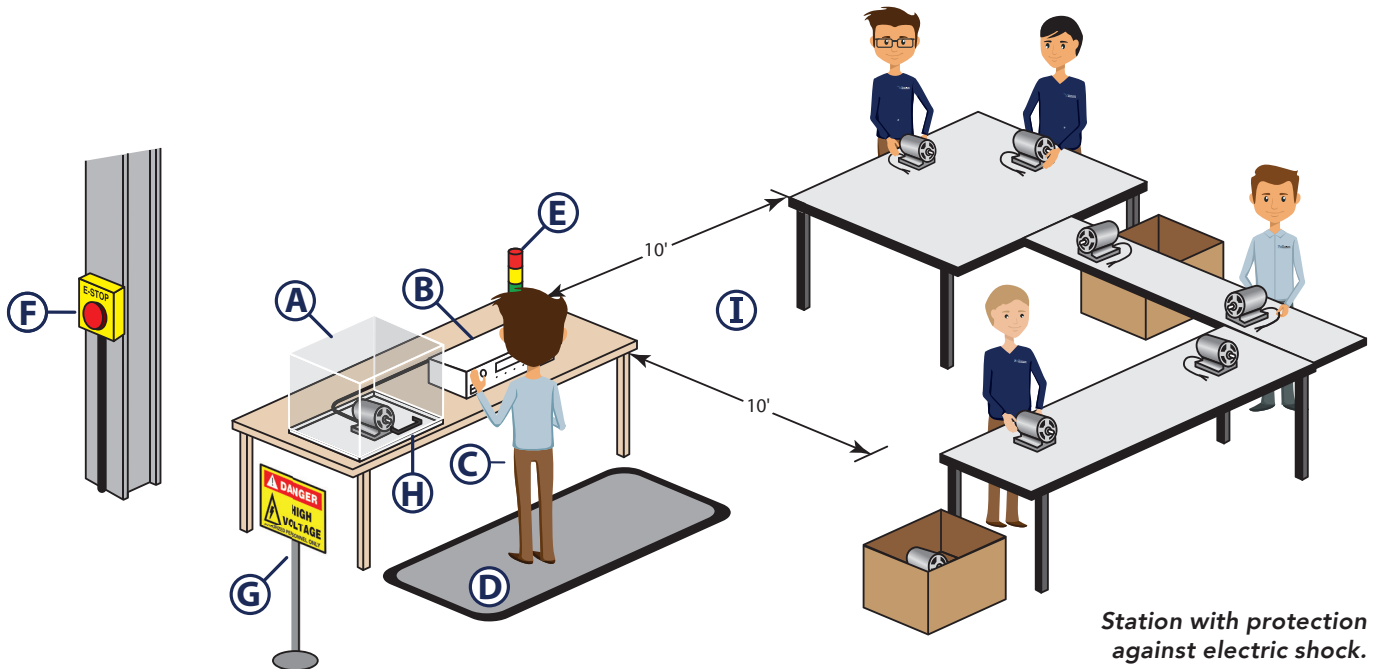
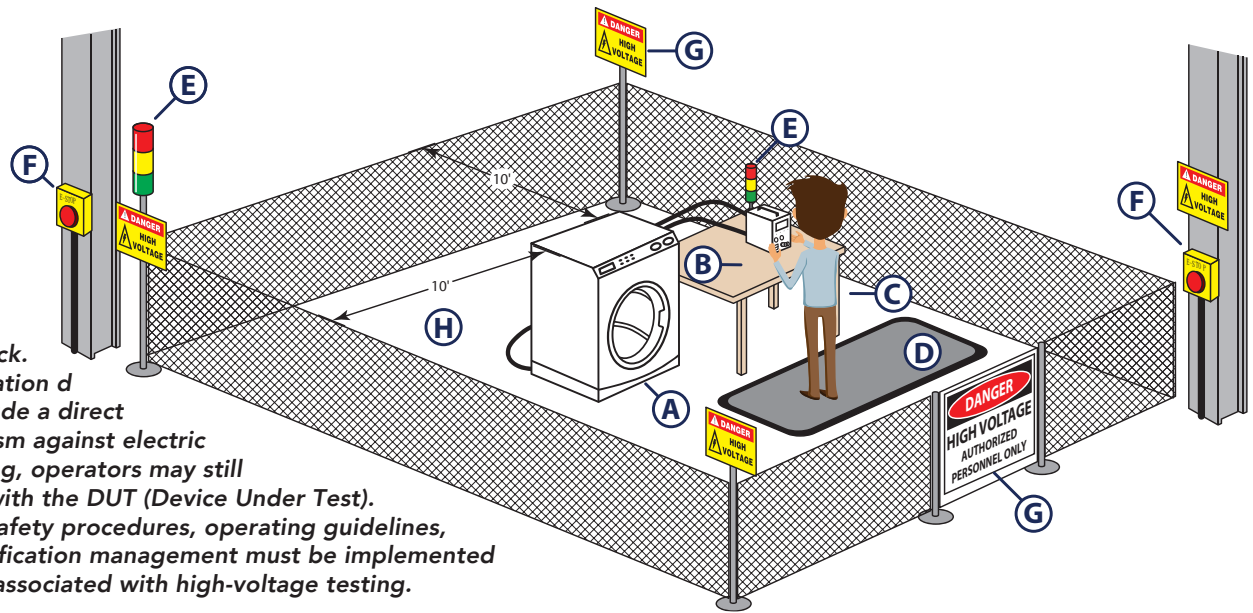


Setting Up A Safe Testing Workstation

A safe testing workstation helps protect test personnel and reduce operational risks. Depending on the testing requirements and application, the workstation can be equipped with direct protective devices or use a design without direct protection. This allows efficient operation while meeting different levels of safety requirements.



Description	
A	DUT Safety Enclosure - The DUT test enclosure is connected to the hipot tester through an interlock function, preventing personnel from contacting the DUT during testing. If the safety door is opened, the hipot tester immediately shuts off the high-voltage output, reducing the risks of high-voltage testing.
B	Hipot Instrument – Performs testing on the Device Under Test (DUT).
C	Test Operator
D	High Voltage Insulation Mat – Provides electrical insulation between the operator and the ground, serving as an additional safety measure when operating high-voltage equipment to reduce the risk of electric shock.
E	Signal Tower Light – Provides real-time information on the safety status of the testing area. When the green light is on, the hipot tester is not outputting high voltage, and the testing area is safe to enter. When the red light is on, the hipot tester is performing a high-voltage test, and personnel must not enter or approach the testing area.
F	Emergency Stop Button – Emergency stop buttons are installed around the testing area. In the event of an abnormal or emergency situation, personnel can press an emergency stop button—even from outside the testing area—to immediately disconnect power to the entire testing workstation. This quickly stops the testing process and reduces safety risks.
G	Warning Signs – Clear and highly visible safety warning signs should be posted around the testing area, such as "Danger – High-Voltage Testing Area" and "Authorized Personnel Only." These warning signs help prevent unauthorized personnel from entering the testing area and reduce potential safety risks.
H	Non-Conductive Work Bench – When operating high-voltage test equipment, a workbench made of non-conductive materials, such as plastic or wood, should be used. A non-conductive workbench provides additional insulation from the ground, reducing the risk of stray leakage current passing through the operator during testing and improving overall testing safety.
I	According to the requirements of the National Electrical Code (NEC) and the National Fire Protection Association (NFPA), unauthorized or unqualified personnel must not approach exposed energized circuits. A minimum safety distance of 10 feet (approximately 3 meters) should be maintained from such circuits.



Station without direct protection against electric shock. This type of workstation design does not include a direct protection mechanism against electric shock. During testing, operators may still come into contact with the DUT (Device Under Test). Therefore, proper safety procedures, operating guidelines, and personnel qualification management must be implemented to reduce the risks associated with high-voltage testing.

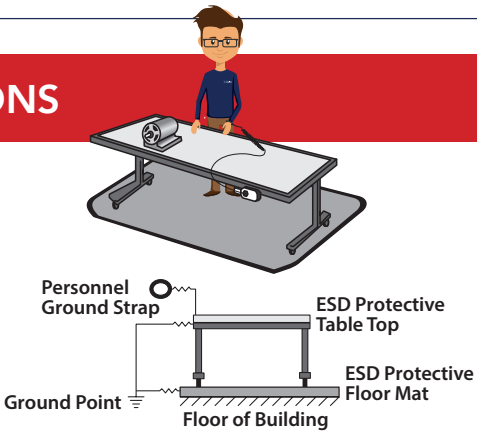
Description	
A	DUT - Due to the large size of this DUT, it cannot be placed inside a product safety isolation enclosure. Therefore, other appropriate safety protection measures must be implemented to ensure the safety of the testing station.
B	Hipot Instrument - Performs testing on the Device Under Test (DUT).
C	Test Operator
D	High Voltage Insulation Mat - Provides electrical insulation between the operator and the ground, serving as an additional safety measure when operating high-voltage equipment to reduce the risk of electric shock.
E	Signal Tower Light - Provides real-time information on the safety status of the testing area. When the green light is on, the hipot tester is not outputting high voltage, and the testing area is safe to enter. When the red light is on, the hipot tester is performing a high-voltage test, and personnel must not enter or approach the testing area.
F	Emergency Stop Button - Emergency stop buttons are installed around the testing area. In the event of an abnormal or emergency situation, personnel can press an emergency stop button—even from outside the testing area—to immediately disconnect power to the entire testing workstation. This quickly stops the testing process and reduces safety risks.
G	Warning Signs - Clear and highly visible safety warning signs should be posted around the testing area, such as "Danger — High-Voltage Testing Area" and "Authorized Personnel Only." These warning signs help prevent unauthorized personnel from entering the testing area and reduce potential safety risks.
H	Due to the large size of the DUT, a product safety enclosure cannot be used. Therefore, the testing area is physically isolated with a mesh fence to restrict access by unauthorized personnel and prevent them from approaching the test station. According to the requirements of the National Electrical Code (NEC) and the National Fire Protection Association (NFPA), unqualified personnel are not permitted to enter the restricted area within 10 feet (approximately 3 meters) of exposed energized circuits. *See NFPA 70E Table 130.2(C)

IMPORTANT INFORMATION REGARDING ESD STATIONS

WARNING

ESD (Electrostatic Discharge) protection measures are designed to prevent electronic components or equipment from being damaged by static electricity. They are not intended to protect operators from high-voltage electrical hazards. ESD systems typically use grounding methods to connect operators to earth ground in order to discharge static electricity from the human body. However, during high-voltage testing, this type of grounding may increase the risk of electric shock and could result in serious injury or fatal accidents.

Therefore, when the operating voltage exceeds 250 VAC, ESD protection procedures should not be applied. A dedicated test environment must be established in accordance with high-voltage testing safety requirements.



Additional Methods for Test Safety

In some cases, a roped-off test area or a DUT enclosure may not be available. When necessary, other methods can be used to protect operators:

Dual Palm Remote Switches

The two-hand control switch design ensures that operators must use both hands to operate two separate switches simultaneously and keep both switches activated during the test process. This helps reduce the risk of personnel coming into contact with hazardous voltages. The two palm switches should be installed with a minimum distance of 21.6 inches (550 mm) between them to prevent operators from activating both switches with one hand.



SAFETY FIRST!

This design prevents operators from directly contacting the DUT during testing. Operators must keep both hands on the test activation switches to maintain two-hand control and reduce high-voltage risks.

Safety Probes

During testing, safety probes with an extension function should be used to maintain a safe operating distance while making contact with the DUT. The push button on the probe extends the conductive tip to contact the DUT, reducing the risk of operators directly approaching high-voltage test points.

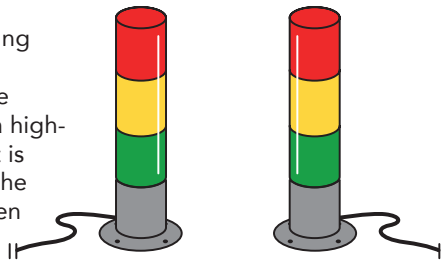


SAFETY FIRST!

This design requires operators to hold the extension safety probe during testing, preventing direct contact with the DUT or test equipment and reducing the risk of high-voltage electrical hazards.

Signal Tower Lights

This status indicator light shows the operating status of the test equipment. When testing is in progress, the red light turns on to indicate that the hipot tester is performing a high-voltage test. When the test is completed successfully or the hipot tester is idle, the green light turns on.

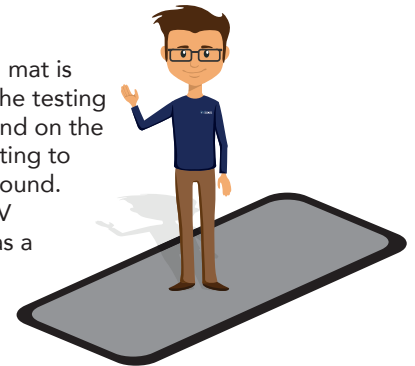


SAFETY FIRST!

The status indicator lights provide real-time test status information and indicate whether the hipot tester is outputting high voltage, improving testing safety.

Insulation Mats

A high-voltage insulating mat is installed on the floor of the testing area. Operators must stand on the insulating mat during testing to provide isolation from ground. The mat is rated for 20 kV withstand voltage and has a size of 3 ft × 3 ft (approximately 914 mm × 914 mm).



SAFETY FIRST!

The insulating mat provides isolation between operators and ground during testing, reducing the risk of electric shock caused by electrical faults or accidental contact.

ALWAYS REMEMBER

- Survey the test station. Make sure it is safe & orderly.
- Always keep unqualified/unauthorized personnel away from the test area.
- Familiarize yourself with safety protocols in the event of a problem.
- Exercise caution and never touch products or connections during a test.
- Train operators. Never touch clips directly & always connect the return lead first.
- You should always know when a test is being performed.