



# UL HG-MC

## UL Magnetic Contactors & Thermal Overload Relays



## Essential for Today, Potential for Tomorrow

HD Hyundai Electric solely pursues the growth of our customers' business. From power generation to power distribution, we focus on developing and commercializing products and solutions aimed at increasing the efficiency of energy equipment as well as at proactively monitoring and controlling assets in an integrated manner to improve our customers' productivity and management efficiency. We are well aware that our efforts add to the driving force behind our customers' growth and contribute to the creation and maintenance of a more dynamic world. We focus on achieving innovation and strive to evolve continuously to shape a better tomorrow based on today's technological advancement



# HG

## Magnetic Contactors & Thermal Overload Relays

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## HG Series

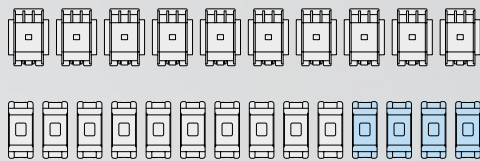
# Magnetic Contactors & Thermal Overload Relays

Motor protection control solution that can be applied to various industrial equipment with strong durability and enhanced insulation performance!



## Reduced Installation Area with upper Auxiliary Contact Structure

In the installation area for 10 units previously, 4 additional units can be installed with HG MC!



## Various Product Ranges

18 AF – 800 AF (8 Frames)

## Direct Connection with Thermal Overload Relay

HGT 18 AF – 800 AF

## Auxiliary Relay – Power Consumption Power Saving Type

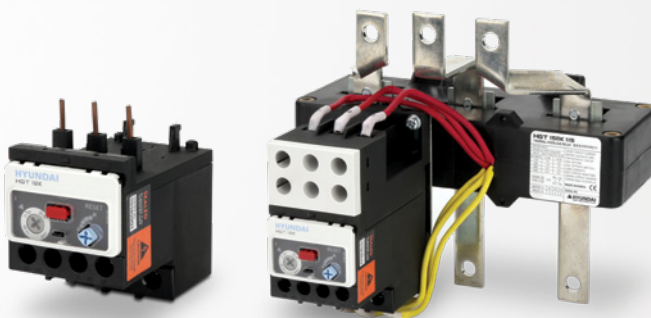
HGC DC : Permanent Magnet Applied

## TOR Safety Protection Cover and Separated Test, Reset Buttons

Removable cover has been applied for safety.

## AC/DC Universal Voltage

HGC 115 A – 800 A



## Overview and Characteristics

### Product Characteristics

- Magnetic contactor is usually used for motor and equipment operation control and is applied to MCC and Thermal and Hydro power Panel.
- HD Hyundai provides a wide range of 9 A - 800 A of magnetic contactors and thermal/magnetic overload relays.



#### User Convenience

- User-Centered Design
- Compact Product and Convenient Wiring/Compatibility



#### Product Design

- Modular, Compact Design
- 30 % Compact Compared to the Previous Model



#### Technical Characteristics

- Optimized Structure
- IEC Standard



#### Product Reliability

- Quality Stabilization
- Specialized Design and Product Structure

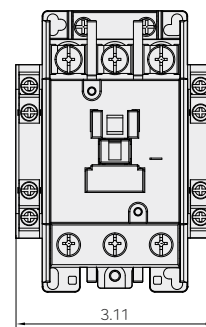
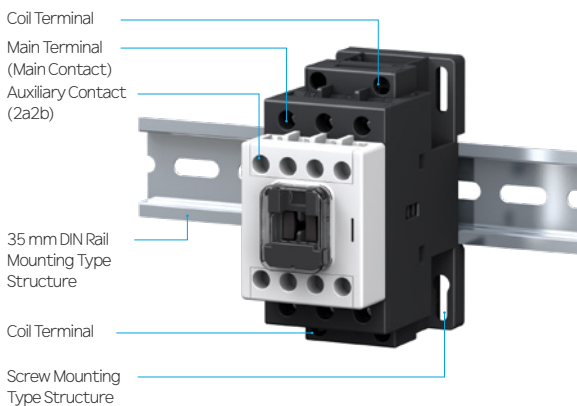


### User Convenience

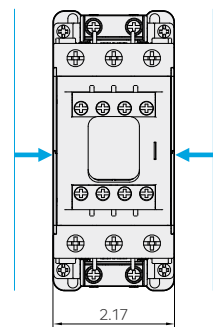
- Up/down allocation of coil terminal
- Built-in auxiliary contact
  - HGC9 - HGC40 : 1a1b or 2a2b
  - HGC50 - HGC100 : 2a2b

### Product Design

- Reduced installation area with upper auxiliary contact structure
  - Space for 10 units of UMC65 (Based on 2a2b)
  - 14 units of HGC65 can be mounted



UMC65AF



HGC65AF

## Technical Characteristics

• UL/CSA 60947-4-1, 60947-5-1 Certificate acquired



## Catalog Number Selection

### Magnetic Contactors

| HGC        |                    | 12                   |           | 22                |                | NS            |           | A                        |   | 220                  |                           |
|------------|--------------------|----------------------|-----------|-------------------|----------------|---------------|-----------|--------------------------|---|----------------------|---------------------------|
| Model Name |                    | Type and Capacity    |           | Auxiliary Contact |                | Terminal Type |           | Category of Coil Voltage |   | Coil Voltage         |                           |
| HGC        | Magnetic Contactor | Front Auxiliary Type |           | Type              |                | Type          |           | Category of Coil Voltage |   | Coil Voltage         |                           |
|            |                    | Code                 | NEMA Size | Rated Current     | Rated Capacity |               |           |                          |   |                      |                           |
|            |                    | 3P/ 440 V - 480 V    |           |                   |                |               |           |                          |   |                      |                           |
|            |                    | 9                    | 00        | 9 A               | 5 HP           | 11            | 1NO + 1NC | HGC 9 - 40 AC/DC         | X | AC 50 Hz (9 - 100 A) | 024                       |
|            |                    | 12                   | -         | 12 A              | 7.5 HP         | 10            | 1NO       | HGC 9B - 22B AC          |   |                      | 048                       |
|            |                    | 18                   | 0         | 18 A              | 10 HP          | 21            | 2NO + 1NC | HGC 50 - 100 DC          |   |                      | 110                       |
|            |                    | 25                   | -         | 25 A              | 15 HP          |               |           |                          |   |                      | 120                       |
|            |                    | 32                   | -         | 32 A              | 20 HP          | 22            | 2NO + 2NC | HGC 9 - 40 AC/DC         |   |                      | 208                       |
|            |                    | 40                   | 1         | 40 A              | 30 HP          |               |           | HGC 50 - 100 AC          | A | AC 60 Hz (9 - 100 A) | 240                       |
|            |                    | 50                   | -         | 50 A              | 40 HP          |               |           | HGC 115 - 800            |   |                      | 380                       |
|            |                    | 65                   | 2         | 65 A              | 50 HP          |               |           |                          |   |                      | 480                       |
|            |                    | 75                   | -         | 75 A              | 50 HP          |               |           |                          |   |                      | 575                       |
|            |                    | 85                   | -         | 85 A              | 60 HP          |               |           |                          |   |                      | 024                       |
|            |                    | 100                  | 3         | 100 A             | 75 HP          |               |           |                          |   |                      | 048                       |
|            |                    | Side Auxiliary Type  |           |                   |                |               |           |                          |   |                      | 110                       |
|            |                    |                      |           |                   |                |               |           |                          |   |                      | 120                       |
|            |                    | 9B                   | 00        | 9 A               | 5 HP           |               |           |                          | D | DC (9 - 100 A)       | 208                       |
|            |                    | 12B                  | -         | 12 A              | 7.5 HP         |               |           |                          |   |                      | 240                       |
|            |                    | 18B                  | -         | 18 A              | 10 HP          |               |           |                          |   |                      | 380                       |
|            |                    | 22B                  | 0         | 22 A              | 15 HP          |               |           |                          |   |                      | 480                       |
|            |                    | 50B                  | -         | 50 A              | 40 HP          |               |           |                          |   |                      | 575                       |
|            |                    | 65B                  | 2         | 65 A              | 50 HP          |               |           |                          | F | AC/DC (115 - 500 A)  | 024                       |
|            |                    | 75B                  | -         | 75 A              | 50 HP          |               |           |                          |   |                      | 048                       |
|            |                    | 85B                  | -         | 85 A              | 60 HP          |               |           |                          |   |                      | 110                       |
|            |                    | 100B                 | 3         | 100 A             | 75 HP          |               |           |                          |   |                      | 125                       |
|            |                    | 115                  | -         | 115 A             | 75 HP          |               |           |                          |   |                      | 220                       |
|            |                    | 130                  | -         | 130 A             | 75 HP          |               |           |                          |   | AC/DC (630 - 800 A)  | 220                       |
|            |                    | 150                  | 4         | 150 A             | 100 HP         |               |           |                          |   |                      | 440                       |
|            |                    | 185                  | -         | 185 A             | 125 HP         |               |           |                          |   |                      | AC 100 - 240 DC 110 - 220 |
|            |                    | 225                  | -         | 225 A             | 150 HP         |               |           |                          |   |                      | AC 380 - 450              |
|            |                    | 265                  | -         | 265 A             | 200 HP         |               |           |                          |   |                      | AC 100 - 127 DC 100 - 110 |
|            |                    | 300                  | -         | 300 A             | 250 HP         |               |           |                          |   |                      | 220                       |
|            |                    | 400                  | -         | 400 A             | 300 HP         |               |           |                          |   |                      | 440                       |
|            |                    | 500                  | 5         | 500 A             | 400 HP         |               |           |                          |   |                      | AC 200 - 240 DC 200 - 220 |
|            |                    | 630                  | 6         | 630 A             | 500 HP         |               |           |                          |   |                      | AC 380 - 450              |
|            |                    | 800                  | 7         | 800 A             | 600 HP         |               |           |                          |   |                      |                           |

Accessories of Contactor

| HGC        | TB        |                                    | 22NS                                     |
|------------|-----------|------------------------------------|------------------------------------------|
| Model Name | Accessory |                                    | Detailed Ratings                         |
| HGC        | TB        | Auxiliary Contact (Front Mounting) | Refer to the Relevant Page per Accessory |
|            | SB        | Auxiliary Contact (Side Mounting)  |                                          |
|            | IU        | Interlock Unit                     |                                          |
|            | LB        | Mechanical Latching Block          |                                          |
|            | RC        | Surge Absorber                     |                                          |
|            | CD        | Clamping Diode                     |                                          |
|            | ET        | Electronic Timer                   |                                          |

## Catalog Number Selection

## Thermal Overload Relays

| HGT        |                        | 18KA                 |                       | 18               |               |           |            | S             |                      |
|------------|------------------------|----------------------|-----------------------|------------------|---------------|-----------|------------|---------------|----------------------|
| Model Name |                        | Applicable Contactor |                       | Overload Release |               |           |            | Terminal Type |                      |
| HGT        | Thermal Overload Relay | 18KA                 | HGC9 - 18             | HGT 18KA/KBA     |               | HGT 100KA |            | S             | Screw                |
|            |                        | 18KBA                | HGC 9B - 22B          | 0P18             | 0.12 - 0.18 A | 0025      | 17 - 25 A  | C             | Cage lug (HGT65,100) |
|            |                        | 40KA                 | HGC25 - 40            | 0P26             | 0.18 - 0.26 A | 0032      | 22 - 32 A  |               |                      |
|            |                        | 65KA                 | HGC 50/50B - 65/65B   | 0P35             | 0.25 - 0.35 A | 0040      | 28 - 40 A  |               |                      |
|            |                        | 100KA                | HGC 75/75B - 100/100B | 0P50             | 0.34 - 0.5 A  | 0050      | 34 - 50 A  |               |                      |
|            |                        | 150KA                | HGC115 - 150          | 0P70             | 0.5 - 0.7 A   | 0065      | 45 - 65 A  |               |                      |
|            |                        | 265KA                | HGC185 - 265          | 0P90             | 0.6 - 0.9 A   | 0075      | 52 - 75 A  |               |                      |
|            |                        | 500KA                | HGC300 - 500          | 1P20             | 0.8 - 1.2 A   | 0085      | 59 - 85 A  |               |                      |
|            |                        | 800KA                | HGC630 - 800          | 1P60             | 1.1 - 1.6 A   | 0100      | 70 - 100 A |               |                      |
|            |                        | 2P10                 | 1.5 - 2.1 A           | HGT 150KA        |               |           |            |               |                      |
|            |                        | 0003                 | 2 - 3 A               | 0080             | 48 - 80 A     |           |            |               |                      |
|            |                        | 4P20                 | 2.8 - 4.2 A           | 0115             | 69 - 115 A    |           |            |               |                      |
|            |                        | 0005                 | 3 - 5 A               | 0130             | 78 - 130 A    |           |            |               |                      |
|            |                        | 0006                 | 4 - 6 A               | 0150             | 90 - 150 A    |           |            |               |                      |
|            |                        | 0008                 | 5.6 - 8 A             | HGT 265KA        |               |           |            |               |                      |
|            |                        | 0009                 | 6 - 9 A               | 0080             | 48 - 80 A     |           |            |               |                      |
|            |                        | 0012                 | 8 - 12 A              | 0115             | 69 - 115 A    |           |            |               |                      |
|            |                        | 0018                 | 12 - 18 A             | 0130             | 78 - 130 A    |           |            |               |                      |
|            |                        | 0022 <sup>1)</sup>   | 15 - 22 A             | 0150             | 90 - 150 A    |           |            |               |                      |
|            |                        | HGT 40KA             |                       | 0185             | 111 - 185 A   |           |            |               |                      |
|            |                        | 0010                 | 7 - 10 A              | 0225             | 135 - 225 A   |           |            |               |                      |
|            |                        | 0012                 | 8 - 12 A              | 0265             | 159 - 265 A   |           |            |               |                      |
|            |                        | 0018                 | 12 - 18 A             | HGT 500KA        |               |           |            |               |                      |
|            |                        | 0022                 | 15 - 22 A             | 0150             | 90 - 150 A    |           |            |               |                      |
|            |                        | 0025                 | 17 - 25 A             | 0185             | 111 - 185 A   |           |            |               |                      |
|            |                        | 0032                 | 22 - 32 A             | 0225             | 135 - 225 A   |           |            |               |                      |
|            |                        | 0040                 | 28 - 40 A             | 0265             | 159 - 265 A   |           |            |               |                      |
|            |                        | HGT 65KA             |                       | 0300             | 180 - 300 A   |           |            |               |                      |
|            |                        | 0010                 | 7 - 10 A              | 0400             | 240 - 400 A   |           |            |               |                      |
|            |                        | 0012                 | 8 - 12 A              | 0500             | 300 - 500 A   |           |            |               |                      |
|            |                        | 0018                 | 12 - 18 A             | HGT 800KA        |               |           |            |               |                      |
|            |                        | 0022                 | 15 - 22 A             | 0630             | 378 - 630 A   |           |            |               |                      |
|            |                        | 0025                 | 17 - 25 A             | 0800             | 480 - 800 A   |           |            |               |                      |
|            |                        | 0032                 | 22 - 32 A             |                  |               |           |            |               |                      |
|            |                        | 0040                 | 28 - 40 A             |                  |               |           |            |               |                      |
|            |                        | 0050                 | 34 - 50 A             |                  |               |           |            |               |                      |
|            |                        | 0065                 | 45 - 65 A             |                  |               |           |            |               |                      |

※ 1) This rating is only applicable to 18KB type

# Contactor Relay

| HGR        |                 | 22                |           | NS               |                         | A                        |                         | 220          |                        |
|------------|-----------------|-------------------|-----------|------------------|-------------------------|--------------------------|-------------------------|--------------|------------------------|
| Model Name |                 | Auxiliary Contact |           | Operation Method |                         | Category of Coil Voltage |                         | Coil Voltage |                        |
| HGR        | Contactor Relay | 04                | 4NC       | NS               | AC                      | X                        | AC 50 Hz<br>(9 - 100 A) | 024          | X, A<br>AC<br>50/60 Hz |
|            |                 | 13                | 1NO + 3NC | PS               | DC (Permanent magnetic) |                          |                         | 048          |                        |
|            |                 | 22                | 2NO + 2NC |                  |                         |                          |                         | 110          |                        |
|            |                 | 31                | 3NO + 1NC |                  |                         | 120                      |                         |              |                        |
|            |                 | 40                | 4NO       |                  |                         | 208                      |                         |              |                        |
|            |                 |                   |           |                  |                         | A                        | AC 60 Hz<br>(9 - 100 A) | 240          |                        |
|            |                 |                   |           |                  |                         | D                        | DC                      | 380          | D<br>DC                |
|            |                 |                   |           |                  |                         |                          |                         | 480          |                        |
|            |                 |                   |           |                  |                         |                          |                         | 575          |                        |
|            |                 |                   |           |                  |                         |                          |                         | 024          |                        |
|            |                 |                   |           |                  |                         |                          |                         | 048          |                        |
|            |                 |                   |           |                  |                         |                          |                         | 110          |                        |
|            |                 |                   |           |                  |                         |                          |                         | 125          |                        |
|            |                 |                   |           |                  |                         |                          |                         | 220          |                        |

※ The order format above is to explain the order code. For detailed specification per type, refer to the relevant page upon placing the order.

## Catalog Number Selection

### Magnetic Contactors

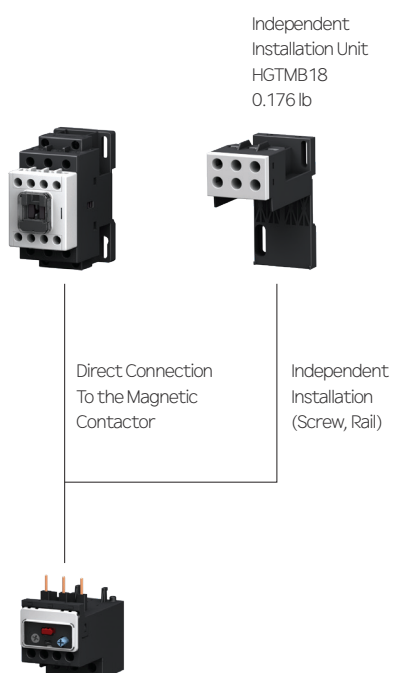
| Exterior                                                                            | Frame  | Horsepower Ratings                                                                  |           |           |       | Continuous Current | Maximum Current | Built-in Aux. or not | Aux. Contacts |        | Terminal | Category of Coil Voltage | NEMA Size         | Catalogue Number   |
|-------------------------------------------------------------------------------------|--------|-------------------------------------------------------------------------------------|-----------|-----------|-------|--------------------|-----------------|----------------------|---------------|--------|----------|--------------------------|-------------------|--------------------|
|                                                                                     |        | Three-Phase                                                                         |           |           |       |                    |                 |                      | NO            | NC     |          |                          |                   |                    |
|                                                                                     |        | 200-208 V                                                                           | 220-240 V | 440-480 V | 600 V |                    |                 |                      |               |        |          |                          |                   |                    |
|                                                                                     |        | HP                                                                                  |           |           |       | A                  | A               |                      | -             |        | -        |                          |                   |                    |
|    | HGC22B | 2                                                                                   | 3         | 5         | 7.5   | 25                 | 9               | 1NO                  | 1             | 0      | NS       | A                        | 00                | HGC9B 10NS A ____  |
|                                                                                     |        | 3                                                                                   | 5         | 7.5       | 10    | 25                 | 12              | 1NO                  | 1             | 0      | NS       |                          | -                 | HGC12B 10NS A ____ |
|                                                                                     |        | 7.5                                                                                 | 7.5       | 10        | 15    | 40                 | 18              | 1NO                  | 1             | 0      | NS       |                          | -                 | HGC18B 10NS A ____ |
|                                                                                     |        | 7.5                                                                                 | 10        | 15        | 20    | 40                 | 22              | 1NO                  | 1             | 0      | NS       |                          | 0                 | HGC22B 10NS A ____ |
|                                                                                     |        | 2                                                                                   | 3         | 5         | 7.5   | 25                 | 9               | 1NO                  | 1             | 0      | NS       | X                        | 00                | HGC9B 10NS X ____  |
|                                                                                     |        | 3                                                                                   | 5         | 7.5       | 10    | 25                 | 12              | 1NO                  | 1             | 0      | NS       |                          | -                 | HGC12B 10NS X ____ |
|                                                                                     |        | 7.5                                                                                 | 7.5       | 10        | 15    | 40                 | 18              | 1NO                  | 1             | 0      | NS       |                          | -                 | HGC18B 10NS X ____ |
|                                                                                     |        | 7.5                                                                                 | 10        | 15        | 20    | 40                 | 22              | 1NO                  | 1             | 0      | NS       |                          | 0                 | HGC22B 10NS X ____ |
|   | HGC18  | 2                                                                                   | 3         | 5         | 7.5   | 25                 | 9               | 1NO1NC               | 1             | 1      | NS       | A                        | 00                | HGC9 11NS A ____   |
|                                                                                     |        | 2                                                                                   | 3         | 5         | 7.5   | 25                 | 9               | 2NO2NC               | 2             | 2      | NS       |                          | 00                | HGC9 22NS A ____   |
|                                                                                     |        | 3                                                                                   | 5         | 7.5       | 10    | 25                 | 12              | 1NO1NC               | 1             | 1      | NS       |                          | -                 | HGC12 11NS A ____  |
|                                                                                     |        | 3                                                                                   | 5         | 7.5       | 10    | 25                 | 12              | 2NO2NC               | 2             | 2      | NS       |                          | -                 | HGC12 22NS A ____  |
|                                                                                     |        | 7.5                                                                                 | 7.5       | 10        | 15    | 40                 | 18              | 1NO1NC               | 1             | 1      | NS       |                          | 0                 | HGC18 11NS A ____  |
|                                                                                     |        | 7.5                                                                                 | 7.5       | 10        | 15    | 40                 | 18              | 2NO2NC               | 2             | 2      | NS       |                          | 0                 | HGC18 22NS A ____  |
|                                                                                     |        | 2                                                                                   | 3         | 5         | 7.5   | 25                 | 9               | 1NO1NC               | 1             | 1      | NS       | X                        | 00                | HGC9 11NS X ____   |
|                                                                                     |        | 2                                                                                   | 3         | 5         | 7.5   | 25                 | 9               | 2NO2NC               | 2             | 2      | NS       |                          | 00                | HGC9 22NS X ____   |
|                                                                                     |        | 3                                                                                   | 5         | 7.5       | 10    | 25                 | 12              | 1NO1NC               | 1             | 1      | NS       |                          | -                 | HGC12 11NS X ____  |
|                                                                                     |        | 3                                                                                   | 5         | 7.5       | 10    | 25                 | 12              | 2NO2NC               | 2             | 2      | NS       |                          | -                 | HGC12 22NS X ____  |
|                                                                                     |        | 7.5                                                                                 | 7.5       | 10        | 15    | 40                 | 18              | 1NO1NC               | 1             | 1      | NS       |                          | 0                 | HGC18 11NS X ____  |
|                                                                                     |        | 7.5                                                                                 | 7.5       | 10        | 15    | 40                 | 18              | 2NO2NC               | 2             | 2      | NS       |                          | 0                 | HGC18 22NS X ____  |
|                                                                                     |        | 2                                                                                   | 3         | 5         | 7.5   | 25                 | 9               | 1NO1NC               | 1             | 1      | NS       | D                        | 00                | HGC9 11NS D ____   |
|                                                                                     |        | 2                                                                                   | 3         | 5         | 7.5   | 25                 | 9               | 2NO2NC               | 2             | 2      | NS       |                          | 00                | HGC9 22NS D ____   |
|                                                                                     |        | 3                                                                                   | 5         | 7.5       | 10    | 25                 | 12              | 1NO1NC               | 1             | 1      | NS       |                          | -                 | HGC12 11NS D ____  |
|                                                                                     |        | 3                                                                                   | 5         | 7.5       | 10    | 25                 | 12              | 2NO2NC               | 2             | 2      | NS       |                          | -                 | HGC12 22NS D ____  |
|                                                                                     |        | 7.5                                                                                 | 7.5       | 10        | 15    | 40                 | 18              | 1NO1NC               | 1             | 1      | NS       |                          | 0                 | HGC18 11NS D ____  |
|                                                                                     |        | 7.5                                                                                 | 7.5       | 10        | 15    | 40                 | 18              | 2NO2NC               | 2             | 2      | NS       |                          | 0                 | HGC18 22NS D ____  |
|                                                                                     |        |  | HGC40     | 7.5       | 10    | 15                 | 20              | 45                   | 25            | 1NO1NC | 1        | 1                        | NS                | A                  |
| 7.5                                                                                 | 10     |                                                                                     |           | 15        | 20    | 45                 | 25              | 2NO2NC               | 2             | 2      | NS       | -                        | HGC25 22NS A ____ |                    |
| 7.5                                                                                 | 10     |                                                                                     |           | 20        | 25    | 55                 | 32              | 1NO1NC               | 1             | 1      | NS       | -                        | HGC32 11NS A ____ |                    |
| 7.5                                                                                 | 10     |                                                                                     |           | 20        | 25    | 55                 | 32              | 2NO2NC               | 2             | 2      | NS       | -                        | HGC32 22NS A ____ |                    |
| 15                                                                                  | 15     |                                                                                     |           | 30        | 30    | 60                 | 40              | 1NO1NC               | 2             | 2      | NS       | 1                        | HGC40 11NS A ____ |                    |
| 15                                                                                  | 15     |                                                                                     |           | 30        | 30    | 60                 | 40              | 2NO2NC               | 2             | 2      | NS       | 1                        | HGC40 22NS A ____ |                    |
| 7.5                                                                                 | 10     |                                                                                     |           | 15        | 20    | 45                 | 25              | 1NO1NC               | 1             | 1      | NS       | X                        | -                 | HGC25 11NS X ____  |
| 7.5                                                                                 | 10     |                                                                                     |           | 15        | 20    | 45                 | 25              | 2NO2NC               | 2             | 2      | NS       |                          | -                 | HGC25 22NS X ____  |
| 7.5                                                                                 | 10     |                                                                                     |           | 20        | 25    | 55                 | 32              | 1NO1NC               | 1             | 1      | NS       |                          | -                 | HGC32 11NS X ____  |
| 7.5                                                                                 | 10     |                                                                                     |           | 20        | 25    | 55                 | 32              | 2NO2NC               | 2             | 2      | NS       |                          | -                 | HGC32 22NS X ____  |
| 15                                                                                  | 15     |                                                                                     |           | 30        | 30    | 60                 | 40              | 1NO1NC               | 2             | 2      | NS       |                          | 1                 | HGC40 11NS X ____  |
| 15                                                                                  | 15     |                                                                                     |           | 30        | 30    | 60                 | 40              | 2NO2NC               | 2             | 2      | NS       |                          | 1                 | HGC40 22NS X ____  |
| 7.5                                                                                 | 10     |                                                                                     |           | 15        | 20    | 45                 | 25              | 1NO1NC               | 1             | 1      | NS       | D                        | -                 | HGC25 11NS D ____  |
| 7.5                                                                                 | 10     |                                                                                     |           | 15        | 20    | 45                 | 25              | 2NO2NC               | 2             | 2      | NS       |                          | -                 | HGC25 22NS D ____  |
| 7.5                                                                                 | 10     |                                                                                     |           | 20        | 25    | 55                 | 32              | 1NO1NC               | 1             | 1      | NS       |                          | -                 | HGC32 11NS D ____  |
| 7.5                                                                                 | 10     |                                                                                     |           | 20        | 25    | 55                 | 32              | 2NO2NC               | 2             | 2      | NS       |                          | -                 | HGC32 22NS D ____  |
| 15                                                                                  | 15     |                                                                                     |           | 30        | 30    | 60                 | 40              | 1NO1NC               | 2             | 2      | NS       |                          | 1                 | HGC40 11NS D ____  |
| 15                                                                                  | 15     |                                                                                     |           | 30        | 30    | 60                 | 40              | 2NO2NC               | 2             | 2      | NS       |                          | 1                 | HGC40 22NS D ____  |
|  | HGC65B | 20                                                                                  | 25        | 40        | 50    | 70                 | 50              | 2NO2NC               | 2             | 2      | NS       | A                        | -                 | HGC50B 22NS A ____ |
|                                                                                     |        | 25                                                                                  | 30        | 50        | 60    | 85                 | 65              | 2NO2NC               | 2             | 2      | NS       |                          | 2                 | HGC65B 22NS A ____ |
|                                                                                     |        | 20                                                                                  | 25        | 40        | 50    | 70                 | 50              | 2NO2NC               | 2             | 2      | NS       | X                        | -                 | HGC50B 22NS X ____ |
|                                                                                     |        | 25                                                                                  | 30        | 50        | 60    | 85                 | 65              | 2NO2NC               | 2             | 2      | NS       |                          | 2                 | HGC65B 22NS X ____ |
|  | HGC65  | 20                                                                                  | 25        | 40        | 50    | 70                 | 50              | 2NO2NC               | 2             | 2      | NS       | A                        | -                 | HGC50 22NS A ____  |
|                                                                                     |        | 20                                                                                  | 25        | 40        | 50    | 70                 | 50              | 2NO2NC               | 2             | 2      | NC       |                          | -                 | HGC50 22NC A ____  |
|                                                                                     |        | 25                                                                                  | 30        | 50        | 60    | 85                 | 65              | 2NO2NC               | 2             | 2      | NS       |                          | 2                 | HGC65 22NS A ____  |
|                                                                                     |        | 25                                                                                  | 30        | 50        | 60    | 85                 | 65              | 2NO2NC               | 2             | 2      | NC       |                          | 2                 | HGC65 22NC A ____  |

| Exterior                                                                            | Frame  | Horsepower Ratings                                                                  |           |                                                                                     |        | Continuous Current | Maximum Current | Built-in Aux. or not | Aux. Contacts |        | Terminal | Category of Coil Voltage | NEMA Size           | Catalogue Number    |                    |                    |   |                    |
|-------------------------------------------------------------------------------------|--------|-------------------------------------------------------------------------------------|-----------|-------------------------------------------------------------------------------------|--------|--------------------|-----------------|----------------------|---------------|--------|----------|--------------------------|---------------------|---------------------|--------------------|--------------------|---|--------------------|
|                                                                                     |        | Three-Phase                                                                         |           |                                                                                     |        |                    |                 |                      | NO            | NC     |          |                          |                     |                     |                    |                    |   |                    |
|                                                                                     |        | 200-208 V                                                                           | 220-240 V | 440-480 V                                                                           | 600 V  |                    |                 |                      |               |        |          |                          |                     |                     |                    |                    |   |                    |
|    | HGC65  | HP                                                                                  |           |                                                                                     |        | A                  | A               | -                    | -             | -      | X        | -                        | HGC50 22NS X ____   |                     |                    |                    |   |                    |
|                                                                                     |        | 20                                                                                  | 25        | 40                                                                                  | 50     | 70                 | 50              | 2NO2NC               | 2             | 2      |          | NS                       | -                   | HGC50 22NC X ____   |                    |                    |   |                    |
|                                                                                     |        | 25                                                                                  | 30        | 50                                                                                  | 60     | 85                 | 65              | 2NO2NC               | 2             | 2      |          | NS                       | 2                   | HGC65 22NS X ____   |                    |                    |   |                    |
|                                                                                     |        | 25                                                                                  | 30        | 50                                                                                  | 60     | 85                 | 65              | 2NO2NC               | 2             | 2      |          | NC                       | 2                   | HGC65 22NC X ____   |                    |                    |   |                    |
|                                                                                     |        | 20                                                                                  | 25        | 40                                                                                  | 50     | 70                 | 50              | 2NO1NC               | 2             | 1      | NS       | D                        | -                   | HGC50 21NS D ____   |                    |                    |   |                    |
|                                                                                     |        | 20                                                                                  | 25        | 40                                                                                  | 50     | 70                 | 50              | 2NO1NC               | 2             | 1      | NC       |                          | -                   | HGC50 21NC D ____   |                    |                    |   |                    |
|                                                                                     |        | 25                                                                                  | 30        | 50                                                                                  | 60     | 85                 | 65              | 2NO1NC               | 2             | 1      | NS       |                          | 2                   | HGC65 21NS D ____   |                    |                    |   |                    |
|                                                                                     |        | 25                                                                                  | 30        | 50                                                                                  | 60     | 85                 | 65              | 2NO1NC               | 2             | 1      | NC       |                          | 2                   | HGC65 21NC D ____   |                    |                    |   |                    |
|                                                                                     |        |    | HGC100B   | 25                                                                                  | 30     | 50                 | 60              | 115                  | 75            | 2NO2NC | 2        | 2                        | NS                  | A                   | -                  | HGC75B 22NS A ____ |   |                    |
|                                                                                     |        |                                                                                     |           | 25                                                                                  | 30     | 50                 | 60              | 115                  | 75            | 2NO2NC | 2        | 2                        | NC                  |                     | -                  | HGC75B 22NC A ____ |   |                    |
| 30                                                                                  | 40     |                                                                                     |           | 60                                                                                  | 75     | 125                | 85              | 2NO2NC               | 2             | 2      | NS       | -                        | HGC85B 22NS A ____  |                     |                    |                    |   |                    |
| 30                                                                                  | 40     |                                                                                     |           | 60                                                                                  | 75     | 125                | 85              | 2NO2NC               | 2             | 2      | NC       | -                        | HGC85B 22NC A ____  |                     |                    |                    |   |                    |
| 30                                                                                  | 40     |                                                                                     |           | 75                                                                                  | 75     | 145                | 100             | 2NO2NC               | 2             | 2      | NS       | X                        | 3                   | HGC100B 22NS A ____ |                    |                    |   |                    |
| 30                                                                                  | 40     |                                                                                     |           | 75                                                                                  | 75     | 145                | 100             | 2NO2NC               | 2             | 2      | NC       |                          | 3                   | HGC100B 22NC A ____ |                    |                    |   |                    |
| 25                                                                                  | 30     |                                                                                     |           | 50                                                                                  | 60     | 115                | 75              | 2NO2NC               | 2             | 2      | NS       |                          | -                   | HGC75B 22NS X ____  |                    |                    |   |                    |
| 25                                                                                  | 30     |                                                                                     |           | 50                                                                                  | 60     | 115                | 75              | 2NO2NC               | 2             | 2      | NC       |                          | -                   | HGC75B 22NC X ____  |                    |                    |   |                    |
|  | HGC100 |                                                                                     |           | 30                                                                                  | 40     | 60                 | 75              | 125                  | 85            | 2NO2NC | 2        | 2                        | NS                  | X                   | -                  | HGC85B 22NS X ____ |   |                    |
|                                                                                     |        |                                                                                     |           | 30                                                                                  | 40     | 60                 | 75              | 125                  | 85            | 2NO2NC | 2        | 2                        | NC                  |                     | -                  | HGC85B 22NC X ____ |   |                    |
|                                                                                     |        | 30                                                                                  | 40        | 75                                                                                  | 75     | 145                | 100             | 2NO2NC               | 2             | 2      | NS       | 3                        | HGC100B 22NS X ____ |                     |                    |                    |   |                    |
|                                                                                     |        | 30                                                                                  | 40        | 75                                                                                  | 75     | 145                | 100             | 2NO2NC               | 2             | 2      | NC       | 3                        | HGC100B 22NC X ____ |                     |                    |                    |   |                    |
|                                                                                     |        |  | HGC150    | 25                                                                                  | 30     | 50                 | 60              | 115                  | 75            | 2NO2NC | 2        | 2                        | NS                  | A                   | -                  | HGC75 22NS A ____  |   |                    |
|                                                                                     |        |                                                                                     |           | 25                                                                                  | 30     | 50                 | 60              | 115                  | 75            | 2NO2NC | 2        | 2                        | NC                  |                     | -                  | HGC75 22NC A ____  |   |                    |
|                                                                                     |        |                                                                                     |           | 30                                                                                  | 40     | 60                 | 75              | 125                  | 85            | 2NO2NC | 2        | 2                        | NS                  |                     | -                  | HGC85 22NS A ____  |   |                    |
|                                                                                     |        |                                                                                     |           | 30                                                                                  | 40     | 60                 | 75              | 125                  | 85            | 2NO2NC | 2        | 2                        | NC                  |                     | -                  | HGC85 22NC A ____  |   |                    |
|                                                                                     |        |                                                                                     |           | 30                                                                                  | 40     | 75                 | 75              | 145                  | 100           | 2NO2NC | 2        | 2                        | NS                  | X                   | 3                  | HGC100 22NS A ____ |   |                    |
|                                                                                     |        |                                                                                     |           | 30                                                                                  | 40     | 75                 | 75              | 145                  | 100           | 2NO2NC | 2        | 2                        | NC                  |                     | 3                  | HGC100 22NC A ____ |   |                    |
| 25                                                                                  | 30     |                                                                                     |           | 50                                                                                  | 60     | 115                | 75              | 2NO2NC               | 2             | 2      | NS       | -                        | HGC75 22NS X ____   |                     |                    |                    |   |                    |
| 25                                                                                  | 30     |                                                                                     |           | 50                                                                                  | 60     | 115                | 75              | 2NO2NC               | 2             | 2      | NC       | -                        | HGC75 22NC X ____   |                     |                    |                    |   |                    |
|  | HGC265 |                                                                                     |           | 30                                                                                  | 40     | 60                 | 75              | 125                  | 85            | 2NO2NC | 2        | 2                        | NS                  | X                   | -                  | HGC85 22NS X ____  |   |                    |
|                                                                                     |        |                                                                                     |           | 30                                                                                  | 40     | 60                 | 75              | 125                  | 85            | 2NO2NC | 2        | 2                        | NC                  |                     | -                  | HGC85 22NC X ____  |   |                    |
|                                                                                     |        | 30                                                                                  | 40        | 75                                                                                  | 75     | 145                | 100             | 2NO2NC               | 2             | 2      | NS       | 3                        | HGC100 22NS X ____  |                     |                    |                    |   |                    |
|                                                                                     |        | 30                                                                                  | 40        | 75                                                                                  | 75     | 145                | 100             | 2NO2NC               | 2             | 2      | NC       | 3                        | HGC100 22NC X ____  |                     |                    |                    |   |                    |
|                                                                                     |        |  | HGC500    | 25                                                                                  | 30     | 50                 | 60              | 115                  | 75            | 2NO1NC | 2        | 1                        | NS                  | D                   | -                  | HGC75 21NS D ____  |   |                    |
|                                                                                     |        |                                                                                     |           | 25                                                                                  | 30     | 50                 | 60              | 115                  | 75            | 2NO1NC | 2        | 1                        | NC                  |                     | -                  | HGC75 21NC D ____  |   |                    |
|                                                                                     |        |                                                                                     |           | 30                                                                                  | 40     | 60                 | 75              | 125                  | 85            | 2NO1NC | 2        | 1                        | NS                  |                     | -                  | HGC85 21NS D ____  |   |                    |
|                                                                                     |        |                                                                                     |           | 30                                                                                  | 40     | 60                 | 75              | 125                  | 85            | 2NO1NC | 2        | 1                        | NC                  |                     | -                  | HGC85 21NC D ____  |   |                    |
|                                                                                     |        |                                                                                     |           |  | HGC800 | 30                 | 40              | 75                   | 75            | 145    | 100      | 2NO1NC                   | 2                   | 1                   | NS                 | F                  | 3 | HGC100 21NS D ____ |
|                                                                                     |        |                                                                                     |           |                                                                                     |        | 30                 | 40              | 75                   | 75            | 145    | 100      | 2NO1NC                   | 2                   | 1                   | NC                 |                    | 3 | HGC100 21NC D ____ |
| 30                                                                                  | 40     |                                                                                     |           |                                                                                     |        | 75                 | 75              | 160                  | 115           | 2NO2NC | 2        | 2                        | NS                  | -                   | HGC115 22NS F ____ |                    |   |                    |
| 40                                                                                  | 40     |                                                                                     |           |                                                                                     |        | 75                 | 75              | 180                  | 130           | 2NO2NC | 2        | 2                        | NS                  | -                   | HGC130 22NS F ____ |                    |   |                    |
|  | HGC150 |                                                                                     |           |                                                                                     |        | 40                 | 50              | 100                  | 100           | 210    | 150      | 2NO2NC                   | 2                   | 2                   | NS                 | F                  | 4 | HGC150 22NS F ____ |
|                                                                                     |        |                                                                                     |           |                                                                                     |        | 60                 | 60              | 125                  | 125           | 275    | 185      | 2NO2NC                   | 2                   | 2                   | NS                 |                    | - | HGC185 22NS F ____ |
|                                                                                     |        | 60                                                                                  | 75        |                                                                                     |        | 150                | 150             | 315                  | 225           | 2NO2NC | 2        | 2                        | NS                  | -                   | HGC225 22NS F ____ |                    |   |                    |
|  | HGC265 | 75                                                                                  | 100       |                                                                                     |        | 200                | 200             | 350                  | 265           | 2NO2NC | 2        | 2                        | NS                  | F                   | -                  | HGC265 22NS F ____ |   |                    |
|                                                                                     |        | 100                                                                                 | 100       |                                                                                     |        | 250                | 200             | 400                  | 300           | 2NO2NC | 2        | 2                        | NS                  |                     | -                  | HGC300 22NS F ____ |   |                    |
|                                                                                     |        | 125                                                                                 | 150       |                                                                                     |        | 300                | 300             | 500                  | 400           | 2NO2NC | 2        | 2                        | NS                  |                     | -                  | HGC400 22NS F ____ |   |                    |
|  | HGC500 | 150                                                                                 | 200       | 400                                                                                 | 400    | 550                | 500             | 2NO2NC               | 2             | 2      | NS       | F                        | 5                   | HGC500 22NS F ____  |                    |                    |   |                    |
|                                                                                     |        | 200                                                                                 | 250       | 500                                                                                 | 500    | 750                | 630             | 2NO2NC               | 2             | 2      | NS       |                          | F                   | 6                   | HGC630 22NS F ____ |                    |   |                    |
|                                                                                     |        | 300                                                                                 | 350       | 600                                                                                 | 600    | 900                | 800             | 2NO2NC               | 2             | 2      | NS       |                          |                     | 7                   | HGC800 22NS F ____ |                    |   |                    |

## Catalog Number Selection

### Thermal Overload Relay (TOR)

| Exterior and Name of Basic Model                                                                                                                                  |            | Ratings         |                 |      |      |                        |              | Catalog Number |                               |                             |                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-----------------|-----------------|------|------|------------------------|--------------|----------------|-------------------------------|-----------------------------|-----------------------------------------|
| Exterior                                                                                                                                                          | Model Name | Current (A)     |                 |      |      | Applicable Cable (AWG) |              | Aux. Contact   | Applicable Magnetic Contactor | K-Type (3-Pole, 3 Elements) | Accessory Independent Installation Unit |
|                                                                                                                                                                   |            | Nominal Current | Setting Current |      |      | Main Circuit           | Aux. Circuit |                |                               |                             |                                         |
| <br>Dimensions (inch) :<br>1.77 (W)×3.26 (H)<br>×3.08 (D)<br>Weight (lb) : 0.265 | HGT18      | 0.18            | 0.12            | 0.15 | 0.18 | 18 - 10                | 18 - 10      | 1NO1NC         | HGC9<br>HGC12<br>HGC18        | HGT18K A0P18S               | HGTMB18                                 |
|                                                                                                                                                                   |            | 0.26            | 0.18            | 0.22 | 0.26 |                        |              |                |                               | HGT18K A0P26S               |                                         |
|                                                                                                                                                                   |            | 0.35            | 0.25            | 0.3  | 0.35 |                        |              |                |                               | HGT18K A0P35S               |                                         |
|                                                                                                                                                                   |            | 0.5             | 0.34            | 0.42 | 0.5  |                        |              |                |                               | HGT18K A0P50S               |                                         |
|                                                                                                                                                                   |            | 0.7             | 0.5             | 0.6  | 0.7  |                        |              |                |                               | HGT18K A0P70S               |                                         |
|                                                                                                                                                                   |            | 0.9             | 0.6             | 0.75 | 0.9  |                        |              |                |                               | HGT18K A0P90S               |                                         |
|                                                                                                                                                                   |            | 1.2             | 0.8             | 1    | 1.2  |                        |              |                |                               | HGT18K A1P20S               |                                         |
|                                                                                                                                                                   |            | 1.6             | 1.1             | 1.35 | 1.6  |                        |              |                |                               | HGT18K A1P60S               |                                         |
|                                                                                                                                                                   |            | 2.1             | 1.5             | 1.8  | 2.1  |                        |              |                |                               | HGT18K A2P10S               |                                         |
|                                                                                                                                                                   |            | 3               | 2               | 2.5  | 3    |                        |              |                |                               | HGT18K A0003S               |                                         |
|                                                                                                                                                                   |            | 4.2             | 2.8             | 3.5  | 4.2  |                        |              |                |                               | HGT18K A4P20S               |                                         |
|                                                                                                                                                                   |            | 5               | 3               | 4    | 5    |                        |              |                |                               | HGT18K A0005S               |                                         |
|                                                                                                                                                                   |            | 6               | 4               | 5    | 6    |                        |              |                |                               | HGT18K A0006S               |                                         |
|                                                                                                                                                                   |            | 8               | 5.6             | 6.8  | 8    |                        |              |                |                               | HGT18K A0008S               |                                         |
|                                                                                                                                                                   |            | 9               | 6               | 7.5  | 9    |                        |              |                |                               | HGT18K A0009S               |                                         |
|                                                                                                                                                                   |            | 12              | 8               | 10   | 12   |                        |              |                |                               | HGT18K A0012S               |                                         |
|                                                                                                                                                                   |            | 18              | 12              | 15   | 18   |                        |              |                |                               | HGT18K A0018S               |                                         |



| Exterior and Name of Basic Model                                                                                                                                      |            | Ratings         |                 |      |                        |              |              | Catalog Number                |                                                 |                                         |     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-----------------|-----------------|------|------------------------|--------------|--------------|-------------------------------|-------------------------------------------------|-----------------------------------------|-----|
| Exterior                                                                                                                                                              | Model Name | Current (A)     |                 |      | Applicable Cable (AWG) |              | Aux. Contact | Applicable Magnetic Contactor | K-Type (3-Pole, 3 Elements)                     | Accessory Independent Installation Unit |     |
|                                                                                                                                                                       |            | Nominal Current | Setting Current |      | Main Circuit           | Aux. Circuit |              |                               |                                                 |                                         |     |
| <br><br>Dimensions (inch) :<br>1.77 (W)×3.26 (H)<br>×3.08 (D)<br>Weight (lb) : 0.265 | HGT18KB    | 0.18            | 0.12            | 0.15 | 0.18                   | 18-10        | 18-10        | 1NO                           | HGC9B 10<br>HGC12B 10<br>HGC18B 10<br>HGC22B 10 | HGT18KB A0P18S                          | N/A |
|                                                                                                                                                                       |            | 0.26            | 0.18            | 0.22 | 0.26                   |              |              |                               |                                                 | HGT18KB A0P226S                         |     |
|                                                                                                                                                                       |            | 0.35            | 0.25            | 0.3  | 0.35                   |              |              |                               |                                                 | HGT18KB A0P35S                          |     |
|                                                                                                                                                                       |            | 0.5             | 0.34            | 0.42 | 0.5                    |              |              |                               |                                                 | HGT18KB A0P50S                          |     |
|                                                                                                                                                                       |            | 0.7             | 0.5             | 0.6  | 0.7                    |              |              |                               |                                                 | HGT18KB A0P70S                          |     |
|                                                                                                                                                                       |            | 0.9             | 0.6             | 0.75 | 0.9                    |              |              |                               |                                                 | HGT18KB A0P90S                          |     |
|                                                                                                                                                                       |            | 1.2             | 0.8             | 1    | 1.2                    |              |              |                               |                                                 | HGT18KB A1P20S                          |     |
|                                                                                                                                                                       |            | 1.6             | 1.1             | 1.35 | 1.6                    |              |              |                               |                                                 | HGT18KB A1P60S                          |     |
|                                                                                                                                                                       |            | 2.1             | 1.5             | 1.8  | 2.1                    |              |              |                               |                                                 | HGT18KB A2P10S                          |     |
|                                                                                                                                                                       |            | 3               | 2               | 2.5  | 3                      |              |              |                               |                                                 | HGT18KB A0003S                          |     |
|                                                                                                                                                                       |            | 4.2             | 2.8             | 3.5  | 4.2                    |              |              |                               |                                                 | HGT18KB A4P20S                          |     |
|                                                                                                                                                                       |            | 5               | 3               | 4    | 5                      |              |              |                               |                                                 | HGT18KB A0005S                          |     |
|                                                                                                                                                                       |            | 6               | 4               | 5    | 6                      |              |              |                               |                                                 | HGT18KB A0006S                          |     |
|                                                                                                                                                                       |            | 8               | 5.6             | 6.8  | 8                      |              |              |                               |                                                 | HGT18KB A0008S                          |     |
|                                                                                                                                                                       |            | 9               | 6               | 7.5  | 9                      |              |              |                               |                                                 | HGT18KB A0009S                          |     |
|                                                                                                                                                                       |            | 12              | 8               | 10   | 12                     |              |              |                               |                                                 | HGT18KB A0012S                          |     |
|                                                                                                                                                                       |            | 18              | 12              | 15   | 18                     |              |              |                               |                                                 | HGT18KB A0018S                          |     |
|                                                                                                                                                                       |            | 22              | 15              | 18.5 | 22                     |              |              |                               |                                                 | HGT18KB A0022S                          |     |



Direct Connection  
To the Magnetic  
Contactor



## Catalog Number Selection

### Thermal Overload Relay (TOR)

| Exterior and Name of Basic Model                                                                                                                                 |            | Ratings         |                 |               |     |                        |              |              | Catalog Number                |                             |                                         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-----------------|-----------------|---------------|-----|------------------------|--------------|--------------|-------------------------------|-----------------------------|-----------------------------------------|
| Exterior                                                                                                                                                         | Model Name | Current (A)     |                 |               |     | Applicable Cable (AWG) |              | Aux. Contact | Applicable Magnetic Contactor | K-Type (3-Pole, 3 Elements) | Accessory Independent Installation Unit |
|                                                                                                                                                                  |            | Nominal Current | Setting Current |               |     | Main Circuit           | Aux. Circuit |              |                               |                             |                                         |
| <br>Dimensions (inch) :<br>1.77 (W)×3.76 (H)×2.73 (D)<br>Weight (lb) : 0.353    | HGT40      | 10              | 7               | 8.5           | 10  | 16 - 8                 | 18 - 10      | 1NO1NC       | HGC25<br>HGC32<br>HGC40       | HGT40K A0010S               | HGTMB40                                 |
|                                                                                                                                                                  |            | 12              | 8               | 10            | 12  |                        |              |              |                               | HGT40K A0012S               |                                         |
|                                                                                                                                                                  |            | 18              | 12              | 15            | 18  |                        |              |              |                               | HGT40K A0018S               |                                         |
|                                                                                                                                                                  |            | 22              | 15              | 18.5          | 22  |                        |              |              |                               | HGT40K A0022S               |                                         |
|                                                                                                                                                                  |            | 25              | 17              | 21            | 25  |                        |              |              |                               | HGT40K A0025S               |                                         |
|                                                                                                                                                                  |            | 32              | 22              | 27            | 32  |                        |              |              |                               | HGT40K A0032S               |                                         |
|                                                                                                                                                                  |            | 40              | 28              | 34            | 40  |                        |              |              |                               | HGT40K A0040S               |                                         |
|                                                                                                                                                                  |            | 10              | 7               | 8.5           | 10  |                        |              |              |                               | HGT40K A0010S               |                                         |
| <br>Dimensions (inch) :<br>2.17 (W)×4.36 (H) ×3.52 (D)<br>Weight (lb) : 0.639   | HGT65      | 12              | 8               | 10            | 12  | 10 - 4                 | 18 - 10      | 1NO1NC       | HGC50<br>HGC65                | HGT65K A0010S               | HGTMB65                                 |
|                                                                                                                                                                  |            | 18              | 12              | 15            | 18  |                        |              |              |                               | HGT65K A0012S               |                                         |
|                                                                                                                                                                  |            | 22              | 15              | 18.5          | 22  |                        |              |              |                               | HGT65K A0018S               |                                         |
|                                                                                                                                                                  |            | 25              | 17              | 21            | 25  |                        |              |              |                               | HGT65K A0022S               |                                         |
|                                                                                                                                                                  |            | 32              | 22              | 27            | 32  |                        |              |              |                               | HGT65K A0025S               |                                         |
|                                                                                                                                                                  |            | 40              | 28              | 34            | 40  |                        |              |              |                               | HGT65K A0032S               |                                         |
|                                                                                                                                                                  |            | 50              | 34              | 42            | 50  |                        |              |              |                               | HGT65K A0040S               |                                         |
|                                                                                                                                                                  |            | 65              | 45              | 55            | 65  |                        |              |              |                               | HGT65K A0050S               |                                         |
| 10                                                                                                                                                               | 7          | 8.5             | 10              | HGT65K A0010S |     |                        |              |              |                               |                             |                                         |
| <br>Dimensions (inch) :<br>2.76 (W)×5.04 (H) ×4.13 (D)<br>Weight (lb) : 1.036 | HGT100     | 25              | 17              | 21            | 25  | 8 - 0                  | 18 - 10      | 1NO1NC       | HGC75<br>HGC85<br>HGC100      | HGT100K A0025S              | HGTMB100                                |
|                                                                                                                                                                  |            | 32              | 22              | 27            | 32  |                        |              |              |                               | HGT100K A0032S              |                                         |
|                                                                                                                                                                  |            | 40              | 28              | 34            | 40  |                        |              |              |                               | HGT100K A0040S              |                                         |
|                                                                                                                                                                  |            | 50              | 34              | 42            | 50  |                        |              |              |                               | HGT100K A0050S              |                                         |
|                                                                                                                                                                  |            | 65              | 45              | 55            | 65  |                        |              |              |                               | HGT100K A0065S              |                                         |
|                                                                                                                                                                  |            | 75              | 52              | 63            | 75  |                        |              |              |                               | HGT100K A0075S              |                                         |
|                                                                                                                                                                  |            | 85              | 59              | 72            | 85  |                        |              |              |                               | HGT100K A0085S              |                                         |
|                                                                                                                                                                  |            | 100             | 70              | 85            | 100 |                        |              |              |                               | HGT100K A00100S             |                                         |

Independent  
Installation Unit  
HGTMB40 (0.22 lb)  
HGTMB65 (0.265 lb)  
HGTMB100 (0.441 lb)

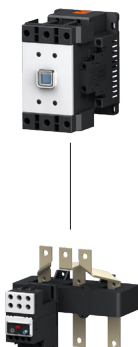


Direct Connection  
To the Magnetic  
Contactor

Independent  
Installation  
(Screw, Rail)



| Exterior and Name of Basic Model                                                                                                                                |            | Ratings         |                         |      |      |          | Catalog Number                             |              |                               |                             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-----------------|-------------------------|------|------|----------|--------------------------------------------|--------------|-------------------------------|-----------------------------|
| Exterior                                                                                                                                                        | Model Name | Current (A)     |                         |      |      | CT Ratio | Applicable Cable (AWG)<br><br>Aux. Circuit | Aux. Contact | Applicable Magnetic Contactor | K-Type (3-Pole, 3 Elements) |
|                                                                                                                                                                 |            | Nominal Current | Setting Current<br>Min. | Mid. | Max. |          |                                            |              |                               |                             |
| <br>Dimensions (inch) :<br>7.09 (W)×7.06 (H)×6.26 (D)<br>Weight (lb) : 4.409   | HGT150     | 80              | 48                      | 64   | 80   | 80 : 5   | 18 - 10                                    | 1NO1NC       | HGC115<br>HGC130<br>HGC150    | HGT150K A0080S              |
|                                                                                                                                                                 |            | 115             | 69                      | 92   | 115  | 115 : 5  |                                            |              |                               | HGT150K A0115S              |
|                                                                                                                                                                 |            | 130             | 78                      | 104  | 130  | 130 : 5  |                                            |              |                               | HGT150K A0130S              |
|                                                                                                                                                                 |            | 150             | 90                      | 120  | 150  | 150 : 5  |                                            |              |                               | HGT150K A0150S              |
| <br>Dimensions (inch) :<br>7.09 (W)×7.06 (H)×7.28 (D)<br>Weight (lb) : 4.85    | HGT265     | 80              | 48                      | 64   | 80   | 80 : 5   | 18 - 10                                    | 1NO1NC       | HGC185<br>HGC225<br>HGC265    | HGT265K A0080S              |
|                                                                                                                                                                 |            | 115             | 69                      | 92   | 115  | 115 : 5  |                                            |              |                               | HGT265K A0115S              |
|                                                                                                                                                                 |            | 130             | 78                      | 104  | 130  | 130 : 5  |                                            |              |                               | HGT265K A0130S              |
|                                                                                                                                                                 |            | 150             | 90                      | 120  | 150  | 150 : 5  |                                            |              |                               | HGT265K A0150S              |
|                                                                                                                                                                 |            | 185             | 111                     | 148  | 185  | 185 : 5  |                                            |              |                               | HGT265K A0185S              |
|                                                                                                                                                                 |            | 225             | 135                     | 180  | 225  | 225 : 5  |                                            |              |                               | HGT265K A0225S              |
|                                                                                                                                                                 |            | 265             | 159                     | 212  | 265  | 265 : 5  |                                            |              |                               | HGT265K A0265S              |
| <br>Dimensions (inch) :<br>7.09 (W)×7.06 (H)×8.08 (D)<br>Weight (lb) : 5.291 | HGT500     | 150             | 90                      | 120  | 150  | 150 : 5  | 18 - 10                                    | 1NO1NC       | HGC300<br>HGC400<br>HGC500    | HGT500K A0150S              |
|                                                                                                                                                                 |            | 185             | 111                     | 148  | 185  | 185 : 5  |                                            |              |                               | HGT500K A0185S              |
|                                                                                                                                                                 |            | 225             | 135                     | 180  | 225  | 225 : 5  |                                            |              |                               | HGT500K A0225S              |
|                                                                                                                                                                 |            | 265             | 159                     | 212  | 265  | 265 : 5  |                                            |              |                               | HGT500K A0265S              |
|                                                                                                                                                                 |            | 300             | 180                     | 240  | 300  | 300 : 5  |                                            |              |                               | HGT500K A0300S              |
|                                                                                                                                                                 |            | 400             | 240                     | 320  | 400  | 400 : 5  |                                            |              |                               | HGT500K A0400S              |
|                                                                                                                                                                 |            | 500             | 300                     | 400  | 500  | 500 : 5  |                                            |              |                               | HGT500K A0500S              |
| <br>Dimensions (inch) :<br>9.65 (W)×8.26 (H)×7.76 (D)<br>Weight (lb) : 13.67 | HGT800     | 630             | 378                     | 504  | 630  | 630 : 5  | 18 - 10                                    | 1NO1NC       | HGC630<br>HGC800              | HGT800K A0630S              |
|                                                                                                                                                                 |            | 800             | 480                     | 640  | 800  | 800 : 5  |                                            |              |                               | HGT800K A0800S              |

HGC115  
HGC130  
HGC150


HGT150

HGC185  
HGC225  
HGC265


HGT265

HGC300  
HGC400  
HGC500


HGT500

HGC630  
HGC800

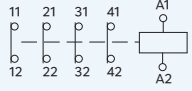
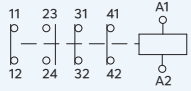
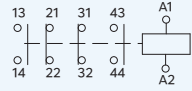
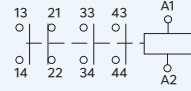
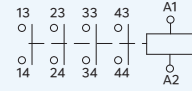

HGT800

## Accessories

### Control Relay (HGR)

| Exterior and Name                                                                 |            | Order Code                      | Ratings                                          |                                |
|-----------------------------------------------------------------------------------|------------|---------------------------------|--------------------------------------------------|--------------------------------|
| Exterior                                                                          | Model Name | With Terminal Cover             | Ratings of Contact                               |                                |
|  | HGR        | HGR-N(AC)                       | Continuous Current<br>(Ambient Temperature 40°C) | 16 A                           |
|                                                                                   |            |                                 | Minimum load                                     | 10 mA at 24 V DC               |
|                                                                                   |            | HGR-P(DC)<br>Permanent Magnetic | Rating<br>UL 60947-5-1                           | AC 600 V 6 A (Resistive)       |
|                                                                                   |            |                                 |                                                  | Pilot duty Rating : A600, P600 |

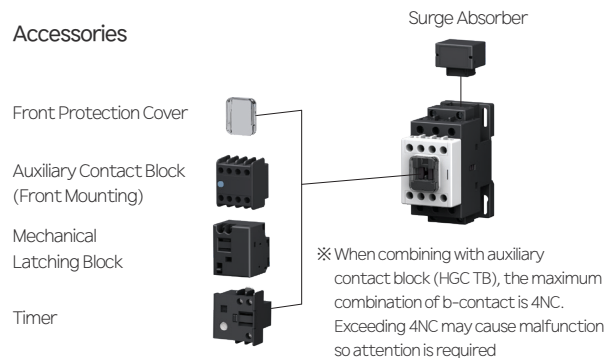
### Catalogue Number

| Model Name                  |     | Contact Arrangement                                                                 |                                                                                     |                                                                                     |                                                                                      |                                                                                       |
|-----------------------------|-----|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|                             |     | 4NC                                                                                 | 1NO + 3NC                                                                           | 2NO + 2NC                                                                           | 3NO + 1NC                                                                            | 4NO                                                                                   |
| AC 60 Hz                    | 24  | HGR 04NS A024                                                                       | HGR 13NS A024                                                                       | HGR 22NS A024                                                                       | HGR 31NS A024                                                                        | HGR 40NS A024                                                                         |
|                             | 48  | HGR 04NS A048                                                                       | HGR 13NS A048                                                                       | HGR 22NS A048                                                                       | HGR 31NS A048                                                                        | HGR 40NS A048                                                                         |
|                             | 110 | HGR 04NS A110                                                                       | HGR 13NS A110                                                                       | HGR 22NS A110                                                                       | HGR 31NS A110                                                                        | HGR 40NS A110                                                                         |
|                             | 120 | HGR 04NS A120                                                                       | HGR 13NS A120                                                                       | HGR 22NS A120                                                                       | HGR 31NS A120                                                                        | HGR 40NS A120                                                                         |
|                             | 208 | HGR 04NS A208                                                                       | HGR 13NS A208                                                                       | HGR 22NS A208                                                                       | HGR 31NS A208                                                                        | HGR 40NS A208                                                                         |
|                             | 240 | HGR 04NS A240                                                                       | HGR 13NS A240                                                                       | HGR 22NS A240                                                                       | HGR 31NS A240                                                                        | HGR 40NS A240                                                                         |
|                             | 380 | HGR 04NS A380                                                                       | HGR 13NS A380                                                                       | HGR 22NS A380                                                                       | HGR 31NS A380                                                                        | HGR 40NS A380                                                                         |
|                             | 440 | HGR 04NS A440                                                                       | HGR 13NS A440                                                                       | HGR 22NS A440                                                                       | HGR 31NS A440                                                                        | HGR 40NS A440                                                                         |
| AC 50 Hz                    | 575 | HGR 04NS A575                                                                       | HGR 13NS A575                                                                       | HGR 22NS A575                                                                       | HGR 31NS A575                                                                        | HGR 40NS A575                                                                         |
|                             | 24  | HGR 04NS X024                                                                       | HGR 13NS X024                                                                       | HGR 22NS X024                                                                       | HGR 31NS X024                                                                        | HGR 40NS X024                                                                         |
|                             | 48  | HGR 04NS X048                                                                       | HGR 13NS X048                                                                       | HGR 22NS X048                                                                       | HGR 31NS X048                                                                        | HGR 40NS X048                                                                         |
|                             | 110 | HGR 04NS X110                                                                       | HGR 13NS X110                                                                       | HGR 22NS X110                                                                       | HGR 31NS X110                                                                        | HGR 40NS X110                                                                         |
|                             | 208 | HGR 04NS X208                                                                       | HGR 13NS X208                                                                       | HGR 22NS X208                                                                       | HGR 31NS X208                                                                        | HGR 40NS X208                                                                         |
|                             | 240 | HGR 04NS X240                                                                       | HGR 13NS X240                                                                       | HGR 22NS X240                                                                       | HGR 31NS X240                                                                        | HGR 40NS X240                                                                         |
|                             | 380 | HGR 04NS X380                                                                       | HGR 13NS X380                                                                       | HGR 22NS X380                                                                       | HGR 31NS X380                                                                        | HGR 40NS X380                                                                         |
|                             | 440 | HGR 04NS X440                                                                       | HGR 13NS X440                                                                       | HGR 22NS X440                                                                       | HGR 31NS X440                                                                        | HGR 40NS X440                                                                         |
| DC<br>Permanent<br>Magnetic | 575 | HGR 04NS X575                                                                       | HGR 13NS X575                                                                       | HGR 22NS X575                                                                       | HGR 31NS X575                                                                        | HGR 40NS X575                                                                         |
|                             | 24  | HGR 04PS D024                                                                       | HGR 13PS D024                                                                       | HGR 22PS D024                                                                       | HGR 31PS D024                                                                        | HGR 40PS D024                                                                         |
|                             | 48  | HGR 04PS D048                                                                       | HGR 13PS D048                                                                       | HGR 22PS D048                                                                       | HGR 31PS D048                                                                        | HGR 40PS D048                                                                         |
|                             | 110 | HGR 04PS D110                                                                       | HGR 13PS D110                                                                       | HGR 22PS D110                                                                       | HGR 31PS D110                                                                        | HGR 40PS D110                                                                         |
|                             | 125 | HGR 04PS D125                                                                       | HGR 13PS D125                                                                       | HGR 22PS D125                                                                       | HGR 31PS D125                                                                        | HGR 40PS D125                                                                         |
| Contact<br>Arrangement      | 220 | HGR 04PS D220                                                                       | HGR 13PS D220                                                                       | HGR 22PS D220                                                                       | HGR 31PS D220                                                                        | HGR 40PS D220                                                                         |
|                             |     |  |  |  |  |  |

### Accessories and Others

- It is categorized into AC and DC type with 5 types of contact configurations.
- It has been designed to comply with the IEC 60947 and the protection grade of the product is IP 20
- Permitted range of usable temperature : -25 - 40 °C
- It is optimal for control circuit with fast response speed or plant automation.
- Applicable standard and specification :  
IEC 60947-5-1, UL/CSA 60947-5-1

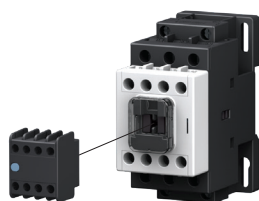
### Accessories



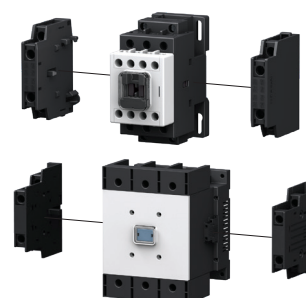
## Auxiliary Contact Block

| Exterior and Name                                                                   |            | Rating                                          |       |                     | Contact Arrangement                 |                                                                                       | Catalogue Number                                                                      | Others        |                               |                |       |              |
|-------------------------------------------------------------------------------------|------------|-------------------------------------------------|-------|---------------------|-------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------|-------------------------------|----------------|-------|--------------|
| Exterior                                                                            | Model Name | Rating of Contact                               |       |                     | Combination                         | Arrangement                                                                           | With Terminal Cover                                                                   | Weight (lb)   | Applicable Magnetic Contactor |                |       |              |
|    | HGC TB     | Rated Insulation Current (Ui)                   | IEC   | AC 690 V            | 2NC                                 |    | HGC TB02NS                                                                            | 0.068         | HGC9 - 100 HGR                |                |       |              |
|                                                                                     |            |                                                 | UL    | AC 600 V            |                                     |                                                                                       |                                                                                       |               |                               |                |       |              |
|                                                                                     |            | Rated Thermal Current (Ith)                     |       | 16 A                | 1NO + 1NC                           |    | HGC TB11NS                                                                            |               |                               |                |       |              |
|                                                                                     |            | Minimum load                                    |       | 10 mA at 24 V DC    |                                     |                                                                                       |                                                                                       |               |                               |                |       |              |
|                                                                                     |            | Rated Operational Current AC15 (Coil Load)      | 120 V | 6 A                 | 2NO                                 |    | HGC TB20NS                                                                            |               |                               |                |       |              |
|                                                                                     |            |                                                 | 240 V | 4 A                 |                                     |                                                                                       |                                                                                       |               |                               |                |       |              |
|                                                                                     |            |                                                 | 380 V | 3 A                 | 4NC                                 |    | HGC TB04NS                                                                            |               |                               |                |       |              |
|                                                                                     |            |                                                 | 440 V | 3 A                 |                                     |                                                                                       |                                                                                       |               |                               |                |       |              |
|                                                                                     |            |                                                 | 500 V | 2 A                 | 1NO + 3NC                           |    | HGC TB13NS                                                                            |               |                               |                |       |              |
|                                                                                     |            |                                                 | 690 V | 2 A                 |                                     |                                                                                       |                                                                                       |               |                               |                |       |              |
|                                                                                     |            | Rated Operational Current DC13 (Coil Load)      | 24 V  | 4 A                 | 2NO + 2NC                           |    | HGC TB22NS                                                                            |               |                               |                |       |              |
|                                                                                     |            |                                                 | 48 V  | 2.5 A               |                                     |                                                                                       |                                                                                       |               |                               |                |       |              |
|                                                                                     |            |                                                 | 125 V | 1.1 A               | 3NO + 1NC                           |   | HGC TB31NS                                                                            |               |                               |                |       |              |
|                                                                                     |            |                                                 | 250 V | 0.3 A               |                                     |                                                                                       |                                                                                       |               |                               |                |       |              |
|                                                                                     |            |                                                 | 480 V | 0.2 A               | 4NO                                 |  | HGC TB40NS                                                                            |               |                               |                |       |              |
|                                                                                     |            |                                                 | 600 V | 0.2 A               |                                     |                                                                                       |                                                                                       |               |                               |                |       |              |
|  | HGC SB     | Based on IEC60947-4                             |       | Based on UL and CSA |                                     | 1NO + 1NC                                                                             |  | HGC SB40 11NS | 0.062                         | HGC9 - 40      |       |              |
|                                                                                     |            | Rated Insulation Voltage (Ui)                   |       | AC 750 V            | Thermal Current                     |                                                                                       |                                                                                       |               |                               |                | 16 A  |              |
|                                                                                     |            | Rated Thermal Current (Ith)                     |       | 16 A                | Rated Operational Current (AC)      |                                                                                       |                                                                                       |               |                               |                | 120 V | 6 A          |
|                                                                                     |            | Minimum load                                    |       | 10 mA at 24 V DC    |                                     |                                                                                       |                                                                                       |               |                               |                |       |              |
|                                                                                     |            | Rated Operational Current AC12 (Resistive Load) | 110 V | 10 A                |                                     |                                                                                       |                                                                                       | 240 V         | 3 A                           |                |       |              |
|                                                                                     |            |                                                 | 220 V | 8 A                 |                                     |                                                                                       |                                                                                       | 480 V         | 1.5 A                         |                |       |              |
|                                                                                     |            |                                                 | 440 V | 6 A                 |                                     |                                                                                       |                                                                                       | 600 V         | 1.2 A                         |                |       |              |
|                                                                                     |            |                                                 | 690 V | 2 A                 | 125 V                               |                                                                                       |                                                                                       | 1.1 A         |                               |                |       |              |
|                                                                                     |            | Rated Operational Current AC15 (Coil Load)      | 110 V | 6 A                 | Rated Operational Current (DC)      |                                                                                       |                                                                                       | 250 V         | 0.55 A                        | HGC SB100 11NS | 0.117 | HGC50 - 100  |
|                                                                                     |            |                                                 | 220 V | 4 A                 |                                     |                                                                                       |                                                                                       | 440 V         | 0.2 A                         |                |       |              |
|                                                                                     |            |                                                 | 440 V | 3 A                 |                                     |                                                                                       |                                                                                       | 600 V         | 0.2 A                         |                |       |              |
|                                                                                     |            |                                                 | 690 V | 2 A                 |                                     |                                                                                       |                                                                                       |               |                               |                |       |              |
|                                                                                     |            | ※ Contact Rating Code : A600 - P300             |       |                     |                                     |                                                                                       |                                                                                       |               |                               |                |       |              |
|                                                                                     |            | Rated Operational Current DC12 (Resistive Load) | 24 V  | 4 A                 | ※ Contact Rating Code : A600 - P300 |                                                                                       |                                                                                       |               |                               | HGC SB800 11NS | 0.093 | HGC115 - 800 |
|                                                                                     |            |                                                 | 48 V  | 2.5 A               |                                     |                                                                                       |                                                                                       |               |                               |                |       |              |
|                                                                                     |            |                                                 | 125 V | 1.1 A               |                                     |                                                                                       |                                                                                       |               |                               |                |       |              |
|                                                                                     |            |                                                 | 250 V | 0.3 A               |                                     |                                                                                       |                                                                                       |               |                               |                |       |              |
|                                                                                     |            | Rated Operational Current DC13 (Coil Load)      | 24 V  | 4 A                 |                                     |                                                                                       |                                                                                       |               |                               |                |       |              |
|                                                                                     |            |                                                 | 48 V  | 2.5 A               |                                     |                                                                                       |                                                                                       |               |                               |                |       |              |
|                                                                                     |            |                                                 | 125 V | 1.1 A               |                                     |                                                                                       |                                                                                       |               |                               |                |       |              |
|                                                                                     |            |                                                 | 250 V | 0.3 A               |                                     |                                                                                       |                                                                                       |               |                               |                |       |              |

Front Mounting



Side Installation



※ Maximum number of b contacts that can be combined is 4NC.

※ Maximum number of b contacts that can be combined is 4NC.

## Accessories

### Interlock Unit

The Mechanical interlock unit is an accessory that provides interlock function for reversion operation of the magnetic contactors. Also, the mechanical interlock function can be configured. The reverse operation type of magnetic contactors configured with mechanical interlocks is not closed simultaneously so it is more reliable than the electrical interlocks.

#### Selection and Order

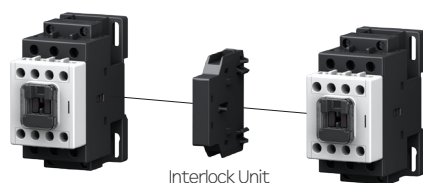
| Catalogue Number | Applicable Magnetic Contactor | Weight (lb) |
|------------------|-------------------------------|-------------|
| HGC IU40         | HGC 9 - 40                    | 0.066       |
| HGC IU100        | HGC 50 - 100, 50B - 100B      | 0.066       |
| HGC IU265        | HGC 115 - 265                 | 0.179       |
| HGC IU800        | HGC 300 - 800                 | 0.223       |

#### Handling

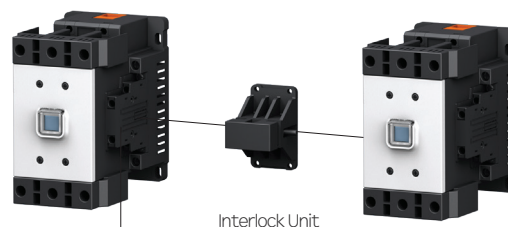
- Electrical interlock must be used together by using the NC contact of the magnetic contactor.
- When mounting the product, do not install vertically.
- In case of HGC 115 - 800, the auxiliary contact block installed between the reverse operation type of magnetic contactor must be removed before installation.
- Do not apply excessive force when checking the simultaneously input by moving it left and right manually. It may cause damage.
- It is not applicable to DC type of HGC 40 - 100.

※ When using interlock unit for HGC B type, inbuilt side block must be removed.

#### HGC 9 - 100



#### HGC 115 - 800



Install after removing the auxiliary contact block installed between the magnetic contactor.



Interlock Unit

## Mechanical Latching Block

The mechanical latching block maintains the mechanical closed state even if the excitation state of the coil has become loosen due to a drop in operational voltage below the rated voltage that is supplied to the coil of the magnetic contactor and the control relay.

The mechanical latching block manufactured in a module method can be installed using a One-Touch method at the magnetic contactor and the control relay.

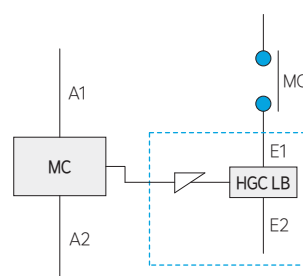
### Ratings and Characteristics

|                        |         |                                      |
|------------------------|---------|--------------------------------------|
| Coil Power Consumption | VA      | 25                                   |
|                        | W       | 20                                   |
| Voltage                | V       | $(0.85 - 1.1) \times U_c$            |
| Operation Frequency    | Cycle/h | 1,200                                |
| Operational Voltage    | AC      | 24, 48, 100 - 125, 200 - 240 V 440 V |
|                        | DC      | 24, 48, 100 - 125, 200 - 240 V       |
| Mechanical Lifespan    | times   | 500,000                              |
| Weight                 | lb      | 0.22                                 |

### Selection and Order

| Model Name | Catalogue Number | Current | Operational Voltage | Applicable Magnetic Contactor |
|------------|------------------|---------|---------------------|-------------------------------|
| HGC LB100  | HGC LB100 F024   | AC/DC   | 24 V                | HGC9 - 100 HGR                |
|            | HGC LB100 F048   |         | 48 V                |                               |
|            | HGC LB100 F110   |         | 100 - 125 V         |                               |
|            | HGC LB100 F220   |         | 200 - 240 V         |                               |
|            | HGC LB100 A440   | AC      | 440 V               |                               |

### Circuit Diagram



※ A1/A2 : Coil terminal, E1/E2 : Latching block terminal

## Handling

- The latching block functions after receiving the mechanical closing signal from the magnetic contactor or the control relay and the closing state of the main contact is maintained even if the excitation state of the magnetic contactor or the control relay's coil has become loose due to momentary black-out of the cable.
- How to turn the magnetic contactor or the control relay off
  - Manual : Set the button on the latching block to "O" position.
  - Electrical : Apply de-energized voltage to the coil in the latching block. The power of the magnetic contactor (Control relay) assembled must be Off before supplying power to the coil of the latching block.
- How to open the magnetic contactor or the control relay
  - If the button located at the "I" part of the latching block is pressed, it can be opened without exciting the coil of the magnetic contactor or the control relay.
- Caution
  - Do not excite the magnetic contactor or the control relay with the latching block simultaneously.
  - The latching block functions instantaneously so do not apply power of more than 1 sec at the power part (E1, E2).
  - As for the circuit diagram of the latching block, please refer to the diagram on the right.



## Accessories

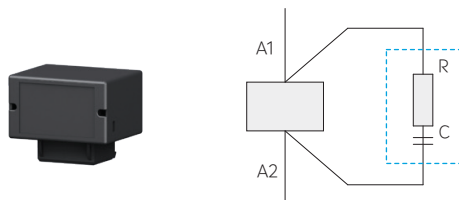
### Surge Suppressor

#### Surge Suppressor (RC-Unit)

- The surge voltage occurs during the operation of the magnetic contactor or the control relay and the surge voltage is normally 10 - 20 times higher than the rated voltage so the surge absorber drops the surge voltage to approximately 3 times less.
- It is optimal for the switching circuit that uses PLC.
- It prevents damage in the electronic parts caused by high surge voltage.
- It is applicable to both 50/60 Hz. (In case of RC-Unit)
- If noise components exceeding 400Hz or more than 5% noise, internal device degradation may occur.

#### Selection and Order

| Product | Catalogue Number | Operational Voltage | Magnetic Contactor         | Weight (lb) |
|---------|------------------|---------------------|----------------------------|-------------|
| RC-Unit | HGC RC40 Y048    | AC 24 - 48 V        | HGC9 - 40, HGR             | 0.064       |
|         | HGC RC40 Y220    | AC 110 - 220 V      |                            |             |
|         | HGC RC40 Y380    | AC 240 - 380 V      |                            |             |
|         | HGC RC100 Y048   | AC 24 - 48 V        | HGC50 - 100, HGC50B - 100B |             |
|         | HGC RC100 Y220   | AC 110 - 220 V      |                            |             |
|         | HGC RC100 Y380   | AC 240 - 380 V      |                            |             |
|         | HGC RC800 Y220   | AC 110-220V         | HGC115-HGC800              |             |

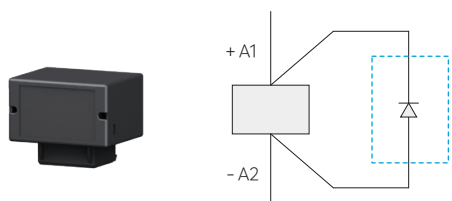


#### Clamping Diode

- It is used for the purpose of preventing counter electromotive force on the DC power supply.
- It must be installed when the coil is connected in parallel.
- It prevents damage in the electronic parts by preventing counter electromotive power.

#### Selection and Order

| Product        | Catalogue Number | Operational Voltage | Magnetic Contactor | Weight (lb) |
|----------------|------------------|---------------------|--------------------|-------------|
| Clamping Diode | HGC CD100        | DC 24 - 220 V       | HGC9 - 100, HGR    | 0.064       |

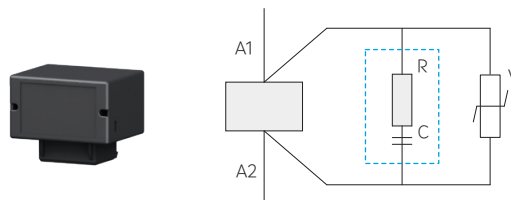


#### Surge Suppressor (Varistor + RC-Unit)

- HGC RC100 F110/F220 products are available for AC/DC using varistors.
- When surge voltage comes in, it discharges the voltage through the varistor to prevent sudden high voltage from entering.

#### Selection and Order

| Product               | Catalogue Number | Operational Voltage | Magnetic Contactor | Weight (lb) |
|-----------------------|------------------|---------------------|--------------------|-------------|
| RC-Unit with Varistor | HGC RC100 F110   | AC 48 - 110 V       | HGC9 - 100, HGR    | 0.064       |
|                       |                  | DC 48 - 110 V       |                    |             |
|                       | HGC RC100 F220   | AC 110 - 220 V      |                    |             |
|                       |                  | DC 110 - 220 V      |                    |             |



## Electronic Timer Block

- As it has been manufactured in a module method, it enables One-Touch mounting on the electronic contactor and control relay, saving space.
- It has been designed for AC/DC with comprehensive operational voltage.
- On-Delay and Interval timer functions can be realized using one timer and it is optimal as a Y-Δ starter.

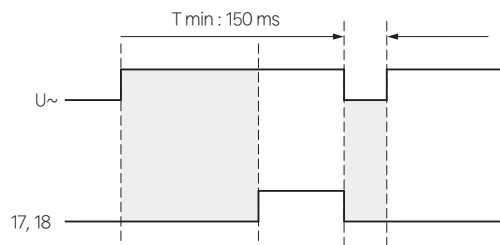
### Selection and Order

| Catalogue Number | Magnetic Contactor | Operational Voltage |
|------------------|--------------------|---------------------|
| HGC ET1          | HGC9 - 100, HGR    | AC/DC 90 - 240 V    |
| HGC ET2          |                    | AC/DC 24 - 60 V     |

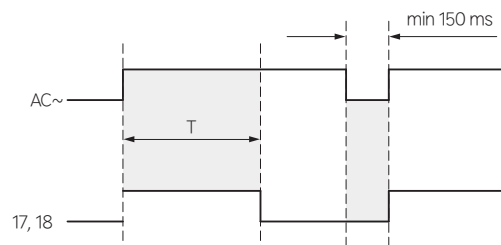
### Ratings and Selection

| Model Name                 | Order Code | HGC ET1                                   | HGC ET2 |
|----------------------------|------------|-------------------------------------------|---------|
| Rated Voltage              | AC/DC V    | 90 - 240                                  | 24 - 60 |
| Permitted Voltage          | V          | $(0.8 - 1.1) \times \text{Rated Voltage}$ |         |
| Breaking Capacity          | VA         | 90                                        |         |
| Maximum Load               | VA         | 15                                        |         |
| Delay Time                 | Position A | 10 - 220                                  |         |
|                            | Position B | 0.15 - 15                                 |         |
| Precision                  | %          | ±5                                        |         |
| Repetition Margin of Error | %          | 0.1                                       |         |
|                            | secs       | 50 ms                                     |         |
| Weight                     | lb         | 0.117                                     |         |

### Operation Concept Map

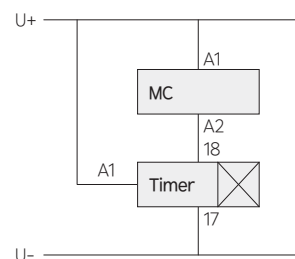


• Position 1 : On-Delay / t : Control time 0.15.....220 sec



• Position 2 : Interval Timer

※ After the power has been turned off, resting time of 150 ms is required for re-operation.



※ A1/A2 : Coil terminal, 17/18 : Timer terminal

## Accessories

### Control Coil

| Product                                                                                                                                                                                 | Operational Voltage |                              | Catalogue Number              |                 |                 |                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|------------------------------|-------------------------------|-----------------|-----------------|------------------|
|                                                                                                                                                                                         | Frequency           | V                            | Applicable Magnetic Contactor |                 |                 |                  |
|                                                                                                                                                                                         |                     |                              | HGC9 - 18                     | HGC25 - 40      | HGC50 - 65      | HGC75 - 100      |
|                                                                                                       | AC 60 Hz            | 24                           | HGCOLPKG18 A24                | HGCOLPKG40 A24  | HGCOLPKG65 A24  | HGCOLPKG100 A24  |
|                                                                                                                                                                                         |                     | 48                           | HGCOLPKG18 A48                | HGCOLPKG40 A48  | HGCOLPKG65 A48  | HGCOLPKG100 A48  |
|                                                                                                                                                                                         |                     | 110                          | HGCOLPKG18 A110               | HGCOLPKG40 A110 | HGCOLPKG65 A110 | HGCOLPKG100 A110 |
|                                                                                                                                                                                         |                     | 120                          | HGCOLPKG18 A120               | HGCOLPKG40 A120 | HGCOLPKG65 A120 | HGCOLPKG100 A120 |
|                                                                                                                                                                                         |                     | 208                          | HGCOLPKG18 A208               | HGCOLPKG40 A208 | HGCOLPKG65 A208 | HGCOLPKG100 A208 |
|                                                                                                                                                                                         |                     | 240                          | HGCOLPKG18 A240               | HGCOLPKG40 A240 | HGCOLPKG65 A240 | HGCOLPKG100 A240 |
|                                                                                                                                                                                         |                     | 380                          | HGCOLPKG18 A380               | HGCOLPKG40 A380 | HGCOLPKG65 A380 | HGCOLPKG100 A380 |
|                                                                                                                                                                                         |                     | 575                          | HGCOLPKG18 A575               | HGCOLPKG40 A575 | HGCOLPKG65 A575 | HGCOLPKG100 A575 |
|                                                                                                                                                                                         | AC 50 Hz            | 24                           | HGCOLPKG18 X24                | HGCOLPKG40 X24  | HGCOLPKG65 X24  | HGCOLPKG100 X24  |
|                                                                                                                                                                                         |                     | 48                           | HGCOLPKG18 X48                | HGCOLPKG40 X48  | HGCOLPKG65 X48  | HGCOLPKG100 X48  |
|                                                                                                                                                                                         |                     | 110                          | HGCOLPKG18 X110               | HGCOLPKG40 X110 | HGCOLPKG65 X110 | HGCOLPKG100 X110 |
|                                                                                                                                                                                         |                     | 120                          | HGCOLPKG18 X120               | HGCOLPKG40 X120 | HGCOLPKG65 X120 | HGCOLPKG100 X120 |
|                                                                                                                                                                                         |                     | 208                          | HGCOLPKG18 X208               | HGCOLPKG40 X208 | HGCOLPKG65 X208 | HGCOLPKG100 X208 |
|                                                                                                                                                                                         |                     | 240                          | HGCOLPKG18 X240               | HGCOLPKG40 X240 | HGCOLPKG65 X240 | HGCOLPKG100 X240 |
|                                                                                                                                                                                         |                     | 380                          | HGCOLPKG18 X380               | HGCOLPKG40 X380 | HGCOLPKG65 X380 | HGCOLPKG100 X380 |
|                                                                                                                                                                                         |                     | 575                          | HGCOLPKG18 X575               | HGCOLPKG40 X575 | HGCOLPKG65 X575 | HGCOLPKG100 X575 |
|                                                                                                                                                                                         | DC                  | 24                           | HGCOLPKG18 D24                | HGCOLPKG40 D24  | HGCOLPKG65 D24  | HGCOLPKG100 D24  |
|                                                                                                                                                                                         |                     | 48                           | HGCOLPKG18 D48                | HGCOLPKG40 D48  | HGCOLPKG65 D48  | HGCOLPKG100 D48  |
|                                                                                                                                                                                         |                     | 110                          | HGCOLPKG18 D110               | HGCOLPKG40 D110 | HGCOLPKG65 D110 | HGCOLPKG100 D110 |
|                                                                                                                                                                                         |                     | 125                          | HGCOLPKG18 D125               | HGCOLPKG40 D125 | HGCOLPKG65 D125 | HGCOLPKG100 D125 |
|                                                                                                                                                                                         |                     | 220                          | HGCOLPKG18 D220               | HGCOLPKG40 D220 | HGCOLPKG65 D220 | HGCOLPKG100 D220 |
|  <p>※ When ordering HGC115 - 800, it is provided in Ass'y including the AD converter is provided</p> | Nominal Voltage     | V                            | Applicable Magnetic Contactor |                 |                 |                  |
|                                                                                                                                                                                         |                     |                              | HGC115 - 150                  | HGC185 - 265    | HGC300 - 500    | HGC630 - 800     |
|                                                                                                                                                                                         | 110                 | AC 100 - 127<br>DC 100 - 110 | -                             | -               | -               | HGCOL800 F110    |
|                                                                                                                                                                                         | 220                 | AC 100 - 240<br>DC 110 - 220 | HGCOL150 F220                 | HGCOL265 F220   | HGCOL500 F220   | -                |
|                                                                                                                                                                                         | 220                 | AC 200 - 240<br>DC 200 - 220 | -                             | -               | -               | HGCOL800 F220    |
|                                                                                                                                                                                         | 440                 | AC 380 - 450                 | HGCOL150 F440                 | HGCOL265 F440   | HGCOL500 F440   | HGCOL800 F440    |

※ Relay coils are marked as HGRCOL A220, D110 and others and P type is not sold separately.

## Contacts and Covers

| Product                                                                                                                                                                                                                                                     | Model Name | Applicable Product         |                            | Catalogue Number                                                                            | Components |                                                                                             |                       |   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|----------------------------|----------------------------|---------------------------------------------------------------------------------------------|------------|---------------------------------------------------------------------------------------------|-----------------------|---|
| Main Contact                                                                                                                                                                                                                                                |            | Magnetic contactor for use |                            |                                                                                             | 1 SET      | 1 Order standard(set)                                                                       |                       |   |
| <div></div> <div>Moving Contact</div> <div></div> <div>Fixed Contact</div>                | HGCTIP     | HGC115                     | HGCTIP115                  | Moving Contact : 3 EA<br>Fixed contact : 6 EA                                               | 1          |                                                                                             |                       |   |
|                                                                                                                                                                                                                                                             |            | HGC130                     | HGCTIP130                  |                                                                                             |            |                                                                                             |                       |   |
|                                                                                                                                                                                                                                                             |            | HGC150                     | HGCTIP150                  |                                                                                             |            |                                                                                             |                       |   |
|                                                                                                                                                                                                                                                             |            | HGC185                     | HGCTIP185                  |                                                                                             |            |                                                                                             |                       |   |
|                                                                                                                                                                                                                                                             |            | HGC225                     | HGCTIP225                  |                                                                                             |            |                                                                                             |                       |   |
|                                                                                                                                                                                                                                                             |            | HGC265                     | HGCTIP265                  |                                                                                             |            |                                                                                             |                       |   |
|                                                                                                                                                                                                                                                             |            | HGC300                     | HGCTIP300                  |                                                                                             |            |                                                                                             |                       |   |
|                                                                                                                                                                                                                                                             |            | HGC400                     | HGCTIP400                  |                                                                                             |            |                                                                                             |                       |   |
|                                                                                                                                                                                                                                                             |            | HGC500                     | HGCTIP500                  |                                                                                             |            |                                                                                             |                       |   |
|                                                                                                                                                                                                                                                             |            | HGC630                     | HGCTIP630                  |                                                                                             |            |                                                                                             |                       |   |
|                                                                                                                                                                                                                                                             |            | HGC800                     | HGCTIP800                  |                                                                                             |            |                                                                                             |                       |   |
| Protection Cover                                                                                                                                                                                                                                            |            | Magnetic contactor for use |                            |                                                                                             | 1 SET      | 1 Order standard(set)                                                                       |                       |   |
| <div></div> <div>Main Terminal Cover</div> <div></div> <div>Coil Terminal Cover</div> | HGCP       | HGC9 - 18                  | HGCPC1811NS                | Main Terminal Cover : 2 EA<br>Coil Terminal Cover : 2 EA<br>Auxiliary Terminal Cover : 2 EA | 5          |                                                                                             |                       |   |
|                                                                                                                                                                                                                                                             |            |                            | HGCPC1822NS                |                                                                                             |            |                                                                                             |                       |   |
|                                                                                                                                                                                                                                                             |            | HGC25 - 40                 | HGCPC4011NS                |                                                                                             |            | Main Terminal Cover : 2 EA<br>Coil Terminal Cover : 2 EA<br>Auxiliary Terminal Cover : 8 EA | 2                     |   |
|                                                                                                                                                                                                                                                             |            |                            | HGCPC4022NS                |                                                                                             |            |                                                                                             |                       |   |
|                                                                                                                                                                                                                                                             |            | HGC50 - 65                 | HGCPC65                    | Main Terminal Cover : 2 EA<br>Coil Terminal Cover : 2 EA<br>Auxiliary Terminal Cover : 8 EA | 3          |                                                                                             |                       |   |
|                                                                                                                                                                                                                                                             |            | HGC75 - 100                | HGCPC100                   |                                                                                             |            |                                                                                             |                       | 2 |
|                                                                                                                                                                                                                                                             |            | HGC115 - 150               | HGCPC150                   |                                                                                             |            |                                                                                             |                       |   |
|                                                                                                                                                                                                                                                             |            | HGC185 - 265               | HGCPC265                   |                                                                                             |            |                                                                                             |                       | 5 |
|                                                                                                                                                                                                                                                             |            | HGC300 - 500               | HGCPC500                   | 5                                                                                           |            |                                                                                             |                       |   |
|                                                                                                                                                                                                                                                             |            | HGC630 - 800               | HGCPC800                   |                                                                                             | 5          |                                                                                             |                       |   |
| HGR                                                                                                                                                                                                                                                         | HGRPC      | 5                          |                            |                                                                                             |            |                                                                                             |                       |   |
| Front Cover                                                                                                                                                                                                                                                 |            |                            | Magnetic contactor for use |                                                                                             |            | 1 SET                                                                                       | 1 Order standard(set) |   |
|                                                                                                                                                                          | HGCFC      | HGC9 - 100                 | HGCFC100                   | Front Cover : 1 EA                                                                          | 4          |                                                                                             |                       |   |
|                                                                                                                                                                                                                                                             |            | HGC115 - 150               | HGCFC150                   |                                                                                             |            |                                                                                             |                       |   |
|                                                                                                                                                                                                                                                             |            | HGC185 - 265               | HGCFC265                   |                                                                                             |            |                                                                                             |                       |   |
|                                                                                                                                                                                                                                                             |            | HGC300 - 500               | HGCFC400                   |                                                                                             |            |                                                                                             |                       |   |
|                                                                                                                                                                                                                                                             |            | HGC630 - 800               | HGCFC800                   |                                                                                             |            |                                                                                             |                       |   |

※ The order code of HGC18 and 40 varies depending on the number of auxiliary contacts, so please pay attention to the order.

## Technical Data

### External Structure (Magnetic Contactor)



- 1 Control Power Terminal
- 2 Main Terminal
- 3 Auxiliary Terminal
- 4 Product Name
- 5 Manufacturer
- 6 Front Protection Cover
- 7 Din-Rail Mounting Part
- 8 Upper Frame
- 9 Upper Cover
- 10 Nameplate
- 11 Screw Mounting Hole
- 12 Mounting Hole for Auxiliary Devices

Product Name: **HGC 18 MAGNETIC CONTACTOR**  
교류전자개폐기 [접속기]

Rating Specification: IEC/EN 60947-4-1  
Ith=40A Ui=800V - Uimp=6kV

| Ue(VAC) | kW  | VAC | HP |
|---------|-----|-----|----|
| 220-240 | 4.5 | 200 | 5  |
| 380-440 | 7.5 | 230 | 5  |
| 500-550 | 8.5 | 460 | 10 |
| 660-690 | 7.5 | 575 | 15 |

AC-3 K60947-4-1 AC-3-0-0.50/60Hz

| 주 회로 전압 | 전류        | 전류 |
|---------|-----------|----|
| 220V    | 18A       |    |
| 440V    | 18A       |    |
| 220V    | 6A        |    |
| 2a/2b   | Ith = 16A |    |

VAC 110-120 200-208 220-240 440-480 600  
1-HP 2 - 3 - -  
3-HP - 7.5 7.5 10 15

BREAK ALL LINES.  
CONTINUOUS CURRENT: 40A  
Suitable For Use On A Circuit Capable Of Delivering Not More Than 8kA rms Symmetrical Amps, 600 Volts Maximum. Use Fuse only  
AUX. CONT. A600-P600  
Coil & Aux Terminal: 16-18 AWG, Cu, 10A2 in-lbs  
Motor Lead Terminal: 16-18 AWG, Cu, 19.91 in-lbs  
MADE IN KOREA

Country of Manufacturer: **MADE IN KOREA**

HE Logo: **HD HYUNDAI ELECTRIC**

Applied and Reference Standards: **CE EAC LISTED**  
UL Rating: **UL 508**  
Certification Mark and Certification Number: **ES32729**  
Manufacturer: **HD HYUNDAI ELECTRIC**

## External Structure (Thermal Overload Relay)

### Protection Cover

- The front of the operating mechanism is protected by a transparent cover so that the set current value and the reset operation method cannot be manipulated by object.
- To change the setting, lift the transparent cover.

### Test Button

- Pressing the test button during emergency stop during motor operation will open the contact with the magnetic contactor and stop the motor.
- When testing the contact operation of the thermal overload relay, if the test button is pulled up, the contact switching is made so that rapid test is possible.

### Current Setting Knob

The rated current setting can be set in 3 stages by using the +/-screw driver.

### Reset Button

- A (Auto) Mode : Auto Reset
- H (Manual) Mode : Manual Reset

### Main Circuit Terminal

Screw type of terminal is the standard model.

### Safety Reinforcement of TOR

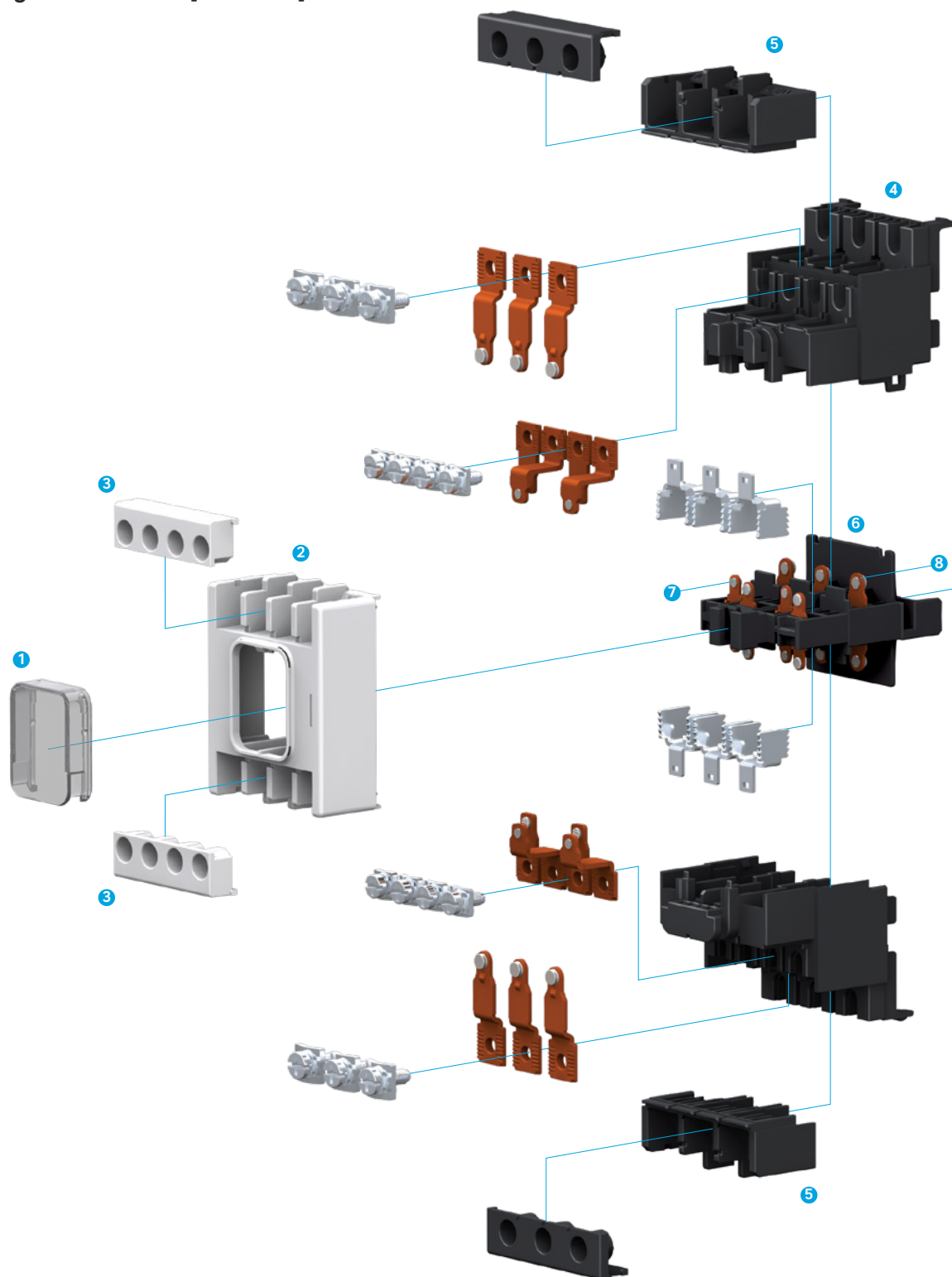
- Attachment of protection cover
  - Prevents operation by user negligence
  - Prevents test function during operation
- Separation of reset button and test button
  - Prevents malfunction

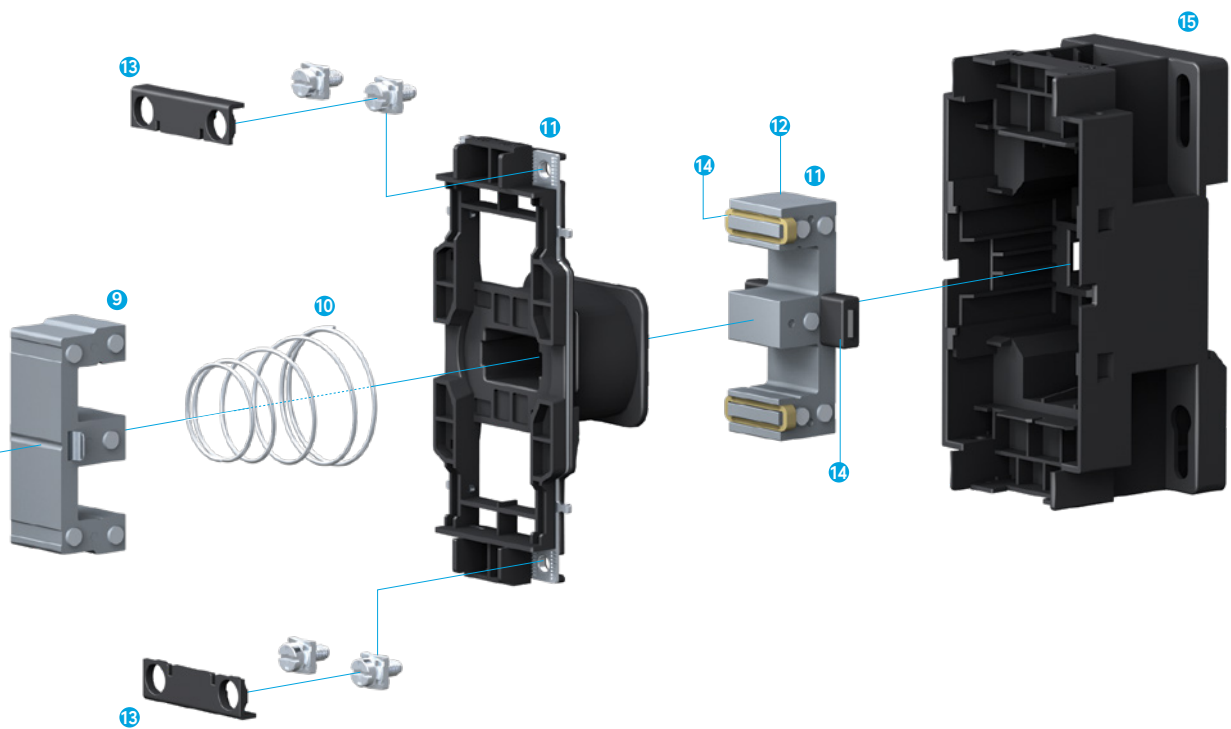


## Technical Data

### Internal Structure

#### Magnetic Contactor [9 - 100 AF]





- ❶ **Front Protection Cover** : Safety cover that prevents the contact bridge from being pressed arbitrarily
- ❷ **Top Cove** : Assembles arc chamber, auxiliary contact part is built in
- ❸ **Aux. Protection Cover** : Safety cover to protect the user from auxiliary contact parts
- ❹ **Arc Chamber** : Arc extinguishing device to prevent On/Off Arc
- ❺ **Screw Terminal** : Device for mounting terminals
- ❻ **Contact Bridge** : Assembled to a moving core and moving contact, it engages in on/off operation and the accessory mounting hole is built in
- ❼ **Aux. Contact** : Operational part of the auxiliary contact terminal
- ❽ **Moving Contact** : Operational part of the main contact terminal
- ❾ **Moving Core** : When power is supplied to the coil, the moving core slides into the fixed core and the magnetic contact is closed
- ❿ **Return Spring** : When the coil is de-energized, it separates the moving core from the fixed core
- ⓫ **Coil Ass'y** : The current flowing part to make the fixed core magnetized by supplying power
- ⓬ **Fixed Core** : The component that becomes magnetized when the power is supplied to the coil
- ⓭ **Coil Protection Cover** : Safety cover to protect the user from the current flowing part of the coil terminal
- ⓮ **Rubber Damper** : Device that absorbs the On/Off impact of the magnetic contact
- ⓯ **Frame** : Lower part of the magnetic contact built with the coil and fixed core

## Technical Data

### Magnetic Contactor [9 - 100 AF]

#### Enhanced Safety

##### Front Protection Cover

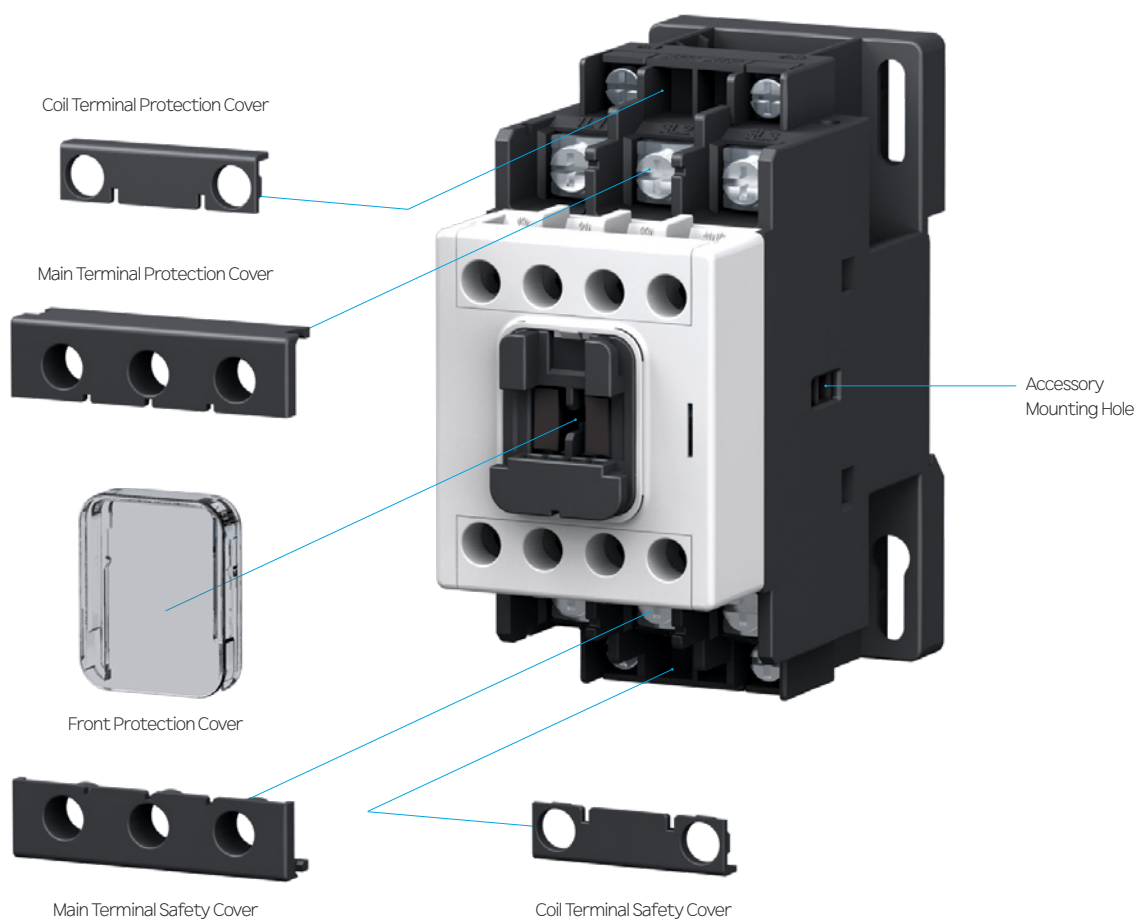
- Minimize the input of foreign substance
- Prevent malfunction caused by user's mistake

##### Enclosed Structure of Mounting Hole for Accessories

- Contact bridge creates sealed structure when MC is on/off

##### Removable Protection Cover

- For main terminal, auxiliary terminal, coil terminal
- Protection degree, IP20



## Improved Customer Convenience

### Built-In Upper Arrayed Auxiliary Contact

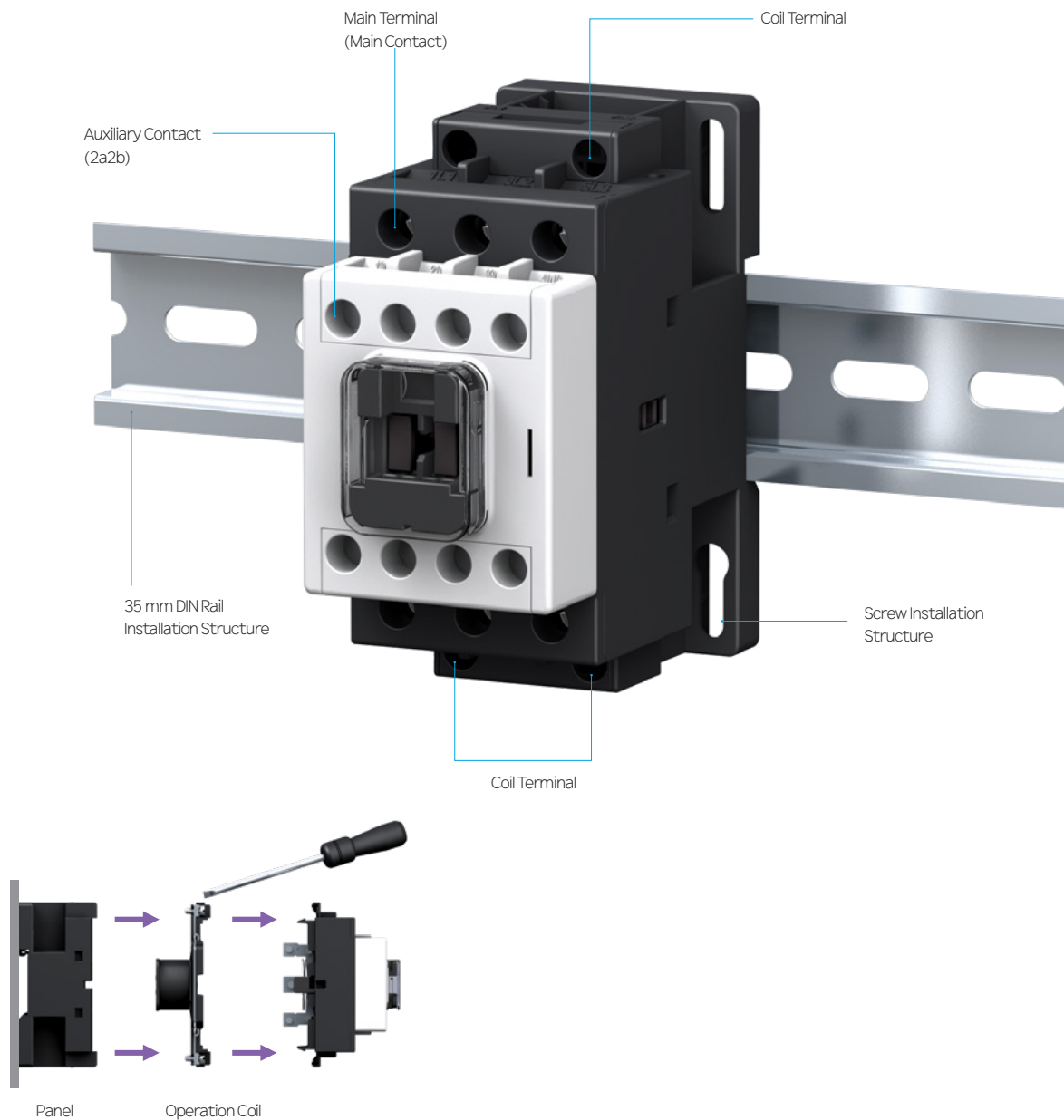
- 2a2b standard built-in type easy wiring control circuit

### Easy Coil Replacement Structure

- Easy separation and replacement when it is attached to the panel

### Various Mounting Methods

- Can be installed in Din Rail and Screw



## Technical Data

### Magnetic Contactor [115 - 800 AF]

#### Convenient Replacement of Operational Coil

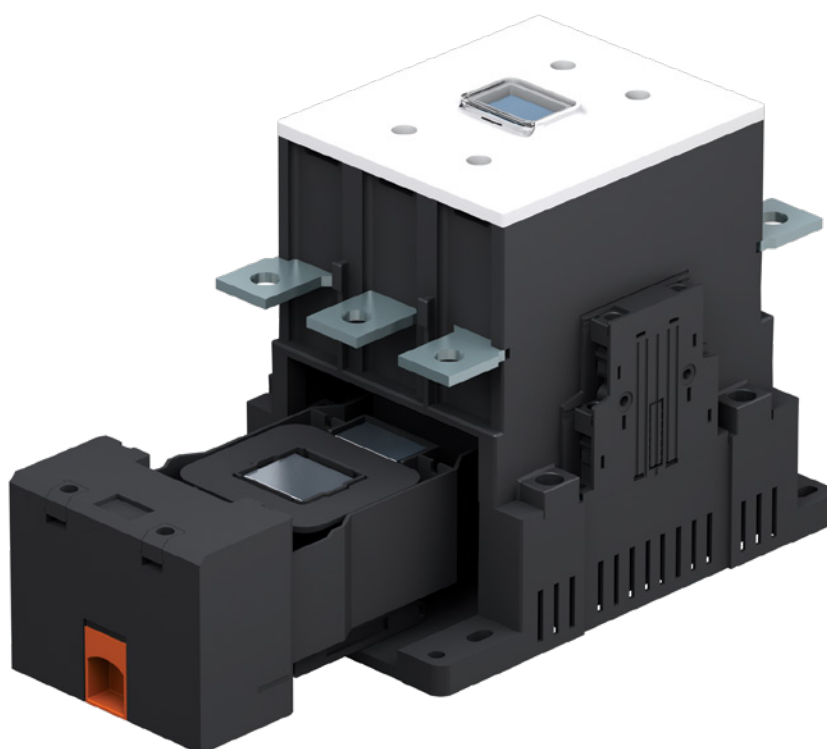
- Easy separation and replacement of operational coil when it is attached to the panel
- The method of fixing the coil unit using a plastic case
  - Minimize the movement of the coil unit

#### Designed to Reduce Noise

- DC excitation method using magnetic circuit

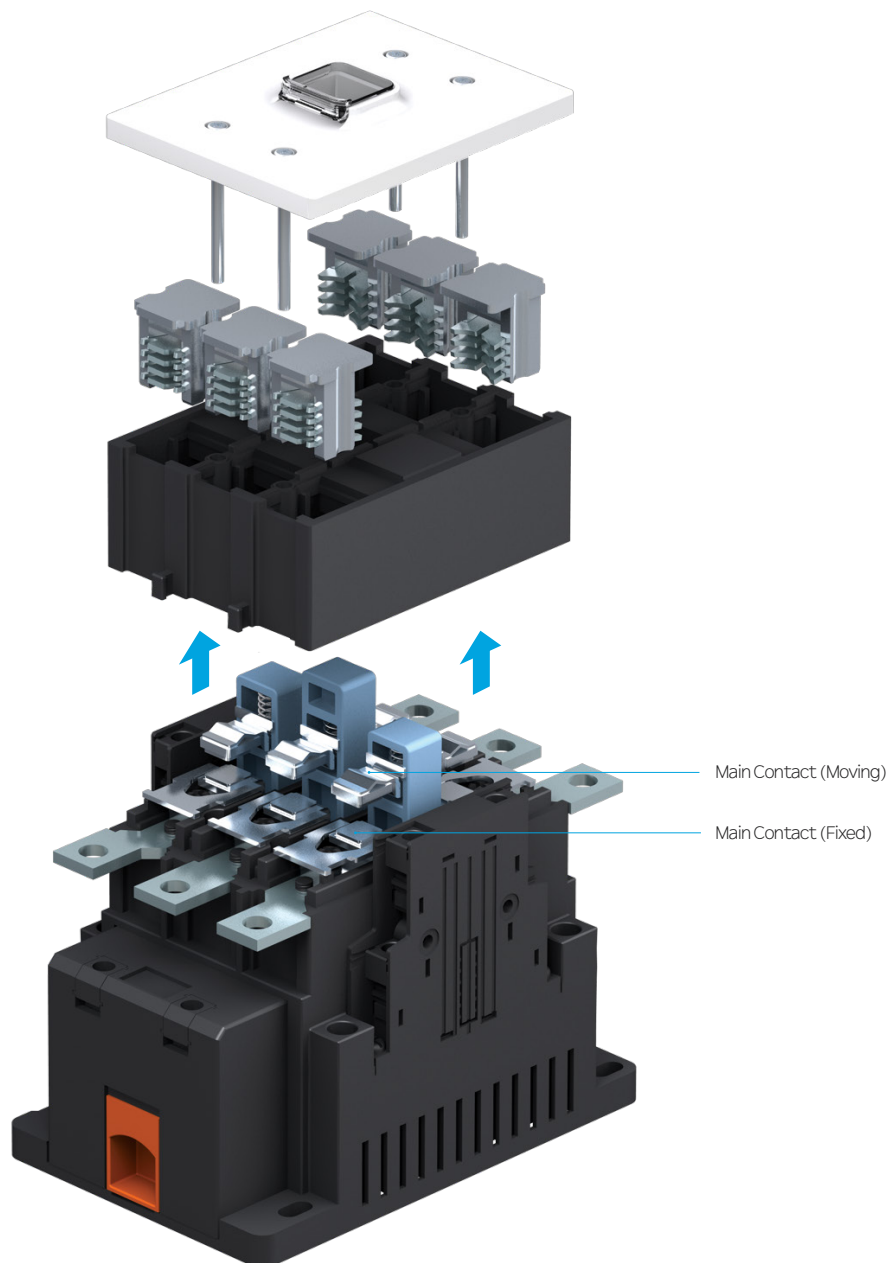
#### Universal Voltage of Coil

| Nominal Voltage | Rated Voltage (AC/DC)              |
|-----------------|------------------------------------|
| 220 V           | AC : 100 - 240 V, DC : 110 - 220 V |
| 440 V           | AC : 380 - 450 V                   |



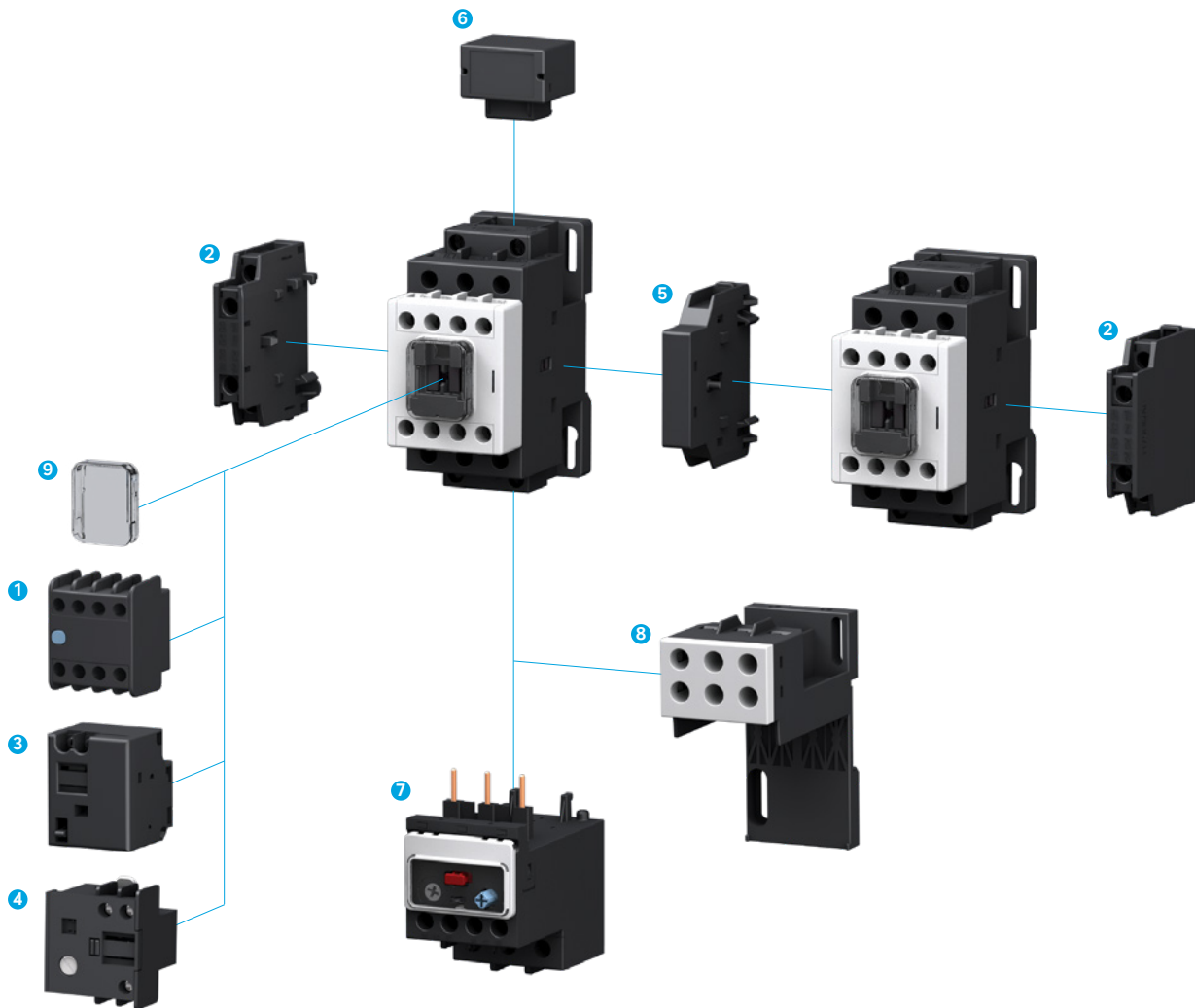
### Easy Maintenance and Replacement for Main Contacts

- When the upper cover is removed, the main contact parts are revealed, enabling easy inspection and replacement of them from outside.



## Technical Data

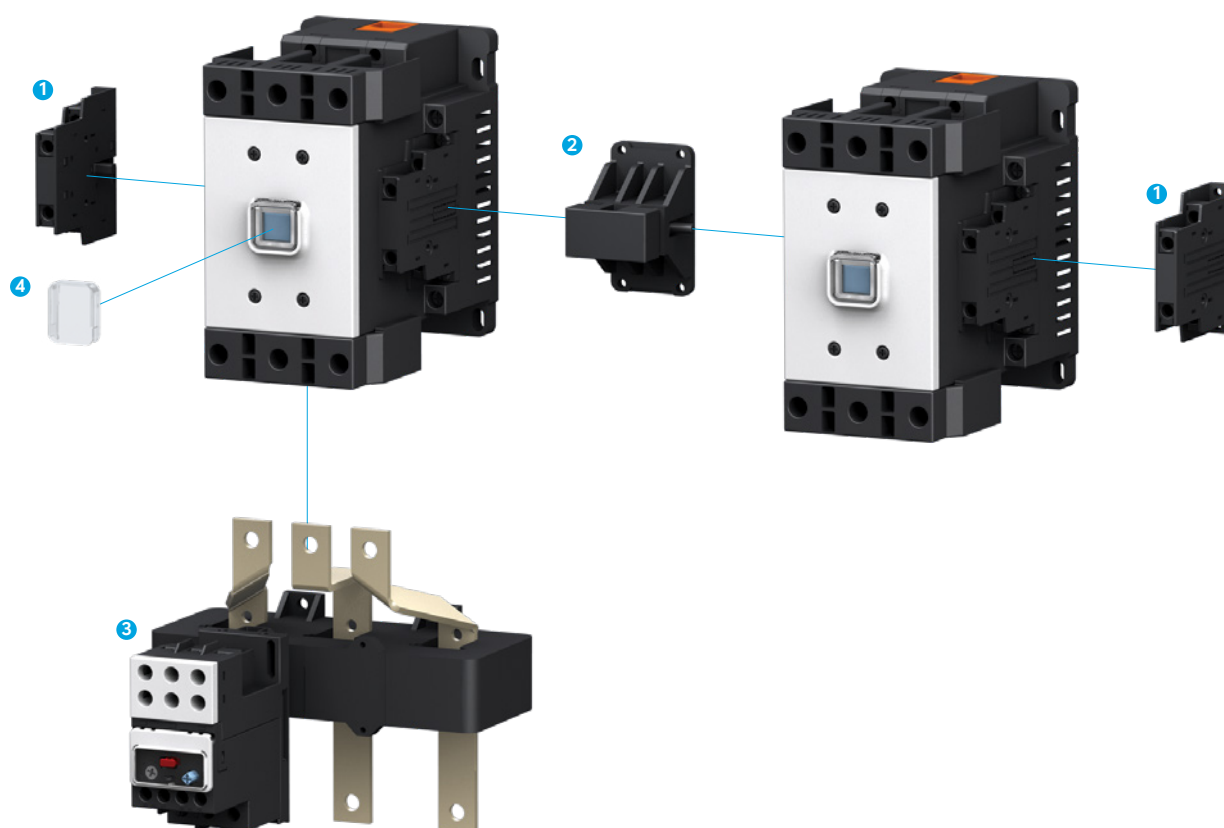
### Accessories of Magnetic Contactor [9 - 100 AF]



#### 9 - 100 AF Accessories

- |                                          |                                |
|------------------------------------------|--------------------------------|
| ① Auxiliary Contact Block (Front) HGC TB | ⑥ Surge Suppressor HGC RC/CD   |
| ② Auxiliary Contact Block (Side) HGC SB  | ⑦ Thermal Overload Relay HGT   |
| ③ Mechanical Latching Block HGC LB 100   | ⑧ Mount Adaptor HGTM B         |
| ④ Electronic Timer Block HGC ET          | ⑨ Front Protection Cover HGCFC |
| ⑤ Mechanical Interlock Unit HGC IU       |                                |

## Accessories of Magnetic Contactor [115 - 800 AF]



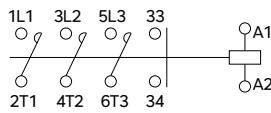
## 115 - 800 AF Accessories

- ① Auxiliary Contact Block (Side) HGC SB
- ② Mechanical Interlock Unit HGC IU
- ③ Thermal Overload Relay HGT
- ④ Front Protection Cover HGCFC

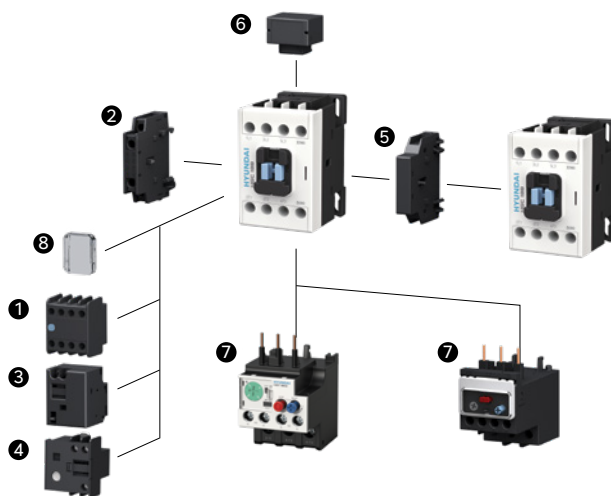
## Technical Data and Specifications

### Magnetic Contactor

#### 9 - 22 AF B type

| Standard Model Name                                 |                          |      | HGC9B                                                                                | HGC12B | HGC18B | HGC22B |  |
|-----------------------------------------------------|--------------------------|------|--------------------------------------------------------------------------------------|--------|--------|--------|--|
| UL 60947-4-1                                        |                          |      |                                                                                      |        |        |        |  |
| Pole                                                |                          |      | 3                                                                                    |        |        |        |  |
| Rated Frequency                                     |                          |      | 50/60 Hz                                                                             |        |        |        |  |
| Continuous Current (Ambient Temperature 104°F/40°C) |                          | A    | 25                                                                                   | 25     | 40     | 40     |  |
| Single Phase                                        | 1 P/110 - 120 V          | HP   | 0.5                                                                                  | 1      | 2      | 2      |  |
|                                                     | 1 P/220 - 240 V          |      | 1.5                                                                                  | 2      | 3      | 3      |  |
| Thress Phase                                        | 3 P/200 - 208 V          |      | 2                                                                                    | 3      | 7.5    | 7.5    |  |
|                                                     | 3 P/220 - 240 V          |      | 3                                                                                    | 5      | 7.5    | 10     |  |
|                                                     | 3 P/440 - 480 V          |      | 5                                                                                    | 7.5    | 10     | 15     |  |
|                                                     | 3 P/600 V                |      | 7.5                                                                                  | 10     | 15     | 20     |  |
| Mounting Method                                     |                          |      | Screw & Rail Mounting                                                                |        |        |        |  |
| Terminal                                            |                          |      | Screw Clamp Terminals                                                                |        |        |        |  |
| Auxiliary Contacts                                  |                          |      |                                                                                      |        |        |        |  |
| Standard (Side)                                     | Category of Coil Voltage | X, A | 1NO                                                                                  |        |        |        |  |
|                                                     |                          | D    | -                                                                                    |        |        |        |  |
| Additional (Front or side mount)                    |                          | X, A | 2NO 2NC                                                                              |        |        |        |  |
|                                                     |                          | D    | -                                                                                    |        |        |        |  |
| Dimensions                                          |                          |      |                                                                                      |        |        |        |  |
| W × H × D                                           | X, A                     | inch | 1.77 × 2.95 × 3.39                                                                   |        |        |        |  |
|                                                     | D                        |      | -                                                                                    |        |        |        |  |
| Weight                                              | X, A                     | lb   | 0.88                                                                                 |        |        |        |  |
|                                                     | D                        |      | -                                                                                    |        |        |        |  |
| Contact Arrangement                                 |                          |      |                                                                                      |        |        |        |  |
| Standard                                            | Main Contact             | 3a   |  |        |        |        |  |
|                                                     | Auxiliary Contact        | 1a   |                                                                                      |        |        |        |  |

#### Other Accessories



- ① Auxiliary Contact Block (Front) HGC TB
- ④ Electronic Timer Block HGC ET
- ⑦ Thermal Overload Relay HGT

- ② Auxiliary Contact Block (Side) HGC SB
- ⑤ Mechanical Interlock Unit HGC IU
- ⑧ Front Protection Cover HGCFC

- ③ Mechanical Latching Block HGC LB 100
- ⑥ Surge Suppressor HGC RC/CD

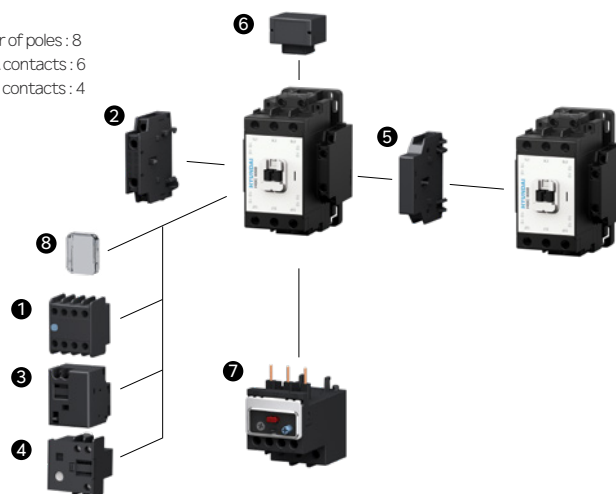
## 50 - 65 AF B type

| Standard Model Name                                 |                          |      | HGC50B                                      | HGC65B |  |
|-----------------------------------------------------|--------------------------|------|---------------------------------------------|--------|--|
| UL 60947-4-1                                        |                          |      |                                             |        |  |
| Pole                                                |                          |      | 3                                           |        |  |
| Rated Frequency                                     |                          |      | 50/60 Hz                                    |        |  |
| Continuous Current (Ambient Temperature 104°F/40°C) |                          | A    | 70                                          | 85     |  |
| Single Phase                                        | 1 P/110 - 120 V          | HP   | 3                                           | 5      |  |
|                                                     | 1 P/220 - 240 V          |      | 10                                          | 15     |  |
| Thress Phase                                        | 3 P/200 - 208 V          |      | 20                                          | 25     |  |
|                                                     | 3 P/220 - 240 V          |      | 25                                          | 30     |  |
|                                                     | 3 P/440 - 480 V          |      | 40                                          | 50     |  |
|                                                     | 3 P/600 V                |      | 50                                          | 60     |  |
| Mounting Method                                     |                          |      | Screw & Rail Mounting                       |        |  |
| Terminal                                            |                          |      | Screw Clamp Terminals or Lug Clamp Teminals |        |  |
| Auxiliary Contacts                                  |                          |      |                                             |        |  |
| Standard (Side)                                     | Category of Coil Voltage | X, A | 2NO 2NC                                     |        |  |
|                                                     |                          | D    | 2NO 1NC                                     |        |  |
| Additional (Front or side mount)                    |                          | X, A | 2NO 2NC                                     |        |  |
|                                                     |                          | D    | 1NO 1NC                                     |        |  |
| Dimensions                                          |                          |      |                                             |        |  |
| W × H × D                                           | X, A                     | inch | 3.15 × 4.87 × 4.21                          |        |  |
|                                                     | D                        |      | -                                           |        |  |
| Weight                                              | X, A                     | lb   | 1.76                                        |        |  |
|                                                     | D                        |      | -                                           |        |  |
| Contact Arrangement                                 |                          |      |                                             |        |  |
| Standard                                            | Main Contact             | 3a   |                                             |        |  |
|                                                     | Auxiliary Contact        | 2a2b |                                             |        |  |

## Other Accessories

## ※ Auxiliary Contact Limitations

- Standard + additional maximum number of poles : 8  
Maximum number of poles allowed for A contacts : 6  
Maximum number of poles allowed for B contacts : 4



- ① Auxiliary Contact Block (Front) HGC TB  
④ Electronic Timer Block HGC ET  
⑦ Thermal Overload Relay HGT

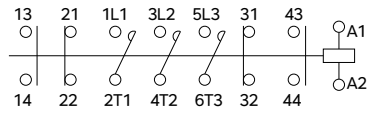
- ② Auxiliary Contact Block (Side) HGC SB  
⑤ Mechanical Interlock Unit HGC IU  
⑧ Front Protection Cover HGCFC

- ③ Mechanical Latching Block HGC LB 100  
⑥ Surge Suppressor HGC RC/CD

## Technical Data and Specifications

### Magnetic Contactor

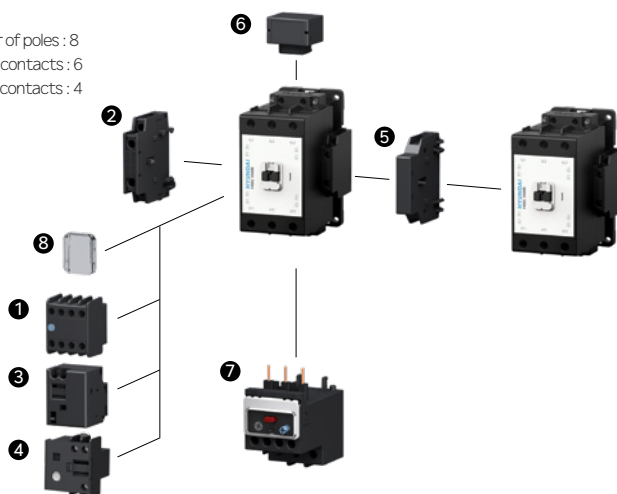
#### 75 - 100 AF B type

| Standard Model Name                                 |                          |      | HGC75B                                                                               | HGC85B | HGC100B |  |
|-----------------------------------------------------|--------------------------|------|--------------------------------------------------------------------------------------|--------|---------|--|
| UL 60947-4-1                                        |                          |      |                                                                                      |        |         |  |
| Pole                                                |                          |      | 3                                                                                    |        |         |  |
| Rated Frequency                                     |                          |      | 50/60 Hz                                                                             |        |         |  |
| Continuous Current (Ambient Temperature 104°F/40°C) |                          | A    | 115                                                                                  | 125    | 145     |  |
| Single Phase                                        | 1 P/110 - 120 V          | HP   | 7.5                                                                                  | 7.5    | 10      |  |
|                                                     | 1 P/220 - 240 V          |      | 15                                                                                   | 15     | 20      |  |
| Thress Phase                                        | 3 P/200 - 208 V          |      | 25                                                                                   | 30     | 30      |  |
|                                                     | 3 P/220 - 240 V          |      | 30                                                                                   | 40     | 40      |  |
|                                                     | 3 P/440 - 480 V          |      | 50                                                                                   | 60     | 75      |  |
|                                                     | 3 P/600 V                |      | 60                                                                                   | 75     | 75      |  |
| Mounting Method                                     |                          |      | Screw & Rai Mounting                                                                 |        |         |  |
| Terminal                                            |                          |      | Screw Clamp Terminals or Lug Clamp Teminals                                          |        |         |  |
| Auxiliary Contacts                                  |                          |      |                                                                                      |        |         |  |
| Standard (Side)                                     | Category of Coil Voltage | X, A | 2NO 2NC                                                                              |        |         |  |
|                                                     |                          | D    | 2NO 1NC                                                                              |        |         |  |
| Additional (Front or side mount)                    |                          | X, A | 2NO 2NC                                                                              |        |         |  |
|                                                     |                          | D    | 1NO 1NC                                                                              |        |         |  |
| Dimensions                                          |                          |      |                                                                                      |        |         |  |
| W × H × D                                           | X, A                     | inch | 3.74 × 5.75 × 6.02                                                                   |        |         |  |
|                                                     | D                        |      | -                                                                                    |        |         |  |
| Weight                                              | X, A                     | lb   | 2.87                                                                                 |        |         |  |
|                                                     | D                        |      | -                                                                                    |        |         |  |
| Contact Arrangement                                 |                          |      |                                                                                      |        |         |  |
| Standard                                            | Main Contact             | 3a   |  |        |         |  |
|                                                     | Auxiliary Contact        | 2a2b |                                                                                      |        |         |  |

#### Other Accessories

##### ※ Auxiliary Contact Limitations

- Standard + additional maximum number of poles : 8
- Maximum number of poles allowed for A contacts : 6
- Maximum number of poles allowed for B contacts : 4

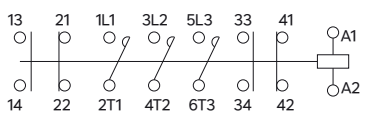


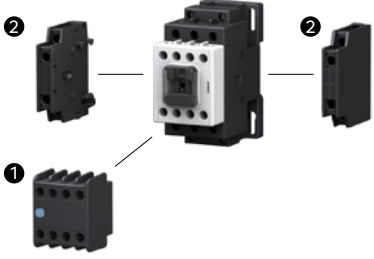
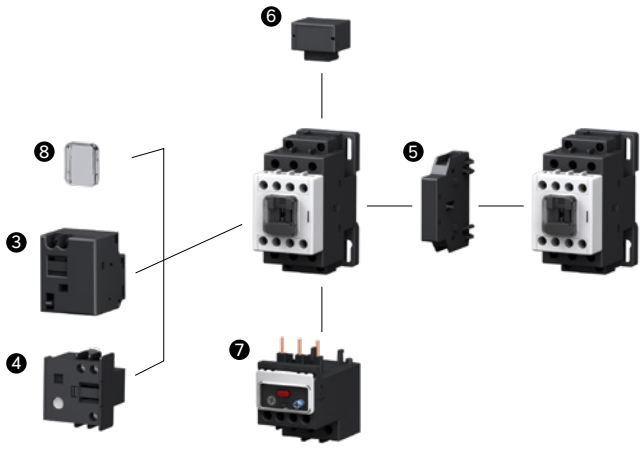
- 1 Auxiliary Contact Block (Front) HGC TB
- 4 Electronic Timer Block HGC ET
- 7 Thermal Overload Relay HGT

- 2 Auxiliary Contact Block (Side) HGC SB
- 5 Mechanical Interlock Unit HGC IU
- 8 Front Protection Cover HGCFC

- 3 Mechanical Latching Block HGC LB 100
- 6 Surge Suppressor HGC RC/CD

## 9 - 18 AF

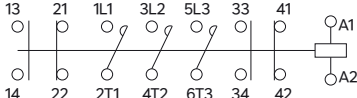
| Standard Model Name                                 |                          |      | HGC9                                                                                 | HGC12 | HGC18 |  |
|-----------------------------------------------------|--------------------------|------|--------------------------------------------------------------------------------------|-------|-------|--|
| UL 60947-4-1                                        |                          |      |                                                                                      |       |       |  |
| Pole                                                |                          |      | 3                                                                                    |       |       |  |
| Rated Frequency                                     |                          |      | 50/60 Hz                                                                             |       |       |  |
| Continuous Current (Ambient Temperature 104°F/40°C) |                          | A    | 25                                                                                   | 25    | 40    |  |
| Single Phase                                        | 1 P/110 - 120 V          | HP   | 0.5                                                                                  | 1     | 2     |  |
|                                                     | 1 P/220 - 240 V          |      | 1.5                                                                                  | 2     | 3     |  |
| Thress Phase                                        | 3 P/200 - 208 V          |      | 2                                                                                    | 3     | 7.5   |  |
|                                                     | 3 P/220 - 240 V          |      | 3                                                                                    | 5     | 7.5   |  |
|                                                     | 3 P/440 - 480 V          |      | 5                                                                                    | 7.5   | 10    |  |
|                                                     | 3 P/600 V                |      | 7.5                                                                                  | 10    | 15    |  |
| Mounting Method                                     |                          |      | Screw & Rail Mounting                                                                |       |       |  |
| Terminal                                            |                          |      | Screw Clamp Terminals                                                                |       |       |  |
| Auxiliary Contacts                                  |                          |      |                                                                                      |       |       |  |
| Standard                                            | Category of Coil Voltage | X, A | 1NO 1NC                                                                              |       |       |  |
|                                                     |                          | D    | 2NO 2NC                                                                              |       |       |  |
| Additional (Front or side mount)                    |                          | X, A | 2NO 2NC                                                                              |       |       |  |
|                                                     |                          | D    |                                                                                      |       |       |  |
| Dimensions                                          |                          |      |                                                                                      |       |       |  |
| W × H × D                                           | X, A                     | inch | 1.77 × 3.71 × 3.59                                                                   |       |       |  |
|                                                     | D                        |      | 1.77 × 3.71 × 4.88                                                                   |       |       |  |
| Weight                                              | X, A                     | lb   | 0.88                                                                                 |       |       |  |
|                                                     | D                        |      | 1.32                                                                                 |       |       |  |
| Contact Arrangement                                 |                          |      |                                                                                      |       |       |  |
| Standard                                            | Main Contact             | 3A   |  |       |       |  |
|                                                     | Auxiliary Contact        | 2A2B |                                                                                      |       |       |  |

| Auxiliary Contacts                                                                                                         | Other Accessories                                                                                                                                                                                                |
|----------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                         |                                                                                                                              |
| <p>1 Auxiliary Contact Block (Front) HGC TB</p> <p>4 Electronic Timer Block HGC ET</p> <p>7 Thermal Overload Relay HGT</p> | <p>2 Auxiliary Contact Block (Side) HGC SB</p> <p>3 Mechanical Latching Block HGC LB 100</p> <p>5 Mechanical Interlock Unit HGC IU</p> <p>6 Surge Suppressor HGC RC/CD</p> <p>8 Front Protection Cover HGCFC</p> |

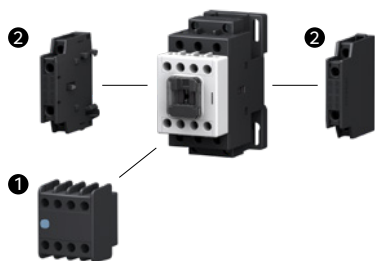
## Technical Data and Specifications

### Magnetic Contactor

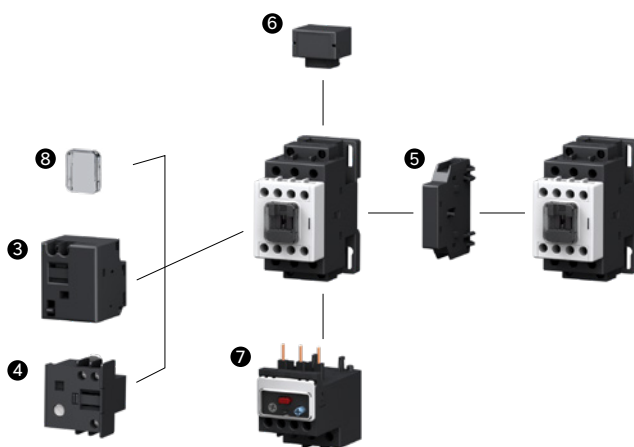
#### 25 - 40 AF

| Standard Model Name                                 |                          |      | HGC25                                                                                | HGC32 | HGC40 |  |
|-----------------------------------------------------|--------------------------|------|--------------------------------------------------------------------------------------|-------|-------|--|
| UL 60947-4-1                                        |                          |      |                                                                                      |       |       |  |
| Pole                                                |                          |      | 3                                                                                    |       |       |  |
| Rated Frequency                                     |                          |      | 50/60 Hz                                                                             |       |       |  |
| Continuous Current (Ambient Temperature 104°F/40°C) |                          | A    | 45                                                                                   | 55    | 60    |  |
| Single Phase                                        | 1 P/110 - 120 V          | HP   | 2                                                                                    | 3     | 3     |  |
|                                                     | 1 P/220 - 240 V          |      | 5                                                                                    | 5     | 7.5   |  |
| Thress Phase                                        | 3 P/200 - 208 V          |      | 7.5                                                                                  | 7.5   | 15    |  |
|                                                     | 3 P/220 - 240 V          |      | 10                                                                                   | 10    | 15    |  |
|                                                     | 3 P/440 - 480 V          |      | 15                                                                                   | 20    | 30    |  |
|                                                     | 3 P/600 V                |      | 20                                                                                   | 25    | 30    |  |
| Mounting Method                                     |                          |      | Screw & Rail Mounting                                                                |       |       |  |
| Terminal                                            |                          |      | Screw Clamp Terminals                                                                |       |       |  |
| Auxiliary Contacts                                  |                          |      |                                                                                      |       |       |  |
| Standard                                            | Category of Coil Voltage | X, A | 1NO 1NC<br>2NO 2NC                                                                   |       |       |  |
|                                                     |                          | D    |                                                                                      |       |       |  |
| Additional (Front or side mount)                    |                          | X, A | 2NO 2NC                                                                              |       |       |  |
|                                                     |                          | D    |                                                                                      |       |       |  |
| Dimensions                                          |                          |      |                                                                                      |       |       |  |
| W × H × D                                           | X, A                     | inch | 1.77 × 3.92 × 3.8                                                                    |       |       |  |
|                                                     | D                        |      | 1.77 × 3.92 × 5.1                                                                    |       |       |  |
| Weight                                              | X, A                     | lb   | 1.10                                                                                 |       |       |  |
|                                                     | D                        |      | 1.43                                                                                 |       |       |  |
| Contact Arrangement                                 |                          |      |                                                                                      |       |       |  |
| Standard                                            | Main Contact             | 3A   |  |       |       |  |
|                                                     | Auxiliary Contact        | 2A2B |                                                                                      |       |       |  |

#### Auxiliary Contacts



#### Other Accessories

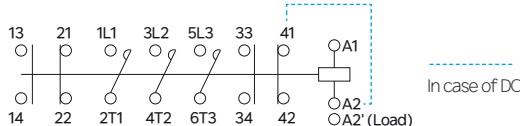


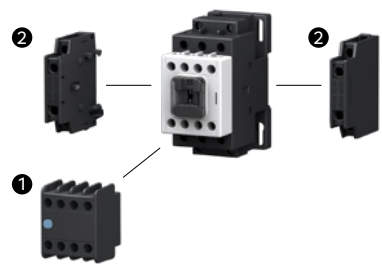
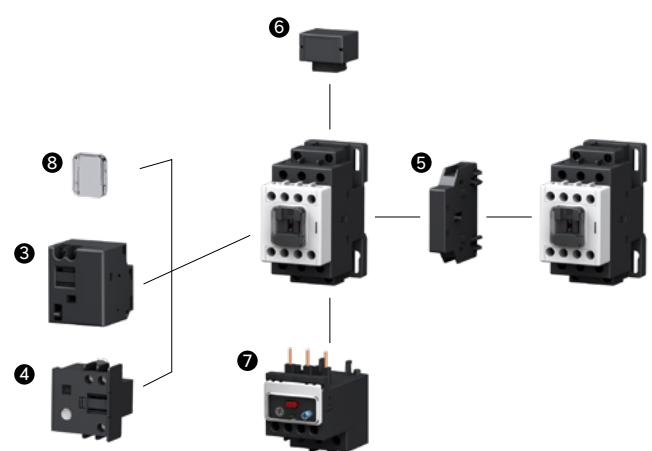
- ① Auxiliary Contact Block (Front) HGC TB
- ④ Electronic Timer Block HGC ET
- ⑦ Thermal Overload Relay HGT

- ② Auxiliary Contact Block (Side) HGC SB
- ⑤ Mechanical Interlock Unit HGC IU
- ⑧ Front Protection Cover HGCFC

- ③ Mechanical Latching Block HGC LB 100
- ⑥ Surge Suppressor HGC RC/CD

## 50 - 65 AF

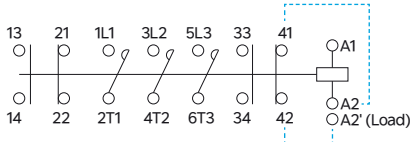
| Standard Model Name                                 |                          |      | HGC50                                                                                |    | HGC65 |  |
|-----------------------------------------------------|--------------------------|------|--------------------------------------------------------------------------------------|----|-------|--|
| UL 60947-4-1                                        |                          |      |                                                                                      |    |       |  |
| Pole                                                |                          |      | 3                                                                                    |    |       |  |
| Rated Frequency                                     |                          |      | 50/60 Hz                                                                             |    |       |  |
| Continuous Current (Ambient Temperature 104°F/40°C) |                          | A    | 70                                                                                   | 85 |       |  |
| Single Phase                                        | 1 P/110 - 120 V          | HP   | 3                                                                                    | 5  |       |  |
|                                                     | 1 P/220 - 240 V          |      | 10                                                                                   | 15 |       |  |
| Thress Phase                                        | 3 P/200 - 208 V          |      | 20                                                                                   | 25 |       |  |
|                                                     | 3 P/220 - 240 V          |      | 25                                                                                   | 30 |       |  |
|                                                     | 3 P/440 - 480 V          |      | 40                                                                                   | 50 |       |  |
|                                                     | 3 P/600 V                |      | 50                                                                                   | 60 |       |  |
| Mounting Method                                     |                          |      | Screw & Rail Mounting                                                                |    |       |  |
| Terminal                                            |                          |      | Screw Clamp Terminals or Lug Clamp Teminals                                          |    |       |  |
| Auxiliary Contacts                                  |                          |      |                                                                                      |    |       |  |
| Standard                                            | Category of Coil Voltage | X, A | 2NO 2NC                                                                              |    |       |  |
|                                                     |                          | D    | 2NO 1NC                                                                              |    |       |  |
| Additional (Front or side mount)                    |                          | X, A | 2NO 2NC                                                                              |    |       |  |
|                                                     |                          | D    | 1NO 1NC                                                                              |    |       |  |
| Dimensions                                          |                          |      |                                                                                      |    |       |  |
| W × H × D                                           | X, A                     | inch | 2.17 × 4.87 × 4.96                                                                   |    |       |  |
|                                                     | D                        |      |                                                                                      |    |       |  |
| Weight                                              | X, A                     | lb   | 1.76                                                                                 |    |       |  |
|                                                     | D                        |      |                                                                                      |    |       |  |
| Contact Arrangement                                 |                          |      |                                                                                      |    |       |  |
| Standard                                            | Main Contact             | 3A   |  |    |       |  |
|                                                     | Auxiliary Contact        | 2A2B |                                                                                      |    |       |  |

| Auxiliary Contacts                                                                                                         | Other Accessories                                                                                                                                                                                               |
|----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                         |                                                                                                                             |
| <p>1 Auxiliary Contact Block (Front) HGC TB</p> <p>4 Electronic Timer Block HGC ET</p> <p>7 Thermal Overload Relay HGT</p> | <p>2 Auxiliary Contact Block (Side) HGC SB</p> <p>5 Mechanical Interlock Unit HGC IU</p> <p>6 Surge Suppressor HGC RC/CD</p> <p>3 Mechanical Latching Block HGC LB 100</p> <p>8 Front Protection Cover HGCF</p> |

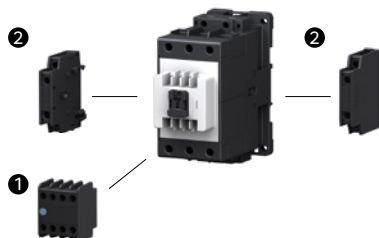
## Technical Data and Specifications

### Magnetic Contactor

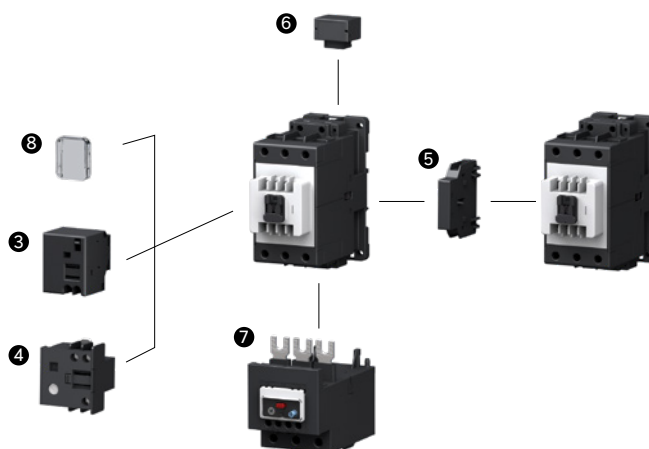
#### 75 - 100 AF

| Standard Model Name                                 |                          |      | HGC75                                                                                | HGC85 | HGC100 |  |
|-----------------------------------------------------|--------------------------|------|--------------------------------------------------------------------------------------|-------|--------|--|
| UL 60947-4-1                                        |                          |      |                                                                                      |       |        |  |
| Pole                                                |                          |      | 3                                                                                    |       |        |  |
| Rated Frequency                                     |                          |      | 50/60 Hz                                                                             |       |        |  |
| Continuous Current (Ambient Temperature 104°F/40°C) |                          | A    | 115                                                                                  | 125   | 145    |  |
| Single Phase                                        | 1 P/110 - 120 V          | HP   | 7.5                                                                                  | 7.5   | 10     |  |
|                                                     | 1 P/220 - 240 V          |      | 15                                                                                   | 15    | 20     |  |
| Thress Phase                                        | 3 P/200 - 208 V          |      | 25                                                                                   | 30    | 30     |  |
|                                                     | 3 P/220 - 240 V          |      | 30                                                                                   | 40    | 40     |  |
|                                                     | 3 P/440 - 480 V          |      | 50                                                                                   | 60    | 75     |  |
|                                                     | 3 P/600 V                |      | 60                                                                                   | 75    | 75     |  |
| Mounting Method                                     |                          |      | Screw & Rail Mounting                                                                |       |        |  |
| Terminal                                            |                          |      | Screw Clamp Terminals or Lug Clamp Teminals                                          |       |        |  |
| Auxiliary Contacts                                  |                          |      |                                                                                      |       |        |  |
| Standard                                            | Category of Coil Voltage | X, A | 2NO 2NC                                                                              |       |        |  |
|                                                     |                          | D    | 2NO 1NC                                                                              |       |        |  |
| Additional (Front or side mount)                    |                          | X, A | 2NO 2NC                                                                              |       |        |  |
|                                                     |                          | D    | 1NO 1NC                                                                              |       |        |  |
| Dimensions                                          |                          |      |                                                                                      |       |        |  |
| W × H × D                                           | X, A                     | inch | 2.76 × 5.75 × 6.02                                                                   |       |        |  |
|                                                     | D                        |      |                                                                                      |       |        |  |
| Weight                                              | X, A                     | lb   | 2.87                                                                                 |       |        |  |
|                                                     | D                        |      |                                                                                      |       |        |  |
| Contact Arrangement                                 |                          |      |                                                                                      |       |        |  |
| Standard                                            | Main Contact             | 3A   |  |       |        |  |
|                                                     | Auxiliary Contact        | 2A2B |                                                                                      |       |        |  |

#### Auxiliary Contacts



#### Other Accessories

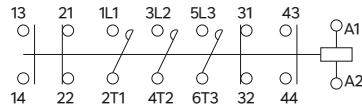


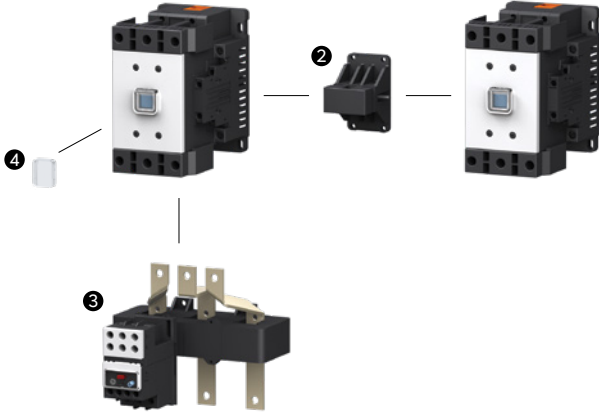
- ① Auxiliary Contact Block (Front) HGC TB
- ④ Electronic Timer Block HGC ET
- ⑦ Thermal Overload Relay HGT

- ② Auxiliary Contact Block (Side) HGC SB
- ⑤ Mechanical Interlock Unit HGC IU
- ⑧ Front Protection Cover HGCFC

- ③ Mechanical Latching Block HGC LB 100
- ⑥ Surge Suppressor HGC RC/CD

# 115 - 150 AF

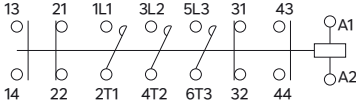
| Standard Model Name                                 |                          |      | HGC115                                                                               | HGC130 | HGC150 |
|-----------------------------------------------------|--------------------------|------|--------------------------------------------------------------------------------------|--------|--------|
| UL 60947-4-1                                        |                          |      |                                                                                      |        |        |
| Pole                                                |                          |      | 3                                                                                    |        |        |
| Rated Frequency                                     |                          |      | 50/60 Hz                                                                             |        |        |
| Continuous Current (Ambient Temperature 104°F/40°C) |                          | A    | 160                                                                                  | 180    | 210    |
| Single Phase                                        | 1 P/110 - 120 V          | HP   | 10                                                                                   | 10     | 15     |
|                                                     | 1 P/220 - 240 V          |      | 20                                                                                   | 20     | 25     |
| Thress Phase                                        | 3 P/200 - 208 V          |      | 30                                                                                   | 40     | 40     |
|                                                     | 3 P/220 - 240 V          |      | 40                                                                                   | 40     | 50     |
|                                                     | 3 P/440 - 480 V          |      | 75                                                                                   | 75     | 100    |
|                                                     | 3 P/600 V                |      | 75                                                                                   | 75     | 100    |
| Mounting Method                                     |                          |      | Screw Mounting                                                                       |        |        |
| Terminal                                            |                          |      | Screw Clamp Terminals                                                                |        |        |
| Auxiliary Contacts                                  |                          |      |                                                                                      |        |        |
| Standard                                            | Category of Coil Voltage | F    | 2NO 2NC                                                                              |        |        |
| Additional (Side mount)                             |                          |      | 2NO 2NC                                                                              |        |        |
| Dimensions                                          |                          |      |                                                                                      |        |        |
| W × H × D                                           | F                        | inch | 4.06 × 6.1 × 5.71                                                                    |        |        |
| Weight                                              |                          | lb   | 5.95                                                                                 |        |        |
| Contact Arrangement                                 |                          |      |                                                                                      |        |        |
| Standard                                            | Main Contact             | 3A   |  |        |        |
|                                                     | Auxiliary Contact        | 2A2B |                                                                                      |        |        |

| Auxiliary Contacts                                                                  | Other Accessories                                                                    |                                                                                      |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
|  |  |  |
| <p>① Auxiliary Contact Block (Side) HGC SB</p> <p>④ Front Protection Cover HGCF</p> | <p>② Mechanical Interlock Unit HGC IU</p>                                            | <p>③ Thermal Overload Relay HGT</p>                                                  |

## Technical Data and Specifications

### Magnetic Contactor

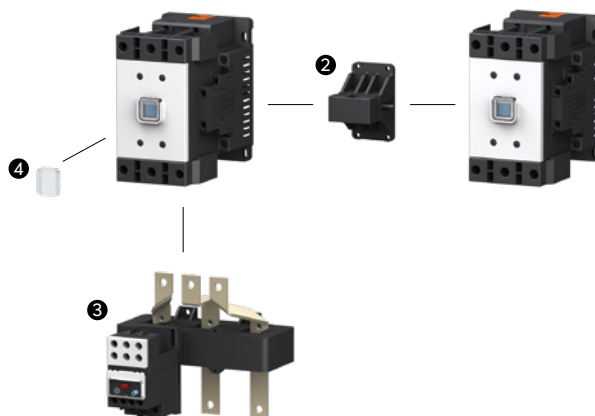
#### 185 - 265 AF

| Standard Model Name                                 |                          |      | HGC185                                                                               | HGC225 | HGC265 |  |
|-----------------------------------------------------|--------------------------|------|--------------------------------------------------------------------------------------|--------|--------|--|
| UL 60947-4-1                                        |                          |      |                                                                                      |        |        |  |
| Pole                                                |                          |      | 3                                                                                    |        |        |  |
| Rated Frequency                                     |                          |      | 50/60 Hz                                                                             |        |        |  |
| Continuous Current (Ambient Temperature 104°F/40°C) |                          | A    | 275                                                                                  | 315    | 350    |  |
| Single Phase                                        | 1 P/110 - 120 V          | HP   | 15                                                                                   | 15     | -      |  |
|                                                     | 1 P/220 - 240 V          |      | 30                                                                                   | 40     | -      |  |
| Thress Phase                                        | 3 P/200 - 208 V          |      | 60                                                                                   | 60     | 75     |  |
|                                                     | 3 P/220 - 240 V          |      | 60                                                                                   | 75     | 100    |  |
|                                                     | 3 P/440 - 480 V          |      | 125                                                                                  | 150    | 200    |  |
|                                                     | 3P/600 V                 |      | 125                                                                                  | 150    | 200    |  |
| Mounting Method                                     |                          |      | Screw Mounting                                                                       |        |        |  |
| Terminal                                            |                          |      | Screw Clamp Terminals                                                                |        |        |  |
| Auxiliary Contacts                                  |                          |      |                                                                                      |        |        |  |
| Standard                                            | Category of Coil Voltage | F    | 2NO 2NC                                                                              |        |        |  |
| Additional (Side mount)                             |                          |      | 2NO 2NC                                                                              |        |        |  |
| Dimensions                                          |                          |      |                                                                                      |        |        |  |
| W × H × D                                           | F                        | inch | 5.43 × 8.03 × 6.86                                                                   |        |        |  |
| Weight                                              |                          | lb   | 10.6                                                                                 |        |        |  |
| Contact Arrangement                                 |                          |      |                                                                                      |        |        |  |
| Standard                                            | Main Contact             | 3A   |  |        |        |  |
|                                                     | Auxiliary Contact        | 2A2B |                                                                                      |        |        |  |

#### Auxiliary Contacts



#### Other Accessories

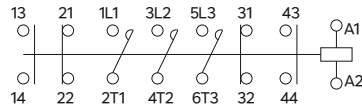


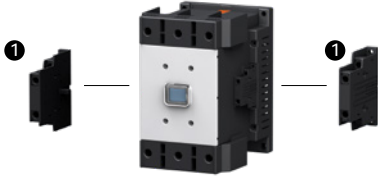
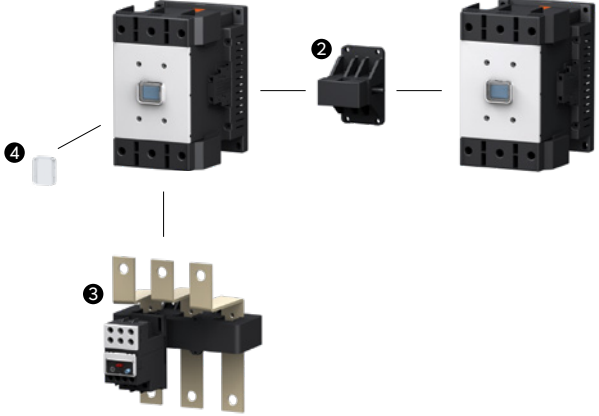
- ① Auxiliary Contact Block (Side) HGC SB  
④ Front Protection Cover HGCFC

- ② Mechanical Interlock Unit HGC IU

- ③ Thermal Overload Relay HGT

# 300 - 500 AF

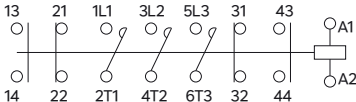
| Standard Model Name                                  |                          |      | HGC300                                                                               | HGC400 | HGC500 |
|------------------------------------------------------|--------------------------|------|--------------------------------------------------------------------------------------|--------|--------|
| UL 60947-4-1                                         |                          |      |                                                                                      |        |        |
| Pole                                                 |                          |      | 3                                                                                    |        |        |
| Rated Frequency                                      |                          |      | 50/60 Hz                                                                             |        |        |
| Continuous Current (Ambient Temperature 104°F /40°C) |                          | A    | 400                                                                                  | 500    | 550    |
| Single Phase                                         | 1 P/110 - 120 V          | HP   | -                                                                                    | -      | -      |
|                                                      | 1 P/220 - 240 V          |      | -                                                                                    | -      | -      |
| Thress Phase                                         | 3 P/200 - 208 V          |      | 100                                                                                  | 125    | 150    |
|                                                      | 3 P/220 - 240 V          |      | 100                                                                                  | 150    | 200    |
|                                                      | 3 P/440 - 480 V          |      | 250                                                                                  | 300    | 400    |
|                                                      | 3 P/600 V                |      | 200                                                                                  | 300    | 400    |
| Mounting Method                                      |                          |      | Screw Mounting                                                                       |        |        |
| Terminal                                             |                          |      | Screw Clamp Terminals                                                                |        |        |
| Auxiliary Contacts                                   |                          |      |                                                                                      |        |        |
| Standard                                             | Category of Coil Voltage | F    | 2NO 2NC                                                                              |        |        |
| Additional (Side mount)                              |                          |      | 2NO 2NC                                                                              |        |        |
| Dimensions                                           |                          |      |                                                                                      |        |        |
| W × H × D                                            | F                        | inch | 6.42 × 9.57 × 7.99                                                                   |        |        |
| Weight                                               |                          | lb   | 20.3                                                                                 |        |        |
| Contact Arrangement                                  |                          |      |                                                                                      |        |        |
| Standard                                             | Main Contact             | 3A   |  |        |        |
|                                                      | Auxiliary Contact        | 2A2B |                                                                                      |        |        |

| Auxiliary Contacts                                                                   | Other Accessories                                                                    |  |
|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--|
|   |  |  |
| <p>① Auxiliary Contact Block (Side) HGC SB</p> <p>④ Front Protection Cover HGCFC</p> | <p>② Mechanical Interlock Unit HGC IU</p> <p>③ Thermal Overload Relay HGT</p>        |  |

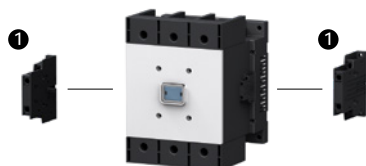
## Technical Data and Specifications

### Magnetic Contactor

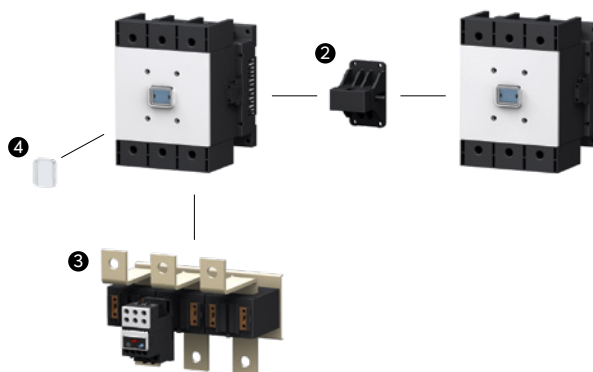
#### 630 - 800 AF

| Standard Model Name                                 |                          |      | HGC630                                                                               | HGC800 |  |
|-----------------------------------------------------|--------------------------|------|--------------------------------------------------------------------------------------|--------|--|
| UL 60947-4-1                                        |                          |      |                                                                                      |        |  |
| Pole                                                |                          |      | 3                                                                                    |        |  |
| Rated Frequency                                     |                          |      | 50/60 Hz                                                                             |        |  |
| Continuous Current (Ambient Temperature 104°F/40°C) |                          | A    | 750                                                                                  | 900    |  |
| Single Phase                                        | 1 P/110 - 120 V          | HP   | -                                                                                    | -      |  |
|                                                     | 1 P/220 - 240 V          |      | -                                                                                    | -      |  |
| Thress Phase                                        | 3 P/200 - 208 V          |      | 200                                                                                  | 300    |  |
|                                                     | 3 P/220 - 240 V          |      | 250                                                                                  | 350    |  |
|                                                     | 3 P/440 - 480 V          |      | 500                                                                                  | 600    |  |
|                                                     | 3 P/600 V                |      | 500                                                                                  | 600    |  |
| Mounting Method                                     |                          |      | Screw Mounting                                                                       |        |  |
| Terminal                                            |                          |      | Screw Clamp Terminals                                                                |        |  |
| Auxiliary Contacts                                  |                          |      |                                                                                      |        |  |
| Standard                                            | Category of Coil Voltage | F    | 2NO 2NC                                                                              |        |  |
| Additional (Side mount)                             |                          |      | 2NO 2NC                                                                              |        |  |
| Dimensions                                          |                          |      |                                                                                      |        |  |
| W × H × D                                           | F                        | inch | 10.87 × 12.36 × 1.05                                                                 |        |  |
| Weight                                              |                          | lb   | 55.1                                                                                 |        |  |
| Contact Arrangement                                 |                          |      |                                                                                      |        |  |
| Standard                                            | Main Contact             | 3A   |  |        |  |
|                                                     | Auxiliary Contact        | 2A2B |                                                                                      |        |  |

#### Auxiliary Contacts



#### Other Accessories



- ① Auxiliary Contact Block (Side) HGC SB  
④ Front Protection Cover HGCFC

- ② Mechanical Interlock Unit HGC IU

- ③ Thermal Overload Relay HGT

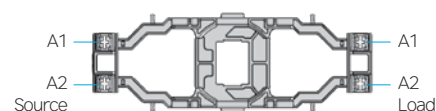
## Technical Data

### Operational Coil Ratings

#### HGC

| Magnetic Contactor Model Name                                                                                                                                                                                                                                                                                                |                                                    |                  |      | HGC9                    | HGC12   | HGC18   | HGC25   | HGC32                                  | HGC40   | HGC50   | HGC65   | HGC75   | HGC85   | HGC100  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|------------------|------|-------------------------|---------|---------|---------|----------------------------------------|---------|---------|---------|---------|---------|---------|
| Power Consumption                                                                                                                                                                                                                                                                                                            |                                                    |                  |      |                         |         |         |         |                                        |         |         |         |         |         |         |
| AC, DC                                                                                                                                                                                                                                                                                                                       | AC Operation<br>(220 V/60 Hz)                      | Closed           | VA   | 80                      | 80      | 80      | 80      | 80                                     | 80      | 200     | 200     | 300     | 300     | 300     |
|                                                                                                                                                                                                                                                                                                                              |                                                    | Maintained       | VA/W | 11/2.75                 | 11/2.75 | 11/2.75 | 11/2.75 | 11/2.75                                | 11/2.75 | 16/5.3  | 16/5.3  | 25/10   | 25/10   | 25/10   |
|                                                                                                                                                                                                                                                                                                                              | DC Operation                                       | Closed           | W    | 10                      | 10      | 10      | 10      | 10                                     | 10      | 200     | 200     | 350     | 350     | 350     |
|                                                                                                                                                                                                                                                                                                                              |                                                    | Maintained       | W    | 10                      | 10      | 10      | 10      | 10                                     | 10      | 5       | 5       | 8       | 8       | 8       |
| Both<br>AC·DC                                                                                                                                                                                                                                                                                                                | AC Operation<br>(220 V/60 Hz)                      | Closed           | VA   | -                       | -       | -       | -       | -                                      | -       | -       | -       | -       | -       | -       |
|                                                                                                                                                                                                                                                                                                                              |                                                    | Maintained       | VA/W | -                       | -       | -       | -       | -                                      | -       | -       | -       | -       | -       | -       |
|                                                                                                                                                                                                                                                                                                                              | AC Operation<br>(110 V/60 Hz)                      | Closed           | VA   | -                       | -       | -       | -       | -                                      | -       | -       | -       | -       | -       | -       |
|                                                                                                                                                                                                                                                                                                                              |                                                    | Maintained       | VA/W | -                       | -       | -       | -       | -                                      | -       | -       | -       | -       | -       | -       |
|                                                                                                                                                                                                                                                                                                                              | DC Operation                                       | Closed           | W    | -                       | -       | -       | -       | -                                      | -       | -       | -       | -       | -       | -       |
|                                                                                                                                                                                                                                                                                                                              |                                                    | Maintained       | W    | -                       | -       | -       | -       | -                                      | -       | -       | -       | -       | -       | -       |
| Operating Time                                                                                                                                                                                                                                                                                                               |                                                    |                  |      |                         |         |         |         |                                        |         |         |         |         |         |         |
| AC, DC                                                                                                                                                                                                                                                                                                                       | When Closed,<br>Coil On → Main<br>Contact On       | AC               | msec | 12 - 30                 | 12 - 30 | 12 - 30 | 12 - 30 | 12 - 30                                | 12 - 30 | 9 - 18  | 9 - 18  | 15 - 30 | 15 - 30 | 15 - 30 |
|                                                                                                                                                                                                                                                                                                                              |                                                    | DC               |      | 45 - 55                 | 45 - 55 | 45 - 55 | 45 - 55 | 45 - 55                                | 45 - 55 | 10 - 18 | 10 - 18 | 15 - 30 | 15 - 30 | 15 - 30 |
| Both<br>DC·AC                                                                                                                                                                                                                                                                                                                |                                                    | AC               |      | -                       | -       | -       | -       | -                                      | -       | -       | -       | -       | -       | -       |
|                                                                                                                                                                                                                                                                                                                              |                                                    | DC               |      | -                       | -       | -       | -       | -                                      | -       | -       | -       | -       | -       | -       |
| AC, DC                                                                                                                                                                                                                                                                                                                       | When<br>Blocked, Coil<br>Off → Main<br>Contact Off | AC               |      | 8 - 15                  | 8 - 15  | 8 - 15  | 8 - 15  | 8 - 15                                 | 8 - 15  | 13 - 20 | 13 - 20 | 13 - 20 | 13 - 20 | 13 - 20 |
|                                                                                                                                                                                                                                                                                                                              |                                                    | DC               |      | 6 - 18                  | 6 - 18  | 6 - 18  | 6 - 18  | 6 - 18                                 | 6 - 18  | 13 - 20 | 13 - 20 | 13 - 20 | 13 - 20 | 13 - 20 |
| Both<br>DC·AC                                                                                                                                                                                                                                                                                                                |                                                    | AC               |      | -                       | -       | -       | -       | -                                      | -       | -       | -       | -       | -       | -       |
|                                                                                                                                                                                                                                                                                                                              |                                                    | DC               |      | -                       | -       | -       | -       | -                                      | -       | -       | -       | -       | -       | -       |
| Operation TR                                                                                                                                                                                                                                                                                                                 |                                                    |                  |      |                         |         |         |         |                                        |         |         |         |         |         |         |
| AC, DC                                                                                                                                                                                                                                                                                                                       |                                                    | Min.<br>Capacity | VA   | 60                      | 60      | 60      | 60      | 60                                     | 60      | 150     | 150     | 200     | 200     | 200     |
| Both DC·AC                                                                                                                                                                                                                                                                                                                   |                                                    |                  |      | -                       | -       | -       | -       | -                                      | -       | -       | -       | -       | -       | -       |
| Type of Operation Coil Voltage                                                                                                                                                                                                                                                                                               |                                                    |                  |      |                         |         |         |         |                                        |         |         |         |         |         |         |
| 1. Voltage : 85 - 110 %<br>(Drop-out Voltage : 20 - 60%)<br>2. Exceeding the rated voltage causes damage<br>in coil and electronic parts, ultimately<br>reducing the product performance.<br>3. If operational voltage other than the rated<br>voltage is required, it can be customized.<br>Contact our company upon order. |                                                    |                  |      | ItemOperational Voltage |         |         |         |                                        |         |         |         |         |         |         |
|                                                                                                                                                                                                                                                                                                                              |                                                    |                  |      | AC 50 Hz                |         |         |         | 24, 48, 110, 120, 220, 240, 380, 440 V |         |         |         |         |         |         |
|                                                                                                                                                                                                                                                                                                                              |                                                    |                  |      | AC 60 Hz                |         |         |         | 24, 48, 110, 120, 220, 240, 380, 440 V |         |         |         |         |         |         |
|                                                                                                                                                                                                                                                                                                                              |                                                    |                  |      | DC                      |         |         |         | 24, 48, 110, 125, 220 V                |         |         |         |         |         |         |

※ The operating time of the product for both DC/AC is the average data based on AC 220 V 60 Hz, DC 110 V. As for HGC9-100, the A1 and A2 terminal at the live and load side is not separately respectively and as it is common (connected), ensure that short-circuit does not occur during wiring.



### Auxiliary Contact Ratings

#### IEC 60947



|                                 |                        |      |                   |     |                        |       |                   |       |
|---------------------------------|------------------------|------|-------------------|-----|------------------------|-------|-------------------|-------|
| Rated Insulation Voltage (Ui)   | AC 750 V               |      |                   |     |                        |       |                   |       |
| Rated Operational Current (Ith) | 16 A                   |      |                   |     |                        |       |                   |       |
| Minimum load                    | 10 mA at 24 V DC       |      |                   |     |                        |       |                   |       |
| Rated Current                   | AC 12 (Resistive Load) |      | AC 15 (Coil Load) |     | DC 12 (Resistive Load) |       | DC 13 (Coil Load) |       |
|                                 | 110 V                  | 10 A | 110 V             | 6 A | 24 V                   | 4 A   | 24 V              | 4 A   |
|                                 | 220 V                  | 8 A  | 220 V             | 4 A | 48 V                   | 2.5 A | 48 V              | 2.5 A |
|                                 | 440 V                  | 6 A  | 440 V             | 3 A | 125 V                  | 1.1 A | 125 V             | 1.1 A |
|                                 | 690 V                  | 2 A  | 690 V             | 2 A | 220 V                  | 0.3 A | 250 V             | 0.3 A |

## Technical Data

### Operational Coil Ratings

#### HGC

| Magnetic Contactor Model Name |                                                    |                  |      | HGC115  | HGC130  | HGC150  | HGC185  | HGC225  | HGC265  | HGC300  | HGC400  | HGC500  | HGC630  | HGC800  |
|-------------------------------|----------------------------------------------------|------------------|------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Power Consumption             |                                                    |                  |      |         |         |         |         |         |         |         |         |         |         |         |
| AC, DC                        | AC Operation<br>(220 V/60 Hz)                      | Closed           | VA   | -       | -       | -       | -       | -       | -       | -       | -       | -       | -       | -       |
|                               |                                                    | Maintained       | VA/W | -       | -       | -       | -       | -       | -       | -       | -       | -       | -       | -       |
|                               | DC Operation                                       | Closed           | W    | -       | -       | -       | -       | -       | -       | -       | -       | -       | -       | -       |
|                               |                                                    | Maintained       | W    | -       | -       | -       | -       | -       | -       | -       | -       | -       | -       | -       |
| Both<br>AC·DC                 | AC Operation<br>(220 V/60 Hz)                      | Closed           | VA   | 530     | 530     | 530     | 360     | 360     | 360     | 390     | 390     | 390     | 1,700   | 1,700   |
|                               |                                                    | Maintained       | VA/W | 14/7.2  | 14/7.2  | 14/7.2  | 15/9.4  | 15/9.4  | 15/9.4  | 18/11.2 | 18/11.2 | 18/11.2 | 54/33.5 | 54/33.5 |
|                               | AC Operation<br>(110 V/60 Hz)                      | Closed           | VA   | 240     | 240     | 240     | 250     | 250     | 250     | 250     | 250     | 250     | 850     | 850     |
|                               |                                                    | Maintained       | VA/W | 3.3/2.1 | 3.3/2.1 | 3.3/2.1 | 6.4/4.4 | 6.4/4.4 | 6.4/4.4 | 6.4/4.4 | 6.4/4.4 | 6.4/4.4 | 10.5/8  | 10.5/8  |
|                               | DC Operation                                       | Closed           | W    | 193     | 193     | 193     | 420     | 420     | 420     | 420     | 420     | 420     | 850     | 850     |
|                               |                                                    | Maintained       | W    | 2.6     | 2.6     | 2.6     | 3.4     | 3.4     | 3.4     | 3.4     | 3.4     | 3.4     | 9.5     | 9.5     |
| Operating Time                |                                                    |                  |      |         |         |         |         |         |         |         |         |         |         |         |
| AC, DC                        | When Closed,<br>Coil On → Main<br>Contact On       | AC               | msec | -       | -       | -       | -       | -       | -       | -       | -       | -       | -       | -       |
| Both<br>DC·AC                 |                                                    | DC               |      | -       | -       | -       | -       | -       | -       | -       | -       | -       | -       | -       |
|                               |                                                    | AC               |      | 40-80   | 40-80   | 40-80   | 40-80   | 40-80   | 40-80   | 40-80   | 40-80   | 40-80   | 45-150  | 45-150  |
|                               |                                                    | DC               |      | 70-80   | 70-80   | 70-80   | 35-45   | 35-70   | 35-70   | 35-70   | 35-70   | 35-70   | 45-150  | 45-150  |
| AC, DC                        | When<br>Blocked, Coil<br>Off → Main<br>Contact Off | AC               |      | -       | -       | -       | -       | -       | -       | -       | -       | -       | -       | -       |
| Both<br>DC·AC                 |                                                    | DC               |      | -       | -       | -       | -       | -       | -       | -       | -       | -       | -       | -       |
|                               |                                                    | AC               |      | 18-25   | 18-25   | 18-25   | 40-50   | 40-50   | 40-50   | 35-50   | 35-50   | 35-50   | 45-150  | 45-150  |
|                               |                                                    | DC               |      | 15-20   | 15-20   | 15-20   | 35-45   | 35-45   | 35-45   | 35-45   | 35-45   | 35-45   | 45-150  | 45-150  |
| Operation TR                  |                                                    |                  |      |         |         |         |         |         |         |         |         |         |         |         |
| AC, DC                        |                                                    | Min.<br>Capacity | VA   | -       | -       | -       | -       | -       | -       | -       | -       | -       | -       | -       |
| Both DC·AC                    |                                                    |                  |      | 200     | 200     | 200     | 200     | 200     | 200     | 200     | 200     | 200     | 1,000   | 1,000   |

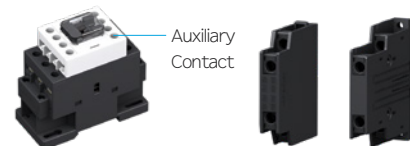
AC/DC

| Nominal Voltage | AC          | DC          |
|-----------------|-------------|-------------|
| 220 V           | 100 - 240 V | 110 - 220 V |
| 440 V           | 380 - 450 V | -           |

AC/DC

| Nominal Voltage | AC          | DC          |
|-----------------|-------------|-------------|
| 110 V           | 100 - 127 V | 100 - 110 V |
| 220 V           | 200 - 240 V | 200 - 220 V |
| 440 V           | 380 - 450 V | -           |

#### UL and CSA



|               |                  |       |       |       |
|---------------|------------------|-------|-------|-------|
| Current       | 16 A             |       |       |       |
| Minimum load  | 10 mA at 24 V DC |       |       |       |
| Rated Current | AC               |       | DC    |       |
|               | 120 V            | 6 A   | 125 V | 1.1 A |
|               | 240 V            | 3 A   | 250 V | 0.3 A |
|               | 480 V            | 1.5 A | 440 V | 0.2 A |
|               | 600 V            | 1.2 A | 600 V | 0.2 A |

※ Contact Rating Code : A600 - P150

## Effect on Magnetic Contactor Depending on the Cable Length of Control Circuit

### Input Defect caused by Voltage Drop Following Inrush Current and Resistive (AC/DC)

Voltage drop occurs on the control circuit cable due to inrush current that is generated when the operational coil power of the contact is supplied. Due to such, the input into the magnetic contactor may fail. Therefore, the length of the conductor has to be reviewed within the appropriate limit by reviewing the input power consumption, supply voltage and the cross sectional area of the circuit conductor and others.

#### Calculation of the Allowable Conductor Length Following Inrush Power

This graph indicates the maximum 5 % line voltage drop.

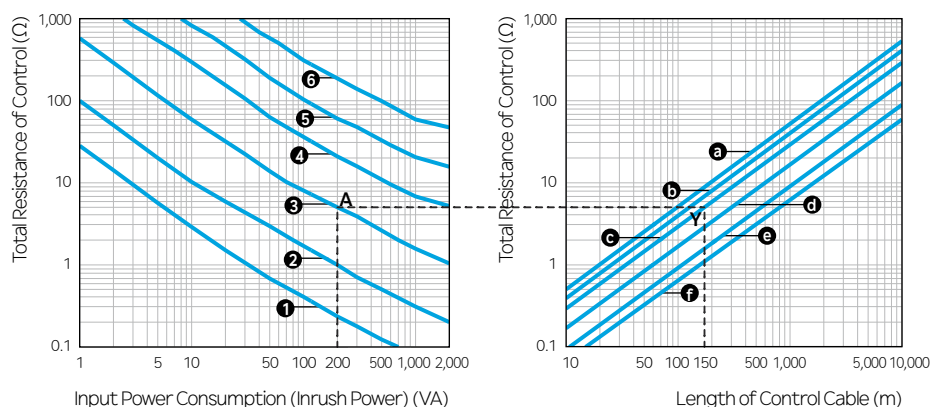
#### AC Circuit

Supply Voltage

- ① AC 24 V
- ② AC 48 V
- ③ AC 115 V
- ④ AC 230 V
- ⑤ AC 400 V
- ⑥ AC 690 V

C.S.A of Cu Cable

- Ⓐ 18 AWG
- Ⓑ 17 AWG
- Ⓒ 16 AWG
- Ⓓ 14 AWG
- Ⓔ 12 AWG
- Ⓕ 10 AWG



※ Ex.) The maximum length of conductor when using HGC50 magnetic contactor in a 1.5 mm<sup>2</sup> Cu cable at supply voltage of AC 115 V and input power consumption of 200 VA is 150 m.

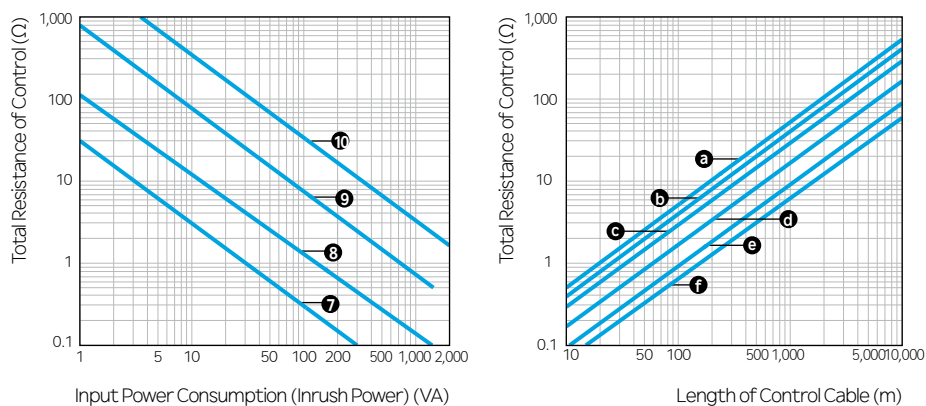
#### DC Circuit

Supply Voltage

- ① DC 24 V
- ② DC 48 V
- ③ DC 125 V
- ④ DC 250 V

C.S.A of Cu Cable

- Ⓐ 18 AWG
- Ⓑ 17 AWG
- Ⓒ 16 AWG
- Ⓓ 14 AWG
- Ⓔ 12 AWG
- Ⓕ 10 AWG



## Technical Data

### Effect on Magnetic Contactor Depending on the Cable Length of Control Circuit

#### Calculation of the Maximum Cable Distance Following Voltage

$$L = \frac{U^2}{SA} \cdot s \cdot K$$

L : Distance between the conductor and control device, m (Length of cable)  
U : Supply voltage, V

SA : Input power consumption (Inrush power), VA  
s : C.S.A of conductor, mm<sup>2</sup>  
K : Factors in the following table

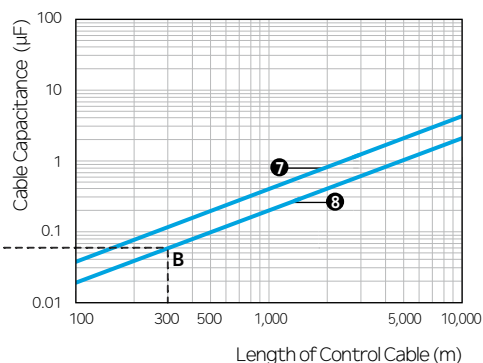
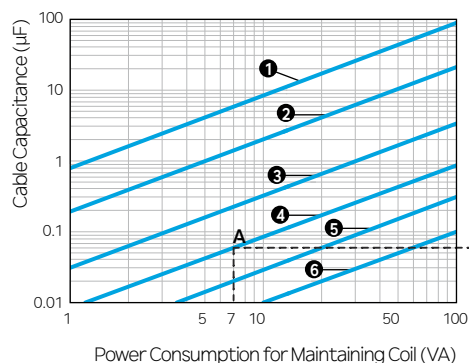
| AC Supply | SA (VA)                                                   | 20   | 40  | 100 | 150 | 200  |
|-----------|-----------------------------------------------------------|------|-----|-----|-----|------|
|           | K                                                         | 1.38 | 1.5 | 1.8 | 2   | 2.15 |
| DC Supply | Consistent, regardless of the inrush power's SA value (W) |      |     |     |     |      |
|           | k = 1.38                                                  |      |     |     |     |      |

#### Trip Failure caused by Cable Capacitance (AC)

When the connection with the contact is opened, trip failure may occur due to the capacitance between the control device and the magnetic contactor coil.

This phenomenon may get worsened by the length of cable between the control device and the contactor, high control circuit voltage, low coil power consumption, low drop-out value and others. So, an appropriate conductor length within the limit is required by reviewing the supply voltage of power consumption for maintaining coil, capacitance of control circuit and others.

- ❶ AC 24 V
- ❷ AC 48 V
- ❸ AC 115 V
- ❹ AC 230 V
- ❺ AC 400 V
- ❻ AC 690 V
- ❼ 3-Wire Control
- ❽ 2-Wire Control



※ Ex.) The maximum length of conductor for stable trip when supply voltage of AC 230 V, power consumption for maintaining coil of 7 VA, w-wire control method are applied to HGC12 magnetic contactor is 300 m.

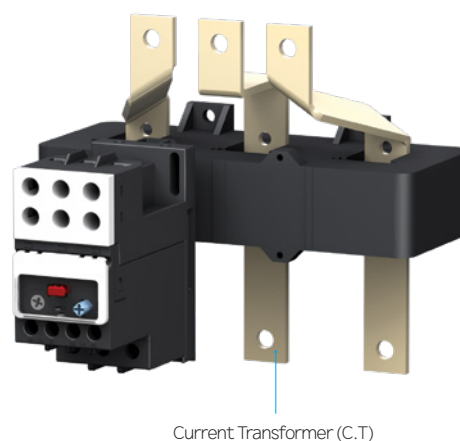
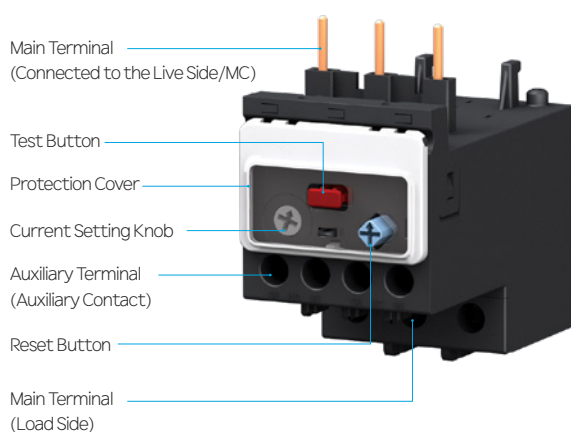
#### Calculation of Maximum Cable Distance Following Cable Capacitance

$$L = 455 \cdot \frac{S}{U^2 \cdot Co}$$

L : Distance between contact and control device, m (Length of cable)  
S : Power consumption for maintaining coil, VA

U : Supply voltage, V  
Co : Line capacity of cable

## Structure and Characteristics of Thermal Overload Relay



### Test Button

- Pressing the test button for emergency stop during motor operation will open the magnetic contact and stop operation.
- To test the contact operation of the thermal overload relay, the test button can be pulled up to change the contact status for prompt testing. The voltage supplied for the power consumption of the coil, capacitance of control circuit and others need to be reviewed to apply an appropriate conductor length within the limit.

### Reset Button

- A (Auto) Mode :  
Auto Reset
- H (Manual) Mode :  
Manual Reset



### Protection Cover

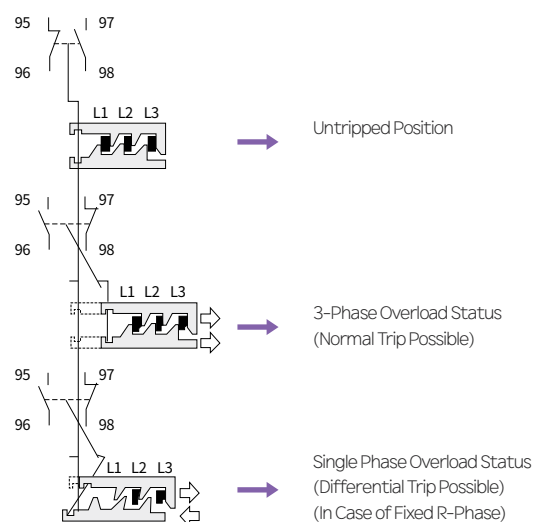
- The front of the operating side is covered with a transparent protection cover so that the current value setting and reset operating method cannot be changed arbitrarily.
- To change the setting, lift the transparent cover up.

### Current Setting Knob

The rated current setting can be set in 3 stages by using the +/-screw driver.

### Wiring Protection : Differential Trip Device

As seen in the figure, if only the S, T-phase bimetal are curved because R phase is in open position, the lower slide is moved by the S, T phase bimetal. As for the trip lever, only the end part moves as much as the transfer ratio of upper and lower slide and it can be contacted with trip device. This is tripped at shorter period compared with the 3-phase overload state. This is equivalent for the wiring of S, T-phase.



## Technical Data

### Structure and Characteristics of Thermal Overload Relay

#### Selection

##### In Case the Starting Time is Short

- In case of squirrel-cage type of motor with starting time within a few seconds, the selection of overload relay can be selected by referring to the selection table and ratings of the overload relay. In such a case, the rated current of the motor must be selected within the current scale scope of the overload relay. The starting time of the rotating device with big inertia is an important factor in selecting the nominal rating of the overload relay.
- In case the starting time of the motor is 6-7 times the rated current, the trip time of the overload relay can be realized in the characteristic curve and this trip time must be selected as approximately 125 % of the start-up time.

##### In Case the Starting Time is Long

- In case the starting time is longer than the trip time of the HGT18, the HGT Type with the current converter (C.T) must be used.
- The current converter is included in the arrangement of the rated current flowing to the first converter so the overload relay is not tripped during the starting time of the motor and in the lower rated current range, the live wire at the primary current converter has to be wired several times to obtain the time delay characteristics.

#### Current Setting Ratio Following the Number of Wirings (Ex. : 130 A)

| No. of Wirings | Current Range | 1st, 2nd Current Ratio |
|----------------|---------------|------------------------|
| 1              | 78 - 130      | 130/5                  |
| 2              | 39 - 65       | 65/5                   |
| 3              | 26 - 26.7     | 26.7/5                 |
| 4              | 19.5 - 43.3   | 43.3/5                 |
| 5              | 15.6 - 26     | 26/5                   |
| 6              | 13 - 21.7     | 21.7/5                 |
| 7              | 11.14 - 18.5  | 18.5/5                 |
| 8              | 9.75 - 16.25  | 16.25/5                |

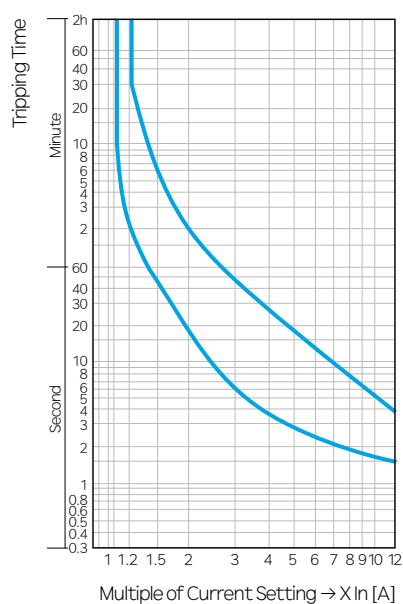
$$\text{Setting Current (A)} = \frac{\text{Motor's Rated Current}}{\text{Current Converter's Current}}$$

The secondary rated current of the current converter is 5 A and as for the overload relay, it can be adjusted up to 3 - 5 A.  
The setting current value of this range can be calculated as below.

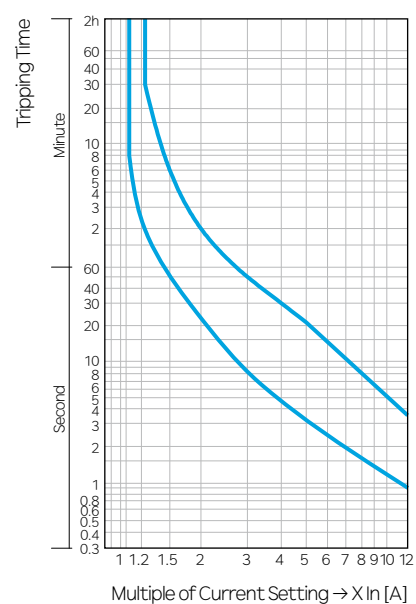
## Characteristic Curve of Thermal Overload Relay

- The trip curve at 3-phase overload indicates the average trip time based on the ambient temperature of 20 °C Cold Start.  
(Hot Start : 20 - 40 % of Cold Start).
- The trip curve at wiring overload has the trip time of about 40 - 60 % of the 3-phase overload trip time.

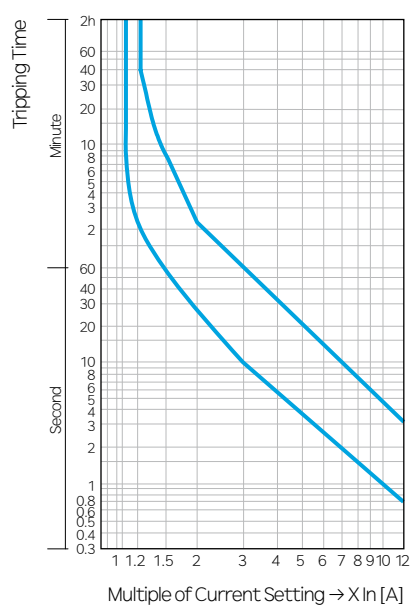
**HGT18K**



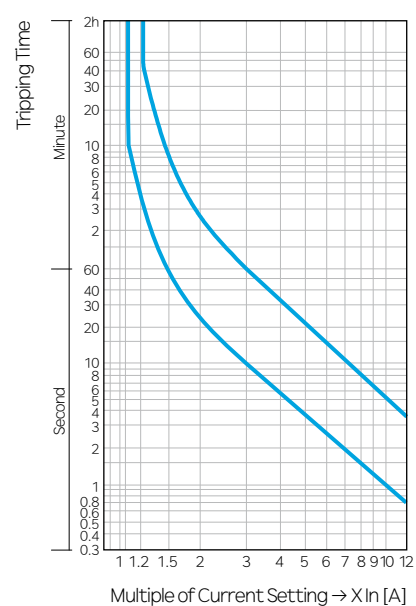
**HGT40K**



**HGT65K**



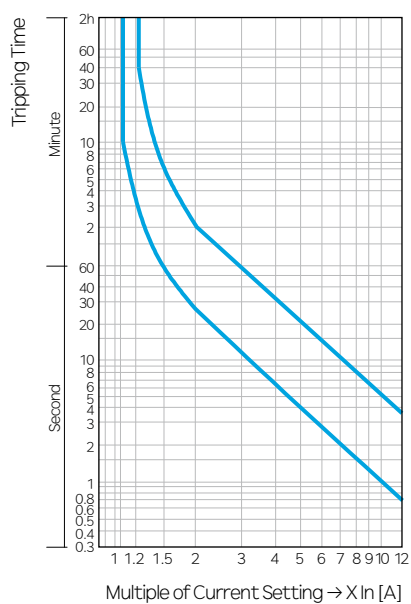
**HGT100K**



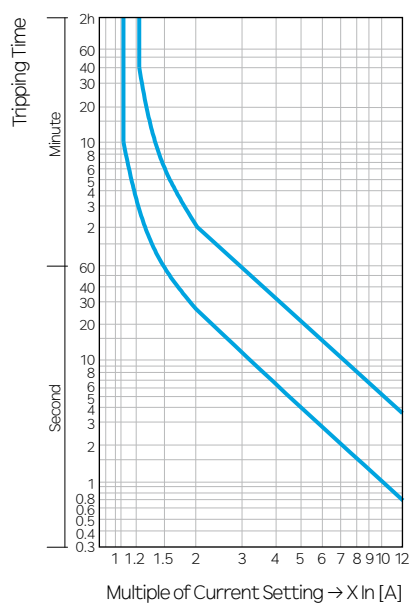
## Technical Data

### Characteristic Curve of Thermal Overload Relay

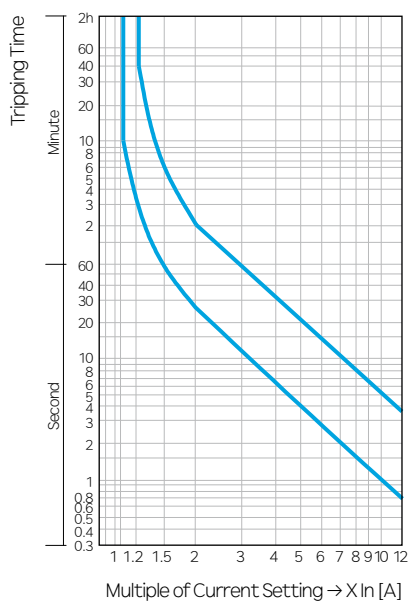
HGT150K



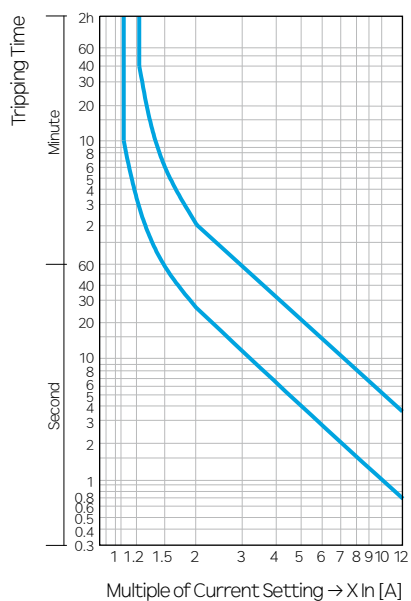
HGT265K



HGT400K



HGT800K



## Connectable Wire and Fastening Torque

### Main Circuit

| Type               | NEMA Size | Stud Size of Main Terminal (inch[mm]) | Conductor Size (AWG,kcmil,inch[mm])                                          | Max. Terminal Width (inch[mm]) | Fastening Torque (lbf.in) |
|--------------------|-----------|---------------------------------------|------------------------------------------------------------------------------|--------------------------------|---------------------------|
| HGC 9B             | 00        | #6 [M3.5]                             | 18 - 8 (AWG), [0.75 - 10]                                                    | 0.35[9]                        | 10.62                     |
| HGC 12B/18B        | -         |                                       |                                                                              |                                |                           |
| HGC 22B            | 0         | #8 [M4]                               | 16 - 8 (AWG), [1 - 10]                                                       | 0.39[10]                       | 19.91                     |
| HGC 9              | 00        |                                       |                                                                              |                                |                           |
| HGC 12             | -         |                                       |                                                                              |                                |                           |
| HGC 18             | 0         | #10 [M5]                              | 14 - 6 (AWG), [2.5 - 16]                                                     | 0.47[12]                       | 23.01                     |
| HGC 25/32          | -         |                                       |                                                                              |                                |                           |
| HGC 40             | 1         | 1/4" [M6]                             | 10 - 4 (AWG), [6 - 25]                                                       | 0.54[13.8]                     | 35.40                     |
| HGC 50/50B         | -         |                                       |                                                                              |                                |                           |
| HGC 65/65B         | 2         | 5/16" [M8]                            | 8 - 0 (AWG), [10 - 50]                                                       | 0.67[17.1]                     | 53.10                     |
| HGC 75B/85/85B     | -         |                                       |                                                                              |                                |                           |
| HGC 100/100B       | 3         |                                       | 8 (AWG) - 250 (kcmil), [35 - 95]                                             | 0.63[16]                       | 80.54                     |
| HGC 115/130        | -         |                                       |                                                                              |                                |                           |
| HGC 150            | 4         | 3/8" [M10]                            | 2 (AWG) - 500 (kcmil), [50 - 185]                                            | 0.98[25]                       | 132.76                    |
| HGC 185/225/265    | -         |                                       |                                                                              |                                |                           |
| HGC 300/400        | -         | 1/2" [M12]                            | 4/0 (AWG) - 3×300 (kcmil), [120 - 3×150]                                     | 1.18[30]                       | 203.57                    |
| HGC 500            | 5         |                                       |                                                                              |                                |                           |
| HGC 630            | 6         |                                       | (Busbar) 2×1*0.25 (inch) - 2×2.5*0.25 (inch),<br>[2×25.4*6.35 - 2×63.5*6.35] | 1.57[40]                       | 203.57                    |
| HGC 800            | 7         |                                       |                                                                              |                                |                           |
| HGC 9-800 Aux/Coil | -         | #6 [M3.5]                             | 18 - 10 (AWG), [0.75 - 5.5]                                                  | Min. 0.30[7.6]                 | 10.62                     |

## Circuit Diagram

### Contact Arrangement

#### Magnetic Contactor

| Model Name                                                                                                 | Auxiliary Contact                             |            | Contact Arrangement Diagram |              |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------|------------|-----------------------------|--------------|
|                                                                                                            | Standard                                      | Additional | AC                          | DC           |
| HGC9<br>HGC12<br>HGC18                                                                                     | 2NO + 2NC                                     | -          |                             | Same as left |
| HGC25<br>HGC32<br>HGC40                                                                                    | 2NO + 2NC                                     | 2NO + 2NC  |                             | Same as left |
| HGC50<br>HGC65<br>HGC75<br>HGC85<br>HGC100                                                                 | 2NO + 2NC<br>2NO + 2NC (AC)<br>2NO + 1NC (DC) | 2NO + 2NC  |                             |              |
| HGC115<br>HGC130<br>HGC150<br>HGC185<br>HGC225<br>HGC265<br>HGC300<br>HGC400<br>HGC500<br>HGC630<br>HGC800 | 2NO + 2NC                                     | -          |                             | Same as left |
|                                                                                                            | 2NO + 2NC                                     | 2NO + 2NC  |                             | Same as left |

#### Control Relay

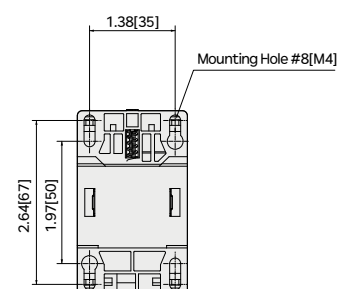
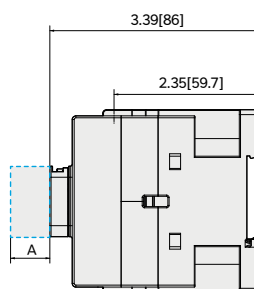
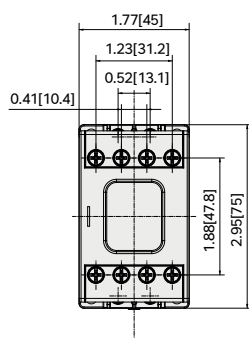
| Model Name | Inspection Arrangement | Inspection Arrangement Drawing |
|------------|------------------------|--------------------------------|
| HGR04      | 4NC                    |                                |
| HGR13      | 1NO + 3NC              |                                |
| HGR22      | 2NO + 2NC              |                                |
| HGR31      | 3NO + 1NC              |                                |
| HGR40      | 4NO                    |                                |

# Dimensions

## Magnetic Contactor B Type + Thermal Overload Relay B Type

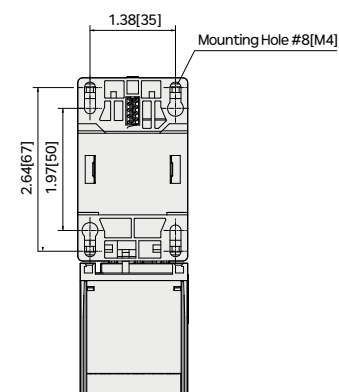
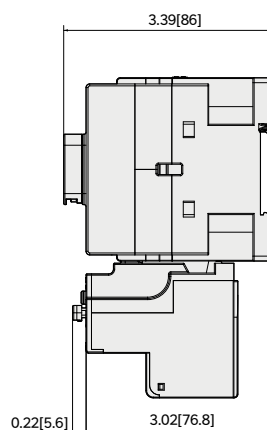
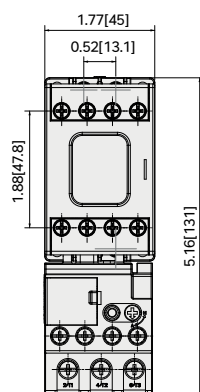
Unit : inch[mm]

HGC9B  
HGC12B  
HGC18B  
HGC22B

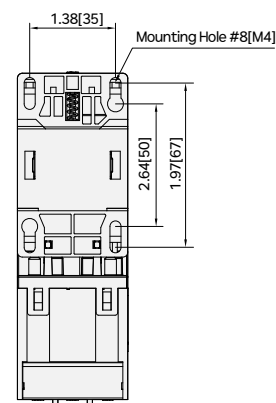
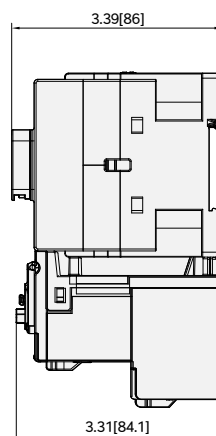
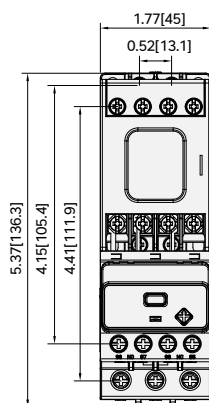


| Accessories             | A (inch[mm]) |
|-------------------------|--------------|
| Auxiliary Contact HGCTB | 1.38[35]     |
| Latching Block HGCLB    | 1.67[42.5]   |
| Timer HGCET             | 1.54[39]     |

HGC9B  
HGC12B  
HGC18B +  
HGT18KD



HGC22B +  
HGT18KB



× Please refer to HGC catalog for Order codes and additional Dimensions.

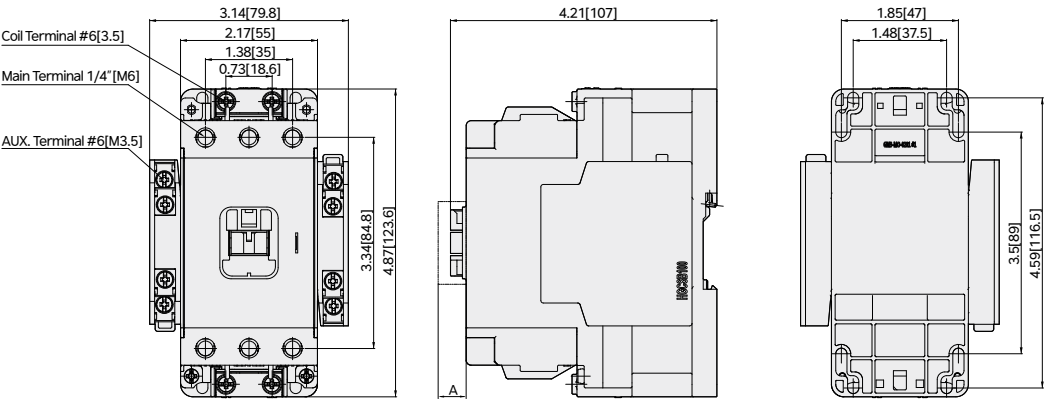
Dimensions

Magnetic Contactor B Type + Thermal Overload Relay B Type

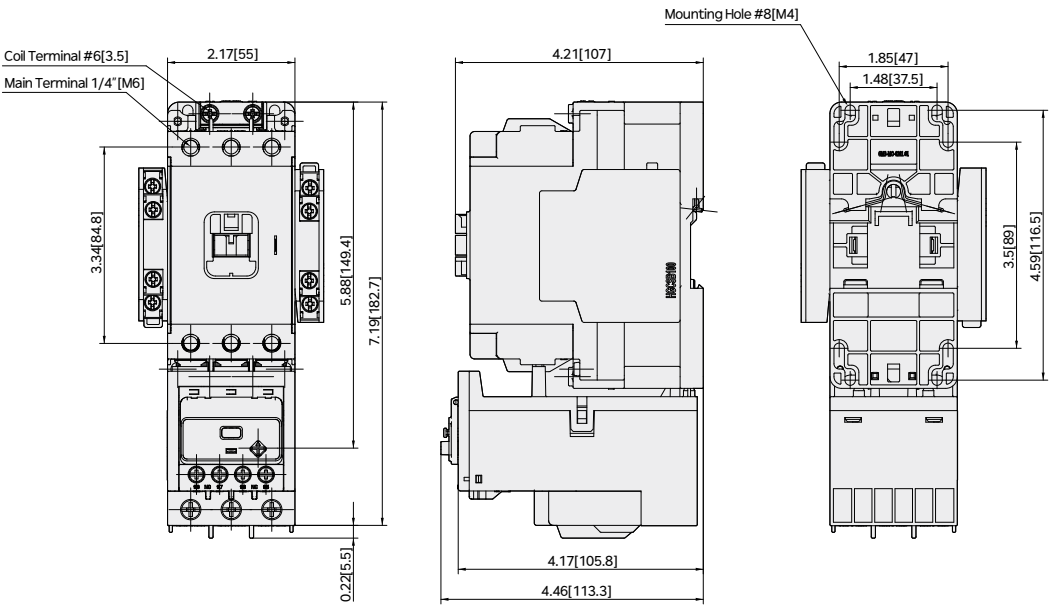
Unit : inch[mm]

HGC50B  
HGC65B

| Accessories             | A (inch[mm]) |
|-------------------------|--------------|
| Auxiliary Contact HGCTB | 1.38[35]     |
| Latching Block HGCLB    | 1.67[42.5]   |
| Timer HG CET            | 1.54[39]     |



HGC50B  
HGC65B  
+ HGT65K

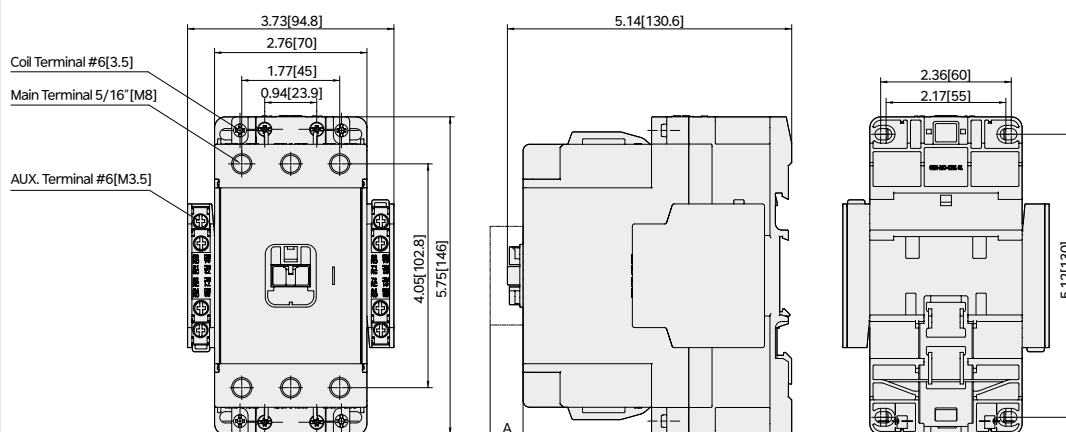


※ The drawing dimensions on this page may change without prior notice.

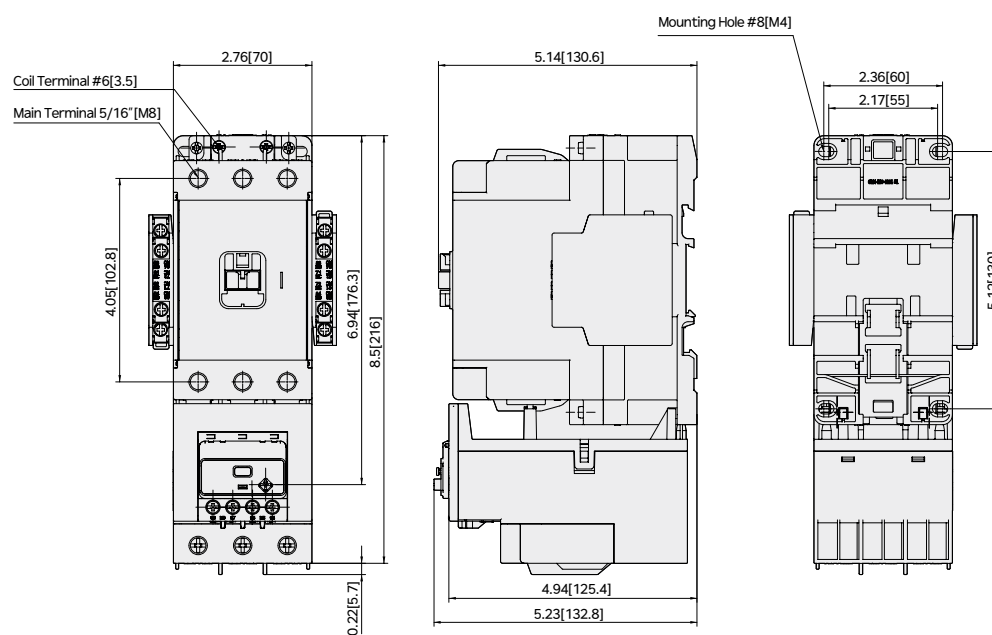
Unit : inch[mm]

HGC75B  
HGC85B  
HGC100B

| Accessories             | A (inch[mm]) |
|-------------------------|--------------|
| Auxiliary Contact HGCTB | 1.38[35]     |
| Latching Block HGCLB    | 1.67[42.5]   |
| Timer HGCT              | 1.54[39]     |



HGC75B  
HGC85B  
HGC100B  
+ HGT100K



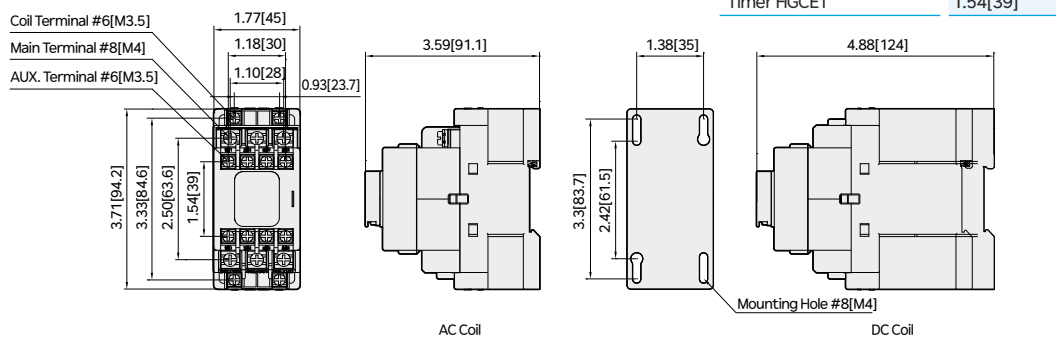
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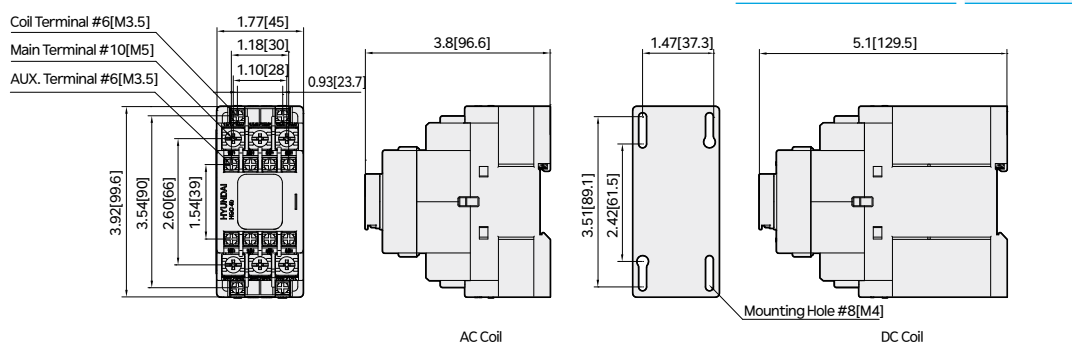
## Magnetic Contactor

Unit : inch[mm]

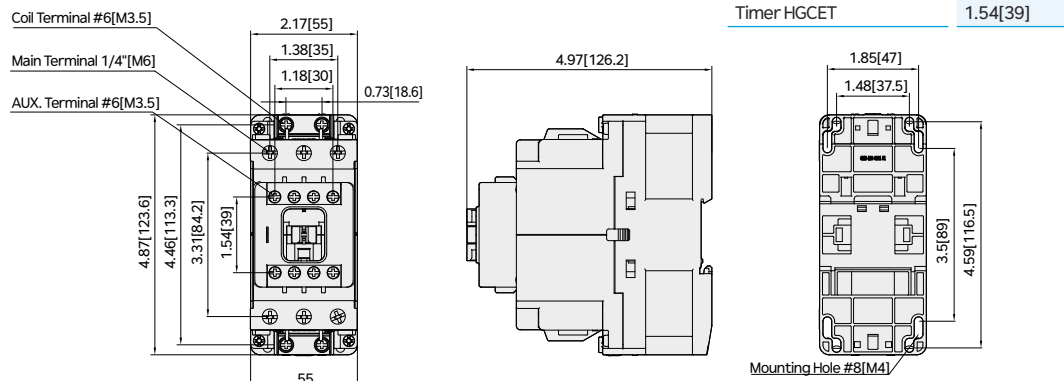
HGC9  
HGC12  
HGC18



HGC25  
HGC32  
HGC40



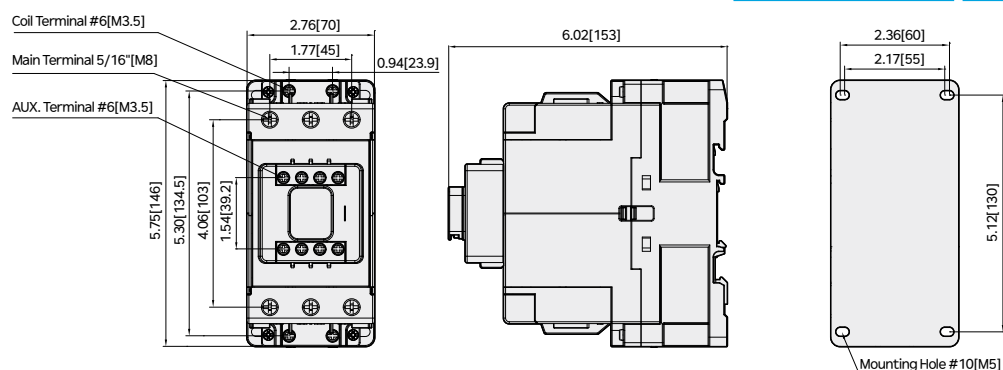
HGC50  
HGC65  
(AC/DC)



※ The dimensions of the drawing on this page may be subject to change without notice.  
( ) Refers to the DC type.

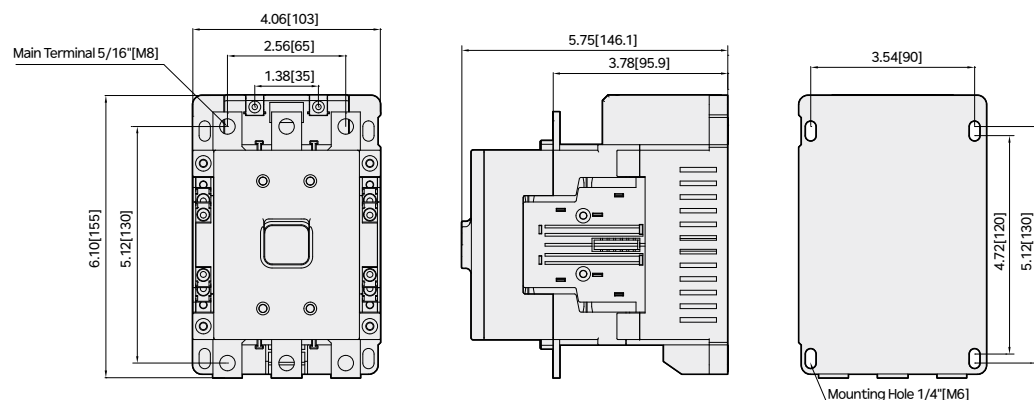
Unit : inch[mm]

HGC75  
HGC85  
HGC100  
(AC/DC)

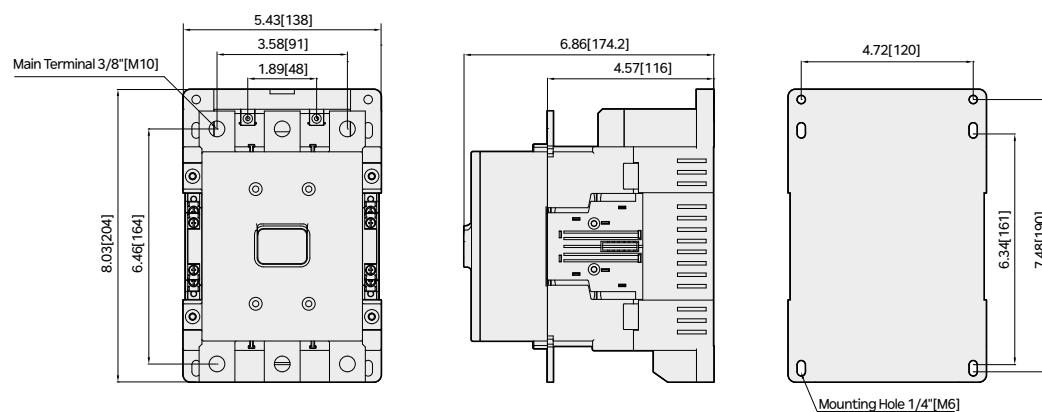


| Accessories             | A (inch[mm]) |
|-------------------------|--------------|
| Auxiliary Contact HGCTB | 1.38[35]     |
| Latching Block HGCLB    | 1.67[42.5]   |
| Timer HG CET            | 1.54[39]     |

HGC115  
HGC130  
HGC150



HGC185  
HGC225  
HGC265



※ The dimensions of the drawing on this page may be subject to change without notice.  
( ) Refers to the DC type.

# Dimensions

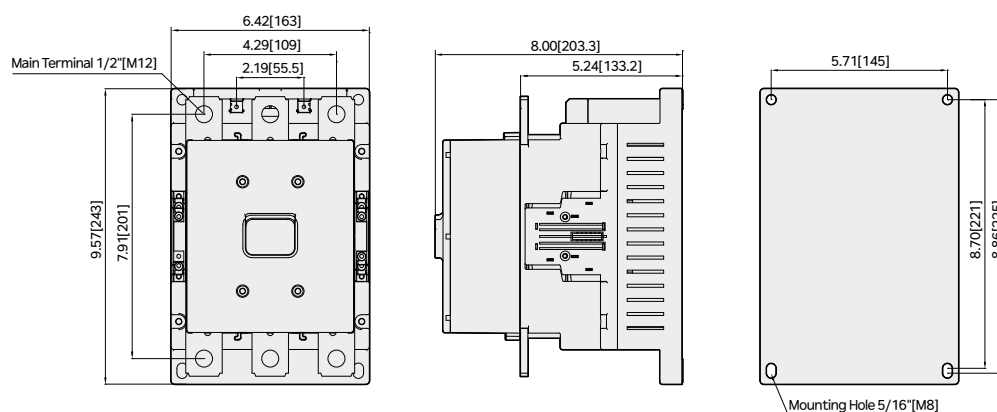
## Magnetic Contactor

Unit : inch[mm]

HGC300

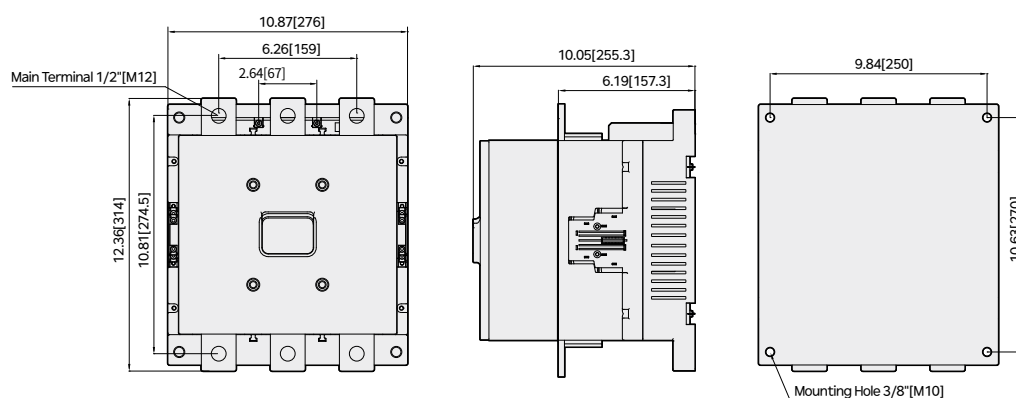
HGC400

HGC500



HGC630

HGC800



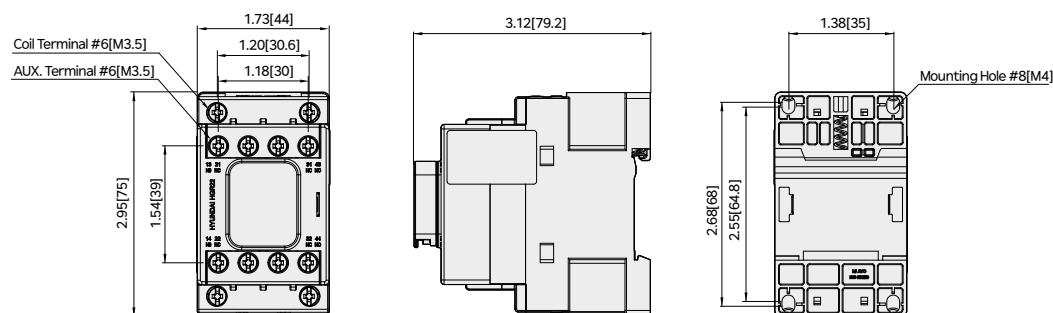
※ The dimensions of the drawing on this page may be subject to change without notice.  
( ) Refers to the DC type.

# Control Relay

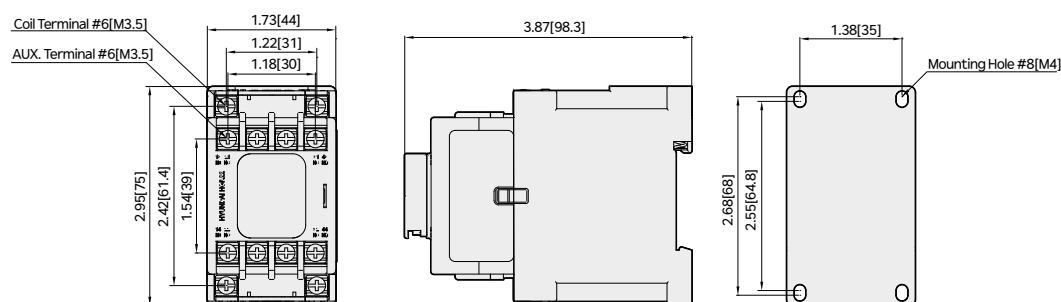
Unit : inch[mm]

HGR-N  
(AC)

| Accessories             | A (inch[mm]) |
|-------------------------|--------------|
| Auxiliary Contact HGCTB | 1.38[35]     |
| Latching Block HGCLB    | 1.67[42.5]   |
| Timer HGCET             | 1.54[39]     |



HGR-P  
(Magnetic  
Type)  
(DC)



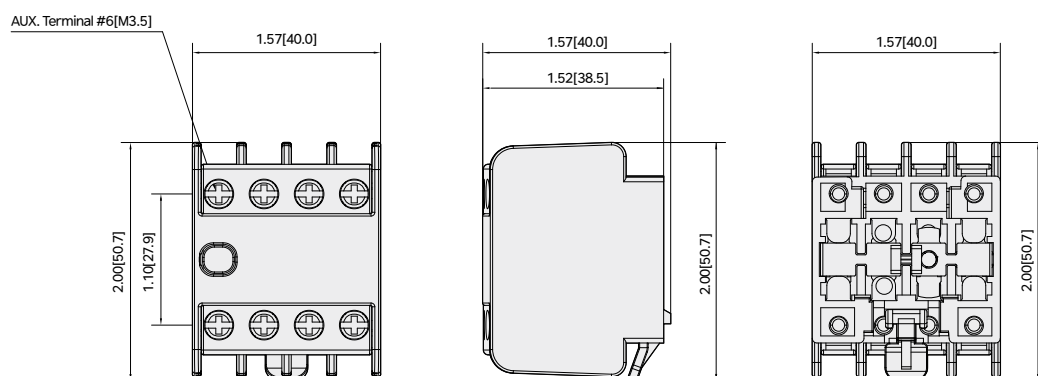
※ The dimensions of the drawing on this page may be subject to change without notice.  
( ) Refers to the DC type.

# Dimensions

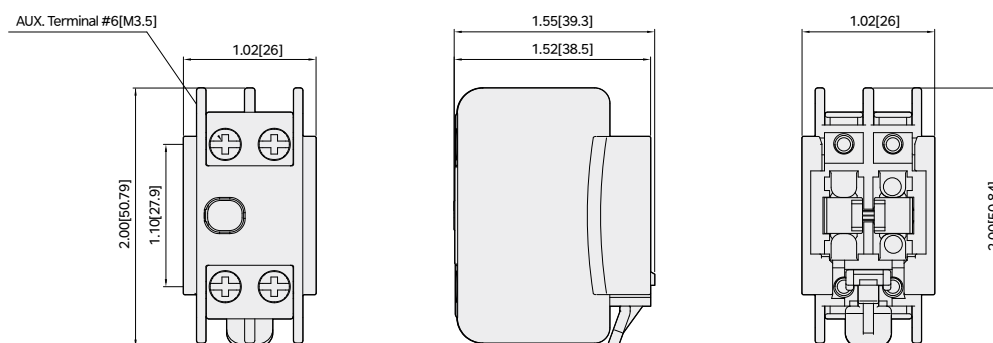
## Auxiliary Contact Block (Front Mounting)

Unit : inch[mm]

HGCTB4P



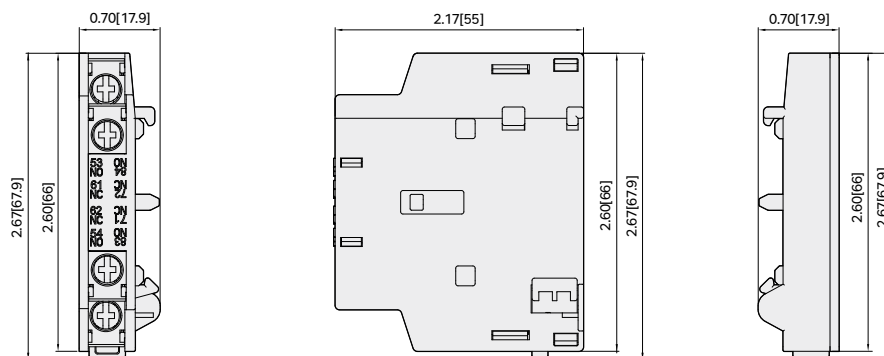
HGCTB2P



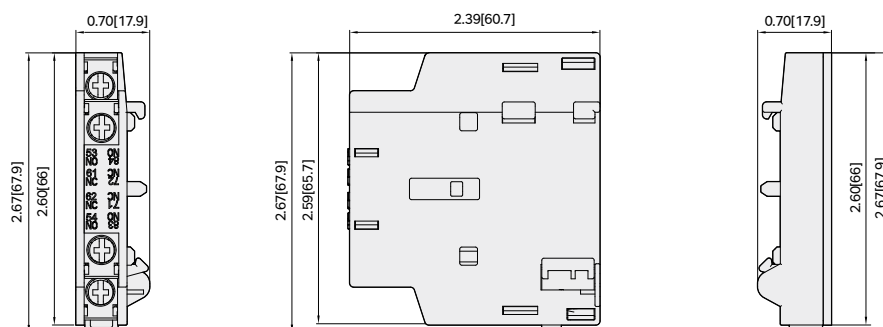
# Auxiliary Control Block (Side Mounting)

Unit : inch[mm]

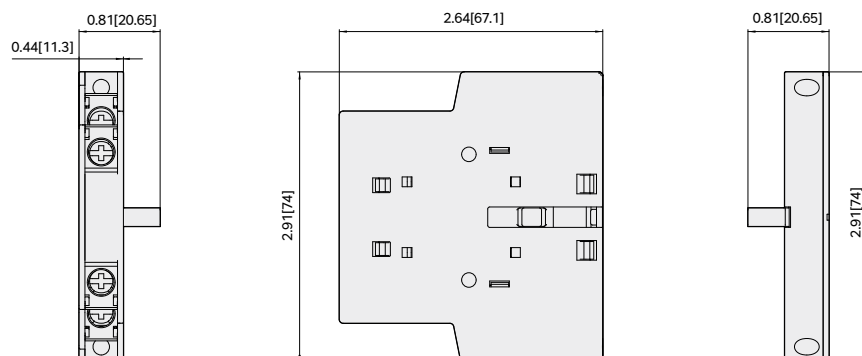
HGCSB40



HGCSB100



HGCSB800



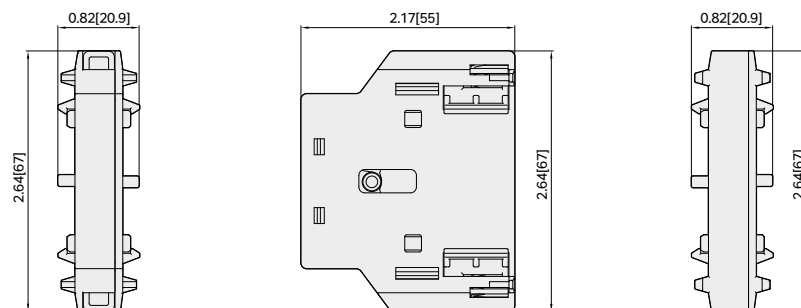
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# Dimensions

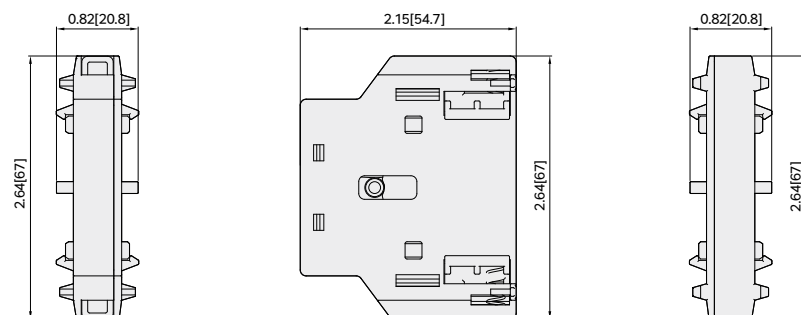
## Interlock Unit

Unit : inch [mm]

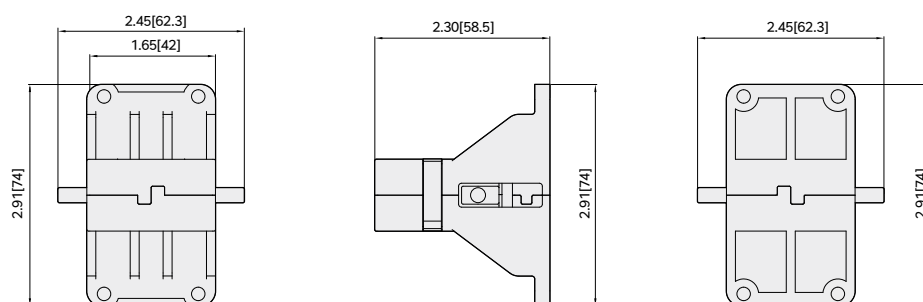
HGCIU40



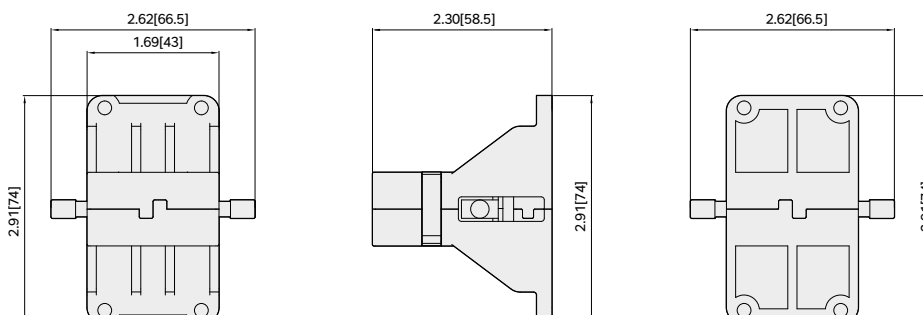
HGCIU100



HGCIU265



HGCIU800

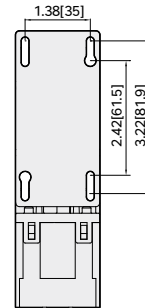
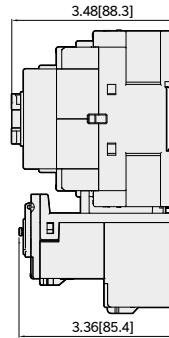
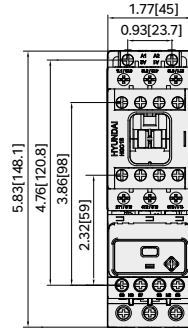


※ The dimensions of the drawing on this page may be subject to change without notice.

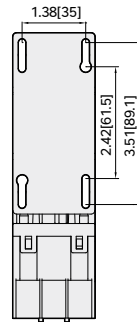
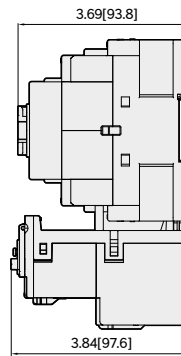
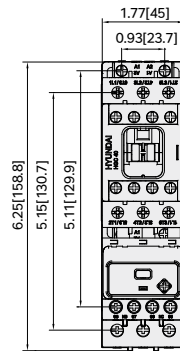
# Magnetic Contactor + Thermal Overload Relay

Unit : inch[mm]

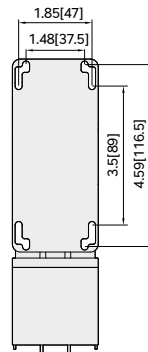
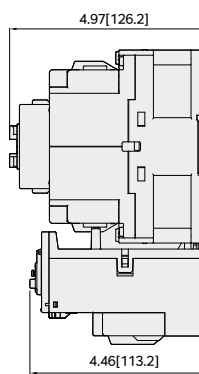
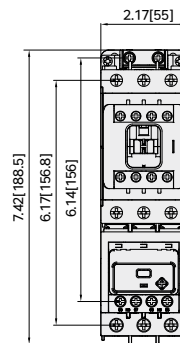
HGC9  
HGC12  
HGC18 +  
HGT18



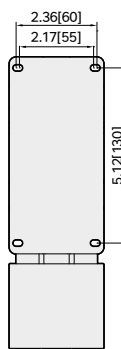
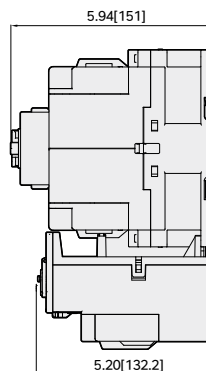
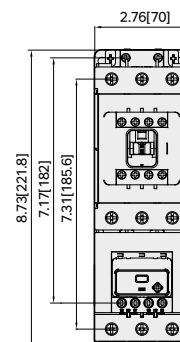
HGC25  
HGC32  
HGC40 +  
HGT40



HGC50  
HGC65 +  
HGT65



HGC75  
HGC85  
HGC100 +  
HGT100



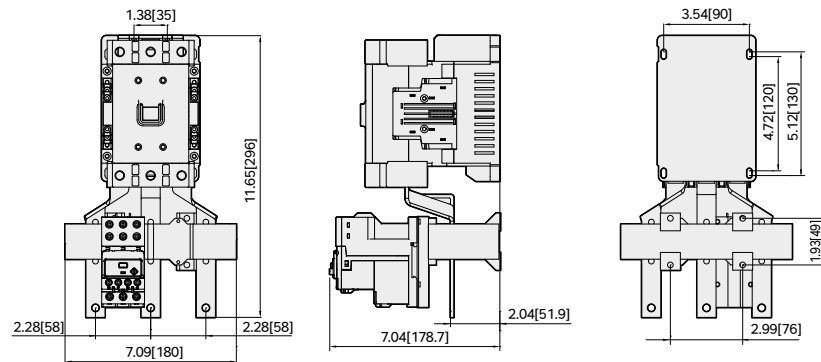
※ The dimensions of the drawing on this page may be subject to change without notice.

## Dimensions

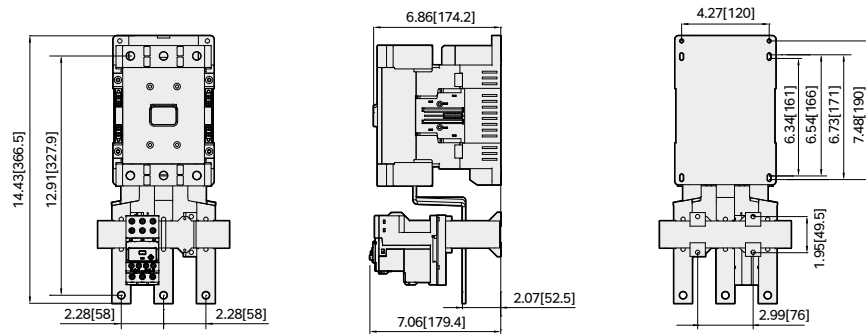
### Magnetic Contactor + Thermal Overload Relay

Unit : inch[mm]

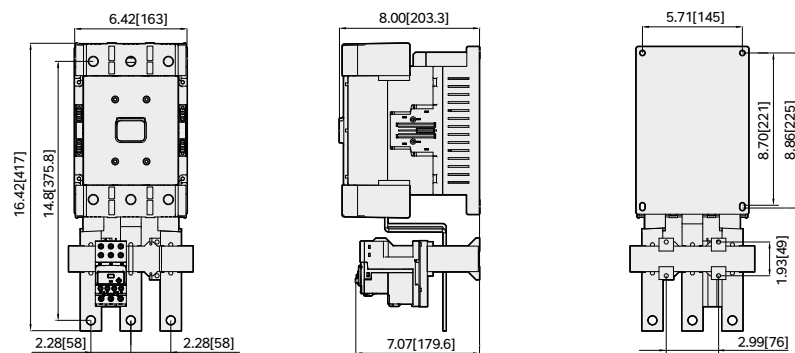
HGC115  
HGC130  
HGC150 +  
HGT150



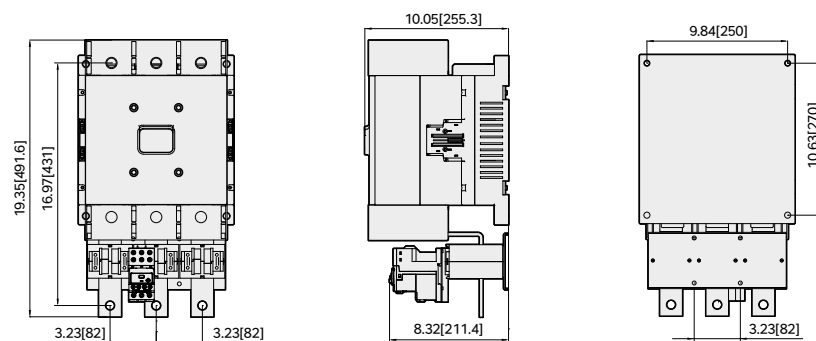
HGC185  
HGC225  
HGC265 +  
HGT265



HGC300  
HGC400  
HGC500 +  
HGT500



HGC630  
HGC800 +  
HGT800  
(630, 800A)

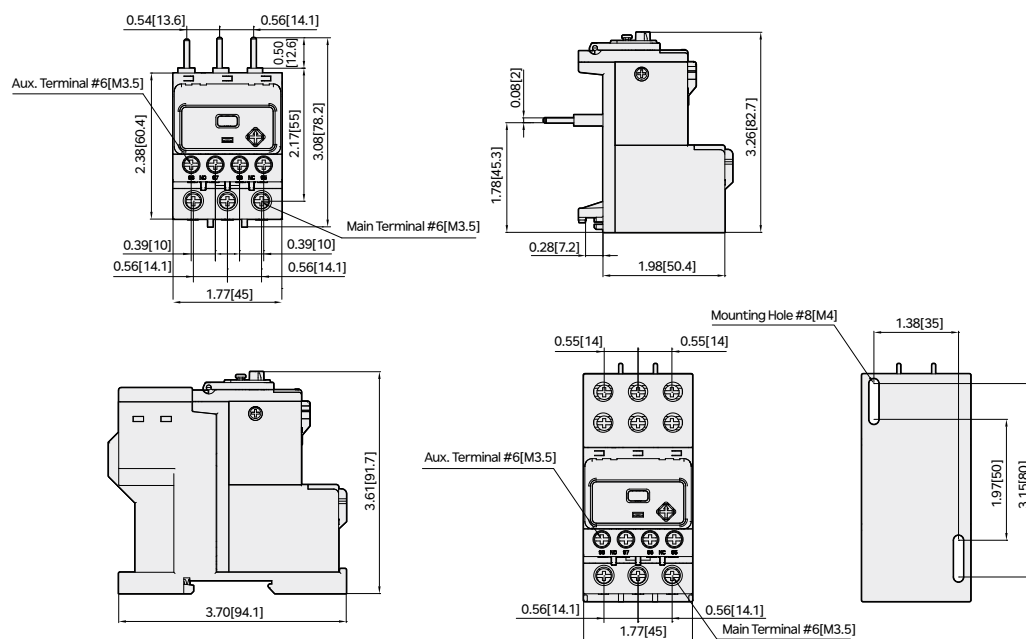


※ The dimensions of the drawing on this page may be subject to change without notice.

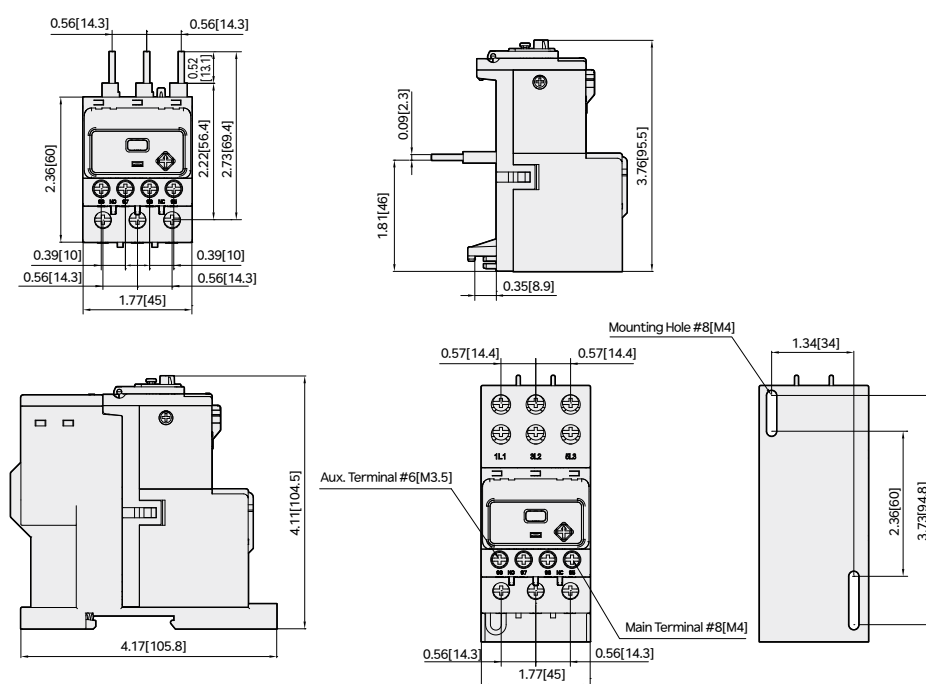
## Thermal Overload Relay

Unit : inch[mm]

## HGT18



## HGT40



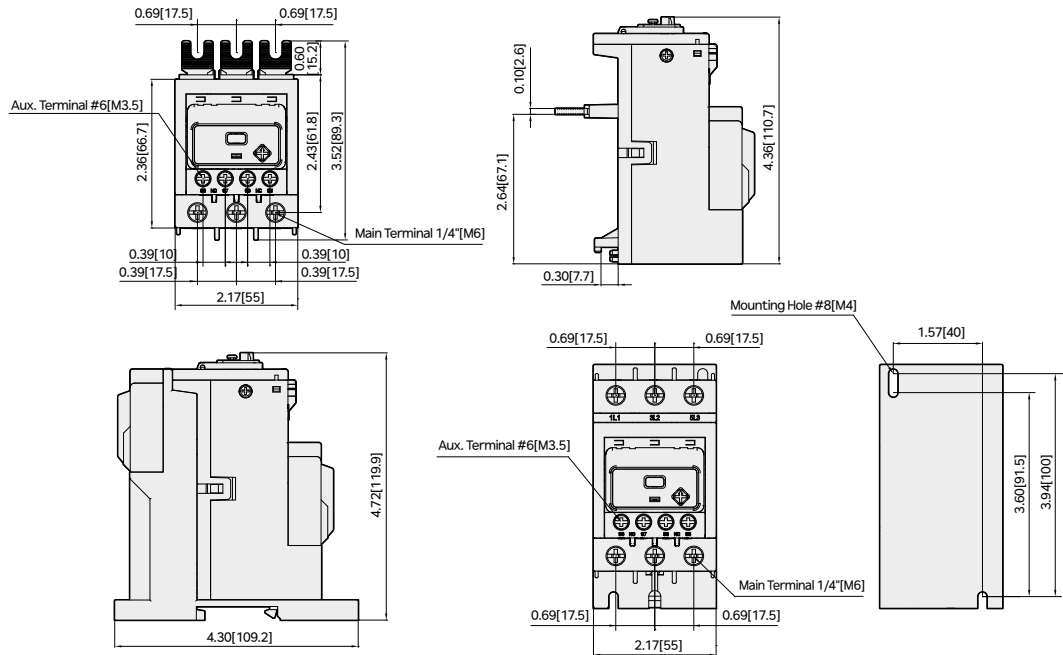
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## Dimensions

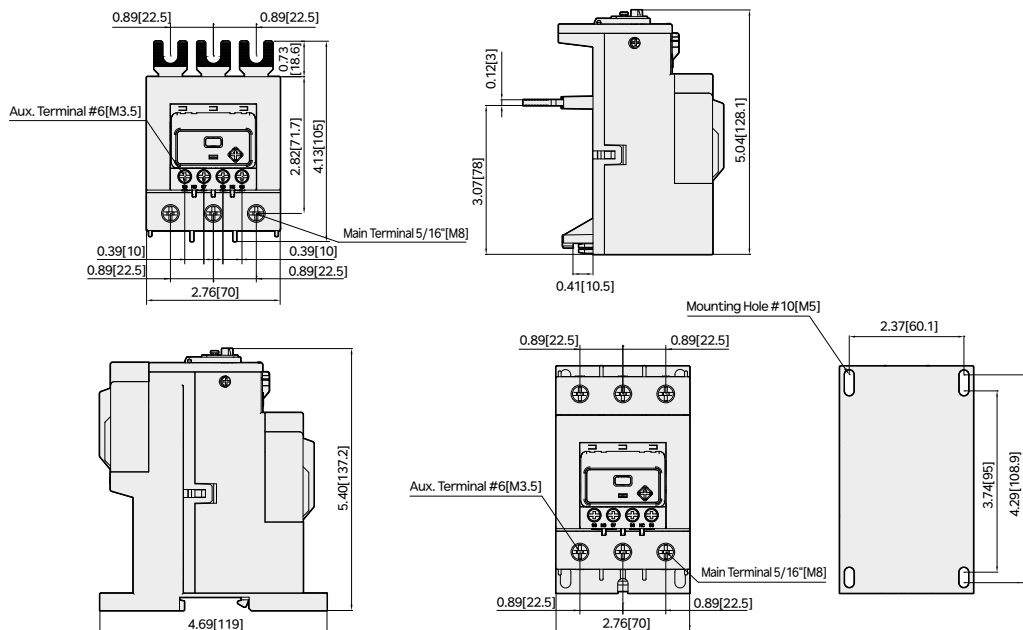
### Thermal Overload Relay

Unit : inch[mm]

#### HGT65



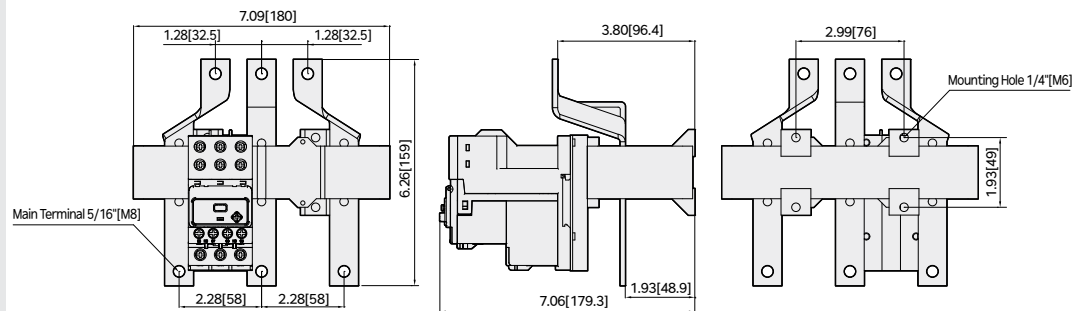
#### HGT100



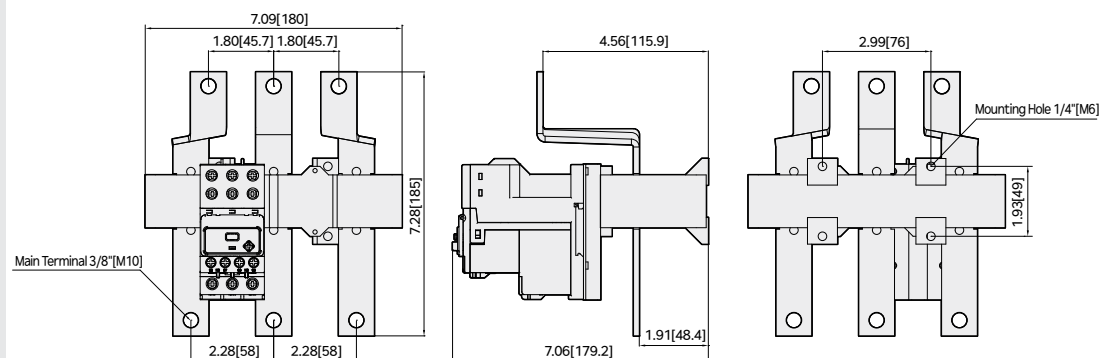
※ The dimensions of the drawing on this page may be subject to change without notice.

Unit : inch[mm]

## HGT150



## HGT265

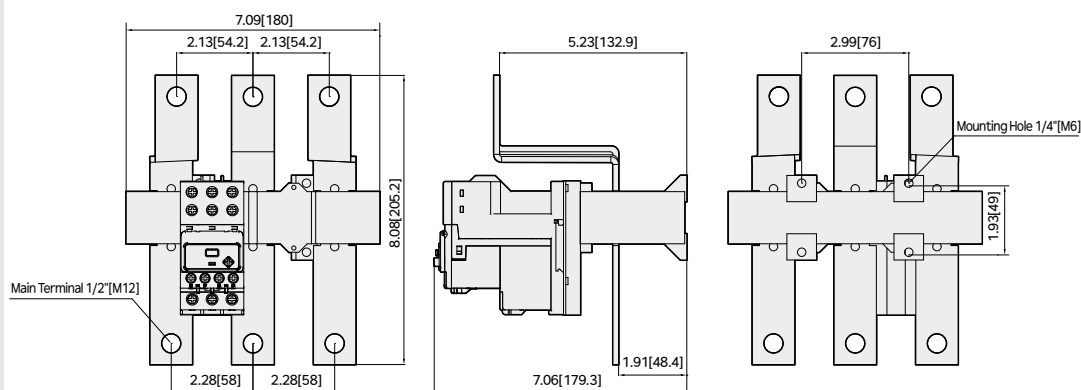


## Dimensions

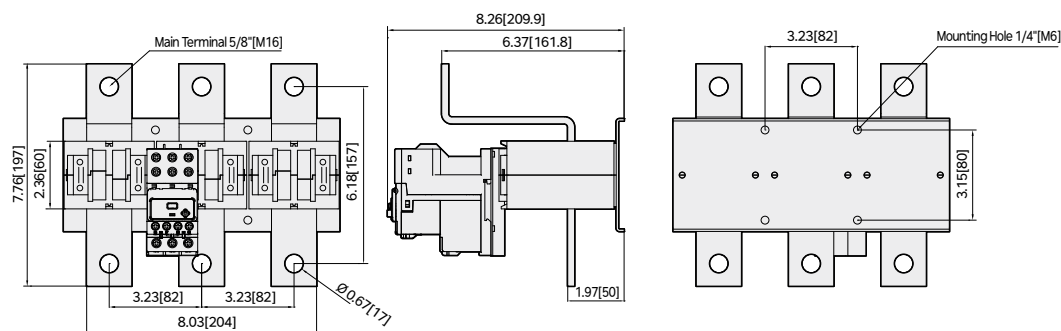
### Thermal Overload Relay

Unit : inch[mm]

#### HGT500



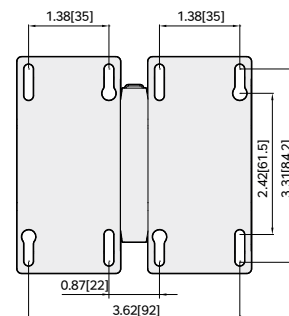
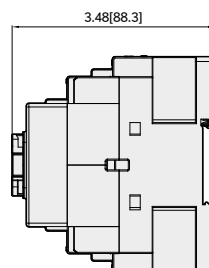
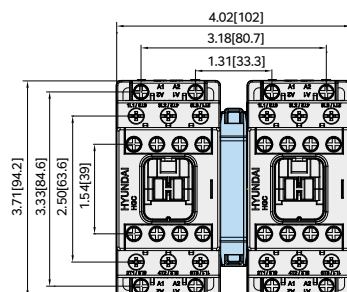
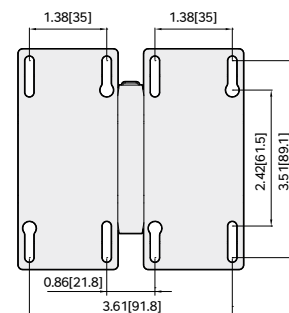
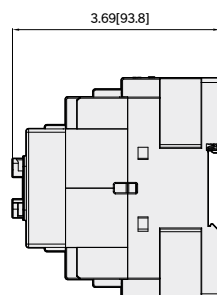
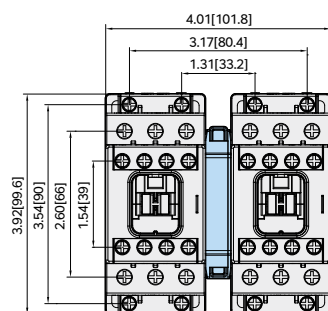
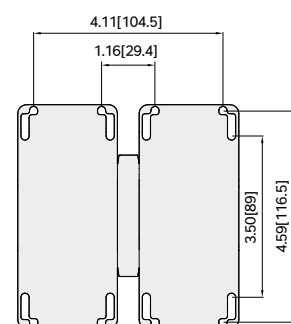
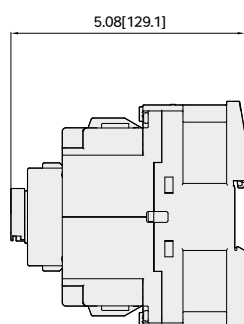
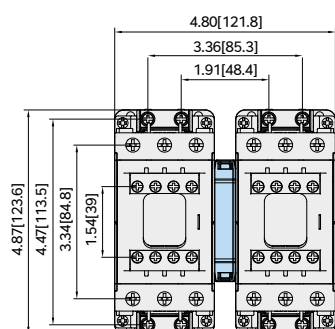
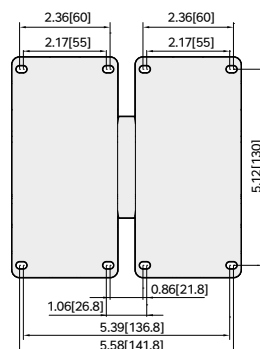
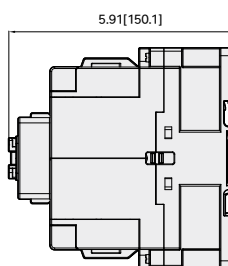
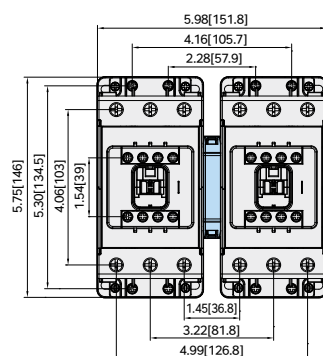
#### HGT800



※ The dimensions of the drawing on this page may be subject to change without notice.

# Reverse Operation Magnetic Contactor (With Interlock Unit)

Unit : inch[mm]

HGC18 +  
HGCIU40

HGC40 +  
HGCIU40

HGC65 +  
HGCIU100

HGC100 +  
HGCIU100


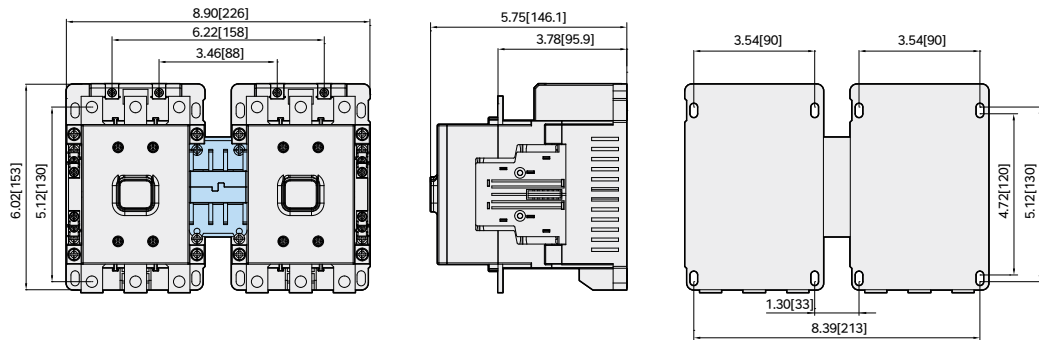
※ The dimensions of the drawing on this page may be subject to change without notice.

## Dimensions

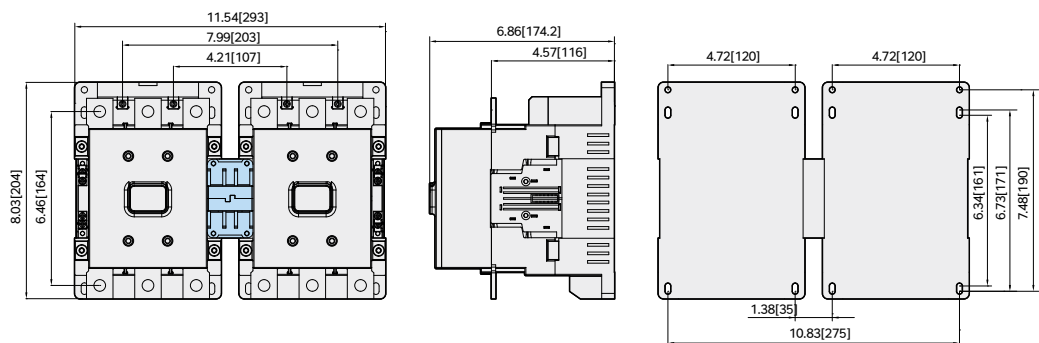
### Reverse Operation Magnetic Contactor (With Interlock Unit)

Unit : inch[mm]

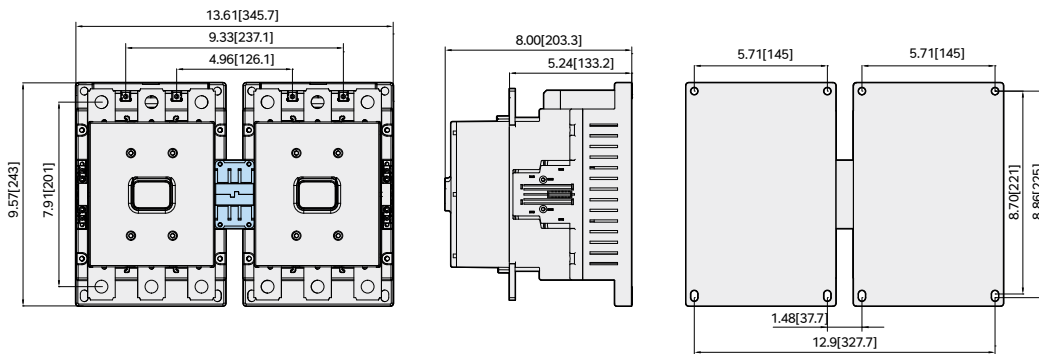
HGC150 +  
HGCIU265



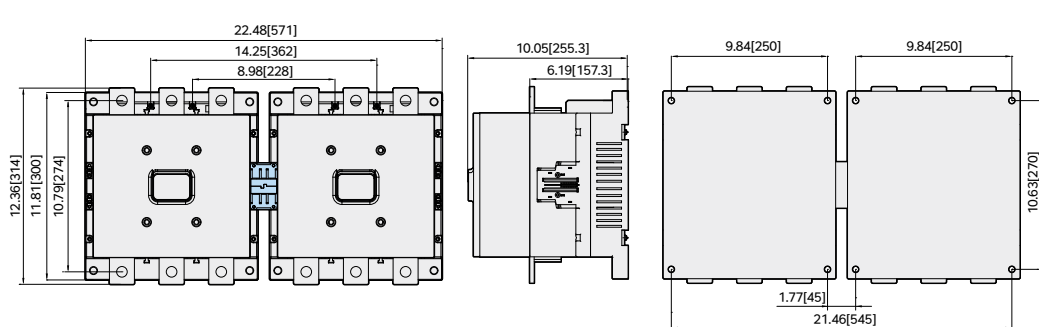
HGC265 +  
HGCIU265



HGC500 +  
HGCIU800



HGC800 +  
HGCIU800



※ The dimensions of the drawing on this page may be subject to change without notice.

## Handling and Maintenance Inspection

### Storage and Transportation

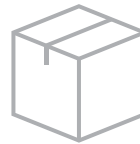
#### Storage Precaution

- | **Altitude** | Below 2,000 m above sea level
- | **Relative Humidity** | Within 45 % - 85 %

The surrounding environment may affect the insulation performance and durability of the magnetic contactor so the environment condition for usage must accurately be checked before application.



- **Relative humidity to be within the range of 45% - 85%**  
Do not store in places with high humidity for a long period of time.
- **Avoid places with a lot of dust**  
Do not store in exposed places and use cover or packing material to prevent dust from piling up on the circuit breaker.



- **Store in packaged state**  
During storage, store in packaged state. Store in a state using shelf or equivalent devices and do not leave it neglected on the floor. Do not transport heavy products manually. It may cause injury.



- **Do not leave under direct sunlight for a long period of time.**



- **Avoid storage in high or low temperature**  
Storage temperature must be maintained between - 20 °C - + 60 °C.



- **Do not store in places with corrosive gas**  
Do not leave it around gas containing sulfurous gas or sulfur or ammonia gas and others.

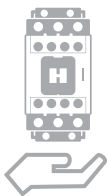


- In case of mountainous region with high altitude, it may drop the insulation durability so check the adjustment coefficient of the insulation performance and use the appropriate ratings of the product.

#### Transportation Precautions

##### ⚠ Caution

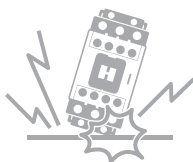
- Do not apply impact during transportation. Dropping or applying strong impact may cause defect.
- Do not handle while holding the circuit breaker's accessory or external plug-in wire of the accessory. It may cause injury in the handler or a malfunction of the circuit breaker.



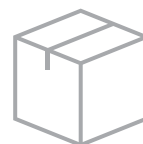
- **Hold the main unit of the circuit breaker during transportation**  
Do not handle while holding the external guide line of the accessory or the terminal bar.



- **Pay attention when handling metal accessories**  
Sharp planes or edges in the metal accessory may cause injury.



- **Do not apply impact during transportation**  
Dropping or applying strong impact may cause defect.



- **Pay attention to the packaging of the circuit breaker before transportation**  
Inappropriate packaging may cause damage in the circuit breaker during transportation.

## Handling and Maintenance Inspection

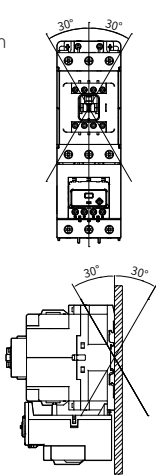
### Storage and Transportation

#### Installation

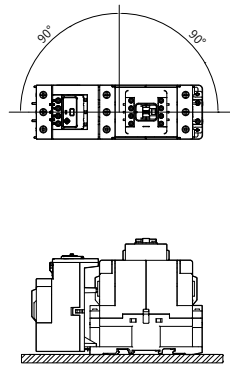
- Mount in dry places with less vibration.
- As for the installation direction, vertical installation is recommended but it can be used in each direction as seen in the figure.
- In case of cross installation and horizontal installation, it may drop the lifespan and various characteristics when compared to the normal installation.
- When using in a space below the insulation distance below, damage may be caused by the switching arc.
- Ambient Temperature : - 5°C - + 40°C (HGT, HGC DC Type), - 40°C - + 55°C (HGC AC Type)

#### Installation

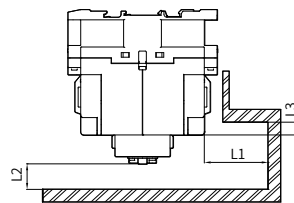
Normal Installation



Cross Installation and Horizontal Installation



#### Insulation Distance



Unit : mm

| Product<br>Distance | Above HGC75    |                 |                 |                 |                 |
|---------------------|----------------|-----------------|-----------------|-----------------|-----------------|
|                     | HGC75<br>- 100 | HGC115<br>- 150 | HGC185<br>- 265 | HGC300<br>- 500 | HGC630<br>- 800 |
| L1                  | 30             | 30              | 80              | 80              | 80              |
| L2                  | 5              | 15              | 15              | 15              | 20              |
| L3                  | 6              | 11              | 32              | 32              | 40              |

### Handling Precautions

#### Caution

- Do not store and use in abnormal environment such as high temperature, high humidity, dust, corrosive gas, vibration, impact and others. It may cause electric shock, fire and malfunction.
- Ensure that rubbish, foreign substances such as concrete powder, metal powder, rainwater and others do not flow in.
- When handling the product, do not use lubricants. It may cause electric shock and fire.
- Electrical works must be conducted by qualified technicians with certifications related to electrical works. It may cause electric shock and fire.

#### Inspection Items Before Use

- Ensure that calibration work is not skipped. It may cause malfunction.

#### Installation, Usage and Maintenance Precautions

- Frequently check the fastening state, assembly and combination status of the bolt. It may cause electric shock, fire and malfunction.
- Check whether the rated current, voltage and frequency conform to the intended specification. It may cause electric shock, fire and malfunction.
- As for the wiring work, check whether the upper circuit breaker has been turned off so that electricity does not flow. It may cause electric shock.
- Connect the power that conforms to the ratings of the switch/contactors's main unit. It may cause fire and malfunction.
- As for the wiring and terminal, use the standard product and as for the terminal screw, fasten using the torque indicated in the user manual. It may cause fire.
- Frequently check the wiring state and shape. It may cause electric shock, fire and malfunction.
- Check whether parts have been omitted and replace damaged products and parts. It may cause electric shock, fire and malfunction.
- In case of abnormality in the contact, replace immediately and do not arbitrarily process such as trimming the contact using string or use lubricant. It may cause electric shock, fire and malfunction.
- Use the specified tool. It may cause damage and malfunction.

## Installation Precautions



- Do not block the arc gas exhaust hole  
It may drop the breaking capacity.



- Pay attention to dust, metal scraps and others

After installation, cover the protection cover while working with the machine



- Do not remove the insulation plate attached at the bottom of the circuit breaker.  
It may destroy the insulation and the insulation performance.

## Connection Precautions



- When fastening the terminal screw, it should be fastened according to the specified torque.  
Incomplete fastening of the terminal screw may cause overheating so each terminal screw must be fastened completely according to the specified torque.  
In addition, excessive fastening torque may cause damage in the terminal screw and the circuit breaker case.



- Use of lubricant at the terminal screw part is prohibited

Lubricant reduces the friction of the screw, causing the screw to loosen, ultimately leading to an increase in temperature.

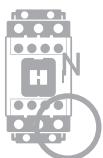


- Exposed conductor must be insulated  
Insulating tube or insulating tape must be used to complete insulation between the bare conductors of the MC. In case the terminals are not insulated, it may cause secondary short-circuit during short-circuit accidents.



- STUD must not be deformed

Excessive force must not be applied to the stud at the conductor connecting part of the rear connection type. In addition, stud must not be deformed during wiring.



- In case of 4 pole circuit breaker, the neutral wire of 3 phase 4 wire must be connected to the N phase.  
It may not function in overcurrent which may cause fire.



- The conductor must be fixed firmly on a flat state

As for the connecting conductor, electromagnetic force between conductors is generated by extremely big fault current so it must be fixed firmly.

## Current Status of Acquired Standards

### Approvals & Certificates

#### MS

● : Acquired  
 ◎ : In Progress (Expected)

| Type of Certification | Approvals                                                                         |                                                                                   |                                                                                   | Certificate                                                                        |                                                                                     |                                                                                     |
|-----------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Type of Standard      | UL/CSA                                                                            | Safety Certificate                                                                | IEC                                                                               | IEC                                                                                | GB                                                                                  |                                                                                     |
| Mark                  |  |  |  |  |  |  |
| Testing Institute     | UL                                                                                | KETI                                                                              | CE                                                                                | KTC                                                                                | Nuclear                                                                             | GB 1984                                                                             |
| Certification Country | USA, Canada                                                                       | Korea                                                                             | Europe                                                                            | Korea                                                                              | Korea                                                                               | China                                                                               |
| HGC9                  | ●                                                                                 | ●                                                                                 | ●                                                                                 | ●                                                                                  |                                                                                     | ●                                                                                   |
| HGC12                 | ●                                                                                 | ●                                                                                 | ●                                                                                 | ●                                                                                  |                                                                                     | ●                                                                                   |
| HGC18                 | ●                                                                                 | ●                                                                                 | ●                                                                                 | ●                                                                                  |                                                                                     | ●                                                                                   |
| HGC25                 | ●                                                                                 | ●                                                                                 | ●                                                                                 | ●                                                                                  |                                                                                     | ●                                                                                   |
| HGC32                 | ●                                                                                 | ●                                                                                 | ●                                                                                 | ●                                                                                  | ◎                                                                                   | ●                                                                                   |
| HGC40                 | ●                                                                                 | ●                                                                                 | ●                                                                                 | ●                                                                                  |                                                                                     | ●                                                                                   |
| HGC50                 | ●                                                                                 | ●                                                                                 | ●                                                                                 | ●                                                                                  |                                                                                     | ●                                                                                   |
| HGC65                 | ●                                                                                 | ●                                                                                 | ●                                                                                 | ●                                                                                  | ◎                                                                                   | ●                                                                                   |
| HGC75                 | ●                                                                                 | ●                                                                                 | ●                                                                                 | ●                                                                                  |                                                                                     | ●                                                                                   |
| HGC85                 | ●                                                                                 | ●                                                                                 | ●                                                                                 | ●                                                                                  |                                                                                     | ●                                                                                   |
| HGC100                | ●                                                                                 | ●                                                                                 | ●                                                                                 | ●                                                                                  | ◎                                                                                   | ●                                                                                   |
| HGC115                | ●                                                                                 | ●                                                                                 | ●                                                                                 | ●                                                                                  |                                                                                     | ●                                                                                   |
| HGC130                | ●                                                                                 | ●                                                                                 | ●                                                                                 | ●                                                                                  |                                                                                     | ●                                                                                   |
| HGC150                | ●                                                                                 | ●                                                                                 | ●                                                                                 | ●                                                                                  | ◎                                                                                   | ●                                                                                   |
| HGC185                | ●                                                                                 | ●                                                                                 | ●                                                                                 | ●                                                                                  |                                                                                     | ●                                                                                   |
| HGC225                | ●                                                                                 | ●                                                                                 | ●                                                                                 | ●                                                                                  |                                                                                     | ●                                                                                   |
| HGC265                | ●                                                                                 | ●                                                                                 | ●                                                                                 | ●                                                                                  |                                                                                     | ●                                                                                   |
| HGC300                | ●                                                                                 | ●                                                                                 | ●                                                                                 | ●                                                                                  | ◎                                                                                   | ●                                                                                   |
| HGC400                | ●                                                                                 |                                                                                   | ●                                                                                 | ●                                                                                  |                                                                                     | ●                                                                                   |
| HGC500                | ●                                                                                 |                                                                                   | ●                                                                                 | ●                                                                                  |                                                                                     | ●                                                                                   |
| HGC630                | ●                                                                                 |                                                                                   | ●                                                                                 | ●                                                                                  |                                                                                     | ●                                                                                   |
| HGC800                | ●                                                                                 |                                                                                   | ●                                                                                 | ●                                                                                  |                                                                                     | ●                                                                                   |
| HGR                   | ●                                                                                 |                                                                                   | ●                                                                                 |                                                                                    | ◎                                                                                   | ●                                                                                   |
| HGCTB                 | ●                                                                                 |                                                                                   | ●                                                                                 |                                                                                    | ◎                                                                                   | ●                                                                                   |
| HGT18                 | ●                                                                                 |                                                                                   | ●                                                                                 | ●                                                                                  |                                                                                     | ●                                                                                   |
| HGT40                 | ●                                                                                 |                                                                                   | ●                                                                                 | ●                                                                                  | ◎                                                                                   | ●                                                                                   |
| HGT65                 | ●                                                                                 |                                                                                   | ●                                                                                 | ●                                                                                  | ◎                                                                                   | ●                                                                                   |
| HGT100                | ●                                                                                 |                                                                                   | ●                                                                                 | ●                                                                                  | ◎                                                                                   | ●                                                                                   |
| HGT150                | ●                                                                                 |                                                                                   | ●                                                                                 | ●                                                                                  | ◎                                                                                   | ●                                                                                   |
| HGT265                | ●                                                                                 |                                                                                   | ●                                                                                 | ●                                                                                  |                                                                                     | ●                                                                                   |
| HGT500                | ●                                                                                 |                                                                                   | ●                                                                                 | ●                                                                                  | ◎                                                                                   | ●                                                                                   |
| HGT800                | ●                                                                                 |                                                                                   | ●                                                                                 | ●                                                                                  |                                                                                     | ●                                                                                   |

## Approvals &amp; Marine Certificates

## MS

● : Acquired  
 ◎ : In Progress (Expected)

| Type of Certification | Marine                                                                            |                                                                                   |                                                                                    |                                                                                     |
|-----------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Type of Standard      | Korea                                                                             | U.K.                                                                              | USA                                                                                | France                                                                              |
| Mark                  |  |  |  |  |
| Testing Institute     | KR                                                                                | LR                                                                                | ABS                                                                                | BV                                                                                  |
| Certification Country | Korea                                                                             | U.K.                                                                              | USA                                                                                | France                                                                              |
| HGC9                  | ●                                                                                 | ●                                                                                 | ●                                                                                  | ●                                                                                   |
| HGC12                 | ●                                                                                 | ●                                                                                 | ●                                                                                  | ●                                                                                   |
| HGC18                 | ●                                                                                 | ●                                                                                 | ●                                                                                  | ●                                                                                   |
| HGC25                 | ●                                                                                 | ●                                                                                 | ●                                                                                  | ●                                                                                   |
| HGC32                 | ●                                                                                 | ●                                                                                 | ●                                                                                  | ●                                                                                   |
| HGC40                 | ●                                                                                 | ●                                                                                 | ●                                                                                  | ●                                                                                   |
| HGC50                 | ●                                                                                 | ●                                                                                 | ●                                                                                  | ●                                                                                   |
| HGC65                 | ●                                                                                 | ●                                                                                 | ●                                                                                  | ●                                                                                   |
| HGC75                 | ●                                                                                 | ●                                                                                 | ●                                                                                  | ●                                                                                   |
| HGC85                 | ●                                                                                 | ●                                                                                 | ●                                                                                  | ●                                                                                   |
| HGC100                | ●                                                                                 | ●                                                                                 | ●                                                                                  | ●                                                                                   |
| HGC115                | ●                                                                                 | ●                                                                                 | ●                                                                                  | ●                                                                                   |
| HGC130                | ●                                                                                 | ●                                                                                 | ●                                                                                  | ●                                                                                   |
| HGC150                | ●                                                                                 | ●                                                                                 | ●                                                                                  | ●                                                                                   |
| HGC185                | ●                                                                                 | ●                                                                                 | ●                                                                                  | ●                                                                                   |
| HGC225                | ●                                                                                 | ●                                                                                 | ●                                                                                  | ●                                                                                   |
| HGC265                | ●                                                                                 | ●                                                                                 | ●                                                                                  | ●                                                                                   |
| HGC300                | ●                                                                                 | ●                                                                                 | ●                                                                                  | ●                                                                                   |
| HGC400                | ●                                                                                 | ●                                                                                 | ●                                                                                  | ●                                                                                   |
| HGC500                | ●                                                                                 | ●                                                                                 | ●                                                                                  | ●                                                                                   |
| HGC630                | ●                                                                                 | ●                                                                                 | ●                                                                                  | ●                                                                                   |
| HGC800                | ●                                                                                 | ●                                                                                 | ●                                                                                  | ●                                                                                   |
| HGR                   | ●                                                                                 | ●                                                                                 | ●                                                                                  | ●                                                                                   |
| HGCTB                 | ●                                                                                 | ●                                                                                 | ●                                                                                  | ●                                                                                   |
| HGT18                 | ●                                                                                 | ●                                                                                 | ●                                                                                  | ●                                                                                   |
| HGT40                 | ●                                                                                 | ●                                                                                 | ●                                                                                  | ●                                                                                   |
| HGT65                 | ●                                                                                 | ●                                                                                 | ●                                                                                  | ●                                                                                   |
| HGT100                | ●                                                                                 | ●                                                                                 | ●                                                                                  | ●                                                                                   |
| HGT150                | ●                                                                                 | ●                                                                                 | ●                                                                                  | ●                                                                                   |
| HGT265                | ●                                                                                 | ●                                                                                 | ●                                                                                  | ●                                                                                   |
| HGT500                | ●                                                                                 | ●                                                                                 | ●                                                                                  | ●                                                                                   |
| HGT800                | ●                                                                                 | ●                                                                                 | ●                                                                                  | ●                                                                                   |

## Current Status of Acquired Standards

### Approvals & Marine Certificates

#### MS

● : Acquired  
 ◎ : In Progress (Expected)

| Type of Certification | Marine                                                                            |                                                                                   |                                                                                     |
|-----------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Type of Standard      | Japan                                                                             | Germany                                                                           | Italy                                                                               |
| Mark                  |  |  |  |
| Testing Institute     | NK                                                                                | GL                                                                                | RINA                                                                                |
| Certification Country | Japan                                                                             | Germany                                                                           | Italy                                                                               |
| HGC9                  | ●                                                                                 | ●                                                                                 | ●                                                                                   |
| HGC12                 | ●                                                                                 | ●                                                                                 | ●                                                                                   |
| HGC18                 | ●                                                                                 | ●                                                                                 | ●                                                                                   |
| HGC25                 | ●                                                                                 | ●                                                                                 | ●                                                                                   |
| HGC32                 | ●                                                                                 | ●                                                                                 | ●                                                                                   |
| HGC40                 | ●                                                                                 | ●                                                                                 | ●                                                                                   |
| HGC50                 | ●                                                                                 | ●                                                                                 | ●                                                                                   |
| HGC65                 | ●                                                                                 | ●                                                                                 | ●                                                                                   |
| HGC75                 | ●                                                                                 | ●                                                                                 | ●                                                                                   |
| HGC85                 | ●                                                                                 | ●                                                                                 | ●                                                                                   |
| HGC100                | ●                                                                                 | ●                                                                                 | ●                                                                                   |
| HGC115                | ●                                                                                 | ●                                                                                 | ●                                                                                   |
| HGC130                | ●                                                                                 | ●                                                                                 | ●                                                                                   |
| HGC150                | ●                                                                                 | ●                                                                                 | ●                                                                                   |
| HGC185                | ●                                                                                 | ●                                                                                 | ●                                                                                   |
| HGC225                | ●                                                                                 | ●                                                                                 | ●                                                                                   |
| HGC265                | ●                                                                                 | ●                                                                                 | ●                                                                                   |
| HGC300                | ●                                                                                 | ●                                                                                 | ●                                                                                   |
| HGC400                | ●                                                                                 | ●                                                                                 | ●                                                                                   |
| HGC500                | ●                                                                                 | ●                                                                                 | ●                                                                                   |
| HGC630                | ●                                                                                 | ●                                                                                 | ●                                                                                   |
| HGC800                | ●                                                                                 | ●                                                                                 | ●                                                                                   |
| HGR                   |                                                                                   | ●                                                                                 |                                                                                     |
| HGCTB                 |                                                                                   | ●                                                                                 |                                                                                     |
| HGT18                 |                                                                                   | ●                                                                                 | ●                                                                                   |
| HGT40                 |                                                                                   | ●                                                                                 | ●                                                                                   |
| HGT65                 |                                                                                   | ●                                                                                 | ●                                                                                   |
| HGT100                |                                                                                   | ●                                                                                 | ●                                                                                   |
| HGT150                |                                                                                   | ●                                                                                 | ●                                                                                   |
| HGT265                |                                                                                   | ●                                                                                 | ●                                                                                   |
| HGT500                |                                                                                   | ●                                                                                 | ●                                                                                   |
| HGT800                |                                                                                   | ●                                                                                 | ●                                                                                   |



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