HGM1250, 1600

Molded Case Circuit Breakers

HD HYUNDAI ELECTRIC

Model Selection Table

Things in common	
Rated insulation voltage, Ui	1000 V
Rated operational voltage, Ue	690 V
Impulse withstand voltage, Uimp	8 kV
Protection function	Overload, short-circuit and instantaneous protection

Things in common	
Suitablilty for isolation	Yes
Utilization category	B
Pollution degree	3
Reference standard	IEC60947-2

Model			HGM1000	HGM1250	HGM1600
Frame		(AF)	1,000	1,250	1,600
Pole		(P)	3,4[1)]	3,4[1)]	3
Rated current, at 40˚C, Electric		(A)	1,000	1,000/1,250	1,600
Rated short-circuit breaking capacity [Icu] (kA rms)		Recognition code for order	S	S	S
		AC660/690 V	25	25	25
		AC480/500 V	35	35	35
		AC440/460 V	45	45	45
		AC380/415 V	70	70	70
		AC220/240 V	100	100	100
Service breaking capacity [Ics] (kA rms)		AC660/690 V	12.5	12.5	17.5
		AC480/500 V	17.5	17.5	24.5
		AC440/460 V	22.5	22.5	31.5
		AC380/415 V	65	65	50
		AC220/240 V	50	50	70
Rated short-time withstand current[Icw] (kA)		1s	15	15	12*In
Endurance (Durability)		Mechanical	10,000	10,000	10,000
		Electrical	3,000	3,000	3,000
Trip Device					
			●	●	●
Electronic		Long time [LT, I_1]	0.4-0.5-0.6-0.7-0.8-0.9-0.95-1×In	0.4-0.5-0.6-0.7-0.8-0.9-0.95-1×In	0.4-0.5-0.6-0.7-0.8-0.9-0.95-1×In
		Short time [STD, I_2]	2-3-4-5-6-7-8-10×I_1	2-3-4-5-6-7-8-10×I_1	2-3-4-5-6-7-8-10×I_1
		Instantaneous [INST, I_3]	2-3-4-5-6-7-8-10×I_1	2-3-4-5-6-7-8-10×I_1	2-3-4-5-6-7-8-10×I_1
Accessory					
Internal	Auxiliary switch	AUX	●	●	●
	Alarm switch	ALT	●	●	-
	Shunt trip	SHT	●	●	●
	Undervoltage trip	UVT	●	●	●
External	Rotary handle	Extended TFH	●	●	-
	Motor operator	MOT	●	●	●
	Mechanical interlock	MIF	●	●	-
	Lock Mechanism with Key		●	●	-
	Draw-out		-	-	-
	Plug-in	TDM(LINE/LOAD)	-	-	-
		TDM(LINE Only)	-	-	-
	Cage terminal block	CTB	●	●	-
	Insulation terminal cover	TCF	●	●	●
	Insulation barrier	TQQ	Standard	Standard	Standard
	Terminal extentions	TBB	Standard	Standard	Standard
Installation and dimensions					
Connection/Installation		Front connection	Terminal busbar	Terminal busbar	Terminal busbar
		Rear connection	-	-	-
		Plug-in	-	-	-
Dimensions (mm)		a (3/4P)	210/280	210/280	210
		b	370	370	370
		c	124	124	155

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

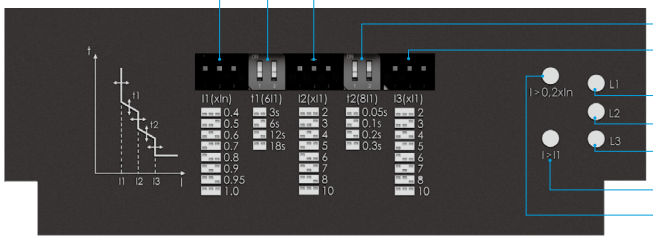
Product Features

HGM1000/1250/1600

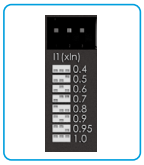
The HGM type maximizes diversity in product selection by developing a variety of products.
In addition, the newly developed HGM1250&1600 MCCB is an electronic type, so its characteristics can be adjusted.

1250/1600AF

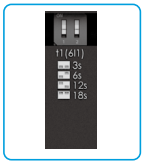
Upon Request Type



- Long time delayed tripping current
- Long time delay interval
- Short-time delayed tripping current
- Short time delay interval
- Instant opening current
- L1 LED
- L2 LED
- L3 LED
- Over current LED
- Operation LED

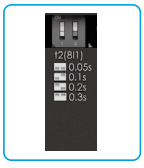


· The desired value can be set between %40 and %100 of I_1 switch and In breaker value.



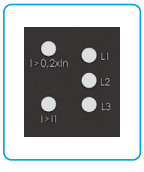
· Long time delay setting range is from 3~18 seconds. As tripping on $6I_1$ is time switched, tripping formula for over current outside $6I_1$ (Tripping time)=$[(6I_1)^2 x t_1]/I^2$

· I_2 switches may be adjusted in 2 to 10 times the current I_1



· I^2t "ON"; There are time delay in proportion with $(8xI_1)^2$ at the "ON" section. Card detects period of time in inverse proportion with the square root of the tripping current. (Tripping time)=$[(8xI_1)^2/I^2]xt_2$

· I_3 switch can be adjusted between 2 and 10 times the current I_1.
There is no any delay function.



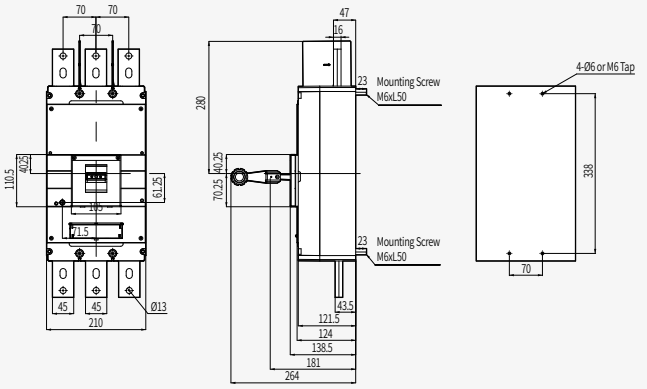
· L1, L2, L3; Indicates on which phase the over current passes through.
· I>0.2xI_n; Indicates that the card is operational and current passes through the circuit breaker.
· I>I_1; Indicates that current passes through the circuit breaker and if the situation does not return to normal, In accodance with release curve the circuit breaker will trip after a while.

Dimensions

HGM1000/1250

Unit : mm

3P

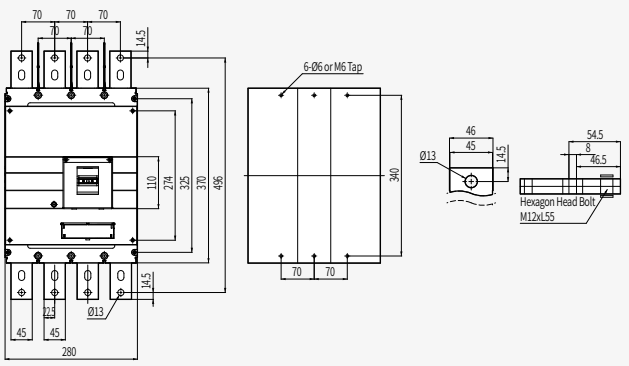


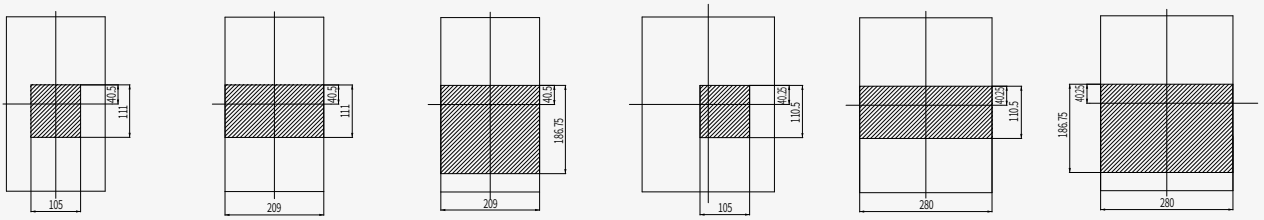
Dimension of
Panel Cover Cutting -
Handle Exposure

Dimension of
Panel Cover Cutting -
Handle Test Button
Exposure

Dimension of
Panel Cover Cutting -
Handle Trip Unit
Exposure

4P





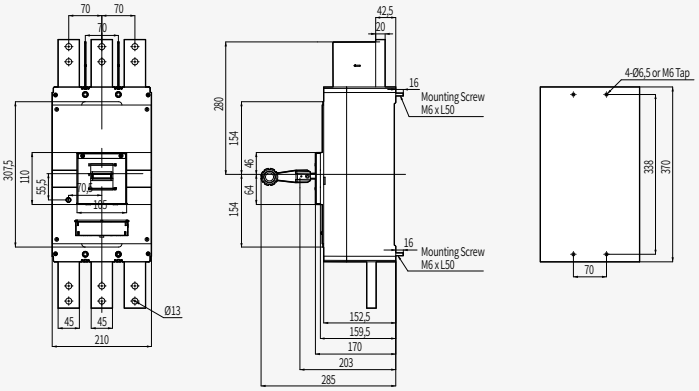
Dimension of
Panel Cover Cutting -
Handle Exposure

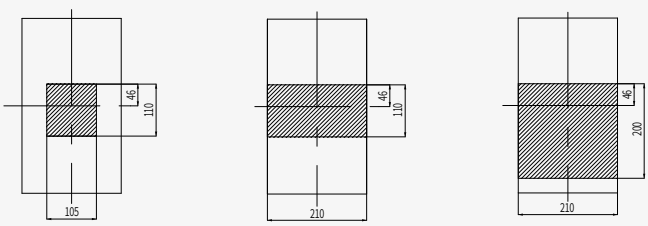
Dimension of
Panel Cover Cutting -
Handle Test Button
Exposure

Dimension of
Panel Cover Cutting -
Handle Trip Unit
Exposure

HGM1600

Unit : mm

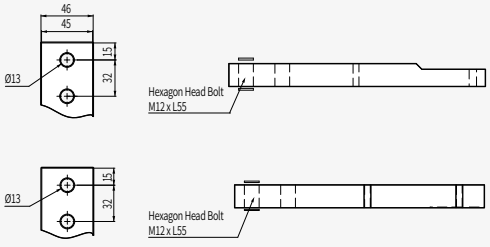




Dimension of
Panel Cover Cutting -
Handle Exposure

Dimension of
Panel Cover Cutting -
Handle Test Button
Exposure

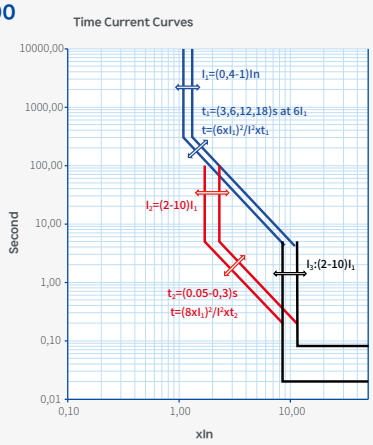
Dimension of
Panel Cover Cutting -
Handle Trip Unit
Exposure



Characteristic Curve

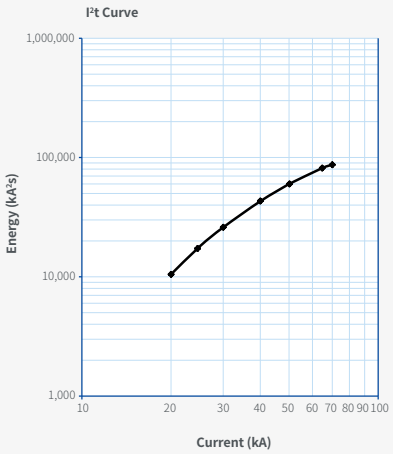
Operation Characteristic Curve

HGM1000/1250/1600

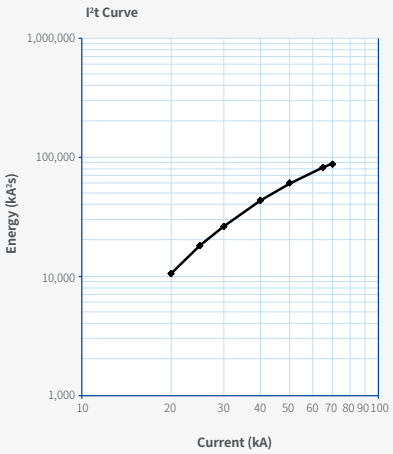


Energy-Limiting Characteristic Curve

HGM1000/1250

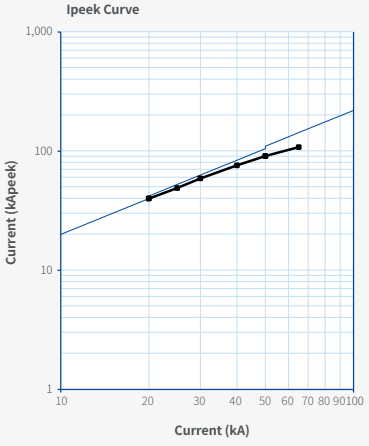


HGM1600

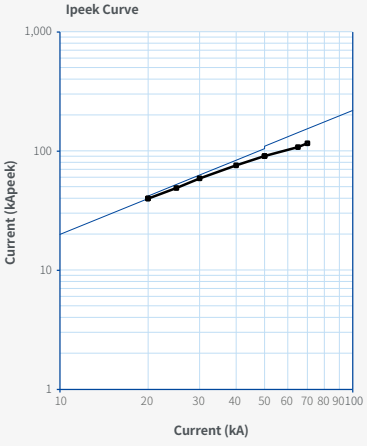


Current-Limiting Characteristic Curve

HGM1000/1250

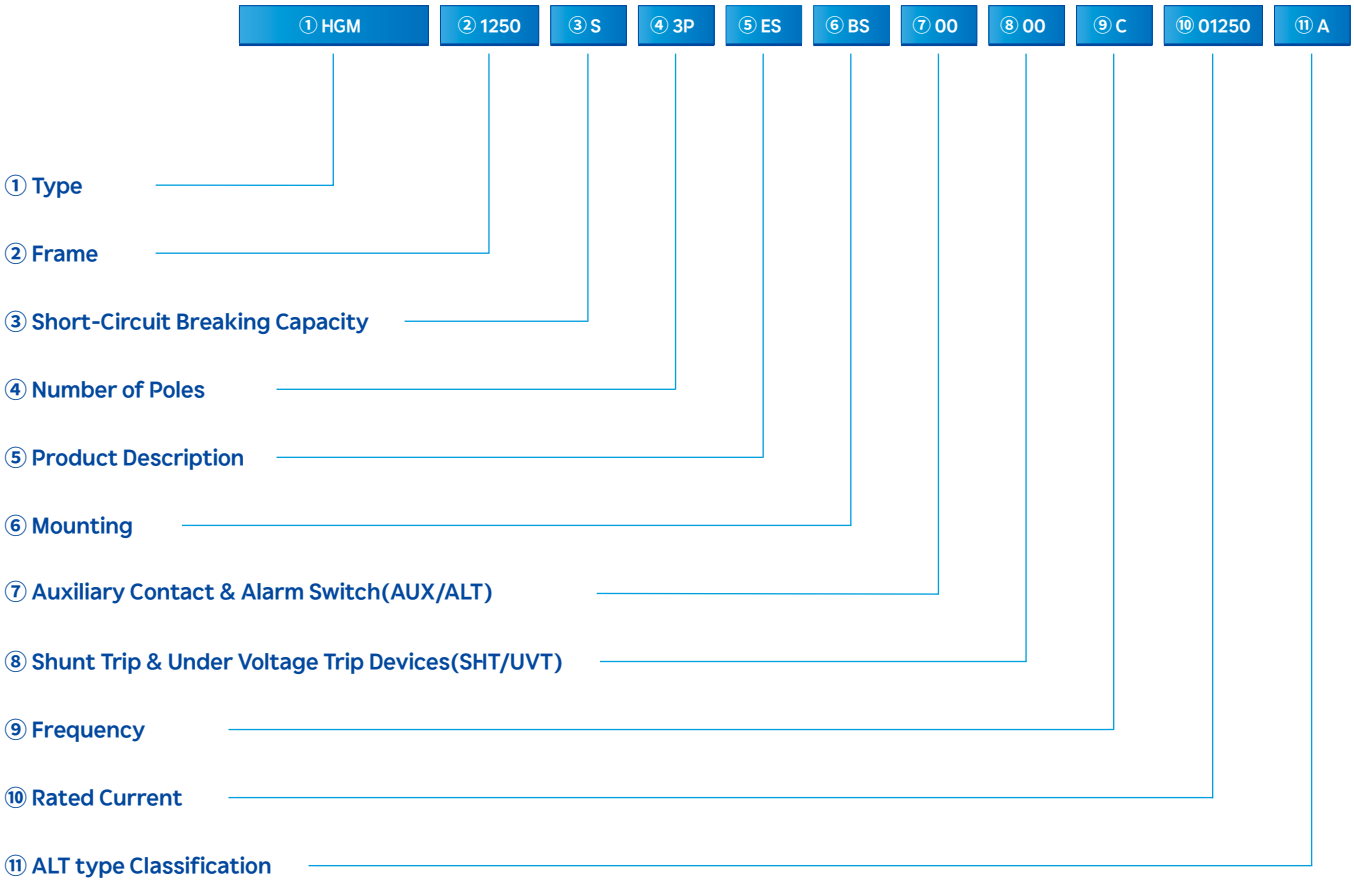


HGM1600



Order Information

Ordering Guidelines



① Type	
HGM	MCCB

② Frame	
1000	1,000 AF
1250	1,250 AF
1600	1,600 AF

③ Short-Circuit Breaking Capacity[1]	
S	70 kA

④ Number of Poles	
3P	3 pole
4PN[2]	4 pole(NRST)

⑤ Product Description	
MCCB	Electronic
ES	Dip switch type

⑥ Mounting	
BS[3]	Terminal Bus Bar (Straight Type)

⑦ Auxiliary Contact & Alarm Switch(AUX/ALT)	
00	Without

⑧ Shunt Trip & Under Voltage Trip Devices(SHT/UVT)	
00	Without

⑨ Frequency	
C	50/60 Hz in common

⑩ Rated Current	
01000	1,000 A
01250	1,250 A
01600	1,600 A

⑪ ALT type Classification	
A	ALT mounting available

※ 1) In case that the rated voltage is AC380/415 V
2) In case of 4P, The N phase is located on the left.(N-R-S-T)
3) A straight busbar is provided as standard.

Order Code for Accessories of HGM1000/1250/1600

① Signal

※ It is contact for indicating the status of the circuit breaker in a remote position.
This contact can be used realize not only the indication function but also electrical functions such as electrical lock and relay.

Product	HGM1000/1250	HGM1600	Note
Auxiliary Switch	AUX120GMSC1	AUX160NER1	· Indicates the ON/OFF status of the circuit breaker contact. · Status is OFF during TRIP.
	AUX120GMSC2	AUX160NER2	
Trip Alarm Switch	ALT120GMSR1	-	· It is only activated when the circuit breaker has tripped due to an overload, short circuit or operaton of shunt trip switch and does not operate during genetral ON/OFF. · Returns to original state when circuit breaker has been reset.
Under Voltage Trip	UVT120GMSAC100-120V	UVT160NEP	· In case the circuit voltage drops to less than 35% of the rated voltage (Un), UVT automatically initiates a trip in the circuit breaker to prevent damage to the load. · Operation condition : U < 0.7xUn · Closing condition : U ≥ 0.85 x Un
	UVT120GMSAC200-230V		
	UVT120GMSAC380-415V		
	UVT120GMSAC440-480V		
Shunt Trip	SHT120GMSAC100-120V	SHT160NEH	· Shunt trip device (SHT) is a device that remotely trips the circuit breaker by applying voltage to both terminals of the coil. · Opening condition : 0.7 x Un ≤ U < 1.1 x Un
	SHT120GMSAC200-230V		
	SHT120GMSAC380-415V		
	SHT120GMSAC440-480V		

② Operating

Product	HGM1000/1250		HGM1600
	3P	4P	3P
Motor Operator	MOT120GMSAC/DC230V		MOT160GMSAC/DC230V
Operating Handle (Extended)	TFH120GMS3	TFH120GMS4	-
Auxiliary Handle	THA120GMS		-
Lock Mechanism with Key	KEY120GMS		-

③ Motor Operator Technical Data

Product	Order Code	Mechanical Life	Operational Voltage	Voltage Range	Max Operational Current(A)	Operating Time(s)		Power Consumption(W)
						Closing	Opening	
MOT120GMSAC/DC230V	MOT120GMSAC/DC230V	5000	230V AC/DC	85-110%	0.75	1	1	165
MOT160GMSAC/DC230V	MOT160GMSAC/DC230V	5000	230V AC/DC	85-110%	0.75	1	1	165

④ Terminal

Product	HGM1000/1250	
	3P	4P
Terminal Cover	TCF120GMSS3	TCF120GMSS4
Terminal Barrier	TQQ120GMS3	TQQ120GMS4

⑤ Possible Installation Combinations

Type	Pole	AUX	ALT	SHT	UVT	AXT	AUX ALT	SHT AUX	UVT AUX	SHT ALT	UVT ALT	SHT AXT	UVT AXT
HGM1000 HGM1250	3,4												

※ AUX : Auxiliary Switch □ / ALT : Alarm Switch ■ / SHT : Shunt Trip ⧄ / UVT : Under-Voltage Trip ⊠
AXT : Auxiliary Alarm Switch □■ (AUX/ALT Integrated Type)

Essential for Today
Potential for Tomorrow

HD HYUNDAI ELECTRIC

Korea

R&D Center (Sales & Marketing)	477, Bundangsuseo-ro, Bundang-gu, Seongnam-si, Gyeonggi-do, Republic of Korea	Tel: +82-2-479-9180	Fax : +82-2-500-4958
Factory	53, Je3gongdan 3-gil, Seoun-myeon, Anseong-si, Gyeonggi-do, 17605, Republic of Korea	Tel : +52-202-8179	Fax : +82-52-202-8100

Branch Offices

Osaka	1-Room 5th Floor Nagahori Plaza Bldg. 2-4-8 Minami Senba, chuo-ku, Osaka 542-0081, Japan	Tel : +81-6-6261-5766~7	Fax : +81-6-6261-5818
Moscow	World Trade Center, Ent.6, #412, Krasnopresnenskaya Nab.12, Moscow, 123610, Russia	Tel : +7-495-258-1381	
Dubai	Unit 205, Emaar Square Building NO.4 Sheikh Zayed Road, Dubai 252458, U.A.E	Tel : +971-4-425-7995	Fax : +971-4-425-7996
Riyadh	Office 404, 4th Floor Akaria-2 Bldg., Olaya St., PO Box 9187, Riyadh 11413, KSA	Tel : +966-(0)11-210-1107	
Frankfurt	Hyundai Electric & Energy Systems Co., Ltd. Eschborner Landstrasse 55, 60489 Frankfurt am Main, Germany	Tel : +49-69-7490-3934	
Bangkok	19th Floor, Unit 1908, Sathorn Square Office Tower, 98 North Sathorn Road, Silom, Bangrak, Bangkok 10500, Thailand	Tel : +66-02-115-7920	Fax : +66-2-115-7898
Ho Chi Minh	Centec Tower #1405, 72 Nguyễn Thị Minh Khai, Phường 6, Quận 3, Thành phố Hồ Chí Minh, Vietnam	Tel : +84-28-3535-0465	