



# TA 2300-0001

Technical Instruction

## Employee protection



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## 1 General

### 1.1 Employer's duties

Employers are required to assume responsibility for the safety and health of employees in all aspects of their work. Employers have to take any measures required to protect life, health and standards, including measures to prevent work-related dangers, to provide information and instruction and to provide a suitable organisation and the required resources.

First and foremost, companies contracted to carry out work must comply with all applicable country-specific regulations.

### 1.2 Employee's duties

Employees are legally required to apply the measures to protect life, health and standards as laid down in statutory legislation and official regulations and in accordance with their training and their employer's instructions. They have to behave in such a way that avoids causing danger wherever possible.

### 1.3 Safety of machines and associated electrical equipment

After proper assembly/installation and completion of commissioning, INNIO Jenbacher GmbH & Co OG machines and the associated electrical equipment comply with all applicable EU directives and therefore European safety and health requirements (Machinery, Electro-Magnetic Compatibility and Low-Voltage Directives).

## 2 Specialist field - electrical engineering

### 2.1 Definition of terms

#### Electrical specialist

The electrical specialist must (and can) recognise potential dangers and take responsibility for assessing the work given to him/her.

- Technical qualification achieved by successful completion of a specialist training course (e.g. electrical engineer, master electrician, qualified electrician).
  - Similarly, several years of work experience - on-the-job-training - in a particular field of electrical engineering can impart the required knowledge and skills, and form the basis for qualification as a skilled electrician for limited ranges of tasks (e.g. staff who repair plants and carry out minor modifications).
- Special knowledge in the field of "electrical plants based on block heating/power station technology using gas combustion engines".
- Knowledge of the applicable electrical engineering regulations and employee protection regulations ( e.g. EN 50110-1 + EN 50110-2-x, BGV A3, ÖVE/ÖNORM E 8001-1, VDE 0100-410, HD 60364-4-41, IEC 60364-4-41, ÖVE/ÖNORM E 8001-6-61, VDE 0100-600, HD 60364 6, IEC 60364-6).

**A person instructed in electrical engineering** is someone who has been instructed and if necessary trained by an electrical specialist for the tasks allotted to him/her and on the potential dangers arising from incorrect behaviour, as well as in terms of the protective measures required.

A person instructed in electrical engineering is **not** allowed to assemble, alter or maintain electrical plant and equipment **on his/her own**. This may only be done under the direction and supervision of an electrical specialist.

#### Operation of electrical plants

Covers all activities (**operating and working**) on and in electrical plants, as well as on and with electrical equipment.

#### Working on electrical plants

This includes the **manufacture, assembly**, modification, maintenance and repair of electrical plants and equipment (also, for example, clearing faults).

#### Operating electrical plants and equipment

In principle this can be any work performed on setting, switching and controlling devices (e.g. switching a power switch, replacing a plug fuse).

#### EN 50110-1 + EN 50110-2-x Operation of electrical installations:

This standard covers the operation of and all work on, with or in the vicinity of electrical installations. This includes electrical installations of all voltage levels from low voltage to high voltage.

#### Initial commissioning

An electrical plant may only be started up for the first time when a test has proved that the equipment conforms, electrically and mechanically, to the safety requirements specified in

- accident prevention regulations, and
- electrical engineering rules.

meet the specified safety requirements. The same applies to restarting after a repair (in particular, testing the measures to protect against accidental contact).

### Employee protection regulations

As the terms are generally understood, **national provisions** (laws and orders) and accident prevention regulations issued, for example, by professional associations, are deemed to be employee protection regulations.

The legal status of an **accident prevention regulation** must be inferred from the law or from the individual regulations (e.g. BGV A3 is legally binding in Germany).

### Electrical engineering rules/provisions

This is "generally" accepted engineering practice contained, for example, in the IEC, CENELEC EN, CENACLE HD VDE, and ÖVE provisions (accepted = the majority of the experts are convinced of their correctness). Legislators and regulators **refer** to the "**(Generally) recognised rules of the trade**" and their legal status therefore follows from this.

<b>ÖVE</b>	Austrian Electrotechnical Association
<b>VDE</b>	German Association for Electrical, Electronic & Information Technologies
<b>CENELEC</b>	European Committee for Electrotechnical Standardisation
<b>IEC</b>	International Electrotechnical Commission

## 2.2 Spheres of activity and required qualifications

### Work on electrical plants

Exclusively by **electrical specialists**

or carried out under their **direction** and **supervision**

- Limited in space and time, direction and supervision relate to a clear-cut task or a defined job (it must not mean in every case that the electrical specialist is required to be permanently "on site"). The electrical specialist's "responsibility for direction and supervision" covers, in particular:
  - Induction (introduction, training)
  - Instructing about possible dangers and safe behaviour (as well as regular or continuous supervision)
  - Introduction and employment of some supervisory staff to whom, after relevant instruction by the electrical specialist, supervisory duties can be assigned to assist the electrical specialist.
  - Monitoring to ensure that the work is carried out properly.

### Operating electrical plants and equipment

- These duties must be carried out by a person who is at least **instructed in electrical engineering**.
  - For the following examples, an employee must be at least qualified as an instructed person:
  - Cleaning electrical plants
  - Working close to electrically live parts
  - Determining zero voltage
  - Activation of final control elements which are required for the safety or functioning of an electrical plant or electrical equipment.

### Initial commissioning

- Must be carried out by an **electrical specialist**

## 2.3 Complying and dealing with necessary technical informational materials

### 2.3.1 Information materials

In our **case**, the general term "informational materials" includes

#### General provisions for employee protection.

- Laws and statutory regulations

#### Accident prevention regulations, such as

- Electrical plant and equipment (**BGV A3**) - Germany
- Operation of electrical high-voltage plant, basic regulations **EN 50110-1 + EN 50110-2-x**

#### Electrical engineering provisions

"Generally accepted engineering practice" (e.g. IEC, CENELEC EN, CENELEC HD and VDE regulations or standards) covers, for example, the following subjects:

- Assembly of electrical high-power plant with nominal voltage up to 1000V and = 1500V
  - Definitions and protection against hazardous shock currents, ÖVE/ÖNORM E 8001-1
  - Electrical equipment, ÖVE EN 1 Part 2, ÖVE/ÖNORM E 8001-2-x
  - Quality and use of wiring and cables, ÖVE-EN 1 part 3, ÖVE/ÖNORM E 8001-3-41
- Electrical high-voltage plant and emergency power supply in structural works for communal facilities, ÖVE/ÖNORM E 8002-x, VDE 0100-718
- Electrical high-power plant in hospitals and in premises used for medical purposes outside hospitals, ÖVE EN 7, VDE 0100-710
- Assembly of electrical high-power plant with nominal voltages up to 1000 V - DIN-VDE 0100
  - Protective measures - Group 400 (part 410, 470)
  - Selection and assembly of electrical equipment - Group 500
  - Tests - Group 600 (part 600 - initial tests)
- Low-voltage switchgear and control gear assemblies - type-tested and partially type-tested assemblies, EN / IEC 60439-1
- Safety of machinery - Electrical equipment of machines - General Requirements, EN / IEC 60204-1
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### 2.3.2 Hand-over and handling (duty to instruct)

#### Information materials

- To be **handed over** to **foremen** and other **supervisors** as well as other people who work under their own responsibility.
- **Other employees** who work on electrical equipment or electrical plants must be given the opportunity to **read** these materials (e.g. by creating a reading area or posting them on notice boards). The workforce must be informed of the rules and operating regulations applicable to their work and have them explained, and make it their duty to follow them. This must be repeated at suitable intervals as dictated by the operational conditions. People who only work temporarily in and on plants, or are only involved in specific jobs, must be informed of the dangers and the protective measures associated with these jobs and warned to be careful.

For all work as defined in the provision on the "Operation of electrical high-power plant", a suitable person who is familiar with the necessary safety measures must be appointed as the person immediately responsible.

If you adhere to the "generally accepted engineering practice" it is unlikely that you will give the appearance of having acted negligently. You are therefore strongly urged to follow the "generally accepted engineering practice".

### 2.3.3 Sources of information

- Laws or electrical engineering laws and statutory regulations arising from them
- Professional organisations ➔ Accident prevention regulations VBG 4
- Trade associations (or committees) ➔ ÖVE or VDE rules
- Standards institutes, e.g. DIN and ÖNORM
- European Committee for Electrotechnical Standardisation ( CENELEC ) EN Standards, HD (Harmonisation Documents)
- International Electrotechnical Commission (IEC) ➔ IEC publications (international standard).

## 2.4 Concluding explanatory note

The contents of the above sections are based on current Austrian and German regulations. Basically, this section provides a path which, if converted into appropriate action, achieves a sufficiently high level of safety in terms of protecting human life and equipment. All those companies or operatives engaged in the setting up or installation of the above systems, who are subject to legislation other than that of Austria, must of course act strictly in accordance with the regulations by which they are bound. The above guidelines are intended, above all, to focus attention on the basic issues and call on those in executive positions to take considered action.

The subject of "commissioning" is only dealt with at a basic level, because the commissioning of INNIO Jenbacher GmbH & Co OG combined power/heat systems or electrical power generation systems demands more extensive and specialised training. INNIO Jenbacher GmbH & Co OG does not consider technical training in electrical engineering alone to be sufficient for this task.

## 3 Revision code

### Revision history

Index	Date	Description / Revision summary	Expert Auditor
2	30.04.2019	GE durch INNIO ersetzt / GE replaced by INNIO	<b>Stojiljkovic T.</b> <i>Pichler R.</i>
1	26.05.2010	Umstellung auf CMS / Change to <b>C</b> ontent <b>M</b> anagement <b>S</b> ystem ersetzt / replaced Index: <b>b</b>	<b>Provin</b> <i>Pichler</i>

