

智能化

NH₃/CO₂制冷系统解决方案

Intelligent

NH₃/CO₂Refrigeration System Solutions

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NH_3 & CO_2 refrigeration system solutions



氨用半封闭螺杆压缩机

Semi-hermetic screw compressor for NH₃ application

SRMTEC



单级
Single stage



单机双级
Two stage

- **可变载荷** : 无级或有级能量调节(4级), 变频
Variable load : Infinite or 4-step capacity control, VFD
- **可靠** : 单级设计压力28bar , 单机双级设计压力26bar
Reliable : Single-stage design pressure:28 bar
Two-stage design pressure:26 bar
- **紧凑** : 模块化设计
Compact : Modular design
- **设计新颖** : 单级可调VI,双级设有双经济器接口
Modern design : Single-stage adjustable VI, two-stage with dual economizer connection.
- **安装方便** : 单级可变换进排气接口方向
Easy to install : Single-stage compressor can be changed in the direction of suction or discharge port.
- **易于维护** : 内置监控模块保护
Easy to maintain : Built-in protect module

氨用半封闭螺杆压缩机

Semi-hermetic screw compressor for NH₃ application

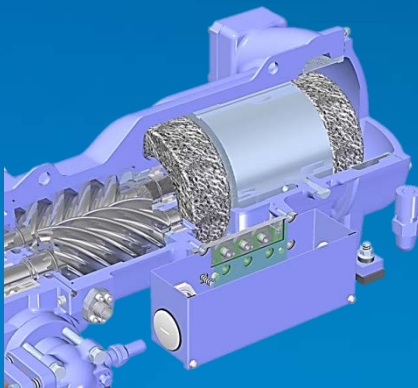


高效转子

- SRM "i" 型线, 5+7最佳齿数比
- 高效率, 高硬度, 低噪音, 低振动

High-efficient rotor

- SRM "i" profile, 5+7 Optimal teeth ratio
- High efficiency, high stiffness, low noise, low vibration



高效电机

- 用市面上最高效率的永磁电机

High-efficient motor

Most efficient PM motor on the market

氨用半封闭螺杆压缩机

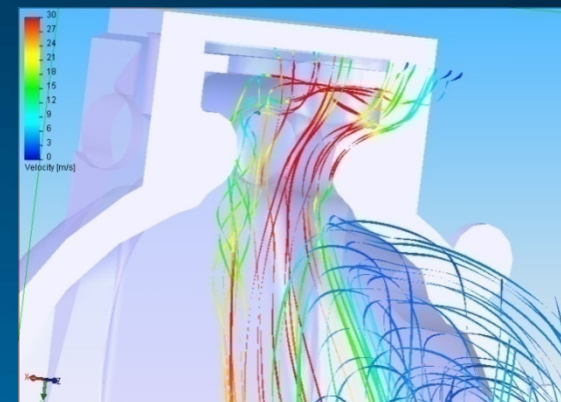
Semi-hermetic screw compressor for NH₃ application

最佳气流

CFD计算的气流最优化和减少损失

Most optimized flow

CFD simulating of gas flow to optimize and reduce losses



高可靠性

80000h寿命的轴承设计

High reliability

80000 Lifecycle bearing design



氨用半封闭螺杆压缩机

Semi-hermetic screw compressor for NH₃ application

半封闭单级螺杆压缩机排气量

Semi-hermetic single-stage screw compressor displacement

排气量 (m³/h@50Hz)

displacement



SRS-08 系列 84~120

SRS-10 系列 140~168

SRS-12 系列 210~250

SRS-14 系列 310~370

SRS-16系列 420~500

SRS-18 系列 544~635

SRS-20 系列 720~850

0 200 400 600 800 1000

氨用半封闭螺杆压缩机

Semi-hermetic screw compressor for NH₃ application

3

Semi-hermetic two-stage screw compressor displacement

displacement



未来制冷剂的选择

Selection of future refrigerant

自然制冷剂

nature refrigerant



CO₂/NH₃



优势
Advantage

绿色环保
容易获得，价格低廉
热力效率高

Environmental protection
Easy to get, cheap
High thermal efficiency



选择自然工质是

未来制冷剂发展的一个重要趋势

The choice of natural refrigerants is an
important trend for future refrigerant
development

NH₃/CO₂制冷系统解决方案

NH₃/CO₂ Refrigeration System Solutions



NH₃/CO₂载冷机组

NH₃/CO₂ secondary refrigerant unit
(氨低充注量 NH₃ low charge)



NH₃/CO₂复叠机组

NH₃/CO₂ cascade unit
(氨低充注量 NH₃ low charge)

NH₃/CO₂制冷系统应用

NH₃/CO₂ Refrigerant System Application

适用温区 Applicable temperature zone

NH ₃ /CO ₂ 复叠系统 NH ₃ /CO ₂ cascade system		NH ₃ /CO ₂ 载冷剂系统 NH ₃ /CO ₂ secondary refrigerant system			乙二醇载冷剂系统 Glycol secondary refrigerant system	
-50℃	-40℃	-30℃	-20℃	-10℃	0℃	10℃

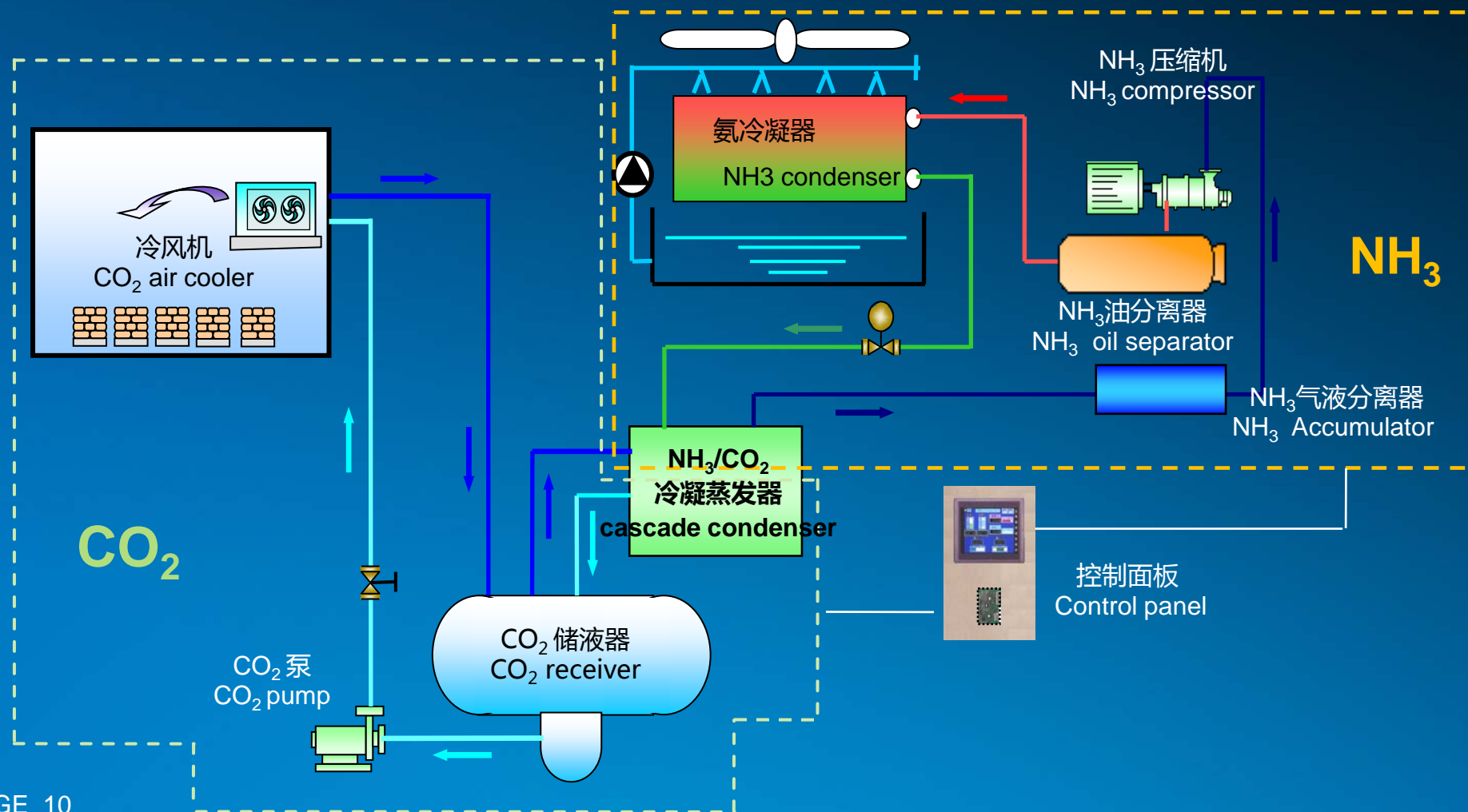
应用领域 Applicable area

NH₃/CO₂制冷系统广泛应用于不同领域、不同温区的制冷系统。
NH₃/CO₂ refrigeration system is widely used in the refrigeration system of different areas, different temperature zone .
NH₃/CO₂制冷系统适用于冷藏保鲜、低温冷藏、食品速冻、盐水制冰、冰蓄冷工程、化工医药、运动场馆等领域。
NH₃/CO₂ refrigeration system is suitable for cold storage, low temperature refrigeration, food blast freezing, brine water ice making, ice storage、chemical pharmaceutical industry, sport and other areas.



NH₃/CO₂ 载冷剂制冷系统

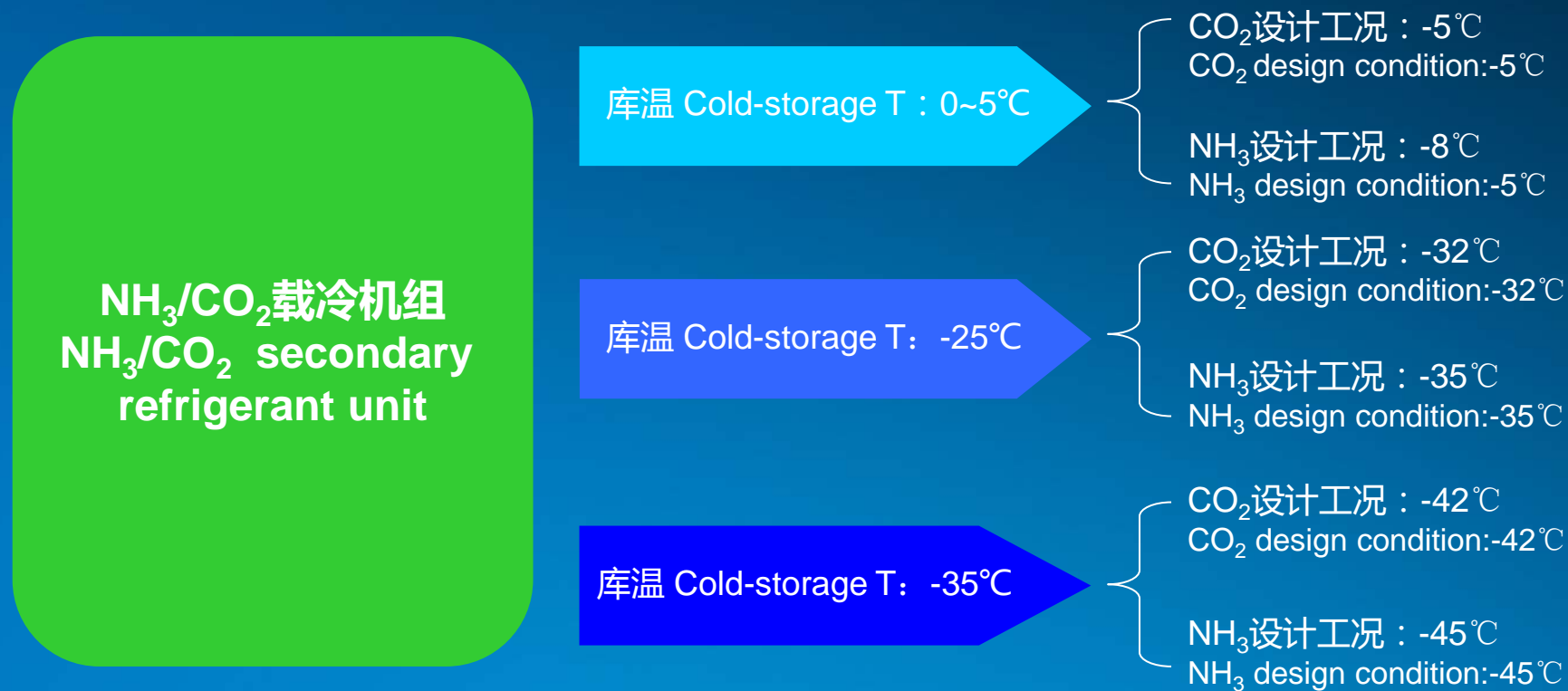
NH₃/CO₂ Secondary Refrigeration System



NH₃/CO₂载冷机组推荐适用温区

Applicable Temperature Zone of NH₃/CO₂ Secondary Refrigerant Unit

雪人打造高性能、节能环保的NH₃/CO₂载冷机组，以适应国内常规高温冷藏、低温冷藏、速冻使用
Snowman developed high-performance, energy saving and environmental protection NH₃/CO₂ secondary refrigerant units to meet high temperature storage, low temperature storage, blast freezer application.



NH₃/CO₂载冷机组结构形式

Structure of NH₃/CO₂ Secondary Refrigerant Unit

整体式
Integral



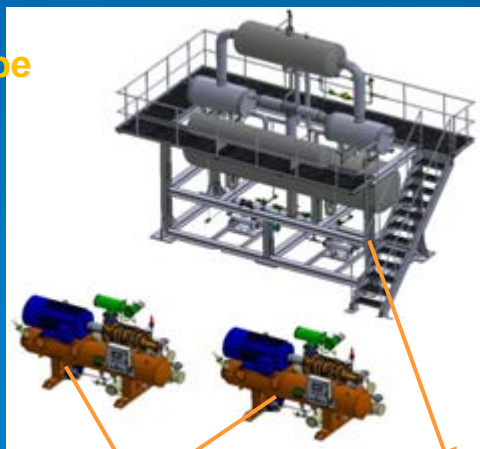
小冷量、小尺寸 Small capacity, Small size

NATURE系列 NATURE Series

以SRS半封闭NH₃螺杆压缩机为主机，配套CO₂载冷组件，整体安装而成的整体式CO₂载冷机组。

With SRS semi-hermetic NH₃ screw compressor as main engine, together with CO₂ secondary module to make it integral CO₂ secondary refrigeration unit.

分体式
Split-type



大冷量、大尺寸 Large capacity, Big size

采用SRM开启式或SRS半封闭NH₃螺杆压缩机组，配套CO₂载冷桶泵撬块（含CO₂冷凝蒸发器、CO₂循环储液器、CO₂泵等）分体安装而成的CO₂载冷机组。

SRM open-type or SRS semi-hermetic NH₃ screw compressor unit, together with split-type CO₂ secondary refrigerant skid (including CO₂ cascade condenser, receiver and pump, etc)

压缩机组
compressor unit

CO₂载冷机组
CO₂ secondary refrigerant skid

整体式NH₃/CO₂载冷机组——NATURE

Integral NH₃/CO₂ Secondary Refrigerant Unit——NATURE

特点 Features



采用天然工质制冷剂NH₃、CO₂
Natural refrigerant NH₃, CO₂

采用氨用半封闭螺杆压缩机，安全可靠
Using semi-hermetic screw compressor for NH₃, safe and reliable

采用永磁电机，高效
Using IPM motor, high energy efficient

转速可调，最高转速可达4500rpm
The speed is adjustable, the maximum speed can be up to 4500rpm

机电一体化，低噪音设计
Mechanical and electrical integration, low noise design

压缩机应用温度覆盖范围广-55℃~62℃
The applicable temperature zone of compressor is wide

智能化控制系统
Intelligent control system

整体式NH₃/CO₂载冷机组——NATURE

Integral NH₃/CO₂ Secondary Refrigerant Unit——NATURE

特点 Features



撬块化结构，高度集成，方便移动、安装及运行管理

Modular design, highly integrated, easy to move, install and operation management

工厂组装，可保证焊接、内部清洁度和安装质量

Factory assemble to ensure welding quality, internal cleanness and process quality.

PID控制调节阀，系统更加稳定可靠

PID control valve, the system is more stable and reliable

低NH₃充注量，每台机组充注量可控制在25kg - 100kg

Low NH₃ charge, per unit can be controlled between 25kg~ 100kg

可远程、现场通过PC或移动终端监控

Remote or field control from PC or mobile device

单机双级采用双经济器，更加高效

Dual economizer for compound stage application, higher energy efficiency

高效板壳式换热器，全封闭设计，不易泄漏，高耐压

Efficient plate and shell heat exchanger, fully enclosed design, low leakage risk, high pressure

整体式NH₃/CO₂载冷机组——NATURE

Integral NH₃/CO₂ Secondary Refrigerant Unit——NATURE

机组部件
unit parts



变频节能
Frequency conversion energy saving

充注量少
Low charge level

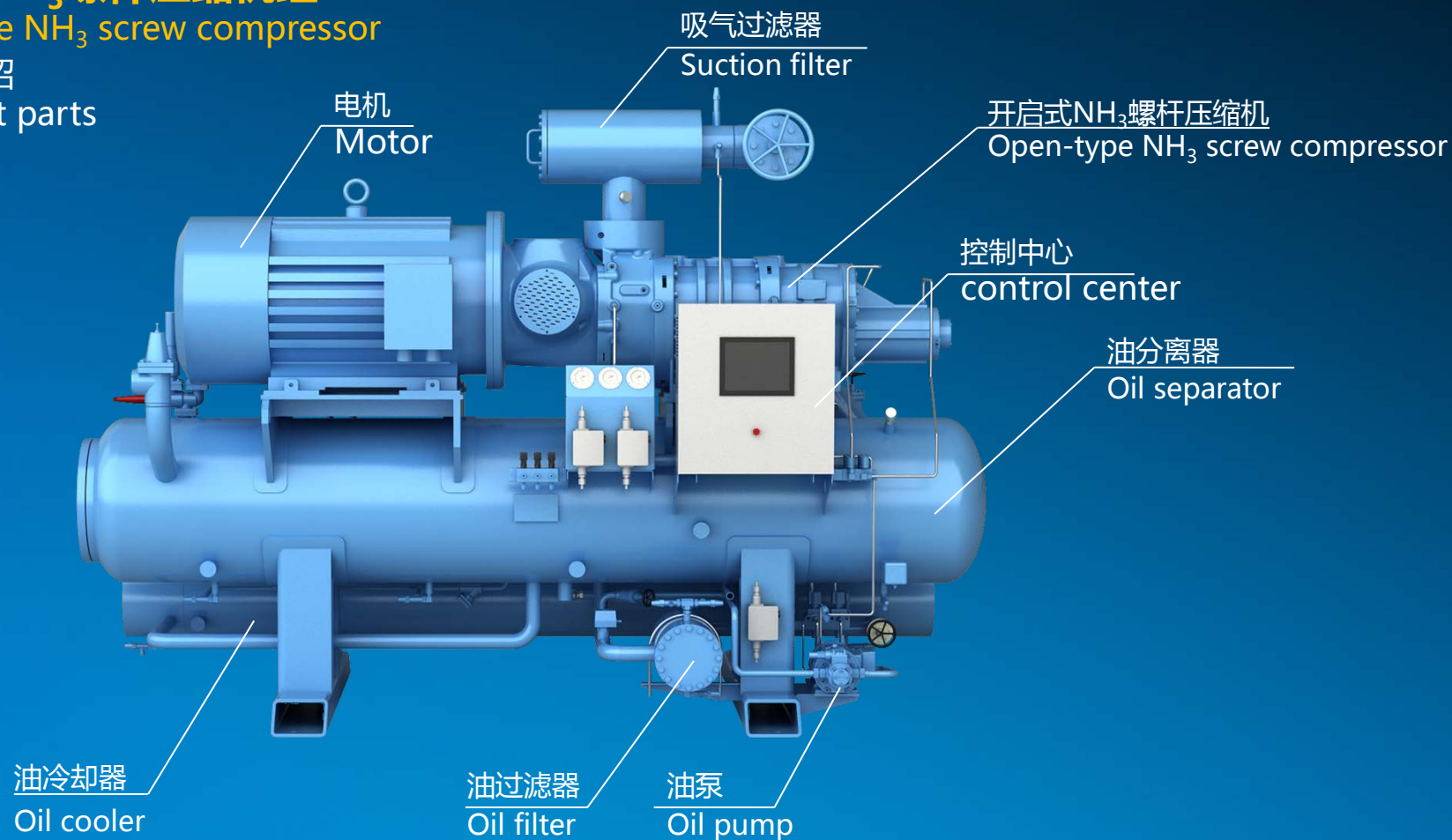
结构紧凑
Compact structure

分体式NH₃/CO₂载冷机组 Split-type NH₃/CO₂ Secondary Refrigerant Unit

SRM开启式NH₃螺杆压缩机

SRM Open-type NH₃ screw compressor

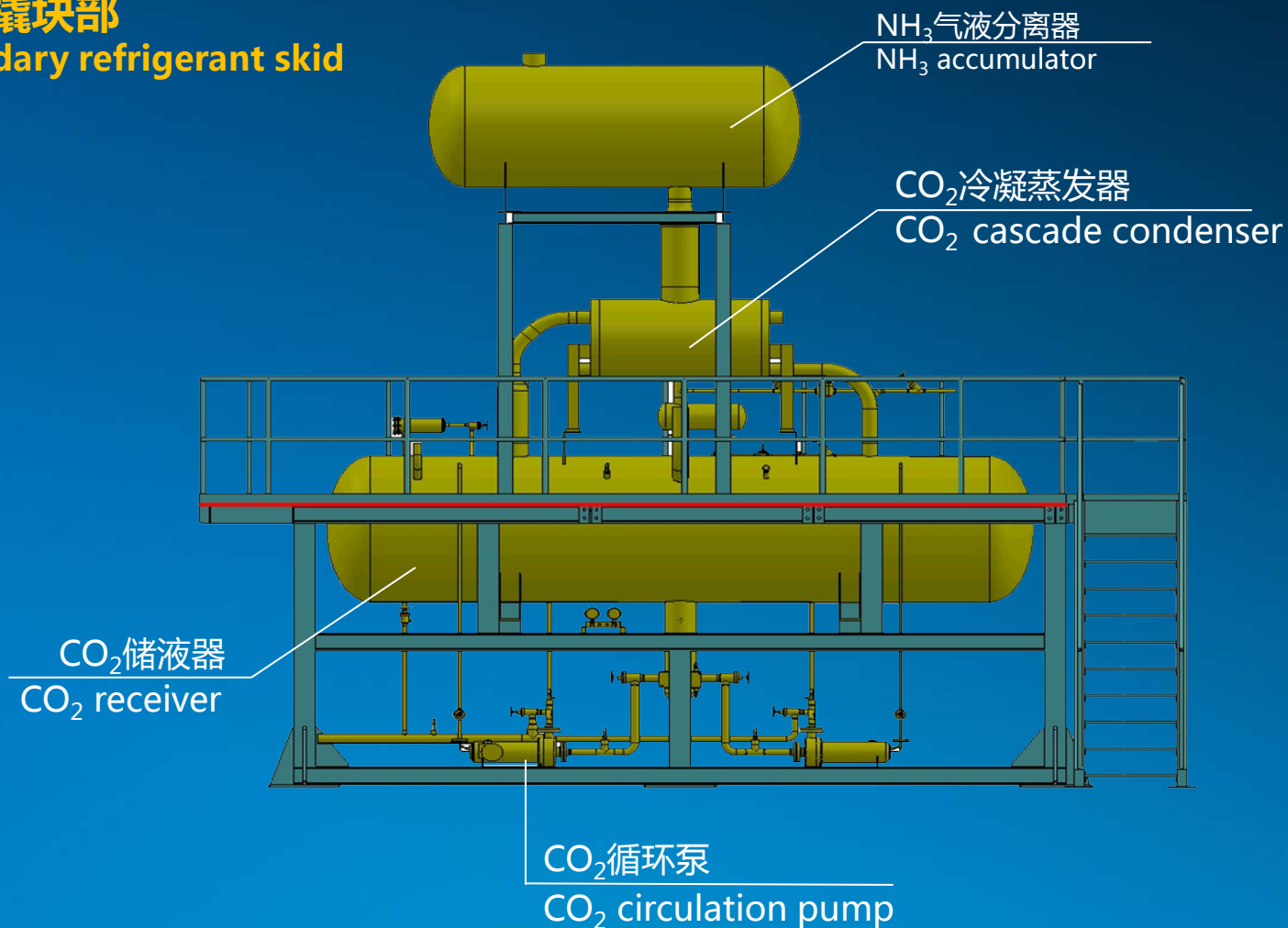
压缩机组部件介绍
compressor unit parts



分体式NH₃/CO₂载冷机组

Split-type NH₃/CO₂ Secondary Refrigerant Unit

CO₂载冷撬块部
CO₂ secondary refrigerant skid



采用NH₃/CO₂载冷剂系统部分客户

The Customers Using NH₃/CO₂ Secondary Refrigerant System

圣农冷库项目 Sunner cold storage project

库温 Temperature : -25℃

贮藏量 Storage : 8000T



采用NH₃/CO₂载冷剂系统部分客户

The Customers Using NH₃/CO₂ Secondary Refrigerant System



SWIRE

太古厦门冷库项目

Swire cold storage project (Xiamen)

库温 Temperature : -25°C 贮藏量 Storage : 20000T



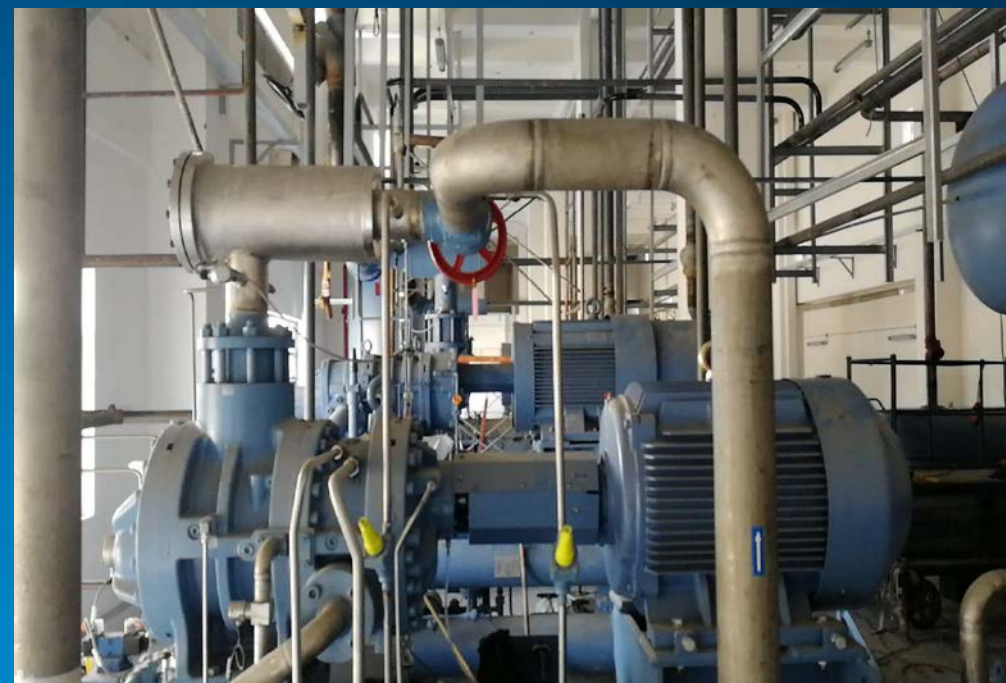
采用NH₃/CO₂载冷剂系统部分客户

The Customers Using NH₃/CO₂ Secondary Refrigerant System

汕头大洋冷库项目

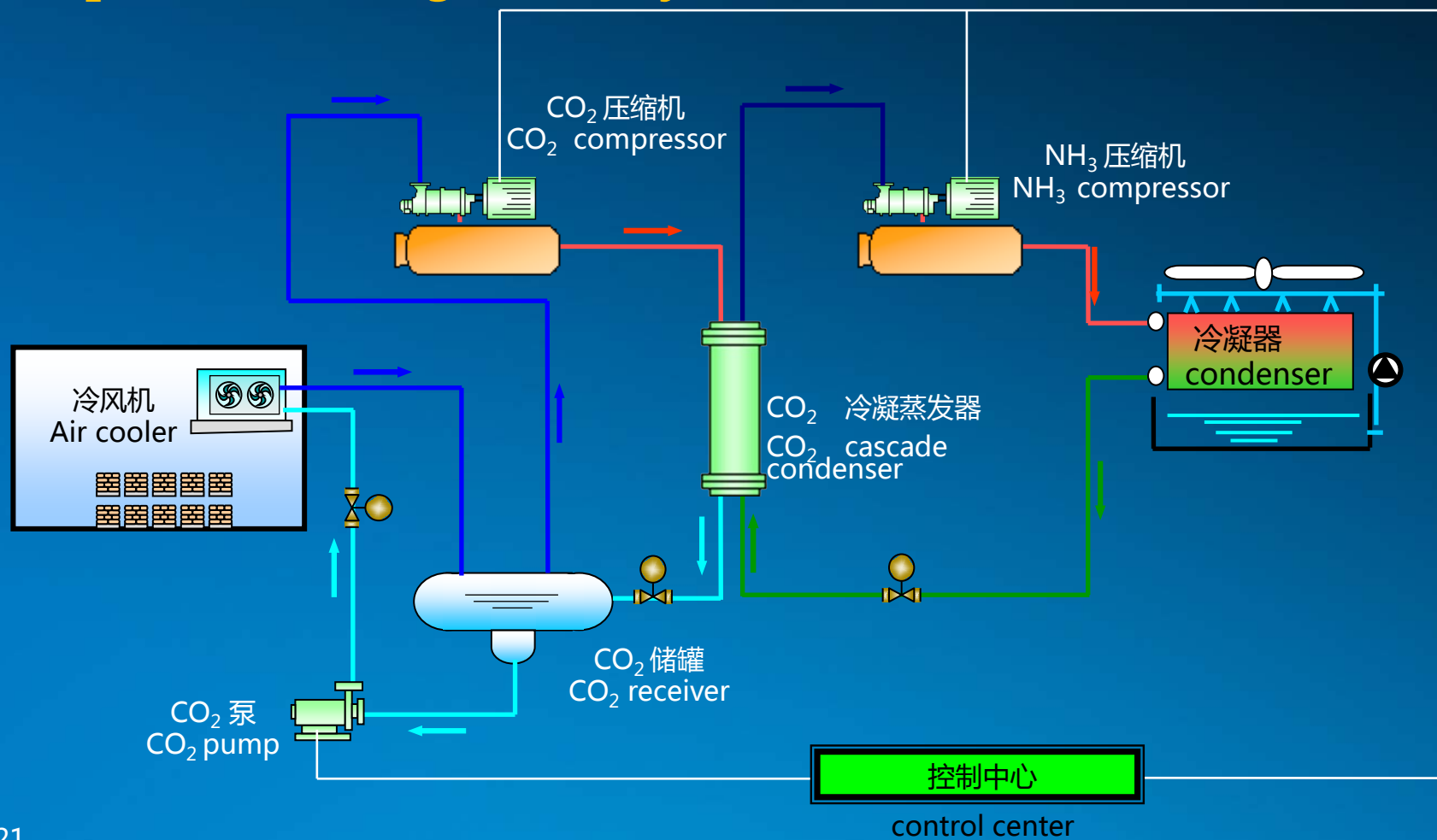
Dayang cold storage project(shantou)

库温 Temperature : -20°C 贮藏量 Storage : 19250T



NH₃/CO₂复叠制冷系统

NH₃/CO₂ Cascade Refrigeration System



CO₂复叠制冷系统

CO₂ Cascade Refrigeration System

特点

- 特点大大减少高温级制冷剂NH₃充注量；
- 在-40℃以下的制冷需求中效率极高，超过其他制冷技术；
- 管路尺寸小；
- 热气除霜的效率极高；
- 当需要两个制冷温区时，是很好的解决方案。

Fertures

- NH₃ charge can be greatly reduced
- High efficient for refrigeration demand below -40℃, beyond other refrigeration technologies ;
- Small size pipeline ;
- Hot gas defrosting is extremely efficient ;
- When double cooling zones are needed, it is a good solution.



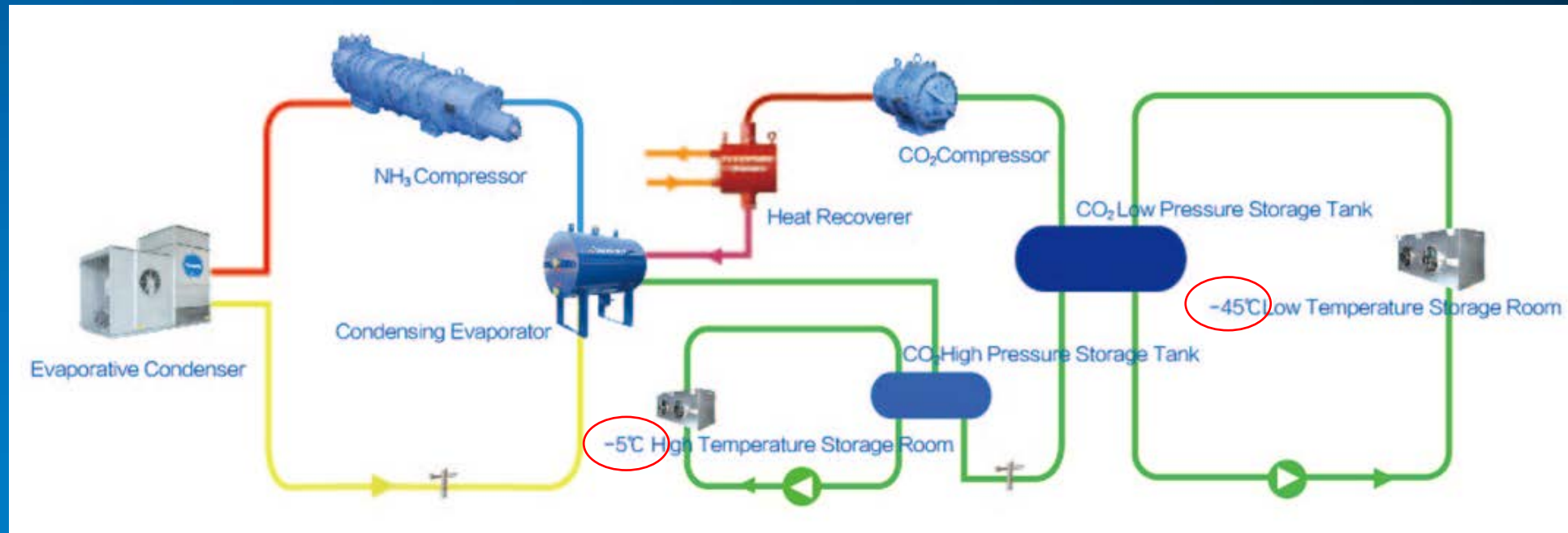
多功能NH₃/CO₂复叠制冷机组

Multifunctional NH₃/CO₂ Cascade Refrigeration Unit

同时满足-45℃低温制冷和-5℃中高温制冷需求，并进行热量回收。

Multiple temperature zones design can meet refrigeration requirements of -45℃ and -5℃ at the same time

Heat recovery design makes it fully utilize the energy

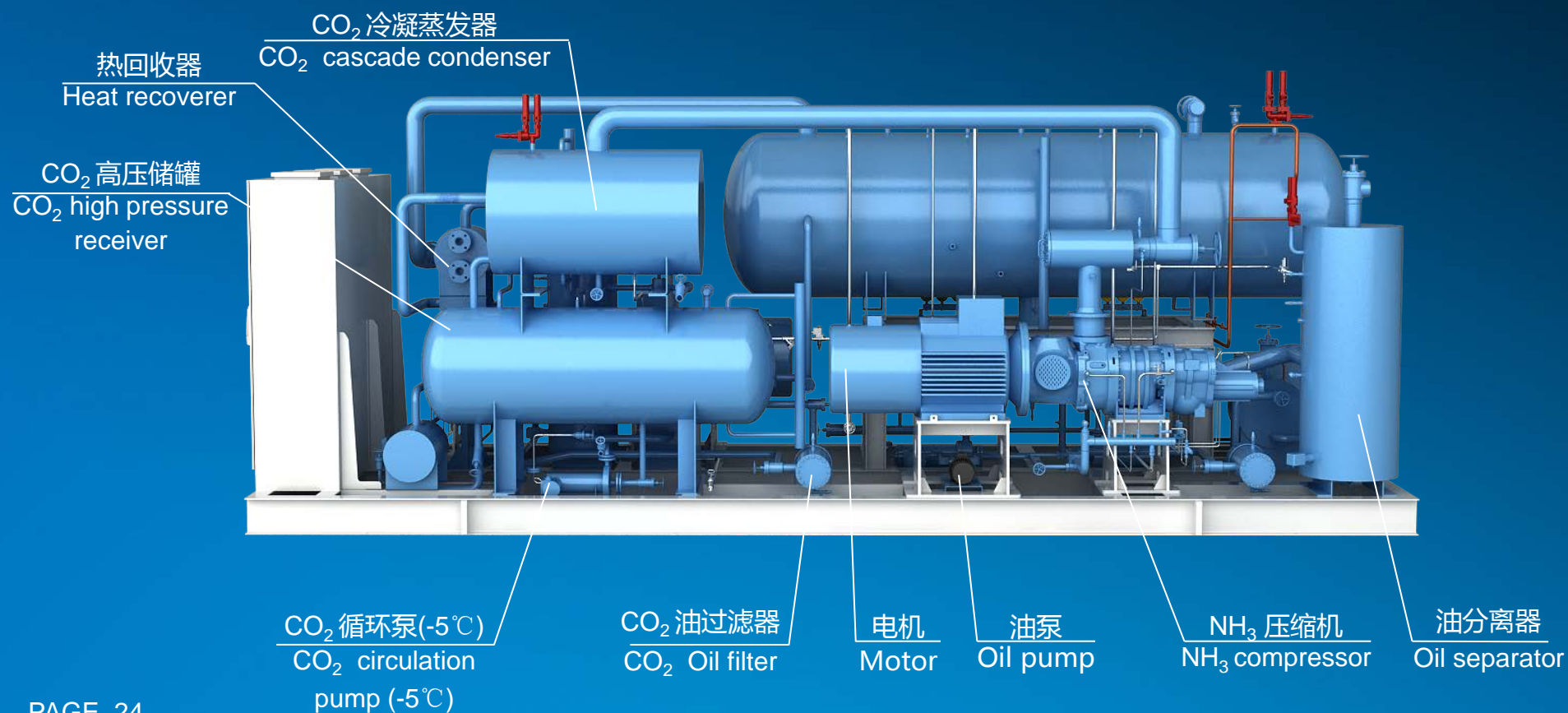


NH₃/CO₂复叠制冷机组

NH₃/CO₂ Cascade Refrigeration Unit

机组部件介绍

Introduction of compressor unit parts

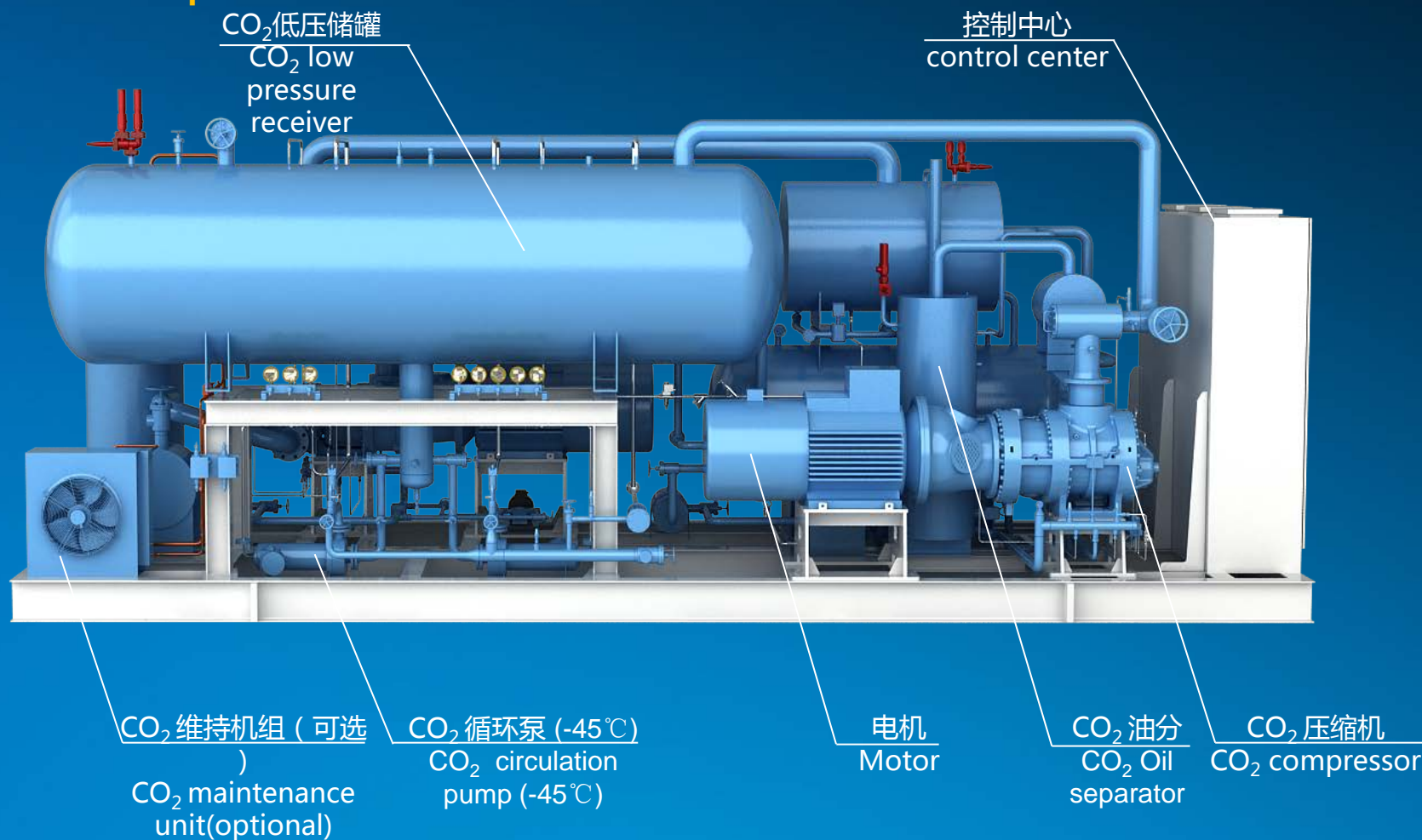


NH₃/CO₂复叠制冷机组

NH₃/CO₂ Cascade Refrigeration Unit

机组部件介绍

Introduction of Compressor Unit Parts



Thank you!

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