

# DynaComp



## DynaComp

One cycle response, transient-free capacitor switching with no limit to the number of operations

### Typical Applications

- Any critical loads which cannot be interrupted by transients:
  - Hospitals
  - Airports
  - Computer networking centers
  - High technology manufacturing operations
  - Others
- Loads which require extremely rapid switching (less than one cycle, 16.7 ms) reactive compensation:
  - Welders
  - Elevators
  - DC winches (off-shore oil platforms)
  - Mining drag lines
  - Mining conveyors
  - Rolling mills
  - Cranes (Port Authority)
  - Ski lift drives
  - Stamping
  - Saw mills
  - Light rail transit systems
  - Others

### Product Description

The ABB Dynamic Response Compensator or DynaComp is a capacitor or filter circuit switched by solid state power electronic devices without any moving parts. It is the ultimate solution to the most demanding applications in rapid power factor compensation, filtering or transient control.

Reactive load switching which causes disturbances on the network or where very rapid compensation or filtering is required are major applications for DynaComp.



DynaComp's solid state switching concept, combined with the well proven features of ABB power capacitor technology, provides the following exceptional advantages:

#### • Dynamic response time and ultra-rapid switching

DynaComp's solid state switching allows it to achieve dynamic response times in the range of one cycle. A typical application of DynaComp is for lifting devices requiring rapidly varying amounts of reactive power. By installing a DynaComp close to a crane or an elevator, voltage drops can be minimized and disturbances on other equipment avoided. Simultaneously, the reactive power will be efficiently compensated locally, an impossible task with conventional equipment. The principle applies to many other types of equipment with sudden large reactive power requirements such as large motors, welders, large injection molding machines, etc.

## General information DynaComp

### • Transient free switching

DynaComp does not disturb sensitive networks or sensitive equipment. The switching operation is executed by solid state devices, whose main advantage is to enable transient free switching with no wearing parts.

### • Frequent switching capability

The absence of moving parts ensures DynaComp a high reliability without limitation of the number of switching applications. Welding and lifting devices are typical applications of loads requiring large amounts of reactive power with a frequent switching cycle. Switching events in the range of over 100,000 times per day are achievable with DynaComp

### • High reliability

DynaComp incorporates the well proven features of ABB dry type power factor capacitor technology. Thyristor switching uses no moving parts. The DynaComp can be UL panel listed per application.

### • Versatility & Options

DynaComp's electronic solid state switching is applicable to capacitor banks and detuned or tuned filter banks. An important advantage with filter applications is the improvement in rapidly switching of the filter bank. The DynaComp can be provided with an ABB main breaker or main fused or non-fused disconnect switch.

### • Modularity & Expansion

Although DynaComp products must be designed for individual applications, they can be constructed rapidly due to their modular design. Additional units may be connected in parallel, allowing for the same reliable switching functions.

### • Safety

ABB capacitors are filled with vermiculite, a nonflammable and nontoxic material. The dry vermiculite safely absorbs any energy produced within the capacitor enclosure and

prevents any fire hazard in case of failure.

Unique cooling fins are fitted to surround each capacitor element and to provide effective heat dissipation.

### • Long life

The absence of moving parts and the self-healing properties of ABB capacitor elements ensure the DynaComp's long life.

### • Unique Sequential Protection System

The ABB patented Sequential Protection System ensures that each individual capacitor element is selectively and reliably disconnected from the circuit at the end of its life.

### • Complete environmental acceptability

ABB capacitors have a dry type dielectric with no free liquid and do not pose any risk of leakage or pollution of the environment.

### • ABB VAR controller

ABB microprocessor-based and programmable VAR controller maintains VAR flows to desired levels.

### • Compact design ensures quick installation

DynaComp's compact overall dimensions, standard top entry cable access, and lifting eyes aid in fast, efficient handling and installation.

### Harmonic Effect on Capacitors

Combinations of capacitors and system reactances form series and parallel tuned circuits at certain frequencies. When harmonic sources are added to the system, this can result in higher than rated currents or higher than rated voltages on the system components.

DynaComp can be designed to operate in harmonic environments. Tuning reactors are added to keep the capacitor currents within rated values and keep system voltages to desired levels. Tuning frequencies of the DynaComp can be designed to suit your system requirements. Please consult factory.

### Contents

DynaComp products include:

- Incoming line termination (unless other disconnecting means is specified.)
- One or more capacitor steps, single or three phase
- One ABB RVT-D controller equipped with:
  - Automatic no-voltage release
  - Menu driven interface w/LCD display
  - Icon indicating a capacitive or inductive load add the number of steps energized.
  - Circular or linear switching
- ABB capacitors
- One DynaSwitch per capacitor step
- Discharge resistors
- Power fuses
- Control fuses
- Multi-tap CT range: 500/5 – 4000/5 in 500/5 increments. Window size 4" x 7".

### Technical Data

#### Rated voltage

Up to 240-600V, 50/60Hz, single or 3 phase

#### Capacitor step rating

Up to 400 kvar at 480V

**Operation:** Automatic or manual with step indication. LED indication of the number of capacitors energized and the capacitive or inductive demand.

#### Discharge resistors included.

#### ABB dry type self-healing capacitors.

#### Enclosures:

NEMA 1, 3R &  
Dustproof

#### Dimensions:

Per application

#### Ambient temp.:

-40°C to +40°C

**Installation:** Lifting eyes are provided. Installation instructions are supplied with each unit.

**D 4 G 500 C 10 A 2**

### Catalog Numbering System

Harmonic tuning (consult factory)

Switching sequence - A 1:1:1:1 B 1:2:2:2 C 1:2:4:4 D 1:2:4:8:8

Number of capacitors

Disconnect means - C=Circuit Breaker, D=Non-fused disconnect switch, F=Fused disconnect switch

kvar rating

Enclosure type - G=NEMA 1, R=NEMA 3R, D=Dust proof

Voltage - 2 = 240V, 4 = 480V, 6 = 600V

Model - D=DynaComp