

**Specification for  
Embraco Scroll Compressor**

MODEL : EAF146P-A1-NAAG

RECORD OF REVISIONS

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**EAF146P-A1-NAAG Technical Specifications**

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## 1 . Specifications

| Model                                           | EAF146P-A1-NAAG                          | Power                              | 12HP  |
|-------------------------------------------------|------------------------------------------|------------------------------------|-------|
| Displacement(m³/h)                              | 32.9                                     | Refrigerant                        | R407C |
| Cooling Cap.(W) <sup>(a)</sup>                  | 34545                                    | Input Power(W) <sup>(a)</sup>      | 10106 |
| Rated Load Amps(A) <sup>(a)</sup>               | 19.2                                     | COP <sup>(a)</sup>                 | 3.42  |
| Max. Vibration(mm) <sup>(a)</sup>               | <0.10                                    | Sound Level (dBA) <sup>(a)</sup>   | 76    |
| Test Power Source <sup>(a)</sup>                | 50Hz-380V                                | Rated Speed ( RPM ) <sup>(a)</sup> | 2900  |
| Max. Moisture (mg)                              | < 500                                    | Max. Impurity (mg)                 | < 100 |
| Oil Circulation (%) <sup>(a)</sup>              | <1%                                      | Weight ( kg , With Oil )           | 57    |
| Electrical Specification                        | Power Source                             | 380V-420V 3~50Hz<br>460V 3~60Hz    |       |
|                                                 | Run Capacitor                            | /                                  |       |
|                                                 | Min. Operation Voltage(V) <sup>(b)</sup> | 342                                |       |
|                                                 | Max. Operation Voltage(V)                | 462                                |       |
|                                                 | Min. Starting Voltage(V) <sup>(c)</sup>  | 323                                |       |
|                                                 | Lock Rotor Amps(A)                       | 129.00                             |       |
|                                                 | Max. Operation Current <sup>(d)</sup>    | 25.3 (A)                           |       |
|                                                 | Motor Insulation Temp.(°C)               | 130                                |       |
| Terminal Resistance<br>(Ω) ( ± 10%)<br>At 25 °C | T1(C)-T2(S)                              | 1.09                               |       |
|                                                 | T2(S)-T3(R)                              | 1.07                               |       |
|                                                 | T3(R)-T1(C)                              | 1.09                               |       |
| Lubrication                                     | Oil Type                                 | POE                                |       |
|                                                 | Initial Charge(L)                        | 3.5                                |       |
|                                                 | Recharge(L)                              | 3                                  |       |
| Electrical Safety                               | Insulation Voltage(V)                    | 2500                               |       |
|                                                 | Leakage Current(mA)                      | ≤5                                 |       |
|                                                 | Insulation Resistance(MΩ)                | >20                                |       |
|                                                 | Ground Resistance(Ω)                     | <0.1                               |       |
| Max. Operation Pressure                         | High Side(MPa)                           | 3                                  |       |
|                                                 | Low Side(MPa)                            | 2                                  |       |

Notes :

- a) Test Condition: Based On Test Power Voltage , First Rated Condition
- b) Test Condition: ET 13°C , CT 65°C , SH 11.1K
- c) Test Condition : Discharge/Suction Pressure Set To Refrigeration Saturation Pressure At 40°C
- d) Test Condition: ET 13°C , CT 65°C , SH11.1K , 90% Min. Rated Voltage

## 2 . Configuration

| Suction/Discharge | Injection | Sight Glass | Thermal Tube |
|-------------------|-----------|-------------|--------------|
|                   | NONE      |             |              |

## 3 . Certifications

| Certifications | Report N.O.    |
|----------------|----------------|
| CB             | CNCVC1176      |
| CE             | LVDJX23-0058   |
| CCC            | CVC23008010775 |
| PED            | /              |
| UL             | /              |
|                |                |
|                |                |
|                |                |
|                |                |
|                |                |
|                |                |
|                |                |
|                |                |

#### 4 . First Test Condition ( °C )

Cooling Cap. and COP No Less Than 95% of Nominal Value , Power and Current No More Than 105% of Nominal Value (Performance And Sound Power Need 24hrs Break In At High Load Running Condition)。

| Item | Parameter         | Value |
|------|-------------------|-------|
| 1    | Evaporating Temp. | 7.2   |
| 2    | Condensing Temp.  | 54.4  |
| 3    | Ambient Temp.     | 35.0  |
| 4    | Super Heat        | 11.1  |
| 5    | Sub Cooling       | 8.3   |

#### 5. Compressor Protection Parts

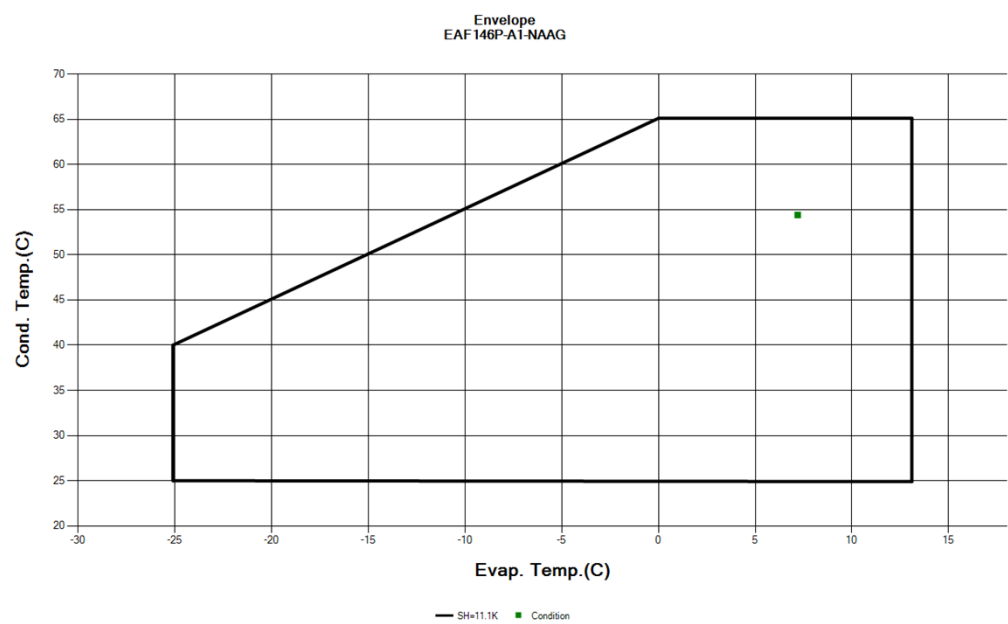
- a) Thermal Protection Inside:UP28KY05B-700(IN04) ;
- b) Internal Pressure Release Valve , Open Range ( Pressure Difference Between Discharge And Suction ) : 2.76~3.10Mpa

#### 6. Performance Data- EAF146P-A1-NAAG

| kW           | Temp. Cond.( °C) | Temp. Evap. (°C) |       |       |       |       |       |       |       |       |
|--------------|------------------|------------------|-------|-------|-------|-------|-------|-------|-------|-------|
|              |                  | -25              | -20   | -15   | -10   | -5    | 0     | 5     | 10    | 13    |
| Cooling Cap. | 65               |                  |       |       |       |       | 22.83 | 27.62 | 33.07 | 36.70 |
|              | 60               |                  |       |       |       | 20.21 | 24.68 | 29.75 | 35.52 | 39.37 |
|              | 55               |                  |       |       | 17.58 | 21.71 | 26.40 | 31.73 | 37.79 | 41.84 |
|              | 50               |                  |       | 15.02 | 18.79 | 23.11 | 28.01 | 33.57 | 39.90 | 44.12 |
|              | 45               |                  | 12.60 | 16.01 | 19.94 | 24.43 | 29.52 | 35.29 | 41.85 | 46.24 |
|              | 40               | 10.37            | 13.42 | 16.96 | 21.04 | 25.68 | 30.94 | 36.90 | 43.68 | 48.22 |
|              | 35               | 11.04            | 14.21 | 17.88 | 22.09 | 26.88 | 32.29 | 38.43 | 45.42 | 50.10 |
|              | 30               | 11.71            | 14.99 | 18.78 | 23.12 | 28.04 | 33.60 | 39.91 | 47.10 | 51.92 |
|              | 25               | 12.38            | 15.77 | 19.67 | 24.13 | 29.18 | 34.89 | 41.37 | 48.75 | 53.71 |
| Input Power  | 65               |                  |       |       |       |       | 12.72 | 12.71 | 12.73 | 12.76 |
|              | 60               |                  |       |       |       | 11.37 | 11.37 | 11.38 | 11.42 | 11.46 |
|              | 55               |                  |       |       | 10.14 | 10.17 | 10.19 | 10.22 | 10.27 | 10.32 |
|              | 50               |                  |       | 9.00  | 9.07  | 9.12  | 9.15  | 9.20  | 9.26  | 9.32  |
|              | 45               |                  | 7.92  | 8.05  | 8.14  | 8.20  | 8.25  | 8.30  | 8.38  | 8.45  |
|              | 40               | 6.86             | 7.07  | 7.22  | 7.32  | 7.39  | 7.45  | 7.52  | 7.61  | 7.68  |
|              | 35               | 6.11             | 6.33  | 6.49  | 6.60  | 6.68  | 6.75  | 6.82  | 6.92  | 6.99  |
|              | 30               | 5.44             | 5.67  | 5.83  | 5.95  | 6.04  | 6.11  | 6.19  | 6.29  | 6.37  |
|              | 25               | 4.83             | 5.07  | 5.24  | 5.36  | 5.45  | 5.53  | 5.62  | 5.72  | 5.80  |

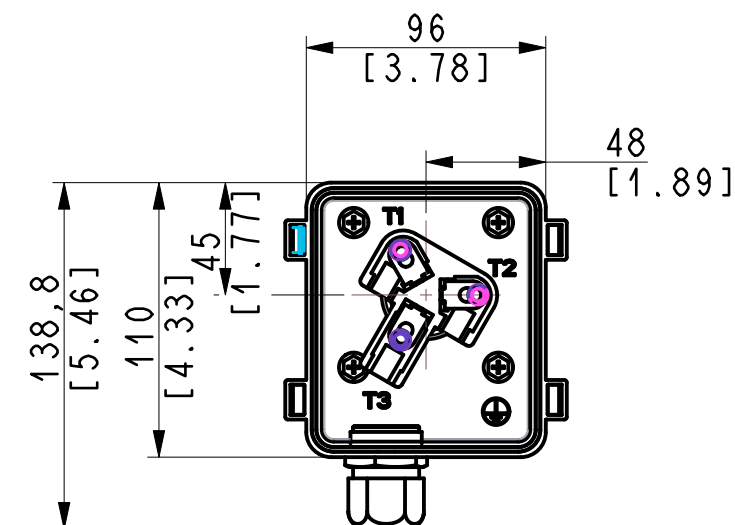
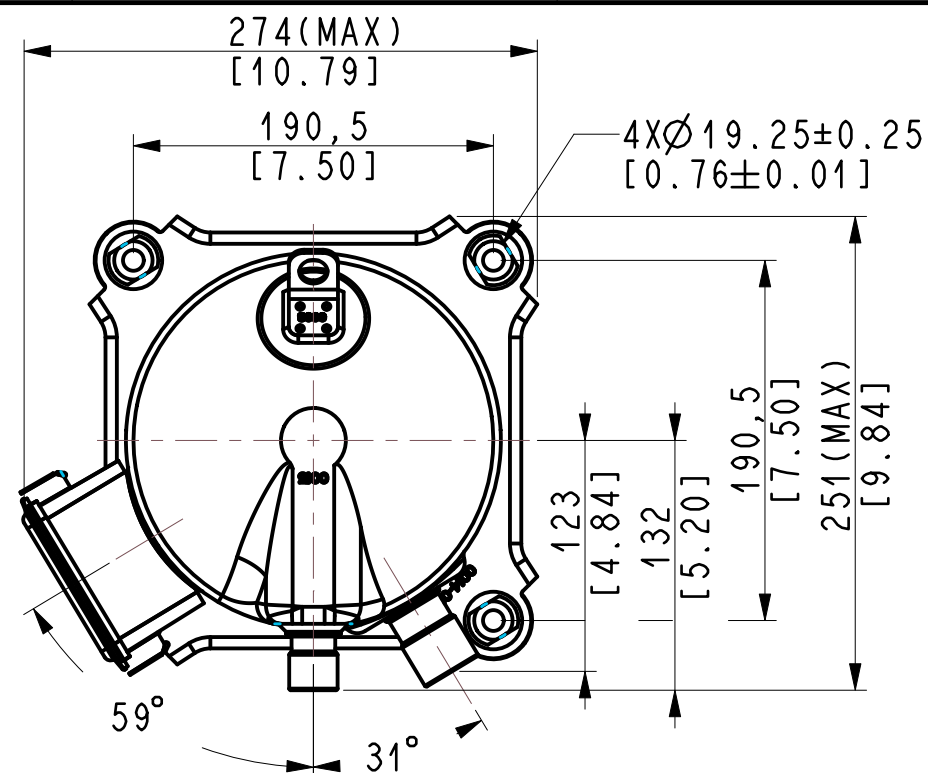
Notes : Capacity Calculation Based On SH=11.1K,SC=8.3K

7. Application Envelope

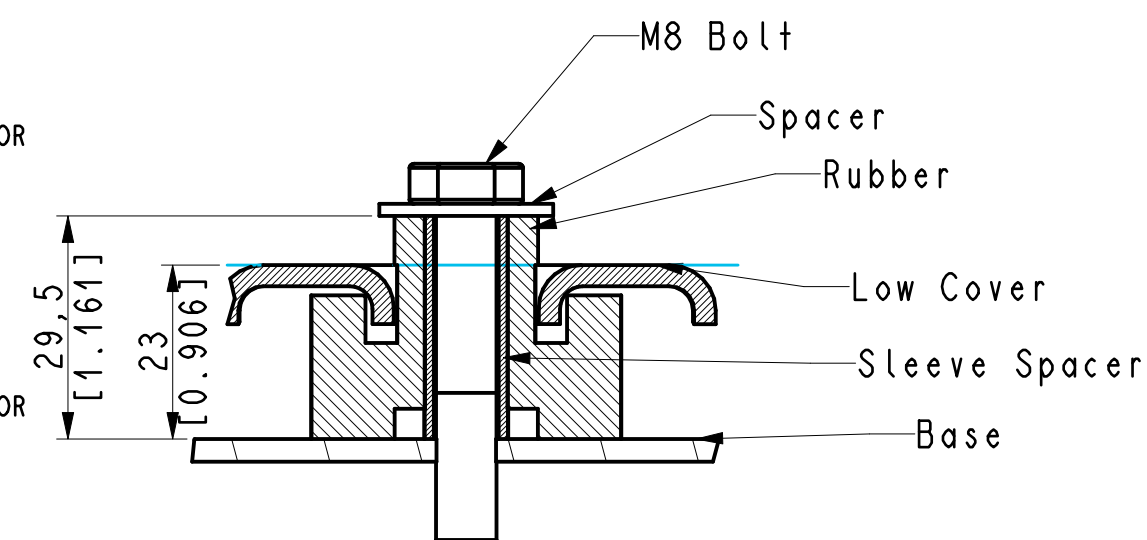


For Compressor Safty, Shutdown Compressor When DLT Above 125°C ;ReStart Compressor When DLT Below 85°C

8. Drawing



TERMINAL BOX LAYOUT  
SCALE 1:3

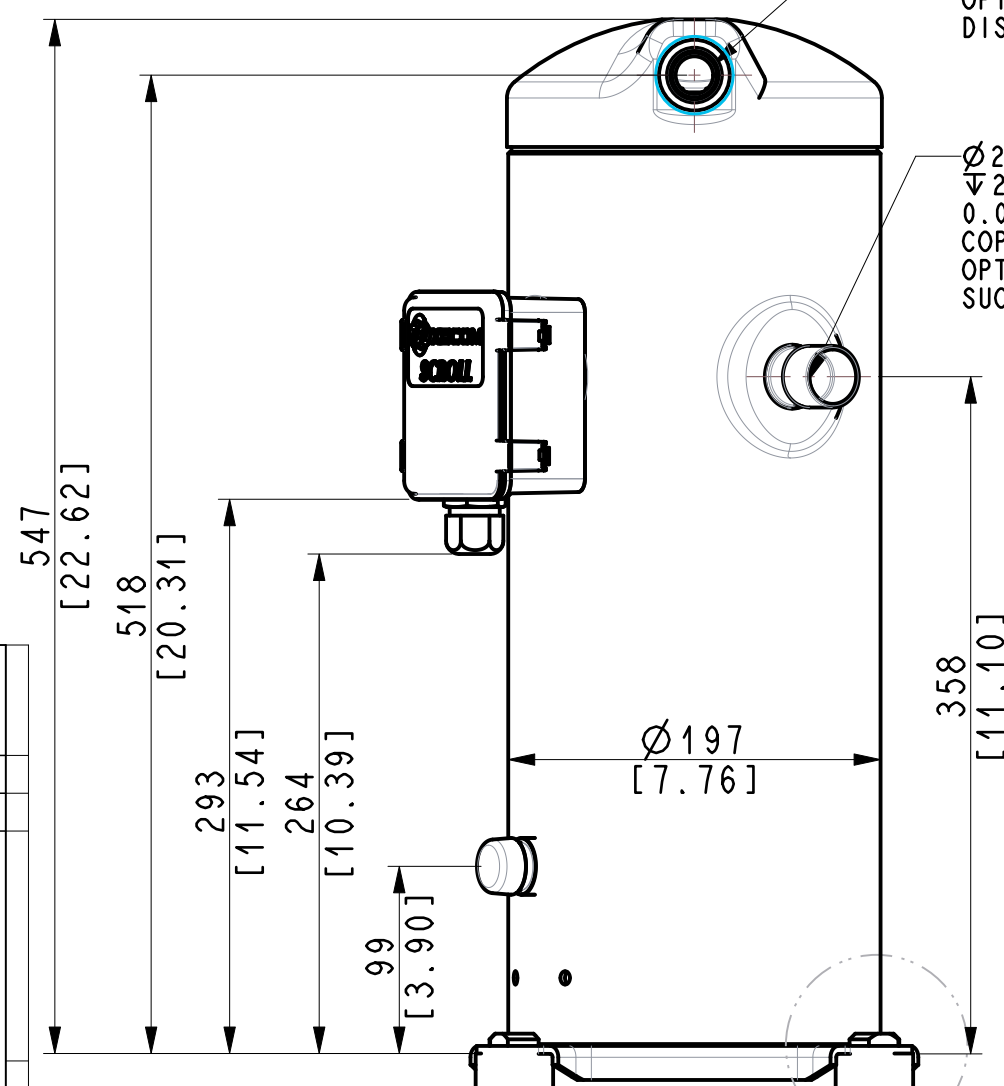


DETAIL FOOT

$\varnothing 22.35-22.45$  [0.880-0.884] I.D.  
 $\nabla 17.3$  [0.68] MIN.  
 0.04-0.08 [0.002-0.003] THICK EXTERIOR AND INTERIOR  
 COPPER PLATED STEEL DISCHARGE FITTING  
 OPTIONAL: [1.25-12 UNF-2A] THREAD ROTALOCK SPUD  
 DISCHARGE FITTING

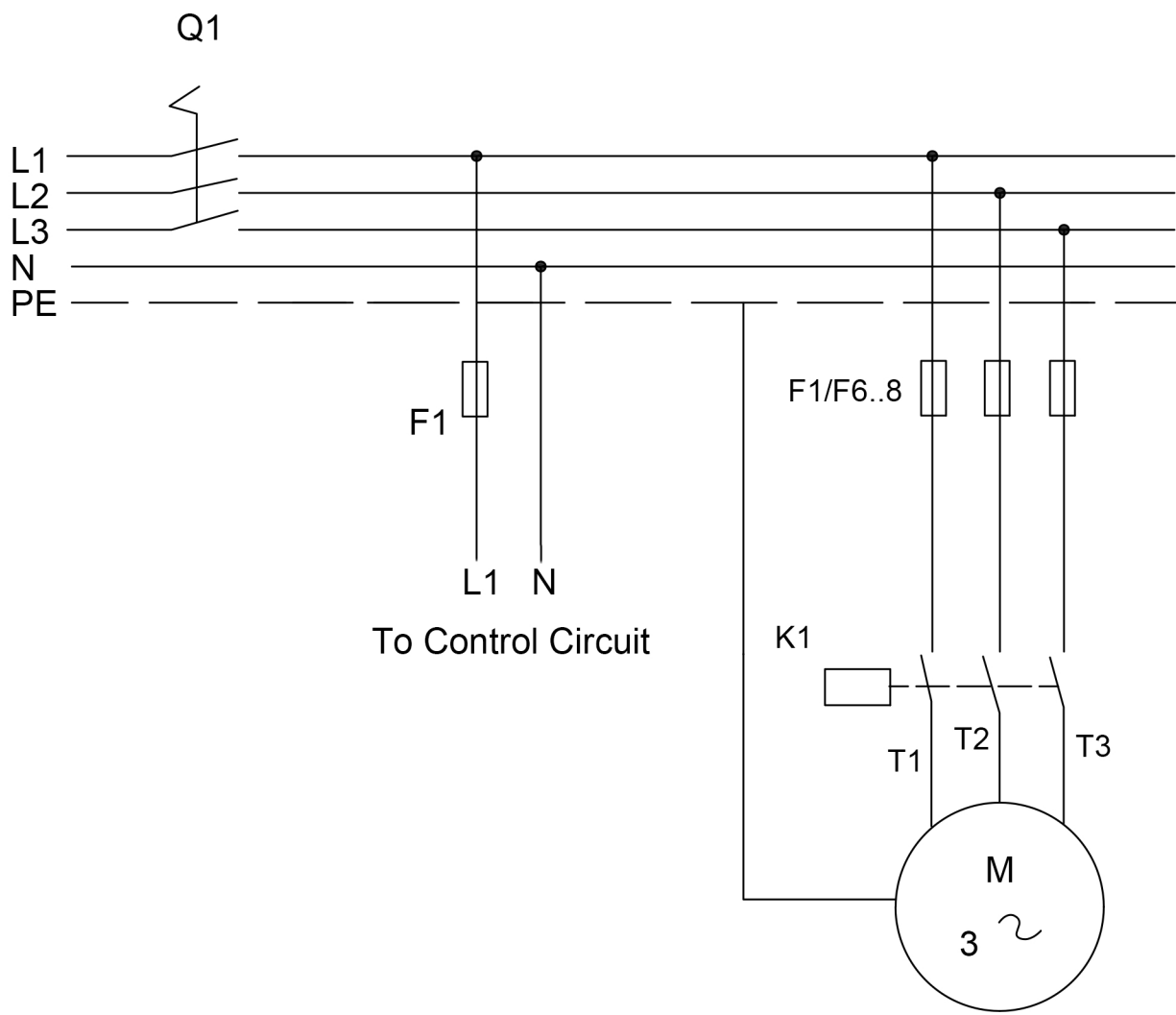
$\varnothing 28.83-28.93$  [1.135-1.139] I.D.  
 $\nabla 22.6$  [0.89] MIN.  
 0.04-0.08 [0.002-0.003] THICK EXTERIOR AND INTERIOR  
 COPPER PLATED STEEL SUCTION FITTING  
 OPTIONAL: [1.75-12 UN-2A] THREAD ROTALOCK SPUD  
 SUCTION FITTING

- Notes:
- (1) All tolerances 1.5mm [0.06in] unless otherwise specified
  - (2) All fittings: + 3.0mm 0.12in
  - (3) Tube ends must be plugged
  - (4) All units are in mmlinch]



SEE DETAIL FOOT

|            |  |                                                                                                                                           |                      |                                                                                       |
|------------|--|-------------------------------------------------------------------------------------------------------------------------------------------|----------------------|---------------------------------------------------------------------------------------|
| MATERIAL : |  | <div></div>                                          | GEN. TOL. :          |                                                                                       |
|            |  |                                                                                                                                           | ANG. TOL. :          |                                                                                       |
|            |  |                                                                                                                                           | SCALE : 1,000        |                                                                                       |
|            |  |                                                                                                                                           | UNIT: mm             |  |
| CODE :     |  | TITLE, DOCUMENT TYPE                                                                                                                      | REPLACE:             |                                                                                       |
|            |  |                                                                                                                                           | V0                   |                                                                                       |
|            |  |                                                                                                                                           | No.                  |                                                                                       |
| DRAWN :    |  | 1900Outline drawing<br>(Welded sight glass)                                                                                               | 801-0003-40EN        |                                                                                       |
| APP.:      |  |                                                                                                                                           |                      |                                                                                       |
| ECM :      |  |                                                                                                                                           |                      |                                                                                       |
| DATE :     |  | THIS MATERIAL IS CONFIDENTIAL AND PROPRIETARY TO EMBRACO,<br>AND MAY NOT BE REPRODUCED, DISCLOSED, DISTRIBUTED OR USED WITHOUT PERMISSION | SHEET NUMBER: 1 OF 1 |                                                                                       |
|            |  |                                                                                                                                           |                      |                                                                                       |



### Electrical Schematics

L1/L2/L3N/PE: 3 Phase Lines (line/neutral/ground)

Q1:Manual Switch

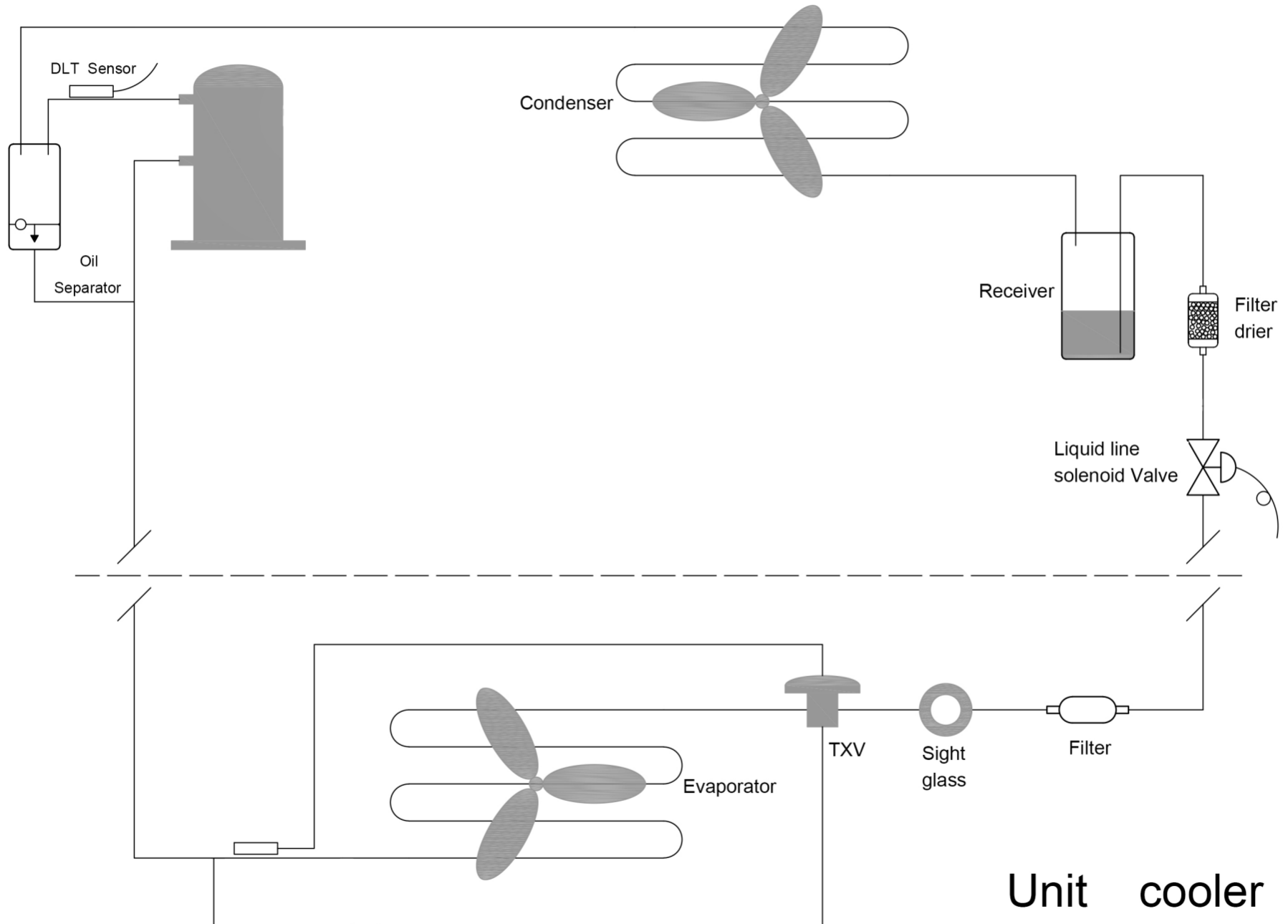
F1/F6..8:Fuse

K1:Compressor Contactor

M:Compressor Motor

R/C/S:Compressor Terminal

# General System Schematic



附件列表  
Accessories List

| Part N.O.   | Specification | Part Name        | Description | Qty | Type     | Picture                                                                              |
|-------------|---------------|------------------|-------------|-----|----------|--------------------------------------------------------------------------------------|
| 019-0002-00 | 11.1*29.5     | Sleeve<br>Spacer |             | 4   | Standard |   |
| 200-0001-00 |               | Rubber           |             | 4   | Standard |   |
| 100-0006-00 | M5x8,GB/T5789 | Bolt             |             | 7   | Standard |  |

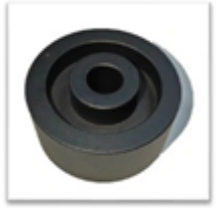
附件列表  
Accessories List

|             |                             |                     |  |   |          |                                                                                      |
|-------------|-----------------------------|---------------------|--|---|----------|--------------------------------------------------------------------------------------|
| 034-0003-03 |                             | Sound Jacket        |  | 1 | Optional |   |
| 028-0002-00 | OD:197 90W<br>220V, L:618.6 | Crank Heater        |  | 1 | Optional |   |
| 017-0001-00 | IP54                        | Terminal Box        |  | 1 | Standard |   |
| 009-0025-00 |                             | Terminal Cover Seal |  | 1 | Standard |  |

附件列表  
Accessories List

|             |                |                |  |   |          |                                                                                      |
|-------------|----------------|----------------|--|---|----------|--------------------------------------------------------------------------------------|
| 009-0023-00 |                | Terminal Seal  |  | 1 | Standard |   |
| 017-0002-00 | IP54           | Terminal Cover |  | 1 | Standard |   |
| 031-0015-00 |                | Oil Adapter    |  | 1 | Optional |   |
| 033-0005-00 | OUT580R/GOA114 | Oil Regulator  |  | 1 | Optional |  |

附件列表  
Accessories List

|             |                |                       |  |   |          |                                                                                      |
|-------------|----------------|-----------------------|--|---|----------|--------------------------------------------------------------------------------------|
| 031-0017-00 | 1-1/4"-12UNF-A | RotaLock<br>Connector |  | 1 | Optional |   |
| 031-0018-00 | 1 3/4-12UNF 2A | RotaLock<br>Connector |  | 1 | Optional |   |
| 530-0001-00 |                | Sight<br>glasses      |  | 1 | Standard |   |
| 200-0002-00 |                | Steel                 |  | 4 | Optional |  |