

HG-SERIES

Molded Case Circuit Breakers

HGP Type



LV & MV Circuit Breakers



تهران - خیابان لاله زارنو - بالاتر از منوچهری - پاساژ البرز ۲ - طبقه اول - واحد ۲۳۵

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MOLDED CASE CIRCUIT BREAKERS

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HG-SERIES

Globalization of Technology

HG-SERIES

Molded Case Circuit Breakers

Maximized Selectivity and Safety with Various
Products Range & Breaking Capacity!

Various Product Range 50 – 800 AF

Reinforced Breaking Capacity 150 kA (at 460 V)

$I_{cs} = 100 \% I_{cu}$

Rated Insulation Voltage (U_i) 1,000 V

Impulse Withstand Voltage (U_{imp}) 8 kV





HYUNDAI
HGP 630X

630AF 50/60Hz
Ui 1000V Uimp 8kV

Ue(V)	Icu(kA)
660 / 690V	~ 35kA
480 / 500V	~ 100kA
440 / 460V	~ 150kA
380 / 415V	~ 150kA
220 / 240V	~ 200kA
250V	= 100kA

Ics = Icu 100%

MADE IN KOREA



630A

TRIP

CE Cat. A
IEC 60947-2

Ir

1 0.8
X In 0.9



Ii

7 8
6 9
5 10 X In

MTM-63-JJ

In = 630A

40 °C 3P

HG-SERIES

Adjustable Ratings Design

Optimized Protection Based on the Load Conditions!

Wide Range of Products, 50 – 800 AF

High Breaking Capacity up to 150 kA at 460 V

Adjustable Operating Characteristics

Long Time Current: 0.8 - 0.9 - 1 x I_n / Instantaneous Current: 5 - 6 - 7 - 8 - 9 - 10 x I_n

Reinforcement of Protective Coordination

Acquisition of DEKRA Certification

Rated Short-Circuit Current by AF, ($I_{cs} = 100 \% I_{cu}$, at 440/460 V)

150 kA	50X	125X	160X	250X	400X	630X	800X
130 kA	50L	125L	160L	250L	400L	630L	800L
85 kA	50H	125H	160H	250H	400H	630H	800H
70 kA	50S	125S	160S	250S	400S	630S	800S
65 kA	50N	125N	160N	250N	400N	630N	800N
50 kA	50F	125F	160F	250F	400F	630F	800F
36 kA							
	50 AF	125 AF	160 AF	250 AF	400 AF	630 AF	800 AF

250 - 800 AF

Adjustable Operating
Characteristics
Instantaneous Current:
5 - 6 - 7 - 8 - 9 - 10 x I_n

HYUNDAI HGP 630X

630AF	50/60Hz
U_i 1000V	U_{imp} 8kV
U_e (V)	I_{cu} (kA)
660 / 690V	~ 35kA
480 / 500V	~ 100kA
440 / 460V	~ 150kA
380 / 415V	~ 150kA
220 / 240V	~ 200kA
250V	~ 100kA
$I_{cs} = I_{cu}$ 100%	

MADE IN KOREA

CE Cat. A
IEC 60947-2

630A

TRIP

50 - 800 AF

Adjustable Operating
Characteristics
Long Time Current:
0.8 - 0.9 - 1 x I_n

I_r

1 0.8 0.9 I_n

I_i

7 8 9 10 I_n

MTM-63-JJ

$I_n = 630A$
40 °C 3P

HG-SERIES

Maximizing Breaking Capacity and Perfect Coordination

- Simplified Dimensions, 4 Frame Sizes 50 - 800 AF
- Adjustable of Rated Currents in all Models
- High Breaking Capacity in all Frame, up to 150 kA at 460 V
- Wide Coordination with Discrimination and Cascading
- Guaranteed Breaking Capacity in Reverse Connection

50, 125, 160 AF



250 AF



(unit: mm)

400, 630 AF

800 AF



HG-SERIES

HGP Type Molded Case Circuit Breakers

Ui: 1,000 V Uimp: 8 kV Ics = 100 % Icu

Maximized Insulation Performance

- Rated insulation voltage, Ui: 1,000 V
- Rated impulse withstand voltage, Uimp: 8 kV

High Breaking Capacity

- 150 kA at 460 V (Same capacity in all frame size)

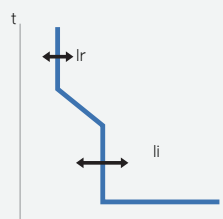
Cable Insulation Performance Suitability

In case of continuing abnormal conditions such as welding of main contact after trip, handle is not available to move 'OFF position' in accordance with IEC 60947-2 cable insulation performance. Also, it is possible to maintain easily by checking a contact condition by the handle.

Adjustable of Rated Current in all Frame

The adjustable rating current design(Up to 800 AF) provides optimal protection for load variations.

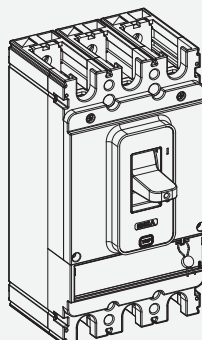
- Long Time Current: 3-steps adjusting, 80 % - 90 % - 100 % of rated current
- Instantaneous Current: 6-steps adjusting, from 5 to 10 times the rated current



Characteristics Curve
(I - t Curve)

Dial Sealing Device (Option)

Prevent any change of operating current set value by a protection cover of the dial on the body.



HYUNDAI	
HGP 630X	
630AF	50/60Hz
Ui 1000V	Uimp 8kV

Ue(V)	Icu(kA)
660 / 690V	~ 35kA
480 / 500V	~ 100kA
440 / 460V	~ 150kA
380 / 415V	~ 150kA
220 / 240V	~ 200kA
250V	~ 100kA
Ics = Icu 100%	

CE Cat. A
IEC 60947-2





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HGP Type Molded Case Circuit Breakers

- High Performance & Coordination

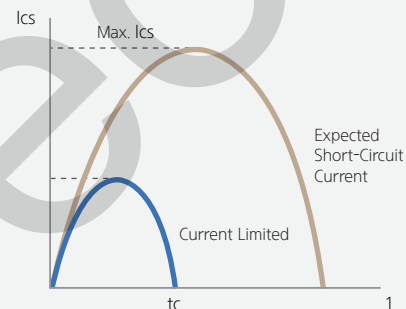
Service Breaking Capacity ($I_{cs} = 100\% \times I_{cu}$)

Service breaking capacity, '100 % X I_{cu} ' is realized by enlarging breaking capacity with internal limit current device.

- 50 - 800 AF
- 36 - 150 kA @ 460 Vac

Guaranteed Breaking Capacity in Reverse Connection

It can be supplying same breaking capacity either direction(LINE/LOAD).



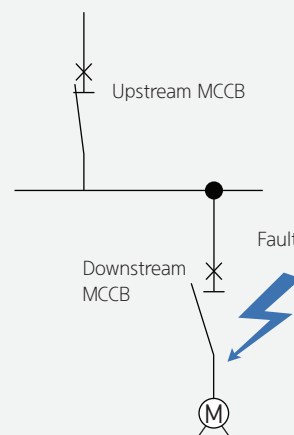
Current Limiting Characteristics

Available to Various Low Voltage System Protections

It is available to adapt various low voltage system protections such as 'Discrimination' and 'Cascading' with limit current characteristic and high breaking capacity.

Discrimination

It is a low voltage system protection to selectively separate fault point from system to minimize influence of fault. In this protection type, only circuit breaker installed at a fault point is operated while the other feeder can be used continuously.



Cascading

In this protection type, upstream circuit breakers can be tripped earlier than downstream circuit breaker for back up protection. So, it is applied to the smaller breaking capacity than the calculated value at down stream circuit.

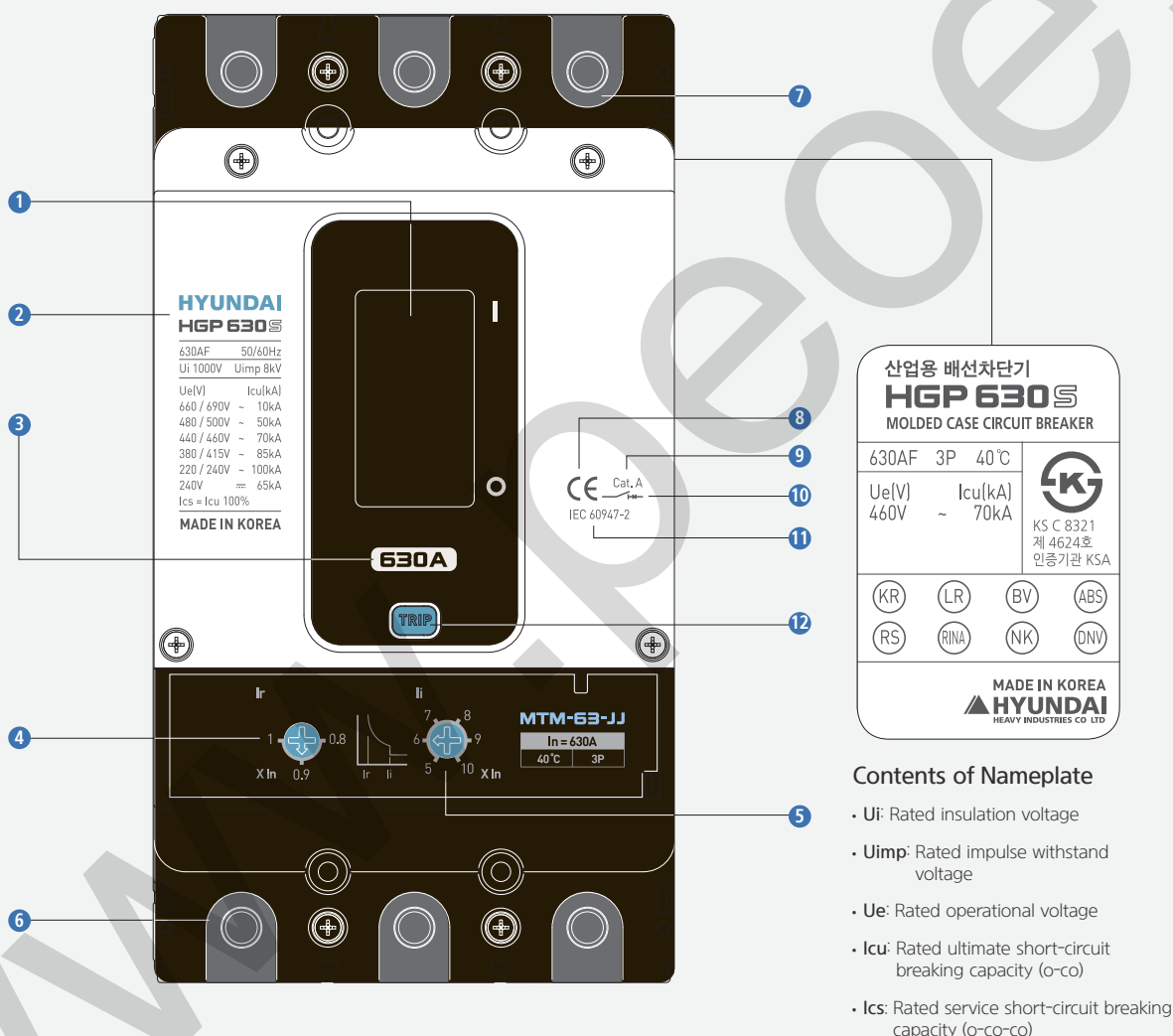


Various Low
Voltage System
Protections



External Structure and Contents of Nameplate

Molded Case Circuit Breakers (HGP Type)



Molded Case Circuit Breakers (MCCB)

- | | | |
|--------------------------|---------------------------|--|
| ① Operating Handle | ⑤ Magnetic Adjusting Knob | ⑨ Utilization Category |
| ② Model Name | ⑥ Load Side Terminal | ⑩ Cable Insulation Performance Suitability |
| ③ Rated Current | ⑦ Line Side Terminal | ⑪ Standards |
| ④ Thermal Adjusting Knob | ⑧ CE Marking | ⑫ Trip Button |

Standards and Certifications

Standards

KS C 8321

Molded case circuit breakers for industrial uses

International Standards

IEC 60947-1

Low voltage switchgear and controlgear, part 1 (General rules)

IEC 60947-2

Low voltage switchgear and controlgear, part 2 (Circuit breakers)



Approvals and Certifications

HG-Series MCCB has acquired the certification from the TEST agency registered in STL.

- CB certification (DEKRA)
- Safety certification scheme for electrical applications
- KS (Korean industrial standards)
- Marine approvals (8's classifications)



Vibration/Shock Withstand Test Certification Acquisition

HG Series MCCB has acquired the vibration/shock withstand test certification in accordance with IEC 60068-2-6 standard which is the required level of IACS, international vessel inspection institute.

- Vibration resistant: 5 - 13.2 Hz - $\pm$ 1 mm
- Shock resistant: 13.2 - 100 Hz - $\pm$ 0.7 g



Our services

Testing, Inspections, Certification

DEKRA provides certification of management systems as well as technical support, testing and certification of a wide range of products throughout the life cycle.



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Products Selection Table

Molded Case Circuit Breakers (HGP Type)	18
Motor Protection Circuit Breakers (HGP Type)	22
Switch Disconnecter (HGP NA Type)	26

Model Selection Table

MCCB (HGP Type): 50 - 800 AF

Things in Common

Rated Insulation Voltage, U_i	1,000 V
Rated Operational Voltage, U_e	690 V
Impulse Withstand Voltage, U_{imp}	8 kV
Protective Function	Overload, short-circuit and instantaneous protection

Suitability for Isolation	Yes
Utilization Category	A
Pollution Degree	3
Reference Standard	IEC 60947-2

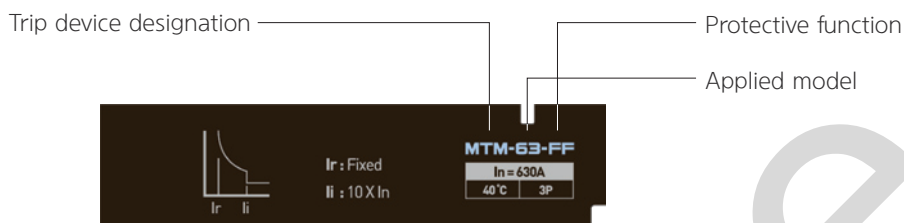
Model		HGP50D							HGP125D							HGP160D								
Frame (AF)		50							125							160								
Pole (P)		3, 4 ¹⁾							3, 4 ¹⁾							3, 4 ¹⁾								
Rated current, at 40 °C (A)		16, 20, 25, 32, 40, 50							16, 20, 25, 32, 40, 50, 63, 75, 80, 100, 125							100, 125, 150, 160								
Rated short-circuit breaking capacity [Icu] (kA rms)	Recognition code for order		F	N	S	H	L	X	F	N	S	H	L	X	F	N	S	H	L	X				
	AC660/690 V		6	6	8	8	10	10	6	6	8	8	10	10	6	6	8	8	10	10				
	AC480/500 V		25	35	50	65	85	100	25	35	50	65	85	100	25	35	50	65	85	100				
	AC440/460 V		36	50	65	85	130	150	36	50	65	85	130	150	36	50	65	85	130	150				
	AC380/415 V		50	65	85	100	130	150	50	65	85	100	130	150	50	65	85	100	130	150				
	AC220/240 V		65	85	100	130	150	200	65	85	100	130	150	200	65	85	100	130	150	200				
DC250 V		36	50	65	85	100	100	36	50	65	85	100	100	36	50	65	85	100	100					
Service breaking capacity [Ics = % Icu]		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100				
Rated short-circuit making capacity [Icm] (kA rms)	AC660/690 V		9	9	14	14	17	17	9	9	14	14	17	17	9	9	14	14	17	17				
	AC480/500 V		53	74	105	143	187	220	53	74	105	143	187	220	53	74	105	143	187	220				
	AC440/460 V		76	105	143	187	286	330	76	105	143	187	286	330	76	105	143	187	286	330				
	AC380/415 V		105	143	187	220	286	330	105	143	187	220	286	330	105	143	187	220	286	330				
AC220/240 V		143	187	220	286	330	440	143	187	220	286	330	440	143	187	220	286	330	440					
Endurance (Durability)	Mechanical		25,000							25,000							25,000							
	Electrical		10,000							10,000							10,000							
Trip Device																								
Thermal Magnetic			●							●							●							
	Long time [LT]		(0.8 - 0.9 - 1.0) x I _N							(0.8 - 0.9 - 1.0) x I _N							(0.8 - 0.9 - 1.0) x I _N							
		Instantaneous [INST]		16 - 32 A: 400 A, 40 - 50 A: 10 x I _N							16 - 32 A: 400 A, 40 - 125 A: 10 x I _N							10 x I _N						
Electronic			-							-							-							
	Long time [LT]		-							-							-							
	Short time [STD]		-							-							-							
	Instantaneous [INST]		-							-							-							
Accessory																								
Internal	Auxiliary switch AUX		●							●							●							
	Alarm switch ALT		●							●							●							
	Shunt trip SHT		●							●							●							
	Undervoltage trip UVT		●							●							●							
External	Rotary handle	Front contact TFG	●							●							●							
		Extended TFH	●							●							●							
	Motor operator MOT		●							●							●							
	Mechanical interlock MIF		●							●							●							
	Locking device PLD		●							●							●							
	Plug-in	TDM (LINE/LOAD)	● (3P Only)							● (3P Only)							● (3P Only)							
		TDM (LINE only)	● (3P Only)							● (3P Only)							● (3P Only)							
	Cage terminal block CTB		●							●							●							
	Insulation terminal cover TCF		●							●							●							
	Insulation barrier TQQ		●							●							●							
	Terminal extensions TBB		-							-							-							
Installation and Dimensions																								
Connection/Installation	Front connection		Terminal screw																					
	Rear connection		Horizontal/Vertical																					
	Plug-in		Switchboard type (Line & Load, Line only)																					
Dimensions (mm)		a (2/3/4P)	90/120							90/120							90/120							
		b	140							140							140							
		c	86							86							86							
Weight (kg)	3/4P		1.5/1.8							1.5/1.8							1.5/1.8							
Detailed rating and select		104 Page							104 Page							104 Page								
Characteristics curve and outside view		74 - 89 Page							74 - 89 Page							74 - 89 Page								



HGP250						HGP400						HGP630						HGP800					
250						400						630						800					
3, 4 ¹⁾						3, 4 ¹⁾						3, 4 ¹⁾						3, 4 ¹⁾					
100, 125, 150, 160, 175 200, 225, 250						300, 350, 400						500, 630						700, 800					
F	N	S	H	L	X	F	N	S	H	L	X	F	N	S	H	L	X	F	N	S	H	L	X
6	6	8	8	10	10	10	10	10	20	25	35	10	10	10	20	25	35	10	10	10	20	25	35
25	35	50	65	85	100	25	35	50	70	85	100	25	35	50	70	85	100	25	35	50	70	85	100
36	50	65	85	130	150	36	50	70	85	130	150	36	50	70	85	130	150	36	50	70	85	130	150
50	65	85	100	130	150	50	65	85	100	130	150	50	65	85	100	130	150	50	65	85	100	130	150
65	85	100	130	150	200	65	85	100	130	150	200	65	85	100	130	150	200	65	85	100	130	150	200
36	50	65	85	100	100	36	50	65	85	100	100	36	50	65	85	100	100	36	50	65	85	100	100
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
9	9	14	14	17	17	17	17	17	40	53	74	17	17	17	40	53	74	17	17	17	40	53	74
53	74	105	143	187	220	53	74	105	154	187	220	53	74	105	154	187	220	53	74	105	154	187	220
76	105	143	187	286	330	76	105	154	187	286	330	76	105	154	187	286	330	76	105	154	187	286	330
105	143	187	220	286	330	105	143	187	220	286	330	105	143	187	220	286	330	105	143	187	220	286	330
143	187	220	286	330	440	143	187	220	286	330	440	143	187	220	286	330	440	143	187	220	286	330	440
25,000						20,000						20,000						10,000					
10,000						6,000						4,000						3,000					
●						●						●						●					
(0.8 - 0.9 - 1.0) x In						(0.8 - 0.9 - 1.0) x In						(0.8 - 0.9 - 1.0) x In						(0.8 - 0.9 - 1.0) x In					
(5 - 6 - 7 - 8 - 9 - 10) x In						(5 - 6 - 7 - 8 - 9 - 10) x In						(5 - 6 - 7 - 8 - 9 - 10) x In						(5 - 6 - 7 - 8 - 9 - 10) x In					
-						-						-						-					
-						-						-						-					
-						-						-						-					
-						-						-						-					
●						●						●						●					
●						●						●						●					
●						●						●						●					
●						●						●						●					
●						●						●						●					
●						●						●						●					
●						●						●						●					
●						●						●						●					
● (3P Only)						● (3P Only)						● (3P Only)						● (3P Only)					
● (3P Only)						● (3P Only)						● (3P Only)						● (3P Only)					
●						●						●						●					
●						●						●						●					
●						●						●						●					
●						●						●						●					
Terminal screw, Terminal busbar						Terminal screw, Terminal busbar						Terminal screw, Terminal busbar						Terminal screw, Terminal busbar					
Horizontal/Vertical						Horizontal/Vertical						Horizontal/Vertical						Horizontal/Vertical					
Switchboard type (Line & Load, Line only)						Switchboard type (Line & Load, Line only)						Switchboard type (Line & Load, Line only)						Switchboard type (Line & Load, Line only)					
105/140						140/186.5						140/186.5						210/280					
165						260						260						320					
86.5						110						110						135					
2/2.6						5.4/7.2						5.4/7.2						15.1/19.6					
104 Page						104 Page						104 Page						104 Page					
74 - 89 Page						74 - 89 Page						74 - 89 Page						74 - 89 Page					

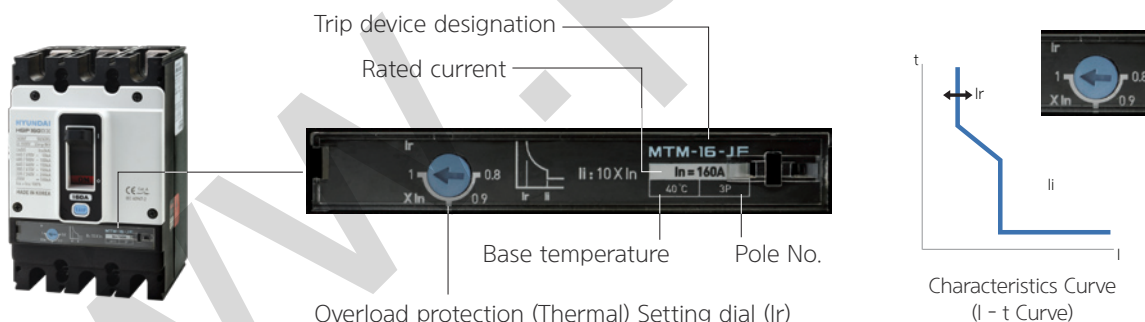
Model Selection Table

Trip Unit Characteristics and Function



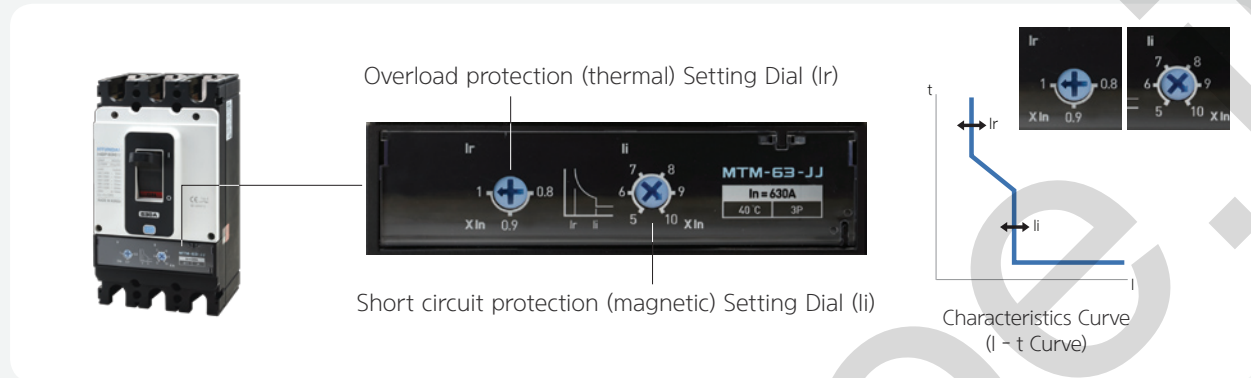
Overload Protection	Instantaneous Protection	TRIP Unit Name						
		HGP50D	HGP125D	HGP160D	HGP250	HGP400	HGP630	HGP800
Fixed	Fixed	MTM - 16 - FF			MTM - 25 - FF	MTM - 63 - FF		MTM - 80 - FF
Adjustable	Fixed	MTM - 16 - JF			MTM - 25 - JF	MTM - 63 - JF		MTM - 80 - JF
Adjustable	Adjustable	-			MTM - 25 - JJ	MTM - 63 - JJ		MTM - 80 - JJ

Trip Unit Characteristics - Thermal Magnetic HGP50D, 125D, 160D



Rated Current (A)	In	16	20	25	32	40	50	63	75	80	100	125	150	160
MCCB	HGP50D	●	●	●	●	●	●							
	HGP125D	●	●	●	●	●	●	●	●	●	●	●		
	HGP160D										●	●	●	●
Overload protection (thermal) Ir														
Fixed Type (FF)	1.0 x In	16	20	25	32	40	50	63	75	80	100	125	150	160
Adjustable Type (JF)	0.8 x In	12.8	16	20	25.6	32	40	50.4	60	64	80	100	120	128
	0.9 x In	14.4	18	22.5	28.8	36	45	56.7	67.5	72	90	112.5	135	144
	1.0 x In	16	20	25	32	40	50	63	75	80	100	125	150	160
Short-circuit protection (magnetic) Ii														
Fixed Type (FF, JJ)	10 x In	400	400	400	400	400	500	630	750	800	1,000	1,250	1,500	1,600
	Maximum non-tripping current (A)	320	320	320	320	320	400	504	600	640	800	1,000	1,200	1,280
	Minimum tripping current (A)	480	480	480	480	480	600	756	900	960	1,200	1,500	1,800	1,920
Neutral Pole Protection														
4P3D (Neutral unprotected)		●	●	●	●	●	●	●	●	●	●	●	●	●
4P4D (Neutral protected 100% Ir)		●	●	●	●	●	●	●	●	●	●	●	●	●

Trip Unit Characteristics - Thermal Magnetic HGP250, 400, 630, 800



Rated Current (A)	In	100	125	150	160	175	200	225	250	300	350	400	500	630	700	800
MCCB	HGP250	●	●	●	●	●	●	●	●							
	HGP400									●	●	●				
	HGP630												●	●		
	HGP800														●	●
Overload protection (thermal) Ir																
Fixed Type (FF)	1.0 x In	100	125	150	160	175	200	225	250	300	350	400	500	630	700	800
Adjustable Type (JF, JJ)	0.8 x In	80	100	120	128	140	160	180	200	240	280	320	400	504	560	640
	0.9 x In	90	112.5	135	144	157.5	180	202.5	225	270	315	360	450	567	630	720
	1.0 x In	100	125	150	160	175	200	225	250	300	350	400	500	630	700	800
Short-circuit protection (magnetic) Ii																
Fixed Type (FF, JF)	10 x In	1,000	1,250	1,500	1,600	1,750	2,000	2,250	2,500	3,000	3,500	4,000	5,000	6,300	7,000	8,000
	Maximum non-tripping current (A)	800	1,000	1,200	1,280	1,400	1,600	1,800	2,000	2,400	2,800	3,200	4,000	5,040	5,600	6,400
	Minimum tripping current (A)	1,200	1,500	1,800	1,920	2,100	2,400	2,700	3,000	3,600	4,200	4,800	6,000	7,560	8,400	9,600
Adjustable Type (JJ)	5 x In	-	625	750	800	875	1,000	1,125	1,250	1,500	1,750	2,000	2,500	3,150	3,500	4,000
	Maximum non-tripping current (A)	-	500	600	640	700	800	900	1,000	1,200	1,400	1,600	2,000	2,520	2,800	3,200
	Minimum tripping current (A)	-	750	900	960	1,050	1,200	1,350	1,500	1,800	2,100	2,400	3,000	3,780	4,200	4,800
	6 x In	-	750	900	960	1,050	1,200	1,350	1,500	1,800	2,100	2,400	3,000	3,780	4,200	4,800
	Maximum non-tripping current (A)	-	600	720	768	840	960	1,080	1,200	1,440	1,680	1,920	2,400	3,024	3,360	3,840
	Minimum tripping current (A)	-	900	1,080	1,152	1,260	1,440	1,620	1,800	2,160	2,520	2,880	3,600	4,536	5,040	5,760
	7 x In	-	875	1,050	1,120	1,225	1,400	1,575	1,750	2,100	2,450	2,800	3,500	4,410	4,900	5,600
	Maximum non-tripping current (A)	-	700	840	896	980	1,120	1,260	1,400	1,680	1,960	2,240	2,800	3,528	3,920	4,480
	Minimum tripping current (A)	-	1,050	1,260	1,344	1,470	1,680	1,890	2,100	2,520	2,940	3,360	4,200	5,292	5,880	6,720
	8 x In	-	1,000	1,200	1,280	1,400	1,600	1,800	2,000	2,400	2,800	3,200	4,000	5,040	5,600	6,400
	Maximum non-tripping current (A)	-	800	960	1,024	1,120	1,280	1,440	1,600	1,920	2,240	2,560	3,200	4,032	4,480	5,120
	Minimum tripping current (A)	-	1,200	1,440	1,536	1,680	1,920	2,160	2,400	2,880	3,360	3,840	4,800	6,048	6,720	7,680
	9 x In	-	1,125	1,350	1,440	1,575	1,800	2,025	2,250	2,700	3,150	3,600	4,500	5,670	6,300	7,200
	Maximum non-tripping current (A)	-	900	1,080	1,152	1,260	1,440	1,620	1,800	2,160	2,520	2,880	3,600	4,536	5,040	5,760
	Minimum tripping current (A)	-	1,350	1,620	1,728	1,890	2,160	2,430	2,700	3,240	3,780	4,320	5,400	6,804	7,560	8,640
	10 x In	-	1,250	1,500	1,600	1,750	2,000	2,250	2,500	3,000	3,500	4,000	5,000	6,300	7,000	8,000
	Maximum non-tripping current (A)	-	1,000	1,200	1,280	1,400	1,600	1,800	2,000	2,400	2,800	3,200	4,000	5,040	5,600	6,400
	Minimum tripping current (A)	-	1,500	1,800	1,920	2,100	2,400	2,700	3,000	3,600	4,200	4,800	6,000	7,560	8,400	9,600
Neutral Protection																
4P3D (Neutral unprotected)		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
4P4D (Neutral protected 100% Ir)										●	●	●	●	●	●	●

Model Selection Table

Motor Protection Circuit Breakers (HGP Type): 100 - 800 AF

This device has the function of protecting only short-circuit current and is suitable for protecting motor with combination of magnetic contactor and thermal overload relay.

Things in Common

Rated Insulation Voltage, U_i	1,000 V
Rated Operational Voltage, U_e	690 V
Impulse Withstand Voltage, U_{imp}	8 kV
Protective Function	short-circuit and instantaneous protection

Suitability for Isolation	Yes
Utilization Category	A
Pollution Degree	3
Reference Standard	IEC 60947-2

Model			HGP100					HGP250				
Frame			(AF) 100					(AF) 250				
Pole			(P) 3					(P) 3				
Rated current, at 40 °C			(A) 25, 32, 63, 125, 20, 32, 50, 63, 80, 100					(A) 125, 150, 160, 175, 200, 225, 250				
Rated short-circuit breaking capacity [Icu] (kA rms)	Recognition code for order		F	N	S	H	L	F	N	S	H	L
	AC660/690 V		6	6	8	8	10	6	6	8	8	10
	AC480/500 V		25	35	50	65	85	25	35	50	65	85
	AC440/460 V		36	50	65	85	130	36	50	65	85	130
	AC380/415 V		50	65	85	100	130	50	65	85	100	130
AC220/240 V			65	85	100	130	150	65	85	100	130	150
Service breaking capacity [Ics = % Icu]			100	100	100	100	100	100	100	100	100	100
Rated short-circuit making capacity [Icm] (kA rms)	AC660/690 V		9	9	14	14	17	9	9	14	14	17
	AC480/500 V		53	74	105	143	187	53	77	105	143	187
	AC440/460 V		76	105	143	187	286	76	105	143	187	286
	AC380/415 V		105	143	187	220	286	105	143	187	220	286
	AC220/240 V		143	187	220	286	330	143	187	220	286	330
Endurance (Durability)	Mechanical		25,000					25,000				
	Electrical		10,000					10,000				
Trip Device												
Thermal Magnetic			●					●				
	Long time [LT]		-					-				
	Instantaneous [INST]		(6 - 7 - 8 - 9 - 10 - 11 - 12 - 13) x In					(5 - 6 - 7 - 8 - 9 - 10) x In				
Electronic			-					-				
	Long time [LT]		-					-				
	Short time [STD]		-					-				
	Instantaneous [INST]		-					-				
Accessory												
Internal	Auxiliary switch AUX		●					●				
	Alarm switch ALT		●					●				
	Shunt trip SHT		●					●				
	Undervoltage trip UVT		●					●				
External	Rotary handle	Front contact TFG	●					●				
		Extended TFH	●					●				
	Motor operator MOT		●					●				
	Mechanical interlock MIF		●					●				
	Locking device PLD		●					●				
	Plug-in	TDM (LINE/LOAD)	● (3P Only)					● (3P Only)				
		TDM (LINE only)	● (3P Only)					● (3P Only)				
	Cage terminal block CTB		●					●				
	Insulation terminal cover TCF		●					●				
	Insulation barrier TQQ		●					●				
Terminal extensions TBB		●					●					
Installation and Dimensions												
Connection/Installation	Front connection		Terminal screw, Terminal busbar					Terminal screw, Terminal busbar				
	Rear connection		Horizontal/Vertical					Horizontal/Vertical				
	Plug-in		Switchboard type (Line & Load, Line only)					Switchboard type (Line & Load, Line only)				
Dimensions (mm)		a	105					105				
		b	165					165				
		c	86.5					86.5				
Weight (kg)	3/4P		2/2.6					2/2.6				
Detailed rating and select			104 Page					104 Page				
Characteristics curve and outside view			74 - 89 Page					74 - 89 Page				

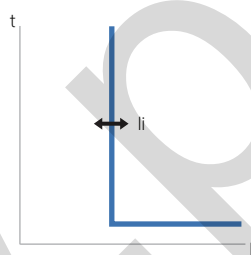




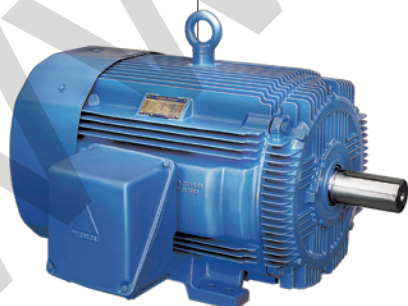
HGP400					HGP630					HGP800				
400					630					800				
3					3					3				
300, 350, 400					500, 630					700, 800				
F	N	S	H	L	F	N	S	H	L	F	N	S	H	L
6	6	8	8	10	10	10	10	20	25	10	10	10	20	25
25	35	50	65	85	25	35	50	70	85	25	35	50	70	85
36	50	65	85	130	36	50	70	85	130	36	50	70	85	130
50	65	85	100	130	50	65	85	100	130	50	65	85	100	130
65	85	100	130	150	65	85	100	130	150	65	85	100	130	150
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
9	9	17	40	53	17	17	17	40	53	17	17	17	40	53
53	74	105	154	187	53	74	105	154	187	53	74	105	154	187
76	105	154	187	286	76	105	154	187	286	76	105	154	187	286
105	143	187	220	286	105	143	187	220	286	105	143	187	220	286
143	187	220	286	330	143	187	220	286	330	143	187	220	286	330
20,000					20,000					10,000				
6,000					4,000					3,000				
●					●					●				
-					-					-				
(5 - 6 - 7 - 8 - 9 - 10) x In					(5 - 6 - 7 - 8 - 9 - 10) x In					(5 - 6 - 7 - 8 - 9 - 10) x In				
-					-					-				
-					-					-				
-					-					-				
-					-					-				
●					●					●				
●					●					●				
●					●					●				
●					●					●				
●					●					●				
●					●					●				
●					●					●				
● (3P Only)					● (3P Only)					● (3P Only)				
● (3P Only)					● (3P Only)					● (3P Only)				
●					●					●				
●					●					●				
●					●					●				
●					●					●				
Terminal screw, Terminal busbar					Terminal screw, Terminal busbar					Terminal screw, Terminal busbar				
Horizontal/Vertical					Horizontal/Vertical					Horizontal/Vertical				
Switchboard type (Line & Load, Line only)					Switchboard type (Line & Load, Line only)					Switchboard type (Line & Load, Line only)				
140					140					210				
260					260					320				
110					110					135				
5.4/7.2					5.4/7.2					15.1/19.6				
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Model Selection Table

Trip Unit Characteristics



Characteristics Curve
(I - t Curve)



Rated Current (A) In		2.5	3.2	6.3	12.5	20	32	50	63	80	100
MCCB	HGP100	●	●	●	●	●	●	●	●	●	●
Pick-up (A)											
8 Step Adjustable	6 x Ir	15	19.2	37.8	75	120	192	300	378	480	600
	7 x Ir	17.5	22.4	44.1	87.5	140	224	350	441	560	700
	8 x Ir	20	25.6	50.4	100	160	256	400	504	640	800
	9 x Ir	22.5	28.8	56.7	112.5	180	288	450	567	720	900
	10 x Ir	25	32	63	125	200	320	500	630	800	1,000
	11 x Ir	27.5	35.2	69.3	137.5	220	352	550	693	880	1,100
	12 x Ir	30	38.4	75.6	150	240	384	600	756	960	1,200
	13 x Ir	32.5	41.6	81.9	162.5	260	416	650	819	1,040	1,300
Accuracy		-20 % - +30 %									

Rated Current (A) In		125	150	160	175	200	225	250	300	350	400	500	630	700	800
MCCB	HGP250	●	●	●	●	●	●	●							
	HGP400								●	●	●				
	HGP630											●	●		
	HGP800													●	●
Pick-up (A)															
6 Step Adjustable	5 x Ir	625	750	800	875	1,000	1,125	1,250	1,500	1,750	2,000	2,500	3,150	3,500	4,000
	6 x Ir	750	900	960	1,050	1,200	1,350	1,500	1,800	2,100	2,400	3,000	3,780	4,200	4,800
	7 x Ir	875	1,050	1,120	1,225	1,400	1,575	1,750	2,100	2,450	2,800	3,500	4,410	4,900	5,600
	8 x Ir	1,000	1,200	1,280	1,400	1,600	1,800	2,000	2,400	2,800	3,200	4,000	5,040	5,600	6,400
	9 x Ir	1,125	1,350	1,440	1,575	1,800	2,025	2,250	2,700	3,150	3,600	4,500	5,670	6,300	7,200
	10 x Ir	1,250	1,500	1,600	1,750	2,000	2,250	2,500	3,000	3,500	4,000	5,000	6,300	7,000	8,000
Accuracy		-20 % - +30 %													

Model Selection Table

Switch Disconnectors (HGP NA Type): 50 - 800 AF

This devices have same accessories with circuit breakers.

Things in Common

Rated Insulation Voltage, U_i	1,000 V
Rated Operational Voltage, U_e	AC690 V
Impulse Withstand Voltage, U_{imp}	8 kV
Utilization Category	AC22 A / AC23 A - DC22 A / DC23 A

Suitability for Isolation	Yes
Reference Standard	IEC 60947-3
Pollution Degree	3

Model		HGP50DNA	HGP125DNA	HGP160DNA
Frame (AF)		50	125	160
Pole (P)		3, 4 ¹⁾	3, 4 ¹⁾	3, 4 ¹⁾
Conventional thermal current (A)		50	125	160
Rated operational current [I _e]	AC 440/480 V (50/60Hz)	50	125	160
	DC 250 V (1Pole)	50	125	160
	DC 500 V (2Pole in series)	50	125	160
Rated short-circuit making capacity [I _{cm}] (kA Peak)		2.1	2.8	3.6
Rated short-time withstand current [I _{cw}]	1 s (A rms)	1,800	2,200	2,200
	3 s (A rms)	1,800	2,200	2,200
	20 s (A rms)	690	960	960
Endurance (Durability)	Mechanical	25,000	25,000	25,000
	In @ 440 V Electrical	10,000	10,000	10,000

Accessory

Internal	Auxiliary switch	AUX	●	●	●
	Alarm switch	ALT	●	●	●
	Shunt trip	SHT	●	●	●
	Undervoltage trip	UVT	●	●	●
External	Rotary handle	Front contact TFG	●	●	●
		Extended TFH	●	●	●
	Motor operator	MOT	●	●	●
	Mechanical interlock	MIF	●	●	●
	Locking device	PLD	●	●	●
	Plug-in	TDM (LINE/LOAD)	● (3P Only)	● (3P Only)	● (3P Only)
		TDM (LINE only)	● (3P Only)	● (3P Only)	● (3P Only)
	Cage terminal block	CTB	●	●	●
	Insulation terminal cover	TCF	●	●	●
	Insulation barrier	TQQ	●	●	●
	Terminal extensions	TBB	-	-	-

Installation and Dimensions

Connection/Installation	Front connection	Terminal screw		
	Rear connection	Horizontal/Vertical		
	Plug-in	Switchboard type (Line & Load, Line only)		
Dimensions (mm)	a	90/120	90/120	90/120
	b	140	140	140
	c	86	86	86
Weight (kg)	3/4P	1.5/1.8	1.5/1.8	1.5/1.8
Detailed rating and select		104 Page	104 Page	104 Page
Characteristics curve and outside view		74 - 89 Page	74 - 89 Page	74 - 89 Page



※ 1) 4 pole arrangement: Basic specification is R-S-T-N

Switch - Disconnectors

- Busbar coupling and isolation
- Isolation of industrial distribution boards and industrial control panels
- Switch for emergency power changeover



HGP250NA	HGP400NA	HGP630NA	HGP800NA
250	400	630	800
3, 4 ¹⁾	3, 4 ¹⁾	3, 4 ¹⁾	3, 4 ¹⁾
250	400	630	800
250	400	630	800
250	400	630	800
250	400	630	800
4.9	7.1	8.5	12
3,500	5,000	6,300	8,000
3,500	5,000	6,300	8,000
1,350	1,920	2,320	2,560
25,000	20,000	20,000	10,000
10,000	6,000	4,000	3,000
•	•	•	•
•	•	•	•
•	•	•	•
•	•	•	•
•	•	•	•
•	•	•	•
•	•	•	•
•	•	•	•
•	•	•	•
•	•	•	•
•	•	•	•
• (3P Only)	• (3P Only)	• (3P Only)	• (3P Only)
• (3P Only)	• (3P Only)	• (3P Only)	• (3P Only)
•	•	•	•
•	•	•	•
•	•	•	•
•	•	•	•
Terminal screw	Terminal screw	Terminal screw	Terminal screw
Horizontal/Vertical	Horizontal/Vertical	Horizontal/Vertical	Horizontal/Vertical
Switchboard type (Line & Load, Line only)	Switchboard type (Line & Load, Line only)	Switchboard type (Line & Load, Line only)	Switchboard type (Line & Load, Line only)
105/140	140/186.5	140/186.5	210/280
165	260	260	320
86.5	110	110	135
2/2.6	5.4/7.2	5.4/7.2	15.1/19.6
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Rotary Handle 38

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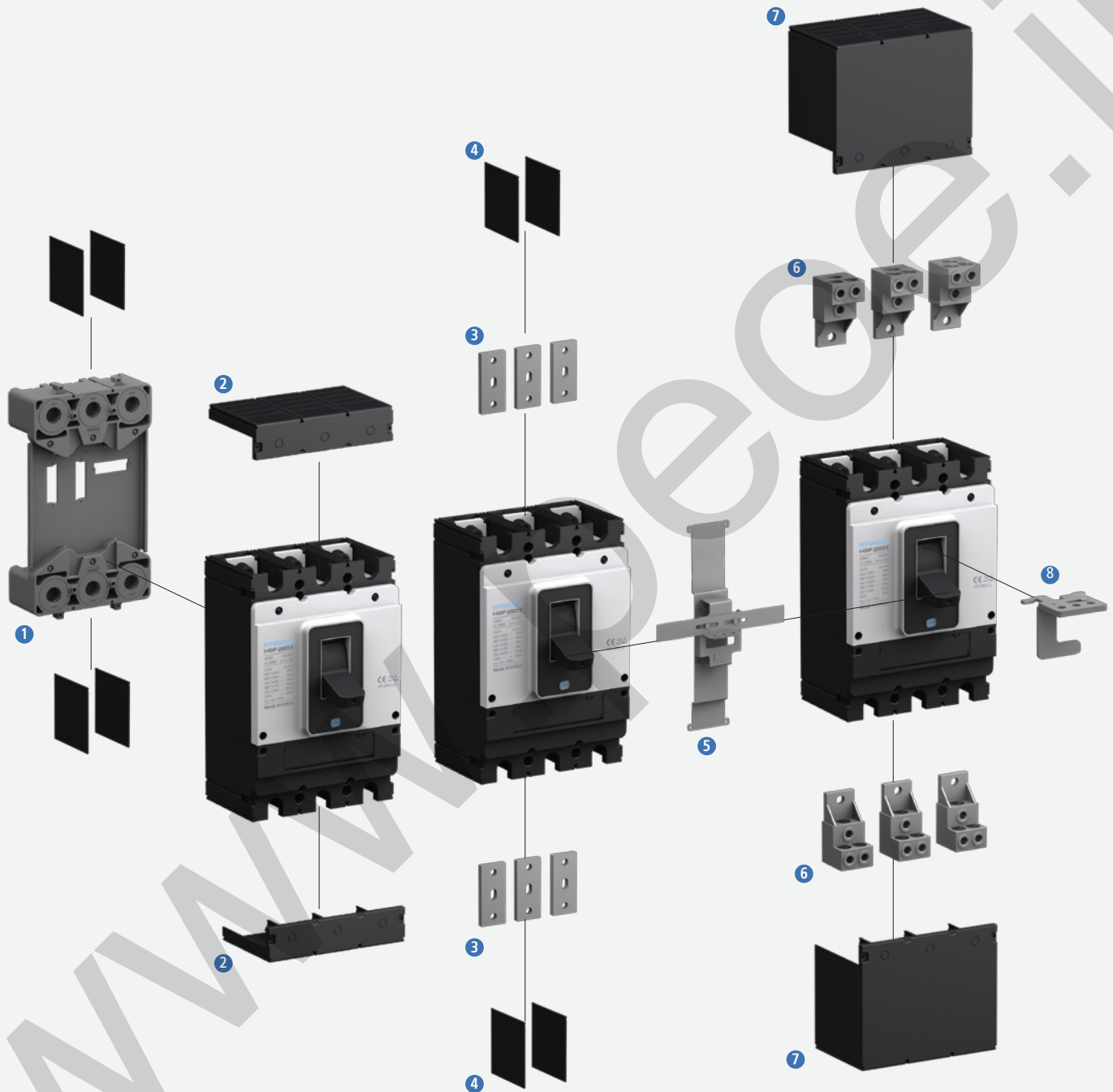
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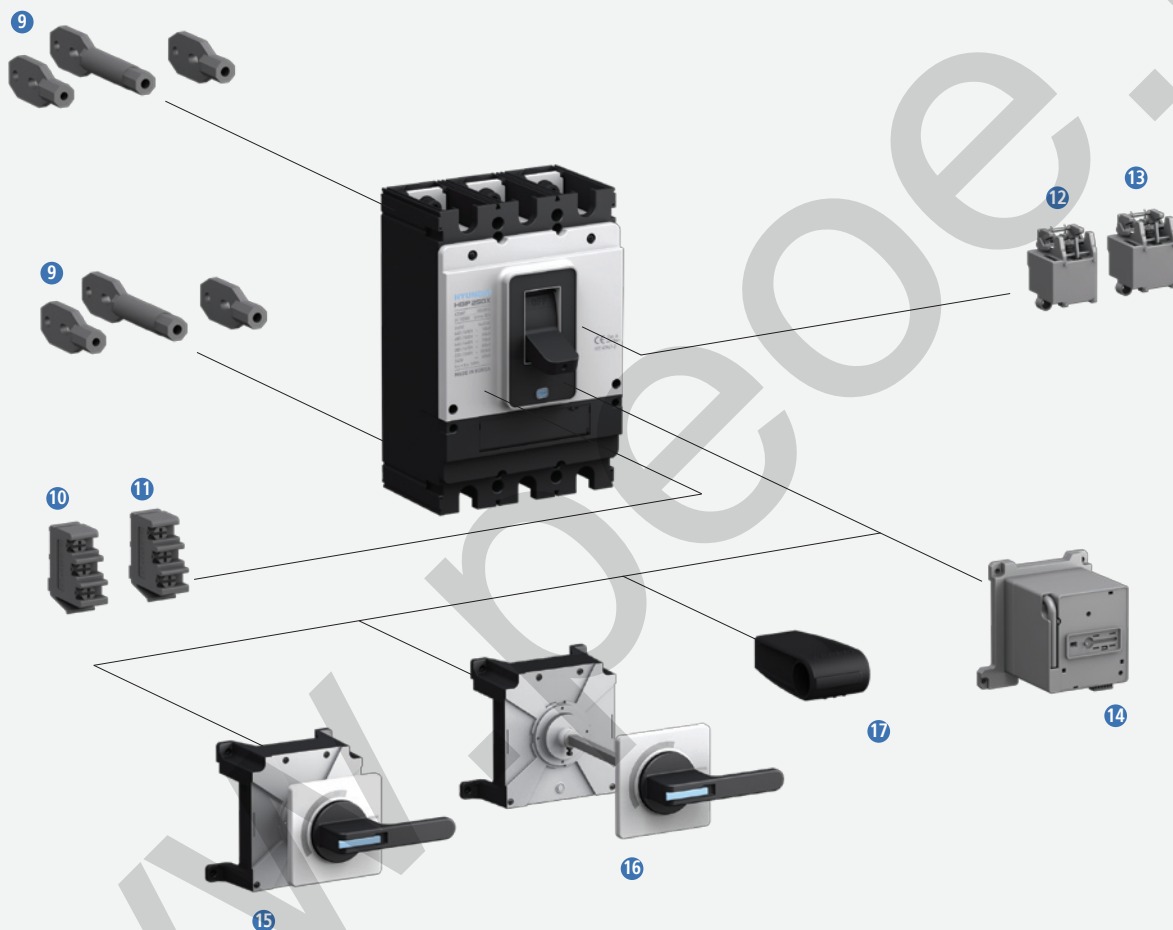
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Accessories





HGP Type Molded Case Circuit Breakers

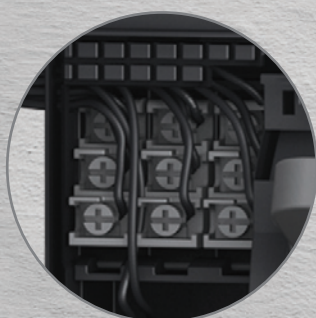
- | | | |
|-----------------------------------|---|--------------------------|
| ① Plug in Devices | ⑦ Terminal Cover | ⑫ Shunt Trip Coil |
| ② Terminal Cover for Plug-In Type | ⑧ Removable Locking Device Using Padlocks | ⑬ Undervoltage Trip Coil |
| ③ Busbar | ⑨ Rear Connection Terminal | ⑭ Motor Operator |
| ④ Insulation Barrier | ⑩ Auxiliary Switch | ⑮ Direct Rotary Handle |
| ⑤ Mechanical Interlock | ⑪ Trip Alarm Switch | ⑯ Extended Rotary Handle |
| ⑥ Lug Terminal | | ⑰ Extension Handle |

HG-SERIES

HGP Type Internal Accessories



ALT



AUX



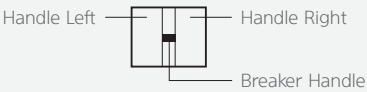
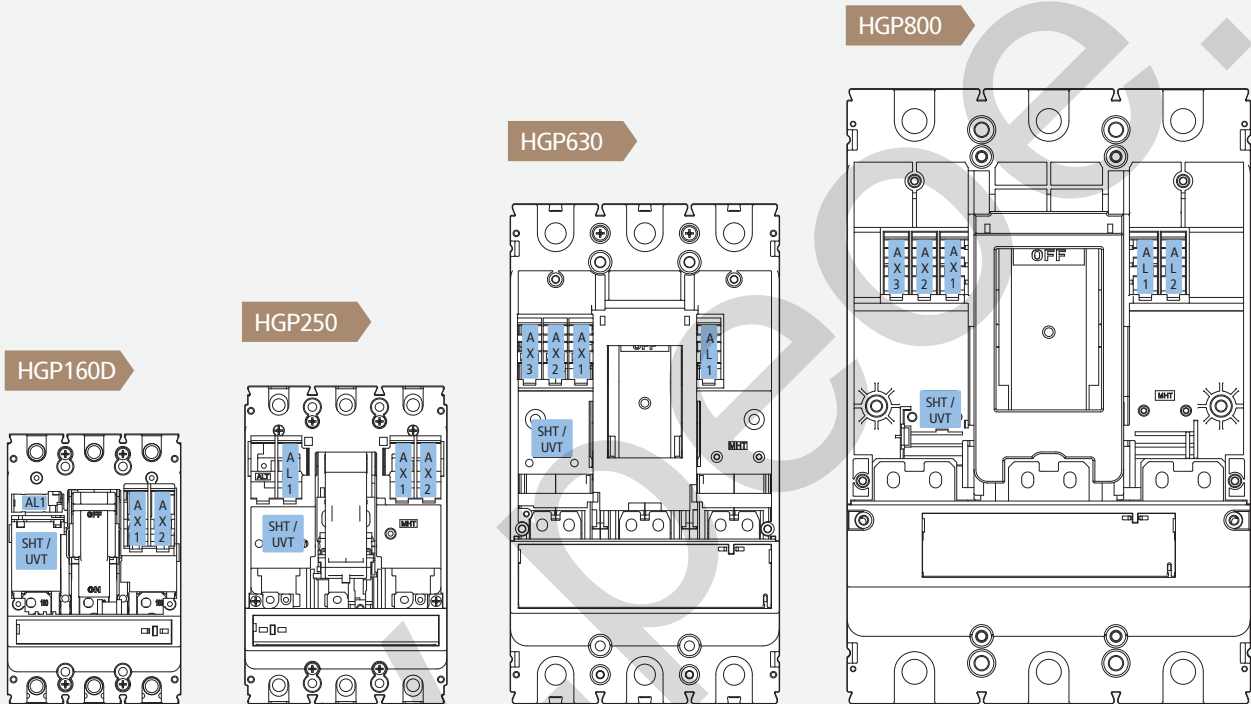
SHT / UVT



Internal Accessories

HGP Type's Internal Accessories and Possible Location for Installation

- Auxiliary switch (AUX)
- Alarm switch (ALT)
- Shunt trip coil (SHT)
- Undervoltage trip coil (UVT)



Possible Location for Installation

Type	Pole	AUX	ALT	SHT	UVT	SHT	SHT	UVT	UVT	SHT	UVT
						AUX	ALT	AUX	ALT	AUX	AUX
						ALT	ALT	ALT	ALT	ALT	ALT
HGP160D	3/4										
HGP250	3/4										
HGP630	3/4										
HGP800	3/4										

Internal Accessories

Auxiliary Switch (AUX), Alarm Switch (ALT)

Indicates the status of circuit breaker contacts from a remote position as well as using for electric locking.

Auxiliary Switch (AUX)

- Indicating ON/OFF status of circuit breaker.
- Status is OFF when TRIP.
- The switch is consist of two contacts having a common connection.

Alarm Switch (ALT)

- Activated when the circuit breaker has tripped due to an overload, short circuit or ground fault excepting manual ON/OFF operation.
- Return to original state, when circuit breaker reset.
- The switch is consist of two contacts having a common connection.



HGP160D ALT



HGP250 - 800 ALT
HGP160 - 800 AUX



HGP630 - AUX - ALT

Contact Circuit Diagram

	Auxiliary Switch (AUX)	Alarm Switch (ALT)
MCCB ON		
MCCB OFF		
MCCB TRIP		

Possible Location for Installation

Type	AUX	ALT
HGP160D		
HGP250		
HGP630		
HGP800		

Rating of Contact

Rated Conventional Thermal Current		5 A	
Minimum Load		160 mA, 5 VDC	
Rated Operational Current		Resistive load	Inductive load
AC	125 V	5 A	3 A
	250 V	3 A	2 A
DC	30 V	4 A	3 A
	125 V	0.4 A	0.4 A
	250 V	0.2 A	0.2 A

Shunt Trip (SHT) / Undervoltage Trip (UVT)

SHT/UVT are installed in internal part of circuit breaker, and they have the function of remote tripping by controlling the voltage of each terminal of coil.

Shunt Trip (SHT)

Remotely trip circuit breakers by voltage shunt trip (SHT) device.

Operation Condition

- $U \geq 0.7 \times U_n$ (Apply more than 70 % of the rated voltage.)
- In case of impulse type voltage, apply more than 20 ms

Rated Voltage and Characteristics

Rated Voltage (Un)		Power consumption	
		W or VA	A (mA)
DC	24 V	1.2	49.7
	100 - 125 V	2.8	25
AC (50/60 Hz)	100 - 120 V	3.3	27.5
	200 - 230 V	5.2	22.6
	380 - 415 V	13.9	33.4
	440 - 480 V	10.9	22.8
Rated Operational Voltage		0.7 - 1.1 x Un	
Operating Time		50 ms	

Undervoltage Trip (UVT)

In case circuit voltage is less than the reference value, the circuit breaker will not trip or close (ON). If circuit voltage falls less than 35 % of Rated voltage (Un), UVT initiates a trip automatically to prevent damage to the load.

Opening Conditions

- Operating characteristics is guaranteed based on IEC 60947-2 standard criteria.
- Trip condition: $U \leq 0.35 \times U_n$
- No Trip condition: $U \geq 0.7 \times U_n$
- In $U = 0.35 - 0.7 \times U_n$ interval, circuit breaker can be tripped but, does not warrant the operation.

Closing Conditions

- For the circuit breakers installed with UVT when voltage is not applied to the UVT, the circuit breakers is possible OFF/RESET but can not be ON (Closing).
- Voltage must be applied at UVT for closing (ON).
- Closing condition: $U \geq 0.85 \times U_n$

Rated Voltage and Characteristic

Rated Voltage (Un)		Power consumption	
		Pick Up	
		W or VA	A (mA)
DC	24 V	2.6	110
	100 - 110 V	5	45
AC (50/60 Hz)	100 - 120 V	4.5	37.9
	200 - 230 V	5.6	24.3
	380 - 415 V	10.8	26
	440 - 480 V	12.5	26
Operating Inception Voltage		0.35 - 0.7 x Un	
In the Case of Closing		0.85 x Un	
Rated Operational Voltage		0.85 - 1.1 x Un	
Operating Time		50ms	



HGP160D



HGP250



HGP400 - 800



UVT CONTROLLER



HGP630_SHT

Possible Location for Installation

Type	SHT	UVT
HGP160D		
HGP250		
HGP630		
HGP800		

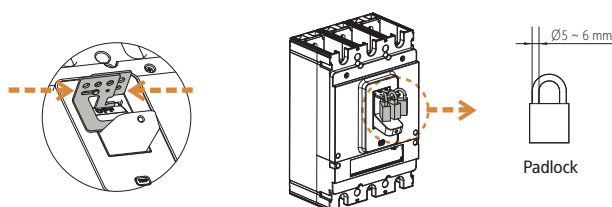
External Accessories

Locking Device

Removable Locking Device Using Padlocks

This device is used for locking the handle of circuit breakers to OFF position by using padlock. Padlock is applicable upto 3 EA and not be supplied additionally.
The applicable specifications of padlock are as below.

Type	Application	Padlock Diameter
PLD 16GP	HGP160D	5 - 6 mm
PLD 25GP	HGP250	
PLD 63GP	HGP630	
PLD 80GP	HGP800	



Mechanical Interlock

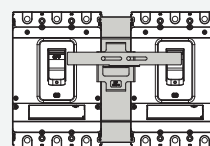
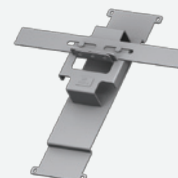
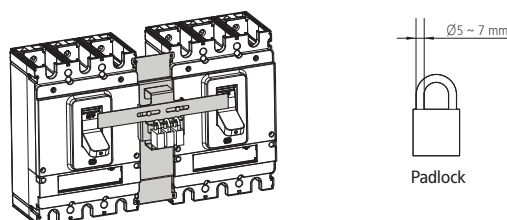
This device interlocks two circuit breakers mechanically.

Features

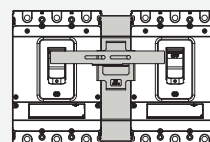
- It prevents two breakers from closing at the same time.
- It turns two breakers all OFF.

The applicable specifications of padlock are as below.

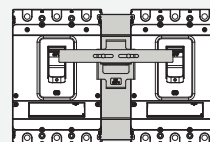
Type		Application	Padlock Diameter
3P	4P		
MIF 16GP 3	MIF 16GP R4	HGP160D	5 - 7 mm
MIF 25GP 3	MIF 25GP R4	HGP250	
MIF 63GP 3	MIF 63GP R4	HGP630	5 - 7 mm
MIF 80GP 3	MIF 80GP R4	HGP800	



Right Off Lock



Left Off Lock



Double Off Lock

Terminal Cover / Insulation Barrier

Terminal Cover

Terminal cover is the device to insulate circuit breaker terminal from the outside for safety.

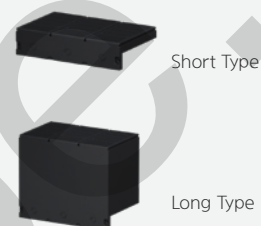
It is possible to apply IP40 as protection degree of power parts. Based on the connecting methods of the circuit breakers long or short type terminals can be applied.

Short Type

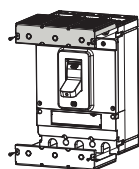
Suitable for plug-in or rear connection.

Long Type

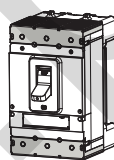
Suitable for front connection using wires, busbar, or lug terminals.



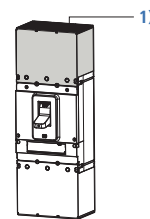
Type			Application	Pitch (mm)	Number of Parts (EA/Set)
3P Short (Plug-in)	3P Long (3P)	4P Long (4P)			
TCF 16GP S3	TCF 16GP L3	TCF 16GP L4	HGP160D	30	1
TCF 25GP S3	TCF 25GP L3	TCF 25GP L4	HGP250	35	1
TCF 63GP S3	TCF 63GP L3	TCF 63GP L4	HGP630	46.5	1
TCF 80GP S3	TCF 80GP L3	TCF 80GP L4	HGP800	70	1



Drawings



Short Type
(Plug-in Connection)



Long Type
(Front Connection)

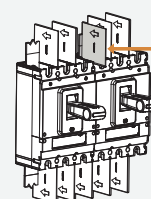
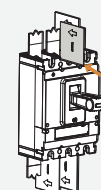
※ 1) For front connection, please use it after removing the mark 1)

Insulation Barrier

Insulation barrier is used for preventing short-circuit fault due to dielectric breakdown between circuit breaker terminals. It improves the performance of terminal phase-to-phase insulation if installed at groove between the terminal of two circuit breakers. It can be easily assembled after the installation of the circuit breaker. In addition, it is used in terminal cover and plug-in base.

Insulation Barriers must be installed to prevent fire, arcing or short-circuit currents.

Type		Application	Number of Parts (EA/Set)	
3P	4P		3P	4P
TQQ 16GP 3	TQQ 16GP 4	HGP 160D	4	6
TQQ 25GP 3	TQQ 25GP 4	HGP 250	4	6
TQQ 63GP 3	TQQ 63GP 4	HGP 630	4	6
TQQ 80GP 3	TQQ 80GP 4	HGP 800	4	6



※ Additional barrier required for mounting in close contact is supplied as additional options.

External Accessories

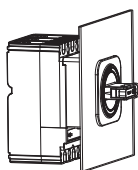
Rotary Handle

Rotary handle is the device to check for MCCB's ON/OFF/TRIP status from outside of switchgear. There are two types of rotary handle-extended type and direct type. All the rotary handles provide panel door locking and handle locking function by rotating clockwise the rotary handle, the circuit breaker operates "ON". Each rotary handle is divided into these three types the upper line, the right line, and the left line-according to attachment direction of MCCB. The IP rating of the handle is IP40.

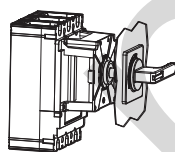
Direct Rotary Handle (TFG Type)

- 160 - 250 AF: Attach handle directly to the circuit breaker.
- 630 - 800 AF: Attach handle to the door of switchgear.

Type			Application
Upper Line	Right Line	Left Line	
TFG 16GP U	TFG 16GP R	TFG 16GP L	HGP160D
TFG 25GP U	TFG 25GP R	TFG 25GP L	HGP250
TFG 63GP U	TFG 63GP R	TFG 63GP L	HGP630
TFG 80GP U	TFG 80GP R	TFG 80GP L	HGP800



HGP160D
HGP250



HGP630
HGP800

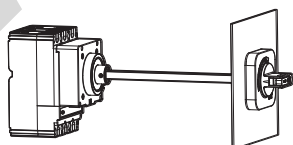


Extended Rotary Handle (TFH Type)

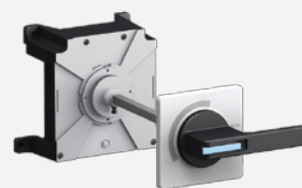
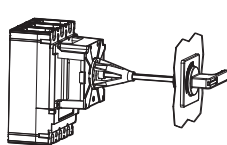
Suitable for the case that long the distance between circuit breaker and door switchgear is long. The handle is attached to the door of switchgear so there is no trip-button function.

Type	Application
TFH 16GP	HGP160D
TFH 25GP	HGP250
TFH 63GP	HGP630
TFH 80GP	HGP800

HGP160D
HGP250

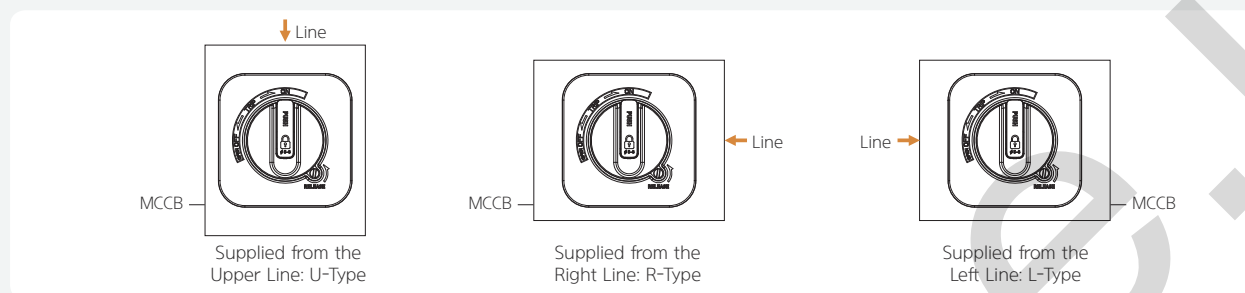


HGP630
HGP800



Category of Handle in Accordance with Circuit-Breaker's Installation Type

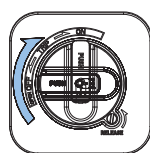
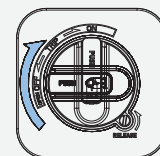
Rotary handle is divided into the following three types according to the direction of power supply.



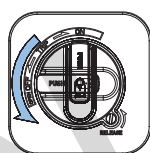
How to Operate Handle

Operating direction: To turn 'ON' the circuit breaker function, rotate handle clockwise.

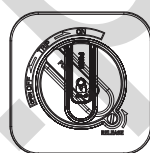
- Circuit breaker ON: Rotating the handle to ON position. (Figure 1)
- Circuit breaker OFF: Rotating the handle to OFF position. (Figure 2)
- Circuit breaker TRIP: If the circuit breaker is tripped, the handle will be switched to automatically TRIP position. (Figure 3)
- If you rotate the handle to RESET position first after the circuit breaker is tripped (Figure 4) and then rotate the handle to ON position, the circuit breaker is operated ON (Figure 1).
- If you need to open door when handle is in the ON state, rotate the RELEASE screw to direction of the arrow first and then open the door (Figure 5).



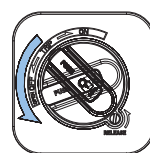
(Figure 1)



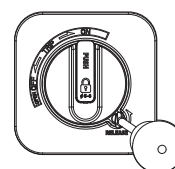
(Figure 2)



(Figure 3)



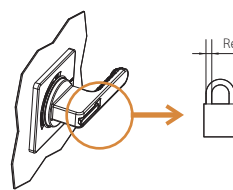
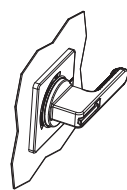
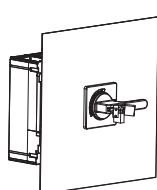
(Figure 4)



(Figure 5)

Locking Device

Locking Function	OFF State Door Lock	ON State Door Lock	Reverse Interlock	Handle Padlock
Contents	- Impossible to open the switchgear door when the circuit breaker is in the OFF state. - Possible at RESET position - It is possible to open the switchgear door after rotating the handle to RESET.	- Impossible to open the switchgear door when the circuit breaker is in the OFF state. - Possible at RESET position - It is possible to open the switchgear door after rotating the handle to RESET.	Impossible to put the circuit breaker in the state "ON" when the switchgear door is open.	- Padlocking function for prevention of handle operation. - Padlock is not supplied separately. And the number of usable padlock is decided in accordance with padlock diameter. (Refer to the following table) - The specifications of the applicable padlock are referred to as the following table.
Direct type (TFG)	•	•	• (160/250 AF)	•
Extended type (TFH)	•	•	-	•



Refer to the TABLE

Application	Padlock Diameter
HGP160D, HGP250	6 - 8 mm
HGP630, HGP800	5 - 7 mm

External Accessories

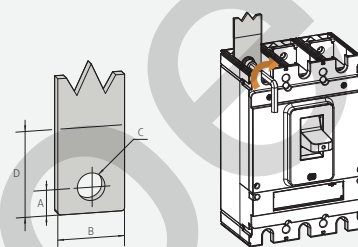
Front Connection of Fixed Devices

Select and use the busbar or LUG terminal according to specification of busbar and cable connected to circuit breaker.

Insulated Bar Connection

If busbar pitch of switchgear is equal to circuit breaker, it is possible to connect the circuit breaker directly using a insulation tube. When connected to the busbar, refer to the specification chart as below. Use the insulation barrier and terminal cover where applicable.

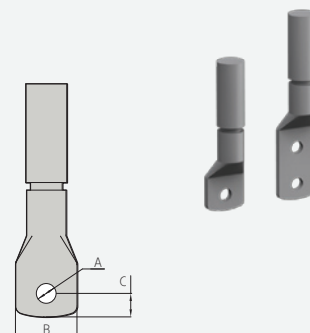
Application	Connection Busbar Dimensions (mm)				Applicable Bolt and Tightening Torque	
	A	B	C	D	Bolt Spec.	Maximum Tightening Torque (kgf x cm)
160 AF	9	< 22	ø 9	> 18	M8 Screw	136
250 AF	9	< 25	ø 9	> 19	M8 Hex Socket	136
630 AF	15	< 32	ø 10.5	> 30	M10 Hex Socket	270
800 AF	15.5	< 50	ø 13	> 32	M12 Hex Socket	470



Crimped Terminal

It is necessary to follow the specifications and choose the correct cable size for the terminal. The crimped terminal must be used with the insulation barrier and terminal cover. Additional terminal is not supplied

Application		Cu Cable Size (mm ²)	Applicable Terminal Dimensions (mm)		
AF	Rated Current		A	B	C
160 AF	100 A	35	ø 9	< 22	9
	160 A	70			
250 AF	160 A	70	ø 9	< 25	9
	250 A	120			
630 AF	400 A	240	ø 10.5	< 32	15
	630 A	185 x 2			
800 AF	800 A	240 x 2	ø 13	< 50	15.5



Busbar

Spreader Busbar: Used to meet the size of the cable or standards of the switchgear. (No change of the pitch between the poles)

Expanded Busbar: Used to extend the insulation distance. (Extension of the pitch between the poles)

Application		Straight Busbar		Extended Busbar (Spreader)	
Type	Pole	Type	Pitch	Type	Pitch
HGP250	3	TBB 25GP 3S	35 mm	TBB 25GP 3E45	45 mm
	4	TBB 25GP 4S		TBB 25GP 4E45	
HGP630	3	TBB 63GP 3S	46.5 mm	TBB 63GP 3E61.5	61.5 mm
	4	TBB 63GP 4S		TBB 63GP 4E61.5	
HGP800	3	TBB 80GP 3S	70 mm	-	-
	4	TBB 80GP 4S		-	

※ Quantity per set: 3P - 3 EA, 4P - 4 EA



Straight Busbar



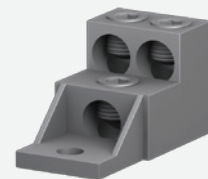
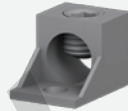
Extended Busbar (Spreader)

LUG Terminal

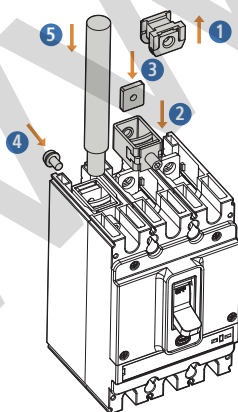
Used to connect the cable to circuit breakers without crimped terminal. It should be used according to size of cable and rating of product.

Application		LUG Terminal		Application				Tightening Torque (kgf x cm)
Type	Pole	Type	Material	EA	Material	S (mm ²)	L (mm)	
HGP160D	3	CTB 16GP 3	Steel	1	Cu/Al	1.5 - 95	19	140
	4	CTB 16GP 4						
HGP250	3	CTB 25GP 3	Al	1	Cu/Al	14 - 185	19	140
	4	CTB 25GP 4						
HGP630	3	CTB 63GP 3	Al	2	Cu/Al	60 - 240	30 - 60	353
	4	CTB 63GP 4						
HGP800	3	CTB 80GP 3	Al	3	Cu/Al	60 - 185	30 - 60	353
	4	CTB 80GP 4						

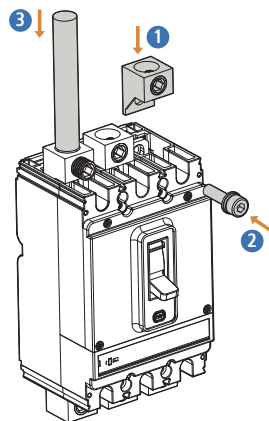
※ Quantity per set: 3P - 3 EA, 4P - 4 EA



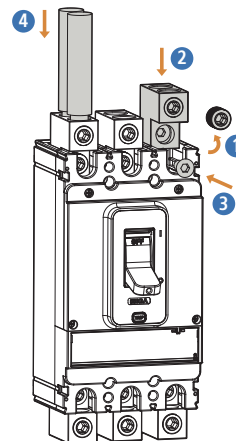
HGP160D



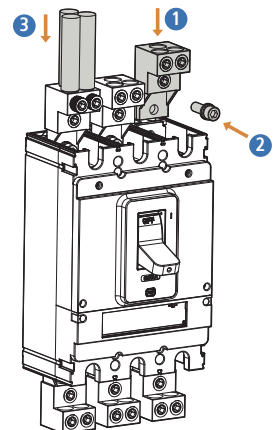
HGP250



HGP630



HGP800

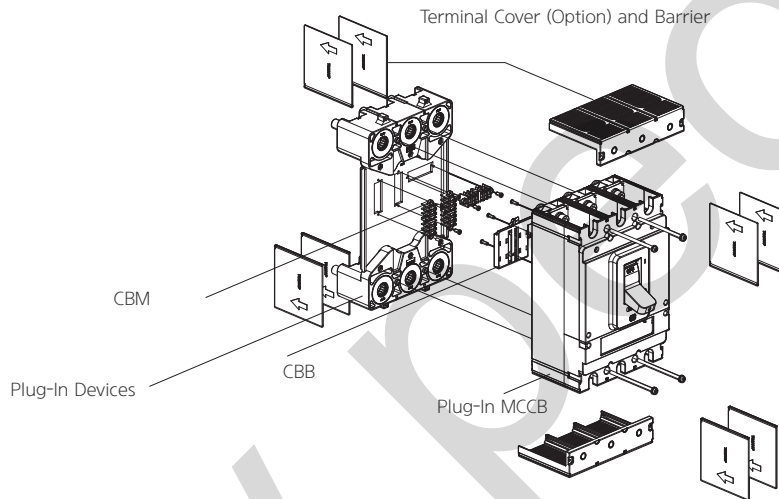


External Accessories

Plug-in Connection Devices

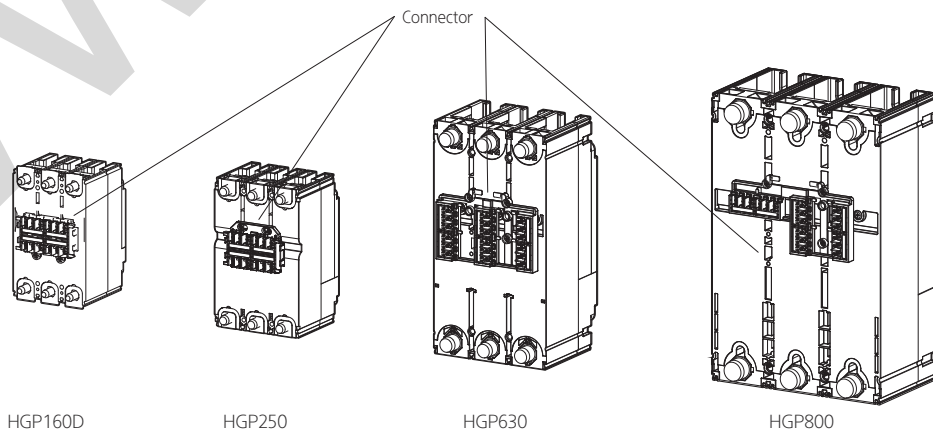
Circuit breakers can be replaced quickly without cable separation by using Plug-in connection type. It is more convenient to apply Plug-in type circuit breakers for important electric system (shipping, broadcasting etc).

- Applicable to 50 - 800 AF, 3 Pole.
- Easy and convenient to maintain and repair the switchgear.
- It is possible to remove/replace the circuit breaker quickly without contacting the terminal.
- Type: For switchboard (TDM/TDF)
- Constitution: Plug-in devices, plug-in MCCB, terminal cover or Insulation barrier (Option)



Plug-in MCCB (for HGP)

The plug-in connection system must be applied to the plug-in type MCCB. Standard MCCB type is not applicable. It is available up to 800 AF with a variety of products for mounting in standard switchboards. Terminal (Connector) is supplied to be connected with internal accessories of the circuit breaker.

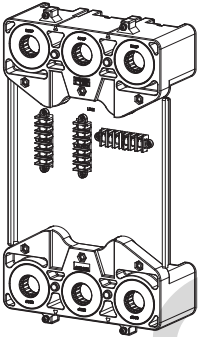
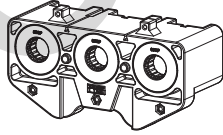


Plug-in Devices

This device is used to connect plug-in MCCB to switchgear

TDM Type

- TDM-P: Both LINE and LOAD sides consist of plug-in terminal.
- TDM-F: Only LINE side consists of plug-in terminal.

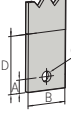
Application	For Switchgear	
Type	TDM-P	TDM-F
Composition		
Use	LINE/LOAD	LINE
Application MCCB	HGP50 - 800 AF 3P	

Connection Busbar

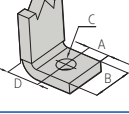
It is used for connecting switchgear busbar to plug-in device directly.

The specifications of the applicable busbar are as follows.

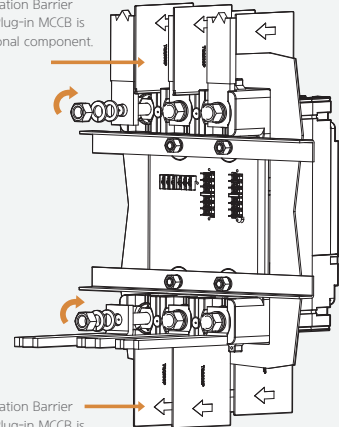
(unit: mm)

Application	A	B	C	D	Remark
160 AF	< 12	< 21	$\varnothing \geq 8.5$	< 30	
250 AF	< 18	< 25	$\varnothing \geq 8.5$	< 35	
630 AF	< 34	< 35	$\varnothing \geq 10.5$	< 60	
800 AF	< 30	< 40	$\varnothing \geq 16.5$	< 60	

(unit: mm)

Application	A	B	C	D	Remark
160 AF	< 12	< 21	$\varnothing \geq 8.5$	< 12	
250 AF	< 18	< 25	$\varnothing \geq 8.5$	< 18	
630 AF	< 25	< 35	$\varnothing \geq 10.5$	< 25	
800 AF	< 30	< 40	$\varnothing \geq 16.5$	< 30	

Insulation Barrier for Plug-in MCCB is optional component.



Insulation Barrier for Plug-in MCCB is optional component.

External Accessories

HG-MCCB Plug-in CBM Wiring Position (TDM Front Side)

OPTION	HGP160D	HGP250	HGP630	HGP800
AUX				
AUX2				
AUX3				
ALT				
SHT/UVT				
AUX + ALT				
AUX2 + ALT				
AUX3 + ALT				
AUX + SHT/UVT				
AUX2+ SHT/UVT				
AUX3 + SHT/UVT				
ALT + SHT/UVT				
AUX + ALT + SHT/UVT				
AUX + ALT + SHT/UVT				

Rear Connection Terminal

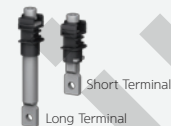
This device is used for connecting MCCB from rear side of switchgear.

It is possible to array buabar vertically or horizontally according to assembling direction of connection.

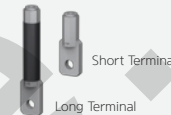
Flat Type

Application		Rear Connection of Fixed Devices		Quantity Per Set	
Type	Pole	LINE	LOAD	Short Terminal	Long Terminal
HGP160D	3	RCT 16GP F3		2	1
	4	RCT 16GP F4		2	2
HGP250	3	RCT 25GP F3		2	1
	4	RCT 25GP F4		2	2
HGP630	3	RCT 63GP F3 LINE	RCT 63GP F3 LOAD	2	1
	4	RCT 63GP F4 LINE	RCT 63GP F4 LOAD	2	2
HGP800	3	RCT 80GP F3 LINE	RCT 80GP F3 LOAD	2	1
	4	RCT 80GP F4 LINE	RCT 80GP F4 LOAD	2	2

HGP160D, HGP250



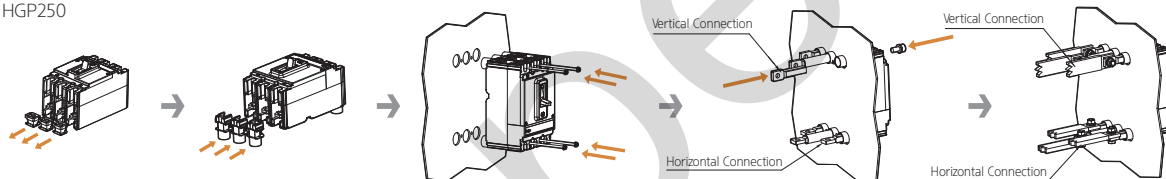
HGP630



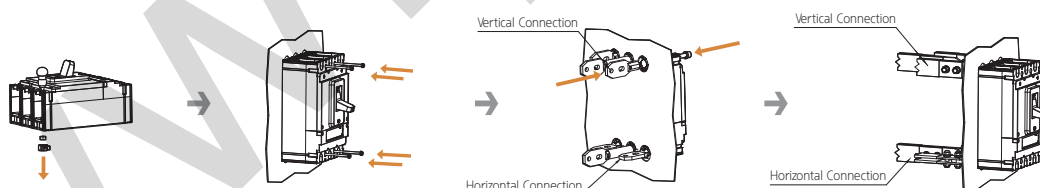
HGP800



HGP160D
HGP250



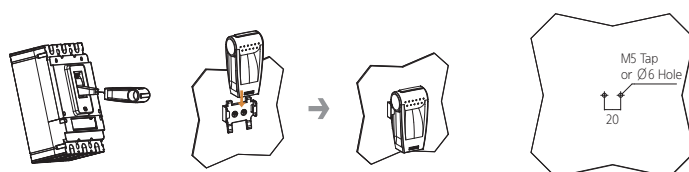
HGP630
HGP800



Extension Handle (THA)

This device is supplied as standard to reduce strength in operation of breaker.

Its holder is also supplied for panel mounting.



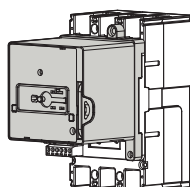
External Accessories

Motor Operator

This device is used for turning ON/OFF circuit breakers from remote position.

It can be applied at low-voltage automation system or emergency power system.

Application		MOT	Control Voltage
Type	Pole		
HGP160D	3, 4	MOT 16GP	DC24 V AC/DC110 V AC/DC240 V
HGP250	3, 4	MOT 25GP	
HGP630	3, 4	MOT 63GP	
HGP800	3, 4	MOT 80GP	



※ Note

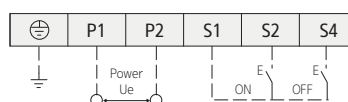
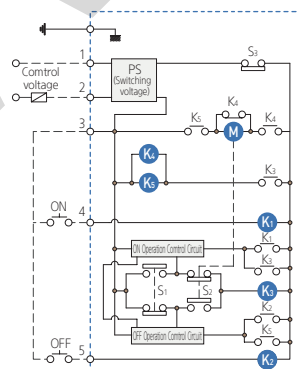
- Motor operator should be attached, only when MCCB's handle is OFF.
- If not, there is possibility of burning the motor.

Ratings

Application	Control Voltage	Operating Current	Operation Time (ms)		Power Consumption (W)	Mechanical Lifetime
			Closing	Opening		
MOT 16GP	DC24 V	≤ 2.5	500	500	14	10,000
	AC/DC110 V	≤ 0.5				
	AC/DC240 V	≤ 0.5				
MOT 25GP	DC24 V	≤ 2.5	500	500	14	10,000
	AC/DC110 V	≤ 0.5				
	AC/DC240 V	≤ 0.5				
MOT 63GP	DC24 V	≤ 6.0	1,000	1,000	35	5,000
	AC/DC110 V	≤ 3.0				
	AC/DC240 V	≤ 2.0				
MOT 80GP	DC24 V	≤ 6.0	1,000	1,000	35	5,000
	AC/DC110 V	≤ 3.0				
	AC/DC240 V	≤ 2.0				

※ Voltage range: 85 - 110 % (DC24 V : 95 - 110 %)

Control Circuit Diagram



- Ⓜ: Motor
- Ⓚ₁: ON Relay
- Ⓚ₂: OFF Relay
- Ⓚ₃: Relay for Motor
- Ⓚ₄: Relay for Motor
- Ⓚ₅: Relay for Motor
- Ⓚ₆: Relay for Motor
- S₁: ON Limit Switch
- S₂: OFF Limit Switch
- S₃: AUTO/Manual Limit Switch

Technical Information

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Technical Information

Standard Use Environment

Temperature Derating

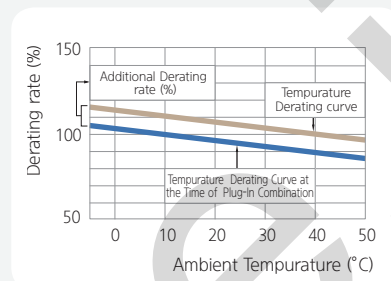
Overcurrent characteristics of MCCB has been set to the ambient temperature 40 degrees celsius. If the ambient temperature is less or more than 40 degrees celsius, the overcurrent characteristics can be changed.

If the Ambient Temperature is Less than 40 Degrees Celsius

In order to ensure that circuit breaker's overcurrent meet the derating curve at the given ambient temperature, the rear current (Ir) should be adjusted. The temperature correction ratio for each MCCB is shown on the circuit breaker derating curve.

If the Ambient Temperature is More than 40 Degrees Celsius

If the internal temperature of the MCCB is over 40 degrees, thermal damage to the insulating material inside the MCCB can occur causing the circuit breaker to trip at an early stage. When applying ambient temperatures at higher than 40 degrees celsius, you must adjust the rated current as shown in the rated current correction table below.



In (Rated Current): Circuit breaker's rating at about ambient temperature 40 °C

Ir (Real Current): Circuit breaker's rating at about ambient temperature

$I_r = \text{Correction ratio (\%)} \times I_n$



Rated Current Derating Tabel: HG Type / Standard Mounting (Fixed)

Model	Rated Current (A)	Ambient Temperature (°C)									
		10	20	30	40	45	50	55	60	65	70
HGP160D	16	18	17	17	16	16	15	15	14	14	13
	20	22	22	21	20	19	19	18	18	17	16
	25	28	27	26	25	24	24	23	22	22	21
	32	36	35	33	32	31	30	29	28	27	26
	40	45	43	42	40	39	38	36	35	34	33
	50	56	54	52	50	49	47	46	44	43	41
	63	71	68	66	63	61	59	57	55	53	51
	80	90	87	83	80	78	75	73	70	68	65
	100	112	108	104	100	97	94	91	88	85	82
	125	141	135	130	125	121	117	113	109	105	101
	150	169	162	156	150	145	140	135	130	125	120
HGP250	160	180	173	166	160	155	150	145	140	135	130
	100	109	106	103	100	97	94	91	88	85	82
	125	137	133	129	125	121	117	113	109	105	101
	150	164	159	155	150	145	140	135	130	125	120
	160	175	170	165	160	155	150	145	140	135	130
	175	191	186	180	175	175	175	175	175	175	175
	200	219	212	206	200	194	188	182	176	170	164
HGP400 HGP630	225	246	239	232	225	218	210	203	195	188	180
	250	274	266	258	250	243	235	228	220	213	205
	300	323	315	308	300	291	282	273	264	255	246
	350	376	368	359	350	340	330	320	310	300	290
	400	430	420	410	400	388	376	364	352	340	328
HGP800	500	538	525	513	500	485	470	455	440	425	410
	630	677	662	646	630	611	592	573	554	535	516
	700	753	735	718	700	679	658	637	616	595	574
	800	860	840	820	800	776	752	728	704	680	656



Rated Current Derating Table: HGP Type / Plug-in Type

Model	Rated Current (A)	Ambient Temperature (°C)									
		10	20	30	40	45	50	55	60	65	70
HGP 160D	16	16	16	15	14	14	14	13	13	12	12
	20	20	19	19	18	17	17	16	16	15	15
	25	25	24	23	23	22	21	21	20	19	19
	32	32	31	30	29	28	27	26	25	24	23
	40	40	39	37	36	35	34	33	32	31	30
	50	51	49	47	45	44	42	41	40	38	37
	63	64	61	59	57	55	53	51	50	48	46
	80	81	78	75	72	70	68	65	63	61	59
	100	101	97	94	90	87	85	82	79	77	74
	125	126	122	117	113	109	105	102	98	95	91
HGP250	150	152	146	140	135	131	126	122	117	113	108
	160	162	156	150	144	140	135	131	126	122	117
	100	103	100	97	94	91	88	86	83	80	77
	125	129	125	121	118	114	110	106	102	99	95
	150	154	150	145	141	136	132	127	122	118	113
	160	165	160	155	150	146	141	136	132	127	122
	175	180	175	169	165	165	165	165	165	165	165
	200	206	200	194	188	182	177	171	165	160	154
HGP400 HGP630	225	231	225	218	212	204	197	190	183	176	169
	250	257	250	242	235	228	221	214	207	200	193
	300	284	277	271	264	256	248	240	232	224	216
	350	331	323	316	308	299	290	282	273	264	255
	400	378	370	361	352	341	331	320	310	299	289
HGP800	500	473	462	451	440	427	414	400	387	374	361
	630	596	582	568	554	538	521	504	488	471	454
	700	696	680	664	648	628	609	589	570	550	531
	800	796	777	759	740	718	696	673	651	629	607

Technical Information

Standard Use Environment

Altitude Derating

It does not affect the characteristics of circuit breaker at an altitude of less than 2,000 m. Characteristics of insulation and air cooling are reduced at an altitude of more than 2,000 m. You should adjust rated current and rated voltage as shown in the table below at an altitude of more than 2,000 m. However, this will not change the characteristics of the circuit breaker.

Circuit Breaker	Altitude	2,000 m	3,000 m	4,000 m	5,000 m
HGP Type MCCB HGP160D HGP250 - 800	Withstand voltage (V)	3,000	2,500	2,100	1,800
	Insulation voltage (V) U_i	1,000	850	750	650
	Maximum operational voltage (V) U_e	690	590	520	460
	Average through-current (A) at the temperature of 40 °C $I_n \times$	1	0.96	0.93	0.9

Vibrations

The excessive vibration makes some troubles in the breakage of circuit breaker, the dynamic strength of failure, electric current, carrying and the safety operating characteristics so, choosing the circuit breaker, you need proper consideration in these environmental stress. These stress is generated by the magnetic impact of operating open and close test, vibration during transport, and the influence of adjacent equipment. Our circuit breaker is verified by test in accordance with standard of internal impulse performance.

Vibrations Test

Vibration test carried out in compliance to the IEC 60068-2-6 standards for vibration to ensure the level that the shipping certificate authority requests. The test verifies the resonance performance and vibration durability based on the following

Resonance Test

You can alter the frequency as shown in the following range of sinusoidal wave to see if there is any occurrence of vibration on a specific part of MCCB.

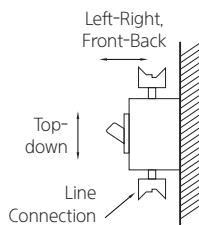
- 5 - 13.2 (Hz): Displacement amplitude 1 mm
- 3.2 - 100 (Hz): Acceleration amplitude 0.7 g

Vibration Durability Test

A sinusoidal wave with frequency of 30 Hz is manually created to check the operational status for 90 minutes.

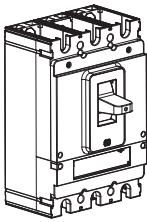
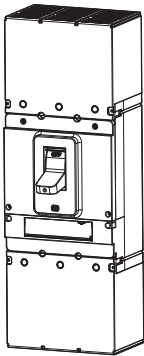
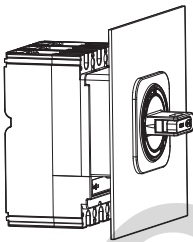
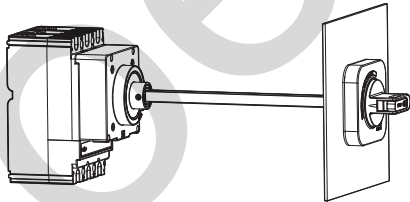
- 30 (Hz): Acceleration amplitude 0.7 g

Seismic Performance and Shock Tolerance Chart

Part	Seismic Performance	
Test condition	Vibration posture, Direction of impulse	• Vertical mounting • Top-down, Left-right, Front-back 
	Status of MCCB	• Non-conduction (ON or OFF status) • Status where rated current has been conducted on until the temperature of MCCB becomes constant and continuous.
Test result	Judgement condition	• If it is ON, it should not be OFF • If it is OFF, it should not be ON • No abnormal status such as damage, transformation, or annealing of nut part • The characteristics of switch and trip after the test must be normal

Degree of Protection

By stipulating the IP degree of MCCB based on IEC 60529 standard, the IP degree is changed according to the product condition.

Condition	Circuit Breaker	Circuit Breaker + Terminal Cover	Circuit Breaker + Terminal Cover + Rotary Handle (Front Contact)	Circuit Breaker + Terminal Cover + Rotary Handle (Extended)
Exteriors				
Degree of protection	IP20	IP40	IP40	IP40

Technical Information

Power Losses / Resistance

HGP Type MCCB

Type	Rated Current (A)	HGP50D		HGP125D		HGP160D		HGP250		HGP400		HGP630		HGP800	
		R/Pole (mΩ)	P/Pole (W)	R/Pole (mΩ)	P/Pole (W)	R/Pole (mΩ)	P/Pole (W)	R/Pole (mΩ)	P/Pole (W)	R/Pole (mΩ)	P/Pole (W)	R/Pole (mΩ)	P/Pole (W)	R/Pole (mΩ)	P/Pole (W)
Fixed 	16	14.4	3.69	14.4	3.69	14.4	3.69								
	20	14.4	5.76	14.4	5.76	14.4	5.76								
	25	6.372	3.98	6.372	3.98	6.372	3.98								
	32	4.056	4.15	4.056	4.15	4.056	4.15								
	40	2.544	4.07	2.544	4.07	2.544	4.07								
	50	2.544	6.36	2.544	6.36	2.544	6.36								
	63			1.488	5.91	1.488	5.91								
	80			1.188	7.60	1.188	7.60								
	100			1.044	10.44	1.044	10.44	0.88	8.80						
	125			0.924	14.44	0.924	14.44	0.61	9.53						
	150					0.792	17.82	0.46	10.35						
	160					0.792	20.28	0.46	11.78						
	175							0.39	11.94						
	200							0.39	15.60						
	225							0.3	15.19						
	250							0.3	18.75						
	300									0.215	19.35				
	350									0.215	26.34				
	400									0.185	29.60				
	500											0.155	38.75		
	630											0.125	49.61		
	700													0.11	53.90
	800													0.08	51.20

Type	Rated Current (A)	HGP50D		HGP125D		HGP160D		HGP250		HGP400		HGP630		HGP800	
		R/Pole (mΩ)	P/Pole (W)	R/Pole (mΩ)	P/Pole (W)	R/Pole (mΩ)	P/Pole (W)	R/Pole (mΩ)	P/Pole (W)	R/Pole (mΩ)	P/Pole (W)	R/Pole (mΩ)	P/Pole (W)	R/Pole (mΩ)	P/Pole (W)
Plug-in 	16	14.48	3.71	14.48	3.71	14.48	3.71								
	20	14.48	5.79	14.48	5.79	14.48	5.79								
	25	6.452	4.03	6.452	4.03	6.452	4.03								
	32	4.136	4.24	4.136	4.24	4.136	4.24								
	40	2.624	4.20	2.624	4.20	2.624	4.20								
	50	2.624	6.56	2.624	6.56	2.624	6.56								
	63			1.568	6.22	1.568	6.22								
	80			1.268	8.12	1.268	8.12								
	100			1.124	11.24	1.124	11.24	0.94	9.40						
	125			1.004	15.69	1.004	15.69	0.67	10.47						
	150					0.872	19.62	0.52	11.70						
	160					0.872	22.32	0.52	13.31						
	175							0.45	13.78						
	200							0.45	18.00						
	225							0.36	18.23						
	250							0.36	22.50						
	300									0.255	22.95				
	350									0.255	31.24				
	400									0.225	36.00				
	500											0.195	48.75		
	630											0.165	65.49		
	700													0.13	63.70
	800													0.1	64.00

Technical Information

Cascading Table

AC220/240 V

Upstream: HGP50D, HGP125D, HGP160D, HGP250, HGP400, HGP630

Downstream: HiBD63, HiBD125, HGM30, HGM50

Upstream		HGP50D						HGP125D					
		F	N	S	H	L	X	F	N	S	H	L	X
Breaking capacity [Icu] (kA r.m.s.)		65	85	100	130	150	200	65	85	100	130	150	200
Downstream Breaking Capacity [Icu] (kA r.m.s.)		Enhanced Breaking Capacity											
HiBD63E	10	20	20	20	20	20	20	20	20	20	20	20	20
HiBD63S	15	30	30	30	30	30	30	30	30	30	30	30	30
HiBD63N	20	40	40	60	60	60	60	40	40	60	60	60	60
HiBD63H	25	40	40	60	60	60	60	40	40	60	60	60	60
HiBD125	25	40	40	60	60	60	60	40	40	60	60	60	60

Upstream		HGP160D						HGP250					
		F	N	S	H	L	X	F	N	S	H	L	X
Breaking capacity [Icu] (kA r.m.s.)		65	85	100	130	150	200	65	85	100	130	150	200
Downstream Breaking Capacity [Icu] (kA r.m.s.)		Enhanced Breaking Capacity											
HiBD63E	10	20	20	20	20	20	20	20	20	20	20	20	20
HiBD63S	15	30	30	30	30	30	30	30	30	30	30	30	30
HiBD63N	20	40	40	60	60	60	60	40	40	60	60	60	60
HiBD63H	25	40	40	60	60	60	60	40	40	60	60	60	60
HiBD125	25	40	40	60	60	60	60	40	40	60	60	60	60

Upstream		HGP50D						HGP125D						HGP160D					
		F	N	S	H	L	X	F	N	S	H	L	X	F	N	S	H	L	X
Breaking capacity [Icu] (kA r.m.s.)		65	85	100	130	150	200	65	85	100	130	150	200	65	85	100	130	150	200
Downstream Breaking Capacity [Icu] (kA r.m.s.)		Enhanced Breaking Capacity																	
HGM30E	35	65	70	70	70	70	70	65	70	70	70	70	70	65	70	70	70	70	70
HGM30S	50	65	70	70	70	70	70	65	70	70	70	70	70	65	70	70	70	70	70
HGM50E	35	65	65	85	100	100	100	65	65	85	100	100	100	65	65	85	100	100	100
HGM50S	50	65	85	100	130	130	130	65	85	100	130	130	130	65	85	100	130	130	130
HGM50H	85			100	130	150	150			100	130	150	150			100	130	150	150
HGM50L	100				130	150	150				130	150	150				130	150	150

Upstream		HGP250						HGP400						HGP630					
		F	N	S	H	L	X	F	N	S	H	L	X	F	N	S	H	L	X
Breaking capacity [Icu] (kA r.m.s.)		65	85	100	130	150	200	65	85	100	130	150	200	65	85	100	130	150	200
Downstream Breaking Capacity [Icu] (kA r.m.s.)		Enhanced Breaking Capacity																	
HGM30E	35	65	70	70	70	70	70	65	70	70	70	70	70	65	70	70	70	70	70
HGM30S	50	65	70	70	70	70	70	65	70	70	70	70	70	65	70	70	70	70	70
HGM50E	35	65	65	85	100	100	100	65	65	85	100	100	100	65	65	85	100	100	100
HGM50S	50	65	85	100	130	130	130	65	85	100	130	130	130	65	85	100	130	130	130
HGM50H	85			100	130	150	150			100	130	150	150			100	130	150	150
HGM50L	100				130	150	150				130	150	150				130	150	150

AC220/240 V

Upstream: HGP125D, HGP160D, HGP250, HGP400, HGP630

Downstream: HGM60, HGM100, HGM125, HGM160, HGM250

Upstream		HGP125D						HGP160D					
		F	N	S	H	L	X	F	N	S	H	L	X
Breaking capacity [Icu] (kA r.m.s.)		65	85	100	130	150	200	65	85	100	130	150	200
Downstream Breaking Capacity [Icu] (kA r.m.s.)		Enhanced Breaking Capacity											
HGM60E	35	65	70	70	70	70	70	65	70	70	70	70	70
HGM60S	50	65	70	70	70	70	70	65	70	70	70	70	70
HGM60H	50	65	70	70	70	70	70	65	70	70	70	70	70
HGM60L	50	65	70	70	70	70	70	65	70	70	70	70	70
HGM100E	35	65	70	70	70	70	70	65	70	70	70	70	70
HGM100S	50	65	70	70	70	70	70	65	70	70	70	70	70
HGM100H	50	65	70	70	70	70	70	65	70	70	70	70	70
HGM100L	50	65	70	70	70	70	70	65	70	70	70	70	70
HGM125E	50	65	65	85	100	100	100	65	65	85	100	100	100
HGM125S	65		85	100	130	130	130		85	100	130	130	130
HGM125H	85			100	130	150	150			100	130	150	150
HGM125L	100				130	150	150				130	150	150

Upstream		HGP250						HGP400						HGP630					
		F	N	S	H	L	X	F	N	S	H	L	X	F	N	S	H	L	X
Breaking capacity [Icu] (kA r.m.s.)		65	85	100	130	150	200	65	85	100	130	150	200	65	85	100	130	150	200
Downstream Breaking Capacity [Icu] (kA r.m.s.)		Enhanced Breaking Capacity																	
HGM60E	35	65	70	70	70	70	70	65	70	70	70	70	70	65	70	70	70	70	70
HGM60S	50	65	70	70	70	70	70	65	70	70	70	70	70	65	70	70	70	70	70
HGM60H	50	65	70	70	70	70	70	65	70	70	70	70	70	65	70	70	70	70	70
HGM60L	50	65	70	70	70	70	70	65	70	70	70	70	70	65	70	70	70	70	70
HGM100E	35	65	70	70	70	70	70	65	70	70	70	70	70	65	70	70	70	70	70
HGM100S	50	65	70	70	70	70	70	65	70	70	70	70	70	65	70	70	70	70	70
HGM100H	50	65	70	70	70	70	70	65	70	70	70	70	70	65	70	70	70	70	70
HGM100L	50	65	70	70	70	70	70	65	70	70	70	70	70	65	70	70	70	70	70
HGM125E	50	65	65	85	100	100	100	65	65	85	100	100	100	65	65	85	100	100	100
HGM125S	65		85	100	130	130	130		85	100	130	130	130		85	100	130	130	130
HGM125H	85			100	130	150	150			100	130	150	150			100	130	150	150
HGM125L	100				130	150	150				130	150	150				130	150	150

Upstream		HGP160D						HGP250					
		F	N	S	H	L	X	F	N	S	H	L	X
Breaking capacity [Icu] (kA r.m.s.)		65	85	100	130	150	200	65	85	100	130	150	200
Downstream Breaking Capacity [Icu] (kA r.m.s.)		Enhanced Breaking Capacity											
HGM160E	50	65	65	85	100	100	100	65	65	85	100	100	100
HGM160S	65		85	100	130	130	130		85	100	130	130	130
HGM160H	85			100	130	150	150			100	130	150	150
HGM160L	100				130	150	150				130	150	150
HGM250E	50							65	65	85	100	100	100
HGM250S	65								85	100	130	130	130
HGM250H	85									100	130	150	150
HGM250L	100										130	150	150

Technical Information

Cascading Table

AC220/240 V

Upstream: HGP400, HGP630, HGP800

Downstream: HGM160, HGM250, HGM400, HGM600, HGM800

Upstream	HGP400						HGP630						HGP800					
	F	N	S	H	L	X	F	N	S	H	L	X	F	N	S	H	L	X
Breaking capacity [Icu] (kA r.m.s.)	65	85	100	130	150	200	65	85	100	130	150	200	65	85	100	130	150	200
Downstream Breaking Capacity [Icu] (kA r.m.s.)		Enhanced Breaking Capacity																
HGM160E	50	65	65	85	100	100	100	65	65	85	100	100	100					
HGM160S	65		85	100	130	130	130		85	100	130	130	130					
HGM160H	85			100	130	150	150			100	130	150	150					
HGM160L	100				130	150	150				130	150	150					
HGM250E	50	65	65	85	100	100	100	65	65	85	100	100	100	65	65	85	100	100
HGM250S	65		85	100	130	130	130		85	100	130	130	130		85	100	130	130
HGM250H	85			100	130	150	150			100	130	150	150			100	130	150
HGM250L	100				130	150	150				130	150	150			130	150	150

Upstream	HGP400						HGP630						HGP800					
	F	N	S	H	L	X	F	N	S	H	L	X	F	N	S	H	L	X
Breaking capacity [Icu] (kA r.m.s.)	65	85	100	130	150	200	65	85	100	130	150	200	65	85	100	130	150	200
Downstream Breaking Capacity [Icu] (kA r.m.s.)		Enhanced Breaking Capacity																
HGM400E	50	65	85	100	130	150	150	65	85	100	130	150	150	65	85	100	130	150
HGM400S	75		85	100	130	150	150		85	100	130	150	150		85	100	130	150
HGM400H	100				130	150	200				130	150	200				130	150
HGM400L	125				130	150	200				130	150	200				130	150
HGM600E	50							65	85	100	130	150	150	65	85	100	130	150
HGM600S	75								85	100	130	150	150		85	100	130	150
HGM600H	100										130	150	200				130	150
HGM600L	125										130	150	200				130	150
HGM800S	75													85	100	130	150	150
HGM800H	100																130	150
HGM800L	125																130	150

AC220/240 V

Upstream: HGP50D, HGP125D, HGP160D, HGP250, HGP400, HGP630, HGP800

Downstream: HGP50D, HGP125D, HGP160D, HGP250, HGP400, HGP630, HGP800

Upstream	HGP50D						HGP125D						HGP160D					
	F	N	S	H	L	X	F	N	S	H	L	X	F	N	S	H	L	X
Breaking capacity [Icu] (kA r.m.s.)	65	85	100	130	150	200	65	85	100	130	150	200	65	85	100	130	150	200
Downstream Breaking Capacity [Icu] (kA r.m.s.)	Enhanced Breaking Capacity																	
HGP50D/125D/160DF	65		85	100	130	150		85	100	130	150	150		85	100	130	150	150
HGP50D/125D/160DN	85			100	130	150			100	130	150	150			100	130	150	150
HGP50D/125D/160DS	100				130	150				130	150	200				130	150	200
HGP50D/125D/160DH	130					150					150	200					150	200
HGP50D/125D/160DL	150											200						200

Upstream	HGP250					
	F	N	S	H	L	X
Breaking capacity [Icu] (kA r.m.s.)	65		85		100	130
Downstream Breaking Capacity [Icu] (kA r.m.s.)	Enhanced Breaking Capacity					
HGP50D/125D/160DF	65			85	100	130
HGP50D/125D/160DN	85				100	130
HGP50D/125D/160DS	100					130
HGP50D/125D/160DH	130					
HGP50D/125D/160DL	150					
HGP250 F	65			85	100	130
HGP250 N	85				100	130
HGP250 S	100					130
HGP250 H	130					
HGP250 L	150					

Upstream	HGP400						HGP630						HGP800					
	F	N	S	H	L	X	F	N	S	H	L	X	F	N	S	H	L	X
Breaking capacity [Icu] (kA r.m.s.)	65	85	100	130	150	200	65	85	100	130	150	200	65	85	100	130	150	200
Downstream Breaking Capacity [Icu] (kA r.m.s.)	Enhanced Breaking Capacity																	
HGP50D/125D/160DF	65		85	100	130	150		85	100	130	150	150		85	100	130	150	150
HGP50D/125D/160DN	85			100	130	150			100	130	150	150			100	130	150	150
HGP50D/125D/160DS	100				130	150				130	150	200				130	150	200
HGP50D/125D/160DH	130					150					150	200					150	200
HGP50D/125D/160DL	150											200						200
HGP250 F	65		85	100	130	150		85	100	130	150	150		85	100	130	150	150
HGP250 N	85			100	130	150			100	130	150	150			100	130	150	150
HGP250 S	100				130	150				130	150	200				130	150	200
HGP250 H	130					150					150	200					150	200
HGP250 L	150											200						200
HGP400/630 F	65		85	100	130	150		85	100	130	150	150		85	100	130	150	150
HGP400/630 N	85			100	130	150			100	130	150	150			100	130	150	150
HGP400/630 S	100				130	150				130	150	200				130	150	200
HGP400/630 H	130					150					150	200					150	200
HGP400/630 L	150											200						200
HGP800 F	65													85	100	130	150	150
HGP800 N	85														100	130	150	150
HGP800 S	100															130	150	200
HGP800 H	130																150	200
HGP800 L	150																	200

Technical Information

Cascading Table

AC440/460 V

Upstream: HGP50D, HGP125D, HGP160D, HGP250, HGP400, HGP630

Downstream: HiBD63, HiBD125, HGM30, HGM50

Upstream		HGP50D						HGP125D					
		F	N	S	H	L	X	F	N	S	H	L	X
Breaking capacity [Icu] (kA r.m.s.)		36	50	65	85	130	150	36	50	65	85	130	150
Downstream Breaking Capacity [Icu] (kA r.m.s.)		Enhanced Breaking Capacity											
HiBD63-E	6	10	10	15	15	15	15	10	10	15	15	15	15
HiBD63-S	7.5	14	14	15	20	20	20	15	15	20	20	20	20
HiBD63-N	10	20	20	26	26	26	26	20	20	26	26	26	26
HiBD63H	15	20	20	30	30	30	30	20	20	30	30	30	30
HiBD125	15	20	20	30	30	30	30	20	20	30	30	30	30

Upstream		HGP160D						HGP250					
		F	N	S	H	L	X	F	N	S	H	L	X
Breaking capacity [Icu] (kA r.m.s.)		36	50	65	85	130	150	36	50	65	85	130	150
Downstream Breaking Capacity [Icu] (kA r.m.s.)		Enhanced Breaking Capacity											
HiBD63-E	6	10	10	15	15	15	15	10	10	15	15	15	15
HiBD63-S	7.5	15	15	20	20	20	20	15	15	20	20	20	20
HiBD63-N	10	20	20	26	26	26	26	20	20	26	26	26	26
HiBD63H	15	20	20	30	30	30	30	20	20	30	30	30	30
HiBD125	15	20	20	30	30	30	30	20	20	30	30	30	30

Upstream		HGP50D						HGP125D						HGP160D					
		F	N	S	H	L	X	F	N	S	H	L	X	F	N	S	H	L	X
Breaking capacity [Icu] (kA r.m.s.)		36	50	65	85	130	150	36	50	65	85	130	150	36	50	65	85	130	150
Downstream Breaking Capacity [Icu] (kA r.m.s.)		Enhanced Breaking Capacity																	
HGM30 E	16	26	30	38	38	38	38	26	30	38	38	38	38	26	30	38	38	38	38
HGM30 S	20	30	38	38	38	38	38	30	38	38	38	38	38	30	38	38	38	38	38
HGM50 E	16	26	30	38	38	38	38	26	30	38	38	38	38	26	30	38	38	38	38
HGM50 S	20	30	38	38	38	38	38	30	38	38	38	38	38	30	38	38	38	38	38
HGM50 H	38		50	50	70	85	85		50	50	70	85	85		50	50	70	85	85
HGM50 L	55			65	70	85	85			65	70	85	85			65	70	85	85

Upstream		HGP250						HGP400						HGP630					
		F	N	S	H	L	X	F	N	S	H	L	X	F	N	S	H	L	X
Breaking capacity [Icu] (kA r.m.s.)		36	50	65	85	130	150	36	50	70	85	130	150	36	50	70	85	130	150
Downstream Breaking Capacity [Icu] (kA r.m.s.)		Enhanced Breaking Capacity																	
HGM30 E	16	26	30	38	38	38	38	26	30	38	38	38	38	26	30	38	38	38	38
HGM30 S	20	30	38	38	38	38	38	30	38	38	38	38	38	30	38	38	38	38	38
HGM50 E	16	26	30	38	38	38	38	26	30	38	38	38	38	26	30	38	38	38	38
HGM50 S	20	30	38	38	38	38	38	30	38	38	38	38	38	30	38	38	38	38	38
HGM50 H	38		50	50	70	85	85		50	50	70	85	85		50	50	70	85	85
HGM50 L	55			65	70	85	85			65	70	85	85			65	70	85	85

AC440/460 V

Upstream: HGP125D, HGP160D, HGP250, HGP400, HGP630

Downstream: HGM60, HGM100, HGM125, HGM160, HGM250

Upstream		HGP125D						HGP160D					
		F	N	S	H	L	X	F	N	S	H	L	X
Breaking capacity [Icu] (kA r.m.s.)		36	50	65	85	130	150	36	50	65	85	130	150
Downstream Breaking Capacity [Icu] (kA r.m.s.)		Enhanced Breaking Capacity											
HGM60 E	16	26	30	38	38	38	38	26	30	38	38	38	38
HGM60 S	20	30	38	38	38	38	38	30	38	38	38	38	38
HGM60 H	26	36	36	50	50	55	55	36	36	50	50	55	55
HGM60 L	30	36	36	50	50	55	55	36	36	50	50	55	55
HGM100 E	16	26	30	38	38	38	38	26	30	38	38	38	38
HGM100 S	20	30	38	38	38	38	38	30	38	38	38	38	38
HGM100 H	26	36	36	50	50	55	55	36	36	50	50	55	55
HGM100 L	30	36	36	50	50	55	55	36	36	50	50	55	55
HGM125 E	20	36	36	50	50	50	50	36	36	50	50	50	50
HGM125 S	26	36	36	50	50	50	50	36	36	50	50	50	50
HGM125 H	38		50	50	70	85	85		50	50	70	85	85
HGM125 L	55			65	70	85	85			65	70	85	85

Upstream		HGP250						HGP400						HGP630					
		F	N	S	H	L	X	F	N	S	H	L	X	F	N	S	H	L	X
Breaking capacity [Icu] (kA r.m.s.)		36	50	65	85	130	150	36	50	70	85	130	150	36	50	70	85	130	150
Downstream Breaking Capacity [Icu] (kA r.m.s.)		Enhanced Breaking Capacity																	
HGM60 E	16	26	30	38	38	38	38	26	30	38	38	38	38	26	30	38	38	38	38
HGM60 S	20	30	38	38	38	38	38	30	38	38	38	38	38	30	38	38	38	38	38
HGM60 H	26	36	36	50	50	55	55	36	36	50	50	55	55	36	36	50	50	55	55
HGM60 L	30	36	36	50	50	55	55	36	36	50	50	55	55	36	36	50	50	55	55
HGM100 E	16	26	30	38	38	38	38	26	30	38	38	38	38	26	30	38	38	38	38
HGM100 S	20	30	38	38	38	38	38	30	38	38	38	38	38	30	38	38	38	38	38
HGM100 H	26	36	36	50	50	55	55	36	36	50	50	55	55	36	36	50	50	55	55
HGM100 L	30	36	36	50	50	55	55	36	36	50	50	55	55	36	36	50	50	55	55
HGM125 E	20	36	36	50	50	50	50	36	36	50	50	50	50	36	36	50	50	50	50
HGM125 S	26	36	36	50	50	50	50	36	36	50	50	50	50	36	36	50	50	50	50
HGM125 H	38		50	50	70	85	85		50	50	70	85	85		50	50	70	85	85
HGM125 L	55			65	70	85	85			65	70	85	85			65	70	85	85

Upstream		HGP160D						HGP250					
		F	N	S	H	L	X	F	N	S	H	L	X
Breaking capacity [Icu] (kA r.m.s.)		36	50	65	85	130	150	36	50	65	85	130	150
Downstream Breaking Capacity [Icu] (kA r.m.s.)		Enhanced Breaking Capacity											
HGM160 E	20	36	36	50	50	50	50	36	36	50	50	50	50
HGM160 S	26	36	36	50	50	50	50	36	36	50	50	50	50
HGM160 H	38		50	50	70	85	85		50	50	70	85	85
HGM160 L	55			65	70	85	85			65	70	85	85
HGM250 E	20							36	36	50	50	50	50
HGM250 S	26							36	36	50	50	50	50
HGM250 H	38								50	50	70	85	85
HGM250 L	55									65	70	85	85

Technical Information

Cascading Table

AC440/460 V

Upstream: HGP400, HGP630, HGP800

Downstream: HGM160, HGM250, HGM400, HGM600, HGM800

Upstream	HGP400						HGP630						HGP800					
	F	N	S	H	L	X	F	N	S	H	L	X	F	N	S	H	L	X
Breaking capacity [Icu] (kA r.m.s.)	36	50	70	85	130	150	36	50	70	85	130	150	36	50	70	85	130	150
Downstream Breaking Capacity [Icu] (kA r.m.s.)	Enhanced Breaking Capacity																	
HGM160 E	20	36	36	50	50	50	50	36	36	50	50	50	50					
HGM160 S	26	36	36	50	50	50	50	36	36	50	50	50	50					
HGM160 H	38		50	50	70	85	85		50	50	70	85	85					
HGM160 L	55			65	70	85	85			65	70	85	85					
HGM250 E	20	36	36	50	50	50	50	36	36	50	50	50	50	36	36	50	50	50
HGM250 S	26	36	36	50	50	50	50	36	36	50	50	50	50	36	36	50	50	50
HGM250 H	38		50	50	70	85	85		50	50	70	85	85		50	50	70	85
HGM250 L	55			65	70	85	85			65	70	85	85			65	70	85

Upstream	HGP400						HGP630						HGP800					
	F	N	S	H	L	X	F	N	S	H	L	X	F	N	S	H	L	X
Breaking capacity [Icu] (kA r.m.s.)	36	50	70	85	130	150	36	50	70	85	130	150	36	50	70	85	130	150
Downstream Breaking Capacity [Icu] (kA r.m.s.)	Enhanced Breaking Capacity																	
HGM400 E	38		50	70	85	100	100		50	70	85	100	100		50	70	85	85
HGM400 S	50			70	85	100	100			70	85	100	100			70	85	85
HGM400 H	70				85	100	100				85	100	100				85	100
HGM400 L	85					100	100					100	100					100
HGM600 E	38							50	70	85	100	100		50	70	85	85	85
HGM600 S	50								70	85	100	100			70	85	85	85
HGM600 H	70									85	100	100				85	100	100
HGM600 L	85										100	100					100	100
HGM800 S	50														70	85	85	85
HGM800 H	70															85	100	100
HGM800 L	85																100	100

AC440/460 V

Upstream: HGP50D, HGP125D, HGP160D, HGP250, HGP400, HGP630, HGP800

Downstream: HGP50D, HGP125D, HGP160D, HGP250, HGP400, HGP630, HGP800

Upstream	HGP50D						HGP125D						HGP160D						
	F	N	S	H	L	X	F	N	S	H	L	X	F	N	S	H	L	X	
Breaking capacity [Icu] (kA r.m.s.)	36	50	65	85	130	150	36	50	65	85	130	150	36	50	65	85	130	150	
Downstream Breaking Capacity [Icu] (kA r.m.s.)	Enhanced Breaking Capacity																		
HGP50D/125D/160D F	38		50	65	85	100	100		50	65	85	100	100		50	65	85	100	100
HGP50D/125D/160D N	50			65	85	100	100			65	85	100	100			65	85	100	100
HGP50D/125D/160D S	70				85	130	150				85	130	150				85	130	150
HGP50D/125D/160D H	85					130	150					130	150					130	150
HGP50D/125D/160D L	85						150						150						150

Upstream		HGP250					
		F	N	S	H	L	X
Breaking capacity [Icu] (kA r.m.s.)		36	50	65	85	130	150
Downstream Breaking Capacity [Icu] (kA r.m.s.)		Enhanced Breaking Capacity					
HGP50D/125D/160D F	36		50	65	85	100	100
HGP50D/125D/160D N	50			65	85	100	100
HGP50D/125D/160D S	65				85	130	150
HGP50D/125D/160D H	85					130	150
HGP50D/125D/160D L	130						150
HGP250 F	36		50	65	85	100	100
HGP250 N	50			65	85	100	100
HGP250 S	65				85	130	150
HGP250 H	85					130	150
HGP250 L	130						150

Upstream	HGP400						HGP630						HGP800						
	F	N	S	H	L	X	F	N	S	H	L	X	F	N	S	H	L	X	
Breaking capacity [Icu] (kA r.m.s.)	36	50	70	85	130	150	36	50	70	85	130	150	36	50	70	85	130	150	
Downstream Breaking Capacity [Icu] (kA r.m.s.)	Enhanced Breaking Capacity																		
HGP50D/125D/160D F	36		50	65	85	100	100		50	65	85	100	100		50	65	85	100	100
HGP50D/125D/160D N	50			65	85	100	100			65	85	100	100			65	85	100	100
HGP50D/125D/160D S	65				85	130	150				85	130	150				85	130	150
HGP50D/125D/160D H	85					130	150					130	150					130	150
HGP50D/125D/160D L	130						150						150						150
HGP250 F	36		50	65	85	100	100		50	65	85	100	100		50	65	85	100	100
HGP250 N	50			65	85	100	100			65	85	100	100			65	85	100	100
HGP250 S	65				85	130	150				85	130	150				85	130	150
HGP250 H	85					130	150					130	150					130	150
HGP250 L	130						150						150						150
HGP400/630 F	36		50	65	85	100	100		50	65	85	100	100		50	65	85	100	100
HGP400/630 N	50			65	85	100	100			65	85	100	100			65	85	100	100
HGP400/630 S	70				85	130	150				85	130	150				85	130	150
HGP400/630 H	85					130	150					130	150					130	150
HGP400/630 L	130						150						150						150
HGP800 F	36													50	65	85	100	100	
HGP800 N	50														65	85	100	100	
HGP800 S	70															85	130	150	
HGP800 H	85																130	150	
HGP800 L	130																	150	

Technical Information

Discrimination Table

$U_e < AC460\text{ V}$

Upstream: HGP50D - HGP800

Downstream: HiBD63, HiBD125

Model		HGP160D F/N/S/H/L/X													
		TRIP Unit	Thermal Magnetic												
			Rated Current (A)	16	20	25	32	40	50	63	75	80	100	125	150
HiBD63-NS B, C, D Curve	1	0.19	0.32	0.32	0.32	0.32	0.32	0.4	0.5	0.6	0.64	0.8	1	T	T
	3	0.19	0.32	0.32	0.32	0.32	0.32	0.4	0.5	0.6	0.64	0.8	1	T	T
	5	0.19	0.32	0.32	0.32	0.32	0.32	0.4	0.5	0.6	0.64	0.8	1	T	T
	6	0.19	0.32	0.32	0.32	0.32	0.32	0.4	0.5	0.6	0.64	0.8	1	T	T
	10	0.19	0.32	0.32	0.32	0.32	0.32	0.4	0.5	0.6	0.64	0.8	1	T	T
	16		0.32	0.32	0.32	0.32	0.32	0.4	0.5	0.6	0.64	0.8	1	T	T
	20			0.32	0.32	0.32	0.32	0.4	0.5	0.6	0.64	0.8	1	T	T
	25				0.32	0.32	0.32	0.4	0.5	0.6	0.64	0.8	1	T	T
	32					0.32	0.32	0.4	0.5	0.6	0.64	0.8	1	T	T
	40							0.4	0.5	0.6	0.64	0.8	1	T	T
HiBD63- H/N/S/E B, C, D Curve	1	0.19	0.32	0.32	0.32	0.32	0.32	0.4	0.5	0.6	0.64	0.8	1	T	T
	2	0.19	0.32	0.32	0.32	0.32	0.32	0.4	0.5	0.6	0.64	0.8	1	T	T
	3	0.19	0.32	0.32	0.32	0.32	0.32	0.4	0.5	0.6	0.64	0.8	1	T	T
	4	0.19	0.32	0.32	0.32	0.32	0.32	0.4	0.5	0.6	0.64	0.8	1	T	T
	5	0.19	0.32	0.32	0.32	0.32	0.32	0.4	0.5	0.6	0.64	0.8	1	T	T
	6	0.19	0.32	0.32	0.32	0.32	0.32	0.4	0.5	0.6	0.64	0.8	1	T	T
	10	0.19	0.32	0.32	0.32	0.32	0.32	0.4	0.5	0.6	0.64	0.8	1	T	T
	13		0.32	0.32	0.32	0.32	0.32	0.4	0.5	0.6	0.64	0.8	1	T	T
	15		0.32	0.32	0.32	0.32	0.32	0.4	0.5	0.6	0.64	0.8	1	T	T
	16		0.32	0.32	0.32	0.32	0.32	0.4	0.5	0.6	0.64	0.8	1	T	T
	20			0.32	0.32	0.32	0.32	0.4	0.5	0.6	0.64	0.8	1	T	T
	25				0.32	0.32	0.32	0.4	0.5	0.6	0.64	0.8	1	T	T
	32					0.32	0.32	0.4	0.5	0.6	0.64	0.8	1	T	T
	40							0.4	0.5	0.6	0.64	0.8	1	T	T
	50								0.5	0.6	0.64	0.8	1	T	T
	63									0.6	0.64	0.8	1	T	T
HiBD125 B, C, D Curve	63									0.64	0.8	2.4	2.4	2.4	
	80										0.8	2.4	2.4	2.4	
	100											2.4	2.4	2.4	
	125												2.4	2.4	

T

Total Discrimination, Up to the Breaking Capacity of the Downstream Circuit Breaker

4

Discrimination Limit = 4 kA

No Discrimination

Ue < AC460 V

Upstream: HGP50D - HGP800
Downstream: HiBD63, HiBD125

Model		HGP250 F/N/S/H/L/X								HGP400 F/N/S/H/L/X			HGP630 F/N/S/H/L/X		HGP800 F/N/S/H/L/X			
		TRIP Unit	Thermal Magnetic															
			Rated Current (A)	100	125	150	160	175	200	225	250	300	350	400	500	630	700	800
HiBD63-NS B, C, D Curve		1	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
		3	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
		5	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
		6	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
		10	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
		16	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
		20	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
		25	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
		32	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
		40	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
HiBD63-H/N/S/E B, C, D Curve		1	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
		2	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
		3	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
		4	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
		5	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
		6	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
		10	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
		13	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
		15	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
		16	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
		20	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
		25	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
		32	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
		40	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
		50	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
		63	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
HiBD125 B, C, D Curve		63	2.4	2.4	2.4	2.4	T	T	T	T	T	T	T	T	T	T	T	
		80	2.4	2.4	2.4	2.4	T	T	T	T	T	T	T	T	T	T	T	
		100	2.4	2.4	2.4	2.4	T	T	T	T	T	T	T	T	T	T	T	
		125	2.4	2.4	2.4	2.4	T	T	T	T	T	T	T	T	T	T	T	

T	Total Discrimination, Up to the Breaking Capacity of the Downstream Circuit Breaker
4	Discrimination Limit = 4 kA
	No Discrimination

Technical Information

Discrimination Table

$U_e < AC460\text{ V}$

Upstream: HGP50D - HGP800

Downstream: HGM30 - HGM800

		HGP160D F/N/S/H/L/X													
Model	TRIP Unit	Thermal Magnetic													
	Rated Current (A)	16	20	25	32	40	50	63	75	80	100	125	150	160	
HGM30 E/S HGM50 E/S HGM60 E/S/H/L HGM100 E/S/H/L	16					0.5	0.5	0.5	0.6	0.64	0.8	1	1.25	1.25	
	20						0.5	0.5	0.6	0.64	0.8	1	1.25	1.25	
	25						0.5	0.5	0.6	0.64	0.8	1	1.25	1.25	
	32							0.5	0.6	0.64	0.8	1	1.25	1.25	
	40									0.64	0.8	1	1.25	1.25	
	50									0.64	0.8	1	1.25	1.25	
	63										0.8	1	1.25	1.25	
	75											1	1.25	1.25	
	80												1	1.25	1.25
	100														1.25
HGM125 E/S/H/L	16					0.5	0.5	0.5	0.6	0.64	0.8	1	1.25	1.25	
	20						0.5	0.5	0.6	0.64	0.8	1	1.25	1.25	
	25						0.5	0.5	0.6	0.64	0.8	1	1.25	1.25	
	32							0.5	0.6	0.64	0.8	1	1.25	1.25	
	40									0.64	0.8	1	1.25	1.25	
	50									0.64	0.8	1	1.25	1.25	
	63										0.8	1	1.25	1.25	
	75											1	1.25	1.25	
	80												1	1.25	1.25
	100														1.25
	125														
HGM160 E/S/H/L HGM250 E/S/H/L	100														
	125														
	150														
	160														
	175														
	200														
	225														
	250														
HGM400 E/S/H/L	250														
	300														
	350														
	400														
HGM630 E/S/H/L HGM800 S/H/L	500														
	630														
	700														
	800														

T	Total Discrimination, Up to the Breaking Capacity of the Downstream Circuit Breaker
4	Discrimination Limit = 4 kA
	No Discrimination

Ue < AC460 V

Upstream: HGP50D - HGP800

Downstream: HGM30 - HGM800

Model		HGP250 F/N/S/H/L/X									HGP400 F/N/S/H/L/X			HGP630 F/N/S/H/L/X		HGP800 F/N/S/H/L/X	
		TRIP Unit	Thermal Magnetic														
			Rated Current (A)	100	125	150	160	175	200	225	250	300	350	400	500	630	700
HGM30 E/S HGM50 E/S HGM60 E/S/H/L HGM100 E/S/H/L	16	0.8	1	1.25	1.25	1.4	1.6	1.8	2	T	T	T	T	T	T	T	T
	20	0.8	1	1.25	1.25	1.4	1.6	1.8	2	T	T	T	T	T	T	T	T
	25	0.8	1	1.25	1.25	1.4	1.6	1.8	2	T	T	T	T	T	T	T	T
	32	0.8	1	1.25	1.25	1.4	1.6	1.8	2	T	T	T	T	T	T	T	T
	40	0.8	1	1.25	1.25	1.4	1.6	1.8	2	T	T	T	T	T	T	T	T
	50	0.8	1	1.25	1.25	1.4	1.6	1.8	2	T	T	T	T	T	T	T	T
	63	0.8	1	1.25	1.25	1.4	1.6	1.8	2	T	T	T	T	T	T	T	T
	75		1	1.25	1.25	1.4	1.6	1.8	2	T	T	T	T	T	T	T	T
	80		1	1.25	1.25	1.4	1.6	1.8	2	T	T	T	T	T	T	T	T
	100				1.25	1.4	1.6	1.8	2	T	T	T	T	T	T	T	T
HGM125 E/S/H/L	16	0.8	1	1.25	1.25	1.4	1.6	1.8	2	T	T	T	T	T	T	T	T
	20	0.8	1	1.25	1.25	1.4	1.6	1.8	2	T	T	T	T	T	T	T	T
	25	0.8	1	1.25	1.25	1.4	1.6	1.8	2	T	T	T	T	T	T	T	T
	32	0.8	1	1.25	1.25	1.4	1.6	1.8	2	T	T	T	T	T	T	T	T
	40	0.8	1	1.25	1.25	1.4	1.6	1.8	2	T	T	T	T	T	T	T	T
	50	0.8	1	1.25	1.25	1.4	1.6	1.8	2	T	T	T	T	T	T	T	T
	63	0.8	1	1.25	1.25	1.4	1.6	1.8	2	T	T	T	T	T	T	T	T
	75		1	1.25	1.25	1.4	1.6	1.8	2	T	T	T	T	T	T	T	T
	80		1	1.25	1.25	1.4	1.6	1.8	2	T	T	T	T	T	T	T	T
		100				1.25	1.4	1.6	1.8	2	T	T	T	T	T	T	T
		125					1.4	1.6	1.8	2	T	T	T	T	T	T	T
HGM160 E/S/H/L HGM250 E/S/H/L	100				1.25	1.4	1.6	1.8	2	2.4	2.8	3.8	4	5	T	T	
	125						1.6	1.8	2	2.4	2.8	3.8	4	5	T	T	
	150								2	2.4	2.8	3.8	4	5	T	T	
	160								2	2.4	2.8	3.8	4	5	T	T	
	175									2.4	2.8	3.8	4	5	T	T	
	200									2.4	2.8	3.8	4	5	T	T	
	225										2.8	3.8	4	5	T	T	
	250											3.8	4	5	T	T	
HGM400 E/S/H/L	250												4	5	5.6	6.4	
	300												4	5	5.6	6.4	
	350													5	5.6	6.4	
	400													5	5.6	6.4	
HGM630 E/S/H/L HGM800 S/H/L	500														5.6	6.4	
	630															6.4	
	700																
	800																

Technical Information

Discrimination Table

Ue < AC460 V

Upstream: HGP50D - HGP800

Downstream: HGP50D - HGP800

Model	TRIP Unit	HGP160D F/N/S/H/L/X													
		Thermal Magnetic													
		Rated Current (A)	16	20	25	32	40	50	63	75	80	100	125	150	160
HGP50D F/N/S/H/L/X HGP125D F/N/S/H/L/X HGP160D F/N/S/H/L/X	16						0.5	0.5	0.5	0.6	0.64	0.8	1	1.25	1.25
	20							0.5	0.5	0.6	0.64	0.8	1	1.25	1.25
	25							0.5	0.5	0.6	0.64	0.8	1	1.25	1.25
	32								0.5	0.6	0.64	0.8	1	1.25	1.25
	40										0.64	0.8	1	1.25	1.25
	50										0.64	0.8	1	1.25	1.25
	63											0.8	1	1.25	1.25
	75												1	1.25	1.25
	80												1	1.25	1.25
	100														1.25
	125														
	150														
	160														
HGP250 F/N/S/H/L/X	100														
	125														
	150														
	160														
	175														
	200														
	225														
HGP400 F/N/S/H/L/X HGP630 F/N/S/H/L/X	250														
	300														
	350														
	400														
HGP800 F/N/S/H/L/X	500														
	630														
	700														
	800														

T	Total Discrimination, Up to the Breaking Capacity of the Downstream Circuit Breaker
4	Discrimination Limit = 4 kA
	No Discrimination

Ue < AC460 V

Upstream: HGP50D - HGP800

Downstream: HGP50D - HGP800

Model		HGP250 F/N/S/H/L/X								HGP400 F/N/S/H/L/X			HGP630 F/N/S/H/L/X		HGP800 F/N/S/H/L/X		
		TRIP Unit	Thermal Magnetic														
			Rated Current (A)	100	125	150	160	175	200	225	250	300	350	400	500	630	700
HGP50D F/N/S/H/L/X HGP125D F/N/S/H/L/X HGP160D F/N/S/H/L/X	16	0.8	1	1.25	36	36	36	36	36	T	T	T	T	T	T	T	
	20	0.8	1	1.25	1.25	36	36	36	36	T	T	T	T	T	T	T	
	25	0.8	1	1.25	1.25	1.4	36	36	36	T	T	T	T	T	T	T	
	32	0.8	1	1.25	1.25	1.4	36	36	36	T	T	T	T	T	T	T	
	40	0.8	1	1.25	1.25	1.4	36	36	36	T	T	T	T	T	T	T	
	50	0.8	1	1.25	1.25	1.4	36	36	36	T	T	T	T	T	T	T	
	63	0.8	1	1.25	1.25	1.4	36	36	36	T	T	T	T	T	T	T	
	75		1	1.25	1.25	1.4	36	36	36	T	T	T	T	T	T	T	
	80		1	1.25	1.25	1.4	36	36	36	T	T	T	T	T	T	T	
	100				1.25	1.4	1.6	36	36	T	T	T	T	T	T	T	
	125						1.6	1.8	36	T	T	T	T	T	T	T	
	150							1.8	2	T	T	T	T	T	T	T	
160								2	T	T	T	T	T	T	T		
HGP250 F/N/S/H/L/X	100				1.25	1.4	1.6	1.8	2	36	36	36	T	T	T	T	
	125						1.6	1.8	2	36	36	36	T	T	T	T	
	150								2	36	36	36	T	T	T	T	
	160								2	2.4	36	36	T	T	T	T	
	175									2.4	2.8	36	36	36	T	T	
	200									2.4	2.8	3.8	36	36	T	T	
	225										2.8	3.8	36	36	T	T	
	250											3.8	4	36	T	T	
HGP400 F/N/S/H/L/X HGP630 F/N/S/H/L/X	300												4	5	36	36	
	350													5	36	36	
	400													5	5.6	36	
	500														5.6	6.4	
	630															6.4	
HGP800 F/N/S/H/L/X	700																
	800																

T	Total Discrimination, Up to the Breaking Capacity of the Downstream Circuit Breaker
4	Discrimination Limit = 4 kA
	No Discrimination

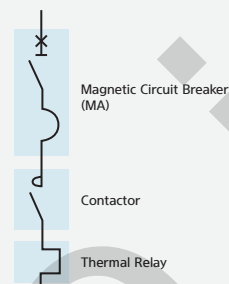
Technical Information

Type 2 Coordination (IEC 60947-4-1)

AC440 V

Performance: Ue = 440 V

Circuit Breakers	F	N	S	H	L
HGP100/250	36	50	65	85	130
HGP400/630	36	50	65	85	130
HGP800	36	50	65	85	130



Motor			Circuit Breakers			Contactors	Thermal o/l Relays	
P (kW)	I (A) 440 V	Ie Max (A)	Type	Rating (A)	Ii (A)	Type	Type	Irth (A)
0.37	1.1	1.6	HGP100	2.5	32.5	HGC18	HGT18 ¹⁾	0.8 - 1.2
0.55	1.4	1.6	HGP100	2.5	32.5	HGC18	HGT18 ¹⁾	1.1 - 1.6
0.75	1.7	2.5 ²⁾	HGP100	2.5	32.5	HGC18	HGT18 ¹⁾	1.5 - 2.1 ²⁾
1.1	2.4	2.5	HGP100	3.2	41.6	HGC18	HGT18 ¹⁾	2 - 3
1.5	3.1	4	HGP100	6.3	81.9	HGC40	HGT18 ^{1), 4)}	2.8 - 4.2
2.2	4.5	6	HGP100	6.3	81.9	HGC40	HGT18 ^{1), 4)}	4 - 6
3	5.8	6	HGP100	6.3	81.9	HGC40	HGT18 ^{1), 4)}	5.6 - 8
4	8	8	HGP100	12.5	163	HGC65	HGT65 ^{1), 4)}	6 - 9
5.5	10.5	12.5 ³⁾	HGP100	12.5	163	HGC65	HGT65 ^{1), 4)}	8 - 12 ³⁾
7.5	13.7	18	HGP100	32	416	HGC65	HGT65 ¹⁾	12 - 18
10	19	25	HGP100	32	416	HGC65	HGT100 ¹⁾	17 - 25
11	20	25	HGP100	32	320	HGC100	HGT100 ¹⁾	17 - 25
15	26.5	32	HGP100	50	650	HGC100	HGT100	22 - 32
18.5	33	40	HGP100	50	650	HGC100	HGT100	28 - 40
22	39	40	HGP100	50	650	HGC100	HGT100	34 - 50
30	52	63	HGP100	100	1300	HGC115	HGT150	48 - 80
37	63	63	HGP100	100	1300	HGC130	HGT150	48 - 80
45	76	80	HGP250	125	1250	HGC150	HGT150	48 - 80
55	90	100	HGP250	160	1600	HGC150	HGT150	69 - 115
75	125	150	HGP250	200	2000	HGC150	HGT150	90 - 150
90	140	150	HGP250	200	2000	HGC150	HGT150	111 - 185
110	178	185	HGP250	250	2500	HGC185	HGT265	135 - 225
132	210	265	HGP400	350	3500	HGC265	HGT265	180 - 300
160	256	265	HGP400	350	3500	HGC265	HGT265	180 - 300
200	310	320	HGP630	400	4000	HGC400	HGT500	240 - 400
220	353	400	HGP630	630	6300	HGC400	HGT500	300 - 500
250	400	500	HGP630	700	7000	HGC500	HGT500	300 - 500
300	460	500	HGP800	700	7000	HGC500	HGT800	378 - 630
		630	HGP800	800	8000	HGC630	HGT800	378 - 630
335	540	630	HGP800	800	8000	HGC800	HGT800	378 - 630
375	575	630	HGP800	800	8000	HGC800	HGT800	378 - 630

※ ¹⁾ Iq < 50 kA

²⁾ TOR Thermal Maximum Rating 2.1 A

³⁾ TOR Thermal Maximum Rating 12 A

⁴⁾ Type 1 Only for Thermal Relay

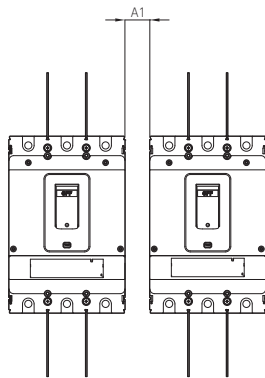
Installation

Insulation Distance

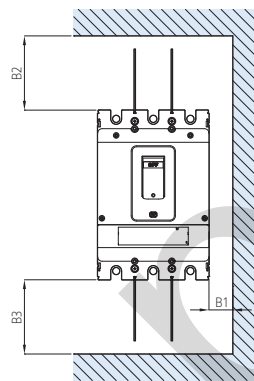
When installing a circuit breaker, safety clearances must be kept among the breakers, panels, busbars and other protection devices installed nearby. When a short circuit interruption occurs, high temperature gas occurs and the gas is expelled above the arc chambers of the circuit breaker. In order to allow the gas to be distributed and to prevent fire and arcing or short-circuit currents, safety clearances are required.

※ Insulation Barriers must be installed to prevent fire, arcing or short-circuit currents.

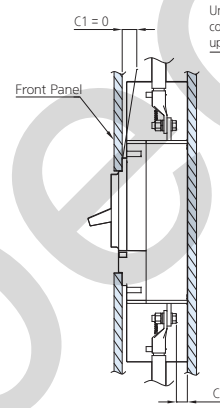
The separation distance in the case the circuit breaker is installed side by side.



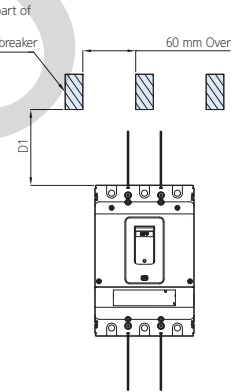
In the case of iron panels, the distance between the upper and base side or the right and left side.



In the case of iron panels, the distance between the front and back.



In the case that the live part is exposed, the distance from the circuit breaker.



※ Using minimum separation distance (A1 = 0), you should assemble terminal cover and phase barrier between the product.

※ If the distance of both conductors is less than 60 mm, please insulate the charging part.

HGM Type's Minimum Insulation Distance.

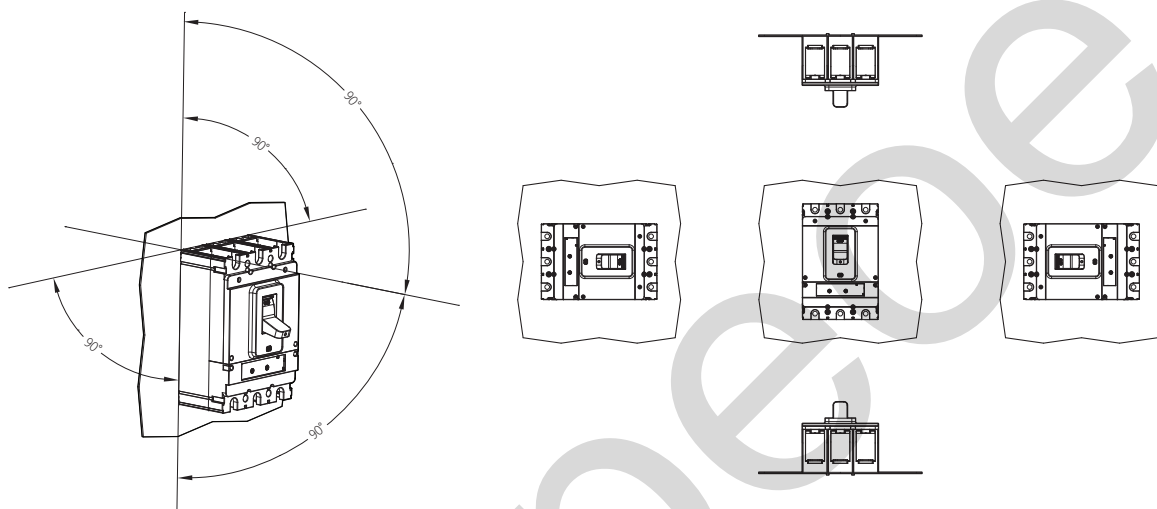
Type	Minimum Clearance (mm)													
	460 V							240 V						
	A1	B1	B2	B3	C1	C2	D1	A1	B1	B2	B3	C1	C2	D1
HGP50D F/N/S	0	10	50	50	0	8	350	0/50	25	50	50	0	8	350
HGP50D H/L/X	0	10	50	50	0	8	350	0/50	25	50	50	0	8	350
HGP125D F/N/S	0	10	50	50	0	8	350	0/50	25	50	50	0	8	350
HGP125D H/L/X	0	10	50	50	0	8	350	0/50	25	50	50	0	8	350
HGP160D F/N/S	0	10	50	50	0	8	350	0/50	25	50	50	0	8	350
HGP160D H/L/X	0	10	50	50	0	8	350	0/50	25	50	50	0	8	350
HGP250 F/N/S	0	10	100	100	0	8	350	0/50	25	100	100	0	8	350
HGP250 H/L/X	0	10	100	100	0	8	350	0/50	25	100	100	0	8	350
HGP400 F/N/S	0	40	116	116	0	8	350	0/50	40	116	116	0	8	350
HGP400 H/L/X	0	40	116	116	0	8	350	0/50	40	116	116	0	8	350
HGP630 F/N/S	0	40	116	116	0	8	350	0/50	40	116	116	0	8	350
HGP630 H/L/X	0	40	116	116	0	8	350	0/50	40	116	116	0	8	350
HGP800 F/N/S	0	45	115	115	0	8	350	0/50	45	115	115	0	8	350
HGP800 H/L/X	0	45	115	115	0	8	350	0/50	45	115	115	0	8	350

Technical Information

Installation

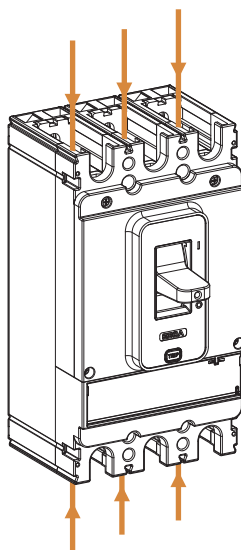
Installation Angle

The HGP circuit breakers can be installed vertically or horizontally without changing any characteristics. Please refer to detail installation direction shown in the figure below.



Direction of Power Supply

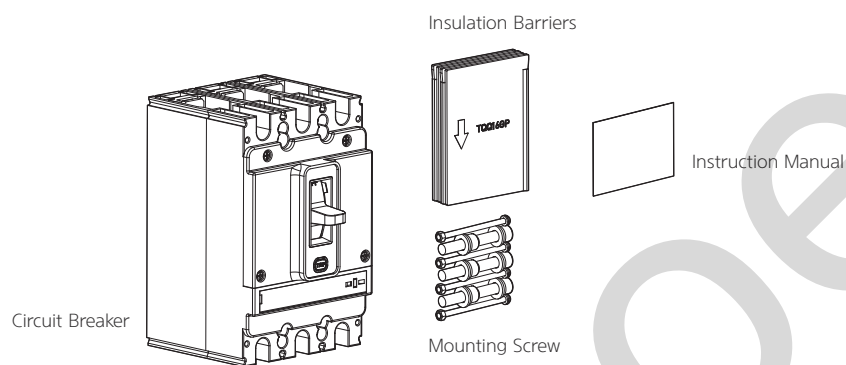
The HGP Type circuit breaker can be used supplying the power through either direction (LINE/LOAD). It received the DEKRA Certification for reverse connection according to IEC 60947-2 standard.



Standard Configuration

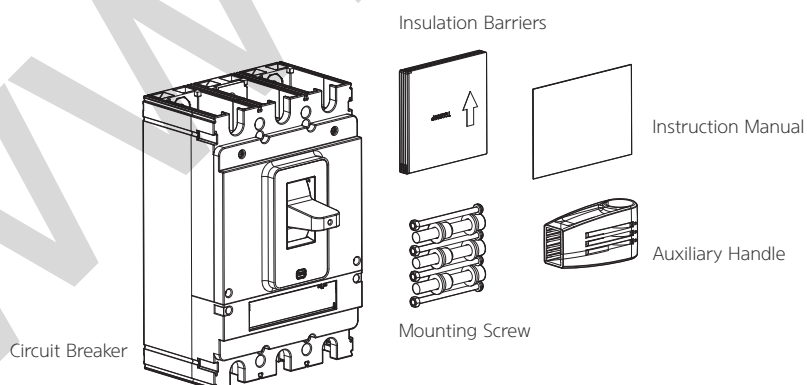
HGP Type

HGP160D, 250



MCCB		Part			
HGP160D	3P	4 EA (M4 x L85)	6 EA (PH Screw P · S/W M8 x L18)	4 EA	
	4P	6 EA (M4 x L85)	8 EA (PH Screw P · S/W M8 x L18)	6 EA	
HGP250	3P	4 EA (M4 x L85)	6 EA (Hex Socket P · S/W M8 x L18)	4 EA	
	4P	6 EA (M4 x L85)	8 EA (Hex Socket P · S/W M8 x L18)	6 EA	

HGP630, 800



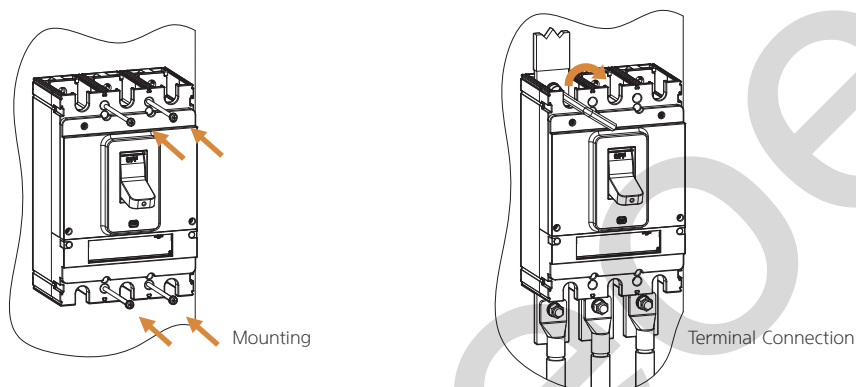
MCCB		Part				
HGP630	3P	4 EA (M5 x L98)	8 EA (Hex Socket P · S/W M10 x L30)	4 EA	1 EA	
	4P	4 EA (M5 x L98)	6 EA (Hex Socket P · S/W M10 x L30)	6 EA	1 EA	
HGP800	3P	4 EA (M6 x L110)	6 EA (Hex Socket P · S/W M12 x L35)	4 EA	1 EA	
	4P	4 EA (M6 x L110)	8 EA (Hex Socket P · S/W M12 x L35)	6 EA	1 EA	

Technical Information

MCCB Assembly and Terminal Mounting Specification

HGP Type

HGP Type breakers can be fixed directly into the panel using screws. When bus bar or back terminals are using for panel mounting, the isolation distance must be considered. The connection of the circuit breaker must meet the following specifications for bus bar and terminals, tightening in accordance with the specified torque.



No	MCCB Type	Connection Terminal			
		Terminal Connecting Methods and Dimensions (mm)		Conductor	Mounting Torque
1	HGP50D HGP125D HGP160D				M5: 23 - 32 kgf.cm M8: 80 - 136 kgf.cm
2	HGP250		 Terminal Height (A) 1) Below 100 A LINE: 24 mm, LOAD: 24 mm 2) 100 A ~ 250 A LINE: 26 mm, LOAD: 24 mm		M8: 80 - 136 kgf.cm
3	HGP400 HGP630		 Hex Socket Bolt M10 x L40		M10: 140 - 270 kgf.cm
4	HGP800		 Hex Socket Bolt M12 x L35		M12: 350 - 470 kgf.cm

Characteristic Curves & Dimensions

Characteristic Curves

Operation Characteristic Curve	74
Current & Energy-Limiting Characteristic Curve	77

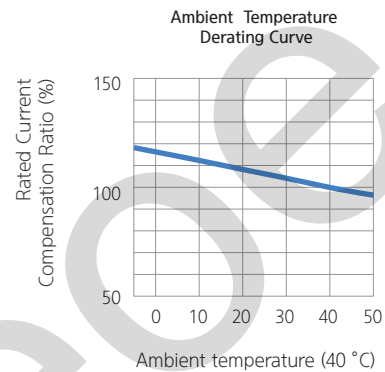
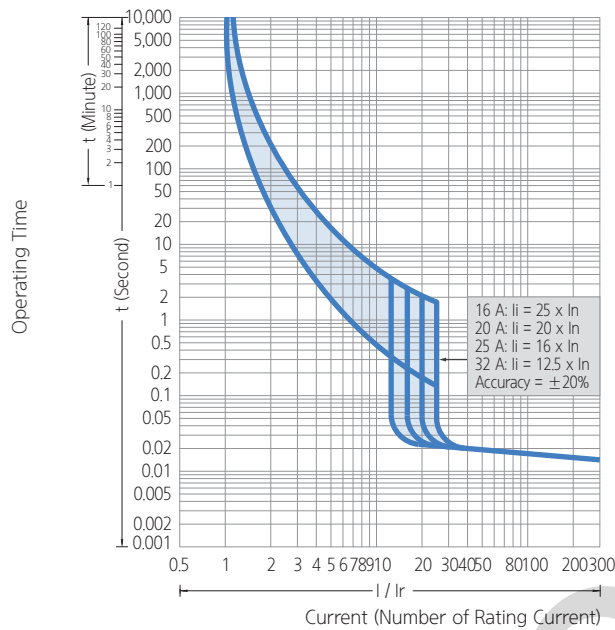
Dimensions

Front Connection Type	78
Rear Connection Type	82
Plug-In Type	86
Rotary Handle	90
Mechanical Interlock	94
Terminal Cover	98
Motor Operator	100
Lug Terminal	101

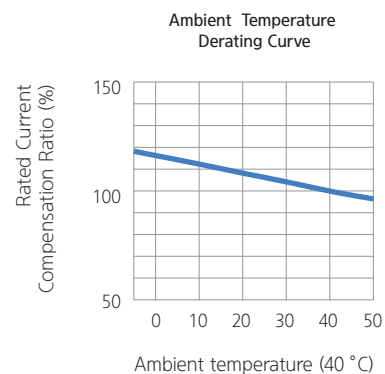
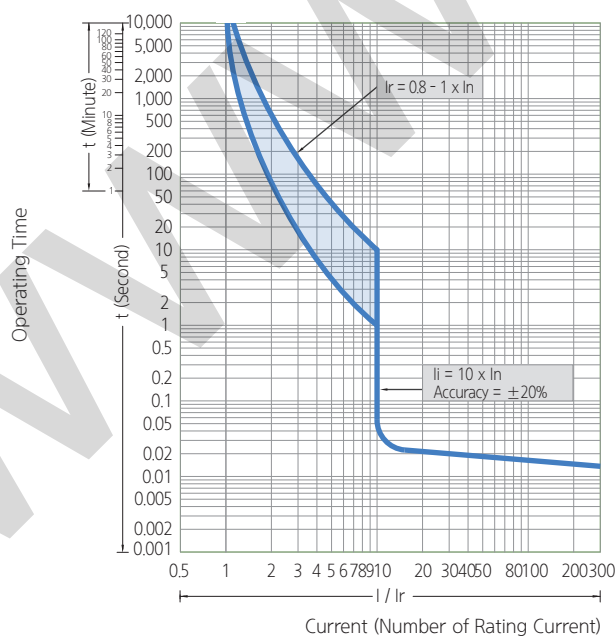
Operation Characteristic Curve

HGP160D (16 - 32 A)

• HGP50D, 125D, 160D

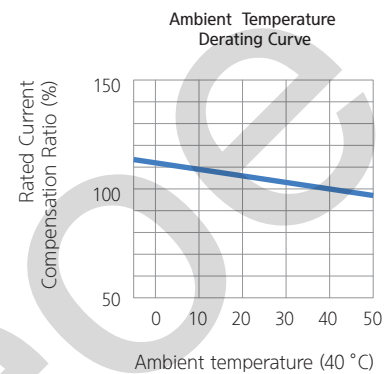
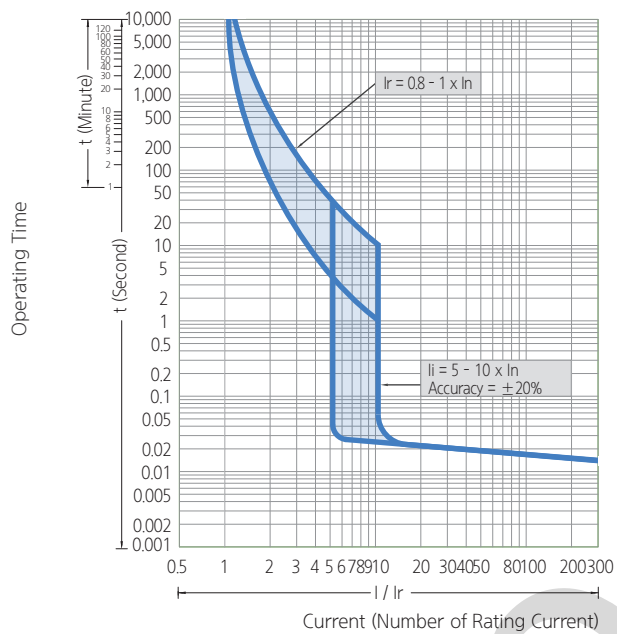


HGP160D (40 - 160 A)



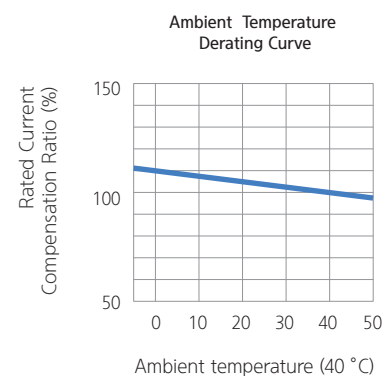
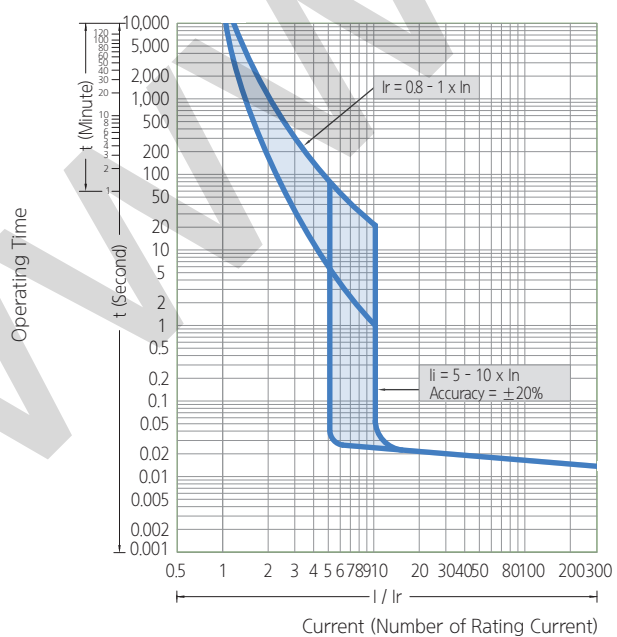
HGP250 (100 - 250 A)

• HGP250



HGP630 (300 - 630 A)

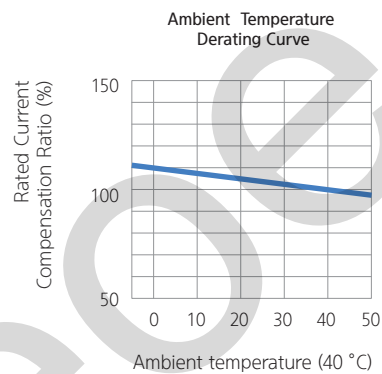
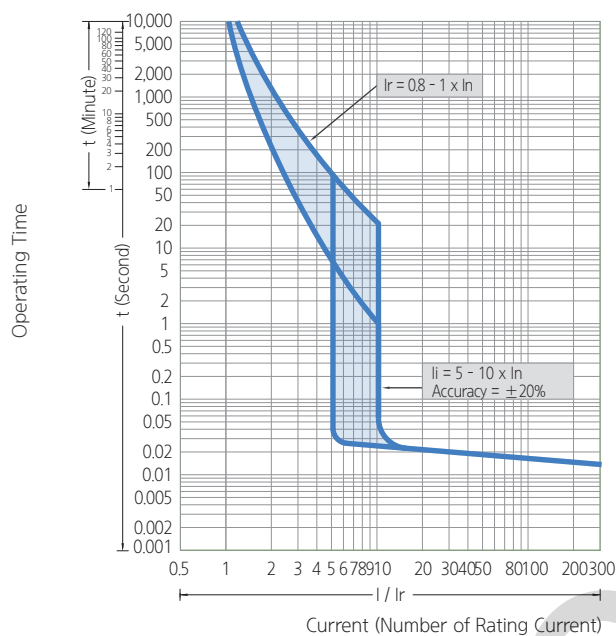
• HGP400, 630



Operation Characteristic Curve

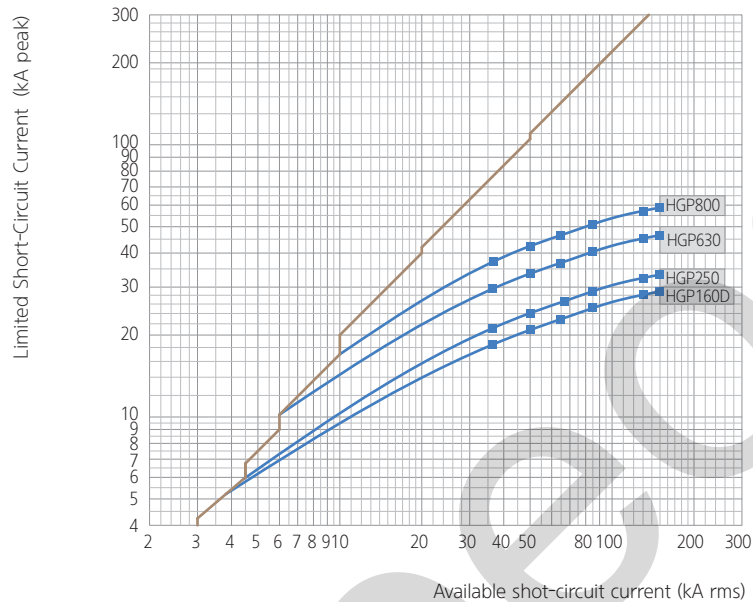
HGP800 (700 – 800 A)

• HGP800

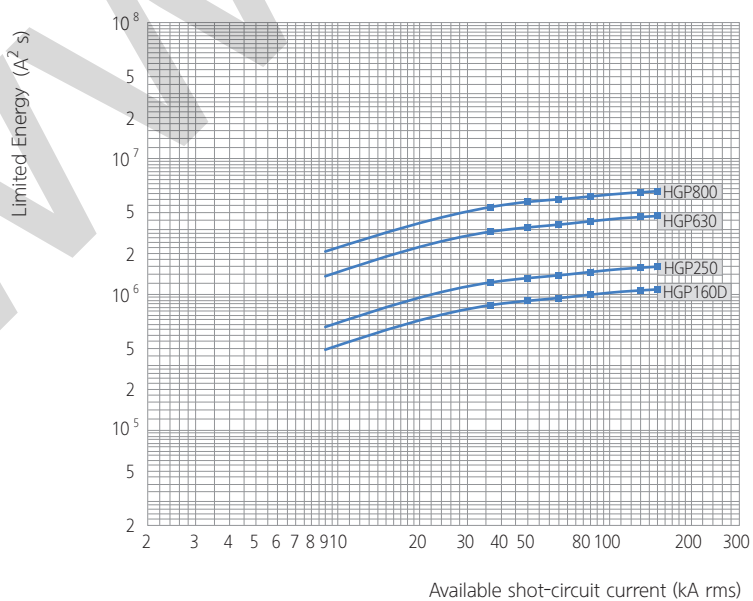


Current & Energy-Limiting Characteristic Curve

Current-Limiting Characteristic Curve



Energy-Limiting Characteristic Curve

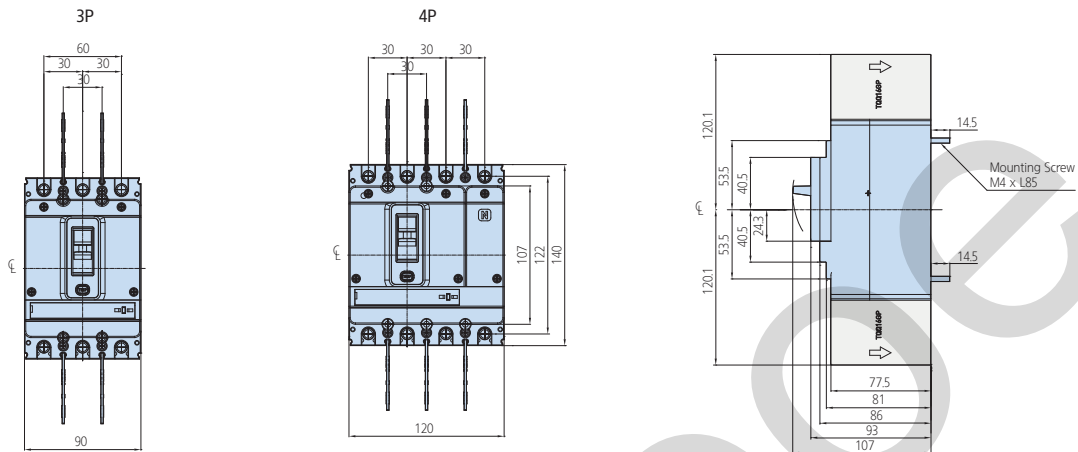


Dimensions

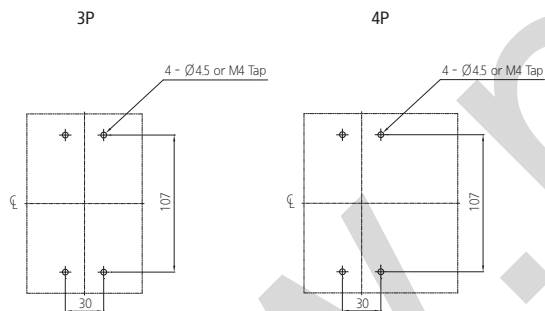
Front Connection Type HGP160D

• HGP50D, 125D, 160D

Dimensions

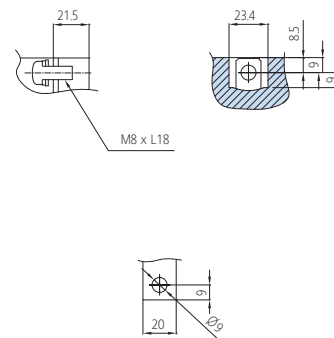


Dimensions for Mounting Body



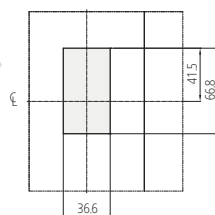
※ Applied screw: M4 x L85 S/W (For circuit breaker),
M8 x L18 S/W P/W (For terminal)

Terminal/Connection Bus Dimension

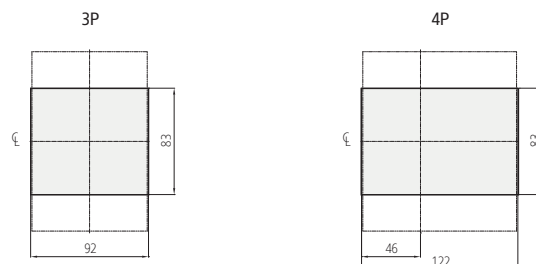


Panel Cover Cutting Dimensions

Panel Cover Cutting Dimensions for Handle/Test Button



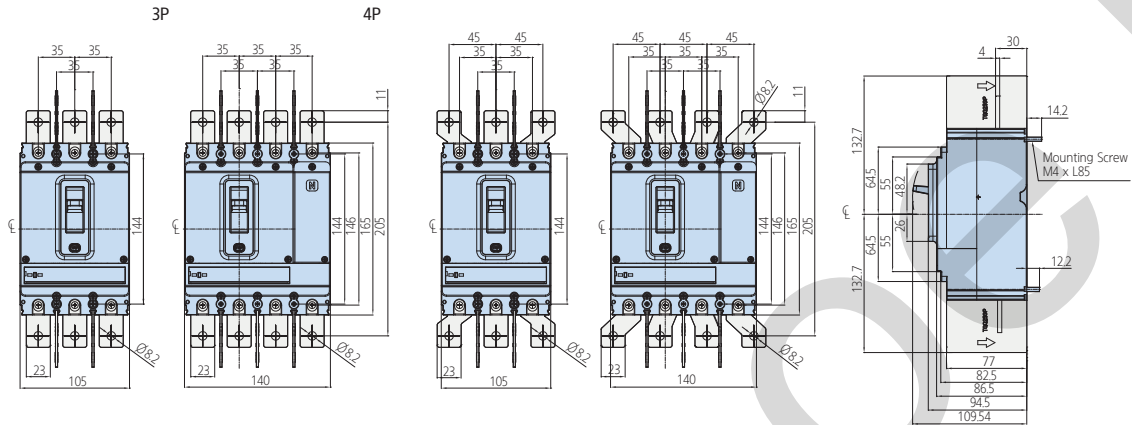
Panel Cover Cutting Dimensions for Handle/Trip Unit



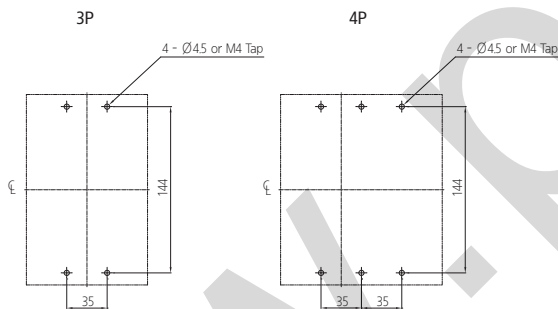
Front Connection Type HGP250

• HGP250

Dimensions

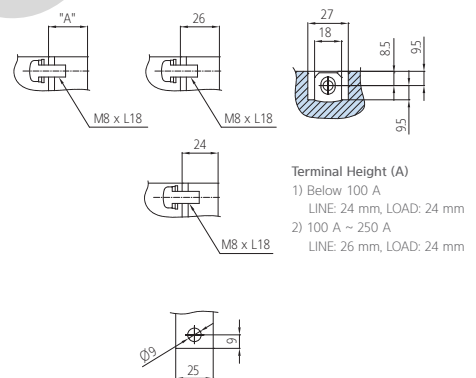


Dimensions for Mounting Body



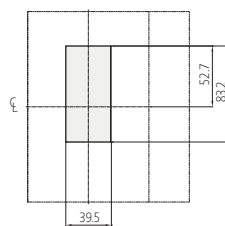
※ Applied screw: M4 x L85 S/W (For circuit breaker),
M8 x L18 S/W P/W (For terminal)

Terminal/Connection Bus Dimension

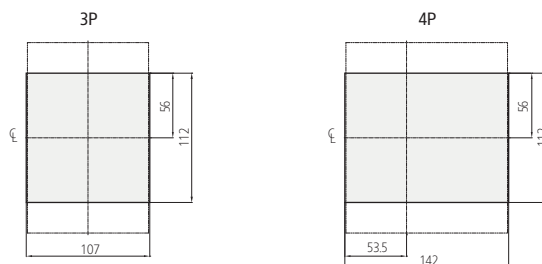


Panel Cover Cutting Dimensions

Panel Cover Cutting Dimensions
for Handle/Test Button



Panel Cover Cutting Dimensions for
Handle/Trip Unit

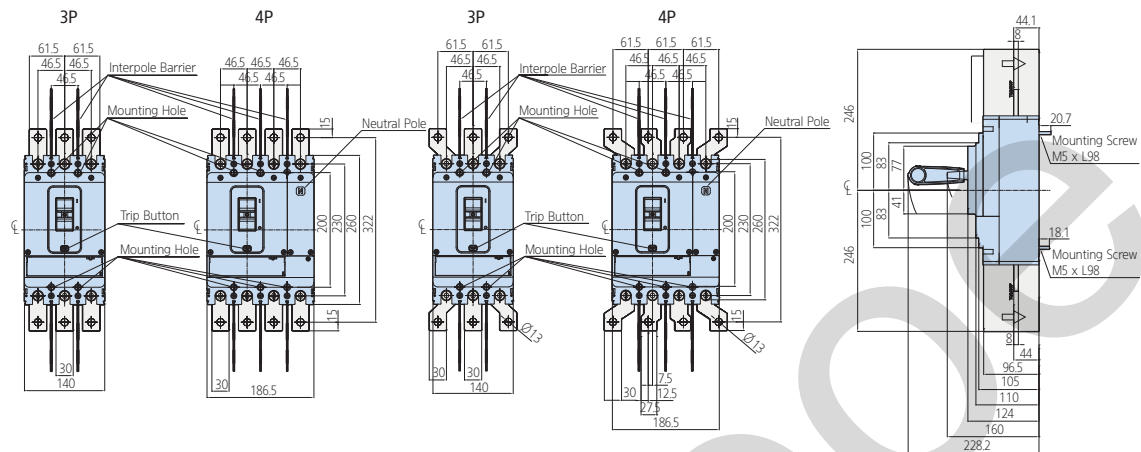


Dimensions

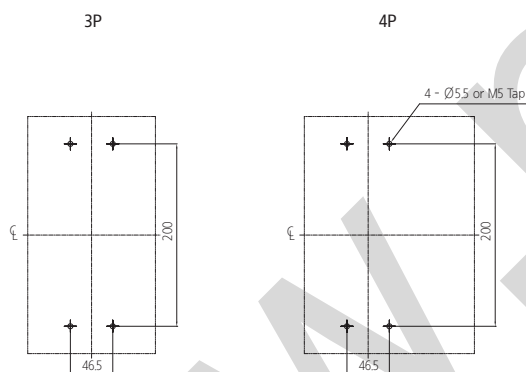
Front Connection Type HGP630

- HGP400D, 630

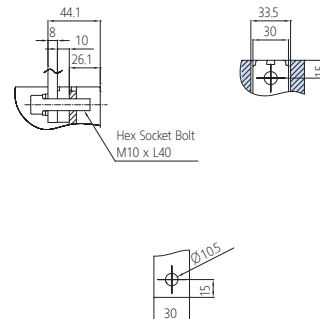
Dimensions



Dimensions for Mounting Body

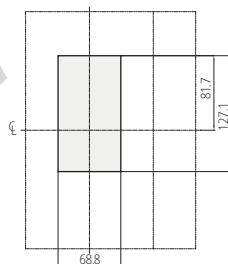


Terminal/Connection Bus Dimension

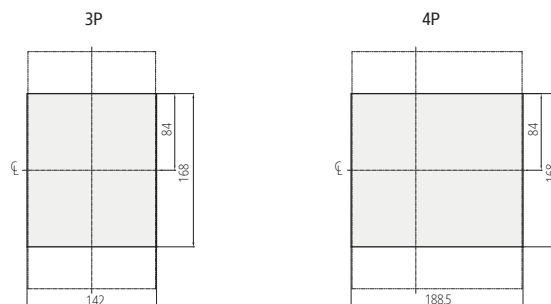


Panel Cover Cutting Dimensions

Panel Cover Cutting Dimensions for Handle/Test Button



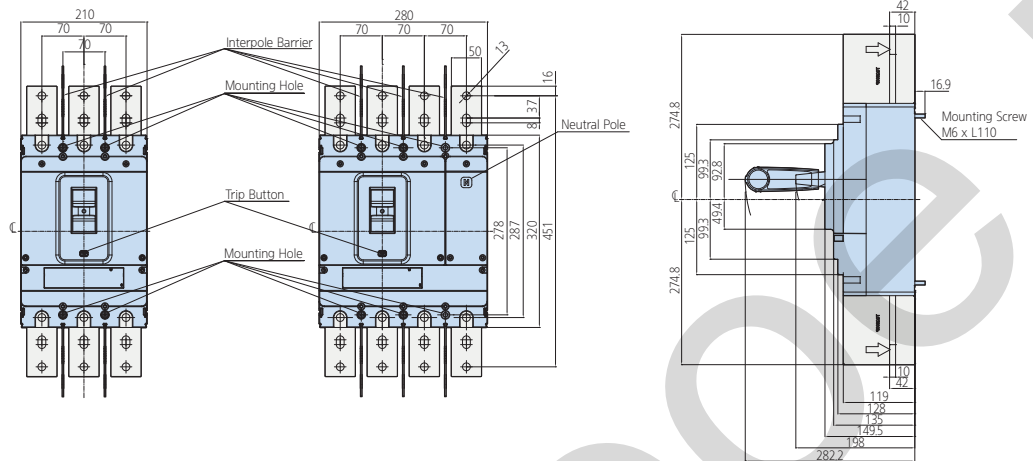
Panel Cover Cutting Dimensions for Handle/Trip Unit



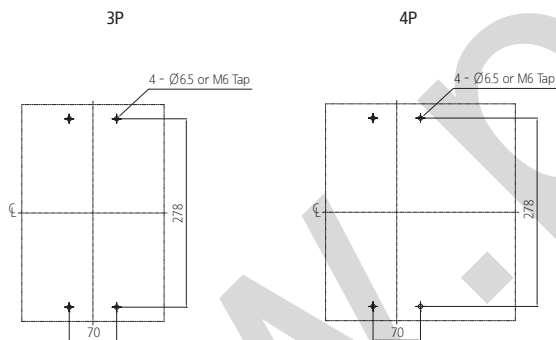
Front Connection Type HGP800

• HGP800

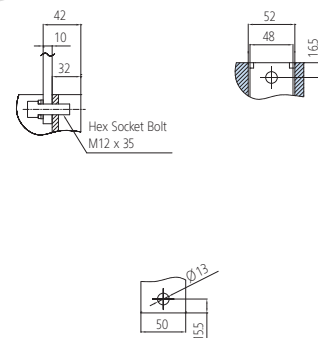
Dimensions



Dimensions for Mounting Body

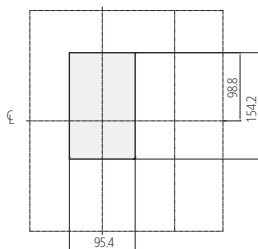


Terminal/Connection Bus Dimension

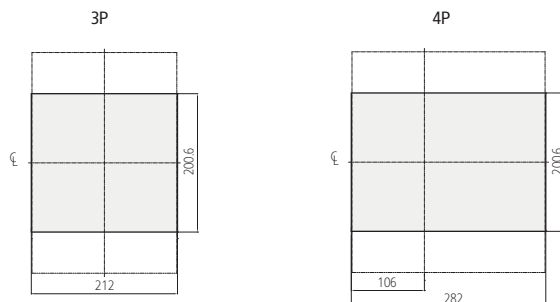


Panel Cover Cutting Dimensions

Panel Cover Cutting Dimensions for Handle/Test Button



Panel Cover Cutting Dimensions for Handle/Trip Unit

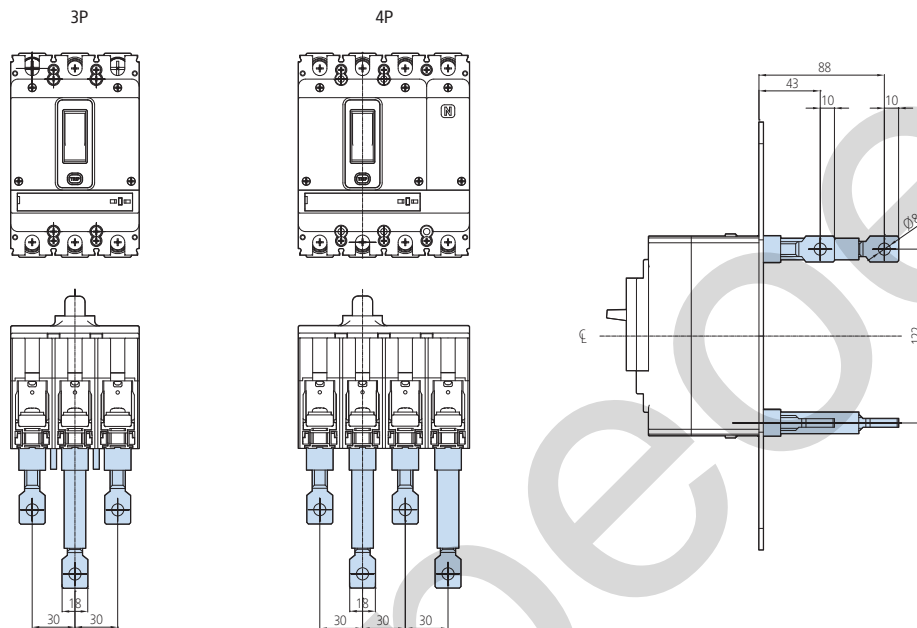


Dimensions

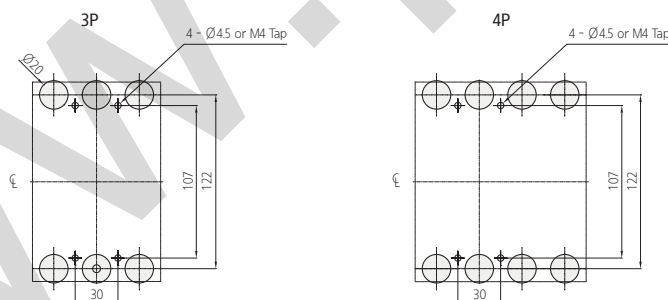
Rear Type HGP160D

• HGP50D, 125D, 160D

Dimensions

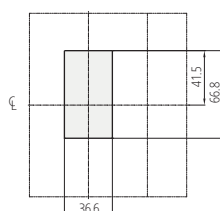


Dimensions for Mounting Body

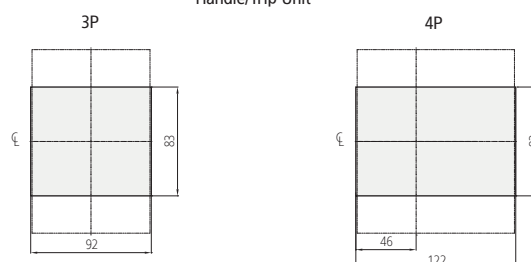


Panel Cover Cutting Dimensions

Panel Cover Cutting Dimensions for Handle/Test Button



Panel Cover Cutting Dimensions for Handle/Trip Unit



- HGP250

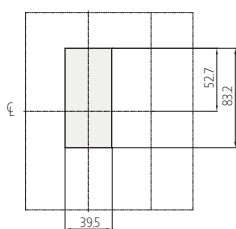
[illegible]

The image contains two technical drawings of terminal block layouts, labeled 3P and 4P.

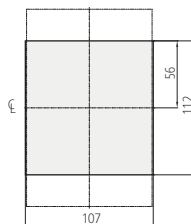
3P Drawing: Shows a rectangular terminal block with two rows of three terminals each. The top row is labeled "3P". The terminals are labeled "4 - Ø4.5 or M4 Tap". The overall width is 144, and the overall height is 149.4. The distance between the two rows is 35.

4P Drawing: Shows a rectangular terminal block with two rows of four terminals each. The top row is labeled "4P". The terminals are labeled "4 - Ø4.5 or M4 Tap". The overall width is 144, and the overall height is 149.4. The distance between the two rows is 35.

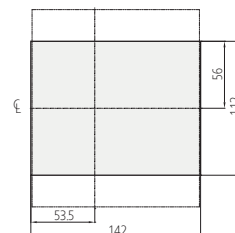
Panel Cover Cutting Dimensions for Handle/Test Button



3P



4P

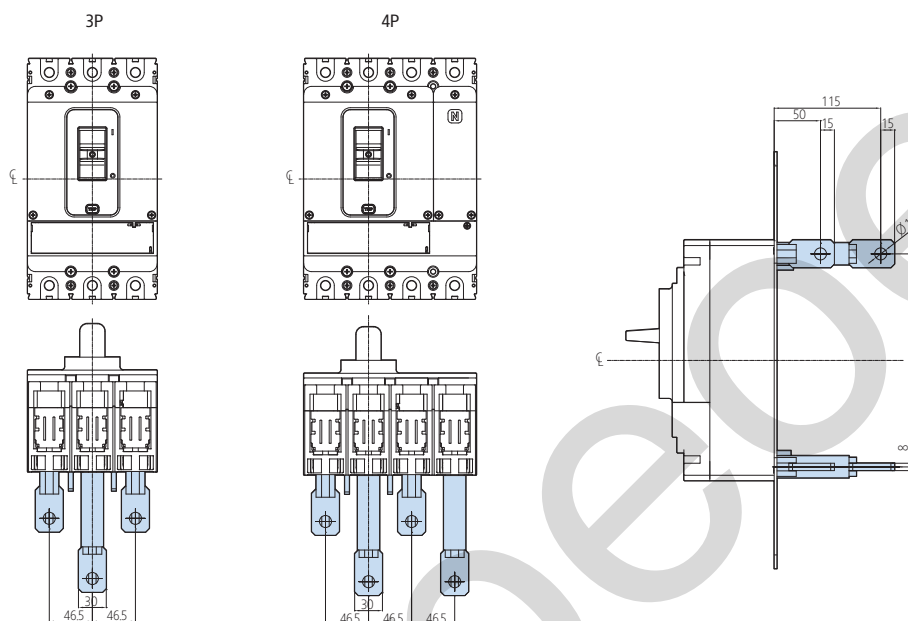


Dimensions

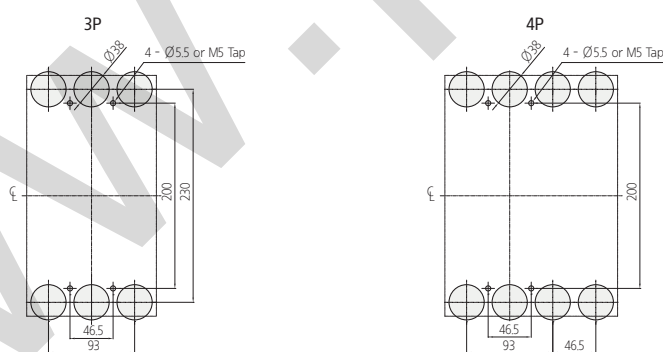
Rear Type HGP630

• HGP400, 630

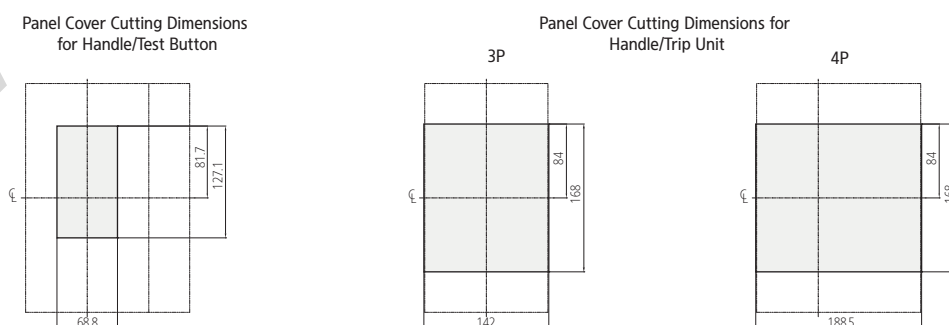
Dimensions



Dimensions for Mounting Body



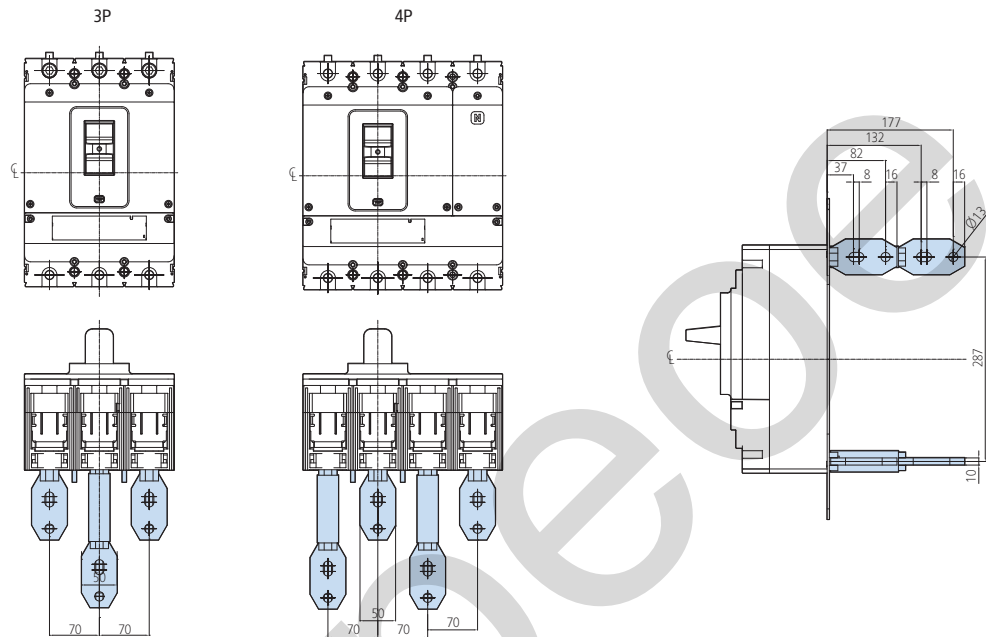
Panel Cover Cutting Dimensions



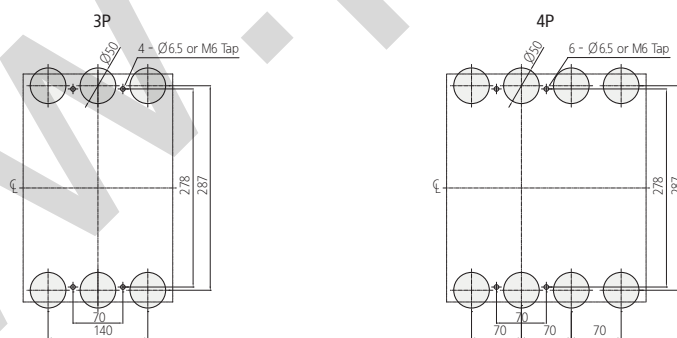
Rear Type HGP800

• HGP800

Dimensions

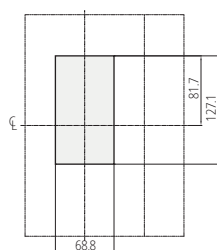


Dimensions for Mounting Body

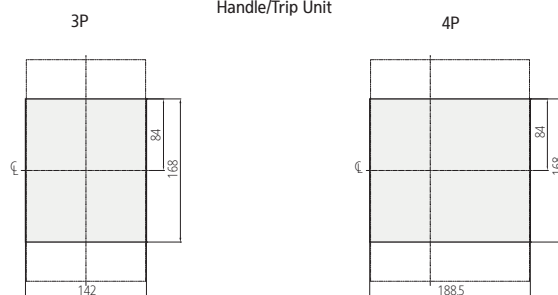


Panel Cover Cutting Dimensions

Panel Cover Cutting Dimensions for Handle/Test Button



Panel Cover Cutting Dimensions for Handle/Trip Unit

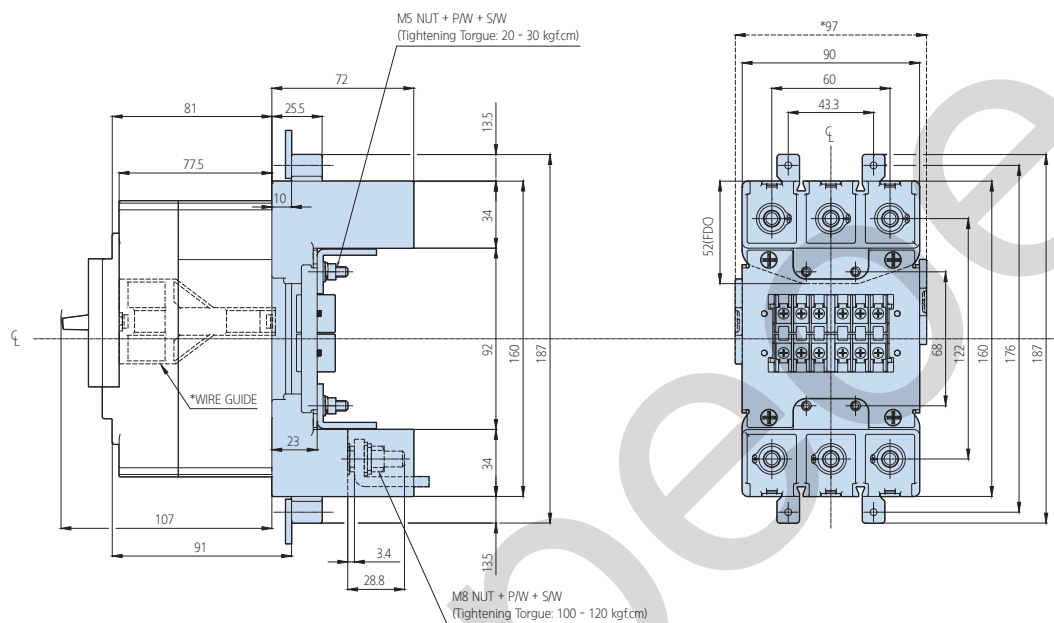


Dimensions

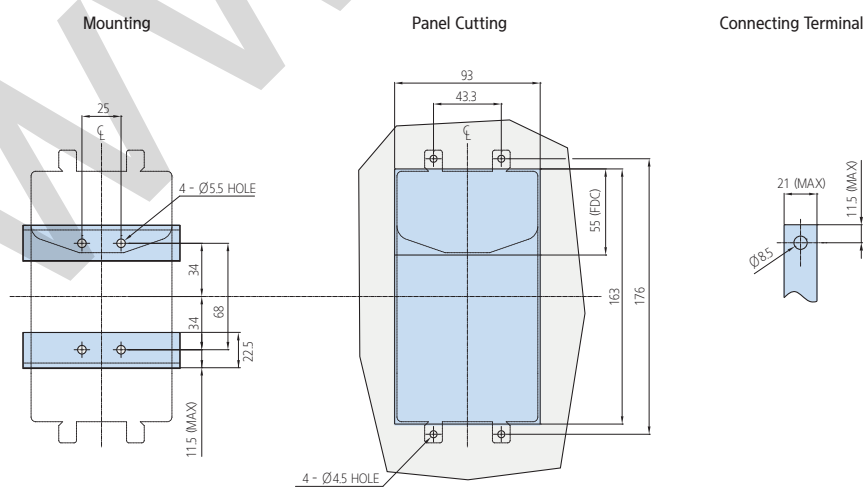
Plug-in Type HGP160D

- HGP50D, 125D, 160D

Dimensions



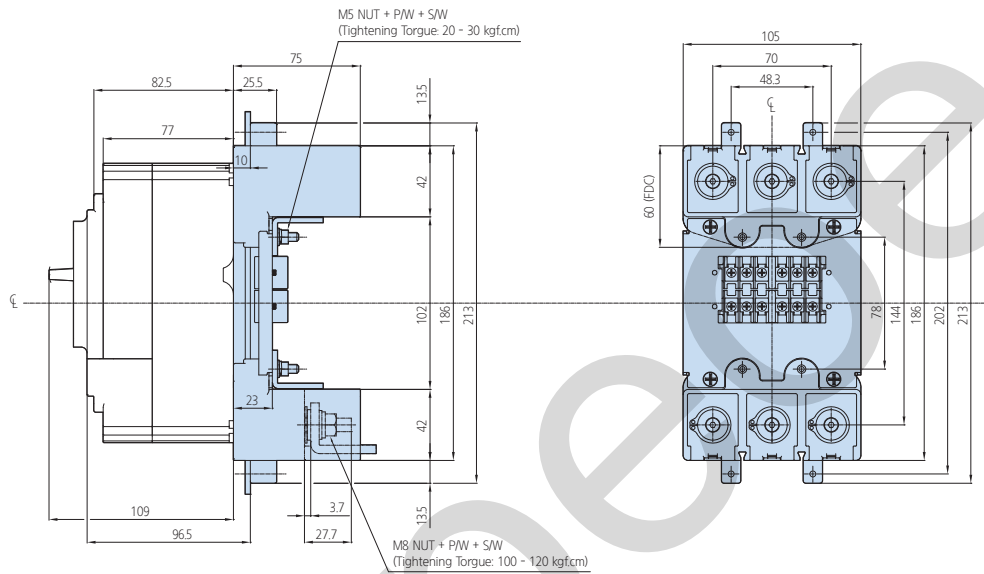
Dimensions for Panel Cutting and Mounting



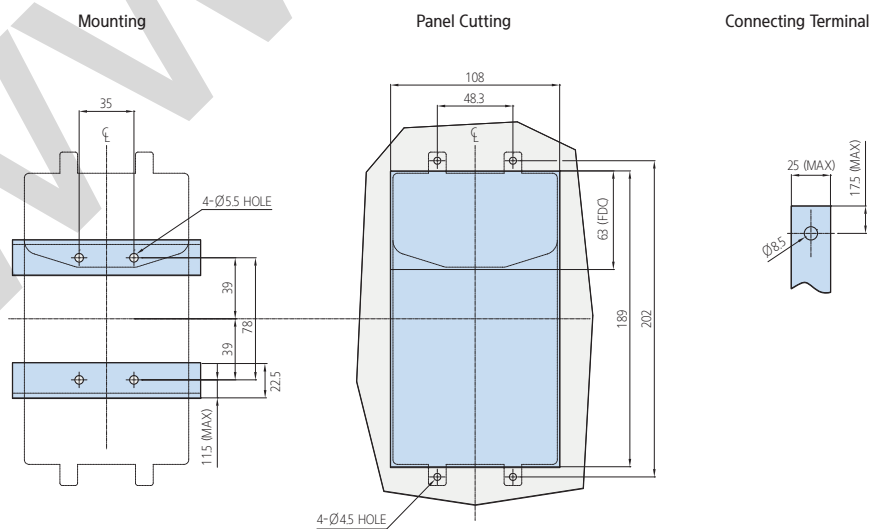
Plug-in Type HGP250

• HGP250

Dimensions



Dimensions for Panel Cutting and Mounting

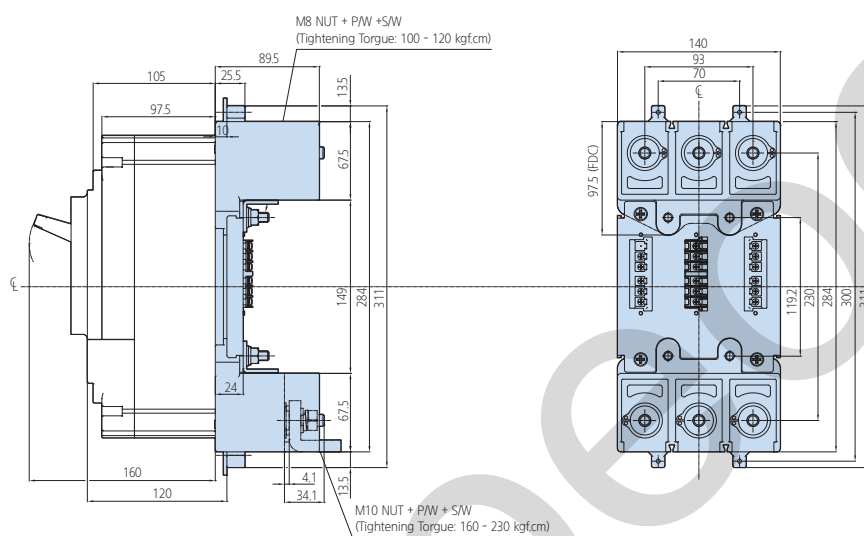


Dimensions

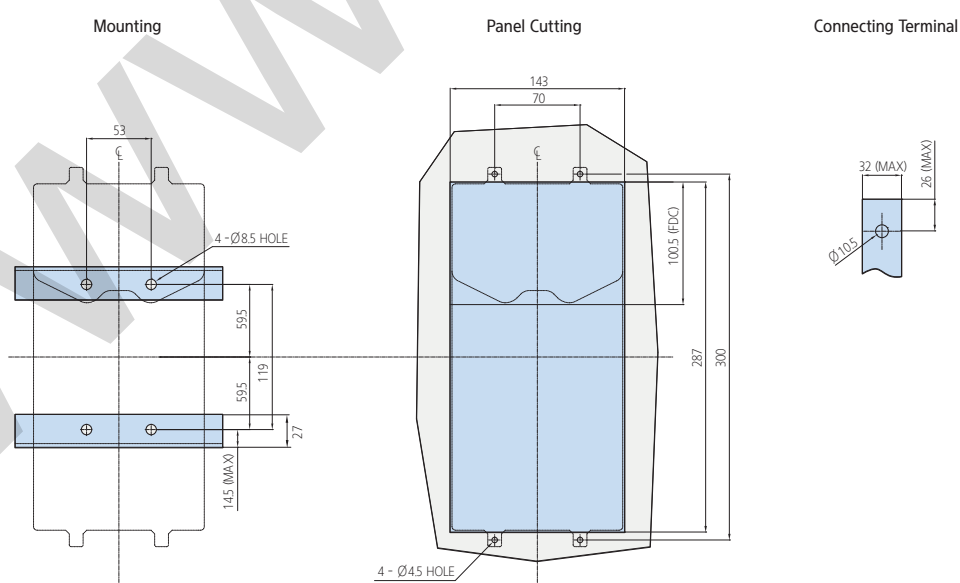
Plug-in Type HGP630

• HGP400, 630

Dimensions



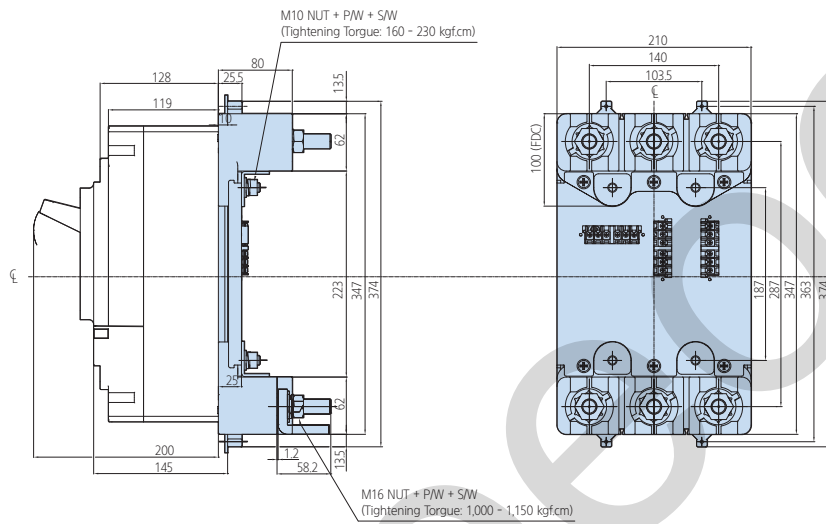
Dimensions for Panel Cutting and Mounting



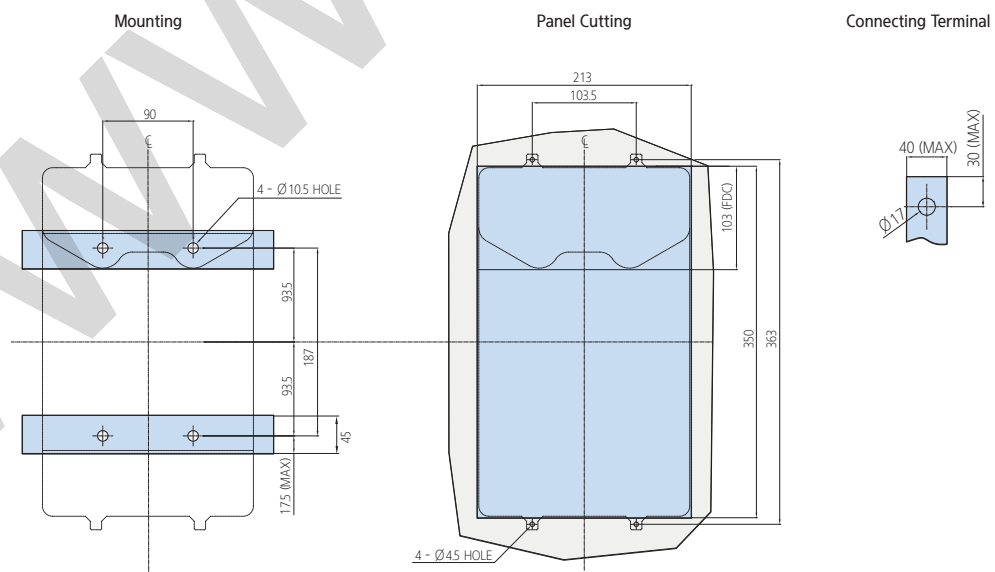
Plug-in Type HGP800

• HGP800

Dimensions



Dimensions for Panel Cutting and Mounting

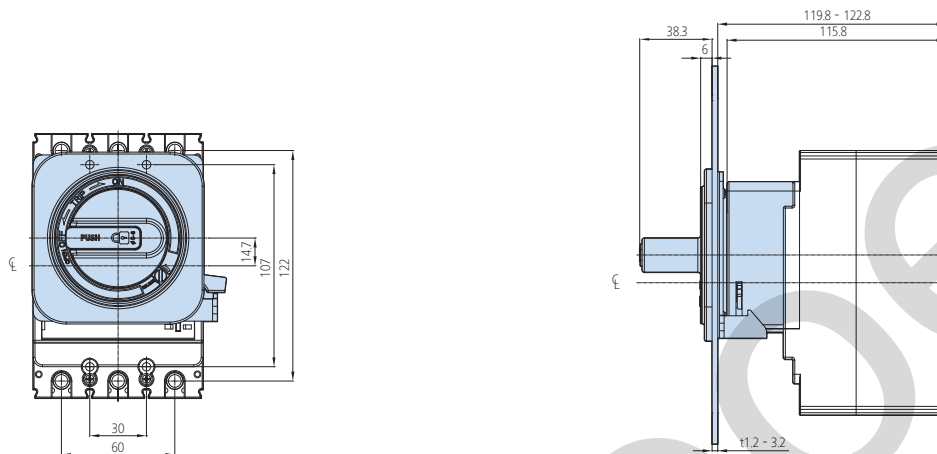


Dimensions

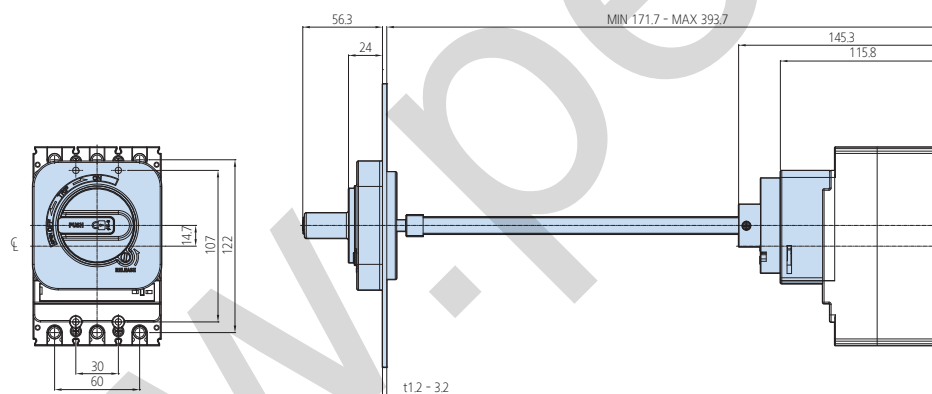
Rotary Handle HGP160D

• HGP50D, 125D, 160D

Direct Rotary Handle

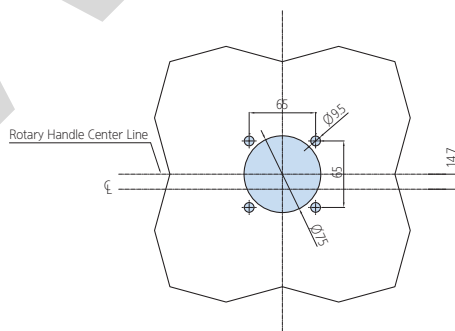


Extended Rotary Handle

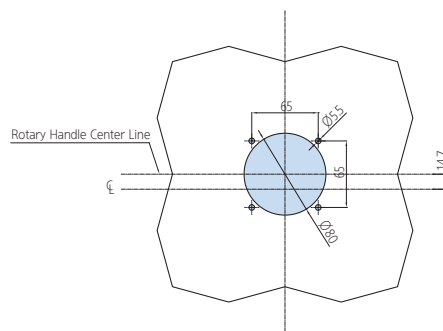


Dimensions for Mounting Body

Direct Rotary Handle



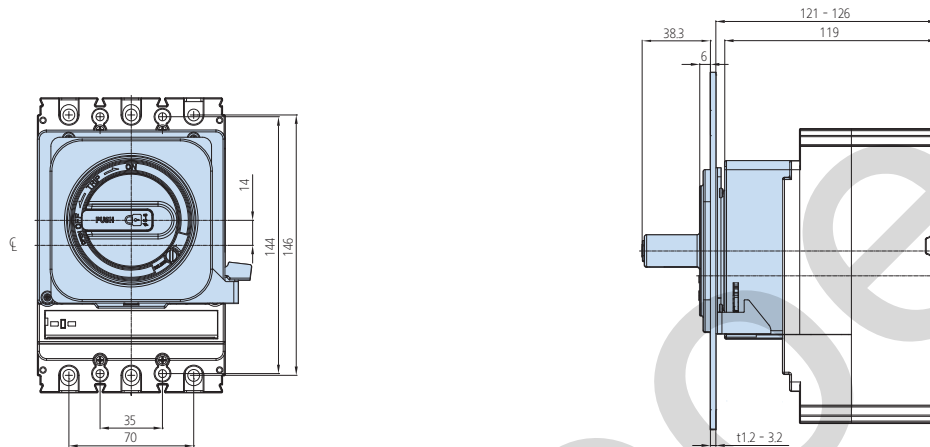
Extended Rotary Handle



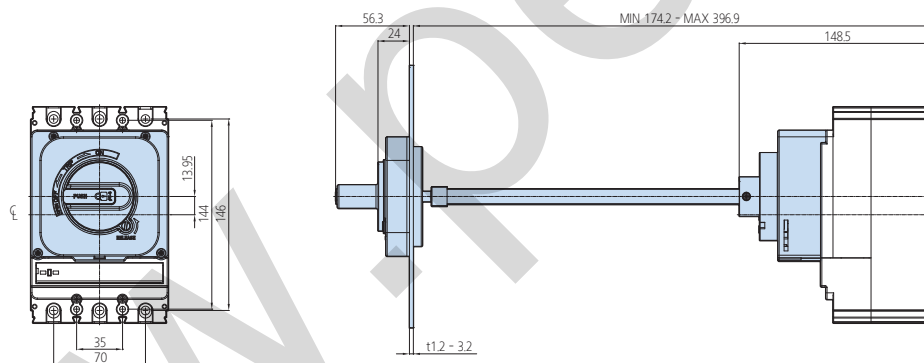
Rotary Handle HGP250

• HGP250

Direct Rotary Handle

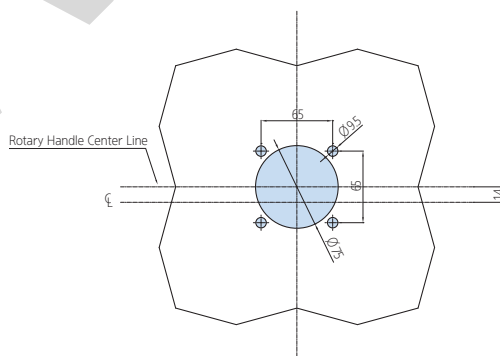


Extended Rotary Handle

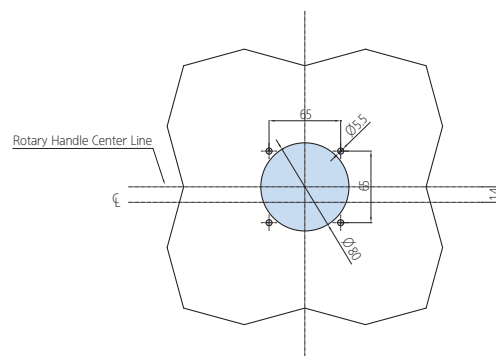


Dimensions for Mounting Body

Direct Rotary Handle



Extended Rotary Handle

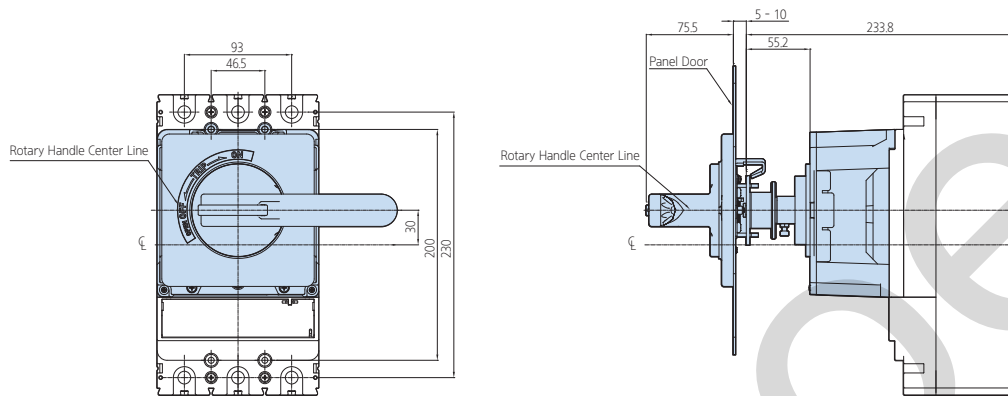


Dimensions

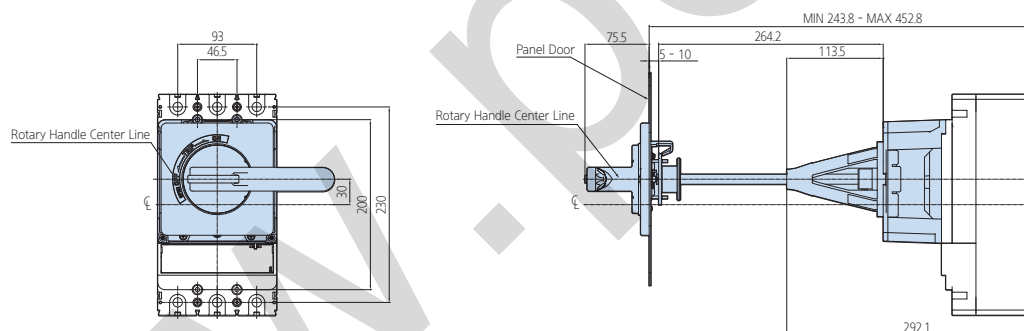
Rotary Handle HGP630

• HGP400, 630

Direct Rotary Handle

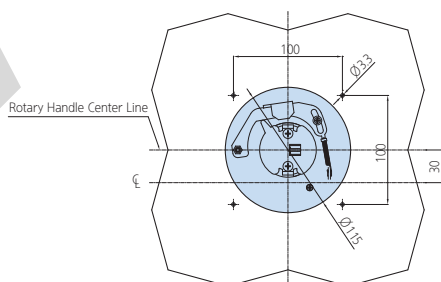


Extended Rotary Handle

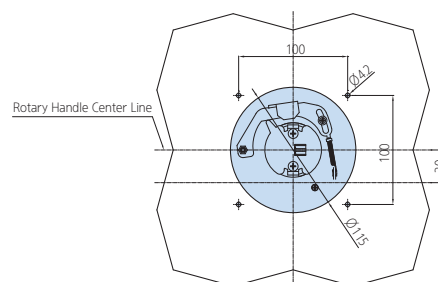


Dimensions for Mounting Body

Direct Rotary Handle



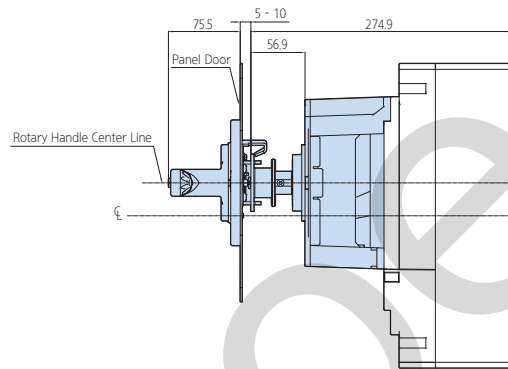
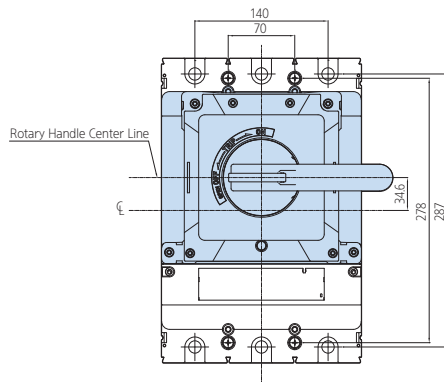
Extended Rotary Handle



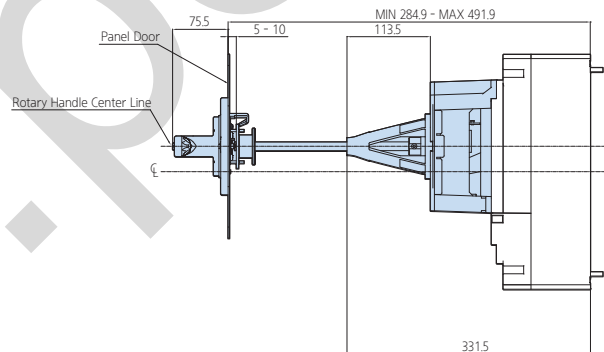
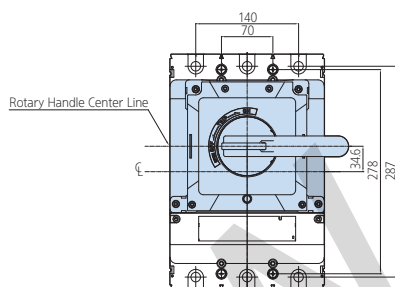
Rotary Handle HGP800

• HGP800

Direct Rotary Handle

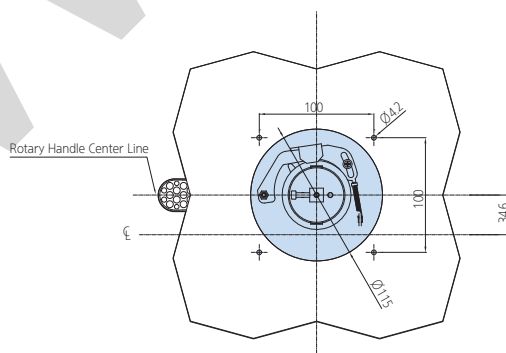


Extended Rotary Handle

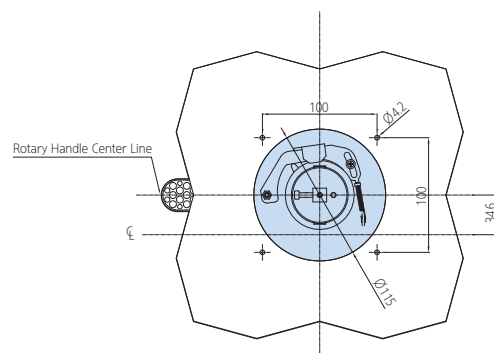


Dimensions for Mounting Body

Direct Rotary Handle



Extended Rotary Handle

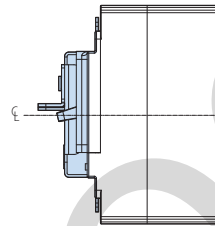
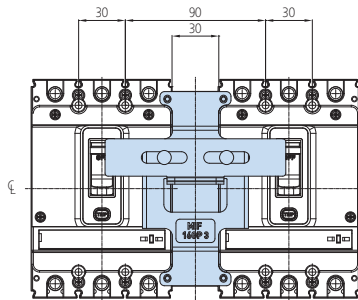


Dimensions

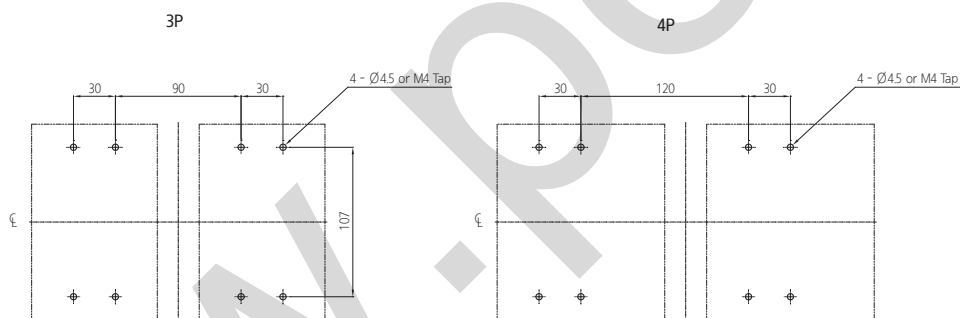
Mechanical Interlock HGP160D

- HGP50D, 125D, 160D

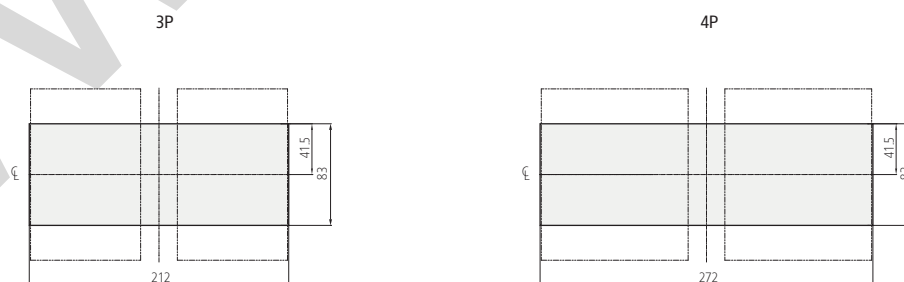
Dimension



Dimensions for Mounting Body



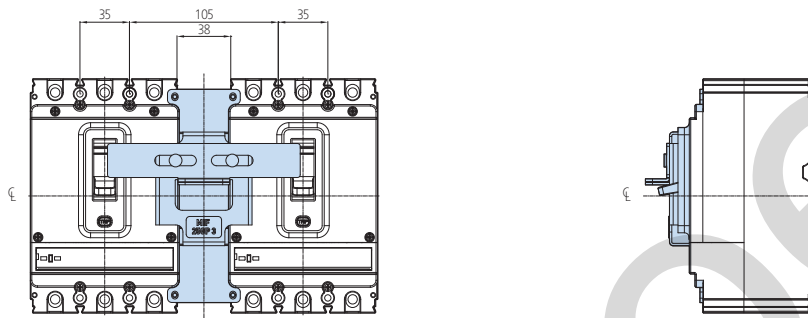
Panel Cover Cutting Dimension



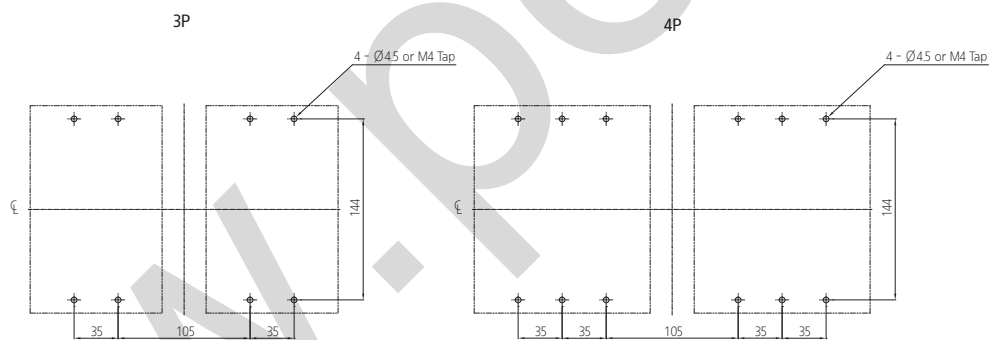
Mechanical Interlock HGP250

• HGP250

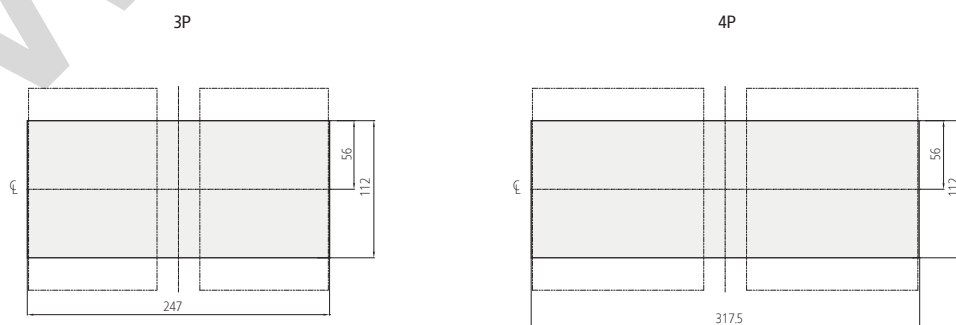
Dimension



Dimensions for Mounting Body



Panel Cover Cutting Dimension

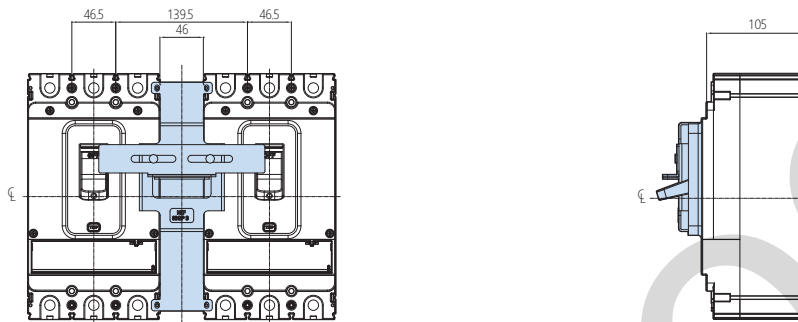


Dimensions

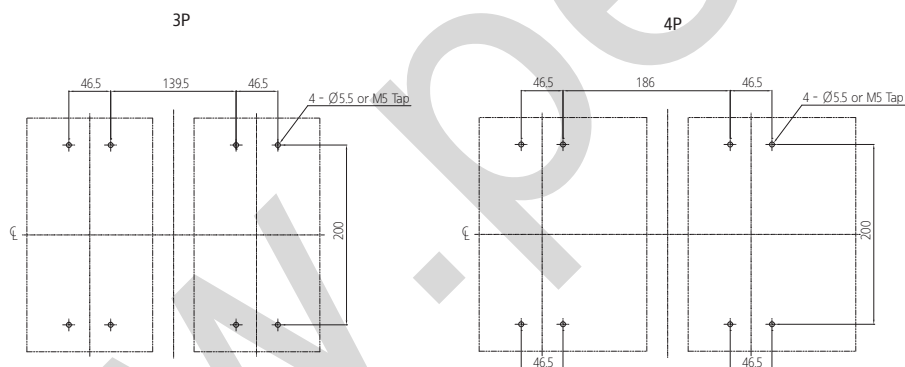
Mechanical Interlock HGP630

• HGP400, 630

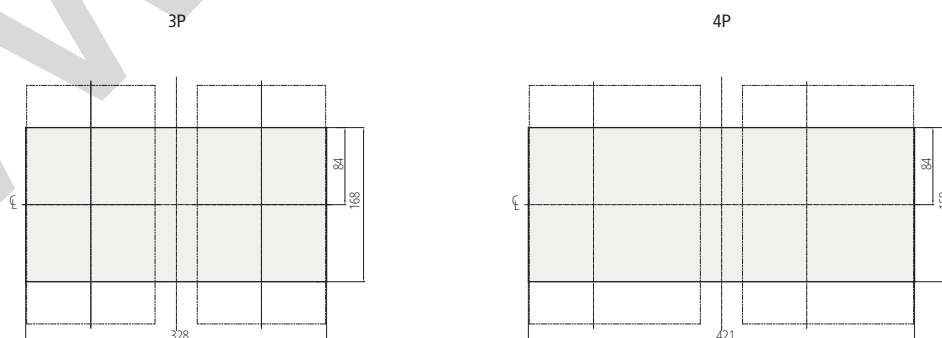
Dimension



Dimensions for Mounting Body



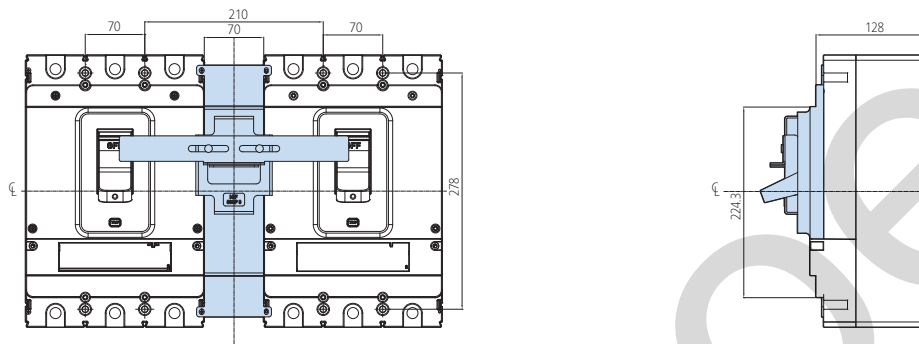
Panel Cover Cutting Dimension



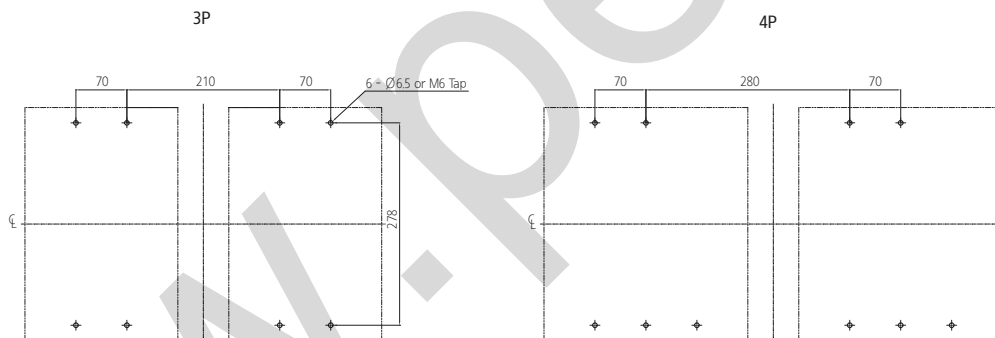
Mechanical Interlock HGP800

• HGP800

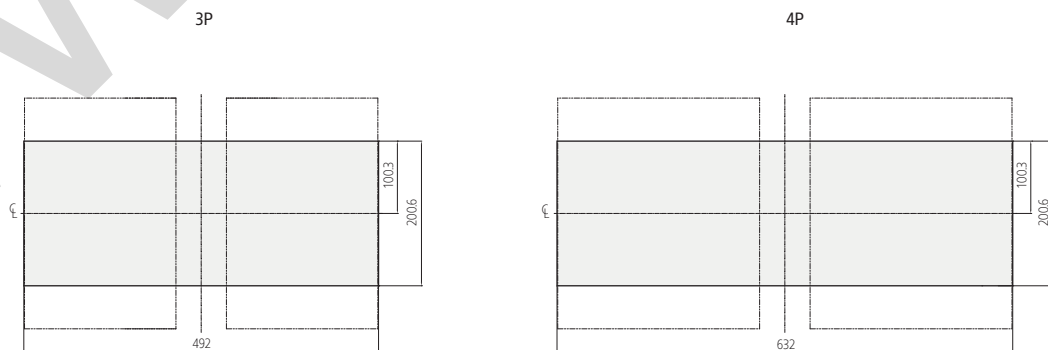
Dimension



Dimensions for Mounting Body



Panel Cover Cutting Dimension

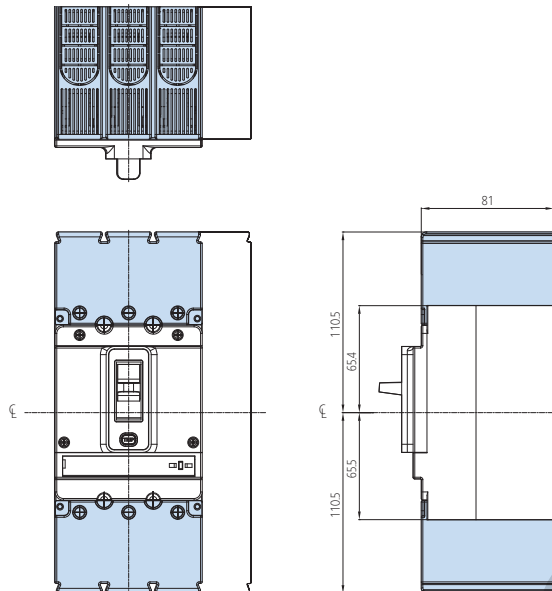


Dimensions

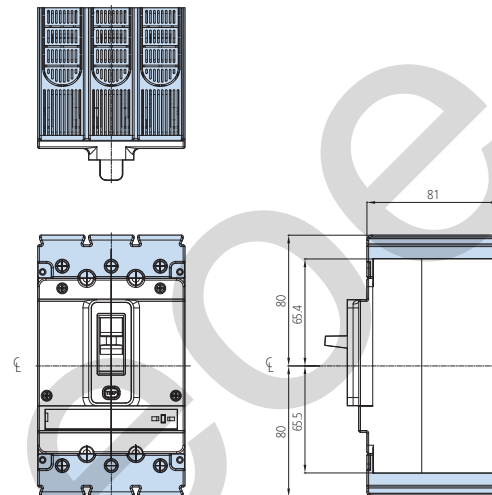
Terminal Cover HGP50D, 125D, 160D

• HGP50D, 125D, 160D

Long Type 3P/4P



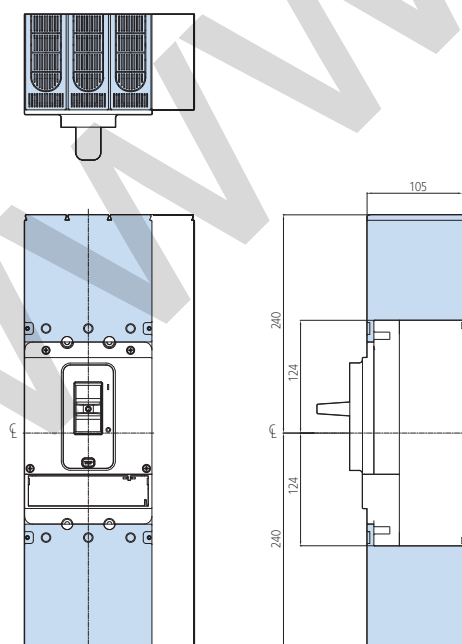
Short Type 3P



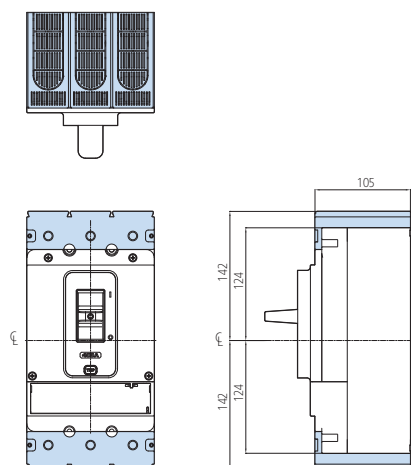
Terminal Cover HGP250

• HGP250

Long Type 3P/4P



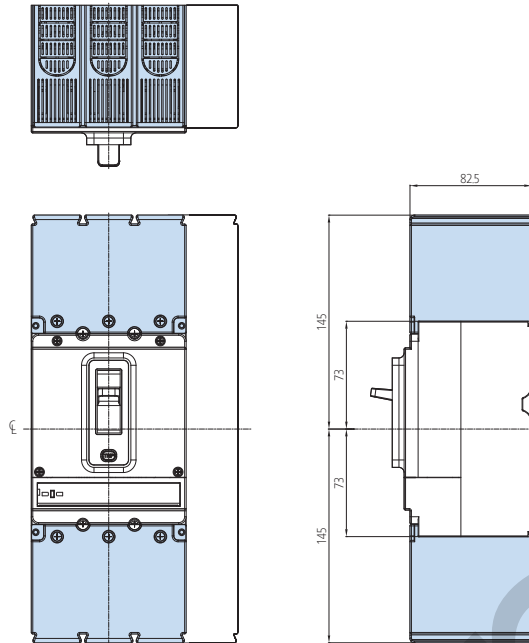
Short Type 3P



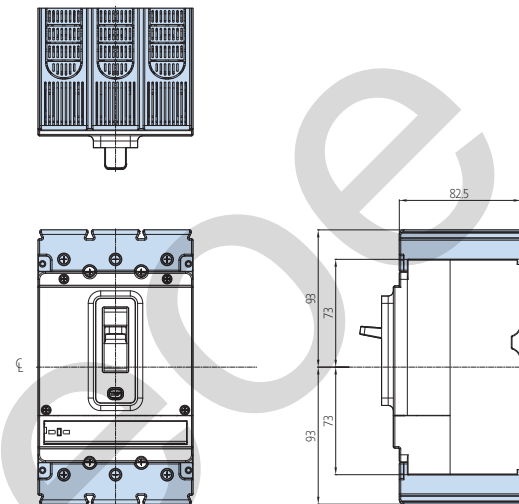
Terminal Cover HGP400, 630

• HGP400, 630

Long Type 3P/4P



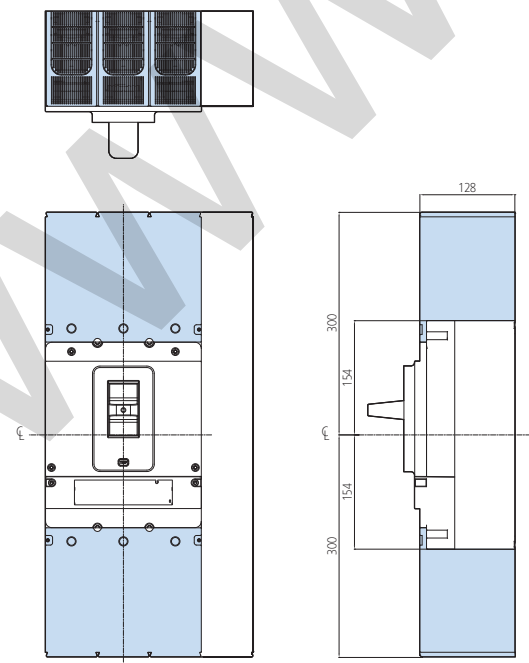
Short Type 3P



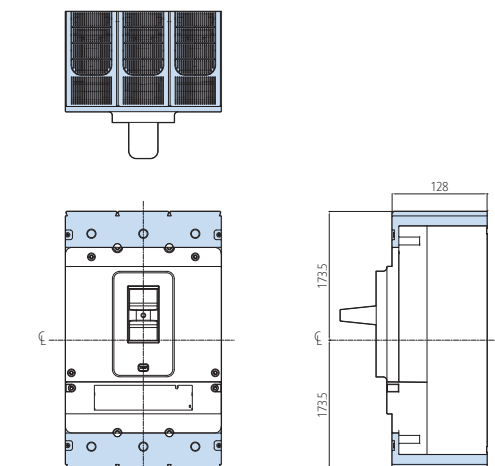
Terminal Cover HGP800

• HGP800

Long Type 3P/4P



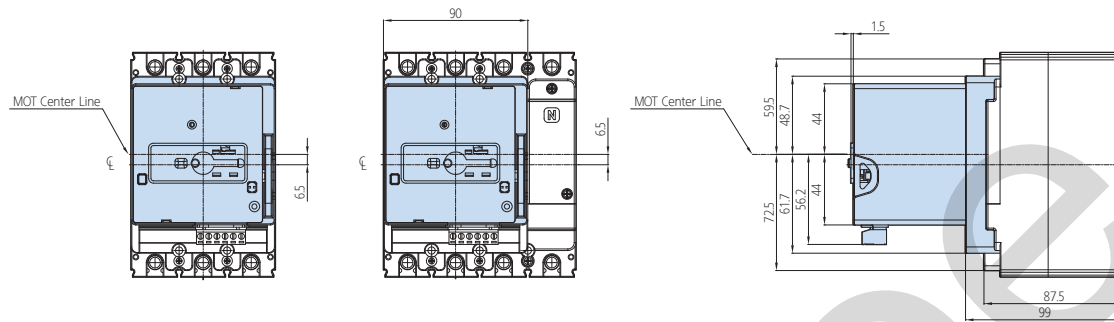
Short Type 3P



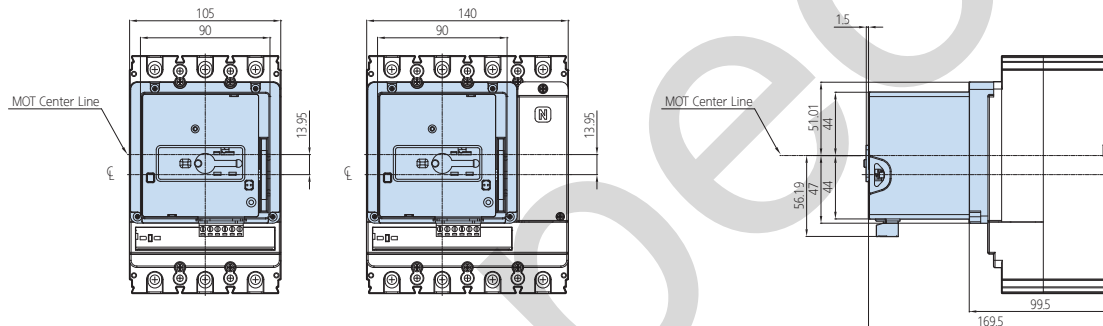
Dimensions

Motor Operator

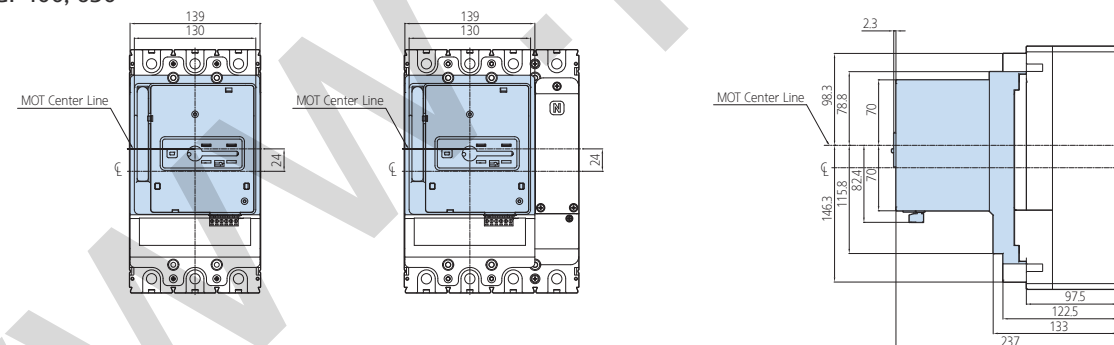
HGP50D, 125D, 160D



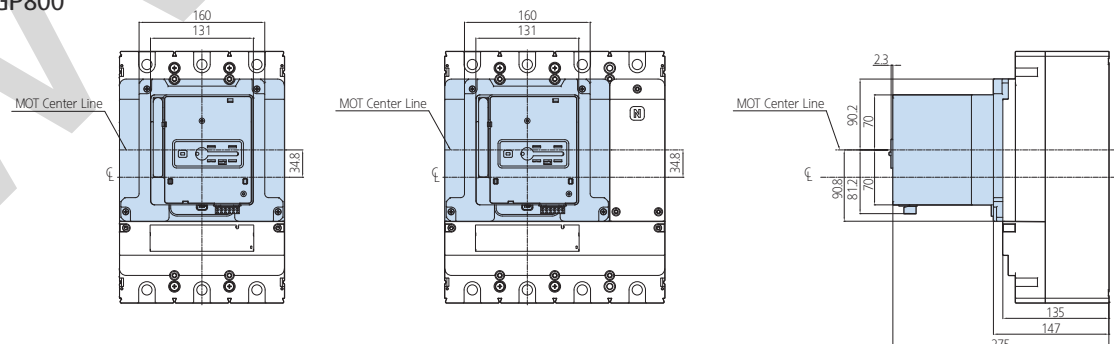
HGP250



HGP400, 630

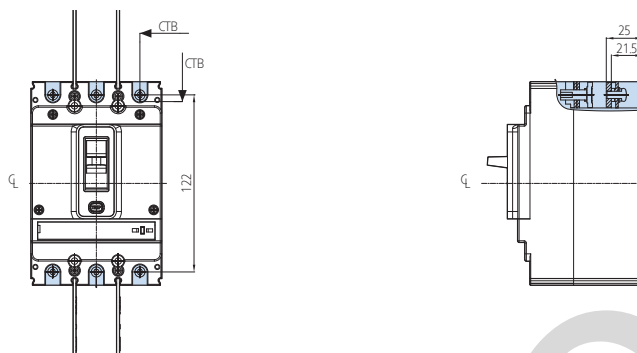


HGP800

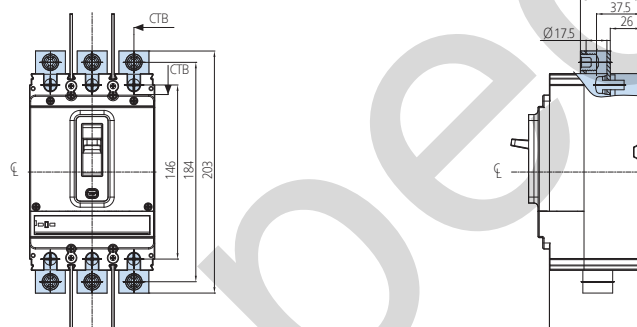


Lug Terminal

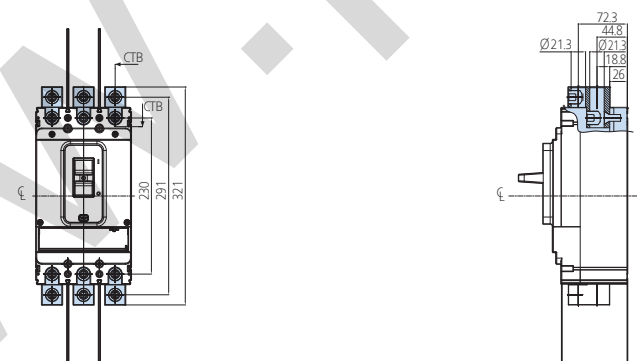
HGP50D, 125D, 160D



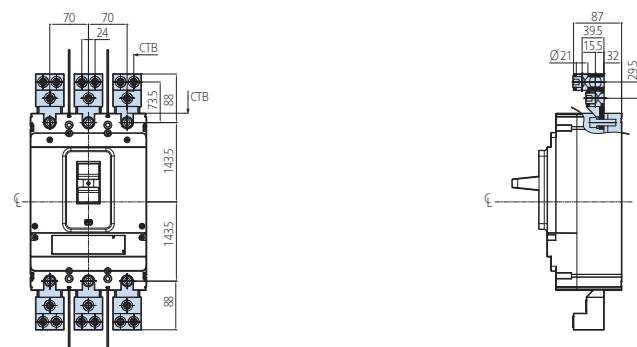
HGP250



HGP400, 630



HGP800



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Order Information

Order Information 104

Ordering Codes

HGP Type Molded Case Circuit Breakers (MCCB) 105

HGP Type Accessory Separately 112

Order Information

HGP Type MCCB / Switch - Disconnectors



	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪
	HGP	50D	S	3P	T4	S	00	00	C	00016	F
① Type											
② Frame											
③ Short-Circuit Breaking Capacity											
④ Number of Poles											
⑤ Product Description											
⑥ Mounting											
⑦ Auxiliary Contact & Alarm Switch (AUX/ALT)											
⑧ Shunt Trip & Under Voltage Trip Devices (SHT/UVT)											
⑨ Frequency											
⑩ Rated Current											
⑪ Trip Device											

① Type	
HGP	MCCB / Switch-Disconnectors
② Frame	
50D	50 AF
125D	125 AF
160D	160 AF
250	250 AF
400	400 AF
630	630 AF
800	800 AF
③ Short-Circuit Breaking Capacity ¹⁾	
F	36 kA
N	50 kA
S	65 kA
H	85 kA
L	130 kA
X	150 kA
NA	Switch-Disconnectors

④ Number of Poles	
3P	3Pole
4P	4Pole
⑤ Product Description	
MCCB	
T4	Ambient temperature 40°C
T5	Ambient temperature 50°C
Motor Protection MCCB	
MP	Motor Protection
Switch-disconnector	
DS	Switch-disconnector
⑥ Mounting	
S	Front connection
BS ²⁾	Straight Busbar
BE ²⁾	Extended Busbar (Spreader)
P	Plug-in PC/CBM attachment
F	Line : Plug-in Load : Front connection
X	Plug-in PC/CBM non-attachment

⑦ Auxiliary Contact & Alarm Switch (AUX/ALT)	
00	Without
10	AUX 1C
20	AUX 2C
01	ALT 1C
11	AUX 1C + ALT 1C
21	AUX 2C + ALT 1C
31 ³⁾	AUX 3C + ALT 1C
32 ⁴⁾	AUX 3C + ALT 2C
⑧ Shunt Trip & Under Voltage Trip Devices (SHT/UVT)	
00	Without
S1	SHT AC110 V
S2	SHT AC220 V
S3	SHT AC380 V
S4	SHT AC440 V
S5	SHT DC24 V
S6	SHT DC110 V
U1	UVT AC110 V
U2	UVT AC220 V
U3	UVT AC380 V
U4	UVT AC440 V
U5	UVT DC24 V
U6	UVT DC110 V

⑨ Frequency	
C	50/60 Hz in Common
⑩ Rated Current	
00016	16 A
00020	20 A
	:
00800	800 A
⑪ Trip Device	
Overload & Short-circuit protection	
-	Fixed thermal & Fixed magnetic (MTM-FF)
F	Adjustable thermal & Fixed magnetic (MTM-JF)
H	Adjustable thermal & Adjustable magnetic (MTM-JJ)
N	Fixed thermal & Fixed magnetic (MTM-FF) + 4P Neutral Protection
FN	Adjustable thermal & Fixed magnetic (MTM-JF) + 4P Neutral Protection
HN	Adjustable thermal & Adjustable magnetic (MTM-JJ) + 4P Neutral Protection

※ ¹⁾ In case that the rated voltage is AC440/460 V

²⁾ B/E: It can be applied to all the Line & Load terminals.

³⁾ Applicable to HGP400 - 800

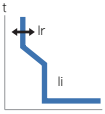
⁴⁾ Only applicable to HGP800

※ - This order information is in order to explain the order code. When ordering, please refer to relevant page to know detailed specifications of each type circuit breaker.

Ordering Codes

HGP Type Molded Case Circuit Breakers (MCCB)

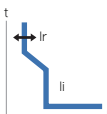
- Normal type/Front connection, Adjustable
- Except for accessory, Based on ambient temperature 40 °C and frequency 50/60 Hz

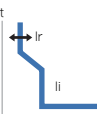
50 AF	In	3Pole	4Pole (RSTN)	4Pole (RSTN, 4P4D)
 	HGP50DF...36 kA / 460 V			
	16 A	HGP50DF 3PT4S0000C 00016F	HGP50DF 4PT4S0000C 00016F	HGP50DF 4PT4S0000C 00016FN
	20 A	HGP50DF 3PT4S0000C 00020F	HGP50DF 4PT4S0000C 00020F	HGP50DF 4PT4S0000C 00020FN
	25 A	HGP50DF 3PT4S0000C 00025F	HGP50DF 4PT4S0000C 00025F	HGP50DF 4PT4S0000C 00025FN
	32 A	HGP50DF 3PT4S0000C 00032F	HGP50DF 4PT4S0000C 00032F	HGP50DF 4PT4S0000C 00032FN
	40 A	HGP50DF 3PT4S0000C 00040F	HGP50DF 4PT4S0000C 00040F	HGP50DF 4PT4S0000C 00040FN
	50 A	HGP50DF 3PT4S0000C 00050F	HGP50DF 4PT4S0000C 00050F	HGP50DF 4PT4S0000C 00050FN
	HGP50DN...50 kA / 460 V			
	16 A	HGP50DN 3PT4S0000C 00016F	HGP50DN 4PT4S0000C 00016F	HGP50DN 4PT4S0000C 00016FN
	20 A	HGP50DN 3PT4S0000C 00020F	HGP50DN 4PT4S0000C 00020F	HGP50DN 4PT4S0000C 00020FN
	25 A	HGP50DN 3PT4S0000C 00025F	HGP50DN 4PT4S0000C 00025F	HGP50DN 4PT4S0000C 00025FN
	32 A	HGP50DN 3PT4S0000C 00032F	HGP50DN 4PT4S0000C 00032F	HGP50DN 4PT4S0000C 00032FN
	40 A	HGP50DN 3PT4S0000C 00040F	HGP50DN 4PT4S0000C 00040F	HGP50DN 4PT4S0000C 00040FN
	50 A	HGP50DN 3PT4S0000C 00050F	HGP50DN 4PT4S0000C 00050F	HGP50DN 4PT4S0000C 00050FN
	HGP50DS...65 kA / 460 V			
	16 A	HGP50DS 3PT4S0000C 00016F	HGP50DS 4PT4S0000C 00016F	HGP50DS 4PT4S0000C 00016FN
	20 A	HGP50DS 3PT4S0000C 00020F	HGP50DS 4PT4S0000C 00020F	HGP50DS 4PT4S0000C 00020FN
	25 A	HGP50DS 3PT4S0000C 00025F	HGP50DS 4PT4S0000C 00025F	HGP50DS 4PT4S0000C 00025FN
	32 A	HGP50DS 3PT4S0000C 00032F	HGP50DS 4PT4S0000C 00032F	HGP50DS 4PT4S0000C 00032FN
	40 A	HGP50DS 3PT4S0000C 00040F	HGP50DS 4PT4S0000C 00040F	HGP50DS 4PT4S0000C 00040FN
	50 A	HGP50DS 3PT4S0000C 00050F	HGP50DS 4PT4S0000C 00050F	HGP50DS 4PT4S0000C 00050FN
	HGP50DH...85 kA / 460 V			
	16 A	HGP50DH 3PT4S0000C 00016F	HGP50DH 4PT4S0000C 00016F	HGP50DH 4PT4S0000C 00016FN
	20 A	HGP50DH 3PT4S0000C 00020F	HGP50DH 4PT4S0000C 00020F	HGP50DH 4PT4S0000C 00020FN
	25 A	HGP50DH 3PT4S0000C 00025F	HGP50DH 4PT4S0000C 00025F	HGP50DH 4PT4S0000C 00025FN
	32 A	HGP50DH 3PT4S0000C 00032F	HGP50DH 4PT4S0000C 00032F	HGP50DH 4PT4S0000C 00032FN
	40 A	HGP50DH 3PT4S0000C 00040F	HGP50DH 4PT4S0000C 00040F	HGP50DH 4PT4S0000C 00040FN
	50 A	HGP50DH 3PT4S0000C 00050F	HGP50DH 4PT4S0000C 00050F	HGP50DH 4PT4S0000C 00050FN
	HGP50DL...130 kA / 460 V			
	16 A	HGP50DL 3PT4S0000C 00016F	HGP50DL 4PT4S0000C 00016F	HGP50DL 4PT4S0000C 00016FN
	20 A	HGP50DL 3PT4S0000C 00020F	HGP50DL 4PT4S0000C 00020F	HGP50DL 4PT4S0000C 00020FN
	25 A	HGP50DL 3PT4S0000C 00025F	HGP50DL 4PT4S0000C 00025F	HGP50DL 4PT4S0000C 00025FN
	32 A	HGP50DL 3PT4S0000C 00032F	HGP50DL 4PT4S0000C 00032F	HGP50DL 4PT4S0000C 00032FN
	40 A	HGP50DL 3PT4S0000C 00040F	HGP50DL 4PT4S0000C 00040F	HGP50DL 4PT4S0000C 00040FN
	50 A	HGP50DL 3PT4S0000C 00050F	HGP50DL 4PT4S0000C 00050F	HGP50DL 4PT4S0000C 00050FN
	HGP50DX...150 kA / 460 V			
	16 A	HGP50DX 3PT4S0000C 00016F	HGP50DX 4PT4S0000C 00016F	HGP50DX 4PT4S0000C 00016FN
	20 A	HGP50DX 3PT4S0000C 00020F	HGP50DX 4PT4S0000C 00020F	HGP50DX 4PT4S0000C 00020FN
	25 A	HGP50DX 3PT4S0000C 00025F	HGP50DX 4PT4S0000C 00025F	HGP50DX 4PT4S0000C 00025FN
	32 A	HGP50DX 3PT4S0000C 00032F	HGP50DX 4PT4S0000C 00032F	HGP50DX 4PT4S0000C 00032FN
	40 A	HGP50DX 3PT4S0000C 00040F	HGP50DX 4PT4S0000C 00040F	HGP50DX 4PT4S0000C 00040FN
	50 A	HGP50DX 3PT4S0000C 00050F	HGP50DX 4PT4S0000C 00050F	HGP50DX 4PT4S0000C 00050FN

Ordering Codes

HGP Type Molded Case Circuit Breakers (MCCB)

- Normal type/Front connection, Adjustable
- Except for accessory, Based on ambient temperature 40 °C and frequency 50/60 Hz

125 AF	In	3Pole	4Pole (RSTN)	4Pole (RSTN, 4P4D)
 	HGP125DF...36 kA / 460 V			
	16 A	HGP125DF 3PT4S0000C 00016F	HGP125DF 4PT4S0000C 00016F	HGP125DF 4PT4S0000C 00016FN
	20 A	HGP125DF 3PT4S0000C 00020F	HGP125DF 4PT4S0000C 00020F	HGP125DF 4PT4S0000C 00020FN
	25 A	HGP125DF 3PT4S0000C 00025F	HGP125DF 4PT4S0000C 00025F	HGP125DF 4PT4S0000C 00025FN
	32 A	HGP125DF 3PT4S0000C 00032F	HGP125DF 4PT4S0000C 00032F	HGP125DF 4PT4S0000C 00032FN
	40 A	HGP125DF 3PT4S0000C 00040F	HGP125DF 4PT4S0000C 00040F	HGP125DF 4PT4S0000C 00040FN
	50 A	HGP125DF 3PT4S0000C 00050F	HGP125DF 4PT4S0000C 00050F	HGP125DF 4PT4S0000C 00050FN
	63 A	HGP125DF 3PT4S0000C 00063F	HGP125DF 4PT4S0000C 00063F	HGP125DF 4PT4S0000C 00063FN
	75 A	HGP125DF 3PT4S0000C 00075F	HGP125DF 4PT4S0000C 00075F	HGP125DF 4PT4S0000C 00075FN
	80 A	HGP125DF 3PT4S0000C 00080F	HGP125DF 4PT4S0000C 00080F	HGP125DF 4PT4S0000C 00080FN
	100 A	HGP125DF 3PT4S0000C 00100F	HGP125DF 4PT4S0000C 00100F	HGP125DF 4PT4S0000C 00100FN
	125 A	HGP125DF 3PT4S0000C 00125F	HGP125DF 4PT4S0000C 00125F	HGP125DF 4PT4S0000C 00125FN
	HGP125DN...50 kA / 460 V			
	16 A	HGP125DN 3PT4S0000C 00016F	HGP125DN 4PT4S0000C 00016F	HGP125DN 4PT4S0000C 00016FN
	20 A	HGP125DN 3PT4S0000C 00020F	HGP125DN 4PT4S0000C 00020F	HGP125DN 4PT4S0000C 00020FN
	25 A	HGP125DN 3PT4S0000C 00025F	HGP125DN 4PT4S0000C 00025F	HGP125DN 4PT4S0000C 00025FN
	32 A	HGP125DN 3PT4S0000C 00032F	HGP125DN 4PT4S0000C 00032F	HGP125DN 4PT4S0000C 00032FN
	40 A	HGP125DN 3PT4S0000C 00040F	HGP125DN 4PT4S0000C 00040F	HGP125DN 4PT4S0000C 00040FN
	50 A	HGP125DN 3PT4S0000C 00050F	HGP125DN 4PT4S0000C 00050F	HGP125DN 4PT4S0000C 00050FN
	63 A	HGP125DN 3PT4S0000C 00063F	HGP125DN 4PT4S0000C 00063F	HGP125DN 4PT4S0000C 00063FN
	75 A	HGP125DN 3PT4S0000C 00075F	HGP125DN 4PT4S0000C 00075F	HGP125DN 4PT4S0000C 00075FN
	80 A	HGP125DN 3PT4S0000C 00080F	HGP125DN 4PT4S0000C 00080F	HGP125DN 4PT4S0000C 00080FN
	100 A	HGP125DN 3PT4S0000C 00100F	HGP125DN 4PT4S0000C 00100F	HGP125DN 4PT4S0000C 00100FN
	125 A	HGP125DN 3PT4S0000C 00125F	HGP125DN 4PT4S0000C 00125F	HGP125DN 4PT4S0000C 00125FN
	HGP125DS...65 kA / 460 V			
	16 A	HGP125DS 3PT4S0000C 00016F	HGP125DS 4PT4S0000C 00016F	HGP125DS 4PT4S0000C 00016FN
	20 A	HGP125DS 3PT4S0000C 00020F	HGP125DS 4PT4S0000C 00020F	HGP125DS 4PT4S0000C 00020FN
	25 A	HGP125DS 3PT4S0000C 00025F	HGP125DS 4PT4S0000C 00025F	HGP125DS 4PT4S0000C 00025FN
	32 A	HGP125DS 3PT4S0000C 00032F	HGP125DS 4PT4S0000C 00032F	HGP125DS 4PT4S0000C 00032FN
	40 A	HGP125DS 3PT4S0000C 00040F	HGP125DS 4PT4S0000C 00040F	HGP125DS 4PT4S0000C 00040FN
	50 A	HGP125DS 3PT4S0000C 00050F	HGP125DS 4PT4S0000C 00050F	HGP125DS 4PT4S0000C 00050FN
	63 A	HGP125DS 3PT4S0000C 00063F	HGP125DS 4PT4S0000C 00063F	HGP125DS 4PT4S0000C 00063FN
	75 A	HGP125DS 3PT4S0000C 00075F	HGP125DS 4PT4S0000C 00075F	HGP125DS 4PT4S0000C 00075FN
	80 A	HGP125DS 3PT4S0000C 00080F	HGP125DS 4PT4S0000C 00080F	HGP125DS 4PT4S0000C 00080FN
	100 A	HGP125DS 3PT4S0000C 00100F	HGP125DS 4PT4S0000C 00100F	HGP125DS 4PT4S0000C 00100FN
	125 A	HGP125DS 3PT4S0000C 00125F	HGP125DS 4PT4S0000C 00125F	HGP125DS 4PT4S0000C 00125FN

125 AF	In	3Pole	4Pole (RSTN)	4Pole (RSTN, 4P4D)
 	HGP125DH...85 kA / 460 V			
	16 A	HGP125DH 3PT4S0000C 00016F	HGP125DH 4PT4S0000C 00016F	HGP125DH 4PT4S0000C 00016FN
	20 A	HGP125DH 3PT4S0000C 00020F	HGP125DH 4PT4S0000C 00020F	HGP125DH 4PT4S0000C 00020FN
	25 A	HGP125DH 3PT4S0000C 00025F	HGP125DH 4PT4S0000C 00025F	HGP125DH 4PT4S0000C 00025FN
	32 A	HGP125DH 3PT4S0000C 00032F	HGP125DH 4PT4S0000C 00032F	HGP125DH 4PT4S0000C 00032FN
	40 A	HGP125DH 3PT4S0000C 00040F	HGP125DH 4PT4S0000C 00040F	HGP125DH 4PT4S0000C 00040FN
	50 A	HGP125DH 3PT4S0000C 00050F	HGP125DH 4PT4S0000C 00050F	HGP125DH 4PT4S0000C 00050FN
	63 A	HGP125DH 3PT4S0000C 00063F	HGP125DH 4PT4S0000C 00063F	HGP125DH 4PT4S0000C 00063FN
	75 A	HGP125DH 3PT4S0000C 00075F	HGP125DH 4PT4S0000C 00075F	HGP125DH 4PT4S0000C 00075FN
	80 A	HGP125DH 3PT4S0000C 00080F	HGP125DH 4PT4S0000C 00080F	HGP125DH 4PT4S0000C 00080FN
	100 A	HGP125DH 3PT4S0000C 00100F	HGP125DH 4PT4S0000C 00100F	HGP125DH 4PT4S0000C 00100FN
	125 A	HGP125DH 3PT4S0000C 00125F	HGP125DH 4PT4S0000C 00125F	HGP125DH 4PT4S0000C 00125FN
	HGP125DL...130 kA / 460 V			
	16 A	HGP125DL 3PT4S0000C 00016F	HGP125DL 4PT4S0000C 00016F	HGP125DL 4PT4S0000C 00016FN
	20 A	HGP125DL 3PT4S0000C 00020F	HGP125DL 4PT4S0000C 00020F	HGP125DL 4PT4S0000C 00020FN
	25 A	HGP125DL 3PT4S0000C 00025F	HGP125DL 4PT4S0000C 00025F	HGP125DL 4PT4S0000C 00025FN
	32 A	HGP125DL 3PT4S0000C 00032F	HGP125DL 4PT4S0000C 00032F	HGP125DL 4PT4S0000C 00032FN
	40 A	HGP125DL 3PT4S0000C 00040F	HGP125DL 4PT4S0000C 00040F	HGP125DL 4PT4S0000C 00040FN
	50 A	HGP125DL 3PT4S0000C 00050F	HGP125DL 4PT4S0000C 00050F	HGP125DL 4PT4S0000C 00050FN
	63 A	HGP125DL 3PT4S0000C 00063F	HGP125DL 4PT4S0000C 00063F	HGP125DL 4PT4S0000C 00063FN
	75 A	HGP125DL 3PT4S0000C 00075F	HGP125DL 4PT4S0000C 00075F	HGP125DL 4PT4S0000C 00075FN
	80 A	HGP125DL 3PT4S0000C 00080F	HGP125DL 4PT4S0000C 00080F	HGP125DL 4PT4S0000C 00080FN
	100 A	HGP125DL 3PT4S0000C 00100F	HGP125DL 4PT4S0000C 00100F	HGP125DL 4PT4S0000C 00100FN
	125 A	HGP125DL 3PT4S0000C 00125F	HGP125DL 4PT4S0000C 00125F	HGP125DL 4PT4S0000C 00125FN
	HGP125DX...150 kA / 460 V			
	16 A	HGP125DX 3PT4S0000C 00016F	HGP125DX 4PT4S0000C 00016F	HGP125DX 4PT4S0000C 00016FN
	20 A	HGP125DX 3PT4S0000C 00020F	HGP125DX 4PT4S0000C 00020F	HGP125DX 4PT4S0000C 00020FN
	25 A	HGP125DX 3PT4S0000C 00025F	HGP125DX 4PT4S0000C 00025F	HGP125DX 4PT4S0000C 00025FN
	32 A	HGP125DX 3PT4S0000C 00032F	HGP125DX 4PT4S0000C 00032F	HGP125DX 4PT4S0000C 00032FN
	40 A	HGP125DX 3PT4S0000C 00040F	HGP125DX 4PT4S0000C 00040F	HGP125DX 4PT4S0000C 00040FN
	50 A	HGP125DX 3PT4S0000C 00050F	HGP125DX 4PT4S0000C 00050F	HGP125DX 4PT4S0000C 00050FN
	63 A	HGP125DX 3PT4S0000C 00063F	HGP125DX 4PT4S0000C 00063F	HGP125DX 4PT4S0000C 00063FN
	75 A	HGP125DX 3PT4S0000C 00075F	HGP125DX 4PT4S0000C 00075F	HGP125DX 4PT4S0000C 00075FN
	80 A	HGP125DX 3PT4S0000C 00080F	HGP125DX 4PT4S0000C 00080F	HGP125DX 4PT4S0000C 00080FN
	100 A	HGP125DX 3PT4S0000C 00100F	HGP125DX 4PT4S0000C 00100F	HGP125DX 4PT4S0000C 00100FN
	125 A	HGP125DX 3PT4S0000C 00125F	HGP125DX 4PT4S0000C 00125F	HGP125DX 4PT4S0000C 00125FN

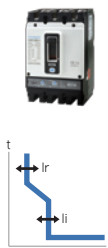
Ordering Codes

HGP Type Molded Case Circuit Breakers (MCCB)

- Normal type/Front connection, Adjustable
- Except for accessory, Based on ambient temperature 40 °C and frequency 50/60 Hz

160 AF	In	3Pole	4Pole (RSTN)	4Pole (RSTN, 4P4D)
	HGP50DF...36 kA / 460 V			
	100A	HGP160DF 3PT4S0000C 00100F	HGP160DF 4PT4S0000C 00100F	HGP160DF 4PT4S0000C 00100FN
	125A	HGP160DF 3PT4S0000C 00125F	HGP160DF 4PT4S0000C 00125F	HGP160DF 4PT4S0000C 00125FN
	150A	HGP160DF 3PT4S0000C 00150F	HGP160DF 4PT4S0000C 00150F	HGP160DF 4PT4S0000C 00150FN
	160A	HGP160DF 3PT4S0000C 00160F	HGP160DF 4PT4S0000C 00160F	HGP160DF 4PT4S0000C 00160FN
	HGP160DN...50 kA / 460 V			
	100A	HGP160DN 3PT4S0000C 00100F	HGP160DN 4PT4S0000C 00100F	HGP160DN 4PT4S0000C 00100FN
	125A	HGP160DN 3PT4S0000C 00125F	HGP160DN 4PT4S0000C 00125F	HGP160DN 4PT4S0000C 00125FN
	150A	HGP160DN 3PT4S0000C 00150F	HGP160DN 4PT4S0000C 00150F	HGP160DN 4PT4S0000C 00150FN
	160A	HGP160DN 3PT4S0000C 00160F	HGP160DN 4PT4S0000C 00160F	HGP160DN 4PT4S0000C 00160FN
	HGP160DS...65 kA / 460 V			
	100 A	HGP160DS 3PT4S0000C 00100F	HGP160DS 4PT4S0000C 00100F	HGP160DS 4PT4S0000C 00100FN
	125 A	HGP160DS 3PT4S0000C 00125F	HGP160DS 4PT4S0000C 00125F	HGP160DS 4PT4S0000C 00125FN
	150 A	HGP160DS 3PT4S0000C 00150F	HGP160DS 4PT4S0000C 00150F	HGP160DS 4PT4S0000C 00150FN
	160 A	HGP160DS 3PT4S0000C 00160F	HGP160DS 4PT4S0000C 00160F	HGP160DS 4PT4S0000C 00160FN
	HGP160DH...85 kA / 460 V			
	100 A	HGP160DH 3PT4S0000C 00100F	HGP160DH 4PT4S0000C 00100F	HGP160DH 4PT4S0000C 00100FN
	125 A	HGP160DH 3PT4S0000C 00125F	HGP160DH 4PT4S0000C 00125F	HGP160DH 4PT4S0000C 00125FN
	150 A	HGP160DH 3PT4S0000C 00150F	HGP160DH 4PT4S0000C 00150F	HGP160DH 4PT4S0000C 00150FN
	160 A	HGP160DH 3PT4S0000C 00160F	HGP160DH 4PT4S0000C 00160F	HGP160DH 4PT4S0000C 00160FN
	HGP160DL...130 kA / 460 V			
	100 A	HGP160DL 3PT4S0000C 00100F	HGP160DL 4PT4S0000C 00100F	HGP160DL 4PT4S0000C 00100FN
	125 A	HGP160DL 3PT4S0000C 00125F	HGP160DL 4PT4S0000C 00125F	HGP160DL 4PT4S0000C 00125FN
	150 A	HGP160DL 3PT4S0000C 00150F	HGP160DL 4PT4S0000C 00150F	HGP160DL 4PT4S0000C 00150FN
	160 A	HGP160DL 3PT4S0000C 00160F	HGP160DL 4PT4S0000C 00160F	HGP160DL 4PT4S0000C 00160FN
	HGP160DX...150 kA / 460 V			
	100 A	HGP160DX 3PT4S0000C 00100F	HGP160DX 4PT4S0000C 00100F	HGP160DX 4PT4S0000C 00100FN
	125 A	HGP160DX 3PT4S0000C 00125F	HGP160DX 4PT4S0000C 00125F	HGP160DX 4PT4S0000C 00125FN
	150 A	HGP160DX 3PT4S0000C 00150F	HGP160DX 4PT4S0000C 00150F	HGP160DX 4PT4S0000C 00150FN
	160 A	HGP160DX 3PT4S0000C 00160F	HGP160DX 4PT4S0000C 00160F	HGP160DX 4PT4S0000C 00160FN
250 AF	In	3Pole	4Pole (RSTN)	4Pole (RSTN, 4P4D)
	HGP250F...36 kA / 460 V			
	100 A	HGP250F 3PT4S0000C 00100H	HGP250F 4PT4S0000C 00100H	-
	125 A	HGP250F 3PT4S0000C 00125H	HGP250F 4PT4S0000C 00125H	-
	150 A	HGP250F 3PT4S0000C 00150H	HGP250F 4PT4S0000C 00150H	-
	160 A	HGP250F 3PT4S0000C 00160H	HGP250F 4PT4S0000C 00160H	-
	175 A	HGP250F 3PT4S0000C 00175H	HGP250F 4PT4S0000C 00175H	-
	200 A	HGP250F 3PT4S0000C 00200H	HGP250F 4PT4S0000C 00200H	-
	225 A	HGP250F 3PT4S0000C 00225H	HGP250F 4PT4S0000C 00225H	-
	250 A	HGP250F 3PT4S0000C 00250H	HGP250F 4PT4S0000C 00250H	-

※ * 100 A MCCB is applicable upto adjustable thermal type and fixed magnetic type.

250 AF	In	3Pole	4Pole (RSTN)	4Pole (RSTN, 4P4D)
	HGP250N...50 kA / 460 V			
	100 A	HGP250N 3PT4S0000C 00100H *	HGP250N 4PT4S0000C 00100H *	-
	125 A	HGP250N 3PT4S0000C 00125H	HGP250N 4PT4S0000C 00125H	-
	150 A	HGP250N 3PT4S0000C 00150H	HGP250N 4PT4S0000C 00150H	-
	160 A	HGP250N 3PT4S0000C 00160H	HGP250N 4PT4S0000C 00160H	-
	175 A	HGP250N 3PT4S0000C 00175H	HGP250N 4PT4S0000C 00175H	-
	200 A	HGP250N 3PT4S0000C 00200H	HGP250N 4PT4S0000C 00200H	-
	225 A	HGP250N 3PT4S0000C 00225H	HGP250N 4PT4S0000C 00225H	-
	250 A	HGP250N 3PT4S0000C 00250H	HGP250N 4PT4S0000C 00250H	-
HGP250S...65 kA / 460 V				
	100 A	HGP250S 3PT4S0000C 00100F *	HGP250S 4PT4S0000C 00100F *	-
	125 A	HGP250S 3PT4S0000C 00125H	HGP250S 4PT4S0000C 00125H	-
	150 A	HGP250S 3PT4S0000C 00150H	HGP250S 4PT4S0000C 00150H	-
	160 A	HGP250S 3PT4S0000C 00160H	HGP250S 4PT4S0000C 00160H	-
	175 A	HGP250S 3PT4S0000C 00175H	HGP250S 4PT4S0000C 00175H	-
	200 A	HGP250S 3PT4S0000C 00200H	HGP250S 4PT4S0000C 00200H	-
	225 A	HGP250S 3PT4S0000C 00225H	HGP250S 4PT4S0000C 00225H	-
	250 A	HGP250S 3PT4S0000C 00250H	HGP250S 4PT4S0000C 00250H	-
HGP250H...85 kA / 460 V				
	100 A	HGP250H 3PT4S0000C 00100F *	HGP250H 4PT4S0000C 00100F *	-
	125 A	HGP250H 3PT4S0000C 00125H	HGP250H 4PT4S0000C 00125H	-
	150 A	HGP250H 3PT4S0000C 00150H	HGP250H 4PT4S0000C 00150H	-
	160 A	HGP250H 3PT4S0000C 00160H	HGP250H 4PT4S0000C 00160H	-
	175 A	HGP250H 3PT4S0000C 00175H	HGP250H 4PT4S0000C 00175H	-
	200 A	HGP250H 3PT4S0000C 00200H	HGP250H 4PT4S0000C 00200H	-
	225 A	HGP250H 3PT4S0000C 00225H	HGP250H 4PT4S0000C 00225H	-
	250 A	HGP250H 3PT4S0000C 00250H	HGP250H 4PT4S0000C 00250H	-
HGP250L...130 kA / 460 V				
	100 A	HGP250L 3PT4S0000C 00100F *	HGP250L 4PT4S0000C 00100F *	-
	125 A	HGP250L 3PT4S0000C 00125H	HGP250L 4PT4S0000C 00125H	-
	150 A	HGP250L 3PT4S0000C 00150H	HGP250L 4PT4S0000C 00150H	-
	160 A	HGP250L 3PT4S0000C 00160H	HGP250L 4PT4S0000C 00160H	-
	175 A	HGP250L 3PT4S0000C 00175H	HGP250L 4PT4S0000C 00175H	-
	200 A	HGP250L 3PT4S0000C 00200H	HGP250L 4PT4S0000C 00200H	-
	225 A	HGP250L 3PT4S0000C 00225H	HGP250L 4PT4S0000C 00225H	-
	250 A	HGP250L 3PT4S0000C 00250H	HGP250L 4PT4S0000C 00250H	-

※ * 100 A MCCB is applicable upto adjustable thermal type and fixed magnetic type.

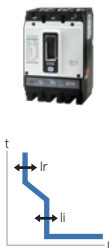
Ordering Codes

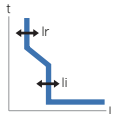
HGP Type Molded Case Circuit Breakers (MCCB)

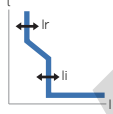
- Normal type/Front connection, Adjustable
- Except for accessory, Based on ambient temperature 40 °C and frequency 50/60 Hz

250 AF	In	3Pole	4Pole (RSTN)	4Pole (RSTN, 4P4D)
	HGP250X...150 kA / 460 V			
	100 A	HGP250X 3PT4S0000C 00100F *	HGP250X 4PT4S0000C 00100F *	-
	125 A	HGP250X 3PT4S0000C 00125H	HGP250X 4PT4S0000C 00125H	-
	150 A	HGP250X 3PT4S0000C 00150H	HGP250X 4PT4S0000C 00150H	-
	160 A	HGP250X 3PT4S0000C 00160H	HGP250X 4PT4S0000C 00160H	-
	175 A	HGP250X 3PT4S0000C 00175H	HGP250X 4PT4S0000C 00175H	-
	200 A	HGP250X 3PT4S0000C 00200H	HGP250X 4PT4S0000C 00200H	-
	225 A	HGP250X 3PT4S0000C 00225H	HGP250X 4PT4S0000C 00225H	-
	250 A	HGP250X 3PT4S0000C 00250H	HGP250X 4PT4S0000C 00250H	-

※ * 100 A MCCB is applicable upto adjustable thermal type and fixed magnetic type.

400 AF	In	3Pole	4Pole (RSTN)	4Pole (RSTN, 4P4D)
	HGP400F...36 kA / 460 V			
	300 A	HGP400F 3PT4S0000C 00300H	HGP400F 4PT4S0000C 00300H	HGP400F 4PT4S0000C 00300HN
	350 A	HGP400F 3PT4S0000C 00350H	HGP400F 4PT4S0000C 00350H	HGP400F 4PT4S0000C 00350HN
	400 A	HGP400F 3PT4S0000C 00400H	HGP400F 4PT4S0000C 00400H	HGP400F 4PT4S0000C 00400HN
	HGP400N...50 kA / 460 V			
	300 A	HGP400N 3PT4S0000C 00300H	HGP400N 4PT4S0000C 00300H	HGP400N 4PT4S0000C 00300HN
	350 A	HGP400N 3PT4S0000C 00350H	HGP400N 4PT4S0000C 00350H	HGP400N 4PT4S0000C 00350HN
	400 A	HGP400N 3PT4S0000C 00400H	HGP400N 4PT4S0000C 00400H	HGP400N 4PT4S0000C 00400HN
	HGP400S...70 kA / 460 V			
	300 A	HGP400S 3PT4S0000C 00300H	HGP400S 4PT4S0000C 00300H	HGP400S 4PT4S0000C 00300HN
	350 A	HGP400S 3PT4S0000C 00350H	HGP400S 4PT4S0000C 00350H	HGP400S 4PT4S0000C 00350HN
	400 A	HGP400S 3PT4S0000C 00400H	HGP400S 4PT4S0000C 00400H	HGP400S 4PT4S0000C 00400HN
	HGP400H...85 kA / 460 V			
	300 A	HGP400H 3PT4S0000C 00300H	HGP400H 4PT4S0000C 00300H	HGP400H 4PT4S0000C 00300HN
	350 A	HGP400H 3PT4S0000C 00350H	HGP400H 4PT4S0000C 00350H	HGP400H 4PT4S0000C 00350HN
	400 A	HGP400H 3PT4S0000C 00400H	HGP400H 4PT4S0000C 00400H	HGP400H 4PT4S0000C 00400HN
	HGP400L...130 kA / 460 V			
	300 A	HGP400L 3PT4S0000C 00300H	HGP400L 4PT4S0000C 00300H	HGP400L 4PT4S0000C 00300HN
	350 A	HGP400L 3PT4S0000C 00350H	HGP400L 4PT4S0000C 00350H	HGP400L 4PT4S0000C 00350HN
	400 A	HGP400L 3PT4S0000C 00400H	HGP400L 4PT4S0000C 00400H	HGP400L 4PT4S0000C 00400HN
	HGP400X...150 kA / 460 V			
	300 A	HGP400X 3PT4S0000C 00300H	HGP400X 4PT4S0000C 00300H	HGP400X 4PT4S0000C 00300HN
	350 A	HGP400X 3PT4S0000C 00350H	HGP400X 4PT4S0000C 00350H	HGP400X 4PT4S0000C 00350HN
	400 A	HGP400X 3PT4S0000C 00400H	HGP400X 4PT4S0000C 00400H	HGP400X 4PT4S0000C 00400HN

630 AF	In	3Pole	4Pole (RSTN)	4Pole (RSTN, 4P4D)
 	HGP630F...36 kA / 460 V			
	500 A	HGP630F 3PT4S0000C 00500H	HGP630F 4PT4S0000C 00500H	HGP630F 4PT4S0000C 00500HN
	630 A	HGP630F 3PT4S0000C 00630H	HGP630F 4PT4S0000C 00630H	HGP630F 4PT4S0000C 00630HN
	HGP630N...50 kA / 460 V			
	500 A	HGP630N 3PT4S0000C 00500H	HGP630N 4PT4S0000C 00500H	HGP630N 4PT4S0000C 00500HN
	630 A	HGP630N 3PT4S0000C 00630H	HGP630N 4PT4S0000C 00630H	HGP630N 4PT4S0000C 00630HN
	HGP630S...70 kA / 460 V			
	500 A	HGP630S 3PT4S0000C 00500H	HGP630S 4PT4S0000C 00500H	HGP630S 4PT4S0000C 00500HN
	630 A	HGP630S 3PT4S0000C 00630H	HGP630S 4PT4S0000C 00630H	HGP630S 4PT4S0000C 00630HN
	HGP630H...85 kA / 460 V			
	500 A	HGP630H 3PT4S0000C 00500H	HGP630H 4PT4S0000C 00500H	HGP630H 4PT4S0000C 00500HN
	630 A	HGP630H 3PT4S0000C 00630H	HGP630H 4PT4S0000C 00630H	HGP630H 4PT4S0000C 00630HN
	HGP630L...130 kA / 460 V			
	500 A	HGP630L 3PT4S0000C 00500H	HGP630L 4PT4S0000C 00500H	HGP630L 4PT4S0000C 00500HN
	630 A	HGP630L 3PT4S0000C 00630H	HGP630L 4PT4S0000C 00630H	HGP630L 4PT4S0000C 00630HN
	HGP630X...150 kA / 460 V			
	500 A	HGP630X 3PT4S0000C 00500H	HGP630X 4PT4S0000C 00500H	HGP630X 4PT4S0000C 00500HN
	630 A	HGP630X 3PT4S0000C 00630H	HGP630X 4PT4S0000C 00630H	HGP630X 4PT4S0000C 00630HN

800 AF	In	3Pole	4Pole (RSTN)	4Pole (RSTN, 4P4D)
 	HGP800F...36 kA / 460 V			
	700 A	HGP800F 3PT4S0000C 00700H	HGP800F 4PT4S0000C 00700H	HGP800F 4PT4S0000C 00700HN
	800 A	HGP800F 3PT4S0000C 00800H	HGP800F 4PT4S0000C 00800H	HGP800F 4PT4S0000C 00800HN
	HGP800N...50 kA / 460 V			
	700 A	HGP800N 3PT4S0000C 00700H	HGP800N 4PT4S0000C 00700H	HGP800N 4PT4S0000C 00700HN
	800 A	HGP800N 3PT4S0000C 00800H	HGP800N 4PT4S0000C 00800H	HGP800N 4PT4S0000C 00800HN
	HGP800S...70 kA / 460 V			
	700 A	HGP800S 3PT4S0000C 00700H	HGP800S 4PT4S0000C 00700H	HGP800S 4PT4S0000C 00700HN
	800 A	HGP800S 3PT4S0000C 00800H	HGP800S 4PT4S0000C 00800H	HGP800S 4PT4S0000C 00800HN
	HGP800H...85 kA / 460 V			
	700 A	HGP800H 3PT4S0000C 00700H	HGP800H 4PT4S0000C 00700H	HGP800H 4PT4S0000C 00700HN
	800 A	HGP800H 3PT4S0000C 00800H	HGP800H 4PT4S0000C 00800H	HGP800H 4PT4S0000C 00800HN
	HGP800L...130 kA / 460 V			
	700 A	HGP800L 3PT4S0000C 00700H	HGP800L 4PT4S0000C 00700H	HGP800L 4PT4S0000C 00700HN
	800 A	HGP800L 3PT4S0000C 00800H	HGP800L 4PT4S0000C 00800H	HGP800L 4PT4S0000C 00800HN
	HGP800X...150 kA / 460 V			
	700 A	HGP800X 3PT4S0000C 00700H	HGP800X 4PT4S0000C 00700H	HGP800X 4PT4S0000C 00700HN
	800 A	HGP800X 3PT4S0000C 00800H	HGP800X 4PT4S0000C 00800H	HGP800X 4PT4S0000C 00800HN

Ordering Codes

HGP Type Accessory Separately

HGP50/125/160D

Mounting

		3Pole	4Pole
Plug-in	TDM (LINE/LOAD)	TDM 16GP P3	-
	TDM (LINE Only)	TDM 16GP F3	-
Terminal busbar (TBB)	Spreader	-	-
	Extended busbar	-	-
Rear terminal (RCT)	LINE/LOAD	RCT 16GP F3	RCT 16GP F4
Cage termina (CTB)		CTB 16GP 3	CTB 16GP 4

Internal Accessory

		Auxiliary Switch (AUX)	Alarm Switch (ALT)
Indication contacts		AUX 16GP R1	ALT 16GP L1
		Shunt Trip (SHT)	Undervoltage (UVT)
Remote tripping		SHT 16GP DC24 V	UVT 16GP DC24 V
		SHT 16GP DC100 - 110 V	UVT 16GP DC100 - 110 V
		SHT 16GP AC100 - 120 V	UVT 16GP AC100 - 120 V
		SHT 16GP AC200 - 230 V	UVT 16GP AC200 - 230 V
		SHT 16GP AC380 - 415 V	UVT 16GP AC380 - 415 V
		SHT 16GP AC440 - 480 V	UVT 16GP AC440 - 480 V

External Accessory

		Front Type (TFG)	Extended Type (TFH)
Rotary handle	Up - Line	TFG 16GP U	TFH 16GP
	Right - Line	TFG 16GP R	TFH 16GP
	Left - Line	TFG 16GP L	TFH 16GP
3Pole/4Pole			
Motor operator		MOT 16GP DC24 V	
		MOT 16GP AC/DC110 V	
		MOT 16GP AC/DC240 V	
		3Pole	4Pole
Terminal cover	Small	TCF 16GP S3	-
	Large	TCF 16GP L3	TCF 16GP L4
Locking device	Padlock	PLD 16GP	PLD 16GP
	Mecahnical interlock	MIF 16GP 3	MIF 16GP R4
Interpole barrier		TQQ 16GP 3	TQQ 16GP 4
Auxiliary handle		-	-

HGP250

Mounting

		3Pole	4Pole
Plug-in	TDM (LINE/LOAD)	TDM 25GM P3	-
	TDM (LINE Only)	TDM 25GM F3	-
Terminal busbar (TBB)	Spreader	TBB 25GP 3S	TBB 25GP 4S
	Extended busbar	TBB 25GP 3E45	TBB 25GP 4E45
Rear terminal (RCT)	LINE/LOAD	RCT 25GP F3	RCT 25GP F4
Cage terminal (CTB)		CTB 25GP 3	CTB 25GP 4

Internal Accessory

		Auxiliary Switch (AUX)	Alarm Switch (ALT)
Indication contacts		AUX 16GP R1	ALT 25GP L1
		Shunt Trip (SHT)	Undervoltage (UVT)
Remote tripping		SHT 25GP DC24 V	UVT 25GP DC24 V
		SHT 25GP DC100 - 110 V	UVT 25GP DC100 - 110 V
		SHT 25GP AC100 - 120 V	UVT 25GP AC100 - 120 V
		SHT 25GP AC200 - 230 V	UVT 25GP AC200 - 230 V
		SHT 25GP AC380 - 415 V	UVT 25GP AC380 - 415 V
		SHT 25GP AC440 - 480 V	UVT 25GP AC440 - 480 V

External Accessory

		Front Type (TFG)	Extended Type (TFH)
Rotary handle	Up - Line	TFG 25GP U	TFH 25GP
	Right - Line	TFG 25GP R	TFH 25GP
	Left - Line	TFG 25GP L	TFH 25GP
3Pole/4Pole			
Motor operator		MOT 25GP DC24 V	
		MOT 25GP AC/DC110 V	
		MOT 25GP AC/DC240 V	
		3Pole	4Pole
Terminal cover	Small	TCF 25GP S3	-
	Large	TCF 25GP L3	TCF 25GP L4
Locking device	Padlock	PLD 25GP	PLD 25GP
	Mechanical interlock	MIF 25GP 3	MIF 25GP R4
Interpole barrier		TQQ 25GP 3	TQQ 25GP 4
Auxiliary handle		-	-

Ordering Codes

HGP Type Accessory Separately

HGP400/630

Mounting

		3Pole	4Pole
Plug-in	TDM (LINE/LOAD)	TDM 63GP P3	-
	TDM (LINE Only)	TDM 63GP F3	-
Terminal busbar (TBB)	Spreader	TBB 63GP 3S	TBB 63GP 4S
	Extended busbar	TBB 63GP 3E61.5	TBB 63GP 4E61.5
Rear terminal (RCT)	LINE	RCT 63GP F3 LINE	RCT 63GP F4 LINE
	LOAD	RCT 63GP F3 LOAD	RCT 63GP F4 LOAD
Cage termina (CTB)		CTB 63GP 3	CTB 63GP 4

Internal Accessory

		Auxiliary Switch (AUX)	Alarm Switch (ALT)
Indication contacts		AUX 63GP L1	ALT 63GP R1
		Shunt Trip (SHT)	Undervoltage (UVT)
Remote tripping		SHT 63GP DC24 V	UVT 63GP DC24 V
		SHT 63GP DC100 - 110 V	UVT 63GP DC100 - 110 V
		SHT 63GP AC100 - 120 V	UVT 63GP AC100 - 120 V
		SHT 63GP AC200 - 230 V	UVT 63GP AC200 - 230 V
		SHT 63GP AC380 - 415 V	UVT 63GP AC380 - 415 V
		SHT 63GP AC440 - 480 V	UVT 63GP AC440 - 480 V

External Accessory

		Front Type (TFG)	Extended Type (TFH)
Rotary handle	Up - Line	TFG 63GP U	TFH 63GP
	Right - Line	TFG 63GP R	TFH 63GP
	Left - Line	TFG 63GP L	TFH 63GP
3Pole/4Pole			
Motor operator		MOT 63GP DC24 V	
		MOT 63GP AC/DC110 V	
		MOT 63GP AC/DC240 V	
		3Pole	4Pole
Terminal cover	Small	TCF 63GP S3	-
	Large	TCF 63GP L3	TCF 63GP L4
Locking device	Padlock	PLD 63GP	PLD 63GP
	Mecahnical interlock	MIF 63GP 3	MIF 63GP R4
Interpole barrier		TQQ 63GP 3	TQQ 63GP 4
Auxiliary handle		THA 63GP	

HGP800

Mounting

		3Pole	4Pole
Plug-in	TDM (LINE/LOAD)	TDM 80GP P3	-
	TDM (LINE Only)	TDM 80GP F3	-
Terminal busbar (TBB)	Spreader	TBB 80GP 3S	TBB 80GP 4S
	Extended busbar	-	-
Rear terminal (RCT)	LINE	RCT 80GP F3 LINE	RCT 80GP F4 LINE
	LOAD	RCT 80GP F3 LOAD	RCT 80GP F4 LOAD
Cage termina (CTB)		CTB 80GP 3	CTB 80GP 4

Internal Accessory

		Auxiliary Switch (AUX)	Alarm Switch (ALT)
Indication contacts		AUX 63GP L1	ALT 63GP R1
		Shunt Trip (SHT)	Undervoltage (UVT)
Remote tripping		SHT 63GP DC24 V	UVT 63GP DC24 V
		SHT 63GP DC100 - 110 V	UVT 63GP DC100 - 110 V
		SHT 63GP AC100 - 120 V	UVT 63GP AC100 - 120 V
		SHT 63GP AC200 - 230 V	UVT 63GP AC200 - 230 V
		SHT 63GP AC380 - 415 V	UVT 63GP AC380 - 415 V
		SHT 63GP AC440 - 480 V	UVT 63GP AC440 - 480 V

External Accessory

		Front Type (TFG)	Extended Type (TFH)
Rotary handle	Up - Line	TFG 80GP U	TFH 80GP
	Right - Line	TFG 80GP R	TFH 80GP
	Left - Line	TFG 80GP L	TFH 80GP
3Pole/4Pole			
Motor operator		MOT 80GP DC24 V	
		MOT 80GP AC/DC110 V	
		MOT 80GP AC/DC240 V	
		3Pole	4Pole
Terminal cover	Small	TCF 80GP S3	-
	Large	TCF 80GP L3	TCF 80GP L4
Locking device	Padlock	PLD 80GP	PLD 80GP
	Mecahnical interlock	MIF 80GP 3	MIF 80GP R4
Interpole barrier		TQQ 80GP 3	TQQ 80GP 4
Auxiliary handle		THA 80GP	

Maintenance & Certifications

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Certifications

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Service Environment

Storage & Transportation

Storage Precaution



- Do not store in an environment containing corrosive gases (ammonia, sulfur etc)



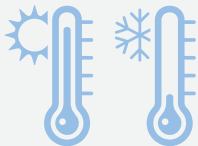
- Do not store under high humidity



- Do not store under direct sunlight



- Do not store in an environment in which dust or dirt is present



- Avoid using this product under extremely high or low temperature and store at a temperature between -20°C and +60°C

Transportation Precaution

⚠ Precaution

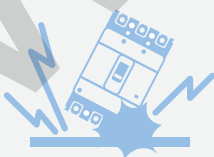
- Do not drop or give shock during transportation. These can cause malfunctions in the circuit breakers.
- Do not carry circuit breakers by the external wire or accessories.



- Always hold the body of the circuit breakers during transportation



- Be careful of injuries when handling sharp metal accessories



- Do not drop or give shock during transportation



- Check the packaging condition before transportation

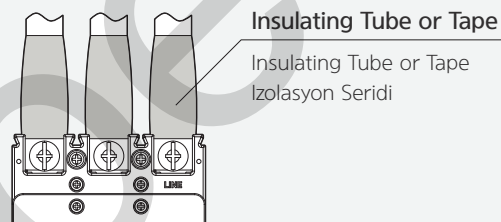
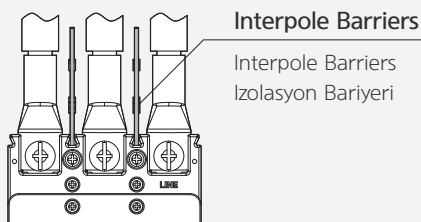
Service Environment

Installations

For dimensions required for installation, please refer to the catalog.

⚠ Precaution

- Installations must be carried out by licensed worker.
- Check whether the circuit breaker is open before performing any wiring.
- Tighten the terminal bolt using the proper torque as specified in the manual when connecting the bus or wire. Loose connections may result in.
- Tighten the terminal bolt as proper torque specified in manual or catalog. If not insulated, it may cause short-circuit fault.



- Provide enough insulating space to avoid the blockage of arc gas. Blocked arc gas vent may cause trip operation to fail.
- Do not install in an environment where hot and humid air, dust, corrosive gas, vibration and shock is present. This may cause a fire or malfunction.
- To prevent fires or malfunctions, provide appropriate measures to prevent the entry of foreign substances following installation.
- For the 4P circuit breakers, connect 3 wires and 4 poles to the neutral line.
- This product should be used with insulation barrier. Using with no insulation barrier may result in additional short-circuit fault.

Precautions for Installations

- **Install circuit breakers under the following environment conditions**

When installing circuit breakers, give due consideration to the environment conditions described below. Installation in inappropriate conditions may result in malfunction or fire.

- Ambient temperature: -5°C - $+40^{\circ}\text{C}$
(The average temperature for 24 hours not exceed 35°C)
- Relative humidity: 45 - 85 %
- Vibration & Shock: Without excessive vibration and shock
- Altitude: Up to 2,000 m
- Without excessive water vapor, oil vapor, smoke, dust, salts and corrosive materials



- **Do not block the arc vent**
The breaking capacity may be reduced.



- **Keep away from dust, metal shaving**
After installations, please use protective cover when maintaining circuit.



- **Do not release insulation board from circuit breakers.**
The insulation performance may be reduced.

Precautions for Connection



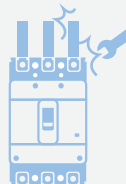
- **Tighten the terminal bolts with proper torque specified in the manual**
Incomplete tightening of the terminal bolt may cause overheating. Also, excessive tightening of torque may cause damage to the terminal bolt and circuit breaker case.



- **Avoid using lube in terminal bolt**
Lube may reduce friction of terminal bolt.



- **Insulate the exposed conductor**
Insulate the MCCB conductor by using insulation tape. If the conductor is not be insulated, it may cause additional short-circuit fault.



- **Please do not modify STUD**
Rear connection type, do not force STUD. Also, when connecting wire, access without modifying STUD.



- **For 4P circuit breakers, connect 3 wires and 4 poles to the neutral line**



- **Please fasten conductor firmly in parallel**
Firmly fasten conductor to prevent electronic repulsion when a short-circuit fault occur.

Service Environment

Installations

Connections to the Power Circuit

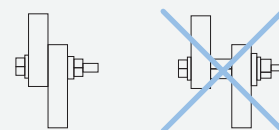
The shock electromagnetic force caused by fault current is as follows.

The Shock Electromagnetic Force Per 1 m Conductor

Short Circuit Current [kA] (Power Factor)	Shock Electromagnetic Force (3 phase)	
	Distance Between Conductors 10 cm	Distance Between Conductors 20 cm
10 (0.4)	490 (50)	245 (25)
18 (0.3)	1,863 (190)	932 (95)
25 (0.2)	4,412 (450)	2,206 (225)
35 (0.23)	8,630 (880)	4,315 (440)
42 (0.2)	12,455 (1,270)	6,277 (635)
50 (0.2)	17,652 (1,800)	8,826 (900)
65 (0.2)	29,910 (3,050)	14,955 (1,525)
85 (0.2)	51,190 (5,220)	25,595 (2,510)
100 (0.2)	70,804 (7,220)	35,402 (3,610)
125 (0.2)	110,815 (11,300)	55,408 (5,650)

- **Before installation, be sure to clean on connection terminals**

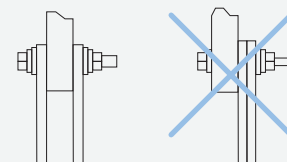
To prevent to increasing contact resistance, eliminate any dust, dirt or damages of any kind.



- **Conductor should be connected directly**

Bolts or Nuts is not allowed between conductors.

If the conductors are not connected directly, it may result in rising temperatures and fires.



- **Conductors should be connected without overlap**

When connecting several conductors, the busbar should be installed on both sides.

Inspection and Maintenance

Initial Inspection

- Terminal parts shall be clean from dust, metal pieces and so on
- Breaker shall not have any crack or damage
- Check terminal parts. It should be tightened with specified torque
- Be sure to check the value of U_e , I_{cu} of the breakers
- Insulance resistance should be more than 5 MΩ

Dielectric Test

Main Circuit		Secondary and Control Circuit ¹⁾	
Rated Insulation Voltage [Ui]	Test Voltage	Rated Insulation Voltage [Ui]	Test Voltage
$U_i \leq 300$ V	2,000 V for 1 min	$U_{is} \leq 60$ V	1,000 V for 1 min
$300 < U_i \leq 600$ V	2,500 V for 1 min	60 V $< U_{is} \leq 600$ V	$2 \cdot U_{is}$ 1,000 V (Minimum 1,500 V) for 1 min

※ - Dielectric strength tests should be done in these conditions.

¹⁾ Between terminals and earth

Periodic Inspection

In order to maintain the breaker performance and prevent accidents, periodical inspection shall be conducted after installation and operation.

Standard of Inspection

Standard	Circumstance	Inspection Cycle after Installation
Normal	Clean air, no humidity	Within 10 years: Once 2 - 3 year
		More than 10 years: Once a year
		More than 15 years: Once 6 month
	Dust but no corrosive gas	Within 10 years: Once 1 year
		More than 10 years: Once 6 month
		More than 15 years: Once a year
Bad	Sulfurous gas, salinity, vapor	Within 5 years: Once 6 month
		More than 5 years: Once a year
	Excessive corrosive gas	Once a month

Periodic Check Point

Item of Inspection	Procedure	Trouble Shooting
Tightening terminal torque	• Tightening torque on terminals	• Applying the tightening torque indicated in manual Too strong tightening torque may cause damage
Dust and dirt	• Confirm to breaker's body and upper side of the line part. Be sure to clean in term of dust and dirt to secure insulation	• Remove the debris with a clean tool
Case	• Check for damaged and cracked on breakers	• Replace with a new breaker
Arc exhaust part	• Check terminal part for arc exhaust.	• Replace with a new breaker in case you can find the black soot and melted metal parts on the breakers
Operation	• Manually put On and OFF several times in case of holding close position. • It makes reduce friction which is made from harden grease and stabilize contact resistance	• Replace with a new breaker in case of malfunction on ON and OFF • Replace with a new breaker in case of exceeding mechanical and electrical durability
Terminal discoloration	• Check for discolored terminal and conductor parts • Be sure to confirm insulation capability on conductor parts	• There in no problem with lightly discolored silver coating part. In case breakers have an insulation trouble caused by heat, replace with a new breaker
Insulation resistance	• Measure insulation resistance between each poles, terminal and earth	• Insulation resistance should be more than 5 M Ω . If lower than 5 M Ω , replace with new one

Inspection and Trouble Shooting After Breaking Current

- If there is no pollution in arc exhaust parts and no other abnormality, the breaker can be re-used.
- Measure the insulation resistance when carbonizing symptom is found around arc exhaust parts. If the resistance value is more than 5M Ω with no dielectric breakdown at withstand test voltage and no excessive temperature rise of terminal parts, the breaker can be re-used.
- If the handle part is carbonized or there is metallic melting in internal of breaker, please replace it with a new one.

Service Environment

Maintenance

Trouble Shooting

In case of any abnormality during breaker operation, please refer it as below. The following table lists a series of typical service conditions, to help you understand and solve hypothetical faults or malfunctions.

Problem	Symptom	Possible Cause	Trouble Shooting
Overheating	High temperature of terminal part	• Loose connection between terminal and conductor	Mounting screw with proper torque
		• Increased resistance between terminal and conductor	Replace with a new breaker
	Damage in insulation part of terminal	• Loose connection between terminal and conductor	Replace with a new breaker
		• Loose connection on terminal parts caused by interference with foreign substance	
	High temperature of breaker body	• Increased contact resistance	Replace with a new breaker
		• Loose internal assembly screws	
		• Increase of current density from cable disconnection	
Overheating	Abnormal voltage of load side	• Excessive contact abrasion	Replace with a new breaker
		• Foreign substances on contact	
		• Melt down on conducting bar (Corrosion of conductor by excessive ON-OFF or corrosive gas)	
Inability of ON, OFF, and RESET	Inability of ON	• Inability of reset after trip	On after RESET
		• Damaged trip mechanical parts due to lots of operation and improper frequency	Replace with a new breaker
		• Non-energized UVT	Input operational control voltage
	Inability of OFF	• Melted and adhered contact tip	Replace with a new breaker
	Inability of RESET	• Non-energized UVT	Input operational control voltage
		• Not enough cooling on bi-metal	Cool down ambient temperature, then Reset
		• Corruption and deformation of bi-metal	Replace with a new breaker
		• Malfunction of mechanical parts	
		• Run out of excessive ON-OFF	
		• Damaged mechanical parts after trip on over-breaking capacity	
Frequent trip	Trip at under rated current	• High ambient temperature (Higher than 40)	Cool down ambient temperature by ventilation or others
		• Heating by loose terminal screw connection	Tighten screws with specified torque
		• Heating from inside of breaker	Replace with a new breaker
		• Connection conductor of which cross-section area is smaller than specified size	Use the specified size of conductor or adjust the rated current
	Trip at operational current	• Trip at start-up inrush current	Adjust the instantaneous trip setting or replace with a higher rated current breaker
		• Trip at change-over in star-delta operation	
		• Instantaneous trip at reverse feeding	Replace with a higher rated current breaker
		• Instantaneous trip at high inrush current	
		• Instantaneous trip at long starting current	Repair or replace with new motors and check wiring cables
		• Short-circuit due to motor malfunction	
		• Fault of connecting with SHU or UVT	
Non trip	Non trip at the current higher than specified	• Low coordination with primary protect device or miss-selected with other protect device	Reconsider of coordination
		• Unconsidered ambient temperature	Confirm the derating current
		• Improper rated current	Confirm rated current
Malfunction of Accessory	Malfunction of SHT	• Over and under control voltage	Confirm rated voltage
		• Drop of the control voltage	Keep control
		• Incorrect coil voltage, damaged coil caused by non operating of switch in order to prevent malfunctioning	Replace with new parts
	Malfunction of UVT	• Malfunction of mechanism part	Replace with new parts
		• Incorrect coil voltage	Confirm control voltage
		• Burned UVT controller of the coil	Replace or check for wiring
	Malfunction of AUX and ALT	• Damaged contact caused by excessive rated operational current	Replace or check for operational current
		• Malfunction of mechanism part	Replace or repair

Certifications

HGP Type Molded Case Circuit Breakers (MCCB)

Certifications

Type		Approvals					CB Certificates
Certificate		Safety Certi	KS	IEC	GB	Gosstandart	DEKRA
Mark							
Country		KOREA	KOREA	EUROPE	CHINA	RUSSIA	NETHERLANDS
HGP50D	F			•			•
	N			•			•
	S	•	•	•			•
	H	•	•	•			•
	L	•	•	•			•
	X	•	•	•			•
HGP100D	F			•			•
	N			•			•
	S	•	•	•			•
	H	•	•	•			•
	L	•	•	•			•
	X	•	•	•			•
HGP160D	F			•			•
	N			•			•
	S	•	•	•			•
	H	•	•	•			•
	L	•	•	•			•
	X	•	•	•			•
HGP250	F			•			•
	N			•			•
	S	•	•	•			•
	H	•	•	•			•
	L	•	•	•			•
	X	•	•	•			•
HGP400	F			•			•
	N			•			•
	S	•	•	•			•
	H	•	•	•			•
	L	•	•	•			•
	X	•	•	•			•
HGP630	F			•			•
	N			•			•
	S	•	•	•			•
	H	•	•	•			•
	L	•	•	•			•
	X	•	•	•			•
HGP800	F			•			•
	N			•			•
	S		•	•			•
	H		•	•			•
	L		•	•			•
	X		•	•			•

Certifications

HGP Type Molded Case Circuit Breakers (MCCB)

Marine Certifications

Type		Approvals							
Certificate		KR	LR	BV	ABS	DNV · GL	RINA	NK	RS
Mark									
National Certification		KOREA	U.K	FRANCE	U.S.A	GERMANY	ITALY	JAPAN	RUSSIA
HGP50D	F	●	●	●	●	●	●	●	●
	N	●	●	●	●	●	●	●	●
	S	●	●	●	●	●	●	●	●
	H	●	●	●	●	●	●	●	●
	L	●	●	●	●	●	●	●	●
	X	●	●	●	●	●	●	●	●
HGP100D	F	●	●	●	●	●	●	●	●
	N	●	●	●	●	●	●	●	●
	S	●	●	●	●	●	●	●	●
	H	●	●	●	●	●	●	●	●
	L	●	●	●	●	●	●	●	●
	X	●	●	●	●	●	●	●	●
HGP160D	F	●	●	●	●	●	●	●	●
	N	●	●	●	●	●	●	●	●
	S	●	●	●	●	●	●	●	●
	H	●	●	●	●	●	●	●	●
	L	●	●	●	●	●	●	●	●
	X	●	●	●	●	●	●	●	●
HGP250	F	●	●	●	●	●	●	●	●
	N	●	●	●	●	●	●	●	●
	S	●	●	●	●	●	●	●	●
	H	●	●	●	●	●	●	●	●
	L	●	●	●	●	●	●	●	●
	X	●	●	●	●	●	●	●	●
HGP400	F	●	●	●	●	●	●	●	●
	N	●	●	●	●	●	●	●	●
	S	●	●	●	●	●	●	●	●
	H	●	●	●	●	●	●	●	●
	L	●	●	●	●	●	●	●	●
	X	●	●	●	●	●	●	●	●
HGP630	F	●	●	●	●	●	●	●	●
	N	●	●	●	●	●	●	●	●
	S	●	●	●	●	●	●	●	●
	H	●	●	●	●	●	●	●	●
	L	●	●	●	●	●	●	●	●
	X	●	●	●	●	●	●	●	●
HGP800	F	●	●	●	●	●	●	●	●
	N	●	●	●	●	●	●	●	●
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	H	●	●	●	●	●	●	●	●
	L	●	●	●	●	●	●	●	●
	X	●	●	●	●	●	●	●	●

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