# hws series

## The New Standard in Air Circuit Breakers




**Ratings: 320 – 4000 A**

**Frame Sizes (HWS2 & HWS4)**

**Breaking Capacity up to 85 kA**

electrahertz
electrical suppliers

:hager

# The new standard for safety, reliable performance, and flexibility.

Introducing Hager's standard **Air Circuit Breaker** range - **HWS series**. Backed by international certifications and a comprehensive range of accessories, this robust, standard-tier solution meets the needs of the most demanding applications.




- **Ics = Icu = Icw (1s)** in complete range for guaranteed performance
  **Icu up to 85 kA** - suitable for varied applications
- Suitable for **50°C** ambient temperature without derating
  **Pollution degree 4** - ideal for harsh industrial environments
- Vertical or Horizontal convertible Rear Connections till **4000A**
- **Screw less** terminal blocks - faster installation
- Suitable for copper and **aluminium** busbar termination
- Conforms to **IEC 60947-2** / GB/T140248.2
  CE & CCC Certified: Guaranteed Safety

**HWS2**
320 – 2000A





**HWS4**
1000 – 4000A

**Product types**
Air Circuit Breakers
Switch disconnectors

**Ratings**
HWS2: 630A / 800A / 1000A / 1250A / 1600A / 2000A / 2500A (SD)
HWS4: 2500A / 3200A / 4000A

**Trip units**
Type L: LSI

**Version**
Withdrawable
Fixed

**Poles**
3P
4P (4P4D)

**Operating conditions**
Pollution Degree 4
No de-rating up to 50°C ambient

**Breaking capacities**
HWS2: 50kA / 66kA
HWS4: 66kA / 85kA
Ics = Icu = Icw 1s

**Range of accessories**
For command, signalling, locking, interlocking and protection

**Targeted customer**
Panel builders, Installers
Building managers, Specifiers




**HWS series -** *(standard)* **Air Circuit Breakers (ACB's) and Switch disconnectors**

| **HWS series - Air Circuit Breakers** | | **HWS2 size** | | **HWS4 size** | | |
|---|---|---|---|---|---|---|
| Reference | | HWS2**M…** | | HWS4**E…** | | HWS4**S…** |
| | | 50 kA | | 66 kA | | 85 kA |
| Rated current In (A) at 50°C | 800A | **HWS2M308** | 320…800A | – | – | – |
| | 1000A | **HWS2M310** | 400…1000A | – | – | – |
| | 1250A | **HWS2M312** | 500…1250A | – | – | – |
| | 1600A | **HWS2M316** | 640…1600A | – | – | – |
| | 2000A | **HWS2M320** | 800…2000A | – | – | – |
| | 2500A | – | – | **HWS4E325** | 1000…2500A | – |
| | 3200A | – | – | **HWS4E332** | 1280…3200A | – |
| | 4000A | – | – | **HWS4E340** | – | 1600…4000A |
| Versions | | fixed, drawout | | | | |
| Number of poles | | 3-pole, 4-pole *(left neutral as standard)* | | | | |
| Rated operational voltage | Ue (V) | 690V AC | | | | |
| Rated insulation voltage | Ui (V) | 1000V AC | | | | |
| Impulse withstand voltage | Uimp (kV) | 12 | | | | |
| Selectivity category according to | **IEC 60947-2** | B | | | | |
| Pollution degree according to | **IEC 60947-1** | 4 | | | | |
| Rated ultimate short-circuit breaking capacity | Icu 440 V (kA) | 50 | | 66 | | 85 |
| | Icu 690 V (kA) | 42 | | 55 | | 75 |
| Rated service short-circuit breaking capacity | Ics 440 V (kA) | 50 | | 66 | | 85 |
| | Ics 690 V (kA) | 42 | | 55 | | 75 |
| Short-time withstand current rating capacity | Icw 1s 440 V (kA) | 50 | | 66 | | 85 |
| | Icw 1s 690 V (kA) | 42 | | 55 | | 75 |
| | Icw 3s 440 V (kA) | 36 | | 55 | | 66 |
| | Icw 3s 690 V (kA) | 36 | | 55 | | 66 |
| Rated making capacity | Icm 440 V (kA) | 105 | | 145 | | 187 |
| | Icm 690 V (kA) | 88 | | 121 | | 165 |
| Dimensions (max) Width x height x depth | Fixed 3 pole | 368 x 416 x 308 | | 461 x 416 x 308 | | |
| | Fixed 4 pole | 463 x 416 x 308 | | 587 x 416 x 308 | | |
| | Drawout 3 pole | 347 x 450 x 407 | | 440 x 450 x 407 | | |
| | Drawout 4 pole | 442 x 450 x 407 | | 566 x 450 x 407 | | |

**Switch disconnector (***version according to* **IEC60947-3)**

| Rated current | In (A) | 800 / 1000 / 1250 / 1600 / 2000 / 2500 | 2500 / 3200 / 4000 |
|---|---|---|---|
| Short-time withstand current rating capacity | Icw 1s 440 V (kA) | 66 | 85 |
| | Icw 1s 690 V (kA) | 55 | 75 |
| | Icw 3s 440 V (kA) | 55 | 66 |
| | Icw 3s 690 V (kA) | 55 | 66 |
| Rated making capacity | Icm 440 V (kA) | 145 | 187 |
| | Icm 690 V (kA) | 121 | 165 |

## Trip unit: Standard - LSI

**L**ong delay against overcurrent – **L:** Overload protection
**S**hort delay against overcurrent – **S:** Protection against low current short circuits
**I**nstantaneous against overcurrent – **I:** Protection against high current short circuits

Designed for standard applications with L, S, I protection, this electronic trip unit has a user interface with settings dials.

Easy settings through dials
Percentage loading LED
Fault indication LED (separate for L/S/I)
Operation indication LED *(When TU is powered ON & in working condition)*

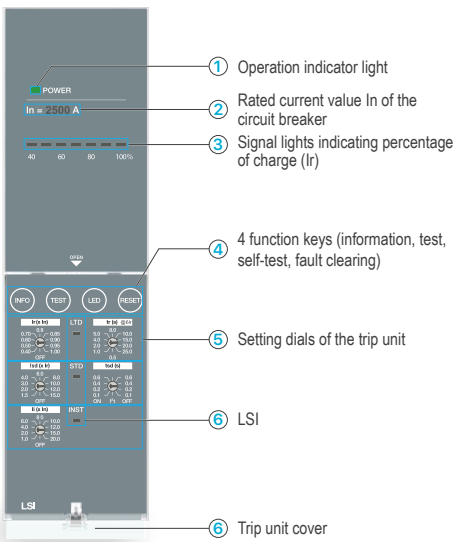
Four function keys *(Query, Test / Self-Test, Clear Fault)*

**Neutral protection:**
**4P:** Inbuilt protection *(same protections as Phases)*
**3P:** using external Neutral sensor ENCT *(same protections as Phases)*

Thermal memory for overload protection
Simulate and test the instantaneous function *(directly on TU)*
Automatically scan and check each LED indication

Fault trip record *(downloadable using OCR Tool)*
Fault query on TU: Last Trip Record *(through LED)*
MCR function: Protection during making / closing of the circuit breaker if fault is already existing in system

**Type L**



Residential Commercial Panel Builders OEM

**Fixed type** ACBs: Permanently secured within the panel for maximum stability.



## HWS series *(standard)* Air Circuit Breakers (ACBs) - Fixed

HWS Air Circuit Breakers are designed for maximum safety, reliable performance and installation flexibility. With international certifications and a comprehensive range of accessories, they meet the needs of the most demanding applications.

- Two optimised frame sizes: **HW2** 320...2000A
  **HW4** 1000...4000A

**General features:**

- OCR - **LSI** - type L microprocessor protection and control unit
- Percentage Loading indication
- Fault Indication *(separate for L/S/I)*
- Simple settings via front mounted dials
- Quick and easy mounting of accessories
- Main terminals easily converted from horizontal to vertical orientation
- Screw-less terminal block connections for faster wiring of accessories
- HWS isn't directly compatible with Quadro Evo, EM can assist with custom panel design
- No de-rating up to 50°C, designed to operate efficiently even in high temperature environments



HWS2M308F1AE

| type | thermal adjustment (A) | breaking capacity 440V (rms) | poles | mount | description | frame size | price |
|---|---|---|---|---|---|---|---|
| **Fixed version - Air Circuit Breakers (LSI)** | | | | | | | |
| Fixed version circuit breakers are supplied standard with the following:<br>- Auxiliary contacts *(4NO + 4NC)*<br>- Fault indication contact to remotely signal information about the tripped status of the ACB | | | | | | | |
| **HWS2M308F1AE** | 320…800A | 50kA | **3**-pole | fixed | air circuit breaker | HWS2 | **57 960.00** |
| **HWS2M310F1AE** | 400…1000A | 50kA | **3**-pole | fixed | air circuit breaker | HWS2 | **60 795.00** |
| **HWS2M312F1AE** | 500…1250A | 50kA | **3**-pole | fixed | air circuit breaker | HWS2 | **64 365.00** |
| **HWS2M316F1AE** | 640…1600A | 50kA | **3**-pole | fixed | air circuit breaker | HWS2 | **67 095.00** |
| **HWS2M320F1AE** | 800…2000A | 50kA | **3**-pole | fixed | air circuit breaker | HWS2 | **90 510.00** |
| **HWS4E325F1AE** | 1000…2500A | 66kA | **3**-pole | fixed | air circuit breaker | HWS4 | **101 325.00** |
| **HWS4E332F1AE** | 1280…3200A | 66kA | **3**-pole | fixed | air circuit breaker | HWS4 | **119 490.00** |
| **HWS4S340F1AE** | 1600…4000A | 85kA | **3**-pole | fixed | air circuit breaker | HWS4 | **137 550.00** |
| **HWS2M410F1AE** | 400…1000A | 50kA | **4**-pole | fixed | air circuit breaker | HWS2 | **81 270.00** |
| **HWS2M416F1AE** | 640…1600A | 50kA | **4**-pole | fixed | air circuit breaker | HWS2 | **92 295.00** |
| **HWS2M420F1AE** | 800…2000A | 50kA | **4**-pole | fixed | air circuit breaker | HWS2 | **110 775.00** |
| **HWS4E425F1AE** | 1000…2500A | 66kA | **4**-pole | fixed | air circuit breaker | HWS4 | **125 580.00** |
| **HWS4S440F1AE** | 1600…4000A | 85kA | **4**-pole | fixed | air circuit breaker | HWS4 | **173 565.00** |



HWS2M420F1AE

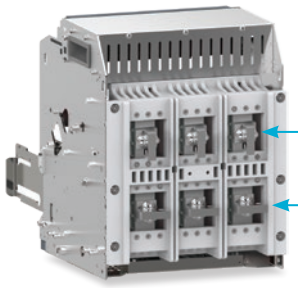
| type | rated current (A) | short-time withstand Icw (1s) | poles | mount | description | frame size | price |
|---|---|---|---|---|---|---|---|
| **Fixed version - Switch Disconnectors** | | | | | | | |
| **HWS2W310F0AE** | 1000A | 66kA | **3**-pole | fixed | switch disconnector | HWS2 | **47 985.00** |
| **HWS2W312F0AE** | 1250A | 66kA | **3**-pole | fixed | switch disconnector | HWS2 | **51 660.00** |
| **HWS2W316F0AE** | 1600A | 66kA | **3**-pole | fixed | switch disconnector | HWS2 | **54 705.00** |
| **HWS2W320F0AE** | 2000A | 66kA | **3**-pole | fixed | switch disconnector | HWS2 | **70 140.00** |
| **HWS2W325F0AE** | 2500A | 66kA | **3**-pole | fixed | switch disconnector | HWS2 | **84 945.00** |
| **HWS4W332F0AE** | 3200A | 85kA | **3**-pole | fixed | switch disconnector | HWS4 | **103 425.00** |
| **HWS4W340F0AE** | 4000A | 85kA | **3**-pole | fixed | switch disconnector | HWS4 | **121 905.00** |
| **HWS2W410F0AE** | 1000A | 66kA | **4**-pole | fixed | switch disconnector | HWS2 | **64 260.00** |
| **HWS2W416F0AE** | 1600A | 66kA | **4**-pole | fixed | switch disconnector | HWS2 | **73 920.00** |
| **HWS2W425F0AE** | 2500A | 66kA | **4**-pole | fixed | switch disconnector | HWS2 | **107 100.00** |
| **HWS4W440F0AE** | 4000A | 85kA | **4**-pole | fixed | switch disconnector | HWS4 | **155 085.00** |

### **Draw-out type** 3-pole circuit breaker outside its chassis:

1. ON - OFF push button
2. Contact opening and closing indicator
3. Electronic trip unit
4. Charging handle
5. Spring charge indicator
6. TB Terminal blocks




### **Terminal** connections:



**Rotatable connections** - facilitates horizontal and vertical busbars

Vertical rear connection

Horizontal rear connection *(as standard)*



Above ZAR prices do not include VAT. E&OE

Hospital | Data Centres | OEM | Commercial

## HWS series *(standard)* Air Circuit Breakers (ACBs) - Drawout

- Two optimised frame sizes: **HW2** 320...2000A
  **HW4** 1000...4000A

**General features:**

- OCR - **LSI** - type L microprocessor protection and control unit
- Fault Indication *(separate for L/S/I)*
- Simple settings via front mounted dials
- Quick and easy mounting of accessories
- Terminals easily converted from horizontal to vertical orientation
- Screw-less terminal block connections for faster wiring of accessories
- HWS isn't directly compatible with Quadro Evo, EM can assist with custom panel design
- No de-rating up to 50°C, designed to operate efficiently even in high temperature environments

**Drawout type** ACBs: Easily removed from the housing via racking without disturbing electrical connections.





HWS2M320D1AE

### Draw-out version - Air Circuit Breakers

Draw-out version circuit breakers are **supplied** with the following:

- Auxiliary contacts *(4NO + 4NC)*
- Fault indication contact *(not on switch disconnectors)*
- OCR - LSI - type L microprocessor protection and control unit
- Cradle/chassis of draw-out circuit breaker
- Operation *(racking)* crank handle
- Safety shutters *(padlockable top and bottom)*

| type | thermal adjustment (A) | breaking capacity 415V (rms) | poles | mount | description | frame size | price |
|---|---|---|---|---|---|---|---|
| **HWS2M308D1AE** | 320…800A | 50kA | **3**-pole | draw-out | air circuit breaker | HWS2 | **78 855.00** |
| **HWS2M310D1AE** | 400…1000A | 50kA | **3**-pole | draw-out | air circuit breaker | HWS2 | **81 060.00** |
| **HWS2M312D1AE** | 500…1250A | 50kA | **3**-pole | draw-out | air circuit breaker | HWS2 | **86 835.00** |
| **HWS2M316D1AE** | 640…1600A | 50kA | **3**-pole | draw-out | air circuit breaker | HWS2 | **90 510.00** |
| **HWS2M320D1AE** | 800…2000A | 50kA | **3**-pole | draw-out | air circuit breaker | HWS2 | **97 755.00** |
| **HWS4E325D1AE** | 1000…2500A | 66kA | **3**-pole | draw-out | air circuit breaker | HWS4 | **115 815.00** |
| **HWS4E332D1AE** | 1280…3200A | 66kA | **3**-pole | draw-out | air circuit breaker | HWS4 | **139 650.00** |
| **HWS4S340D1AE** | 1600…4000A | 85kA | **3**-pole | draw-out | air circuit breaker | HWS4 | **183 225.00** |
| **HWS2M410D1AE** | 400…1000A | 50kA | **4**-pole | draw-out | air circuit breaker | HWS2 | **107 100.00** |
| **HWS2M416D1AE** | 640…1600A | 50kA | **4**-pole | draw-out | air circuit breaker | HWS2 | **118 230.00** |
| **HWS2M420D1AE** | 800…2000A | 50kA | **4**-pole | draw-out | air circuit breaker | HWS2 | **136 605.00** |
| **HWS4E425D1AE** | 1000…2500A | 66kA | **4**-pole | draw-out | air circuit breaker | HWS4 | **155 085.00** |
| **HWS4S440D1AE** | 1600…4000A | 85kA | **4**-pole | draw-out | air circuit breaker | HWS4 | **229 005.00** |



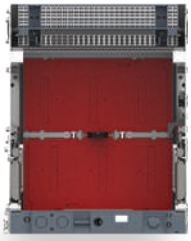
HWS2W325D0AE

### Drawout version - Switch Disconnectors

| type | rated current (A) | short-time withstand Icw (1s) | poles | mount | description | frame size | price |
|---|---|---|---|---|---|---|---|
| **HWS2W310D0AE** | 1000A | 66kA | **3**-pole | draw-out | switch disconnector | HWS2 | **69 405.00** |
| **HWS2W312D0AE** | 1250A | 66kA | **3**-pole | draw-out | switch disconnector | HWS2 | **73 920.00** |
| **HWS2W316D0AE** | 1600A | 66kA | **3**-pole | draw-out | switch disconnector | HWS2 | **77 595.00** |
| **HWS2W320D0AE** | 2000A | 66kA | **3**-pole | draw-out | switch disconnector | HWS2 | **88 620.00** |
| **HWS2W325D0AE** | 2500A | 66kA | **3**-pole | draw-out | switch disconnector | HWS2 | **99 750.00** |
| **HWS4W332D0AE** | 3200A | 85kA | **3**-pole | draw-out | switch disconnector | HWS4 | **124 110.00** |
| **HWS4W340D0AE** | 4000A | 85kA | **3**-pole | draw-out | switch disconnector | HWS4 | **164 745.00** |
| **HWS2W410D0AE** | 1000A | 66kA | **4**-pole | draw-out | switch disconnector | HWS2 | **89 355.00** |
| **HWS2W416D0AE** | 1600A | 66kA | **4**-pole | draw-out | switch disconnector | HWS2 | **99 750.00** |
| **HWS2W425D0AE** | 2500A | 66kA | **4**-pole | draw-out | switch disconnector | HWS2 | **136 605.00** |
| **HWS4W440D0AE** | 4000A | 85kA | **4**-pole | draw-out | switch disconnector | HWS4 | **210 525.00** |

## ACB draw-out version

**Chasis** *(fixed part)*



• The chassis (fixed part) is installed in the enclosure

+

**Body** *(moving part)*



• The body (moving part) is mounted inside the chassis

=

**ACB**



• Once installed. Body can be moved to any of the 3 available positions: Connected / Test / Disconnected

Plug & Play Accessories


HSX023H


HSX014H


HWY227H



HWX071H


HWY246HSA

## Air Circuit Breakers (ACBs) accessories

- Plug-and-play functionality guarantees quick and easy mounting across the entire accessory range.

| type | ref. | description | supply voltage | for ACB | price |
|---|---|---|---|---|---|
| **Shunt trip** *(opening release)* | | | *to remotely open the circuit breaker* | | |
| **HSX023H** | **SH** | shunt opening release | 240 VAC | HWS2/4 | **1 890.00** |
| **HSX024H** | **SH** | shunt opening release | 415 VAC | HWS2/4 | **1 890.00** |
| **Shunt closing (coil) release** | | | *to remotely close the circuit breaker* | | |
| **HSX028H** | **CC** | shunt closing release | 240 VAC | HWS2/4 | **1 890.00** |
| **HSX029H** | **CC** | shunt closing release | 415 VAC | HWS2/4 | **1 890.00** |
| **Under voltage release** | | | *to remotely open the circuit breaker* | | |
| **HSX033H** | **UV** | under voltage release | 240 VAC | HWS2/4 | **2 205.00** |
| **HSX034H** | **UV** | under voltage release | 415 VAC | HWS2/4 | **2 205.00** |
| **HSY033H** | **UV** | UVT delayed controller | 240 VAC | HWS2/4 | **4 410.00** |
| **Motor operators** | | | *to automatically recharge the closing spring* | | |
| **HSX014H** | **MO** | for charging of closing spring | 200 - 250 VAC | HWS2/4 | **5 880.00** |
| **HSX016H** | **MO** | for charging of closing spring | 415 - 450 VAC | HWS2/4 | **5 880.00** |
| **Auxiliary contacts** | | | *for remote signalling of "open" or "closed" status of ACB* | | |
| **HSX042H** | **AX** | auxiliary contact for ACBs | 4NO + 4NC | HWS2/4 | **2 940.00** |
| **HSX043H** | **AX** | auxiliary contact for ACBs | 6NO + 6NC | HWS2/4 | **3 675.00** |
| **Ready-to-Close contact** | | | | | |
| The ready-to-close contact provides information that the circuit breaker is charged and ready to be closed | | | | | |
| **HSX092H** | **RTC** | ready-to-close contact | | HWS2/4 | **3 675.00** |
| **Mechanical interlock** | | | *to mechanically interlock two or thee circuit breakers* | | |
| The mechanical interlocking kit is used to interlock 2 to 3 circuit breakers installed vertically or horizontally in an electrical cabinet *(one required for each circuit breaker)* | | | | | |
| **HWY226H** | **MI** | mechanical interlock for | fixed | HWS2/4 | **8 032.50** |
| **HWY227H** | **MI** | mechanical interlock for | drawout | HWS2/4 | **10 038.00** |
| **Cable set - for interlocks** | | **1** *x set = 2x cables (only one set required for two ACBs)* | | | |
| **HWY218H** | **MI** | cable set for mech. interlocks | 1.5 met | HWS2/4 | **2 677.50** |
| **HWY228H** | **MI** | cable set for mech. interlocks | 3 met | HWS2/4 | **4 021.50** |
| **Door flange/frame** | | | | | |
| Protects the protruding front face of the ACB and the cut edge of the panel door. Rear clamps enabling quick, tool-free installation. | | | | | |
| **HWY286H** | **DF** | door frame/flange for | fixed | HWS2 | **1 575.00** |
| **HWY287H** | **DF** | door frame for drawout ACB | drawout | HWS2 | **1 575.00** |
| **HWY290H** | **DF** | door frame for fixed ACB | fixed | HWS4 | **1 575.00** |
| **HWY291H** | **DF** | door frame for drawout ACB | drawout | HWS4 | **1 575.00** |
| **Operation Cycle Counter** | | | | | |
| The cycle counter indicates the number of completed operations by the circuit breaker. | | | | | |
| **HWX071H** | **CYC** | Operation Cycle Counter | | HWS2/4 | **3 045.00** |
| **Position contact** | | | | | |
| Indicates the connected, test or disconnected position of the circuit breaker in its chassis | | | | | |
| **HSX050H** | **PS** | position contact for all ACBs | | HWS2/4 | **3 675.00** |
| **OLK key lock** | | | | | |
| Locks the breaker in OFF position preventing the closing using a key lock | | | | | |
| **HSY261H** | **KL** | key lock for OFF position on ACB | | HWS2/4 | **2 625.00** |
| **Interphase barriers** | | | | | |
| Interphase barriers, safety barriers designed to increase isolation between phases at the rear connections *(mandatory for supply voltages over 500V AC)* | | | | | |
| **HWY246HSA** | **IB** | interphase barriers for 3-pole | fixed | HWS2/4 | **4 021.50** |
| **HWY247HSA** | **IB** | interphase barriers for 4-pole | fixed | HWS2/4 | **6 027.00** |
| **HWY248HSA** | **IB** | interphase barriers for 3-pole | drawout | HWS2/4 | **4 021.50** |
| **HWY249HSA** | **IB** | interphase barriers for 4-pole | drawout | HWS2/4 | **6 027.00** |



Above ZAR prices do not include VAT. E&OE

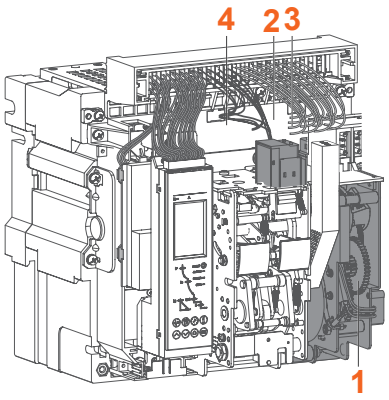
## Air circuit breakers (ACBs) accessories

A comprehensive range of accessories, from remote shunt trips and motor operators to mechanical interlocks.
The plug-and-play system ensures quick, easy mounting and tool-free installation.

Scan for Installation Handbook

### Command - Accessories

• Control accessories are used to perform circuit breaker opening, charging and closing operations






1 Spring charging motor MO



2 Closing coil CC



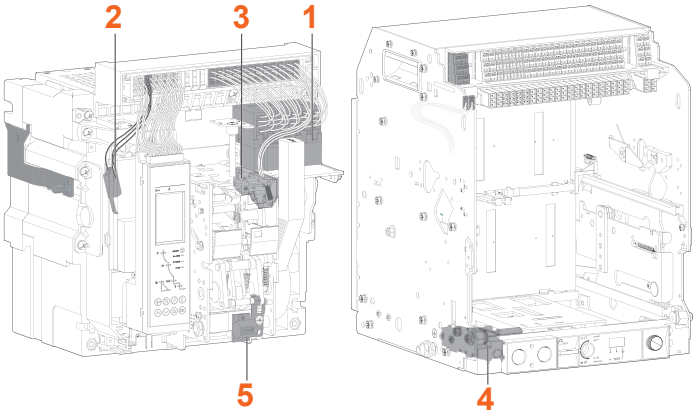
3 Undervoltage release UV



4 Shunt trip coil SH

### Signalling - Accessories

• Provides information about the operation of the circuit breaker, including its open or closed state






1 Auxiliary switch AX *(Incl. as standard)*



3 Ready to close contact RTC



2 Fault trip switch FS *(Incl. as standard)*



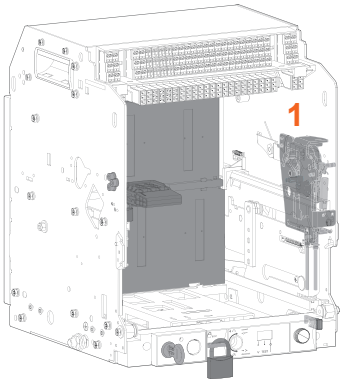
4 Position switch PS




5 ON/OFF Counter CYC

### Mechanical Interlock MI - Accessories

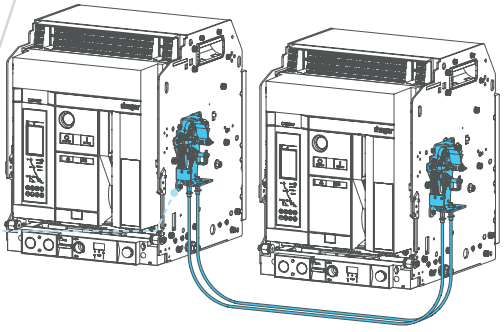
- All combinations of circuit breakers (**3P**, **4P**, Fixed, Drawout) are possible
- Circuit breakers can be installed one above the other or side by side
- Several cable lengths (1.5, 3 meters) are available so as to be compatible with any type of installation






1 Mechanical Interlock MI

**Mechanical interlocking** by cable



Mechanical interlocking by cable makes it possible for 2 hws circuit breakers to be interlocked with each other. The cable interlocking system provides a higher degree of flexibility when it comes to integration into distribution systems.