

Essential for Today  
Potential for Tomorrow

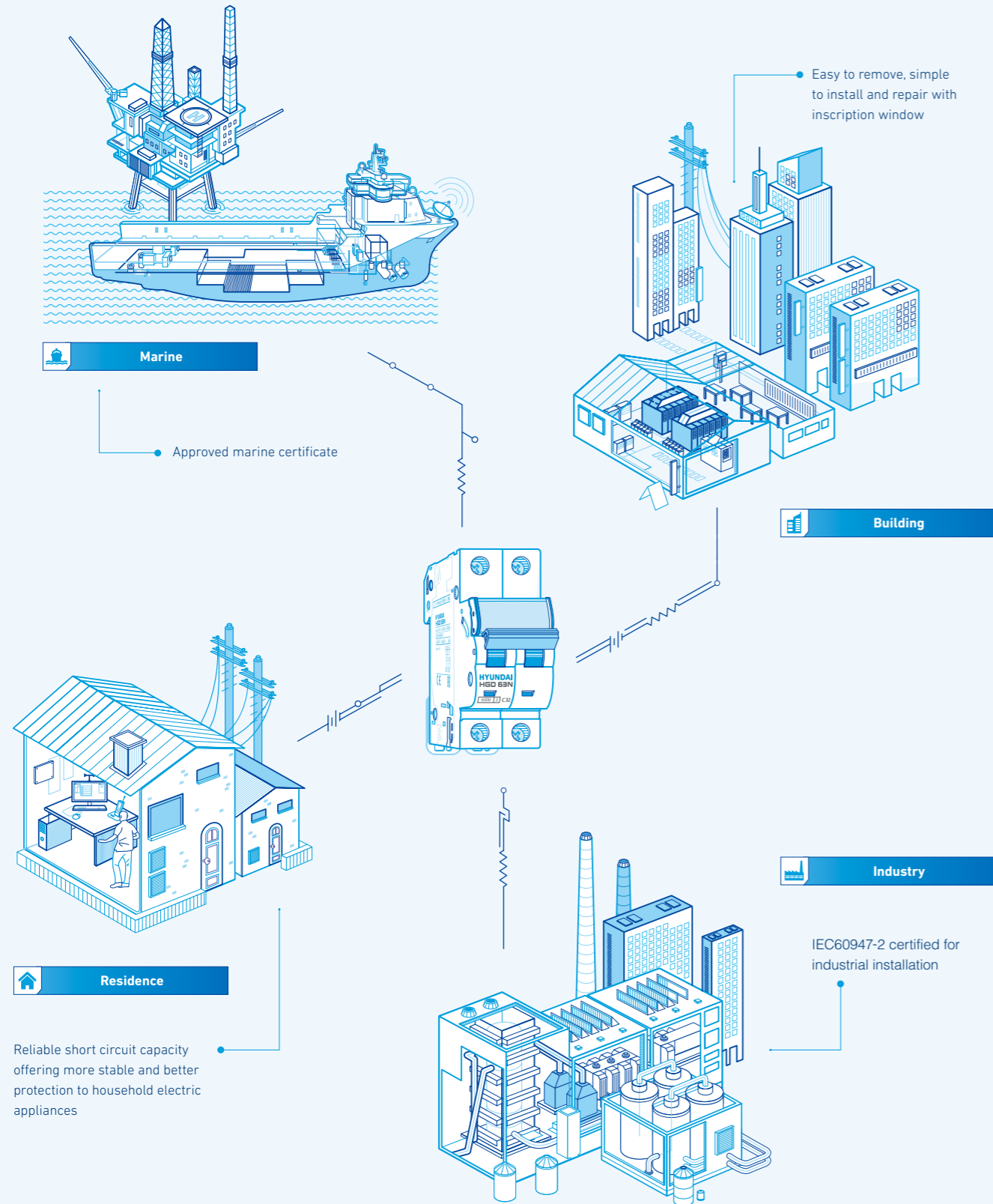
# Miniature Circuit Breaker

HGD / HRC / HSD



# Features

## Applicable to various location



## Series features

### HYUNDAI ELECTRIC New Miniature Series

To satisfy client requirement, HYUNDAI New Miniature Series are focused on safety, easy installation and user-friendliness with high reliability qualified by international test authorities based on IEC standards.



#### Inscription Window

Ensures circuit identification and hence reduces maintenance downtime



#### Safety Terminals

They guide the cable towards the cage terminal and avoid improper cable termination



#### Dual Termination

Two types of busbars can be used fork type and pin type



#### Large Cable Terminals

The terminals are suitable for cables up to 50mm<sup>2</sup> cross section area thus making it suitable for copper and aluminium cables

### MCB

1. IEC60947-2 Certificated
2. Selectable AUX/ALT with knob
3. Available with enclosure (Option-IP40)

### RCCB

1. Mid Trip
2. Advance Neutral
3. Conditional short circuit capacity 10kA

### MSD

1. Longer Electrical Life
2. Low power consumption, thus cost effective energy saving



Recognized with IF Design Award 2016

New Miniature Series

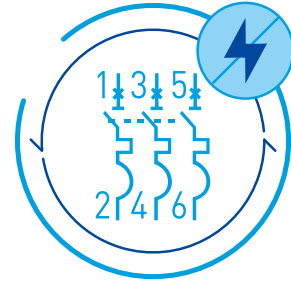
# Description

## Construction

Miniature Circuit Breakers have precisely formed moulded case & cover of flame retardant high strength thermoplastic material having high melting point, low water absorption, high dielectric strength and temperature withstand.

The Switching Mechanism is independent, manual and trip free, i.e., the breaker trips internally even if the operating knob is held in ON position.

The Contact Mechanism comprises of fixed & moving contacts specially designed for reliability, long life and anti-weld properties. The Arc Extinguishing Device comprises of 13 plates arc chute. The arc under the influence of the magnetic field and arc guide is moved into the arc chute where it is rapidly split and quenched. The tripping mechanism is Thermal Magnetic Type.



## Thermal Operation

The thermal operation provides protection from moderate overloads.

Under overload condition, a thermo-metallic element (bimetallic strip) deflects until it operates a latching mechanism allowing the main contacts to open.



## Magnetic Operation

In magnetic operation, large overloads or short circuit current actuates a solenoid causing a plunger to strike the latching mechanism rapidly opening the main contacts.

## Internal View



# HGD

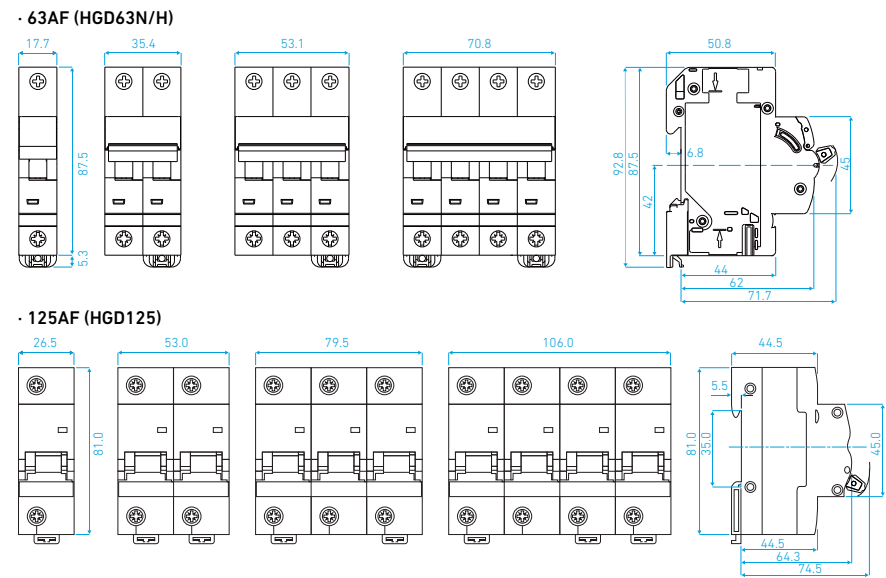
## Miniature Circuit Breaker



## General Characteristics

HYUNDAI ELECTRIC introduces the new HGD series of MCBs rating from 0.5A to 125A. The range offers a variety of feature benefits such as Uniform Breaking Capacity of 10kA across entire range in accordance with IEC/EN60898-1, IEC/EN60947-2, it also incorporates features like Inscription Window, Safety Terminal, Large Cable terminals, Bi stable Clip, Positive Contact Indication and Field fittable AUX,ALT,SHT,UVT,OVT.

## Dimensions (mm)



# HRC

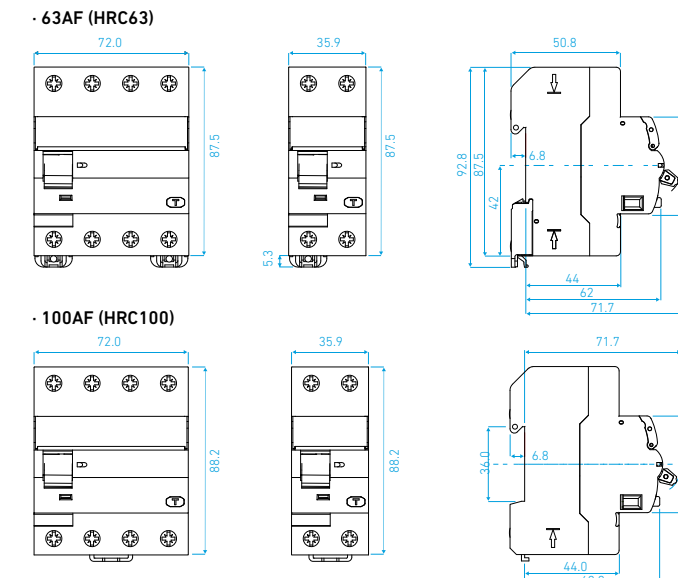
## Residual Current Circuit Breaker



## General Characteristics

HYUNDAI ELECTRIC introduces the new HRC series of RCCBs rating from 16A to 100A. The range offers a variety of feature benefits such as Conditional Short Circuit Breaking Capacity of 10kA across entire range in accordance with IEC/EN61008-1, it also incorporates features like Mid Trip - Different Knob position to indicate whether the device is switched OFF manually, Inscription Window, Safety Terminal, Dual Termination, Positive Contact Indication, Field fittable Auxiliary Contacts, Test Button for Regular Inspection.

## Dimensions (mm)



# HSD

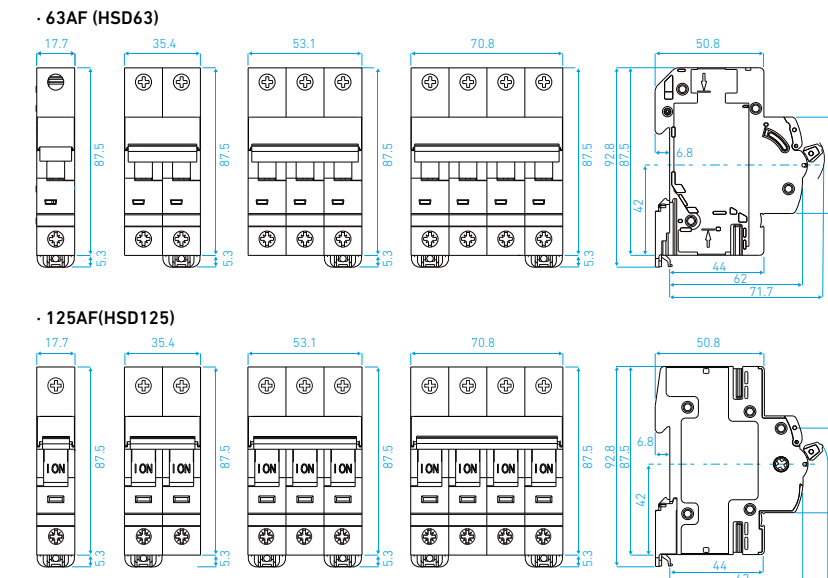
## Miniature Switch Disconnecter



## General Characteristics

HYUNDAI ELECTRIC introduces the new HSD series of MSDs rating from 16A to 125A. They are switch disconnectors with independent manual operation, capable of making, carrying and breaking currents under normal circuit conditions, which may include operating under overload condition and also carry currents under specified abnormal circuit conditions such as those of short circuit for a specified time.

## Dimensions (mm)



## Technical Specification

Model	63AF, 6 kA HGD63N	63AF, 10kA HGD63H	125AF, 10kA HGD125
Reference Standard	IEC/EN60898-1 : IEC/EN60947-2	IEC/EN60898-1 : IEC/EN60947-2	IEC/EN60898-1 : IEC/EN60947-2
No. of Poles	1P, 1P+N, 2P, 3P, 3P+N, 4P	1P, 1P+N, 2P, 3P, 3P+N, 4P	1P, 2P, 3P, 4P
Rated Current (In)	0.5, 1, 2, 3, 4, 5, 6, 10, 16, 20, 25, 32, 40, 50, 63 A	0.5, 1, 2, 3, 4, 5, 6, 10, 16, 20, 25, 32, 40, 50, 63 A	80A, 100A, 125 A
Rated Voltage (Ue)	240/415 Vac	240/415 Vac	240/415 Vac
Rated Frequency (F)	50/60 Hz	50/60 Hz	50/60 Hz
Rated Short Circuit Breaking Capacity	6 kA	10 kA	10 kA (Rated Service Short Circuit Breaking Capacity ICS : 75% of Icu)
Magnetic Release Setting	(3-5)In - B Curve (5-10)In - C Curve (10-20)In - D Curve	(3-5)In - B Curve (5-10)In - C Curve (10-20)In - D Curve	(3-5)In - B Curve (5-10)In - C Curve (10-20)In - D Curve
Rated Insulation Voltage (Ui)	690 V	690 V	690 V
Rated Impulse Voltage (Uimp)	4 kV	4 kV	4 kV
Dielectric Strength	2.5 kV	2.5 kV	2.5 kV
Electrical / Mechanical Endurance (no. of operations) minimum	4,000	4,000	4,000
Operating Temperature	-5° C to + 55° C	-5° C to + 55° C	-5° C to + 55° C
Humidity	95% RH	95% RH	95% RH
Energy Limit Class	3	3	3
Terminal Capacity (max)	35 mm <sup>2</sup>	35 mm <sup>2</sup>	50 mm <sup>2</sup>
Tightening Torque	2 N·m	2 N·m	2.5 N·m
Vibration	3 g	3 g	3 g
Shock Resistance	40 mm free fall	40 mm free fall	40 mm free fall
Protection Class	IP 20	IP 20	IP 20
Positive Contact Indication	Red-ON, Green-OFF	Red-ON, Green-OFF	Red-ON, Green-OFF
Net Weight / Pole in kg	0.125 kg	0.125 kg	0.150 kg
Dimensions (H x D x W) / Pole in mm	87.5 x 62 x 17.7 mm	87.5 x 62 x 17.7 mm	81 x 64.3 x 26.5 mm
Mounting	Clip on DIN Rail (35 mm x 7.5 mm)	Clip on DIN Rail (35 mm x 7.5 mm)	Clip on DIN Rail (35 mm x 7.5 mm)
Installation Position	Vertical / Horizontal	Vertical / Horizontal	Vertical / Horizontal
Case & Cover	Moulded, flame-retardant thermoplastic material	Moulded, flame-retardant thermoplastic material	Moulded, flame-retardant thermoplastic material
Busbar Connections Top / Bottom Side	Pin / Fork Type	Pin / Fork Type	Pin Type
AUX / ALT / SHT / UVT / OVT	Yes	Yes	No

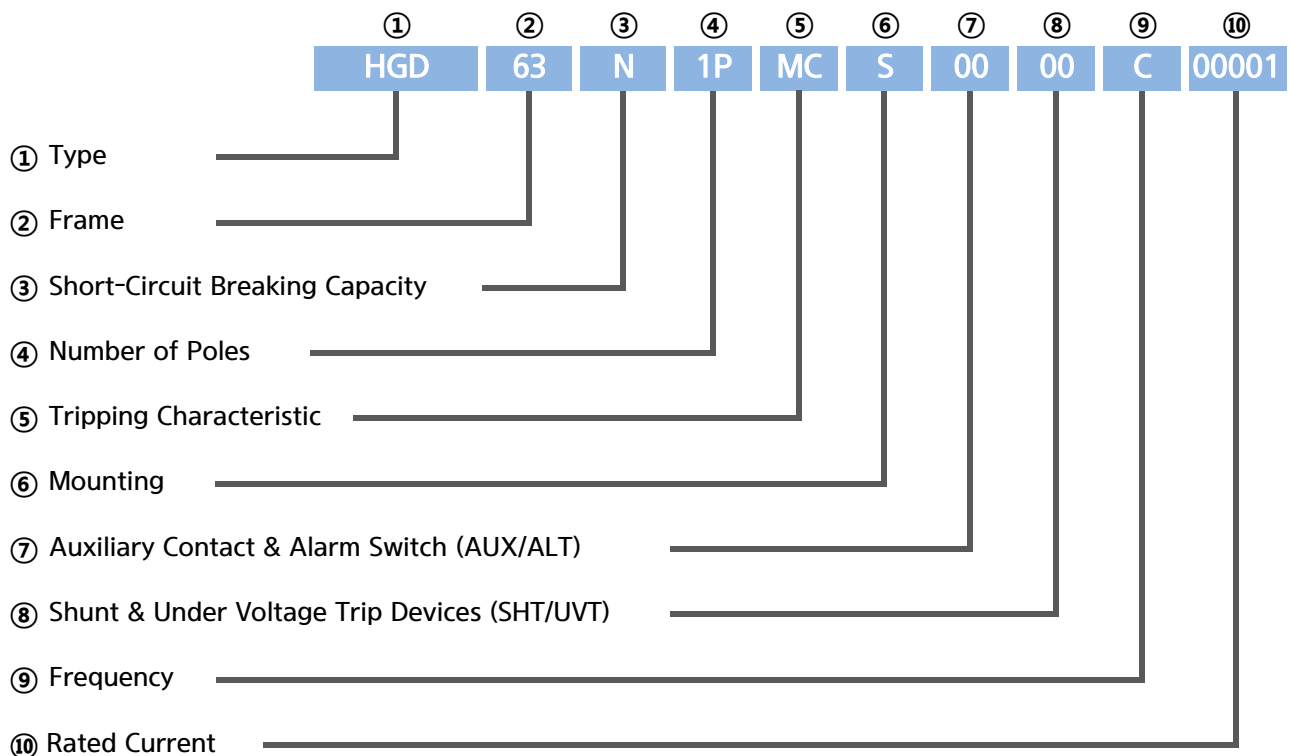
## Technical Specification

Model	63AF, HRC63	100AF, HRC100
Reference Standard	IEC/EN61008-1	IEC/EN61008-1
No. of Poles	2P, 4P	2P, 4P
Rated Current (In)	16, 25, 32, 40, 63 A	80, 100 A
Rated Voltage (Ue)	240/415 Vac	240/415 Vac
Rated Frequency (F)	50/60 Hz	50/60 Hz
Rated Short Circuit Breaking Capacity (Icn)	10 kA	10 kA
Rated Residual Operating Current I(Δ)dc	30, 100, 300, 500	30, 100, 300, 500
Rated Making Breaking Capacity (Iimp)	500 A or 10In whichever is greater	10In
Operating Characteristics in presence of Residual Current with d.c. components	A' Type & AC Type	A' Type & AC Type
Trip Time	11Δn < 300ms, 51Δn < 40ms	11Δn < 300ms, 51Δn < 40ms
Rated Insulation Voltage (Ui)	690 V	690 V
Rated Impulse Voltage (Uimp)	4 kV	4 kV
Dielectric Strength	2.5 kV	2.5 kV
Electrical / Mechanical Endurance (no. of operations) minimum	2,000 / 3,000	2,000 / 3,000
Operating Temperature	-25° C to + 55° C	-25° C to + 55° C
Humidity	95% RH	95% RH
Terminal Capacity (max)	35 mm <sup>2</sup>	50 mm <sup>2</sup>
Tightening Torque	2 N·m	2.5 N·m
Vibration	3 g	3 g
Shock Resistance	40 mm free fall	40 mm free fall
Protection Class	IP 20	IP 20
Positive Contact Indication	Red-ON, Green-OFF	Red-ON, Green-OFF
Net Weight in kg	0.215 kg (for 2P) ; 0.335 kg (for 4P)	0.230 kg (for 2P) ; 0.404 kg (for 4P)
Dimensions (H x D x W) / Pole in mm	87.5 x 62 x 35.9 mm (for 2P) ; 87.5 x 62 x 72.0 mm (for 4P)	88.2 x 62 x 35.9 mm (for 2P) ; 88.2 x 62 x 72.0 mm (for 4P)
Mounting	Clip on DIN Rail (35 mm x 7.5 mm)	Clip on DIN Rail (35 mm x 7.5 mm)
Installation Position	Vertical / Horizontal	Vertical / Horizontal
Case & Cover	Moulded, flame retardant thermoplastic material	Moulded, flame retardant thermoplastic material
Busbar Connections	Pin / Fork Type	Pin / Fork Type
Auxiliary Contacts	Yes	NO

## Technical Specification

Model	63AF, HSD63	125AF, HSD125
Reference Standard	IEC/EN60947-3	IEC/EN60947-3
No. of Poles	1P, 2P, 3P, 4P	1P, 2P, 3P, 4P
Utilization Category	AC22A	AC22A
Rated Current (In)	16, 32, 40, 63 A	80, 100, 125 A
Rated Voltage (Ue)	4 kV	4 kV
Rated Frequency (F)	50/60 Hz	50/60 Hz
Rated Insulation Voltage (Ui)	690 V	690 V
Rated Impulse Voltage (Uimp)	4 kV	4 kV
Dielectric Strength	2.5 kV	2.5 kV
Electrical / Mechanical Endurance (no. of operations) minimum	10,000	10,000
Operating Temperature	-5° C to + 55° C	-5° C to + 55° C
Humidity	95% RH	95% RH
Terminal Capacity (max)	35 mm <sup>2</sup>	50 mm <sup>2</sup>
Tightening Torque	2 N·m	2.5 N·m
Vibration	3 g	3 g
Shock Resistance	40 mm free fall	40 mm free fall
Protection Class	IP 20	IP 20
Positive Contact Indication	Red-ON, Green-OFF	Red-ON, Green-OFF
Net Weight / Pole in kg	0.090 kg	0.079 kg
Dimensions (H x D x W) / Pole in mm	87.5 x 62 x 17.7 mm	87.5 x 62 x 17.7 mm
Mounting	Clip on DIN Rail (35 mm x 7.5 mm)	Clip on DIN Rail (35 mm x 7.5 mm)
Installation Position	Vertical / Horizontal	Vertical / Horizontal
Case & Cover	Moulded, flame retardant thermoplastic material	Moulded, flame retardant thermoplastic material
Busbar Connections	Pin / Fork Type	Pin / Fork Type

## MCB Ordering Information

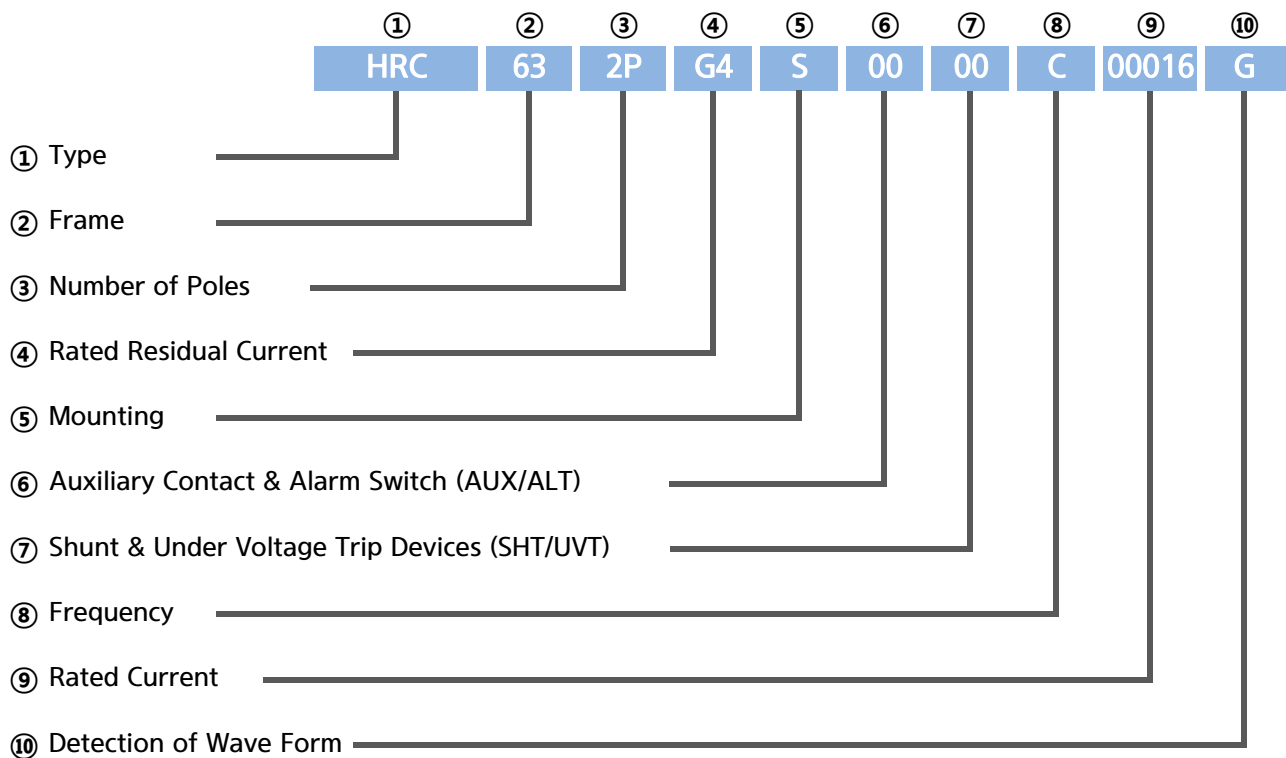


① Type	
HGD	Miniature Circuit Breaker
② Frame	
63	63AF
125	125AF
③ Short-Circuit Breaking Capacity	
N	6kA
H	10kA
④ Number of Poles	
1P	1 Pole
2P	2 Pole
3P	3 Pole
4P	4 Pole

⑤ Short-Circuit Breaking Capacity	
MB	B Curve
MC	C Curve
MD	D Curve
⑥ Mounting	
S	Front connection
⑦ Auxiliary Contact & Alarm Switch	
00	Non-attachment
⑧ Shunt & Under Voltage Trip Devices	
00	Non-attachment
⑨ Frequency	
C	50/60 Hz

⑩ Rated Current	
000P5	0.5A
00001	1A
00002	2A
00003	3A
00004	4A
00005	5A
00006	6A
00010	10A
00016	16A
00020	20A
00025	25A
00032	32A
00040	40A
00050	50A
00063	63A
00080	80A
00100	100A
00125	125A

## RCCB Ordering Information

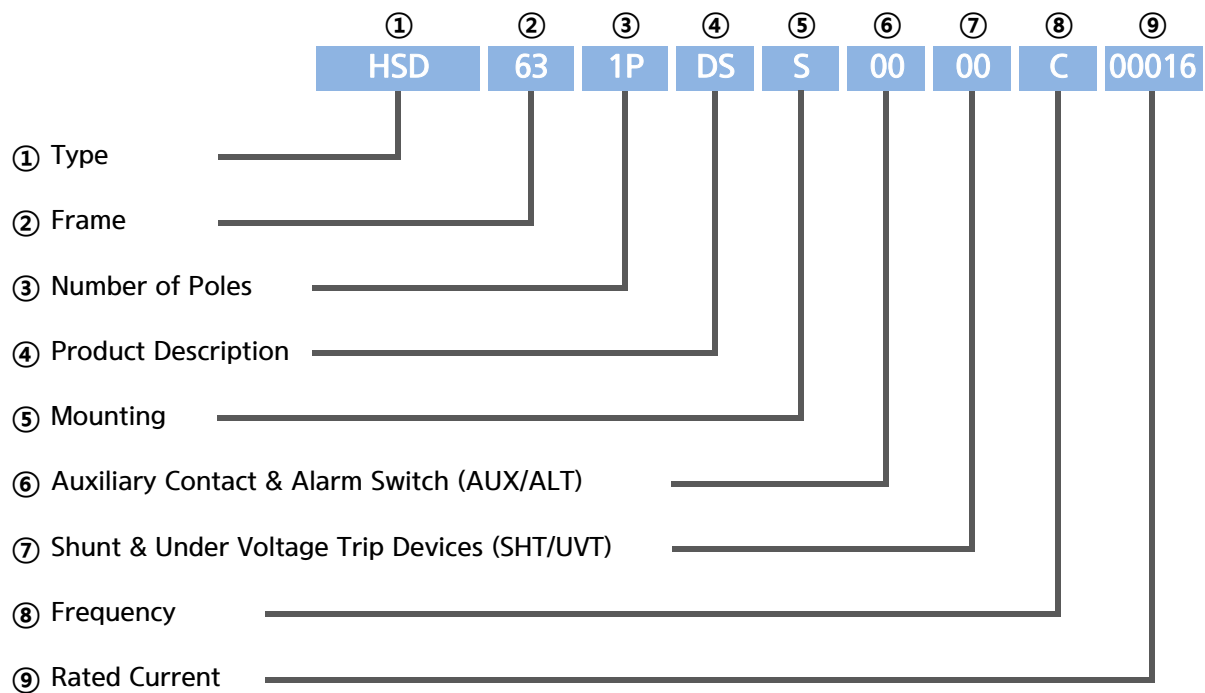


① Type	
HRC	Residual Current Circuit Breaker
② Frame	
63	63AF
100	100AF
③ Number of Poles	
2P	2 Pole
4P	4 Pole
④ Rated Residual Current	
G4	30mA
G5	100mA
G7	300mA
G8	500mA

⑤ Mounting	
S	Front connection
⑥ Auxiliary Contact & Alarm Switch	
00	Non-attachment
⑦ Shunt & Under Voltage Trip Devices	
00	Non-attachment
⑧ Frequency	
C	50/60 Hz

⑨ Rated Current	
00016	16A
00025	25A
00032	32A
00040	40A
00063	63A
00080	80A
00100	100A
⑩ Detection of Wave Form	
G	AC Type
F	A Type

## MSD Ordering Information



### ① Type

HSD	Miniature Switch Disconnecter
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### ② Frame

63	63AF
125	125AF

### ③ Number of Poles

1P	1 Pole
2P	2 Pole
3P	3 Pole
4P	4 Pole

### ④ Product Description

DS	Disconnection Switch
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### ⑤ Mounting

S	Front connection
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### ⑥ Auxiliary Contact & Alarm Switch

00	Non-attachment
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### ⑦ Shunt & Under Voltage Trip Devices

00	Non-attachment
----	----------------

### ⑧ Frequency

C	50/60 Hz
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### ⑨ Rated Current

00016	16A
00032	32A
00040	40A
00063	63A
00080	80A
00100	100A
00125	125A



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