

SCROLL COMPRESSOR TECHNICAL DATASHEET: YM70E7G-100



Basic Specificati	on			
Model	YM70E7G-100			
Wodel	(Including Extended Model)			
Туре	Low Side Shell Design			
	Scroll Compressor			
Application	Medium Temp. Refrigeration			
Power	4 HP			
Capacity (BTU/Hr)	28806			
Refrigerant	R-404A			
Displacement(cc/rev)	67.8			
Cooling Capacity(W) ^(a)	8557			
Input Power(W) ^(a)	4315			
RLA(A) ^(a)	14.3			
Cooling COP(W/W) ^(a)	1.98			
Power Supply	208-230V/3~/60Hz			
Min. Operating Voltage(V)	187			
Max. Operating Voltage(V)	253			
LRA(A)	136			
Max. Operating Current(A) ^(b)	21.8			
Rated Speed(r/min) ^(a)	3500			
Compressor Weight (With Oil)(kg)	31			
Oil Type	POE			
Oil Kinematic Viscosity(cSt, 40°C)	32			
Oil Density(kg/L, 20°C)	0.977			
Primary Charge(L)	1.6			
Recharge(L)	1.45			
Oil Circulation Rate ^(a)	≤1%			
Rated Sound(Sound Power)(dBA)(c)	75			
Max. Operating Sound in Running	00			
Envelope (Sound Power)(dBA)	80			
Vibration Displacement Peak-Peak(mm) ^(d)	≤0.1			
Moisture(mg)	≤500			
Impurity(mg)	≤100			
LVS(V) ^(e)	177			
MOV (V) ^(f)	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 $UV(CS)(\Omega, 25^{\circ}C)$	0.675(± 10%)					
Line to Line Resistance UW(CR) $(\Omega, 25^{\circ}C)$	0.675(± 10%)					
Line to Line Resistance VW(SR)(Ω , 25°C)	0.675(± 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. Operation	ating Pressure					
High Side(MPa) Low Side(MPa) H3.2/L2.0						
Compressor FreeSpace(Without Oil)						
High Side(L) Low Side(L)	H1.0/L3.6					
Max. Refrigerant Charge(kg)	See Notes					
Discharge Temperature Limit(°C)	≤125 (120mm to compressor discharge connection and well insulated)					
Start-Stop Interval	See Notes					

Condition Condition Description

Performance Condition:

а	Rated Condition
b	Max. Load Condition, 90% Rated Voltage
С	Rated Condition, A Weighted Sound Power
d	Rated Condition, Max Operating Normal Displacement of Compressor Housing
е	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	UP28LA05B-XX				
		Open Temp.(°C)	125±5				
		Close Temp. (°C)	70±10				
		Short Time Trin	103A	А			
		onort nine mp	3-10s	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



EVI control logic(only for EVI module)

» Recommend system subcooling 5K

» DLT≤95°C,control superheat of injection line=5K » DLT>95°C,control DLT=95°C

» Max injection pressure < 2.0 MPa

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



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SCROLL COMPRESSOR **TECHNICAL DATASHEET: YM70E7G-100**



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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 070-0003-00



Sleeve Drawing 010-0014-00



Ø11.1:

Application

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



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 70W 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.





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T-Box Layout Standard

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