HG-SERIES

Molded Case Circuit Breakers & Earth Leakage Circuit Breakers

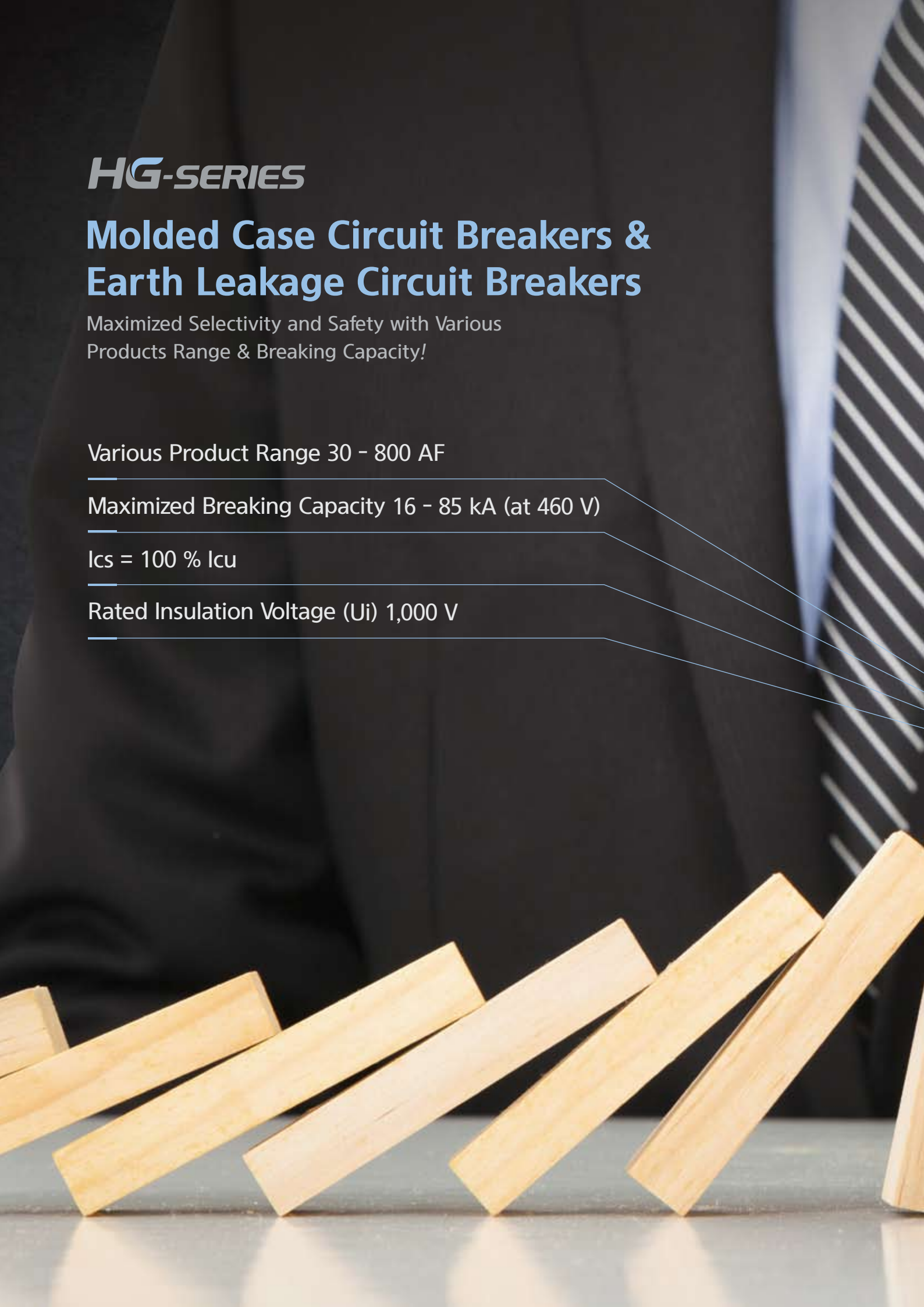
LV & MV Circuit Breakers

HYUNDAI HEAVY INDUSTRIES

MOLDED CASE CIRCUIT BREAKERS & EARTH LEAKAGE CIRCUIT BREAKERS

CONTENTS

Globalization of Technology



HG-SERIES

Molded Case Circuit Breakers & Earth Leakage Circuit Breakers

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

Various Product Range 30 - 800 AF

Maximized Breaking Capacity 16 - 85 kA (at 460 V)

Ics = 100 % Icu

Rated Insulation Voltage (Ui) 1,000 V


LINE
HYUNDAI
HGM 100H
100AF 50/60Hz 40℃
Ui 1000V Uimp 8kV
Ue(V) Icu(kA)
660 / 690V - 8kA
480 / 500V - 14kA
440 / 460V - 26kA
380 / 415V - 35kA
220 / 240V - 65kA
Ics = Icu 75%
MADE IN KOREA
ON
100A
Cat. A
IEC 60947-2
PUSH TO TRIP
1.0
0.8
0.9 Ir(x In)
LOAD

HG-SERIES

Adjustable Ratings Design

Optimized Protection Based on the Load Conditions!

Adjustable Rated Currents (Molded Case Circuit Breakers)

30 - 250 AF (0.8 - 0.9 - 1 X In), 400 - 800 AF (0.63 - 0.8 - 1 X In)

Adjustable Rated Residual Currents (Earth Leakage Circuit Breakers)

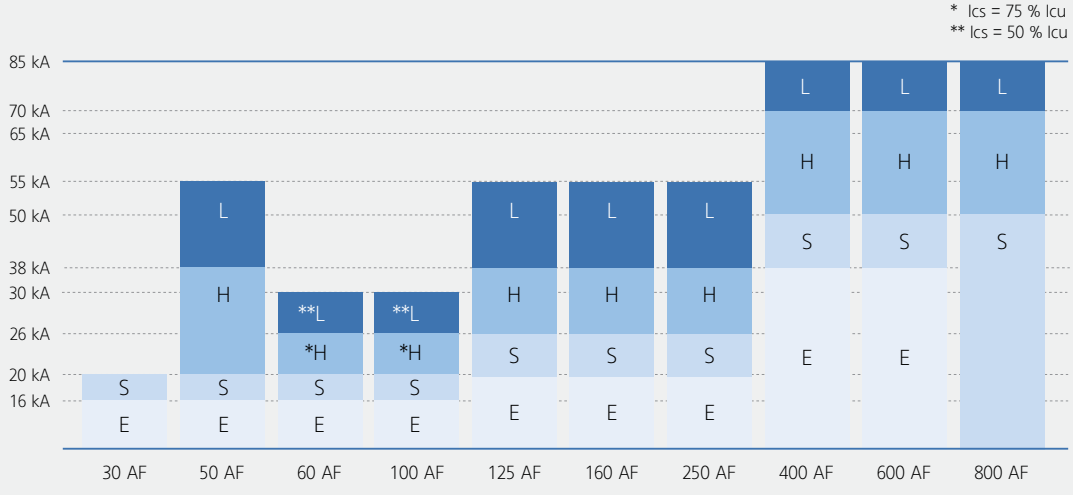
100 – 300 – 500 – 1,000 (mA)

Adjustable Residual Current Off-Time (Earth Leakage Circuit Breakers)

0 – 200 – 500 – 1,000 (ms)

Reinforcement of Protective Coordination

Rated Short-Circuit Current by AF, (Ics = 100 % Icu, at 440/460 V)




30 - 250 AF
0.8 – 0.9 – 1 times
of rated current
400 - 800 AF
0.63 – 0.8 – 1 times
of rated current
LINE
HYUNDAI
HGM 125H
125AF 50/60Hz 40℃
Ui 1000V
Ue[V] Icu[kA]
660 / 690V - 8kA
480 / 500V - 26kA
440 / 460V - 38kA
380 / 415V - 50kA
220 / 240V - 85kA
Ics = Icu 100%
MADE IN KOREA
ON
125A
Cat. A
IEC 60947-2
PUSH TO TRIP
LOAD

HG-SERIES

Advanced Breaking Performance and Various Selectivity

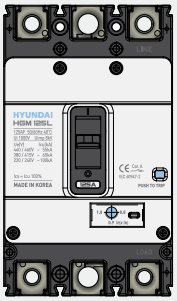
- Various Product Range: 30 - 800 AF, 10 Frames
- Standardized Size of Accessories, Compatible with MCCB and ELCB
- Standardized Height of Products by Frame: 30 - 250 AF (68 mm), 400 - 800 AF (110 mm)

30, 50, 60, 100 AF

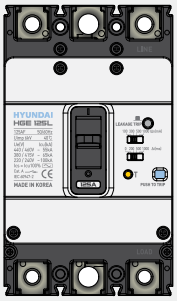
50, 125 AF

160, 250 AF

Size
Compatibility
Public Using
Accessories



MCCB



ELCB

(unit: mm)

400 AF

630, 800 AF

HG-SERIES

HGM Type Molded Case Circuit Breakers

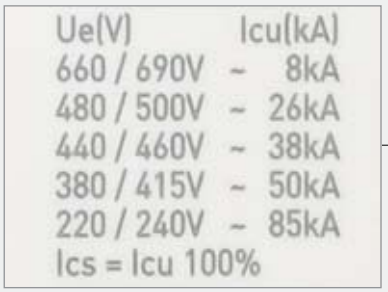
Ui: 1,000 V Uimp: 8 kV Ics = 100 % Icu

Maximized Insulation Performance

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

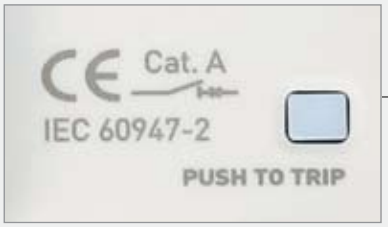
High Breaking Capacity

- 16 - 30 kA at 460 V (100 AF)
- 16 - 55 kA at 460 V (125 - 250 AF)
- 38 - 85 kA at 460 V (400 - 800 AF)



Cable Insulation Performance Suitability

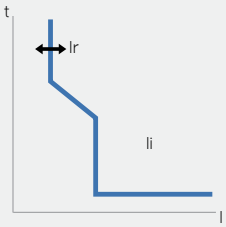
In case of continuing abnormal conditions such as welding of main contact after trip, handle is not available to move 'OFF position' in accordance with IEC 60947-2 cable insulation performance. Also, it is possible to maintenance free by checking a contact condition by the handle.



Adjustable Rated Current

As applying to adjustable rated current design, it is possible to protect circuit optimally according to the load factor. Adjustable range of rated currents. (Molded case circuit breakers)

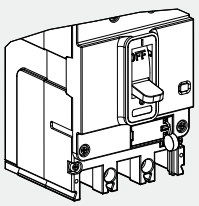
- 30 - 250 AF: 80 % - 90 % - 100 % of rated current
- 400 - 800 AF: 63 % - 80 % - 100 % of rated current



Characteristic Curve
(I - t Curve)

Dial Sealing Device (Option)

Prevent removal of the protection cover from body and any operating of current setting value.




LINE
HYUNDAI
HGM 125H
125AF 50/60Hz 40℃
Ui 1000V Uimp 8kV
Ue(V) Icu(kA)
660 / 690V - 8kA
480 / 500V - 26kA
440 / 460V - 38kA
380 / 415V - 50kA
220 / 240V - 85kA
Ics = Icu 100%
MADE IN KOREA
ON
125A
CE Cat. A
IEC 60947-2
PUSH TO TRIP
LOAD

HG-SERIES

HGM Type Molded Case Circuit Breakers

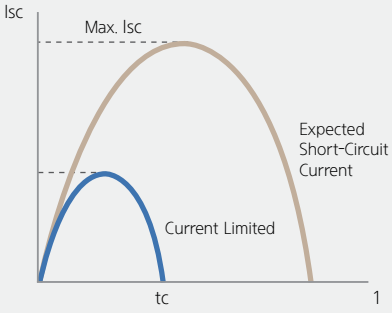
- High Performance & Coordination

Service Breaking Capacity (Ics = 100 % x Icu)

Service breaking capacity, '100 % X Icu' is realized by enlarging breaking capacity with internal limit current device.

- 30 - 800 AF
- 16 - 55 kA @ 460 Vac

(HGM100 AF H Type Ics = 75 % Icu, HGM100 AF L Type Ics = 50 % Icu)



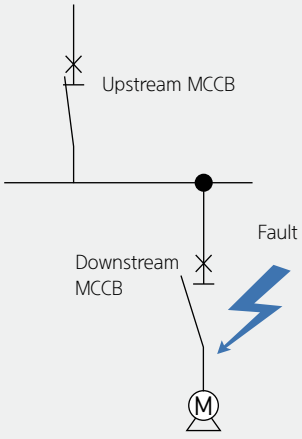
Current Limiting Characteristics

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 whilethe 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

HG-SERIES

HGM Type Earth Leakage Circuit Breakers

Ics = 100 % Icu Uimp = 6 kV

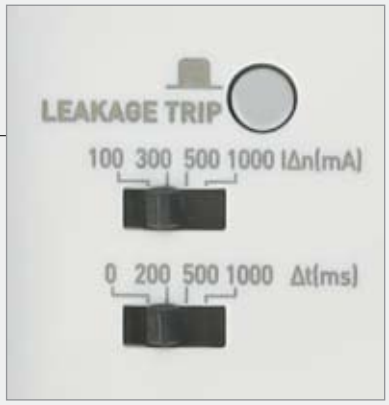
- Standardized Size of Accessories, Compatible with MCCB
- Adjustable Residual Current and Current Cut-Off Time
- Application of 3 Phase Power Supply System, Enabling Normal Operation Under One Phase Loss Fault

Dimensions and Specifications Compatibility with MCCB

- Service breaking capacity, Ics = 100 % Icu
- Rated impulse withstand voltage, Uimp: 6 kV

Residual Current Protection Characteristics

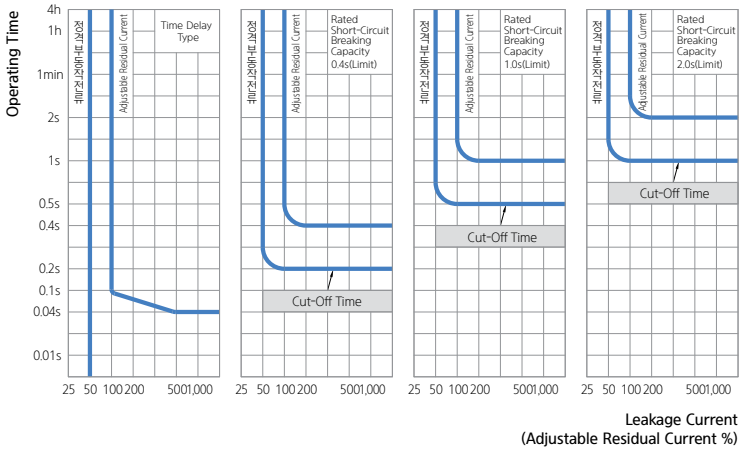
- Prevent damage from reverse connection: It is possible to prevent circuit damage under reverse connection condition.
- Prevent unnecessary malfunction on temporary leakage condition.
- Adjustable residual current and cut-off time.
- 3 Phase power supply system: Enables normal operation under one phase loss condition by adapting 3 phase power supply system.
- Protecting an inverter load safely from ground fault by adapting IC filter.



Adjustable Residual Current and Cut-Off Time

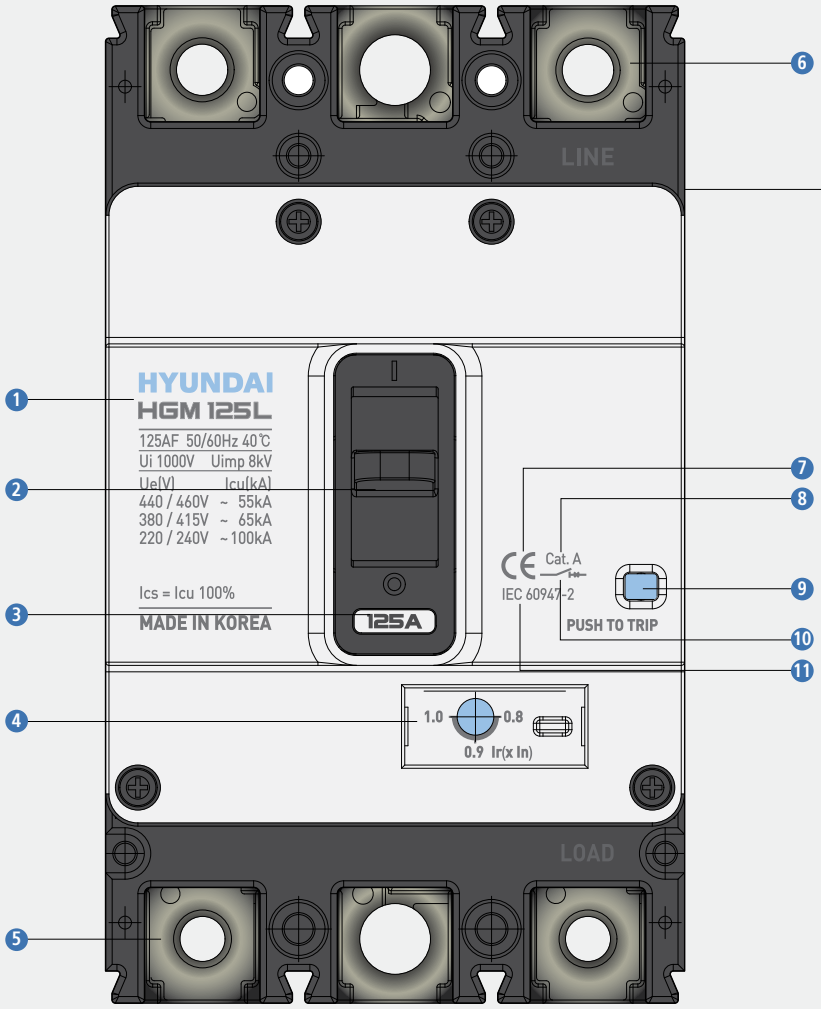
Part	Adjustable Residual Current					Cut-Off Time			
	30 mA	100 mA	300 mA	500 mA	1,000 mA	0 ms	200 ms	500 ms	1,000 ms
Previous ELCB	Fixed	3 steps			-	Fixed	-	-	-
HG-ELCB	Fixed	4 steps				4 steps			

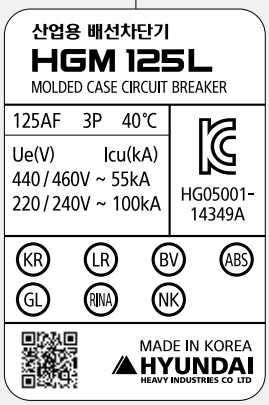
- Adjustable residual current and cut-off time in 4 steps.
- Coordination protection between upstream and downstream circuit breakers by adjusting residual current and cut-off line.



External Structure and Contents of Nameplate

Molded Case Circuit Breakers





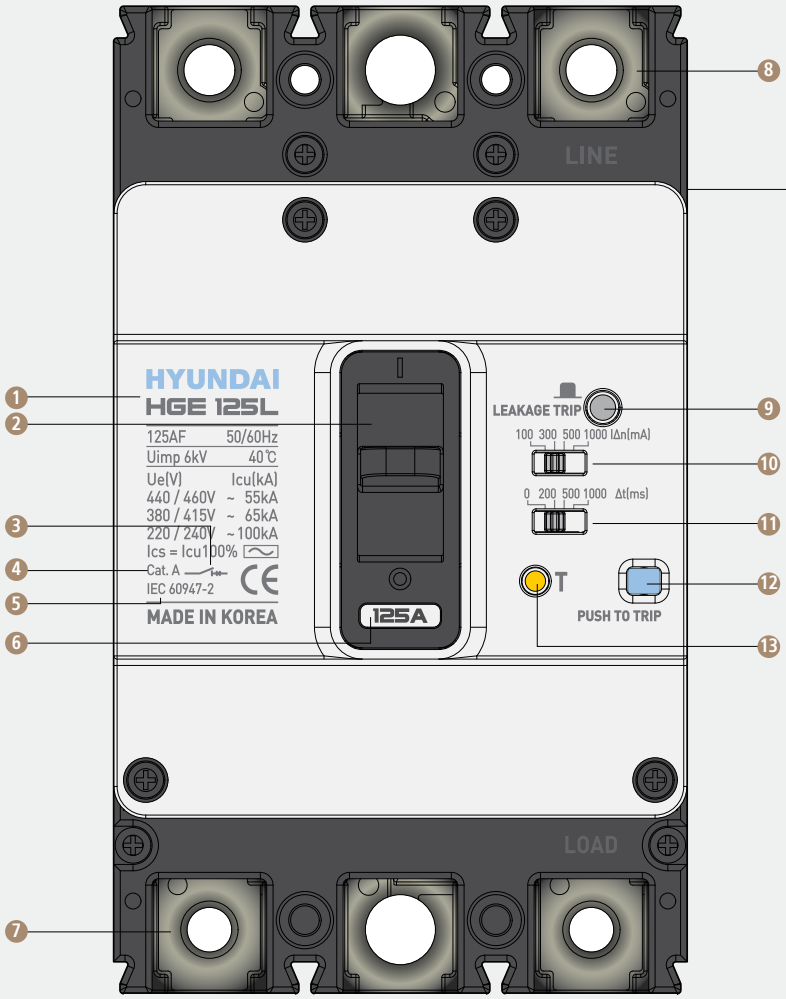
Contents of Nameplate

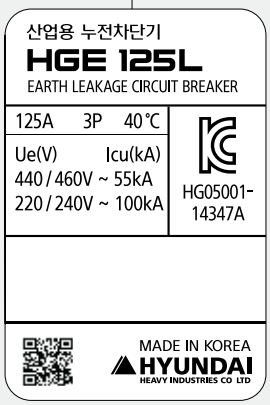
- **Ui**: Rated insulation voltage
- **Uimp**: Rated impulse withstand voltage
- **Ue**: Rated operational voltage
- **Icu**: Rated short-circuit breaking capacity
- **Ics**: Service short-circuit breaking capacity

Molded Case Circuit Breakers (MCCB)

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

Earth Leakage Circuit Breakers





Contents of Nameplate

- **Ui**: Rated insulation voltage
- **Uimp**: Rated impulse withstand voltage
- **Ue**: Rated operational voltage
- **Icu**: Rated short-circuit breaking capacity
- **Ics**: Service short-circuit breaking capacity

Earth Leakage Circuit Breakers (ELCB)

1. Model Name
2. Operating Handle
3. Cable Insulation Performance Suitability
4. Utilization Category
5. CE Marking
6. Rated Current
7. Load Side Terminal
8. Line Side Terminal
9. Leakage Trip Indicator
10. Rated Residual Current Setting Switch
11. Rated Residual Current Cut-Off Time Setting Switch
12. Trip Test Button
13. Leakage Trip Test Button

Standards and Certifications

Standards

Standards

KS C 8321

Molded case circuit breakers for industrial uses

KS C 4613

Circuit breaker incorporating residual current protection for industrial Uses (CBR)

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: 2 - 13.2 Hz - ± 1 mm
- Shock resistant: 13.2 - 100 Hz - ± 0.7 g

DEKRA

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.

Products Selection Table

Model Selection Table

MCCB (HGM Type): 30 - 250 AF

Things in Common

Rated Insulation Voltage, Ui	1,000 V
Rated Operational Voltage, Ue	690 V
Impulse Withstand Voltage, Uimp	8 kV
Protective Function	Overload, short-circuit and instantaneous protection

Suitablilty for Isolation	Yes
Utilization Category	A
Polution Degree	3
Reference Standard	IEC 60947-2

Model				HGM30		HGM50				HGM60			
Frame			(AF)	30		50				63			
Pole			(P)	2, 3, 4 [1]		2, 3, 4 [1]				2, 3, 4 [1]			
Rated current, at 40 ℃			(A)	16, 20, 25, 32		16, 20, 25, 32, 40, 50				16, 20, 25, 32, 40, 50, 63			
Rated short-circuit breaking capacity [Icu] (kA rms)	Recognition code for order			E	S	E	S	H	L	E	S	H	L
	AC660/690 V			2.5	5	2.5	5	8	10	2.5	5	7.5	8
	AC480/500 V			7.5	10	7.5	10	26	35	7.5	10	14	26
	AC440/460 V			16	20	16	20	38	55	16	20	26	30
	AC380/415 V			16	20	16	20	38	55	16	20	26	30
	AC220/240 V			35	50	35	50	85	100	35	50	50	50
	DC250 V (2P)			5	10	10	15	20	30	10	15	15	15
Service breaking capacity [Ics = % Icu]				100	100	100	100	100	100	100	100	75	50
Endurance (Durability)	Mechanical			30,000		30,000				30,000			
	Electrical			10,000		10,000				10,000			
Trip Device													
Thermal magnetic	Long time [LT]	Fixed		(1.0) x In		(1.0) x In				(1.0) x In			
		Adjustable		(0.8 - 0.9 - 1.0) x In		(0.8 - 0.9 - 1.0) x In				(0.8 - 0.9 - 1.0) x In			
	Instantaneous [INST]			400 A		16 - 32 A: 400 A, 40 - 50 A: 10 x In				16 - 32 A: 400 A, 40 - 63 A: 10 x In			
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)		● (3P Only)			
		TDM (LINE only)		● (3P Only)		● (3P Only)		● (3P Only)		● (3P Only)			
		TDF (LINE only)		● (3P Only)		● (3P Only)		● (3P Only)		● (3P Only)			
		TDA (1 row)		● (3P Only)		● (3P Only)		● (3P Only)		● (3P Only)			
		TDA (2 row)		● (2, 3P Only)		● (2, 3P Only)		● (3P Only)		● (2, 3P Only)			
	Cage terminal block		CTB	●		●				●			
	Insulation terminal cover		TCF	●		●				●			
	Insulation barrier		TQQ	●		●				●			
	Terminal extentions		TBB	-		-				-			
Installation and Dimensions													
Connection/Installation	Front connection			Terminal screw									
	Rear connection			Horizontal/Vertical/Front wiring									
	Plug-in			Switchboard type (Line & Load, Line only), Distribution board type [2]									
	DIN rail installation			Possible for using DIN rail adapter				-		Possible for using DIN rail adapter			
Dimensions (mm) 	a (2/3/4P)			50/75/100		50/75/100		60/90/120		50/75/100			
	b			130		130		155		130			
	c			68		68		68		68			
Weight (kg)	2/3/4P			0.6/0.8/1.0		0.6/0.8/1.0		0.8/1.0/1.3		0.6/0.8/1.0			
Detailed rating and select				122 Page		122 Page				122 Page			
Characteristics curve and outside view				70 - 80 Page		70 - 80 Page				70 - 80 Page			

※ **1)** 4 pole arrangement: Basic specification is R-S-T-N (N-R-S-T is optional).
2) Plug-in: Applicable only 3P.
3) 2P product is just removed versus central pole of 3P product. So, 2P product's dimension is equal to 3P product's dimension.

HGM100				HGM125				HGM160				HGM250			
100				125				160				250			
2, 3, 4 [1]				2, 3, 4 [1]				2 [3], 3, 4 [1]				2 [3], 3, 4 [1]			
16, 20, 25, 32, 40, 50, 63, 75, 80, 100				16, 20, 25, 32, 40, 50, 63, 75, 80, 100, 125				100, 125, 150, 160				100, 125, 150, 160, 175, 200, 225, 250			
E	S	H	L	E	S	H	L	E	S	H	L	E	S	H	L
2.5	5	7.5	8	5	7.5	8	10	7.5	8	8	10	7.5	8	8	10
7.5	10	14	26	10	14	26	35	14	20	26	35	14	20	26	35
16	20	26	30	20	26	38	55	20	26	38	55	20	26	38	55
16	20	26	30	20	26	38	55	20	26	38	55	20	26	38	55
35	50	50	50	50	65	85	100	50	65	85	100	50	65	85	100
10	15	15	15	15	15	20	30	15	15	20	30	10	15	20	30
100	100	75	50	100	100	100	100	100	100	100	100	100	100	100	100
30,000				30,000				25,000				25,000			
10,000				10,000				10,000				10,000			
(1.0) x In				(1.0) x In				(1.0) x In				(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				(0.8 - 0.9 - 1.0) x In			
16 - 32 A: 400 A, 40 - 100 A: 10 x In				16 - 32 A: 400 A, 40 - 125 A: 10 x In				10 x In				10 x In			
●				●				●				●			
●				●				●				●			
●				●				●				●			
●				●				●				●			
●				●				●				●			
●				●				●				●			
●				●				●				●			
●				●				●				●			
●				●				●				●			
● (3P Only)				● (3P Only)				● (3P Only)				● (3P Only)			
● (3P Only)				● (3P Only)				● (3P Only)				● (3P Only)			
● (3P Only)				● (3P Only)				-				-			
● (3P Only)				● (3P Only)				-				-			
● (2, 3P Only)				● (3P Only)				-				-			
●				●				●				●			
●				●				●				●			
●				●				●				●			
-				-				●				●			
Terminal screw								Terminal screw, Terminal busbar							
Horizontal/Vertical/Front wiring								Horizontal/Vertical/Front wiring							
Switchboard type (Line & Load, Line only), Distribution board type [2]								Switchboard type (Line & Load, Line only) [2]							
Possible for using DIN rail adapter				-				-				-			
50/75/100				60/90/120				105/105/140				105/105/140			
130				155				165				165			
68				68				68				68			
0.6/0.8/1.0				0.8/1.0/1.3				1.1/1.3/1.7				1.1/1.3/1.7			
122 Page				122 Page				122 Page				122 Page			
70 - 80 Page				70 - 80 Page				70 - 80 Page				70 - 80 Page			

Model Selection Table

MCCB (HGM Type): 400 - 800 AF

Things in Common

Rated Insulation Voltage, Ui	1,000 V
Rated Operational Voltage, Ue	690 V
Impulse Withstand Voltage, Uimp	8 kV
Protective Function	Overload, short-circuit and instantaneous protection

Suitablilty for Isolation	Yes
Utilization Category	A
Polution Degree	3
Reference Standard	IEC 60947-2

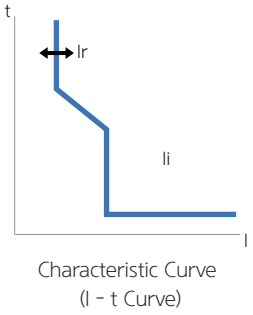
Model				HGM400				HGM630				HGM800		
Frame			(AF)	400				630				800		
Pole			(P)	2, 3, 4 [1]				2, 3, 4 [1]				2, 3, 4 [1]		
Rated current, at 40 ℃			(A)	250, 300, 350, 400				500, 630				700, 800		
Rated short-circuit breaking capacity [Icu] (kA rms)	Recognition code for order			E	S	H	L	E	S	H	L	S	H	L
	AC660/690 V			5	8	10	14	5	8	10	14	8	10	14
	AC480/500 V			18	35	50	65	25	45	50	65	45	50	65
	AC440/460 V			38	50	70	85	38	50	70	85	50	70	85
	AC380/415 V			45	65	85	100	45	65	85	100	65	85	100
	AC220/240 V			50	75	100	125	50	75	100	125	75	100	125
	DC250 V (2P)			20	25	40	40	20	25	40	40	25	40	40
Service breaking capacity [Ics = % Icu]				100	100	100	100	100	100	100	100	100	100	100
Endurance (Durability)	Mechanical			4,000				2,500				2,500		
	Electrical			1,000				500				500		
Trip Device														
Thermal magnetic	Long time [LT]	Fixed		(1.0) x In				(1.0) x In				(1.0) x In		
		Adjustable		(0.63 - 0.8 - 1.0) x In				(0.63 - 0.8 - 1.0) x In				(0.63 - 0.8 - 1.0) x In		
	Instantaneous [INST]			10 x In				10 x In				10 x In		
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)		
		TDF (LINE only)		-				-				-		
		TDA (1 row)		-				-				-		
		TDA (2 row)		-				-				-		
	Cage terminal block		CTB	●				●				●		
	Insulation terminal cover		TCF	●				●				●		
	Insulation barrier		TQQ	●				●				●		
	Terminal extentions		TBB	●				●				●		
Installation and Dimensions														
Connection/Installation	Front connection			Terminal screw				Terminal screw, Terminal busbar						
	Rear connection			Horizontal/Vertical wiring				Horizontal/Vertical wiring						
	Plug-in			Switchboard type (Line & Load, Line only) [2]				Switchboard type (Line & Load, Line only) [2]						
Dimensions (mm) 	a (2/3/4P)			140/140/184				210/210/280				210/210/280		
	b			257				280				280		
	c			110				110				110		
Weight (kg)	2/3/4P			4/4.5/5.4				8.7/9.5/12.5				8.7/9.5/12.5		
Detailed rating and select				122 Page				122 Page				122 Page		
Characteristics curve and outside view				70 - 80 Page				70 - 80 Page				70 - 80 Page		

※ **1)** 4 pole arrangement: Basic specification is R-S-T-N (N-R-S-T is optional).
2) Plug-in: Applicable only 3P.

• 30 - 250 AF

Overload Protection (Thermal)
Setting Dial, (Ir)

• 400 - 800 AF



Characteristic Curve
(I - t Curve)

Trip Unit Characteristics - Thermal Magnetic

Rated Current (A) [In]		16	20	25	32	40	50	63	75	80	100	125
MCCB	HGM30	●	●	●	●							
	HGM50	●	●	●	●	●	●					
	HGM60	●	●	●	●	●	●	●				
	HGM100	●	●	●	●	●	●	●	●	●	●	
	HGM125	●	●	●	●	●	●	●	●	●	●	●
Time Pick-Up Characteristics [Ir]												
Settings (A)		16	20	25	32	40	50	63	75	80	100	125
	0.8 x In	12.8	16	20	25.6	32	40	50.4	60	64	80	100
	0.9 x In	14.4	18	22.5	28.8	36	45	56.7	67.5	72	90	112.5
	1.0 x In	16	20	25	32	40	50	63	75	80	100	125
Instantaneous Pick-Up Characteristics [Ii]												
Settings (A)	10 x In	400				400	500	630	750	800	1,000	1,250
	Instantaneous pick-up characteristics (A)	320				320	400	504	600	640	800	1,000
	The minimum operating current (A)	480				480	600	756	900	960	1,200	1,500
Neutral Pole Protection												
4P3D		Unprotected										
4P4D		-										

Rated Current (A) [In]		100	125	150	160	175	200	225	250
MCCB	HGM160	●	●	●	●				
	HGM250	●	●	●	●	●	●	●	●
Time Pick-Up Characteristics [Ir]									
Settings (A)	Fixed	100	125	150	160	175	200	225	250
	0.8 x In	80	100	120	128	140	160	180	200
	0.9 x In	90	112.5	135	144	157.5	180	202.5	225
	1.0 x In	100	125	150	160	175	200	225	250
Instantaneous Pick-Up Characteristics [Ii]									
Settings (A)	10 x In	1,000	1,250	1,500	1,600	1,750	2,000	2,250	2,500
	Instantaneous pick-up characteristics (A)	800	1,000	1,200	1,280	1,400	1,600	1,800	2,000
	The minimum operating current (A)	1,200	1,500	1,800	1,920	2,100	2,400	2,700	3,000
Neutral Pole Protection									
4P3D		Unprotected							
4P4D		-							

Rated Current (A) [In]		250	300	350	400	500	630	700	800
MCCB	HGM400	●	●	●	●				
	HGM630					●	●		
	HGM800							●	●
Time Pick-Up Characteristics [Ir]									
Settings (A)	Fixed	250	300	350	400	500	630	700	800
	0.63 x In	158	189	221	252	315	397	441	504
	0.8 x In	200	240	280	320	400	504	560	640
	10 x In	250	300	350	400	500	630	700	800
Instantaneous Pick-Up Characteristics [Ii]									
Settings (A)	10 x In	2,500	3,000	3,500	4,000	5,000	6,300	7,000	8,000
	Instantaneous pick-up characteristics (A)	2,000	2,400	2,800	3,200	4,000	5,040	5,600	6,400
	The minimum operating current (A)	3,000	3,600	4,200	4,800	6,000	7,560	8,400	9,600
Neutral Pole Protection									
4P3D		Unprotected							
4P4D		-							

Model Selection Table

ZCT MCCB (HGM□Z Type): 30 - 250 AF

Mounted with a ZCT (Zero phase Current Transformer) at MCCB, the reliability of the MCCB's gound fault protection is improved by linking with an external ELR.

Things in Common

Rated Insulation Voltage, Ui	1,000 V
Rated Operational Voltage, Ue	690 V
Impulse Withstand Voltage, Uimp	8 kV
Protective Function	Overload, short-circuit and instantaneous protection

Suitablilty for Isolation	Yes
Utilization Category	A
Polution Degree	3
Reference Standard	IEC 60947-2

Model				HGM30Z		HGM50Z				HGM60Z			
Frame			(AF)	30		50				63			
Pole			(P)	2 [3], 3, 4 [1]		2 [3], 3, 4 [1]				2 [3], 3, 4 [1]			
Rated current, at 40 ℃			(A)	16, 20, 25, 32		16, 20, 25, 32, 40, 50				16, 20, 25, 32, 40, 50, 63			
Rated short-circuit breaking capacity [Icu] (kA rms)	Recognition code for order			E	S	E	S	H	L	E	S	H	L
	AC660/690 V			2.5	5	2.5	5	8	10	2.5	5	7.5	8.0
	AC480/500 V			7.5	10	7.5	10	26	35	7.5	10	14	26
	AC440/460 V			16	20	16	20	38	55	16	20	26	30
	AC380/415 V			16	20	16	20	38	55	16	20	26	30
	AC220/240 V			35	50	35	50	85	100	35	50	50	50
Service breaking capacity [Ics = % Icu]				100	100	100	100	100	100	100	100	75	50
Endurance (Durability)	Mechanical			30,000		30,000				30,000			
	Electrical			10,000		10,000				10,000			
Trip Device													
Thermal magnetic		Long time [LT]		(1.0) x In		(1.0) x In				(1.0) x In			
		Instantaneous [INST]		400 A		16 - 32 A: 400 A, 40 - 50 A: 10 x In				16 - 32 A: 400 A, 40 - 63 A: 10 x In			
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)		● (3P Only)			
		TDM (LINE only)		● (3P Only)		● (3P Only)		● (3P Only)		● (3P Only)			
		TDF (LINE only)		● (3P Only)		● (3P Only)		● (3P Only)		● (3P Only)			
		TDA (1 row)		● (3P Only)		● (3P Only)		● (3P Only)		● (3P Only)			
		TDA (2 row)		● (2, 3P Only)		● (2, 3P Only)		● (3P Only)		● (2, 3P Only)			
	Cage terminal block		CTB	●		●				●			
	Insulation terminal cover		TCF	●		●				●			
	Insulation barrier		TQQ	●		●				●			
	Terminal extentions		TBB	-		-				-			
Installation and Dimensions													
Connection/Installation		Front connection		Terminal screw									
		Rear connection		Horizontal/Vertical/Front wiring									
		Plug-in		Switchboard type (Line & Load, Line only), Distribution board type [2]									
		DIN rail installation		Possible for using DIN rail adapter				-		Possible for using DIN rail adapter			
Dimensions (mm) 		a (2/3/4P)		75/75/100		75/75/100		90/90/120		75/75/100			
		b		130		130		155		130			
		c		68		68		68		68			
Weight (kg)		2/3/4P		0.7/0.8/1.0		0.7/0.8/1.0		0.9/1.0/1.3		0.7/0.8/1.0			
Detailed rating and select				122 Page		122 Page				122 Page			
Characteristics curve and outside view				70 - 80 Page		70 - 80 Page				70 - 80 Page			

※ **1)** 4 pole arrangement: Basic specification is R-S-T-N (N-R-S-T is optional).
2) Plug-in: Applicable only 3P.
2) 2P product is just removed versus central pole of 3P product. So, 2P product's dimension is equal to 3P product's dimension.

HGM100Z				HGM125Z				HGM160Z				HGM250Z			
100				125				160				250			
2 [2], 3, 4 [1]				2 [2], 3, 4 [1]				2 [2], 3, 4 [1]				2 [2], 3, 4 [1]			
16, 20, 25, 32, 40, 50, 63, 75, 80, 100				16, 20, 25, 32, 40, 50, 63, 75, 80, 100, 125				100, 125, 150, 160				100, 125, 150, 160, 175, 200, 225, 250			
E	S	H	L	E	S	H	L	E	S	H	L	E	S	H	L
2.5	5	7.5	8	5	7.5	8	10	7.5	8	8	10	7.5	8	8	10
7.5	10	14	26	10	14	26	35	14	20	26	35	14	20	26	35
16	20	26	30	20	26	38	55	20	26	38	55	20	26	38	55
16	20	26	30	20	26	38	55	20	26	38	55	20	26	38	55
35	50	50	50	50	65	85	100	50	65	85	100	50	65	85	100
100	100	75	50	100	100	100	100	100	100	100	100	100	100	100	100
30,000				30,000				25,000				25,000			
10,000				10,000				10,000				10,000			
(1.0) x In				(1.0) x In				(1.0) x In				(1.0) x In			
16 - 32 A: 400 A, 40 - 100 A: 10 x In				16 - 32 A: 400 A, 40 - 125 A: 10 x In				10 x In				10 x In			
●				●				●				●			
●				●				●				●			
●				●				●				●			
●				●				●				●			
●				●				●				●			
●				●				●				●			
●				●				●				●			
●				●				●				●			
●				●				●				●			
● (3P Only)				● (3P Only)				● (3P Only)				● (3P Only)			
● (3P Only)				● (3P Only)				● (3P Only)				● (3P Only)			
● (3P Only)				● (3P Only)				-				-			
● (3P Only)				● (3P Only)				-				-			
● (2, 3P Only)				● (3P Only)				-				-			
●				●				●				●			
●				●				●				●			
●				●				●				●			
-				-				●				●			
Terminal screw								Terminal screw, Terminal busbar							
Horizontal/Vertical/Front wiring								Horizontal/Vertical/Front wiring							
Switchboard type (Line & Load, Line only), Distribution board type [2]								Switchboard type (Line & Load, Line only) [2]							
Possible for using DIN rail adapter				-				-				-			
75/75/100				90/90/120				105/105/140				105/105/140			
130				155				165				165			
68				68				68				68			
0.7/0.8/1.0				0.9/1.0/1.3				1.1/1.3/1.7				1.1/1.3/1.7			
122 Page				122 Page				122 Page				122 Page			
70 - 80 Page				70 - 80 Page				70 - 80 Page				70 - 80 Page			

Model Selection Table

ZCT MCCB (HGM□Z Type): 400 - 800 AF

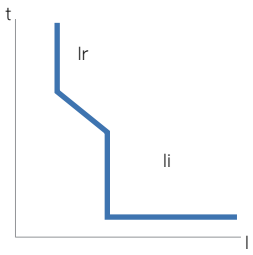
Things in Common

Rated Insulation Voltage, Ui	1,000 V
Rated Operational Voltage, Ue	690 V
Impulse Withstand Voltage, Uimp	8 kV
Protective Function	Overload, short-circuit and instantaneous protection

Suitablilty for Isolation	Yes
Utilization Category	A
Polution Degree	3
Reference Standard	IEC 60947-2

Model				HGM400Z				HGM630Z				HGM800Z		
Frame			(AF)	400				630				800		
Pole			(P)	2 [3], 3, 4 [1]				2 [3], 3				2 [3], 3		
Rated current, at 40 ℃			(A)	250, 300, 350, 400				500, 630				700, 800		
Rated short-circuit breaking capacity [Icu] (kA rms)	Recognition code for order			E	S	H	L	E	S	H	L	S	H	L
	AC660/690 V			5	8.0	10	14	5	8	10	14	8	10	14
	AC480/500 V			18	35	50	65	25	45	50	65	45	50	65
	AC440/460 V			38	50	70	85	38	50	70	85	50	70	85
	AC380/415 V			45	65	85	100	45	65	85	100	65	85	100
	AC220/240 V			50	75	100	125	50	75	100	125	75	100	125
Service breaking capacity [Ics = % Icu]				100	100	100	100	100	100	100	100	100	100	100
Endurance (Durability)	Mechanical			4,000				2,500				2,500		
	Electrical			1,000				500				500		
Trip Device														
Thermal magnetic		Long time [LT]		(1.0) x In				(1.0) x In				(1.0) x In		
		Instantaneous [INST]		10 x In				10 x In				10 x In		
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)		
		TDF (LINE only)		-				-				-		
		TDA (1 row)		-				-				-		
		TDA (2 row)		-				-				-		
	Cage terminal block		CTB	●				●				●		
	Insulation terminal cover		TCF	●				●				●		
	Insulation barrier		TQQ	●				●				●		
	Terminal extentions		TBB	●				●				●		
Installation and Dimensions														
Connection/Installation		Front connection		Terminal screw				Terminal screw, Terminal busbar						
		Rear connection		Horizontal/Vertical wiring				Horizontal/Vertical wiring						
		Plug-in		Switchboard type (Line & Load, Line only) [2]				Switchboard type (Line & Load, Line only) [2]						
Dimensions (mm)		a (2/3/4P)		140/140/184				210/210				210/210		
		b		257				280				280		
		c		110				110				110		
Weight (kg)		2/3/4P		4/4.5/5.4				8.7/9.5				8.7/9.5		
Detailed rating and select				122 Page				122 Page				122 Page		
Characteristics curve and outside view				70 - 80 Page				70 - 80 Page				70 - 80 Page		

※ **1)** 4 pole arrangement: Basic specification is R-S-T-N (N-R-S-T is optional).
2) Plug-in: Applicable only 3P.
3) 2P product is just removed versus central pole of 3P product. So, 2P product's dimension is equal to 3P product's dimension.



Characteristic Curve
(I - t Curve)

Trip Unit Characteristics - Thermal Magnetic

Rated Current (A) [In]		16	20	25	32	40	50	63	75	80	100	125
MCCB	HGM30Z	●	●	●	●							
	HGM50Z	●	●	●	●	●	●					
	HGM60Z	●	●	●	●	●	●	●				
	HGM100Z	●	●	●	●	●	●	●	●	●	●	
	HGM125Z	●	●	●	●	●	●	●	●	●	●	●
Time Pick-Up Characteristics [Ir]												
Settings (A)	1.0 x In	16	20	25	32	40	50	63	75	80	100	125
Instantaneous Pick-Up Characteristics [Ii]												
Settings (A)	10 x In	400		400		400	500	630	750	800	1,000	1,250
	Instantaneous pick-up characteristics (A)	320		320		320	400	504	600	640	800	1,000
	The minimum operating current (A)	480		480		480	600	756	900	960	1,200	1,500
Neutral Pole Protection												
4P3D		Unprotected										
4P4D		-										

Rated Current (A) [In]		100	125	150	160	175	200	225	250	300	350	400	500	630	700	800
MCCB	HGM160Z	●	●	●	●											
	HGM250Z	●	●	●	●	●	●	●	●							
	HGM400Z								●	●	●	●				
	HGM630Z												●	●		
	HGM800Z														●	●
Time Pick-Up Characteristics [Ir]																
Settings (A)	1.0 x In	100	125	150	160	175	200	225	250	300	350	400	500	630	700	800
Instantaneous Pick-Up Characteristics [Ii]																
Settings (A)	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
	Instantaneous pick-up characteristics (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
	The minimum operating 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
Neutral Pole Protection																
4P3D		Unprotected														
4P4D		-														

Model Selection Table

ELCB (HGE Type): 30 - 250 AF

Things in Common

Rated Operational Voltage, Ue	220/460 V
Impulse Withstand Voltage, Uimp	6 kV
Protective Function	Overload, short-circuit and instantaneous protection

Suitablilty for Isolation	Yes
Utilization Category	A
Polution Degree	3
Reference Standard	IEC 60947-2

Model				HGE30		HGE50				HGE60			
Frame			(AF)	30		50				63			
Pole			(P)	2 [3], 3, 4 [1]		2 [3], 3, 4 [1]				2 [3], 3, 4 [1]			
Rated current, at 40 ℃			(A)	16, 20, 25, 32		16, 20, 25, 32, 40, 50				16, 20, 25, 32, 40, 50, 63			
High speed type	Rated residual current		(mA)	30		30				30			
	Maximum residual current off-time		(s)	0.1		0.1				0.1			
Time delay type	Rated residual current		(mA)	100 - 300 - 500 - 1,000 Adjustable		100 - 300 - 500 - 1,000 Adjustable				100 - 300 - 500 - 1,000 Adjustable			
	Maximum residual current off-time		(s)	0.1 - 0.4 - 1.0 - 2.0		0.1 - 0.4 - 1.0 - 2.0				0.1 - 0.4 - 1.0 - 2.0			
	Inertial non-operating time		(ms)	0 - 200 - 500 - 1,000 Adjustable		0 - 200 - 500 - 1,000 Adjustable				0 - 200 - 500 - 1,000 Adjustable			
Rated short-circuit breaking capacity [Icu] (kA rms)	Recognition code for order			E	S	E	S	H	L	E	S	H	L
	AC440/460 V			16	20	16	20	38	55	16	20	26	30
	AC380/415 V			16	20	16	20	38	55	16	20	26	30
	AC220/240 V			35	50	35	50	85	100	35	50	50	50
Service breaking capacity [Ics = % Icu]				100	100	100	100	100	100	100	100	75	50
Endurance (Durability)	Inverse time delay [LT]			30,000		30,000				30,000			
	Short time pick-up [LT]			10,000		10,000				10,000			
Trip Device													
Thermal magnetic	Long time [LT]			(1.0) x In		(1.0) x In				(1.0) x In			
	Instantaneous [INST]			400 A		16 - 32 A: 400 A, 40, 50 A: 10 x In				16 - 32 A: 400 A, 40 - 63 A: 10 x In			
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)		● (3P Only)			
		TDM (LINE only)		● (3P Only)		● (3P Only)		● (3P Only)		● (3P Only)			
		TDF (LINE only)		● (3P Only)		● (3P Only)		● (3P Only)		● (3P Only)			
		TDA (1 row)		● (3P Only)		● (3P Only)		● (3P Only)		● (3P Only)			
		TDA (2 row)		● (2, 3P Only)		● (2, 3P Only)		● (3P Only)		● (2, 3P Only)			
	Cage terminal block		CTB	●		●				●			
	Insulation terminal cover		TCF	●		●				●			
	Insulation barrier		TQQ	●		●				●			
	Terminal extentions		TBB	-		-				-			
Installation And Dimensions													
Connection/Installation	Front connection			Terminal screw									
	Rear connection			Horizontal/Vertical/Front wiring									
	Plug-in			Switchboard type (Line & Load, Line only), Distribution board type [2]									
	DIN rail Installation			Possible for using DIN rail adapter				-		Possible for using DIN rail adapter			
Dimensions (mm) 	a (2/3/4P)			75/75/100		75/75/100		90/90/120		75/75/100			
	b			130		130		155		130			
	c			68		68		68		68			
Weight (kg)	2/3/4P			0.8/0.9/1.3		0.8/0.9/1.3		1.0/1.1/1.4		0.8/0.9/1.3			
Detailed rating and select				122 Page		122 Page				122 Page			
Characteristics curve and outside view				70 - 85 Page		70 - 85 Page				70 - 85 Page			

※ **1)** 4 pole arrangement: Basic specification is R-S-T-N (N-R-S-T is optional).
2) Plug-in: Applicable only 3P.
3) 2P product is just removed versus central pole of 3P product. So, 2P product's dimension is equal to 3P product's dimension.

HGE100				HGE125				HGE160				HGE250			
100				125				160				250			
2 [2], 3, 4 [1]				2 [2], 3, 4 [1]				2 [2], 3, 4 [1]				2 [2], 3, 4 [1]			
16, 20, 25, 32, 40, 50, 63, 75, 80, 100				16, 20, 25, 32, 40, 50, 63, 75, 80, 100, 125				100, 125, 150, 160				100, 125, 150, 160, 175, 200, 225, 250			
30				30				30				30			
0.1				0.1				0.1				0.1			
100 - 300 - 500 - 1,000 Adjustable				100 - 300 - 500 - 1,000 Adjustable				100 - 300 - 500 - 1,000 Adjustable				100 - 300 - 500 - 1,000 Adjustable			
0.1 - 0.4 - 1.0 - 2.0				0.1 - 0.4 - 1.0 - 2.0				0.1 - 0.4 - 1.0 - 2.0				0.1 - 0.4 - 1.0 - 2.0			
0 - 200 - 500 - 1,000 Adjustable				0 - 200 - 500 - 1,000 Adjustable				0 - 200 - 500 - 1,000 Adjustable				0 - 200 - 500 - 1,000 Adjustable			
E	S	H	L	E	S	H	L	E	S	H	L	E	S	H	L
16	20	26	30	20	26	38	55	20	26	38	55	20	26	38	55
20	26	26	30	20	26	38	55	20	26	38	55	20	26	38	55
30	50	50	50	50	65	85	100	50	65	85	100	50	65	85	100
100	100	75	50	100	100	100	100	100	100	100	100	100	100	100	100
30,000				30,000				25,000				25,000			
10,000				10,000				10,000				10,000			
(1.0) x In				(1.0) x In				(1.0) x In				(1.0) x In			
16 - 32 A: 400 A, 40 - 100 A: 10 x In				16 - 32 A: 400 A, 40 - 125 A: 10 x In				10 x In				10 x In			
●				●				●				●			
●				●				●				●			
-				-				-				-			
-				-				-				-			
●				●				●				●			
●				●				●				●			
●				●				●				●			
●				●				●				●			
●				●				●				●			
● (3P Only)				● (3P Only)				● (3P Only)				● (3P Only)			
● (3P Only)				● (3P Only)				● (3P Only)				● (3P Only)			
● (3P Only)				● (3P Only)				-				-			
● (3P Only)				● (3P Only)				-				-			
● (2, 3P Only)				● (3P Only)				-				-			
●				●				●				●			
●				●				●				●			
●				●				●				●			
-				-				●				●			
Terminal screw								Terminal screw							
Horizontal/Vertical/Front wiring								Horizontal/Vertical/Front wiring							
Switchboard type (Line & Load, Line only), Distribution board type [2]								Switchboard type (Line & Load, Line only) [2]							
Possible for using DIN rail adapter				-				-				-			
75/75/100				90/90/120				105/105/185				105/105/140			
130				155				165				165			
68				68				68				68			
0.8/0.9/1.3				1.0/1.1/1.4				1.3/1.5/1.9				1.3/1.5/1.9			
122 Page				122 Page				122 Page				122 Page			
70 - 85 Page				70 - 85 Page				70 - 85 Page				70 - 85 Page			

Model Selection Table

ELCB (HGE Type): 400 - 800 AF

Things in Common

Rated Operational Voltage, Ue	220/460 V
Impulse Withstand Voltage, Uimp	6 kV
Protective Function	Overload, short-circuit and instantaneous protection

Suitablilty for Isolation	Yes
Utilization Category	A
Polution Degree	3
Reference Standard	IEC 60947-2

Model				HGE400				HGE630				HGE800		
Frame			(AF)	400				630				800		
Pole			(P)	2 [3], 3, 4 [1]				2 [3], 3				2 [3], 3		
Rated current, at 40 ℃			(A)	250, 300, 350, 400				500, 630				700, 800		
High speed type	Rated residual current		(mA)	30				30				30		
	Maximum residual current off-time		(s)	0.1				0.1				0.1		
Time delay type	Rated residual current		(mA)	100 - 300 - 500 - 1,000 Adjustable				100 - 300 - 500 - 1,000 Adjustable				100 - 300 - 500 - 1,000 Adjustable		
	Maximum residual current off-time		(s)	0.1 - 0.4 - 1.0 - 2.0				0.1 - 0.4 - 1.0 - 2.0				0.1 - 0.4 - 1.0 - 2.0		
	Inertial non-operating time		(ms)	0 - 200 - 500 - 1,000 Adjustable				0 - 200 - 500 - 1,000 Adjustable				0 - 200 - 500 - 1,000 Adjustable		
Rated short-circuit breaking capacity [Icu] (kA rms)	Recognition code for order			E	S	H	L	E	S	H	L	S	H	L
	AC440/460 V			38	50	70	85	38	50	70	85	50	70	85
	AC380/415 V			45	65	85	100	45	65	85	100	65	85	100
	AC220/240 V			50	75	100	125	50	75	100	125	75	100	125
Service breaking capacity [Ics = % Icu]				100	100	100	100	100	100	100	100	100	100	100
Endurance (Durability)	Inverse time delay [LT]			4,000				2,500				2,500		
	Short time pick-up [LT]			1,000				500				500		
Trip Device														
Thermal magnetic		Long time [LT]		(1.0) x In				(1.0) x In				(1.0) x In		
		Instantaneous [INST]		10 x In				10 x In				10 x In		
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)		
		TDF (LINE only)		-				-						
		TDA (1 row)		-				-						
		TDA (2 row)		-				-						
	Cage terminal block		CTB	●				●				●		
	Insulation terminal cover		TCF	●				●				●		
	Insulation barrier		TQQ	●				●				●		
	Terminal extentions		TBB	●				●				●		
Installation and Dimensions														
Connection/Installation		Front connection		Terminal screw				Terminal screw, Terminal busbar						
		Rear connection		Horizontal/Vertical/Front wiring				Horizontal/Vertical/Front wiring						
		Plug-in		Switchboard type (Line & Load, Line only) [2]				Switchboard Type (Line & Load, Line only) [2]						
Dimensions (mm)		a (2/3/4P)		140/140/184				210/210				210/210		
		b		257				280				280		
		c		110				110				110		
Weight (kg)		3/4P		4/4.5/5.4				8.7/9.5				8.7/9.5		
Detailed rating and select				122 Page				122 Page				122 Page		
Characteristics curve and outside view				70 - 85 Page				70 - 85 Page				70 - 85 Page		

※ **1)** 4 pole arrangement: Basic specification is R-S-T-N (N-R-S-T is optional).
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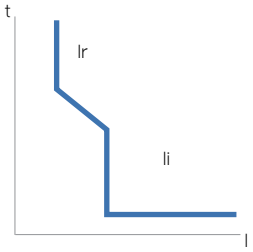
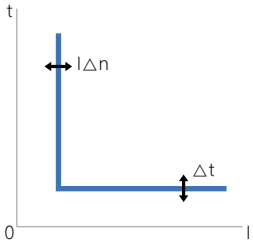


Overload Protection Characteristics



Ground Fault Protection Characteristics (Time Delay Type)

Trip Unit Characteristics - Thermal Magnetic

Rated Current (A) [In]		16	20	25	32	40	50	63	75	80	100	125
ELCB	HGE30	●	●	●	●							
	HGE50	●	●	●	●	●	●					
	HGE60	●	●	●	●	●	●	●				
	HGE100	●	●	●	●	●	●	●	●	●	●	
	HGE125	●	●	●	●	●	●	●	●	●	●	●
Time Pick-Up Characteristics [Ir]												
Settings (A)	1.0 x In	16	20	25	32	40	50	63	75	80	100	125
Instantaneous Pick-Up Characteristics [Ii]												
Settings (A)	10 x In	400		400		400	500	630	750	800	1,000	1,250
	IMax. non-operating current (A)	320		320		320	400	504	600	640	800	1,000
	Min. operating current (A)	480		480		480	600	756	900	960	1,200	1,500
Rated Residual Current, I△n												
High speed type		Fixed: 30 mA										
Time delay type		Adjustable: 100 - 300 - 500 - 1,000 mA										
Inertial Non-Operating, △t												
High speed type		Fixed: 0 ms										
Time delay type		Adjustable: 0 - 200 - 500 - 1,000 ms										
Neutral Pole Protection												
4P3D		Unprotected										
4P4D		-										

Rated Current (A) [In]		100	125	150	160	175	200	225	250	300	350	400	500	630	700	800
ELCB	HGE160	●	●	●	●											
	HGE250	●	●	●	●	●	●	●	●							
	HGE400								●	●	●	●				
	HGE630												●	●		
	HGE800														●	●
Time Pick-Up Characteristics [Ir]																
Settings (A)	1.0 x In	100	125	150	160	175	200	225	250	300	350	400	500	630	700	800
Instantaneous Pick-Up Characteristics [Ii]																
Settings (A)	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
	IMax. non-operating 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
	Min. operating 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
Rated Residual Current, I△n																
High speed type		Fixed: 30 mA														
Time delay type		Adjustable: 100 - 300 - 500 - 1,000 mA														
Inertial Non-Operating, △t																
High speed type		Fixed: 0 ms														
Time delay type		Adjustable: 0 - 200 - 500 - 1,000 ms														
Neutral Pole Protection																
4P3D		Unprotected														
4P4D		-														