INVOTECH
CENTRO DE DISTRIBUCIÓN MÉXICO
INNOVATION HVAC/R SOLUTION

SCROLL COMPRESSOR
TECHNICAL DATASHEET: YS19E3G-100

ISO 9001:2015

Basic Specification	
Model	YS19E3G-100
Type	Low Side Scroll Compressor
Application	Medium Temp. Refrigeration
Power	2.5 HP
Refrigerant	R404
Displacement (CC/Rev)	38.7
Compressor Weight With Oil (Kg)	23
Oil Type	POE
Oil Kinematic Viscosity (cSt,40°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

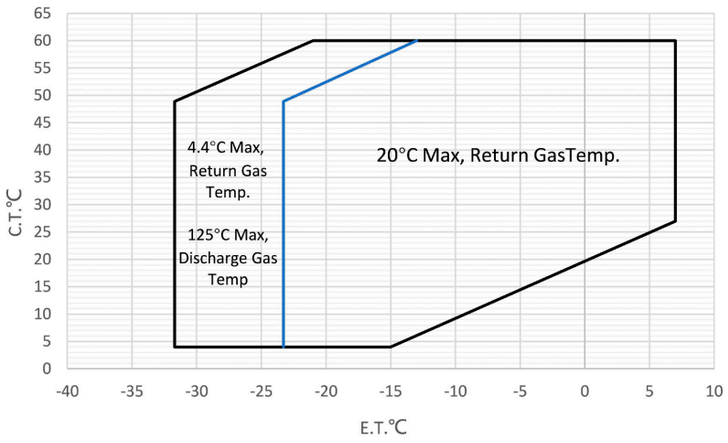
Performance Specifications	
Cooling Capacity (W)	5075±5%
Cooling Capacity (Btu/h)	17320±5%
Input Power (W)	2480±5%
Cooling COP (W/W)	2.04±5%
Cooling EER (BTU/Wh)	6.98±5%
Rated Operating Current (A)	10.8
Oil Circulation Rate(%)	≤1%
Rated Sound Power (dBA)	68
Max. Sound Power (dBA)	70
Max. Vibration Displacement (mm)	0.09

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

Electric Parameters	
Motor Type	Single Phase Motor
Motor Poles	2
Power Supply	208~230V/1~/60Hz
Starting capacitor (μ F/V)	NO
Run capacitor (μ F/V)	45/450
Locked Rotor Current (A)	66
Max. Operating Current (A)	22
Motor Insulation Class	B
Line to Line Resistance (Ω,25°C)	main winding 0.995±7% secondary winding 1.121±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)	-30	-25	-20	-15	-10	-5	0	5
Refrigeration capacity (W)	60			1940	2471	3123	3904	4822	5886
	55		1796	2295	2908	3646	4516	5529	6692
	50	1600	2060	2631	3322	4140	5095	6197	7453
	45	1790	2314	2952	3714	4607	5643	6828	8172
	40	1977	2558	3259	4086	5050	6160	7423	8850
	35	2162	2797	3553	4442	5471	6649	7986	9490
	30	2349	3030	3839	4783	5871	7114	8518	10094
	25	2538	3262	4116	5110	6254	7554	9022	10665
	20	2733	3493	4388	5428	6620	7974	9499	
	15	2934	3726	4657	5736	6972	8374		
	10	3145	3963	4925	6038	7313			
	5	3368	4207	5193	6336				
Power (W)	60			2710	2843	2974	3101	3220	3326
	55		2364	2482	2600	2715	2823	2920	3003
	50	2074	2178	2283	2387	2486	2575	2651	2711
	45	1923	2017	2110	2200	2282	2353	2408	2444
	40	1791	1875	1957	2032	2098	2150	2185	2198
	35	1673	1748	1818	1879	1928	1962	1976	1966
	30	1564	1629	1687	1735	1768	1783	1776	1744
	25	1458	1513	1560	1594	1611	1608	1581	1525
	20	1349	1396	1431	1451	1452	1431	1383	
	15	1233	1270	1294	1301	1286	1247		
	10	1104	1132	1145	1138	1107			
	5	957	976	977	956				

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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	11183.82	p0	468.9191
p1	359.6363	p1	-29.4058
p2	-76.7808	p2	54.30056
p3	3.922156	p3	-0.77879
p4	-1.42992	p4	0.842095
p5	-0.31711	p5	-0.57382
p6	0.01187	p6	-0.00499
p7	-0.01649	p7	0.0089
p8	-0.02107	p8	0.000405
p9	-0.00284	p9	0.007215

- 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.(°C)	115
Close Temp.(°C)	70
Short Time Trip (A)	50

High Pressure Relieve

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

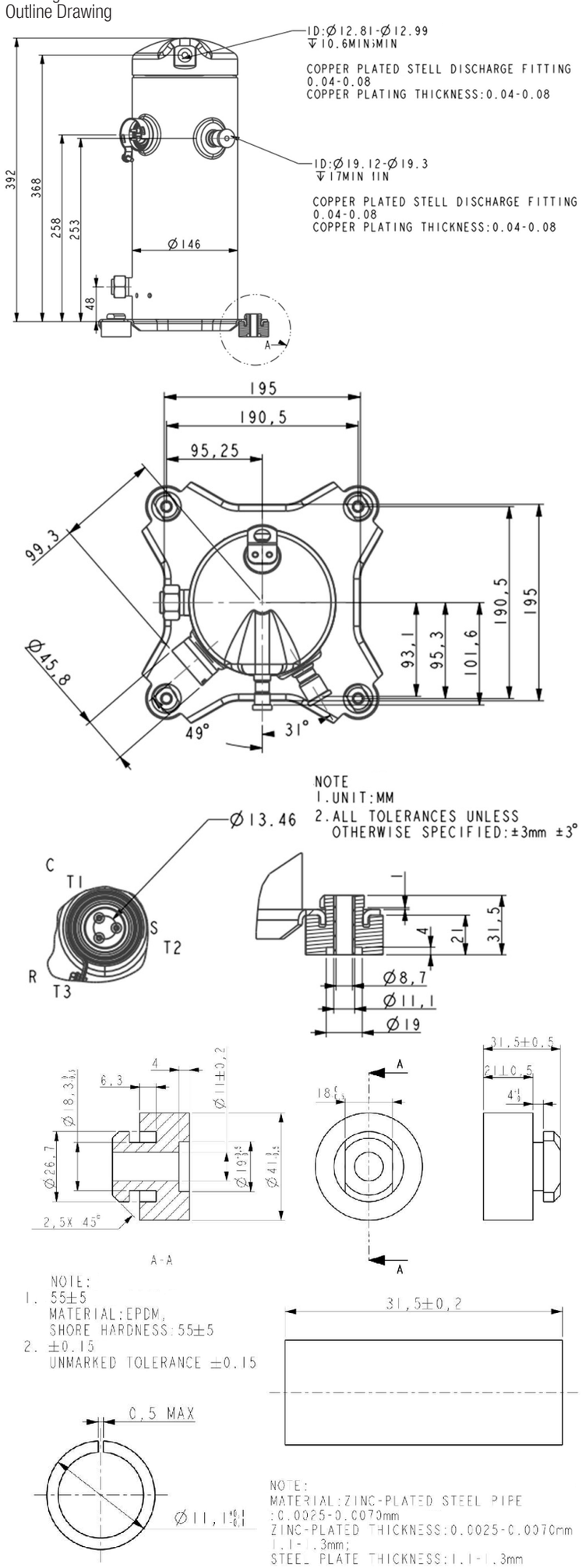
Accessory

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