



**TOGETHER WE CAN LEAD
A CLEAN ENERGY FUTURE**



查特 之城

Clean
and
Sustainable
Chart
City

NEXUS OF CLEAN™



- ① 液化天然气和氢液化
LNG and Hydrogen Liquefaction
- ② LNG加注和接收终端
LNG Bunkering & Receiving Terminals
- ③ 液化天然气卫星站
Satellite LNG Stations
- ④ 空气冷却式热交换器
Air Cooled Heat Exchangers
- ⑤ 汽化器
Vaporizers
- ⑥ 低温储罐
Cryogenic Bulk Storage tanks

- ⑦ 低温半挂车
Cryogenic Trailers
- ⑧ 液化天然气和氢燃料电池车
LNG and Hydrogen Vehicle Fuel Tanks
- ⑨ 船用燃料系统
Marine Fueling Systems
- ⑩ 水处理
Water Treatment
- ⑪ 成套制氧系统
Turn-Key Oxygen Systems
- ⑫ Microbulk运输系统
Microbulk Delivery Systems

- ⑬ CO2气瓶和供应系统
CO2 Cylinders and Supply Systems
- ⑭ 液化/压缩天然气、氢气加气站
LNG/CNG/Hydrogen Fueling Stations
- ⑮ 液化天然气和氢燃料加气机
LNG and Hydrogen Fueling Dispensers
- ⑯ 轴流风机
Axial flow fans
- ⑰ 特种热交换器和反应器
Specialty heat exchangers & reactors
- ⑱ 钎焊铝热交换器
Brazed aluminum heat exchangers

- ⑲ 冷箱
Cold Boxes
- ⑳ Chart Lifecycle
- ㉑ 包装气供气系统
Packaged gas systems
- ㉒ 液氮加注系统
Liquid nitrogen Dosing Systems
- ㉓ 低温ISO罐箱
Cryogenic ISO containers
- ㉔ 查特零件配送中心
Chart Parts distribution center

- ㉕ 真空绝热管道
Vacuum Insulated Pipe(VIP)
- ㉖ 工艺包
Chart Process Technology
- ㉗ 安全和工艺阀门
Safety and process valves
- ㉘ 碳捕捉
Carbon Capture
- ㉙ 透平膨胀机
Turboexpanders
- H1 风机
Fans

- H2 加热器
Heaters
- H3 压缩机
Compressors
- H4 鼓风机
Blowers
- H5 蒸汽涡轮机
Steam Turbines
- H6 采矿方案
Mining Solutions
- H7 海洋生态系统
Marine Systems



NEXUS OF CLEAN™




CLEAN CLEAN CLEAN CLEAN

 CHART DELIVERS CLEAN SOLUTIONS FOR

 Power

 Water

 Food

 Industrials



查特工业公司（Chart Industries, Inc. 纽交所代码：GTLS）是全球领先的深冷工程设备独立制造商，专注于能源和工业气体市场的多种应用。我们独特的产品组合适用于大气、碳氢化合物和工业气体，在整个液化气供应链中的生产、存储、配送和终端应用发挥作用。查特总部位于美国佐治亚州Ball Ground,在美国、中国、澳大利亚、印度、欧洲和南美洲拥有超过60个制造基地。

Chart Industries, Inc. (GTLS) is a leading independent global manufacturer of highly engineered equipment servicing multiple market applications in Energy and Industrial Gas. Our unique product portfolio is used throughout the liquid gas supply chain in the production, storage, distribution and end-use of atmospheric, hydrocarbon, and industrial gases. Chart is headquartered in Ball Ground, Georgia, USA and has over 60 manufacturing bases in the United States, China, Australia, India, Europe, and South America.

80年 低温深冷行业经验

80 years experience in Cryogenic industry

60年 工业气体深冷设备设计制造经验

60 years experience in Design and manufacture of industrial gas cryogenic equipment

30年 LNG国际项目验证

30 years verification of LNG international project

查特工业公司 及查特中国简介

Chart Industries, Inc. and Chart China Profile

查特中国

上世纪90年代初，查特在中国成立了第一家全资子公司，并致力于在中国的长足发展。查特中国重视核心能力建设和创新思维能力培养，坚持可持续发展战略，通过持续不断的投资、发展及技术研发，查特在中国三家工厂生产的产品在质量和可靠性方面与查特在欧美任何一家工厂生产的同等产品一致。查特中国已建设成为有能力为全球客户提供优质整体解决方案的专业公司。

查特中国专注于液化天然气、工业气体、液态氢气全产业链布局，提供清洁能源「储、运、加、用」一体化整体解决方案。

About Chart in China

Chart founded its first wholly owned corporation subsidiary in the early 1990's and committed to long-term development in China. Chart China attached great importance to the construction of core competencies and the cultivation of innovative thinking abilities, adhered to the sustainable development strategy. Through continued investment, development and research of best practice, products made in each of our current three Chinese facilities are consistent in quality and reliability with equivalent items manufactured in any of our US and European operations. Chart China has built a professional company capable of providing high-quality solutions to global customers.

Chart China is focusing on the whole industrial chain layout of liquefied natural gas, industrial gas and liquid hydrogen, and providing an integrated solution of "storage, distribution, processing and application" of clean energy.



企业资质

Enterprise Qualification

查特在中国的每家工厂都拥有所适用的相关国际认证，以及许多当地的质量、安全和环境许可证和认证。

Each of Chart China facilities holds all applicable international accreditations as well as many local quality, safety and environmental licenses and certifications.





我们重视研发投入，深入创新驱动发展，参与编写完成多项国家标准、行业标准和社会团体标准，致力于突破深冷技术难题，促进高质量专利产出和科技成果转化。

We attach importance to R&D investment, deepen innovation-driven development, participate in the compilation and completion of many national standards, industry standards and social association standards. Chart China committed to breaking through cryogenic technology problems, promoting high-quality patent output and scientific technological achievements.

部分专利证书 Partial patent certificates



部分标准 Partial standards



应用领域

Application Area

食品饮料 Food and Beverage



天然气液化 Natural Gas Liquefaction



生命科学 Life Science



石油化工 Petrochemical



空分工厂 Air separation plant



半导体 Semiconductor



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查特产业链

Chart Industrial Chain

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天然气和氢液化
Natural Gas and Hydrogen Liquefaction



冷箱
Cold Box

液化 Liquefaction

查特拥有工业气体、天然气和氢气的液化核心设备，冷箱和钎焊铝制板翅式换热器的制造工艺。查特独有的IPSMR®工艺技术较其他类似工艺的效率高10%。

Chart has the manufacturing process of cold box and brazed aluminum heat exchangers(BAHX), which is the core equipment of Industrial gas, natural gas and hydrogen liquefaction technology.

Chart's proprietary IPSMR® process technology is 10% more efficient than other comparable processes.

中游 Mid-stream



低温液体罐式集装箱
Cryogenic ISO Tank Container



深冷液体带泵运输车
Cryogenic Liquid Truck with Pump



深冷液体运输半挂车
Cryogenic Liquid Transport Semi-trailer

运输 Distribution

经过几十年的国际市场认证，查特已被公认为是提供深冷液体运输最佳解决方案的先驱。产品覆盖深冷行业全方位的运输领域，能够满足不同用户的需求，为其量身定制配送方案，提供最优服务。

After decades of international market certification, Chart has been recognized as a pioneer in providing the best solution for the transportation of cryogenic liquids. Chart offers a complete range of products for the safe and efficient distribution of liquid gases by road, rail and sea.

All Chart distribution products are supported by our best in class service packages.



下游 Downstream



储罐
Storage Bulk Tank



小型储罐
Perma-Cyl Cylinder



真空绝热气瓶
Insulated Cylinder(Dura)



汽化器
Ambient Air Vaporizer



真空管道
Vacuum Insulated Pipe



LNG加气站
LNG Fueling Station



LNG加气机
LNG Dispenser



船舶LNG解决方案
Marine LNG Solution

存储 Storage

查特低温液体储罐采用独特的高真空绝热技术，具有卓越的绝热性能，极低的使用成本，能最大限度保持真空时间。当前已生产制造最大1225m³容积的低温储罐，也可根据客户需求设计和制造多种不同规格储罐容积。

Chart cryogenic liquid storage tank adopts unique high vacuum insulation technology with excellent insulation performance and very low use cost, which can maximize the vacuum time. At present, we have produced a maximum 1225m³ volume of cryogenic storage tank, and can also design and manufacture a variety of different specifications of storage tank volumes according to customer needs.

终端应用 End-use

查特中国作为专业的低温装备制造和系统解决方案提供商，始终践行“以客户为中心”的理念，打造工业气体、液化天然气和液化氢气终端应用标杆。

As a professional low-temperature equipment manufacturer and system solution provider, Chart China has always adhered to the concept of "customer-centric" and created a benchmark for industrial gas, liquefied natural gas, and liquefied hydrogen terminal applications.

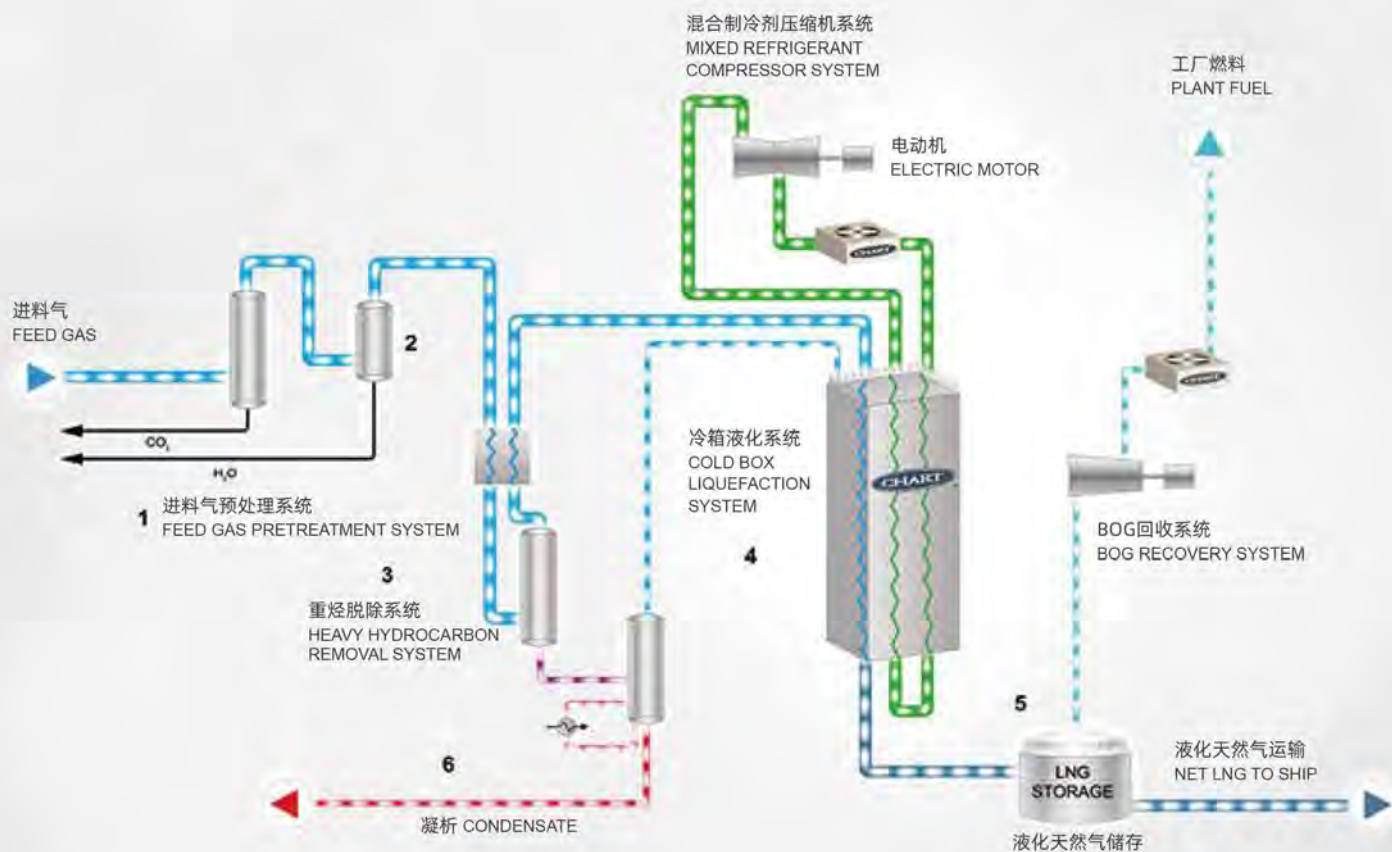
液化
Liquefaction

冷箱
Cold Box



查特IPSMR[®]液化工艺(包含重烃脱除系统)

Chart IPSMR[®] Liquefaction Process with HHC System



① 进料气预处理去除CO₂和水

Feed gas pre-treatment to remove CO₂ and water

② 清洁干燥的进料气 (无CO₂, H₂S, H₂O)

Clean & dry feed gas (free of CO₂, H₂S, H₂O)

③ 重烃脱除系统去除有可能在液化系统中冻结的重烃成分

Hydrocarbon Removal System removes heavy hydrocarbon components which have the potential to freeze in the liquefaction system

④ 查特IPSMR液化系统使天然气进料流从环境温度冷却到-261°F (-162°C)

Chart's IPSMR Liquefaction System cools the natural gas feed gas stream from ambient temperature to -261° F

⑤ 过冷的液化天然气用来最大限度地减少液化天然气储罐的闪蒸气

Sub-cooled LNG is used to minimize flash gas in the LNG Storage Tanks

⑥ 天然气凝析液或凝析油被送到凝析稳定器, 然后被存储

Natural gas liquids or condensate is sent to a condensate stabilizer and then to storage



●1994年，查特工业在美国丹佛推出第一代低温液体罐箱，数十年来赢得了全球客户的信赖，查特中国在2013年引进查特德国的技术，在查特全球技术专家指导下，开发了新一代低温液体罐式集装箱(UNT75)，产品融合先进的设计理念，更安全、更轻量化、更贴合市场的需求。

- 规格型号：10ft, 12ft, 20ft, 40ft, 45ft, 53ft T75 罐箱
- 不同介质：LH2/LHe/LIN/LOX/LAR/LCO2/LNG
ETHYLENE/ETHANE/LN2O

● In 1994, Chart Industries launched the first generation of cryogenic liquid tank in Denver, USA, which has won the trust of global customers for decades. Chart China was introduced the technology of Chart Germany in 2013, under the guidance of Chart global technical experts, developed a new generation of cryogenic liquid tank container (UNT75), which integrates advanced design concepts, safer, lighter and more in line with market needs.

- Specifications: 10ft, 12ft, 20ft, 40ft, 45ft, 53ft T75 tank container
- Different media: LH2/LHe/LIN/LOX/LAR/LCO2/LNG
ETHYLENE/ETHANE/LN2O



产品优势

Product Advantages

- 数十年的客户口碑积累;
 - 不同低温液体多式联运;
 - 满足不同市场标准要求;
 - 长期验证的安全结构设计;
 - 简单易维护的操作界面;
 - 市场验证的优秀的绝热性能;
 - 可根据客户要求定制;
 - 不断的更新迭代的产品, 持续提升使用体验。
- Decades of customer reputation accumulation;
 - Multi-modal transport of different cryogenic liquids;
 - Meet the requirements of different market standards;
 - Long-term verified safety structure design;
 - Simple and easy to maintain operation interface;
 - Excellent insulation performance verified by the market;
 - Can be customized according to customer requirements;
 - Constantly updating and iterating products to continuously improve the user experience.
 - Can be customized according to customer requests.
 - Constantly updating and iterating product to continuously improve customer experience.

部分型号规格

Partial Specification

规格 Dimension	型号 Model	容积(m ³) Capacity(m ³)	最大允许工作压力(MPa) MAWP (Mpa)	空重(Kg) Tare weight(kg)	最大装载质量(Kg) Payload(kg)	额定质量(Kg) Rating mass(kg)
20Ft	GX20.1/10-ASME-01 CS SI	20.11	1.0	7,230	28,770	36,000
	GX20.1/17-ASME-01 CS SI	20.11	1.7	8,280	27,720	36,000
	GX20.1/23-ASME-01 CS SI	20.11	2.3	9,400	26,600	36,000
	GX22/8-ASME-01 CS SI	21.6	0.8	6,990	29,010	36,000
	GX22/17-ASME-01 CS SI	21.6	1.7	8,110	27,890	36,000
	GX22/22-ASME-01 CS SI	21.6	2.2	8,980	27,020	36,000
40Ft	GX44/08-ASME-01 CS	43.38	0.8	11,400	24,600	36,000
	GX44/10-ASME-01 CS	43.38	1.0	12,000	24,000	36,000
	GX46/8-ASME-01 CS SI	45.6	0.8	11,320	24,680	36,000
	GX46/10-ASME-01 CS SI	45.6	1.0	11,900	24,100	36,000
45Ft	GX52/08-ASME-01 CS SI	51.14	0.8	12,900	23,100	36,000

注1:按相关标准及工况要求确定
2:其它型号可单独询问

Note 1: Determined according to relevant standards and working conditions
2: Other models can be enquired separately

液氢集装箱

LH₂ ISO Container



运输

Distribution

深冷液体运输半挂车

Cryogenic Liquid Transport Semi-trailer



● 深冷液体运输半挂车用于液化天然气、液氧、液氮、液氩、液氦等各种深冷液体以及液态二氧化碳的运输，产品按照国内相关规范要求进行设计和制作。

● The cryogenic liquid semi-trailer is used for the transportation of various cryogenic liquids such as oxygen, hydrogen, nitrogen, argon and carbon dioxide. The products are designed and manufactured in accordance with relevant domestic specifications.

● 内容器及管道使用奥氏不锈钢体，外容器使用优质碳钢材料并使用高质量涂料保护，夹层采用多层缠绕和深冷专用玻璃纤维的复合绝热系统提供优良的绝热性能。

● The inner vessel and the pipe are made of austenitic stainless steel. The outer vessel is made of high-quality carbon steel and protected by high-quality paint. The interlayer is made of high-vacuum multi-layer winding insulation system to provide excellent thermal insulation performance.

● 阀门舱操作部分采用下沉式结构设计，最大可能的按人体工程学设计，易于方便、安全地操作充装及卸液。

● The cabinet adopts a sunken structure design, and the maximum possible ergonomic design makes the operation convenient and safe.

● 产品可以根据客户需求采用外接电源，混合电源(外接电源+车载发电机)驱动，或者液压驱动的三种形式的低温液体泵。

● The product can be driven by external power supply, hybrid power supply (external power supply + vehicle generator), or hydraulically driven three types of cryogenic liquid pumps.

● 查特为运输半挂车提供1年的整车质量保证及3年的夹层真空度保证。

● Each trailer receives a comprehensive 12 months warranty and 36 months warranty with the vacuum quality.

工业气体运输半挂车 (IG Trailer)



液化天然气运输半挂车 (LNG Trailer)



液氢运输半挂车 (LH2 Trailer)



产品优势

Product Advantages

- 所有的操作阀门和仪表都按人体工程学设计，操作安全方便。
- 自重轻，有效装载最大化，提高运输效率，降低运输成本。
- 独立双回路压力释放装置和切换阀，并配备释放背压阀，安全可靠性能高。
- 配置功能齐全的后置控制箱。包括：液体充装和卸液控制阀，压力表，压差液位计，气体及液体取样接口，安全泄压装置。优质附件配置运行可靠性高。
- 防溜车系统可有效防止在未卸除充装软管状态下启动牵引车拉断软管或损坏设备。
- 行走机构可选装车轴、悬挂品牌及形式(例如:选用BPW或Hendrickson空悬碟刹车轴)，以空气悬挂、碟刹为标准配置。气囊的高度可调节。车轴经久耐用，使用寿命长，出色的性能，低维护成本。
- WABCO EBS防侧翻及防抱死刹车稳定系统。

- All operating valves and instruments are ergonomically designed for safe and convenient operation.
- Light weight, maximum effective loading, improve transportation efficiency, reduce transportation costs.
- Independent double circuit pressure release device and switch valve, and equipped with release back pressure valve, high safety and reliability.
- Equipped with fully functional rear control box. Includes: liquid filling and unloading control valve, pressure gauge, differential pressure level gauge, gas and liquid sampling interface, safety pressure relief device. High quality accessory configuration High operational reliability.
- Anti-skid system can effectively prevent the tractor from breaking the hose or damaging the equipment when the filled hose is not removed.
- The walking mechanism can be optional axle, suspension brand and form (for example: BPW or Hendrickson empty suspension disc brake shaft), with air suspension and disc brake as standard configuration. The height of the airbag is adjustable. Axle durability, long service life, excellent performance, low maintenance costs.
- WABCO EBS anti-rollover and anti-lock brake stabilization system.

部分型号规格

Partial Specifications

产品型号 Product model	CTZ9386GDY	CTZ9371GDY	CTZ9400GDY	CTZ9405GDYA	CTZ9400GDYA	CTZ9408GDY	CTZ9407GDYA
挂车型号 Trailer model	LNG三轴半挂车 LNG 3-axle semi-trailer		IG三轴半挂车IG 3-axle semi-trailer				
介质 Medium	LNG	LNG	LIN	LIN	LOX	LOX	LAR
全容积 Total volume (m ³)	52.6	51.6	39.07	37.23	29.4	28	23.8
设计压力 Design pressure (Mpa)	0.65	0.65	0.3	0.3	0.3	0.3	0.3
额定充装率 Rated filling rate	90.0%	90.0%	93.5%	95.0%	90.0%	92.0%	93.6%
绝热方式 Adiabatic mode	高真空多层绝热(铝箔+玻璃纤维纸) High vacuum multilayer insulation (aluminum foil + fiberglass paper)						
装卸方式 Loading and offloading mode	差压表卸 Differential pressure(Loading)/pump(Offloading)						
轴数 Axle number	3	3	3	3	3	3	3
整备质量 Tare weight (Kg)	14,900	15,625	11,300	12,000	10,340	11,000	9,660
额定载质量 Rated mass (Kg)	23,000	20,945	28,700	28,000	29,660	29,000	30,340
总质量 Total mass (Kg)	37,900	36,570	40,000	40,000	40,000	40,000	40,000
长度 length (mm)	13,100	13,725	12,800/12,500	12,630	11,460/10,960	12,130	11,460/10,960
宽度 width (mm)	2,550	2,550	2,500	2,495	2,500	2,495	2,500
高度 height (mm)	3,950	3,965	3,680	3,720	3,570	3,530	3,370
离去角 departure angle (°)	17	14	13/16	14	13/17	14	13/17
配置车头形式 Tractor model	6x4牵引车(motor tractor)	6x4牵引车(motor tractor)	6x4牵引车(motor tractor)	6x4牵引车(motor tractor)	6x4牵引车(motor tractor)	6x4牵引车(motor tractor)	6x4牵引车(motor tractor)

产品型号 Product model	CTZ9300GDY	CTZ9290GDY	CTZ9180GDY	CTZ9181GDY	CTZ9183GDY	CTZ9180GYU
挂车型号 Trailer model	IG两轴半挂车 IG 2-axle semi-trailer		IG单轴半挂车 IG 1-axle semi-trailer			
介质 Medium	LIN	LOX	LIN	LOX	LAR	LCO2
全容积 Total volume (m ³)	28.33	17.52	28.33	11.7	9.63	10.62
设计压力 Design pressure (Mpa)	0.3	0.8/1.6	0.3	0.5	0.5	2.4
额定充装率 Rated filling rate	90.0%	92.0%	90.0%	90.2%	94.0%	90.0%
绝热方式 Adiabatic mode	高真空多层绝热(铝箔+玻璃纤维纸) High vacuum multilayer insulation (aluminum foil + fiberglass paper)					
装卸方式 Loading and offloading mode	差压(装载)/泵(卸液) Differential pressure(Loading)/pump(Offloading)					
轴数 Axle number	2	2	2	1	1	1
整备质量 Tare weight (Kg)	9,355	10,150	9,355	6,240	5,800	8,150
额定载质量 Rated mass (Kg)	20,145	18,400	20,145	11,760	12,200	9,850
总质量 Total mass (Kg)	29,500	28,550	29,500	18,000	18,000	18,000
长度 length (mm)	9,860	9,600	9,860	7,400	7,485	7,460
宽度 width (mm)	2,500	2,500	2,500	2,530	2,495	2,530
高度 height (mm)	3,670	3,280	3,670	3,160	2,980	3,070
离去角 departure angle (°)	13	13	13	13	16	13
配置车头形式 Tractor model	6x4/4x2牵引车(motor tractor)	6x4/4x2牵引车(motor tractor)	4x2牵引车(motor tractor)	4x2牵引车(motor tractor)	4x2牵引车(motor tractor)	4x2牵引车(motor tractor)

注:以上图片及数据仅供参考,实际结构及数据以实物为准。

Note: The above pictures and data are for reference only, the actual structure and data subject to our available products.

运输

Distribution

深冷液体带泵运输车

Cryogenic Liquid Transport Vehicle With Pump (ORCA)



● 深冷液体带泵运输车(又称ORCA) 用于液氧、液氮、液氩等各种深冷液体以及液态二氧化碳的运输，并做到对中小型深冷液体储罐液体充装的精准计量。

● 查特美国推出自主研发的带潜液泵的ORCA车(LOX/LCO2车为外置泵)为气体工业带来了一场革命，这是一种技术最先进、安全度最高、操作最简便、运行中无排放的深冷液体配送车辆，填补了全球低温运输行业的空白。

● 查特中国的ORCA系列低温液体配送车，遵照相关规定配置了卫星定位系统，具有定点为固定储罐充装的功能，充装过程无需冷泵、无液体损耗、精准计量，最大可能的为客户降低人工成本、提高运行效率、增加收益。

● Chart's ORCA is a cryogenic liquid transport vehicle with integral pump and accurate metering system, developed for the transportation and dispensing of many cryogenic liquids including oxygen, nitrogen argon, and carbon dioxide.

● When Chart launched the ORCA, complete with submerged pump, in the USA it revolutionized the gas industry. This is a cryogenic liquid distribution vehicle incorporating the most advanced technology, the highest safety, the simplest operation and no emissions in operation; filling a gap in the global cryogenic transportation industry.

● Chart China's ORCA series of cryogenic liquid delivery vehicles are equipped with a satellite positioning system in accordance with local regulations. They perform fixed tank filling and the process requires no pump cold, no liquid loss, with highly accurate metering. For our customers this means reduced labor costs, improved operational efficiency, and increased revenue.

产品优势

Product Advantages

- 采用潜液泵设计，无需冷泵，随到随充，灵活机动(LOX/LCO2车为外置泵)
- 阀门舱下沉设计，符合人体工程学
- 高度集成，一键式操作，避免误操作
- 采用德国FLOWCOM公司的高精度流量计，稳定可靠精准计量，具备票据打印功能
- 最先进的内容器支撑系统，保证车辆的运行可靠性
- 装有卫星定位系统，具有定点卸液功能
- 完备的电控系统，具有自动切断停泵功能
- 采用优质配件，故障率低，稳定性强

- Designed with a submerged pump, no need for a pump cold and easy to move with the charge (LOX/LCO2 is an external pump)
- Ergonomically designed sunken cabinet
- Integrated, one-button operation for optimum safety
- High-precision flowmeter from Germany (Chart's FLOW brand) with stable, reliable and accurate metering and ticket printing function
- The most advanced inner container support system ensures the reliability of the vehicle
- Satellite positioning system with fixed-point discharge function
- Complete electronic control system with automatic shut-off and pump stop function
- High quality accessories, low failure rate and high stability



ORCA 阀门舱



流量计 Flowcom 3000

型号规格 Type Specification

产品型号 Product model	CTZ5230GDY	CTZ5265GDYD	CTZ5268GDYD	CTZ5260GDYD	CTZ5261GYUD	CTZ5180GDY	CTZ5265GDYC	CTZ5268GDYC	CTZ5260GDYC
底盘型号 Running gear model	SITRAK-C5H	SITRAK-C5H	SITRAK-C5H	SITRAK-C5H	SITRAK-C5H	SITRAK-C5H	SCNNIA P320	SCNNIA P320	SCNNIA P320
介质 Medium	LNG	LIN	LOX	LAR	LCO2	LOX	LIN	LOX	LAR
全容积 Total volume (m)	19	17	12.9	10.84	11.9	8.2	17	12.9	10.84
设计压力 Design pressure (Mpa)	1.0	0.5	0.5	0.5	2.2	0.5/1.2	0.5	0.5	0.5
额定充装率 Rated filling rate	90%	91%	93%	93%	93%	88%	86%	88%	88%
绝热方式 Adiabatic mode	高真空多层绝热(铝箔+玻璃纤维纸) High vacuum multilayer insulation (aluminum foil + fiberglass paper)								
装卸方式 Loading and offloading mode	差压(装载)/泵(卸液) Differential pressure(Loading)/pump(Offloading)								
轴数 Axle number	3	3	3	3	3	1	3	3	3
整备质量 Tare weight (Kg)	15400	13630	12430	12140	14300	9880	14300	13100	12800
额定载质量 Rated mass(Kg)	7910	12240	13440	13730	11570	7990	11570	12770	13070
总质量 Total mass (Kg)	23440	26000	26000	26000	26000	18000	26000	26000	26000
长度 Length (mm)	9175	8825	8825	8825	8825	7100	8810	8810	8810
宽度 Width (mm)	2550	2550	2550	2550	2550	2550	2550	2550	2550
高度 Height (mm)	3600	3580	3350	3205	3280	3210	3580	3380	3235
离去角 Departure angle (°)	16/11	16/11	16/11	16/11	16/11	16/14	17/11	17/11	17/11
配置车头形式 Tractor model	6x4 国VI	6x4 国VI	6x4 国VI	6x4 国VI	6x4 国VI	4x2 国VI	6x2 国VI	6x2 国VI	6x2 国VI

注:以上图片及数据仅供参考, 实际结构及数据以实物为准。

Note: The above pictures and data are for reference only, the actual structure and subject to our available products.

查特推出的全套Microbulk运输系统(深冷液体带泵运输车(ORCA) +深冷液体小型储罐(PERMA))稳定可靠ORCA车提供对小型储罐Perma及普通标准罐的灵活、快速、可靠及精准地为各种工况不同的需求提供了解决方案。计量的深冷液体配送。ORCA车自动切断功能有效地消除了充装过程中的安全隐患和由于过充引起的产品损失。

Chart offers the complete MicroBulk delivery System (Cryogenic liquid transport vehicle with pump (ORCA) + Cryogenic liquid small storage tank(Perma)) stable and reliable solution for different needs of various working conditions. ORCA provides flexible, fast, reliable and accurate metering of cryogenic liquid distribution for small storage tanks Perma and common standard tanks. The automatic cut-off function effectively eliminates safety hazards during filling and product loss due to overcharging.



存储 Storage

储罐 Storage Bulk Tank



● 查特中国VS-GB系列真空绝热深冷液体储罐，符合中国国家标准法规要求，广泛用于液氧、液氮、液氢等深冷液体的储存以及使用，具有多种不同的规格，其中最大工作压力为8bar和16bar两种作为标准储罐系列。

● 除VS-GB系列储罐外，查特中国还提供VS-ASME(符合ASME标准)及VS-AS(符合AS1210标准)等系列储罐以满足海外地区客户的需求，特殊规格的储罐可根据用户的要求定制，查特中国已设计和制造最大1000m³储罐。

● 作为中国液氢固定容器团标的制定者之一，查特中国可提供设计温度低至-253℃的液氢储罐。

● Chart VS-GB series vacuum insulated cryogenic storage tank, is in line with the requirements of national standards and regulations of China, widely used for storing and dispensing/discharging of liquid oxygen, liquid nitrogen, liquid argon and other cryogenic liquid. standard tank series available for maximum working pressure of 8bar and 16bar.

● In addition of VS-GB series tank, Chart China also provides VS-ASME(as per ASME code) and VS-AS(as per AS1210 code) series tank to meet the demands of oversea market, special specification of tank can be customize according to customer's requirement. Chart China designed and manufactured maximum 1000m³ tanks at Changzhou facility.

● As one of the setter of first liquid hydrogen storage tank group code in China. Chart China is able to provide liquid hydrogen storage tank with design temperature as low as -253℃.

液氢储罐 LH2 Storage Tank



产品优势

Product Advantages

内/外容器: 内容器采用适合深冷液体的奥氏体不锈钢材料设计制造，外容器采用优质碳钢设计制造。

绝热系统: 卓越保冷系统设计，先进的抽真空设备及完善的检测手段，确保卓越的绝热性能，承诺三年真空质保。

阀门管路系统: 紧凑的模块化管路设计，最大限度减少外部热损失；

采用组合阀方式，减少焊接接头，减少维护费用；

采用人体工程学原理设计管路，便于操作；

采用不锈钢管路，稳定持久；

内部管路利用先进的工程软件进行柔性计算和检查，确保产品质量；

压力调节: 采用易于调节的多功能组合调压阀，标准配置一只铝制自增压器；

仪表: 高质量压力表和差压式液位计作为标准配置；

深冷液体泵运用: 创新的“虹吸罐系统”，系统解决充灌站介质损耗，气堵及气蚀问题，让深冷液体泵随时快速启动；

储罐表面处理: 预处理采用高等级喷砂和除锈工艺，喷涂高质量、持久、耐腐蚀的户外型涂料；

稳固的运输支撑设计: 独特的内部支撑系统可以确保在公路、铁路或集装箱等运输方式下的安全性；

Inner/Outer Vessel: Inner vessel designed and manufactured with austenitic stainless steel material suitable for cryogenic liquid service, Outer vessel designed and manufactured with high quality carbon steel.

Insulation System: excellent insulation system design, advanced vacuum pumpout equipment and professional testing methods which ensure excellent insulation performance, 3-years warranty on vacuum integrity.

Plumbing System: Compact modular plumbing design, minimizing the external heat loss;

Adopting of combination valve to minimize weld joint and maintenance cost;

Ergonomic design, easy for operating;

Stable and long-life stainless steel piping design;

Annular piping is calculated and checked with advanced piping flexibility analysis software, ensure high product quality;

Pressure Regulation: An easy-adjustable combination multi functional combined regulator and an aluminum pressure build-up unit as standard configuration;

Instrument: High quality pressure gauge and differential pressure level gauge as standard configuration;

Cryogenic liquid pump service: Recommend Chart creative "Siphon tank system", that resolve the problems of gas loss, gas block-up and cavitation, allow your pump start quickly at any time;

External surface treatment: Pre-treatment with high-level sand-blasting rust removal process,

paint with high quality, durable, corrosion-resistant outdoor coating;

Firm transportation support design: specified internal support system ensures tank safety in transportation by road, railway or container;



部分型号规格

Partial Specification

型号 Model		VS11/8(16)-GB	VS16/8(16)-GB	VS21/8(16)-GB	VS30/8(16)-GB	VS40/8(16)-GB	VS50/8(16)-GB
工作压力 Working pressure	barg	8(16)	8(16)	8(16)	8(16)	8(16)	8(16)
几何容积 Geometric volume	m ³	11.14	15.95	20.76	30.40	40.17	49.22
最大充装 Specified filling rate		95%					
介质 Medium		液氧、液氮、液氩 LOX、LIN、LAR					
蒸发率 %(液氧) NER%(LOX)		0.36	0.35	0.33	0.29	0.25	0.23
外型尺寸 Dimension	宽 W	mm	2250	2250	2250	2800	3080
	高 H	mm	2350	2350	2350	2820	3100
	长 L	mm	6355	8355	10355	10575	10750
设备重量 Weight	kg	6400(7050)	9080(9800)	9750(10850)	12860(14430)	17350(19200)	20300(22480)

注:

括号中的数据对应16bar标准罐的参数

充装率按相关标准规定确定

上述参数为设计值,仅供参考,实际数据以测量为准

虹吸罐的高度通常比对应标准罐高出500mm-1000mm左右

特殊压力、容积及流量规格可根据客户要求定制

Note:

The data in parentheses correspond to the parameters of the 16bar standard tank

The filling rate shall be determined according to relevant standards

The above parameters are for reference only, the actual data is subject to the measurement

The height of the siphon tank is usually about 500mm-1000mm higher than the corresponding standard tank.

Special pressure, volume and flow specifications can be customized according to customer requirements



●工业气体深冷液体小型储罐Perma系列产品是一个创新的Microbulk深冷液化气体存储平台，专为工业、科学和医学领域而设计，它更经济、更利于配送和更方便地用气。小型储罐Perma是查特依靠多年液化气体存储设备设计及制造经验发展而来，比传统使用的可运输的高压钢瓶或杜瓦瓶更高效、更经济、更可靠。

●小型储罐Perma给用户带来现场气体传输的便利。杜绝了在传统的更换钢瓶或杜瓦瓶时产生的纷争、浪费和人工费用。使用小型储罐Perma无需定期更换供气设备，无残留气体损失，无搬运用气设备时造成人员伤害事故的风险，无供气设备丢失和损坏的风险。

●小型储罐Perma专为高效用气而设计，可长期储存如液氧、液氮、液态天然气、液氢等介质的深冷气体。其卓越的绝热性能使得低温液体能长期保存，极少气化损耗。

● The Perma-Cyl series is an innovative MicroBulk gas storage platform that is designed to improve the economics, distribution and convenience of industrial, scientific and medical gases. Evolved from proven technology used for many years in Chart liquid cylinders, Perma-Cyl units are reliable, efficient and more economical than comparable transportable cylinders.

● The Perma-Cyl MicroBulk Storage System allows small users to enjoy the benefits of on-site gas delivery, gone are the hassles, waste, and expense of full-for-empty gas cylinders, Using Perma-Cyl storage tanks, there are no cylinders to change, no residual gas losses, no back, hand or foot injuries from handling cylinders, and no lost or damaged cylinders.

● Perma, a small storage tank, is designed for high efficiency and long-term storage of cryogenic gases such as lox, Lin, lng, lh2 and other media. Its excellent adiabatic properties make the cryogenic liquid can be stored for a long time with little gasification loss.

产品优势

Product Advantages

- 快速充装能力
- 无损耗/低损耗充装
- 优异的保温性能
- 当与ORCA车配套使用时，可自动满液位切断充装
- 标准的集成托盘基础，现场安装更便捷
- 预留液位、压力远传信号接口(更好的扩展性)
- 为包装气体或钢瓶气体用户提供首个现场灌装解决方案
- 尺寸、压力和结构满足绝大多数需求
- 容器容量230L至5000L
- 压力从1.6MPa至3.5MPa
- 专利的自动灌装关闭功能。当Perma-Cyl系统被充满时，Orca车系统会自动安全停止充装
- 高压型号可供应激光切割行业
- 组合压力控制调节器，带有千分尺调节旋钮或螺丝，更利于应用时的压力调节
- 使用压力范围广，符合各种工况使用条件
- 用于高纯度液体储存、压力上升慢，低管理成本
- 与ORCA车配合充装时自动满液位切断(专利设计)

- Fast filling capability
- No loss/low loss charging
- Excellent thermal insulation performance
- When used with ORCA car, it can automatically fill the liquid level and cut the filling
- Standard integrated pallet base, on-site installation is more convenient
- Reserved liquid level, pressure remote signal interface (better scalability)
- First on-site filling solution for packaged gas or cylinder gas users
- Size, pressure and structure to meet most needs
- Container capacity 230L to 5000L
- Pressure from 1.6MPa to 3.5MPa
- Patented automatic filling closing function. When the Perma-Cyl system is fully charged, the Orca car system automatically and safely stops charging
- High pressure models can supply laser cutting industry
- Combined pressure control regulator with micrometer adjusting knob or screw, more conducive to pressure regulation in application
- Wide range of pressure, in line with various working conditions
- Used for high-purity liquid storage, slow pressure rise, low management costs
- Automatic full level cutting when filling with ORCA car (patented design)



型号规格-氧氮氩标准版

Type Specification-AIG Standard Series

SPECIFICATIONS (AIG) — Standard Series										
型号MODEL	450 L	1000 L	1000 L	1000 L	2000 L	2000 L	2000 L	3000 L	3000 L	3000 L
	HP	MP	HP	VHP	MP	HP	VHP	MP	HP	VHP
	Pallet Base	Pallet Base	Pallet Base	Pallet Base	Pallet Base	Pallet Base	Pallet Base	Pallet Base	Pallet Base	Pallet Base
容积 Capacity (liters)										
几何容积 Gross	450	1010	1010	1010	2070	2070	2070	2980	2980	2980
净容积 Net	414	929	929	929	1904	1904	1904	2742	2742	2742
充装率 Filling Rate										
试满 Trycock Level	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%
最大工作压力 MAWP										
psig	348	323	377	507	232	377	507	232	377	507
bar	26	16	26	35	16	26	35	16	24	35
存储能力 Storage Capacity (标况)										
LIN ($\rho=808.3\text{Kg/m}^3$) kg	335	751	751	751	1539	1539	1539	2216	2216	2216
LOX ($\rho=1141\text{Kg/m}^3$) kg	472	1060	1060	1060	2173	2173	2173	3128	3128	3128
LAR ($\rho=1400\text{Kg/m}^3$) kg	580	1301	1301	1301	2666	2666	2666	3838	3838	3838
日蒸发率 Thermal Performance (NER%/Day)										
N ₂	1.80%	1.00%	1.00%	1.00%	0.70%	0.70%	0.70%	0.60%	0.60%	0.60%
O ₂ - Ar	1.12%	0.62%	0.62%	0.62%	0.45%	0.45%	0.45%	0.40%	0.40%	0.40%
气体输送率 Gas Delivery Rate (LIN/LAR/LOX)										
Nm ³ /h	15	20	20	25	35	35	75	50	50	75
气化能力 VAP Capacity (LIN/LAR/LOX)										
Nm ³ /h	15	20	20	25	35	35	35	50	50	35
自增压气化能力 PB Capacity (CO ₂)										
Nm ³ /h	5	10	10	18	12	12	40	15	15	40
外形尺寸										
Diameter (mm)	940	1,200	1,200	1,200	1,390	1,390	1,390	1,770	1,770	1,770
Width (mm)	940	1,200	1,200	1,200	1,640	1,640	1,655	1,889	1,889	1,892
Height (mm)	1,930	2,380	2,380	2,380	2,890	2,890	3,000	3,010	3,010	3,080
空重 Tare Weight (kg)	420	796	796	891	1,160	1,206	1,351	1,580	1,730	2,030

所有规格数据本公司可能在没有任何通知的情况下更改。
 1) 存储能力基于毛容积和标况介质密度进行计算的。
 2) 毛重量不包含托盘质量，与实际重量存在误差，仅供参考。
 3) 所以尺寸是外部最大尺寸，与实际存在误差。
 4) 中国新桥不再生产GB标准的MP产品，ASME标准的MP产品正在生产。

All specifications are subject to change without prior notice.
 1) Masses are based on gross capacity. Actual masses are based on net capacity (standard data).
 2) Weight do not include base plate.
 3) All dimension are measured from the floor to the top of the highest plumbing component.
 4) MP model products of GB code in this sheet are no longer supplied for China Market. And MP model products of ASME code are normally supplied.



型号规格-氧氮氩加强版

Type Specification-AIG Standard Plus Series

SPECIFICATIONS (AIG) — Standard Plus Series

型号MODEL	1000 L	1000 L	1000 L	2000 L	2000 L	2000 L	3000 L	3000 L	3000 L	5000 L	5000 L	5000 L
	MP	HP	VHP	MP	HP	VHP	MP	HP	VHP	MP	HP	VHP
	Pallet Base	Pallet Base	Pallet Base	Pallet Base	Pallet Base	Pallet Base	Pallet Base	Pallet Base	Pallet Base	Pallet Base	Pallet Base	Pallet Base
容积 Capacity (liters)												
几何容积 Gross	1010	1010	1010	2,070	2,070	2,070	2,980	2,980	2,980	4,990	4,990	4,990
净容积 Net	929	929	929	1904	1904	1904	2742	2742	2742	4591	4591	4591
充装率 Filling Rate												
试满 Trycock Level	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%
最大工作压力 MAWP												
GB Code (bar)	16	25	35	16	25	35	16	25	35	16	25	35
ASME Code (bar)	16	26	35	16	26	35	16	24	35	16	24	35
存储能力 Storage Capacity (标况)												
LIN ($\rho=808.3\text{Kg/m}^3$) kg	751	751	751	1539	1539	1539	2216	2216	2216	3711	3711	3711
LOX ($\rho=1141\text{Kg/m}^3$) kg	1060	1060	1060	2173	2173	2173	3128	3128	3128	5238	5238	5238
LAR ($\rho=1400\text{Kg/m}^3$) kg	1301	1301	1301	2666	2666	2666	3838	3838	3838	6427	6427	6427
日蒸发率 Thermal Performance (NER%/Day)												
N2	11.00%	11.00%	11.00%	0.70%	0.70%	0.70%	0.60%	0.60%	0.60%	0.45%	0.45%	0.45%
O2 - Ar	0.62%	0.62%	0.62%	0.45%	0.45%	0.45%	0.40%	0.40%	0.40%	0.30%	0.30%	0.30%
气体输送率 Gas Delivery Rate (LIN/LAR/LOX)												
GB Code (Nm ³ /h)	40	40	40	45	45	100	55	55	100	80	80	100
ASME Code (Nm ³ /h)	47	47	47	100	100	100	100	100	100	100	100	100
外形尺寸												
Diameter (mm)	1,500	1,500	1,500	1,700	1,700	1,700	2,000	2,000	2,000	2,200	2,200	2,200
Width (mm)	1,500	1,500	1,500	1,700	1,700	1,700	3,000	3,000	3,000	2,300	2,300	2,300
Height (mm)	2,400	2,400	2,400	2,900	2,900	2,900	3,000	3,000	3,000	3,300	3,300	3,300

所有规格数据查特公司可能会在没有通知的情况下更改。

- 1) 存储能力是基于毛体积和标况介质密度进行计算的。
- 2) 毛重量不包含托盘质量，与实际重量存在误差，仅供参考。
- 3) 所以尺寸是外面最大尺寸，与实际存在误差。
- 4) 中国市场不再生产GB规范的MP产品，ASME的规范的MP产品正常生产。

All specifications are subject to change without prior notice.

- 1) Values are based on gross capacity. Air/gas vessel are based on net capacity at 0 psig (0 barg).
- 2) Weights do not include base plate.
- 3) All dimension are measured from the floor to the top of the highest plumbing component.
- 4) MP model products of GB code in this sheet are no longer supplied for China Market. And MP model products of ASME code are normally supplied.





型号规格-CO2

Type Specification-CO2

SPECIFICATIONS CO2

型号 MODEL	1000 L	3000 L	3000 L	5000 L
	HP CO2 Pallet Base	HP CO2 Pallet Base	HP CO2 Pallet Base	HP CO2 Pallet Base
容积 Capacity (liters)				
几何容积 Gross	1010	2,070	2,980	4,990
净容积 Net	929	1904	2742	4591
充装率 Filling Rate				
Trycock	92%	92%	92%	92%
最大工作压力 MAWP (GB & ASME)				
GB Code (MPa)	2.35	2.35	2.35	2.35
ASME Code (MPa)	26	26	24	24
存储能力 Storage Capacity (标况)				
Kg ($\rho=1029\text{Kg/m}^3$)	956	1959	2822	4724
Nm ³	484	992	1430	2393
日蒸发率 Thermal Performance (NER%/Day)				
CO2	0.30%	0.30%	0.30%	0.30%
Gas Delivery Rate 气体输送率 (CO2)				
GB Code (Nm ³ /h)	10	12	15	20
ASME Code (Nm ³ /h)	15	30	30	30
自增压气化能力 PB Capacity(CO2)				
Nm ³ /h	3	5	5	5
外形尺寸				
Diameter (mm)	1,500	1,700	2,000	2,200
Width (mm)	1,500	1,700	2,000	2,300
Height (mm)	2,400	2,900	3,000	3,300

所有规格数据亚特公司可能会在没有通知的情况下更改

- 1) 存储能力是基于毛体积和标况介质密度进行计算的。
- 2) 毛重量不包含托盘质量，与实际质量存在误差，仅供参考。
- 3) 所以尺寸是外圈最大尺寸，与实际存在误差。
- 4) 中国市场不再生产GB规范的MP产品，ASME的规范的MP产品正常生产。

All specifications are subject to change without prior notice.

- 1) Values are based on gross capacity. Airgas vessel are based on net capacity at 0 psig (0 barg).
- 2) Weights do not include base plate.
- 3) All dimension are measured from the floor to the top of the highest plumbing component.
- 4) MP model products of GB code in this sheet are no longer supplied for China Market. And MP model products of ASME code are normally supplied.





查特焊接绝热气瓶具有60多年的生产历史，是世界深冷行业中销售最大、最负盛名的品牌。工作压力涵盖低压(LP)、中压(MP)、高压(HP)和超高压(VHP)，产品容积大、蒸发率低，使用寿命长，可储存多种深冷液化气体，在全球广泛应用于实验室、食品饮料和工业等领域。

With nearly 60 years of production history, CHART liquid cylinder (Dura-Cyl) is the market leader and most prestigious and recognized brand in the cryogenic industry throughout the world. Working pressure covers low pressure(LP), medium pressure (MP), high pressure (HP) and ultra-high pressure (VHP). The product has large volume, low evaporation rate, long service life, and can store a variety of cryogenic liquefied gases, which are widely used in laboratory, food and beverage and industrial fields around the world.



产品优势

Product Advantages

- 全不锈钢结构，坚固耐用
- 行业领先查特独有的真空绝热技术
- 高强度C型底座，经久耐用
- 人性化设计高度，便于操作
- 根据不同产品配备指针式液位计/差压式液位计/浮子式液位计，装卸方便，直观明了
- 可定选架框式结构，全方位保护，运输便捷

- All stainless steel structure, sturdy and durable.
- Industry leading Chart's unique vacuum insulation technology.
- High strength C-shaped base, durable and durable.
- Highly user-friendly design for easy operation.
- Equipped with pointer type liquid level gauge, differential pressure type liquid level gauge, and float type liquid level gauge according to different products, easy to load and unload, intuitive and clear.
- Adjustable frame structure for all-round protection and convenient transportation.



型号规格

Type Specification

气瓶型号 Model		DPL700-390-1.38	DPL700-450-1.38	DPL700-450-2.01	DPL700-450-2.84
		MC390MP MCR	MC450MP MCR	MC450HP MCR	MC450VHP MCR
设计标准 Design code	GB/T24159-2022				
技术参数 Specifications					
安全阀设定压力 Relief valve set	MPa/Psig	1.58/230	1.58/230	2.41/350	3.27/474
静态日蒸发率 NER, (%/d)	LN2	1.84	1.80	1.80	1.81
	LO2 LAr	1.50	1.40	1.40	1.40
	LCO2	-	-	0.50	0.50
标况下气体体积 The volume of the gas in the standard conditions					
氮气N2	Nm ³	175	202	176	125
氧气O2	Nm ³	-	-	246	-
氩气AR2	Nm ³	226	261	239	217
二氧化碳CO2	Nm ³	-	-	212	200
外型尺寸 Dimensions					
公称容积 Gross capacity	L	390	450	450	450
瓶体直径 Cylinder diameter	cm	75	75	75	75
瓶体高度 Cylinder height	cm	141	156	156	156
框架高度 Frame height	cm	189	189	189	189
框架长度 Frame length	cm	88	88	88	88
框架宽度 Frame width	cm	88	88	88	88
瓶体空重 Empty cylinder weight	Kg	207	225	270	350
标配框架重量 Standard frame weight	Kg	78	78	78	78
充装液体重量 Liquid filling weight					
液态氮气 LN2*	Kg	219	253	220	156
液态氧气 LOX*	Kg	-	-	351	-
液态氩气 LAR*	Kg	402	464	426	387
液态二氧化碳 LCO2*	Kg	-	-	416	392
气流量 Gas flow					
氮气,氧气, 氩气 N2,O2,AR2	Nm ³ /h	14.3	15.1	15.1	15.1
二氧化碳CO2	Nm ³ /h	-	-	5.1	5.1

气瓶型号 Model		DPL550-240-0.69		DPL550-240-1.38		DPL550-240-2.01	
		DC230LP		DC230MP		DC230HP	
设计标准 Design code		GB/T24159-2022					
技术参数 Specifications							
安全阀设定压力 Relief valve set	MPa/Psig	0.15/22		1.58/230		2.41/350	
静态日蒸发率 NER, (%/d)	LN2	1.5		1.8		1.8	
	LO2 LAr	-		-		1.2	
	LCO2	-		0.5		0.5	
标况下气体体积 The volume of the gas in the standard conditions							
氮气N2	Nm ³	-		108		94	
氧气O2	Nm ³	-		-		131	
氩气AR2	Nm ³	-		139		128	
二氧化碳CO2	Nm ³	-		-		113	
外型尺寸 Dimensions							
公称容积 Gross capacity	L	240		240		240	
瓶体直径 Cylinder diameter	cm	60.6		60.6		60.6	
瓶体高度 Cylinder height	cm	163		163		163	
瓶体空重 Empty cylinder weight	Kg	160		178		185	
充装液体重量 Liquid filling weight							
液态氮气 LN2*	Kg	171		135		117	
液态氧气 LOX*	Kg	-		-		187	
液态氩气 LAR*	Kg	298		247		227	
液态二氧化碳 LCO2*	Kg	-		-		222	
气流量 Gas flow							
氮气,氧气, 氩气 N2,O2,AR2	Nm ³ /h	-		10.5		10.5	
二氧化碳CO2	Nm ³ /h	-		2.9		2.9	

气瓶型号 Model		DPL450-105-0.35/1.38		DPL450-175-1.38/2.01		DPL450-190-1.38/2.01		DPL450-205-1.38/2.01		DPL450-200-2.84
		DC100LP(带轮)	DC100MP MCR(带轮)	DC160MP MCR	DC160HP MCR	DC180MP MCR	DC180HP MCR	DC200MP MCR	DC200HP MCR	LC200VHP MCR
设计标准 Design code		GB/T24159-2022								
技术参数 Specifications										
安全阀设定压力 Relief valve set	MPa/Psig	0.15/22	1.58/230	1.58/230	2.41/350	1.58/230	2.41/350	1.58/230	2.41/350	3.27/474
静态日蒸发率 NER, (%/d)	LN2	2.7	2.8	2.1	2.3	2	2.1	2	2	2.4
	LO2 LAr	1.8	1.9	1.4	1.4	1.3	1.3	1.2	1.2	1.4
	LCO2	-	-	-	0.5	-	0.5	-	0.5	0.5
标况下气体体积 The volume of the gas in the standard conditions										
氮气N2	Nm ³	60	47	78	69	86	74	92	80	55
氧气O2	Nm ³	-	-	104	95	112	104	121	112	99
氩气AR2	Nm ³	73	61	101	93	110	101	119	109	97
二氧化碳CO2	Nm ³	-	-	-	82	-	89	-	96	89
外型尺寸 Dimensions										
公称容积 Gross capacity	L	105	105	175	175	190	190	205	205	200
瓶体直径 Cylinder diameter	cm	50.8	50.8	50.8	50.8	50.8	50.8	50.8	50.8	50.8
瓶体高度 Cylinder height	cm	127	127	152	152	162	162	167	167	167
瓶体空重 Empty cylinder weight	Kg	86	90	115	127	118	136	127	145	167
充装液体重量 Liquid filling weight										
液态氮气 LN2*	Kg	75	59	98	86	107	93	115	100	69
液态氧气 LOX*	Kg	-	-	148	136	160	148	173	160	142
液态氩气 LAR*	Kg	130	108	180	165	196	180	211	194	172
液态二氧化碳 LCO2*	Kg	-	-	-	161	-	175	-	189	174
气流量 Gas flow										
氮气,氧气,氩气 N2,O2,AR2	Nm ³ /h	-	-	9.2	9.2	9.2	9.2	10	10	9.2
二氧化碳 CO2	Nm ³ /h	-	-	-	2.9	-	2.9	-	2.9	2.9

终端应用 End-use

真空绝热气瓶 Insulated Cylinder(Dura)



超级深冷液氦杜瓦罐，专为液氦的可靠储存设计和制作。具有自重轻、易操作、高可靠性及超级绝热性能等特点。独特的颈管设计为允许的近距离移动过程提供足够的强度，简洁方形滑轮底座设计提供最大的稳定。

现有100L, 250L, 500L三种规格产品，
可选配绝对压力安全阀，可用空运。

He cryogenic ultra helium dewar is designed and manufactured for storage of liquid helium, It is lightweight, easy to operate and provides high reliability and superior insulating properties. The unique neck tube design provides sufficient strength to allow for close movement and outboard caster base provides maximum stability in a compact design.

Existing 100L, 250L, 500L three specifications of products, can be selected absolute pressure safety valve, available for air transport.

产品优势

Product Advantages

超级深冷液氦杜瓦罐的控制阀组及接头安装在顶部，非常便于操作，并可连接各种标准尺寸的软管。

- 质量轻，经久耐用
- 最佳的绝热性能
- 配置较大的球阀，可连接最大为3/4" (19mm) 输液管

Transfer lines the control valve sets and Joints are mounted on the top of Chart cryogenic ultra dewar for easy operation and can be connected to various standard size hoses,

- Maximum durability and light weight
- Super insulation
- Large ball valves for up to 3/4"(19 mm)

型号规格

Type Specification

规格名称 Model name		HE100	HE250	HE500
技术参数 Technical data				
主安全阀压力 Primary relief valve set	psig	10	10	10
第二安全阀设定压力 Secondary relief valve set	psig	12	12	12
日蒸发量(%每天) NER(per day%)	HE	1.25%	1%	1%
最大工作压力 Ma working pressure	psig	12	12	12
外型尺寸 Dimensions				
几何容积 Gross capacity	升 L	110	275	550
瓶体直径 Cylinder diameter	厘米 cm	60.6	85.6	110.8
瓶体高度 Cylinder height	厘米 cm	154.6	167.5	179.3
瓶体空重 Empty cylinder weight	公斤 kg	114	181	278
法兰至内胆底部长度 Length from flange to bottom	厘米 cm	113.2	130.5	142.1
充装液体重量 Liquid filling weight				
LHE	公斤 kg	12	30	60



Thermax Thermafin™ Supergap™空浴式汽化器已成为空浴式汽化器行业的标杆。Supergap™汽化器利用空气的自然对流来汽化液体。翅片铝管吸收空气中的热量，并将热量传递至输出气体。翅片端之间具有4英寸超大间隙，为结霜体积增长提供了空间，并能在不除霜的情况下连续使用超过500小时，Supergaps能完美适应恶劣气候和长时间使用。拓展使用时，需要一套由Thermax设计的切换汽化器系统。除了我们的标准铝合金结构之外，还提供适用于高压和腐蚀应用的配备不锈钢及其他合金衬管的装置。

Thermax Thermafin™ Supergap™ Ambient Vaporizers have become the industry standard for ambient air vaporization. Supergap™ Vaporizers use natural convection of air to vaporize liquefied gases. Finned aluminum tubes absorb heat from the air and transfer that heat to the product gas. The huge 4 inch gap between fin tips provides room for ice growth and allows for more than 500 hours of continuous operation without defrost, making Supergap vaporizers ideal for severe climates and long duration operation. Extended operation requires a system of switching vaporizers designed by Thermax. In addition to our standard aluminum construction, units are available with stainless steel and other alloy liners for high pressure and corrosive applications.



产品优势

Product Advantages

- 12英寸翅片管中心间距
- 4英寸翅片间距
- 标准型号最大汽化量可达200 MSCFH
- 铝防腐结构
- 高强度焊接底座
- 承受100mph风力和Zone 4地震力
- 所有铝制装备的标准设计压力为600psig
- 严格的热循环设计
- 内翅式16翅片增加传热面积，业内最大传热面积
- 大规格采用无箱运输设计
- 周边框架和腿部设计可供气流自由通过
- ASME B31.3,CRN(所有省份，适用于美国生产的汽化器)
- 内部流量平衡设计(专利待定)
- Taperfin提供99%的翅片效率
- 12 inch fin tube center to center spacing
- 4 inch gap between fins
- Standard models rated up to 200 MSCFH
- Aluminum corrosion resistant construction
- High strength welded base frame
- Withstands 100 mph winds and Zone 4 seismic forces
- 600 psig standard design pressure on all aluminum units
- Severe thermal cycling design
- Enhanced internal heat transfer area, highest in industry
- No-crate shipping design for larger models
- Perimeter frame and legs for unrestricted airflow
- ASME B31.3, CRN(all provinces),and PED module Dcompliant
- Patent pending,internal flow balancing design
- Taperfin gives 99% fin efficiency



型号规格

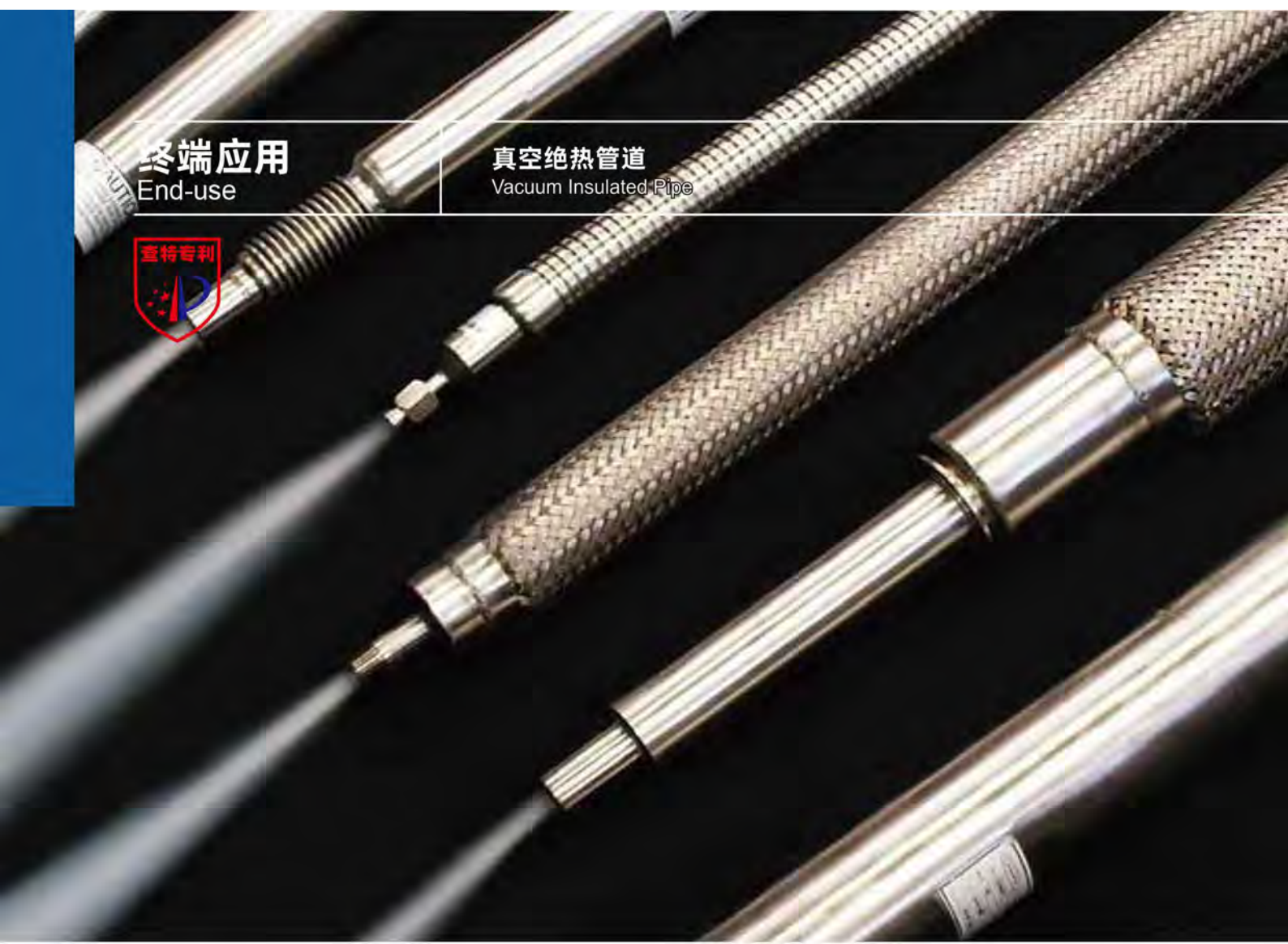
Type Specification

标准Supergap™型号汽化器的数据表和尺寸 Standard Supergap™ Model Rating Tabel and Dimensions

型号 Model	流量* 8小时 氮气 8hours,Nitrogen				标准出口/入口链接尺寸 standard inlet/outlet connection size		尺寸 Dimensions WXDHX		重量 Weight	
	铝质 Aluminum		SS		英寸 Inch	mm	英寸 Inch	mm	Lbs	Kg
	SCFH	Nm ³ /Hr	SCFH	Nm ³ /Hr						
SG25HF	2,600	0	2,100	60	3/4	19	22X22X152	56x56x386	155	70
SG35HF	3,900	100	3,100	80	3/4	19	32X22X152	81x56x386	215	98
SG50HF	5,200	140	4,200	110	3/4	19	44X22X152	112x56x386	275	125
SG70HF	7,800	210	6,200	160	3/4	19	48X36X152	122x91x386	405	183
SG95HF	10,400	273	8,300	218	3/4	19	48X48X152	122x122x386	515	234
SG110HF	11,700	310	9,400	250	3/4	19	48X36X213	122x91x541	580	263
SG140HF	15,600	410	12,500	330	3/4	19	48X48X213	122x122x541	760	345
SG180HF	19,400	500	15,500	400	3/4	19	48X60X213	122x152x541	935	424
SG215HF	23,300	610	18,600	490	1-1/2	38	72X48X224	182x122x569	1,160	526
SG270HF	29,200	770	23,400	620	1-1/2	38	60X72X224	152x182x569	1,425	646
SG320HF	35,000	900	28,000	700	1-1/2	38	73X73X224	185x185x224	1,690	767
SG360HF	38,900	1,000	31,100	800	1-1/2	38	75X62X284	191x157x721	1,890	857
SG430HF	46,700	1,200	37,400	1,000	1-1/2	38	75X72X284	191x182x721	2,245	1,018
SG500HF	54,400	1,400	43,500	1,100	1-1/2	38	75X93X284	191x236x721	2,590	1,175
SG580HF	62,200	1,600	49,800	1,300	2	51	75X98X284	191x249x721	2,950	1,338
SG670HF	72,600	1,900	58,100	1,500	2	51	98X86X284	249x218x721	3,410	1,547
SG770HF	82,900	2,200	68,300	1,800	2	51	98X98X284	249x249x721	3,875	1,758
SG860HF	93,300	2,500	74,600	2,000	2	51	98X110X284	249x279x721	4,340	1,967
SG1150HF	124,400	3,300	99,500	2,600	3	76	101X101X414	256x256x1051	6,155	2,792
SG1300HF	140,400	3,700	112,000	2,900	3	76	101X114X414	256x290x1052	6,870	3,116
SG1500HF	165,900	4,400	132,700	3,500	4	102	101X101X534	256x256x1356	8,095	3,672

*标称流量以下列各项作为基准: 除霜, 10°C环境温度, 50%相对湿度及11°C接近温度, 8小时连续使用情况。

* The nominal flow rate is based on the following: defrosting, ambient temperature of 10°C, 8 hours of continuous use, 50% relative humidity and approach temperature of 11°C.



终端应用
End-use

真空绝热管道
Vacuum Insulated Pipe



查特工业公司是全球真空绝热管道系统技术领先的专业公司，从事真空绝热管道系统的设计、制造及安装，积累了国内外六十多年成功的工程经验和先进的设计计算技术。根据不同用户需求进行压降及线路的最佳方案计算和设计，以提供最佳的系统解决方案。

Chart Industries, Inc. is the world's leading vacuum insulated pipe system technology professional company, engaged in the design, manufacture and installation of vacuum insulated pipe systems. We have accumulated more than 60 years of successful engineering experience and advanced design and calculation technology. According to the requirements of users, we can provide the best pipeline layout and technical design.

产品优势

Product Advantages

- 发明专利“真空绝热管道插接式联接法”，连接可靠，冷损失少，可反复进行接拆安装。
- 薄壁管道设计，有效地减少热传导，从而尽可能的减少冷损量。
- 高精度精密加工的真空抽口，最小的漏率，是长期稳定保持真空性能的关键部件。
- 超级绝热保温材料，极少释放破坏真空的有害物质，以确保真空长期稳定性。
- 可与查特储槽进行全真空完美对接，做到不结霜，不结冰、无损耗又美观。
- 交钥匙工程：查特有能力和为客户提供从现场勘察、测量、方案设计、制作、安装到技术支持全流程的交钥匙工程。

- Chart patented bayonet design, reliable connection, minimum heat leak.
- Thin-walled piping design minimizes heat transfer and cold loss.
- High precision machining of the vacuum port, with the minimum leakage rate, is the key components to keep long time stable vacuum performance.
- Super thermal insulation material, rarely release harmful substances that destroy the vacuum, to ensure the long-term stability of the vacuum.
- Perfect connection and interface with the full vacuum of the Chart storage tank, no frost, no ice, no loss and beautiful appearance.
- Turnkey project: Chart can provide customers with turnkey solution from site survey, measurement, technical design, pipe fabrication, installation and technical service.

查特可根据不同的客户需求，提供两种设计的真空绝热管道MVIP & PYTHON，可应用于传输液氧、液氮、液氩、液态二氧化碳、LNG、液氨、液氢等低温液体。

Chart can provide two different VIP designs "MVIP" & "PYTHON" for different applications. The specifications are as below.

型号规格

Type Specification

型号 Type	尺寸规格 Pipe Size	内管尺寸 Inner Pipe	外管尺寸 Outer Pipe	最大工作压力 PSIG/MAWP	设计温度(°C) Design Temp	材料 Material	补偿设计 Bellows Design	管段连接方式 Joint connection
MVIP	1/2" MVIP	Φ21.3×1.65	Φ60.3×2.0	150/1.03	-269/50°C	SS304	Inner Bellows	阴/阳接插式 Bayonet Joint
	1" MVIP	Φ33.4×1.65	Φ88.9×2.0	150/1.03	-269/50°C	SS304	Inner Bellows	阴/阳接插式 Bayonet Joint
	1-1/2" MVIP	Φ48.3×1.65	Φ101.6×2.0	150/1.03	-269/50°C	SS304	Inner Bellows	阴/阳接插式 Bayonet Joint
	2" MVIP	Φ60.3×1.65	Φ101.6×2.0	150/1.03	-269/50°C	SS304	Inner Bellows	阴/阳接插式 Bayonet Joint
	3" MVIP	Φ88.9×2.11	Φ141.3×2.77	150/1.03	-269/50°C	SS304	Inner Bellows	现场焊接保温 Field Weld Joint
Python	1" Python	Φ33.4×1.65	Φ60.3×2.0	400/2.7	-269/50°C	SS304	Outer Bellows	现场焊接保温 Field Weld Joint
	1-1/2" Python	Φ48.3×1.65	Φ88.9×2.0	400/2.7	-269/50°C	SS304	Outer Bellows	现场焊接保温 Field Weld Joint
	2" Python	Φ60.3×2.11	Φ88.9×2.0	400/2.7	-269/50°C	SS304	Outer Bellows	现场焊接保温 Field Weld Joint
	3" Python	Φ88.9×2.11	Φ141.3×2.5	400/2.7	-269/50°C	SS304	Outer Bellows	现场焊接保温 Field Weld Joint
	4" Python	Φ114.3×2.77	Φ168.3×3.4	400/2.7	-269/50°C	SS304	Outer Bellows	现场焊接保温 Field Weld Joint



查特
首创



查特结合国内外30多年的实际项目经验、选用经长期市场验证性能可靠的阀门仪表及先进的设计计算技术，根据不同工况需求，为用户提供最佳的成套解决方案。如，标准固定设备、箱式撬装设备、船用加气设备等。

Chart combines more than 30 years of practical project experience both domestically and internationally, selects reliable valve instruments, advanced design and calculation technologies that have been proven in the market for a long time. We can provide users with the best complete solutions according to their different working conditions and needs. Such as LNG Standard fueling station, Box-type LNG Skid-mounted Filling Device (IMC), and Shore-based LNG fueling station (for Ships and Vehicles).

查特加气站具备以下特点：

Chart filling Station Features:

① 设备紧凑，占地面积小

- 储罐无需抬高。
- 设备可撬装提供。

② 零排放

- 储罐采用多层缠绕保温。
- 对泵池气液相进行隔离控制。
- 采用真空管道。
- 流量计无需预冷。

③ 高效率，少维修

- 卸车及加气速度快。
- 储罐采用虹吸设计，可快速起泵，减少泵气蚀，延长使用寿命。
- 流量管终身免维修。
- 优选阀门仪表，性能稳定可靠。

④ 高度安全

- 管道全程焊接。
- 采用PARKER气管，防止极端情况的危险扩散。
- 高自动化控制。

⑤ 多功能型

- LNG、CNG车辆充装
- LNG船舶充装
- LNG杜瓦充装

① Compact equipment with small footprint

- The storage tank does not need to be raised
- Equipment can be provided as a pry

② Zero emissions

- The storage tank adopts multi-layer winding insulation
- Isolate and control the gas-liquid phase of the pump pool
- Using vacuum pipelines
- The flow meter does not require pre cooling

③ High efficiency with minimal maintenance

- Fast unloading and refueling speed
- The storage tank adopts a siphon design, which can quickly start the pump, reduce pump cavitation, and extend its service life
- Lifetime maintenance free flow tube
- Optimize valve instruments for stable and reliable performance

④ Highly secure

- Pipeline welding throughout the entire process
- Using PARKER trachea to prevent the spread of danger in extreme situations
- High automation control

⑤ Multifunctional

- LNG and CNG vehicle filling
- LNG ship filling
- LNG Dura Filling

型号规格

Type Specification

常规固定设备规格型号表 Regular fixed equipment specifications and models table

级别 Level	三级站 Tertiary Station	二级站 Secondary Station	一级站 Primary Station	
储罐容积 Tank Volume	30m ³ -60m ³	60m ³ -120m ³	120m ³ -180m ³	
设计压力 Design Pressure	1.2MPa			
推荐配置 Recommended Configuration	潜液泵 Submerged Pump	1台-2台	2台-4台	3台-6台
	LNG车用加气机 LNG Vehicle Dispenser	1台-4台	2台-8台	3台-12台
	柱塞泵 Plunger Pump		2台-4台	
	高压汽化器 High Pressure Vaporizer		2台-4台	
	高压储气瓶组 High Pressure Storage Cylinder Group	≤9m ³	≤9m ³	≤12m ³
CNG加气机 CNG Dispenser		1台-6台		
电源 Power Supply	380V 50HZ			
主要参照标准 Prime reference	GB50156-2021 《汽车加油加气加氢技术标准》 GB50156-2021 "Technical standard of fuelling station" GB50316-2000(2008版) 《工业金属管道设计规范》 GB50316-2000(2008 edition) "Design code for industrial metallic piping" GB50235-2010 《工业金属管道工程施工规范》 GB50235-2010 "Code for Construction of industrial metallic piping engineering" GB/T38810-2020 《液化天然气用不锈钢无缝钢管》 GB/T38810-2020 "Seamless stainless steel pipes for liquefied natural gas" NB/T47013.1-47013.13-2015 《承压设备无损检测》 NB/T47013.1-47013.13-2015 "Nondestructive testing of pressure equipments"			

箱式LNG撬装设备规格型号表 LNG Container-type Skidded Fueling Stations-IMC

名称Name	规格 Specification	
储罐全容积 Full Capacity of Tank	30m ³	60m ³
设计压力 Design Pressure	1.2MPa	
加注设备集装箱 Fill Equipment Container	长(L)16292mm×宽(W)3038mm×高(H)2896mm	长(L)18798mm×宽(W)3720mm×高(H)3570mm(一端加注)(unilateral filling) 长(L)21000mm×宽(W)3720mm×高(H)3570mm(两端加注)(Both sides filling)
	20Ft 英尺	40Ft 英尺
控制房集装箱 Control Room Container	长(L)6096mm×宽(W)2438mm×高(H)2591mm	长(L)12192mm×宽(W)2438mm×高(H)2591mm
	包含控制系统、空压机系统及休息室 Includes control system, air compressor system and lounge	
设备集装箱空重/满重 Equipment Container Empty Weight/Full Weight	21000Kg/33000Kg	35500Kg/59000Kg(一端加注)(unilateral filling) 40500Kg/64000Kg(两端加注)(Both sides filling)
输入电源 Input Power	380V、50HZ、30KW	





车用LNG加气机主要由阀门系统，低温流量计系统，IC卡刷卡系统及控制系统组成，用于对当次LNG加气量进行计量和交易金额结算。目前，查特及旗下南京新冶公司生产的LNG加气机核心部件——流量计涵盖了差压流量计和质量流量计两种类型。其中差压流量计由查特德国Flow公司生产。这款流量计广泛运用于LNG加气站、LNG卫星站、LNG储备站、LNG接收站、LNG液化工厂等项目。

The liquefied natural gas dispenser for vehicle is mainly composed of valve systems, cryogenic flowmeter systems, IC card systems and control systems. It is used for measuring the LNG quantity and settling transaction amounts for each refueling operation. Currently, the LNG dispenser produced by Chart and Nanjing Xinye has two types of flowmeters as its core components: differential pressure flowmeter and mass flowmeter. The differential pressure flowmeter is produced by Flow instruments from Germany, a Chart industries company. This flowmeter is widely used in LNG fueling stations, LNG satellite stations, LNG storage stations, LNG receiving stations, LNG liquefaction plants etc.



采用Flow差压流量计的车用及船用LNG加气机具备以下特点:

The LNG dispensers for vehicles and marines with the differential pressure flowmeter from flow have the following features:

- 量管终生质保（国际唯一）。
 - 自动测定密度，适用于中国液源多变的情况。
 - 无须预冷，提高加气效率，有效减少整站BOG的产生。
 - 无需现场调试，节约时间
 - 流量计具备对潜液泵多重保护功能。
- Lifetime warranty on the metering sections(unique in the world).
 - Automatic density measurement, suitable for the variable liquid sources in China.
 - No pre-cooling required, which improves dispensing efficiency and reduces BOG in the station effectively.
 - No on-site commissioning required, saving time.
 - The flowmeter has multiple protection functions for the submerged pump.



型号规格

Type Specification

项目 Project	车用LNG加气机技术指标 Technical specifications of LNG dispensers for vehicles	船用LNG加气机技术指标 Technical specifications of LNG dispensers for marines
适用介质 Medium	液化天然气 (LNG)	液化天然气 (LNG)
流量范围 Flow range	12-80 kg/min	35-255 kg/min
计量准确度 Measurement accuracy	±1.5%	±1.5%
输入电源 Input power	220V	220V
功率 Power	100W	100W
环境温度 Ambient temperature	-25°C~55°C	-25°C~55°C
环境湿度 Ambient humidity	≤95%	≤95%
环境大气压 Ambient atmospheric pressure	86 ~ 110 KPa	86 ~ 110 KPa
管路温度 Pipeline temperature	-196°C	-196°C
计量单位 Unit of measurement	kg、L、Nm ³	kg、L、Nm ³
读数最小分度值 Minimum reading value	0.01 kg、(L、Nm ³)	0.01 kg、(L、Nm ³)
打印机 Printer	具备小票打印功能	具备小票打印功能



查特国内外技术专家凭借丰富的经验和过硬的技术，为多个国内外项目提供船舶LNG成套解决方案，包括LNG燃料罐、TCS(冷箱)、可移式燃料罐箱、船舶LNG供气系统集成及船舶LNG加注等

Chart has provided multiple marine LNG complete solutions for China domestic and overseas projects. Solutions include LNG fuel tanks, TCS (Tank Connection Space, also called Cold Box), portable ISO tank containers, marine LNG fueling systems, and marine LNG fueling stations.



查特中国为欧洲客户的两艘化学品油船提供了2x2台真空保温技术卓越的300m³LNG燃料罐并获得DNV证书。其中一艘获得油船航运与贸易会议2021年度油船称号。



Chart China provided 2x2 sets of 300m³LNG fuel tanks with excellent vacuum insulation technology and obtained DNV certificate for two chemical tankers of European client. One of them was named the 2021 Tanker of the Year at the Tanker Shipping and Trade Conference.

产品优势

Product Advantages

- 利用查特全球采购网络定制的绝热材料
 - LNG燃料储罐制造采用处于行业领先地位的超级绝热工艺
 - 同等容积条件下罐体尺寸小、重量轻
 - 设备质量出色，符合国际海事组织IMO颁布的IGF规则的最严苛要求
 - 与国内外各大船级社联系紧密
 - 先进合理的TCS设计、电控系统、阀门选择以及管道布置
 - 整套系统性能优异，操作方便，安全可靠
- Customized insulation materials supplied through CHART global sourcing team.
 - Super insulation, a leading insulation technology, which is applied in the LNG fuel tanks.
 - Minimum size and weight comparing with other same volume tanks.
 - High quality and compliance with the strictest requirements of IMO IGF code.
 - Close contact with the main classification societies all over the world.
 - Advanced and reasonable designing on TCS, electrical control system, valve configuration and piping arrangement.
 - Excellent performance, easy to operate, safe and reliable.

产品配置

Product Configurations

- 容积:3~500立方米
 - 储罐形式:基于高真空多层缠绕或真空粉末绝热形式的双层罐; 基于发泡绝热形式的单层罐
 - 罐体及管系材料:304、304L、316、316L等牌号奥氏体不锈钢
 - TCS形式:单冷箱、双冷箱
 - 气化器加热类型:冷水、水—乙二醇
 - 船级社:CCS、BV、DNV-GL、LR、ABS等
 - 阀门:进口品牌，国际优质或客户指定
 - 设计压力:0~1.2MPa
- Gross volume of tank:3 to 500m³
 - Type of tank: double walls tank with super vacuum insulation or perlite insulation, and single wall tank with foam insulation.
 - Material of tank and piping: 304、304L、316、316L or other grade of austenitic stainless steel.
 - TCS configuration:Single TCS、double TCS.
 - Heating media of vaporizer: Cold water、glycol water.
 - Classification society:CCS、BV、DNV-GL、LR、ABS or other.
 - Valve configuration: Import brand , local brand with high quality or specified by customer.
 - Design pressure of tank:0 to 1.2MPa



查特中国为两艘653TEU江海直达多用途船提供了2台89m³LNG真空缠绕储罐并获得CCS证书。

Chart China has provided two 89m³LNG vacuum wound storage tanks and obtained CCS certificates for two 653TEU Jianghai Direct multi-purpose vessels.



售后与服务

After-sales and Service



查特售后服务支持：

准时、专业、全面

Chart after-sales service support:

Punctual, Professional, Comprehensive

服务热线：**400-887-8865**

Service Hotline:



序号 Serial number	服务距离 Service distance	响应程度 Response program
1		接到电话, 2小时内回复 Call back within two hours
2	≤1000KM	24小时内到达现场 Be on site within 24 hours
3	>1000KM	48小时内到达现场 Be on site in 48 hours

区域服务中心: 5家

Regional Service Center: 5

地点: 沈阳、太原、天津、西安、成都

Location: Shenyang, Taiyuan, Tianjin, Xi'an, Chengdu

特约维修商: 20家

Special Maintenance: 20

东北、华北、华东、华南、华中、西南、西北全覆盖

Northeast, North China, East China, South China, Central China, Southwest, Northwest and Nationwide Coverage.

维修中心 Maintenance Center



维修业务范围:

- ※ 低温存储产品真空故障的诊断及处理,
- ※ 低温存储产品的现场改造,
- ※ 低温移动产品的真空故障的诊断及处理,
- ※ 低温移动产品的故障维修

Maintenance business scope:

- ※ Diagnosis and handling of vacuum faults in cryogenic storage products,
- ※ On site renovation of cryogenic storage products,
- ※ Diagnosis and handling of vacuum faults in cryogenic mobile products,
- ※ Troubleshooting of cryogenic mobile products



主要维修设备:

抽真空设备, 氮检漏设备, 自动焊接设备, 抛光设备, 缠绕设备等

Main maintenance equipment:

Vacuum extraction equipment, helium leak detection equipment, automatic welding equipment, polishing equipment, winding equipment, etc

售后专用配件库 After-sale special parts library



400万库存, 1300余种配件,
满足日常维修需求

4 million inventory with over 1300 types
of accessories to meet daily maintenance
needs

中国可持续的低碳能源未来 重要参与者

Key player in China's sustainable, low carbon energy future

查特工业公司的愿景是成为Nexus of Clean™低温工艺技术和设备设计、工程和制造的全球领导者——创造清洁能源、清洁水、清洁食品和清洁工业，着力打造政府和业主认可、职工和社会满意的世界一流企业，在向低碳经济转型的过程中，积极创造清洁和可持续的能源未来！

Chart's version is to be the global leader in design, engineering and manufacturing of cryogenic process technologies and equipment for the Nexus of Clean™— clean power, clean water, clean food, and clean industrials, regardless of molecule. Striving to build a world-class enterprise recognized by governments and owners, satisfied by employees and society. Chart Industries, Inc. (NYSE: GTLS) is actively creating a clean and sustainable energy future in the transition to a low carbon economy!



查特深冷工程系统(常州)有限公司

地址:中国常州新北区黄河西路299号 邮编:213032
电话: +86 519 85966000 (总机)
邮箱: chartchina@chartindustries.com
网址: www.chartindustries.com
售后: 400-887-8865

Chart Cryogenic Engineering Systems (Changzhou) Co.,Ltd.

Address:No.299 huanghe West Road,New District Changzhou,
Jiangsu Province,China PC: 213032
TEL:+86 519 85966000 (switchboard)
E-mail: chartchina@chartindustries.com
Web: www.chartindustries.com
CSH: 400-887-8865

查特中汽深冷特种车(常州)有限公司

地址: 中国常州新北区富康路11号 邮编:213032
电话: +86 519 85966190 (总机)
邮箱: chartchina@chartindustries.com
网址: www.chartindustries.com
售后: 400-887-8865

Chart Cryogenic Distribution Equipment (Changzhou) Co.,Ltd.

Address:No.11 Fu Kang Road,New District Changzhou,
Jiangsu Province,China PC:213032
TEL:+86 519 85966190(switchboard)
E-mail: chartchina @ chartindustries.com
Web:www.chartindustries.com
CSH:400-887-8865

南京新冶电气工程有限公司

地址:中国南京江北新区高新开发区星火北路11号
邮编: 210061
电话: +8625 68513322 (总机)
邮箱: chartchina@chartindustries.com
网址: www.chartindustries.com
售后: 400-650-1088

Nanjing Xinye Electric Engineering Co., Ltd.

Address:No. 11, Xinghuo North Road, High-tech Zone,
Nanjing,China PC: 210061
TEL: +86 25 68513322 (switchboard)
E-mail: chartchina@chartindustries.com
Web: www.chartindustries.com
CSH: 400-650-1088