

SCROLL COMPRESSOR TECHNICAL DATASHEET: YH95C3-100





Model	YH95C3-100	
Model	(Including Extended Model)	
Tuno	Low Side Shell Design	
Туре	Scroll Compressor	
Application	Air conditioning	
Power	3.5 HP	
Capacity (BTU/Hr)	39546	
Refrigerant	R410A	
Displacement(cc/rev)	38.5	
Cooling Capacity(W)(a)	11500	
Input Power(W) ^(a)	3733	
RLA(A) ^(a)	17.3	
Cooling COP(W/W) ^(a)	3.08	
Power Supply	208-230V/1~/60Hz	
Min. Operating Voltage(V)	187	
Max. Operating Voltage(V)	253	
LRA(A)	109	
Max. Operating Current(A) ^(b)	24	
Rated Speed(r/min) ^(a)	3500	
Compressor Weight (With Oil)(kg)	33	
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 ^(a)	≤1%	
Rated Sound(Sound Power)(dBA)(c)	70	
Max. Operating Sound in Running Envelope (Sound Power)(dBA)	75	
Vibration Displacement Peak-Peak(mm)(d)	≤0.09	
Moisture(mg)	≤500	
Impurity(mg)	≤100	
LVS(V) ^(e)	177	
MOV (V) ^(f)	187	
Start Capacitor(µF/V)	250	
Start Relay	HLR3800-3H3D	
Run Capacitor(µF/V)	80/450	
IP Class of Terminal Box	IP21	
Compressor Color	Black	

Motor Parameters				
Motor Type	Single-phase asynchronous motor			
Motor Pole	2			
Motor Insulation Class(°C)	130(B Class)			
Line to Line Resistance UV(CS)(Ω, 25°C)	1.348(±10%)			
Line to Line Resistance UW(CR)(Ω, 25°C)	0.575(±10%)			
Line to Line Resistance $VW(SR)(\Omega, 25^{\circ}C)$ 1.923(±10%)				
Dielectric Strength	2000VAC / 1s / 60Hz, Leakage Current≤5mA			
Insulation Resistance(M Ω)	≥20			
Ground Resistance(Ω) ≤ 0.1				

Safety Operating Limit				
Tightness Test Pressure (MPa)	3.8-4.0			
Max. Opera	ating Pressure			
High Side(MPa) Low Side(MPa)	H4.3/L2.0			
Compressor FreeSpace(Without Oil)				
High Side(L) Low Side(L)	H1.0/L3.2			
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
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

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)	7.2/54.4/11.1/8.3/35	11.9/65.5/11.9/8.3/46.1
Cooling Capacity Deviation	≥95.0%	-
Power Deviation	≤105.0%	-
COP Deviation	≥95.0%	-

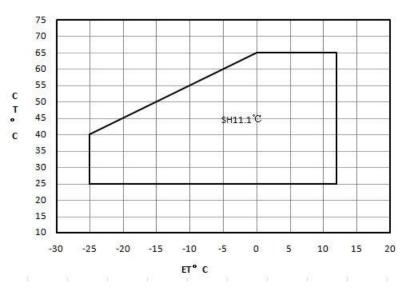
Internal Protector

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Protection Method	Config	Parameter		
	With	Vendor	Vendor 1	Vendor 2
		Model	15HM2512-XX	
Internal Overload		Open Temp.(°C)	115±5	
Protector		Close Temp. (°C)	61±9	
		Short Time Trip	78A 2-10s	A S
Internal Pressure Relieve Valve	Without	-MPa		

Accessory

Item	Name	P.N.	PCS
1	Grommet	070-0003-00	4
2	Sleeve	010-0014-00	4
3	StartBox	110-0076-01	1

Compressor Operating Envelope



EVI control logic (only for the compressor with 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≤2.0MPa

Compressor Performance Sheet

- » Performance Based on Superheat is within the Operating Envelope, Subcooling after Condenser is 8.3K;
- 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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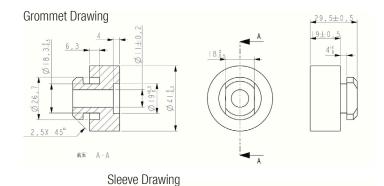
Performance Table					
Item	E.T.(°C)	-20	-10	0	10
Heating Cap.	50				
(W)	40				
(Cooling Cap.	30				
	50	3898	6442	9466	13461
Cooling Cap. (W)	40	4719	7366	10667	15115
(**)	30	5425	8235	11875	16837
	50	3826	3721	3627	3580
Power(W)	40	3033	2956	2896	2890
	30	2402	2360	2343	2384

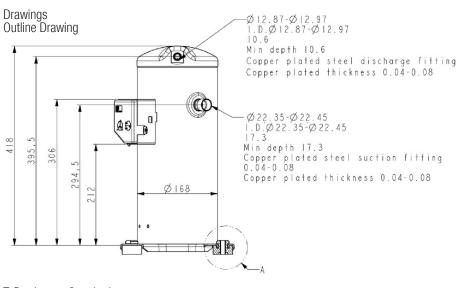
Ten Coefficients of Polynomial					
Expression	$z = p0 + p1*x + p2*y + p3*x^2 + p4*x*y + p5*y^2 + p6*x^3 + p7*x^2*y + p8*x*y^2 + p9*y^3$				
Description	z:Cooling Capacity(W) or Power (W) Specially: Heating Capacity(W)=Cooling Capacity(W)+Power (W) x: E.T. °C y: C.T. °C p0~p9: Coefficients of Polynomial				
Cooling Cap. Factor	Value	Power Factor	Value		
p0	18153.35341	р0	744.839221		
p1	586.236763	586.236763 p1 18.752508			
p2	-327.858728	p2 71.615521			
р3	9.238613	p3 0.387535			
p4	-6.391908	6.391908 p4 -0.723659			
р5	5.258497 p5 -1.110501				
р6	0.082173	р6	0.005968		
р7	-0.087543	р7	-0.003035		
р8	0.03044	p8	0.00393		
р9	-0.043529	р9	0.016621		

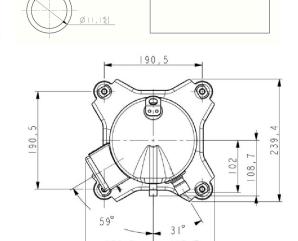
Notes: Coefficients of polynomial are based on the fitting results of some sample data, which can be used as a reference of compressor selection, but cannot completely eliminate customer's test.

Notes

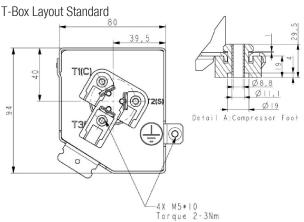
- » It is not allowed to perform vacuum in the system by using the refrigeration compressor. The compressor can start only after the refrigerant charged. In some cases, such as on the field site, if it is limited by the situation that can't charge the required volume of refrigerant, 50% of the required 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 $\pm 1/-10\%$ 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.







29,5±0,2



Application

See Details in the YH serial air-condition scroll compressor application manual.

Single Phase Compressor Wiring Diagram

