

8 MAJOR PRODUCT STRENGTHS

TCL Eagle Series Air-cooled Modular Chiller

The air-cooled modular chiller is a central air conditioning unit with air as the cooling/heating source and water as the heat transfer medium. It can be combined with fan coil, air handling unit and other terminals to form a central air conditioning system.

TCL Eagle series are equipped with quality components of famous brands and can be intelligently controlled. They have multiple advantages such as high efficiency, energy saving, stability, reliability, comfort, aesthetics, and flexible application. They are widely applied to large business premises, such as office buildings, guesthouses, hotels, malls, and theaters.

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|---|---|
|  Low-noise operation of high-efficiency stable motor |  V-structure high-efficiency heat exchanger |
|  Precision temperature control, constant comfort |  Stable operation -15°C-48°C wide-field operation |
|  Intelligent defrosting technology
Defrosting when there is frost.
Normal heating when there is none |  Intelligent rotating technology
Longer service life of the whole machine |
|  Available to realize the free combination of 16 modules |  Multi-protection function
Assurance of the system's operating safety |



Excellent Components

Excellent Components and Quality Assurance

■ Fully Enclosed Flexible Scroll Compressor

Fully enclosed flexible scroll compressor is adopted. The contact- wear- free vortex design reduces the compressor's internal friction, realizes a higher compression ratio and strong power, and improves the unit's reliability and operating efficiency.

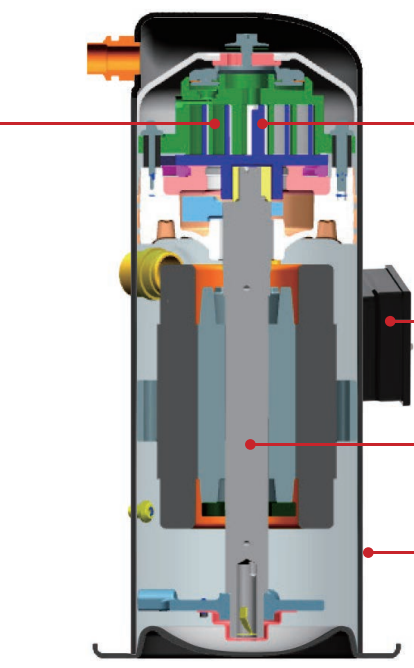
High Efficiency and Low Consumption

Suction cooling motor is adopted, realizing higher efficiency and longer service life of the compressor and greater motor efficiency.

Bidirectional flexible vortex design, increasing anti-surge capability, reducing the compressor's internal friction, and improving efficiency

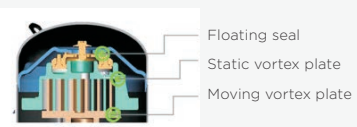
Low Noise and Low Vibration

High-strength cross slip ring design, with small return liquid vibration, increasing reliability and reducing noises.



Safe and Reliable

The exhaust check valve prevents gas from backflowing into the LP side.



Advanced operation fault diagnosis module.

Environment-friendly lead-free polymer bearing is adopted, meeting reliable operation under severe conditions.

The fully enclosed shell design is free of the risks of liquid leakage like oil leakage and is maintenance-free

■ Ultra-Wide Operating Range

Energy saving motor

An energy-saving motor is adopted. Through the optimized design of the motor coil, the loss is effectively reduced, and the operating efficiency is improved, making the motor generate less heat, consume less power, and have a long operating life.



Large diameter fan

Through CFD optimization design, more air in the unit can exchange heat with the heat exchanger to ensure the condensing temperature. The optimized wind wheel matches the optimal operating speed of the motor, resulting in lower noise.



■ High Efficiency Heat Exchanger

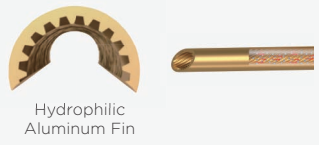
The air - side heat exchanger of the unit adopts a unique V shaped structure, which conforms to the characteristics of air flow distribution and has a large maintenance space. Among them, the heat exchanger is composed of hydrophilic aluminum foil high - efficiency fins and large - diameter inner - threaded copper tubes, and is fixed by a reinforced metal frame around, which greatly improves the heat transfer efficiency, enhances the corrosion resistance and oxidation resistance of the heat exchanger, and makes the defrosting and drainage more smooth.



V-shaped heat exchanger

Internal Thread Tube

Its inner surface is designed with grooves, which increases the inner wall heat transfer area and the contact area with the refrigerant, resulting in better heat transfer performance and thermal conductivity.



Hydrophilic Aluminum Fin

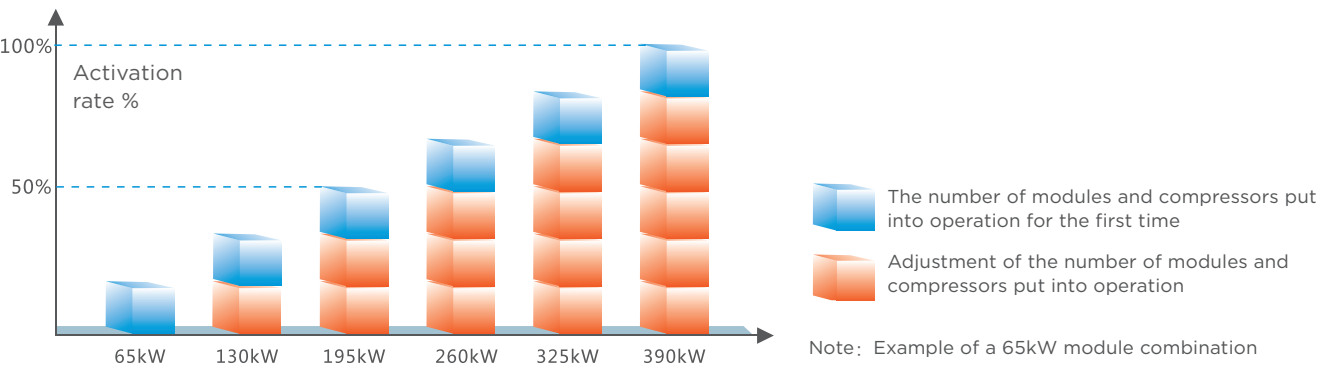
The fins have stronger hydrophilicity. Condensate water will quickly spread on the hydrophilic aluminum foil and will not condense into water droplets, improving the heat transfer efficiency. The heat exchanger has better corrosion resistance and wear resistance, and its service life is extended.



■ Ultra-Wide Operating Range

The step - by - step energy regulation technology is adopted to control the number of compressors turned on in the modules within the control system and in the unit modules, so as to output energy according to actual needs.

When starting up, the number of compressors required to operate is automatically calculated according to the actual load demand, and they are started one by one and quickly reach the proper state, avoiding the drawback of all - at - once startup of ordinary heat pump units, which saves energy and electricity.



■ High Energy Efficiency Ratio, Preferable For Energy Saving

High-efficiency environment-friendly R410A refrigerant is adopted, realizing green and environment-friendly performance. The composition and structure do not change easily, realizing high safety and 0 damage factor to the ozone layer (ODP).

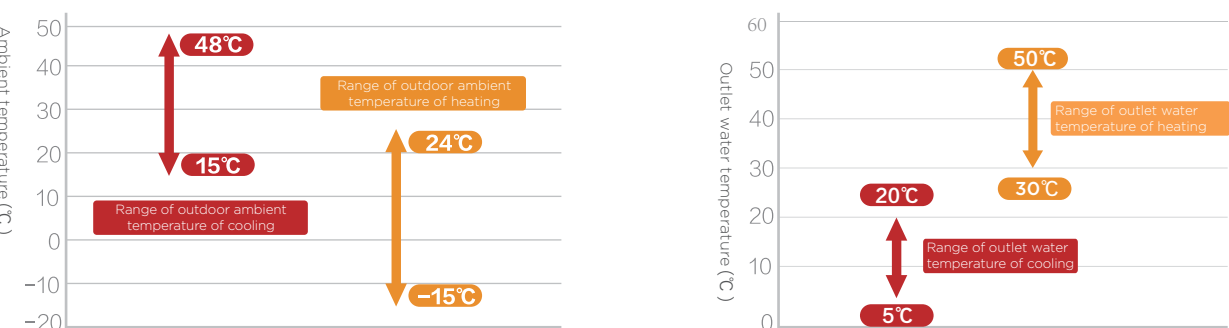


Stable Operation

Stable Operation and Carefree

■ Ultra-Wide Operating Range

The unit has an ultra- wide operating range and can operate stably when the outdoor temperature is -15-48°C. The maximum heating outlet water temperature is 50°C. The minimum cooling outlet water temperature is 5°C.

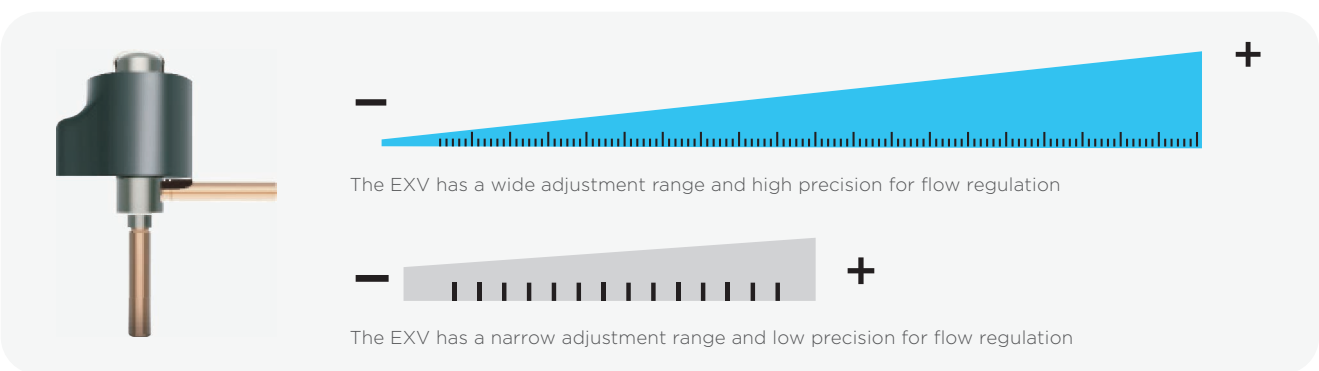


■ Multiple Protection Technologies Ensure The Safe and Stable Operation of The Unit

- | | | | |
|--|--------------------------------|--------------------------------------|--|
| Compressor High and Low Pressure Protection | Fan Overload Protection | Frequent Start-stop Protection | Power Supply Reverse (phase - loss) Protection |
| Compressor Overload Protection | Water Pump Overload Protection | Water Flow Switch Protection | Winter Water System Anti - freezing Protection |
| Compressor Discharge High Temperature Protection | Temperature Sensor Protection | Unit Over-heat Prevention Protection | Unit Refrigeration Anti - freezing Protection |

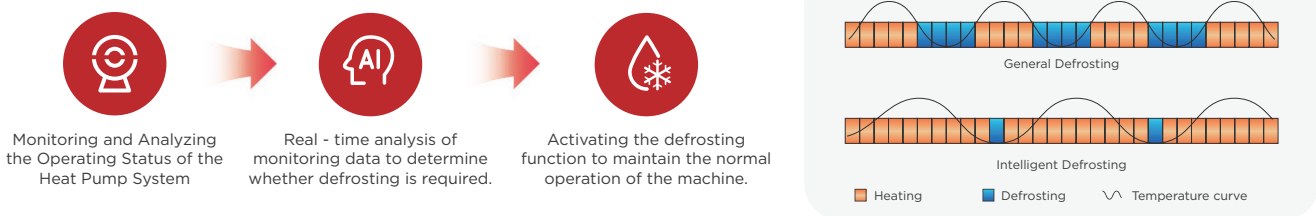
■ High Precision Electronic Expansion Valve

It adopts the 500 - step electronic expansion valve throttling technology, which can flexibly adjust the opening of the electronic expansion valve according to various operation modes and temperature conditions. This allows for more precise control and makes the system operation safer and more reliable. Compared with systems using ordinary thermal expansion valves for throttling, it has a wider adjustment range, a faster response speed to changes, and higher adjustment accuracy. Especially in the low - temperature mode, the system performance is more outstanding.



■ Intelligent Defrosting Technology, Reducing Thermal Decay

Air - cooled heat pump modular units are prone to frosting under low - temperature and high - humidity environmental conditions. TCL Eagle series Air-cooled modular chillers can accurately determine the defrosting time based on the main parameters of heating operation and load changes. They defrost when there is frost and perform normal heating when there is no frost. Moreover, they can carry out forced manual defrosting according to the actual situation, effectively ensuring users' heating demands. Monitoring and Analyzing the Operating Status of the Heat Pump System



■ Modular Design with Free Capacity Expansion

Using a modular design, each modular unit can operate independently and serve as a backup for others. If any modular unit malfunctions, it will not affect the normal operation of other units.

It includes two basic modules of 65KW and 130KW. The capacity can be freely expanded, allowing up to 16 modular units to be connected in parallel to form combined products with capacities ranging from 65KW to 2080KW, easily meeting various needs and providing more freedom in design and installation.



■ Modular Rotation Operation Technology

The unit can alternate and set the priority startup module unit based on the system load to balance the running time of each module unit, greatly improving the reliability and service life of the unit.



■ Modular Backup Operation Technology

The unit's unique backup operation technology adopts a single - module multi - system design, making different modules in the same system backup each other. In an emergency, even if one or more compressors or modular units malfunction, the system can still operate normally.



Intelligent Control

Intelligent Operation and Network Optimized Control

Smart Mainboard

It has multiple functions such as product operation control and safety protection. With a high degree of integration, all control programs of the system can be realized by the built - in control system of the main unit, further reducing the failure rate of system operation, lowering maintenance costs as well as the overall project cost. The core high - speed processing system can quickly obtain the operating parameters of the main unit, perform rapid calculation and processing to achieve intelligent control of the unit.

Through the intelligent system to automatically control the machine, users only need to set the temperature according to environmental needs, and the unit will automatically operate and control all day long according to the set temperature, saving time, effort and worry.

Microcomputer Control

Self - developed programs ensure a more stable system.

Ensuring Smooth Compressor Start - up

It can reduce the starting current of the unit the impact on the power grid.

Intelligent Automatic Control

One key start, allowing users to freely set the temperature, timer for on/off, and requiring no dedicated personnel for management.

Intelligent Zoned Defrosting

Equipped with variable - frequency technology, it defrosts when there is frost and performs normal heating when there is no frost, enhancing the operating capacity. Command Deployment

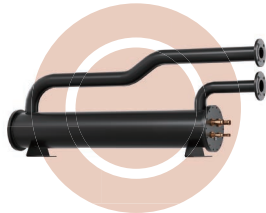
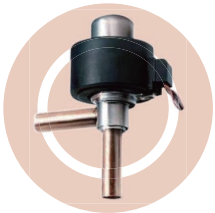
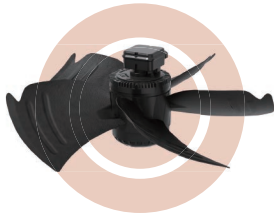


Command Deployment

After components receive instructions, they start to operate.

Multi - functional Protection

It has various protection functions such as under - voltage, over - voltage, over - current, and over - temperature protection to ensure the efficient and reliable operation of the system.



Intelligent Control: Convenient and Safe

Intelligent Protection System

It has various protection functions such as under - voltage, over - voltage, over - current, and over - temperature protection to ensure the efficient and reliable operation of the system.



Intelligent Self - judgment

Self - diagnosis technology automatically determines the operating status of the unit and displays operating faults automatically, making user operation and maintenance simpler.



Intelligent Detection

Password unlocking function, user - level power - on unlocking, effectively supervising the unit installation.



Centralized Control

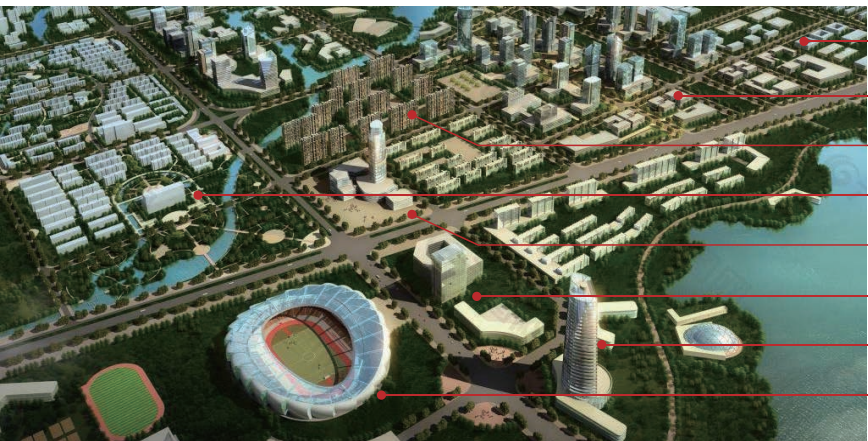
Multiple units can be centrally controlled, and remote monitoring can also be carried out via a PC. New - type Wired Controller The new - type wired controller has a simple, stylish and beautiful interface, integrating well with indoor decoration.



Intelligent Control

Choose and Match Freely

Modular Alternate Operation Technology

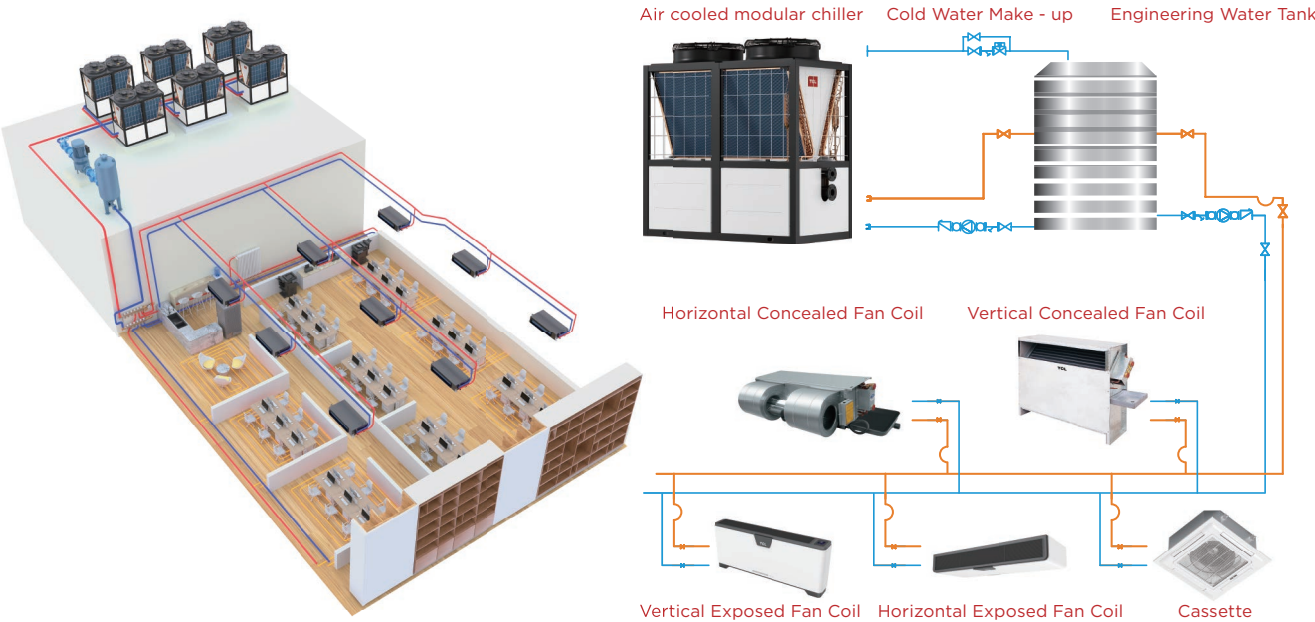


- Factories
- Self - built Buildings
- Residential Buildings
- Hotels
- Commercial Centers
- Schools
- Government Agencies
- Sports Squares

Centralized Cooling and Heating Solutions

It is a central air - conditioning unit that uses air as the cold and heat source and water as the heat transfer medium. The unit can be combined with various terminals such as fan coils, floor heating systems, and radiators to achieve cooling in summer and heating in winter.

The TCL Eagle series air - cooled modular units include 65KW and 130KW models, and up to 16 units can be connected in parallel to provide comfortable cooling and heating for commercial buildings, leisure clubs, hotels, etc.



■ Unit Parameters



Model			LSRFM65/BN1	LSRFM130/BN1
Power supply		V/Ph/Hz	380-415/3/50	380-415/3/50
Refrigerant	Type	/	R410A	R410A
	Charge	kg	12.0	11.5×2
Heating (A7W45)	Capacity	kW	70.00	140.00
	Rated input	kW	19.50	40.00
	COP	W/W	3.59	3.50
Cooling (A35W7)	Capacity	kW	65.00	130.00
	Rated input	kW	19.90	39.70
	EER	W/W	3.27	3.27
Operation Range	Cooling	°C	15-48	15-48
	Heating	°C	-15-24	-15-24
Water Temperature Range	Cooling	°C	5-25	5-25
	Heating	°C	35-50	35-50
Maximum input power		W	29.9	60.0
Maximum input current		A	60.0	120.0
Compressor	Type	/	Scroll	Scroll
	Control	/	On-off	On-off
	Quantity	/	1	2
Fan	Type	/	Axial	Axial
	Quantity	/	2	2
Condenser	Type	/	Finned tube	Finned tube
	Fin color	/	Blue	Blue
Water side heat exchanger	Types		Shell and tube	Shell and tube
	Water flow rate (Cooling)	m³/h	11.18	22.36
	Water flow rate (Heating)	m³/h	12.04	24.08
	Water drop	Kpa	30	40
Piping connections		/	DN65	DN65
Throttle type		/	EEV	EEV
Dimensions	Net (W×D×H)	mm	2150×1035×2100	2200×1145×2210
	Packing (W×D×H)	mm	2170×1050×2230	2220×1160×2340
Weight	Net	kg	570	880
	Gross	kg	600	930
Noise		dB(A)	65	69

■ Unit Parameters

