United Imaging Healthcare Poland

uCT 780

SHEET INDEX

OVERVIEW OF SITE PREPARATIONS

RESPONSIBILITY

CUSTOMER: The user will bear all the costs of site preparation. The site preparation includes but not limited to site construction, foundation, trench, cable box, power lines,AC, lightings, radiation protection, decoration, steel structure(where applicable), etc. During the process of site preparation, the user should comply with the equipment requirements and national or local laws and regulations related to safety, electricity, construction, and radiation protection for equipment installation.

UIH: UIH is responsible for providing the site preparation requirements in accordance with the system to ensure the successful installation and operation of the equipment.

SITE PREPARATION

The user and the construction unit should provide UIH with a scientific construction plan to match the equipment production and delivery schedule.

The site preparation and construction supervision should be performed by professional companies with relevant qualifications. The user should hold a legal contract with these companies and supervise that all the site preparations are achieved on time. In addition, the user should ensure the site construction quality. The final site should be strict and accurate. Please inform UIH at once where a change is made.

Before delivering the equipment, UIH will check and decide whether the site is suitable for installation.

Before installing the equipment, the user should ensure there are no conditions around the site that may be harmful to the installation, and provide necessary facilities such as water, electricity, and heating to meet the installation requirements of the equipment.

DRAWING DESCRIPTIONS

All drawings are drafted according to the requirements of building materials and equipment installation & operation and they cannot be directly used as construction drawings or documents. However, please follow instructions provided herein. Unless otherwise specified, customer is responsible for all site preparation details stated in this drawing.

uCT 760/780-RADIATION PROTECTION

The radiation protection in the examination room depends on the work load, system location and the use of surrounding rooms. The radiation protection should comply with the requirements of local hygiene and epidemic prevention authorities.
The radiation protection should be performed according to the following data. X-ray tube:
Generator power: 80 kW;
Maximum tube current: 667 mA;
Maximum tube voltage: 140 kV;
The user should employ a professional radiation protection company for protection design and construction according to the above exposure parameters and requirements of relevant national laws and regulations.

REQUIREMENTS FOR DELIVERY

Minimum entrance height	2100 mm
Minimum entrance width	1200 mm(advised)
Maximum component weight	2500 kg

Ensure the safety of personnel and system on the transportation corridor and avoid the corridor being crowded. If there are pits on the transport corridor, related preparations, such as auxiliary tools or labors,should be made in advance

NOTE TO CUSTOMER

This plan is a reference document and is not for actual construction purposes. it is recommended that this UIH plan be incorporated into the construction documents for reference.
This plan represents a complete set of specifications and should not be separated.
all dimensions shown apply to finished surfaces
This plan represents the customer's sales configuration at the time of preparation. any changes to the sales configuration may require a revision to this plan.

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System:	**uCT 780**	Drawn by: K. Derlatka
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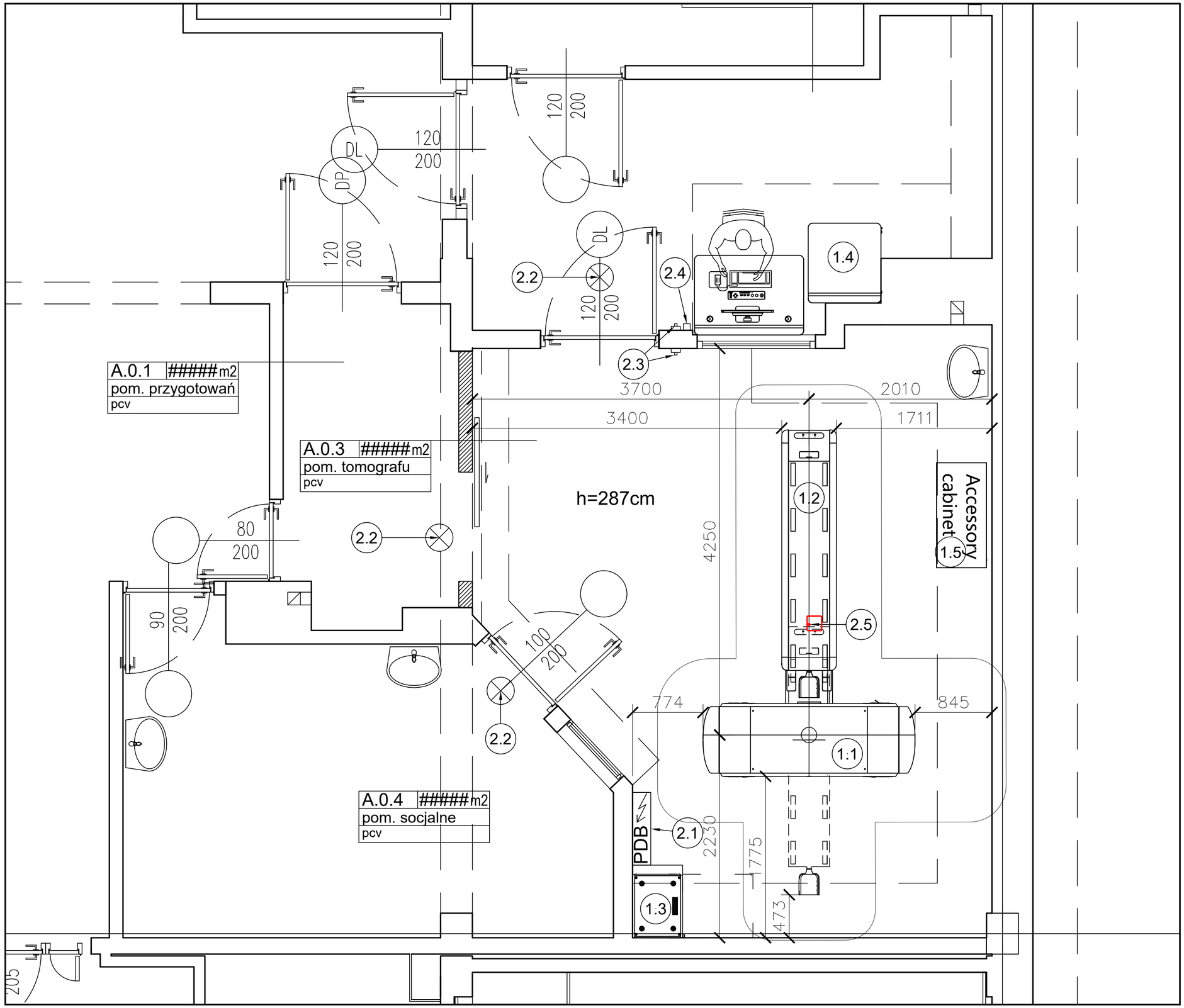

Before the system installation, the sizes of the wall, floor, and ceiling prepared on the site must be checked.

UCT 780 - SYSTEM ACCESSORY LIST

<The equipment configuration shall be subject to the final contract>

No.	Component name	Weight (kg)
1.1	Gantry	2360
1.2	Patient table	481
1.3	PSC	700
1.4	Console table and WS	160
1.5	Accessory cabinet	---
2.1	Distribution Box(DB)	---
2.2	X-ray radiation indicator	---
2.3	Emergency Power Off(EPO)	---
2.4	Control box	---
2.5	uVision camera	

GUIDELINES FOR ADDITIONAL INSTALLATIONS

EPO (emergency power off)	2 x 1,5 mm^2 - separated, shielded cable 3 x 1,5 mm^2	NOTE: ALL CABLES MUST BE PROVIDED TO **PDB**
Warning lighting	2 wires 3 x 1,5 mm^2	
Control box	8 x 1,5 mm^2	

NOTE: It is required to provide **LAN** cable to **PDB**

POWER REQUIREMENT

Power Supply: Three-phase AC/N/PE	Power Supply ≥160kVA
Voltage: Rated value: 380 V ± 10% or 400 V ± 10% or 415 V ± 10% or 440 V 10% or 460 V ± 10% or 480 V ± 10%	Power supply internal resistance ≤ 90 mΩ
Frenquency: 50/60 Hz	QF：150 A / 400 V

TABLE OF REFERENCE DIAMETERS OF INCOMING CABLES FOR THE POWER DISTRIBUTION BOX

DISTANCE S [M]	DIAMETER OF STRANDED COPPER CABLES [MM^2]
S≤70m	70
70<S≤110m	95
110<S≤130	120
130<S≤150	150
>150m	185

ENVIRONMENT REQUIREMENT

	Ambient Temperature (recommended)	Relative Humidity (recommended)	Heat Dissipation
Scanning room (working)	18~ 24°C	30% ~ 70%	8 KW
Control room (working)	15~ 30°C	30% ~ 70%	2,5 KW

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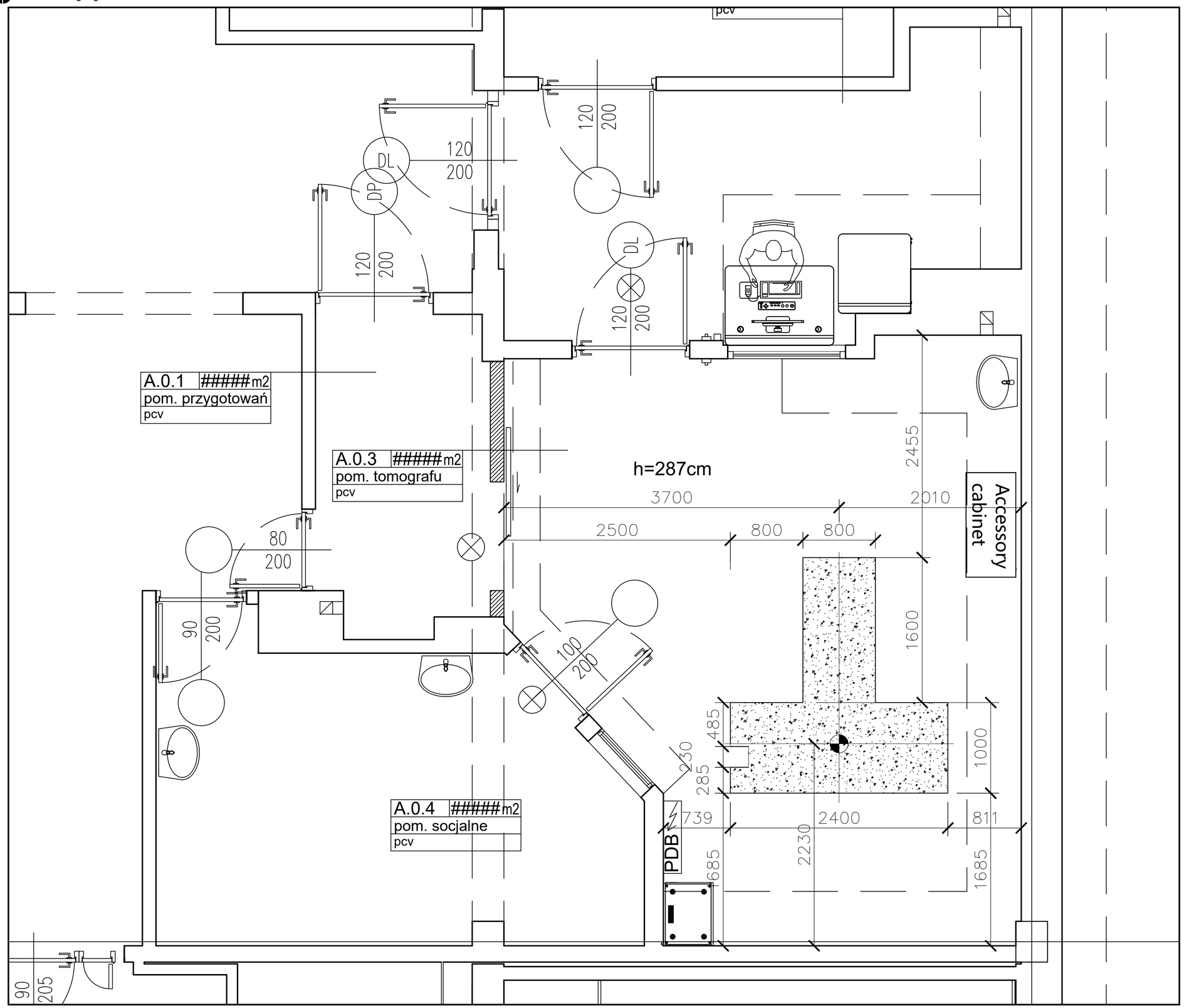
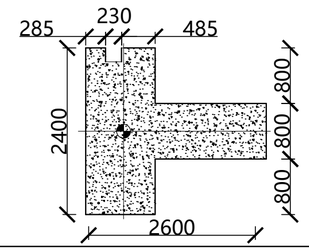


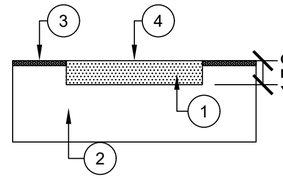
CONCRETE FOUNDATION



DESCRIPTIONS OF THE INSTALLATION FLOOR PREPARATION

*UIH suggests that the system should be directly installed on a concrete foundation. The loading foundation is at least 150 mm thick (the concrete strength grade is not less than C25). The user should ensure the floor flatness. In addition, the horizontal deviation of concrete foundations under the gantry and patient table should not exceed 1 mm.
If there is any room (including basement) under the installation floor of gantry or the gantry is installed on the second floor or above, the user should confirm the loading capacity of installation floor. The capability of each loading bolt through which the gantry is installed should not be lower than 6,000 N (pressure); and that for the patient table should not be lower than 1,000 N (pressure)
*Please remove the ornaments without loading capacity from the installation floor, such as keel-type wood floor, partly filled tiles, and overhead floor.
*If above requirements cannot be met or there are other special circumstances, please contact the project managers of UIH Customer Service Center.

CONCRETE FOUNDATION PROFILE



1 Concrete base
2 Dense cushion
3 Upper decoration ground
4 Concrete foundation upper ground

Notes
*Top surface of the decorated ground (number 3): it is decorated floor tiles, which must have a sufficient loading capacity to meet the requirements for the transportation of gantry and patient table.
*Top surface of concrete base (number 4): not lower than the top surface of the decorated floor. The gantry and patient table will be directly placed on the concrete T base.
*Concrete base (number 1): the concrete strength grade is not less than C25, and the thickness is not less than 150 mm.

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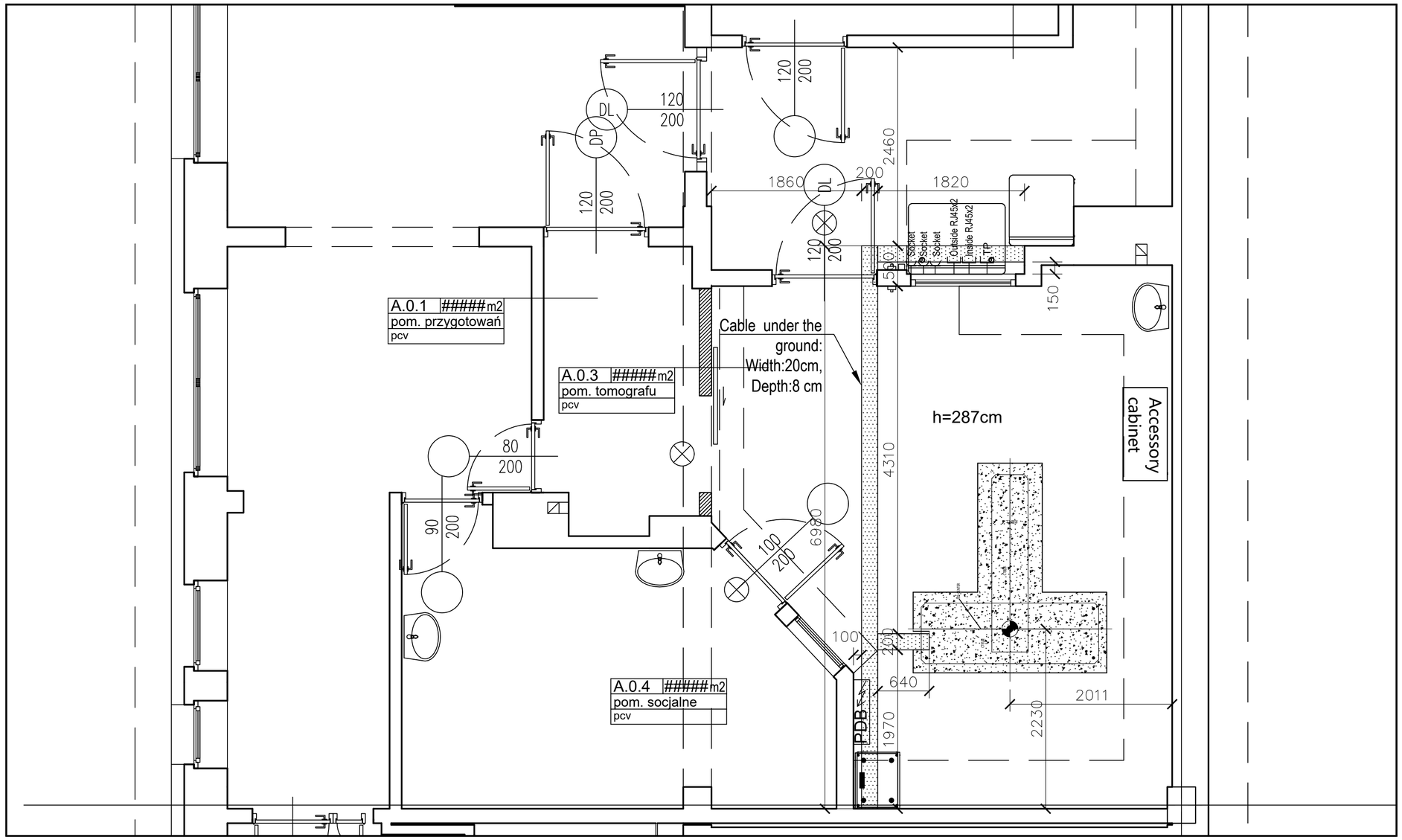


Attention!
No AC air ducting is allowed to locate above Gantry, in case condensed water dropping will cause damage.

CABLE TRENCH PREPARATIONS

*The design of the site cable trench/slot must meet the requirements of the system cable layout length. Please design and excavate the site cable trench along the route as shown in the drawing.
*The cable trench should be provided with open movable cover plates for the convenience of installation and maintenance. It is recommended that measures should be taken to protect the cables from being damaged by water, dampness and mouse in the cable trench. Metal cable trenches and bridges should be grounded reliably.
*Expression of cable trench outlets: for example, "cable trench opening 150×100" means that the cover plate on the cable has a 150×100 mm (length by width) opening, which is left for the PSC's cable to go in/out of the cable trench and connect to the system side.

DESCRIPTIONS OF THE SITE POWER DISTRIBUTION PREPARATIONS

*According to relevant national regulations, it is recommended that the user should introduce an independent power cable to the scanning room from the general power distribution room, and make the distribution box in accordance with the drawings.
*The diameter of the power cable shall meet the requirements for the internal resistance of power supply for medical equipment. See the "Table of reference diameters of incoming cables for the distribution box" for details.
*1 indicates the socket for installation and maintenance. When there are available sockets on site, it is not necessary to prepare such socket.
*RJ45 indicates the network cable socket.
*TP indicates the phone socket.

TABLE OF REFERENCE DIAMETERS OF INCOMING CABLES FOR THE POWER DISTRIBUTION BOX

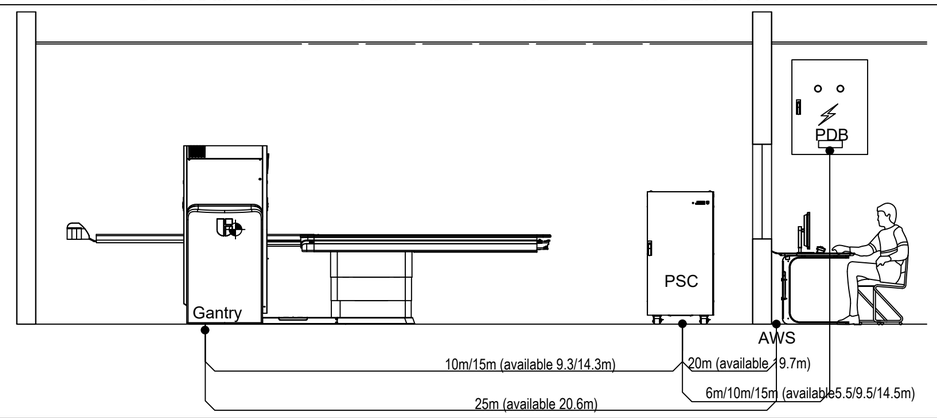
DISTANCE S [M]	DIAMETER OF STRANDED COPPER CABLES [MM²]
S≤70m	70
70<S≤110m	95
110<S≤130	120
130<S≤150	150
>150m	185

POWER CABLE LENGTH

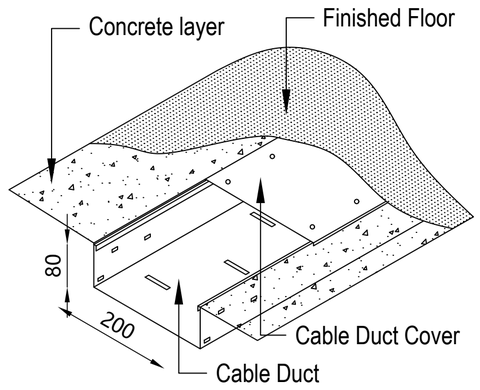
From PSC to GAN	10/15m
From DB to PSC	6/10/15m

Cables beyond the specification of UIH should be provided by the hospital.

DIAGRAM OF THE SYSTEM CABLE CONNECTIONS AND LENGTHS



SUGGESTED CABLE DUCT SCHEME



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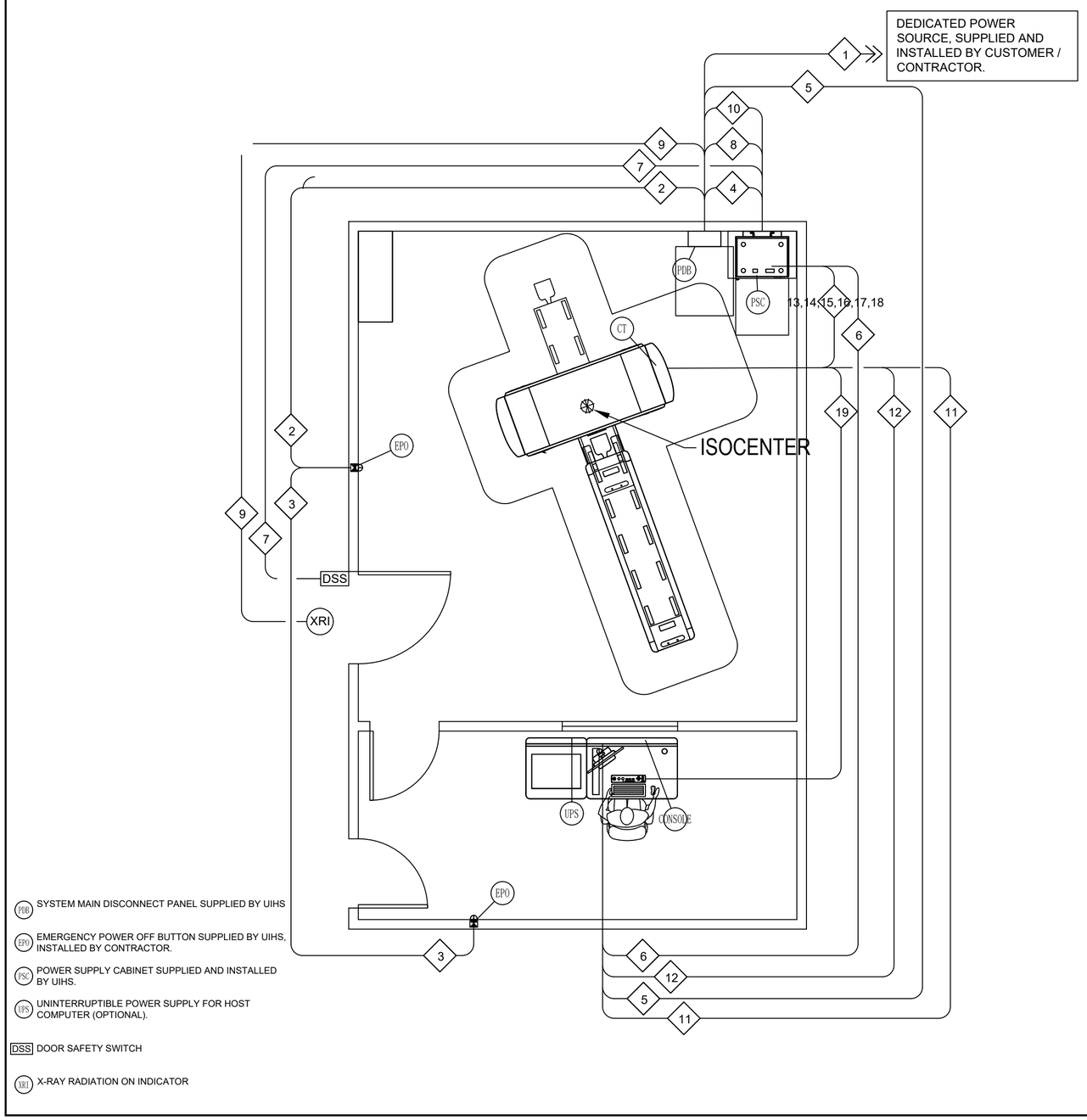
POWER SCHEMATIC DIAGRAM

POWER SPECIFICATIONS

POWER SUPPLY: THREE-PHASE AC + N WIRE + PROTECTIVE EARTHING CABLE	DISTRIBUTION CAPACITY: ≥ 70 kVA	INTERNAL RESISTANCE: ≤ 90 mΩ	STANDBY POWER: 4 kVA CONTINUOUS CURRENT: 4 A
FREQUENCY: 50 / 60 Hz ± 1Hz	MAINS SUPPLY CAPACITY: uCT 760 ≥ 140 kVA uCT 780 ≥ 160 kVA	MAX. CURRENT DURING OPERATION: 165 A / 190 A	MAIN CIRCUIT BREAKER IN SYSTEM POWER DISTRIBUTION BOX (PDB) SUPPLIED BY UIHS: 150 A / 36 kA



NR	FROM	TO	TOTAL LENGHT [m]	AVAIBLE LENGHT [m]	NOTE
1	POWER SOURCE	PDB	/	/	CONDUIT FROM FACILITY POWER SUPPLY TO UIH SYSTEM POWER DISTRIBUTION BOX(PDB) SUPPLIED AND INSTALLED BY ELECTRICAL CONTRACTOR
2	PDB	EPO	TBD	TBD	SUPPLIED AND INSTALLED BY ELECTRICAL CONTRACTOR. EPOs WIRED IN SERIES.
3	EPO	EPO	TBD	TBD	SUPPLIED AND INSTALLED BY ELECTRICAL CONTRACTOR. EPOs WIRED IN SERIES.
4	PDB	PSC	15	14.4	CONTROL CABLE OF THE RADIATION WARNING LIGHT
5	PDB	UPS	TBD	TBD	SUPPLIED AND INSTALLED BY CONTRACTOR. (OPTIONAL)
6	PSC	UPS	TBD	TBD	SUPPLIED AND INSTALLED BY CONTRACTOR. (OPTIONAL)
7	DSS	PSC	TBD	TBD	SUPPLIED AND INSTALLED BY CONTRACTOR. (OPTIONAL)
8	PDB	PSC	15	14.4	CONTROL CABLE OF THE DOOR INTERLOCK
9	PDB	XRI	TBD	TBD	SUPPLIED AND INSTALLED BY CONTRACTOR, CONNECTED BY UIH.
10	PDB	PSC	6/10/15	5.5/9.5/14.5	MAIN POWER CABLE
11	GANTRY	CONSOLE	25/35	20.6/30.6	DATA OPTICAL FIBER
12	GANTRY	CONSOLE	25/35	21/31	NETWORK CABLE
13	GANTRY	PSC	10/15	9.3/14.3	POWER CABLE OF POWERBLOCK
14	GANTRY	PSC	15	14.3	POWER CABLE OF THE MAIN DRIVE
15	GANTRY	PSC	15	14.3	POWER CABLE OF THE GANTRY
16	GANTRY	PSC	15	14.3	CONTROL OPTICAL FIBER
17	GANTRY	PSC	15	14.3	POWER CABLE OF THE PATIENT TABLE
18	GANTRY	PSC	15	14.3	BACKUP CABLE
19	GANTRY	CONTROL PANEL	20/25	19.6/24.6	EMERGENCY STOP CABLE OF THE CONTROL BOX
20	PSC	CONSOLE	20	19.7	PROTECTIVE EARTHING CABLE

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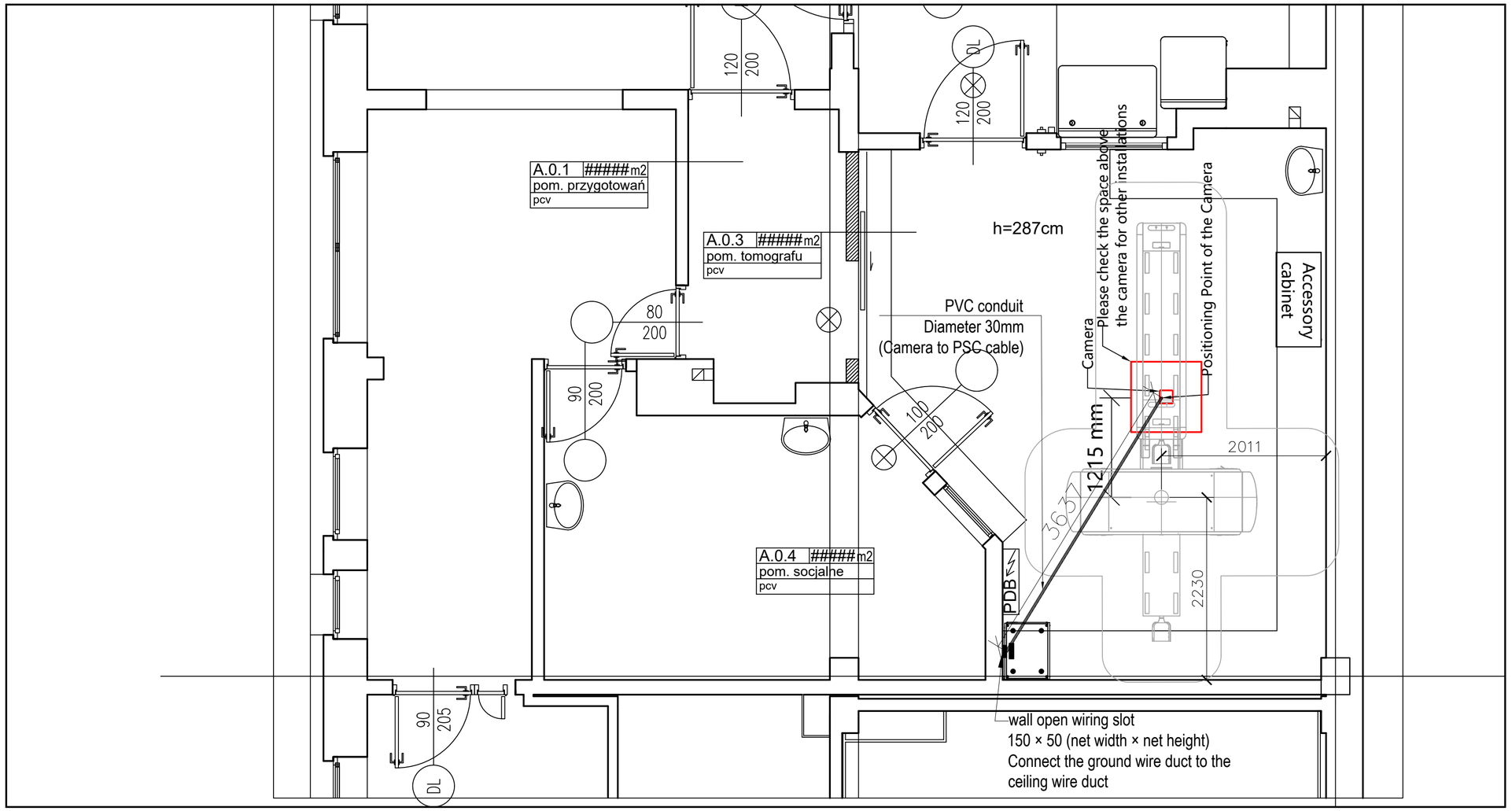
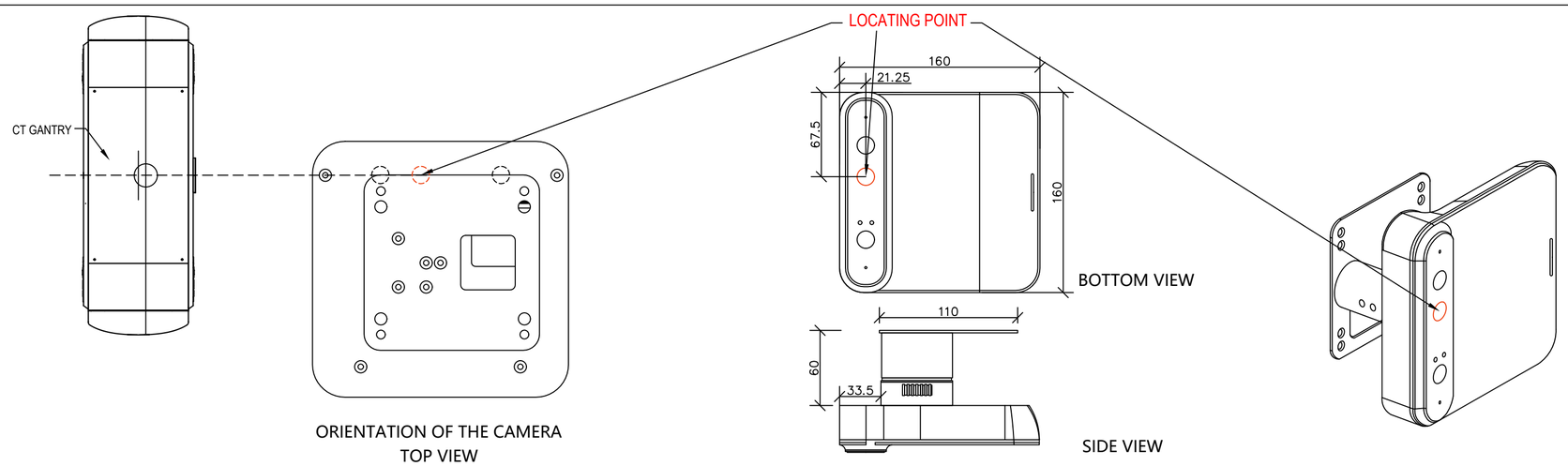


POSITIONING POINT (LOCATING POINT) OF THE CAMERA



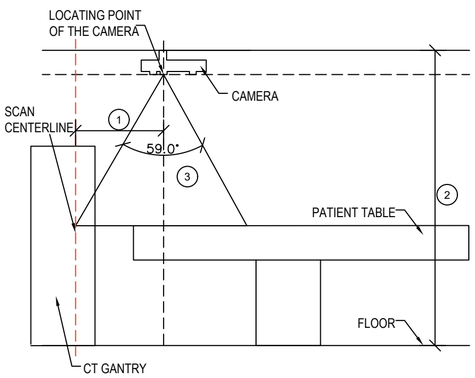
INSTALLATION REQUIREMENTS OF THE CAMERA

Please check the area above the camera carefully to make sure there are no installations or connections that could interfere with mounting the camera.
Decorations above the patient table, such as light boxes, may adversely affect the function of camera assistance.
If the camera cannot be installed in the recommended area due to the limitations on site, consider using the suspension rod for installation.

Components	Optimal location	Recommended range
Height (from the installation plane of the camera to the floor)	2,8 m	2,6 - 3,0
Horizontal distance in the X direction (from the locating point of the camera to the centerline of the table top)	0 mm	±100 mm
Horizontal distance in the Z direction (from the locating point of the camera to the scan centerline)	1215 mm	1215 mm ± 100mm
Tilt angle	0 °	Smaller than 5°
Illumination requirements	No strong lighting in the installation area	
Blocking requirements	No strong blocking within 600 mm from the installation point	

THE CAMERA IS INSTALLED ON THE CEILING OF THE SCANNING ROOM. IT IS USED FOR PATIENT POSITIONING. **THE CAMERA WEIGHS 1 KG**. THE LOAD CAPACITY OF ITS INSTALLATION POINT MUST BE FOUR TIMES THE WEIGHT.THE LOCATING POINT OF THE CAMERA IS MARKED WITH A RED CIRCLE IN THE FIGURE.

INSTALLATION POSITION OF THE CAMERA



INSTALLATION POSITION OF THE CAMERA:
1. DISTANCE FROM THE POSITIONING POINT OF THE CAMERA TO THE SCAN CENTERLINE
2. DISTANCE FROM THE INSTALLATION PLANE OF THE CAMERA TO THE FLOOR
3. RANGE OF VIEW

NOTE! IF THE HEIGHT OF THE INSTALLATION POINT IS SMALLER THAN 2.6 M, THE CAMERA SHOULD NOT BE INSTALLED.

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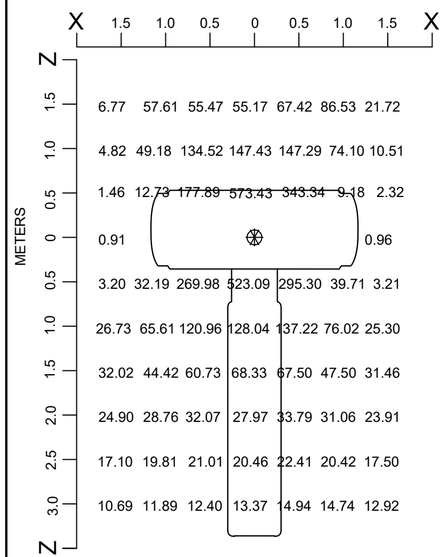
RADIATION PROTECTION

RADIATION SCATTER

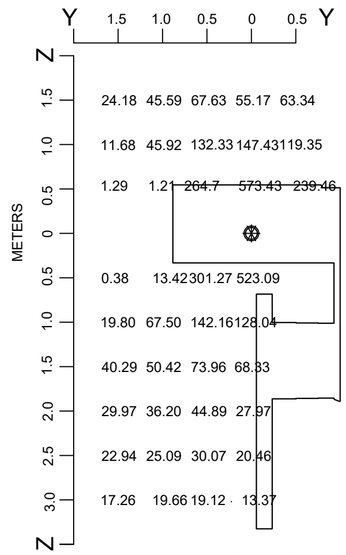
METERS



STRAY RADIATION IN THE HORIZONTAL PLANE

RADIATION SCATTER

METERS



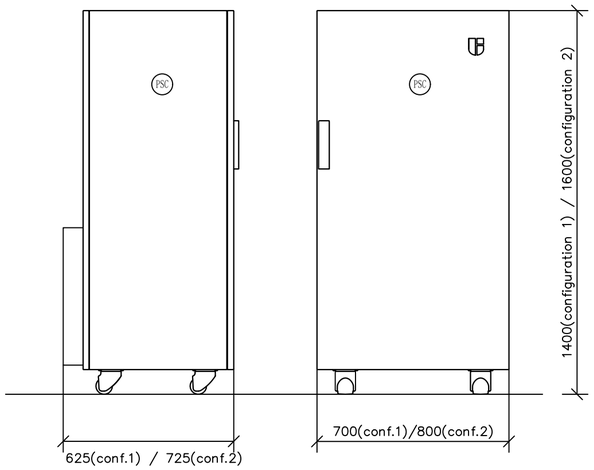
STRAY RADIATION IN THE VERTICAL PLANE

UNITS: uGy / 1000 mAs
BODY SCAN IS USED FOR MEASUREMENT, WITH 140 kVp
TO ACQUIRE THESE RESULTS, A CYLINDRICAL WATER PHANTOM WITH A DIAMETER OF 32 CM WAS PLACED IN THE CENTER OF THE TOMOGRAPHIC SCAN PLANE.

SYSTEM RADIATION PROTECTION PARAMETERS for uCT 760	
PARAMETER NAME	PARAMETER VALUE
MAXIMUM PEAK TUBE VOLTAGE	140 kV
MAXIMUM INPUT POWER OF NOMINAL ANODE FOR X-RAY TUBE	80 kW
RANGE OF THE TUBE CURRENT	6 mA ~ 667 mA
COMBINATIONS OF TUBE VOLTAGE AND CURRENT THAT GENERATE THE MAXIMUM OUTPUT POWER	large focal spot: 120 kV @ 667 mA, (max. output power;80kW) small focal spot: 140 kV @ 320 mA (max. output power: 44.8 kW)
NOMINAL POWER	80 kW @ 120 kV, 667 mA
MAXIMUM SCAN TIME	100 seconds

SYSTEM RADIATION PROTECTION PARAMETERS for uCT 780	
PARAMETER NAME	PARAMETER VALUE
MAXIMUM PEAK TUBE VOLTAGE	140 kV
MAXIMUM INPUT POWER OF NOMINAL ANODE FOR X-RAY TUBE	80 kW
RANGE OF THE TUBE CURRENT	6 mA ~ 667 mA; 6mA ~ 833mA (optional)
COMBINATIONS OF TUBE VOLTAGE AND CURRENT THAT GENERATE THE MAXIMUM OUTPUT POWER	large focal spot: 120 kV @ 667 mA, (max. output power;80kW) small focal spot: 140 kV @ 320 mA (max. output power: 44.8 kW)
NOMINAL POWER	100 kW @ 120 kV, 883 mA
MAXIMUM SCAN TIME	100 seconds

POWER SUPPLY CABINET



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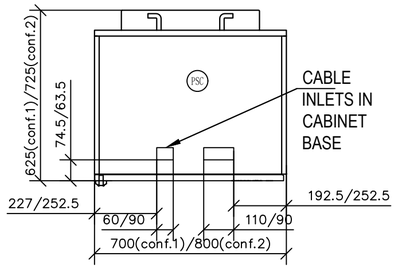
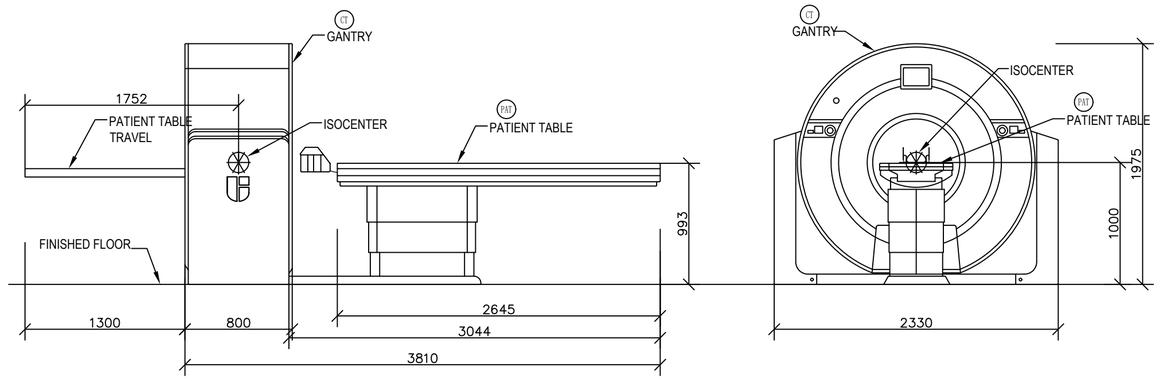
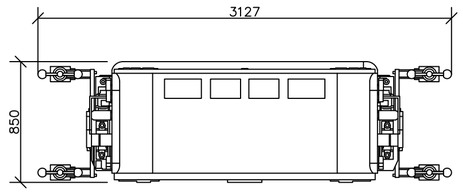


TOP

GANTRY AND PATIENT TABLE ELEVATION (configuration 1)



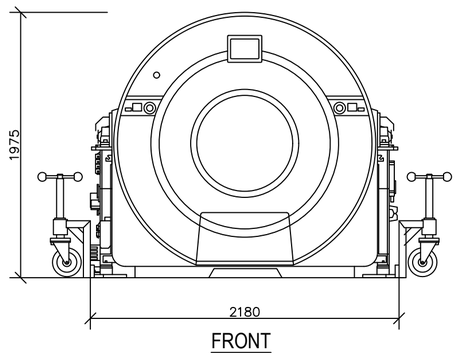
SYSTEM DELIVERY ROUTE



TOP

THE SYSTEM DELIVERY ROUTE MUST BE DETERMINED BY THE CUSTOMER / CONTRACTOR PRIOR TO DELIVERY. THE SIZES OF DOORS AND CORRIDORS MUST BE EVALUATED.

THE STRUCTURAL ENGINEER IS RESPONSIBLE FOR ENSURING THAT ENTIRE ROUTE, INCLUDING FLOORS, ELEVATORS, ETC. MEET LOAD CAPACITY AND SIZE REQUIREMENTS FOR SYSTEM DELIVERY.

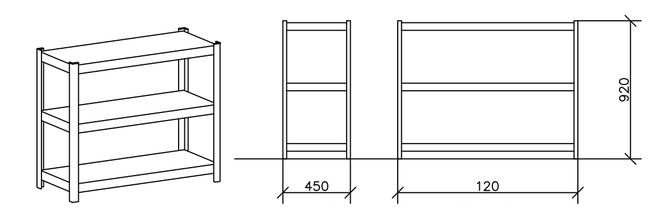


FRONT

GANTRY	
WEIGHT (WITH TRANSPORT TROLLEY):	~2500 kg
DIMENSIONS (WITH TRANSPORT TROLLEY):	3127 mm x 850 mm x 1975 mm
ADJUSTABLE HEIGHT RANGE (WITH TRANSPORT TROLLEY):	1975 mm - 2225 mm
GANTRY LENGTH (WITHOUT TRANSPORT TROLLEY, LEFT AND RIGHT COVERS):	2180 mm
PATIENT TABLE	
WEIGHT (WITH TRANSPORT WHEELS):	500 kg(conf.1) 984 kg (conf.2)
DIMENSIONS (WITH TRANSPORT WHEELS AT THE LOWEST POSITION):	conf. 1: 2645 mm x 809 mm x 778 mm conf. 2: 2691 mm x 945 mm x 889 mm
ADJUSTABLE HEIGHT RANGE (WITH TRANSPORT WHEELS):	conf.1: 778 mm - 878 mm conf. 2: 889 mm - 989 mm
• RECOMMENDED SCAN ROOM DOOR SIZE: 1200 mm x 2100 mm • RECOMMENDED CONTROL ROOM DOOR SIZE FOR CONSOLE TABLE DELIVERY: 1000 mm x as needed	

ACCESSORY CABINET

THE ACCESSORY CABINET IS SUPPLIED BY UIHS.



SIDE FRONT

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