

# AUTOMATED SAFETY TEST HiPOT Fixture

## HiPOT—safety testing at high voltage:

An electrical safety test is applied to products, that need to comply with the Low Voltage directive (DIRECTIVE 2014/35/EU). For this purpose a HiPOT test is used to validate Ground connection, Insulation resistance and Dielectric voltage withstand.

The mechanical and electrical design and also the manufacturing of the test system, must be according to relevant regulatory requirements, CE certification and safety components.

This also includes the fixturing of the PCBA / EOL unit and contacting of high voltage/current including safety (both for the Device Under Test, and also the operator), shielding and inter-cabling.

## Platform:

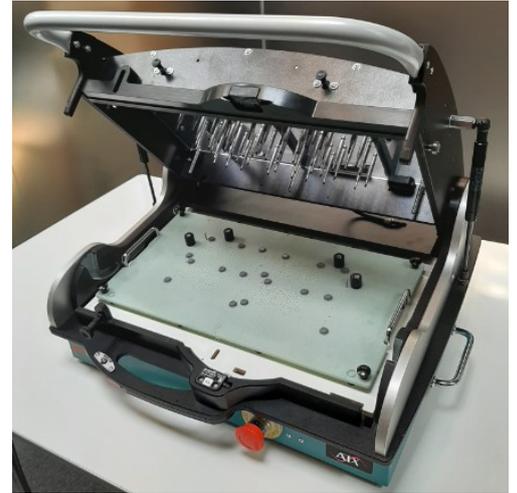
In this application a pneumatic fixture platform with an exchangeable cassette was preferred, so the production easily and fast can change test operation from one product to another, and use the same platform / setup.

DSE has modified a suitable standard fixture-kit as the mechanical base for interface/contacting to the Device Under Test. The modified design includes below safety features.

## Key safety design features:

Since +1000V is applied to the Device Under Test, several safety design must be added:

- ◆ The testprobes must be placed, so the distance and materials can withstand the applied test voltage (including a safety factor).
- ◆ The design of the interface connection between the fixture and the exchangeable cassette must also withstand the applied test voltage and prevent leakage current.
- ◆ The moving plate of the fixture must be insulated material, not ESD.
- ◆ A safety relay is added to switch off the power, when the lid is open.
- ◆ A safety switch is added to lock the fixture lid during test.
- ◆ A loop back to the HiPOT tester instrument interlock function is made to switch off Power, in case of "failure" or emergency.
- ◆ The fixture mechanical design is chosen / modified, so the operator can not physically touch / contact the Device Under Test.



**Henrik Frost, Senior Test Engineer, Danfoss:**

***"We have been working with DSE for 20 years, and they have a very deep knowledge about our products and test platforms.***

***We know DSE competencies within automated test, and it was very convenient for us to use DSE competencies and resources in this HiPOT fixture project. Based on our test specifications DSE made a presentation for a solution, and we are very pleased with the process and the result of the HiPOT test fixture."***



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