

Basic Specification	
Model	YF29E3G-Q100
Type	Low Side Shell Design Scroll Compressor
Application	Refrigeration
Power	4 HP
Capacity (BTU/Hr)	11939
Refrigerant	R448A/R449A
Displacement(cc/rev)	67.8
Cooling Capacity(W) ^(a)	3498
Input Power(W) ^(a)	2873
RLA(A) ^(a)	13.3
Cooling COP(W/W) ^(a)	1.22
Power Supply	208-230V/1 ~/60Hz
Min. Operating Voltage(V)	187
Max. Operating Voltage(V)	253
LRA(A)	109
Max. Operating Current(A) ^(b)	28.6
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)	1.6
Recharge(L)	1.45
Oil Circulation Rate ^(a)	≤1%
Rated Sound(Sound Power)(dBA) ^(c)	75
Max. Operating Sound in Running 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)	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)(Ω, 25°C)	1.923(±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%	-

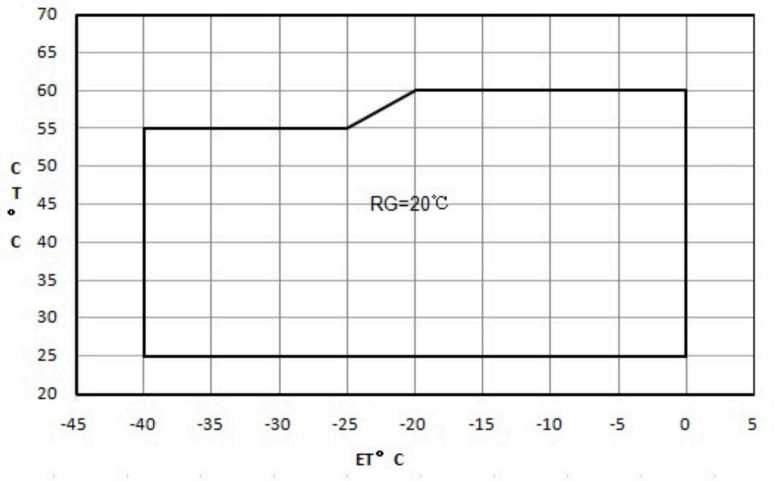
3. Internal Protector

Protection Method	Config	Parameter		
Internal Overload Protector	With	Vendor	Vendor 1	Vendor 2
		Model	15HM2512-XX	
		Open Temp.(°C)	115±5	
		Close Temp. (°C)	61±9	
		Short Time Trip	78A 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	110-0076-01	1
4	TREV	100-0002-01	1

5. Compressor Operating Envelope



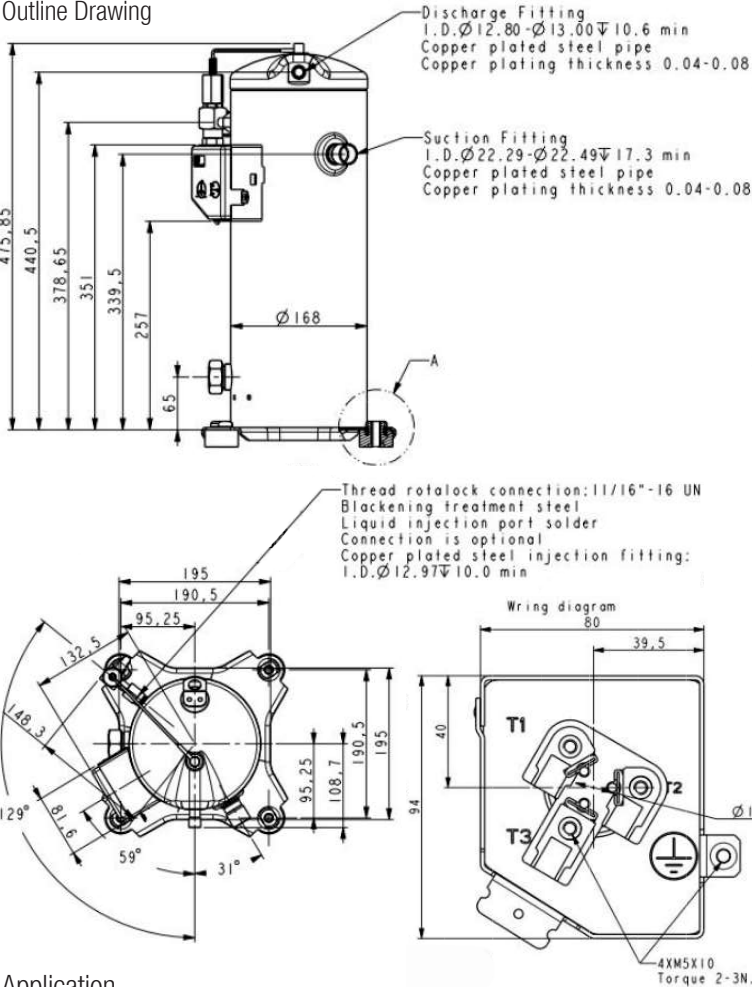
- Compressor Performance Sheet
- » Performance Based on Superheat is within the Operating Envelope, Subcooling after Condenser is OK;
 - » Performance Calculated by Coefficients of Polynomial is Only Suitable for the Condition within Operating Envelope
 - » Capacity, Power can be Calculated by Coefficients of Polynomial

Performance Table										
Item	E.T.(°C) C.T.(°C)	-40	-35	-30	-25	-20	-15	-10	-5	0
Cooling Cap. (W)	60					4437	5442	6656	8106	9819
	55	2135	2613	3199	3918	4798	5865	7147	8668	10457
	50	2262	2791	3432	4210	5154	6289	7642	9240	11110
	45	2362	2947	3647	4490	5503	6711	8142	9822	11778
	40	2432	3078	3844	4757	5843	7130	8643	10410	12458
	35	2472	3184	4020	5008	6174	7544	9145	11005	13149
	30	2479	3262	4175	5243	6493	7952	9647	11604	13850
Power (W)	25	2452	3312	4305	5459	6799	8352	10146	12206	14559
	60					4611	4786	4970	5158	5346
	55	3549	3656	3786	3934	4097	4269	4448	4629	4808
	50	3124	3236	3368	3516	3676	3844	4017	4189	4356
	45	2785	2899	3031	3177	3333	3495	3658	3819	3973
	40	2516	2630	2760	2902	3051	3204	3356	3504	3642
	35	2299	2412	2538	2673	2814	2956	3095	3227	3348
	30	2119	2228	2348	2475	2604	2733	2857	2972	3073
	25	1959	2062	2173	2289	2406	2520	2626	2721	2800

Ten Coefficients of Polynomial			
Expression	$z = p_0 + p_1 \cdot x + p_2 \cdot y + p_3 \cdot x^2 + p_4 \cdot x \cdot y + p_5 \cdot y^2 + p_6 \cdot x^3 + p_7 \cdot x^2 \cdot y + p_8 \cdot x \cdot y^2 + p_9 \cdot y^3$		
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	18170.92035	p0	903.6056086
p1	626.9336228	p1	-15.40393861
p2	-145.188512	p2	110.2595897
p3	6.834904163	p3	-0.619781532
p4	-5.53281208	p4	1.388413772
p5	-0.02309921	p5	-1.926864605
p6	0.03558157	p6	-0.005459813
p7	-0.01738545	p7	0.009034574
p8	0.021038348	p8	-0.008477849
p9	0.002051092	p9	0.022054127

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

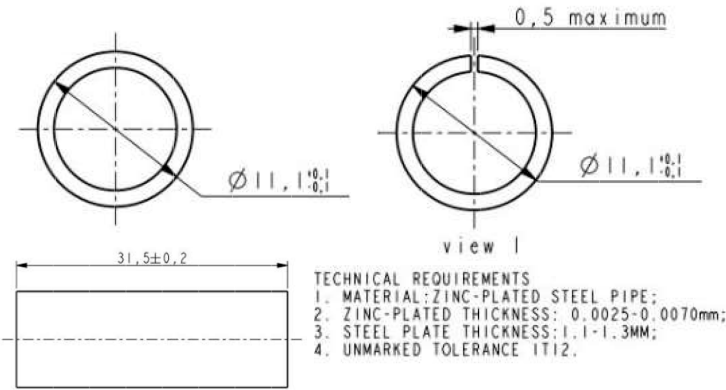
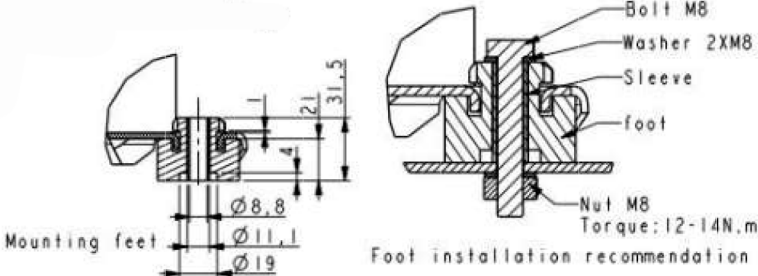


Application

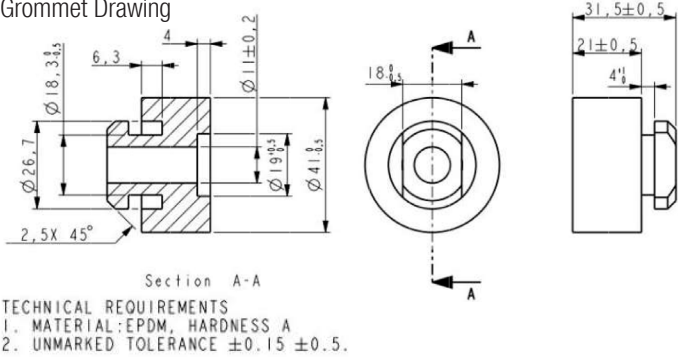
- » See Details in the YF serial LBP refrigerant scroll compressor application manual

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.



Grommet Drawing



Single Phase Compressor Wiring Diagram

