

全球气体储运装备制造者
技术引领·安全可靠·绿色未来

Global Manufacturer of Gas Storage and Transportation Equipment
Technology-Driven, Safe and Reliable, Green Future

北京天海工业有限公司

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天海工业
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低温储运装备系列产品

LOW-TEMPERATURE STORAGE AND TRANSPORTATION EQUIPMENT SERIES PRODUCTS

驱动低温未来, 储运绿色能源

Driving the Future of Low Temperatures, Storing and Transporting Green Energy





专业的气体储运装备制造服务商

Professional manufacturer and service provider of gas storage and transportation equipment

与国际标准接轨、按国际标准生产、创国际先进水平
Align with international standards, produce according to international standards, and achieve international advanced levels

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公司简介 Company Profile

北京天海工业有限公司（以下简称“天海工业”）是北京京城机电控股有限责任公司所属北京京城机电股份有限公司（简称京城股份，H股证券代码00187，A股证券代码600860）主要骨干企业，是拥有七个专业气体储运装备生产基地（天海氢能、上海天海、天津天海、宽城天海、明晖天海、天海低温、江苏天海）及一个美国公司的集团公司。天海工业及下属子公司具有A2级高压容器、B1级无缝气瓶、B2级焊接气瓶、B3级纤维缠绕气瓶、B4级低温绝热气瓶、B5级溶解乙炔气瓶、C2级罐式集装箱、D级中低压容器的设计和生产资质。可生产800余个品种规格的钢质无缝气瓶、玻璃纤维环向缠绕气瓶、碳纤维全缠绕复合气瓶（含三型瓶、四型瓶、呼吸器）、无石棉填料乙炔瓶、焊接气瓶、焊接绝热气瓶（含车用）、固定式压力容器、低温罐式集装箱、船用罐、CNG/LNG/H2车载供气系统及加气站等系列产品，广泛应用于汽车、化工、消防、医疗、石油、能源、城建、食品、冶金、机械、电子等行业。

天海工业始终坚持“与国际标准接轨、按国际标准生产、创国际先进水平”的理念，天海工业及下属子公司取得了ISO9001和IATF16949质量管理、ISO14001环境管理和ISO45001职业健康安全管理体系认证，并取得三十余个国际认证、建立了完备高效的产品销售网络和售后服务体系，产品覆盖全国，远销世界五大洲四十多个国家和地区。天海工业以具有凝聚力的企业文化、较强的制造能力、切实前瞻的战略决策和全球化的发展格局，全力实现“打造全球领先的气体储运装备制造及服务企业”的奋斗目标。

天海工业一直秉承“诚信、敬业、学习、创新，志在一流”的企业精神，以安全可靠的产品和优质的服务，树立了良好的企业形象，先后荣获中国百强企业、北京市十佳外商投资企业、北京市高新技术企业，中国金属压力容器制造行业排头兵企业和全国“五一”劳动奖状、“北京市专精特新小巨人企业”、“国家级专精特新小巨人企业”等荣誉称号。

Beijing Tianhai Industry Co., Ltd. (hereinafter referred to as "Tianhai Industry") is a key enterprise under Beijing Jingcheng Electromechanical Holding Co., Ltd., which is a subsidiary of Beijing Jingcheng Electromechanical Co., Ltd. (hereinafter referred to as "Jingcheng Co., Ltd.", H-share securities code 00187, A-share securities code 600860). It is a group company with seven professional gas storage and transportation equipment production bases (Tianhai Hydrogen Energy, Shanghai Tianhai, Tianjin Tianhai, Kuancheng Tianhai, Minghui Tianhai, Tianhai Cryogenic, Jiangsu Tianhai) and one American company. Tianhai Industry and its subsidiaries possess design and production qualifications for Class A2 high-pressure vessels, Class B1 seamless gas cylinders, Class B2 welded gas cylinders, Class B3 fiber-wound gas cylinders, Class B4 cryogenic insulated gas cylinders, Class B5 dissolved acetylene gas cylinders, Class C2 tank containers, and Class D medium and low-pressure vessels. They can produce over 800 varieties and specifications of steel seamless gas cylinders, glass fiber hoop-wound gas cylinders, carbon fiber fully wound composite gas cylinders (including Type III, Type IV, and breathing apparatus), asbestos-free filler acetylene cylinders, welded gas cylinders, welded insulated gas cylinders (including for vehicles), fixed pressure vessels, cryogenic tank containers, marine tanks, CNG/LNG/H2 on-board gas supply systems, and gas filling stations, which are widely used in industries such as automotive, chemical, fire protection, medical, petroleum, energy, urban construction, food, metallurgy, machinery, and electronics.

Tianhai Industry has always adhered to the concept of "aligning with international standards, producing according to international standards, and creating international advanced levels". Tianhai Industry and its subsidiaries have obtained ISO9001 and IATF16949 quality management, ISO14001 environmental management, and ISO45001 occupational health and safety management system certifications, as well as more than 30 international certifications. They have established a complete and efficient product sales network and after-sales service system, with products covering the whole country and exported to more than 40 countries and regions on five continents. Tianhai Industry, with its cohesive corporate culture, strong manufacturing capabilities, practical forward-looking strategic decisions, and global development pattern, is fully committed to achieving the goal of "building a globally leading gas storage and transportation equipment manufacturing and service enterprise".

Tianhai Industry has always adhered to the corporate spirit of "integrity, dedication, learning, innovation, and aiming for excellence". With safe and reliable products and excellent services, it has established a good corporate image and has successively won honorary titles such as China's Top 100 Enterprises, Beijing's Top Ten Foreign-invested Enterprises, Beijing High-tech Enterprises, China's Leading Enterprise in Metal Pressure Vessel Manufacturing Industry, National "May 1st" Labor Award, "Beijing Specialized, Precise, Unique, and Innovative Small Giant Enterprise", and "National Specialized, Precise, Unique, and Innovative Small Giant Enterprise".



企业精神 Corporate spirit

诚信、敬业、学习
创新、志在一流

Integrity, Dedication, Learning,
Innovation, Aiming for Excellence



企业理念 Corporate Philosophy

责任创造价值
诚信树立形象

Responsibility creates value,
and integrity builds image



企业愿景 Corporate Vision

成为跻身全球气体储运
装备行业最前列的公司

Become a company that ranks
among the forefront of the global
gas storage and transportation
equipment industry

企业荣誉 Corporate Honors

天海工业及下属子公司先后取得了 ISO 9001和 IATF 16949 质量管理、ISO 14001 环境管理和 ISO 45001 职业健康安全管理体系认证，并取得三十余个国际认证、建立了完备高效的产品销售网络和售后服务体系，产品覆盖全国，远销世界五大洲四十多个国家和地区。

天海工业一直秉承“诚信、敬业、学习、创新，志在一流”的企业精神，以安全可靠的产品和优质的服务，树立了良好的企业形象，先后荣获中国百强企业、北京市十佳外商投资企业、北京市高新技术企业，中国金属压力容器制造行业排头兵企业和全国“五一”劳动奖状、“北京市专精特新小巨人企业”、“国家级专精特新小巨人企业”等荣誉称号。

Tianhai Industry and its subsidiaries have successively obtained ISO 9001 and IATF 16949 quality management, ISO 14001 environmental management, and ISO 45001 occupational health and safety management system certifications, and have obtained more than 30 international certifications. They have established a complete and efficient product sales network and after-sales service system, with products covering the whole country and exported to more than 40 countries and regions on five continents around the world.

Tianhai Industry has always adhered to the corporate spirit of "integrity, dedication, learning, innovation, and striving for excellence". With safe and reliable products and high-quality services, it has established a good corporate image and has won honors such as China's Top 100 Enterprises, Beijing's Top 10 Foreign Invested Enterprises, Beijing's High tech Enterprise, China's Leading Enterprise in Metal Pressure Vessel Manufacturing Industry, and the National "May Day" Labor Award, "Beijing's Specialized, Refined, Unique and New Small Giant Enterprise", and "National Specialized, Refined, Unique and New Small Giant Enterprise".



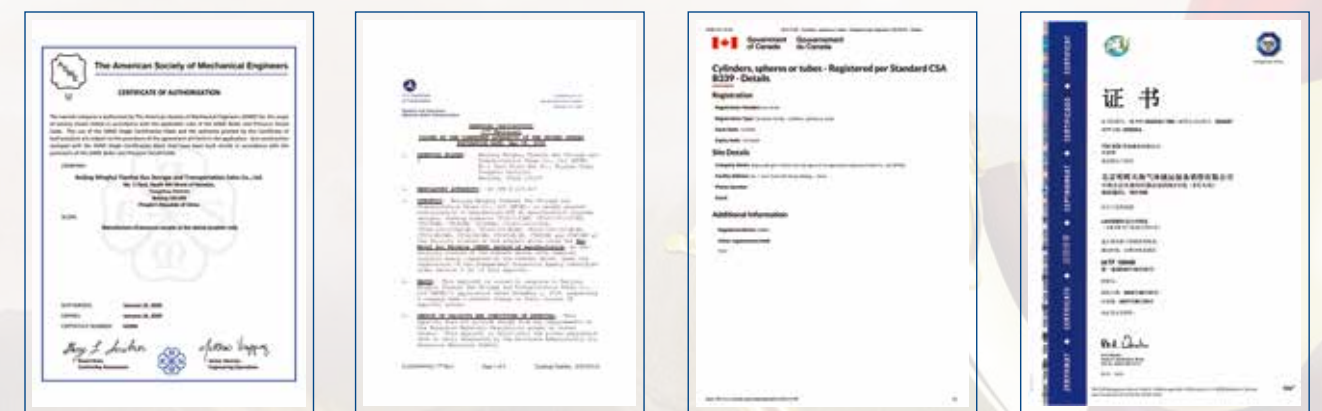
企业资质 Business Qualification

天海工业专业从事焊接绝热气瓶、车用LNG供气系统、车用液氢供气系统等低温液化气体储运装备的研发、设计、制造和服务。产品广泛应用于交通、医疗、能源、机械、电子等行业。

公司具有B4级压力容器生产制造资格，并获得美国ASME、美国交通部DOT、加拿大交通部TC，以及符合欧盟ECE R110和TPED法律法规等国际产品认证。是向更高标准更优品质持续转型升级的专业化低温类液化气体储运装备制造企业。

Tianhai Industry specializes in the R&D, design, manufacturing, and service of cryogenic liquefied gas storage and transportation equipment, including welded insulated gas cylinders, automotive LNG supply systems, and automotive liquid hydrogen supply systems. Its products are widely used in industries such as transportation, healthcare, energy, machinery, and electronics.

The company possesses B2-level pressure vessel manufacturing qualifications and has obtained international product certifications such as ASME (American Society of Mechanical Engineers), DOT (U.S. Department of Transportation), TC (Transport Canada), as well as compliance with EU regulations like ECE R110 and TPED. It is a specialized enterprise in the production and transportation equipment for cryogenic liquefied gases, continuously upgrading and transforming toward higher standards and superior quality.



工业领域应用
Industrial applications

焊接绝热气瓶产品
Welded Insulated Cylinder

天海工业制造的焊接绝热气瓶可区分为DPL系列（立式低温瓶）和DPW系列（卧式低温瓶），执行标准为国内标准GB/T 24159《焊接绝热气瓶》和Q/JB THB0002《平底立式焊接绝热气瓶》；以及CT系列气瓶，执行美国DOT和加拿大TC标准，其主要用于贮存、运输和使用液氧、液氮、液氩、液二氧化碳、液化天然气及液氧化亚氮等介质的高真空多层绝热的可移动式低温液体容器。

气瓶采用先进的工艺和技术，具有安全可靠、使用方便、装载率高、可重复充装等特点。气瓶生产制造过程在严格的质量保证体系控制下进行。对比常规高压气瓶低温瓶为全不锈钢容器，洁净卫生，无充装污染，无瓶装气中水分、空气、铁锈、气态酸碱、氟塑料等污染，大大提高了用气纯度。可广泛应用于机械、造船、医疗、化工、电子、生物、食品、材料、能源和科研等国民经济各领域。BC系列焊接绝热气瓶是专门用于储存、运输饮料级液态二氧化碳的专业容器。自增压液氮容器(YDZ)可为各类液氮生物容器、低温仪器进行补液或作为独立的运输和储存容器。

The welded insulated gas cylinders manufactured by Tianhai Industry can be divided into the DPL series (vertical cryogenic cylinders) and the DPW series (horizontal cryogenic cylinders), which comply with the domestic standards GB/T 24159 Welded Insulated Gas Cylinders and Q/JB THB0002 Flat-bottomed Vertical Welded Insulated Gas Cylinders; as well as the CT series cylinders, which comply with the US DOT and Canadian TC standards. They are primarily used as high-vacuum multilayer insulated, removable cryogenic liquid containers for storing, transporting, and using media such as liquid oxygen, liquid nitrogen, liquid argon, liquid carbon dioxide, liquefied natural gas, and liquid nitrous oxide.

The gas cylinder adopts advanced processes and technologies, featuring safety and reliability, ease of use, high loading rate, and rechargeability. The production and manufacturing process of the gas cylinder is carried out under strict quality assurance system control. Compared to conventional high-pressure gas cylinders, cryogenic cylinders are fully stainless steel containers, which are clean and hygienic, free from charging pollution, and free from contamination such as moisture, air, rust, gaseous acids and alkalis, and fluoroplastic in the cylinder gas, greatly improving the purity of the gas used. They can be widely applied in various fields of the national economy such as machinery, shipbuilding, medical care, chemical industry, electronics, biology, food, materials, energy, and scientific research. The BC series welded insulated gas cylinder is a specialized container specifically used for storing and transporting beverage-grade liquid carbon dioxide. The self-pressurized liquid nitrogen container (YDZ) can be used for refilling various liquid nitrogen biological containers and cryogenic instruments, or as an independent transportation and storage container.



国标企标规格参数表
Specification and parameter table for national and enterprise standards

产品规格Specifications		DPL452-V-1.38 II			DPL452-V-1.38 II			DPL450-V-2.02III			DPL450-V-2.02 II	
产品标准product standard		GB/T 24159			GB/T 24159			GB/T 24159			GB/T 24159	
公称容积 Geometric Volume (L)		175	195	210	175	195	210	175	195	210	208	215
有效容积Effective Volume (L)		166	185	199	166	185	199	166	185	199	197	204
工作压力 Working Pressure (Mpa)		1.38	1.38	1.38	1.38	1.38	1.38	2.02	2.02	2.02	2.02	2.02
安全阀开启压力 Relief valve setting (Mpa)		1.58	1.58	1.58	一级1.58二级2.0			2.41	2.41	2.41	2.41	2.41
爆破片爆破压力 Rupture disc setting (Mpa)		2.4	2.4	2.4	-	-	-	3.5	3.5	3.5	4.03	4.03
外直径/尺寸 Outside diameter/size (mm)		Φ508			Φ508			Φ508			Φ508	
高度 Highly (mm)		1490	1621	1705	1490	1621	1705	1490	1621	1717	1705	1750
空重Empty weight (kg)		110	119	124	110	119	124	125	135	142	141	146
(参考) 最大充装重量 Max Filling Weight (kg)	液氧LO ₂	148	164	177	-	-	-	136	152	163	192	199
	液氮LN ₂	98	109	117	-	-	-	85	95	102	134	139
	液氩LAR	180	200	216	-	-	-	165	184	199	234	242
	液化天然气LNG	-	-	-	50	55	60	-	-	-	-	-
	液态二氧化碳CO ₂	-	-	-	-	-	-	159	177	191	208	215
	液氧化亚氮LN ₂ O	-	-	-	-	-	-	151	169	182	196	202
日蒸发率(%每天) NER (%Per Day) ≤		2.1	2.0	2.0	2.1	2.0	2.0	2.1	2.0	2.0	2.0	2.0
气流量 Gas flow (Nm ³ /hr)	氧氮氩 O ₂ N ₂ AR	9.2	9.2	9.2	-	-	-	9.2	9.2	9.2	9.2	9.2
	二氧化碳CO ₂	-	-	-	-	-	-	3	3	3	3	3
	液氧化亚氮 N ₂ O	-	-	-	-	-	-	-	-	-	-	-
	天然气NG	-	-	-	6.3	6.3	6.3	-	-	-	-	-
液位计 Level gauge		浮杆式Float / 数显Digital display / 远传数显 Remote transmission digital display						浮杆式Float / 数显Digital display / 远传数显 Remote transmission digital display				

产品规格Specifications		DPL447-V-2.84 II		DPL600-V-0.69		DPL452-V-1.40		DPL452-V-1.38I	
产品标准product standard		GB/T 24159		GB/T 24159		GB/T 24159		GB/T 24159	
公称容积 Geometric Volume (L)		175	205	210	250	175	195	210	94
有效容积Effective Volume (L)		166	194	199	237	166	185	199	89
工作压力 Working Pressure (Mpa)		2.84	2.84	0.69	0.69	1.4	1.4	1.4	1.38
安全阀开启压力 Relief valve setting (Mpa)		3.38	3.38	0.152	0.152	1.68	1.68	1.68	1.58
爆破片爆破压力 Rupture disc setting (Mpa)		4.9	4.9	1.21	1.21	2.4	2.4	2.4	2.4
外直径/尺寸 Outside diameter/size (mm)		Φ508		Φ660.4		Φ508		Φ508	
高度 Highly (mm)		1505	1695	1323	1463	1531	1621	1746	976
空重Empty weight (kg)		146	168	136	144	113	119	125	77
(参考) 最大充装重量 Max Filling Weight (kg)	液氧LO ₂	122	143	-	-	146	163	175	79
	液氮LN ₂	63	73	146	173	96	107	116	52
	液氩LAR	148	173	-	-	178	198	213	96
	液化天然气LNG	-	-	-	-	-	-	-	-
	液态二氧化碳LCO ₂	151	176	-	-	-	-	-	-
	液氧化亚氮LN ₂ O	144	168	-	-	-	-	-	-
日蒸发率(%每天) NER (%Per Day) ≤		2.5	2.4	-	-	2.1	2.0	2.0	2.82
气流量 Gas flow (Nm ³ /hr)	氧氮氩 O ₂ N ₂ AR	9.2	9.2	-	-	9.2	9.2	9.2	9.2
	二氧化碳CO ₂	3	3	-	-	-	-	-	-
	液氧化亚氮 N ₂ O	-	-	-	-	-	-	-	-
	天然气NG	-	-	-	-	-	-	-	-
液位计 Level gauge		浮杆式Float / 数显Digital display / 远传数显Remote transmission digital display							

国标企标规格参数表

Specification and parameter table for national and enterprise standards

产品规格Specifications		DPW650-V-2.5			DPL450-V-2.3			DPL700-V-2.5		DPL700-V-3.2	
产品标准product standard		GB/T 24159			GB/T 24159			Q/JB THB0002			
公称容积 Geometric Volume (L)		400	450	500	175	195	210	450	500	450	500
有效容积Effective Volume (L)		380	427	475	166	185	199	427	475	427	475
工作压力 Working Pressure (Mpa)		2.5			2.3			2.5		3.2	
安全阀开启压力 Relief valve setting (Mpa)		3.0	3.0	3.0	2.41	2.41	2.41	3.0	3.0	3.8	3.8
爆破片爆破压力 Rupture disc setting (Mpa)		4.4	4.4	4.4	3.6	3.6	3.6	4.4	4.4	5.4	5.4
外直径/尺寸 Outside diameter/size (mm)		800×995(宽×高)			Φ508			880×880(长×宽)			
高度 Highly (mm)		1780	1930	2080	1490	1621	1717	1894	2024	1894	2024
空重Empty weight (kg)		413	445	477	136	146	154	404	427	446	474
(参考) 最大充装重量 Max Filling Weight (kg)	液氧LO ₂	293	330	367	136	152	163	330	367	298	332
	液氮LN ₂	167	187	209	85	95	102	187	209	163	181
	液氩LAR	355	399	444	165	184	199	399	444	359	399
	液化天然气LNG	-	-	-	-	-	-	-	-		
	液态二氧化碳LCO ₂	355	399	444	159	177	191	399	444	377	419
	液氧化亚氮LN ₂ O	338	380	423	151	169	182	380	423	360	400
日蒸发率(%每天) NER (%Per Day)≤		2.0	1.9	1.9	2.3	2.1	2.1	1.97	1.9	1.97	1.9
气流量 Gas flow (Nm³/hr)	氧氮氩 O ₂ N ₂ AR	-	-	-	9.2	9.2	9.2	15	15	15	15
	二氧化碳CO ₂	-	-	-	3	3	3	4.9	4.9	4.9	4.9
	液氧化亚氮 N ₂ O										
	天然气NG	-	-	-	-	-	-	-	-	-	-
液位计 Level gauge		浮杆式Float/数显Digital display/远传数显Remote transmission digital display									

DOT规格参数表

DOT specification parameter table

产品规格Specifications		CT160LP	CT180LP	CT200LP	CT160MP	CT180MP	CT160MP
产品标准product standard		DOT-4L			DOT-4L&TC-4LM		DOT-4L
公称容积 Geometric Volume (L)		175	195	210	175	195	175
有效容积Effective Volume (L)		165	185	199	165	185	165
工作压力 Working Pressure (Mpa)		100	100	100	200	200	200
安全阀开启压力 Relief valve setting (Mpa)		22	22	22	230	230	230
爆破片爆破压力 Rupture disc setting (Mpa)		176	176	176	400	400	400
外直径/尺寸 Outside diameter/size (mm)		Φ508			Φ508		Φ508
高度 Highly (mm)		1480	1614	1695	1480	1640	1480
空重Empty weight (kg)		105	113	117	121	130	121
(参考) 最大充装重量 Max Filling Weight (kg)	液氧LO ₂	180	198	213	172	191	172
	液氮LN ₂	125	138	150	121	135	121
	液氩LAR	220	246	265	209	233	209
	液态二氧化碳CO ₂	-	-	-	-	-	-
	液氧化亚氮LN ₂ O	-	-	-	-	-	-
日蒸发率(%每天) NER (%Per Day) ≤		1.9	1.9	1.9	2.1	2.0	2.1
气流量 Gas flow (Nm ³ /hr)	氧氮氩 O ₂ N ₂ AR	350 (9.2)			350 (9.2)		350 (9.2)
	二氧化碳CO ₂	-	-	-	-	-	-
	液氧化亚氮 N ₂ O	-	-	-	-	-	-
液位计 Level gauge		浮杆式Float/数显Digital display/远传数显Remote transmission digital display					

DOT规格参数表

DOT specification parameter table

产品规格Specifications		CT180MP	CT160HP	CT180HP	CT200HP	CT160HP	CT180HP
产品标准product standard		DOT-4L	DOT-4L&TC-4LM			DOT-4L	
公称容积 Geometric Volume (L)		195	175	195	205	175	195
有效容积Effective Volume (L)		185	165	185	195	165	185
工作压力 Working Pressure (Mpa)		200	292	292	292	292	292
安全阀开启压力 Relief valve setting (Mpa)		230	350	350	350	350	350
爆破片爆破压力 Rupture disc setting (Mpa)		400	584	584	584	584	584
外直径/尺寸 Outside diameter/size (mm)		Φ508	Φ508			Φ508	
高度 Highly (mm)		1614	1480	1640	1667	1480	1614
空重Empty weight (kg)		130	121	130	153	138	148
（参考） 最大充装重量 Max Filling Weight (kg)	液氧LO ₂	191	163	182	192	163	182
	液氮LN ₂	135	114	127	134	114	127
	液氩LAR	233	198	221	233	198	221
	液态二氧化碳CO ₂	-	176	195	206	176	195
	液氧化亚氮LN ₂ O	-	166	185	195	166	185
日蒸发率(%每天)	NER (%Per Day)≤	2.0	2.1	2.0	2.0	2.1	2.0
气流量 Gas flow (Nm³/hr)	氧氮氩 O ₂ N ₂ AR	350 (9.2)	350 (9.2)			350 (9.2)	
	二氧化碳CO ₂ 液氧化亚氮 N ₂ O	-	110 (3)			110 (3)	
液位计 Level gauge		浮杆式Float / 数显Digital display / 远传数显Remote transmission digital display					

DOT规格参数表

DOT specification parameter table

产品规格Specifications		CT200HP	CT240HP	CT265HP	CT200VHP
产品标准Product standard		DOT-4L	DOT-4L&TC-4LM		DOT-4L&TC-4LM
公称容积 Geometric Volume (L)		205	250	275	197
有效容积Effective Volume (L)		195	240	265	185
工作压力 Working Pressure (Mpa)		292	292	292	412
安全阀开启压力 Relief valve setting (Mpa)		350	350	350	500
爆破片爆破压力 Rupture disc setting (Mpa)		584	584	584	750
外直径/尺寸 Outside diameter/size (mm)		Φ508	Φ660.4		Φ508
高度 Highly (mm)		1666	1446	1534	1635.8
空重Empty weight (kg)		153	175	195	176
(参考) 最大充装重量 Max Filling Weight (kg)	液氧LO ₂	192	229	256	173
	液氮LN ₂	134	160	179	114
	液氩LAR	233	279	311	211
	液态二氧化碳LCO ₂	206	234	275	182
	液氧化亚氮LN ₂ O	195	246	261	-
日蒸发率(%每天)	NER (%Per Day)≤	2.0	2.0	2.0	2.1
气流量 Gas flow (Nm³/hr)	氧氮氩 O ₂ N ₂ AR	350 (9.2)	350 (9.2)		350 (9.2)
	二氧化碳CO ₂ 液氧化亚氮 N ₂ O	110 (3)	110 (3)		
液位计 Level gauge		浮杆式Float / 数显Digital display / 远传数显Remote transmission digital display			

交通领域应用
Application in the field of transportation

汽车用液化天然气储供系统
Liquefied natural gas storage and supply system for automobiles

天海工业在车用LNG领域深耕多年，研制了国标、企标、EN标准、TPED认证、ECE R110认证等多种标准和认证的各类车用LNG气瓶。产品通过了国家指定机构的型式试验，产品性能优良、安全性高、可靠性好；可配备智能化仪表及远传设备，实现数据无线远传。

天海工业是首家既有国内主流的采用火花塞点燃技术的SI型车用LNG系统，又有世界领先的采用高压直喷技术的HPDI型车用LNG系统的厂家。天海工业深度匹配市场需求，主攻重卡、公交、轻卡、工程车等车型，广泛应用与长途干线物流、资源运输、危化品运输、城市公交、公路客运、环卫车、矿山车等应用场景，可提供针对各类标准、技术、车型的，侧装式、后背式等不同安装方式的，单瓶、双瓶、多瓶选配的定制服务。

Tianhai Industry has been deeply involved in the field of automotive LNG for many years, developing various types of automotive LNG cylinders that meet national standards, enterprise standards, EN standards, TPED certification, ECE R110 certification, and other standards and certifications. The products have passed type tests conducted by designated national institutions, and they exhibit excellent product performance, high safety, and good reliability. They can be equipped with intelligent instruments and remote transmission devices to achieve wireless data transmission.

Tianhai Industry is the first manufacturer to offer both the mainstream SI-type LNG system for vehicles in China, utilizing spark plug ignition technology, and the world-leading HPDI-type LNG system for vehicles, employing high-pressure direct injection technology. Deeply aligned with market demands, Tianhai Industry primarily focuses on heavy-duty trucks, buses, light trucks, and construction vehicles. Its products are widely applied in various scenarios such as long-distance trunk logistics, resource transportation, hazardous chemical transportation, urban bus services, highway passenger transportation, sanitation vehicles, and mining trucks. The company can provide customized services tailored to various standards, technologies, and vehicle types, offering different installation methods such as side-mounted and rear-mounted, and various configurations including single-cylinder, dual-cylinder, and multi-cylinder options.



SI型车用LNG系统
SI-type LNG system for vehicles



HPDI型车用LNG系统
HPDI type LNG system for vehicles

SI系列(SI Series) 国标系列 SI Series National Standard Series

产品型号Type	CDPW410-1.59V	CDPW500-1.45IV	CDPW600-1.59V	CDPW660-1.59V	CDPW700-1.59V
执行标准 code	GB/T 34510				
充装介质 Filling Content	液化天然气LNG (Liquefied Natural Gas)				
公称工作压力 Nominal Pressure psig (Mpa)	1.59				
公称容积 Nominal Volume (L)	150/175/200/240/275	150/175/200/240/275/310/330	285/340/375/400/450/500	375/400/450/500	375/400/450/500
有效容积 Storage Capacity (L)	135/157.5/180/216/247.5	138/161/184/220/253/285/303	254/303/334/356/401/445	345/368/414/460	338/360/405/450
最大充液量 Max.filling weight (kg) (按照0.8MPa下充装LNG密度)	50/58/66/79/90	51/59/67/80/92/104/111	92/110/122/130/146/162	126/134/151/168	123/131/148/164
蒸发率 Normal Evaporation Rate (%/d)	≤ 3.25/2.4/2.6/2.55/2.5	≤3.25/≤2.73/≤2.6/≤2.55/≤2.5/≤2.46/≤2.44	≤2.49/≤2.44/≤2.41/≤2.38/≤2.34/≤2.3	≤2.41/≤2.38/≤2.34/≤2.3	≤2.41/≤2.38/≤2.34/≤2.3
空重≈Empty Weight (kg)	129/142/156/177/195	124/133/146/164/178/193/201	239/258/274/285/302/327	264/275/295/315	286/297/319/339
规格尺寸(长x宽x高) mm Dimension (mm)	1561x502x495 1751x502x495 1940x502x495 2244x502x495 2509x502x495	1192x598x600 1321x598x600 1448x598x600 1652x598x600 1830x598x600 2008x598x600 2110x598x600	1420x660x660 1613x660x660 1736x660x660 1824x660x660 2000x660x660 2178x660x660	1566x711x711 1641x711x711 1790x711x711 1940x711x711	1443x758x758 1511x758x758 1643x758x758 1775x758x758

SI系列(SI Series) 企标与出口系列 SI Series: Corporate Standard and Export Series

产品型号Type	CDPW850-1.59	CDPW1000-1.45	CDPW1050-1.60	ECE600-285-15.9
执行标准code	Q/JB THB0045	Q/JB THB0055		EN1251-2:2000 ECE R110
充装介质Filling Content	液化天然气LNG (Liquefied Natural Gas)			
公称工作压力 Nominal Pressure psig (Mpa)	1.59	1.45	1.60	15.9
公称容积 Nominal Volume (L)	750/850/1000	1350	1500	285/340/375/400/450/500
有效容积 Storage Capacity (L)	668/757/890	1201	1335	257/306/338/360/405/450
最大充液量 Max.filling weight (kg) (按照0.8MPa下充装LNG密度)	243/276/324	445	495	94/112/123/131/148/164
蒸发率 Normal Evaporation Rate (%/d)	≤2.4/≤2.4/≤2.4	≤1.8	≤2.0	/
空重≈Empty Weight (kg)	408/445/500	590	695	246/270/285/296/319/341
规格尺寸(长x宽x高) mm Dimension (mm)	1796/1972/2228x908x908	2208 x1050x1050	2219 x1108 x1108	φ660.4x1460/1653/1776/1764/2040/2226

工业领域应用 Industrial applications

储罐产品 Tank products

天海工业具有C2特种设备制造资质，主要产品包括VT/HT系列工业气体储罐、超大型低温储罐、LNG系列标准储罐、IMDG罐式集装箱和LNG船用燃料罐等系列产品。可根据客户要求提供容积为3m³至500m³的固定式低温储罐，并在IMDG罐式集装箱产品大批量、快速生产交付和LNG船用罐燃料罐产品设计以及生产制造方面具有丰富经验和技術优势。

公司通过了ISO9001:2015质量体系、ISO14001:2015环境管理体系和OHSAS18001:2007职业健康安全管理体系认证，并取得了德国AD2000-M、欧盟PED及TPED、澳大利亚/新西兰AS1210、马来西亚DOSH和美国ASME等产品认证证书，产品销往欧洲、中东、澳大利亚，新西兰、东南亚等多个国家和地区。

Tianhai Industry possesses C2 special equipment manufacturing qualifications, with its main products encompassing the VT/HT series of industrial gas storage tanks, ultra-large cryogenic storage tanks, LNG series standard storage tanks, IMDG tank containers, and LNG marine fuel tanks, among other series of products. We can provide fixed cryogenic storage tanks with volumes ranging from 3m³ to 500m³ according to customer requirements, and possess extensive experience and technical advantages in the mass and rapid production and delivery of IMDG tank container products, as well as in the design and manufacturing of LNG marine fuel tanks.

The company has obtained certifications for the ISO9001:2015 quality system, ISO14001:2015 environmental management system, and OHSAS18001:2007 occupational health and safety management system. Additionally, it has secured product certification certificates such as Germany's AD2000-M, the European Union's PED and TPED, Australia/New Zealand's AS1210, Malaysia's DOSH, and the United States' ASME. Its products are sold to various countries and regions including Europe, the Middle East, Australia, New Zealand, and Southeast Asia.

01 工业气体储罐 Industrial gas storage tank

3m³至500m³低温储罐，用于盛装液氧、液氮、液氩等深冷液体。

Low-temperature storage tanks ranging from 3m³ to 500m³ are used to contain cryogenic liquids such as liquid oxygen, liquid nitrogen, and liquid argon.



02 VTC/HTC系列储罐 VTC/HTC series storage tanks



3m³至500m³低温储罐，用于盛装液态二氧化碳、液态笑气等高压液化气体。

Low temperature storage tank ranging from 3m³ to 500m³, used to hold liquid carbon dioxide High pressure liquefied gases such as liquid laughing gas.

03 IMDG ISO 罐式集装箱 Industrial gas storage tank

20尺工业气体罐式集装箱和40尺LNG罐式集装箱主要用于国际公、铁、水联运体系和国内公路水路联运，安全储运液氧、液氮、液氩等常见工业气体和LNG，20尺近海集装箱（首创新产品）主要用于油田伴生气液化回收，实现LNG安全充装、储存、吊装及运输。

20ft industrial gas tank containers and 40ft LNG tank containers serve road-rail-water multimodal transport for safe delivery of LOX, LIN, LAR and LNG. The 20ft offshore container (a pioneering new product) is built for oilfield associated gas liquefaction recovery, realizing safe LNG filling, storage, hoisting and transportation.



工业领域应用 Industrial applications

应用场景 Application Scenarios

可生产VT/HT系列工业气体储罐、超大型低温储罐、LNG系列标准储罐IMDG罐式集装箱和LNG船用燃料罐等产品，具有德国AD2000-M、欧盟PED及TPED、澳大利亚/新西兰AS1210、马来西亚DOSH和美国ASME等产品认证证书，产品销往欧洲、中东、澳大利亚，新西兰、东南亚等多个国家和地区。公司产品在空分气体、钢铁、医院、生物医疗、汽车、芯片、食品等领域应用广泛。

The company produces a range of products including VT/HT series industrial gas storage tanks, ultra-large cryogenic storage tanks, LNG series standard storage tanks, IMDG tank containers, and LNG marine fuel tanks. It holds certifications such as Germany's AD2000-M, EU PED and TPED, Australia/New Zealand AS1210, Malaysia DOSH, and US ASME. Its products are sold in Europe, the Middle East, Australia, New Zealand, Southeast Asia, and other regions. The company's products are widely used in fields such as air separation gases, steel, hospitals, biomedicine, automotive, semiconductors, and food.



交通领域应用

Application in the field of transportation

船用燃料罐

Marine fuel tank

船用罐主要分为LNG船用燃料罐和运输/加注液货仓。

受国际海事组织对船舶排放要求的日益严格，越来越多的新建船舶使用LNG作为船舶的清洁燃料，也给船用罐市场领域带来了广阔的发展空间。目前市场占有率达到30%以上。具备CCS /BV/ABS/DNV-GL等船级社认证。

Marine tanks are primarily classified into LNG marine fuel tanks and transport/bunkering liquid cargo tanks.

Due to the increasingly stringent emission requirements imposed by the International Maritime Organization on ships, an increasing number of newly built ships are using LNG as a clean fuel, providing ample room for development in the marine tank market. Currently, the market share has reached over 30%.It has certifications from classification societies such as CCS, BV, ABS, and DNV-GL.



LNG加注趸船

交付新奥珠江LNG加注趸船项目的LNG船用罐。该项目为国内首艘LNG加注趸船。

Deliver the LNG marine tank for the ENN the Pearl River LNG bunkering barge project. This project is the first LNG bunkering barge in China.



可移动式LNG燃料罐

交付印尼一台20尺船用燃料罐，通过美国ABS船级社认证，实现了全球首创的船用燃料罐换罐模式。

A 20-foot marine fuel tank was delivered to Indonesia, which has been certified by the American Bureau of Shipping (ABS), marking the world's first-ever model for replacing marine fuel tanks.



LNG燃料罐

交付中海油服PSV项目12台170立方船用罐。国内首个LNG燃料国际航行船项目。

Delivered 12 170 cubic meter marine tanks for the PSV project of China Oilfield Services Limited. It is the first domestic LNG fuel international navigation ship project.



LNG/液氮多用途甲板罐

交付大船集团8500立方LNG移动加注船项目2台180立方船用罐。该产品为国内首创的LNG/液氮多用途甲板罐。

Delivered two 180 cubic meter marine tanks for the 8500 cubic meter LNG mobile bunkering vessel project of Dachuan Group. This product is the first LNG/liquid nitrogen multi-purpose deck tank in China.

交通领域应用

Application in the field of transportation

LNG系列储罐

LNG series storage tanks

LNG和L-CNG加注站储罐：

主要用于中石油、中石化、中海油等大型能源公司的加注站项目。

LNG气化站储罐：

用于工业、小区的备用气源、弥补长输管道覆盖盲区。

Storage tanks for LNG and L-CNG filling stations:

It is primarily used in refueling station projects for large energy companies such as PetroChina, Sinopec, and CNOOC. Our company holds a market share of over 40% in this market segment.

Storage tank of LNG gasification station:

Used as a backup gas source for industries and residential areas, compensating for the coverage blind spots of long-distance pipelines.



客户LNG加注站项目
Customer LNG bunkering station project



中石油中石化中海油LNG加注站项目
CNOOC LNG Filling station project

VTN/HTN LNG系列标准贮罐 VTN/HTN SeriesStandardized LNG Storage Tanks

型号 Model	水容积 Gross Volume(m ³)	高度(或长度) Height or length(m)	直径 Diameter(m)	正常蒸发量-氧 NER Lo2(% capacity/day)	最大允许工作压力 MAWP(MPa)
VTNorHTN5	5	5	2.0	0.40	0.8~1.7
VTNor HTN10	10	6.02	2.2	0.33	
VTNor HTN 20	20	10.2	2.2	0.27	
VTNor HTN 30	30	11	2.5	0.24	
VTNor HTN40	40	9.9	3.0	0.22	
VTNor HTN50	50	11.3		0.19	
VTNor HTN60	60	13.2		0.19	
VTNor HTN80	80	13.5	3.6	0.15	
VTNor HTN 100	100	16.3		0.14	

VT/HT系列工业气体标准贮罐 VT/HT Series Standardized Storage Tanks

型号 Model	水容积 Gross Volume(m³)	有效容积 Net Volume(m³)	高度(或长度) Height or length(m)	直径 Diameter(m)	正常蒸发量-氧 NER Lo2(% capacity/day)	最大允许工作压力 MAWP(MPa)
VT or HT5	5.3	5	5.25	2.0	0.38	0.8-3.5
VT or HT10	10.6	10	6.02	2.2	0.27	
VT or HT15	15.8	15	8.12		0.23	
VT or HT20	21.1	20	10.2		0.21	
VT or HT22	23.1	22	10.9			
VT or HT25	26.4	2	9.6	2.5	0.2	
VT or HT30	31.6	30	11			
VT or HT33	34.7	33	12.2		3	
VT or HT40	40	38	9.9			
VTor HT50	50	47.5	11.3	3.6		
VT or HT60	60	57	13.2			
VT or HT80	80	76	13.5		0.16	
VT or Ht100	100	95	16.3			

VTC/HTC CO2系列标准贮罐 VTC/HTC Series Standardized CO2 Storage Tanks

型号 Model	水容积 Gross Volume(m³)	有效容积 Net Volume(m³)	高度(或长度) Height or length(m)	直径 Diameter(m)	正常蒸发量-氧 NER Lo2(% capacity/day)	最大允许工作压力 MAWP(MPa)	
VTCor HTC 10	10.6	10	6.02	2.2	0.7	2.2~2.5	
VTCor HTC15	15.8	15	8.12		0.5		
VTCor HTC20	21.1	20	10.2				
VTCor HTC30	31.6	30	11	2.5	0.4		
VTCor HTC40	40	38	9.9	3.0	0.3		
VTCor HTC50	50	47.5	11.3				
VTCor HTC 100	100	95	17	3.6			

超大型低温贮罐 Super Large Storage Tanks

型号 Model	水容积 Gross Volume(m³)	有效容积 Net Volume(m³)	高度(或长度) Height or length(m)	直径 Diameter(m)	正常蒸发量-氧 NER Lo2(% capacity/day)	最大允许工作压力 MAWP(MPa)
150	150	147	18	3.9	0.15	0.2-3.5
200	200	196	23		0.13	
250	250	245	24	4.5	0.12	
300	300	294	28		0.11	
350	350	343	32			
400	400	392	30	4.8		
500	500	490	37			

IMDG罐式集装箱 IMDG Containers

型号 Model	水容积 Gross Volume(m³)	最大允许 工作压力 MAWP(MPa)	设备重量 Tare weight(kg)	最大总质量 Max.Gross weight(kg)	充装介质 Medium	标准和规范 Manufacture standard	批准 Notifiedbody	
CC-20FT-8	19.2/20.2	0.8	8900	34000	液氧, 液氮, 液氩, 液化天然气, 液体 二氧化碳, 一氧化 二氮, 液化空气	GB150	BV,CCS	
CC-20FT-16	19.2/20.2	1.6	9650	34000		IMDG,EN,AS- ME,ADR/RID,DO T,TC,ISO1496-3	BV,CCS	
CC-20FT-22	19.2/20.2	2.2	10270	34000				
CC-40FT-9	44/45.2	0.9	12000	36000	液化天然气, 液化乙烯			BV,CCS
CC-40FT-12	41.5/42.5	1.15	15000	34000				
CC-45FT-6	52.0	6.5	12950	36000	LNG			

前沿产品
Frontier products

汽车用液氢储供系统

Liquid hydrogen storage and supply system for automobiles

天海工业全新一代自主研发的车载液氢储供系统，既有能够满足侧装方式安装的1300L（650Lx2）液氢系统，也有能够满足后背式安装的1250L液氢系统，高度适配重型商用液氢重卡，整体储氢系统储氢量达80kg以上，续航里程超1000km。

Tianhai Industry's newly developed on-board liquid hydrogen storage and supply system boasts both a 1300L (650Lx2) liquid hydrogen system suitable for side-loading installation and a 1250L liquid hydrogen system compatible with rear-loading installation. It is highly adaptable to heavy-duty commercial liquid hydrogen heavy-duty trucks, with an overall hydrogen storage capacity of over 80kg and a driving range exceeding 1000km.



1250L车载液氢储供气系统

1250L vehicle-mounted liquid hydrogen storage and supply system



650L车载液氢储供系统

650L on-board liquid hydrogen storage and supply system

主要特点
Main Features

安全性高
High security

具有合理的系统设计和控制逻辑确保液氢储供系统的安全性；
Possessing reasonable system design and control logic to ensure the safety of the liquid hydrogen storage and supply system;

储氢量高
High hydrogen storage capacity

采用液氢介质存储，有效提升储氢质量，实现整车的长续航特点；
By utilizing liquid hydrogen as the storage medium, the hydrogen storage quality is effectively enhanced, thereby achieving a long-range endurance for the entire vehicle;

高度集成化
Highly integrated

有效利用重型商用车两侧的有限空间，高度集成左右两侧气瓶，提高空间利用率；
Effectively utilize the limited space on both sides of heavy-duty commercial vehicles, and highly integrate the gas cylinders on the left and right sides to improve space utilization;

匹配度高

High matching degree

节省车头后部空间，可匹配风阻系数更低流线型氢燃料电池重型商用车，提升经济性。
It conserves space at the rear of the vehicle and can be paired with streamlined hydrogen fuel cell heavy-duty commercial vehicles with lower drag coefficients, enhancing fuel efficiency.

前沿产品 Frontier products

液氢储运装备

Liquid hydrogen storage and supply equipment

天海工业研制的固定式液氢储罐主要针对液氢工厂、液氢加氢站、终端用户的液氢储存单元,其绝热结构和支撑方案采用公司的发明专利技术,绝热性能优良。产品采用可靠的临氢材料和管路系统安全设计,配备专用液氢低温阀门及安全附件,合理和易操作的阀门布局设计,产品经测试满足国内外液氢相关标准的性能指标,确保了产品的使用安全可靠。可提供定制5-500立方固定式液氢储罐产品。

天海工业研制的移动式40尺液氢罐式集装箱主要针对需要液氢运输的环节,采用可靠的临氢材料和管路系统安全设计,配备专用液氢低温阀门及安全附件,合理和易操作的阀门布局设计;其绝热支撑结构采用公司的发明专利技术,绝热性能优良;并通过了罐箱的静态和动态型式试验,确保了产品的使用安全可靠。运输装备采用容积优化设计,降低运输成本。

The fixed liquid hydrogen storage tanks developed by Tianhai Industry are primarily designed for liquid hydrogen factories, liquid hydrogen refueling stations, and end-user liquid hydrogen storage units. Their insulation structure and support scheme utilize the company's patented technology, ensuring excellent insulation performance. The products are constructed with reliable hydrogen-contacting materials and feature a safe pipeline system design. They are equipped with specialized low-temperature liquid hydrogen valves and safety accessories, and the valve layout is designed to be reasonable and easy to operate. The products have been tested and meet the performance indicators of relevant domestic and international liquid hydrogen standards, ensuring safe and reliable use. Customized fixed liquid hydrogen storage tanks ranging from 5 to 500 cubic meters are available.

The mobile 40-foot liquid hydrogen tank container developed by Tianhai Industry is primarily designed for applications requiring liquid hydrogen transportation. It incorporates reliable hydrogen-contacting materials and a safe pipeline system design, equipped with dedicated liquid hydrogen cryogenic valves and safety accessories, and features a reasonable and user-friendly valve layout design. Its insulation support structure utilizes the company's patented technology, providing excellent insulation performance. The tank container has passed both static and dynamic type tests, ensuring safe and reliable product use. The transportation equipment adopts volume optimization design to reduce transportation costs.



前沿产品 Frontier products

加氢站用带泵井液氢罐

Liquid hydrogen tank with pump well for hydrogen refueling station

“加氢站用带泵井液氢罐”是天海工业开发的一款适用于高压液氢加氢站的液氢储罐产品。该产品外形采用20尺罐式集装箱框架式模块化设计,创新性的将泵池置于储罐内部的结构设计,实现了35Mpa、70Mpa高压液氢泵大流量、无限制的安全高效的连续加注。具有系统集成性高、占地面积小、便于运输等优点,是国内首个内置泵井的液氢储罐,已经在高压液氢加氢系统示范项目上成功实现液氮、液氢介质的调试运行,并通过客户验收。

"Pumped Well Liquid Hydrogen Tank for Hydrogen Refueling Stations" is a liquid hydrogen storage tank product developed by Beijing Tianhai Industry Co., Ltd., specifically designed for high-pressure liquid hydrogen refueling stations. This product adopts a 20-foot tank container frame modular design, featuring an innovative structural design that places the pump well inside the tank. This design enables safe and efficient continuous refueling at high flow rates with 35Mpa and 70Mpa high-pressure liquid hydrogen pumps without restrictions. It boasts high system integration, small footprint, and ease of transportation. As the first liquid hydrogen storage tank with a built-in pump well in China, it has successfully achieved commissioning and operation of liquid nitrogen and liquid hydrogen media in high-pressure liquid hydrogen refueling system demonstration projects and passed customer acceptance.

