

# Series compensation for distribution networks

## Reliable, economical and self-regulating

Series compensation is a well-proven technology that has been used in transmission lines for over 50 years. ABB has developed the MiniCap to allow the distribution networks benefit from this technology in a reliable and economically viable way.

The MiniCap will reduce voltage variation. By reducing the line reactance and the corresponding voltage drop, the voltage of the load-point can be stabilized even for fast load variations. Ferroresonance and subsynchronous resonance are detected and eliminated by a switch mode damping circuit.

### Typical applications

MiniCap in the distribution network eliminates the steady-state voltage drop along the distribution line as well as the voltage fluctuations associated with start-up and operation of large loads at the feeder end such as saw mills, rolling mills, crusher motors, mining loads, ski lifts, pipeline pumping stations and large induction motors.

### Main advantages

- Increased power transmission capability through decreased total line reactance
- Improved voltage profile along the line
- Reduced line losses
- Improved continuous and instantaneous voltage regulation and reactive power balance
- Easier starting of large motors
- Increased power factor at the utility source
- Improved load sharing along parallel lines
- Reduced voltage fluctuations (flicker)



### MiniCap rating

- Maximum system voltage: 36 kV
- Maximum rated current: 600 A
- Maximum short-circuit current: 10 kA
- Capacitor ratings: Up to 12 Mvar
- Basic Impulse Insulation Levels (BIL): Up to 200 kV
- Ambient air temperature range: from -50 °C to +40 °C

### Main components

The supplied unit will consist of:

- Capacitor bank
- Reactor
- Damping resistor
- Spark gap and its protecting circuit
- By-pass switch
- Control equipment
- Subsynchronous detection included in the control equipment

### Reference installations

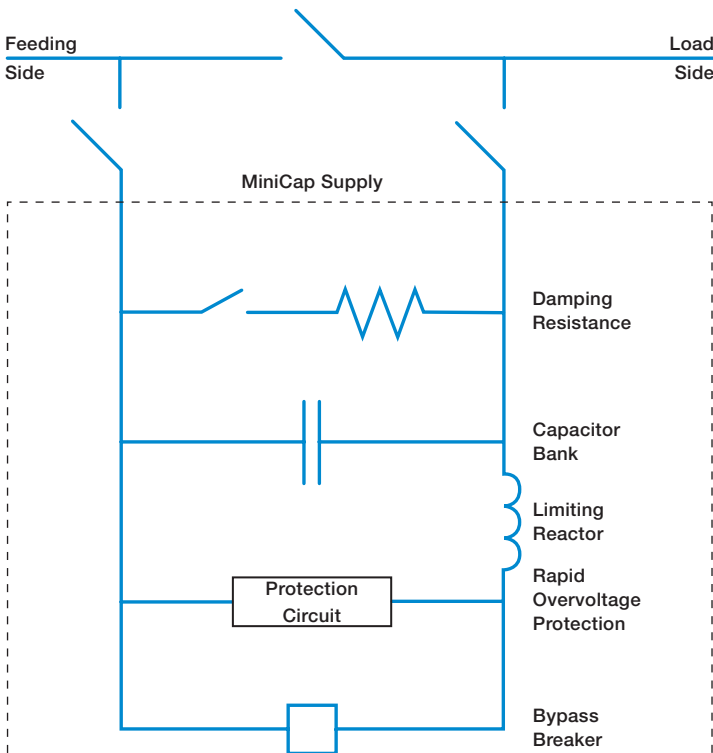
More than 40 MiniCaps are installed in Canada, USA, South-America, Europe, Africa and Australia

### FACTS Care

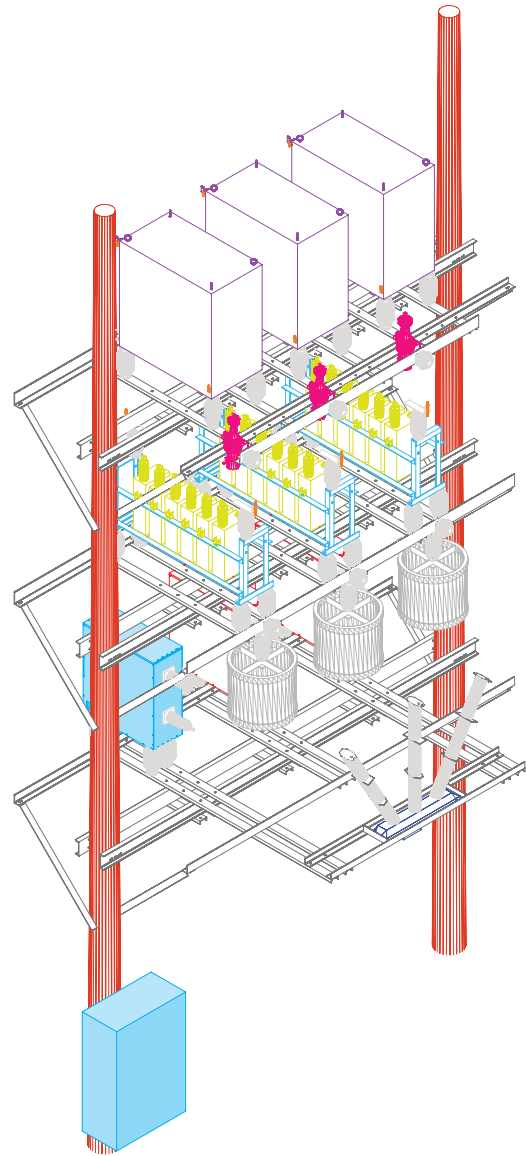
Service contract available under ABB FACTS customer service

Standard ABB MiniCap is arranged as shown in the typical single line diagram.

### Typical single line diagram



- New features (see 3D model)
- Pole-mounted control system
  - Communication capabilities
  - Elimination of required fence
  - Control system based on MACH



3D model of the new MiniCap generation featuring pole-mounted control cabinet and spark-gap cabinet (blue boxes)

For more information please contact:

**ABB Inc.**

**FACTS**

4915 rue Marc-Blain  
Saint-Laurent, Quebec  
Canada H4R 3B2

Phone: 1 514 856-6222

Fax: 1 514 856-6286

ca-minicap@abb.com

[www.abb.com/facts](http://www.abb.com/facts)

**Note:** The information contained in this document is for general information purposes only. While ABB strives to keep the information up to date and correct, it makes no representations or warranties of any kind, express or implied, about the completeness, accuracy, reliability, suitability or availability with respect to the information, products, services, or related graphics contained in the document for any purpose. Any reliance placed on such information is therefore strictly at your own risk. ABB reserves the right to discontinue any product or service at any time.

© Copyright 2015 ABB Inc. All rights reserved.