

MME 24

12 - 24 kV
630 - 1250 A
16 - 20 kA

**MEDIUM VOLTAGE SWITCHGEAR
WITH SF6 LBS
METAL ENCLOSED (LSC2A)**



according to

3B Energy can propose a huge number of Products related to Energy sector. We are active in the whole world of Power Transmission and Distribution. Medium Voltage switchgears, Medium Voltage switches, Low Voltage PC, Low Voltage MCCs with fix and withdrawable units, Transformers, Cabinets; 3B Energy can propose a wide range of Products for fulfilling any request and need.

3B Energy is very active and smart in assisting customers for finding Solutions related to Energy sector. We can support the customer during engineering phase of the plant, during purchasing steps, for the supply and after-sales services. 3B Energy is a real "turnkey" Solution provider; Package Substations, Transformer Substations, Mobile Cabinets; we can propose a complete solution set for letting the customer have one player only for his whole plant.

3B Energy can propose a complete and detailed list of Services which can cover each step of Engineering phase. Our technical staff is highly expert and professional and can support the customer starting from the base design of a single component till a complete apparatus for electrical application. We can design and project every component the customer may need: a single contact or a complete switching device, we can develop and engineer the technology for any product or application of Energy sector



MME 24

12 - 24 kV
630 - 1250 A
16 - 20 kA

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GENERAL

- ✓ MME series Metal Enclosed units which are produced by our company, have been designed and tested to be used for all energy distribution systems till 24 kV
- ✓ Modular Metal Enclosed units appear as the optimal solution with their easiness of taking operation by means of their modular structure and with their module apposition characteristic for companies
- ✓ MME series Metal enclosed unit are manufactured according to IEC Standards
- ✓ Optimal dimensions
- ✓ Long term technical solutions for various applications
- ✓ High level personal safety

APPLICATIONS

- ✓ Manufacturing industry
- ✓ Secondary electricy distribution networks
- ✓ Shopping malls
- ✓ MV / LV distribution transformer substations
- ✓ Small size power plants
- ✓ Wind power plants
- ✓ Airports, hospitals, holiday village

**Enclosure of cubicle is 2 mm galvanized steel sheet. If desired al-zinc is also possible.
No welding during the assembling of the structure.**

SAFETY

- ✓ There is a surveillance window on the front cover of the every cubicle to check inside the cubicle without open the door / cover
- ✓ The door / cover of the accessible compartments is mechanically interlocked with the earthing switches
- ✓ High voltage indication system in each cubicle

STANDARDS

- ✓ Compliance with standards IEC 62271 - 200
Classification; (according to IEC 62271 - 200)
- ✓ Classification of service contunity: LSC 2A
- ✓ Classification of the partitions: (Partition: Insulated or Metallic)
- ✓ Classification of arc proofing: IAC A (FL), IAC A (FLR)

1

Busbar compartment

is located on the top of the cubicle. It contains the main busbar which interconnect between cubicles. And also:

- ✓ Tool based accessible compartment with regard to accessibility, (it means that is not possible to open the covers without using any tools)
- ✓ Withstand to internal arc
- ✓ Having IP 3X protection degree

2

Cable compartment

compartment Cable compartment is located at the bottom of the cubicle. It contains switching devices, measuring transformers., HV fuses, earthing devices, support insulators according to the functional type of the cubicle. Incoming / outgoing MV cable connection of the cubicle is made in this compartment. The door has an inspection window. And also:

- ✓ Procedure based accessible compartment with regard to accessibility, (it means that it is possible to open the covers without using any tools)
- ✓ Withstand to internal arc
- ✓ IP 3X protection degree

3

Low voltage compartment

Low voltage compartment is located on the front - top of the cubicle having IP3X protection degree. According to the functional type of the cubicle, it contains, protection relays, LV fuses, measurment instruments, auxilary relays, miniature circuit breakers, terminal arrays, AC/DC supply, etc.

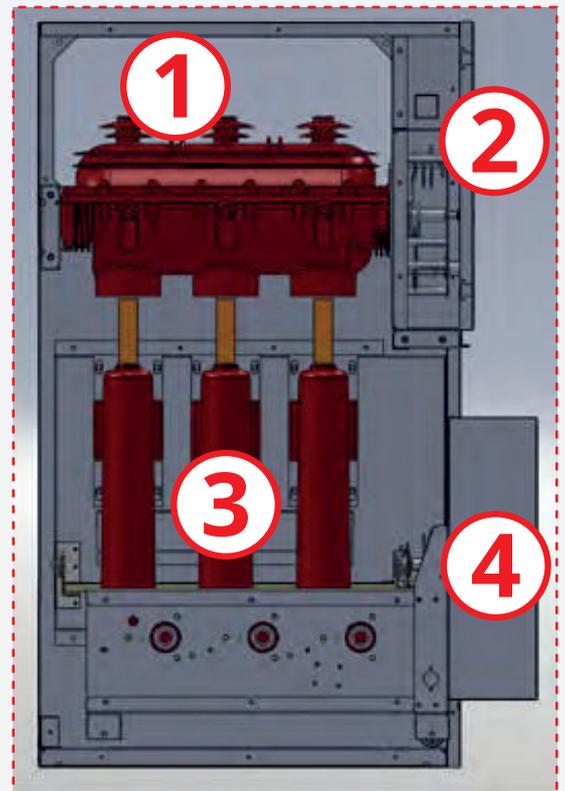
4

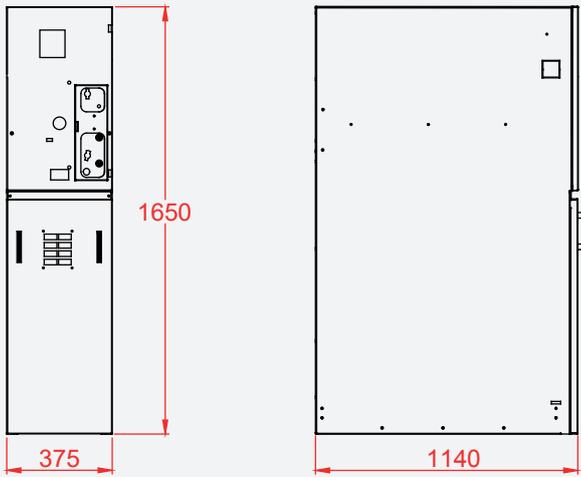
Operating mechanism compartment

Operating mechanism compartment is located on the front of the cubicle. According to the functional type of the cubicle it contains; load-break switch mechanism, earthing switch mechanism and same interlocking metal parts.

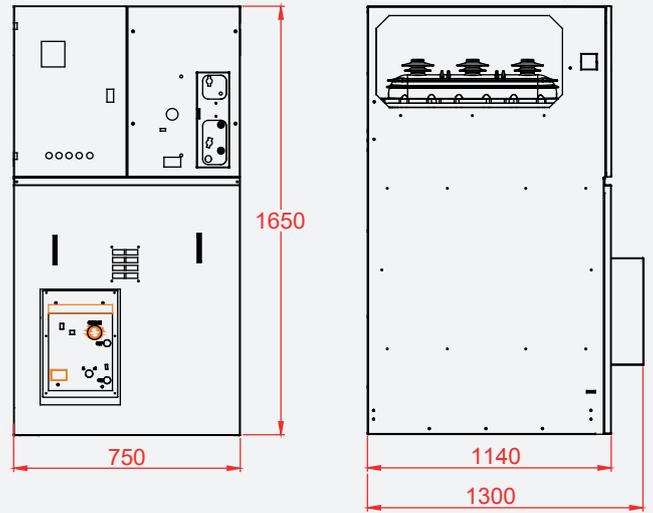
Circuit breakers has own mechanism, separately.

All metal parts of the operating mechanism are protected agains to corrosion

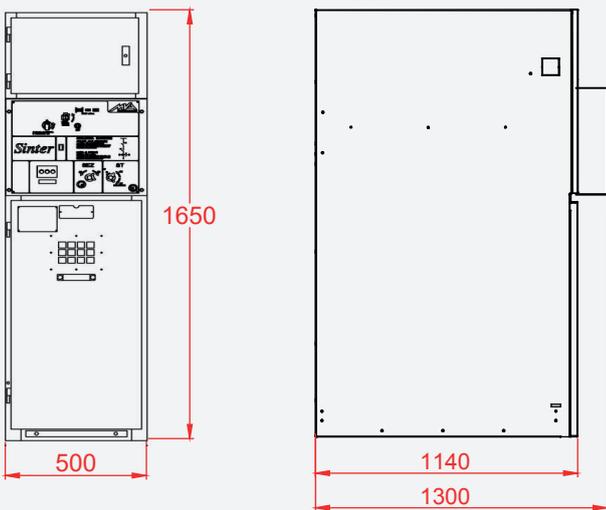




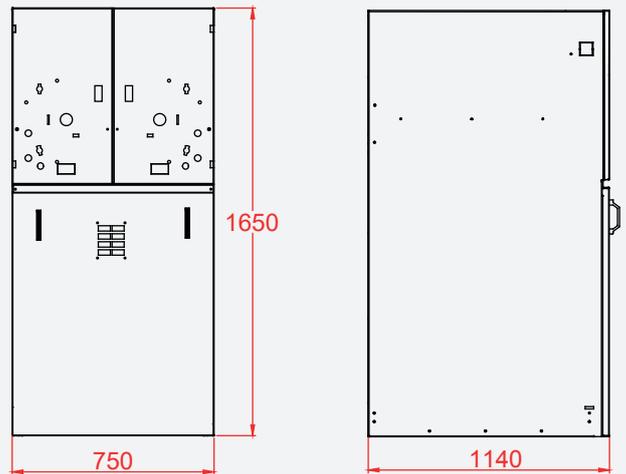
UNIT TYPES
MME 241
MME 242
MME 246
MME 247
MME 248



UNIT TYPES
MME 249
MME 249.1
MME 249.2
MME 249.C

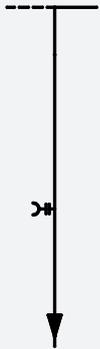


UNIT TYPES
MME 249.S1
MME 249.S2



UNIT TYPES
MME 243
MME 243.R
MME 244
MME 245
MME 245.U

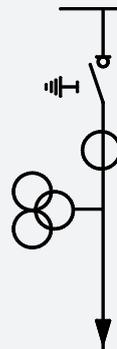
Type MME 241
Incoming Cable Unit



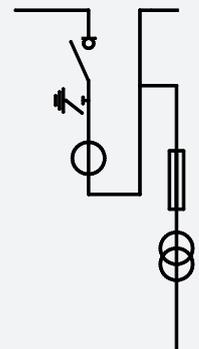
Type MME 242
Incoming Cable with Earthing Unit



Type MME 243
Line with Metering Unit



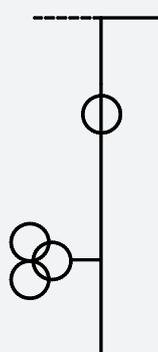
Type MME 243.R
Line with Metering and Riser Unit



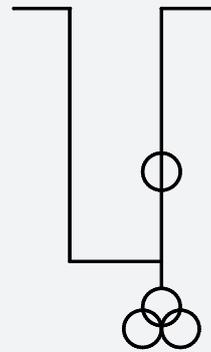
Type MME 244
Metering Unit



Type MME 245
Bus Riser with Metering Unit



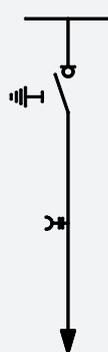
Type MME 245.U
Bus Riser with Metering Unit



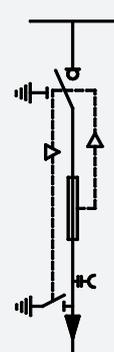
Type MME 246
Bus Riser Unit



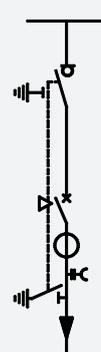
Type MME 247
Line Switch Unit



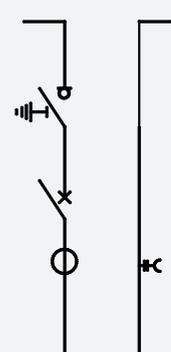
Type MME 248
Transformer Protection Unit



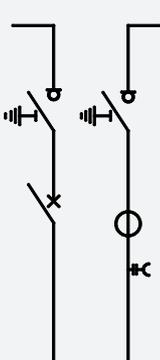
Type MME 249
Circuit-Breaker Unit



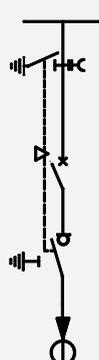
Type MME 249.1
Circuit-Breaker with Bus Riser Unit



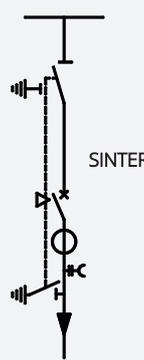
Type MME 249.2
Circuit-Breaker with Double switch Unit



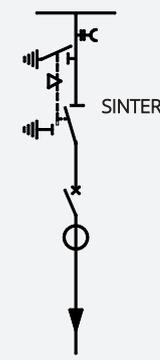
Type MME 249.C
Circuit-Breaker Upside down Unit



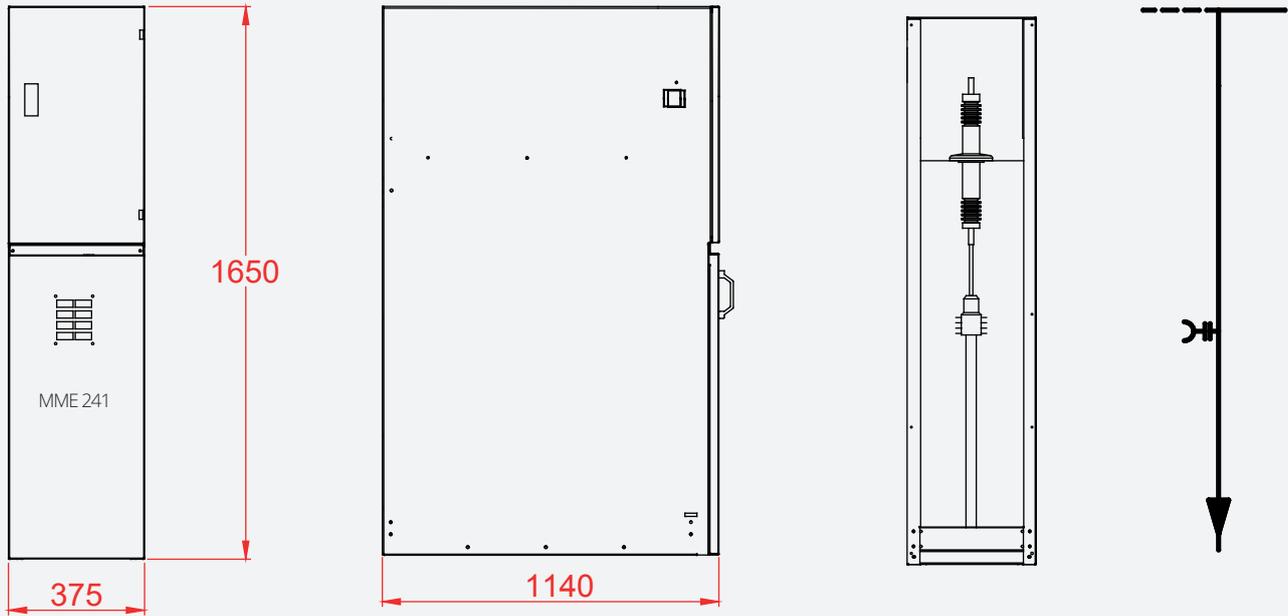
Type MME 249.S1
Circuit-Breaker with SINTER



Type MME 249.S2
Circuit-Breaker with SINTER



Rated voltage	kV	12	17.5	24
Rated lighting impulse withstand voltage	kV peak			
- Across phases and phase to neutral		75	95	125
- Across the isolating distance		85	110	145
Rated power frequency withstand voltage	kV eff			
- Across phases and phase to neutral		28	38	50
- Across the isolating distance		32	45	60
Rated frequency	Hz	50 / 60	50 / 60	50 / 60
Rated current				
- Busbar		630 / 1250	630 / 1250	630 / 1250
- Feeder / branch		630 / 1250	630 / 1250	630 / 1250
Rated short time withstand current	kA eff			
- Main circuit		20	20	20
- Earthing circuit		20	20	20
Rated peak withstand current	kA peak	50	50	50
Rated duration of short circuit	s	1	1	1
Arc fault current, 1 s	kA	16	16	16
Internal arc class		A(FLR)/A(FL)	A(FLR)/A(FL)	A(FLR)/A(FL)
Partitions class		PI	PI	PI
Loss of the service continuity		LSC2A	LSC2A	LSC2A
Degree of protection, enclosure		IP3X	IP3X	IP3X
Degree of protection, partitions		IP3X	IP3X	IP3X
Ambient temperature	° C			
- Maximum value		+40	+40	+40
- Maximum value of 24 h mean		+35	+35	+35
- Minimum value		-5	-5	-5
Altitude above sea level	m	≤1000	≤1000	≤1000

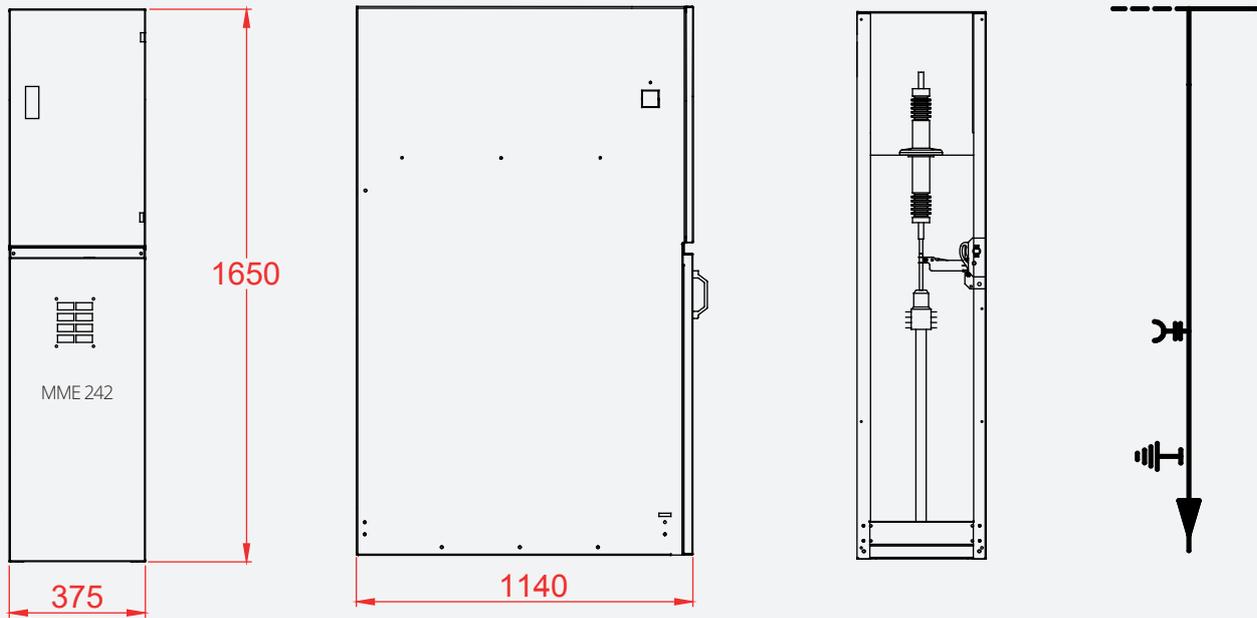


Standard equipment

1. Voltage indicator device
2. Busbars
3. Earthing bar
4. Heater
5. Interlocking unit

Technical data

Rated voltage	[kV]	12	17,5	24
Rated current	[A]	630/1250	630/1250	630/1250
Rated short-time withstand current	[kA]	20	20	20
Maximum rated duration of short circuit	[s]	1	1	1
Net Weight	kg	110	110	110
Gross Weight	kg	140	140	140
Width with pack	mm	420	420	420
Depth with pack	mm	1250	1250	1250
Height with pack	mm	1750	1750	1750

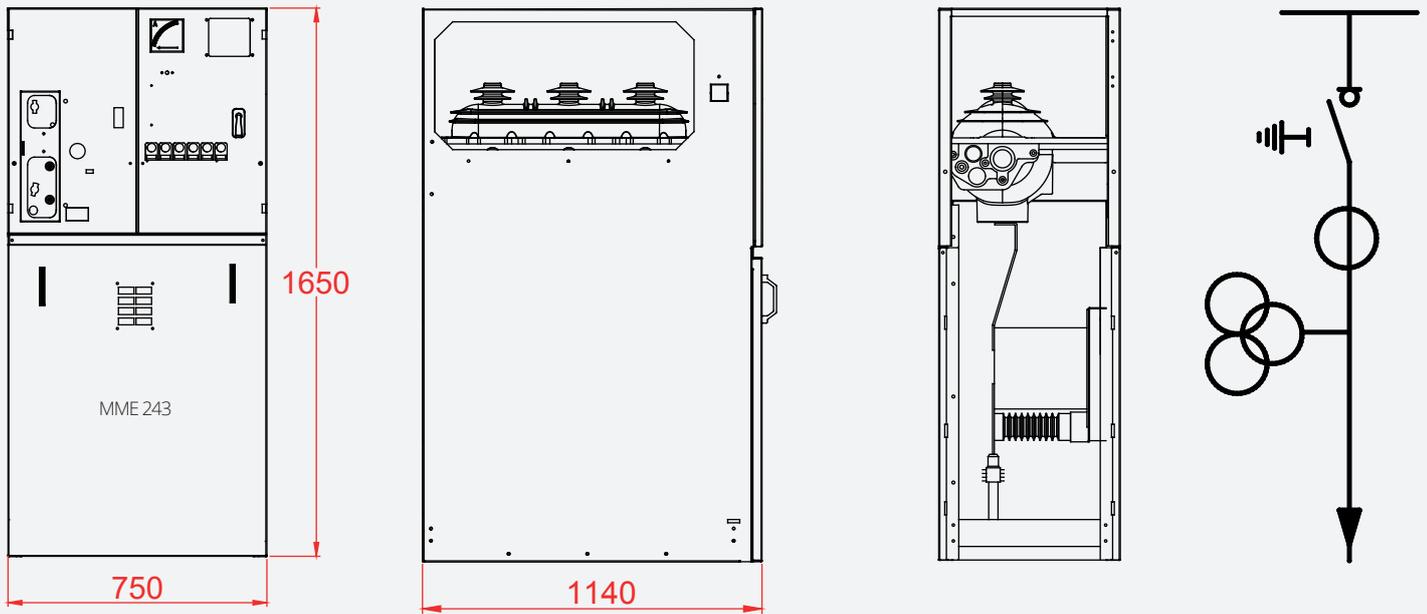


Standard equipment

1. Earthing switch
2. Voltage indicator device
3. Busbars
4. Earthing bar
5. Heater
6. Interlocking unit

Technical data

Rated voltage	[kV]	12	17,5	24
Rated current	[A]	630/1250	630/1250	630/1250
Rated short-time withstand current	[kA]	20	20	20
Maximum rated duration of short circuit	[s]	1	1	1
Net Weight	kg	130	130	130
Gross Weight	kg	150	150	150
Width with pack	mm	420	420	420
Depth with pack	mm	1250	1250	1250
Height with pack	mm	1750	1750	1750



Standard equipment

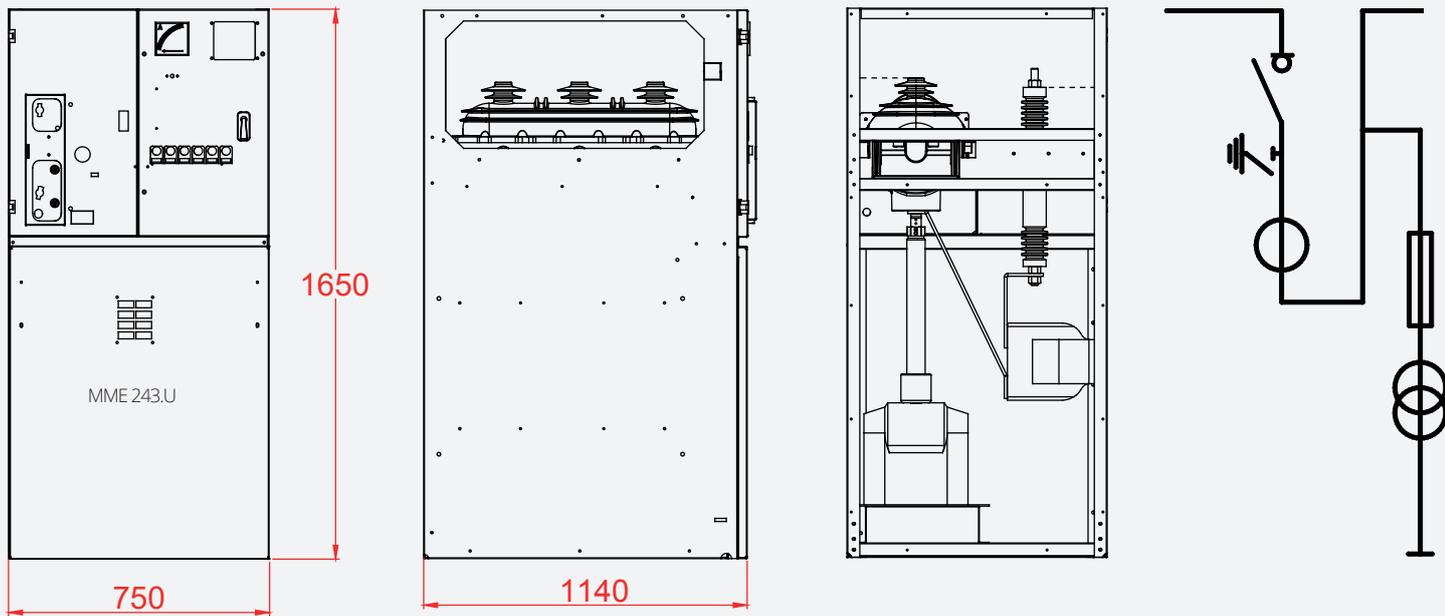
1. 3 Position SF6 load break switch (open - closed - earthed)
2. Operating mechanism with mechanical position indication
3. Current and Voltage transformers
4. Voltage indicator device
5. Heater
6. Earthing bar
7. Busbars
8. Interlocking unit
9. Auxiliary contacts for close (2NO+2NC) and earth (2NO+2NC) position
10. Cable entry with cable support

Optional equipments

1. Gas density indication
2. Gas density indication with alarm contact
3. Motor operation device
4. Surge arresters
5. Cable fault indication device
6. Arc-gas channelLine

Technical data

Rated voltage	[kV]	12	17,5	24
Rated current	[A]	630/1250	630/1250	630/1250
Rated short-time withstand current	[kA]	20	20	20
Maximum rated duration of short circuit	[s]	1	1	1
Net Weight	kg	405	405	405
Gross Weight	kg	450	450	450
Width with pack	mm	800	800	800
Depth with pack	mm	1250	1250	1250
Height with pack	mm	1750	1750	1750



Standard equipment

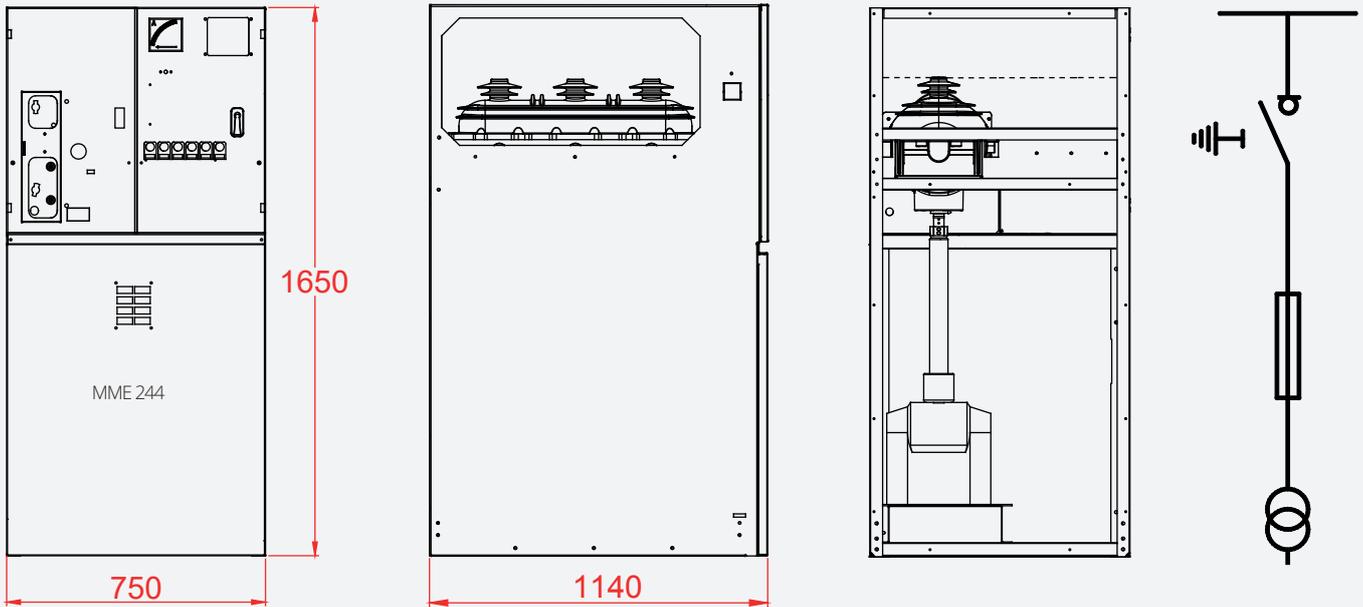
1. 3 Position SF6 load break switch (open - closed - earthed)
2. Operating mechanism with mechanical position indication
3. Voltage transformers
4. Current transformers
5. Bushing
6. Voltage indicator device
7. Heater
8. Earthing bar
9. Busbars
10. Interlocking unit
11. Auxiliary contacts for close (2NO+2NC) and earth (2NO+2NC) position

Optional equipments

1. Remote control with cable (Opening and closing)
2. Remote control without cable (Opening and closing)
3. Gas density indication
4. Gas density indication with alarm contact
5. Motor operation device
6. Cable fault indication device
7. Arc-gas channel

Technical data

Rated voltage	[kV]	12	17,5	24
Rated current	[A]	630/1250	630/1250	630/1250
Rated short-time withstand current	[kA]	20	20	20
Maximum rated duration of short circuit	[s]	1	1	1
Net Weight	kg	420	420	420
Gross Weight	kg	465	465	465
Width with pack	mm	800	800	800
Depth with pack	mm	1250	1250	1250
Height with pack	mm	1750	1750	1750



Standard equipment

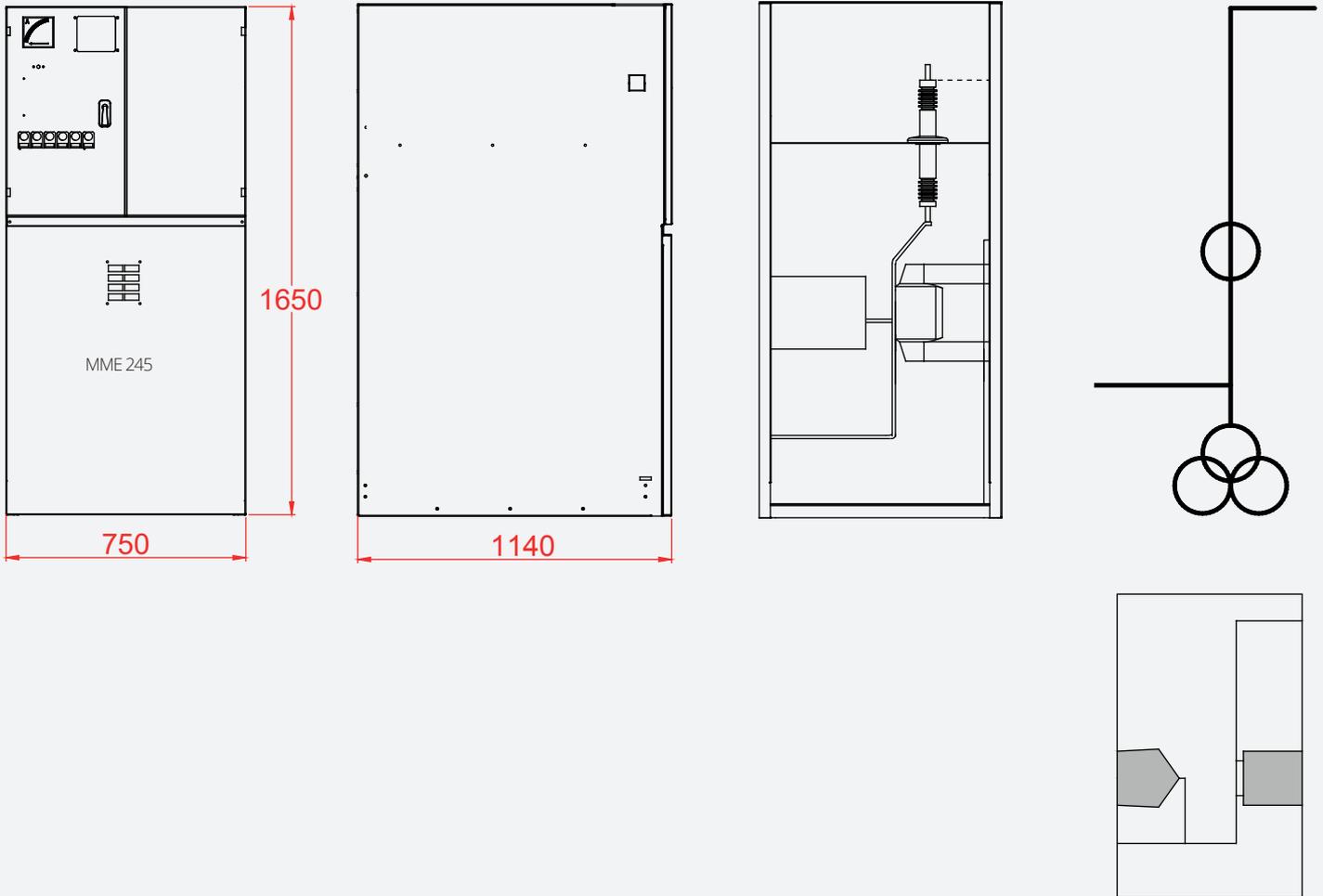
1. 3 Position SF6 load break switch (open - closed - earthed)
2. Operating mechanism with mechanical position indication
3. Voltage transformers
4. Fuses
5. Voltage indicator device
6. Heater
7. Earthing bar
8. Busbars
9. Interlocking unit
10. Auxiliary contacts for close (2NO+2NC) and earth (2NO+2NC) position

Optional equipments

1. Earthing switch
2. Current transformers
3. Gas density indication
4. Gas density indication with alarm contact
5. Cable fault indication device
6. Arc-gas channel Metering

Technical data

Rated voltage	[kV]	12	17,5	24
Rated current	[A]	630/1250	630/1250	630/1250
Rated short-time withstand current	[kA]	20	20	20
Maximum rated duration of short circuit	[s]	1	1	1
Net Weight	kg	400	400	400
Gross Weight	kg	430	430	430
Width with pack	mm	800	800	800
Depth with pack	mm	1250	1250	1250
Height with pack	mm	1750	1750	1750



Standard equipment

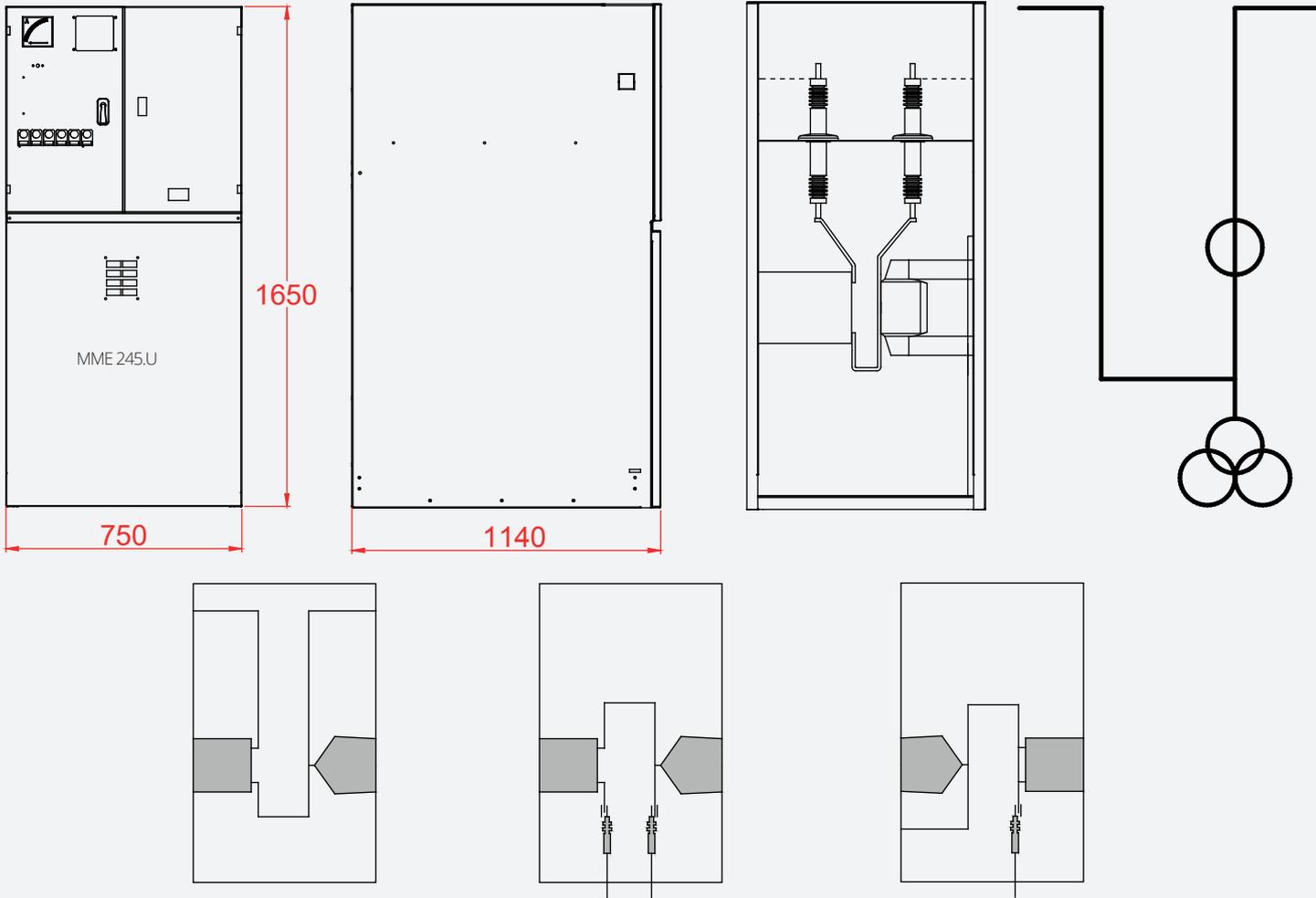
1. Bushings
2. Current Transformers (toroidal or standard)
3. Voltage transformers
4. Busbars
5. Earthing bar
6. Ammeter , Voltmeter
7. Heater
8. Interlocking unit
9. Voltage indicator device

Optional equipments

1. Energy meter
2. MV fuses
3. Surge arresters

Technical data

Rated voltage	[kV]	12	17,5	24
Rated current	[A]	630/1250	630/1250	630/1250
Rated short-time withstand current	[kA]	20	20	20
Maximum rated duration of short circuit	[s]	1	1	1
Net Weight	kg	370	370	370
Gross Weight	kg	415	415	415
Width with pack	mm	800	800	800
Depth with pack	mm	1250	1250	1250
Height with pack	mm	1750	1750	1750



Standard equipment

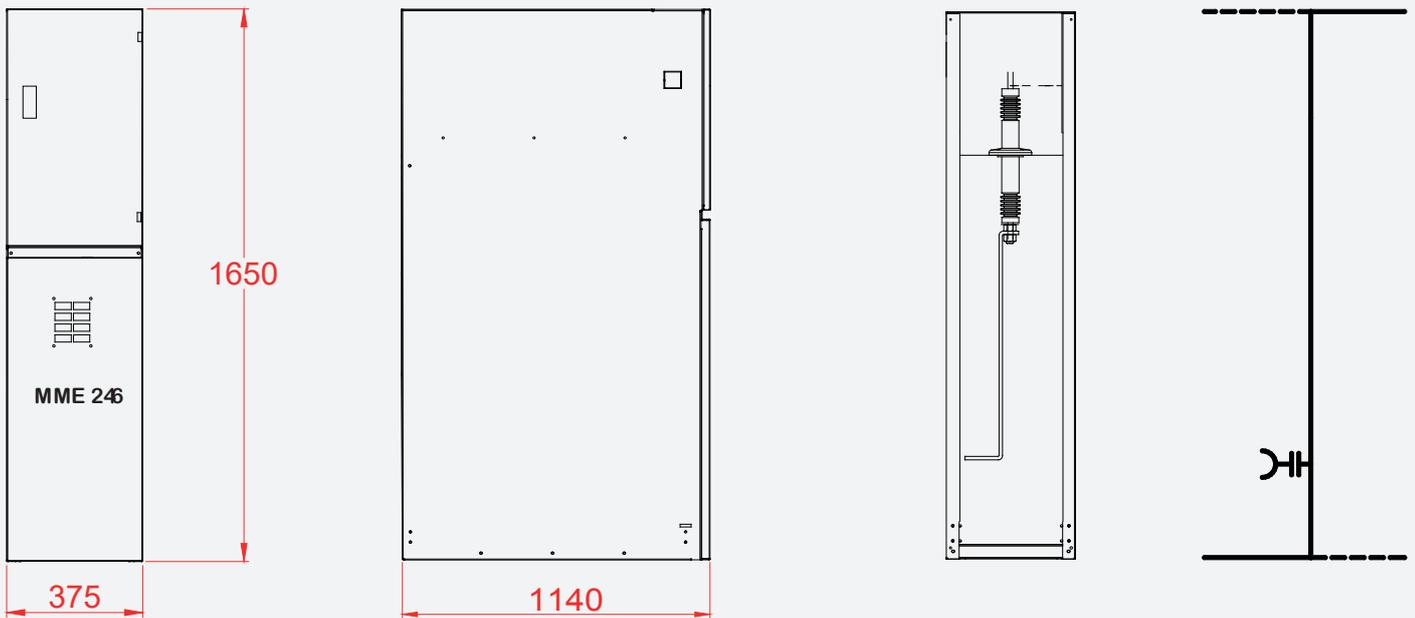
1. Bushings
2. Current Transformers (toroidal or standard)
3. Voltage transformers
4. Busbars
5. Earthing bar
6. Ammeter , Voltmeter
7. Heater
8. Interlocking unit
9. Voltage indicator device

Optional equipments

1. Energy meter
2. MV fuses
3. Surge arresters

Technical data

Rated voltage	[kV]	12	17,5	24
Rated current	[A]	630/1250	630/1250	630/1250
Rated short-time withstand current	[kA]	20	20	20
Maximum rated duration of short circuit	[s]	1	1	1
Net Weight	kg	370	370	370
Gross Weight	kg	415	415	415
Width with pack	mm	800	800	800
Depth with pack	mm	1250	1250	1250
Height with pack	mm	1750	1750	1750

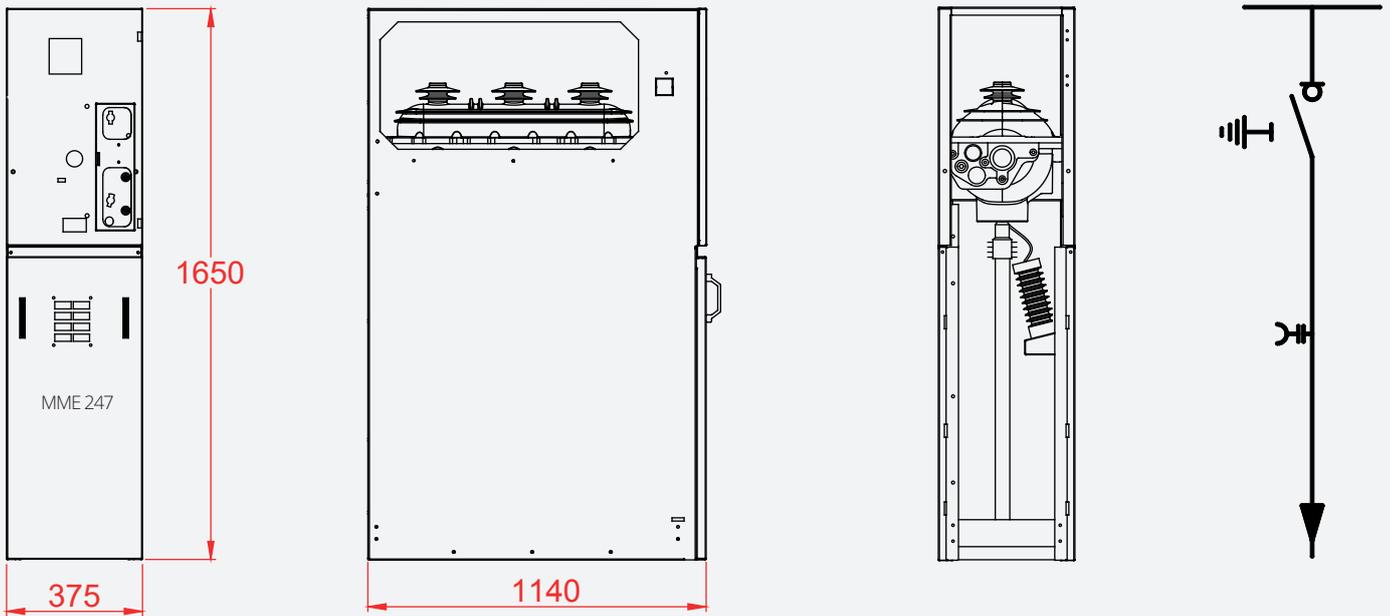


Standard equipment

1. Earthing switch
2. Voltage indicator device
3. Busbars
4. Earthing bar
5. Heater
6. Interlocking unit

Technical data

Rated voltage	[kV]	12	17,5	24
Rated current	[A]	630/1250	630/1250	630/1250
Rated short-time withstand current	[kA]	20	20	20
Maximum rated duration of short circuit	[s]	1	1	1
Net Weight	kg	90	90	90
Gross Weight	kg	120	120	120
Width with pack	mm	420	420	420
Depth with pack	mm	1250	1250	1250
Height with pack	mm	1750	1750	1750



Standard equipment

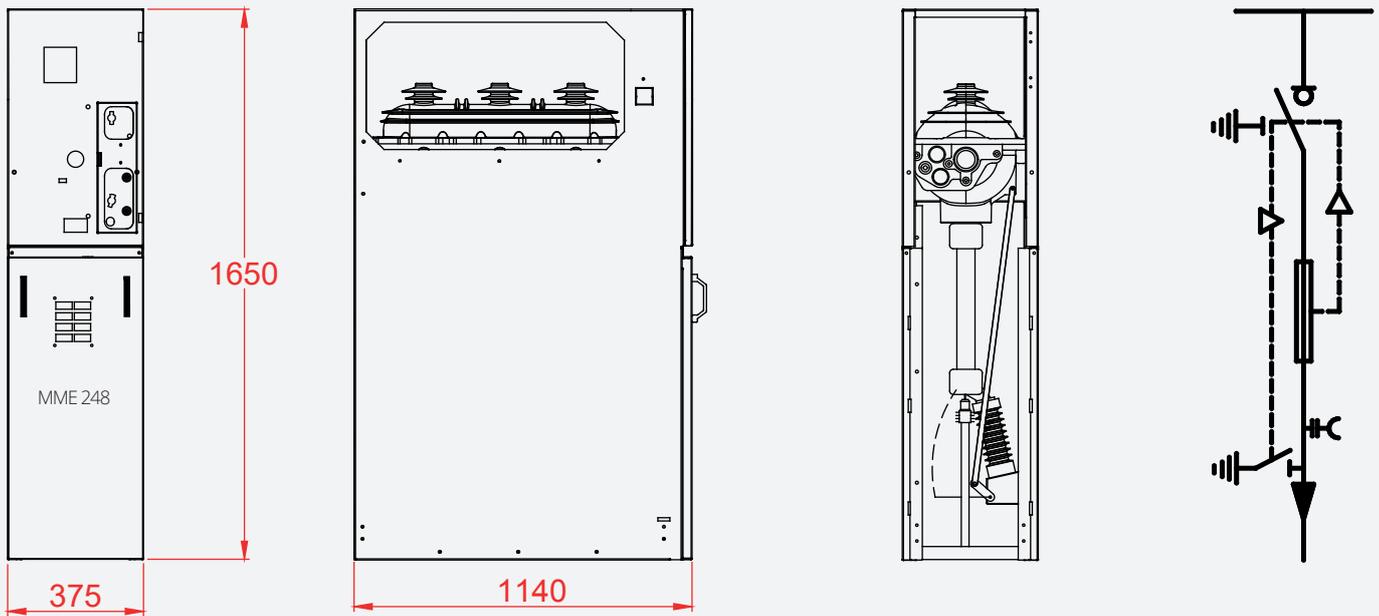
1. 3 Position SF6 load break switch
(open - closed - earthed)
2. Operating mechanism with mechanical position indication
3. Voltage indicator device
4. Heater
5. Earthing bar
6. Busbars
7. Interlocking unit
8. Auxiliary contacts for close
(2NO+2NC) and earth (2NO+2NC) position
9. Cable entry with cable support

Optional equipments

1. Remote control with cable
(Opening and closing)
2. Remote control without cable
(Opening and closing)
3. Gas density indication
4. Gas density indication with alarm contact
5. Motor operation device
6. Cable fault indication device
7. Surge arresters
8. Current transformers
9. Arc-gas channel

Technical data

Rated voltage	[kV]	12	17,5	24
Rated current	[A]	630/1250	630/1250	630/1250
Rated short-time withstand current	[kA]	20	20	20
Maximum rated duration of short circuit	[s]	1	1	1
Net Weight	kg	155	155	155
Gross Weight	kg	185	185	185
Width with pack	mm	420	420	420
Depth with pack	mm	1250	1250	1250
Height with pack	mm	1750	1750	1750



Standard equipment

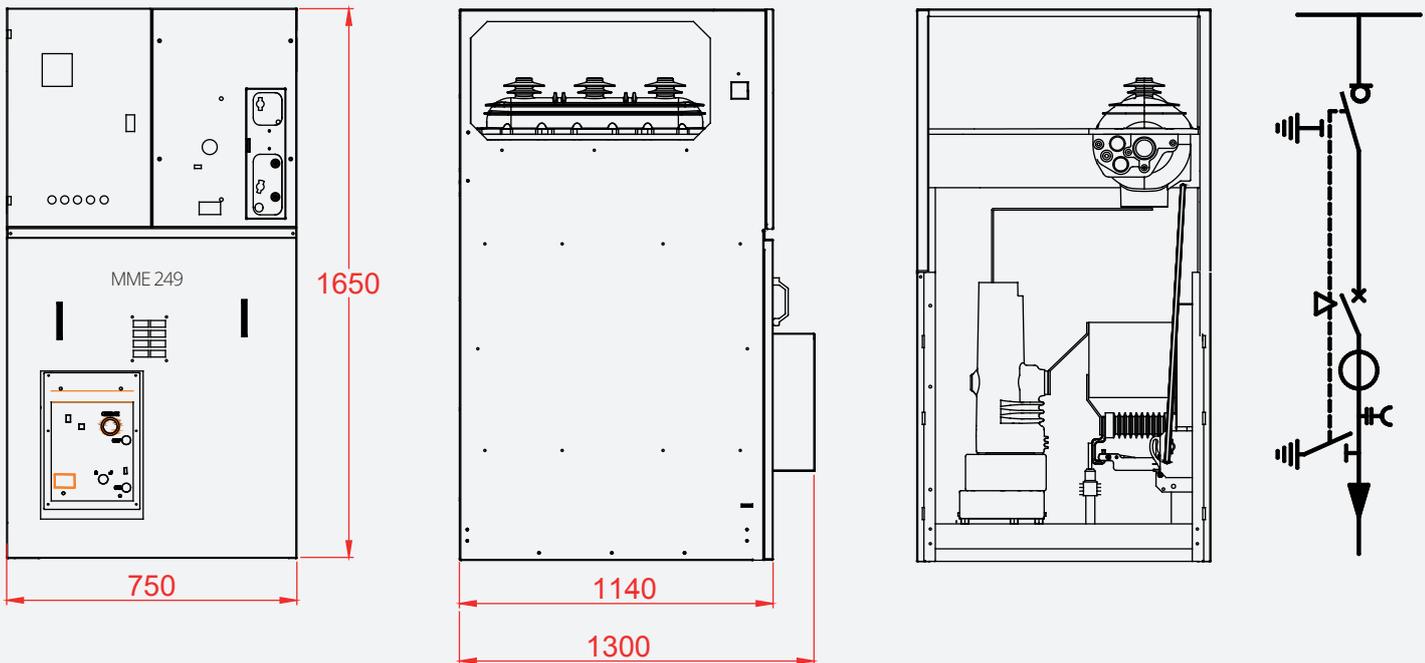
1. 3 Position SF6 load break switch
(open - closed - earthed)
2. Operating mechanism with mechanical position indication
3. Earthing switch 2 kA
4. Fuse
5. Voltage indicator device
6. Heater
7. Earthing bar
8. Busbars
9. Interlocking unit
10. Auxiliary contacts for close
(2NO+2NC) and earth (2NO+2NC) position
11. Cable entry with cable support

Optional equipments

1. Remote control with cable
(Opening and closing)
2. Remote control without cable
(Opening and closing)
3. Gas density indication
4. Gas density indication with alarm contact
5. Motor operation device
6. Cable fault indication device
7. Surge arresters
8. Current transformers
9. Arc-gas channel

Technical data

Rated voltage	[kV]	12	17,5	24
Rated current	[A]	200	200	200
Rated short-time withstand current	[kA]	20	20	20
Maximum rated duration of short circuit	[s]	1	1	1
Net Weight	kg	170	170	170
Gross Weight	kg	200	200	200
Width with pack	mm	420	420	420
Depth with pack	mm	1250	1250	1250
Height with pack	mm	1750	1750	1750



Standard equipment

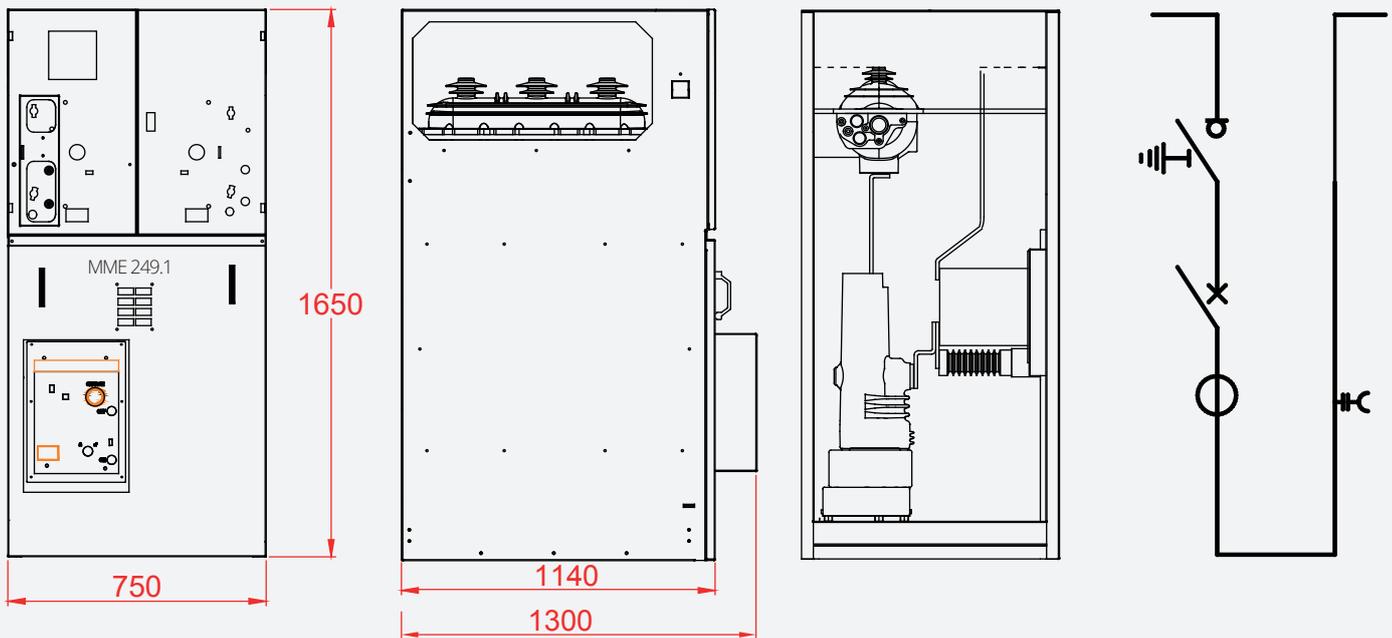
- 1.3 Position SF6 load break switch
(open - closed - earthed)
2. Operating mechanism with mechanical position indication
3. Circuit breaker, vacuum or SF6 type
4. Current transformers (toroidal or standard type)
5. Over current protection relay
6. Earthing switch 16 kA
7. Voltage indicator device
8. Heater
9. Earthing bar
10. Busbars
11. Interlocking unit
12. Auxiliary contacts for close
(2NO+2NC) and earth (2NO+2NC) position
13. Cable entry with cable support

Optional equipments

1. Remote control with cable
(Opening and closing)
2. Remote control without cable
(Opening and closing)
3. Gas density indication
4. Gas density indication with alarm contact
5. Motor operation device
6. Voltage transformers
7. Cable fault indication device
8. Arc-gas channel

Technical data

Rated voltage	[kV]	12	17,5	24
Rated current	[A]	630/1250	630/1250	630/1250
Rated short-time withstand current	[kA]	20	20	20
Maximum rated duration of short circuit	[s]	1	1	1
Net Weight	kg	360	360	360
Gross Weight	kg	405	405	405
Width with pack	mm	800	800	800
Depth with pack	mm	1350	1350	1350
Height with pack	mm	1750	1750	1750



Standard equipment

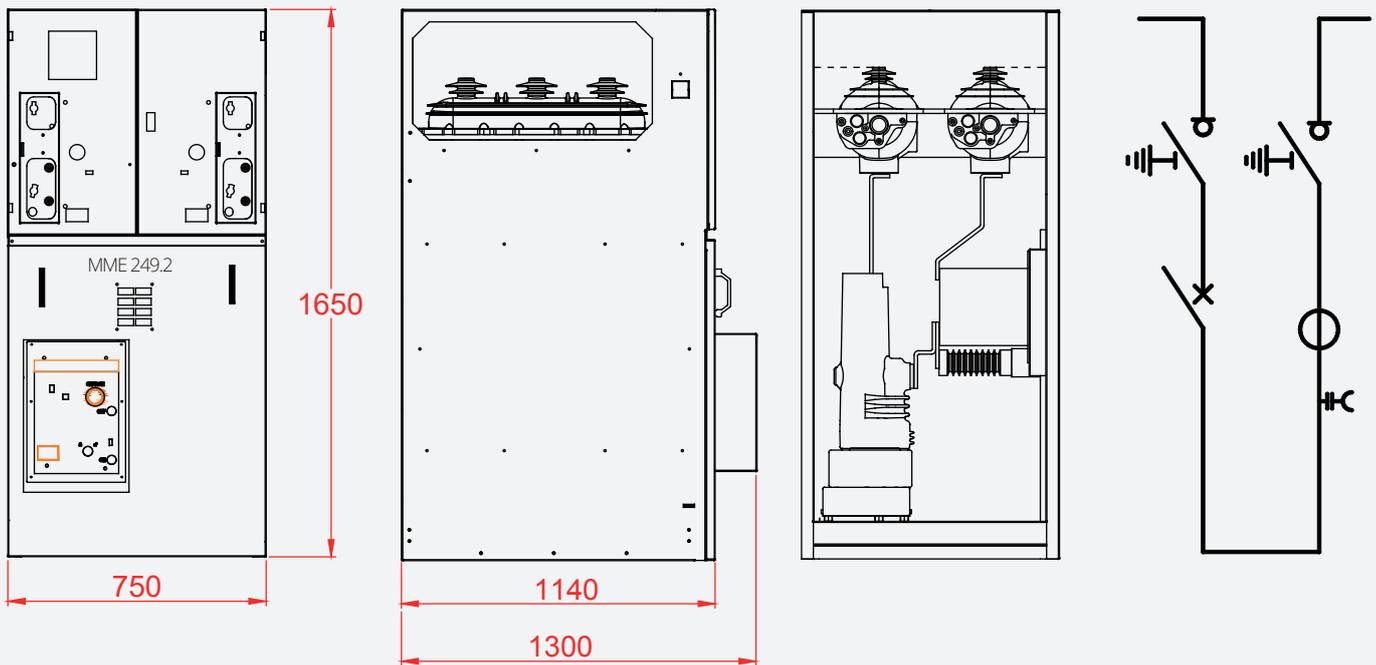
1. 3 Position SF6 load break switch
(open - closed - earthed)
2. Operating mechanism with mechanical position indication
3. Circuit breaker, vacuum or SF6 type
4. Current transformers
(toroidal or standard type)
5. Over current protection relay
6. Voltage indicator device
7. Heater
8. Earthing bar
9. Busbars
10. Interlocking unit
11. Auxiliary contacts for close
(2NO+2NC) and earth (2NO+2NC) position

Optional equipments

1. Remote control with cable
(Opening and closing)
2. Remote control without cable
(Opening and closing)
3. Gas density indication
4. Gas density indication with alarm contact
5. Voltage Transformers
6. Cable fault indication device
7. Arc-gas channel

Technical data

Rated voltage	[kV]	12	17,5	24
Rated current	[A]	630/1250	630/1250	630/1250
Rated short-time withstand current	[kA]	20	20	20
Maximum rated duration of short circuit	[s]	1	1	1
Net Weight	kg	380	380	380
Gross Weight	kg	420	420	420
Width with pack	mm	800	800	800
Depth with pack	mm	1350	1350	1350
Height with pack	mm	1750	1750	1750



Standard equipment

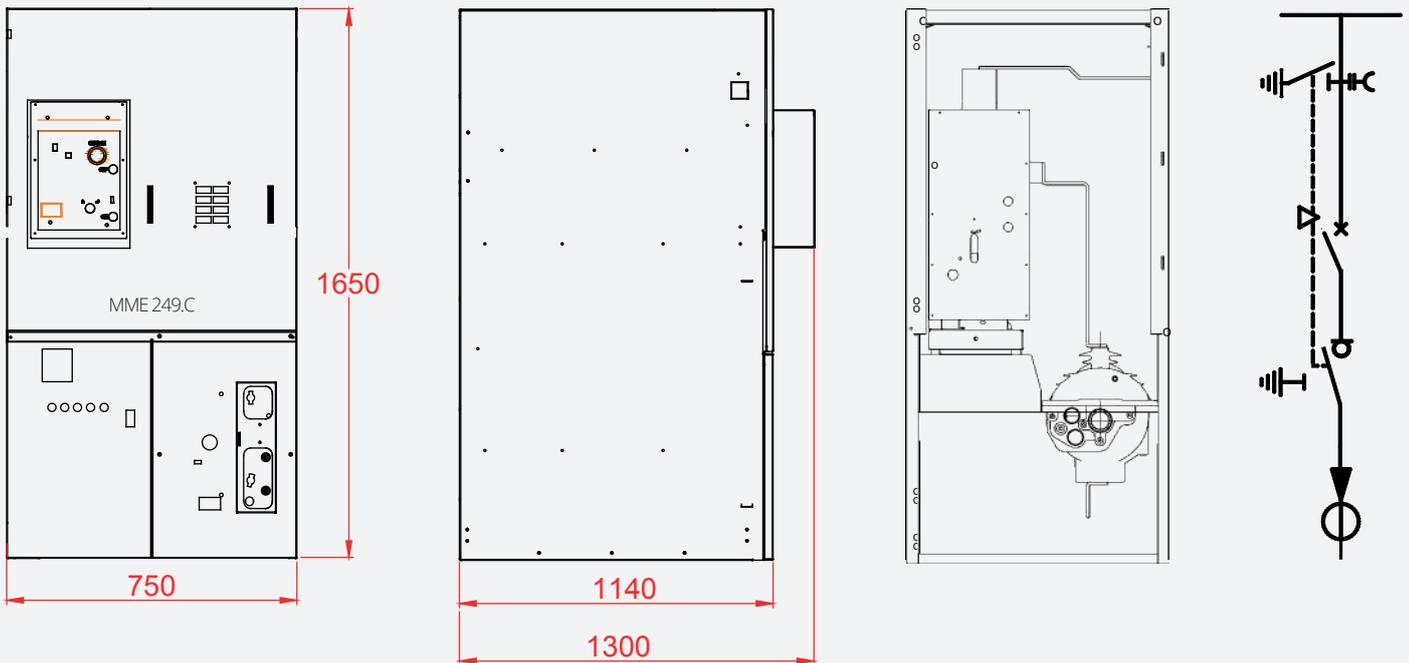
- 1.3 Position SF6 load break switch
(open - closed - earthed)
2. Operating mechanism with mechanical position indication
3. Voltage indicator device
4. Heater
5. Earthing bar
6. Busbars
7. Interlocking unit
8. Auxiliary contacts for close
(2NO+2NC) and earth (2NO+2NC) position
9. Cable entry with cable support

Optional equipments

- Optional equipments
1. Remote control with cable
(Opening and closing)
 2. Remote control without cable
(Opening and closing)
 3. Gas density indication
 4. Gas density indication with alarm contact
 5. Motor operation device
 6. Cable fault indication device
 7. Surge arresters
 8. Current transformers
 9. Arc-gas channel

Technical data

Rated voltage	[kV]	12	17,5	24
Rated current	[A]	630/1250	630/1250	630/1250
Rated short-time withstand current	[kA]	20	20	20
Maximum rated duration of short circuit	[s]	1	1	1
Net Weight	kg	400	400	400
Gross Weight	kg	450	450	450
Width with pack	mm	800	800	800
Depth with pack	mm	1350	1350	1350
Height with pack	mm	1750	1750	1750



Standard equipment

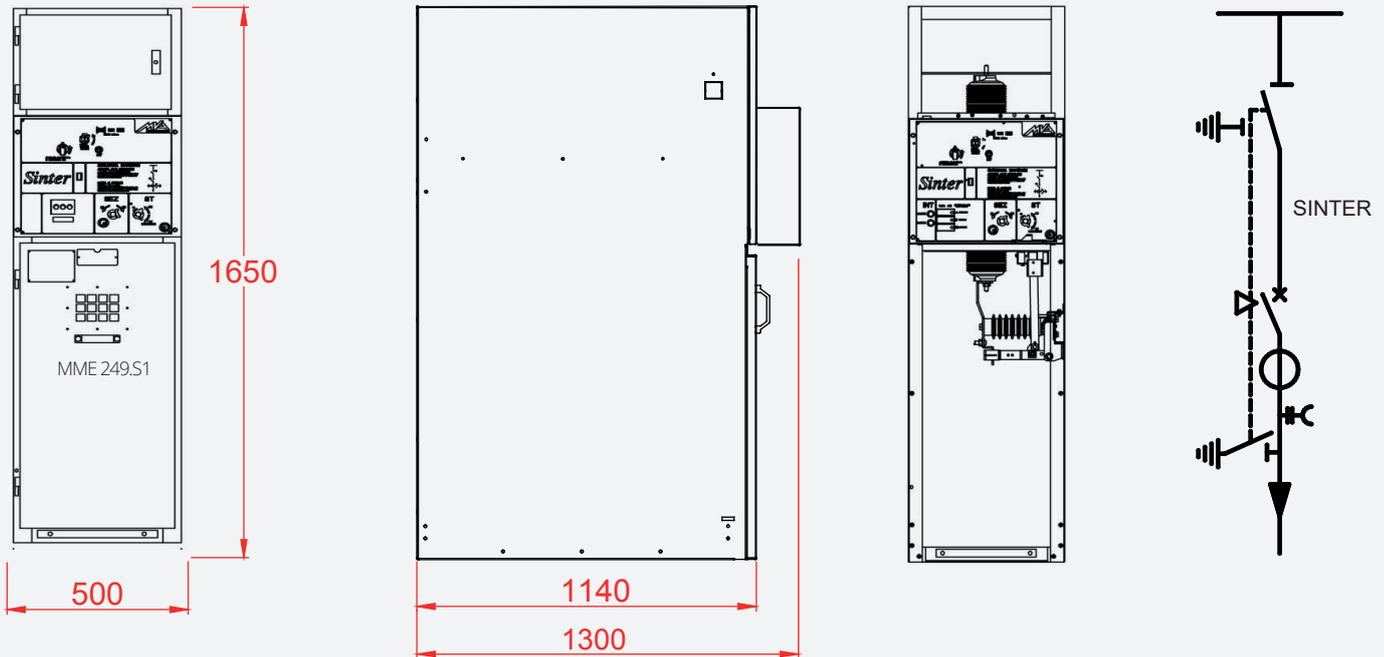
- 1.3 Position SF6 load break switch
(open - closed - earthed)
2. Operating mechanism with mechanical position indication
3. Circuit breaker, vacuum or SF6 type
4. Current transformers
(toroidal or standard type)
5. Over current protection relay
6. Voltage indicator device
7. Heater
8. Earthing bar
9. Busbars
10. Interlocking unit
11. Auxiliary contacts for close
(2NO+2NC) and earth (2NO+2NC) position

Optional equipments

1. Remote control with cable
(Opening and closing)
2. Remote control without cable
(Opening and closing)
3. Gas density indication
4. Gas density indication with alarm contact
5. Voltage Transformers
6. Cable fault indication device
7. Arc-gas channel

Technical data

Rated voltage	[kV]	12	17,5	24
Rated current	[A]	630/1250	630/1250	630/1250
Rated short-time withstand current	[kA]	20	20	20
Maximum rated duration of short circuit	[s]	1	1	1
Net Weight	kg	360	360	360
Gross Weight	kg	405	405	405
Width with pack	mm	800	800	800
Depth with pack	mm	1350	1350	1350
Height with pack	mm	1750	1750	1750



Standard equipment

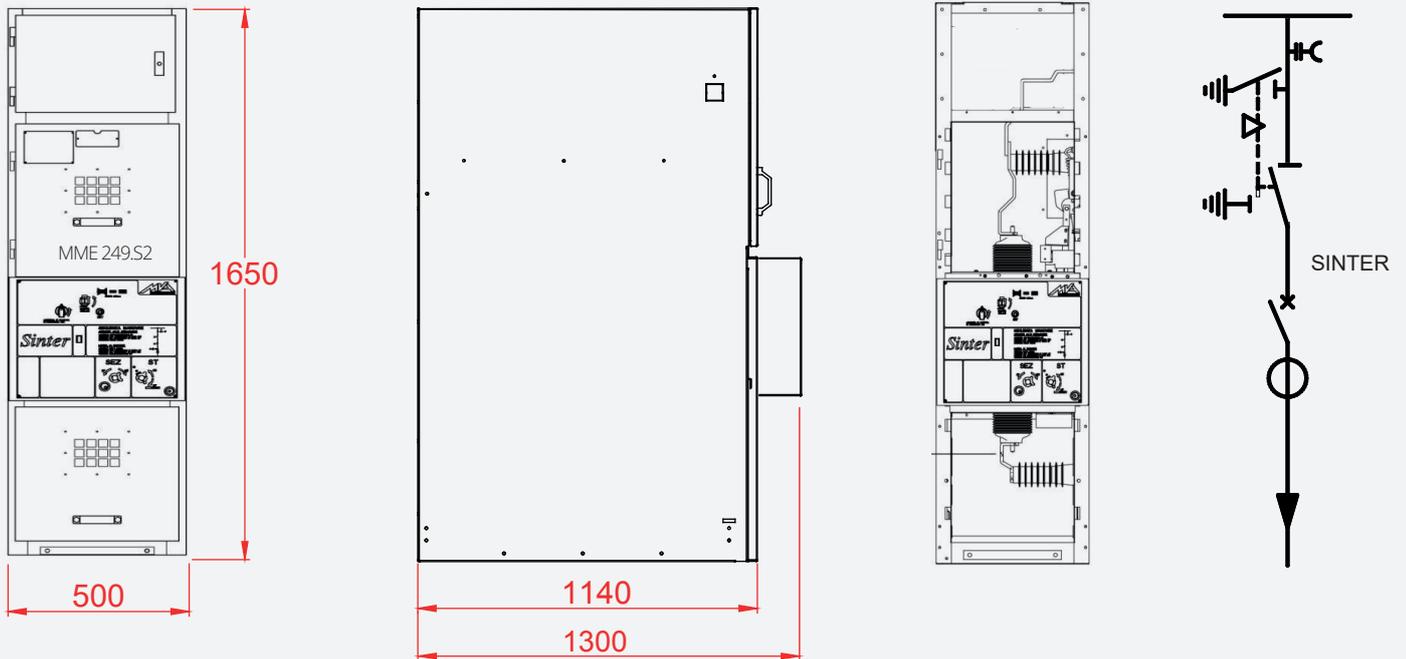
1. SINTER SF6 disconnecter
2. Operating mechanism with mechanical position indication
3. SINTER Circuit breaker vacuum type
4. Current transformers (toroidal or standard type)
5. Over current protection relay
6. Earthing switch 16 kA
7. Voltage indicator device
8. Heater
9. Earthing bar
10. Busbars
11. Interlocking unit
12. Auxiliary contacts for close (2NO+2NC) and earth (2NO+2NC) position
13. Cable entry with cable support

Optional equipments

1. Remote control with cable (Opening and closing)
2. Remote control without cable (Opening and closing)
3. Gas density indication
4. Gas density indication with alarm contact
5. Voltage Transformers
6. Cable fault indication device
7. Surge arresters
8. Arc-gas channel

Technical data

Rated voltage	[kV]	12	17,5	24
Rated current	[A]	630/1250	630/1250	630/1250
Rated short-time withstand current	[kA]	20	20	20
Maximum rated duration of short circuit	[s]	1	1	1
Net Weight	kg	320	320	320
Gross Weight	kg	350	350	350
Width with pack	mm	550	550	550
Depth with pack	mm	1350	1350	1350
Height with pack	mm	1750	1750	1750



Standard equipment

- 1.SINTER SF6 disconnector
- 2.Operating mechanism with mechanical position indication
- 3.SINTER Circuit breaker vacuum type
- 4.Current transformers (toroidal or standard type)
- 5.Over current protection relay
- 6.Earthing switch 16 kA
- 7.Voltage indicator device
- 8.Heater
- 9.Earthing bar
- 10.Busbars
- 11.Interlocking unit
- 12.Auxiliary contacts for close (2NO+2NC) and earth (2NO+2NC) position
- 13.Cable entry with cable support

Optional equipments

- 1.Remote control with cable (Opening and closing)
- 2.Remote control without cable (Opening and closing)
- 3.Gas density indication
- 4.Gas density indication with alarm contact
- 5.Voltage Transformers
- 6.Cable fault indication device
- 7.Surge arresters
- 8.Arc-gas channel

Technical data

Rated voltage	[kV]	12	17,5	24
Rated current	[A]	630/1250	630/1250	630/1250
Rated short-time withstand current	[kA]	20	20	20
Maximum rated duration of short circuit	[s]	1	1	1
Net Weight	kg	320	320	320
Gross Weight	kg	350	350	350
Width with pack	mm	550	550	550
Depth with pack	mm	1350	1350	1350
Height with pack	mm	1750	1750	1750

Functioning concept

MS switches are made of an epoxy cast resin housing filled with SF6 gas at the pressure of 150 kPa abs., operative life sealed. (Standard IEC 62271-103)
The moving contact are fixed on the insulated rotary shaft inside the cast resin body, while the fixed contacts are mounted directly on the cast resin body.

The rotary motion of the shaft is made by an operating mechanism placed on the front. The switch has three different positions: closed, open and earthed, which naturally prevent any wrong operations.

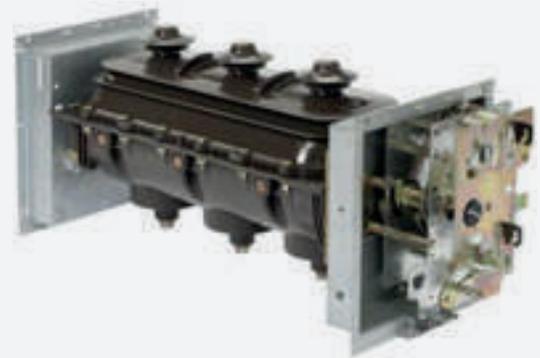


Characteristics

MS switches use sulphur hexafluoride gas (SF6) for insulation and breaking.

The active parts are placed in an insulating enclosure in accordance with the IEC standards for sealed pressure systems.

SF6 products offer remarkable characteristics:
Long service life - Maintenance-free active parts - Operating safety - Very low over-voltage level



Technical Data	Load Break Switch MS	Earthing Switch
Rated voltage	24 kV	24 kV
Rated current	630 - 1250 A	
Rated short circuit withstand current	20 kA - 1 sec	20 kA - 1 sec
Electrical endurance	E2, E3	E1, E2
Mechanical endurance	M 1	M0
Applied standard	IEC 62271-103 1000 Operations	IEC 62271 - 102 1000 Operations

General Features

Electric arc breaking

The combined medium voltage circuit breaker of the SINTER Series is the result of recognised technology synergy for production of vacuum bottles and manufacturing re-known know-how of Italian companies. SINTER circuit breakers are indeed a combined system of breaking and switching, inside a single SF6 insulated enclosure, with pressure lower than 0.5 bar at 45 °C. As regards the breaking, vacuum bottles are used. As well known, the reduced necessary energy for vacuum arc extinguishment enables to reach a long-lasting electrical life (10.000 rated breaking current operations).

Apparatus operating mechanism

The mobile contacts short run and the lower moving bulk (compared to other breaking technologies) enable using much reduced closing and opening powers. These features assure a limited wear of moving parts but allow on the contrary a high number of mechanical operations without maintenance. SINTER circuit breakers are fitted with energy storage mechanical control, granting a very fast operation, independent from operator, and well fitted with a wide accessories range, to be easily mounted, able to satisfy all customer expectations.

Apparatus structure

The whole active elements complex (circuit breaker and main switch) are inside an heavy metallic stainless steel structure filled with a high dielectric SF6 gas. The structure is life-sealed and is holding 6 bushings with operating mechanism. The heavy structure grants stoutness and time-life reliability.

Reference Standards

IEC 62271 - 1, IEC 62271 - 100, IEC 62271 - 102, IEC 60529 - CEI EN 60447



Main Components
Vacuum Interrupter

- 1 Fixed contact terminal
- 2 Ceramic insulator
- 3 Mobile contact terminal



Earthing switch:

Rated voltage	12 kV - 17.5 kV - 24 kV	
Rated short circuit withstand	16 kA / 1 sn	20 kA / 1 sn
Current	1 kA / 1 sn*	
Standards applied	IEC 62271 - 103	

*Used at switch fuse combination cubicle at the downstream

Voltage transformers

The resin insulated voltage transformers are used for the feeding of measuring instruments and protection. They are suitable either for fixed installation or mounted on withdrawable trucks. They comply with IEC 60044 - 2 Standards. The dimensions of the fixed version comply with DIN standards 42600 Narrow Type. The withdrawable version equipped with fuses is custom made. The voltage transformers can be fitted either with one or two poles. Their performances and precision classes comply with the functional requirements of the apparatus they are connected to. The withdrawable version is equipped with medium voltage protection fuses, their replacement can be carried out while the switchboard is in service.



Current transformers

The current transformers are resin insulated and suitable for the feeding of measuring instruments and protections. These transformers can have a wound core or bushing bar with one or more cores. Their performances and precision classes comply with the apparatus requirements. The current transformers comply with IEC 60044 - 1 Standard. Their dimensions meet the requirements of DIN 42600 Standards. The current transformers can be equipped also with a capacitive socket for being connected to voltage indicator lamps.

Toroidal current transformers

The toroidal current transformers are resin insulated and suitable for the feeding of measuring instruments and protection. These transformers can have a ring or a split core. Their performances and precision classes comply with the apparatus requirements. They are suitable both for measuring phase currents and determining earth fault currents. They meet the requirements of IEC 60044 - 1 Standards.

Protection relay

MME Series switchboards can be equipped with different brand relay: THYTRONIC, SEB, MS, ABB, SIEMENS, SCHNEIDER or others.



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