

GV1000 X-Ray Diffraction System Site Preparation Checklist - Standard

Thank you for purchasing an Agilent **instrument**. To get you started and to assure a successful and timely installation, please refer to this specification or set of requirements.

Correct site preparation is the key first step in ensuring that your instruments and software systems operate reliably over an extended lifetime. This document is a **checklist AND information guide** prepared for you that outlines the supplies, consumables, space and utility requirements for your equipment for your site.

Customer Responsibilities

Make sure your site meets the following prior specifications before the installation date. For details, see specific sections within this checklist, including:

Guidance

When completing the relevant checkboxes in the checklist using a "X" or tick mark "√", please note that "X" stands for FAIL and "√" for PASS.

- The site meets the requirements for Instrument space dimensions, floor loading and door access as describe in the **Section 1 - Dimensions and Weights below**.
- The Laboratory where the instrument will be located meets the environmental conditions for Temperature and water requirements as described in **Section 2 - Environmental Conditions**
- The Power in the Laboratory meets the requirements for location , voltage/ current rating and number of socket outlets as described in **Section 3 - Power consumption**
- Additional item to be made available by the customer at the time of installation including a suitable high vacuum pump, ideally 70 Liters/sec turbo molecular pump, water to the correct specification and Liquid Nitrogen or Helium to the correct purity as described in **Section4 - Additional requirements to be supplied by the customer**.
- An Uncompensated Geiger Muller tube radiation monitor should be available to carry out a critical examination of the equipment.

Please consult Other Requirements section below for other product-specific information. For more details, please consult the product-specific Site Preparation.

If Agilent is delivering installation and familiarization services, users of the instrument should be present throughout these services; otherwise, they will miss important operational, maintenance and safety information.

**GV1000 X-Ray Diffraction System
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1. If you have questions or problems in providing anything described as a Customer Responsibilities above, please contact your local Agilent or partner support/service organization for assistance prior to delivery. In addition, Agilent and/or it's partners reserve the right to reschedule the installation dependent upon the readiness of your laboratory.
2. Should your site not be ready for whatever reasons, please contact Agilent as soon as possible to re-arrange any services that have been purchased.
3. Other optional services such as additional training, operational qualification (OQ) and consultation for user-specific applications may also be provided at the time of installation when ordered with the system, but should be contracted separately.

Important Customer Web Links

- How to get information on your product? - <http://www.agilent.com/chem/xrd>
- Need to know more? - customer Education – <http://www.agilent.com/chem/education>
- Need help? - <http://www.chem.agilent.com/en-US/Technical-Support/Pages/default.aspx>

NOTE: Please use your local call centers when contacting us for any Sales & Service related questions quoting your system type and serial number.

Site Preparation Completion

Date completed _____

Customer signature _____

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Dimensions and Weight

Identify the laboratory space before your system arrives based on the table below.

Pay special attention to the **total height and total weight requirements for all system components you have ordered**. Also pay special attention to the total weight of the modules you have ordered to ensure your laboratory floor can support this weight.

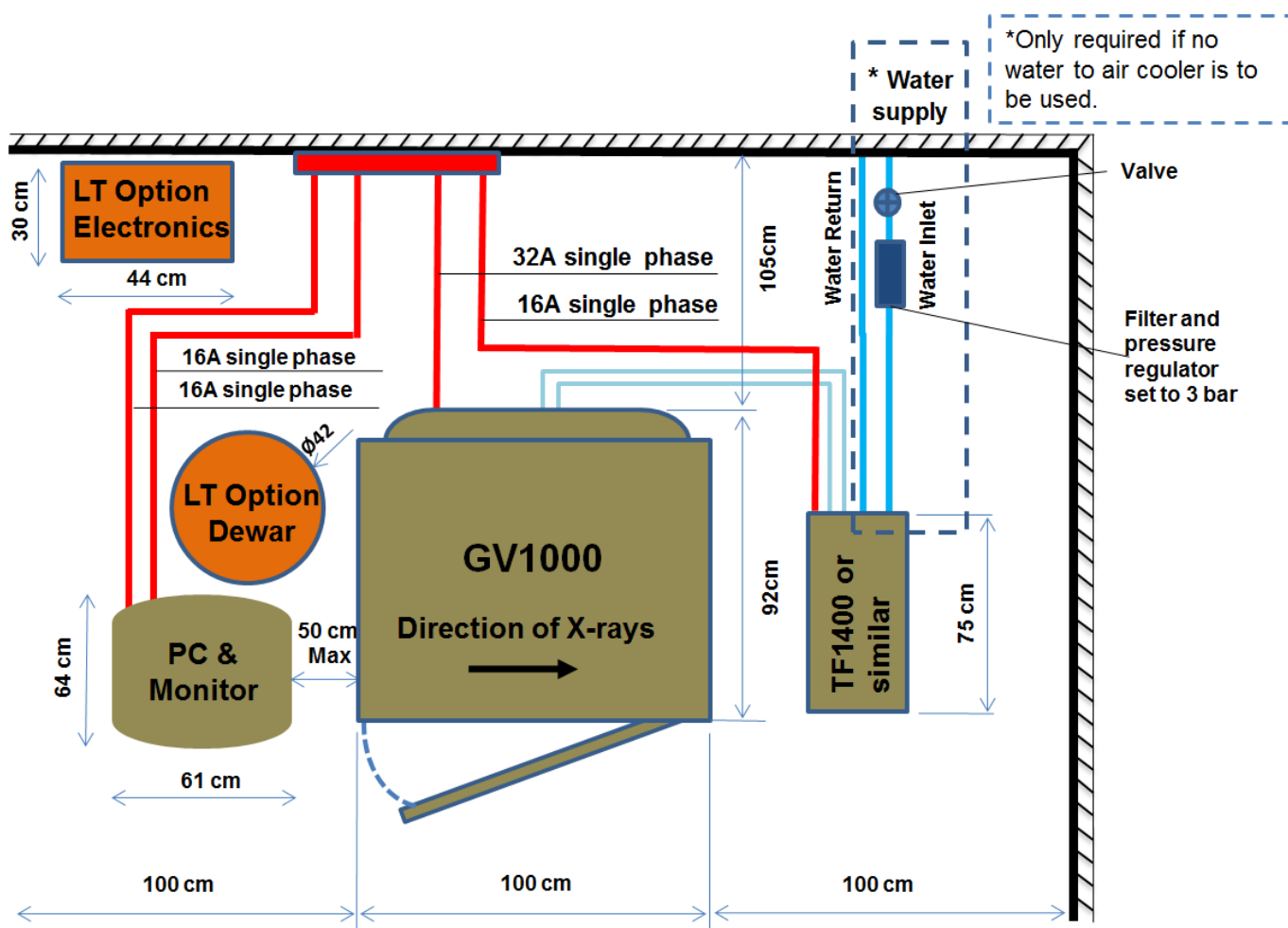


Fig1. GV1000 suggested layout.

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Special Notes

1. Able to bear the system weight of about 500kg over an area of 0.64m².
2. Floor should be flat and horizontal within a tolerance of 3mm.
3. Ceiling should be minimum 2.2m high.
4. Unpacked, the largest subassembly will fit through a door aperture of 90 cm. Check the door aperture to ensure the system can be assembled in its designated area (Tab.1)
5. Packed largest box will fit through door and elevator aperture of 125cm. Check the door and elevator size in areas where boxes will be storage or transport (Tab.2)
6. Allow at least 100 cm clearance between Diffractometer and wall.
7. Adequate space is required around the system for servicing. The minimum clearance from the walls and a suggested system layout are shown in Fig.1 drawing.
8. For third party chiller an extra space of footprint 70 cm x 50 cm is required close to the system.
9. When the low temperature option is fitted an extra 100 cm space on the left-hand side of the system is required.
10. An engine hoist or several people should be available to help with assembly.
11. Table should be provided for PC and monitor if not ordered from Agilent.
11. If temperature controllers ordered table for controllers should be provided.

Tab.1 Largest system components

Instrument Description	Weight		Height		Depth		Width	
	Kg	lbs	cm	in	cm	in	cm	in
Kappa Goniometer	106	234	64	25	47	19	43	17
X-Ray generator	12	26	13	5	42	16	49	19
GV1000 controller	12	26	9	3.5	25	10	49	19
Protection cabinet	120	265	72	28	92	36	100	39
Electronics rack	120	265	103	41	89	35	81	32
Option devices	Weight		Height		Depth		Width	
	Kg	lbs	cm	in	cm	in	cm	in
Helijet Head	10	22	25	10	10	4	30	12
Helijet transfer line	3	7	150	60	6	2,5	250	99
Cryojet Head	15	33	35	14	15	6	15	6
MERCURY ITC	5	11	10	4	30	12	44	17
GFC1	12	27	26	10	38	15	45	18
TF1400	60	132	70	28	36	14	62	25

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Tab.2 System will be shipped with boxes

Approximate Boxed Weights	Weight		Height		Depth		Width	
	Kg	lbs	cm	in	cm	in	cm	in
Goniometer	160	353	90	35	95	37	60	24
Protection cabinet	220	485	100	39	115	61	100	39
Electronics rack	210	463	132	52	103	41	92	36
CCD camera	135	298	115	45	115	45	95	37
Accessories	177	390	90	35	120	47	80	31
X-ray source(s) / Generator /	195	430	95	37	122	48	80	31
Option devices	Weight		Height		Depth		Width	
	Kg	lbs	cm	in	cm	in	cm	in
160L LN2 Dewar	120	265	155	61	70	28	70	28
Cryojet	145	320	190	75	70	28	80	31
Helijet	105	231	100	40	95	37	60	24
Helijet, Transfer Tube	20	44	15	6	170	67	95	37
60L LHe Dewar	100	220	145	57	70	28	70	28



Environmental Conditions

Operating your instrument within the recommended temperature ranges insures optimum instrument performance and lifetime.

Special Notes

1. Performance can be affected by sources of heat & cold e.g. direct sunlight, heating/cooling from air conditioning outlets, drafts and/or vibrations.
2. The site's ambient temperature conditions must be stable for optimum performance.
3. The Relative Humidity is particularly important as the CCD and its cooling pipes can reach ~17°C, condensation should not be allowed to collect on the CCD at any time.
4. Clean location, dust free environment > 2m from air conditioning or heating units.
5. Stability of ambient temperature during operation should be about ± 1 °C.

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Instrument Description	Operating temp range °C (F)	Operating humidity range (%)	Heat Dissipation (BTU)
GV1000	18 - 25 (64 - 77)	20 - 80 without condensation	5000
Helijet Head	18 - 28 (64 - 82)	20 - 80 without condensation	N/A
Cryojet Head	18 - 30 (64 - 86)	30 - 75 without condensation	N/A
Mercury ITC	18 - 30 (64 - 86)	30 - 75 without condensation	342
GFC1	18 - 28 (64 - 82)	20 - 80 without condensation	342

Instrument Description	Storage temp range °C (F)	Storage humidity range (%)	Heat Dissipation (BTU)
GV1000	10 - 40 (50 - 104)	20 - 80 without condensation	None
Option devices (Helijet, Cryojet and etc.)	10 - 40 (50 - 104)	20 - 80 without condensation	None

Cooling water supply line

Note: The external cooling water for the GV1000 system is supplied by a third party chiller. The third party chiller supply pressure must be set to 3 Bar.

Proper liquid should be available to fill the third party external water chiller circuit (according to the chiller supplier's recommendations).

Special Notes

1. If the external chiller is of the type water-to-water, then take care to check Return Line Pressure on closed loop water systems

Min flow rate	Supply Line Pressure	Return Line Pressure	Temperature stability	Temperature range	Composition
1.8 l/min	3 - 5 bar gauge	Maximum of 1 bar	± 5 °C	10 - 20 °C	Filtered, without deposits, chemically neutral and optically clear

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Power Consumption

Special Notes

1. Connectors suitable for the mains outlets must be available when the Agilent Technologies service engineer arrives to carry out the installation. (If local rules require it an Electrician may have to be arranged by the customer to make the connections).
2. Outlets location should be on wall behind the system, (except Computer and PC Monitor supply which should be near intended computer location)..
3. Common Earth should be supplied for all connections <0.5 Ohm.
4. Circuit breaker should be fitted to all outlets.
5. Fit a line voltage regulator if the power supply voltage fluctuates more than $\pm 10\%$.
6. In areas where the electrical power supply is unreliable an 'uninterruptible power supply' (UPS) is recommended. The UPS should have minimum specifications of 3000VA with single phase output.

Instrument Description	Line Voltage (V)	Frequency (Hz)	Fuse Rating (A)
GV1000 (generator, goniometer, interface, water chiller etc.)	1 x single phase outlet 208 - 240 ($\pm 10\%$)	50/60 Hz $\pm 5\%$	1 x 32 Amp
GV1000 (temperature attachments, etc), external chiller, PC, Monitor	5 x single phase outlet 208 - 240 ($\pm 10\%$)	50/60 Hz $\pm 5\%$	5 x 16 Amp



Required Operating Supplies by Customer

Special Notes

1. For information on Agilent consumables, accessories and laboratory operating supplies, please visit <http://www.chem.agilent.com/en-US/Products/consumables/Pages/default.aspx>
2. The distance between the water supply and the chiller is not limited but the supply must deliver 3 - 5 bar gauge pressure with a minimum 1.8 liters/min flow or supply pressure regulator must be fitted and set to 3 bar.
3. The water supply should have a wall mounted shut off valve.
4. A turbo molecular pump, capacity 70 liters/sec is REQUIRED before each use of the Helijet, and must be supplied if not purchased as part of the system.
5. Liquid nitrogen and/or helium should be available during the installation to enable the low temperature attachments to be tested / demonstrated.

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Liquid	Options	Purity	Quantity
Helium	Helijet	99.99%	50L
Nitrogen	Nitrogen powered LTs		Up to 75L

6. If the seismic resistant plate was purchased appropriate mounting should be present to allow attaching seismic plate to the floor. Required holes should be prepared in the floor prior the installation. Bottom view of GV1000 system with seismic resistant plate is shown on the picture below. Seismic resistant plate thickness is 15mm. Mounting holes diameter is 15mm.

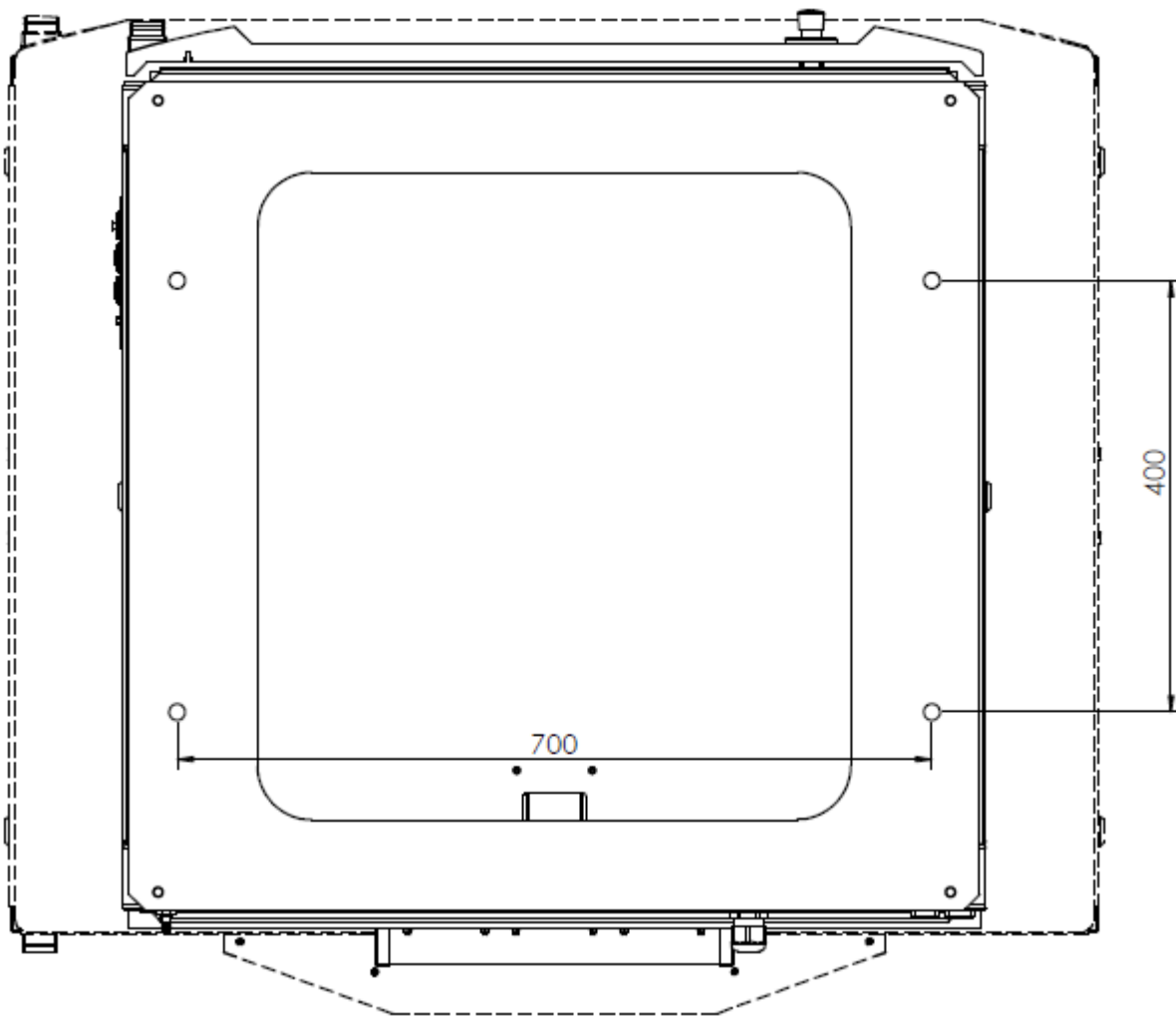


Fig.2 Seismic resistant plate