THREE-PHASE LINE REACTOR · INSULATION CLASS F

# 100 A · uk 4 % · 0.294 mH · 400 V

**Part no. LR3100-50-291-AL** · former type ILR 4/100-400-F-Al · aluminium winding · class F, Ta 45 °C

| | | |
|---|---|---|
| **0.294 mH**<br>Inductance per phase, ±10 % | **100 A**<br>Rated current, 400 V 50 Hz | **4 %**<br>Voltage drop ΔU 9.2 V |
| **160 A**<br>Linearity current (L ≥ 90 %) | **276 W**<br>Total losses at I_n, Ta 40 °C (calc.) | **ΔT 83 K**<br>Temperature rise at I_n, Ta 40 °C |
| **Class F · Ta 45 °C**<br>IEC 61558-1, winding ≤ 140 °C | **21.5 kg**<br>Weight approx. | **270×125×325**<br>A × B × C (mm), see GA drawing |

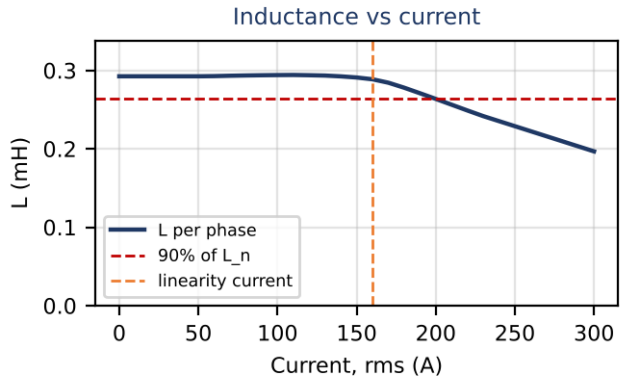
## 1 ELECTRICAL SPECIFICATION

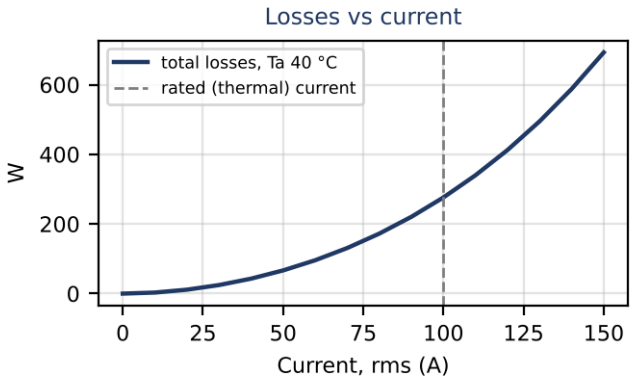
| Parameter | Condition | Value | Remark |
|---|---|---|---|
| **Inductance per phase** | 50 Hz, I_n, each phase U1–U2, V1–V2, W1–W2 | 0.294 mH ±10 % | calc. |
| **Rated current I_n** | continuous, Ta ≤ 45 °C | 100 A rms | |
| **Relative voltage drop uk** | at I_n, 400 V 50 Hz | 4 % (9.2 V per phase) | |
| **Linearity** | L at 1.6 × I_n = 160 A | ≥ 0.265 mH (90 %) | typ. 98% |
| **Total losses** | at I_n, Ta 40 °C, all phases | ≤ 317 W | typ. 276 W |
| **Temperature rise** | I_n, Ta 40 °C, natural cooling | ΔT ≈ 83 K | calc. |
| **Insulation class / ambient** | IEC 61558-1, resistance method | F · winding ≤ 140 °C at Ta 45 °C | calc. 129 °C |
| **Hi-pot** | winding – core, 50 Hz, 60 s | 2.5 kV AC | |
| **Rated voltage** | network | 400 V, 50 Hz, 3-phase | for frequency converters / drives |

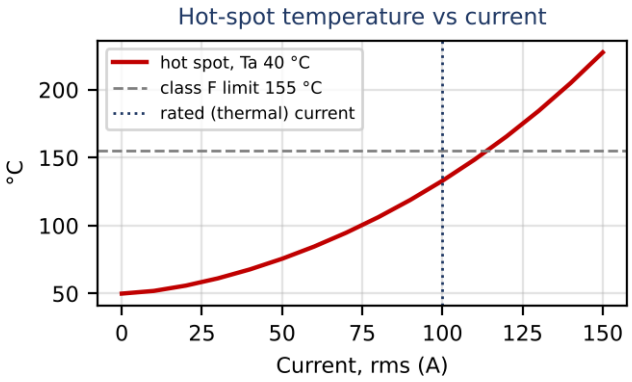
## 2 DESIGN AND MOUNTING

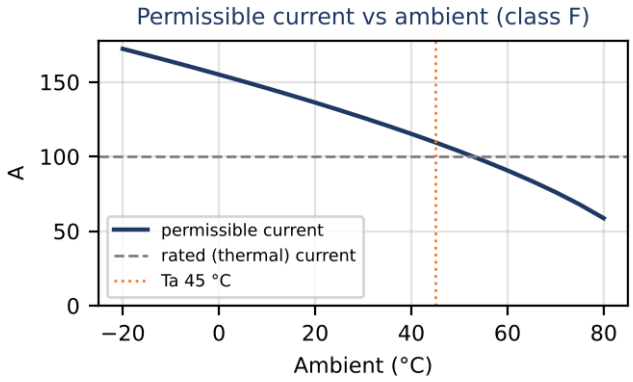
| Item | Description |
|---|---|
| **Construction** | Three-phase iron-core reactor with air gap, aluminium winding, vacuum impregnated, open design (IP00) |
| **Terminals** | screw terminals 35 mm², marking U1-V1-W1 (line) / U2-V2-W2 (load), PE stud M6 |
| **Mounting** | 9 × 15 (M8) slots, pitch n1 × n2 = 240 × 95 mm, any position (coils vertical recommended) |
| **Dimensions / weight** | A × B × C = 270 × 125 × 325 mm · ≈ 21.5 kg |
| **Standard** | EN 61558-2-20 · CE · RoHS |

## 3 TYPICAL CHARACTERISTICS (CALC.)



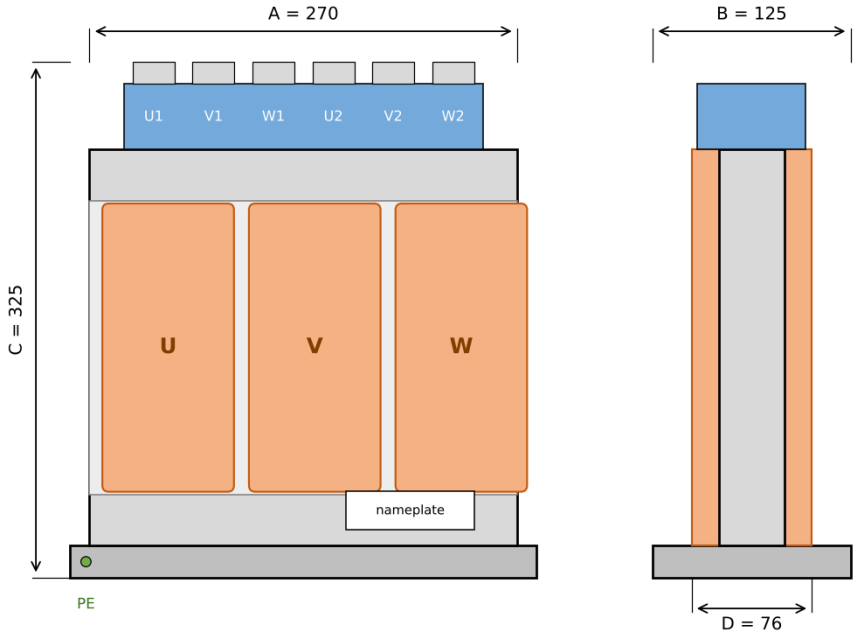



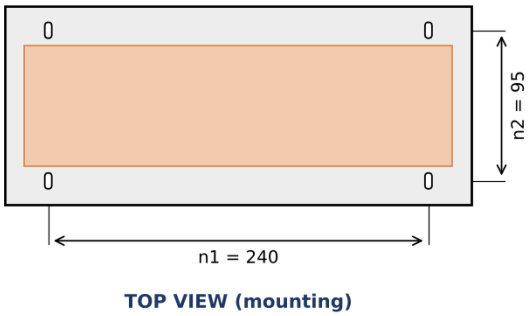




**Notes**

- Curves are design calculations from the B-H and loss curves of the electrical steel and a thermal model (natural convection, altitude ≤ 1000 m).
- Thermal rating: IEC 61558-1 class F at Ta 45 °C (winding ≤ 140 °C, resistance method); type-test values replace "calc." after release.
- Rated current includes typical 6-pulse drive harmonics.

## 4 GENERAL ARRANGEMENT (GA) DRAWING




| Dim. | Value (mm) | Description |
|---|---|---|
| **A** | 270 | overall width (core / coils) |
| **B** | 125 | overall depth incl. mounting feet |
| **C** | 325 | overall height incl. feet and terminals |
| **D** | 76 | depth of the coils |
| **n1 × n2** | 240 × 95 | mounting hole pitch, slots 9 × 15 (M8) |
| **Terminals** | | screw terminals 35 mm² · PE M6 on foot |

Dimensions in mm. Overall dimensions A, C, D from the design; mounting feet, terminals and hole pitch are ICD&C standard assumptions (indicative) – binding values on the production drawing. Tolerances ±3 mm (overall), ±1 mm (hole pitch). Weight ≈ 21.5 kg.