



Qpole Pole Mounted Capacitor System

Introduction

The ABB 'Qpole' pole mount capacitor system is an economical solution for shunt reactive compensation on overhead distribution networks. The Qpole is suitable for use in networks up to 36 kV.

The Qpole capacitor system offers customers several benefits including:

- Power factor correction close to customer loads
- Voltage stability
- Increased network capacity
- Cost savings through lower losses

The Qpole is available as a fixed or switched system depending on the network profile. Fixed systems are preferred in networks with constant loading, whilst switched systems are more suited toward networks with variable loading.

The fixed and switched systems utilize ABB's single phase capacitors arranged in grounded Y, ungrounded Y or delta configurations. Three phase capacitors are also available.

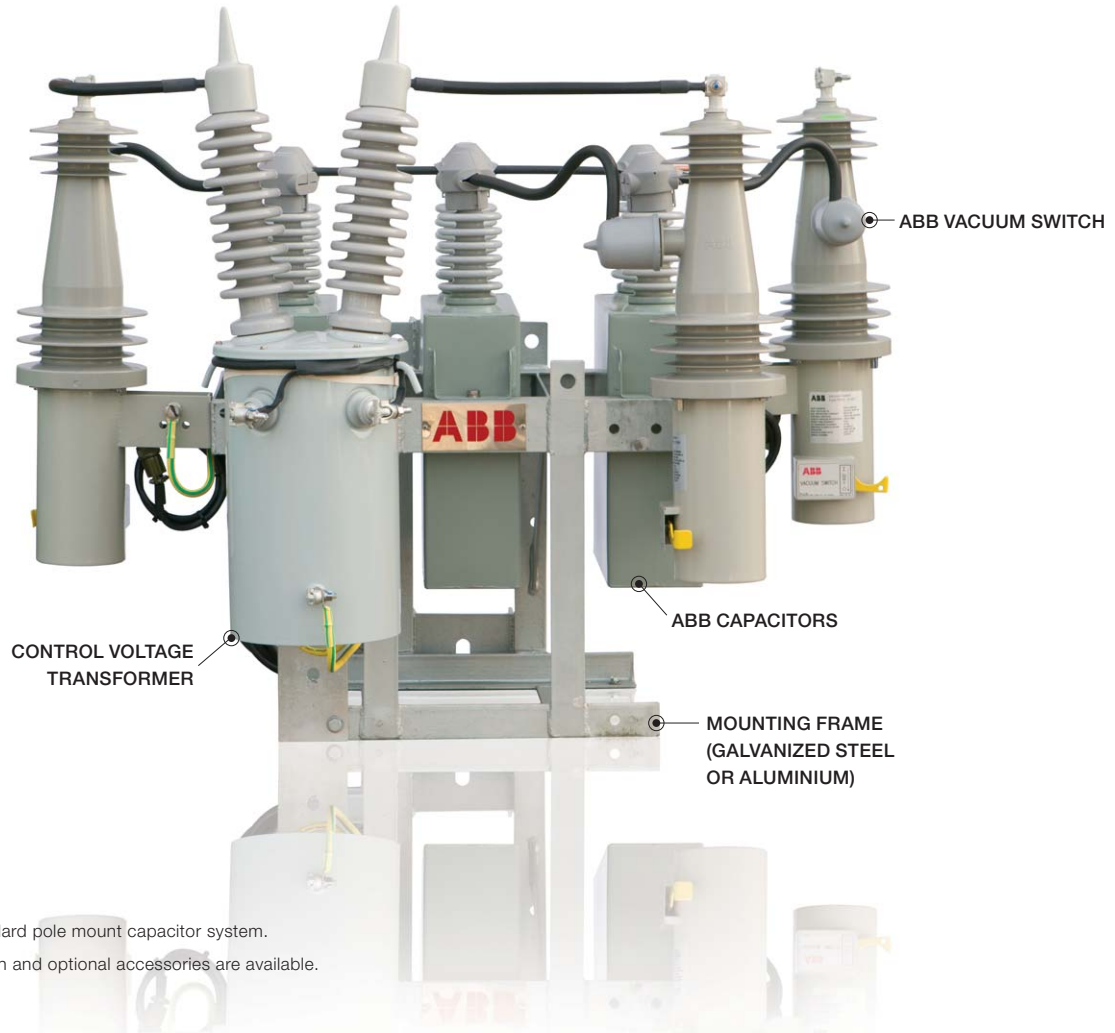
The switched system utilizes the complete range of ABB components including capacitors, vacuum switches and controller. Optional equipment including current sensors, surge arrestors and fuse cutouts are also available.

The Qpole is factory assembled in a galvanised steel or aluminium frame which is suitable for pole mounting.

All high voltage wiring and outdoor bushing terminals are provided with protective bird guards for increased safety and reliability.

The Qpole is unique as it offers customers a complete 'one stop shop' solution which has all major components manufactured by ABB. Each component is manufactured to a relevant international standard.

Customers have peace of mind knowing that the Qpole has been manufactured to the highest quality and environmental standards in our ISO 9001 and ISO 14001 accredited facilities.



Photograph depicts a standard pole mount capacitor system. A range of alternative design and optional accessories are available.

Key Components



ABB Capacitors

The ABB capacitor unit is designed for heavy-duty operation in outdoor, enclosed and pole mounted capacitor banks in all climatic conditions.

The capacitors are impregnated with a biodegradable, non-PCB fluid with high insulation strength to ensure excellent electrical performance. The edges of the foil electrodes are folded enabling the unit to withstand high transient currents and minimising partial discharge. This ABB process is superior to all other methods employed. ABB capacitors have an extremely low failure rate and high reliability.

The ABB capacitor tank is constructed from a high-grade stainless steel providing excellent corrosion resistance. The seams are fully robot TIG welded providing superior weld quality compared with other welding processes resulting in virtually no risk of leakage.



ABB PS Vacuum Switches

The ABB PS capacitor vacuum switch is a solid dielectric vacuum switch suitable for use in distribution systems. The single phase range goes up to 25 kV ungrounded (43 kV grounded) and the three phase switch goes up to 38 kV ungrounded (66 kV grounded).

The switch has been specifically designed and tested for heavy-duty operation in capacitor-switching applications according to IEEE 37.66.

With its sleek and compact design, embedded vacuum interrupter technology and durable HCEP insulator, the PS capacitor vacuum switch is designed to reduce lifecycle costs and offer customers true value. The main housing and highly visible trip lever mechanism is made from stainless steel to provide superior corrosion resistance and durability, even under the harshest climatic conditions.

The PS capacitor vacuum switch is free from any oil, gas or foam insulating mediums, thereby eliminating the risk of any environmental contamination.

Key Components *continued*



ABB CQ900 Smart Controller

ABB's CQ900, the next generation in smart controllers, is designed specifically for capacitor applications. They feature an extensive range of control modes including remote, automatic and manual control. The automatic mode includes VAR, time, temperature, power factor, current and/or voltage control, as well as combinations of these. In addition to this, the CQ900 includes measurement and monitoring capabilities and useful features such as a 10,000 event data log for easy analysis and trouble shooting.

The CQ900 is now equipped to communicate via the RS232 and Ethernet interfaces which can be used with a wide range of modem devices (CQ900R model only). The main communication protocol is DNP3.0 with IEC 61850 to follow. The enclosure is designed to allow standard modems to be installed and powered from within.

Introducing ABB SmartLink:

The CQ900 has a secure wireless option allowing local control, interrogation and programming from a linesman's vehicle providing added safety and comfort for operators.

Other desirable features included on the controller include flash upgradeable capability, a neutral current sensing option, test plugs as well as a large four line LCD screen. The user friendly interface and sizeable keypad allows for easy operation at any time of the day.

A durable IP54 stainless steel enclosure provides added protection for even the harshest weather conditions and a 450V metal oxide varistor provides protection for the internal circuit board.

The ABB CQ900 smart controller is an easy to use, feature packed controller designed to maximise efficiency through smarter management of electrical systems and reliable integration with Smart Grid systems.

Technical data

General	
Power	150 ... 3600 kvar
Voltage	Up to 36 kV
Insulation level	Up to 50/125 kV BIL
Frequency	50 or 60 Hz
Arrangement	Grounded Y, Ungrounded Y or Delta
Number of capacitors	3, 6 or 9 units
Control voltage	120 or 240 Vac
Temperature range	-50 to +55 °C for fixed banks*
Frame	Galvanized steel or aluminium
Features	Pole bracket, lifting eyes, bird guards
Control options	Fixed or switched
Standards	IEC, ANSI, IEEE & CSA
Mounting hardware	Included

Capacitor	
ABB model	Single or three phase
Discharge Resistors	Built-in
Losses	≤ 0.15 W/kvar including resistors
Dielectric	Polypropylene film
Impregnant	Faradol 810 non-PCB
Container	Stainless steel, 409 high grade (304 high grade available on application)
Bushings	Grey porcelain

Vacuum Switch	
ABB model	PS15, PS17, PS25, PS36
Continuous current rating	200 A, 300 A or 400 A capacitive
Open/close time	< 100 msec
Mechanical endurance	50,000 paired operations (open/close)
Position indicator/trip lever	Included (manual open only)

Junction Box	
Enclosure	PVC UV resistant, IP64 (NEMA 3) rating
Cables	– 3 x 1.3 mm ² (switches) – 1 x 1.3 mm ² (VT) – 5-pin or 7-pin Amphenol connector – Other cables can be supplied if requested

Control Voltage Transformer	
Model	ABB or equivalent
Power	1 or 3 kVA
Design	Oil filled or dry resin

Controls	
ABB model	CQ900
Control	– Automatic & manual – Schedule, volt, temp, var, current – Overrides
Communication	– Unit configuration and data log transfer via USB interface – Optional “ABB Smart Link” radio (50 m range) – Optional DNP3.0 protocol enabled via RS232 or Ethernet
Switch on/off delays	Programmable
Other features	Single or seasonal schedule Anti-hunting Maximum daily operations LCD display
Data logging	10,000+ record logs
Enclosure	Lockable IP54, power coated, stainless steel
Mounting	Pole bracket or meter socket

Surge Arrester (Optional)	
ABB model	MWK
Nominal discharge current	10 kA _{peak} (8/20 μs)
High current impulse	100 kA _{peak} (4/10 μs)
Class	2
Short circuit rating	20 kA/0.2 s
Energy capability	5.5 kJ/kV of U _c
Material	Silicon rubber

Current Sensor (Optional)	
Ratio	600 A : 10 V ± 2%
Insulator	Polymer concrete

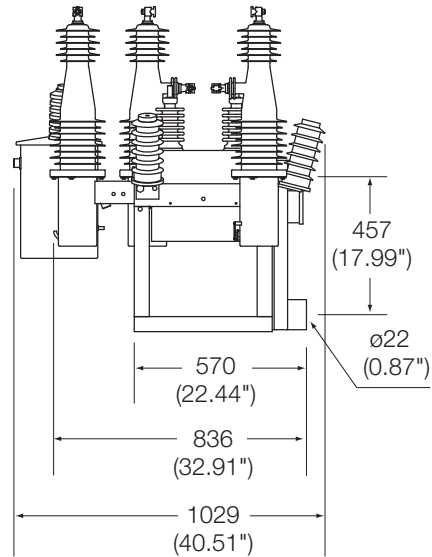
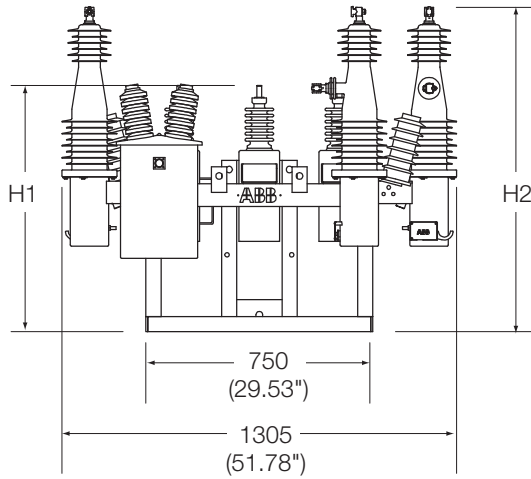
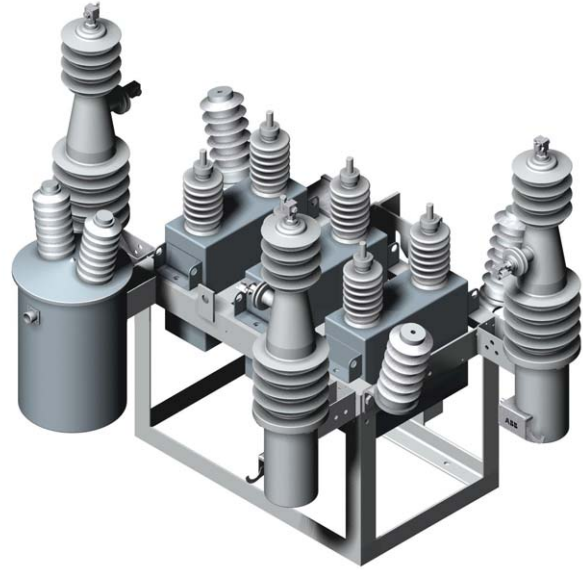
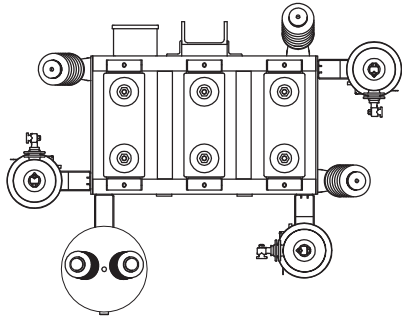
Fuse Cutout (Optional)	
ABB model	V Series
Rated breaking capacity	Up to 12 kA asym
Fuse link	Type K and T
Insulators	Porcelain or silicon rubber
Mounting bracket	NEMA or direct to pole
Loadbreak	Recommended for fixed banks only

* For switched banks, refer to non-capacitor component temperature ratings.

For detailed information on each component, please refer to component product literature

Dimensions (mm)

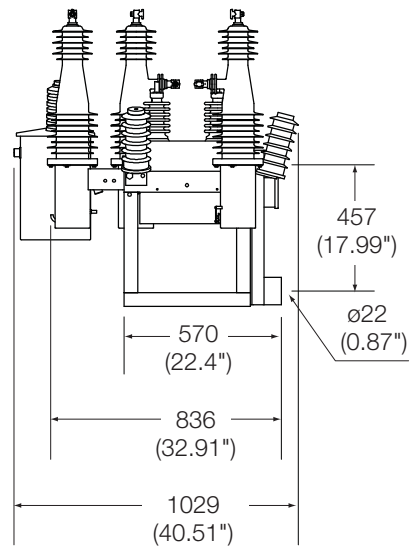
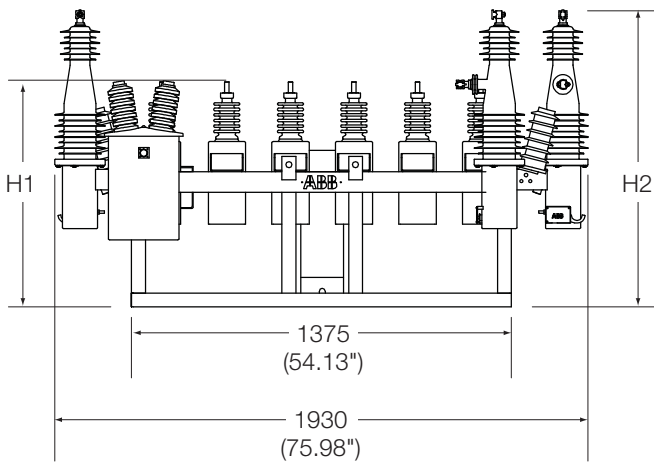
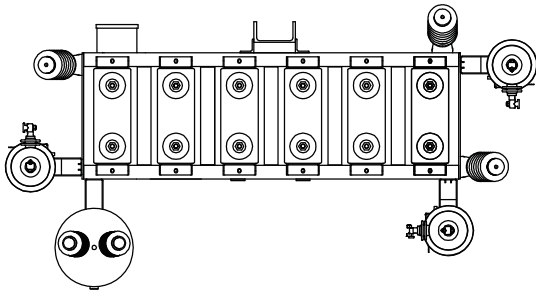
STANDARD 3-UNIT QPOLE



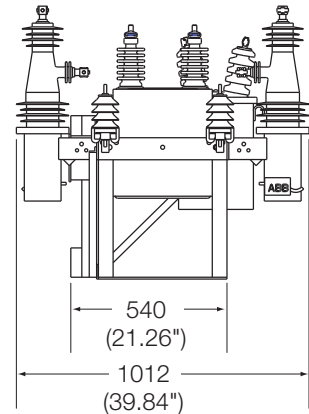
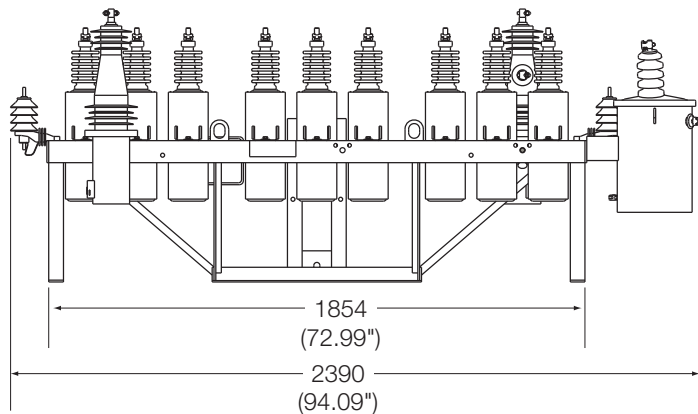
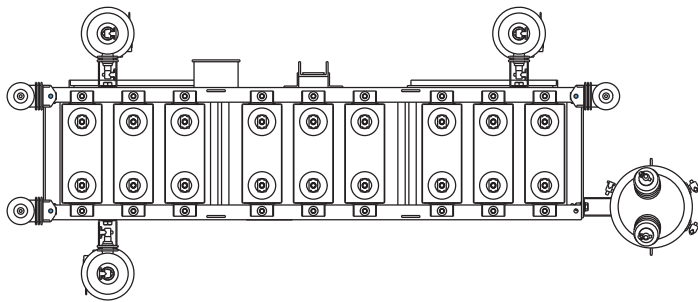
		H1	H2
Switch Type on Qpole	PS15	815 32.09"	932 36.69"
	PS25	895 35.24"	1072 42.20"

Please contact ABB for dimensional details of other Qpole configurations.

STANDARD 6-UNIT QPOLE



STANDARD 9-UNIT QPOLE



Contact us

**Please contact your local sales representative
for further information**

www.abb.com/powercapacitors
www.abbaustralia.com.au

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