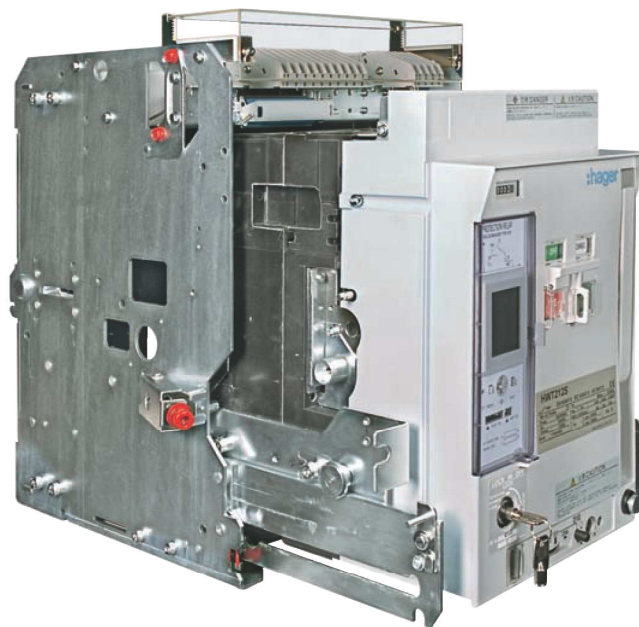


h3 Air circuit breakers

High level safety

Hager h3 Air Circuit Breakers feature a high level of performance in a reduced volume. With a depth of 290mm (for fixed version) and 345 mm (for draw-out version), this range is one of the most compact in the market, but with the cutting edge technology of double break contacts, offer the highest performance. The versatile OCR trip units offer technical parameters for the user to choose and manage standard to critical applications.



Your benefits

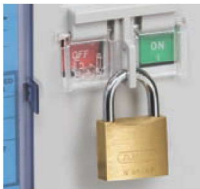
- 3 frames sizes.
- Compact size.
- Double break contact ensures fast interruption of short-circuit
- Accessibility of auxiliaries from the front.
- Easy maintenance.

Technical characteristics

- Rating from 800 to 6300 A.
- Breaking capacity from 65 kA to 120 kA
- Fixed and draw-out type.
- Wide range of protection function Over Current Release.
- Comply with IEC 60947-2 category B.
- $I_{cu} = I_{cs} = I_{cw}$ (1sec)

Expert tips

1



ON/OFF button cover

ON/OFF button cover prevents inadvertent or unauthorized operation.

4



Main circuit terminals

3 types of main circuit terminal :
- vertical terminals
- horizontal terminals
- front connection

2



Position padlock lever

Position padlock prevents the breaker body from inadvertently being drawn-out. The lever locks the breaker body in the position:
- connected,
- test,
- isolated.

5



Accessibility of auxiliaries

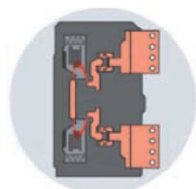
Connection to the control circuit is easy to access from the front.

3



Wide range of trip unit selection

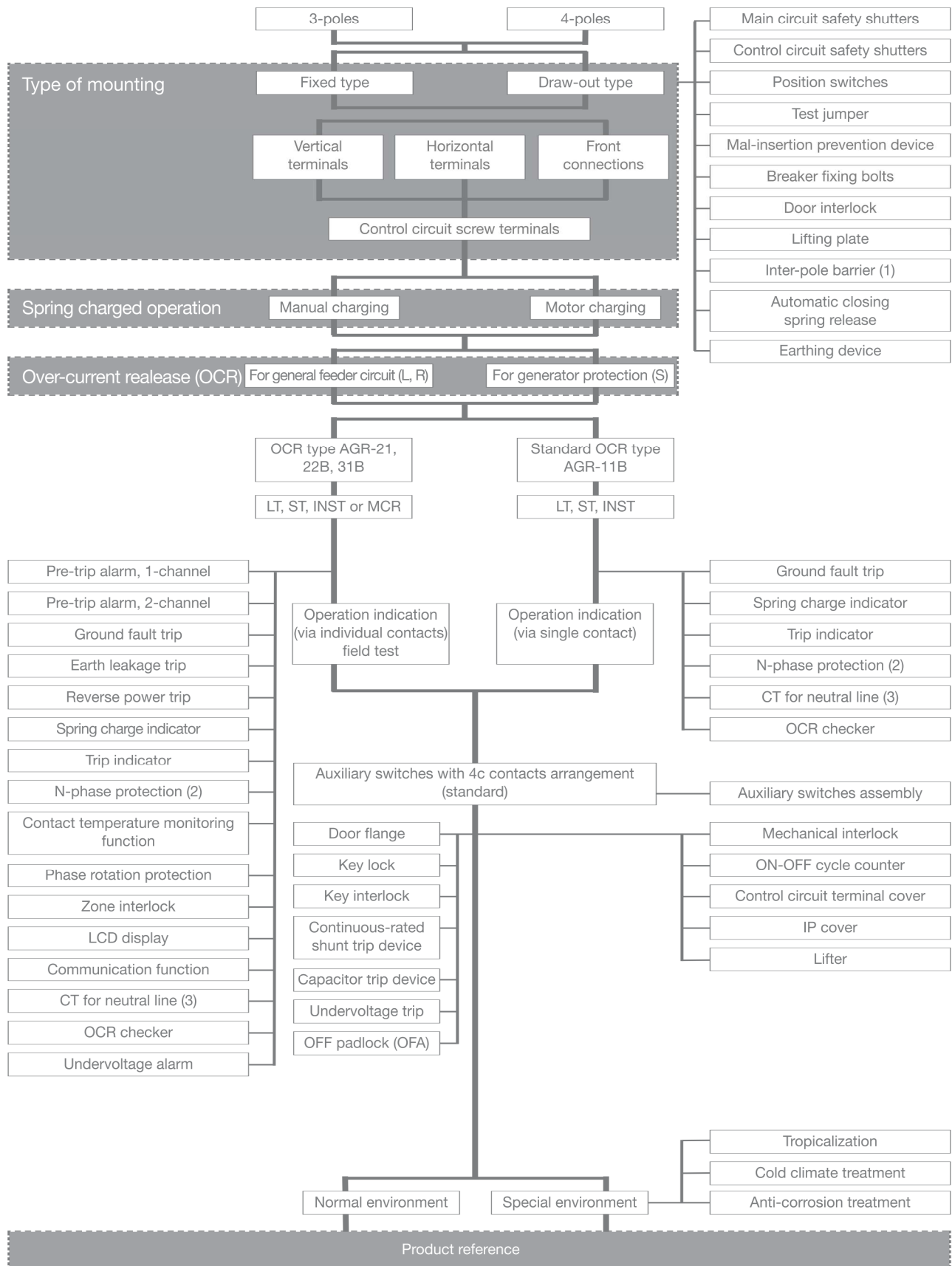
6



Double break system

The "double break" main contact system ensures fast interruption of short-circuit currents and substantially reduces main contact wear, which exceed the requirement of IEC 60947-2.

Specifications



(1) : not applicable to ACBs equipped with front connections.
 (2) : applicable to 4-pole ACBs.

(3) required for ground fault protection for 3-poles ACB on 3-phase, 4-wire systems.

The range

- 3 frames from 800 to 6300A
- frame HWT2xxx from 800 to 2000A
- frame HWT3xxx from 2000 to 4000 A
- frame HWT6xxx from 5000 to 6300 A
- calibrated @50°C up to 3200A
- breaking capacity from 65 to 120 kA
- same depth for all fixed frames
- same depth for all draw out frames
- uniform panel cut-out size
- Standard: IEC 60947-2
EN 60942-2



Type	HWT2		HWT3			HWT6	
	S	H	S	H	SB	S	
In Rated current (A)	800/1250/ 1600/2000	1250/1600/ 2000	2500/3200	1600/2000/ 2500/3200	4000	5000/6300	
In Neutral rating (%)	100	100	100	100	100	100	
Reference	HWT208S/ HWT212S/ HWT216S/ HWT220S	HWT212H/ HWT216H/ HWT220H	HWT325S/ HWT332S	HWT316H/ HWT320H/ HWT325H/ HWT332H	HWT440SB	HWT650S/ HWT663S	
Rated operational voltage							
Ue (50/60Hz) (V)	690	690	690	690	690	690	
Rated insulation voltage							
Ui (50/60Hz) (V)	1000	1000	1000	1000	1000	1000	
Rated impulse withstand voltage							
Uimp (kV)	12	12	12	12	12	12	
Icu							
(kA eff.)	400/415V	65	80	85	100	100	120
	440V	65	80	85	100	100	120
	690V	50	55	65	85	85	85
Ics							
(kA eff.)	400/415V	65	80	85	100	100	120
	440V	65	80	85	100	100	120
	690V	50	55	65	85	85	85
Icm							
(kA peak)	690V	105	121	143	187	187	187
	440V	143	176	187	220	220	264
	400/415V	143	176	187	220	220	264
Icw							
(kA ² s)	1 second	65	80	85	100	100	120
	3 seconds	50	55	65	75	85	85
No. of operating cycles							
mechanical life (with maintenance)	30000	30000	20000	20000	15000	10000	
mechanical life (without maintenance)	15000	15000	10000	10000	8000	5000	
electrical life (with maintenance)	12000	12000	7000	7000	3000	1000	
electrical life (without maintenance)	10000	10000	5000	5000	2500	500	
Time							
total breaking time (s)	0.03	0.03	0.03	0.03	0.03	0.03	
spring charging time (s) max.	10	10	10	10	10	10	
close time (s) max.	0.08	0.08	0.08	0.08	0.08	0.08	
Dimensions							
fixed type (mm)	width 3-poles	360	360	466	466	-	-
	width 4-poles	445	445	586	586	-	-
	height	460	460	460	460	-	-
	depth	290	290	290	290	-	-
draw-out type (mm)	width 3-poles	354	354	460	460	460	799
	width 4-poles	439	439	580	580	580	1034
	height	460	460	460	460	460	460
	depth	345	345	345	345	345	380

Over Current Release

L : long delay
 S : short delay
 I : instantaneous
 (G: ground fault)

Note:

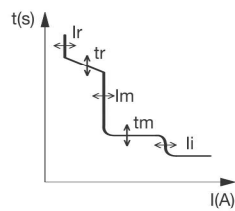
- Optional protection functions of the OCR include those against ground fault, earth leakage, undervoltage and reverse power. Pre-trip alarm function can also be installed.

Designation

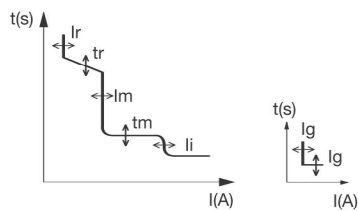


OCR11, standard OCR with adjustment dial

- LSI

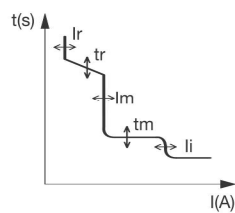


- LSIG

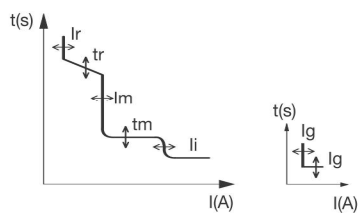


OCR21, standard OCR with LCD-ammeter

- LSI



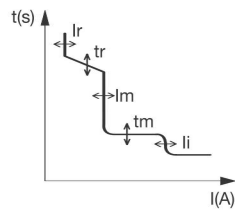
- LSIG



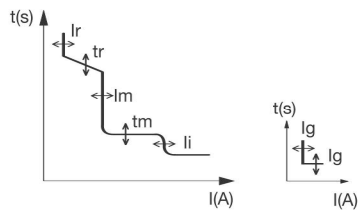
OCR31, enhanced OCR with backlit LCD-analyser

(phase current, current, line voltage, active power, communication)

- LSI



- LSIG



Setting range of protection functions

Protection function	Setting range							
Adjustable long-time delay trip characteristics LT								
Pick up current I_r (A)	Primary setting = $I_n \times (0.5-0.63-0.8-1)$ Secondary setting = Primary setting $\times (0.8 - 0.85 - 0.9 - 0.95 - 1)$							
Time-delay t_r (s)	$(0.5 - 1.25 - 2.5 - 5 - 10 - 15 - 20 - 25 - 30)$ at 600% $[I_R]$; 9 graduations							
Time-delay setting tolerance (%)	$\pm 15\% + 150 \text{ ms} - 0 \text{ ms}$							
Adjustable short-time delay trip characteristics ST								
Pick up current I_{sd} (A)	$[I_n] \times (1 - 1.5 - 2 - 2.5 - 3 - 4 - 6 - 8 - 10 - \text{NON})$; 10 graduations							
Current setting tolerance (%)	$\pm 15\%$							
Time delay t_{sd} (ms) Relay time	<table border="1"> <tr> <td>50</td> <td>100</td> <td>200</td> <td>400</td> <td>600</td> <td>800</td> <td>; 6 graduations</td> </tr> </table>	50	100	200	400	600	800	; 6 graduations
50	100	200	400	600	800	; 6 graduations		
Resettable time (ms)	25 75 175 375 575 775							
Max. total clearing time (ms)	120 170 270 470 670 870							
Adjustable instantaneous trip characteristics INST or MCR (INST only for OCR-11)								
Pick up current I_i (A)	$[I_n] \times (2 - 4 - 6 - 8 - 10 - 12 - 14 - 16 - \text{NON})$; 9 graduations							
Current setting tolerance (%)	$\pm 20\%$							
Adjustable pre-trip alarm characteristics PTA								
Pick up current I_{p1} (A)	$[I_n] \times (0.75 - 0.8 - 0.85 - 0.9 - 0.95 - 1.0)$; 6 graduations							
Current setting tolerance (%)	$\pm 7.5\%$							
Time-delay t_{p1} (s)	$(5 - 10 - 15 - 20 - 40 - 60 - 80 - 120 - 160 - 200)$ at $[IP1]$ or more; 10 graduations							
Time-delay setting tolerance (%)	$\pm 15\% + 100 \text{ ms} - 0 \text{ ms}$							
Adjustable ground fault trip characteristics GF								
Pick up current I_g (A)	$[I_{CT}] \times (0.1 - 0.2 - 0.3 - 0.4 - 0.6 - 0.8 - 1.0 - \text{NON})$; 8 graduations							
Current setting tolerance (%)	$\pm 20\%$							
Time delay t_g (s) Relay time	<table border="1"> <tr> <td>100</td> <td>200</td> <td>300</td> <td>500</td> <td>1000</td> <td>2000</td> <td>; 6 graduations</td> </tr> </table>	100	200	300	500	1000	2000	; 6 graduations
100	200	300	500	1000	2000	; 6 graduations		
Resettable time (ms)	75 175 275 475 975 1975							
Max. total clearing time (ms)	170 270 370 570 1070 2070							
Ground fault trip characteristics on line side REF (OCR-21, 31 only)								
Pick up current I_{Ref} (A)	$[I_{CT}] \times (0.1 - 0.2 - 0.3 - 0.4 - 0.6 - 0.8 - 1.0 - \text{NON})$; 8 graduations							
Current setting tolerance (%)	$\pm 20\%$							
Time-delay (s)	Inst							
N-phase protection characteristics NP								
Pick up current I_{ns} (A)	$[I_{CT}] \times (0.4 - 0.5 - 0.63 - 0.8 - 1.0)$; factory set to a user-specified value for AGR-11BL.							
Time-delay t_{ns} (s)	Tripping at 600% of $[I_N]$ with LT time delay $[t_R]$							
Time-delay setting tolerance (%)	$\pm 15\% + 150 \text{ ms} - 0 \text{ ms}$							
Phase rotation protection characteristics NS (OCR-21, 31 only)								
Pick up current $[I_{NS}]$ (A)	$[I_n] \times (0.2 - 0.3 - 0.4 - 0.5 - 0.6 - 0.7 - 0.8 - 0.9 - 1.0 - \text{NON})$; 9 graduations							
Current setting tolerance (%)	$\pm 10\%$							
Time-delay $[t_{NS}]$ (s)	$0.4 - 0.8 - 1.2 - 1.6 - 2 - 2.4 - 2.8 - 3.2 - 3.6 - 4$; 10 graduations							
Time-delay setting tolerance (%)	$\pm 20\% + 150 \text{ ms} - 0 \text{ ms}$							
Adjustable earth leakage trip characteristics ELT (OCR-31 only)								
Pick up current $I_{\Delta r}$ (A)	0.2 - 0.3 - 0.5 - 1 (medium sensitivity) or 3 - 5 (low sensitivity)							
Current setting tolerance (%)	Non operate below 70% $d[I_R]$, operate between 70% et 100% of $[I_R]$							
Time-delay $t_{\Delta r}$ (ms) Relay time	<table border="1"> <tr> <td>100</td> <td>200</td> <td>300</td> <td>500</td> <td>1000</td> <td>2000</td> <td>; 6 graduations</td> </tr> </table>	100	200	300	500	1000	2000	; 6 graduations
100	200	300	500	1000	2000	; 6 graduations		
Resettable time (ms)	50 150 250 450 950 1950							
Max. total clearing time (ms)	250 350 450 600 1150 2150							
Undervoltage alarm characteristics UV (OCR-31 only)								
Recovery setting voltage (V)	$[V_n] \times (0.8 - 0.85 - 0.9 - 0.95)$; 4 graduations							
Recovery voltage setting tolerance (%)	$\pm 5\%$							
Setting voltage (V)	$[V_n] \times (0.4 - 0.6 - 0.8)$; 3 graduations							
Voltage setting tolerance (%)	$\pm 5\%$							
Time-delay (s)	$0.1 - 0.5 - 1 - 2 - 5 - 10 - 15 - 20 - 30 - 36$; 10 graduations							
Time-delay setting tolerance (%)	$\pm 15\% + 100 \text{ ms} - 0 \text{ ms}$							
Control power	AC 100-120 V DC 100-125 V DC 24 V AC 200-240 V DC 200-250 V DC 48 V							
Power consumption	5 VA : default setting							

Designation	Cat. ref.	
	3P	4P
<hr/>		
ACB fixed type 65 kA		
Icu/Ics/Icw for 1sec 65 kA at 400/415 V		
- Over Current Release OCR-11BL-AI (LSI)		
- horizontal connection		
ACB 800A 65kA, fixed type	HW083NSFB4	HW084NSFB4
ACB1250A 65kA, fixed type	HW123NSFB4	HW124NSFB4
ACB 1600A 65kA, fixed type	HW163NSFB4	HW164NSFB4
ACB 2000A 65kA, fixed type	HW203NSFB4	HW204NSFB4
<hr/>		
ACB fixed type 65 kA		
Icu/Ics/Icw for 1sec 65 kA at 400/415 V		
- Over Current Release OCR-11BL-GL (LSIG)		
- horizontal connection		
ACB 800A 65kA, fixed type	HW083NSFC4	HW084NSFC4
ACB1250A 65kA, fixed type	HW123NSFC4	HW124NSFC4
ACB 1600A 65kA, fixed type	HW163NSFC4	HW164NSFC4
ACB 2000A 65kA, fixed type	HW203NSFC4	HW204NSFC4
<hr/>		
ACB fixed type 85 kA		
Icu/Ics/Icw for 1sec 85 kA at 400/415 V		
- Over Current Release OCR-11BL-AI (LSI)		
- horizontal connection		
ACB 2500A 85kA, fixed type	HW253HUFB4	HW254HUFB4
ACB 3200A 85kA, fixed type	HW323HUFB4	HW324HUFB4
<hr/>		
ACB fixed type 85 kA		
Icu/Ics/Icw for 1sec 85 kA at 400/415 V		
- Over Current Release OCR-11BL-GL (LSIG)		
- horizontal connection		
ACB 2500A 85kA, fixed type	HW253HUFC4	HW254HUFC4
ACB 3200A 85kA, fixed type	HW323HUFC4	HW324HUFC4
<hr/>		
Switch, fixed type 65kA		
- rated short time withstand Icw, 1 sec: 65kA		
- horizontal connection		
Switch 800A 65kA, fixed type	HW083NSFA4	HW084NSFA4
Switch 1250A 65kA, fixed type	HW123NSFA4	HW124NSFA4
Switch 1600A 65kA, fixed type	HW163NSFA4	HW164NSFA4
Switch 2000A 65kA, fixed type	HW203NSFA4	HW204NSFA4

Note: For 4000A/5000A/6300A ratings, please contact Hager office

Designation	Cat. ref.	
	3P	4P
<hr/>		
ACB draw-out type 65 kA		
Icu/Ics/Icw for 1sec 65 kA at 400/415 V		
- Over Current Release OCR-11BL-AI (LSI)		
- horizontal connection		
ACB 800A 65kA, draw-out type	HW083NSDB4	HW084NSDB4
ACB1250A 65kA, draw-out type	HW123NSDB4	HW124NSDB4
ACB 1600A 65kA, draw-out type	HW163NSDB4	HW164NSDB4
ACB 2000A 65kA, draw-out type	HW203NSDB4	HW204NSDB4
<hr/>		
ACB draw-out type 65 kA		
Icu/Ics/Icw for 1sec 65 kA at 400/415 V		
- Over Current Release OCR-11BL-GL (LSIG)		
- horizontal connection		
ACB 800A 65kA, draw-out type	HW083NSDC4	HW084NSDC4
ACB1250A 65kA, draw-out type	HW123NSDC4	HW124NSDC4
ACB 1600A 65kA, draw-out type	HW163NSDC4	HW164NSDC4
ACB 2000A 65kA, draw-out type	HW203NSDC4	HW204NSDC4
<hr/>		
ACB draw-out type 85 kA		
Icu/Ics/Icw for 1sec 85 kA at 400/415 V		
- Over Current Release OCR-11BL-AI (LSI)		
- horizontal connection		
ACB 2500A 85kA, draw-out type	HW253HUDB4	HW254HUDB4
ACB 3200A 85kA, draw-out type	HW323HUDB4	HW324HUDB4
<hr/>		
ACB draw-out type 85 kA		
Icu/Ics/Icw for 1sec 85 kA at 400/415 V		
- Over Current Release OCR-11BL-GL (LSIG)		
- horizontal connection		
ACB 2500A 85kA, draw-out type	HW253HUDC4	HW254HUDC4
ACB 3200A 85kA, draw-out type	HW323HUDC4	HW324HUDC4
<hr/>		
ACB draw-out type 100 kA		
Icu/Ics/Icw for 1sec 100 kA at 400/415 V		
- Over Current Release OCR-11BL-AI (LSI)		
- vertical connection		
ACB 4000A 100kA, draw-out type	HW403PVDB7	HW404PVDB7
<hr/>		
ACB draw-out type 100 kA		
Icu/Ics/Icw for 1sec 100 kA at 400/415 V		
- Over Current Release OCR-11BL-GL (LSIG)		
- vertical connection		
ACB 4000A 100kA, draw-out type	HW403PVDC7	HW404PVDC7
<hr/>		
Switch, draw-out type 65kA		
- rated short time withstand Icw, 1 sec: 65kA		
- horizontal connection		
Switch 800A 65kA, draw-out type	HW083NSDA4	HW084NSDA4
Switch 1250A 65kA, draw-out type	HW123NSDA4	HW124NSDA4
Switch 1600A 65kA, draw-out type	HW163NSDA4	HW164NSDA4
Switch 2000A 65kA, draw-out type	HW203NSDA4	HW204NSDA4

Note: For 5000A/6300A ratings, please contact Hager office

	<i>Designation</i>	<i>Characteristics</i>	<i>Cat. ref.</i>
	Shunt trip	110V AC 240V AC 24V DC 48V DC	HXSHT110AC HXSHT240AC HXSHT024DC HXSHT048DC
	Undervoltage trip	110V AC 240V AC 415V AC 24V DC 48V DC	HXUVT110AC HXUVT240AC HXUVT415AC HXUVT024DC HXUVT048DC
	Undervoltage trip with timedelay	110V AC 240V AC 415V AC	HXUVD110AC HXUVD240AC HXUVD415AC
	Motor operator	110V AC 240V AC 24V DC 48V DC	HXMOP110AC HXMOP240AC HXMOP024DC HXMOP048DC
	Closing coil	110V AC 240V AC 24V DC 48V DC	HXCLC110AC HXCLC240AC HXCLC024DC HXCLC048DC
	Close-open cycle counter		HXCOC000XX
	Storage draw-out handle		HXHAN000XX
	Insertion prevention Device		HXIPD000XX
	Transparent cover	IP55	HXCOV055IP
	OCR-Tester		HXOCR000XX
	Door Interlock	For HWT2 Frame For HWT3 Frame	HXDIN000PV+ HXDIN002PV HXDIN000PV+ HXDIN003PV
	Key Lock in 'Open Position'	Key lock Castell Lock	HXKEY001PV HXKEY004PV
	Mechanical Interlock (cable type)	Drawout type ACB (1No required for each ACB) For HWT2 Frame For HWT3 Frame	HXINT002DO HXINT003DO
		Fixed Type ACB (1No required for each ACB) For HWT2 Frame For HWT3 Frame	HXINT002FX HXINT003FX
		Cable Kit - length* - 1320mm (1 Cable kit required for interlock between 2 ACBs 3 Cable kits required for interlock between 3 ACBs) * Longer cable length available on request.	HXINT101PV
	Safety Shutter Padlock	Drawout type ACB	HXFBC000XX