






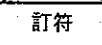





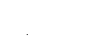



Individual Model  
Specifications

Reciprocating Compressor

[ Model No. CB50 ]

Part No. AAD201A002H 

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## 1. Scope

This INDIVIDUAL MODEL SPECIFICATIONS applies to model **CB50**  
(3-Ph, 346-415V 50Hz~, 380-440V~ 60Hz) of M.H.I Hermetic reciprocating Compressors.  
The general matter and the application standards of all reciprocating compressors comply with the CB series application standard. (ESP-PA-5981 4/4)

## 2. Range of Production

The products are as shown below.

### △(1) Compressor

| Part Name  | No. Req | Part No.    | Drw. No.   |
|------------|---------|-------------|------------|
| Compressor | 1       | AAD201A002H | AAD000Z006 |

### △(2) Electrical Parts

| Part Name          | No. Req | Part No.    | Drw. No.   |
|--------------------|---------|-------------|------------|
| Over Current Relay | 1       | SSA522B011  | ASA000Z110 |
| Crank Case Heater  | 1       | ASA541B020A | ASA000Z228 |

### (3) Accessory Parts

| Part Name              | No. Req | Part No.    | Drw. No.    |
|------------------------|---------|-------------|-------------|
| Terminal Cover         | 1       | AAD947K003  | AAD000Z069  |
| Screw (Terminal Cover) | 1       | H051D05X020 | AAC000Z046C |



### (4) Mounting Parts

| Part Name             | No. Req | Part No.   | Drw. No.   |
|-----------------------|---------|------------|------------|
| Comp. Mounting Detail | —       | —          | AAD000Z074 |
| Rubber, Cushion       | 4       | SSA941C103 | ASA000Z548 |

### (5) Wiring Diagram and Performance Curve

| Part Name                                 | Drw. No.   |
|---|------------|
| Wiring Diagram                            | AAD000Z068 |
| Performance Curve of Compressor 380V 50Hz | AAD000Z087 |
| Performance Curve of Compressor 400V 60Hz | AAD000Z145 |



### 3. Individual Specifications 【 Model No.CB50 】

#### (1) Compressor Data

|                    |                     |                    |                       |
|--------------------|---------------------|--------------------|-----------------------|
| No. of Cylinder    | 2                   | Cylinder Diameter  | 55 mm                 |
| Stroke             | 21.3 mm             | Displacement       | 101.2 cm <sup>3</sup> |
| Refrigerant        | R 22                | Refrigerant Charge | 4 kg(max)             |
| Oil                | BARREL FREEZE 32SAM | Oil Charge         | 1800 cm <sup>3</sup>  |
| Weight (incl. oil) | 43 kg               | Compressor Cooling | Natural Air Draft     |

#### △(2) Rated Performance\*1

| Power Source              | 3-Ph 415V 50Hz | 3-Ph 440V 60Hz |
|---------------------------|----------------|----------------|
| Capacity (±7%)            | 14650 W        | 17790 W        |
| Motor Input (±7%)         | 4870 W         | 6100 W         |
| Rated Load Amperes (±10%) | 8.8 A          | 9.2 A          |
| C.O.P (±7%)               | 3.01           | 2.92           |

\*1 Rated Conditions:ASHRAE-T

|                   |        |
|-------------------|--------|
| Evaporating temp. | 7.2°C  |
| Condensing temp.  | 54.4°C |
| Suction gas temp. | 35.0°C |
| Liquid temp.      | 46.1°C |
| Ambient temp.     | 35.0°C |

#### (3) Motor Data

|                                  |                                      |
|----------------------------------|--------------------------------------|
| Motor Type                       | 3-Ph, 2-Pole, Induction Motor        |
| Starting Method                  | IR                                   |
| Rated Power Supply               | 3-Ph, 346-415V~ 50Hz, 380-440V~ 60Hz |
| Rated Output                     | .375 kW                              |
| Insulation Class Rating          | Class-E                              |
| Resistance of Winding [at.20°C]  | 2.52 Ω                               |
| Starting Current [380/415V 50Hz] | 68 / 74 A                            |

#### (4) Over Current Relay Data

|                  |        |
|------------------|--------|
| Trip Current     | 16.0 A |
| Non Trip Current | 14.0 A |



#### (5) Crank Case Heater Data

|                    |         |
|--------------------|---------|
| Rated Power Supply | 240 VAC |
| Rated Output       | 50 W    |

#### (6) Internal Thermostat Data

|                   |         |
|-------------------|---------|
| Open Temperature  | 90±5 °C |
| Close Temperature | 73±7 °C |



## CB Series Application Standard

When using the compressor, the following standards should be followed.



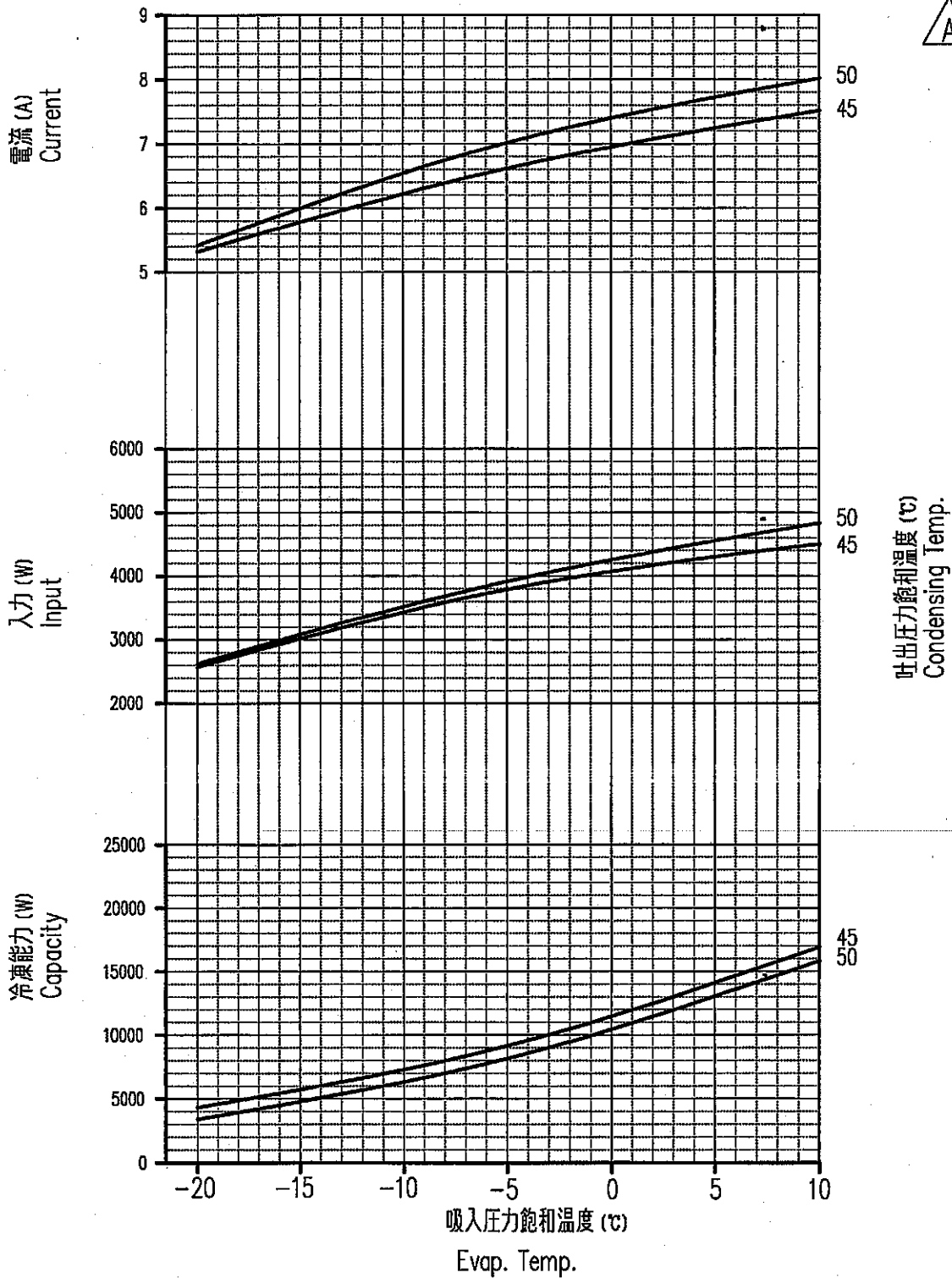
|    | Item                                | Limits  |
|----|-------------------------------------|---|
| 1  | Refrigerant                         | R22   |
| 2  | Evaporating temp.                   | -30°C~12°C(0.07~0.63MPa).   |
| 3  | Condensing temp.                    | 30°C~68°C(1.10~2.75MPa).  |
| 4  | Compression ratio                   | 8 max.  |
| 5  | Motor winding temp.                 | 105°C max. in resistance method. (It becomes less than 105°C by internal thermostat.)   |
| 6  | Shell bottom temp.                  | 90°C max.<br>Saturated temp. of evaporating pressure plus 20degC min.   |
| 7  | Discharge gas temp.                 | 140°C max.  |
| 8  | Voltage (running)                   | Within $\pm 10\%$ of the rating at compressor terminal.   |
| 9  | Start up voltage                    | Starting voltage shall be more than 85 % of rated voltage measured at compressor terminal.  |
| 10 | On-Off cycle                        | 12 minutes min./cycle. Off time should be more than 3 minutes.<br>Start-up should be at balanced pressure on high-low pres. sides, but 0.79MPa max. high-low pressure difference is allowed.  |
| 11 | Refrigerant charge limitation       | 4kg max. In this case have no use crankcase heater and accumulator.<br>When charging above this limit, crankcase heater and accumulator must be used.<br>The accumulator volume should be equal to the unit charging volume.                    |
| 12 | On-Off frequency                    | Less than 100,000 times.  |
| 13 | Oil hold limit                      | 790 cm <sup>3</sup> (Lower limit at running condition)  |
| 14 | Electrical components ambient temp. | 55°C max.   |
| 15 | Tilt angle of comp.                 | 5 degrees max. in any direction.  |
| 16 | Moisture content                    | Moisture content of the compressor is controlled at 300mg max. when shipped from the factory. However, Moisture content circuit shall be 80ppm max. at 60°C ambient temperature.  |
| 17 | Contaminants content                | Contaminants content of the compressor is kept under 50mg when shipped from the factory.<br>Contaminants content (metal particles, lirt, sand, flux, etc.) should not exceed 0.2g/m <sup>2</sup> in the refrigerant system.                     |
| 18 | Non-condensable gas content         | The non-condensables that are extracted from the gas phase of the low pressure side should be held to the ratio 1% or less in terms of volume. To achieve such a state the vacuuming of ref. circuit should be done to about 26.7Pa(0.2 mm Hg). |

### General Cautions

- (1) Do not keep the compressor open for more than fifteen minutes.
- (2) Do not use the compressor for the vacuum evacuation of the refrigerant circuit.
- (3) Do not allow compressor to suck in and compress air.
- (4) Do not apply current to the compressor in a vacuum condition.
- (5) Do not tilt or drop compressor during transportation.
- (6) Do not damage the compressor paint coating.



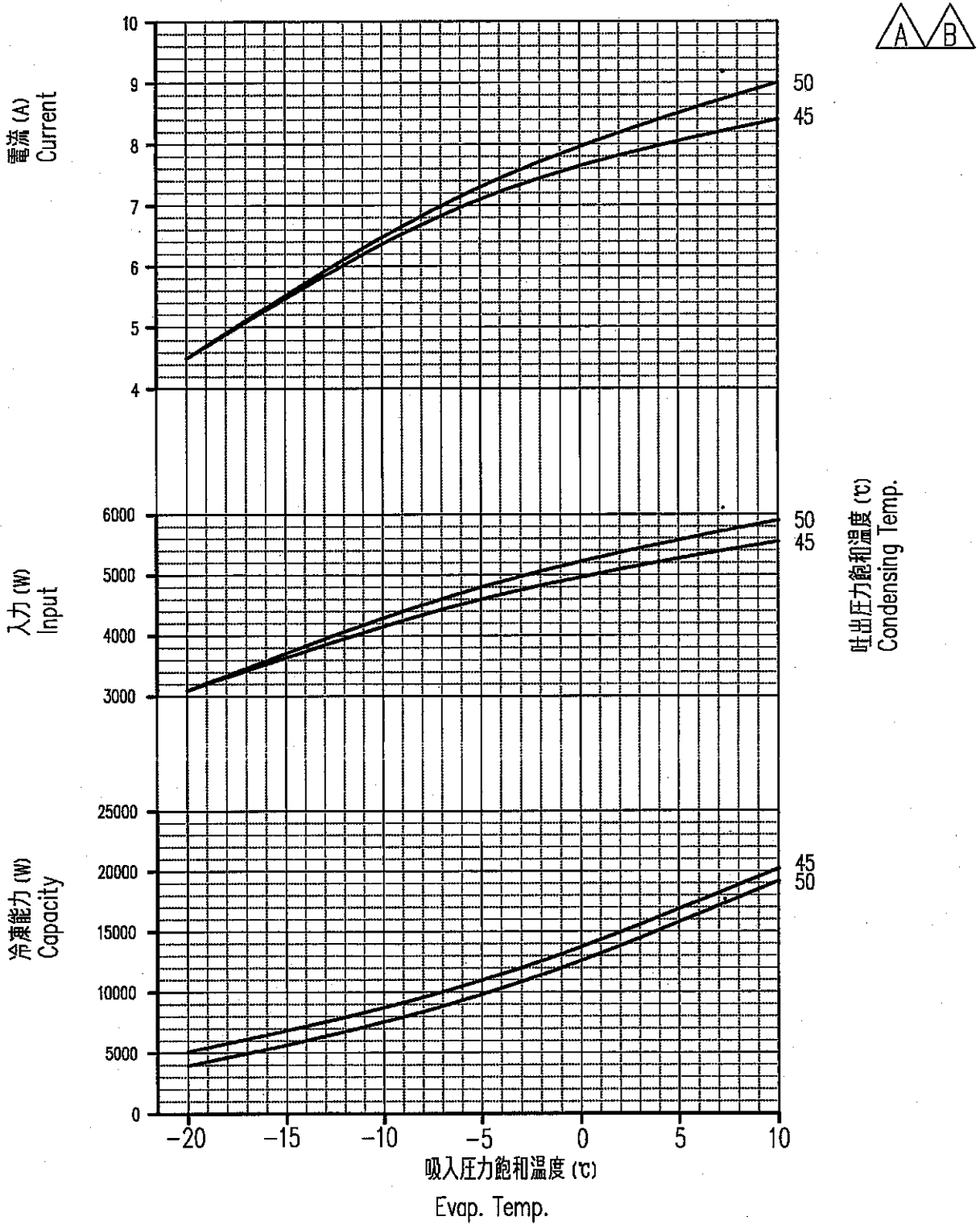
|                               |                 |                             |                           |
|-------------------------------|-----------------|-----------------------------|---------------------------|
| 壓縮機形式<br>Compressor Model No. | CB50            | 過冷却<br>Sub Cooling          | 5 degC                    |
| 定格電源<br>Power Source          | 3Ph, 380V, 50Hz | 周囲温度<br>Ambient Temp.       | 35 °C                     |
| 過熱度<br>Super Heat             | 10 degC         | 壓縮機冷却<br>Compressor Cooling | 自然通風<br>Natural Air Draft |



|                                    |             |                        |         |            |                                   |               |                 |
|------------------------------------|-------------|------------------------|---------|------------|-----------------------------------|---------------|-----------------|
| B AAD1607 06.6.6 H. Machida X CB50 |             | A AAD1366 99.9.14 H. M |         | 尺度 SCALE   | 形式 MODEL                          | 親部番 NEXT ASSY | 特別配布先           |
| 訂符 MARK                            | 訂番 REV. NO. | 年月日 DATE               | 点検 CHKD | 名称 NAME    | パフォーマンス カーブ<br>CURVE, PERFORMANCE |               | AUT             |
| 認可 APPD                            | 検図 CHKD     | 製図 DRAWN               | 図種      | 図番 DWG NO. | 品別 SUFFIX                         | 訂符 REV. MARK  | 葉別 PAGE         |
| T. Itoh<br>H. Honda                | M. Hirose   | S. Yoshida<br>85.6.6   | Z       | AAD000Z087 | B                                 | 1             | 1               |
|                                    |             |                        |         |            |                                   |               | 標準配布 ST. DISTR. |
|                                    |             |                        |         |            |                                   |               | 1               |
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|-------------------------------|-----------------|-----------------------------|---------------------------|
| 壓縮機形式<br>Compressor Model No. | CB50            | 過冷却<br>Sub Cooling          | 5 degC                    |
| 定格電源<br>Power Source          | 3Ph, 400V, 60Hz | 周囲温度<br>Ambient Temp.       | 35 °C                     |
| 過熱度<br>Super Heat             | 10 degC         | 壓縮機冷却<br>Compressor Cooling | 自然通風<br>Natural Air Draft |



|             |             |            |                |            |                                  |               |       |
|-------------|-------------|------------|----------------|------------|----------------------------------|---------------|-------|
| A           |             | B          |                | 尺度 SCALE   | 形式 MODEL                         | 親部番 NEXT ASSY | 特別配布先 |
| AAD1607     |             | 06.6.6     |                | X          | CB50                             |               | 1 SS1 |
| AAD1366     |             | 99.914     |                | H. Machida |                                  |               | 2 SN1 |
| 訂符 MARK     | 訂番 REV. NO. | 年月日 DATE   | 点検 CHKD        | 名称 NAME    | パフォーマンスクーブ<br>CURVE, PERFORMANCE | AUT           | 3     |
| 認可 APPD     | 検図 CHKD     | 製図 DRAWN   | 種類 DWG NO.     | 品別 SUFFIX  | 訂入符 REV. MARK                    | 葉別 PAGE       | 4     |
| Y. Fukazawa | H. Honda    | S. Yoshida | Z AAD000Z145 ~ | B          | 1                                | 1             | 5     |
| M. Hirose   | 87.6.3      |            |                |            |                                  | XX            | 6     |
|             |             |            |                |            |                                  |               | 7     |
|             |             |            |                |            |                                  |               | 8     |
|             |             |            |                |            |                                  |               | 9     |

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