

VBWB - Vacuum Circuit Breaker

Reliability and
robustness for
your needs

Industrial Motors

Commercial &
Appliance Motors

**Automation &
Systems**

Energy

Transmission &
Distribution

Coatings



Driving efficiency and sustainability





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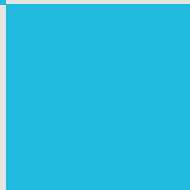
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Reliability and robustness

for your needs

The VBWB Vacuum Circuit Breaker with side mechanism has a sturdy and compact structure for electrical circuit protection cubicles that require reliability and robustness.

The circuit breaker has electrical contacts inside vacuum ceramic bottles, embedded in an epoxy resin pole that guarantees the interruption of the electric current during a short circuit, extinguishing the electric arc inside the bottle.

The bottle efficiently reduces the energy generated by the electric arc, thus extending the service life of the electrical contact.



Benefits



Complete range of accessories



Easy accessory assembly and product setup



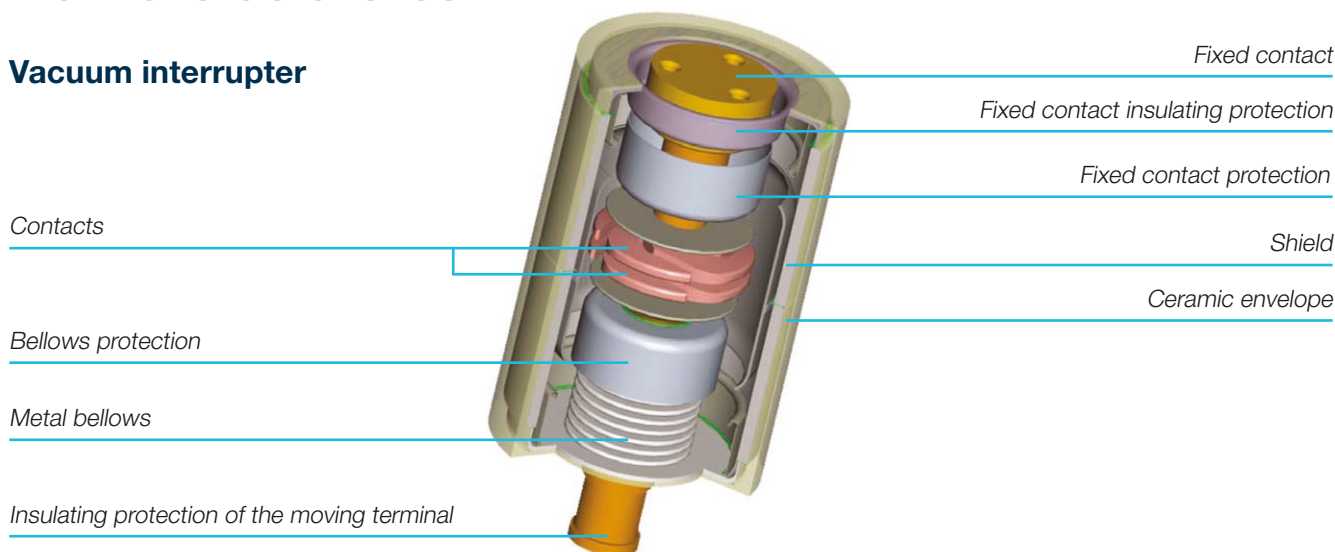
Compliance with severe electrical circuit protection requirements



Embedded bottles that reduce the electrical arc and guarantee extended service life

Main characteristics

Vacuum interrupter



The VBWB line with side mechanism offers circuit breakers with voltage class of 24 kV, interrupting capacity of 21 kA and current of 1,250 A.



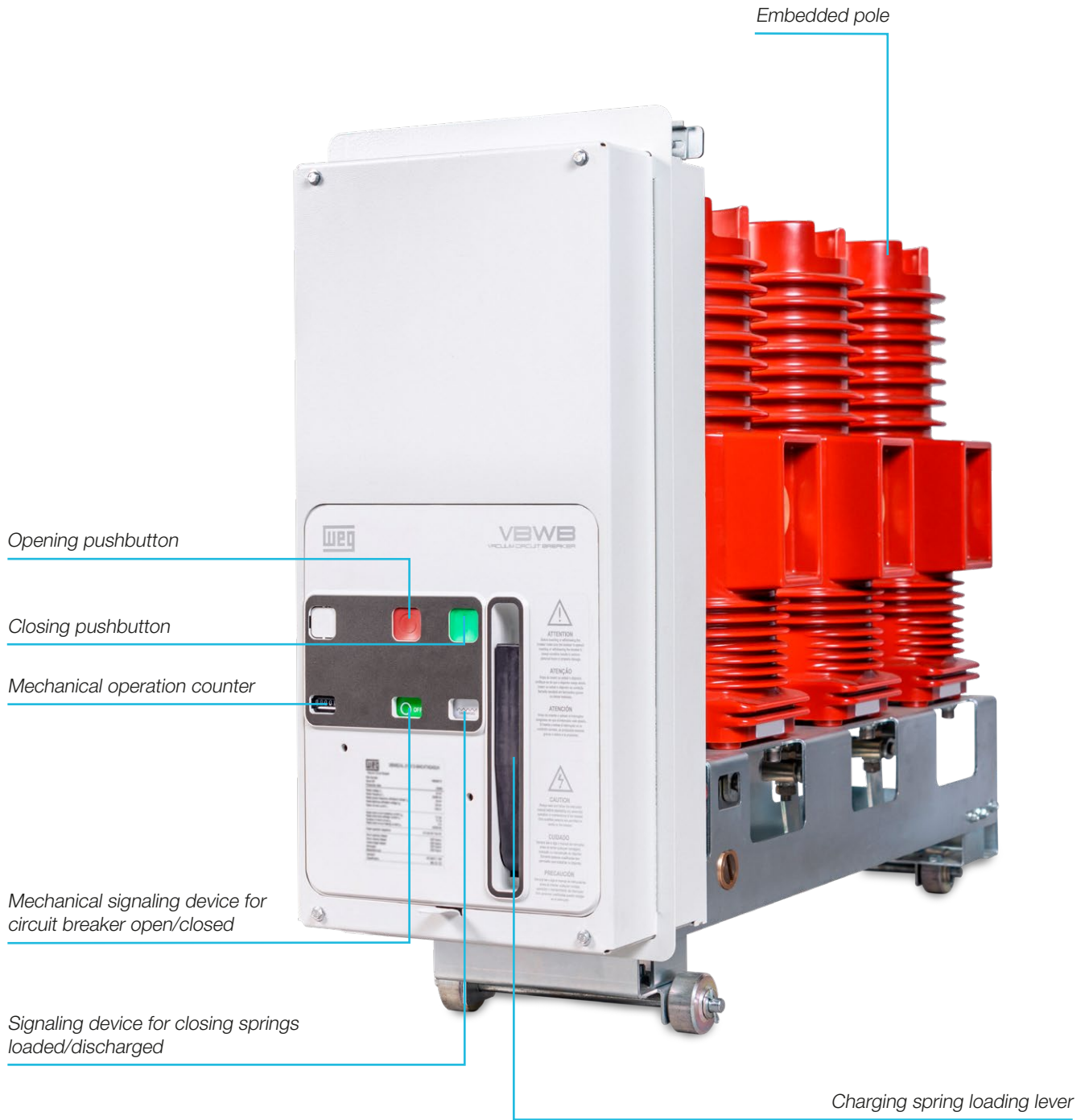
Ur (kV)	Isc (kA)	Ir (A)
24	21	630
24	21	1,250

Technical data

Standard		IEC 62271-100	
Poles		3P	
Rated voltage	Ur [kV]	24	
Rated insulation voltage	Us [kV]	24	
Withstand voltage	Ud (1 min) [kV]	50	
Impulse withstand voltage	Up [kV]	125	
Rated frequency	fr [Hz]	50 / 60 Hz	
Rated normal current (40 °C)	Ir [A]	630	1,250
Rated breaking capacity (rated short-circuit breaking current symmetrical)	Isc [kA]	21	
Rated short-time withstand current (3s)	Ik [kA]	21	
Making capacity (50 Hz)	Ip [kA]	53	
Making capacity (60 Hz)	Ip [kA]	55	
Making capacity considering Isc		2.5 x Isc (50 Hz)	
		2.6 x Isc (60 Hz)	
Operation sequence		0 - 0.3s - CO - 15s - CO	
Electric Contacts		8 NO + 8 NC	
Maximum switching quantity without load		Cicles	10,000
Mechanical switching class		M2	
Electrical switching class		E2	
Operating switching class		S1	
Capacitive switching class		C2	
Opening time	[ms]	≤60	
Closing time	[ms]	≤70	
Arching time	[ms]	10...15	
Total breaking time	[ms]	≤75	
Weight	[kg]	90	
High		H [mm]	738.50
Width		W [mm]	315
Deep		D [mm]	1,002
Distance between poles		P [mm]	230
Operating temperature		[°C]	-5...+40

Construction characteristics

VBWB - 24 kV / 21 kA



Coding

VCB VBWB - R 24 12 21 -23 -M1 C1 O1

Pole position ⁴⁾	Code
Right side	R
Left side	L

Rated voltage	Code
24 kV	24

Rated current	Code
630 A	06
1,250 A	12

Rated breaking capacity	Code
21 kA	21

Poles distance	Code
230 mm	23

Spring charging motor	Code
Without	M0
100-130 V _{Ac/bc}	M1
200-250 V _{Ac/bc}	M2
24 V _{Dc}	M3

Shunt closing release	Code
Without	C0
100-130 V _{Ac/bc}	C1
200-250 V _{Ac/bc}	C2
24 V _{Dc}	C3

Accessories	Code
Without	
Key block	K
Individual paddlock for pushbuttons	I
Simultaneous paddlock for pushbuttons	S
Protection for pushbuttons	P

Mechanical locking coil ³⁾	Code
Without	
100-130 V _{Ac/bc}	L1
200-250 V _{Ac/bc}	L2
24 V _{Dc}	L3

Undervoltage release ¹⁾²⁾	Code
Without	
100-130 V _{Ac/bc}	U1
200-250 V _{Ac/bc}	U2
24 V _{Dc}	U3
Additional shunt opening ¹⁾	Code
Without	
100-130 V _{Ac/bc}	S1
200-250 V _{Ac/bc}	S2
24 V _{Dc}	S3

Shunt opening release	Code
Without	O0
100-130 V _{Ac/bc}	O1
200-250 V _{Ac/bc}	O2
24 V _{Dc}	O3

Standard accessories	Operation counter
	With antipumping system

- Notes: 1) It is not possible to install undervoltage release and additional shunt opening. It must be selected undervoltage or additional shunt opening.
 2) Undervoltage release must be actuated all the time for keeping the VCB operating.
 3) The mechanical locking coil must be actuated for closing the VCB.
 4) Pole output connection side.

Accessories

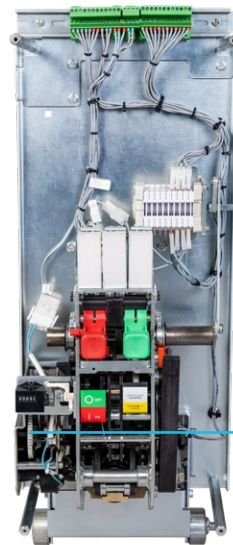
The VBWB circuit breaker has a complete line of accessories to guarantee a complete solution for industrial applications.

The accessories can be installed directly at WEG's plant or by a technician trained by WEG's technical team.

Geared motor for loading closing spring (-MAS)

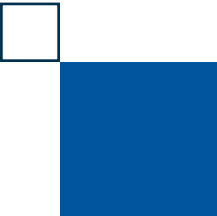
- The geared motor charges the spring for closing the circuit breaker.
- The spring is automatically charged after the circuit breaker closes.

Characteristics	Specification		
	VBWB-AM C03	VBWB-AM D13	VBWB-AM D23
Reference	17175264	17175261	17175260
Code	24 V _{DC}	100~130 V _{AC} / V _{DC}	200~250 V _{AC} / V _{DC}
Supply voltage (Vn)	6.5	1.4	0.7
Rated current (A)	V _{DC} = 40 W; V _{AC} = 40 VA		
Rated output power	8 rpm		
Rated rotational speed	50 Nm		
Rated torque	6...7s		
Charging time	S2 (1min)		
Duty cycle	85%~110%		
Operating voltage			



Geared motor for loading closing spring

Note: illustrative drawings.



Accessories

Shunt closing release (-MBC)

- It allows switching on the circuit breaker by means of an electrical command (the springs must be pre-charged).
- The electrical pulse must be greater than 200ms for closing the VBWB.

Characteristics		Specification		
Reference		MBC VBWB C03	MBC VBWB E56	MBC VBWB E57
Code		16119643	16119644	16119646
Supply voltage	(Vn)	24 V _{dc}	100~130 V _{ac} / V _{dc}	200~250 V _{ac} / V _{dc}
Operating voltage		85...110% V _{ac}		
		70...110% V _{dc}		
Consumption	Energization	V _{dc} = 300 W / V _{ac} = 300 VA	V _{dc} = 400 W / V _{ac} = 400 VA	V _{dc} = 500 W / V _{ac} = 500 VA
	Steady state	V _{dc} = 2 W / V _{ac} = 2 VA		



Shunt closing release

Shunt opening release (-MB01)

- It allows switching off the circuit breaker by means of an electrical command.
- The electrical pulse must be greater than 35ms for closing the VBWB.

Characteristics		Specification		
Code		MB01 VBWB C03	MB01 VBWB E56	MB01 VBWB E57
Reference		16119584	16119585	15830558
Supply voltage	(Vn)	24 V _{dc}	100~130 V _{ac} / V _{dc}	200~250 V _{ac} / V _{dc}
Operating voltage		85...110% V _{ac}		
		70...110% V _{dc}		
Consumption	Energization	V _{dc} = 300 W / V _{ac} = 300 VA	V _{dc} = 400 W / V _{ac} = 400 VA	V _{dc} = 500 W / V _{ac} = 500 VA
	Steady state	V _{dc} = 2 W / V _{ac} = 2 VA		
Opening time		≤50 ms		
Closing time		≤70 ms		
Insulation voltage		2,000 V 50/60 Hz (1 min)		



Shunt opening release

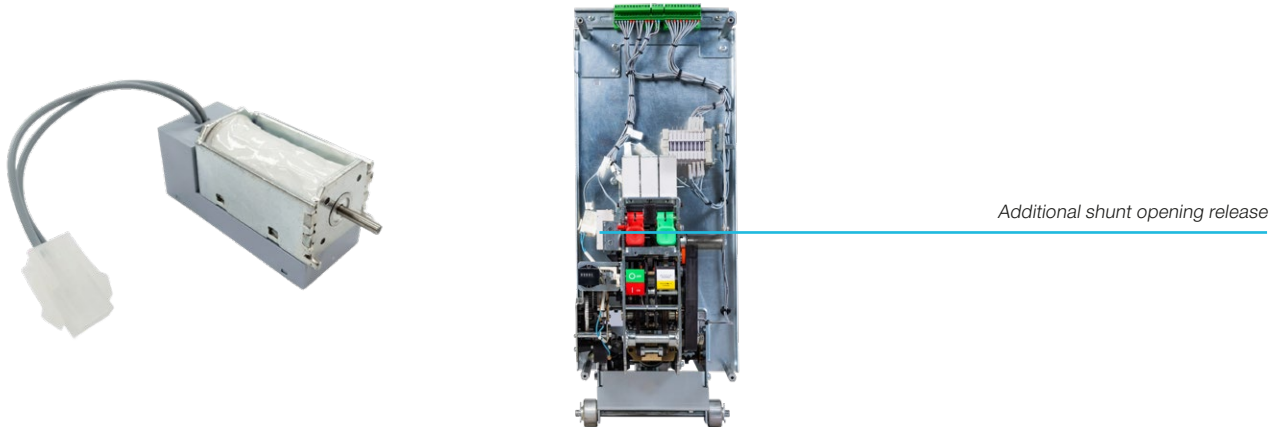
Note: illustrative drawings.

Accessories

Additional shunt opening release (-MB02)

- It allows opening the circuit breaker by an electrical command.
- The electrical pulse must be greater than 35ms for closing the VBWB.

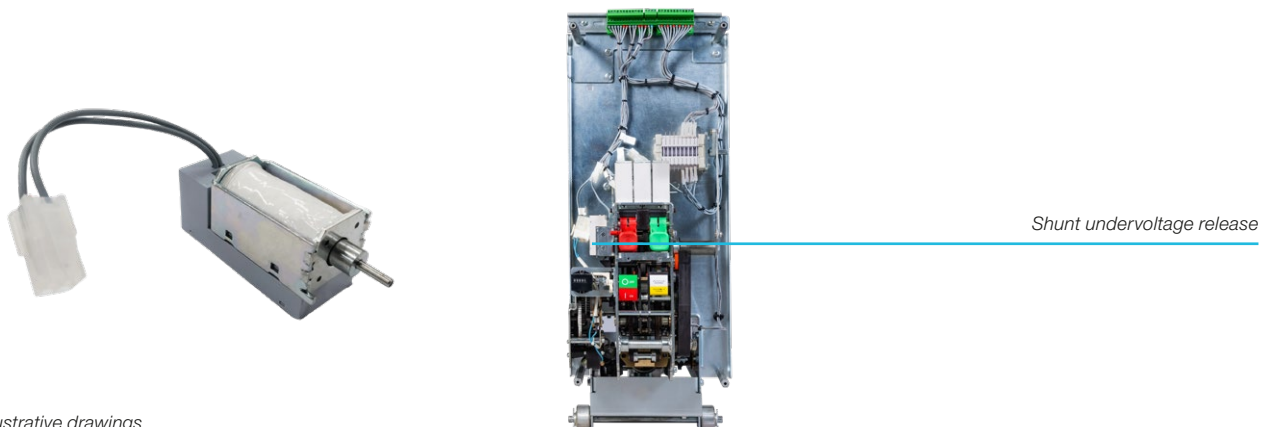
Characteristics		Specification		
Reference		MB02 VBWB C03	MB02 VBWB E56	MB02 VBWB E57
Code		16119586	16119587	16119638
Supply voltage	(Vn)	24 V _{DC}	100~130 V _{AC} / V _{DC}	200~250 V _{AC} / V _{DC}
Operating voltage		85...110% V _{AC} 70...110% V _{DC}		
Consumption	Inrush power (Ps)	V _{DC} = 300 W / V _{AC} = 300 VA	V _{DC} = 400 W / V _{AC} = 400 VA	V _{DC} = 500 W / V _{AC} = 500 VA
	Continuous power	V _{DC} = 2 W / V _{AC} = 2 VA		
Opening time		≤50 ms		
Closing time		≤70 ms		
Insulation voltage		2,000 V 50/60 Hz (1 min)		



Shunt undervoltage release (-MBU)

- It needs to be constantly powered to keep the circuit breaker closed and to trip the circuit breaker in cases of voltage drop or failure in the control power supply.

Characteristics		Specification		
Reference		MBU VBWB C03	MBU VBWB E56	MBU VBWB E57
Code		16119647	16119678	16119679
Supply voltage	(Vn)	24 V _{DC}	100~130 V _{AC} / V _{DC}	200~250 V _{AC} / V _{DC}
Consumption	Energization	V _{DC} = 600 W / V _{AC} = 600 VA	V _{DC} = 1,200 W / V _{AC} = 1,200 VA	V _{DC} = 500 W / V _{AC} = 500 VA
	Steady state	V _{DC} = 5 W / V _{AC} = 5 VA		
Operating voltage range (closing the circuit breaker)		85...110%		
Dropout voltage range (opening the circuit breaker)		35...70%		
Opening time		≤70 ms		
Insulation voltage		2,000 V 50/60 Hz (1 min)		



Note: illustrative drawings.

Accessories

Mechanical locking coil (-RLE1)

- Must be energized for closing the VCB.

Characteristics	Specification		
	RLE1 VBWB C03	RLE1 VBWB E56	RLE1 VBWB E57
Reference	16119685	16119686	16119698
Code	16119685	16119686	16119698
Supply voltage (Vn)	24 V _{DC}	100~130 V _{AC} / V _{DC}	200~250 V _{AC} / V _{DC}
Consumption	Inrush power (Ps)	V _{DC} = 600 W / V _{AC} = 600 VA	V _{DC} = 1,200 W / V _{AC} = 1,200 VA
	Continuous power	V _{CC} = 5 W / V _{CA} = 5 VA	
Operating voltage range (closing the circuit breaker)	85...110%		
Dropout voltage range (opening the circuit breaker)	35...70%		
Opening time	≤70 ms		
Insulation voltage	2,000 V 50/60 Hz (1 min)		



Mechanical locking coil (-RLE1)

Accessories

Key lock

- It allows locking the circuit breaker in the OFF position.

Circuit breakers	Reference	Code
VBWB	VBWB-BK1	17175103



Key lock

Padlocks

- They allow you to simultaneously or individually lock the VBWB operation buttons.

Circuit breakers	Reference	Code	Action
VBWB	Simultaneous VBWB lock	17175106	Simultaneously locks the opening and closing buttons
VBWB	Individual VBWB lock	17175105	Allows individual lock of the opening or closing pushbuttons

Simultaneous lock



Individual lock



Circuit breakers	Reference	Code	Action
VBWB	VBWB button protection	17175101	Protects the operation buttons and only allows operation with the button key



Note: illustrative drawings.

Accessories

Condenser trip device

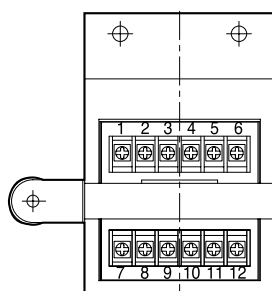
This device electrically trips the circuit breaker within a preset time when the control power is OFF. It operates by means of the discharge of a capacitor on the shunt opening release, with that being possible within the period indicated in the table below.

It includes an indication lamp to signal whether the capacitor is charged and a discharge button. Installation on panel door

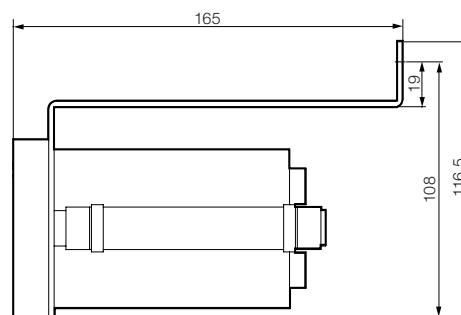
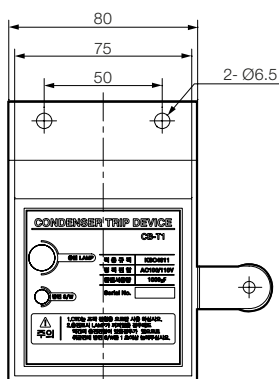


Characteristics	Specification	
Reference	VBW-UC D58	VBW-UC D64
Code	12231110	12231111
Power Supply (V _{AC})	100/110	200/220
Frequency (Hz)	50/60	50/60
Rated output voltage (V)	140/155	280/310
Charging time (s)	10s	10s
Operation time (m)	30s	30s
Operating voltage range	85%~110%	85%~110%
Capacitance (μF)	1,000	560

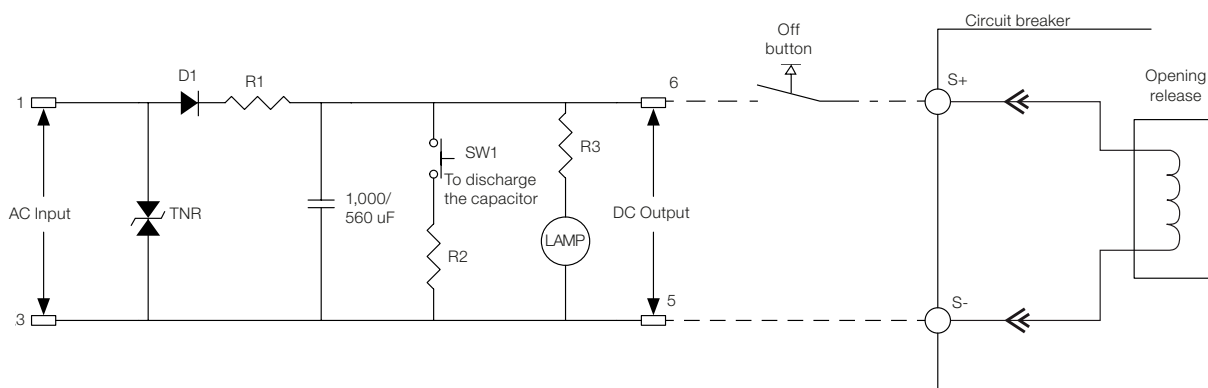
Terminal arrangement



External dimension

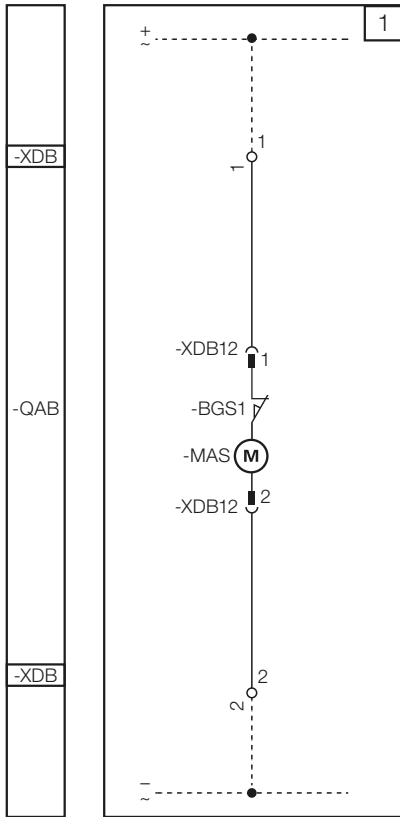


Circuit diagram

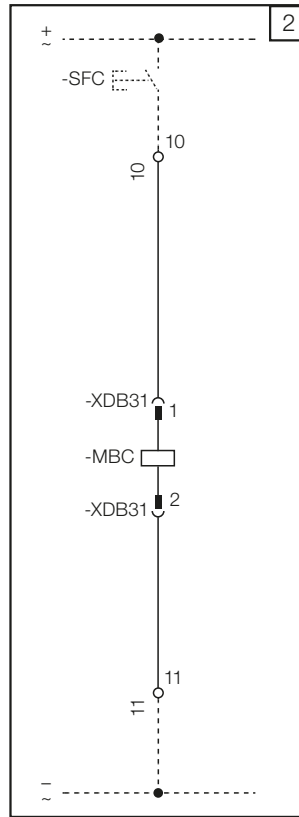


Wiring diagram

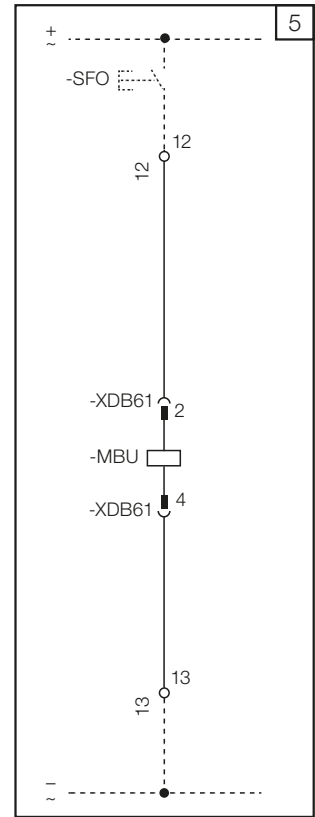
Geared motor for loading closing spring



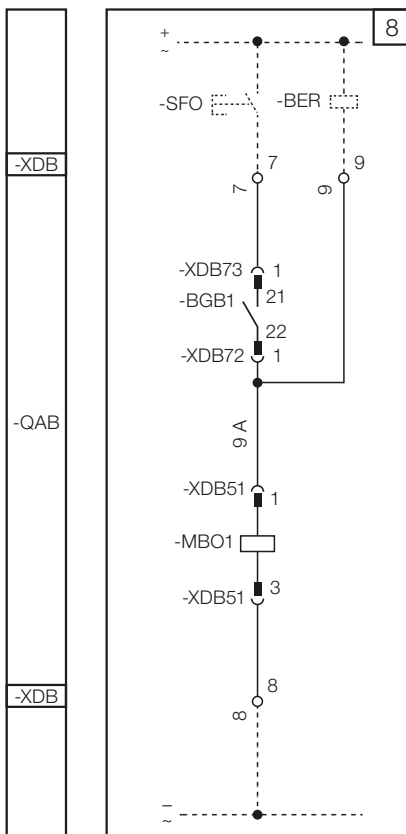
MBC shunt closing release



Shunt undervoltage release

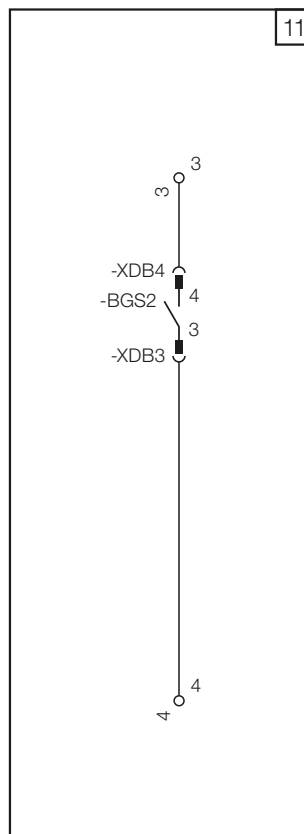


Shunt opening release



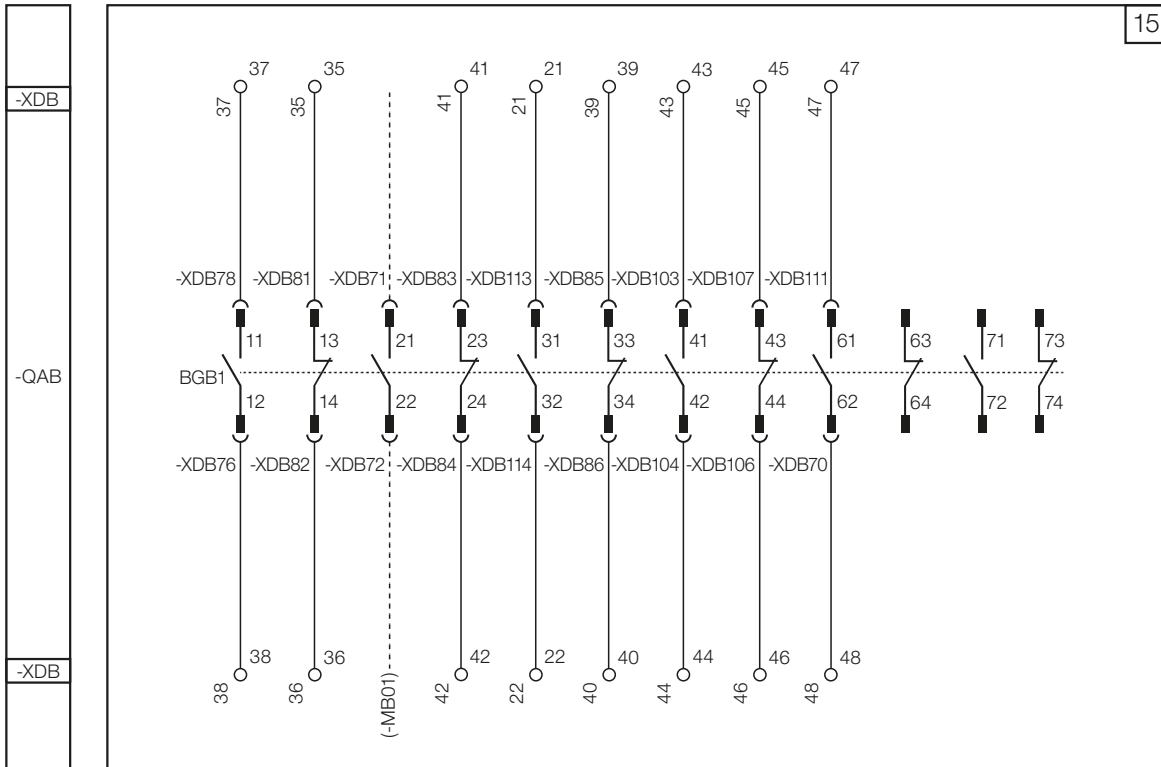
BER is the representation of the coil continuity measurement circuit.

Charged spring indication contact



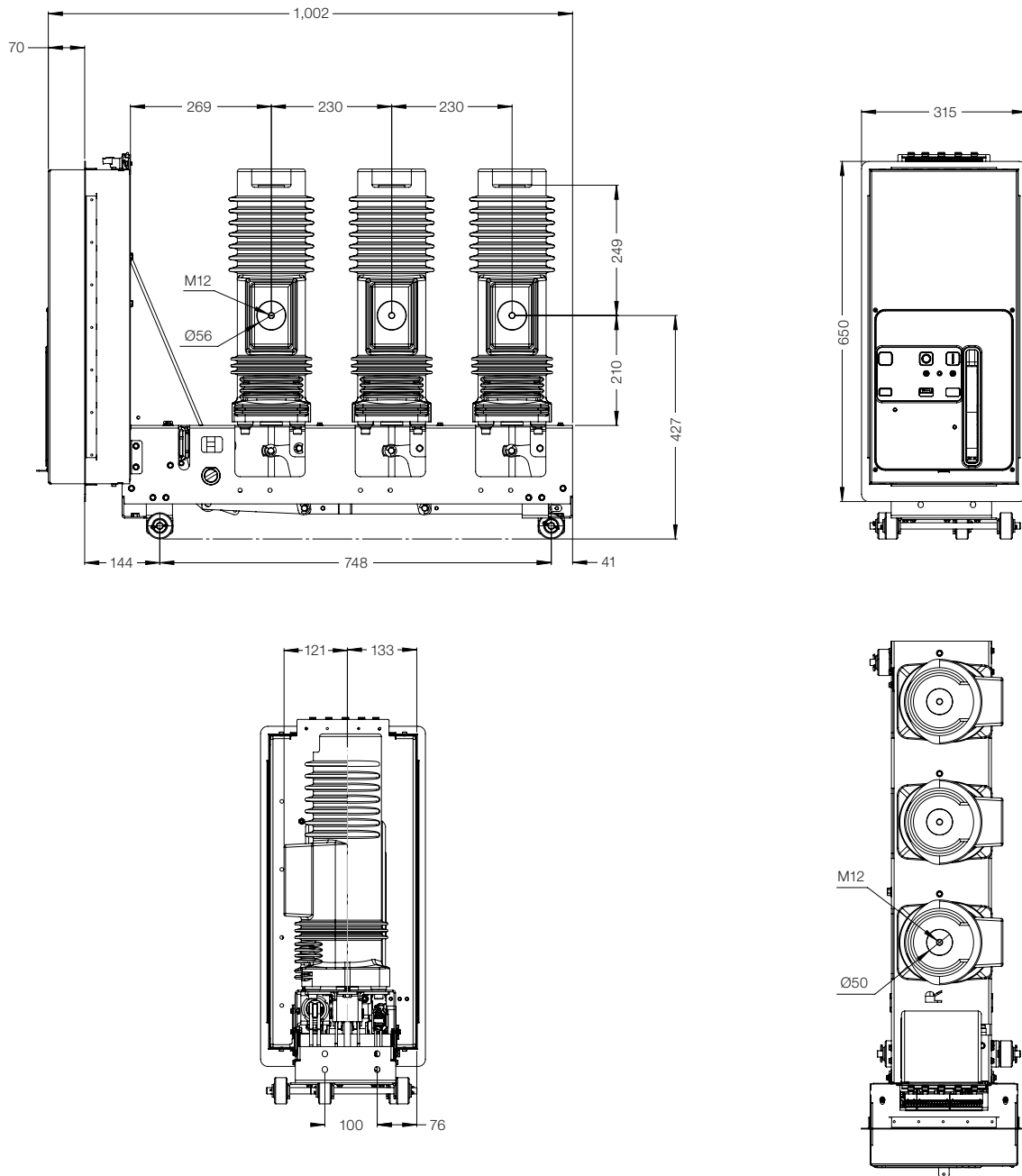
Wiring diagram

Auxiliary contacts



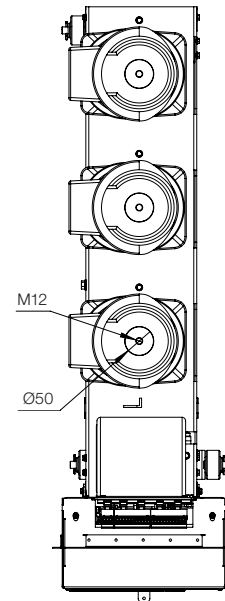
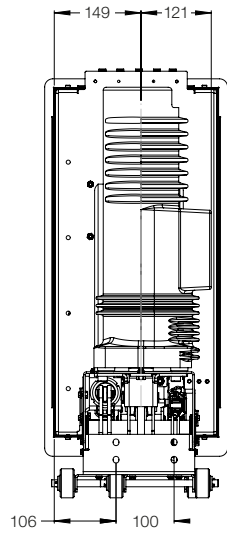
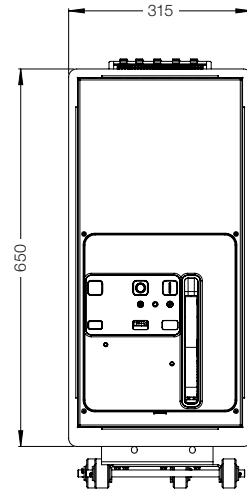
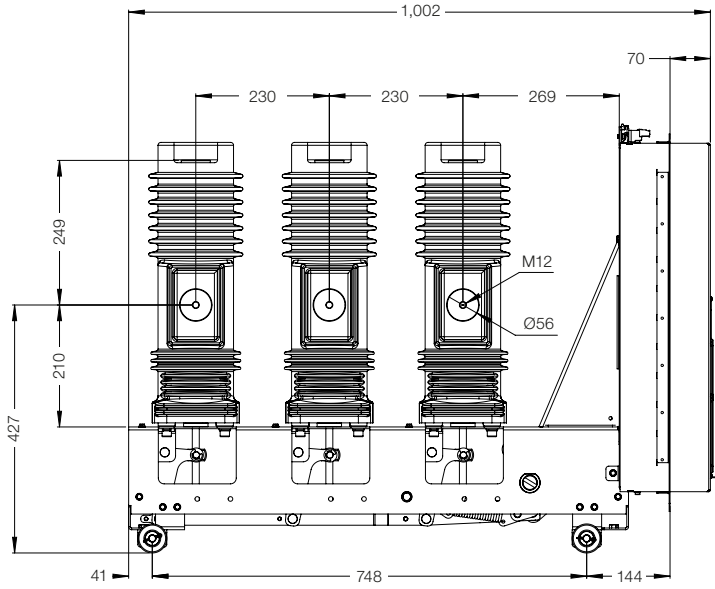
Dimensions

VBWB R 24 kV, 21 kA - with power terminal connection on the right side



Dimensions

VBWB L 24 kV, 21 kA – with power terminal connection on the left side



Global presence

is essential, as much
as understanding
your needs.

Global Presence

With more than 49,000 employees worldwide, WEG is one of the largest electric motors, electronic equipments and systems manufacturers. We are constantly expanding our portfolio of products and services with expertise and market knowledge. We create integrated and customized solutions ranging from innovative products to complete after-sales service.

WEG's know-how guarantees our **VBWB - Vacuum Circuit Breaker** are the right choice for your application and business, assuring safety, efficiency and reliability.



Availability is to have a global support network



Partnership is to create solutions that suits your needs



Competitive edge is to unite technology and innovation

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www.weg.net



 +55 47 3276.4000

 automacao@weg.net

 Jaraguá do Sul - SC - Brazil

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The information contained is reference values.