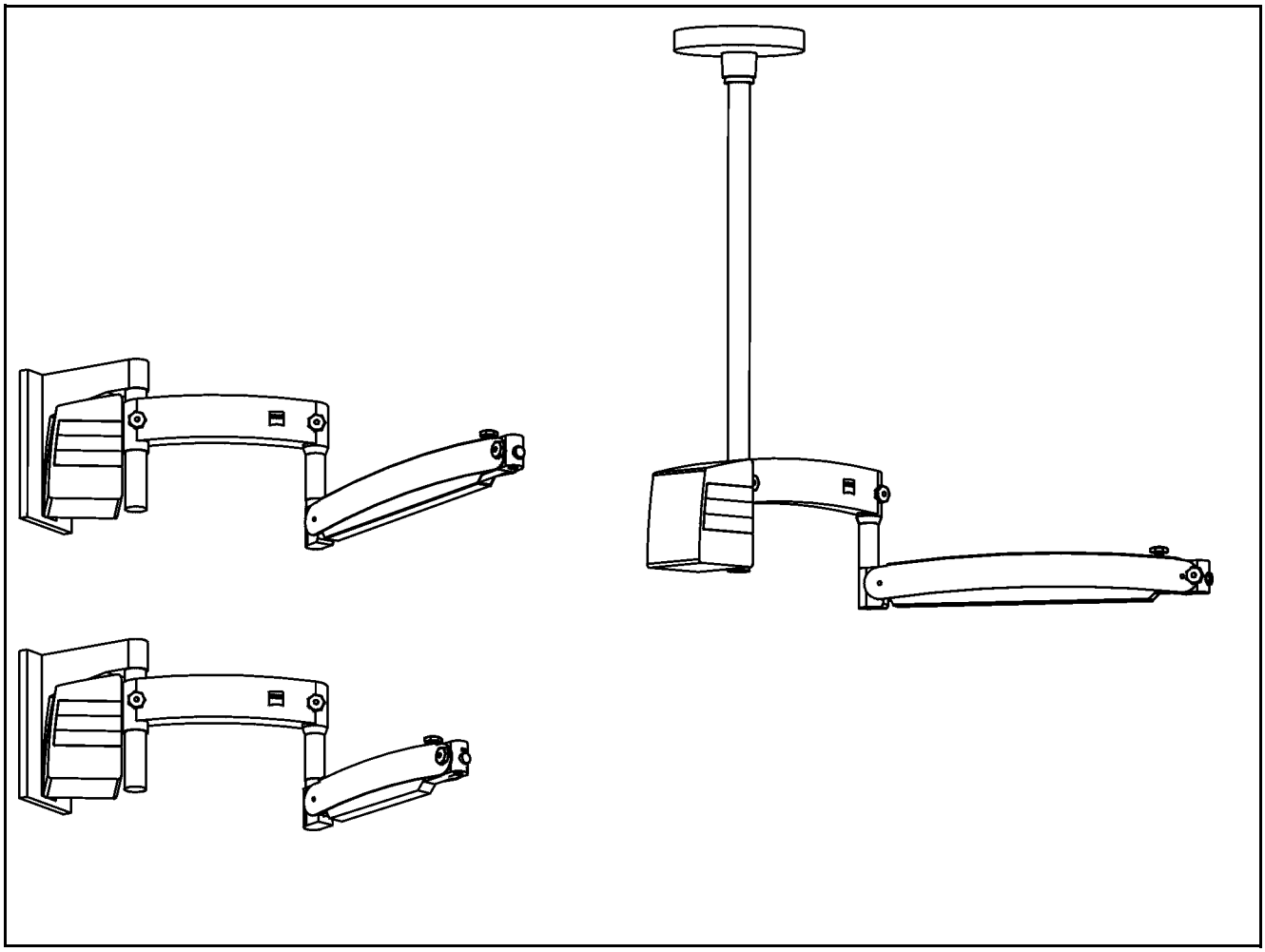
S100 Ceiling Mount
S100 Wall Mount



Planning Manual

M-30-1385-en

Issue 6.0

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Key to symbols

Different symbols used in this user's manual draw your attention to safety aspects and useful tips. The symbols are explained in the following.

Warning!
The **warning triangle** indicates potential sources of danger which may constitute a risk of injury for the user or a health hazard.

Caution:
The **square** indicates situations which may lead to malfunction, defects, collision or damage of the instrument.

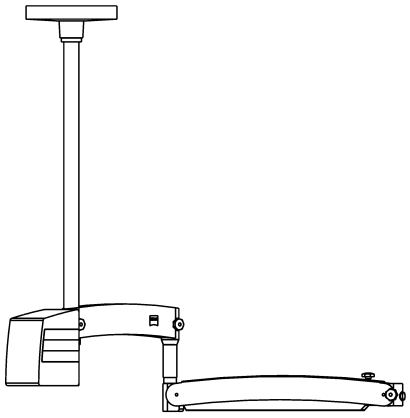
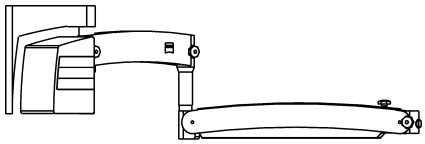
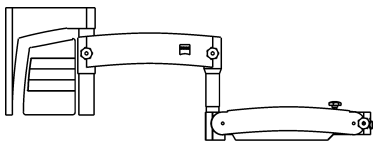
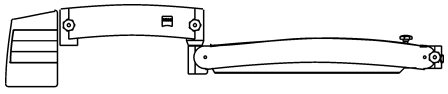
Note:
The **hand** indicates hints on the use of the instrument or other tips for the user.

OPMI®

OPMI® is a registered trademark of Carl Zeiss.

Contents

S100 product range

Ceiling mount	Cat. No.: 1151-515	
		
Wall mounts	**with 950mm suspension arm**	**with 600 mm suspension arm**
	Cat. No.: 1080-347	Cat. No.: 1148-883
		
Support units		
for attachment to external examination unit,	**including light guide and CZ illumination module**	**including light guide**
	Cat. No.: 1095-091	Cat. No.: 1095-094
		

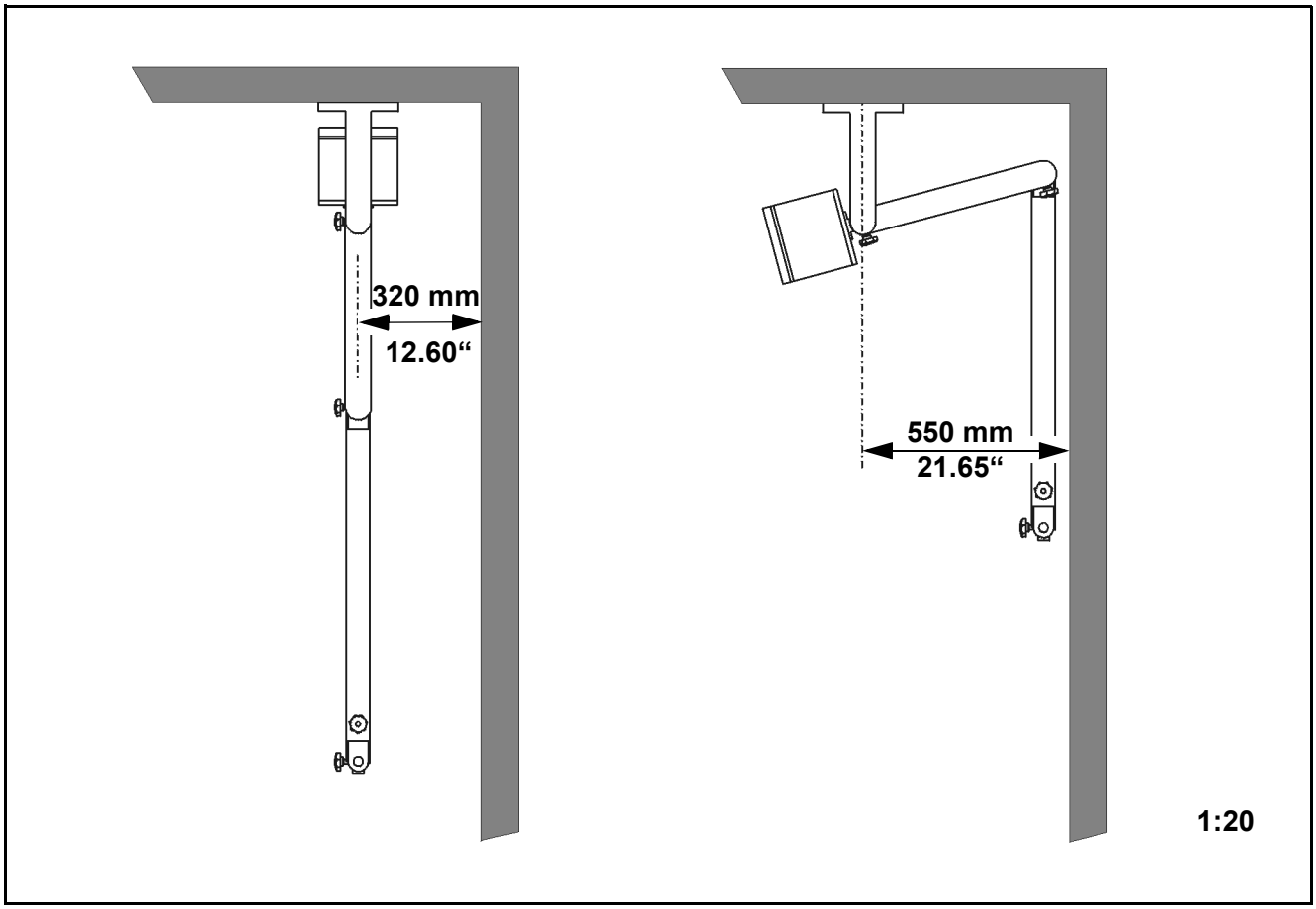
General technical data

Minimum distances and pivot points

Minimum distances

For the installation of the wall mount, please observe the necessary minimum distances from walls as a function of the selected standby position; also see the drawing below. Please also make sure that the mount cannot collide with doors or other examination configurations.

Any collisions with doors and other examination configurations must also be avoided in the case of the ceiling mount.



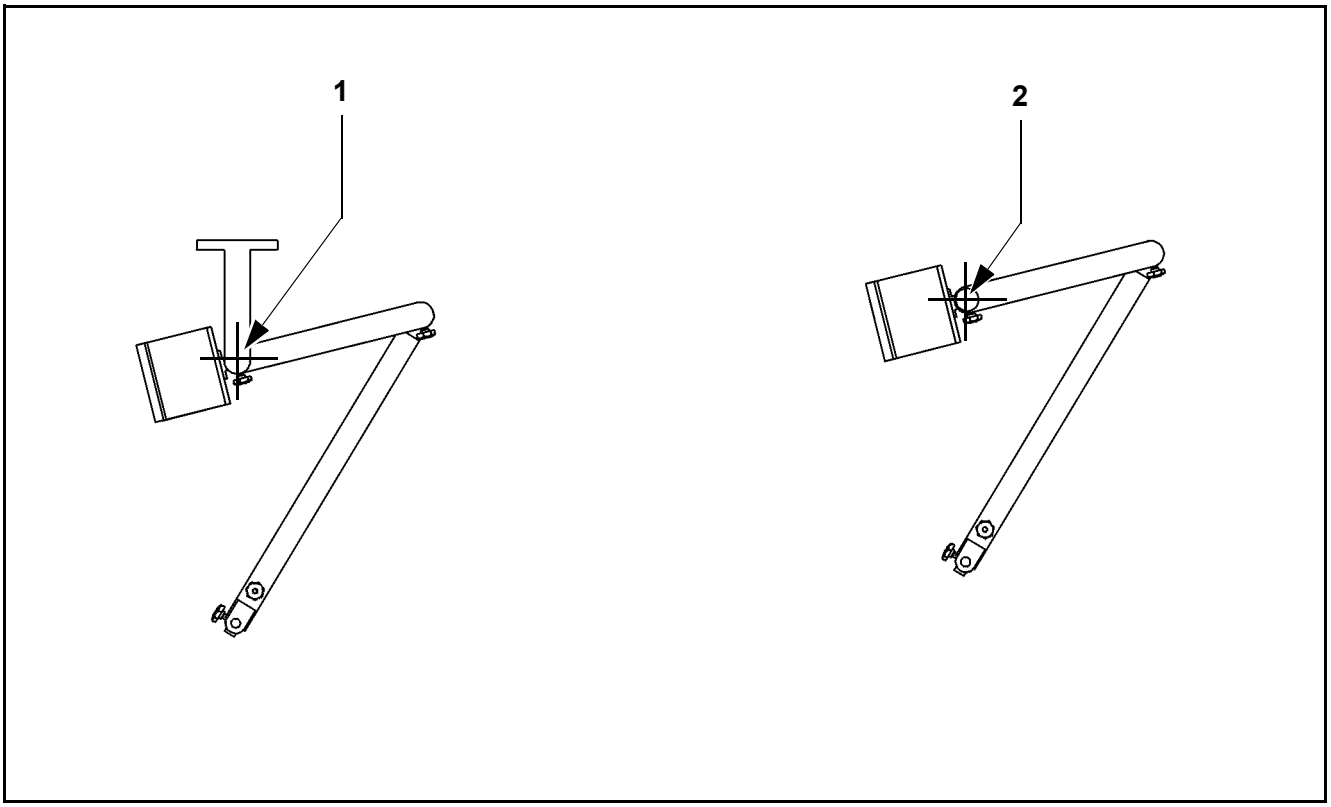
Determining the pivot points

The specifications for the installation areas always refer to the pivot points of the mounts. The illustration below shows you the positions of the pivot points.

Key

1 Pivot point of wall mount

2 Pivot point of ceiling mount



Motion ranges of S100 suspension systems

Motion range of S100 ceiling mount

Notes:

– The motion and work range of the suspension system is determined by the 45° and 122° positions between the suspension arm and the carrier arm. The system can be easily moved between these two positions, allowing reliable positioning of the surgical microscope.
Plan the location of the suspension system relative to the patient in such a way that you normally work exactly in the middle between these two positions. It is possible to move the arms a little beyond the positions given.

– The ceiling mount provides a circular motion and work range of 360°. This is achieved by the swivel range of the carrier arm mounted on the column of 163° and the possibility of also folding the suspension arm toward the carrier arm in the opposite direction.

Key

1 45° position of the suspension arm relative to the carrier arm, corresponds to a radius of 700 mm (27.56")

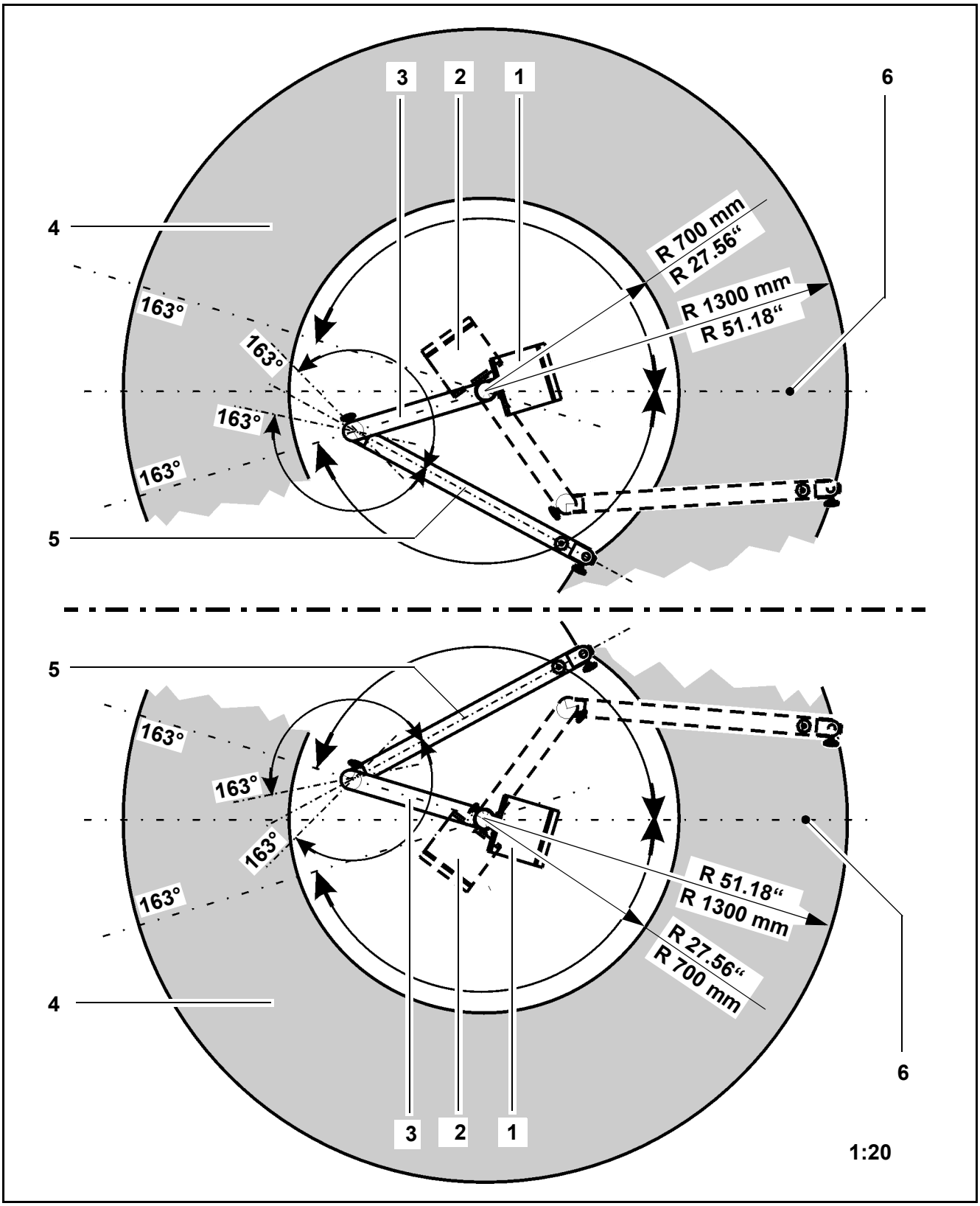
2 122° position of the suspension arm relative to the carrier arm, corresponds to a radius of 1,300 mm (51.18")

3 Carrier arm, length 500 mm (19.69"), provides a swivel range of ±163° about the column, supports the suspension arm

4 Motion and work range of the ceiling mount

5 Suspension arm, length 950 mm (37.40"), provides a swivel range of ±163° relative to the carrier arm
Caution:
When planning and installing the mount, make sure that the orientation of the swivel range is correct.

6 Center of the carrier arm's swivel range relative to the ±163° stops
Caution:
When planning and installing the mount, make sure that the orientation of the swivel range is correct.


3
2
1
6
4
163°
163°
163°
163°
R 700 mm
R 27.56“
R 1300 mm
R 51.18“
5
5
163°
163°
163°
163°
R 51.18“
R 1300 mm
R 27.56“
R 700 mm
4
6
3
2
1
1:20

Motion range of the wall mount with a 950mm suspension arm

Notes:

– The motion and work range of the suspension system is determined by the 45° and 122° positions between the suspension arm and the carrier arm. The system can be easily moved between these two positions, allowing reliable positioning of the surgical microscope.
Plan the location of the suspension system relative to the patient in such a way that you normally work exactly in the middle between these two positions. It is possible to move the arms a little beyond these positions.

– The wall mount with a 950mm suspension arm provides a semi-circular motion and work range of 180°. This is achieved by the swivel range of the carrier arm of 105° and the possibility of also folding the suspension arm toward the carrier arm in the opposite direction.

Key

1 45° position of the suspension arm relative to the carrier arm, corresponds to a radius of 700 mm (27.56")

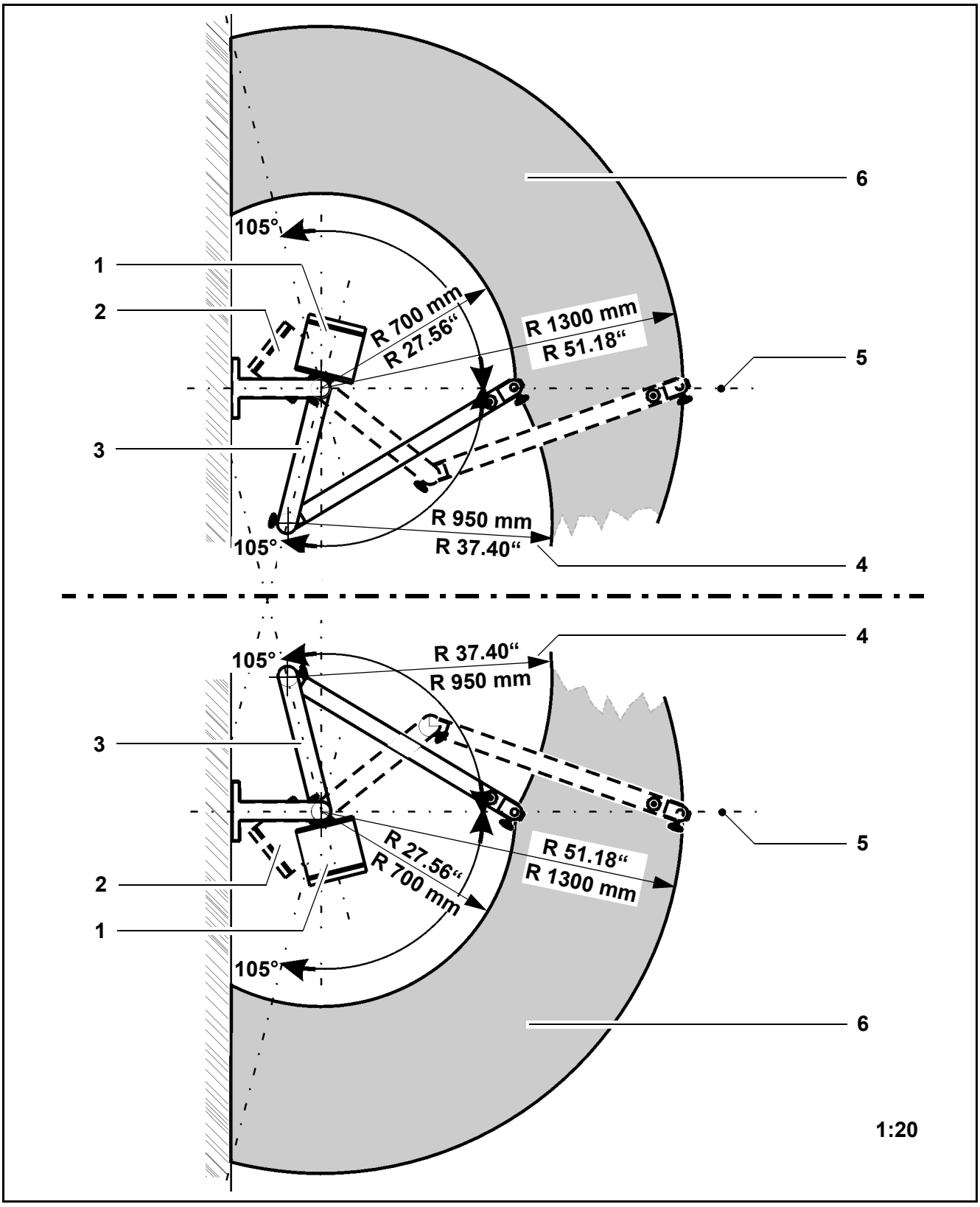
2 122° position of the suspension arm relative to the carrier arm, corresponds to a radius of 1,300 mm (51.18")

3 Carrier arm, length 500 mm (19.69"), provides a swivel range of ±105°, supports the suspension arm

4 Length of the suspension arm, 950 mm (37.40")

5 Center of the carrier arm's swivel range relative to the ±105° stops

6 Motion and work range of the wall mount


105°
1
2
3
R 700 mm
R 27.56“
R 1300 mm
R 51.18“
5
6
R 950 mm
R 37.40“
4
105°
4
R 37.40“
105°
R 950 mm
3
5
R 27.56“
R 700 mm
R 51.18“
R 1300 mm
2
1
105°
6
1:20

Motion range of the wall mount with a 600mm suspension arm

Notes:

– The motion and work range of the suspension system is determined by the 45° and 122° positions between the suspension arm and the carrier arm. The system can be easily moved between these two positions, allowing reliable positioning of the surgical microscope.
Plan the location of the suspension system relative to the patient in such a way that you normally work exactly in the middle between these two positions. It is possible to move the arms a little beyond these positions.

– The wall mount with a 600 mm suspension arm provides a semi-circular motion and work range of 180°. This is achieved by the swivel range of the carrier arm of 105° and the possibility of also folding the suspension arm toward the carrier arm in the opposite direction.

Key

1 45° position of the suspension arm relative to the carrier arm, corresponds to a radius of 700 mm (27.56")

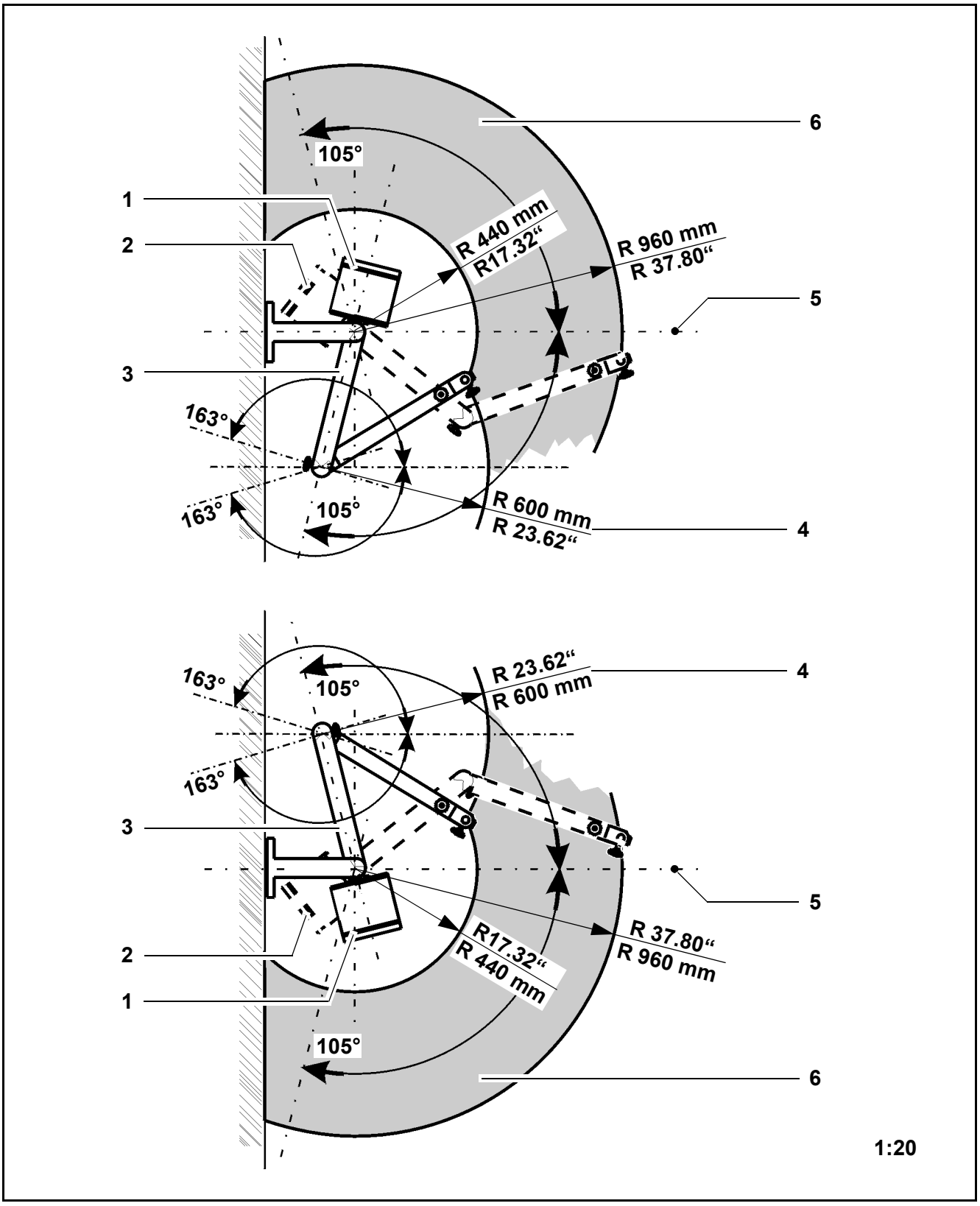
2 122° position of the suspension arm relative to the carrier arm, corresponds to a radius of 1,300 mm (51.18")

3 Carrier arm, length 500 mm (19.69"), provides a swivel range of ±105°, supports the suspension arm

4 Suspension arm, length 600 mm (23.62"), provides a swivel range of ±163° relative to the carrier arm
Caution:
When planning and installing the mount, make sure that the orientation of the swivel range is correct.

5 Center of the carrier arm's swivel range relative to the ±105° stops

6 Motion and work range of the wall mount

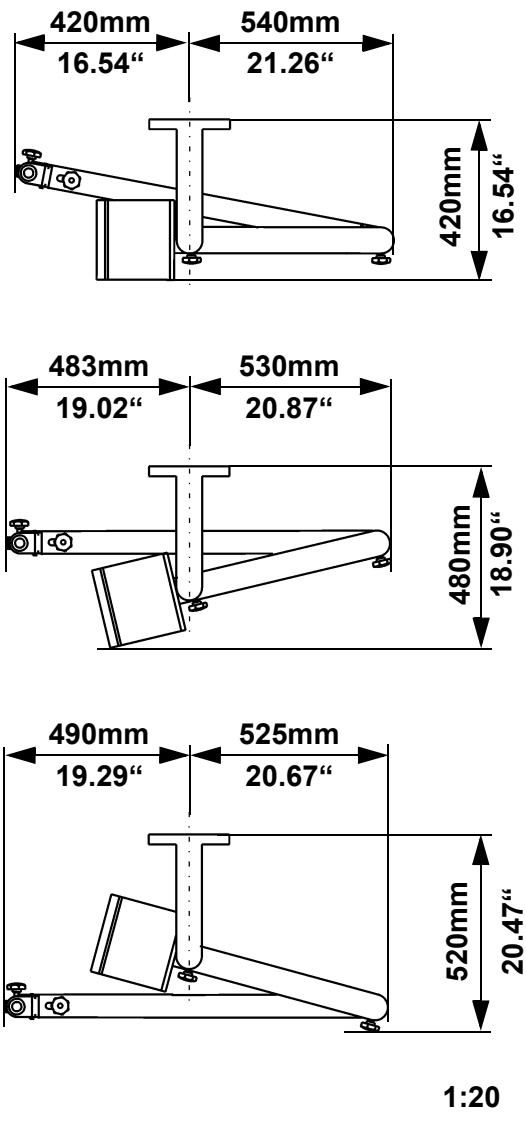

105°
1
2
R 440 mm
R17.32“
R 960 mm
R 37.80“
6
5
3
163°
163°
105°
R 600 mm
R 23.62“
4
163°
105°
R 23.62“
R 600 mm
4
3
5
2
1
R17.32“
R 440 mm
R 37.80“
R 960 mm
105°
6
1:20

Standby positions

Possible standby positions of the wall mounts

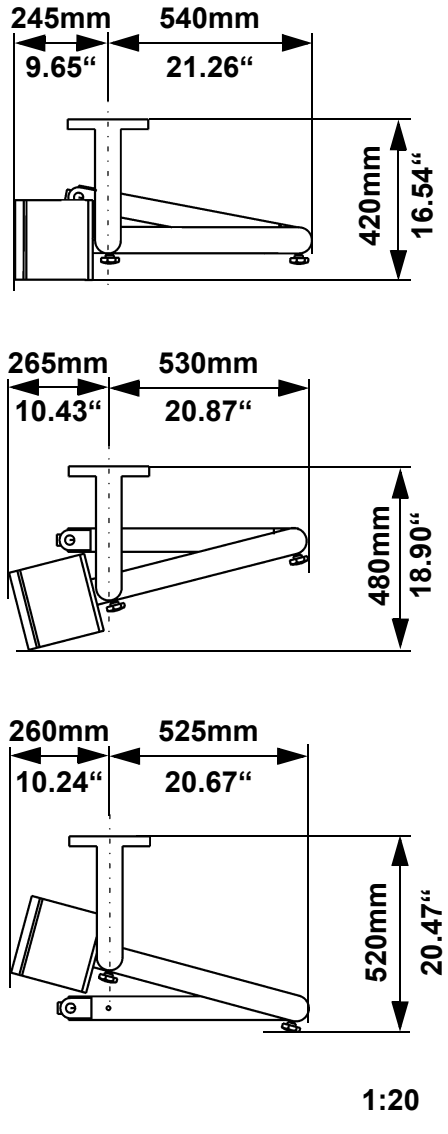
The following illustrations show the possible standby positions for the wall mounts with 950mm and 600mm suspension arms.

Wall mount with a 950mm suspension arm



1:20

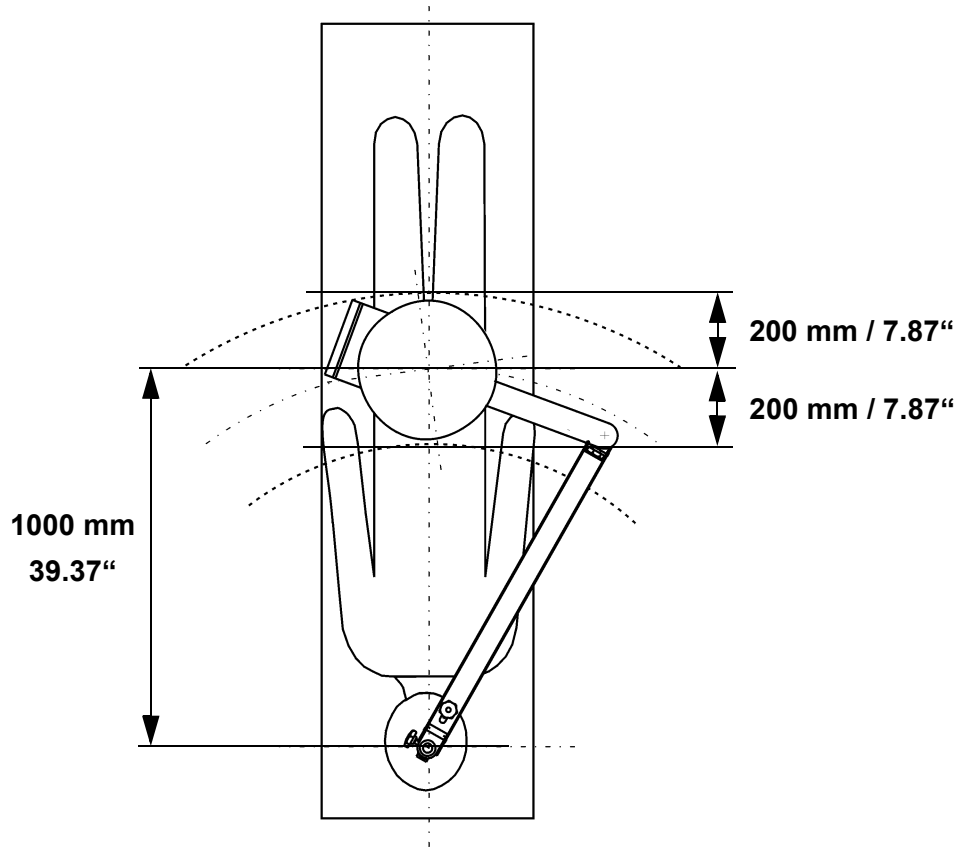
Wall mount with a 600mm suspension arm



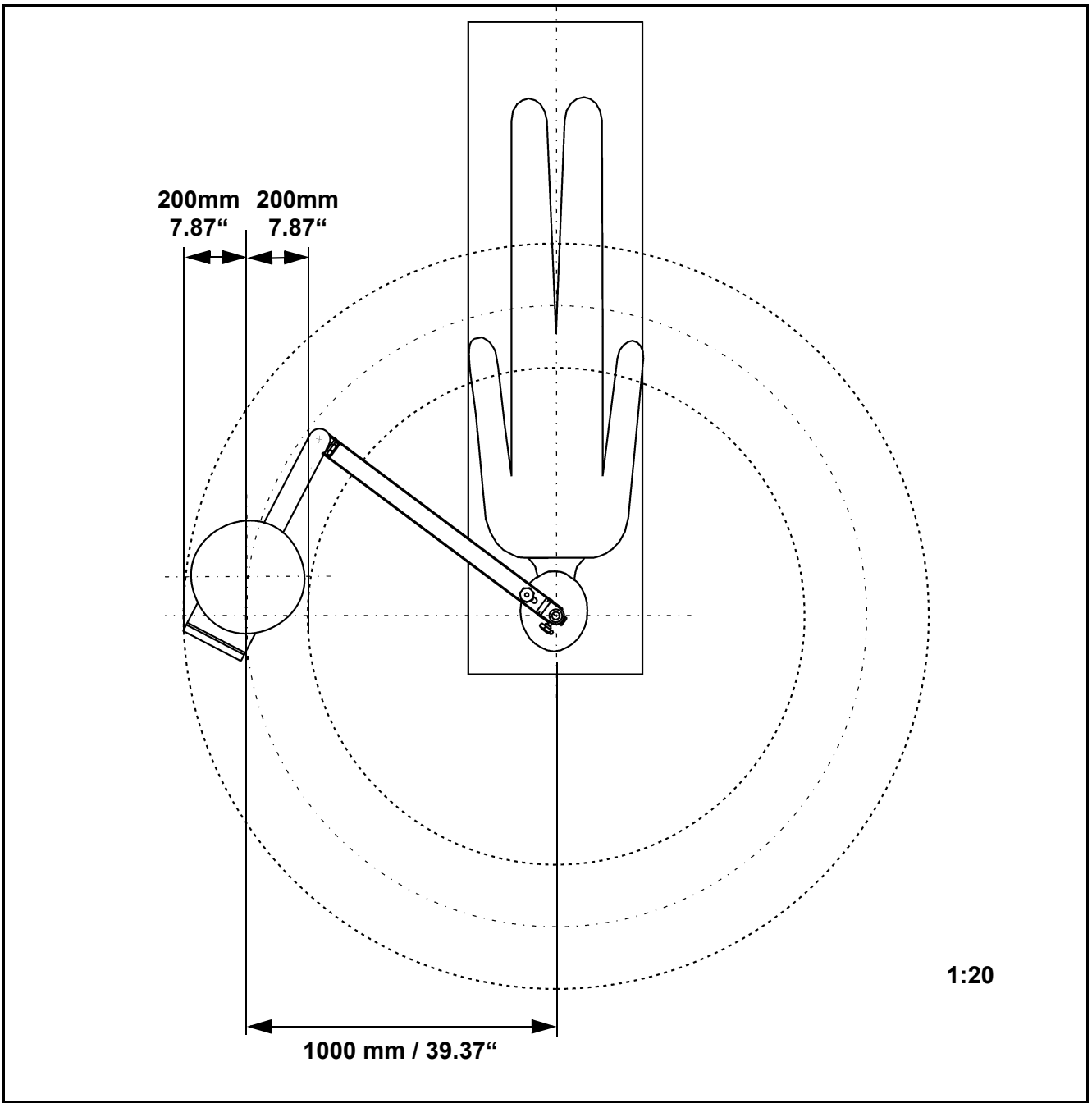
1:20

Installation sites in the OR or the treatment room

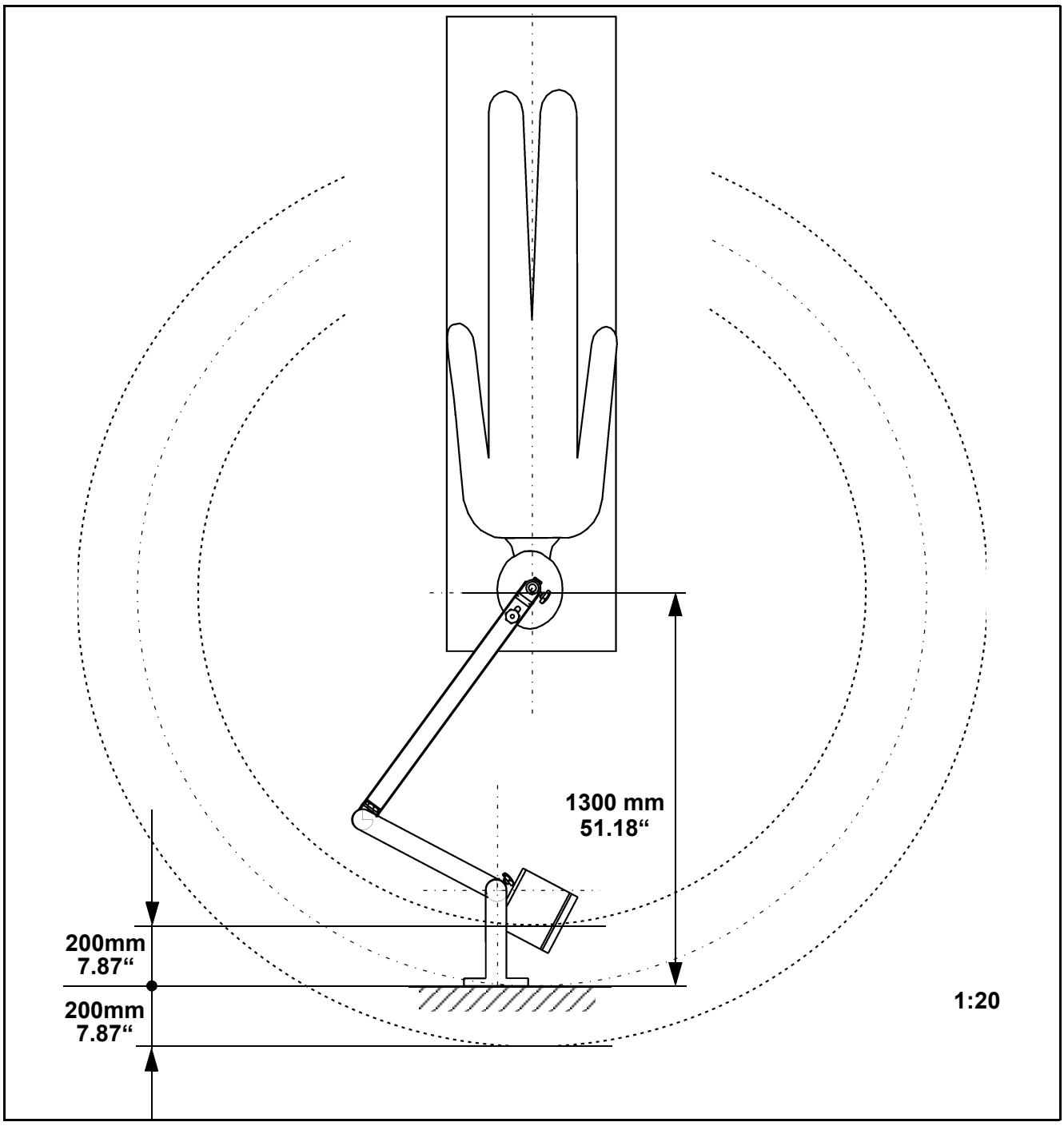
Ceiling mount: ideal installation above the patient



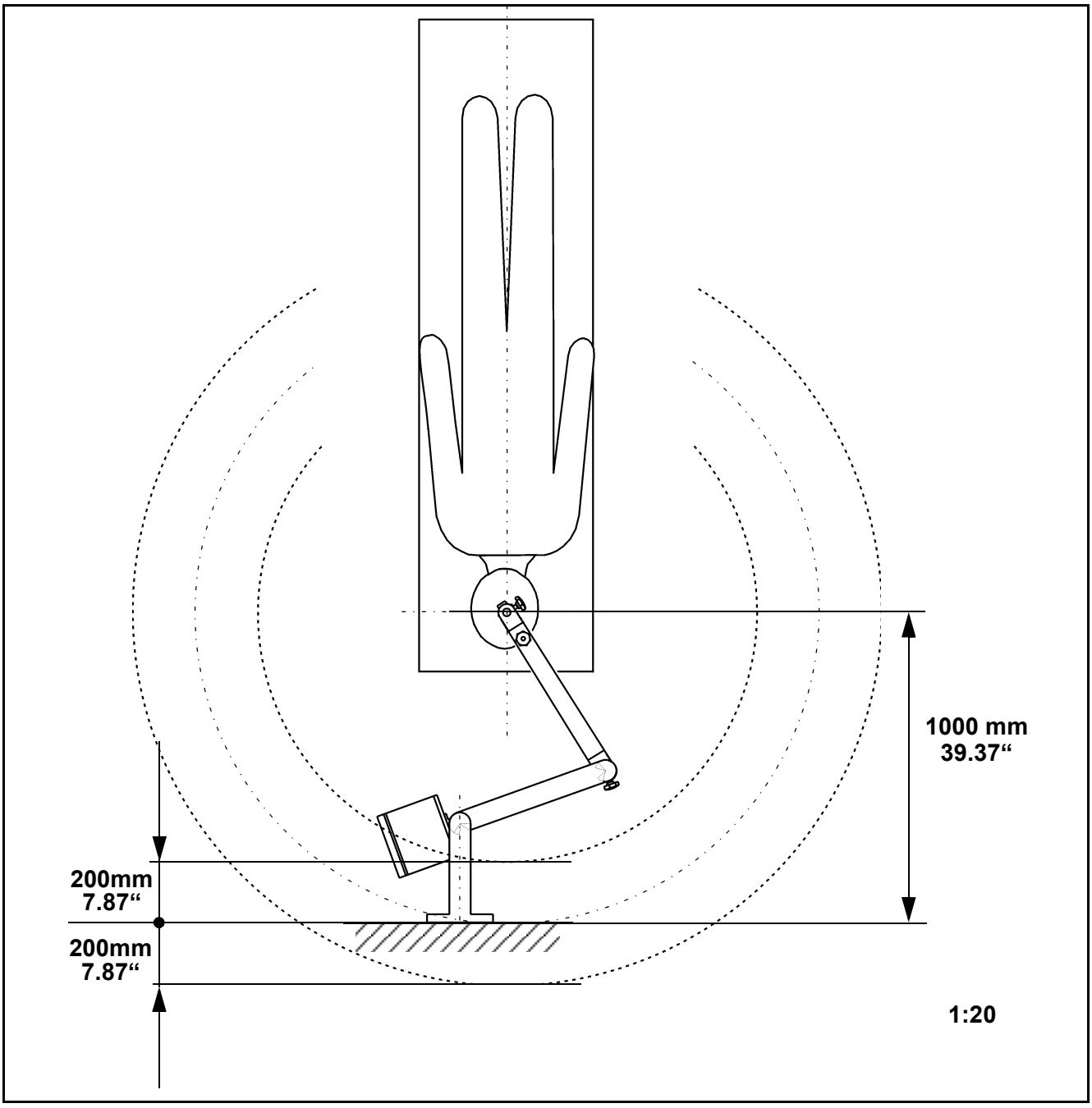
Ceiling mount: alternative installation to the patient's side



Wall mount with a 950mm suspension arm, possible installation sites



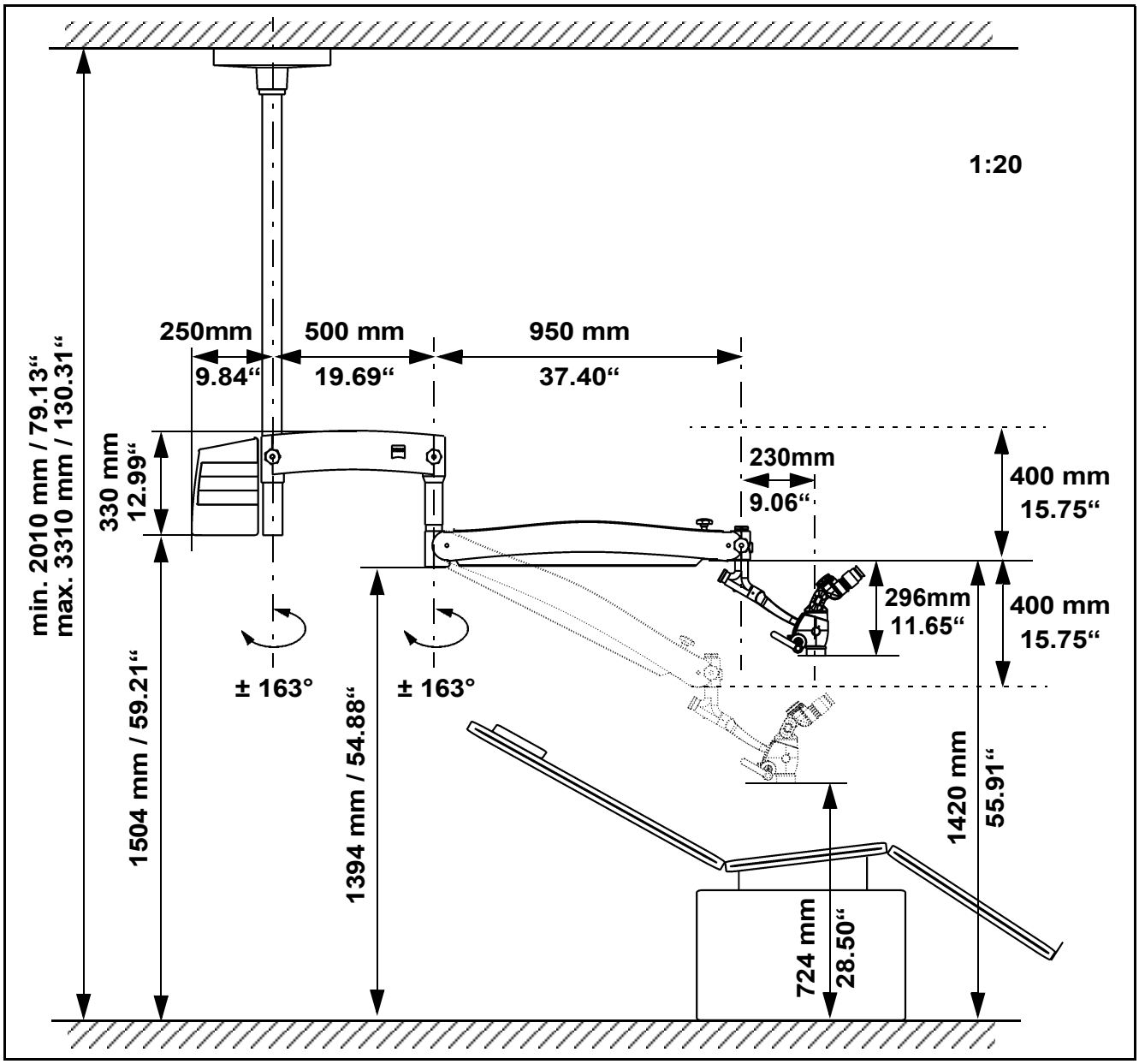
Wall mount with a 600mm suspension arm, possible installation sites



Technical data / Dentistry

Ceiling mount for dentistry

Dimensions of ceiling mount used in dentistry



Determining the ceiling height for dentistry

Caution:

- Taking the notes into account, please answer the following questions. Only then will Carl Zeiss be able to process your order properly and to install the ceiling mount correctly.
- Enclose a completed copy of this page with each order.

Order No.:

Customer address / Delivery address:

- Please measure exactly and enter the results here:

Ceiling height
(room height from floor to structural ceiling): ..... **mm**

The column length of the ceiling mount will be adapted to the ceiling height specified in the order.

For **dentistry**, determine the column length of the ceiling mount as follows:

Ceiling height - 1810 mm (71.26") = column length

..... mm - 1810 mm (71.26") = ... mm

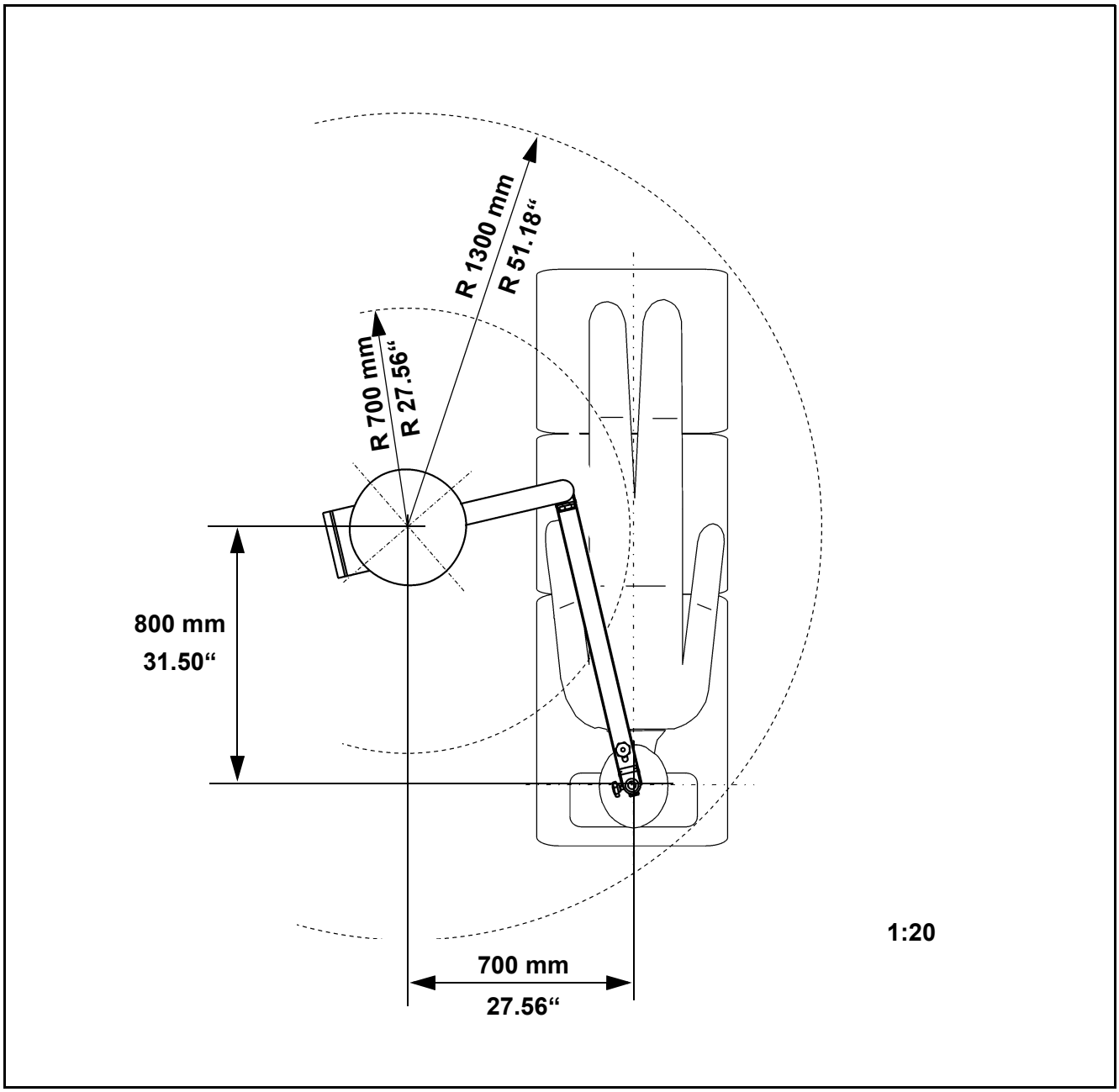
Note:
The maximum possible column length is 1500 mm (59.06")!
The minimum possible column length is 200 mm (7.87")!
This results in the following limit values for the room height in dentistry: maximum 3310 mm (130.31"), minimum 2010 mm (79.13")

Should you obtain a different value in your calculation, please contact Carl Zeiss.

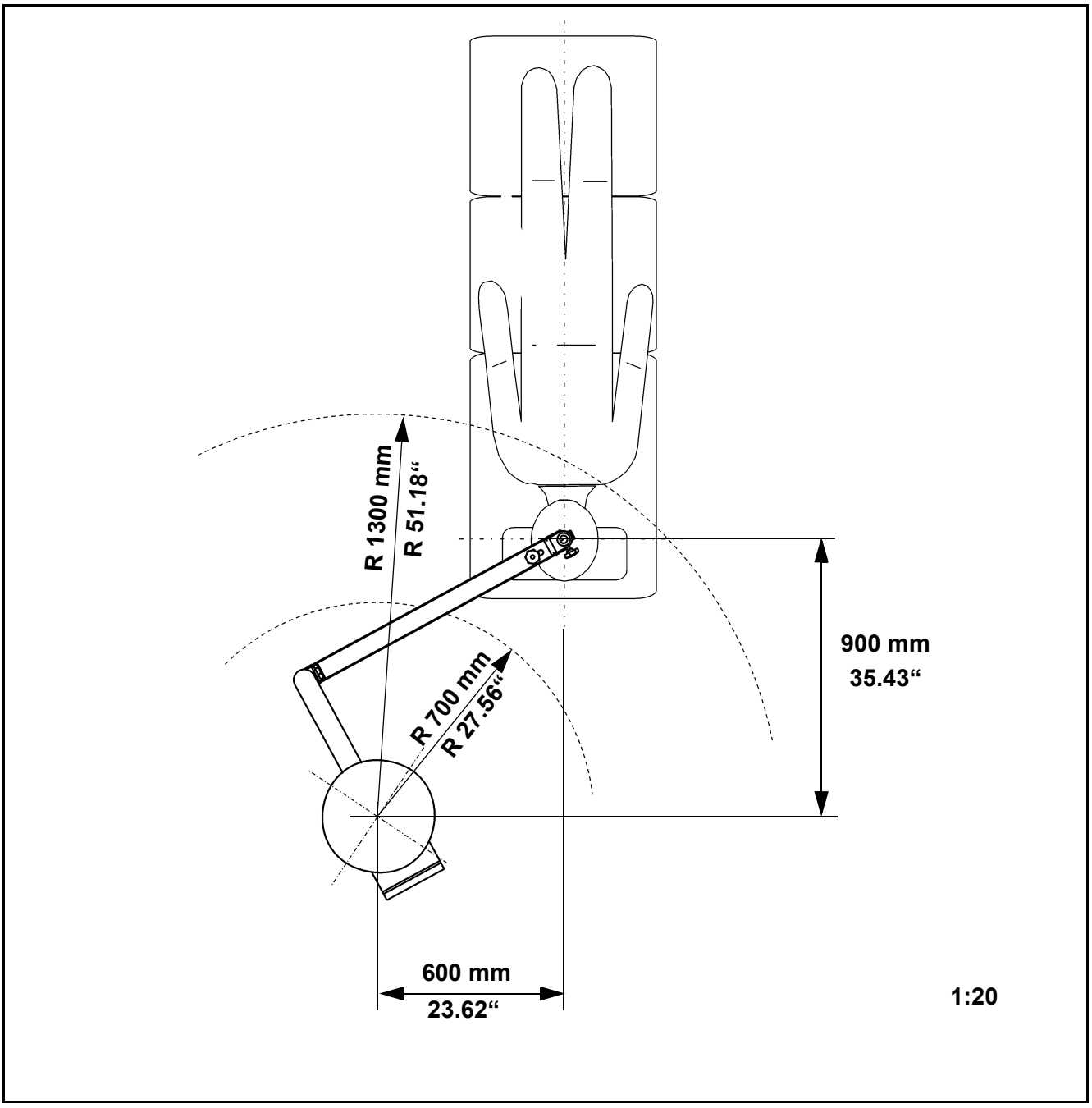
The ceiling flange must be mounted by the customer. See "Anchoring of the S100 ceiling mount", page 66.

Ceiling mount for dentistry, recommended work ranges

Work range recommended for ideal installation site



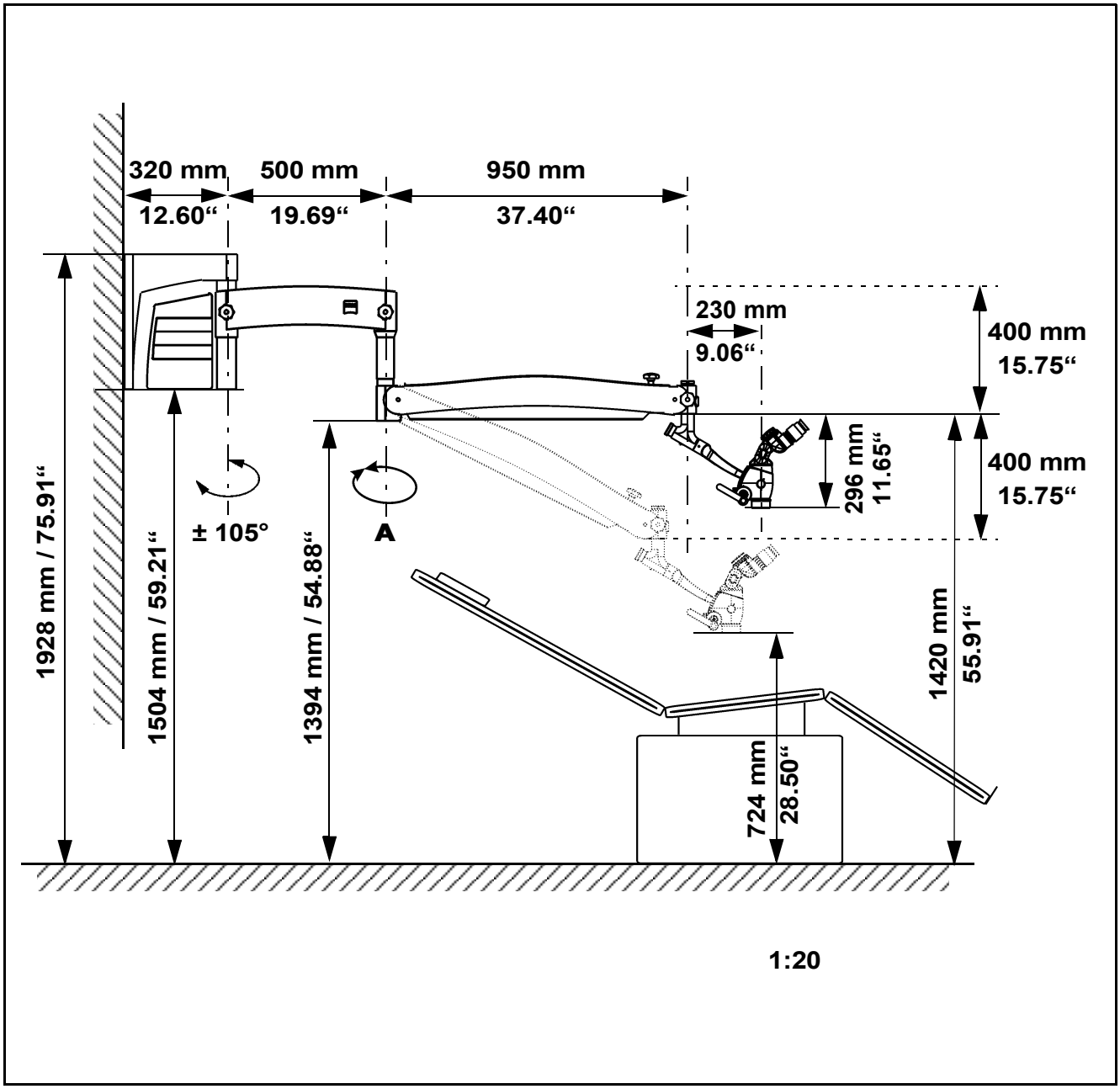
Work range recommended for alternative installation site



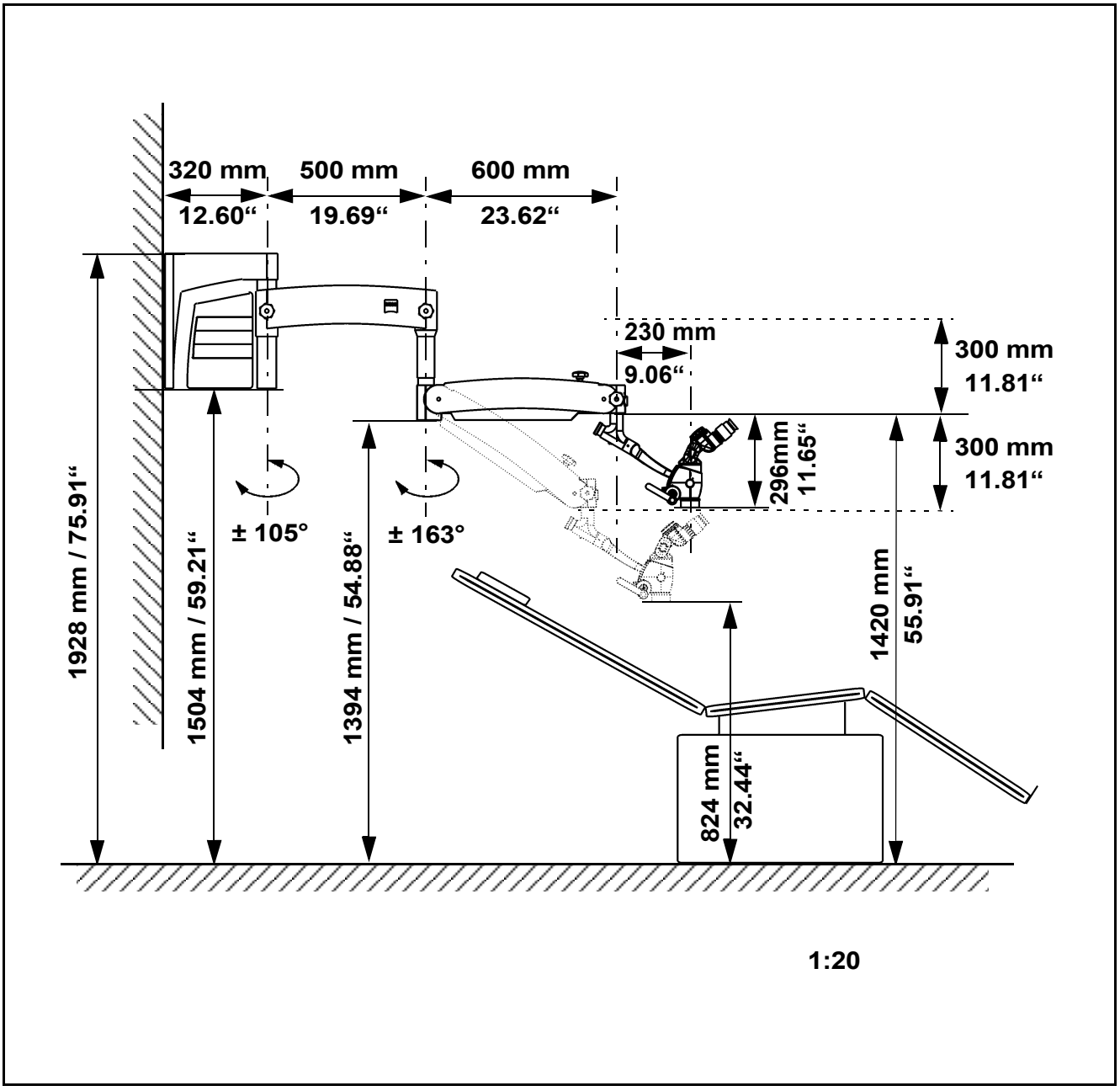
Wall mounts for dentistry, dimensions

Wall mount with a 950mm suspension arm for dentistry

A No stop

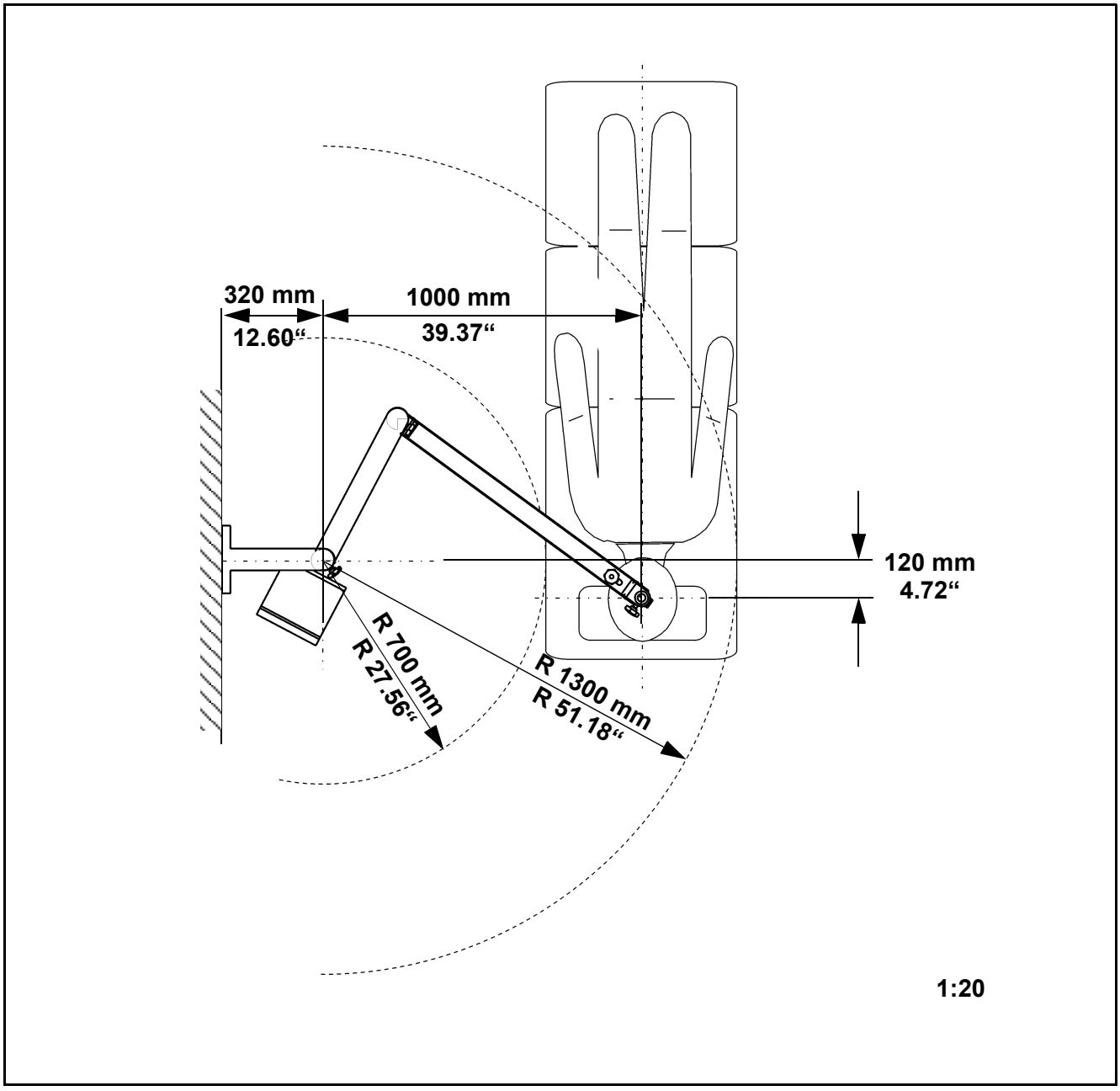


Wall mount with a 600mm suspension arm for dentistry

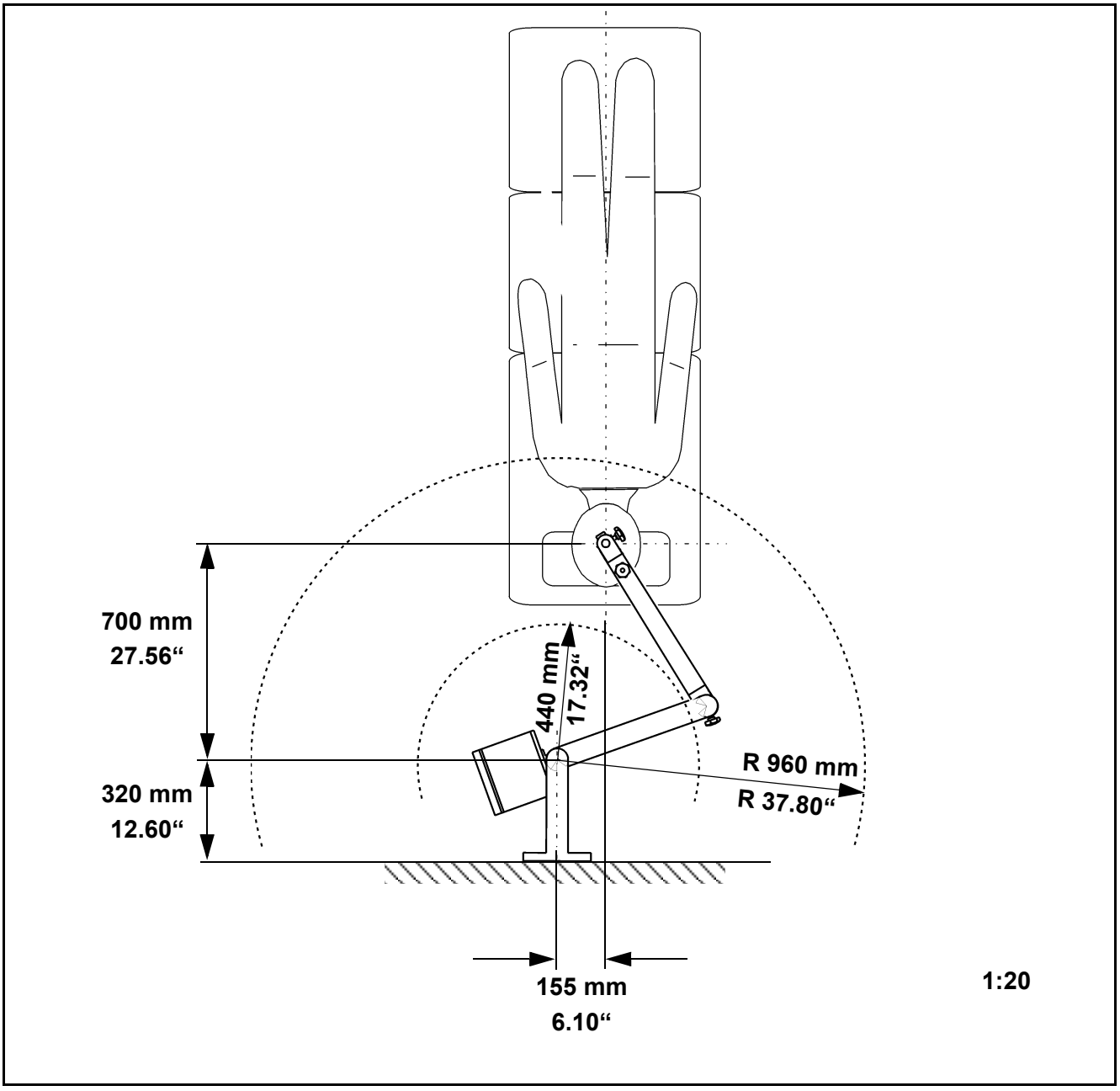


Wall mounts for dentistry, recommended work ranges

Work ranges recommended for wall mount with a 950 mm suspension arm



Work ranges recommended for wall mount with a 600mm suspension arm



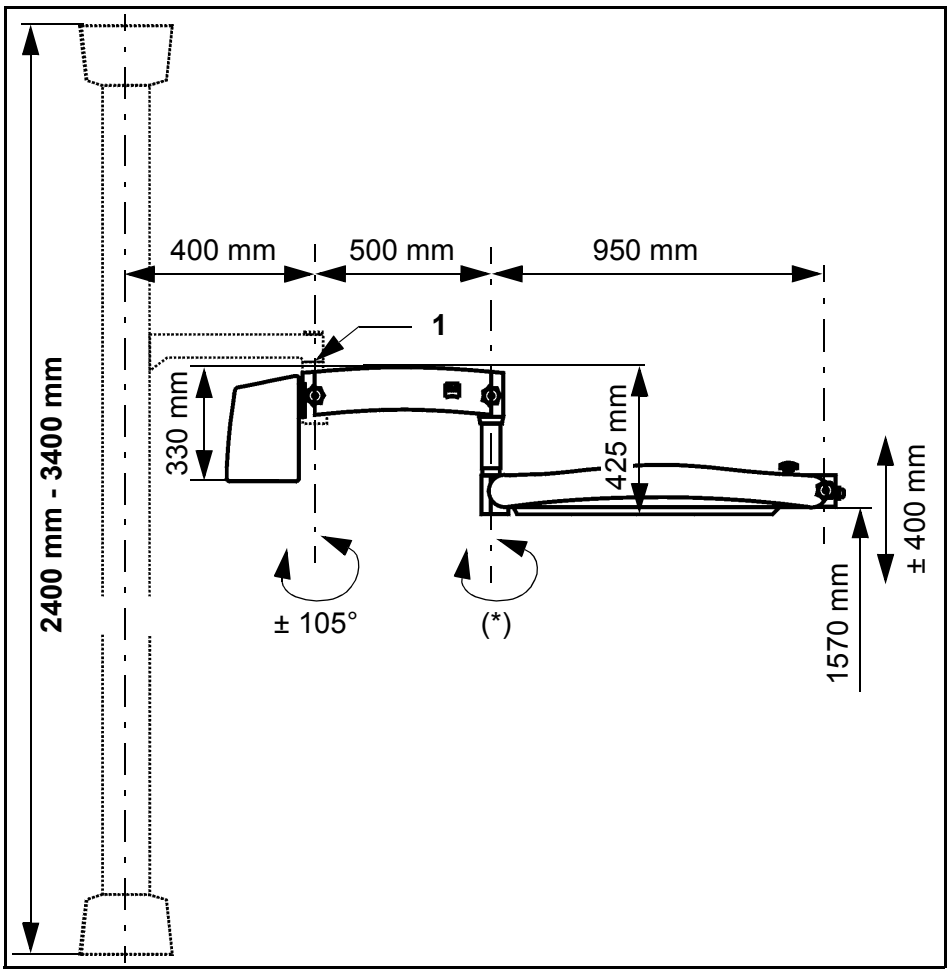
S100 Centro suspension system for dentistry

The S100 Centro suspension system is an S100 suspension system without column. This version has been specially designed for installation on the Centro column from KaVo.

An adapter from KaVo (KaVo Cat. No.: 1.002.0345) permits the S100 Centro suspension system to be installed on the Centro column.

Interface (1) between the Centro column and the S100 Centro suspension system (i.e. the axis of adapter 1.002.0345) must be aligned in a vertical position (max. deviation ± 0.5°).

1 Interface between Centro column and S100 Centro suspension system

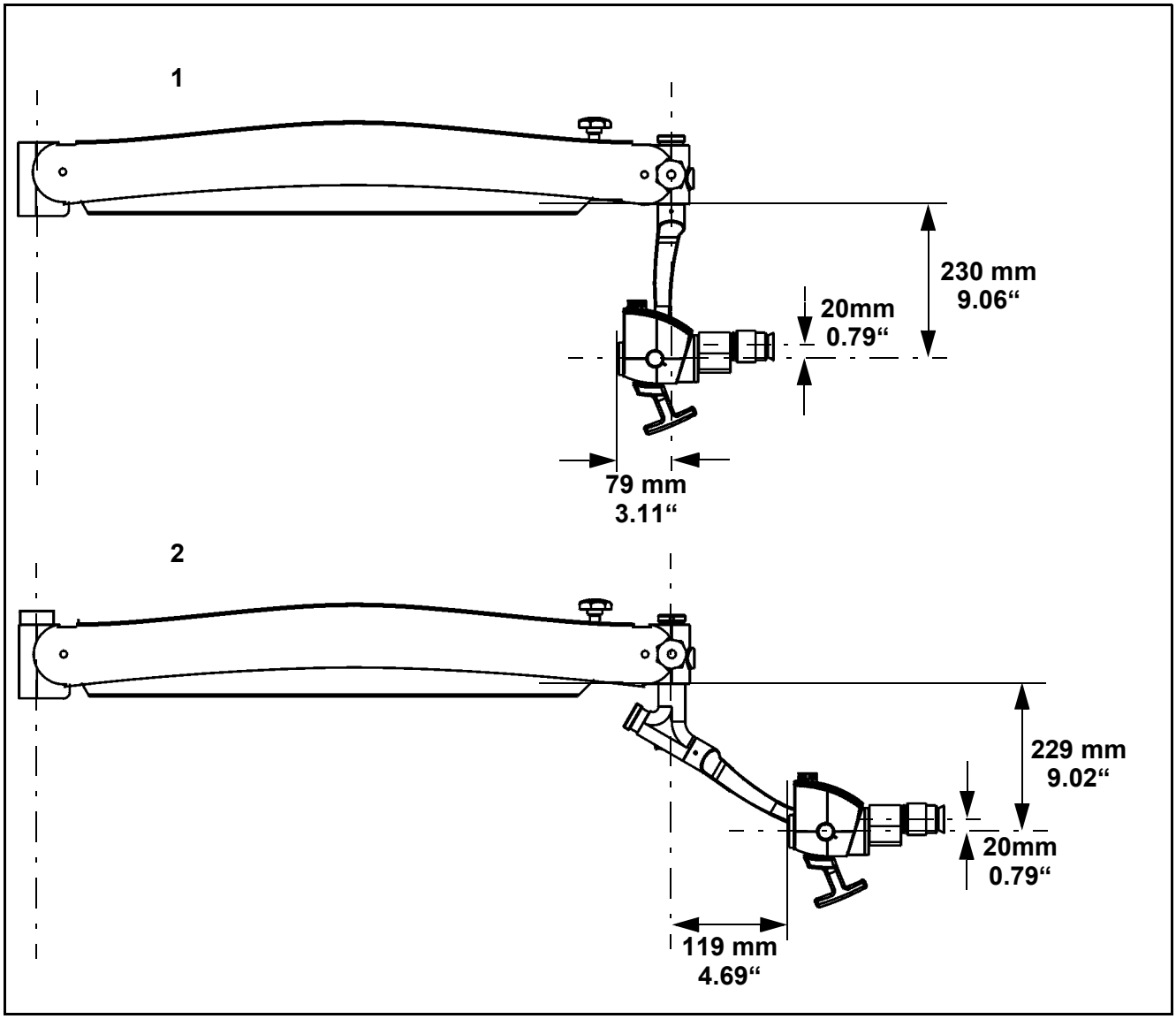


Technical data / ENT

Alternative mounting possibilities for OPMI pico in ENT

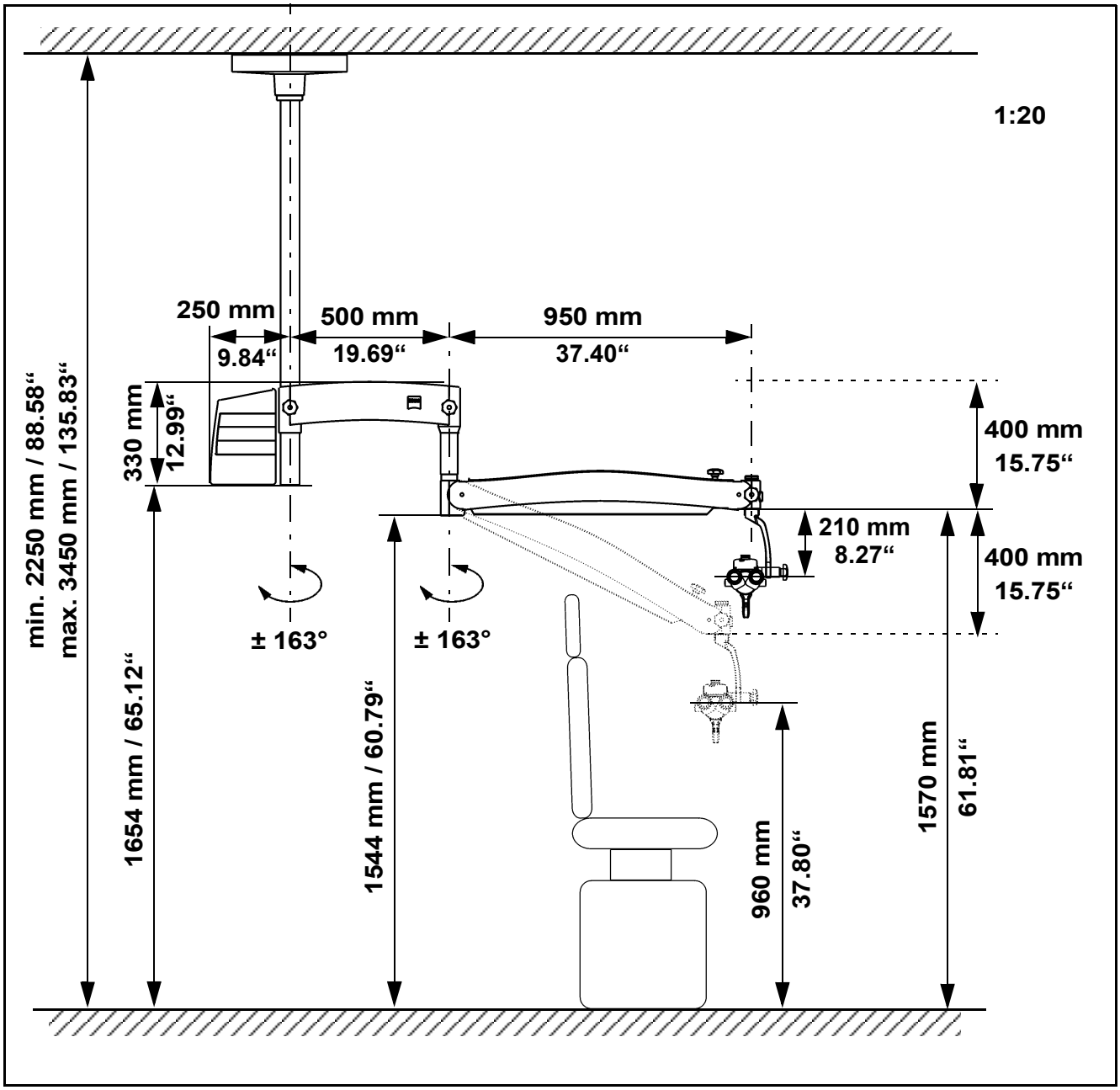
1 Direct vertical mounting of OPMI pico in the downward direction on the S100 suspension arm via the microscope's support arm.

2 Mounting of OPMI pico with a 120° coupling on the S100 suspension arm.



Ceiling mount for ENT

Dimensions of ceiling mount for ENT



Determining the ceiling height for ENT

Caution:

- Taking the notes into account, please answer the following questions. Only then will Carl Zeiss be able to process your order properly and to install the ceiling mount correctly.
- Enclose a completed copy of this page with each order.

Order No.:

Customer address / Delivery address

- Please measure exactly and enter the results here:

Ceiling height (room height from floor to structural ceiling):	**..... mm**
Admissible limit values for ENT	Maximum height: 3,450 mm (138.98") Minimum height: 2,250 mm (88.58")

The column length of the ceiling mount will be adapted to the ceiling height specified in the order.

For **ENT**, determine the column length of the ceiling mount as follows:

Ceiling height - 1,960 mm (77.17") = length of the column

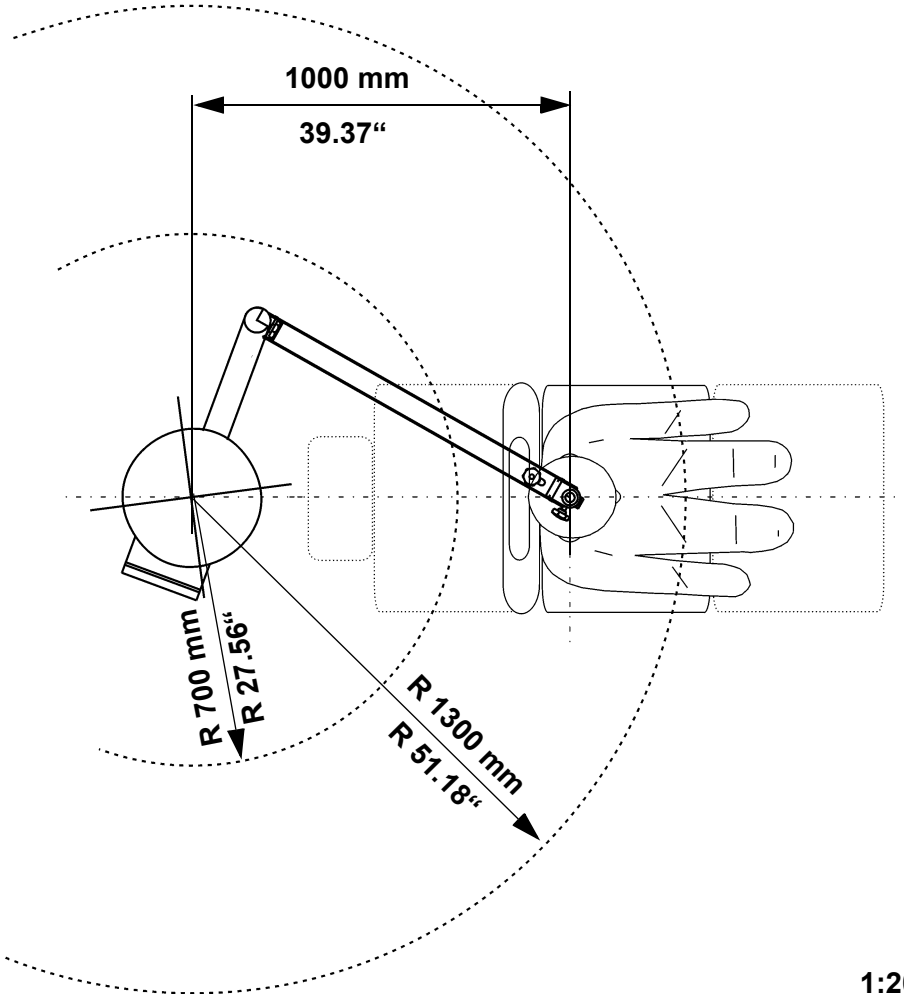
.....mm - 1,960 mm (77.17") = ... mm

Note:
The maximum possible column length is 1,500 mm (59.06")!
The minimum possible column length is 200 mm (7.87")!
Should you obtain a different value in your calculation, please contact Carl Zeiss.

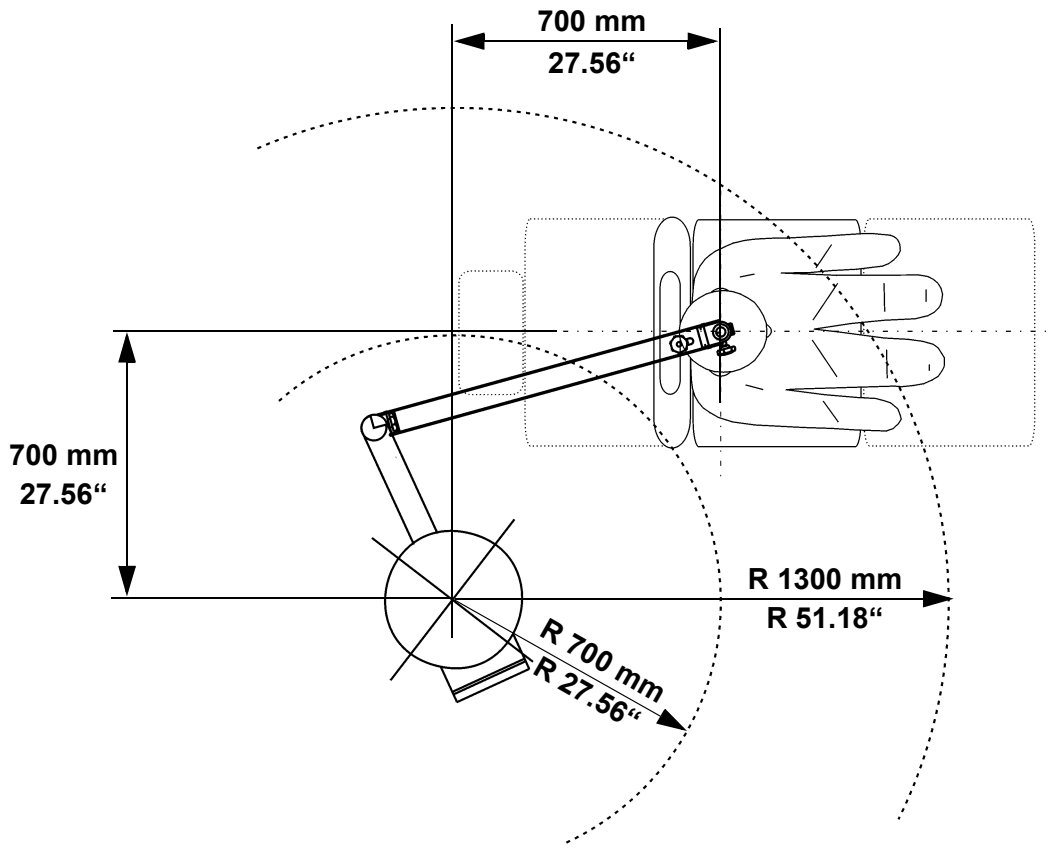
The ceiling flange must be mounted by the customer. See "Anchoring of the S100 ceiling mount", page 66.

Ceiling mount for ENT, recommended work ranges

Work range recommended for ideal installation site



Work range recommended for alternative installation site

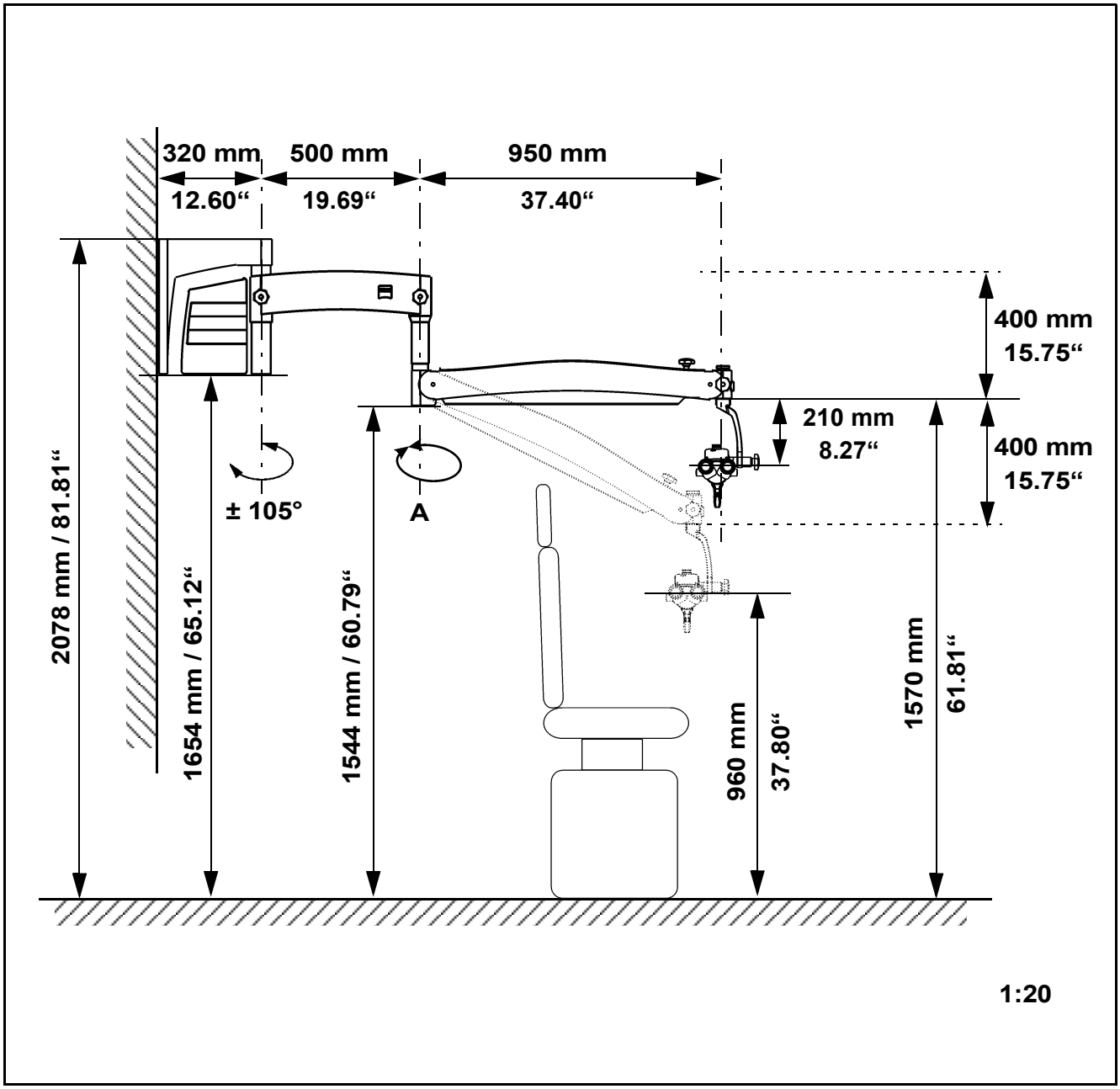


1:20

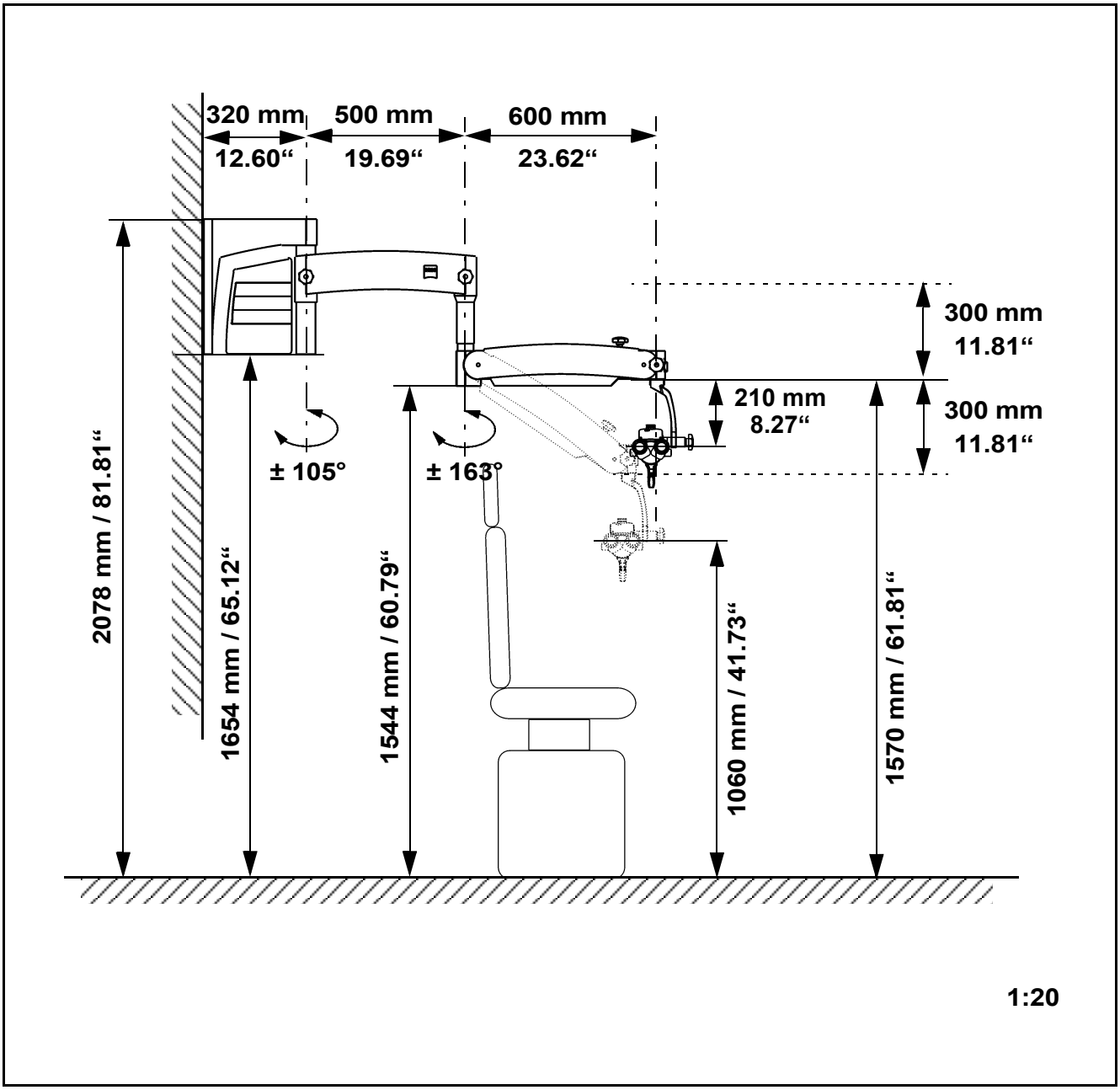
Wall mounts for ENT, dimensions

Wall mount with a 950mm suspension arm for ENT

A No stop

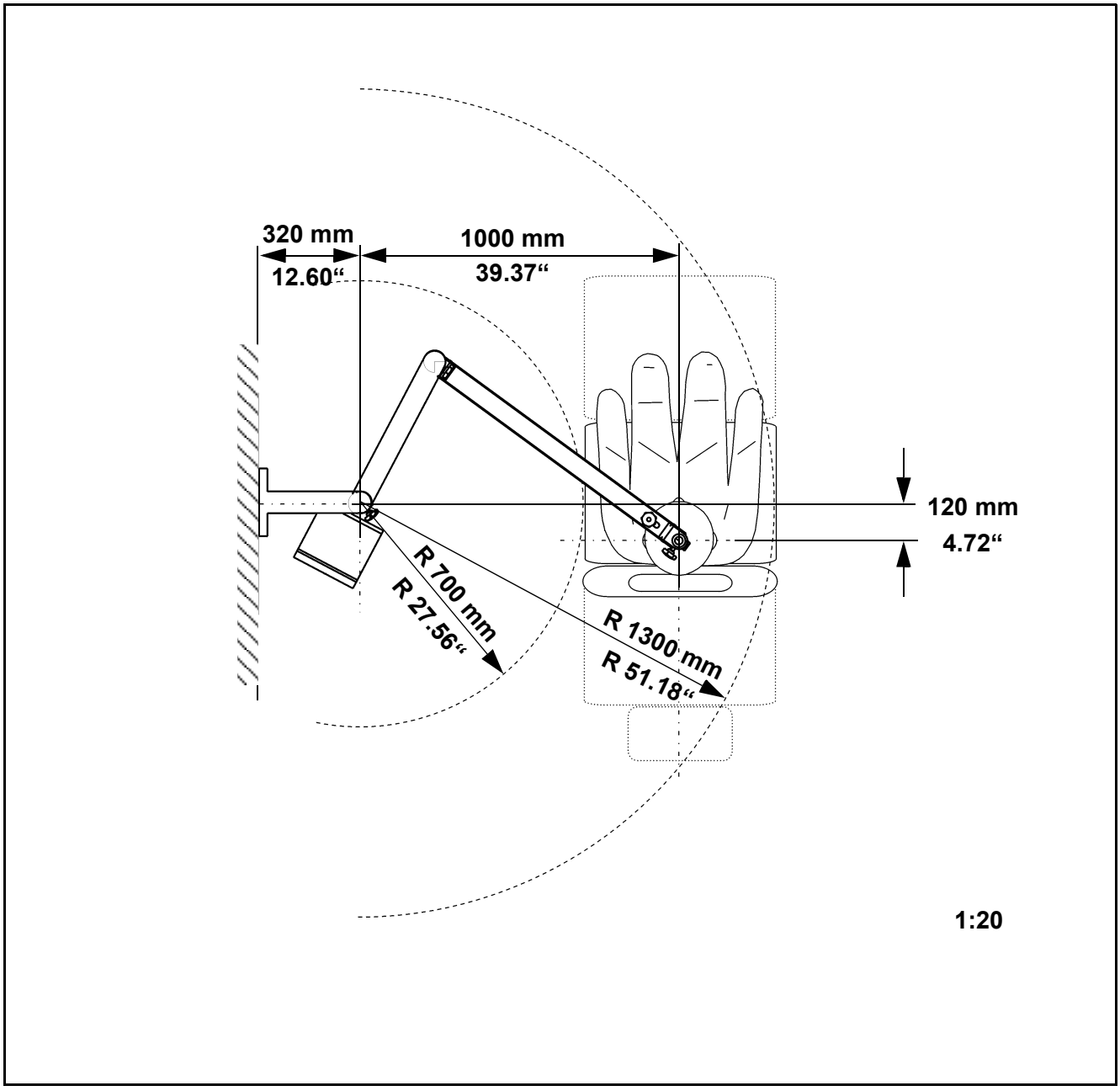


Wall mount with a 600mm suspension arm for ENT

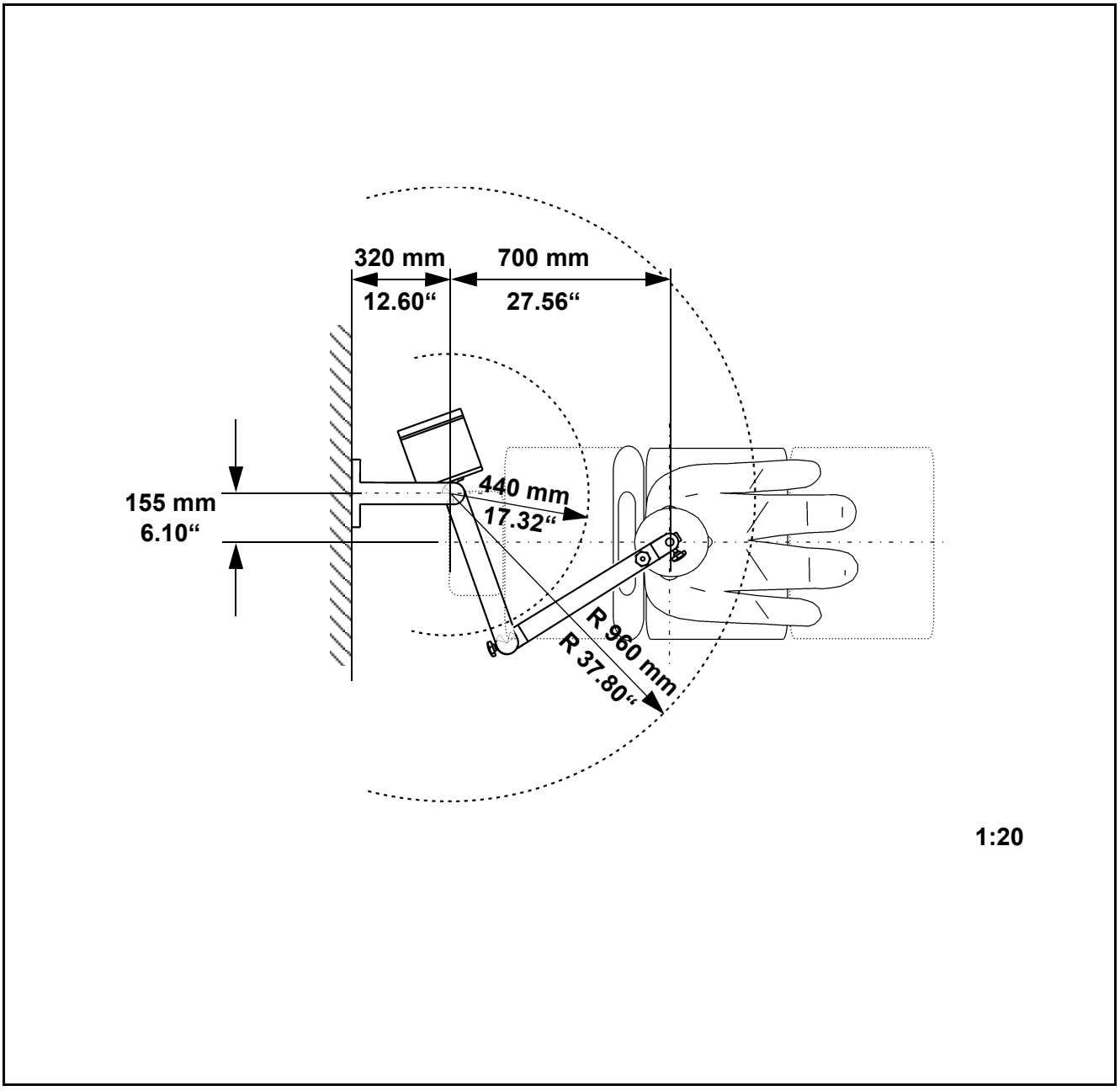


Wall mounts for ENT, recommended work ranges

Work ranges recommended for wall mount with a 950 mm suspension arm



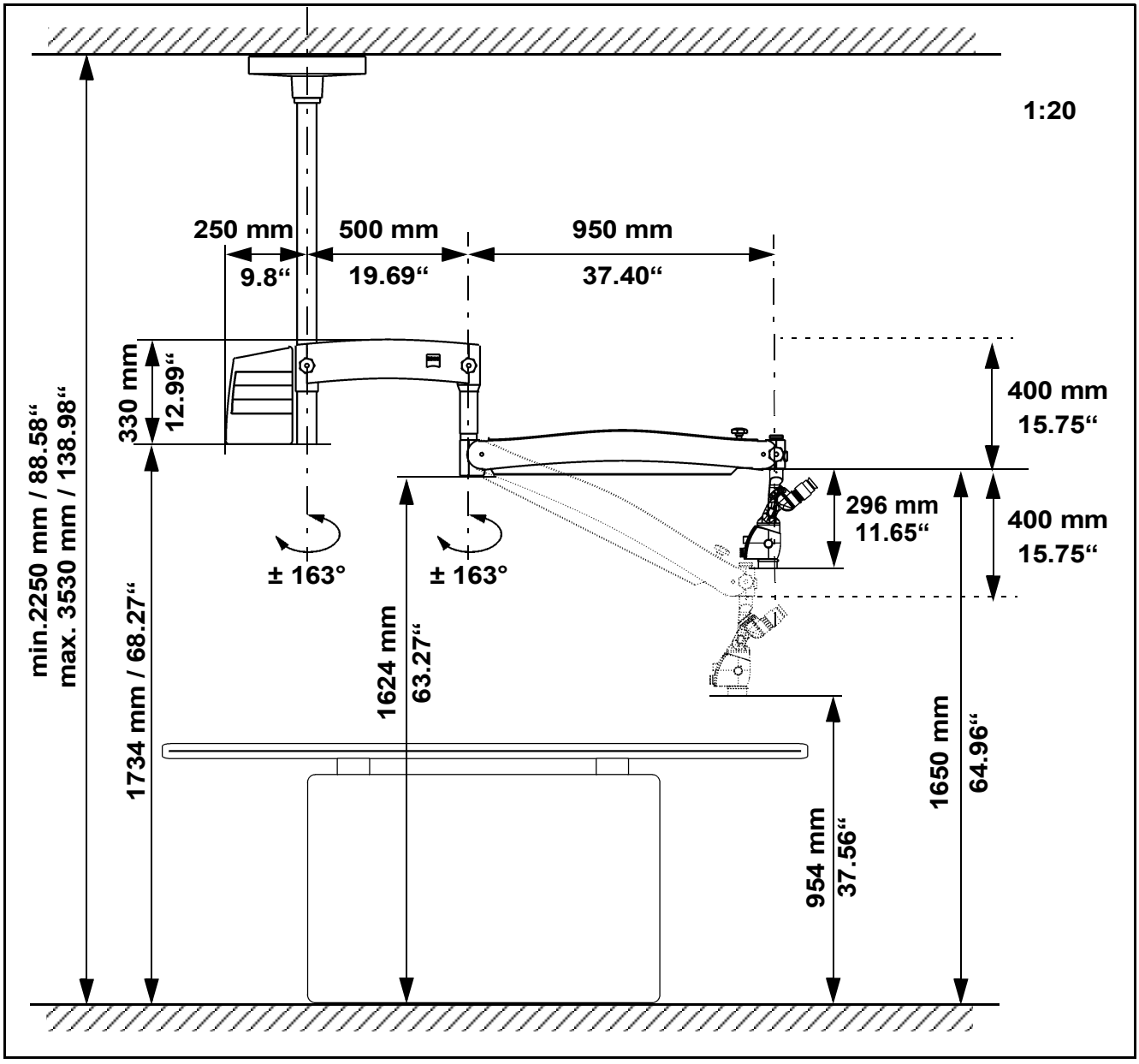
Work ranges recommended for wall mount with a 600mm suspension arm



Technical data / Ophthalmology

Ceiling mount for ophthalmology

Dimensions of ceiling mount in ophthalmology



Determining the ceiling height for ophthalmology

Caution:

- Taking the notes into account, please answer the following questions. Only then will Carl Zeiss be able to process your order properly and to install the ceiling mount correctly.
- Enclose a completed copy of this page with each order.

Order No.:

Customer address / Delivery address

- Please measure exactly and enter results here:

Ceiling height (room height from floor to structural ceiling):	**..... mm**
Admissible limit values for ophthalmology:	Maximum height: 3,530 mm (138.98") Minimum height: 2,250 mm (88.58")

The column length of the ceiling mount will be adapted to the ceiling height specified in the order.

For **ophthalmology**, determine the column length of the ceiling mount as follows:

Ceiling height - 2,040 mm (80.31") = length of the column

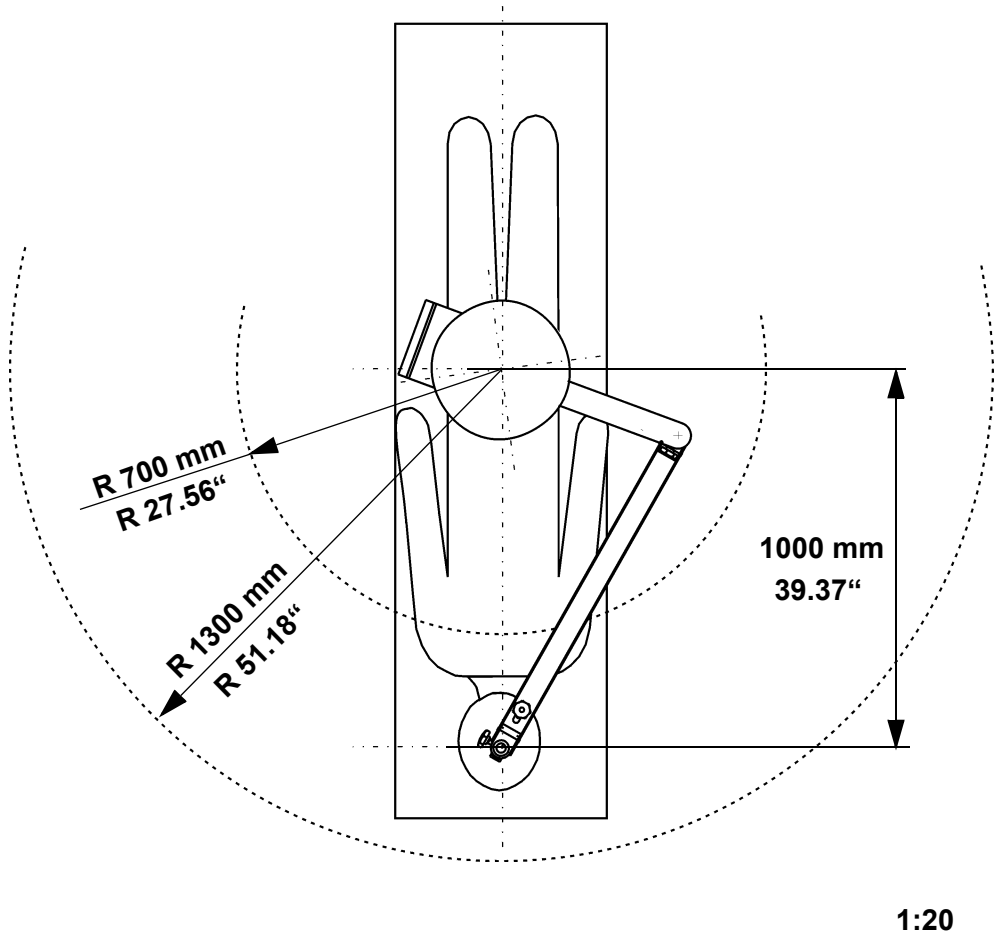
..... mm - 2,040 mm = ... mm (80.31")

Note:
The maximum possible column length is 1,500 mm (59.06")!
The minimum possible column length is 200 mm (7.87")!
Should you obtain a different value in your calculation, please contact Carl Zeiss.

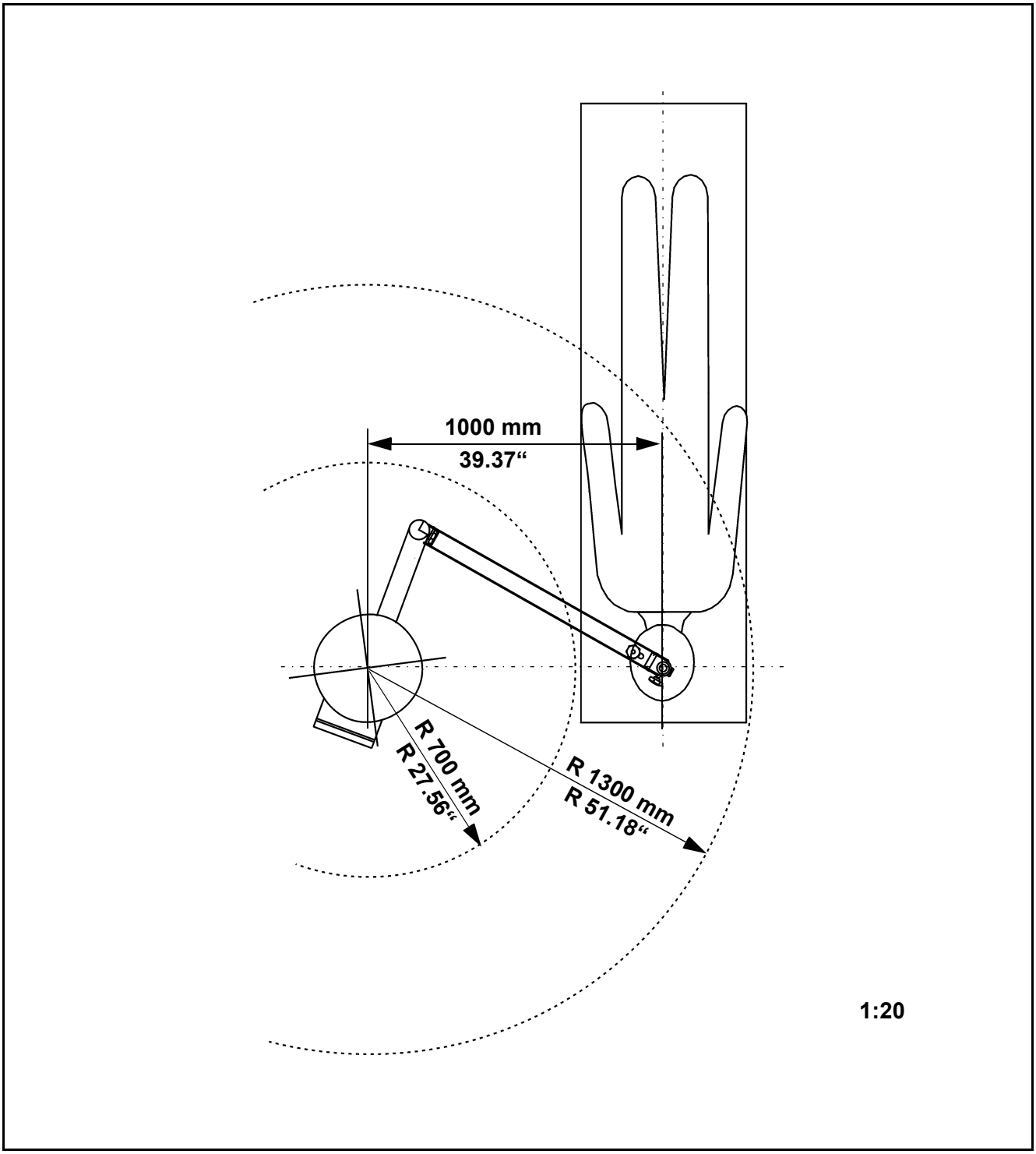
The ceiling flange must be mounted by the customer. See "Anchoring of the S100 ceiling mount", page 66.

Ceiling mount for ophthalmology, recommended work ranges

Work range recommended for ideal installation site



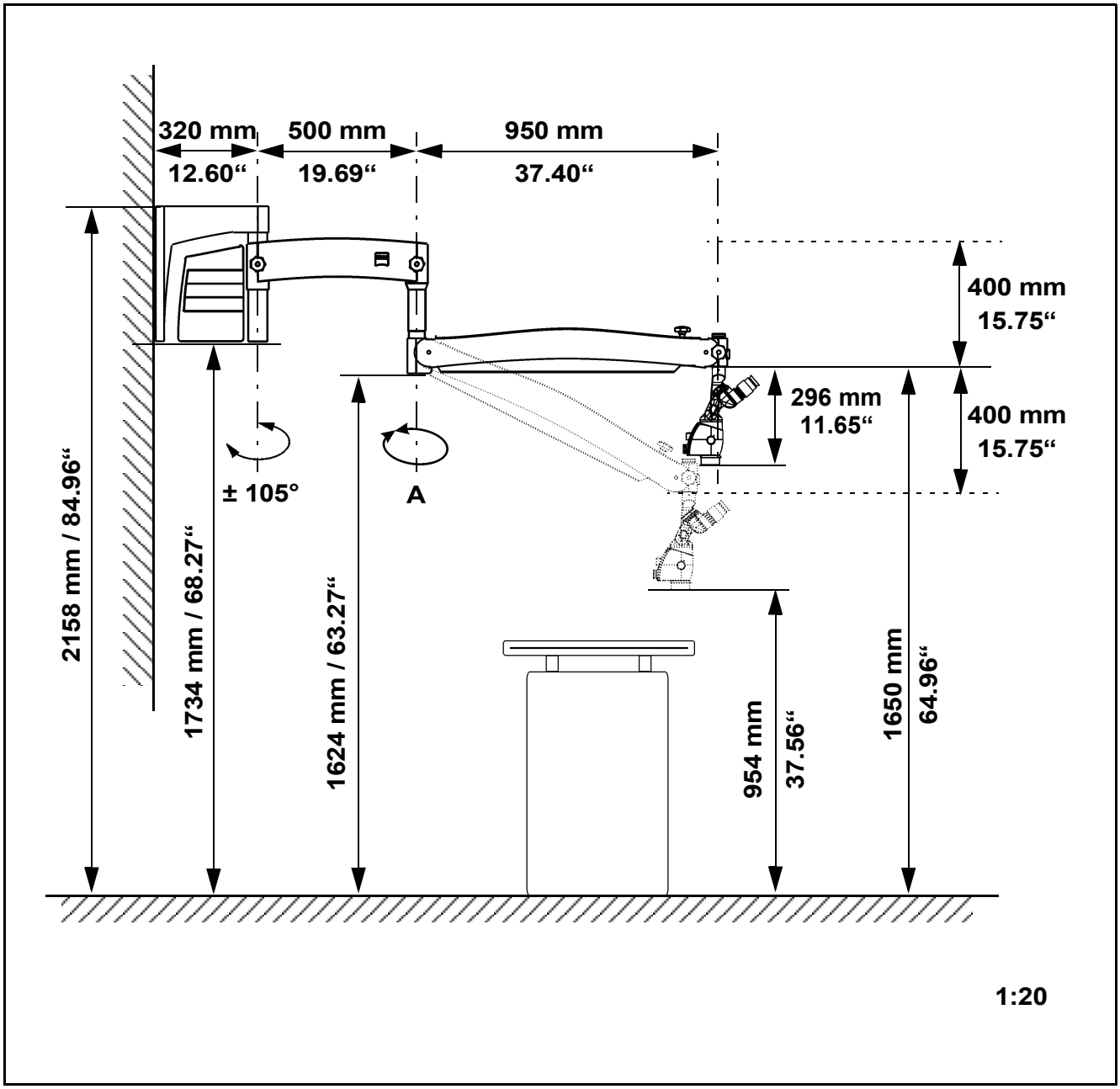
Work range recommended for alternative installation site



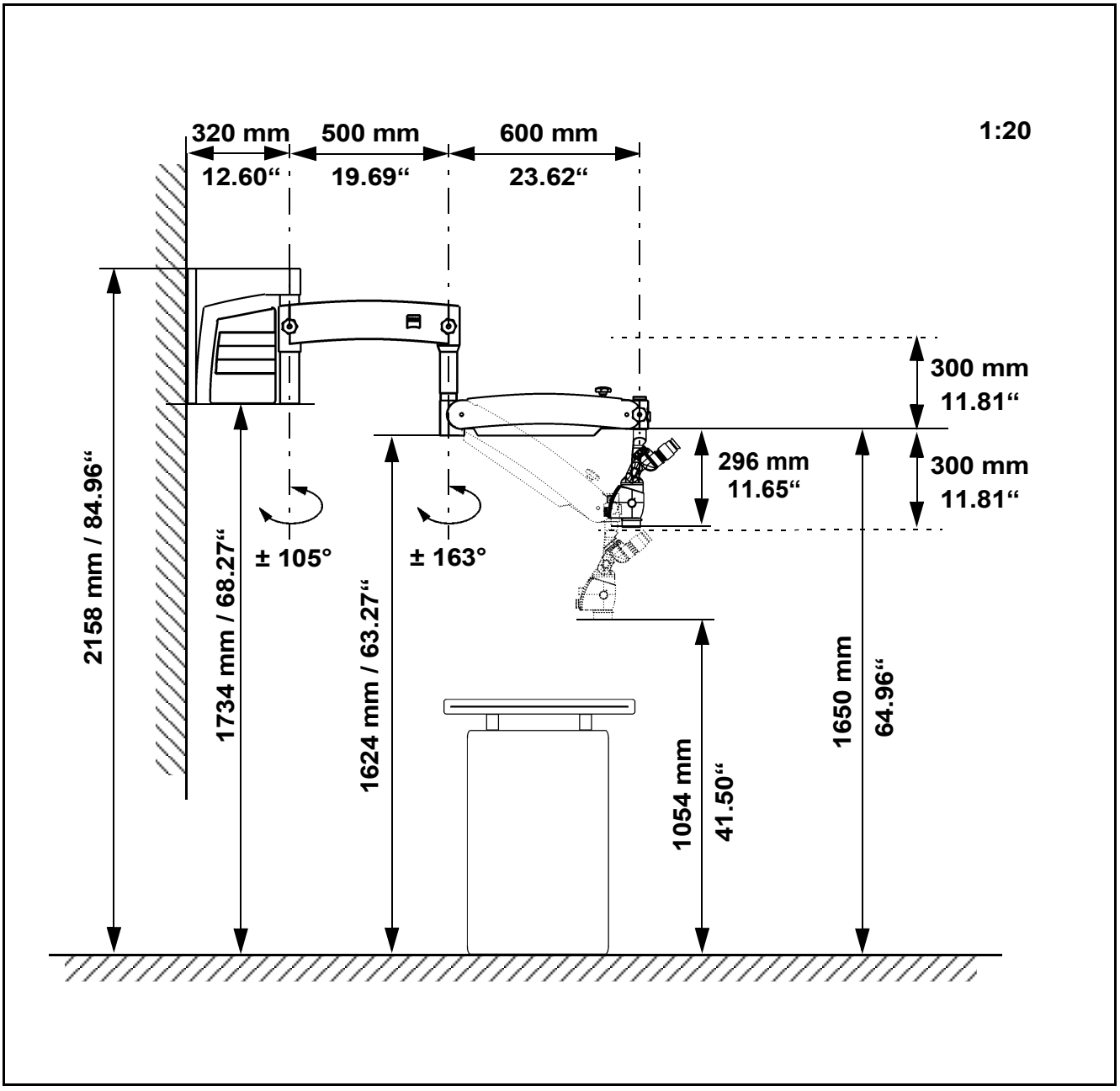
Wall mounts for ophthalmology

Wall mount with a 950mm suspension arm for ophthalmology

A No stop



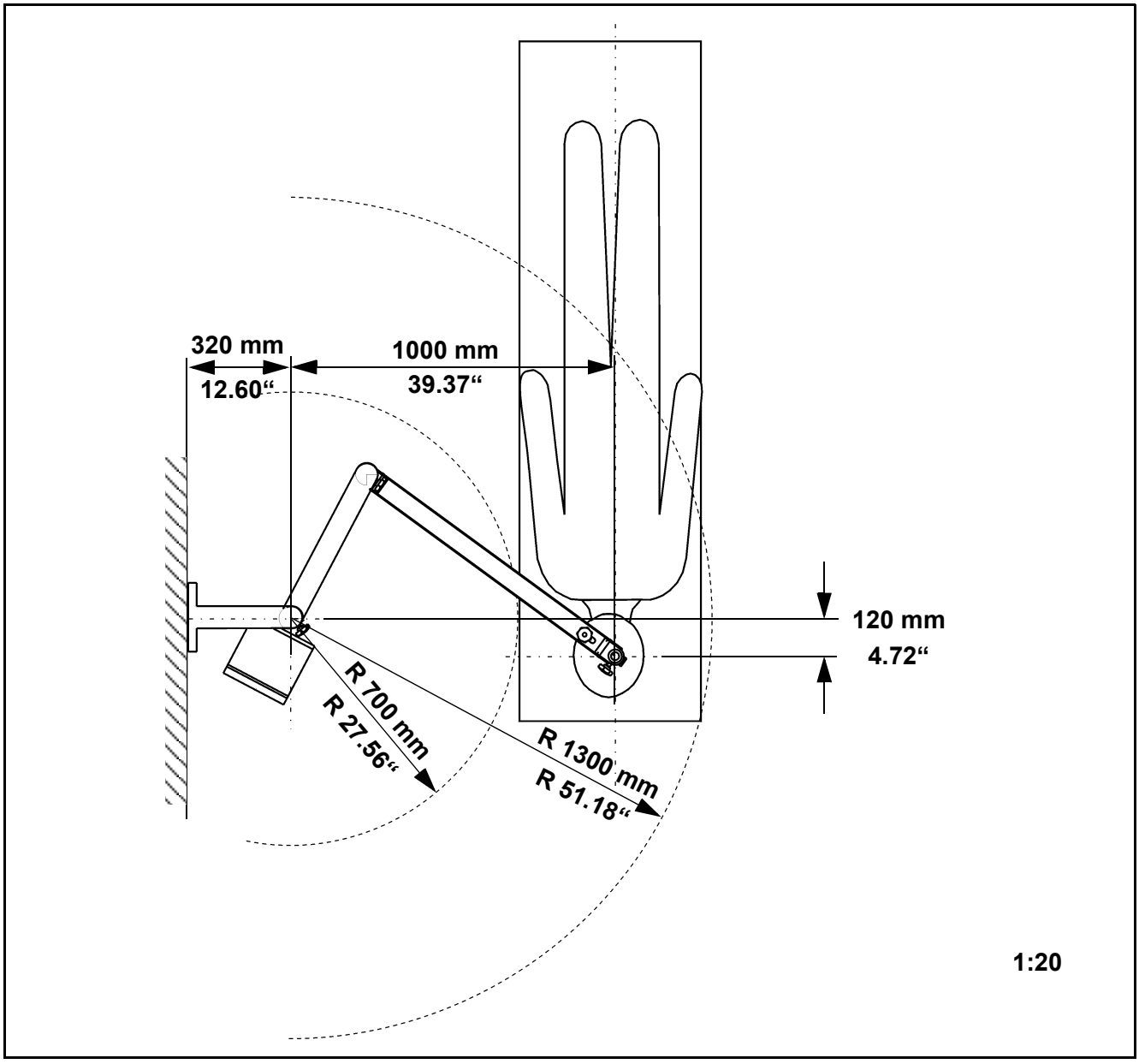
Wall mount with a 600mm suspension arm for ophthalmology



Wall mounts for ophthalmology, recommended work ranges

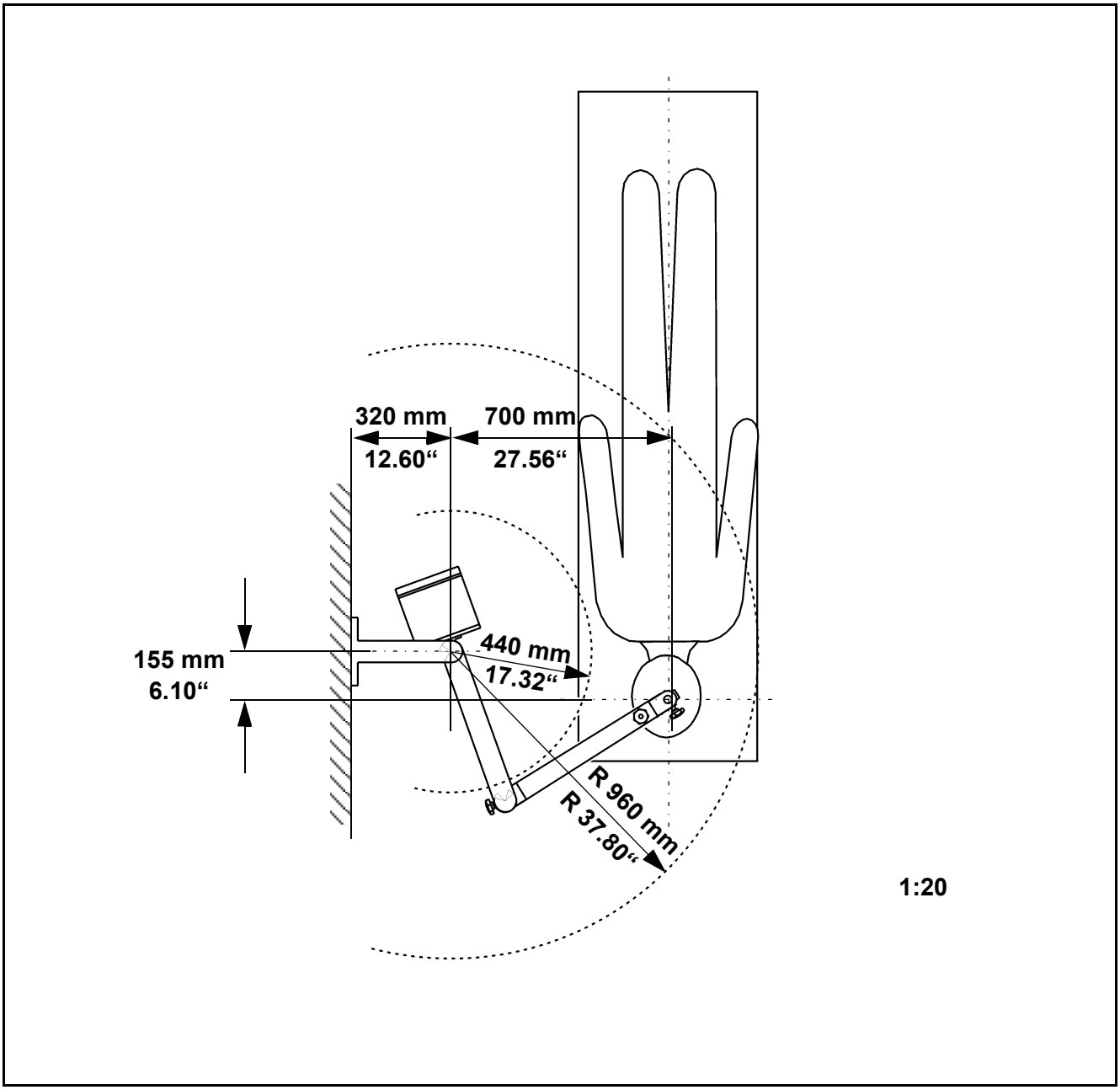
Wall mount with a 950mm suspension arm

Ideal site of installation and work range for ophthalmology



Wall mount with a 600mm suspension arm

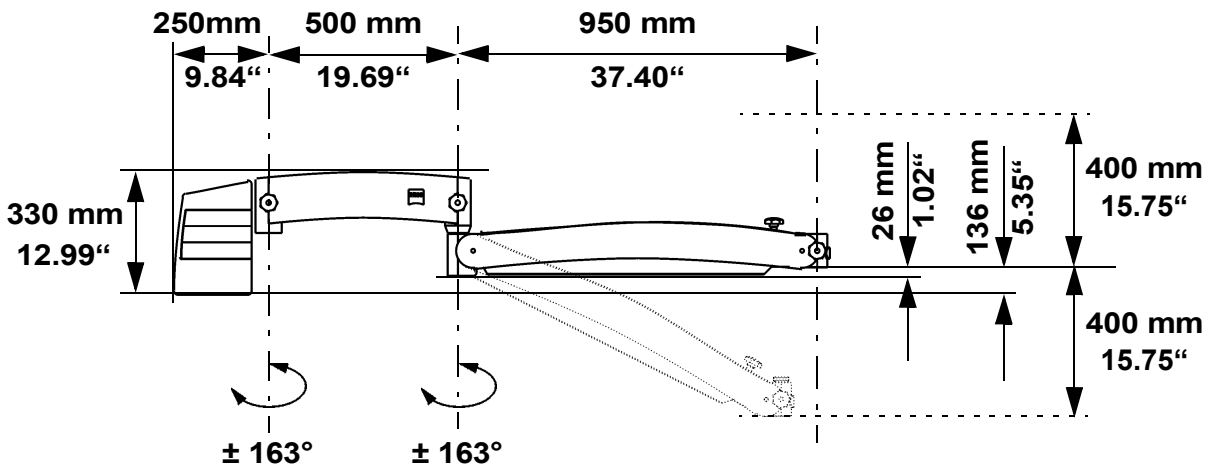
Ideal site of installation and work range for ophthalmology



Technical data of examination units

S100 examination unit, with illumination module

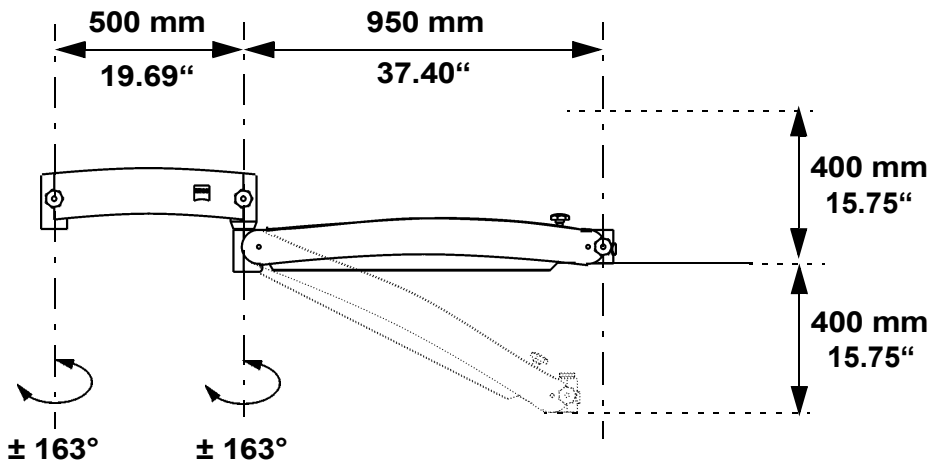
S100 examination unit for attachment to an external system carrier (incl. light guide and CZ illumination module)



1:20

S100 examination unit including light guide

S100 examination unit for attachment to an external system carrier (including light guide)



1:20

Customer’s preparatory responsibilities

Customer's responsibilities

Checking the installation conditions

Note:
Zeiss service staff can mount the ceiling or wall mount only if all points of the following checklist applicable to the relevant installation conditions have been fulfilled.

The actual load on the ceiling or wall depends on a large number of different factors, which must be determined in detail by a structural engineer on a case-to-case basis.

– Constructional requirements for ceiling mounts, see page 68,

– Constructional requirements for wall mounts, see page 74.

Caution:

- Make sure that a structural engineer checks the installation conditions during the planning procedure. Structural verification must be performed prior to the installation of the mount.
  We recommend filing the structural verification in the ceiling or wall mount documentation.
- Obtain a written confirmation from a structural engineer stating that the applicable national codes and regulations have been complied with.
- Please add a copy of the "Confirmation of structural calculation" to your order (see page 75).
- If any differences exist between the planning documents and the actual on-site situation, please inform your contact at Carl Zeiss or the planning expert prior to the installation of the ceiling or wall flange or of the pre-installation set.
- The system should be installed on a hard, level surface, e.g. concrete. Do not countersink the ceiling flange, pre-installation set or wall flange, but mount it directly on the respective surface.
- On-site conditions also include building vibrations, which the structural engineer responsible must take into account right during the planning phase (see page 62).
  Obtain a written confirmation from your structural engineer stating that possible building vibrations have been taken into account (see page 75).

- Obtain the structural verification for an existing substructure from a structural engineer, i.e. make sure that the engineer confirms the effective strength of the existing anchors.
  Structural verification must be performed prior to the installation of the mount.
  Please add a copy of the "Confirmation of structural calculation" to your order (see page 75).
- If an existing substructure is to be used, make sure that the maximum inclination of the ceiling anchor plate under load does not exceed 0.5°
- The structural engineer must check that no modifications have been made to the substructure since the original installation.
- When ordering a ceiling mount for installation on an existing substructure, you have to take into account the height of the existing substructure in the calculation of the column length.

Warning!

- If an existing flange plate or intermediate piece must be exchanged, never re-use the old anchors. New anchor holes must be drilled.
  When calculating the effective strength of the new anchors, the structural engineer must take into account the weakening effect of the old holes in the ceiling or wall.

Planning the installation

- Inspect the mounting components supplied for completeness and damage.
- Prior to the installation of a ceiling or wall mount, you must always check that the actual installation conditions - in particular the room height for ceiling mounts - correspond to the specifications in the drawing.
- Make sure that the anchors calculated by your structural engineer are properly installed, that the nuts and washers required to mount the Zeiss flange are readily available at the installation site and that the maximum tightening torque for the nuts is indicated.
- For new installation, the ceiling flange must be mounted before the false ceiling is attached.

Building vibrations

The on-site requirements also include the low-vibration design of the ceiling in the OR. This must be taken into account right during the planning phase for the ceiling mount.
The following information primarily refers to the ceiling mount, but it can also be applied to a wall mount or floor stand.

Two types of excitation factors must be distinguished:

Single events which excite short-term vibration

Induced by inadvertent knocks against the suspension system or strong impact against ceiling, wall or floor. This is the most frequent, but least critical type of excitation. The ZEISS ceiling mount features excellent damping against this type of vibration and displays a short recovery time. In extreme cases, surgery has to be interrupted for a few moments.

Constant excitation causing sustained vibration

The excitation energy of factors such as elevators, air conditioning systems, construction work, traffic does not easily reach the ceiling mount via the building. This type of excitation is extremely rare, but may lead to permanent vibration of the ceiling mount in extreme cases. This becomes particularly visible at high magnifications as used in the surgical microscope.
The following result of a study is intended to help you understand constant vibration excitation occurring in rare cases in ceiling mounts, eliminate it or prevent it from the outset in new installations.

Like any kinematic system, the Zeiss ceiling mount displays eigenfrequencies (=resonance frequencies) that range between 2 and 80 Hz depending on the position of the system and the accessories attached to it.
The ZEISS ceiling mount provides very effective damping in particular against higher frequencies above 10 Hz which are typical of buildings with electrical excitation factors. Nevertheless it may happen in rare cases, when the ceiling mount's suspension arm is in a specific position, that even high frequencies which are critical for this particular constellation lead to vibrations (e.g.: 17 Hz, ..., 19 Hz, ...).

Such excitation factors can usually be suppressed by the following measures:

– elimination of the excitation source (e.g. repair of damping of the air conditioning system)

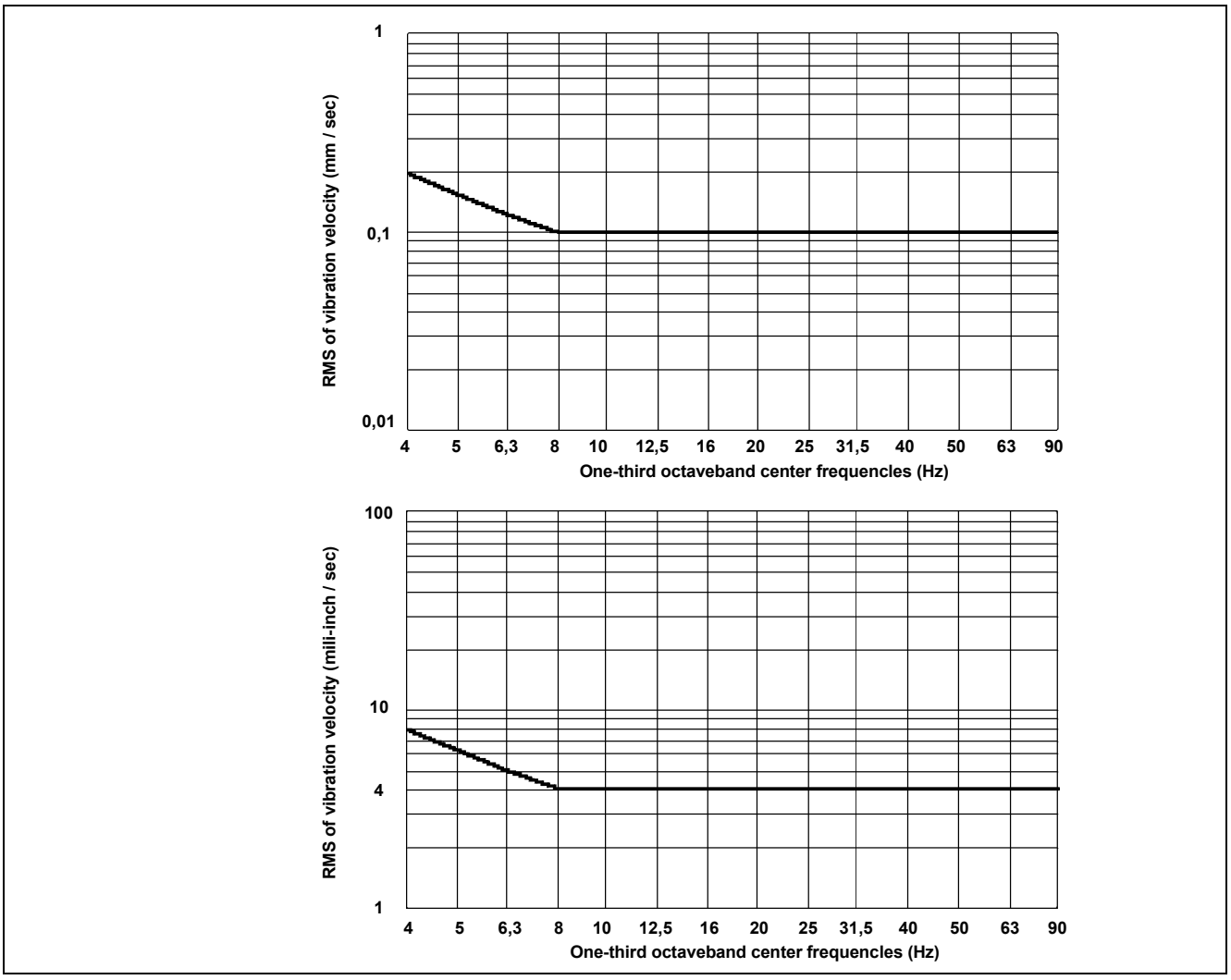
– constructional damping measures in the ceiling installation

Due to the large number of parameters involved and the variety of potential building/ceiling mount constellations, Carl Zeiss Surgical is unable to give an absolute guarantee for the vibration-free suspension of the ceiling mount, even if the building meets the applicable ISO standards.
However, it is highly improbable that constant vibrations are transferred to the ceiling mount if all requirements regarding vibrations in the OR ceiling are met.

– Max. vibration velocity (RMS) at the installation points for the ceiling mount.

– V_{max} < 0.1 mm / s or V_{max} < 4 milli-inches / s or below the curves (diagram) for the specified frequency range.

Sources: Carl Zeiss Surgical (in-house study), ISO 10811, recommendations for ORs.



Planning the electrical installation

The following work is the customer's responsibility:

- A socket with a properly installed protective ground connection must be provided at the installation site near the ceiling flange. Terminals for power connection are located on the ceiling mount.
- Make sure that the power outlet has a properly connected protective ground connector.
- Potential equalization: take the necessary actions in the building to incorporate the system in protective "potential equalization" measures.

Installation of conduits

- In the planning process, make appropriate allowance for conduits required for additional future applications (communications, video, monitors, etc.).

Power requirements at the installation site

- Please note the applicable national codes and regulations concerning the line cross section and fuse strength.
- Please use the following electrical specifications as a basis for on-site electrical protection measures:

Rated voltage	115 VAC, (100 - 120) VAC ± 10% 230 VAC, (220 - 240) VAC ± 10%
Rated frequency	50 - 60 Hz
Current consumption	Current consumption of halogen light source: Max. 2.0 A at 115 VAC Max. 1.0 A at 230 VAC Current consumption of xenon light source: Max. 5.0 A at 115 VAC Max. 2.5 A at 230 VAC
Electrical standard	Complying with IEC 60601-1 / EN 60 601-1; UL 60 601-1, CAN / CSA-C22.2 601.1 -M90 Protection class I, degree of protection IPXO, Type B equipment 

The system has been designed for continuous operation.

Anchoring of the S100 ceiling mount

For recommended installation sites of the ceiling mount, please see the illustrations from page 18.

Caution:
The ceiling mount must only be installed on the original ceiling flange supplied by the company Carl Zeiss.

Mounting the ceiling flange

Caution:
When planning and installing the system, make sure that the orientation of the swivel range is correct:

– The swivel range of the carrier arm about the column is limited by two stops at ±163°. In accordance with the installation drawings, the swivel range of ±163° must be marked on the column and ceiling flange with a waterproof pen.
The two stops determine the range beyond which the carrier arm cannot reach.

– Two stops at ±163° determine the range which the suspension arm cannot reach.

Key

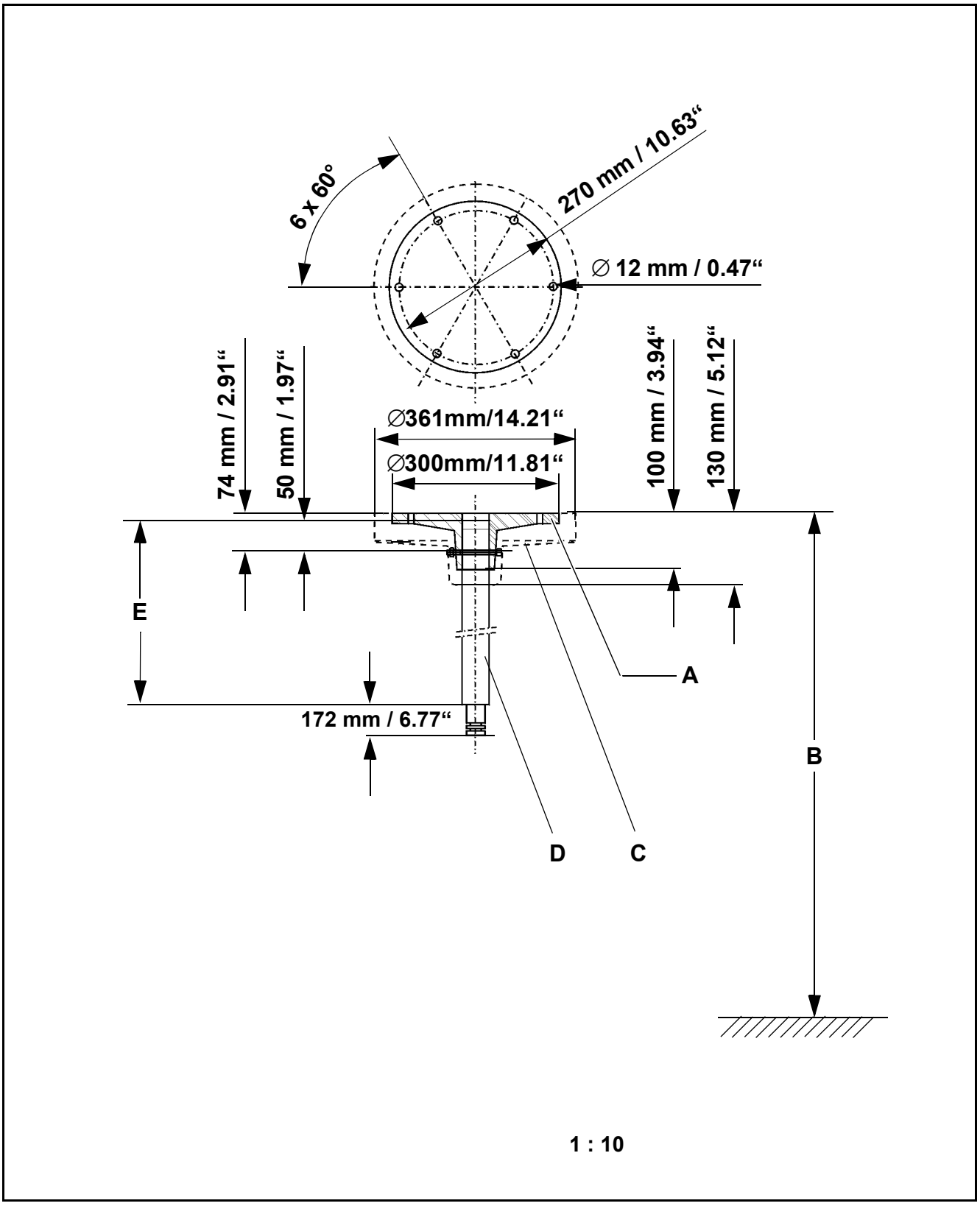
A Ceiling flange, dia. 300 mm (11.81")

B Ceiling height
2,250 mm (88.58")
Maximum 3,300 mm (129.92")in dentistry
Maximum 3,450 mm (135.83") in ENT
Maximum 3,530 mm (138.98")in ophthalmology

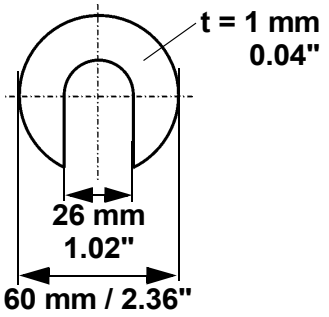
C Cover, dia. 361 mm (14.21")

D Column, dia. 60 mm (2.36")

E Column length


6 x 60°
270 mm / 10.63“
∅ 12 mm / 0.47“
74 mm / 2.91“
50 mm / 1.97“
∅361mm/14.21“
∅300mm/11.81“
100 mm / 3.94“
130 mm / 5.12“
E
A
172 mm / 6.77“
B
D
C
1 : 10

Aligning the column in a vertical position



- The column must be aligned in a vertical position, with a maximum admissible deviation of ±0.5°:
  - Use C-type washers 305497-0002-000 to level out any unevenness of the mounting surface.
    t = 1 mm /0.04", thickness of the C-type washer
  - Or, if the mounting surface is very uneven, you can use longer threaded bolts with additional nuts and washers to align the flange component.

Constructional requirements for the ceiling mount

The actual load on the ceiling depends on a large number of different factors. The requirements to be met by the ceiling or substructure result from the addition of perpendicular forces and torques produced by the suspension system and accessories. These are the forces to be transmitted into the structural ceiling via the ceiling anchors,
The column must be aligned in a vertical position (max. deviation ± 0.5°).

Forces and torques

Warning!
The structural engineer must ensure in each individual case that the structural ceiling has a sufficient load capacity for the forces and torques listed below. He must also take into account any additional loads on the ceiling and add an appropriate safety margin, and must observe the applicable national codes and regulations.

Caution:
- The perpendicular forces and torques specified below include an additional load of 100 kg (220 lb), which is generated when a person hangs on the end of the suspension arm (or the microscope). Further safety margins have **not** been incorporated.
- The perpendicular forces and torques have been calculated on the basis of the maximum permissible load on the suspension arm.
- For an S100 ceiling mount installed on the ceiling flange, the structural ceiling must have the following load capacity:
  - Perpendicular force: min. 1200 N (min. 270 lbf)
  - Torque: min. 1350 Nm (min. 996 lbf.ft)

Anchoring of the S100 wall mount

For recommended installation sites of the wall mount, please see the illustrations from page 20.

Caution:
The wall mount must only be installed on the original wall flange or, if necessary, on the original wall plate from Carl Zeiss.

S100 wall flange (1244-708)

Caution:
When planning and installing the mount, make sure that the orientation of the swivel range is correct:

– Two stops at ±163° determine the range which the carrier arm cannot reach.

– In the wall mount with a 600mm suspension arm, two stops at ±163° determine the range which the suspension arm cannot reach.

Key

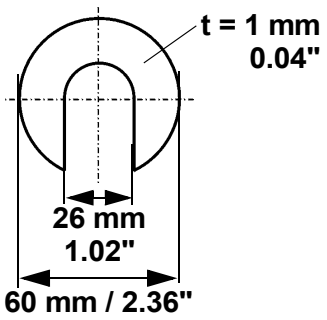
A Cover, W x H = 213 x 426 mm (8.39 x 16.77")

B S100 wall flange (1244-708)

C Distance of top row of bores from floor
1910 mm (75.20") for dentistry
2060 mm (81.10") for ENT
2140 mm (84.25") for ophthalmology

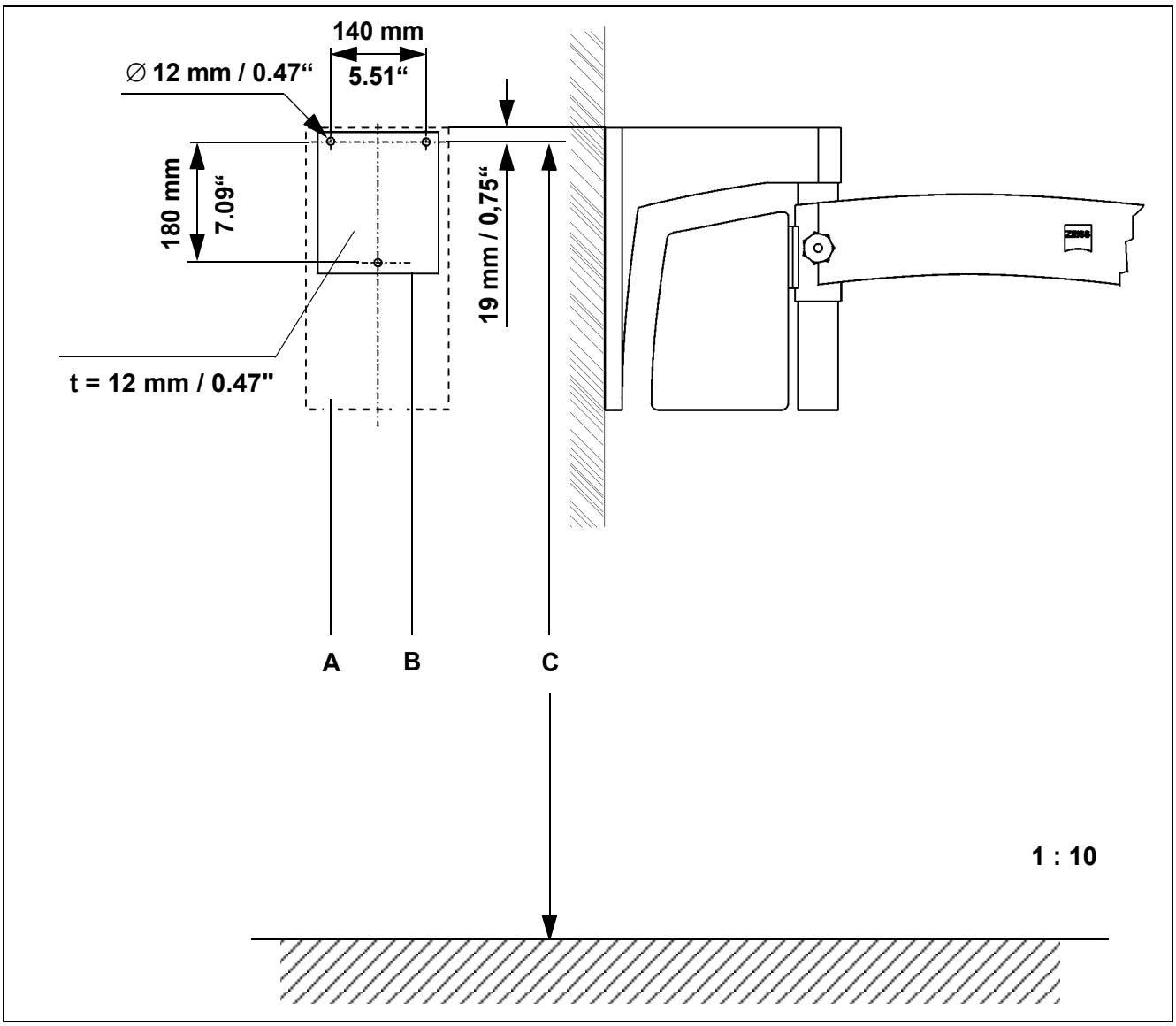
t = 12 mm / 0.47" thickness of the wall flange plate

Aligning the wall flange in a vertical position



- The wall flange must be aligned in a vertical position, with a maximum admissible deviation of ±0.5°:

  Use C-type washers 305497-0002-000 to level out any unevenness of the mounting surface.
  t = 1 mm / 0.04", thickness of the C-type washer



Wall plate for S100 wall mount

The wall plate is used to install the wall mount on less stable walls. Compared with direct installation using the wall flange only, the wall plate distributes the torques over a larger area, thus reducing the load on individual points.

The wall plate is the main component of the mounting kit "Adapter for S100, complete" (1277-816).
The mounting kit also includes caps for covering any bores in the wall plate which you do not need.

Caution:

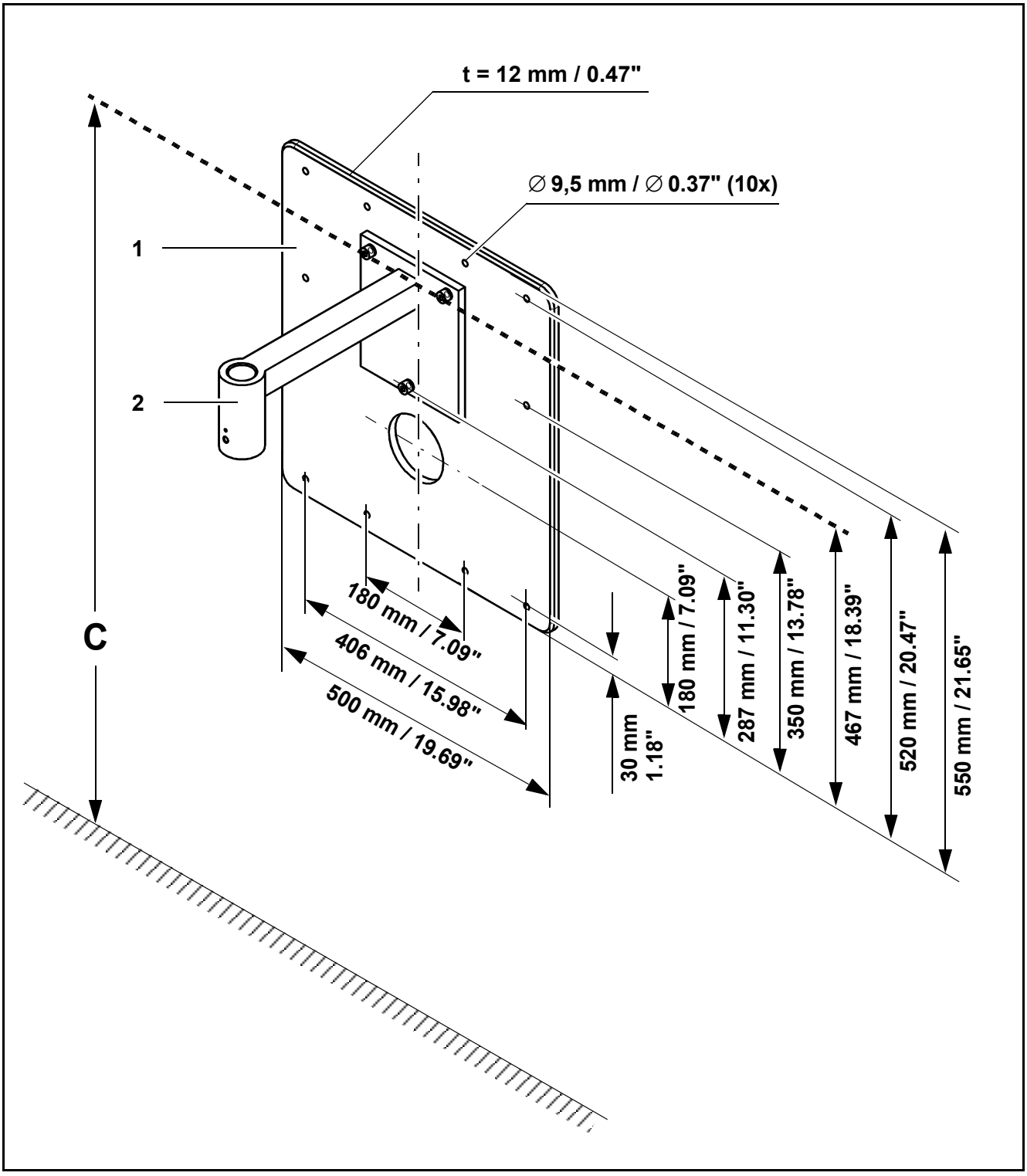
- The original wall flange from Carl Zeiss must always be used to install the wall mount on the wall plate. The wall plate must not be inclined by more than 0.2° under the load of the wall mount.

1 Wall plate for S100 wall mount (1277-816)
shown here with screwed-on S100 wall flange (1244-708)

2 S100 wall flange (1244-708)

C Installation height of wall plate and wall flange
Distance of row of bores from floor:
1910 mm (75.20") for dentistry
2060 mm (81.10") for ENT
2140 mm (84.25") for ophthalmology

t = 12 mm / 0.47" thickness of the wall plate


t = 12 mm / 0.47"
∅ 9,5 mm / ∅ 0.37" (10x)
1
2
C
180 mm / 7.09"
406 mm / 15.98"
500 mm / 19.69"
30 mm
1.18"
180 mm / 7.09"
287 mm / 11.30"
350 mm / 13.78"
467 mm / 18.39"
520 mm / 20.47"
550 mm / 21.65"

Constructional requirements for wall mounts

The actual load on the wall depends on a large number of different factors. The requirements to be met by the wall or substructure result from the addition of perpendicular forces and torques produced by the suspension system and accessories. These are the forces to be transmitted into the structural wall via the wall mount.

The customer is responsible for providing a wall with sufficient load capacity. Light-construction walls, for example, can be reinforced by additional, high-stability posts.

The wall flange must be aligned in a vertical position, with a max. deviation of ± 0.5°).

Forces and torques

Warning!
The structural engineer must ensure in each individual case that the structural wall has a sufficient load capacity for the forces and torques listed below. He must also take into account any additional loads on the wall and add an appropriate safety margin, and must observe the applicable national codes and regulations.

Caution:

- The perpendicular forces and torques specified below include an additional load of 100 kg (220 lb), which is generated when a person hangs on the end of the suspension arm (or the microscope). Further safety margins have **not** been incorporated.
- The perpendicular forces and torques have been calculated on the basis of the maximum permissible load on the suspension arm, i.e. a surgical microscope with maximum admissible accessories.
- For an S100 wall mount, the structural wall must be able to accept the following forces and torques:

  S100 wall mount with a 950mm suspension arm
  - Perpendicular force: min. 1,110 N (min. 250 lbf)
  - Torque, vertical: min. 1,690 Nm (min. 1,250 lbf.ft)
  - Torque, horizontal: min. 1,340 Nm (min. 990 lbf.ft)

  S100 wall mount with a 600mm suspension arm
  - Perpendicular force: min. 1,090 N (min. 245 lbf)
  - Torque, vertical: min. 1,350 Nm (min. 1,000 lbf.ft)
  - Torque, horizontal: min. 1,020 Nm (min. 755 lbf.ft)

Confirmation of the structural calculation and execution of installation

Sales order no.: .....

Customer address /
Delivery address: .....
.....
.....

By signing below, the following persons confirm that they have performed their work in a proper and orderly way:

The **structural engineer** for

- the selection and layout of the installation site, taking possible building vibrations into account
- the structural calculation, taking into account the applicable national regulations and the planning manual
- the structural checking of an existing substructure
- the structural calculation of a substructure built on site
- the final checking and release of the structural calculations:

Name and address of
the structural engineer: .....
.....
.....

....

Date Signature

The **installer** for
the proper mounting of the pre-installation set or the ceiling or wall flange from Carl Zeiss**:**

Name and address of
the executing company
and installer's name: .....
.....
.....
.....

....

Date Signature

Index

Z

Carl Zeiss Surgical GmbH
A Carl Zeiss Meditec Company

73446 Oberkochen
Germany

Fax: ++49 (0) 7364-20 48 23
Email: surgical@meditec.zeiss.com
Internet: www.meditec.zeiss.com

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