



Air Cooled Mini Chiller



Air Cooled Mini Chiller & Heat Pump Unit

Outdoor Installation

Characteristics

Structure

Chiller base and frame are made of galvanized steel protected with polyester powder painting to ensure total resistance to atmospheric agents

Compressor

Hermetic scroll type compressor, equipped with crankcase heater and thermal protection with thermal overload cut-out and crankcase heater mounted on rubber vibration isolators

Axial fan

External rotor type axial fans, equipped with single phase direct drive motors, low noise 6 poles, protection level IP54, provided with a protective outlet grille

Evaporator

High efficiency and low pressure drop stainless steel (AISI 316) water exchangers, with anti-freeze heating element (optional) and differential pressure switch, factory insulated with flexible closed cell material

Condenser

Coils are consisting of seamless copper tubes mechanically expanded into blue hydrophilic aluminum fins, 100% fully quality tested, sub cooling circuit to prevent freezing at the base (optional), protected with metal grill

Desuperheater

High efficiency stainless steel brazed plate heat exchanger, factory insulated with flexible closed cell material (optional)

Functions

Cooling C&H Heat Recovery

Refrigerant circuit

Copper tube connection with charge valve, filter, sight glass, gas-liquid separator, thermostatic expansion valve, low pressure switch with automatic reset, high pressure switch with manual reset

The heat pump unit comes with 4-way valve, liquid receiver and one way valve

Water circuit

Built with air vent valve, water drain connection, and female-threaded hydraulic connectors

Water pump (8kW-30kW), differential pressure switch

Expansion tank (8kW-30kW)

Mini Chiller

Electric panel

Consists of:

- Compressor contactor
- Compressor protection breaker
- Fan motor protection breaker
- Control circuit protection breaker
- Phase sequence relay (only for 3-phase)
- Programmable microprocessor controller

Optional

- Additional electric heater embedded in the coils for defrosting in low temperature ambient. (This must be installed in factory)
- Stainless steel covering
- Remote condenser
- Tube in tube heat exchanger
- Water circuit electric heater

Nomenclature

MC MI AW A H 10
① ② ③ ④ ⑤ ⑥

- | | | |
|--------------------|--------------------|---------|
| ① MC: McMaster | ④ Refrigerant type | ⑥ Model |
| | A: R407C | |
| ② MI: Mini Chiller | B: R410a | |
| | C: R134a | |
| ③ AW: Air to Water | ⑤ H: Heat pump | |
| AA: Air to Air | | |

Technical Data (R407c)

Model	Unit	8	10	12	16	22	25	30	35	40	50
Cooling *											
Cooling capacity	KW	8.6	11	12.6	15.3	22.8	25.7	30.8	36.3	41.5	51.3
Cooling input (without water pump)	KW	2.91	3.66	4.21	4.92	7.81	8.55	10.2	12.87	14.68	17.52
EER	/	2.96	3.01	2.99	3.11	2.92	3.01	3.02	2.82	2.83	2.93
Heating **											
Heating capacity	KW	9.5	12.1	13.8	16.3	25.2	28.1	33.5	42.5	47.5	58
Heating input (without water pump)	KW	2.91	3.66	4.21	4.92	7.81	8.55	10.2	12.87	14.68	17.52
COP	/	3.26	3.31	3.28	3.31	3.23	3.29	3.28	3.3	3.24	3.31
Hermetic compressor											
Type	/	Scroll(220V/1Ph/50Hz)				Scroll(380-415V/3Ph/50Hz)					
Quantity / circuit	/	1	1	1	1	2/2	2/2	2/2	2/2	2/2	2/2
Evaporator											
Type	/	Plate heat exchanger									
Water flow	M ³ /h	1.5	1.9	2.2	2.6	3.9	4.4	5.3	6.2	7.1	8.8
Water side pressure drop	kPa	33	33	33	36	38	39	42	50	52	52
Water connection size	mm	DN25	DN25	DN25	DN25	DN40	DN40	DN40	DN40	DN40	DN40
Circulating pump											
Power input	KW	0.4	0.4	0.4	0.35	0.75	0.75	0.92	----	----	----
Axial fans											
Quantity	Nr.	1	1	1	2	1	1	1	2	2	2
Air flow	M ³ /h	4500	4500	4500	9000	9000	9000	12580	17000	17000	22000
Overall dimension											
Length	mm	1250	1250	1250	1250	1600	1600	1600	2000	2000	2000
Width	mm	452	452	452	452	900	900	900	900	900	900
Height	mm	1180	1180	1180	1180	1080	1080	1080	1080	1080	1080
Noise level ***	dB(A)	58	58	60	64	66	66	68	70	70	70
Net weight	kg	145	145	150	190	270	290	310	360	380	465

*Ambient temperature 35°C; user side water in/out 12/7°C.

** Ambient temperature 7°C; user side water in/out 40/45°C.

*** Sound pressure measured at a distance of 1 m and a height of 1.5 m above the ground in an ideal field (fan side).

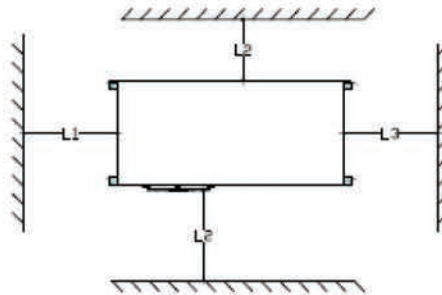
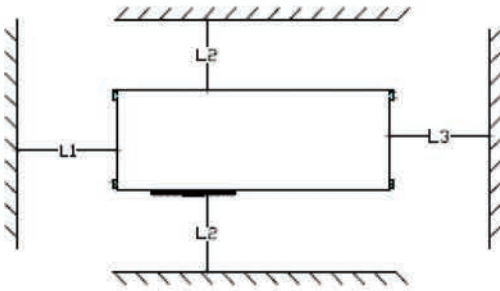
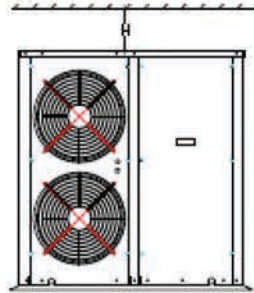
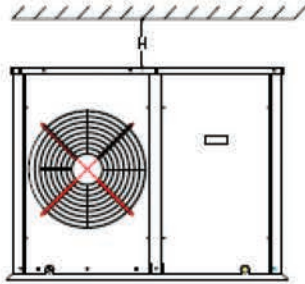
Technical Data (R410a)

Model	Unit	8	10	12	16	20	25	30	35	40	50
Cooling *											
Cooling capacity	KW	8.7	10.7	12.5	15.8	21.5	24.8	30	35.6	41	50.6
Cooling input (without water pump)	KW	3.2	4.01	4.56	5.79	8.2	9.03	9.39	13.2	15.02	18.8
EER	/	2.72	2.67	2.74	2.73	2.62	2.75	3.19	2.7	2.73	2.69
Heating **											
Heating capacity	KW	10.3	13.5	14	17.8	26.3	29	34	41.8	47.2	60
Heating input (without water pump)	KW	3.5	4.55	4.58	5.81	8.7	9.23	9.43	14.3	15.57	20.45
COP	/	2.94	2.97	3.06	3.06	3.02	3.14	3.61	2.92	3.03	2.93
Hermetic compressor											
Type	/	Scroll (220V/1Ph/50Hz)				Scroll(380-415V/3Ph/50Hz)					
Quantity / circuit	/	1	1	1	1	2/2	2/2	2/2	2/2	2/2	2/2
Evaporator											
Type	/	Plate heat exchanger									
Water flow	M ³ /h	1.5	1.8	2.1	2.7	3.7	4.3	5.2	6.1	7.1	8.7
Water side pressure drop	kPa	33	33	33	36	38	39	42	50	52	52
Water connection size	mm	DN25	DN25	DN25	DN25	DN40	DN40	DN40	DN40	DN40	DN40
Circulating pump											
Power input	KW	0.4	0.4	0.35	0.35	0.75	0.75	0.92	----	----	----
Axial fans											
Quantity	Nr.	1	1	1	2	1	1	1	2	2	2
Air flow	M ³ /h	4500	4500	4500	9000	9000	9000	12580	17000	17000	22000
Overall dimension											
Length	mm	1250	1250	1250	1250	1600	1600	1600	2000	2000	2000
Width	mm	452	452	452	452	900	900	900	900	900	900
Height	mm	1180	1180	1180	1180	1080	1080	1080	1080	1080	1080
Noise level ***	dB(A)	58	58	60	64	66	66	68	70	70	70
Net weight	kg	145	145	150	190	270	290	310	360	380	465

Mini Chiller

Installation space

To guarantee the proper functioning of the unit and access for maintenance purposes, it's necessary to comply with the minimum installation clearance requirements (refer to the dimensional drawings below).

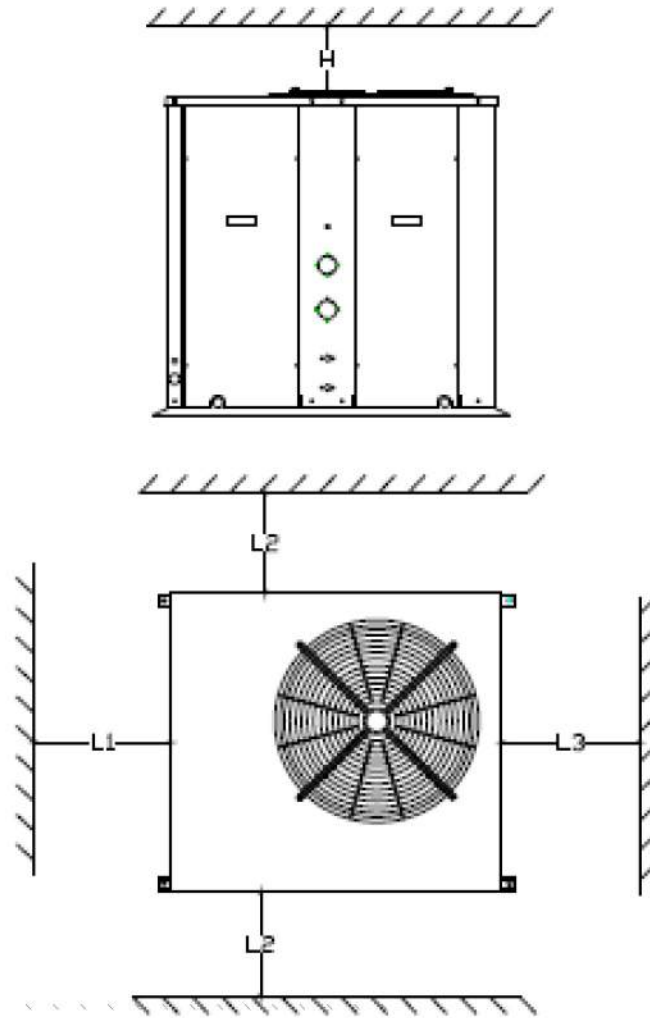


Model 08/10

Model 12/14/16

Model	08	10	12	14	16
H	500	500	500	500	500
L1	1000	1000	1000	1000	1000
L2	1000	1000	1000	1000	1000
L3	1000	1000	1000	1000	1000
L4	1500	1500	1500	1500	1500

Mini Chiller



Mod22/25/30/35/40/50

Model	22	25	30	35	40	50
H	1500	1500	1500	1500	1500	1500
L1	1000	1000	1000	1000	1000	1000
L2	1000	1000	1000	1000	1000	1000
L3	1000	1000	1000	1000	1000	1000
L4	1000	1000	1000	1000	1000	1000

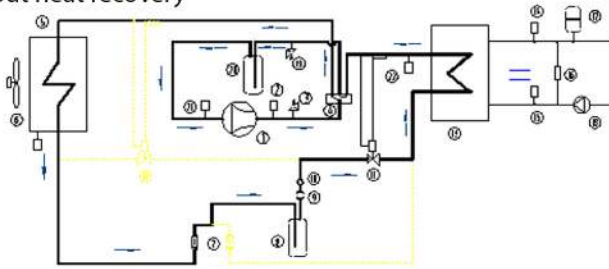


Verify no obstacle in front of the air outlet of the fans

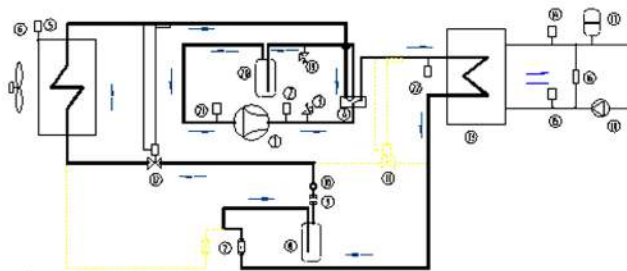
Mini Chiller

Refrigerant Circuit Diagram

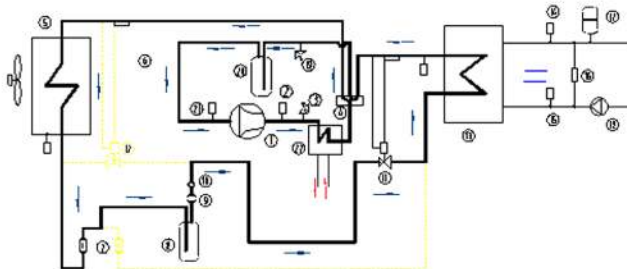
Cooling mode without heat recovery



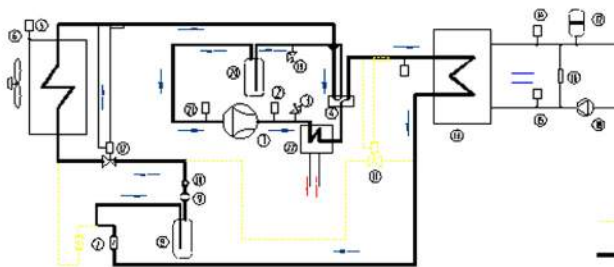
Heating mode without heat recovery



Cooling mode with heat recovery



Heating mode with heat recovery



— Is not used in the circuits
 — Indicates the refrigerant circuit

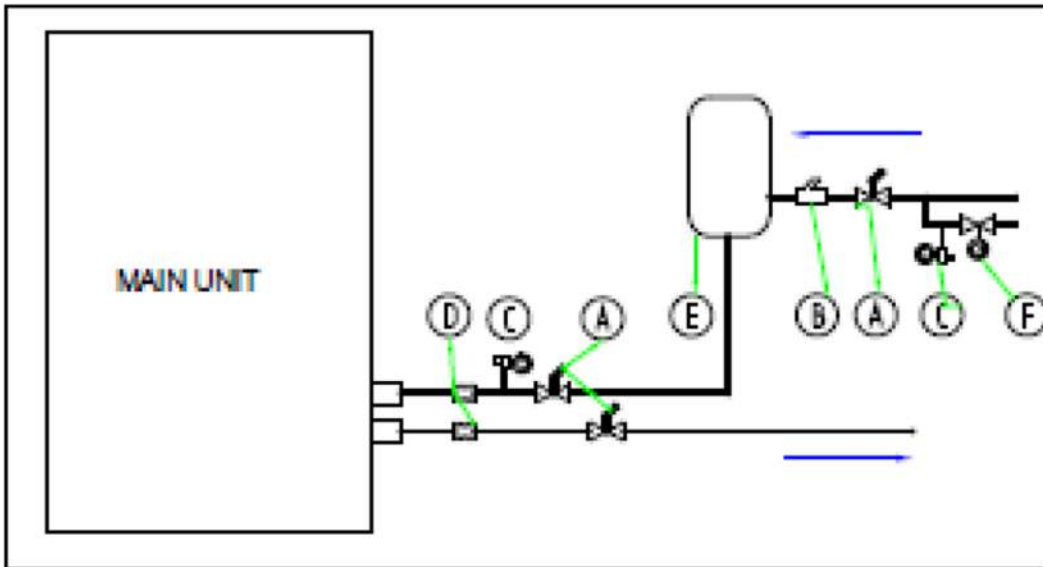
1	Compressor	12	Thermostatic expansion valve
2	High pressure switch	13	Load side exchanger
3	Service valve	14	Load side water out temp. sensor
4	4 way valve	15	Load side water in temp. sensor
5	Source side exchanger	16	Differential pressure switch
6	Source side water out temp. sensor	17	Expansion tank
7	One way valve	18	Circulating pump
8	Liquid reservoir	19	Service valve
9	Dry filter	20	Gas liquid separator
10	Sight glass	21	Low pressure switch
11	Thermostatic expansion valve	22	Heat recovery exchanger

Mini Chiller

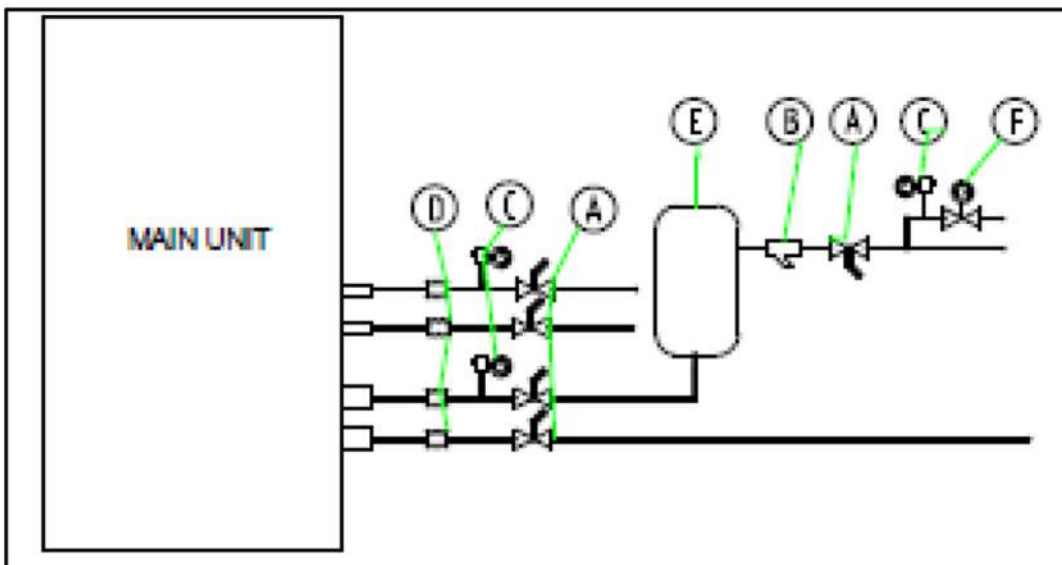
Water circuit connections

Water circuit diagram

Hydraulic circuit without hear recovery



Hydraulic circuit with hear recovery



A	Shut off valve
B	Filter
C	Pressure gauge
D	Flexible connector
E	Buffer tank
F	Automatic filling valve