



TRUST. WELL EARNED.

## Retrofit Solutions

### BRUSH Switchgear offer OEM retrofits for our Heritage products.



Where housings are in good working condition, we are able to upgrade the circuit breaker from oil or SF<sub>6</sub> gas to a vacuum circuit breaker.

**With little or no modifications to the panel required, our products can greatly extend the life of your switchgear, giving you peace of mind and outstanding quality.**

Retrofitting is particularly attractive to organisations with a large volume of ageing installed equipment and where asset replacement budgets are limited.

A major attraction of retrofitting is the elimination of the need for disruptive re-cabling and no requirement for civils, transformer or cabling works.

Retrofitting switchgear can extend the life expectancy of current assets by 30 years, dependent on the switchgear panel's condition, whilst offering minimal disruption.

For a straightforward retrofit circuit breaker option, site times can be very short, perhaps even less than one day per circuit.

**A typical retrofit solution involves the replacement of old circuit breakers with modern vacuum circuit breakers.**

*Retrofitting switchgear can extend the life expectancy of current assets by 30 years...*



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### The benefits of retrofitting switchgear are:

- Maintains the fully certified rating of the combined replacement circuit breaker /existing switchgear
- Considerable life extension to your original switchgear
- Provision of a very low maintenance circuit breaker with few consumable spares
- Long term minimum cost of ownership
- Proven reliability of replacement circuit breaker
- Provision of a cost-effective method for the removal of bulk oil products
- No expensive civil works or HV cable disruptions required
- Removes the need for high capacity/high maintenance auxiliary power supplies
- Provision of circuit breakers with electrical trip/close facility
- Improvement of Health & Safety by removal of oil or SF<sub>6</sub> gas
- Lower owner costs through virtually no maintenance requirements
- Uses existing design of primary and automatic secondary contacts

As OEM of BRUSH Switchgear and South Wales Switchgear, BRUSH Switchgear offer retrofit solutions for VSI and VMV range of BRUSH Switchgear and C & D Range and HawkGas12 South Wales Switchgear circuit breakers.

**All our retrofit solutions are fitted with our award-winning magnetic actuator technology. Our Retrofit Circuit Breakers are designed for 10,000 operations.**

Our single coil magnetic actuator technology and electromagnetic spring innovations have been widely acclaimed, ground-breaking developments, which provide BRUSH Switchgear with a world leading edge in circuit breaker technology.

The actuator coil is energised in one direction to 'power close' the circuit breaker and in the opposite direction to open it by de-latching the holding force.

This unique feature of the actuator design is used in our relevant products and ensures reliable tripping operation under all battery conditions and even for manual trip.

### The benefits of this are:

- Patented single coil design;
- Minimal moving parts;
- Bi-stable with pulsed coil to operate;
- High strength rare earth magnets;
- Opening energy stored during closing;
- Tripping performance independent of supply voltage;
- Over 30,000 in service



*Our single coil magnetic actuator technology and electromagnetic spring innovations have been widely acclaimed...*



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### **SWR 12 The Retrofit Solution**

The SWR12 is an OEM designed retrofit circuit breaker for both the South Wales Switchgear C & D range Oil Circuit Breaker and the HG12 Gas Circuit Breaker, to IEC 62271-100.

BRUSH Switchgear is proud of its heritage in the C and D range of switchgear, which continue to work at the highest standards.



Technological advances have allowed us to improve further and offer our customers a circuit breaker that boasts the award-winning magnetic actuator technology along with removing the need for SF<sub>6</sub> gas.

**The SWR12 circuit breaker, offers a new lease of life for existing switchgear, with this effective retrofit solution.**

Employing award-winning magnetic actuator technology with vacuum interrupters, the SWR12 is designed for 10,000 operations and a life expectancy of 30 years. It is designed for retrofitting into existing switchboards without the need for panel modification.

### **BSR The Retrofit Solution**

The BSR is an OEM designed retrofit circuit breaker for both the BRUSH Switchgear VSI range of Oil Circuit Breakers and the VMV vacuum Circuit Breaker, to IEC 62271-100.

**BRUSH Switchgear is proud of its heritage in the VSI, VTD & VMV range of switchgear, which continue to work at the highest standards today.**

Technological advances have allowed us to improve further and offer our customers a circuit breaker that boasts the award-winning magnetic actuator technology.

The BSR circuit breaker, offers a new lease of life for existing switchgear, with this effective retrofit solution.

Employing award-winning magnetic actuator technology with vacuum interrupters, the BSR is designed for 10,000 operations and a life expectancy of 30 years.

It is designed for retrofitting into existing switchboards without the need for panel modification.

### **VMV – Retrofit Circuit Breakers**

To enable you to safely extend the life of your existing VSI switchgear, BRUSH Switchgear can provide direct replacement retrofit vacuum circuit breakers.

Within the MV switchgear sector, there is now increasing interest in the options for the economic replacement of ageing oil based switchgear with a product that utilises Vacuum as the breaking medium. One such option is to retain the fixed portion of the switchgear and replace the oil circuit breaker with a modern technology circuit breaker.

**Oil circuit breakers manufactured by BRUSH Switchgear since 1963 formed an integral part of the VSI (single busbar) and VTD (double busbar) range of switchgear.**

Many of these circuit breakers are approaching or have exceeded twenty five years operational service life.

We can supply a type tested vacuum circuit breaker as a direct retrofit for the oil circuit breakers in the VSI and VTD switchgear.

This vacuum circuit breaker has more than two decades of reliable and proven operational service experience throughout the world in the BRUSH Switchgear Ltd VMV range. Only very minor modifications are required to the existing switchgear fixed portion.

### **BRUSH**

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