SIEMENS

Balance/Emotion/Esprit

CT

Planning Guide

This document is valid for:

SOMATOM Balance
SOMATOM Emotion
SOMATOM Emotion with option Duo
SOMATOM Esprit
SOMATOM Esprit+

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Document revision level

The document corresponds to the version/revision level effective at the time of system delivery.

Revisions to hardcopy documentation are not automatically distributed.

Please contact your local Siemens office to order current revision levels.

Disclaimer

The installation and service of equipment described herein is to be performed by qualified personnel who are employed by Siemens or one of its affiliates or who are otherwise authorized by Siemens or one of its affiliates to provide such services.

Assemblers and other persons who are not employed by or otherwise directly affiliated with or authorized by Siemens or one of its affiliates are directed to contact one of the local offices of Siemens or one of its affiliates before attempting installation or service procedures.

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General Remarks

This planning guide (**PG**) contains information necessary to the planning and on-site preparation for installation of a

- **SOMATOM Balance**
- **SOMATOM Emotion**
- **SOMATOM Emotion** with option Duo
- **SOMATOM Esprit**
- **SOMATOM Esprit+**

Additional documents

Name	Reference source
DICOM Conformance Statement	Internet: http://www.siemens.de/med/e/dicom/dicom.html
Handbook Project Manager	Intranet: http://www-td.med.siemens.de / Product Information / Planning / Project Manager Handbook
Checklist for the electrical installation	Intranet: http://www-td.med.siemens.de / Product Information / Planning / Planning Guides / CT Systems / Common CT
Cameras from external suppliers	Request documents from the manufacturer

Preliminary orders

There is no pre-installation kit for the Balance/Emotion/Esprit; no advance order is needed. All CT components, inclusive accessories are completely delivered with the system.

Exception: If using the mains connection cabinet it should be ordered and installed preliminary. See "Mains connection cabinet" on Page 3 - 6".

On-site preparations

It is absolutely essential that all on-site work be concluded by the time the complete system is delivered.

This applies particularly to ensuring the specified floor characteristics for installation of the gantry and patient table and to ensuring the presence of a suitable telephone or network connection for **S**iemens **R**emote **S**ervices SRS (remote diagnostics).

NOTICE

The "Checklist for electrical installations" must be completed from the project manager and from the personnel performing the system start-up. They must confirm the accuracy of the information and provide their signature. Only then can the system be put into operation.

Important Safety Information

During planning, please observe the following safety information:

- The "Planning Guide" and "Installation Instructions" are mandatory technical documents for the planning, installation, and start-up of our CT systems. They ensure safe system installation and operation.
- Deviations and changes are not permitted unless approved and released by the CT product group.
- The project manager (or the installation manager in the respective country) is responsible for ensuring compliance with the specifications in the "Planning Guide" and "Installation Instructions".

Supplementary information for the Planning Guide

Include the following information when delivering the project plans to the customer (applies only to Germany)**:**

- Information sheet "General Installation Conditions"
- Information sheet "General Delivery Conditions"

Please insert the following notice into the project plans (applies only to Germany)**:**

➪ Please note these information sheets:
"General Installation Conditions"
"General Delivery Conditions"
by Medical Solutions.

Notice concerning drawings and diagrams

NOTICE	**All drawings and graphic diagrams in this planning guide are <u>not</u> to scale and are therefore <u>not</u> suitable for providing direct, accurate measurements.**

Abbreviations, terms, and symbols

The following short definitions apply to the abbreviations, terms, and symbols used in this planning guide.

International

Name	Definition/Explanation
CFR	**C**ode of **F**ederal **R**egulations US statute book.
DICOM	**D**igital **I**maging and **Co**mmunications in **M**edicine World-wide standard in medical technology for image transfer and display.
DIN	**D**eutsches **I**nstitut für **N**ormung; German Institute for Standardization
EG	**E**uropäische **G**emeinschaft; European Union
EMC	**E**lectro**m**agnetic **C**ompatibility Effects of electromagnetic interference on electrical systems.
ESD	**E**lectro**s**tatic **D**ischarge Term for electrostatic charge via electrical contacts and the air.
HF	**H**igh **F**requency
IEC	**I**nternational **E**lectrotechnical **C**ommission Commission for international electrotechnical standards.
IP Address	**I**nternet **P**rotocol An IP Address is a logical 32-bit address consisting of a network ID to identify the host, and the host ID, which identifies an entity within the network (for example, a router).
ISDN	**I**ntegrated **S**ervice **D**igital **N**etwork Fast, digital phone network for telecommunications and teletransfer of data.
LAN	**L**ocal **A**rea **N**etwork Local, chiefly company-internal network that serves to transfer data between different computers or other devices.
MODEM	**Mo**dulator-**Dem**odulator Converts digital data from the computer into analog data that can be understood by the conventional telephone network, and vice versa.
Router	A router connects network segments and transfers data between two networks that use the same protocol.
UL	**U**nderwriters' **L**aboratory American testing and certification institute.
VDE	**V**erband **D**eutscher **E**lektrotechniker; Association of German Electrical Engineers Institute for electrical engineering standards **in Germany.**

Product-specific

Name	Definition/Explanation
ICS	**I**mage **C**ontrol **S**ystem Separate PC tower to manage the process in the complete CT system.
IMS	**Im**age **S**ystem Consists of the ICS, IRS, PC keyboard, mouse, and control box.
IRS	**I**mage **R**econstruction **S**ystem Separate PC tower for image processing.
IES	**I**mage **E**valuation **S**ystem Separate evaluation console with a PC tower for image processing.
LWL	**L**icht**w**ellen**l**eiter; fiber optic cable.
PDS	**P**ower **D**istribution **S**ystem System-dedicated line-power distribution cabinet.
PHS	**P**atient **H**andling **S**ystem Table for positioning the patient horizontally and vertically before and during the examination.
Duo	2-slice option for SOMATOM Emotion.
SRS	**S**iemens **R**emote **S**ervices Remote diagnosis tool for rapid localization of an error in the case of a malfunction by logging in to the system over the telephone or data network.
UPS	**U**ninterruptible **P**ower **S**upply Battery-buffered power supply to get through brief power outages or interruptions.
X ...	Connector designation, with numbering. For example, X15, "connector numbered 15."

Editorial

Name	Definition/Explanation
Room Height	Room height is the clear distance measured from the upper edge of the finished floor to the lower edge of the ceiling construction (lower edge of the finished ceiling).
n.a.	**n**ot **a**pplicable.
	**Orientation Point** Point belonging to system components which serves as a reference point when positioning system parts in relation to one another or in the room. The isocenter of an X-ray system is always depicted as an orientation point.
...?...	No information was available at the current time.
	A change has been made in this passage from the previous version.

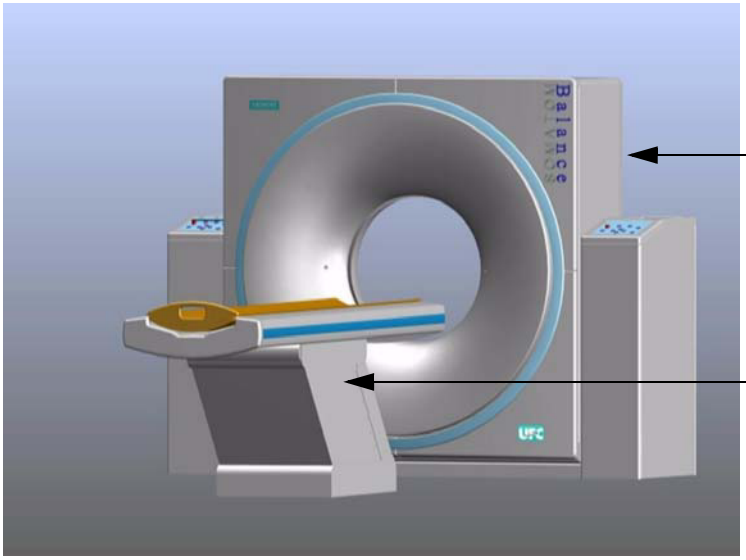
Standard components

Overview gantry and patient table

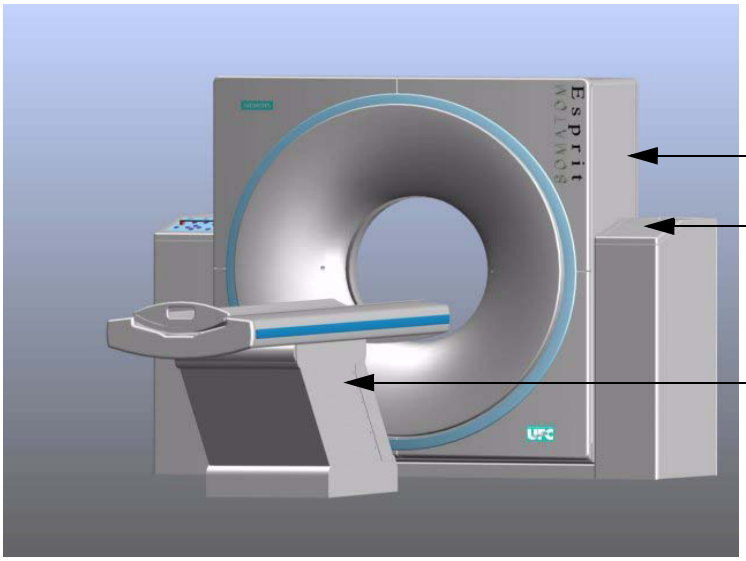
The following illustration shows the design of the

- **SOMATOM Emotion**
- **SOMATOM Emotion with option Duo**
- **SOMATOM Balance**
- **SOMATOM Esprit+**

The SOMATOM Balance is illustrated as an example.



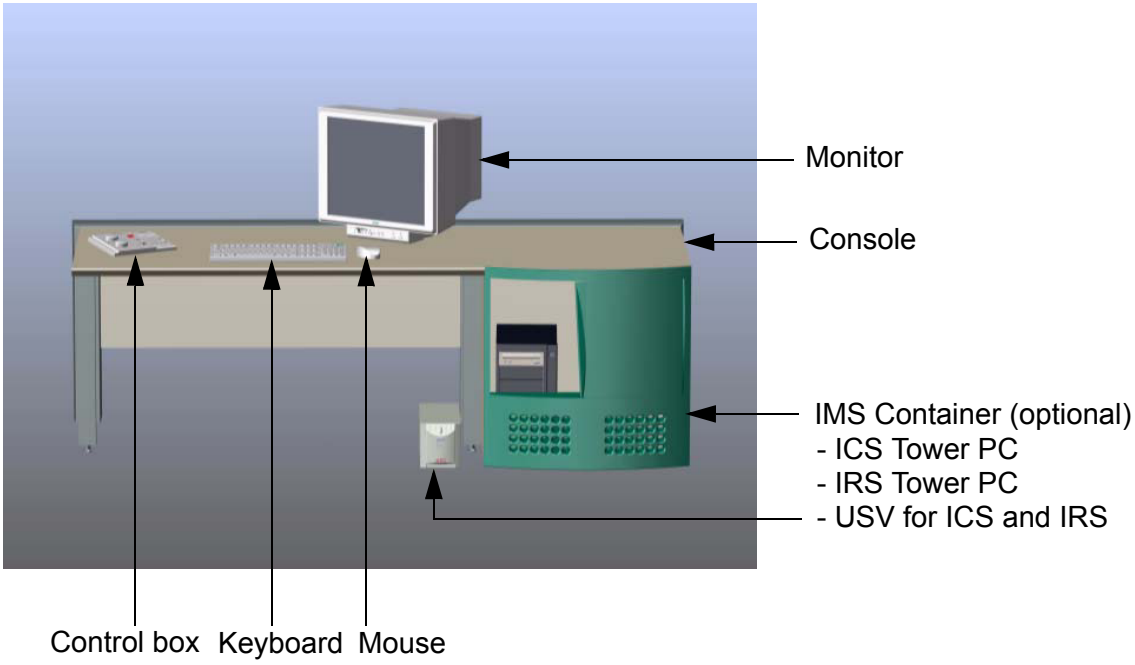
- **SOMATOM Esprit**



Overview console with components

The following illustration shows the common console with standard components of the

- **SOMATOM Balance**
- **SOMATOM Emotion**
- **SOMATOM Emotion with Duo option**
- **SOMATOM Esprit**
- **SOMATOM Esprit+**



NOTICE	**The IMS container can be placed either to the right or the left of the operating console.**

Gantry

The generator and the line-power distribution cabinet are integrated within the gantry.
All components are air-cooled.

Patient table

The patient table is a so-called "cobra table."
In this type, vertical movement of the table causes a simultaneous horizontal displacement in the upper part of the table.

Image System (IMS) and components

The IMS includes the ICS, IRS, PC keyboard, mouse, and control box. The ICS and IRS each consist of a PC tower. The PC keyboards are to be ordered depending on the country. The control box and mouse are part of the IMS components.

Monitor

Alternatively, a 21" color monitor with CRT image tube and a 18" flatscreen color displaymonitor is offered.

Control box

The Control Box is an additional panel beside the host computer keyboard that contains CT-specific additional user interface elements required at CT facilities.
It contains an intercom to communicate with the patient, window encoders to manipulate CT images, function switches and a radiation indicator.

Uninterruptible Power Supply (UPS)

The IMS and the monitor are connected to a UPS with battery back-up. In the event of a power failure or malfunction, all IMS and monitor functions are maintained for at least three minutes. In addition, an acoustic alarm is triggered.

A country-specific UPS is supplied by CTL.

Router / VPN

For SRS (**S**iemens **R**emote **S**ervices) remote diagnosis, the CT system must be connected to a router or to a internet tunnel connection (VPN).

Camera

All DICOM-compatible cameras released and supported by Siemens can be connected.

- For additional information, please go to

  ➪ **http://www-td.med.siemens.de / Product Information /CAMERAS / CT**

As of Somaris 5 (SOMATOM Emotion with option Duo , as well as all previous updates), the camera requires a 32 MB memory or data compression to accommodate the transfer of 20 MB image data.

Cameras that are not DICOM-compatible can be connected when the camera manufacturer provides the necessary DICOM BP interface as well as the software and firmware that may be required.

Preferably, the camera is connected via an on-site data network (Ethernet).

NOTICE

The cable from the ICS to the on-site network connection is not part of the delivery volume.

- **Required**

  ➪ **cable, directly-contacted S/UTP, RJ45.**

- **Available**

  ➪ **length 5 m, item number 3074515, and**

  ➪ **length 30 m, item number 3074523.**

- As an alternative, the camera can be connected directly via a cross-contacted cable made available on-site.

NOTICE

Please contact

➪ **Headquarter Support Center HSC via the hotline number for questions regarding camera connections.**

Options

General information

The system information (SI) diagram in the price communication shows **all** available options.

Operator’s console

The operating console is available in widths of 120 cm and 140 cm.
Height and depth are the same for both versions.

➪ for more Information refer to
"Operating console (system furniture)" on Page 5 - 6".

Containers for IRS, ICS, and UPS

A container for installing the ICS, IRS, and UPS is available. The container can be placed either to the right or the left of the operating console.

Image Evaluation system (IES)

The IES is a separate evaluation workstation and consists of a standard tower PC with 21" monitor, keyboard, and mouse.

It should be located close to the operator’s console.

An **Ethernet Switch** and a **UPS** for the power supply are also supplied with the IES.

The Ethernet Switch consists of 4 ports (10/100 Mbps MDI-X) and 1 Uplink (MDI) port. It is supplied with a wall mount kit, and should be mounted on the wall behind the operating console, close to the IES.

➪ Refer to "Wiring diagram for IES option" on Page 4 - 5.

Additional monitor

Alternatively, the 21" color monitor with CRT image tube or the 18" flatscreen color displaymonitor can be connected to the IMS imaging system as an additional monitor.

The monitor is connected to the ICS via a fiber optic cable.
Two connection kits of different lengths are available:

- **30 m** and
- **120 m**

UPS for the entire system

The gantry and PHS patient table can be connected to a UPS with battery back-up. **This UPS is to be provided by the customer.**

HeartView CT

The "HeartView CT" option is used to trigger the radiation release in cardiological examinations and to prevent motion artifacts due to the heartbeat.

Its primary components include an ECG monitor, cabling and a control board. The ECG monitor will be installed on the right or left gantry stand. The ECG monitor is cabled to the control unit within the gantry. The control board is installed in the left gantry stand.

Because of the low power consumption, weight, and size (dimensions) of the "HeartView CT" option, no pre-planning is required.

CARE Vision CT

The "CARE Vision CT" option is used for special clinical examinations to display real time images.

- Installation preparations

➪ Refer to "CARE Vision CT" on Page 7 - 1".

Mobile CT

The "Mobile CT" option is available for the installation of CT systems in trucks. It contains the necessary parts for the gantry and patient table that keep them in a locked position during transit.

The required mechanical and electrical work is performed by the trailer manufacturer. All of the information necessary for performing the installation can be found in this planning guide and is implemented by the trailer manufacturer as required.

➪ Refer to "Installation in a truck with the "Mobile CT" option" on Page 2 - 5.

Room Planning

Room dimensions

Notice

The room examples on the following pages show possible layouts for the system components.

Other arrangements are possible if the device distances based on the available cable lengths are not exceeded and the required safety distances and minimum distances are maintained.

- **Recommended room dimensions**

  ➪ Examples of rooms of minimum size, taking into account the required service and safety distances from walls, for example, according to the German Equipment Safety Law.

- **Technically feasible room dimensions**

  ➪ Examples of technically feasible rooms with **minimum** room dimensions; **not all safety distances can be maintained** here, however.

NOTICE

- **When the distances are less than the required safety distances, safety measures must be provided in accordance with national codes, for example, barriers, warning signs, safety switch plates, etc.**

  ➪ **With software version VA40 you have the possibilty to configure the scanable range of the patient table infinitely variable between the value of the SOMATOM Emotion and the SOMATOM Esprit. Because of this feature you can adapt the table feed to the room situation.**
  Refer also to "Patient table" on Page 5 - 4**.**

- **It is essential that the service area behind the right gantry stand be planned independently of the direction of installation.**

Room height

- A minimum technical room height of

  ➪ **2200 mm** is required for the gantry.

List of individual components

The table shows the allocation of the individual components in the following room examples.

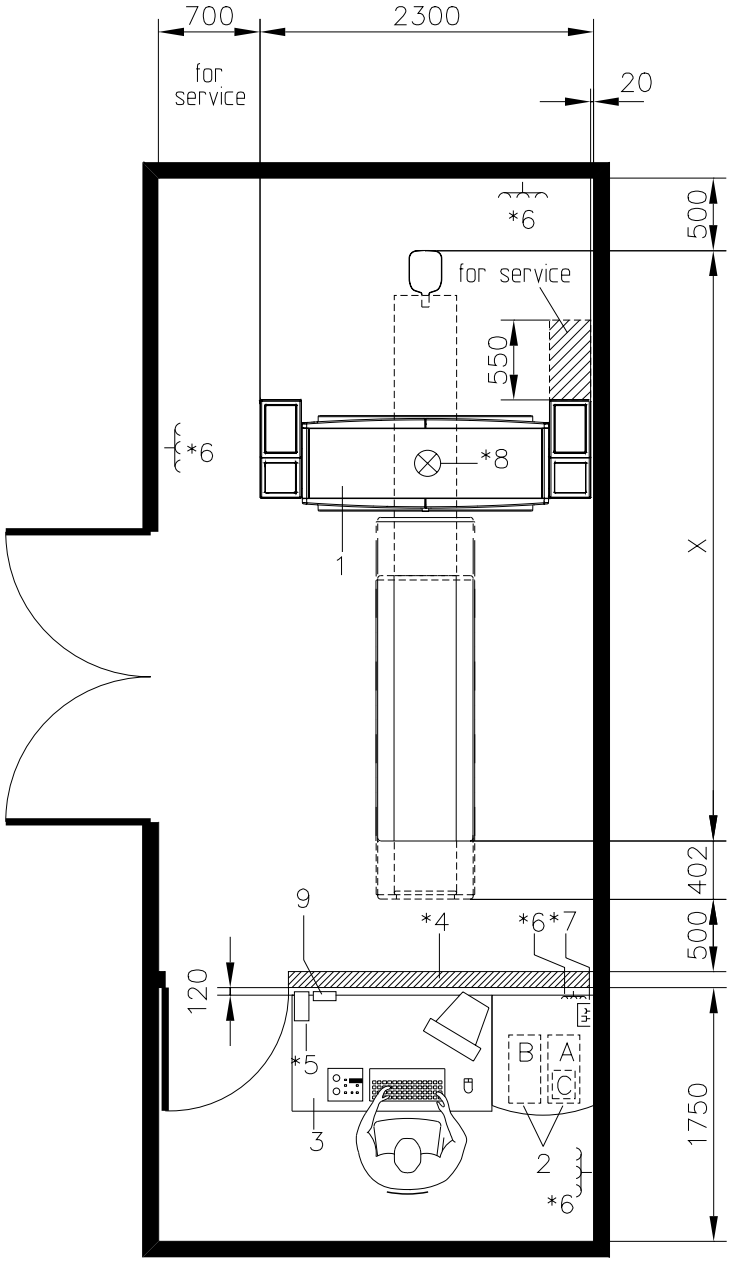
No.	Name
1	Gantry with patient table
2	IMS container (**optional**) with IRS (B), ICS (A), and UPS (C)
3	Operating console with monitor, keyboard, control box, and mouse
4	Lead protection glass
5	ON-OFF switch **Must be installed according to IEC60601-1 and UL187/CSA114**
6	Power receptacles
7	Connection for telephone or data network for SRS
8	Radiation-ON warning light **Must be installed according to IEC60601-2-44 and CFR 21**
9	**Warning sign, item no. 33 46 046** **Affix on or next to the ON-OFF switch (included in delivery volume)**

NOTICE

Items 1, 2, 3, and 9 are included in the delivery volume.
All other items (4 to 8) must be supplied by the customer.

This does not include the space required for an on-site cooling system to air-condition the examination room.

Recommended room dimensions



*on-site installation

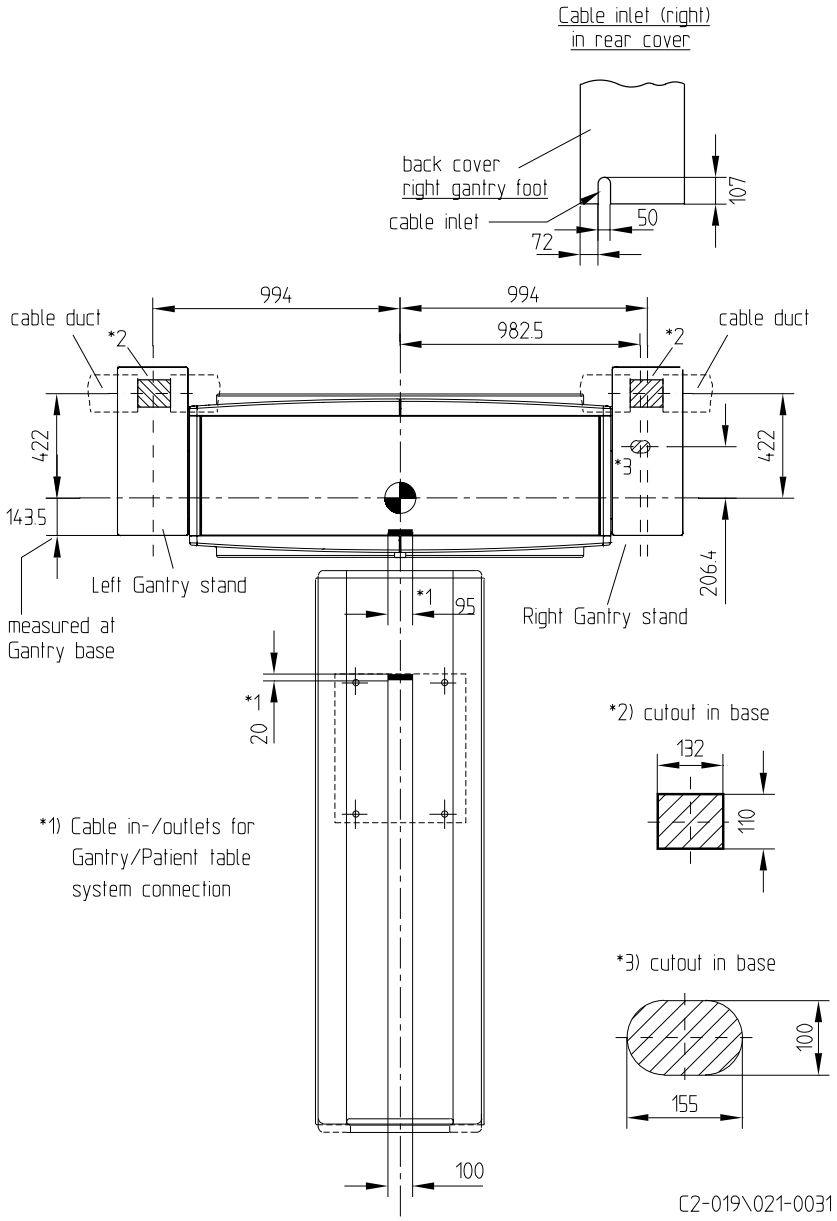
C2-019\021-0034

Measurements for X

SOMATOM	X [mm]
Balance	3910
Emotion	4140
Esprit	3810
Esprit+	3910

Wall distances, floor and wall outlets

Gantry and patient table



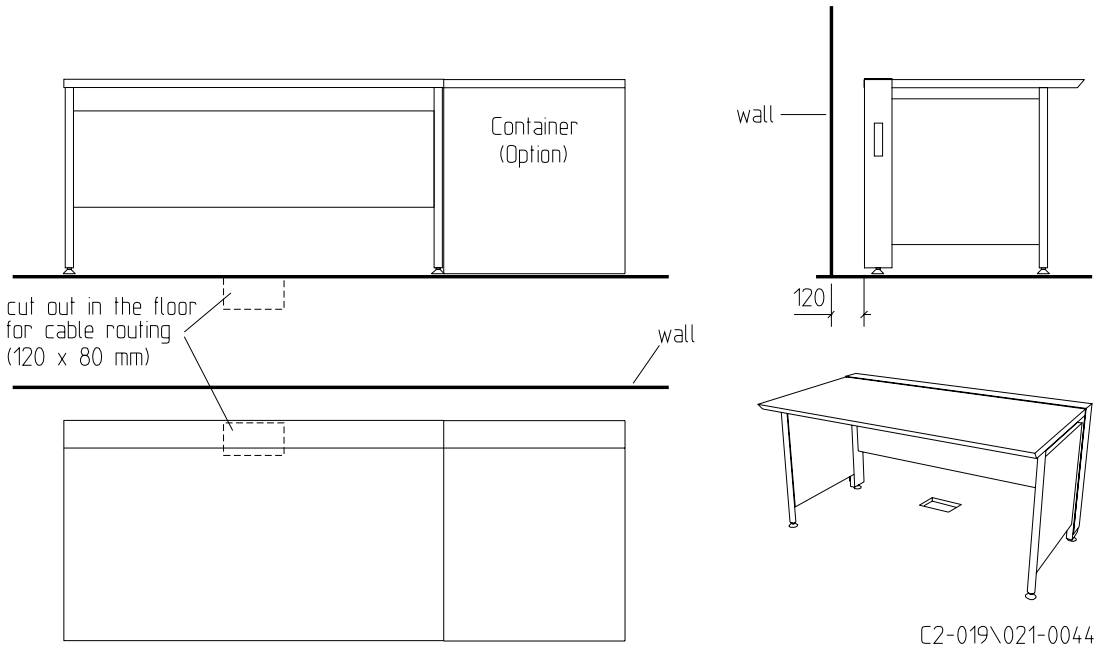
- All cables to the gantry are to be routed through a cable inlet in the **right** gantry foot.

NOTICE	**The cable inlet on the left side of the gantry base is only intended as a temporary solution for routing control cables and data cables. The line cable must not be routed through this cable inlet.**

- Alternatively there is a **cable feed-through** in the back of the **right** gantry foot.
- A special cable duct between the gantry and the patient table is delivered with the system. The cable duct must be mounted to the floor during installation.

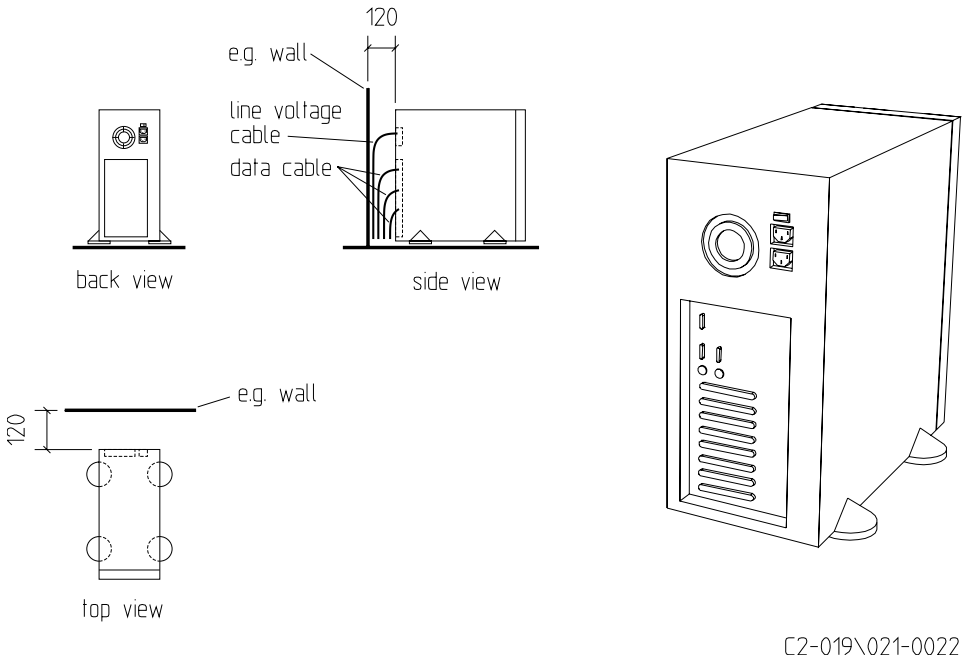
NOTICE	**Also be certain to comply with the required safety and service distances; see "Room Planning" in chapter 2.**

Operating console



- A distance of 120 mm from the wall must be maintained for routing cables to the monitor and keyboard

ICS, IRS, and IES



- The cables from the gantry are routed via the cable duct of the operating console.

NOTICE

A distance of at least 120 mm between the back of the image system/optional container and the wall must be maintained for proper cooling and cable routing.

Installation of the gantry and patient table

Requirements of the floor for gantry and patient table

- The gantry and patient table may be placed or installed **only** on
  - ➪ **concrete** flooring, concrete classes **B25 to B55,**
  - ➪ **composite** flooring, or
  - ➪ **access floors** with suitable **installation frame**.
- Existing system installation frames that are fastened to concrete floors with screws are generally removed. The floor may have to be modified (level, materials).
- Gantry and patient table can be placed or installed directly on concrete floors or composite floors **without an installation frame**.
  - ➪ The installation support surfaces of the concrete floor or composite floors should be horizontally level.
- Gantry and patient table may be placed or installed **only** on concrete floors or **suitable** system installation frames.
- Installation on installation floors is possible with a suitable substructure.
  - ➪ Refer to ""Proposal of a subfloor construction for access floor" on Page 3 - 19.
- Have the load-bearing capacity of the concrete floor or the composite floor verified by an engineer.

NOTICE

- Strictly comply with the minimum extraction force of 2.76 kN per point of attachment for the patient table, also when using existing floor frames and access floors.
  In compliance with IEC 60601-1, the 4-fold safety factor **must be observed.**
- Only composite flooring til max. 125 mm is acceptable.
- Installations on floating floors are not acceptable without a sub-construction!

Requirements for existing mounting frames

When replacing older SOMATOM systems, existing floor frames can be used if certain measures are taken and certain requirements are fulfilled. Generally, though, this should be considered an emergency solution.

The following measures must be complied with:

- Cut-outs must be made in the frame to be used or clips must be welded to it. The location and size of the cut-outs are to correspond to the measures of the gantry and the patient table.

  ➪ Refer to ""Dimensions of the components" on Page 5 - 3.

- Additional steel plates and clips must be welded to the existing frame.

  ➪ They must be at least **10 mm** thick and must be level with the floor frame.

  ➪ They must lie completely in the concrete or be furnished with an appropriate backing.

- Required thread sizes in the clips for securing the system to the floor:
  - for the **gantry:** threads **M12**.
  - for the **patient table**: threads **M8**.

- The remaining visible surfaces of the existing floor frame must be appropriately covered.

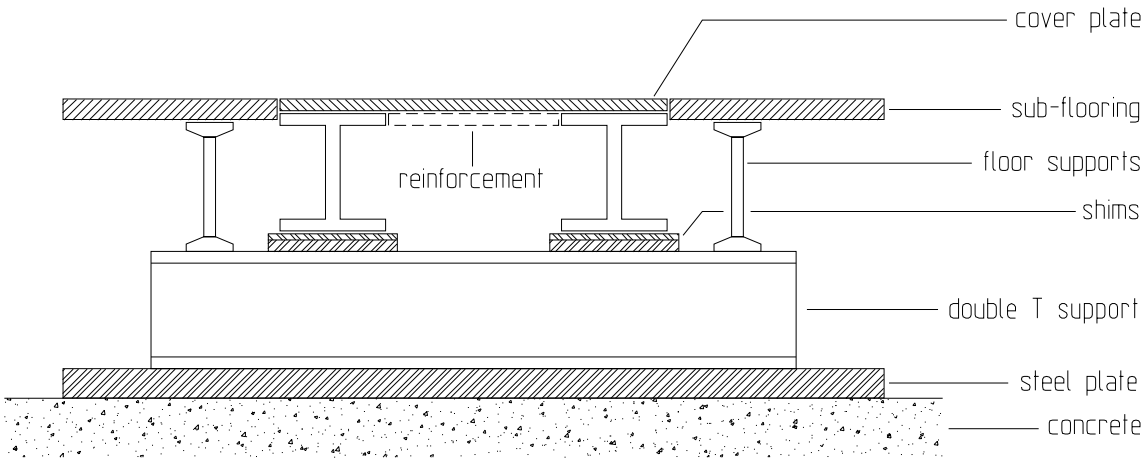
  ➪ the covers should not protrude, if possible.

- Seal all additional covers with the flooring (hygiene, safety).

NOTICE	**For safety reasons and to avoid vibrations in the gantry, all parts of the floor frame, especially those additional parts welded on, must lie in the concrete or be furnished with an appropriate backing.**

Proposal of a subfloor construction for access floor

Installation on an access floor is also possible. The following illustration shows an example of a substructure for a subfloor.



NOTICE

Sub-flooring is necessary only for the patient table.
For the gantry, only the plates of the access floor must correspond to the requirements "Floor load due to the gantry" on Page 2 - 10.

However, the same requirements as for the patient table apply in areas prone to earthquakes, where the gantry must be secured to the floor.

Information for installing the components

Installing the gantry

- Remove existing flooring in the area of the installation support surfaces and replace it with shims of the appropriate thickness.
  - ➪ The thickness of the shims must be equal to or greater than that of the flooring.
- The concrete floor around the gantry base should be level.
  - ➪ Maximum deviation is **10 mm** for the gantry width.
  - ➪ The adjustment screws can be used for leveling.
  - ➪ Use additional shims for support (included in delivery volume).
- Bolting the gantry to the floor, for example with anchors, is necessary only if required **by local or national regulations,** for example, in countries prone to earthquakes.
  - ➪ The system is anchored to the floor near the adjustment screws.
  - ➪ Installation material must be supplied on-site.

NOTICE	**The gantry pedestal must rest on the shims and floor, not just on the adjustment screws. Otherwise there can be problems with vibrations and image quality.**

Installing the patient table

- **The patient table must always be secured to the floor.**
- Remove existing flooring in the area of the attachment points or the installation support surfaces and replace it with shims of the appropriate thickness.
- Area to be cut out around the attachment points for the shims must minimal correspond to the size of the delivered shims.
- The concrete floor should be level in the area around the table base.
  If required, support with shims (included in delivery volume).

  ➪ Maximum acceptable deviation is **10 mm** for the patient table pedestal length.
- Minimum thickness of the concrete floor: **160 mm**.
- Minimum extraction force: **2.76 kN per attachment point.**

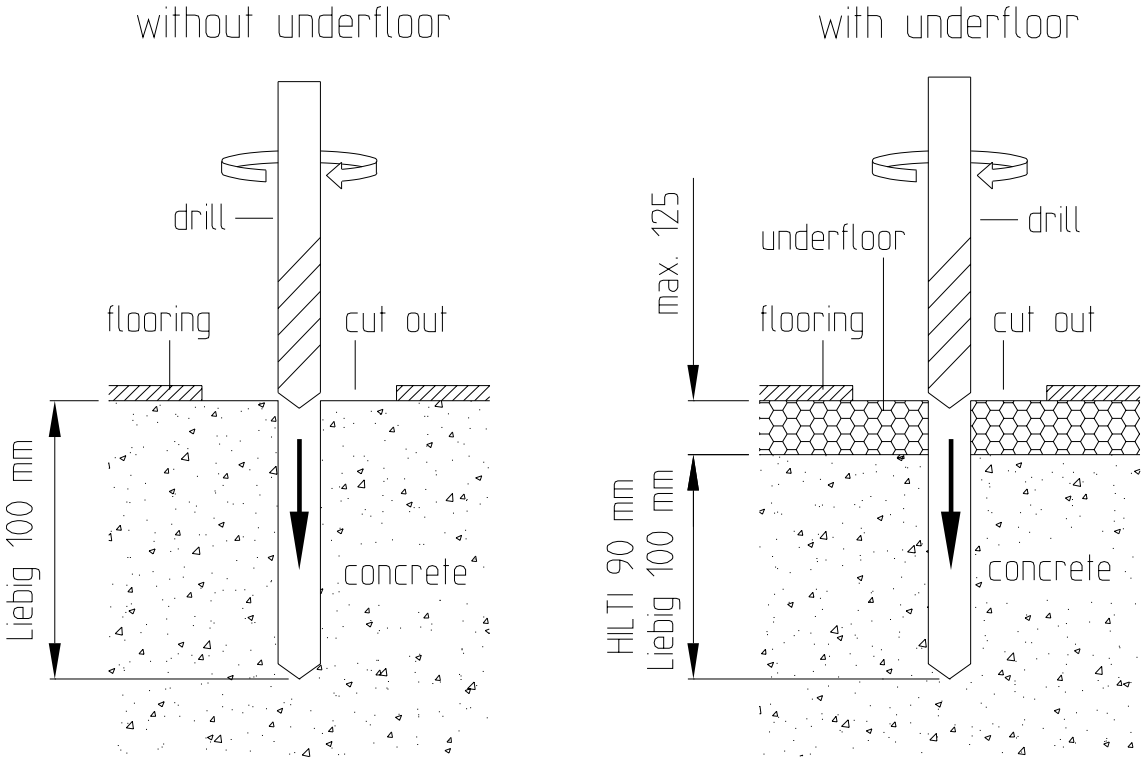
  ➪ In compliance with IEC 60601-1, the **4-fold safety factor** must be observed.
- **The following materials for floor attachment are included in the delivery:**

  1. Drilling template (part of the packaging).
  2. Hexagonal screws M8x35.
  3. Washers.
  4. Shims.
  5. Threaded rods 170 mm.
  6. Hexagon rod 135 mm.
  7. **Liebig anchor:** type Super plus, undercut drop-in anchor IL S 14/80.
     Required drill size: Ø 14 mm.
     For unfinished concrete without underflooring, use with screw M8x35.
     For underflooring thicknesses up to a maximum of **125 mm**, use with the threaded rod.
     Tighten with **25 Nm**.
  8. **HILTI anchor:** type HSL-TZ M10/100.
     Required drill size: Ø 15 mm.
     For use only with underflooring measuring **50 mm to 92 mm** in thickness.
     Tighten with **25 Nm**.
- **Drills** and **tools** must be provided on-site!
- The project manager must supply **silicon** during installation for sealing the floor around the table pedestal.

NOTE

For flooring thicknesses > 125 mm and flooring which are different as mentioned in paragraph "Requirements of the floor for gantry and patient table" on Page 3 - 17, the floor attachment must be selected in consultation with a structural engineer. The necessary attachment materials must be provided on-site.

- **The following information must be available during installation of the CT system, and must therefore be clarified or determined by the project manager in advance:**
  - ➪ **Nature of the floor**: concrete floor or underflooring
  - ➪ **Thickness** of the underflooring, for determining the **drilling depth**.
-

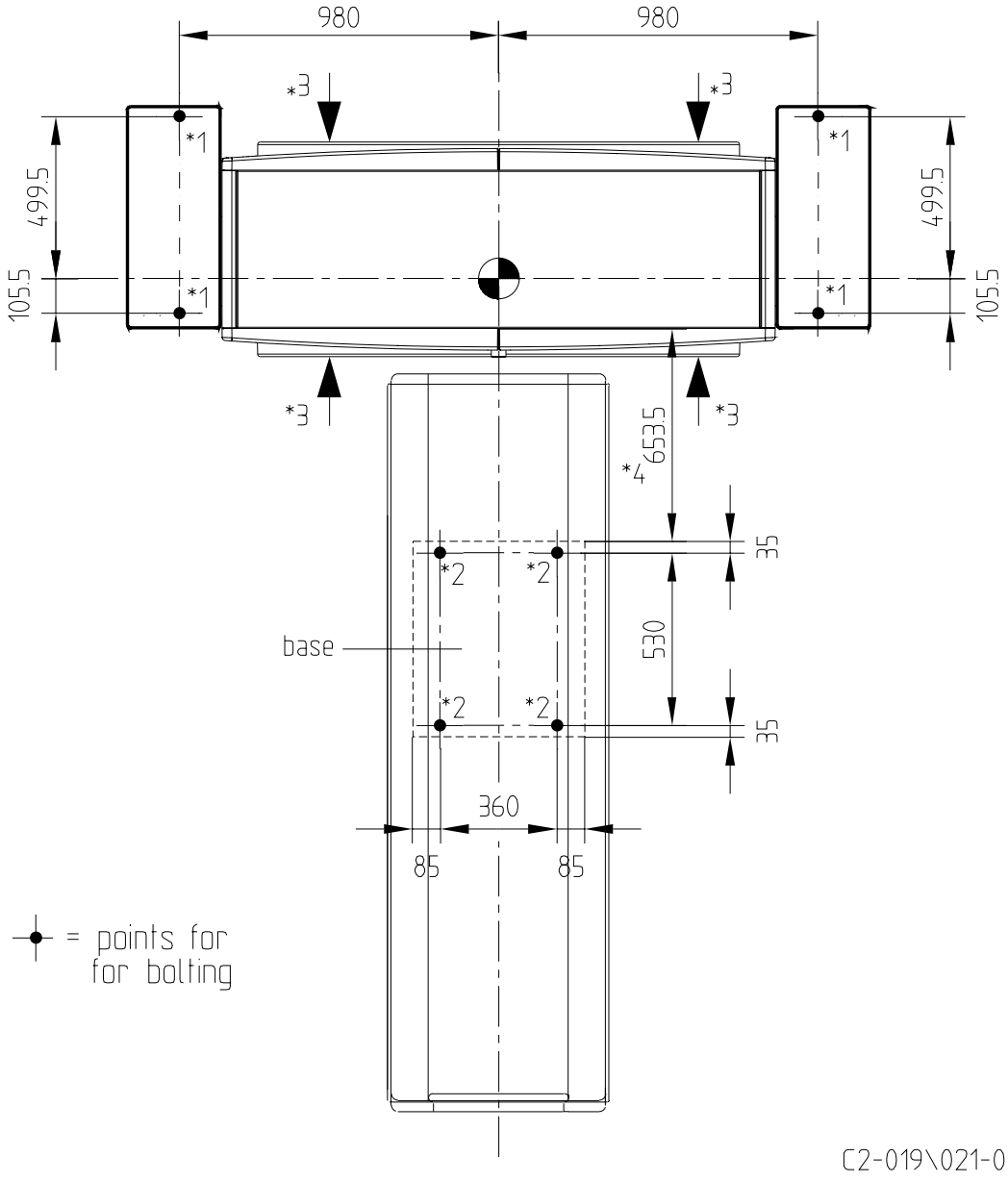


NOTICE	**The entire length of the anchor must be anchored in the concrete. Anchoring in the underflooring, even only in part, is not acceptable.**

- Anchoring materials for existing floor frames must be supplied **on-site**.

NOTICE	**The requirements for the floor frame must be met.** ➪ **See "Requirements for existing mounting frames"** on Page 3 - 18**.**

Dimensions for securing the gantry with patient table to the floor



***1** ø 15 mm for bolting through the adjustment screws.

***2** ø 14 mm for bolting through the bottom lining base.

***3** The shims (in delivery volume) must be located at about 1/3 of the gantry width.

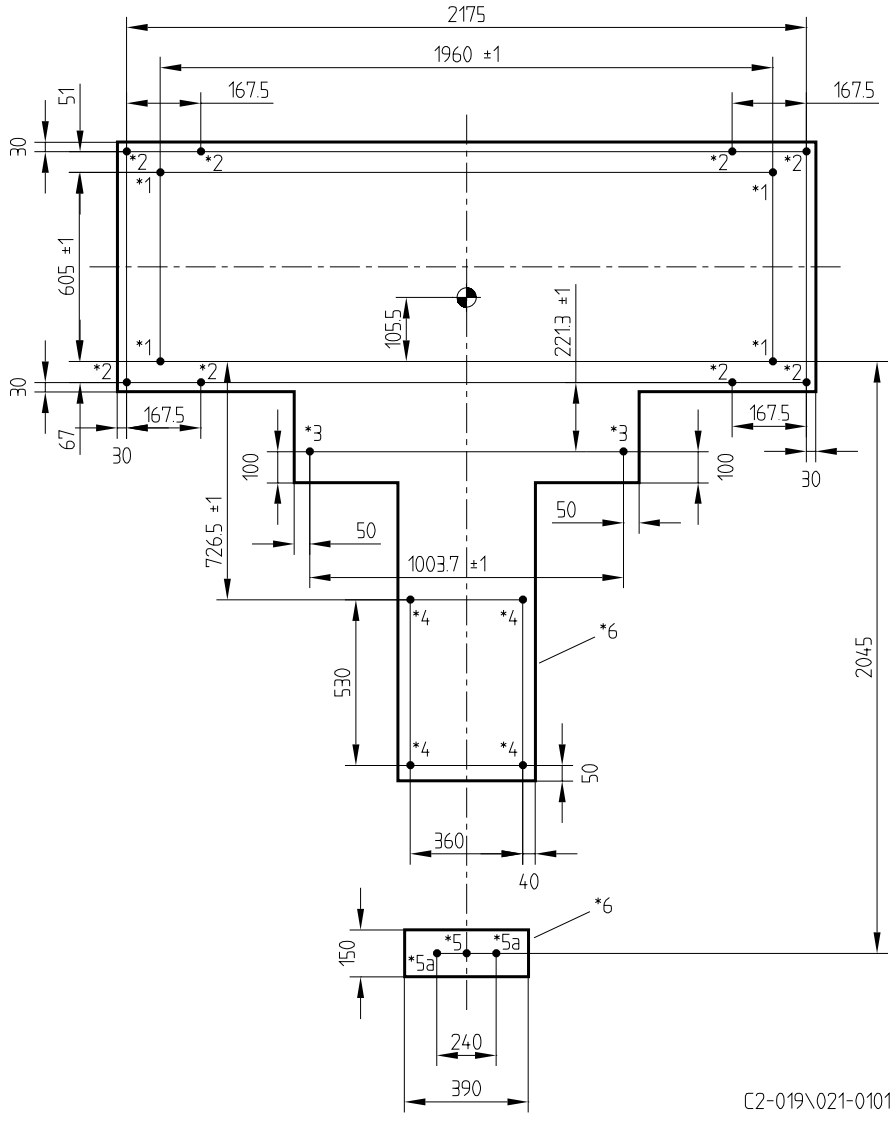
***4** Measurements result from the drilling jig included in delivery.

Securing the gantry with patient table to the floor with "Mobile CT" option

The gantry and patient table are mounted on a steel plate, which is screwed to the trailer floor. The steel plate must be produced by the trailer manufacturer.

Determining the required strength of the steel plate is dependent on the trailer and is the sole responsibility of the trailer manufacturer. The extraction force for the fastening screws must be dimensioned according to the maximum acceleration - brake forces present during transport.

The following diagram depicts the required dimensions of the drill holes for mounting the system to the floor.



***1** for floor mounting the gantry, threaded hole M12.

***2** for a support bracket to supplement floor mounting the gantry, threaded hole M12.

***3** for transport brackets for the gantry, threaded hole M12.

***4** for floor mounting the patient table, threaded hole M8.

***5** for transport brackets for the patient table, threaded hole M12.

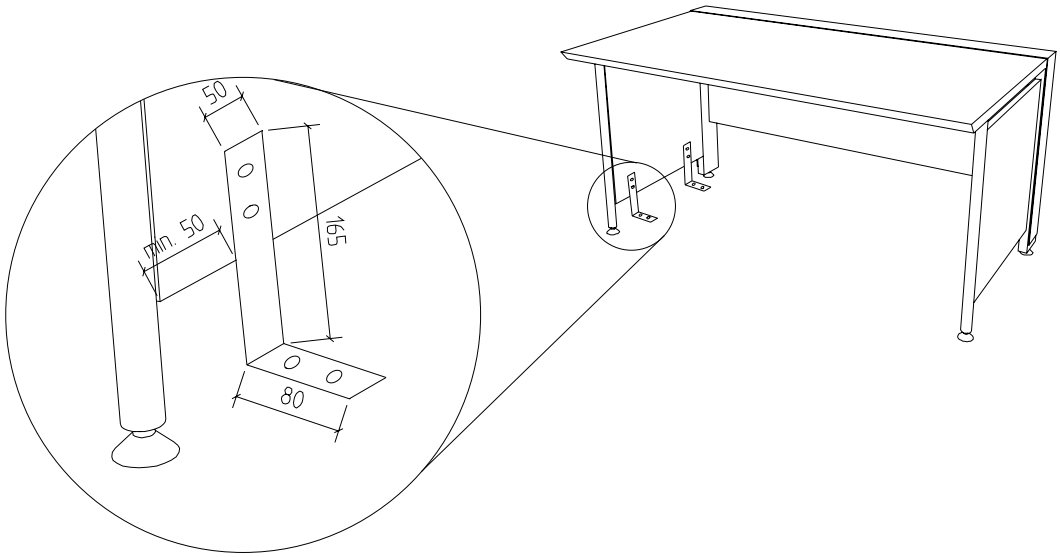
***5a** bore hole, ø 10 mm, depth 15 mm.

***6** steel plate; minimal specifications for the contour; minimal strength 20 mm.

Installation of the operating console

- Securing the operating console to the floor is necessary only when required by **local or national regulations**, for example, in countries prone to earthquakes.
- All necessary parts for securing the console are to be supplied on-site (anchors, washers, angle brackets, etc.).
- It is not anticipated that the monitor and keyboard will be secured, unless required by **local or national regulations**, for example, in countries prone to earthquakes.
- The floor must be even and level.

Example of possible floor mounting



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Installation of the ICS, IRS and IES

- Securing the imaging system to the floor is necessary only when required by **local or national regulations**, for example, in countries that are prone to earthquakes.
- All necessary parts for securing the imaging system are to be supplied on-site (anchors, washers, screws, etc.).
- The floor must be even and level.

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System Connections

General Information

Information on routing fiber optic cables

- Do not damage the cables during routing
  - ➪ Route individually if necessary.
- Avoid soiling the ends of the cables.
- Acceptable bending radius: **80 mm**.
- Acceptable tensile strength: **35 N**

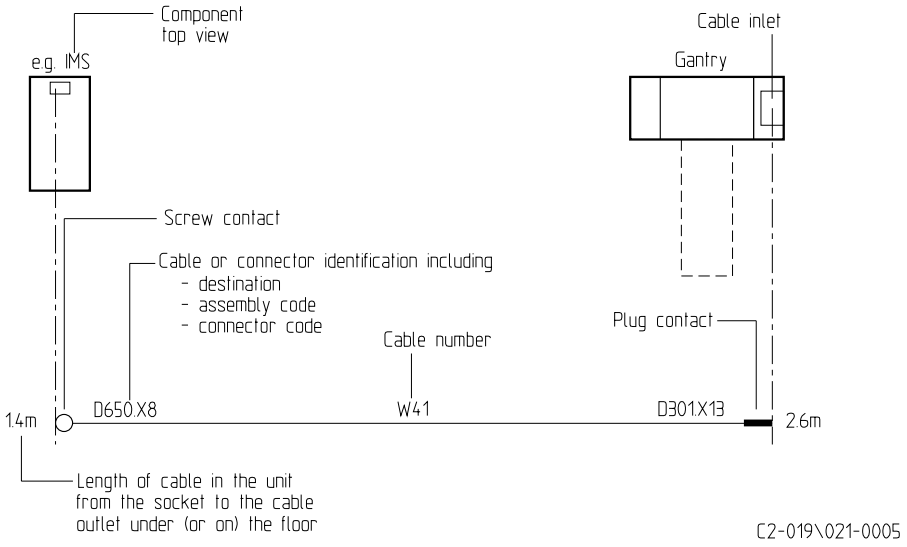
Information on signal and data cable

To prevent interference on signal and data cables, adhere to the following:

- Route **separately** (if possible in 2 different cable ducts**)** from **on-site main voltage cable** and **all cables not part of the system**.

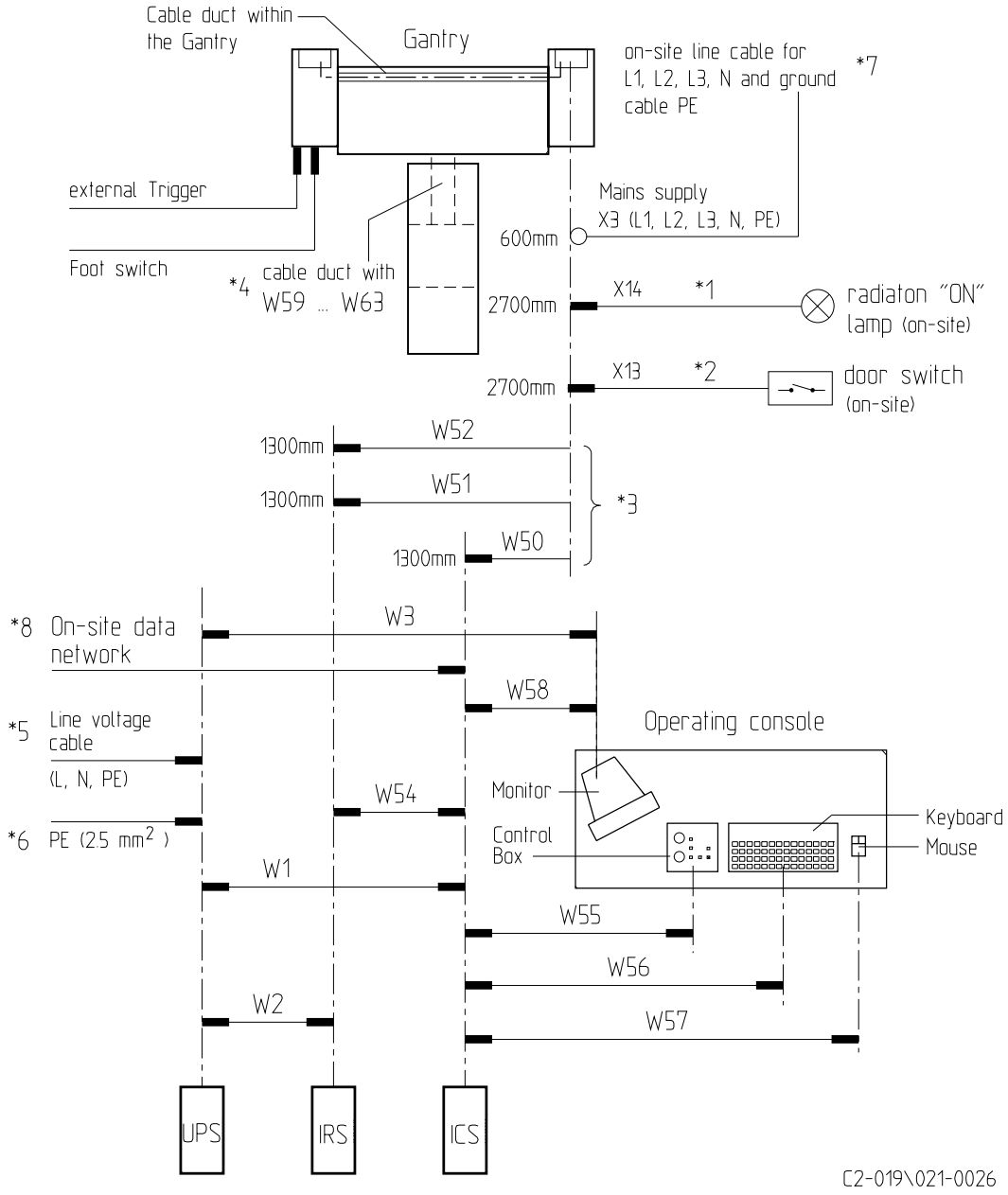
  Minimum distance to
  - ➪ on-site main voltage cable: **5 cm.**
  - ➪ all cables not part of the system: **>1m.**
- Route excess cable lengths in meanders or hang them on the right side pedestal. **Do not roll cables**!
- Do not damage the cables during routing.
- Acceptable **bending radius:**
  - ➪ **Formula:** cable Ø x 10.

Legends for wiring



Mains, protective conductor, and system connections

Wiring diagram standard components



Footnote for *1 to *8) see the following table on the next page.

NOTICE	**Do not connect any external users to the line-power distribution cabinet, for example,** **- image documentation,** **- film processor,** **- camera for patient monitoring, etc.**

No.	Cable type/ function	Item number/gauge	Delivered length	Comment
W1	Power cable	-	2 m	included in delivery volume
W2	Power cable	-	2 m	included in delivery volume
W3	Power cable	-	3 m	included in delivery volume
W50	Data cable	38 07 109 K1506	25 m	incl. in delivery volume, pre-installed ***3)**
W51	Data cable	38 07 117 K1506	25 m	incl. in delivery volume, pre-installed ***3)**
W52	Fiber optic cable	38 07 596 K1506	25 m	incl. in delivery volume, pre-installed ***3)**
W54	Data cable	-	1.5 m	included in delivery volume
W55	Control cable	-	3 m	incl. in delivery volume, for control box
W56	Keyboard cable	-	2 m / 4 m	either 2 m (delivered with the keyboard) or 4 m (part of the system)
W57	Mouse cable	-	2 m / + 3 m	1.8 m (delivered with the mouse), 3 m for extension (part of the system)
W58	Video cable	-	3 m	included in delivery volume, for monitor connection
W59	24V power cable	38 07 125	-	included in delivery volume, pre-installed ***4)**
W60	230V power cable	38 07 133	-	incl. in delivery volume, pre-installed ***4)**
W61	Ground cable	38 07 141	-	incl. in delivery volume, pre-installed ***4)**
W62	24V power cable	38 07 075	-	incl. in delivery volume, pre-installed ***4)**
W63	24V power cable	38 07 166	-	incl. in delivery volume, pre-installed ***4)**
Footnotes:				
***1)**	2-wire cable	2 x 0.5 mm^2 for 230V / 2A 2 x 1.5 mm^2 for 24V / 10A	-	on-site cable for connecting the radiation ON indicator to the floating relay switch contact (max. 250V/2A~ AC or 24V/10A AC/DC)
***2)**	Power cable	2 x 0.5 mm^2 shielded	-	on-site cable, shielded for door switch
***3)**	Cables W50, W51 and W52 are pre-installed in the gantry (internal cable routing length is 7.20 m)			
***4)**	Cables W59 to W63 between the gantry and the patient table are pre-installed in the gantry.			
***5)**	Power cable	-	230V = 2 m 120V = 3 m	delivered with the UPS
***6)**	For 230 V power supplies, an additional permanent PE connection of 2.5 mm^2 must also be established between the PE connection of the UPS (M5 screw) and an on-site PE connection clamp. **The PE cable is not delivered with the system.**			
***7)**	On-site power lead	-	-	in accordance with country-specific directives and the power consumption of the entire system
***8)**	On-site data cable	-	-	on-site cable; refer to "Camera" on Page 1 - 8.

Information about cable routing

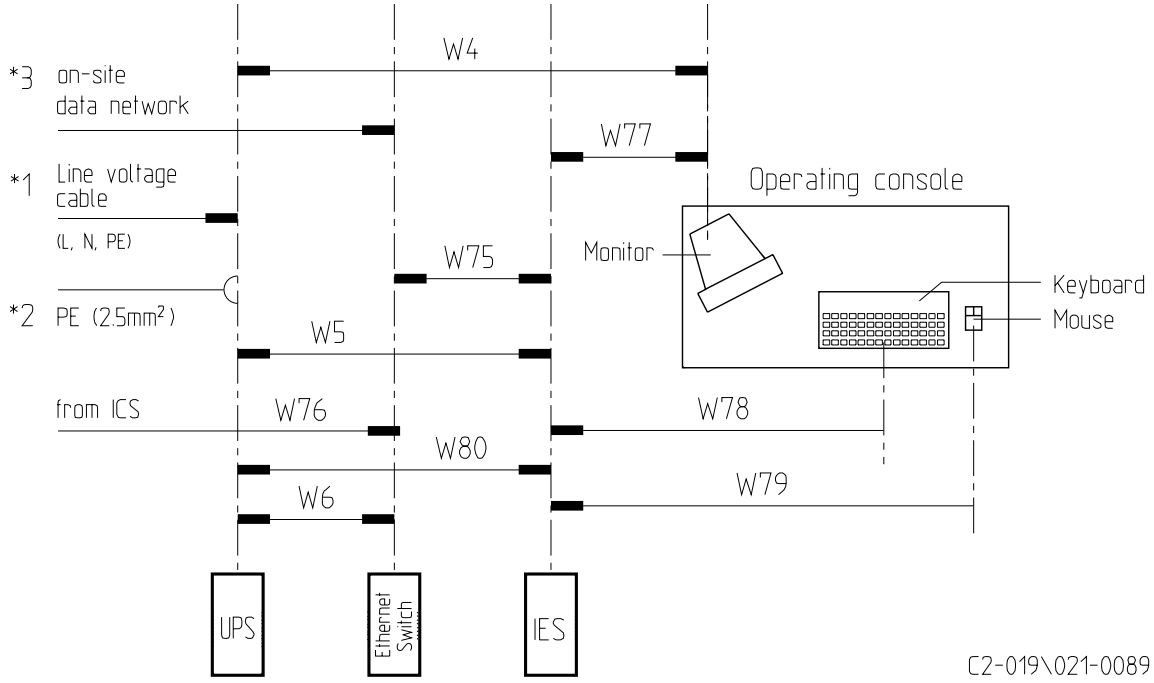
- Cables **W50, W51,** and **W52** are pre-installed; they are fed out through the internal cable duct at the right gantry foot (cable inlet).
- The on-site cable to connections X14 (radiation ON warning light) and X13 (door switch) on the MAS board is to be routed through the right-hand cable inlet and the internal cable duct.

  ➪ In some circumstances, these two cables can also be routed through the cable inlet in the left gantry foot. In this case, they must be routed from below through the floor cut-out (for example, computer flooring).
  There is **no** cable inlet in the back of the left gantry foot that would permit the cable to be routed externally above the floor.
- Cable extensions are available as kit. These cable extensions are included in **Mobile CT** delivery volume.

  ➪ up to **12 m** overall length for **W3**, **W56 and W57.**

  ➪ up to **13 m** overall length for **W55 and W58.**

Wiring diagram for IES option



No.	Cable type/ function	Delivered length	Comment
W4	Power cable	3 m	for monitor; included in delivery volume
W5	Power cable	2 m	for IES; included in delivery volume
W6	Power cable	2 m	for Ethernet Switch; included in delivery volume
W75	Data cable	5 m	included in delivery volume
W76	Data cable	5 m ***)**	included in delivery volume
W77	Video cable	3 m	BNC cable 70 Ohm; included in delivery volume, pre-installed
W78	Keyboard cable	2 m / 4 m	either 2 m (delivered with the keyboard) or 4 m (part of the system)
W79	Mouse cable	2 m / 3m	2 m (delivered with the mouse) or 3 m for extension (part of the system)
W80	Data cable	1 m	included in delivery volume
***1)**	Power cable	230V = 2 m 120V = 3 m	included in delivery volume of the UPS
***2)**	**For 230 V power supplies, an additional permanent PE connection of 2.5 mm² must also be established between the PE connection of the UPS (M5 screw) and an on-site PE connection clamp. The PE cable is not delivered with the system.**		
***3)**	On-site data cable	-	on-site cable; refer to "Camera" on Page 1 - 8.

***)** see "Increase the distance between ICS and IES" on Page 4 - 6.

Increase the distance between ICS and IES

The installation of an **on-site** Ethernet cable allows you to increase the distance between the ICS and IES, up to a distance of

- maximum **100 m.**

- Specifications:
  - Ethernet cable, 100 base-TX, "shielded, twisted pair," category 5.
- Steps:
  - Replace the delivered Ethernet cable W76 (5 m) with the above mentioned on-site cable (max. 100 m).
- For **UPS 230 Volt** only, if present:
  - **either** connect the supplied line voltage cable with grounded plug **and** the additional on-site 2.5 mm^2 protective conductor to the grounding bolts of the UPS,
    or
  - remove the grounded plug of the UPS line voltage cable and connect to an **on-site** fixed line voltage connection, e.g., junction box.
    Ensure in-phase connection!

Technical Data

Dimensions, weights, noise levels, and air flow

Overview

Component	Dimensions LxWxH [mm]	Weight [kg]	Noise [dB (A)]	Air Flow [m^3/h]
	Net <Gross>	Net <Gross>	Distance 1 m	
Gantry/PDS (Balance/ Emotion/Esprit+)	2280 x 768 x 1780 <2540 x 1015 x 2015>	1150 <1270>	68	1600
Gantry/PDS (Esprit)		1120 <1240>		800
Patient Table	2230 x 680 x 934 <2380 x 800 x 1100>	< 330 <400>	60	-
Image System IMS (IRS/ICS)	***1)**	***1)**	-	-
Evaluation Console IES (optional)	***1)**	***1)**	-	-
IMS Container (optional)	660 x 858 x 700 <1200 x 800 x 950>	58 <78>	-	-
Operating Console *2)	1400 x 800 x 700 <1420 x 780 x 200>	< 60 <73>	-	-
21" Monitor (monitor with CRT image tube)	498 x 538 x 498 <620 x 580 x 630>	33 <35>	-	-
18" flat screen color display monitor	465 x 120 x 430 <570 x 390 x 580>	10 <14>	-	-
UPS for IMS	350 x 140 x 160 <500 x 270 x 300>	13 <14.5>	-	-

NOTICE **These parameters may vary slightly.**

***1)** No information available; models subject to frequent change (commercial component).

***2)** Figures apply to the optional operating console, width 1.40 m.

Heat dissipation

Gantry with patient table and image system

The following table shows the heat dissipation rated in kW at **1.8 kW** average radiation.

Component	Maximum average heat dissipation [kW]	
	Standby	**Operation**
Gantry with Patient Table (Balance/Emotion/Esprit+)	0.85	4.5
Gantry with Patient Table (Esprit)	0.85	3.5
Image System IMS with 21" monitor and UPS	0.42	0.42
Image System IMS with 18" monitor and UPS	0.33	0.33
Evaluation Console IES with monitor and UPS	0.39	0.39
21" monitor	-	0.15
CARE Vision CT	-	0.075

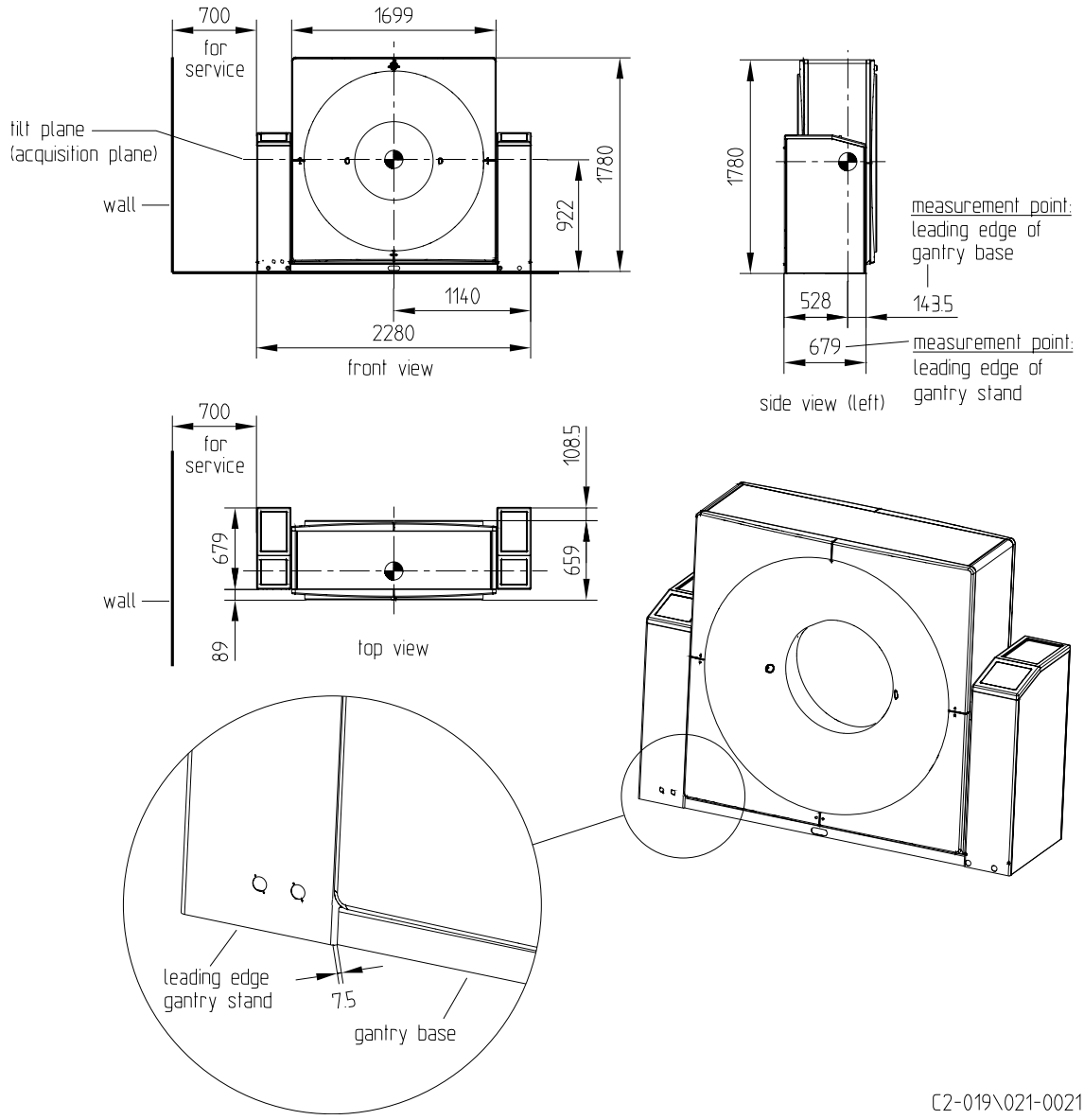
NOTICE

These parameters may vary slightly.

The heat dissipated by the system is to be exhausted through a venting system provided by the customer. To ensure error-free system operation, the target values specified in the climatogram in Chapter 2 must be complied with.

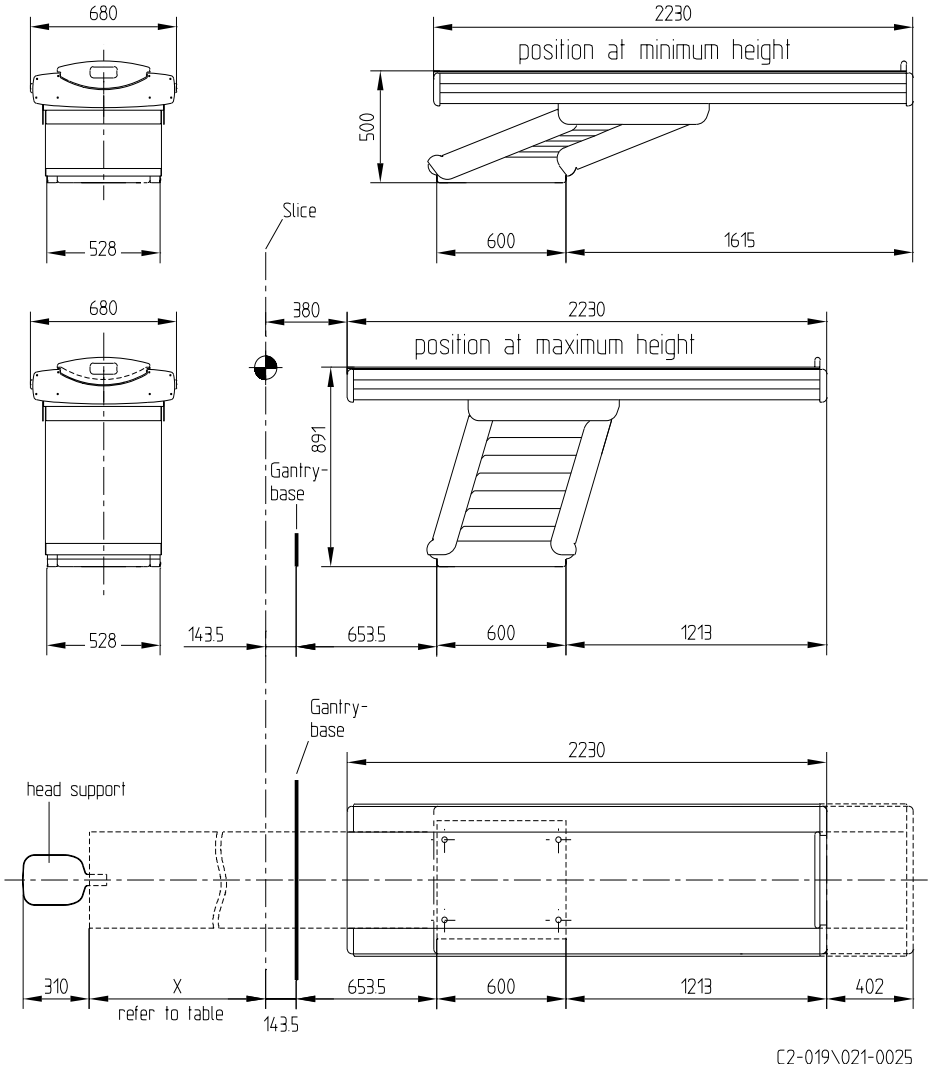
Dimensions of the components

Gantry



NOTICE	**The leading edges of the gantry feet are not flush with the leading edge of the gantry base.**

Patient table



Parameters for X

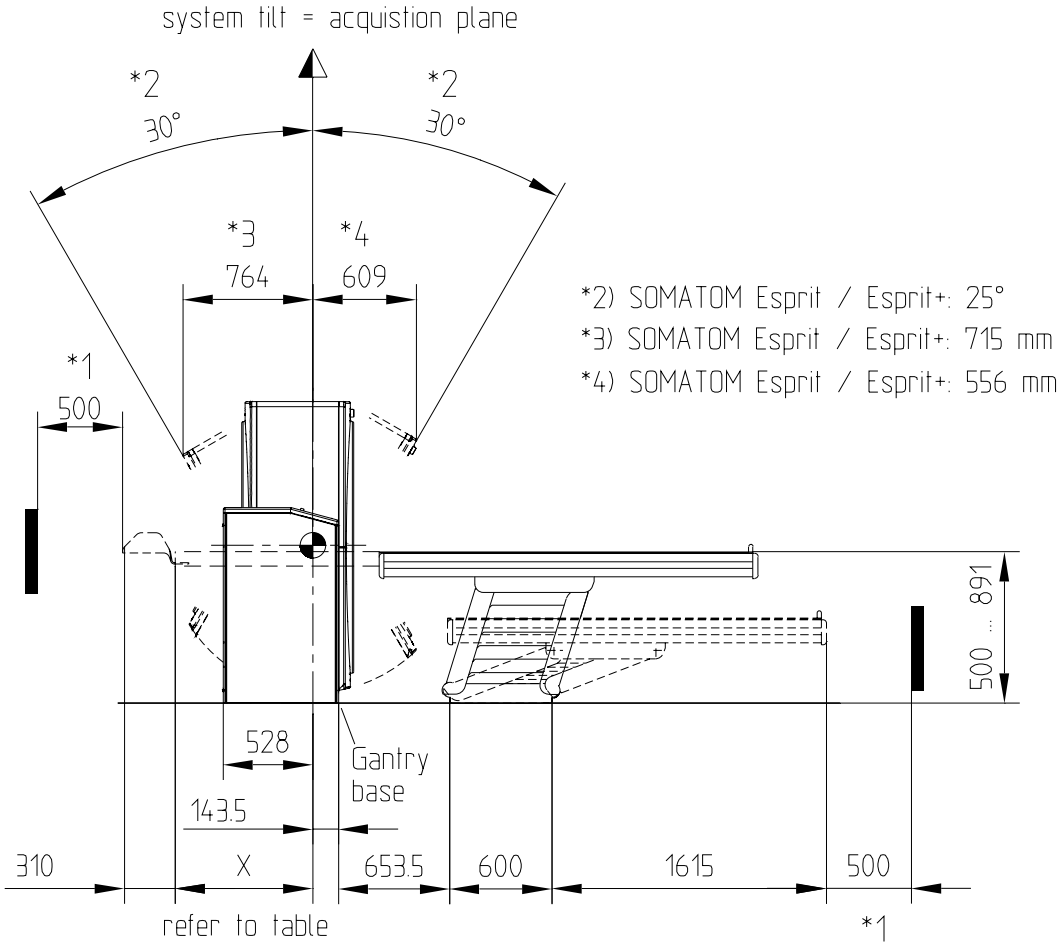
SOMATOM	X [mm]
Balance	990 +10
Emotion	1220 +10
Esprit	890 +10
Esprit+	990 +10

NOTICE

The table feed is different. When planning the room, keep in mind that at some point you may want to upgrade from SOMATOM Balance to SOMATOM Emotion.

With software version VA40 you have the possibilty to configure the scanable range of the patient table infinitely variable between the value of the SOMATOM Emotion and the SOMATOM Esprit. Because of this feature you can adapt the table feed to the room situation.

Gantry with patient table



- **Parameters for X**

  ➪ Refer to the table "Parameters for X" on Page 5 - 4.

IMS, IES, and components

No dimensions are indicated for the

- **IMS, IES**
- **monitors, keyboard, and control box**
- **IMS and IES container,**

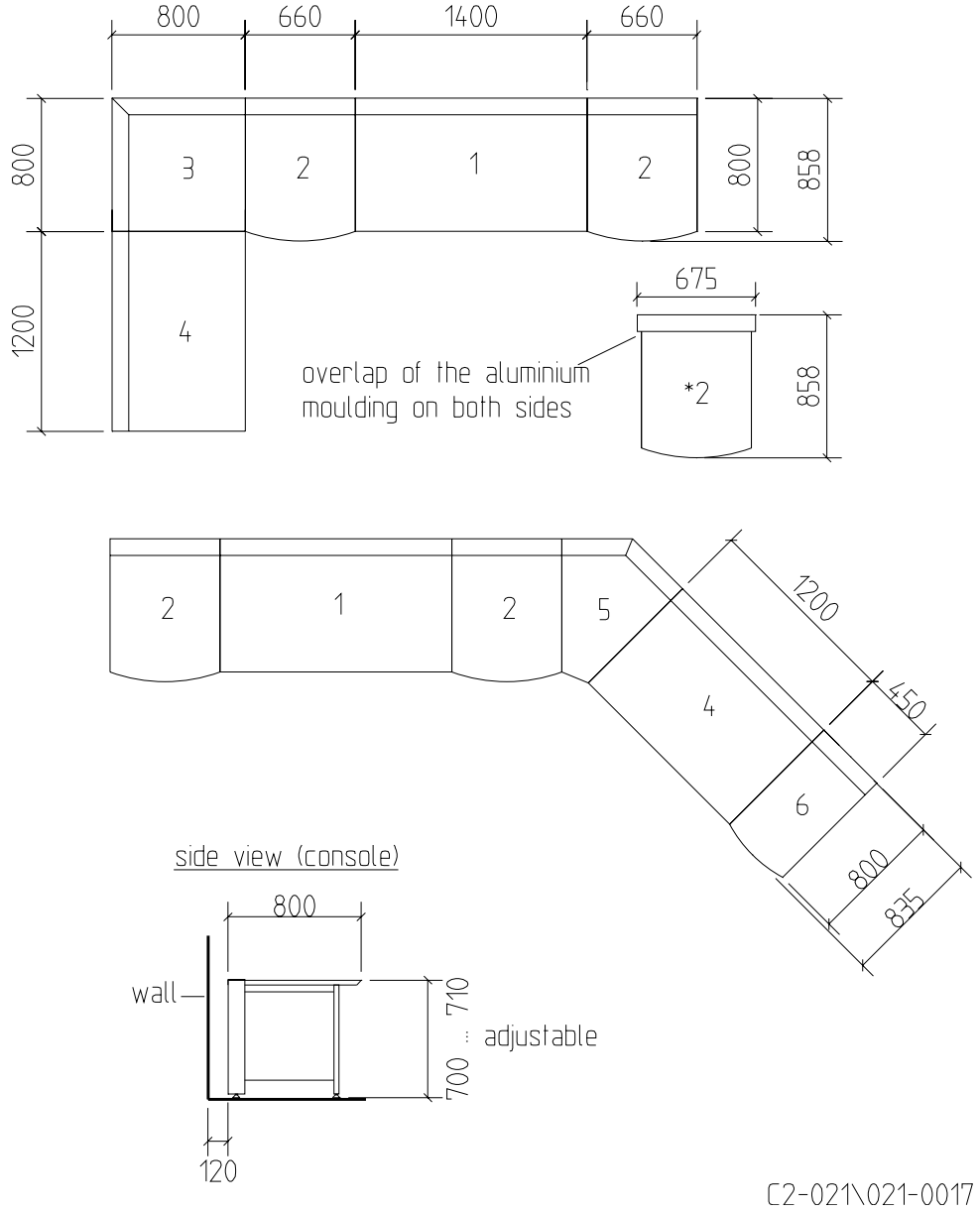
since the small size and pre-determined placement of the individual components makes extensive pre-planning unnecessary.

- **Measurements**

  ➪ See "Dimensions, weights, noise levels, and air flow" on Page 5 - 1.

Operating console (system furniture)

To satisfy the ergonomic requirements (user's distance from the screen), the back of the operating console must be at least 120 mm from the wall when using the 21" monitor.



1 console 1400 mm

2 IMS container in compound with other ct furnitures.

***2** IMS container as stand alone furniture.

3 90° corner

4 console 1200 mm

5 45° corner

6 office container

Mains requirements

Line voltage, line frequency, internal line impedance

Component	Line voltage [V]		Line frequency [Hz]	Line impedance according to IEC 601-2-7 [mW]	
				Balance/ Emotion/ Esprit+	Esprit
Gantry with patient table	3/N~ 190	±10 %	50 / 60 ± 10%	100	100
	3/N~ 200			100	100
	3/N~ 208			100	100
	3/N~ 220			100	100
	3/N~ 380			250	400
	3/N~ 400			280	440
	3/N~ 420			300	490
	3/N~ 440			340	500
	3/N~ 460			365	580
	3/N~ 480			400	640
IMS / IES	230 / 110		50/60 ± 5%	-	-
CARE Vision	100 to 240			-	-

Connected Load

The connected load is calculated as follows:

nominal line voltage x external (on-site) fuse x 1.73

➪ Fuse values, see "On-site fuses" on Page 3 - 4.

Impedance-matching transformer for the generator

The necessary impedance-matching transformer for the voltage ranges

- 380 V, 420 V, 440 V, 460 V, and 480 V
- 200 V
  - possible connections: 190 V, 200 V, 208 V, 220 V

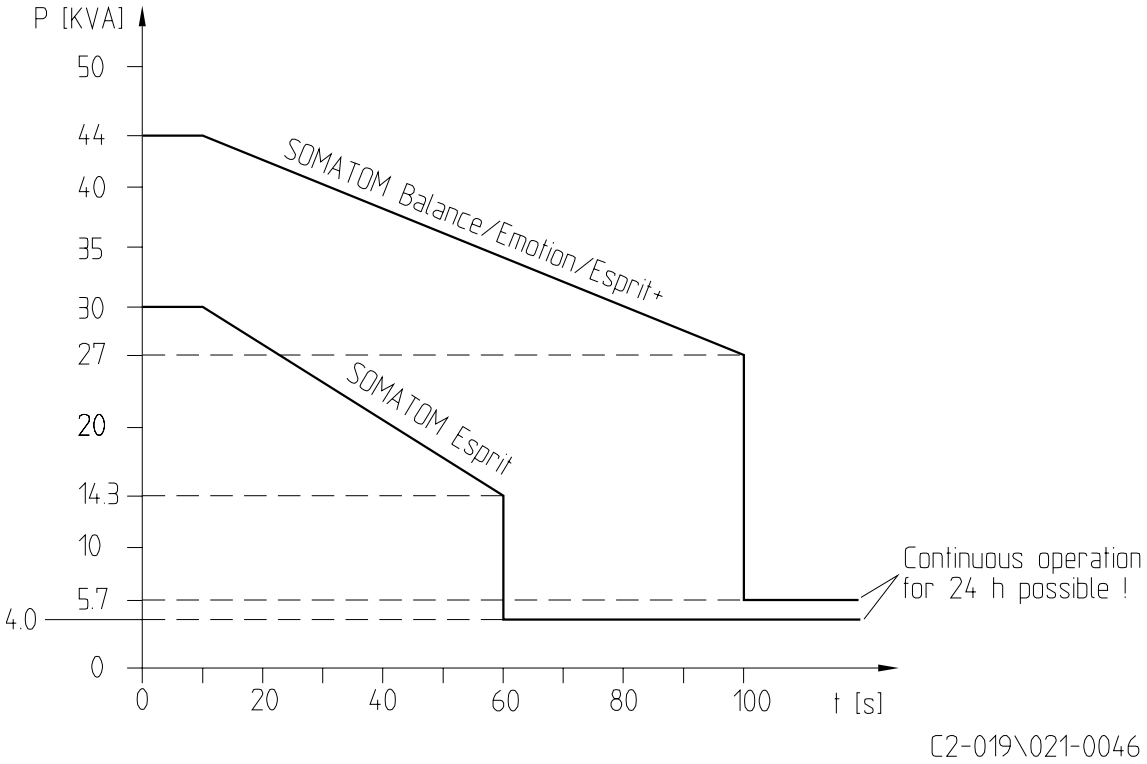
is custom factory-installed in the PDS (customer-specific).

- **No** impedance-matching transformer is required for 400 V.

NOTICE	**There are no additional on-site requirements.**

Power consumption for the entire system

Component	Maximum at operation	Standby
Gantry with patient table (Balance/Emotion/Esprit+)	44 kVA	£ 1 kVA
Gantry with patient table (Esprit)	30 kVA	£ 1 kVA
Image System IMS	0.50 kVA	0.50 kVA
Evaluation Console IES	0.40 kVA	0.40 kVA



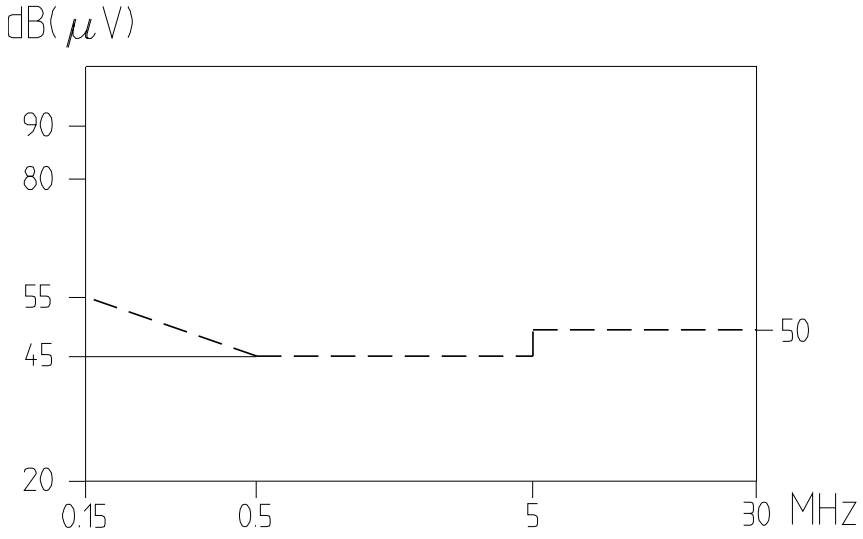
NOTICE	**Use a pre-transformer with at least 10% more power.**

Electromagnetic compatibility (EMC)

Emission

In accordance with IEC 601-1-2.

Interference signals on power lines:
150 kHz - 30 MHz, corresponding to class B, CISPR 11.



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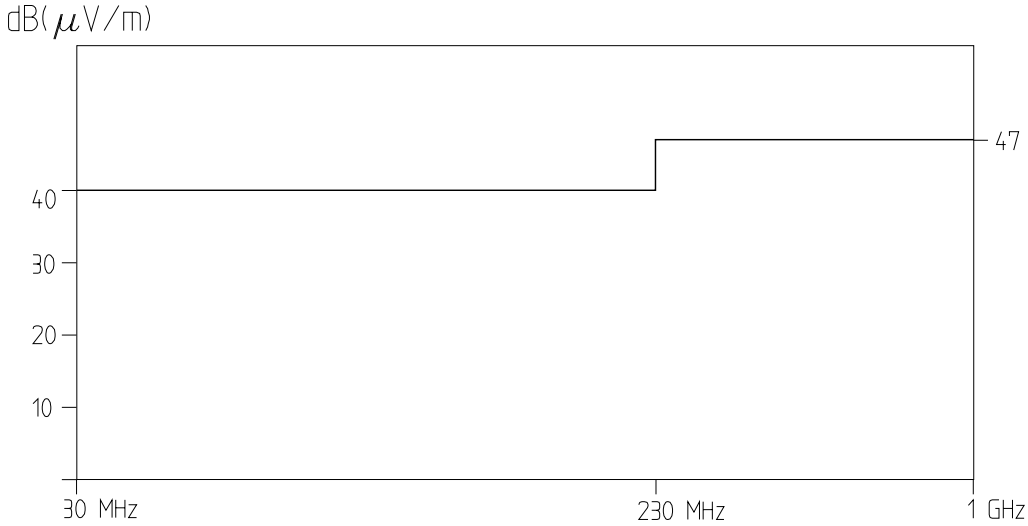
RF interference
Electromagnetic field**:** 30 MHz - 1 GHz, corresponding to class A, CISPR 11.



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Magnetic field

No requirements according to IEC 601-1-2.

The following minimum distances must be maintained to avoid interference:

Gantry ´ ECG workstation:	min. 2.5 m *
Gantry ´ EEG workstation:	min. 3.0 m *

* Minimum distance from mains power cables = 3.0 m.

Interference immunity

In accordance with IEC 601-1-2

ESD: 3 kV for contact discharge and 8 kV for air discharge.

RF interference (electromagnetic field)**:** 3 V/m (26 MHz - 1 GHz)
Notice: The level for a mobile phone is higher (in the vicinity of the antenna).

Magnetic field: No requirements according to IEC 601-1-2.

- 10A/m DC (switched) equivalent to 12.5µT
- $1A/m_{SS}$ 50/60 Hz equivalent to $1.25\mu T_{ss}$
- Critical component: CRT-Monitor.

Voltage peaks (bursts): 2 kV on high-tension cables.

Voltage surges: 2 kV on high-tension cables.

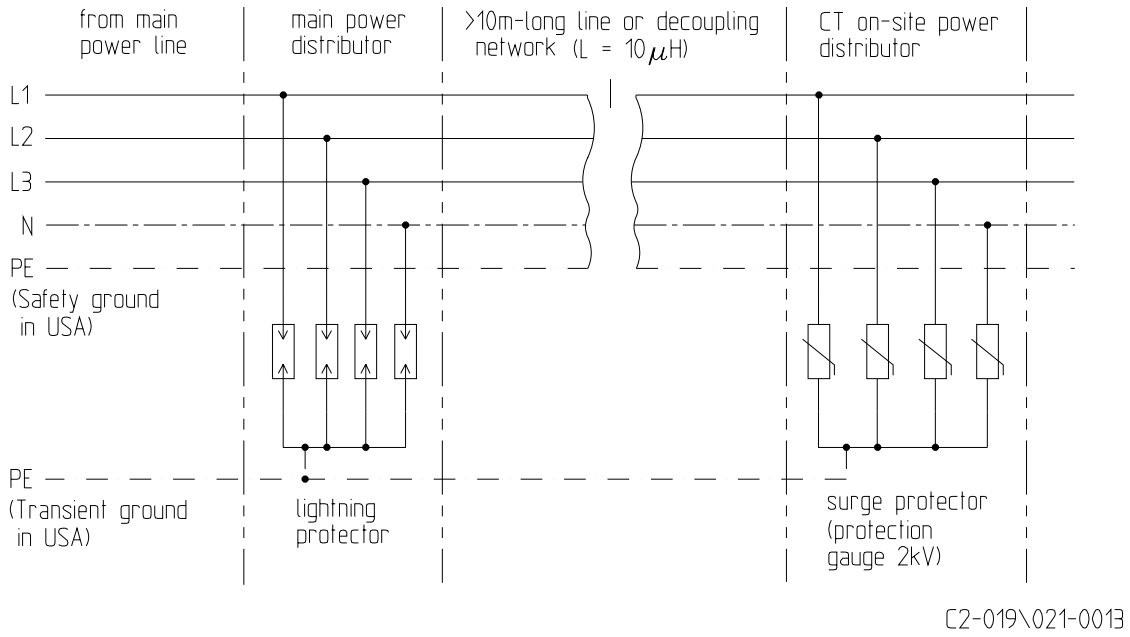
NOTICE

If necessary, a surge protector with a protection level of 2 kV should be installed in the system distribution cabinet.

A lightning protector should be installed in accordance with IEC 1024-1, IEC 1024-2, and local or national regulations and safety laws.

For an example, see the next page.

Example



- Suitable components from, for example,
  - ➪ PHÖNIX CONTACT:
  - ➪ Lightning protector ’FLASHTRAB’
  - ➪ Surge protector ’VALVETRAB.MS’
- or similar products from other manufacturers.

To determine the type required, refer to the technical documents provided by the manufacturer and the appropriate country-specific regulations.

Brownouts and power outages

No requirements according to IEC 601-1-2.

Entire system without IMS

Nominal line voltage	Minimum jumper time
-10%	∞ ***1)**
-100%	£ 20 ms ***1)**
-100%	£ 300 ms ***2)**

***1) Failure criteria 1:** Measurement possible without restriction.

***2) Failure criteria 2:** Current measurement is terminated (radiation switch-off). Control function remains operable.
After the interference clears, measurement operation can be continued with "*CONTINUE."*

NOTICE

When the power drops by more than 10% and/or it is interrupted for > 20 ms, a UPS must be used to ensure continuous operation. The UPS's power output is determined by the power consumption of the overall system.

Please note the transition time of 3 minutes for the UPS from IMS and/or IES.

IMS, IES, and UPS

Nominal line power	Maximum duration
-10%	∞ ***3)**
-100%	3 minutes ***4)**

***3) Failure criterion 1:** Processor operation unaffected.

***4) Failure criterion 2:** Processor shuts down after 3 minutes.

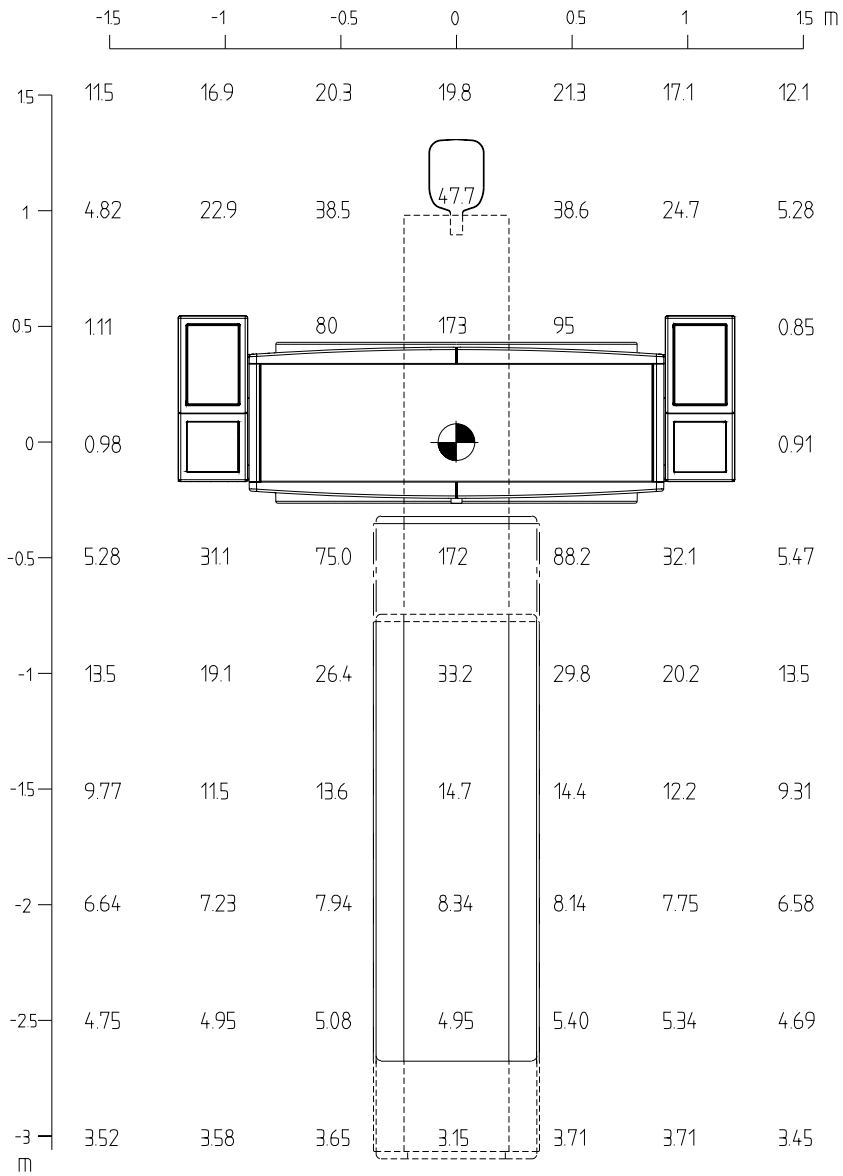
Occupational dose equivalent values

The measurements were taken at the maximum slice thickness of **10 mm** at **130 kV** in the horizontal plane through the system axis.

The phantom used was a cylindrical PMMA phantom with a diameter of **32 cm** and a length of **16 cm**. The phantom was centered in the tomographic plane.

Parameters for SOMATOM Balance/Emotion/Esprit+

Measurements in m**SV/1000 mAs.**



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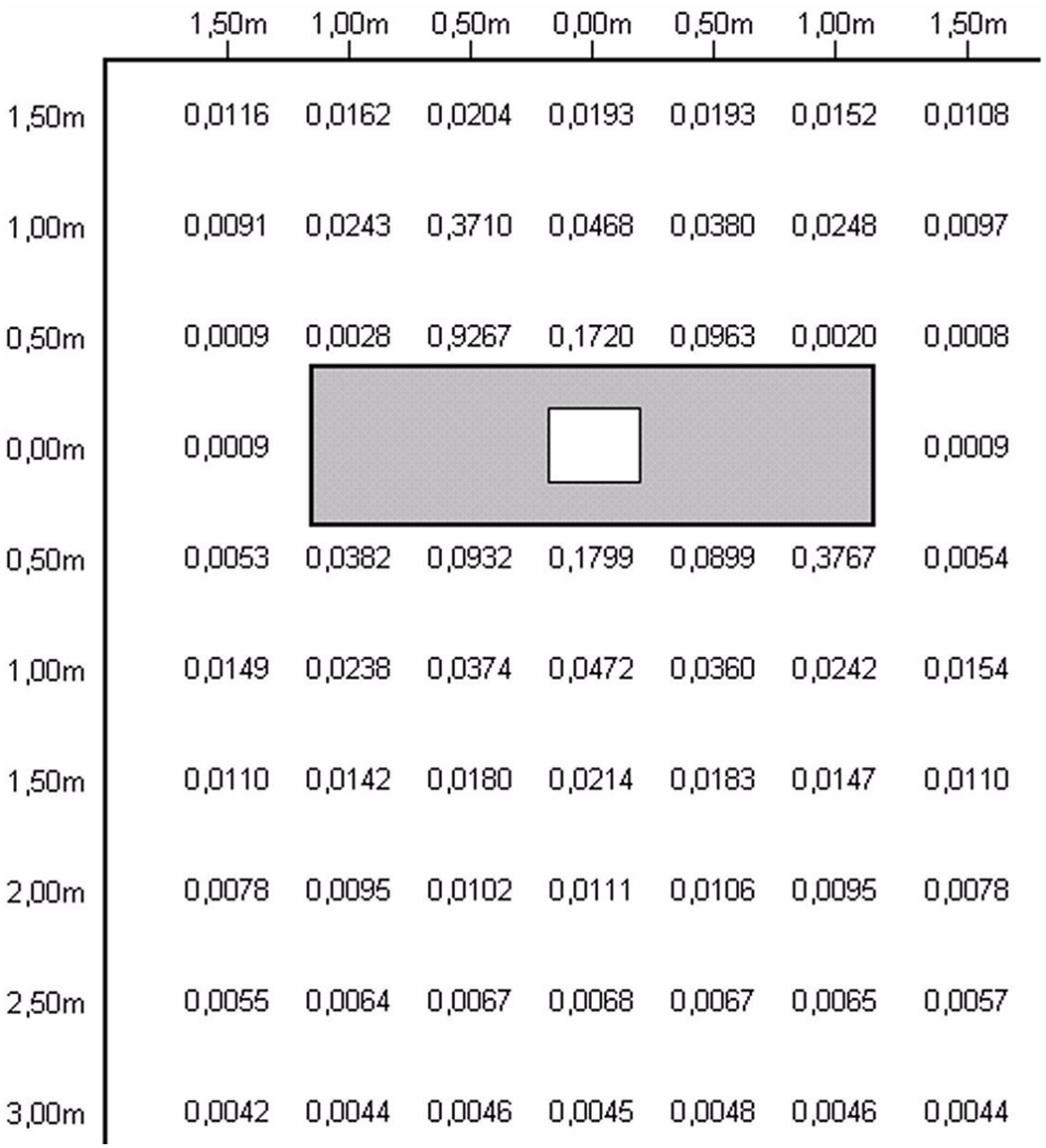
Parameters for SOMATOM Esprit

Measurements in m**Gy/1 mAs-Scan.**



Color information

The following colors are used:

Shade	MED-color code no.	Color similar to RAL
White textured (primary color)	4146	gray-white 9002

Tab. 1

Shade	MED-color code no.	Color similar to RAL
Medical Blue	4512 ***1)**	not available.
Medical Yellow	4532 ***1)**	
Medical Red	4542 ***1)**	

Tab. 1

*1) • A "**Corporate Design: New Product Colors**" color chart can be ordered at:

➪ SIEMENS AG
Logistikzentrum Fürth
Gruendlacher Str. 258-260
90765 Fürth
Germany

FAX: +49 911 654-4271

➪ **Internet:**
http://www.click4business-supplies.de

• Order numbers (language):

➪ **German**: A19100-F-A367

➪ **English**: A19100-F-A367-X7600

Quick view

Components and options

Gantry

Name	Values	Comment
Dimensions [mm] L x W x H	2280 x 768 x 1780	**without** packing.
	2540 x 1015 x 2015	**with** packing.
Weight [kg]	1150	**without** packing.
	1270	**with** packing.
Noise [dB (A)]	68	-
Air flow[m^3/h]	1600	cooling fans.
	800 (Esprit)	
Heat dissipation [kW] (at 1.8 kW average radiation)	**0.85 (standby)**	Balance/Emotion/Esprit+ with patient table.
	4.5 (operation)	
	0.85 (standby)	Esprit with patient table.
	3.5 (operation)	
Distance for service [mm]	700	lateral to the left gantry pedestal.
	550	behind right gantry pedestal.
Securing to the floor	not required; but possible.	in countries prone to earthquakes, follow the applicable country-specific regulations.

Patient table

Name	Values	Comment
Dimensions [mm] L x W x H	2230 x 680 x 934	**without** packing.
	2380 x 800 x 1100	**with** packing.
Weight [kg]	< 330	**without** packing.
	400	**with** packing.
Noise [dB (A)]	60	-
Heat dissipation [kW]	**-**	see gantry.
Distance for service [mm]	-	no special requirements.
Extraction force [kN]	2.76	no special requirements.
Securing to the floor	yes	**has to be secured to the floor in principle!**

IMS

Name	Values	Comment
Dimensions [mm] L x W x H	-	no information available; models subject to frequent change (commercial component).
Weight [kg]	-	
	-	
Noise [dB (A)]	-	
Air flow [m^3/h]	-	
Heat dissipation [kW]	**0.42**	with 21" monitor and UPS.
	0.33	with 18" monitor and UPS.
Distance to the wall [mm]	120	to back; for cooling and cabeling.
Line voltage [V]	110	on-site fuse: **20 A** **ground additionally UPS !**
	230	bon-site fuse: **16 A** **ground additionally UPS !**
Power consumption [kVA]	0.5	operation and standby.
Securing to the floor	-	in countries prone to earthquakes, follow the applicable country-specific regulations.

IES

Name	Values	Comment
Dimensions [mm] L x W x H	-	no information available; models subject to frequent change (commercial component).
Weight [kg]	-	
Noise [dB (A)]	-	
Air flow [m^3/h]	-	
Heat dissipation [kW]	**0.39**	with monitor and UPS.
Distance to the wall [mm]	120	to back; for cooling and cabeling.
Line voltage [V]	110	on-site fuse: **20 A** **ground additionally UPS !**
	230	on-site fuse: **16 A** **ground additionally UPS !**
Power consumption [kVA]	0.4	operation and standby.
Securing to the floor	-	in countries prone to earthquakes, follow the applicable country-specific regulations.

Monitor 21" (CRT)

Name	Values	Comment
Dimensions [mm] L x W x H	498 x 538 x 485	**without** packing.
	620 x 580 x 630	**with** packing.
Weight [kg]	33	**without** packing.
	35	**with** packing.
Heat dissipation [kW]	**-**	no information; see IMS.
Securing to the floor	-	in countries prone to earthquakes, follow the applicable country-specific regulations.

Monitor 18" (flat screen monitor)

Name	Values	Comment
Dimensions [mm] L x W x H	465 x 120 x 430	**without** packing.
	570 x 390 x 580	**with** packing.
Weight [kg]	10	**without** packing.
	14	**with** packing.
Heat dissipation [kW]	**-**	no information; see IMS.
Securing to the floor	-	in countries prone to earthquakes, follow the applicable country-specific regulations.

CARE Vision CT

Name	Values	Comment
Dimensions [mm] L x W x H	540 x 580 x 1140	monitor trolley.
Weights [kg]	25	monitor trolley.
	27	Media interfaces and accessory (complete)
	49.5	overhead support.
Anchor	HST M16/100	for unfinished ceiling installations.
	HST M16/25	for intermediate ceiling installations.
Extraction force [kN]	6	for unfinished- and intermediate ceiling installations.
Cable duct size [mm]	30 x 30	Minimum.
Room heights [mm]	2620 to 3030	150 mm flange tube required.
	> 3030 to 3680	580 mm flange tube required.
	< 2620 or > 3680	**only monitor trolley allowed!**
Cable length [m]	17.70	line cable.
	22.90	fiber optic cable.
(free length <u>without</u> corrugated hose)	6	corrugated hose from monitor trolley.

Operators console

Name	Values	Comment
Dimensions [mm] L x W x H	**1400** x 800 x 700 <u>or</u> **1200** x 800 x 700	**without** packing; 2 sizes available.
	1420 x 780 x 200 <u>or</u> **1220** x 780 x 200	**with** packing; 2 sizes available.
Weight [kg]	< 60	**without** packing.
	73	**with** packing.
Distance to the wall [mm]	120	to the back wall.
Securing to the floor	-	in countries prone to earthquakes, follow the applicable country-specific regulations.

System furniture

Name	Values	Comment
Dimensions [mm] L x W x H	1200 x 800 x 700 1400 x 800 x 700	operators console; 2 lengths available.
	660 x 858 x 700	IMS / IES container; in compound with other ct furnitures
	450 x 835 x 700	office container.
	800 x 800 x 700	90° corner.
	height 700; width 800	45° corner.
Distance to the wall [mm]	120	to the back wall.

IMS container (option)

Name	Values	Comment
Dimensions [mm] L x W x H	675 x 858 x 700	**without** packing; as stand alone furniture
	1200 x 800 x 950	**with** packing.
Weight [kg]	58	**without** packing.
	78	**with** packing.
Securing to the floor	-	in countries prone to earthquakes, follow the applicable country-specific regulations.
Distance to the wall [mm]	120	to the back wall.

Electrical data

On-site power supply requirements

Name	Values	Comment
Line frequency [Hz]	50 / 60 ±10%	-
Line voltage [V]	3/N~190 ±10% 3/N~200 ±10% 3/N~208 ±10% 3/N~220 ±10% 3/N~380 ±10% 3/N~400 ±10% 3/N~420 ±10% 3/N~440 ±10% 3/N~460 ±10% 3/N~480 ±10%	The necessary impedance-matching transformer for the voltage ranges • 380 V, 420 V, 440 V, 460 V, and 480 V • 200 V - possible connections: 190 V, 200 V, 208 V, 220 V is custom factory-installed in the PDS (customer-specific). **No** impedance-matching transformer is required for 400 V.
Line impedance [mW]	100	for 190 V to 220 V; Balance/Emotion/Esprit/Esprit+.
	250 400 (Esprit)	for 380 V.
	280 440 (Esprit)	for 400 V.
	300 490 (Esprit)	for 420 V.
	340 500 (Esprit)	for 440 V.
	365 580 (Esprit)	for 460 V.
	400 640 (Esprit)	for 480 V.
On-site fuses	3 x 80 A NH 3 x 63 A NH (Esprit) Typ gl/gG	circuit breaker, see page 3-4 voltage range **190 V** to **220 V.**
	3 x 50 A NH 3 x 35 A NH (Esprit) Typ gl/gG	circuit breaker, see page 3-4 voltage range **380 V** to **440 V.**
	3 x 40 A NH 3 x 32 A NH (Esprit) Typ gl/gG	circuit breaker, see page 3-4 voltage rang **460 V** to **480 V.**

Ground fault detector switch (FI-switch)	63 A/30 mA for **380 V** to **420 V**	63 A/30mA, SIEMENS type 5SZ3466OKG05 or comparable from another manufacturer (universally voltage-sensitive) for alternating and pulsed DC fault currents, surge-protected.
	for voltages **except** 380 V to 420 V	Fi switches (universally current-sensitive) with I N = 30 mA for alternating and pulsed DC fault currents, surge-protected corresponding to the fuse.
Protective conductor	max. 0.1 **W**	**on-site power supply** to the equipment; additional **PE conductor** to the equipment IMS and IES for 230 V.
Connected load [kVA]	nominal line voltage x external (on-site) fuse x 1.73	
Power consumption [kVA] (gantry with patient table)	44 (operation) ≤1(standby)	Balance/Emotion/Esprit+.
	30 (operation) ≤1(standby)	Esprit.
Distances [m] (about magnetic field)	min. 2.5 m	Gantry ´ ECG workstation.
	min. 3.0 m	Gantry ´ EEG workstation.
Interference immunity (according IEC 601-1-2)	3 kV	for contact discharge; ESD.
	8 kV	for air discharge; ESD.
	3 V/m (26 MHz - 1 GHz)	RF interference (electromagnetic field**)**.
	10 A/m equivalent: 12.5mT	Magnetic field: DC (switched).
	1 A/m 1.25 µT	50/60 Hz.
	2 kV	Voltage peaks (burst) and Voltage surges (surge) on high-tension cables.

Brownouts and power outages [%]	-10 %	for ≤∞ms jumper time: Measurement possible without restriction.
	-100 %	for ≤20 ms jumper time: Measurement possible without restriction.
		for ≤300 ms jumper time: Current measurement is terminated (radiation switch-off). Control function remains operable. After the interference clears, measurement operation can be continued with *"CONTINUE."*
	-10 %	for ≤∞ms duration: **IMS, IES and USV**; processor operation unaffected.
	-100 %	**IMS, IES and USV**; processor operation unaffected; processor shuts down after 3 minutes.
UPS (option)	120 V / 230 V	2 voltage ranges available.

System connections

Name	Values	Comment
Bending radius [mm]	80	fiber optic cable.
	cable Ø x 10	signal and data cable.
Tensile strength	35 N	fiber optic cable.
Minimum distances of the signal- and data cables	5 cm	to on-site line voltage cable.
	> 1 m	to cables not part of the system.
Cable ducts dimensions	80 x 50 mm	with rectangular cable ducts.
	8 cm (3 inches)	inside diameter when using conduits.

Structural requirements

Room planning

Name	Values	Comment
Room height	min. 2200 mm	about gantry; without overhead support of the CARE Vision CT option.
Room size	no information, because variabel.	table feed of the patient table for Balance, Emotion, Esprit, Esprit+ is different, therefore different requirements for the room size; see page 2-3 and 2-4.
♦ **Minimum distance/space to the patient**	• For USA: 1.83 m (horizontal) • For non-USA countries: 1.5 m (horizontal) • For USA: 2.29 m (vertical) • For non-USA countries: 2.5 m (vertical)	to additional CRT monitor, IMS and IES components.
Safety distances	500 mm	e.g. "German Equipment Safety Law"; in general according country-specific regulations.
Air temperature[°C]	18 to 30	examination- and operators room.
Relative humidity [%]	20 to 85	
Room climate (ideal)	24°C (temperature) 30 % to 60 % relative humidity	-
Temperature gradient [K/h]	max. 6	entire system.
Floor load	400 kg/plate	for access floors.
Floor openings [mm]	132 x 110	gantry pedestal left and right.
	155 x 100 (slotted hole)	gantry pedestal right.
	120 x 80	below the operators console; for cabeling to IMS and IES.
Ground condition	B25 to B50	required concrete class for patient table and gantry.

Safety and regulations

Name	Values	Comment
Radiation protection	DIN 6812	Germany.
	IEC 60601; CFR 21; country-specific regulations.	world wide.
Visual radiation-ON indicator	IEC 60601-2-44 and CFR 21.	connection for radiation-ON indicator; left gantry pedestal; MAS-Board D301/X14; floating ground contact 250 V/2A AC or 24 V/10 A AC-DC.
Radiation switch off	MAS-Board D301/X13	connection in left gantry pedestal.
Monitor workstations	EU Directive 90 / 270 / EEC, Fifth Individual Directive Pursuant to Article 16,Paragraph 1 of Directive 89 / 391 / EEC.	regulation.
Room lighting	DIN 68 68-57.	regulation.
Electrical installations	e.g. VDE, IEC, UL.	country-specific regulations.

Transport conditions

Name	Values	Comment
Temperature range [°C]	-20 to +50	-4°F to 122°F
Relative humidity [%]	10 to 95	-
Barometric pressure [hPA]	700 to 1060	700 mbar to 1050 mbar.
Acceleration	Maximum acceleration in accordance with DIN IEC 721 part 3, class 2M2. Z-direction: 2 g; X-direction: 4 g; see page 6-1.	
Transport weights [kg] (gantry)	1150	Gantry **without** transport equipment.
	70	only transport equipment.
Transport dimensions [mm] (gantry)	3161	max. transport length.
	2554	min. transport length.
	1441	max. transport width.
	880	min. transport width.
	1781	min. transport height.
Floor clearance [mm]	min. 7	for gantry.
	approx. 27.5	for patient table.
Door width [mm] (for gantry)	1080	door opening for min. 3100 mm hallway width.
	1500	door opening for 2300 mm hallway width.

Transport Conditions

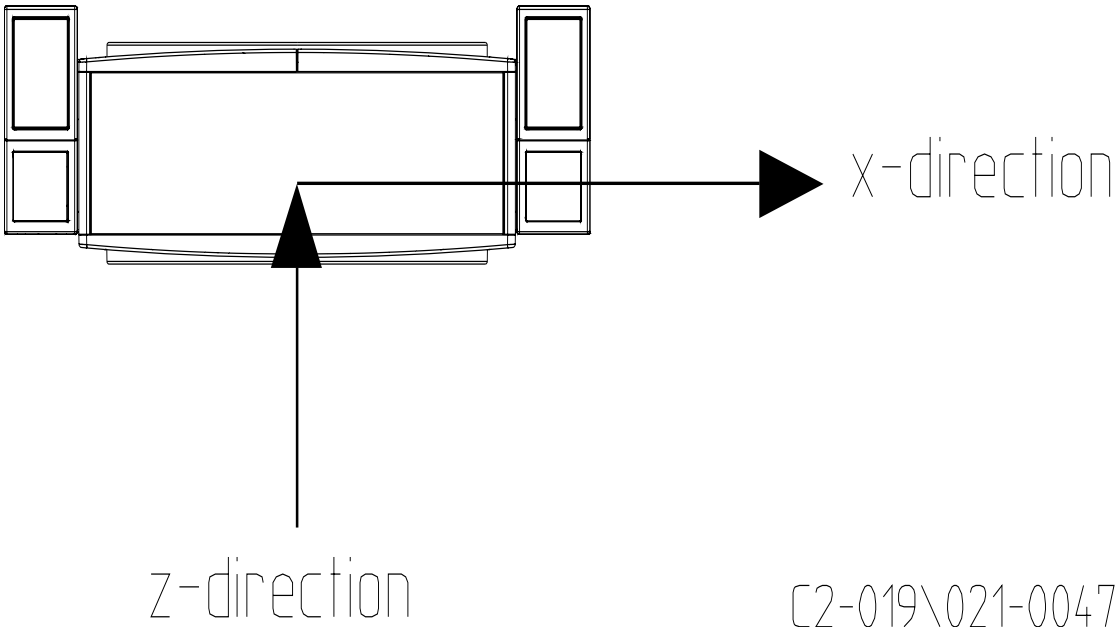
Transport instructions

General information

The following conditions must be maintained during transport to avoid damage to the system:

Temperature	-20°C to +50°C (-4°F to 122°F) Please refer to the "Temperature and relative humidity" on Page 6 - 2.
Relative humidity	10% to 95% relative humidity Please refer to the "Temperature and relative humidity" on Page 6 - 2.
Barometric pressure	700 hPa to 1060 hPa
Acceleration	Maximum acceleration in accordance with DIN IEC 721 part 3, class 2M2. **Tolerance**: allowable impacts in the **Z direction**: 2 g ***)** allowable impacts in the **X direction**: 4 g ***)** (equivalent to shunting operation for trains)

***) Definition, X-and Y-directions**



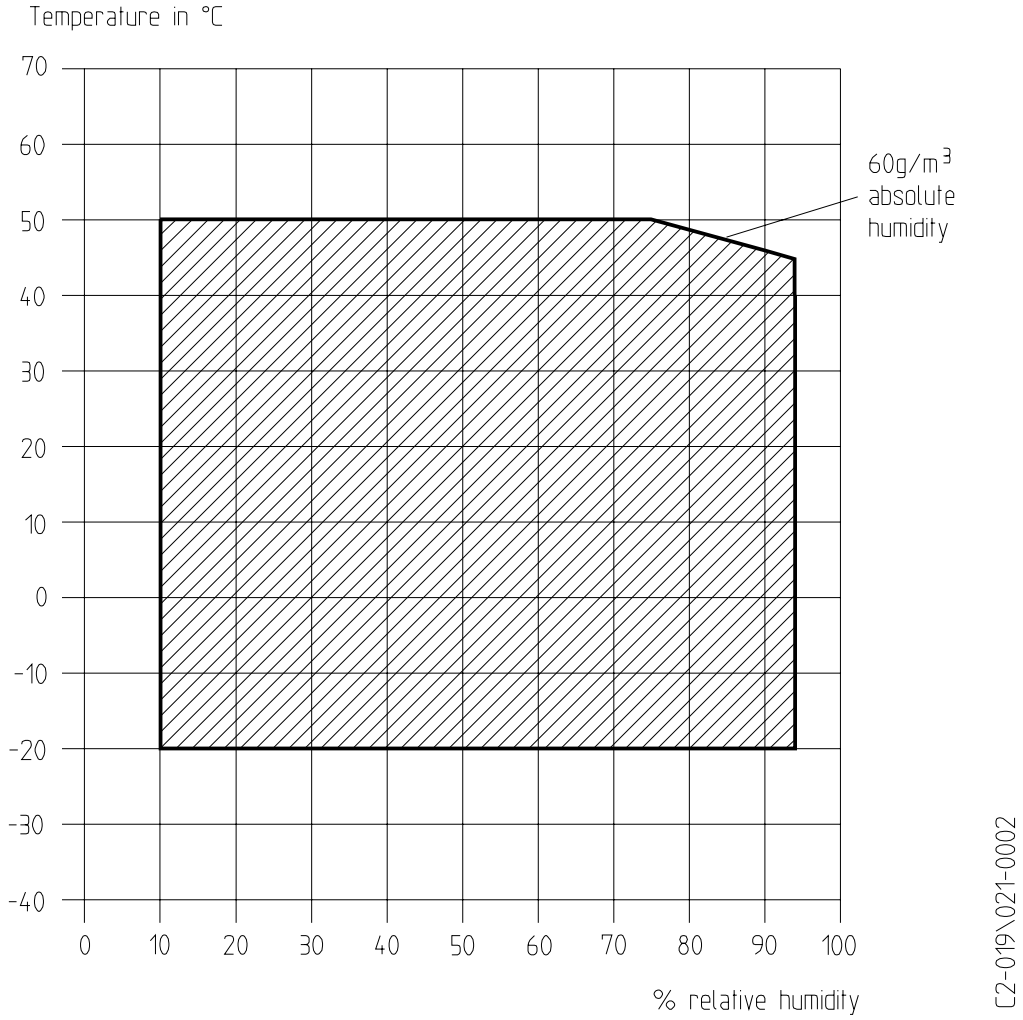
NOTICE

The entire system must be transported in the transport packaging provided by the manufacturer.

A truck equipped with air shocks must be used for land transport of the system.

Temperature and relative humidity

The following climatogram depicts the acceptable range for temperature and relative humidity.



NOTICE

This information is based on the assumption that the manufacturer's packaging is not damaged during transport.

General information for moving the components on-site

- Two persons are needed to move the gantry and the patient table on site.
- The small dimensions of the operating console, image system, and keyboard allow for easy transport to the installation site.

Transporting the gantry

Transport device

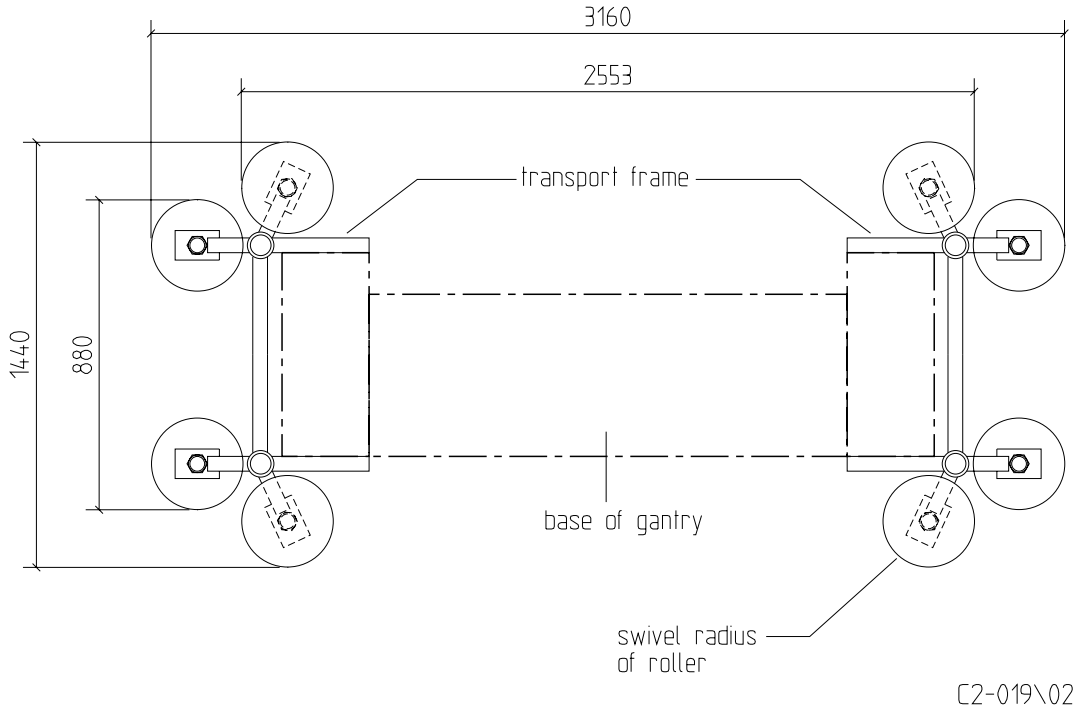
- Transport equipment for moving the gantry on site must be ordered separately

  ➪ applies to countries outside Europe only.

NOTICE	**The transport frame is identical to that for the** • **SOMATOM Plus 4 Expert, Power and** • **SOMATOM Volume Access/Volume Zoom.**

Ordering:

- Transport Frame Kit, item no. 27 92 146 K1081
  TD ML Dept. (service auxiliary equipment)



Transport weights

- Gantry: **1150 kg**, not including transport device.
- Transport device: **70 kg.**

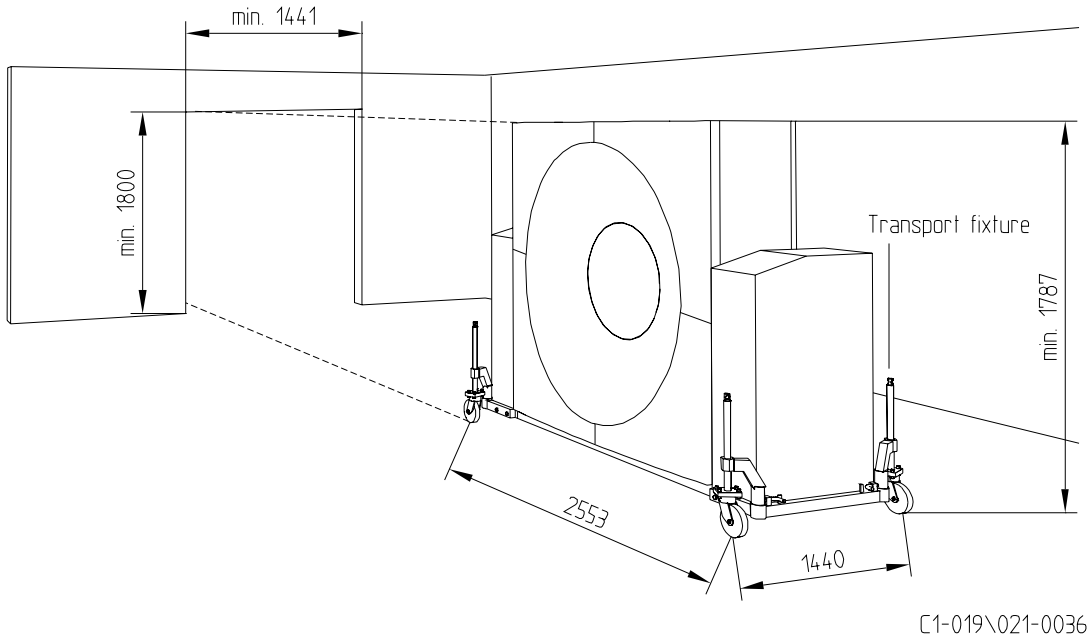
NOTICE	**In special cases, e.g., when the building does not have a freight elevator, the weight of the gantry can be reduced to under 1000 kg. More information can be provided by CTE HW in Forchheim.**

Transport dimensions

Description	Dimension [mm]
Max. transport length	3160
Min. transport length	2553
Max. transport width	1440
Min. transport width	880
Min. transport height	1787

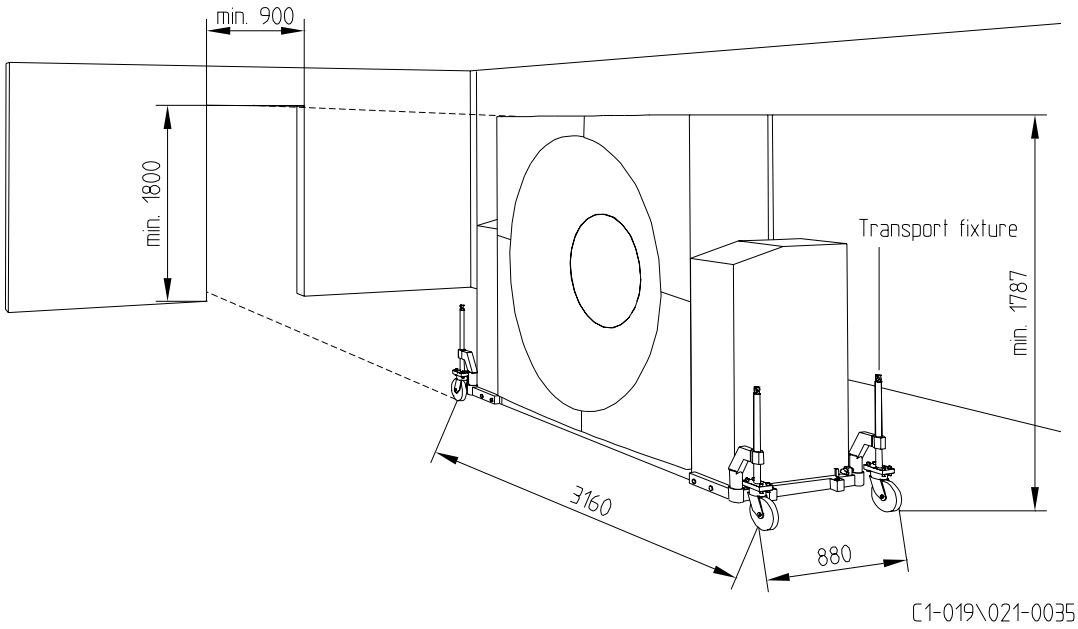
Normal transport

- The rollers of the transport device are swiveled out.
- Minimum floor clearance 7 mm.



Transport through narrow spaces

- The rollers of the transport device are swiveled in.
- Minimum floor clearance 7 mm.



NOTICE

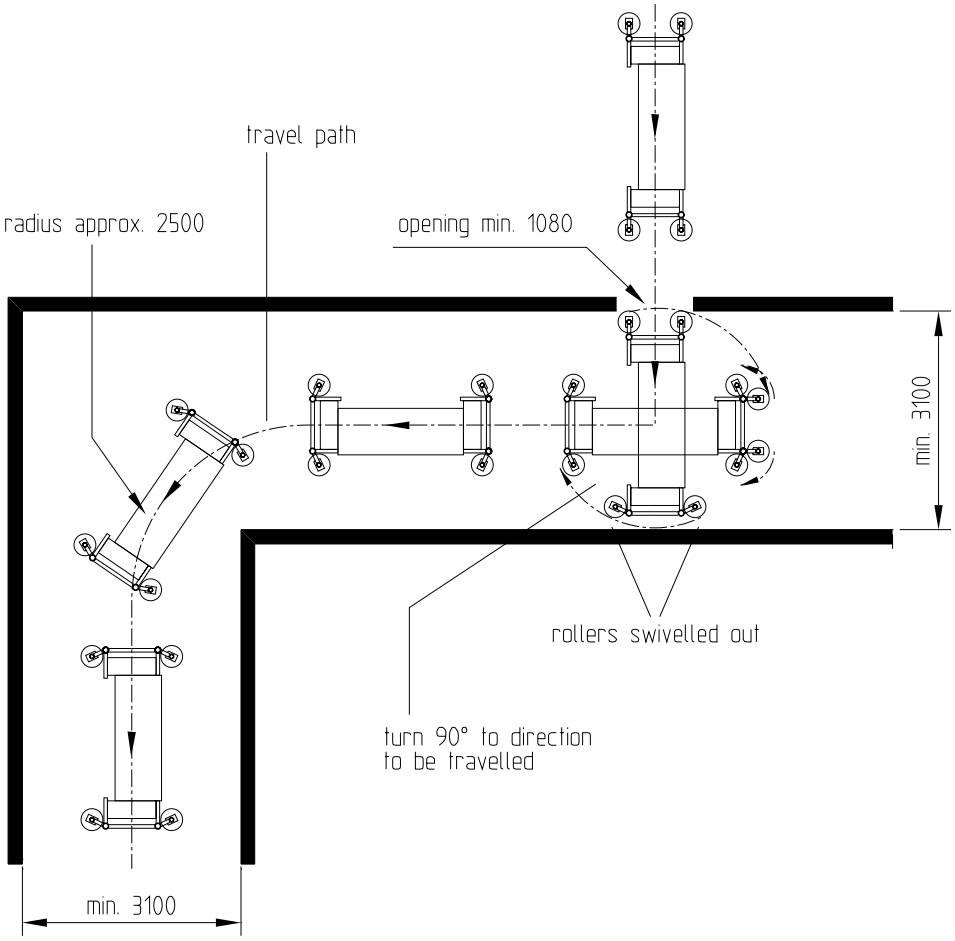
Tipping hazard !

Transport with the rollers swiveled in is permissible only when narrow places make it impossible to transport the system with the rollers swiveled out. As soon as the system has passed through narrow spaces, the transport rollers must be swiveled out again.

Transport through doors and hallways

Minimum door width and <u>minimum</u> hallway width

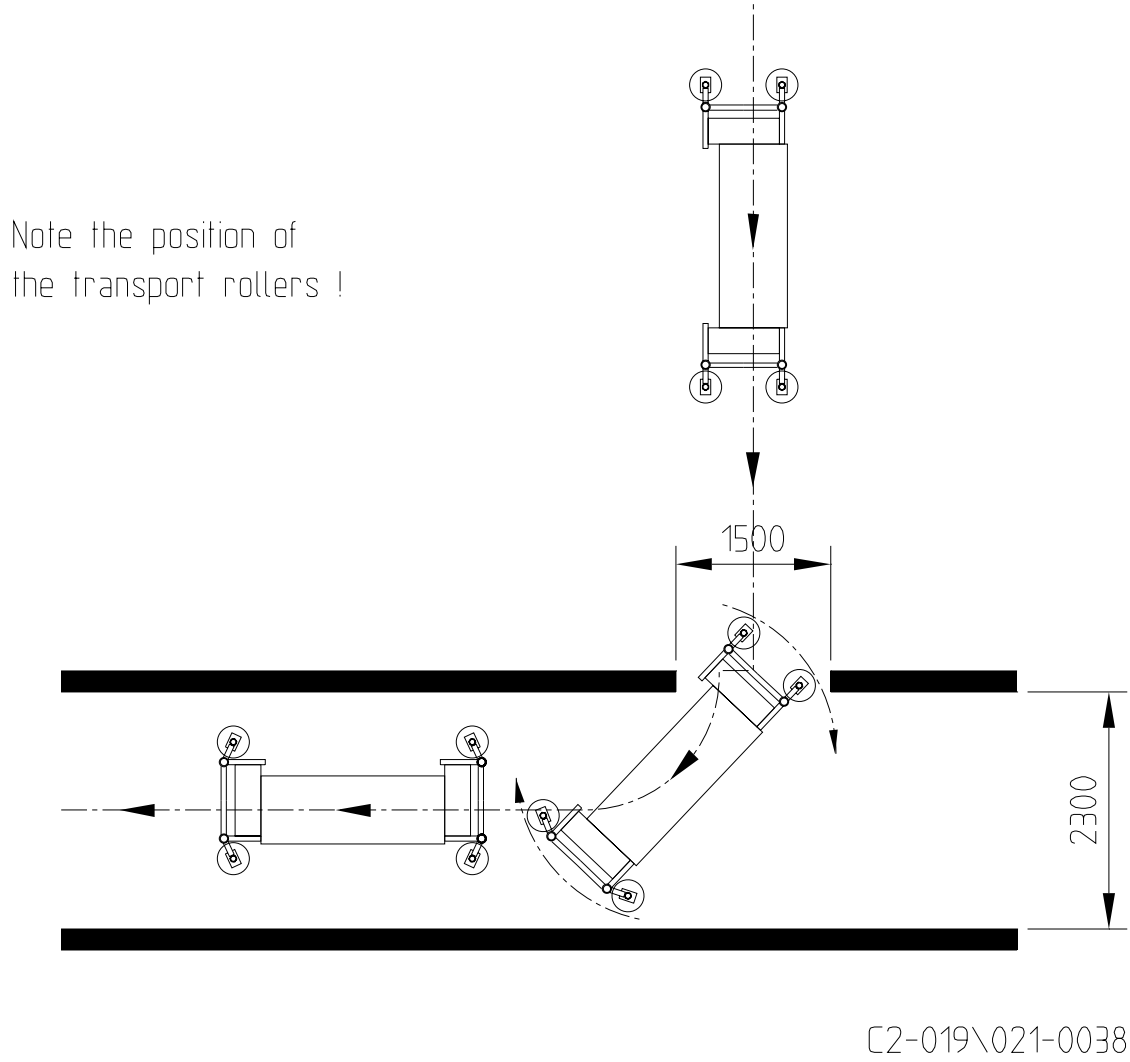
The diagram illustrates the relationship between the minimum door width, the resulting minimum width of the hallway, and transport around a corner.



C2-019\021-0037

Minimum door width and <u>normal</u> hallway width

The example illustrates the relationship between a normal hallway width of **2300 mm** and the resulting minimum door width.



Transporting the patient table

The patient table is delivered mounted on a wooden pallet. A ramp is packed with it.

Two transport rollers are pre-installed on the sides of the table base. The bolts (***2**) must be tightened with the hexagonal screws (***1**), size M13, until they reach the end stop of the mounting.
Floor clearance is equivalent to approximately 27.5 mm.

To remove the transport frame, the hexagonal screws (***1**) and hexagonal nuts (***3**), size M19, are unscrewed and the bolts (***2**) are pulled out to the front.
The mounting can then be removed from the inside of the table base.

The transport frame **must** be kept for possible future use in service activities.