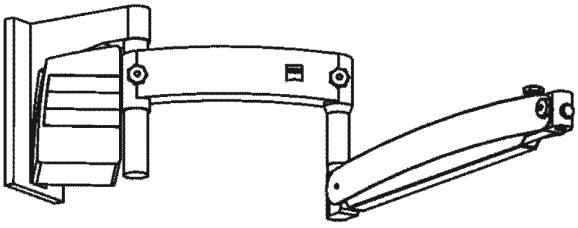
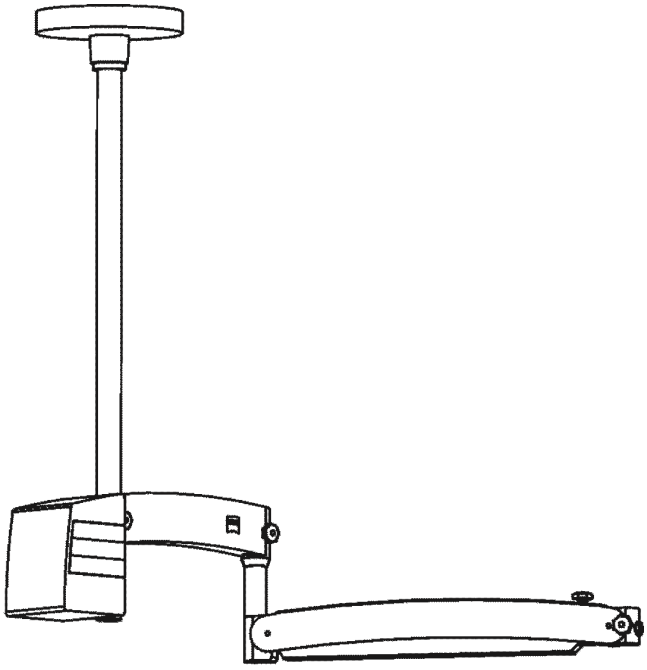
S100 ceiling mount,
S100 wall mount





Planning manual

M-30-1385-en

Version 8.2

2014-07-15

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.

Change record

Manual vers.	Change	Page
8.2	**Change record inserted**	3
	S100 ceiling mount (dental)	
	Order sheet: Distance of 24 mm from the ceiling included in the graphic.	33
	S100 ceiling mount (ENT)	
	Indication of ceiling height H_{min} and H_{max} changed to the numerical values that can be calculated.	41
	Order sheet: Distance of 24 mm from the ceiling included.	43
	S100 ceiling mount (ophthalmology)	
	Indication of ceiling height H_{min} and H_{max} changed to the numerical values that can be calculated.	51
	Order sheet: Distance of 24 mm from the ceiling included.	53
	S100 ceiling mount (gynecology)	
	Indication of ceiling height H_{min} and H_{max} changed to the numerical values that can be calculated.	61
	Order sheet: Distance of 24 mm from the ceiling included.	63
	On-site preparations, anchoring of the S100 ceiling mount	
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Technical data for gynecology

Technical data / Support units

Customer’s preparatory responsibilities

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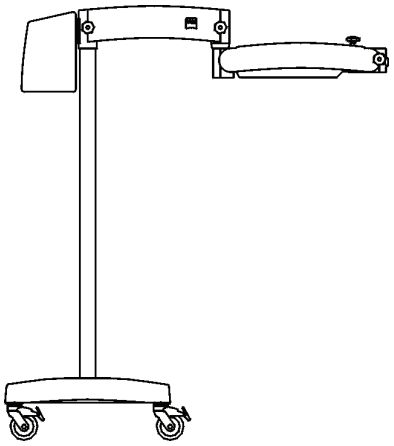
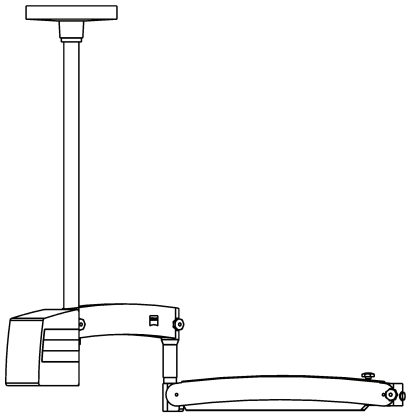
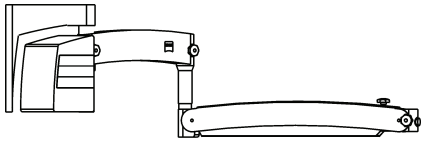
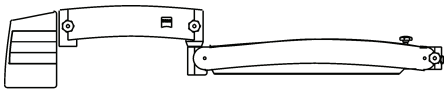
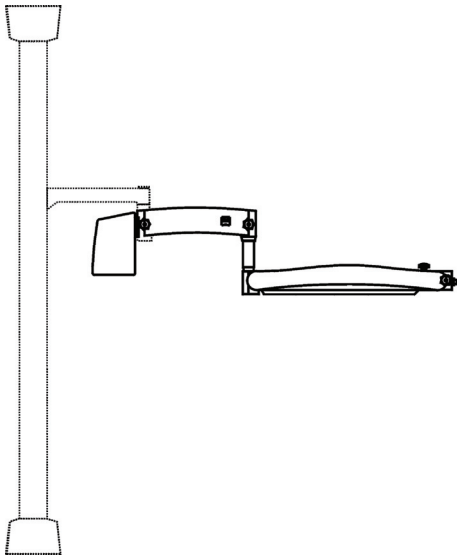
S100 product range

Floor stand	Cat. No.: 1403-542
	

Ceiling mount	Cat. No.: 1403-572
	

Wall mount **with a 950 mm suspension arm**	Cat. No.: 1403-544
	

Support unit **for attachment to external examination unit,**	Cat. No.: 1420-191
	
	Cat. No.: 1095-094
	

Centro suspen-sion system **for attachment to external Centro column,**	Cat. No.: 1403-573
	

General technical data

Weights

Weights of the systems and major components in the S100 product range:

Device	Weight Approx.
S100 ceiling mount, complete with OPMI pico	46 kg
S100 wall mount, complete with OPMI pico (without wall plate 1277-814)	34 kg
S100 support unit with illumination module (without OPMI pico)	23 kg
S100 support unit (without illumination module without OPMI pico)	13.5 kg

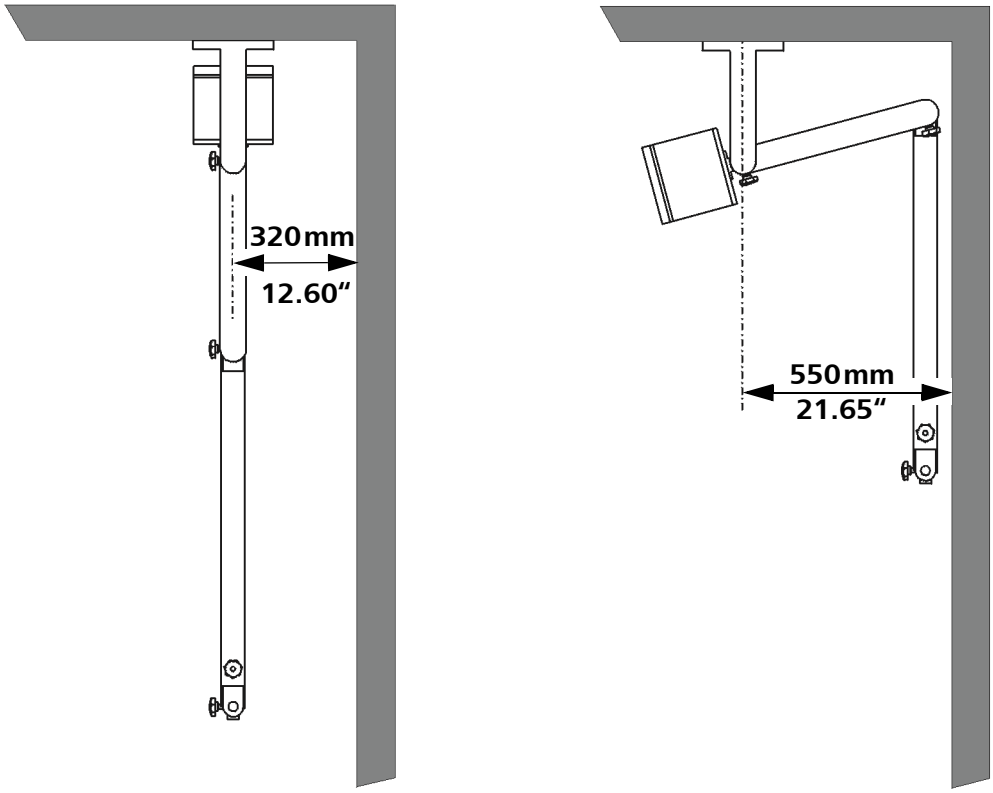
Component	Weight Approx.
OPMI pico with standard accessories	7 kg
Illumination unit for S100 suspension systems	9.5 kg
Carrier arm	5 kg
Suspension arm - 950 mm	8.5 kg
Ceiling flange for S100 ceiling mount (1118-426)	12 kg
S100 column for ceiling mount	4 kg
Pre-installation set for ceiling (1106-362) with max. height A = 800 mm	40 kg
Cover (1245-511) for pre-installation set (with max. height A = 800 mm)	14 kg
Wall flange (1244-708)	4 kg
Wall plate for S100 wall mount (1277-814)	8.5 kg

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 equipment.

Also for the ceiling mount, any collisions with doors and other examination equipment must also be avoided.



1:20

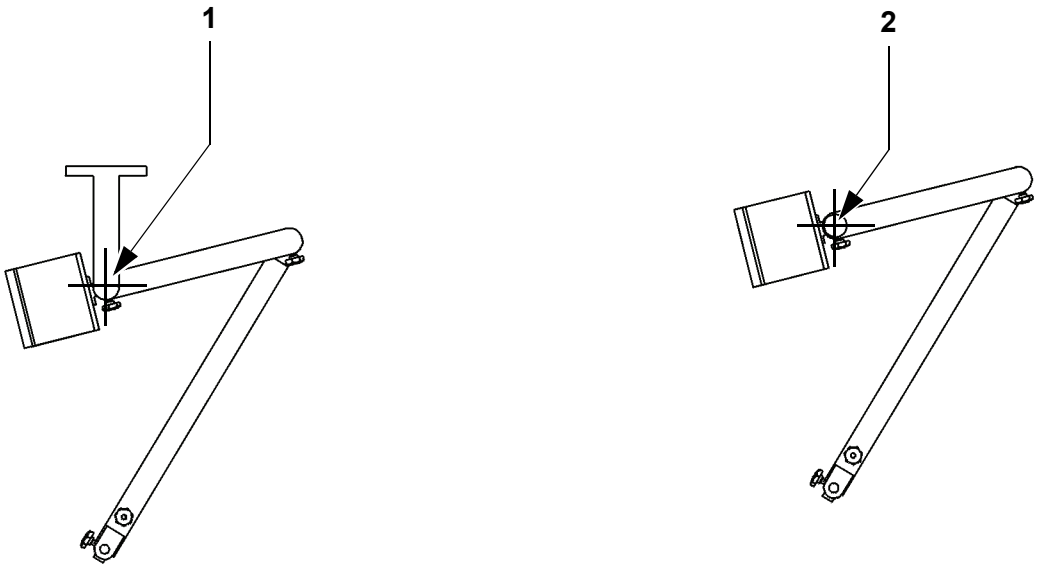
Determining the pivot points

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

Note:

– 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 in the middle between these two positions. It is possible to move a little beyond these positions.

– The ceiling mount provides a circular motion and work range of 360°. This is achieved by the 163° swivel range of the carrier arm mounted on the column 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 1300 mm (51.18")

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

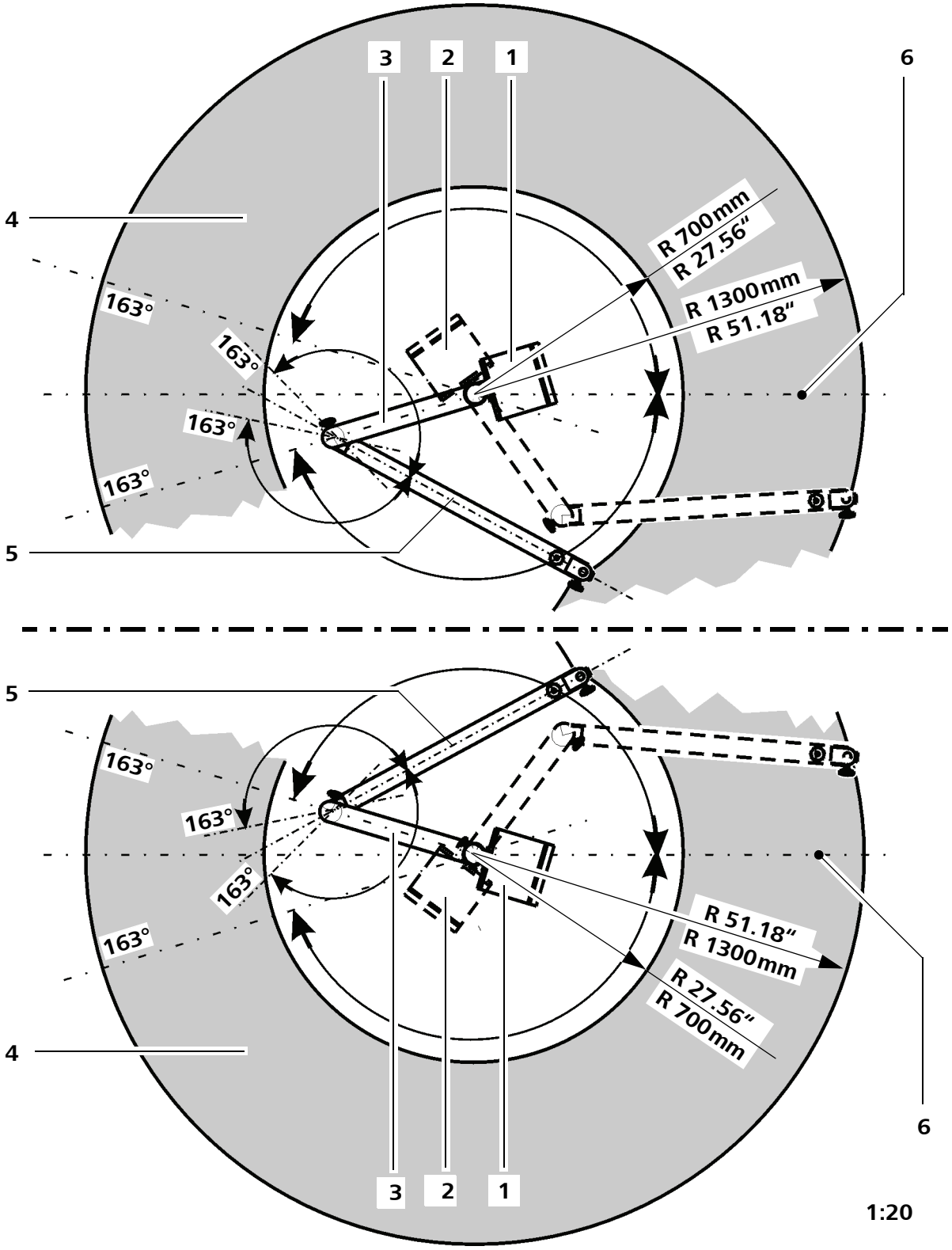
4 Motion and work range of the ceiling mount

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

Motion range of wall mount with 950 mm suspension arm

Note:

- 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 in the middle between these two positions. It is possible to move a little beyond these positions.
- The wall mount with a 950 mm suspension arm provides a semi-circular motion and work range of 180°. This is achieved by the ±105° swivel range of the carrier arm 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")

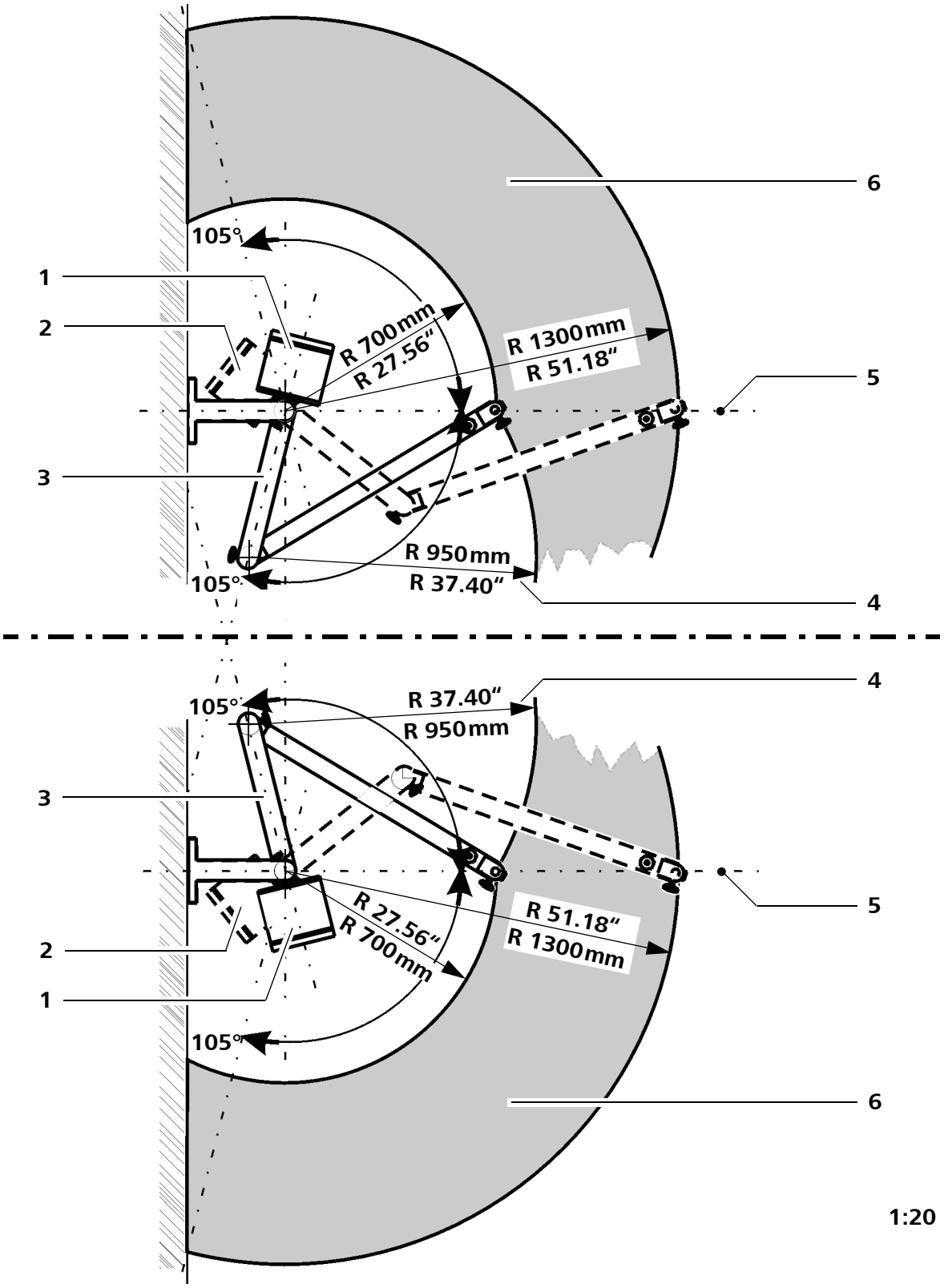
2 122° position of the suspension arm relative to the carrier arm, corresponds to a radius of 1300 mm (51.18")

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

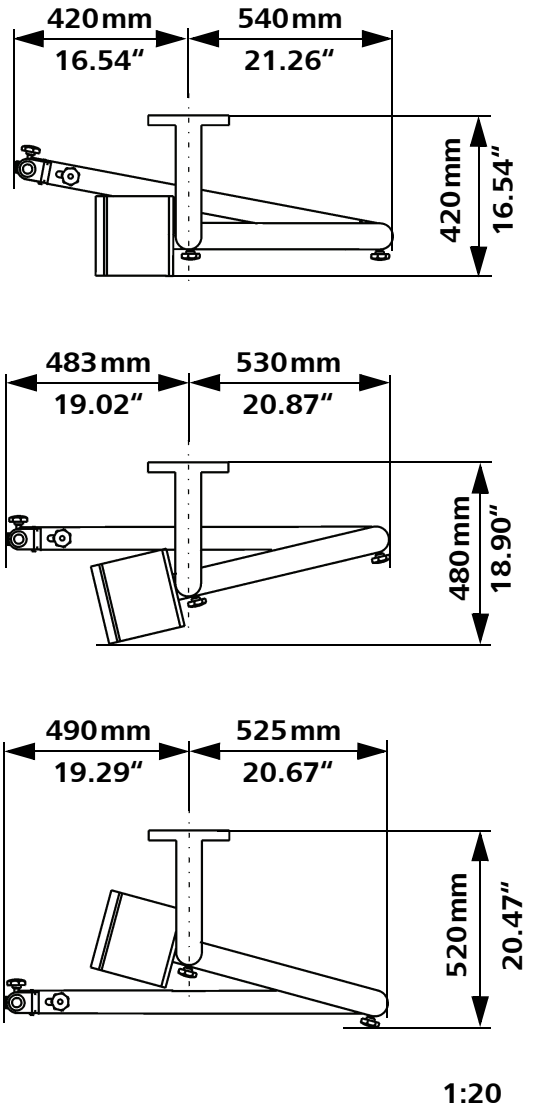
6 Motion and work range of the wall mount


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

Standby positions

Possible standby positions of the wall mount

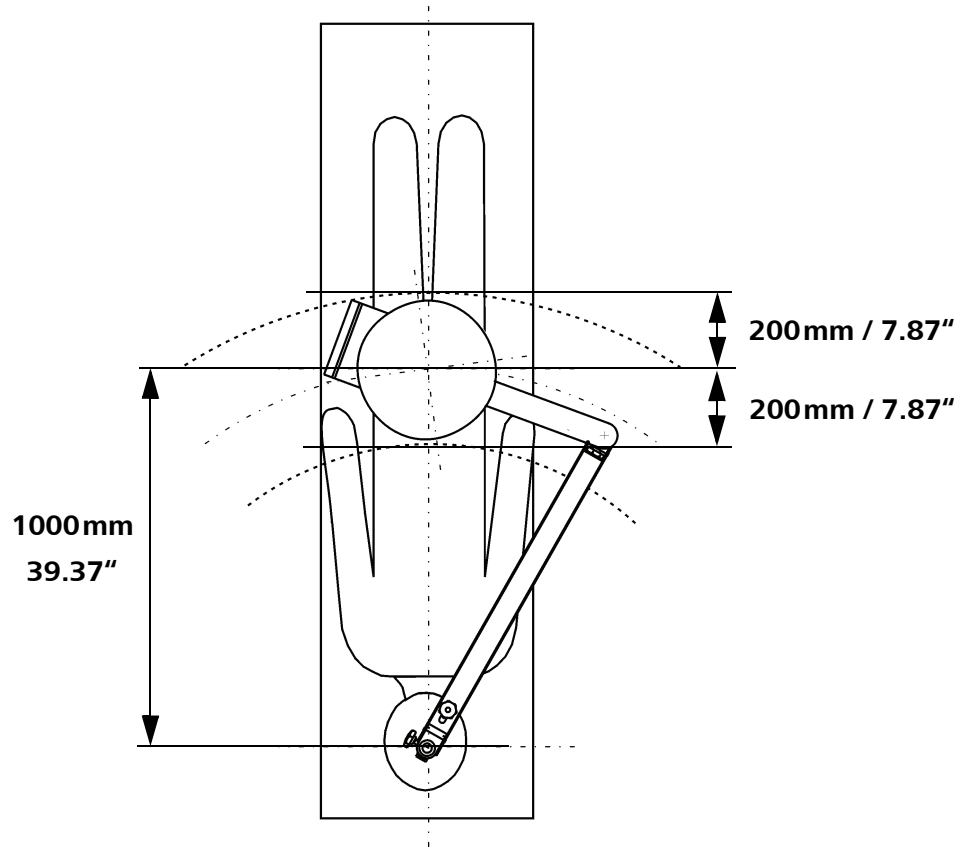
The following illustrations show the possible standby positions of the wall mount.



1:20

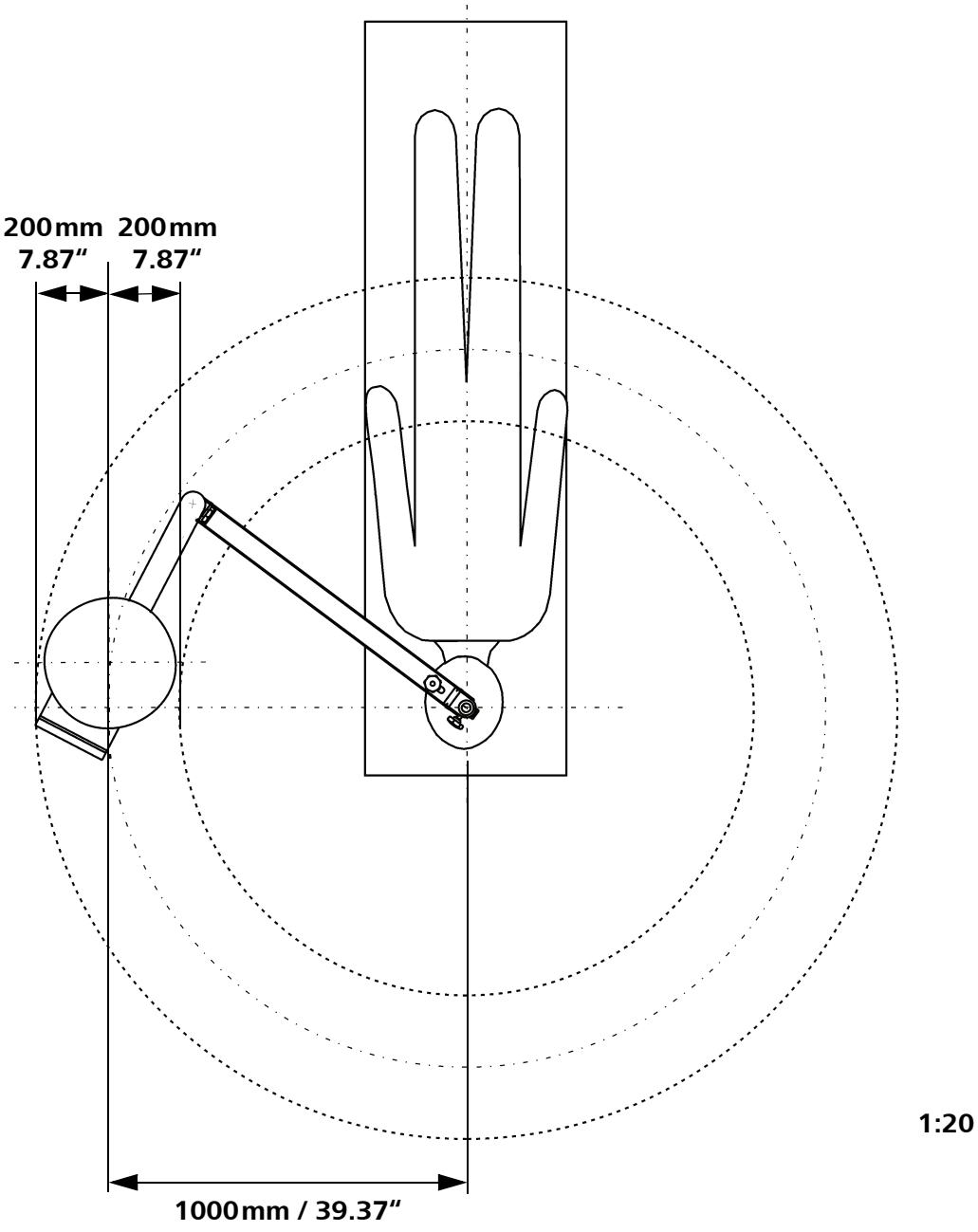
Installation sites in the OR or the treatment room

Ceiling mount: ideal installation above the patient

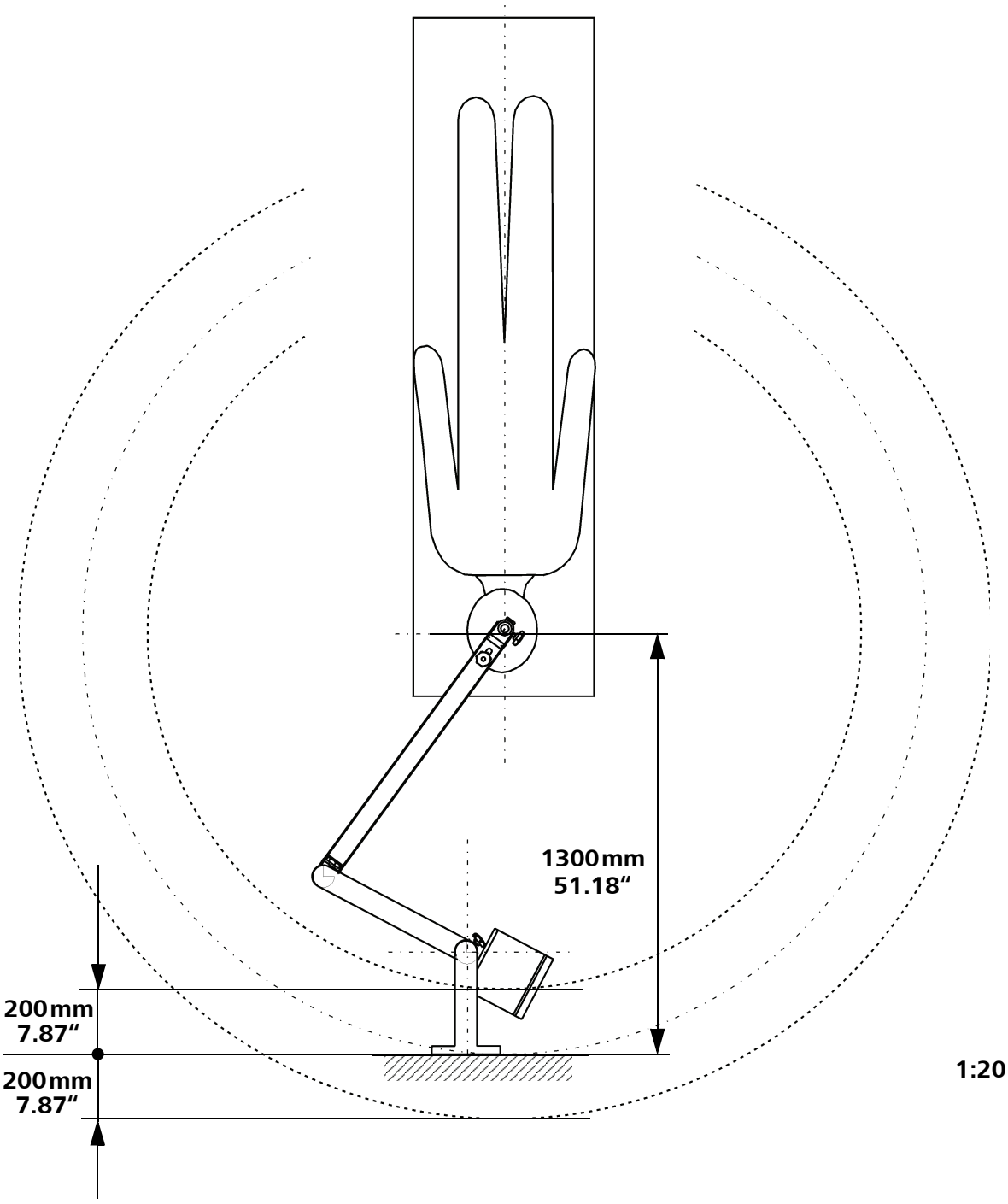


1:20

Ceiling mount: alternative installation to the patient's side



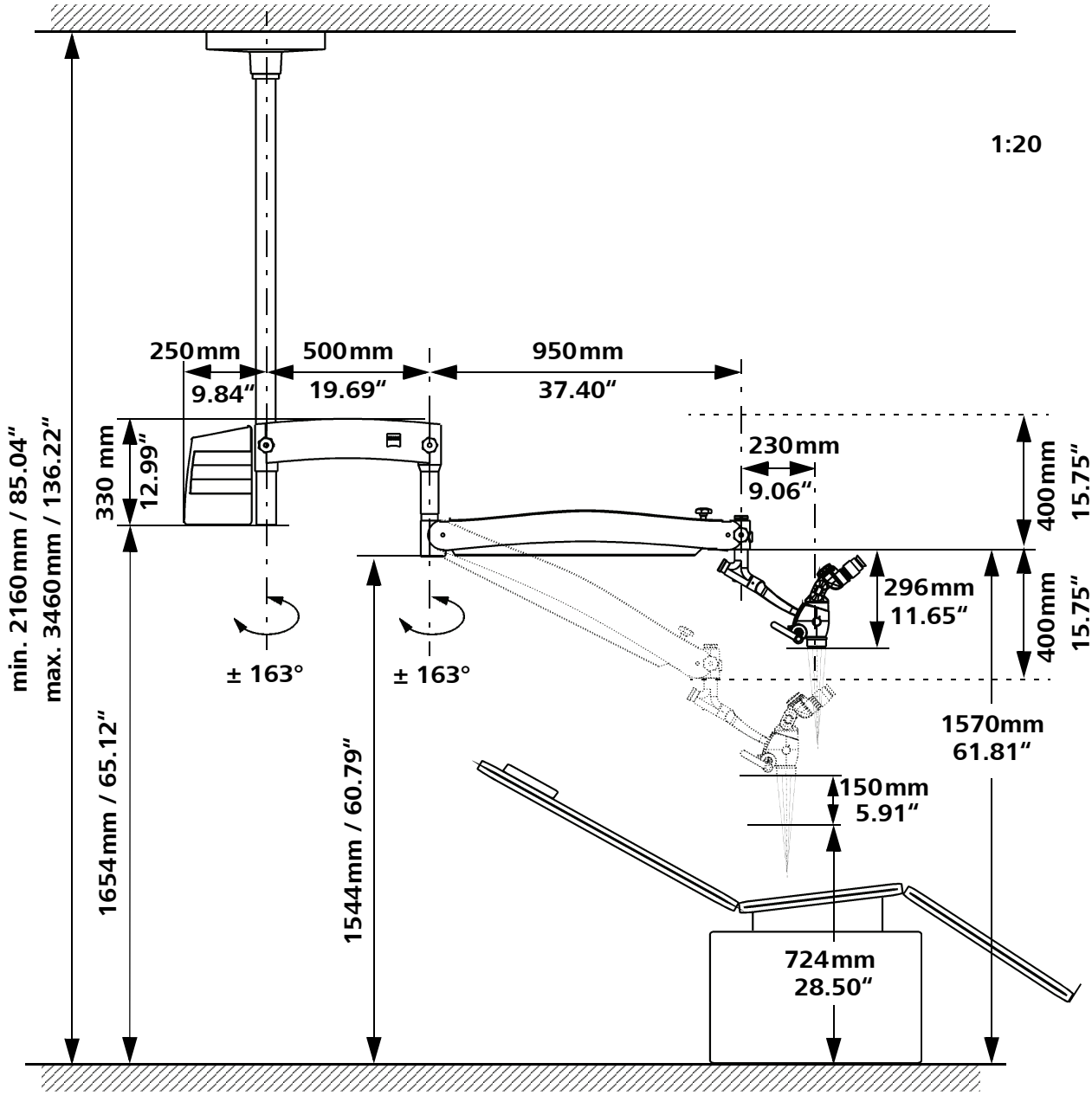
Wall mount with 950 mm suspension arm, possible installation sites



Technical data / Dentistry

Ceiling mount for dentistry

Dimensions of ceiling mount for dentistry for a room height of 2160mm up to 3460mm



Ordering data and order forms for S100 ceiling mount (dentistry)

Ordering data for S100 ceiling mount for dentistry, for a room height of 2160mm up to 3460mm

Caution:

- For each purchase order, precisely specify the column length in the following order form.
- Please take into account that constructional changes such as layers of plaster, substructures, etc. may still be made until the OR or treatment room is completed.
- Enter the dimensions in the order form and enclose a signed copy with your purchase order.

The column is produced individually to your specifications. For this reason, the column cannot be returned.

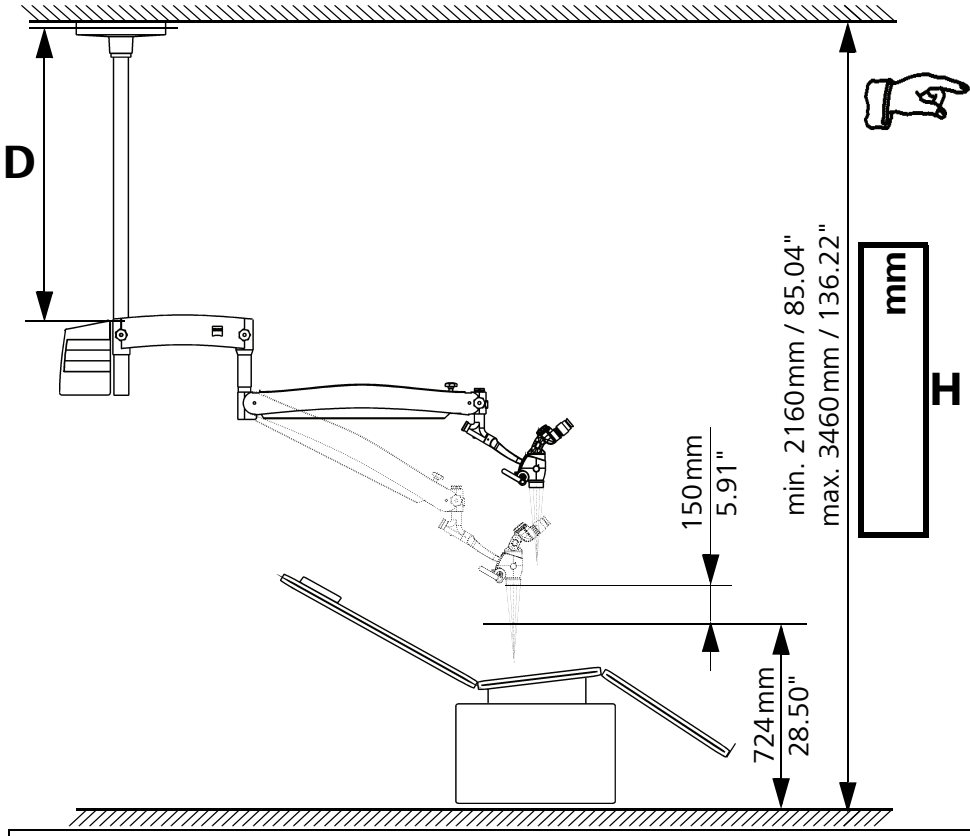
D **The column length** is determined on the basis of your height specifications
Note: The ceiling flange (1118-426) will be mounted on the construction site, see Page 78.

H **Room height** is the distance from the finished floor to the structural ceiling, i.e. to the underside of the bare concrete ceiling.

Order sheet for: S100 ceiling mount (dental) for a ceiling height from 2160mm to 3460mm

Sales order no.: .....

Customer address /
Delivery address: .....



Note:

– Please accurately measure and enter the ceiling height (H).

Calculation of the column length:	Ceiling height (H)	-	Fixed value	=	Column length (D)
	..... mm	-	1960 mm	=	..... mm

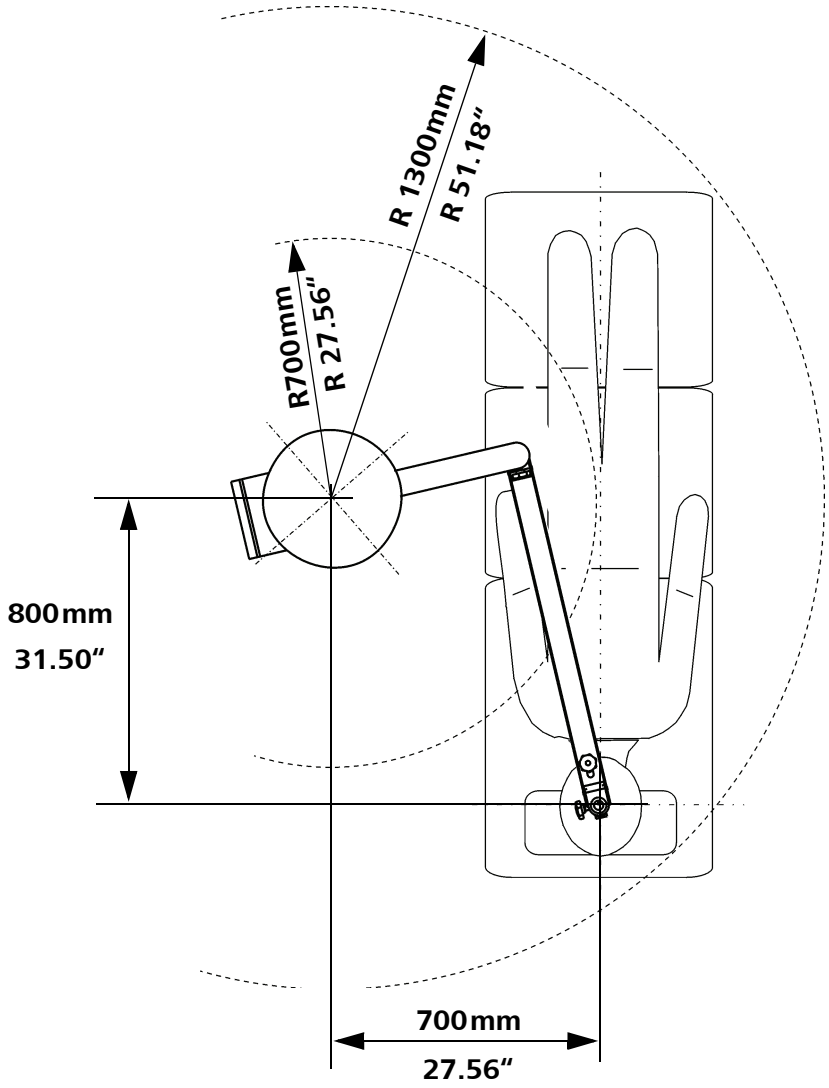
$(D)_{min}$ = 200mm (7.87")
$(D)_{max}$ = 1500mm (59.06")

....

Date **Signature**

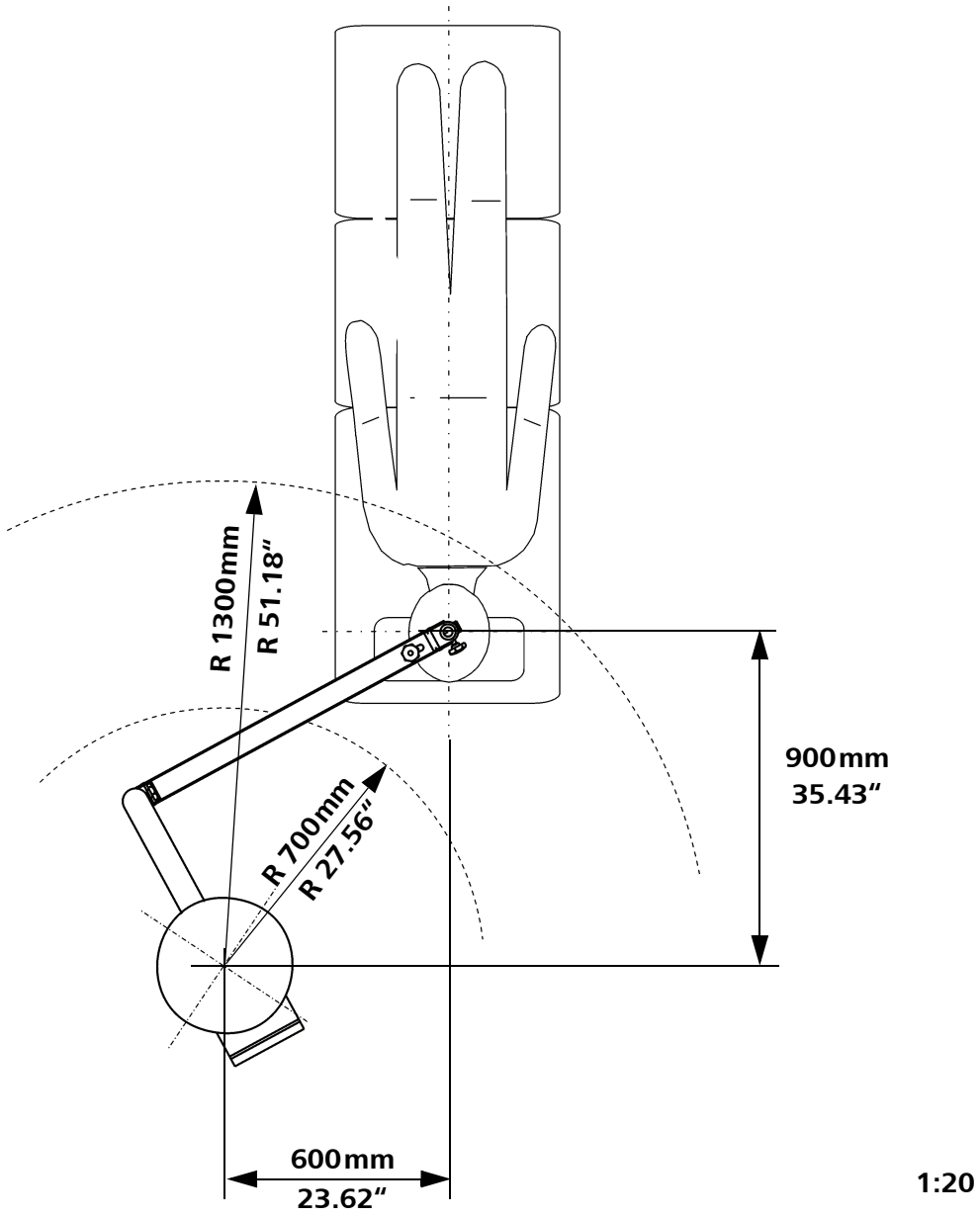
Ceiling mount for dentistry, recommended work ranges

Work range recommended for ideal installation site



1:20

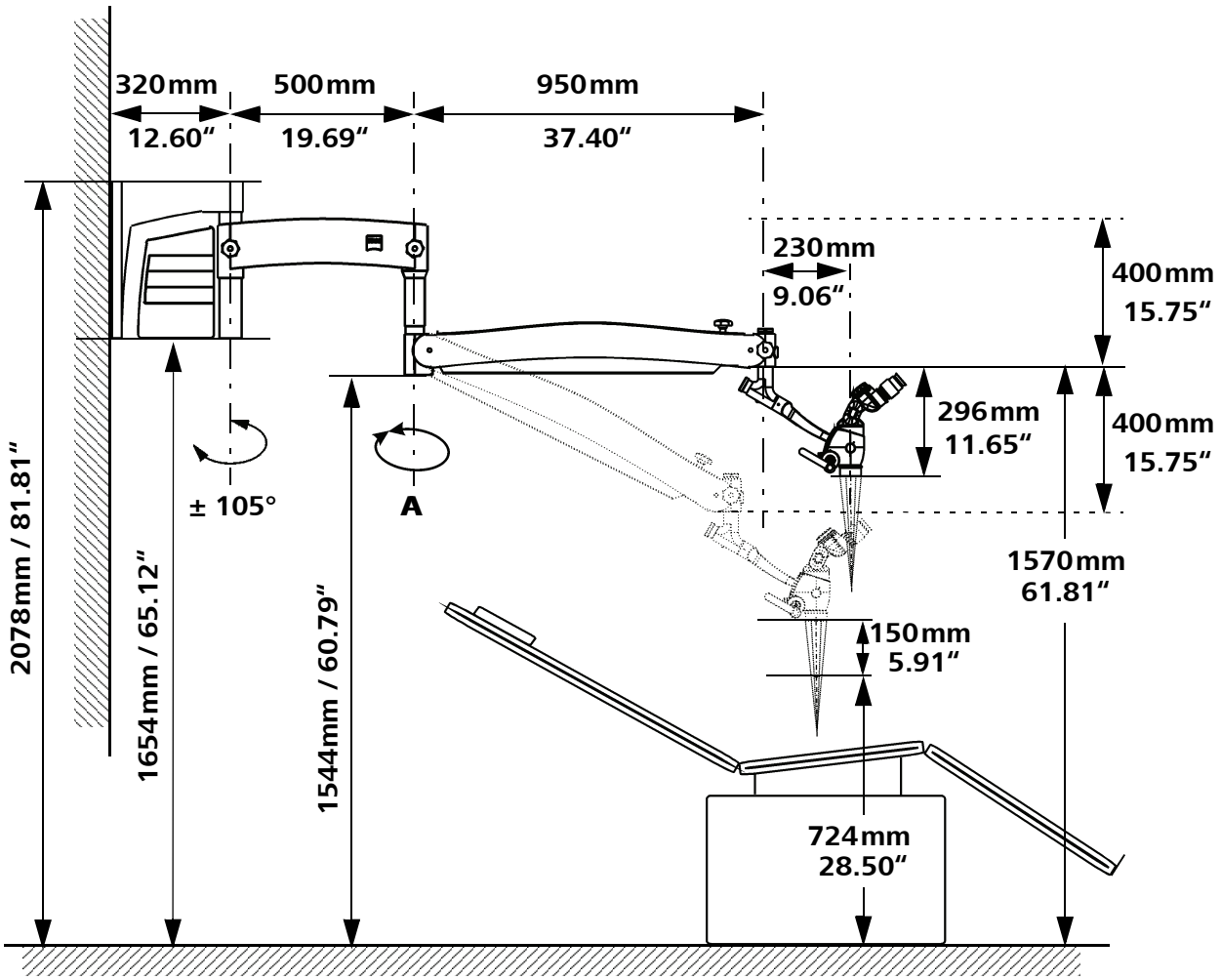
Work range recommended for alternative installation site



Wall mount for dentistry, dimensions

Wall mount with a 950mm suspension arm for dentistry

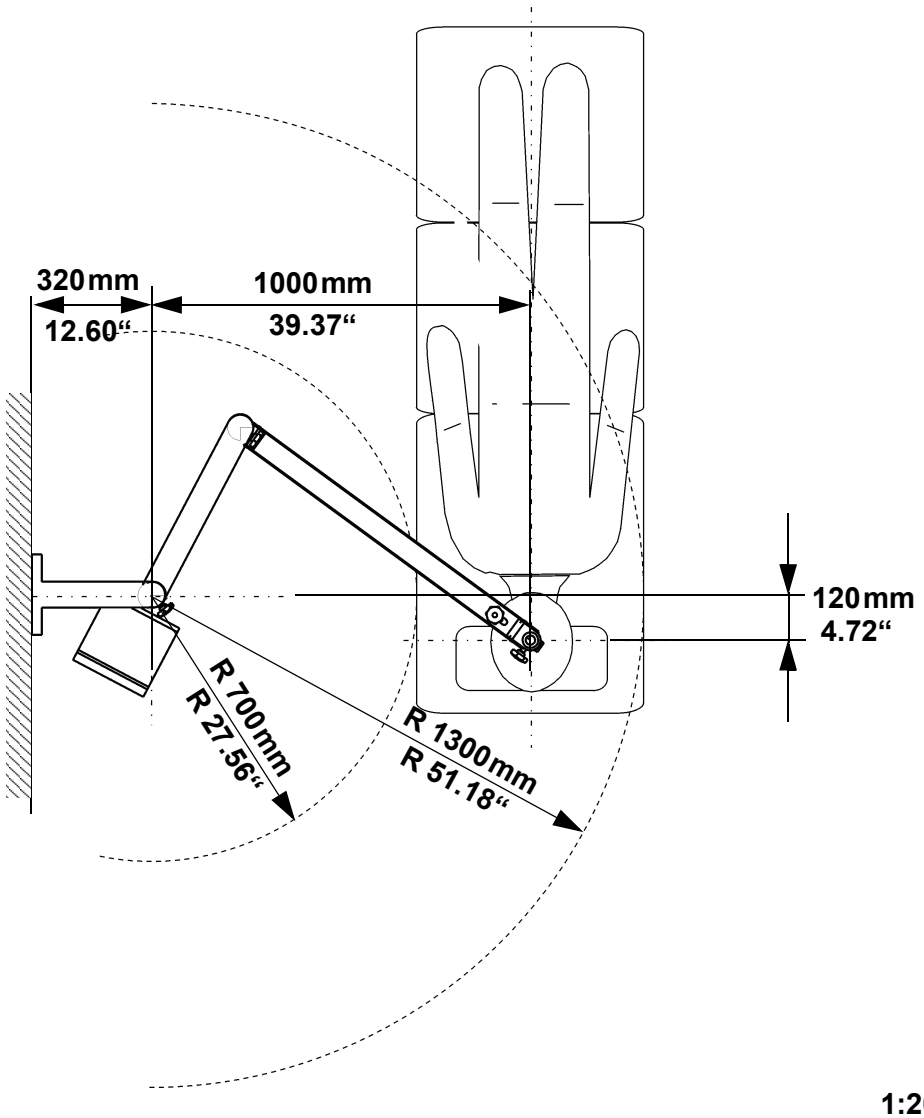
A No stop



1:20

Wall mount for dentistry, recommended work ranges

Recommended work ranges for wall mount with a 950mm suspension arm



1:20

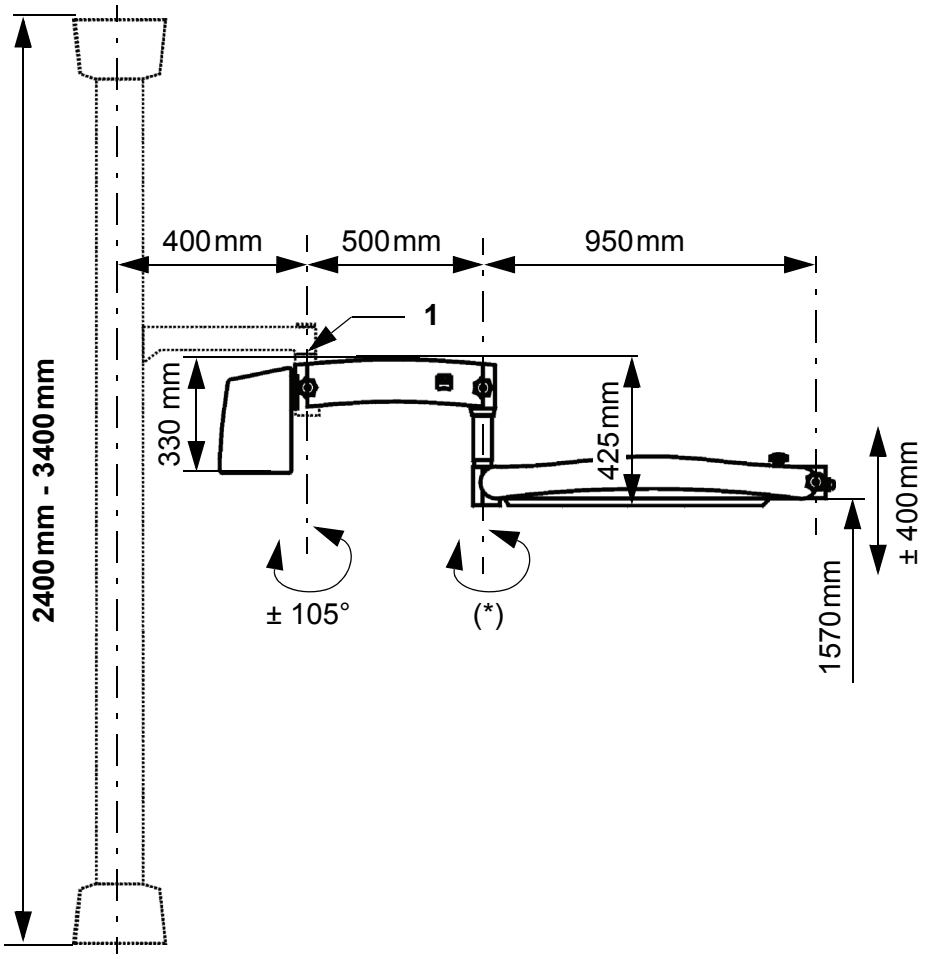
S100 Centro suspension system for dentistry

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

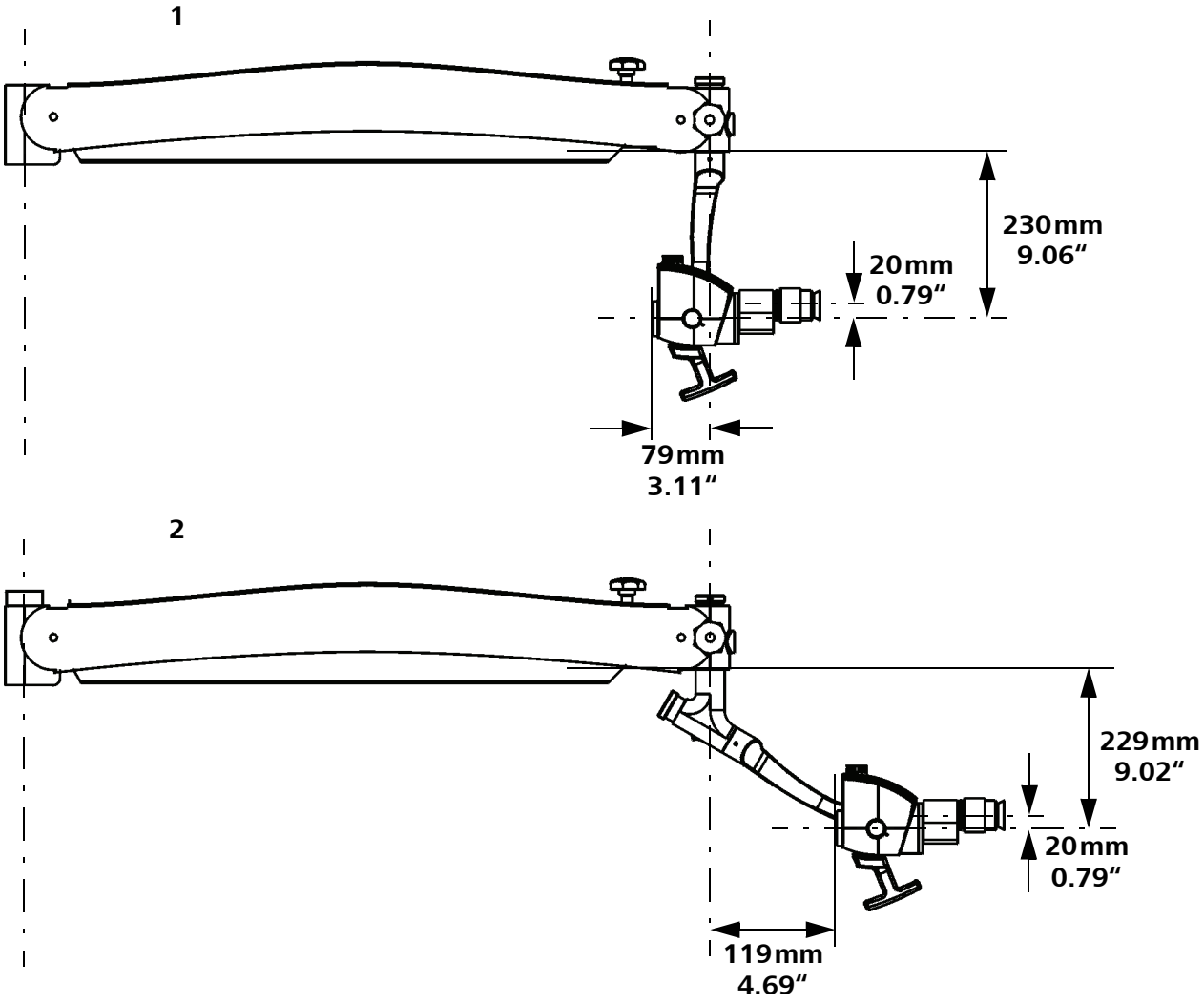


Technical data / ENT

Alternative mounting possibilities for OPMI pico in ENT

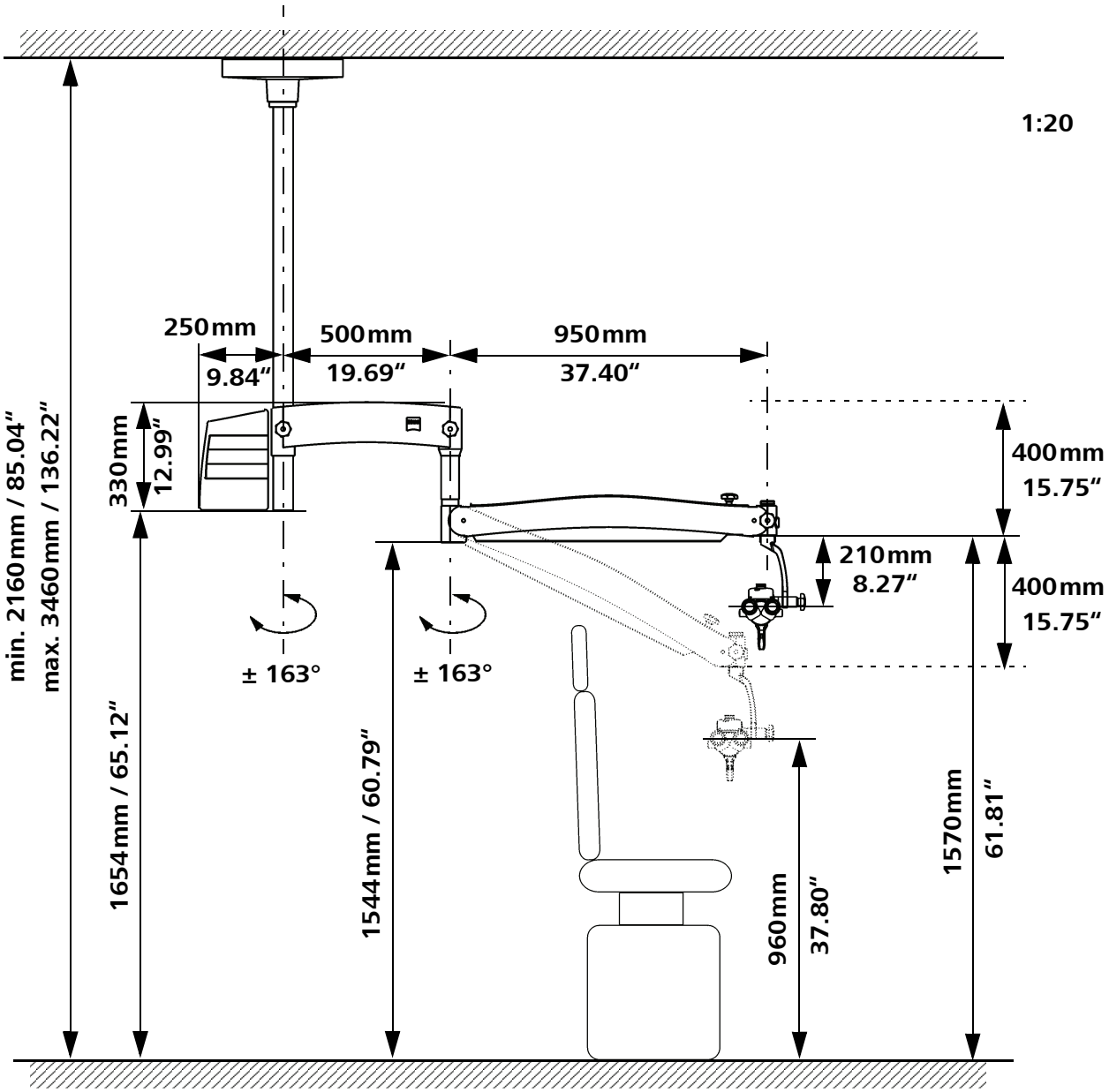
1 Direct vertical mounting of OPMI pico in the downward direction on the S100 suspension arm via the microscope's support arm.

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



Ceiling mount for ENT

Dimensions of ceiling mount for ENT at a ceiling height from 2160 mm to 3460 mm



Ordering data and order forms for S100 ceiling mount (ENT)

Ordering data for S100 ceiling mount for ENT, at a ceiling height from 2160mm to 3460mm

Caution:

- For each purchase order, precisely specify the column length in the following order form.
- Please take into account that constructional changes such as layers of plaster, substructures, etc. may still be made until the OR or treatment room is completed.
- Enter the dimensions in the order form and enclose a signed copy with your purchase order.

The column is produced individually to your specifications. For this reason, the column cannot be returned.

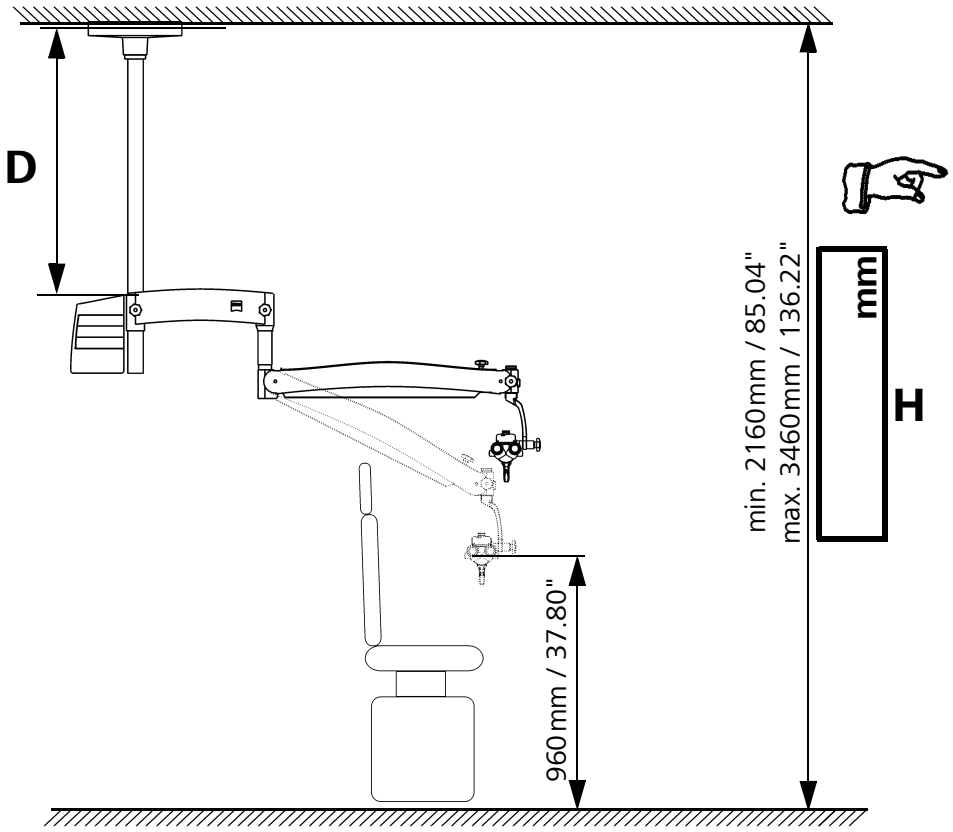
D **The column length** is determined on the basis of your height specifications
Note: The ceiling flange (1118-426) will be mounted on the construction site, see Page 78.

H **Room height** is the distance from the finished floor to the structural ceiling, i.e. to the underside of the bare concrete ceiling.

Order sheet for: S100 ceiling mount (ENT) for a ceiling height from 2160mm to 3460mm

Sales order no.: .....

Customer address /
Delivery address: .....



Note:

– Please accurately measure and enter the ceiling height (H).

Calculation of the column length:	Ceiling height (H)	-	Fixed value	=	Column length (D)
	..... mm	-	1960 mm	=	..... mm

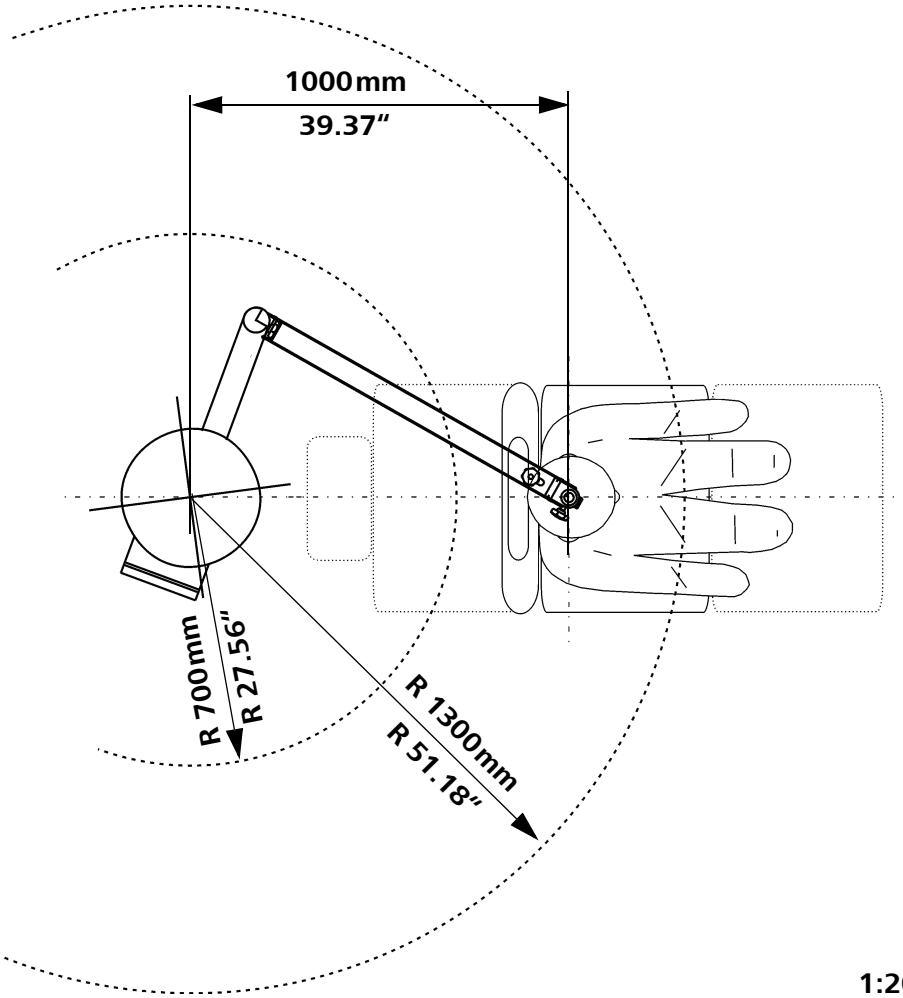
$(D)_{min}$ = 200mm (7.87")
$(D)_{max}$ = 1500mm (59.06")

....

Date **Signature**

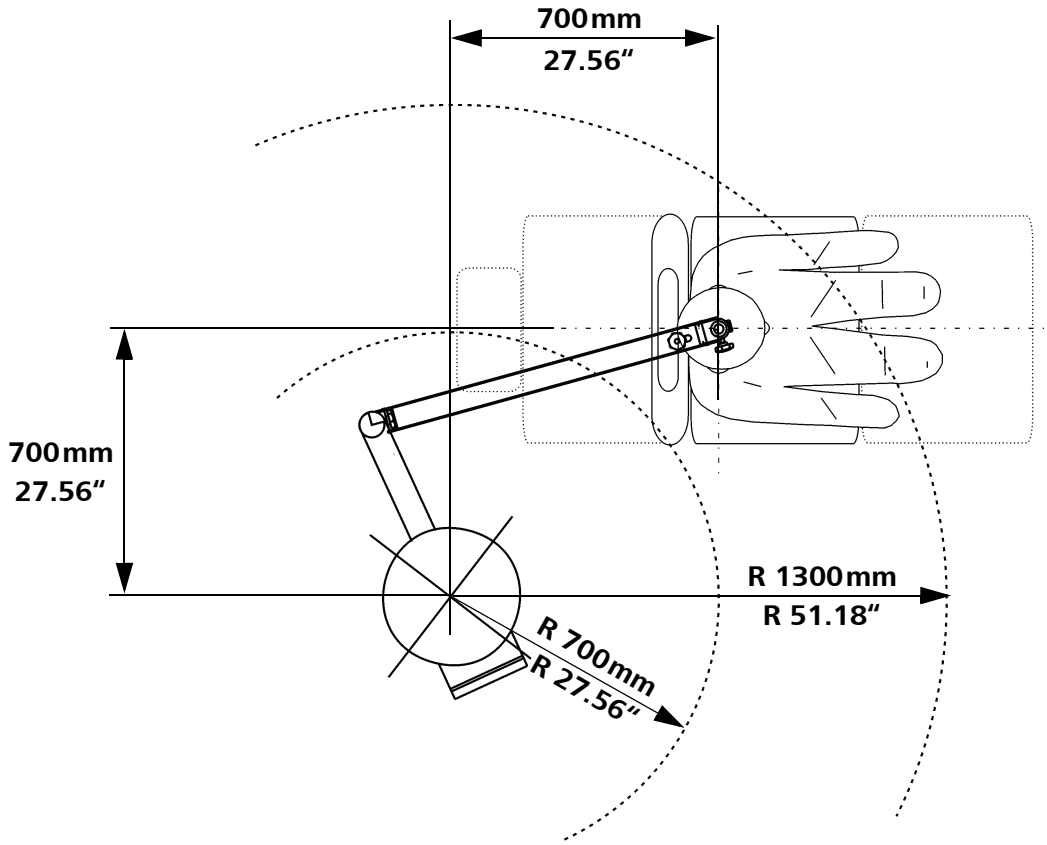
Ceiling mount for ENT, recommended work ranges

Work range recommended for ideal installation site



1:20

Work range recommended for alternative installation site

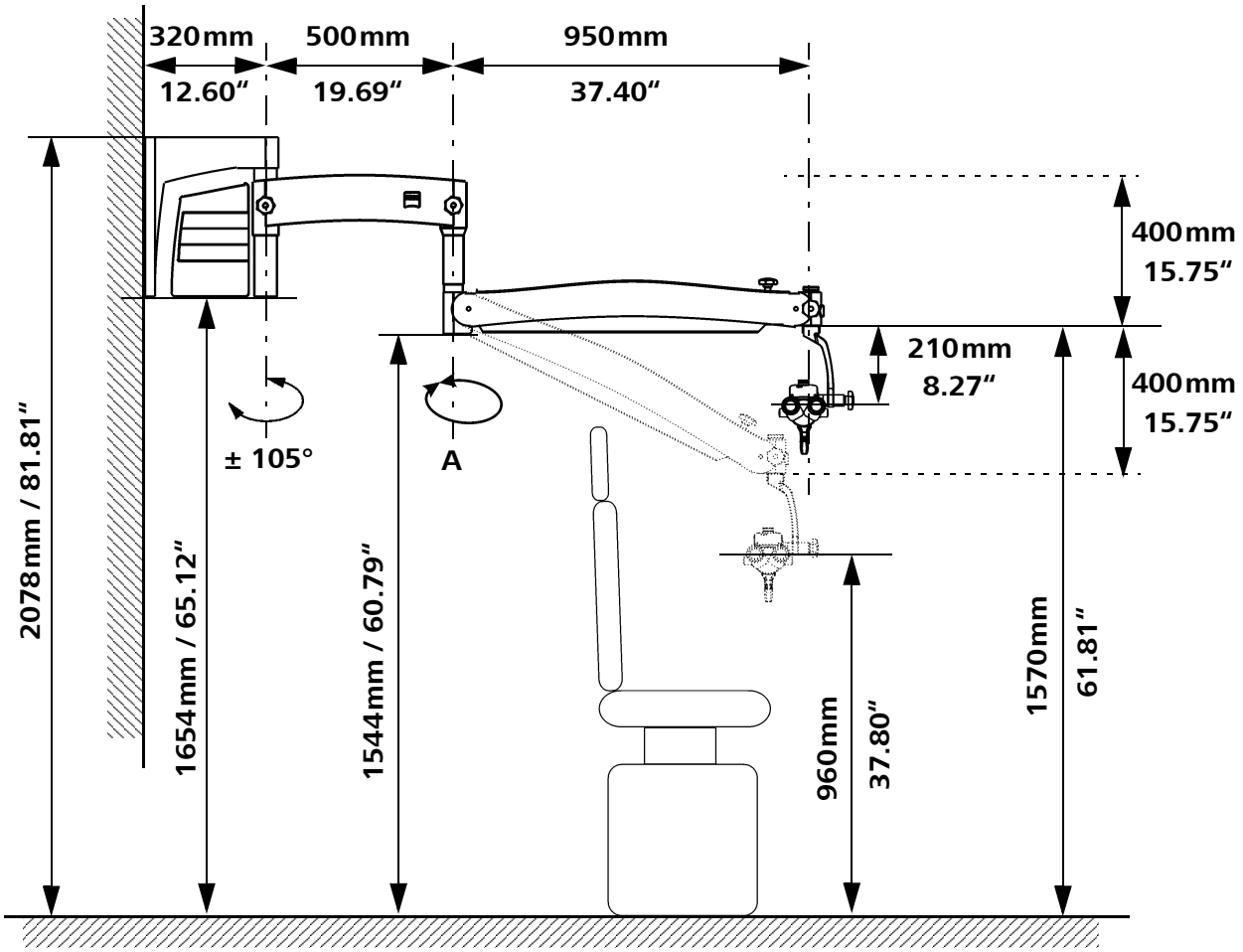


1:20

Wall mount for ENT, dimensions

Wall mount with a 950mm suspension arm for ENT

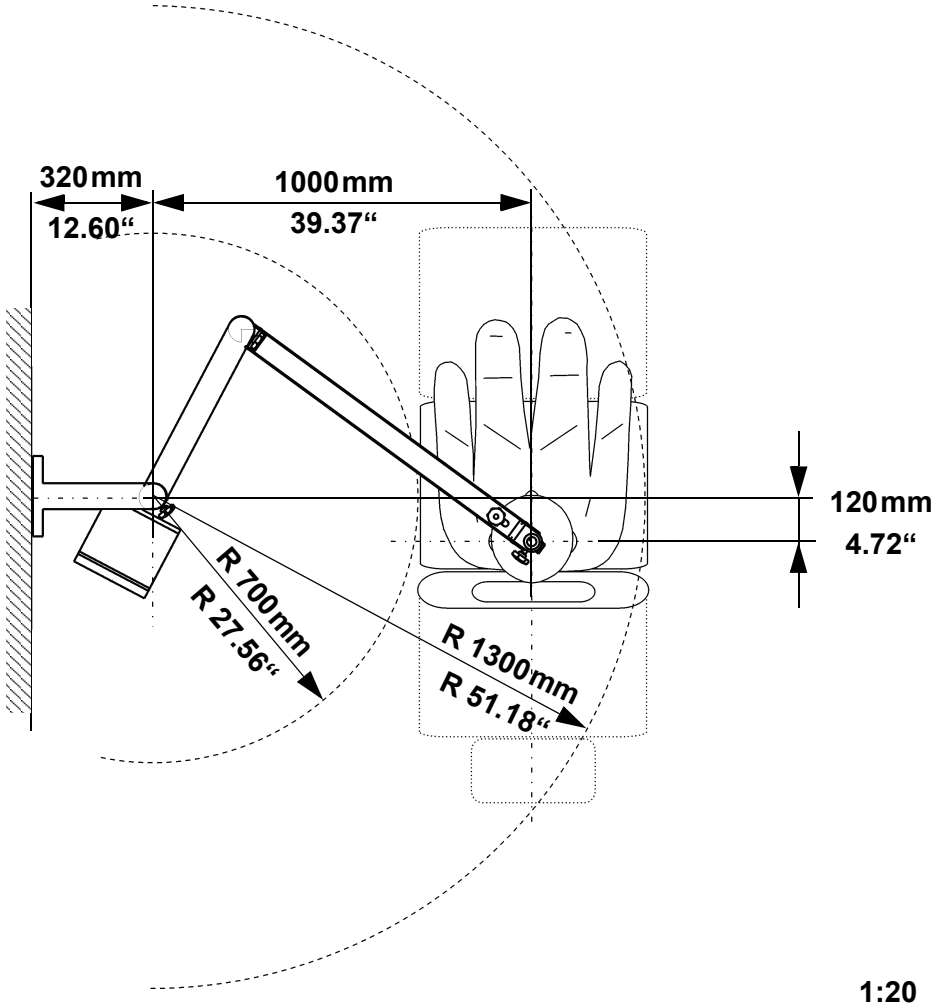
A No stop



1:20

Wall mount for ENT, recommended work ranges

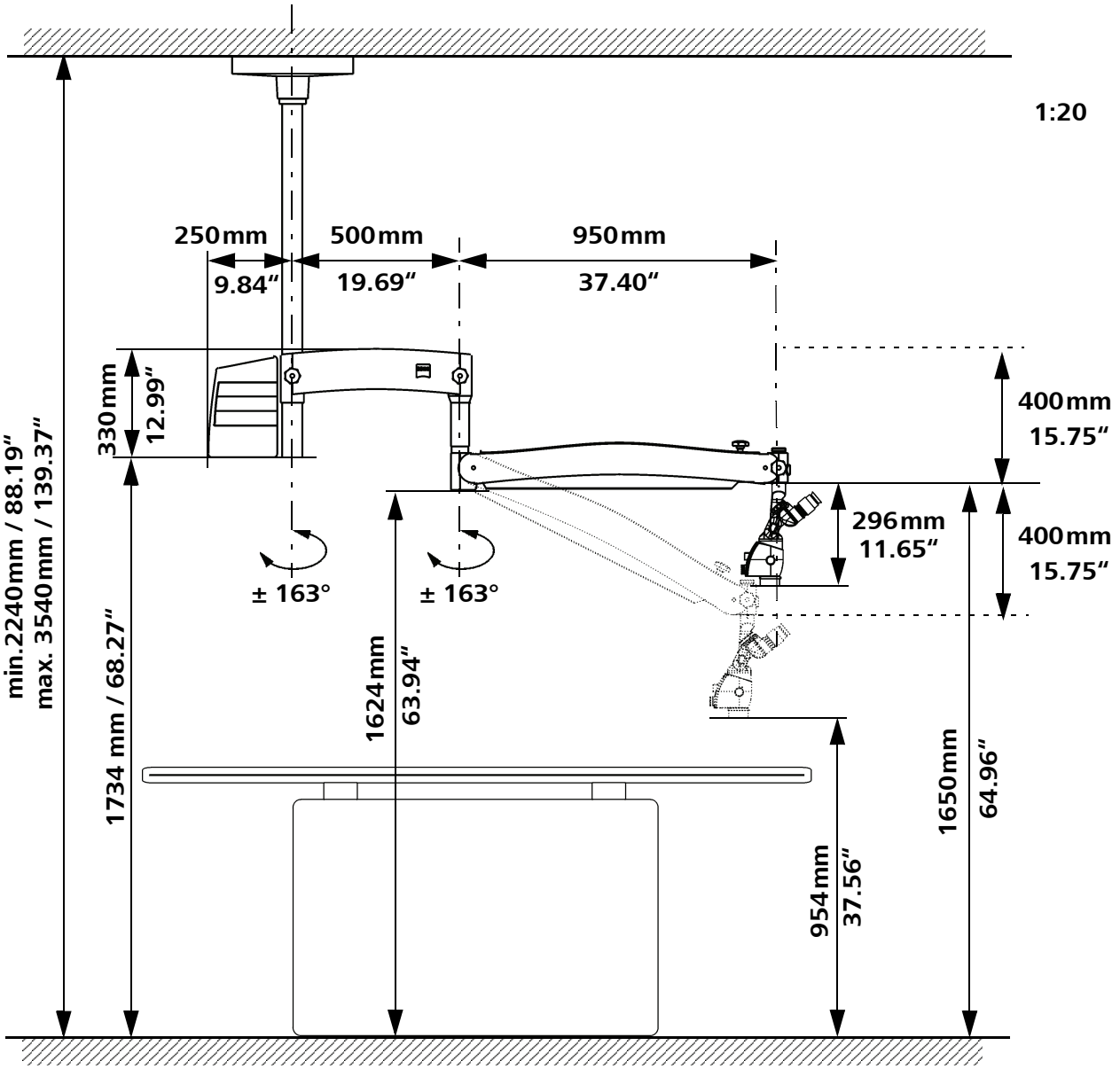
Recommended work ranges for wall mount with a 950mm suspension arm



Technical data / Ophthalmology

Ceiling mount for ophthalmology

Dimensions of ceiling mount in ophthalmology at a ceiling height from 2240 mm to 3540 mm



Ordering data and order forms for S100 ceiling mount (ophthalmology)

Ordering data for S100 ceiling mount for ophthalmology, at a ceiling height from 2240 mm to 3540 mm

Caution:

- For each purchase order, precisely specify the column length in the following order form.
- Please take into account that constructional changes such as layers of plaster, substructures, etc. may still be made until the OR or treatment room is completed.
- Enter the dimensions in the order form and enclose a signed copy with your purchase order.

The column is produced individually to your specifications. For this reason, the column cannot be returned.

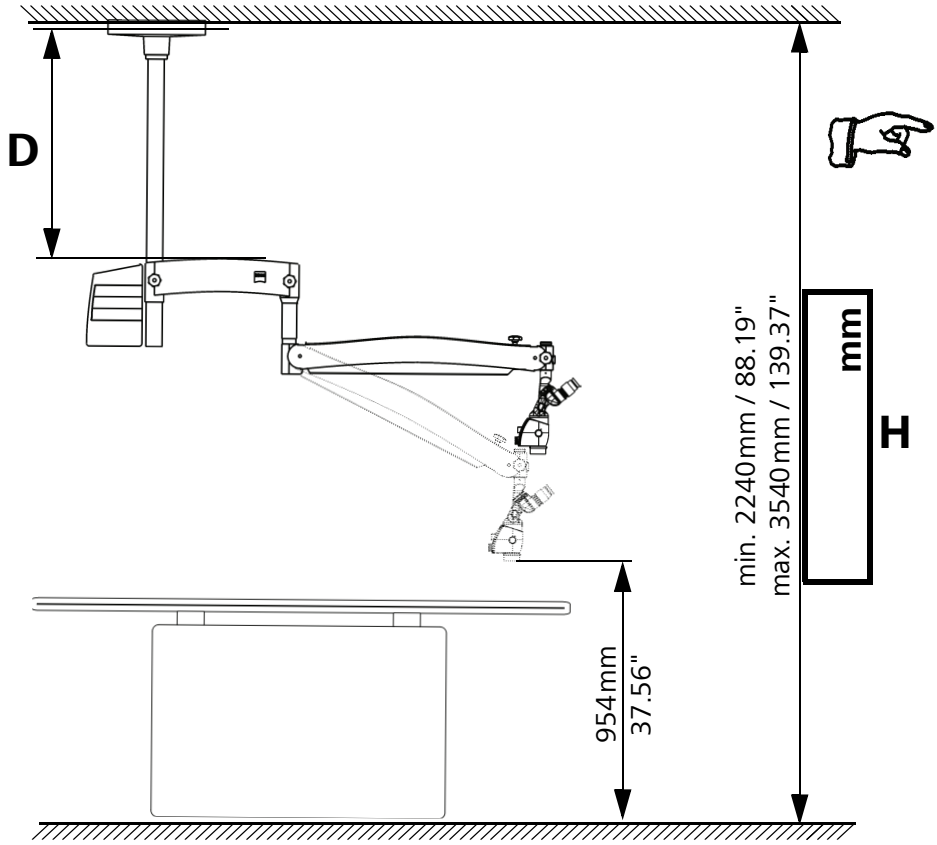
D **The column length** is determined on the basis of your height specifications
Note: The ceiling flange (1118-426) will be mounted on the construction site, see Page 78.

H **Room height** is the distance from the finished floor to the structural ceiling, i.e. to the underside of the bare concrete ceiling.

Order sheet for: S100 ceiling mount (ophthalmology) for a ceiling height from 2240 mm to 3540 mm

Sales order no.: .....

Customer address /
Delivery address: .....



Note:

– Please accurately measure and enter the ceiling height (H).

Calculation of the column length:	Ceiling height (H)	-	Fixed value	=	Column length (D)
	..... mm	-	2040 mm	=	..... mm

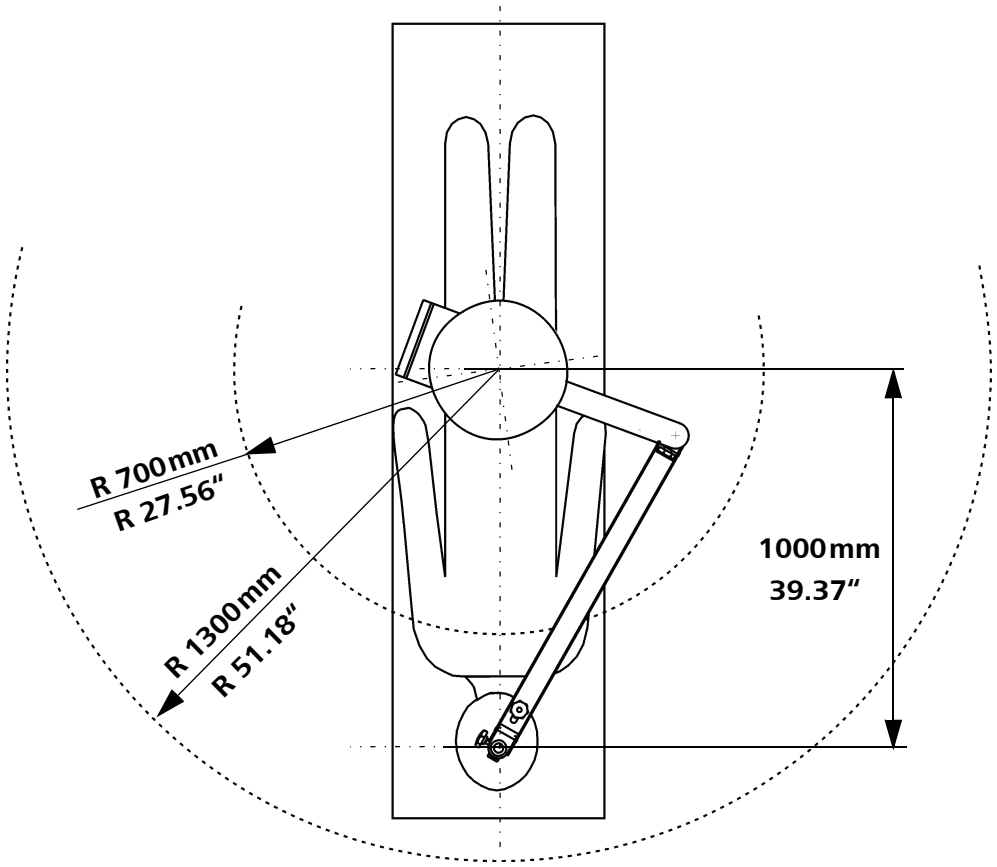
$(D)_{min}$ = 200 mm (7.87")
$(D)_{max}$ = 1500 mm (59.06")

....

Date **Signature**

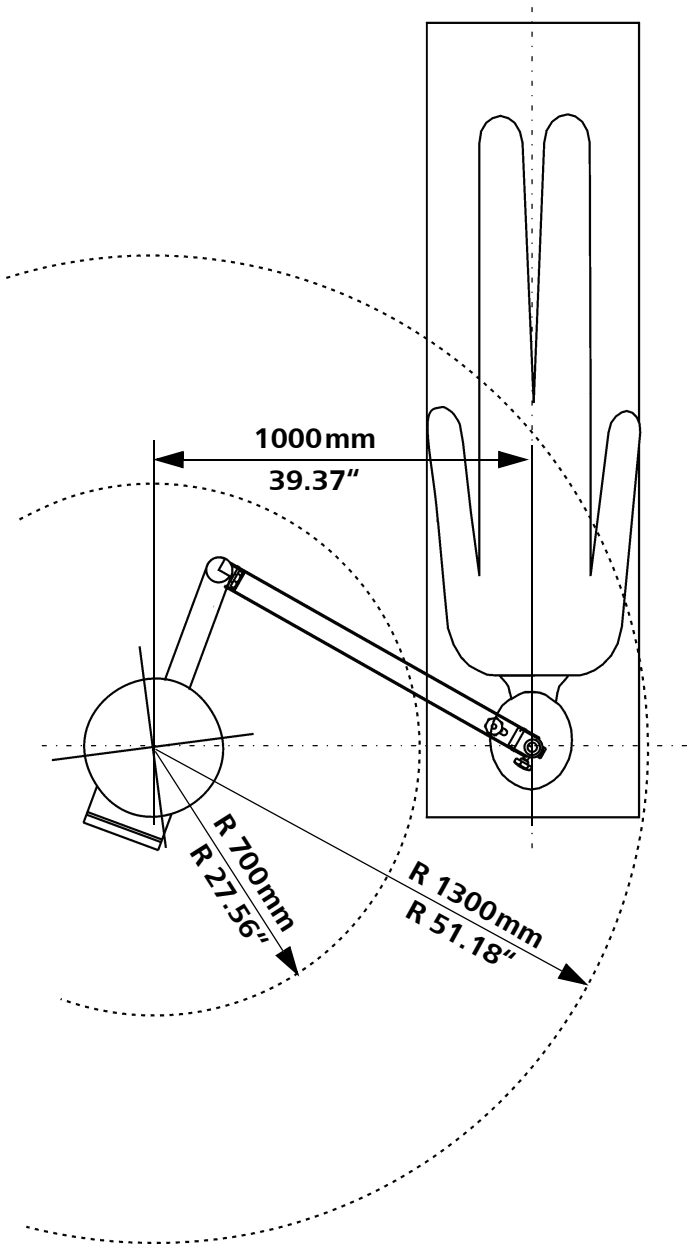
Ceiling mount for ophthalmology, recommended work ranges

Work range recommended for ideal installation site



1:20

Work range recommended for alternative installation site

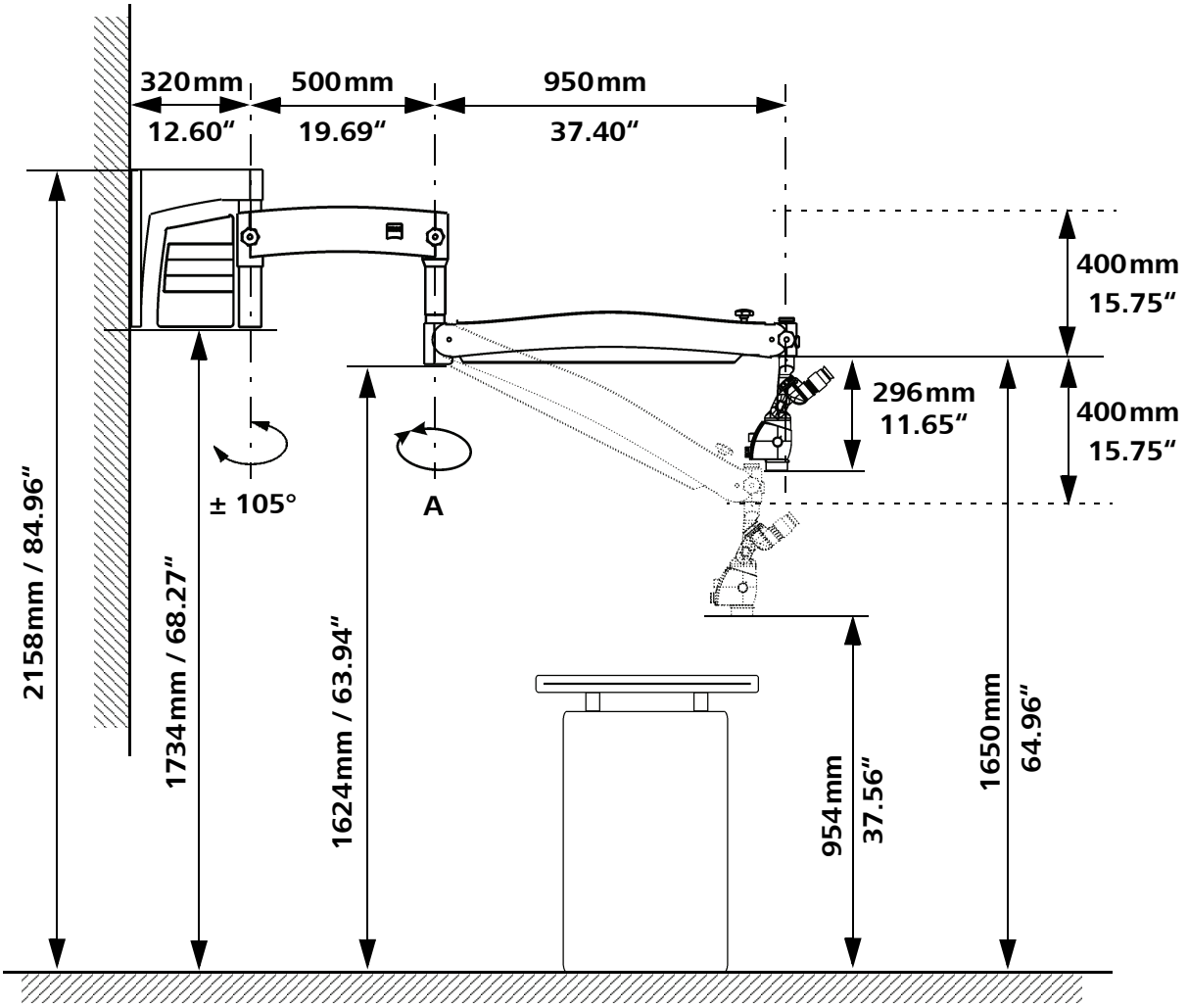


1:20

Wall mount for ophthalmology

Wall mount with a 950mm suspension arm for ophthalmology

A No stop

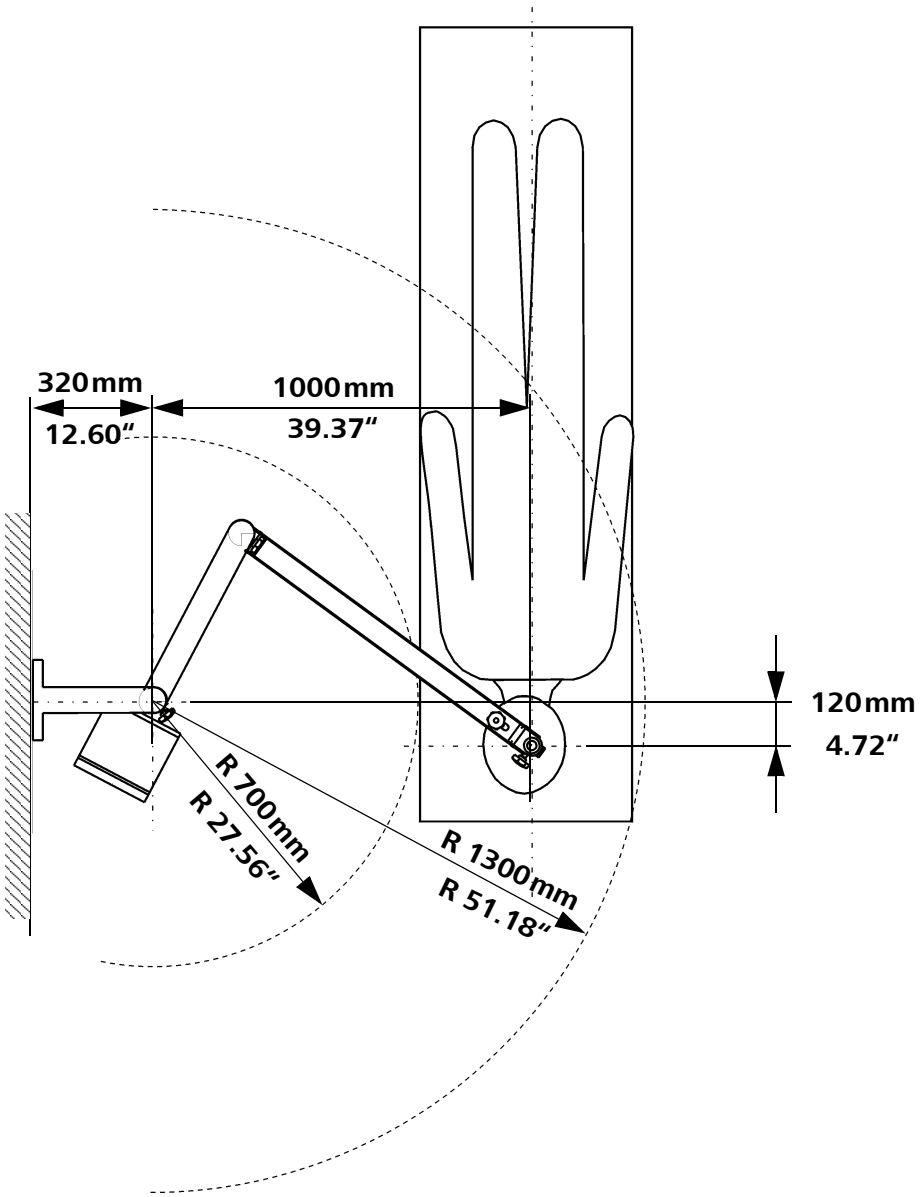


1:20

Wall mount for ophthalmology, recommended work ranges

Wall mount with a 950 mm suspension arm

Ideal site of installation and work range for ophthalmology

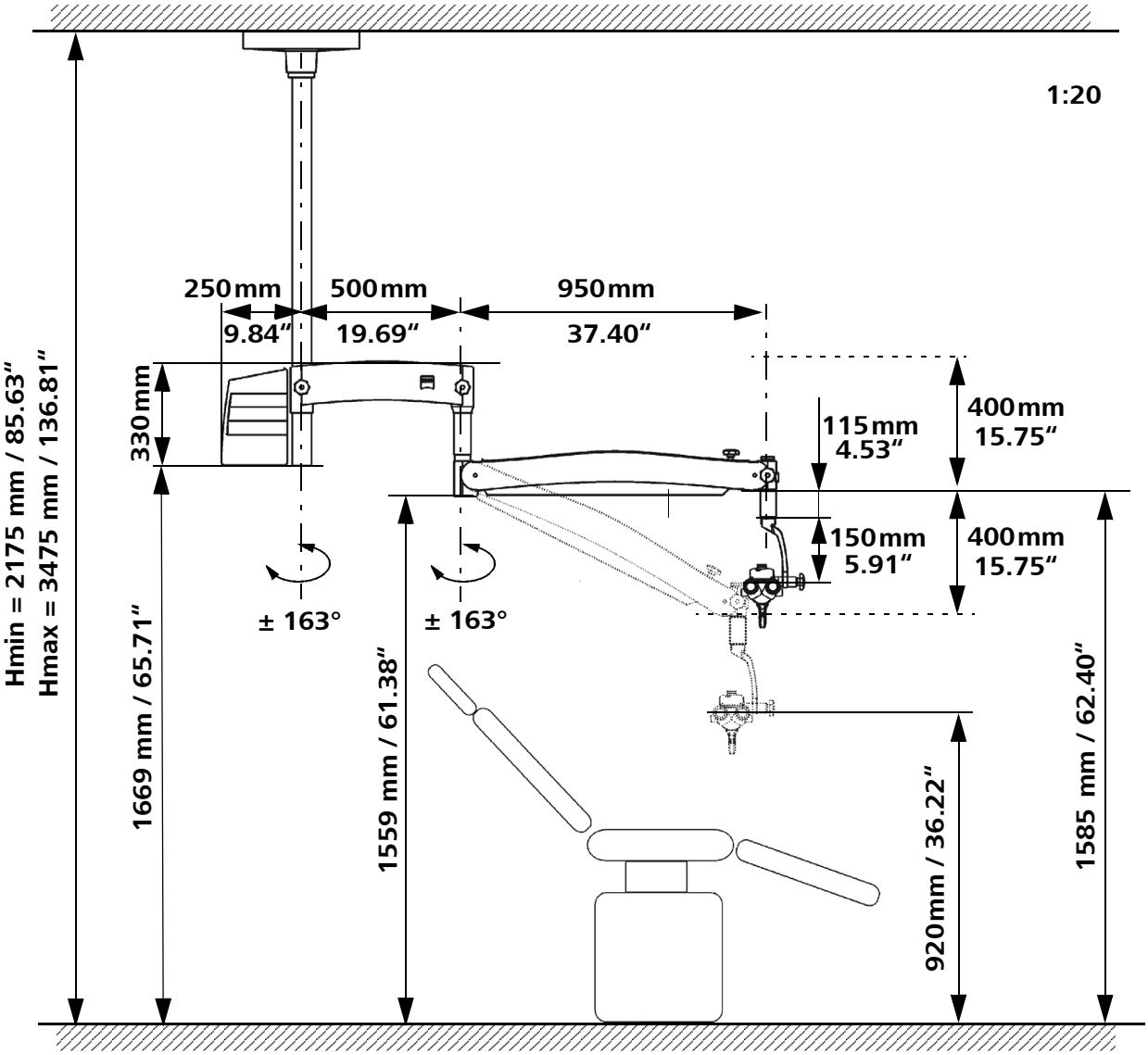


1:20

Technical data for gynecology

Ceiling mount for gynecology

Dimensions of ceiling mount for gynecology at a ceiling height from 2175 mm to 3475 mm



Ordering data and order forms for S100 ceiling mount (gynecology)

Ordering data for S100 ceiling mount for gynecology, for a room height from a working height of (P) + 1255 mm to (P) + 2555 mm

Caution:

- For each purchase order, precisely specify the column length in the following order form.
- Please take into account that constructional changes such as layers of plaster, substructures, etc. may still be made until the OR or treatment room is completed.
- Enter the dimensions in the order form and enclose a signed copy with your purchase order.

The column is produced individually to your specifications. For this reason, the column cannot be returned.

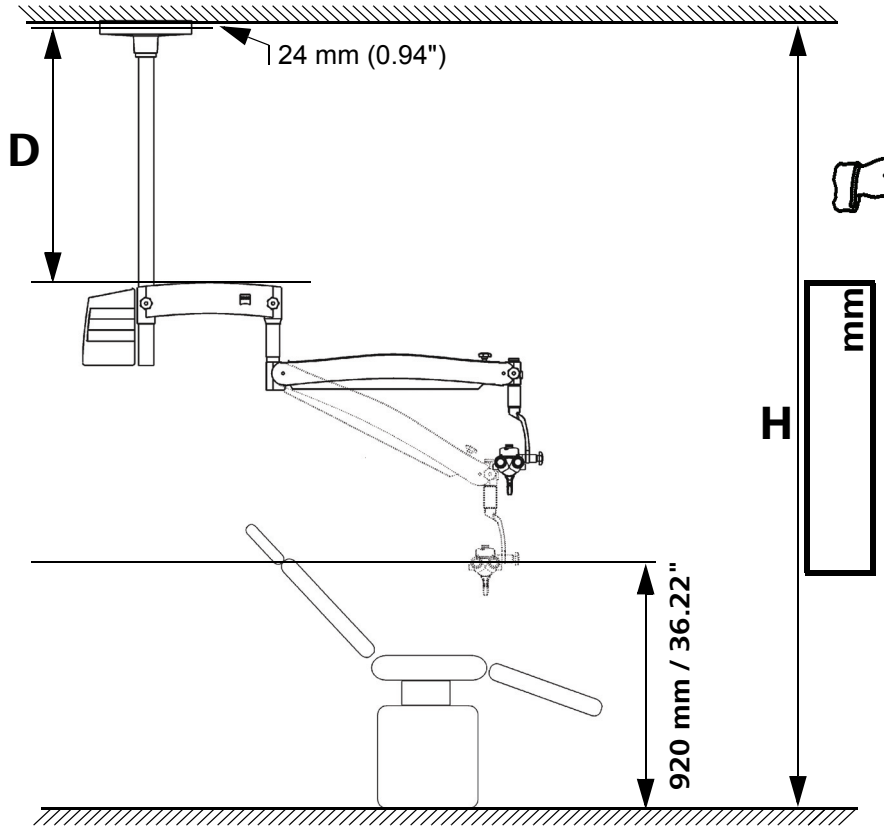
D **The column length** is determined on the basis of your height specifications
Note: The ceiling flange (1118-426) will be mounted on the construction site, see Page 78.

H **Room height** is the distance from the finished floor to the structural ceiling, i.e. to the underside of the bare concrete ceiling.

Order sheet for: S100 ceiling mount (GYN) for a ceiling height from 2175 mm to 3475 mm

Sales order no.: .....

Customer address /
Delivery address: .....



Note:

– Please accurately measure and enter the ceiling height (H).

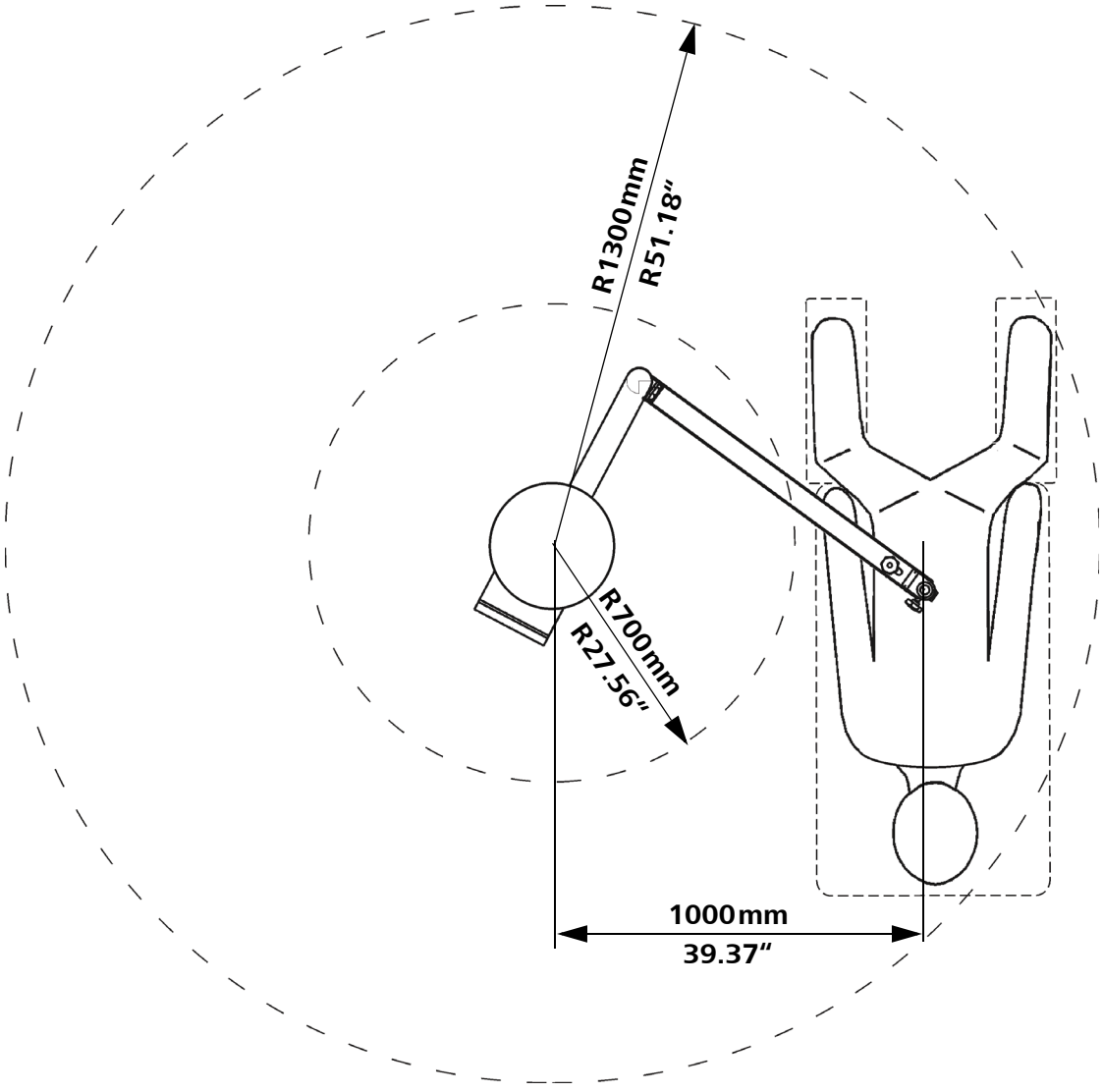
Calculation of the column length:	Ceiling height (H)	-	Fixed value	=	Column length (D)
	..... mm	-	1975 mm	=	..... mm

....

Date **Signature**

Ceiling mount for gynecology, recommended work ranges

Work range recommended for ideal installation site



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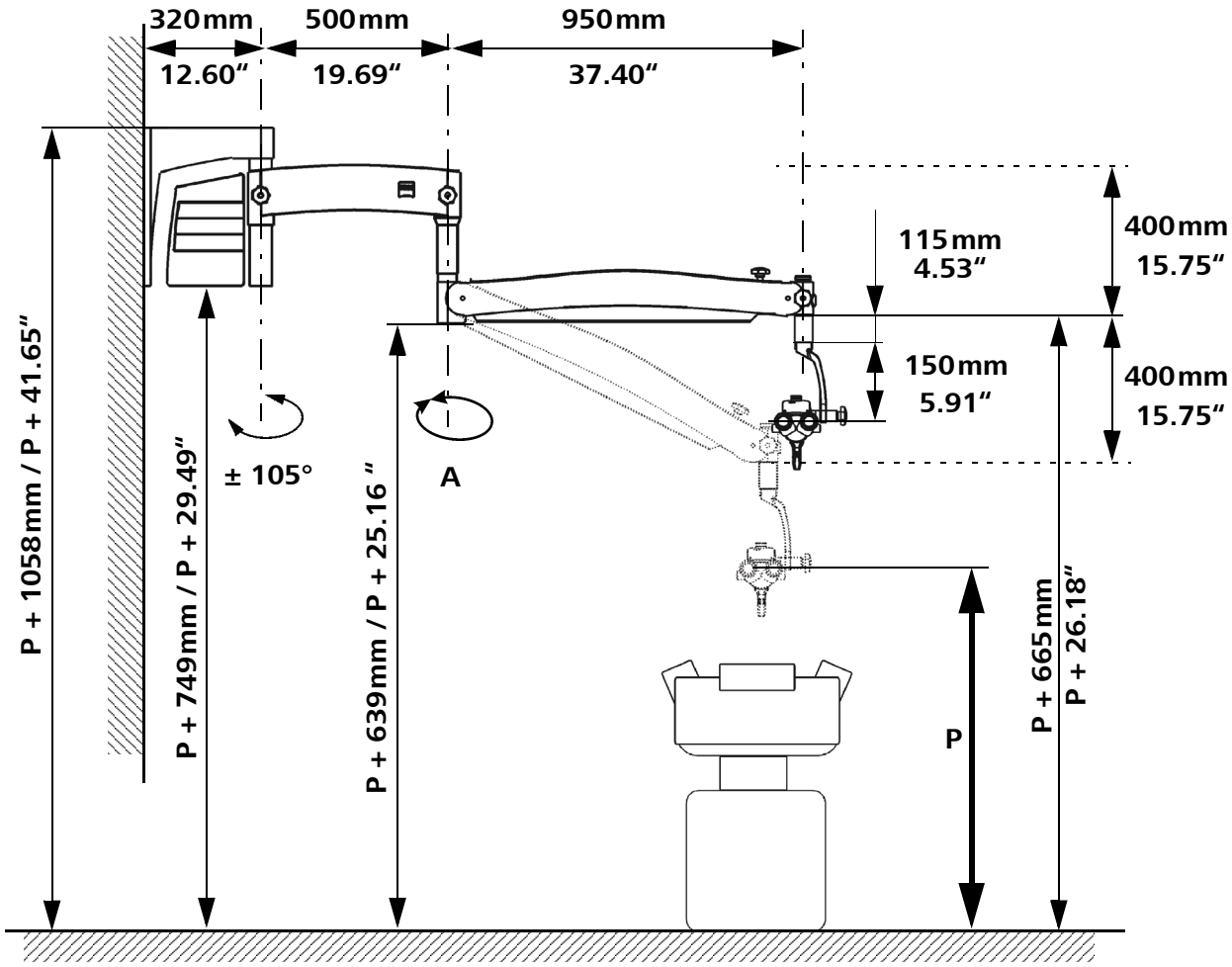
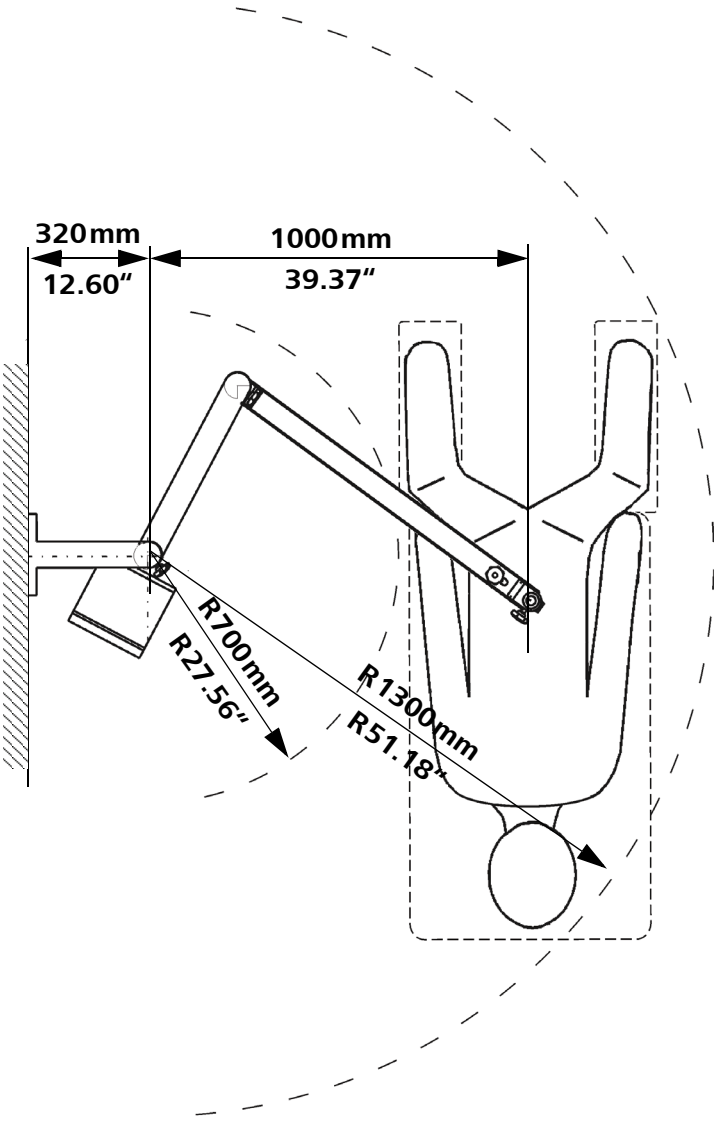
Wall mount for gynecology



Wall mount for gynecology, recommended work ranges

Work range recommended for ideal installation site



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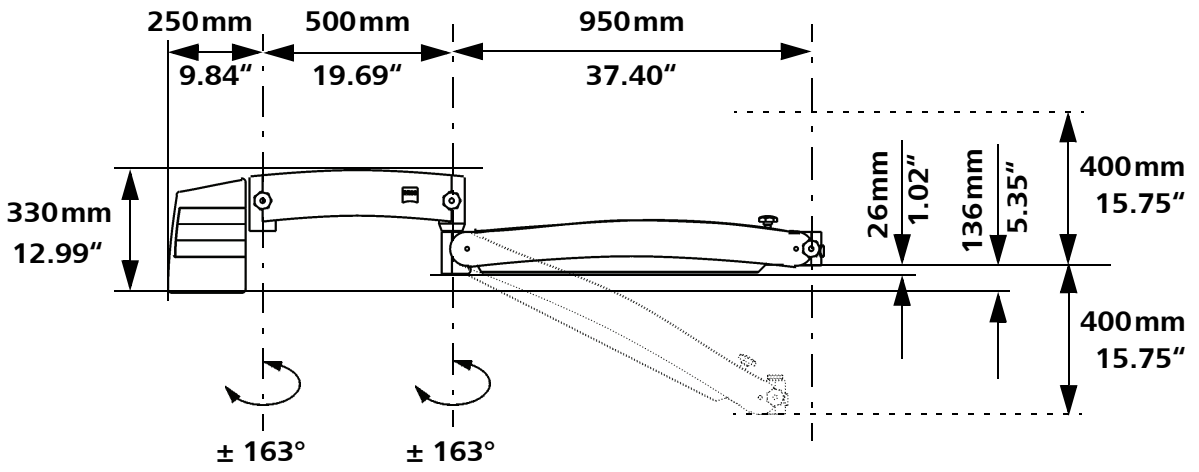
Technical data / Support units

S100 support unit, with illumination module

S100 support unit for attachment to an external instrument tray (with CZ illumination module)



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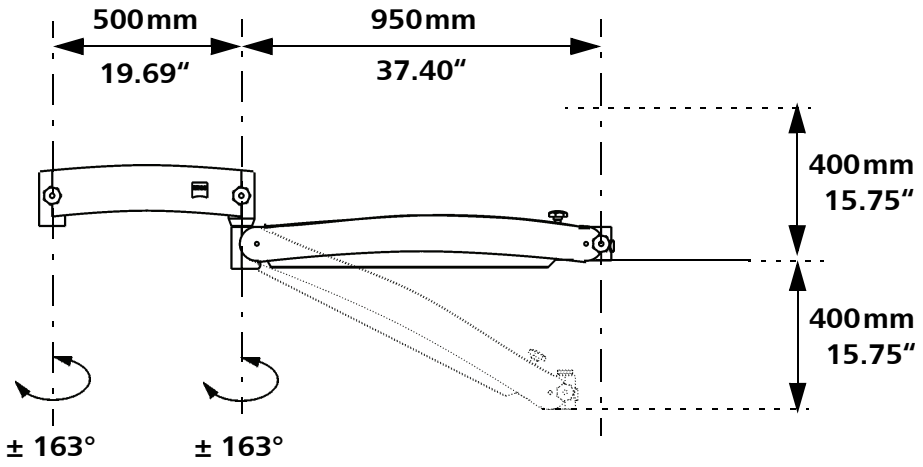
S100 support unit

S100 support unit for attachment to an external instrument tray



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 80,

– Constructional requirements for wall mounts, see Page 86.

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 87).
- 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 74).
  Obtain a written confirmation from your structural engineer stating that possible building vibrations (see Page 87) and the ceiling stiffness/rigidity (see Page 76) have been taken into account.

- 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 87).
- 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.

Notes on 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 arms of the ceiling mount are in a specific position, that higher 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 or damping of the air conditioning system)

– constructional damping measures in the ceiling installation

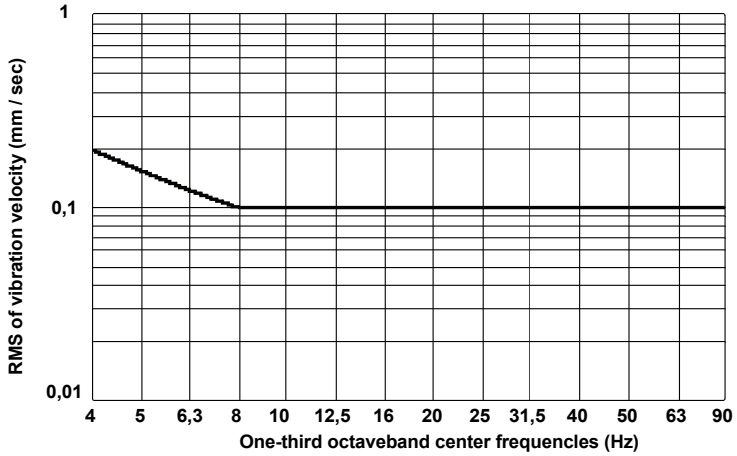
Due to the large number of parameters involved and the variety of potential building/ceiling mount constellations, Carl Zeiss is unable to give an absolute guarantee for the vibration-free suspension of the ceiling mount, even if the building meets the applicable ISO standards.

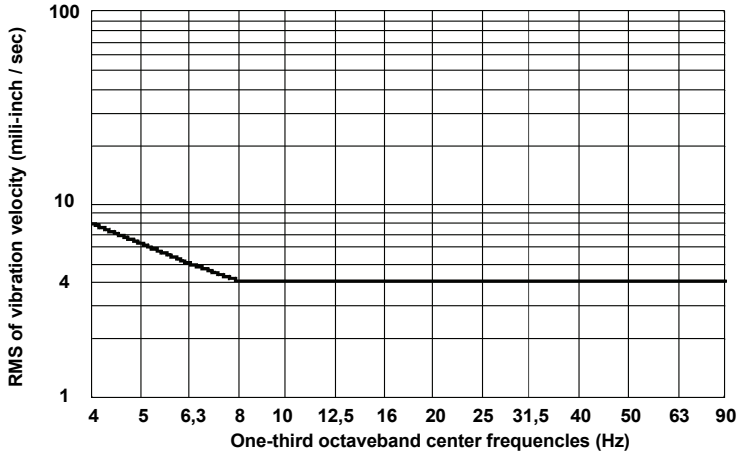
This also applies to replacement installations for existing, earlier Zeiss ceiling mounts. However, if building vibrations did not cause any problems in the old system, problems are generally unlikely to occur in the replacement system. It is highly improbable that constant vibrations are transferred 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 (in-house study), ISO 10811, recommendations for ORs.





Ceiling stiffness

A sufficient stiffness, or rigidity, of the ceiling is an on-site requirement. This must be taken into consideration during the planning phase of the ceiling mount.

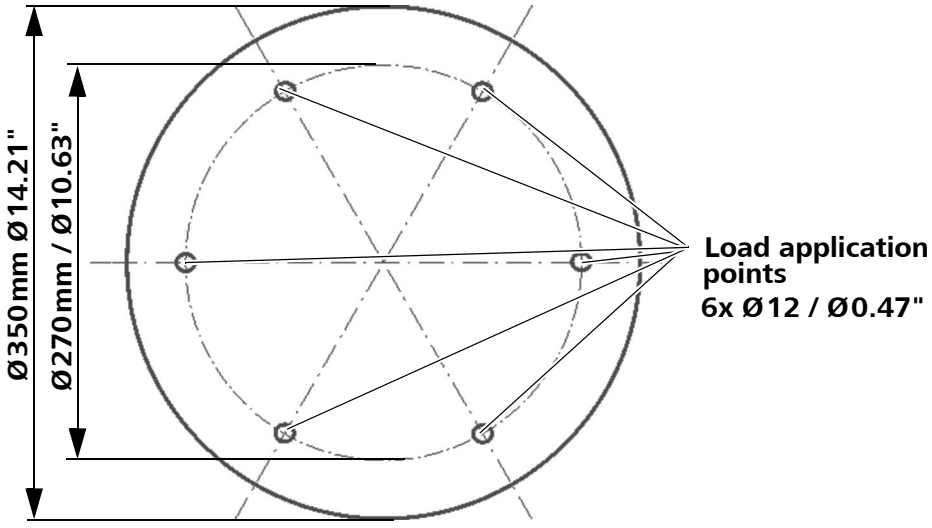
The stiffness/rigidity of a concrete ceiling has been calculated as an example. The stiffness/rigidity should be greater than the specified reference value so that the system is attached with low vibration.

$$E*J*100/L^3 > 32\,kN/cm$$

Symbol	Description	Unit
E	E-module	kN/cm^2
J	Moment of inertia	cm^4 (a 1m wide strip of ceiling)
L	Length of the ceiling	cm

The load is applied to the concrete ceiling via 6 load application points of a specified connection plate without reinforcement.

Fig. 1: Load application points



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 25.

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

Mounting the ceiling flange (1118-426)

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.

D **The column length** is determined on the basis of your height specifications **$(D)_{min}$ = 200 mm (7.87") to $(D)_{max}$ = 1500 mm (59.06").**

H **Ceiling height** is the distance from the finished floor to the structural ceiling, i.e. up to the underside of the bare concrete ceiling, onto which the ceiling flange is mounted.
Ceiling heights:

Field	Minimum	Maximum
Dentistry	2160 mm (85.04")	3460 mm (136.22")
ENT	2160 mm (85.04")	3460 mm (136.22")
Ophthalmology	2240 mm (88.19")	3540 mm (139.37")
Gynecology	2175 mm (85.63")	3475 mm (136.81")

Q **Ceiling flange,** ∅350 mm (13.78")
R **Cover,** ∅361 mm (14.21")
S **Column of the ceiling mount**

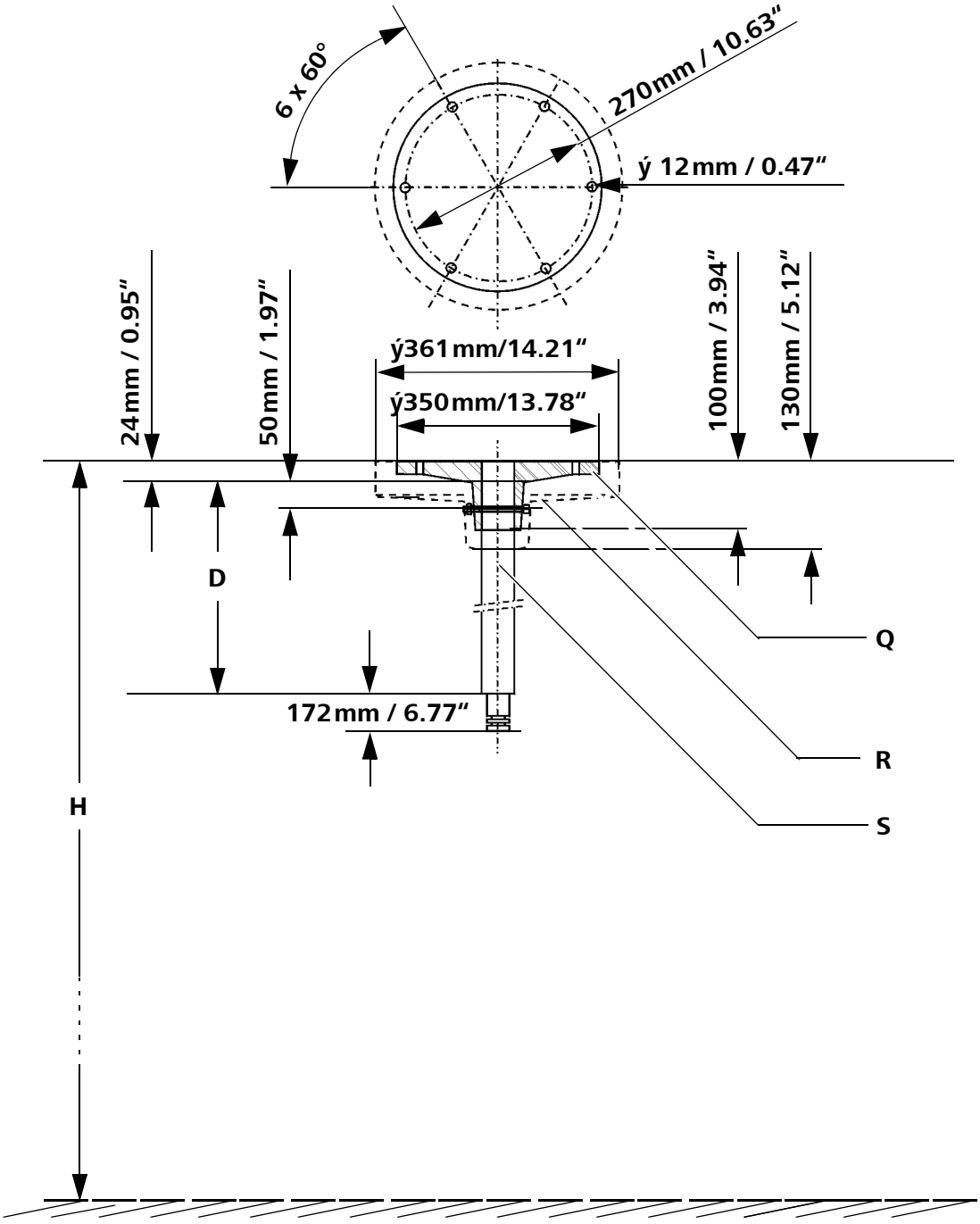
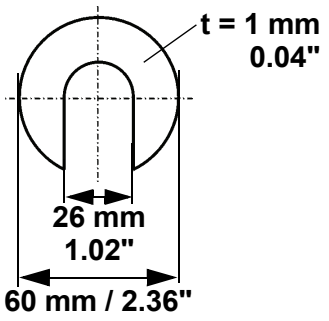


Illustration not according to scale

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 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

Caution!
Your structural engineer must ensure for the individual case on site that the structural ceiling can receive the forces and torques defined below. The structural engineer must take into account any other loads on the ceiling, if applicable, and add the required safety margin under observation of the applicable national regulations.

Caution:

- The following standard forces and torques have been calculated according to IEC 60601-1:2005 + Cor.:2006 + Cor.:2007 + A1:2012, i.e. the possible load capacity (here OPMI pico with standard accessories = 70 N (15.7 lbf)) has been weighted with a factor of 4.
  This standard supersedes the previous established additional force of 800 N (180 lbf) by a possible additional person.
- Additional safety margins were **not** included in the calculation.
- **For an S100 ceiling mount installed on the ceiling flange, the structural ceiling must have the following load capacity:**

– **Standard force:**	**min. 662 N (min. 148.8 lbf)**
– **Torque:**	**min. 491 Nm (min. 362 lbf.ft)**

Anchoring of the S100 wall mount

For recommended installation sites of the wall mount, please see the illustrations from Page 27.

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

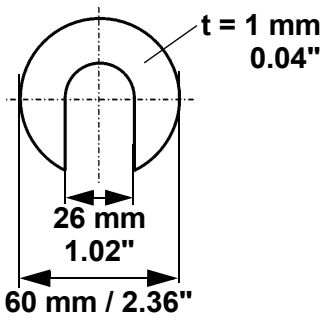
A Cover, W x H = 213 mm x 426 mm (8.39" x 16.77")

B S100 wall flange (1244-708)

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

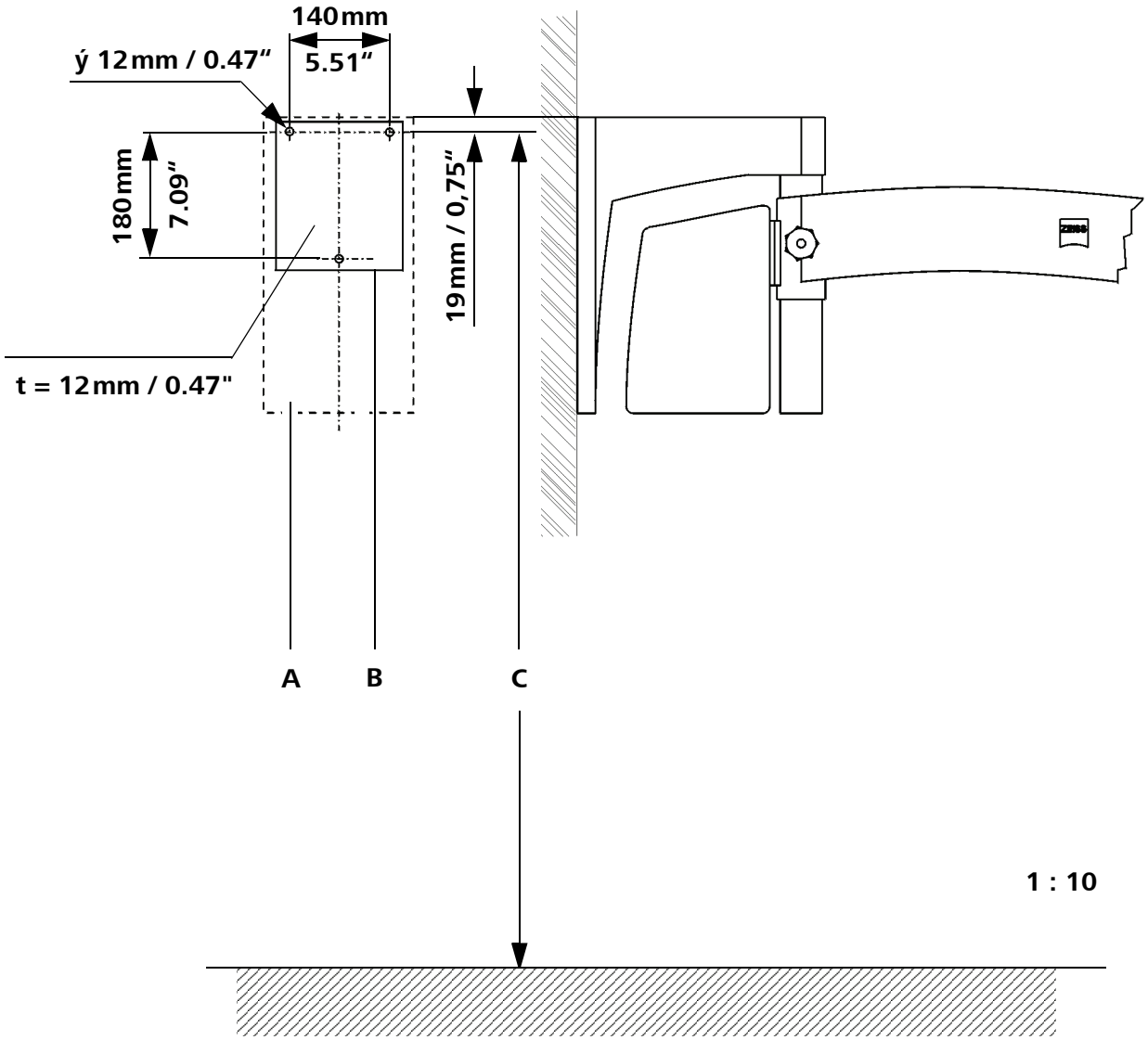
t = 12 mm / 0.47" thickness of the wall flange plate

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.

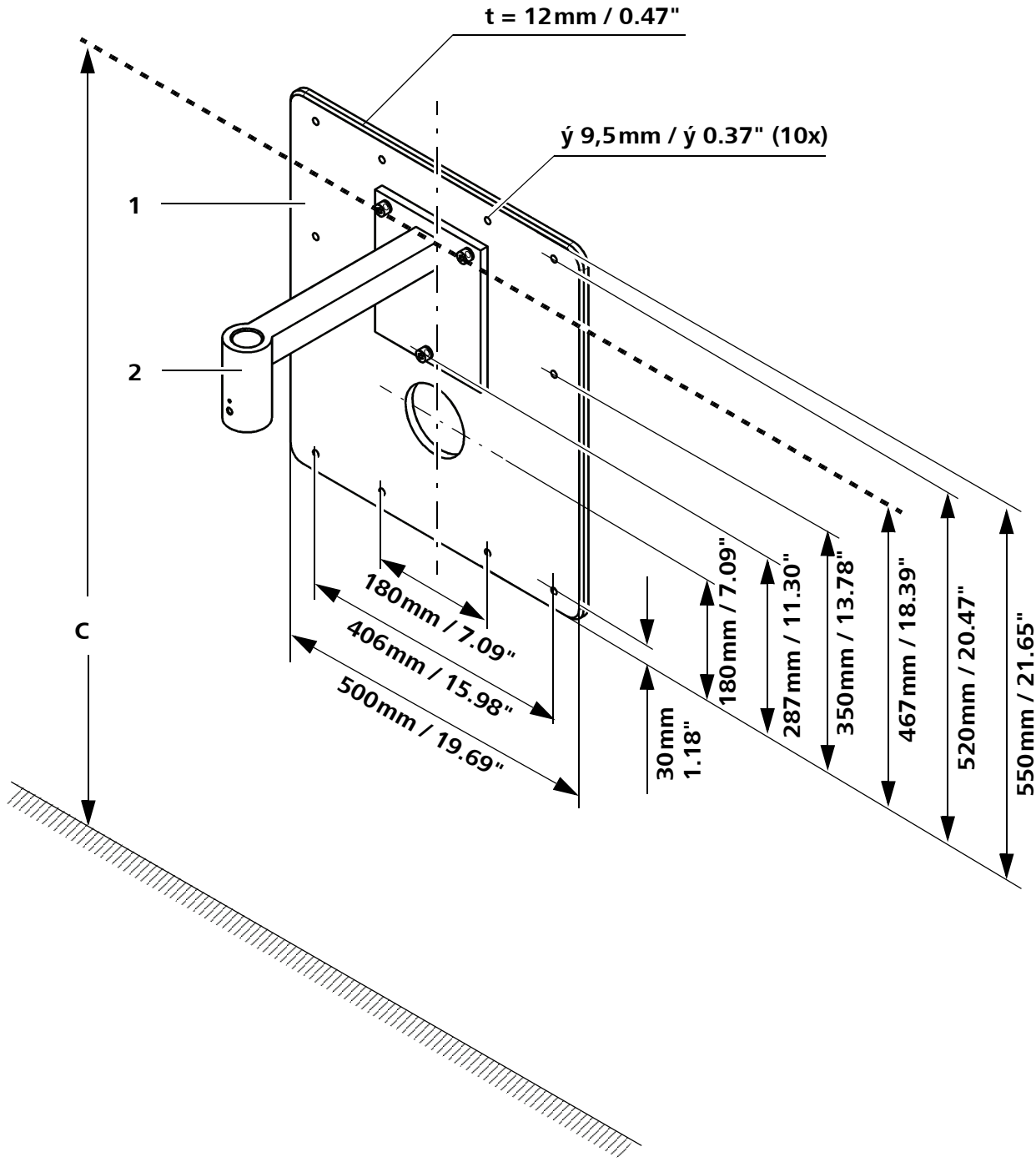
Key

1 Wall plate for S100 wall mount (1277-814)
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:
2060 mm (81.10") 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 = 12mm / 0.47"
ý 9,5mm / ý 0.37" (10x)
1
2
C
180mm / 7.09"
406mm / 15.98"
500mm / 19.69"
30mm
1.18"
180mm / 7.09"
287mm / 11.30"
350mm / 13.78"
467mm / 18.39"
520mm / 20.47"
550mm / 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

Caution!
Your structural engineer must ensure for the individual case on site that the structural wall can receive the forces and torques defined below. The structural engineer must take into account any other loads on the wall, if applicable, and add the required safety margin under observation of the applicable national regulations.

Caution:

- The following standard forces and torques have been calculated according to IEC 60601-1:2005 + Cor.:2006 + Cor.:2007 + A1:2012, i.e. the possible load capacity (here OPMI pico with standard accessories = 70 N (15.7 lbf)) has been weighted with a factor of 4.
  This standard supersedes the previously established additional force of 800 N (180 lbf) by a possible additional person.
- Additional safety margins were **not** included in the calculation.
- The S100 wall flange (1244-708) is included in the calculations; the wall plate for the S100 wall mount (1277-814) is not included because it is used only for less stable walls.
- **For an S100 wall mount, the structural wall must be able to accept the following forces and torques:**

– Standard force:	**min. 545 N (min. 123 lbf)**
– Torque, vertical:	**min. 653 Nm (min. 482 lbf.ft)**
– Torque, horizontal:	**min. 486 Nm (min. 358 lbf.ft)**

Confirmation of structural calculation

Sales order no.: .....

Customer address / Delivery address: .....

.....

.....

By signing below, the structural engineer confirms that he has performed his work in a proper and orderly way:

The structural engineer signs for his

- selection and layout of the installation site, taking into account possible building vibrations
- static calculation of ceiling stiffness at the installation site
- 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
- final checking and release of the static calculations:

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

.....

.....

....

Date **Signature**

Confirmation of execution of installation

Sales order no.: .....

Customer address / Delivery address: .....

.....

.....

By signing below, the installer confirms that he has performed his work in a proper and orderly way:

The installer signs for his

proper mounting of the pre-installation set or the ceiling or wall flange from Carl Zeiss.

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

.....

.....

.....

....

Date **Signature**

Customer Network Sheet for S100 / OPMI pico

Questionnaire of: **Customers Setting for Network connectivity**

The questionnaire should help to collect network data to connect S100 / OPMI pico with customers network. These data must be answered before a service technician will install S100 / OPMI pico with network connectivity at the customers location.

This means that the customer´s IT consultant has to answer the questions and preinstall the network settings before installation of S100 / OPMI pico.

OPMI pico	**customer´s input**	**Preinstalled**
IP address (DHCP yes/no)		DHCP yes (no additional input necessary) (no IP address, no Sub net mask, no standard gateway)
IP address DHCP no		DHCP static: 192.168.0.11
Sub net mask		static: 255.255.255.0
Standard gateway		static: 192.168.0.1

Network share	**customer´s input**	**Preinstalled**
Host IP		192.168.0.10
Share name		recording
Work group		
User name		zeiss
Password		recording (Attention: case sensitive)

Streaming	**customer´s input**	**Preinstalled**
Client IP		192.168.0.255 (broadcast)
Port		5004

If the streaming function will be used, please make sure that a RTSP/RTP compatible video player is installed on the system (e.g. VLC player).

Video player installed?	No	Yes, type

Use of a web interface
In case you will use the web interface to control HD recording functions, please make sure a web browser is installed on the system.
Following internet browsers are suitable: Internet Explorer (version 10.0 or later), Safari (version 6.0 or later), Mozilla Firefox, Google Chrome.

Web browser installed?	No	Yes, type

Customer _____

_____

_____

_____

Customer´s IT Admin _____

_____

Date _____

ZEISS contact (Service) _____

_____

Customer Network Sheet 2/2

Index

Z

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