

CH-150CH-J0 Chemical Injection Pump Operation Manual



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1. Overview

CH-150CH-J0 chemical injection skid is mainly used for the injection of chemical reagents such as methanol and ethylene glycol, and can also be used for pressure testing of clean water. The maximum output pressure of the equipment design can reach 150mpa,

The user manual includes assembly, operation, maintenance and maintenance. Therefore, the assembly and debugging personnel should read the operation manual before assembly and debugging, and the operation manual must be placed near the test bench.

1.1 Introduction

The purpose of compiling the user manual is to help operators and relevant responsible persons understand the basic points of the company's equipment and better familiarize themselves with the operation method of CH-150CH-J0 chemical injection skid.

Assembly, operation, inspection, maintenance and repair must be performed by professionals. If the operator does not have professional knowledge, they should be trained or work under guidance. If necessary, our company can provide training, but the user must ensure that the operator understands all the contents of the manual. The company is responsible for providing quality assurance when the equipment is in normal use according to the user manual.



The manual is not a substitute for local safety regulations

1.2 Application

This set of equipment is suitable for liquid boosting, the boosting pressure can be adjusted freely, and the maximum design pressure is 150MPa.



The equipment can only use inert gases such as air, nitrogen and helium as the driving source, and other gas media, especially flammable and explosive gases, are not allowed.

1.3 Copyright

Chongqing Weiyun Technology Development Co., Ltd. reserves the copyright of the manual.

The manual is for the reference, study and use of assemblers, operators and managers. The technical data and drawings in it are not allowed to be copied and distributed to third parties or competitors without authorization, otherwise, it will be regarded as infringement .

2. Safe

In addition to the usual safety training, the following are some special safety knowledge.

2.1 Recognize the Reference Marks on the Manual

Failure to strictly follow the instructions and requirements of the instruction manual may result in personal injury or death. Hazard symbols indicate the following:



Failure to strictly follow the instructions and requirements of the user manual may result in equipment damage or loss of some functions. Usual hazard symbols are indicated as follows:

ATTENTION

2.2 Safety Rules

The equipment is a high-voltage equipment. When it is damaged or operated unprofessionally, it may lead to dangerous situations, so you must fully understand the following safety items:

- 1) Maintenance should follow the work flow, if the work flow is not followed, dangerous events will occur.
- 2) Safety systems cannot be operated, and their installation plays a preventive role, reducing the occurrence of unpredictable events and preventing accidents caused by abnormal operations of operators.
- 3) In addition, the equipment needs routine inspection and maintenance. Before the inspection, the system should be depressurized and the driving air source should be cut off.

2.3 Danger of Violating Safety Regulations

Violation of safety regulations may result in personal injury or death, equipment damage, and environmental impact. Violation of safety rules may result in the following situations:

- 1) The main function of the equipment fails;
- 2) The damage of the equipment cannot be repaired;
- 3) Personnel are injured;
- 4) The leakage of the equipment will pollute the working environment.

2.4 Safety Principles for Maintenance, Inspection and Repair

Users should arrange professionals to maintain, inspect and repair the equipment. Maintenance personnel must be very familiar with the equipment by studying the instruction manual carefully and deeply.

During maintenance, it is very important to stop the equipment from working.

2.5 Improvement Rights and Spare Parts Function

Improvement of equipment should be approved by the company. Spare parts and accessories are only permitted for maintenance purposes of the device. The consequences caused by unauthorized modification shall be borne by the modification party or the user himself.



Notice



The color of the system pipeline is marked as follows:

Yellow———drive air line



Red———High pressure liquid pipeline



Blue———Low-pressure liquid/unloading liquid line

3. Transport

3.1 Packaging

The shipping method determines the packing mode. Unless there is a special agreement, the packaging should meet the national packaging standards. Here are some common symbols for packages:



ATTENTION

During transportation, the equipment should be placed vertically upwards, and the ground of the equipment workshop should be flat.

3.2 Transport Status

The equipment is in the complete state when it is transported.

3.3 Method of Transport

When transporting the equipment, it should be handled with care, and no forceful action or rough handling should be allowed.

3.4 Receiving Attention

After receiving the equipment, check the integrity of the appearance and surface of the equipment, and then check the integrity of the equipment against the list. If the equipment is damaged or parts are missing, please contact the company in time.

4. Instructions

4.1 Introduction

All pressure ratings and equipment functions of the equipment have been professionally tested in the factory before delivery. Therefore, we can guarantee that the performance data of the delivered products can meet the indicators in the technical agreement. However, vibration may cause some damage to the equipment during transportation, so please check carefully when the equipment arrives at the factory.

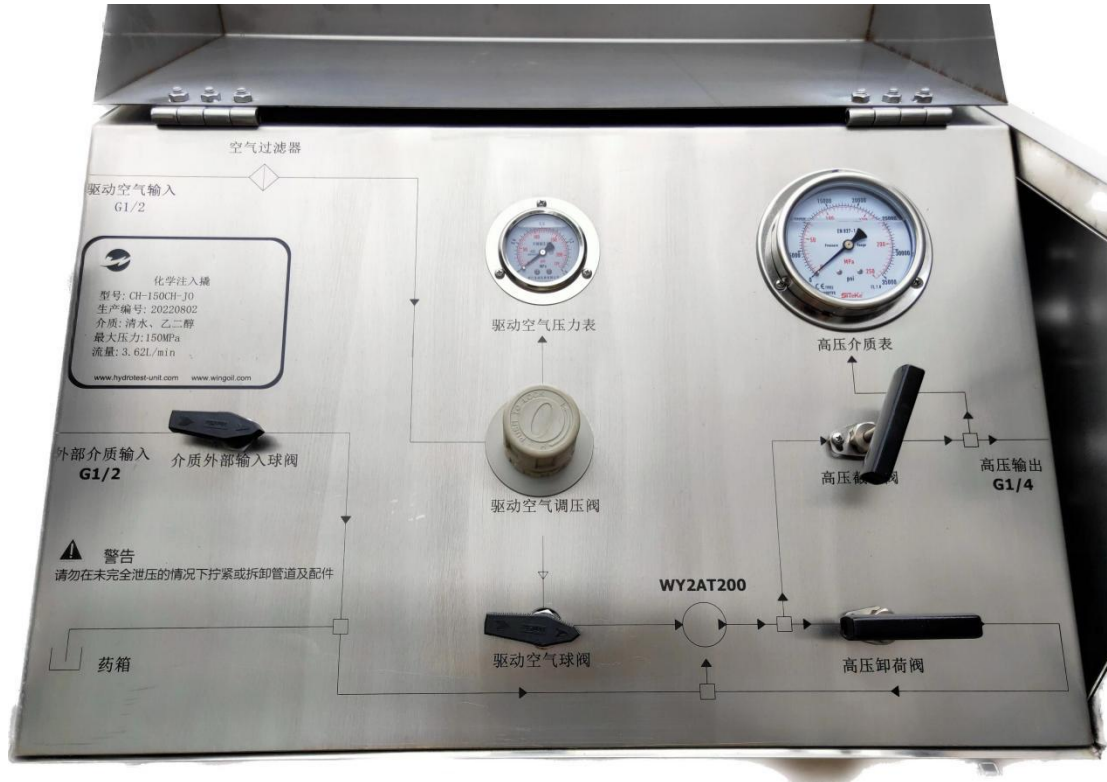
In the first hour of equipment operation, if any abnormal phenomenon occurs, please notify the company immediately.

4.2 Equipment Performance Parameters

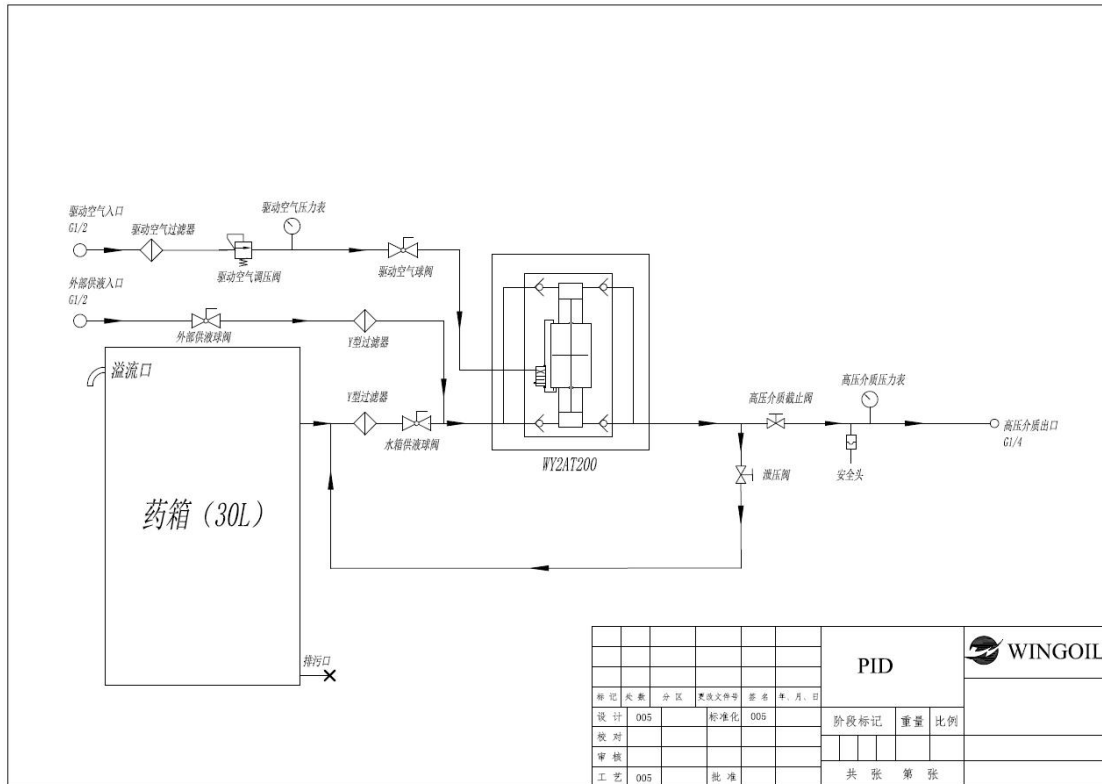
4.2.1 Supercharging part

- 1) Air-driven liquid pump model: WY2AT200, pressure ratio: 1:200, maximum flow rate: 3.62L/min;
- 2) Pressurized medium: methanol, ethylene glycol, water, etc. (if you need to inject other media, please confirm with our company);
- 4) Driving air supply requirements: pressure 7-8.3 bar, flow rate: 1.6m³/min.
- 5) Maximum pressure at pump outlet: 150MPa. (The maximum pressure is 146.2MPa when the rupture disc is installed)
- 6) Bursting disc pressure range: 133.8MPa-146.2MPa
- 7) Maximum working temperature: 55°C.
- 8) High pressure pipeline: rated pressure 30000psi.
- 9) Driving air pipeline: pressure 10bar, model DN8×20m
- 10) Chemical storage tank: 30L

4.3 The Main Structure and Operation Interface



Dashboard



Schematic diagram of fluid part

4.4 Pre-working

Users should proceed as follows:

- 1) When the user uses it for the first time, remove all the packaging and read the manual carefully, and provide operators with safe operation training and local safety regulations;
- 2) Check all pipelines, especially high-pressure pipelines, to see if they are loose;
- 3) Check all the inlets and outlets for blockage;
- 4) Check the liquid level of the water tank and whether the pressurized liquid is sufficient;
- 5) Make sure that the driving air source is sufficient and the pressure is not less than 7bar.

4.5 How to Use

4.5.1 Chemical Reagent Injection Procedure (Water Tank Liquid Supply)

1. High pressure part operation (liquid supply from water tank)

- a) Connect and fasten the high-pressure medium outlet;
- b) Open the high pressure cut-off valve and close the pressure relief valve;

2. Low pressure part operation (water tank supply liquid)

- a) Connect the driving air pipeline;
- b) Pull up the driving air pressure regulating valve and turn left to the end;
- c) Open the driving air ball valve;
- d) Open the liquid supply ball valve of the water tank;
- e) Close the external liquid supply ball valve;

3. Chemical injection operation (water tank supply)

- a) Slowly turn the air pressure regulating valve to the right, while observing the indication on the high-pressure medium gauge;
- b) When the reading reaches the required value, immediately stop the action of rotating the air pressure regulating valve, and press down to lock the air pressure regulating valve;

4. End the operation (water tank supply)

- a) Close the high pressure cut-off valve;
- b) Close the driving air ball valve;
- c) Close the air pressure regulating valve;
- d) Open the pressure relief valve;
- e) Disconnect all pipelines;

4.5.2 Chemical Reagent Injection Procedure (External Liquid Supply)

1. High pressure part operation (external liquid supply)

- a) Connect and fasten the high-pressure medium outlet;
- b) Open the high pressure cut-off valve and close the pressure relief valve;

2. Low pressure part operation (external liquid supply)

- a) Connect the driving air pipeline;
- b) Pull up the driving air pressure regulating valve and turn left to the end;
- c) Open the driving air ball valve;
- d) Open the external liquid supply ball valve;
- e) Close the liquid supply ball valve of the water tank;

3. Chemical injection operation (external liquid supply)

- a) Slowly turn the air pressure regulating valve to the right, while observing the indication on the high-pressure medium gauge;
- b) When the reading reaches the required value, immediately stop the action of rotating the air pressure regulating valve, and press down to lock the air pressure regulating valve;

4. End operation (external liquid supply)

- a) Close the high pressure cut-off valve;
- b) Close the driving air ball valve;
- c) Close the air pressure regulating valve;
- d) Open the pressure relief valve;
- e) Close the external liquid supply ball valve;
- f) Disconnect all pipelines;



Note: Since the pressure relief pipe is shared by the external liquid supply and the water tank liquid supply at the same time, and the pressure will be released directly into the water tank when the pressure is released, so do not use the external liquid supply to inject another medium when there is one medium in the water tank, which will cause the medium in the tank to be polluted when the pressure is released. (Suggestion: empty the tank when filling another medium)

4.6 Long-term Shutdown

When the equipment stops working for a long time, in order to ensure the good performance of the equipment, the following operations should be carried out:

- 1) Close the driving air shut-off valve;
- 2) Open the high pressure cut-off valve and high pressure unloading valve;
- 3) Cover all exposed interfaces with plugs to prevent foreign matter from entering the system;

4) Every other month, connect the compressed air, open the driving air cut-off valve, and make the booster pump operate a few times to prevent the O-ring from aging due to the long-term shutdown of the booster pump.

5. Troubleshooting

5.1 Safety Rules



Before repairing the equipment, the driving air source should be turned off, the power supply should be disconnected, and the inlet of the pressurized air source should be closed or disconnected.

During equipment maintenance, in order to ensure the safety of personnel, the following rules should be followed:

- 1) The air intake line should be disconnected;
- 2) The equipment and system should be completely depressurized, and the circuit should be under normal pressure;
- 3) The outlet pipeline should be disconnected.

5.2 Common Failure Modes

Fault Symptoms	Causes	Solutions
No liquid can be discharged from the outlet	There's air in the loop	Loosen the outlet tube nut and remove the air.
	The air in the outlet pipeline is not exhausted	Separate the pipeline from the workpiece and turn on the pump until the air in the pipeline is exhausted.
	Reservoir level too low	Work after adding liquid medium
High working frequency of	Increased pressurized fluid flow or leaks in the high pressure section	Check the high pressure piping and connections

liquid booster pump	Leakage of high-pressure sealing head of air-driven liquid pump	Replace the seal
Noisy from drive	The drive air connection line is too small or the drive air supply is low	Check the driving air line, the maximum consumption is 1.6m ³ /min when the driving air pressure is 8bar
Other faults	please contact us	

5.3 List of Consumable Parts

NO	Material	Specification	Unit	Quantity	Quotation
1	High-pressure hose	031HH-5-4SP-1800-G1/4-20M	Piece	1	
2	Chemical supply tube	033PU0850C-5M	Piece	1	
3	Air hose	033PU0850R-15M	Piece	1	
4	Hose adapter	000RG-G4M-HP9	Piece	1	
5	Hose Butt Buckle	000RG-HP9-HP9	Piece	1	
6	Air pressure gauge	026YB63-1.6-M14	Piece	1	
7	High pressure gauge	026YB100-250-HF4	Piece	1	
8	High pressure globe valve	00530NV4	Piece	1	

6. Maintenance

6.1 Air driven liquid pump

Sturco air drive liquid pump is a very delicate equipment, so it needs professional maintenance. Under normal use, the Magsweet air-displacement liquid pump can work more than 1 million times. If there is a fault, please do not disassemble and repair it without authorization. When the equipment is left unused for a long time, it is necessary to turn on the booster pump and move it a few times regularly to prevent the internal sealing ring from aging.

6.2 Booster system

Item	Inspection and Maintenance Cycle
Check for external leaks	Once a month
Check the pipeline for leaks	Once every three months
Filter element replacement	Once a year

6.3 Filters

Item	Inspection and Maintenance Cycle
Check if the filter element is clogged	Once a month
Filter Replacement	Once a year

6.4 Others

Item	Inspection and Maintenance Cycle
Check for correct installation and check for leaks	During acceptance and debugging
Check for leaks and whether the pipeline connections are tight	After 50 hours of equipment operation



Do not tighten tubing under pressure.