

PV_GP_04

Permitted live working according to DIN VDE 0105 - 100

Scope of application

Electrical test stations (workplaces)

1. Scope of application

Inspection of electrical machines according to VDE 0113-1 and VDE 0105-100

2. Hazards to people and electrical installations



- Electric shock from touching live parts
- Risk of burns from electric arc
- Secondary accidents
- Risk of fire

3. Protective measures and rules of conduct



- These are based on VDE 0113-1 (EN 60204-1) and VDE 0105-100.
- VDE 0104 (Erection and operation of electrical test equipment) must also be followed in the inspection.
- Tests may only be conducted by competent persons as defined by TRBS 1203 who have a written order to do so.
- Examinations are prescribed at intervals determined in the risk assessments.
- Documentation shall be established by the "ELEKTROmanager" software or using the inspection protocol *PC_GP_06 VDE 0113-1 inspection protocol*.
- Before the inspection, measurement instruments including the test equipment must be checked for damage and correct calibration.
- Select measurement instruments according to the measurement category as defined by IEC 61010-1. Preferably use CAT IV measurement instruments, and pay attention to the voltage.

4. Conduct in case of irregularities



- In the event of risks before or during work, the superior and/or the work supervisor must be informed.
- The work supervisor is entitled and required to stop or suspend works
- Upon suspension of works, the work site must be secured

5. Conduct in the event of accidents



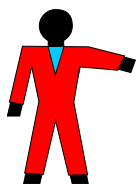
Employees must be trained in first aid (including heart-lung reanimation) and in the rules of conduct and measures in case of electrical accidents.
Disconnect the installation and rescue the injured! Secure accident site, first aid



Emergency number: 110 security centre
112 internal fire service
113 company physician
Emergency number from mobiles: 06131-66-1610

Issue/revised:	1	2					Page:	1 from 4
Date:	08.2011	01.2012					Valid from:	
Prepared/modified:	MEBEDO RB	SMT-1/Schk						
Approved:								

6. Inspections by the work supervisor



- Prior to commencing work, the workstation, the condition of the installation and the apparatus used must be inspected for proper condition.
- Damaged apparatus must be discarded, and measurement instruments must be tested for suitability.
- If more than one person is working at a workstation, the work supervisor shall release the workstation following instruction.
- **The procedures in the diagram in Annex 1 must be followed!**

7. Workflow and safety measures

Procedure for testing machines:

Visual check

- The electrical components (e.g. sensors, actuators, conductors, cable glands, equipment in control cabinet) must be inspected for proper condition.
- Check whether the equipment used can withstand influences at the place of use

Establish the protective measures applied

- Establish the required inspection steps.
Note: Inspection steps a), b) and f) must always be conducted!
For periodic inspections, the insulation inspection must be conducted in segments. Equipment which does not withstand the measurement voltage must first be disconnected.

Inspection steps

- **Inspection a) Documentation**
Check that the electrical apparatus corresponds to the technical documentation (wiring diagrams, instructions for use and operating manual etc.)
- **Inspection b) protection by automatic switch off (RCD)**
Inspection 1 → Checking of the conductivity of the protective conductor system
Limit value generation in consideration of conductor material, cross-section and lengths. A measuring current of at least 0.2 A to approx. 10 A must be taken from a power supply of 24 V AC or DC. The inspection must be conducted between the PE clamp and various points which are part of the protective conductor system.
Inspection 2 → Checking the impedance of the fault loops and the suitability of the assigned overload protective elements by measurement or numerical determination
- **Inspection c) Insulation resistance**
Insulation resistance inspection between the conductors of the main circuit and the protective conductor system at least 1 MΩ with a measurement voltage of 500 V DC. Attention! Disconnect overload protection devices before measuring or reduce the measurement voltage to below the response level of the device.
- **Inspection d) (only for initial inspection) Voltage test**
Maximum test voltage: 1000 V or twice the value of the measurement voltage, whichever value is higher. Measurements are taken between the conductors of the main circuit and the protective conductor system for approx. 1 second. There must not be any disruptive discharge. Components and devices which are not suitable for this test voltage, or which are being tested according to their product standard, must be disconnected before measurement. → A test panel according to VDE 0104 must be established!
- **Inspection e) Protection against residual voltage**
After switching the device power supply off on a fixed connection, the live parts must be discharged to 60 V (or lower) within 5 seconds (after 1 second when removing the plug). Measures (marking, notice, covering etc.) must be applied by the manufacturer/installer at the relevant points.

7. Workflow and safety measures

Issue/revised:	1	2					Page:	2 from 4
Date:	08.2011	01.2012					Valid from:	
Prepared/modified:	MEBEDO RB	SMT-1/Schk						
Approved:								

- **Inspection f) Functional test**
Safety-related functions (e.g. emergency off/stop, alarm and display units, measures against unintentional startup) must be tested.

Inspection steps a), b) and f) must always be conducted!

If an inspection step (c), d) or e)) cannot be conducted for technical reasons, it may be skipped. This must, however, be justified in the inspection protocol. If possible, an alternative measurement procedure must be used in order to guarantee safety otherwise.

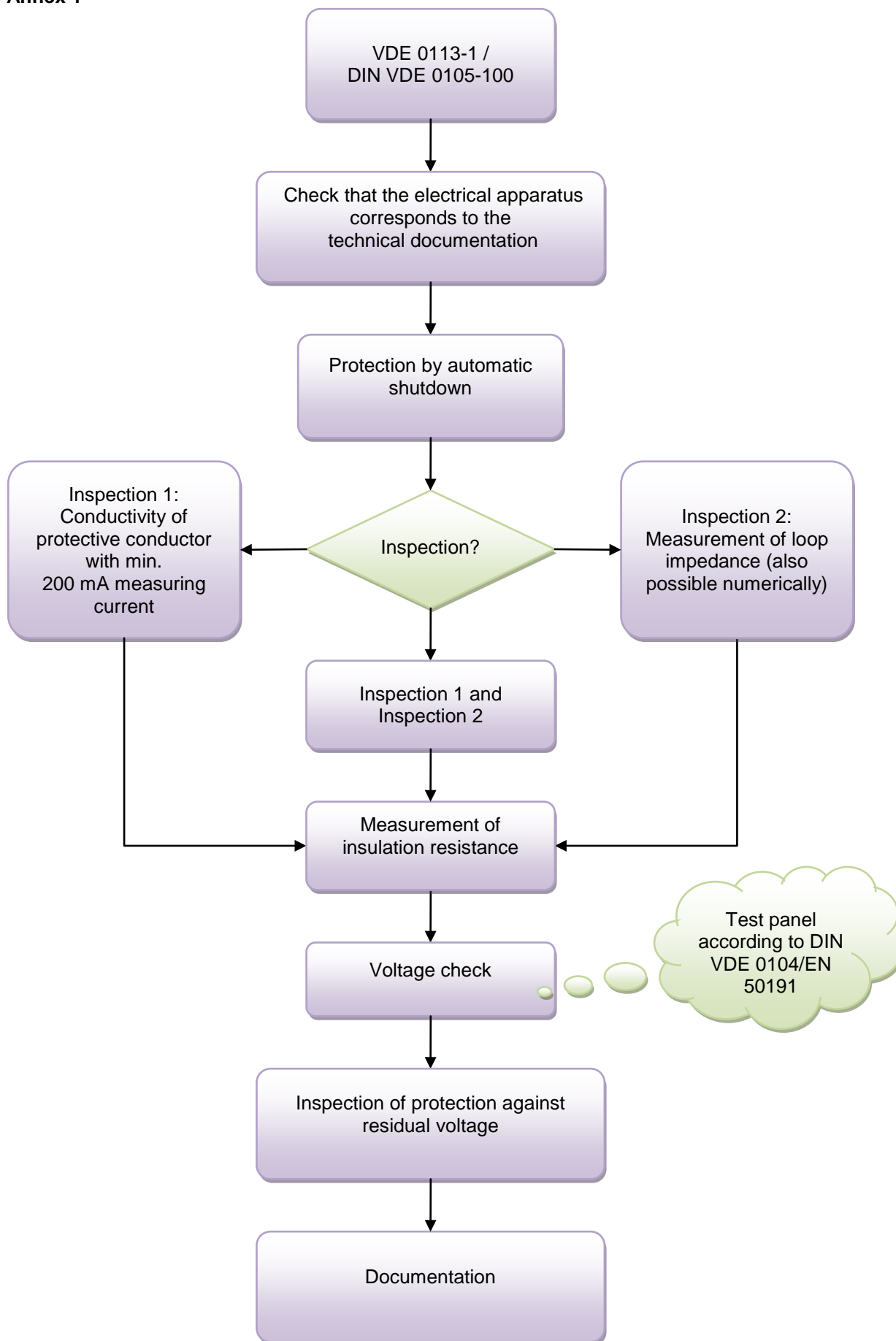
Example: The insulation resistance was not measured for technical reasons. The differential current was measured instead.

8. Completing works

- Restore proper and safe condition of the installation.
- Clear the work site.
- Inspect and clean equipment and tools.

Issue/revised:	1	2					Page:	3 from 4
Date:	08.2011	01.2012					Valid from:	
Prepared/modified:	MEBEDO RB	SMT-1/Schk						
Approved:								

Annex 1



Issue/revised:	1	2					Page:	4 from 4
Date:	08.2011	01.2012					Valid from:	
Prepared/modified:	MEBEDO RB	SMT-1/Schk						
Approved:								