

## Compact starter type KAE specification (rev.5)

(Korndörfer autotransformer starter)

### Introduction

The compact starter type KAE is based on the Korndörfer starting method and is designed to operate in conjunction with standard medium voltage squirrel cage motors (asynchronous and synchronous). The main purpose of the Korndörfer starting method is to reduce the inrush current which is taken from the feeding network and providing the motor with sufficient current to accelerate to full speed at the same time.

### Motor voltage and frequency ratings

2300 V, 3300 V, 4160 V, 6000 V to 6900 V, 10000 V to 11000 V AC +5% to -5% @ 50/60 Hz.

### Power and current ratings

Up to 3050 kW @ 2300 V (max. 850 A)

Up to 4350 kW @ 3300 V (max. 850 A)

Up to 5500 kW @ 4160 V (max. 850 A)

Up to 7950 kW @ 6000 V (max. 850 A)

Up to 8700 kW @ 6600 V (max. 850 A)

Up to 9100 kW @ 6900 V (max. 850 A)

Up to 13250 kW @ 10000 V (max. 850 A)

Up to 14550 kW @ 11000 V (max. 850 A)

### Control voltage

230 V AC +10% to -15% @ 50/60 Hz (standard)

110 V AC +10% to -15% @ 50/60 Hz (optional)

220 V DC +10% to -15% (optional)

110 V DC +10% to -15% (optional)

### Power frequency withstand test

System voltage	Test voltage
2300 V to 6900 V	20 kV
10000 V to 11000 V	28 kV

### Basic impulse level (BIL)

System voltage	BIL
2300 V to 6900 V	60 kV
10000 V to 11000 V	75 kV

### Control system

The PLC based control system includes start-up time supervision with current controlled switching sequence (external supplied I/O, 0-10 V or 4-20 mA signal is required), starting time supervision, switch sequence protection, restart interlocking timers and autotransformer temperature protection with 4 PTC sensors. An autotransformer temperature protection with 6 PTC sensors is available as an option.

### Communications

Hardwired contacts are standard. Communication protocols like PROFINET, MODBUS TCP, MODBUS RTU or PROFIBUS DP are available as an option.

### Panel design

The standard panel is designed to meet IP4X according to IEC 60529 with cable entrance from bottom. The panel structure is made of galvanised sheet metal and the covers and doors are powder-coated with RAL 7035. Higher IP codes, different panel colours and cable entrance from top are available on request.

### Ambient conditions

The compact starter type KAE is designed to operate under the ambient temperature range of 0 °C to 50 °C (-20 °C to 55 °C as an option), a relative air humidity of ≤95% non-condensing and an altitude of ≤1000 m above sea level without derating.

### Certificates and approvals

The compact starter type KAE is type tested according to IEC 62271-200 and will be manufactured in compliance with IEC standards, VDE 0532, the EC directives and the ISO 9001 standard. Individual approvals by ABS, BV, CCS, DNV-GL, LR, RINA, RS, etc. are available on request.

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