# IPN 120

SA691300





Series of feed-through insulators suitable for use as electrical connection elements between the internal and external parts of equipment. Available in red and black, they differ according to the terminal element used for the electrical connection of conductors, which is a nut.

The insulator consists of two insulating parts, easily interlocked with each other, made of polyester resin or polyamide reinforced with glass fibres and secured by a threaded rod, which also acts as the conductive element between the parts by means of two nuts.

For models up to 80 A, one of the nuts is integral with the threaded rod and is made of brass. For higher currents, the threaded rod and nuts are made of galvanised steel.

The special construction of the insulating parts and the threaded rod allows the conductors (tightened to the rod by means of zinc-plated steel nuts) to be connected and disconnected from either side of the feed-through insulator without the insulator rotating or loosening.

## Technical specifications

| | |
|---|---|
| **Measure** | |
| AC current range | 120 A |
| **Functional characteristics** | |
| Arc resistance | > 180 s - ASTM D-495 |
| Tracking resistance | 3 W/min - ASTM D-2302 |
| Operating voltage | 1000 AC / DC (V) |
| Rated withstand voltage at 50 Hz for 1 min | 6 kV |
| **Operating conditions** | |
| Operating temperature range | -40 ÷ 130 °C |
| **Mechanical features** | |
| Water absorption | < 0,2% - ASTM D-570 |
| **Physical features** | |
| Color | Red RAL-3002 |
| Material class | Self-extinguishing, class V0 (1.6 mm) according to UL-94 standard |
| Material | Galvanized steel |
| **Overall dimensions** | |
| Height (A) | 95 mm |
| **Other dimensions** | |
| Dimension - D | 15 mm |
| Dimension - E | 28 mm |
| Dimension - F | 5 mm |

Vemer S.p.A. declines all responsibility for the use of the products for purposes other than those for which they are intended, as indicated in the technical documentation. Vemer S.p.A. reserves the right to make, without prior notice, such changes as may, in its sole discretion, improve the technical and functional characteristics of the products and the related production logic. The technical characteristics and images of the products indicated are given for information only and are not binding in any way, since they may be modified without prior notice.



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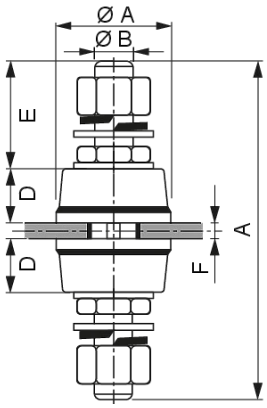
| Diameter dimension | |
|---|---|
| Dimension Ø - A | 30 mm |
| Dimension Ø - B | M10 mm |
| Dimension Ø - C | 4,5 mm |
| Dimension Ø - D | 17.5 mm |

## Dimensions

Total View

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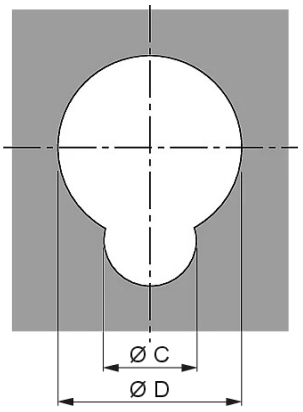


## Product variants

**IPN 025**
SA688900

**IPN 050**
SA689700

**IPN 080**
SA690500

**IPN 200**
SA692100

**IPN 300**
SA693900

**IPN 450**
SA694700

## Reference standards

Compliance with Community Directives:

**• 2014/35/UE (LVD) • 2011/65/UE e 2015/863/UE (ROHS)**

is declared with reference to the following Standards:

**• EN IEC 61439-1 • EN IEC 63000**

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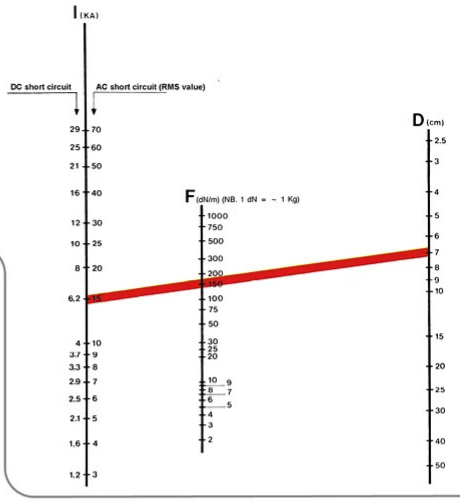
# TECHNICAL GUIDE

## ELECTRODYNAMIC FORCES BETWEEN CONDUCTORS

### Nomogram 1

Determination of force **F** per unit length

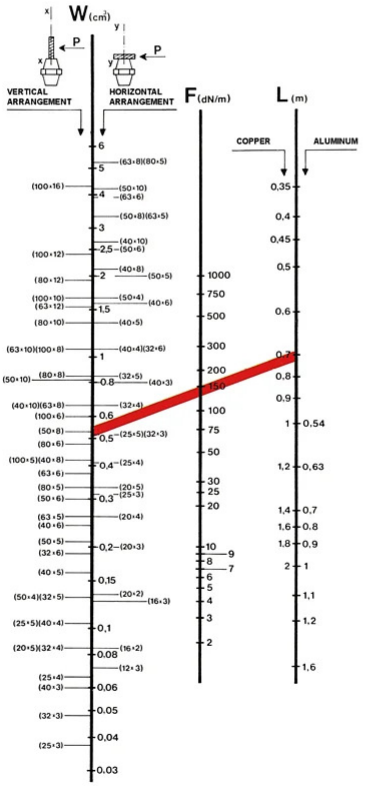
Required data: I = short-circuit current
D = distance between phases
Example: Isc = 15 kA (AC) D = 7 cm
**result obtained from the nomogram: F ≅ 150 daN/m**




### Nomogram 2

Determinaton of distance **L** between supports

Required data: F = force per unit length
(obtained from the previous nomogram)
W = longitudinal and transverse section modulus of the busbars according to X-X oppure Y-Y respectively
(obtainable based on the dimensions and arrangement of the busbar, whether horizontal or vertical)
Example: F ≅ 150 daN/m W = 0,5 cm³
(50 x 8 vertical arrangement)
**result obtained deducibile dal nomogramma: L ≅ 0,7 m**



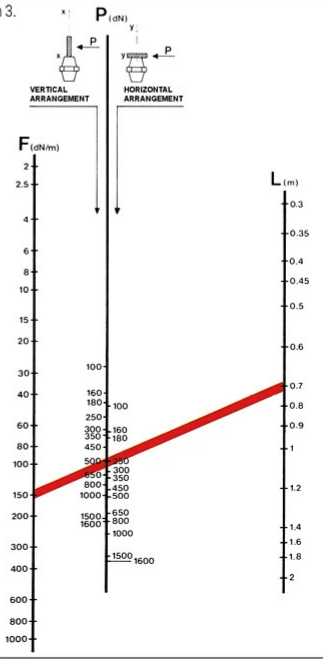

### Nomogram 3

Determination of the minimum cantilever breaking load **P**

Required data: F = force per unit length
L = distance between supports (obtained from the previous nomogram)

Esempio: F ≅ 150 daN/m L ≅ 0,7 m (vertical arrangement)
**result obtained from the nomogram:**
**P ≅ 500 daN**
**(for vertically arranged busbar system)**

Once the value of load P is determined, the suitable insulator can be identified by checking the specific tables for each item (cantilever breaking load columns) for a value greater than or equal to the one obtained from Nomogram 3.

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