INNOVA IGS 520-530-540

GE Healthcare

Does not take responsibility for any damages resulting from changes on drawings made by others. Errors may occur by not referring to the complete set of final issue drawings. GE does not accept responsibility for any damage due to the partial use of GE final issue drawings, however caused. All dimensions are in millimeters unless otherwise specified. Do not scale from printed pdf files. GE accepts no responsibility or liability for defective work due to scaling from these drawings.

TYPICAL

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GE Healthcare

INNOVA IGS 520-530-540

FINAL STUDY

A typical set of this drawing set is the GE Healthcare Pre Installation manual. Failure to reference the Pre Installation manual will result in incomplete documentation required for site design and preparation.

Pre Installation documents for GE Healthcare products can be accessed on the web at: www.gehealthcare.com/siteplanning

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A mandatory component of this drawing set is the GE Healthcare Pre Installation manual. Failure to reference the Pre Installation manual will result in incomplete documentation required for site design and preparation.

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GENERAL SPECIFICATIONS

- GE is not responsible for the installation of developers and associated equipment, lighting, cassette trays and protective screens or derivatives not mentioned in the order.
- The final study contains recommendations for the location of GE equipment and associated devices, electrical wiring and room arrangements. When preparing the study, every effort has been made to consider every aspect of the actual equipment expected to be installed.
- The layout of the equipment offered by GE, the dimensions given for the premises, the details provided for the pre-installation work and electrical power supply are given according to the information noted during on-site study and the wishes expressed by the customer.
- The room dimensions used to create the equipment layout may originate from a previous layout and may not be accurate as they may not have been verified on site. GE cannot take any responsibility for errors due to lack of information.
- Dimensions apply to finished surfaces of the room.
- Actual configuration may differ from options presented in some typical views or tables.
- If this set of final drawings has been approved by the customer, any subsequent modification of the site must be subject to further investigation by GE about the feasibility of installing the equipment. Any reservations must be noted.
- The equipment layout indicates the placement and interconnection of the indicated equipment components. There may be local requirements that could impact the placement of these components. It remains the customer’s responsibility to ensure that the site and final equipment placement complies with all applicable local requirements.
- All work required to install GE equipment must be carried out in compliance with the building regulations and the safety standards of legal force in the country concerned.
- These drawings are not to be used for actual construction purposes. The company cannot take responsibility for any damage resulting therefrom.

CUSTOMER RESPONSIBILITIES

- It is the responsibility of the customer to prepare the site in accordance with the specifications stated in the final study. A detailed site readiness checklist is provided by GE. It is the responsibility of the customer to ensure all requirements are fulfilled and that the site conforms to all specifications defined in the checklist and final study. The GE Project Manager of Installation (PMI) will work in cooperation with the customer to follow up and ensure that actions in the checklist are complete, and if necessary, will aid in the rescheduling of the delivery and installation date.
- Prior to installation, a structural engineer of record must ensure that the floor and ceiling is designed in such a way that the loads of the installed system can be securely borne and transferred. The layout of additional structural elements, dimensioning and the selection of appropriate installation methods are the sole responsibility of the structural engineer. Execution of load bearing structures supporting equipment on the ceiling, floor or walls is the customer’s responsibility.

RADIO-PROTECTION

- Suitable radiological protection must be determined by a qualified radiological physicist in conformance with local regulations. GE does not take responsibility for the specification or provision of radio-protection.

THE UNDERSIGNED, HEREBY CERTIFIES THAT I HAVE READ AND APPROVED THE PLANS IN THIS DOCUMENT.

<table>
<thead>
<tr>
<th>DATE</th>
<th>NAME</th>
<th>SIGNATURE</th>
</tr>
</thead>
</table>

GLOBAL SITE READINESS CHECKLIST (DI)

<table>
<thead>
<tr>
<th>DOC1809666 Rev. 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer Name:</td>
</tr>
<tr>
<td>GDN/SO Number:</td>
</tr>
<tr>
<td>Equipment:</td>
</tr>
<tr>
<td>Site Visit Date for SRC:</td>
</tr>
<tr>
<td>SRC Status:</td>
</tr>
</tbody>
</table>

Site Ready Checks at Installation

<table>
<thead>
<tr>
<th>General Site Planning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Room dimensions, including ceiling height, for all Exam, Equipment/Technical &amp; Control rooms meets GE specifications.</td>
</tr>
<tr>
<td>Ceiling support structure, if on the GE drawing, is at correct location and height according to the drawing specifications. Levelness and spacing has been measured. Overhead support Structure has been confirmed with contractor to meet GE criteria.</td>
</tr>
<tr>
<td>Rooms that will contain equipment, including staging areas if applicable, are construction debris free. Precautions must be taken to prevent debris from entering rooms containing equipment.</td>
</tr>
<tr>
<td>Delivery route from truck to installation space has been reviewed, all communications have occurred, arrangements made for special handling (if needed). Floors along delivery route will support weight of the equipment, reinforcements arranged if needed.</td>
</tr>
<tr>
<td>System power &amp; grounding (PDB/MDP) is available as per GE specifications, installed at point of final connection and ready to use. Lock Out Tag Out is available.</td>
</tr>
<tr>
<td>System power and grounded audit has been scheduled to be completed during installation of equipment. (If Required) GEHC PM to confirmed if needed.</td>
</tr>
<tr>
<td>Adequate room illumination installed and working.</td>
</tr>
<tr>
<td>Cableways (floor, wall, ceiling, etc.) ready for GE cables and are of correct length and diameter. Cableways routed per GE Final drawings and access openings installed as determined by GEHC PM. Surface floor duct installed at time of system installation.</td>
</tr>
<tr>
<td>HVAC systems installed, and the site meets minimum environmental operational system requirements.</td>
</tr>
<tr>
<td>Network outlets installed and computer network available and working.</td>
</tr>
<tr>
<td>Hospital IT/connectivity contacts have been engaged and information has been added to Project management tool. (If Required)</td>
</tr>
<tr>
<td>Floor levelness/flatness is measured and within tolerance, and there are no visible defects per GEHC specifications. Floor Strength and thickness have been discussed with customer/contractor and they have confirmed GE requirements are met.</td>
</tr>
<tr>
<td>Customer supplied countertops where GE equipment will be installed are in place.</td>
</tr>
</tbody>
</table>

Specific for Vascular

| Vascular baseplates preparation complete per GE requirements. |
| For IGS 730/740: Floor finish is according to the GE Specifications and protection is installed. Specifications for concrete substrate & Monopur 7 mm flooring have been met. Table baseplate installed and flush to the finished floor. |
| For IGS 730/740: Room Interventional Reference Point (RIRP) value has been defined with the customer. Either 1120mm, 1278 mm or 1508 mm. |
| Ensure that all third party suppliers are identified and have been informed about the project dates and how they need to proceed in accordance with their needs for interfacing to our equipment. |
| Doors and windows complete or scheduled to be installed. If applicable, radiation protection (shielding) finished & radioprotection regulatory approval for installation obtained. |
| PMI Signature: |
| Customer Signature: |
| FS Signature: optional |
MAGNETIC INTERFERENCE SPECIFICATIONS

- Image intensifiers must be located in ambient static magnetic fields of less than 1 gauss to guarantee specified imaging performance.
- X-ray tubes must be located in ambient static magnetic fields of less than 10 gauss to guarantee specified performance.
- System electronics must be located in ambient static magnetic fields of less than 10 gauss to guarantee data integrity.
- Operators console equipment must be located in ambient static magnetic fields of less than 10 gauss to obtain specified geometric linearity.

Any deviation from these drawings must be communicated in writing to and reviewed by your local GE Healthcare Installation project manager prior to making changes.

Make arrangements for any rigging, special handling, or facility modifications that must be made to deliver the equipment to the installation site. If desired, your local GE Healthcare Installation project manager can supply a reference list of rigging contractors.

New construction requires the following:
1. Secure area for equipment,
2. Power for drills and other test equipment,
3. Capability for image analysis,
4. Restrooms.

Provide for refuse removal and disposal (e.g. crates, cartons, packing)

It is the customer’s responsibility to contract a vibration consultant/engineer to implement site design modifications to meet the GE vibration specification. Refer to the system preinstallation manual for the vibration specification.

CUSTOMER SITE READINESS REQUIREMENTS

- Any deviation from these drawings must be communicated in writing to and reviewed by your local GE Healthcare Installation project manager prior to making changes.
- Make arrangements for any rigging, special handling, or facility modifications that must be made to deliver the equipment to the installation site. If desired, your local GE Healthcare Installation project manager can supply a reference list of rigging contractors.

New construction requires the following:
1. Secure area for equipment,
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Provide for refuse removal and disposal (e.g. crates, cartons, packing)

It is the customer’s responsibility to contract a vibration consultant/engineer to implement site design modifications to meet the GE vibration specification. Refer to the system preinstallation manual for the vibration specification.

ELECTROMAGNETIC INTERFERENCE

The system is suitable for use in the specified electromagnetic environment. The purchaser or user of the system should assure that it is used in an electromagnetic environment as described below:

<table>
<thead>
<tr>
<th>EMISSIONS</th>
<th>TEST COMPLIANCE</th>
<th>ELECTROMAGNETIC ENVIRONMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radio–Frequency Emissions</td>
<td>Group 1 Class A limits</td>
<td>The system is suitable for use in all establishments other than domestic and those directly connected to the low voltage power supply network that supplies buildings used for domestic purposes.</td>
</tr>
<tr>
<td>CISPR11</td>
<td>Group 1 Class A limits</td>
<td>The system uses RF energy only for its internal function. Therefore, the RF emission is very low and not likely to cause any interference in nearby electronic equipment.</td>
</tr>
<tr>
<td>Harmonic emissions IEC 61000–3–2</td>
<td>Not applicable</td>
<td>The system is suitable for use only in establishments not directly connected to a public low voltage power supply network.</td>
</tr>
<tr>
<td>Voltage fluctuations/ flicker emissions IEC 61000–3–3</td>
<td>Not applicable</td>
<td>The system is suitable for use only in establishments not directly connected to a public low voltage power supply network.</td>
</tr>
</tbody>
</table>
### Legend

**A** GE Supplied  
**B** GE Supplied/contractor installed  
**C** Customer/contractor supplied and installed  
**D** Available from GE  
**E** Existing/Reinstall

### BY ITEM DESCRIPTION **MAX HEAT OUTPUT** **WEIGHT** **MAX HEAT OUTPUT** **WEIGHT**

**D**1. Advantage workstation  2019  22  590  10  
**A**2. Operator console  341  19.6  100  9  
**A**3. C-FRT Cabinet  2388  1171/1193  700  531/541  
**A**4. System Interface Cabinet (PDU)  1365  628  400  285  
**A**5. Detector conditioner  717  32  210  14.5  
**D**6. COOLIX 4100 water chiller  23646  265  6930  120  
**D**7. Main disconnect panel (MDP)  205  19  60  9  
**D**8. 8kVA UPS  1760  185  520  84  
**A**9. Xray buzzer  -  -  0.5  
**A**10. HC gantry  2416  1653  708  750  
**A**11. OMEGA V long patient table  614  1635  180  741.5  
**A**12. Monitor suspension long bridge  -  -  
**A**13. Longitudinal stationary rail for XT suspension  -  68  31  
**D**14. Large Display Monitor with two backup monitors  -  419  190  
**D**15. Mavig rad shield and LED lamp with 2.5m ceiling track  -  143  65  
**D**16. External Transformer for LED Surgical lamp  -  17  8  
**D**17. Injector head on table rail  -  15  7  
**D**18. Injector control  -  4  2  
**D**19. Injector electronics  320  37  94  17  
**D**20. Vittingal speaker  -  -  
**D**21. Vittingal console  -  -  
**D**22. Vittingal microphone  -  -  
**D**23. Vittingal microphone (one on monitor bridge in exam room)  -  -  
**D**24. Warning light controller  -  -  
**C**25. Cable drape rail.  -  -  
**C**26. Storage cabinet  -  -  
**C**27. Control wall to ceiling with lead glass viewing window.  -  -  
**C**28. Shelf - customer to provide adequate wall support  -  -  
**C**29. Counter top for equipment - provide grommeted openings as required to route cables  -  -  
**C**30. Minimum door opening for equipment delivery is 44 in. w x 83 in. h [1118mm x 2108mm], contingent on a 96 in. [2438mm] corridor width  -  -  

### EXAM ROOM HEIGHT

<table>
<thead>
<tr>
<th>FINISHED FLOOR TO FALSE CEILING</th>
<th>Minimum</th>
<th>Recommended</th>
</tr>
</thead>
<tbody>
<tr>
<td>9'-0&quot;</td>
<td>2.74m</td>
<td>10'-0&quot;</td>
</tr>
</tbody>
</table>

Door openings: Exam room min 1160 [50 in]. Technical room min 800 [36 in], rec 1000 [40 in]

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For Accessory Sales: (866) 281-7545 Options 1, 2, 2, or 2 or mail to: gehcaccessorysales@ge.com
THE CUSTOMER/CONTRACTOR SHOULD:

- Provide an area adjacent to the installation site for delivery and unloading of the GE equipment.
- Ensure that the dimensions of all doors, corridors, ceiling heights are sufficient to accommodate the movement of GE equipment from the delivery area into the definitive installation room.
- Ensure that access routes for equipment will accommodate the weights of the equipment and any transportation, lifting and rigging equipment.
- Ensure that all necessary arrangements for stopping and unloading on public or private property not belonging to the customer have been made.

### DIMENSIONS OF DELIVERY

<table>
<thead>
<tr>
<th>EQUIPMENT</th>
<th>DIMENSIONS (mm)</th>
<th>WEIGHT (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OMEGA TABLE BASE ASSEMBLY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(ON PALLETT)</td>
<td>2140 [84.2 in]</td>
<td>585 [1290 lb]</td>
</tr>
<tr>
<td>LENGTH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WIDTH</td>
<td>960 [38 in]</td>
<td></td>
</tr>
<tr>
<td>HEIGHT</td>
<td>1240 [49 in]</td>
<td></td>
</tr>
<tr>
<td>OMEGA TABLE TOP ASSEMBLY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(ON PALLETT)</td>
<td>840 [33 in]</td>
<td>70 [155 lb]</td>
</tr>
<tr>
<td>LENGTH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WIDTH</td>
<td>1370 [53.7 in]</td>
<td></td>
</tr>
<tr>
<td>HEIGHT</td>
<td>220 [9 in]</td>
<td></td>
</tr>
<tr>
<td>GANTRY (SHIPPING DOLLY)</td>
<td></td>
<td>1060 [2340 lb]</td>
</tr>
<tr>
<td>LENGTH</td>
<td>2820 [111 in]</td>
<td></td>
</tr>
<tr>
<td>WIDTH</td>
<td>1230 [48.4 in]</td>
<td></td>
</tr>
<tr>
<td>HEIGHT</td>
<td>2000 [79 in]</td>
<td></td>
</tr>
</tbody>
</table>

### SHIPPING DOLLY FOR LC GANTRY

Shipping weight: 1060 kg [2337 lb].

Both ends of the dolly can be removed which will shorten the LC gantry dolly to 2300 mm [90 in], also the right and left top handles can be removed which will make the width 1160 mm [46 in].

SCALE 1:50
STRUCTURAL NOTES

- All steel work and parts necessary to support ceiling mounted tube hanger or other equipment are to be supplied by the customer or his contractors. The unistrut or equivalent structure should run continuous with no fittings extending below face of unistrut channel, run wall to wall, be parallel, square and in the same horizontal plane flush with finished ceiling. The system is to be cross braced vertically, horizontally and diagonally to allow no movement and a maximum of 1.58mm (1/16") deflection. (10) 12.7mm (1/2") dia. X 38.1mm (1 1/2") long bolts with unistrut 12.7mm (1/2") nuts with springs are to be provided by customer or his contractors for each stationary and auxiliary support rail. Closure strips shall be provided for areas of unistrut exposed and without mounting units.

- Methods of support for the steelwork that will permit attachment to structural steel or through bolts in concrete construction should be favored. Do not use concrete or masonry anchors in direct tension.

- All units that are wall mounted or wall supported are to be provided with supports where necessary. Wall supports are to be supplied and installed by the customer or his contractors. See plan and detail sheets for suggested locations and mounting hole locations.

- All ceiling mounted fixtures, air vents, sprinklers, etc. To be flush mounted, or shall not extend more than 6.35mm (1/4") below the finished ceiling.

- Control walls with tube hanger passage above shall be constructed to 2130mm (7'-0") high.

- Floor slabs on which equipment is to be installed must be level to 3.17mm (1/8") in 3050mm (10'-0")

- Minimum floor thickness of 203mm (8").

- Dimensions are to finished surfaces of room.

- Customers contractor must provide all penetrations in post tension floors.

- Customers contractor must provide and install any non-standard anchoring. Documents for standard anchoring methods are included with GE equipment drawings for geographic areas that require such documentation.

- Customers contractor must provide and install hardware for "through the floor" anchoring and/or any bracing under access floors. This contractor must also provide floor drilling that cannot be completed because of an obstruction encountered while drilling by the GE installer such as rebar etc.

- It is the customer's responsibility to perform any floor or wall penetrations that may be required. The customer is also responsible for ensuring that no subsurface utilities (e.g., electrical or any other form of wiring, conduits, piping, duct work or structural supports (i.e. post tension cables or rebar)) will interfere or come in contact with subsurface penetration operations (e.g. drilling and installation of anchors/screws) performed during the installation process. To ensure worker safety, GE installers will perform surface penetration operations only after the customer's validation and completion of the "GE surface penetration permit"
1. Area occupied by GE supplied positioner baseplate
2. Area occupied by GE supplied table baseplate
3. Mount X-Ray buzzer bracket on wall above ceiling
4. Area of radiation shield mounted to unistrut grid in ceiling
5. Support backing, locate as shown.
6. Stationary rails attached to gridded support in ceiling.
7. Cable drape rail attached to gridded support in ceiling.
8. Structural support in ceiling for fastening ceiling supported equipment. Supports to run continuous with no fittings extending below face of channel, run wall to wall, be parallel, square, and in the same horizontal plane, flush with the finished ceiling. Rails are mounted to these supports every 2'-2" and require 350 lbs. (597 lbs. in seismic regions) per bolt load. Methods of support that permit attachment to structural steel or through bolts in concrete should be favored. Do not use screw anchors in direct tension.

IF ACCESS IS NOT READILY AVAILABLE IT IS RECOMMENDED TO PROVIDE A TRAPDOOR IN THE CEILING TO ALLOW SERVICE ACCESS FOR CABLE MANAGEMENT.
NOTE:
PIPE, JUNCTION BOX AND DUCT OR CONDUIT ARE TO BE SUPPLIED AND IS TO BE INSTALLED BY CUSTOMER OR CUSTOMER’S CONTRACTOR

GANTRY UNDER FLOOR CABLE DETAILS

FLOOR REQUIREMENTS

- The maximum pullout force per GE supplied anchor was calculated assuming:
  - A concrete compression strength of 17.24 MPa at 28 days (which is the minimum required compression strength).
  - Anchors installed to the required hole depth of 165.1 mm [6.5 in] minimum.
  - Center of anchor hole to concrete edge distance 79.4 mm [3.1 in].
  - Make sure to obtain data on compression strength of the concrete before using floor anchors.
- The floor slab on which the equipment is to be installed must be flat and level (1 mm [0.04 in]/1 m [40 in] where equipment is installed and 5 mm [0.2 in]/2 m [79 in] general levelness).
- Anchoring to the floor is intended to the structural elements and not to common screed.
- Do not glue the floor covering in the gantry zone.

CONDUIT IN THE FLOOR

- Water lines
- Electrical cable trough or conduit
- Water cable trough or conduit

GANTRY UNDER FLOOR CABLE DETAILS

- Water lines
- Electrical cable trough or conduit
- Water cable trough or conduit
- Opening for 152 [6 in] conduit
- 305x305x125 Box [12x12x6 in] or similar
- 152 [6 in] I.D. pipe or conduit
- 610x610x305 Box [24x24x12 in] or similar
- Thru-floor fitting
- Concrete floor
- 225 [9 in] dia. opening thru floor

NOT IN SCALE

TABLE SIDE

- Table pivot point Ø550 [Ø21.62 in]
- Table pivot point Ø225 [Ø9.00 in] cable inlet through concrete slab
- Ø100 [Ø4.00 in] - Ø225 [Ø9.00 in] cable inlet through concrete slab
- Cable inlet for options, size as required

2b Alternate bolt holes for seismic zones 1 and 2

- LC baseplate mounting location: 12 bolts
- Pullout strength on each bolt 736 daN
  - M20 Through-Bolts recommended (supplied by GE)
  - Alternates:
    - M16 Mechanical anchors (supplied by GE)
    - Chemical anchors (not supplied by GE):
      - HILTIHVU adhesive capsule + HAS Anchor rod
- Table mounting location: 4 bolts required
- Pullout strength on each bolt 4432 daN
  - M20 Through-Bolts recommended (supplied by GE)
  - Alternates:
    - M16 Mechanical anchors (supplied by GE)
    - Chemical anchors (not supplied by GE):
      - HILTIHVU adhesive capsule + HAS Anchor rod

NOT IN SCALE
XT RADIOGRAPHIC SUSPENSION, INBOARD MOUNTING

Structural Support system is not supplied or installed by GE Healthcare

**DETAIL 1**
- Contractor supplied and installed structural supports
- GE supplied longitudinal stationary rail
- Contractor supplied and installed finished ceiling (ceiling & supports must not extend below face of structural supports)
- GE supplied spring nuts with bolts

**DETAIL 2**
- Contractor supplied and installed structural supports
- GE supplied cable drape support
- GE supplied self-tapping screws
- GE supplied spring nuts with bolts
- GE supplied cable drape rail

Ceiling height as specified on installation drawings

Supports to slab as required

Stationary Rail

Reference Structural Layout for these dimensions

Structural Supports
### MAVIG SUSPENSION MOUNTING METHOD

**2.5m CEILING TRACK**

- Weight up to: 94 kg (207 lb) (75 kg (165 lb) system + 19 kg (42 lb) track)
- The required factor of safety is "4" for attaching to Unistrut or equivalent rails and "6" for attaching to the concrete ceiling.

**CONSULT MAVIG INSTALLATION MANUAL REV: POR30001 TO DESIGN AND MOUNT THE CEILING SUPPORT.**

**SCALE 1:20**

**MONITOR SUSPENSION RAIL MOUNTING SPECIFICATIONS**

- When a 45 daN force is applied vertically upward, downward or horizontally at any stationary rail mounting point, the attachment interface must not deflect more than 1.5 mm (0.06 in).
- Each stationary rail must be mounted by bolts supplied or by 12 mm (0.47 in) as metric bolts. Maximum load per bolt is 160 daN, however each mounting bolt must not "PULL OUT" or otherwise fail under a vertically downward dead load of 635daN.

**SUSPENSION COLUMN LENGTHS AND INSTALLATION DETAILS**

- Weight up to: 94 kg (207 lb) (75 kg (165 lb) system + 19 kg (42 lb) track)
- The required factor of safety is "4" for attaching to Unistrut or equivalent rails and "6" for attaching to the concrete ceiling.

**CEILING SUSPENSION DISCLAIMER**

**Safety and precautionary comments:**

- Only qualified, licensed technicians can perform electrical connections, installation, removal and repair. It is strongly recommended that at least two persons perform the installation.

- Installing the system: Prior to installation, a structural engineer must confirm that the mounting structure is strong enough to provide proper support for the entire system and any attached end devices. Installation must be completed according to local building codes.

- Determination of required installation hardware and torque values for installation of the ceiling column and ceiling track is the sole responsibility of the structural engineer.

- Ceiling mounted systems must be installed properly. Failure to follow the instructions provided may lead to a potentially dangerous and unstable condition of the system.

- GE and/or MAVIG is not responsible for unauthorized modifications made to the system or use of the system for unintended purposes. GE and/or MAVIG cannot be held liable for improper operation and modifications. Since improper modifications may impair proper operation, safety or reliability of the system, product modifications require written authorization from MAVIG.

- Under GE responsibility or under Customer responsibility, for all pre-installations, whatever is the supporting structure (bridge, chair, Unistrut channel, other channels, direct anchorage in concrete, transversal beam, etc.), a certificate must be obtained from a structural engineer.

- This certificate shall include the definition of fasteners and of their tightening torque, especially for the non-standard cases described in MAVIG Planning and for which the standard anchoring/screws delivered with product shall not be used but shall be defined (and implemented in most cases) by the structural company.

**WARNING:**

- It is prohibited to alter the length of the ceiling column or remove any securing screws.
AIR RENEWAL

According to local standards.

NOTE
In case of using air conditioning systems that have a risk of water leakage it is recommended not to install it above electric equipment or to take measures to protect the equipment from dropping water.

TEMPERATURE AND HUMIDITY SPECIFICATIONS

IN-USE CONDITIONS

<table>
<thead>
<tr>
<th></th>
<th>EXAM ROOM</th>
<th>CONTROL ROOM</th>
<th>TECHNICAL ROOM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature (°C)</td>
<td>Min</td>
<td>Recommended</td>
<td>Max</td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>22</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>[59 °F]</td>
<td>[72 °F]</td>
<td>[90 °F]</td>
</tr>
<tr>
<td>Temperature gradient</td>
<td>≤ 10 °/h</td>
<td>≤ 10 °/h</td>
<td>≤ 10 °/h</td>
</tr>
<tr>
<td>RH (1) non condensing</td>
<td>30%</td>
<td>30%</td>
<td>30%</td>
</tr>
<tr>
<td>Humidity gradient</td>
<td>≤ 10%/h</td>
<td>≤ 10%/h</td>
<td>≤ 10%/h</td>
</tr>
</tbody>
</table>

STORAGE CONDITIONS

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature (°C)</td>
<td>+10 [50 °F] to +40 [104 °F]</td>
</tr>
<tr>
<td>RH (1) non condensing</td>
<td>10% to 80%</td>
</tr>
<tr>
<td>Pressure</td>
<td>700 hPa to 1030 hPa</td>
</tr>
<tr>
<td>Overall storage time</td>
<td>shall be less than 6 months</td>
</tr>
</tbody>
</table>

AIR RENEWAL
According to local standards.

NOTE
In case of using air conditioning systems that have a risk of water leakage it is recommended not to install it above electric equipment or to take measures to protect the equipment from dropping water.

HEAT DISSIPATION

<table>
<thead>
<tr>
<th>ROOM</th>
<th>DESCRIPTION</th>
<th>HEAT OUTPUT (kW)</th>
<th>HEAT OUTPUT (BTU/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>STAND BY</td>
<td>MODERATE¹</td>
</tr>
<tr>
<td>Exam room</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LC gantry and table</td>
<td>0.41</td>
<td>0.55</td>
<td>0.89</td>
</tr>
<tr>
<td>Large Display Monitor (LDM)</td>
<td>0.50</td>
<td>0.50</td>
<td>0.50</td>
</tr>
<tr>
<td>Typical injector</td>
<td>0.09</td>
<td>0.09</td>
<td>0.09</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1.00</td>
<td>1.14</td>
<td>1.48</td>
</tr>
<tr>
<td>Control room</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL console and live monitor</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
</tr>
<tr>
<td>AW Workstation</td>
<td>0.59</td>
<td>-</td>
<td>0.59</td>
</tr>
<tr>
<td>TOTAL</td>
<td>0.69</td>
<td>0.10</td>
<td>0.69</td>
</tr>
<tr>
<td>Technical room</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C-FRT cabinet</td>
<td>0.70</td>
<td>0.70</td>
<td>0.70</td>
</tr>
<tr>
<td>PDU</td>
<td>0.40</td>
<td>0.40</td>
<td>0.40</td>
</tr>
<tr>
<td>Cool tube chiller</td>
<td>2.53</td>
<td>4.49</td>
<td>5.49</td>
</tr>
<tr>
<td>Detector Conditioner</td>
<td>0.21</td>
<td>0.21</td>
<td>0.21</td>
</tr>
<tr>
<td>MDP (Mains Disconnect Panel)</td>
<td>0.06</td>
<td>0.06</td>
<td>0.06</td>
</tr>
<tr>
<td>UPS 8 kVA</td>
<td>0.52</td>
<td>0.52</td>
<td>0.52</td>
</tr>
<tr>
<td>TOTAL</td>
<td>4.42</td>
<td>6.38</td>
<td>7.38</td>
</tr>
</tbody>
</table>

WARNING
The list contains only the principal components of the system and doesn't contain any non-GE supplied equipment.

¹ Moderate Use corresponds to 8 cases in 10 hours.
² Typical Use corresponds to 11 cases in 10 hours.
³ Maximum Use is during the case.
1. All wires specified shall be copper stranded, flexible, thermo-plastic, color coded, cut 10 foot long at outlet boxes, duct termination points or stubbed conduit ends. All conductors, power, signal and ground, must be run in a conduit or duct system. Electrical contractor shall ring out and tag all wires at both ends. Wire runs must be continuous copper stranded and free from splices.

2. Wire sizes given are for use of equipment. Larger sizes may be required by local codes.

3. It is recommended that all wires be color coded, as required in accordance with national and local electrical codes.

4. Conduit sizes shall be verified by the architect, electrical engineer or contractor, in accordance with local or national codes.

5. Convenience outlets are not illustrated. Their number and location are to be specified by others. Locate at least one convenience outlet close to the system control, the power distribution unit and one on each wall of the procedure room. Use hospital approved outlet or equivalent.

6. General room illumination is not illustrated. Caution should be taken to avoid excessive heat from overhead spotlights. Damage can occur to ceiling mounting components and wiring if high wattage bulbs are used. Recommend low wattage bulbs no higher than 75 watts and use dimmer controls (except MR). Do not mount lights directly above areas where ceiling mounted accessories will be parked.

7. Routing of cable ductwork, conduits, etc., must run direct as possible otherwise may result in the need for greater than standard cable lengths (refer to the interconnection diagram for maximum usable lengths point to point).

8. Conduit turns to have large, sweeping bends with minimum radius in accordance with national and local electrical codes.

9. A special grounding system is required in all procedure rooms by some national and local codes. It is recommended in areas where patients might be examined or treated under present, future or emergency conditions. Consult the governing electrical code and confer with appropriate customer administrative personnel to determine the areas requiring this type of grounding system.

10. The maximum point to point distances illustrated on this drawing must not be exceeded.

11. Physical connection of primary power to GE equipment is to be made by customers electrical contractor with the supervision of a GE representative. The GE representative would be required to identify the physical connection location, and insure proper handling of GE equipment.

12. GEHC conducts power audits to verify quality of power being delivered to the system. The customer's electrical contractor is required to be available to support this activity.

- All junction boxes, conduit, duct, duct dividers, switches, circuit breakers, cable tray, etc., are to be supplied and installed by customers electrical contractor.
- Conduit and duct runs shall have sweep radius bends
- Conduits and duct above ceiling or below finished floor must be installed as near to ceiling or floor as possible to reduce run length.
- Ceiling mounted junction boxes illustrated on this plan must be installed flush with finished ceiling.
- All ductwork must meet the following requirements:
  1. Ductwork shall be metal with dividers and have removable, accessible covers.
  2. Ductwork shall be certified/rated for electrical power purposes.
  3. Ductwork shall be electrically and mechanically bonded together in an approved manner.
- PVC as a substitute must be used in accordance with all local and national codes.
- All openings in access flooring are to be cut out and finished off with grommet material by the customers contractor.
- General contractor to insert pull cords for all cable run conduits between the equipment room and the operators control room.
- 10 foot pigtales at all junction points.
- Grounding is critical to equipment function and patient safety. Site must conform to wiring specifications shown on this plan.

**CONNECTIVITY REQUIREMENTS**

Broadband Connections are necessary during the installation process and going forward to ensure full support from the Engineering Teams for the customers system. Maximum performance and availability for the customers system is maintained and closely monitored during the lifetime of the system. Proactive and reactive maintenance is available utilising the wide range of digital tools using the connectivity solutions listed below:

- Site-to-Site VPN/GE Solution
- Site-to-Site VPN/Customer Solution
- Connection through Dedicated Service Network
- Internet Access - connectivity for InSite 2.0

The requirements for these connectivity solutions are explained in the broadband solutions catalogue (separate document).
**ELECTRICAL LAYOUT ITEM LIST**

1. 600x600x300 (24"x24"x12") Box below floor at gantry
2. 300x300x150 (12"x12"x6") box below floor for water lines at gantry
3. 200x200x150 (8"x8"x6") box below floor at table
4. 450x450x150 (18"x18"x6") pull box above ceiling for monitors
5. Empty 3" (75mm) conduit below floor for waterlines
6. 10"x3.1/2" (250mm x 100mm) surface wall duct with minimum 2 dividers
7. 18"x3.1/2" (450mm x 100mm) surface wall duct with minimum 2 dividers
8. 450x450x150 (18"x18"x6") pull box above ceiling in technical/equipment room
9. 300x300x150 (12"x12"x6") pull box above ceiling in control room
10. 600x600x300 (24"x24"x12") Box below floor in control room
11. 200x200x150 (8"x8"x6") for patient monitoring equipment
12. 300x300x150 (12"x12"x6") pull box above ceiling in control room

**Outlet Legend for GE Equipment**

- System emergency off (SEO), (recommended height 1.2m [48"] above floor)
- X-Ray ON lamp (L1) - 24 V
- System ON lamp (L) - 24 V (only if needed per local codes)
- Duplex hospital grade, dedicated wall outlet 120-v, single phase power
- Duplex hospital grade, dedicated ceiling outlet 120-v, single phase power
- Network outlet
- Duplex hospital grade, dedicated outlet 120-v emergency, single phase power, 15a
- 6-Gang hospital grade, dedicated wall outlet 115-V, single phase power
- 5-15R NEMA Receptacle, dedicated outlet 120-v, single phase power

**Additional Conduit Runs (Contractor Supplied and Installed)**

<table>
<thead>
<tr>
<th>From</th>
<th>To</th>
<th>Qty</th>
<th>In.</th>
<th>Size mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gantry</td>
<td>CFRT Cabinet</td>
<td>4</td>
<td>4</td>
<td>100</td>
</tr>
<tr>
<td>Gantry</td>
<td>Table</td>
<td>1</td>
<td>4</td>
<td>100 and 50</td>
</tr>
<tr>
<td>Control Room</td>
<td>CFRT Cabinet</td>
<td>1 and 2</td>
<td>3/8 and 2 1/2</td>
<td></td>
</tr>
<tr>
<td>Water line</td>
<td>Gantry</td>
<td>1</td>
<td>3</td>
<td>75</td>
</tr>
<tr>
<td>Warning light controller</td>
<td>Warning light</td>
<td>1</td>
<td>1/2</td>
<td>13</td>
</tr>
<tr>
<td>Warning light controller</td>
<td>Power distribution unit</td>
<td>1</td>
<td>1/2</td>
<td>13</td>
</tr>
<tr>
<td>LED Transformer</td>
<td>Spooler</td>
<td>1</td>
<td>As Required</td>
<td>As Required</td>
</tr>
<tr>
<td>LED Transformer</td>
<td>120-V 1 phase power</td>
<td>1</td>
<td>As Required</td>
<td>As Required</td>
</tr>
<tr>
<td>LED Lamp</td>
<td>Spooler</td>
<td>1</td>
<td>Cables come with spooler</td>
<td>Cables come with spooler</td>
</tr>
<tr>
<td>XRay-Buzzer</td>
<td>CFRT Cabinet</td>
<td>1</td>
<td>1/2</td>
<td>19</td>
</tr>
<tr>
<td>XRay-Buzzer</td>
<td>Control Room</td>
<td>1</td>
<td>1/2</td>
<td>19</td>
</tr>
<tr>
<td>Monitor</td>
<td>Control Room</td>
<td>1</td>
<td>2 1/2</td>
<td>64</td>
</tr>
<tr>
<td>Large Display Monitor</td>
<td>Control Room</td>
<td>1</td>
<td>3</td>
<td>75 and 19</td>
</tr>
<tr>
<td>CFRT Cabinet</td>
<td>Trypt/PDM</td>
<td>2</td>
<td>3</td>
<td>75</td>
</tr>
<tr>
<td>System Interface Cabinet (POU)</td>
<td>Emergency off</td>
<td>1</td>
<td>1/2</td>
<td>13</td>
</tr>
<tr>
<td>System Interface Cabinet (POU)</td>
<td>Emergency off</td>
<td>1</td>
<td>1/2</td>
<td>13</td>
</tr>
<tr>
<td>Main Disconnect Panel</td>
<td>System Interface Cabinet (POU)</td>
<td>1</td>
<td>1</td>
<td>25</td>
</tr>
<tr>
<td>Main Disconnect Panel</td>
<td>480-V 3 phase power</td>
<td>1</td>
<td>As Required</td>
<td>As Required</td>
</tr>
<tr>
<td>Patient Monitoring</td>
<td>Monitor Bridge</td>
<td>1</td>
<td>3</td>
<td>75</td>
</tr>
<tr>
<td>Patient Monitoring</td>
<td>TRANS/PER/AMP</td>
<td>2</td>
<td>3</td>
<td>75</td>
</tr>
</tbody>
</table>
### POWER REQUIREMENTS

<table>
<thead>
<tr>
<th>POWER SUPPLY</th>
<th>3 PHASES+G 380/400/415/480 V ±10%</th>
</tr>
</thead>
<tbody>
<tr>
<td>FREQUENCIES for 380/400/415V</td>
<td>50/60 Hz ± 3 Hz</td>
</tr>
<tr>
<td>FREQUENCY for 480V</td>
<td>60 Hz ± 3Hz</td>
</tr>
<tr>
<td>PEAK POWER CONSUMPTION</td>
<td>150 kVA</td>
</tr>
<tr>
<td>MOMENTARY POWER CONSUMPTION</td>
<td>100 kVA</td>
</tr>
<tr>
<td>LONG TIME POWER CONSUMPTION</td>
<td>18 kVA</td>
</tr>
<tr>
<td>MINIMUM PROTECTION</td>
<td></td>
</tr>
<tr>
<td>MAXIMUM LINE IMPEDANCE PHASE TO PHASE</td>
<td>380 V : 0.09 Ω / 400 V : 0.096 Ω / 415 V : 0.102 Ω / 480 V : 0.12 Ω</td>
</tr>
</tbody>
</table>

- Power supply should come into a Mains Disconnect Panel (MDP) containing the protective units and controls.
- The section of the supply cable should be calculated in accordance with its length and the maximum line impedance phase to phase and rating of protection.

### SUPPLY CHARACTERISTICS

- Power input must be separated from any others which may generate transients (elevators, air conditioning, radiology rooms equipped with high speed film changers ...)
- All equipment installed with IGS system components must be powered separately (e.g. lighting, power outlets)
- Transients must be less than 2,000 V peak in common mode and 1,000 V in differential mode, with a duration limited to a few microseconds.

### GROUND SYSTEM

- At least 35 mm² copper from main ground point to the MDP.
- The equipotential link will be by means of an equipotential bar. This equipotential bar should be connected to the protective earth conductors in the ducts of the non IGS cableways and to additional equipotential connections linking up all the conducting units in the rooms where IGS units are located.

### CABLES

- Power and cable installation must comply with the distribution diagram.
- MDP to PDU cable shall be copper cable and cable insulation temperature shall be 90°C
- All cables must be isolated and flexible, cable color codes must comply with standards for electrical installation.
- The cables from signalling and remote control (SEO, L...) will go to PDU with a pigtail length of 2.0 m, and will be connected during installation.
- Each conductor will be identified and isolated (screw connector).

### CABLEWAYS

The general rules for laying cableways should meet the conditions laid down in current standards and regulations, with regard to:
- Protecting cables against water (Cableways should be waterproof),
- Protecting cables against abnormal temperatures (Proximity to heating pipes or ducts),
- Protecting cables against temperature shocks,
- Replacing cables (Cableways should be large enough for cables to be replaced),
- Only GE cables are running inside cableways.
- Metal cableways should be grounded.

### LOTO DEVICES

- The MDP shall provide means of disconnecting the mains power from the system, with LOTO capability to ensure safe service operation. It can be done by the input breaker if it has disconnecting capability, or by a separate disconnection device.
- LOTO device is installed on the MDP input breaker or on the disconnecting device, there shall be no voltage at the output of the MDP.

### POWER DISTRIBUTION FOR IGS SYSTEM

- **POWER SUPPLY FOR MAIN SYSTEM**
  - Main supply 3 phases (380/400/415/480 V) and Ground (Min 35 mm² (2 AWG) or same size as feeder wire, whichever is larger)

- **GROUND SYSTEM**
  - At least 35 mm² copper from main ground point to the MDP.
  - The equipotential link will be by means of an equipotential bar. This equipotential bar should be connected to the protective earth conductors in the ducts of the non IGS cableways and to additional equipotential connections linking up all the conducting units in the rooms where IGS units are located.

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  - MDP to PDU cable shall be copper cable and cable insulation temperature shall be 90°C
  - All cables must be isolated and flexible, cable color codes must comply with standards for electrical installation.
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    - Protecting cables against abnormal temperatures (Proximity to heating pipes or ducts),
    - Protecting cables against temperature shocks,
    - Replacing cables (Cableways should be large enough for cables to be replaced),
    - Only GE cables are running inside cableways.
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### POWER REQUIREMENTS (LIGHT SIGNALING)

#### SPECIFICATIONS OF POWER INPUT

<table>
<thead>
<tr>
<th>FOR ELECTRICAL BOX LIGHT SIGNALING</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>POWER DEMAND</td>
<td>10 A</td>
</tr>
<tr>
<td>VOLTAGE</td>
<td>Single Phase 100V - 240V ± 10%</td>
</tr>
<tr>
<td>FREQUENCY</td>
<td>50/60 Hz ± 3Hz</td>
</tr>
</tbody>
</table>

### POWER DISTRIBUTION (LIGHT SIGNALING)

- Main supply 100V-240 V and Ground cable
- **System ON Light (3)**: 3 x 1.5 [14 AWG] 24 V
- **X-Ray ON Light (3)**: 3 x 1.5 [14 AWG] 24 V
- **Light Signaling Control Box**
- **Technical room**
- **PDU**

#### NOTES:

1. Three dry contacts: "System ON", "X-Ray ON" and Room lights control are released by PDU. Max. voltage = 24 V
2. Cable with 2m [6.6ft] extra length on the floor behind the back of PDU
3. Location and/or quantity: refer to layout

---

**SPECIFICATIONS OF POWER INPUT**

**FOR LIGHT SIGNALING**

- **Power Demand**: 10 A
- **Voltage**: Single Phase 100V - 240V ± 10%
- **Frequency**: 50/60 Hz ± 3Hz

**POWER DISTRIBUTION (LIGHT SIGNALING)**

- **System ON Light**: 3 x 1.5 [14 AWG] 24 V
- **X-Ray ON Light**: 3 x 1.5 [14 AWG] 24 V
- **Light Signaling Control Box**
- **Technical room**
- **PDU**

---

**NOTES**:

1. Three dry contacts: "System ON", "X-Ray ON" and Room lights control are released by PDU. Max. voltage = 24 V
2. Cable with 2m [6.6ft] extra length on the floor behind the back of PDU
3. Location and/or quantity: refer to layout
**DETAILED SCHEMATIC ELECTRICAL BOX (LIGHT SIGNALING)**

**POWER SUPPLY**
100-240V SINGLE PHASE

**CB1**
[LOT]

**CB2**

**TR1**
100-240V 24V

**PDU**
**SYSTEM ON**
**X-RAY ON**
Room Lights

**H1**
White 24VAC

**R1/R2/R3**
24 VAC 50/60 Hz auxiliary relay

**TR1**
Transformer

**H1**
System ON lamp voltage control

**L**
System ON Lamp

**L1**
X-Ray ON Lamp

**TERMINAL**

**SYMBOLS LEGEND**
- Circuit breaker
- Relay coil
- Relay contact - normally open (de-energized state)
- Relay contact - normally closed (de-energized state)
- Control power transformer
- Indication light
- Cable/conductor termination
- External lock-out/tag-out capability
- Ground

**IG**: Lockable interrupter
**CB1/CB2**: Circuit breaker
**R1/R2/R3**: 24 VAC 50/60 Hz auxiliary relay
**TR1**: Transformer

**H1**: System ON lamp voltage control
**L**: System ON Lamp
**L1**: X-Ray ON Lamp