

## Specifications for safety testing

Insofar as they apply to the installation/machine supplied, performance of the following tests is mandatory:

1. Initial electrical testing in accordance with VDE 0113-1 (DIN EN ISO 60204) and VDE 0100-600
  - ➔ A detailed list of the measurements to be taken is given in the annex.
  
2. Initial inspection and initial testing of electro-sensitive protective equipment in accordance with DIN EN 62046 / VDE 0113-211 / Order on Operating Safety (BetrSichV)
  - ➔ Stopping performance is to be measured in accordance with DIN EN ISO 13855.
  
3. Checking of ESD capability in accordance with DIN EN ISO 61340-5-1
  - ➔ The discharge resistances of setting-down surfaces and the field strengths of individual insulators are to be measured
  
4. Testing of the closing force of power-operated guards in accordance with DIN EN ISO 14120
  - ➔ The actual closing force is to be measured.

All measurements are to be taken by a person qualified to perform the corresponding test.

Use is to be made of measuring instruments that comply with the applicable standards.

All tests are to be documented with the corresponding measured values and submitted to ebm-papst on acceptance of the installation/machine.

If the installation/machine is fully or partially disassembled for transportation, renewed testing (item 1) must be performed at the assembly location.

## Annex to item 1

The measurement protocol to be supplied must list all the measurements performed (measurement points), as well as the reference point for each measurement.

The following measurements are to be performed:

1. Low-resistance measurement (protective earth resistance, equipotential bonding) in accordance with VDE 0113-1/18.2.2  
Test current: min.10 A
2. Insulation resistance measurement in accordance with VDE 0113-1/18.3  
Measurements are to be taken on all the conductors of the main circuit.
3. Voltage measurement (HV) in accordance with VDE 0113-1/18.4  
Measurements are to be taken on all the conductors of the main circuit.  
Assemblies and devices not designed to withstand this test, and overvoltage protectors that would probably be triggered during measurement were disconnected before the test.  
Assemblies and devices subjected to voltage testing on the basis of the applicable product standards can be disconnected during the test.
4. Leakage current measurement  
Measurement method: Measurement of current difference between phase and neutral conductors.  
True RMS measurement.  
In the case of measured values  $\geq 10$  mA TRMS, a connection is to be provided for additional equipotential bonding on or in the switch cabinet.
5. Ground fault loop impedance and system impedance measurement in accordance with VDE 0100-600  
Measurements are to be taken on all protected current paths of the main circuit. At the connection furthest away in each case.  
The reference value of the connection point during the measurement is also to be documented.
6. Residual voltage measurement in accordance with VDE 0113-1/6.2.4  
If a hazardous residual voltage still remains after the corresponding decay time, this is to be clearly marked on the switch cabinet.
7. RCD measurement in accordance with VDE 0100-600  
Measurements are to be taken with the corresponding tripping currents depending on the type of RCD.

The ebm-papst Mulfingen internal test log is appended  
to this document. It can be used as a specimen log.  
Usage is not obligatory!