



# SHORT CIRCUIT STUDIES

# SHORT CIRCUIT STUDIES IN INDUSTRIAL ELECTRICAL SYSTEMS

## Objectives

Define and/or verify the capabilities of electrical distribution switchboards and other devices to withstand short circuit faults without suffering loss of continuity in service due to catastrophic damage and/or repairs.

The results of this study are used as input data for the protection coordination and arc flash studies.

## Interrupting elements

In distribution boards there are countless interruption elements, among others we can mention: Medium voltage switches (Vacuum, SF6), médium and low voltage power fuses, low voltage switches (power, insulated box, molded case) and engine guards.

**The ability of interrupting elements to interrupt short circuit faults is called interrupting capacity and is defined in KA or MVA.**

## Results

### Selection of interrupted capacities in electric panels

This study defines the minimum interrupting capacity of a “new” switchboard and its elements to do the selection among the commercial interrupting capacities available.

Example: for 480V distribution switchboards with ANSI standard, manufacturers offer: 18 KA, 20 KA, 25 KA, 35 KA, 42 KA, 50 KA, 65 KA, 85 KA, etc.

### Evaluation of interrupted capacities in switchgears

This study verifies that each and every one of the distribution switchboards and their elements that are in operation in an electrical system, safely withstand and interrupt short-circuit faults and also identifies those that have their integrity compromised in fault conditions.

## Other results

This study gives input results for other electrical engineering studies among which we can mention:

- Protective relay coordination studies.
- Arc Flash studies

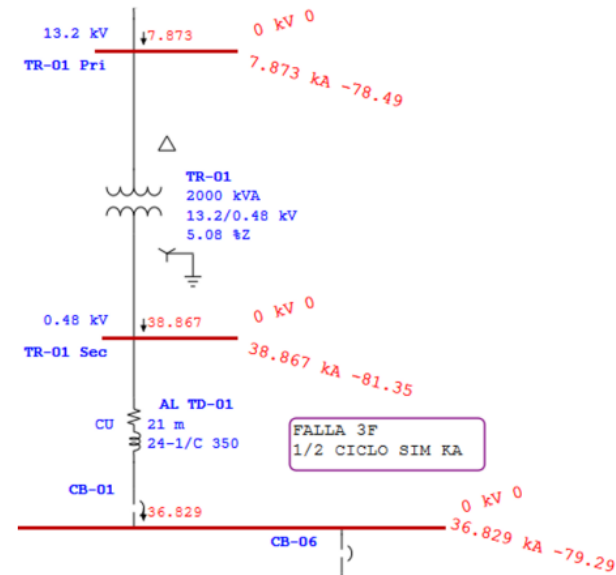


Fig. 1 Graphical results for a short circuit study.

## Software de análisis

- ETAP
- Reference Standards IEEE, ANSI, IEC.

## ETAP Solution Provider

**RADTHINK** is recognized as an **ETAP Solution Provider**. It is awarded by the ETAP brand to engineering firms that have staff with the skills, knowledge and resources to develop electrical engineering solutions using ETAP analysis software.





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## CONTACT US

- ☎ 81 3849 1587 | 81 8309 6730
- ✉ [ventas@radthink.com.mx](mailto:ventas@radthink.com.mx) | [abel.gutierrez@radthink.com.mx](mailto:abel.gutierrez@radthink.com.mx)
- 📍 Av. Topo Chico 570-Interior 4A, Anáhuac, 66450, San Nicolás de los Garza, N.L.
- 🌐 [radthink.com.mx](http://radthink.com.mx)

