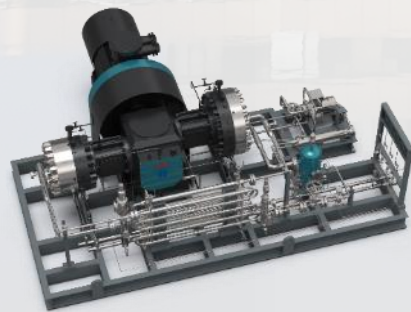


COMPRESSOR

压缩机





01

PART 01

Compressor History

Partial Cooperation Partners

Long-term cooperation relationship with 30+ Top 500 companies

Supplier Excellence Awards for consecutive years



Compressor-related honors



**Atlas Focused on
Customer Needs Award**



**IR
Best Supplier**



**Cameron
Best Supplier**



**GE
Global Strategic
Partners**



**Siemens Courageous
Innovation Award**



**Siemens Excellent
Supplier**

Compressor development history



Company establishment

1995

2007

2011



Supplying core components to a number of global compressor brands

2014



2018

2020



Compressor Parts Manufacturing Project Department Established, Collaborative Parts with Cameron



Completely independent property rights centrifugal compressor, high-speed reciprocator, diaphragm compressor series development and application



Provision of EPC services for a class 1 energy-efficient air compressor station including various aftertreatment equipment.

Cameron印象

Used to CAMERON parts processing, machine OEM for 8 years.



The original CAMERON workshop



MSG OEM





02

PART 02

Compressor Series

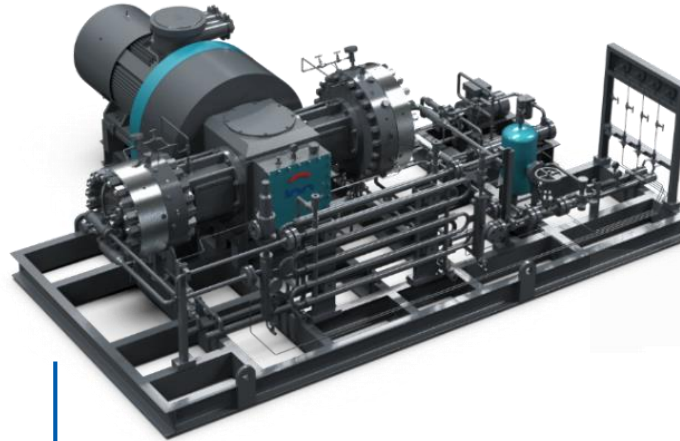
Compressor Category



Centrifugal Compressor

Typical Applicable Fields:

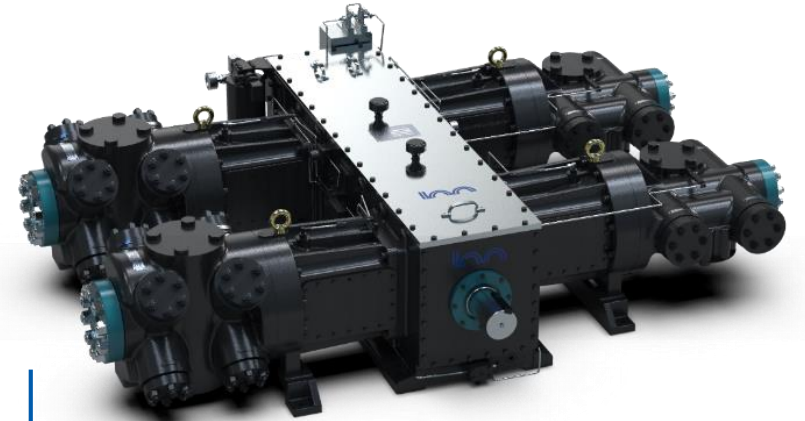
Air Separation
Petrochemical Industry
Standardized Air Compressor
Process Gas
Other



Diaphragm Compressor

Typical Applicable Fields:

Process gas supercharging in chemical and fine chemical industry
Gas filling
Hydrogen production
Hydrogen refueling station
Pharmaceuticals industry
Pesticide Industry
Polycrystalline silicon



High-speed Reciprocating Compressor

Typical Applicable Fields:

Natural Gas well
Gas processing plant
Gas gathering station
Gas pipeline pressurization
Gas storage
LNG plant
CNG Station

Typical Applicable Fields - Air Separation

Compressor

Flow Volume:

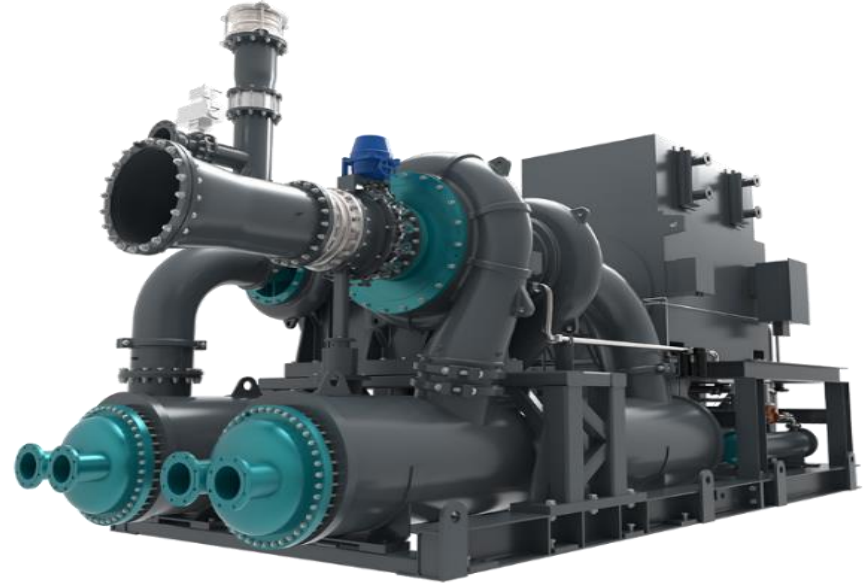
3,000Nm³/H-250,000Nm³/H

Inlet Pressure:

Atmosphere Pressure

Outlet Pressure:

4 bar - 11bar



Booster

Flow Volume:

8,000Nm³/H-200,000Nm³/H

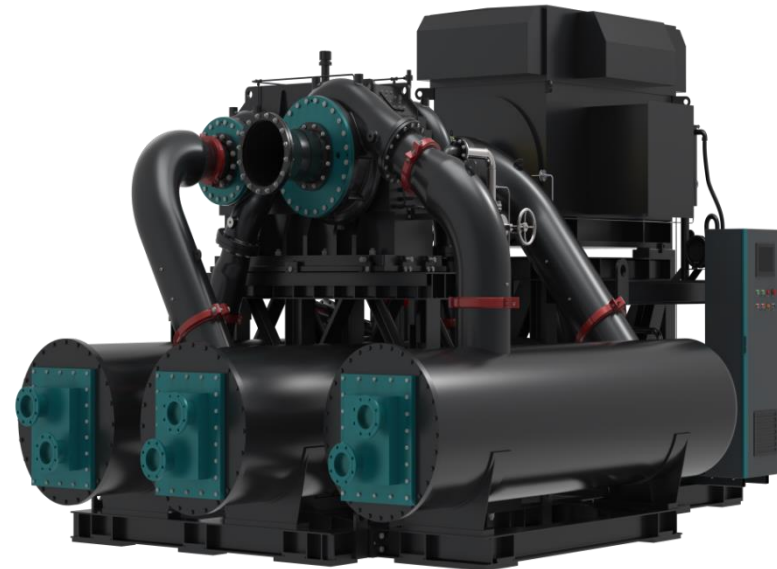
Inlet Pressure:

4bar - 5 bar

Outlet Pressure:

10 bar - 85bar

Gas: N₂ , AIR



Typical Applicable Fields - Petrochemical Industry

Compressor

Flow Volume:

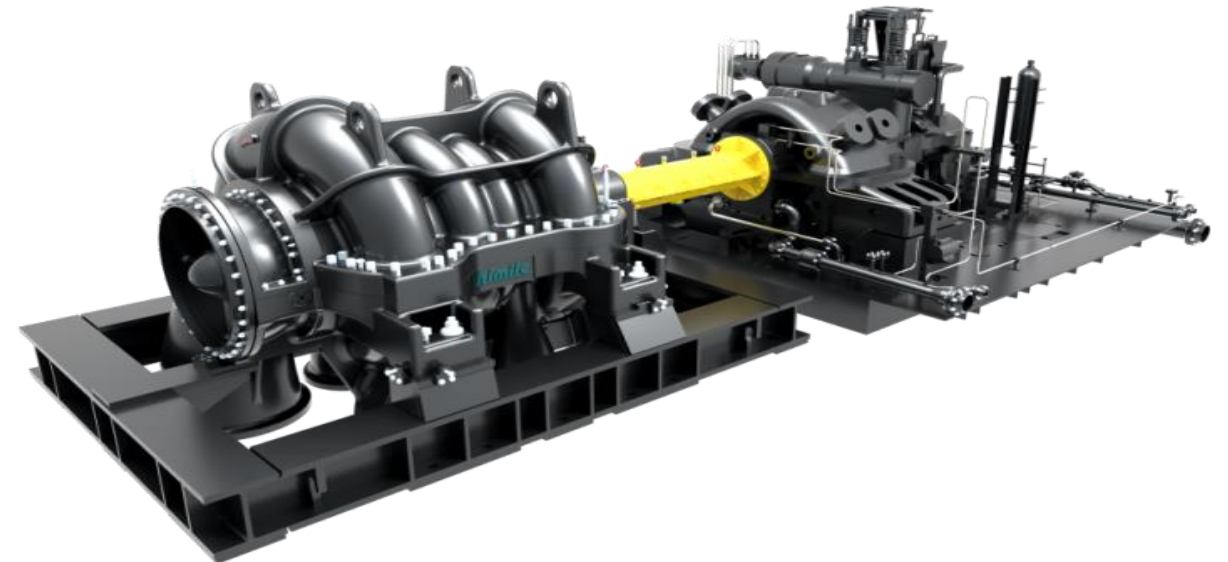
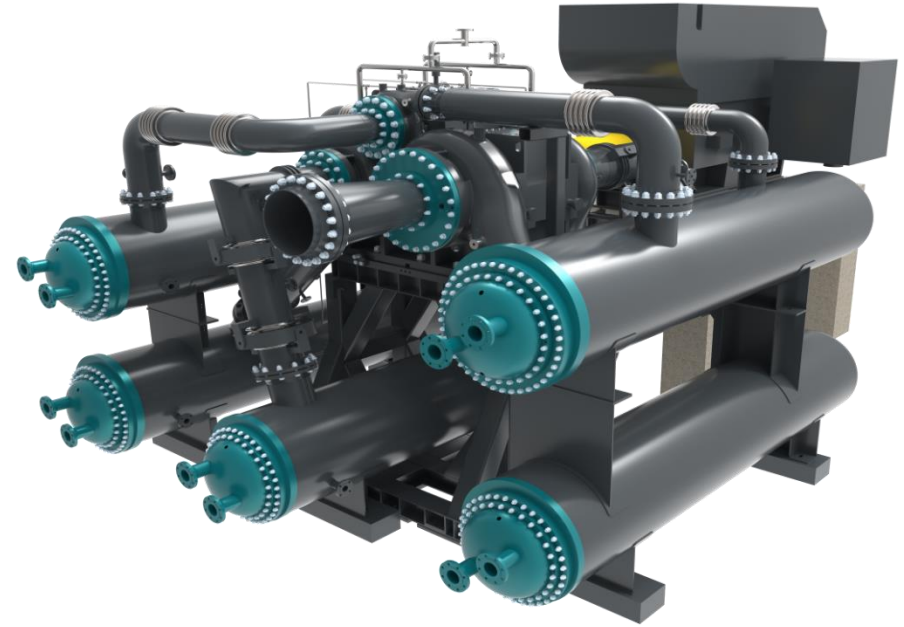
3,000Nm³/H-250,000Nm³/H

Outlet Pressure:

2bar-150bar

Application Gas:

Air, N₂, NH₃, Steam, CO₂,
SO₂, Cl₂, etc.



Centrifugal Compressors - Standardized Air Compressor

Compressor

Flow Volume:

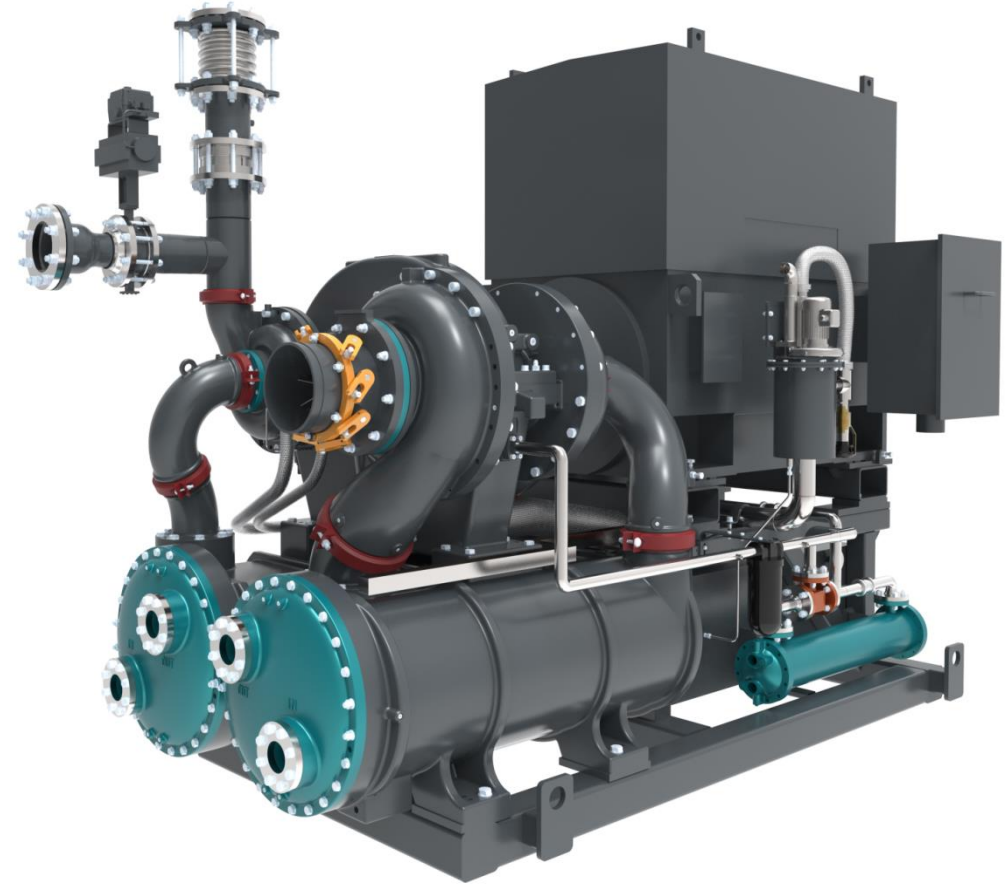
3,000Nm³/H-50,000Nm³/H

Outlet Pressure:

2bar-30bar

Application Gas:

Air, N₂





03

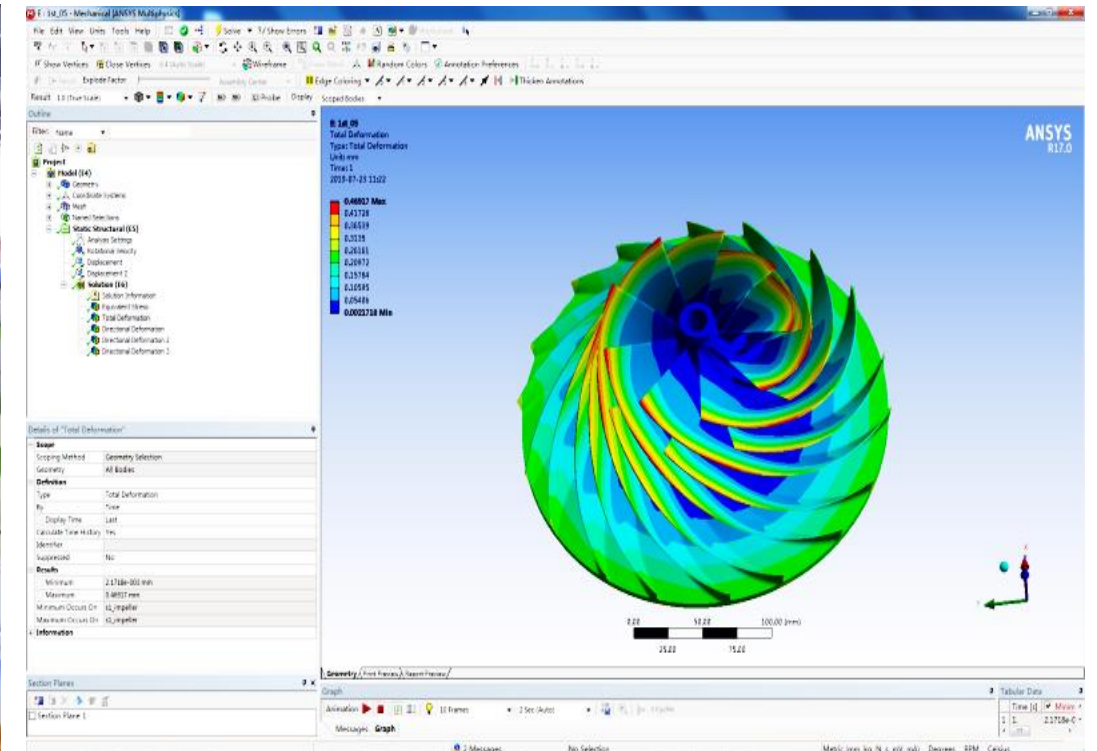
PART 03



Compressor Capability

Engineering Capability

- **4 Engineering & technical centers** - located in Huayi headquarter, Qingdao, Xian, Chengdu.
- **Comprehensive laboratories** - material test laboratory, fluid laboratory, thermal laboratory, and chemical laboratory.
- **Customized design & manufacturing solutions.**

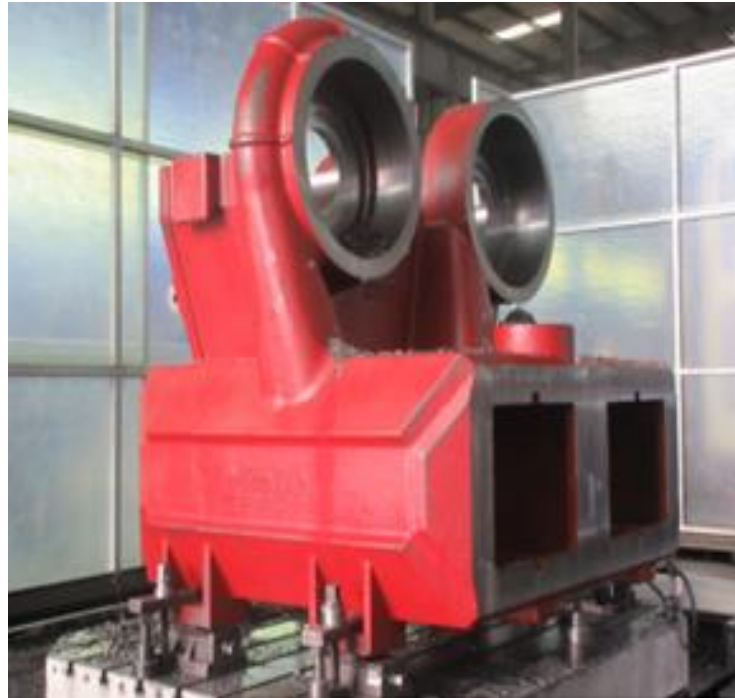


Manufacturing capacity - casting capacity

Our company has the world's most technically difficult integrated casting capabilities, can realize the gear box, cooler integrated casting, processing, to ensure that the unit modularity, less machining surface, processing error is small, better stability, less vibration.



Strong casting capabilities



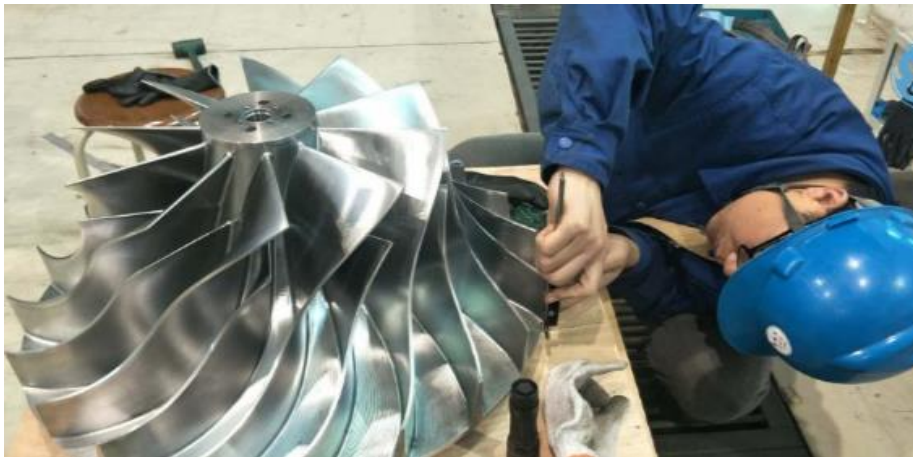
Integrated gearbox casting and machining



**The highest award of China International Foundry Fair:
Special Gold Award for Quality Castings**

Manufacturing capacity - core impeller machining

In 2015, the company invested RMB 250 million to build an impeller processing workshop. The high-precision impellers used in centrifugal compressors are processed in accordance with aviation-grade processing standards, which ensures the precision and quality of impeller processing.



Manufacturing capacity - gear processing capacity

The company has a full set of gear processing equipment, processing and testing technology, can meet the centrifugal compressor gear processing of various models, gear manufacturing accuracy can reach GB5 level or AGMA13 level or more.



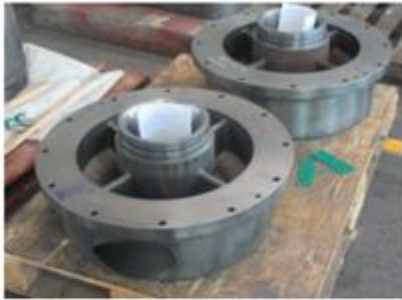
Manufacturing Capabilities - Other Compressor Component Machining

The company has been engaged in the production and research and development of various components for centrifugal compressors for many years, and has supplied products for many brands of turbomachinery all over the world, including intake guide vanes, intake cylinders, diffusers, worm housings, seals, oil tanks and so on.

进气导叶设计制造



各级进气缸设计制造



各级扩压器设计制造



各级排气蜗壳设计制



碳环式密封设计制造



迷宫式气密封设计制



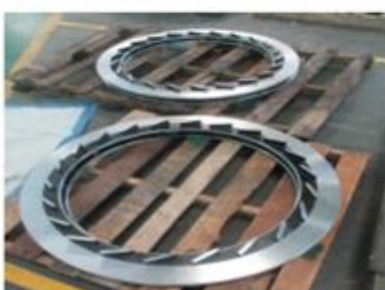
各级排气蜗壳设计制



各级轴承设计制造



各种扩压器设计制造



各级冷却器盖板设计



电机底座油箱设计制造



迷宫式油密封设计制



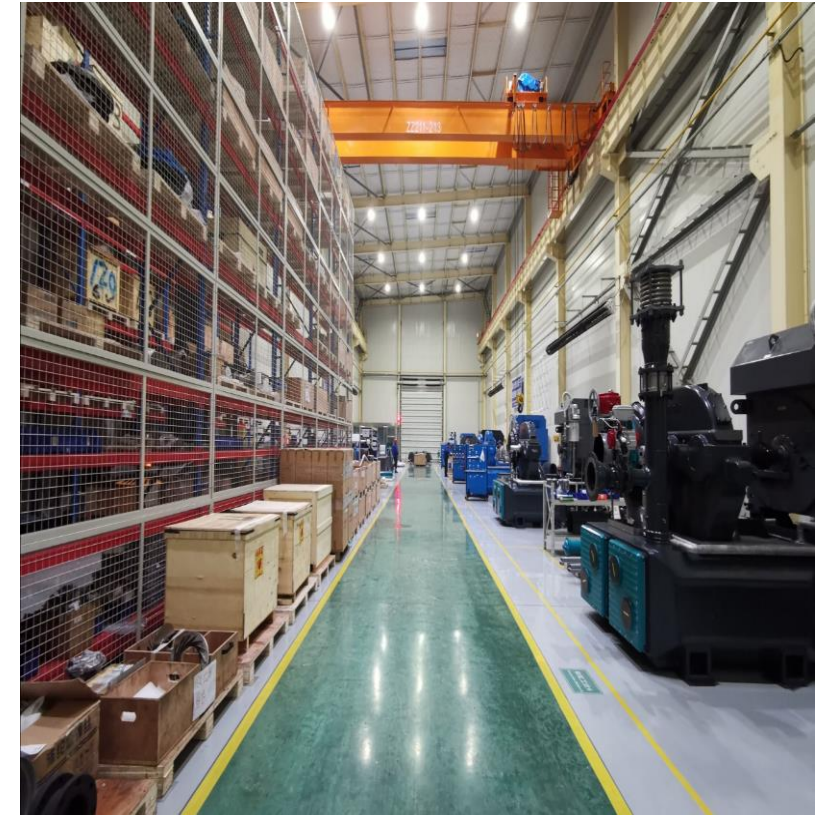
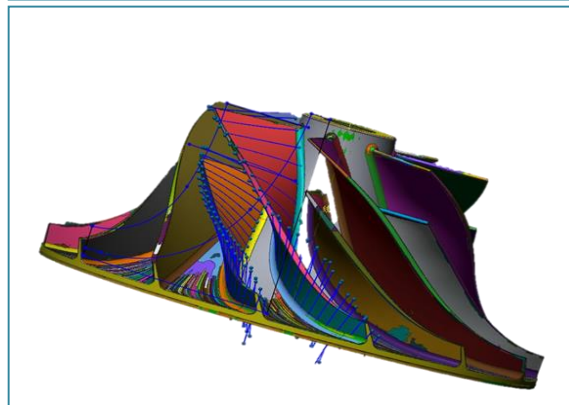
Introduction to Capabilities -- Detection Capabilities

The company has a number of coordinate testing equipment (Germany Leitz / Zeiss) for impeller testing. Large parts coordinate, gear tester, Schenck large and small balancing machine.



Competency Profile - Assembly Testing Competency

With Cameron's original assembly team, we are able to deliver qualified products in a timely manner in terms of quality and quantity in all aspects of mechanical, electrical, control and testing.



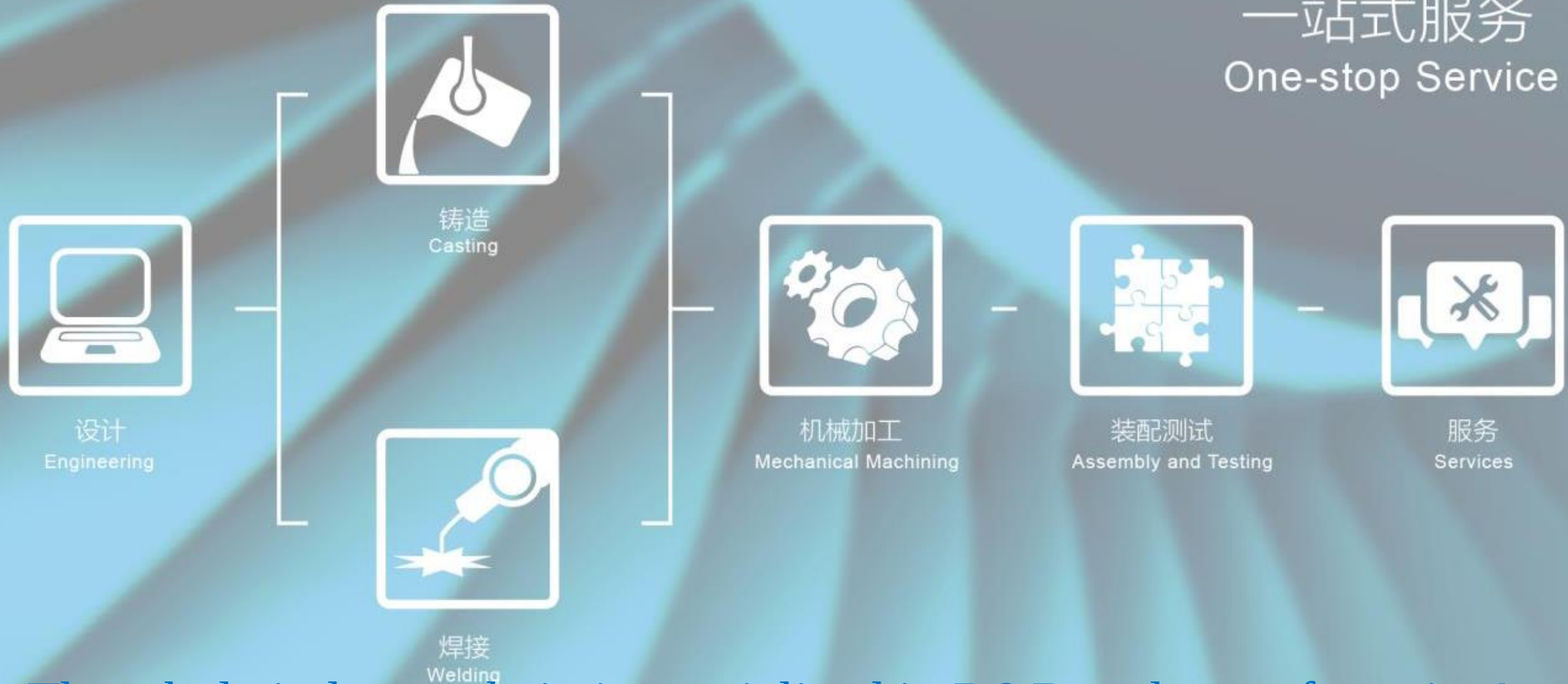
Compressor Test

- Automatic real-time monitoring data acquisition system
- High Precision Performance Test Platform

Compressor test ranges from $1000\text{Nm}^3/\text{H}$ to $250,000\text{Nm}^3/\text{H}$, and test accuracy within 1%



Overview: one-stop Service



The whole industry chain is specialized in R&D and manufacturing!



04

PART 04



After Sales Service

After Sales Service

- Unique authorized service center of Baker Hughes- Nuovo Pignone in China
- Upgrade, maintenance, re-manufacture for other brand compressors
- Customer includes AP, Air Liquide, Aero engine, CNPC, Sinopec, etc.

Baker Hughes 

AIR
PRODUCTS 

 **Air Liquide**

 **CAMERON**
A Schlumberger Company

SIEMENS

*Atlas Copco*

 **Ingersoll Rand**


SULLAIR


Hanwha

After Sales Service - Upgrade

- Change the discharge pressure of X brand compressor from 8barg into 4.6barg, which realized 15% efficiency saving



Description	Before	After
Flow Volume	220 m ³ /min	220 m ³ /min
Discharge Pressure	8.0 Barg	4.5 Barg
Shaft Power	1176kw	997kw
Electrical bill decreased 15,700USD/year		

After Sales Service - Remanufacturing

- Remanufacture the broken impeller of X brand compressor with a much lower cost and higher quality



After Sales Service - Maintenance

- Maintenance the high speed rotor of X brand compressor with a short lead time to satisfy the customer production plan





05

PART 05

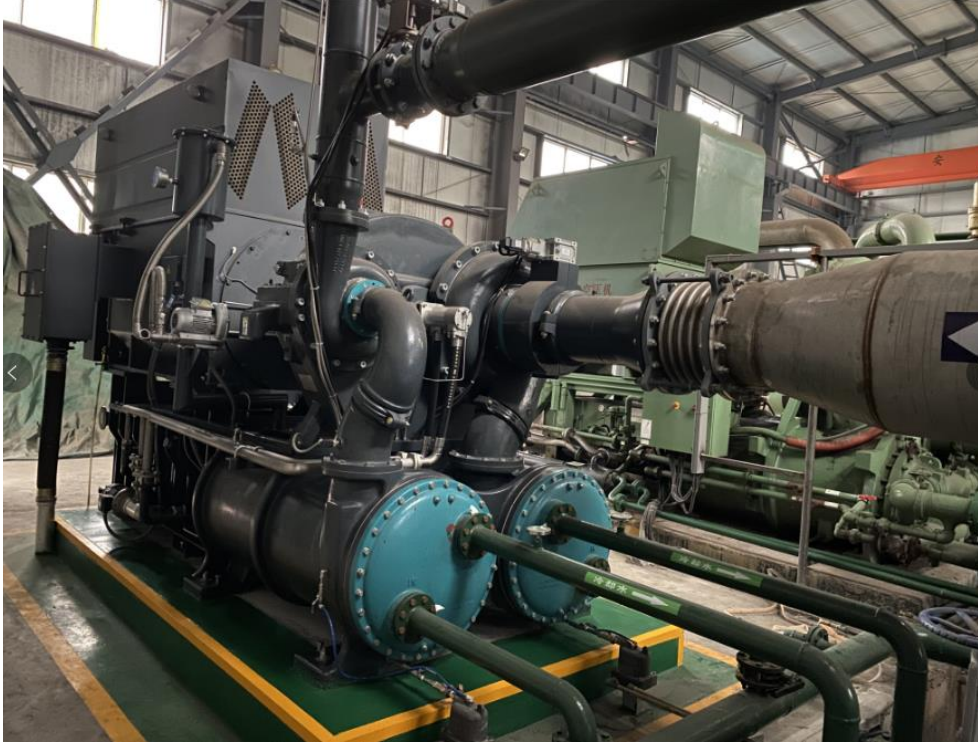
Project Reference

Project Reference – Petrochemicals

Contract signing time	Client	Parameters	Quantities
2021/5/21	Sinopec Guangyuan Natural Gas Purification Co.	9000Nm ³ /h, 0.95MPa (A)	1
2021/8/24	Yangzhou Petrochemical Co.	100 Nm ³ /min(0°C标方), 7Barg	1
2022/1/10	Sinopec Yangzi Petrochemical Co.	12000Nm ³ /h, 8Barg	1
2022/3/5	Shandong Cruor Chemical Co.	7800Nm ³ /h, 0.9MPa (A)	2
2022/5/30	Sinopec Shengli Oilfield Branch	100Nm ³ /min,4.7Bar(A)	1
2022/8/12	SINOPEC Jinling Branch	200Nm ³ /min, 0.75MPa	1
2022/11/24	ZhongHan (Wuhan) Petrochemical Co.	18000Nm ³ /hr,0.8MPa(G)	1
2023/3/25	Qilu Petrochemical Thermal Power Plant	7000Nm ³ /H, 0.8Mpa	1
2023/6/12	China Petroleum & Chemical Corporation Shengli Oilfield Branch	200Nm ³ /min, 0.9MPa (A)	1
2023/6/25	Zhenhai Refining & Chemical Branch	15000Nm ³ /hr,0.8Mpa(G)	1
2023/11/2	Qilu Petrochemical Water Supply and Drainage Plant	25000Nm ³ /h (0°C标) 0.8MPa (G)	2
2023/11/18	/Qilu Petrochemical Olefin Plant	18000Nm ³ /h (0°C标) 0.8MPa	1
2023/11/25	Shanghai Petrochemical	9000Nm ³ /h, 0.8MPa (G)	1
2024/3/28	Jinling Petrochemical	200Nm ³ /min, 0.75MPa(G)	2
2024/5/17	Jiujiang Petrochemical	200Nm ³ /min, 0.75MPa(G)	1
2024/6/14	China National Petroleum Corporation Jilin Petrochemical Company	7200Nm ³ /hr (0°C标方), 0.35MPa(G)	1



Project Reference – Chemical plant



◆ Flow Rate: 16000Nm³/hr

◆ Pressure: 0.6MPa(G)



◆ Flow Rate : 150m³/min

◆ Pressure : 9Bar(G)



Project Reference – Chemical plant



- ◆ Flow Rate : $195\text{m}^3/\text{min}$
- ◆ Pressure: 8.5Bar(G)



- ◆ Flow Rate : $240\text{m}^3/\text{min}$
- ◆ Pressure: 8.5bar(G)



Project Reference – Chemical plant



◆ Flow Rate : $240\text{m}^3/\text{min}$

◆ Pressure : 4.2bar(G)



◆ Flow Rate : $380\text{Nm}^3/\text{min}$

◆ Pressure : 0.9MPa(G)



Project Reference – Chemical plant



◆ Flow Rate : $210\text{m}^3/\text{min}$

◆ Pressure : 7.5bar(G)



◆ Flow Rate : $100\text{Nm}^3/\text{min}$

◆ Pressure : 5.7bar(G)



Project Reference – Chemical plant



- ◆ Motor drive: $48000\text{Nm}^3/\text{h}$ -0.58MPa
- ◆ Turbine drive: $96000\text{Nm}^3/\text{h}$ -0.58MPa



- ◆ Carbon dioxide compressors
- ◆ Flow Rate : $50000\text{Nm}^3/\text{h}$
- ◆ Pressure : 0.72MPa



Project Reference – Chemical plant



◆ Carbon dioxide compressors

◆ Flow Rate : 17821Nm³/h

Pressure : 1.4-148 BarA



◆ Flow Rate : 25670Nm³/h

◆ Pressure : 0.093MPa(A)-3.75MPa(A);

◆ Power: 5400kW



Project Reference – Chemical plant



- ◆ Flow Rate : 27247Nm³/H
Pressure: 0.071MPa-3.74MPa (A)
- ◆ Power: 5600kW



- ◆ Flow Rate : 196000NM³/H
Pressure: 0.57MPa
- ◆ 103300NM³/H; 2.8MPa (A)
Intermediate pumping
50000NM³/H; 7.25MPa (A)
- ◆ Power: 30000kW



Project Reference – Chemical plant



- ◆ Flow Rate : $45930\text{Nm}^3/\text{h}$,
- ◆ Pressure : $0.53\text{-}6\text{MPaA}$



- ◆ Flow Rate : $32000\text{Nm}^3/\text{h}$,
- ◆ Pressure : $0.58\text{-}6.2\text{MPaA}$



Project Reference – Chemical plant



Inlet flow rate: 80,000Nm³/h, discharge pressure: 6barg
Energy saving: Steam vapor consumption 10% lower than another brand

Project Reference – Air Separation



Project: 480t/d Liquid Air Separation

Compressor

Flow rate - 42,000Nm³/h

Discharge pressure - 5.7bar

Booster

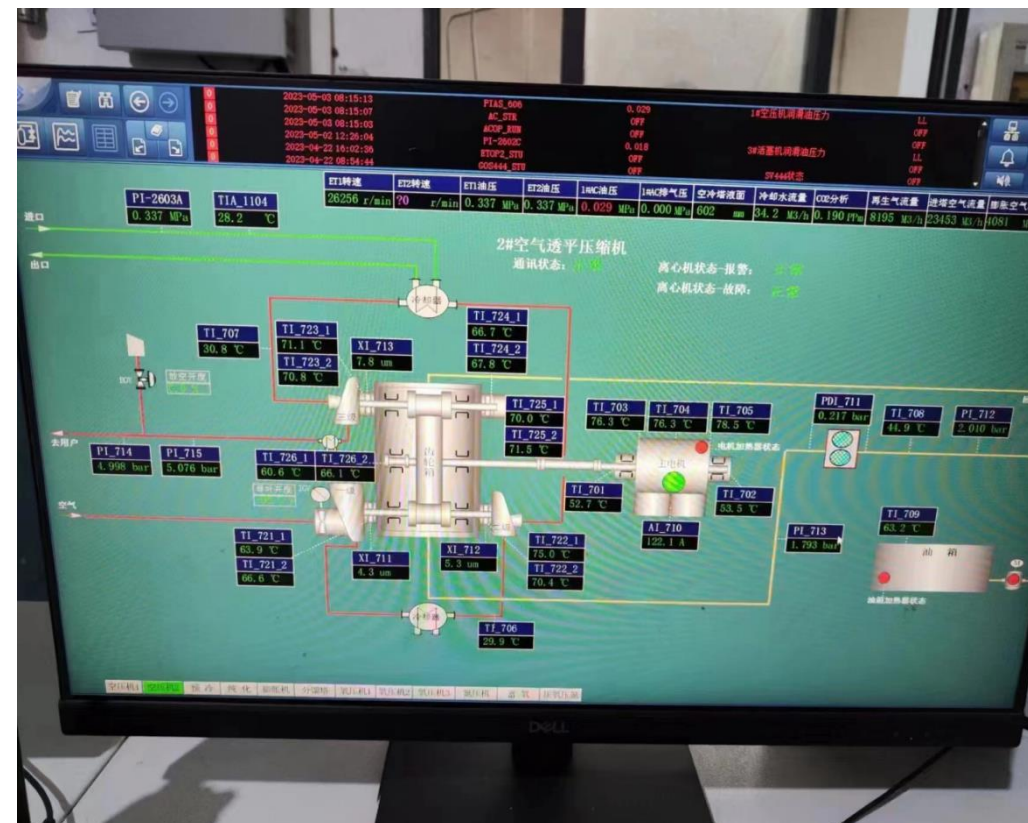
Flow rate – 100,000Nm³/h

Inlet pressure - 5.3bar

Discharge pressure - 29.5bar

Remark: isothermal efficiency-75%

Project Reference – Air Separation Compressor



Project: 5000 Nm³/h O₂ production Line, Compressor Replacement

Inlet flow rate: 24,000Nm³/h, discharge pressure: 6barg

Energy saving: 15%

Project Reference – Air Separation Compressor



Flow rate - 196,000Nm³/h

Discharge pressure – 6.2bar

**Structure – 4 stages compress
& 4 stage cooler**

Motor power – 18000kw

Project Reference – Air Separation Compressor



Medium gas - N₂

Flow rate - 10,000Nm³/h

Discharge pressure – 21bar

Project Reference – Process gas



Project: CCUS

Medium gas - CO₂

Flow rate - 10,792Nm³/h

Inlet pressure – 1.3bar

Discharge pressure – 70bar

**Structure – one motor driven
two gas end**

Project Reference – Process gas



- ◆ Carbon Dioxide Project
- ◆ Flow Rate : 17400 Nm³/h
- ◆ Pressure: 2.8 MPa



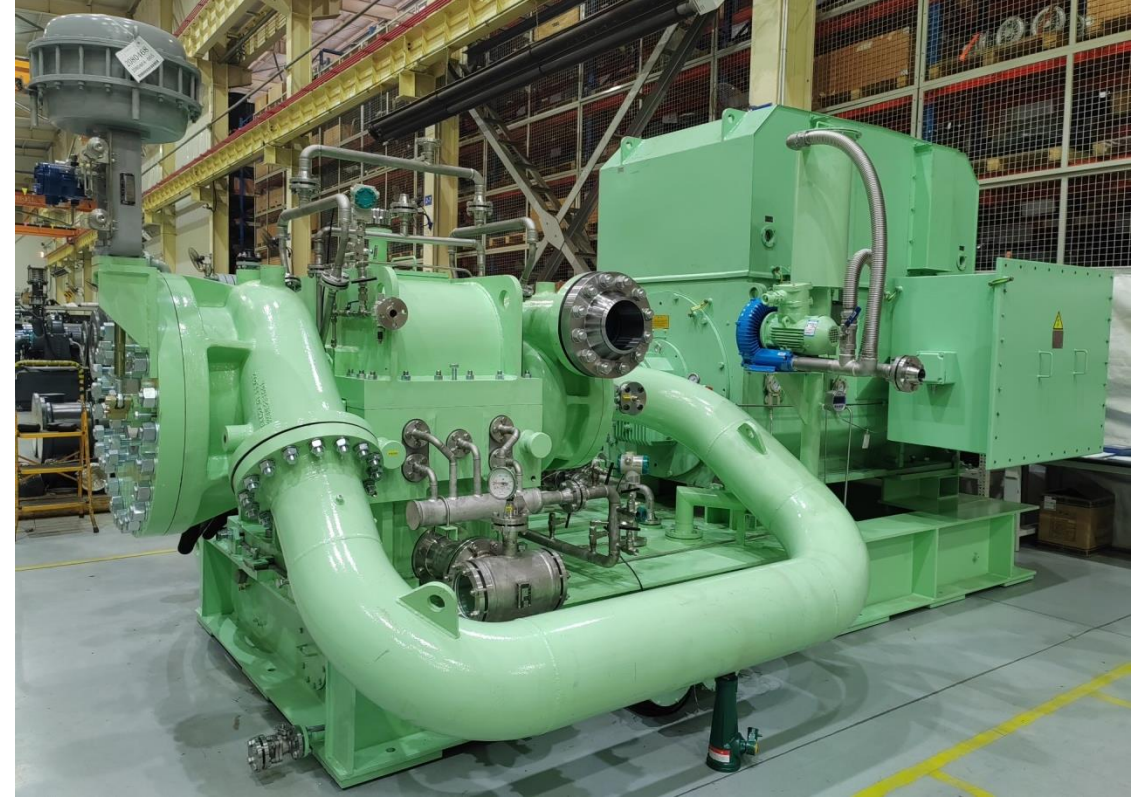
- ◆ Carbon Dioxide Project
- ◆ Flow Rate : 10792Nm³/h -7MPa
- ◆ Pressure: 7MPa
- ◆ 一拖二结构



Project Reference – Process gas



- ◆ Carbon Dioxide Project
- ◆ Flow Rate : 15000Nm³/h
- ◆ Pressure: 3.1MPa



- ◆ N2 Project
- ◆ Flow Rate : 110000Nm³/h
- ◆ Pressure: 4.8MPa(A)



Project Reference – Process gas



Medium Gas – Steam Vapor

Inlet flow rate: 13.1t/hNm³/h, Inlet pressure: 1.5bar, Discharge pressure: 6barg

Project Reference – standardized air compressor

