

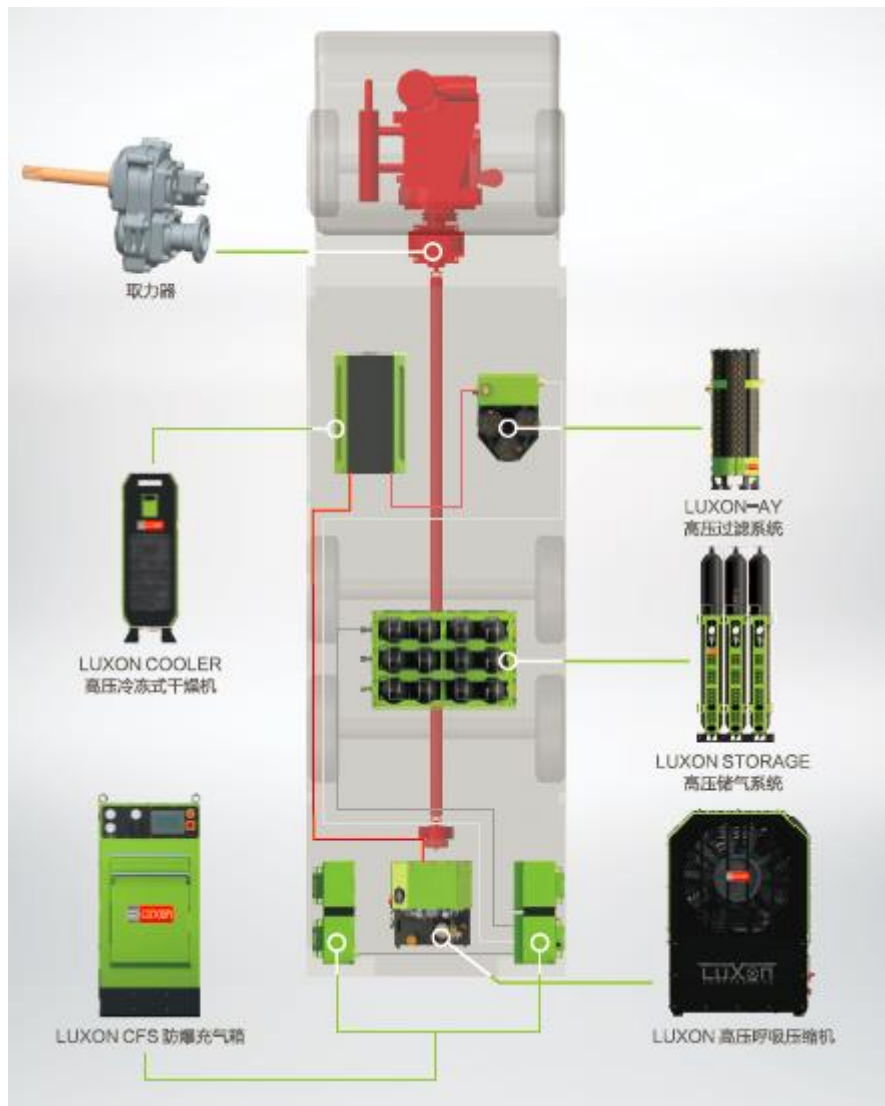


上海紫书实业有限公司  
SHANGHAI ZISHU INDUSTRIAL CO.,LTD

技术规格

## ZISHU-LUXON-K90I-1800 型车载供气系统

ZISHU-LUXON-K90I-1800 on-board gas supply system



**SHANGHAI ZISHU INDUSTRIAL CO.,LTD**

NO.123 lane 99 xinbao road Jiading district Shanghai China 201899

TEL:+86 21 59966076

FAX:+86 21 59966076



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技术规格

<p>I 压缩</p> <p>compress</p>	<p>II 干燥与过滤</p> <p>Drying and filtration</p>	
<p>LUXON 压缩的优势</p> <p>Advantages of LUXON compression</p> <ul style="list-style-type: none"> <li>● 压缩机机头 Compressor head</li> <li>精密进气滤芯 Precision air intake filter element</li> <li>中间级冷却器 Intermediate stage cooler</li> <li>终极冷却器 The ultimate cooler</li> <li>中间级油水分离器 Intermediate stage oil/water separator</li> <li>中间级安全阀 Intermediate stage safety valve</li> <li>● 机身安装在稳固的框架上，含减震垫，主机及电机垂直放置 The fuselage is mounted on a stable frame, including shock absorbing pads, and the main engine and motor are placed vertically</li> <li>● 标准配置为 LUXON 开放型机器可根据客户需求改装成超静音型</li> </ul>	<p>LUXON COOLER 冷干机的优势</p> <p>Advantages of the LUXON COOLER refrigeration dryer</p> <ul style="list-style-type: none"> <li>● 滤芯寿命最高可延长 10 倍 滤芯寿命最高可延长 10 倍，这就大大减少了滤芯在替换方面的成本投入，这就意味着配置 LUXON COOLER 的成本在短期内即可收回。</li> <li>● The life of the filter element can be extended by up to 10 times, which greatly reduces the cost of replacing the filter element, which means that the cost of configuring LUXON COOLER can be recovered in a short time.</li> <li>● 滤芯使用寿命的得以延长，设备的停机保养次数也得以减少。安全环保</li> <li>● The service life of the filter element is extended, and the number of equipment downtime and maintenance is also reduced. Safe and environmentally friendly</li> <li>● LUXON COOLER 也具有极大的环保意义，更长的滤芯使用寿命。意味着更少的滤芯原材料消耗。</li> <li>● LUXON COOLER also has great environmental significance and longer filter service</li> </ul>	<p>LUXON 过滤系统的优势</p> <p>Advantages of LUXON filtration systems</p> <ul style="list-style-type: none"> <li>● LUXON 所生产的滤筒均采用优质特制铝合金或经淬火处理的高合金钢。</li> <li>● The filter cartridges produced by LUXON are made of high-quality special aluminum alloy or high-alloy steel quenched.</li> <li>● 这类高轻度材料可承受高达 500Bar 压力，可循环使用。</li> <li>● These high and light materials can withstand pressures up to 500 bar and can be recycled.</li> <li>● 经 LUXON 过滤系统净化后的空气，各项指数均满足或高于国内/国际标准，如 DIN EN12021 标准等。</li> <li>● The air purified by the LUXON filtration system meets or exceeds the domestic / international standards, such as DIN EN12021 standard.</li> </ul>

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<ul style="list-style-type: none"><li>● The standard configuration is LUXON open machine, which can be modified to ultra-quiet type according to customer needs</li></ul>	<p>life. This means less raw material consumption for the filter element.</p> <ul style="list-style-type: none"><li>● 独立式/组合式</li><li>● Stand-alone/combined</li></ul>	
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### (一) 系统概述

#### (1) System overview

K90I供气系统是专为车载开发的高压车载式空气呼吸系统。

The K90I air supply system is a high-pressure vehicle-mounted air breathing system specially developed for on-board vehicles.

独有的抗震、减震设计适应车载安装使用需求。

The unique anti-seismic and shock-absorbing design meets the needs of on-board installation and use.

配备的高压冷干系统保证输出舒适的空气温度，适应人员呼吸要求。

The high-pressure refrigeration and drying system ensures a comfortable air temperature and adapts to the breathing requirements of personnel.

多重过滤系统保证了经压缩的空气质量符合欧洲最高标准——EN12021标准。

The multiple filtration system ensures that the compressed air quality meets EN12021, the highest European standard.

HAFI管路、接头安装结构，保证行车不至松动而导致漏气。

HAFI pipeline and joint installation structure to ensure that the driving will not loosen and cause air leakage.

气瓶组设有安全阀、节流阀、压力表，气瓶内外表面均经防腐处理，更能保证消防员呼吸安全。

The cylinder group is equipped with safety valve, throttle valve and pressure gauge, and the inner and outer surfaces of the cylinder are treated with anti-corrosion, which can better ensure the respiratory safety of firefighters.

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## 技术规格

可同时为8个6.8升或9升空气呼吸器气瓶充气，单瓶充气时间不超过2分钟，5分钟内可充满8个6.8升气瓶。

Eight 6.8-liter or 9-liter air respirator cylinders can be inflated at the same time, with a single bottle inflating time of no more than 2 minutes and eight 6.8-liter cylinders in 5 minutes.

K90I型供气系统高度遵循**模块化**的设计理念，整个系统仅由**五个模块、六根管路**、组成，五个模块包括**主机模块、过滤模块、冷干模块、储气模块、充气模块**，可同时为8个6.8升或9升空气呼吸器气瓶充气。

K90I air supply system highly follows the modular design concept, the whole system is only composed of five modules, six pipelines, five modules including host module, filter module, refrigeration module, gas storage module, inflation module, can simultaneously inflate eight 6.8 liter or 9 liter air breathing apparatus cylinders.

K90I型供气系统具有**安全·快速·洁净·简单·可靠**等特点。

K90I gas supply system has the characteristics of safety, speed, cleanliness, simplicity and reliability.

### (二) 系统特点

#### (2) System characteristics

- **安全**
- **Security**

1. 隔离式管路防爆栅、双重防护的自动防爆充气箱，使人员及系统安全得到保障。

1. Isolated pipeline explosion-proof grille and double-protected automatic explosion-proof inflatable box ensure the safety of personnel and systems.

2. 主机模块、过滤模块、储气模块、充气模块（防爆充气箱）8处安全阀设计，为人员及系统安全使用提供保障。

2. The design of 8 safety valves for the host module, filter module, gas storage module and inflation module (explosion-proof inflatable box) provides guarantee for the safe use of personnel and systems.

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## 技术规格

3. 防爆箱开门自动停止充气，充分保证了充气安全。

3. The explosion-proof box automatically stops inflation when the door is opened, which fully ensures the safety of inflation.

4. 双层高强度钢板装甲防护防爆箱，通过 1000kgf/cm<sup>2</sup> 高压爆炸测试，即便发生意外，亦可充分保证人员安全。

4. Double-layer high-strength steel plate armor protection explosion-proof box, through the 1000kgf/cm<sup>2</sup> high-pressure explosion test, even if an accident occurs, it can fully ensure the safety of personnel.

➤ 快速

➤ Fast

1. 空气压缩机额定排量 1800 升/分钟，具有强大的现场充气保障能力。

1. The rated displacement of the air compressor is 1800 liters/min, and it has a strong on-site inflation guarantee ability.

2. 系统配有总容量 16 个×50 升=800 升的军用高压储气系统。

2. The system is equipped with a military high-pressure gas storage system with a total capacity of 16 ×50 liters = 800 liters.

3. 系统结构紧凑，留出可装载 100 个 6.8 升或 9 升备用气瓶的取放空间。

3. The system is compact, leaving 100 spare gas cylinders of 6.8 liters or 9 liters in the pick-and-place space.

4. 保障能力：

4. Guarantee capability:

1) 更换——现场可直接提供 100 个 6.8 升或 9 升气瓶供消防员更换使用；(用户自配)

1) Replacement - 100 6.8-liter or 9-liter gas cylinders can be directly provided on site for firefighters to replace and use; (User-owned)

2) 灌充——阶梯自动充气系统可将高压储气系统内空气快速充入 100 个备用气瓶；

2) Filling - the stepped automatic inflation system can quickly fill the air in the

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技术规格

high-pressure gas storage system into 100 spare gas cylinders;

3) 直充——压缩机直接充气每小时可持续提供至少 60 个气瓶保障;

3) Direct charging - direct charging of the compressor can provide at least 60 cylinders per hour;

4) 快充——两个四瓶防爆箱同时充气，可快速充满 8 个 6.8 升气瓶。

4) Fast charging - two four-bottle explosion-proof boxes are inflated at the same time, which can quickly fill 8 6.8L cylinders.

➤ 洁净

➤ Clean

1. 进气滤芯完成空气粗过滤，可有效滤去空气中大量固体颗粒。

1. The intake filter element completes the coarse filtration of the air, which can effectively filter out a large number of solid particles in the air.

2. 压缩机每级压缩均对空气中的油水进行分离过滤、冷却除水，多重措施提高空气质量。

2. Each stage of compression of the compressor separates and filters, cools and removes water from the oil and water in the air, and takes multiple measures to improve air quality.

3. 出口高压净化系统包含机械式过滤分离器以及由活性炭、分子筛、一氧化碳吸收分子构成三重呼吸空气净化过滤器，过滤后的空气质量符合 EN12021 标准。

3. The outlet high-pressure purification system includes a mechanical filter separator and a triple breathing air purification filter composed of activated carbon, molecular sieve and carbon monoxide absorbing molecules, and the filtered air quality meets EN12021 standards.

➤ 简单

➤ Simple

1. 取力器直接驱动压缩机，传动方式安全、简单、高效。(亦可采用车载发电机驱动)

1. The power take-off directly drives the compressor, and the transmission mode is safe,

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simple and efficient. (Can also be driven by on-board generator)

2. 整个系统仅由五个模块、六根管路组成。

2. The whole system consists of only five modules and six pipelines.

3. “智能化”集成控制模式，系统自动完成压缩机启停、充气选择，操作人员仅需挂上取力器，即可直接进行充气操作。

3. “Intelligent” integrated control mode, the system automatically completes the compressor start-stop, inflation selection, the operator only needs to hang the power take-off, you can directly carry out the inflation operation.

4. 自动防爆箱具有开门自动停止充气并对充气管路卸压，关门自动开启充气的功能，操作简单、方便、快捷。

4. The automatic explosion-proof box has the function of automatically stopping inflation when the door is opened, unloading the pressure of the inflatable pipeline, and automatically opening the inflation when the door is closed

Make it simple, convenient and fast.

➤ 可靠

➤ Reliable

1. 系统主机等高压部件均采用弹性支承设计，使高压系统可以适应行车环境要求；

1. High-voltage components such as the main engine of the system adopt elastic support design, so that the high-voltage system can adapt to the requirements of the driving environment;

2. 主机可选配装强制冷却系统或加热系统，保证高低温环境下正常启动运行。

2. The main engine can be equipped with a forced cooling system or heating system to ensure normal start and operation in high and low temperature environments.

3. 系统中各管路、接头的安装、固定采用经专门设计的 HAFI 结构，可以保证高速行驶状态下管路联接可靠。

3. The installation and fixing of each pipeline and joint in the system adopts specially designed HAFI structure, which can ensure high-speed driving Reliable pipeline connection

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技术规格

in the state.

4. 充气机组采取强制同步正压风冷和通风优化设计，确保长时间连续运转。

4. The inflatable unit adopts the forced synchronous positive pressure air cooling and ventilation optimization design to ensure long-term continuous operation.

5. 系统配有中文液晶触摸屏，设有多重保护功能，保证系统可靠运行：

5. The system is equipped with Chinese LCD touch screen, equipped with multiple protection functions to ensure the reliable operation of the system:

1) 可对压缩机系统进行监视、设定和安全保护；

1) It can monitor, set and protect the compressor system;

2) 自动控制压缩机的运行；

2) Automatic control of compressor operation;

3) 提供故障报警及停机；

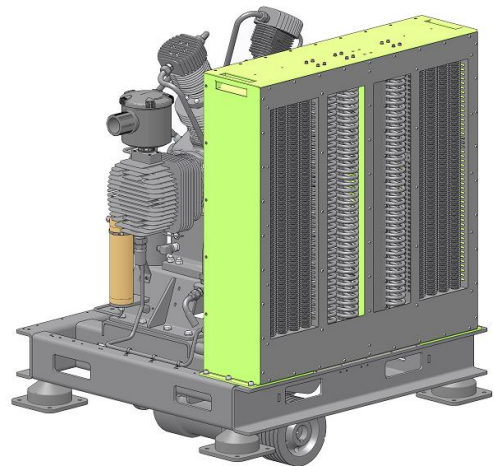
3) Provide fault alarm and shutdown;

4) 显示故障原因；

4) Display the cause of the failure;

5) 显示维护建议。

5) Display maintenance recommendations.



### (三) 系统配置

#### (3) System configuration

##### 1. 高压呼吸空气压缩机主机（取力器直接驱动）

##### 1. High pressure breathing air compressor host (power take-off direct drive)

本充气系统选用的是K90I高压空气呼吸压缩机，压缩机配有ECO- $\alpha$ 控制器。

K90I技术参数：

K90I technical parameters:

➤ 型号：K90I

➤ Model: K90I

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## 技术规格

- 数量：1台
- Quantity: 1 set
- 结构型式：4缸、4级、空冷、油润滑、单动作活塞式压缩。
- Structural type: 4-cylinder, 4-stage, air-cooled, oil-lubricated, single-action piston compression.
- **充气泵流量：1800L/min。**
- **Inflatable pump flow: 1800L/min.**
- 最高排气压力：350bar。
- Maximum exhaust pressure: 350bar.
- 功率：45kW
- Power: 45kW
- 工作温度：0 ~ +50℃
- Working temperature: 0 ~ +50° C
- 噪音：≤89db
- Noise: ≤89db
- 可拆卸式进气消声过滤器，10 μ m精度。
- Detachable intake muffler filter, 10 μ m accuracy.
- 常规惯性飞轮，带大流量冷却扇叶，多重V带驱动。
- Conventional inertial flywheel with large flow cooling fan blades, multiple V-belt drive .
- 轻合金活塞。
- Light alloy piston.
- 铝制汽缸头，独立阀座。
- Aluminum cylinder head, independent valve seat.
- 全自动环形阀和活塞环，大流量，多动作，高效率。
- Automatic ring valve and piston ring, large flow, multi-action, high efficiency.
- 风冷中间冷却器及后冷却器，带有汽水分离器。

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FAX:+86 21 59966076



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- Air-cooled intercooler and aftercooler with separator.
- 各级带有安全阀。
- Safety valves at all levels.
- 全自动卸压系统，确保机组无荷启动。
- Automatic pressure relief system to ensure that the unit starts without load.
- 润滑系统采用飞溅混合油泵润滑方式。
- The lubrication system adopts the spatter mixture oil pump lubrication method.
- 自动启动、自动停机功能。
- Automatic start, automatic shutdown function.
- 自动排污阀。
- Automatic blowdown valve.
- 排污收集系统。
- Sewage collection system.

## 2. 充气控制面板系统（集成在主防爆充气箱内）

2. Inflatable control panel system (integrated in the main explosion-proof inflatable box)

此系统是ECO- $\alpha$  控制系统。

This system is an ECO- $\alpha$  control system.

整个系统的电器控制采用PLC程序控制，并配有中英文液晶触摸屏。所有设备的操作和控制都是通过控制面板来完成的，控制面板的作用就是将复杂的设备控制简单化，使充气车的操作变得方便快捷。

The electrical control of the whole system adopts PLC program control, and is equipped with Chinese and English LCD touch screen. The operation and control of all equipment is done through the control panel, which simplifies the control of complex equipment and makes the operation of the inflatable car convenient and fast.

该控制系统可对压缩机系统进行监视、设定和安全保护。并自动控制压缩机的运行，提供故障报警及停机，显示故障原因，显示维护建议。还控制了发动机使操作更加方便科学更加智能。

The control system monitors, sets up and secures the compressor system. And automatically

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FAX:+86 21 59966076

control the operation of the compressor, provide fault alarm and shutdown, display the cause of the failure, display maintenance suggestions. The engine is also controlled, making operation more convenient and scientific and intelligent.

整个系统的操作方便，容易所有控制逻辑均自动实现。现场操作人员仅需更换碳纤维瓶进行充气实现，操作人员只需按下启动按钮，即可快速充气。

The whole system is easy to operate, and all control logic is automatically realized. The on-site operator only needs to replace the carbon fiber bottle for inflation, and the operator only needs to press the start button to quickly inflate it.

### 3. 高压过滤系统

#### 3. High pressure filtration system

AZ41 - F高压过滤系统主要是将压缩机出口的空气进行净化过滤，与主体集成一体。

AZ41 - F high-pressure filtration system mainly purifies and filters the air at the outlet of the compressor and integrates it with the main body.

以达到EN12021的呼吸空气标准。净化系统包含机械式过滤分离器以及由活性炭、分子筛、一氧化碳吸收分子构成三重呼吸空气净化过滤器，并且配有截止阀、安全阀、压力表、背压阀、单向阀及自手动排污装置等。

To meet the breathing air standard of EN12021. The purification system includes a mechanical filter separator and a triple breathing air purification filter composed of activated carbon, molecular sieve and carbon monoxide absorption molecules, and is equipped with a globe valve, safety valve, pressure gauge, back pressure valve, check valve and self-manual sewage device.

型号		G10B-AY61
额定工作压力	(Mpa)	40
测试压力	(Mpa)	60
运行温度	(°C)	-10/+50°C
处理量	(m3)	8000m3
规格 长*宽*高	(mm)	340×480×1050
净重	(KG)	120

#### 4. 高压冷冻式干燥机 (可根据整车结构选择立式或卧式结构)



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## 技术规格

### 4. High-pressure refrigeration dryer (vertical or horizontal structure can be selected according to the structure of the whole vehicle)

冷冻式压缩空气干燥机是根据空气冷冻干燥原理，利用制冷设备使压缩空气冷却到一定的露点温度，析出相应所含的水份，并通过分离器进行气液分离，再由自动排污阀将水排出。从而达到冷冻除湿的目的。同时，压缩空气中 $3\mu$ 及以上的固体尘粒及微油量成份都被滤除，使气源品质达到清洁、干燥的要求。

Refrigerated compressed air dryer is based on the principle of air freeze drying, using refrigeration equipment to cool the compressed air to a certain dew point temperature, precipitate the corresponding contained water, and carry out gas-liquid separation through the separator, and then discharge the water by the automatic sewage valve. So as to achieve the purpose of freezing and dehumidification. At the same time, the solid dust particles and micro-oil components of  $3\mu$  and above in the compressed air are filtered out, so that the quality of the air source meets the requirements of cleanliness and dryness.

#### 1) 技术参数 Technical parameters

	CC100 - H
介质	空气
工作压力	350巴
露点温度	$3^{\circ}\text{C}$
进气温度	$50^{\circ}\text{C}$
压缩空气处理量	2000升/分
排污方式	自动排污



#### 2) 规格特性

#### 2) Specification characteristics

- 自动控制温度，避免热空气对呼吸道的伤害，延长滤芯和气瓶使用寿命，减少滤芯更换成本，提高充气效率，设备停机保养次数减少。
- Automatic temperature control, avoid the damage of hot air to the respiratory tract, extend the service life of filter elements and gas cylinders, reduce the cost of filter element replacement, improve inflation efficiency, and reduce the number of equipment shutdowns and

**SHANGHAI ZISHU INDUSTRIAL CO.,LTD**

NO.123 lane 99 xinbao road Jiading district Shanghai China 201899

TEL:+86 21 59966076

FAX:+86 21 59966076



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技术规格

maintenance.

- 自动排放系统，排放冷凝水期间，仅有少量的压力流失。
- Automatic drain system, only a small amount of pressure loss during condensate discharge.
- 开机即运行，节省能源。
- Run-up to save energy.
- ECC控制，允许全自动控制。
- ECC control, allowing fully automatic control.
- 安全环保。
- Safety and environmental protection.
- 氟利昂制冷机，自动控制免维护。
- Freon refrigerator, automatic control maintenance-free.
- 实时数显冷却后的空气温度。
- Real-time digital display of air temperature after cooling.

## 5. 高压储气系统

### 5. High-pressure gas storage system

HF12Z高压空气储存系统的主要功能是在站内充满经过净化的呼吸空气，一旦需要立即投入使用，即可使其马上投入充气工作。在给碳纤维瓶进行充气时，可以先利用储存系统内的空气进行一次充装，如果不能达到30MPa时，再由压缩机对碳纤维瓶进行二次充装。

The main function of the HF12Z high-pressure air storage system is to fill the station with purified breathing air, which can be inflated as soon as it needs to be put into service. When inflating carbon fiber bottles, the air in the storage system can be used for primary filling, and if it cannot reach 30MPa, the carbon



**SHANGHAI ZISHU INDUSTRIAL CO.,LTD**

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技术规格

fiber bottle can be refilled by the compressor.

该系统包含12个50L、35MPa储气钢瓶、压力表、安全阀、截止阀，模块式支架等。同时配有钢瓶压力传感器，一旦储气钢瓶内空气压力在存储过程中出现压力不足，及时发出信号，提示操作人员及时检查并补充空气，防止在紧急状况时没有足够的空气进行充瓶。

The system includes 12 50L, 35MPa gas cylinders, pressure gauges, safety valves, globe valves, modular brackets, etc. At the same time, it is equipped with a cylinder pressure sensor, once the air pressure in the gas storage cylinder is insufficient pressure during storage, a signal is sent out in time to prompt the operator to check and replenish the air in time to prevent insufficient air to fill the bottle in an emergency.

所有的高压钢瓶均为符合中国压力容器标准，并带有检验报告的产品。

All high-pressure cylinders are products that meet the Chinese pressure vessel standards and come with inspection reports.

## 6. 全自动阶梯式自动充气控制系统

### 6. Fully automatic stepped automatic inflation control system

系统配有全自动阶梯式充气控制系统。

The system is equipped with a fully automatic stepped inflation control system.

12个钢瓶被分为3组，并联在一起。

The 12 cylinders were divided into 3 groups and joined together in parallel.

1) 阶梯“灌装”：由最低气压储气组优先给小气瓶灌装；当两者压差低于设值时，自动切换到下一组灌装。

1) Ladder "filling": the lowest pressure gas storage group gives priority to filling small gas cylinders; When the pressure difference between the two is lower than the set value, it automatically switches to the next set of filling.

2) 压缩机优先启动、优先“直充”：当任意一组高压储气组压力低于设定值（30MPa）时，压缩机自动启动并给其充气，使系统尽可能多的为现场提供呼吸空气。

2) Priority start of compressor and priority "direct charging": When the pressure of any group of high-pressure gas storage groups is lower than the set value (30MPa), the compressor

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FAX:+86 21 59966076

automatically starts and fills it, so that the system can provide breathing air to the site as much as possible.

3) 压缩机优先“直充”：当三组储气瓶组与小气瓶压差均低于设定值时，压缩机优先给小气瓶“直充”。

3) Compressor priority "direct charging": When the pressure difference between the three groups of gas cylinder groups and the small gas cylinder is lower than the set value, the compressor gives priority to the small gas cylinder "direct charge".

整个切换及序列的控制均自动完成，不需要人工操作。

The entire switching and sequence control is done automatically, without manual operation.

全自动阶梯式充气控制系统内配有气动控制阀门，实现阶梯功能的自动切换，并配有充气回路压力调节阀，防止充气压力超过30MPa。调节阀后配有安全阀，防止调节阀失效后的危险。高压储气瓶组配有ECO- $\gamma$  控制器来控制整个过程。

The automatic stepped inflation control system is equipped with pneumatic control valves to realize the automatic switching of step functions, and is equipped with an inflation circuit pressure regulating valve to prevent the inflation pressure from exceeding 30MPa. The control valve is equipped with a safety valve to prevent the danger after the control valve fails. The high-pressure gas storage cylinder pack is equipped with an ECO- $\gamma$  controller to control the entire process.

## 7. 自动防爆充气箱

### 7. Automatic explosion-proof inflatable box

气瓶在充气过程中，因气体受高压压缩发热，气瓶同时承受高热和高压，有爆炸或破裂的风险，高达6000Psi的高压气体可能会夹带碎片伤害操作人员，四瓶自动（手动）防爆充气箱，可有效地保证操作安全，高压气瓶离与操作人员隔离的高强度钢板厚度达到最小隔离面15mm，是普通防爆充气箱的3到4倍，并且还能操作轻便。

Gas cylinder in the inflation process, because the gas is compressed by high pressure heating, the cylinder is subjected to high heat and high pressure at the same time, there is a risk



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SHANGHAI ZISHU INDUSTRIAL CO.,LTD

## 技术规格

of explosion or rupture, up to 6000Psi high-pressure gas may entrain, debris may injure the operator, four bottles of automatic (manual) explosion-proof inflatable box, can effectively ensure the safety of operation, high-pressure gas cylinder from the operator isolation of high-strength steel plate thickness to the minimum isolation surface of 15mm, is 3 to 4 times of the ordinary explosion-proof inflatable box, and can also operate lightly.

本系统配有**两套BK4Z-F四瓶自动防爆充气箱**。该防爆充气箱运用人机工程学设计，提供最优化的安全保护功能和最大程度的便捷。

This system is equipped **with two sets of BK4Z-F four-bottle automatic explosion-proof inflatable inflatable boxes.** The explosion-proof inflatable box is ergonomically designed to provide optimum safety protection and maximum convenience.

在实际操作中，拆装瓶阀是需要时间的，采用两个防爆箱，可充分利用时间，提高工作效率，在一个防爆箱充气时，可对另一个防爆箱中的碳纤维瓶进行拆装操作。

In actual operation, it takes time to disassemble the bottle valve, using two explosion-proof boxes, which can make full use of the time and improve work efficiency, and when one explosion-proof box is inflated, the carbon fiber bottle in the other explosion-proof box can be disassembled and assembled.

自动防爆充气箱具有以下特点：

Automatic explosion-proof inflatable box has the following characteristics:

- 箱体采用双层结构：外箱采用双层5mm钢板制成；内箱中碳纤维瓶放置位置单独隔开，中间采用8mm钢板分割，前侧采用5mm钢板，门板采用5mm钢板制成，均为高强度防爆钢板。
- The box body adopts double-layer structure: the outer box is made of double-layer 5mm steel plate; The carbon fiber bottles in the inner box are placed separately, separated by 8mm steel plate in the middle, 5mm steel plate on the front side, and 5mm steel plate on the door panel, all of which are high-strength explosion-proof steel plates.

**SHANGHAI ZISHU INDUSTRIAL CO.,LTD**

NO.123 lane 99 xinbao road Jiading district Shanghai China 201899

TEL:+86 21 59966076

FAX:+86 21 59966076





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## 技术规格

- 外箱夹层和箱体底部开有泄压孔，气瓶爆破时，膨胀的压缩空气通过内，外箱之间的空间和箱体底部泄压孔排出，防止对人员的伤害。
- There is a pressure relief hole in the inner box mezzanine and the bottom of the box, and when the cylinder is burst, the expanded compressed air is discharged through the space between the inner and outer boxes and the pressure relief hole at the bottom of the box to prevent injury to personnel.
- 开门连锁装置，开门时自动切断充气回路，关门时自动打开充气回路。
- Door opening interlocking device, automatically cut off the inflation circuit when the door is opened, and automatically open the inflation circuit when the door is closed.
- 独立充瓶软管和充瓶阀，可根据情况选择充瓶数量。
- Independent filling hose and bottle filling valve, the number of filling bottles can be selected according to the situation.
- 关门自锁装置，防止充瓶时及气瓶爆破时门被打开。
- Close the door self-locking device to prevent the door from being opened when filling the bottle and when the cylinder is bursting.
- 电器控制采用PLC程序控制，并配有中文液晶触摸屏。
- Electrical control adopts PLC program control, and is equipped with Chinese LCD touch screen.
- 系统既可执行自动操作，也可执行手动操作，有效提高了使用效率。
- The system can perform both automatic and manual operations, which effectively improves the efficiency of use.



### 8. 滤芯状态显示

#### 8. Filter element status display

功能：显视滤芯工作状态；

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## 技术规格

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Function: display the working condition of the filter element;

特点: 分色显示并将信息反馈至控制系统同时系统警告。

Features: Color separation display and feedback information to the control system at the same time system warning.

绿色——滤芯可以安全使用;

Green - the filter element is safe to use;

黄色——滤芯即将需要更换;

Yellow - the filter element is about to need to be replaced;

红色——滤芯必须更换。

Red - The filter element must be replaced

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