



创意感动生活
The Creative Life



TCL CAC PRESENTATION

2016.08





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Contents



CAC Development Process

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TCL

TCL set up the Commercial Air-conditioner Center.

TCL launched digital scroll VRF system



TCL launch TMV X VRF system

TMV X



1999

2002.10

2004.05

2006.01

2006-2014

2015~

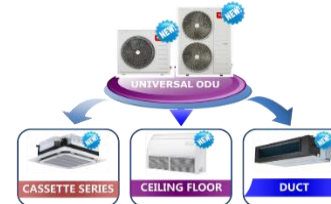
TCL A/C (ZhongShan) Limited company established



TCL launched DC inverter VRFIII system



TCL invested 200 million RMB to renew LCAC, VRF and control system.



TMV S

TMV S, Concept Design



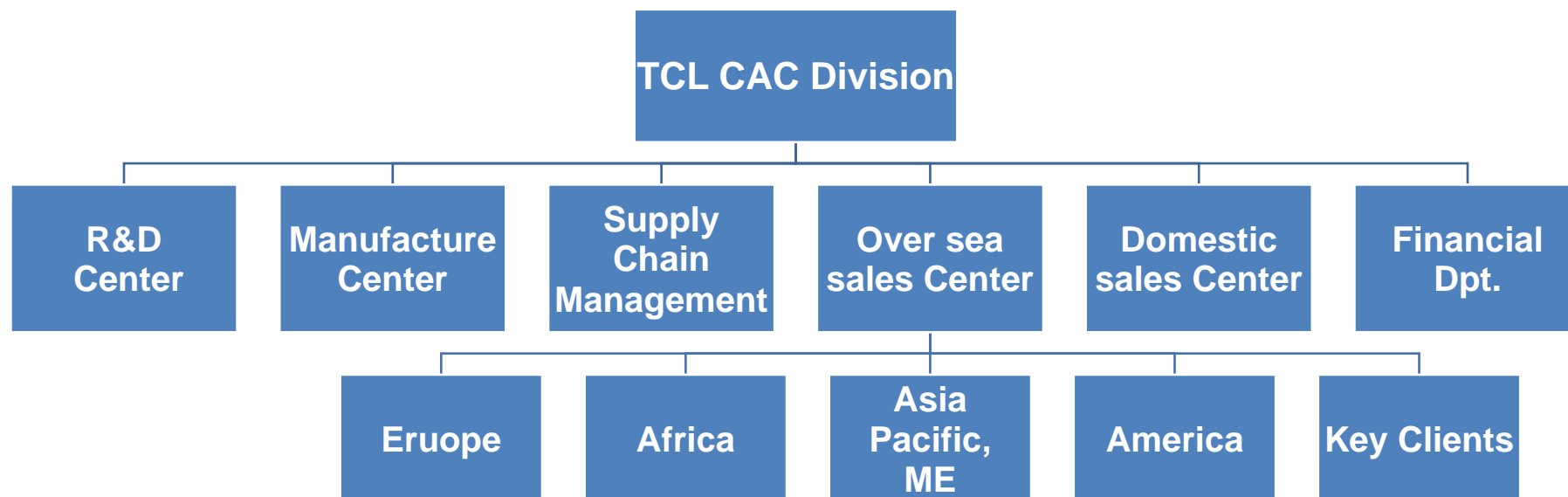
TCL CAC Prospect:

- To be a technology-driven CAC company;
- To be a customer-satisfaction, employee-proud, Chinese top-ranking and world-famous CAC Company;
- Win-win cooperation!

CAC Organization Chart

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TCL CAC R&D Team



- More than 100 engineers for products developing
- Japanese and Korean senior engineers
- Domestic superior technologist
- Joint R&D with famous university

TCL CAC R&D Lab



enthalpy potential lab



heat balance lab



EMC



electrical lab



high & low temp. test



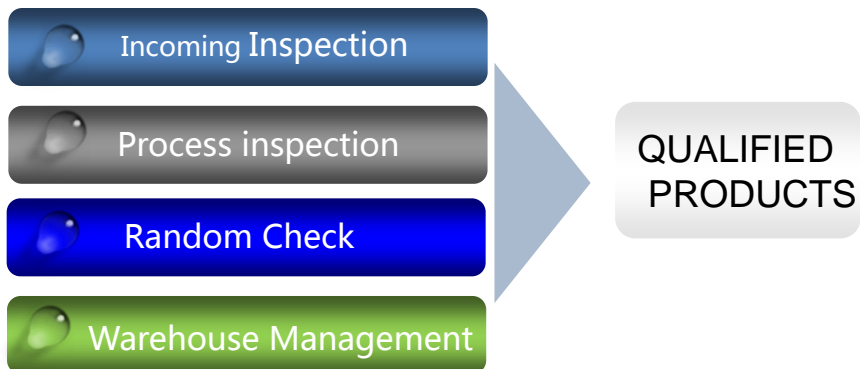
safety test



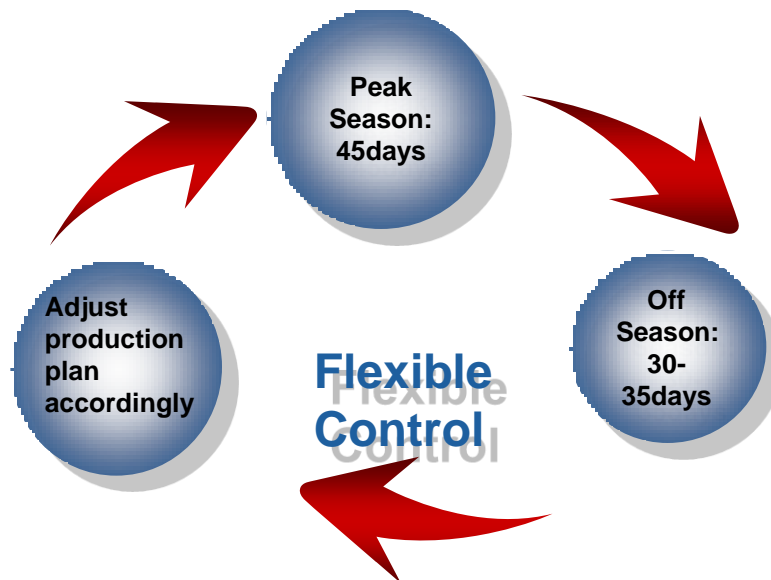
dynamic balancing test

- Enthalpy potential laboratories conditions laboratory
- Noise level testing laboratories
- EMC&EMI testing laboratory
- Long-term running lab
- Safety lab

◆ Quality Control



◆ Delivery Service



◆ Certification



◆ Global Partnership



etc.

Reference	Project description	Total amount
Beijing Bird' s nest stadium (Ticket center)	Ticket center of Bird' s nest Stadium	2,000,000
Shanghai's expo Logistic center	Shanghai's expo Logistic center, including office and warehouse, covering 45000m2	4,250,000
Beijing-Shanghai high-speed railway Kunshan Station	High-speed railway Kunshan station, cover 20000m2	5,000,000
Beijing Dacheng International Center	Business building in Beijing CBD, cover 300,000m2	36,60,000





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CAC Product Range

Light Commercial AC



Multi and VRF



Chillers and Fan Coils



TCL commercial A/C product rode map

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Current Range

Target market



On/Off, R22, C/O & H/P
18K, 24K (220-240V, 50Hz, 1ph)
36K, 48K, 60K (380-415V, 50Hz, 3ph)

South East Asia,
Africa,
Latin America,



On/Off, R410A, C/O & H/P
18K, 24K (220-240V, 50Hz, 1ph)
36K, 48K, 60K (380-415V, 50Hz, 3ph)

Eastern Europe,
South East Asia,
Latin America
(CB, CE)



DC Inverter, R410A, H/P
18K, 24K (220-240V, 50Hz, 1ph)
36K, 48K, 60K (380-415V, 50Hz, 3ph)

East Europe
South Africa
(CB, CE)

Unitary (T1 condition)
Light Commercial AC

Current Range

Target market



Cassette, On/Off, R410A, H/P
18K, 24K, 36K, (220-240V, 50Hz, 1ph)
48K, 55K (380-415V, 50Hz, 3ph)

ME, Africa,
Western Asia
(CB)



MESP Duct, On/Off, R410A, H/P
18K, 24K, 36K, (220-240V, 50Hz, 1ph)
48K, 55K (380-415V, 50Hz, 3ph)

ME, Africa,
Western Asia
(CB)



Cassette, On/Off, R410A, H/P
(T3, High efficiency)
18K, 24K, 36K, 48K, 55K
(230V, 60Hz, 1ph)

ME, Africa,
Western Asia
(CB, SASO)



HESP, On/Off, R410A, H/P
(T3, High efficiency)
18K, 24K, 36K, 48K, 55K
(230V, 60Hz, 1ph)

ME, Africa,
Western Asia
(CB, SASO)

Current Range

Target market



Ceiling Floor, On/Off, R410A, C/O
24K, 36K, 48K, 60K
(220-230V, 60Hz, 1ph)
(220-230V, 60Hz, 3ph)

Latin America
(EER2.7,
EER2.8 Optional)



60K (380-415V, 60Hz, 3ph)

Developing

Target market



AHU, On/Off, R410A, C/O & H/P
AHU, DC Inverter, R410A, H/P
SEER 14, 16, 18 (Optional)
(208-230V, 60Hz, 1ph)

North America
(AHRI, ETL)

TOP Discharge ODU
Light Commercial AC

Current Range

Target market



Big Floor Standing, On/Off,
(T1, R22, C/O & H/P)
(T3, R410A, C/O & H/P)
90K (380-415V, 50Hz, 3ph)

South East Asia,
Africa,
ME, Western Asia

Developing

Target market



10HP HESP Duct, On/Off, R410A
(T1/T3, C/O & H/P)
90K (380-415V, 50Hz, 3ph)

South East Asia,
Africa,
ME, Western Asia

Light Commercial AC

Big Split Commercial

Developing

Target market



PTAC, On/Off, R410A,
C/O & H/P, With electric heater,
7K, 9K, 12K, 15K (208-230V, 60Hz, 1ph)

North America

PTAC, On/Off, R410A,
C/O & H/P, With electric heater,
7K, 9K, 12K, (265V, 60Hz, 1ph)



Packaged Rooftops, T3, R410A, C/O
7.5, 8.5, 10Tons,
12.5, 15, 17.5, 20, 25Ton,
(380-415V, 60Hz, 3ph)

ME
Africa

Current Range

Target market



DC Inverter, R410A, H/P,
Outdoor-1 drive 2/3/4/5
14K, 18K, 21K, 28K, 36K,

Wall-mounted: 7K, 9K, 12K, 18K
Cassette: 12K, 18K
Duct: 9K, 12K, 18K
Ceiling & Floor: 18K
(220-240V, 50Hz, 1ph)

Europe
(CE)

Developing

Target market



DC Inverter, R410A, H/P
High efficiency, SCOP>4.0
Outdoor-1 drive 2/3/4/5
14K, 18K, 21K, 28K, 36K, 42K, 48K

Wall-mounted: 7K, 9K, 12K, 18K
Cassette: 12K, 18K
LESP Duct: 9K, 12K, 18K
Ceiling & Floor: 12K, 18K
(220-240V, 50Hz, 1ph)

Europe
(CE, LVD, EMC)

* IDU is universal design with split and light commercial range.

Free Match

Current Range

Target market



Mini VRF System, DC Inverter, R410A
Outdoor: 12, 14, 16KW

Asia Pacifica,
Africa,
Latin America



VRF System, DC Inverter, R410A (380-415V, 50Hz, 3ph)
Outdoor: 8, 10, 12, 14, 16, 18HP, Max 72HP Combination
Intelligent control system: wired control, Central control system;

Asia Pacifica,
Africa,
Latin America

IDU range:

Wall-mounted, Cassette, Ceiling & Floor, LESP Duct, MESP Duct, HESP Duct;

Mini VRF&VRF

Current Range

Target market

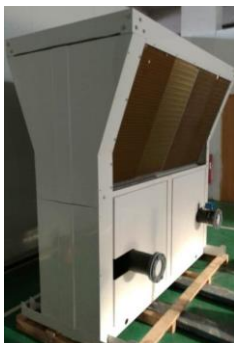


Modular Air cooled Chiller,
R410A, H/P
Capacity: 65, 100, 130KW
(380-415V, 50Hz, 3ph)

South East Asia,
Western Asia,
Africa,
East Europe

Developing

Target market



Modular Air cooled Chiller,
R410A, H/P
Capacity: 65, 100, 130KW
(380-415V, 50Hz, 3ph)

South East Asia,
Western Asia,
Africa,
East Europe

Modular Chiller
Air Cooled Scroll

Current Range

Target market



Water Cooled Screw Chiller
HFC134a, C/O & H/P
Capacity: 440-2744KW
(380-415V, 50Hz, 3ph)

Southeast Asia



Water Cooled Falling Film
Screw Chiller
High efficiency, EER>6.0

HFC134a, C/O & H/P
Capacity: 440-2744KW
(380-415V, 50Hz, 3ph)

Southeast Asia

Water Cooled Screw
Cooled Water Chiller

Current Range

Target market



Ceiling Concealed Duct,
2rolls, 3rolls,
220-230V, 50Hz, 1ph
Range: 300~2000CFM

Southeast Asia



Cassette,
220-230V, 50Hz, 1ph
Range: 600~1500CFM

Southeast Asia



Concealed standing, or Exposed standing
220-230V, 50Hz, 1ph
Range: 250~900CFM

Southeast Asia

Light Commercial A/C

Suitable for Project:

- Shopping center
- Conference Room
- Restaurant



Product features

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Cassette

New designed Panel

A

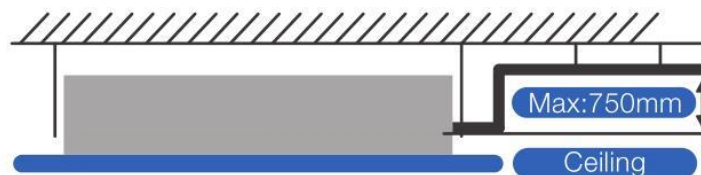
New design which is more suitable for room decoration.



Build-in Drainage Pump

B

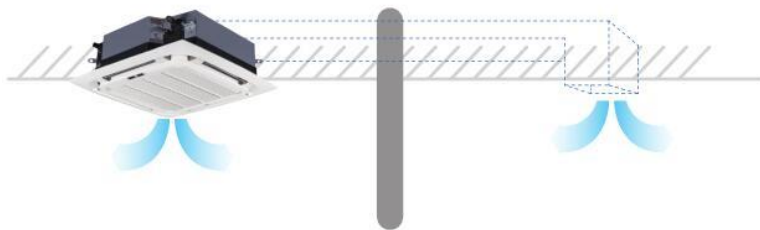
The condensing water can be lifted up to 750mm, which is convenient for installation.



Outlet Air Branch Opening

C

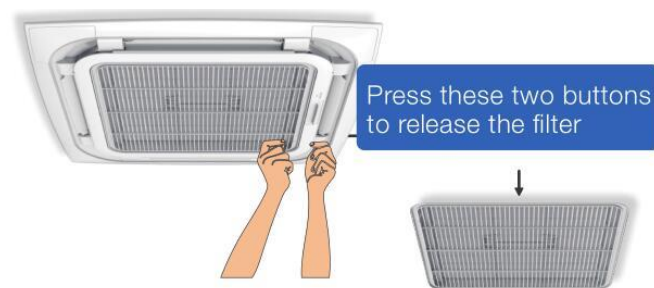
It can distribute air to small space like study room, when needed.



Easy-clean Filter

D

Filters can be removed easily for cleaning and maintenance.



Product features

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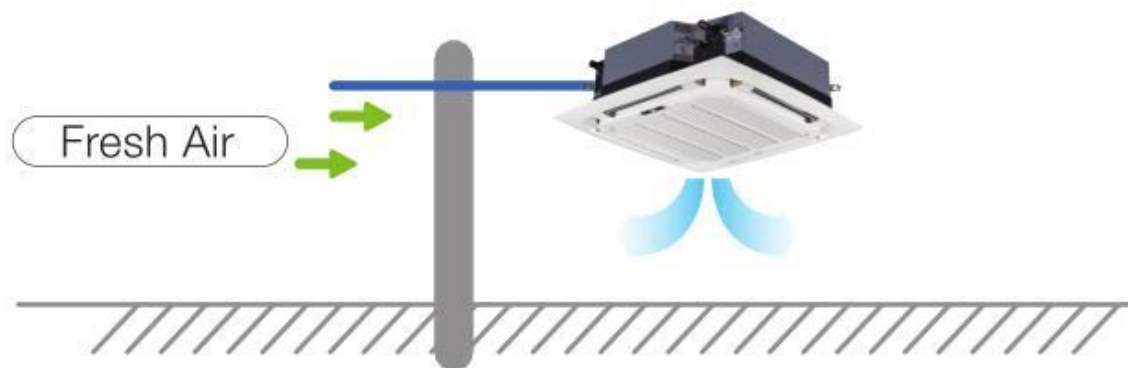
TCL

Cassette

Fresh Air Inlet

E

Fresh air is brought in to increase room air quality to be more comfortable and healthy.



3D Indoor Fan

F

Quiet operation by using optimized 3D indoor fan.



3D spiral fan blade

Diffuser

Wire Control (optional)

G

Wire control is available, especially for hotel rooms, offices, etc.



Product features

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Ceiling & Floor

LED Display

A

Fashionable design with clear LED display of temperature and error codes.



Ultra-thin Design

B

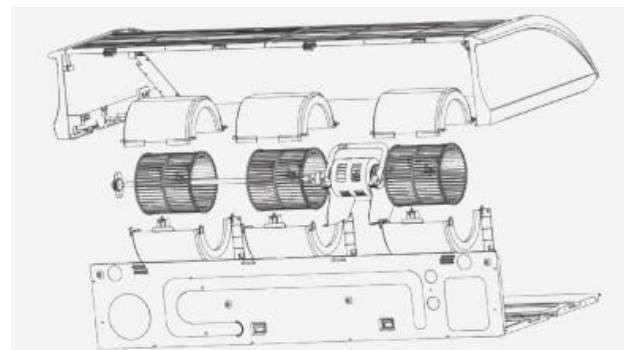
Compact design which fits for various room styles.



Detachable Plastic Blowers

C

Universal designed parts and assemblies applied, which is easy for maintenance.



Product features

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The Creative Life

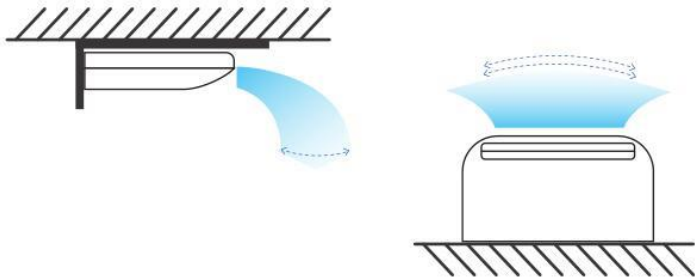
TCL

Ceiling & Floor

Wide Range of Air Flow

D

Air is supplied in a wider angle with cross-direction swing.



Dual Direction of Drainage

F

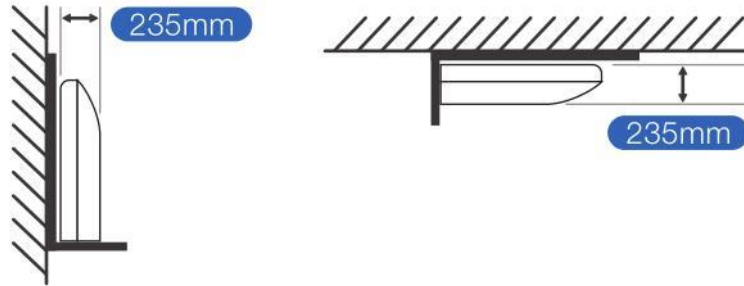
Condensing water can be drained either from left or from right.



Flexible Installation

E

Two ways of installation available, either ceiling suspended or floor standing.



Wire Control (optional)

G

Wire control is available, especially for hotel rooms , offices, etc.



Product features

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Duct

Ultra Slim Design

A

The min. height is 200mm, which saves the space of installation (for LESP Duct only).



Optimized 'V' Type Evaporator

B

'V' type design of evaporator increases the area of heat exchanging, and thus, increases its efficiency.



Super slim type only

Dual Direction of Water Drainage

C

The condensing water can be drained either from the left or right.

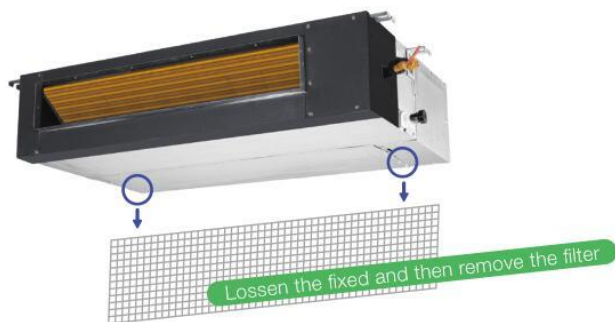


Duct

Easy Maintenance

D

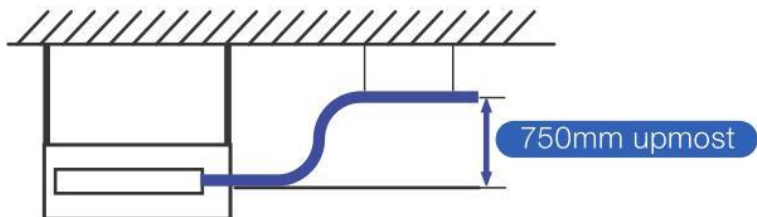
Filters can be easily removed for cleaning.



Built-in Drain Pump (optional)

F

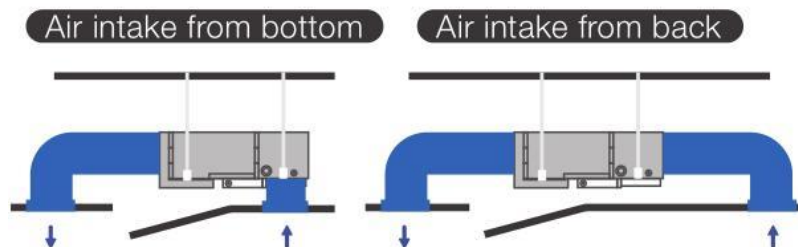
The drainage pump can lift the condensing water up to 750mm.



Flexible Air Intake

E

It is optional to have air inlet from back or bottom with the same size of plate, which will be very flexible and convenient for installation.



New Air Outlet grill (Slim duct only)

G

Adjustable grill is optional to supply air in various directions.



Product features

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Universal outdoor

Universal Outdoor Design **A**

- The same ODU can match Cassette, C/F, Duct with same capacity
- Reducing stock and after-sales costs



High-efficient Outdoor Fan **B**

Advanced 3D propeller can enlarge the air volume and reduce the noise level.



Bionic Fan

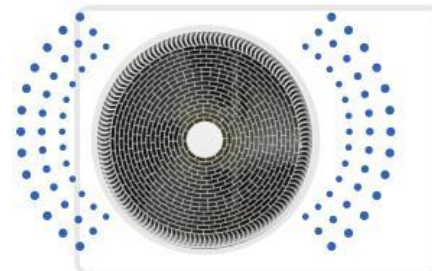
Antirust and Long Lift Span **C**

The outdoor unit is made from galvanized sheet, and treated with special cataphoric crafts.



Optimized Air-outlet Grill **D**

- Optimized air flow increases the air volume, thus,
- Increases the efficiency of heating exchange;



Product features

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Top Discharge ODU

Universal design

A

Universal design of spare parts, which is convenient for stocks and maintenance.



Multiple protection

C

Safety procedures include exhausted temperature, high pressure protection, low pressure protection, etc.



24V Communication Connection

B

The voltage required for communication connection is as low as 24V, which is much safer and convenient, especially in operation and maintenance.



24V
Communication Connection



Anti-Rust

D

Specially design of metal grille to protect against rust.

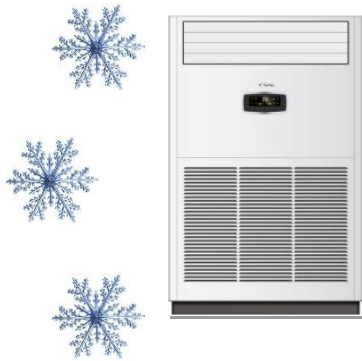


Big Floor Standing

Strong Cooling & Heating

A

Strong Cooling



Strong Heating



Air Supply

B

The large air outlet and air volume make the unit supply extra-long distance air.



Free Match Multi

Suitable for Project

-Office

- Apartment

-Small villa



Product features

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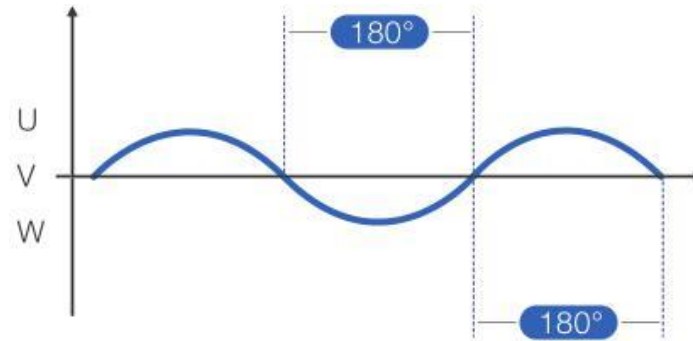
Free Match Multi

180°Sine Wave DC Drive Technique

A



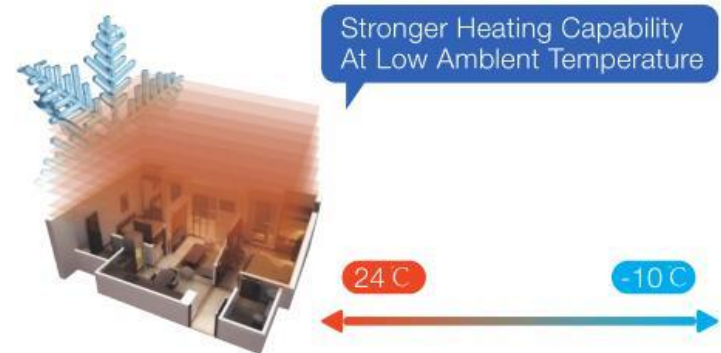
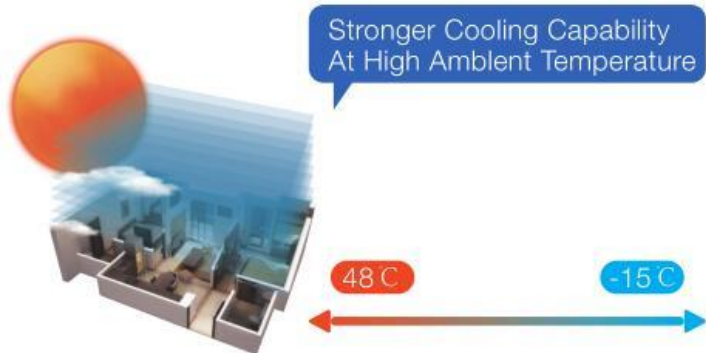
It enables compressor to operate smoothly with efficiency dramatically increased.
At the same time ,both harmonic current and electromagnetic noise are suppressed.



Wide Operating Range

B

Outdoor Unit Heating: -10~24°C, cooling:15~48°C.



Product features

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Free Match Multi

Electronic Expansion Valve

C

Outdoor unit uses EEV, which has the function of optimizing the distribution of refrigerant to all the working indoor unit.



The Control Technique For Oil Recycles

E

Micro-Computer can automatically analyze the position where oil may stay. Through adjusting the speed of compressor and electronic-expansion valve, the flow speed of refrigerant is controlled and oil is recycled to the compressor, and thus, ensure compressor to run steadily.

Twin Rotary DC Inverter Compressor

D

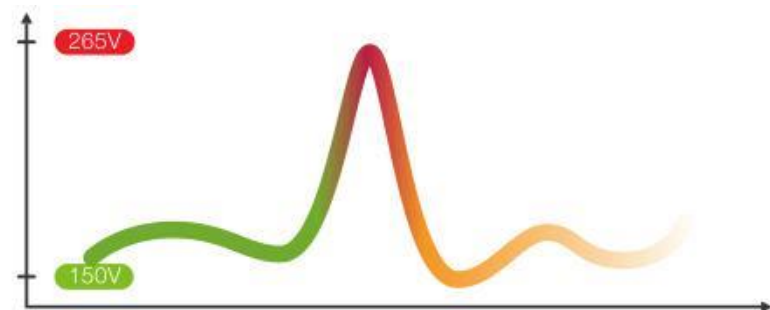
The twin rotary inverter compressor design reduces friction during operation. Its rotation is smoother with less vibration, while also preventing leakage of refrigerant gas during compression.



Wide Power Voltage Operation

F

The units can fit wide voltage range from 150V~265V.



VRF



**Mini
VRF ODU**



**Modular
VRF ODU**

Suitable for Project

- Shopping center
- Office building
- Hospital
- Theater
- Stadium
- Museum
- Airport

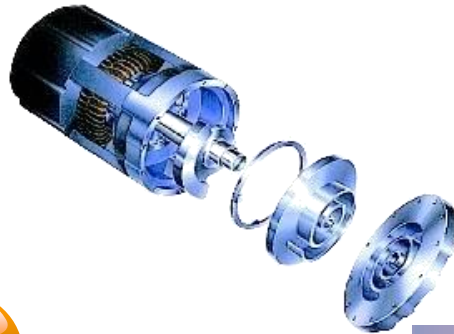


VRF TMV-X

Full DC Inverter High Pressure Chamber Scroll Compressor

A

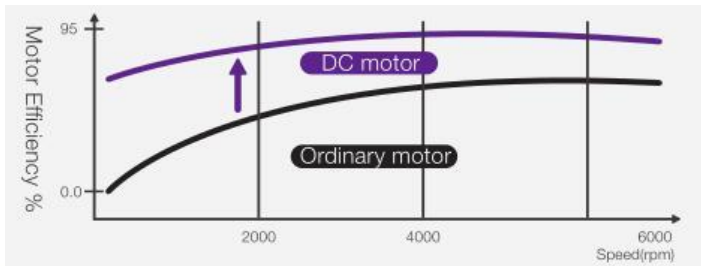
TCL full DC inverter compressor is built-in with brushless reluctance DC compressor control, DC fan motor, and upgraded heat exchanger, which is more efficient and energy-saving.



Efficient DC Motor

B

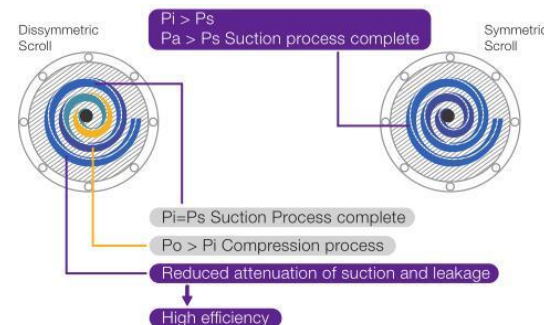
Through the DC inverter motor, in the 30-70Hz frequency range of the longest running time, the performance of inverter compressor significantly increases to achieve higher torque and efficiency.



Dissymmetric Scroll Technology

C

Dissymmetric scroll technology efficiently decrease conventional leakage and thus, compressor is functioning more efficient and stable.



VRF TMV-X

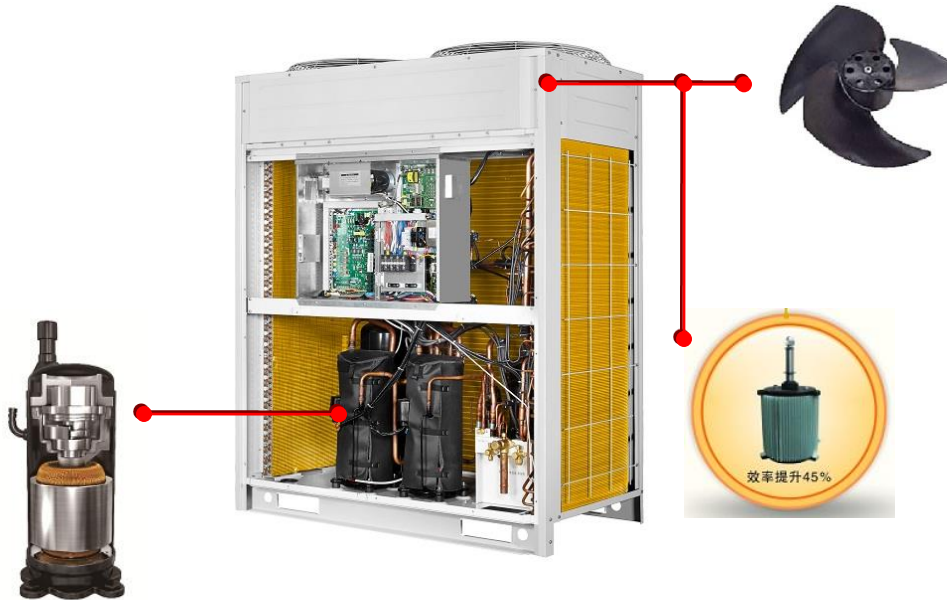
Low Noise Technology

D



New grill - Increased quantity of air discharge with reduce rotating noise and vibration.

Using the advanced analytical technique of CFD, FEM, etc., to optimize fan design, increase air flow and reduce the noise level.



- Advanced compressor with less vibration and low noise.
- Precise noise insulation technology.

Stable motor with cast aluminum, DC inverter and vector control technology.

Product features

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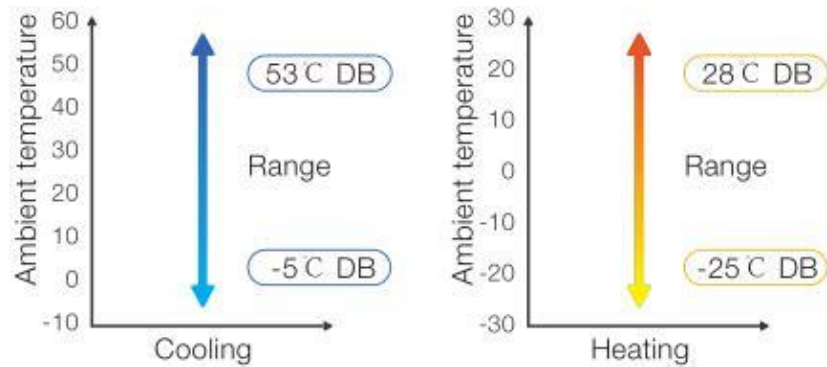
TCL

VRF TMV-X

Excellent Heating Performance

E

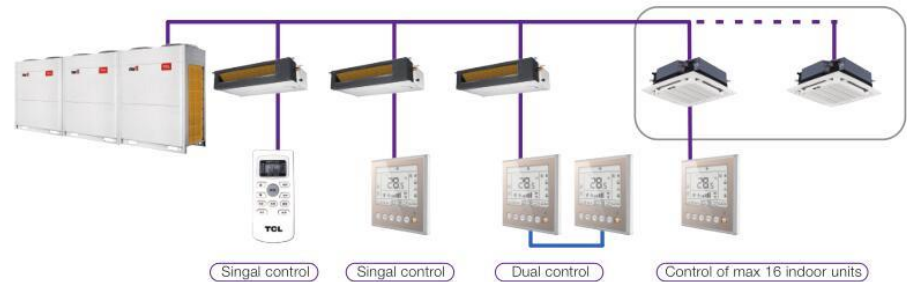
New DC inverter scroll compressor is used and its heating operating temperature range is down to $-25\sim 28^{\circ}\text{C}$ (cooling: $-5\sim 52^{\circ}\text{C}$).



Flexible Control

F

Multiple Combination of Network Control



Touch screen centralized controller



Network Control



Modular Chiller

Modular Design Feature

- High efficiency and energy saving*
- Good comfortableness*
- Nice appearance*
- Work continuously throughout all the year*
- Low noise*
- Flexible and convenient*
- Flexible heating*
- High reliability*





Modular Chiller-Air Cooled Scroll

Modular Design

A

- Modular design, flexible combination, more convenient for design and installation.
- The maximum combination can consist of 16 modulars, with capacity as much as 2080kw.



High Efficiency and Energy Saving

B

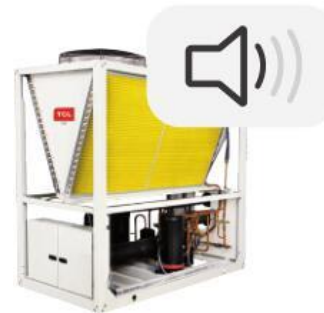
Seamlessly constructed V shaped condenser coil with optimized air flow system, expansion valve and compressor, which increase the efficiency of heat exchange by up to 30%.



Quiet Operation

C

Well-known compressor with built-in vibration insulation enable the operation to be quiet and stable.



Modular Chiller-Fan Coils

Optimized Noise Control System

A

- Air return box is optional;
- Different static pressure types;
- High efficiency
- Symmetrical design, easy installation

Computerised System

B

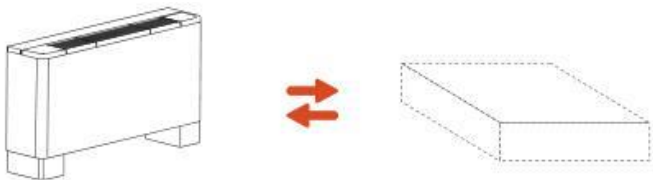
Advanced controlling system can be easily interfaced with most BMS and proprietary supervisory system based on mod Bus protocol.



Universal Design

C

The unit can be installed by vertical or horizontal.



Ceiling Conceal Duct



Cassette



**Concealed Standing
Exposed Standing**

THANK YOU

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