

**SM6 – 36**

**MV distribution  
factory built assemblies  
at your service**

**Anglais**

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**instructions for  
use**

**DM1 – A cubicle**

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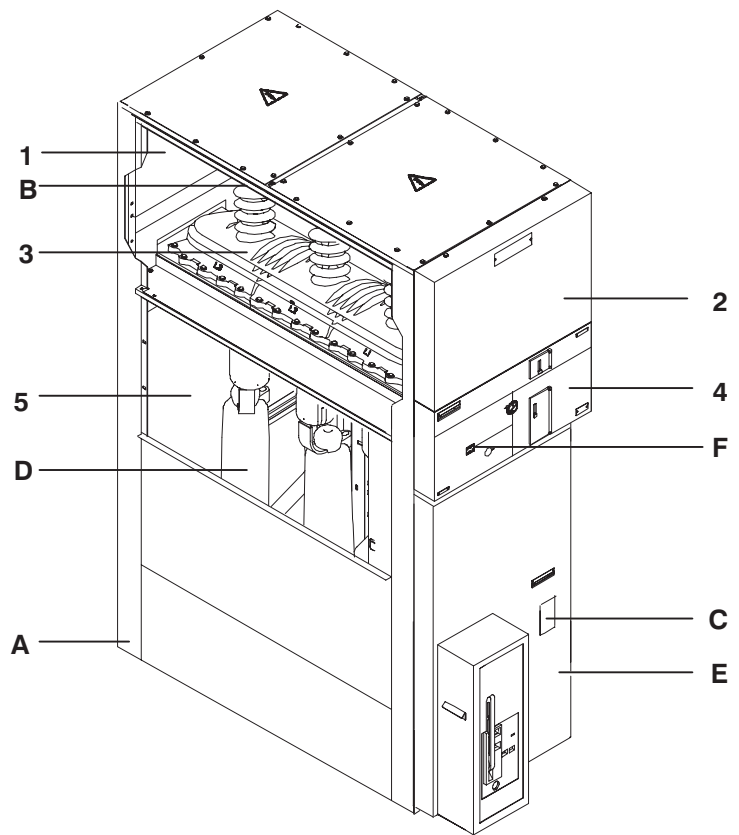
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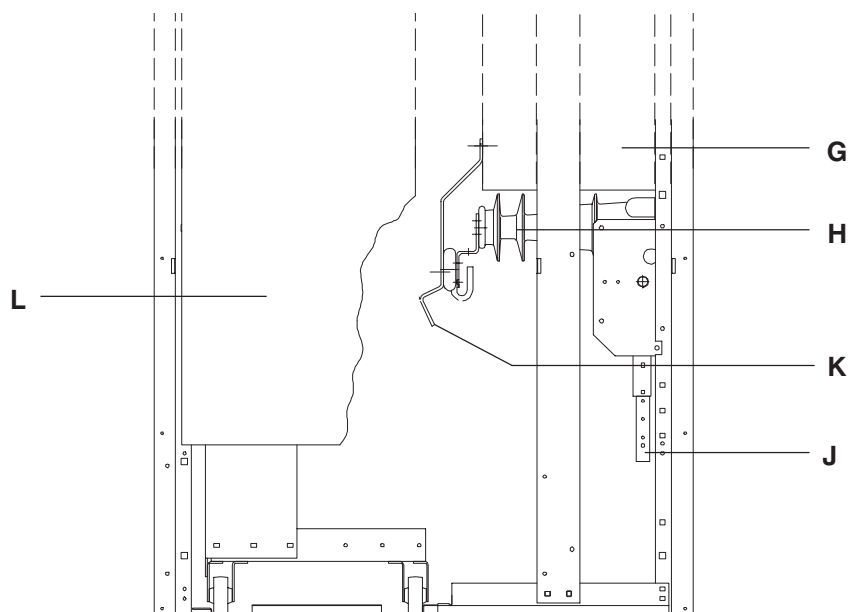
## DM1 : circuit breaker cubicle

- 1 : upper busbar compartment
- 2 : low voltage compartment
- 3 : switchgear compartment :  
line disconnecter
- 4 : operating mechanism  
compartment
- 5 : cable connection  
compartment
- A : earth bar connection pad
- B : upper busbar connection pads
- C : inspection windows
- D : SF1 type MV circuit breaker
- E : front panel
- F : voltage presence indicator



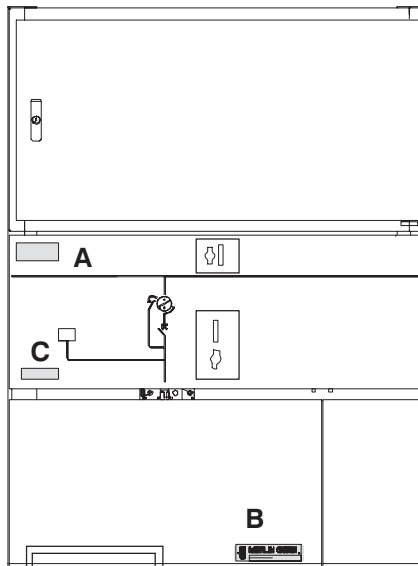
### (front panel removed)

- G : current transformers
- H : capacitive dividers
- J : downstream earthing switch
- K : MV cable connection pads
- L : circuit breaker operating  
mechanism front plate

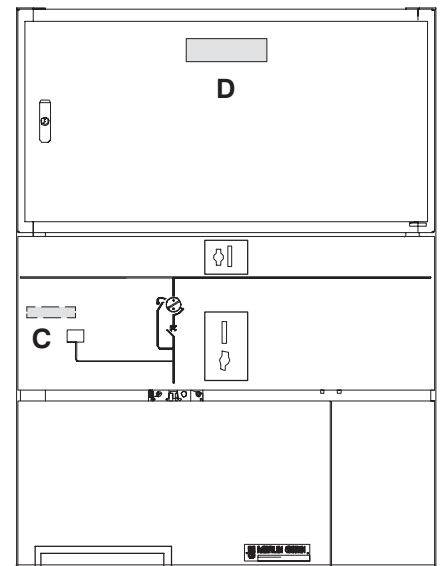




## cubicle identification



**A** : characteristics and designation  
**B** : manufacturer's name plate  
**Note** : the circuit breaker characteristics are indicated on the name plate which is attached on the main fram of CB .



**Serial number**  
**C** : riveted onto the operating mechanism cover and inside the operating mechanism compartment  
**D** : indicator plate (for customer use)

## accessories list

### Switchboard accessories :

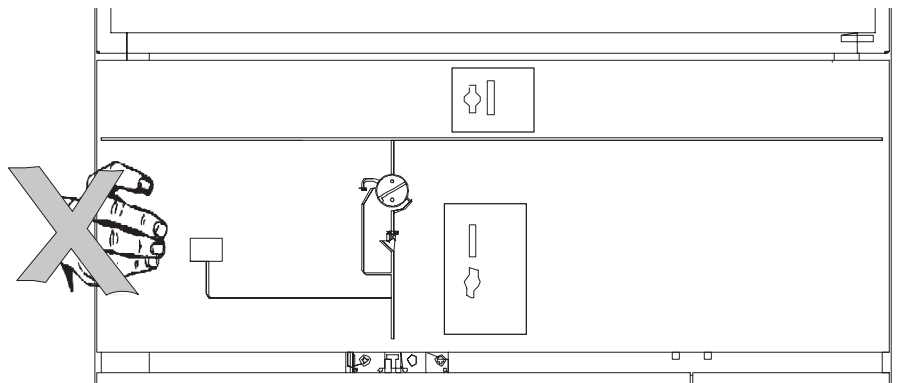
1 operating lever for each five cubicles  
 6 end panel  
 1 switchboard bag

### DM1 A accessories :

1 bag of intercubicle connection accessories  
 1 bag of Cu fastening accessories for connections of busbars and earth bars  
 1 set of busbars (for n-1 cubicles)

## weight

Average weight of a fully equipped cubicle : 600 kg

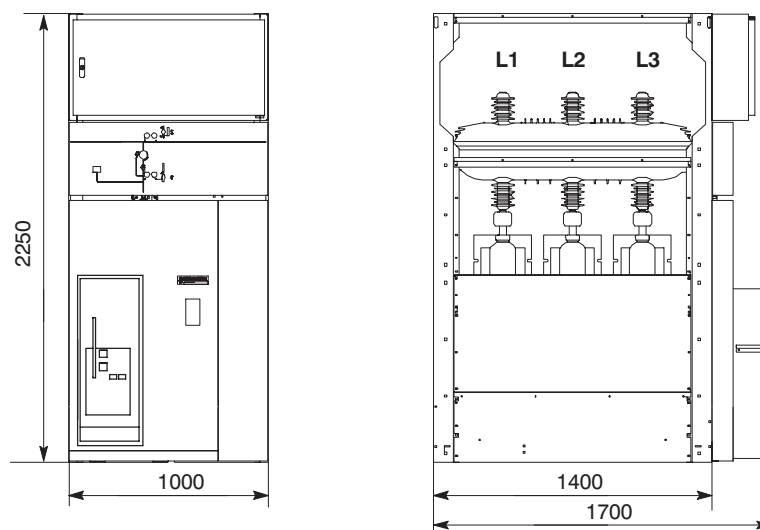


Never attempt to move the cubicle by exerting force on the control panel.

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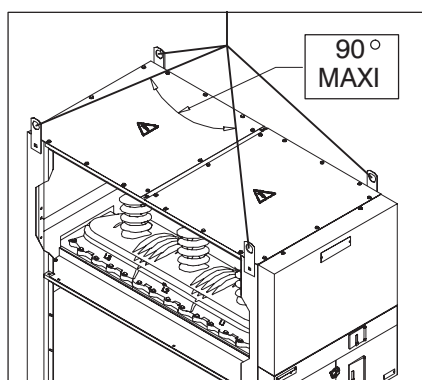
## dimensions

(in mm)



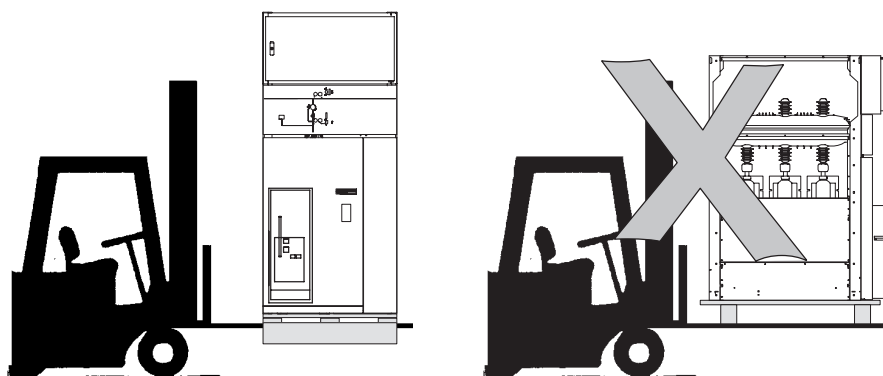
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## handling using slings



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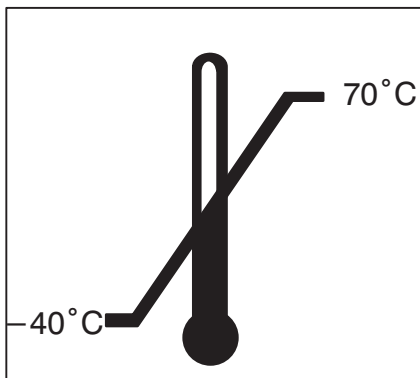
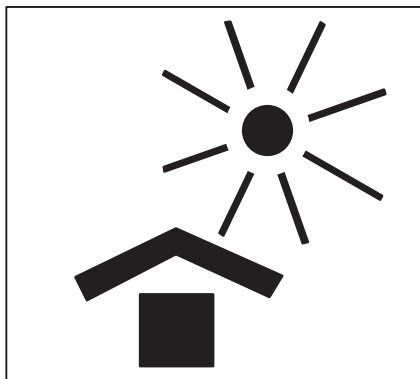
## handling using a forklift





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**storage**





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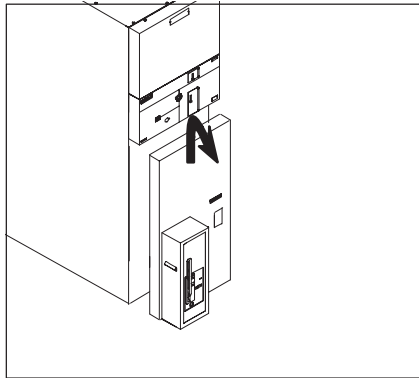
A series of horizontal dotted lines for writing.

## preparing the cubicles for switchboard assembly

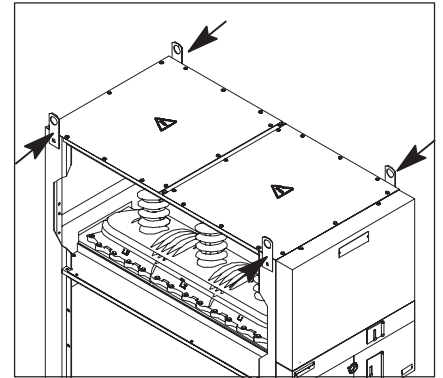
Status upon delivery:

- circuit breaker **open**.
- line disconnecter in earthed position.

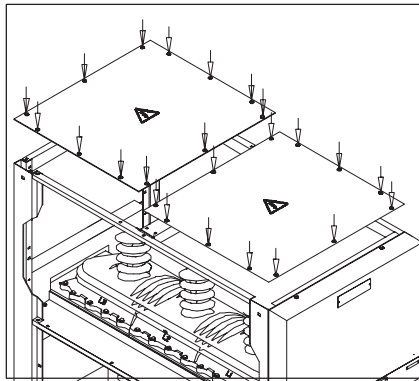
→ : bolt+washer



Remove the front panel by lifting and pulling it forward.  
Remove the pallet.  
(the bolts cannot be re-used)



Remove the 4 lifting ring bars.

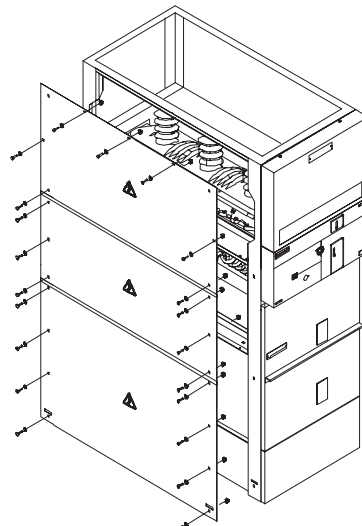


Remove the two top plates. (24 bolts)

## fitting the end panels

(only if the cubicle is on the end of the switchboard)

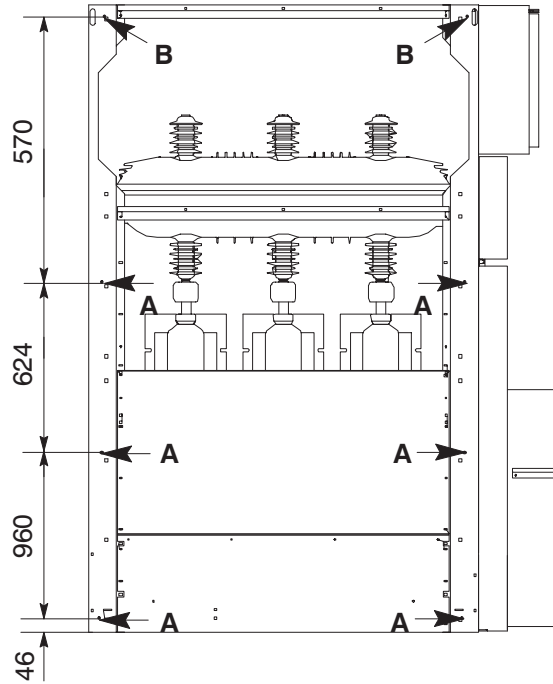
Fit the cage nuts on the wall side of the cubicle and fix the end panels.



## assembling the switchboard

**A** : with M8x20 bolts and M8 washers in bag of intercubicle connection accessories

**B** : with M10x25 bolts and M10 washers remain after removing lifting rings

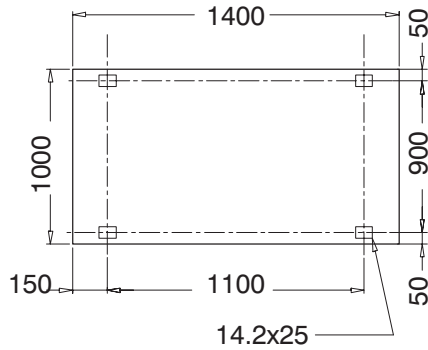


Mounting direction of bolts with nuts  
**K** : right-hand cubicle  
**L** : left-hand cubicle

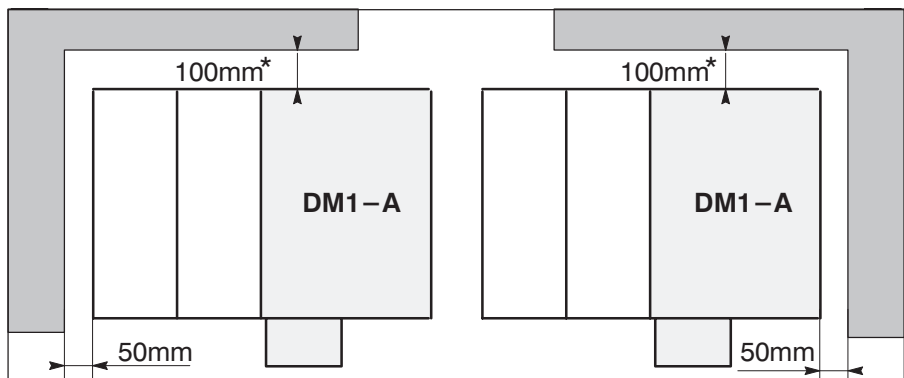
## securing to the floor

(nuts and bolts not included)

**Do not fit fixing holes to the floor near the circuit breaker.**



## layout in the substation



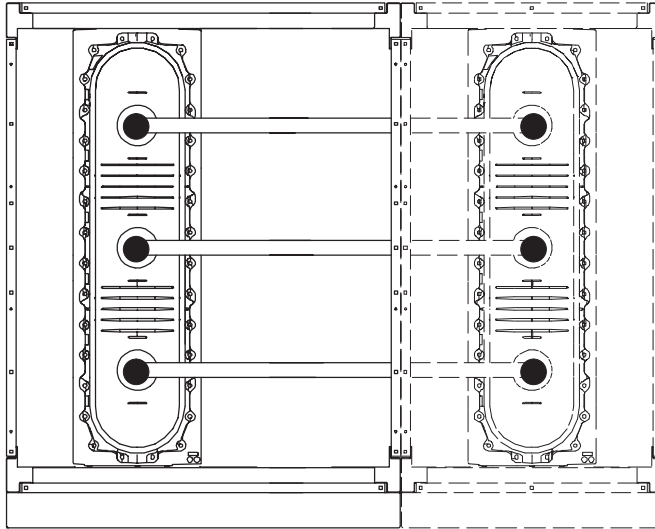
Switchboard installed to the right of a wall.  
 (\*) minimum clearance for trouble-free operation.

Switchboard installed to the left of a wall.

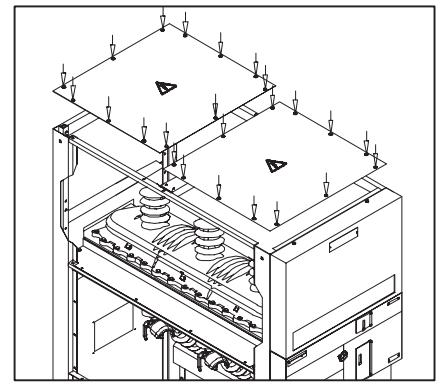
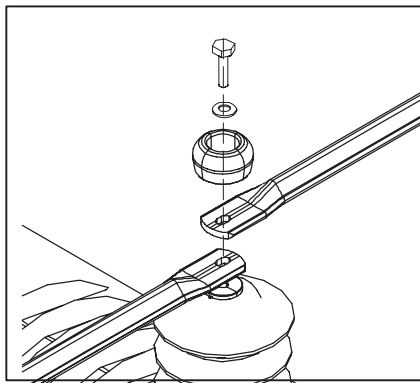
## fitting the busbars after installing the cubicles

### tools :

1 torque wrench 1 à 50 Nm.



Busbar connection.

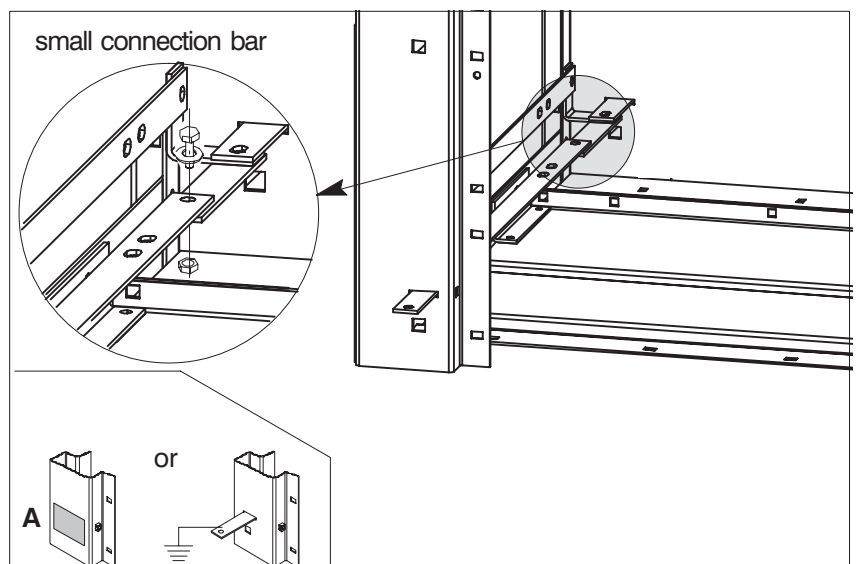


Refit the two top plates.

In the bag **3729746** of fastening accessories to connect busbars, use:  
– 3 pieces of M8x35 bolts  
– 3 pieces of Ø8 contacts washers  
**Tightening torque : 28 Nm.**

## fitting the earth bars

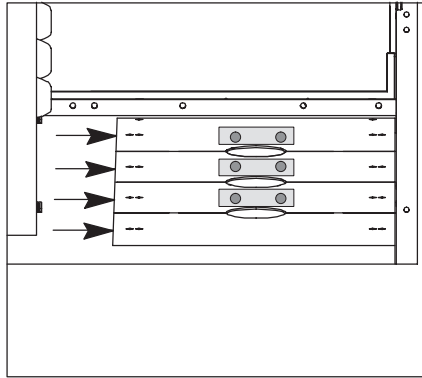
Connect the earth bars (bolts, nut and M8 washers) if the cubicle at the end of switchboard, fit the label **A** near without earth bars. (switchboard bag)



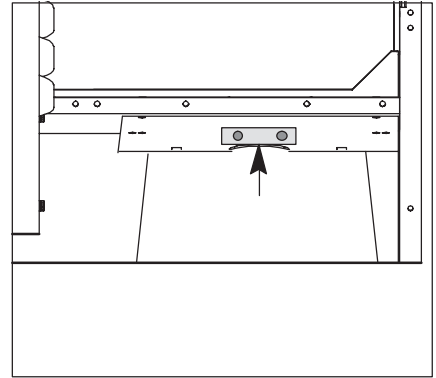
## MV cable connection

for cables  $\leq 240 \text{ mm}^2$

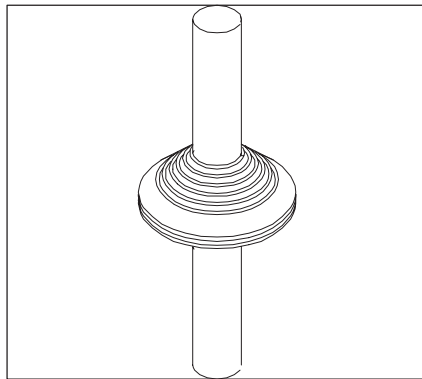
Fastening accessories (nuts and bolts) on the terminals of cable connection.



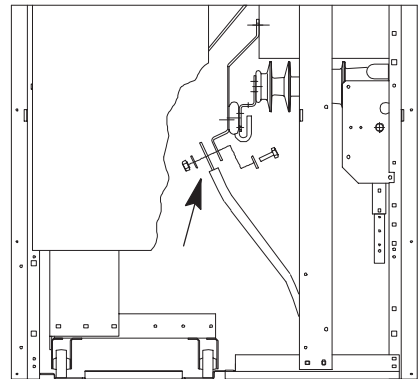
Remove the 4 bottom plates.



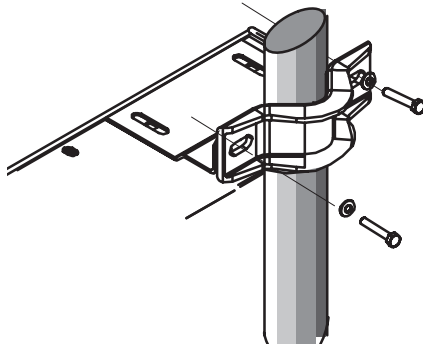
Mount the first bottom plate (for phase L1) in the back of the cubicle.



Fit the cable bushing.



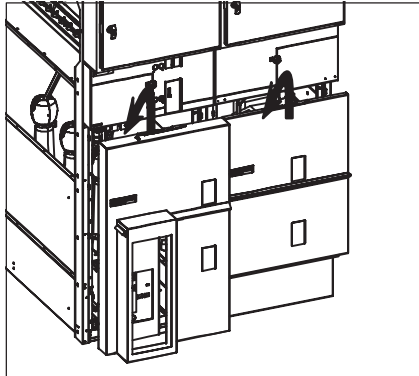
Connect the cable to the bolt provided on the terminal of phase L1.  
**Tightening torque : 50 Nm.**  
Pay attention to the mounting direction of the bolt.



Clamp the cable with M8x50 bolts to the cable support on the bottom plate and connect the earthing of cable to the earth bar of cubicle.  
Mount phases **L2** and **L3** using the same procedure as for **L1**.

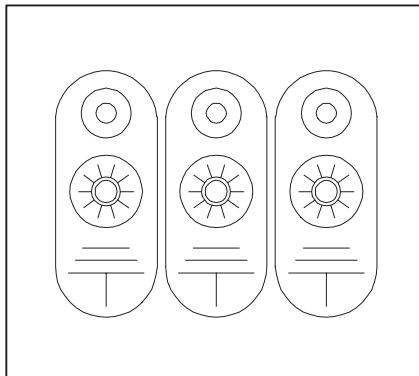
## checks before energizing

Check that nothing has been left in the connection compartment.



Refit the front panel.

## voltage indicators



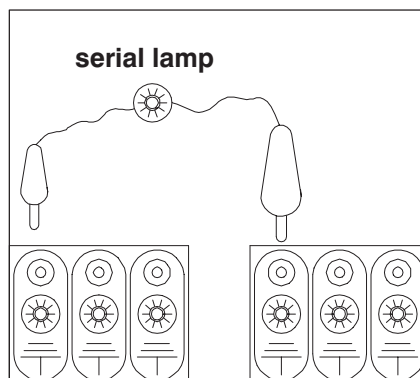
### Incoming cubicle:

as soon as the cables have been energized, the voltage indicator lamps should go on.

### Outgoing cubicle:

once the line disconnect and circuit breaker have been closed, the voltage indicator lamps should go on.

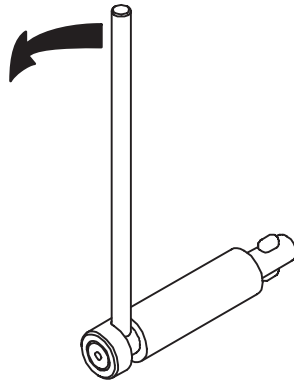
## phase concordance test



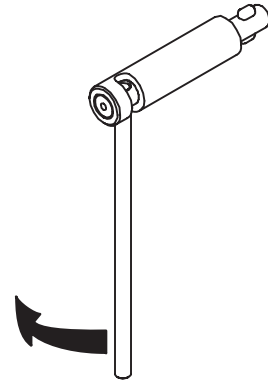
**If the phases concord,**  
the lamp remains off.

**If the phases do no concord,**  
the lamp goes on.

## disconnector operating handle positions



Position the lever as indicated for downward (opening) operations.



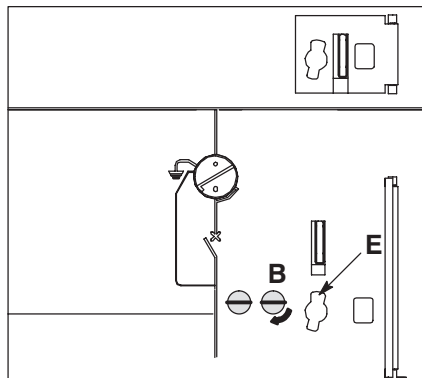
Position the lever as indicated for upward (closing) operations.

## circuit breaker operating tests before energizing

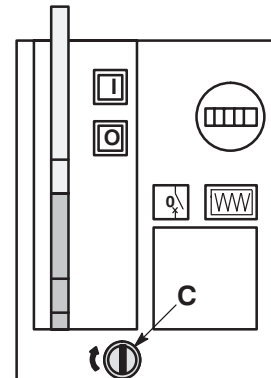
### initial conditions :

Line disconnector in **open** or **earthed** position.

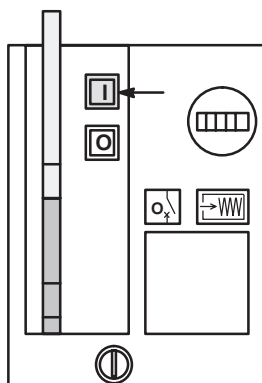
Circuit breaker locked in open position.



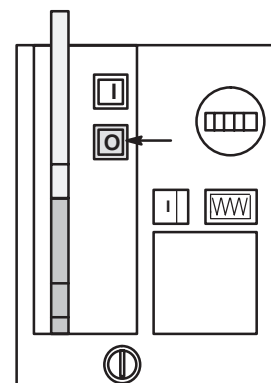
Lock the lever hole **E** of the line disconnector with the key in lock **B**.



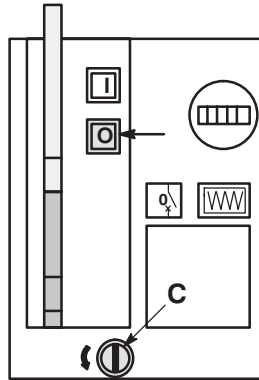
Remove the key from **B** and insert it in **C**.  
Unlock and then charge the operating mechanism of the circuit breaker.  
(see circuit breaker manual)



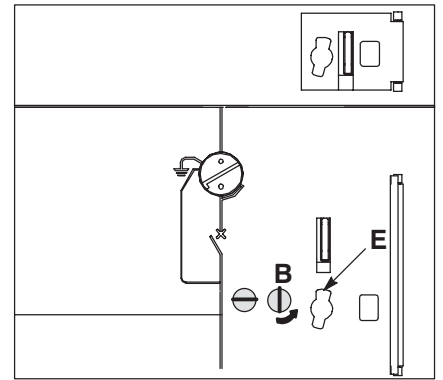
Press the **I (ON)** pushbutton to close the circuit breaker.



Press the **O (OFF)** pushbutton to open the circuit breaker.



With the key in **C**, lock the circuit breaker in open position by pressing the **O** (OFF) pushbutton.

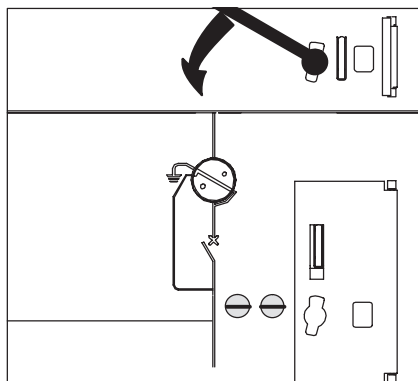


Remove the key from **C** and insert it in **B**. Unlock the line disconnector lever hole **E**.

## energizing the downstream part of the installation

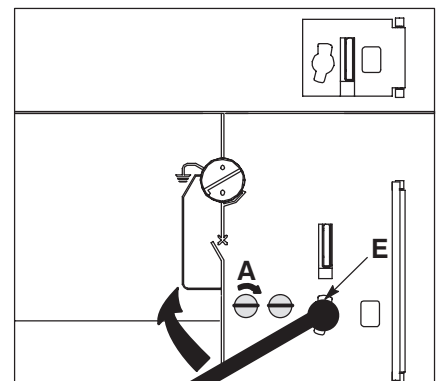
### initial conditions:

Line disconnector in **earthed** position.  
Circuit breaker locked in **open** position.  
Front panel in place.

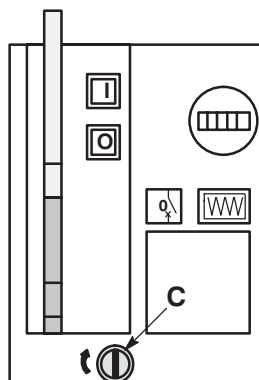


Set the line disconnector to **open** position using the operating lever.

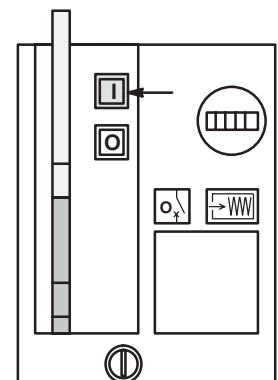
**Note:** for a DM1 A cubicle, the downstream earthing switch opens at the same time.



Set the line disconnector to **closed** position and then, with the key in **A**, lock the lever hole **E** of the line disconnector.



Remove the key from **A**, insert it in **C** and unlock the circuit breaker. Charge the circuit breaker operating mechanism. (see the circuit breaker manual)



Press the **I** (ON) pushbutton to close the circuit breaker. The downstream part of the installation is now energized.

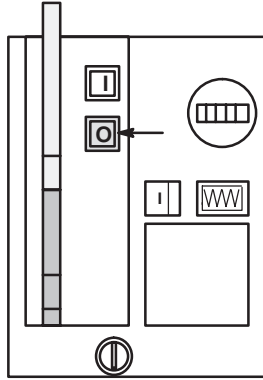


## de-energizing the downstream part of the installation

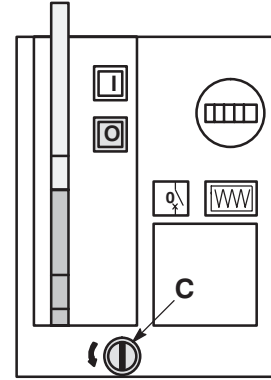
### initial conditions:

Line disconnector in **closed** position.

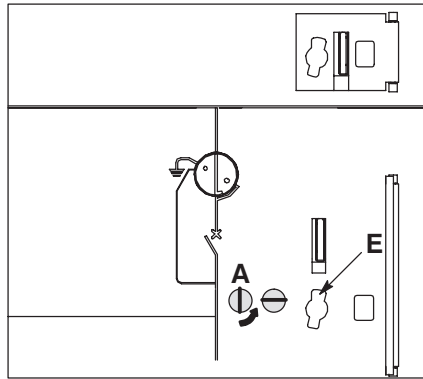
Circuit breaker in **closed** position.



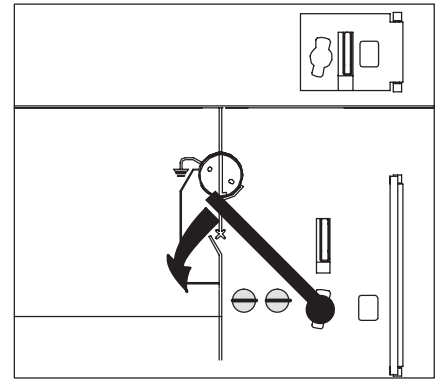
Press the **O** (OFF) pushbutton to open the circuit breaker.



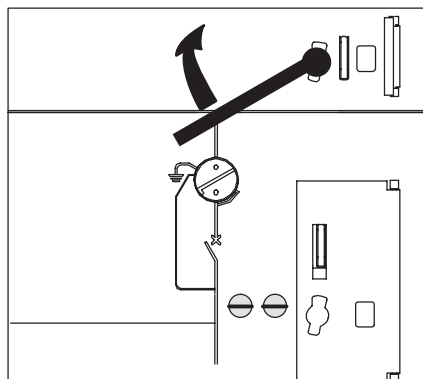
With the key in **C**, lock the circuit breaker in open position by pressing the **O** (OFF) pushbutton.



Remove the key from **C** and insert it in **A**.  
Unlock the line disconnector lever hole **E**.



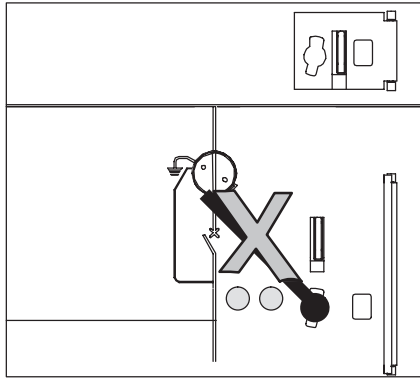
Set the line disconnector to **open** position.



Set the line disconnector to **earthed** position. The front panel can now be removed.

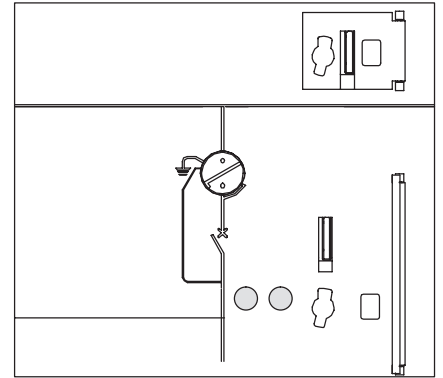
**Note:** For a DM1 A cubicle, the downstream earthing switch closes at the same time.

## operating safety



Operation impossible with the circuit breaker closed.

The front panel can only be removed or fitted with the line disconnector in **earthed** position.

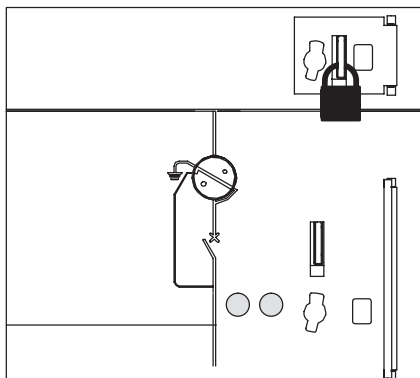


With the line disconnector in **open** or **closed** position, it is impossible to remove the front panel.

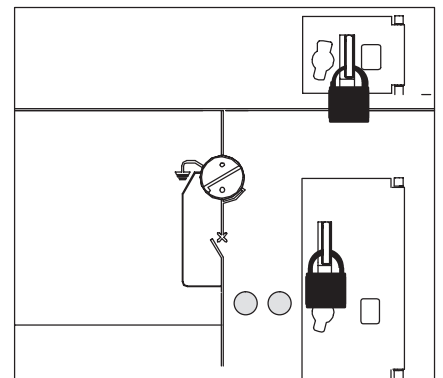
With the front panel removed, the line disconnector can be set to **open** position. It cannot however be set to **closed** position.

## padlocking

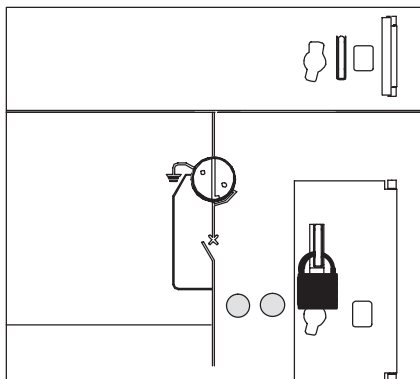
With one to three 8 mm padlocks per padlocking point.



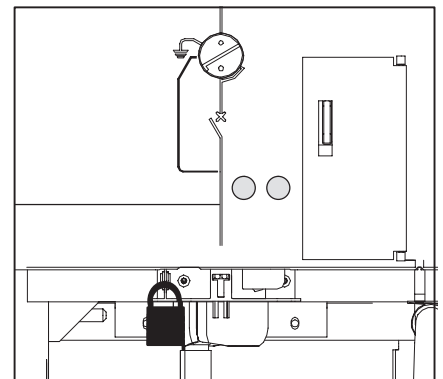
Padlocking of the line disconnector in **earthed** position.



Padlocking of the line disconnector in **open** position.



Padlocking of the line disconnector in **closed** position.



Padlocking of the front panel.  
(1 padlock only)

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## keylocks

(option)

- see the instruction manual for installation and operation of keylocks.
  - to install a keylock on the circuit breaker, see the instruction manual for the unit concerned.
  - if the keylock option was not specified with the order, call your **Schneider service centres**.
-

## preventive maintenance

For problems: **see groupe Schneider services centres.**

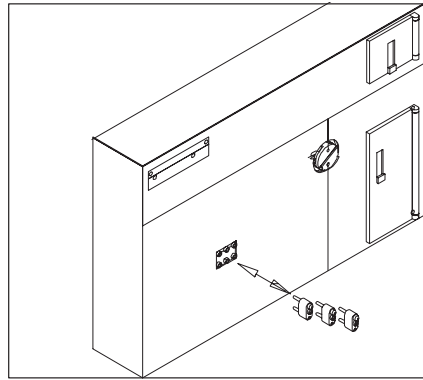
**Never lubricate the operating mechanisms of the line disconnecter.**

No particular maintenance is required under normal operating conditions. (temperature between  $-5^{\circ}\text{C}$  and  $40^{\circ}\text{C}$ )

For severe operating conditions (aggressive environments, dust, temperatures below  $-5^{\circ}\text{C}$  or above  $40^{\circ}\text{C}$ , etc.) consult your nearest **groupe Schneider services centres.**

## corrective maintenance

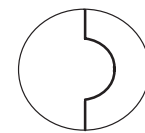
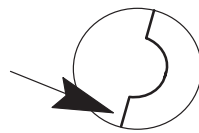
**replacing a voltage indicator block**



Pull out the voltage indicator block. (the switchboard can remain energized)

## trouble-shooting chart

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>■ voltage indicator not illuminated</li> </ul>                               | <ul style="list-style-type: none"> <li>■ check the voltage indicator block</li> <li>■ check that the line disconnecter and the circuit breaker are closed (for an outgoing cubicle)</li> <li>■ check that the incoming cables are live</li> </ul> |
| <ul style="list-style-type: none"> <li>■ front panel cannot be opened or closed</li> </ul>                          | <ul style="list-style-type: none"> <li>■ check that the line disconnecter is in earthed position</li> </ul>   |
| <ul style="list-style-type: none"> <li>■ line disconnecter cannot be set to earthed position</li> </ul>             | <ul style="list-style-type: none"> <li>■ check that the line disconnecter is in open position</li> </ul>  |
| <ul style="list-style-type: none"> <li>■ line disconnecter cannot be set to closed position</li> </ul>              | <ul style="list-style-type: none"> <li>■ check that the line disconnecter is in open position</li> </ul>  |
| <ul style="list-style-type: none"> <li>■ circuit breaker cannot be operated</li> </ul>                              | <ul style="list-style-type: none"> <li>■ see the circuit breaker manual</li> </ul>  |
| <ul style="list-style-type: none"> <li>■ accidental manual closing of the downstream earthing switch arm</li> </ul> | <ul style="list-style-type: none"> <li>■ reopen the earthing switch using the contact arm and then reset the system using a screwdriver to allow insertion of the lever</li> </ul>  |



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## options

(please consult us)

- auxiliary contacts on the line disconnecter.
- protection by SEPAM programmable electronic protection unit.
- keyed interlocks.
- heating element.

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## spare parts

- voltage indicator.
- for other parts, please consult us  
(see **groupe Schneider services centres**)
- 



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**groupe Schneider service  
centers are there for:**

engineering and technical  
assistance  
start-up  
training  
preventive and corrective  
maintenance  
adaptation work  
spare parts

**Call your sales representative  
who will put you in touch with  
your nearest groupe Schneider  
service centers, or call directly in  
Grenoble, France  
(33) 04 76 57 60 60**