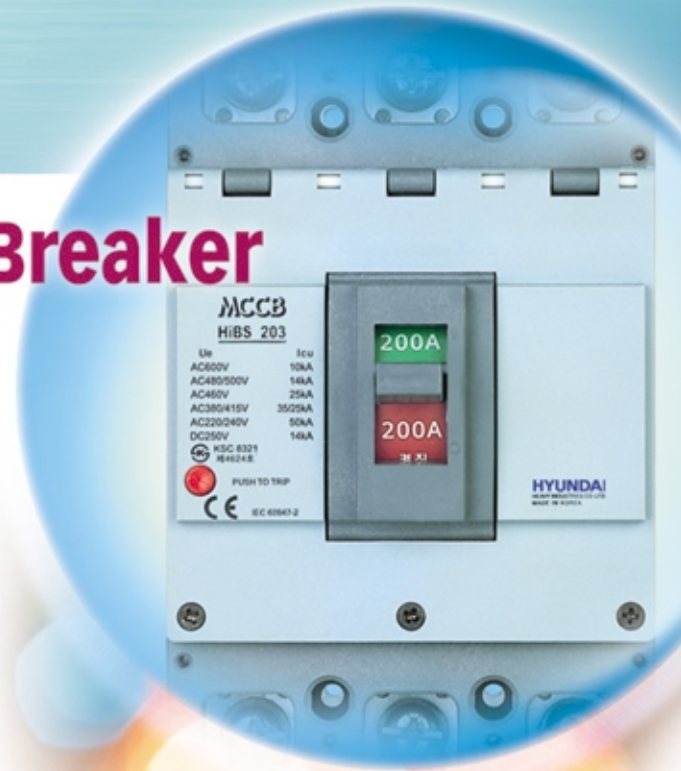


HYUNDAI

**Hi Series**

# Molded Case Circuit Breaker



# Hi Series Molded Case Circuit Breaker

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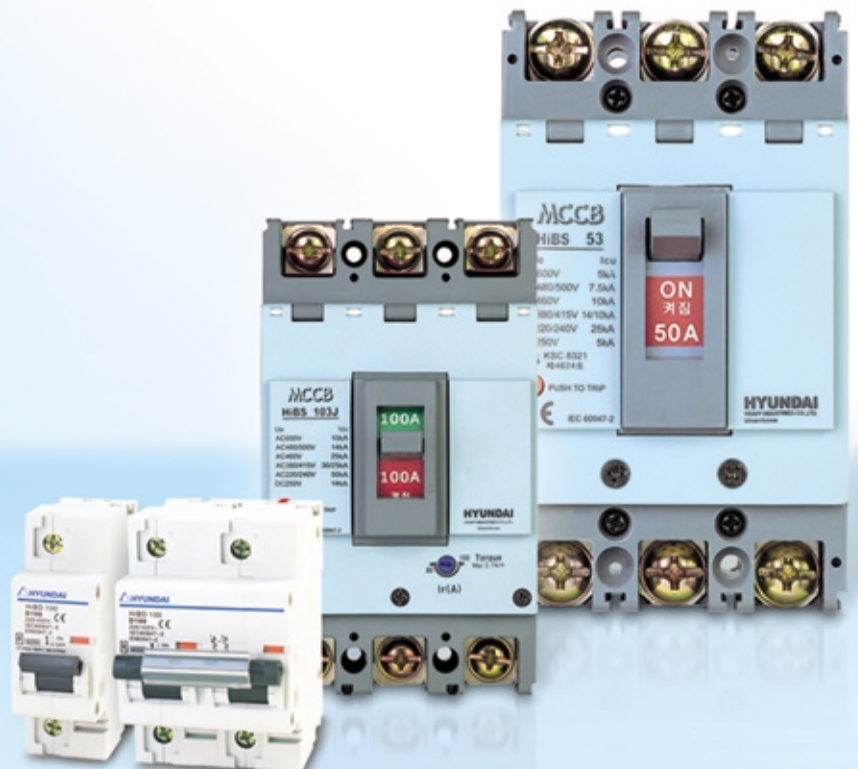
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# Hi Series Molded Case Circuit Breaker

Hyundai Hi Series Molded Case Circuit Breaker is one of the most reliable and sophisticated products, which realizes the optimum design through electric and kinetic analysis.

Hi Series MCCB provides easy-to-use features while offering versatility and high performance to meet the requirements for space-saving and easy maintenance.





Thermal-magnetic

Hydraulic-magnetic



Type 50NT Icu 85/130 kA  
 Type 100NT Icu 85/130 kA  
 Type 225NT Icu 85/130 kA



Type 250J Icu 18/25/35 kA



Type 100J Icu 25/35 kA



Type 225 Icu 18/25/35 kA



Type H50 Icu 25 kA



Type 30 Icu 5/10 kA  
 Type 50, 60 Icu 5/10 kA  
 Type E100 Icu 10 kA

Adjustable Rating  
 Non-adjustable Rating

**Qualified Standard & Approval**

- Standard**  
 KS C8321  
 IEC 60947-2  
 NEMA AB-1
- Approval**  
 ISO 18001, 14001, 9001  
 CE (Community European / TÜV Rheinland)  
 GOST-R  
 CCC

**Classification Certificate**

Type	KR	LR	ABS	BV	NK	GL
HiBS 53						
HiBS 63						
HiBE 103						
HiBS 103						
HiBH 103						
HiBS 203						
HiBH 203						
HiBL 53NT						
HiBL 103NT						
HiBX 103NT						
HiBL 203NT						
HiBX 203NT						
HiBL 403NE						
HiBX 403NE						
HiBL 603NE						
HiBX 603NE						
HiBL 803NE						
HiBL 1003NE						
HiBL 1203NE						

## Wide and Quick Selection Table






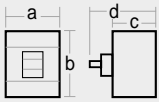
	Frame	Type	Number of Poles (P)	Rated Current (A)	Breaking Current (kA)			Remark
					220/240 V	380/415 V	600 V	
<b>General Type</b>	30	HiBS 30	2, 3	3, 5, 10, 15, 20, 30	10	7.5/5	2.5	
		HiBH 30	2, 3	5, 10, 15, 20, 30	25	14/10	5	
	50	HiBE 50	2, 3, 4	5, 10, 15, 20, 30, 40, 50	10	7.5/5	2.5	
		HiBS 50	2, 3, 4	5, 10, 15, 20, 30, 40, 50	25	14/10	5	
		HiBH 50	2, 3, 4	15, 20, 30, 40, 50	50	30/25	10	
	60	HiBE 60	2, 3, 4	5, 10, 15, 20, 30, 40, 50, 60	10	7.5/5	2.5	
		HiBS 60	2, 3, 4	5, 10, 15, 20, 30, 40, 50, 60	25	14/10	5	
	100	HiBE 100	2, 3, 4	5, 10, 15, 20, 30, 40, 50, 60, 75, 100	25	14/10	5	
		HiBS 100	2, 3, 4	15, 20, 30, 40, 50, 60, 75, 100	50	30/25	10	
		HiBH 100	2, 3, 4	15, 20, 30, 40, 50, 60, 75, 100	65	42/35	18	
	225	HiBE 225	* 2, 3, 4	125, 150, 175, 200, 225	35	25/18	7.5	
		HiBS 225	* 2, 3, 4	125, 150, 175, 200, 225	50	35/25	10	
		HiBH 225	* 2, 3, 4	125, 150, 175, 200, 225	65	42/35	18	
	400	HiBE 400	* 2, 3, 4	250, 300, 350, 400	35	30	18	
		HiBS 400	* 2, 3, 4	250, 300, 350, 400	50	42	22	
		HiBH 400	* 2, 3, 4	250, 300, 350, 400	85	65	25	
		HiBL 400	* 2, 3, 4	250, 300, 350, 400	125	100	30	
	600	HiBE 600	* 2, 3, 4	500, 600	50	45	22	
		HiBS 600	* 2, 3, 4	500, 600	100	65	25	
		HiBH 600	* 2, 3, 4	500, 600	100	85	35	
HiBL 600		* 2, 3, 4	500, 600	125	100	35		
800	HiBE 800	* 2, 3, 4	700, 800	50	45	25		
	HiBS 800	* 2, 3, 4	700, 800	100	65	25		
	HiBH 800	* 2, 3, 4	700, 800	100	85	35		
	HiBL 800	* 2, 3, 4	700, 800	125	100	35		
<b>Adjustable Type</b>	50	HiBL 50NT	* 2, 3, 4	15, 20, 30, 40, 50	125	85	35	
		HiBL 50NE	3, 4	20~50	125	85	35	
		HiBX 50NT	3, 4	15, 20, 30, 40, 50	150	130	65	
	100	HiBL 100NT	* 2, 3, 4	15, 20, 30, 40, 50, 60, 75, 100	125	85	35	
		HiBL 100NE	3, 4	40~100	125	85	35	
		HiBX 100NT	3, 4	15, 20, 30, 40, 50, 60, 75, 100	150	130	65	
		HiBS 100J	2, 3, 4	12.5~16, 16~20, 20~25, 25~32, 32~40, 40~50, 50~63, 63~80, 80~100	50	30/25	10	
	HiBH 100J	65			42/35	18		
	225	HiBL 225NT	* 2, 3, 4	125, 150, 175, 200, 225	125	85	35	
		HiBL 225NE	3, 4	90~225	125	85	35	
HiBX 225NT		3, 4	125, 150, 175, 200, 225	150	130	65		

\* 2 poles are the same as 3 poles except that the conducts of middle pole are removed.

	Frame	Type	Number of Poles (P)	Rated Current (A)	Breaking Current (kA)			Remark
					220/240 V	380/415 V	600 V	
Adjustable Type	250	HiBE 250J	2, 3, 4	100~125, 125~160, 160~200 200~250	35	25/18	7.5	
		HiBS 250J			50	35/25	10	
		HiBH 250J			65	42/35	18	
	400	HiBS 400NE	3, 4	200~400	85	50	30	
		HiBL 400NE	3, 4	200~400	125	85	35	
		HiBX 400NE	3, 4	200~400	150	130	65	
	600	HiBS 600NE	3, 4	302~600	100	65	35	
		HiBL 600NE	3, 4	302~600	125	85	42	
		HiBX 600NE	3, 4	302~600	150	130	65	
	800	HiBS 800NE	3, 4	405~800	100	65	35	
		HiBL 800NE	3, 4	405~800	125	85	42	
		HiBX 800NE	3, 4	405~800	150	130	65	
	1000	HiBS 1000NE	3, 4	505~1000	100	100	50	
		HiBL 1000NE	3, 4	505~1000	150	130	65	
1200	HiBS 1200NE	3, 4	605~1200	100	100	50		
	HiBL 1200NE	3, 4	605~1200	150	130	65		
Motor Protection Type	100	HBL 103M	3	1, 2, 3.2, 5, 8, 12.5, 20, 32, 50, 80, 100	85	50	25	Black
	225	HBL 203M	3	125, 150, 175, 200, 225	85	50	25	Black
Nuclear Power Plant Type	100	HBL 103Q	3	15, 20, 30, 40, 50, 60, 75, 100	85	50	25	Black
		HBL 103MQ	3	1, 2, 3.2, 5, 8, 12.5, 20, 32, 50, 80, 100	85	50	25	Black
	225	HBL 203Q	3	125, 150, 175, 200, 225	85	50	25	Black
		HBL 203MQ	3	125, 150, 175, 200, 225	85	50	25	Black
Distribution and Lighting Protection Type	30	HiBC 32	2	15, 20, 30	1.5			
		HiBC 32h	2	15, 20, 30	2.5			
	50	HBD 50	1, 2, 3	10, 15, 20, 30, 40, 50	5	2.5		Black
		HBD 50h	1, 2, 3	10, 15, 20, 30, 40, 50	10	5		Black
		HBD 52D	2	10, 15, 20, 30, 40, 50	5			Black
Miniature Circuit Breaker	63	HiBD 63	1, 2, 3	1, 3, 5, 6, 10, 15, 16, 20, 25, 32, 40, 50, 63	6 (230/400 V)			
	100	HiBD 100	1, 2, 3	63, 80, 100	10 (230/400 V)			







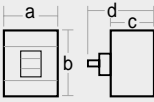
## Rating and Specification | General Type

Ampere Frame (AF)		30				50										
Series		Standard		High-fault Level		Economical			Standard			High-fault Level				
Type		HiBS 30		HiBH 30		HiBE 50			HiBS 50			HiBH 50				
Number of Pole		2	3	2	3	2	3	4	2	3	4	2	3	4		
Outside View																
IP Degree		IP20														
Category		A														
Life Time	Number of Operating Cycles	Per hour		240												
		Mechanical		30,000												
		Electrical at 415 VAC		9,500												
Rated Current (A)		3, 5, 10, 15, 20, 30		5, 10, 15, 20, 30		5, 10, 15, 20, 30, 40, 50			15, 20, 30, 40, 50							
Rated Insulation Voltage (V) Ui		750														
Rated Operational Voltage (V) Ue		690														
Rated Impulse Withstand Voltage (kV) Uimp		6														
Ultimate Breaking Capacity Icu (kA rms) K S C 8321 IEC 60947-2 NEMA AB-1	Ics=(% Icu)	50		50		50			50			50				
	AC 660 V	2.5		5.0		2.5			5.0			10				
	AC 600 V	2.5		5.0		2.5			5.0			10				
	AC 480/500 V	2.5		7.5		2.5			7.5			14				
	AC 440/460 V	5.0		10		5.0			10			25				
	AC 380/415 V	7.5/5.0		14/10		7.5/5.0			14/10			30/25				
	AC 220/240 V	10		25		10			25			50				
	DC 250 V	2.5		5.0		2.5			5.0			14				
Standard Features	Hydraulic-magnetic Trip													-		
	Fixed Thermal & Fixed Magnetic Trip		-		-		-			-			-			
	Thermal & Adjustable Magnetic Trip		-		-		-			-			-			
Connection & Mounting	Front Connected	Terminal Screw (A)														
		Attached Flat Bar (B)		-		-		-			-			-		
	Plug-in	Both Line & Load Side (K)		-	-	-	-	-	-	-	-	-	-	-		
		Line Side Only (L)		-	-	-	-	-	-	-	-	-	-	-		
Accessories	Internally Mounted	Shunt Trip SHT													-	
		Under Voltage Trip UVT													-	
		Auxiliary Switch AUX														
		Alarm Switch ALT														
	Externally Mounted	Operating Handle	Breaker Mounted (TFG)	-	-	-	-	-	-	-	-	-	-	-		
			Panel Mounted (TFH)	-	-	-	-	-	-	-	-	-	-	-		
		Interpole Barrier (TQQ)														
		Terminal Cover (TCF)														
Terminal Bus Bar (TBB)		-		-		-			-			-				
Dimensions (mm)			a	50	75	50	75	50	75	100	50	75	100	60	90	120
			b	130		130		130			130			155		
			c	60		60		60			60			60		
			d	82		82		82			82			84.5		
Weights (Kg) (Standard Type)		0.45	0.65	0.45	0.65	0.45	0.65	0.85	0.45	0.65	0.85	0.7	1.0	1.2		
Page for Characteristic & Dimensions		Page 94		Page 94		Page 94			Page 94			Page 96				

- : Standard, this configuration used unless otherwise specified      : Optional standard, specify when ordering      - : Stands for "No" or "Not available"  
 - The \* 2 pole are the same as 3 pole except that the middle pole materials are removed.



## Rating and Specification | General Type




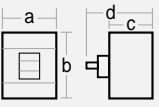
Ampere Frame (AF)		400														
Series		Economical			Standard			High-fault Level			Current Limiting					
Type		HiBE 400			HiBS 400			HiBH 400			HiBL 400					
Number of Pole		* 2	3	4	* 2	3	4	* 2	3	4	* 2	3	4			
Outside View																
IP Degree		IP20														
Category		A														
Life Time	Number of Operating Cycles	Per hour		120												
		Mechanical		20,000												
		Electrical at 415 VAC		8,000												
Rated Current (A)		250, 300, 350, 400														
Rated Insulation Voltage (V) Ui		750														
Rated Operational Voltage (V) Ue		690														
Rated Impulse Withstand Voltage (kV) Uimp		6														
Ultimate Breaking Capacity Icu (kA rms) KS C 8321 IEC 60947-2 NEMA AB-1	Ics=(%Icu)	50			50			50			50					
	AC 660 V	18			22			25			30					
	AC 600 V	18			22			25			30					
	AC 480/500 V	18			25			35			65					
	AC 440/460 V	25			35			50			85					
	AC 380/415 V	30			42			65			100					
	AC 220/240 V	35			50			85			125					
	DC 250 V	14			25			40			40					
Standard Features	Hydraulic-magnetic Trip		-			-			-			-				
	Fixed Thermal & Fixed Magnetic Trip															
	Thermal & Adjustable Magnetic Trip		-			-			-			-				
Connection & Mounting	Front Connected	Terminal Screw (A)		-			-			-						
		Attached Flat Bar (B)														
	Plug-in	Both Line & Load Side (K)		-			-			-						
		Line Side Only (L)		-			-			-						
Accessories	Internally Mounted	Shunt Trip SHT														
		Under Voltage Trip UVT														
		Auxiliary Switch AUX														
		Alarm Switch ALT														
	Externally Mounted	Operating Handle	Breaker Mounted (TFG)													
			Panel Mounted (TFH)													
		Extension Handel (THA)														
		Interpole Barrier (TQQ)														
Terminal Cover (TCF)		-			-			-			-					
Terminal Bus Bar (TBB)																
Dimensions (mm)		a	140			185			140			185				
		b	257			257			257			257				
		c	110			110			110			110				
		d	145			145			145			145				
Weights (Kg) (Standard Type)		4	4.5	5.4	4	4.5	5.4	4	4.5	5.4	4	4.5	5.4			
Page for Characteristic & Dimensions		Page 100			Page 100			Page 100			Page 100					

- : Standard, this configuration used unless otherwise specified      : Optional standard, specify when ordering      - : Stands for "No" or "Not available"  
 - The \* 2 pole are the same as 3 pole except that the middle pole materials are removed.





## Rating and Specification | Adjustable Type

Ampere Frame (AF)			50							
Series			Current Limiting			Current Limiting		High Current Limiting		
Type			HiBL 50NT			HiBL 50NE		HiBX 50NT		
Number of Pole			* 2	3	4	3	4	3	4	
Outside View										
IP Degree			IP20							
Category			A							
Life Time	Number of Operating Cycles	Per hour	240							
		Mechanical	30,000							
		Electrical at 415 VAC	9,500							
Rated Current (A)			15, 20, 30, 40, 50			20 ~ 50		15, 20, 30, 40, 50		
Rated Insulation Voltage (V) $U_i$			750							
Rated Operational Voltage (V) $U_e$			690							
Rated Impulse Withstand Voltage (kV) $U_{imp}$			8							
Ultimate Breaking Capacity Icu (kA rms) KS C 8321 IEC 60947-2 NEMA AB-1	Ics=(% Icu)		100		100		100			
	AC 660 V		22		22		60			
	AC 600 V		35		35		65			
	AC 480/500 V		65		65		100			
	AC 440/460 V		85		85		100			
	AC 380/415 V		85		85		130			
	AC 220/240 V		125		125		150			
DC 250 V		85		-		85				
Protection Characteristics	Long Time Delay	Adjustable	$(0.8 \times 0.9 \times 1.0) \times I_n$			9 Setting		$(0.8 \times 0.9 \times 1.0) \times I_n$		
	Short Time Delay	Adjustable	-			2-3-4-5-6-7-8-9-10 $\times I_r$		-		
	Instantaneous	Fixed	10 $\times I_n$			11 $\times I_n$		10 $\times I_n$		
		Adjustable	-			-		-		
	Ground Fault Trip		-			-		-		
	I <sup>2</sup> T Ramp		-			-		-		
Pre-trip Alarm LED		-			-		-			
Mechanism	Thermal Magnetic		-			-		-		
	Electronic		-			-		-		
Connection & Mounting	Front Connected	Terminal Screw (A)								
		Attached Flat Bar (B)								
	Plug-in	Both Line & Load Side (K)				-		-		
		Line Side Only (L)				-		-		
Accessories	Internally Mounted	Shunt Trip		SHT						
		Under Voltage Trip		UVT						
		Auxiliary Switch		AUX						
		Alarm Switch		ALT						
	Externally Mounted	Operating Handle	Breaker Mounted (TFG)							
			Panel Mounted (TFH)							
		Extension Handle		(THA)						
		Interpole Barrier		(TQQ)						
Terminal Cover		-			-		-			
Terminal Bus Bar		(TBB)								
Dimensions (mm)			a	105	140	105	140	105	140	
			b	165			165		165	
			c	87.5			87.5		87.5	
			d	105			105		105	
Weights (Kg) (Standard Type)			1.1	1.6	2.0	1.6	2.0	1.6	2.0	
Page for Characteristic & Dimensions			Page 106			Page 108		Page 106		

- The \* 2 pole are the same as 3 pole except that the middle pole materials are removed.




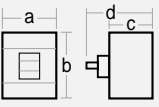
- Our products are designed for 50/60 Hz common use.

However, for the electronic MCCB they can be adapted according to the regions or countries where it is to be used.





## Rating and Specification | Adjustable Type

Ampere Frame (AF)			225							
Series			Current Limiting			Current Limiting		High Current Limiting		
Type			HiBL 225NT			HiBL 225NE		HiBX 225NT		
Number of Pole			* 2	3	4	3	4	3	4	
Outside View										
IP Degree			IP20							
Category			A							
Life Time	Number of Operating Cycles	Per hour	120							
		Mechanical	25,000							
		Electrical at 415 VAC	8,000							
Rated Current (A)			125, 150, 175, 200, 225			90-225		125, 150, 175, 200, 225		
Rated Insulation Voltage (V) $U_i$			750							
Rated Operational Voltage (V) $U_e$			690							
Rated Impulse Withstand Voltage (kV) $U_{imp}$			8							
Ultimate Breaking Capacity Icu (kA rms) KS C 8321 IEC 60947-2 NEMA AB-1	Ics=(% Icu)		100		100		100			
	AC 660 V		22		22		60			
	AC 600 V		35		35		65			
	AC 480/500 V		65		65		100			
	AC 440/460 V		85		85		100			
	AC 380/415 V		85		85		130			
	AC 220/240 V		125		125		150			
DC 250 V		85		-		85				
Protection Characteristics	Long Time Delay	Adjustable	$(0.8 \times 0.9 \times 1.0) \times I_n$			9 Setting		$(0.8 \times 0.9 \times 1.0) \times I_n$		
	Short Time Delay	Adjustable	-			2-3-4-5-6-7-8-9-10 $\times I_r$		-		
	Instantaneous	Fixed	10 $\times I_n$ (Upto 175A)			11 $\times I_n$		10 $\times I_n$ (Upto 175A)		
		Adjustable	5-6-7-8-9-10 $\times I_n$ (From 200A)			-		5-6-7-8-9-10 $\times I_n$ (From 200A)		
	Ground Fault Trip		-			-		-		
	I <sup>2</sup> T Ramp		-			-		-		
Pre-trip Alarm LED		-			-		-			
Mechanism	Thermal Magnetic					-				
	Electronic		-			-		-		
Connection & Mounting	Front Connected	Terminal Screw (A)								
		Attached Flat Bar (B)								
	Plug-in	Both Line & Load Side (K)		-		-		-		
		Line Side Only (L)		-		-		-		
Accessories	Internally Mounted	Shunt Trip		SHT						
		Under Voltage Trip		UVT						
		Auxiliary Switch		AUX						
		Alarm Switch		ALT						
	Externally Mounted	Operating Handle	Breaker Mounted (TFG)							
			Panel Mounted (TFH)							
		Extension Handle		(THA)						
		Interpole Barrier		(TQQ)						
Terminal Cover		(TCF)		-		-				
Terminal Bus Bar		(TBB)								
Dimensions (mm)			a	105	140	105	140	105	140	
			b	165			165		165	
			c	87.5			87.5		87.5	
			d	105			105		105	
Weights (Kg) (Standard Type)			1.3	1.8	2.2	1.6	2.0	1.8	2.2	
Page for Characteristic & Dimensions			Page 106			Page 108		Page 106		




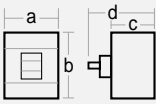
- The \* 2 pole are the same as 3 pole except that the middle pole materials are removed.

- Our products are designed for 50/60 Hz common use.

However, for the electronic MCCB they can be adapted according to the regions or countries where it is to be used.





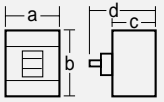
## Rating and Specification | Adjustable Type

Ampere Frame (AF)			600						
Series			Standard		Current Limiting		High Current Limiting		
Type			HiBS 600NE		HiBL 600NE		HiBX 600NE		
Number of Pole			3	4	3	4	3	4	
Outside View									
IP Degree			IP20						
Category			A						
Life Time	Number of Operating Cycles	Per hour	120						
		Mechanical	20,000						
		Electrical at 415 VAC	5,000						
Rated Current (A)			302 ~ 600		302 ~ 600		302 ~ 600		
Rated Insulation Voltage (V) $U_i$			750						
Rated Operational Voltage (V) $U_e$			690						
Rated Impulse Withstand Voltage (kV) $U_{imp}$			8						
Ultimate Breaking Capacity Icu (kA rms) KS C 8321 IEC 60947-2 NEMA AB-1	Ics=(% Icu)		100		100		100		
	AC 660 V		22		35		60		
	AC 600 V		35		42		65		
	AC 480/500 V		50		50		100		
	AC 440/460 V		65		85		100		
	AC 380/415 V		65		85		130		
	AC 220/240 V		100		125		150		
DC 250 V		-		-		-			
Protection Characteristics	Long Time Delay	Adjustable	15 Setting		15 Setting		15 Setting		
	Short Time Delay	Adjustable	2-4-6-8-10 x I <sub>l</sub>		2-4-6-8-10 x I <sub>l</sub>		2-4-6-8-10 x I <sub>l</sub>		
	Instantaneous	Fixed	-		-		-		
		Adjustable	3-6-8-10-12 x I <sub>CT</sub>		3-6-8-10-12 x I <sub>CT</sub>		3-6-8-10-12 x I <sub>CT</sub>		
	Ground Fault Trip								
	I <sup>2</sup> T Ramp								
Pre-trip Alarm LED									
Mechanism	Thermal Magnetic		-		-		-		
	Electronic								
Connection & Mounting	Front Connected	Terminal Screw (A)							
		Attached Flat Bar (B)							
	Plug-in	Both Line & Load Side (K)	-		-		-		
		Line Side Only (L)	-		-		-		
Accessories	Internally Mounted	Shunt Trip		SHT					
		Under Voltage Trip		UVT					
		Auxiliary Switch		AUX					
		Alarm Switch		ALT					
	Externally Mounted	Operating Handle	Breaker Mounted (TFG)						
			Panel Mounted (TFH)						
		Extension Handle		(THA)					
		Interpole Barrier		(TQQ)					
Terminal Cover		(TCF)		-		-			
Terminal Bus Bar		(TBB)							
Dimensions (mm)			a	140	210	140	210	140	210
			b	255		255		255	
			c	117		117		117	
			d	154		154		154	
Weights (Kg) (Standard Type)			6.0	7.8	6.0	7.8	6.0	7.8	
Page for Characteristic & Dimensions			Page 112		Page 112		Page 112		

- The \* 2 pole are the same as 3 pole except that the middle pole materials are removed.
- Our products are designed for 50/60 Hz common use.
- However, for the electronic MCCB they can be adapted according to the regions or countries where it is to be used.



## Rating and Specification | Motor Protection Type



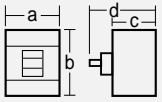
Ampere Frame (AF)		100	225	
Series		Current Limiting	Current Limiting	
Type		HBL 103M	HBL 203M	
Number of Pole		3	3	
Outside View				
IP Degree		IP20		
Category		A		
Life Time	Number of Operating Cycles	Per hour	240	
		Mechanical	30,000	
		Electrical at 415 VAC	9,500	
Rated Current (A)	Magnetic Type	1, 2, 3.2, 5, 8, 12.5, 20, 32, 50, 80, 100	125, 150, 175, 200, 225	
	Electronic Type	-	-	
Rated Insulation Voltage (V) $U_i$		690		
Rated Operational Voltage (V) $U_e$		660		
Rated Impulse Withstand Voltage (kV) $U_{imp}$		6		
Ultimate Breaking Capacity Icu (kA rms) KS C 8321 IEC 60947-2 NEMA AB-1	Ics=(% Icu)	50	50	
	AC 660 V	15	15	
	AC 600 V	25	25	
	AC 480/500 V	45/25	45/25	
	AC 440/460 V	42	42	
	AC 380/415 V	50	50	
	AC 220/240 V	85	85	
DC 250 V	40	40		
Connection & Mounting	Front Connected	Terminal Screw (A)		
		Attached Flat Bar (B)	-	
	Plug-in	Both Line & Load Side (K)		
		Line Side Only (L)		
Accessories	Internally Mounted	Shunt Trip SHT		
		Under Voltage Trip UVT		
		Auxiliary Switch AUX		
		Alarm Switch ALT		
	Externally Mounted	Operating Handle	Breaker Mounted (TFG) Panel Mounted (TFH)	
		Interpole Barrier (TQQ)		
		Terminal Cover (TCF)	-	-
		Terminal Bus Bar (TBB)	-	-
Dimensions (mm)		a	90	
		b	150	
		c	85	
		d	103	
Weights (Kg) (Standard Type)		1.35	5.5	
Page for Characteristic & Dimensions		Page 120	Page 122	

: Standard, this configuration used unless otherwise specified

: Optional standard, specify when ordering

- : Stands for "No" or "Not available"






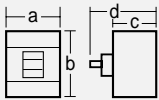
# Nuclear Power Plant Type

Ampere Frame (AF)		100		225			
Series		Current Limiting		Current Limiting			
Type		HBL 103Q		HBL 103MQ			
Number of Pole		3		3			
Outside View							
IP Degree		IP20					
Category		A					
Life Time	Number of Operating Cycles	Per hour		120			
		Mechanical		25,000			
		Electrical at 415 VAC		8,000			
Rated Current (A)		15, 20, 30, 40, 50, 60, 75, 100		125, 150, 175, 200, 225			
Rated Insulation Voltage (V) Ui		660					
Rated Operational Voltage (V) Ue		600					
Rated Impulse Withstand Voltage (kV) Uimp		6					
Ultimate Breaking Capacity Icu (kA rms) KS C 8321 IEC 60947-2 NEMA AB-1	Ics=(%Icu)	50		50			
	AC 600 V	25		25			
	AC 480/500 V	42/25		42/25			
	AC 440/460 V	42		42			
	AC 380/415 V	50		50			
	AC 220/240 V	85		85			
	DC 250 V	40		40			
Standard Features	Thermal & Fixed Magnetic Trips						
	Thermal & Adjustable Magnetic Trips	-		-			
	Trip Button						
Connection & Mounting	Front Connected	Terminal Screw (A)					
		Attached Flat Bar (B)	-		-		
	Plug-in	Both Line & Load Side (K)					
		Line Side Only (L)					
Accessories	Internally Mounted	Shunt Trip SHT					
		Undervolt Trip UVT					
		Auxiliary Switch AUX					
		Alarm Switch ALT					
	Externally Mounted	Operating Handle	Breaker Mounted (TFG)				
			Panel Mounted (TFH)				
		Interpole Barrier (TQQ)					
Terminal Cover (TCF)	-		-		-		
Terminal Bus Bar (TBB)	-		-		-		
Dimensions (mm)		a	90		105		
		b	150		220		
		c	85		103		
		d	103		121		
Weights (Kg) (Standard Type)		1.35		1.35			
Page for Characteristic & Dimensions		Page 124		Page 120			
		Page 126		Page 122			

- : Standard, this configuration used unless otherwise specified      : Optional standard, specify when ordering      - : Stands for "No" or "Not available"



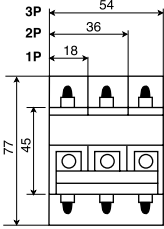
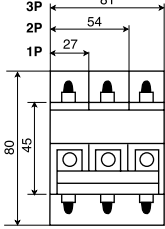


## Rating and Specification | Distribution and Lighting Protection Type

Ampere Frame (AF)		30			50							
Type		HiBC 32	HiBC 32h	HBD 50			HBD 50h			HBD 52D		
Number of Pole		2		2		1	2	3	1	2	3	2
Outside View												
IP Degree		IP20										
Category		A										
Life Time	Number of Operating Cycles	Per hour		240								
		Mechanical		30,000								
		Electrical at 415 VAC		9,500								
Rated Current (A)		15, 20, 30		15, 20, 30		10, 15, 20, 30, 40, 50						
Rated Insulation Voltage (V) $U_i$		220				460						
Rated Operational Voltage (V) $U_e$		220				460						
Rated Impulse Withstand Voltage (kV) $U_{imp}$		6				6						
Ultimate Breaking Capacity Icu (kA rms) KS C 8321	Ics=(%Icu)	50	50	50			50			50		
	AC 460 V	-	-	2.5			5			-		
	AC 380 V	-	-	2.5			5			-		
	AC 220 V	1.5	2.5	5.0			10			5.0		
	AC 125 V	-	-	5.0			10			5.0		
Standard Features	Thermal & Fixed Magnetic Trips											
	Thermal & Adjustable Magnetic Trips		-	-	-			-			-	
	Trip Button		-	-	-			-			-	
Connection & Mounting	Front Connected	Terminal Screw (A)										
		Attached Flat Bar (B)	-	-	-			-			-	
	Plug-in	Both Line & Load Side (K)	-	-	-			-			-	
Accessories	Internally Mounted	Shunt Trip SHT	-	-	-			-			-	
		Undervolt Trip UVT	-	-	-			-			-	
		Auxiliary Switch AUX	-	-	-			-			-	
		Alarm Switch ALT	-	-	-			-			-	
	Externally Mounted	Operating Handle	Breaker Mounted (TFG)	-	-	-			-			-
			Panel Mounted (TFH)	-	-	-			-			-
		Interpole Barrier (TQQ)	-	-	-			-			-	
Terminal Cover (TCF)	-	-	-			-			-			
Dimensions (mm)			a	33	33	25	50	75	25	50	75	50
			b	70	70	95			95			74.5
			c	42	42	60			60			60
			d	57	57	77	79	79	77	79	79	79
Weights (Kg) (Standard Type)		0.1		0.1		0.16	0.34	0.5	0.16	0.34	0.5	0.28
Page for Characteristic & Dimensions		Page 128		Page 128		Page 129			Page 129			Page 130

- : Standard, this configuration used unless otherwise specified      : Optional standard, specify when ordering      - : Stands for "No" or "Not available"

# Miniature Circuit Breaker

Ampere Frame (AF)	63			100		
Type	HiBD 63			HiBD 100		
Number of Pole	1	2	3	1	2	3
Outside View						
Protection	Overload and Short Circuit			Overload and Short Circuit		
Characteristic	B, C, D Curve			B, C, D Curve		
Rated Current (A)	1, 3, 5, 6, 10, 15, 16, 20, 25, 32, 40, 50, 63			63, 80, 100		
Breaking Capacity	at 230/400 V 6 kA			10 kA		
Handle Color	Blue		Orange	Black		
Type of trip	Thermal-magnetic Release			Thermal-magnetic Release		
Electrical endurance	No less than 6000 Operations			No less than 6000 Operations		
Standard	IEC 60898			IEC 60947-2		
Mount	On 35mm DIN Rail			On 35mm DIN Rail		
Terminal	Lug Type			Lug Type		
Dimensions (mm)						
Weights (Kg) (Standard Type)	0.1	0.2	0.3	0.12	0.24	0.36
Page for Characteristic & Dimensions	Page 131			Page 131		

# Hi Series Molded Case Circuit Breaker

## Thermal-magnetic Type MCCBs

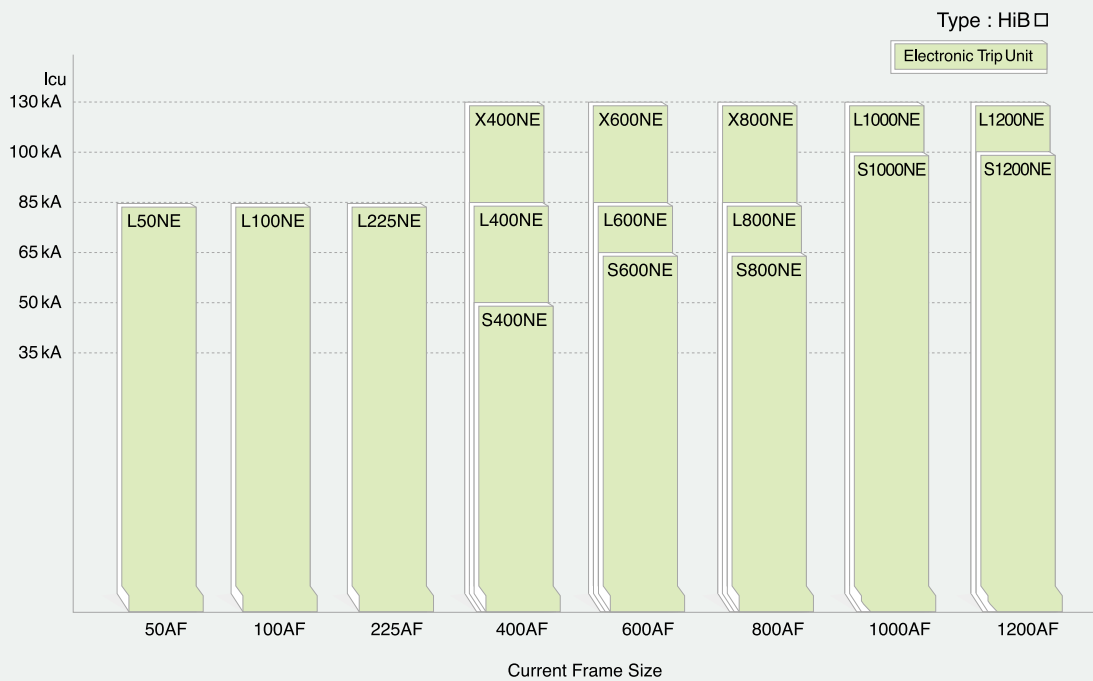
- Rated current from 3 to 800 A
- Breaking capacity from 5 to 130 kA



**Note** Icu : Breaking capacity at 415Vac according to IEC60947-2

## Electronic Type MCCBs

- Rated current from 20 to 1200 A
- Breaking capacity from 50 to 130 kA
- Adjustable current-time rating
- LSIA characteristic curve



**Note** Icu : Breaking capacity at 415Vac according to IEC60947-2

# General Type Hi Series Offering Reliability and Cost-effectiveness !

- Icu 5 to 35 kA at 415 V
- 30, 50, 60 , 225 & 250AF
- Adjustable or fixed thermal current
- 60mm depth and 50mm panel cutout
- Compact and light weight

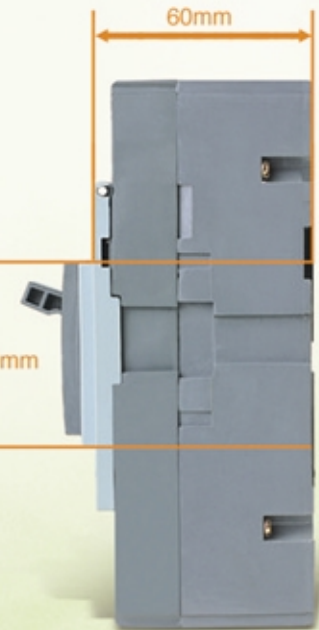
Hi Series MCCB provides easy-to-use features while offering versatility and high performance to meet the requirements for space-saving and easy maintenance.



**30, 50, 60 & 100AF**  
Non-adjustable  
In from 3 to 100 A  
Icu= 5 / 10 kA at 415 V  
2, 3, 4 Pole  
Hydraulic-magnetic Trip Unit

**50 & 100AF**  
Non-adjustable  
In from 15 to 100 A  
Icu= 25 / 35 kA at 415 V  
2, 3, 4 Pole  
Fixed-thermal,  
Fixed-magnetic Trip Unit

**100AF**  
Adjustable  
In from 12.5 to 100 A  
Icu= 25 / 35kA at 415 V  
2, 3, 4 Pole  
Adjustable-thermal,  
Fixed-magnetic Trip Unit



**225AF**  
**Non-adjustable**  
 In from 125 to 225 A  
 Icu= 18 / 25 / 35 kA at 415 V  
 2, 3, 4 Pole  
 Fixed-thermal,  
 Fixed-magnetic Trip Unit

**250AF**  
**Adjustable**  
 In from 100 to 250 A  
 Icu= 18 / 25 / 35 kA at 415 V  
 2, 3, 4 Pole  
 Adjustable-thermal,  
 Fixed-magnetic Trip Unit

Side View



# Current Limiting Type MCCB with High Breaking Capacity

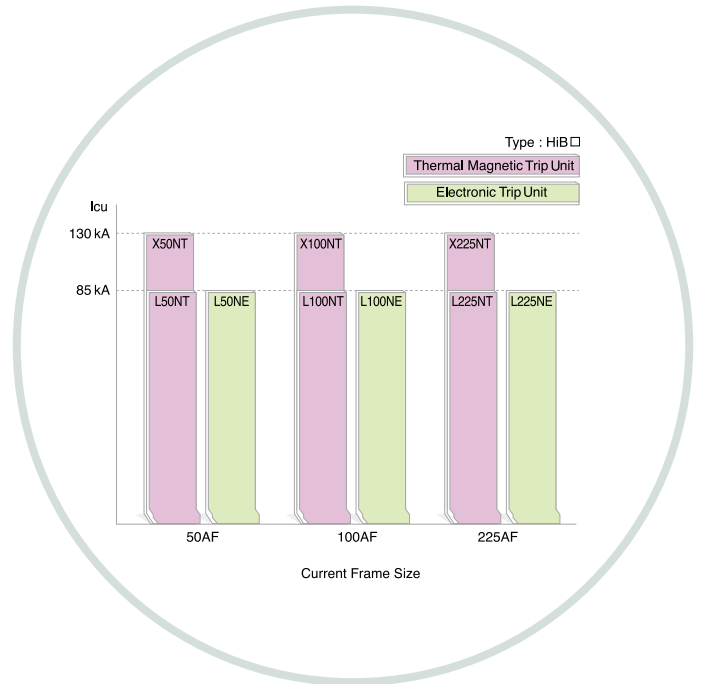
- $I_{cu} = I_{cs}$  85 & 130 kA at 415 V
- 50, 100 & 225AF
- Thermal-magnetic and electronic trip unit
- Field interchangeable trip unit

## Thermal-magnetic Trip Unit

3-step adjustable current  
(0.8-0.9-1.0)xIn

## Electronic Trip Unit

- 9-step adjustable currents
- Overload indication via LED
- Frequency change-over switch ( 50-60 Hz )
- Test in terminal for field test and monitoring



Thermal-magnetic Trip Unit

Electronic Trip Unit

## New Cassette Modular Design

HYUNDAI's new cassette MCCB is one of the most sophisticated breakers in the world, which demonstrates HYUNDAI's superiority in product development and performance.

Optimized design provides easy-to-use customer installation while offering versatility and high performance to match today's demand for reliable, cost-effective and easy maintenance.

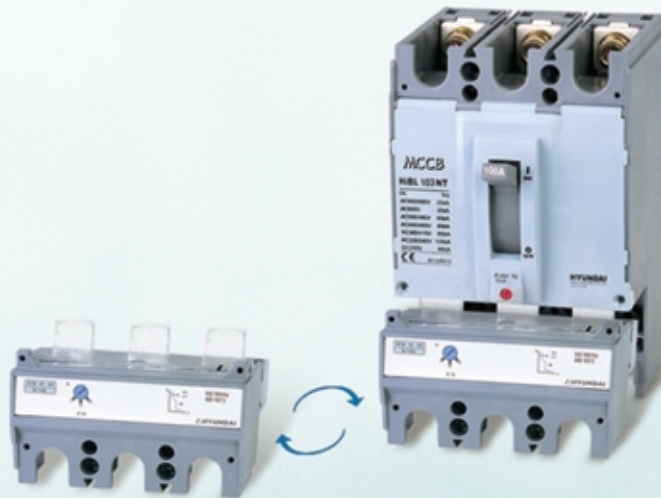
## Field Interchangeable Trip Unit !

Replacement for repair or exchange for another rating

**HiB 50NT**  
Trip Unit MTM-05-SO  
(15, 20, 30, 40, 50 A)



**HiB 100NT**  
Trip Unit MTM-10-SO  
(15, 20, 30, 40, 50, 60, 75, 100 A)



**HiB 225NT**  
Trip Unit MTM-20-SO  
(125, 150, 175 and 200, 225 A)



# Electronic Type MCCB from 400 to 1200 A

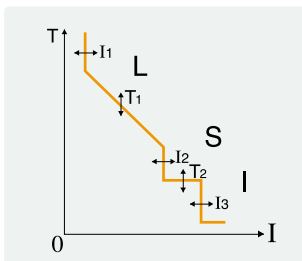
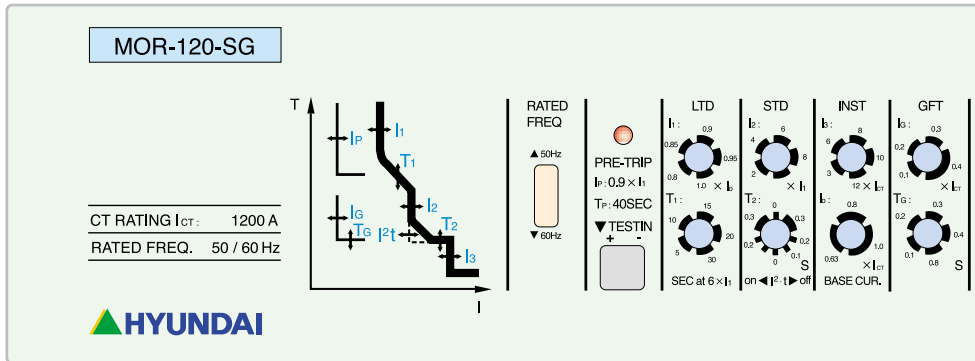
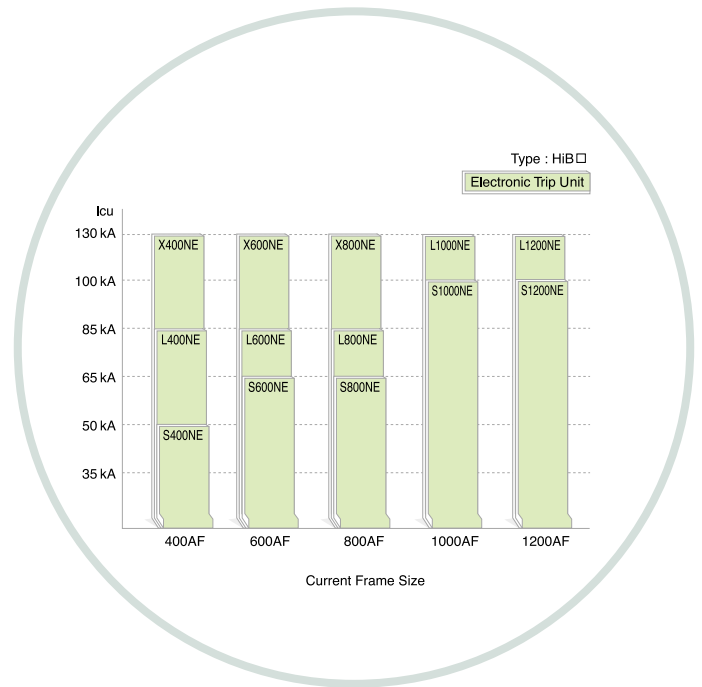
- $I_{cu} = I_{cs}$  upto 130 kA at 415 V
- 400, 600, 800, 1000 & 1200AF
- Fully adjustable LSIGA(LTD, STD, INST, GFT, Pre-trip Alarm) electronic trip unit
- Providing ground fault protection

## Trip unit configuration

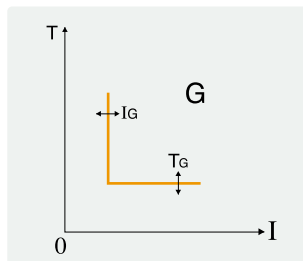
Overcurrent protection by LSI(LTD, STD, INST) curve  $I^2t$  characteristic available for short time curve

- **LTD** : Long Time Delay Trip
- **STD** : Short Time Delay Trip
- **INST** : Instantaneous Trip
- **GFT** : Ground Fault Trip
- **PRE-TRIP** : Pre-trip Alarm

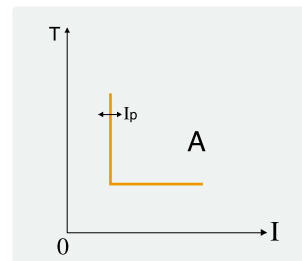
Test in terminal for field test and monitoring  
Frequency change-over switch (50 60 Hz)



Curve for Overcurrent Protection



Curve for Ground Fault Protection



Curve for Pre-trip Alarm





## For Non-adjustable MCCB from 30 to 800AF

## For Adjustable Thermal MCCB from 100 to 250AF, J Type

### Internal and external accessory layout

#### Internally Mounted Accessory

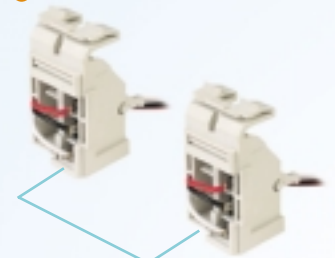
- Cassette type accessories can be easily installed and removed.
- The position of accessory can be different frame by frame.

#### Externally Mounted Accessory

- External accessories provide MCCBs with safe operation and easy maintenance.

#### Auxiliary Switch [AUX]

Electrically indicates breaker status ON or OFF.



#### Alarm Trip Switch [ALT]

Electrically indicates the tripped state of breaker.

#### External Operating Handle [TFG]

- Surface attached type (Panel mounted type)
- The MCCB shall be installed near the panel door.
- The operating mechanism is attached on the MCCB, and the external operating handle is mounted on the panel door.



#### External Operating Handle [TFH]

- Extended type (Panel mounted type)
- The MCCB can be installed inside the panel.
- The operating mechanism is attached on the MCCB, and the external operating handle is mounted on the panel door; where the handle and the mechanism are mechanically connected by a shaft.





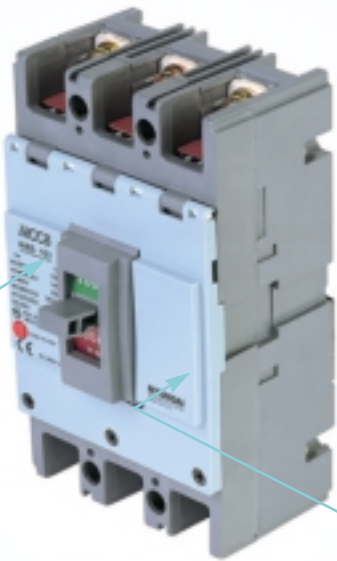
Inter Pole Barrier [TQQ]

등

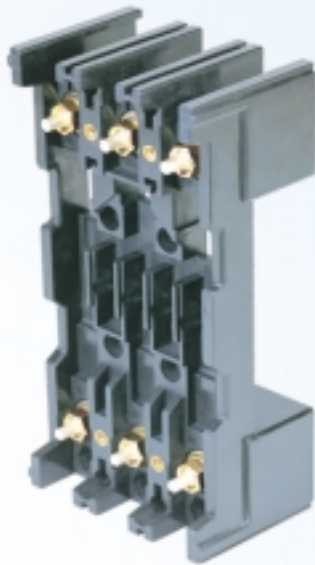


Terminal Cover [TCF]

등



등



Plug-in Mounting Base [TDM]

Allows the MCCB to be replaced without disconnecting the power.



Shunt Trip [SHT]

Carries out the electrical remote trip of the breaker.



Under Voltage Trip [UVT]

Automatically trips the breaker when control voltage drops below predetermined value.



등

Terminal Cover [TCF]

Prevents direct contact on the terminals for protection.



Inter Pole Barrier [TQQ]

- Enhances the insulation between poles of the MCCB in the line side and load side.
- Can be attached easily onto the MCCB.





## For Adjustable Thermal-magnetic MCCB upto 225AF, NT Type

## For Electronic Type MCCB upto 225AF, NE Type

### Internal and external accessory layout

#### Internally Mounted Accessory

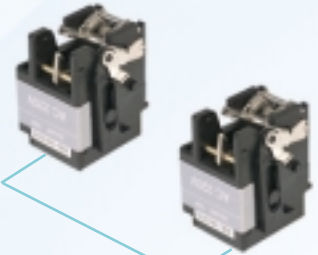
- Cassette type accessories can be easily installed and removed.
- The position of accessory can be different frame by frame.

#### Externally Mounted Accessory

- External accessories provide MCCBs with safe operation and easy maintenance.

#### Shunt Trip [SHT]

Carries out the electrical remote trip of the breaker.



#### Under Voltage Trip [UVT]

Automatically trips the breaker when control voltage drops below predetermined value.

#### Extension Handle [THA]

#### External Operating Handle [TFG]

- Surface attached type (Panel mounted type)
- The MCCB shall be installed near the panel door.
- The operating mechanism is attached on the MCCB, and the external operating handle is mounted on the panel door.



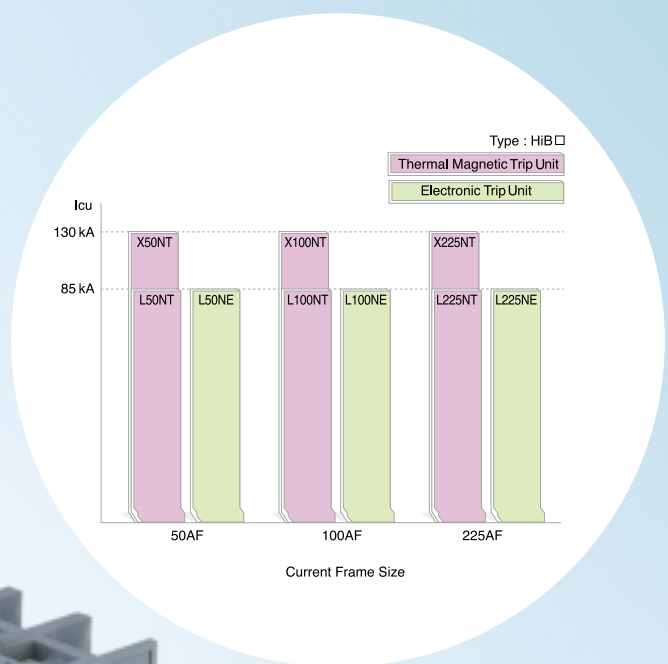
#### External Operating Handle [TFH]

- Extended type (Panel mounted type)
- The MCCB can be installed inside the panel.
- The operating mechanism is attached on the MCCB, and the external operating handle is mounted on the panel door; where the handle and the mechanism are mechanically connected by a shaft.

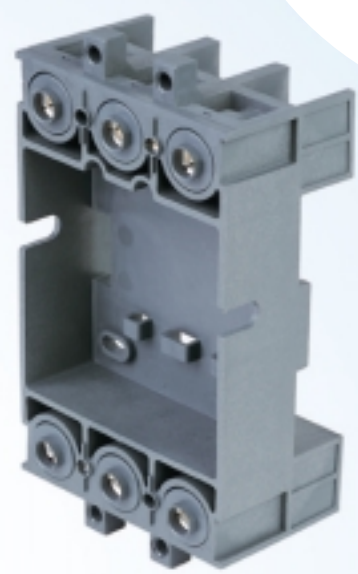




Inter Pole Barrier [TQQ]



層



Plug-in Mounting Base [TDM]

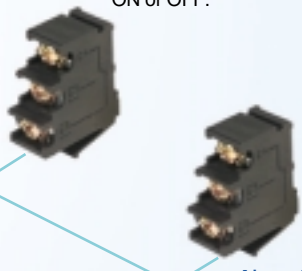
Allows the MCCB to be replaced without disconnecting the power.



機構

Auxiliary Switch [AUX]

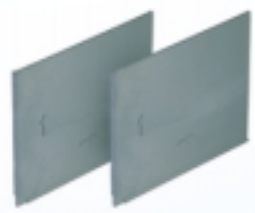
Electrically indicates breaker status ON or OFF.



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Alarm Trip Switch [ALT]

Electrically indicates the tripped state of breaker.



Inter Pole Barrier [TQQ]

- Enhances the insulation between poles of the MCCB in the line side and load side.
- Can be attached easily onto the MCCB.

# For Electronic Type MCCB from 400AF to 1200AF

## Internal and external accessory layout

### Internally Mounted Accessory

- Cassette type accessories can be easily installed and removed.
- The position of accessory can be different frame by frame.

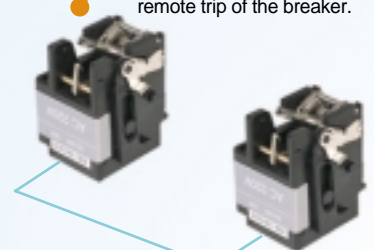
### Externally Mounted Accessory

- External accessories provide MCCBs with safe operation and easy maintenance.



### Shunt Trip [SHT]

Carries out the electrical remote trip of the breaker.



### Under Voltage Trip [UVT]

Automatically trips the breaker when control voltage drops below predetermined value.

### External Operating Handle [TFG]

- Surface attached type (Panel mounted type)
- The MCCB shall be installed near the panel door.
- The operating mechanism is attached on the MCCB, and the external operating handle is mounted on the panel door.



### External Operating Handle [TFH]

- Extended type (Panel mounted type)
- The MCCB can be installed inside the panel.
- The operating mechanism is attached on the MCCB, and the external operating handle is mounted on the panel door; where the handle and the mechanism are mechanically connected by a shaft.

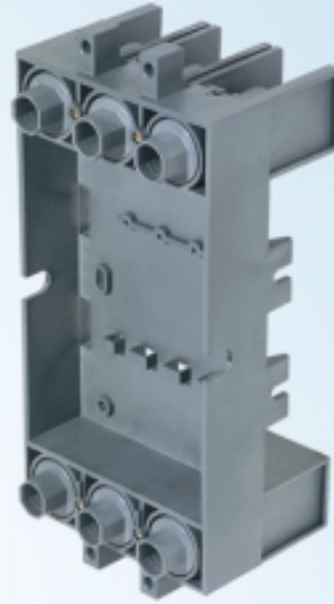


Inter Pole Barrier [TQQ]



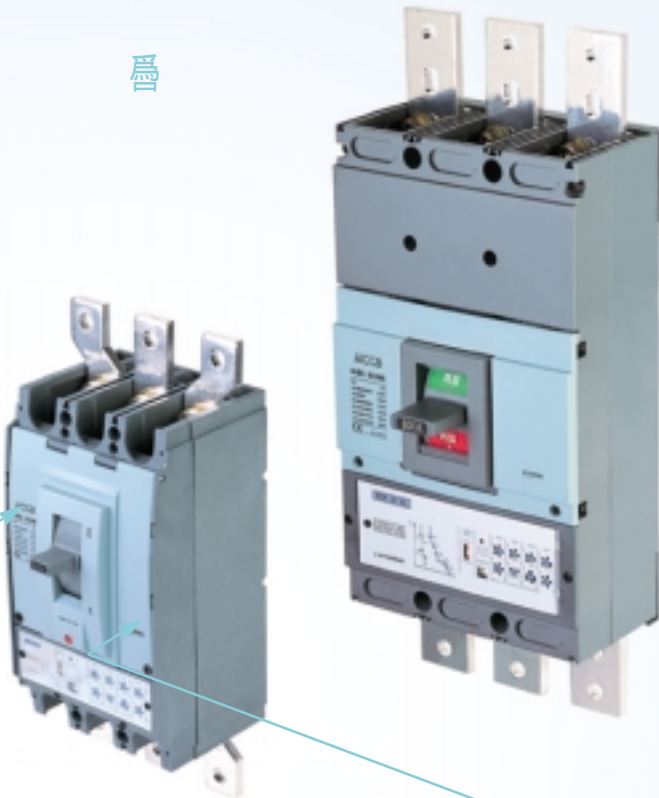
Plug-in Mounting Base [TDM]

Allows the MCCB to be replaced without disconnecting the power.



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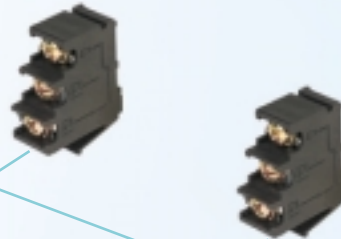


Extension Handle [THA]



Auxiliary Switch [AUX]

Electrically indicates breaker status ON or OFF.



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Alarm Trip Switch [ALT]

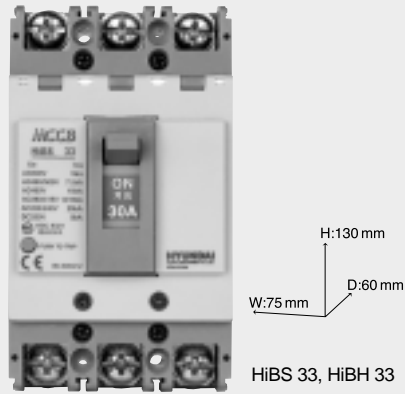
Electrically indicates the tripped state of breaker.



Inter Pole Barrier [TQQ]

- Enhances the insulation between poles of the MCCB in the line side and load side.
- Can be attached easily onto the MCCB.

## Non-adjustable MCCBs | 30AF HiB -30 Type



### Rating

Frame Size		30AF	
MCCB Type	2 Pole	HiBS 32	HiBH 32
	3 Pole	HiBS 33	HiBH 33
Current Ratings			
IP Degree		IP20	
Category		A	
Life Time			
Number of Operating Cycles	Per hour	240	
	Mechanical	30,000	
	Electrical at 415 VAC	9,500	
Rated Current (A)	In	3, 5, 10, 15, 20, 30	5, 10, 15, 20, 30
Instant Pickup	Im	Fixed	
Number of Pole		2, 3	
Voltage Ratings			
Insulation Voltage (V) Ui		750	
Operational Voltage (V) Ue		690	
Impulse Withstand (kV) Uimp		6	
Breaking Capacity		HiBS 30	HiBH 30
Ultimate, Icu (kA rms) IEC60947-2 NEMA AB-1 KSC8321	AC 660 V	2.5	5
	AC 600 V	2.5	5
	AC 480 / 500 V	2.5	7.5
	AC 440 / 460 V	5	10
	<b>AC 380 / 415 V</b>	<b>7.5 / 5</b>	<b>14 / 10</b>
	DC 250 V	2.5	5
Service, Ics		50 % of Icu	
Trip Unit Mechanism		Hydraulic-magnetic	
Rated Frequency		50 / 60 Hz	
Reference Ambient Temperature		40	
Connection			
Front	Standard	Terminal Screw, A	
Plug-in	Optional	3-pole Both(line and load) Sides, K	
		3-pole Line Side Only, L	

**Accessory** see Page 72~85

Optional	<ul style="list-style-type: none"> <li>• Shunt Trip, SHT</li> <li>• Under Voltage Trip, UVT</li> <li>• Auxiliary Switch, AUX</li> <li>• Alarm Trip Switch, ALT</li> </ul>	<ul style="list-style-type: none"> <li>• Operating Handle (3 Pole) -Breaker Mounted, TFG</li> <li>-Panel Mounted, TFH</li> <li>• Terminal Cover, TCF</li> </ul>
Standard	<ul style="list-style-type: none"> <li>• Interpole Barrier, TQQ</li> </ul>	

**More Information** see Page 94

- Characteristic Curve
- Dimension
- Internal Accessory Combination

**Ordering Code for Standard Type**

Conditions : Front connection with terminal screw, A

Reference ambient temp. 40

Without any electrical auxiliary

See page 132 for more details on ordering information

**MCCBs with 5 kA at 415 V**



AF	In	In Code	2 Pole	3 Pole
30AF	3 A	3	HiBS 32-F3A00Y, 3 A	HiBS 33-K3A00Y, 3 A
	5 A	3	HiBS 32-F3A00Y, 5 A	HiBS 33-K3A00Y, 5 A
	10 A	A	HiBS 32-FAA00Y	HiBS 33-KAA00Y
	15 A	B	HiBS 32-FBA00Y	HiBS 33-KBA00Y
	20 A	C	HiBS 32-FCA00Y	HiBS 33-KCA00Y
	30 A	D	HiBS 32-FDA00Y	HiBS 33-KDA00Y

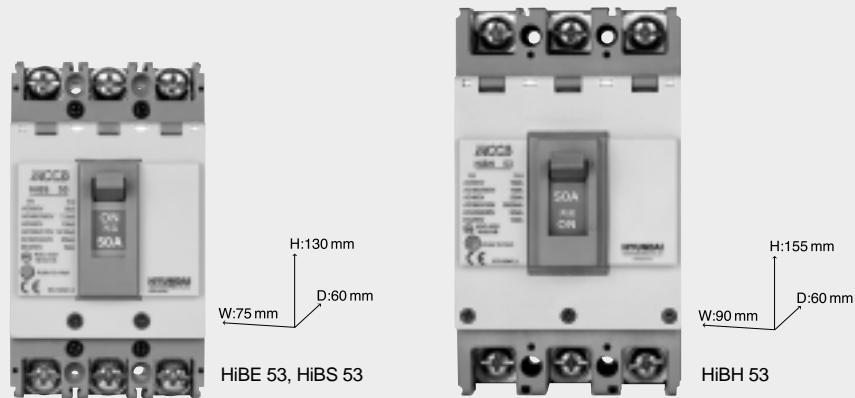
**MCCBs with 10 kA at 415 V**



AF	In	In Code	2 Pole	3 Pole
30AF	5 A	3	HiBH 32-F3A00Y, 5 A	HiBH 33-K3A00Y, 5 A
	10 A	A	HiBH 32-FAA00Y	HiBH 33-KAA00Y
	15 A	B	HiBH 32-FBA00Y	HiBH 33-KBA00Y
	20 A	C	HiBH 32-FCA00Y	HiBH 33-KCA00Y
	30 A	D	HiBH 32-FDA00Y	HiBH 33-KDA00Y



## Non-adjustable MCCBs | 50AF HiB -50 Type



### Rating

Frame Size		50AF		
MCCB Type	2 Pole	HiBE 52	HiBS 52	HiBH 52
	3 Pole	HiBE 53	HiBS 53	HiBH 53
	4 Pole	HiBE 54	HiBS 54	HiBH 54
Current Ratings				
IP Degree		IP20		
Category		A		
Life Time				
Number of Operating Cycles	Per hour	240		
	Mechanical	30,000		
	Electrical at 415 VAC	9,500		
Rated Current (A)	In	5, 10, 15, 20, 30, 40, 50		15, 20, 30, 40, 50
Instant Pickup	Im	Fixed		
Number of Pole		2, 3, 4		
Voltage Ratings				
Insulation Voltage (V) Ui		750		
Operational Voltage (V) Ue		690		
Impulse Withstand (kV) Uimp		6		
Breaking Capacity		HiBE 50	HiBS 50	HiBH 50
Ultimate, Icu (kA rms)	AC 660 V	2.5	5	10
	AC 600 V	2.5	5	10
	AC 480 / 500 V	2.5	7.5	14
	IEC60947-2 AC 440 / 460 V	5	10	25
	NEMA AB-1 AC 380 / 415 V	7.5 / 5	14 / 10	35 / 25
	KSC8321 AC 220 / 240 V	10	25	50
	DC 250 V	2.5	5	14
Service, Ics		50 % of Icu		
Trip Unit Mechanism		Hydraulic-magnetic		Thermal-magnetic
Rated Frequency		50 / 60 Hz		
Reference Ambient Temperature				
Standard		40		
Optional		50		
Connection				
Front	Standard	Terminal Screw, A		
Plug-in	Optional	3-pole both(line and load) Sides, K		
		3-pole Line Side Only, L		

### Accessory *see Page 72~85*

Optional	<ul style="list-style-type: none"> <li>• Shunt Trip, SHT</li> <li>• Under Voltage Trip, UVT</li> <li>• Auxiliary Switch, AUX</li> <li>• Alarm Trip Switch, ALT</li> </ul>	<ul style="list-style-type: none"> <li>• Operating Handle (3, 4 Pole) <ul style="list-style-type: none"> <li>-Breaker Mounted, TFG</li> <li>-Panel Mounted, TFH</li> </ul> </li> <li>• Terminal Cover, TCF</li> </ul>
Standard	<ul style="list-style-type: none"> <li>• Interpole Barrier, TQQ</li> </ul>	

### More Information *see Page 94~97*

- Characteristic Curve
- Dimension
- Internal Accessory Combination

### Ordering Code for Standard Type

Conditions : Front connection with terminal screw, A

Reference ambient temp. 40

Without any electrical auxiliary

See page 132 for more details on ordering information

#### MCCBs with 5 kA at 415 V



AF	In	In Code	2 Pole	3 Pole	4 Pole
50AF	5 A	3	<a href="#">HiBE 52-F3A00Y, 5 A</a>	<a href="#">HiBE 53-K5A00Y, 5 A</a>	<a href="#">HiBE 54-P3A00Y, 5 A</a>
	10 A	A	<a href="#">HiBE 52-FAA00Y</a>	<a href="#">HiBE 53-KAA00Y</a>	<a href="#">HiBE 54-PAA00Y</a>
	15 A	B	<a href="#">HiBE 52-FBA00Y</a>	<a href="#">HiBE 53-KBA00Y</a>	<a href="#">HiBE 54-PBA00Y</a>
	20 A	C	<a href="#">HiBE 52-FCA00Y</a>	<a href="#">HiBE 53-KCA00Y</a>	<a href="#">HiBE 54-PCA00Y</a>
	30 A	D	<a href="#">HiBE 52-FDA00Y</a>	<a href="#">HiBE 53-KDA00Y</a>	<a href="#">HiBE 54-PDA00Y</a>
	40 A	F	<a href="#">HiBE 52-FFA00Y</a>	<a href="#">HiBE 53-KFA00Y</a>	<a href="#">HiBE 54-PFA00Y</a>
	50 A	G	<a href="#">HiBE 52-FGA00Y</a>	<a href="#">HiBE 53-KGA00Y</a>	<a href="#">HiBE 54-PGA00Y</a>

#### MCCBs with 10 kA at 415 V



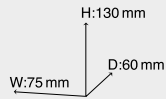
AF	In	In Code	2 Pole	3 Pole	4 Pole
50AF	5 A	3	<a href="#">HiBS 52-F3A00Y, 5A</a>	<a href="#">HiBS 53-K3A00Y, 5A</a>	<a href="#">HiBS 54-P3A00Y, 5A</a>
	10 A	A	<a href="#">HiBS 52-FAA00Y</a>	<a href="#">HiBS 53-KAA00Y</a>	<a href="#">HiBS 54-PAA00Y</a>
	15 A	B	<a href="#">HiBS 52-FBA00Y</a>	<a href="#">HiBS 53-KBA00Y</a>	<a href="#">HiBS 54-PBA00Y</a>
	20 A	C	<a href="#">HiBS 52-FCA00Y</a>	<a href="#">HiBS 53-KCA00Y</a>	<a href="#">HiBS 54-PCA00Y</a>
	30 A	D	<a href="#">HiBS 52-FDA00Y</a>	<a href="#">HiBS 53-KDA00Y</a>	<a href="#">HiBS 54-PDA00Y</a>
	40 A	F	<a href="#">HiBS 52-FFA00Y</a>	<a href="#">HiBS 53-KFA00Y</a>	<a href="#">HiBS 54-PFA00Y</a>
	50 A	G	<a href="#">HiBS 52-FGA00Y</a>	<a href="#">HiBS 53-KGA00Y</a>	<a href="#">HiBS 54-PGA00Y</a>

#### MCCBs with 25 kA at 415 V



AF	In	In Code	2 Pole	3 Pole	4 Pole
50AF	15 A	B	<a href="#">HiBH 52-FBA00Y</a>	<a href="#">HiBH 53-KBA00Y</a>	<a href="#">HiBH 54-PBA00Y</a>
	20 A	C	<a href="#">HiBH 52-FCA00Y</a>	<a href="#">HiBH 53-KCA00Y</a>	<a href="#">HiBH 54-PCA00Y</a>
	30 A	D	<a href="#">HiBH 52-FDA00Y</a>	<a href="#">HiBH 53-KDA00Y</a>	<a href="#">HiBH 54-PDA00Y</a>
	40 A	F	<a href="#">HiBH 52-FFA00Y</a>	<a href="#">HiBH 53-KFA00Y</a>	<a href="#">HiBH 54-PFA00Y</a>
	50 A	G	<a href="#">HiBH 52-FGA00Y</a>	<a href="#">HiBH 53-KGA00Y</a>	<a href="#">HiBH 54-PGA00Y</a>

## Non-adjustable MCCBs | 60AF HiB -60 Type



HiBE 63, HiBS 63

### Rating

Frame Size		60AF	
MCCB Type	2 Pole	HiBE 62	HiBS 62
	3 Pole	HiBE 63	HiBS 63
	4 Pole	HiBE 64	HiBS 64
Current Ratings			
IP Degree		IP20	
Category		A	
Life Time			
Number of Operating Cycles	Per hour	240	
	Mechanical	30,000	
	Electrical at 415 VAC	9,500	
Rated Current (A)	In	5, 10, 15, 20, 30, 40, 50, 60	
Instant Pickup	Im	Fixed	
Number of Pole		2, 3, 4	
Voltage Ratings			
Insulation Voltage (V) Ui		750	
Operational Voltage (V) Ue		690	
Impulse Withstand (kV) Uimp		6	
Breaking Capacity		HiBE 60	HiBS 60
Ultimate, Icu (kA rms) IEC60947-2 NEMA AB-1 KSC8321	AC 660 V	2.5	5
	AC 600 V	2.5	5
	AC 480 / 500 V	2.5	7.5
	AC 440 / 460 V	5	10
	<b>AC 380 / 415 V</b>	<b>7.5 / 5</b>	<b>14 / 10</b>
	DC 250 V	2.5	5
Service, Ics		50 % of Icu	
Trip Unit Mechanism		Hydraulic-magnetic	
Rated Frequency		50 / 60 Hz	
Reference Ambient Temperature		40	
Connection			
Front	Standard	Terminal Screw, A	
Plug-in	Optional	3-pole Both(line and load) Sides, K	
		3-pole Line Side Only, L	

**Accessory** see Page 72~85

Optional	<ul style="list-style-type: none"> <li>• Shunt Trip, SHT</li> <li>• Under Voltage Trip, UVT</li> <li>• Auxiliary Switch, AUX</li> <li>• Alarm Trip Switch, ALT</li> </ul>	<ul style="list-style-type: none"> <li>• Operating Handle (3, 4 Pole) -Breaker Mounted, TFG -Panel Mounted, TFH</li> <li>• Terminal Cover, TCF</li> </ul>
Standard	<ul style="list-style-type: none"> <li>• Interpole Barrier, TQQ</li> </ul>	

**More Information** see Page 94

- Characteristic Curve
- Dimension
- Internal Accessory Combination

**Ordering Code for Standard Type**

Conditions : Front connection with terminal screw, A

Reference ambient temp. 40

Without any electrical auxiliary

See page 132 for more details on ordering information

**MCCBs with 5 kA at 415 V**



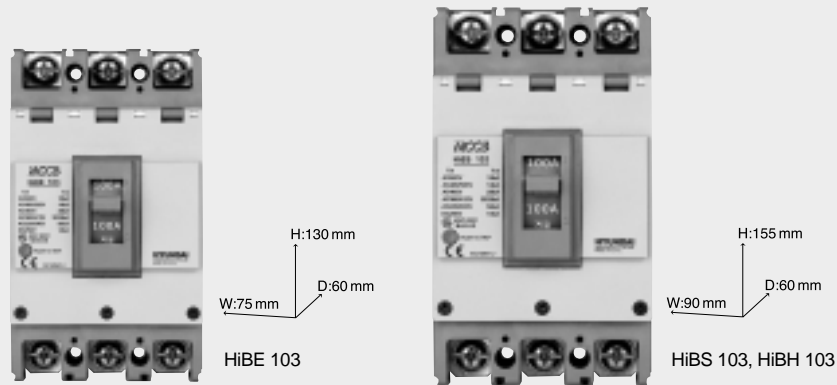
AF	In	In Code	2 Pole	3 Pole	4 Pole
60AF	5 A	3	HiBE 62-F3A00Y, 5 A	HiBE 63-K3A00Y, 5 A	HiBE 64-P3A00Y, 5 A
	10 A	A	HiBE 62-FAA00Y	HiBE 63-KAA00Y	HiBE 64-PAA00Y
	15 A	B	HiBE 62-FBA00Y	HiBE 63-KBA00Y	HiBE 64-PBA00Y
	20 A	C	HiBE 62-FCA00Y	HiBE 63-KCA00Y	HiBE 64-PCA00Y
	30 A	D	HiBE 62-FDA00Y	HiBE 63-KDA00Y	HiBE 64-PDA00Y
	40 A	F	HiBE 62-FFA00Y	HiBE 63-KFA00Y	HiBE 64-PFA00Y
	50 A	G	HiBE 62-FGA00Y	HiBE 63-KGA00Y	HiBE 64-PGA00Y
	60 A	H	HiBE 62-FHA00Y	HiBE 63-KHA00Y	HiBE 64-PHA00Y

**MCCBs with 10 kA at 415 V**



AF	In	In Code	2 Pole	3 Pole	4 Pole
60AF	5 A	3	HiBS 62-F3A00Y, 5 A	HiBS 63-K3A00Y, 5 A	HiBS 64-P3A00Y, 5 A
	10 A	A	HiBS 62-FAA00Y	HiBS 63-KAA00Y	HiBS 64-PAA00Y
	15 A	B	HiBS 62-FBA00Y	HiBS 63-KBA00Y	HiBS 64-PBA00Y
	20 A	C	HiBS 62-FCA00Y	HiBS 63-KCA00Y	HiBS 64-PCA00Y
	30 A	D	HiBS 62-FDA00Y	HiBS 63-KDA00Y	HiBS 64-PDA00Y
	40 A	F	HiBS 62-FFA00Y	HiBS 63-KFA00Y	HiBS 64-PFA00Y
	50 A	G	HiBS 62-FGA00Y	HiBS 63-KGA00Y	HiBS 64-PGA00Y
	60 A	H	HiBS 62-FHA00Y	HiBS 63-KHA00Y	HiBS 64-PHA00Y

## Non-adjustable MCCBs | 100AF HiB -100 Type



### Rating

Frame Size		100AF		
MCCB Type	2 Pole	HiBE 102	HiBS 102	HiBH 102
	3 Pole	HiBE 103	HiBS 103	HiBH 103
	4 Pole	HiBE 104	HiBS 104	HiBH 104
Current Ratings				
IP Degree		IP20		
Category		A		
Life Time				
Number of Operating Cycles	Per hour	240		
	Mechanical	30,000		
	Electrical at 415 VAC	9,600		
Rated Current (A)	In	5,10,15,20,30,40,50,60,75,100	15, 20, 30, 40, 50, 60, 75, 100	
Instant Pickup		Im		
Number of Pole		Fixed		
Voltage Ratings		2, 3, 4		
Insulation Voltage (V) Ui		750		
Operational Voltage (V) Ue		690		
Impulse Withstand (kV) Uimp		6		
Breaking Capacity		HiBE 100	HiBS 100	HiBH 100
Ultimate, Icu (kA rms) IEC60947-2 NEMA AB-1 KSC8321	AC 660 V	5	10	18
	AC 600 V	5	10	18
	AC 480 / 500 V	7.5	14	25
	AC 440 / 460 V	10	25	35
	<b>AC 380 / 415 V</b>	<b>14 / 10</b>	<b>35 / 25</b>	<b>42 / 35</b>
	AC 220 / 240 V	25	50	65
	DC 250 V	5	14	18
Service, Ics		50 % of Icu		
Trip Unit Mechanism		Hydraulic-magnetic	Thermal-magnetic	
Rated Frequency		50 / 60 Hz		
Reference Ambient Temperature				
Standard		40		
Optional		50		
Connection				
Front	Standard	Terminal Screw, A		
Plug-in	Optional	3-pole Both(line and load) Sides, K		
		3-pole Line Side Only, L		

**Accessory** see Page 72~85

Optional	<ul style="list-style-type: none"> <li>• Shunt Trip, SHT</li> <li>• Under Voltage Trip, UVT</li> <li>• Auxiliary Switch, AUX</li> <li>• Alarm Trip Switch, ALT</li> </ul>	<ul style="list-style-type: none"> <li>• Operating Handle (3, 4 Pole)                     <ul style="list-style-type: none"> <li>-Breaker Mounted, TFG</li> <li>-Panel Mounted, TFH</li> </ul> </li> <li>• Terminal Cover, TCF</li> </ul>
Standard	<ul style="list-style-type: none"> <li>• Interpole Barrier, TQQ</li> </ul>	

**More Information** see Page 94~97

- Characteristic Curve
- Dimension
- Internal Accessory Combination

**Ordering Code for Standard Type**

Conditions : Front connection with terminal screw, A

Reference ambient temp. 40

Without any electrical auxiliary

See page 132 for more details on ordering information

**MCCBs with 10 kA at 415 V**



AF	In	In Code	2 Pole	3 Pole	4 Pole
100AF	5 A	3	HiBE 102-F3A00Y, 5 A	HiBE 103-K3A00Y, 5 A	HiBE 104-P3A00Y, 5 A
	10 A	A	HiBE 102-FAA00Y	HiBE 103-KAA00Y	HiBE 104-PAA00Y
	15 A	B	HiBE 102-FBA00Y	HiBE 103-KBA00Y	HiBE 104-PBA00Y
	20 A	C	HiBE 102-FCA00Y	HiBE 103-KCA00Y	HiBE 104-PCA00Y
	30 A	D	HiBE 102-FDA00Y	HiBE 103-KDA00Y	HiBE 104-PDA00Y
	40 A	F	HiBE 102-FFA00Y	HiBE 103-KFA00Y	HiBE 104-PFA00Y
	50 A	G	HiBE 102-FGA00Y	HiBE 103-KGA00Y	HiBE 104-PGA00Y
	60 A	H	HiBE 102-FHA00Y	HiBE 103-KHA00Y	HiBE 104-PHA00Y
	75 A	J	HiBE 102-FJA00Y	HiBE 103-KJA00Y	HiBE 104-PJA00Y
	100 A	K	HiBE 102-FKA00Y	HiBE 103-KKA00Y	HiBE 104-PKA00Y

**MCCBs with 25 kA at 415 V**



AF	In	In Code	2 Pole	3 Pole	4 Pole
100AF	15 A	B	HiBS 102-FBA00Y	HiBS 103-KBA00Y	HiBS 104-PBA00Y
	20 A	C	HiBS 102-FCA00Y	HiBS 103-KCA00Y	HiBS 104-PCA00Y
	30 A	D	HiBS 102-FDA00Y	HiBS 103-KDA00Y	HiBS 104-PDA00Y
	40 A	F	HiBS 102-FFA00Y	HiBS 103-KFA00Y	HiBS 104-PFA00Y
	50 A	G	HiBS 102-FGA00Y	HiBS 103-KGA00Y	HiBS 104-PGA00Y
	60 A	H	HiBS 102-FHA00Y	HiBS 103-KHA00Y	HiBS 104-PHA00Y
	75 A	J	HiBS 102-FJA00Y	HiBS 103-KJA00Y	HiBS 104-PJA00Y
	100 A	K	HiBS 102-FKA00Y	HiBS 103-KKA00Y	HiBS 104-PKA00Y

**MCCBs with 35 kA at 415 V**



AF	In	In Code	2 Pole	3 Pole	4 Pole
100AF	15 A	B	HiBH 102-FBA00Y	HiBH 103-KBA00Y	HiBH 104-PBA00Y
	20 A	C	HiBH 102-FCA00Y	HiBH 103-KCA00Y	HiBH 104-PCA00Y
	30 A	D	HiBH 102-FDA00Y	HiBH 103-KDA00Y	HiBH 104-PDA00Y
	40 A	F	HiBH 102-FFA00Y	HiBH 103-KFA00Y	HiBH 104-PFA00Y
	50 A	G	HiBH 102-FGA00Y	HiBH 103-KGA00Y	HiBH 104-PGA00Y
	60 A	H	HiBH 102-FHA00Y	HiBH 103-KHA00Y	HiBH 104-PHA00Y
	75 A	J	HiBH 102-FJA00Y	HiBH 103-KJA00Y	HiBH 104-PJA00Y
	100 A	K	HiBH 102-FKA00Y	HiBH 103-KKA00Y	HiBH 104-PKA00Y



## Non-adjustable MCCBs | 225AF HiB -225 Type



H:164 mm  
W:105 mm  
D:60 mm

2, 3 Pole size

HiBE 203, HiBS 203, HiBH 203

### Rating

Frame Size		225AF		
MCCB Type	2 Pole	HiBE 202	HiBS 202	HiBH 202
	3 Pole	HiBE 203	HiBS 203	HiBH 203
	4 Pole	HiBE 204	HiBS 204	HiBH 204
Current Ratings				
IP Degree		IP20		
Category		A		
Life Time				
Number of Operating Cycles	Per hour	120		
	Mechanical	25,000		
	Electrical at 415 VAC	8,000		
Rated Current (A)	In	125, 150, 175, 200, 225		
Instant Pickup	Im	Fixed		
Number of Pole		2, 3, 4		
Voltage Ratings				
Insulation Voltage (V) Ui		750		
Operational Voltage (V) Ue		690		
Impulse Withstand (kV) Uimp		6		
Breaking Capacity		HiBE 225	HiBS 225	HiBH 225
Ultimate, Icu (kA rms) IEC60947-2 NEMA AB-1 KSC8321	AC 660 V	7.5	10	18
	AC 600 V	7.5	10	18
	AC 480 / 500 V	10	14	25
	AC 440 / 460 V	18	25	35
	<b>AC 380 / 415 V</b>	<b>25 / 18</b>	<b>35 / 25</b>	<b>42 / 35</b>
	DC 250 V	10	14	18
Service, Ics		50 % of Icu		
Trip Unit Mechanism		Thermal-magnetic		
Rated Frequency		50 / 60 Hz		
Reference Ambient Temperature				
Standard		40		
Optional		50		
Connection				
Front	Standard	Terminal Screw, A		
	Optional	Attached Flat Bar, B (The busbar is to be supplied separately; not installed status.)		
Plug-in	Optional	3-pole Both(line and load) Sides, K		
		3-pole Line Side Only, L		

**Accessory** see Page 72~85

Optional	<ul style="list-style-type: none"> <li>• Shunt Trip, SHT</li> <li>• Under Voltage Trip, UVT</li> <li>• Auxiliary Switch, AUX</li> <li>• Alarm Trip Switch, ALT</li> <li>• Terminal Bus Bar, TBB</li> </ul>	<ul style="list-style-type: none"> <li>• Operating Handle (3, 4 Pole)                     <ul style="list-style-type: none"> <li>-Breaker Mounted, TFG</li> <li>-Panel Mounted, TFH</li> </ul> </li> <li>• Terminal Cover, TCF</li> </ul>
Standard	<ul style="list-style-type: none"> <li>• Interpole Barrier, TQQ</li> </ul>	

**More Information** see Page 98

- Characteristic Curve
- Dimension
- Internal Accessory Combination

**Ordering Code for Standard Type**

Conditions : Front connection with terminal screw, A

Reference ambient temp. 40

Without any electrical auxiliary

See page 132 for more details on ordering information

**MCCBs with 18 kA at 415 V**



AF	In	In Code	2 Pole	3 Pole	4 Pole
225AF	125 A	L	<a href="#">HiBE 202-FLA00Y</a>	<a href="#">HiBE 203-KLA00Y</a>	<a href="#">HiBE 204-PLA00Y</a>
	150 A	M	<a href="#">HiBE 202-FMA00Y</a>	<a href="#">HiBE 203-KMA00Y</a>	<a href="#">HiBE 204-PMA00Y</a>
	175 A	N	<a href="#">HiBE 202-FNA00Y</a>	<a href="#">HiBE 203-KNA00Y</a>	<a href="#">HiBE 204-PNA00Y</a>
	200 A	P	<a href="#">HiBE 202-FPA00Y</a>	<a href="#">HiBE 203-KPA00Y</a>	<a href="#">HiBE 204-PPA00Y</a>
	225 A	Q	<a href="#">HiBE 202-FQA00Y</a>	<a href="#">HiBE 203-KQA00Y</a>	<a href="#">HiBE 204-PQA00Y</a>

**MCCBs with 25 kA at 415 V**



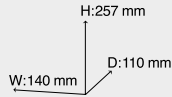
AF	In	In Code	2 Pole	3 Pole	4 Pole
225AF	125 A	L	<a href="#">HiBS 202-FLA00Y</a>	<a href="#">HiBS 203-KLA00Y</a>	<a href="#">HiBS 204-PLA00Y</a>
	150 A	M	<a href="#">HiBS 202-FMA00Y</a>	<a href="#">HiBS 203-KMA00Y</a>	<a href="#">HiBS 204-PMA00Y</a>
	175 A	N	<a href="#">HiBS 202-FNA00Y</a>	<a href="#">HiBS 203-KNA00Y</a>	<a href="#">HiBS 204-PNA00Y</a>
	200 A	P	<a href="#">HiBS 202-FPA00Y</a>	<a href="#">HiBS 203-KPA00Y</a>	<a href="#">HiBS 204-PPA00Y</a>
	225 A	Q	<a href="#">HiBS 202-FQA00Y</a>	<a href="#">HiBS 203-KQA00Y</a>	<a href="#">HiBS 204-PQA00Y</a>

**MCCBs with 35 kA at 415 V**



AF	In	In Code	2 Pole	3 Pole	4 Pole
225AF	125 A	L	<a href="#">HiBH 202-FLA00Y</a>	<a href="#">HiBH 203-KLA00Y</a>	<a href="#">HiBH 204-PLA00Y</a>
	150 A	M	<a href="#">HiBH 202-FMA00Y</a>	<a href="#">HiBH 203-KMA00Y</a>	<a href="#">HiBH 204-PMA00Y</a>
	175 A	N	<a href="#">HiBH 202-FNA00Y</a>	<a href="#">HiBH 203-KNA00Y</a>	<a href="#">HiBH 204-PNA00Y</a>
	200 A	P	<a href="#">HiBH 202-FPA00Y</a>	<a href="#">HiBH 203-KPA00Y</a>	<a href="#">HiBH 204-PPA00Y</a>
	225 A	Q	<a href="#">HiBH 202-FQA00Y</a>	<a href="#">HiBH 203-KQA00Y</a>	<a href="#">HiBH 204-PQA00Y</a>

## Non-adjustable MCCBs | 400AF HiB -400 Type



2, 3 Pole size

HiBE 403, HiBS 403, HiBH 403, HiBL 403

### Rating

Frame Size		400AF			
MCCB Type	2 Pole	HiBE 402	HiBS 402	HiBH 402	HiBL 402
	3 Pole	HiBE 403	HiBS 403	HiBH 403	HiBL 403
	4 Pole	HiBE 404	HiBS 404	HiBH 404	HiBL 404
Current Ratings					
IP Degree		IP20			
Category		A			
Life Time					
Number of Operating Cycles	Per hour	120			
	Mechanical	20,000			
	Electrical at 415 VAC	8,000			
Rated Current (A)	In	250, 300, 350, 400			
Instant Pickup	Im	Fixed			
Number of Pole		2, 3, 4			
Voltage Ratings					
Insulation Voltage (V) Ui		750			
Operational Voltage (V) Ue		690			
Impulse Withstand (kV) Uimp		6			
Breaking Capacity		HiBE 400	HiBS 400	HiBH 400	HiBL 400
Ultimate, Icu (kA rms) IEC60947-2 NEMA AB-1 KSC8321	AC 660 V	18	22	25	30
	AC 600 V	18	22	25	30
	AC 480 / 500 V	18	25	35	65
	AC 440 / 460 V	25	35	50	85
	<b>AC 380 / 415 V</b>	<b>30</b>	<b>42</b>	<b>65</b>	<b>100</b>
	DC 250 V	14	25	40	40
Service, Ics		50 % of Icu			
Trip Unit Mechanism		Thermal-magnetic			
Rated Frequency		50 / 60 Hz			
Reference Ambient Temperature					
Standard		40			
Optional		50			
Connection					
Front	Standard	Attached Flat Bar, B (The busbar is to be supplied separately; not installed status.)			
Plug-in	Optional	3-pole Both(line and load) Sides, K			

**Accessory** see Page 72~85

Optional	<ul style="list-style-type: none"> <li>• Shunt Trip, SHT</li> <li>• Under Voltage Trip, UVT</li> <li>• Auxiliary Switch, AUX</li> <li>• Alarm Trip Switch, ALT</li> </ul>	<ul style="list-style-type: none"> <li>• Operating Handle (3, 4 Pole) -Breaker Mounted, TFG -Panel Mounted, TFH</li> </ul>
Standard	<ul style="list-style-type: none"> <li>• Interpole Barrier, TQQ</li> </ul>	<ul style="list-style-type: none"> <li>• Terminal Bus Bar, TBB</li> </ul>

**More Information** see Page 100

- Characteristic Curve
- Dimension
- Internal Accessory Combination

**Ordering Code for Standard Type**

Conditions : Front connection with attached flat bar, B

Reference ambient temp. 40

Without any electrical auxiliary

See page 132 for more details on ordering information

**MCCBs with 30 kA at 415 V**



AF	In	In Code	2 Pole	3 Pole	4 Pole
400AF	250 A	R	<a href="#">HiBE 402-FRB00Y</a>	<a href="#">HiBE 403-KRB00Y</a>	<a href="#">HiBE 404-PRB00Y</a>
	300 A	S	<a href="#">HiBE 402-FSB00Y</a>	<a href="#">HiBE 403-KSB00Y</a>	<a href="#">HiBE 404-PSB00Y</a>
	350 A	T	<a href="#">HiBE 402-FTB00Y</a>	<a href="#">HiBE 403-KTB00Y</a>	<a href="#">HiBE 404-PTB00Y</a>
	400 A	U	<a href="#">HiBE 402-FUB00Y</a>	<a href="#">HiBE 403-KUB00Y</a>	<a href="#">HiBE 404-PUB00Y</a>

**MCCBs with 42 kA at 415 V**



AF	In	In Code	2 Pole	3 Pole	4 Pole
400AF	250 A	R	<a href="#">HiBS 402-FRB00Y</a>	<a href="#">HiBS 403-KRB00Y</a>	<a href="#">HiBS 404-PRB00Y</a>
	300 A	S	<a href="#">HiBS 402-FSB00Y</a>	<a href="#">HiBS 403-KSB00Y</a>	<a href="#">HiBS 404-PSB00Y</a>
	350 A	T	<a href="#">HiBS 402-FTB00Y</a>	<a href="#">HiBS 403-KTB00Y</a>	<a href="#">HiBS 404-PTB00Y</a>
	400 A	U	<a href="#">HiBS 402-FUB00Y</a>	<a href="#">HiBS 403-KUB00Y</a>	<a href="#">HiBS 404-PUB00Y</a>

**MCCBs with 65 kA at 415 V**



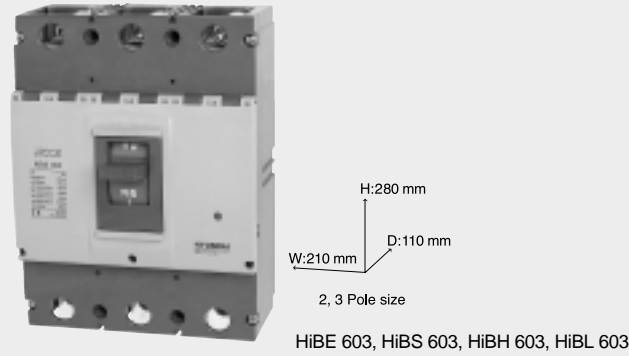
AF	In	In Code	2 Pole	3 Pole	4 Pole
400AF	250 A	R	<a href="#">HiBH 402-FRB00Y</a>	<a href="#">HiBH 403-KRB00Y</a>	<a href="#">HiBH 404-PRB00Y</a>
	300 A	S	<a href="#">HiBH 402-FSB00Y</a>	<a href="#">HiBH 403-KSB00Y</a>	<a href="#">HiBH 404-PSB00Y</a>
	350 A	T	<a href="#">HiBH 402-FTB00Y</a>	<a href="#">HiBH 403-KTB00Y</a>	<a href="#">HiBH 404-PTB00Y</a>
	400 A	U	<a href="#">HiBH 402-FUB00Y</a>	<a href="#">HiBH 403-KUB00Y</a>	<a href="#">HiBH 404-PUB00Y</a>

**MCCBs with 100 kA at 415 V**



AF	In	In Code	2 Pole	3 Pole	4 Pole
400AF	250 A	R	<a href="#">HiBL 402-FRB00Y</a>	<a href="#">HiBL 403-KRB00Y</a>	<a href="#">HiBL 404-PRB00Y</a>
	300 A	S	<a href="#">HiBL 402-FSB00Y</a>	<a href="#">HiBL 403-KSB00Y</a>	<a href="#">HiBL 404-PSB00Y</a>
	350 A	T	<a href="#">HiBL 402-FTB00Y</a>	<a href="#">HiBL 403-KTB00Y</a>	<a href="#">HiBL 404-PTB00Y</a>
	400 A	U	<a href="#">HiBL 402-FUB00Y</a>	<a href="#">HiBL 403-KUB00Y</a>	<a href="#">HiBL 404-PUB00Y</a>

## Non-adjustable MCCBs | 600AF HiB -600 Type



### Rating

Frame Size		600AF			
MCCB Type	2 Pole	HiBE 602	HiBS 602	HiBH 602	HiBL 602
	3 Pole	HiBE 603	HiBS 603	HiBH 603	HiBL 603
	4 Pole	HiBE 604	HiBS 604	HiBH 604	HiBL 604
Current Ratings					
IP Degree		IP20			
Category		A			
Life Time					
Number of Operating Cycles	Per hour	120			
	Mechanical	20,000			
	Electrical at 415 VAC	5,000			
Rated Current (A)	In	500, 600			
Instant Pickup	Im	Fixed			
Number of Pole		2, 3, 4			
Voltage Ratings					
Insulation Voltage (V) Ui		750			
Operational Voltage (V) Ue		690			
Impulse Withstand (kV) Uimp		6			
Breaking Capacity		HiBE 600	HiBS 600	HiBH 600	HiBL 600
Ultimate, Icu (kA rms)	AC 660 V	22	25	35	35
	AC 600 V	22	25	35	35
IEC60947-2	AC 480 / 500 V	25	45	50	65
	AC 440 / 460 V	35	50	65	85
NEMA AB-1	<b>AC 380 / 415 V</b>	<b>45</b>	<b>65</b>	<b>85</b>	<b>100</b>
KSC8321	AC 220 / 240 V	50	100	100	125
	DC 250 V	20	40	40	40
Service, Ics		50 % of Icu			
Trip Unit Mechanism		Thermal-magnetic			
Rated Frequency		50 / 60 Hz			
Reference Ambient Temperature					
Standard		40			
Optional		50			
Connection					
Front	Standard	Attached Flat Bar, B (The busbar is to be supplied separately; not installed status.)			
Plug-in	Optional	3-pole Both(line and load) Sides, K			

**Accessory** see Page 72~85

Optional	<ul style="list-style-type: none"> <li>• Shunt Trip, SHT</li> <li>• Under Voltage Trip, UVT</li> <li>• Auxiliary Switch, AUX</li> <li>• Alarm Trip Switch, ALT</li> </ul>	<ul style="list-style-type: none"> <li>• Operating Handle (3, 4 Pole) -Breaker Mounted, TFG -Panel Mounted, TFH</li> </ul>
Standard	<ul style="list-style-type: none"> <li>• Interpole Barrier, TQQ</li> </ul>	<ul style="list-style-type: none"> <li>• Terminal Bus Bar, TBB</li> </ul>

**More Information** see Page 102

- Characteristic Curve
- Dimension
- Internal Accessory Combination

**Ordering Code for Standard Type**

Conditions : Front connection with attached flat bar, B

Reference ambient temp. 40

Without any electrical auxiliary

See page 132 for more details on ordering information

**MCCBs with 45 kA at 415 V**



AF	In	In Code	2 Pole	3 Pole	4 Pole
600AF	500 A	W	<a href="#">HiBE 602-FWB00Y</a>	<a href="#">HiBE 603-KWB00Y</a>	<a href="#">HiBE 604-PWB00Y</a>
	600 A	X	<a href="#">HiBE 602-FXB00Y</a>	<a href="#">HiBE 603-KXB00Y</a>	<a href="#">HiBE 604-PXB00Y</a>

**MCCBs with 65 kA at 415 V**



AF	In	In Code	2 Pole	3 Pole	4 Pole
600AF	500 A	W	<a href="#">HiBS 602-FWB00Y</a>	<a href="#">HiBS 603-KWB00Y</a>	<a href="#">HiBS 604-PWB00Y</a>
	600 A	X	<a href="#">HiBS 602-FXB00Y</a>	<a href="#">HiBS 603-KXB00Y</a>	<a href="#">HiBS 604-PXB00Y</a>

**MCCBs with 85 kA at 415 V**



AF	In	In Code	2 Pole	3 Pole	4 Pole
600AF	500 A	W	<a href="#">HiBH 602-FWB00Y</a>	<a href="#">HiBH 603-KWB00Y</a>	<a href="#">HiBH 604-PWB00Y</a>
	600 A	X	<a href="#">HiBH 602-FXB00Y</a>	<a href="#">HiBH 603-KXB00Y</a>	<a href="#">HiBH 604-PXB00Y</a>

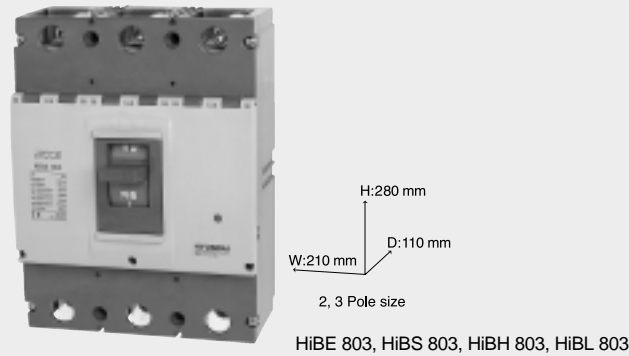
**MCCBs with 100 kA at 415 V**



AF	In	In Code	2 Pole	3 Pole	4 Pole
600AF	500 A	W	<a href="#">HiBL 602-FWB00Y</a>	<a href="#">HiBL 603-KWB00Y</a>	<a href="#">HiBL 604-PWB00Y</a>
	600 A	X	<a href="#">HiBL 602-FXB00Y</a>	<a href="#">HiBL 603-KXB00Y</a>	<a href="#">HiBL 604-PXB00Y</a>



## Non-adjustable MCCBs | 800AF HiB -800 Type



### Rating

Frame Size		800AF			
MCCB Type	2 Pole	HiBE 802	HiBS 802	HiBH 802	HiBL 802
	3 Pole	HiBE 803	HiBS 803	HiBH 803	HiBL 803
	4 Pole	HiBE 804	HiBS 804	HiBH 804	HiBL 804
Current Ratings					
IP Degree		IP20			
Category		A			
Life Time					
Number of Operating Cycles	Per hour	120			
	Mechanical	20,000			
	Electrical at 415 VAC	5,000			
Rated Current (A)	In	700, 800			
Instant Pickup	Im	Fixed			
Number of Pole		2, 3, 4			
Voltage Ratings					
Insulation Voltage (V) Ui		750			
Operational Voltage (V) Ue		690			
Impulse Withstand (kV) Uimp		6			
Breaking Capacity		HiBE 800	HiBS 800	HiBH 800	HiBL 800
Ultimate, Icu (kA rms) IEC60947-2 NEMA AB-1 KSC8321	AC 660 V	25	25	35	35
	AC 600 V	25	25	35	35
	AC 480 / 500 V	35	45	50	65
	AC 440 / 460 V	45	50	65	85
	<b>AC 380 / 415 V</b>	<b>50</b>	<b>65</b>	<b>85</b>	<b>100</b>
	AC 220 / 240 V	20	100	100	125
	DC 250 V		40	40	40
Service, Ics		50 % of Icu			
Trip Unit Mechanism		Thermal-magnetic			
Rated Frequency		50 / 60 Hz			
Reference Ambient Temperature					
Standard		40			
Optional		50			
Connection					
Front	Standard	Attached Flat Bar, B (The busbar is to be supplied separately; not installed status.)			
Plug-in	Optional	3-pole Both(line and load) Sides, K			

**Accessory** see Page 72~85

Optional	<ul style="list-style-type: none"> <li>• Shunt Trip, SHT</li> <li>• Under Voltage Trip, UVT</li> <li>• Auxiliary Switch, AUX</li> <li>• Alarm Trip Switch, ALT</li> </ul>	<ul style="list-style-type: none"> <li>• Operating Handle (3, 4 Pole) -Breaker Mounted, TFG -Panel Mounted, TFH</li> </ul>
Standard	<ul style="list-style-type: none"> <li>• Interpole Barrier, TQQ</li> </ul>	<ul style="list-style-type: none"> <li>• Terminal Bus Bar, TBB</li> </ul>

**More Information** see Page 104

- Characteristic Curve
- Dimension
- Internal Accessory Combination

**Ordering Code for Standard Type**

Conditions : Front connection with attached flat bar, B

Reference ambient temp. 40

Without any electrical auxiliary

See page 132 for more details on ordering information

**MCCBs with 45 kA at 415 V**



AF	In	In Code	2 Pole	3 Pole	4 Pole
800AF	700 A	Y	<a href="#">HiBE 802-FYB00Y</a>	<a href="#">HiBE 803-KYB00Y</a>	<a href="#">HiBE 804-PYB00Y</a>
	800 A	Z	<a href="#">HiBE 802-FZB00Y</a>	<a href="#">HiBE 803-KZB00Y</a>	<a href="#">HiBE 804-PZB00Y</a>

**MCCBs with 65 kA at 415 V**



AF	In	In Code	2 Pole	3 Pole	4 Pole
800AF	700 A	Y	<a href="#">HiBS 802-FYB00Y</a>	<a href="#">HiBS 803-KYB00Y</a>	<a href="#">HiBS 804-PYB00Y</a>
	800 A	Z	<a href="#">HiBS 802-FZB00Y</a>	<a href="#">HiBS 803-KZB00Y</a>	<a href="#">HiBS 804-PZB00Y</a>

**MCCBs with 85 kA at 415 V**



AF	In	In Code	2 Pole	3 Pole	4 Pole
800AF	700 A	Y	<a href="#">HiBH 802-FYB00Y</a>	<a href="#">HiBH 803-KYB00Y</a>	<a href="#">HiBH 804-PYB00Y</a>
	800 A	Z	<a href="#">HiBH 802-FZB00Y</a>	<a href="#">HiBH 803-KZB00Y</a>	<a href="#">HiBH 804-PZB00Y</a>

**MCCBs with 100 kA at 415 V**



AF	In	In Code	2 Pole	3 Pole	4 Pole
800AF	700 A	Y	<a href="#">HiBL 802-FYB00Y</a>	<a href="#">HiBL 803-KYB00Y</a>	<a href="#">HiBL 804-PYB00Y</a>
	800 A	Z	<a href="#">HiBL 802-FZB00Y</a>	<a href="#">HiBL 803-KZB00Y</a>	<a href="#">HiBL 804-PZB00Y</a>

## Adjustable MCCBs (Thermal-magnetic) | 100AF HiB -100J Type

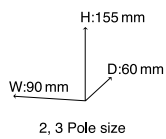


HiBS 103J, HiBH 103J

### Trip Unit Mechanism : Thermal-magnetic



In	$I_r = ((0.8-1.0) \times I_n)$	In	$I_r = ((0.8-1.0) \times I_n)$
16 A	12.5-16 A	50 A	40-50 A
20 A	16-20 A	63 A	50-63 A
25 A	20-25 A	80 A	64-80 A
32 A	25-32 A	100 A	80-100 A
40 A	32-40 A		



### Rating

Frame Size		100AF	
MCCB Type	2 Pole	HiBS 102J	HiBH 102J
	3 Pole	HiBS 103J	HiBH 103J
	4 Pole	HiBS 104J	HiBH 104J
<b>Current Ratings</b>			
IP Degree		IP20	
Category		A	
<b>Life Time</b>			
Number of Operating Cycles	Per hour	240	
	Mechanical	30,000	
	Electrical at 415 VAC	9,500	
Rated Current (A)	$I_n$	16, 20, 25, 32, 40, 50, 63, 80, 100	
Long Time Pickup	$I_r$	$(0.8-1.0) \times I_n$ ... Adjustable	
Instant Pickup	$I_m$	15 x $I_n$ ... Fixed	
Number of Pole		2, 3, 4	
<b>Voltage Ratings</b>			
Insulation Voltage (V) $U_i$		750	
Operational Voltage (V) $U_e$		690	
Impulse Withstand (kV) $U_{imp}$		6	
<b>Breaking Capacity</b>		HiBS 100J	HiBH 100J
Ultimate, $I_{cu}$ (kA rms) IEC60947-2 NEMA AB-1 KSC8321	AC 660 V	10	18
	AC 600 V	10	18
	AC 480 / 500 V	14	18
	AC 440 / 460 V	25	35
	<b>AC 380 / 415 V</b>	<b>30 / 25</b>	<b>42 / 35</b>
	DC 250 V	14	18
Service, $I_{cs}$		50 % of $I_{cu}$	
Rated Frequency		50 / 60 Hz	
<b>Reference Ambient Temperature</b>			
Standard		40	
Optional		50	
<b>Connection</b>			
Front	Standard	Terminal Screw, A	
Plug-in	Optional	3-pole Both(line and load) Sides, K	
		3-pole Line Side Only, L	

### Accessory *see Page 72~85*

Optional	<ul style="list-style-type: none"> <li>• Shunt Trip, SHT</li> <li>• Under Voltage Trip, UVT</li> <li>• Auxiliary Switch, AUX</li> <li>• Alarm Trip Switch, ALT</li> </ul>	<ul style="list-style-type: none"> <li>• Operating Handle (3, 4 Pole)                             <ul style="list-style-type: none"> <li>-Breaker Mounted, TFG</li> <li>-Panel Mounted, TFH</li> </ul> </li> <li>• Terminal Cover, TCF</li> </ul>
Standard	<ul style="list-style-type: none"> <li>• Interpole Barrier, TQQ</li> </ul>	

### More Information *see Page 96*

- Characteristic Curve
- Dimension
- Internal Accessory Combination

### Ordering Code for Standard Type

Conditions : Front connection with terminal screw, A

Reference ambient temp. 40

Without any electrical auxiliary

See page 132 for more details on ordering information

#### MCCBs with 25 kA at 415 V



AF	In	In Code	2 Pole	3 Pole	4 Pole
100AF	16 A	3	HiBS 102J-F3A00Y, 16 A	HiBS 103J-K3A00Y, 16 A	HiBS 104J-P3A00Y, 16 A
	20 A	3	HiBS 102J-F3A00Y, 20 A	HiBS 103J-K3A00Y, 20 A	HiBS 104J-P3A00Y, 20 A
	25 A	3	HiBS 102J-F3A00Y, 25 A	HiBS 103J-K3A00Y, 25 A	HiBS 104J-P3A00Y, 25 A
	32 A	3	HiBS 102J-F3A00Y, 32 A	HiBS 103J-K3A00Y, 32 A	HiBS 104J-P3A00Y, 32 A
	40 A	3	HiBS 102J-F3A00Y, 40 A	HiBS 103J-K3A00Y, 40 A	HiBS 104J-P3A00Y, 40 A
	50 A	3	HiBS 102J-F3A00Y, 50 A	HiBS 103J-K3A00Y, 50 A	HiBS 104J-P3A00Y, 50 A
	63 A	3	HiBS 102J-F3A00Y, 63 A	HiBS 103J-K3A00Y, 63 A	HiBS 104J-P3A00Y, 63 A
	80 A	3	HiBS 102J-F3A00Y, 80 A	HiBS 103J-K3A00Y, 80 A	HiBS 104J-P3A00Y, 80 A
	100 A	3	HiBS 102J-F3A00Y, 100 A	HiBS 103J-K3A00Y, 100 A	HiBS 104J-P3A00Y, 100 A

#### MCCBs with 35 kA at 415 V



AF	In	In Code	2 Pole	3 Pole	4 Pole
100AF	16 A	3	HiBH 102J-F3A00Y, 16 A	HiBH 103J-K3A00Y, 16 A	HiBH 104J-P3A00Y, 16 A
	20 A	3	HiBH 102J-F3A00Y, 20 A	HiBH 103J-K3A00Y, 20 A	HiBH 104J-P3A00Y, 20 A
	25 A	3	HiBH 102J-F3A00Y, 25 A	HiBH 103J-K3A00Y, 25 A	HiBH 104J-P3A00Y, 25 A
	32 A	3	HiBH 102J-F3A00Y, 32 A	HiBH 103J-K3A00Y, 32 A	HiBH 104J-P3A00Y, 32 A
	40 A	3	HiBH 102J-F3A00Y, 40 A	HiBH 103J-K3A00Y, 40 A	HiBH 104J-P3A00Y, 40 A
	50 A	3	HiBH 102J-F3A00Y, 50 A	HiBH 103J-K3A00Y, 50 A	HiBH 104J-P3A00Y, 50 A
	63 A	3	HiBH 102J-F3A00Y, 63 A	HiBH 103J-K3A00Y, 63 A	HiBH 104J-P3A00Y, 63 A
	80 A	3	HiBH 102J-F3A00Y, 80 A	HiBH 103J-K3A00Y, 80 A	HiBH 104J-P3A00Y, 80 A
	100 A	3	HiBH 102J-F3A00Y, 100 A	HiBH 103J-K3A00Y, 100 A	HiBH 104J-P3A00Y, 100 A

## Adjustable MCCBs (Thermal-magnetic) | 250AF HiB -250J Type

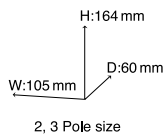


HiBE 203J, HiBS 203J, HiBH 203J

### Trip Unit Mechanism : Thermal-magnetic



In	$I_r = (0.8-1.0) \times I_n$	In	$I_r = (0.8-1.0) \times I_n$
125 A	100-125 A	200 A	160-200 A
160 A	128-160 A	250 A	200-250 A



### Rating

Frame Size		250AF		
MCCB Type	2 Pole	HiBE 202J	HiBS 202J	HiBH 202J
	3 Pole	HiBE 203J	HiBS 203J	HiBH 203J
	4 Pole	HiBE 204J	HiBS 204J	HiBH 204J
Current Ratings				
IP Degree		IP20		
Category		A		
Life Time				
Number of Operating Cycles	Per hour	120		
	Mechanical	25,000		
	Electrical at 415 VAC	8,000		
Rated Current (A)	$I_n$	125, 160, 200, 250		
Long Time Pickup	$I_r$	$(0.8-1.0) \times I_n$ ... Adjustable		
Instant Pickup	$I_m$	15 x $I_n$ ... Fixed		
Number of Pole		2, 3, 4		
Voltage Ratings				
Insulation Voltage (V) $U_i$		750		
Operational Voltage (V) $U_e$		690		
Impulse Withstand (kV) $U_{imp}$		6		
Breaking Capacity		HiBE 250J	HiBS 250J	HiBH 250J
Ultimate, $I_{cu}$ (kA rms) IEC60947-2 NEMA AB-1 KSC8321	AC 660 V	7.5	10	18
	AC 600 V	7.5	10	18
	AC 480 / 500 V	10	14	25
	AC 440 / 460 V	18	25	35
	<b>AC 380 / 415 V</b>	<b>25 / 18</b>	<b>35 / 25</b>	<b>42 / 35</b>
	DC 250 V	10	14	18
Service, $I_{cs}$	50 % of $I_{cu}$			
Rated Frequency		50 / 60 Hz		
Reference Ambient Temperature				
Standard		40		
Optional		50		
Connection				
Front	Standard	Terminal Screw, A		
	Optional	Attached Flat Bar, B (The busbar is to be supplied separately; not installed status.)		
Plug-in	Optional	3-pole Both (line and load) Sides, K		
		3-pole Line Side Only, L		

**Accessory** see Page 72~85

Optional	<ul style="list-style-type: none"> <li>• Shunt Trip, SHT</li> <li>• Under Voltage Trip, UVT</li> <li>• Auxiliary Switch, AUX</li> <li>• Alarm Trip Switch, ALT</li> <li>• Terminal Bus Bar, TBB</li> </ul>	<ul style="list-style-type: none"> <li>• Operating Handle</li> <li>-Breaker Mounted, TFG</li> <li>-Panel Mounted, TFH</li> <li>• Terminal Cover, TCF</li> </ul>
Standard	<ul style="list-style-type: none"> <li>• Interpole Barrier, TQQ</li> </ul>	

**More Information** see Page 98

- Characteristic Curve
- Dimension
- Internal Accessory Combination

**Ordering Code for Standard Type**

Conditions : Front connection with terminal screw, A

Reference ambient temp. 40

Without any electrical auxiliary

See page 132 for more details on ordering information



**MCCBs with 18 kA at 415 V**

AF	In	In Code	2 Pole	3 Pole	4 Pole
250AF	125 A	3	<a href="#">HiBE 202J-F3A00Y, 125 A</a>	<a href="#">HiBE 203J-K3A00Y, 125 A</a>	<a href="#">HiBE 204J-P3A00Y, 125 A</a>
	160 A	3	<a href="#">HiBE 202J-F3A00Y, 160 A</a>	<a href="#">HiBE 203J-K3A00Y, 160 A</a>	<a href="#">HiBE 204J-P3A00Y, 160 A</a>
	200 A	3	<a href="#">HiBE 202J-F3A00Y, 200 A</a>	<a href="#">HiBE 203J-K3A00Y, 200 A</a>	<a href="#">HiBE 204J-P3A00Y, 200 A</a>
	250 A	3	<a href="#">HiBE 202J-F3A00Y, 250 A</a>	<a href="#">HiBE 203J-K3A00Y, 250 A</a>	<a href="#">HiBE 204J-P3A00Y, 250 A</a>



**MCCBs with 25 kA at 415 V**

AF	In	In Code	2 Pole	3 Pole	4 Pole
250AF	125 A	3	<a href="#">HiBS 202J-F3A00Y, 125 A</a>	<a href="#">HiBS 203J-K3A00Y, 125 A</a>	<a href="#">HiBS 204J-P3A00Y, 125 A</a>
	160 A	3	<a href="#">HiBS 202J-F3A00Y, 160 A</a>	<a href="#">HiBS 203J-K3A00Y, 160 A</a>	<a href="#">HiBS 204J-P3A00Y, 160 A</a>
	200 A	3	<a href="#">HiBS 202J-F3A00Y, 200 A</a>	<a href="#">HiBS 203J-K3A00Y, 200 A</a>	<a href="#">HiBS 204J-P3A00Y, 200 A</a>
	250 A	3	<a href="#">HiBS 202J-F3A00Y, 250 A</a>	<a href="#">HiBS 203J-K3A00Y, 250 A</a>	<a href="#">HiBS 204J-P3A00Y, 250 A</a>



**MCCBs with 35 kA at 415 V**

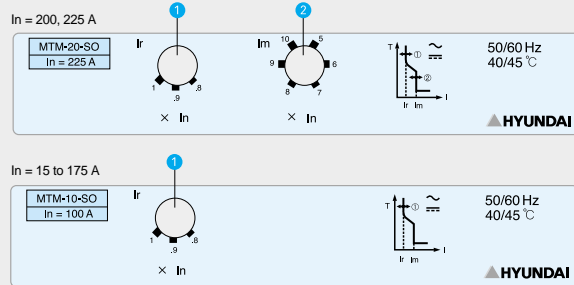
AF	In	In Code	2 Pole	3 Pole	4 Pole
250AF	125 A	3	<a href="#">HiBH 202J-F3A00Y, 125 A</a>	<a href="#">HiBH 203J-K3A00Y, 125 A</a>	<a href="#">HiBH 204J-P3A00Y, 125 A</a>
	160 A	3	<a href="#">HiBH 202J-F3A00Y, 160 A</a>	<a href="#">HiBH 203J-K3A00Y, 160 A</a>	<a href="#">HiBH 204J-P3A00Y, 160 A</a>
	200 A	3	<a href="#">HiBH 202J-F3A00Y, 200 A</a>	<a href="#">HiBH 203J-K3A00Y, 200 A</a>	<a href="#">HiBH 204J-P3A00Y, 200 A</a>
	250 A	3	<a href="#">HiBH 202J-F3A00Y, 250 A</a>	<a href="#">HiBH 203J-K3A00Y, 250 A</a>	<a href="#">HiBH 204J-P3A00Y, 250 A</a>



# Adjustable MCCBs (Thermal-magnetic) | 50 to 225AF HiB -50/100/225NT Type



## Trip Unit Mechanism : Thermal-magnetic

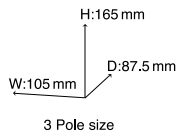


- ① Rated Current Setting Threshold (Ir)
- ② Instantaneous Current Setting Threshold (Im)

HiBL, HiBX 53NT, 103NT, 203NT (Upto 175 A) Trip Unit Detail : Page 68



HiBL 203NT, HiBX 203NT (From 200 A)



## Rating

Frame Size		50AF	100AF	225AF
MCCB Type	2 Pole	HiBL 52NT	HiBL 102NT	HiBL 202NT
	3 Pole	HiBL, HiBX 53NT	HiBL, HiBX 103NT	HiBL, HiBX 203NT
	4 Pole	HiBL, HiBX 54NT	HiBL, HiBX 104NT	HiBL, HiBX 204NT
<b>Current Ratings</b>				
IP Degree		IP20		
Category		A		
<b>Life Time</b>				
Number of Operating Cycles	Per hour	240		120
	Mechanical	30,000		25,000
	Electrical at 415 VAC	9,500		8,000
Trip Unit Type		MTM-05-SO	MTM-10-SO	MTM-20-SO
Rated Current (A)	In	15, 20, 30, 40, 50	15, 20, 30, 40, 50, 60, 75, 100	125, 150, 175, 200, 225
Long time Pickup	Ir	(0.8-0.9-1.0) x In ... Adjustable		
Instant Pickup	Im	10 x In ... Fixed		(5-6-7-8-9-10) x In...Adjustable
Tolerance		± 20 %		± 25 % at (5-6-7-8-9) x In ± 10 % at 10 x In
Number of Pole		2, 3, 4		
<b>Voltage Ratings</b>				
Insulation Voltage (V) Ui		750		
Operational Voltage (V) Ue		690		
Impulse Withstand (kV) Uimp		8		
<b>Breaking Capacity</b>				
Ultimate, Icu (kA rms)	AC 660 V	HiBL 50NT, 100NT, 225NT		HiBX 50NT, 100NT, 225NT
	AC 600 V	22		60
	AC 480 / 500 V	35		65
	IEC60947-2	65		100
	NEMA AB-1	85		100
	KSC8321	85		130
Service, Ics	AC 440 / 460 V	125		150
	DC 250 V	85		85
Rated Frequency		100 % of Icu		
Reference Ambient Temperature		50 / 60 Hz		
Standard		40		
	Optional	50		
<b>Connection</b>				
Front	Standard	Terminal Screw, A		
	Optional	Attached Flat Bar, B (The busbar is to be supplied separately; not installed status.)		
Plug-in	Optional	3-pole Both(line and load) Sides, K		
		3-pole Line Side Only, L		

**Accessory** see Page 72~85

Optional	<ul style="list-style-type: none"> <li>• Shunt Trip, SHT</li> <li>• Under Voltage Trip, UVT</li> <li>• Auxiliary Switch, AUX</li> <li>• Alarm Trip Switch, ALT</li> </ul>	<ul style="list-style-type: none"> <li>• Operating Handle</li> <li>-Breaker Mounted, TFG</li> <li>-Panel Mounted, TFH</li> <li>• Terminal Bus Bar, TBB</li> </ul>
Standard	<ul style="list-style-type: none"> <li>• Interpole Barrier, TQQ</li> </ul>	<ul style="list-style-type: none"> <li>• Extension Handle, THA</li> </ul>

**More Information** see Page 106

- Characteristic Curve
- Dimension
- Internal Accessory Combination

**Ordering Code for Standard Type**

Conditions : Front connection with terminal screw, A

Reference ambient temp. 40

Without any electrical auxiliary

See page 132 for more details on ordering information

**MCCBs with 85 kA at 415 V**



AF	In	In Code	2 Pole	3 Pole	4 Pole
50AF	15 A	B	HiBL 52NT-FBA00Y	HiBL 53NT-KBA00Y	HiBL 54NT-PBA00Y
	20 A	C	HiBL 52NT-FCA00Y	HiBL 53NT-KCA00Y	HiBL 54NT-PCA00Y
	30 A	D	HiBL 52NT-FDA00Y	HiBL 53NT-KDA00Y	HiBL 54NT-PDA00Y
	40 A	F	HiBL 52NT-FFA00Y	HiBL 53NT-KFA00Y	HiBL 54NT-PFA00Y
	50 A	G	HiBL 52NT-FGA00Y	HiBL 53NT-KGA00Y	HiBL 54NT-PGA00Y
100AF	15 A	B	HiBL 102NT-FBA00Y	HiBL 103NT-KBA00Y	HiBL 104NT-PBA00Y
	20 A	C	HiBL 102NT-FCA00Y	HiBL 103NT-KCA00Y	HiBL 104NT-PCA00Y
	30 A	D	HiBL 102NT-FDA00Y	HiBL 103NT-KDA00Y	HiBL 104NT-PDA00Y
	40 A	F	HiBL 102NT-FFA00Y	HiBL 103NT-KFA00Y	HiBL 104NT-PFA00Y
	50 A	G	HiBL 102NT-FGA00Y	HiBL 103NT-KGA00Y	HiBL 104NT-PGA00Y
	60 A	H	HiBL 102NT-FHA00Y	HiBL 103NT-KHA00Y	HiBL 104NT-PHA00Y
	75 A	J	HiBL 102NT-FJA00Y	HiBL 103NT-KJA00Y	HiBL 104NT-PJA00Y
	100 A	K	HiBL 102NT-FKA00Y	HiBL 103NT-KKA00Y	HiBL 104NT-PKA00Y
225AF	125 A	L	HiBL 202NT-FLA00Y	HiBL 203NT-KLA00Y	HiBL 204NT-PLA00Y
	150 A	M	HiBL 202NT-FMA00Y	HiBL 203NT-KMA00Y	HiBL 204NT-PMA00Y
	175 A	N	HiBL 202NT-FNA00Y	HiBL 203NT-KNA00Y	HiBL 204NT-PNA00Y
	200 A	P	HiBL 202NT-FPA00Y	HiBL 203NT-KPA00Y	HiBL 204NT-PPA00Y
	225 A	Q	HiBL 202NT-FQA00Y	HiBL 203NT-KQA00Y	HiBL 204NT-PQA00Y



**MCCBs with 130 kA at 415 V**



AF	In	In Code	2 Pole	3 Pole	4 Pole
50AF	15 A	B		HiBX 53NT-KBA00Y	HiBX 54NT-PBA00Y
	20 A	C		HiBX 53NT-KCA00Y	HiBX 54NT-PCA00Y
	30 A	D		HiBX 53NT-KDA00Y	HiBX 54NT-PDA00Y
	40 A	F		HiBX 53NT-KFA00Y	HiBX 54NT-PFA00Y
	50 A	G		HiBX 53NT-KGA00Y	HiBX 54NT-PGA00Y
100AF	15 A	B		HiBX 103NT-KBA00Y	HiBX 104NT-PBA00Y
	20 A	C		HiBX 103NT-KCA00Y	HiBX 104NT-PCA00Y
	30 A	D		HiBX 103NT-KDA00Y	HiBX 104NT-PDA00Y
	40 A	F		HiBX 103NT-KFA00Y	HiBX 104NT-PFA00Y
	50 A	G		HiBX 103NT-KGA00Y	HiBX 104NT-PGA00Y
	60 A	H		HiBX 103NT-KHA00Y	HiBX 104NT-PHA00Y
	75 A	J		HiBX 103NT-KJA00Y	HiBX 104NT-PJA00Y
	100 A	K		HiBX 103NT-KKA00Y	HiBX 104NT-PKA00Y
225AF	125 A	L		HiBX 203NT-KLA00Y	HiBX 204NT-PLA00Y
	150 A	M		HiBX 203NT-KMA00Y	HiBX 204NT-PMA00Y
	175 A	N		HiBX 203NT-KNA00Y	HiBX 204NT-PNA00Y
	200 A	P		HiBX 203NT-KPA00Y	HiBX 204NT-PPA00Y
	225 A	Q		HiBX 203NT-KQA00Y	HiBX 204NT-PQA00Y

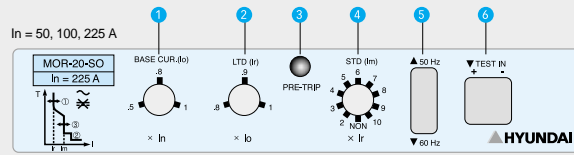


# Adjustable MCCBs (Electronic) | 50 to 225AF HiB -50/100/225NE Type



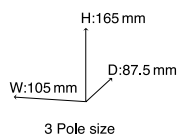
HiBL 53NE, HiBL 103NE, HiBL 203NE

## Trip Unit Mechanism : Electronic



Trip Unit Detail : Page 69

- ① Base Current Setting Threshold (Io)
- ② Rated Current Setting Threshold (Ir)
- ③ Overload Indication (Pre-Trip Alarm)
- ④ Short Time Delay Current Setting Threshold (Im) (Only for Electronic Type)
- ⑤ Frequency Changeover Switch
- ⑥ Test Connector



## Rating

Frame Size		50AF	100AF	225AF
MCCB Type	3 Pole	HiBL 53NE	HiBL 103NE	HiBL 203NE
	4 Pole	HiBL 54NE	HiBL 104NE	HiBL 204NE
Current Ratings				
IP Degree		IP20		
Category		A		
Life Time				
Number of Operating Cycles	Per hour	240		120
	Mechanical	30,000		25,000
	Electrical at 415 VAC	9,500		8,000
Trip Unit Type		MOR-05-SO	MOR-10-SO	MOR-20-SO
Rated Current (A)	In	50	100	225
Base Current	Io	(0.5-0.8-1.0) x In...Adjustable		
Long Time Pickup	Ir	(0.8-0.9-1.0) x Io...Adjustable		
Short Time Pickup	Im	(2-3-4-5-6-7-8-9-10) x Ir...Adjustable		
Instant Pickup		11 x In...Fixed		
Number of Pole		3, 4		
Voltage Ratings				
Insulation Voltage (V)	Ui	750		
Operational Voltage (V)	Ue	690		
Impulse Withstand (kV)	Uimp	8		
Breaking Capacity		HiBL 50NE, 100NE, 225NE		
Ultimate, Icu (kA rms)	AC 660 V	22		
	AC 600 V	35		
	AC 480 / 500 V	65		
	AC 440 / 460 V	85		
	NEMA AB-1	AC 380 / 415 V	85	
KSC8321	AC 220 / 240 V	125		
	DC 250 V	N.A.		
Service, Ics		100 % of Icu		
Rated Frequency		50 / 60 Hz		
Connection				
Front	Standard	Terminal Screw, A		
	Optional	Attached Flat Bar, B (The busbar is to be supplied separately; not installed status.)		
Plug-in	Optional	3-pole Both(line and load) Sides, K		
		3-pole Line Side Only, L		

**Accessory** see Page 72~85

Optional	<ul style="list-style-type: none"> <li>• Shunt Trip, SHT</li> <li>• Under Voltage Trip, UVT</li> <li>• Auxiliary Switch, AUX</li> <li>• Alarm Trip Switch, ALT</li> </ul>	<ul style="list-style-type: none"> <li>• Operating Handle</li> <li>-Breaker Mounted, TFG</li> <li>-Panel Mounted, TFH</li> <li>• Terminal Bus Bar, TBB</li> </ul>
Standard	<ul style="list-style-type: none"> <li>• Interpole Barrier, TQQ</li> </ul>	<ul style="list-style-type: none"> <li>• Extension Handle, THA</li> </ul>

**More Information** see Page 108

- Characteristic Curve
- Dimension
- Internal Accessory Combination

**Ordering Code for Standard Terminal Type**

Conditions : Front connection with terminal screw, A

Without any electrical auxiliary

See page 132 for more details on ordering information

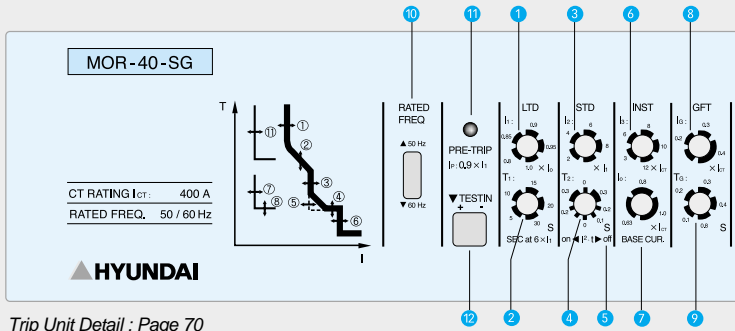


**MCCBs with 85 kA at 415 V**

AF	In	In Code	3 Pole	4 Pole	Remarks ( I <sub>r</sub> )
50AF	50 A	3	<a href="#">HiBL 53NE-K3A00Y</a>	<a href="#">HiBL 54NE-P3A00Y</a>	20 to 50A Adjustable
100AF	100 A	3	<a href="#">HiBL 103NE-K3A00Y</a>	<a href="#">HiBL 104NE-P3A00Y</a>	40 to 100A Adjustable
225AF	225 A	3	<a href="#">HiBL 203NE-K3A00Y</a>	<a href="#">HiBL 204NE-P3A00Y</a>	90 to 225A Adjustable

# Adjustable MCCBs (Electronic) | 400AF HiB -400NE Type

## Trip Unit Mechanism : Electronic

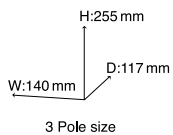


- ① Long Time Delay (LTD) Protection Threshold
- ② Long Time Delay (LTD) Protection Time Delay
- ③ Short Time Delay (STD) Protection Threshold
- ④ Short Time Delay (STD) Protection Time Delay
- ⑤ Short Time Delay (STD) Current I<sup>2</sup>t Characteristic Selection Switch
- ⑥ Instantaneous (INST) Protection Threshold
- ⑦ Base Current (I<sub>0</sub>) Threshold
- ⑧ Ground Fault (GFT) Protection Threshold
- ⑨ Ground Fault (GFT) Protection Time Delay
- ⑩ Frequency Changeover Switch (50 / 60Hz)
- ⑪ Overload Indication
- ⑫ Test Connector

Trip Unit Detail : Page 70



HiBS 403NE, HiBL 403NE, HiBX 403NE



## Rating

Frame Size	400AF			
MCCB Type	3 Pole	HiBS 403NE	HiBL 403NE	HiBX 403NE
	4 Pole	HiBS 404NE	HiBL 404NE	HiBX 404NE
IP Degree	IP20			
Category	A			
Life Time				
Number of Operating Cycles	Per hour	120		
	Mechanical	20,000		
	Electrical at 415 VAC	8,000		
Trip Unit Setting	MOR-40-SG			
CT Rating (A) I <sub>ct</sub>	400			
Base Current I <sub>0</sub>	(0.63-0.8-1.0) x I <sub>ct</sub> ... Adjustable			
LTD	Long Time Pickup, I <sub>1</sub>	(0.8-0.85-0.9-0.95-1.0) x I <sub>0</sub> ... Adjustable		
	Long Time Delay, T <sub>1</sub>	5-10-15-20-30 sec ... Adjustable		
STD	Short Time Pickup, I <sub>2</sub>	(2-4-6-8-10) x I <sub>1</sub> ... Adjustable		
	Short Time Delay, T <sub>2</sub>	0-0.1-0.2-0.3 sec ... Adjustable(When I <sup>2</sup> t ramp is off)		
		0-0.1-0.2-0.3 sec ... Adjustable(When I <sup>2</sup> t ramp is on)		
INST	Instant Pickup, I <sub>3</sub>	(3-6-8-10-12) x I <sub>CT</sub> ... Adjustable		
GFT(Optional)	Ground Fault Pickup, I <sub>G</sub>	(0.2-0.3-0.4) x I <sub>CT</sub> ... Adjustable		
	Ground Fault Delay, T <sub>G</sub>	0.1-0.2-0.3-0.4-0.8 sec ... Adjustable		
LED Indicators				
PTA	Overload Indication from 0.9 x I <sub>1</sub>			
Number of Pole	2, 3, 4			
Voltage Ratings				
Insulation Voltage (V) U <sub>i</sub>	750			
Operational Voltage (V) U <sub>e</sub>	690			
Impulse Withstand (kV) U <sub>imp</sub>	8			
Breaking Capacity	HiBS 400NE	HiBL 400NE	HiBX 400NE	
	AC 660 V	22	22	60
Ultimate, I <sub>cu</sub> (kA rms)	AC 600 V	30	35	65
	AC 480 / 500 V	35	50	100
IEC60947-2	AC 440 / 460 V	50	85	100
NEMA AB-1	<b>AC 380 / 415 V</b>	<b>50</b>	<b>85</b>	<b>130</b>
KSC8321	AC 220 / 240 V	85	125	150
	DC 250 V	N.A.	N.A.	N.A.
Service, I <sub>cs</sub>	100 % of I <sub>cu</sub>			
Rated Frequency	50 / 60 Hz			
Connection				
Front	Standard	Attached Flat Bar, B (The busbar is to be supplied separately; not installed status.)		
Plug-in	Optional	3-pole Both(line and load) Sides, K		
		3-pole Line Side Only, L		

**Accessory** see Page 72~85

Optional	<ul style="list-style-type: none"> <li>• Shunt Trip, SHT</li> <li>• Under Voltage Trip, UVT</li> </ul>	<ul style="list-style-type: none"> <li>• Auxiliary Switch, AUX</li> <li>• Alarm Trip Switch, ALT</li> </ul>	<ul style="list-style-type: none"> <li>• Operating Handle</li> <li>- Breaker Mounted, TFG</li> <li>- Panel Mounted, TFH</li> </ul>
Standard	<ul style="list-style-type: none"> <li>• Interpole barrier, TQQ</li> </ul>	<ul style="list-style-type: none"> <li>• Extension Handle, THA</li> </ul>	<ul style="list-style-type: none"> <li>• Terminal Bus Bar, TBB</li> </ul>

**More Information** see Page 110

- Characteristic Curve
- Dimension
- Internal Accessory Combination

**Ordering Code for Terminal Bus Bar Type (Standard)**

Conditions : Front connection with attached flat bar, B

Without any electrical auxiliary

See page 132 for more details on ordering information



**MCCBs with 50 kA at 415 V**

AF	In	IcT code	2 Pole	3 Pole	4 Pole	Remarks
400AF	400 A	3	<a href="#">HiBS 402NE-F3B00Y-S</a>	<a href="#">HiBS 403NE-K3B00Y-S</a>	<a href="#">HiBS 404NE-P3B00Y-S</a>	<a href="#">LSIA Curve(w/o GFT)</a>
			<a href="#">HiBS 402NE-F3B00Y-G</a>	<a href="#">HiBS 403NE-K3B00Y-G</a>	<a href="#">HiBS 404NE-P3B00Y-G</a>	<a href="#">LSIAG Curve(w/GFT)</a>

**MCCBs with 85 kA at 415 V**

AF	In	IcT code	2 Pole	3 Pole	4 Pole	Remarks
400AF	400 A	3	<a href="#">HiBL 402NE-F3B00Y-S</a>	<a href="#">HiBL 403NE-K3B00Y-S</a>	<a href="#">HiBL 404NE-P3B00Y-S</a>	<a href="#">LSIA Curve(w/o GFT)</a>
			<a href="#">HiBL 402NE-F3B00Y-G</a>	<a href="#">HiBL 403NE-K3B00Y-G</a>	<a href="#">HiBL 404NE-P3B00Y-G</a>	<a href="#">LSIAG Curve(w/GFT)</a>

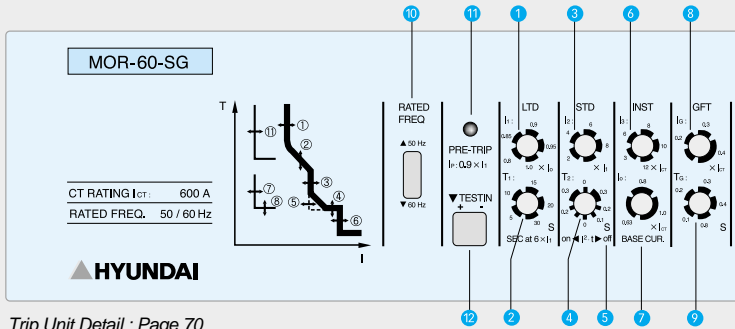
**MCCBs with 130 kA at 415 V**

AF	In	IcT code	2 Pole	3 Pole	4 Pole	Remarks
400AF	400 A	3	N.A.	<a href="#">HiBX 403NE-K3B00Y-S</a>	<a href="#">HiBX 404NE-P3B00Y-S</a>	<a href="#">LSIA Curve(w/o GFT)</a>
			N.A.	<a href="#">HiBX 403NE-K3B00Y-G</a>	<a href="#">HiBX 404NE-P3B00Y-G</a>	<a href="#">LSIAG Curve(w/GFT)</a>



# Adjustable MCCBs (Electronic) | 600AF HiB -600NE Type

## Trip Unit Mechanism : Electronic

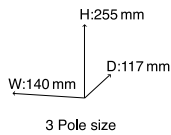


- ① Long Time Delay (LTD) Protection Threshold
- ② Long Time Delay (LTD) Protection Time Delay
- ③ Short Time Delay (STD) Protection Threshold
- ④ Short Time Delay (STD) Protection Time Delay
- ⑤ Short Time Delay (STD) Current I<sup>2</sup>t Characteristic Selection Switch
- ⑥ Instantaneous (INST) Protection Threshold
- ⑦ Base Current (I<sub>o</sub>) Threshold
- ⑧ Ground Fault (GFT) Protection Threshold
- ⑨ Ground Fault (GFT) Protection Time Delay
- ⑩ Frequency Changeover Switch (50 / 60Hz)
- ⑪ Overload Indication
- ⑫ Test Connector

Trip Unit Detail : Page 70



HiBS 603NE, HiBL 603NE, HiBX 603NE



## Rating

Frame Size	600AF			
MCCB Type	3 Pole	HiBS 603NE	HiBL 603NE	HiBX 603NE
	4 Pole	HiBS 604NE	HiBL 604NE	HiBX 604NE
IP Degree	IP20			
Category	A			
Life Time				
Number of Operating Cycles	Per hour	120		
	Mechanical	20,000		
	Electrical at 415 VAC	5,000		
Trip Unit Setting	MOR-60-SG			
CT Rating (A) I <sub>ct</sub>	600			
Base Current I <sub>o</sub>	(0.63-0.8-1.0) x I <sub>ct</sub> ... Adjustable			
LTD	Long Time Pickup, I <sub>1</sub>	(0.8-0.85-0.9-0.95-1.0) x I <sub>o</sub> ... Adjustable		
	Long Time Delay, I <sub>1</sub>	5-10-15-20-30 sec ... Adjustable		
STD	Short Time Pickup, I <sub>2</sub>	(2-4-6-8-10) x I <sub>1</sub> ... Adjustable		
	Short Time Delay, T <sub>2</sub>	0-0.1-0.2-0.3 sec ... Adjustable(when I <sup>2</sup> t ramp is off)		
		0-0.1-0.2-0.3 sec ... Adjustable(When I <sup>2</sup> t ramp is on)		
INST	Instant Pickup, I <sub>3</sub>	(3-6-8-10-12) x I <sub>CT</sub> ... Adjustable		
GFT(Optional)	Ground Fault Pickup, I <sub>G</sub>	(0.2-0.3-0.4) x I <sub>CT</sub> ... Adjustable		
	Ground Fault Delay, T <sub>G</sub>	0.1-0.2-0.3-0.4-0.8 sec ... Adjustable		
LED Indicators				
PTA	Overload Indication from 0.9 x I <sub>1</sub>			
Number of Pole	2, 3, 4			
Voltage Ratings				
Insulation Voltage (V) U <sub>i</sub>	750			
Operational Voltage (V) U <sub>e</sub>	690			
Impulse Withstand (kV) U <sub>imp</sub>	8			
Breaking Capacity	HiBS 600NE	HiBL 600NE	HiBX 600NE	
	AC 660 V	22	35	60
Ultimate, I <sub>cu</sub> (kA rms)	AC 600 V	35	42	65
	AC 480 / 500 V	50	50	100
IEC60947-2	AC 440 / 460 V	65	85	100
NEMA AB-1	<b>AC 380 / 415 V</b>	<b>65</b>	<b>85</b>	<b>130</b>
KSC8321	AC 220 / 240 V	100	125	150
	DC 250 V	N.A.	N.A.	N.A.
Service, I <sub>cs</sub>	100 % of I <sub>cu</sub>			
Rated Frequency	50 / 60 Hz			
Connection				
Front	Standard	Attached Flat Bar, B (The busbar is to be supplied separately; not installed status.)		
Plug-in	Optional	3-pole Both(line and load) Sides, K		
		3-pole Line Side Only, L		

**Accessory** see Page 72~85

Optional	<ul style="list-style-type: none"> <li>• Shunt Trip, SHT</li> <li>• Under Voltage Trip, UVT</li> </ul>	<ul style="list-style-type: none"> <li>• Auxiliary Switch, AUX</li> <li>• Alarm Trip Switch, ALT</li> </ul>	<ul style="list-style-type: none"> <li>• Operating Handle</li> <li>- Breaker Mounted, TFG</li> <li>- Panel Mounted, TFH</li> </ul>
Standard	<ul style="list-style-type: none"> <li>• Interpole Barrier, TQQ</li> </ul>	<ul style="list-style-type: none"> <li>• Extension Handle THA</li> </ul>	<ul style="list-style-type: none"> <li>• Terminal Bus Bar, TBB</li> </ul>

**More Information** see Page 112

- Characteristic Curve
- Dimension
- Internal Accessory Combination

**Ordering Code for Terminal Bus Bar Type (Standard)**

Conditions : Front connection with attached flat bar, B

Without any electrical auxiliary

See page 132 for more details on ordering information



**MCCBs with 65 kA at 415 V**

AF	I <sub>CT</sub>	I <sub>CT</sub> code	2 Pole	3 Pole	4 Pole	Remarks
600AF	600 A	3	<a href="#">HiBS 602NE-F3B00Y-S</a>	<a href="#">HiBS 603NE-K3B00Y-S</a>	<a href="#">HiBS 604NE-P3B00Y-S</a>	<a href="#">LSIA Curve(w/o GFT)</a>
			<a href="#">HiBS 602NE-F3B00Y-G</a>	<a href="#">HiBS 603NE-K3B00Y-G</a>	<a href="#">HiBS 604NE-P3B00Y-G</a>	<a href="#">LSIAG Curve(w/GFT)</a>

**MCCBs with 85 kA at 415 V**

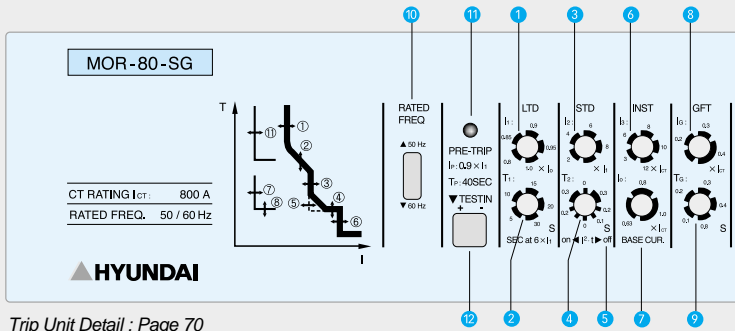
AF	I <sub>CT</sub>	I <sub>CT</sub> code	2 Pole	3 Pole	4 Pole	Remarks
600AF	600 A	3	<a href="#">HiBL 602NE-F3B00Y-S</a>	<a href="#">HiBL 603NE-K3B00Y-S</a>	<a href="#">HiBL 604NE-P3B00Y-S</a>	<a href="#">LSIA Curve(w/o GFT)</a>
			<a href="#">HiBL 602NE-F3B00Y-G</a>	<a href="#">HiBL 603NE-K3B00Y-G</a>	<a href="#">HiBL 604NE-P3B00Y-G</a>	<a href="#">LSIAG Curve(w/GFT)</a>

**MCCBs with 130 kA at 415 V**

AF	I <sub>CT</sub>	I <sub>CT</sub> code	2 Pole	3 Pole	4 Pole	Remarks
600AF	600 A	3	N.A.	<a href="#">HiBX 603NE-K3B00Y-S</a>	<a href="#">HiBX 604NE-P3B00Y-S</a>	<a href="#">LSIA Curve(w/o GFT)</a>
			N.A.	<a href="#">HiBX 603NE-K3B00Y-G</a>	<a href="#">HiBX 604NE-P3B00Y-G</a>	<a href="#">LSIAG Curve(w/GFT)</a>

# Adjustable MCCBs (Electronic) | 800AF HiB -800NE Type

## Trp Unit Mechanism : Electronic

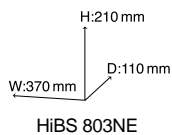


- 1 Long Time Delay (LTD) Protection Threshold
- 2 Long Time Delay (LTD) Protection Time Delay
- 3 Short Time Delay (STD) Protection Threshold
- 4 Short Time Delay (STD) Protection Time Delay
- 5 Short Time Delay (STD) Current I<sup>2</sup>t Characteristic Selection Switch
- 6 Instantaneous (INST) Protection Threshold
- 7 Base Current (I<sub>0</sub>) Threshold
- 8 Ground Fault (GFT) Protection Threshold
- 9 Ground Fault (GFT) Protection Time Delay
- 10 Frequency Changeover Switch (50 / 60Hz)
- 11 Overload Indication
- 12 Test Connector

Trip Unit Detail : Page 70



HiBS 803NE, HiBL 803NE, HiBX 803NE



HiBS 803NE



HiBL 803NE  
HiBX 803NE

## Rating

Frame Size	800AF			
MCCB Type	3 Pole	HiBS 803NE	HiBL 803NE	HiBX 803NE
	4 Pole	HiBS 804NE	HiBL 804NE	HiBX 804NE
IP Degree	IP20			
Category	A			
Life Time				
Number of Operating Cycles	Per hour	120		
	Mechanical	20,000		
	Electrical at 415 VAC	5,000		
Trip Unit Setting	MOR-80-SG			
CT Rating (A) I <sub>CT</sub>	800			
Base Current I <sub>0</sub>	(0.63-0.8-1.0) x I <sub>CT</sub> ... Adjustable			
LTD	Long Time Pickup, I <sub>1</sub>	(0.8-0.85-0.9-0.95-1.0) x I <sub>0</sub> ... Adjustable		
	Long Time Delay, I <sub>1</sub>	5-10-15-20-30 sec ... Adjustable		
STD	Short Time Pickup, I <sub>2</sub>	(2-4-6-8-10) x I <sub>1</sub> ... Adjustable		
	Short Time Delay, T <sub>2</sub>	0-0.1-0.2-0.3 sec ... Adjustable(When I <sup>2</sup> t ramp is off)		
		0-0.1-0.2-0.3 sec ... Adjustable(When I <sup>2</sup> t ramp is on)		
INST	Instant Pickup, I <sub>3</sub>	(3-6-8-10-12) x I <sub>CT</sub> ... Adjustable		
GFT(Optional)	Ground Fault Pickup, I <sub>G</sub>	(0.2-0.3-0.4) x I <sub>CT</sub> ... Adjustable		
	Ground Fault Pickup, T <sub>G</sub>	0.1-0.2-0.3-0.4-0.8 sec ... Adjustable		
LED Indicators				
PTA	Overload Indication from 0.9 x I <sub>1</sub>			
Number of Pole	2, 3, 4			
Voltage Ratings				
Insulation Voltage (V) U <sub>i</sub>	750			
Operational Voltage (V) U <sub>e</sub>	690			
Impulse Withstand (kV) U <sub>imp</sub>	8			
Breaking Capacity	HiBS 800NE	HiBL 800NE	HiBX 800NE	
AC 660 V	22	35	50	
Ultimate, I <sub>cu</sub> (kA rms)	AC 600 V	42	65	
	AC 480 / 500 V	50	100	
IEC60947-2	AC 440 / 460 V	65	100	
NEMA AB-1	<b>AC 380 / 415 V</b>	<b>65</b>	<b>130</b>	
KSC8321	AC 220 / 240 V	100	150	
	DC 250 V	N.A.	N.A.	
Service, I <sub>cs</sub>	50 % of I <sub>cu</sub>			
Rated Frequency	50 / 60 Hz			
Connection	Front with Attached Flat Bar, B			

**Accessory** see Page 72~85

Optional	<ul style="list-style-type: none"> <li>• Shunt Trip, SHT</li> <li>• Under Voltage Trip, UVT</li> </ul>	<ul style="list-style-type: none"> <li>• Auxiliary Switch, AUX</li> <li>• Alarm Trip Switch, ALT</li> </ul>
Standard	<ul style="list-style-type: none"> <li>• Extension Handle, THA</li> </ul>	

**More Information** see Page 114

- Characteristic Curve
- Dimension
- Internal Accessory Combination

**Ordering Code for Terminal Bus Bar Type (Standard)**

Conditions : Front connection with attached flat bar, B

Without any electrical auxiliary

See page 132 for more details on ordering information



**MCCBs with 65 kA at 415 V**

AF	I <sub>CT</sub>	I <sub>CT</sub> code	2 Pole	3 Pole	4 Pole	Remarks
800AF	800 A	3	<a href="#">HiBS 802NE-F3B00Y-S</a>	<a href="#">HiBS 803NE-K3B00Y-S</a>	<a href="#">HiBS 804NE-P3B00Y-S</a>	LSIA Curve(w/o GFT)
			<a href="#">HiBS 802NE-F3B00Y-G</a>	<a href="#">HiBS 803NE-K3B00Y-G</a>	<a href="#">HiBS 804NE-P3B00Y-G</a>	LSIAG Curve(w/GFT)

**MCCBs with 85 kA at 415 V**

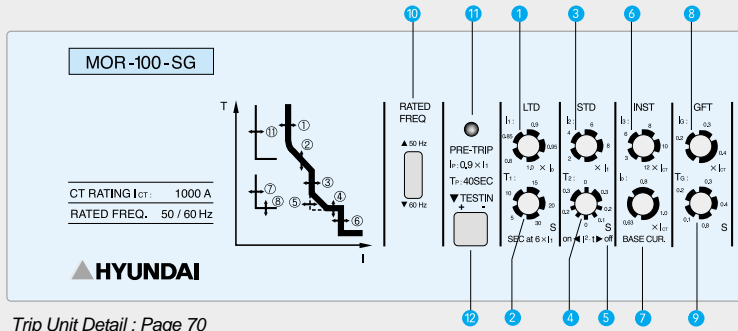
AF	I <sub>CT</sub>	I <sub>CT</sub> code	2 Pole	3 Pole	4 Pole	Remarks
800AF	800 A	3	<a href="#">HiBL 802NE-F3B00Y-S</a>	<a href="#">HiBL 803NE-K3B00Y-S</a>	<a href="#">HiBL 804NE-P3B00Y-S</a>	LSIA Curve(w/o GFT)
			<a href="#">HiBL 802NE-F3B00Y-G</a>	<a href="#">HiBL 803NE-K3B00Y-G</a>	<a href="#">HiBL 804NE-P3B00Y-G</a>	LSIAG Curve(w/GFT)

**MCCBs with 130 kA at 415 V**

AF	I <sub>CT</sub>	I <sub>CT</sub> code	2 Pole	3 Pole	4 Pole	Remarks
800AF	800 A	3	N.A.	<a href="#">HiBX 803NE-K3B00Y-S</a>	<a href="#">HiBX 804NE-P3B00Y-S</a>	LSIA Curve(w/o GFT)
			N.A.	<a href="#">HiBX 803NE-K3B00Y-G</a>	<a href="#">HiBX 804NE-P3B00Y-G</a>	LSIAG Curve(w/GFT)

# Adjustable MCCBs (Electronic) | 1000/1200AF HiB -1000/1200NE Type

## Trip Unit Mechanism : Electronic



- 1 Long Time Delay (LTD) Protection Threshold
- 2 Long Time Delay (LTD) Protection Time Delay
- 3 Short Time Delay (STD) Protection Threshold
- 4 Short Time Delay (STD) Protection Time Delay
- 5 Short Time Delay (STD) Current I<sup>2</sup>t Characteristic Selection Switch
- 6 Instantaneous (INST) Protection Threshold
- 7 Base Current (I<sub>o</sub>) Threshold
- 8 Ground Fault (GFT) Protection Threshold
- 9 Ground Fault (GFT) Protection Time Delay
- 10 Frequency Changeover Switch (50 / 60Hz)
- 11 Overload Indication
- 12 Test Connector

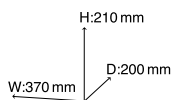
Trip Unit Detail : Page 70



HiBS 1003NE, HiBL 1003NE  
HiBS 1203NE, HiBL 1203NE



HiBS 1003NE  
HiBS 1203NE



HiBL 1003NE  
HiBL 1203NE

## Rating

Frame Size		1000AF		1200AF	
MCCB Type	3 Pole	HiBS 1003NE	HiBL 1003NE	HiBS 1203NE	HiBL 1203NE
	4 Pole	HiBS 1004NE	HiBL 1004NE	HiBS 1204NE	HiBL 1204NE
IP Degree		IP20			
Category		A			
Life Time					
Number of Operating Cycles	Per hour	120			
	Mechanical	10,000			
	Electrical at 415 VAC	5,000			
Trip Unit Setting		MOR-100-SG	MOR-120-SG		
CT Rating (A) I <sub>ct</sub>		1000	1200		
Base Current I <sub>o</sub>		(0.63-0.8-1.0) x I <sub>ct</sub> ... Adjustable			
LTD	Long Time Pickup, I <sub>1</sub>	(0.8-0.85-0.9-0.95-1.0) x I <sub>o</sub> ... Adjustable			
	Long Time Delay, I <sub>1</sub>	5-10-15-20-30 sec ... Adjustable			
STD	Short Time Pickup, I <sub>2</sub>	(2-4-6-8-10) x I <sub>1</sub> ... Adjustable			
	Short Time Delay, T <sub>2</sub>	0-0.1-0.2-0.3 sec ... Adjustable(When I <sup>2</sup> t ramp is off) 0-0.1-0.2-0.3 sec ... Adjustable(When I <sup>2</sup> t ramp is on)			
INST	Instant Pickup, I <sub>3</sub>	(3-6-8-10-12) x I <sub>ct</sub> ... Adjustable			
GFT(Optional)	Ground Fault Pickup, I <sub>g</sub>	(0.2-0.3-0.4) x I <sub>ct</sub> ... Adjustable			
	Ground Fault Pickup, T <sub>g</sub>	0.1-0.2-0.3-0.4-0.8 sec ... Adjustable			
LED Indicators					
PTA		Overload Indication from 0.9 x I <sub>1</sub>			
Number of Pole		3, 4			
Voltage Ratings					
Insulation Voltage (V) U <sub>i</sub>		750			
Operational Voltage (V) U <sub>e</sub>		690			
Impulse Withstand (kV) U <sub>imp</sub>		8			
Breaking Capacity		HiBS 1000NE	HiBL 1000NE		HiBL 1200NE
		HiBS 1200NE			
Ultimate, I <sub>cu</sub> (kA rms)	AC 660 V	40	60		
	AC 600 V	50	65		
	AC 480 / 500 V	75	100		
	IEC60947-2	AC 440 / 460 V	75	100	
	NEMA AB-1	<b>AC 380 / 415 V</b>	<b>100</b>	<b>130</b>	
	KSC8321	AC 220 / 240 V	100	150	
	DC 250 V	N.A.	N.A.		
Service, I <sub>cs</sub>		50 % of I <sub>cu</sub>			
Rated Frequency		50 / 60 Hz			
Connection		Front with Attached Flat Bar, B			

**Accessory** see Page 72~85

Optional	<ul style="list-style-type: none"> <li>• Shunt Trip, SHT</li> <li>• Under Voltage Trip, UVT</li> </ul>	<ul style="list-style-type: none"> <li>• Auxiliary Switch, AUX</li> <li>• Alarm Trip Switch, ALT</li> </ul>
Standard	<ul style="list-style-type: none"> <li>• Extension Handle, THA</li> </ul>	

**More Information** see Page 116~119

- Characteristic Curve
- Dimension
- Internal Accessory Combination

**Ordering Code for Terminal Bus Bar Type (Standard)**

Conditions : Front connection with attached flat bar, B

Without any electrical auxiliary

See page 132 for more details on ordering information



**MCCBs with 100 kA at 415 V**

AF	I <sub>CT</sub>	I <sub>CT</sub> code	3 Pole	4 Pole	Remarks
1000AF	1000 A	3	HiBS 1003NE-K3B00Y-S	HiBS 1004NE-P3B00Y-S	LSIA Curve(w/o GFT)
			HiBS 1003NE-K3B00Y-G	HiBS 1004NE-P3B00Y-G	LSIAG Curve(w/GFT)
1200AF	1200 A	3	HiBS 1203NE-K3B00Y-S	HiBS 1204NE-P3B00Y-S	LSIA Curve(w/o GFT)
			HiBS 1203NE-K3B00Y-G	HiBS 1204NE-P3B00Y-G	LSIAG Curve(w/GFT)

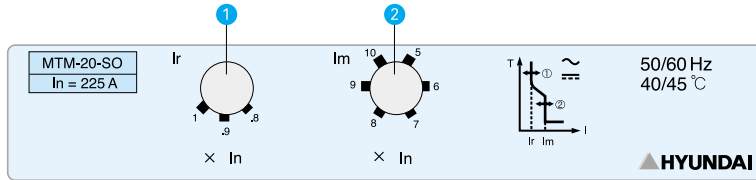
**MCCBs with 130 kA at 415 V**

AF	I <sub>CT</sub>	I <sub>CT</sub> code	3 Pole	4 Pole	Remarks
1000AF	1000 A	3	HiBL 1003NE-K3B00Y-S	HiBL 1004NE-P3B00Y-S	LSIA Curve(w/o GFT)
			HiBL 1003NE-K3B00Y-G	HiBL 1004NE-P3B00Y-G	LSIAG Curve(w/GFT)
1200AF	1200 A	3	HiBL 1203NE-K3B00Y-S	HiBL 1204NE-P3B00Y-S	LSIA Curve(w/o GFT)
			HiBL 1203NE-K3B00Y-G	HiBL 1204NE-P3B00Y-G	LSIAG Curve(w/GFT)

## Trip Unit Configuration of Adjustable MCCBs

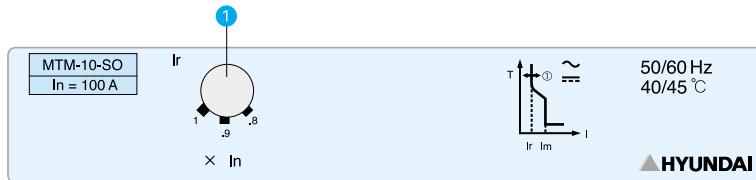
### Thermal Magnetic Type (NT Type)

#### Protection Function of Trip Unit (225AF/ From 200 A)



- ① Rated Current Setting Threshold ( $I_r$ )
- ② Instantaneous Current Setting Threshold ( $I_m$ )

#### Protection Function of Trip Unit (50/100/225AF upto 175 A)



- ① Rated Current Setting Threshold ( $I_r$ )

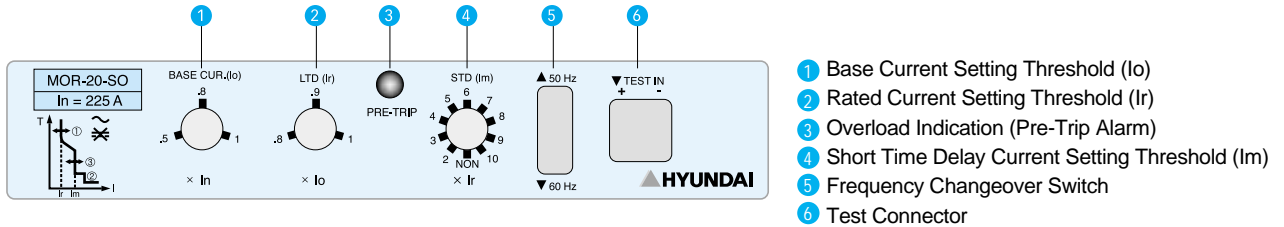
#### Adjustable Current Range (50/100/225AF)

Ampere Frame		50, 100								225					
Rated Current ( $I_r$ )	Rated Current (A)	15	20	30	40	50	60	75	100	125	150	175	200	225	
	Setting Range	0.8 X $I_n$	12	16	24	32	40	48	60	80	100	120	140	160	180
		0.9 X $I_n$	14	18	27	36	45	54	68	90	113	135	158	180	203
		1.0 X $I_n$	15	20	30	40	50	60	75	100	125	150	175	200	225
Instantaneous Current ( $I_m$ )	Tripping Method	Fixed										Adjustable			
	Setting Range	150	200	300	400	500	600	750	1000	1250	1500	1750	5~10 X $I_n$		
	Tolerance (%)	± 20 %										5-6-7-8-9 : ± 25 %			10 : ± 10 %



## ■ Electronic Type (NE Type)

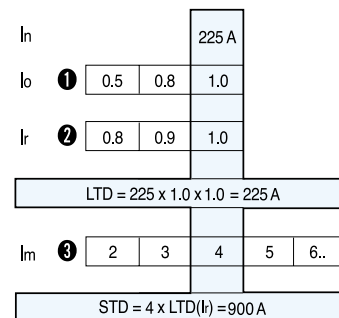
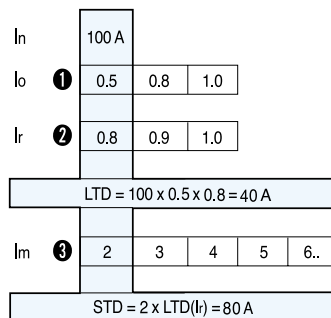
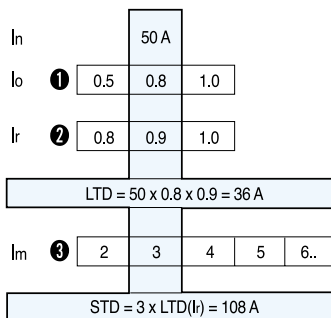
### ■ Protection Function of Trip Unit (50/100/225AF)



### ■ Adjustable Current Range (50/100/225AF)

		In = 50 A	MOR-05-SO			In = 100 A	MOR-10-SO			In = 225 A	MOR-20-SO					
Rated Current (LTD)	Setting Range	Ir Threshold	0.8	0.9	1	Ir Threshold	0.8	0.9	1	Ir Threshold	0.8	0.9	1			
		Io Threshold	0.5	20 A	23 A	25 A	Io Threshold	0.5	40 A	45 A	50 A	Io Threshold	0.5	90 A	100 A	115 A
			0.8	32 A	36 A	40 A	0.8	65 A	70 A	80 A	0.8	145 A	160 A	180 A		
			1.0	40 A	45 A	50 A	1.0	80 A	90 A	100 A	1.0	180 A	200 A	225 A		
Setting Range of Short Time Delay		2, 3, 4, 5, 6, 7, 8, 9, 10 X Ir														

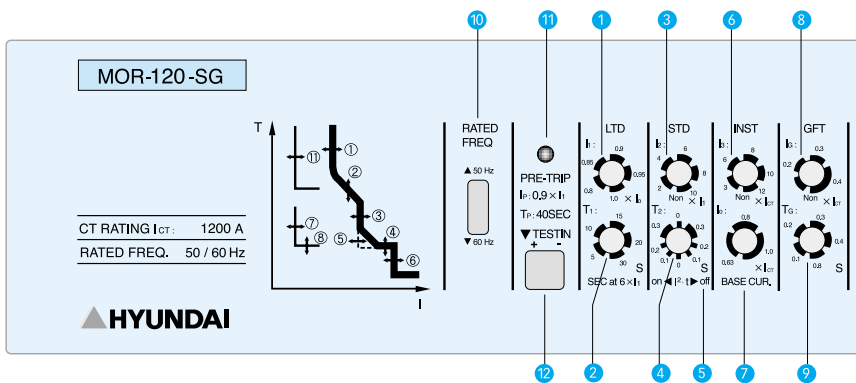
### ■ Setting Procedure



## Trip Unit Configuration of Adjustable MCCBs

### Electronic Type (NE Type)

#### Protection Function of Trip Unit (400/600/800/1000/1200AF)



- 1 Long Time Delay (LTD) Protection Threshold
- 2 Long Time Delay (LTD) Protection Time Delay
- 3 Short Time Delay (STD) Protection Threshold
- 4 Short Time Delay (STD) Protection Time Delay
- 5 Short Time Delay (STD) Current I<sup>2</sup>t Characteristic Selection Switch
- 6 Instantaneous (INST) Protection Threshold
- 7 Base Current (I<sub>o</sub>) Threshold
- 8 Ground Fault (GFT) Protection Threshold
- 9 Ground Fault (GFT) Protection Time Delay
- 10 Frequency Changeover Switch (50 / 60Hz)
- 11 Overload Indication
- 12 Test Connector

#### Adjustable Current Setting (400/600AF)

Rated Current (LTD)	Setting Range	MOR-40-SG					MOR-60-SG					
		I <sub>1</sub> Threshold	I <sub>o</sub> Threshold	I <sub>1</sub> Threshold	I <sub>o</sub> Threshold	I <sub>1</sub> Threshold	I <sub>o</sub> Threshold					
400 A	0.63	0.8	0.85	0.9	0.95	1.0	0.63	0.8	0.85	0.9	0.95	1.0
	0.8	200	215	225	240	250	302	320	340	360	380	480
	1.0	255	270	290	300	320	385	410	430	455	480	600
	1.0	320	340	360	380	400	480	510	540	570	600	
Setting Range for Short Time Delay		2-4-6-8-10 X I <sub>1</sub>										
Setting Range for Instantaneous		3-6-8-10-12 X I <sub>CT</sub>										
Setting Range for Ground Fault Trip		0.2-0.3-0.4 X I <sub>CT</sub>										
Load Adjusting Range		0.9 X I <sub>1</sub>										

#### Setting Procedure

I <sub>CT</sub>	400 A				
7	0.63	0.8	1.0		
I <sub>o</sub>	BASE CUR. = 1.0 x 400 (I <sub>CT</sub> ) = 400 A				
1	0.8	0.85	0.9	0.95	1.0
I <sub>1</sub>	LTD = 0.9 x 400 (I <sub>o</sub> ) = 360 A				
3	2	4	6	8	10
I <sub>2</sub>	STD = 6 x 360 (I <sub>1</sub> ) = 2160 A				
6	3	6	8	10	12
I <sub>3</sub>	INST = 8 x 400 (I <sub>CT</sub> ) = 3200 A				
8	0.2	0.3	0.4		
I <sub>6</sub>	GFT = 0.3 x 400 (I <sub>CT</sub> ) = 120 A				

I <sub>CT</sub>	600 A				
7	0.63	0.8	1.0		
I <sub>o</sub>	BASE CUR. = 1.0 x 600 (I <sub>CT</sub> ) = 600 A				
1	0.8	0.85	0.9	0.95	1.0
I <sub>1</sub>	LTD = 0.9 x 600 (I <sub>o</sub> ) = 540 A				
3	2	4	6	8	10
I <sub>2</sub>	STD = 6 x 540 (I <sub>1</sub> ) = 3240 A				
6	3	6	8	10	12
I <sub>3</sub>	INST = 8 x 600 (I <sub>CT</sub> ) = 4800 A				
8	0.2	0.3	0.4		
I <sub>6</sub>	GFT = 0.3 x 600 (I <sub>CT</sub> ) = 180 A				

■ Adjustable Current Range (800/1000/1200AF)

		I <sub>CT</sub> =800 A					MOR-80-SG					I <sub>CT</sub> =1000 A					MOR-100-SG					I <sub>CT</sub> =1200 A					MOR-120-SG						
Rated Current (LTD)	Setting Range	I <sub>1</sub> Threshold		0.8	0.85	0.9	0.95	1.0	I <sub>r</sub> Threshold		0.8	0.85	0.9	0.95	1.0	I <sub>r</sub> Threshold		0.8	0.85	0.9	0.95	1.0	I <sub>r</sub> Threshold		0.8	0.85	0.9	0.95	1.0				
		I <sub>o</sub> Threshold		0.63	405	430	455	480	505	I <sub>o</sub> Threshold		0.63	505	535	565	600	630	I <sub>o</sub> Threshold		0.63	605	645	680	720	755	I <sub>o</sub> Threshold		0.63	605	645	680	720	755
		0.8	510	545	575	610	640	0.8		640	680	720	760	800	0.8		770	815	865	910	960	0.8		960	1020	1080	1140	1200					
		1.0		640	680	720	760	800	1.0		800	850	900	950	1000	1.0		960	1020	1080	1140	1200	1.0		960	1020	1080	1140	1200				
Setting Range for Short Time Delay		2-4-6-8-10 X I <sub>1</sub>																															
Setting Range for Instantaneous		3-6-8-10-12 X I <sub>CT</sub>																															
Setting Range for Ground Fault Trip		0.2-0.3-0.4 X I <sub>CT</sub>																															
Load Adjusting Range		0.9 X I <sub>1</sub>																															

■ Setting Procedure

I <sub>CT</sub>	800 A				
⑦	0.63	0.8	1.0		
I <sub>o</sub>	BASE CUR. = 1.0 x 800(I <sub>CT</sub> ) = 800 A				
①	0.8	0.85	0.9	0.95	1.0
I <sub>1</sub>	LTD = 0.9 x 800(I <sub>o</sub> ) = 720 A				
③	2	4	6	8	10
I <sub>2</sub>	STD = 6 x 720(I <sub>1</sub> ) = 4320 A				
⑥	3	6	8	10	12
I <sub>3</sub>	INST = 8 x 800(I <sub>CT</sub> ) = 6400 A				
⑧	0.2	0.3	0.4		
I <sub>G</sub>	GFT = 0.3 x 800(I <sub>CT</sub> ) = 240 A				

I <sub>CT</sub>	1000 A				
⑦	0.63	0.8	1.0		
I <sub>o</sub>	BASE CUR. = 1.0 x 1000(I <sub>CT</sub> ) = 1000 A				
①	0.8	0.85	0.9	0.95	1.0
I <sub>1</sub>	LTD = 0.9 x 1000(I <sub>o</sub> ) = 900 A				
③	2	4	6	8	10
I <sub>2</sub>	STD = 6 x 900(I <sub>1</sub> ) = 5400 A				
⑥	3	6	8	10	12
I <sub>3</sub>	INST = 8 x 1000(I <sub>CT</sub> ) = 8000 A				
⑧	0.2	0.3	0.4		
I <sub>G</sub>	GFT = 0.3 x 1000(I <sub>CT</sub> ) = 300 A				

I <sub>CT</sub>	1200 A				
⑦	0.63	0.8	1.0		
I <sub>o</sub>	BASE CUR. = 1.0 x 1200(I <sub>CT</sub> ) = 1200 A				
①	0.8	0.85	0.9	0.95	1.0
I <sub>1</sub>	LTD = 0.9 x 1200(I <sub>o</sub> ) = 1080 A				
③	2	4	6	8	10
I <sub>2</sub>	STD = 6 x 1080(I <sub>1</sub> ) = 6480 A				
⑥	3	6	8	10	12
I <sub>3</sub>	INST = 8 x 1200(I <sub>CT</sub> ) = 9600 A				
⑧	0.2	0.3	0.4		
I <sub>G</sub>	GFT = 0.3 x 1200(I <sub>CT</sub> ) = 360 A				

## Internally Mounted Accessory

### ■ Schematic Diagram of Accessory

	Accessories		Number of Unit	Schematic Diagram
	3P	2P		
Auxiliary Switch			1	
			2	
			3	
			4	
Alarm Switch				
Shunt Trip			Anti-burnout switch is provided.	
Under Voltage Trip			For AC	

### ■ Operation

	Auxiliary Switch	Alarm Switch
MCCB ON		
MCCB OFF		
MCCB Trip		

### ■ Alarm Trip Switch (ALT)

Category	Applicable MCCB	Type
General	HiBS 30, HiBH 30, HiBE 50, HiBS 50, HiBE 60, HiBS 60, HiBE 100	ALT - 10A
	HiBH 50, HiBS 100, HiBH 100, HiBS 100J, HiBH 100J	ALT - 10B
	HiBE 225, HiBS 225, HiBH 225, HiBE 250J, HiBS 250J, HiBH 250J	ALT - 20C
	HiBE 400, HiBS 400, HiBH 400, HiBL 400, HiBE 600, HiBS 600, HiBH 600, HiBL 600	ALT - 46D
	HiBE 800, HiBS 800, HiBH 800, HiBL 800	
Adjustable	HiBL 50NT, HiBL 100NT, HiBL 225NT, HiBX 50NT, HiBX 100NT, HiBX 225NT	ALT - 12NE
	HiBL 50NE, HiBL 100NE, HiBL 225NE	ALT - 46NE
	HiBS 400NE, HiBL 400NE, HiBX 400NE, HiBS 600NE, HiBL 600NE, HiBX 600NE	
	HiBS 800NE, HiBL 800NE, HiBX 800NE, HiBS 1000NE, HiBL 1000NE, HiBS 1200NE, HiBL 1200NE	
Nuclear Power Plant	HBL 103Q, HBL 103MQ	ALT - 1H
	HBL 203Q, HBL 203MQ	ALT - 2L

## ■ Shunt Trip Rating (SHT)

Category	Applicable MCCB	Type	Exciting Current (A Peak Value)					
			A : DC 24 V	C : DC 110 V	F : AC 100~125 V	H : AC 200~230 V	B : AC 380~415 V	D : AC 440~480 V
General	HiBS 30, HiBH 30, HiBE 50, HiBS 50 HiBE 60, HiBS 60, HiBE 100	SHT - 10A	5.2	0.11	0.76	0.28	0.28	0.28
	HiBH 50, HiBS 100, HiBH 100 HiBS 100J, HiBH 100J	SHT - 10B	5.2	0.2	0.76	0.4	0.4	0.4
	HiBE 225, HiBS 225, HiBH 225 HiBE 250J, HiBS 250J, HiBH 250J	SHT - 20C	5.2	0.2	0.76	0.4	0.4	0.4
	HiBE 400, HiBS 400, HiBH 400, HiBL 400 HiBE 600, HiBS 600, HiBH 600, HiBL 600 HiBE 800, HiBS 800, HiBH 800, HiBL 800	SHT - 46D	0.01	0.01	0.012	0.011	0.01	0.01
Adjustable	HiBL 50NT, HiBL 100NT, HiBL 225NT HiBX 50NT, HiBX 100NT, HiBX 225NT HiBL 50NE, HiBL 100NE, HiBL 225NE	SHT - 12NE	0.023	0.023	0.023	0.023	0.023	0.023
	HiBS 400NE, HiBL 400NE, HiBX 400NE HiBS 600NE, HiBL 600NE, HiBX 600NE	SHT - 46NE	0.023	0.023	0.023	0.023	0.023	0.023
	HiBS 800NE, HiBL 800NE, HiBX 800NE HiBS 1000NE, HiBL 1000NE HiBS 1200NE, HiBL 1200NE	SHT - 80NE	2	0.11	0.24	0.23	0.23	0.23
Nuclear Power Plant	HBL 103Q, HBL 103MQ	SHT - 1H	2.6	0.77	2.6	1.6	1.6	1.6
	HBL 203Q, HBL 203MQ	SHT - 2L	2.5	0.68	1.1	1.45	1.45	1.45

AC Rated, permissible operating voltage range is 85 to 110 %, DC 75 to 125 %

## ■ Auxiliary Switch (AUX)

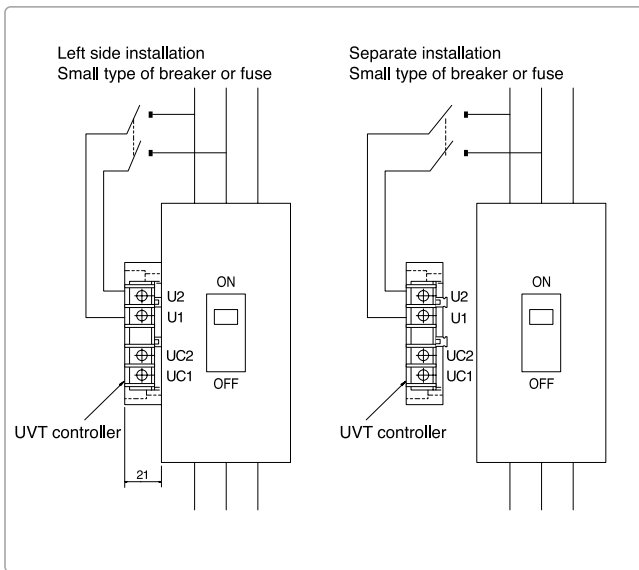
Category	Applicable MCCB	Type
General	HiBS 30, HiBH 30, HiBE 50, HiBS 50, HiBE 60, HiBS 60, HiBE 100	AUX - 10A
	HiBH 50, HiBS 100, HiBH 100, HiBS 100J, HiBH 100J	AUX - 10B
	HiBE 225, HiBS 225, HiBH 225, HiBE 250J, HiBS 250J, HiBH 250J	AUX - 20C
	HiBE 400, HiBS 400, HiBH 400, HiBL 400, HiBE 600, HiBS 600, HiBH 600, HiBL 600 HiBE 800, HiBS 800, HiBH 800, HiBL 800	AUX - 46D
Adjustable	HiBL 50NT, HiBL 100NT, HiBL 225NT, HiBX 50NT, HiBX 100NT, HiBX 225NT HiBL 50NE, HiBL 100NE, HiBL 225NE	AUX - 12NE
	HiBS 400NE, HiBL 400NE, HiBX 400NE, HiBS 600NE, HiBL 600NE, HiBX 600NE	AUX - 46NE
	HiBS 800NE, HiBL 800NE, HiBX 800NE, HiBS 1000NE, HiBL 1000NE, HiBS 1200NE, HiBL 1200NE	AUX - 80NE
Nuclear Power Plant	HBL 103Q, HBL 103MQ	AUX - 1H
	HBL 203Q, HBL 203MQ	AUX - 2L

## Internally Mounted Accessory

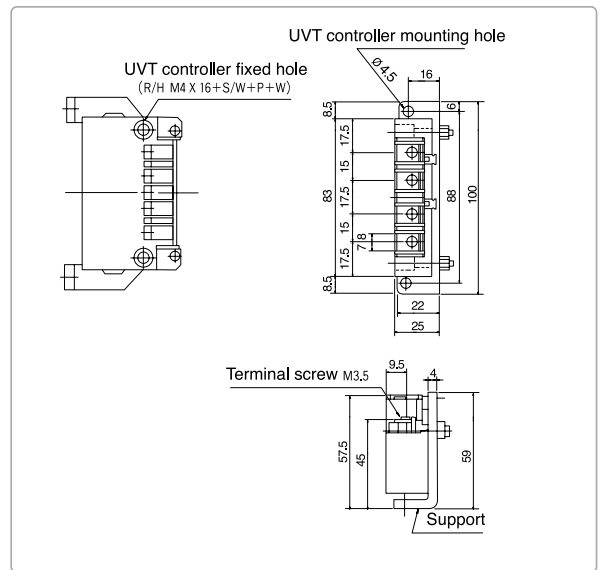
### ■ Under Voltage Trip (UVT) Rating

Category	Applicable MCCB	Type	Rated Voltage (V)		Operating Voltage	Tripping Voltage	With UVT Controller			
			DC	AC						
General	HiBS 30, HiBH 30, HiBE 50, HiBS 50 HiBE 60, HiBS 60, HiBE 100	UVT - 10A	J : 24 V L : 100~110 V	N : AC 100-120 V P : AC 200-230 V Q : AC 380-415 V R : AC 440-480 V	AC: 85~110 % of Rated Voltage	AC: 20~70 % of Rated Voltage	Attached UVT Controller Type			
	HiBH 50, HiBS 100, HiBH 100 HiBS 100J, HiBH 100J	UVT - 10B								
	HiBE 225, HiBS 225, HiBH 225 HiBE 250J, HiBS 250J, HiBH 250J	UVT - 20C								
	HiBE 400, HiBS 400, HiBH 400, HiBL 400 HiBE 600, HiBS 600, HiBH 600, HiBL 600 HiBE 800, HiBS 800, HiBH 800, HiBL 800	UVT - 46D								
Adjustable	HiBL 50NT, HiBL 100NT, HiBL 225NT HiBX 50NT, HiBX 100NT, HiBX 225NT HiBL 50NE, HiBL 100NE, HiBL 225NE	UVT - 12NE					DC: 85~125 % of Rated Voltage	DC: 20~70 % of Rated Voltage	-	
	HiBS 400NE, HiBL 400NE, HiBX 400NE HiBS 600NE, HiBL 600NE, HiBX 600NE	UVT - 46NE								
	HiBS 800NE, HiBL 800NE, HiBX 800NE HiBS 1000NE, HiBL 1000NE HiBS 1200NE, HiBL 1200NE	UVT - 80NE								
Nuclear Power Plant	HBL 103Q, HBL 103MQ	UVT - 1H								Side Installation/ Separate Installation of Controller
	HBL 203Q, HBL 203MQ	UVT - 2L								

### ■ Installation Configuration of UVT Controller



### ■ UVT Controller, Outside Dimensions for Separate Installation



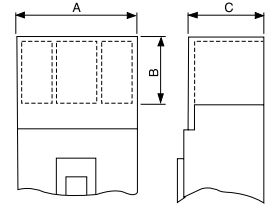
- If the control voltage of UVT is AC, the UVT controller shall be installed. Standard installation of the UVT controller is on the left side of the breaker. However, the controller can be installed in a separate location. (Please specify)
- Terminal UC1, UC2 are already connected. Cable size: vw-1, 0.5 mm<sup>2</sup> × 700 mm (If the other cables are required, please contact HHI representative.)

# Externally Mounted Accessory

## Terminal Cover (TCF)

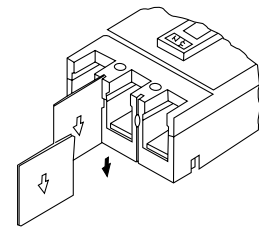
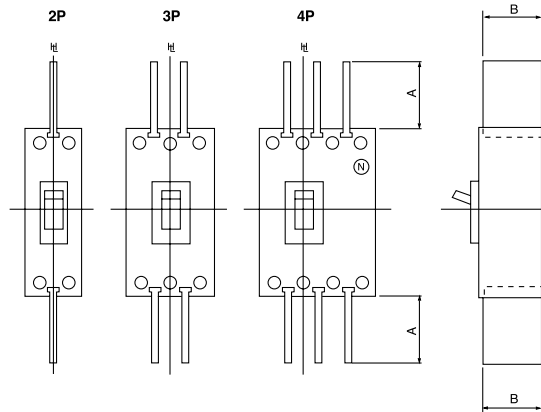
- It's used for protection against direct contact with power circuit.

Applicable MCCB (General)	Type	Number of Pole	Dimension			Q'ty
			A	B	C	
HiBS 32, HiBH 32, HiBE 52, HiBS 52, HiBE 62, HiBS 62, HiBE 142	TCF-10A2	2	50	59	58.5	2
HiBS 33, HiBH 33, HiBE 53, HiBS 53, HiBE 63, HiBS 63, HiBE 143	TCF-10A3	3	75	59	58.5	2
HiBE 54, HiBS 54, HiBE 64, HiBS 64, HiBE 104	TCF-10A4	4	100	59	58.5	2
HiBH 52, HiBS 102, HiBH 102, HiBS 102J, HiBH 102J	TCF-10B2	2	57	28.5	58.5	2
HiBH 53, HiBS 103, HiBH 103, HiBS 103J, HiBH 103J	TCF-10B3	3	87	28.5	58.5	2
HiBH 54, HiBS 104, HiBH 104, HiBS 104J, HiBH 104J	TCF-10B4	4	117	28.5	58.5	2
HiBE 202/203, HiBS 202/203, HiBH 202/203	TCF-20C3	2, 3	102	32.5	58.5	2
HiBE 202/203J, HiBS 202/203J, HiBH 202/203J						
HiBE 204, HiBS 204, HiBH 204, HiBE 204J, HiBS 204J, HiBH 204J	TCF-20C4	4	137	32.5	58.5	2



## Interpole Barrier (TQQ)

- Interpole barriers completely isolate terminal to prevent accidental short-circuiting between two or more terminals.



Interpole barriers are inserted into the groove between terminals, as shown.

- Application

Category	Applicable MCCB	Type	A (mm)	B (mm)	Q'ty (EA)		
					2P	3P	4P
General	HiBS 30, HiBH 30, HiBE 50, HiBS 50 HiBE 60, HiBS 60, HiBE 100	TQQ - 10A	50	53	1	2	3
	HiBH 50, HiBS 100, HiBH 100 HiBS 100J, HiBH 100J	TQQ - 10B	50	59	1	2	3
	HiBE 225, HiBS 225, HiBH 225 HiBE 250J, HiBS 250J, HiBH 250J	TQQ - 20C	100	60.5	-	2	3
	HiBE 400, HiBS 400, HiBH 400, HiBL 400	TQQ - 4BA	120	97	-	2	3
	HiBE 600, HiBS 600, HiBH 600, HiBL 600 HiBE 800, HiBS 800, HiBH 800, HiBL 800	TQQ - 5BA	110	95	-	2	3
Adjustable	HiBL 50NT, HiBL 100NT, HiBL 225NT HiBX 50NT, HiBX 100NT, HiBX 225NT HiBL 50NE, HiBL 100NE, HiBL 225NE	TQQ - 12NE	71	54.5	-	4	6
	HiBS 400NE, HiBL 400NE, HiBX 400NE HiBS 600NE, HiBL 600NE, HiBX 600NE	TQQ - 46NE	122	103	-	4	6
Nuclear Power Plant	HBL 103Q, HBL 103MQ	TQQ - 3CA	47	53	-	2	3
	HBL 203Q, HBL 203MQ	TQQ - 3BA	65	96	-	2	3



## Externally Mounted Accessory

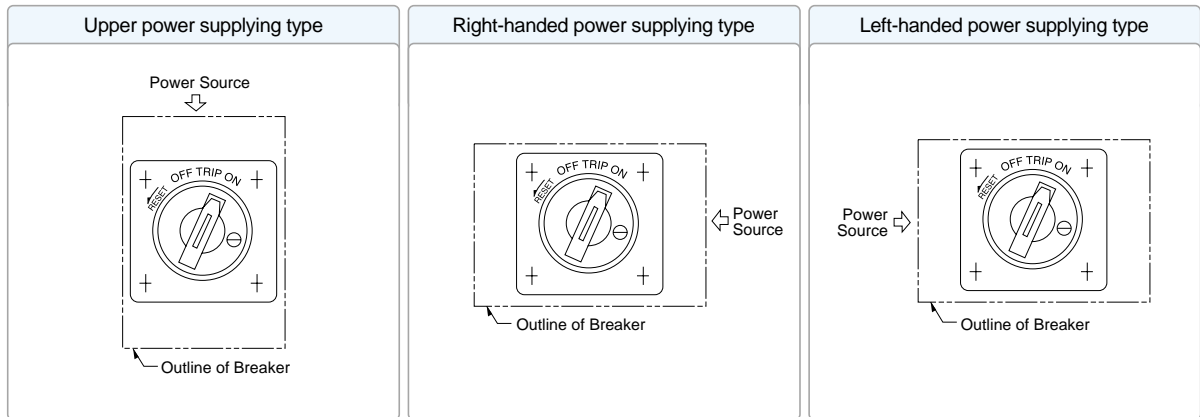
### ■ Externally Operation Handle (Type TFG)

#### ■ TFG Type

TFG type is the external operating handle witch is compact due to plastic molding.

TFG type is used, when the breaker is installed on a control center or a switchboard, and when it is manually operated from the outside of the door.

There are 3 special types, in a addition to the standard.



- Standard type (OFF open type)  
The panel can be opened at OFF position.
- Reset open type  
The Panel can be opened at RESET position it can not be opened at OFF position.
- Standard type with reverse interlock.
- Reset open type with reverse interlock.

#### ■ Reverse Interlock

The reverse interlock is used for locking the breaker to prevent it from switching ON, when the panel is opened. It also can be unlocked.

#### ■ Type Numbering System (Example)

TFG-22BA Basic Type						
Mounting Direction of the Breaker				Panel Door Lock		
U	U	Upper Power Supplying Type		1	1	Off Open Type (Standard)
	R	Left-handed Power Supplying Type			2	Off Open Type with Reverse Interlock
	L	Right-handed Power Supplying Type			3	Reset Open Type
					4	Reset Open Type with Reverse Interlock

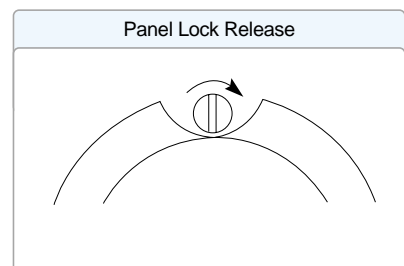
Please specify your desires TFG type number and breaker type / Specification when ordering

#### ■ Panel Lock

The externally operating handle keeps the panel door locked when in the "ON" position.

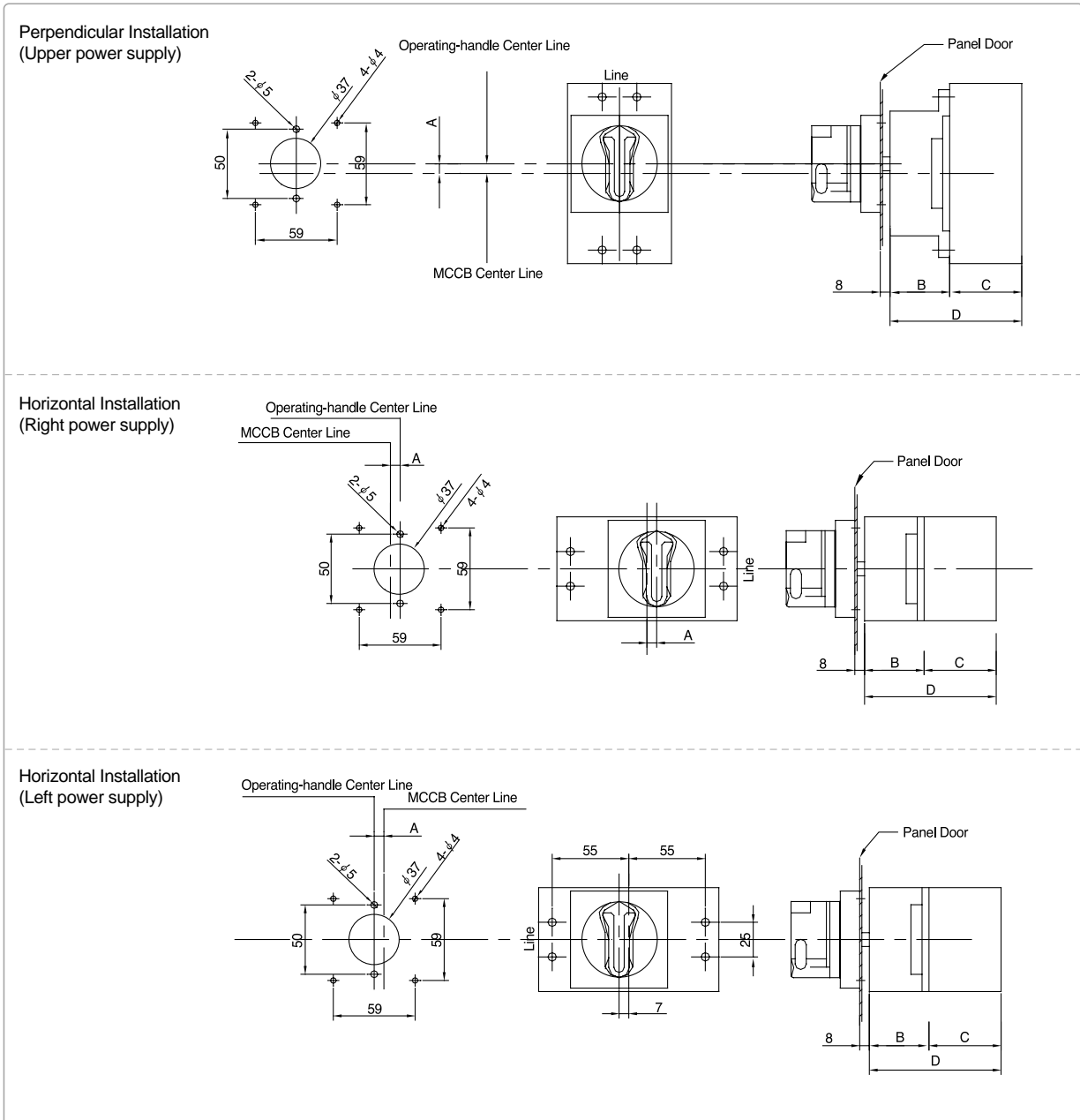
The release knob enables the panel door to be opened with the handle in the "ON" position

To release : Turn the release knob in the direction of the arrow with a flat-bladed screwdriver.



## External Operating Handle

### TFG Type (Breaker Mounted Type): TFG-10A / TFG-10B / TFG-20C / TFG-12NE



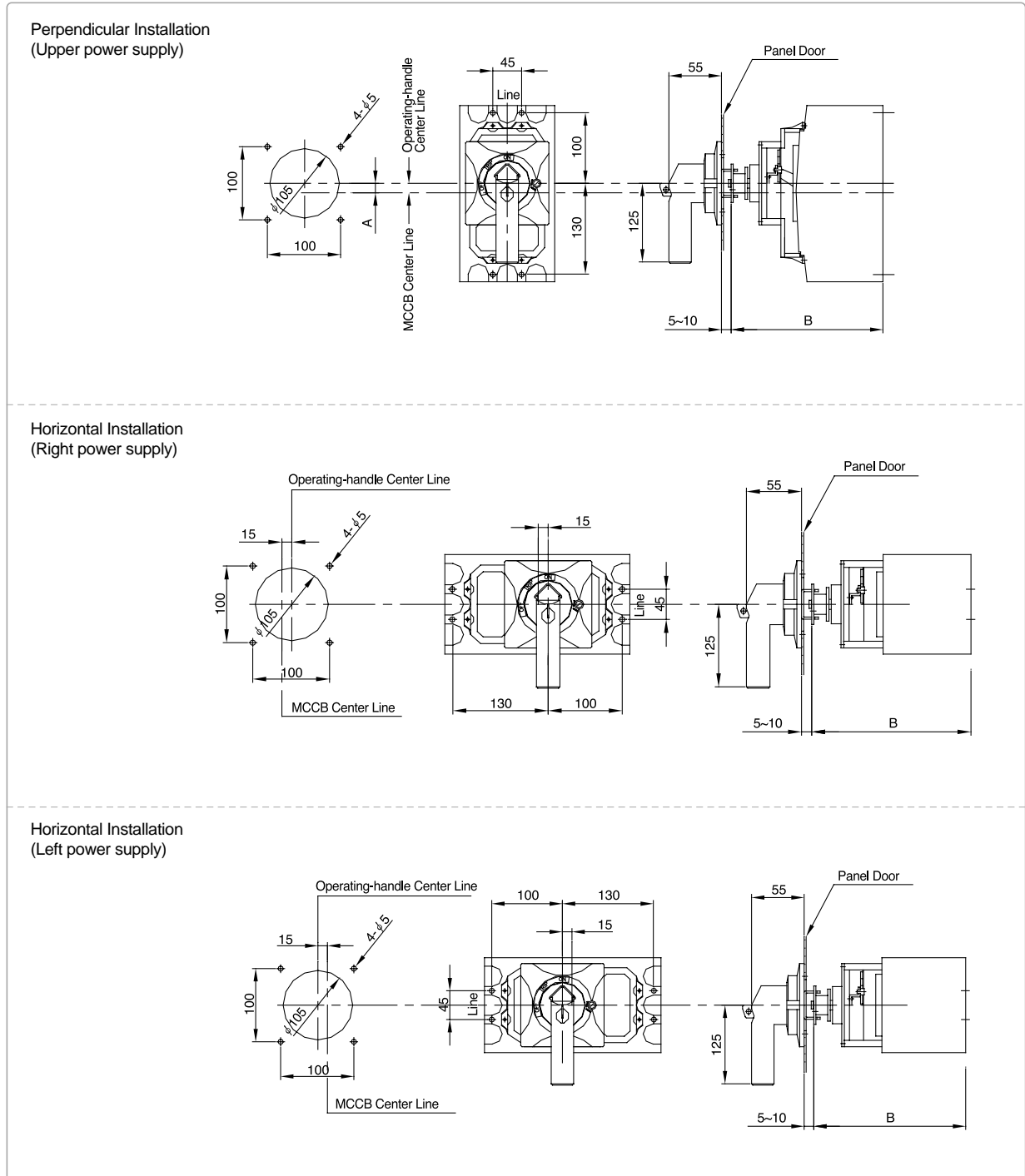
Operating handle's pivot must consider with the processing hole of a panel door.

Category	Applicable MCCB	Type	A	B	C	D
General	HiBS 30, HiBH 30, HiBE 50, HiBS 50, HiBE 60, HiBS 60, HiBE 100	TFG-10A	7	43	53	99
	HiBH 50, HiBS 100, HiBH 100, HiBS 100J, HiBH 100J	TFG-10B	9	47	56	103
	HiBE 225, HiBS 225, HiBH 225, HiBE 250J, HiBS 250J, HiBH 250J	TFG-20C	9	47	56	103
Adjustable	HiBL 50NT, HiBL 100NT, HiBL 225NT, HiBX 50NT, HiBX 100NT, HiBX 225NT HiBL 50NE, HiBL 100NE, HiBL 225NE	TFG-12NE	13.5	-	-	129
Nuclear Power Plant	HBL 103Q, HBL 103MQ	TFG-10L	5	41.5	82	123.5

, U : Upper power supply R : Right power supply L : Left power supply

## Externally Mounted Accessory

### ■ TFG Type (Breaker Mounted Type): TFG-46NE

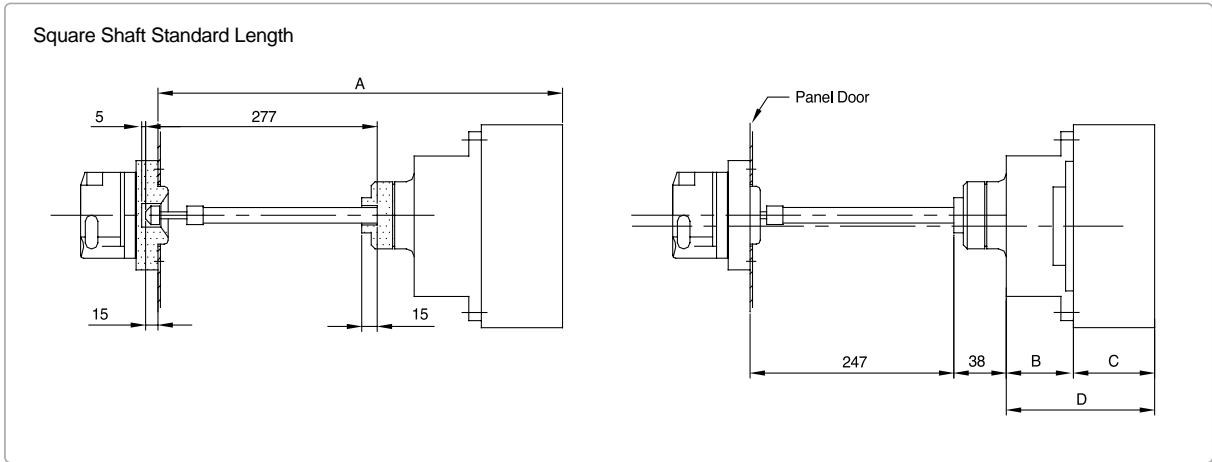


Category	Applicable MCCB	Type	A	B
General	HiBE 400, HiBS 400, HiBH 400, HiBL 400, HiBE 600, HiBS 600, HiBH 600	TFG-46D	0	210
	HiBL 600, HiBE 800, HiBS 800, HiBH 800, HiBL 800			
Adjustable	HiBS 400NE, HiBL 400NE, HiBX 400NE	TFG-46NE	13	219
	HiBS 600NE, HiBL 600NE, HiBX 600NE			

, U : Upper power supply R : Right power supply L : Left power supply

■ TFH Type (Adjustable Depth Type): TFH-10A / TFH-10B / TFH-20C / TFH-12NE

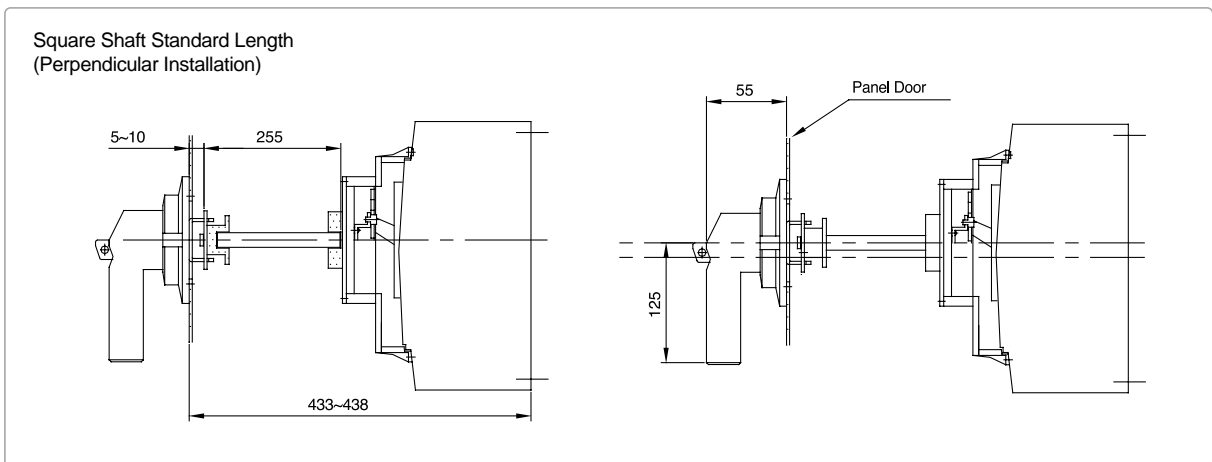
Make it possible to operate circuit breakers installed inside switchboard or enclosure from the front. The external operating handle and breaker are mechanically connected by a shaft cut to fit the enclosure depth. This consists of an operating mechanism mounted on the breaker, an operating handle mounted on the panel door and a square shaft to connect the mechanism with the handle. You are able to cut and use the shafts if necessary.



Category	Applicable MCCB	Type	A	B	C	D
General	HiBS 30, HiBH 30, HiBE 50, HiBS 50, HiBE 60, HiBS 60, HiBE 100	TFH-10A	384~379	43	56	99
	HiBH 50, HiBS 100, HiBH 100, HiBS 100J, HiBH 100J	TFH-10B	388~383	47	56	103
	HiBE 225, HiBS 225, HiBH 225, HiBE 250J, HiBS 250J, HiBH 250J	TFH-20C	388~383	47	56	103
Adjustable	HiBL 50NT, HiBL 100NT, HiBL 225NT, HiBX 50NT, HiBX 100NT HiBX 225NT, HiBL 50NE, HiBL 100NE, HiBL 225NE	TFH-12NE	414~419	-	-	129
Nuclear Power Plant	HBL 103Q, HBL 103MQ	TFH-10L	414~419	41.5	82	123.5

. U : Upper power supply R : Right power supply L : Left power supply

■ TFH-46NE



Category	Applicable MCCB	Type
General	HiBE 400, HiBS 400, HiBH 400, HiBL 400, HiBE 600, HiBS 600, HiBH 600, HiBL 600 HiBE 800, HiBS 800, HiBH 800, HiBL 800	TFH-46D
	HiBS 400NE, HiBL 400NE, HiBX 400NE HiBS 600NE, HiBL 600NE, HiBX 600NE	TFH-46NE

## Externally Mounted Accessory

### ■ Detailed Instruction of MCCB Operating Handle

#### ■ Operating Method when Panel Door is Closed

- 1) If you make MCCB Operating Handle vertical, a breaker becomes ON position. (Fig.1)
- 2) If you make MCCB Operating Handle horizontal, the breaker becomes OFF position. (Fig.2)
- 3) When the breaker trips automatically, Operating Handle indicates the trip position.
- 4) When you make the breaker ON position, you should turn the MCCB Operating Handle toward RESET position. (Fig.3)
- 5) When you want to open the panel door under the ON position of the breaker, turn the release toward the indicated direction(clockwise rotation) with a minus screwdriver. Then, the door is ready to be opened. (Fig.4)

#### ■ Lock and Release of Panel door

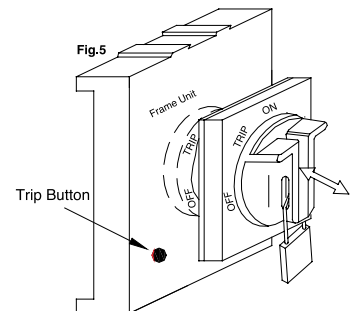
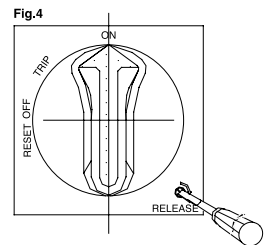
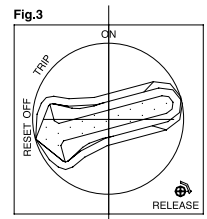
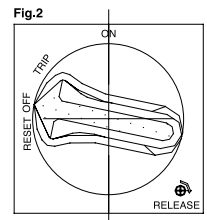
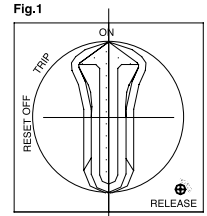
- 1) When the breaker is under ON, OFF, TRIP position, MCCB Operating Handle is locked, so the panel door can not be opened.
- 2) When the breaker is under TRIP or OFF position, turn the handle toward the RESET position, to make the door be ready to be opened. (Fig.3)
- 3) If you close the panel door under the ON state of the breaker, the lock is restored automatically. At this time, the handle position must be kept in ON state.

#### ■ Lock of MCCB Operating Handle

- 1) If you necessary, MCCB Operating Handle can be locked with a lock when the breaker is under ON or OFF position.(A lock is not provided.) (Fig.5)
- 2) If you push the arrow mark in front of MCCB Operating Handle, a lock can be hooked. (Fig.5)
- 3) If the breaker trips, while MCCB operating handle is locked, the handle indicates the TRIP position.
- 4) The hook thickness of a lock can be used from  $\varnothing 6$  to  $\varnothing 8$ . (Fig.5)

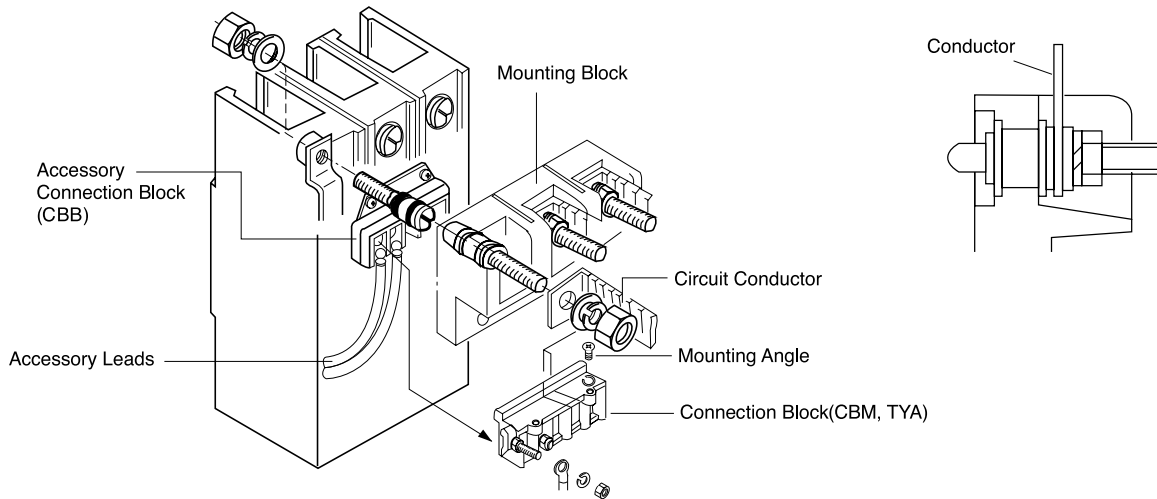
#### ■ A Careful Consideration when You Close the Panel Door.

- 1) After making the ON, TRIP and OFF position of the breaker coincide with the Operating Handle, please close the panel door.



## ■ Plug-in Assembly

### ■ For Switchboard



### ■ Plug-in Mounting Base (TDM)

Category	Applicable MCCB	Mounting Base			Connection Block			Conn. Block Barrier		
		Application	Type	Q'ty	Type	No. of Contact	Q'ty	Type	Q'ty	
General	HiBS 30, HiBH 30, HiBE 50 HiBS 50, HiBE 60, HiBS 60 HiBE 100	PC 1)	TDM-10AP	1	CBM-10AB-2 CBM-10AB-3	2 3	1	CBM-BARR	1	
		FDC 2)	TDM-10AF	1	-	-	-	-	-	
	HiBH50, HiBS 100, HiBH 100 HiBS 100J, HiBH 100J	PC 1)	TDM-10BP	1	CBM-10AB-2 CBM-10AB-3	2 3	1	CBM-BARR	1	
		FDC 2)	TDM-10BF	1	-	-	-	-	-	
	HiBE 225, HiBS 225, HiBH 225, HiBE 250J HiBS 250J, HiBH 250J	PC 1)	TDM-20CF	2	CBM-20C-2 CBM-20C-5	2 5	1	-	-	
		FDC 2)		1	-	-	-	-	-	
	HiBE 400, HiBS 400 HiBH 400, HiBL 400	PC 1)	TDM-4BA	2	TYA-5/5	5	1	-	-	
		FDC 2)		1	-	-	-	-	-	
	HiBE 600, HiBS 600 HiBH 600, HiBL 600 HiBE 800, HiBS 800 HiBH 800, HiBL 800	PC 1)	TDM-5BA	2	TYA-5/5	5	1	-	-	
		FDC 2)		1	-	-	-	-	-	
	Adjustable	HiBL 50NT, HiBL 100NT HiBL 225NT, HiBX 50NT HiBX 100NT, HiBX 225NT HiBL 50NE, HiBL 100NE HiBL 225NE	PC 1)	TDM-12NEP	1	CBM-26NE-6 CBM-26NE-12	6 12	1	-	-
			FDC 2)	TDM-12NEF	1	-	-	-	-	-
HiBS 400NE, HiBL 400NE HiBX 400NE, HiBS 600NE HiBL 600NE, HiBX 600NE		PC 1)	TDM-46NEP	1	CBM-26NE-6 CBM-26NE-12	6 12	1	-	-	
		FDC 2)	TDM-46NEF	1	-	-	-	-	-	

- 1) PC type is for K-type MCCB (K-type : Both line and load side are plug-in type). Please refer to ordering information No. 4 page 132.

- 2) FDC type is for L-type MCCB (L-type : Only line side is plus-in type). Please refer to ordering information No. 4 page 132.

- Applicable MCCB is for reference 3 poles.

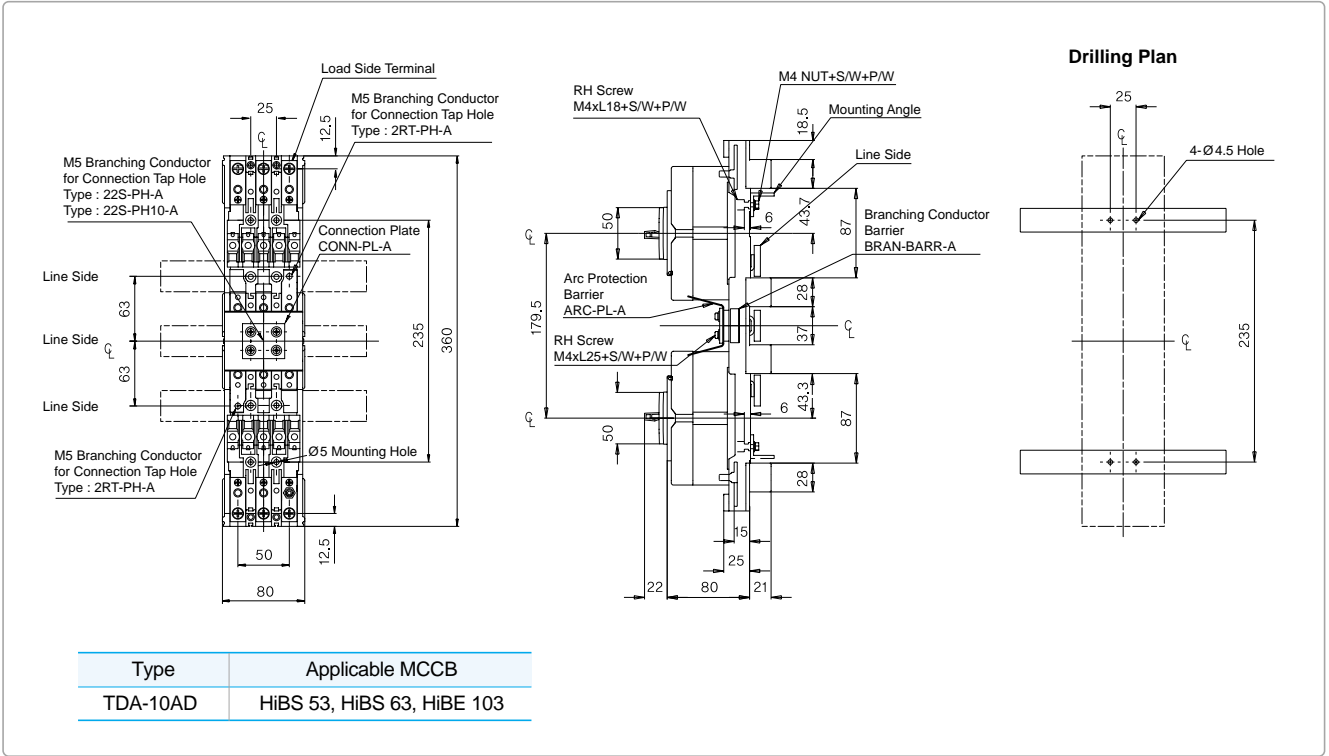
- In case that the breaker is plug-in type and it also has internally mounted accessories, please buy connection block and barrier (CBM, TYA Type and CBM-BARR) separately.

- TYA type connection block is to be installed with separately angle iron.

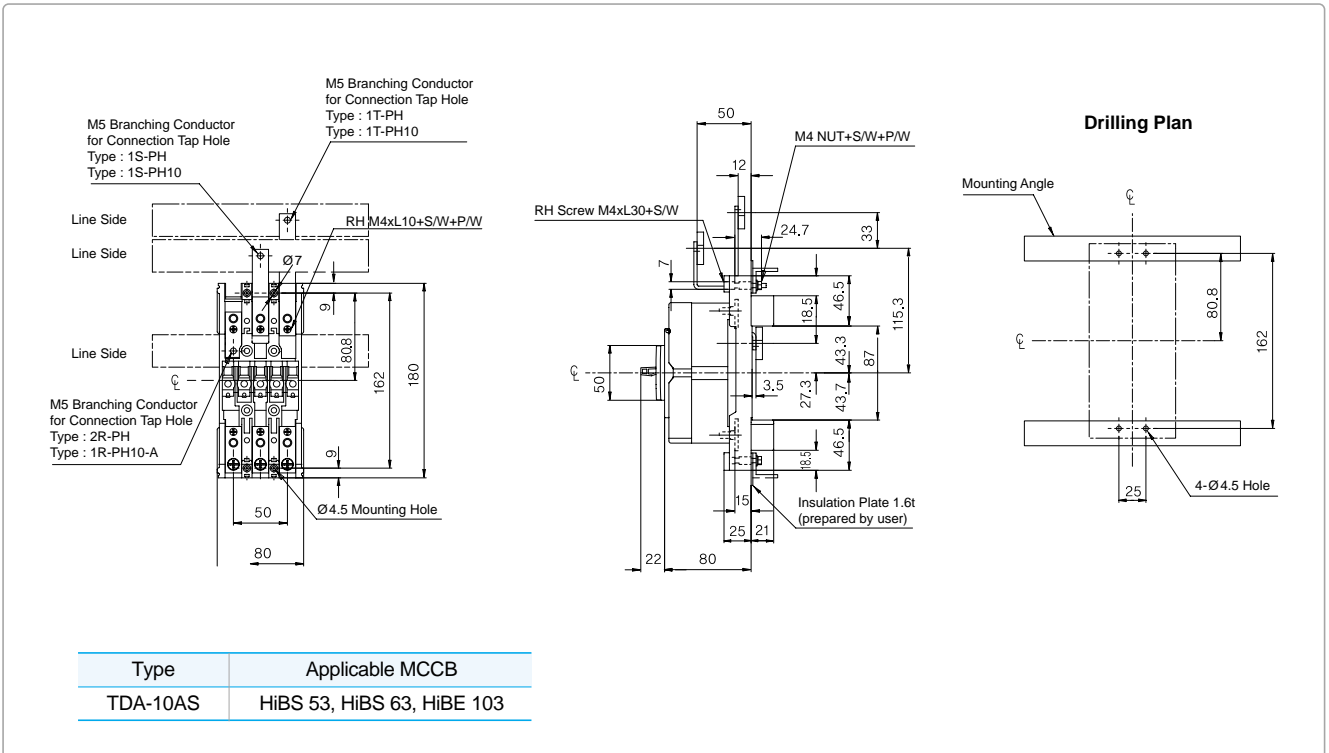




■ Outline Dimension of Double Mounting Base for Distribution

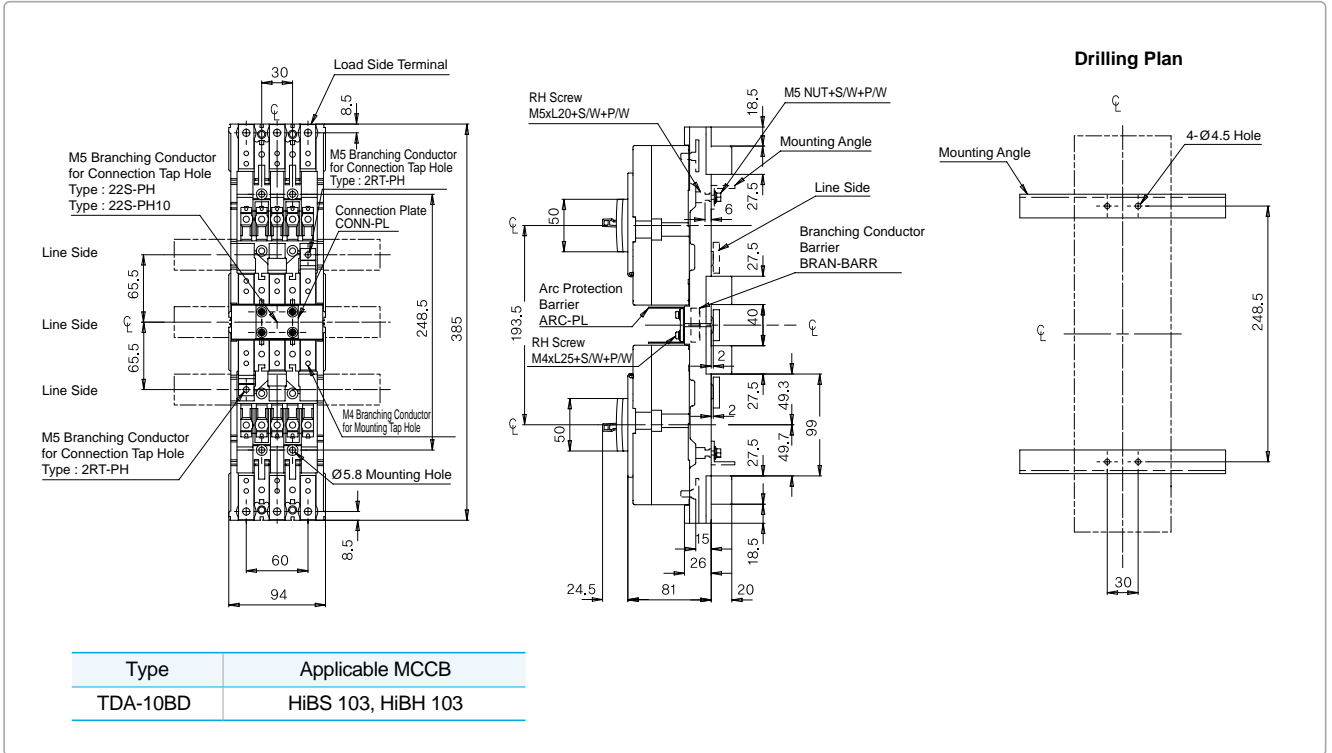


■ Outline Dimension of Single Mounting Base for Distribution

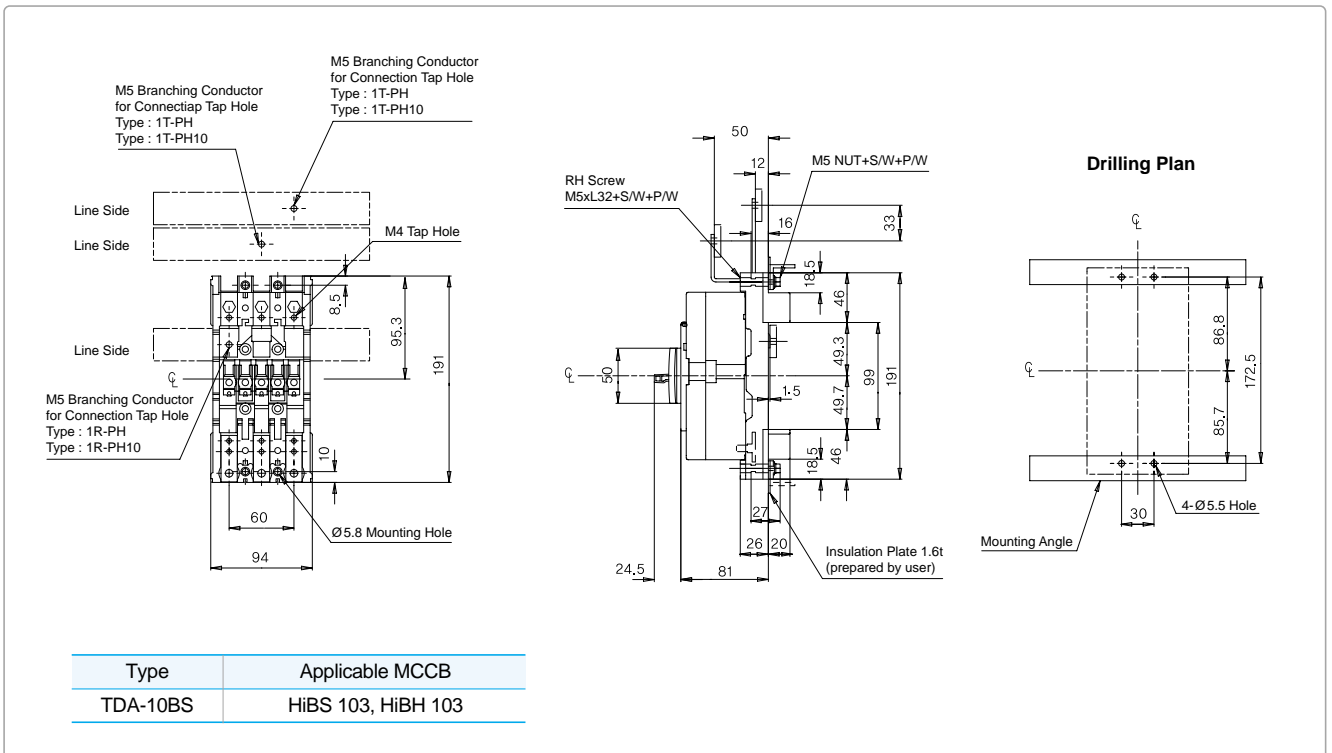


## Externally Mounted Accessory

### ■ Outline Dimension of Double Mounting Base for Distribution







### ■ Outline Dimension of Single Mounting Base for Distribution



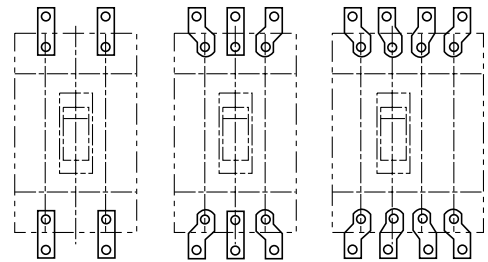
# Standard Kit

## Terminal Connection Bolt

Terminal Screw		Screw Size	Applicable MCCB
Form			
Clamp screw		M5	HBE 30N HiBS 30, HiBH 30, HiBE 50, HiBS 50, HiBH 50 HiBE 60, HiBS 60, HiBE 100 (5-50 A)
Pan head screw		M8	HiBS 100, HiBH 100, HiBE 100 (60-100 A), HiBS 100J, HiBH 100J HiBE 225, HiBS 225, HiBH 225, HiBE 250J, HiBS 250J, HiBH 250J HBL 103Q, HBL 103MQ
Xexagon socket head screw		M8	HiBL 50NT, HiBL 100NT, HiBL 225NT, HiBX 50NT, HiBX 100NT, HiBX 225NT HiBL 50NE, HiBL 100NE, HiBL 225NE HBL 203Q, HBL 203MQ
		M10	HiBE 400, HiBS 400, HiBH 400, HiBL 400
Xexagon head screw		M12	HiBE 600, HiBS 600, HiBH 600, HiBL 600 HiBE 800, HiBS 800, HiBH 800, HiBL 800 HiBS 400NE, HiBL 400NE, HiBX 400NE HiBS 600NE, HiBL 600NE, HiBX 600NE HiBS 800NE, HiBL 800NE, HiBX 800NE HiBS 1000NE, HiBL 1000NE, HiBS 1200NE, HiBL 1200NE

## Terminal Bus Bar (TBB)

Category	Applicable MCCB	Type	Mounting Hole	Q ty
General	HiBE 225, HiBS 225, HiBH 225 HiBE 250J, HiBS 250J, HiBH 250J	* TBB-20C	Ø 11	2P: 4EA 3P: 6EA 4P: 8EA
	HiBE 400, HiBS 400, HiBH 400, HiBL 400	TBB-4S	Ø 13	
	HiBE 600, HiBS 600, HiBH 600, HiBL 600	TBB-6S	Ø 15	
	HiBE 800, HiBS 800, HiBH 800, HiBL 800	TBB-8S	Ø 15	
Adjustable	HiBL 50NT, HiBL 100NT, HiBL 225NT HiBX 50NT, HiBX 100NT, HiBX 225NT HiBL 50NE, HiBL 100NE, HiBL 225NE	TBB-12NE	Ø 11	
	HiBS 400NE, HiBL 400NE, HiBX 400NE HiBS 600NE, HiBL 600NE, HiBX 600NE	TBB-46NE	Ø 13	

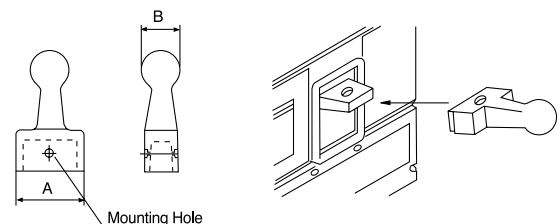


The meaning of the mark “\*” is option, so it should be ordered separately.

## Extension Handle (THA)

Reduces ON, OFF and RESET operation effort

Category	Applicable MCCB	Type	A	B
General	HiBE 400, HiBS 400, HiBH 400, HiBL 400 HiBE 600, HiBS 600, HiBH 600, HiBL 600 HiBE 800, HiBS 800, HiBH 800, HiBL 800	THA-46NE	42	40
Adjustable	HiBL 50NT, HiBL 100NT, HiBL 225NT HiBX 50NT, HiBX 100NT, HiBX 225NT HiBL 50NE, HiBL 100NE, HiBL 225NE	THA-12NE	20	20
	HiBS 400NE, HiBL 400NE, HiBX 400NE HiBS 600NE, HiBL 600NE, HiBX 600NE	THA-46NE	42	30
	HiBS 800NE, HiBL 800NE, HiBX 800NE HiBS 1000NE, HiBL 1000NE	THA-80NE	56	40
	HiBS 1200NE, HiBL 1200NE			



When using extension handles, do not operate it excessively since it can break.

## Capacity and Characteristic

### Capacity

■ **Rated Interrupting Capacities.**

Hyundai MCCBs are rated according to the level of fault current they can interrupt. When applying a circuit breaker, one must be selected which can sustain the largest potential short circuit current which can occur in the selected application. It's more important to select Hyundai MCCBs which have interrupting capacities best suited to the circuits. Short-circuit current values vary according to the transformer capacity and its connecting cables.

■ **Operational Performance Capability**

A circuit breaker shall be capable of performing successfully when operated manually or by means of a machine constructed to simulate manual operation for the number of cycles and at rate indicated in related standards.

Table 1 - Number of operating cycles (IEC 60947)

1		2		3		4		5	
Rated Current* (A)		Number of Operating Cycles per Hour**	Number of Operating Cycles						
			Without Current		With Current***		Total		
In	100	120	8,500	1,500			10,000		
100	In 315	120	7,000	1,000			8,000		
315	In 630	60	4,000	1,000			5,000		
630	In 2500	20	2,500	500			3,000		
2500	In	10	1,500	500			2,000		

\* The maximum rated current for a given frame size.

\*\* Column 2 gives the minimum operating rate. This rate may be increased with the consent of the manufacturer; in this case the rate used shall be stated in the test report.

\*\*\* During each operating cycle, the circuit-breaker shall remain closed for a sufficient time to ensure that the full current is established, but not exceeding 2s.

Table 2 - Characteristics of the opening operation of inverse time-delay over-current opening releases at the reference temperature (IEC 60947)

All Poles Loaded		Conventional Time (h)
Conventional Non-tripping Current	Conventional Tripping Current	
1.05 times current setting	1.30 times current setting	2
1 hour when In 63 A		

### Characteristic

■ **Long-time Delay Trip Characteristic**

The overload trip unit senses and decides when to act by tripping the circuit breaker. The higher the current, the shorter time it takes for the trip mechanism to activate.

Time delay trip characteristic makes it possible for MCCBs to withstand momentary overloads such as motor starting, welding for the set time without tripping, etc.

■ **Short-time Delay Trip Characteristic**

It establishes the time interval the breaker will wait before responding to the short-circuit current level selected on the short-time trip point adjustment.

■ **Instantaneous Trip Characteristic**

The instantaneous trip unit senses and decides when to act by tripping the circuit breaker without intentional time delay. This immediate interruption occurs only as a result of a severe overcurrent condition such as the short-circuit current level, thereby minimizing damage to the electrical system and equipment. A circuit breaker(600AF and more) that has an adjustable instantaneous release also makes it easier for us to get a further refinement of protection coordination between MCCBs and up-stream protective devices such as ACBs or between MCCBs and Magnetic Contactors.

■ Time Current Curves

Time current curves represent the relationship between overcurrents and operating time. Approximate minimum and maximum clearing time is readily determined from the characteristics curves.

■ Current and Temperature

The thermal trip action is accomplished by a bimetallic strip. The movement of the bimetal and thus tripping is directly proportional to currents. In other words it responds fast to high currents and it responds slowly to low currents. However, the bimetal is also sensitive to ambient temperature. An enclosure compensated thermal trip is calibrated at the standard ambient temperature of 40 °C in consideration of the temperature rise of the equipment (such as panels for control rooms) housing the circuit breaker. Therefore, when it is installed at locations where the ambient temperature drastically differs from the standard(40 °C) it will trip at different current values and this must be allowed for making use of compensation.

■ Thermal Characteristics of Wires

MCCBs are designed to protect insulated cable; therefore, the characteristics of breakers are closely tied to IEC 60947's specified size and type of wire for each rating as well as the load characteristics. Cable sizes must be equal to, or greater than specified by IEC 60947. The cable is used as a heat sink to control the temperature of the bimetal; reducing the size of the conductor raises the temperature and the breaker will carry less current.

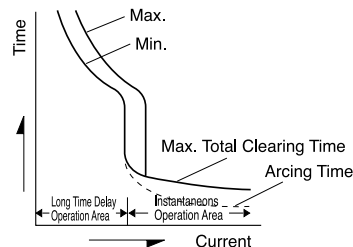


Table 3 - Test copper conductors for test currents up to 400 A inclusive (IEC 60947)

Range of Test Current		Conductor Size	
A		mm <sup>2</sup>	AWG / MCM
0	8	1.0	18
8	12	1.5	16
12	15	2.5	14
15	20	2.5	12
20	25	4.0	10
25	32	6.0	10
32	50	10	8
50	65	16	6
65	85	25	4
85	100	35	3
100	115	35	2
115	130	50	1
130	150	50	0
150	175	70	00
175	200	95	000
200	225	95	0000
225	250	120	250
250	275	150	300
275	300	185	350
300	350	185	400
350	400	240	500

Table 4 - Test copper conductors for test currents above 400 A and up to 800 A.

Range of Test Current <sup>1)</sup> (A)		Conductors			
		Metric		MCM	
		Number	Size (mm <sup>2</sup> )	Number	Size MCM
400	500	2	150	2	250
500	630	2	185	2	350
630	800	2	240	3	300

<sup>1)</sup> The value of test current shall be greater than the first value in the first column and less than or equal to the second value in that column.

## Application

### Application According to Transformer Capacity

#### AC 220 V

3-Phase Transformer Capacity (kVA)	kVA 30	kVA 50	75 kVA 100	150 kVA 300	500 kVA 750	kVA 1500		kVA 2000				
Single-Phase 3 Wire Transformer Capacity (kVA)	kVA 16	kVA 30	kVA 50	kVA 150	kVA 300							
Breaking Capacity (kA) (sym)	2.5		5	10	25	35	42	50	65	85	100	125
Frame (A)	30	HBE 33N	HiBS 33	HiBH 33								
	50	HiBE 53		HiBS 53	HiBH 53		HiBL 53NT					
	60	HiBE 63		HiBS 63								
	100	HiBE 103			HiBS 103	HiBH 103	HiBL 103NT					
	225	HiBE 203				HiBS 203	HiBH 203	HiBL 203NT				
	400	HiBE 403				HiBS 403	HiBH 403		HiBL 403NT			
	600	HiBE 603					HiBS 603			HiBL 603		
	800	HiBE 803					HiBS 803			HiBL 803NE		
	1000-1200	HIBS 1003, HiBS 1203									HiBL 1003NE HiBL 1203NE	

#### AC 460 V

3-Phase Transformer Capacity (kVA)	kVA 50	75 kVA 200	kVA 300	kVA 750	kVA 1500	kVA 2000	kVA 3000					
Breaking Capacity (kA) (sym)	1.5		5	10	18	25	35	42	50	65	85	100
Frame (A)	30	HBE 33N	HiBH 33	HiBH 33								
	50	HiBE 53		HiBS 53	HiBH 53		HiBL 53NT			HiBX 53NT		
	60	HiBE 63		HiBS 63								
	100	HiBE 103			HiBS 103	HiBH 103	HiBL 103NT			HiBX 103NT		
	225	HiBE 203				HiBS 203	HiBH 203	HiBL 203NT			HiBX 203NT	
	400	HiBE 403				HiBS 403	HiBH 403	HiBL 403	HiBL 403NE		HiBX 403NE	
	600	HiBE 603					HiBS 603		HiBL 603	HiBL 603NE	HiBX 603NE	
	800	HiBE 803					HiBS 803		HiBX 803NE	HiBL 803NE	HiBX 803NE	
	1000-1200	HIBS 1003, HiBS 1203									HiBL 1003NE HiBL 1203NE	

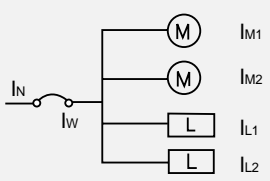




## Application

### ■ Selection of Motor Protection MCCB

■ The selection of MCCB for motor circuit is carried out as follows.

Schematic Diagram	Condition	Allowable Current $I_w$	MCCB Rated Current $I_N$
 <p> <math>I_M</math>: Load Current of Motor  <math>I_L</math>: Load Current of Others                 </p>	$I_M \leq I_L$	$I_w \geq I_M + I_L$	$I_N \geq 3 I_M + I_L$ $I_N \geq 2.5 I_w$ $I_w \geq 100 \text{ A}$
	$50 \text{ A} < I_M > I_L$	$I_w \geq 1.25 I_M + I_L$	
	$50 \text{ A} < I_M > I_L$	$I_w \geq 1.1 I_M + I_L$	

### ■ Rated Current of MCCBs for AC 220 V Three-phase Induction Motor

Total Motor Capacity (kW or less)	Full Load Current (A or less)	Motor Max. Output (kW): Motor Capacity (A): Full Load Current																	
		0.75 4.8	1.5 8	2.2 11.1	3.7 17.4	5.5 26	7.5 34	11 48	15 65	18.5 79	22 93	30 125	37 160	45 190	5 230	75 310	90 360	110 440	132 500
3	15	20	30	30															
4.5	20	30	30	30	50														
6.3	30	40	40	40	50	60													
8.2	40	50	50	50	50	75	100												
12	50	60	60	60	60	75	100												
15.7	75	100	100	100	100	100	100	125	150										
19.5	90	100	100	100	100	100	100	125	150	175									
23.2	100	125	125	125	125	125	125	125	150	175	200								
30	125	150	150	150	150	150	150	150	150	175	225								
37.5	150	175	175	175	175	175	175	175	175	200	225	300							
45	175	200	200	200	200	200	200	200	200	200	225	300	400						
52.5	100	225	225	225	225	225	225	225	225	225	225	300	400	500					
63.7	150	300	300	300	300	300	300	300	300	300	300	300	400	500	500				
75	300	350	350	350	350	350	350	350	350	350	350	350	400	500	500				
86.2	350	400	400	400	400	400	400	400	400	400	400	400	400	500	500	600			
97.5	400	500	500	500	500	500	500	500	500	500	500	500	500	500	500	600	700		
112.5	450	500	500	500	500	500	500	500	500	500	500	500	500	500	500	700	700		
125	500	600	600	600	600	600	600	600	600	600	600	600	600	600	600	700	700	1000	
150	600	700	700	700	700	700	700	700	700	700	700	700	700	700	700	700	800	1000	1000
175	700	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	1000	1000
220	800	900	900	900	900	900	900	900	900	900	900	900	900	900	900	900	900	900	1000

## ■ Rated Current of MCCB for 440 V Three-phase Induction Motor

Total Motor Capacity (kW or less)	Full Load Current (A or less)	Motor Max. Output (kW): Motor Capacity (A): Full Load Current																	
		0.75 2.4	1.5 4	2.2 5.5	3.7 8.7	5.5 13	7.5 17	11 24	15 32	18.5 39	22 46	30 62	37 808	45 95	5 115	75 155	90 180	110 220	132 250
3	7.5	15	15	15															
4.5	10	15	15	15	30														
6.3	15	20	20	20	30	40													
8.2	20	30	30	30	30	40	50												
12	25	30	30	30	30	40	50												
15.7	38	50	50	50	50	50	50	60	75										
19.5	45	50	50	50	50	50	50	60	75	100									
23.2	50	60	60	60	60	60	60	60	60	75	100	125							
30	63	75	75	75	75	75	75	75	75	100	100	125							
37.5	75	100	100	100	100	100	100	100	100	100	100	125	150						
45	88	100	100	100	100	100	100	100	100	100	100	125	150	175					
52.5	100	125	125	125	125	125	125	125	125	125	125	125	150	175	225				
63.7	125	150	150	150	150	150	150	150	150	150	150	150	150	200	225	250			
75	150	175	175	175	175	175	175	175	175	175	175	175	175	200	225	250			
86.2	175	200	200	200	200	200	200	200	200	200	200	200	200	200	225	300	350		
97.5	200	225	225	225	225	225	225	225	225	225	225	225	225	225	225	300	350	400	
112.5	225	250	250	250	250	250	250	250	250	250	250	250	250	250	250	300	350	400	
125	250	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	350	400	500
150	300	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	400	500
175	350	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	500	500
200	400	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
250	500	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600
300	600	700	700	700	700	700	700	700	700	700	700	700	700	700	700	700	700	700	700
350	700	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800
400	700	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800
450	900	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
500	1000	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200

- Motor Starting Condition.

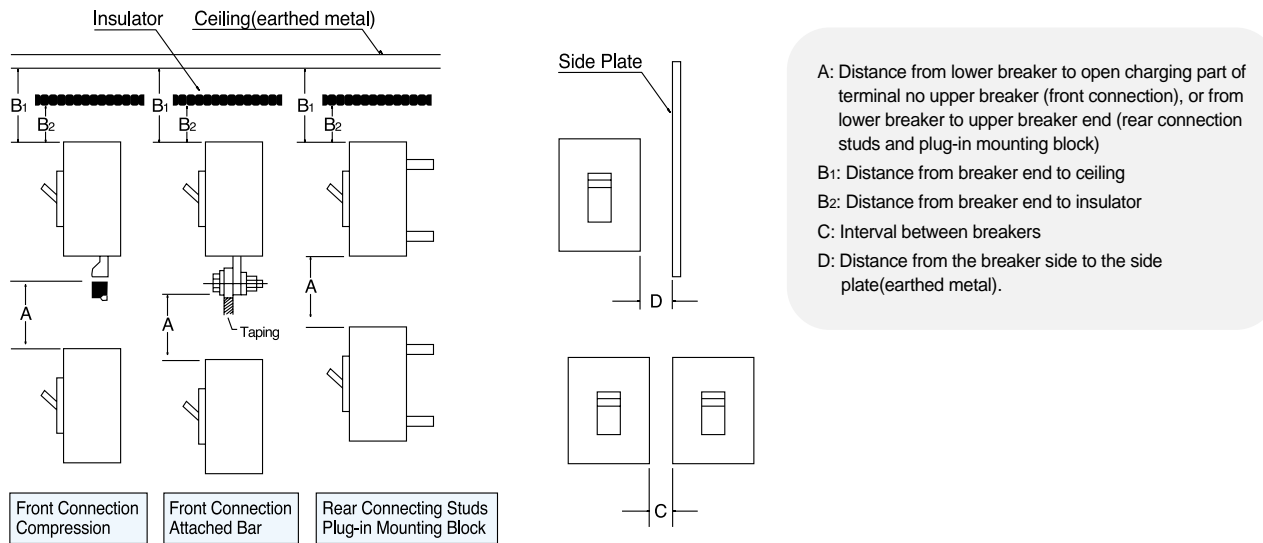
- Six times the full load current: Within 10 sec.
- Starting rush current: Within 17 times the full load current.

- Motor full load current: Indicate the full load current for standard type.

- "The motor having the largest output" includes motors simultaneously being started with this motor.

## Insulating Distance from Line End

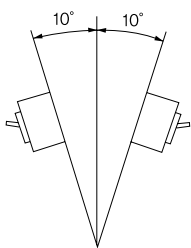
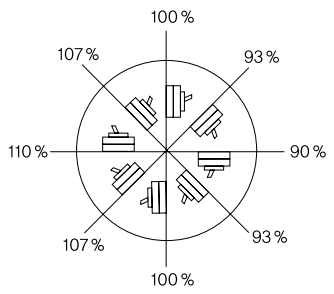
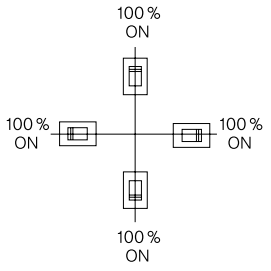
- When the earthed metal is installed between upper and lower parts of the breakers and on the line end of the breaker as shown in the right hand side figure, proper insulating distance should be kept as below table. This distance is necessary to get rid of arc gas exhausted from the line end, when the breaker would close the short-circuit current. As exposed conductor might cause short-circuit or earthing trouble due to drop of metal piece, abnormal surge voltage on the circuit, dust, metallic dust and salt, it is recommended that it be protected with insulating tube and insulating tape.



Category	Applicable MCCB	A	B <sub>1</sub>	B <sub>2</sub>	C	D	
		Vertical Interval of Breakers	Exposed Ground Metal	Insulator & Painted Plate			
General	HiBS 30, HiBH 30, HiBE 50, HiBS 50 HiBE 60, HiBS 60, HiBE 100	75	50	30	Attachable	25	
	HiBH 50, HiBS 100, HiBH 100 HiBS 100J, HiBH 100J	80	50	30	Attachable	25	
	HiBE 225, HiBS 225, HiBH 225 HiBE 250J, HiBS 250J, HiBH 250J	80	60	50	Attachable	40	
	HiBE 400, HiBS 400, HiBH 400, HiBL 400 HiBE 600, HiBS 600, HiBH 600, HiBL 600 HiBE 800, HiBS 800, HiBH 800, HiBL 800	100	100	80	Attachable	80	
	Adjustable	HiBL 50NT, HiBL 100NT, HiBL 50NE, HiBL 100NE	80	50	30	Attachable	10
		HiBX 50NT, HiBX 100NT	80	50	30	Attachable	25
		HiBL 225NT, HiBL 225NE	100	100	70	Attachable	10
		HiBX 225NT	100	100	70	Attachable	25
HiBS 400NE, HiBL 400NE, HiBX 400NE HiBS 600NE, HiBL 600NE, HiBX 600NE		120	100	80	Attachable	80	
HiBS 800NE, HiBL 800NE, HiBX 800NE		150	120	80	Attachable	80	
HiBS 1000NE, HiBL 1000NE HiBS 1200NE, HiBL 1200NE							

## ■ Mounting Pose of ODP Type MCCB

### ■ MCCB Mounting Limitation

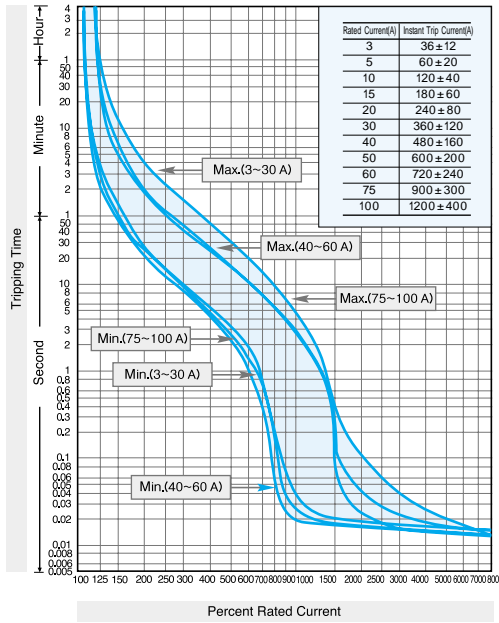
MCCB Type	Installation	Change in Rated Current Values Due to the Change in Mounting Angles
<p>HiBE 50 (5, 10, 15, 20, 30, 40, 50 A)</p> <p>HiBE 60 (5, 10, 15, 20, 30, 40, 50, 60 A)</p> <p>HiBE 100 (5, 10, 15, 20, 30, 40, 50, 60, 75, 100 A)</p> <p>HiBS 30 (3, 5, 10, 15, 20, 30 A)</p> <p>HiBS 50 (5, 10, 15, 20, 30, 40, 50 A)</p> <p>HiBS 60 (5, 10, 15, 20, 30, 40, 50, 60 A)</p> <p>HiBH 30 (5, 10, 15, 20, 30 A)</p>		
	<p>Breakers should be mounted within <math>\pm 10</math> of vertical plane, because the over current trip device can be affected by gravity.</p>	

# Characteristic Curve & Dimension | General Type

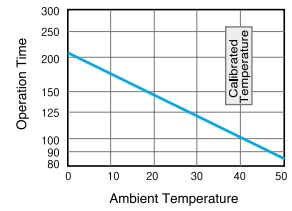


- HiBS 30
- HiBH 30
- HiBE 50
- HiBS 50
- HiBE 60
- HiBS 60
- HiBE 100

Time-current Characteristic Curves



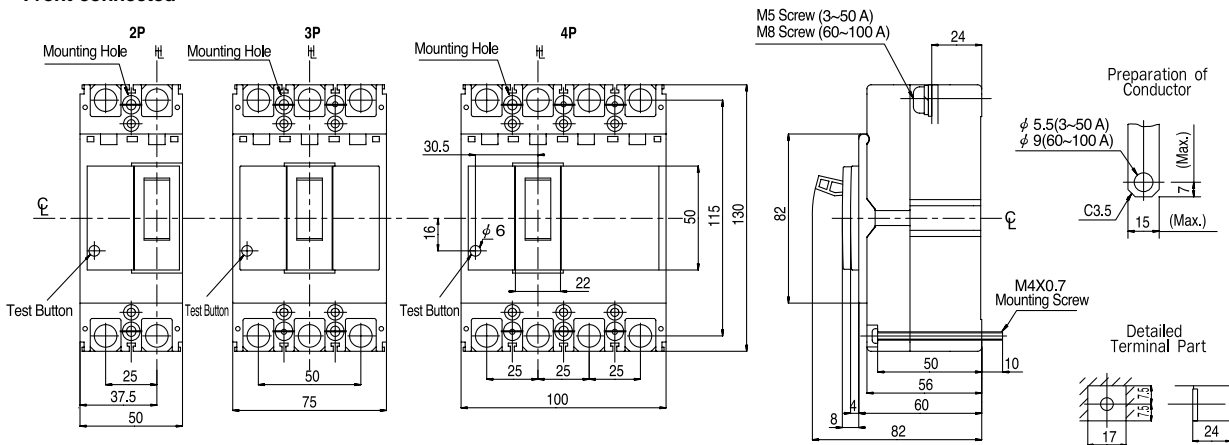
Ambient Compensating Curves



Outline Dimensions

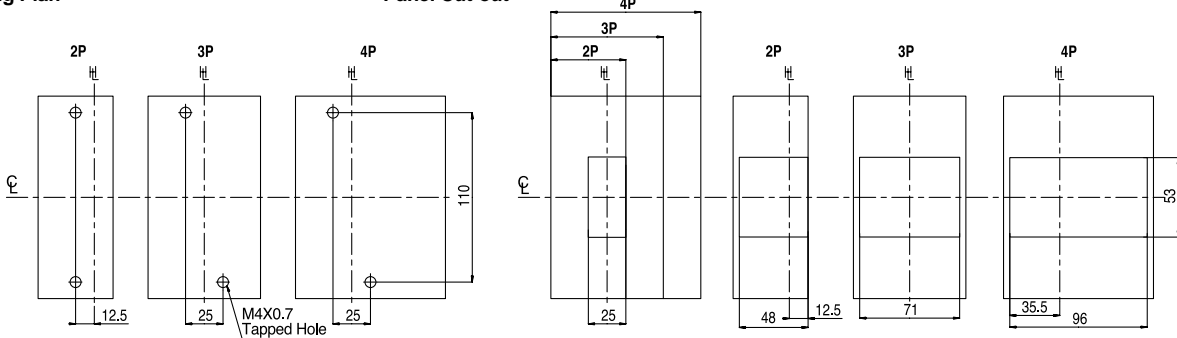
(Unit: mm)

Front-connected



Drilling Plan

Panel Cut-out



☐ : Center Line    | : Handle Frame Center Line

• Panel cut-out dimensions shown give an allowance of 1.5 mm around the handle escutcheon.

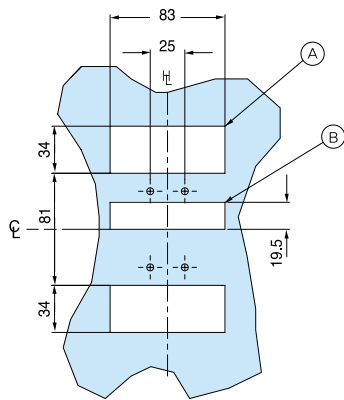
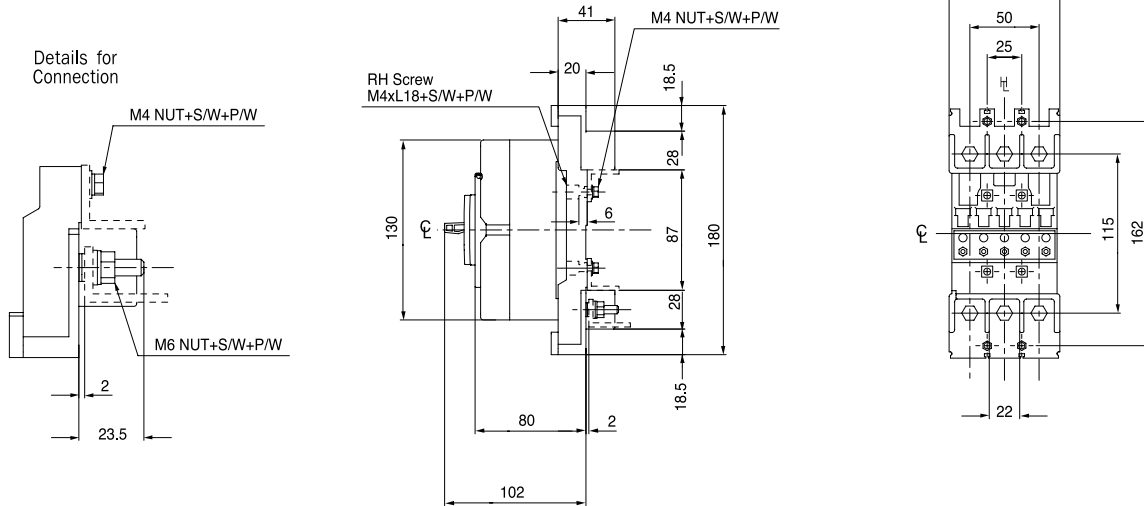
Outline Dimensions

(Unit: mm)

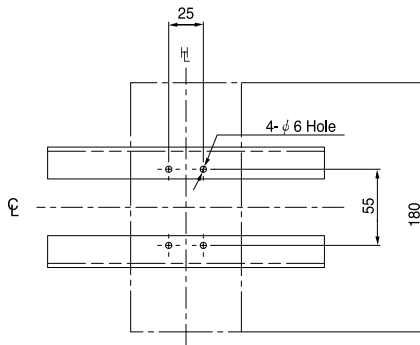
Plug-in

Type: TDM-10A

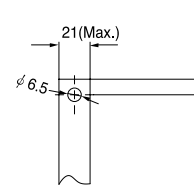
Mounting Block



Drilling Plan



Preparation of Conductor

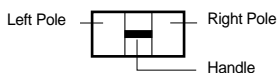


- (A) : Cut-out before assembly of bus bar
- (B) : It is required when combinations of internally mounted accessories.

rC : Center Line    H : Handle Frame Center Line

Combinations of Internally Mounted Accessories

NO.	AUX	ALT	SHT	UVT	AUX	AUX	AUX	ALT	ALT	AXT	AXT
Pole	Auxiliary Switch	Alarm Switch	Shunt Trip	Under-Voltage Trip	ALT	SHT	UVT	SHT	UVT	SHT	UVT
3											



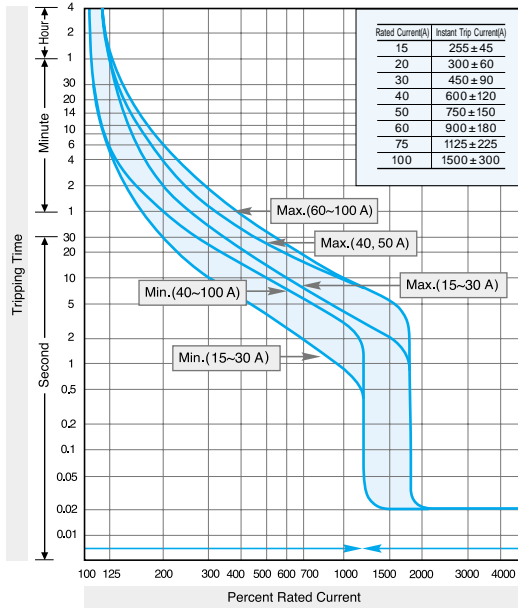
- AXT equals AUX and ALT.
- AUX, ALT, AXT, SHT, UVT in a 2 pole-type breaker should be installed into the left pole.
- UVT installation in the 2 pole-type breaker that the middle pole of a 3 pole-type breaker is removed is equal to the 3 pole-type breaker.
- Operating voltage of UVT is of DC rated voltage.

# Characteristic Curve & Dimension | General Type

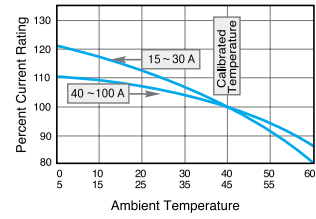


- HiBH 50
- HiBS 100
- HiBH 100
- HiBS 100J
- HiBH 100J

Time-current Characteristic Curves



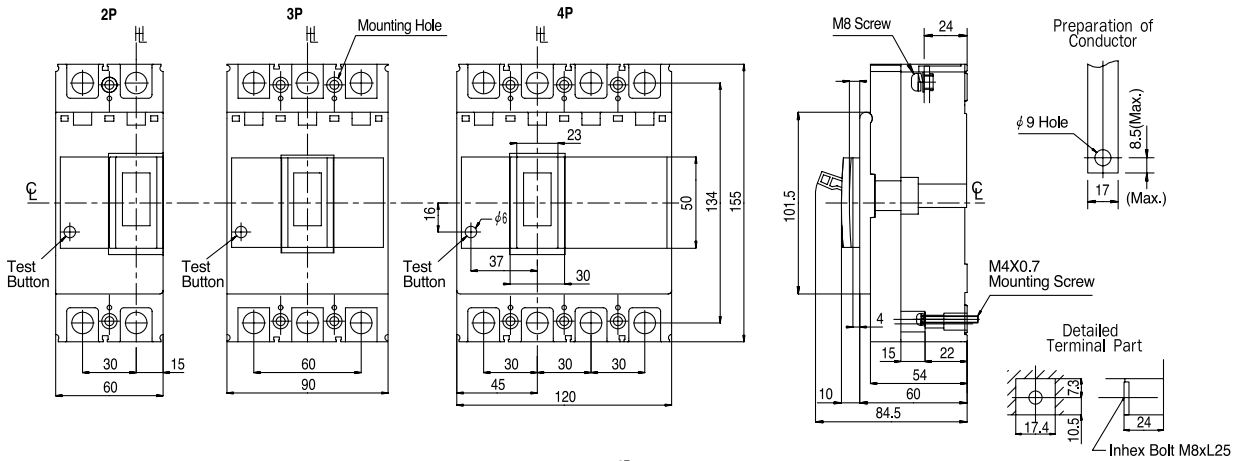
Ambient Compensating Curves



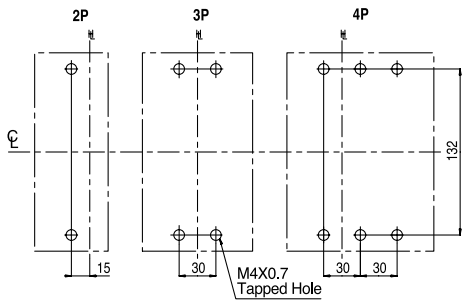
Outline Dimensions

(Unit: mm)

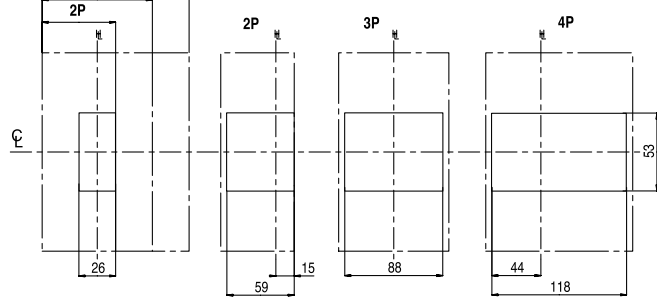
Front-connected



Drilling Plan



Panel Cut-out



⊘ : Center Line

⊥ : Handle Frame Center Line

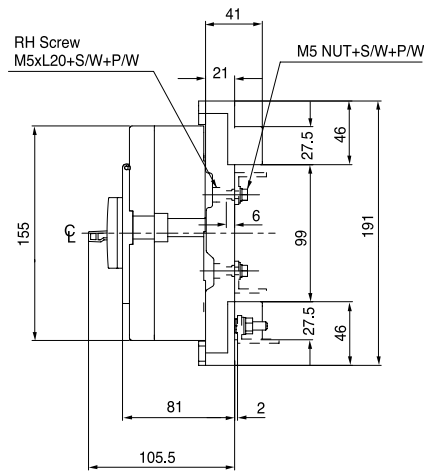
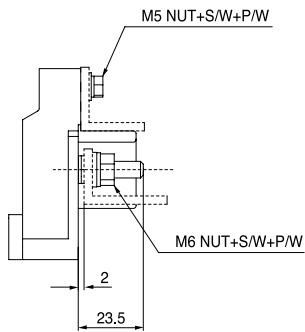
• Panel cut-out dimensions shown give an allowance of 1.5 mm around the handle escutcheon.

Outline Dimensions

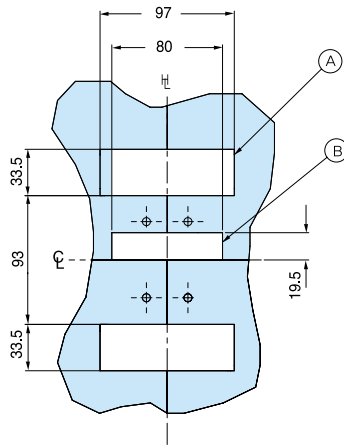
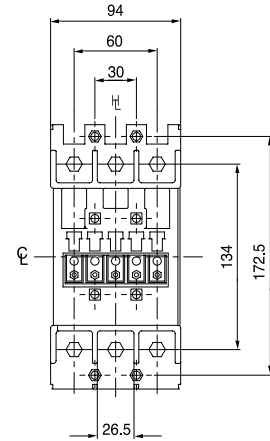
(Unit: mm)

Plug-in Type: TDM-10B

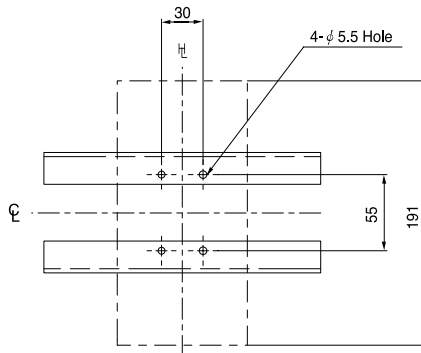
Details for Connection



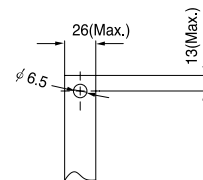
Mounting Block



Drilling Plan



Preparation of Conductor

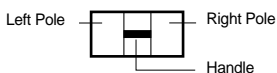


- (A) : Cut-out before assembly of Bus bar
- (B) : It is required when combinations of internally mounted accessories.

⊕ : Center Line    ⊕ : Handle Frame Center Line

Combinations of Internally Mounted Accessories

NO. Pole	AUX Auxiliary Switch	ALT Alarm Switch	SHT Shunt Trip	UVT Under-Voltage Trip	AUX ALT	AUX SHT	AUX UVT	ALT SHT	ALT UVT	AXT SHT	AXT UVT
3											



- AXT equals AUX and ALT.
- AUX, ALT, AXT, SHT, UVT in a 2 pole-type breaker should be installed into the left pole.
- UVT installation in the 2 pole-type breaker that the middle pole of a 3 pole-type breaker is removed is equal to the 3 pole-type breaker.
- Operating voltage of UVT is of DC rated voltage.

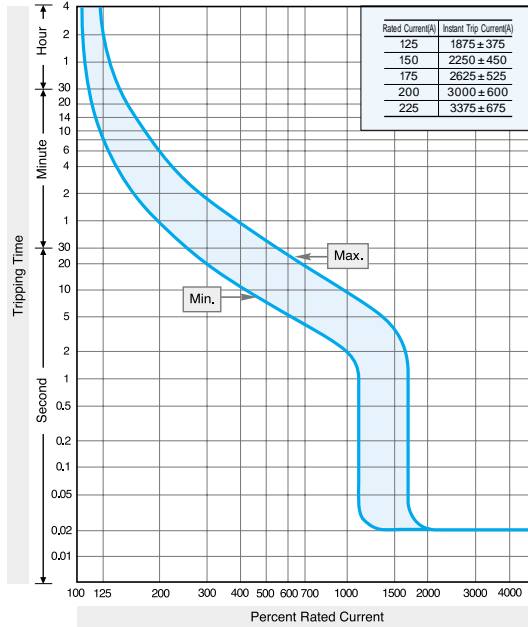


# Characteristic Curve & Dimension | General Type

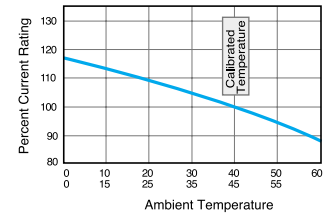


- HiBE 225
- HiBS 225
- HiBH 225
- HiBE 250J
- HiBS 250J
- HiBH 250J

Time-current Characteristic Curves



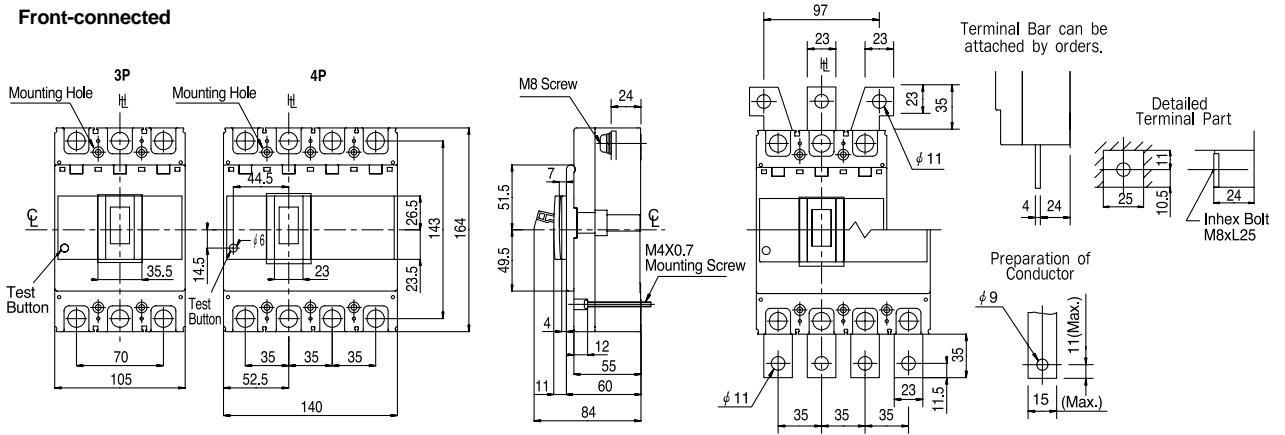
Ambient Compensating Curves



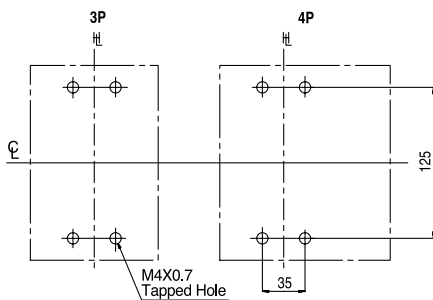
Outline Dimensions

(Unit: mm)

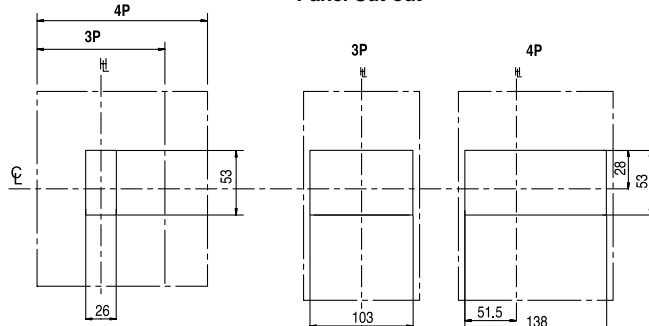
Front-connected



Drilling Plan



Panel Cut-out



⊕ : Center Line    ⊕ : Handle Frame Center Line

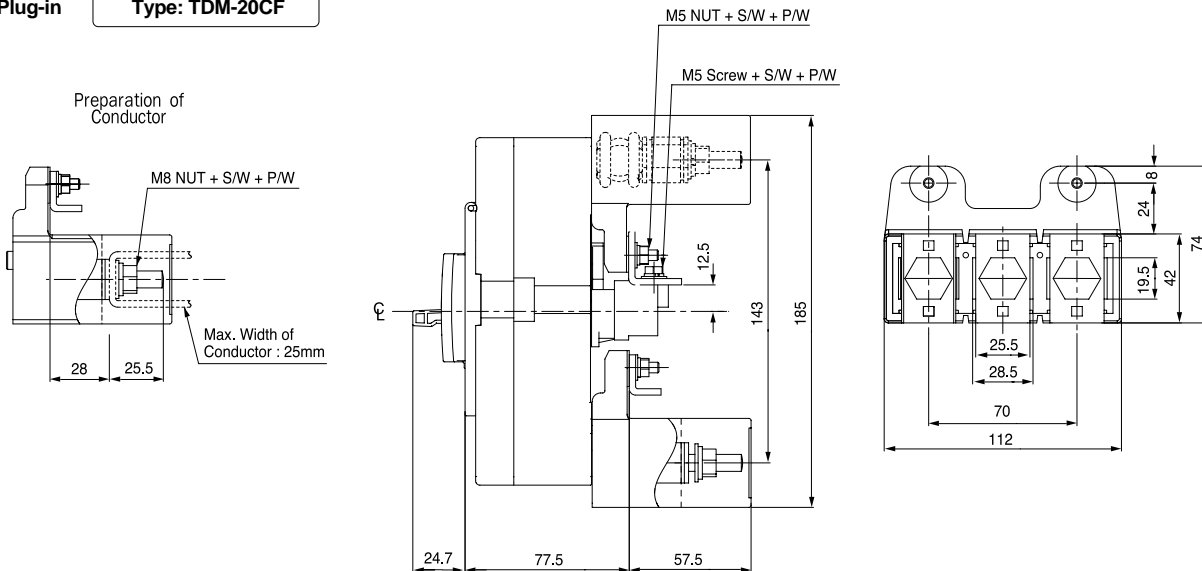
• Panel cut-out dimensions shown give an allowance of 1.5 mm around the handle escutcheon.

Outline Dimensions

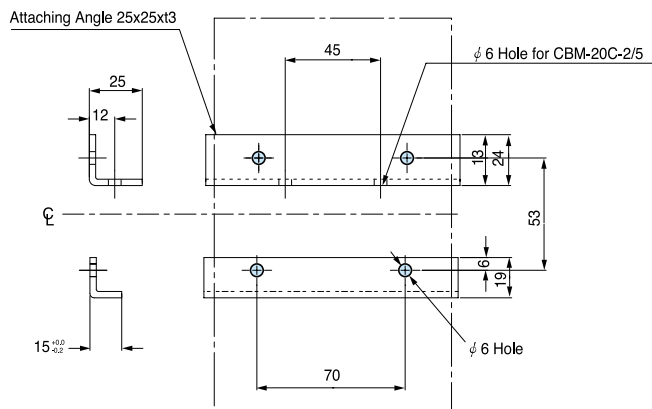
(Unit: mm)

Plug-in

Type: TDM-20CF



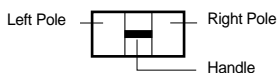
Drilling Plan



⊕ : Center Line    ⊕ : Handle Frame Center Line

Combinations of Internally Mounted Accessories

NO. Pole	AUX Auxiliary Switch	ALT Alarm Switch	SHT Shunt Trip	UVT Under-Voltage Trip	AUX ALT	AUX SHT	AUX UVT	ALT SHT	ALT UVT	AXT SHT	AXT UVT
3											



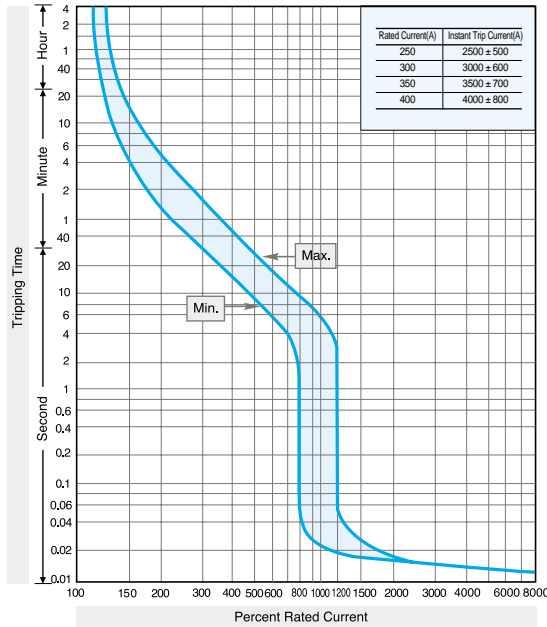
- AXT equals AUX and ALT.
- AUX, ALT, AXT, SHT, UVT in a 2 pole-type breaker should be installed into the left pole.
- UVT installation in the 2 pole-type breaker that the middle pole of a 3 pole-type breaker is removed is equal to the 3 pole-type breaker.
- Operating voltage of UVT is of DC rated voltage.

# Characteristic Curve & Dimension | General Type

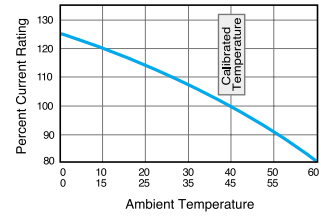


- HiBE 400
- HiBS 400
- HiBH 400
- HiBL 400

Time-current Characteristic Curves



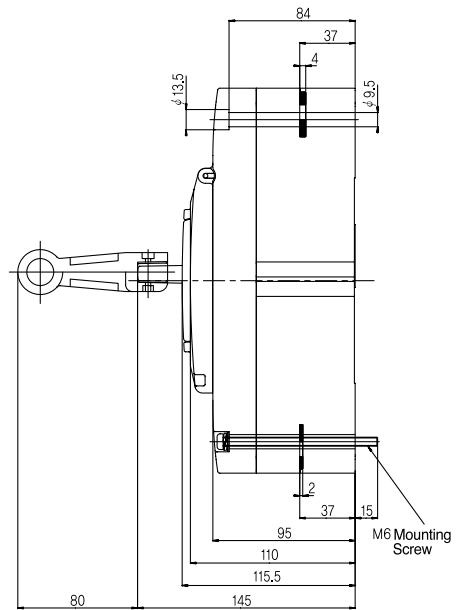
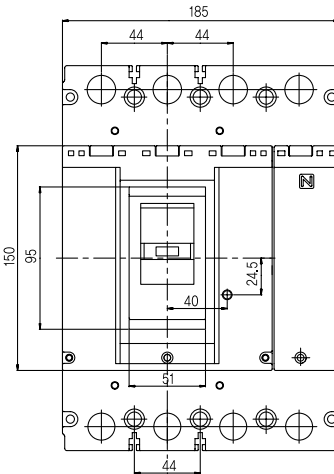
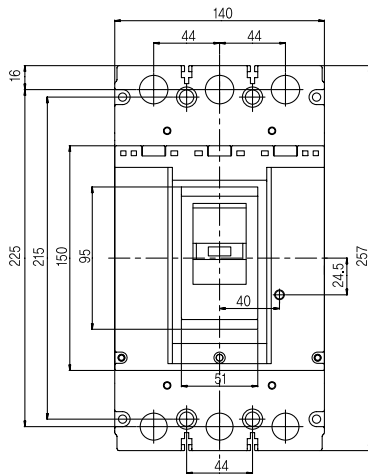
Ambient Compensating Curves



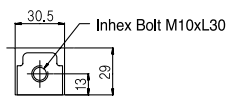
Outline Dimensions

(Unit: mm)

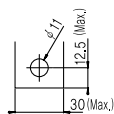
Front-connected



Detailed Terminal Part



Preparation of Conductor



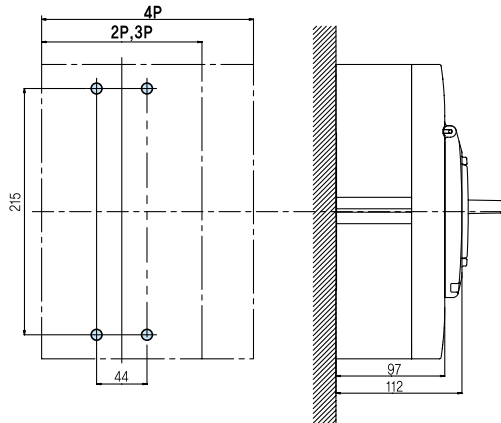
⊘ : Center Line

⊥ : Handle Frame Center Line

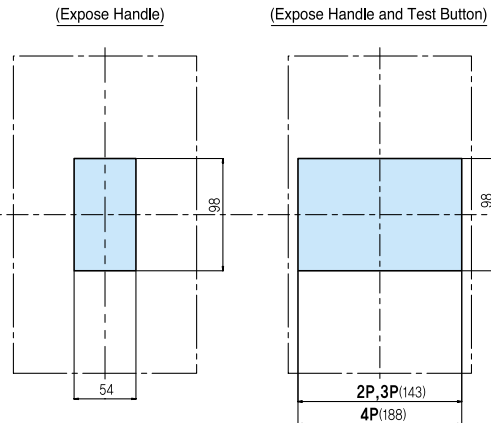
Outline Dimensions

(Unit: mm)

Drilling Plan



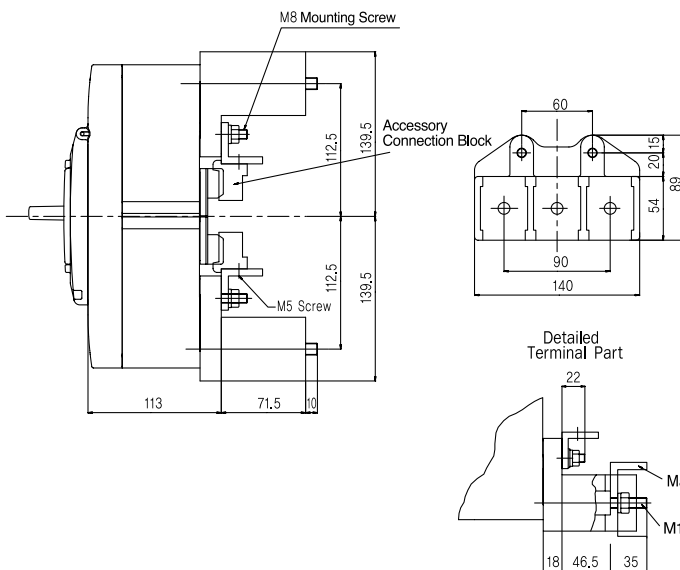
Panel Cut-out



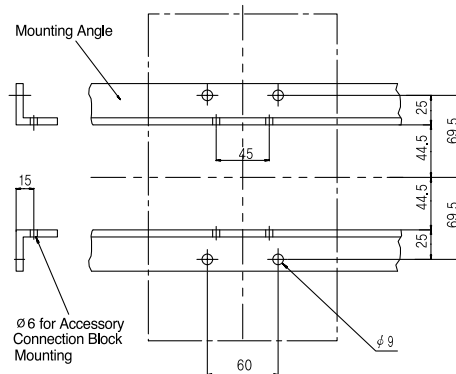
Plug-in

Mtg. block: Type TDM-4BA

Mounting Block



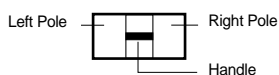
Drilling Plan



⊕ : Center Line    ⊥ : Handle Frame Center Line

Combinations of Internally Mounted Accessories

NO. Pole	AUX Auxiliary Switch	ALT Alarm Switch	SHT Shunt Trip	UVT Under-Voltage Trip	AUX ALT AXT	AUX SHT	AUX UVT	ALT SHT	ALT UVT	AUX   ALT SHT	AUX   ALT UVT
3											



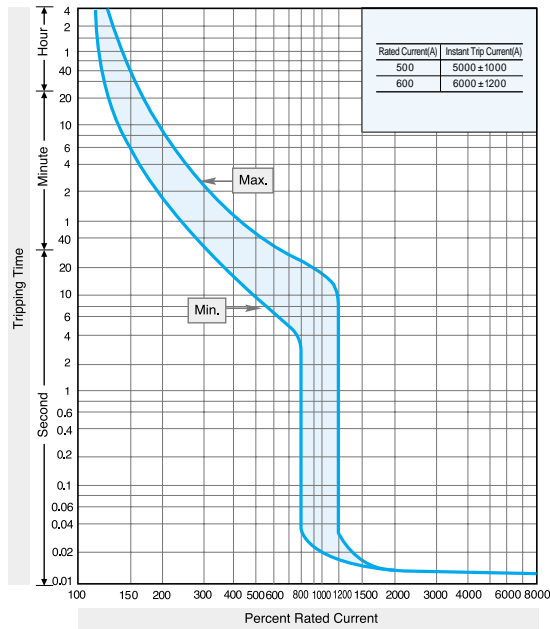
- AXT equals AUX and ALT.
- AUX, ALT, AXT, SHT, UVT in a 2 pole-type breaker should be installed into the left pole.
- UVT installation in the 2 pole-type breaker that the middle pole of a 3 pole-type breaker is removed is equal to the 3 pole-type breaker.
- Operating voltage of UVT is of DC rated voltage.

# Characteristic Curve & Dimension | General Type

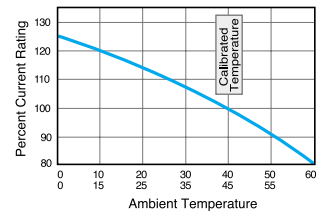


- HIBE 600
- HiBS 600
- HiBH 600
- HiBL 600

Time-current Characteristic Curves



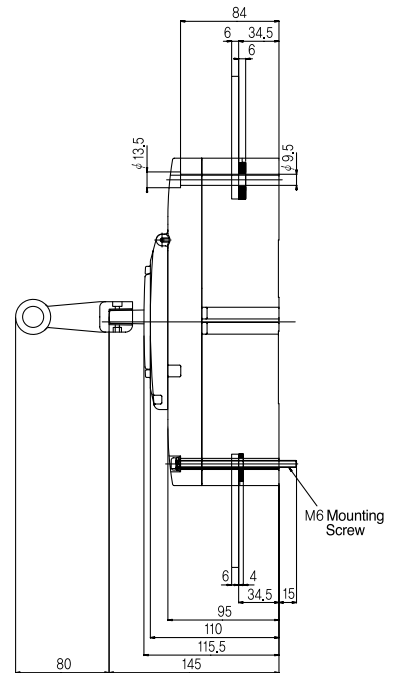
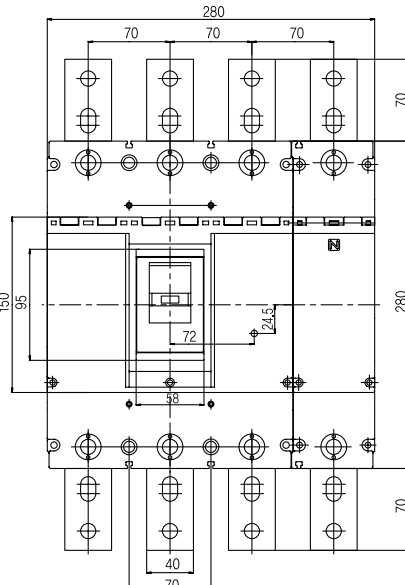
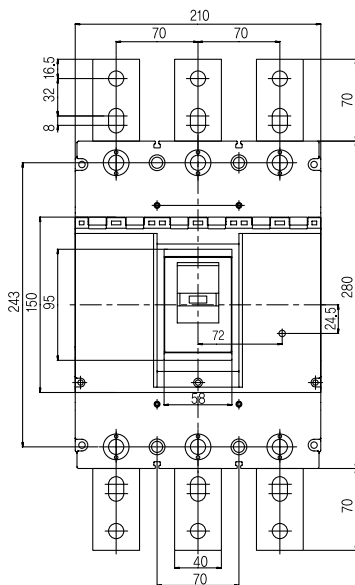
Ambient Compensating Curves



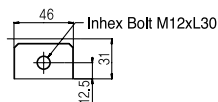
Outline Dimensions

(Unit: mm)

Front-connected



Detailed Terminal Part



Preparation of Conductor



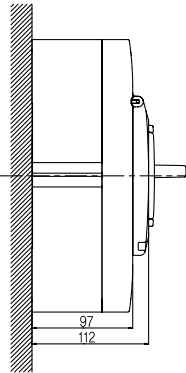
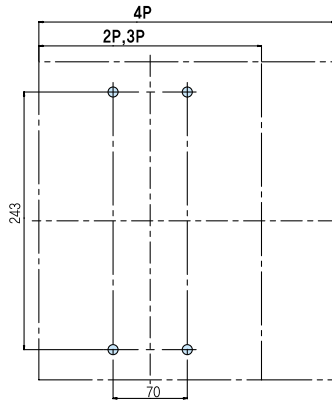
⊕ : Center Line

⊥ : Handle Frame Center Line

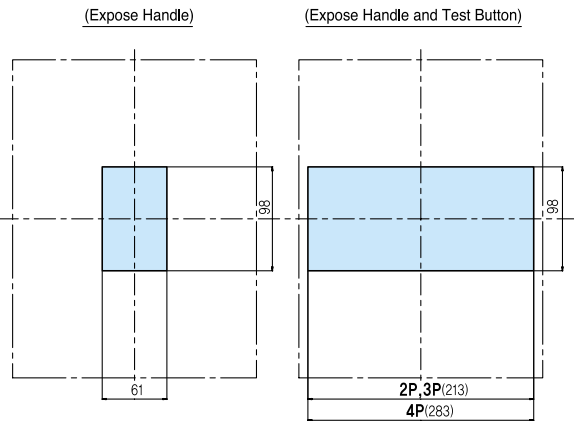
Outline Dimensions

(Unit: mm)

Drilling Plan



Panel Cut-out

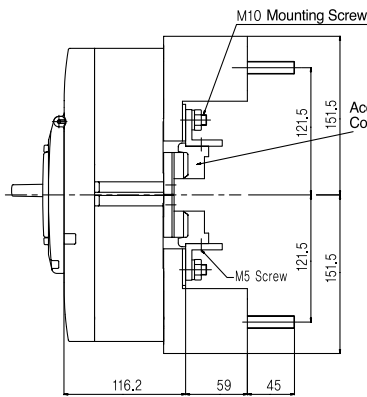


Plug-in

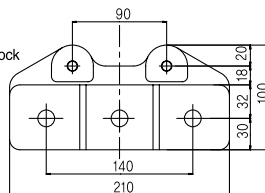
Mtg. block: Type TDM-5BA

Drilling Plan

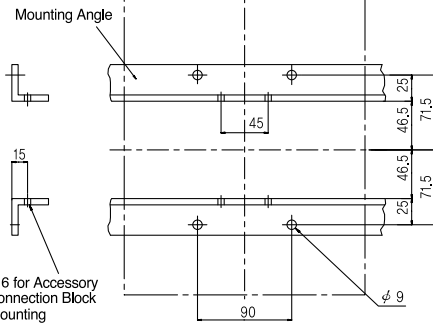
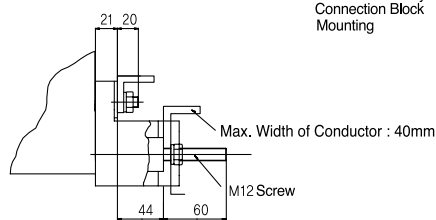
"A" Type(Expose Handle)



Mounting Block



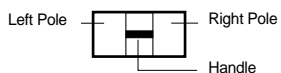
Detailed Terminal Part



⊕ : Center Line    ⊕ : Handle Frame Center Line

Combinations of Internally Mounted Accessories

NO. Pole	AUX Auxiliary Switch	ALT Alarm Switch	SHT Shunt Trip	UVT Under-Voltage Trip	AUX ALT AXT	AUX SHT	AUX UVT	ALT SHT	ALT UVT	AUX   ALT SHT	AUX   ALT UVT
3											



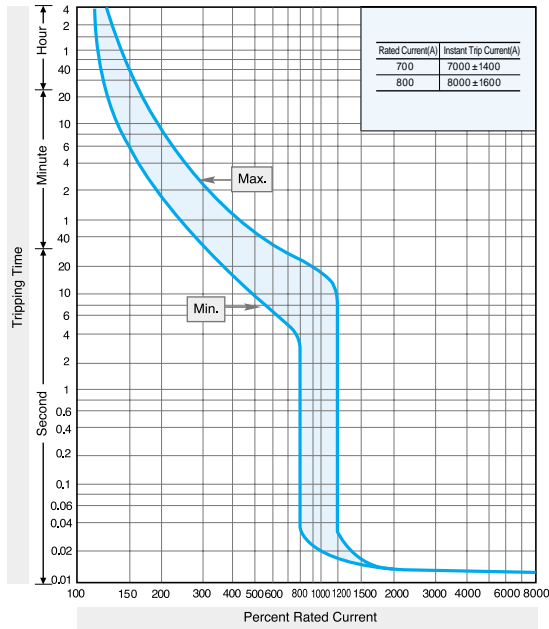
- AXT equals AUX and ALT.
- AUX, ALT, AXT, SHT, UVT in a 2 pole-type breaker should be installed into the left pole.
- UVT installation in the 2 pole-type breaker that the middle pole of a 3 pole-type breaker is removed is equal to the 3 pole-type breaker.
- Operating voltage of UVT is of DC rated voltage.

# Characteristic Curve & Dimension | General Type

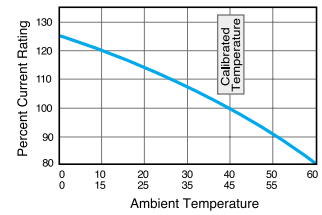


- HiBE 800
- HiBS 800
- HiBH 800
- HiBL 800

Time-current Characteristic Curves



Ambient Compensating Curves

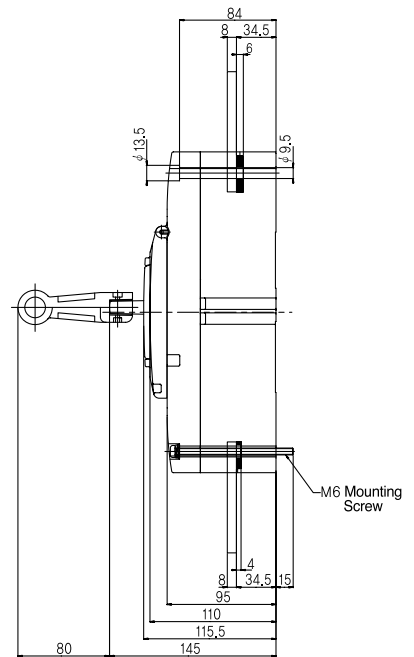
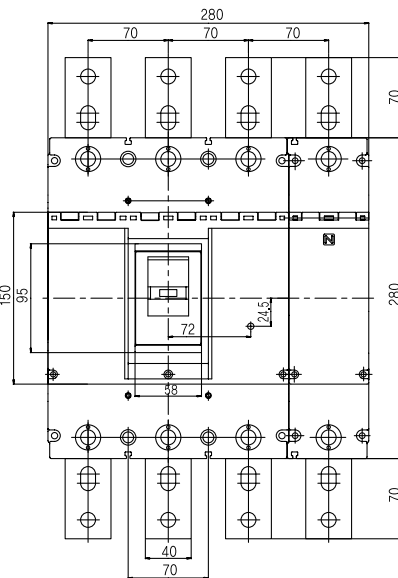
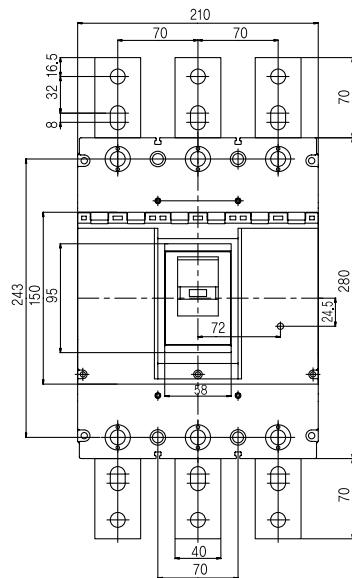


Outline Dimensions

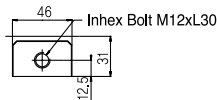
(Unit: mm)

Front-connected

## HiB Series 800



Detailed Terminal Part



Preparation of Conductor



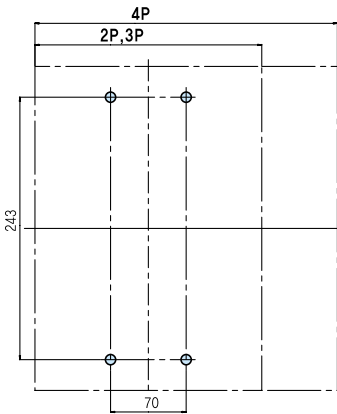
⊘ : Center Line

⊥ : Handle Frame Center Line

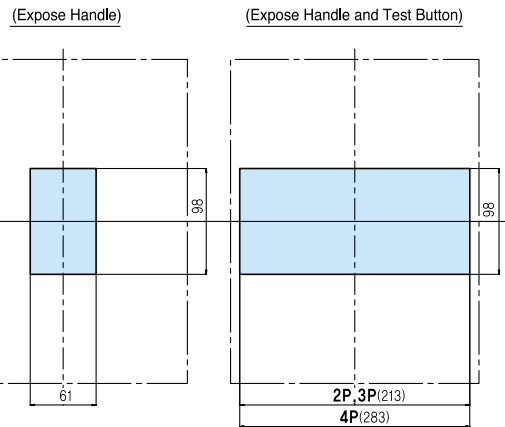
Outline Dimensions

(Unit: mm)

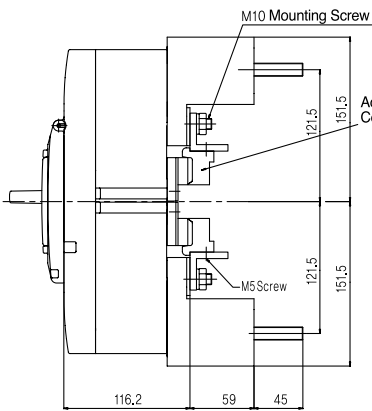
Drilling Plan



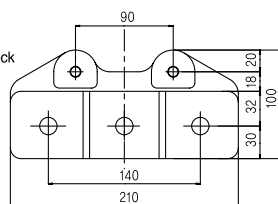
Panel Cut-out



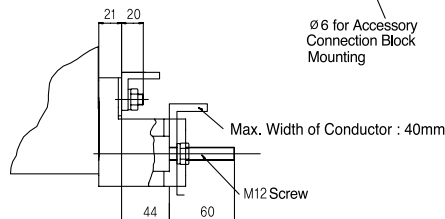
Plug-in **Mtg. block: Type TDM-5BA**



Mounting Block

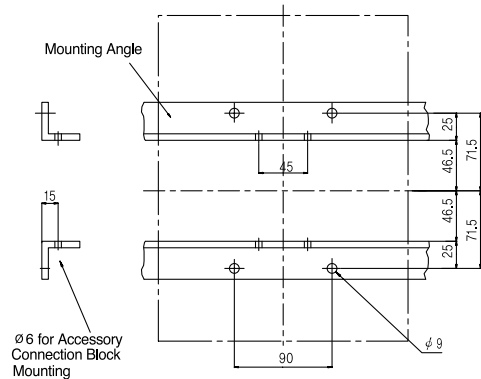


Detailed Terminal Part



Drilling Plan

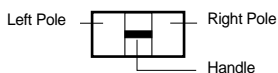
"A" Type (Expose Handle)



⊕ : Center Line    ⊥ : Handle Frame Center Line

Combinations of Internally Mounted Accessories

NO. Pole	AUX Auxiliary Switch	ALT Alarm Switch	SHT Shunt Trip	UVT Under-Voltage Trip	AUX ALT AXT	AUX SHT	AUX UVT	ALT SHT	ALT UVT	AUX   ALT SHT	AUX   ALT UVT
3											



- AXT equals AUX and ALT.
- AUX, ALT, AXT, SHT, UVT in a 2 pole-type breaker should be installed into the left pole.
- UVT installation in the 2 pole-type breaker that the middle pole of a 3 pole-type breaker is removed is equal to the 3 pole-type breaker.
- Operating voltage of UVT is of DC rated voltage.



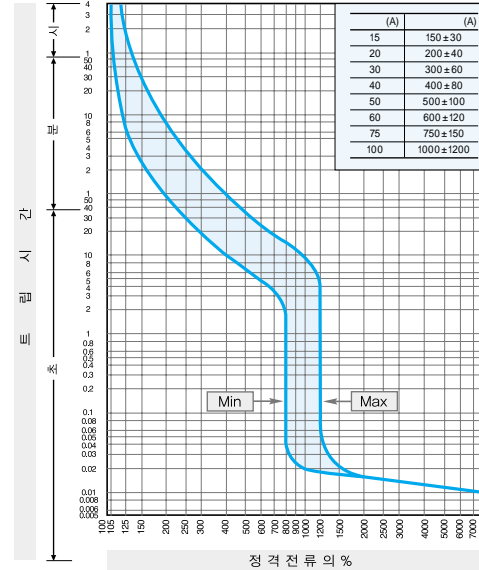
# Characteristic Curve & Dimension | Adjustable Type



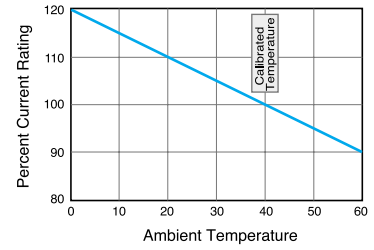
- HiBL 50NT
- HiBL 100NT
- HiBL 225NT
- HiBX 50NT
- HiBX 100NT
- HiBX 225NT

Time-current Characteristic Curves

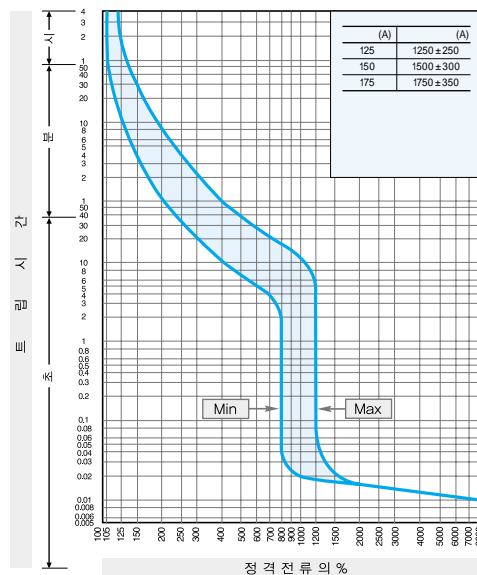
15 ~ 100 A



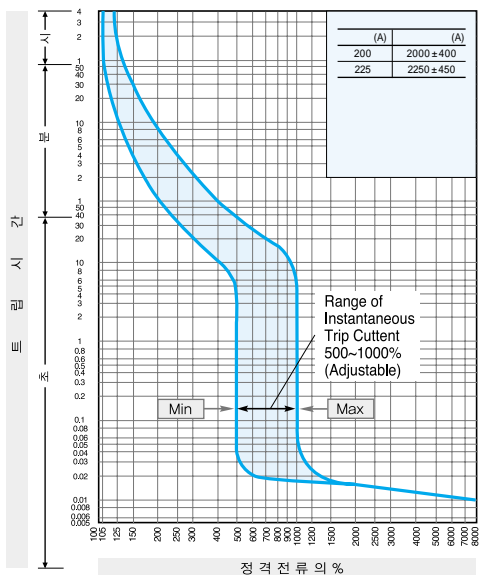
Ambient Compensating Curves



125 ~ 175 A



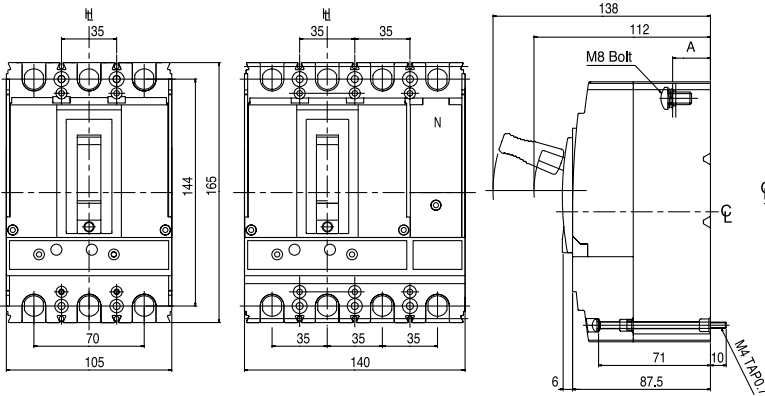
200 ~ 225 A



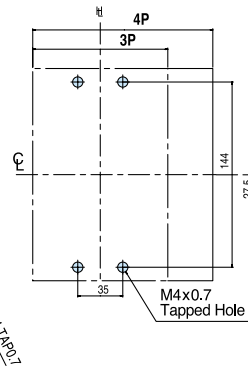
Outline Dimensions

(Unit: mm)

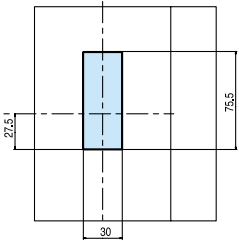
Front-connected



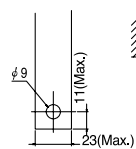
Drilling Plan



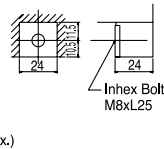
Panel Cut-out



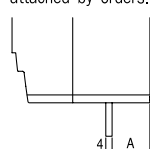
Preparation of Conductor



Detailed Terminal Part



Terminal Bar can be attached by orders.



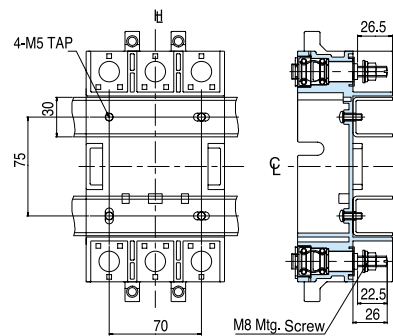
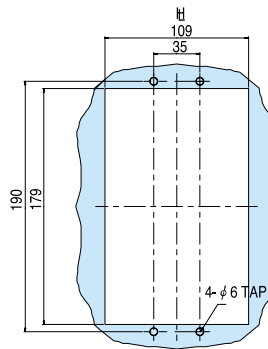
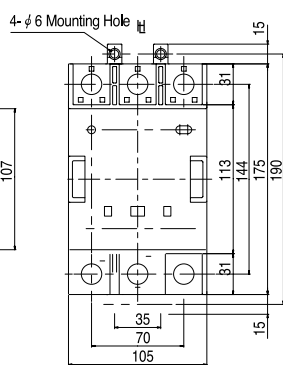
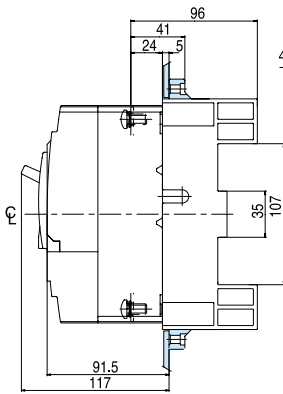
※ A: Terminal Part Height  
Line : 24mm(50/100AF)  
26mm(225AF)  
Load : 24mm(50/100/225AF)

Plug-in

Type: TDM-12NE

Mounting Block

Panel Cut-out



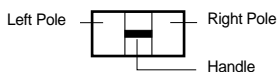
⊕ : Center Line

⊥ : Handle Frame Center Line

• Panel cut-out dimensions shown give an allowance of 1.5 mm around the handle escutcheon.

Combinations of Internally Mounted Accessories

NO. Pole	AUX Auxiliary Switch	ALT Alarm Switch	SHT Shunt Trip	UVT Under-Voltage Trip	AUX ALT	AUX SHT	AUX UVT	ALT SHT	ALT UVT	AXT SHT	AXT UVT
3											



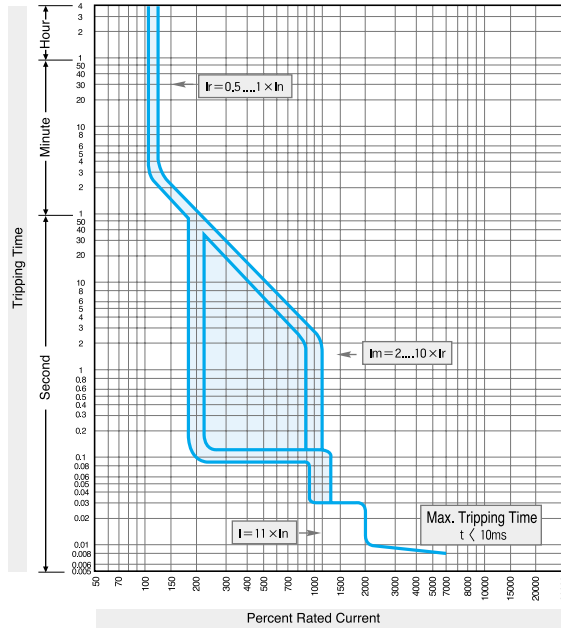
- AXT equals AUX and ALT.  
- AUX, ALT, AXT, SHT, UVT in a 2 pole-type breaker should be installed into the left pole.  
- UVT installation in the 2 pole-type breaker that the middle pole of a 3 pole-type breaker is removed is equal to the 3 pole-type breaker.

# Characteristic Curve & Dimension | Adjustable Type



- HIBL 50NE
- HIBL 100NE
- HIBL 225NE

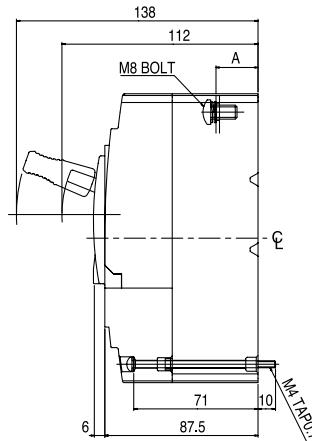
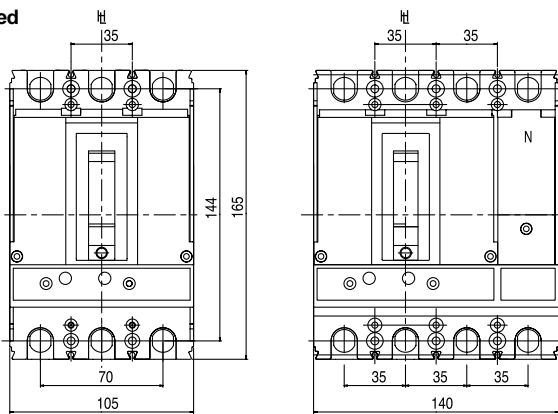
Time-current Characteristic Curves / 40 ~ 225 A



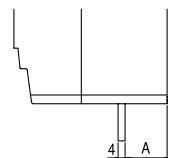
Outline Dimensions

(Unit: mm)

Front-connected

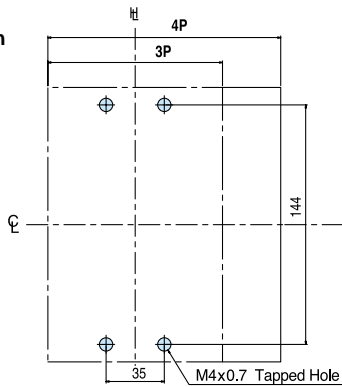


Terminal Bar can be attached by orders.

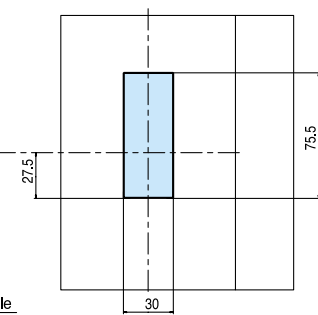


\* A: Terminal Part Height  
 Line : 24mm(50/100AF)  
 26mm(225AF)  
 Load : 24mm(50/100/225AF)

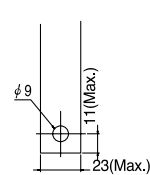
Drilling Plan



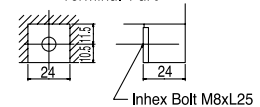
Panel Cut-out



Preparation of Conductor



Detailed Terminal Part



CL : Center Line

HL : Handle Frame Center Line

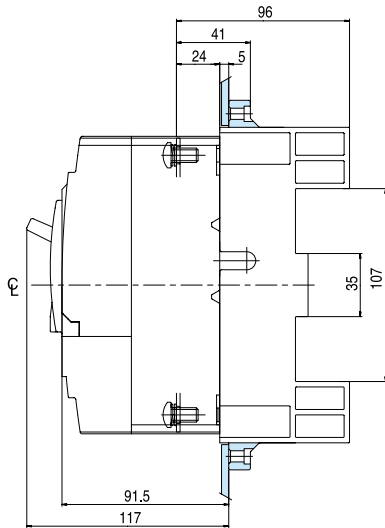
• Panel cut-out dimensions shown give an allowance of 1.5 mm around the handle escutcheon.

Outline Dimensions

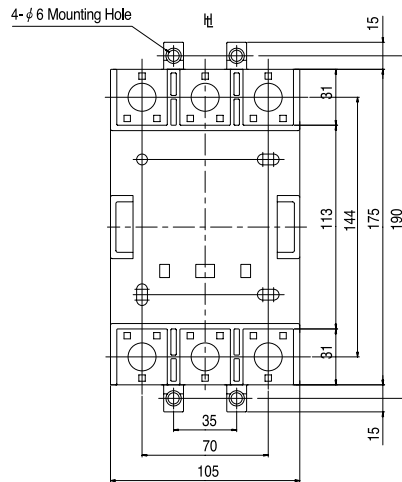
(Unit: mm)

Plug-in

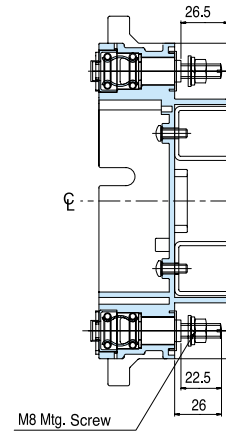
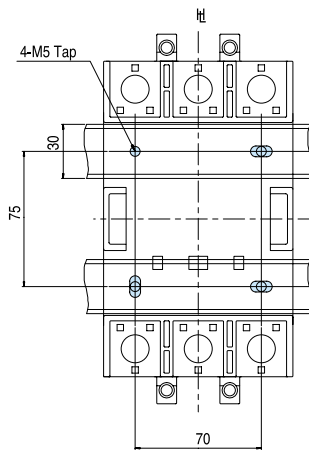
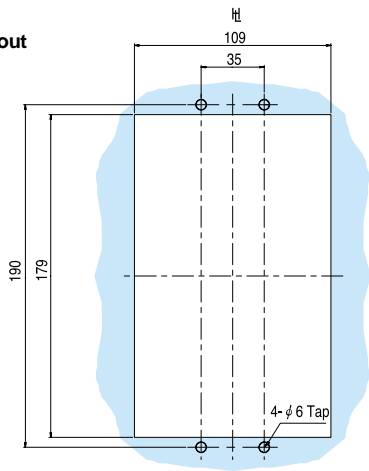
Type: TDM-12NE



Mounting Block



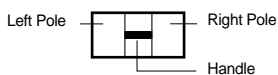
Panel Cut-out



☉ : Center Line    H : Handle Frame Center Line

Combinations of Internally Mounted Accessories

NO. Pole	AUX Auxiliary Switch	ALT Alarm Switch	SHT Shunt Trip	UVT Under-Voltage Trip	AUX ALT	AUX SHT	AUX UVT	ALT SHT	ALT UVT	AXT SHT	AXT UVT
3											



- AXT equals AUX and ALT.  
 - AUX, ALT, AXT, SHT, UVT in a 2 pole-type breaker should be installed into the left pole.  
 - UVT installation in the 2 pole-type breaker that the middle pole of a 3 pole-type breaker is removed is equal to the 3 pole-type breaker.

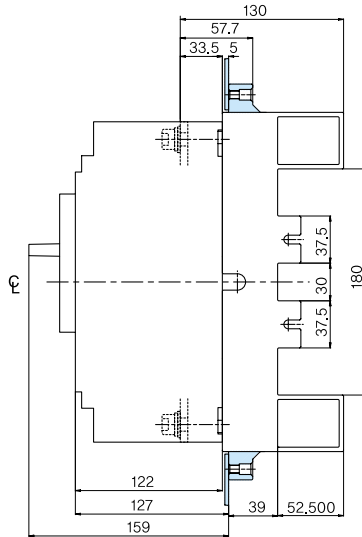


Outline Dimensions

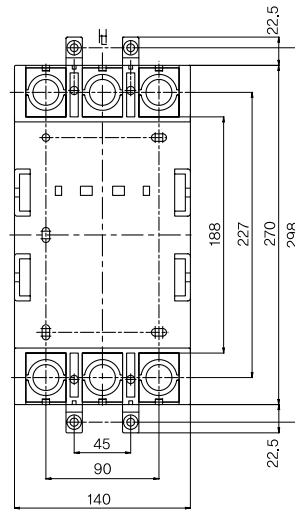
(Unit: mm)

Plug-in

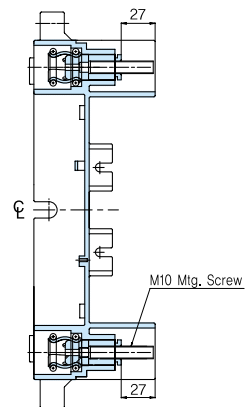
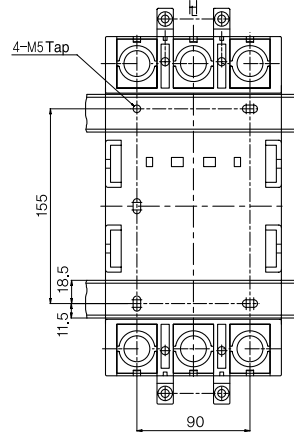
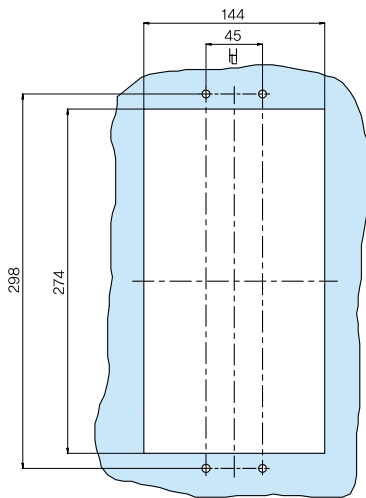
Type: TDM-46NE



Mounting Block



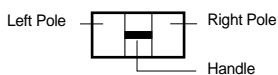
Panel Cut-out



☐ : Center Line    ≡ : Handle Frame Center Line

Combinations of Internally Mounted Accessories

NO. Pole	AUX Auxiliary Switch	ALT Alarm Switch	SHT Shunt Trip	UVT Under-Voltage Trip	AUX ALT	AUX SHT	AUX UVT	ALT SHT	ALT UVT	AXT SHT	AXT UVT
3											



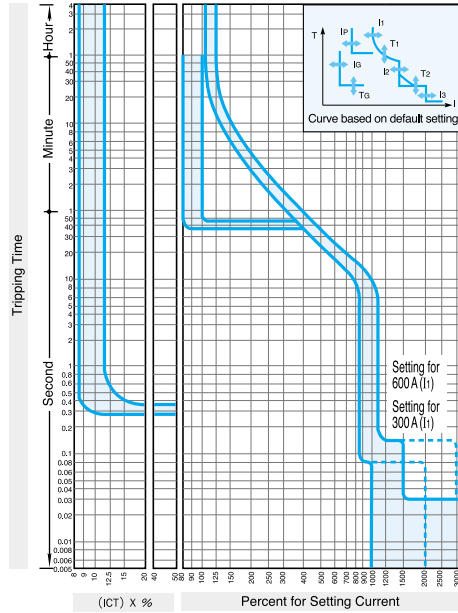
- AXT equals AUX and ALT.
- AUX, ALT, AXT, SHT, UVT in a 2 pole-type breaker should be installed into the left pole.
- UVT installation in the 2 pole-type breaker that the middle pole of a 3 pole-type breaker is removed is equal to the 3 pole-type breaker.

# Characteristic Curve & Dimension | Adjustable Type



- HIBS 600NE
- HiBL 600NE
- HiBX 600NE

Time-current Characteristic Curves / 302 ~ 600 A



Over Current Characteristic

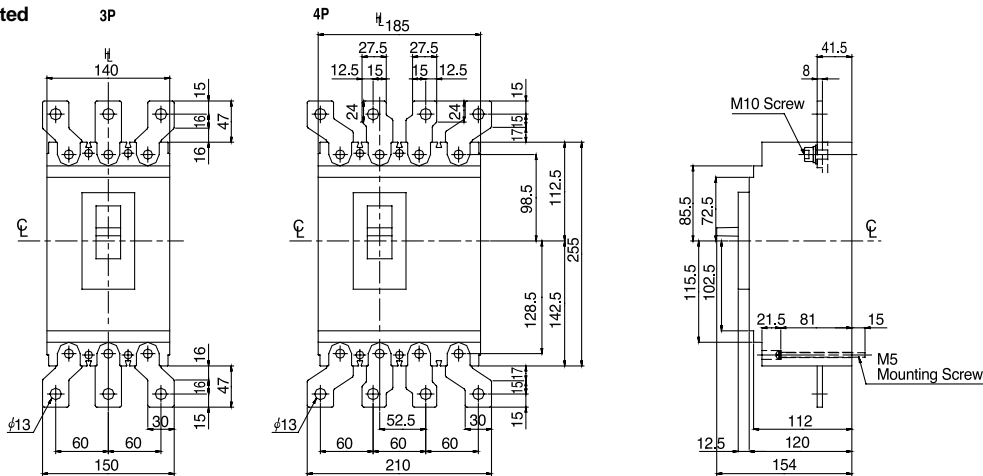
CT Rated Current (A): (I <sub>CT</sub> )	600
Setting Rated Current (A): (I <sub>1</sub> ) (Adjustable)	302, 320, 340, 360, 380, 385, 410, 430, 455, 480, 510, 540, 570, 600
Trip Time for Long Time Trip (S): (T <sub>1</sub> )	Adjustable 5, 10, 15, 20, 30 sec. for (I <sub>1</sub> )x600 % current Tolerance ± 20 %
Setting Current for Short Time Trip (A): (I <sub>2</sub> )	Adjustable (I <sub>1</sub> )x200, 400, 600, 800, 1000 % Tolerance ± 15 %
Setting Time for Short Time Trip (S): (T <sub>2</sub> )	Adjustable 0.1, 0.2, 0.3 sec. for the definite time trip characteristic. Trip range is between (setting time -20 ms) and (setting time +50 ms)
Setting Current for Instantaneous (A): (I <sub>3</sub> )	Adjustable (I <sub>CT</sub> )x300, 600, 800, 1000, 1200 % Tolerance ± 20 %
Setting Current for Ground Fault Trip (A): (I <sub>3</sub> )	Adjustable (I <sub>CT</sub> )x0.1, 0.2, 0.3, 0.4 Tolerance ± 15 %
Setting Time for Ground Fault Trip (S): (T <sub>3</sub> )	Adjustable 0.1, 0.2, 0.3, 0.4, 0.8 sec. for the definite time trip characteristic Trip range is between (setting time -20 ms) and (setting time +50 ms)
Setting Current for PTA (A): (I <sub>3</sub> ) <sup>Option</sup>	(I <sub>1</sub> )x90 % Tolerance ± 10 %
Setting Time for PTA (S): (T <sub>3</sub> ) <sup>Option</sup>	Definite time trip characteristic of 40 sec. Tolerance ± 10 %

" " is default setting. If required, please adjust the setting according to "adjustable table".

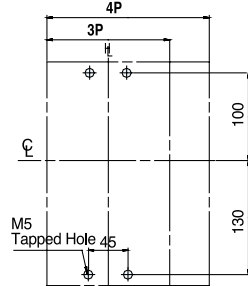
Outline Dimensions

(Unit: mm)

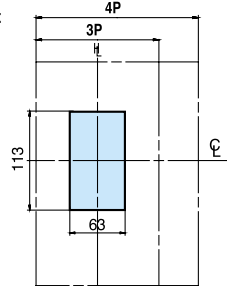
Front-connected



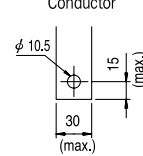
Drilling Plan



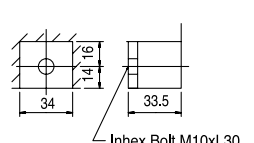
Panel Cut-out



Preparation of Conductor



Detailed Terminal Part



⊕ : Center Line    ⊕ : Handle Frame Center Line

• Panel cut-out dimensions shown give an allowance of 1.5 mm around the handle escutcheon.

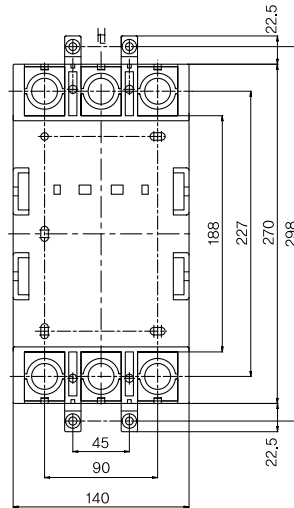
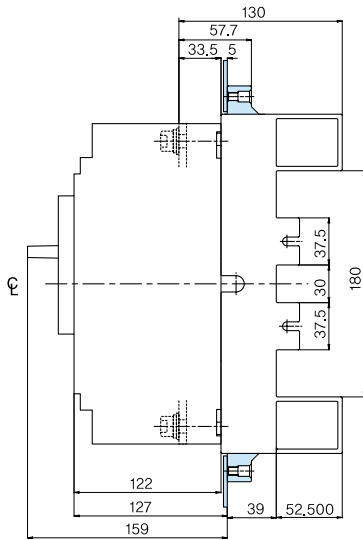
Outline Dimensions

(Unit: mm)

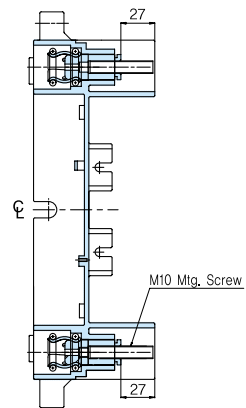
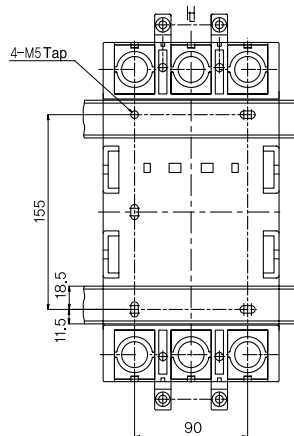
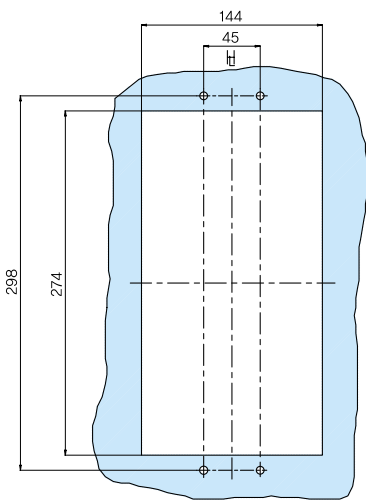
Plug-in

Type: TDM-46NE

Mounting Block



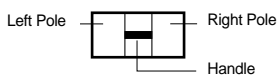
Panel Cut-out



☐ : Center Line    ☐ : Handle Frame Center Line

Combinations of Internally Mounted Accessories

NO. Pole	AUX Auxiliary Switch	ALT Alarm Switch	SHT Shunt Trip	UVT Under-Voltage Trip	AUX ALT	AUX SHT	AUX UVT	ALT SHT	ALT UVT	AXT SHT	AXT UVT
3											



- AXT equals AUX and ALT.  
 - AUX, ALT, AXT, SHT, UVT in a 2 pole-type breaker should be installed into the left pole.  
 - UVT installation in the 2 pole-type breaker that the middle pole of a 3 pole-type breaker is removed is equal to the 3 pole-type breaker.

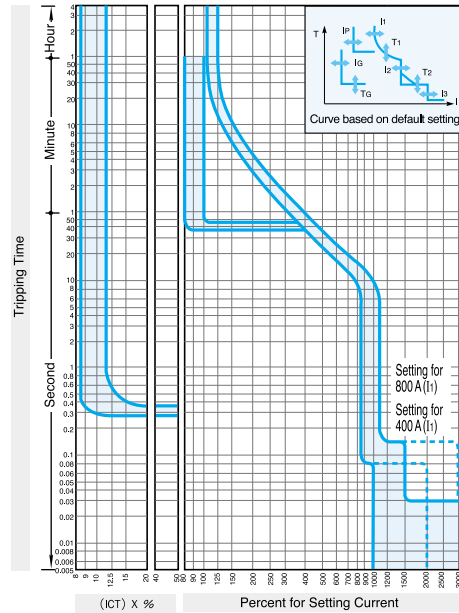


# Characteristic Curve & Dimension | Adjustable Type



- HiBS 800NE
- HiBL 800NE
- HiBX 800NE

Time-current Characteristic Curves / 405 ~ 800 A



Over Current Characteristic

CT Rated Current (A): (I <sub>CT</sub> )	800
Setting Rated Current (A): (I <sub>1</sub> ) (Adjustable)	405, 430, 455, 480, 505, 510, 545, 575, 610, 640, 680, 720, 760, 800
Trip Time for Long Time Trip (S): (T <sub>1</sub> )	Adjustable 5, 10, 15, 20, 30 sec. for (I <sub>1</sub> )x600 % current Tolerance ± 20 %
Setting Current for Short Time Trip (A): (I <sub>2</sub> )	Adjustable (I <sub>1</sub> )x200, 400, 600, 800, 1000 % Tolerance ± 15 %
Setting Time for Short Time Trip (S): (T <sub>2</sub> )	Adjustable 0.1, 0.2, 0.3 sec. for the definite time trip characteristic. Trip range is between (setting time -20 ms) and (setting time +50 ms)
Setting Current for Instantaneous (A): (I <sub>3</sub> )	Adjustable (I <sub>CT</sub> )x300, 600, 800, 1000, 1200 % Tolerance ± 20 %
Setting Current for Ground Fault Trip (A): (I <sub>3</sub> )	Adjustable (I <sub>CT</sub> )x0.1, 0.2, 0.3, 0.4 Tolerance ± 15 %
Setting Time for Ground Fault Trip (S): (T <sub>3</sub> )	Adjustable 0.1, 0.2, 0.3, 0.4, 0.8 sec. for the definite time trip characteristic Trip range is between (setting time -20 ms) and (setting time +50 ms)
Setting Current for PTA (A): (I <sub>3</sub> ) <sup>Option</sup>	(I <sub>1</sub> )x90 % Tolerance ± 10 %
Setting Time for PTA (S): (T <sub>3</sub> ) <sup>Option</sup>	Definite time trip characteristic of 40 sec. Tolerance ± 10 %

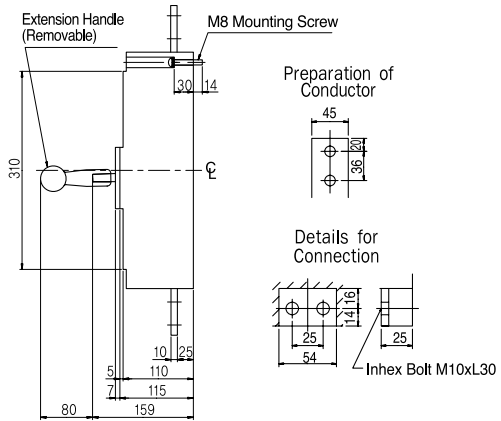
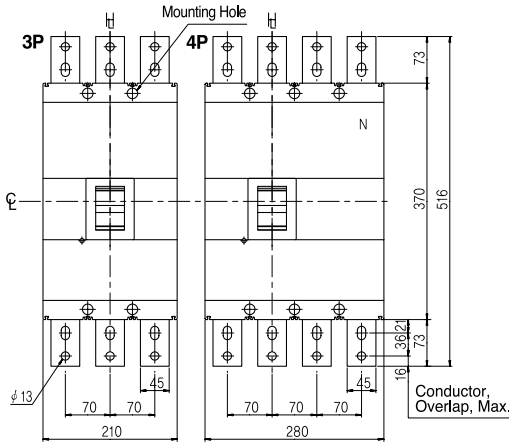
" " is default setting. If required, please adjust the setting according to "adjustable table".

Outline Dimensions

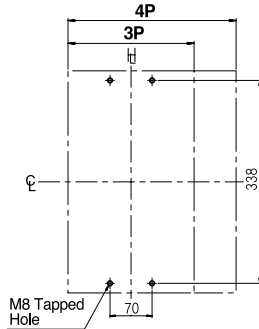
(Unit: mm)

Front-connected

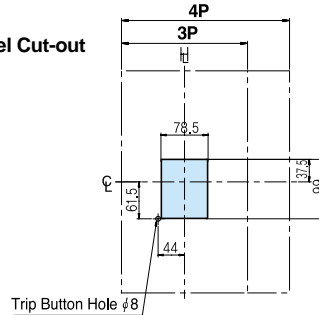
HiBS 800NE, HiBL 800NE



Drilling Plan



Panel Cut-out



⊕ : Center Line

⊥ : Handle Frame Center Line

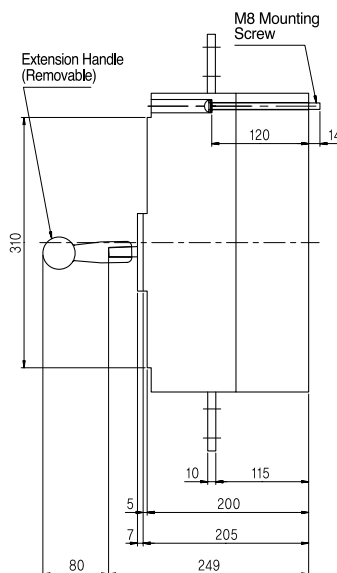
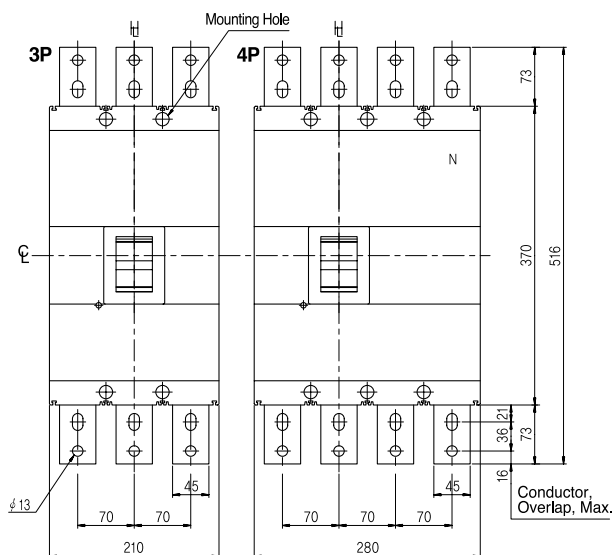
• Panel cut-out dimensions shown give an allowance of 1.5 mm around the handle escutcheon.

Outline Dimensions

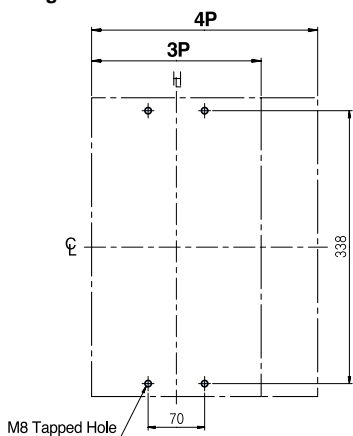
(Unit: mm)

Front-connected

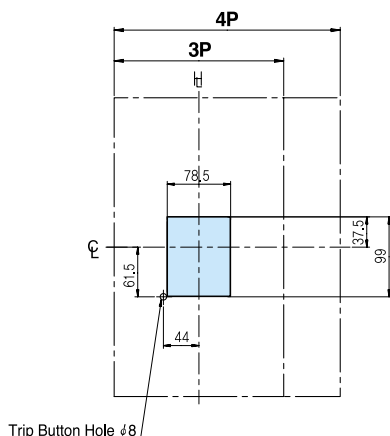
HiBX 800NE



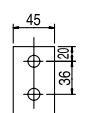
Drilling Plan



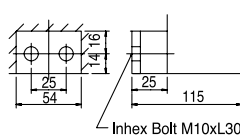
Panel Cut-out



Preparation of Conductor



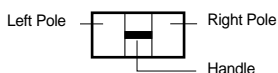
Detailed Terminal Part



☐ : Center Line    | | : Handle Frame Center Line    • Panel cut-out dimensions shown give an allowance of 1.5 mm around the handle escutcheon.

Combinations of Internally Mounted Accessories

NO. Pole	AUX Auxiliary Switch	ALT Alarm Switch	SHT Shunt Trip	UVT Under-Voltage Trip	AUX ALT	AUX SHT	AUX UVT	ALT SHT	ALT UVT	AXT SHT	AXT UVT
3											



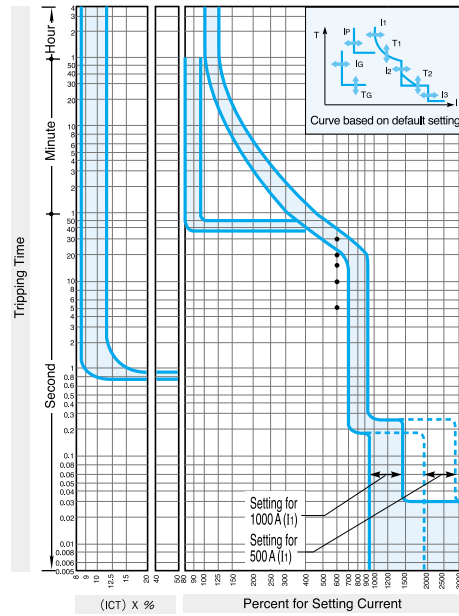
- AXT equals AUX and ALT.  
- AUX, ALT, AXT, SHT, UVT in a 2 pole-type breaker should be installed into the left pole.  
- UVT installation in the 2 pole-type breaker that the middle pole of a 3 pole-type breaker is removed is equal to the 3 pole-type breaker.

# Characteristic Curve & Dimension | Adjustable Type



- HiBS 1000NE
- HiBL 1000NE

Time-current Characteristic Curves / 505 ~ 1000 A



Over Current Characteristic

CT Rated Current (A): (I <sub>CT</sub> )	1000
Setting Rated Current (A): (I <sub>1</sub> ) (Adjustable)	505, 535, 565, 580, 600, 630, 640, 680, 720, 760, 800, 850, 900, 950, 1000
Trip Time for Long Time Trip (S): (T <sub>1</sub> )	Adjustable 5, 10, 15, 20, 30 sec. for (I <sub>1</sub> )x600 % current Tolerance ± 20 %
Setting Current for Short Time Trip (A): (I <sub>2</sub> )	Adjustable (I <sub>1</sub> )x200, 400, 600, 800, 1000 % Tolerance ± 15 %
Setting Time for Short Time Trip (S): (T <sub>2</sub> )	Adjustable 0.1, 0.2, 0.3 sec. for the definite time trip characteristic. Trip range is between (setting time -20 ms) and (setting time +50 ms)
Setting Current for Instantaneous (A): (I <sub>3</sub> )	Adjustable (I <sub>CT</sub> )x300, 600, 800, 1000, 1200 % Tolerance ± 20 %
Setting Current for Ground Fault Trip (A): (I <sub>3</sub> )	Adjustable (I <sub>CT</sub> )x0.1, 0.2, 0.3, 0.4 Tolerance ± 15 %
Setting Time for Ground Fault Trip (S): (T <sub>3</sub> )	Adjustable 0.1, 0.2, 0.3, 0.4, 0.8 sec. for the definite time trip characteristic Trip range is between (setting time -20 ms) and (setting time +50 ms)
Setting Current for PTA (A): (I <sub>3</sub> ) <sup>Option</sup>	(I <sub>1</sub> )x90 % Tolerance ± 10 %
Setting Time for PTA (S): (T <sub>3</sub> ) <sup>Option</sup>	Definite time trip characteristic of 40 sec. Tolerance ± 10 %

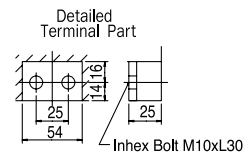
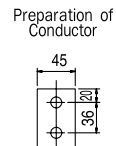
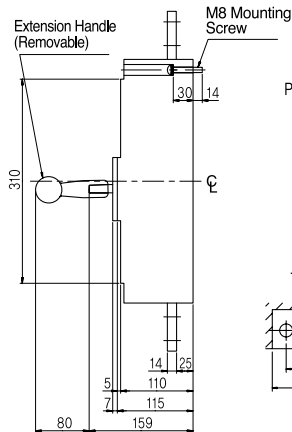
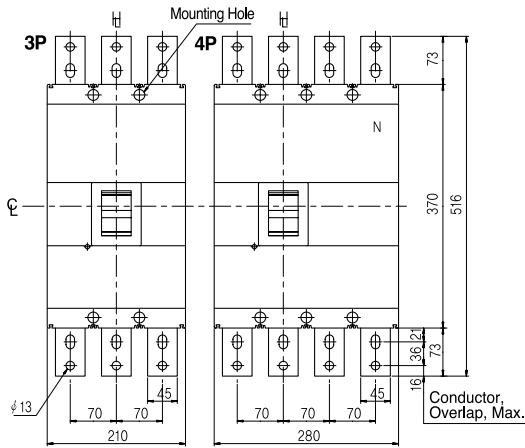
" " is default setting. If required, please adjust the setting according to "adjustable table".

Outline Dimensions

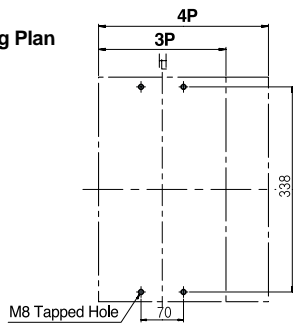
(Unit: mm)

Front-connected

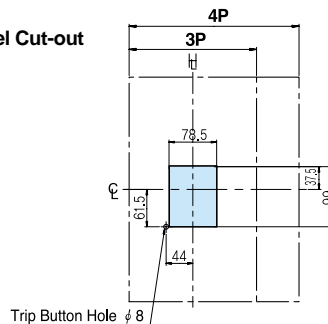
HiBS 1000NE



Drilling Plan



Panel Cut-out



⊕ : Center Line

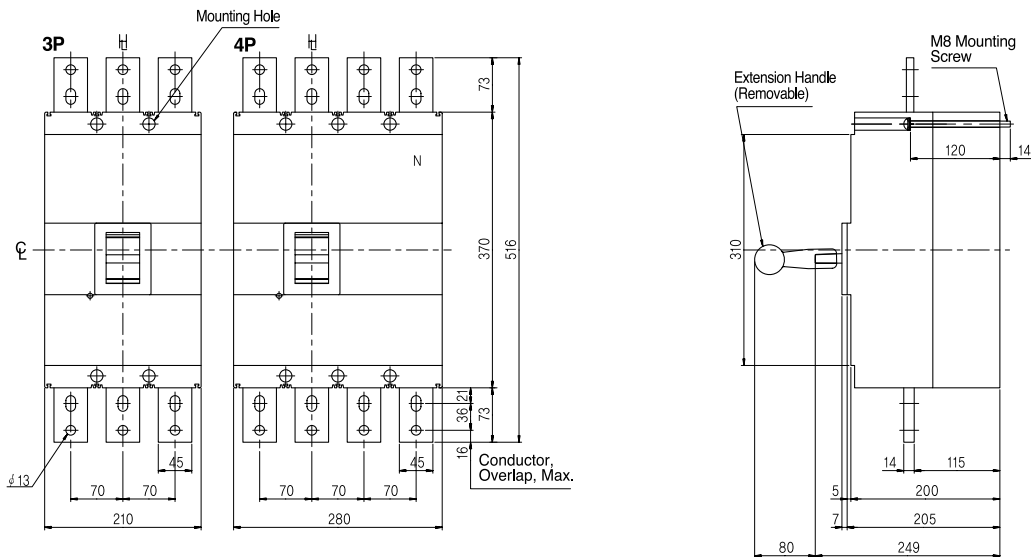
⊥ : Handle Frame Center Line

• Panel cut-out dimensions shown give an allowance of 1.5 mm around the handle escutcheon.

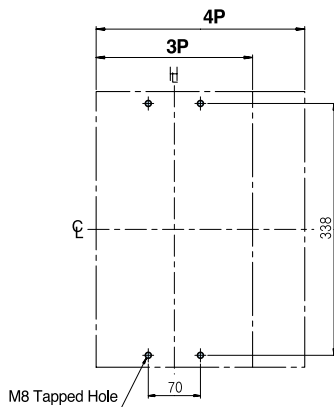
Outline Dimensions

(Unit: mm)

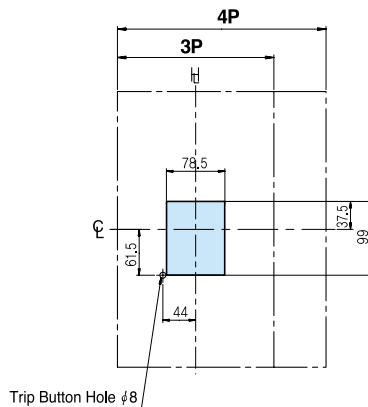
Front-connected **HiBL 100NE**



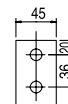
Drilling Plan



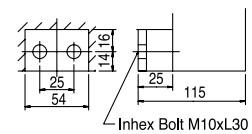
Panel Cut-out



Preparation of Conductor



Detailed Terminal Part



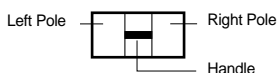
☉ : Center Line

⊥ : Handle Frame Center Line

• Panel cut-out dimensions shown give an allowance of 1.5 mm around the handle escutcheon.

Combinations of Internally Mounted Accessories

NO. Pole	AUX Auxiliary Switch	ALT Alarm Switch	SHT Shunt Trip	UVT Under-Voltage Trip	AUX ALT	AUX SHT	AUX UVT	ALT SHT	ALT UVT	AXT SHT	AXT UVT
3											



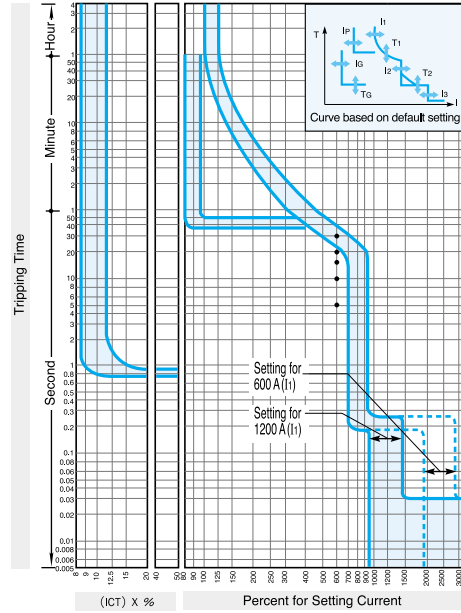
- AXT equals AUX and ALT.
- AUX, ALT, AXT, SHT, UVT in a 2 pole-type breaker should be installed into the left pole.
- UVT installation in the 2 pole-type breaker that the middle pole of a 3 pole-type breaker is removed is equal to the 3 pole-type breaker.

# Characteristic Curve & Dimension | Adjustable Type



- HiBS 1200NE
- HiBL 1200NE

Time-current Characteristic Curves / 605 ~ 1200 A



Over Current Characteristic

CT Rated Current (A): (I <sub>CT</sub> )	1200
Setting Rated Current (A): (I <sub>1</sub> ) (Adjustable)	605, 645, 680, 720, 755, 770, 815, 865, 910, 960, 1020, 1080, 1140, 1200
Trip Time for Long Time Trip (S): (T <sub>1</sub> )	Adjustable 5, 10, 15, 20, 30 sec. for (I <sub>1</sub> )x600 % current Tolerance ± 20 %
Setting Current for Short Time Trip (A): (I <sub>2</sub> )	Adjustable (I <sub>1</sub> )x200, 400, 600, 800, 1000 % Tolerance ± 15 %
Setting Time for Short Time Trip (S): (T <sub>2</sub> )	Adjustable 0.1, 0.2, 0.3 sec. for the definite time trip characteristic. Trip range is between (setting time -20 ms) and (setting time +50 ms)
Setting Current for Instantaneous (A): (I <sub>3</sub> )	Adjustable (I <sub>CT</sub> )x300, 600, 800, 1000, 1200 % Tolerance ± 20 %
Setting Current for Ground Fault Trip (A): (I <sub>3</sub> )	Adjustable (I <sub>CT</sub> )x0.1, 0.2, 0.3, 0.4 Tolerance ± 15 %
Setting Time for Ground Fault Trip (S): (T <sub>3</sub> )	Adjustable 0.1, 0.2, 0.3, 0.4, 0.8 sec. for the definite time trip characteristic Trip range is between (setting time -20 ms) and (setting time +50 ms)
Setting Current for PTA (A): (I <sub>3</sub> ) <sup>Option</sup>	(I <sub>1</sub> )x90 % Tolerance ± 10 %
Setting Time for PTA (S): (T <sub>3</sub> ) <sup>Option</sup>	Definite time trip characteristic of 40 sec. Tolerance ± 10 %

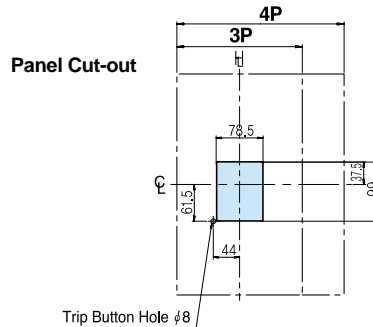
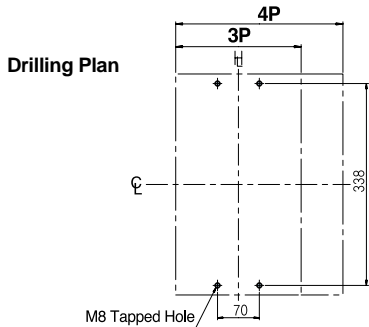
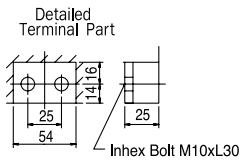
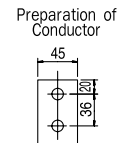
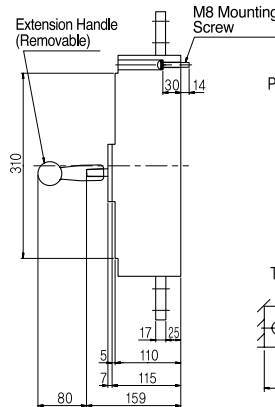
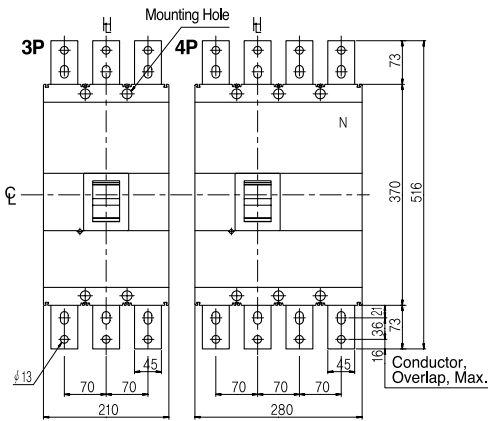
" " is default setting. If required, please adjust the setting according to "adjustable table".

Outline Dimensions

(Unit: mm)

Front-connected

HiBS 1200NE



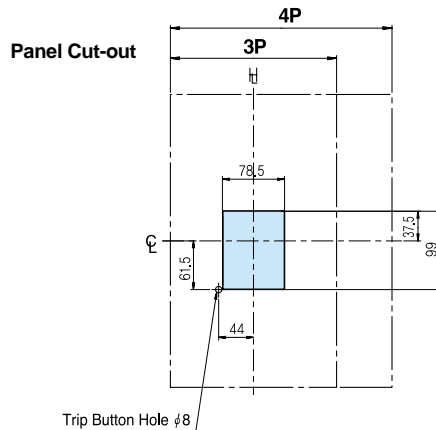
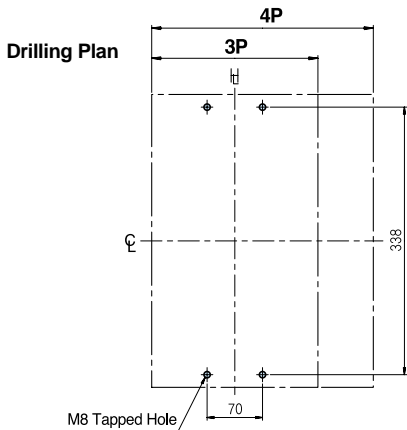
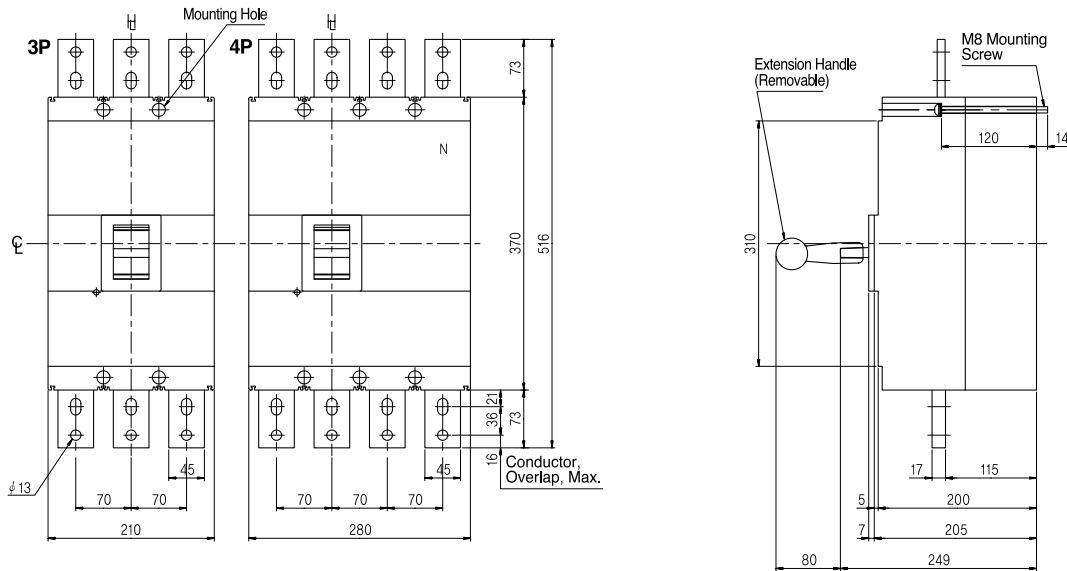
⊕ : Center Line    ⊕ : Handle Frame Center Line

• Panel cut-out dimensions shown give an allowance of 1.5 mm around the handle escutcheon.

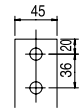
Outline Dimensions

(Unit: mm)

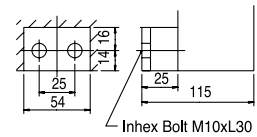
Front-connected **HiBL 1200NE**



Preparation of Conductor



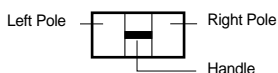
Detailed Terminal Part



C: Center Line    H: Handle Frame Center Line    • Panel cut-out dimensions shown give an allowance of 1.5 mm around the handle escutcheon.

Combinations of Internally Mounted Accessories

NO. Pole	AUX Auxiliary Switch	ALT Alarm Switch	SHT Shunt Trip	UVT Under-Voltage Trip	AUX ALT	AUX SHT	AUX UVT	ALT SHT	ALT UVT	AXT SHT	AXT UVT
3											



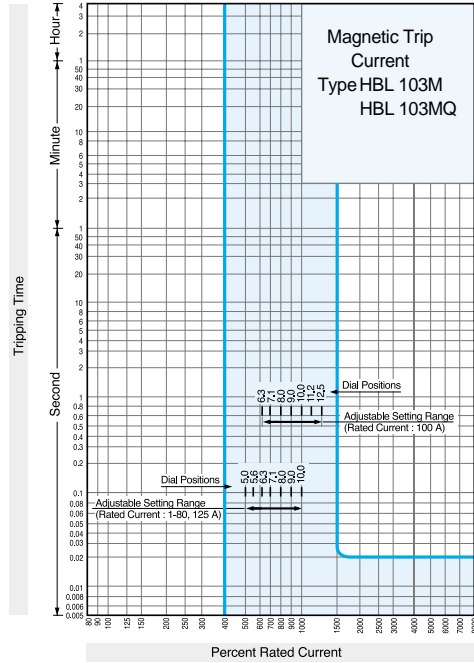
- AXT equals AUX and ALT.  
 - AUX, ALT, AXT, SHT, UVT in a 2 pole-type breaker should be installed into the left pole.  
 - UVT installation in the 2 pole-type breaker that the middle pole of a 3 pole-type breaker is removed is equal to the 3 pole-type breaker.

# Characteristic Curve & Dimension | Motor Protection & Nuclear Power Plant Type



- HBL 103M
- HBL 103MQ

Time-current Characteristic Curves



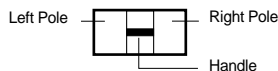
Magnetic Trip Current (Adjustable)

Rated Current [A]	Magnetic Trip Current [A] AC							
	Scale 5(6.3)	5.6(7.1)	6.3(8.0)	7.1(9.0)	8.0(10.0)	9.0(11.2)	10.0(12.5)	
1	5	5.6	6.3	7.1	8	9	10	
2	10	11	12.5	14	16	18	20	
3.2	16	18	20	22.5	25	28	32	
5	25	28	32	35	40	45	50	
8	40	45	50	56	63	71	80	
12.5	63	71	80	90	100	112	125	
20	100	112	125	140	160	180	200	
32	160	180	200	225	250	280	320	
50	250	280	320	350	400	450	500	
80	400	450	500	560	630	710	800	
100	630	710	800	900	1000	1120	1250	

Error shall be  $\pm 10\%$  in HI Setting and  $\pm 25\%$  in LO Setting

Combinations of Internally Mounted Accessories

NO. Pole	AUX Auxiliary Switch	ALT Alarm Switch	SHT Shunt Trip	UVT Under-Voltage Trip	AUX ALT	AUX SHT	AUX UVT	ALT SHT	ALT UVT	AXT SHT	AXT UVT
3											



- AXT equals AUX and ALT.
- AUX, ALT, AXT, SHT, UVT in a 2 pole-type breaker should be installed into the left pole.
- UVT installation in the 2 pole-type breaker that the middle pole of a 3 pole-type breaker is removed is equal to the 3 pole-type breaker.
- Operating voltage of UVT is of DC rated voltage.



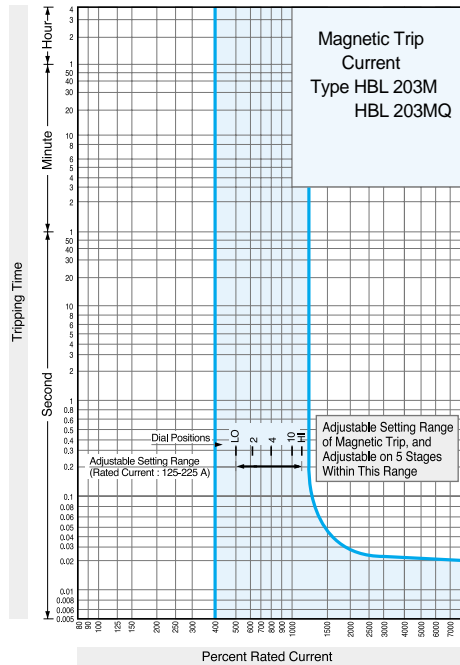


# Characteristic Curve & Dimension | Motor Protection & Nuclear Power Plant Type



- HBL 203M
- HBL 203MQ

Time-current Characteristic Curves



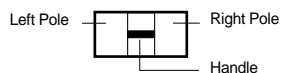
Magnetic Trip Current (Adjustable)

Rated Current [A]	Magnetic Trip Current [A] AC				
	HI	6	4	2	LO
125	1380	1250	1000	790	630
150	1650	1500	1200	950	750
160	1760	1600	1280	1010	800
175	1930	1750	1400	1100	880
200	2200	2000	1600	1260	1000
225	2480	2250	1800	1420	1130
	2750	2500	2000	1580	1250

Error shall be  $\pm 10\%$  in HI Setting and  $\pm 25\%$  in LO Setting

Combinations of Internally Mounted Accessories

NO. Pole	AUX Auxiliary Switch	ALT Alarm Switch	SHT Shunt Trip	UVT Under-Voltage Trip	AUX ALT	AUX SHT	AUX UVT	ALT SHT	ALT UVT	AXT SHT	AXT UVT
3											

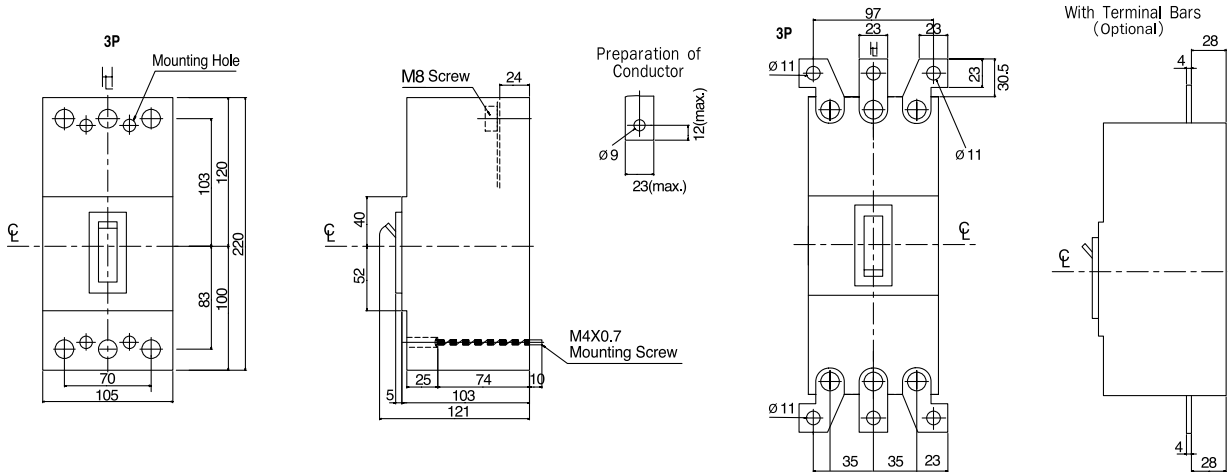


- AXT equals AUX and ALT.
- AUX, ALT, AXT, SHT, UVT in a 2 pole-type breaker should be installed into the left pole.
- UVT installation in the 2 pole-type breaker that the middle pole of a 3 pole-type breaker is removed is equal to the 3 pole-type breaker.
- Operating voltage of UVT is of DC rated voltage.

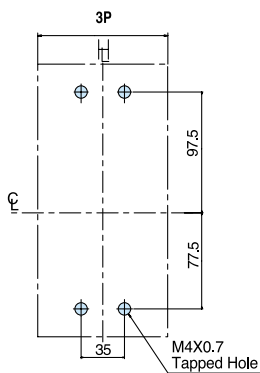
Outline Dimensions

(Unit: mm)

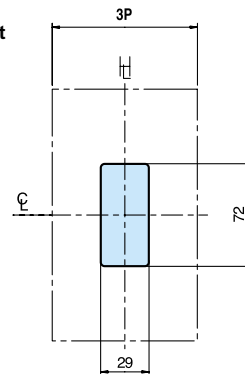
Front-connected



Drilling Plan



Panel Cut-out

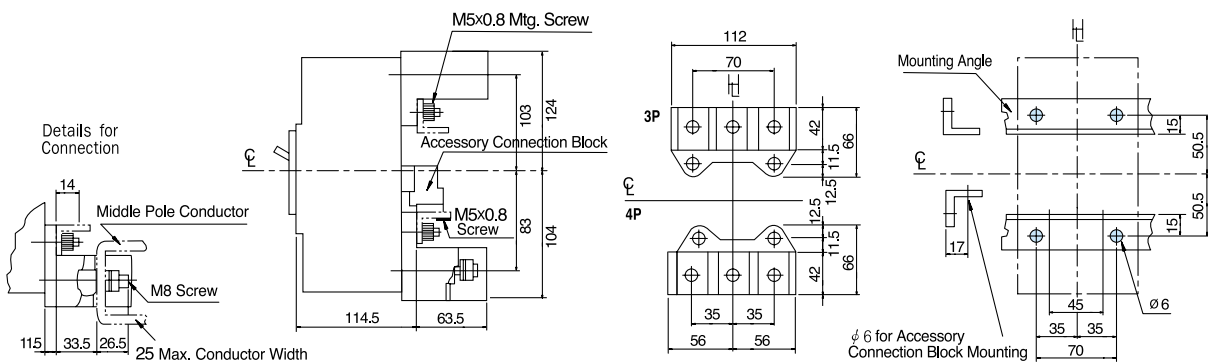


Plug-in

Mtg. block: Type TDM-1H

Mounting Block

Drilling Plan



⊕ : Center Line

⊕ : Handle Frame Center Line

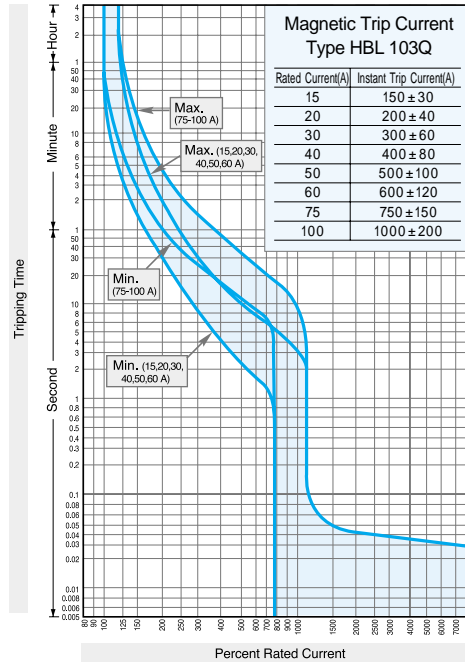
• Panel cut-out dimensions shown give an allowance of 1.5 mm around the handle escutcheon.

# Characteristic Curve & Dimension | Motor Protection & Nuclear Power Plant Type

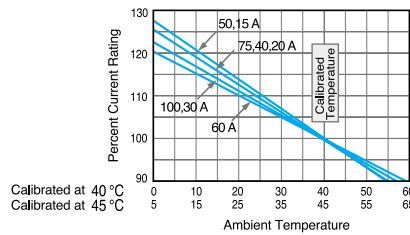


• HBL 103Q

## Time-current Characteristic Curves

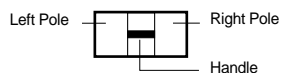


## Ambient Compensating Curves



## Combinations of Internally Mounted Accessories

NO. Pole	AUX Auxiliary Switch	ALT Alarm Switch	SHT Shunt Trip	UVT Under-Voltage Trip	AUX ALT	AUX SHT	AUX UVT	ALT SHT	ALT UVT	AXT SHT	AXT UVT
3											

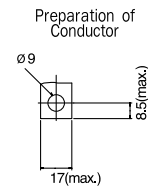
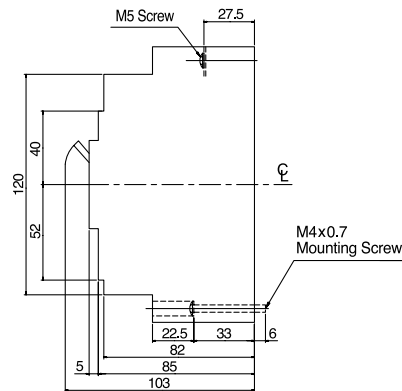
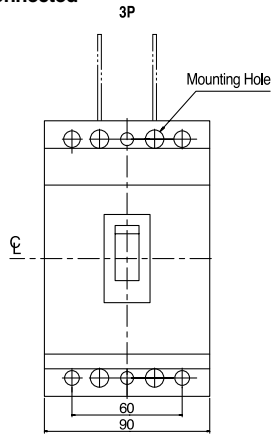


- AXT equals AUX and ALT.
- AUX, ALT, AXT, SHT, UVT in a 2 pole-type breaker should be installed into the left pole.
- UVT installation in the 2 pole-type breaker that the middle pole of a 3 pole-type breaker is removed is equal to the 3 pole-type breaker.
- Operating voltage of UVT is of DC rated voltage.

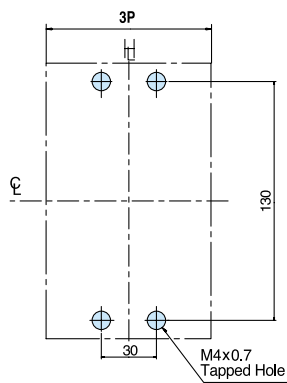
Outline Dimensions

(Unit: mm)

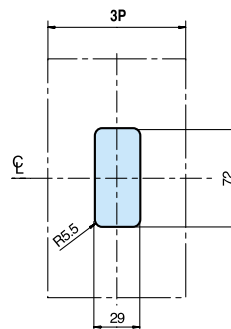
Front-connected



Drilling Plan



Panel Cut-out

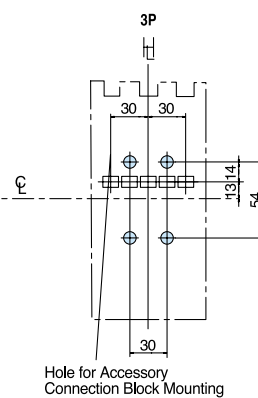
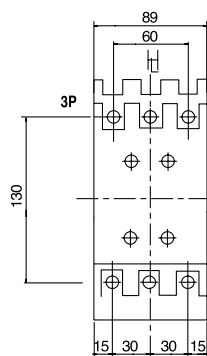
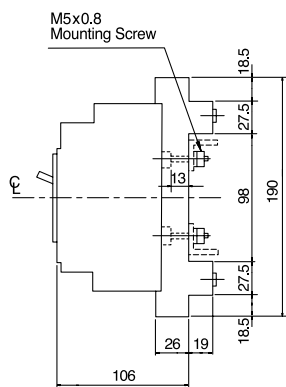


Plug-in

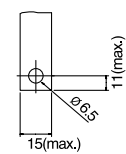
Mtg. block: Type TDM-1H

Mounting Block

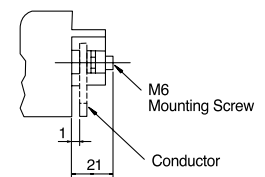
Drilling Plan



Preparation of Conductor



Detailed Terminal Part



C : Center Line

H : Handle Frame Center Line

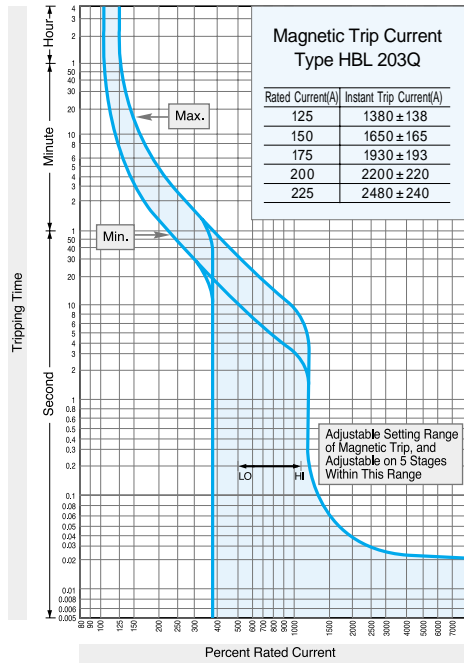
• Panel cut-out dimensions shown give an allowance of 1.5 mm around the handle escutcheon.

# Characteristic Curve & Dimension | Motor Protection & Nuclear Power Plant Type



• HBL 203Q

## Time-current Characteristic Curves



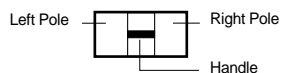
## Magnetic Trip Current (Adjustable)

Rated Current [A]	Magnetic Trip Current [A] AC				
	HI	6	4	2	LO
125	1380	1250	1000	790	630
150	1650	1500	1200	950	750
175	1930	1750	1400	1100	880
200	2200	2000	1600	1260	1000
225	2480	2250	1800	1420	1130

Error shall be ± 10 % in HI Setting and ± 25 % in LO Setting

## Combinations of Internally Mounted Accessories

NO. Pole	AUX Auxiliary Switch	ALT Alarm Switch	SHT Shunt Trip	UVT Under-Voltage Trip	AUX ALT	AUX SHT	AUX UVT	ALT SHT	ALT UVT	AXT SHT	AXT UVT
3											

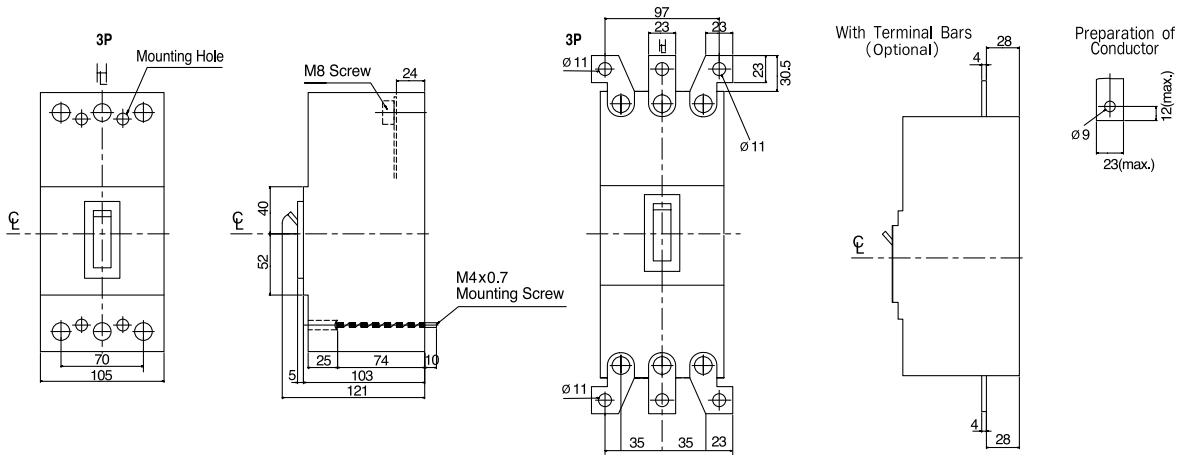


- AXT equals AUX and ALT.
- AUX, ALT, AXT, SHT, UVT in a 2 pole-type breaker should be installed into the left pole.
- UVT installation in the 2 pole-type breaker that the middle pole of a 3 pole-type breaker is removed is equal to the 3 pole-type breaker.
- Operating voltage of UVT is of DC rated voltage.

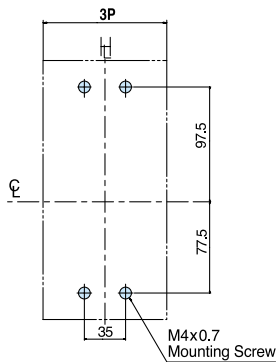
Outline Dimensions

(Unit: mm)

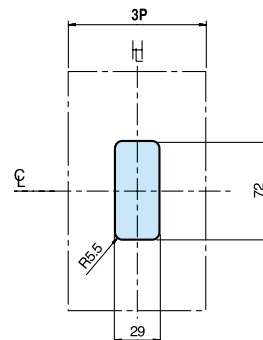
Front-connected



Drilling Plan



Panel Cut-out

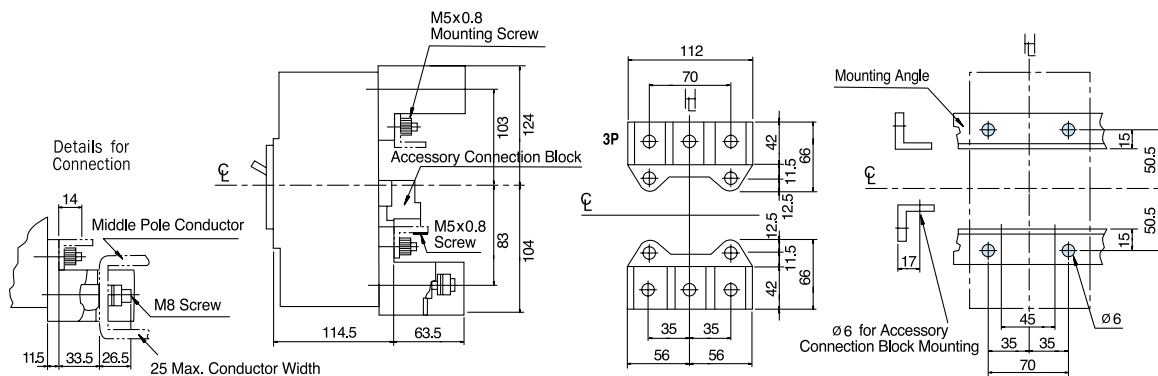


Plug-in

Mtg. block: Type TDM-1H

Mounting Block

Drilling Plan



CL: Center Line

HCL: Handle Frame Center Line

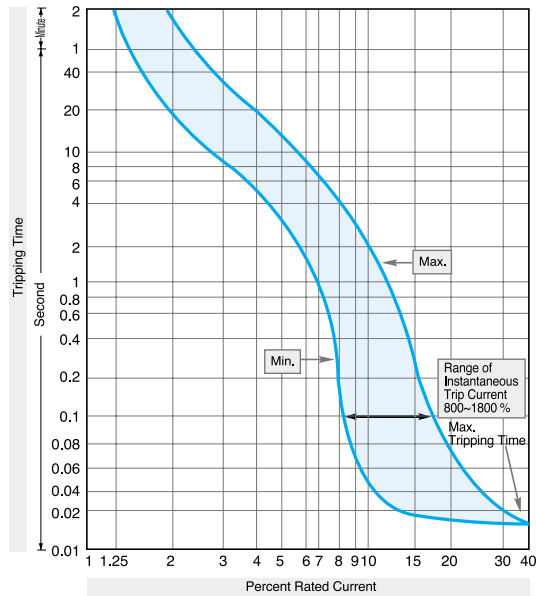
• Panel cut-out dimensions shown give an allowance of 1.5 mm around the handle escutcheon.

# Characteristic Curve & Dimension | Distribution and Lighting Protection Type

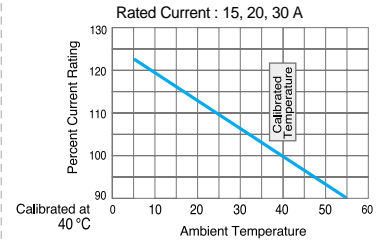


- HiBC 32
- HiBC 32h

Time-current Characteristic Curves



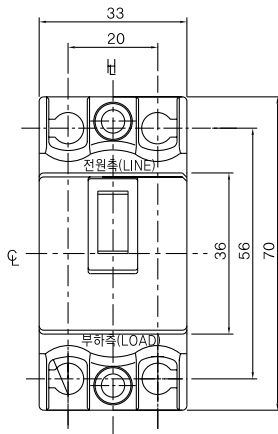
Ambient Compensating Curves



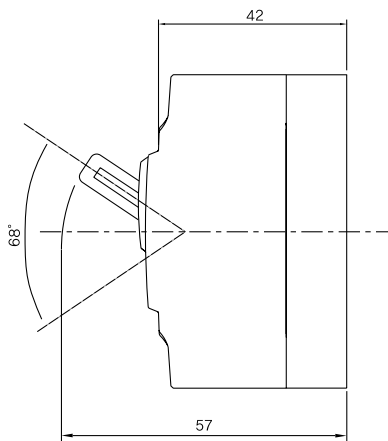
Outline Dimensions

(Unit: mm)

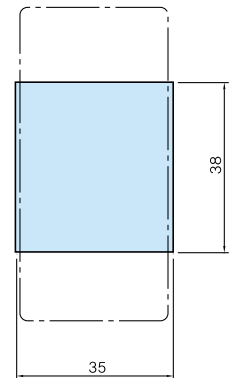
Front-connected



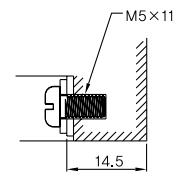
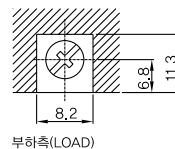
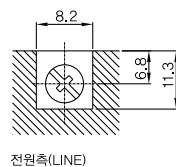
Drilling Plan



Panel Cut-out



Details for Connection



⊘ : Center Line

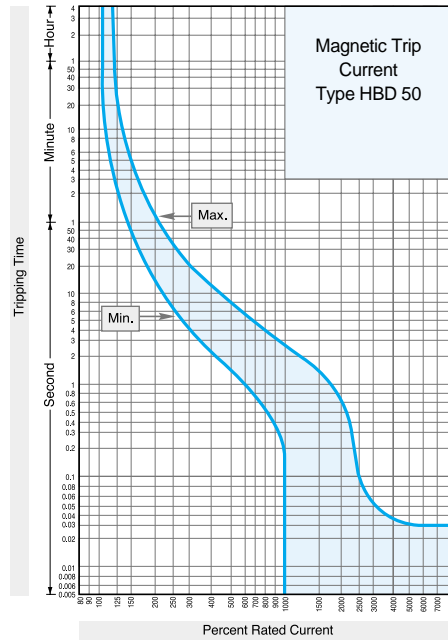
⊥ : Handle Frame Center Line

• Panel cut-out dimensions shown give an allowance of 1.5 mm around the handle escutcheon.

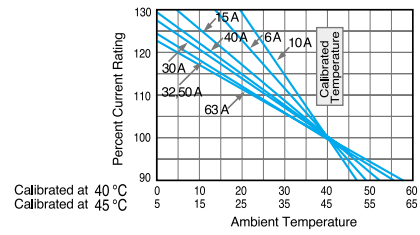


- HBD 50
- HBD 50h

### Time-current Characteristic Curves



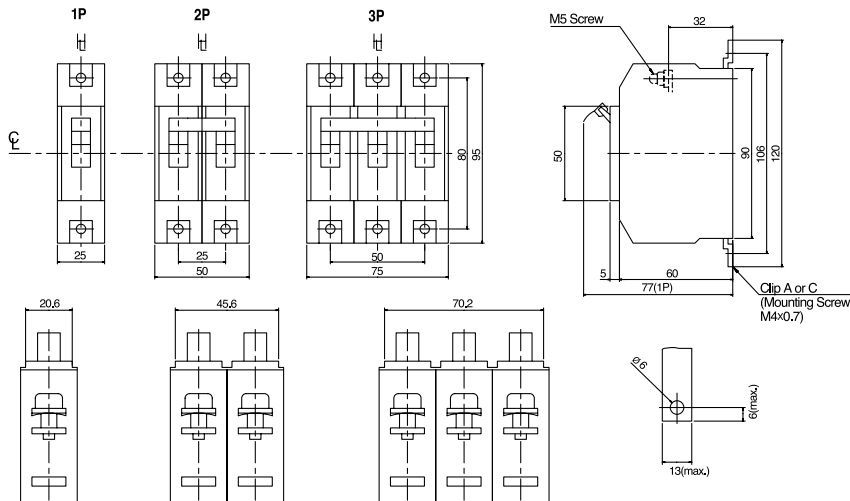
### Ambient Compensating Curves



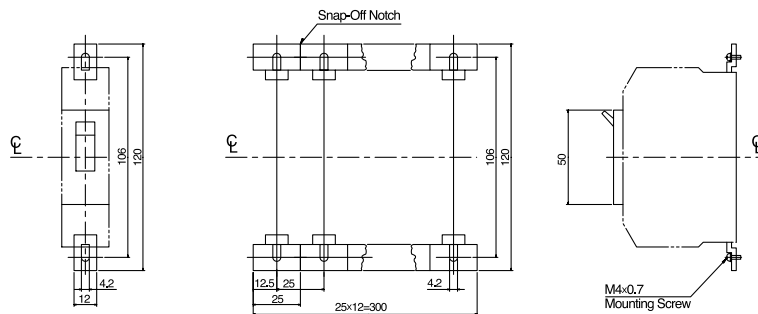
### Outline Dimensions

(Unit: mm)

#### Front-connected



#### Mounting



- Clips A are supplied with breakers, 2 pieces/pole. For multi-pole installation, clip-to-clip distance is 25mm.
- When clip C is used, screw it down at 4 or 5 pole intervals.
- Clip C has a snap-off notch between every two pieces to adjust number of pieces to number of breaker poles. (Bend once or twice to snap off.)

⊘ : Center Line    ⊥ : Handle Frame Center Line





# Miniature Circuit Breaker

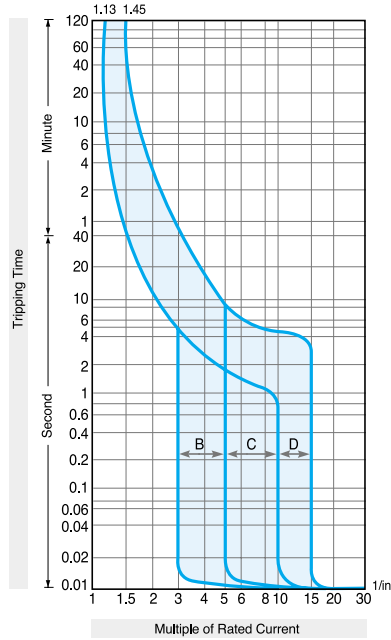


• HiBD 63

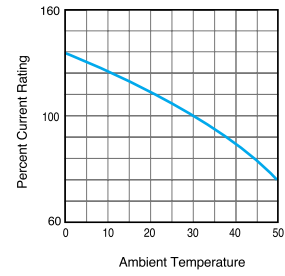


• HiBD 100

## Time-current Characteristic Curves



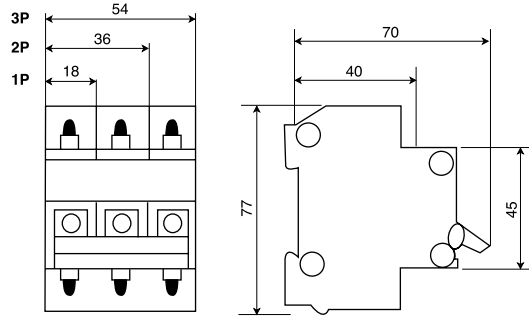
## Ambient Compensating Curves



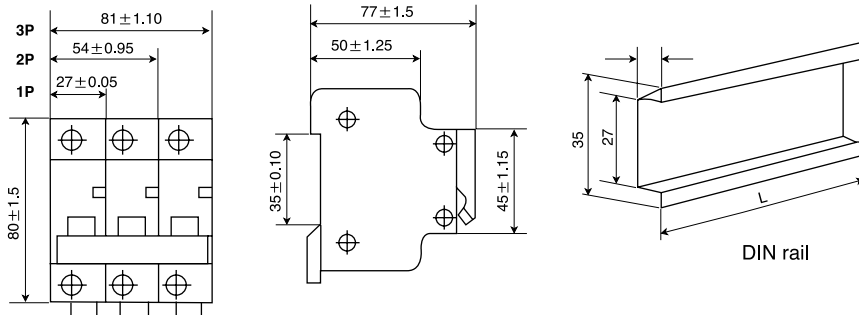
## Outline Dimensions

(Unit: mm)

### < HiBD 63 >

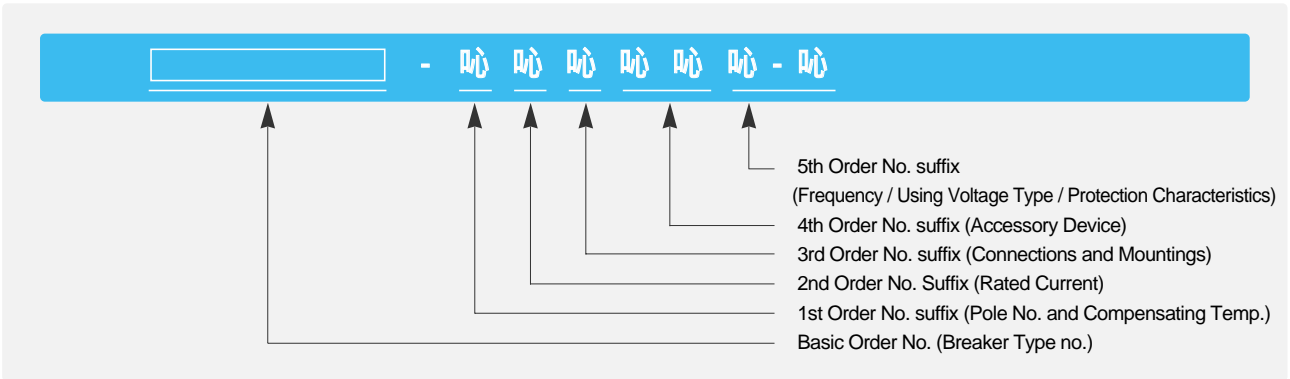


### < HiBD 100 >



## Ordering Information

When ordering HYUNDAI molded case circuit breakers, please fill in the nomenclature as shown below with basic order No. and 1st to 5th order No. suffix.



1 Basic Order No. ( Breaker Type No. )  -

2 1st Order No. Suffix ( Pole No. and Compensating Temp. )  -

Pole No.	Compensating Temp.	40/45	50
2		F	H
3		K	M
4		P	R

3 2nd Order No. Suffix ( Rated Current / Protection Characteristics )  -

10AT	15AT	20AT	30AT	40AT	50AT	60AT	75AT	100AT	125AT	150AT	175AT	200AT
A	B	C	D	F	G	H	J	K	L	M	N	P
225AT	250AT	300AT	350AT	400AT	450AT	500AT	600AT	700AT	800AT	Special	Magnetic	
Q	R	S	T	U	V	W	X	Y	Z	3	4	

When ordering electronic type(NE Type), please note that the frame size is the default value of the rating current.

Also, please indicate "S" or "G" for protection characteristics.

S : LTD + STD + INST + PTA

G : LTD + STD + INST + PTA + GFT

ex) Type : HiBL 403NE

Full : K3A00Y

Rate : S

4 3rd Order No. Suffix ( Connections and Mountings )  -

A: Front Connection(Terminal Screw)

B: Front Connection(Terminal Bus Bar)

K: Both Line & Load Side are Plug-in Type.

L: Line Side Only Plug-in Type

**5** 4th Order No. Suffix ( Accessory Device )

\_\_\_\_\_ -

Option		Shunt Trip						Under Voltage Trip						
		DC 24V	DC 100 ~110V	AC 100 ~125V	AC 200 ~240V	AC 380 ~415V	AC 440 ~480V	DC 24V	DC 100 ~110V	AC 100 ~125V	AC 200 ~240V	AC 380 ~415V	AC 440 ~480V	
		OO	AO	CO	FO	HO	BO	DO	JO	LO	NO	PO	QO	RO
Auxiliary Switch	1ab	OA	AA	CA	FA	HA	BA	DA	JA	LA	NA	PA	QA	RA
	2ab	OB	AB	CB	FB	HB	BB	DB	JB	LB	NB	PB	QB	RB
	3ab	OC	AC	CC	FC	HC	BC	DC	JC	LC	NC	PC	QC	RC
	4ab	OD	AD	CD	FD	HD	BD	DD	JD	LD	ND	PD	QD	RD
Alarm Trip Switch		OF	AF	CF	FF	HF	BF	DF	JF	LF	NF	PF	QF	RF
Alarm Trip Switch	Aux, Switch 1ab	OG	AG	CG	FG	HG	BG	DG	JG	LG	NG	PG	OG	RG
	Aux, Switch 2ab	OH	AH	CH	FH	HH	BH	DH	JH	LH	NH	PH	QH	RH
	Aux, Switch 3ab	OJ	AJ	CJ	FJ	HJ	BJ	DJ	JJ	LJ	NJ	PJ	QJ	RJ

When you need other externally mounted accessories, please ask our company before ordering them.

**6** 5th Order No. Suffix ( Frequency / Using Voltage Type / Protection Characteristic )

\_\_\_\_\_ -

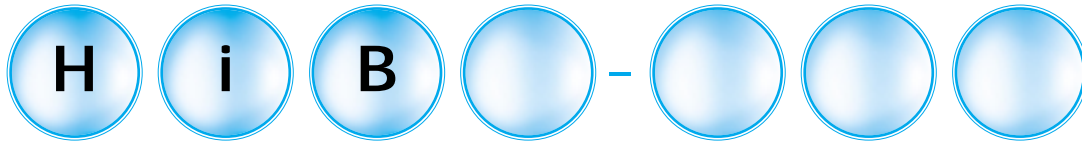
Y: 50/60Hz    Z: DC    S: LTD+STD+INST+PTA    G: LTD+STD+INST+PTA+GFT

- Our products are designed for 50/60Hz common use. However, for the electronic MCCBs, they can be adapted according to the regions or countries where they are used. When delivering, they are set as 60Hz.

**7** Example for Ordering

Customer needs	Sequence	Order No.	
		Thermal Magnetic Type	Electronic Type
Ampere Frame: 100 A Pole No.: 3P Rated Breaking Capacity: AC 460 V 100 kA	Basic Order No.	HIBX-103NT -	HIBX-103NE -
Pole No.: 3P Compensation Temperature: 40	1st Order No. suffix	<input type="text"/> - K	<input type="text"/> - K
Rated Current: 100 A Protection Characteristic: LTD + STD + INST + PTA	2nd Order No. suffix	<input type="text"/> - K	<input type="text"/> - 3 S
Mountings: Front Connection (Terminal Screw)	3rd Order No. suffix	<input type="text"/> - A	<input type="text"/> - A
Accessory Device: UVT AC 380 V, AUX 1ab	4th Order No. suffix	<input type="text"/> - Q A	<input type="text"/> - Q A
Frequency: 60 Hz	5th Order No. suffix	<input type="text"/> - Y	<input type="text"/> - Y
Entire Ordering No.		HIBX-103NT - K K A Q A Y	HIBX-103NE - K 3 A Q A Y - S

## Criterion of MCCB Type Name



### Type

- E** : Economical
- S** : Standard
- H** : High-fault Level
- L** : Extra High-fault Level
- X** : Current-limiting Series

### Frame

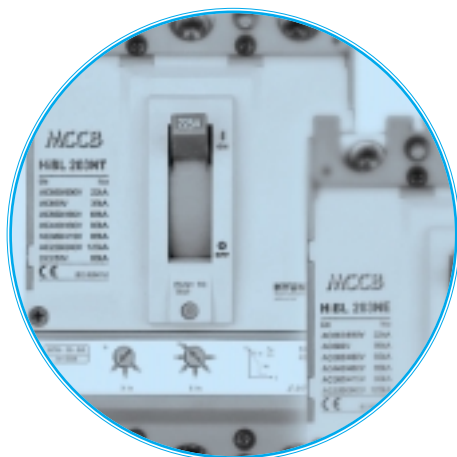
- 3** : 30AF
- 5** : 50AF
- 6** : 60AF
- 10** : 100AF
- 20** : 225AF
- 40** : 400AF
- 60** : 600AF
- 80** : 800AF
- 100** : 1000AF
- 120** : 1200AF

### Number of Pole

- 2** : 2P
- 3** : 3P
- 4** : 4P

### Characteristic Classification

- NE** : Electronic
- NT** : Thermal-magnetic
- M** : Motor Protection
- Q** : Nuclear Power Plant
- MQ** : Motor Protection for Nuclear Power Plant
- J** : Adjustable Thermal



# MCCB Operation Environment

## ■ The standard environment for MCCBs is as follows:

### ■ Ambient Temperature

-25 to +50

The average temperature for 24hours must not exceed 35

### ■ Relative Humidity

45% to 85%

### ■ Attitude

Below 2000m (6,600 feet)

### ■ Atmosphere

Excessive water vapor, oil vapor, smoke, dust or corrosive gases must not exist.

Sudden change in temperature, condensation, or icing must not occur.

### ■ Transportation Conditions

The MCCB shall not be dropped or gotten strong shock, and the main body shall be holded for the transportation purpose ; not the terminal bus bar nor the lead wire.

### ■ Installation Conditions

When installing the Molded Case Circuit Breaker, refer to the installation instructions in the catalogue and instruction manual.

### ■ IP Protection

The standard protection degree of MCCB is IP20.

### ■ Storage

Store the breaker in a dry indoor location to prevent condensation due to a sudden change in temperature, which is quite harmful to the breaker insulation.

Store the breaker in a clean place free of corrosive gases, dirt and dust.

### ▲ Safety Notice

This catalog is subject to be up-dated without notice.

This catalog shall be applied to only Molded Case Circuit Breaker.

Please contact the representative of Hyundai Heavy Industries for further information.

[www.hyundai-elec.com](http://www.hyundai-elec.com)



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