

Electrical safety guidelines

Topics

- Electrical accidents
- Operating instructions
- Administering first-aid after an electrical accident

Electrical accidents



The improper use of electrical power or equipment can lead to serious accidents. The general causes include:

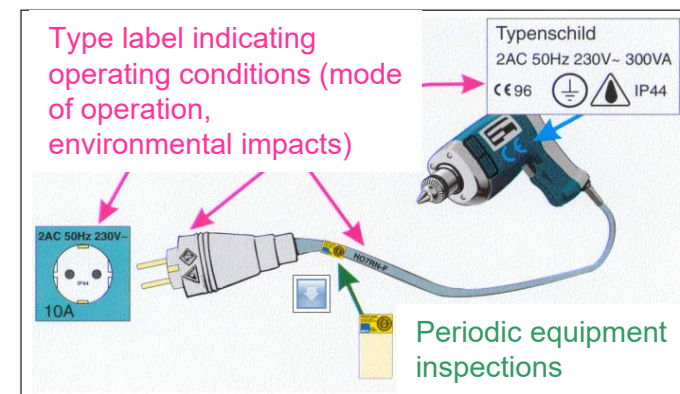
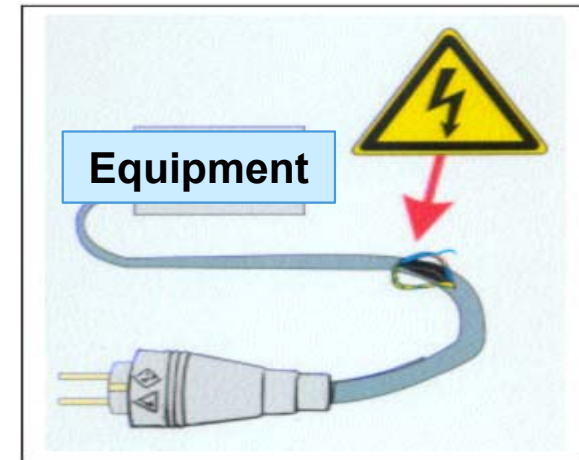
- Electrical shock to the body
- Electrical arcs
- Collateral risks (falling from ladders)
- 230 volt systems, which can lead to serious or even fatal injuries

A few examples of the potential risks include skin burns, flash burns of the eye, cardiac arrhythmia or even cardiac arrest.

Operating instructions

The following points must be kept in mind when handling electrical systems and equipment:

1. Prior to use, ensure the equipment or system is in proper working order. This means checking the power cable, plug and enclosure for damage.
2. Defective electrical equipment may not be used and must be immediately handed over to RBG/ administrator for repair or inspection.
3. Devices may not be used if they fail to meet operational and local safety requirements with respect to mode of operation and environmental impacts.



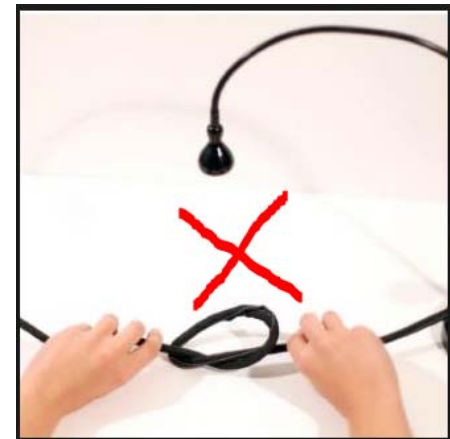
Operating instructions

4. Use only the switch and final control element that is designed for normal operation of the equipment.
5. Always grab the plug itself and **never the cable**.
6. Caution: loose cables can lead to the risk of tripping. Always lay cables so as not to interfere with foot traffic.
7. Never use equipment that is wet, or use it in wet conditions or with wet hands.
8. When power interruptions occur, turn off all electrical systems and equipment. Protective covers may never be opened or removed and may be serviced by qualified electrical specialists only.
9. Training, experiment and test stations that require removal of the protective covers for the equipment, and which operate with more than 50V AC or 120V DC, must be equipped with an emergency stop switch and a residual current circuit breaker with a nominal residual current of $\leq 30\text{mA}$.



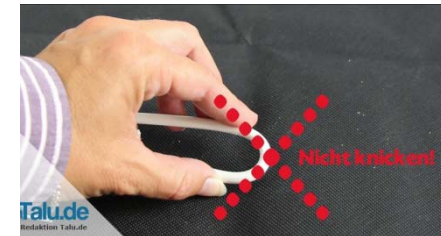
Operating instructions

- 10. The use of equipment adapters between normal electrical and explosion-proof installations is not permitted.
- 11. Heed the operating instructions for each electrical device.
- 12. Keep power cables from becoming knotted.
- 13. Never overload multiple socket outlets and extension cords.
- 14. Never connect multiple socket outlets together.



Operating instructions

15. Never place or squeeze electrical power cords onto sharp edges or moving parts, or into corners.



16. When using or carrying a power supply, refrain from sharply bending the insulated end of the cable.



17. Pay close attention to defective wires, faulty insulation and damaged enclosures, and heed the inspection timeframes.

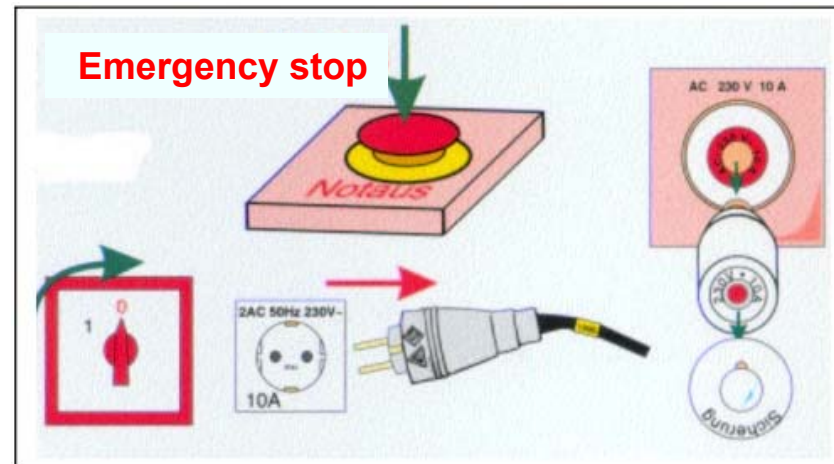
18. Immediately bring defects to the attention of the administrator, RBG (computer services group) or Caverion, and then warn coworkers.

19. Dispose of defective equipment if it cannot be repaired.



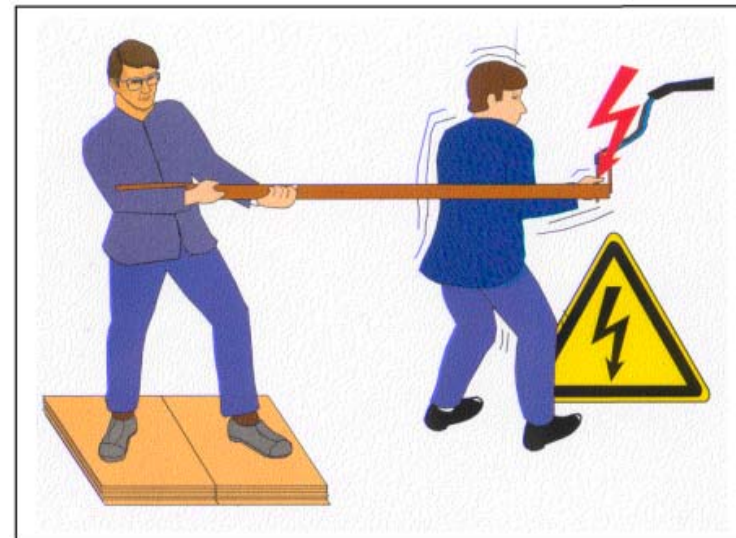
Administering first-aid after an electrical accident

- Contact with live components can be **life-threatening!**
- Interrupt the electrical circuit by:
 - 1) Powering off
 - 2) Pulling the power plug
 - 3) Removing the fuse



Administering first-aid after an electrical accident

- **If these immediate measures cannot be carried out:**
 - 1) Insulate yourself by standing on a dry surface, clothing or on thick and dry newspaper and **do not come in contact** with the victim.
 - 2) Separate the victim from the live component with a non-conductive object (wood slat) or pull on the victim's clothing.



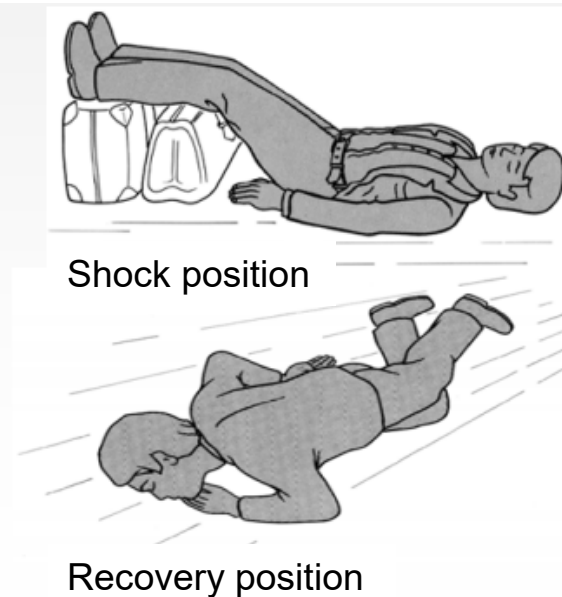
Administering first-aid after an electrical accident

then administer first-aid:

• Conscious?	Yes
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• Conscious?	No
• Breathing?	No

Constantly monitor:
Consciousness, respiration, cardio-vascular system






- Keep the victim calm
- Check if the victim is responsive (monitor respiration and pulse)
- Administer first-aid depending on the injury
- Call emergency medical services or emergency physician: **112** or **089 289 112**

Administer first-aid:

First-aid



<ul style="list-style-type: none">• Conscious? No• Breathing? No• Pulse? Yes	 Mouth-to-mouth resuscitation
<ul style="list-style-type: none">• Conscious? No• Breathing? No• Pulse? No	 Monitor pulse at the artery
<p>If pulse returns, continue resuscitation</p>	 Perform CPR

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Transport the victim with the ambulance and **not with a personal vehicle!**

Points of contact for occupational safety



Person	Contact information
On site:	Supervisor of your organizational unit
Occupational physician in TUM:	Mrs. Dr. Ina Rabe, Mrs. Valeria Maltser +49.89.289.14000, betriebsarzt-garching@tum.de
First aiders in your chair / group	Nektarios Machner (089-289 18162) Aline Schmidt (089-289 17135) Jian Kong (089-289 17110)
Head of occupational safety at TUM:	Dr. Heinz G. Daake 089 289 14688 heinz.daake@mytum.de
Occupational safety representative for the Department CS:	Jian Kong 089 289 17110 Jian.kong@tum.de