

# External configuration

## MCCB

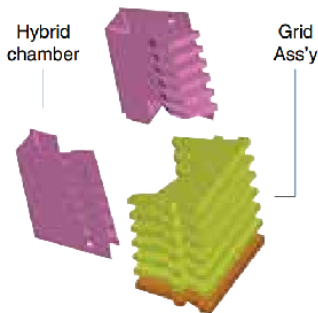
### ① Handle

- Function of indications
  - "ON" "OFF" "TRIP"
- Resetting
 

When the handle indicates "tripped" position it must first be reset by moving the handle to the "OFF" position and then closing is possible
- Trip-Free even if the handle is held at "ON", the breaker will trip if an over current flows
- Suitable for Verification of the main contact position under abnormal conditions because the handle doesn't indicate open position

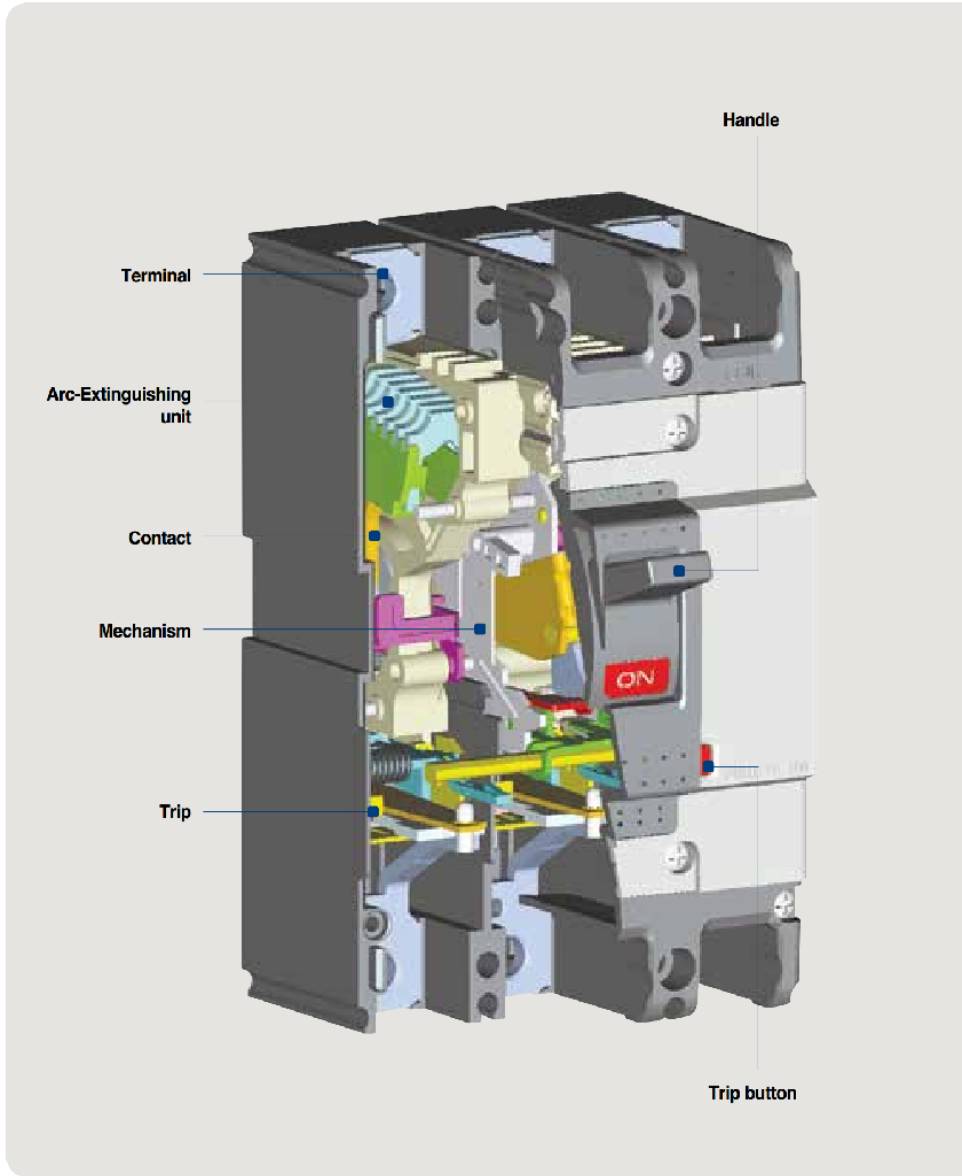
### ② Arc-Extinguishing unit

- LS patent technique PASQ  
Arc-Extinguishing unit  
PASQ : Puffer Assisted Self-Quenching
- Reduction of arc voltage for a short time

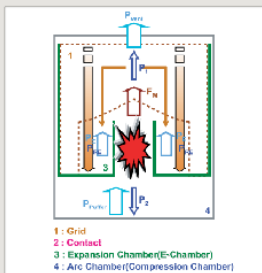


### ③ Trip button (push to trip)

- Enables tripping mechanically from outside, for confirming the operation of the accessory switches and the manual resetting function.



### A Application of PASQ Arc Extinguishing



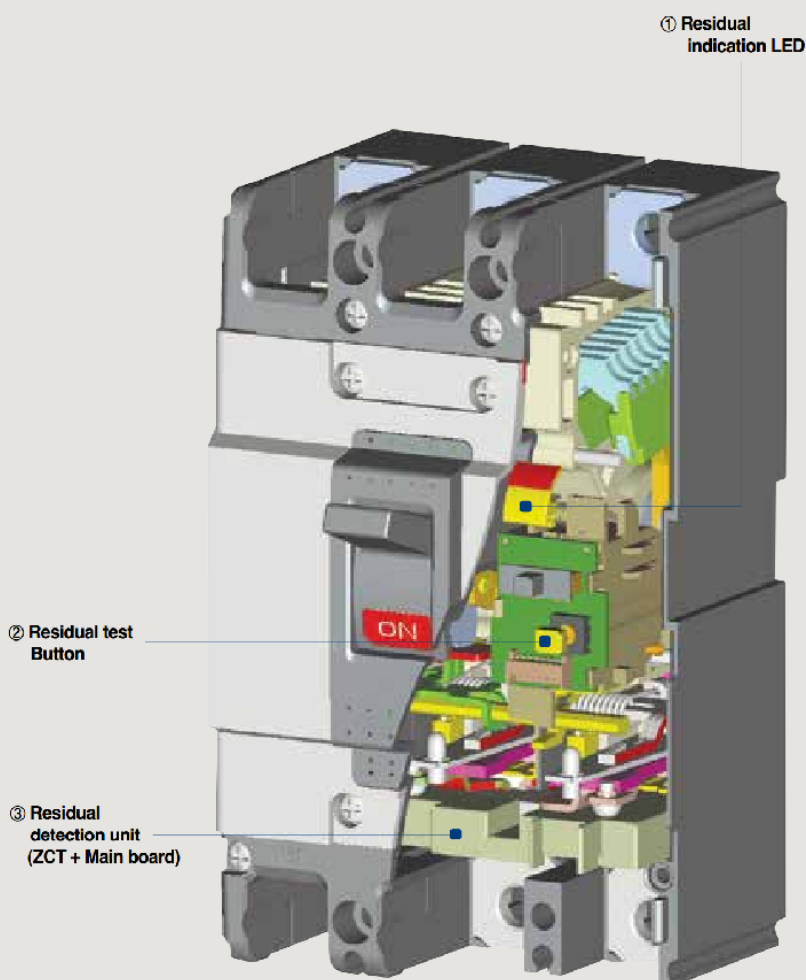
- The reduction of breaking time by applying PASQ arc extinguishing for inhibition of arc voltage for a short time.

### A Application of Current limiting structure

- Current limiting repulsion structure (U fixed structure)
- Toggle structure
  - When the operating unit repulses by short circuit current, repulsion structure at bigger angle.



## ELCB



### ① Residual indication LED

- Normal situation is yellow , trip situation is red

### ② Residual test Button

- Special design for Upgrade to prohibit resistance accident

### ③ Residual detection unit (ZCT + Main board)

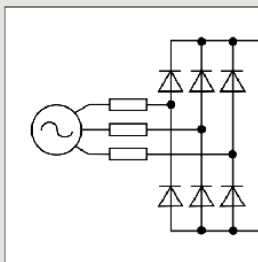
- For upgrade the design is selected the 3 phase input power method and in case of Voltage problem, it can break residual current safely.

### Upgrade coil operation by special design



- Sliding structure application of Trip lever
- Trip special design by applying design Button method.
- Upgrade the testing unit

### 3 phase power supply method



- In case of 1 phase loss residual operation upgrade
- New IEC standard

# Quick selection table

## Molded Case Circuit Breakers



### MCCBs

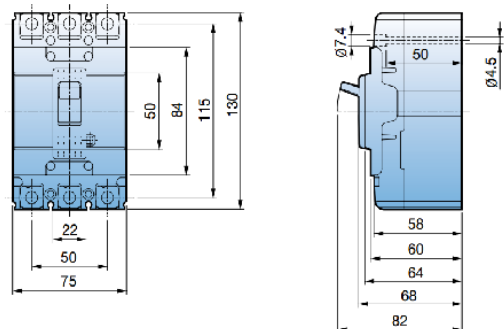
AF		30AF		50AF			60AF	
Type		E-Type	S-Type	N-Type	S-Type	H-Type	N-Type	S-Type
Type and Pole	2-pole	ABE32b	ABS32c	ABN52c	ABS52c	ABH52c	ABN62c	ABS62c
	3-pole	ABE33b	ABS33c	ABN53c	ABS53c	ABH53c	ABN63c	ABS63c
	4-pole	-	ABS34c	ABN54c	ABS54c	ABH54c	ABN64c	ABS64c
Rated current, In	A	(3, 5, 10) <sup>Note 1</sup> , 15, 20, 30		15, 20, 30, 40, 50		15, 20, 30, 40, 50	15, 20, 30, 40, 50, 60	
Rated operational voltage, Ue	AC(V)	460	690	690	690	690	690	690
	DC(V)	-	500	500	500	500	500	500
Rated insulation voltage, Ui	V	460	750	750	750	750	750	750
Rated impulse withstand voltage, Uimp	kV	6	8	8	8	8	8	8

Rated short-circuit breaking capacity(Icu) kA (Sym), IEC 60947-2								
AC	690V	-	2.5	2.5	5	10	2.5	5
	480/500V	-	7.5 (5)	7.5	10	35	7.5	10
	415/460V	2.5	14 (10)	14	18	50	14	18
	380V	2.5	18 (14)	18	22	50	18	22
	220/250V	5	30 (25)	30	35	100	30	35
DC	500V(3P)	-	5	5	10	30	5	10
	250V(2P)	-	5	5	10	30	5	10
Ics=% × Icu		50	100	100	100	100	100	100
Dimensions (mm)	W×H×D	75×96×60mm	75×130×60mm	75×130×60mm	90×155×60mm	90×155×60mm	75×130×60mm	75×130×60mm
	(3-pole)		(Fig. 1)	(Fig. 1)	(Fig. 2)	(Fig. 2)	(Fig. 1)	(Fig. 1)
More info.	Ratings	34 page	36 page	38 page	38 page	38 page	40 page	40 page
	Curves	98 page	98 page	98 page	99 page	99 page	98 page	98 page
	Drawings	105 page	106 page	106 page	107 page	107 page	106 page	106 page

Note) 1. The short-circuit breaking capacities in ( ) are applied to the rated current in (3, 5, 10A)  
 2. MCCBs can be applied to both 50 and 60Hz.

3. Standard type is designed on the basis of 40°C of ambient temperature.  
 4. There are certain products for hot areas.(30~250AF on the basis of 55°C, 400~800AF on the basis of 50°C)

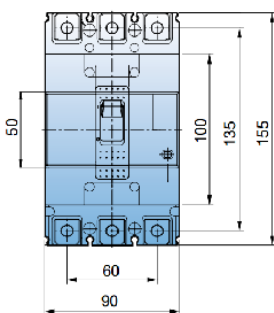
AF Type	30AF	50AF	60AF	100AF	125AF	250AF
ABN		ABN50c 14kA	ABN60c 14kA	ABN100c 18kA		ABN250c 26kA
ABS	ABS30c 14kA	ABS50c 18kA	ABS60c 18kA		ABS125c 37kA	ABS250c 37kA
ABH		ABH50c 50kA			ABH125c 50kA	ABH250c 50kA



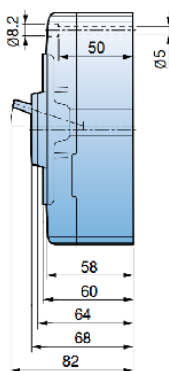
(Fig. 1)



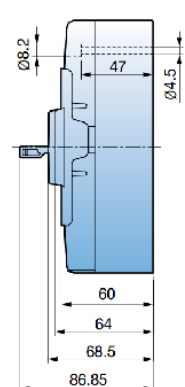
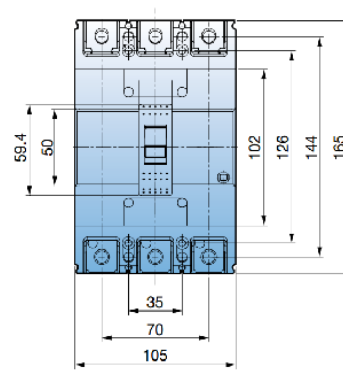
100AF			125AF			250AF		
N-Type	S-Type	H-Type	N-Type	S-Type	H-Type	N-Type	S-Type	H-Type
ABN102c	ABS102c	ABH102c	ABN202c	ABS202c	ABH202c	ABN203c	ABS203c	ABH203c
ABN103c	ABS103c	ABH103c	ABN203c	ABS203c	ABH203c	ABN204c	ABS204c	ABH204c
ABN104c	ABS104c	ABH104c	ABN204c	ABS204c	ABH204c			
15, 20, 30, 40, 50, 60, 75, 100	15, 20, 30, 40, 50, 60, 75, 100, 125			100, 125, 150, 175, 200, 225, 250				
690	690	690	690	690	690	690	690	690
500	500	500	500	500	500	500	500	500
750	750	750	750	750	750	750	750	750
8	8	8	8	8	8	8	8	8
5	8	10	8	8	10	8	8	10
10	26	35	18	26	35	18	26	35
18	37	50	26	37	50	26	37	50
22	42	50	30	42	50	30	42	50
35	85	100	65	85	100	65	85	100
10	20	30	10	20	30	10	20	30
10	20	30	10	20	30	10	20	30
100	100	100	100	100	100	100	100	100
75 × 130 × 60mm (Fig. 1)	90 × 155 × 60mm (Fig. 2)			105 × 165 × 60mm (Fig. 3)				
42 page	44 page			46 page				
98 page	99 page			100 page				
106 page	107 page			108 page				



(Fig. 2)



(Fig. 3)



# Quick selection table

## Molded Case Circuit Breakers



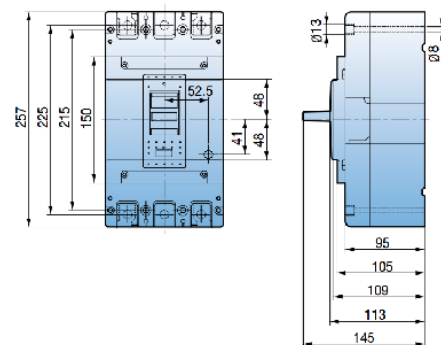
### MCCBs

AF		400AF			
Type		N-Type	S-Type	H-Type	L-Type
Type and Pole	2-pole	ABN402c	ABS402c	ABH402c	ABL402c
	3-pole	ABN403c	ABS403c	ABH403c	ABL403c
	4-pole	ABN404c	ABS404c	ABH404c	ABL404c
Rated current, I <sub>n</sub>	A	250, 300, 350, 400			
Rated operational voltage, U <sub>e</sub>	AC(V)	690	690	690	690
	DC(V)	500	500	500	500
Rated insulation voltage, U <sub>i</sub>	V	750	750	750	750
Rated impulse withstand voltage, U <sub>imp</sub>	kV	8	8	8	8

Rated short-circuit breaking capacity(I <sub>cu</sub> ) kA (Sym), IEC 60947-2					
AC	690V	5	8	10	14
	480/500V	18	35	50	65
	415/460V	37	50	65	85
	380V	42	65	70	100
	220/250V	50	75	85	125
DC	500V(3P)	10	20	40	40
	250V(2P)	10	20	40	40
I <sub>cs</sub> =% × I <sub>cu</sub>		100	100	100	75
Dimensions (mm)	W×H×D	140×257×109mm			
	(3-pole)	(Fig. 4)			
More info.	Ratings	48 page			
	Curves	101 page			
	Drawings	109 page			

Note) 1. The short-circuit breaking capacities in ( ) are applied to the rated current in (3, 5, 10A) 2. Standard type is designed on the basis of 40°C of ambient temperature. 3. There are certain products for hot areas. (30-250AF on the basis of 55°C, 400-800AF on the basis of 50°C)

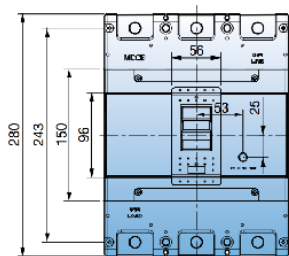
Type	400AF	800AF	1000AF	1200AF
ABN	ABN400c 37kA	ABN800c 37kA		
ABS	ABS400c 50kA	ABS800c 65kA	ABS1000b 65kA	ABS1200b 65kA
ABH	ABH400c 65kA			
ABL	ABL400c 85kA	ABL800c 85kA	ABL1000b 85kA	ABL1200b 85kA



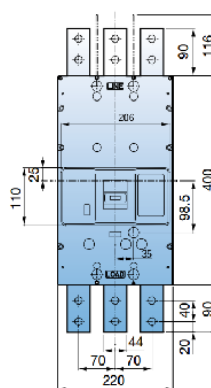
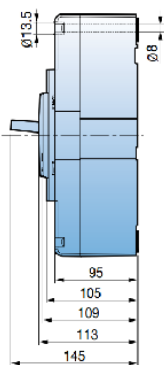
(Fig. 4)



	800 AF			1000 AF		1200 AF		
	N-Type	S-Type	L-Type	S-Type	L-Type	S-Type		L-Type
	ABN802c	ABS802c	ABL802c	-	-	-	-	-
	ABN803c	ABS803c	ABL803c	ABS1003b	ABL1003b	ABS1203b	ABS1203bE	ABL1203b
	ABN804c	ABS804c	ABL804c	ABS1004b	ABL1004b	ABS1204b	-	ABL1204b
	500, 630, 700, 800			1000		1200		
	690	690	690	600	600	600	600	600
	500	500	500	-	-	-	-	-
	750	750	750	690	690	690	690	690
	8	8	8	6	6	6	6	6
	8	10	14	-	-	-	-	-
	25	45	65	50	75	50	50	75
	37	65	85	65	85	65	65	85
	45	75	100	65	85	65	65	85
	50	85	125	100	125	100	100	125
	10	20	40	-	-	-	-	-
	10	20	40	-	-	-	-	-
	100	100	75	50	50	50	50	50
	210×280×109mm (Fig. 5)			220×400×105mm (Fig. 6)		220×400×105mm (Fig. 6)		
	50 page			52 page		52 page	53 page	52 page
	101 page			102 page		102 page	102 page	102 page
	110 page			111 page		111 page	112 page	111 page



(Fig. 5)



(Fig. 6)

