



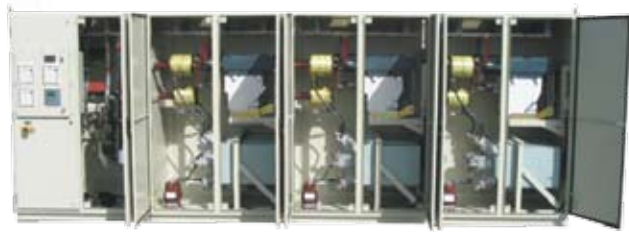
ABBACUS

Metal Enclosed Capacitor Bank

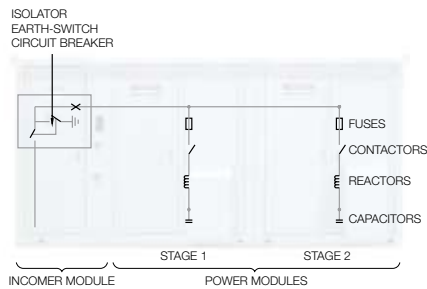
ABBACUS Metal Enclosed Capacitor Bank



IP44 ALUMINIUM INDOOR/OUTDOOR ENCLOSURE



IP31 MILD STEEL INDOOR ENCLOSURE



SINGLE LINE CONFIGURATION



ABB is the world's leading capacitor manufacturer.

This competence has led to a fully integrated ABB solution known as ABBACUS, for reactive compensation in medium voltage networks.

The ABBACUS is a packaged reactive compensation system which combines primary components, and secondary control and protection, within a compact modular enclosure. The system can be either configured as a fixed or switched capacitor bank. The switched bank consists of single or multiple steps, automatically controlled to improve power factor.

The design of the ABBACUS provides compensation for both electrical distribution utilities and large industrial power users including mining, pulp and paper, chemical, petrochemical, wind farms, plastics and heavy industry.

The ABBACUS is available in a range of MECB (Metal Enclosed Capacitor Bank) models and is suitable for voltage ranges between 1kV and 24kV. For higher voltages contact ABB.

The ABBACUS is assembled and factory tested in an ISO 9001 and ISO 14001 environment.

Design Configuration

The ABBACUS design will consist of an incoming module and/or connecting power modules housing the primary equipment with optional secondary and ancillary equipment kits. The ABBACUS design is modular allowing future expandability.

Incomer Module

The incomer module facilitates connection to the customer network. It comprises of a high voltage compartment and a control cubicle allowing for a single point termination of power cables and control wiring.

Control cubicle

The Control Cubicle for the ABBACUS, depending on the MECB series, can accommodate the following options:

- Power factor controller
- Modbus communication
- Safety interlock keys
- Over current/earth fault protection relay
- Unbalance protection relay
- Unbalance/overload protection relay
- Under/overvoltage protection relay
- Local/remote and manual/automatic switching
- Alarm indication: power factor not reached/over temperature/over pressure/fuse failure

High Voltage Section

The High Voltage Section for the ABBACUS range can, according to the options selected, accommodate the following:

- Incoming cable termination busbars
- Isolator/earth switch
- Surge arrestors
- Circuit breakers
- Protection voltage transformers
- Line current transformers
- Control voltage transformers
- Live line indication.





Power Module

The Power Modules in the ABBACUS, when energised, generate the reactive power. These modules are designed to be interconnected to each other and the incomer module. An appropriate power module can be chosen depending on the required application.

The Power Modules for the ABBACUS range can accommodate the following:

- Capacitors
- Inrush reactors or detuning reactors
- HRC fuses
- Contactors
- Unbalance current transformers
- Rapid discharge voltage transformers
- Pressure switches
- Earthing stick
- Safety interlocks
- Lights
- Anti condensation heaters
- Connecting busbars
- Cable entry box
- Cooling fans
- Thermostats.

Feature	Benefit
ABB's experience and knowledge ABB's premium range of components <ul style="list-style-type: none"> • Consistency of quality • Proven technology • Leading capacitor manufacturer • Type tested solution Factory tested Integrated design of primary and secondary equipment Durable aluminium enclosure suitable for a variety of applications	Reliability and Performance
Reduces operating costs Tangible return on investment Proven ABB design reducing life cycle costs	Commercial
Fully enclosed design protecting live parts Safety levels ranging from pad lockable doors through to interlocking with upstream devices Explosion venting in each module	Safety
Modular in design Expandable design to meet the needs of increased plant load Relocatable asset, can be moved as plant demands change	Flexibility
Maximise factory assembly <ul style="list-style-type: none"> • minimise plant down time • simple installation Ease of handling	Easy to use
Compact design	Real estate saving

Technical Specification

General

Voltage	1 – 24kV
Control Voltage	230 – 240V Standard
Maximum Output	Up to 13.2MVar
Frequency	50 or 60 Hz
Location	Indoor or Outdoor
Ambient Temperature	-10/+45°C #
Altitude	<1000m above sea level
Humidity	Maximum 90% RH non condensing
Insulation Level	<-12kV 28/75kV BIL >12kV-17.5kV 38/95kV BIL >17.5kV-24kV 50/125kV BIL
Short Circuit Current	Up to 50kA for 1 second
Bank Configuration	Fixed, switched single or multistep
Standards	IEC or equivalent

Capacitors

Type	Single, three or split-phase
Fusing	Internal or unfused
Discharge Resistor	Built-in
Losses	<0.2W/kvar including resistors
Dielectric	Polypropylene film
Impregnant	Faradol 810 non PCB
Container	Stainless steel
Bushings	Grey porcelain one, two or three

Inrush Reactors

Type	Single phase, air core
Continuous current	1.43 x capacitor current
Temperature class	Max T55/B

Detuning (Filter) Reactors

Type	Single or three phase, iron core
Limit of linearity (95%)	>_1.7 x Nominal Current
Temperature class	Max T55/F

Contactors and Switches

ABB Model	VSC Electrically Latched
Voltage	7.2kV
Type	Vacuum
ABB Model	V-contact Electrically Latched
Voltage	7.2, 12kV
Type	Vacuum
ABB Model	PS15, PS25 Electrically Latched
Voltage	15, 25kV
Type	Vacuum

Circuit Breaker

ABB Model	VD4
Type	Vacuum

Isolator

ABB Model	NAL
Type	Air insulated

Earth Switch

ABB Model	E, EB
Type	Air insulated

Enclosure

Material	'AA' Grade Corrosion Resistant Aluminium or Zinc-coated steel*
Base frame	Hot dipped galvanized steel
Protection	IP31 indoor, IP44/IP54 outdoor
Paint system	Powdercoat RAL 7035

Power Factor Controller

ABB Model	RVC, RVT
Measuring System	Microprocessor-based system for single or three phase system Insensitive to harmonics
Control Voltage	110 Vac to 440 Vac

Please refer to individual product brochures for detailed information on each component or contact ABB.

*Applies only to MECB 12 FI 00, MECB 12 FI 01 and MECB 12 SI 00.

#Lower temperature ratings available.

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