

(PRELIMINARY VERSION)



**ATO LAB
FACILITY GUIDE
REV. C**



3D Lab Customer Support
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About document

This document includes the overall facility requirements that will be needed to have a successful installation of ATO Lab system. This guide provides the most important information on selecting a location, peripherals and the installation of ATO Lab .



ATO LAB - ROOM REQUIREMENTS

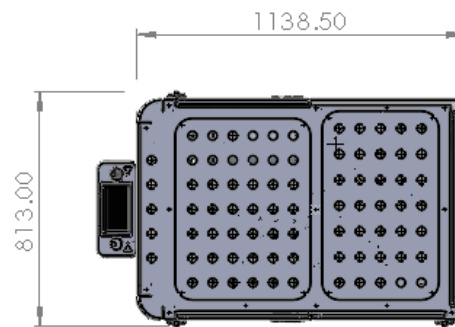
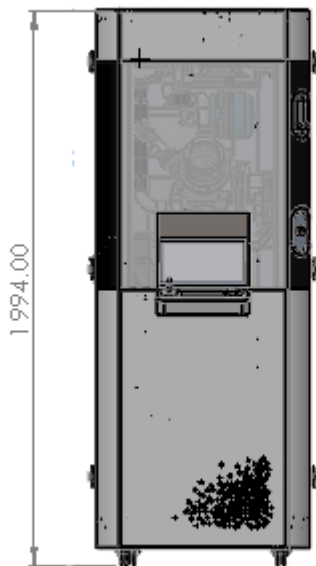
Space Planning

Crated and uncrated dimensions and weight

Crate dimensions and weight

Physical Dimensions:

- Weight: 700 [kg]
- Dimensions (H x W x D): 1994 x 813 x 1138.50 [mm]



Unit Portability

Device is equipped with caster-type rollers and stopping feet.

Network Interface

The room should be equipped with an Ethernet socket.

- Network cable - CAT 6

Air quality systems

Oxygen Monitor

For safety reasons when you are working with argon, you should install the oxygen room monitor.

Air quality sensor

We recommended to install a basic air quality sensor in the room.



Electrical Requirements

The ATO Lab is designed to be connected to power directly from the facility's power circuit to the machine's input power.

Facility power circuit requirements:

- Operating voltage: 400 VAC/3-phase,
- Frequency: 50/60 Hz,
- Nominal Current: 20 [A]
- Peak Current: 25 [A]
- Circuit protection: 32 [A]

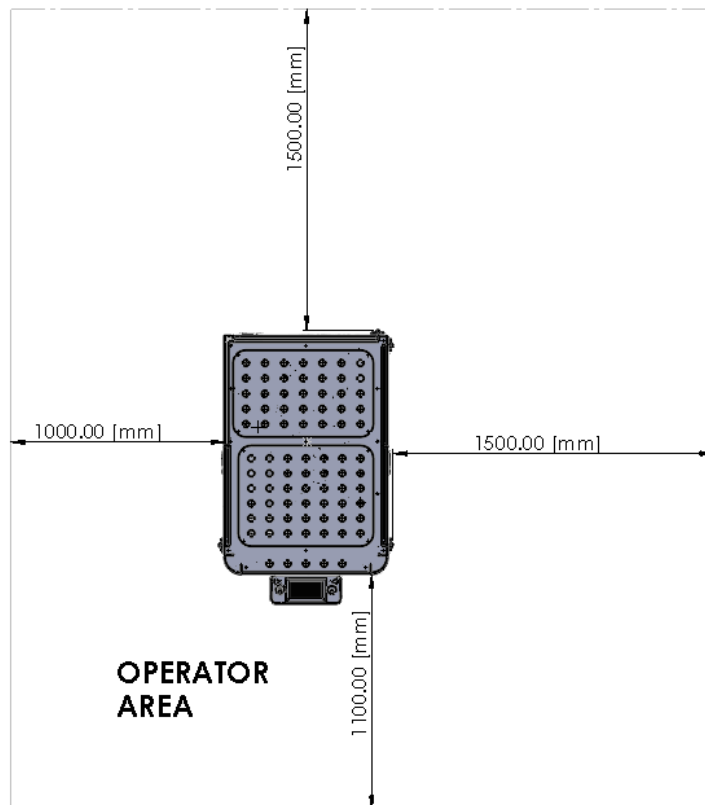
If the facility does not have 400 VAC, 3-phase, 50/60 Hz, 20 kVA power, a customer-supplied step-up or step-down transformer is required.



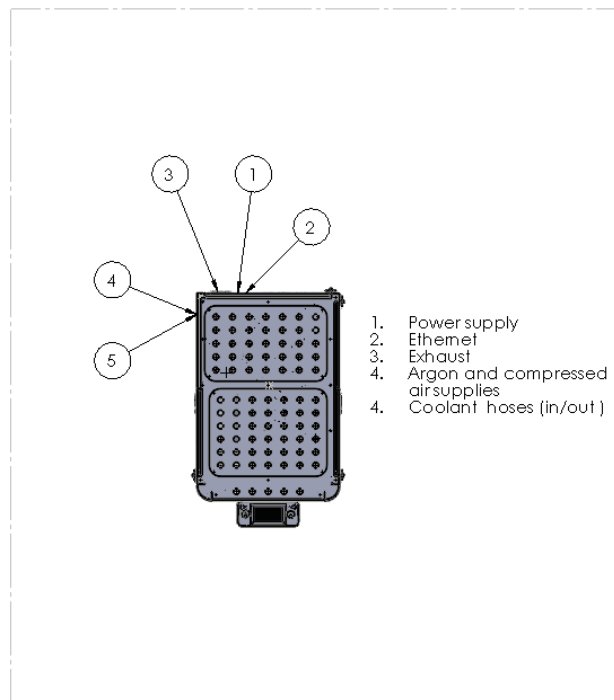
ATO LAB Operator Area

The requirements for optimal use of the device are following:

At least 150 cm of unobstructed floor space is recommended behind and on right side of the device. It is also recommended 110 cm floor space in front of the ATO and 100 cm on the left side.



ATO LAB peripherals



Shielding gas supply – Argon

Argon Gas

- Supply pressure – 5 bar
- Quality: 5.0 or better
- Connection: pressure line with a diameter of 10 mm
- Line from Argon supply to ATO Lab - supplied by customer.

Gas consumption:

- Purgation: 450 [l]
- Process: 25 [l/min]



System cooling

Compressed air supply

Compressed air

- Supply pressure – 8 [bar]
- Air preparation station, oil free
- Flow: 450l/min
- Connection: pressure line with a diameter of 10 [mm]
- Line from compressed air supply to ATO Lab - supplied by customer.

Chiller

Cooling Water supplied from chiller.

Main chiller parameters:

- Minimum cooling capacity: 8000 [W]
- Recommended cooling capacity 10 000 [W]
- Temperature range: 5 to 20 [°C]
- Temperature stability: ± 2 [°C]



Powder recycling system

We recommend a sieving system with a set of different sieves. The first stage of sieving should be done using a 100 µm sieve. The next sizes of sieves depend on the costumers needs.

Waste cleaning

A ATEX-certified industrial vacuum cleaner is necessary to operate the ATO Lab.



Process chamber cleaning

Ultrasonic cleaner

Main cleaner parameters:

- Minimum chamber dimensions (H x W x D): 1000 x 600 x 400 [mm]
- Ultrasonic frequency: 40 [kHz]
- Generator power: 2000 - 3000 [W]
- Heaters power: 8000 [W]
- Water filling valve and drain valve.
- Cleaning: water and cleaning chemical agent.

Optional:

- Filtration system



Personal protective equipment

Gloves

Wear disposable nitrile gloves when handling powders. Dispose of the gloves when the powder handling operation is complete. Do not operate switches or use door handles or other fixtures while still wearing the gloves in order to prevent cross contamination.

Clothing

When working in areas where reactive metal condensates are present, use fire-retardant special fabric, rendered conductive, trousers without turn-ups, closed pockets.

Safety Masks

Wear disposable dust mask that is rated N99 (FFP3) or equivalent level protection.

Safety Goggles

Wear close fitting safety goggles or a full face mask when handling powder. In case of emergency, use an eye shower to remove any particles from the eye(s).

Safety Shoes

The use of safety shoes is mandatory in any area where heavy items are handled. This includes powder vessels, building

