



Standard Motor Starters with EEx de Modules

- Explosion protection to
 - CENELEC
 - IEC
- Can be used in Zone 1 and Zone 2
- Standard motor starters
 - Single contactors with/without motor protection
 - Star-delta contactor starters
 - Reversing-contactor starters
 - Pole changing starter combinations
- Fitted in type EEx e “increased safety” enclosures
- All installed devices are flameproof, protection type EEx d IIC
- Explosion-protected modules can be combined into control units using the modular system in whatever way required

STAHL

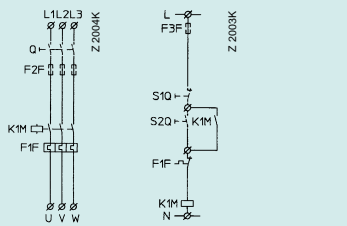
Series 8146 motor starters are fitted into glass fibre reinforced polyester resin enclosures, or, for the 8125 series, in sheet steel or stainless steel enclosures.

The 8146 enclosure series offers excellent protection against mechanical damage and aggressive media, while being lightweight.

8125 series enclosures are very robust, the stainless steel version being suitable for offshore applications.

Different enclosure sizes are available. Enclosures selected appropriately can be combined to make large units. Every motor starter can also be supplied with line-side main fuses and main switches, as well as a control circuit fuse. Any other type of starter can be made to order.

Zone 1 and Zone 2

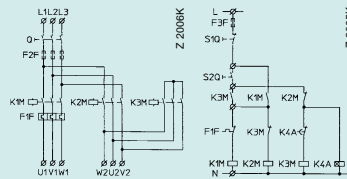


Single contactors

Single contactors are designed to make and break electric motor circuits and to switch resistive loads.

The contactors are available with or without thermal overload relays. Thermal elements of the motor protection relays are tested to VDE 0171 and are therefore approved for the protection of EEx e, "increased safety" motors. For short-circuit protection, fuses can be installed as an optional extra. On request, for isolation purposes, a main switch or a circuit-breaker can be incorporated.

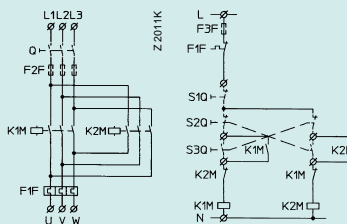
In place of using main fuses, switch and thermal relay, a motor starter circuit-breaker can be used (see also series 8523/8 on page 11/61ff).



Star-delta contactor combinations

Star-delta contactor combinations are used for star-delta starting of three-phase induction motors. By this method, the starting current is reduced to one third of that of direct on-line starting. The starting torque is also reduced in the same ratio.

Thermal elements of motor protection relays are tested to VDE 0171 and are therefore approved for the protection of EEx e, "increased safety" motors. The relay is connected to the line contactor and must be set to 0,58 times rated motor current; it will then protect the motor both during star-connected run-up and delta running condition. Fuses or circuit-breakers can be used for short-circuit protection, as with single contactors.

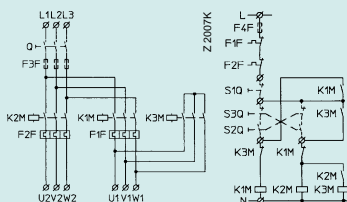


Reversing starters

Reversing starters are designed for reversing the direction of rotation of three phase motors.

Thermal elements of motor protection relays are tested to VDE 0171 and are therefore approved for the protection of EEx e, "increased safety" motors. For short-circuit protection, fuses can be installed as an optional extra. On request, for isolation purposes, a main switch or a circuit-breaker can be incorporated.

In place of main fuses, switch and thermal relay, a motor starter circuit-breaker can be used (see also series 8523/8 on page 11/61ff).



Pole-changing contactor combinations

Pole-changing contactor combinations are designed for starting 3-phase motors wound for multiple speed duty. Assemblies for Dahlander (single) winding and double-winding motors are available.

Overload protection relays are provided for each speed setting. Thermal elements of relays are tested to VDE 0171 and are therefore approved for the protection of EEx e, "increased safety" motors.

For short-circuit protection and isolation, the same applies as for reversing starters.

Control and indicating devices

The standard configurations do not contain control or indicating devices. If it is essential that these be built in directly, this can be done, at extra cost. Separate control stations can be selected from our comprehensive range. See section 9.

EEx e enclosures

For technical data, see page 11/34ff.

Contactors

All the switching capacities given in the technical data tables relate to duty category AC3 (IEC 158-1 and IEC 292-1). Technical data see page 11/61ff.

Line fuses

For short-circuit protection, HRC fuses can be fitted as an alternative to back-up circuit-breakers. They would be selected to protect the weakest element, usually the motor protection relay.

Isolating switch

When fuses are fitted it is advisable to install an isolating switch which will ensure voltage-free conditions when renewing fuses.

Motor protection relays

Motor protection relays with thermal delay characteristics protect motors against overload when starting, running and stalled rotor. The function of the motor protection device assumes an unusually important role in hazardous locations, because in these circumstances excessive heating of motors can heighten the risk of explosion. The protection relays used in our contactor configurations comply with the tolerances laid down in VDE standards 0171 and VDE 0165 (accuracy of current value $\pm 10\%$, tripping time $\pm 20\%$) and are thus approved for use with EEx e motors.

Since the tripping characteristics of such relays must be available "locally", they are always fitted in the enclosure. The characteristic quoted relates to the cold relay condition at 20 °C. Motor protection relays should always be set at the motor's rated current! (exception star-delta starters, then to $0,58 \times I_{\text{e}}$).

Other informations on request.