.4″
60 mm
2.4″
38 mm
1.5″

Fig. 5

CEILING MOUNT: ALTERNATIVE INSTALLATION AT THE PATIENT'S SIDE WITH STANDARD ARM

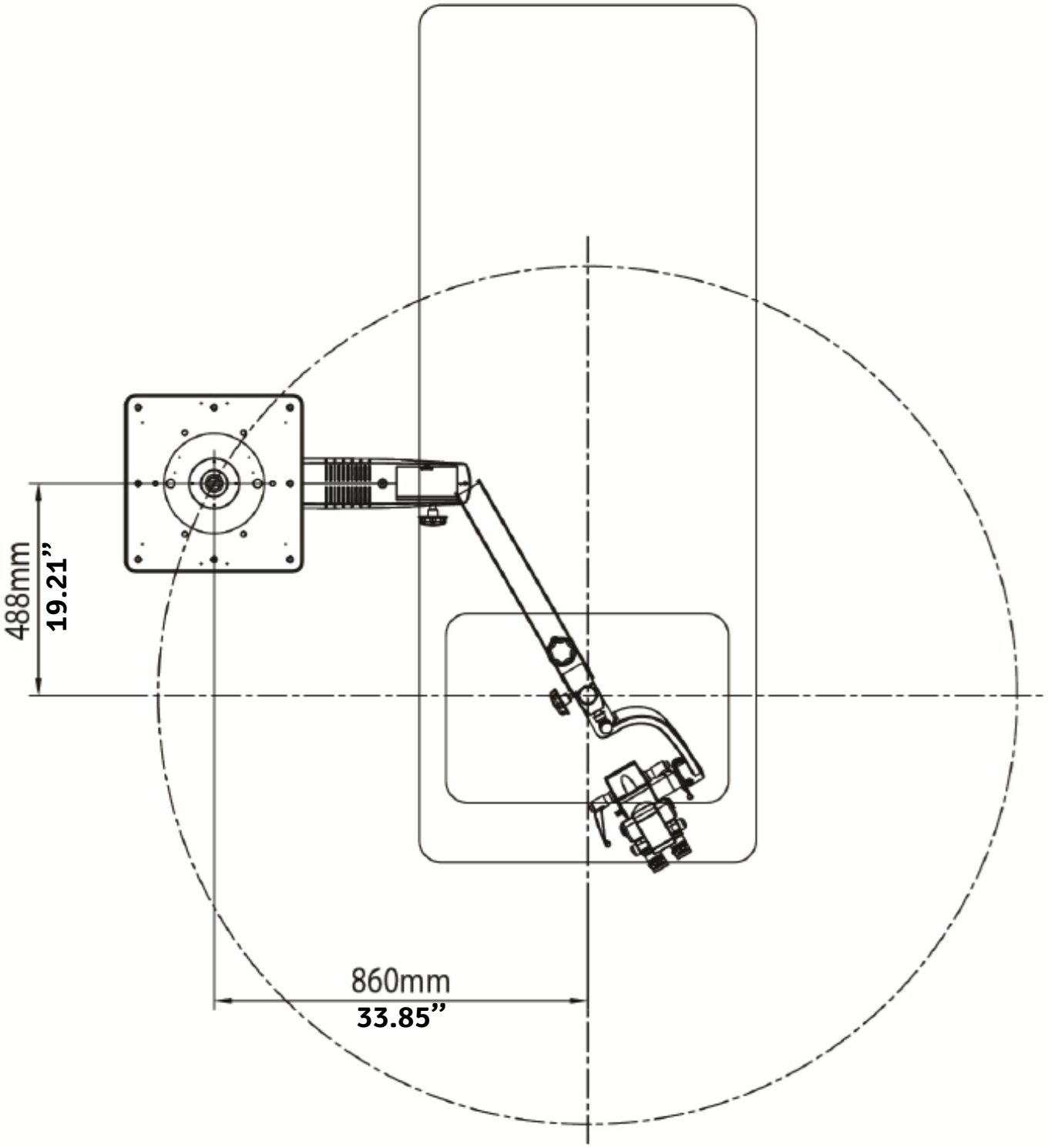


Fig. 6

RECOMMENDED WORK RANGE FOR THE IDEAL INSTALLATION SITE (STANDARD ARM)

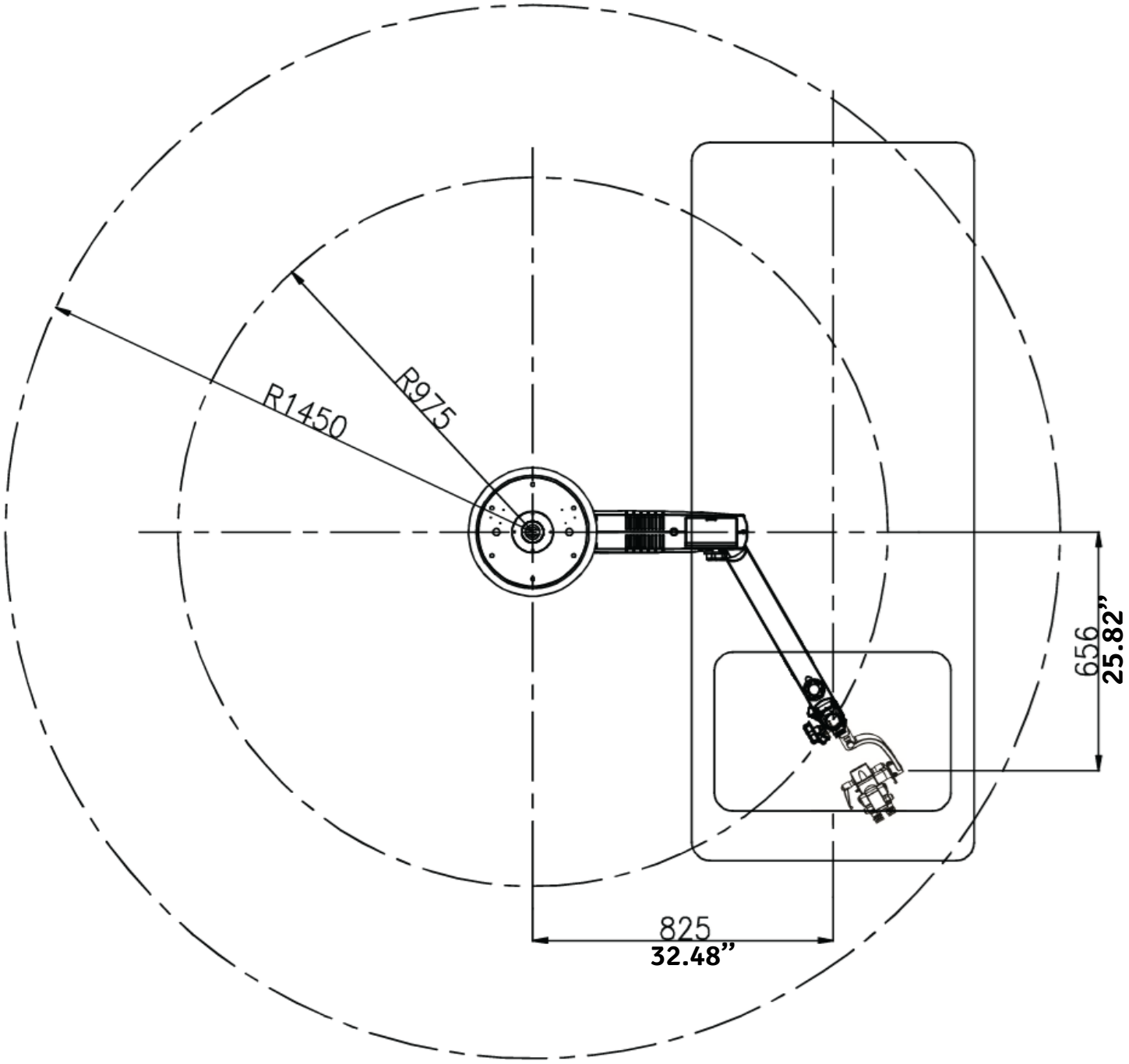


Fig. 7

INSTALLATION REFERENCES (CONCRETE CEILING MOUNT)

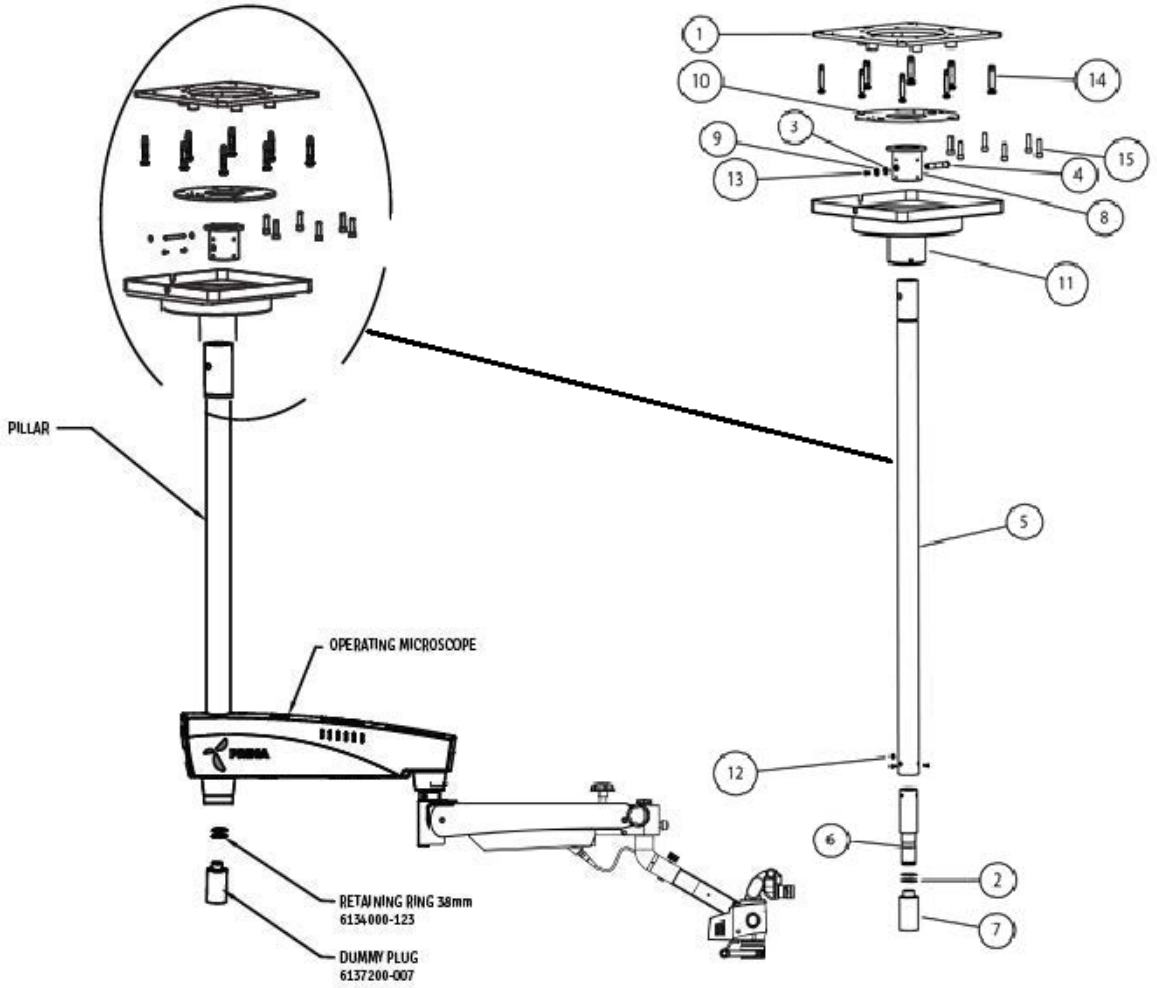


Fig. 8

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

INSTALLATION REFERENCES (CONCRETE CEILING MOUNT)

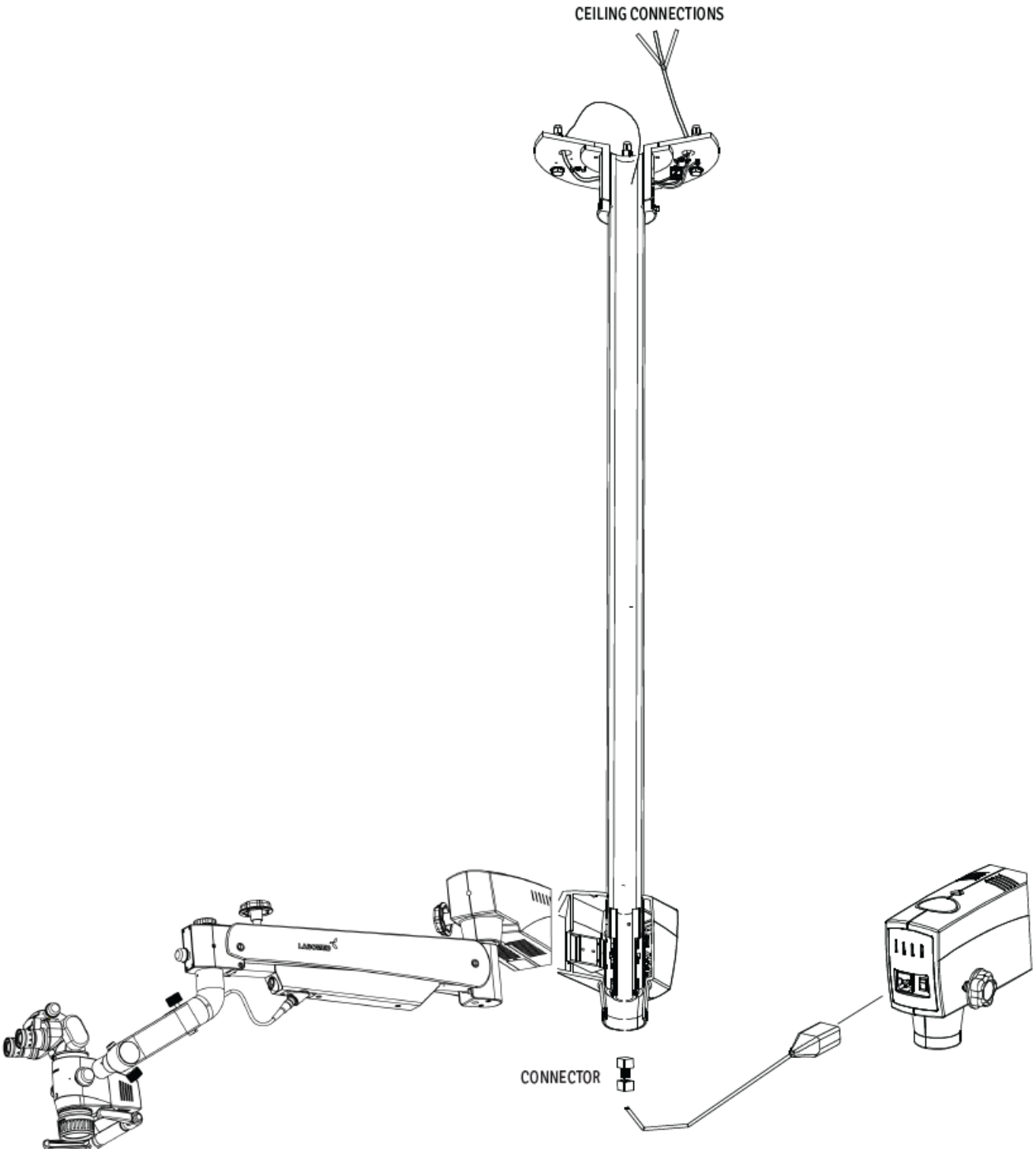


Fig. 9

7. CEILING MOUNT INSTALLATION

7.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 installation.

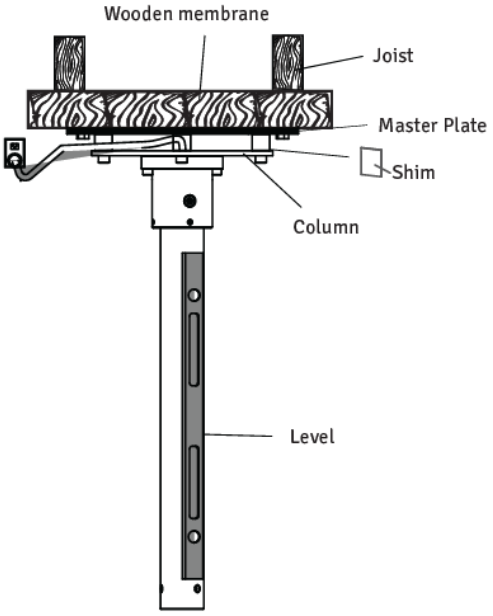
WARNING: THE SUPPORTING STRUCTURE FOR A CEILING MOUNT OR WALL MOUNT INSTALLATION MUST SUPPORT A MINIMUM WEIGHT OF 110 LB (60 kg) AND MUST BE LATERALLY AND VERTICALLY STABLE AND FREE FROM VIBRATION.

WARNING:

- **THE 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 for mounting 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 mounting the master ceiling plate to the membrane as shown in Fig. 10.
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 construction.
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 the 6 M12 × 40 socket head bolts.
9. Slightly tighten all bolts with a 10 mm Allen key.
10. Use a level to make sure the column assembly is vertical. See section 7.b, "Leveling the ceiling mount system", to correct any leveling issues.
11. After leveling the column, tighten all 6 bolts to full torque.
12. Steps 1 to 11 above are the customer's responsibility. 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 in place.



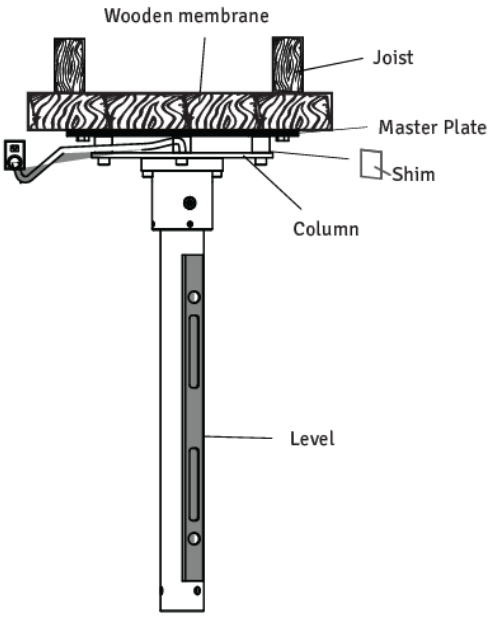
Normal Ceiling Mount
Fig. 10

7.b. LEVELING THE CEILING MOUNT SYSTEM

After installation, the ceiling mount column must be plumb. A perfectly vertical column prevents 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 commercially available; no specific type or brand is required.



Normal Ceiling Mount
Fig. 11

CEILING MOUNT INSTALLATION (continued)

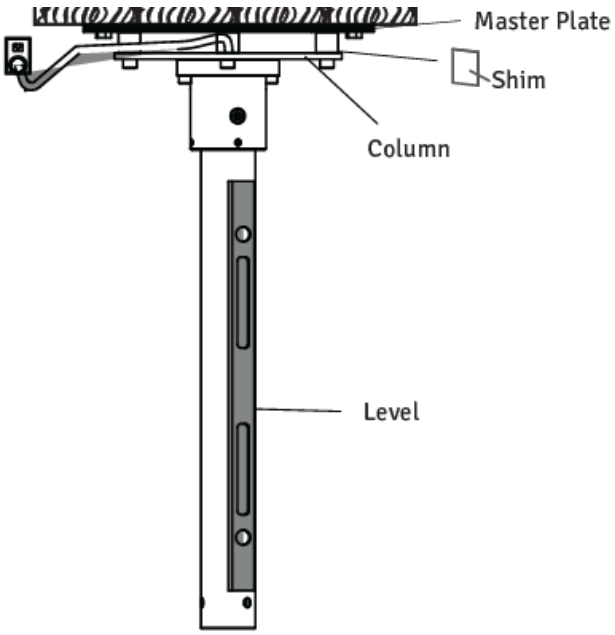
7.c. INSTALLING THE CEILING MOUNT ON A CONCRETE CEILING

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 the 6 M12 × 40 socket head bolts.**
7. **Slightly tighten all bolts with a 10 mm Allen key.**
8. **Use a level to make sure the column assembly is vertical. See section 7.b, "Leveling the ceiling mount system", to correct any leveling issues.**
9. **Fully tighten all bolts with the 10 mm Allen key.**
10. **Steps 1 to 9 above are the customer's responsibility. 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.**



Normal Ceiling Mount
Fig. 12

7.d. Construction requirements for ceiling mount installation on a concrete ceiling

1. **The ceiling mount must be installed as recommended 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 listed below have been observed. The customer must keep this confirmation with the customer's records, and a copy must be provided 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 the ceiling.
4. **The master plate should be installed at the time of construction.**
5. **The minimum edge distance required on all sides is 16".**
6. **The ceiling plate must be aligned parallel to the ceiling (max. deviation ±1°).**

Note:

1. **If an existing ceiling mount is ever replaced, never reuse the old anchors. New anchor holes must be drilled. When calculating the effective strength of the new anchors, 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.**

7.e. CONTROL AND POWER SUPPLY OF THE SYSTEM

NOTE:
The maximum weight of the surgical microscope including accessories must not exceed 50 kg. For the weights of the accessories, contact LABOMED.

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

Ceiling mount kit	**: 18 kg**
Column	**: 8 kg**
Surgical microscope	**: 19 kg**
Total	**: 45 kg**

Power line	**: 3 × 1.5 mm²**
Fuse	**: 2.5 A**
Power consumption	**: max. 60 W**

NOTE:
A properly installed socket with protective earth must be provided at the installation site at the ceiling flange. The power connection terminals are located 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 6181000 series suspension systems, including the components mentioned here, comply with the safety requirements of CE, (EU) MDR 2017/745 and IEC 60601-1 (edition 3.2).

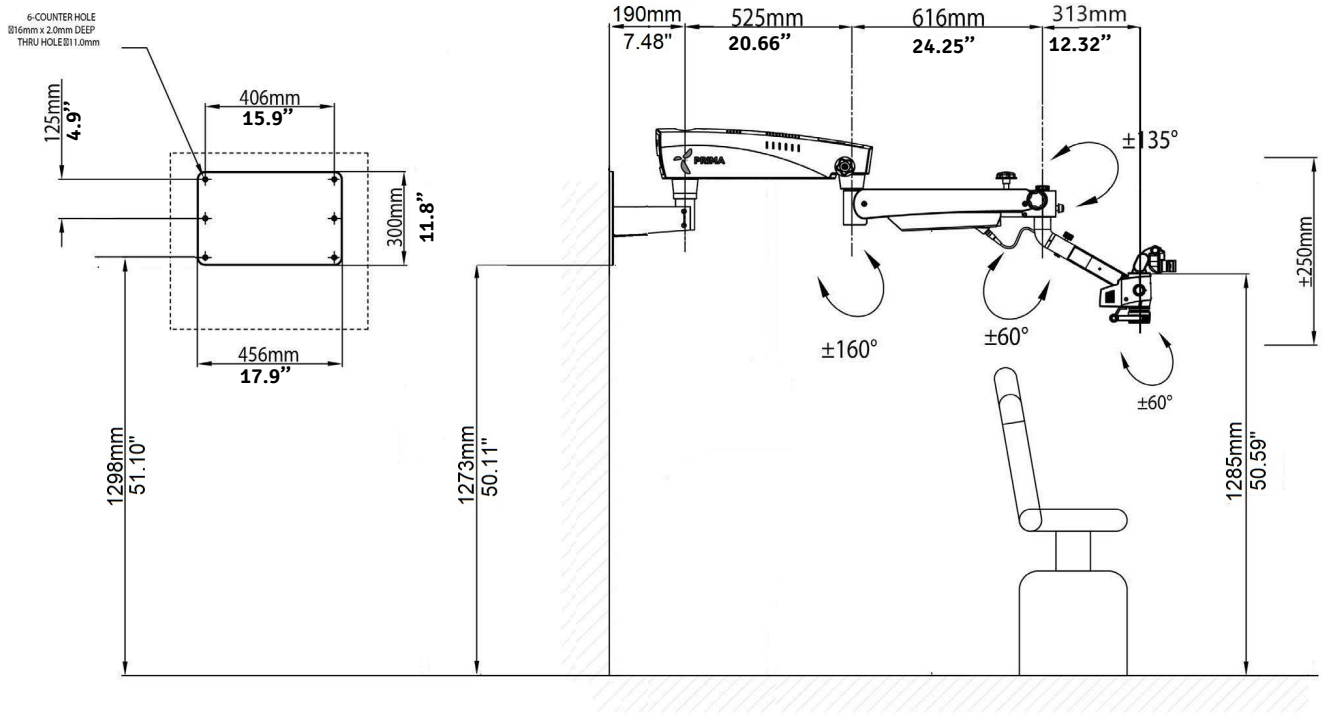
The installation of the flange, conduits and electrical lines is the customer's responsibility.

List of contents: ceiling kit

1. **RAWL plugs : 06 pcs**
2. **Washers : 06 pcs**
3. **Ceiling mount : 01 pc**
4. **Column : 01 pc**
5. **Ceiling mount cover : 01 pc**

8. WALL MOUNT ASSEMBLY (DIMENSIONS)

HORIZONTAL WALL MOUNT WITH STANDARD SUSPENSION ARM



HORIZONTAL WALL MOUNT WITH **LONG** SUSPENSION ARM

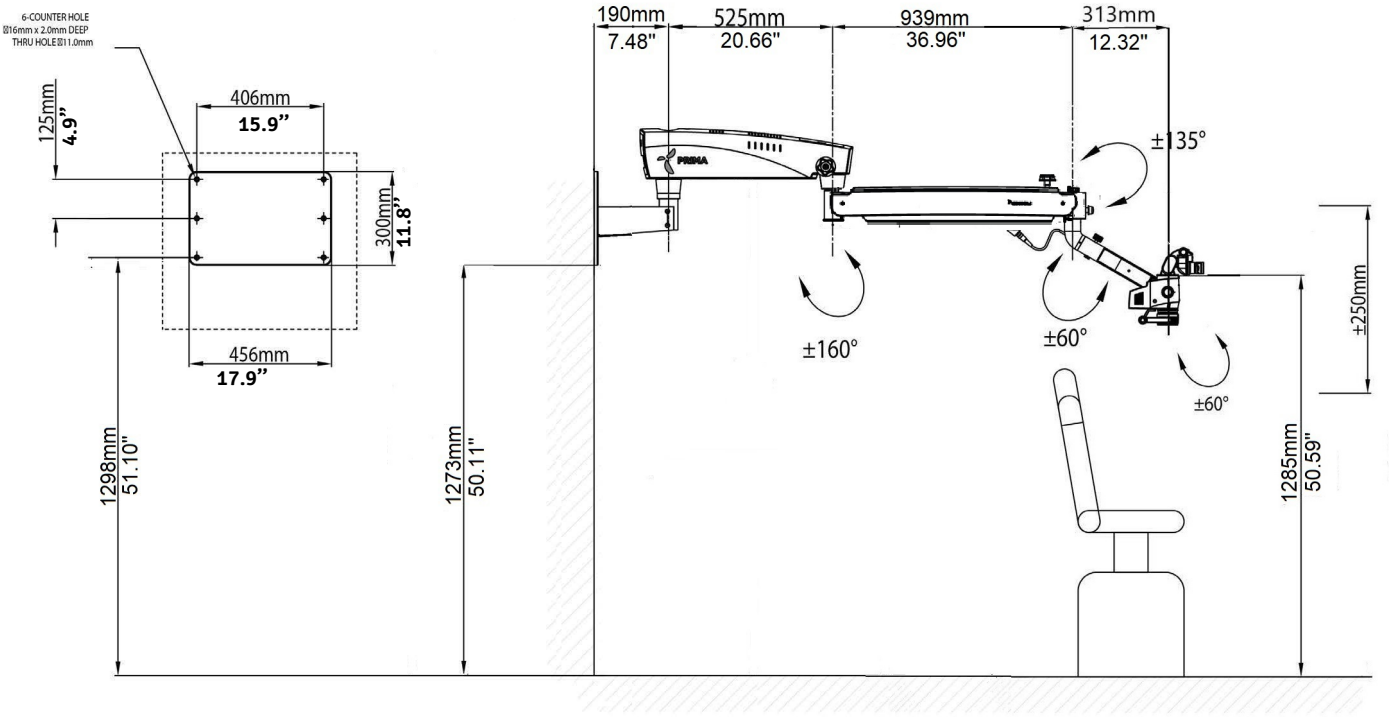
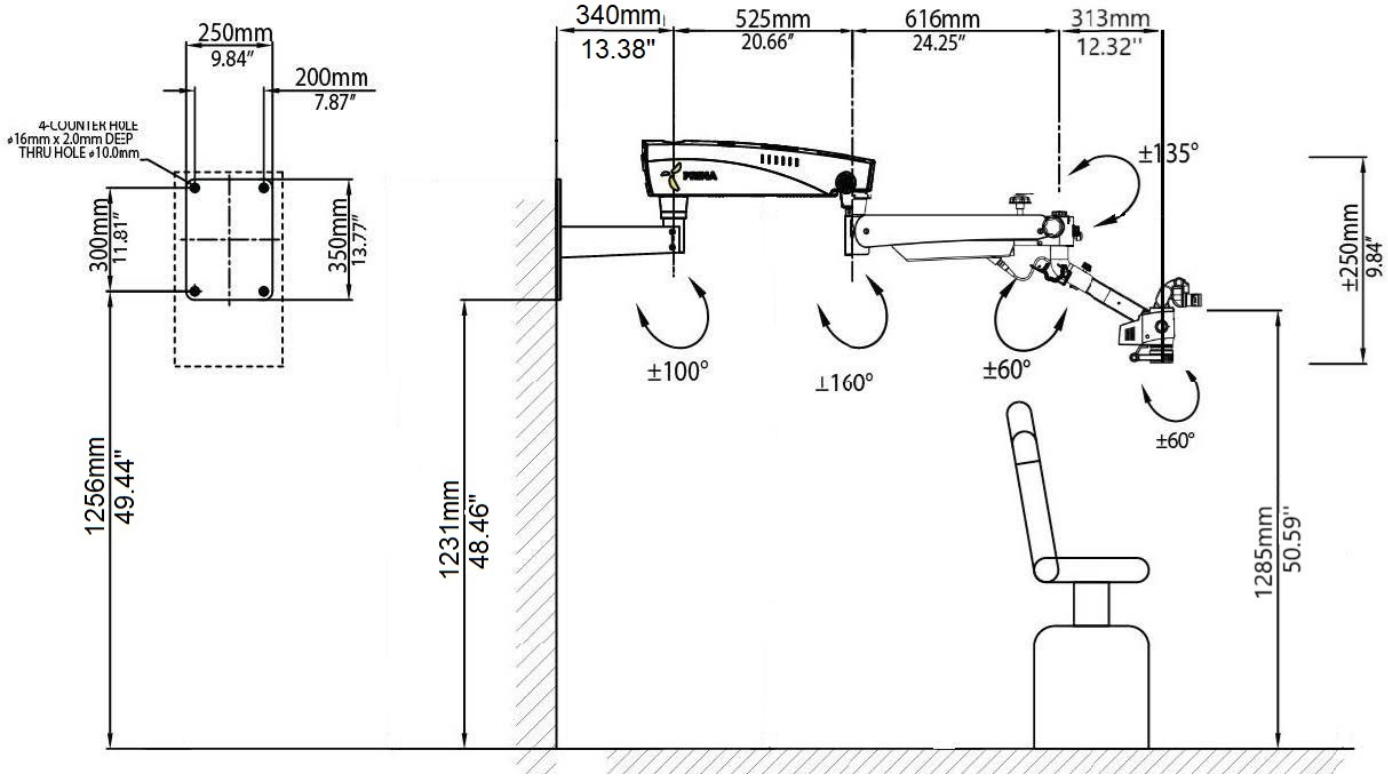


Fig. 13

WALL MOUNT ASSEMBLY (continued)

VERTICAL WALL MOUNT WITH STANDARD SUSPENSION ARM



VERTICAL WALL MOUNT WITH **LONG** SUSPENSION ARM

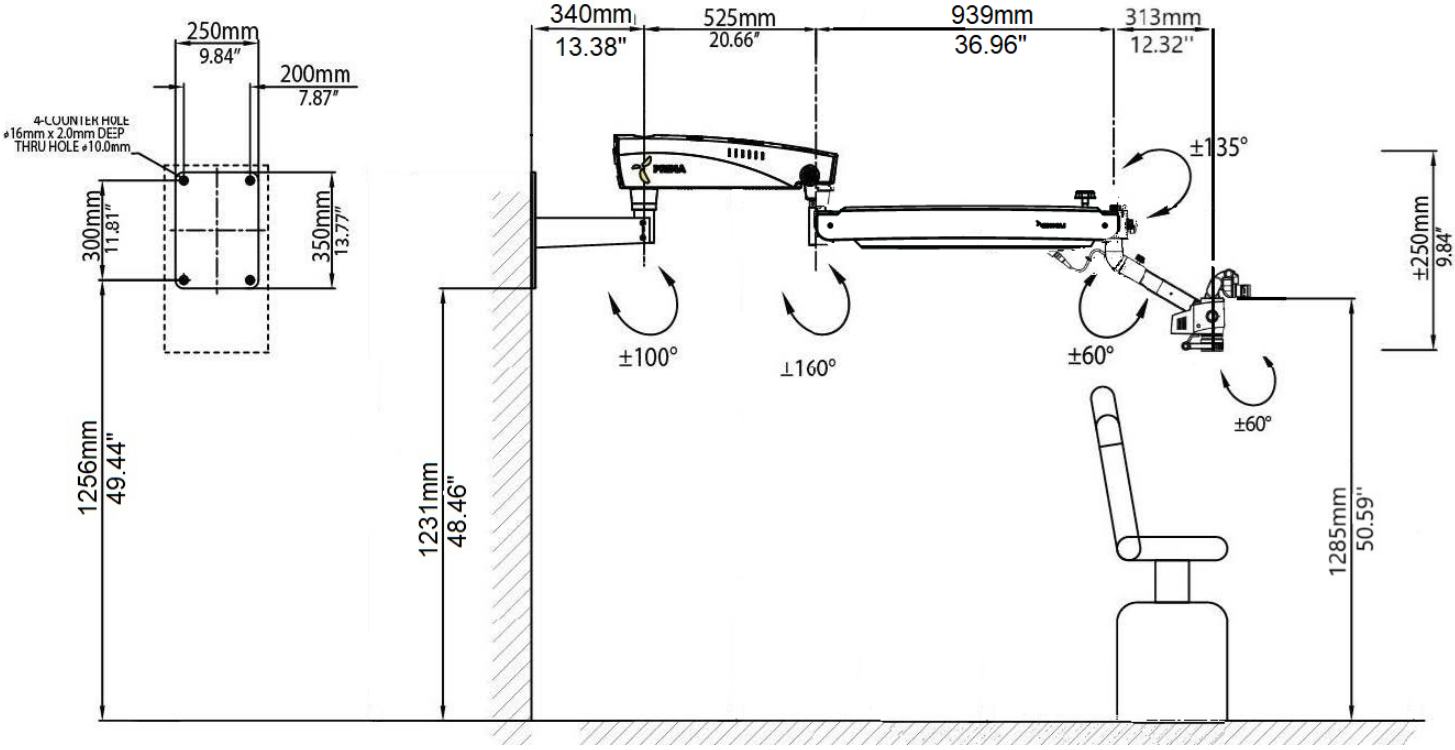


Fig. 13a

WALL MOUNT ASSEMBLY (continued)

HORIZONTAL WALL MOUNT WITH STANDARD SUSPENSION ARM AND EXTENSIONS

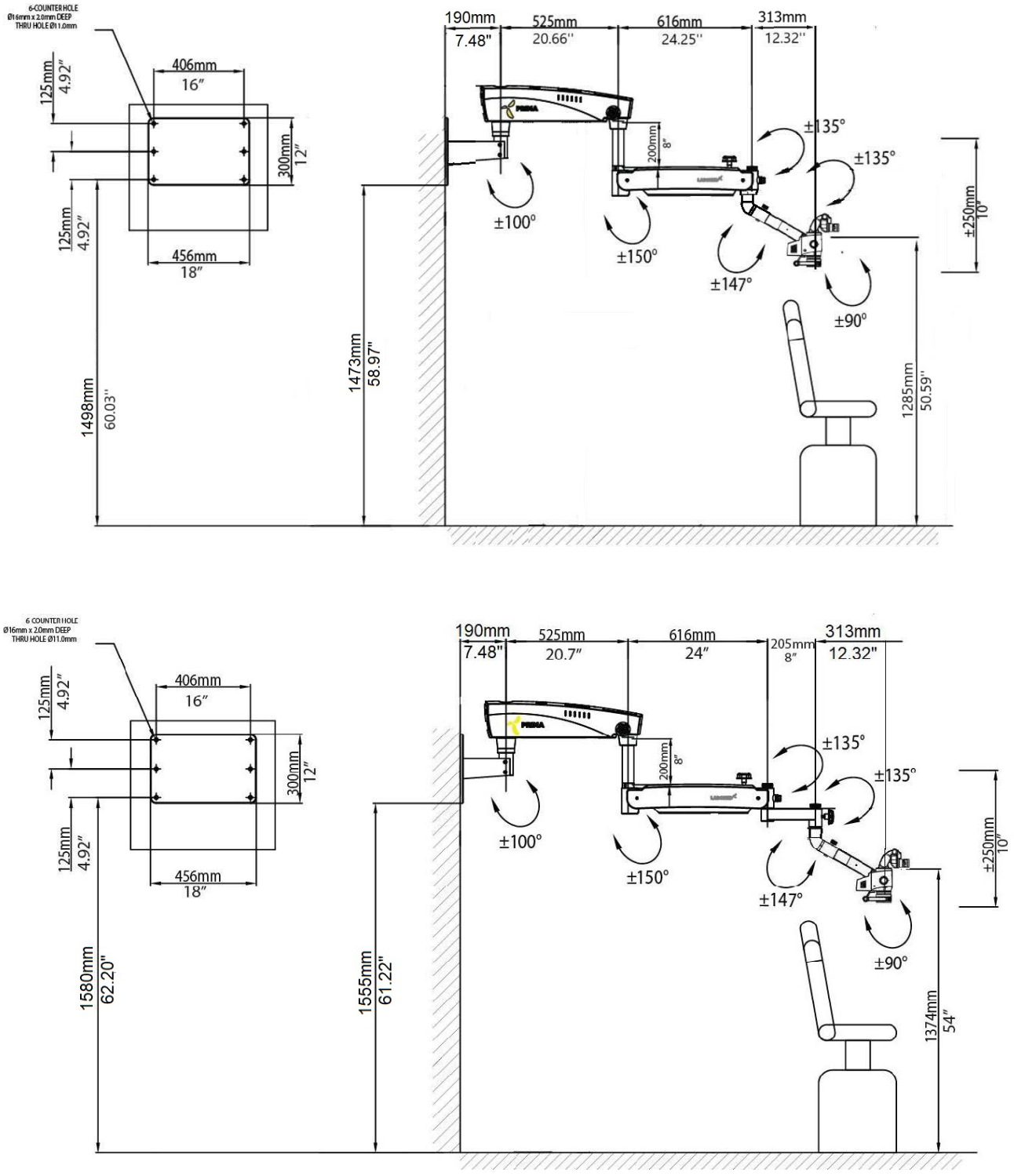


Fig. 14

WALL MOUNT ASSEMBLY (continued)

VERTICAL WALL MOUNT WITH STANDARD SUSPENSION ARM AND EXTENSIONS

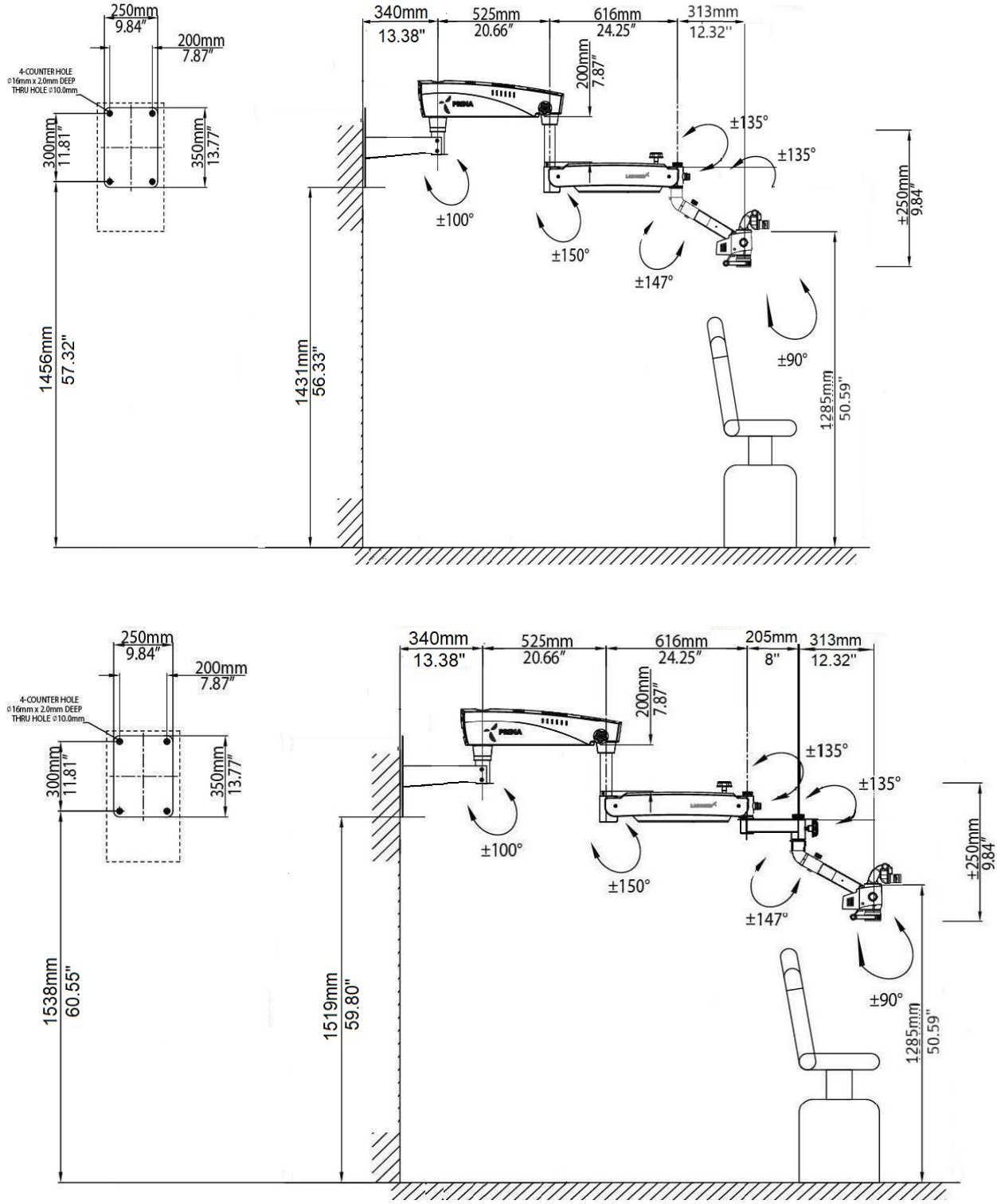


Fig. 14a

WALL MOUNT ASSEMBLY (continued)

HORIZONTAL WALL MOUNT WITH STANDARD SUSPENSION ARM AND EXTENSION

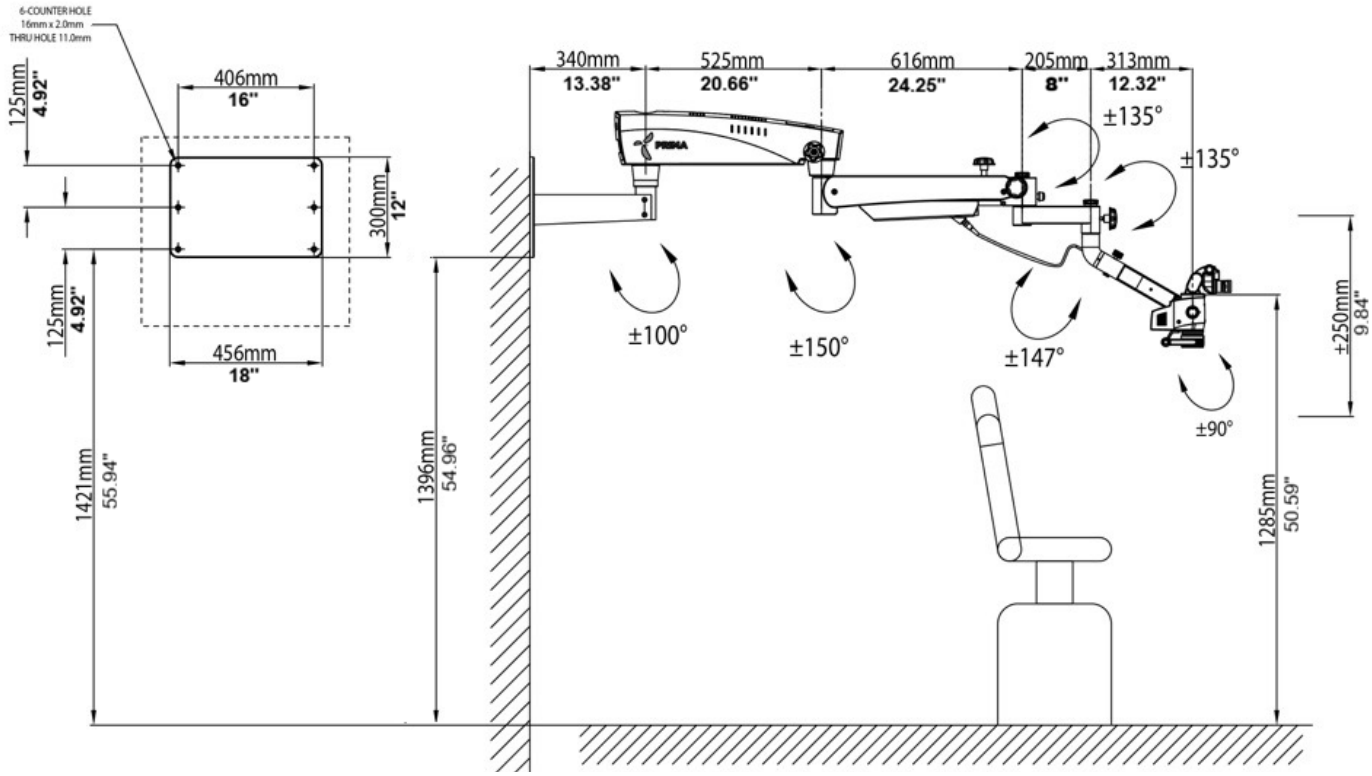


Fig. 14b

9. INSTALLATION REFERENCES (HORIZONTAL WALL MOUNT)

9.a. 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 13.

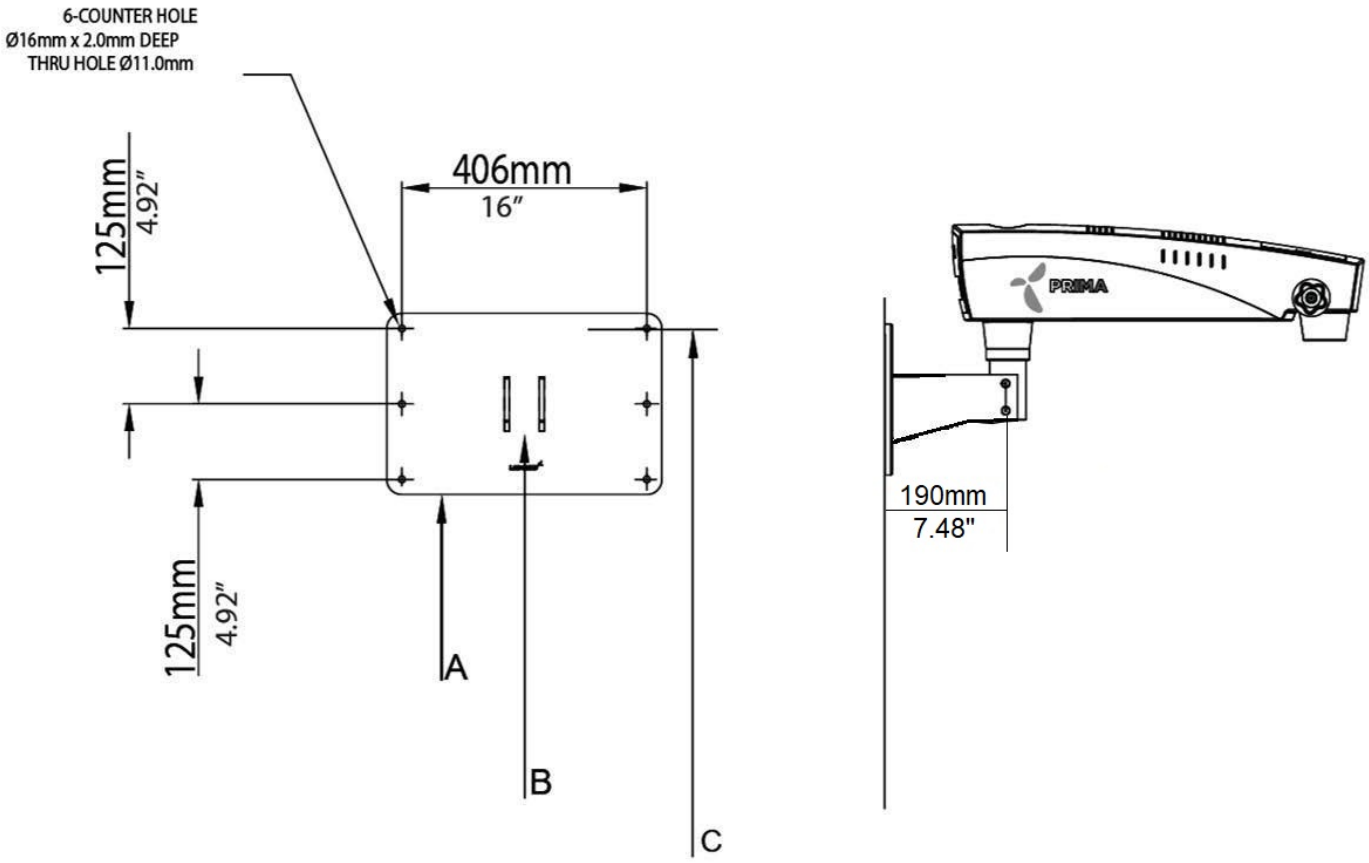


Fig. 15

9.b. 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 13a.

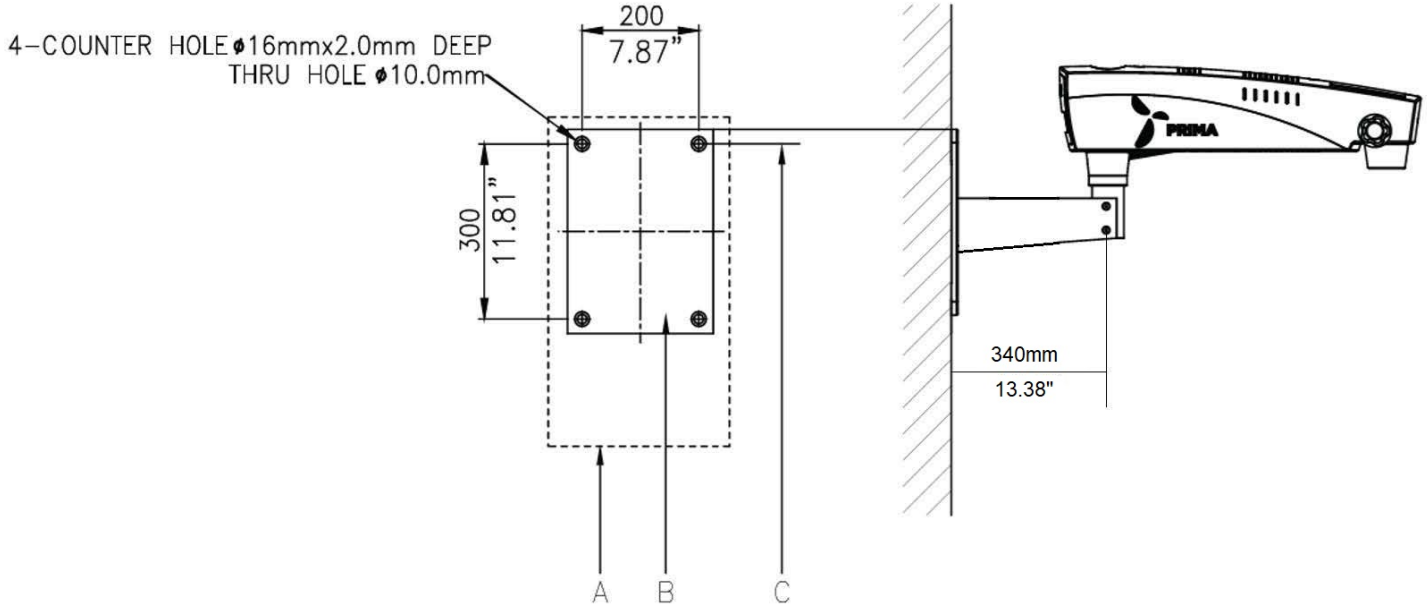


Fig. 15a

Wall mount: alternative installation at the patient's side (with standard suspension arm)

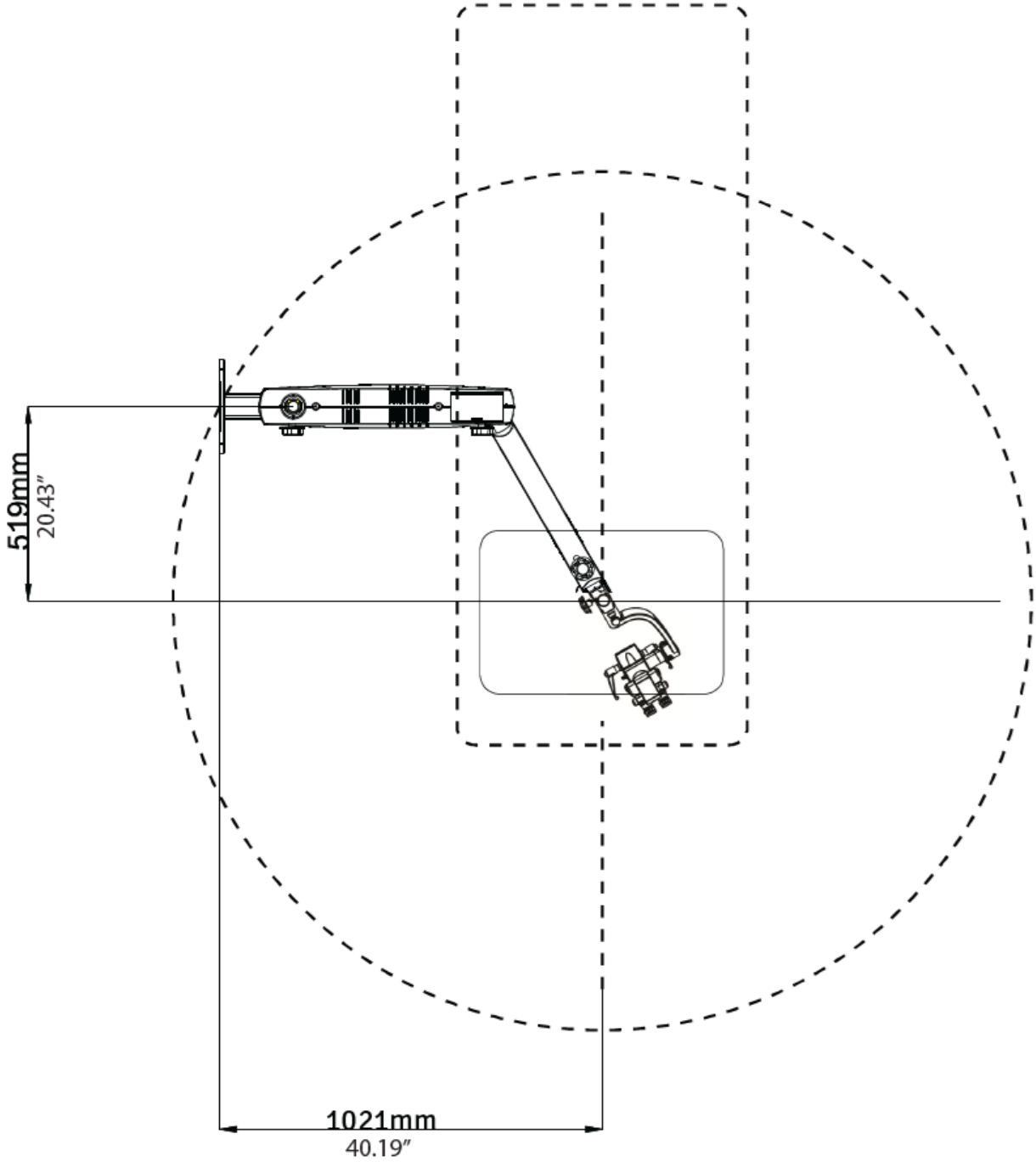
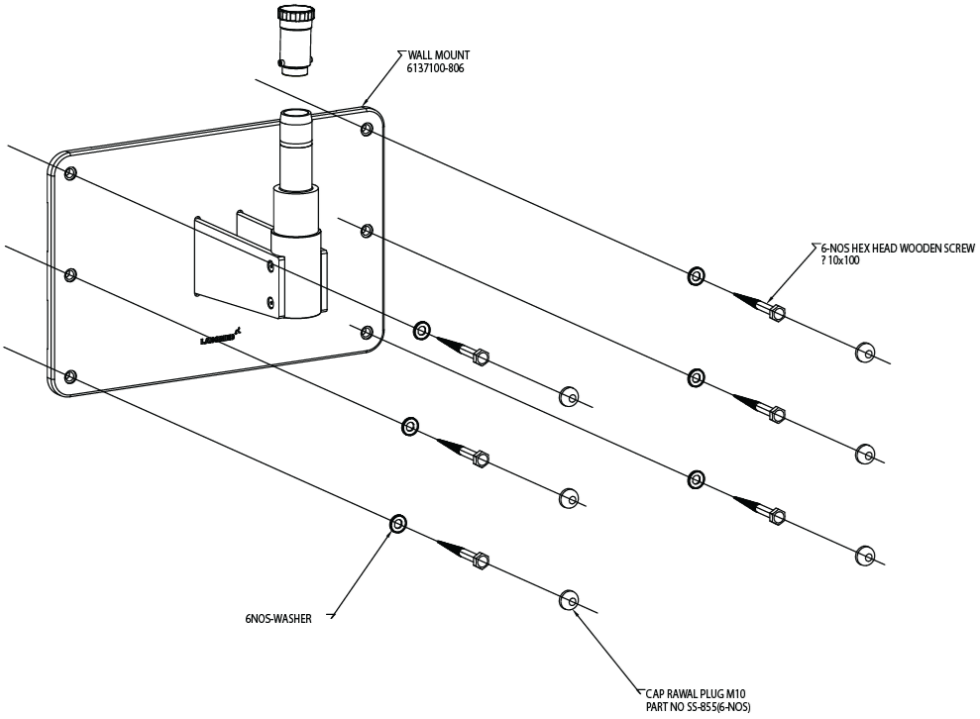


Fig. 16

HORIZONTAL WALL MOUNT INSTALLATION REFERENCES (WOODEN WALL)



VERTICAL WALL MOUNT INSTALLATION REFERENCES (WOODEN WALL)

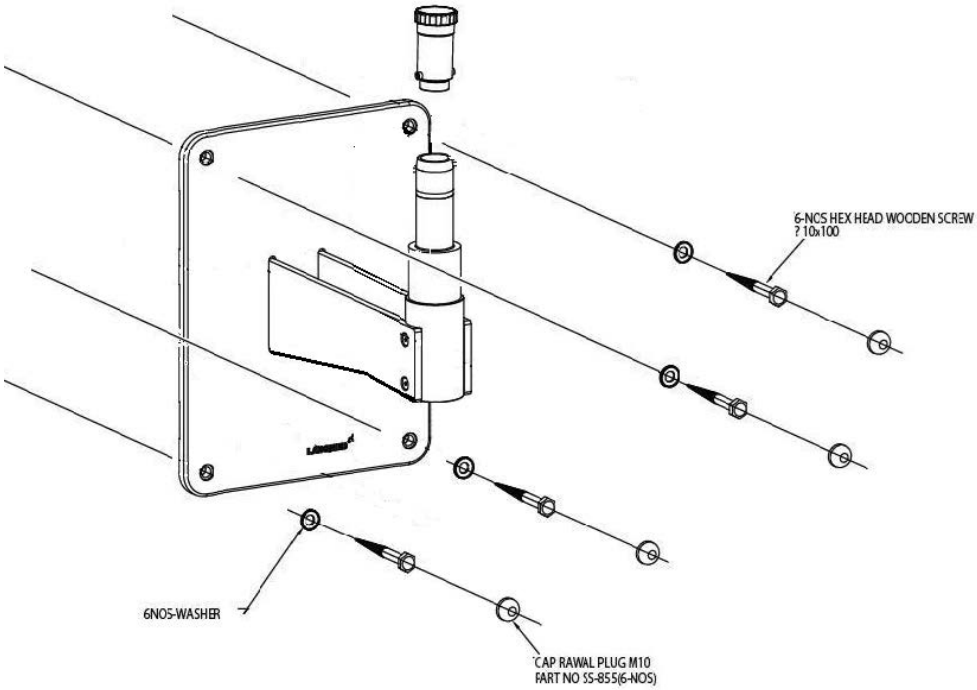
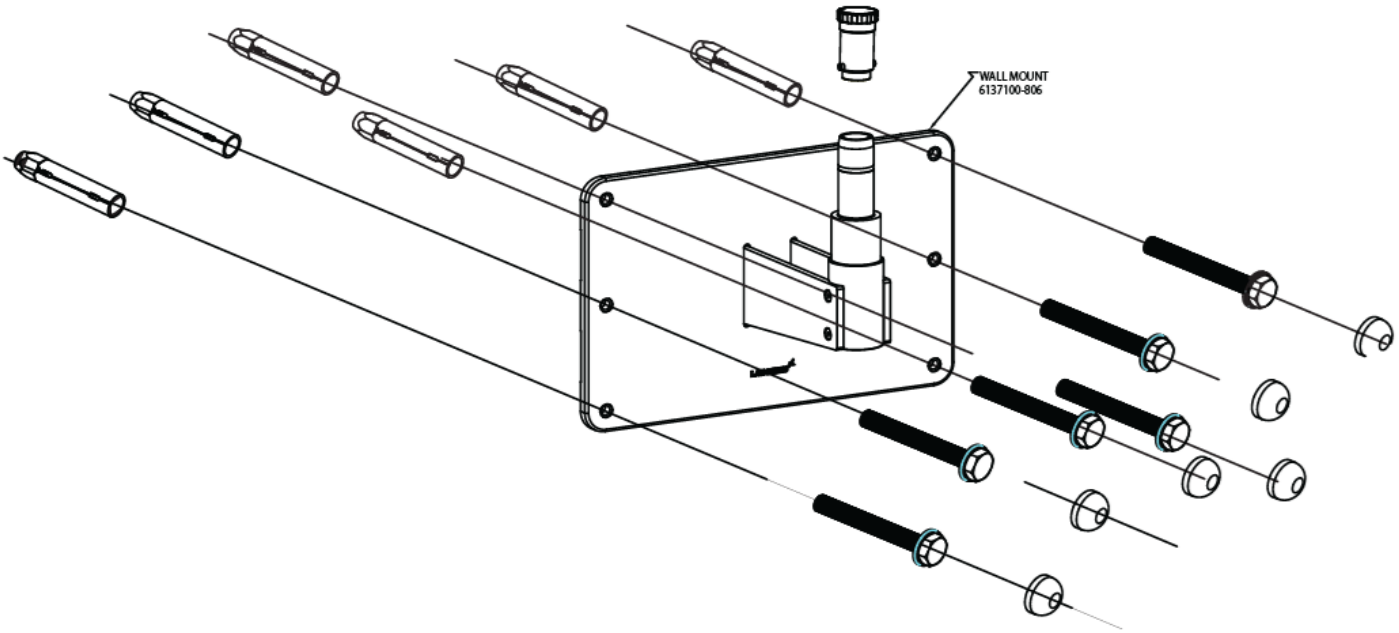


Fig. 17

HORIZONTAL WALL MOUNT INSTALLATION REFERENCES (SOLID BRICK WALL)



VERTICAL WALL MOUNT INSTALLATION REFERENCES (SOLID BRICK WALL)

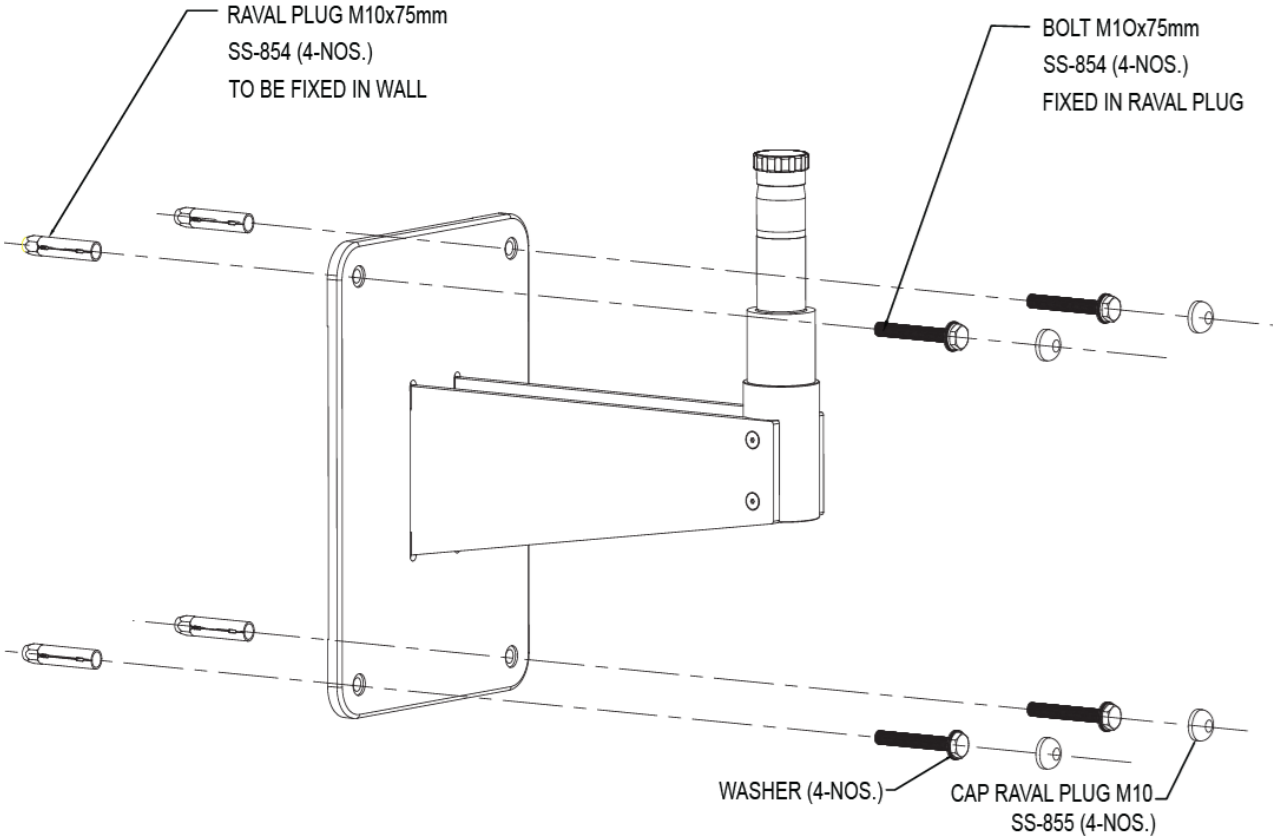


Fig. 18

WALL MOUNT WITH STANDARD SUSPENSION ARM AND SWIVEL ARM WITH 8” EXTENSION ARM

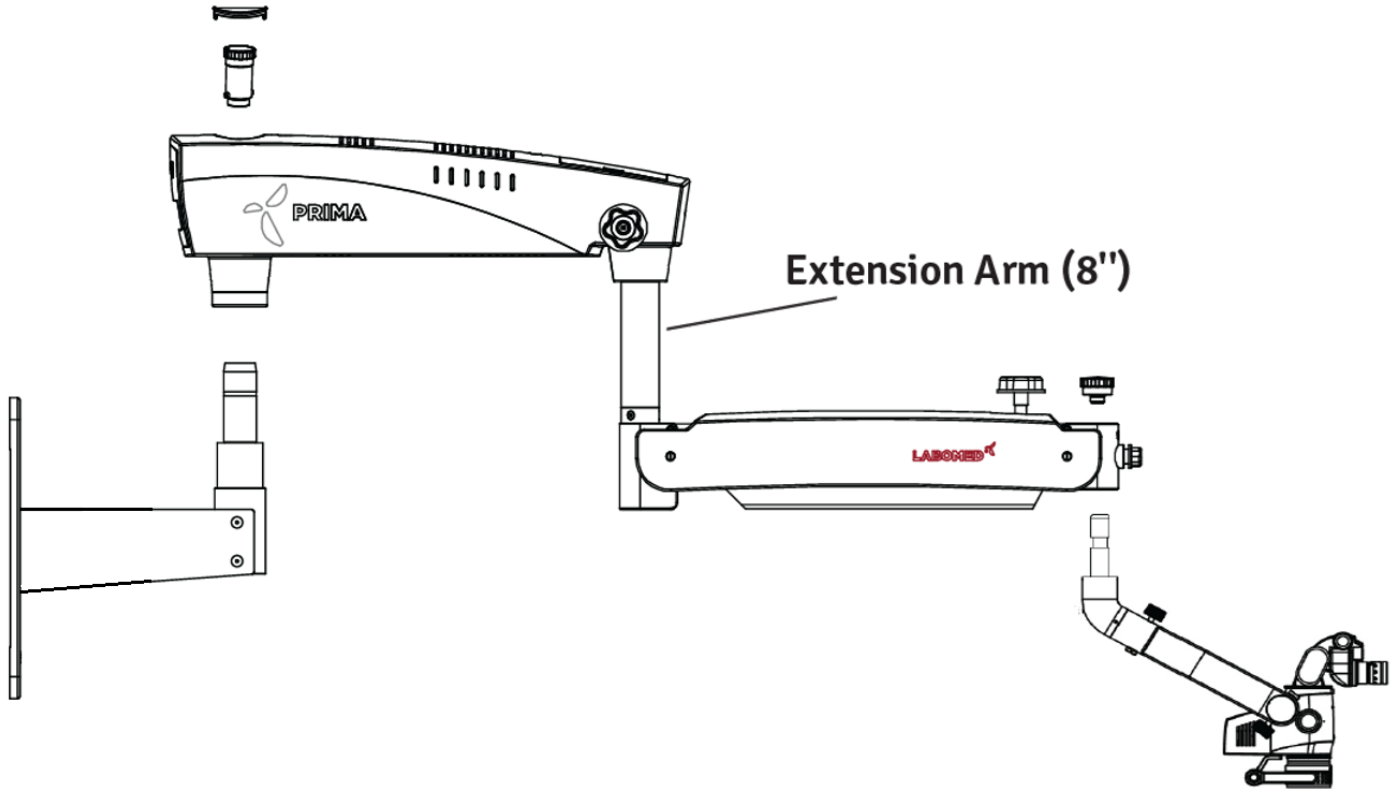


Fig. 19

10. 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 20 and 21.

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.

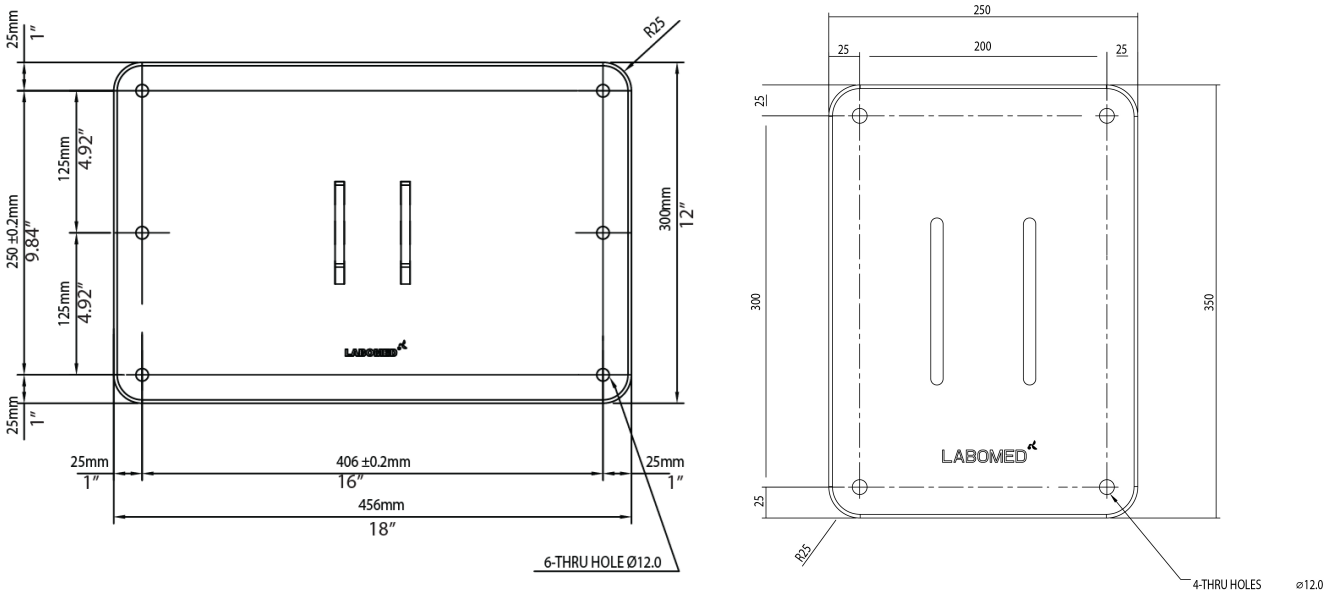


Fig. 20

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 WALL STUD SPACING

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

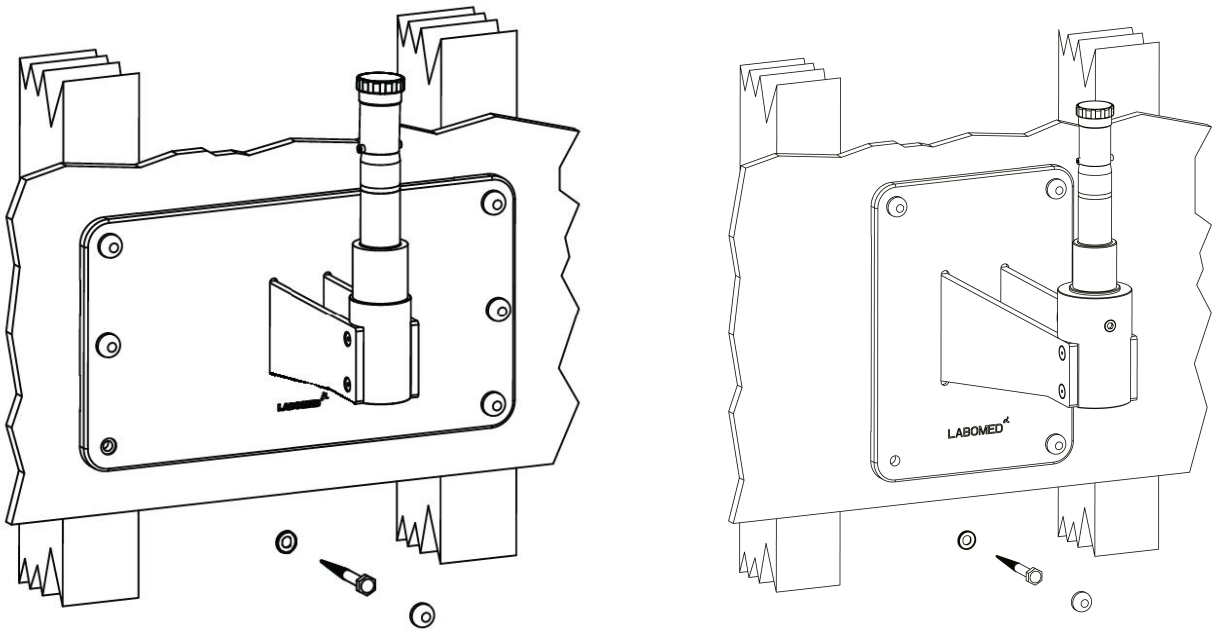


Fig. 21

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 prevents the microscope system from drifting from side to side when used at full extension.

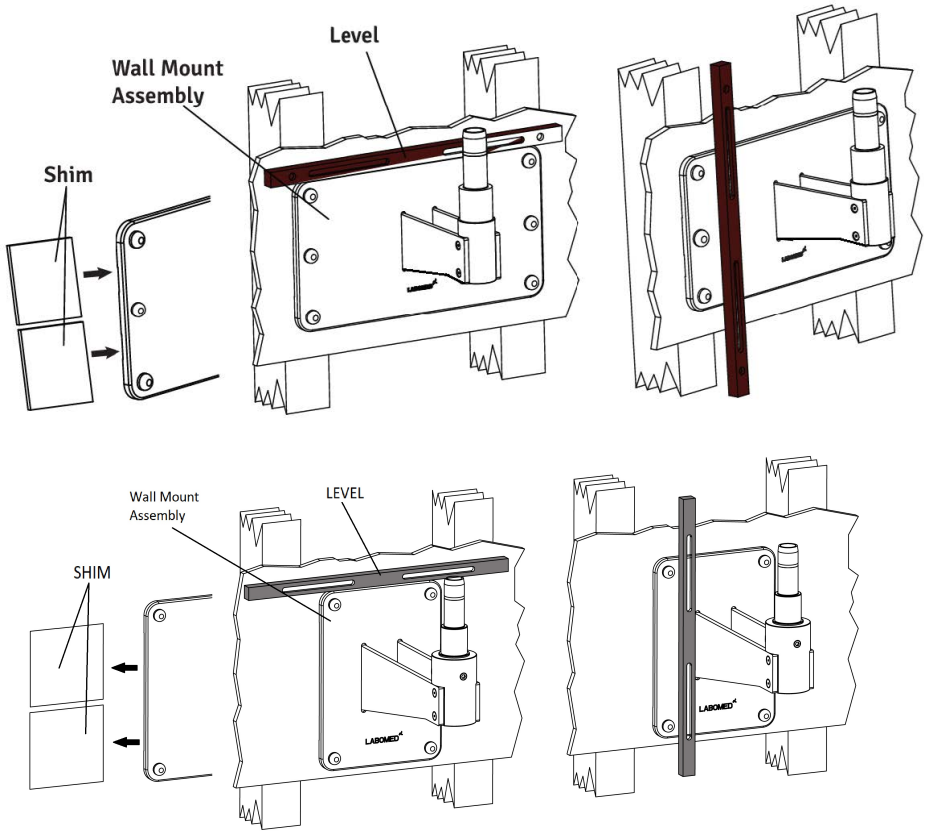


Fig. 22

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 22.**
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, then 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 22.**
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 22). 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.

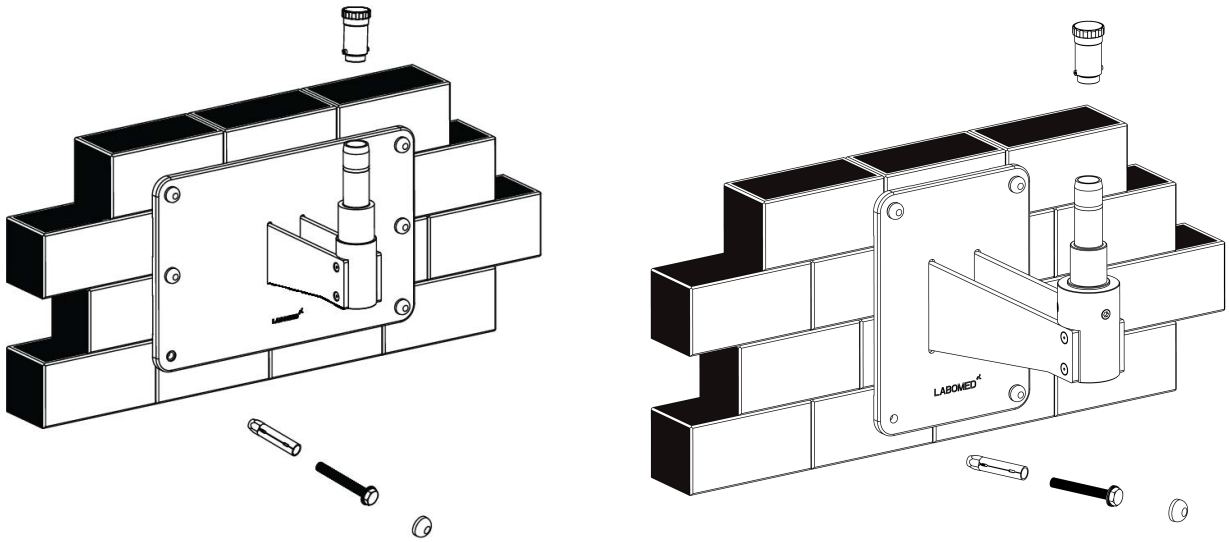


Fig. 23

1. **Determine where on the wall the microscope will 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 them 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 into the wall.**
8. **Using a 17 mm socket and ratchet, tighten the six (6) RAWL bolts to secure the wall mount, making sure the wall mount (top edge and front face) is level.**

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

WALL MOUNT INSTALLATION PROCEDURE (continued)

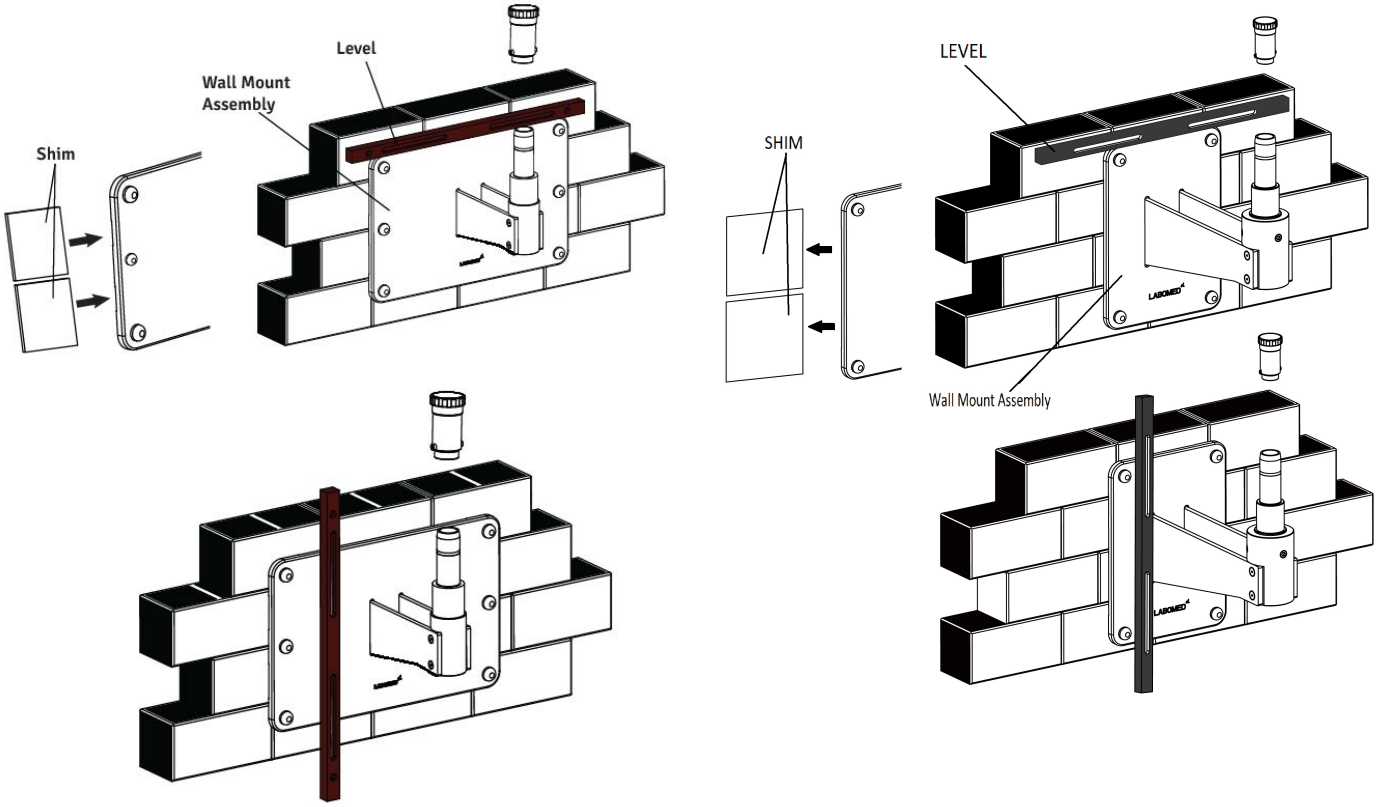


Fig. 24

WALL MOUNT INSTALLATION PROCEDURE (continued)

LEVELING THE WALL MOUNT ON A 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 24.
3. Use a 17 mm socket and ratchet to slightly loosen the six (6) toggle bolts in the corners of the wall mount.
4. Adjust the wall mount until it is level, then tighten the RAWL bolts on the wall mount.
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 24.
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 24.
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 remove the arm.
2. Unscrew the threaded plug from the wall mount shaft as shown in Fig. 24.
3. Assemble the arm on the wall mount shaft (see Fig. 23) and reinstall the threaded plug.
4. Complete the installation as shown in Fig. 1, 2, 3 or 4, according to the ordered configuration.

WALL MOUNT INSTALLATION PROCEDURE (continued)

CONSTRUCTION REQUIREMENTS FOR THE WALL MOUNT

1. Install the wall mount assembly only as recommended 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 listed below have been observed. The customer must keep this confirmation with the wall mount records, and a copy must be provided 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 parallel to the wall (max. deviation ±1°).

NOTE:
If an existing wall mount is ever replaced, never reuse the old anchors. New anchor holes must be drilled. When calculating the effective strength of the new anchors, 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. For the weights of the accessories, contact LABOMED.

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

Wall mount kit	**: 12 kg**
Surgical microscope	**: 19 kg**
Total	**: 31 kg**

Power line	**: 3 × 1.5 mm²**
Fuse	**: 2.5 A**
Power consumption	**: max. 60 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 6181000 series suspension systems, including the components mentioned here, comply with the safety requirements of CE, MDR 2017/745 and IEC 60601-1 (edition 3.2).

The installation of the flange, conduits and electrical lines is the customer's responsibility.

List of contents: wall mount kit

1. **RAWL plugs : 06 pcs**
2. **Washers : 06 pcs**
3. **Wall mount : 01 pc**

11. WARNINGS AND CAUTIONS

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

- **Assembly, disassembly, repair or modification is carried out 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 MUST BE THOROUGHLY TRAINED IN THE APPROPRIATE MEDICAL PROCEDURES. THEY MUST ALSO READ AND UNDERSTAND THESE INSTRUCTIONS BEFORE PERFORMING ANY PROCEDURE, AND READ AND UNDERSTAND THE INSTRUCTIONS FOR ANY OTHER EQUIPMENT USED 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: USE THIS INSTRUMENT IN STRICT ACCORDANCE WITH THE INSTRUCTIONS IN THIS USER MANUAL. THE SAFETY OF THE OPERATOR AND THE PERFORMANCE OF THE INSTRUMENT CANNOT BE GUARANTEED IF IT IS 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 MUST BE PERFORMED BY EXPERIENCED PERSONNEL OR DEALERS TRAINED BY LABOMED; OTHERWISE 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 CARRIED OUT TO ENSURE ITS CONTINUED SAFE USE.

WARNING: MAKE SURE THAT THE VOLTAGE APPLIED TO THE UNIT IS THE SAME AS THE VOLTAGE INDICATED ON THE DATA PLATE; OTHERWISE THE UNIT MAY BE DAMAGED.

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 THE POWER INPUT CONNECTOR OR ON THE POWER CORD OF THIS INSTRUMENT; OTHERWISE DAMAGE TO THE INSTRUMENT 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. IF ADJACENT OR STACKED USE IS NECESSARY, OBSERVE THE EQUIPMENT OR SYSTEM 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 SWITCHED ON.

WARNING: THE USE OF ACCESSORIES OR CABLES OTHER THAN THOSE SPECIFIED, EXCEPT THOSE SOLD BY THE MANUFACTURER AS REPLACEMENT PARTS FOR 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 DAMAGED BY STATIC CHARGES FROM 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 REGARDING ELECTROMAGNETIC COMPATIBILITY (EMC) AND MUST 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: DO NOT USE THIS INSTRUMENT NEAR HIGH-FREQUENCY SURGICAL EQUIPMENT.

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

CAUTION: DO NOT USE AN ADAPTER THAT CONVERTS THE THREE-PRONG AC PLUG TO A TWO-PRONG PLUG. THE POWER SUPPLY OF THIS MICROSCOPE WOULD NOT BE PROPERLY GROUNDED, AND ELECTRIC SHOCK MAY RESULT.

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

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

CAUTION: DO NOT REMOVE FERRITE BEADS FROM CABLES WHERE FITTED.

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

12. 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 one of our authorized representatives. We will supply the missing labels.

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

Consult the accompanying documents.

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 near devices bearing this symbol.

Alternating current.

Recycling of packaging materials.

Do not overbalance by more than 5°.

Separate disposal of waste electrical equipment.

MR unsafe (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 9 Kg

IP 21 Ingress Safety Protection!

13. STANDARDS AND DIRECTIVES

The instrument described in this user manual is 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 system, approved by UL.

ISO 14971: Application of risk management to medical devices.

DIRECTIVES / REGULATIONS:

Regulation (EU) 2017/745 (MDR)

IEC 60601-1, edition 3.2

IEC 60601-1-2, edition 4.1

EN 55011:2007

CLASSIFICATIONS

For Europe, under 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

14. CONDITION OF THE INSTRUMENT AT UNPACKING/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 ordered mounting system.**
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**

15. INSTALLATION OF THE BASE (MOBILE STAND)

1. **Open the center support assembly box as shown in Fig. 25.**



Fig. 25

2. **Remove the tool kit and foam sheets as shown in Fig. 26.**



Fig. 26

3. **Lift out the center support assembly as shown in Fig. 27.**



Fig. 27

4. **Place the center support assembly on the floor as shown in Fig. 28.**



Fig. 28

5. **Open the wheel support assembly boxes as shown in Fig. 29.**



Fig. 29

6. **Remove the foam sheets as shown in Fig. 30.**



Fig. 30

INSTALLATION OF THE BASE (MOBILE STAND) (continued)

7. **Lift out the wheel support assembly and cover as shown in Fig. 31. Place it (wheels down) under one end of the center support as shown in Fig. 31. Repeat for the other wheel support assembly.**



Fig. 31

8. **Align the holes of the center support with the holes of both wheel supports and tighten the screws with the 8 mm Allen wrench, as shown in Fig. 32.**



Fig. 32

9. **Remove the ring and the 3 screws from the shaft as shown in Fig. 32. Unscrew them with a 4 mm Allen wrench as shown in Fig. 33.**



Fig. 33

10. **Tighten all screws with the 8 mm Allen wrench. Place the top cover on both wheel support assemblies as shown in Fig. 34.**



Fig. 34

16. MICROSCOPE INSTALLATION

1. **Open the microscope box. Remove the column from the box and engage it on the shaft (B in Fig. 35).**

1a. **Align the holes of the column with the threaded holes of the shaft (B in Fig. 35) and tighten the three Allen screws from the sides, shown as C in Fig. 36.**

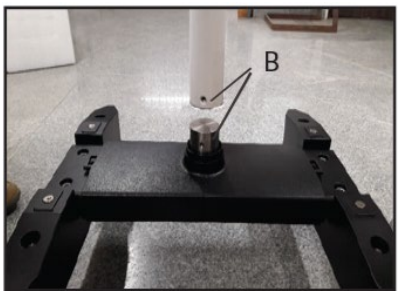


Fig. 35

2. **During assembly of the column, make sure ring D is fixed in place, as shown in Fig. 37.**

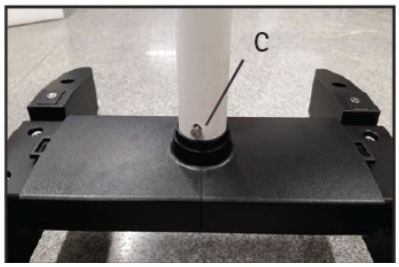


Fig. 36

3. **Remove the arm assembly from the box and follow the instructions below (see Fig. 38).**

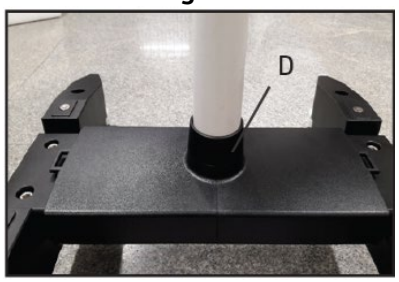


Fig. 37

⚠ **A. Make sure swivel arm lock knob A is loose.**

⚠ **Do not unscrew knob A completely (see Fig. 38). Loosen it by only a few threads; otherwise the lock ring inside the column guide may disconnect and installation may not be possible.**

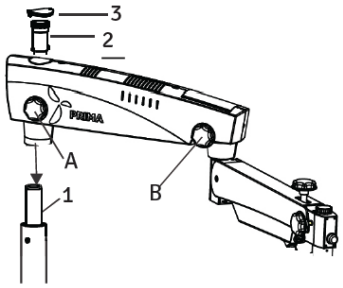


Fig. 38

B. Place the arm assembly on the column shaft (1) as shown in Fig. 38.

C. Screw in the threaded plug from the top (2).

D. Put the protective cap (3) in place, and loosen the suspension arm locking knob (B) so that the arm can be rotated.

MICROSCOPE INSTALLATION (continued)

4. Take the inclined coupling with the magnification changer out of the packing and proceed as follows (see Fig. 39).

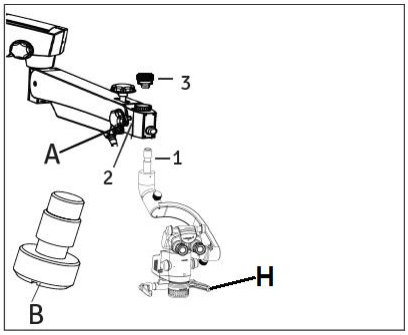


Fig. 39

- Install the coupling on the suspension arm by sliding the guide shaft (1) into the suspension arm.
- Lock the inclined coupling with the threaded plug (3).
- Make sure the magnification changer handles (H) have their silicone covers.

⚠ CAUTION: Make sure the safety screw (B) is tightened in place at position (2) so that the coupling cannot fall. **The safety screw is always tied to carrier arm locking knob A (Fig. 39).**

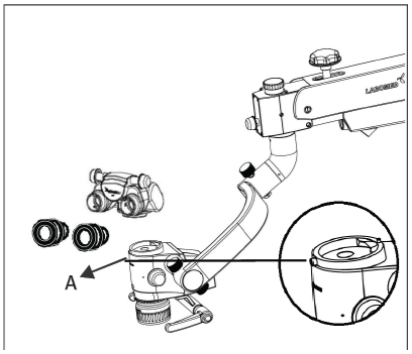


Fig. 40

5. Installing the head and eyepieces

- Take the observation head (as ordered) and the eyepieces out of the box. Referring to Fig. 40, loosen the tightening screw 'A' with the 2 mm Allen wrench (provided) and carefully tighten the observation head in position. Insert the eyepieces in both eye tubes and set both diopter scales to zero.

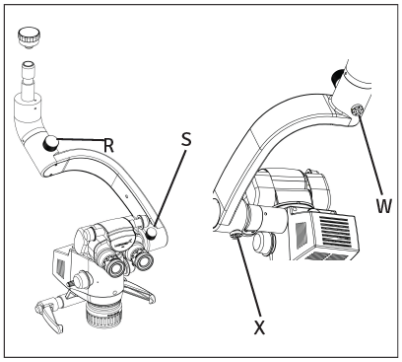


Fig. 41

6. Adjusting the counterbalancing force of the magnification changer
   - The counterbalancing mechanism has hex screws X and W for adjusting the force by turning them clockwise or counterclockwise on the carrier arm, to compensate for extra accessory loads (see Fig. 41).
   - Knobs S and R lock the fluid arm in any position.

Note: The counterbalancing mechanism is balanced and factory set for the ordered configuration. It requires adjustment only if extra loads, such as cameras, are added by the customer after installation.

17. ELECTRICAL CONNECTIONS

1. **Connect the power cable to the AC inlet socket (1) at the back of the swivel arm, as shown in Fig. 42. Switch on the power with the ON/OFF switch (2).**

2. **Set potentiometer knob C (Fig. 42a) to mid-range.**

3. **Connect 4-pin connector A to B to power the LED system of the microscope (see Fig. 42a).**
4. **Remove the dust cover from the CMO.**

5. **The microscope is now ready for use.**

6. **Adjust the light intensity as required with the potentiometer knob.**

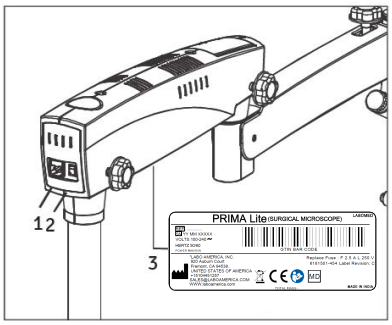


Fig. 42

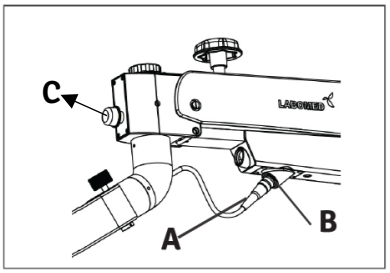


Fig. 42a

⚠ **CAUTION: The power supply has a universal input of 100–240 V AC, 50/60 Hz. Before plugging in, follow the instructions on the electrical label at the bottom of the arm, shown as (3) in Fig. 42.**

⚠ **WARNING: 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. 43.

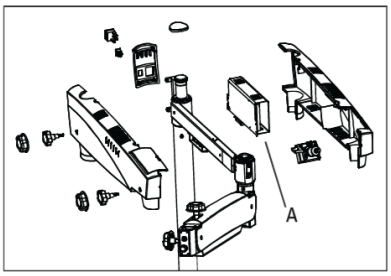


Fig. 43

2. REPLACING THE FUSE

The fuse holder is part of the AC inlet, near the ON/OFF switch. Open the fuse compartment with a flat-head screwdriver. The compartment holds two fuses: the live fuse and a spare. Replace the blown fuse with the spare and close the fuse compartment. For the fuse rating, see the label shown in Fig. 44.

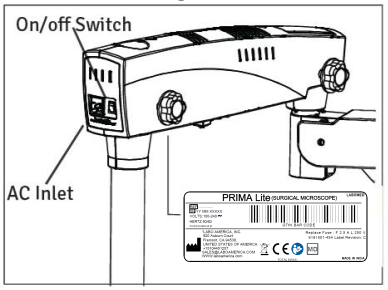
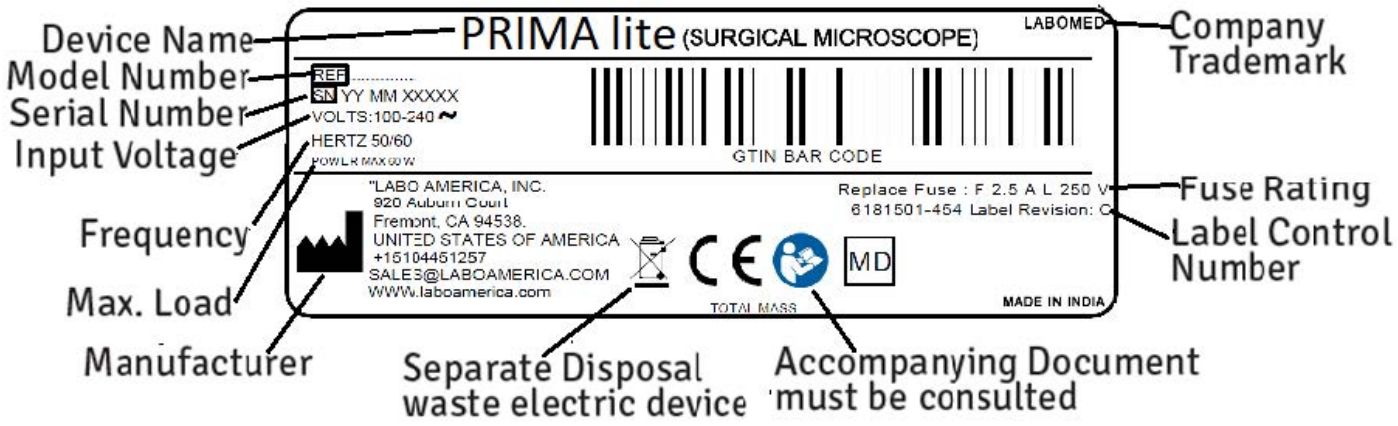


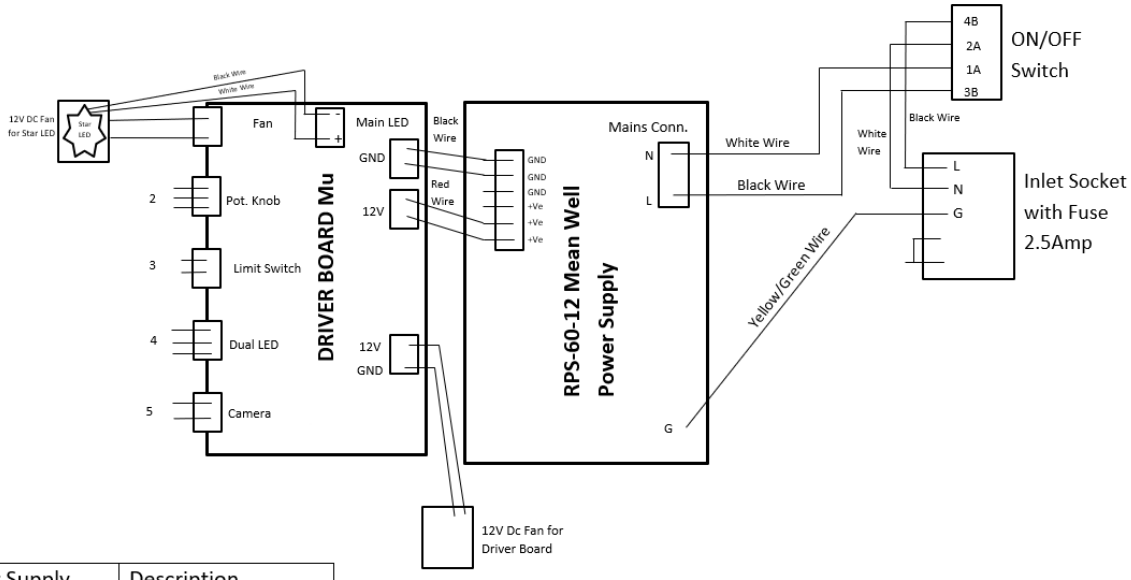
Fig. 44

3 . DATA PLATE FOR THE PRIMA lite MICROSCOPE



4 PRIMA WIRING DIAGRAM

.



Wire Marking No.	Power Supply Marking	Description
2	KNOB	Potentiometer Wire
3	SW	Limit Switch Wire
4	DLED	Dual LED Wire
5	CAM	Camera Wire

18. CONTROL ELEMENTS

1. ON/OFF SWITCH

The switch is on the back of the swivel arm (see Fig. 42). In position 'I' the microscope is on and the cooling fan runs.

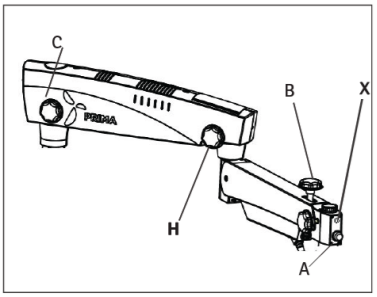


Fig. 45

⚠ **Before switching on, set the intensity control knob to the middle, not to minimum; otherwise there is no light at the CMO.**

To extend the life of the LED, switch the unit OFF when the microscope is not in use for long periods.

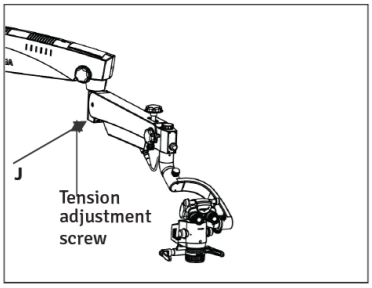


Fig. 46

2. INTENSITY CONTROL KNOB

The knob is on the front of the suspension arm, shown as (A) in Fig. 45. Use it to adjust the brightness of the field of view as required.

3. SWIVEL ARM LOCKING KNOB

Turn this knob, shown as (C) in Fig. 45, clockwise to lock the swivel arm in the desired position after initial focusing on the treatment area.

4. SUSPENSION ARM LOCKING KNOB

Turn this knob, shown as H in Fig. 45, clockwise to lock the rotation of the suspension arm in the desired position.

5. SUSPENSION ARM UP/DOWN LOCKING KNOB

Turn this knob, shown as B in Fig. 45, clockwise to lock the up/down movement of the suspension arm at the desired height.

6. ADJUSTING THE TENSION ON THE ROTARY MOTION OF THE INCLINED CARRIER

See Section 22, TENSION ADJUSTMENT, for details.

CONTROL ELEMENTS (continued)

7. FILTER CHANGE LEVER

See Fig. 47 (L). The filter change lever is on the left side of the magnification changer housing. Pull the lever out to change the filter and push it back for the main light.

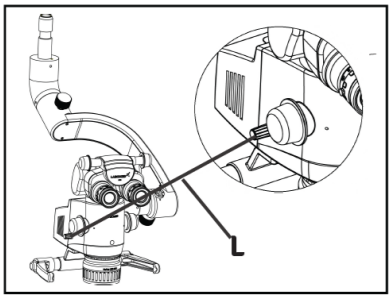


Fig. 47

8. BRAKES

Press down the two brakes on the caster wheels to lock the stand against unwanted movement. To unlock, press the upper part of the brake. See (M) in Fig. 48.

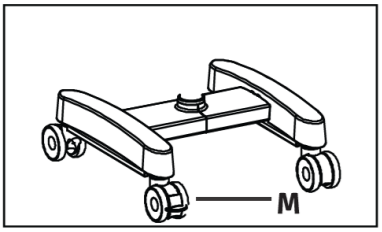


Fig. 48

9. LED FEATURES

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

19. INSTRUCTIONS FOR USING THE MICROSCOPE

WARNING: INSTRUMENT IS UNSAFE FOR MRI ENVIRONMENT.

SETTING UP THE MICROSCOPE

1. After positioning the microscope at the treatment area, lock all the brakes on the base wheels for stability.

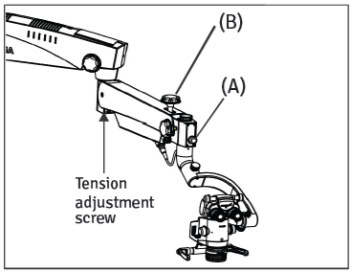


Fig. 49

2. The tension of the microscope is factory set for the ordered configuration. The user can still adjust the up and down force by turning the Allen screw clockwise or counterclockwise with an 8 mm Allen wrench. See Section 22 for details, and Fig. 55 for the location of the tension adjustment screw.

3. After focusing on the area of interest, lock the up and down movement of the suspension arm with the locking knob (B) in Fig. 49.

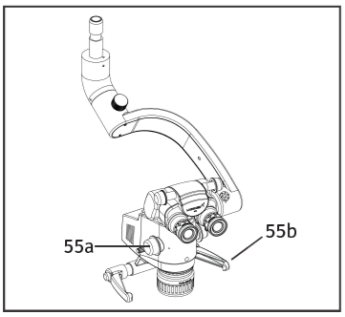


Fig. 50

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

5. Adjust the interpupillary distance on the IPD scale as required.

6. Set the diopter scales of both eyepieces to zero.

7. The illumination is controlled with the control knob (A), Fig. 49. Turn it clockwise or counterclockwise to obtain the desired illumination level.

SETTING THE MAGNIFICATION (SEE FIG. 50)

1. Set the highest magnification with one of the rotating knobs (55a) on the magnification changer.

2. Fine focusing is done with the CMO fine focus ring.

3. Center the focused area precisely in the field of view with the handles (55b).

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

5. Focus at the highest magnification. When you then change the magnification, every field of view stays in focus; only fine focusing is required for a sharp image.

MAIN MICROSCOPE

Objective lenses with focal lengths of 250 mm, 300 mm and 400 mm are available for different working distances.

Variable working distance CMOs (NuVar 7, NuVar 10 and NuVar 20) are also available on request. For details of the NuVar, see the brochure.

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

The standard equipment includes eyepieces with a magnification of 10× (option: 12.5×).

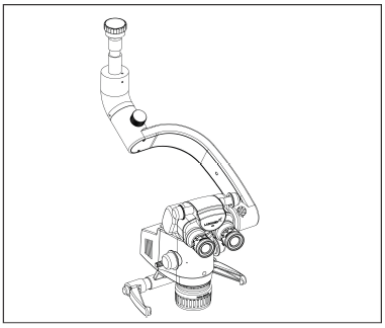


Fig. 51

CHANGING THE OBJECTIVES AND EYEPIECES

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

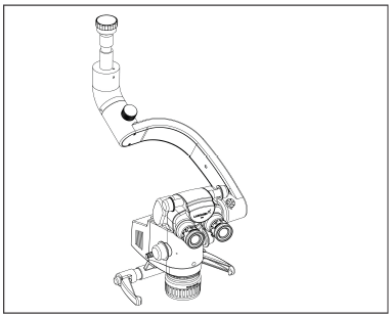


Fig. 52

20. SYSTEM CONFIGURATION DIAGRAM (PRIMA lite, Part No. 6181501)

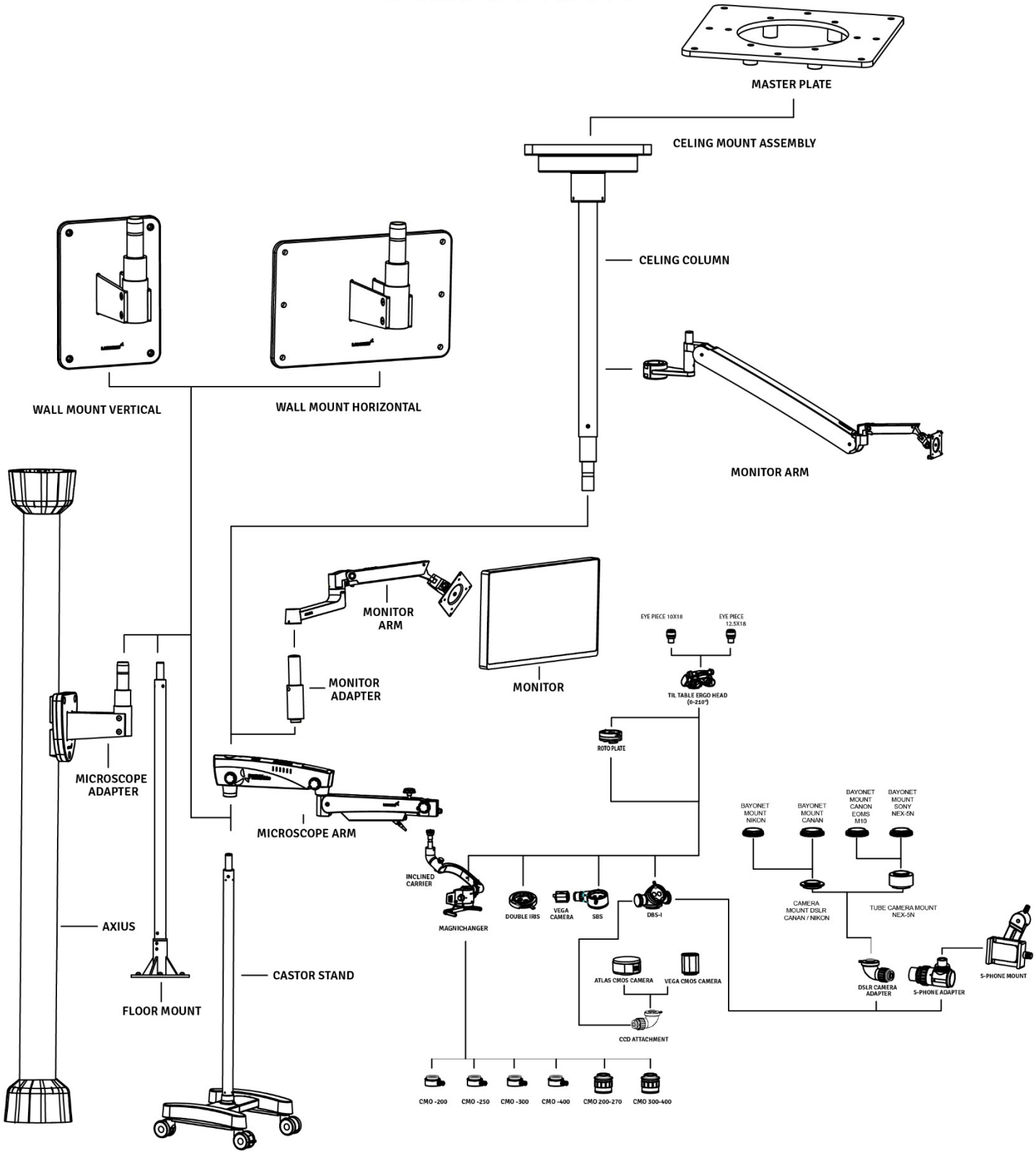


Fig. 53

21. 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 includes a built-in safety mechanism called "auto thermal cut-off", which is activated by thermistors when the LED temperature rises above 80 °C. The thermistor sensor then adds resistance to the circuit, which makes the LED blink to indicate a high LED temperature. Allow the LED to cool down before switching it on again.

22. TENSION ADJUSTMENT

After supplementary accessories are mounted, compensate for the additional load on the suspension arm by turning the tension control screw on the suspension arm clockwise or counterclockwise. See Fig. 54.

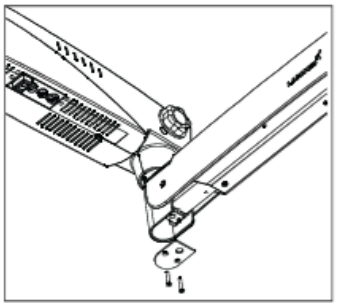


Fig. 54

1. **Remove the plate by unscrewing its two screws.**

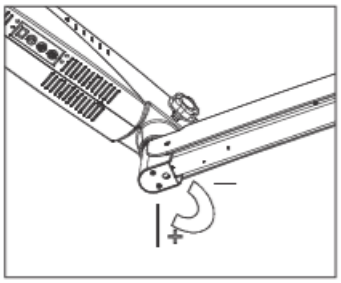


Fig. 55

2. **Loosen the two Allen bolts with a 4 mm Allen wrench as shown in Fig. 55.**
3. **Insert an 8 mm hex wrench in bolt (A), shown in Fig. 56, and turn it clockwise to increase the tension on the gas spring as required.**
4. **Retighten the two screws.**

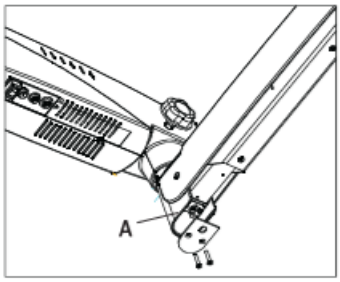


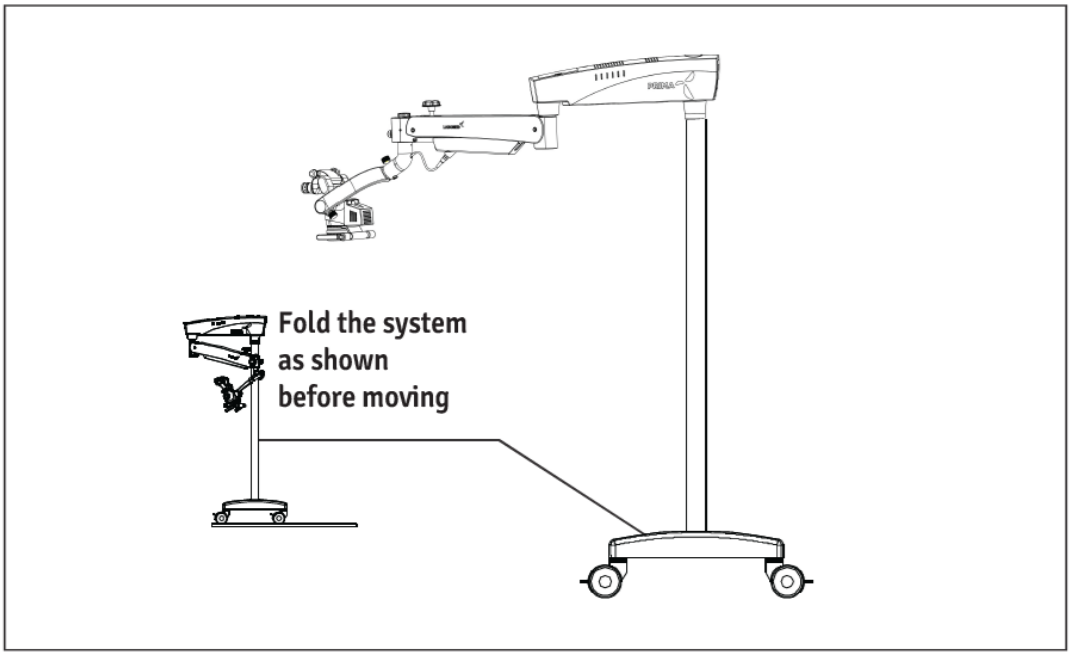
Fig. 56

5. **Refit the plate.**

23. MOVING THE SYSTEM



Position of the system for safe transportation



RELOCATING THE STAND

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

24. CARE AND MAINTENANCE

This instrument is a high-quality technical product and requires no special periodic maintenance if handled carefully. To ensure optimum performance and safe working order, check its safe functioning once every 12 months as shown in the table below. We recommend having this check performed by our service representative as part of regular maintenance. If a fault occurs that you cannot correct with the troubleshooting table, attach a sign to the instrument stating that it is out of order, and contact our service representative for service, parts or circuit diagrams.

Surgical microscope maintenance and service 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:

- Protect accessories from dust when not in use, e.g. with a dust cover.
- Remove dust with a rubber blower bulb and a soft brush.
- Clean lenses and eyepieces with special optics cleaning cloths and pure alcohol.
- Protect the microscope from moisture, fumes, acids and cosmetics. Do not store chemicals near it.
- Protect it from improper handling. Never install other device sockets or unscrew optical or mechanical parts unless this manual instructs you to.
- Protect the microscope from oil and grease. Never oil or grease the guide surfaces or mechanical parts.
- Remove coarse contamination with a damp disposable cloth.
- Use disinfectants based on the following ingredients: aldehydes, alcohols, quaternary ammonium compounds.

CARE AND MAINTENANCE (continued)

- Camera: clean the 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 an ultrasonic bath.
- LABOMED Maxi Lite coatings are fungus resistant. Cleaning as described above does not damage the coatings.

TROPICAL ENVIRONMENT/FUNGUS:

LABOMED applies certain safety precautions in 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 the occupational safety and health protection of persons who process contaminated products.

Current hospital hygiene and infection prevention regulations must be observed when preparing, cleaning and disinfecting the products.

INSTRUCTIONS

WORKPLACE:

Remove surface contamination with a paper towel.

REPROCESSING:

We recommend reprocessing the product immediately after use, or as required, according to the cleaning instructions below.

CLEANING AND SERVICING:

Needed: water, detergent, spirit, microfiber cloth

- Slightly moisten a linen or other soft cloth with running tap water (<40 °C) and a little detergent, and clean the metal and plastic parts.
- Clean all optical components with spirit or alcohol.
- Dry the optical components with a microfiber cloth and the rest of the product with a paper towel.
- For servicing, contact the LABOMED after-sales service department.

AUTOCLAVING:

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

Temperature: 134 °C
Time: 10 minutes
Instrument: **standard** autoclave

25. 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 normal household bleach (sodium hypochlorite 5%), strength 5000 ppm (10 parts water to 1 part bleach).

2. **For cleaning optical surfaces:**

Use 70% isopropyl alcohol.

PROCEDURE

- Take a muslin cloth.
- Moisten it until it feels wet.
- Disinfect/clean the surface gently, without much hand pressure, by drawing the wipe from one end to the other. Do not rub the parts.

NOTE:

1. **Wear a mask and gloves while cleaning and disinfecting.**
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.**

26. AMBIENT CONDITIONS

For operation	Temperature Rel. humidity (without condensation) Air pressure	+10 °C ... +40 °C 30% ... 90% 700 hPa ... 1,060 hPa
For transportation and storage	Temperature Rel. humidity (without condensation) Air pressure	−40 °C ... +70 °C 10% ... 100% 500 hPa ... 1,060 hPa

The device has been subjected to the conformity assessment procedure in accordance with Article 52(7) and 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 Regulation (EU) 2017/745 (MDR). The CE mark on the microscope indicates conformity with the legal requirements.

27. DISPOSAL

Disposal of the instrument must comply with locally applicable laws and regulations.

28. 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 properly inserted in the microscope arm	Insert the light guide fully for maximum illumination
Insufficient illumination	Brightness level set too low	Adjust the brightness control knob
	Light guide not properly 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 illuminator and contact the service department
	Switched off by the limit switch on the suspension arm system	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 visible in the field of view	Magnification changer not indexed properly	Index the magnification changer properly

29. 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 10×/18 mm with retractable eyecups, diopter adjustment ±5 D and diopter lock Optional: WF 12.5×/18 mm, diopter adjustment ±5 D, fixed eyecups**
Magnification changer	**5 steps: 0.4×, 0.6×, 1.0×, 1.6× and 2.5×**
FOV (field of view)	**66–10.6 mm**
Magnification range	**2.7×–17.0×**
Objective	**F = 250 mm, manual fine focus**
Built-in filters	**Yellow or green**
Vertical movement of arm	**550 mm**
Microscope carrier	**Inclined 120° carrier**
Accessories	**Double beam splitter and camera adapters**
Light source	**27 W LED; maximum intensity 100,000 lux**
Power consumption	**60 W maximum**
Input voltage	**100–240 V; 50/60 Hz**
Stand	**Stable, sturdy H-base stand with 2 lockable wheels**
Stand height in horizontal position	**1100 mm**
Base (dimensions)	**600 mm wide, 629 mm long**
Stand height	**1733 mm**
Net weight	
Microscope arm with magnification changer, head and eyepieces	**19 kg**
H-base	**58 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**

30. GUIDANCE TABLES

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

Guidance and Manufacturer's Declaration - Electromagnetic Emissions		
The Prima is intended for use in the electromagnetic environment specified below. The customer or user of the Prima 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 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 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 and Manufacturer's Declaration
Electromagnetic Immunity
All Equipment and Systems

Guidance and Manufacturer's Declaration - Electromagnetic Immunity

The Prima is intended for use in the electromagnetic environment specified below. The customer or user of the Prima 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 synthetic, 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 requires continued operation during power mains interruptions, it is recommended that the Prima 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**	**The power frequency magnetic field should be that of a typical 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 is intended for use in the electromagnetic environment specified below. The customer or user of the Prima 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, 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)(√P)
			d = (3.5/E1)(√P)
			80 to 800 MHz
			d = (7/E1)(√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 level 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 in the location in which the ME equipment or ME system is used exceeds the applicable RF compliance level above, 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, 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

The Prima is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or user of the Prima can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the Prima 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)(√P)	Separation (m) 80 MHz to 800 MHz d = (3.5/E1)(√P)	Separation (m) 800 MHz to 2.5 GHz d = (7/E1)(√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.

31. GLOSSARY

Ametropia compensation	**Compensation of shortsightedness or farsightedness. This can be done for each eye with the two individual eyepieces (range: +5 to −5 diopters).**
Working distance	**Distance from the front lens to the object plane (250 mm).**
Color temperature	**The color characteristic of a light source. Color temperature describes whether a light source is warm or cold relative to the color of natural light. The unit of measure for color temperature is the kelvin (K).**
Light field diameter	**The size of the field illuminated at a distance of 250 mm.**
Field of view diameter	**The visible area of an object that can be 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. The unit of measure for illumination intensity is the 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 enlarged image produced by the microscope is viewed.**
Convergent beam path	**The two light beams for the right and left eye converge at a point 250 mm in front of the front lens, which corresponds to the working distance. The eye therefore does not have to focus on this point on its own, as it does with a parallel beam path.**
White balance	**White balance calibrates the camera to the color temperature of the light at the location.**
DSLR camera	**(Digital single-lens reflex) camera with a digital imaging sensor**
CCD camera	**(Charge-coupled device) camera with a sensor that stores a charge and moves it out of the photo sensor 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 (to the eyes and to the side port) for simultaneous viewing and photography, videography or co-observation. The light is distributed 70% to the eyes and 30% to the side ports.**
SBS-R	**Rear-view single beam splitter**
Yellow filter	**1. Protects the surgeon's eyes from phototoxicity by filtering harmful blue wavelengths. 2. Prevents premature hardening of dental composite resin.**
Green filter	**Improves the visibility of blood vessels and tissue by making blood vessels appear darker.**

32. WARRANTY

This product is warranted by LABOMED against defects in material and workmanship under normal use for one year from the date of invoice to the original purchaser. (An authorized dealer is not 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 made in writing to the LABOMED factory or to the authorized dealer that made the original sale, and must be accompanied by a copy of the purchaser's invoice.

This warranty is in lieu of all other warranties, express or implied. All implied warranties of merchantability or fitness for a particular use are hereby disclaimed. No representative or other person is authorized to assume any other obligation 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 the 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 take great care in selecting, checking, rechecking and packing to eliminate the possibility of error. If any shipping errors are discovered:

1. **Carefully go through the packing material to make sure nothing was inadvertently overlooked when the unit was unpacked.**
2. **Call the dealer from whom you purchased the product and report the shortage. The materials are packed at the factory, and nothing 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, on delivery, the outside of the packing case shows evidence of rough handling or damage, ask the transportation company's agent to make a "Received in Bad Order" notation on the delivery receipt. If concealed damage is found when unpacking within 48 hours of delivery and there is no exterior evidence of rough handling, ask the transportation company to make out a "Bad Order" report. This procedure is necessary 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 the 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 practice. 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, address, license no. and phone number:

Client signature: **Contractor signature:**

Date: **Date:**

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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**		**S.Bal**
1.4	**Mar. 2025**	**DCR/07/2025**	Max. weight symbol added; wall mount diagrams added for clarity	**S.Bal**
1.5	June 2025	DCR/14/2025	corrected (MDR Regulation (EU) 2017/745	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

LABOMED
ideas for vision

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