

# Medium Voltage VR-Series<sup>+</sup> Circuit Breakers



## A powerful replacement for the GE PowerVac VB and VB1

Eaton now offers an enhanced replacement vacuum circuit breaker for the GE PowerVac<sup>®</sup> VB and VB1 circuit breakers. The VB1-VR<sup>+</sup> is an electrical and mechanical replacement with enhanced performance over the original GE designed circuit breaker.

## Synthetic molybdenum disulfide lubrication system

A modern lubrication system creates a protective layer between the wearing surfaces of the mechanism. When applied in normal applications as defined by IEEE C37.04-1999, the VR-Series<sup>+</sup> circuit breaker element will only require re-lubrication once every ten years or ten thousand operations, whichever comes first.

## Designed and tested to exceed current IEEE standards in an ISO certified facility

VR-Series<sup>+</sup> circuit breakers meet K>1 and K=1 rating structures as defined by IEEE C37.06-2000 and have a full three-second short-time rating. This rating structure exceeds current IEEE Standards. VR-Series<sup>+</sup> circuit breakers extend the useful life of existing switchgear and complies with the testing, interfaces, and compatibility of C37.59 standards. IEEE/ANSI certificates and certified factory production test reports are available for each design. The VR-Series<sup>+</sup> finished product is assembled in an ISO 9001:2015 certified facility assuring the finest quality.

## Reduce maintenance costs

Most power circuit breakers require maintenance and lubrication every two years. Proper maintenance can require 6 to 8 man-hours per circuit breaker. VR-Series<sup>+</sup> circuit breakers have scheduled maintenance intervals of up to 10 years and require less than one hour to maintain. The current transfer and contact systems are maintenance free. Spare parts inventory is considerably reduced because VR-Series<sup>+</sup> circuit breakers use compatible parts with VR-Series circuit breakers. This consistency saves \$2,000 to \$4,500 per circuit breaker over a 10 year period.

## Solve parts availability issues

VR-Series<sup>+</sup> control components are compatible with Eaton's original VR-Series and VCP-W circuit breakers and are in stock at Eaton's Power Breaker Center. This availability saves \$3,000 to \$6,500 per design in future spare parts investments.

## Increased interrupting capability

Power demands may have increased the available short current beyond the capabilities of the existing switchgear. VR-Series<sup>+</sup> circuit breakers along with the appropriate bus bracing upgrades can increase the existing switchgear's interrupting capabilities in the same space as the original PowerVac VB and VB1 circuit breakers. This provides a potential savings of \$5,000 to \$12,000 per circuit breaker versus the costs of replacing the switchgear.

## Patented Sure-Close MOC Technology

Eaton's patented Sure-Close technology for vacuum replacement circuit breakers with de-coupled stored energy is guaranteed not to stall the circuit breaker during closing and prevents damage to the existing cell MOC components. MOC switch replacements cost an average of \$2,500 each.

# EATON

Powering Business Worldwide

## VB1-VR+ Availability and Interchangeability

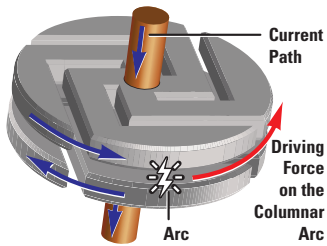
Existing VB/VB1 Circuit Breaker Type	VB1-VR+ Circuit Breaker Type ①	Maximum Voltage Class	Nominal 3-Phase MVA Class	Existing Circuit Breaker Rated Continuous Current at 60 Hz	Rated Voltage Factor ④	Rated Withstand ANSI Test Voltage		Rated Short-Circuit	Maximum Sym. Interrupting Capability	Closing and Latching / Momentary Capabilities
		kV	MVA	Amps	K	Low Freq. kV RMS	Impulse kV Peak	I kA RMS	K*I kA RMS	kA RMS / Peak
VB1-4.16-250	VB1-4.16-VR+250	4.76	250	1200 / 2000	1.24	19	60	29	36	58 / 97
VB1-4.16-250	VB1-4.16-VR+41 ②③	4.76	N/A	1200 / 2000	1.00	19	60	41	41	78 / 132
VB1-7.2-500	VB1-7.2-VR+500	8.25	500	1200 / 2000	1.25	36	95	33	41	66 / 111
VB1-13.8-500	VB1-13.8-VR+500	15	500	1200 / 2000	1.30	36	95	18	23	37 / 62
VB1-13.8-500	VB1-13.8-VR+41 ②③	15	N/A	1200 / 2000	1.00	36	95	41	41	78 / 132
VB1-13.8-750	VB1-13.8-VR+750	15	750	1200 / 2000	1.30	36	95	28	36	58 / 97
VB1-13.8-750	VB1-13.8-VR+41 ②③	15	N/A	1200 / 2000	1.00	36	95	41	41	78 / 132

① All circuit breakers have a 3 second short-time and 3-cycle interrupting ratings.

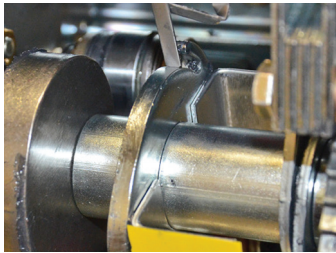
② Exceeds standard rating structure.

③ Requires bus bracing study and additional switchgear bracing.

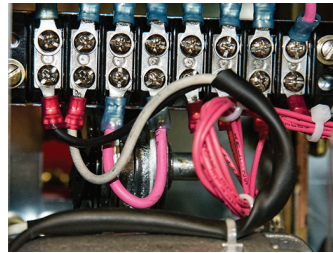
④ All ratings were tested to multiple versions of IEEE C37.09 and can be rated as K=1 or K>1.



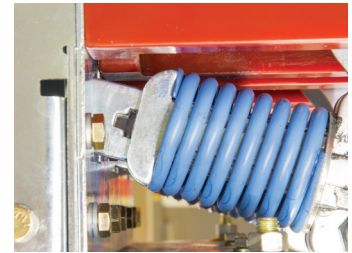
Reliable TMF Vacuum Technology Copper-Chromium Contacts



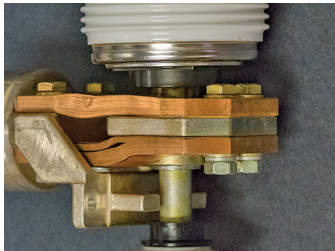
Enhanced Motor Cut-off Cam



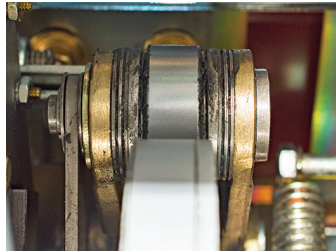
Insulated Ring-Tongue Terminals



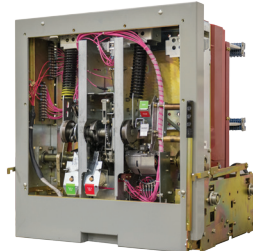
T-Cutout Wear and Wipe Indicator



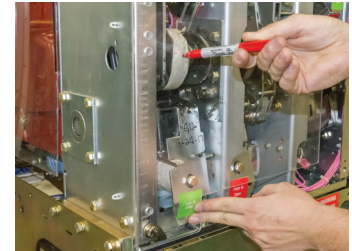
Non-Sliding Conical Current Transfer with Zero Holm Effect



63 kA Closing System



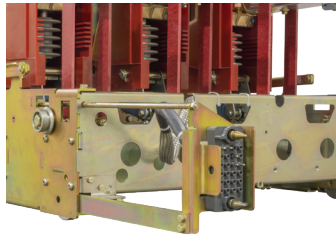
Up-Front Accessible Mechanism



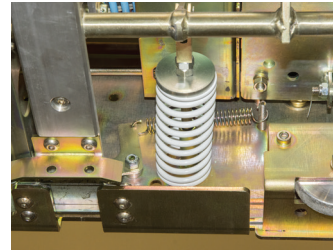
CloSure™ Mechanism Check



Solid Spring Disk



Secondary Contacts with Stainless Steel Control Wire Sheathing



Sure-Close MOC Operator



Compatible with RPR-2 Remote Rotary Racking

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