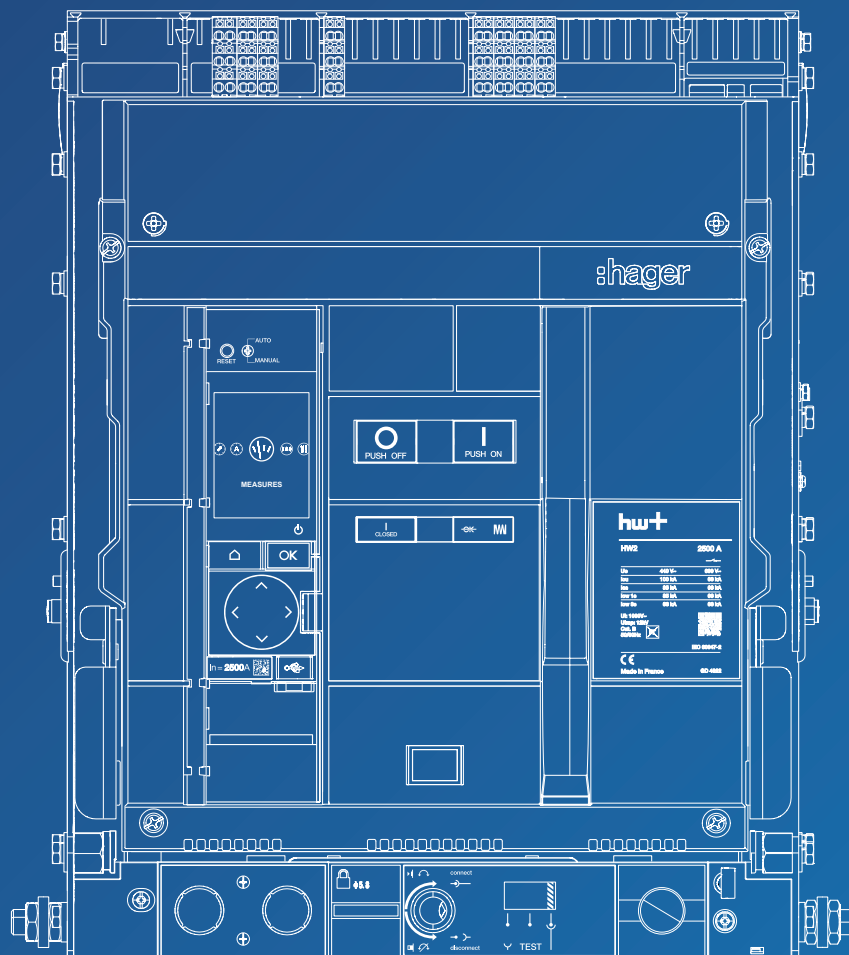


User manual

# hw+

Air circuit breaker  
HW2 / HW4 / HW6



:hager

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**Warnings and instructions**

This documentation contains safety advice which must be respected for your own safety and to prevent property damage.

Safety advice relating to your own safety is identified by a safety warning symbol in the documentation. Safety advice relating to damage to property is identified by "ATTENTION". The safety warning symbols and the wording below are classified according to the risk level.



**DANGER** indicates an imminent dangerous situation which, if not avoided, will result in death or serious injuries.



**WARNING** indicates a potentially dangerous situation which, if not avoided, may result in serious injuries or even death.



**CAUTION** indicates a potentially dangerous situation which, if not avoided, may result in minor or moderate injuries.

**ATTENTION**

**ATTENTION** indicates a warning message relating to equipment damage.  
**ATTENTION** also indicates important instructions for use and particularly relevant information regarding the product, which must be respected to ensure effective and safe use.

### **Qualified personnel**

The product or the system described in this documentation must be installed, operated and maintained by qualified personnel only. Hager Electro accepts no responsibility regarding the consequences of this equipment being used by unqualified personnel.

Qualified personnel are those people who have the necessary skills and knowledge for building, operating and installing electrical equipment, and who have received training enabling them to identify and avoid the risks incurred.

### **Appropriate use of Hager products**

Hager products are designed to be used only for the applications described in the catalogues and in the technical documentation relating to them. If products and components from other manufacturers are used, they must be recommended or approved by Hager.

Appropriate use of Hager products during transport, storage, installation, assembly, commissioning, operation and maintenance is required to guarantee problem-free operation in complete safety.

The permissible ambient conditions must be respected. The information contained in the technical documentation must be respected.

### **Publication liability**

The contents of this documentation have been reviewed in order to ensure that the information is correct at the time of publication.

Hager cannot, however, guarantee the accuracy of all the information contained in this documentation. Hager assumes no responsibility for printing errors and any damage they may cause.

Hager reserves the right to make the necessary corrections and modifications to subsequent versions.

**Purpose of the document.**

This manual is designed to provide users, electricians, panel builders and maintenance personnel with the technical information required to use the HW2, HW4 and HW6 circuit breakers with electronic trip units.

**Field of application**

This document is applicable to the HW2, HW4 and HW6 circuit breakers of the hw+ range.

**Revisions**

<b>Version</b>	<b>Date</b>
6LE009210Ac	May 2024

**Documents to consult**

<b>Document</b>	<b>Reference</b>
Installation manual for HW2 / HW4 / HW6 air circuit breakers	6LE009206A
HW2 / HW4 / HW6 user maintenance guide	6LE009217A
User manual for sentinel hw+ electronic trip units	6LE007969A
User manual for sentinel Energy hw+ electronic trip units	6LE008147A
sentinel Energy Modbus communication guide	6LE007964A
HTD210H panel display user guide	6LE002999A

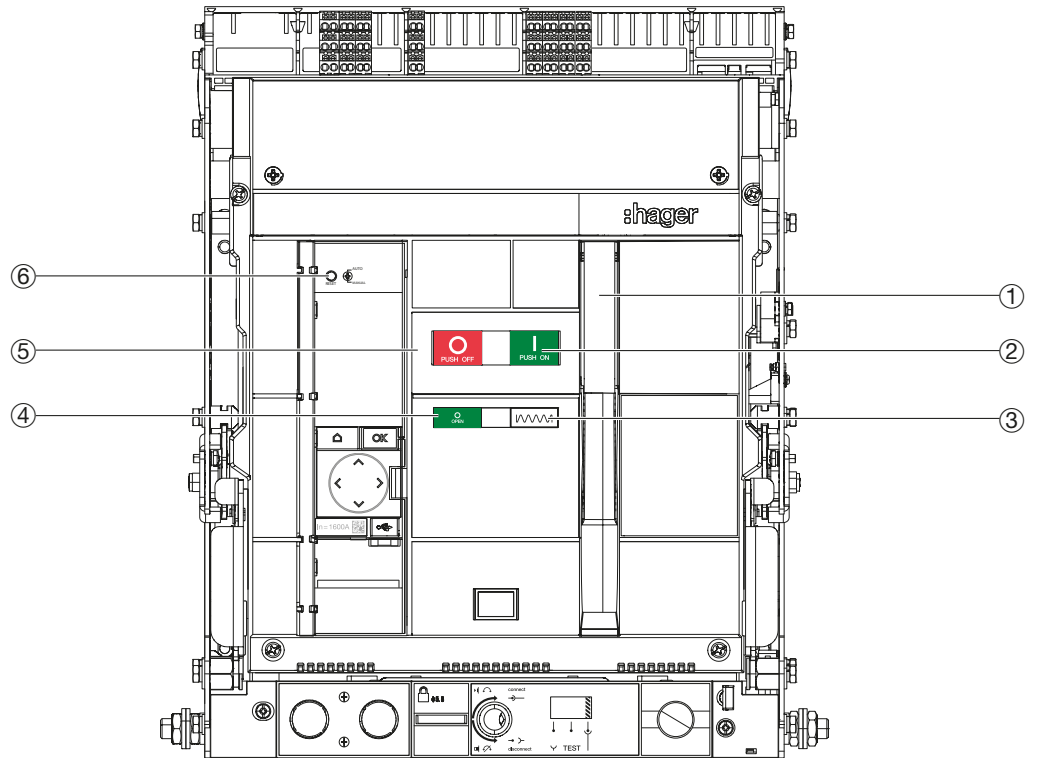
You can download these publications and other technical information from our website: [www.hager.com](http://www.hager.com)

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The HW2, HW and HW6 circuit breakers have the following elements on the front.

- ① Charging handle
- ② Closing push button
- ③ Closing spring status indicator
- ④ Contact opening and closing indicator
- ⑤ Opening push button
- ⑥ RESET re-arm button



### Status indicators

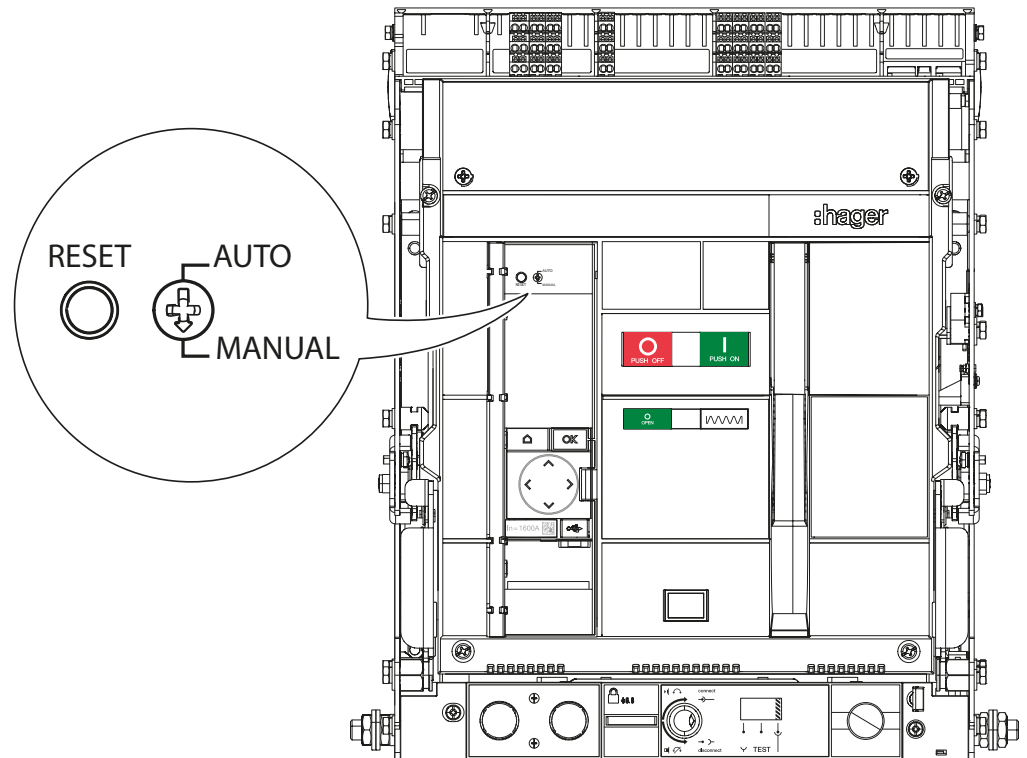
The combination of the two indicators shows the status of the circuit breaker.

Opening and closing indicator	Closing spring status indicator	Circuit breaker status
		Circuit breaker open. Closing spring discharged.
		Circuit breaker open. Closing spring loaded but not ready to close because: <ul style="list-style-type: none"> <li>• Following tripping, the circuit breaker has not been reset (see Chapter 07 Closing the circuit breaker after tripping).</li> <li>• The circuit breaker is mechanically locked in the open position using a lock or padlock.</li> </ul>
		Circuit breaker open. Closing spring charged. The circuit breaker is ready to be closed.
		Circuit breaker closed. Closing spring discharged.
		Circuit breaker closed. Closing spring charged.

**RESET re-arm button**

The RESET re-arm button is used to reset the circuit breaker after tripping (see Chapter 07 Closing the circuit breaker after tripping).

The operation of the RESET re-arm button depends on the Auto or Manual mode set using the adjustment dial on the right.



- **Auto mode**, in which it is not necessary to press the RESET re-arm button before closing the circuit breaker again after tripping.

This mode is usually used if the circuit breaker is remotely monitored, as it can be closed without requiring a person to perform the action on-site.

- **Manual mode**, in which the RESET re-arm button must be pressed in before closing the circuit breaker again after tripping.

**ATTENTION**

**Risk of property damage**

**To switch from Auto to Manual mode,**  
always turn the dial **anti-clockwise**.

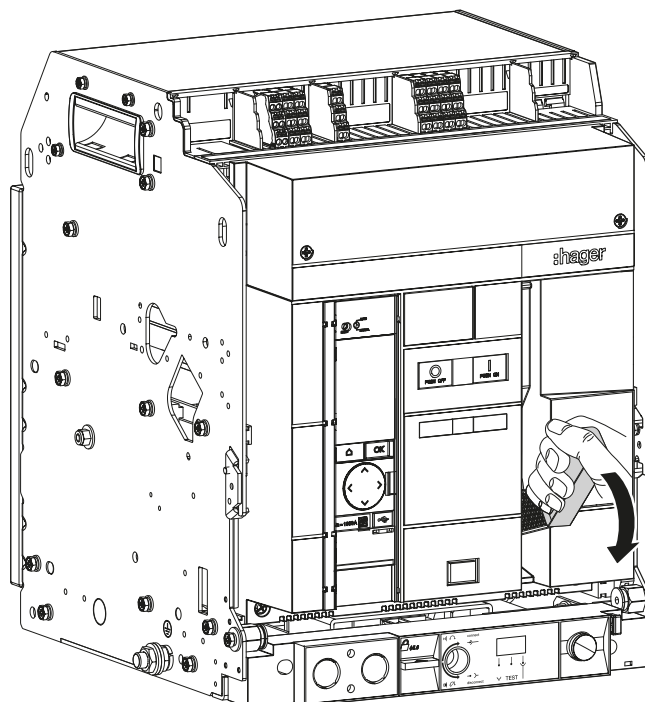
**To switch from Manual to Auto mode,**  
always turn the dial **clockwise**.

### Closing spring

The closing spring is used to mechanically close the circuit breaker. It must be charged first, and there are two procedures for this:

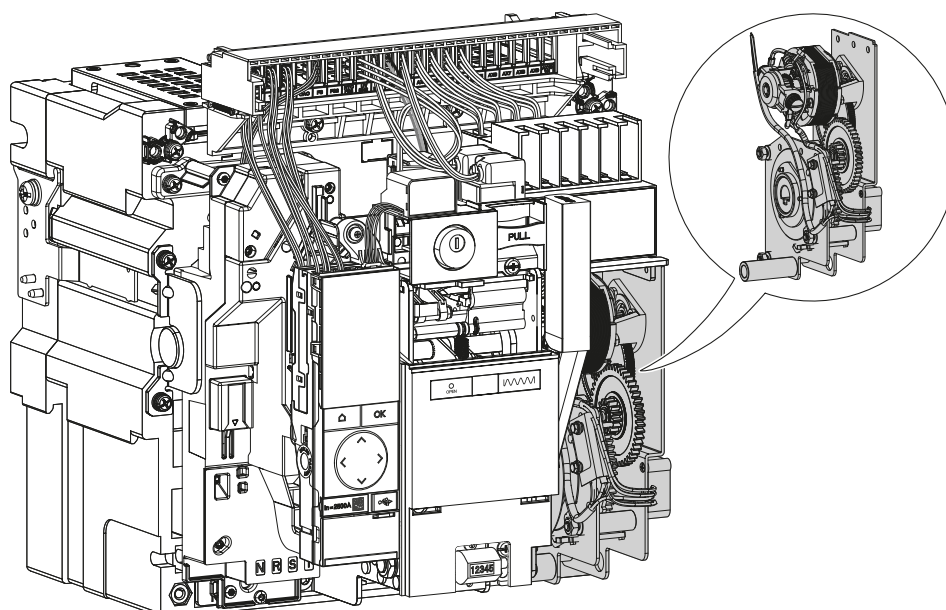
#### - Manual charging

Charge the spring using the charging handle until the status of the indicator changes.



#### - Automatic charging

If an MO charging motor is installed and powered, the closing spring charges automatically each time the circuit breaker closes.






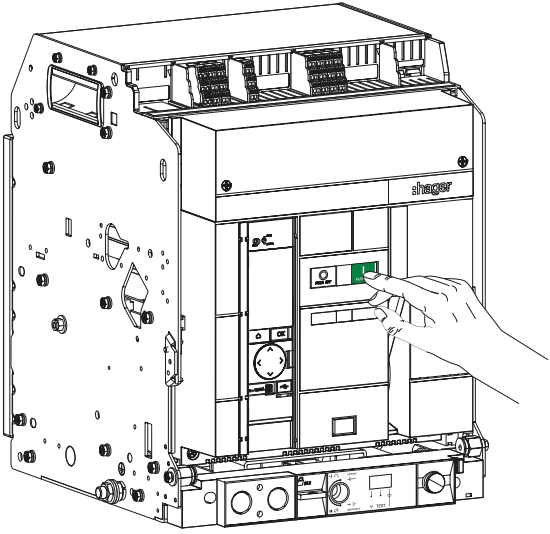
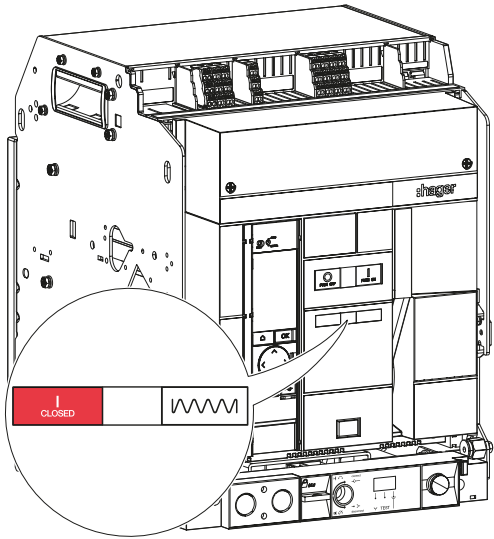
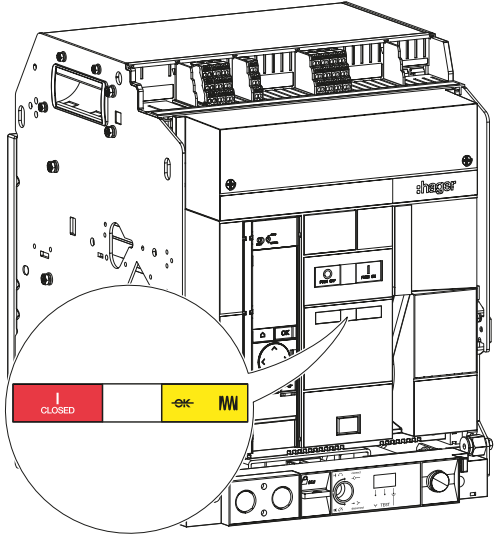
**Risk of electric shock, explosion or electric arc.**

Inspect the electrical installation and remove the tripping cause before closing the circuit breaker again.

Never close a circuit breaker locally or remotely without first making sure that the installation complies with the safety standards.

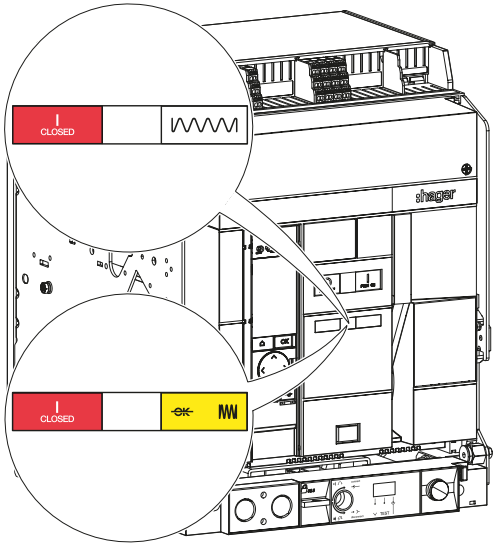

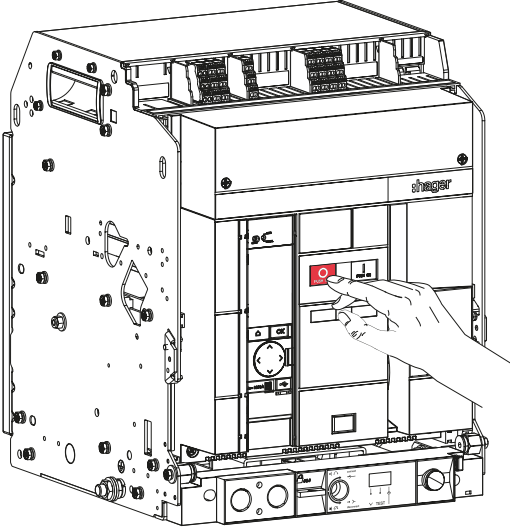
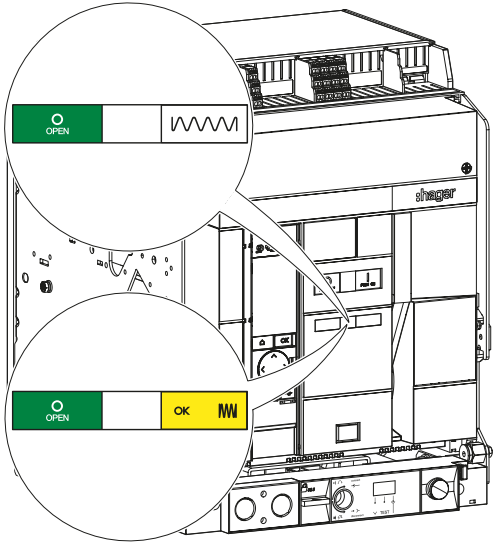
To close the circuit breaker:

	Action	Illustration
1	Check that the circuit breaker is open, the closing spring is discharged or charged if a charging motor is installed.	<p>The illustration shows a circuit breaker with two callout boxes. The top callout shows a green bar with a white circle containing the word 'OPEN' and a spring symbol. The bottom callout shows a green bar with a white circle containing the word 'OPEN', a yellow bar with the word 'OK', and a spring symbol.</p>
2	If necessary, charge the closing spring using the charging handle until the following indicators appear.	<p>The illustration shows a hand operating the charging handle of a circuit breaker. A callout box shows a green bar with a white circle containing the word 'OPEN', a yellow bar with the word 'OK', and a spring symbol.</p>

	Action	Illustration
<p>3 Close the circuit breaker by pressing the closing push button</p> 		
<p>4 Check that the indicators change status.</p>		
<p>5 If a charging motor is installed and powered, the closing spring charges automatically.</p>		



To open the circuit breaker:

	Action	Illustration
1	<p>Check that the following indicators appear on the circuit breaker.</p>	 <p>The illustration shows a Hager circuit breaker with two callout boxes. The top callout shows a red indicator with a vertical bar and the word 'CLOSED' next to a wavy line symbol. The bottom callout shows a red indicator with a vertical bar and the word 'CLOSED' next to a yellow indicator with a checkmark and the word 'OK' next to a wavy line symbol.</p>
2	<p>Open the circuit breaker by pressing the opening push button</p> 	 <p>The illustration shows a hand pressing a red button with a white circle on the front panel of the circuit breaker.</p>
3	<p>Check that the indicators update:</p> <ul style="list-style-type: none"> <li>- indicator OPEN,</li> <li>- closing spring discharged indicator (case of manual charging),</li> <li>- or closing spring charged indicator (automatic charging with motor).</li> </ul>	 <p>The illustration shows a Hager circuit breaker with two callout boxes. The top callout shows a green indicator with a circle and the word 'OPEN' next to a wavy line symbol. The bottom callout shows a green indicator with a circle and the word 'OPEN' next to a yellow indicator with a checkmark and the word 'OK' next to a wavy line symbol.</p>

The closing PUSH ON and opening PUSH OFF push buttons can be locked against any operation using the PBC push button covers.

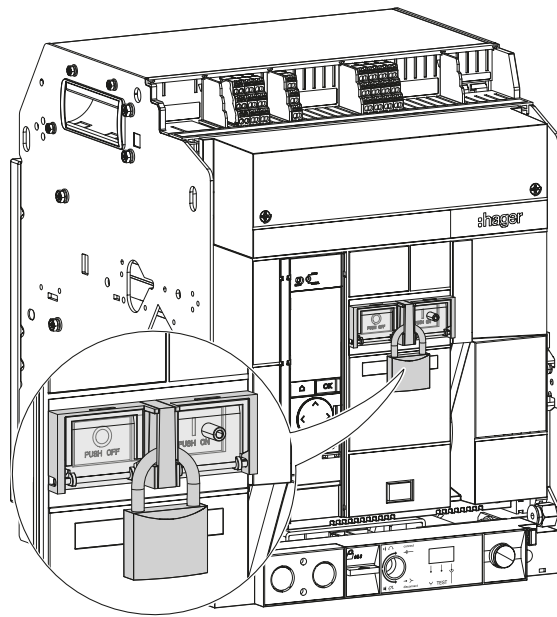
It prevents any unintended or unauthorised operation.

The transparent PBC push button covers have an additional function.

They can be disengaged and turned so that the opening push button PUSH OFF remains permanently and mechanically engaged. This locking function is also guaranteed if the circuit breaker is activated remotely by a CC closing coil. Even if the CC closing coil is driven, the principal contacts remain open.





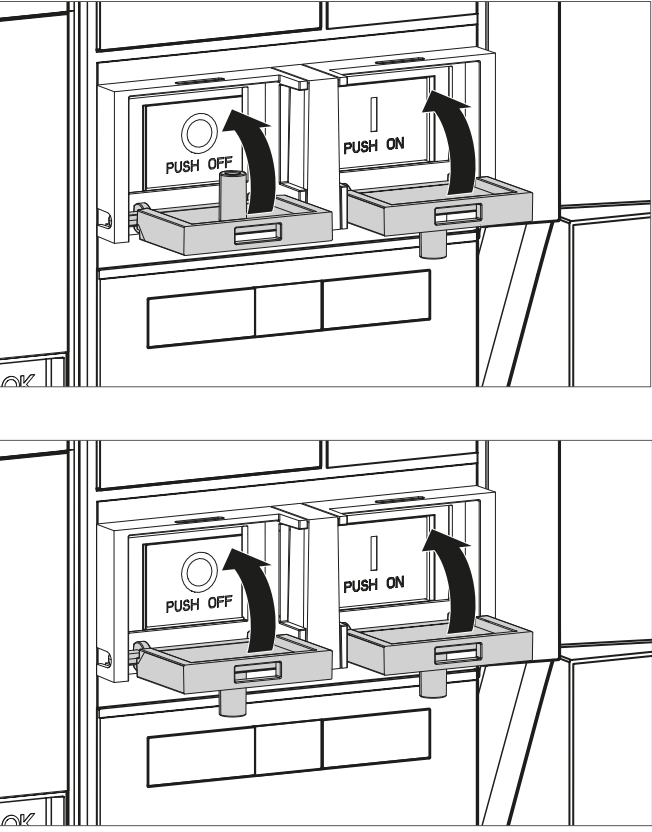
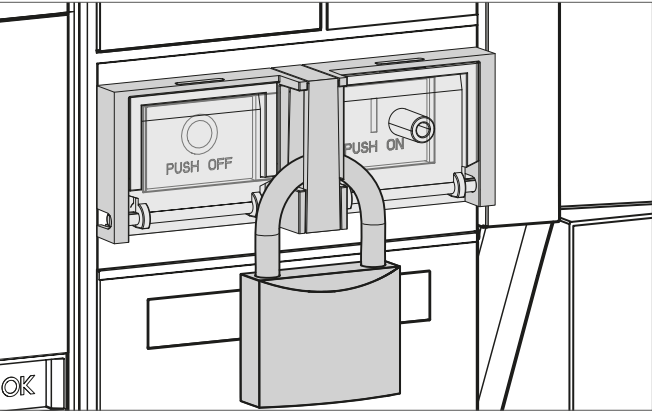
This prevents any unintentional or unauthorised operations.

The push buttons can be locked independently or jointly and up to 3 Ø5-Ø8 mm padlocks can be fitted.



To activate the locking device:

Action	Illustration
1 Close the cover of the push button you wish to lock.	An illustration showing two transparent push button covers on a circuit breaker panel. The left cover is labeled 'PUSH OFF' and the right cover is labeled 'PUSH ON'. Both covers are shown being closed, with curved arrows indicating the direction of movement. The covers are being pushed into their respective slots on the panel.

Action	Illustration
<p><b>1 Case 1</b> The opening push button</p>  <p>is pressed continuously and the closing push button</p>  <p>is locked.</p> <p><b>Case 2</b> The opening push button</p>  <p>and closing push button</p>  <p>are locked.</p>	
<p><b>2</b> Lock it using one or more padlocks.</p>	

**ATTENTION**

It is not possible to hold down the closing push button

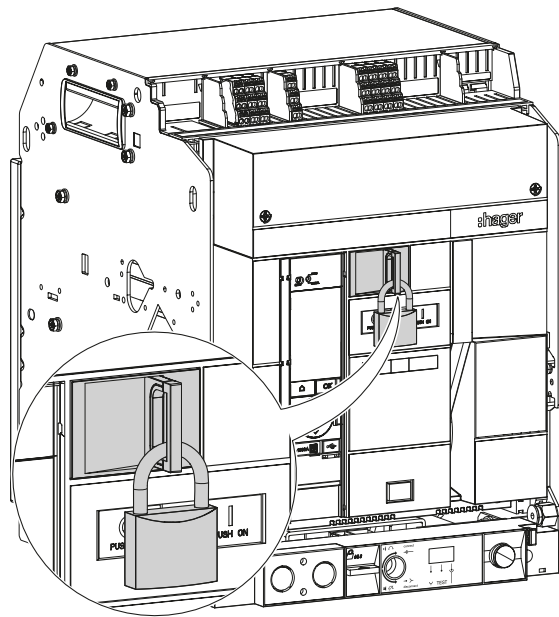


with this accessory.


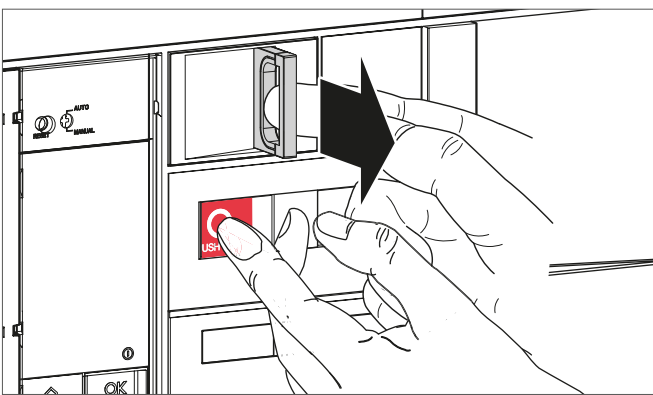

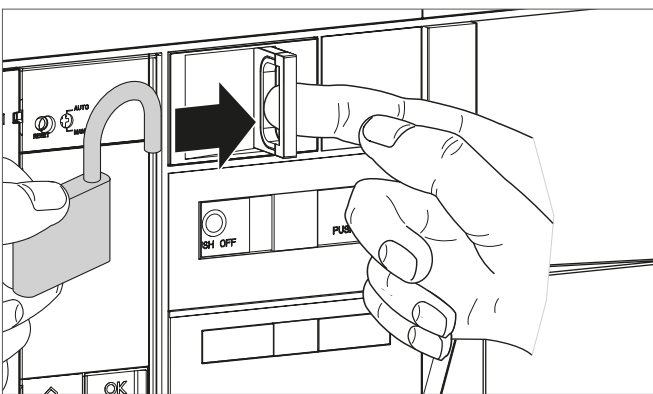
**ATTENTION**

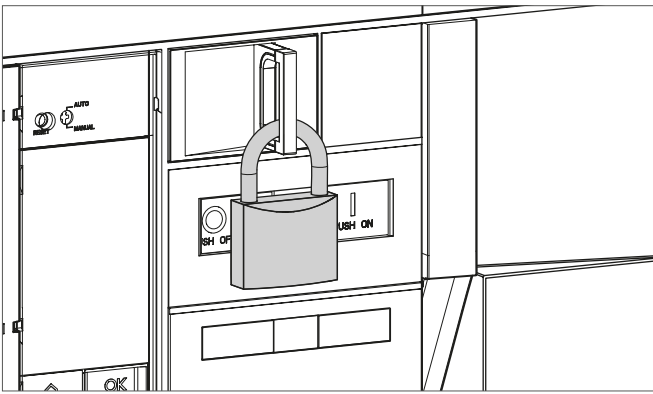

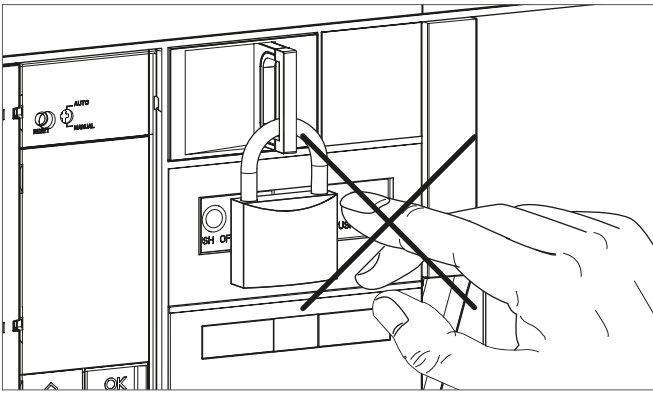
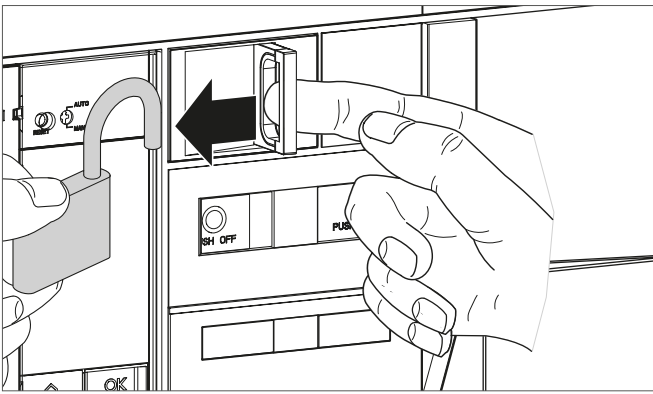
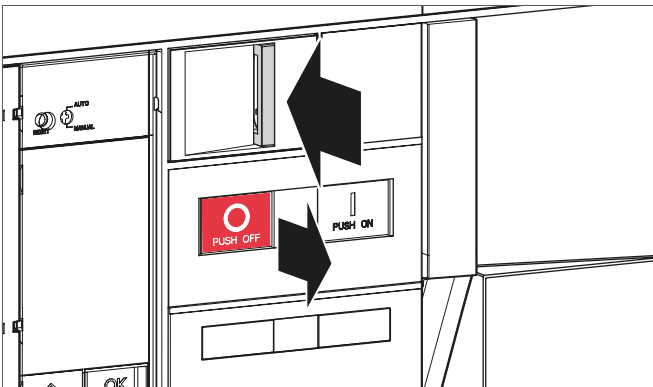
Refer to manual 6LE007871A to install this locking accessory.


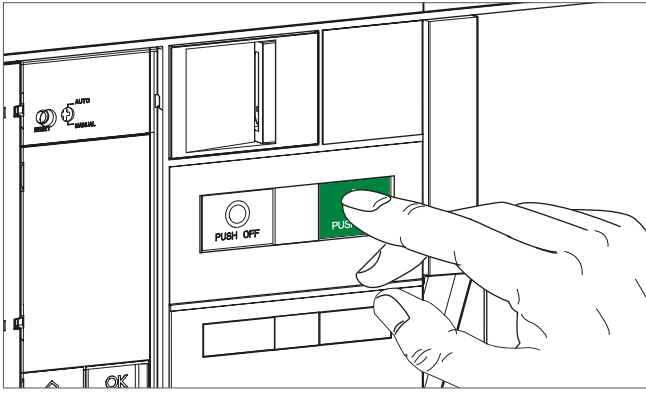
This locking device prevents the circuit breaker from closing using padlocks.  
Up to 3 Ø 6-8 mm padlocks can be installed.



To activate or deactivate the locking device:

Action	Illustration
<p>1 Press the opening push button</p>  <p>and, while holding it down, pull the tab of the locking device.</p>	
<p>2 Release the pressing on the opening push button while keeping the tab pressed. Position...</p> 	

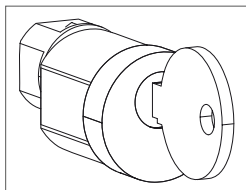
Action	Illustration
<p>2 (continued) ... Then close the padlock.</p>	
<p>3 Check that it is no longer possible to close the circuit breaker by pressing the closing push button</p> 	
<p>4 To unlock the device, remove the padlock.</p>	
<p>5 The tab returns to its initial position.</p>	

Action	Illustration
<p>6 Check that it is now possible to close the circuit breaker by pressing the closing push button</p> 	

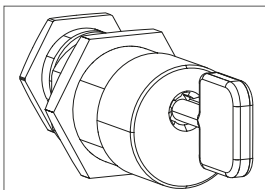
**ATTENTION**

Refer to manual 6LE007876A to install this locking accessory.

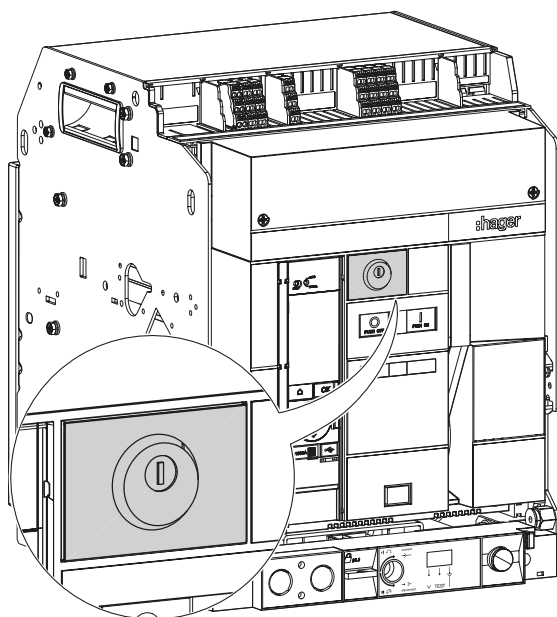
This locking device prevents the circuit breaker from closing using a key lock.  
Several types of locks can be installed.



Ronis type lock



Profalux type key lock (not offered by us)


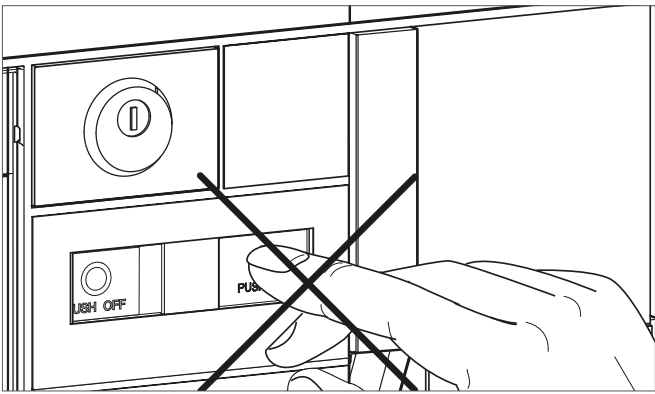
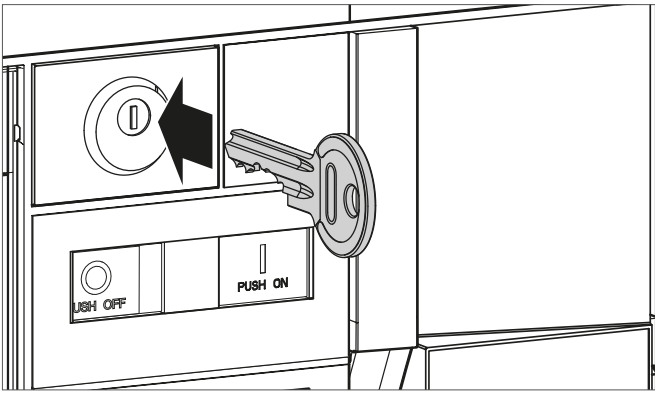





To activate or deactivate the locking device:

Action	Illustration
<p>1 Check that the key is in the horizontal position.</p>	

Action	Illustration
<p>2 Press the opening push button</p> 	
<p>3 While holding down the opening push button, put the key back into the vertical position by turning it counter-clockwise.</p> 	
<p>4 Remove the key.</p>	
<p>5 Then release the opening push button</p> 	



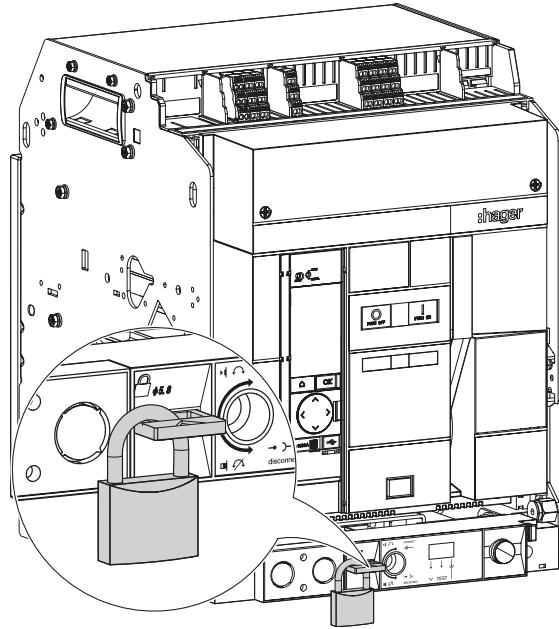
Action	Illustration
<p>6 Check that it is no longer possible to close the circuit breaker by pressing the closing push button</p> 	
<p>7 To unlock the device, insert the key into the lock.</p>	
<p>8 Turn the key clockwise.</p>	
<p>9 Check that it is now possible to close the circuit breaker by pressing the closing push button</p> 	

**ATTENTION**

The key cannot be removed in horizontal position. To remove it, follow steps 1 to 4. Refer to manual 6LE007875A to install this locking accessory.

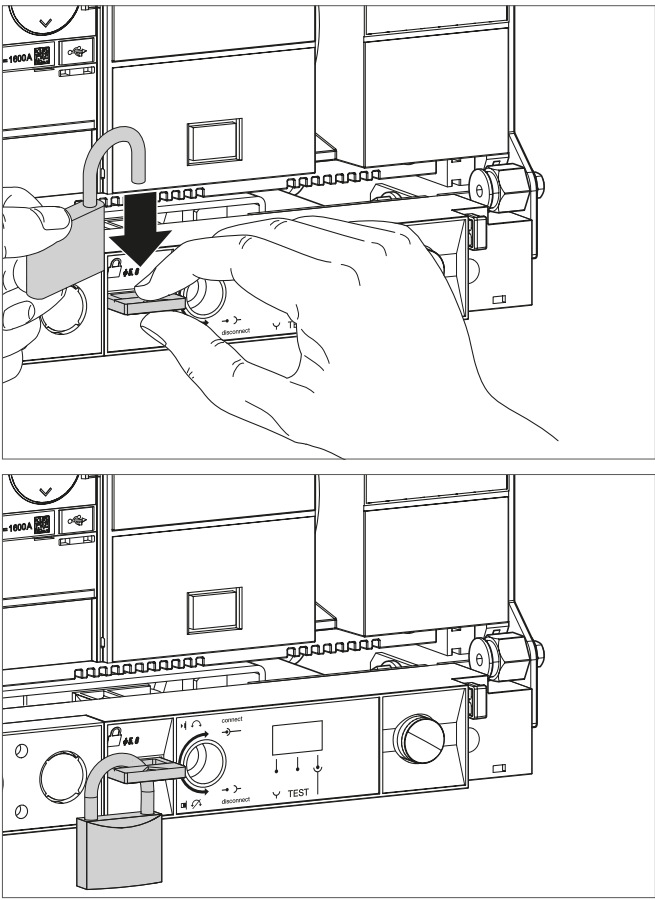
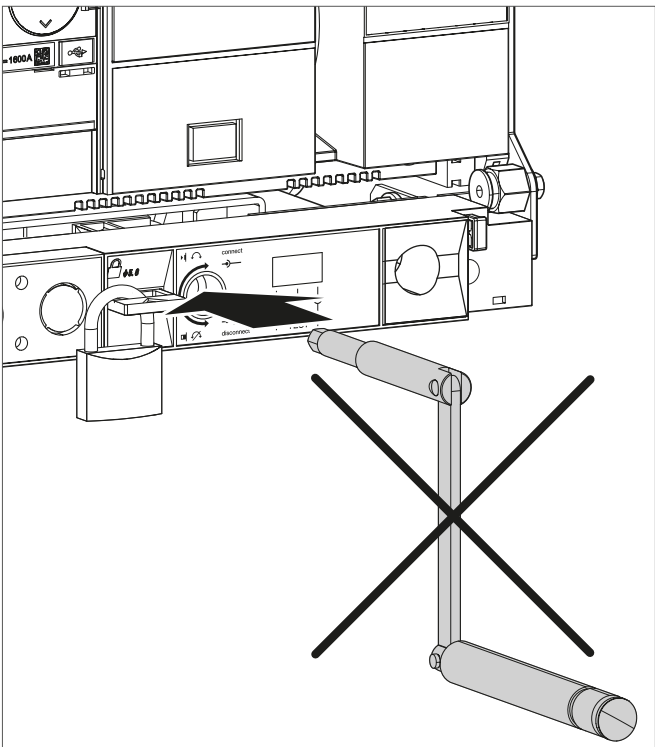
This locking device locks the circuit breaker in the chassis and prevents the racking handle from being inserted.

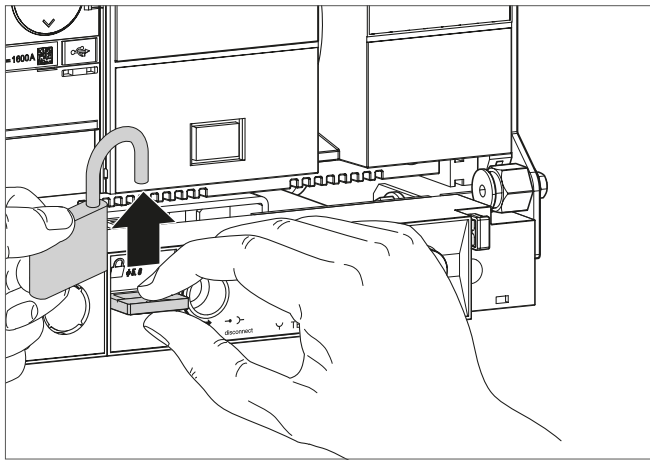
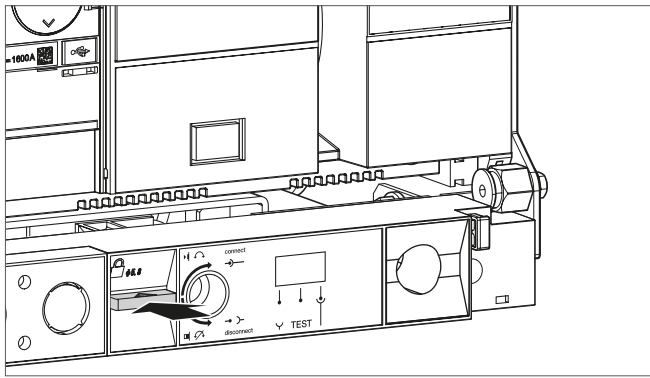
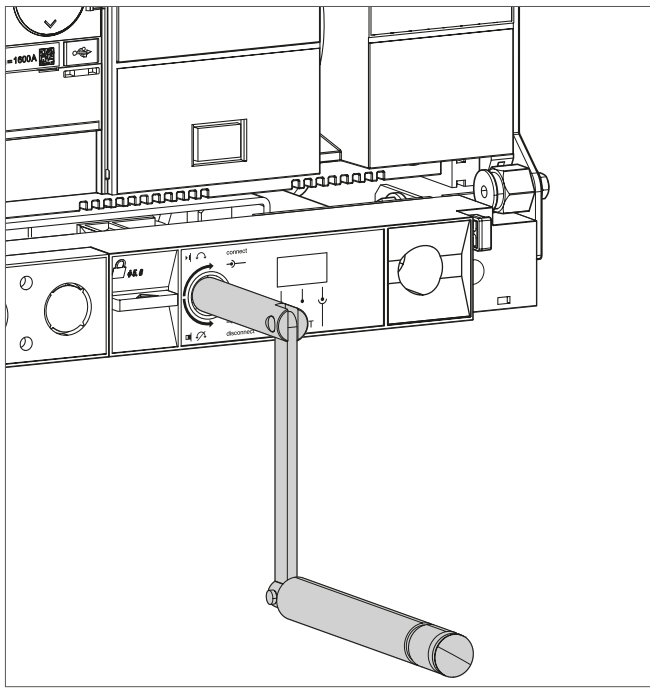
Up to 3 Ø 6-8 mm padlocks can be installed.



To activate or deactivate the locking device:

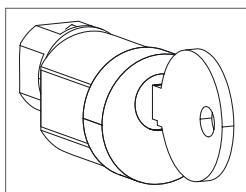
Action	Illustration
<p>1 Verify that the circuit breaker is in one of 3 stable states (Connected, Test or Disconnected) then padlocking and position acknowledgement tab.</p>	
<p><b>ATTENTION</b></p>	
<p>A special version of the circuit breaker is available for applications with locking in the drawout position only.</p>	

Action	Illustration
<p>2 Position...</p> <p>then close the padlock.</p>	
<p>3 Check to ensure that it is not possible to insert the racking handle into the racking-in/racking-out hole.</p>	

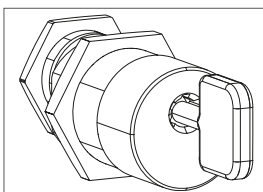
Action	Illustration
<p>4 To unlock the device, pull and hold the padlocking and position acknowledgement tab then remove the padlock.</p>	
<p>5 Check that the padlocking and position acknowledgement tab returns to its initial position.</p>	
<p>6 Check that it is now possible to insert the racking handle into the racking-in/racking-out hole.</p>	

This locking device locks the circuit breaker in the chassis and prevents the racking handle from being inserted.

Several types of locks can be installed.

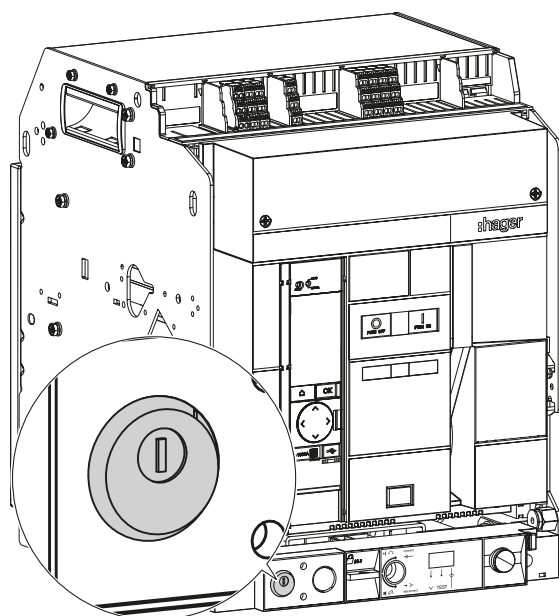
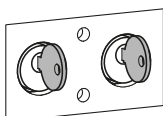


Ronis type lock

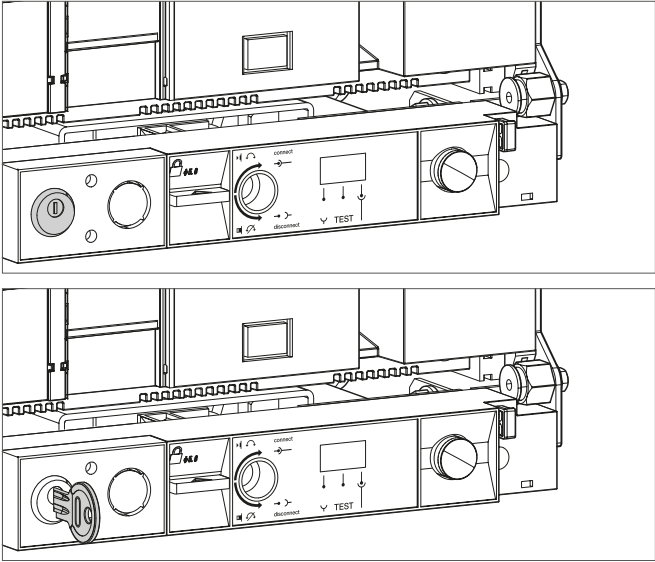
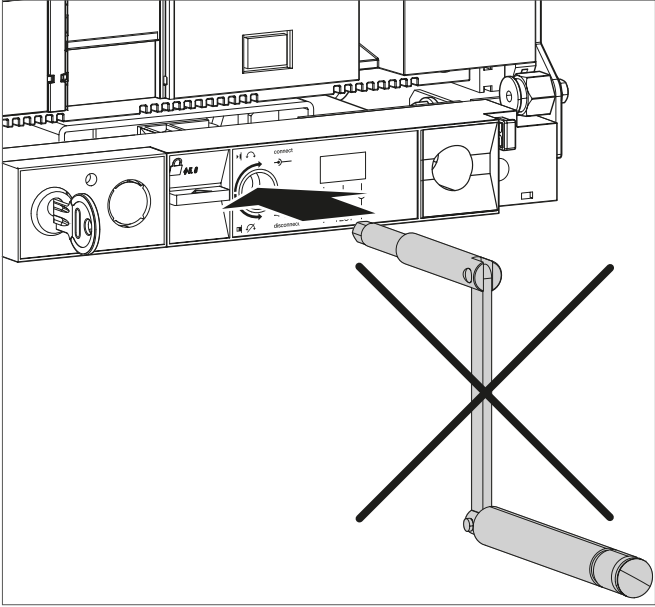
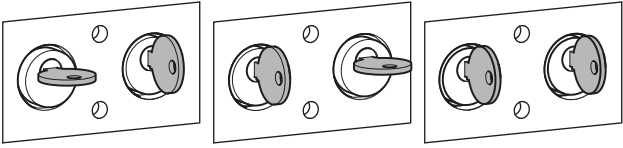


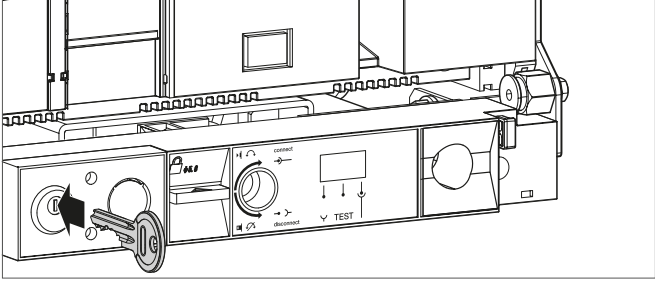
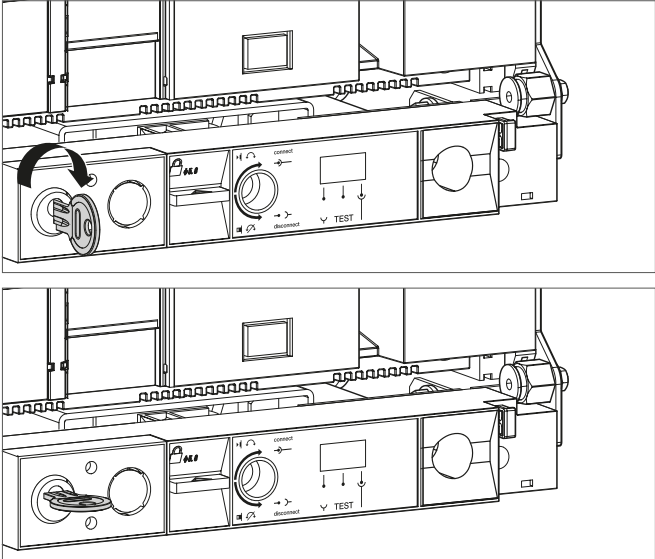
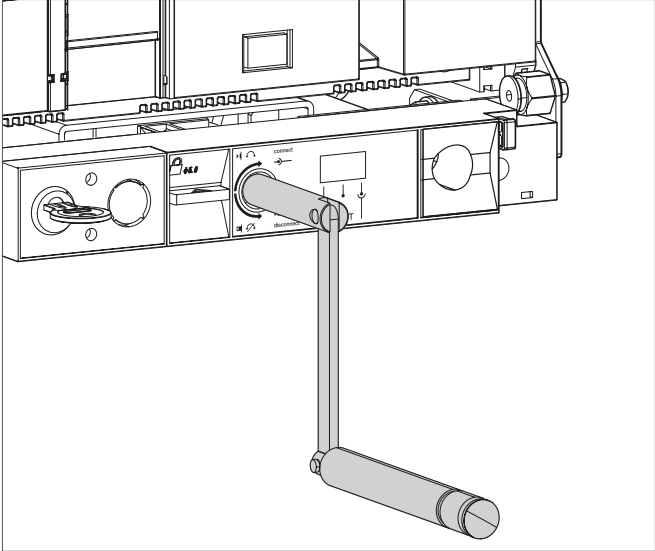
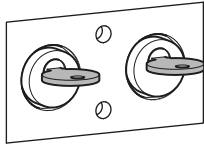
Profalux type key lock (not offered by us)

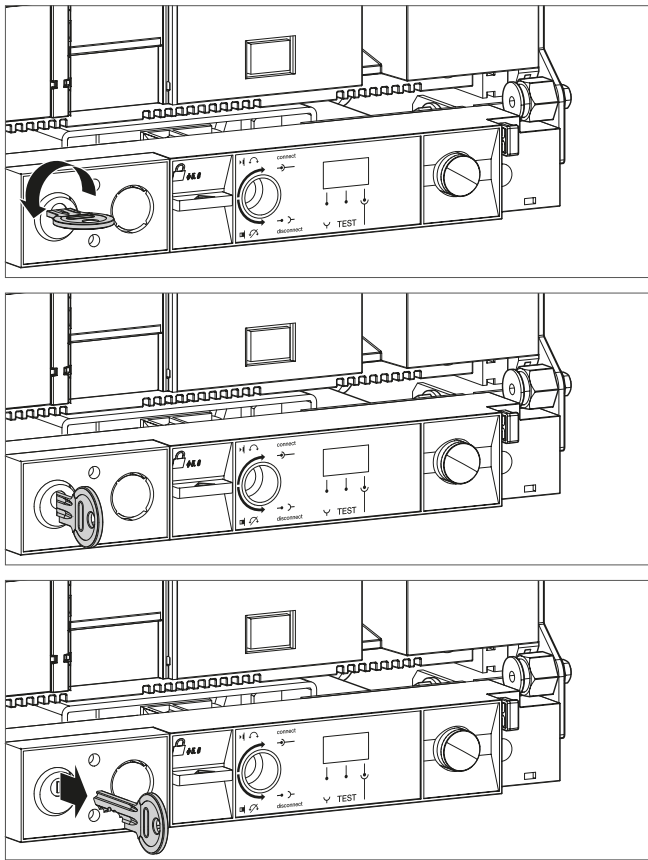
Up to 2 locks can be installed in the housing.



To activate or deactivate the locking device:

Action	Illustration
<p>1 Check that the keylock is in the vertical position...</p> <p>or that the key is inserted in the vertical position.</p>	
<p>2 Check to ensure that it is not possible to insert the racking handle into the racking-in/racking-out hole.</p>	
<p><b>ATTENTION</b></p>	
<p>If 2 locks are installed, only one key in the vertical position prevents the introduction of the racking handle into the place to insert the racking handle.</p> 	

Action	Illustration
<p>3 To unlock the device, insert the key into the lock.</p>	
<p>4 Turn the locking device key clockwise.  to put it in the horizontal position.</p>	
<p>5 Check that it is now possible to insert the racking handle into the racking-in/racking-out hole.</p>	
<p><b>ATTENTION</b></p>	
<p>If 2 locks are installed, both keys must be in the horizontal position to allow the introduction of the racking handle into the place to insert the racking handle.</p>	

Action	Illustration
<p>6 The key cannot be removed in horizontal position. To remove it, turn the key anti-clockwise...  to put it in the vertical position</p>	 <p>The illustration consists of three vertically stacked line drawings of a circuit breaker chassis. The top drawing shows a key inserted into a lock on the left side of the chassis, with a curved arrow indicating it is being turned counter-clockwise. The middle drawing shows the key turned 90 degrees counter-clockwise, now in a vertical position. The bottom drawing shows the key being pulled out of the lock. The chassis features various controls including a 'connect' button, a 'disconnect' button, and a 'TEST' button.</p>

**ATTENTION**

Refer to manual 6LE007877A to install this locking accessory.

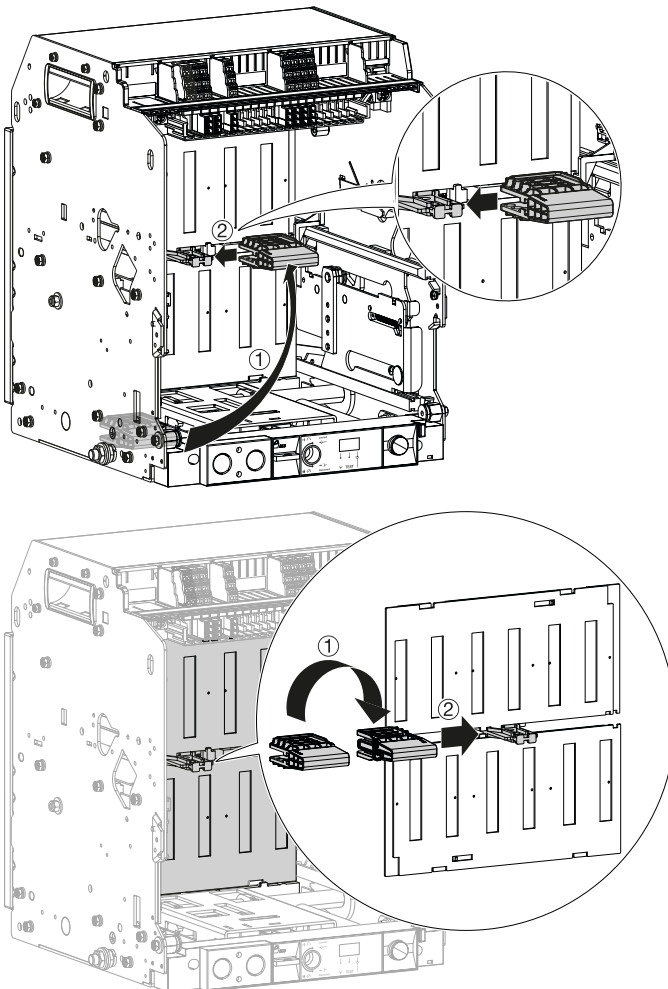
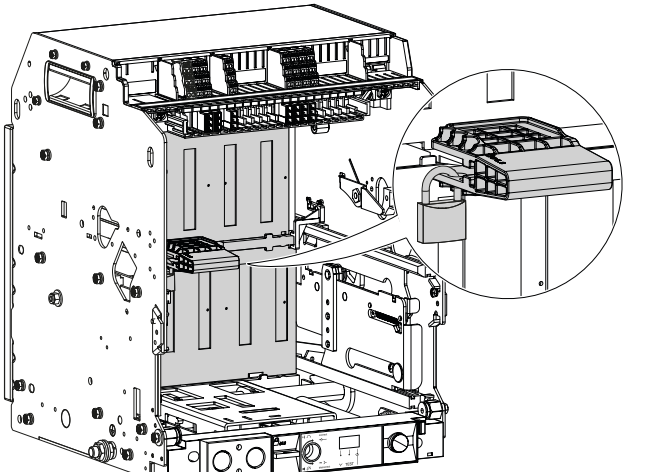


The safety shutters cover the contacts of the main circuit in the chassis when the circuit breaker is in the disconnected or test position.

In this way they preclude accidental access to the connections.

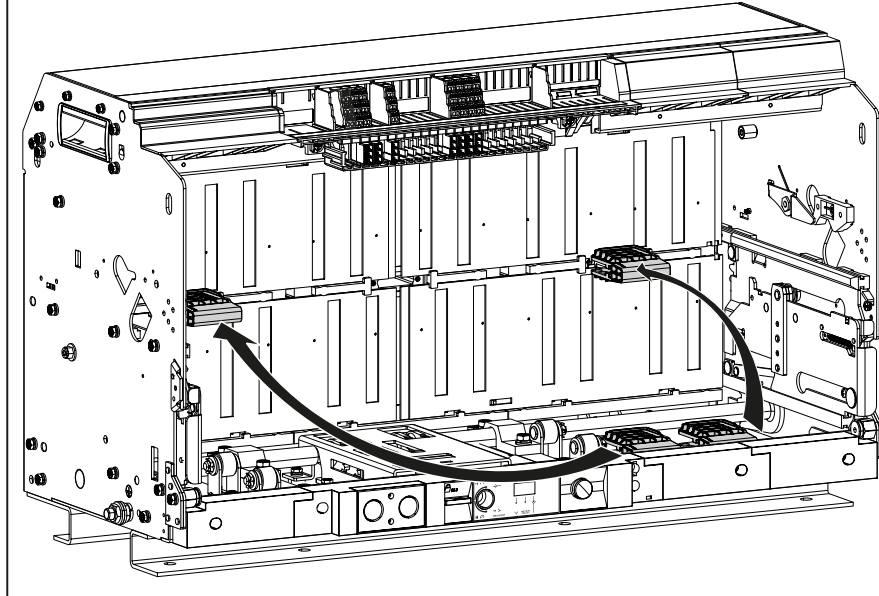
The upper and lower shutters can be locked to prevent their opening or the insertion of the circuit breaker in the connected position.

- Locking using the accessory in the chassis.

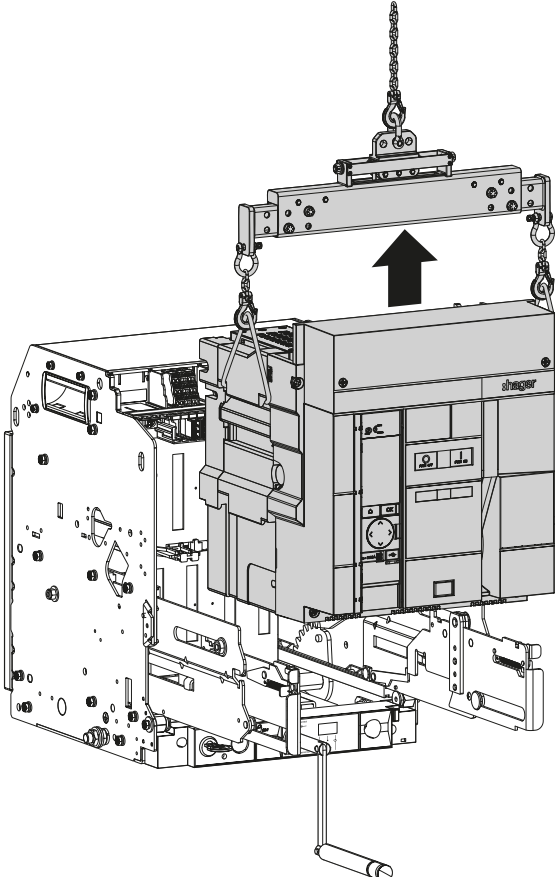
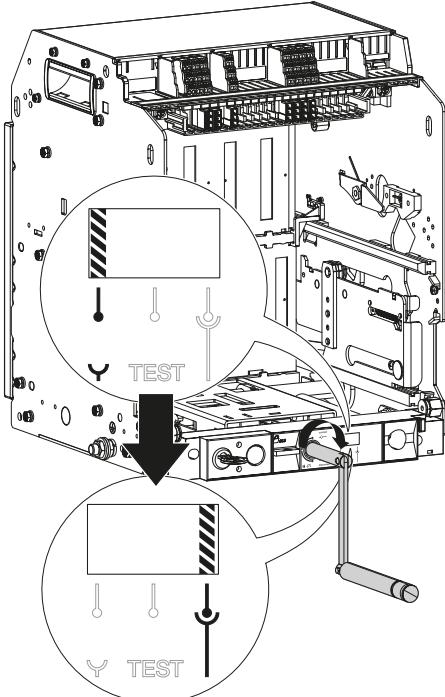
Action	Illustration
<p><b>1</b> Remove the locking accessory from the chassis and place it on the insulated safety shutter.</p> <p>Note that the accessory can be inserted from 2 sides by turning it through 180°.</p>	
<p><b>2</b> Lock the shutter with a padlock. Up to three Ø5-Ø8 mm padlocks can be installed.</p>	

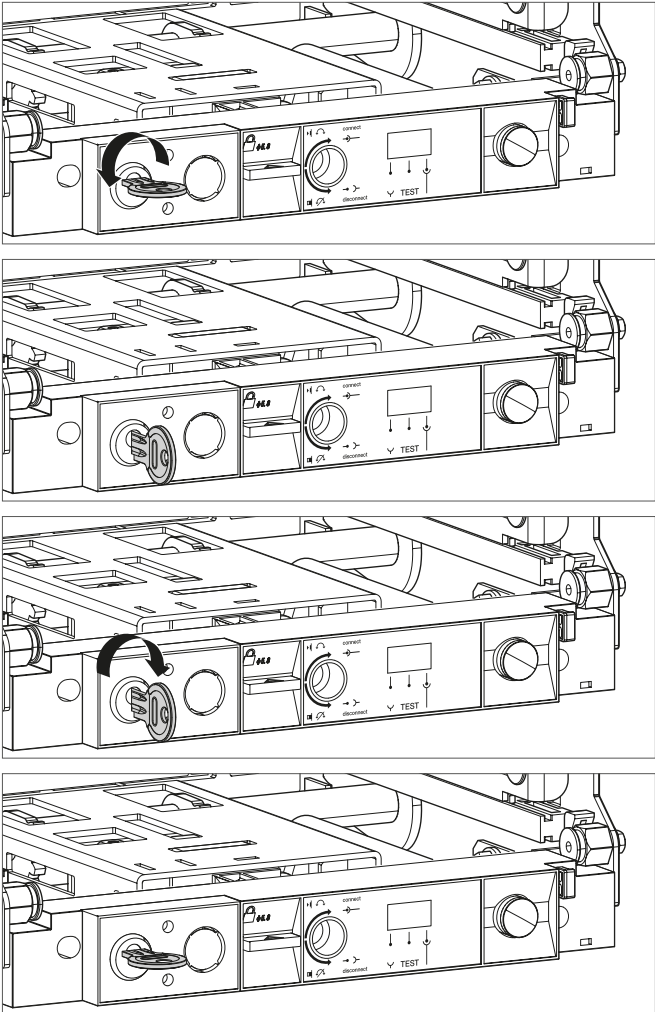
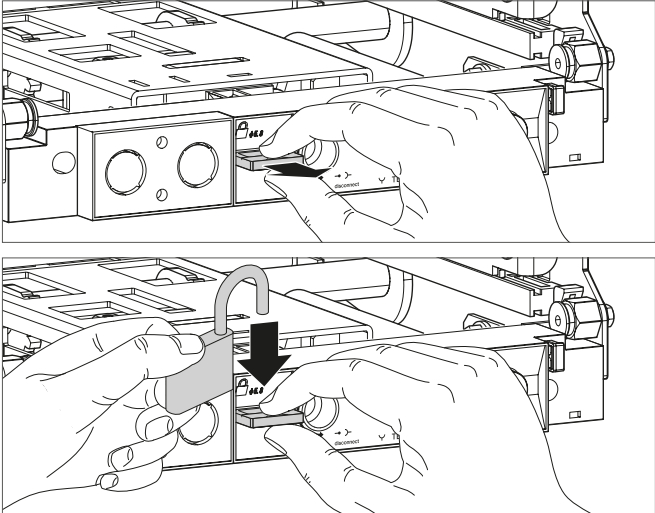
**ATTENTION**

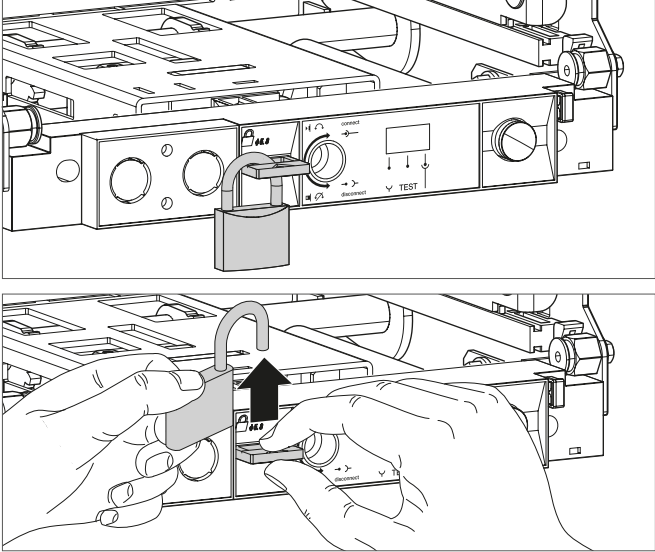
The HW6 circuit breakers have 2 accessories to independently lock the left and right safety isolating shutters.



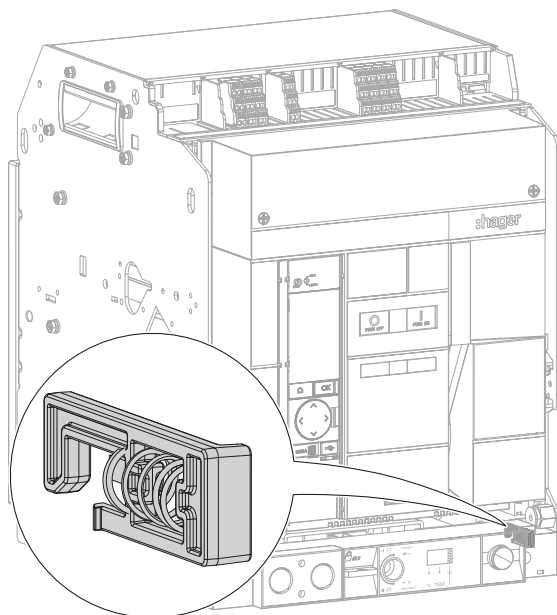
- Locking using the CL key locks or padlocking and position acknowledgement tab.

Action	Illustration
<p>1 Remove the circuit breaker from the chassis (see Chapter 05 Extracting the drawout circuit breaker).</p>	
<p>2 Put the circuit breaker in the connected position (see Chapters 4.3 Changing from the disconnected position to the test position and 4.4 Changing from the test position to the connected position).</p>	

Action	Illustration
<p><b>3</b> Remove and stow away the racking handle.</p> <p>Using the key lock, turn the key in the locking device in an anti-clockwise direction...</p> <p>until it is in the vertical position.</p> <p>To unlock the insulated safety shutters, turn the key clockwise...</p> <p>to put it in the horizontal position.</p>	
<p><b>4</b> The insulating safety shutters can also be locked using the padlocking and position acknowledgement tab.</p> <p>Pull on the tab...</p> <p>position...</p>	

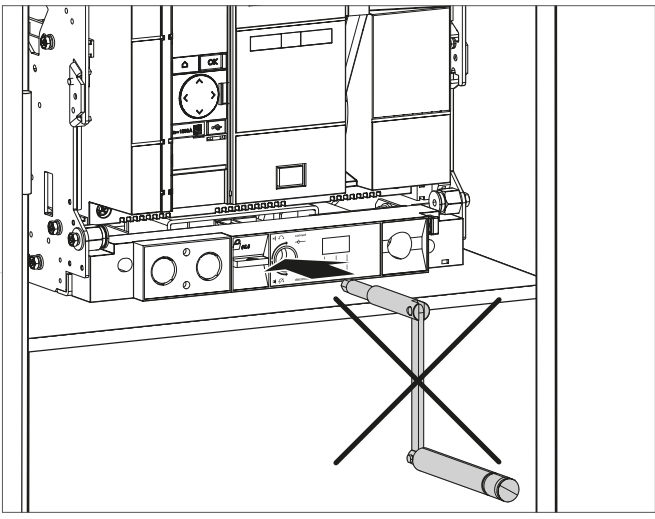
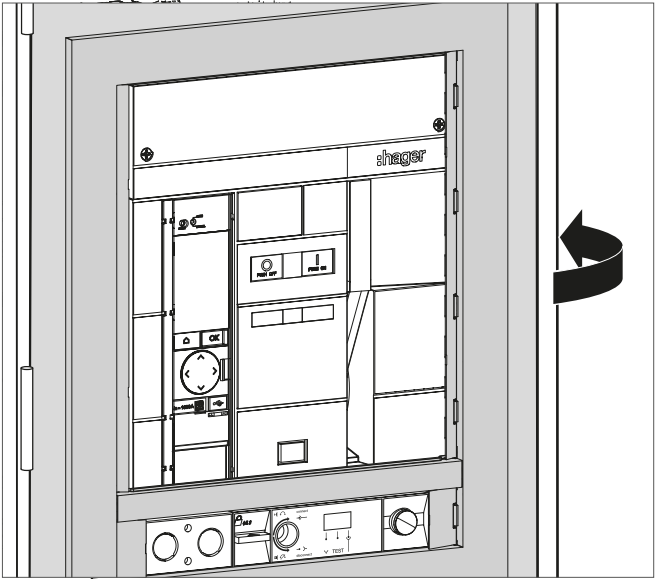
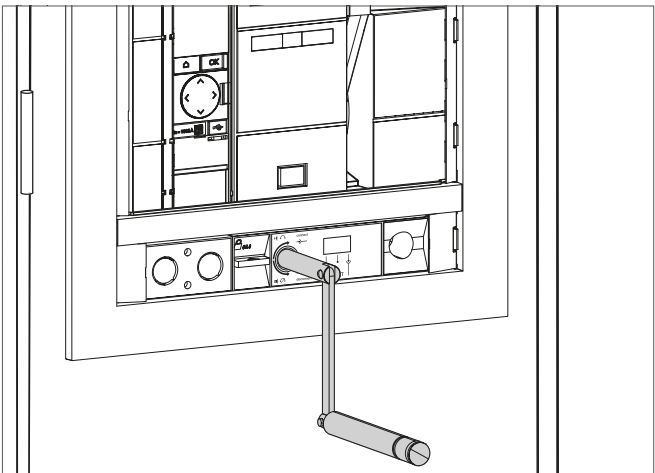
Action	Illustration
<p>4 (continued) then close the padlock.</p> <p>To unlock the insulated safety shutters, pull the tab and remove the padlock.</p>	 <p>The illustration consists of two vertically stacked line drawings. The top drawing shows a close-up of a circuit breaker's safety shutter mechanism. A metal tab is visible, and a padlock is being closed over it. The shutter has labels for 'connect' (with a right-pointing arrow) and 'disconnect' (with a left-pointing arrow), and a 'TEST' button. The bottom drawing shows a pair of hands pulling the same metal tab upwards. A black arrow points upwards from the tab, indicating the direction of movement. The padlock is shown being removed from the tab.</p>

This device prevents the racking handle being inserted into the circuit breaker rack in/rack out mechanism when the door of the electrical distribution board is open.



To test the locking device:

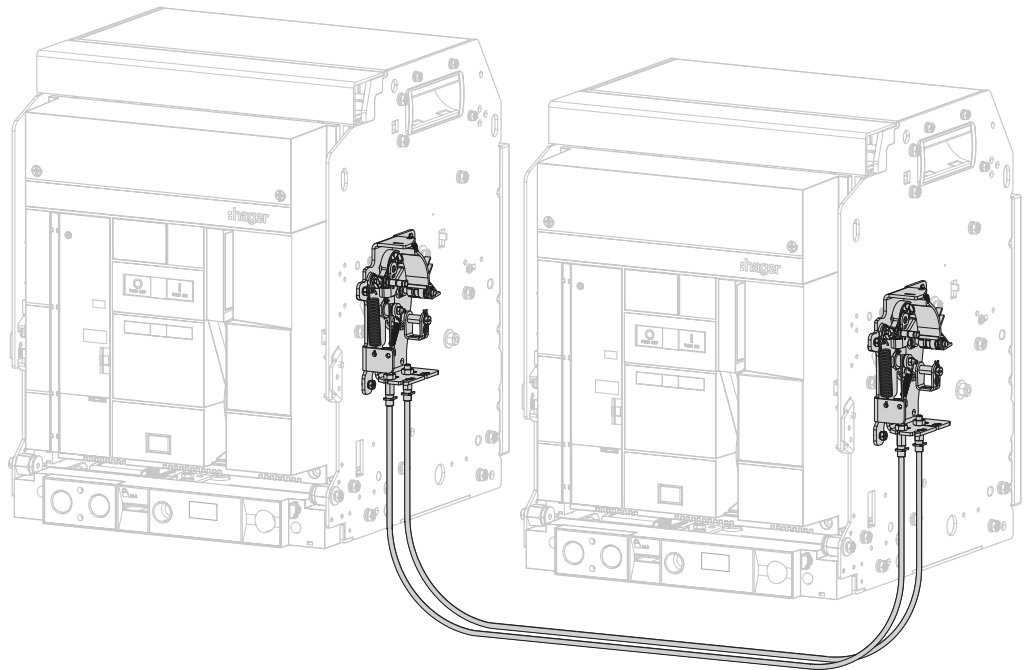
Action	Illustration
<p>1 Open the electrical cabinet door.</p>	<p>An illustration showing the electrical cabinet door being opened. A large black arrow on the right side of the door indicates the direction of movement, pointing from the closed position towards the open position.</p>

Action	Illustration
<p>2 Check to ensure that it is not possible to insert the racking handle into the racking-in/racking-out hole.</p>	
<p>3 Close the electrical cabinet door.</p>	
<p>4 Check that it is now possible to insert the racking handle into the racking-in/racking-out hole.</p>	

**ATTENTION**

Refer to manual 6LE007874A to install this locking accessory.

The mechanical interlocking kit is used to interlock 2 to 3 circuit breakers installed vertically or horizontally in the electrical distribution board.



In this way it prevents interlocked circuit breakers closing at the same time according to the types of application described below:

Diagram	Type	Locking logic	Description																								
	2S	<table border="1"> <thead> <tr> <th>ACB 1</th> <th>ACB 2</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> </tr> <tr> <td>1</td> <td>0</td> </tr> <tr> <td>0</td> <td>1</td> </tr> </tbody> </table>	ACB 1	ACB 2	0	0	1	0	0	1	Only one device out of two can be closed.																
ACB 1	ACB 2																										
0	0																										
1	0																										
0	1																										
	3S	<table border="1"> <thead> <tr> <th>ACB 1</th> <th>ACB 2</th> <th>ACB 3</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>1</td> <td>0</td> <td>0</td> </tr> <tr> <td>0</td> <td>1</td> <td>0</td> </tr> <tr> <td>0</td> <td>0</td> <td>1</td> </tr> </tbody> </table>	ACB 1	ACB 2	ACB 3	0	0	0	1	0	0	0	1	0	0	0	1	Only one device out of three can be closed.									
ACB 1	ACB 2	ACB 3																									
0	0	0																									
1	0	0																									
0	1	0																									
0	0	1																									
	3SX	<table border="1"> <thead> <tr> <th>ACB 1</th> <th>ACB 2</th> <th>ACB 3</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>1</td> <td>0</td> <td>0</td> </tr> <tr> <td>0</td> <td>0</td> <td>1</td> </tr> <tr> <td>1</td> <td>0</td> <td>1</td> </tr> <tr> <td>0</td> <td>1</td> <td>0</td> </tr> </tbody> </table>	ACB 1	ACB 2	ACB 3	0	0	0	1	0	0	0	0	1	1	0	1	0	1	0	Allows two devices to be closed if the third is open. The latter can only be closed if the other two are open.						
ACB 1	ACB 2	ACB 3																									
0	0	0																									
1	0	0																									
0	0	1																									
1	0	1																									
0	1	0																									
	3C	<table border="1"> <thead> <tr> <th>ACB 1</th> <th>ACB 2</th> <th>ACB 3</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>1</td> <td>0</td> <td>0</td> </tr> <tr> <td>0</td> <td>1</td> <td>0</td> </tr> <tr> <td>0</td> <td>0</td> <td>1</td> </tr> <tr> <td>0</td> <td>1</td> <td>1</td> </tr> <tr> <td>1</td> <td>1</td> <td>0</td> </tr> <tr> <td>1</td> <td>0</td> <td>1</td> </tr> </tbody> </table>	ACB 1	ACB 2	ACB 3	0	0	0	1	0	0	0	1	0	0	0	1	0	1	1	1	1	0	1	0	1	Two devices out of three can be closed at the same time.
ACB 1	ACB 2	ACB 3																									
0	0	0																									
1	0	0																									
0	1	0																									
0	0	1																									
0	1	1																									
1	1	0																									
1	0	1																									

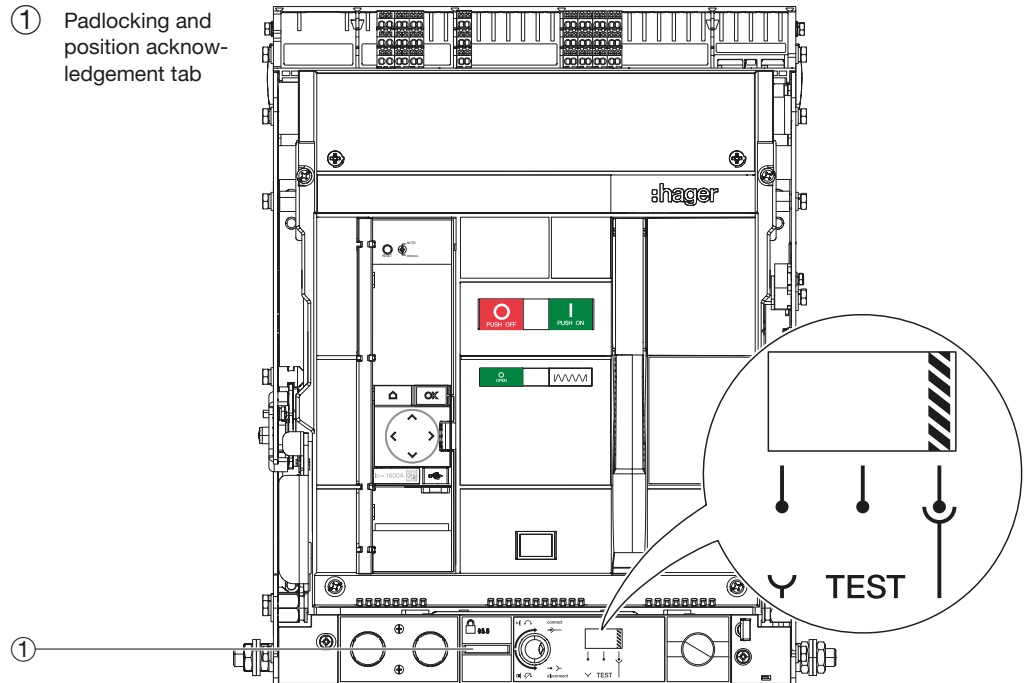


The position of the circuit breaker in the chassis is shown by the mechanical position indicator of the moving part on the front. There are three different positions, connected, test and disconnected.

Changing from one position to another is done using a racking handle.

Before changing from one position to another, the padlocking and position acknowledgement tab must be pressed.

① Padlocking and position acknowledgement tab



Circuit breaker position	Circuit breaker status	Mechanical position indicator of the moving part
Disconnected	The circuit breaker can be withdrawn from or inserted into the chassis.	
Test	The circuit breaker's power contacts are isolated. All of the auxiliaries remain electrically connected so that they remain functional.	
Connected	The connections on the circuit breaker are connected to the jaw contacts on the chassis. The circuit breaker is ready for operation.	



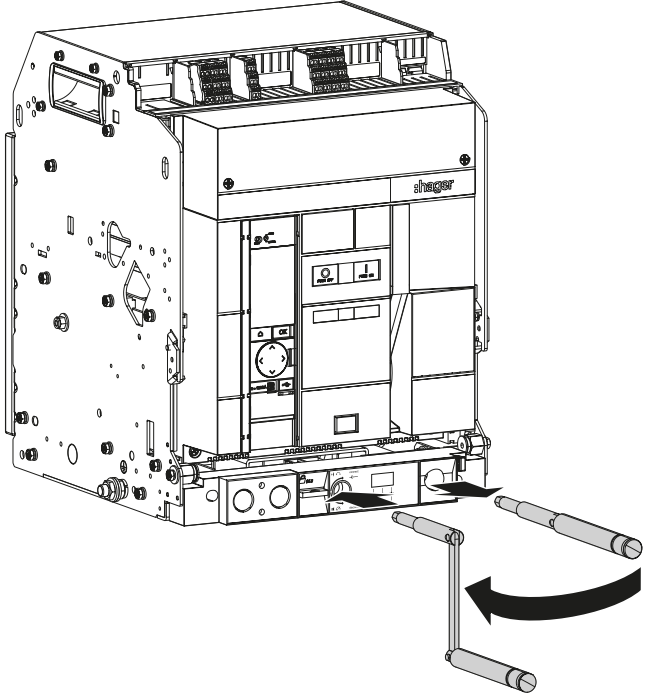
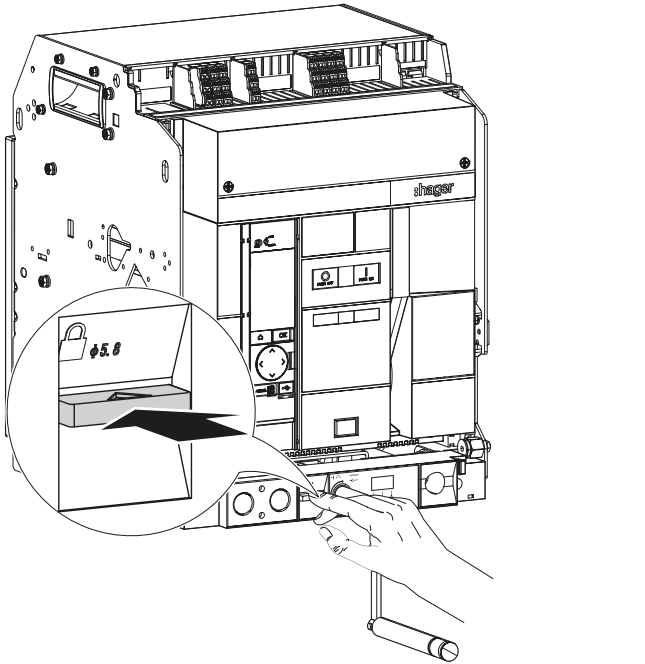
**WARNING**

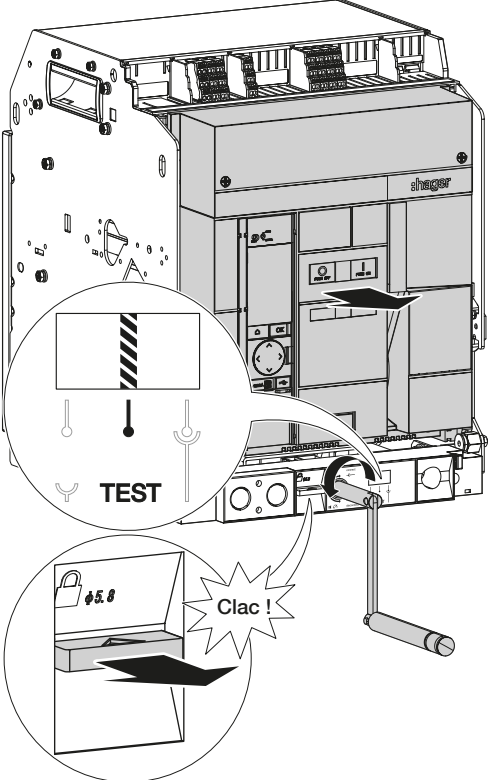
### Risk of electric shock

Make sure that the device is only operated by qualified personnel in accordance with to the installation standards in force in the relevant country.

To change from connected position to test position:

Action	Illustration
<p>1 Check that the circuit breaker is in the connected position and the mechanical position indicator displays:</p>	
<p>2 Open the circuit breaker by pressing the opening push button</p>	

Action	Illustration
<p><b>3</b> Take the racking handle out of its housing and insert it in the racking-in/ racking-out hole.</p>	
<p><b>4</b> Press the padlocking and position acknowledgement tab.</p>	

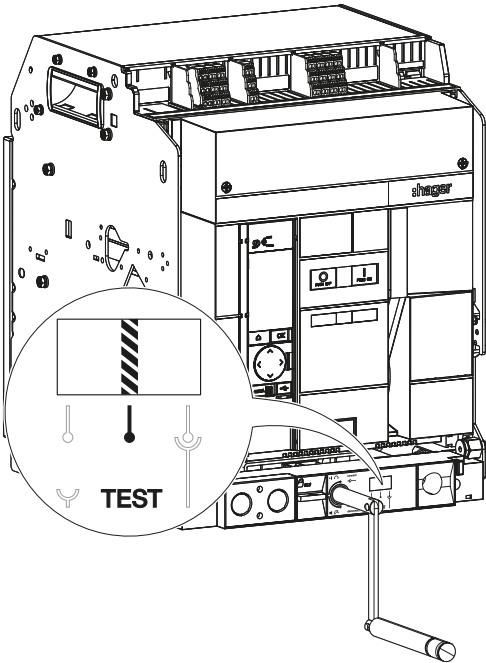
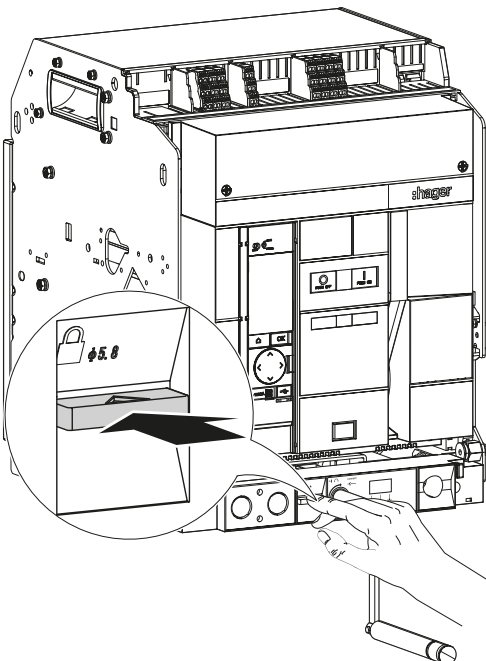
Action	Illustration
<p>5 Turn the racking handle anti-clockwise until:</p> <ul style="list-style-type: none"><li>- the mechanical position indicator displays the Test position,</li><li>- the padlock latch and position acknowledgement tab comes out of its housing.</li></ul>	

**ATTENTION**

**Risk of property damage**

If the chassis is not fitted in an electrical panel, ensure it is correctly fastened before changing position.

To change from test position to disconnected position:

Action	Illustration
<p>1 Check that the circuit breaker is in the test position and the mechanical position indicator displays:</p>	
<p>2 Press the padlocking and position acknowledgement tab.</p>	

Action	Illustration
<p><b>3</b> Turn the racking handle anti-clockwise until:</p> <ul style="list-style-type: none"><li>- the mechanical position indicator displays the Disconnected position,</li><li>- the padlock latch and position acknowledgement tab comes out of its housing.</li></ul>	
<p><b>4</b> Remove, then store the racking handle in its housing.</p>	



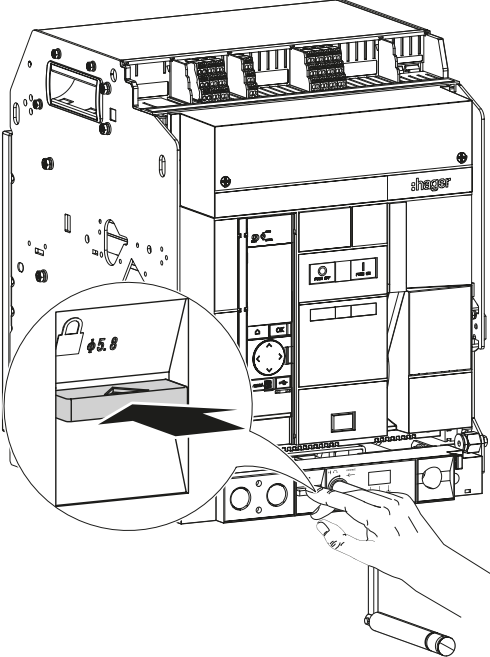
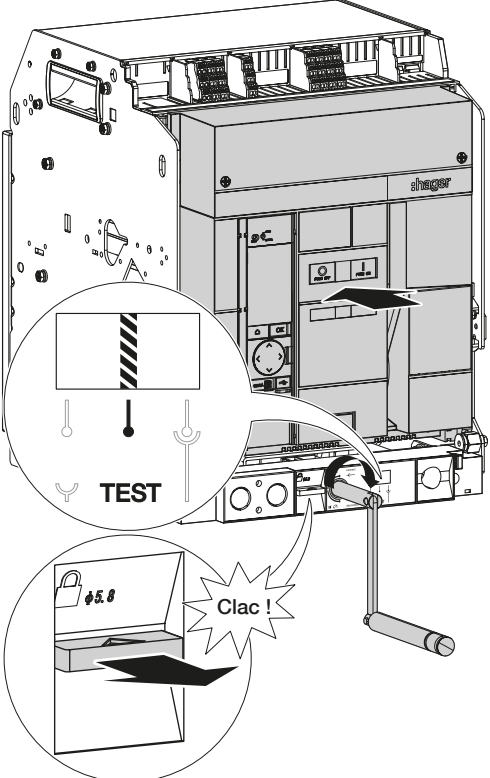
**WARNING**

**Risk of electric shock**

Make sure that the device is only operated by qualified personnel in accordance with to the installation standards in force in the relevant country.

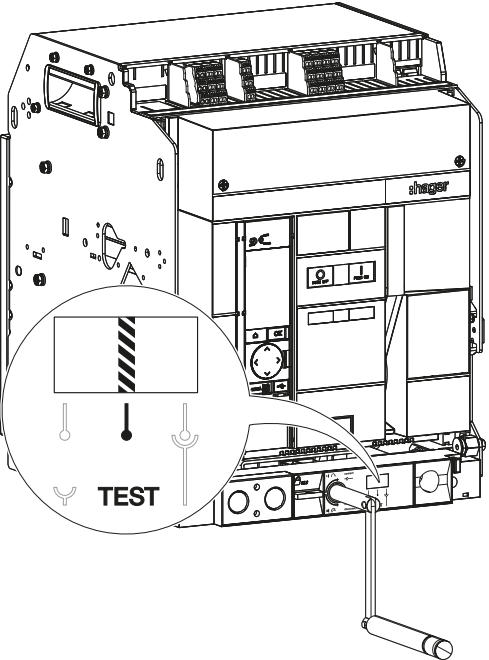
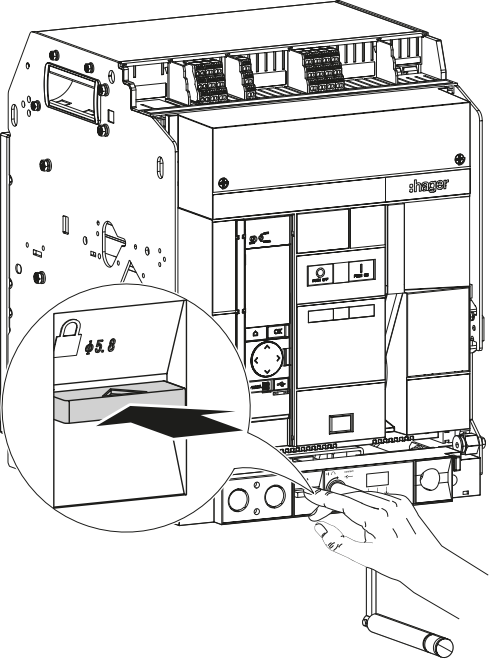
To change from disconnected position to test position:

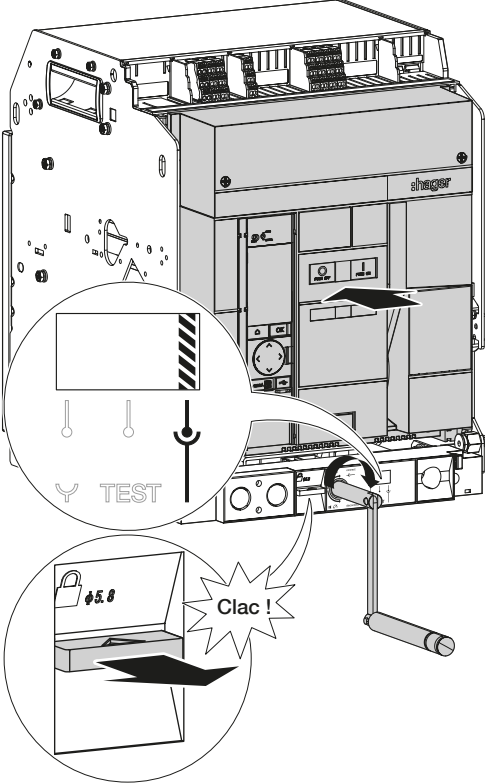
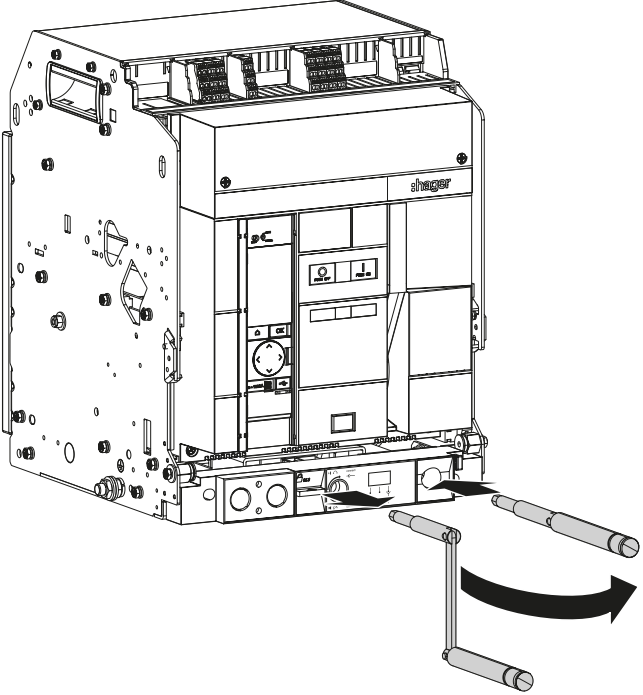
Action	Illustration
<p>1 Check that the circuit breaker is in the disconnected position and that the mechanical position indicator displays:</p>	
<p>2 Take the racking handle out of its housing and insert it in the racking-in/ racking-out hole.</p>	

Action	Illustration
<p>3 Press the padlocking and position acknowledgement tab.</p>	
<p>4 Turn the racking handle clockwise until:</p> <ul style="list-style-type: none"> <li>- the mechanical position indicator displays the Test position,</li> <li>- the padlock latch and position acknowledgement tab comes out of its housing.</li> </ul>	



To change from test position to connected position:

Action	Illustration
<p><b>1</b> Check that the circuit breaker is in the test position and the mechanical position indicator displays:</p>	
<p><b>2</b> Press the padlocking and position acknowledgement tab.</p>	

Action	Illustration
<p><b>3</b> Turn the racking handle clockwise until:</p> <ul style="list-style-type: none"> <li>- the mechanical position indicator displays the Connected position,</li> <li>- the padlock latch and position acknowledgement tab comes out of its housing.</li> </ul>	
<p><b>4</b> Remove, then store the racking handle in its housing.</p>	



**Risk of the circuit breaker falling out**  
**Risk of injury by crushing.**

Before handling the circuit breaker, ensure the chassis is fastened within the electrical distribution board. Ensure the device is only handled by qualified personnel equipped with lifting equipment and suitable safety equipment.

Action	Illustration
<p>1 Check that the circuit breaker is in the disconnected position (cf. Chapters 4.1 Changing from the connected position to the test position and 4.2 Changing from the test position to the disconnected position).</p>	
<p>2 The circuit breaker remains in the chassis in the disconnected position. While pressing the push buttons...</p>	

Action	Illustration
<p><b>2</b> (continued) pull the racking handles to take the circuit breaker out of its housing.</p>	<p>The illustration shows a hand pulling a racking handle on the left side of a circuit breaker unit. The unit is partially inserted into a metal housing. The handle is being moved from its retracted position to its extended position, which will pull the breaker out of the housing.</p>
<p><b>3</b> Remove the circuit breaker from the guide rails using an appropriate lifting device.</p>	<p>The illustration shows a lifting device, consisting of a horizontal bar with a hook at one end and a chain at the other, being used to lift the circuit breaker unit. The unit is being pulled upwards and out of the housing. A large black arrow points upwards, indicating the direction of movement.</p>

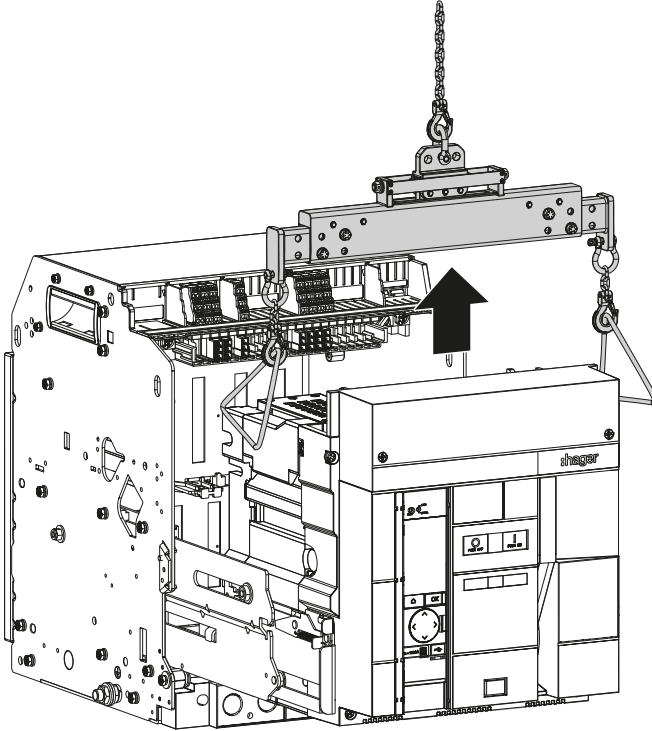
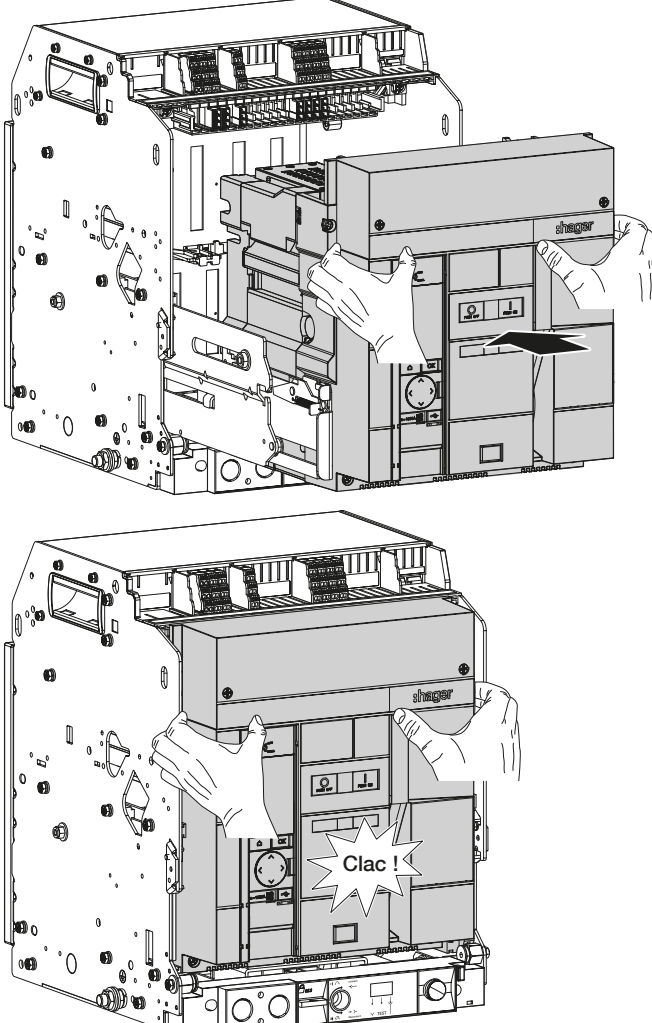


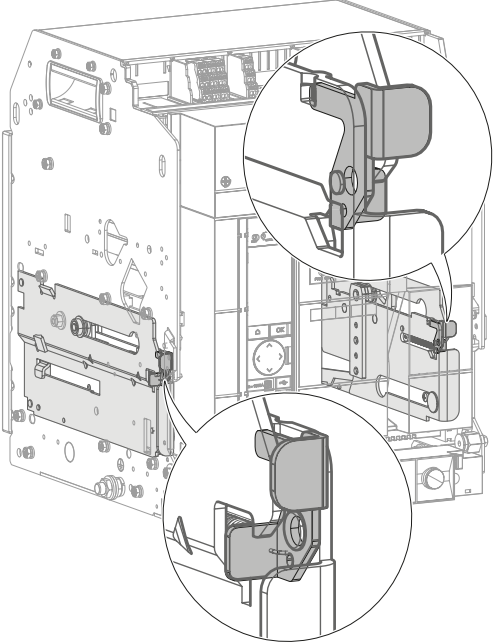
**Risk of the circuit breaker falling out**  
**Risk of injury by crushing.**

Before handling the circuit breaker, ensure the chassis is fastened within the electrical distribution board. Ensure the device is only handled by qualified personnel equipped with lifting equipment and suitable safety equipment.

Action	Illustration
<p>1 Check that the chassis is in the disconnected position.</p>	
<p>2 While pressing the push buttons...</p>	

Action	Illustration
<p><b>2</b> (continued) pull the racking handles to take out the guide rails.</p>	
<p><b>3</b> Using an appropriate lifting device, position the circuit breaker on the guide rails, having previously aligned the guides with the slots on the circuit breaker.</p>	

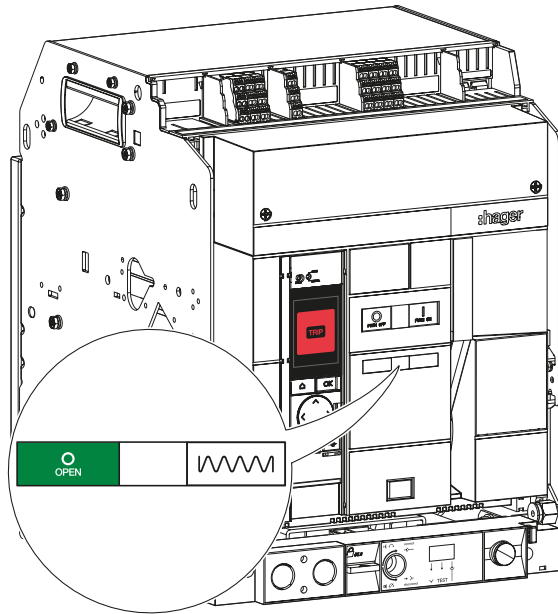
Action	Illustration
<p>4 Remove the lifting equipment.</p>	
<p>5 Push the circuit breaker to the back of the chassis without pushing on the guide rails.</p>	

Action	Illustration
<p><b>6</b> Verify that the guide rails are correctly positioned.</p>	



After tripping, the circuit breaker is open, the closing spring discharged if a charging motor is not installed. The circuit breaker is open, the spring charged if a charging motor is installed. The electronic trip unit display flashes.

To understand the cause of the tripping, refer to the 6LE007969A user manual for hw+ sentinel electronic trip units and the 6LE008147A user manual for hw+ sentinel Energy electronic trip units.



**Risk of electric shock, explosion or electric arc.**

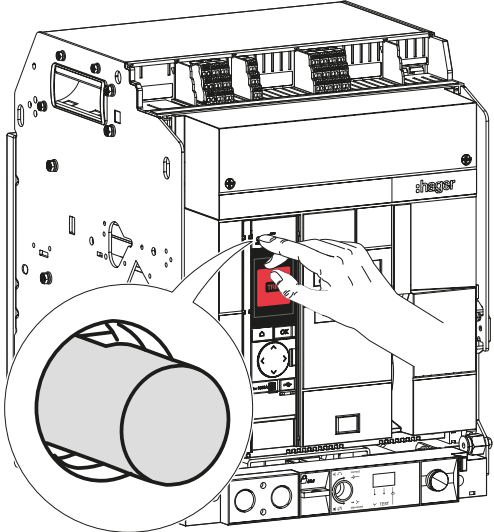
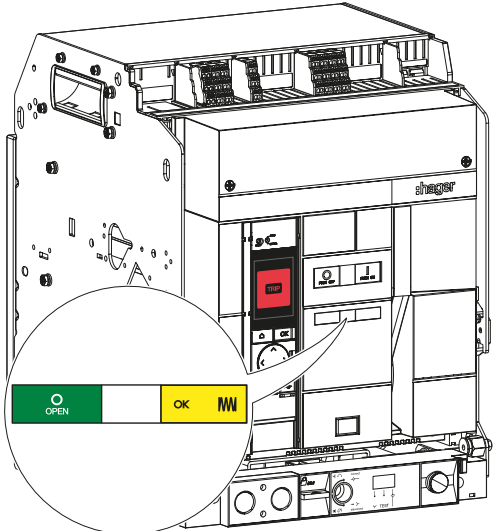
Inspect the electrical installation and remove the tripping cause before closing the circuit breaker again.



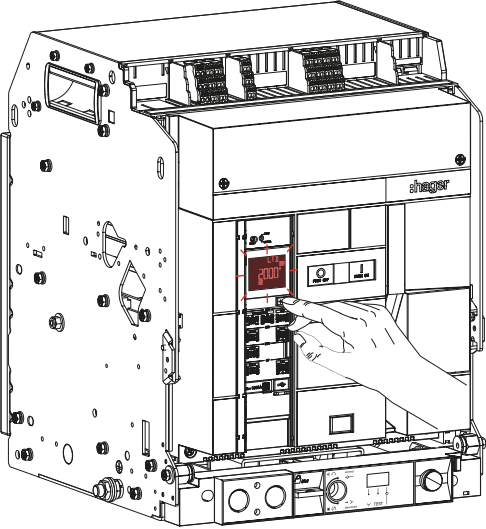
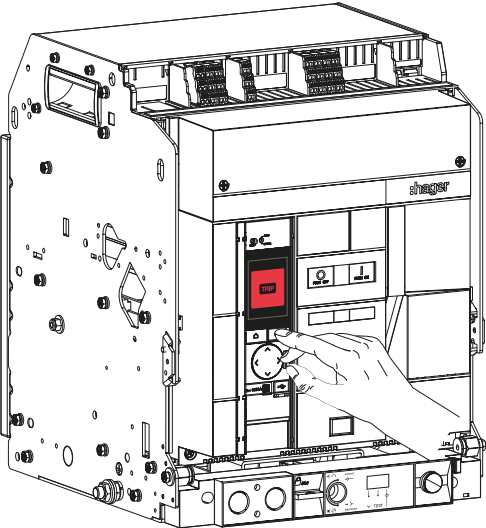
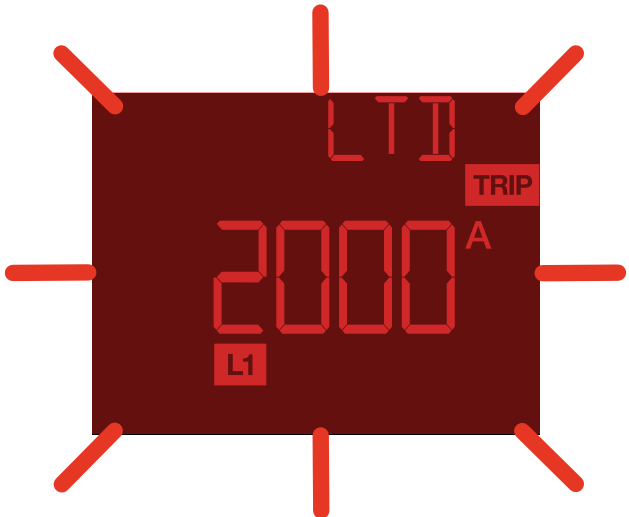
Never close a circuit breaker locally or remotely without first making sure that the installation complies with the safety standards.

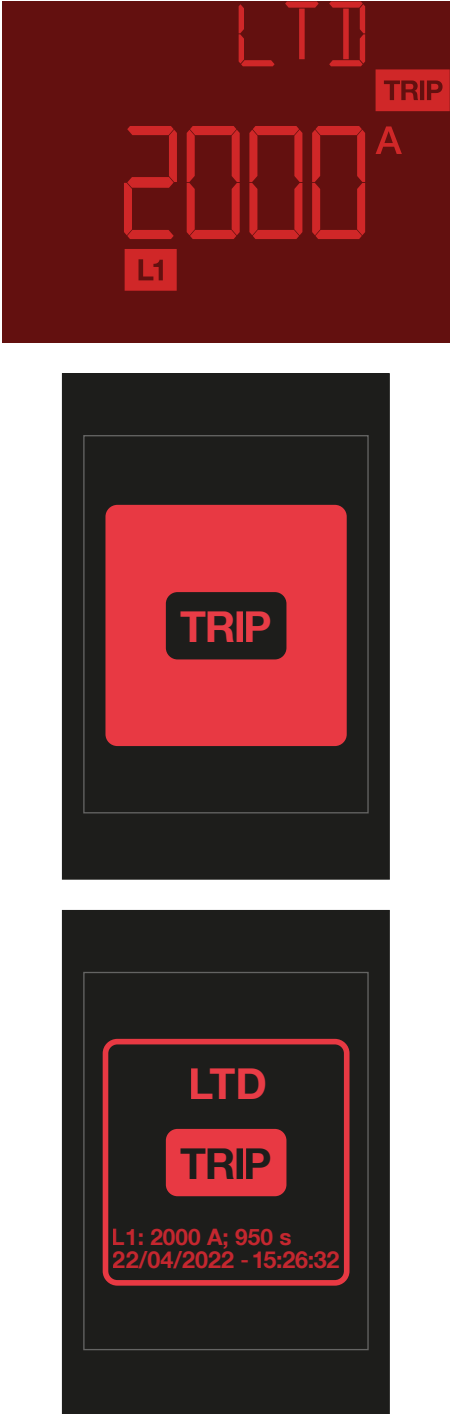
To close the circuit breaker:



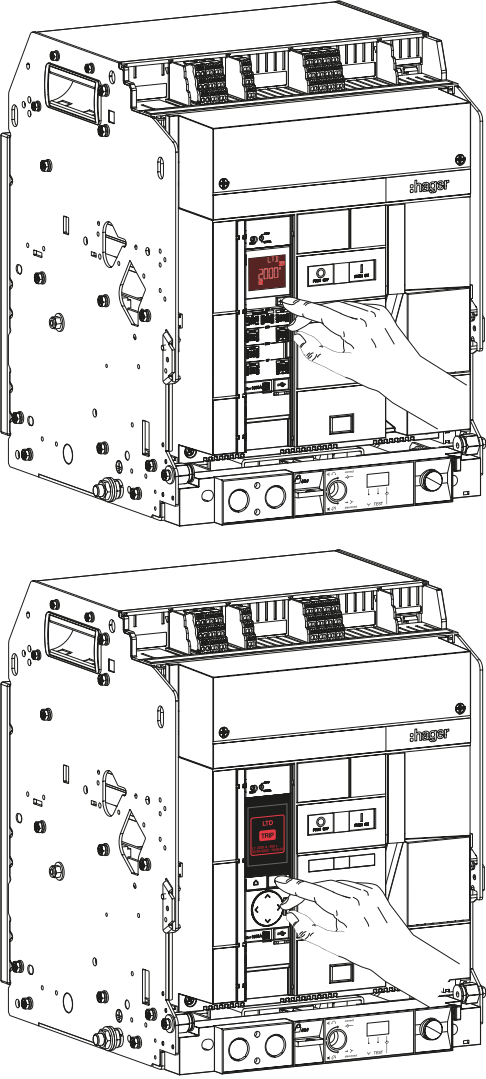

	Action	Illustration
1	<p>Charge the spring using the charging handle until the status of the indicator changes.</p> <p>If a spring charging motor is installed, move on to step 2.</p>	<p>A technical line drawing of the circuit breaker cabinet, similar to the one above. A hand is shown operating the charging handle on the right side of the cabinet, with a curved arrow indicating the direction of movement.</p>


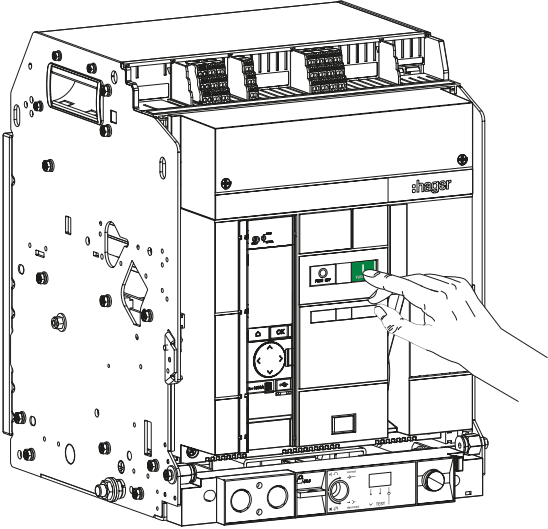
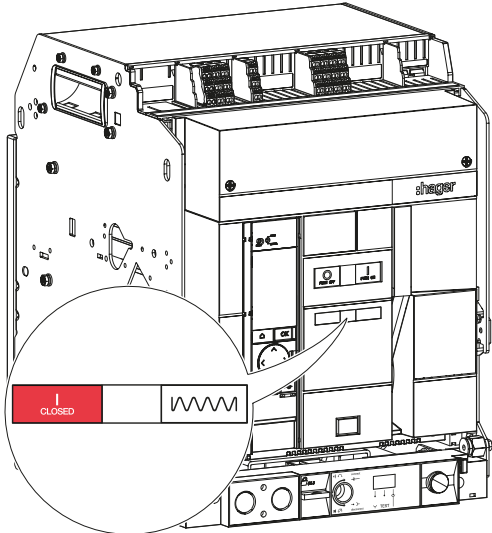
	Action	Illustration
2	<p>If the circuit breaker reset is configured to <b>MANUAL</b>, move on to step 3.</p> <p>If the circuit breaker reset type is set to <b>AUTO</b>, go directly to step 5.</p>	
3	<p>Check that the indicators display:</p> <p>The closing spring is charged, but the circuit breaker is not ready to be closed.</p>	

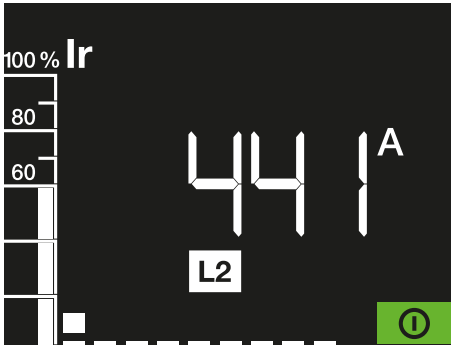
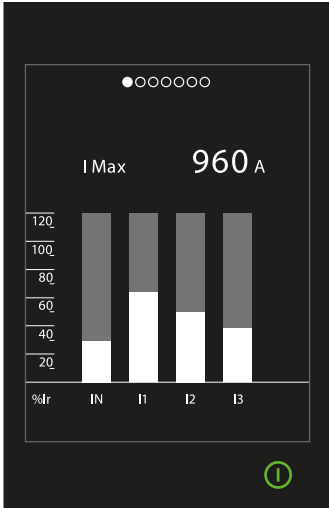
	Action	Illustration
4	Press the circuit breaker RESET re-arm button.	 <p>The illustration shows a hand pressing a red button labeled 'RESET' on the front panel of a circuit breaker. A circular callout provides a magnified view of the button being pressed.</p>
5	Check that the closing spring is charged. The circuit breaker is now ready to be closed.	 <p>The illustration shows the circuit breaker with a status indicator on the front panel. A circular callout provides a magnified view of the indicator, which is a horizontal bar divided into three sections: a green section with a white circle and the word 'OPEN', a white section with the word 'OK', and a yellow section with the letters 'MM'.</p>

	Action	Illustration
<p>6 Then reset the trip unit display.</p> <p><b>Briefly press the button  OK for a sentinel trip unit</b></p> <p>and the button  for a sentinel Energy trip unit.</p> <p>The sentinel trip unit display stops flashing:</p>	  	

	Action	Illustration
6	<p>(continued) and becomes steady:</p> <p>The sentinel Energy trip unit display switches from this flashing message:</p> <p>To this flashing message.</p>	 <p>The illustration column contains three sequential screenshots of the Sentinel Energy trip unit display. The top screenshot shows a dark background with red text: 'LTD' at the top, 'TRIP' in a red box on the right, '2000 A' in large digits in the center, and 'L1' in a red box at the bottom left. The middle screenshot shows a dark background with a large red square in the center containing the word 'TRIP' in black. The bottom screenshot shows a dark background with a red rounded rectangle containing 'LTD' at the top, 'TRIP' in a red box in the center, and 'L1: 2000 A; 950 s' and '22/04/2022 - 15:26:32' at the bottom.</p>

	Action	Illustration
7	<p>Press the  button <b>for more than 3 s</b> for a sentinel trip unit</p> <p>and the  button for a sentinel Energy trip unit.</p>	
8	<p>Check that the fault is cleared and that the display switches off.</p>	

	Action	Illustration
9	<p>Close the circuit breaker by pressing the closing push button</p> 	
10	<p>Check that the indicators change status.</p>	

	Action	Illustration
11	<p>Verify that the ReadyToProtect indicator flashes on the sentinel trip unit display or that the ReadyToProtect indication light is lit on the sentinel Energy trip unit.</p> <p>If the display remains off, connect an external battery to the USB-C socket to perform this check.</p>	<p>sentinel trip unit</p>  <p>sentinel Energy trip unit</p> 
<b>ATTENTION</b>		
<p>The trip unit must be powered in order for it to perform its protection functions. It is powered as long as a minimum current of 20% of the nominal current <math>I_N</math> passes through the circuit breaker.</p> <p>Nevertheless, it is strongly recommended that an external 24 V DC SELV power supply (recommended reference model Hager HTG911H) be connected to terminal block TU to guarantee optimal operation of the trip unit and prevent malfunctions in the electrical installation associated with a breach in the continuity of the trip unit operation.</p>		







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