



SOMATOM Drive

Basic Planning Information

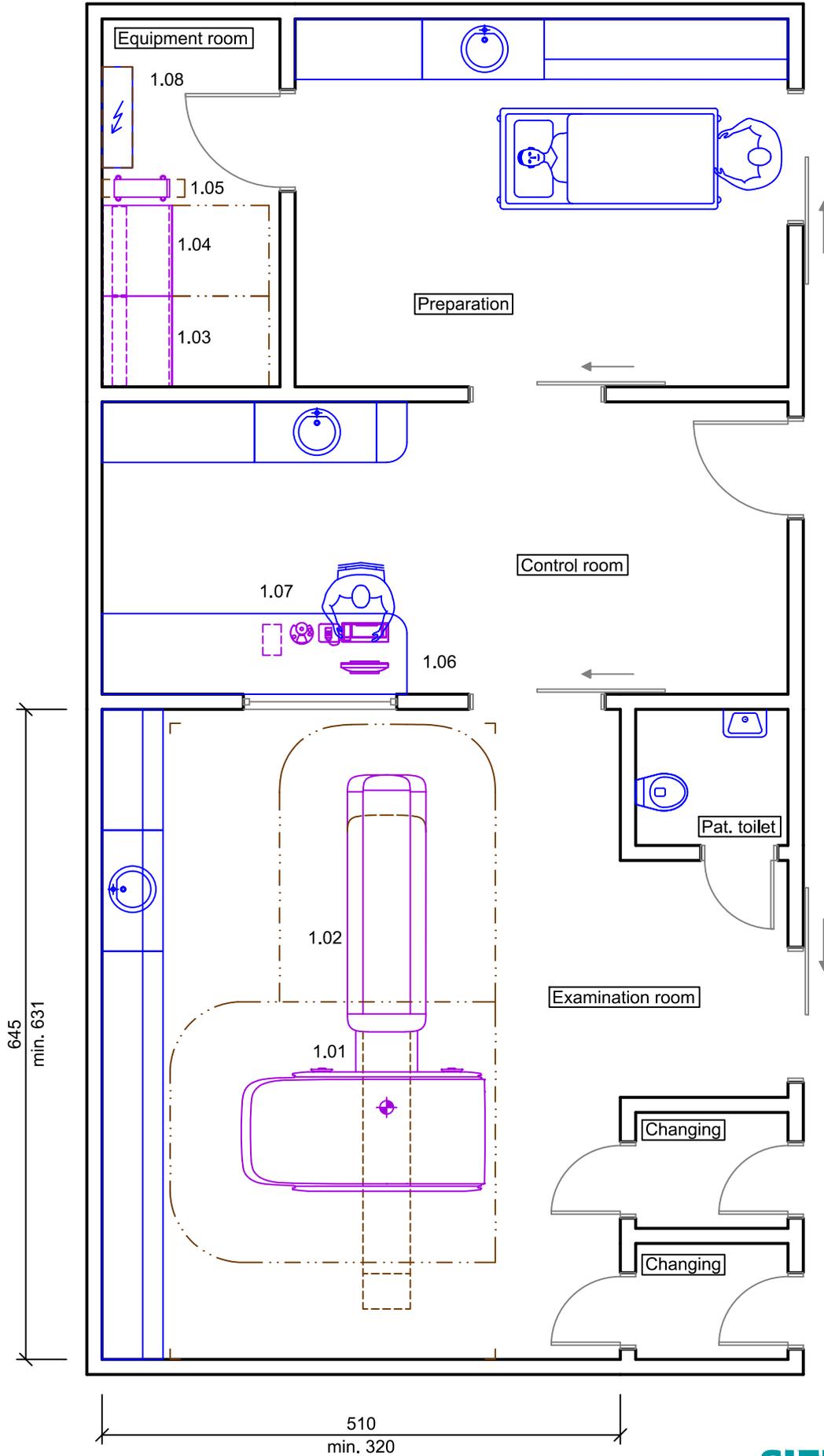
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Legend		
	Motion area / Swivelling range / Minimal room size / Safety distance	
	Service area	 Ceiling mounted
	Additional equipment	 Wall mounted
		 New construction
		 Demolition
		 Floor mounted

Dimensioning
All installation measurements apply to finished wall/floor/ceiling and are to be checked prior to assembling the unit.

 Orientation point = reference point of the Siemens Healthineers unit for planning and installation
Please note: The drawing parts in this document are not to scale!

Planning Example



SOMATOM Drive - Equipment Legend				
Pos.	Description	Weight (kg), Heat dissipation to the air (W)		
		kg	W	Remark
1.01	Gantry	2580	1000	#1, isocenter 1020 mm
1.02	Patient table PHS 4n (2000 mm scannable range)	500	*	* included in 1.01
1.03	PDC A cabinet with UPS	610	2000	
1.04	PDC B cabinet	400	2000	
1.05	IRSmx6 Tower PC (Image Reconstruction System)	25	800	
1.06	Control unit with monitor, control box, keyboard	10	100	
1.07	ICS Tower 14 PC (syngo Acquisition Workplace)	25	800	
1.08	Power Distributor			by customer
	#1 additional heat dissipation up to 17 kW to water			

Room Dimensioning

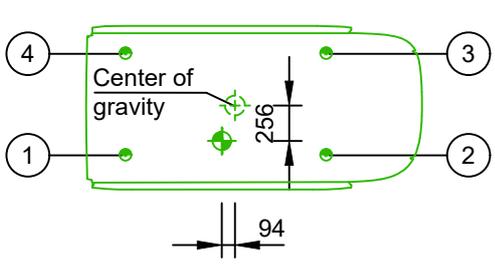
Room dimensioning

The indicated room dimensions have to be checked on site. The planning department has to be informed about possible deviations. Otherwise we cannot assume any guarantee for the accurate implementation of the dimensions indicated in the planning documents.

Room height

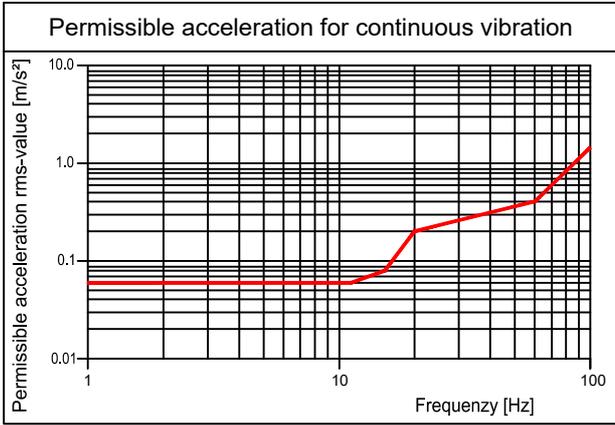
Technically required minimum room height 2200 mm for the CT system - additional components not considered. Measured from the highest point of the finished floor (with covering) to the lowest point of the ceiling

Statics and Transport

Statics not to scale				
 <p>The floor construction has to be performed solid and free of vibration, e.g. concrete flooring C20/25 to C50/60 corresponding to DIN EN 206-1, according to the maximum values as specified in the textblock "Floor and building vibrations". It is recommended to test the weight capacity of the concrete or composite flooring by a stress analyst. Fastening the gantry on the floor is possible but only necessary in countries prone to earthquakes or according to local regulations. Securing the patient table to the floor is mandatory.</p>				
Total weight of Gantry: 2580 kg		Total static load (resulting in the center of gravity of the gantry): $F_{stat\ total}$ 25 kN		
Partial load on gantry foot	①	②	③	④
Nominal static load after levelling: $F_{stat\ nom}$ [kN]	5.7	7.6	7.9	6.7
Maximum dynamic load (amplitude) during gantry rotation: $F_{dyn\ max}$ [kN]	±0.7	±0.7	±0.8	±0.8
Outer diameter gantry foot [mm]	80	80	80	80
Floor contact area gantry foot [cm ²]	52.1	52.1	52.1	52.1
During gantry installation and leveling, the maximum possible load on one gantry foot can be 14 kN (the gantry is standing on two diagonal feet). Design access floors for a weight capacity of min. 400 kg per slab/plate. During gantry transport, the load may be higher at certain individual points (3-point load, e.g. due to uneven flooring).				

Floor- and building vibrations	
Floor- and building vibrations can reduce image quality! Therefore the gantry and the patient table must be installed in an environment free of vibrations.	
Sources that produce vibrations are, e.g.: Railroad routes, subways, roads, road work and construction sites, hospital power plants, mines, open-cast mines, quarries (explosions), ferry moorings, any other sources of striking vibrations.	
The CT system is not sensitive to common vibrations. If the CT is away from vibrational sources, or the CT is replacing a CT system that to date has not shown image quality problems due to vibrations, it is usually not necessary to execute vibrational measurements.	
If there are any doubts, the following thresholds have to be verified by measurement: In the three spatial directions, acceleration in vibrations at the mounting points of the computer tomograph (Gantry and Patient Handling System PHS) must not exceed the thresholds as described in the above shown diagram.	
Any transient vibration (shocks) has to be less than 0.5 m/s ² peak-to-peak in the time domain. The vibrations have to be measured with a sampling rate of 1000 Hz.	
It is the customer's responsibility to contract a qualified specialist. The specialist must implement site modifications to meet the specific limits, and to design structural solutions in case of deviations.	

Permissible acceleration for continuous vibration



Transport Gantry not to scale	
<p>Standard transport Rollers swivelled out</p>	<p>Transport through narrow passages ④ Rollers swivelled in</p>
<p>① With touch panels on the rear (optional)</p>	
<p>② Covers must removed for mounting the transport device</p>	
<p>③ Transport device set to minimum floor clearance (7 mm)</p>	
<p>④ TIPPING HAZARD! Transport with the rollers swivelled in is permissible only when narrow passages make it impossible to transport the system with the rollers swivelled out. As soon as the system has passed through narrow passages, the transport rollers have to be swivelled out again. Attention: The overall dimensions between the front cover and back cover are larger than the maximum width of the transport device when the rollers are swiveled in.</p>	
<p>Gantry with transport device = 2865 kg, Transport device = 285 kg If there is false floor in transportation route please check bearing capacity of this floor on-site! If necessary, cover the transport route with metal sheets to distribute the load. The maximum possible floor load (two-point load) per roller that may arise during gantry transport is 16 kN.</p>	
<p>The door must have a final clearance of 1250 mm if bed entrance to the CT examination room is requested.</p>	

Environmental conditions

Climatic conditions for transport and storage		
Transport / storage all components	Temperature Relative humidity Barometric pressure Temperature gradient Max. storage time	-20 to +50 °C 10 to 90 % 700 to 1060 hPa 10 K/h (non-condensing) 2 months
<p>The data for transporting and storing the CT system apply only if the system is shipped free of damage in the transport packaging provided by the manufacturer. All components have to be stored in the original transport packaging. If the original packaging is no longer available, you have to use an equivalent packaging for intermediate storage. After moving the CT system from a cold environment into a warm room, make sure that the entire CT system is dry before switching it ON.</p>		

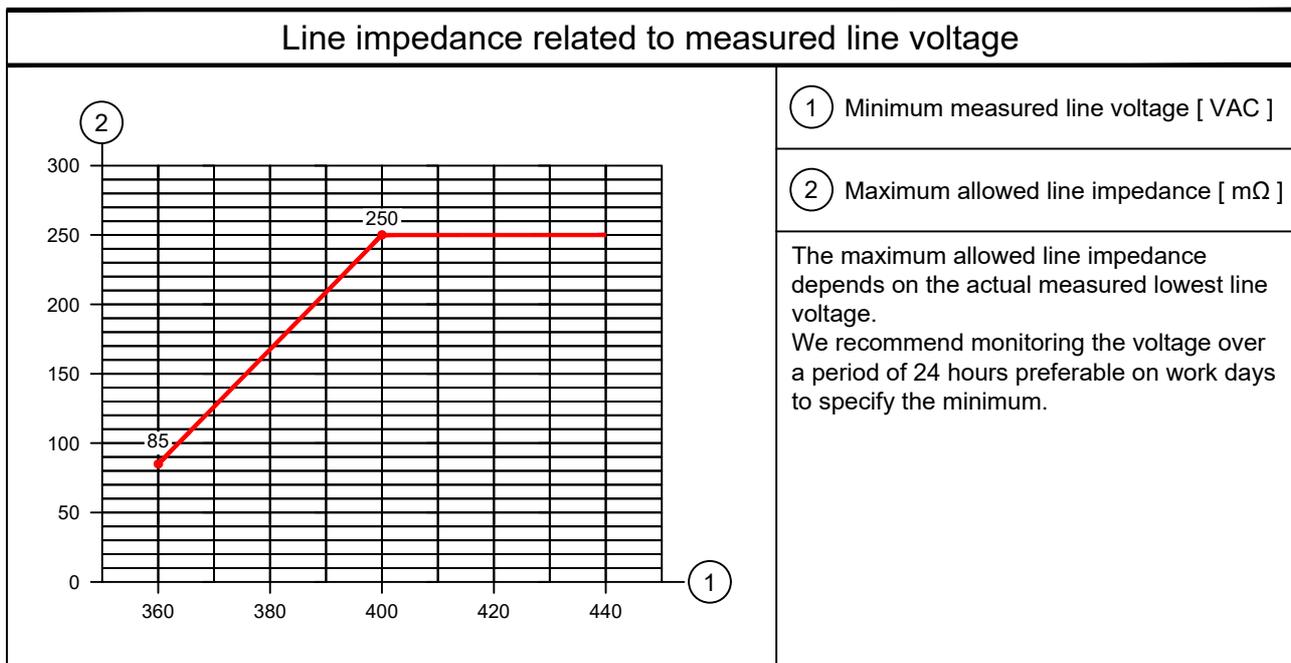
Environmental conditions for operating		
Entire CT System	Air temperature range Relative humidity Barometric pressure Temperature gradient	18 to 28 °C 20 to 75 % 800 to 1060 hPa 6 K/h (non-condensing)
<p>Maintain the temperature range required to meet the needs of changing seasons. If it is not possible, an on-site room heating and air conditioning system is required. When supplying air from the outside (fresh air), we recommend the on-site use of coarse Filters, Filter class G3 to G4 for filtering dust particles up to > 10 µm.</p>		

On-site requirements for connection - cooling system (integrated into gantry)			
Water temperature (depending on the water flow volume)	Temperature gradient	Water pressure	Water quality
4 to 16 °C (without antifreeze) 4 to 14 °C (with antifreeze)	max. 1 K / min	Nominal: 2 - 6 bar / Max.: 10 bar	Recommended potable water quality, max. particle size ≤ 0,25 mm
Heat dissipation to on-site cooling water max. 17 kW. Anti-freeze mixing ratio max. 40 %			
Depending on the water input temperature following requirements are valid:			
Minimum flow rate (without antifreeze)	650 to 3200 l / h	Pressure loss (with and without anti-freeze)	0.3 bar - 2.05 bar
Minimum flow rate (with antifreeze)	970 to 3000 l / h		
For service and filling procedure a water faucet with screw connection and a water drain (e.g. a sink or a siphon) in vicinity of the gantry is necessary.			

Electrical Installation

Power requirements			
Power Line: TN-S	3/N/PE AC 50/60 Hz ± 2 Hz	Connection value:	2 x 86,5 kVA
Line Voltage:	400 V ± 10 %	Power consumption:	
Line impedance:	see diagram	Stand-by:	≤ 6 kVA
Cable cross section is to be determined by country regulation		CompOn:	≤ 3 kVA
		System off:	1 kVA
		for the time up to 2 s:	max. 283 kVA
Size of connector terminals in the PDC is 25 to 95 mm ² . N, PE adapter terminal 16 mm ² available			

Power requirements (water/air - split)			
Power Line: TN-S	3/N/PE AC 50/60 Hz ± 2 Hz	Connection value:	2 x 86,5 kVA + 22 kVA
Line Voltage:	400 V ± 10 %	Power consumption:	
Line impedance:	see diagram	Stand-by:	≤ 25 kVA
Cable cross section is to be determined by country regulation		CompOn:	≤ 3 kVA
		System off:	1 kVA
		for the time up to 2 s:	max. 302 kVA
Size of connector terminals in the PDC is 25 to 95 mm ² . N, PE adapter terminal 16 mm ² available			



Room lighting
<p>Ambient lighting in rooms with diagnostics or with workstations must comply with the respective local and national regulations.</p> <p>General requirements like the needed intensity of illumination - adjustable, reproducible, flicker-free or a limitation of dazzlings and reflections etc. have to be observed (EN 12464-1, DIN 5035-7).</p>

General Information

Display screen workstations

For setting up display screen workstations, take account of the guidelines in the Display Screen Workstation directive as well as any national regulations (e.g. EN ISO 9241-5).

Smart Remote Services (SRS)

Smart Remote Services (SRS) is used for remote diagnostics as well as remote service to provide highest system availability. Requirements:

- Broadband connection (minimum 10 Mbit/s down- and upstream, optimum 50 Mbit/s down- and upstream) without time or volume limitations
- The computer hosting of the Teampay Receiver requires access to the hospital intranet and the internet. It should have a at least 6 Mbits/s upstream to the internet and at least 100 Mbits/s downstream from the internet.
- Router (for exclusive use with SRS)

Data protection and security is defined in the Smart Remote Services security concept.

Network Integration

The Siemens Healthineers components are using TCP/IP Protocol, a 100/1000 Mbit/s switched Ethernet network and static IP addresses.

The required network cabling (min. CAT 5 TP) has to be provided on site. Media converters, which are needed for using fibre optic cabling, are not in scope of delivery.

To prepare the implementation of the new system into the existing network environment, the availability of the needed network data at least two weeks before starting the installation is mandatory.

This is the only way to ensure a seamless integration of the new system into the workflow of the department.

Notes on preparations for installation

Contracts for performing and supervising on-site installation preparations should be concluded with technically competent companies by the customer. The customer is responsible for timely and proper completion and supervision of all preparations for installation at the construction site in observance of all applicable legal regulations (e.g. X-ray regulations, radiation protection regulations) and all applicable general recognized rules of technology (e.g. VDE regulations, DIN standards).

Execution and supervision of installation preparations at the construction site and later observance of the standard operating conditions are not included in our duties. The customer is responsible for checking the static calculations and, where applicable, the air conditioning in the building to be equipped.

Safety distances

Distances from moving parts of the medical device to walls, furniture and other equipment have to be kept to avoid injuries by crushing in compliance with local regulations, e.g. a minimum distance of 50 cm according to DIN EN ISO 13854.

It is the customer's responsibility to ensure the above requirements are followed.

This is to avoid the risk of injury.

If safety distances are not maintained **appropriate on-site safety measures** have to be put in place. Clear visible markings according to national guidelines, e.g. crushing warning signs, hazard warning tape, hazard area cordon, safety mats, may be required.



Radiation protection

The structural radiation protection depends on the location of the unit and the function of the surrounding rooms. By order, the planning departments of Siemens Healthineers prepare radiation protection calculation and radiation protection plan.

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Published by

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SHS ES FD

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