DACO

SMART BREAKER

Molded Case Circuit Breaker

PT. KORTECH ANUGERAH INDONESIA

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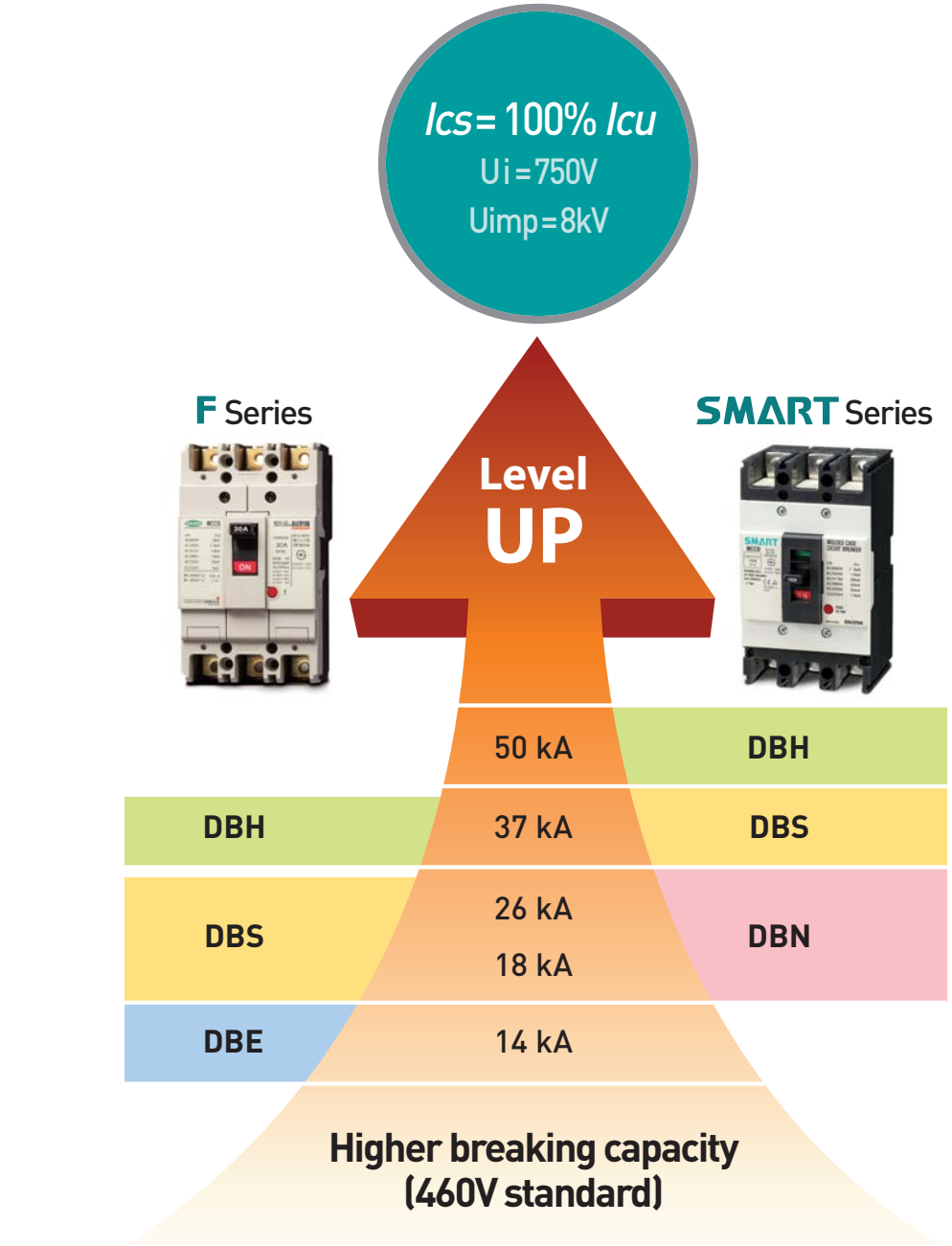
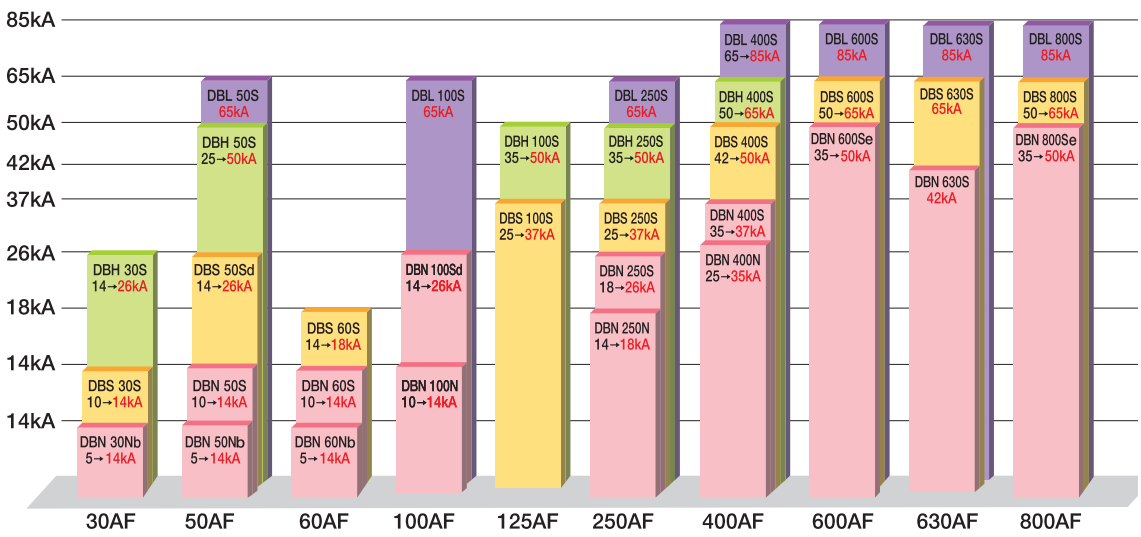
NEXT

SOLUTION

With an improved technology and aggressive investment in R&D, DAERYUK create differentiated value for each customer in order to provide state of the art service on electrical power system as a reliable Industrial Solution Partner.

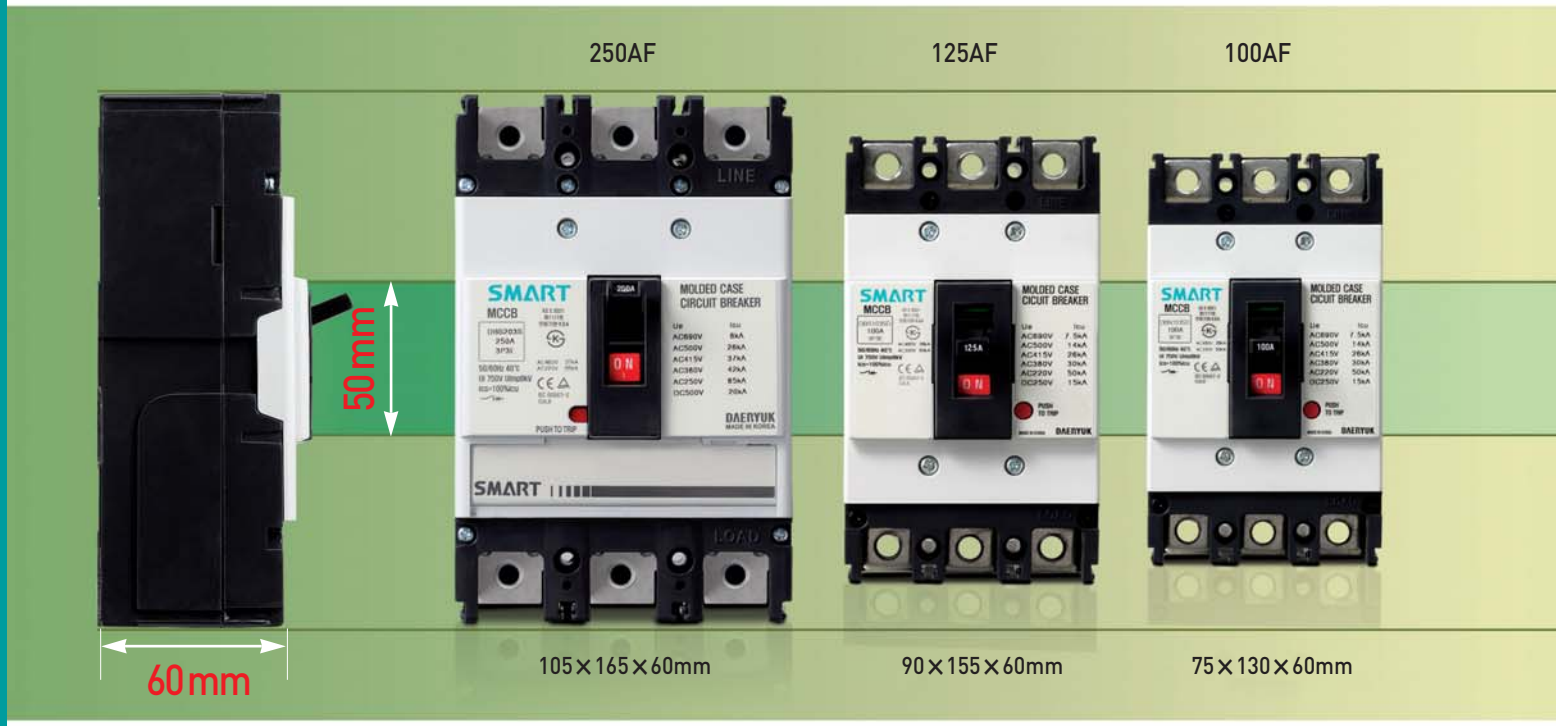
- All Frame size (100/125/250/400/630AF) compliant to IEC standard
- Ui 750V, Uimp 8kV
- Visual isolation available (Optional)


Ics= 100% Icu
Ui=750V
Uimp=8kV
F Series
SMART Series
Level
UP
50 kA
DBH
DBH
37 kA
DBS
DBS
26 kA
18 kA
DBN
DBE
14 kA
Higher breaking capacity
(460V standard)


85kA
65kA
50kA
42kA
37kA
26kA
18kA
14kA
14kA
DBH 30S 14→26kA
DBS 30S 10→14kA
DBN 30Nb 5→14kA
DBL 50S 65kA
DBH 50S 25→50kA
DBS 50Sd 14→26kA
DBN 50S 10→14kA
DBN 50Nb 5→14kA
DBS 60S 14→18kA
DBN 60S 10→14kA
DBN 60Nb 5→14kA
DBL 100S 65kA
DBN 100Sd 14→26kA
DBN 100N 10→14kA
DBH 100S 35→50kA
DBS 100S 25→37kA
DBL 250S 65kA
DBH 250S 35→50kA
DBS 250S 25→37kA
DBN 250S 18→26kA
DBN 250N 14→18kA
DBL 400S 65→85kA
DBH 400S 50→65kA
DBS 400S 42→50kA
DBN 400S 35→37kA
DBN 400N 25→35kA
DBL 600S 85kA
DBS 600S 50→65kA
DBN 600Se 35→50kA
DBL 630S 85kA
DBS 630S 65kA
DBN 630S 42kA
DBL 800S 85kA
DBS 800S 50→65kA
DBN 800Se 35→50kA
30AF
50AF
60AF
100AF
125AF
250AF
400AF
600AF
630AF
800AF

Smart Breaker

MCCB (Molded Case Circuit Breaker)

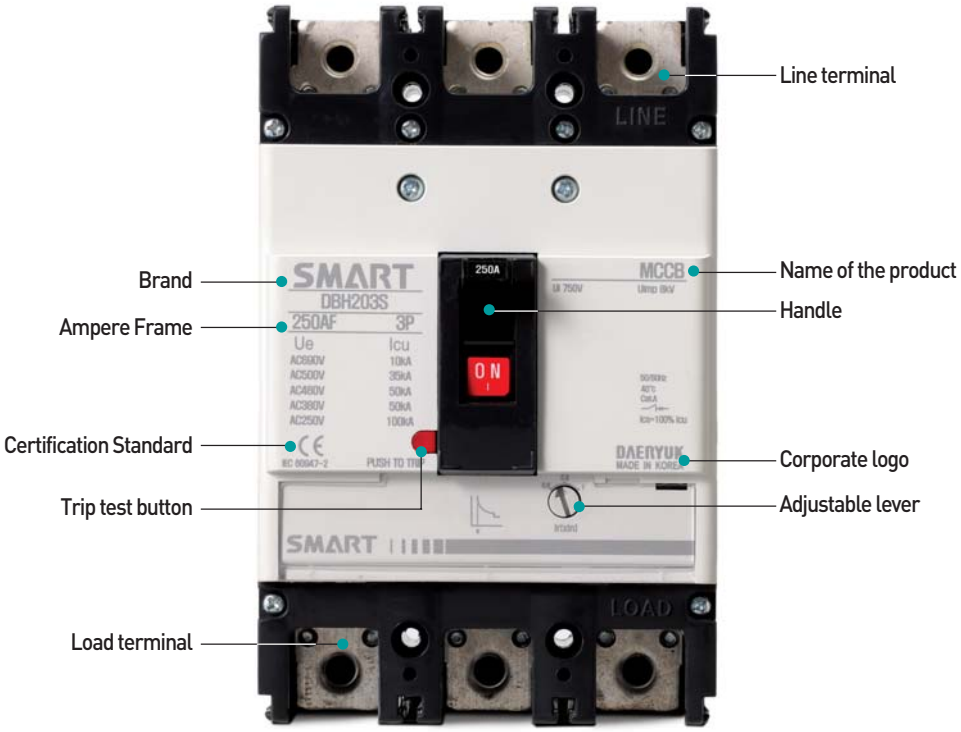


- 100% Compatible with existing MCCB

Type \ AF	30AF	50AF	60AF	100AF	125AF	250AF	400AF	600AF	630AF	800AF
DBN-N	14kA	14kA	14kA	14kA		18kA	35kA			
DBN-S		14kA	14kA	26kA		26kA	37kA	50kA	42kA	50kA
DBS	14kA	26kA	18kA		37kA	37kA	50kA	65kA	65kA	65kA
DBH	26kA	50kA			50kA	50kA	65kA			
DBL		65kA		65kA		65kA	85kA	85kA	85kA	85kA

Method to mount the accessories

MCCB
(Thermal magnetic)



Ordering Code

DB	S	10	3	S	b	/	100A	ADT	AX

Inherent code

DAERYUK
MCCB

Type

N	Economic
S	Standard
H	High Breaking
L	Current Limiting

Ampere Frame

3	30AF
5	50AF
6	60AF
10	100/125AF
20	250AF
40	400AF
60	600AF
63	630AF
80	800AF
100	1000AF
120	1200AF

NO. of poles

2	2pole
3	3pole
4	4pole

Type

N	Smart Breaker (General)
S	Smart Breaker (Standard)
SE	Smart Breaker (Electronic)

Breaking Capacity

b	14kA
c	18kA
d	26kA
e	50kA

Ratings

-	200A
5A	225A
10A	250A
15A	300A
20A	350A
30A	400A
40A	500A
50A	600A
60A	630A
75A	700A
100A	800A
125A	1000A
150A	1200A
175A	

Trip Unit

ATT	Adjustable Thermal, Fixed Magnetic
-	Fixed Thermal, Fixed Magnetic

Accessories

AX	Aux. Switch
AL	Alarm Switch
SHT	Shunt Trip
DH	Rotary Handle (Direct)
EH	Rotary Handle (Expended)

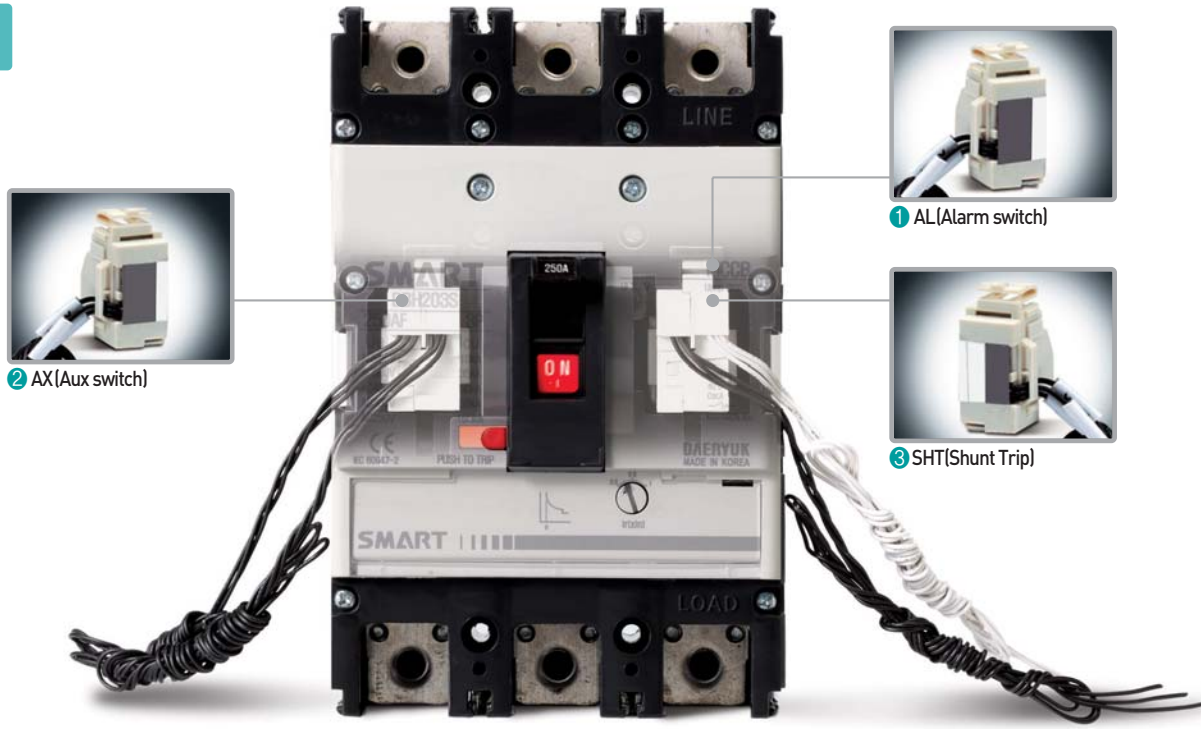
T

Installing location

T	T Phase
R	R Phase

Accessories

Accessories



1 Alarm switch, AL

This is a device to show the warning sign through the lamp or buzzer when the MCCB is tripped.

2 Auxiliary switch, AX

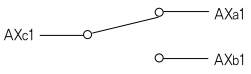
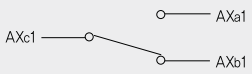
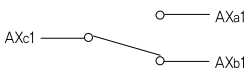
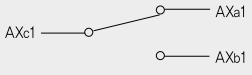
This is a device for the control of a circuit or various display lamps, etc., which will be used to show the ON/OFF state of the Circuit breaker.

3 Shunt Trip, SHT

This is a device that can operate the Trip of an MCCB in the distance.

Aux. switch(AX)/ Alarm switch(AL)

■ Operated condition (AX+AL)

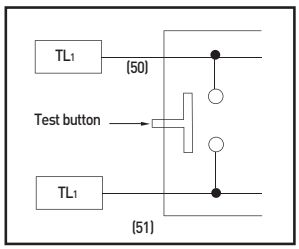
MCCB	ON	OFF	TRIP
AX			
AL			

■ Operating of (AX+AL)

Applying current	5A			
Rated current according to voltage	Rated voltage		Rated voltage(Ie)	
			Resistive load	Induced load
	AC 50/60Hz	125V	5	3
		250V	3	2
		500V	-	-
	DC	30V	4	3
		125V	0.4	0.4
		250V	0.2	0.2

Shunt Trip (SHT)

Test lead wire (TL)



⚠ When the test lead wire directly contacts the human body with the power source being live, there is the possibility of electric shock.

Rating of SHT (30~250AF)

Rated voltage (Ue)		Consumption		
		AC(VA)	DC(W)	mA
Rated voltage and consumption	AC/DC 12V	0.35	0.36	30
	AC/DC 24V	0.64	0.65	27
	AC/DC 48V	1.09	1.1	23
	AC/DC 60V	1.2	1.22	20
	AC/DC 100~130V	0.73	0.75	5.8
	AC/DC 200~250V	1.21	1.35	5.4
	AC 380~450V	1.67	-	3.8
	AC 440~500V	1.68	-	3.5
Operating time		50ms (maximum)		
Torque of terminal screw		12 kgf · cm		

Note Operating condition : 70~110%, 45~65Hz

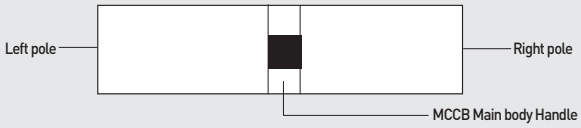
Rating of SHT (400~630AF)

Rated voltage (Ue)	Consumption		
	Impressed voltage (V)	Current consumption (mA)	Power consumption (W)
AC/DC 24~48	AC24	14	0.3
AC 100~125/ DC 100~110	DC24	15.4	0.4
AC 200~240/ DC 200~220	AC48	14	0.7
AC 380~460	DC48	16	0.8
AC 480~550	AC110	6	0.7
	DC110	6.6	0.7
	AC220	6.8	1.5
	DC200	7.6	1.5
	AC440	4.3	1.9
	AC480	4.4	3.3
	AC550	4.6	2.4

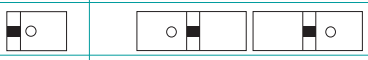
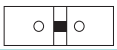
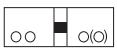
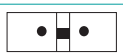
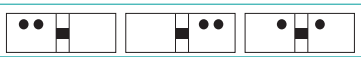
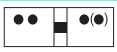
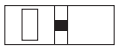
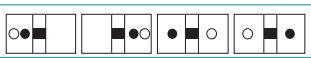
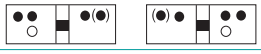
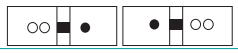
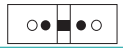
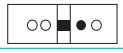
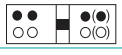
Note Operating voltage
- AC : 85~110%
- DC : 75~125%

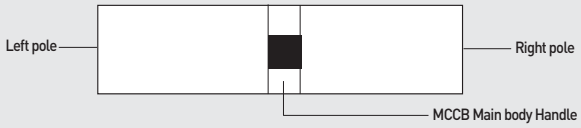
Accessories

Table of internal attachment (MCCB)

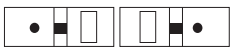
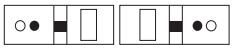


○ Aux contact(AX)
● Alarm contact(AL)
□ SHT

Smart Series		30~250AF		400~630AF	600~800AF	1000~1200AF
Type	N-Type	DBN 52S, 62S, 102Sc, 102Sd	DBN 53S/54S DBN 63S/64S DBN 103Sd/104Sd DBN 202S/203/204S	DBN 402S/403S/404N DBN 632S/633S/634S	DBN 602S/603S/604S DBN 802S/803S/804S	-
	S-Type	DBS 32S, 52S 62S, 102S	DBN 33S/34S DBN 53S/54Sc DBN 63S/64S DBN 103S/104S DBN 202S/203S/204S	DBS 402S/403S/404S DBS 632S/633S/634S	DBS 602S/603S/604S DBS 802S/803S/804S	DBS 1003S/1004S DBS 1203S/1204S
	H-Type	DBH 52S, 102S	DBH 53S/54S DBH 103S/104S DBH 202S/203S/204S	DBH 402S/403S/404S	-	-
	L-Type	DBL 52S, 102S	DBL 53S/54S, DBL 103S/104S, DBL 202S/203S/204S	DBL 402S/403S/404S DBL 632S/633S/634S	DBL 602S/603S/604S DBL 802S/803S/804S	-
Number of poles		2poles	2, 3, 4poles	2, 3, 4poles	2, 3, 4poles	3, 4poles
AX						
AX2						
AX3 (4)						
AL						
AL2						
AL3(4)						
SHT						
SHT2						
AX+AL						
AX+AL2						
AX+AL3(4)						
AX2+AL						
AX2+AL2						
AX2+AX3(4)						
AX3(4)+AL						
AX3(4)+AL2						
AX3(4)+AL3(4)						
AX+SHT						



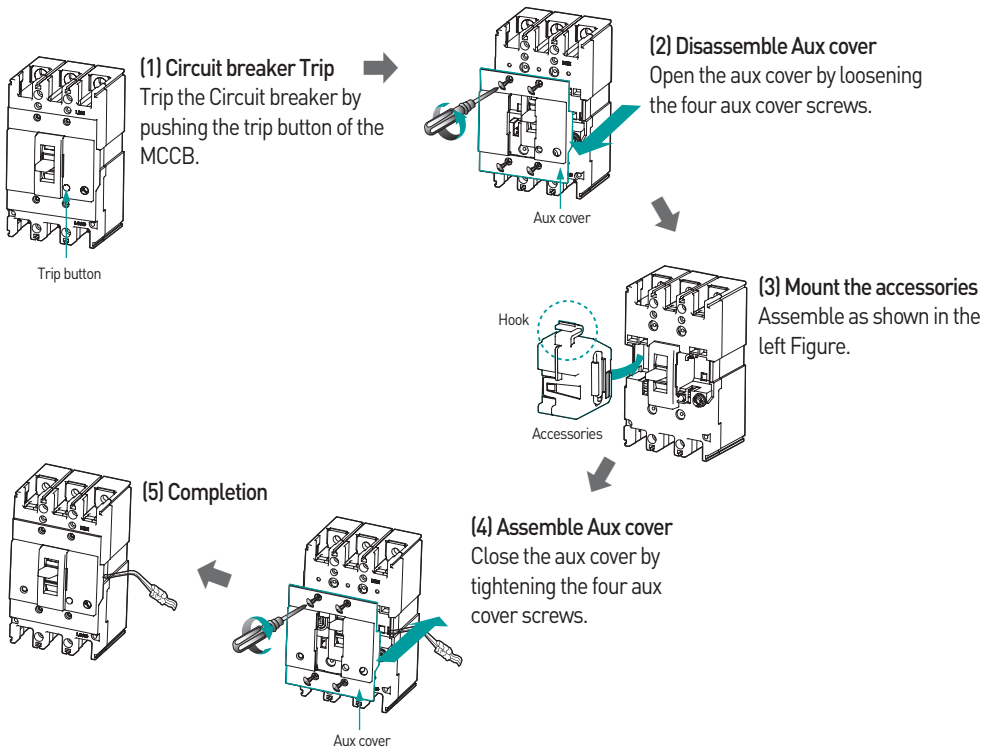
○ Aux contact(AX)
● Alarm contact(AL)
□ SHT

Smart Series		30~250AF		400~630AF	600~800AF	1000~1200AF
Type	N-Type	DBN 52S, 62S, 102Sd	DBN 53S/54S DBN 63S/64S DBN 103Sd/104Sd DBN 202S/203/204S	DBN 402S/403S/404N DBN 632S/633S/634S	DBN 602S/603S/604S DBN 802S/803S/804S	-
	S-Type	DBS 32S, 52S 62S, 102S	DBN 33S/34S DBN 53S/54Sc DBN 63S/64S DBN 103S/104S DBN 202S/203S/204S	DBS 402S/403S/404S DBS 632S/633S/634S	DBS 602S/603S/604S DBS 802S/803S/804S	DBS 1003S/1004S DBS 1203S/1204S
	H-Type	DBH 52S, 102S	DBH 53S/54S DBH 103S/104S DBH 202S/203S/204S	DBH 402S/403S/404S	-	-
	L-Type	DBL 52S, 102S	DBL 53S/54S, DBL 103S/104S, DBL 202S/203S/204S	DBL 402S/403S/404S DBL 632S/633S/634S	DBL 602S/603S/604S DBL 802S/803S/804S	-
Number of poles		2poles	2, 3, 4poles	2, 3, 4poles	2, 3, 4poles	3, 4poles
AX2+SHT						
AX3(4)+SHT						
AL+SHT						
AL2+SHT						
AL3(4)+SHT						
AX+AL+SHT						
AX2+AL+SHT						
AX+AL2+SHT						
AX2+AL2+SHT						
AX3(4)+AL3(4) +SHT						

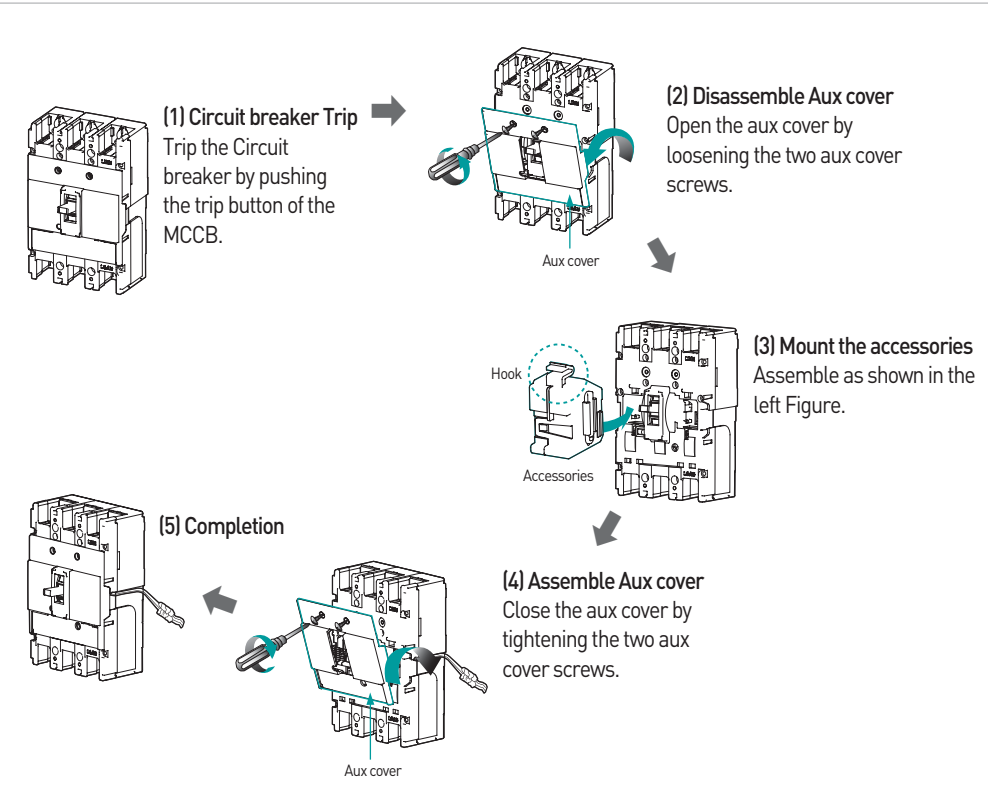
Accessories

Method to mount the accessories

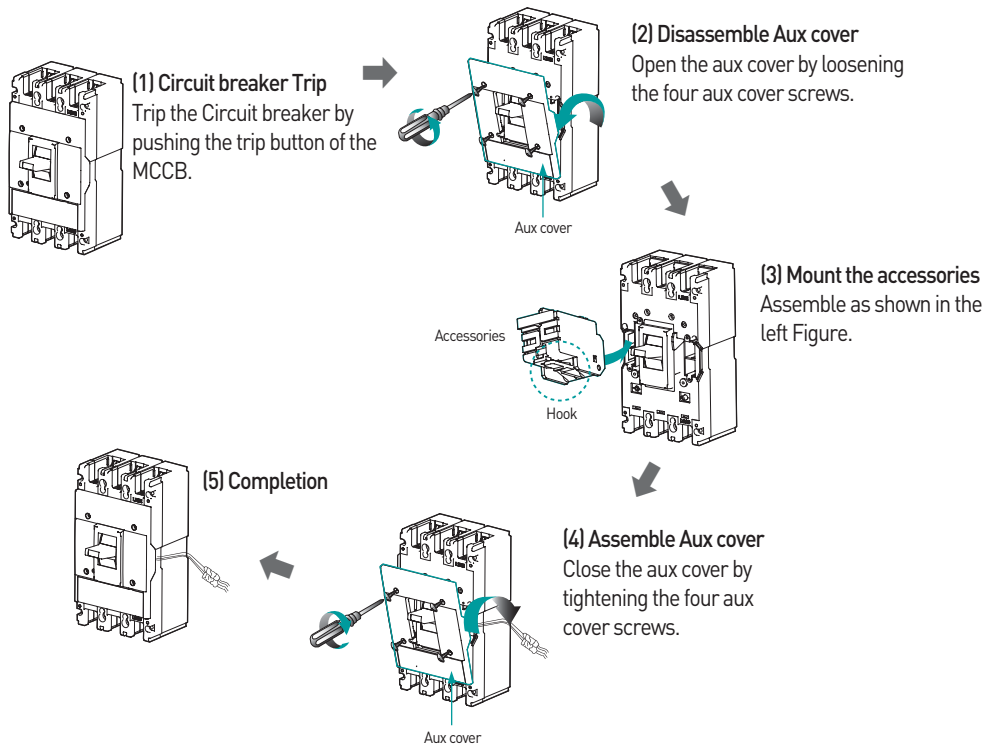
100/125AF



250AF



400/630AF



Accessories

Exterior operating handle

■ Code

D	OH	100	H	S
DAERYUK	Operating Handle	Ampere Frame	Installation type	Operation system

Ampere Frame	
100	30~100AF
125	125AF
250	250AF

Installation type	
H	Horizon
V	Vertical

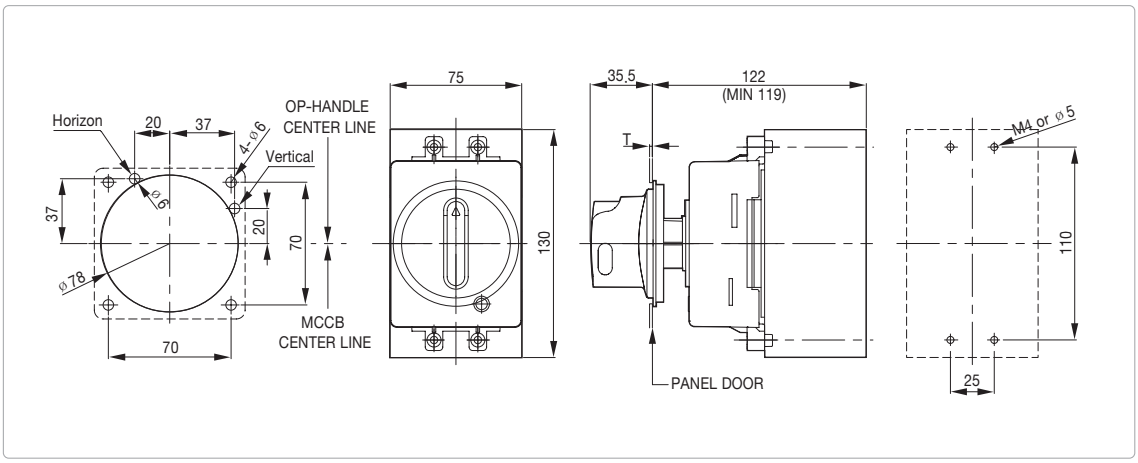
Operation system	
S	Surface
D	Long Distance

■ Model

Type		30~100AF	125AF	250AF
S (Surface)	Horizon(H)	DOH 100HS	DOH 125HS	DOH 250HS
	Vertical(V)	DOH 100VS	DOH 125VS	DOH 250VS
D (Long Distance)	Horizon(H)	DOH 100HD	DOH 125HD	DOH 250HD
	Vertical(V)	DOH 100VD	DOH 125VD	DOH 250VD

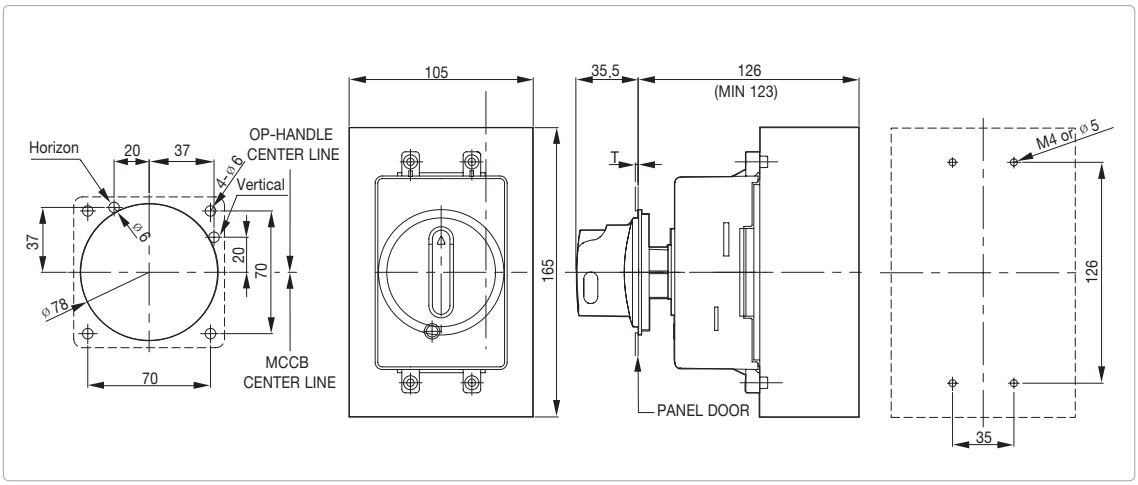
Dimension

■ 100AF (Surface)



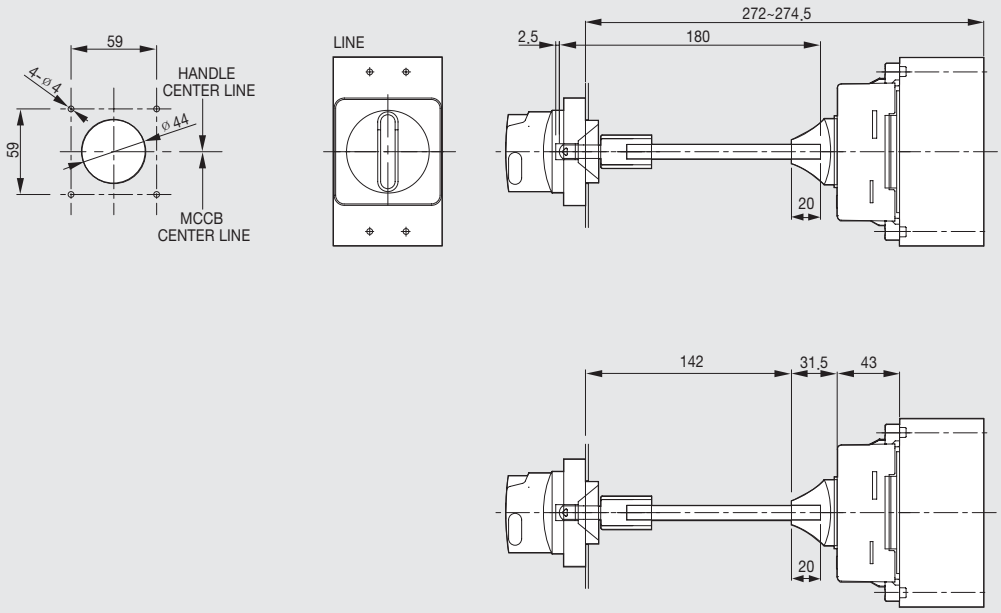
Note Applicable model : DBN-S, DBS-S, DBH-S, DBL-S

■ 250AF (Surface)

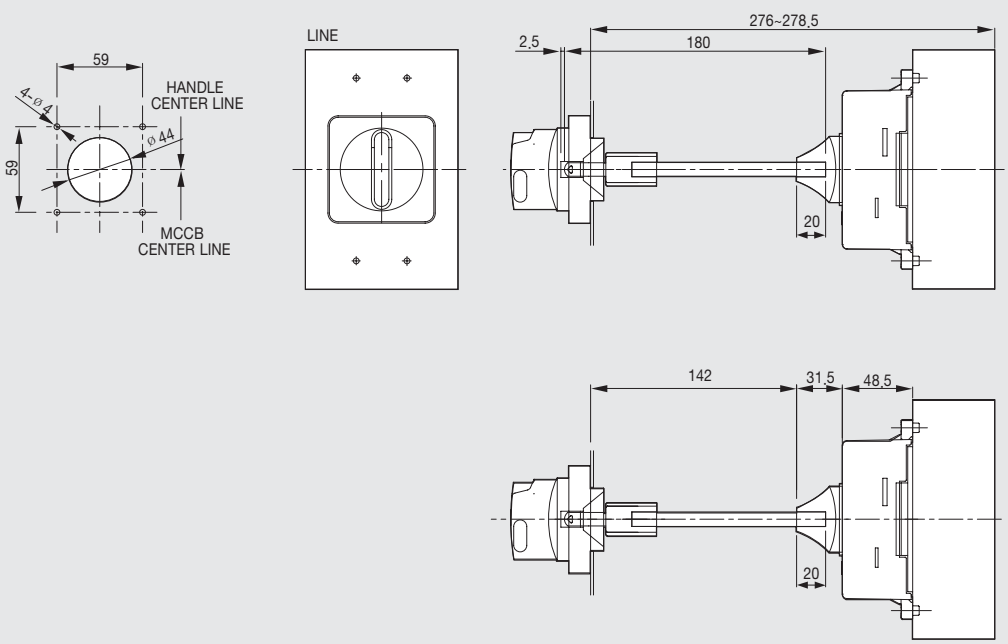


Note Applicable model : DBN-S, DBS-S, DBH-S, DBL-S

100AF (Long Distance)



250AF (Long Distance)



Molded Case Circuit Breakers (MCCB)

Frame size				30AF									
Type				N			S			H			
Model				DBN 32BNb	DBN 33BNb	DBN 34BNb	DBS 32S	DBS 33S	DBS 34S	DBH 32S	DBH 33S	DBH 34S	
Ratings	No. of Pole			2	3	4	2	3	4	2	3	4	
	Rated Current (In)		A	5,10,15,20,30			15,20,30			15,20,30			
	Rated Voltage (In)	AC	V	690			690			690			
		DC	V	250		-	500			500			
	Rated Insulation Voltage (Ui)		V	750			750			750			
	Impulse Withstand Voltage (Uimp)		kV	6			8			8			
Rated Breaking Capacity(kA)	AC	690/600V		5			2.5			7.5			
		480/500V		7.5			7.5			14			
		415/460V		14			14			26			
		380V		14			18			30			
		220V/250V		25			30			50			
	DC	500V(3P)		-	-	-	-	5	5	-	10	10	
		250V(2P)		2.5	2.5	-	5	-	-	5	-	-	
Ics = % × Icu				50			100			50			
Over current trip type				Hydraulic Magnetic (ODP)			Thermal Magnetic			Thermal Magnetic			
Trip type and protection feature (Option)	Adjustable Note1)	Rating (Definite-time)		-			(0.8-0.9-1.0)×In			(0.8-0.9-1.0)×In			
	Fixed	Instantaneous		(8~12)×In			(8~12)×In			(8~12)×In			
Dimension(mm) W×H×D		2P		50×130×60			50×130×60			50×130×60			
		3P		75×130×60			75×130×60			75×130×60			
		4P		100×130×60			100×130×60			100×130×60			
Connection		Standard type		○			○			○			
		Rear Connection		-			-			-			
Mounting type				Screw			Screw			Screw			
Accessories	Aux. Switch (AX)			-			○			○			
	Alarm Switch (AL)			-			○			○			
	Shunt trip SHT			-			○			○			
	Under Voltage trip device UVT			-			-			-			
	Rotary Handle	Direct		○			○			○			
		Extended		○			○			○			
	Terminal Cover	Long Type		-			-			-			
		Short Type		○			○			○			
	Insulation Barrier			○			○			○			
Weight(kg)	2P			0.45			0.45			0.45			
	3P			0.65			0.65			0.65			
	4P			0.85			0.85			0.85			
Standard	IEC60947-2			○			○			○			
Certificate Status	CE			-	15,20,30A		15,20,30A			15,20,30A			
	TUV			-	15,20,30A		15,20,30A			15,20,30A			
	KC			-			-			○			
	KS			15,20,30A			15,20,30A			15,20,30A			

Note1) Adjustable type available according to ordering code on P.9.

	50AF														
	N						S			H			L		
	DBN 52Nb	DBN 53Nb	DBN 54Nb	DBN 52S	DBN 53S	DBN 54S	DBS 52Sd	DBS 53Sd	DBS 54Sd	DBH 52S	DBH 53S	DBH 54S	DBL 52S	DBL 53S	DBL 54S
	2	3	4	2	3	4	2	3	4	2	3	4	2	3	4
	5,10,15,20,30,40,50			15,20,30,40,50			15,20,30,40,50			40,50			(15,20,30)40,50		
	690			690			690			690			690		
	250		-	500			500			500			500		
	750			750			750			750			750		
	6			8			8			8			6		
	5			2.5			7.5			10			35		
	7.5			7.5			14			35			42		
	14			14			26			50			65		
	14			18			30			50			65		
	25			30			50			100			125		
	-	-	-	-	5	5	-	10	10	-	30	30	-	40	40
	2.5	2.5	-	5	-	-	10	-	-	30	-	-	40	-	-
	50			100			100			100			50		
	Hydraulic Magnetic (ODP)			Thermal Magnetic			Thermal Magnetic			Thermal Magnetic			Thermal Magnetic		
	-			(0.8-0.9-1.0)×In			(0.8-0.9-1.0)×In			(0.8-0.9-1.0)×In			-		
	(8~12)×In			(8~12)×In			(8~12)×In			(8~12)×In			(8~12)×In		
	50×130×60			50×130×60			50×130×60			60×155×60			90×155×86		
	75×130×60			75×130×60			75×130×60			90×155×60					
	100×130×60			100×130×60			100×130×60			120×155×60			120×155×86		
	○			○			○			○			○		
	-			-			-			-			-		
	Screw			Screw			Screw			Screw			Screw		
	-			○			○			○			○		
	-			○			○			○			○		
	-			○			○			○			○		
	-			-			-			-			-		
	○			○			○			○			○		
	○			○			○			○			○		
	-			-			-			-			-		
	○			○			○			○			-		
	○			○			○			○			○		
	0.45			0.45			0.45			0.45			0.45		
	0.65			0.65			0.65			0.65			0.65		
	0.85			0.85			0.85			0.85			0.85		
	○			○			○			○			○		
	-	15~50A		○			○			-			-		
	-	15~50A		○			○			-			-		
	-			-			○			-			-		
	15~50A			○			○			○			40,50A		

Molded Case Circuit Breakers (MCCB)

Frame size				60AF									
Type				N						S			
Model				DBN 62Nb	DBN 63Nb	DBN 64Nb	DBN 62S	DBN 63S	DBN 64S	DBS 62S	DBS 63S	DBS 64S	
Ratings	No. of Pole			2	3	4	2	3	4	2	3	4	
	Rated Current (In)		A	60			60			60			
	Rated Voltage (In)	AC	V	690			690			690			
		DC	V	250			500			500			
	Rated Insulation Voltage (Ui)		V	750			750			750			
	Impulse Withstand Voltage (Uimp)		kV	6			8			8			
Rated Breaking Capacity(kA)	AC	690/600V		5			2.5			5			
		480/500V		7.5			7.5			10			
		415/460V		14			14			18			
		380V		14			18			22			
		220V/250V		25			30			35			
	DC	500V(3P)		-	-	-	-	5	5	-	10	10	
		250V(2P)		2.5	2.5	-	5	-	-	10	-	-	
Ics = % × Icu				50			100			100			
Over current trip type				Hydraulic Magnetic (ODP)			Thermal Magnetic			Thermal Magnetic			
Trip type and protection feature (Option)	Adjustable Note1)	Rating (Definite-time)		-			(0.8-0.9-1.0)×In			(0.8-0.9-1.0)×In			
	Fixed	Instantaneous		(8~12)×In			(8~12)×In			(8~12)×In			
Dimension(mm) W×H×D		2P		50×130×60			50×130×60			50×130×60			
		3P		75×130×60			75×130×60			75×130×60			
		4P		100×130×60			100×130×60			100×130×60			
Connection		Standard type		○			○			○			
		Rear Connection		-			-			-			
Mounting type				Screw			Screw			Screw			
Accessories	Aux. Switch (AX)			-			○			○			
	Alarm Switch (AL)			-			○			○			
	Shunt trip SHT			-			○			○			
	Under Voltage trip device UVT			-			-			-			
	Rotary Handle	Direct		○			○			○			
		Extended		○			○			○			
	Terminal Cover	Long Type		-			-			-			
		Short Type		○			○			○			
	Insulation Barrier			○			○			○			
Weight(kg)	2P			0.45			0.45			0.45			
	3P			0.65			0.65			0.65			
	4P			0.85			0.85			0.85			
Standard	IEC60947-2			○			○			○			
Certificate Status	CE			○			○			○			
	TUV			○			○			○			
	KC			-			-			○			
	KS			○			○			○			

Note1) Adjustable type available according to ordering code on P.9.

	100AF									125AF					
	N						L			S			H		
	DBN102N	DBN103N	DBN104N	DBN102Sd	DBN103Sd	DBN104Sd	DBL102S	DBL103S	DBL104S	DBS102S	DBS103S	DBS104S	DBH102S	DBH103S	DBH104S
	2	3	4	2	3	4	2	3	4	2	3	4	2	3	4
	15,20,30,40,50,60,75,100			15,20,30,40,50,60,75,100			(15,20,30)40,50,60,75,100			15,20,30,40,50,60,75,100,125			40,50,60,75,100,125		
	690			690			600			690			690		
	250		-	500			250			500			500		
	750			750			690			750			750		
	6			8			6			8			8		
	5			7.5			35			8			10		
	7.5			14			42			26			35		
	14			26			65			37			50		
	14			30			65			42			50		
	25			50			125			85			100		
	-	-	5	-	15	15	-	40	40	-	20	20	-	30	30
	5	5	-	15	-	-	40	-	-	20	-	-	30	-	-
	50			100			50			100			100		
	Hydraulic Magnetic (ODP)			Thermal Magnetic			Thermal Magnetic			Thermal Magnetic			Thermal Magnetic		
	-			(0.8-0.9-1.0)×In			-			(0.8-0.9-1.0)×In			(0.8-0.9-1.0)×In		
	(8~12)×In			(8~12)×In			(8~12)×In			(8~12)×In			(8~12)×In		
	50×130×60			50×130×60			90×155×86			60×155×60			60×155×60		
	75×130×60			75×130×60						90×155×60			90×155×60		
	100×130×60			100×130×60			120×155×86			120×155×60			120×155×60		
	○			○			○			○			○		
	-			-			-			-			-		
	Screw			Screw			Screw			Screw			Screw		
	-			○			○			○			○		
	-			○			○			○			○		
	-			○			○			○			○		
	-			-			-			-			-		
	○			○			○			○			○		
	○			○			○			○			○		
	-			-			-			-			-		
	○			○			-			○			○		
	○			○			○			○			○		
	0.45			0.45			0.45			0.45			0.45		
	0.65			0.65			0.65			0.65			0.65		
	0.85			0.85			0.85			0.85			0.85		
	○			○			○			○			○		
	○			○			-			○			-		
	○			○			-			○			-		
	-			○			-			○			-		
	○			○			40~100A			○			○		

Molded Case Circuit Breakers (MCCB)

Frame size				250AF											
Type				N						S			H		
Model				DBN202N	DBN203N	DBN204N	DBN202S	DBN203S	DBN204S	DBS202S	DBS203S	DBS204S	DBH202S	DBH203S	DBH204S
Ratings	No. of Pole			2	3	4	2	3	4	2	3	4	2	3	4
	Rated Current (In)		A	100,125,150,175,200,225			100,125,150,175,200,225,250			100,125,150,175,200,225,250			100,125,150,175,200,225,250		
	Rated Voltage (In)	AC	V	690			690			690			690		
		DC	V	500			500			500			500		
	Rated Insulation Voltage (Ui)		V	750			750			750			750		
	Impulse Withstand Voltage (Uimp)		kV	8			8			8			8		
Rated Breaking Capacity(kA)	AC	690/600V		8			8			8			10		
		480/500V		14			18			26			35		
		415/460V		18			26			37			50		
		380V		25			30			42			50		
		220V/250V		50			65			85			100		
	DC	500V(3P)		-	10	10	-	10	10	-	20	20	-	30	30
		250V(2P)		10	-	-	10	-	-	20	-	-	30	-	-
Ics = % × Icu				100			100			100			100		
Over current trip type				Thermal Magnetic			Thermal Magnetic			Thermal Magnetic			Thermal Magnetic		
Trip type and protection feature (Option)	Adjustable Note1)	Rating (Definite-time)		(0.8-0.9-1.0)×In			(0.8-0.9-1.0)×In			(0.8-0.9-1.0)×In			(0.8-0.9-1.0)×In		
	Fixed	Instantaneous		(8~12)×In			(8~12)×In			(8~12)×In			(8~12)×In		
Dimension(mm) W×H×D		2P		105×165×60			105×165×60			105×165×60			105×165×60		
		3P													
		4P		140×165×60			140×165×60			140×165×60			140×165×60		
Connection		Standard type		○			○			○			○		
		Rear Connection		-			-			-			-		
Mounting type				Screw			Screw			Screw			Screw		
Accessories	Aux. Switch (AX)			○			○			○			○		
	Alarm Switch (AL)			○			○			○			○		
	Shunt trip SHT			○			○			○			○		
	Under Voltage trip device UVT			-			-			-			-		
	Rotary Handle	Direct		○			○			○			○		
		Extended		○			○			○			○		
	Terminal Cover	Long Type		-			-			-			-		
		Short Type		○			○			○			○		
	Insulation Barrier			○			○			○			○		
Weight(kg)	2P			1.19			1.19			1.19			1.19		
	3P			1.36			1.36			1.36			1.36		
	4P			1.77			1.77			1.77			1.77		
Standard	IEC60947-2			○			○			○			○		
Certificate Status	CE			-			○			○			-		
	TUV			-			○			○			-		
	KC			-			○			○			-		
	KS			125~225A			○			○			○		

Note1) Adjustable type available according to ordering code on P.9.

	250AF			400AF														
	L			N						S			H			L		
	DBL202S	DBL203S	DBL204S	DBN402N	DBN403N	DBN404N	DBN402S	DBN403S	DBN404S	DBS402S	DBS403S	DBS404S	DBH402S	DBH403S	DBH404S	DBL402S	DBL403S	DBL404S
	2	3	4	2	3	4	2	3	4	2	3	4	2	3	4	2	3	4
	100,125,150,175, 200, 225			250,300,350,400			250,300,350,400			250,300,350,400			250,300,350,400			250,300,350,400		
	600			690			690			690			690			690		
	250		-	500			500			500			500			500		
	690			750			750			750			750			750		
	6			8			8			8			8			8		
	35			8			5			8			10			14		
	42			14			18			35			50			65		
	65			35			37			50			65			85		
	65			35			42			65			70			100		
	125			42			50			75			85			125		
	40		-	-	10	10	-	10	10	-	20	20	-	40	40	-	40	40
	50		-	10	-	-	10	-	-	20	-	-	40	-	-	40	-	-
	50			100			100			100			100			100		
	Thermal Magnetic			Thermal Magnetic			Thermal Magnetic			Thermal Magnetic			Thermal Magnetic			Thermal Magnetic		
	-			(0.8-0.9-1.0)×In			(0.8-0.9-1.0)×In			(0.8-0.9-1.0)×In			(0.8-0.9-1.0)×In			(0.8-0.9-1.0)×In		
	(8~14)×In			(8~12)×In			(8~12)×In			(8~12)×In			(8~12)×In			(8~12)×In		
	105×165×86			140×257×103			140×257×103			140×257×103			140×257×103			140×257×103		
	140×165×86			184×257×103			184×257×103			184×257×103			184×257×103			184×257×103		
	○			○			○			○			○			○		
	-			-			-			-			-			-		
	Screw			Screw			Screw			Screw			Screw			Screw		
	○			○			○			○			○			○		
	○			○			○			○			○			○		
	○			○			○			○			○			○		
	-			-			-			-			-			-		
	○			-			-			-			-			-		
	○			-			-			-			-			-		
	-			-			-			-			-			-		
	-			○			○			○			○			○		
	○			○			○			○			○			○		
	2.10			4.20			4.20			4.20			4.20			4.20		
	2.30			4.80			4.80			4.80			4.80			4.80		
	2.50			6.02			6.02			6.02			6.02			6.02		
	○			○			○			○			○			○		
	-			-			○			-			-			○		
	-			-			○			-			-			○		
	-			-			○			-			-			○		
	-			-			○			○			○			○		

Molded Case Circuit Breakers (MCCB)

Frame size				600AF								
Type				N			S			L		
Model				DBN 602Se	DBN 603Se	DBN 604Se	DBS 602S	DBS 603S	DBS 604S	DBL 602S	DBL 603S	DBL 604S
Ratings	No. of Pole			2	3	4	2	3	4	2	3	4
	Rated Current (In)		A	500,600			500,600			500,600		
	Rated Voltage (In)	AC	V	690			690			690		
		DC	V	500			500			500		
	Rated Insulation Voltage (Ui)		V	750			750			750		
	Impulse Withstand Voltage (Uimp)		kV	6			6			6		
Rated Breaking Capacity(kA)	AC	690/600V		8			10			30		
		480/500V		25			45			65		
		415/460V		50			65			85		
		380V		55			75			100		
		220V/250V		60			85			125		
	DC	500V(3P)		-	10	10	-	20	20	-	40	40
		250V(2P)		10	-	-	20	-	-	40	-	-
Ics = % × Icu				50			50			50		
Over current trip type				Thermal Magnetic			Thermal Magnetic			Thermal Magnetic		
Trip type and protection feature (Option)	Adjustable Note1)	Rating (Definite-time)		-			-			-		
	Fixed	Instantaneous		(8~12)×In			(8~12)×In			(8~12)×In		
Dimension(mm) W×H×D		2P		210×275×103			210×275×103			210×275×103		
		3P										
		4P		280×275×103			280×275×103			280×275×103		
Connection		Standard type		○			○			○		
		Rear Connection		-			-			-		
Mounting type				Screw			Screw			Screw		
Accessories	Aux. Switch (AX)			○			○			○		
	Alarm Switch (AL)			○			○			○		
	Shunt trip SHT			○			○			○		
	Under Voltage trip device UVT			-			-			-		
	Rotary Handle	Direct		-			-			-		
		Extended		-			-			-		
	Terminal Cover	Long Type		-			-			-		
		Short Type		○			○			○		
	Insulation Barrier			○			○			○		
Weight(kg)	2P			11.00			11.00			11.00		
	3P			11.50			11.50			11.50		
	4P			18.20			18.20			18.20		
Standard	IEC60947-2			○			○			○		
Certificate Status	CE			○			-			-		
	TUV			○			-			-		
	KC			-			-			-		
	KS			○			○			-		

Note1) Adjustable type available according to ordering code on P.9.

	630AF								
	N			S			L		
	DBN 632S	DBN 633S	DBN 634S	DBS 632S	DBS 633S	DBS 634S	DBL 632S	DBL 633S	DBL 634S
	2	3	4	2	3	4	2	3	4
	500,630			500,630			500,630		
	690			690			690		
	500			500			500		
	750			750			750		
	8			8			8		
	5			8			14		
	18			35			65		
	42			65			85		
	45			75			100		
	60			85			125		
	-	10	10	-	20	20	-	40	40
	10	-	-	20	-	-	40	-	-
	100			100			100		
	Thermal Magnetic			Thermal Magnetic			Thermal Magnetic		
	(0.8-0.9-1.0)×In			(0.8-0.9-1.0)×In			(0.8-0.9-1.0)×In		
	(8~12)×In			(8~12)×In			(8~12)×In		
	140×257×103			140×257×103			140×257×103		
	184×257×103			184×257×103			184×257×103		
	○			○			○		
	-			-			-		
	Screw			Screw			Screw		
	○			○			○		
	○			○			○		
	○			○			○		
	-			-			-		
	-			-			-		
	-			-			-		
	-			-			-		
	○			○			○		
	○			○			○		
	4.37			4.37			4.37		
	5.20			5.20			5.20		
	6.54			6.54			6.54		
	○			○			○		
	-			-			-		
	-			-			-		
	-			-			-		
	○			○			-		

Molded Case Circuit Breakers (MCCB)

Frame size				800AF									
Type				N			S			L			
Model				DBN 802Se	DBN 803Se	DBN 804Se	DBS 802S	DBS 803S	DBS 804S	DBL 802S	DBL 803S	DBL 804S	
Ratings	No. of Pole			2	3	4	2	3	4	2	3	4	
	Rated Current (In)		A	700, 800			700, 800			700, 800			
	Rated Voltage (In)	AC	V	690			690			690			
		DC	V	500			500			500			
	Rated Insulation Voltage (Ui)		V	750			750			750			
	Impulse Withstand Voltage (Uimp)		kV	6			6			6			
Rated Breaking Capacity(kA)	AC	690/600V		8			10			30			
		480/500V		25			45			65			
		415/460V		50			65			85			
		380V		55			75			100			
		220V/250V		60			85			125			
	DC	500V(3P)		-	10	10	-	20	20	-	40	40	
		250V(2P)		10	-	-	20	-	-	40	-	-	
Ics = % × Icu				50			50			50			
Over current trip type				Thermal Magnetic			Thermal Magnetic			Thermal Magnetic			
Trip type and protection feature (Option)	Adjustable Note1)	Rating (Definite-time)		-			-			-			
	Fixed	Instantaneous		(8~12)×In			(8~12)×In			(8~12)×In			
Dimension(mm) W×H×D		2P		210×275×103			210×275×103			210×275×103			
		3P											
		4P		280×275×103			280×275×103			210×275×103			
Connection		Standard type		○			○			○			
		Rear Connection		-			-			-			
Mounting type				Screw			Screw			Screw			
Accessories	Aux. Switch (AX)			○			○			○			
	Alarm Switch (AL)			○			○			○			
	Shunt trip SHT			○			○			○			
	Under Voltage trip device UVT			-			-			-			
	Rotary Handle	Direct		-			-			-			
		Extended		-			-			-			
	Terminal Cover	Long Type		-			-			-			
		Short Type		○			○			○			
	Insulation Barrier			○			○			○			
Weight(kg)	2P			11.00			11.00			11.00			
	3P			11.50			11.50			11.50			
	4P			18.20			18.20			18.20			
Standard	IEC60947-2			○			○			○			
Certificate Status	CE			○			-			-			
	TUV			○			-			-			
	KC			-			-			-			
	KS			○			○			-			

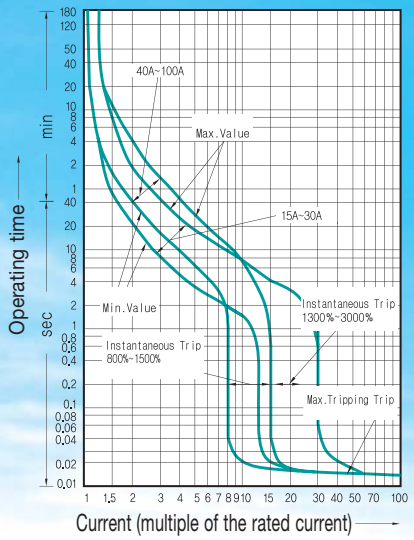
Note1) Adjustable type available according to ordering code on P.9.

	1000AF		1200AF	
	S		S	
	DBS 1003S	DBS 1004S	DBS 1203S	DBS 1204S
	3	4	3	4
	1000		1200	
	690		690	
	-		-	
	750		750	
	6		6	
	45		45	
	50		50	
	65		65	
	65		65	
	100		100	
	-		-	
	-		-	
	50		50	
	Thermal Magnetic		Thermal Magnetic	
	-		-	
	(3×6)×In		(3×6)×In	
	-		-	
	210×400×103		210×400×105	
	280×400×105		280×400×105	
	○		○	
	-		-	
	Screw		Screw	
	○		○	
	○		○	
	○		○	
	-		-	
	-		-	
	-		-	
	-		-	
	-		-	
	-		-	
	-		-	
	19.40		19.40	
	27.00		27.00	
	-		-	
	-		-	
	-		-	
	-		-	
	-		-	

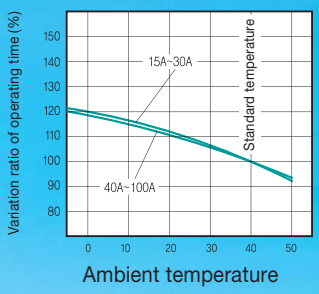
Characteristic Curves and Exterior Dimensions (MCCB)

- DBS 32S
- DBS 33S
- DBS 34S
- DBN 52S
- DBN 53S
- DBN 54S
- DBS 52S
- DBS 53S
- DBS 54S
- DBN 62S
- DBN 63S
- DBN 64S
- DBS 62S
- DBS 63S
- DBS 64S
- DBN 102Sd
- DBN 103Sd
- DBN 104Sd

Characteristic Curve

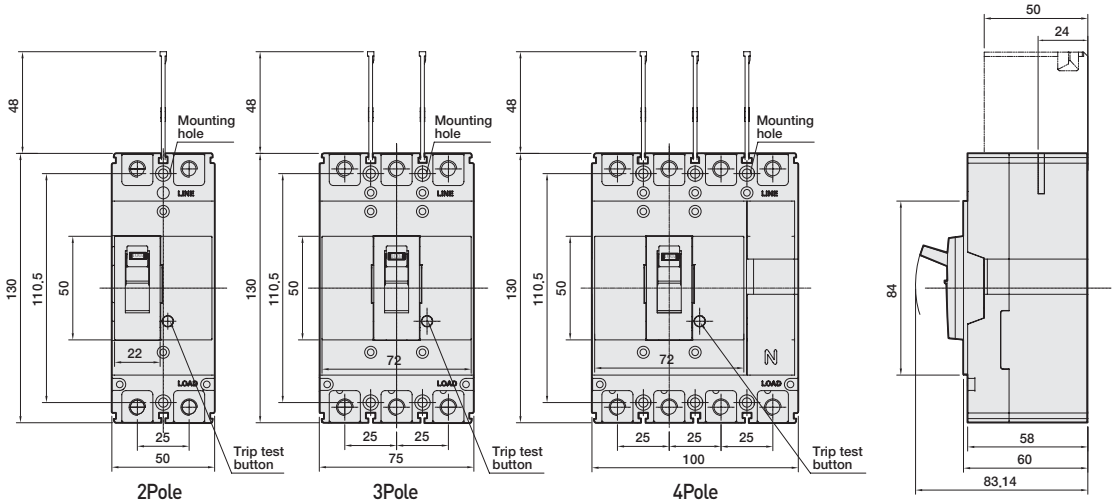


Temperature correction curves

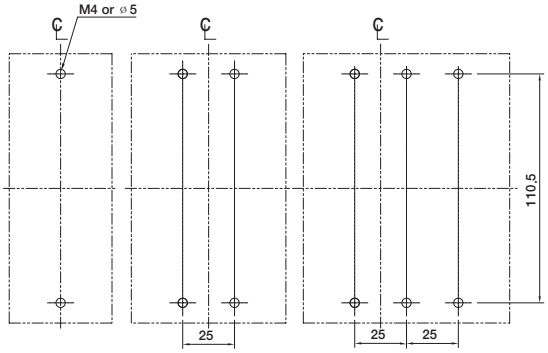


Dimensions

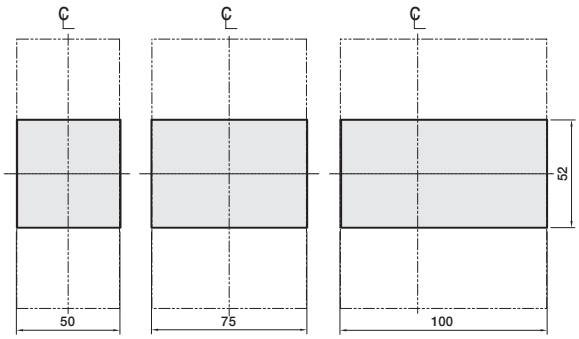
Unit:mm



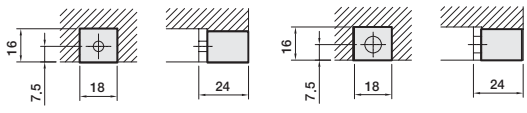
Dimensions for installation of the panel



Dimensions for cutting the panel cover



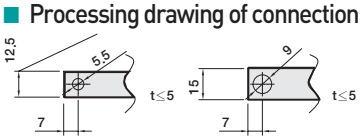
Detail drawing of terminal part



M5 X 14 (below 50A)

M8 X 20 (over 60A)

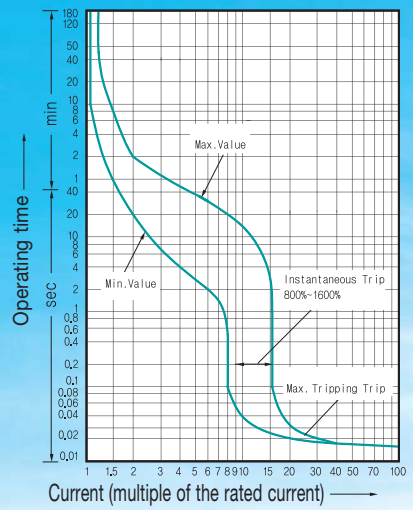
Processing drawing of connection conductor



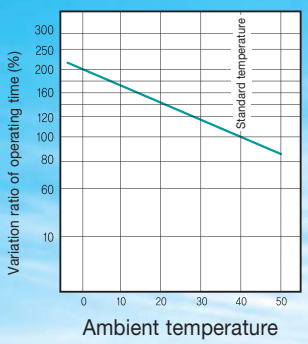
(below 50A)

(over 60A)

Characteristic Curve



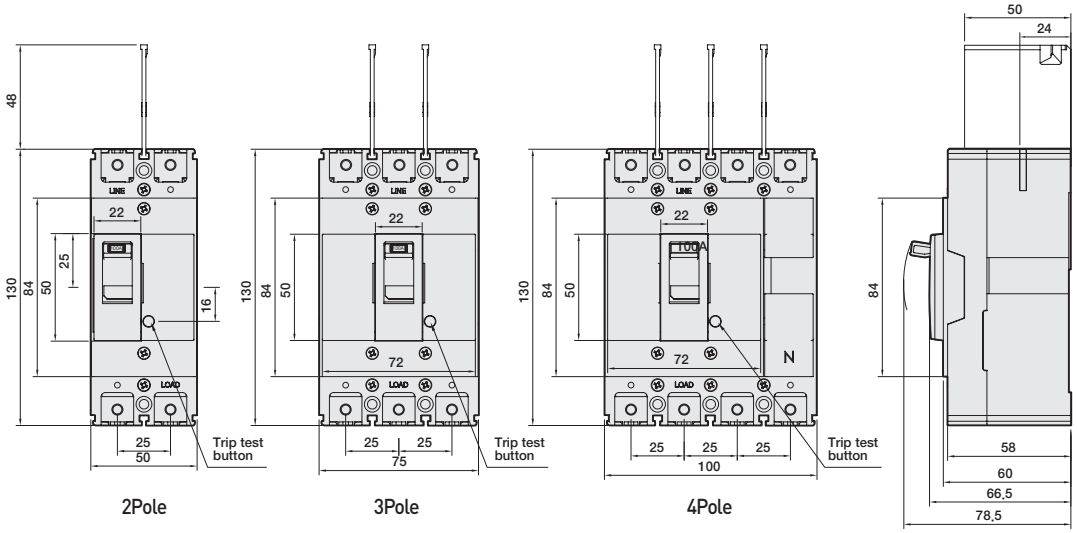
Temperature correction curves



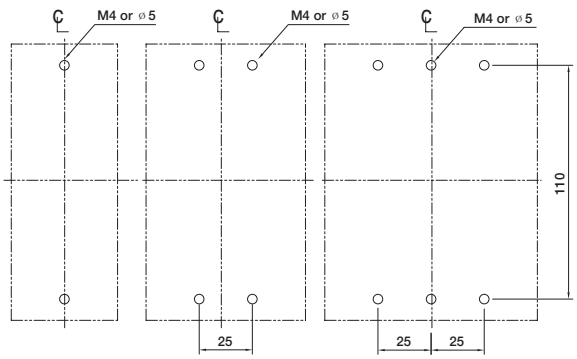
- DBN 32Nb
- DBN 33Nb
- DBN 34Nb
- DBN 52Nb
- DBN 53Nb
- DBN 54Nb
- DBN 62Nb
- DBN 63Nb
- DBN 64Nb
- DBN 102N
- DBN 103N
- DBN 104N

Dimensions

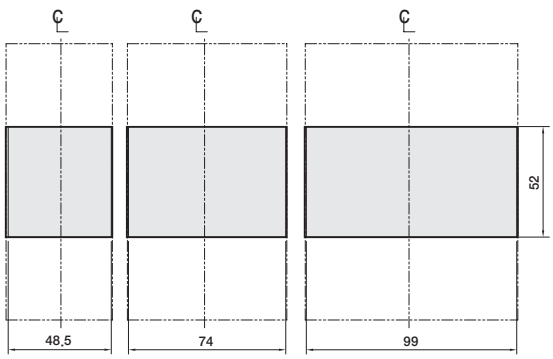
Unit:mm



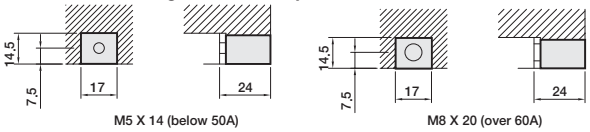
Dimensions for installation of the panel



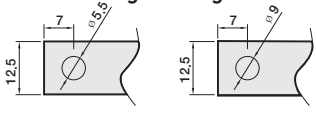
Dimensions for cutting the panel cover



Detail drawing of terminal part



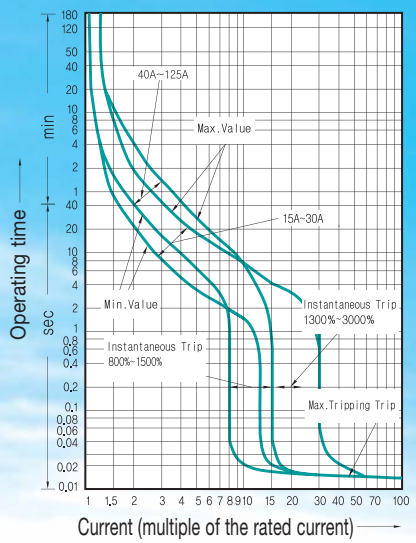
Processing drawing of connection conductor



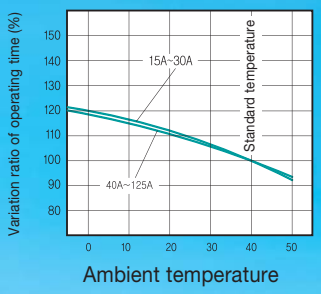
Characteristic Curves and Exterior Dimensions (MCCB)

DBS 102S
DBS 103S
DBS 104S
DBH 52S
DBH 53S
DBH 54S
DBH 102S
DBH 103S
DBH 104S

Characteristic Curve

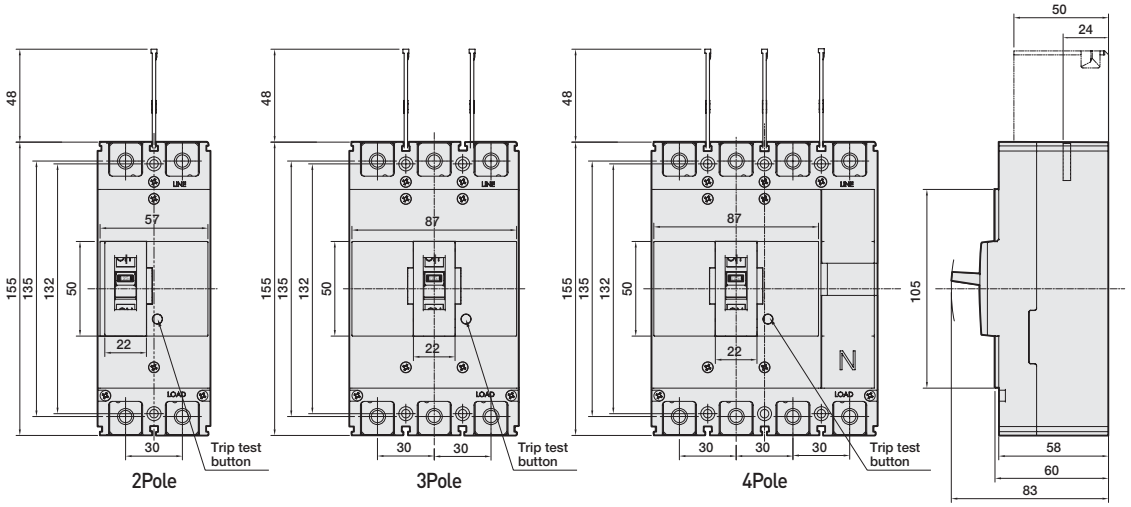


Temperature correction curves

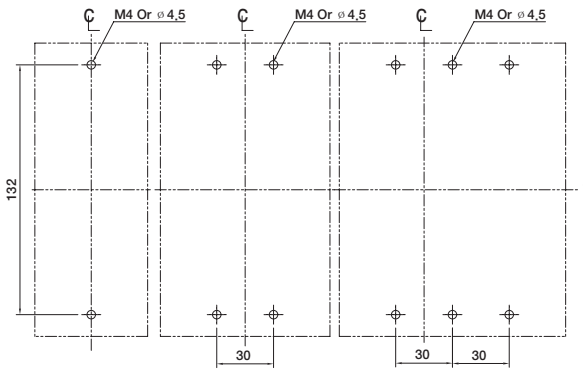


Dimensions

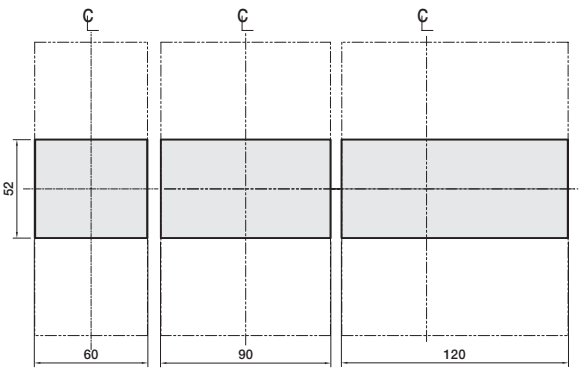
Unit:mm



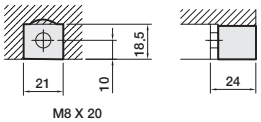
Dimensions for installation of the panel



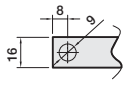
Dimensions for cutting the panel cover



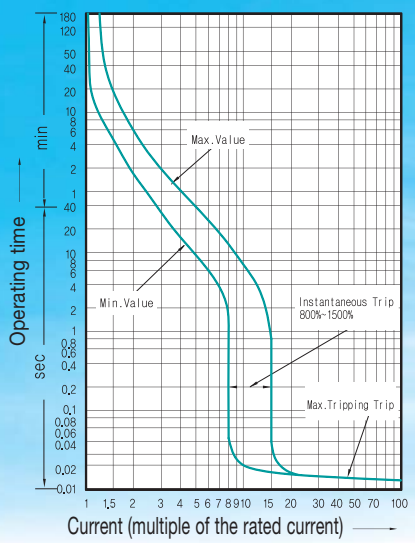
Detail drawing of terminal part



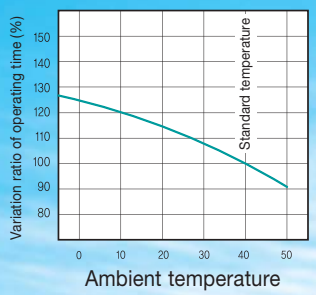
Processing drawing of connection conductor



Characteristic Curve



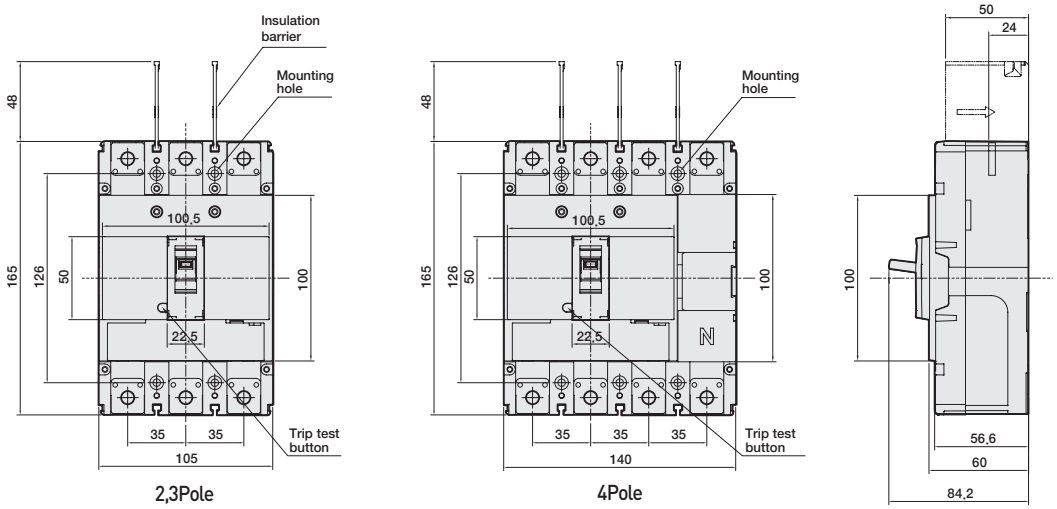
Temperature correction curves



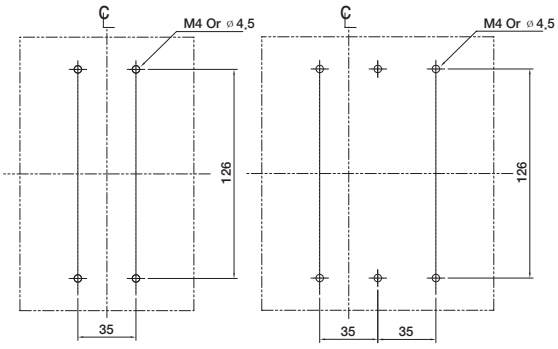
- DBN 202S
- DBN 203S
- DBN 204S
- DBS 202S
- DBS 203S
- DBS 204S
- DBH 202S
- DBH 203S
- DBH 204S
- DBN 202N
- DBN 203N
- DBN 204N

Dimensions

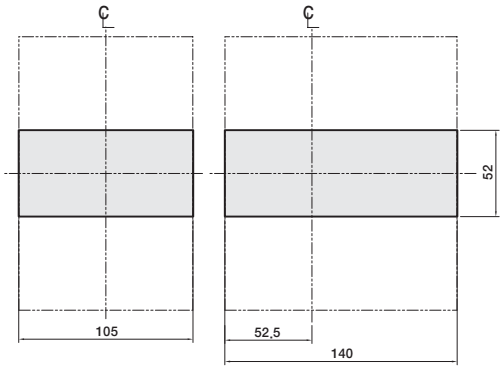
Unit:mm



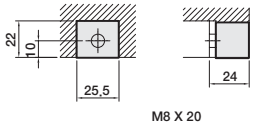
Dimensions for installation of the panel



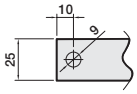
Dimensions for cutting the panel cover



Detail drawing of terminal part



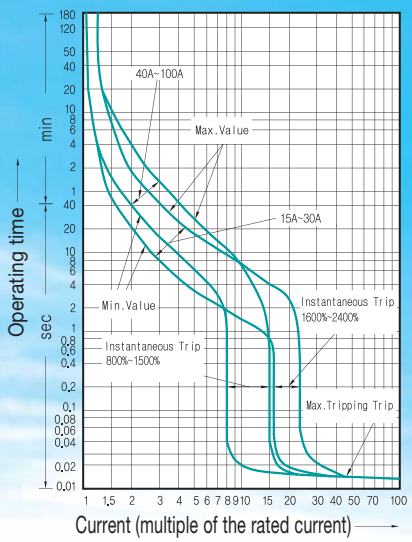
Processing drawing of connection conductor



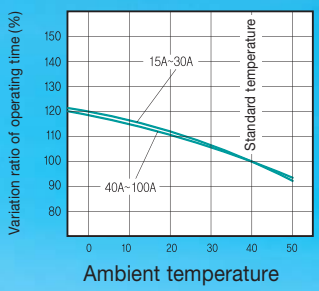
Characteristic Curves and Exterior Dimensions (MCCB)

DBL 52S
DBL 53S
DBL 54S
DBL 102S
DBL 103S
DBL 104S

Characteristic Curve

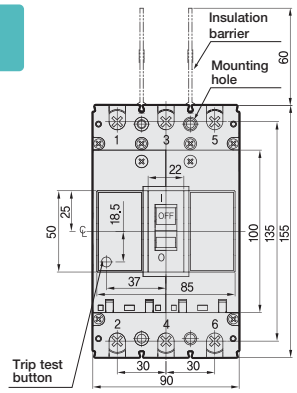


Temperature correction curves

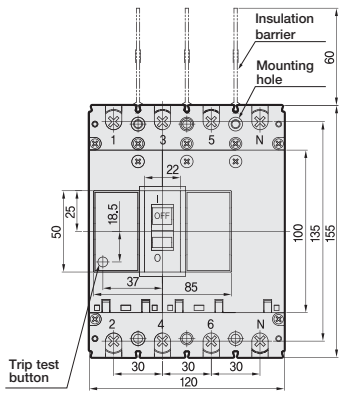


Dimensions

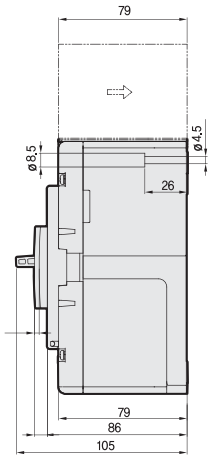
Unit:mm



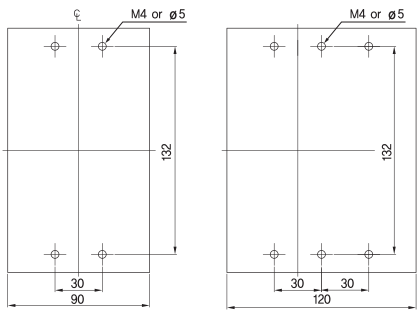
2, 3Pole



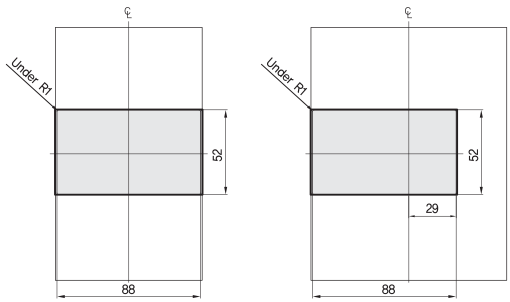
4Pole



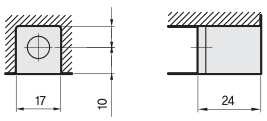
Dimensions for installation of the panel



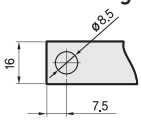
Dimensions for cutting the panel cover



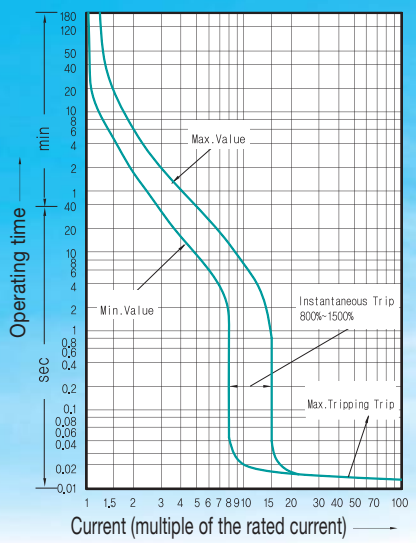
Detail drawing of terminal part



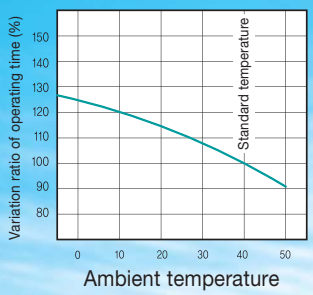
Processing drawing of connection conductor



Characteristic Curve



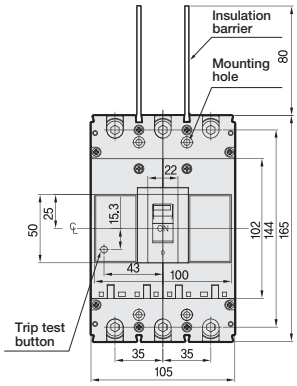
Temperature correction curves



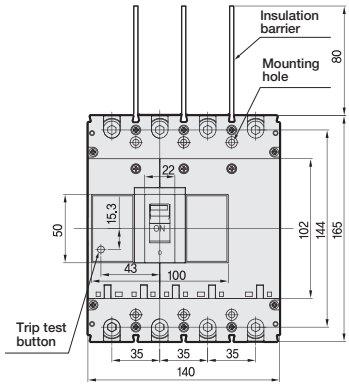
DBL 202S
DBL 203S
DBL 204S

Dimensions

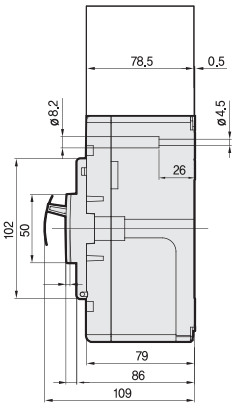
Unit:mm



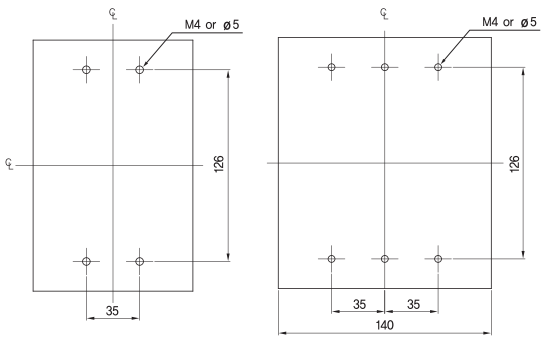
2Pole, 3Pole



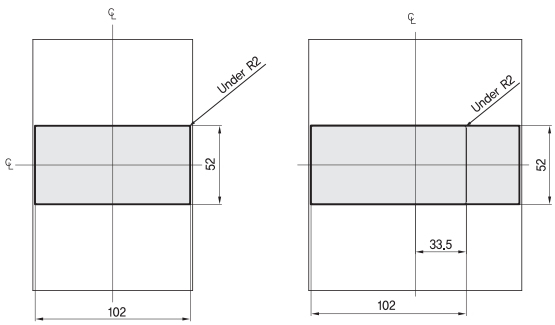
4Pole



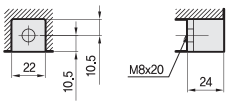
Dimensions for installation of the panel



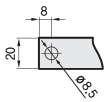
Dimensions for cutting the panel cover



Detail drawing of terminal part



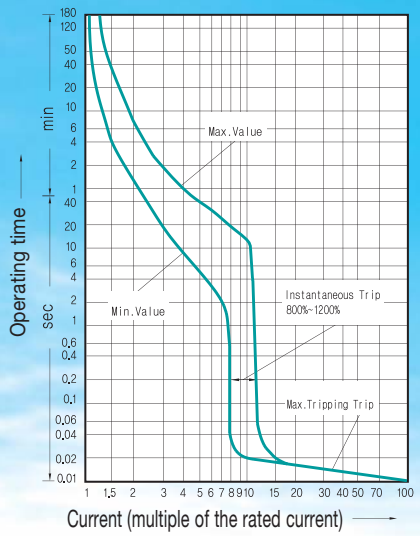
Processing drawing of connection conductor



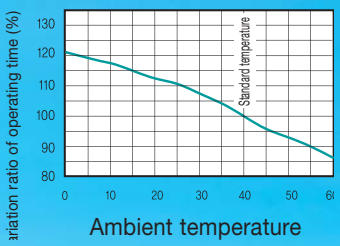
Characteristic Curves and Exterior Dimensions (MCCB)

DBN 402N
DBN 403N
DBN 404N
DBN 402S
DBN 403S
DBN 404S
DBS 402S
DBS 403S
DBS 404S
DBH 402S
DBH 403S
DBH 404S
DBL 402S
DBL 403S
DBL 404S

Characteristic Curve

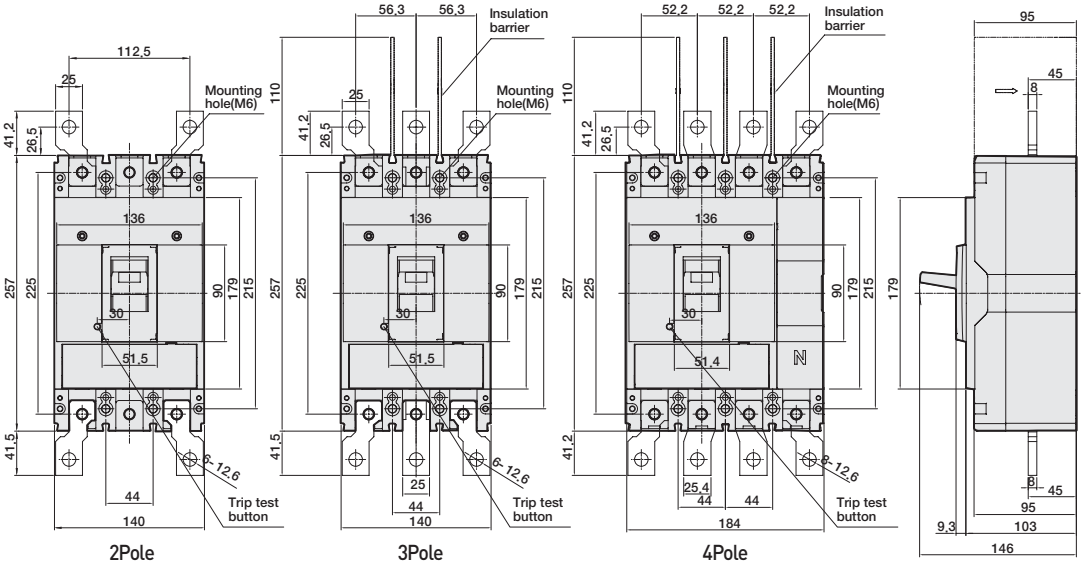


Temperature correction curves

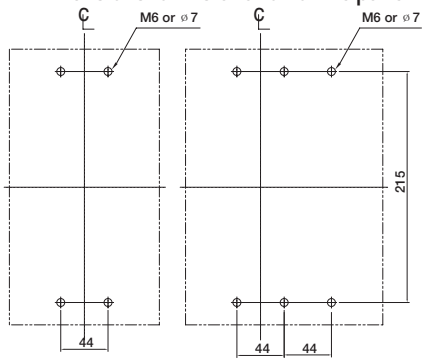


Dimensions

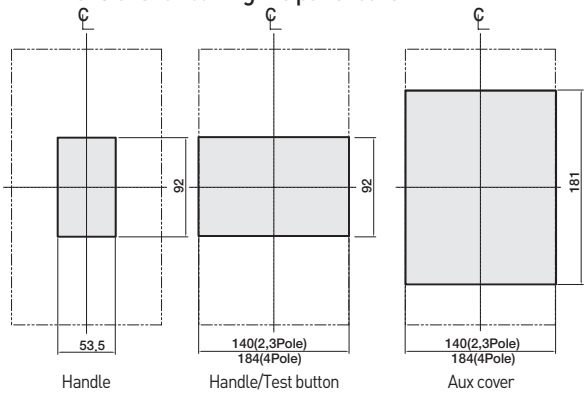
Unit:mm



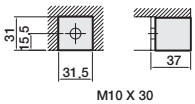
Dimensions for installation of the panel



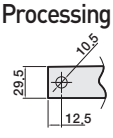
Dimensions for cutting the panel cover



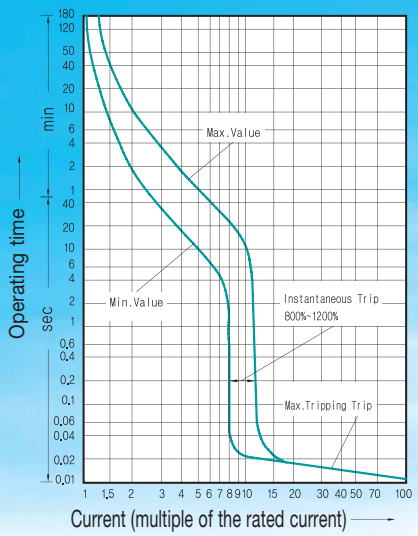
Detail drawing of terminal part



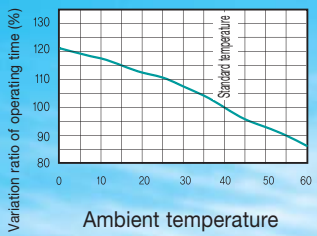
Processing drawing of connection conductor



Characteristic Curve



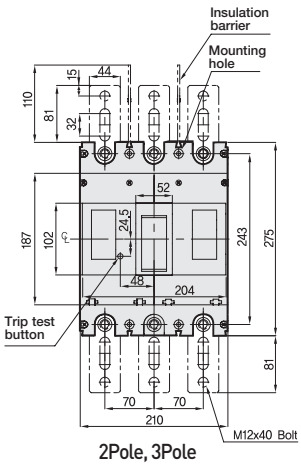
Temperature correction curves



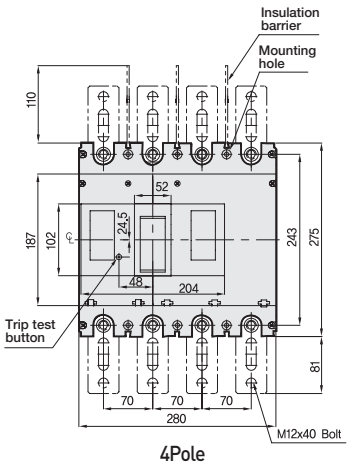
- DBN 602Se
- DBN 603Se
- DBN 604Se
- DBS 602S
- DBS 603S
- DBS 604S
- DBL 602S
- DBL 603S
- DBL 604S

Dimensions

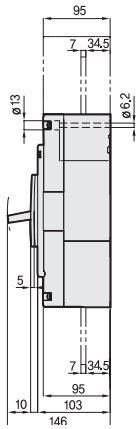
Unit:mm



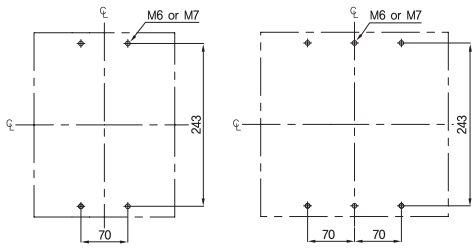
2Pole, 3Pole



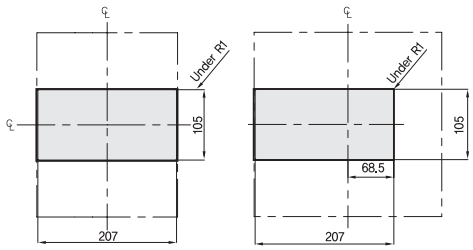
4Pole



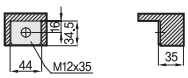
Dimensions for installation of the panel



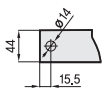
Dimensions for cutting the panel cover



Detail drawing of terminal part



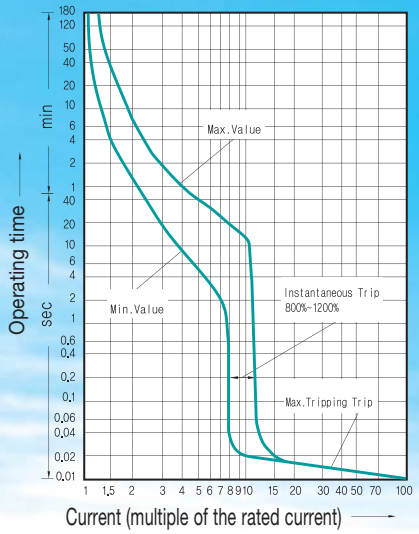
Processing drawing of connection conductor



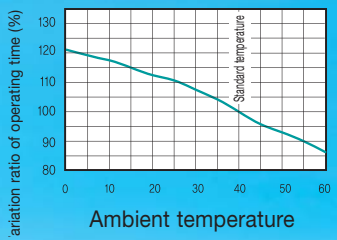
Characteristic Curves and Exterior Dimensions (MCCB)

DBN 632S
DBN 633S
DBN 634S
DBS 632S
DBS 633S
DBS 634S
DBL 632S
DBL 633S
DBL 634S

Characteristic Curve

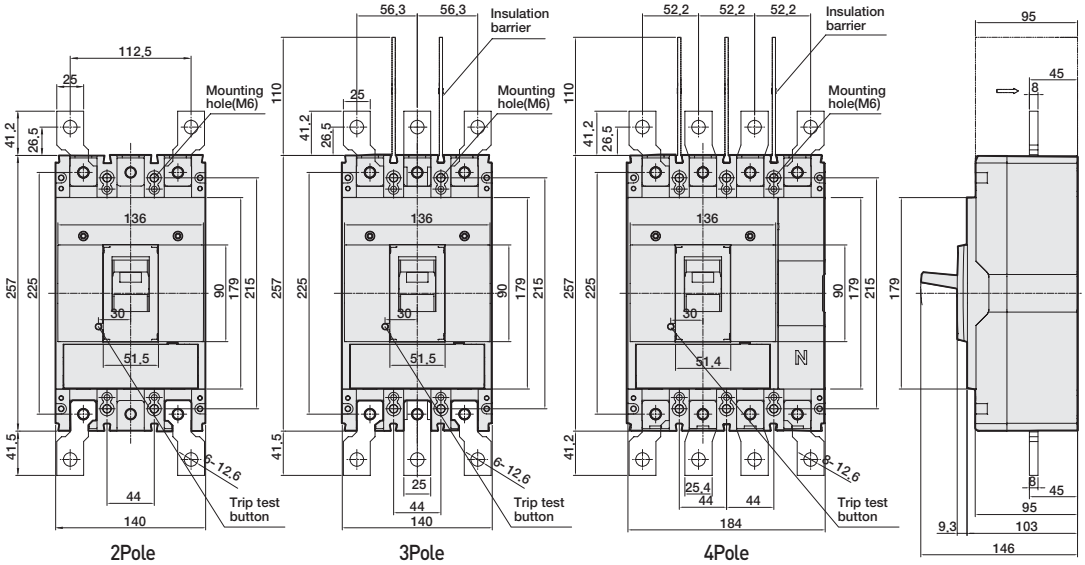


Temperature correction curves

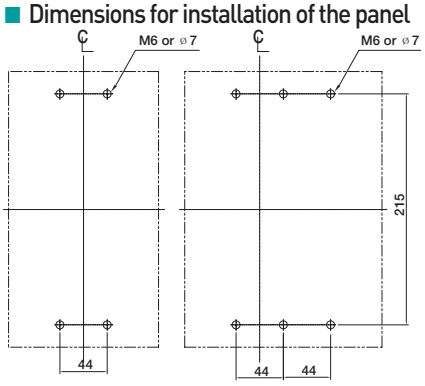


Dimensions

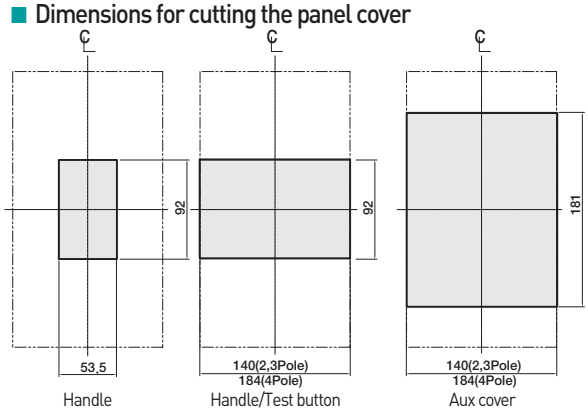
Unit:mm



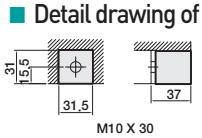
Dimensions for installation of the panel



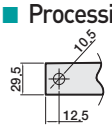
Dimensions for cutting the panel cover



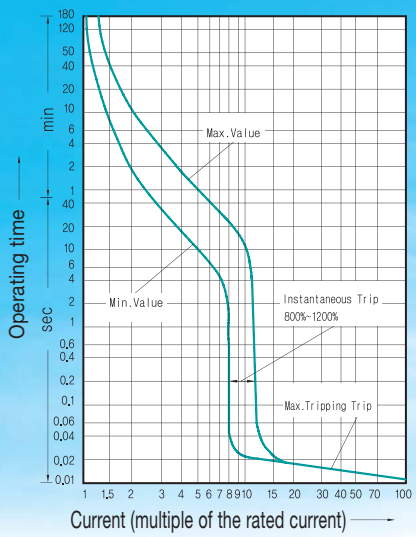
Detail drawing of terminal part



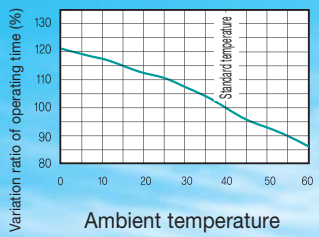
Processing drawing of connection conductor



Characteristic Curve



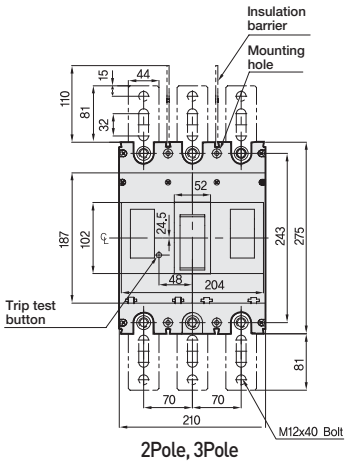
Temperature correction curves



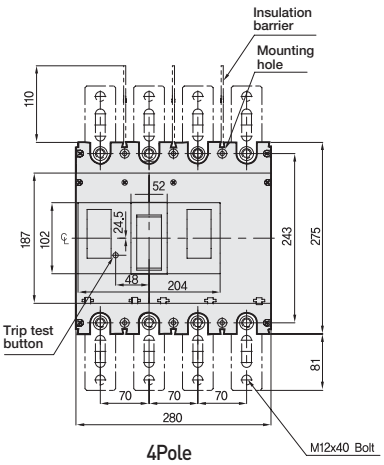
- DBN 802Se
- DBN 803Se
- DBN 804Se
- DBS 802S
- DBS 803S
- DBS 804S
- DBL 802S
- DBL 803S
- DBL 804S

Dimensions

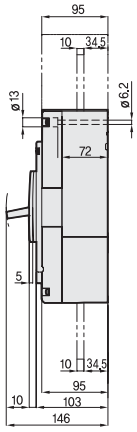
Unit:mm



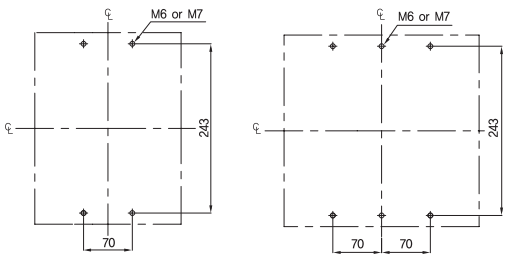
2Pole, 3Pole



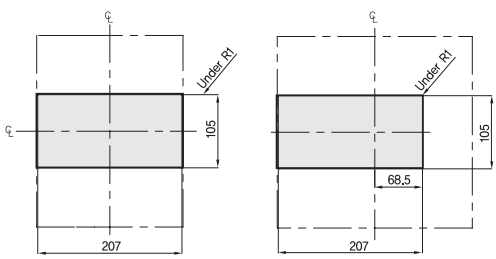
4Pole



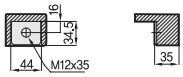
Dimensions for installation of the panel



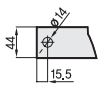
Dimensions for cutting the panel cover



Detail drawing of terminal part



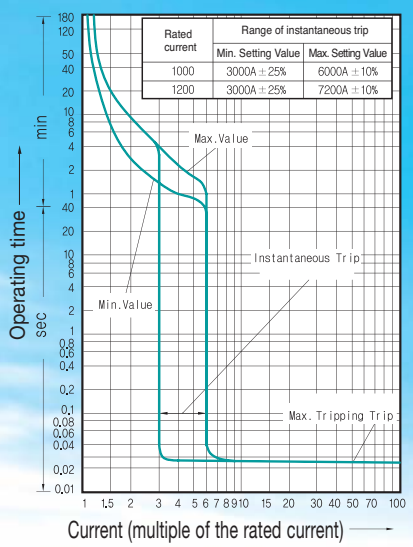
Processing drawing of connection conductor



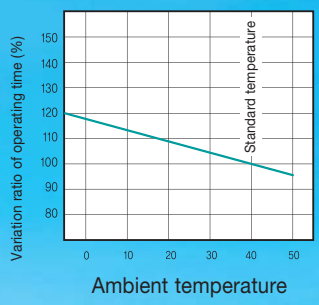
Characteristic Curves and Exterior Dimensions (MCCB)

DBS 1003S
DBS 1004S
DBS 1203S
DBS 1204S

Characteristic Curve

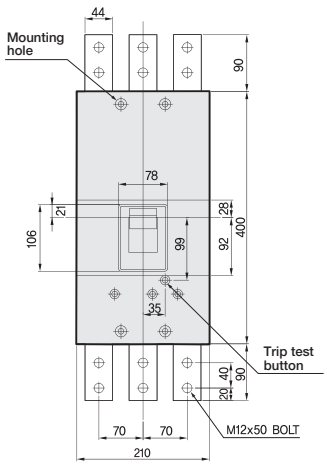


Temperature correction curves

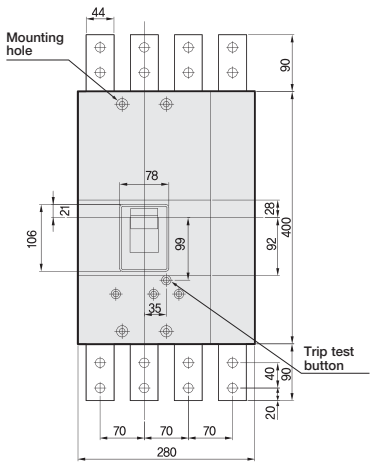


Dimensions

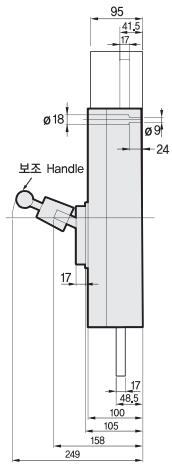
Unit:mm



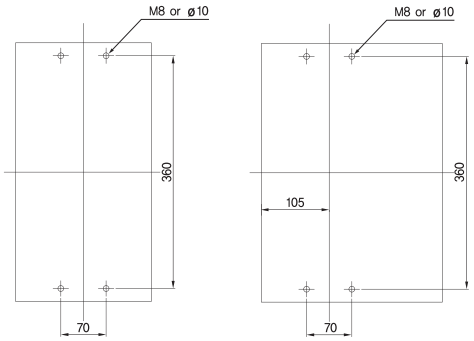
3Pole



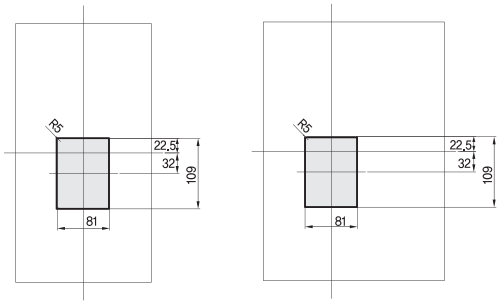
4Pole



Dimensions for installation of the panel



Dimensions for cutting the panel cover



MCCB for Distribution Panel

MCCB

■ DBS Series

- Suitable for branch circuits for housing and standard distribution panels
- Small size, economical type

■ DBE/DBS Series

- Optimal for the designing of standard distribution panels
- Installation for combined use of DIN Rail and Screw (30~100AF)
- Higher breaking capacity (5kA ? 10kA, AC220V standard)

Ordering Code

MCCB for Distribution Panel

30AF~100AF

D SB 3 2 S - 30A

Type	
SB	Standard safety

Ampere Frame	
3	30AF

NO. of poles	
2	2poles

Type	
S	Standard

AF	Rated current
30AF	15A, 20A 30A

D SB 3 2 F - 100A EC

Type	
BE	Economic
BS	Standard
SB	Safety
SE	Slim economy
SS	Slim standard

Ampere Frame	
3	30AF
5	50AF
6	60AF
10	100AF

NO. of poles	
2	2poles
3	3poles

F:Type
BA
BE
S
CN
F

CT,ZCT내장형	
-	일반
CZ	CT, ZCT General

AF	Rated current
30AF	5A, 10A,15A, 20A, 30A
50AF	15A, 20A, 30A, 40A, 50A
60AF	60A
100AF	60A, 75A , 1 00A

Accessories	
B	Insulation barrier
EC	Easy Con
EL	Easy Lock
SL	Safety Lock

Standard Table of Models

MCCB for Distribution Panel

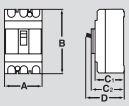
Model \ Voltage	Rated Breaking Capacity(kA)			
	220V	380V	460V	Certificate status
DSB 32S	2.5	-	-	㉾
DSE 32F	2.5	-	-	㉾
DSS 32F	5	-	-	㉾
DSB 32, 52CN	5	-	-	㉾
DBE 32BE, 33BE	5	2.5	2.5	㉾
DBS 32BE, 33BE	10	5	5	㉾
DBE 52BE, 53BE Note1)	5	2.5	2.5	㉾, ㊈
DBS 52BE, 53BE	10	5	5	㉾
DBE 52BA, 52BAcz	5	-	2.5	㉾
DBE 62BE, 63BE	5	2.5	2.5	㉾
DBS 62BE, 63BE	10	5	5	㉾
DBE 62BA, 62BAcz	5	-	2.5	㉾
DBE 102BE, 103BE Note1)	5	2.5	2.5	㉾, ㊈
DBS 102BE, 103BE	10	5	5	㉾

Note) 1. PES certificate : DBE 52BE 20A,30A,40A,50A
DBE 53BE 15A,20A,30A,40A,50A
DBE 103BE 60A,75A,100A

Standard Table of Models _ MCCB

MCCB for distribution panel



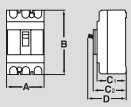

Type			DSB Series			DSS Series		DBE Series	
Frame size			30AF	30AF	50AF	30AF		30AF	
Type			DSB 32S	DSB 32CN	DSB 52CN	DSE 32F	DSS 32F	DBE 32BE	DBE 33BE
Ratings	No. of Pole		2	2		2	2	2	3
	No. of Pole	A	15, 20, 30	15, 20, 30	40, 50	15, 20, 30		5, 10, 15, 20, 30	
	Rated Voltage(Ue)	AC(V)	220	220		220		220, 460	
		DC(V)	-	-		-		-	
	Rated Insulation Voltage(Ui)	V	-	-		-		600	
	Impulse Withstand Voltage(Uimp)	kV	-	-		-		6	
Rated Breaking Capacity (Icu)kA (Sym)	AC	600V	-	-		-		-	
		480/500V	-	-		-		-	
		460V	-	-		-		2.5	
		415V	-	-		-		-	
		380V	-	-		-		2.5	
		220V	2.5	5		2.5	5	5	
	DC	250V	-	-		-		-	
		125V	-	-		-		-	
Ics=%×Icu			-	50		50		50	
Instantaneous trip			-	(8~18)×In		(5~10)×In		(8~16)×In	
Endurance (No. of times)		Mechanical	8500	8500		8500		8500	
		Electrical	1500	1500		1500		1500	
Note1) Dimension (mm) 		A	33	35		20	20	50	75
		B	70	80		85	85	98.5	
		C1	42	60		50	50	60	
		C2	45	65.4		54	54	65	
		D	56	79		66	66	79	
Weight (kg)			0.1	0.2		0.1	0.15	0.3	0.4
Over current trip type			Thermal magnetic	Thermal magnetic		Thermal magnetic		Hydraulic Magnetic (ODP)	
Trip test button			-	O		-		O	
Connection	Standard type		O	O		O		O	
	Rear Connection		-	-		-		-	
Mounting type			Screw	Screw		Clip		DIN Rail, Screw	
Accessories	Aux. Switch	(AX)	-	-		-		-	
	Alarm Switch	(AL)	-	-		-		-	
	Shunt trip	SHT	-	-		-		-	
	Rotary Handle	Direct	-	-		-		-	
		Extended	-	-		-		-	
	Terminal Cover	Long Type	-	-		-		-	
		Short Type	-	-		-		-	
	Insulation Barrier	B	-	-		-		O	
	Easy Lock	EL	-	-		O		-	
	S Lock	SL	-	-		O		-	
	Easy Con	EC	-	-		O		O	
Standard	KS C 8321/IEC 60947-2		O	O		O		O	
	PSE (Japan)		-	-		-		O	

Note1) CT, ZCT-embedded MCCB

	DBS Series		DBE Series		DBS Series		DBE Series					
	30AF		50AF		50AF		50AF		60AF			
	DBS 32BE	DBS 33BE	DBE 52BE	DBE 53BE	DBS 52BE	DBS 53BE	DBE 52BA	DBE 52BAcz	DBE 62BA	DBE 62BAcz	DBE 62BE	DBE 63BE
	2	3	2	3	2	3	2		2		2	3
	5, 10, 15, 20, 30		15, 20, 30, 40, 50				30, 40, 50		60		60	
	220, 460		220, 460				220, 460		220, 460		220, 460	
	-		-				-		-		-	
	600		600				-		-		600	
	6		6				-		-		6	
	-		-				-		-		-	
	-		-				-		-		-	
	5		2.5		5		2.5		2.5		2.5	
	-		-				-		-		-	
	5		2.5		5		-		-		2.5	
	10		5		10		5		5		5	
	-		-				-		-		-	
	-		-				-		-		-	
	50		50				50		50		50	
	(8~16)×In		(8~16)×In				(8~16)×In		(8~16)×In		(8~16)×In	
	8500		8500				8500		8500		8500	
	1500		1500				1500		1500		1500	
	50	75	50	75	50	75	50		50		50	75
	98.5		98.5				130		130		98.5	
	60		60				50		50		60	
	65		65				55		55		65	
	79		79				71		71		79	
	0.3	0.4	0.3	0.4	0.3	0.4	0.3		0.3		0.4	0.5
	Hydraulic Magnetic (ODP)		Hydraulic Magnetic (ODP)				Hydraulic Magnetic (ODP)		Hydraulic Magnetic (ODP)		Hydraulic Magnetic (ODP)	
	O		O				O		O		O	
	O		O				O		O		O	
	-		-				-		-		-	
	DIN Rail, Screw		DIN Rail, Screw				Screw		Screw		DIN Rail, Screw	
	-		-				-		-		-	
	-		-				-		-		-	
	-		-				-		-		-	
	-		-				-		-		-	
	-		-				-		-		-	
	-		-				-		-		-	
	-		-				-		-		-	
	O		Θ				-		-		O	
	-						-		-		-	
	-		-				-		-		-	
	O		O				-		-		O	
	O		O				O		O		O	
	-		O	O	-		-		-		-	

Standard Table of Models _ MCCB

MCCB for distribution panel

Type			DSB Series		
Frame size			60AF		
Type			DBS 62BE	DBE 63BE	
Ratings	No. of Pole		2	3	
	No. of Pole	A	60		
	Rated Voltage(Ue)	AC(V)	220, 460		
		DC(V)	-		
	Rated Insulation Voltage(Ui)	V	600		
	Impulse Withstand Voltage(Uimp)	kV	6		
Rated Breaking Capacity (Icu)kA (Sym)	AC	600V	-		
		480/500V	-		
		460V	5		
		415V	-		
		380V	5		
		220V	10		
	DC	250V	-		
		125V	-		
Ics=%×Icu			50		
Instantaneous trip			(8~16)×In		
Endurance (No. of times)		Mechanical	8500		
		Electrical	1500		
Note1] Dimension (mm) 		A	50	75	
		B	98.5		
		C1	60		
		C2	65		
		D	79		
Weight (kg)			0.4	0.5	
Over current trip type			Hydraulic Magnetic (ODP)		
Trip test button			O		
Connection	Standard type		O		
	Rear Connection		-		
Mounting type			DIN Rail, Screw		
Accessories	Aux. Switch	(AX)	-		
	Alarm Switch	(AL)	-		
	Shunt trip	SHT	-		
	Rotary Handle	Direct	-		
		Extended	-		
	Terminal Cover	Long Type	-		
		Short Type	O		
	Insulation Barrier	B	-		
	Easy Lock	EL	-		
	S Lock	SL	O		
	Easy Con	EC	O		
Standard	KS C 8321/IEC 60947-2		O		
	PSE ㉮ (Japan)		-		

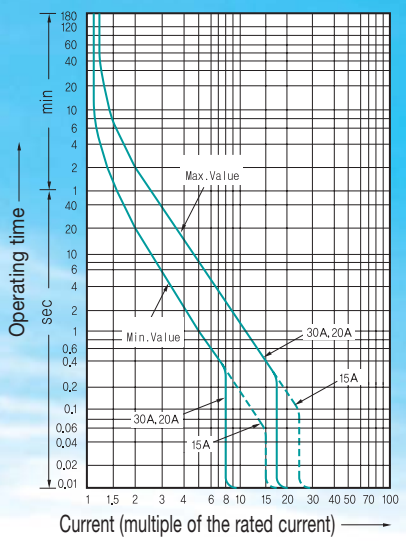
Note1] CT, ZCT-embedded MCCB

	DBE Series		DBS Series	
	100AF		100AF	
	DBE 102BE	DBE 103BE	DBS102BA	DBS 103BE
	2	3	2	3
	15, 20, 30, 40, 50			
	220, 460			
	-			
	600			
	6			
	-			
	-			
	2.5		5	
	-			
	2.5		5	
	5		10	
	-			
	-			
	50			
	(8~16)×In			
	8500			
	1500			
	75	50	50	75
	98.5			
	60			
	65			
	79			
	0.4	0.5	0.4	0.5
	Hydraulic Magnetic (ODP)			
	O			
	O			
	-			
	DIN Rail, Screw			
	-			
	-			
	-			
	-			
	-			
	-			
	O			
	-			
	-			
	O			
	O			
	O			
	-	O	-	

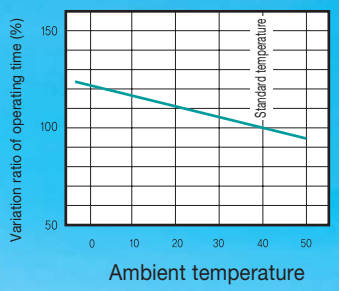
Characteristic Curves and Exterior Dimensions _ MCCB

DSB 32S

■ Characteristic Curve

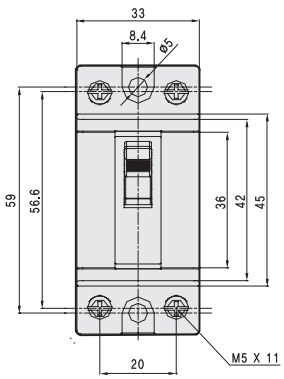


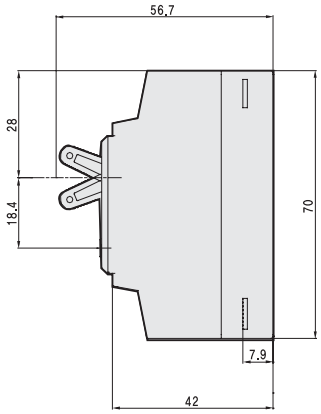
■ Temperature correction curves



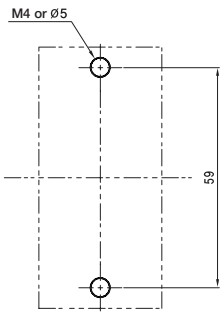
Dimensions

Unit:mm

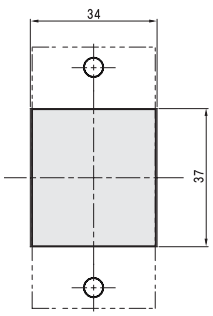




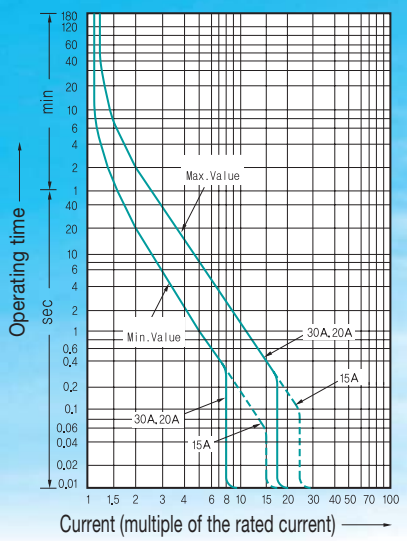
■ Dimensions for installation of the panel



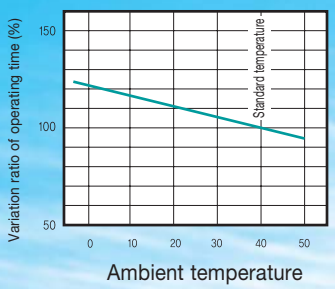
■ Dimensions for cutting the panel cover



Characteristic Curve



Temperature correction curves

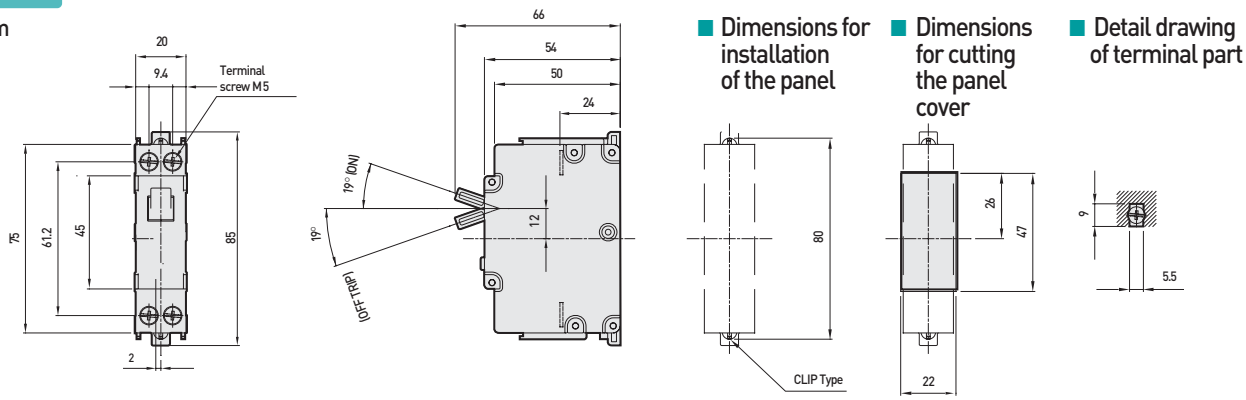


DSE 32F
DSS 32F

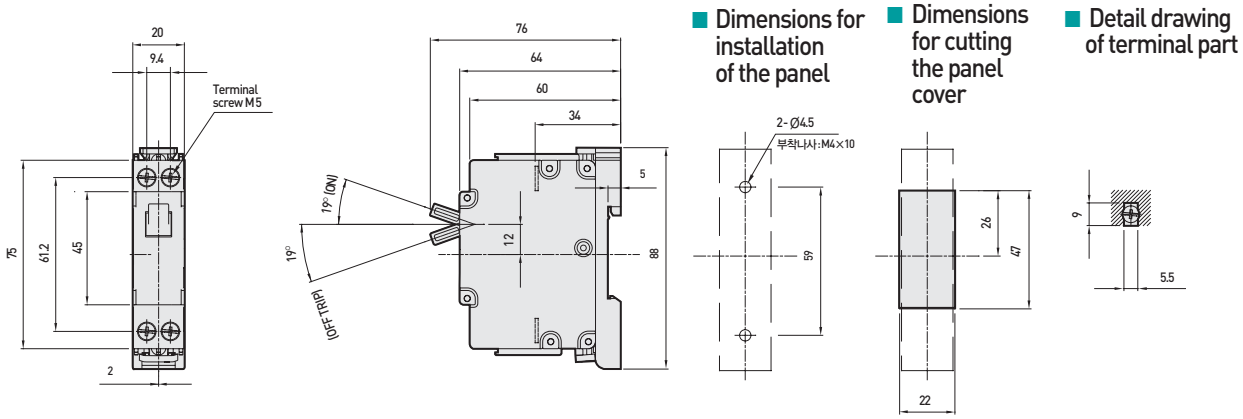
Dimensions

■ DSE 32F / DSS 32F

Unit:mm



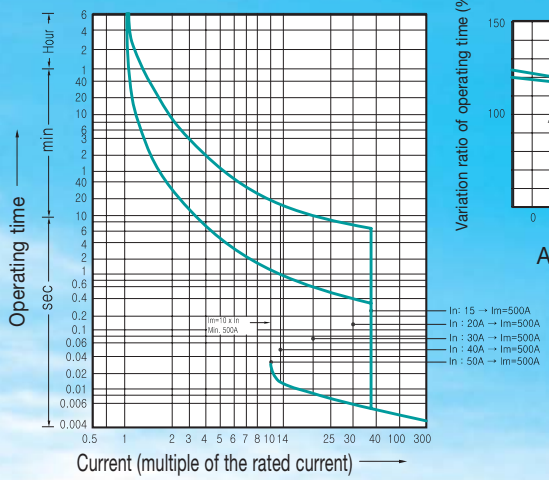
■ Separate mounting (Eazy Lock)



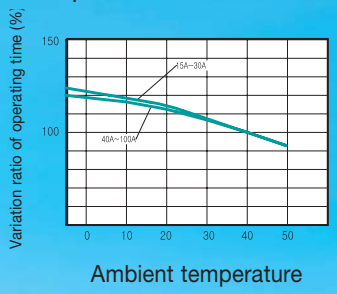
Characteristic Curves and Exterior Dimensions _ MCCB

DSB 32CN
DSB 52CN

■ Characteristic Curve

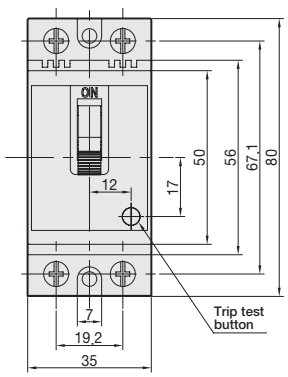


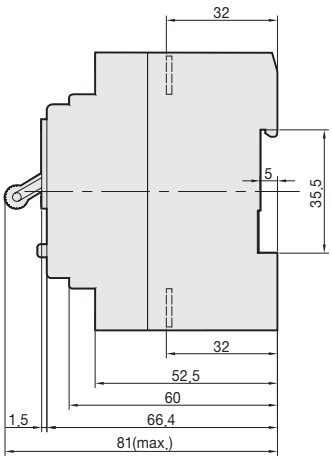
■ Temperature correction curves



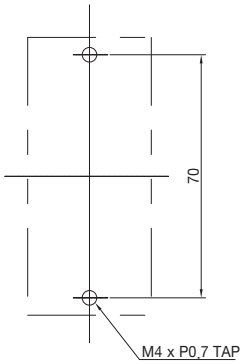
Dimensions

Unit:mm

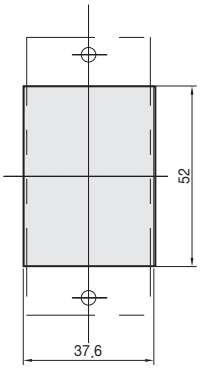




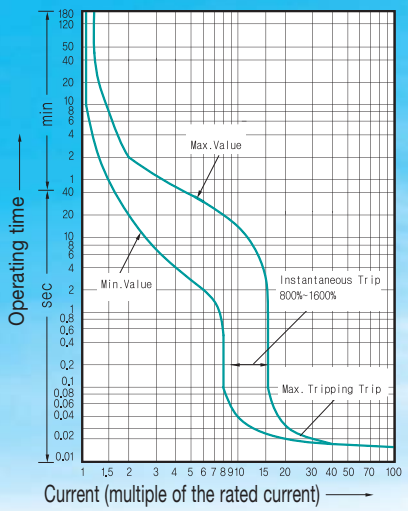
■ Dimensions for installation of the panel



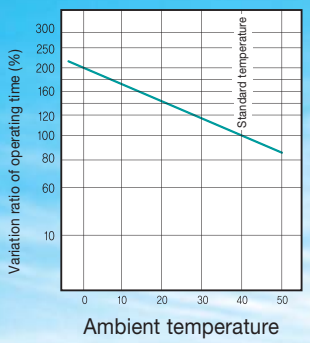
■ Dimensions for cutting the panel cover



Characteristic Curve



Temperature correction curves

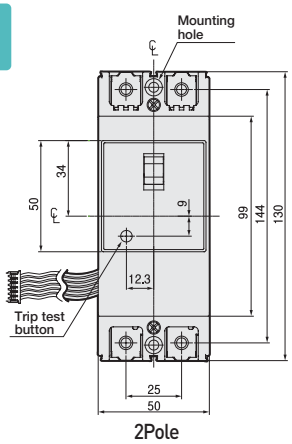


DBE 52BA
DBE 62BA
DBE 52BAcz
DBE 62BAcz

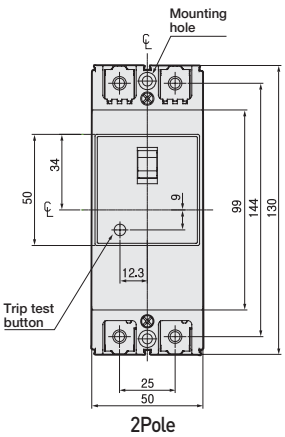
Dimensions

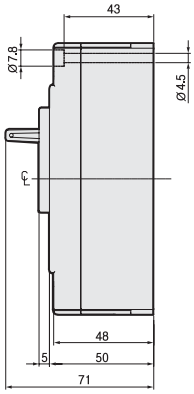
Unit:mm

DBE 52BAcz, 62BAcz

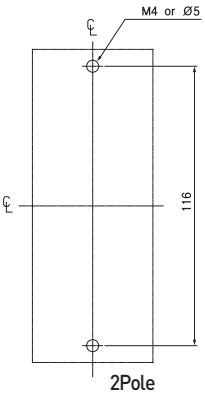


DBE 52BA, 62BA

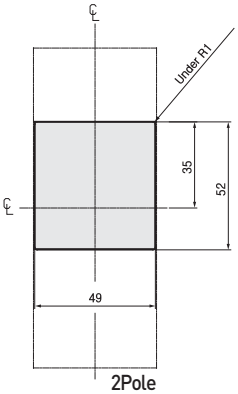




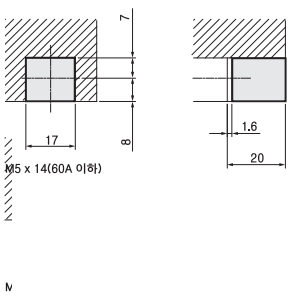
Dimensions for installation of the panel



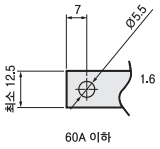
Dimensions for cutting the panel cover



Detail drawing of terminal part



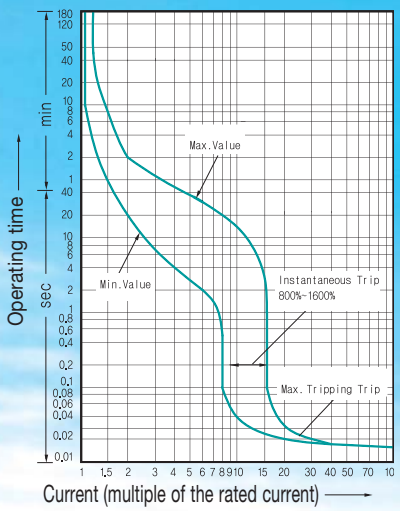
Dimensions for cutting the panel cover



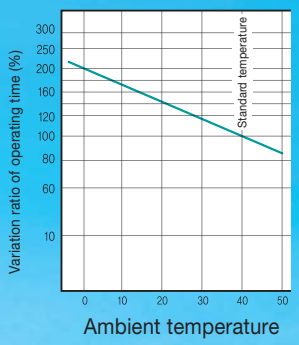
Characteristic Curves and Exterior Dimensions _ MCCB

- DBE 32BE
- DBE 33BE
- DBS 32BE
- DBS 33BE
- DBE 52BE
- DBE 53BE
- DBS 52BE
- DBS 53BE
- DBE 62BE
- DBE 63BE
- DBS 62BE
- DBS 63BE
- DBE 102BE
- DBE 103BE
- DBS 102BE
- DBS 103BE

Characteristic Curve

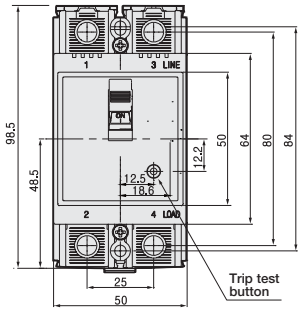


Temperature correction curves

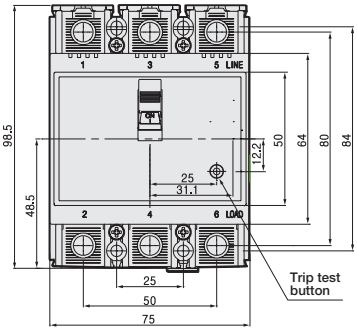


Dimensions

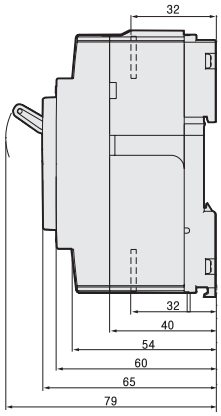
Unit:mm



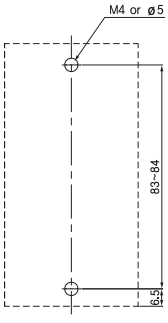
2Pole



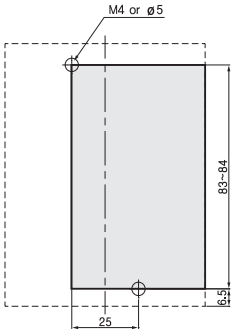
3Pole



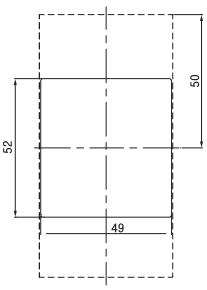
Dimensions for installation of the panel



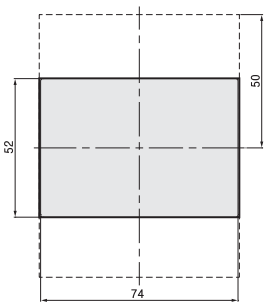
Dimensions for cutting the panel cover



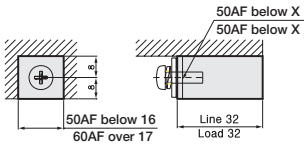
Dimensions for installation of the panel

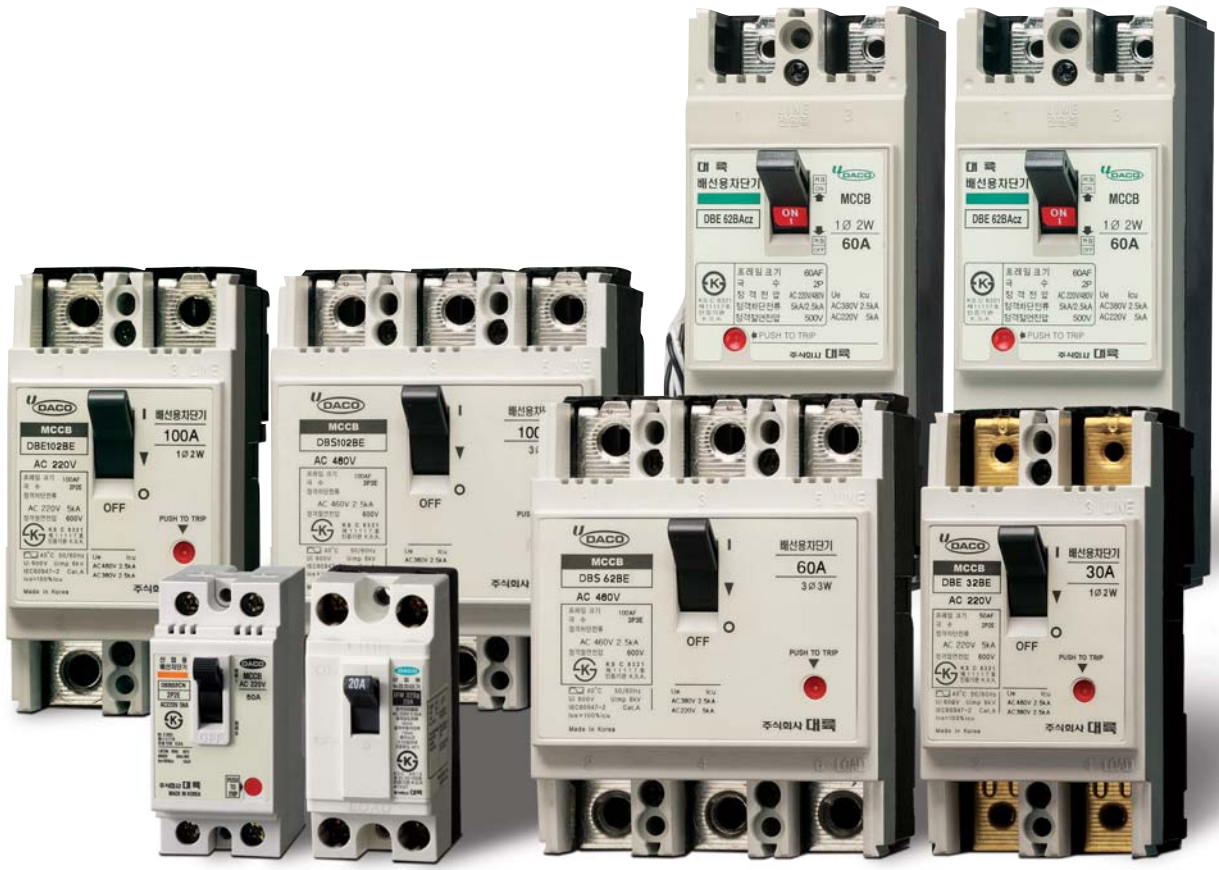


Dimensions for cutting the panel cover

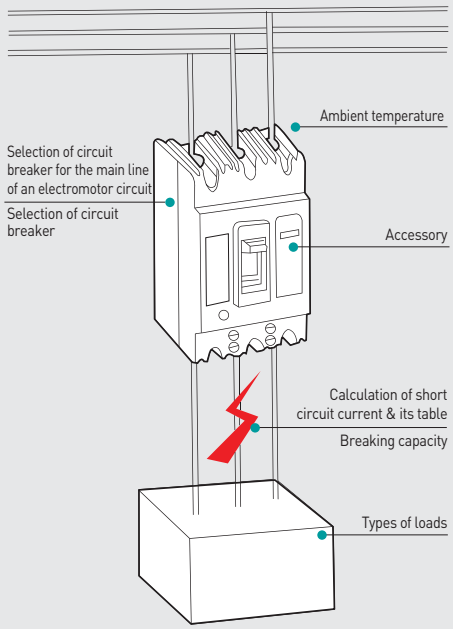


Detail drawing of terminal part




MCCB
DBE102BE
AC 220V
100A
OFF
MCCB
DBS102BE
AC 460V
MCCB
DBS 62BE
AC 460V
60A
OFF
MCCB
DBE 62BAcz
60A
MCCB
DBE 32BE
AC 220V
30A
OFF
20A

Points to be considered when choosing a circuit breaker



Applicable standard of use circuit	Voltage, Line, alternating current, direct current, frequency, use standard
Selection of circuit breaker for the main line of an electromotor circuit	Lead-in hole, main line, branch, distribution panel, housing, earth leakage protection
Selection of circuit breaker	
Calculation of short circuit current & its table	Short circuit current
Breaking capacity	
Cascade trip	Protection method
Discriminative trip	
Use environment	Atmosphere
Ambient temperature	Relation between temperature and cable
Use purpose	Circuit for each use
Accessory	Attachment
	Electrical service type
Installation method	Mounting, connection
Kinds of loads	Selection of circuit breaker for the branch circuit of an electromotor
	Selection of circuit breaker for an electro-motion and electric heat circuit
	Selection of circuit breaker for a distribution line to protect an electromotor
	Selection of circuit breaker for a welding machine circuit
	Selection of circuit breaker for the Primary side of a transformer
	Selection of circuit breaker for a condenser circuit

Principle of Selection

1. Should be able to break the fault current.
2. Should be able to safely apply a load current.
3. Should not operate unnecessarily, except for accidents such as load start-up, etc.
4. The rated current of the circuit breaker should exceed the load current.
5. The protection you are aiming at should be guaranteed.
6. The rated current of the earth leakage circuit breaker for combined use for protection of both overload and short circuit should be less than the allowable current value of the cable used in the branch circuit.
7. Select the circuit breaker with the rated device suitable for the circuit voltage.
8. The earth leakage circuit breaker for combined use for protection of both overload and short circuit should be able to break the short circuit that passes through its installation places and should have a rated breaking capacity greater than the value of the short circuit current.

Sequence of Selection

■ MCCB

Item to be checked	Points for consideration	
Use circuit	Phase-line, rated voltage, rated current, size	• Table of rating
Rated current decision	Kinds of cables, size, kinds of loads	• Relation between temperature and cable • Selection of circuit breaker for an electro-motion and electric heat circuit • Selection of circuit breaker for a welding machine circuit • Selection of circuit breaker for the Primary side of a transformer • Selection of circuit breaker for the main cable of an electromotor circuit • Selection of circuit breaker for an inverter circuit • Selection of circuit breaker for a condenser circuit
Breaking capacity decision	Transformer capacity, size and length of cable	• Application of breaking capacity • calculation of short circuit current • cascade type
Operating characteristic decision	Kinds of loads	• Selection of rated sensitivity current
Type name decision	Use	• Circuit breaker for each use
Mounting method		• Mounting and connection • N-handle connection
Attachment	Interior accessories, exterior accessories	• Attachment
Use environment		• Unusual use environmen

Relation between temperature and cable

■ Relation between use current and ambient temperature

The rated current of the circuit breaker has been adjusted to 40℃ as the basis ambient temperature.
This is because we assumed that the circuit breaker would be installed inside a panel such as a distribution panel, control panel, etc.
If the temperature of the place where the circuit breaker is installed is greatly over or below 40℃, the rated current, which has been corrected according to the Temperature compensation curve, should be used. However, in consideration of variation, etc. of power and voltage, it should have some allowance against the rated current of which the maximum use current has been compensated.

■ 0.6/1kV XLPE Insulation cable

• Applicable products : CV, F-CV, CE,F-FR-8, F-FR-3, HFCO, NFR-8 • Application method of KS C IEC 60364-5-52 [Unit : A]

Placement condition / Nominal cross section(mm²)	Placement by closed conduit in the air			Placement by direct laying	
	Single core	2Core	3 • 4Core	2Core	3 • 4Core
	3Line S=d	1Line Placement	1Line Placement	1Line	1Line
1.5	22	26	23	26	22
2.5	30	36	32	34	29
4	42	49	42	44	37
6	55	63	54	56	46
10	77	86	75	73	61
16	105	115	100	95	79
25	141	149	127	121	101
35	176	185	158	146	122
50	216	225	192	173	144
70	279	289	246	213	178
95	342	352	298	252	211
120	400	410	346	287	240
150	464	473	399	324	271
185	533	542	456	363	304
240	634	641	538	419	351
300	736	741	621	474	396
400	868	892	745	–	–
500	998	–	–	–	–
630	1151	–	–	–	–

■ 0.6/1kV PVC Insulation cable

• applicable products : VV • Application method of KS C IEC 60364-5-52 [Unit : A]

Placement condition / Nominal cross section(mm²)	Placement by closed conduit in the air			Placement by direct laying	
	Single core	2Core	3 • 4Core	2Core	3 • 4Core
	3Line S=d	1Line Placement	1Line Placement	1Line	1Line
1.5	19	22	18.5	22	18
2.5	28	30	25	29	24
4	36	40	34	38	31
6	47	51	43	47	39
10	64	70	60	63	52
16	85	94	80	81	67
25	114	119	101	104	86
35	143	148	126	125	103
50	174	180	153	148	122
70	225	232	196	183	151
95	275	282	238	216	179
120	321	328	276	246	203
150	372	379	319	278	230
185	427	434	364	312	258
240	507	514	430	361	297
300	587	593	497	408	336
400	689	–	–	–	–
500	789	–	–	–	–
630	905	–	–	–	–

Application in special environments

Though we have many various peripheral environments where the MCCB & ELCB are used, they are manufactured based on the standard use condition as shown below.

- When the standard circuit breaker is used in the condition of high temperatures exceeding 40℃, the reduction ratio is as shown below.
  50℃·····90% 60℃·····80%
  In case of a circuit breaker with a temperature compensation device, no compensation is required for up to 50℃.
- When used in highly humid conditions, the dielectric strength or electrical performance may drop.

- When you need to put it in a dustproof structure, please contact us.

Higher temperature & humidity

Lower temperature

Standard use condition specified in KS Standard

1) Use temperature : -5℃~40℃
2) Relative humidity : less than 85%
3) Altitude: less than 2000m
4) Environment: There should be no excessive vapor, oil, smoke, dust, corrosive gas, combustible gas, etc.

Dust

Corrosive Gas

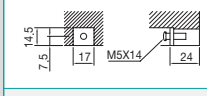
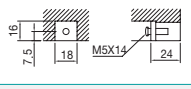
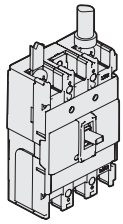
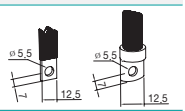
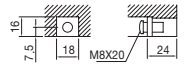
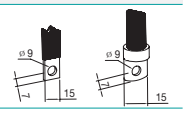
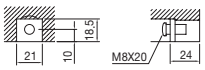
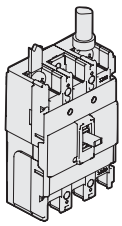
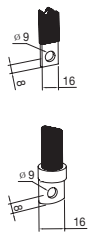
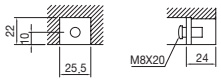
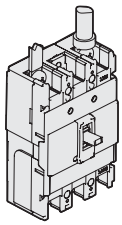
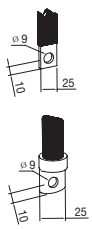
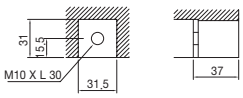
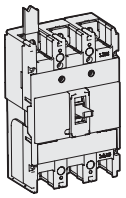
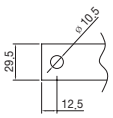
- Even in -20℃, there is no difficulty with electric application switching, trip and short circuit breaking.
- No difficulty either in passing through a cold place of -40℃ or with.
- As the basis ambient temperature has been adjusted as 40℃, the operating characteristics may vary.

- In case of leaving it being switched to ON or OFF for a long time, it is advisable to check it by periodically switching the load current.
- In case there is a lot of corrosive gas, you need to put it inside an airtight protection structure.

Influence in special environment

Special environment	Influence of MCCB & ELCB
low temperature	• Deformation due to ice formation or condensation • Lowering of mechanical strength
Higher temperature and humidity	• Corrosion • Lowering of insulation resistance • Operation fault
Corrosive gas, salinity	• Corrosion • Lowering of insulation resistance • Total fault of contact
Dust, vapor	• Total fault of contact • Operation fault with tool part • Lowering of insulation resistance

Connection Way

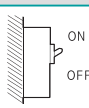
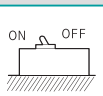
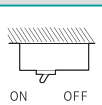
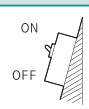
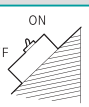
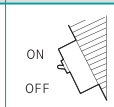
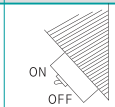
Smart MCCB Frame	Terminal(mm) NS Type	Terminal(mm) S Type	Torque(Kg.Cm)	Conductor(mm)
100AF	15~50A 	15~50A 	M5:23~28, M8:55~75 	15~50A 
	60~100A 	60~100A 		60~100A 
125AF			M8:55~75 	
250AF			M8:80~130 	
400AF/ 600AF			M10:240~300, M12:400~500 	

Mounting and Connection

Influence by Mounting Angle

With the Hydraulic-Magnetic Type, the operating current varies according to the mounting angle due to the influence by gravity imposed on the Plunger inside the Oil Dash Pot. Please use it after compensating for the rated current on the basis of the table below

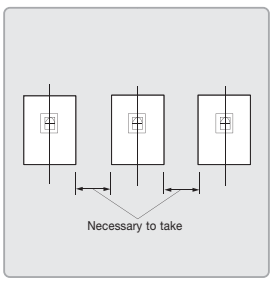
Compensation ratio of rated current

Mounting angle / AF	Vertical 	Horizontal 	Reverse horizontal 	Rear inclination 15° 	Rear inclination 45° 	Rear inclination 15° 	Rear inclination 45° 
30~100AF	100%	120%	80%	105%	110%	95%	85%

Note) In case of 100AF, only the economical type is applicable

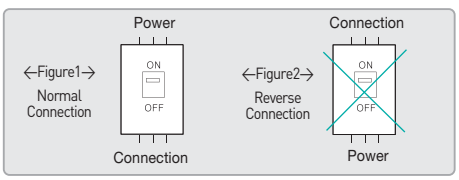
Influence by the mounting clearance

When several circuit breakers are arranged in a row as shown in the Figure right, though the characteristic of time delay Trip may vary due to the heat influence between circuit breakers, the operating characteristic hardly varies even when the close equipment is adhered to each other.
Therefore, though it is not necessary to take into consideration the influence of the mounting space on the characteristics, please give plenty of consideration to the insulation clearance in consideration of the connection way, etc.



Connection of Power and Load

The connection of cable load to the terminal of the MCCB is made on the basis of the connection as shown in ←Figure 1→. When the connection is made as shown in ←Figure 2→, as the breaking performance may be lowered, please avoid this kind of connection.



Repair & Check

■ Check in earlier time

After installation of MCCB, please check for the following items before applying an electric current.

Equipment model	Items to check	Indication standard
Common	1. Remove all obstacles/blockages from around the device, such as screws, processed things, cuttings of cable, etc.	Remove completely
	2. There should be no cracks or damage to the cover and case.	There should be no cracks or damage
	3. There should be no condensation in the part of the cover and case.	There should be no condensation
	4. Measure the insulation resistance with an insulation ohmmeter of 500V.	More than 5MΩ.
	5. The connection part of the electric conduction should be fixed securely.	Specified fixing Torque

■ Notes

Test of withstanding voltage

- Based on the table on the right side, please perform the test to withstand voltage greater than the basis
- Do not perform the test to withstand voltage between the terminals for the circuit breaker for the protection of an electrometer. Note) The withstand voltage between housing contacts of leakage Relay is 1000V.

[Unit:V]

Main circuit		Aux circuit or control circuit	
Rated insulation voltage	Test voltage(virtual value of alternating current part)	Rated insulation voltage of operating circuit	Test voltage (virtual value of alternation current part)
Ui≤300	2000	Uis≤60	1000
300＜Ui≤600	2500	60＜Ui≤600	2Uis+100(min.1500)

Measurement of insulation resistance and Test to withstand voltage (In case of ELCB)

- Measurement of insulation resistance: The insulation resistance marked as △ in the right side table will not be destroyed when measuring it with a 500V insulation ohmmeter, but it will be destroyed when authorizing 1000V. The order value of n insulation ohmmeter is almost "0". Measure it when the circuit breaker is switched to "OFF". Do not use it for the 1000V insulation resistance.
- Test to withstand voltage: Please do not authorize the voltage to the spot marked as X in the right side Table.

Test / Number of measurement places		Measurement of insulation resistance		Test to withstand voltage	
Handle condition		ON	OFF	ON	OFF
Between charging part and ground		○	○	○	○
Between R phase-S phase, S phase-T phase		○	○	○	○
between R phase and T phase	Power side	△	○	×	–
	Load side	△	△	×	×
Between power and load terminal		–	○	–	○

■ Check time

Not only to prevent accidents in advance but to maintain the circuit breaker for a long time, please check it one time about one month later after starting to use it. Thereafter, you need to check it periodically.

[Check time]

1. Clean and dry environment	2. Environment with dust, corrosive gas, vapor, salinity	3. Environment worse than 1 & 2 as above
One time every 2 -3 years	One time every year	One time every six months

Checking after Breaking

When the circuit breaker is tripped due to a fault in the current, there are two(2) cases, one is that you can reuse it and the other is that you have to replace it with a new one.

The size of breaking current	Damage degree of circuit breaker	Measures to take
Operating within the operation scope of the time delay trip (excess-current less than 10 times the size of the rated current)	No abnormality was found other than the exhaust hole	50 times in the overload current 6 times the size of the rated current (no more than 100A) Breaking is possible
Short-circuit current with comparatively small current value ↕ High short-circuit current close to the rated breaking capacity	Carbonization phenomenon was shown around the exhaust hole ↕ • Carbonization phenomenon around the handle • Carbonization phenomenon around the exhaust hole • Extraneous matter for metal is attached inside the circuit breaker	Reusable ↕ Replace with a new product

- When the insulation resistance value is under 5MΩ, please perform the dielectric strength test
- If it turned out to be a specified dielectric strength, you may temporarily use it. However, you have to replace it with a new product as soon as possible.
- If the insulation resistance and dielectric strength are sufficient, it seems possible to reuse it. However, please check carefully if the temperature does not rise abnormally for a certain period.

Replacement interval(Life span of product)

As for the repair and checking, you need to check it according to the installation environment of the circuit breaker.
Note) The life span of the circuit breaker is not decided by the use year. The diagnosis by specialist is necessary, and as a whole, about the cycle as shown below is required.

Degree	Environment	Concrete example	Replacement interval(year)
Standard use condition	Clean and dry place	Dustproof and ventilated electrical room	About 10~15
	A dusty place, but without corrosive gas	Distribution panel in a separate electrical room without dustproof and ventilation	About 7~10
Inferior environment	A place with little dust but with some gas like sulfurous acid, hydrogen sulfide and salinity & high humidity	Local power plant, sewage treatment plant, iron works, paper-mill, pulp factory, etc.	About 3~7
	A place with a particularly large amount of corrosive gas, dust, etc.	Chemicals factory, quarry, mine, etc.	About 1~3

Items to check

Check in earlier time

Check item	Check point	Measures to take
Loosening of terminal screw	• Check if the terminal screw, cable tightening screw, etc. has not been loosened. • Please use the standard tool.	• Tighten it by specified torque in respect of the quality and size of screw
Dust	• Check if there is dust, oil, etc piled up on the surface of the MCCB, especially on the surface of the power side.	• Remove the dust with cleaner or wipe it off with a piece of cloth • Please use a neutral detergent (use of corrosive detergent is prohibited)
Switch	• As for the circuit breaker that is always closed, prevent the increase of friction resulting from the hardening of grease, etc. by switching it several times.	• If the switching is not smooth in the circuit breaker, replace it or make repairs
Insulation item	• Measure the insulation resistance of inter phase and inter ground with the 500V insulation ohmmeter • As for the conductor, measure the exterior side.	• If the resistance is below 5MΩ, replace the circuit breaker with a new one, and investigate the causes for the lowering of resistance.

Abnormal condition

Kind of abnormality	Abnormal condition	Cause	Emergency treatment
Abnormality of accessories	• Abnormality of SHT	• Decrease in operating voltage • Wrong selection of voltage used	• Improvement of power
		• Coil damage	• Service reguest
	• Closing is impossible	• Applied freguen cy / Abnormal Voltage	• Improvement of power
	• Alarm Switch • Operating fault	• Untightened Screw	• Readjustment

Abnormal condition of ELCB and way to take measures

Kind of abnormality	Abnormal condition	Cause	Emergency treatment
Abnormal operation	• The leakage display button is projected at the same time as the closing(in the case that leakage device part operates)	• As the ground power failure capacity increases due to long wiring, the leakage current flows	• Change of rated sensitivity current • Install the ELCB at a place close to load
		• Connection of circuit breakers in a row • Faulty fastening of neutral line	• Check the fastening of the cable
	• Operating while it is being used	• Intrusion of excessive surge	• Install the Surge Absorber to a converter
		• Inducement from main cable of great current in the area Intrusion of noise	• Solution of the cause of noise

Kind of abnormality	Abnormal condition	Cause	Measures to take
Temperature rise	• Overheating of terminal part	• Loosening of screw tightened onto the terminal part • Inferior assembly of bus-bar	• Tightening by specified torque • Re-assembly of bus-bar
	• Overheating of Product (except for terminal part)	• Inferior contact at the interior wipers • Increase of current density resulting from downing of cable	• Replacement with a new product
Temperature ris	• Closing is impossible	• Inflow of foreign material into the switching device • In case reclosing without being Reset to the trip condition	• Removal of foreign material • Closing after performing Reset
	• Reoperation is impossible • Breaking is impossible • OFF is impossible	• Abrasion resulting from blocking resistance • Inferior operation of Reset device • It is not possible to do coil magnetizing of the trip device of short voltage • Burn and fatigue of switch spring • Corrosion and deformation of bimetal • Reach the marginal life span of switch • Overheating of element to detect the over-current • Contact adhesion resulting from the excessiveness of blocking current	• Exchange with new product • Request for service • Power authorization • Replacement and repair • Request for service • Exchange with new product • Operation after cooling • Exchange with new product
Inferior application of electric current	• Inferior application of electric current	• Inflow of insulation material between the contacts • Fusing of electric conduction part • Burn (abrasion) of contact	• Removal of foreign material • Exchange with new product
Frequent tripping of MCCB	• Breaking at the normal load	• Faulty selection of product rating (overheating) • No window inside a panel (overheating) • Interior heating of MCCB • Loosening of terminal connection part	• Exchange with new product (Re-selection of rating) • Ventilation • Exchange with new product • Tightening of terminal screw (Check)
	• Faulty Operation at the time of motor start-up	• Heat generation due to starting current • Flow of load current greater than the rated current (When using motor in overload or overvoltage)	• Exchange with new product • Change of rating
	• Instantaneous operating at the time of motor start-up	• Excessiveness of starting current • Over-current at the time of Y-△ starting transfer • Over-current resulting from reversible operation • Inrush current of instantaneous reoperation • Charge current of capacitor, overflow of incandescent electric lamp • Layer short of electromotor • Flow of abnormal current at the same time of closing • Faulty connection of operation circuit	• Change of the setting of instantaneous blocking current or change of rating • Repair of electromotor • Check of circuit
Non-operating	• Non-operating at the abnormality of specified operating current	• The rated current selected became enlarged • Current-limiting blocking of higher level fuse or aid of higher level circuit breaker has not been made.	• Selection of smaller rating • Re-examination of protection aid or change of rating
Short-circuit of power side		• Dust, etc. has piled up • Falling of obstacles/blockages onto the power side	• Exchange with new product