



Individual Model  
Specifications

Reciprocating Compressor

【 Model No. CB80H 】

APPROVED

CHECKED & DRAWN

DATE Apr. 2006

|      |          |      |      |
|------|----------|------|------|
|      |          |      |      |
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|      |          |      |      |
|      |          |      |      |
|      |          |      |      |
| MARK | REV. NO. | DATE | CHKD |

**MITSUBISHI HEAVY INDUSTRIES, LTD.**

|                          |          |             |              |                |
|--------------------------|----------|-------------|--------------|----------------|
| SPEC. NO.<br>ESP-PA-6213 | REV.<br> | PAGE<br>1/5 | DISTR.<br>XX | SIZE<br>A4=1-5 |
|--------------------------|----------|-------------|--------------|----------------|



## 1. Scope

This INDIVIDUAL MODEL SPECIFICATIONS applies to model **CB80H**  
(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-6213 5/5)

## 2. Range of Production

The products are as shown below.

### (1) Compressor

| Part Name  | No. Req | Part No.     | Drw. No.   |
|------------|---------|--------------|------------|
| Compressor | 1       | AAD201A010HG | AAD000Z082 |

### (2) Electrical Parts

| Part Name          | No. Req | Part No.    | Drw. No.   | Application    |
|--------------------|---------|-------------|------------|----------------|
| Over Current Relay | 1       | SSA522B032  | ASA000Z253 | 346-415V 50Hz~ |
| Over Current Relay | 1       | SSA522B043  | ASA000Z145 | 380-440V 60Hz~ |
| Crank Case Heater  | 1       | ASA541B019A | ASA000Z277 | Optional Part  |

### (3) Accessory Parts

| Part Name              | No. Req | Part No.    | Drw. No.    |
|------------------------|---------|-------------|-------------|
| Terminal Cover         | 1       | AAD947K004  | AAD000Z045  |
| Screw (Terminal Cover) | 1       | H051D05X008 | AAC000Z046A |
| Rubber Cushion         | 4       | SSA941C103A | ASA000Z149  |
| Edging                 | 1       | SSA947H010  | AAC000Z042  |
| Terminal Brock         | 1       | ASA561B002  | ASA000Z063  |
| Screw (Terminal Brock) | 3       | SSA912A001  | AAA000Z359  |

### (4) Wiring Diagram and Performance Curve

| Part Name                       | Drw. No.   |
|---------------------------------|------------|
| Wiring Diagram                  | AAD000Z085 |
| Performance Curve of Compressor | AAD000Z182 |

### (5) Comp. Mounting Detail

| Part Name             | No. Req | Part No. | Drw. No.   |
|-----------------------|---------|----------|------------|
| Comp. Mounting Detail | —       | —        | AAD000Z075 |



### 3. Individual Specifications 【 Model No.CB80H 】

#### (1) Compressor Data

|                    |                      |                    |                       |
|--------------------|----------------------|--------------------|-----------------------|
| No. of Cylinder    | 4                    | Cylinder Diameter  | 55 mm                 |
| Stroke             | 15.96 mm             | Displacement       | 151.7 cm <sup>3</sup> |
| Refrigerant        | R 407C               | Refrigerant Charge | 4 kg(max)             |
| Oil                | DIAMOND FREEZE MA32R | Oil Charge         | 4400 cm <sup>3</sup>  |
| Weight (incl. oil) | 65 kg                | Compressor Cooling | Natural Air Draft     |

#### (2) Rated Performance \* 1

| Power Source              | 3-Ph 415V 50Hz | 3-Ph 440V 60Hz |
|---------------------------|----------------|----------------|
| Capacity (± 8%)           | 21320 W        | 25060 W        |
| Motor Input (± 8%)        | 6940 W         | 8630 W         |
| Rated Load Amperes (±10%) | 11.2 A         | 11.8 A         |
| C.O.P (± 8%)              | 3.07           | 3.00           |

\*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                           | 5.5 kW                               |
| Insulation Class Rating                | Class-E                              |
| Resistance of Winding [at.20°C]        | 1.644 Ω                              |
| Starting Current [415V 50Hz/440V 60Hz] | 90 / 85 A                            |



**(4) Over Current Relay Data**

[Region of 50Hz]

|                  |        |
|------------------|--------|
| Trip Current     | 18.3 A |
| Non Trip Current | 16.1 A |

[Region of 60Hz]

|                  |        |
|------------------|--------|
| Trip Current     | 24.0 A |
| Non Trip Current | 21.1 A |

**(5) Crank Case Heater Data**

|                    |         |
|--------------------|---------|
| Rated Power Supply | 440 VAC |
| Rated Output       | 70 W    |



## CB Series Application Standard

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

|    | Item                                | Limits  |
|----|-------------------------------------|---|
| 1  | Refrigerant                         | R407C   |
| 2  | Evaporating temp.                   | -30°C~12°C(0.07~0.65MPa).   |
| 3  | Condensing temp.                    | 30°C~68°C(1.17~3.03MPa).  |
| 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                      | 940 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, lint, 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.



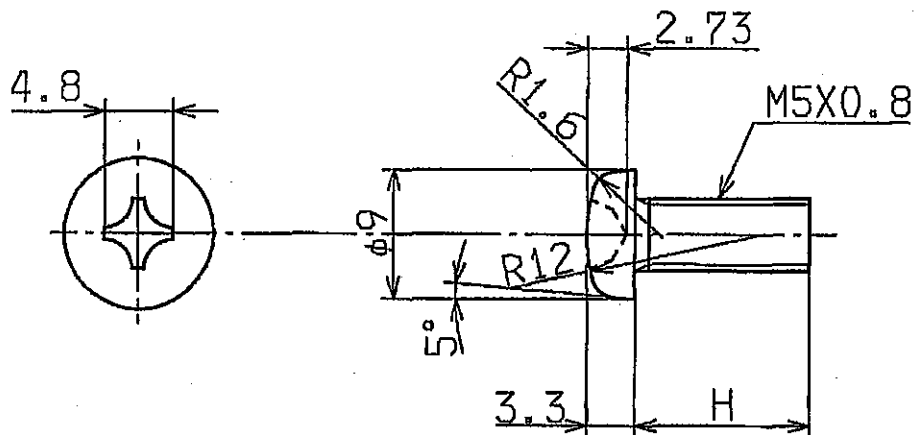








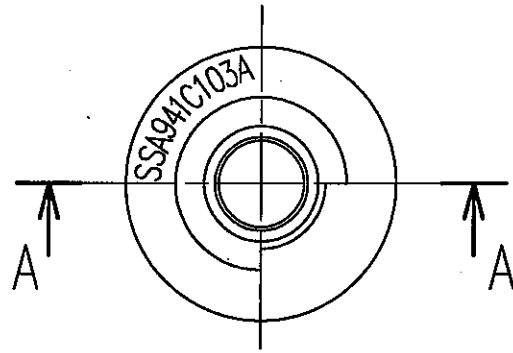
△A



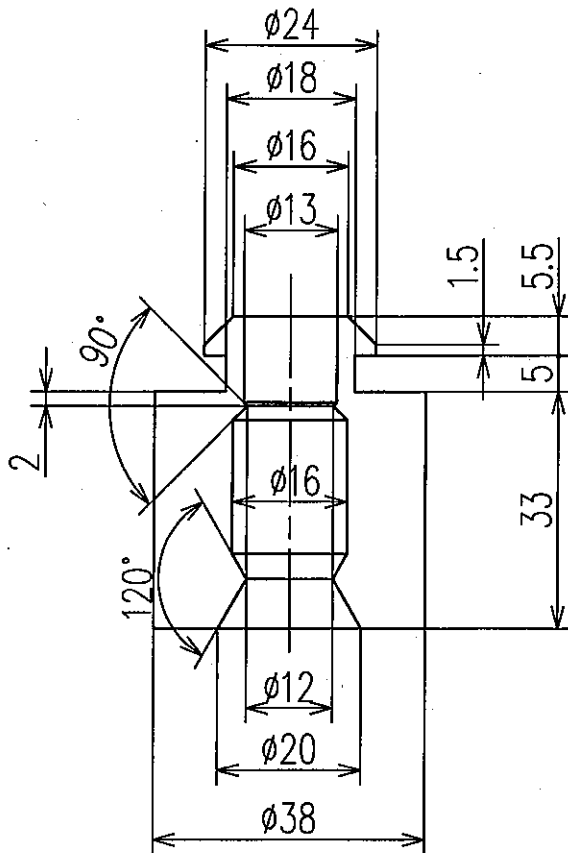
| 図番<br>DWG. NO. | H  | 材料<br>MATERIAL                       | 部品番号<br>PART NO. |
|----------------|----|--------------------------------------|------------------|
| AAC000Z046     | 12 | SWRM10~15 又は (OR)                    | H051D05X012      |
| A              | 8  | SS41, S10C~S20C                      | H051D05X008      |
| B              | 8  | C3604BD 又は (OR)<br>C2700W-1/2H       | H051E05X008      |
| C              | 20 | SWRM10~15 又は (OR)<br>SS41, S10C~S20C | H051D05X020      |

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|         |  |             |  |             |  |            |  |                 |  |           |  |                 |  |           |  |
|---------|--|-------------|--|-------------|--|------------|--|-----------------|--|-----------|--|-----------------|--|-----------|--|
| A       |  | AAC1007     |  | 98.10.30    |  | 点検         |  | 尺度 SCALE        |  | 形式 MODEL  |  | 細部番 NEXT ASSY   |  | 特別配布先     |  |
| 訂待 MARK |  | 訂番 REV. NO. |  | 年月日 DATE    |  | 点検 CHKD    |  | 2:1             |  | CA        |  |                 |  | 1 S, S, 1 |  |
| 認可 APPD |  | 検図 CHKD     |  | 製図 DRAWN    |  | 名称 NAME    |  | ターミナル スクリュー     |  | CAD       |  |                 |  | 2 A, C, 1 |  |
| 森       |  | 西本 広        |  | 吉田          |  | 図種         |  | SCREW, TERMINAL |  | 品別 SUFFIX |  | 訂入符 REV. MARK   |  | 3         |  |
| 岡田 セ    |  | 570629      |  | ZAAC000Z046 |  | 図番 DWG NO. |  | ~ C/A           |  | 巻別 PAGE   |  | 標準配布 ST. 015TH. |  | 4         |  |
|         |  |             |  |             |  |            |  |                 |  | 1/1       |  | XX              |  | 5         |  |
|         |  |             |  |             |  |            |  |                 |  | 11        |  | E               |  | A4        |  |



A-A



△

|                  |   |
|------------------|---|
| 部品番号<br>PART NO. | SSA941C103A   |
| 材料<br>MATERIAL   | クロロプレングム (RBC5105B14C12G21) ↓<br>CHLOROPRENE RUBBER |

△

寸法  
DIMENSION : mm

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|         |  |             |  |           |  |           |  |             |  |                 |  |               |  |          |  |
|---------|--|-------------|--|-----------|--|-----------|--|-------------|--|-----------------|--|---------------|--|----------|--|
| 訂符 MARK |  | 訂番 REV. NO. |  | 年月日 DATE  |  | 点検 CHKD   |  | 尺度 SCALE    |  | 形式 MODEL        |  | 親部番 NEXT ASSY |  | 特別配布先    |  |
| ASA1245 |  | 05.12.27    |  | 町田        |  | 町田        |  | X           |  | CB              |  |               |  | 1 SS,1 △ |  |
| ASA1244 |  | 05.12.13    |  | 町田        |  | 町田        |  |             |  | ラバークッション        |  | AUT           |  | 2 SN,1 △ |  |
| T.IOH   |  | M.Hirose    |  | S.Yoshida |  | S.Yoshida |  | 名称 NAME     |  | CUSHION, RUBBER |  | ◎             |  | 3        |  |
| 認可 APPD |  | 検図 CHKD     |  | 製図 DRAWN  |  | 図種        |  | 図番 DWG NO.  |  | 品別 SUFFIX       |  | 訂符 REV. MARK  |  | 業別 PAGE  |  |
|         |  | H.Honda     |  | 85.6.4    |  | Z         |  | ASA000Z149~ |  | B               |  | 1/1           |  | XX       |  |
|         |  |             |  |           |  |           |  |             |  |                 |  | 12            |  | E        |  |

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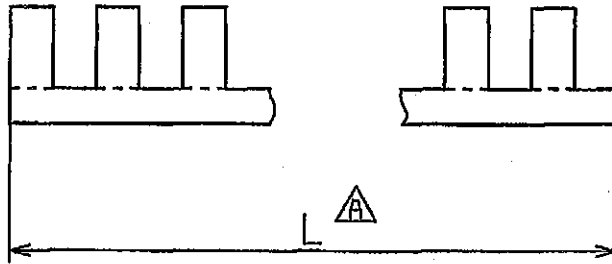
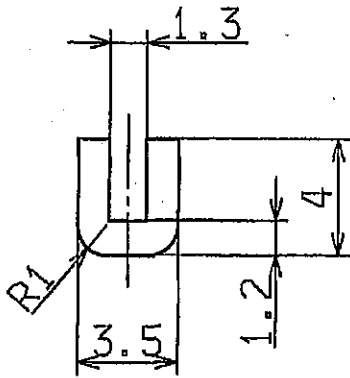
12

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E

A4

△C

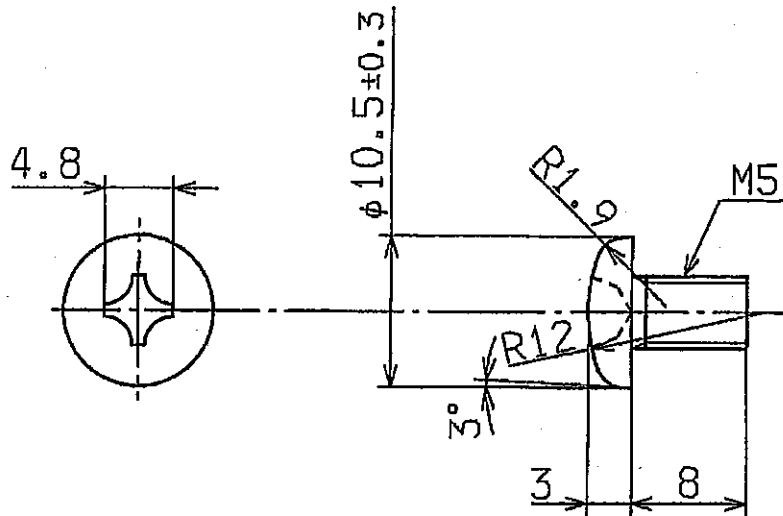


| △A | 図番<br>DWG. NO. | L     | 部品番号<br>PART NO. | 材料<br>MATERIAL      |
|----|----------------|-------|------------------|---------------------|
|    | AAC000Z042     | 99    | SSA947H010       | 6-ナイロン<br>(6-NYLON) |
|    | ↓              | A 139 | ↓                |                     |
| △A | ↓              | B 105 | ↓                |                     |

葉別毎サイズ

|            |                 |               |             |             |             |                       |           |
|------------|-----------------|---------------|-------------|-------------|-------------|-----------------------|-----------|
| △C         | AAC1007         | 98.10.30      | ◎西瀬         | 尺度SCALE     | 形式MODEL     | 親部番 NEXT ASSY         | 特別配付先     |
| △B         | 品別追加の為          | 930629        | 西浦          | 4:1         | CA          |                       | 1 S, S, 1 |
| △A         | 品別追加の為          | 590625        | いいお         | 名称          | エッジング       |                       | 2 A, C, 1 |
| 訂符<br>MARK | 訂 番<br>REV. NO. | 年 月 日<br>DATE | 点 検<br>CHKD | 名 称<br>NAME | EDGING      |                       | 3         |
| 認可 APPD    | 検図 CHKD         | 製図 DRAWN      | ◎           | 図種          | 図 番 DWG NO. | 品 別<br>SUFFIX         | 4         |
| 森          | 西 本<br>岡 田      | ◎ 広瀬          | 570731      | 図種          | 図 番 DWG NO. | 訂 入 符<br>REV. MARK    | 5         |
|            |                 |               |             |             | ZAAC000Z042 | 装 別<br>PAGE           | 6         |
|            |                 |               |             |             | ~ B/C       | 標 準 配 付<br>ST. DISTR. | 7         |
|            |                 |               |             |             |             | 1/1 XX                | 8         |
|            |                 |               |             |             |             | 13 訳 E                | 9         |





材料 : C2700W-1/2H  
MATERIAL

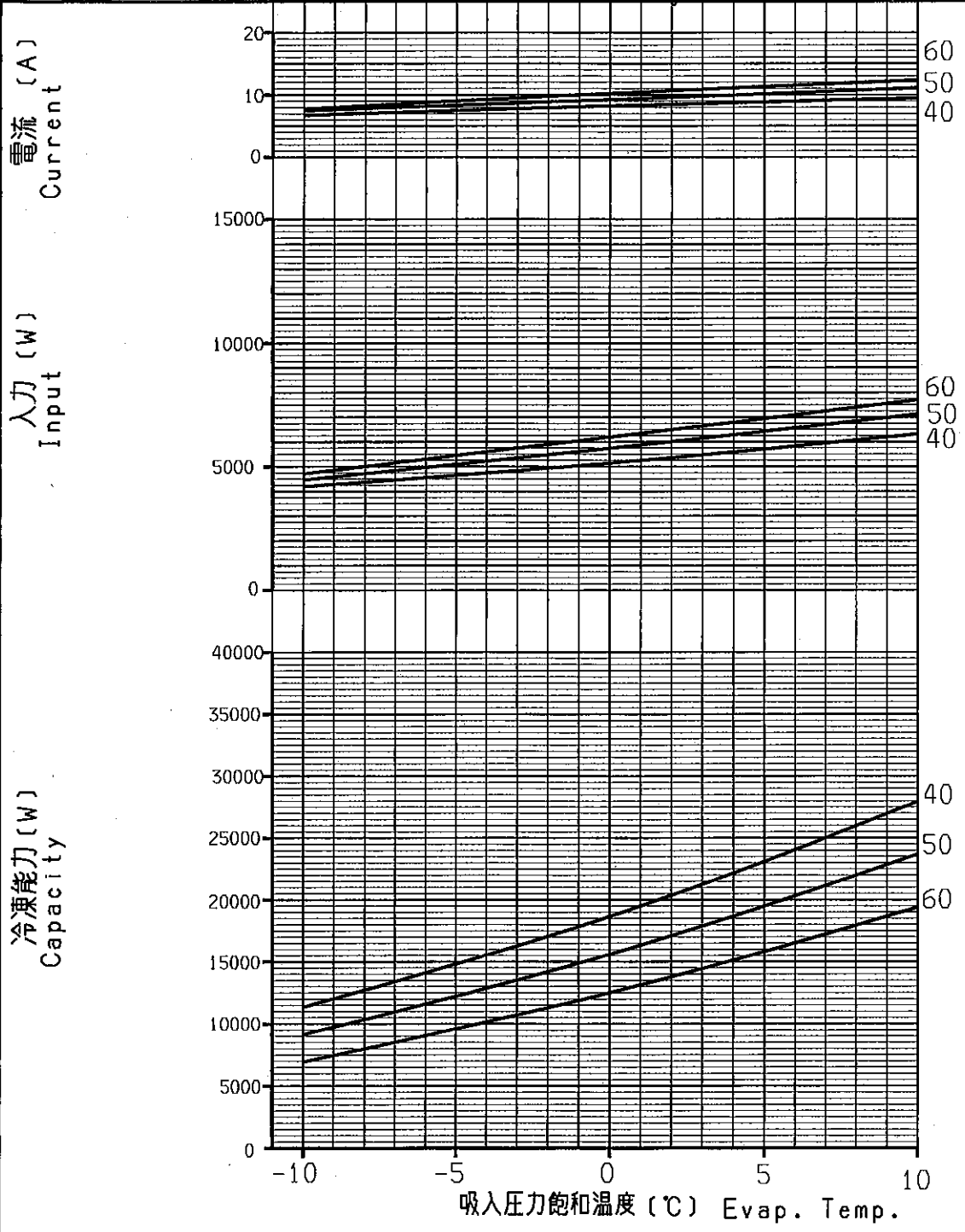
部品番号 : SSA912A001  
PART NO.

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|         |  |             |  |             |  |                 |  |           |  |
|---------|--|-------------|--|-------------|--|-----------------|--|-----------|--|
|         |  | 尺度 SCALE    |  | 形式 MODEL    |  | 編印番 NEXT ASSY   |  | 特別配布先     |  |
|         |  | 2:1         |  | JCL         |  |                 |  | 1 S, S, 1 |  |
| A       |  | AAA1033     |  | 98.10.30    |  | 点検              |  | 2 A, C, 1 |  |
| 訂符 MARK |  | 訂番 REV. NO. |  | 年月日 DATE    |  | 点検 CHKD         |  | 3         |  |
| 認可 APPD |  | 検図 CHKD     |  | 製図 DRAWN    |  | 名称 NAME         |  | 4         |  |
| 森       |  | 本           |  | 吉田          |  | ターミナル スクリュー     |  | 5         |  |
| 田       |  | 広           |  | 570628      |  | SCREW, TERMINAL |  | 6         |  |
| セ       |  | セ           |  | ZAAA000Z359 |  | 品別 SUFFIX       |  | 7         |  |
|         |  |             |  |             |  | 訂入符 REV. MARK   |  | 8         |  |
|         |  |             |  |             |  | 業別 PAGE         |  | 9         |  |
|         |  |             |  |             |  | 1/A             |  | 1 XX      |  |
|         |  |             |  |             |  | 15              |  | E A4      |  |



|                               |                      |                       |
|-------------------------------|----------------------|-----------------------|
| 壓縮機形式<br>Compressor Model No. | CB80H                | R407C                 |
| 定格電源<br>Power Source          | 3Ph, 415V, 50Hz      | 過冷却<br>Sub Cooling    |
| 過熱度<br>Super Heat             | 10 degC              | 周囲温度<br>Ambient Temp. |
| 壓縮機冷却<br>Compressor Cooling   | ファン通風<br>Fan Cooling |                       |
|                               |                      | 0 degC                |
|                               |                      | 35 °C                 |



吐出圧力飽和温度(°C)  
Condensing Temp.

MER03  
HIRO

葉別箇サイズ  
A4=1.2

|            |                |             |  |        |   |                  |                  |
|------------|----------------|-------------|--|--------|---|------------------|------------------|
| 訂符<br>MARK | 訂番<br>REV. NO. | 年月日<br>DATE | 点検<br>CHKD   | 尺<br>寸 | 形式<br>MODEL   | 親部番<br>NEXT ASSY | 特別配布先            |
|            |                |             |  | ×      | CB80H   |                  | 1 S, S, 1        |
| 認可<br>APPD | 検<br>CHKD      | 製<br>DRAWN  | 名<br>NAME  | 図種     | 図番<br>DWG NO.                                       | 品別<br>SUFFIX     | 訂入符<br>REV. MARK |
| 廣<br>町     |                | 景<br>山      | パ<br>フ<br>ォ<br>ー<br>マ<br>ン<br>ス<br>カ<br>ー<br>ブ                               | 図      | Z<br>A<br>A<br>D<br>0<br>0<br>0<br>Z<br>1<br>8<br>2 |                  |                  |
|            |                | 02.9.17     | C<br>U<br>R<br>V<br>E<br>P<br>E<br>R<br>F<br>O<br>R<br>M<br>A<br>N<br>C<br>E |        |   |                  |                  |
|            |                | 廣瀬          | CAD  |        |   |                  |                  |
|            |                |             | 業別<br>PAGE   |        |   |                  |                  |
|            |                |             | 標準配布<br>ST. DISTR.   |        |   |                  |                  |
|            |                |             | 1/2  |        |   |                  |                  |
|            |                |             | XX   |        |   |                  |                  |
|            |                |             | 17   |        |   |                  |                  |
|            |                |             | E  |        |   |                  |                  |
|            |                |             | A4   |        |   |                  |                  |

壓縮機形式  
 Compressor Model No.  
 定格電源  
 Power Source  
 過熱度  
 Super Heat  
 壓縮機冷却  
 Compressor Cooling

CB80H

R407C

3Ph, 440V, 60Hz

過冷却  
Sub Cooling

0 degC

10 degC

周囲温度  
Ambient Temp.

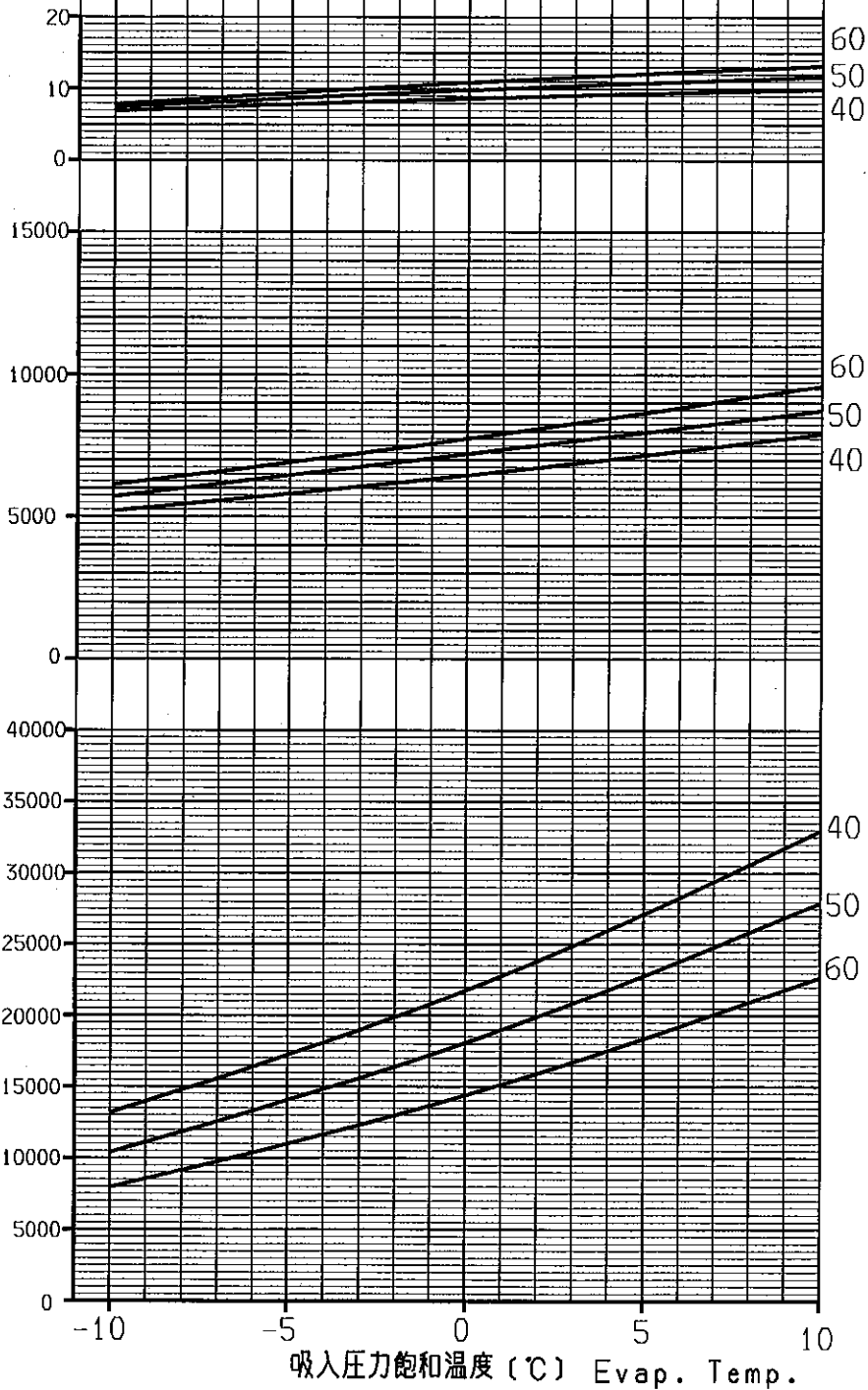
35 °C

ファン通風  
Fan Cooling

電流 (A)  
Current

入力 (W)  
Input

冷凍能力 (W)  
Capacity



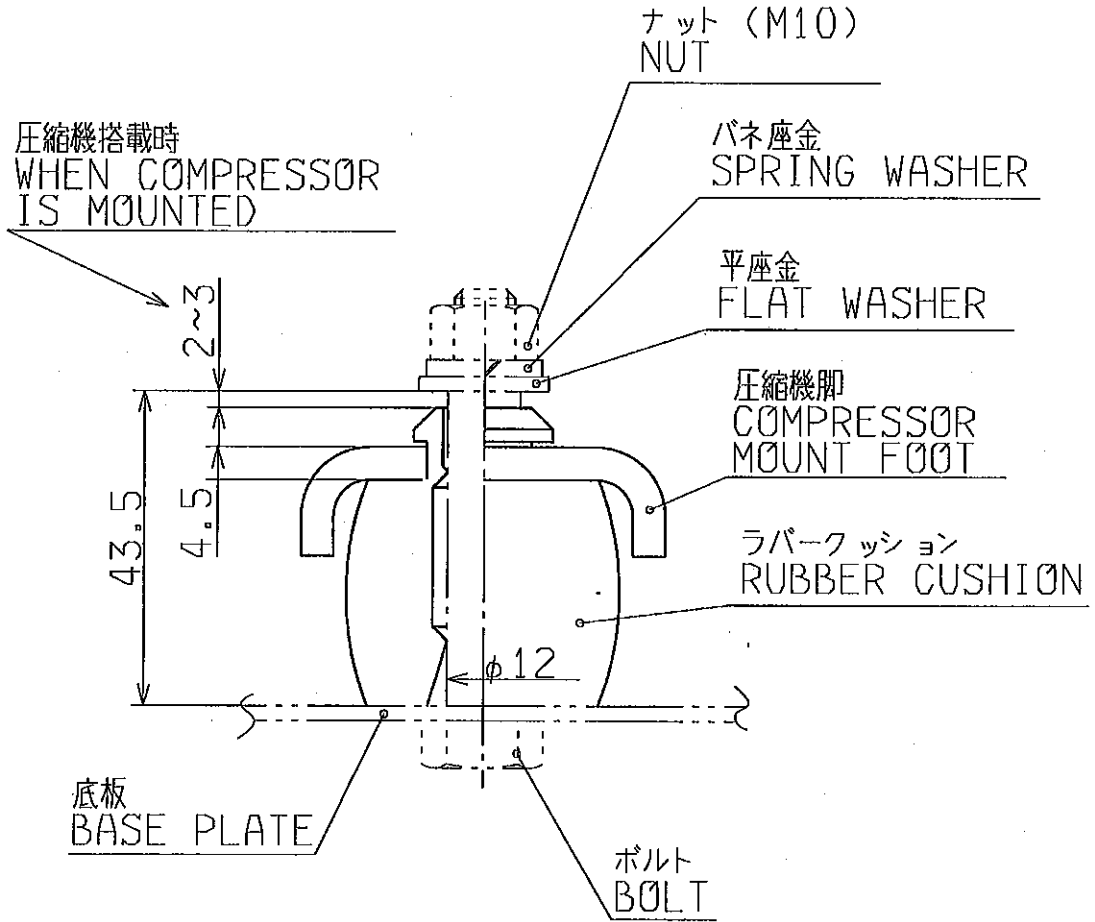
吐出圧力飽和温度 (°C)  
Condensing Temp.

MER03  
HIRO

葉別毎サイズ

|               |  |             |          |         |            |               |               |                   |
|---------------|--|-------------|----------|---------|------------|---------------|---------------|-------------------|
| 訂符 MARK       |  | 訂番 REV. NO. | 年月日 DATE | 点検 CHKD | 名称 NAME    | 親部番 NEXT ASSY |               | 特別配布先             |
| 認可 APPD       |  | 検図 CHKD     | 製図 DRAWN | 図種      | 図番 DWG NO. | 品別 SUFFIX     | 訂入符 REV. MARK | 葉別標準配布 ST. DISTR. |
| ZAAD000Z182 ~ |  |             |          |         |            | 2/2           |               |                   |

A



業別面サイズ

|                                  |  |             |  |          |  |             |  |             |  |           |  |               |  |         |  |
|----------------------------------|--|-------------|--|----------|--|-------------|--|-------------|--|-----------|--|---------------|--|---------|--|
| A                                |  | AAD1463     |  | 02.11.18 |  | 点検          |  | 名称          |  | 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     |  | 形式 MODEL  |  | 親部番 NEXT ASSY |  | 特別配布先   |  |
| 伊藤                               |  | 本広          |  | 吉田       |  | 60.123      |  | ZAAD000Z075 |  | CAD       |  | 1 S N I       |  | 2 S S I |  |
| 認可 APPD                          |  | 検図 CHKD     |  | 製図 DRAWN |  | 図種          |  | 図番 DWG NO.  |  | 品別 SUFFIX |  | 訂入符 REV. MARK |  | 業別 PAGE |  |
| 伊藤                               |  | 本広          |  | 吉田       |  | ZAAD000Z075 |  | 1/A         |  | 1/1       |  | XX            |  | 19      |  |
| 三菱重工業株式会社 冷熱事業本部                 |  |             |  |          |  |             |  |             |  |           |  | E             |  | A4      |  |
| MITSUBISHI HEAVY INDUSTRIES.LTD. |  |             |  |          |  |             |  |             |  |           |  | E             |  | A4      |  |