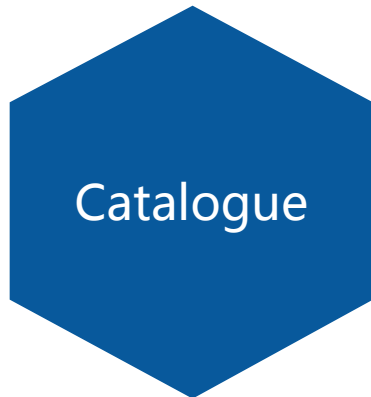


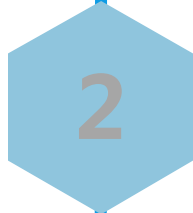
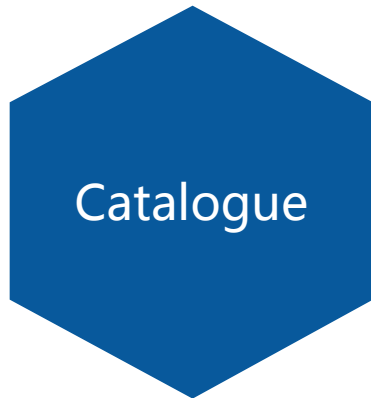
AVIC EM SANYO

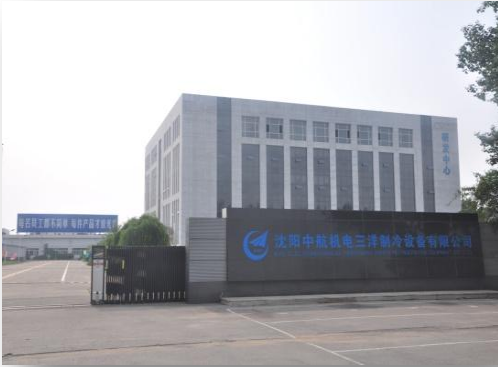
Company Profile

AVIC ELECTROMECHANICAL (SHENYANG) SANYO
REFRIGERATION EQUIPMENT Co., Ltd

May 2019







AVIC EM SANYO factory is located in Shenyang economic technical zone, , cover 140,000m²

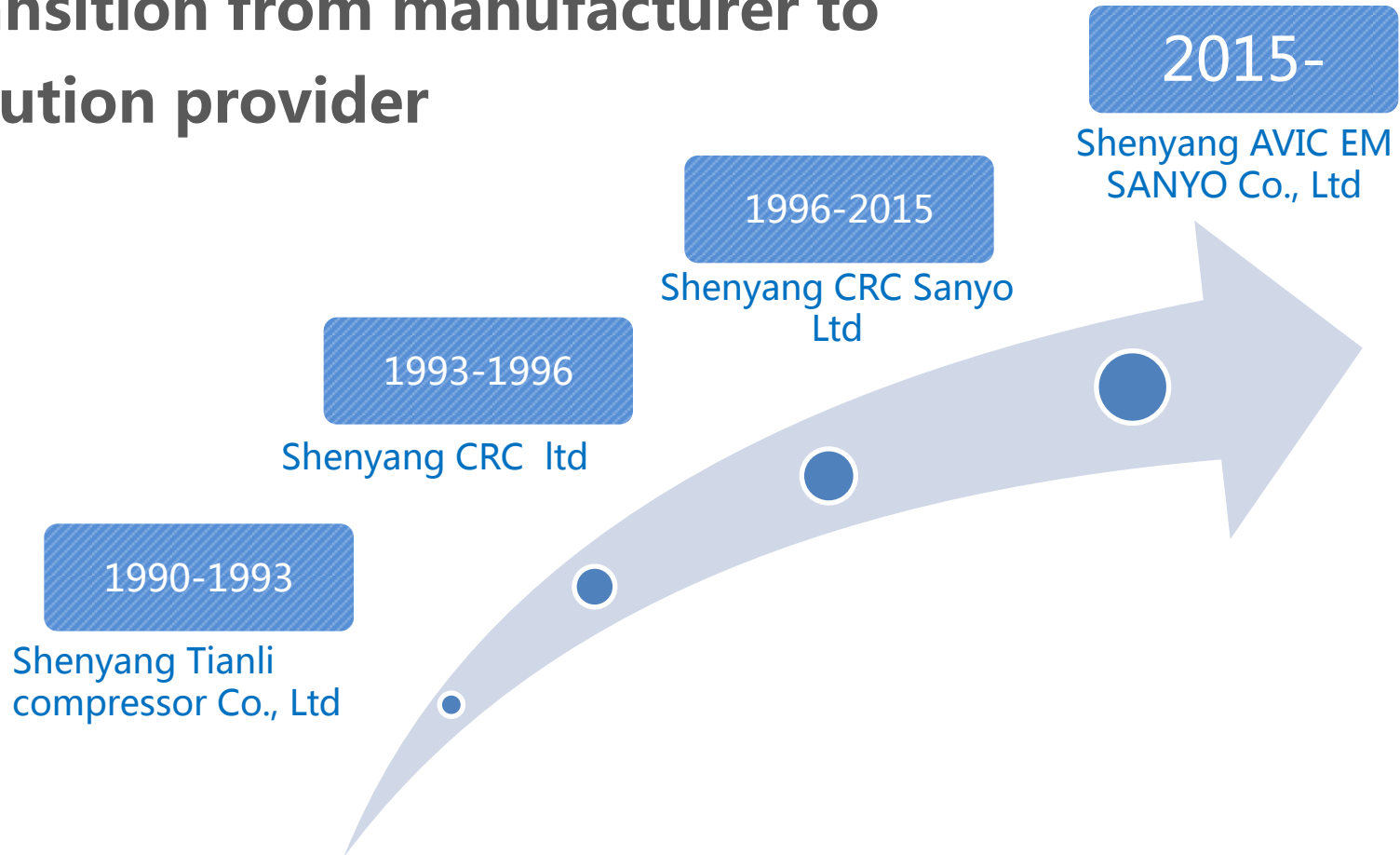
AVIC EM SANYO founded in 1990, is a joint venture enterprise , product technology、 manufacturing workmanship、 quality control that all originated from Japan Sanyo , Company dedicated to rotary compressor's design ,production, sales for 28 years, covers 140,000 m² , has staffs 3000 and annually capacity 10 million sets , owns industry-leading full automatic production lines and energy-saving environmental products represented by DC and eco friendly refrigerant.

Company owns two technical centers, which established in Japan Gunma and China Shenyang separately, Japan Gunma centre was originally founded in 1968, owns more than 20 Japan specialists and strong product developing ability with half century history; China technical center established in 1990, has built a team of China top level university technical backbones with more than 20 years history.

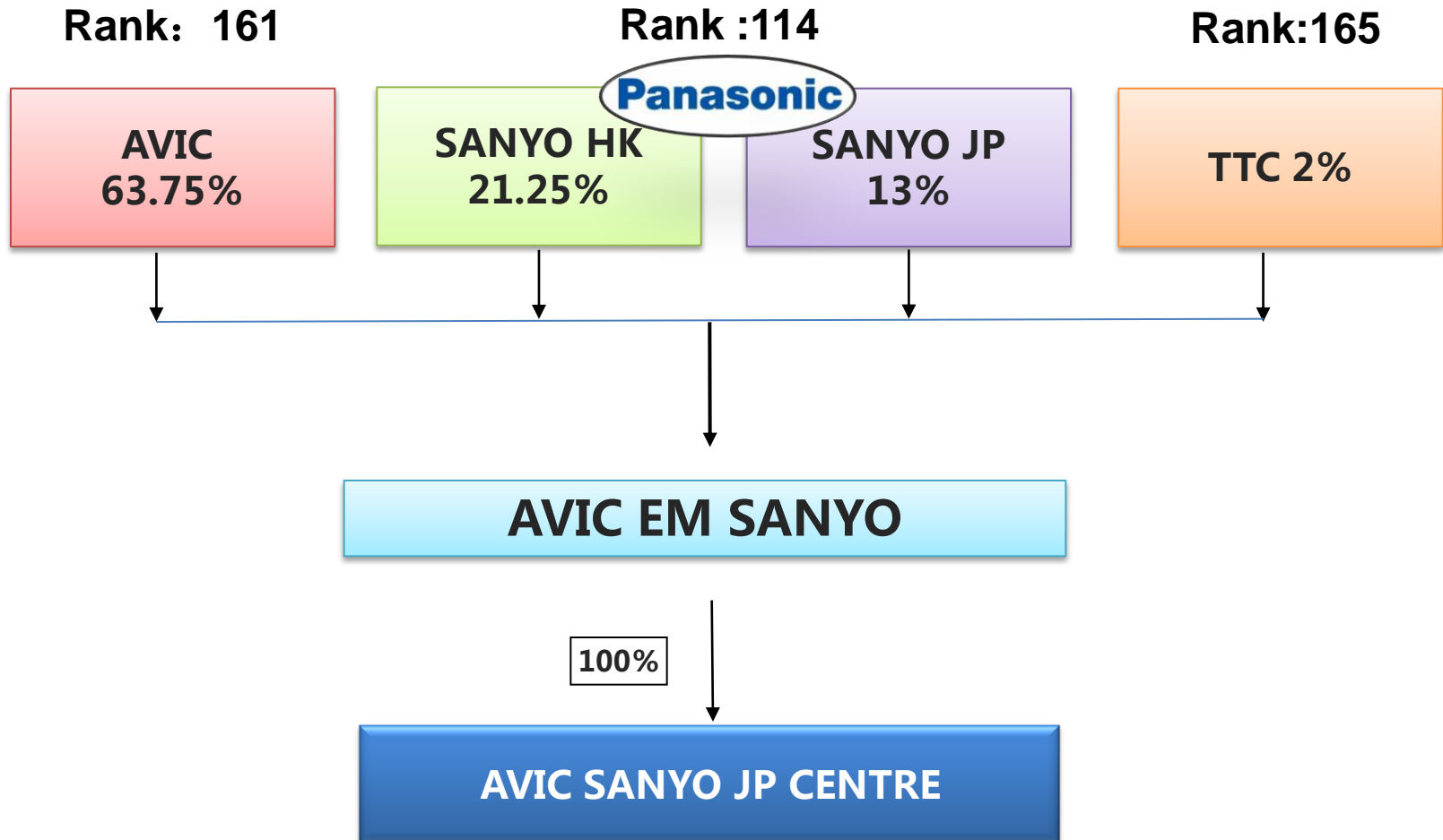
Company owns high-end production lines, which enable to cover core components which include compressor and motors, Company has begun to enter the digital factory construction with the goal of "made in China 2025"

Transition from compressor manufacturer to industrial chain manufacturer

Transition from manufacturer to solution provider



Total original investment is 285 million dollars, with three global top 500 shareholders.



VISION

Let customer enjoy better refrigeration products and services

MISSION

- Dedicate to eco and energy saving in order to push refrigeration industry upgrade and technology upgrade.
- Keep eyes on the middle and high end market ,provide products and solutions that exceed the customers exceptions, continually create maximum value for customers

Company Value

INNOVATION SURPASS
INTERGRITY OPENING

SPIRIT

Brand Strength Supported by
technology and team

CORE CAPACITY TARGET

■ Japan Technical Centre established in Gumma on May 11th, 2016

➤ *Sole proprietorship*

➤ *Independently research*

■ Japan Technical Centre inherits Japan Sanyo technical tradition, cooperates with Japan Panasonic closely to solidify the foundation of AVIC SANYO as a technology oriented company



Automatic Production Line Construction

- In 2015, six pole production line achieved automatic standard, workmanship was initiated in the industry.
- Carry out lean manufacturing aiming at positive planning, design and realization of production technology .



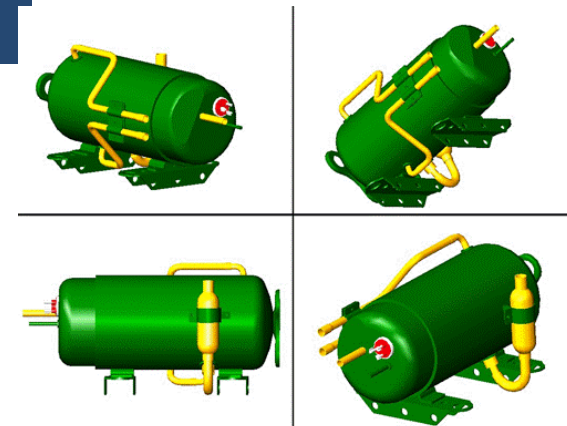
System Ability Building

- In 2015, hire Japan technical specialist to strengthen technical team building on system.
- Have Large Test Rooms and Equipments (*Calorimeter, Noise & Vibration Lab, Enthalpy Dif Lab, Accelerated Life Lab, Environmental Lab, etc*) to evaluate the compressor



HBP 50 years, L/MBP 30 years experience

1958 Sanyo started to produce HBP product for AC use ,
1988 Sanyo refrigeration product launched in Japan market, then expanded to global gradually. Until now we have 30 years sales history, Sanyo has received good customer reputation through long-term use, and highly valued by customers.



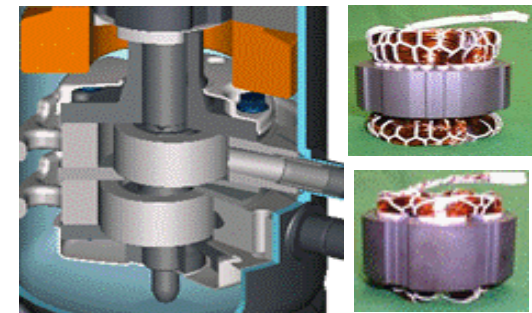
High Efficiency	High Reliability
Low Noise	Low vibration

Global first double cylinder launch

1985 Global first double cylinder refrigeration compressor launch, with extraordinary noise and vibration performance

Global first DC REPM refrigeration launch

1985 , Global first REPM DC refrigeration launch , and promoted the product energy saving to a new level.



Globally sales volume in total more than 80 million sets

Domestic Major Customer

Haier

TCL

Skyworth

KELON

Midea

AUX

CHANGHONG

Hisense

Galanz

GREE

International Major Customer

FUJITSU

Panasonic

OILMATIC
AUTOMATIC LIQUID TEMP. REGULATOR

PMAC

VENTISOL

SHARP

SMART

unionaire

VOLTAS

artel

VESTEL

Whirlpool
CORPORATION

polak bros

Embrital

CAREL

AREA
Cooling Solutions

BRITANIA

TEM COISAS QUE SO A PHILCO FAZ PRA VOCE.
Philco

- **AVIC EM SANYO comply with advanced- standard manufacturing certification.**
- **All products can fulfill RoHS and Reach standard :**
 - **307 products passed CCC certificate**
 - **174 products passed TÜV certificate , 30 products passed CE certificate**
 - **60 products passed UL certificate , 10+INMETRO , KC certificate ,**



To be outstanding compressor supplier :

To establish a good reputation in the fierce competition of compressor market, and has been unanimously recognized by customers and consumers

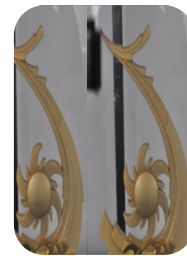


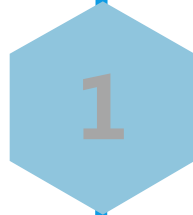
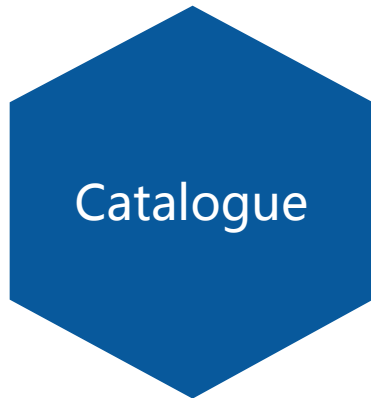
Improve management , establish good brand impression :

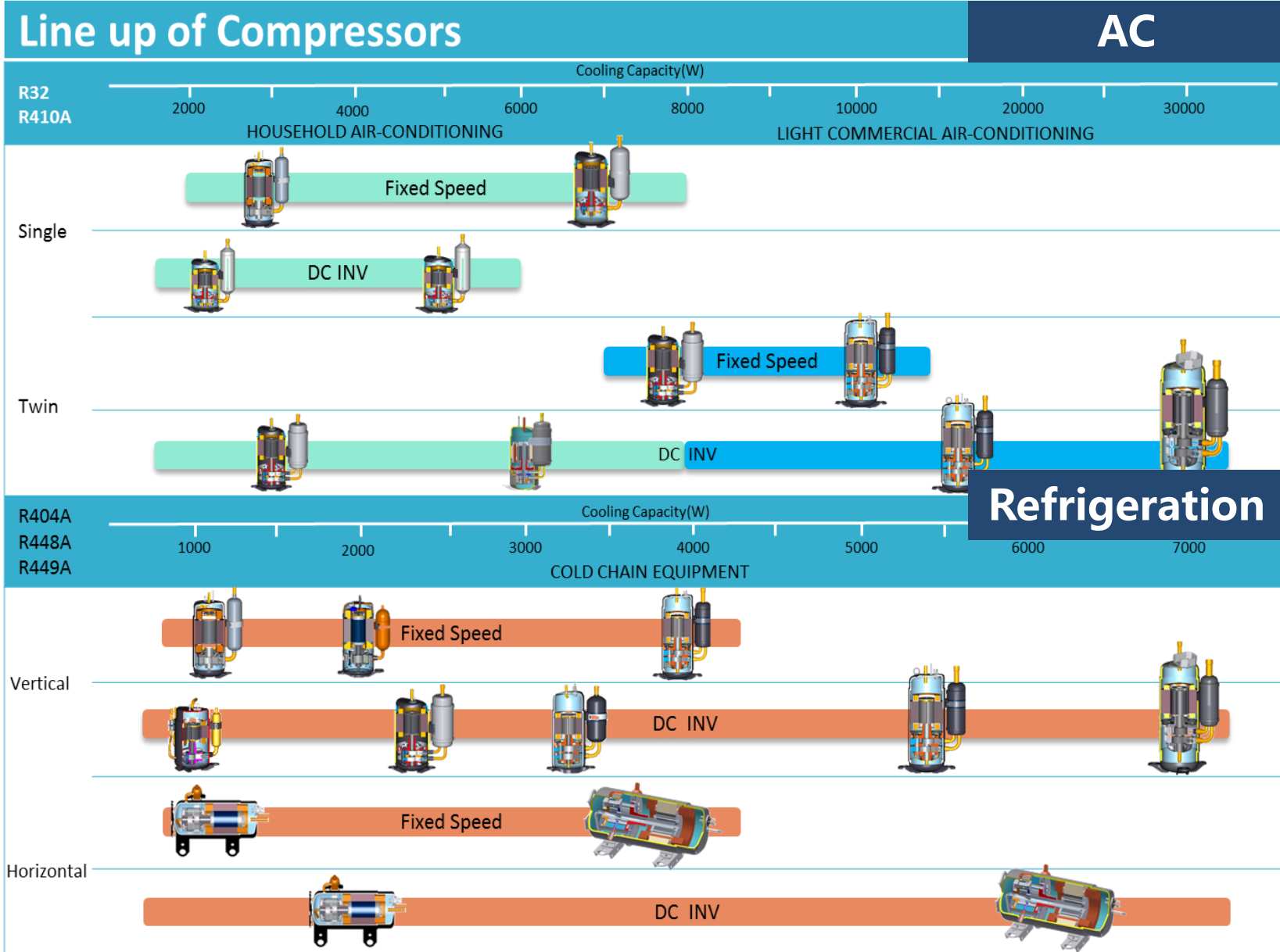
CRSS brand is successively awarded by Shenyang city and Liaoning province, and has been recognized as well known compressor supplier in China.

Fulfill social responsibility :

AVIC EM SANYO has been awarded as Shenyang 100 Top company and civilization company in terms of social responsibility.







【Residence】

- ★ RAC
- ★ Heat Pump Unit
- ★ Heat Pump Heater

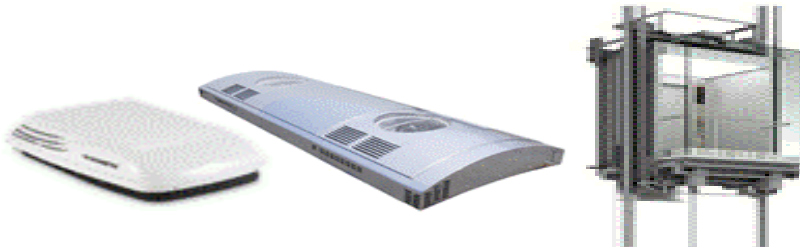


High Efficiency · Low Noise ·
Low Cost

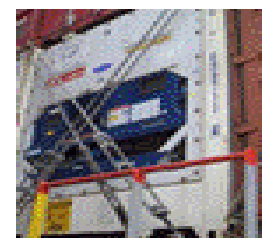


【Transport】

- ★ Electric Bus AC
- ★ Railway Vehicles AC
- ★ Elevator AC
- ★ RV AC
- ★ CRB
- ★ Refrigeration Vehicle
- ★ Vessel AC
- ★ Vessel Freezer Machine
- ★ Parking AC

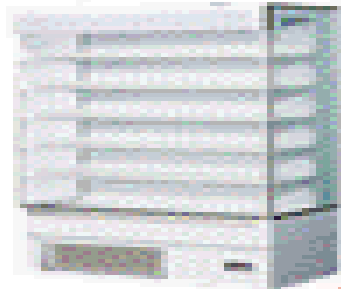


High Reliability



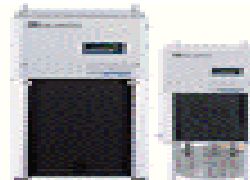
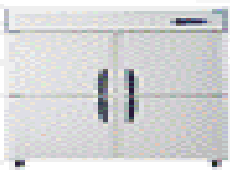
High Reliability

【Business · Industry】



- ★ Refrigeration Show Case
- ★ Commercial Refrigeration Storage
- ★ Vending Machine
- ★ Processing Machine
- ★ Low Temp Pump

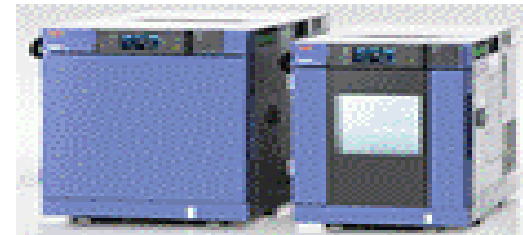
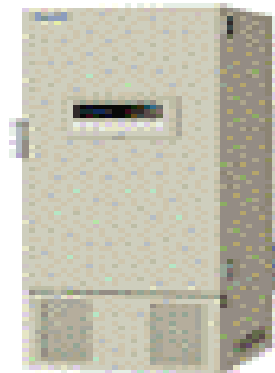
- ★ PAC
- ★ VRF
- ★ Commercial Heat Pump Heater
- ★ Low Temp AC
(Warehouse, Food Processing)



Special Refrigerant · Super Low Temp

【Medical · Research】

- ★ Super Low Temp Case
- ★ MRI
- ★ Environmental testing machine



Refrigeration Field

Retail



Showcase
(Vegetable ,Cooked food、 Milk (Yogurt) ,Sea food, Meat, Cake,etc)
Refrigerator,Beverage case,freezer storage

Hotel



Commercial Kitchen Refrigerator
Refrigeration Station
Cooling Station

Bakery



Cake Showcase

Cold chain

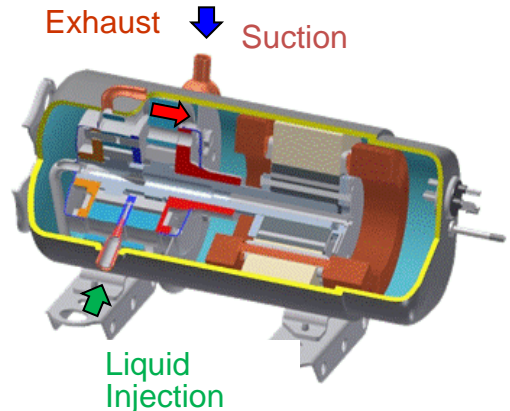
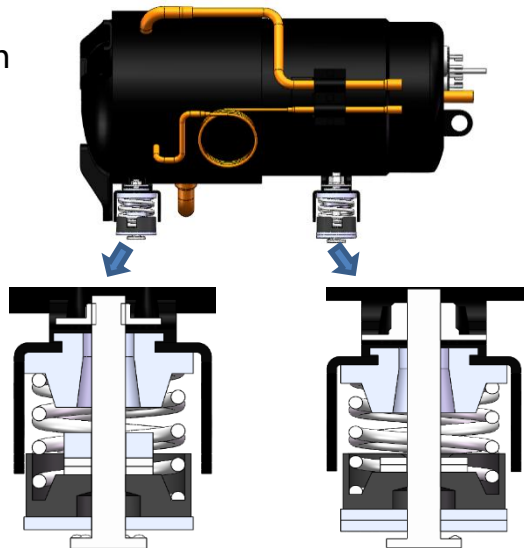
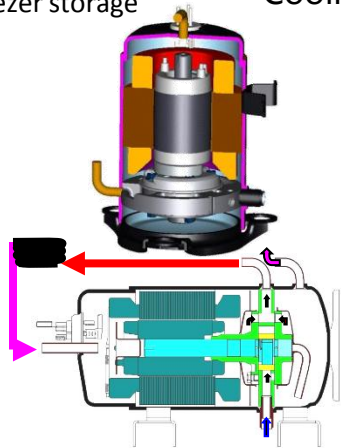


Logistic Case
Apartment Low Temp Storage Case




Medical



Cooling Tank
Blood Tank
Low Temp Preserve Case



Fix Speed L/MBP Product (Refrigerant : R404A, R448A, R449A)

 New Developing
  Available
  New Developing
 [Unit : Motor]

Developing

Voltage	Serial	300W	500W	750W (1HP)	1100W	1300W	1500W (2HP)	1700W	2200W (3HP)	3000W 4HP	3700W 5 HP	4500W 6HP
220-240V/50HZ	15F		7.7, 8.9	12.5, 13.3								
	20F			11.3, 13.3, 16.1, 19, 22								
	33F						32.2, 34.5, 35.9, 46.3, 48.6					
220V/60HZ	15F		9.1									
	20F			11.3, 13.3, 16.1, 19, 22			32.2, 35.9, 46.3					
	33F											
115V/60HZ	15F				16.1							

MBP Product (Refrigerant : R404A)

[Unit : Motor]

Voltage	Serial	300W	500W	750W (1HP)	1100W	1300W	1500W (2HP)	1700W	2200W (3HP)	3000W 4HP	3700W 5 HP	4500W 6HP
220V/50HZ	15F			11.3								
	20F			13.3, 16.1, 19, 22								
	33F						32.2		43.8			

DC Refrigerant Product

DC LBP Product (Refrigerant : R404A, R448A, R449A, R410A ,etc)

● Single DSH
 ● Double Cylinder Li available
 ● Double Cylinder Li Under developing
 [Unit : By motor]

	300W	500W	750W (1HP)	1100W	1300W	1500W (2HP)	1700W	2200W (3HP)	3000W 4HP	3700W 5HP	4500W 6HP
	R134a										
	DSH										
15F	5.6, 8.9										
			12.5			21.0					
20F						23.3		32.0			
25F								42.0	48.6		
33F										70.0	

Remark : 1、 5.6cc and 8.9cc Vertical & Single phase ; Others Vertical+ Horizontal & Single+Three phase

DC MBP Profile (Refrigerant : R404A, etc)

Serial	15F				20F		25F	33F	
Serial	V	V	H	V/H	V/H	V/H	V/H	V	V
Displacement	5.6cc	8.9cc	9.2cc	12.5cc	14.6cc	23.3cc	32cc	42cc	70cc

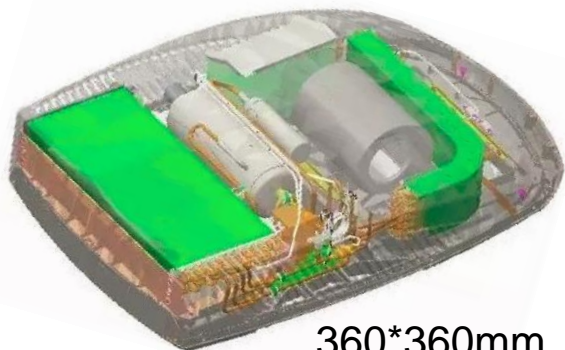
High Percentage of DC

Better Refrigerant Universality

Smaller Product Dimension

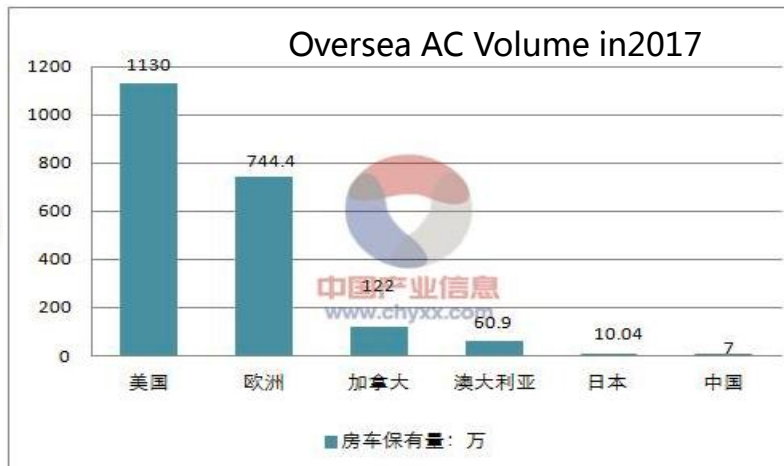
Higher Product Efficiency

RV AC



RV :

360*360mm
400*400mm




RV VOLUME (10000)		
Region	UK	EU
2018	50	20
2019	55	21.2

Self-propelled  Length: 8-15 Meter
Bed: 8 Person

 Length: 5-9 Meter
Bed : 6 Person

 Length: 4-6 Meter
Bed: 2-5 Person

Pulling type  Length: 10 meter for big one, 2-3 meter for small one
Bed: Big 8 Person, small 2 Person

Pack-back  Dedicate to pickups, which can load in container, with dedicate design, can fulfill basic request ,with 3 meter, 2 Person

RV AC Product

■ Current RV Industry

2000W	2200W	2800W	3400W	3500W
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Voltage	Refrigerant	Displacement					
220-240V/50HZ	R407C	9.1	12.7	15.5	19.3	21.1	23.2
220-240V/50HZ	R410A		10.2		13.5		
115-120V/60HZ	R410A	7.1	10.2				
208-230V/50HZ	R410A				13.5	15.5	18
Vehicle Length		Under 5 meter	5-7 meter	7.5	8 meter		

■ AS New develop—Single cylinder/Double cylinder

Voltage	Refrigerant	Displacement (cc)					
220-240V/50HZ	R407C	10 ^④	13 ^②	16 ^③	19.5 ^①		

■ AAS New develop—DC Double cylinder

Voltage	Refrigerant	Displacement (cc)		
DC	R410A	9.2	12.5	14.6

Remark : DC Voltage can be 220V、380V、24V、48V

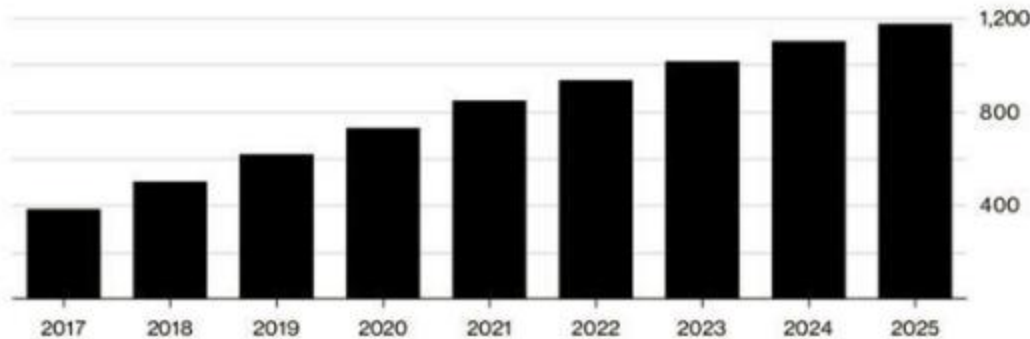
Electric Bus

In 2017, globally electric bus volume was 0.38 million sets, it is estimated that it will be increased to 1.2 million sets in 2025, bus is an important part of urban transportation infrastructure, serve as regular daily route, which can be considered as a ideal place for electrification, more and more cities around the world are increasingly considering electric bus as a local air pollution reduced solution, especially for Paris and Amsterdam already settled the target to use zero emission bus in the following years, it is estimated that due to the decrease of battery price, which make electric bus to be able to compete with the same level diesel vehicle. China has settled the most active target for clean energy bus, according to industry estimation until 2025, China electric bus will occupy 99% of the world.

Here Comes the Electric Bus

China forecast to dominate a market expected to more than triple in seven years

■ Total electric bus deployments, in thousands



Source: Bloomberg New Energy Finance

Bloomberg

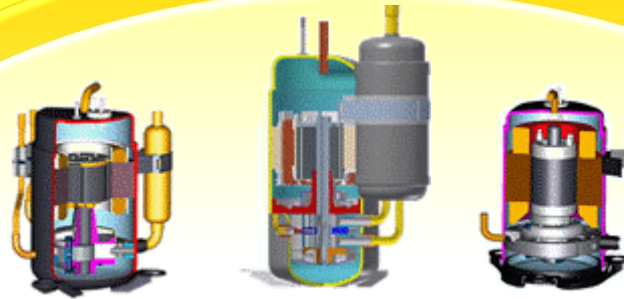
Power	Refrigerant	Displacement (cc)	
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DC	R410A	32	42
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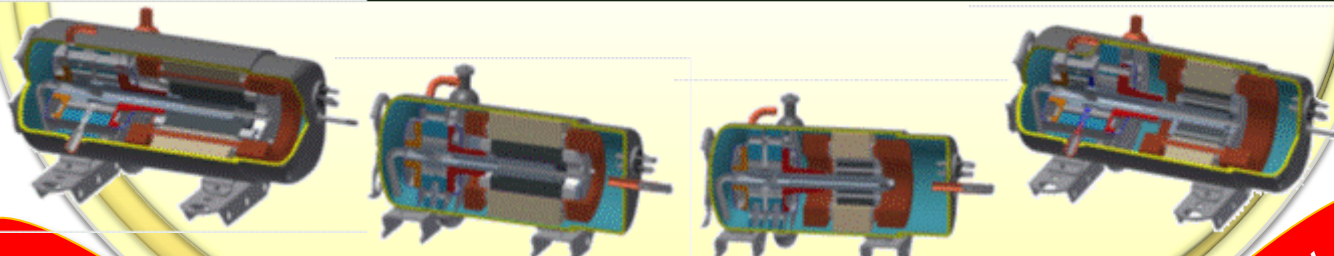
Vehicle	6Meter	8Meter
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Technical

Product



Develop own technology, create value product for customer



HIGH EFFICIENCY · LOW NOISE · HIGH RELIABILITY

Productivity

Quality

Cost

Thank You!