



TRUST. WELL EARNED.

SWR12 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 SF₆ 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.

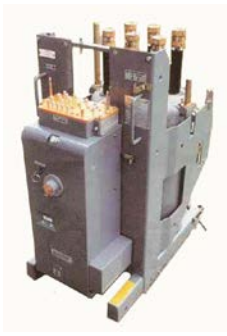
Key Benefits to Retrofit

- Superior, proven technology with minimal maintenance
- Removes the need for high capacity auxiliary supply
- No civil works required and existing HV cabling remains undisturbed
- Improvement of Health & Safety by removal of Oil or SF₆ gas
- Considerable life extension of the existing switchgear
- Lower owner costs through virtually no maintenance requirements and increased switchboard life expectancy
- Uses existing design of primary and automatic secondary contacts
- Improved panel interlocking to latest ENA requirements
- In addition to the retrofit of the circuit breaker, BRUSH Switchgear can offer a more complete system solution to enhance the control and automation of the distribution network



Standard Ratings

Rated Values - Common:	kV	12
Normal Rated Currents	A	400/630, 800, 1250
Rated Voltage	kV	12
Lightning Impulse Withstand Voltage	kVP	75
Short Duration Power Frequency Withstand Voltage	kV	28
Rated Frequency	Hz	50
Rated Short-Time Withstand Current	kA	25
Rated Peak Withstand Current	kA Peak	62.5
Rated Duration of Short Circuit	Seconds	3
Making Current (peak)	kA	62.5
Symmetrical Breaking Current	kA	25
Rated Short-Time Current (3 sec)	kA	25
Rated Auxiliary Voltages	V dc	30, 48/50, 110/125
Minimum opening time/closing time	ms	33ms/76ms
Normal Operations		10,000
Weight	Kg	211
Rated Operating Sequence	O-0.3s-CO-15s-Co	
Operating Mechanism Type	Dependent power closing (Magnetic actuator); Stored energy opening (Springs, charging for closing)	



D4X Circuit Breaker

The SWS 'C' range high type switchgear was manufactured in the 1950's with the low type integrally earthed switchgear manufactured in the 1960's. The 'D' range was introduced in the 1970's, with both 'C' & 'D' ranges of switchgear boasting an installed base in a global market.

The SWS range of OCB's ('C' & 'D') have provided excellent service in both the 11kV primary and 6.6kV and 3.3kV secondary substation application. However both time and development have offered us improved technology and mechanical endurance, which are present in the SWR12 retrofit circuit breaker, offering 10,000 operations and 30 year life expectancy.



Hawkgas12 Circuit Breaker SF₆ filled switchgear with vertical Isolation

The HG12 range of switchgear was manufactured in the 1990's and used as a retrofit solution to the existing SWS 'C' and 'D' range. The HG12 SF₆ circuit breaker and housing was used as our product solution for 11kV 6.6kV & 3.3kV switchboard applications.

The engineering behind the SWR12 has allowed us to avoid the use of SF₆ gas, making the breaker more environmentally friendly and 'trouble free' for the end user.

Relevant Specifications and Standards:

- ENA Technical Specification 41-36 Issue 3
- Parts 1, & 2: 2012
- ENA Technical Specification 50-18: 2008
- ENA Technical Specification 50-19: 2003

STL Guides

- ISO 9001: 2008
- IEC 62271-100: 2003
- IEC 60529: 2001
- IEC 62271-1: 2007
- IEC 62271-200: 2011

Patents

- GB2289374B
- EP 0 909 453 B1

Additional Technical Information/Testing

		SWR
Rated Short-Circuit Breaking Current	kA	25
Rated Short-Circuit Making Current	kA Peak	62.5
Rated Capacitive Switching Currents	Class	C1
Rated Line-Charging Breaking Current	A	10
Rated Cable-Charging Breaking Current	A	25
Out of Phase Making and Breaking Current	kA	6.25
Rated Single Capacitor Bank Breaking Current	A	400
Double earth Fault	kA (0.87 x I _{sc})	21.8
Single Phase Fault	kA (I _{sc} at 12/√3kV)	25
D.C. Time Constant	ms	45
D.C. Component	%	45
Rated Break Time	ms max.	45
Classification for Mechanical Endurance	Class	M2 (10,000 operations)
Classification for Electrical Endurance	Class	Class E2 List 1 (Table 21 of IEC 62271-100)
Integral Earthing (Low Type)		
Rated Short Time Withstand Current	kA	25 (3 seconds)
Rated Short-Circuit Making Current when functioning as an Earth Switch	kA Peak	62.5
Earthing Adapter (High Type)		
Rated Short Time Withstand Current	kA	13.1 (3 seconds)
Rated Short Circuit Making	kA Peak	33

BRUSH

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