INVOTECH
CENTRO DE DISTRIBUCIÓN MÉXICO
INNOVATION HVAC/R SOLUTION

SCROLL COMPRESSOR
TECHNICAL DATASHEET: YS07E3G-100

ISO 9001:2015

Basic Specification	
Model	YS07E3G-100
Type	Low Side Scroll Compressor
Application	Medium Temp. Refrigeration
Power	1 HP
Refrigerant	R404
Displacement (CC/Rev)	17
Compressor Weight With Oil (lbs)	20
Oil Type	POE
Oil Kinematic Viscosity (cSt,104°F)	32
Oil Primary Charge (L)	0.85
Oil Recharge (L)	0.75
Rated Speed (r/min)	3520
IP Class Of Terminal Box	IP21
Compressor Colour	Black

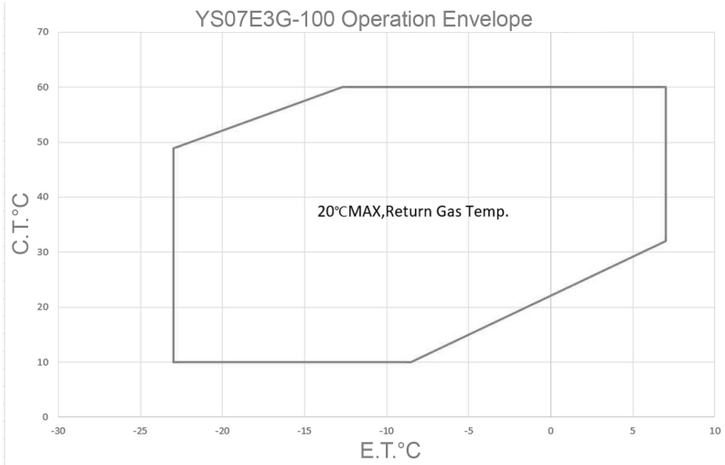
Performance Specifications	
Cooling Capacity (BTU/hr)	2110±5%
Cooling Capacity (Btu/h)	7195±5%
Input Power (W)	1160±5%
Cooling COP (W/W)	1.82±5%
Cooling EER (BTU/Wh)	6.21±5%
Rated Operating Current (A)	5.1
Oil Circulation Rate(%)	≤1%
Rated Sound Power (dBA)	68
Max. Sound Power (dBA)	70
Max. Vibration Displacement (mm)	0.09

Test Condition	Rated Cooling	Oil Cirulation	Sound & Vibration
Evaporating Temp. (°F)	-6.7	-6.7	-6.7
Condensing Temp. (°F)	48.9	48.9	48.9
Suction Superheat (K)	25	25	25
Liquid Subcooling (K)	0	0	0
Ambient Temp. (°F)	35	35	35
Voltage (V)	230	230	230

Electric Parameters	
Motor Type	Single Phase Motor
Motor Poles	2
Power Supply	208~230V/1~/60Hz
Locked Rotor Current (A)	NO
Max. Operating Current (A)	35/450
Motor Insulation Class	47.5
Max. Operating Current (A)	8.0
Motor Insulation Class	B
Line to Line Resistance (Ω,25°C)	main winding 1.125±7% secondary winding 1.751±7%
Lowest Starting Voltage (V)	187
Dielectric Strength	2000VAC / 1s / 50Hz or 60Hz leakage current≤2.5mA
Insulation Resistance (MΩ)	≥20
Ground Resistance (Ω)	≤0.1

Safety Operating Limitation	
Tightness Test Pressure (MPa)	3.8-4.0
High Side Max Running Pressure (MPa)	3.2
Low Side Max Running Pressure (MPa)	2.0
Discharge Temp. Limit (°C)	≤125 120mm to Compressor Discharge Connection And Well Insulated

Operating Envelope



Performance Data Sheet

- The performance parameters are based on the suction superheat of 11.1K and the condensation superheat of 0K within the operating range.
- The performance parameters for polynomial coefficient calculation are only applicable within the operating range.
- The heating capacity, cooling capacity, and power of the compressor can be calculated using polynomials.

Performance Table							
Item	E.T.(°C) / C.T.(°C)	-20	-15	-10	-5	0	5
Refrigeration capacity (W)	60			1225	1531	1892	2309
	55		1141	1430	1772	2169	2625
	50	1032	1303	1624	1999	2431	2924
	45	1158	1457	1808	2214	2679	3206
	40	1278	1603	1981	2417	2912	3472
	35	1394	1743	2146	2609	3133	3723
	30	1506	1876	2303	2791	3342	3960
	25	1615	2005	2453	2964	3539	
	20	1722	2129	2597	3128		
	15	1827	2250	2735	3285		
	10	1932	2369	2869			
	5	2037	2486				
Power (W)	60			1167	1217	1263	1305
	55		1020	1065	1107	1146	1178
	50	896	937	975	1010	1040	1063
	45	828	863	895	923	945	959
	40	768	797	823	843	857	862
	35	713	737	757	770	775	771
	30	662	681	694	699	697	684
	25	612	625	632	631	620	
	20	561	569	570	561		
	15	508	510	504	489		
	10	684	680	661			
	5	584	571				

SCROLL COMPRESSOR
TECHNICAL DATASHEET: YS07E3G-100

Ten term coefficient			
Expressio 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		
Explanation of physical quantities	z: Cooling capacity (W) or Power (W); W = W + W Special note: Heating capacity =Cooling capacity +Power x: Evaporating Temp. °C y: Condensing Temp. °C p0~p9: Polynomial coefficients		
Cooling	Value	Power	Value
p0	4387.497	p0	183.9606
p1	141.0881	p1	-11.5361
p2	-30.1217	p2	21.30253
p3	1.538692	p3	-0.30553
p4	-0.56097	p4	0.33036
p5	-0.1244	p5	-0.22511
p6	0.004657	p6	-0.00196
p7	-0.00647	p7	0.003492
p8	-0.00826	p8	0.000159
p9	-0.00111	p9	0.002831

- Explanation: The coefficients of the polynomial are based on the fitting results of a certain sample data, which can be used as a reference for compressor selection, but cannot completely replace user testing.
- Performance Data Sheet Is Based On Limited Compressor Tests and Data Treatment, It Is Only a Reference for Compressor Selection.
- Superheating of return gas temperature within Envelope is 11.1 K, and Liquid Subcooling is 0 K;

Compressor Protection
Motor Protector

Internal Protector For Motor Protection	
Open Temp.(°F)	90
Close Temp.(°F)	60
Short Time Trip	32

High Pressure Relieve

Internal Pressure Protection	
Open Pressure Of Relieve Valve (MPa)	NO

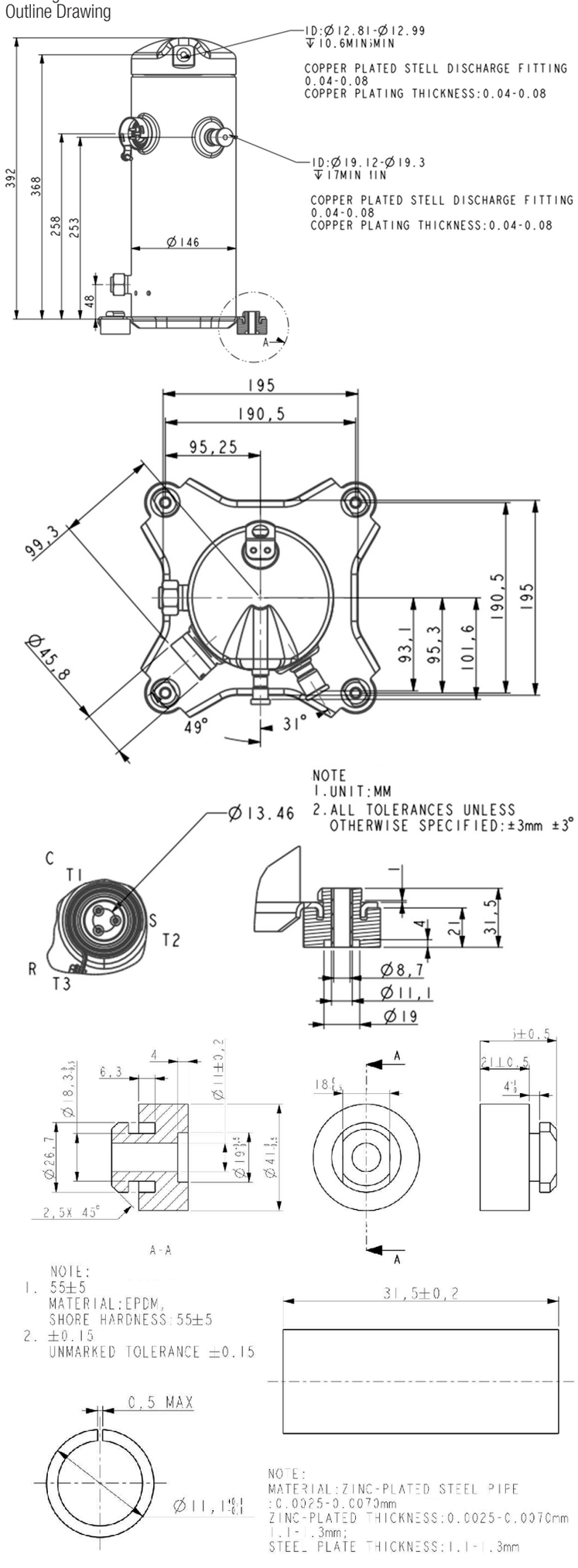
Accessory

Item	Drawing/Standard No.	Quantity
Grommet	070-0003-00	4
Sleeve	010-0014-00	4

Attentions

- It is not allowed to perform vacuum in the system by using the refrigeration compressor. The compressor can start only after the refrigerant is charged;
- 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 far away from the compressor, to avoid the liquid refrigerant flooding back;
- The refrigerant charge amount complies with local regulations;
- It is not allowed to run compressor in vacuum, not allowed to run compressor without refrigerant, and not allowed to run compressor in the reversed direction for long duration;
- The compressor can only work with approved refrigerants;
- The compressor is not allowed to work outside its envelope. System design should guarantee the suction line superheat and avoid the liquid refrigerant flooding back;
- When the suction and discharge plugs are removed, the assembly and brazing should be done in 15 minutes;
- The frequently start/stop compressor 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 between start and stop is 3 minutes.
- A 70W crankcase heater is recommended to avoid the refrigerant migration during the off circle and flooded start. The crankcase heater should be powered on 12 hours earlier before the first start or restart after long duration off;
- The system should be equipped with necessary protection devices for 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 Guideline

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