# Integrated Grease Injection Skid Operation Manual


**Chongqing Weiyun Technology Development Co,. Ltd.**

## Content

# 1. Overview

The integrated grease injection skid is a set of high-viscosity grease injection system produced by Chongqing Weiyun Technology Development Co., Ltd. for customers. The equipment uses compressed air as the power source to inject grease at high pressure and quickly to meet the requirements of sealing operations.

Before using the equipment, please read this manual carefully.

## 1.1 Safety Rules

1) The equipment should be operated by strictly trained personnel according to the process, or under the guidance of professionals;

2) Each pipeline interface, especially the high-pressure interface, cannot be disassembled and replaced at will;

3) The equipment needs to be routinely maintained and maintained as required;

4) Before not using or overhauling the equipment, the source of driving air must be cut off and the load completely unloaded;

Do not tighten tubing under pressure.

The equipment can only use grease as the medium. If you need to use other mediums, please confirm with us in advance.

## 1.2 Instructions for the Color Marking of the System Pipeline

 Notice

The color of the system pipeline is marked as follows:

| | |
|---|---|
| | Compressed Air Lines |
| | Low Pressure Medium Pipeline |
| | High Pressure Medium Pipeline |

## 1.3 After-sales Technology Service

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# 2. Working Principle

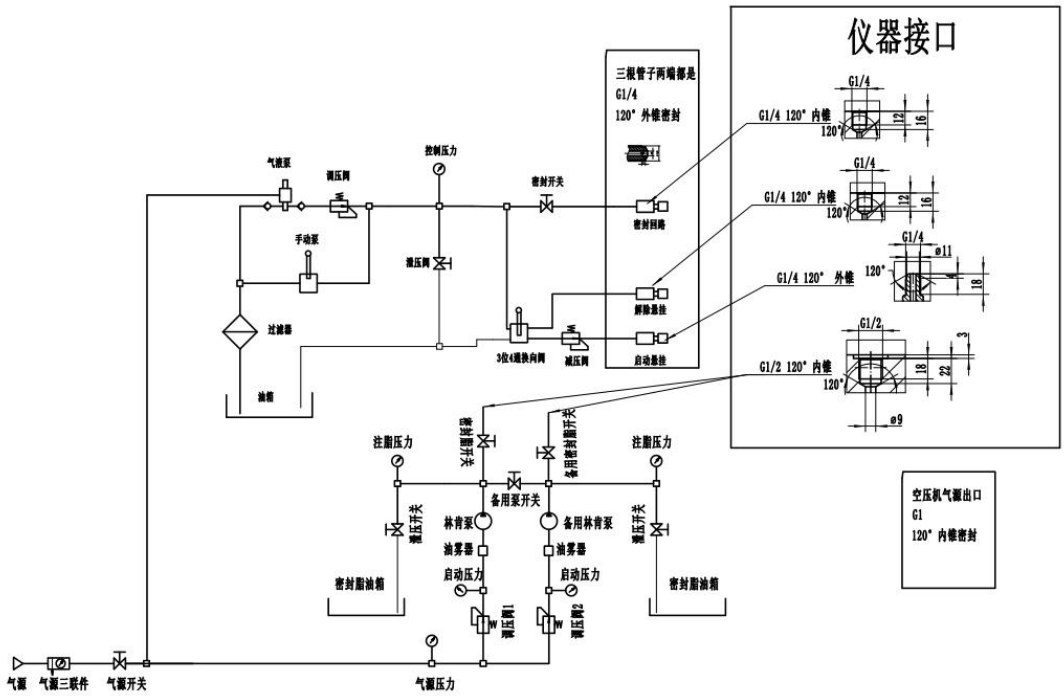
## 2.1 Equipment Features

- The control panel of the booster unit adopts a modular design, and the operation process is clear at a glance.
- The organic combination of manual book and pneumatic pump can realize different injection function requirements.
- The corrosion operation of the stainless steel operation panel can keep the outdoor use in harsh environment for a long time.
- The equipment is a closed structure, which can better protect the equipment components.

## 2.2 Design Flow Chart

Before use, connect the driving air pipeline, grease injection pipeline, etc., and the operation requirements can be realized through simple operations. The principle is shown in the following

figure:




schematic diagram

# 3. Instructions

## 3.1 Equipment Working Environment

- Ambient air temperature: 0——+40℃;
- Air compressor air supply: 0.8Mpa 1000L/min

## 3.2 System Technical Parameters

1) Medium: Grease;
2) Grease pump maximum output pressure: 70Mpa
3) Maximum output pressure of manual pump: 70Mpa
4) Maximum operating pressure of driving air: 1Mpa
5) Fuel tank volume: 270L
6) Dimensions: 1920L×1200W×1800H
7) Empty weight: 1010KG

## 3.3 Main Component Functions

### 3.3.1 Grease Injection Pump

Function description: The air-driven grease injection pump is the core of the equipment. It sends compressed air into the grease injection pump by driving the air hose, lubricator, control valve, etc., and drives the grease injection pump to operate to achieve the purpose of grease injection.


Pressure skid

### 3.3.2 Liquid Storage Tank

- Function description: used to store media
- Dimensions: 800L×550W×680H
- Effective volume: 240L

### 3.3.3 Hand Pump

- Pump body material: stainless steel
- Maximum output pressure: 105Map
- Fuel tank volume: 20L

## 3.3.4 Manual Operation Panel

- Function description: The manual operation panel is a pressure display; the centralized control area for pump operation.
- Material: Stainless steel


## 3.3.5 Manual Control Valves

- Function description: Manual control valve is the core component used to control the direction of fluid
- Material: 316L
- Specification: 21V9M071
- Working pressure: 21000psi

## 3.3.6 Mechanical Pressure Gauges

- Function description: Display real-time pressure of equipment work
- Material: 304
- Specification: YB100-100-HF4

## 3.3.7 Load-bearing Spreader

- Function description: used for hoisting and transportation of equipment.
- Material: 45#
- Material proof:

1）材料/Material：45#碳结钢/S45C，柱：40cr

45#化学成分含量表（%）

| 碳 | 锰 | 硅 | 硫 | 磷 | 镍 | 铬 | 铜 |
|---|---|---|---|---|---|---|---|
| C | Mn | Si | S | P | Ni | Cr | Cu |
| 0.45 | 0.54 | 0.22 | 0.017 | 0.018 | 0.02 | 0.05 | 0.03 |

40cr 化学成分含量表（%）

| 碳 | 锰 | 硅 | 硫 | 磷 | 镍 | 铬 | 铜 |
|---|---|---|---|---|---|---|---|
| C | Mn | Si | S | P | Ni | Cr | Cu |
| 0.39 | 0.58 | 0.23 | 0.003 | 0.013 | 0.016 | 0.89 | 0.011 |

2）外观检查/Visual inspection：合格/Satisfaction

3）尺寸偏差量/Dimensions and tolerances：合格/Satisfaction

4）安全工作负荷/Safety work load：合格/Satisfaction

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2022 年 02 月 19 日

河北申迪紧固件有限公司

## 3.3.8 High-pressure Hoses

- Function description: Used for high-pressure fluid delivery and unnecessary soft connections.
- Specifications: HX-12-4SP
- Working pressure: 130Mpa

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| 产品名称 | 软管总成 | 检验依据 | 参照 GB/T5563-2013 |
|---|---|---|---|
| 软管型号 | HX-12-4SP-1300BAR-H*H(M24*1.5 母)-1.7 米 | 数量 | 1 根 |

| 项目名称 | 标准要求 | 实测结果 | 单项判定 | 备注 |
|---|---|---|---|---|
| 软管内径 | 12±0.3MM | 12.12MM | 符合 | 卡尺 |
| 软管外径 | 24±0.3MM | 24.21MM | 符合 | 卡尺 |
| 工作压力 | 1300BAR | 1300BAR | 合格 | 试验得出 |

## 3.4 Usage Method

Note: During the use of the equipment, please stay away from the high-pressure outlet

### 3.4.1 Preparations

1) Check the oil level of the liquid storage tank through the visual window. In the state of lack of oil, it may cause the operation failure of the pump;
2) Check the oil level of the lubricator, the lack of oil may cause the operation failure of the pump;
3) Check the pointers of the pressure gauges, requiring all pointers to be at zero position;
4) Check the initial state of the stop valve, all valves should be in the open state;
5) Check the status of the reversing valve, the reversing valve is in the neutral position of "unsuspension";
6) Check the oil tank level of the hand pump and the handle of the hand pump are intact;

## 3.4.2 Job Operation

1) Connect the drive air line.
2) Connect the working hose.
3) Reconfirm that the initial state of the valve and the pressure indication are at zero.
4) Turn on the "air source switch" on the control panel and the necessary shut-off valves.
5) Adjust the "Pressure Regulating Valve" and observe the data changes in the tables of "Grease Injection Pump Input Pressure" and "Grease Injection Pressure".
6) Open the grease injection valve, and observe the change of the "control pressure" indication.
7) Unload the system pressure after the work is completed, and restore the initial state of the valve.

# 3.5 HSE Usage Specification

## 3.5.1 Specifications for the Use of Spreaders 

- The spreader mentioned in the equipment is an important safety component, and its outer surface should be carefully inspected for defects that affect safety before transportation.
- If necessary, it shall be regularly inspected by relevant qualified personnel and units.

### 3.5.2 Safe Use of Booster Part 

- The equipment is a high-pressure test equipment. During the suppression process, it is strictly forbidden for personnel to stand at the high-pressure outlet of the equipment;
- During the pressurization process of the equipment, fix the pressure test hose as required to prevent loosening or pipeline swing;
- The equipment pressurization process requires a slow increase in pressure, and it is strictly forbidden to quickly pressurize to the working pressure;
- In an emergency, quickly open the high-pressure unloading valve of the equipment;
- Professionals should be assigned to regularly inspect the connecting thread to prevent adverse effects caused by loosening;
- The high-pressure hose and conversion joint configured by the equipment are vulnerable parts, and it is recommended to return to the factory for inspection every year;
- When the equipment leaves the factory, the measurement components have been calibrated, and according to the relevant national regulations, they need to be calibrated within the service life;
- Equipment management is equipped with safety colors, and the high-pressure pipeline is marked in red, and it is strictly forbidden to disassemble or replace it at will.

### 3.5.3 Safe Use of Protective Doors 

- The equipment protection door is mainly used to protect the measurement components of the control panel, and it should be locked during transportation to prevent foreign objects from being damaged.

### 3.5.4 Operation Process Safety 

- During the operation, an obvious pressure test area should be set up, and non-operators are strictly prohibited from approaching the pressure test area;
- During the operation, please fix the hose firmly;
- During the operation, please adjust the pressure slowly, and it is strictly forbidden to adjust too much at one time;

# 4. Maintenance and Maintenance

 Before maintaining the equipment, the driving air part should be cut off

## 4.1 Maintenance and Maintenance of Long-term Out-of-use Equipment

When the equipment is stopped for a long time, in order to ensure the good performance of the equipment, the following operations should be carried out:
1) Disconnect the compressed air pipeline;
2) Turn off all switches on the control panel;
3) Keep the unloading valve in the normally open state;
4) All external interfaces are sealed;
5) Every other month, operate the system according to the method 4.2 to prevent the sealing ring from aging;

## 4.2 Daily Maintenance Work

**Notice:**

- Before equipment maintenance, please ensure that the driving air source has been disconnected, and confirm that all pressure has been relieved.
- The maintenance of equipment must be carried out by trained personnel as required, or operated under the guidance of professionals.

### 4.2.1 Maintenance of Grease Injection Pumps and High-voltage Components

The grease-injecting components and high-voltage components used in the equipment are all high-precision instruments, which require professionals to overhaul and maintain them. When a fault occurs, please contact the relevant personnel of our company in time, and please do not dismantle it yourself.

### 4.2.2 Skid Body and Pipeline Maintenance

| Item | Inspection and Maintenance Cycles |
|---|---|
| Open the drain outlet of the sink and drain the water | Once a month |
| Detecting water accumulation in automatic drains | Once a month |
| Detect accessories in tool cabinet | Once a month |

| | |
|---|---|
| Inspect the surface of high pressure hose for damage | Once a month |
| Check all connecting threads for defects | Once a month |
| Check the unloading circuit line | Once a month |
| Filter decontamination | Once a month |


auto drain valve

## 4.2.3 Use and Maintenance of the Pressure Regulating Valve

**4.2.3.1 Use of pressure regulating valves**

The pressure regulating valve is the adjustment element of the output pressure of the equipment. Its basic principle is to control the output pressure of the booster equipment by changing the input pressure of compressed air. Turning the handle of the pressure regulating valve clockwise (in the direction marked by H) can increase the driving air pressure; turning the handle counterclockwise (in the direction marked by L) can realize the reduction of the driving air pressure.

**4.2.3.2 Maintenance of the pressure regulating valve**

The main function of the pressure regulating valve is to adjust the 0.8Mpa compressed air pressure from the air compressor (air storage tank) to a pressure suitable for the equipment. Through the mechanical pressure gauge corresponding to the pressure regulating valve, the time-driven air pressure value can be displayed in real time . During use, pull up the handle of the pressure regulating valve to adjust. After the adjustment is completed, press the handle of the pressure regulating valve, and the pressure regulating valve will lock itself.

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