

# Semi-hermetic Condensing Unit

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Blue Skyline Series

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Global Cold Chain Experts



## Company Profile



Headquartered in Farmington, Connecticut, USA, Carrier Corporation is the world's largest provider of heating, air conditioning and refrigeration solutions, with operations in 172 countries and regions. Its parent company United

Technologies Corporation (UTC), is a global company with operations in over 170 Countries and with revenues of over US\$42.7 billion in 2005 and was ranked 126th in the 2006 Fortune Magazine Top 500 Companies.

As one of the leading global cold chain experts, Carrier Commercial Refrigeration is dedicated to being the global brand leader in offering our customers a complete package of quality equipment for a variety of industry needs. As Carrier's largest research and development investment in Asia to date, Carrier China R&D center provides strategic and to carrier Asia to become the leader in the Refrigeration industry through technology development and innovation. We take pride in providing optimized turn-key solutions to our customers. Our comprehensive and reliable products will provide the best-costs solution to minimize upfront investment costs as well as to ensure energy efficiency.



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## Technical Advantages

### Technical Advantages

- No machine room, easier installation.
- Saving installation cost and smaller installation space.
- Easier maintenance and lower maintenance cost
- Vary application on supermarket, C-store, cold room, food processing and precooling.



With the integration of industry-leading Carrier 06E/06CC compressor and remarkable surplus condensation design, Carrier CDU ensures the reliable performance in a wide-range operation condition, which is more adaptive for Asian circumstance.

High energy efficiency and widely application, Carrier CDU can reliably operate under the evaporating temperature from 4 °C to -50 °C.

Patented shock-absorption design and damping device contribute to lower noise and shake. Mounted innovative functional devices and protectors ensure the safely operation while temperature influence and necessary long piping application.

Compressor protection & alarm: high discharge temperature protection, oil pressure control, high pressure control.

### Standard Components

For all models: Compressor, Crankcase Heater, High discharge temp. protection, H/L Pressure Gauge, Oil pressure switch, H/L Pressure control, Vibration absorber(discharge line), Condenser, Fan, Receiver, Safety valve or Fusible plug, Dry filter, Sight glass, Liquid Line Shut-off Valve, Control box

For LT 1 stage: Oil separator, Solenoid valve,

For LT 2 stage: Oil separator, Solenoid valve, Subcooler, Accumulator, Vibration absorber(suction line)



Nomenclature

- C** — **Carrier CDU**  
C-Semi-hermetic Recips CDU, 50Hz  
C6-Semi-hermetic Recips CDU, 60Hz
- H** — **Refrigerant**  
H- R22  
P- R404A
- M** — **Application Range**  
P-Medium temperature system  
M-Low temperature system
- E** — **Condensing Unit Type**  
C-Outdoor type, condensation pressure control, air-cooling CDU  
E-Indoor type, air-cooling CDU  
H-High Ambient, air cooling  
S-Remote type, air-cooling CDU  
W-Water-cooling CDU
- 3** — **Compressor Model**  
3-Carlyle single stage  
7-Carlyle two stages
- 15** — **Nominal horse power**



## MT Semi-hermetic Condensing Units

### CHPE315 CHPE325 Technical data

Model		CHPE315	CHPE325	
Nominal Power (HP)		15	25	
Main Power (V-ph-Hz)		380/3/50		
Control Power (V-ph-Hz)		220/2/50		
Refrigeration		R22		
Max. Operation Current (A)		38	59	
Operation Condition	Ambient Temp.	+10 ~ +43°C		
	Evaporating Temp.	+4 ~ -18°C		
Compressor	Model	06EM450	06EM475	
	Displacement (m <sup>3</sup> /h)	70.8	106.2	
	Cylinder	4	6	
	Crankcase Heater (W)	180	180	
	Refrigeration Oil	Type	Suniso 3GS	
		Charge	9.0L	
Cooling Type		Force Cooling		
Condenser	Type	Fin coil		
	Air Follow (m <sup>3</sup> /s)	4.6	6.3	
	Fan	4	4	
	Power (W)	200×4	630×4	
Protector	H/L Pressure Control	Standard	Standard	
	Oil Pressure Control	Standard	Standard	
Accessories	Liquid Receiver (L)	28	42	
	Sight Glass	Standard	Standard	
	Dry Filter	Standard	Standard	
	Oil Separator	N/A	N/A	
	Accumulator	N/A	N/A	
Control Box	Main Electric Parts	Circuit-breaker, Contactor, Over-load relay		
	Dimension (mm)	420L×220W×600H		
Dimension	Liquid Line	7/8"	7/8"	
	Suction Line	2-1/8"	2-1/8"	
	Discharge Line	1-1/8"	1-3/8"	
	L×W×H (mm)	1580×1000×1300	1690×1200×1750	
Weight (kg)		420	560	



## CHME315 CHME320 Technical data

Model		CHME315	CHME320	
Nominal Power (HP)		15	20	
Main Power (V-ph-Hz)		380/3/50		
Control Power (V-ph-Hz)		220/2/50		
Refrigeration		R22		
Max. Operation Current (A)		38	47	
Operation Condition	Ambient Temp.	+10 ~ +43°C		
	Evaporating Temp.	-12 ~ -37°C		
Compressor	Model	06ER450	06ER475	
	Displacement (m <sup>3</sup> /h)	70.8	106.2	
	Cylinder	4	6	
	Crankcase Heater (W)	180	180	
	Refrigeration Oil	Type	Suniso 3GS	
		Charge	9.0L	
Cooling Type		Force Cooling and Liquid Injection		
Condenser	Type	Fin coil		
	Air Flow (m <sup>3</sup> /s)	3.2	4.6	
	Fan	2	4	
	Power (W)	830×2	200×4	
Protector	H/L Pressure Control	Standard	Standard	
	Oil Pressure Control	Standard	Standard	
Accessories	Liquid Receiver (L)	20	28	
	Sight Glass	Standard	Standard	
	Dry Filter	Standard	Standard	
	Oil Separator	Standard	Standard	
	Accumulator	N/A	N/A	
Control Box	Main Electric Parts	Circuit-breaker, Contactor, Over-load relay		
	Dimension (mm)	420L×220W×600H		
Dimension	Liquid Line	7/8"	7/8"	
	Suction Line	2-1/8"	2-1/8"	
	Discharge Line	1-1/8"	1-3/8"	
	L×W×H (mm)	1410×1000×850	1580×1000×1300	
Weight (kg)		380	450	



## LT 2-Stage Semi-hermetic Condensing Units

### CHME715 CHME720 Technical data

Model		CHME715	CHME720	
Nominal Power (HP)		15	20	
Main Power (V-ph-Hz)		380/3/50		
Control Power (V-ph-Hz)		220/2/50		
Refrigeration		R22		
Max. Operation Current (A)		28	43	
Operation Condition	Ambient Temp.	+10 ~ +43°C		
	Evaporating Temp.	-23 ~ -50°C		
Compressor	Model	06CC550	06CC675	
	Displacement (m <sup>3</sup> /h)	70.8	106.2	
	Cylinder	6	6	
	Crankcase Heater (W)	180	180	
	Refrigeration Oil	Type	Suniso 3GS	
		Charge	9.0L	
Cooling Type		Force Cooling and Liquid Injection		
Condenser	Type	Fin coil		
	Air Flow (m <sup>3</sup> /s)	3.2	4.6	
	Fan	2	4	
	Power (W)	830×2	200×4	
Protector	H/L Pressure Control	Standard	Standard	
	Oil Pressure Control	Standard	Standard	
Accessories	Liquid Receiver (L)	20	28	
	Sight Glass	Standard	Standard	
	Dry Filter	Standard	Standard	
	Oil Separator	Standard	Standard	
	Accumulator	Standard	Standard	
Control Box	Main Electric Parts	Circuit-breaker, Contactor, Over-load relay		
	Dimension (mm)	420L×220W×600H		
Dimension	Liquid Line	7/8"	7/8"	
	Suction Line	1-5/8"	1-5/8"	
	Discharge Line	1-3/8"	1-3/8"	
	L×W×H (mm)	1580×1250×1000	1580×1250×1300	
Weight (kg)		420	475	



# CDU Capacity Chart



## R22 Refrigerant Capacity Chart

MT Single Stage CDU (Unit: Kw)

Model	Comp.	Tc (°C)	Evaporating Temperature °C					
			4	0	-5	-10	-15	-17
CHPE315	06EM450	40	59.43	50.67	40.91	32.36	24.90	22.18
		45	55.64	47.20	37.79	29.54	22.33	19.71
		50	51.77	43.84	34.59	26.66	19.72	17.19
CHPE325	06EM475	40	88.07	74.84	60.29	47.75	37.03	33.20
		45	82.20	69.56	55.68	43.75	33.56	29.92
		50	76.31	64.28	51.08	39.76	30.12	26.68

LT Single Stage CDU (Unit: Kw)

Model	Comp.	Tc (°C)	Evaporating Temperature °C					
			-18	-20	-25	-30	-35	-37
CHME315	06ER450	40	24.98	22.62	17.28	12.55	8.18	6.47
		45	23.21	20.90	15.67	11.01	6.87	4.97
		49	21.78	19.51	14.36	9.75	5.43	3.72
CHME320	06ER475	40	35.43	32.30	25.27	19.11	13.45	11.28
		45	33.29	30.24	23.40	17.37	11.80	9.62
		49	31.57	28.59	21.88	15.95	10.44	8.28

LT Two Stage CDU (Unit: Kw)

Model	Comp.	Tc (°C)	Evaporating Temperature °C					
			-25	-30	-35	-40	-45	-50
CHME715	06CC550	40	19.92	15.54	11.59	8.44	—	—
		45	19.02	14.87	11.08	8.01	—	—
		50	18.83	14.52	10.97	7.93	—	—
CHME720	06CC675	40	26.15	21.40	16.90	13.18	10.11	7.55
		45	25.64	20.84	16.73	13.04	9.89	7.45
		50	25.38	20.63	16.58	12.90	9.89	7.38

## R404A Refrigerant Capacity Chart

MT Single Stage CDU (Unit: Kw)

Model	Comp.	Tc (°C)	Evaporating Temperature °C					
			4	0	-5	-10	-15	-17
CPPE315	06EM450	40	—	54.68	44.21	35.22	27.51	24.74
		45	—	52.12	39.86	31.60	24.51	21.95
		50	—	44.18	35.44	27.94	21.48	18.15
CPPE325	06EM475	40	99.51	84.71	68.60	54.86	43.17	38.00
		45	90.25	76.71	61.99	49.44	38.75	34.82
		50	80.91	68.65	55.34	44.00	34.32	30.84

LT Single Stage CDU (Unit: Kw)

Model	Comp.	Tc (°C)	Evaporating Temperature °C					
			-18	-20	-25	-30	-35	-40
CPME315	06ER450	40	29.62	27.09	21.29	16.21	11.78	7.84
		45	27.18	24.78	19.29	14.47	10.21	6.44
		50	24.61	22.90	17.66	13.04	8.95	5.30
CPME320	06ER475	40	43.00	39.15	30.46	23.01	16.65	11.22
		45	39.19	35.58	27.45	20.48	14.52	9.42
		50	35.25	31.90	24.35	17.88	12.33	7.57

LT Two Stage CDU (Unit: Kw)

Model	Comp.	Tc (°C)	Evaporating Temperature °C					
			-25	-30	-35	-40	-45	-50
CPME315	06CC550	40	12.71	17.53	13.38	9.93	—	—
		45	20.21	16.00	12.40	9.05	—	—
		50	20.01	15.84	12.28	8.96	—	—
CPME720	06CC675	40	32.40	27.02	21.42	16.81	13.17	10.51
		45	31.72	26.15	21.26	16.85	13.03	10.38
		50	31.40	25.89	21.05	16.50	12.89	10.28

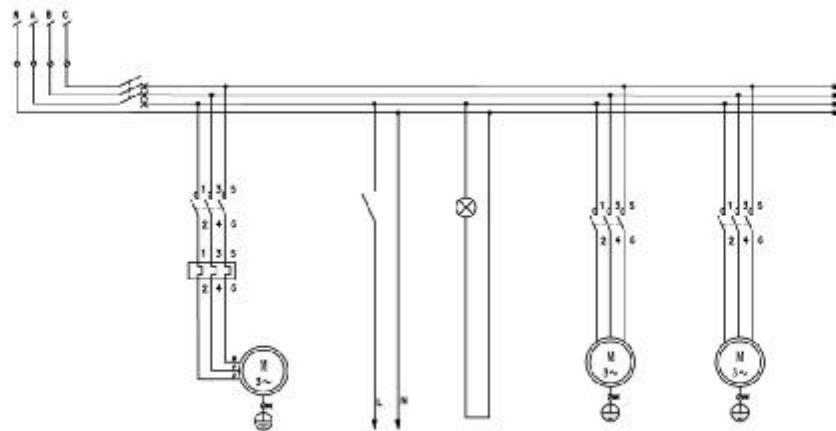
1. Main power supply is 3phase, 380V, 50Hz; Control power supply is 1phase, 220V, 50Hz
2. If main power is 60Hz, then capacity multiply 1.2



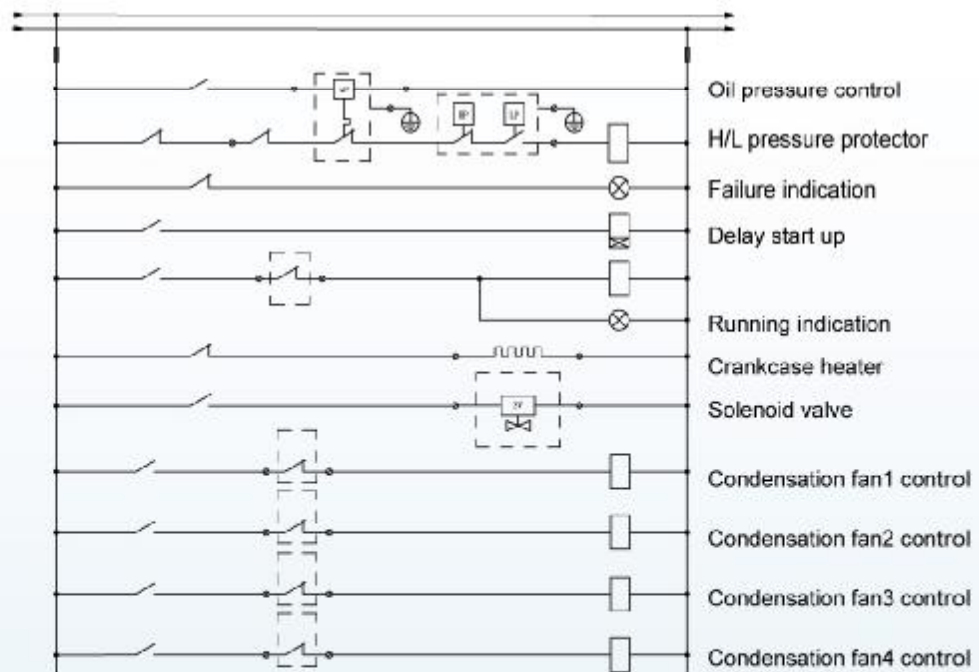
## Electrical wiring Diagram

### Standard Electric Control

- |                              |  |
|------------------------------|--|
| 1. Compressor on/off control | 2. High discharge temperature protection |
| 3. Oil pressure control      | 4. Current protection                    |
| 5. High pressure control     | 6. Low pressure control                  |
| 7. Delay start up            | 8. Run indication                        |
| 9. Failure indication        | 10. Power indication                     |



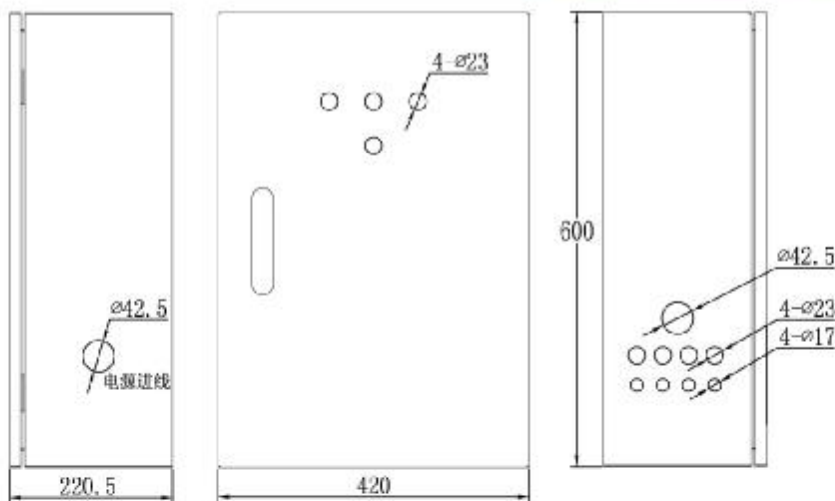
Compressor Start on switch Power indication Condensation fan 1 Condensation fan 2



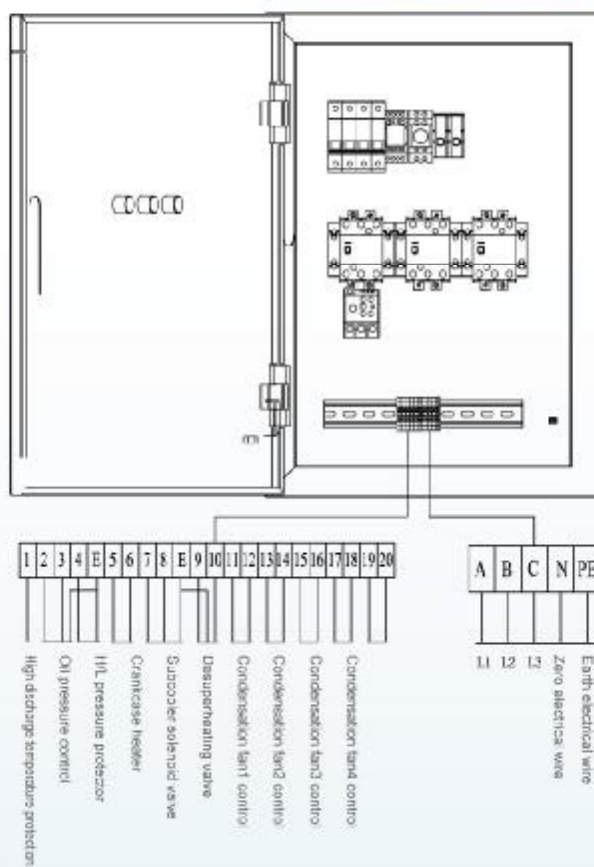
# Electrical Wiring Diagram



## Control Box

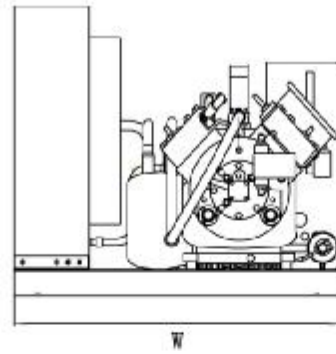
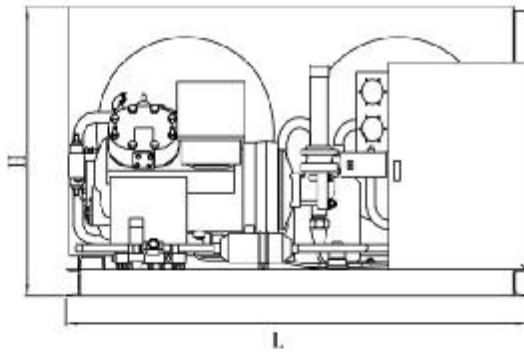


## Wiring Diagram

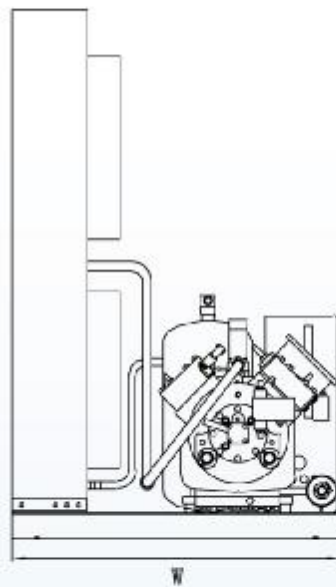
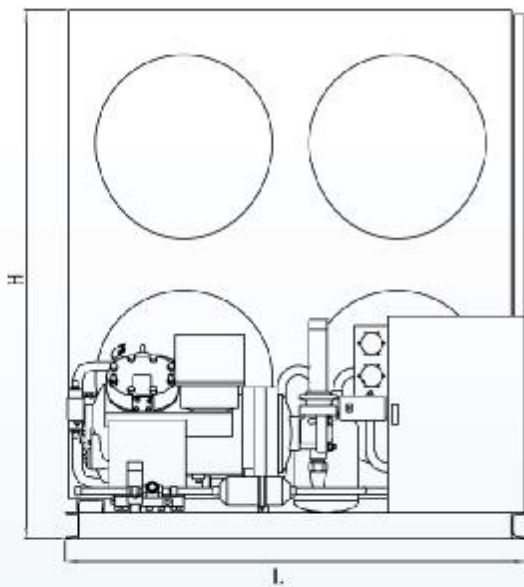




### Low Temperature - 2 Fans



### Medium Temperature - 4 Fans



## Hi-efficiency Refrigeration Systems



## Additional Offering



Technical modifications excepted.



## Global Cold Chain Experts

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### Blue Skyline Series

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