

DEHN – Keeping you informed.

1. VDE Regulations for safety equipment and devices

DIN VDE 0680

"Personal protective equipment, protective devices and apparatus for work on electrically energized systems up to 1000 V".

Part 1 "Personnel protective equipment and protective insulating devices"

Part 3 "Operating rods and current collecting devices"

Part 4 "Fuse handles for low-tension HRC-fuses"

Part 6 "Single-pole voltage tester up to 250 V a.c."

Part 7 "Socket spanner"

DIN VDE 0681

"Operating, testing and safe-guarding devices for work on electrically energized systems with rated voltages exceeding 1 kV"

Part 1 "General requirements" for DIN VDE 0681 Parts 2 to 4

Part 2 "Operating rods"

Part 3 "Fuse tongs"

Part 6 "Voltage detectors to be used for overhead contact systems 15 kV, 16 2/3 Hz"

DIN VDE 0682

"Apparatus and equipment for live working"

Part 201 "Hand tools for use up to 1000 V a.c. and 1500 V d.c." (IEC/EN 60900)

Part 211 "Insulating poles (insulating sticks) and universal tool attachments (fittings) for live working" (IEC/EN 60832)

Part 311 "Live working – Gloves of insulating material" (IEC/EN 60903)

Part 312 "Sleeves of insulating material for live working" (IEC/EN 60984)

Part 401 "Live working – Voltage detectors – Part 3: Two-pole low voltage type" (IEC/EN 61243-3)

Part 411 "Live working – Voltage detectors – Part 1: Capacitive type to be used for voltages exceeding 1 kV a.c." (IEC/EN 61243-1)

Part 412 "Live working – Voltage detectors – Part 2: Resistive type to be used for voltages of 1 kV to 36 kV a.c." (IEC/EN 61243-2)

Part 415 "Live working – Voltage detectors – Part 5: Voltage detective systems (VDS)" (IEC/EN 61243-5)

Part 431 "Live working – Portable phase comparators for voltages of 1 kV to 36 kV a.c." (IEC/EN 61481)

Part 511/A1 "Blankets of insulating material for electrical purposes; Amendment 1" (IEC 78/379/CDV:2001)

Part 512/A1 "Matting of insulating materials for electrical purposes; Amendment 1" (IEC 78/378/CDV:2001)

Part 513 "Live working – Flexible conductor covers (line hoses) of insulating material" (IEC/EN 61479)

Part 551 "Rigid protective covers for live working on a.c. installations" (IEC/EN 61229)

Part 552 "Live working – Insulating protective barriers above 1 kV"

Part 603 "Live working – Telescopic sticks and telescopic measuring sticks" (IEC/EN 62193)"

Part 621 "Live working – Suction device for the cleaning of live parts with rated voltages above 1 kV up to 36 kV"

Part 651 "Saddles, pole clamps (stick clamps) and accessories for live working" (IEC/EN 61236)

Part 741 "Aerial devices with insulating boom used for live working exceeding 1 kV a.c." (IEC/EN 61057)

DIN VDE 0683

"Portable equipment for earthing or earthing and short-circuiting"

Part 100 "Live working – Portable equipment for earthing or earthing and short-circuiting" (IEC/EN 61230)

Part 200 "Live working – Earthing or earthing and short-circuiting equipment using lances as a short-circuiting device – Lance earthing" (IEC/EN 61230)

1.1 Supplementary Literature:

"Arbeitsschutz in elektrischen Anlagen" ["Occupational safety in electrical installations"]

Explanations on DIN VDE 0105, 0680, 0681, 0682 and 0683

VDE Series, Volume 48

Dr. P. Hasse, W. Kathrein and H. Kehne
VDE-Verlag GmbH, Berlin-Offenbach, Germany

"Arbeiten unter Spannung (AuS)"

Practical Examples

Dr. P. Hasse, W. Kathrein

WEKA MEDIA GmbH & Co. KG, Kissing, Germany.

2. Abbreviations




2.1 Materials

Abbreviations in catalogue	Material
Al	Aluminium
Cu	Electric copper, copper
St	Steel
StSt	Stainless steel
MCI	Malleable cast iron
ZDC	Zinc die casting
AlMgSi	Aluminium alloy
Ms	Brass
GFP	Glass-fibre-reinforced plastic

2.2 Coating materials

Abbreviations in catalogue	Coating material
gal Sn	Tin-coated
gal Zn	Galvanised
tZn	Hot-dip galvanised
Bronze gal Sn	Bronze, tin-coated

2.3 Symbols

Abbreviations in catalogue	Description
	Fixed ball point
	T pin
	Round / Flat conductor
Light '⚡'	for "Voltage present"
Light '0'	for "No voltage present"

3. Minimum lengths of insulating parts

- 1) Operating rods acc. to DIN VDE 0681
- 2) Voltage detectors acc. to IEC/EN 61243-1 (DIN VDE 0682 Part 411)
- 3) Phase comparators acc. to IEC/EN 61481 (DIN VDE 0682 Part 431)

Nominal voltage U_N *)	Rated voltage U_r	Minimum length of the insulating part		
		1)	$L_{I, min}$ 2)	3)
up to 10 kV	12 kV	500 mm	520 mm	525 mm
20 kV	24 kV	500 mm	520 mm	525 mm
30 kV	36 kV	525 mm	520 mm	525 mm
45 kV	52 kV	720 mm	830 mm	—
60 kV	72.5 kV	900 mm	830 mm	—
110 kV	123 kV	1300 mm	1300 mm	—
150 kV	170 kV	1750 mm	1700 mm	—
220 kV	245 kV	2400 mm	2300 mm	—
380 kV	420 kV	3200 mm	3600 mm	—

*) For nominal voltages exceeding or falling below the preferred nominal voltage values as stated above, a rated voltage shall be applied which is the closest greater than the nominal voltage in question. In borderline cases, the nominal voltage is equal to the rated voltage.

4. Designs

Operating rods and equipment are basically distinguished in the following types:

- **Not for use in wet weather**



For indoor and outdoor installations

For use in indoor installations and outdoors, but not in wet weather.

- **Also for use in wet weather**



For indoor and outdoor installations

For use in indoor installations and outdoors under all weather conditions (even if the operating rod gets wet).

- **For indoor installations only!**

