

Basic Specification

Model	YF17E3G-Q100 (Including Extended Models)
Type	Low Side Shell Design Scroll Compressor
Application	Refrigeration
Power	2.5 HP
Capacity (BTU/Hr)	6877
Refrigerant	R448A/R449A
Displacement(cc/rev)	42
Cooling Capacity(W) ^(a)	2015
Input Power(W) ^(a)	1863
RLA(A) ^(a)	8.6
Cooling COP(W/W) ^(a)	1.08
Power Supply	208-230V/1~/60Hz
Min. Operating Voltage(V)	187
Max. Operating Voltage(V)	253
LRA(A)	76
Max. Operating Current(A) ^(b)	16.7
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)	1.4
Recharge(L)	1.25
Oil Circulation Rate ^(a)	≤1%
Rated Sound(Sound Power)(dBA) ^(c)	73
Max. Operating Sound in Running Envelope (Sound Power)(dBA)	78
Vibration Displacement Peak-Peak(mm) ^(d)	≤0.09
Moisture(mg)	≤500
Impurity(mg)	≤80
LVS(V) ^(e)	177
MOV (V) ^(f)	187
Start Capacitor(μF/V)	160
Start Relay	HLR3800-4AI3D
Run Capacitor(μF/V)	40/450
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)	1.519(±10%)
Line to Line Resistance UW(CR)(Ω, 25°C)	0.67(±10%)
Line to Line Resistance VW(SR)(Ω, 25°C)	2.189(±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/L3.6
Max. Refrigerant Charge(kg)	See Notes
Discharge Temperature Limit(°C)	≤120 (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)	-31.6/40.6/36/0/35	0/60/20/0/46.1
Cooling Capacity Deviation	≥90.0%	-
Power Deviation	≤110.0%	-
COP Deviation	≥90.0%	-

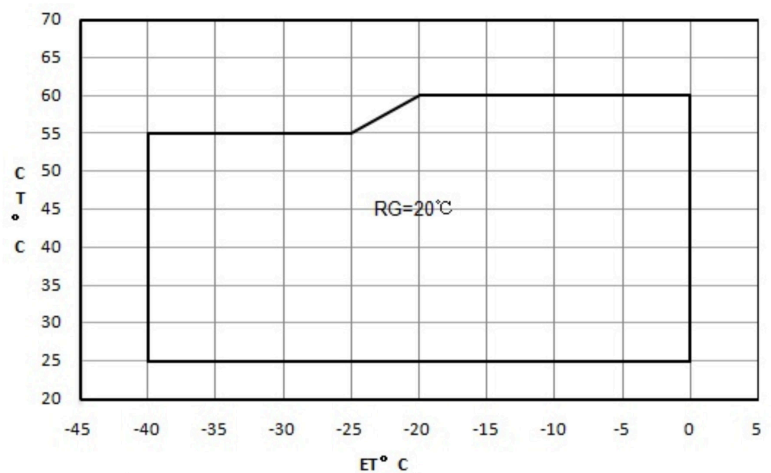
3. Internal Protector

Protection Method	Config	Parameter		
Internal Overload Protector	With	Vendor	Vendor 1	Vendor 2
		Model	15HM2495-XX	
		Open Temp.(°C)	105±5	
		Close Temp. (°C)	61±9	
		Short Time Trip	65A 2-10s	A S
Internal Pressure Relieve Valve	Without	-MPa		

4. Accessory

Item	Name	P.N.	PCS
1	Grommet	070-0003-00	4
2	Sleeve	010-0014-00	4
3	StartBox	110-0076-02	1
4	TREV	100-0002-01	1

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

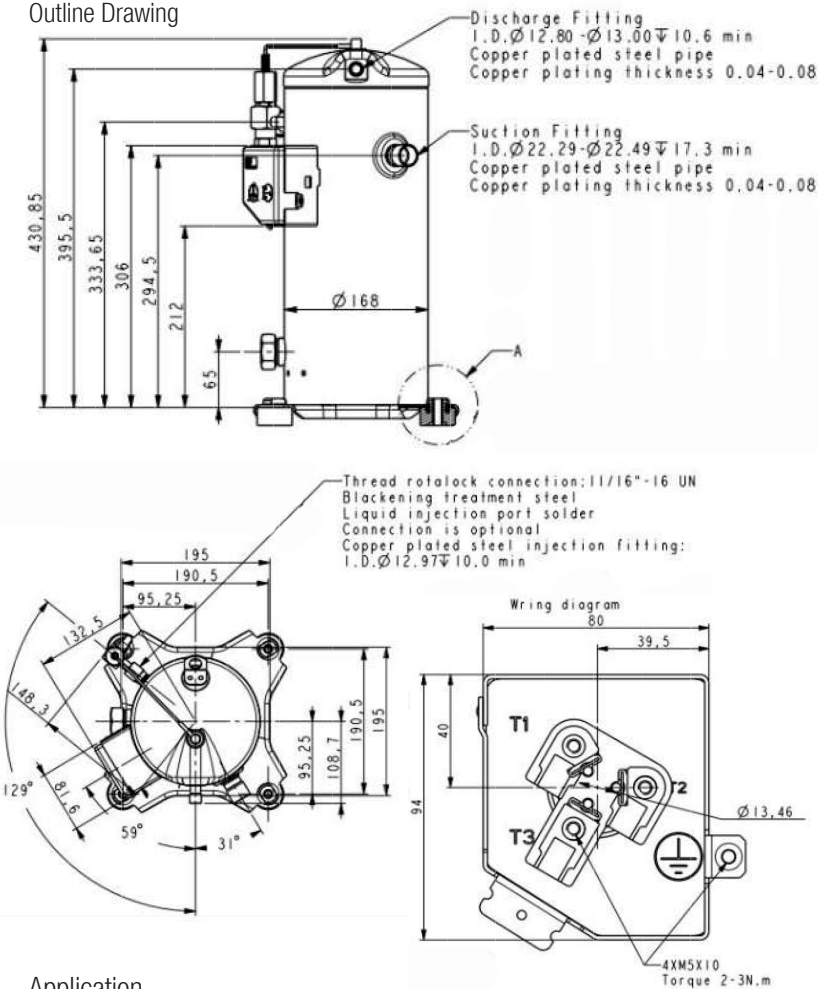
Item	E.T. (°C) C.T. (°C)	Temperature (°C)								
		-40	-35	-30	-25	-20	-15	-10	-5	0
Cooling Cap. (W)	60					2849	3490	4243	5128	6163
	55	1185	1572	2007	2510	3097	3788	4601	5556	6670
	50	1306	1706	2163	2696	3324	4065	4938	5961	7153
	45	1414	1825	2303	2866	3534	4324	5255	6346	7615
	40	1509	1931	2429	3022	3728	4566	5555	6713	8058
	35	1595	2026	2544	3165	3909	4794	5840	7063	8484
	30	1673	2114	2649	3298	4079	5011	6111	7400	8895
Power (W)	25	1747	2195	2748	3424	4241	5217	6373	7726	9294
	60					3247	3243	3254	3280	3325
	55	2792	2796	2802	2811	2827	2851	2886	2934	2998
	50	2351	2387	2421	2456	2493	2537	2588	2650	2725
	45	2012	2071	2125	2177	2229	2284	2344	2412	2490
	40	1756	1831	1897	1959	2018	2076	2137	2202	2274
	35	1568	1649	1720	1783	1840	1895	1948	2003	2062
30	1428	1509	1576	1633	1681	1722	1760	1797	1835	
25	1321	1393	1448	1490	1521	1542	1557	1567	1576	

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. °C y: C.T. °C p0~p9: Coefficients of Polynomial			
Cooling Cap. Factor	Value	Power Factor	Value	
p0	11183.94419	p0	-804.3819342	
p1	411.7673943	p1	-52.82803622	
p2	-74.4113928	p2	148.7957794	
p3	5.619437768	p3	-0.280541974	
p4	-2.92091794	p4	2.980521888	
p5	0.028401373	p5	-2.72148103	
p6	0.02472412	p6	0.003212189	
p7	-0.03744309	p7	0.011702318	
p8	-0.00368807	p8	-0.03192721	
p9	-0.00304996	p9	0.023145064	

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.

Drawings
Outline Drawing

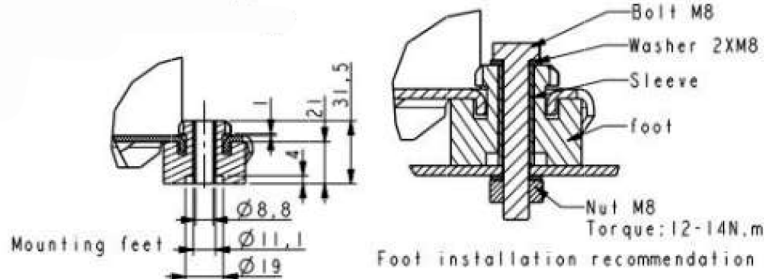


Application

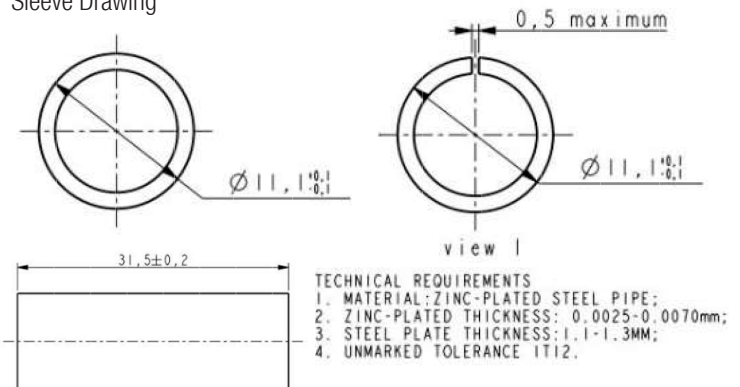
- » See Details in the YF serial LBP refrigerant scroll compressor application manual

Notes

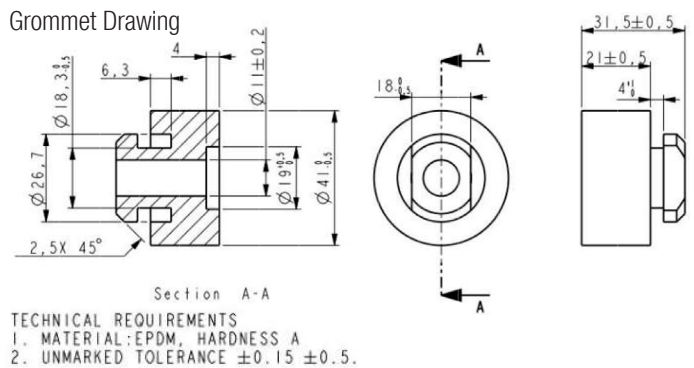
- » It is not allowed to perform vacuum in the system by using the refrigeration compressor. The compressor can start only after the refrigerant charged. In some cases, such as on the field site, if it is limited by the situation that can't charge the required volume of refrigerant, 50% of the required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



Sleeve Drawing



Grommet Drawing



Single Phase Compressor Wiring Diagram

