



VLM



ZLM

APPLICATION

- In low-voltage devices (fuse switches, fuse bases, Insulation disconnecting switches) and busbars for connecting sector multi-wire cable wires, sector solid cables, round multi-wire and round solid cables (VLM) with Allen #6 wrench.
- Direct connection of a wire to the current bar and PEN.
- Creating flexible connections between current bars of the individual phases.
- For connections with high mechanical strength and conductivity (weak heating).

ADVANTAGES

VLM and ZLM terminals are made of cast brass alloy and feature:

- High quality of execution.
- Resistance to current (rated, shorting).
- Mechanical strength, including bending, drawing.
- Very good resistance to increase in temperature.
- High torque VLM-240: 35 Nm, VLM-300: 40 Nm, ZLM-2x300: 40 Nm.
- Resistance to corrosion and wear.

The parameters of brass terminals considerably exceed those of the currently used aluminium terminals.

Lack of reams and shrinkage porosity in the cast and strengthening the surface layer.

MATERIAL

VLM and ZLM terminals are made of cast brass alloy CC 754 S (Mo59) with up to 60% Cu. The terminals are produced with the gravitational flooding method. All the elements of the terminal are covered with tin coat.

DESIGN

VLM and ZLM terminals have been designed on the basis of experience and opinions of the power engineering market.

VLM terminal

The terminal consists of a body designed to transfer larger loads than in case of similar terminals made of aluminium. This result has been obtained with thickening of the lower part of the body and side walls by min. 2 mm each, which allowed for significant increase in resistance to tightening.

The other elements of the terminal are a screw with a socket for Allen #6 wrench and a specially profiled clamp to hold the wire of the cable in the range of:

- VLM-240 - 35-240mm;
- VLM-300 - 70-300 mm.

ZLM terminal

The terminal consists of two brass parts, an M16 threaded rod locked with a cotter pin, two washers and nuts. The bottom part with the threaded rod has perforated surface of the contact with the current bar and PEN to ensure the maximum contact possible.

The upper part of the terminal has two openings profiled for connection of two wires of one phase, in the range of:

- ZLM-2x300 - 2 x 35-300mm.

The design of the terminal enables its installation on a copper current bar at various angles, vertically, horizontally or diagonally. Two terminals may be installed at the same time for a larger number of cables, taking into consideration the long-term current rating.

The design of the terminal allows its installation on a bar of any cross-section. In case of connected bars, in excess of 10 mm, a terminal with a longer threaded rod should be ordered.

Accessories

The following items are available along with the terminals:

- **Type I connector (W1 and W2)** for VLM-240, VLM-300;
- **Type C connector** for VLM-240, VLM-300;
- **Insulation case of the terminal** made of polyamide, in various RAL colours.

GENERAL CHARACTERISTICS AND BASIC TECHNICAL DATA OF TERMINALS

Terminal type	VLM-240	VLM-300	VLM-2x300
Nominal short-term current withstood Iew (kA)	22,2 kA, 1 s.	28,8 kA, 1 s.	28,8 kA, 1 s.
Rated peak withstand current Ipk (kA)	46,6 kA	60,5 kA	60,5 kA
Average terminal temperature	66/125 °C	76 °C	-
During shorting (°C) (W1/W2)			
- sm	50 ÷ 185 mm ²	70 ÷ 240 mm ²	50 ÷ 240 mm ²
- se	50 ÷ 240 mm ²	95 ÷ 300 mm ²	50 ÷ 240 mm ²
- rm*	35 ÷ 96 mm ²	50 ÷ 185 mm ²	35 ÷ 300 mm ²
- re	35 ÷ 120 mm ²	70 ÷ 240 mm ²	50 ÷ 150 mm ²
Terminal screw tightening torque (Nm)	35 Nm	40 Nm	40 Nm
Terminal mass (g)	170 g	195 g	742 g

* DIN 46228/4 end sleeves should be used for multi-wire conductors

COMPLIANCE WITH STANDARDS

- **PN-EN 60947-7-1:2012**
„Low-voltage switchgear and controlgear - Part 7-1: Ancillary equipment - Terminal blocks for copper conductors.”
- **PN-EN 60947-7-2:2012**
„Low-voltage switchgear and controlgear - Part 7-2: Ancillary equipment - Protective conductor terminal blocks for copper conductors.”
- **PN-EN 60999-1:2002**
„Connecting devices - Electrical copper conductors; Safety requirements for screw-type and screwless-type clamping units - Part 1: General requirements and particular requirements for clamping units for conductors 0,2 mm² up to 35 mm² (included).”
- **PN-EN 60999-2:2006**
„Connecting devices - Electrical copper conductors - Safety requirements for screw-type and screwless-type clamping units - Part 2: Particular requirements for clamping units for conductors above 35 mm² up to 300 mm² (included).”