

1. Standard

1.1 Applied Standard UL508, JIS 5442

2. Specifications of Appliance

2.1 External Dimension Drawing No. HAR150  
(Refer to the attached drawings)

2.2 Contact Point Structure 1 a (S.P. On/Off)

2.3 Composed Parts UL Standard Parts and 94-V0 Equivalent  
(Non-Flammability)

3. Rating(Continuous)

3.1 Operating COIL

Rated Voltage(VDC)	12	24	36	48	72	110
Rated Current(mA)	480	220	144	119	83	52
COIL Resistance( $\Omega$ )	25	108	250	405	870	2100
Rated consumable power(W)	5.6 ~ 5.9					
Max. Permitted Voltage(V)	130% of rated Voltage					

\* Rated current is for reference, and the tolerance is  $\pm 10\%$ . (Surrounding temperature 20°C)

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3.2 Opening & Closing Part

(1) Rated Load Resisted Load DC 450V 150A

(2) Continuous Conducting Current 170A

(3) Max. Opening & Closing Voltage DC 900V

3.3 Over-Current Strength of Opening, Closing Part More than 20 times of breaking of 52Vdc 860A opening, closing.  
(120 times/ hour, On Time 0.5Sec, L/R=1)

4. Performance

4.1 Initial contact point voltage drop Below 10mV  
(Initial value, with 100A voltage drop method)

4.2 Operating voltage Below 75% of rated voltage

4.3 Returning voltage Above 10% of rated voltage

4.4 Operating time Below 20mS (Applied time of rated voltage)

4.5 Returning time Below 10mS (Removing time of input voltage)

4.6 Insulation resistance Above 100M $\Omega$  (DC 500V MEGGER)

4.7 Withstand voltage

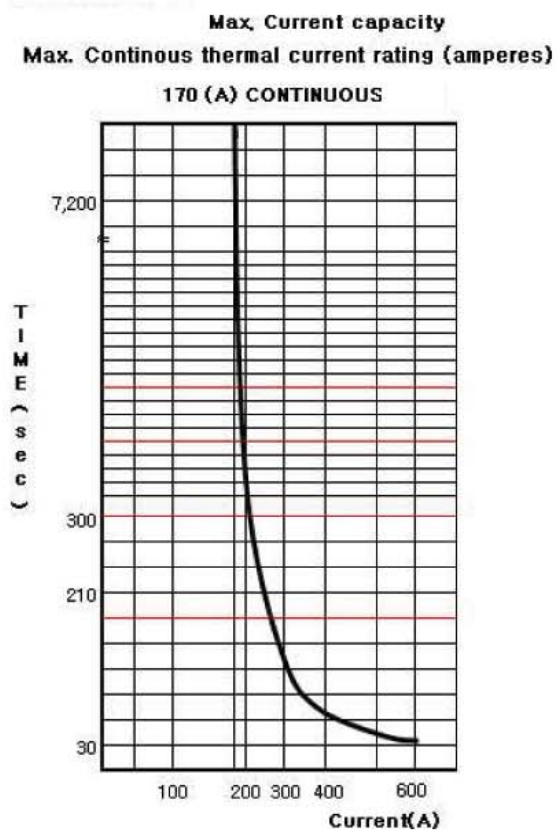
(1) Between Coil and contact AC 5,000V  
(2) Between same pole contact AC 5,000V

} VAC/60Hz For 1 minute 5mA

4.8 Temperature rise

(1) Coil Below 55°C

(2) Terminal Stand Below 85°C (50mm<sup>2</sup> Wire)



Short-time Current 250A (3.5Hr., 50mm<sup>2</sup>), 370A(2Min.50mm<sup>2</sup>)

4.9 Anti-vibration

(1) Endurance

After exerting variable vibration of width 100mm/s, vibration number 10~500~10 Hz to each direction for 2 hours, they should not be abnormal in structure and feature(10G).  
JIS C5442 5.1

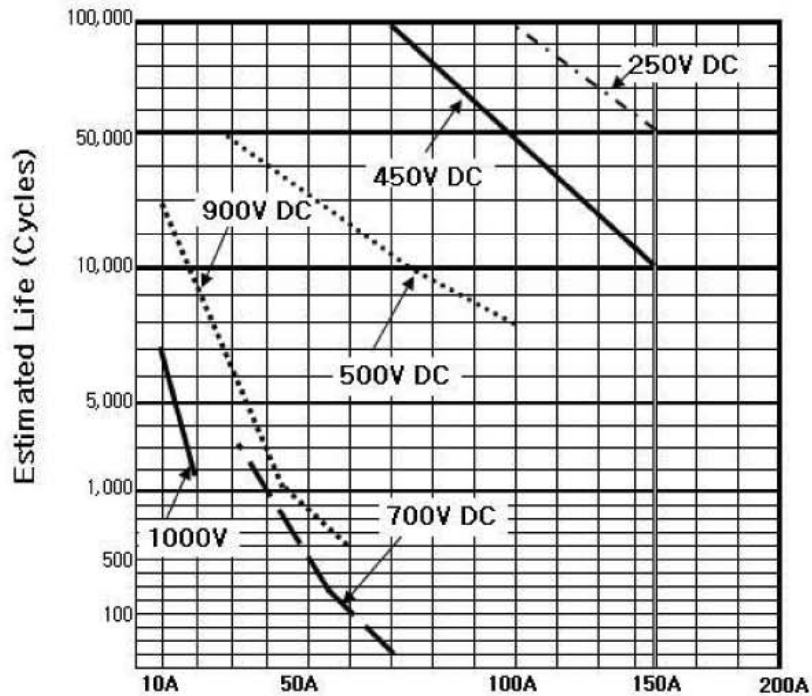
(2) Disoperation(Excitation)

After exerting variable vibration of width 100mm/s, vibration number 10~500~10 Hz to each direction for 2 hours, there should not be opening/closing of contact point more than 10us (10G).  
JIS C5442 5.1

4.10 Anti-impact	
(1) Endurance	After exerting impact of 11m/s to each direction 5 times, they should not be abnormal in structure, 490[m/s <sup>2</sup> ](50G), impact level:5 JIS 5442 5.2
(2) Disoperation(Excitation)	After exerting impact of 11m/s to each direction 2 times, there should not be the opening/closing of contact point more than 1ms. 147[m/s <sup>2</sup> ](15G), impact level:3 JIS 5442 5.2
4.11 Terminal Strength	After pulling 100kgf weight to the vertical direction of terminal for 10 seconds, there should not be abnormal.
4.12 Anti-temperature	
(1) Anti-heat	After putting in 85±2℃ for 16 hours, and then putting in constant temperature and humidity for 2 hours, there should not be abnormal in structure, feature.
(2) Anti-coldness	After putting in -40±3℃ for 72 hours, and then putting in constant temperature and humidity for 2 hours, there should not be abnormal in structure, feature.
4.13 Anti-humidity	After putting in temperature of 40±2℃, relative humidity of 90~95% RH for 48 hours, and putting in constant temperature and humidity for 2 hours, they should not be abnormal in structure, feature. However, the insulation resistance should be higher than 5MΩ.
4.14 Water-proof Grade	IP67
4.15 Life	
(1) Mechanical life	More than 1 million times (No-load of contact point, frequency of opening/closing : 900 times/hour)
(2) Electrical life	More than 100 thousand times (Rated load of contact point, frequency of opening/closing: 360 times/hour) L/R=1 110V dc 150A More than 200 thousand times 250V dc 150A More than 100 thousand times 450V dc 150A More than 12,000 times 700V dc 70A More than 20 times 900V dc 45A More than 20 times 1,000V dc 20A More than 10 thousand times 400V dc 1,000A 1 time.

- (3) Reverse direction electrical life (Reverse direction cut-off) More than 500 times.  
 (200V DC -125A, Frequency of opening, closing 360 times/hour)

### Make & Break Power Switching Ratings



- 4.16 Weight of Product 330g
5. Standard Test Condition
- 5.1 Temperature 20°C
- 5.2 Humidity 65% RH
6. Using Condition Use in the following condition.
- 6.1 Temperature -40°C to 85°C  
 However, there should not be freezing and frost.
- 6.2 Humidity 35~85% RH
- 6.3 Environment
- (1) Place where corrosive gas such as hydrogen and salt cannot be reached.
- (2) Place it where it cannot be reach by direct sunlight. In any case, do not exert weight that may disfigure or deteriorate the product.
7. Change of Records Things other than electric, mechanic performance, external dimension and assembled dimension may be changed without notice in order to improve the quality.

## 8. Validity Period of Specifications

8.1 The validity period of this specification is for one year from the date of approval.

8.2 If there is not a consultation from your company or our company by one month before the end of the validity period, it will be extended by one year in a serial order.

8.3 If this specification paper is not returned, the following procedure will be taken.

8.3.1 If an order is granted within one year from the issue date of the specification paper, the order-receiving is deemed as an approval.

8.3.2 If there no order after one year, this specification paper will be null and void.

## 9. Warranty Period

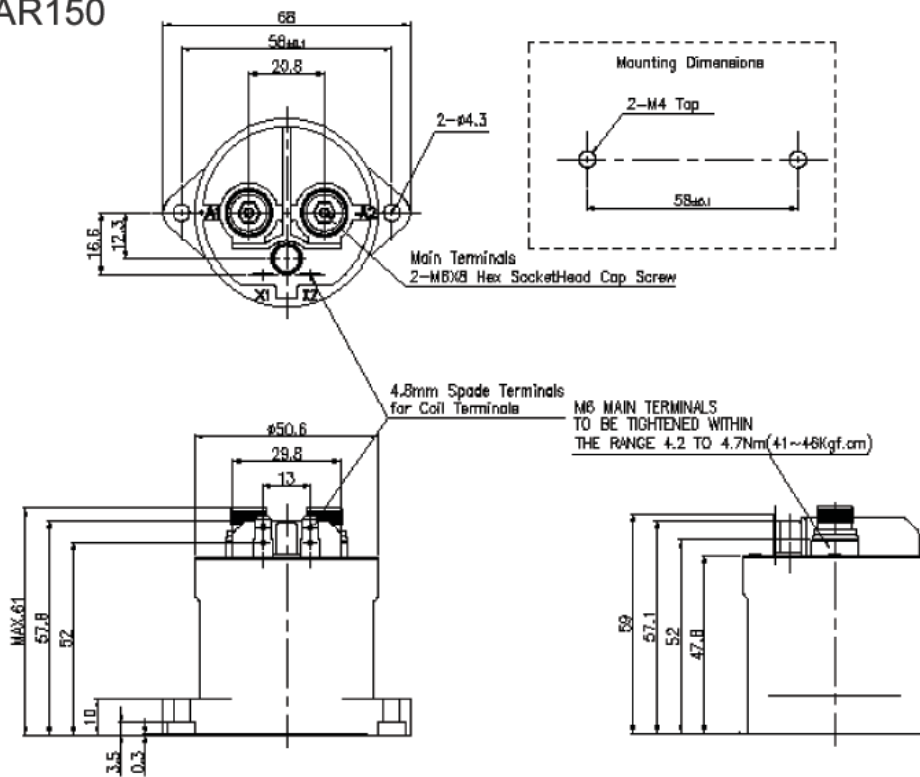
### 9.1 Warranty Period

It is for one year after delivery at the place designated by your company.

### 9.2 Warranty Scope

During the warranty period, the responsibility rests with our company, thus we will change or repair the troubled part of the machine.

## HAR150



# HAR150A

