



TRUST. WELL EARNED.



## QUANTUM

### 12kV Fixed Pattern Indoor Metalclad Vacuum Switchgear

Quantum expands the BRUSH Switchgear portfolio of medium-voltage indoor switchgear with its deserved reputation for great reliability and low maintenance and is the perfect solution where product diversity within electricity networks may be required.

Maintaining all of the benefits of our award-winning magnetic actuator technology, Quantum delivers a technology refresh whilst retaining the simplicity of air insulation and vacuum technology in a fixed-pattern design and offers further space saving benefits with its integrated busbar CT design and top-mounted busbar earthing facility.

Fully certified to IEC 62271, Quantum is currently available with ratings up to 2000A, 25kA.

#### Key Features

- Compact design offering reduced footprint
- Reliable technology with minimal maintenance requirements
- IAC - AFL internal arc protection\* with rear venting
- Superior operating safety with fully interlocked front-access cable-test facility
- New design of integrated CT busbar bushing
- New design of top-mounted busbar earthing switch facility\*\*
- Wide range of top and bottom entry cable connection options including separable 'C'-type connectors
- VPIS as standard on all circuits (mounted on fascia panel)
- Expandable LV top box for more complex solutions
- Resilient on-board electronics control module providing trip circuit supervision and self-diagnostics as standard

#### Ratings

##### Rated Normal Current

Up to 2000A

##### Rated Voltage

12 kV

##### Rated Frequency

50 Hz

##### Rated BIL

75/95 kV pk

##### Rated Power Frequency Withstand

28/38 kV 1min

##### Rated Short-Time Withstand Current

25kA RMS 3 secs

##### Rated Peak Making Current

62.5 kA

##### Internal Arc Compliance

25 kA 1sec

##### Rated Short Circuit Breaking Current

25kA

##### Degree of Protection

IP4X

##### Single Capacitor Bank Breaking Current

400A

##### Circuit Breaker Classification

E2

##### Auxiliary Operating Supply

110DC

##### Busbars Normal Current

Up to 2000A

##### Typical Weight

500 - 700kg

##### Ambient Air Temperature

-5 °C to +40 °C

##### Relative Humidity

<95%

##### Altitude

<1000m



\* Additional containment required

\*\* Coming soon

## Dimensions (mm)

Dimensions for a standard Quantum feeder/incomer panel;

(a) 1174 (b) 2104 (c) 500

Dimensions for a standard Bus-section panel;

(a) 1174 (b) 2104 (c) 1000

Dimensions for a top-mounted Busbar earthing switch;

(b) 2446

Dimensions for a single panel with busbar VT;

(b) 2446

Dimensions for extended top/bottom entry cable box;

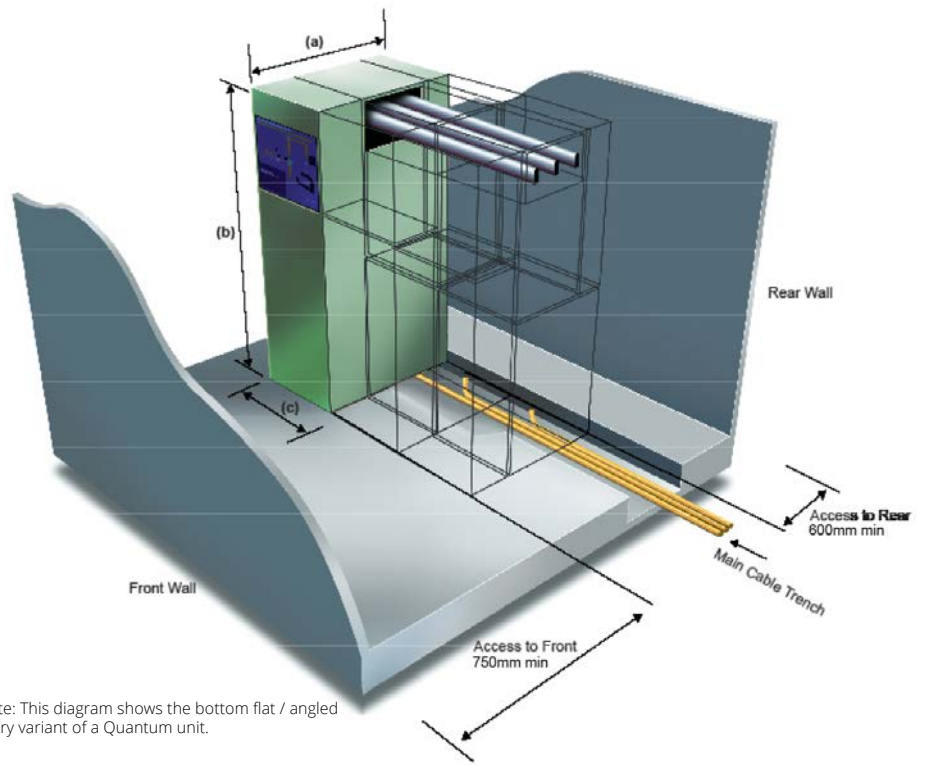
One cable per phase - (a) 1469 \*\*

Up to four cables per phase - (a) 1854

Dimensions for "C-type" bottom entry cable;

(a) 1469

\*\* Coming soon



Note: This diagram shows the bottom flat / angled entry variant of a Quantum unit.

## Quantum Engineering Detail

- 1 Sleeved busbars constructed from hard drawn, high conductivity copper, and vermin proof covered joints, with normal current ratings up to 2000A. The busbar arrangement permits future expansion, at either end of the switchboard.
- 2 Fully interlocked, manually operated 3-position disconnecter including circuit earth and front panel cable test access. The disconnecter can be secured and padlocked in all three positions: 'SERVICE', 'ISOLATED' and 'EARTH On/Test Access Position', with its status indicated by animated front panel mimics.
- 3 A single moulding supports the three phase vacuum interrupter assembly, magnetic actuator mechanism and drive mechanism.
- 4 The patented single coil magnetic actuator mechanism is based on a solenoid plunger, held in the tripped or closed position by permanent magnets.
- 5 Three phase cast resin voltage transformer, with manually operated off-load disconnecter on the primary circuit.
- 6 Generous CT accommodation enables complex protection schemes to be catered for in a single panel, whilst still allowing for a metering provision. The CT designs are rated in keeping with the short time withstand level of the equipment and comply with IEC 60044-1.

## Standards

- BS EN 61869 - 2 : 2012
- BS EN 62271 - 102 : 2002 + A2 : 2013
- BS EN 62271 - 1 : 2017
- BS EN 62271 - 100 : 2009 + A2 : 2017
- ENATS 41 - 36 : 2012 (Issue 3)

## Patents

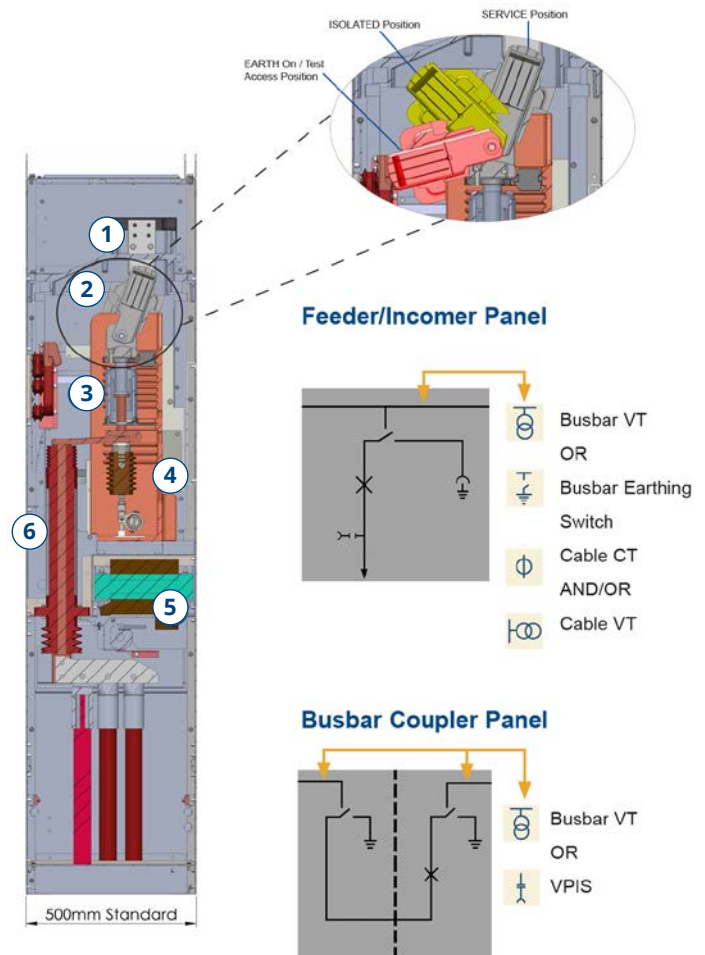
- GB2289374B
- EP 0 909 453 B1

## BRUSH

**Switchgear Division:** Unit 3, Blackwood Business Park, Newport Road, Blackwood, South Wales NP12 2XH United Kingdom

**T: +44 (0) 1495 223 001**

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[www.brush.eu](http://www.brush.eu)