

Specification for Embraco Scroll Compressor

MODEL: ELF13G-A1-WCBM

RECORD OF REVISIONS

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ELF13G-A1-WCBM Technical Specifications

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1. Specifications

Model	ELF13G-A1-WCBM	Power	4HP
Displacement(m ³ /h)	11.7	Refrigerant	R404A
Cooling Cap.(W) ^(a)	4625	Input Power(W) ^(a)	3001
Rated Load Amps(A) ^(a)	5.6	COP ^(a)	1.54
Max. Vibration(mm) ^(a)	<0.10	Sound Level (dBA) ^(a)	73
Test Power Source ^(a)	50Hz-380V	Rated Speed (RPM) ^(a)	2900
Max. Moisture (mg)	< 500	Max. Impurity (mg)	< 100
Oil Circulation (%) ^(a)	<1%	Weight (kg, With Oil)	28
Electrical Specification	Power Source	380V-420V 3~50Hz 460V 3~60Hz	
	Run Capacitor	/	
	Min. Operation Voltage(V) ^(b)	342	
	Max. Operation Voltage(V)	462	
	Min. Starting Voltage(V) ^(c)	323	
	Lock Rotor Amps(A)	61.00	
	Max. Operation Current ^(d)	9.7 (A)	
Terminal Resistance (Ω) (± 10%) At 25 °C	T1(C)-T2(S)	3.058	
	T2(S)-T3(R)	3.138	
	T3(R)-T1(C)	3.216	
	Oil Type	POE	
Lubrication	Initial Charge(L)	1.4	
	Recharge(L)	1.25	
	Insulation Voltage(V)	2500	
Electrical Safety	Leakage Current(mA)	≤5	
	Insulation Resistance(MΩ)	>20	
	Ground Resistance(Ω)	<0.1	
	Max. Operation Pressure	High Side(MPa) 3.2 Low Side(MPa) 2	

Notes:

- a) Test Condition: Based On Test Power Voltage, First Rated Condition
- b) Test Condition: ET 0°C, CT 60°C, SH 11.1K
- c) Test Condition: Discharge/Suction Pressure Set To Refrigeration Saturation Pressure At 40°C
- d) Test Condition: ET 0°C, CT 60°C, SH11.1K, 90% Min. Rated Voltage

2. Configuration

Suction/Discharge	Injection	Sight Glass	Thermal Tube
	Vapor		

3. Certifications

Certifications	Report N.O.
CB	CNCVC0980
CE	LVDJX22-0022
CCC	CVC23008010034
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.	-31.7

NIDEC-R&D-

2	Condensing Temp.	40.6
3	Ambient Temp.	35.0
4	Super Heat	50
5	Sub Cooling	0

5. Compressor Protection Parts

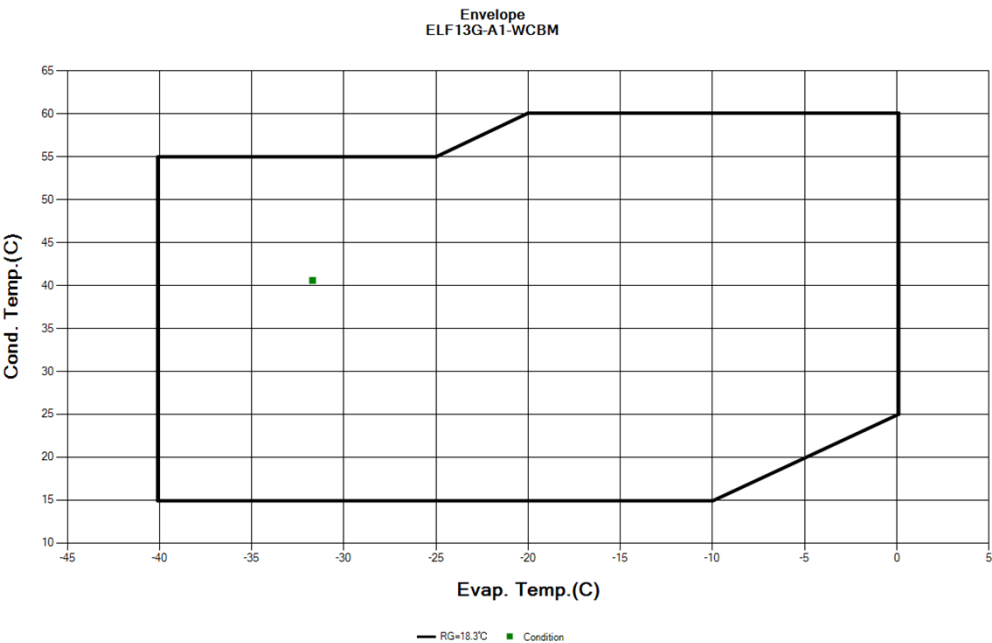
- a) Thermal Protection Inside:3HPD-428;
b) Internal Pressure Release Valve, Open Range (Pressure Difference Between Discharge And Suction) : 2.76~3.10Mpa

6. Performance Data- ELF13G-A1-WCBM

kW	Temp. Cond. (°C)	Temp. Evap. (°C)								
		-40	-35	-30	-25	-20	-15	-10	-5	0
Cooling Cap.	60					5.89	6.85	7.86	8.90	9.93
	55					6.20	7.23	8.33	9.47	10.61
	50	3.10	3.78	4.57	5.47	6.48	7.58	8.76	9.99	11.22
	45	3.19	3.90	4.73	5.68	6.74	7.90	9.15	10.45	11.77
	40	3.27	4.02	4.88	5.87	6.98	8.19	9.51	10.89	12.28
	35	3.36	4.13	5.03	6.05	7.21	8.48	9.85	11.29	12.76
	30	3.45	4.25	5.18	6.24	7.44	8.76	10.19	11.69	13.22
	25	3.56	4.38	5.34	6.45	7.69	9.05	10.53	12.09	13.68
	20	3.68	4.53	5.53	6.67	7.95	9.37	10.91	12.52	
	15	3.82	4.71	5.74	6.93	8.26	9.73	11.32		
Input Power	60					4.90	5.11	5.35	5.63	5.96
	55					4.46	4.64	4.84	5.09	5.37
	50	3.67	3.72	3.79	3.88	4.01	4.16	4.34	4.55	4.79
	45	3.25	3.30	3.37	3.46	3.56	3.70	3.85	4.03	4.24
	40	2.86	2.91	2.98	3.07	3.17	3.29	3.42	3.58	3.76
	35	2.52	2.59	2.66	2.75	2.85	2.95	3.08	3.22	3.37
	30	2.27	2.35	2.44	2.53	2.63	2.73	2.85	2.97	3.11
	25	2.13	2.24	2.34	2.45	2.55	2.65	2.76	2.88	3.00
	20	2.14	2.27	2.40	2.52	2.63	2.75	2.85	2.96	
	15	2.33	2.49	2.64	2.78	2.91	3.04	3.15		

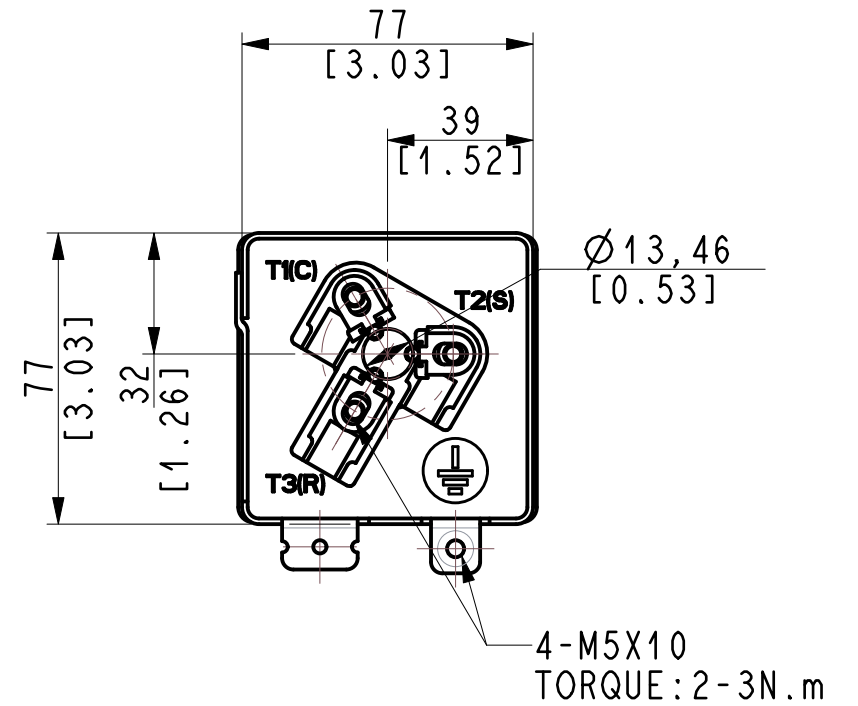
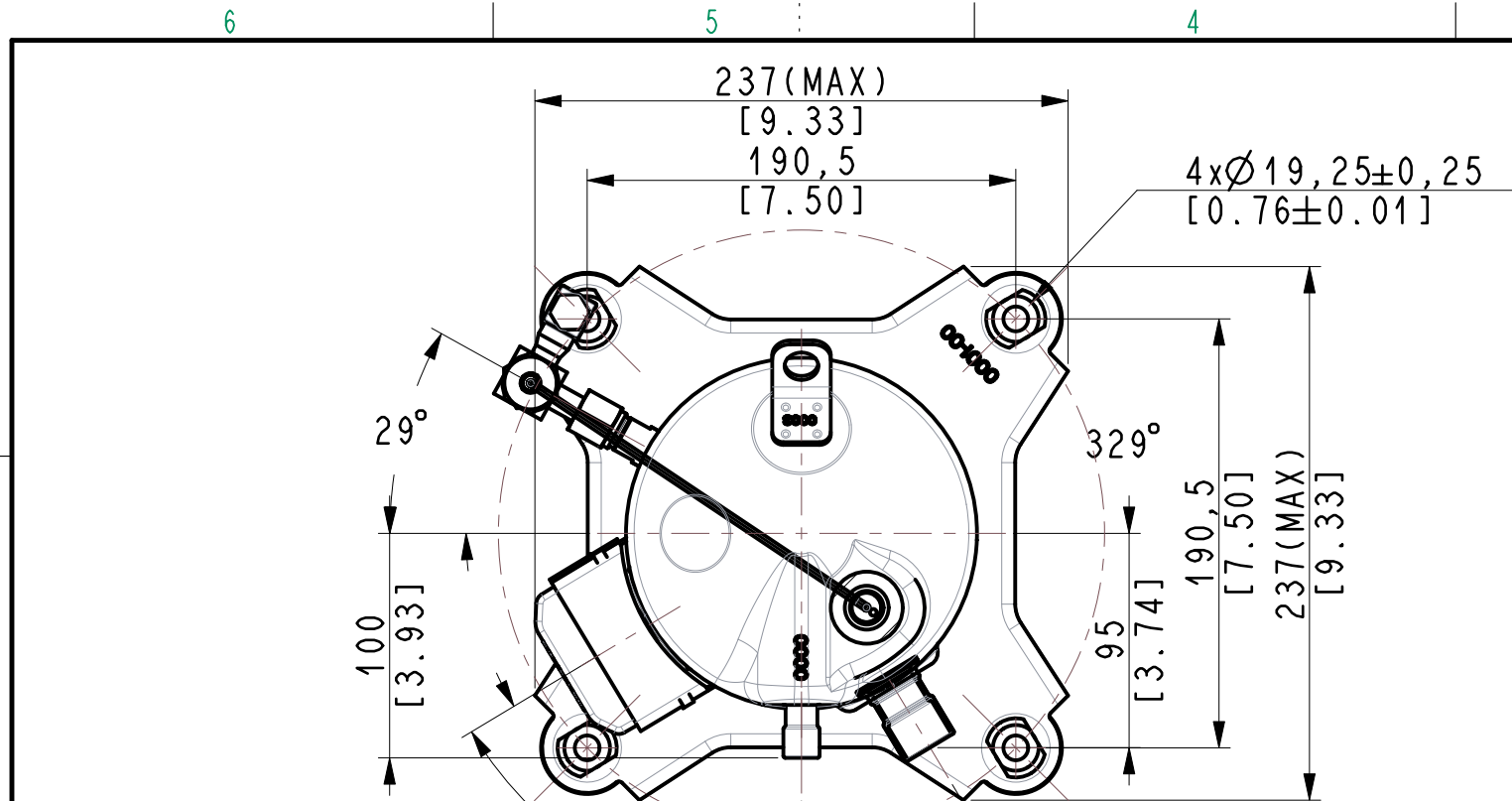
Notes: Capacity Calculation Based On 18.3°C Return Gas And Zero Sub Cooling, With Economizer In System(SIT=0.8*ET+0.5*CT-6.3,TD=5.6,SH=5.6)

7. Application Envelope

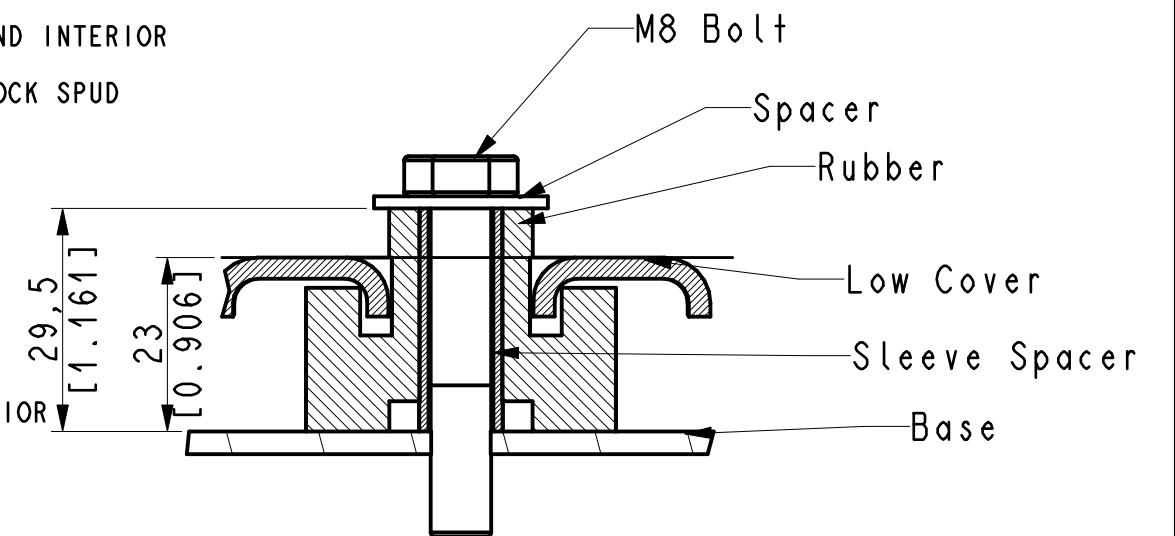
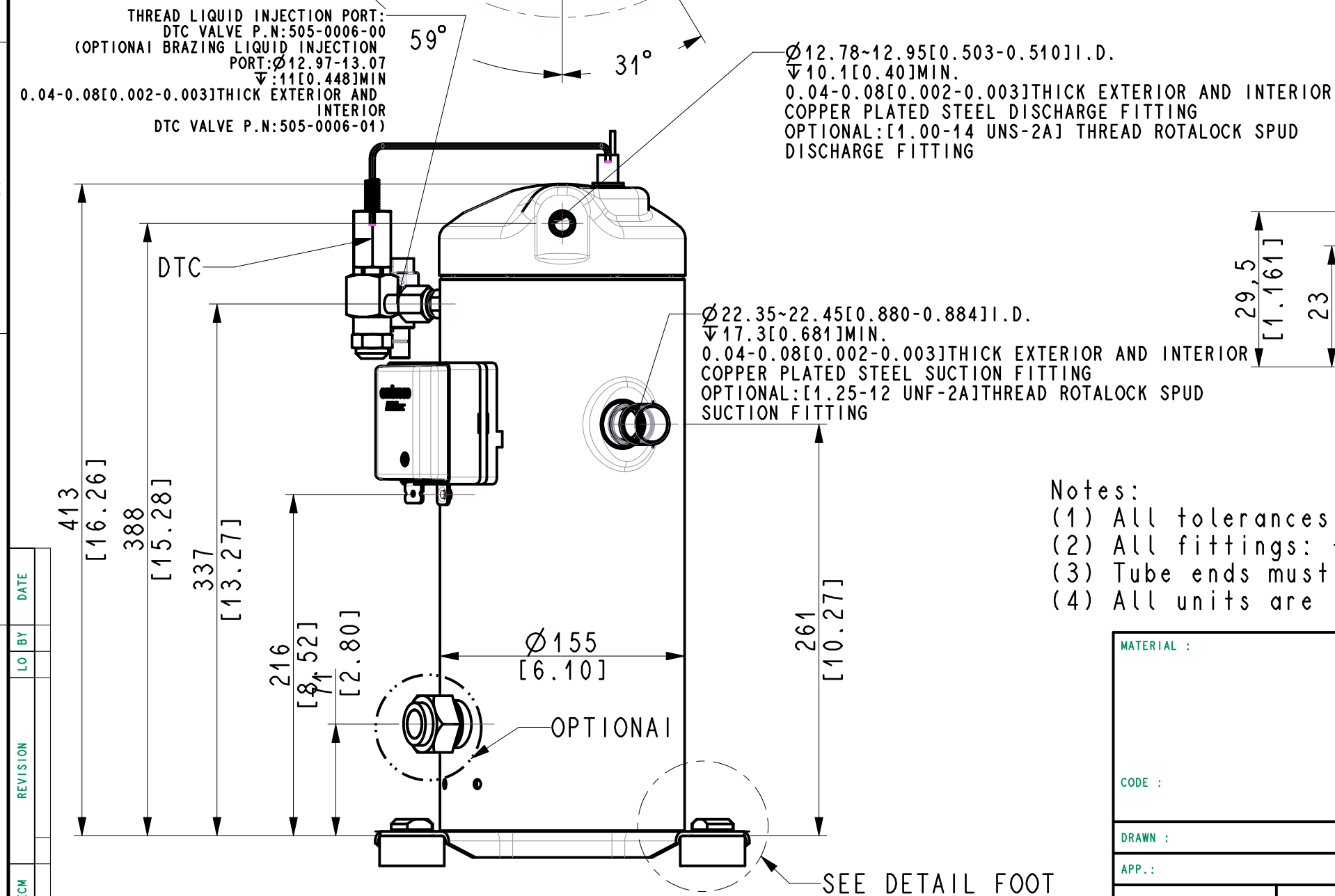


For compressor safety, shutdown compressor when DLT is above 125°C.
Restart compressor when DLT is below 85°C.

8. Drawing



TERMINAL BOX LAYOUT
SCALE 1:2

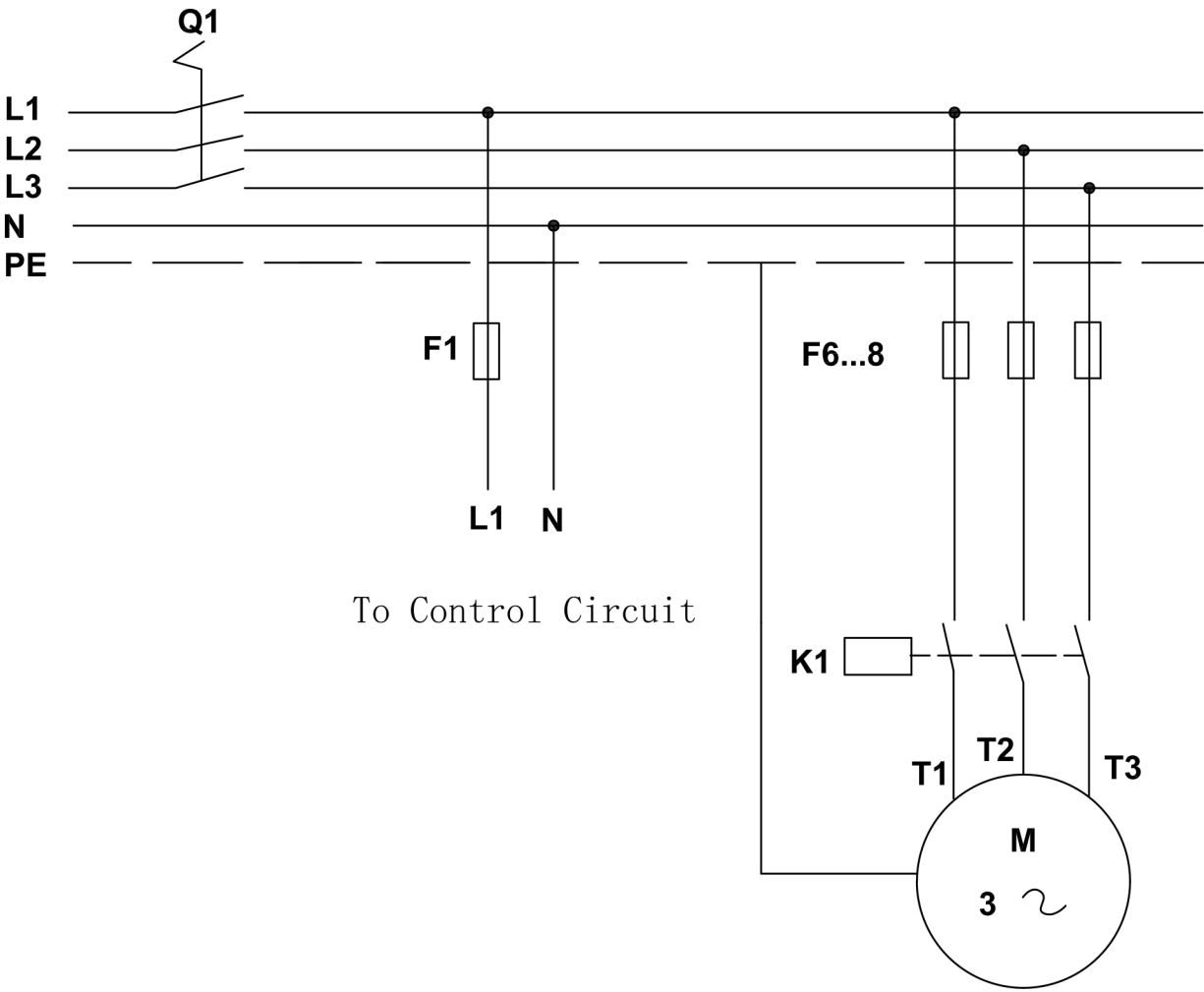


DETAIL FOOT

Notes:

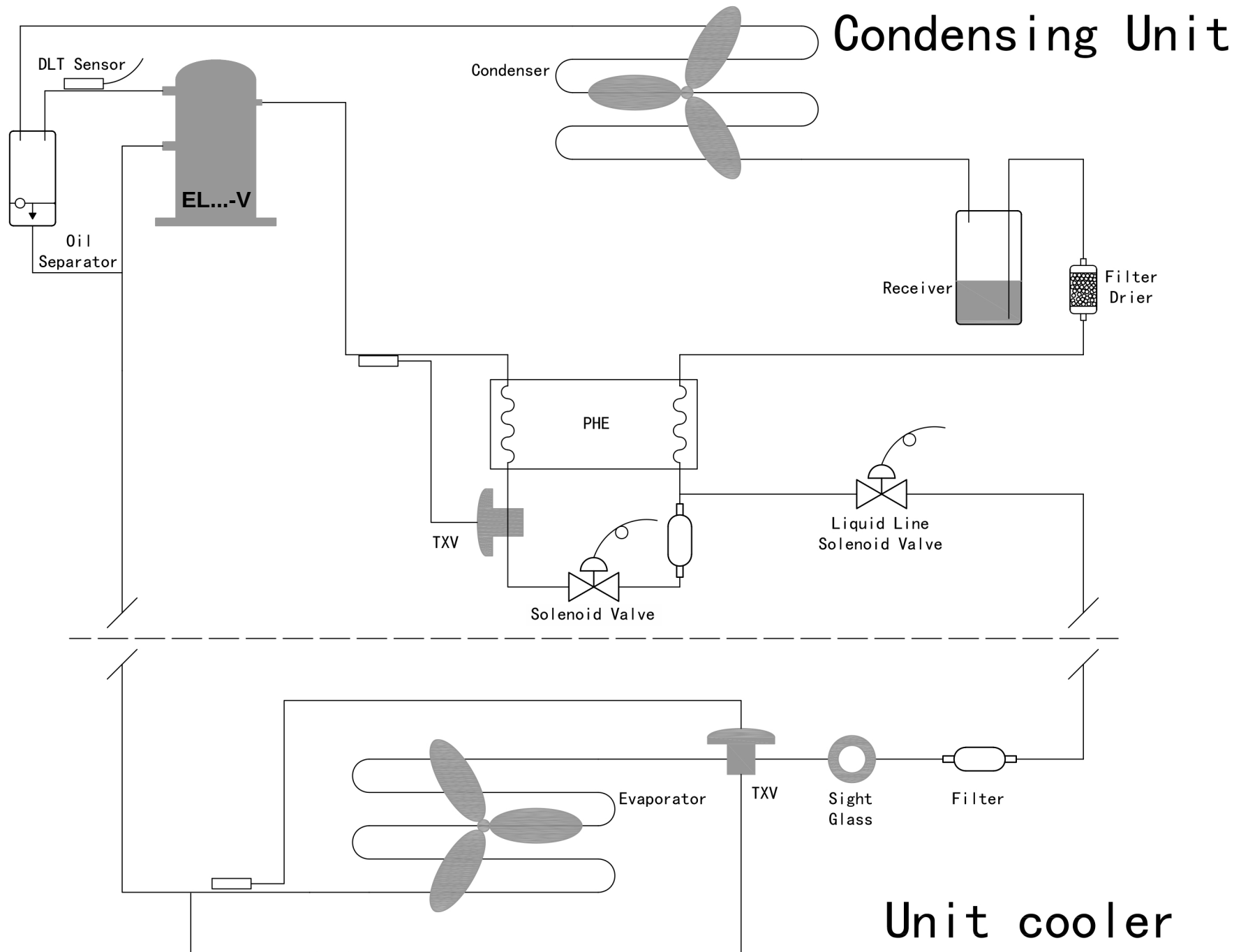
- (1) All tolerances 1.5mm [0.06in] unless otherwise specified
- (2) All fittings: + 3.0mm [0.12in]
- (3) Tube ends must be plugged
- (4) All units are in mm [inch]

MATERIAL :			GEN. TOL. :	
			ANG. TOL. :	
			SCALE : 0,100	
			UNIT: mm	
CODE :		TITLE, DOCUMENT TYPE	REPLACE:	
			V0	
			No.	
DRAWN :		150 ELF (INJECTION)	801-0000-04	
APP.:				
ECM :	DATE :	THIS MATERIAL IS CONFIDENTIAL AND PROPRIETARY TO EMBRACO, AND MAY NOT BE REPRODUCED, DISCLOSED, DISTRIBUTED OR USED WITHOUT PERMISSION	SHEET NUMBER: 1 OF 1	



- Electrical Schematics
- L1/L2/L3/N/PE: 3 Phase Lines(line/neutral/ground)
- Q1: Manual Switch
- F1/F6...8: Fuse
- K1: Compressor Contactor
- M: Compressor Motor
- T1/T2/T3: Compressor Terminal

Vapor injection schematic



Accessories List

Part N.O.	Specification	Part Name	Description	Qty	Type	Picture
030-0000-00	1-1/4"-12UNF	Sight glasses		1	Standard	
200-0002-00		Steel		4	Optional	