

# Set Series

## EasySet MV Standard

Medium Voltage Distribution 12 kV  
Air-insulated Switchgear with Vacuum Switching Devices

### User Manual

GEX2563900-02  
10/2025



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## Set Series

Featuring outstanding medium-voltage (MV) and low-voltage (LV) switchboards, motor control centres and power distribution solutions for high-performance power applications, Schneider Electric Set Series provides optimized solutions based on high levels of safety and an optimised footprint. Built on a modular architecture and incorporating smart connected devices for maximum safety, reliability, performance and energy efficiency, the Set Series is delivered to customers directly from our Schneider Electric plants or via a global network of licensed partner panel builders, who are trained and audited to provide quality equipment and support.

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# Safety Information

## Important Information

Read these instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, service, or maintain it. The following special messages may appear throughout this documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of this symbol to a “Danger” or “Warning” safety message indicates that an electrical hazard exists which will result in death or serious injury if the instructions are not followed.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages with this symbol to avoid possible injury or death.

<b>⚠ DANGER</b>
<p><b>DANGER</b> indicates a hazardous situation which, if not avoided, <b>will result in death or serious injury.</b></p> <p><b>Failure to follow these instructions will result in death or serious injury.</b></p>
<b>⚠ WARNING</b>
<p><b>WARNING</b> indicates a hazardous situation which, if not avoided, <b>could result in death or serious injury.</b></p> <p><b>Failure to follow these instructions can result in death, serious injury, or equipment damage.</b></p>
<b>⚠ CAUTION</b>
<p><b>CAUTION</b> indicates a hazardous situation which, if not avoided, <b>could result in minor or moderate injury.</b></p> <p><b>Failure to follow these instructions can result in injury or equipment damage.</b></p>
<b>NOTICE</b>
<p>NOTICE is used to address practices not related to physical injury.</p> <p><b>Failure to follow these instructions can result in equipment damage.</b></p>

## Please Note

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified personnel is one who has skills and knowledge related to the construction, installation, and operation of electrical equipment and its installation, and has received safety training to recognize and avoid the hazards involved.

## Safety Precautions

### Safety Rules

#### **DANGER**

##### **HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E or CSA Z462. personnel.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Turn off all power supplies of the equipment before working on or inside equipment.
- Respect the LOTO (Lock Out Tag Out) procedure.
- Always use a properly rated voltage sensing device to confirm that power is off.
- Put all devices, doors, and covers back into place before turning on power to this equipment.
- Beware of potential hazards, and carefully inspect the work area for tools and objects that may have been left inside the equipment.
- Never go behind the panel when it is energized.

**Failure to follow these instructions will result in death or serious injury.**

#### **NOTICE**

##### **HAZARD OF DEGRADED EQUIPMENT PERFORMANCE**

- Comply with the handling rules and avoid causing any shocks to the device.
- If the equipment is stored before its final installation, ensure the storage conditions.

**Failure to follow these instructions can result in equipment damage.**

### Cleaning Instructions

#### **DANGER**

##### **HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

- Do not use solvents or alcohol for cleaning the equipment.
- Do not use high-pressure cleaner for cleaning the equipment.

**Failure to follow these instructions will result in death or serious injury.**

# About the Document

## Intended Use

This User Manual describes operation and maintenance of air-insulated medium-voltage switchgear units of the series EasySet MV Standard.

It is exclusively intended for use by the manufacturers staff or by persons certified for the EasySet MV series (training certificate).

Read instructions before operating, servicing, or doing maintenance of the equipment.

This User Manual is an integral part of the product and should be stored so that it is readily accessible at all times for and can be used by persons who are to work on the switchgear. If the switchgear is relocated to another site, this User Manual must be passed on to the new operators along with the unit.

As our products are subject to continuous development, we reserve the right to make changes regarding the standards, illustrations and technical data described in this User Manual.

This User Manual cannot describe every imaginable individual case or every customer-specific version of the product. For information which is not included in this manual, contact the manufacturer.

All dimensional data in this manual is in millimetres.

## Related Documents

The following additional documents must be complied with:

- Purchase agreement with the stipulations regarding the switchgear-specific equipment and the legal details
- The appropriate switchgear-specific circuit diagrams or documentation
- The operating manuals of the low-voltage devices installed in the switchgear (for example, voltage presence detecting systems, devices in low-voltage cabinet)
- The assembly drawings supplied with the equipment
- The assembly instructions of the manufacturer of the cable connection systems to be connected to the switchgear
- The operating instructions of the trucks being used

Title of Document	Reference Number
EasyPact EXE Vacuum Circuit Breaker up to 17.5 kV	NNZ5908501
EasySet MV Installation Guide	GEX2564100

# Safety Provisions

Read the following instructions carefully before you work on the switchgear, and perform the work detailed in them as described. Do not perform any work which is not described in this guide.

## Applicable Standards and Regulations

Series EasySet MV switchgear units with vacuum switching devices are:

- IEC 62271-200: 2021: AC metal-enclosed switchgear and control gear for rated voltages above 1 kV and up to and including 52 kV.
- EN 50110-1: Operation of electrical equipment:
- The locally applicable standards and regulations related to accident prevention, operating and work instructions. These national standards must be compliant with the international standards above.
- Metal-enclosed; loss of service continuity category accordance IEC 62271-200: 2021 LSC 2B-PM.
- Type-tested.
- Optional: tested for internal faults (qualification Internal arc classification (IAC))<sup>(1)</sup>.
- Dimensioned for indoor installation.

<sup>(1)</sup> Contact to Schneider Electric Sales team.

### DANGER

#### HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Before performing mounting and maintenance work, comply with the below safety rules:

- On the earthing and testing truck or panel, de-energize the system, verify it for zero voltage and earth the system according to the applicable safety rules pursuant to EN50110-1.
- After removal of covers, isolate the appropriate part of the switchgear unit from the power supply, for the operator safety in accordance to IEC 62271-200.
- On the drive mechanism, switch off the supply voltage and prevent it from reclosing.
- Release the energy-storing device by: an OFF–ON–OFF operating sequence for the circuit breaker and a closing via the make proof earthing switch.

**Failure to follow these instructions will result in death or serious injury.**

The EasySet MV switchgear units meet the following standards and regulations:

Designation	IEC/EN-Standard
Switchgear	IEC 62271-200: 2011 IEC 62271-1: 2017
IAC	IEC 62271-200: 2011
Circuit breaker	IEC 62271-100: 2017
Earthing switch	IEC 62271-102: 2018
Current transformer	IEC 61869-2: 2012
Voltage transformer	IEC 61869-3: 2011
Protection against accidental contact, foreign bodies and water	IEC 62271-200: 2011 IEC 60529: 2013
Operation of electrical equipment	EN 50110-1

Degrees of protection against accidental contact and foreign objects according to IEC 60529: 2013	
External enclosure of panel	IP4X
Between the compartments of the panel	IP2X

## Environmental and Operating Conditions

EasySet MV is an indoor switchgear and may only be operated under normal conditions in accordance with IEC 62271-1: 2017.

Operation under conditions deviating from these is only admissible subject to consultation with and written approval from the manufacturer.

Ambient conditions in accordance with IEC 62271-1: 2017	
Temperature class	-5 °C Indoors <sup>(1)</sup>
Ambient temperature minimum or maximum	-5 °C/+45 °C <sup>(1)</sup>
Average value over 24 hours	≤ 35 °C
Mean relative air humidity: 24 hours/1 month	≤ 95%/≤ 90%
Installation altitude above sea-level	≤1000 m
<sup>(1)</sup> Higher values available on request.	

## Utilization in Line with the Intended Purpose

EasySet MV series air-insulated medium-voltage switchgear units are designed exclusively for switching and distributing electrical power. They may only be used in the scope of the specified standards and the switchgear-specific technical data. Any other utilization constitutes improper use and may result in dangers or damage of equipment.

### **⚠ WARNING**

#### **HAZARD OF INCORRECT ASSEMBLY, USE AND OPERATION**

- Use only EasySet MV series air-insulated medium-voltage switchgear units in the scope of the specified standards and the switchgear-specific technical data.
- Operate the EasySet MV series air-insulated medium-voltage switchgear unit according to its intended use.
- Assemble, connect or operate the EasySet MV series air-insulated medium-voltage switchgear unit properly.
- Use accessories or spare parts which have been approved by the manufacturer.
- Do not convert the switchgear or attach inadmissible parts without the manufacturer approval.

**Failure to follow these instructions can result in death, serious injury, or equipment damage.**

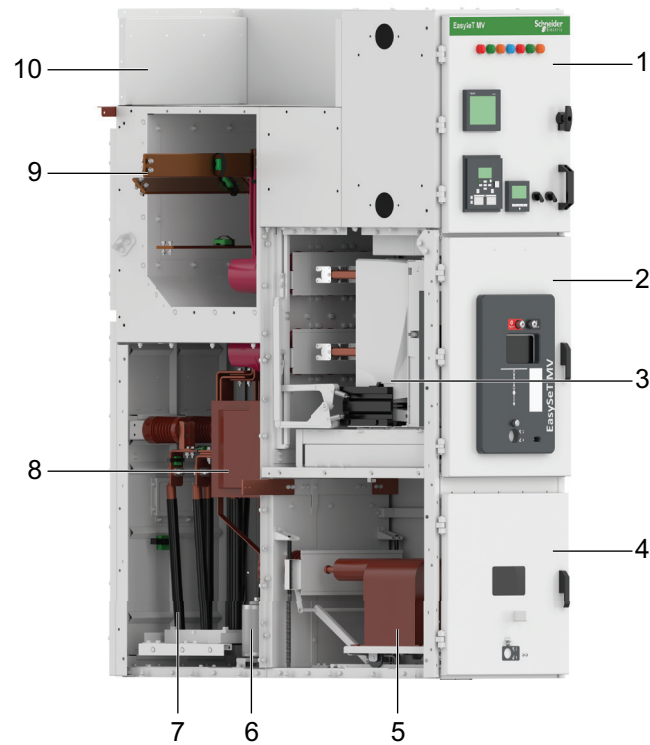
## Disposal After the End of the Useful Life

A material and recycling data sheet can be provided on request for the disposal of series EasySet MV switchgear at the end of its service life.

Disposal is performed as a service by the manufacturers service center which to payment.

# Design and Description

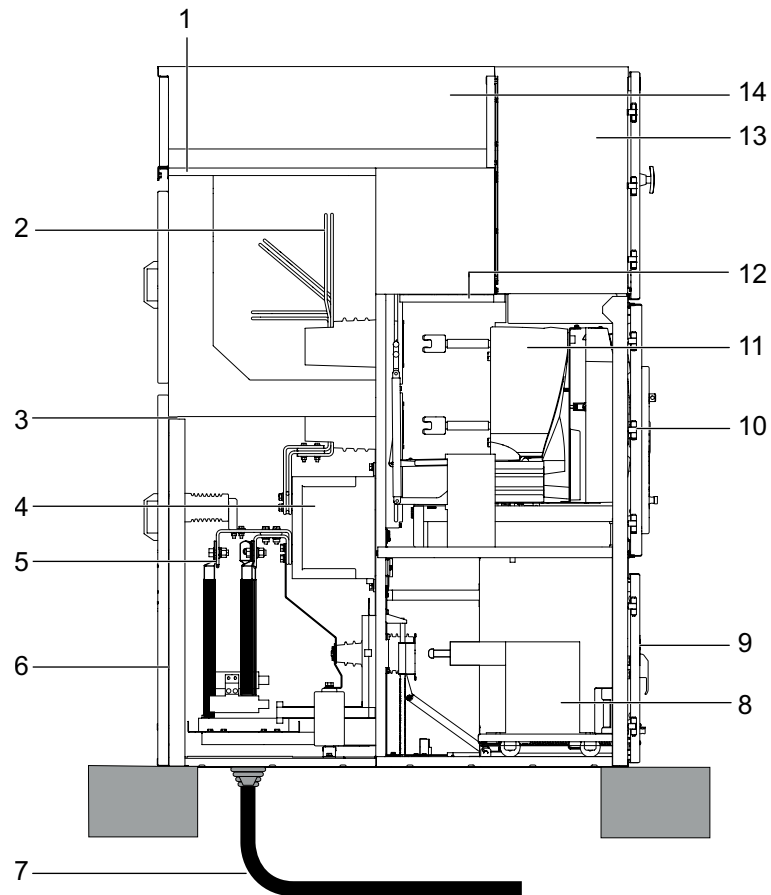
## Panel Design



**Figure 1**  
Feeder Panel EasySet MV 12 with Circuit Breaker Truck EasyPact EXE  
(for rated currents  $\leq 2000$  A)

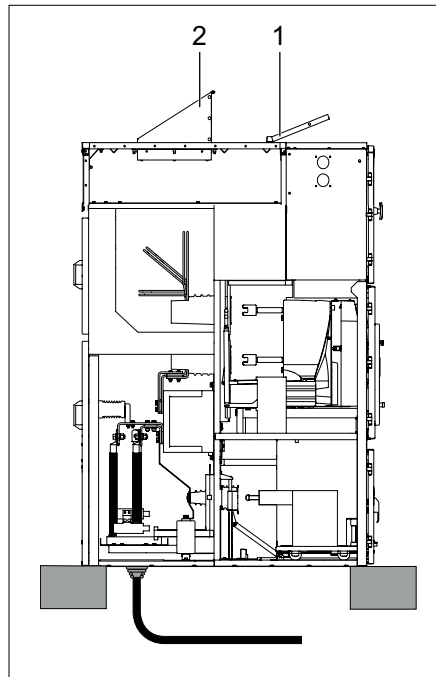
1	Low voltage compartment door	6	Surge arresters
2	Circuit breaker compartment door	7	MV cables
3	Circuit breaker EasyPact EXE	8	Current transformers
4	Voltage transformer compartment door	9	Main busbar
5	Voltage transformers	10	Panel frame

**NOTE:** Image is for representation purpose. Actual color of component or product may differ from document.



**Figure 2**  
Feeder Panel with Circuit Breaker Truck EasyPact EXE  
(for rated currents  $\leq 2000$  A)

1	Pressure relief flap from busbar chamber	8	Voltage transformer
2	Busbars	9	Voltage transformer compartment door
3	Pressure relief flap from cable chamber	10	Circuit breaker compartment door
4	Current transformer	11	Easypact EXE circuit breaker
5	Cable connection	12	Pressure relief flap from CB chamber
6	Cable compartment cover	13	Low voltage compartment
7	HV cable	14	Pressure relief duct



**Figure 3**  
Panel with Internal Arc Classification (IAC)

- 1 Deflector
- 2 Pressure relief duct

## Panel Variants

The sub-chapters always show panel types with the appropriate basic equipment. Customized models with additional equipment are described in the switchgear-specific documentation.

## Functional Overview

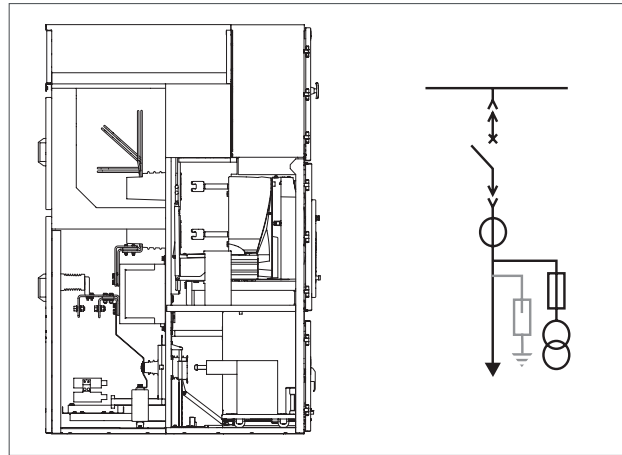
EasySet MV has a comprehensive range of functions to suit all requirements for many applications.

The table below can be used to link requirements to functional units and gives basic information on the general composition of each unit.

Panel Architecture	Feeder		Bus coupler	Bus riser
Application	Line transformer/ generator	Line transformer/ motor/capacitor	Bus section coupler	Bus section riser
Main device	Circuit breaker	Circuit breaker	Circuit breaker	Fix copper bar
Type of device	EasyPact EXE	EasyPact EXE	EasyPact EXE	Copper bar
Panel function	Incomer	Outgoing	Bus sectioning	
Panel name, code	F	F	BSC	BSR
Single line diagram				

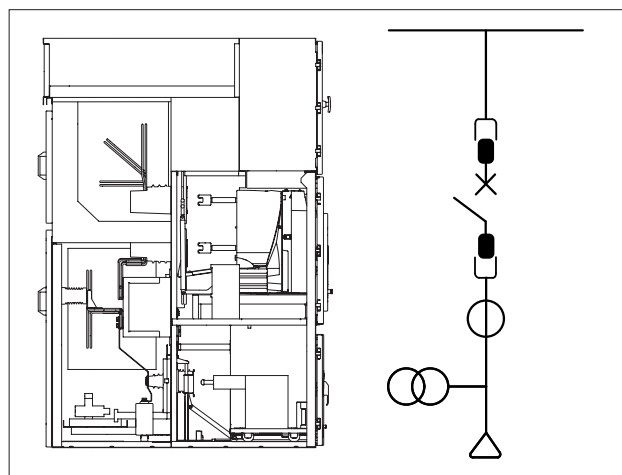
Panel Architecture	Metering			Incoming and Outgoing
Application	Line PT	Bus PT	Line and bus PT	ICOG
Main device	Voltage Transformer	Voltage Transformer	Voltage Transformer	Circuit breaker
Type of device	NA	NA	NA	EasyPact EXE
Panel function	Line side voltage metering	Busbar voltage metering	Line side and busbar voltage metering	Single incoming and outgoing panel
Panel name, code	LPT	BPT	BLPT	ICOG
Single line diagram				

## Feeder Panels with Switching Devices

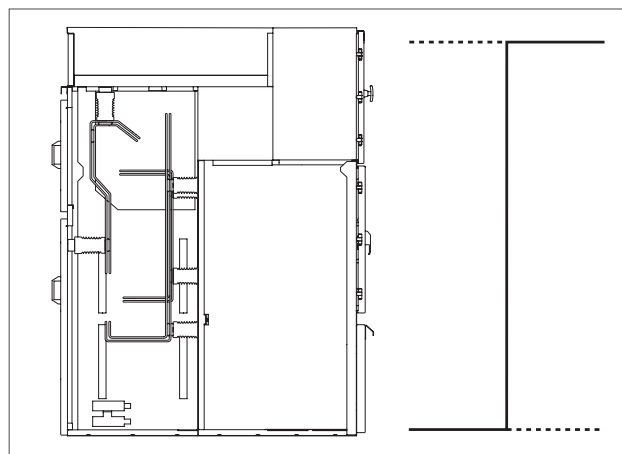


**Figure 4**  
Feeder Panel with Circuit Breaker Truck EasyPact EXE (for rated currents < 2000 A) and Voltage Transformer (optional)

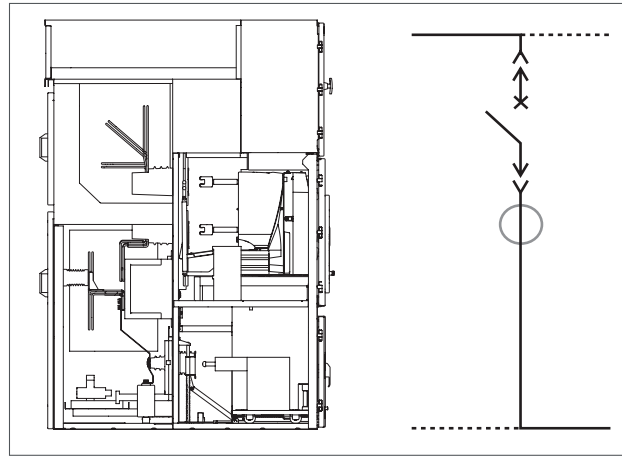
## Panels for Bus Section



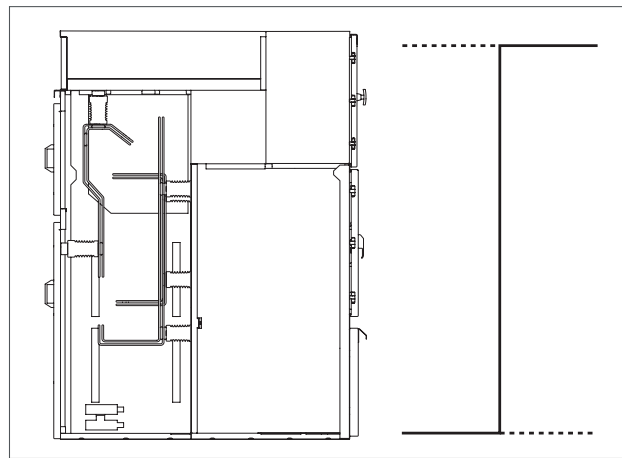
**Figure 5**  
Bus Section Coupler Circuit Breaker Panel



**Figure 6**  
Bus Riser Panel with EasyPact EXE

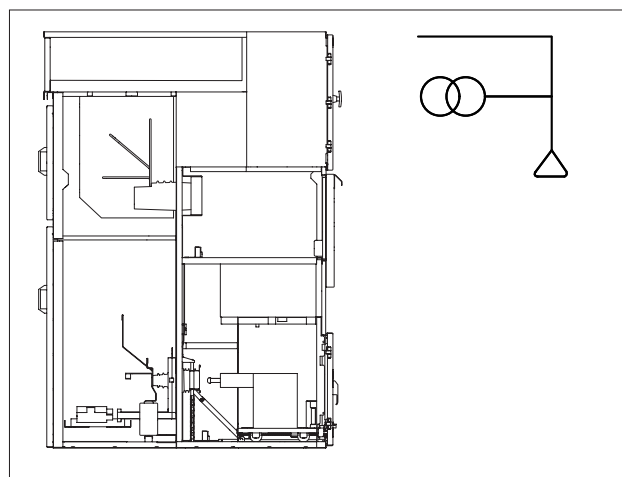


**Figure 7**  
Bus Section Coupler Bus Riser Panel with EasyPact EXE

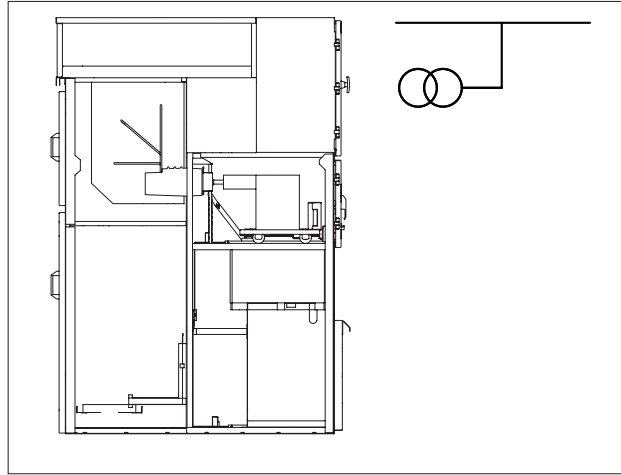


**Figure 8**  
Bus Section Coupler Bus Riser Panel

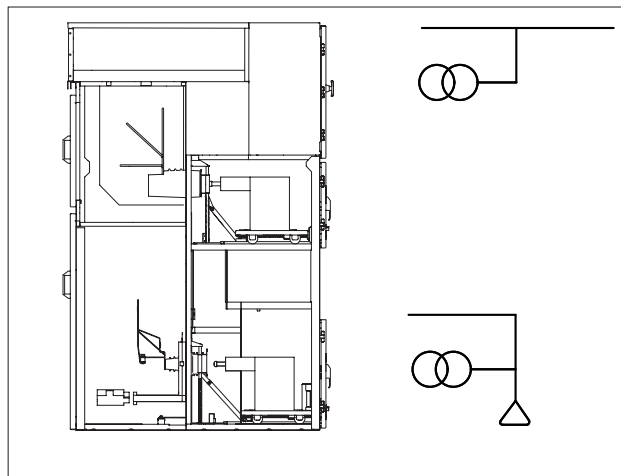
## Panels with Busbar Voltage Transformer



**Figure 9**  
Metering Panel with Line Side Metering Truck



**Figure 10**  
Metering Panel with Busbar Voltage Metering Truck

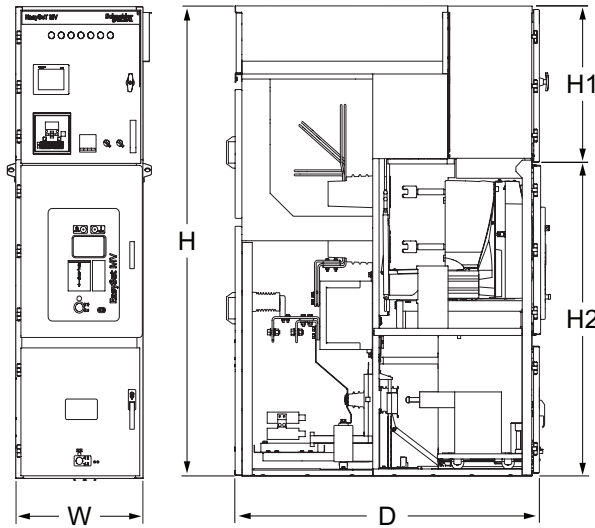


**Figure 11**  
Metering Panel with Line Side and Busbar Voltage Metering Truck and Busbar Earthing Switch

# Dimensions and Weights (Without Packaging)

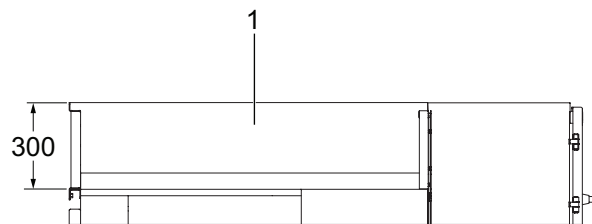
For the precise panel dimensions, refer to the switchgear-specific documentation. These depend on:

- Rated voltage
- Rated normal current
- Rated short-time current and
- Additional equipment:
  - Busbar attachments
  - Rear high voltage cable connection



**Figure 12**  
Dimensions of EasySet MV Panels

- W Panel width
- H Panel height (depending on height of low-voltage compartment)
- H1 Height of low-voltage compartment
- H2 Panel height without low-voltage compartment and attachments
- D Panel depth



**Figure 13**  
Dimensions of Deflector

- 1 Deflector

## EasySet MV Series Ratings

Rated voltage	$U_r$	kV	12
Rated lightning impulse withstand voltage	$U_p$	kV	75
Rated power frequency withstand voltage	$U_d$	kV	28
Rated frequency	f	Hz	50/60
Rated short circuit breaking current	$I_{sc}$	kA	up to 26.3
Rated peak withstand current	$I_p@50\text{ Hz}$	kV	65.75
Rated duration of short circuit	$t_k$	s	3
Rated current busbar	max $I_r$ bb	A	up to 2000 <sup>(1)</sup>
Rated current circuit breaker	$I_r$	A	800
			1250
			2000
Dimensions	H	mm	2100
	D	mm	1450
	W	mm	600
Approximate mass		kg	600
<sup>(1)</sup> For the rated current busbar requirement of 2000 A, contact Schneider Electric.			

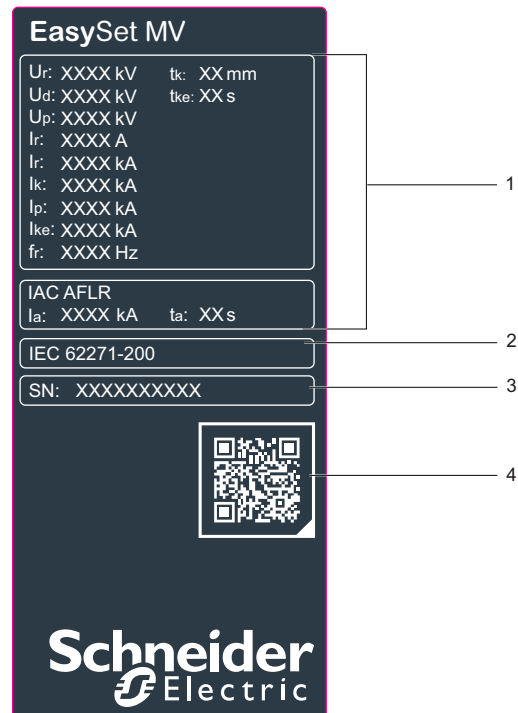
The applicable panel-specific technical data are indicated on the nameplate (see Nameplate , page 20) and in the switchgear-specific documentation.

The technical data of the switching device (EasyPact EXE) are indicated on the nameplate and in the operating manual of the device concerned.

## Nameplate

The type designation on the nameplates on the front of the panels (see Figure 14) informs about essential technical data. The information below is required when submitting enquiries to the manufacturer or ordering spare parts:

- Type designation
- Serial number
- Year of construction



**Figure 14**  
Nameplate on Panel Front

- |   |                  |   |                      |
|---|------------------|---|----------------------|
| 1 | Technical data   | 3 | Serial number        |
| 2 | Type designation | 4 | Year of construction |

# Technical Data of Electrical Control and Operating Devices

The switchgear panels have been designed on principle so as to permit manual operation.

The drive mechanisms of the individual switching devices can be equipped, depending on the specific customer's model, with additional electrical control and operating devices. These are defined in the switchgear-specific circuit diagram (see switchgear documentation).

Component fitting options:

- Auxiliary switches are always actuated directly by the truck or by the switch shaft via an intermediate linkage. Their position always corresponds to that of the main contacts. The switching functions have been set in the factory according to the circuit diagram.
- Micro-switches are used depending on the customized panel models.

Description	Overview of rated supply voltages (V)					
	Direct voltage DC	24	48	60	110	125
Alternating voltage AC	(110)/120			(220)/230		

## Trucks

Electrical control and operating devices of trucks are described in the appropriate Technical Manuals <sup>(1)</sup>.

<sup>(1)</sup> Contact to Schneider Electric Sales team.

# Voltage Detecting and Indicating System

The Voltage Detecting and Indicating System (VDIS) unit is a self-powered voltage detecting and indicating system.

The VDIS unit is integrated into Schneider Electric cubicles, flush-mountable and designed according to standard IEC 62271-213: 2021. The VDIS unit is fitted with a three LED display and detects the operating voltage presence or absence on the cubicle main circuit.

**NOTE:** VDIS is not intended to distinguish between voltage not present (that is  $U < 10\%$  of nominal voltage) and dead circuit state (that is  $U = 0\text{ V}$ ).

The VDIS receives the information through the capacitive sensor installed inside the insulator in EasySet MV.

The range of Voltage Detecting and Indicating System consists of three versions:

1. No voltage output (VO): voltage presence detection and interface to phase concordance units.
2. VO FlairDIN: voltage presence detection, interface to phase concordance units and voltage output connection to fault passage indicators.
3. VO T300: voltage presence detection, interface to phase concordance units and voltage output connection to SC150 for voltage measurement.

For FlairDIN application, the VO cable is connected to the input of the VD23 voltage presence relay or Flair 2xD fault passage indicators.

For T300 application, the VO cable is connected to the VDIS voltage adapter which is linked to the Easergy SC150 (Reference No. EMS59570) module of T300 via an Ethernet cable.

The VDIS unit has three main functions:

- Visual indication of MV operating voltage presence or absence,
- Phase concordance output,
- Voltage Output (VDIS-VO only).

## DANGER

### HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- You must use the VDIS unit to detect and indicate the presence or absence of operating voltage.
- You must not use the VDIS unit to distinguish between voltage not present (i.e.  $U < 10\%$  of nominal voltage) and dead circuit state (i.e.  $U = 0\text{ V}$ ).

**Failure to follow these instructions will result in death or serious injury.**

## Range of VDIS Unit Variants

For each version of VDIS unit, there are several variants (depending if it includes Voltage Output option or not). These variants can be identified as follows:

VDIS unit variant	Reference
No voltage output (VO)	VDIS003STD, VDIS004STD, VDIS005STD, VDIS007STD, VDIS008STD and VDIS009STD
VO FlairDIN	VDISFD004VO, VDISFD005VO, VDISFD006VO, VDISFD007VO, VDISFD008VO and VDISFD009VO
VO T300	VDISFD004VO, VDISFD005VO, VDISFD006VO, VDISFD007VO, VDISFD008VO and VDISFD009VO

Variants must be selected according to the following criteria:

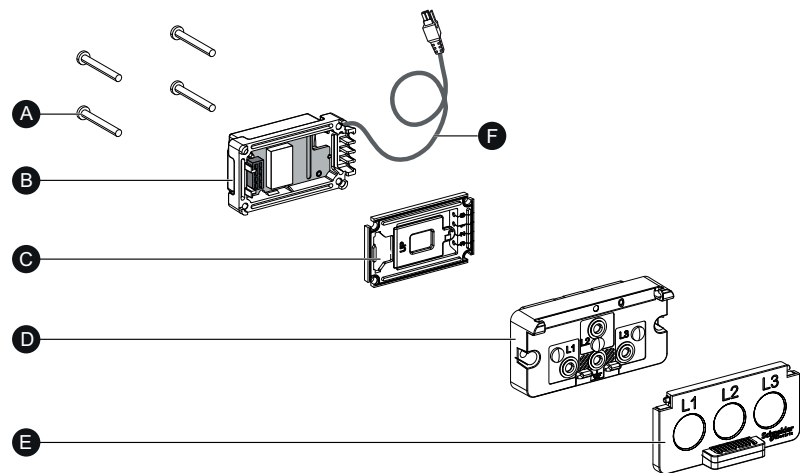
- The range of MV for the selected EasySet MV product,
- The value of capacitor used inside the bushings of cubicle system,
- The network frequency,
- Associated devices.

## Identifying Unit Parts

The VDIS unit consists of two sub-assemblies:

- A protection sub-assembly with open seal
- An indication sub-assembly

The following graphic shows the different parts of a VDIS unit.

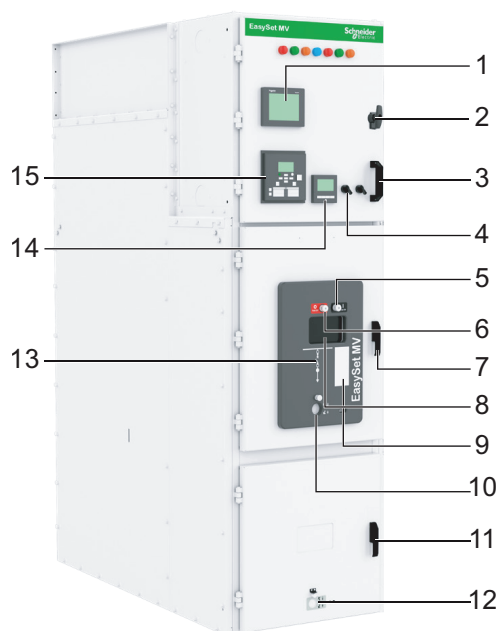


A	Four screws (CBLZS 3x22)	D	Indication sub-assembly
B	Protection sub-assembly	E	Cover
C	Cable gland seal	F	Voltage output cable

Keep the wiring set that is currently inserted in the existing unit. Disassembling the existing unit is required to recover the wiring set and assemble it into the new VDIS unit.

# Operation

## Operator Interfaces of Panels





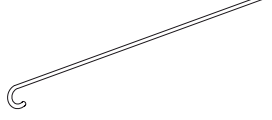


**Figure 15**

Operator Interface of EasySet MV Panels (shown in conjunction with the circuit breaker EasyPact EXE)

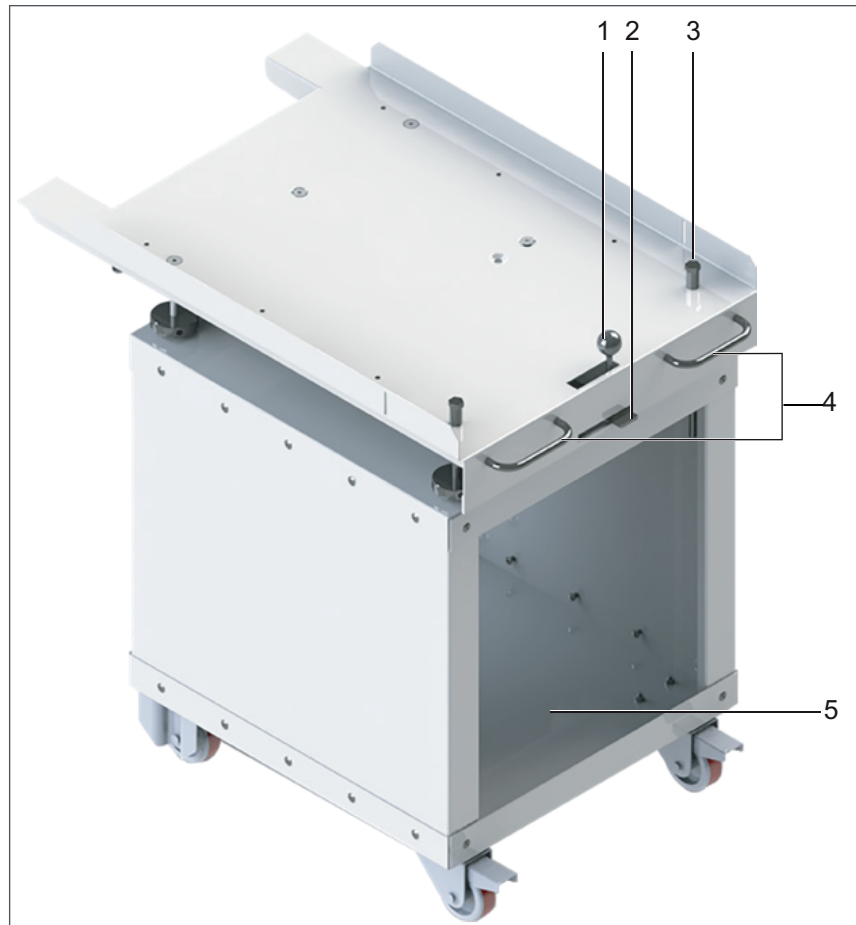
- |   |                |    |                               |
|---|----------------|----|-------------------------------|
| 1 | HMI display    | 9  | Rating Label                  |
| 2 | LV door lock   | 10 | CB racking access             |
| 3 | LV door handle | 11 | Lower compartment door handle |
| 4 | T-N-C switches | 12 | Switch operating element      |
| 5 | CB ON          | 13 | SLD mimic                     |
| 6 | CB OFF         | 14 | Multi function meter          |
| 7 | Door handle    | 15 | Numerical relay               |
| 8 | Viewing window |    |                               |

## Operation Accessories

**NOTE:** These accessories are supplied together with the panel. The panel may only be operated by means of these accessories.

Designation	Item no.	Illustration
Handle for opening and closing the front door	489020000417	
VCB Handling trolley	400130013183	
Operating rod to switch the circuit breaker on and off	VDRG00157-04	
Racking Handle for CB	VDRG00157-04	
Racking handle for VT	400130010454	
Close/open stick	AGSH35446-01	-
Bus PT Handling trolley	400130010561	-

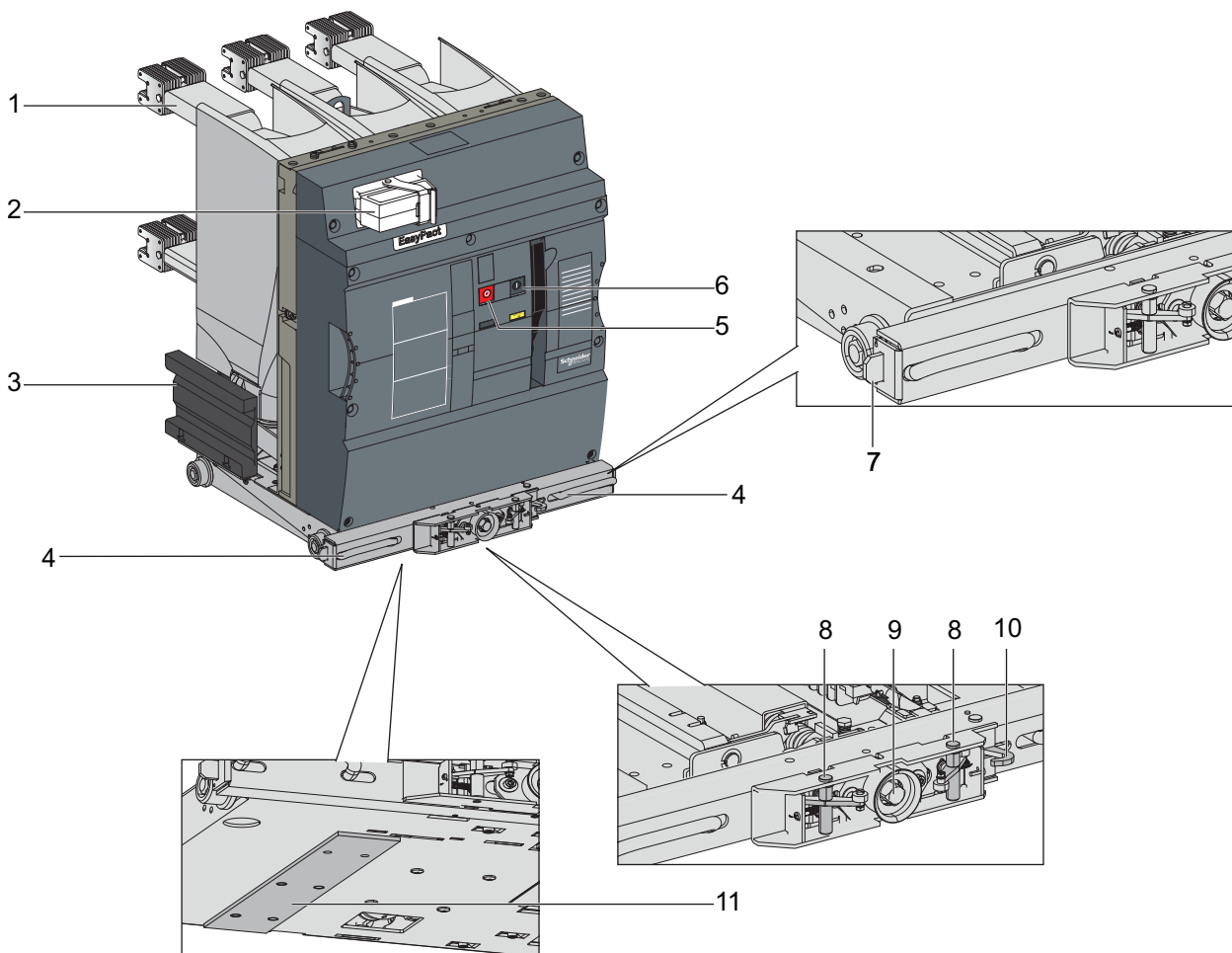
## Transport Trolley for Circuit Breaker



**Figure 16**  
Transport Trolley for Truck

- |   |                       |   |                                 |
|---|-----------------------|---|---------------------------------|
| 1 | Ball knob             | 4 | Door handle                     |
| 2 | Trolley locking plate | 5 | VCB handling trolley base plate |
| 3 | Bush                  |   |                                 |

# Circuit Breakers for EasySet MV Panels



**Figure 17**  
EasyPact EXE Circuit Breaker ≤ 12 kV/≤ 2000 A

- |   |                                       |    |                                       |
|---|---------------------------------------|----|---------------------------------------|
| 1 | Power connections (arms and clusters) | 7  | Locking tabs                          |
| 2 | LV plug (64 pin)                      | 8  | Rollers for door interlocking         |
| 3 | Shutter ramp                          | 9  | Square pin for rack in/out handle     |
| 4 | Locking handles                       | 10 | Hook to lock the VCB compartment door |
| 5 | Circuit breaker OFF                   | 11 | Bottom earthing bar                   |
| 6 | Circuit breaker ON                    |    |                                       |

## Interlocks

EasySet MV panels have mechanical basic interlocks which help avoid operating detected error. You must be familiar with these interlocks before operating panels.

**NOTE:** Complete switchgear interlocking can only be ensured with complete locking devices.

### Mechanical Interlocks

Interlock	Function of interlock
Between truck and low voltage connector	The truck cannot be actuated, unless the low voltage plug is inserted.
	The low voltage plug cannot be removed, when the truck is not in disconnected/ test position.
Between circuit breaker and truck	Circuit breaker cannot be racked in or out while it is switched ON.
	Circuit breaker cannot be switched ON, unless the truck is completely in its test or in-service position. CB can be ON/OFF in test / service position.
Between truck and cubicle	If the truck front frame is not locked in the cubicle, the truck cannot be actuated.
	If the truck has left its test position, the truck front frame cannot be unlocked in the cubicle.
Between truck and front door	If the front door is opened, the truck cannot be moved into the service position.
	Door cannot be opened, if the truck has left its test position.

### Electromagnetic Interlocks (Optional)

<b>⚠ WARNING</b>
<b>HAZARD OF IMPROPER OPERATION</b>
Locking of the switchgear interlocking must be complete to avoid detected error.
<b>Failure to follow these instructions can result in death, serious injury, or equipment damage.</b>

**NOTE:**

- If the supplied voltage has a phase fault, all electrical interlocks are in the locked position. Measure: Re-establish supply voltage.
- Note the purchase contract and the switchgear specific circuit diagram as regards the design of the interlocking systematics.

<b>NOTICE</b>
<b>HAZARD OF INCORRECT OPERATING CONDITIONS</b>
If no blocking coils are being used for the locking devices, a mechanical lock-out with cylinder or U lock must be provided.
<b>Failure to follow these instructions can result in equipment damage.</b>

## Padlocks (not Included in Scope of Supplies)

The bore holes are provided for padlock yokes of  $\varnothing$  8 mm.



**Figure 18**  
Circuit Breaker Padlock

Cover flaps on ON/OFF push button for the circuit breaker can be locked by means of a padlock (optional).

## Operating Specifications

### **⚠️⚠️ DANGER**

#### **HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH**

- The switchgear unit may only be operated by specialist electricians who have proven experience (training certificate) in conjunction with the EasySet MV Standard series and all the relevant safety standards. Refer to the Safety Provisions, page 8.
- To rule out incorrect switching operations, the operating sequences described below must be complied with.
- Complete each switching operation.
- Check whether the supply voltage is ON.
- After each switching operation for which you have used a crank or a lever, remove this tool and store it in the tool board.

**Failure to follow these instructions will result in death or serious injury.**

### **⚠️ CAUTION**

#### **HAZARD OF INCORRECT OPERATION**

In case supply voltage is not available:

- Check if blocking coils (locking the interrogation slides and circuit breaker pushbuttons, depending on design) are in locked position.
- Check if an undervoltage release (optional) has dropped out.
- Re-establish the supply voltage.

**Failure to follow these instructions can result in injury or equipment damage.**

# Operating the Circuit Breaker

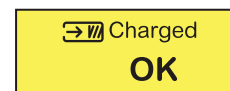
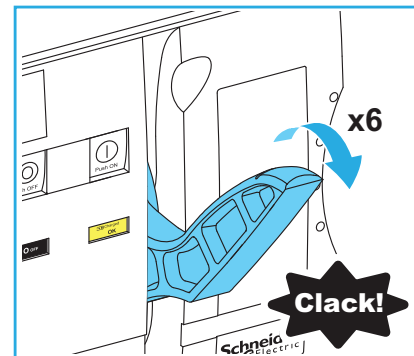
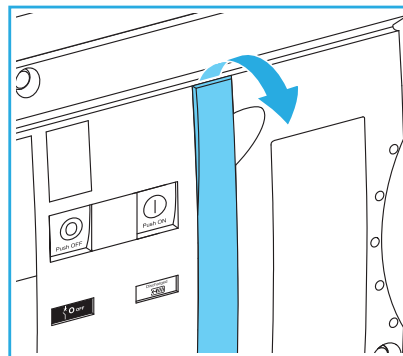
## Charging the Circuit Breaker Energy Storing Device

### Initial situation:

- Circuit breaker: OFF
- Energy storing device: released
- Circuit breaker compartment door: open

### Manual charging

1. Pull down the charging handle six times until a sound is heard, the sound indicating that the closing mechanism is charged.
2. The mechanism charge indicator moves to one of the states shown in the adjacent figure:
3. Charged  $\Theta K$ : Activation MN; permanent opening order; intermediate position of racking device.

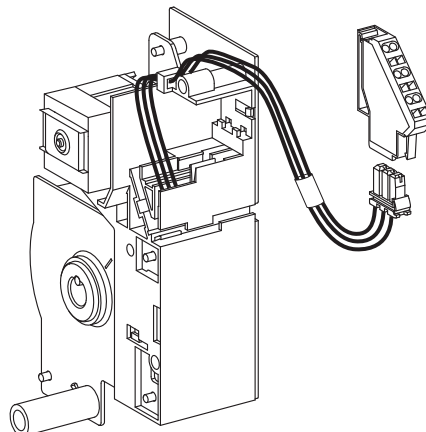


**Figure 19**  
Manual Charging of Circuit Breaker

4. Charged OK: The circuit breaker can be closed.

### Automatic charging

If the electrical motor MCH for electrical charging is energized, automatic charging of the closing spring occurs when the spring is in the discharged state.



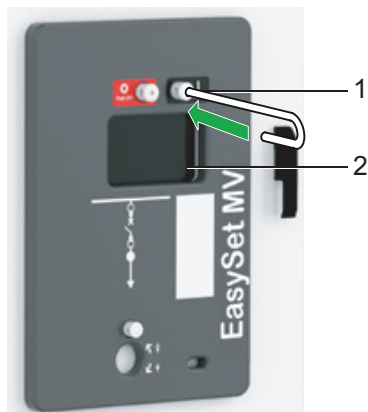
**Figure 20**  
Automatic Charging of Circuit Breaker

## Operating the Circuit Breaker Manually

### Switching ON via the Operating Rod

Insert the operating rod into the right-hand guide of the front door and press it right to the back (Figure 21, 1). The circuit breaker is switched ON; the position indicator indicates ON (2).

The energy storing device can be charged again immediately after switching ON (by motor). If supply voltage is present, the energy storage device is charged automatically.

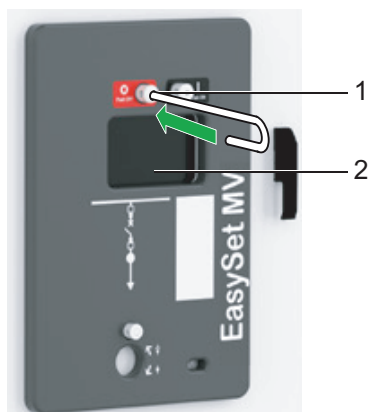


**Figure 21**  
Switching the Circuit Breaker ON via the Operating Rod

- 1      Operating rod
- 2      Position indicator reads: Circuit breaker ON

### Switching OFF via the Operating Rod

Insert the operating rod into the left-hand guide of the front door and press it right to the back (Figure 22, 1). The circuit breaker is switched OFF. The position indicator indicates OFF (2).



**Figure 22**  
Switching the Circuit Breaker OFF via the Operating Rod

- 1      Operating rod
- 2      Position indicator reads: Circuit breaker OFF

## Switching the Circuit Breaker Electrically

### Switching ON (Closing)

Actuate closing release via bay computer or remote control.









The energy storing device can be charged immediately after switching ON (by motor). If voltage is applied to the motor, charging is performed automatically.

### Switching OFF (Opening)

Follow the below steps to switch off the circuit breaker:

- Actuate the opening release via the bay computer or the remote control
- By undervoltage release or
- By secondary release

## Position Indicators on Circuit Breaker and Possible Operating Sequences

Item	Position indicator for energy-storing device (spring mechanism)		Position indicator for circuit breaker ON/OFF		Possible operating sequence
1	 Discharged	released		OFF	none
2	 Charged OK	charged		OFF	C-O
3	 Discharged	released		ON	O
4	 Charged OK	charged		ON	O-C-O

C = Switching ON (Closing)

O = Switching OFF (Opening)

## Move Truck into Service or Disconnected Position

Trucks may on principle only be moved into service or disconnected position when de-energized.

### **⚠️ DANGER**

#### **HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH**

- Switch circuit-breaker OFF or, in case of disconnecter truck EasyPact EXE, isolate the feeder.
- Do not pull the crank out before the truck in question has reached its end position.
- Do not pull the crank out in an undefined intermediate position.

**Failure to follow these instructions will result in death or serious injury.**

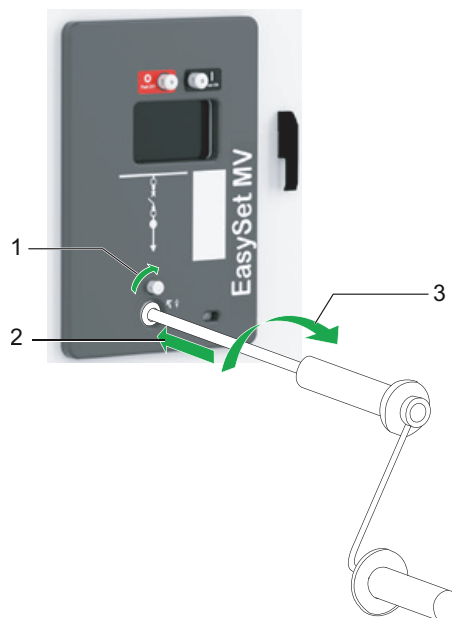
#### **Initial situation:**

- Circuit breaker OFF

## Racking-In the Truck from Disconnected into Service Position

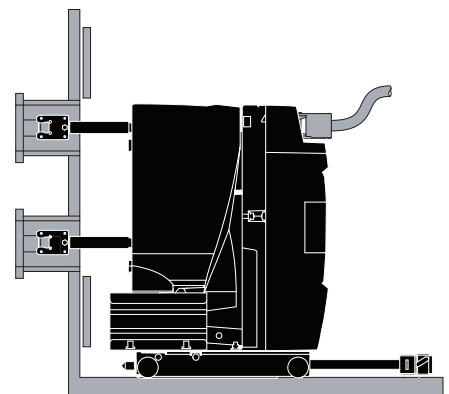
Follow the below steps to racking-in the truck from disconnected into service position:

1. Open cover (Figure 23, 1) and insert crank (2).
2. Turn crank clockwise (3) until the truck has been racked in. Remove crank.
3. Check position of truck (Figure 24) through the inspection glass.



**Figure 23**  
Racking-In the Truck

- 1 Open cover
- 2 Insert crank
- 3 Turn crank clockwise

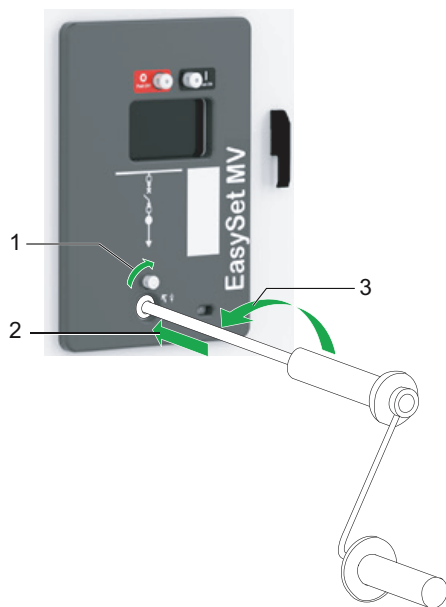


**Figure 24**  
Truck in Service Position

## Racking-Out the Truck from Service into Disconnected Position

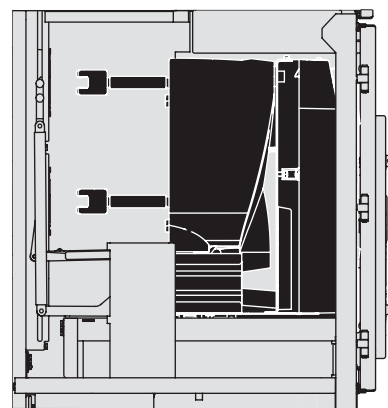
Follow the below steps to racking-out the truck from service into disconnected position:

1. Open cover (Figure 25, 1) and insert crank (2).
2. Turn crank counter-clockwise (3) until the truck has been racked out. Remove crank.
3. Check position of truck (Figure 26) through the inspection glass.



**Figure 25**  
Racking-Out the Truck

- 1 Open cover
- 2 Insert crank
- 3 Turn crank counter-clockwise



**Figure 26**  
Truck in Disconnected Position

## Standard Switching Operations

**NOTE:** Observe the switching provisions (see Operating Specifications , page 29) and the interlocking conditions (see Interlocks , page 28).

### Switching a Feeder

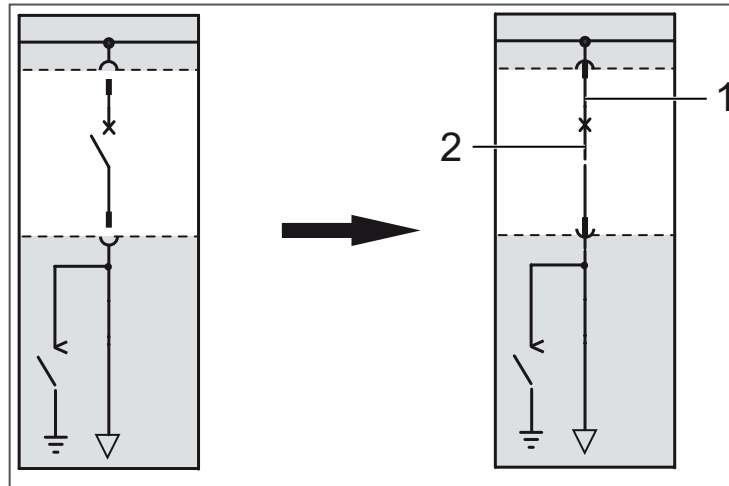
**Initial situation:**

- Circuit breaker: OFF
- EasyPact EXE truck: In disconnected position

**Switch feeder cable ON**

Follow the below steps to switch feeder cable ON:

1. Move truck into service position (Figure 27,1).
2. Switch circuit breaker ON (2).



**Figure 27**  
Switch feeder cable ON

**Switch feeder cable OFF**

Follow the below steps to switch feeder cable OFF:

1. Switch circuit breaker OFF.
2. Move truck into disconnected position.

### Earthing the Feeder Cable

**Initial situation:**

- Circuit breaker: OFF
- EasyPact EXE truck: In disconnected position

**Earthing feeder cable**

1. Check the feeder is de-energized
2. Insert earthing truck. For earthing truck document, reach out to Schneider Electric Team.

**De-earthing**

Switch the earthing truck OFF.

## Coupling Busbar Sections via Bus Section Coupler

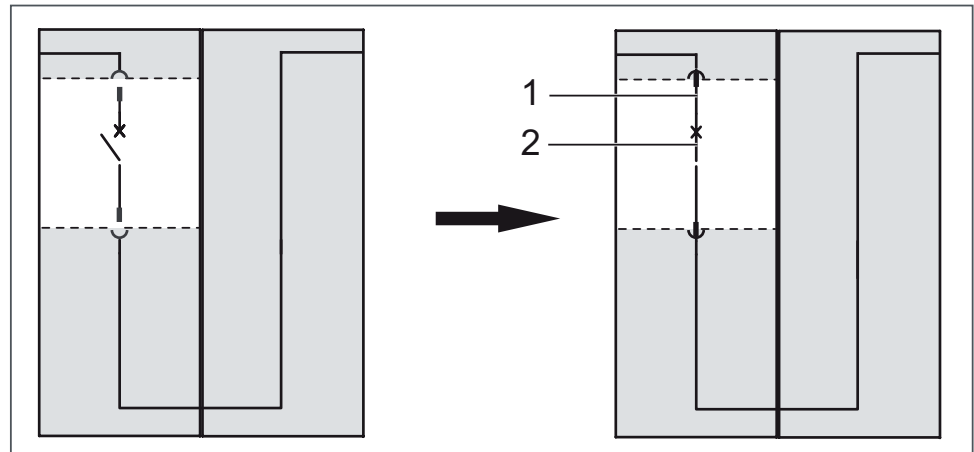
### Coupling the sections (With EasyPact EXE truck)

#### Initial situation:

- Circuit breaker: OFF
- EasyPact EXE truck: In disconnected position

Follow the steps for coupling the sections

1. Move truck into service position (Figure 28, 1).
2. Switch circuit breaker ON (2).



**Figure 28**

Coupling busbar sections via bus section coupler and EasyPact EXE trucks

### Uncoupling

Follow the steps for uncoupling the sections

1. Switch circuit breaker OFF.
2. Move truck into disconnected position.

# Maintenance

## Safety Provisions for Maintenance

### DANGER

#### HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Only specialist electricians certified by the manufacturer for maintenance work and who have the required knowledge regarding handling of medium-voltage switchgear of the EasySet MV Standard and all the relevant safety provisions are permitted to perform maintenance and cleaning work.
- Comply with the *Safety Provisions*, page 8.

**Failure to follow these instructions will result in death or serious injury.**

## Servicing Schedule

### DANGER

#### HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

In case of frequent condensation or air pollution (dust, smoke, or corrosive gases), the maintenance intervals must be adapted to the actual conditions.

**Failure to follow these instructions will result in death or serious injury.**

We recommend performing a visual inspection of the panels at least every four years, depending on the strain to which they are subjected during operation and the operating conditions.

For cleaning and maintenance work, refer to *Access to the Main Circuit Compartments*, *Access to the cable compartment*, *switching device compartment* and *the busbar compartment* in Installation Manual (GEX2564100).

In case of ambiguities or irregularities, contact the manufacturers service center immediately.

## Circuit Breaker Switch Cubicle / Mainly recommended for maintenance activities

Preventive maintenance activities	Minimal frequency <sup>(1)</sup> / Performance level									
	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
<b>LV Compartment</b>										
Inspection of auxiliaries equipment	•	•	•	•	•	•	•	•	•	•
Inspection of wiring connections (tightening, fixing)	•	•	•	•	•	•	•	•	•	•
<b>Cubicle</b>										
Cleaning cubicle / internal equipment	•	•	•	•	•	•	•	•	•	•
Inspection of the position indicators and signalling micro switches	•	•	•	•	•	•	•	•	•	•
Inspection of locking + interlocking mechanism function		○		○		○		○		○
Inspection of withdrawal mechanism		○		○		○		○		○
Inspection of the shutters		○		○		○		○		○
Cleaning / checking switch line operating mechanism				■				■		
Cleaning / checking of isolators (tightening, chalking, cracking, signs of heating)				■				■		
Cleaning / checking of earthing switch operating mechanism				■				■		
Cleaning / checking / greasing of earthing switch plugs				■				■		
Cleaning / checking / greasing of shutter locking system				■				■		
<b>Cables compartment</b>										
Inspection of cables (chalking, signs of heating)	○	○	○	○	○	○	○	○	○	○
Inspection of wiring connections (tightening, fixing)	○	○	○	○	○	○	○	○	○	○
<b>CT / VT compartment</b>										
Cleaning / inspection of isolators (chalking, cracking, signs of heating)				■				■		
Cleaning / inspection of TPs (tightening, chalking, cracking, signs of heating)				■				■		
<b>Busbar compartment</b>										
Inspection of busbars (cleaning, tightening, chalking, cracking, signs of heating)				■				■		
Inspection of isolator switches (cleaning, tightening, chalking, cracking, signs of heating)				■				■		
<b>Circuit breaker</b>										
General state: visual checking, cleanliness, insulator condition, oxidation, no corrosion of supporting structure	•	•	•	•	•	•	•	•	•	•
Checking of number of operation	•	•	•	•	•	•	•	•	•	•
Cleaning of resin bodies	•	•	•	•	•	•	•	•	•	•
Inspection of state of the auxiliaries contact (on/off, rack in, rack off etc.)	•	•	•	•	•	•	•	•	•	•
Inspection of functional and safety interlock on device	•	•	•	•	•	•	•	•	•	•
Cleaning / checking / greasing of the power contacts (plugs, sliding contact, light greasing)				■				■		
Measurement of main contact resistance (microhmmeter)				■				■		
Cleaning / checking / greasing of the moving withdrawable parts				■				■		
Checking of coupling rods				■				■		
Cleaning / checking / greasing of the operating mechanism				■				■		
Cleaning / checking / greasing of the latching mechanism				■				■		
Cleaning / checking / greasing of the closing and opening springs				■				■		



## Metering Cubicle / Mainly recommended for maintenance activities

Preventive maintenance activities	Minimal frequency <sup>(1)</sup> / Performance level									
	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
<b>LV Compartment</b>										
Inspection of connections	•	•	•	•	•	•	•	•	•	•
Checking of wiring	•	•	•	•	•	•	•	•	•	•
<b>Equipment compartment</b>										
Cleaning / checking of active part and enclosure (chalking, cracking, signs of heating)	○	○	○	○	○	○	○	○	○	○
Cleaning / checking of isolators (chalking, signs of heating)	○	○	○	○	○	○	○	○	○	○
Checking of lock and inter-lock system	○	○	○	○	○	○	○	○	○	○
Checking of auxiliaries contacts position indicator	○	○	○	○	○	○	○	○	○	○
Cleaning / checking of operating mechanism				■				■		
Cleaning / checking of the earthing switch operating mechanism				■				■		
<b>Fuses</b>										
Inspection of fuse (chalking, color, cracking, corrosion)	○	○	○	○	○	○	○	○	○	○
Inspection of fuse fixing	○	○	○	○	○	○	○	○	○	○
Inspection of fuse signaling microswitch	○	○	○	○	○	○	○	○	○	○
Inspection of fuse striker	○	○	○	○	○	○	○	○	○	○
<b>Busbar compartment (power off)</b>										
Inspection of busbars (signs of heating)				■				■		
Inspection of isolator switches (chalking, signs of heating)				■				■		
<b>CT / VT compartment</b>										
Cleaning / inspection of isolators (tightening, chalking, cracking, signs of heating)				■				■		
Cleaning or/ inspection of TPs (tightening, chalking, cracking, signs of heating)				■				■		
<b>Tests</b>										
Mechanical (manual on/off)	•	•	•	•	•	•	•	•	•	•
Electrical (remote on/off)	•	•	•	•	•	•	•	•	•	•
<b>Schneider Electric Proprietary Diagnosis services offers</b>										
Diagnosis to detect drifts from the initial state and significant trends, to anticipate on the corrective action (future failures) required to ensure equipment safety and continuity of service, and plan the action for the most convenient time for customer operations.										
<b>ProDiag Corona</b> Surface or internal partial discharges detection.				■				■		
<b>ProDiag Fuse</b> Measurement of fuses internal impedance / comparison with manufacturer's data				■				■		
<b>Spare Parts</b>										
Secure: Parts commonly used in corrective maintenance interventions										
Auxiliary contact	Light maintenance									
Prevent: Parts whose condition are checked in preventive maintenance interventions										
Operating mechanism				Exclusive maintenance						
Life extension: Parts to extend the life of the equipment										
Capacitive insulator	Advanced maintenance									
Earthing and fuses cluster	Advanced maintenance									
MV Fuse (ProFusion maintenance)	Advanced maintenance									

(1) Recommended under optimal operating conditions. However this recommended frequency should be increased according to  
 a) the level of criticality (low, major, critical) and  
 b) the severity of environment conditions (for example, corrosive, naval, offshore) following the prescriptions of manufacturers services.

■ Exclusive maintenance conducted by ED equipment manufacturer only.

□ Advanced maintenance, preferably conducted by ED equipment manufacturer or manufacturer certified partner.

● Light maintenance, conducted by ED equipment manufacturer or customer competent technician.

**Schneider Electric ranges covered** by this Maintenance guide: MCset, EasySet MV, SM6, Fluokit, VM6, Fluair, DNF, Alliance.

Does not supersede the information provided in the product user guide.

## Cleaning

### ▲ WARNING

#### HAZARD OF INCORRECT CLEANING

- To ensure the specified insulating level, the insulating components must be clean and dry. On principle, cleanliness deserves utmost attention.
- When deposited dirt or humidity is detected, the panels must be cleaned in an expert fashion.
- When performing cleaning, make sure that the lubrication in the drive mechanisms is not removed.
- If the drive mechanisms are no longer sufficiently lubricated, new lubrication must be applied.
- The drives must not be disassembled for service and maintenance work.

**Failure to follow these instructions can result in death, serious injury, or equipment damage.**

#### Slight contamination

- Clean using a dry, lint-free cloth.
- Depending on the degree of soiling, replace cloth as often as necessary.

#### Serious contamination

Use cleaning agent, 1 litre can (see Auxiliary Products , page 43). The use of other cleaning agents is not admissible.

- Wear protective gloves
- Use cleaning agent according to manufacturers instructions
- Soak the cloth thoroughly and wipe the insulating components. Keep duration of exposure as short as possible.
- Expose the cleaned surface to the air for at least two hours.

## Avoid Condensation

To ensure the specified insulating level, the switchgear panel – especially its insulating components – must not be exposed to condensation.

#### Measures to take in case of condensation

- Should condensation be detected in or on the panel, clean the panel in accordance with Cleaning , page 41.
- Installation or inspection of panel heating. It must provide a sufficient heating performance to prevent condensation on the panel.

## Corrosion Protection

Drive mechanisms and covers have a long-term protection against corrosion.

Any damage to the paint, scratches and other damage must be repaired immediately to avoid corrosion.

Contact the manufacturers service center.

## Replacement of Components and Panels

The drive mechanisms, current transformers and voltage transformers as well as the testing and monitoring systems can be replaced if necessary. Also, entire panels can be replaced.

The following data on the nameplate are relevant for replacement of components or panels or in case of any queries (refer to *EasySet MV Series Ratings*, page 19):

- Type designation
- Serial number
- Year of construction

Should you have any queries regarding replacement of components or panels, contact the manufacturers service center.

## Replacing Fuse of Voltage Transformer

### **Voltage transformer in feeder cable**

1. Open the voltage transformer compartment from the front.
2. Extract the voltage transformer and take it out of the compartment.
3. Pull fuse carefully out of the clamping contact.
4. Check contact surfaces for cleanness and, if necessary, clean (refer to *Cleaning*, page 41).
5. Insert new fuse.
6. Insert and Rack-in the voltage transformer.

# Annexure

## Auxiliary Products

<b>▲ WARNING</b>	
<b>HAZARD OF INCORRECT USE OF AUXILIARY PRODUCTS</b>	
<ul style="list-style-type: none"> <li>• Only use the following auxiliary products, which can be obtained from the manufacturer, for mounting or maintenance. The use of other auxiliary products is not admissible.</li> <li>• The auxiliary products must be handled properly and according to the safety data sheets of the auxiliary products.</li> </ul>	
<b>Failure to follow these instructions can result in death, serious injury, or equipment damage.</b>	
Auxiliary product	Order number
Cleaning agent	S008152
Lubricant KL, 0.5 kg can	ST312-111-835
Liquid lubricant FL, 0.5 kg can	S008153
Repair paint, 500 g can, RAL 7044, silk-grey	S009 492

The auxiliary products are available from the manufacturer. The use of alternative auxiliary products is not permissible.

## Treatment of Firmly Screw-Connected Contact Surfaces

<b>▲ WARNING</b>	
<b>HAZARD OF INADEQUATE MAINTENANCE</b>	
<ul style="list-style-type: none"> <li>• Careful when handling bars insulated by heat-shrinkable sleeves: the heat-shrinkable sleeve must not get into contact with lubricant (swelling).</li> <li>• Contact areas coated with lubricant KL must not be touched.</li> <li>• Contact areas must be subjected to preliminary treatment before screw fastening (see table below).</li> <li>• Immediately after the preliminary treatment, coat contact surfaces completely with a thin and uniform film of lubricant KL.</li> </ul>	
<b>Failure to follow these instructions can result in death, serious injury, or equipment damage.</b>	

Follow the below steps for treatment of firmly screw-connected contact surfaces:

1. Contact areas must be subjected to preliminary treatment before screw fastening (Refer Table).
2. Immediately after the preliminary treatment, coat contact surfaces completely with a thin and uniform film of lubricant KL.

Material of contact surfaces	Pre-treatment
Silver-plated contact surfaces	Clean <sup>(1)</sup>
Nickel-plated contact surfaces	Remove passivation layer <sup>(4)</sup>
Copper or copper alloy	Clean <sup>(1)</sup> , expose metallic surface <sup>(2)</sup>
Aluminium	Clean <sup>(1)</sup> , expose metallic surface <sup>(2)</sup>
Steel	Clean <sup>(1)</sup> , expose metallic surface <sup>(2)</sup>
Zinc-plated steel	Remove passivation, not the zinc layer <sup>(3)</sup>
Hot-galvanized sheet-metal	Clean <sup>(1)</sup> , passivation need not be removed
<p>(1) Clean by means of lint-free cloth; use cleaning agent in case of serious contamination (see above)</p> <p>(2) Expose metallic surface  - by treating the entire surface with emery cloth or a rotating grinding tool (grain-size 100 or 80) or  - using a wire brush which is clearly marked for use exclusively for aluminium or exclusively for copper</p> <p>(3) Using a brass brush, steel brush</p> <p>(4) Rub slightly by hand using Scotchbrite abrasive agent (Ni layer must not be reduced)</p>	

## Screw Fastenings

### **▲ CAUTION**

#### **HAZARD OF INAPPROPRIATE ASSEMBLY**

Comply with the specified torque values for the installations that are covered in this guide.

**Failure to follow these instructions can result in injury or equipment damage.**

The following elements must be used for all screw fastenings:

- Screws and bolts: Grade  $\geq 8.8$
- Nuts: Grade 8

**NOTE:** Do not grease screws or nuts.

Hex. bolts and socket-head capscrews (except slotted screws) and nuts (except self-locking nuts)

Thread size	Tightening torque [N•m]	
	min.	max.
M5	3,8	4,7
M6	7	9
M8	16	24
M10	36	44
M12	63	77






Screw fastening with casting nuts in cast resin parts (transformer and post insulator)

Thread size	Tightening torque [N•m]	
	min.	max.
M6	5	7,5
M8	12	18
M10	24	38
M12	36	54

Screw fastening for current transmission, conductor material: copper

Thread size	Tightening torque [N•m]	
	min.	max.
M6	5,5	7,5
M8	15	19
M10	30	40
M12	60	76
	63	77

## Required Tools (not Included in the Scope of Supplies)

Cutter	
Nail puller	
Approved torque wrenches with different bits for hexagon socket screws and socket-head screws and nuts; bits for screw and nut grades M5, M6, M8, M10, M12	
Screwdriver and Philips screwdriver	
Cutting pliers	
4 Crane straps or chains of L ≥ 2000 mm	
Lint-free, clean rags	

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As standards, specifications, and design change from time to time, please ask for confirmation of the information given in this publication.

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