

Three-Pole Operated (GO) switchgear – C/B STM046000 cabinet for energizing MV power transformers

Mandatory specifications:

- **Drive mechanism:** to achieve repeatable and predictable operation times, the switch or C/B mechanism shall be mechanically consistent and fitted with one of the following drive types:
 - “spring-loaded” type or
 - “electro-magnetic actuator” type or
 - “servo-driven actuator” type.

Caution: motorized pole operation mechanisms are not eligible for STM046000 applications.

- **Repeatability:** the optimal mitigation of inrush currents / voltage dips when energizing transformers requires a pole repeatability of +/- 1ms or less under constant conditions. In our experience this is commonly achieved using the above-mentioned drive mechanisms.
- **DC-powered C/B coils and control circuits:** The C/B coils (O/C or TRIP/CLOSE), or the inputs of coil control modules, as well as the control circuits (I/Os including a 52a contact) must be DC powered.

Caution: AC-powered C/B coils or control circuits do not allow for STM046000 applications.

- **STM046000 power source:** the STM046000 cabinet must be powered from a DC, uninterruptible source: 24V, 48V, 110V, 125V versions are available.

Switchgear - FAT:

The MV switchgear-C/B will be subject to a FAT at no load, at the manufacturer’s facilities. At this occasion, the manufacturer will observe and collect:

- The C/B operation times and their dispersions,
- The effects of various C/B coil voltages on the C/B operation times.

The switchgear – C/B will be operated with LV injections (FAT) using a relevant IED tests set, at four (4) to five (5) DC voltage levels reflecting the project’s operational conditions (battery charge, discharged battery...etc). Five (5) to ten (10) C/B operations will be performed at each voltage level. The matching timing results will be collected in an Excel worksheet.

Notes:

1. **Influence of the temperature on the C/B operation times:** the customer will check if the temperature influences the C/B operation time. When relevant, the switchgear-C/B manufacturer will provide the applicable curves or data set - minimum three (3) points - for the configuration of a compensation formula.
2. Under particular conditions, the interruption of low magnetizing currents when switching off power transformers (in particular with vacuum poles) can produce voltage spikes/transients. This phenomenon cannot be addressed by the STM046000 cabinet. Please consult your switchgear – C/B supplier / your application engineers to evaluate the need for surge arresters or RC snubbers.

Definitions:

FAT: Factory Acceptance Tests. Generally performed at the switchgear-C/B manufacturer’s facilities.