

SSE 股票代码: 603173



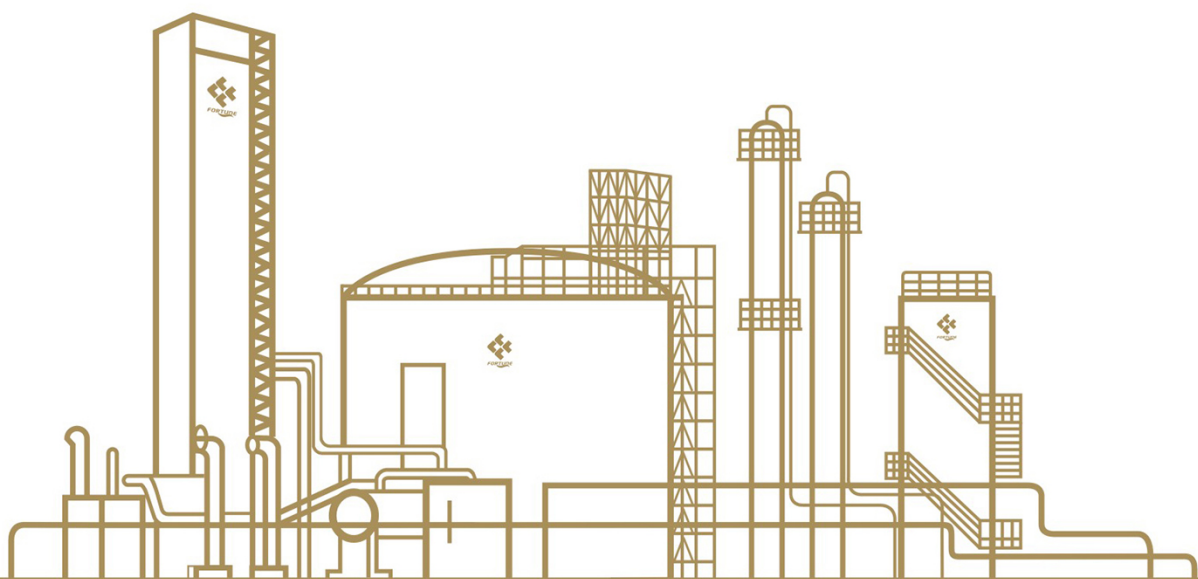
FORTUNE GAS REACHES THE WORLD

福气达天下

杭州福斯达深冷装备股份有限公司
HANGZHOU FORTUNE GAS CRYOGENIC GROUP CO., LTD.

成为全球领先的深冷系统解决方案提供商

TO BE A GLOBAL LEADING PROVIDER OF CRYOGENIC SYSTEM SOLUTIONS



PREFACE | 前言

40年来，福斯达始终秉承“180艰苦创业的奋斗者精神”，以公司战略为基石，以“诚实、感恩、严谨、爱心”的核心价值观为行动准则，“从每个细节开始关心客户”，努力打造“德式品质、浙企风格”的品牌定位。以人为本、矢志创新，坚持走可持续的健康发展道路，向“成为全球领先的深冷系统解决方案提供商”迈进。

Established in 1984, FORTUNE GAS has been adhering to the field of cryo-equipment for more than 40 years, and has built a reputation for its innovative culture, leading technology and excellent quality.

With the values of "honesty, gratitude, rigour and love", our passionate, talented and committed employees from diverse backgrounds are driven by FORTUNE GAS's higher purpose to be committed to becoming recognized as the best, most reliable, and most competitive cryogenic plant manufacturer in the world.

We will continuously spread the "striver" spirit, and strive to be a global leading provider of cryogenic system solutions!







40+
Years
Development

1000+
Employees

4
Fabrication
Bases

1000+
Cryogenic
Plants

杭州临平总部&技术研发中心
Headquarter and Engineering
R&D Center

COMPANY PROFILE | 简介

杭州福斯达深冷装备股份有限公司（股票代码: 603173 股票简称: 福斯达）创立于1984年，是专业从事各类工业气体深冷技术研发，深冷装备设计、制造和成套服务的国家级高新技术企业，是中国空气分离、天然气液化、低温化工和各类工业气体提制等深冷领域的核心供应商。公司拥有ISO9001、ISO14001、ISO45001认证以及美国ASME、韩国KGS、欧洲CE/PED、日本KHK、海关联盟EAC认证。

公司产品主要包括空气分离装置(80Nm³/h~120,000Nm³/h GOX)、天然气液化装置(1x10⁴Nm³/d~1000x10⁴Nm³/d)、高压绕管式换热器、低温化工冷箱、低温液体贮槽等深冷装备，广泛应用于天然气、煤化工、石油化工、钢铁、有色冶金、核电、医疗、航空航天、半导体、多晶硅、新能源电池等行业。

公司始终坚持“以客户为中心”的经营理念，依托先进的技术，精湛的制造工艺和技能，致力于为客户提供创新契合、高效安全、持续优化的工业气体解决方案和全方位技术服务，产品远销美国、日韩、欧洲、独联体国家、印巴、中东、中亚、东南亚、中南美洲、非洲等国家和地区。

FORTUNE GAS (Stock Code: 603173 in Shanghai Stock Exchange) is a professional LNG plant, air separation unit, coil-wound heat exchanger and cryogenic cold box manufacturer with ISO9001, ISO14001, ISO45001 & ASME, KGS, CE/PED, KHK, EAC system certified.

FORTUNE GAS has successfully designed, manufactured and delivered more than 1000 sets of air separation units, natural gas liquefaction plants and cryogenic chemical cold boxes all around China, USA, Japan, South Korea, Europe, CIS, India, the Middle East, Southeast and Central Asia, Latin America and Africa, etc. The clients include: Linde, Air Products, Praxair, Technip, Petrofac, Danieli Italy, Messer Germany, CNPC, SINOPEC, CNOOC, China State Nuclear Power Engineering, etc. Also, we have successfully won the largest "Belt and Road" air separation EPC project in China's cryogenic industry.

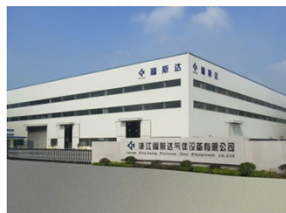
We treat all the cryogenic solutions with serious attitude and professional experience. With plenty experience of design and manufacturing LNG plant, air separation unit and other cryogenic equipments, we sincerely hope we can provide you with efficient, sustainable, customized solutions and excellent services.



杭州临平
“深冷装备制造基地”
Hangzhou Workshop I for
Small-middle Module



杭州临平
“4.0智能化无尘环保绿色制造基地”
Hangzhou Workshop 2 for Nonferrous
Metals Process Equipment Production



湖州德清
“深冷装备制造基地”
Huzhou Workshop for Carbon Steel
Process Equipment Production



嘉兴杭州湾
“大型模块化绿色智能超级工厂”
Seaport Workshop for Large Module
Max. Weight 1500t



COMPANY HISTORY | 发展历程

1984
-
2000

1984年 福斯达的前身 — “余杭县气体设备安装维修厂” 成立。

The predecessor of FORTUNE GAS – Governmental Yuhang Gas Plant Erection & Maintenance Factory was established.

1993年 第一套小型空气分离装置制作安装，投产成功。

The first small size Air Separation Unit (ASU) was manufactured and erected.

2000年 “杭州福斯达气体设备有限公司” 成立。

Reformed into a private company under the new name “FORTUNE GAS”.

2002年 取得ISO9001:2000认证，建立严格的质量保证体系；并于2015年，通过ISO14001:2004和OHSAS18001:2007认证。

2002: Got the certificate of ISO9001:2000;

2015: Got the certificates of ISO14001:2004 & OHSAS18001:2007.

2001
-
2005

2004年 开始研发天然气液化装置技术。

Started to research and develop the technology of Natural Gas Liquefaction (LNG) plants.

2005年 湖州德清生产基地 “浙江福斯达气体设备有限公司” 成立。

Established the second workshop to satisfy the rapid development of the company.

2005年 海外市场第一套装置 — 伊拉克GOX3000带氩空分装置。

Signed the first plant for overseas market – a GOX3000Nm³/h (100TPD) ASU with argon in Iraq.

2007年 成为林德工程空分装置的合格供应商。

Started the frame cooperation with Linde Engineering in ODM base, provided outstanding ASUs to Linde Engineering and Linde Gas.

2008年 首套全国产化天然气液化装置 — 山东泰安深燃15万方/天LNG装置投产。

The first Chinese local designed and manufactured LNG plant was successfully on stream and put into commercial operation.

2006
-
2010

2008年 荣获 “国家重点高新技术企业” 称号。

Honored as National High-tech Enterprise.

2009年 与美国空气化工合作，提供液体空分装置。

Became the qualified vendor of Air Products, USA, supplied a 200TPD liquid ASU with argon in the year.

2010年 成为国家核电深冷装置合格供应商。

Became the qualified vendor of “State Nuclear Power Technology Company”, started to provide cryogenic system to nuclear power stations in China.

2011
-
2015

2011年 与美国普莱克斯合作。

Became the qualified vendor of Praxair, USA, started to supply high purity nitrogen packages as per standard fixed by both companies in ODM.

2011年 为意大利达涅利提供GOX4700带氩空分装置。

Became the qualified vendor of Danieli, Italy, supplied a GOX4700Nm³/h (160TPD) ASU in the year which used inner compression process with argon production.

2012年 海外第一套空分EPC项目成功开车达产 — 林德巴基斯坦BOCP 130TPD全液体空分装置。

The first oversea practice of EPC project (130TPD full liquid ASU) in Pakistan for Linde Gas, plant was successfully commissioned in the year.

2013年 第一套6万等级空分装置 — 山西阳煤太化，正式进入特大型空分领域。

Successfully got the project to supply ASU in capacity of over 60,000Nm³/h GOX (2000TPD), stepped into large ASU club.

2013年 开始自主设计和制造绕管式换热器。

Started to design and manufacture high pressure coil-wound heat exchanger.

2014年 杭州临平总部及技术研发中心落成并投用。

Established headquarter & the third workshop, which mainly aimed to manufacture large ASU.

2016年 签订海外3套8.4万等级空分合同，国内出口最大空分EPC项目登陆海外；该项目首套装置于2021年新冠疫情期间顺利试车达产。
Got the project of 3 sets GOX84,000Nm³/h (2800TPD) large ASU out of China, which was the largest ASU EPC export contract in China so far. The first train of project had been successfully commissioned on 2021 during the COVID period.

2017年 为日本Iwatani提供高氮装置。

Successfully supplied the vacuum cold box GAN plant to Iwatani, Japan.

2018年 成为霍尼韦尔的合格的中国供应商，并为其提供PDH工艺配套设备。

Became the qualified vendor of Honeywell's global system, and started to provide process plants for their PDH system and other systems.

2020年 承接海外碳氢分离（HYCO）项目，正式进军高端石化领域。

Got the project for HYCO system, entered into petrochemical process system field.

2021年 国内冶炼行业最大的空分项目 — 广西崇左GOX85000空分装置。

Signed the largest ASU in domestic smelting industry - a GOX85,000Nm³/h (2900TPD) ASU.

2022年 杭州临平“4.0智能化无尘环保绿色基地”正式投产。

Established the new manufacture base which incl. R&D center and intelligent workshop.

2022年 签订深冷行业最大高氮项目 — 22万高氮装置，配套全球最大的乙烯一体化项目（也是中国“一带一路”最大的项目）。

Successfully signed the largest nitrogen plant in the world – 220,000Nm³/h high purity nitrogen plant for the world's largest ethylene integration project.

2023年 首次公开发行A股并成功登陆上交所主板，借力资本市场，迈入高速发展新征程。

Became the listed company in SSE (Shanghai Stock Exchange), the company had entered into a brand new developing era.

2024年 嘉兴杭州湾“大型模块化深冷化工装备绿色智能制造基地”正式投产。

Built the large-module workshop with sea port to support oversea business.

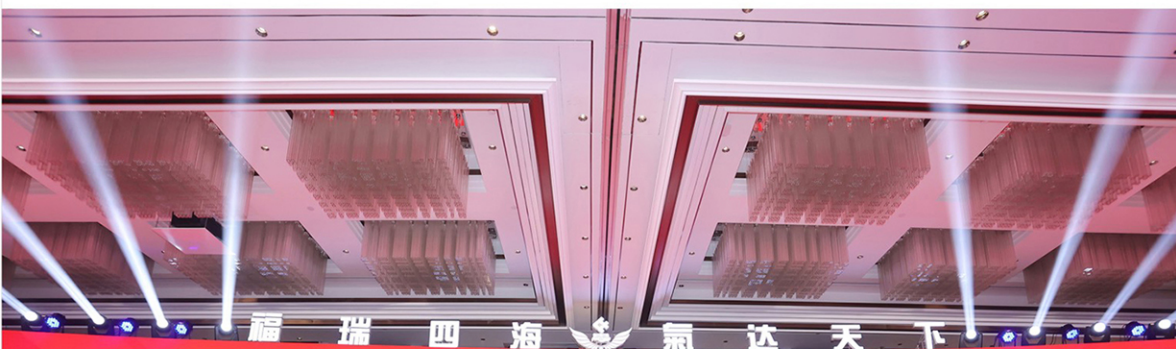


2023年 美国5套GOX23,000空分装置冷箱
5 Sets of GOX23,000Nm³/h (770TPD) ASU cold box to US

2011
-
2015

2016
-
2020

2021
-
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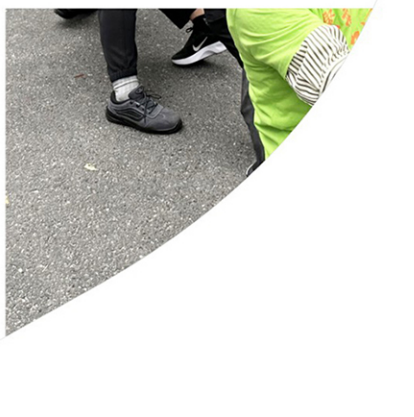
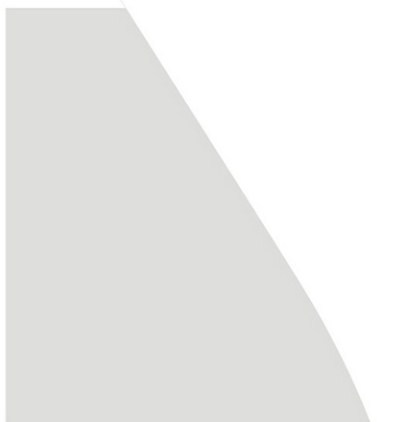


CORPORATE CULTURE

企业文化 |

我们的核心价值观 CORE VALUES

诚实 感恩 严谨 爱心
HONESTY · GRATITUDE · RIGOUR · LOVE

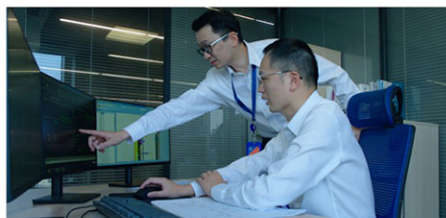


PERSISTENT INNOVATION

| 坚持不懈的创新

作为国家级高新技术企业，福斯达始终致力于深冷技术的研究、创新和发展，成功打造出一支经验丰富又极具创新、开拓精神的研发团队，并以比肩行业标杆的资源配比，组建了先进的工艺流程组织，专注于为客户提供高效契合、持续优化的深冷系统解决方案。

As a national high-tech enterprise, FORTUNE GAS has been committed to research, innovation and development in the field of cryogenic industry and successfully created a R&D team that is experienced, highly innovative and has a pioneering spirit. We set up an advanced process organization by matching industry benchmarking resources, and focus on providing our clients with efficient, sustainable, customized technologies and process solutions.



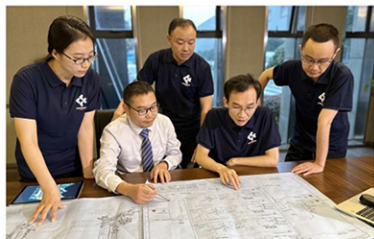
2023 福斯达 “创新先锋”
2023 FORTUNE INNOVATION AWARD



ADVANCED SUPPORTING DESIGN SOFTWARE

先进的设计软件支持

- 计算软件 Calculation Software
PVELITE / SW6 / HYSYS / ASPEN
- 结构软件 Structural Software
SAP / STAAD.PRO / ANSYS
- 管道软件 Pipeline Software
PDMS / CAESAR II / SOLIDWORKS





AIR SEPARATION UNIT | 空气分离装置

SCALE 规模等级

80Nm³/h ~ 120,000Nm³/h GOX

大、中、小型空分装置、全液体装置、液化装置、高氮装置、富氧空分装置
Large, Medium and Small Scale Air Separation Unit, Liquid Plant, Liquefaction Plant,
High Purity Nitrogen Generator, Rich Oxygen Unit

APPLICATION FIELDS 应用领域

冶金、钢铁、石油化工、煤化工、机械、环保、电子、医药、玻璃、轮胎、核电、航空航天、多晶硅、新能源电池等
Metallurgy, Steel, Chemical Industry (Petrochemical Industry, Coal Chemical Industry), Machinery, Environmental,
Electronics, Pharmaceutical, Glass, Tires, Nuclear Industry, Aerospace, Polysilicon, Energy, etc



- 1. 广西崇左GOX85,000空分装置 GOX85,000Nm³/h (2,900TPD) ASU for Copper Mining Complex
- 2. 海外400TPD液体空分装置 400TPD Liquid ASU for New Energy Field
- 3. 山东烟台GOX16,000富氧空分装置 GOX16,000Nm³/h (550TPD) Rich Oxygen ASU for Copper Mining Complex
- 4. 云南昆明两套GAN30,000高氮装置 2 Sets of GAN30,000Nm³/h (1,000TPD) Plant for MESSER in New Energy Field
- 5. 内蒙古乌兰两套GOX63,000空分装置 2 Sets of GOX63,000Nm³/h (2,100TPD) ASU for Coal Chemical Complex
- 6. 海外三套GOX84,000空分EPC项目 3 Sets of GOX84,000Nm³/h (2,800TPD) ASU EPC Project for Refinery Complex
- 7. 湖北鄂州GOX40,000空分装置 GOX40,000Nm³/h (1,400TPD) ASU for Steel Making Complex
- 8. 安徽郎溪GOX10,000空分装置 GOX10,000Nm³/h (340TPD) ASU for Steel Making Complex

1	2	3
4	5	
6	7	8

NATURAL GAS TREATMENT & LIQUEFACTION

| 天然气处理及液化

规模等级 SCALE

$1 \times 10^4 \text{ Nm}^3/\text{d}$ (7TPD) ~ $1000 \times 10^4 \text{ Nm}^3/\text{d}$ (2.5MTA)

天然气处理 Natural Gas Treatment

天然气凝液回收-低温工艺 Natural Gas Liquids Recovery (NGL)

氮气脱除单元 Nitrogen Rejection Unit

天然气脱水 Natural Gas Dehydration

胺洗装置 Acid Gas Removal-Amine Wash

天然气脱重烃 Natural Gas Heavy Hydrocarbon Removal

液化石油气 Liquefied Petroleum Gas (LPG)

天然气液化 Natural Gas Liquefaction (LNG)

氮气制冷剂技术 Nitrogen Refrigerant Cycle

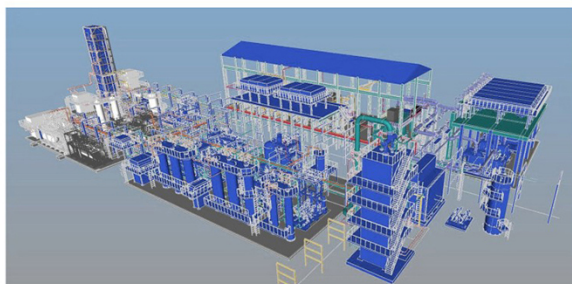
单混合制冷剂循环工艺 Single Mixed Refrigerant Cycle

双混合制冷剂循环工艺 Dual Mixed Refrigerant Cycle

丙烷预冷天然气液化工艺 Propane-MR Natural Gas Liquefaction

应用领域 APPLICATION FIELDS

- 管道气、煤层气、焦炉气、页岩气、沼气、煤制气等提纯液化
Pipeline Gas, Coal Bed Gas (Coal Bed Methane), Coke Oven Gas, Shale Gas, Bio Gas, Coal Gas Purification and Liquefaction
- BOG回收再液化
BOG Recovery and Liquefaction
- LNG汽化站、LNG加注站
LNG Vaporization Station, LNG Filling Station



1. 内蒙古包头50万方/天天然气液化装置 350TPD LNG Plant in Baotou, Inner Mongolia, China
2. 山东泰安15万方/天天然气液化装置 100TPD LNG Plant in Tai'an, Shandong, China
3. 深圳求雨岭30万方/天天然气液化装置 200TPD LNG Plant in Shenzhen, China
4. 海外15TPH全撬化LNG装置三维图 3D Model of Typical 15TPH LNG Plant (Full Skid)

1	2
3	4

德式品质 浙企风格
German Quality Made in Fortune



陕西宁强50万方/天天然气液化装置 350TPD LNG Plant in Shanxi, China

HYDROGEN & SYNGAS

合成气&氢 |

低温甲烷洗 CO Cold Box-Methane Wash

部分冷凝 CO Cold Box-Partial Condensation

甲醇裂解制氢 Methanol Steam Reforming

氢气液化 Hydrogen Liquefaction

天然气蒸汽重整制氢 Steam Methane Reforming

低温液氮洗 Liquid Nitrogen Wash



1 | 2

1. 海外碳氢分离(HYCO)装置

CO-H₂ Separation Cold Box for Overseas Market

2. 山东恒伟焦炉气制LNG及氢气分离装置

160×10⁴ Nm³/d COG to LNG and Hydrogen Plant
in Sangdong, China



RARE GASES

| 稀有气体

氪/氙 Krypton/Xenon

氦/氖 Helium/Neon

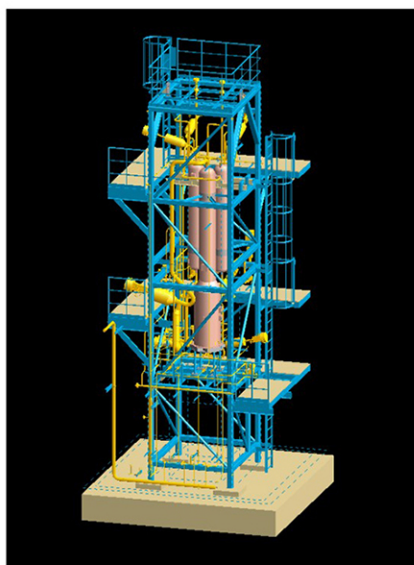
提氦及液化 Helium Extraction and Liquefaction

CO₂

| CO₂ 捕集综合利用

低温CO₂分离 H₂-Cryogenic CO₂ Separation

CO₂常温提纯 Normal Pressure CO₂ Purification



1. 河北昌黎稀有气体提取装置
Rare Gases Extraction Unit for Industrial Gases Field
2. 内蒙古赤峰GOX30,000空分及稀有气体提取装置
Rare Gases Extraction Unit of GOX30,000Nm³/h (1,000TPD)
ASU for Copper Mining Complex
3. 福建龙岩GOX48,000空分及稀有气体提取装置
Rare Gases Extraction Unit of GOX48,000Nm³/h (1,600TPD)
ASU for Steel Making Complex
4. 安徽淮南CO₂冷箱
CO₂ Cold Box



CHEMICAL COLD BOX

| 化工冷箱

开发出各种石油、化工工艺流程中的低温液化和提纯冷箱装置

FORTUNE GAS has developed various cryogenic liquefaction and purification cold boxes in the petrochemical process



乙烯冷箱 Ethylene Cold Box

液氮洗冷箱 Liquid Nitrogen Wash Cold Box

丙烷脱氢分离冷箱 Propane Dehydrogenation Separation Cold Box (PDH)

CO-H₂ 分离冷箱 CO-H₂ Separation Cold Box (HYCO)

工业级、食品级CO₂冷箱 Industrial-Grade and Food-Grade CO₂ Cold Box

化工尾气制取LNG冷箱 Tail Gas to LNG Cold Box

天然气轻烃分离冷箱 NGL Cold Box

脱甲烷冷箱 Demethanizer Cold Box

轻烃回收冷箱 Light Hydrocarbon Recovering Cold Box

1. 化工尾气制取LNG冷箱

Tail Gas to LNG Cold Box

2. 河南濮阳合成氨装置氢回收冷箱

Cold Box of Hydrogen Recovery from Ammonia Synthesis Process in Henan, China

3. 海外70Nm³/h MINI甲烷纯化装置 70Nm³/h MINI Methane pure plant for Overseas Market

1

2

3

COIL-WOUND HEAT EXCHANGER

| 绕管换热器



1. 荆门石化绕管换热器项目(煤制氢综合利用项目低温甲醇洗装置8套绕管换热器)
8 Sets of Coil-Wound Heat Exchanger in Rectisol Process System for Coal to Hydrogen Complex

规模等级 SCALE

公司设有绕管换热器的专用车间，并装备了具有国际先进水平的生产技术设备，共有绕管换热器专用数控缠绕设备多套，专用各种绕管配件非标机床，设备绕制芯体直径6米，绕管换热器制造重量单台可达420多吨

FORTUNE GAS has the world advanced workshop and facilities for the manufacture of coil-wound heat exchanger (CWHE), with a maximum capability of manufacturing the CWHE up to 6m of diameter and 420t of weight

应用领域 APPLICATION FIELDS

大化肥装置、空气分离、LNG、煤化工、乙烯工程、核工业、石油化工连续重整装置混合进料换热器等领域

The heat exchanger can be widely applied in large scale chemical fertilizer plant, air separation unit, LNG, coal chemical industry, ethylene engineering, nuclear industry, continuous reforming plant mixed feeding heat exchanger on petrochemical industry and other fields



CRYOGENIC LIQUID TANK

| 低温液体储罐



规模等级 SCALE

- 大型平底常压储罐 250m³~50,000m³
Cryogenic Flat-Bottom Storage Tank 250m³~50,000m³
- 真空粉末或高真空多层绝热贮槽 3.5m³~500m³
Vacuum Powder or High Vacuum Multi-Layer Insulated Storage Tank 3.5m³~500m³
- 低温液体罐箱 Cryogenic Liquid Tank Container

储存介质 STORAGE MEDIUM

液氧、液氮、液氩、液体二氧化碳、LNG、
液态乙烯、四氟乙烯、液氢等

Liquid Oxygen, Liquid Nitrogen, Liquid Argon,
Liquid Carbon Dioxide, LNG, Liquid Ethylene,
Tetrafluoroethylene, Liquid Hydrogen, etc

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2	
4	

1. 安徽宣城深燃150m³真空低温贮槽
150m³ Vacuum Cryogenic Storage Tanks
2. 阳煤集团2×3,000m³液氮、2×1,500m³液氧、500m³液氩储罐
2×3,000m³ Liquid Nitrogen, 2×1,500m³ Liquid Oxygen, 500m³ Liquid Argon
Storage Tanks for Large ASU Project in Coal Chemical Complex
3. 东洋工程四氟乙烯储罐
TOYO Japan: C₂F₄ Storage Tank
4. 深圳燃气20,000m³ LNG储罐
20,000m³ LNG Storage Tank for SHENZHEN GAS





VAPORIZER

| 汽化器

DISTILLATION COLUMN

| 精馏塔



		1	
2	3	4	

1. 精馏塔 Distillation Column for ASU
2. 核电站汽化器 (国家核电) Vaporizer to nuclear power stations (State Nuclear Power Technology Company)
3. 霍尼韦尔 PDH 工艺配套装置 PDH Process Plants for Honeywell
4. 海外GAN350真空冷箱高氮装置 Vacuum Cold Box GAN350 Plant to IWATANI (Japan)



GERMAN QUALITY LEAN MANUFACTURING

德式工厂 精益制造 |

精湛的技艺是福斯达40年来传承的财富。为保证产品的“德式品质”，我们导入精益管理体系——确保项目的所有环节都按照严格的管理制度执行，全体项目成员对生产过程的每一道工序都进行高标准的检查和控制。

我们秉承视质量为生命的理念，建立了严格的质保体系，先后通过了ISO9001、ISO14001、ISO45001的三体系认证以及美国机械工程师协会ASME“NB”和“U”钢印、韩国KGS、欧洲CE/PED、日本KHK、海关联盟EAC等国际产品体系认证，为客户交付高品质的产品。

FORTUNE GAS has accumulated exquisite production technology over the past 40 years, which has become the precious wealth of the company and continues to be passed on. In order to ensure all products can meet the requirements of "German quality", we have introduced the lean management system, which ensures that all project participants can strictly follow the management system, and all members carry out high standard inspection and control on each process of the production.

Adhering to the concept of quality as life, the company has established a strict quality assurance system. It has passed ISO9001, ISO14001, ISO45001 and other system certifications, as well as ASME "NB" and "U" certificates, KGS of Korea, CE/PED of Europe, KHK of Japan, EAC of Customs Union and other international product system certifications. All these certifications ensure that we can continue to deliver high quality products to our customers.



EXCELLENT SERVICE

| 从每个细节开始关心客户

为了维护客户的权益，福斯达在全球多地设立了代理办事处，并建立完善的售后服务体系以保证装置的长期稳定运行，公司同时拥有远程监控中心，提供远程诊断和大数据服务。

FORTUNE GAS has set up agent offices in many places around the world, and established a perfect after-sales service system to protect the rights and interests of customers, to ensure the long-term stable operation of the device. The company also has a remote monitoring center, which can provide remote diagnosis and big data services for overseas customers.

远程服务中心

Remote Monitor Service Center



我们将为客户提供从初始设计、制造、检验到售后服务的全项目生命周期的优质服务。

We will provide excellent service to our clients, covering the entire project life cycle, from initial design, manufacturing, inspection to after-sales service.



FORTUNE GAS REACHES THE WORLD

| 福瑞四海 氣达天下



我们的产品出口美国、欧洲、日本、韩国、独联体国家、印度、阿联酋、沙特、墨西哥、埃及等60多个重要的国家和地区。

We have successfully delivered our products to the United States, Europe, Japan, South Korea, CIS, India, Saudi Arabia, the United Arab Emirates, Mexico, Egypt and other more than 60 important countries and regions.



SUSTAINABILITY

| 可持续发展

福斯达在为客户创造价值的同时，始终以可持续发展为己任，助力行业缔造绿色未来。

Our ultimate goal is creating value for customers, and undertaking sustainable development as our mission to create a green future for the industry.





德式品质 浙企风格
German Quality Made in Fortune

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