G.I. INDUSTRIAL ASIA HOLDING

MODULAR

MODULAR SOLUTION

Aircooled liquid Chillers
with Scroll compressors

R410A

EUROVENT CERTIFIED PERFORMANCE
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CE

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CLINT® INTERNATIONAL

THE MODULAR SOLUTION FOR MEDIUM-SIZE INSTALLATIONS

The **MODULAR** aircooled liquid Chillers range, designed for medium sized areas in commercial and service buildings, includes a list of base modules that can be combined together to build big capacity systems.
The modules feature axial fans, single or double cooling circuit with Scroll compressors, shell and tube or plate exchanger and R410A refrigerant.
They are characterized by a dedicated layout of the unit itself and its internal components to allow the modular combination.
A wide range of models is available on **cooling only** version or on **reversible heat pump** version for both cooling and heating.
The range is available with 400V power supply and 50 Hz frequency.

Scroll Compressors

R410A

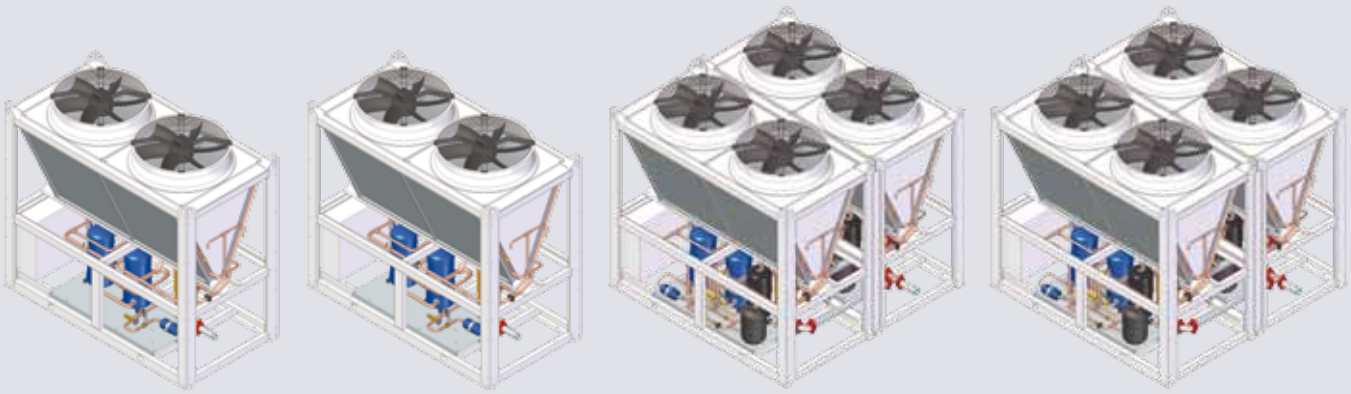
R410A Refrigerant

THE MODULES

The range is composed of 4 basic modules of 18.5 - 25.5 - 37- 51 TON each that can be freely combined together to build higher capacity systems, up to 416 TON*. The units feature a dedicated design optimised for their modular combination: V design condensing coils, front electric panel and back piping.

Modular

* Up to 16 single circuit units. Up to 8 double circuit units.



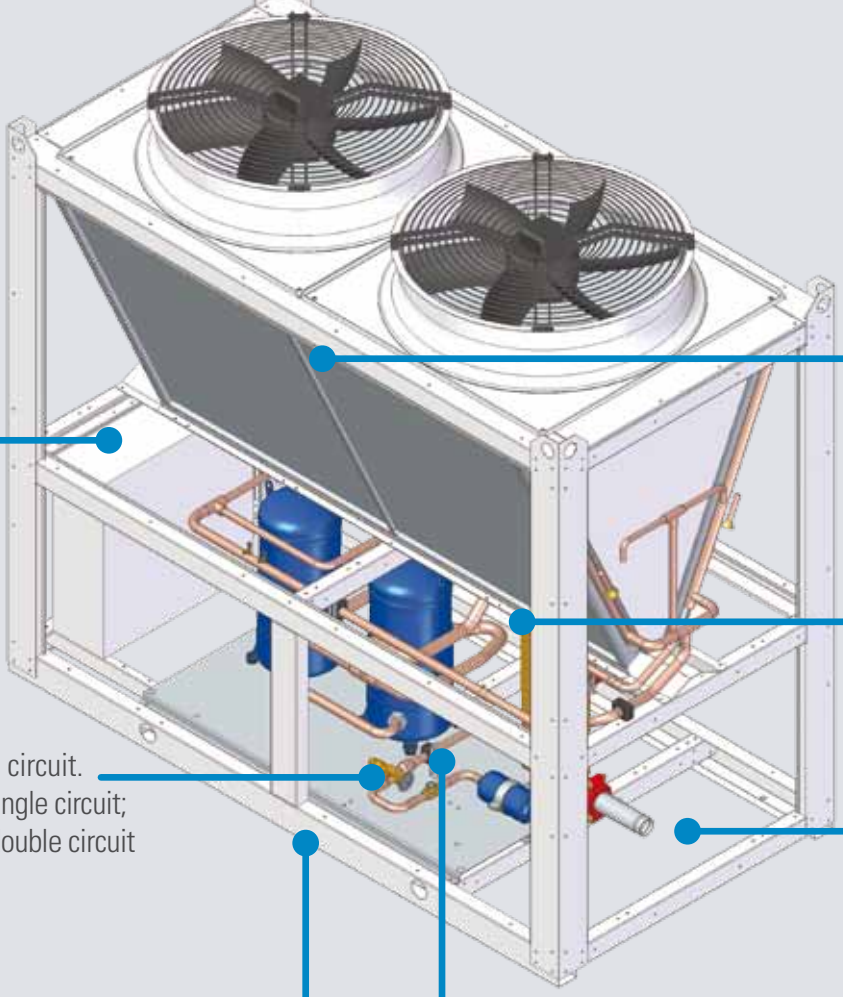
Modules with shell and tube exchanger:

18.4 TON	25.4 TON	36.8 TON	50.8 TON
64.8 kW	89.4 kW	130 kW	179 kW

Modules with plate exchanger:

18.6 TON	25.6 TON	37.2 TON	51.2 TON
65.3 kW	90.1 kW	131 kW	180 kW

KEY FEATURES



EXAMPLES OF MODULAR COMBINATION

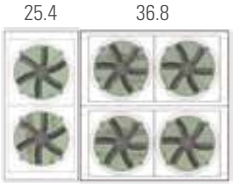
The modules can be installed in series to build higher capacity systems:
- up to 16 single circuit units
- up to 8 double circuit units

Example of modules pairing:

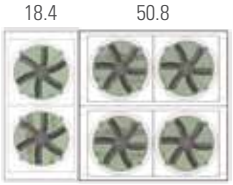
Examples of combination:

TOTAL POWER: 43.8 TON

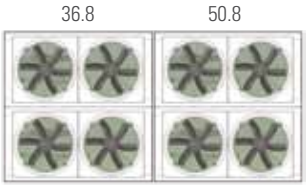
TOTAL POWER: 50.8 TON



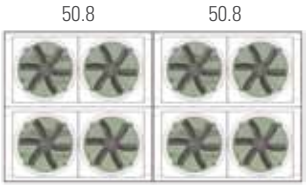
TOTAL POWER: 62.2 TON



TOTAL POWER: 69.2 TON

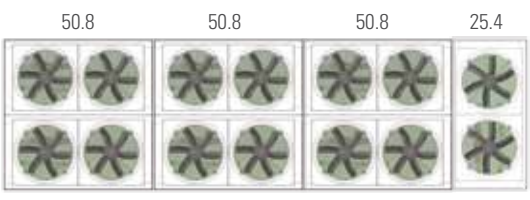


TOTAL POWER: 87.6 TON

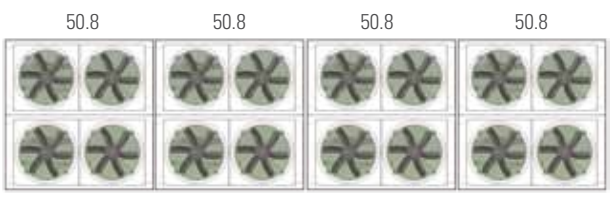


TOTAL POWER: 101.6 TON

TOTAL POWER: 120.0 TON



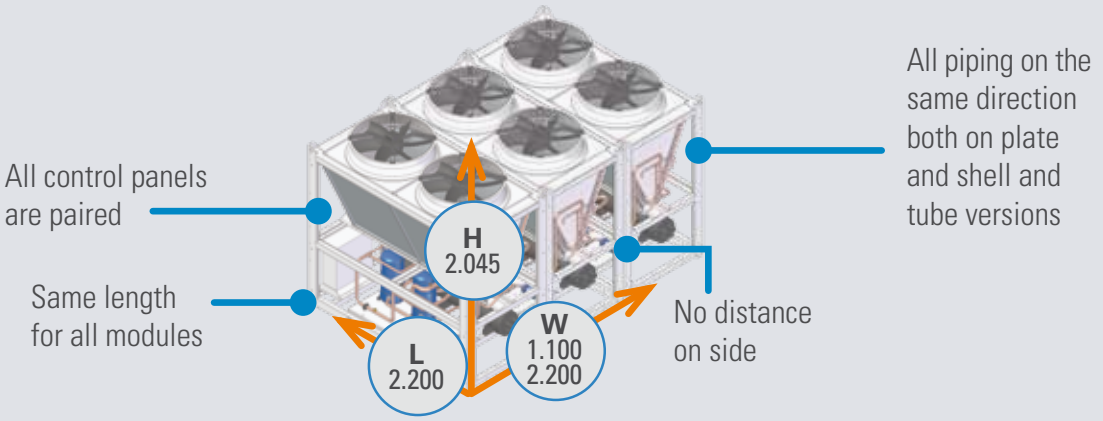
TOTAL POWER: 177.8 TON



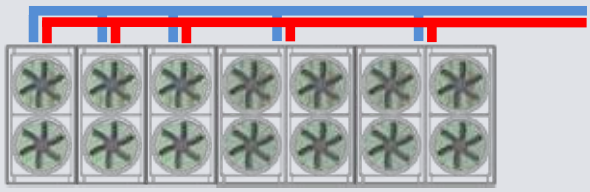
TOTAL POWER: 203.2 TON

COMPACTNESS

All modules have been designed for layout optimisation. The same lenght and same position of piping and control panel allow to obtain the most compact overall footprint and the easiest installation design.



Side connections: easy installation procedures



FLEXIBILITY

Multi-modules combinations can be built with any design and layout. The systems can be **expanded afterwards** just adding more modules.

ENERGY SAVING AND SAFETY

With Master-Slave control logic, the functioning at part load is managed through activation of some units only at a time:

- **Lower energy consumption:** lower absorbed current.
- **Longer lifetime:** less working hours for each unit when part load is required.
- **Backup:** in case of unit failure, the others work as backup.

WIDE OPERATING RANGE

Ambient air temperature in cooling from +10 °C to +46 °C; in heating from -10 °C to +20 °C.
Water temperature in cooling from +5 °C to +15 °C; in heating from +26 °C to +50 °C.

MASTER-SLAVE CONTROL LOGIC

Each module features an **on-board electronic control.** A remote control panel is available as accessory.
The multi-modules systems can be managed through the **master-slave network logic:** one unit acts as MASTER and becomes the centralized control, the other units as SLAVE and follow the functioning of master unit.
Up to 15 slaves units can be connected to the master unit, through ModBus RTU over RS485.

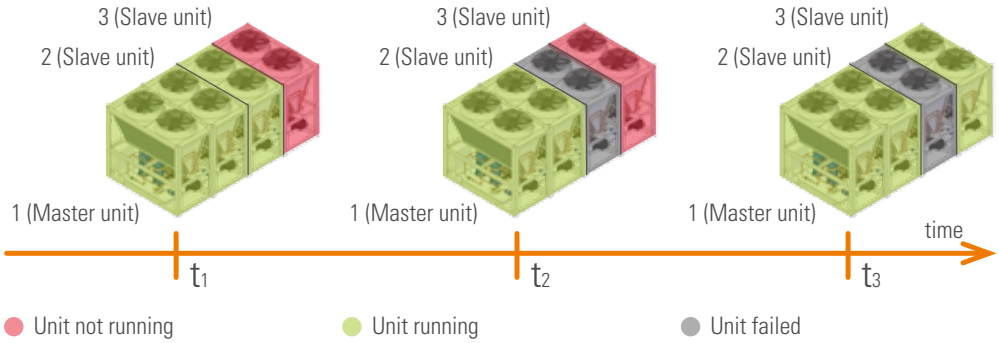
The network connection ensures:

- **Full safety: backup operation.** In case of failure of a unit, the others keep running to balance the load. In case of failure of Master units, a Slave unit can be set as new Master.
- **Balanced operation:** the Master unit manages the balance of operation time of single units.
- **Uninterrupted heating in winter season:** the defrosting time of single units is managed in order to keep the overall system always running.

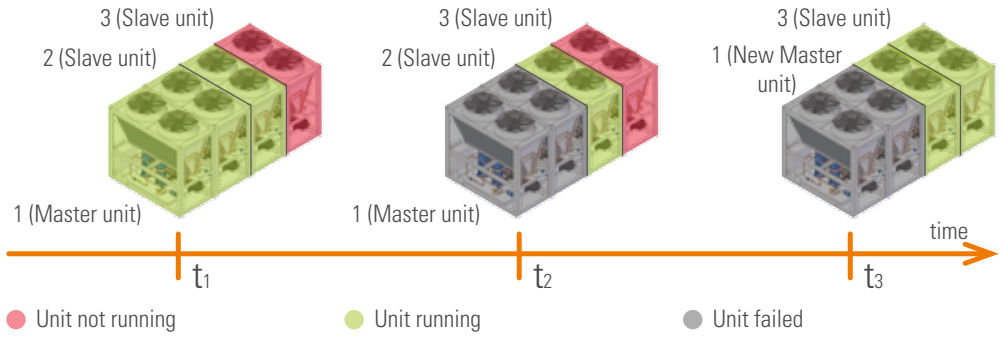
Master-slave network:

Backup operation

Failure of Slave units: if a Slave unit fails, a second Slave unit will start up.

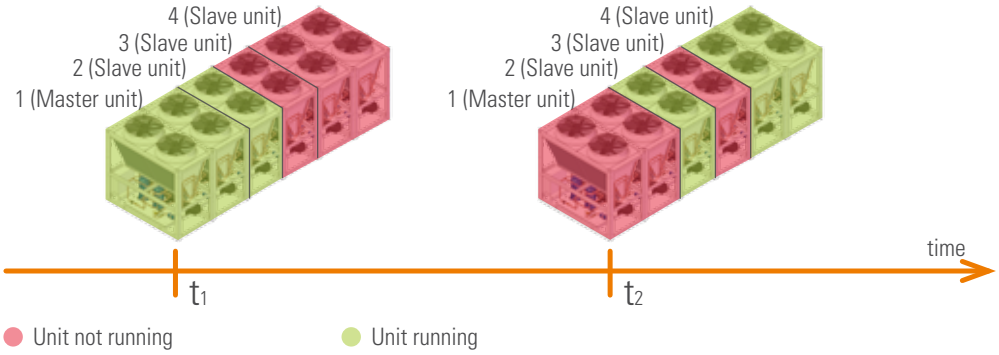


Failure of Master unit: if the Master unit fails, a Slave unit can be set as Master.



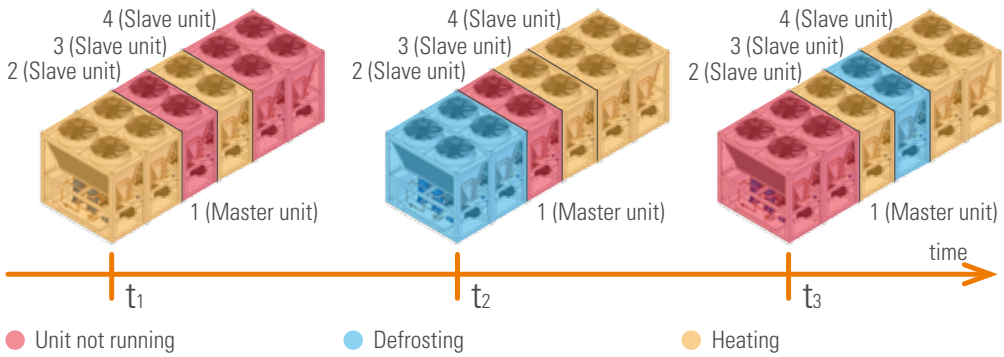
Balanced operation

The operation time is always checked by Master unit and automatically balanced among all units.



Uninterrupted heating in winter season

The number of defrosting modules is automatically set by Master unit, that manages the units operation in order to avoid that all modules are in defrosting mode at the same time.



THE RANGE

The range is composed of 4 basic modules with Scroll compressors and plate exchanger and 4 basic modules with Scroll compressors and shell and tube exchanger.
All modules are available on cooling only version or on reversible heat pump version for both cooling and heating.

Model	Versions		MODULAR
CHA-M/MK 252-P÷684-P	Cooling only Reversible Heat Pump		
CHA-M/MK 252÷684	Cooling only Reversible Heat Pump		

Scroll Compressors *Axial Fans* *Plate Exchanger* *Shell and Tube Exchanger*

CHA-M/MK 252-P÷684-P

Modular aircooled liquid Chillers and Heat Pumps with axial fans, Scroll compressors and plate exchanger.

Scroll Compressors *Axial Fans* *Plate Exchanger*

CHA-M/MK 252-P÷684-P			252-P	342-P	504-P	684-P
Cooling	Cooling capacity (1)	TON	18.6	25.6	37.2	51.2
		kW	65.3	90.1	131	180
	Absorbed power (1)	kW	22.2	30.3	44.4	60.6
Cooling (EN14511)	Cooling capacity (1)	TON	18.5	25.5	37.0	51.0
		kW	64.9	89.6	130	179
	Absorbed power (1)	kW	22.6	30.8	45.2	61.6
	EER (1)		2.87	2.91	2.87	2.91
Heating	Heating capacity (2)	TON	20.9	28.4	41.8	56.8
		kW	73.4	100	147	200
	Absorbed power (2)	kW	24.2	31.8	48.4	63.6
Heating (EN14511)	Heating capacity (2)	TON	21.0	28.7	42.0	57.4
		kW	24.8	32.7	49.6	65.4
	Absorbed power (2)	kW	24.8	32.7	49.6	65.4
	COP		2.98	3.08	2.98	3.08
Compressors		n°	2	2	4	4
Cooling circuits		n°	1	1	2	2
Capacity steps		n°	2	2	4	4
Sound pressure (3)		dB(A)	60	60	62	62

DIMENSIONS		252-P	342-P	504-P	684-P
L	mm	2200	2200	2200	2200
W	mm	1100	1100	2200	2200
H	mm	2045	2045	2045	2045

CLEARANCE AREA (mm)

Electrical board side

NOTES

1. Chilled water from 12 to 7 °C, ambient air temperature 35 °C.
2. Heated water from 40 to 45 °C, ambient air temperature 7 °C d.b./6 °C w.b.
3. Sound pressure level measured in free field conditions at 1 m from the unit. According to ISO 3744.

CHA-M/MK 252÷684

Modular aircooled liquid Chillers and Heat Pumps with axial fans, Scroll compressors and shell and tube exchanger.

Scroll Compressors *Axial Fans* *Shell and Tube Exchanger*

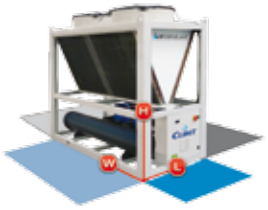
CHA-M/MK 252÷684			252	342	504	684
Cooling	Cooling capacity (1)	TON	18.4	25.4	36.8	50.8
		kW	64.8	89.4	130	179
	Absorbed power (1)	kW	22.1	30.1	44.2	60.2
Cooling (EN14511)	Cooling capacity (1)	TON	18.3	25.3	36.6	50.6
		kW	64.5	89.0	129	178
	Absorbed power (1)	kW	22.4	30.5	44.8	61.0
	EER (1)		2.87	2.91	2.87	2.91
Heating	Heating capacity (2)	TON	20.7	28.2	41.4	56.4
		kW	72.8	99.2	146	198
	Absorbed power (2)	kW	24.1	31.6	48.2	63.2
Heating (EN14511)	Heating capacity (2)	TON	20.8	28.3	41.6	56.6
		kW	73.1	99.7	146	199
	Absorbed power (2)	kW	24.5	32.3	49.0	64.6
	COP		2.98	3.09	2.98	3.09
Compressors		n°	2	2	4	4
Cooling circuits		n°	1	1	2	2
Capacity steps		n°	2	2	4	4
Sound pressure (3)		dB(A)	60	60	62	62

DIMENSIONS		252-P	342-P	504-P	684-P
L	mm	2200	2200	2200	2200
W	mm	1100	1100	2200	2200
H	mm	2045	2045	2045	2045

CLEARANCE AREA (mm)

800	0	800	0

Electrical board side



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