



# System Hosting Specifications for D-Wave Quantum Computers

This document provides the high-level specifications for the Advantage generation of D-Wave™ quantum computers.

- Descriptions of qubit topologies as well as QPU-specific properties are in the online [D-Wave Documentation](#).
- Detailed requirements for a facility that will house a D-Wave system are in *09-1282B D-Wave Quantum Computer Site Requirements*.
- Contact [sales@dwavesys.com](mailto:sales@dwavesys.com) if you'd like to discuss hosting a D-Wave system and explore detailed site requirements.

## Facilities Space

Quantum computer room	6.6 m x 7.6 m x 3.7 m (21.5 ft. x 25 ft. x 12 ft.)
Storage room	2.4 m x 2.4 m x 3 m (8 ft. x 8 ft. x 10 ft.)
Staging area	6.1 m x 6.1 m x 3.6 m (20 ft. x 20 ft. x 12 ft.)

## Quantum Computer Physical Specifications

Length	3.5 m (11.5 ft.)
Width	2.1 m (7 ft.)
Height	3.0 m (10 ft.)
Mass	3900 kg (8600 lb.)

## Environmental Requirements

Operating Temperature	20 to 25 °C (68 to 77 °F)
Rate of change	1 °C (1.8 °F) in 15 minutes (max.)
Humidity	5 to 80% RH (noncondensing)
Pressure	65 to 106 kPa (9.4 to 15.4 psi)
Altitude	0 to 2300 m (7500 ft.)
Max. building vibration	50 µm/s
Ambient magnetic field	100 µT (max.)

## Consumable Materials

Gases	Nitrogen gas grade 4.8 (99.998%) Helium gas grade 5.0 (99.999%) Usage: ~1 T-size cylinder/gas/year
Cryogenics	Liquid nitrogen Usage: ~6 L/day (1.6 US gal/day)

## Networking Requirements

Physical connections	Fiber-based Ethernet (SFP+, 1 Gbps)
Internet connection	Two dedicated ISP connections with a min. bandwidth 500 Mbps, with a /28 block of public IPv4 addresses
Cloud provider connection	L1 fiber (e.g., AWS direct connect) with a min. bandwidth of 1 Gbps

## Quantum Computer Electrical Requirements

Average power	12.5 kW
Rating	208 V, 60 Hz, 60 A (standard) 230/400 V, 50 Hz, 32 A (international)

## Facilities Cooling Requirements

Coolant	15 kW (4.3 refrigeration tons)
Max. water pressure	6 bar (88 psi)
Min. temp.	15 °C at 9.4 L/min (2.5 gpm at 50 °F)
Max. temp.	25 °C at 20.5 L/min (5.4 gpm at 77 °F)
HVAC	5 kW (17,000 BTU/h) normal mode 12.5 kW (43,000 BTU/h) aux. mode

## Customer Roles

Program Manager	Ensures that all customer obligations are continuously met
Facilities Manager	Responsible for operation and maintenance of site and supply services
IT Manager	Responsible for operation and maintenance of IT infrastructure
Maintenance Agent	Responsible for specific D-Wave system tasks
System Administrator	Setup and management of D-Wave system users and accounts
Customer Technical Support Manager	Provides customer technical support

**Note:** The required duties for each role are typically a fraction of a full-time equivalent; qualified individuals may fulfill multiple roles.

## Regulatory Compliance

US	UL 62368-1, FCC Part 15 Part B Class A
Canada	CSA C22.2 No. 62368-1 Industry Canada ICES-003 Class A
Europe	CE

**Note:** The system is designed to be installed in a Restricted Access Location as defined by UL/CSA 60950 and EN 62368.