

### Basic Specification

Model	YM28E7G-100 (Including Extended Model)
Type	Low Side Shell Design Scroll Compressor
Application	Medium temperature refrigeration
Power	1.8 HP
Capacity (BTU/Hr)	14800
Refrigerant	R-404A
Displacement(cc/rev)	27.2
Cooling Capacity(W) <sup>(a)</sup>	3541
Input Power(W) <sup>(a)</sup>	1970
RLA(A) <sup>(a)</sup>	7.2
Cooling COP(W/W) <sup>(a)</sup>	1.8
Power Supply	208-230V/3~/60Hz
Min. Operating Voltage(V)	187
Max. Operating Voltage(V)	253
LRA(A)	88
Max. Operating Current(A) <sup>(b)</sup>	9.5
Rated Speed(r/min) <sup>(a)</sup>	3500
Compressor Weight (With Oil)(kg)	30
Oil Type	POE
Oil Kinematic Viscosity(cSt, 40°C)	32
Oil Density(kg/L, 20°C)	0.977
Primary Charge(L)	1.4
Recharge(L)	1.25
Oil Circulation Rate <sup>(a)</sup>	≤1%
Rated Sound(Sound Power)(dBA) <sup>(c)</sup>	73
Max. Operating Sound in Running Envelope (Sound Power)(dBA)	78
Vibration Displacement Peak-Peak(mm) <sup>(d)</sup>	≤0.09
Moisture(mg)	≤500
Impurity(mg)	≤80
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	IP21
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)	1.003(±10%)
Line to Line Resistance UW(CR)(Ω, 25°C)	1.003 (±10%)
Line to Line Resistance VW(SR)(Ω, 25°C)	1.003 (±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)	H1.0/L3.8
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%	-

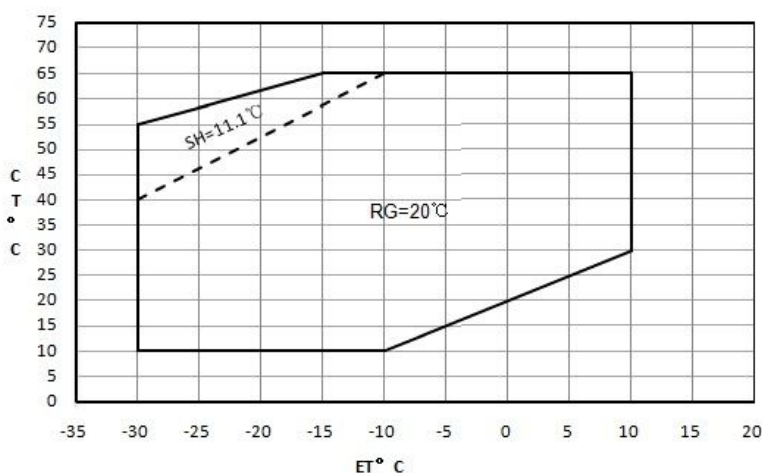
### 3. Internal Protector

Protection Method	Config	Parameter		
Internal Overload Protector	With	Vendor	Vendor 1	Vendor 2
		Model	37HM408-XX	
		Open Temp.(°C)	125±5	
		Close Temp. (°C)	60±9	
		Short Time Trip	64A 2-10s	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
3			

### 5. Compressor Operating Envelope



### Compressor Performance Sheet

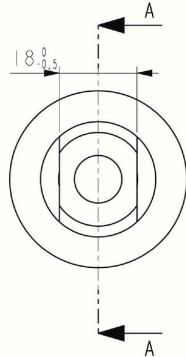
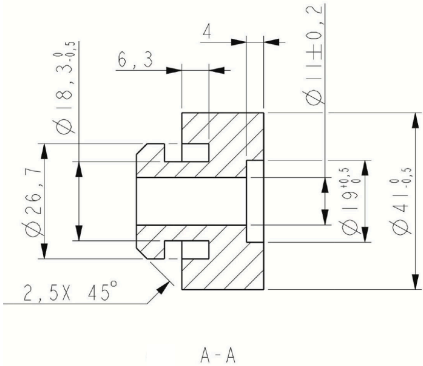
- » Performance Based on Superheat is within the Operating Envelope, Subcooling after Condenser is OK;
- » Performance Calculated by Coefficients of Polynomial is Only Suitable for the Condition within Operating Envelope
- » Capacity, Power can be Calculated by Coefficients of Polynomial

Performance Table										
Item	E.T.(°C) C.T.(°C)	-30	-25	-20	-15	-10	-5	0	5	10
Cooling Cap.(W)	65				1815	2200	2637	3142	3729	4413
	60			1750	2139	2576	3075	3652	4323	5101
	55	1252	1610	1997	2427	2915	3477	4127	4881	5754
	50	1420	1798	2215	2686	3226	3849	4573	5410	6377
	45	1564	1962	2410	2921	3513	4199	4995	5916	6977
	40	1693	2110	2588	3140	3783	4532	5400	6405	7560
	35	1810	2247	2755	3349	4043	4854	5795	6883	8132
	30	1924	2380	2918	3553	4299	5171	6186	7357	8700
	25	2039	2515	3084	3759	4556	5491	6578	7833	
	20	2163	2659	3257	3973	4822	5819	6978		
Power(W)	15	7195	8759	10685	13018	15802				
	10	2460	2995	3653	4451	5403				
	65				2366	2471	2568	2657	2737	2807
	60			2064	2166	2263	2353	2436	2511	2577
	55	1692	1792	1889	1983	2072	2155	2233	2304	2367
	50	1551	1641	1729	1815	1897	1975	2048	2115	2176
	45	1422	1503	1583	1661	1737	1810	1879	1944	2004
	40	1305	1377	1450	1521	1592	1661	1727	1790	1849
	35	1199	1263	1328	1395	1461	1526	1590	1652	1710
	30	1102	1159	1219	1280	1342	1405	1467	1528	1588
	25	1014	1065	1119	1176	1236	1296	1358	1419	
	20	935	980	1030	1083	1140	1200	1261		
	15	863	903	949	1000	1055	1114			
	10	797	833	876	925	979				

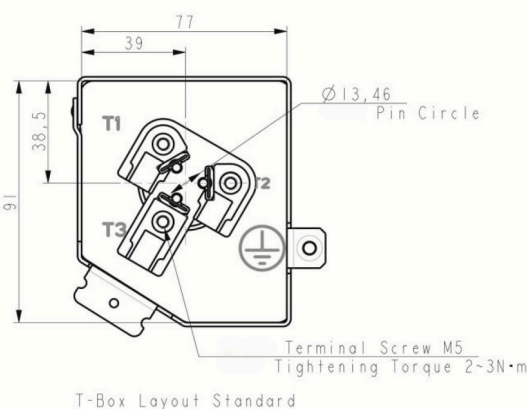
Ten Coefficients of Polynomial			
Expression	$z = p_0 + p_1*x + p_2*y + p_3*x^2 + p_4*x*y + p_5*y^2 + p_6*x^3 + p_7*x^2*y + p_8*x*y^2 + p_9*y^3$		
Description	z: Cooling Capacity(W) or Power (W) Specially: Heating Capacity(W)=Cooling Capacity(W)+Power (W) x: E.T. y: C.T.		
Cooling Cap. Factor	Value	Power Factor	Value
p0	8786.607398	p0	983.25663
p1	-102.8212324	p1	10.083772
p2	4.416031697	p2	0.1120075
p3	-3.119358442	p3	-0.153651
p4	0.787334266	p4	0.1676524
p5	0.02017045	p5	-0.00095
p6	-0.042585745	p6	-0.004465
p7	-7.74E 05	p7	0.0029879
p8	-0.008330552	p8	0.0011286
p9	8786.607398	p9	983.25663

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.

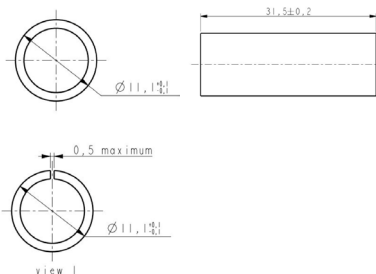
Grommet Drawing



T-Box Layout Standard



Sleeve Drawing

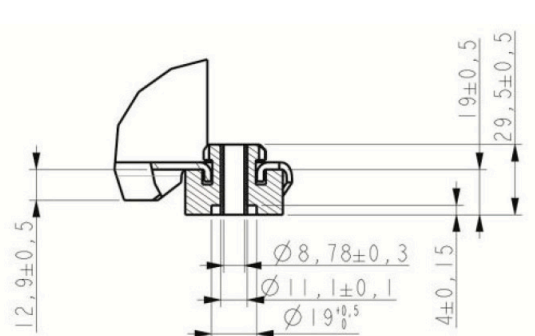
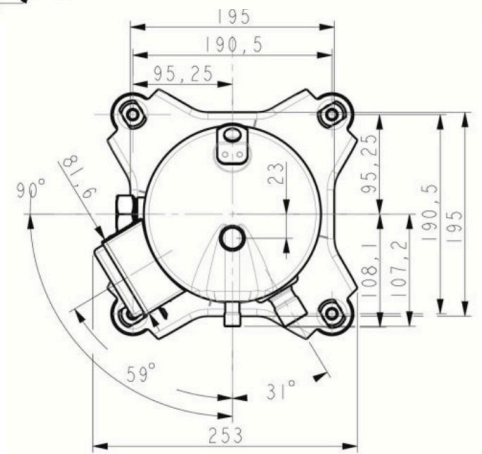
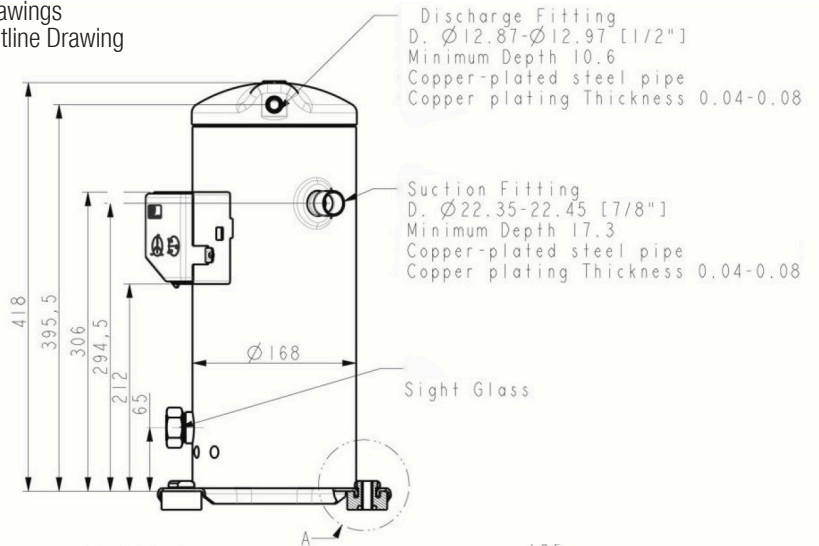


Notes

- 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  $\geq 0.4$ .
- 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 ( $\geq 50\%$  initial charge volume), the suggested minimum interval duration between start and stop is 3 minutes.
- The deviation of supplied voltage should be less than  $\pm 10\%$  of rated voltage.
- A 70W crankcase heater is recommended to avoid the refrigerant migration during the off cycle 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  $15^\circ$  when the compressor is running.

Drawings

Outline Drawing



Application

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