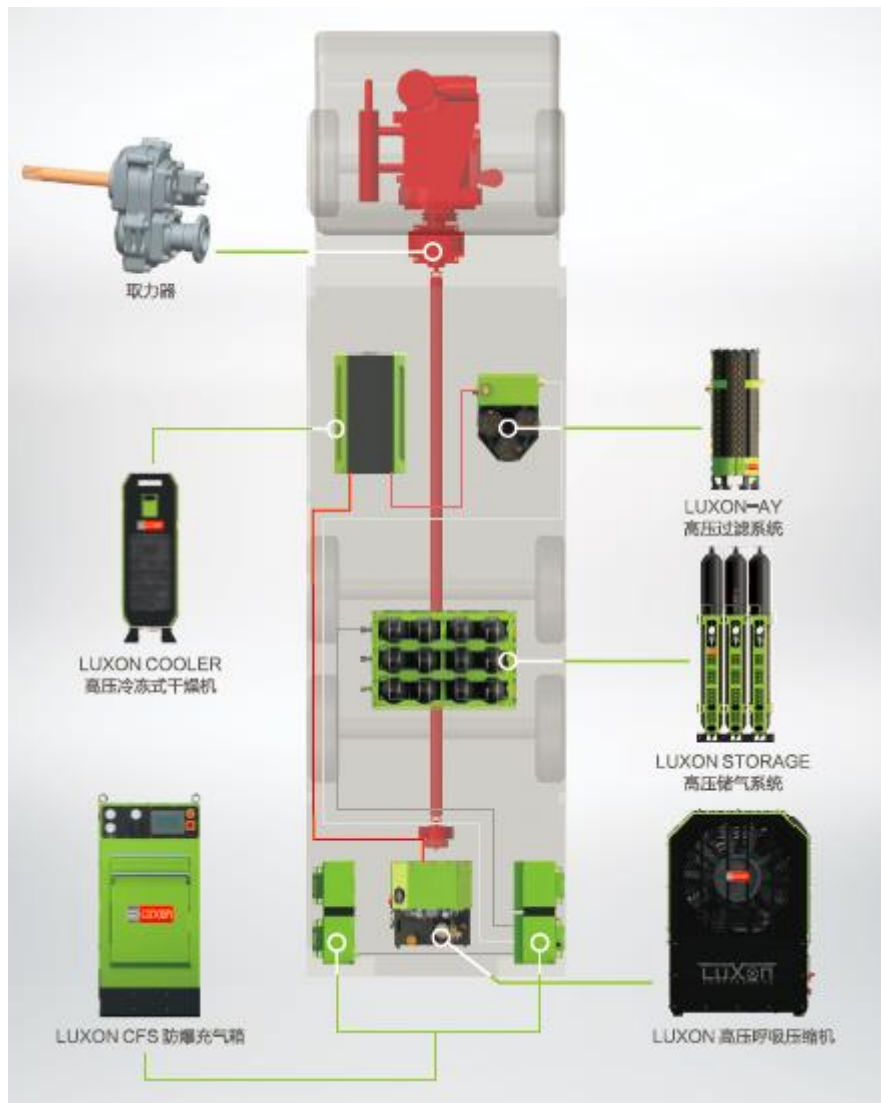




上海紫书实业有限公司
SHANGHAI ZISHU INDUSTRIAL CO.,LTD

Technical specification

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



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I compress	II Drying and filtration	
<p>LUXON</p> <p>Advantages of LUXON compression</p> <ul style="list-style-type: none"> ● Compressor head ● Precision air intake filter element ● Intermediate stage cooler ● The ultimate cooler ● Intermediate stage oil/water separator ● Intermediate stage safety valve ● The fuselage is mounted on a stable frame, including shock absorbing pads, and the main engine and motor are placed vertically 	<p>LUXON COOLER</p> <p>Advantages of the LUXON COOLER refrigeration dryer</p> <ul style="list-style-type: none"> ● 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. ● The service life of the filter element is extended, and the number of equipment downtime and maintenance is also reduced. Safe and environmentally friendly ● LUXON COOLER also has great environmental significance and longer filter service 	<p>LUXON</p> <p>Advantages of LUXON filtration systems</p> <ul style="list-style-type: none"> ● The filter cartridges produced by LUXON are made of high-quality special aluminum alloy or high-alloy steel quenched. ● These high and light materials can withstand pressures up to 500 bar and can be recycled. ● The air purified by the LUXON filtration system meets or exceeds the domestic / international standards, such as DIN EN12021 standard.

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<ul style="list-style-type: none">● The standard configuration is LUXON open machine, which can be modified to ultra-quiet type according to customer needs	<p>life. This means less raw material consumption for the filter element.</p> <ul style="list-style-type: none">● Stand-alone/combined●	
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(1) System overview

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

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

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

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

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

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

(2) System characteristics

-
- **Security**

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

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

4. Double-layer high-strength steel plate armor protection explosion-proof box, through the 1000kgf/cm² high-pressure explosion test, even if an accident occurs, it can fully ensure the safety of personnel.

➤ **Fast**

➤

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

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

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

4. Guarantee capability:

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

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

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

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



➤ **Clean**

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. 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. 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.



➤ **Simple**

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

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. 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.



➤ **Reliable**

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. 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. 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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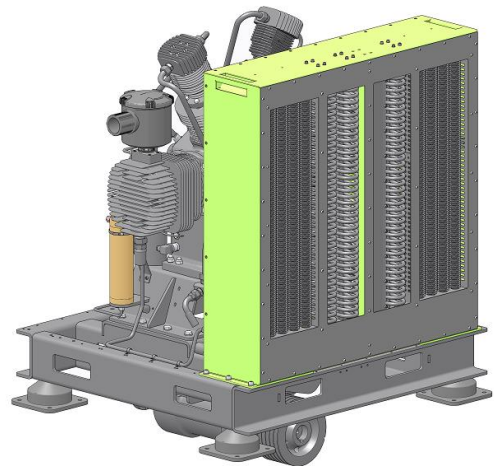
Technical specification

in the state.

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

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

- 1) It can monitor, set and protect the compressor system;
- 2) Automatic control of compressor operation;
- 3) Provide fault alarm and shutdown;
- 4) Display the cause of the failure;
- 5) Display maintenance recommendations.



(3) System configuration

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

K90I technical parameters:

➤ Model: K90I

➤

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Technical specification

-
- Quantity: 1 set
-
- Structural type: 4-cylinder, 4-stage, air-cooled, oil-lubricated, single-action piston compression.
-
- Inflatable pump flow: 1800L/min.
- ◦
- Maximum exhaust pressure: 350bar.
-
- Power: 45kW
-
- Working temperature: 0 ~ +50° C
-
- Noise: ≤89db
-
- Detachable intake muffler filter, 10 μm accuracy.
-
- Conventional inertial flywheel with large flow cooling fan blades, multiple V-belt drive .
-
- Light alloy piston.
-
- Aluminum cylinder head, independent valve seat.
-
- Automatic ring valve and piston ring, large flow, multi-action, high efficiency.
-

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- Air-cooled intercooler and aftercooler with separator.
-
- Safety valves at all levels.
-
- Automatic pressure relief system to ensure that the unit starts without load.
-
- The lubrication system adopts the spatter mixture oil pump lubrication method.
-
- Automatic start, automatic shutdown function.
-
- Automatic blowdown valve.
-
- Sewage collection system.

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

This system is an ECO- α control system.

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.

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

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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.

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. High pressure filtration system

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.

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



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

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 3μ 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) Technical parameters

	CC100 - H
介质	空气
工作压力	350巴
露点温度	3℃
进气温度	50℃
压缩空气处理量	2000升/分
排污方式	自动排污



2) Specification characteristics

- 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

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maintenance.

-
- Automatic drain system, only a small amount of pressure loss during condensate discharge.
- Run-up to save energy.
-
- ECC control, allowing fully automatic control.
-
- Safety and environmental protection.
-
- Freon refrigerator, automatic control maintenance-free.
-
- Real-time digital display of air temperature after
- cooling.

5. High-pressure gas storage system

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



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fiber bottle can be refilled by the compressor.

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.

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

6. Fully automatic stepped automatic inflation control system

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

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

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) 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

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

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".

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

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- γ controller to control the entire process.

7. Automatic explosion-proof inflatable box

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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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.

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

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.

Automatic explosion-proof inflatable box has the following characteristics:



- 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.

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- 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.

➤

- 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.

➤

- Independent filling hose and bottle filling valve, the number of filling bottles can be selected according to the situation.

➤

- Close the door self-locking device to prevent the door from being opened when filling the bottle and when the cylinder is bursting.

➤

- Electrical control adopts PLC program control, and is equipped with Chinese LCD touch screen.

- The system can perform both automatic and manual operations, which effectively improves the

efficiency of use.



8. Filter element status display

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Function: display the working condition of the filter element;

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

Green - the filter element is safe to use;

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

Red - The filter element must be replaced

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