User Manual

(Pressure Testbay Box)

Issued by

Chongqing Weiyun Technology Development Co,.Ltd


质量重于泰山

Contents

1 Equipment Introduction

The explosion-proof pressure testbay box is a type of pressure testing equipment developed and produced by Chongqing Weiyun Technology Development Co., Ltd., which meets the requirements of injecting different media such as clean water and glycol. It has a solid structure, strong impact resistance, and a wide range of pressure testing. This set of equipment is suitable for water and glycol media, conducting pressure tests on various pressure vessels, pipelines, valves, etc. It is suitable for industries such as chemical, construction, plumbing, oil, coal, smelting, shipbuilding, etc.

The explosion-proof pressure testbay system is composed of four parts: HPU, pre-fill station, pressure testbay box, and hydraulic station;

1.1 Safety Criterion

1) Equipment operation should be in accordance with process by professional or trained staffs;

2) Do NOT causally apart or change every connector, especially high-pressure nipple and safety valve nipple;

3) Routine maintenance should be taken in a certain period time;

4) Driven air power must be cut off after using equipment;

5) Do NOT put your head and hands into the pressure testbay box when opening and closing the safety door.

6) Please stay away from the pressure testbay box during the pressure test.

Warning

Do NOT tighten or disassemble the pipeline under pressure.

Only clean water or glycol can be used as the pressure testing medium, please confirm us ahead if use other medium or mixed liquid.

1.2 Piping Color Instructions

NOTICE

The color identifications are as follows:

Compressed Air Pipeline

Low-pressure Medium Pipeline

High-pressure Medium Pipeline

1.3 After-Sales Service

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2 Equipment Specifications

2.1 HPU

Maximum working pressure: 15000PSI

Working voltage: 380V 50HZ

Medium: water or glycol

Outlet Connection:

Water high-pressure outlet: G1/4-60°

Water inlet: NPT1/2”

Air-driven inlet: NPT1/2”

Cylinder outlet A and B: φ8mm

Weight: 250KG

2.2 Pre-fill Station

Volume: 1000L

Material: HDPE

Outlet Connection:

2*NPT1”(F)

Filter: 40μm

Dimension: 1500*1300*1400mm

Weight: 100KG

2.3 Pressure Testbay Box

Dimension: 18m*2m*1.5m(single section: 3m*2m*1.5m)

Weight: 12.7 tons(single section: 2.1 tons)

Thickness: 70mm(10+50+10)

Number of cameras: 6 adjustable cameras with night vision function.

Lighting: 24V/100W led, 6 quantities.

Door-opening mode: use retractable hydraulic cylinder to open.

Door-opening angle: upward (angle greater than 90°)

Working pressure: 15000Psi

Note: The thickness dimension includes the thickness of the steel plate and the sandwich layer.

2.4 Hydraulic Station

Working pressure: 14MPa

Capacity: 200L

Volume of flow: 40L/min

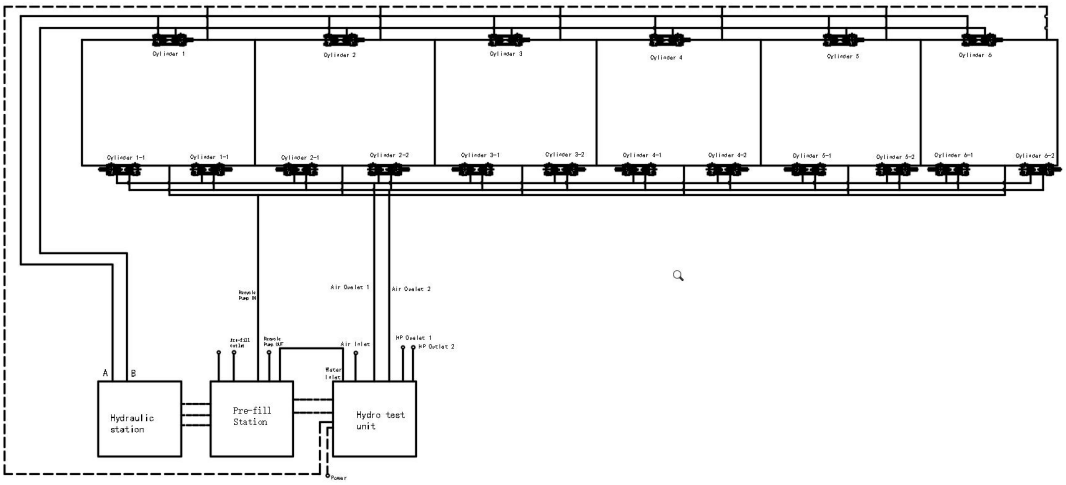
Hydraulic oil grade: ISO 46#

Working voltage: 380V/50HZ

Room temperature: 0-15℃

3 Installation

Pressure Testbay Box



Pipeline Connection Diagram

3.1 Pressure Testbay Box Assembly

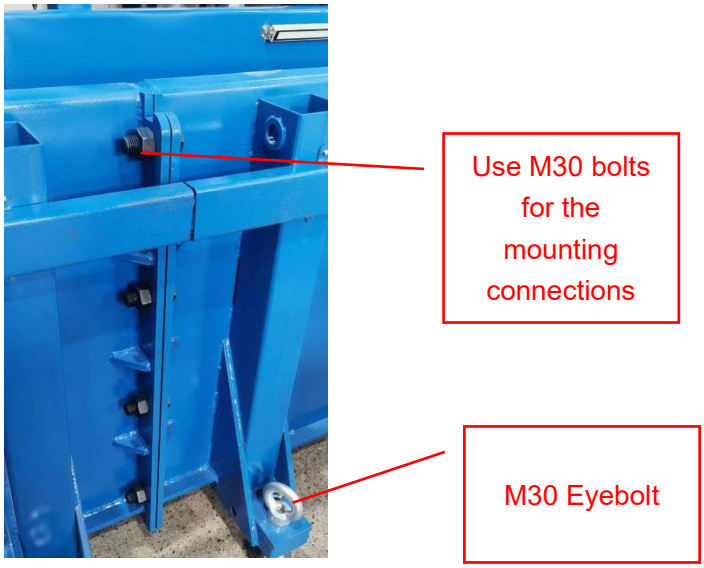
Please use a crane or forklift with a load capacity greater than 5T for lifting or transferring!(When using a forklift, pay attention to the presence of a joint at the bottom of the pressure testbay box for liquid recycling in order to avoid damage caused by the forklift directly hitting the joint!)

Use a crane or forklift to place the single section pressure testbay box in the reserved position, and then start the installation:

1) Pressure testbay box piecing

Use a hydraulic forklift (or crane) to transport the pressure testbay box to the installation position.

Align the bolt holes at the end of the pressure testbay box, then insert the bolts and attach the nuts. And connect the pressure testbay boxes 1#, 2#, 3#, 4#, 5#, and 6# in sequence.



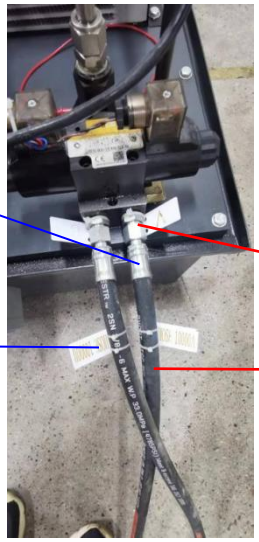
2) Horizontal adjustment

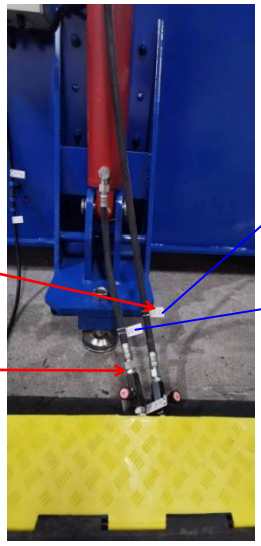
After splicing the pressure testbay box, use a laser level to measure the levelness of the pressure testbay box and make horizontal adjustments. According to the measurement results, the support feet of each pressure testbay box are adjusted as follows:

Use an open-ended spanner to tighten clockwise to raise and vice versa to lower.

3) Pipeline connection

- Hydraulic pipeline connection:



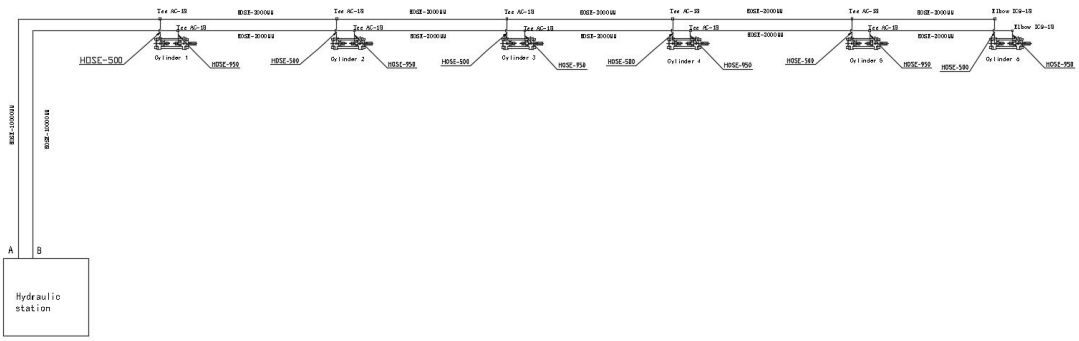


HOSE-10000 A

HOSE-10000 B

HOSE-950B

HOSE-500A

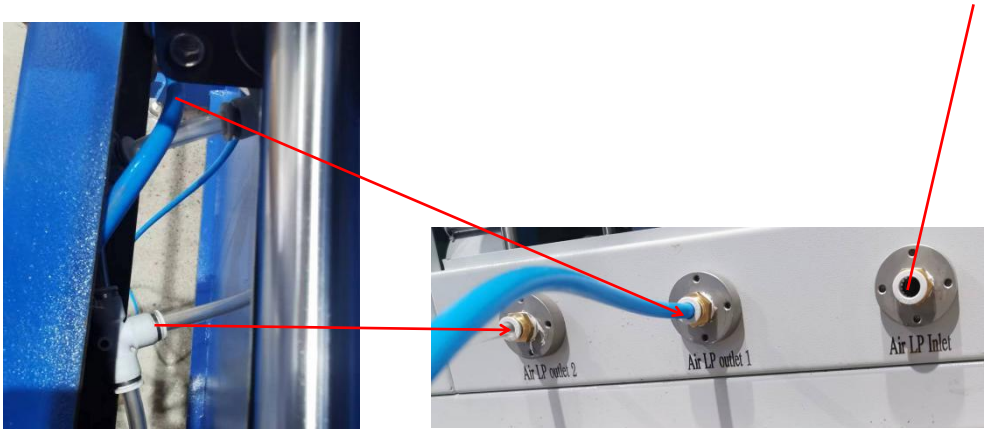


Hydraulic Pipeline Connection Diagram

- Air pipeline connection

In the middle of the pressure testbay box 3#, there are two tees, white and blue. Then insert φ10mm air tube of corresponding color into quick connector of Tee and quick connector behind the pressurization equipment.

After the installation of each pressure testbay box, the compressed air pipe of the cylinder should be connected(by its color)



4) Cable connection

Each cable joint shall be connected in pairs according to the nameplate marked on the sign.

The main power supply uses 380V power with three-phase five-line system.

5) Light curtain adjustment

The safety grating system is installed on the doors of pressure testbay box 1# and 6#. Generally, the indicator light on the safety grating on pressure testbay box 6# will turn green after the level is adjusted. Then move the grating receiver to change the its LED light from red to green, and tighten the screws to secure the grating receiver. Please note that any object between the grating emitter and receiver will cause the LED to turn red.

3.2 HPU

After installation in the preset position, connect the pipelines and circuits according to the signage.

Connect the female end of the cable to the male end of the device according to the text on the label.

3.3 Pre-fill Station

Place the equipment in a suitable position by using a crane or forklift, and then install the pipes connected to the equipment. Open the top lid and fill the tank with the appropriate medium(water and glycol, respectively), ensuring that the level is greater than 80% of the position.

As shown in the figure:

4 Usage Instruction

4.1 The Button

“**DOOR(UP/DOWN)**” - Pressure testbay box door up/down;

“**Control(Auto/Manual)**” - Switch Automatic/Manual operation;

“**Power**” - Power switch;

“**Door Lock**” - Pressure testbay box door safety pin open/close;

“**HYD Station**” - Hydraulic station switch;

“**Pre-fill**” - Pre-fill pump switch;

“**Recycle**” - Recovery pump switch;

“**Lights**” - Light switch;

“**Emergency Stop**” - For stopping the equipment in case of emergency;

4.2 The Operation

1) Opening and closing of the pressure testbay box door

Press the “HYD Station” Hydraulic Station switch(light’s on, switch’s on)

Opening:

Rotate the “DOOR”(UP/DOWN) button to the “UP” position to wait for the door to rise in turn. It will be stopped when all doors are in the highest position.

Closing:

Before closing, please make sure that no one is staying or that there are tools, items, etc. placed on the pressure testbay box.

Rotate the “DOOR”(UP/DOWN) button to the “DOWN” position to wait for the door to lower in turn. It will be stopped when all doors are closed.

2) Safety pin on and off

After the door is closed in place, press the "Door Lock" button to turn on the light, and the door will be locked and cannot be opened directly;

When the door needs to be opened, press the "Door Lock" button to turn off the light.

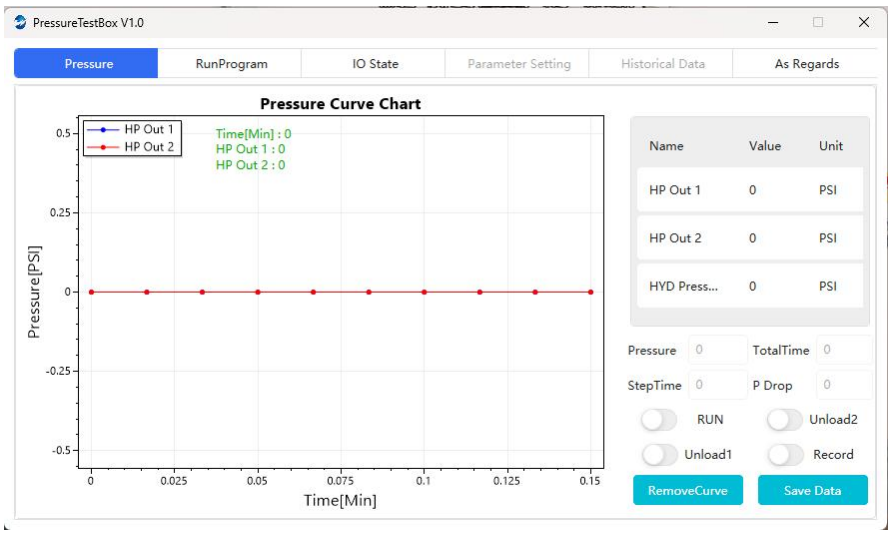
4.3 Pressure Test Operation

1) Manual Mode

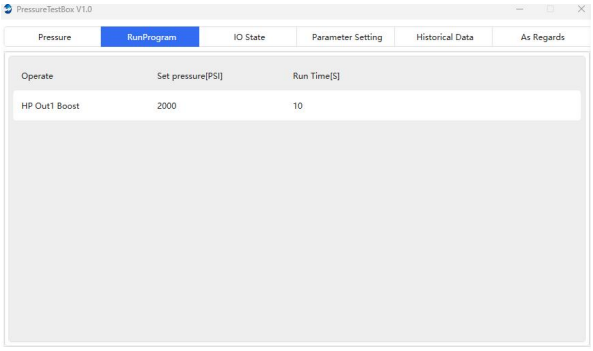
- Connect the Air Inlet, and connect the HP Outlet to the pressure test workpiece.

- Rotate the knob “Control” to the “Manual” position.
- Open “Ball Valve”, rotate the “Pressure Regulator” clockwise and observe the reading of "Driven-air Pressure Gauge" at the same time. Set the pressure value approximately to the required reading.
- Press on the corresponding button for testing the outlet valve. For example, if you need to test the “HP Outlet 1”, press the “Pump Isolation Valve 1” button and if the light turns on, it indicates that the valve is open. Similarly, press the “Pump Isolation Valve 2” button if test the “HP Outlet 2”.
- After the pressure rises and stabilizes, continue to rotate the “Pressure Regulator” clockwise so that the pressure value of the “High Pressure Gauge 1” or “High Pressure Gauge 2” reaches the required value. Then press “Pump Isolation Valve 1” or “Pump Isolation Valve 2” button again to close the valve(At this time, the pressure stability indicates that the test workpiece is not leaked, and the pressure reduction indicates that the test workpiece is leaked).
- Pressure relief: press the “Bleed-off Valve” to turn on the button light, then the unloading valve is opened. When the pressure value of the pressure gauge drops to 0, the test workpiece can be removed or other operations can be performed.

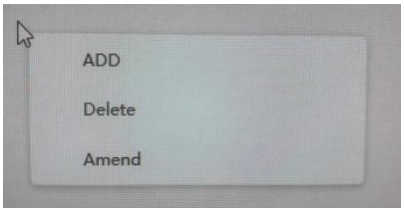
2) Auto Mode



- Connect the Air Inlet, and connect the HP Outlet to the pressure test workpiece.
- Rotate the knob “Control” to the “Auto” position.
- Open the pressure test system on the computer.
- Choose “RunProgram” to edit the pressure test process in the edit box below.



- The following menu appears when you click the right mouse button, and you can perform "ADD", "Delete", and "Amend" operations on the program.



- After program editing is completed, return to “Pressure” interface. Click the “RUN” button and the program will run automatically.
- The pressure curve chart is recorded in real-time, and when you need to save the data, click "Save Data" to save it.
- After completing the pressure test, click "Unload1" or "Unload2" to relieve the pressure.
- Please refer to the "Pressure Testbay Box - HPU Operation Manual" for the other settings.

4.4 The Drainage

- Each pressure testbay box is equipped with a hose through a sewage valve, so there are a total of six sewage valves(as shown in the figure).


(Each pressure testbay box drain outlet is labeled with a number.)

- Pressure testbay box drainage

After connecting the pipeline to the sewage pipeline, open the sewage valve switch of the box that needs to be drained, then press the "Recycle" button on the HPU to open the diaphragm pump.

After the drainage is finished(through visual observation and sound change), press the "Recycle" button again to turn off the pump, then the process is completed.(Attention! After completing the drainage, the sewage valve switch needs to be closed!)

- Workpiece drainage

Connect this connector to the test workpiece and open the switch. This connector is located at the 6# pressure testbay box(as shown in the figure).


Open the sewage valve switch, then press the "Recycle" button on the HPU to open the diaphragm pump.

After the drainage is finished(through visual observation and sound change), press the "Recycle" button again to turn off the pump and complete the process.(Attention! After completing the drainage, the sewage valve switch needs to be closed!)

5 Maintenance

NOTICE: Cut off driven air before maintaining the equipment.

5.1 Maintenance for Long-term Stop Usage

To ensure the good performance of the equipment, the following operations should be carried out:

1) Cut off compressed air pipeline;
2) Close all the switches on the control panel;
3) All external interfaces shall be sealed to prevent foreign objects;
4) Every other month, operate the system according to the method in Chapter 4 to prevent the sealing ring from aging.

5.2 Routine Maintenance

Warning

Ensure driven air is cut off and all pressure shall be unloaded before its maintenance.

Maintenance should be taken by professional trainee.

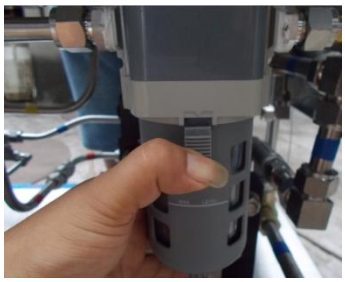
5.2.1 Booster pumps and high-pressure components

The pressurized and high-pressure components are both with high accuracy which requires inspection and maintenance by professional or trained staffs. Please contact us in case of malfunction. Do NOT disassemble and dispose of it yourself.

5.2.2 Air filter

Air filter is used to filter the impurities and water in the driven-air. It is should be installed at the compressor outlet of the filter. This secondary filter filters smaller impurities. In the case of insufficient cleanliness of the drive-air and prolonged use, the filter water cup will produce a certain amount of water and impurities. When the filter stops working(that is, no pressure in the filter), water inside the cup will be automatically discharged. But the impurities inside need to be cleaned regularly, and the disassembly method of the water cup is as follows:

Auto Drainer



Press this button → Rotate to this position → Remove the cup

5.2.3 Components maintenance

Item	Maintenance Period
Water inlet filter: Open the filter and get filter screens out to clean.	Once per month
Auto drainer: Inspect storage condition.	Once per month
Panel: Remove accumulated dust.	Twice per month
Pressure gauge: Send to the verification institution for regularly inspection.	Once per year
Pipeline connection: Check for air leakage.	Once per week
Replace hydraulic oil	Every 12 months

6 Main Component Parameters

6.1 Booster Pump

Item	Reference Image	Specification
Booster Pump		Model: WYAH170 Pressure ratio: 1:170 Max. Flow: 0.81L/min Driven type: Compressed air-driven Air-driven pressure: 0～8bar Max. Outlet pressure: 17000PSI@Air-driven pressure=7PSI Air consumption: 1.0m³/min

6.2 Pressure Sensor

Item	Reference Image	Specification
Pressure Sensor		Model: PT124B-210-160MPa-M20 Voltage: 24V DC Signal: 4-20ma Accuracy:±0.5%FS

6.3 Proportional Pressure Regulating Valve

Item	Specification
Proportional Pressure Regulating Valve	Model: ITV3050-044L Voltage: 24V DC Signal: 4-20ma Inlet pressure: 0-1MPa

	Outlet pressure: 0.005-0.9MPa Accuracy: ±1%FS

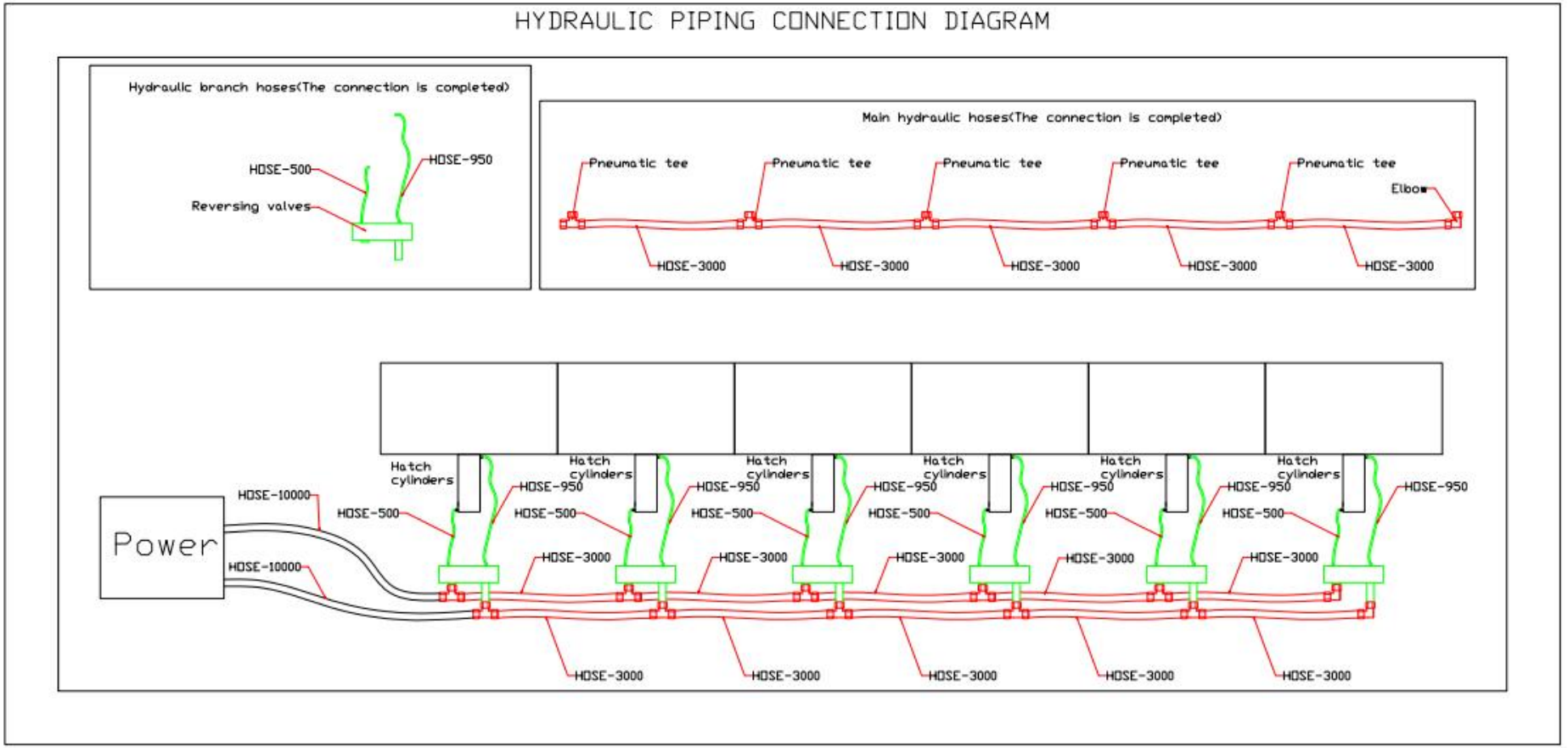
7 List of Spare Parts

NUMBER	NAME	MODEL	UNIT	QUANTITY
1	Hydraulic Hose	Hose-3000	Pcs	10
2	Hydraulic Hose	Hose-500	Pcs	6
3	Hydraulic Hose	Hose-950	Pcs	6
4	Hydraulic Hose	HOSE-10000	Pcs	2
5	No-return Valve	AH170 check valve(in and out)	Pair	1
6	Air-control Needle Valve	SI20122-N0	Pcs	1
7	Proportional Pressure Regulator	ITV3050-044L	Pcs	1
8	Pressure Sensor	0-160MPA	Pcs	1
9	Air Hose	ϕ10-20M-White	Coil	1
10	Air Hose	ϕ10-20M-Blue	Coil	1
11	Water Pipe	ϕ16-7M	Coil	1
12	Water Pipe	ϕ16-9M	Coil	1
13	Water Pipe	ϕ16-10M	Coil	1
14	Water Pipe	ϕ16-15M	Coil	1
15	High Pressure Hose	HX-5-6S-15M	Coil	1
16	Pneumatic Tees	ϕ16	Pcs	4
17	Pneumatic Fittings	ϕ16-ϕ16	Pcs	4
18	Pneumatic Fittings	ϕ16-G1/2	Pcs	4
19	Pneumatic Tees	ϕ10	Pcs	4
20	Pneumatic Fittings	ϕ10-ϕ10	Pcs	4
21	Pneumatic Fittings	ϕ10-G3/8	Pcs	4
22	Open-ended Wrench	41mm-46mm	Pcs	1
23	Adjustable Wrench	18 inches	Pcs	1
24	Adjustable Wrench	10 inches	Pcs	1

25	Circlip Pliers	Internal / External	Pcs	2
26	Screwdriver	Flat / Phillips	Pcs	2
27	Allen Wrenches	/	Set	1
28	Ball-peen Hammer	/	Pcs	1
29	Pincer Pliers	/	Pcs	1
30	Booster Pump Maintenance Kit	/	Set	1
31	Air Filter	/	Pcs	1
32	Toolbox	23 Inches	Pcs	1
33	Joint Bolt	M30*80	Set	40
34	Trunking Speed Bumps	1M*34mm	Pcs	27
35	Water Tank Signal	/	Pcs	1
36	Water Tank Power	/	Pcs	1
37	Input Power	/	Pcs	1
38	Box Power	/	Pcs	1
39	Camera Cable	/	Pcs	2
40	Spare Hydraulic Pipe	HOSE-500	Pcs	2
41	Spare Hydraulic Pipe	HOSE-950	Pcs	2
42	Spare Hydraulic Pipe	HOSE-3000	Pcs	2
43	Sewage Main Pipe	ϕ16-3000	Pcs	5
44	Sewage Branch Pipe	/	Pcs	7

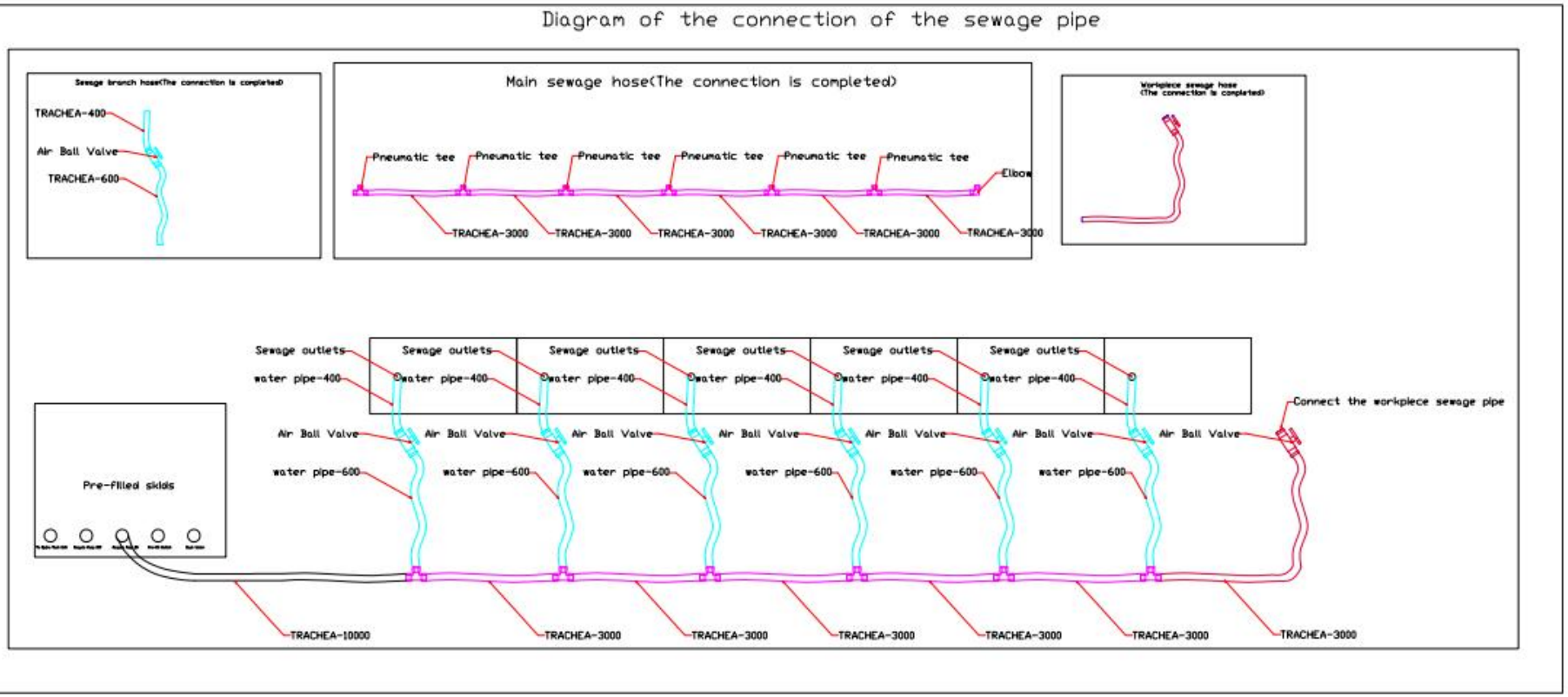
WINGOIL

HYDRAULIC PIPING CONNECTION DIAGRAM



WINGOIL

Diagram of the connection of the sewage pipe



Air duct connection

Tailor the air hose connection according to the site situation