

Customers

Our retrofits have been installed in almost every coal fired power station in the UK, as well as several nuclear power stations, distribution networks and industrial sites.

Our customers include a long list of blue chip names including generation and distribution companies such as **AES, British Energy, Drax, EDF, EoN, First Hydro, International Power, Magnox, RWE, Scottish Power, Scottish & Southern Energy** and a plethora of industrial companies including the likes of **BOC, Corus, Eli Lilly, Exxon Mobil, Rio Tinto** and **Shell UK**.

Services, Installation, Refurbishment

We are able to offer onsite services ranging from circuit breaker repairs, circuit breaker installation, through to removal and re-installation of HV switchboards, including full commissioning tests.

Special Applications

Through our diverse range of engineering expertise and manufacturing skills, together with our flexible approach, we have developed expertise in several related fields.

Some examples of this are:

- MV Motor speed changeover switches
- Protection systems and panels
- HV CT replacements
- Design, supply and installation of interlocking systems
- Stainless steel panels for onerous outdoor conditions




British Engineering

Contact Details

P&B Switchgear

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The Specialists for New & Retrofit Medium Voltage Switchgear

Products & Engineering Services for Power Generation, Distribution & Industrial Applications



English Electric E3
Retrofit vacuum
circuit breaker



Reyrolle S27A
Retrofit vacuum
circuit breaker



P&B Switchgear Zeus 12kV
Vacuum switchgear

P&B VOR-M-BVP17
Retrofit vacuum circuit breaker



The Specialists for New & Retrofit Medium Voltage Switchgear

About P&B Switchgear

Since 1991, we have become a market leader by designing, type testing and introducing many medium voltage vacuum breaker designs. These are used to retrofit and replace air and oil break circuit breakers manufactured by a range of UK suppliers, the majority of these now being famous names consigned to history.

We have built up a portfolio of products based on a high level of engineering expertise and significant investment running into hundreds of thousands of pounds on type testing, to ensure P&B Switchgear designs are fully proven for the ratings we offer.

For brand new installations and switchgear extensions we have used this expertise to introduce our Zeus range of indoor, metalclad, withdrawable, truck type air insulated vacuum switchgear, for ratings up to 12kV, 40kA and we can also supply cassette style, withdrawable, switchgear, through our exclusive licence agreement with Hawker Siddeley Switchgear for the well proven Hawkvac15.

Partners

The PBSI Group includes our sister Divisions offering a range of complementary products and services.

P&B Protection Relays have been designing protection relays for over 70 years. They can supply retrofits for many older relays and have the latest designs of intelligent protection and control equipment in operation in many parts of the world, often in very onerous operating and environmental conditions.

P&B Technical Services offer power system designs, system and co-ordination studies, and training in Power System protection.

P&B Weir are long established suppliers of HV Transmission and Distribution earthing equipment and also manufacture Buchholz relays and instrumentation.

At **P&B Switchgear** we have been using **ABB VD4**, and latterly **VMax**, vacuum breakers since we started supplying retrofits in 1991. ABB have many thousands of these breakers in service around the world giving assurance of the highest quality, together with long term support and service.

More recently, we have forged a further relationship with ABB. Taking advantage of the wide range of ABB products, plus their national and international service teams, together we can offer a

much wider range of substation products and services with our retrofit circuit breakers.

Our licence agreement with **Hawker Siddeley Switchgear** enables us to offer their Hawkvac15 to existing and new customers who require withdrawable switchgear for operational flexibility.

Products

Retrofit Circuit Breakers

We have retrofitted a wide range of different types of circuit breakers from 415V air breakers, through to 11kV air break, bulk oil and vacuum designs for the majority of well known manufacturers including AEI, Brush, English Electric, Ferguson Pailin, GEC, South Wales Switchgear, Reyrolle, Whipp & Bourne.



P&B VOR-M-GEC BVP17
Vacuum circuit breaker retrofit truck

P&B VOR-S-Brush VSI
Vacuum circuit breaker retrofit truck



Our retrofits for MV air breakers utilise the ABB VD4 vacuum circuit breaker and cover a wide range of applications and ratings up to 4000A normal current and 63kA short circuit current at 12kV. Our breakers have often been designed and type tested to achieve increased short circuit ratings, enhanced making currents and higher asymmetrical breaking currents than the original equipment.

We offer two types of Vacuum Oil Replacement breaker to replace bulk oil and vertically isolated vacuum breakers. Our VOR-S utilises an ABB VMax Spring operated vacuum circuit breaker. For customers who prefer an alternative to the spring mechanism we offer our VOR-M breaker, which utilises ABB proven cast resin

embedded vacuum interrupter poles driven by a state of the art magnetic actuator.

A wide range of type testing has been performed in independent, accredited laboratories to prove the ratings of the P&B Switchgear retrofit breakers.

Some of the benefits of using retrofit switchgear include:

- Increased operating reliability and safety – reduced risk of failure
- Removal of health hazards such as asbestos in ACBs and potential fire hazard with oil switchgear - can reduce insurance premiums
- Higher short circuit ratings available – we have developed retrofits for short circuit ratings up to 63kA and over 150kA peak
- Reduced maintenance and environmental impact
- Service life of switchgear can be extended by up to 30 years

Benefits over replacing complete switchboards include:

- Significant cost savings
- Shorter project times
- Minimal disruption to site and supplies
- No need to disturb or replace existing HV cables
- No new civil work required
- Can be phased to match spend with budget availability

Reyrolle S36A
Retrofit vacuum circuit breaker



Hawkvac 15
Metalclad switchgear

Medium voltage indoor switchgear

Zeus withdrawable truck type air insulated switchgear

For new switchgear applications we have supplied our Zeus range of metalclad 12kV air insulated vacuum circuit breaker switchgear for applications in UK coal fired and nuclear power stations.

Type tested at 12kV to 40kA rms (busbars to 50kA, 125kA peak), offering integral earthing via the fully rated vacuum circuit breaker for both cable connections and busbars. The fully interlocked design incorporates vertical movement of the circuit breaker for 3 position selection, i.e. service position, busbar earthing and cable earthing.



415V GEC Type M23
Retrofit breaker

GEC Type BVP 17
Vacuum circuit breaker retrofit truck

The design has busbars arranged in the lower, rear portion making it especially suitable for extending onto similar switchgear designs. It also provides a low centre of gravity and high degree of stability, to maximise safety during installation.

Hawkvac 15 withdrawable cassette type air insulated switchgear

We are pleased to have an exclusive licence agreement with Hawker Siddeley Switchgear to supply their complete range of fully type tested Hawkvac 15 medium voltage metalclad switchgear. Many hundreds of these are in successful service in the UK and overseas.

Designed for a system voltage of 15kV, normal current ratings are available up to 2000A with short circuit ratings to 40kA, in a panel width of only 600mm. This equipment is suitable for application in distribution networks of electrical utilities, as well as commercial and industrial areas, including the onerous environments of the oil, gas and petrochemical sectors.

