

### Basic Specification

Model	YM125E7G-100 (Including Extended Models)
Type	Low Side Shell Design Scroll Compressor
Application	Medium Temp. Refrigeration
Power	7.5 HP
Capacity (BTU/Hr)	50623
Refrigerant	R448A/R449A
Displacement(cc/rev)	115.5
Cooling Capacity(W) <sup>(a)</sup>	14837
Input Power(W) <sup>(a)</sup>	6752
RLA(A) <sup>(a)</sup>	22.9
Cooling COP(W/W) <sup>(a)</sup>	2.2
Power Supply	208-230V/3~/60Hz
Min. Operating Voltage(V)	187
Max. Operating Voltage(V)	253
LRA(A)	241
Max. Operating Current(A) <sup>(b)</sup>	33.7
Rated Speed(r/min) <sup>(a)</sup>	3500
Compressor Weight (With Oil)(kg)	53
Oil Type	POE
Oil Kinematic Viscosity (cSt, 40°C)	32
Oil Density (kg/L, 20°C)	0.977
Primary Charge(L)	2.7
Recharge(L)	2.55
Oil Circulation Rate <sup>(a)</sup>	≤1%
Rated Sound (Sound Power)(dBA) <sup>(c)</sup>	77
Max. Operating Sound in Running Envelope (Sound Power)(dBA)	82
Vibration Displacement Peak-Peak (mm) <sup>(d)</sup>	≤0.12
Moisture (mg)	≤1100
Impurity (mg)	≤140
LVS(V) <sup>(e)</sup>	177
MOV (V) <sup>(f)</sup>	187
Start Capacitor (µF/V)	/
Start Relay	/
Run Capacitor (µF/V)	/
IP Class of Terminal Box	IP54
Compressor Color	Black

### Motor Parameters

Motor Type	Three-phase asynchronous motor
Motor Pole	2
Motor Insulation Class(°C)	130(B Class)
Line to Line Resistance UV(CS)(Ω, 25°C)	0.258( ± 10%)
Line to Line Resistance UW(CR)(Ω, 25°C)	0.258( ± 10%)
Line to Line Resistance VW(SR)(Ω, 25°C)	0.258( ± 10%)
Dielectric Strength	2000VAC / 1s / 60Hz, Leakage Current≤5mA
Insulation Resistance(MΩ)	≥20
Ground Resistance(Ω)	≤0.1

### Safety Operating Limit

Tightness Test Pressure (MPa)	3.8-4.0
Max. Operating Pressure	
High Side(MPa) Low Side(MPa)	H3.2/L2.0
Compressor FreeSpace(Without Oil)	
High Side(L) Low Side(L)	H0.9/L6.5
Max. Refrigerant Charge(kg)	See Notes
Discharge Temperature Limit(°C)	≤125 (120mm to compressor discharge connection and well insulated)
Start-Stop Interval	See Notes

### Performance Condition:

Condition	Condition Description
a	Rated Condition
b	Max. Load Condition, 90% Rated Voltage
c	Rated Condition, A Weighted Sound Power
d	Rated Condition, Max Operating Normal Displacement of Compressor Housing
e	Discharge Pressure and Suction Pressure: Saturated Refrigerant Pressure at 40°C
f	Max. Load Condition

### 2. Rated Condition, 48 Hours Break-in-Running before implementing Performance and Sound Testing

Item	Rated Condition	Max. Load Condition
E.T.(°C)/C.T.(°C)/S.H.(K)/S.C.(K)/A.T.(°C)	-6.7/48.9/11.1/0/35	10/65/11.9/0/46.1
Cooling Capacity Deviation	≥92.5%	-
Power Deviation	≤107.5%	-
COP Deviation	≥92.5%	-

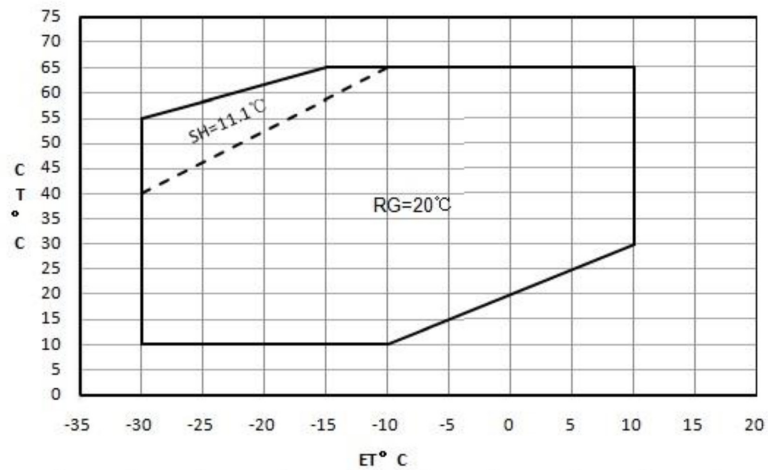
### 3. Internal Protector

Protection Method	Config	Parameter		
Internal Overload Protector	With	Vendor	Vendor 1	Vendor 2
		Model	UP28NA03B-XX	
		Open Temp.(°C)	130±5	
		Close Temp. (°C)	70±10	
		Short Time Trip	120A 3-10s	A S
Internal Pressure Relieve Valve	With	2.76-3.10MPa		

### 4. Accessory

Item	Name	P.N.	PCS
1	Grommet	070-0003-00	4
2	Sleeve	010-0014-00	4

### 5. Compressor Operating Envelope



### Compressor Performance Sheet

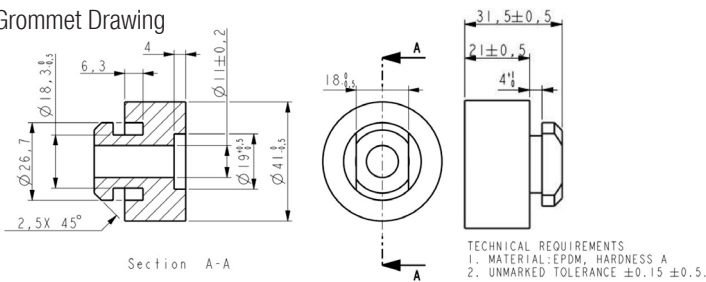
- » Performance Based on Superheat is within the Operating Envelope, Subcooling after Condenser is 0K;
- » Performance Calculated by Coefficients of Polynomial is Only Suitable for the Condition within Operating Envelope
- » Capacity, Power can be Calculated by Coefficients of Polynomial

		Performance Table									
Item	E.T. (°C)	-30	-25	-20	-15	-10	-5	0	5	10	
Cooling Cap. (W)	65					10129	12247	14760	17675	21001	
	60				9142	11102	13472	16260	19472	23115	
	55			8118	9866	12038	14643	17686	21176	25119	
	50		7173	8654	10574	12941	15761	19042	22791	27015	
	45	6424	7582	9195	11269	13812	16830	20330	24320	28807	
	40	6768	8019	9746	11955	14655	17852	21553	25766	30498	
	35	7161	8486	10308	12634	15473	18831	22715	27132	32090	
	30	7606	8985	10884	13310	16269	19770	23818	28421	33587	
	25	8104	9521	11479	13985	17046	20671	24865	29636		
	20	8661	10096	12094	14662	17807	21537	25859			
10	9957	11374	13397	16035	19293						
Power (W)	65					8416	8865	9267	9655	10058	
	60				7346	7799	8184	8534	8879	9250	
	55			6345	6823	7213	7546	7854	8166	8515	
	50		5384	5908	6323	6660	6951	7226	7516	7853	
	45	4435	5025	5485	5847	6142	6400	6652	6931	7266	
	40	4143	4669	5077	5396	5658	5893	6134	6410	6753	
	35	3847	4320	4684	4971	5210	5433	5671	5955	6316	
	30	3547	3977	4308	4572	4798	5019	5265	5566	5955	
	25	3245	3642	3950	4201	4424	4653	4916	5246		
	20	2941	3315	3610	3858	4089	4335	4626			
10	2333	2690	2989	3261	3537						

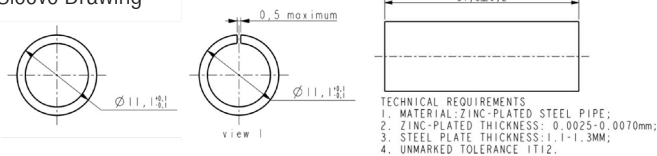
Ten Coefficients of Polynomial			
Expression	$z = p_0 + p_1 \cdot x + p_2 \cdot y + p_3 \cdot x^2 + p_4 \cdot x \cdot y + p_5 \cdot y^2 + p_6 \cdot x^3 + p_7 \cdot x^2 \cdot y + p_8 \cdot x \cdot y^2 + p_9 \cdot y^3$		
Description	z: Cooling Capacity (W) or Power (W) Specially: Heating Capacity (W) = Cooling Capacity (W) + Power (W) x: E.T. °C y: C.T. °C p0~p9: Coefficients of Polynomial		
Cooling Cap. Factor	Value	Power Factor	Value
p0	29366.683628	p0	4067.451963
p1	997.966069	p1	111.147592
p2	-158.603153	p2	3.226762
p3	13.719285	p3	2.344597
p4	-2.230999	p4	-3.11688
p5	-0.759803	p5	1.258112
p6	0.009529	p6	0.04132
p7	-0.087199	p7	-0.040745
p8	-0.073451	p8	0.040089
p9	-0.00396	p9	-0.001185

Notes: Coefficients of polynomial are based on the fitting results of some sample data, which can be used as a reference of compressor selection, but cannot completely eliminate customer's test.

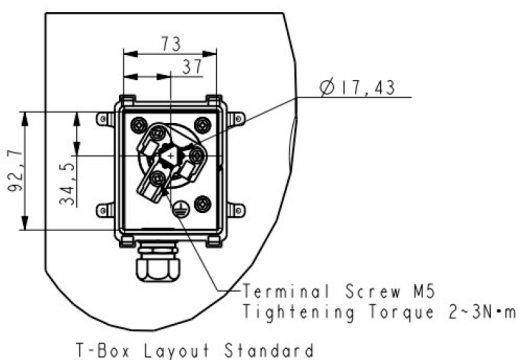
Grommet Drawing



Sleeve Drawing



T-Box Layout Standard

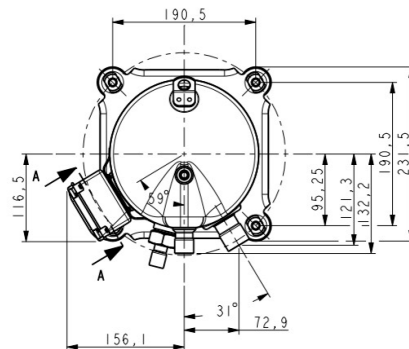
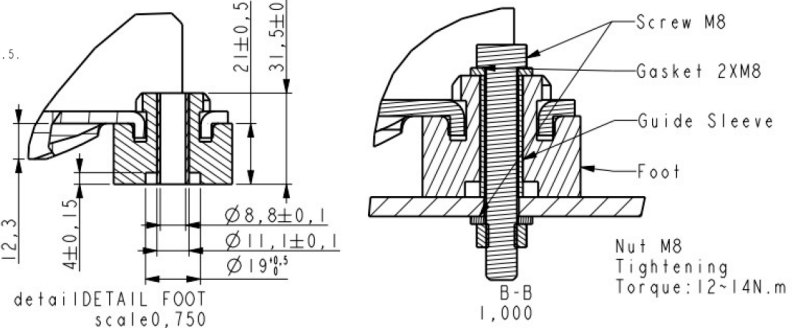
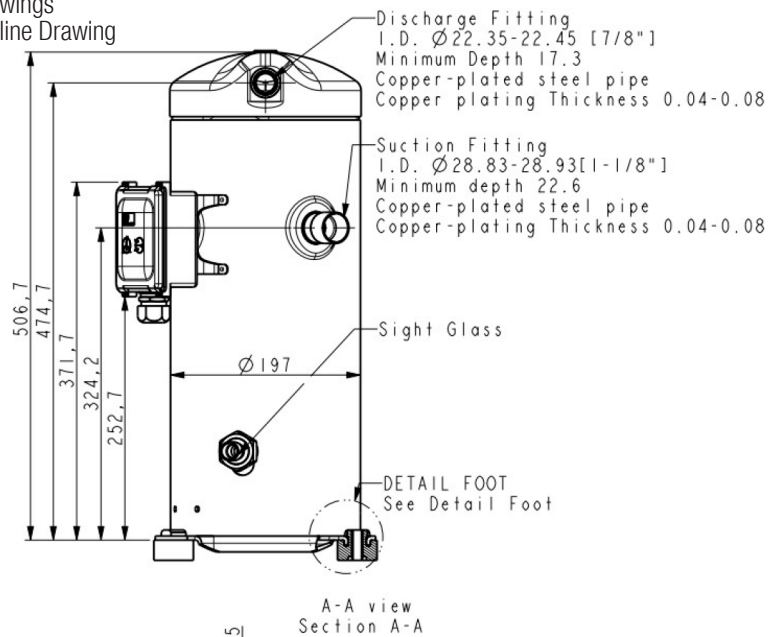


Notes

- » It is not allowed to perform vacuum in the system by using the refrigeration compressor. The compressor can start only after the refrigerant charged. In some cases, such as on the field site, if it is limited by the situation that can't charge the required volume of refrigerant, 50% of the required refrigerant is charged necessary before the compressor starts. Double check the system and make sure everything is under safe status, then power on the compressor and charge the remained refrigerant when the compressor is running.
- » It is not allowed to charge the refrigerant from the suction or discharge line closes to the compressor. The charge port should be arranged on the connection pipe of suction line accumulator or receiver, which is on the side far away to the compressor, to avoid the liquid refrigerant flood back.
- » Refrigerant charge limitation: the ratio between the weight of oil and refrigerant should be >=0.4.
- » It is not allowed to vacuum by compressor, not allowed to run the compressor without refrigerant, and not allowed to run the compressor on the reversed direction for long duration.
- » The compressor can only work with approved refrigerant.
- » The compressor is not allowed to work outside its envelope, the system should guarantee the suction line superheat and avoid the liquid refrigerant flood back.
- » When the suction and discharge plugs are removed, the assembly and brazing should be done in 15 minutes.
- » The frequently start/stop should be avoided. The suggested minimum continuous running time is 10 minutes to guarantee the safe oil level (>=50% initial charge volume), the suggested minimum interval duration between start and stop is 3 minutes.
- » The deviation of supplied voltage should be less than +/-10% of rated voltage.
- » A 90W crankcase heater is recommended to avoid the refrigerant migration during the off circle and flood start. The crankcase heater should be power on 12 hours earlier than the first start or restart after long duration off.
- » The system should be equipped with necessary protection devices, such as pressure, temperature, oil return, overcurrent and phase fault, etc.
- » The compressor is not allowed to lay down or place upside down during transportation, stock and installation. The maximum inclination is 15° when the compressor is running.

Drawings

Outline Drawing



Application

- » See Details in the YM serial MBP refrigerant scroll compressor application manual