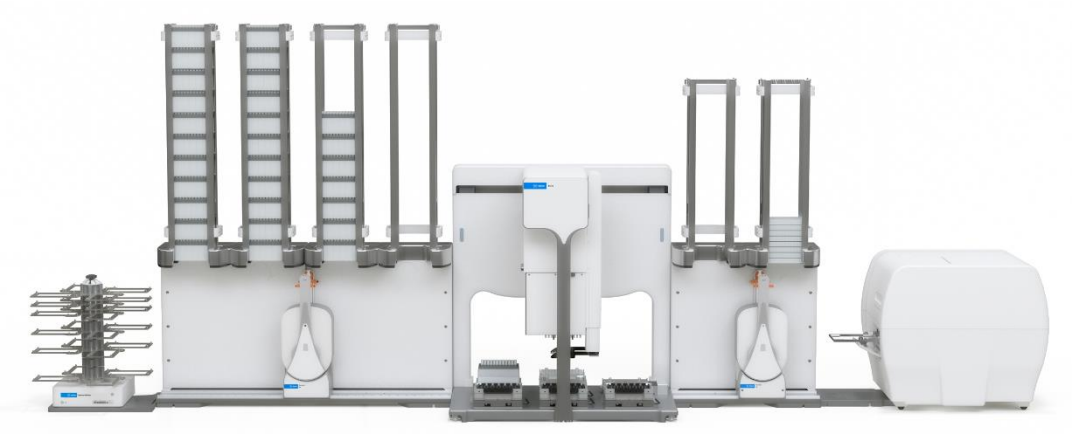
Agilent CrossLab
From Insight to Outcome

Agilent G5578GA, G5579GA Bravo BenchCel DB Workstation

Site Preparation Checklist

Thank you for purchasing an Agilent G5578GA, G5579GA Bravo BenchCel DB Workstation. To get you started and to assure a successful and timely installation, please refer to this 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 an information guide and checklist prepared for you that outlines the supplies, consumables, space, and utility requirements for your equipment.

Introduction

Customer Responsibilities

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

Revision: A.00, Issued: March 2021
Document part number: D0007345

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- ❑ The necessary laboratory or bench space is available.
- ❑ The environmental conditions for the site as well as laboratory gases, plumbing and extraction.
- ❑ The power requirements related to the product (e.g. number and location of electrical outlets).
- ❑ The required operating supplies necessary for the product and installation.
- ❑ 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.
- ❑ Please consult the Special Requirements section for other product-specific information.

Customer Information

1 If you have questions or problems in providing anything described as a Customer Responsibility, please contact your local Agilent or partner support service organization for assistance before the scheduled installation. In addition, Agilent and/or its partners reserve the right to reschedule the installation dependent upon the readiness of your site.

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 extra training, compliance services and consultation for user-specific applications may also be provided at the time of installation. Please discuss with your Agilent Sales representative before the installation is scheduled.

Important Customer Web Links

- ❑ An *Agilent Resource Center* web page is available at https://www.agilent.com/en-us/agilentresources
- ❑ Need technical support, FAQs, supplies? – visit our *Support Home page* at http://www.agilent.com/search/support
- ❑ Get answers. Share insights. Build connections:
  Join the *Agilent Community* at https://community.agilent.com/welcome
- ❑ Agilent automation product web pages: https://www.agilent.com/en/product/automated-liquid-handling
- ❑ BioTek Microplate Reader web page: https://www.biotek.com/products/detection/

Revision: A.00, Issued: March 2021
Document part number: D0007345

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Site Preparation

Dimensions and Weight

Identify the laboratory bench space before your instrument arrives based on the following table.

Pay special attention to the total height and total weight requirements for all system components you have ordered and avoid bench space with overhanging shelves.

***Figure*. Bravo BenchCel DB Workstation dimensions (mm) - front view**

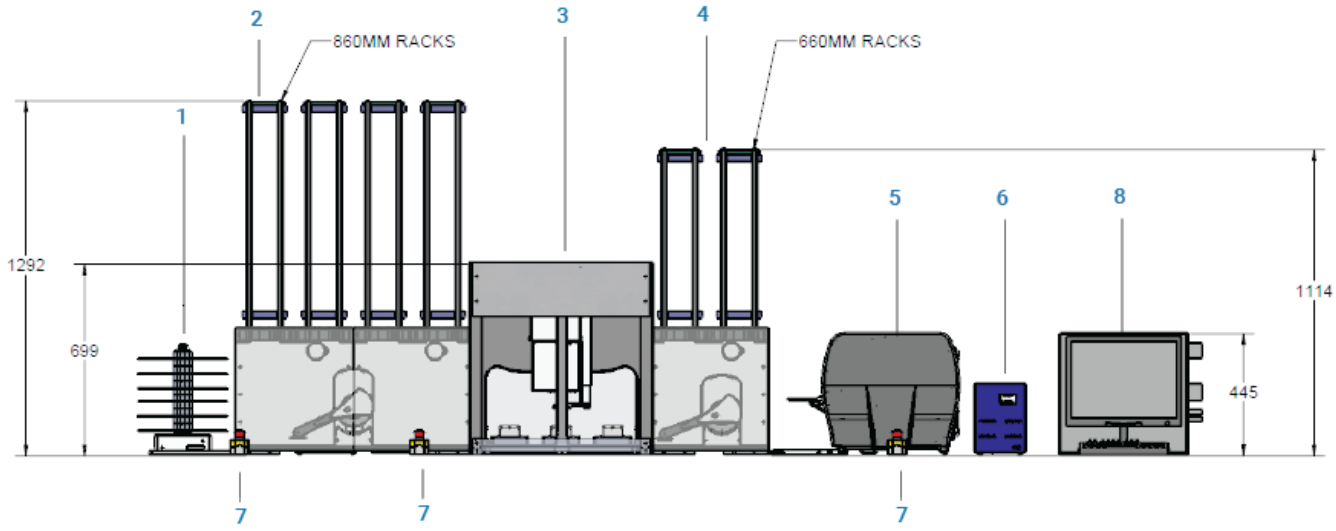
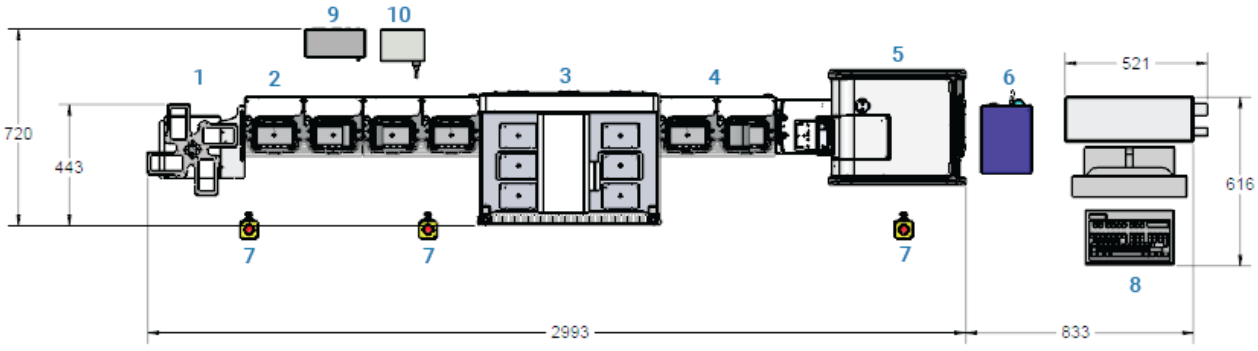


***Figure*. Bravo BenchCel DB Workstation dimensions (mm) - top view**



Instrument Description	Weight		Height		Depth		Width	
	Kg	lbs	cm	in	cm	in	cm	in
Overall workstation total	**166.4**	**366.8**	**129.2**	**50.9**	**72.0**	**28.3**	**382.6**	**150.6**
1. G5584A Labware MiniHub	10.8	23.8	37.8	14.9	38	15	38	15
2. G5580AA BenchCel 4R (860 mm labware racks)	28.1	61.9	129.2	50.9	20.3	8	86.4	34
3. G5563A Bravo Platform with Standard Light Curtain	60.7	133.8	69.7	27.4	52.5	20.7	66.5	26.2
4. G5580AA BenchCel 2R (660 mm labware racks)	21.8	48.1	111.4	43.9	20.3	8	43.2	17
5. BioTek Cytation5 Reader	36.3	80.0	44.5	17.5	51.4	20.2	41.6	16.4
6. MTC Controller	5.8	12.8	26.0	10.24	25.5	10.0	18.5	7.28
7. Emergency-stop pendant	—	—	8.5	3.3	8	3	8	3
8. Computer workstation	2.9	6.4	44.5	17.5	61.6	24.3	52.1	20.5
9. Robot Disable Hub	4	8.8	9	3.5	11.4	4.5	22.5	8.8
10. Ethernet switch	1.5	3.3	3.5	1.4	12	4.7	16	6.3

Note:

- The MTC Controller must be placed within proximity of the Bravo deck to accommodate the reach of the cables to the deck accessories. If possible, ensure the MTC Controller is also near the computer to facilitate operator access.
- If the workstation is on risers, add approximately 14.6 cm to the overall height.

Environmental Conditions

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

Special notes

1 Performance can be affected by sources of heat and cold, for example, direct sunlight, heating or cooling from air conditioning outlets, and drafts.

2 The laboratory's ambient temperature conditions must be stable for optimum performance.

3 The workstation is intended to operate in a low-vibration environment. Excessive vibration may induce pipettor and robot errors.

4 The workstation is for indoor use only. Pollution degree 2. Installation category II.

5 Ensure that your operating temperature and humidity ranges are within the limits of all the instruments in your given workstation.

Instrument Description	Operating Temperature Range °C (F)	Operating Humidity Range %	Heat Dissipation BTU
G5580A BenchCel	5 to 40	20% to 90% RH noncondensing	2047.3 BTU/hour (600W)
G5563A Bravo Platform	4 to 40	10% to 90% RH noncondensing	682.4 BTU/hour (200W)
G5584A Labware MiniHub	5 to 40	20% to 90% RH noncondensing	471.18 BTU/hour (150VA)

Note: For details on the BioTek Cytation5 Reader, see the BioTek documentation.

Power Consumption

Special notes

1 If a computer system is supplied with your instrument, be sure to account for those electrical outlets.

Instrument Description	Line Voltage and Frequency V, Hz	Maximum Power Consumption
G5580A BenchCel 4R	100 - 240 VAC, 50/60 Hz	5 A at 120 V~ 2.5 A at 240 V~
G5580A BenchCel 2R	100 - 240 VAC, 50/60 Hz	5 A at 120 V~ 2.5 A at 240 V~
G5563A Bravo Platform	100 - 240 VAC, 50/60 Hz	300 VA
G5584A Labware MiniHub with power supply	100 - 240 VAC, 50/60 Hz	150 VA
BioTek Cytation5 Reader	100 - 240 VAC, 50/60 Hz	250 W
MTC Controller and Heating Shaking Stations	100 - 240 VAC, 50/60 Hz	650 W
Robot Disable Hub with 3 devices and Light Curtain	100 - 240 VAC, 50/60 Hz	250 mA
Ethernet switch	100 - 240 VAC, 50/60 Hz	–
Computer	100 - 240 VAC, 50/60 Hz	150 W
Bravo Mirrored Barcode Reader	100 - 240 VAC, 50/60 Hz	–

Required Operating Supplies by Customer for Installation

Special notes

1 The following table lists the labware required to verify the workstation installation and to run the protocol.

Item Description (including Dimensions etc.)	Vendor's Part Number (if applicable)	Recommended Quantity
Disposable, 250 µL pipette tips, filtered, sterile (for 96LT Head)		
Agilent brand To order, go to: https://www.agilent.com/en/product/automated-liquid-handling/consumables-for-lab-automation/bravo-lab-disposable-pipette-tips	Agilent 19477-022 (case of 50)	56x tip boxes per 8 sample plate run (7x tip boxes per 1x sample plate)
Or GEB brand	GEB AF250A-9-N	
Reservoir, 300 mL, for buffers, reagents, and waste For Agilent microplates, go to: https://www.agilent.com/en/product/microplates/standard-custom-microplates	Agilent 201244-100 (case of 25)	9x
96-well Greiner microplates, white, 0.3 mL/well	Greiner 650207	9x per 8 sample plate run

IMPORTANT The BenchCel plate-presence sensors cannot detect the dark color of the GEB tip box. If you use the GEB tip boxes, ensure that the tip boxes are oriented in the labware rack so that the tip box label faces the plate-presence sensor in the BenchCel stacker head.

Special Requirements

Compressed Air Requirements

The workstation requires the use of clean, dry, compressed air to move pneumatic components. The compressed air can be from a centralized source (house), compressed-air cylinders, or portable pumps. The air source must meet the following specifications:

Instrument	Flow rate	Pressure
G5580A BenchCel 4R	34.0 Lpm (1.2 cfm)	0.65 to 0.69 MPa (95 to 100 psi)
G5580A BenchCel 2R	34.0 Lpm (1.2 cfm)	0.65 to 0.69 MPa (95 to 100 psi)

Revision: A.00, Issued: March 2021
Document part number: D0007345

CAUTION **Using oil compressors can cause oil to leak into the BenchCel Microplate Handler and void your warranty.**

Air pressure greater than 0.69 MPa (100 psi) can damage the BenchCel Microplate Handler.

Laboratory Table Specifications

- ❑ The laboratory table must support the weight of the workstation devices without excessive shaking or movement. The table should be fixed in place, for example, castors that lock.
- ❑ The table must be level in the direction of the width and the depth of the platform. Using a traditional bubble level, the table should be leveled such that the bubble is centered between the two limit lines of the level
- ❑ The table surface must have a thickness relative to the material that will prevent warping when the workstation devices and computer are set upon the table.
- ❑ The table surface must be attached to the table frame.
- ❑ The table surface must be at least 86 cm (34 in) from the floor to restrict reach-over access above the Light Curtain and shields. Reaching over the Light Curtain and shields can expose operators to moving-parts hazards.

Safety Equipment and Precautions

WARNING **Changing or modifying the safety equipment can prevent the safe operation of the workstation, invalidate its safety compliance, and lead to personal injury or property damage. Any customer who does not use the supplied safety equipment or who modifies the supplied safety equipment assumes full responsibility for providing an appropriate level of safety for its operators and for providing the applicable safety compliance marking and documentation.**

All safety equipment supplied with the workstation will be installed for you. The safety equipment includes shields and a Light Curtain to prevent access to moving-parts hazards. The Robot-Disable Hub provides the emergency-stop function for the integrated devices that are equipped with safety interlock circuitry. The Bravo Platform and BenchCel robots are connected to the Robot-Disable Hub. Pressing the red emergency-stop button on a pendant or interrupting the Light Curtain will stop the motion of these devices.

Ensure that you understand the potential safety hazards and how to avoid them. For details see the provided safety guides and user guides.

Revision: A.00, Issued: March 2021
Document part number: D0007345

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Computer Requirements

If your organization uses a computer other than one configured by Agilent Technologies, make sure the computer meets the minimum requirements:

☐ Computer

- 3.20 GHz, 8 MB cache, processor, 4 cores
- 8 GB DIMM
- 500 GB hard drive capacity (100 GB, minimum)
- HD Graphics
- 1280 x 1924 screen resolution
- Dedicated 10BaseT or faster Ethernet card for connecting to the workstation LAN. The Agilent service representative will ensure that the workstation LAN is connected, and that communication is established with the workstation devices.

NOTE A second network card is required if the controlling computer will be connected to the site LAN. Agilent is not responsible for establishing communication with your site LAN.

- USB ports, 2 minimum
- Serial port, if available

☐ Software

- Windows 10 (64-bit edition)
- VWorks Automation Control software v13.1.6.1422
- Bravo BenchCel DB Workbench software (protocols and associated files)
- Gen5 Microplate Reader and Imager Software 3.10.06
- Browser with JavaScript enabled: Microsoft Internet Explorer 11.0 or Mozilla Firefox 3.0 or later (required for viewing the locally installed VWorks knowledge base)

NOTE The locally installed VWorks context-sensitive help is not compatible with Chromium-based browsers, such as Microsoft Edge or Google Chrome. However, you can use these browsers to view the web version of the VWorks knowledge base.

- A PDF viewer, such as Adobe Reader (required for opening the user guide PDF files)

☐ Database: MySQL 5.7 for labware inventory management

Revision: A.00, Issued: March 2021
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Shipping Container Dimensions and Weight

Ensure all doorways, hallways, floors, and elevators along the pathway to the installation site can accommodate the shipping containers. The following table lists the largest containers.

Instrument and container	Weight		Height		Depth		Width	
	Kg	lbs	cm	in	cm	in	cm	in
G5580AA BenchCel 4R container	94	207	66.7	26	65.9	26	106.7	42
G5580AA BenchCel 2R container	53	117	71.7	28	63.4	25	66.4	26
G5563A Bravo Container	85.1	187	100	40.4	67.1	26.4	87.1	34.3

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