

# TE ENERGY

## WITHDRAWABLE VACUUM CIRCUIT BREAKERS FOR SG\_MILE® AIR-INSULATED SWITCHGEAR

**MVL/VL/VH** | 12...36(40,5) kV - 630...3150 A - 16...40 kA



### High reliability

High-performing core materials are designed to operate under harsh industrial environments and provide excellent protection against mechanical shocks, dust and moisture.

- Switching capability up to 40 kA at 40,5 kV
- Class E2, M2, C2



### Safety

Intelligent interlock system eliminates any risks associated with racking in/racking out a circuit breaker and optional motor-driven truck allows an operator to remotely put the circuit breaker into service without exposing himself in front of the switchgear.



### Global leader

More than 30 years of experience. International certification and access to global markets:

- Type test certification acc. to IEC 62271-100
- North America UL certification
- Marine certification (KR, LR, BV, GL, DNV, ABS, NK)



### Value for money

Affordable and flexible pricing, comprehensive turnkey solutions from the most experienced engineers.



### Environmentally friendly

Environmentally sustainable circuit breakers with embedded vacuum interrupters.

LS Electric MVL / VL / VH series circuit breakers with embedded vacuum interrupters are premium products featuring sustainable technologies, compact size, high reliability and a variety of accessories for safe, stable and reliable power supply.

These circuit breakers are the best choice for a wide variety of indoor applications and are used in primary and secondary distribution substations to control and protect transformers, motors, generators, capacitor banks and cable lines.

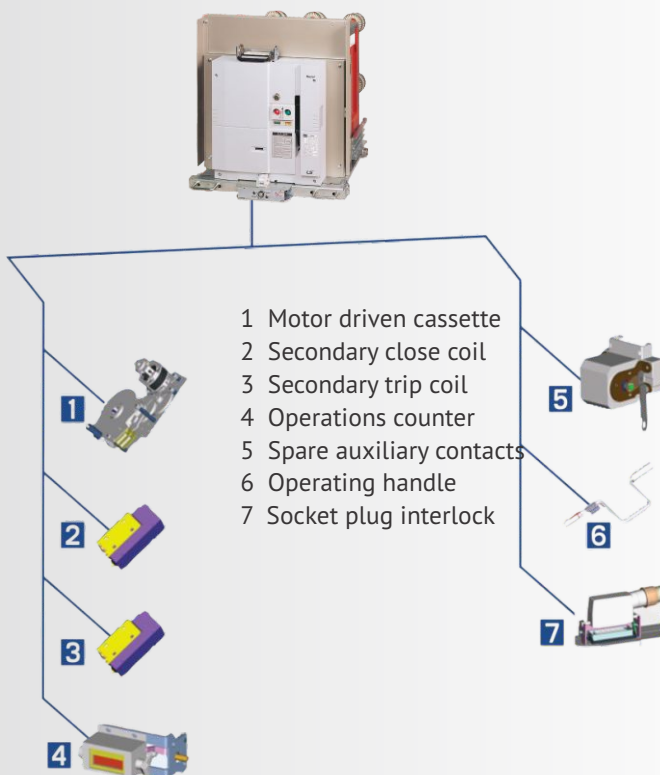


# DESIGN



- 1 Low-body vehicle
- 2 Locking/release handles
- 3 Rack-in/rack-out interface
- 4 Operations counter
- 5 VCB position indicator (Open/Close)
- 6 VCB open pushbutton
- 7 VCB close pushbutton
- 8 Manual spring charge interface
- 9 Spring indicator (Charged/Discharged)
- 10 Rack-in/rack-out handles
- 11 Secondary connector plug
- 12 Vacuum circuit breaker
- 13 Primary contacts (tulip type)

## ➤ VERSATILE ACCESSORIES



## ➤ WITHDRAWABLE FLOOR TRUCK OPTION



# TECHNICAL PARAMETERS

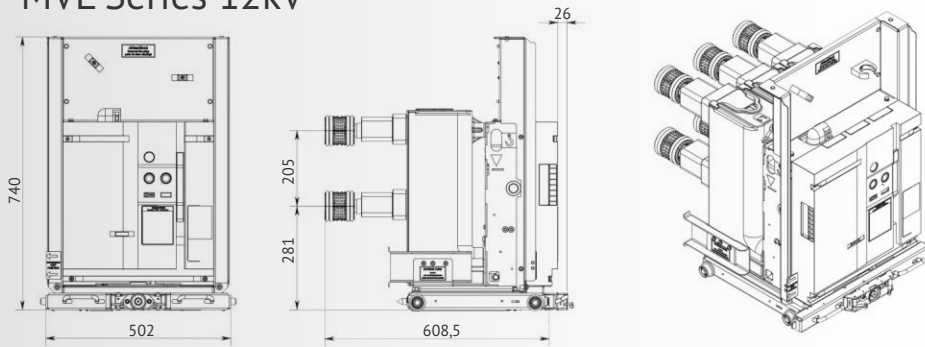
Type of vacuum circuit breaker	MVL-12(17)	VL-12(17)	VL-20	VH-36
Rated data				
Rated voltage (Ur)	≤ 17.5 kV	≤ 17.5 kV	24 kV	36 (40.5 <sup>1</sup> ) kV
Rated normal current (Ir)	≤ 1250 A	≤ 2500 A	≤ 2000 A	≤ 3150 A
Rated power frequency withstand voltage (Ud)	≤ 38 kV	≤ 38 kV	50 kV	70 (95 <sup>1</sup> ) kV
Rated lightning impulse withstand voltage (peak) (Up)	≤ 95 kV	≤ 95 kV	125 kV	170 (190 <sup>1</sup> ) kV
Rated short-circuit breaking current (Isc)	≤ 31.5 kA	≤ 31.5 kA	≤ 25 kA	≤ 40 kA
Rated peak withstand current (Ip)	≤ 82 kA	≤ 82 kA	≤ 65 kA	≤ 104 kA
Rated short-time withstand current (Ik)	≤ 31.5 kA	≤ 31.5 kA	≤ 25 kA	≤ 40 kA
Rated duration of short circuit (tk)	3 s			
Rated frequency (fr)	50/60 Hz			
Switching performance				
Mechanical life (CO-cycles)	10,000	10,000	10,000	10,000
Operating cycles, rated breaking current (CO-cycles)	65	65	20	80
Closing time	≤ 60 ms	≤ 60 ms	≤ 70 ms	≤ 60 ms
Opening time	≤ 40 ms	≤ 40 ms	≤ 40 ms	≤ 40 ms
Motor charging time	≤ 5 s	≤ 5 s	≤ 5 s	≤ 12 s
Rated breaking current operating sequence	O-0.3s-CO-15s-CO			O-0.3s-CO-3min-CO
Mechanical endurance class	M2			
Electrical endurance class	E2			
Capacitive current switching class	C2			
Type of driving mechanism	Spring charging motor			
Control circuits				
Control voltage	24...30V DC; 48V AC/DC; 110...220V AC/DC			
Number of available auxiliary contacts	4 NO + 4 NC; 10 NO + 10 NC			
General information				
Pole distance	150 mm	210/275 mm	210/275 mm	300 mm
Temperature range	-25°C ... +40°C			
Altitude above sea level	≤ 3000 m <sup>1</sup>			
Applicable standard	IEC 62271-100			

<sup>1</sup> Extended BIL version on request

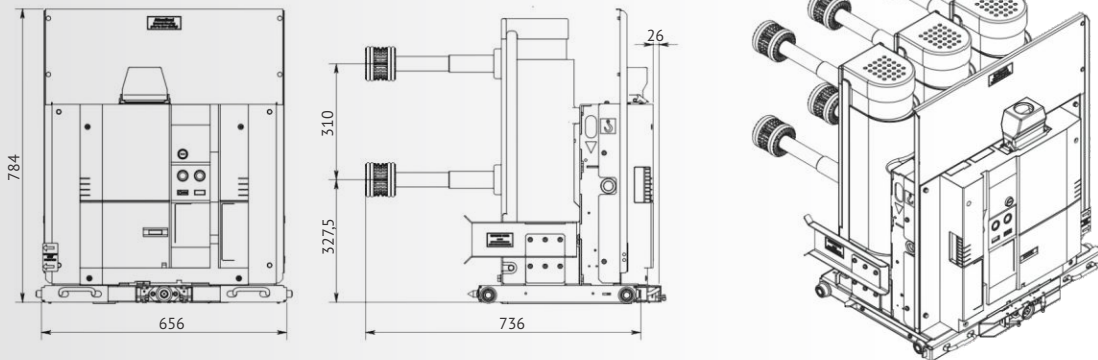
<sup>2</sup> For installations above 1000 m, the external insulation is calculated as multiplication of rated insulation with Ka in accordance with IEC 62271-1

# DIMENSIONAL DRAWINGS

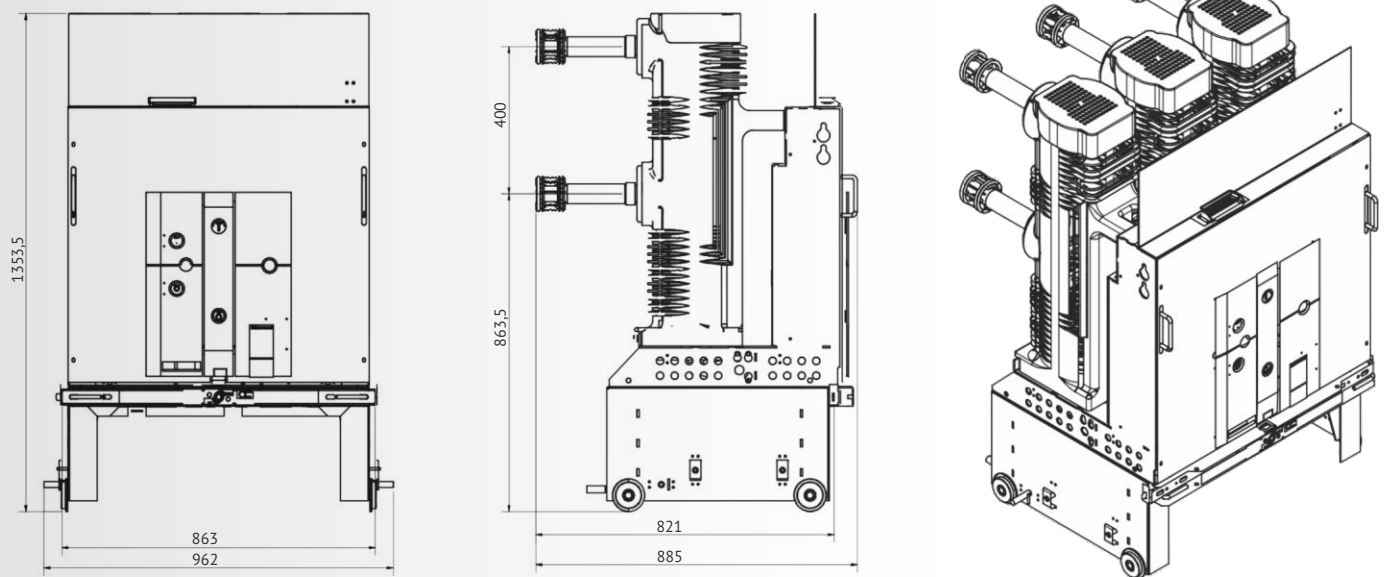
## MVL Series 12kV



## VL Series 24kV



## VH Series 36kV



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