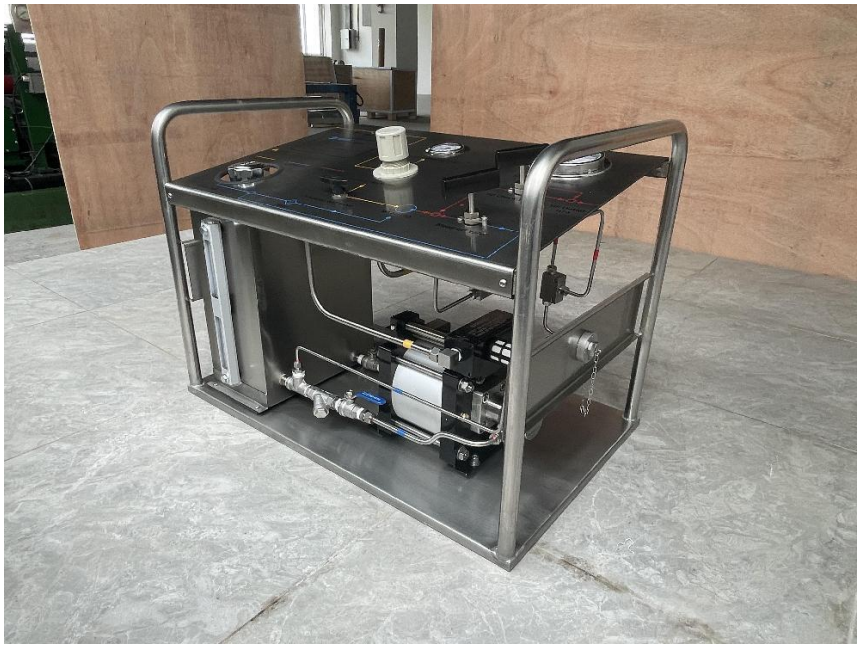
Operation Manual

(Portable Hydro Test Pump)



Issued by

Chongqing Weiyun Technology Development Co,.Ltd

Content

1. Introduction

WY-800W-J0A portable hydro test pump is multi-functional testing equipment using clean water or hydraulic oil as test medium; using compressed air as driven power; it has the function of step-less pressure regulation.
This equipment is available to the hydrostatic test for pressure vessel, piping, valves, cylinder, hose, etc, as well as used in various fields of chemical, construction, plumbing, petroleum, coal, metallurgy, shipbuilding, etc. The maximum pressure can reach up to 830bar/12035psi.

Improper operation on this high-pressure equipment takes safety risk, so please read this manual carefully before using the equipment.

1.1 Safety Criterion

1) Equipment operation should be in accordance with process by professional people or trainees.
2) Do not causally apart or change every connector, especially high-pressure end and safety valve end.
3) Routine maintenance should be taken in a certain period time. (see Chapter 4.2)
4) Driven air power must be cut off after using equipment.

Warning

Do not tighten pipeline and fittings under pressure

Only clean water and neutral hydraulic oil can be the testing medium, please confirm us ahead if use other medium or mixed liquid.

1.2 Color Instructions

Notice

Compressed Air

Low pressure medium

High pressure medium

1.3 After-Sales Service

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2. Working Principle

2.1 Characteristics

1) Use low pressure compressed air as driven power for convenience and safe.
2) With the function of pressure self-locked to adjust output pressure keeps constant in case of overshoot under air-driven pressure setting constant.
3) Pressure is displayed by double-scale vibration proof pressure gauge.
4) Strong anti-corrosion, all wet components are made of stainless steel.
5) Low energy consumption, pressure holding does not require additional energy.
6) Portable structure for easy move and transportation.

2.2 Schematic Diagram

Referred as attachment 1

3. Instructions

3.1 Working Condition

1) Ambient temperature: 0~ +60℃
2) Power supply: No
3) Driven Air: 3-8bar

3.2 Technical Data

1) Testing medium: clean water
2) Max. output pressure: 830bar
3) Max. flow: 3.62L/min
4) Max.driven-air operating pressure:8.3bar
5) Pipeline operating pressure:130bar
6) Connector

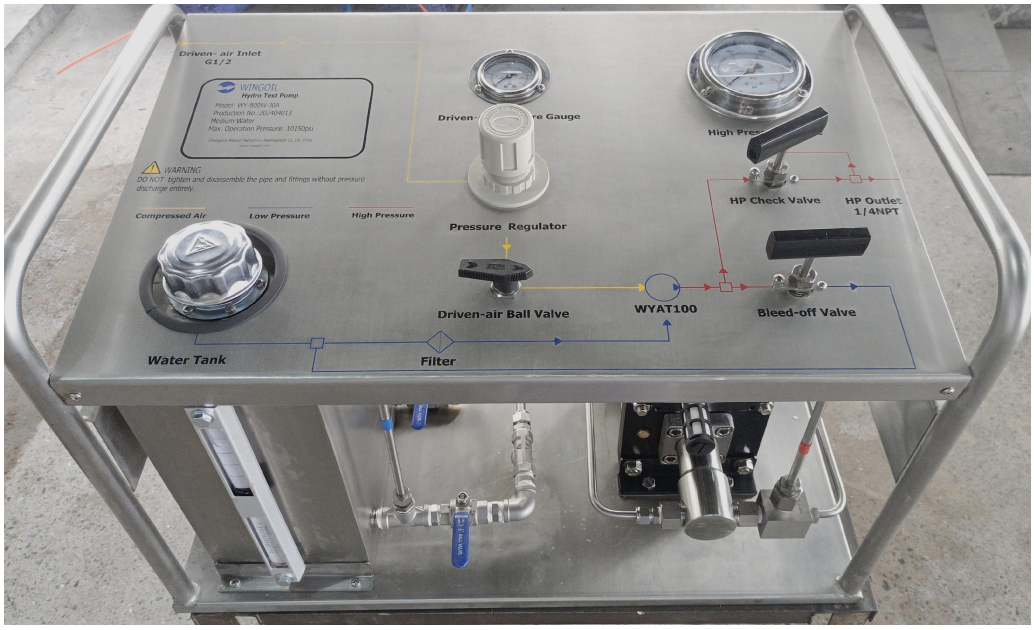
- Compressed air inlet: 1/2″ NPT(F)
- High-pressure outlet: 1/4”NPT(F)
- High-pressure outlet quantity: 1 PC

7) Water tank volume:15L
8) Dimension:800L×500W×550H

Note: The connection and the operating panel flow chart are corresponding to the position indicated by the arrow.

3.3 Main Components

Function description: portable hydro test pump consists of booster pump, pressure regulator, needle valve, HP Check valve, bleed-off valve, filter and pressure gauge, (water tank with level gauge), etc.



3.3.1 Booster Pump

Model: WYAT100

Pressure ratio:1:100

Max. output pressure: 830bar

Max. flow：3.62L/min

Driven type：Compressed air drive

Control type：Manual

- Usage: Main components of the equipment.Used for injection and pressurization of chemical media.
- Theoretical output pressure: P=Pa × 64

P: Output pressure Pa: Compressed air set pressure

For example, when the compressed air pressure of the low-pressure pump is set to 5 bar, the output pressure is 64 × 5, which is equal to 320 bar.

3.3.2 Driven-air Filter

Material: rubber & alloy

Model：EAF4000-04（Easun，china）

Max operating pressure:10bar

Size：G1/2″

- Usage:Driven-air filter provides clean compressed air and effectively filters moisture and dust not only in the compressed air, but also in the integrated auto drainage pipeline.

3.3.3 Pressure Regulator

Model: EAR4000-04

Material: rubber & alloy

Max Operating pressure:10bar

Connection(inlet& outlet): G1/2

- Usage: adjust air pressure of low pressure pump, based on the pressure to estimate maximum output pressure of the low-pressure pump.

3.3.4 Driven-air Ball Valve

Model: BV-04OD

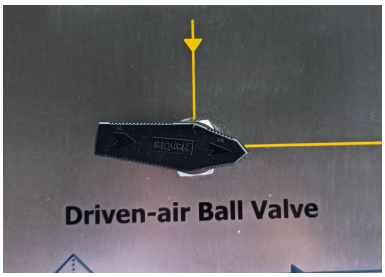
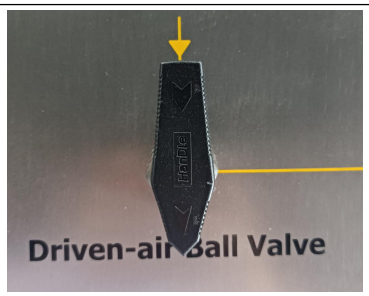
Material: 316 stainless steel

Maximum working pressure: 64bar

ID.: 8mm

- Usage: compressed air circuit for controlling the booster pump

- Note:

ON/OFF Position	
	
ON	***OFF***

3.3.5 Driven-air Pressure Gauge

Brand:BLD

Model:YTN-60HZT

Working pressure range:0~16bar

Connection: NPT1/4”

- Usage: observation of driven air after pressurization.

3.3.6 High Pressure Gauge

Brand:STK

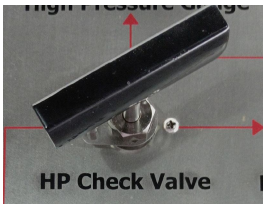
Model:YB100-100-HF4

Range: 0～1000MPa

Connection: HF4

- Usage: observation of medium pressure after pressurization.

3.3.7 HP Check valve



Material: 316 stainless steel

Model:1/4-6000

Maximum operating pressure: :6000psi

Control type: Manual,Clockwise rotation to close, counterclockwise rotation to open

- Usage: cut off the connection between the outlet of high pressure pump and the workpiece, but can not cut off the connection between outlet of low-pressure pump and the workpiece.

3.3.8 Bleed-off Valve

Material: 316 stainless steel

Maximum operating pressure: 20000psi

Usage: After pressure testing, the workpiece can relief high pressure of pipeline and discharged to the specified location through discharge outlet.

3.3.9 Low Pressure Pipeline and Connector

Brand:JY-LOK

Material: 316 stainless steel

Seal: ferrule sealing

Specification:Φ1/2″

Maximum operating pressure: 64bar

- Usage: for medium boosting inlet and driven air pipeline

3.3.10 High Pressure Pipeline and Connector

Model：JY-LOK

Material: 316 stainless steel

Type:1/4

Max.operating pressure:420bar

- Usage:Used to connect high-pressure hydraulic systems and transport high-pressure chemical media

3.4 Operation

Warning

Please stay away from high-pressure outlet when the equipment is running.

Turn on high pressure HP Check Valve while unloading pressure and stay away from discharge outlet.

1) Check the status of control valves on control panel: driven air ball valve OFF, the high pressure HP Check valve ON, the high-pressure bleed-off valve OFF(*Note: When the direction of the arrow on the valve handle and flowchart arrow direction of the panel are coincide, the valve is open;when the valve handle arrow direction perpendicular to the direction of the panel flowchart arrow, the valve is closed, as picture shows*);

2) Connect the external line (water inlet pipeline, the driven-air pipeline, high pressure pipeline and discharge pipeline) and ensure that the water inlet tank level is higher than the test device. If the water impurities, you need to install a filter in front of the inlet. Single pump air consumption is 1m³ / min;

3) Open **"*Driven-air Ball Valve*"**, then adjust the ***"Pressure Regulator "*** slowly up to 6bar, driven-air pressure indicates the number of the appropriate values and observe the ***"High Pressure Gauge"*** accordingly. Open the **"*Driver-air Ball Valve*"** and ***"HP Check Valve"***, close ***"Bleed-off Valve"***, and the booster pump starts to operate;. To ensure driven air pressure is in the range of 1.5bar ~ 8bar ;

4) Due to the maximum pressure of the pump is 700bar@7bar air, to prevent the drive air pressure during pressurization caused by excessive pressure on the high pressure output exceeds a predetermined value, it is recommended when adjusting the high pressure pump driven-air pressure to slightly lower than the theoretical value calculated; when the high-pressure pump stop working,high-pressure gauge shows the number set ,then adjust high-pressure pump driven-air regulator slowly until the pressure gauge reaches a predetermined value. It is recommended to close **"*Driver-air Ball Valve*"** and ***"HP Check Valve"*** during the pressure hold stage;

Notice

In case asks for faster boosting, turn on the ball valve to max. Valve at the beginning, as long as the high pressure gauge reaches the request pressure, swiftly shut off the ball valve.

5) After the pressure testing, turn on slowly the***"HP Check Valve"*** and ***"Bleed-off Valve"***. Discharge water to a certain location through the high pressure discharge outlet, till the display on gauge is zero;

Notice

Open the valves slowly while discharging pressure, otherwise damage the low pressure pipe at the outlet of tank.

6) Disconnect the pipeline and clean the device after pressure testing.

Notice:

When disconnect the drive-air pipeline should turn off the outlet valve of gas tank or compressor, turn on the low pressure pump driven valve, discharge the air remaining in the compressed air line until driven-air pressure gauge indicates to ZERO. Then remove the air pipeline. It is hazard to remove the air pipeline directly if there is indication on driven-air pressure gauge.

4. Maintenance

Warning

Cut off driven air before it's maintained.

4.1 maintenance for Long-term Stop Usage

For keep excellent operation it should take following steps:

1) cut off driven air pipeline
2) close all switches in control panel
3) all the outside connectors shall be sealed
4) do as the form in Chapter 4.2.4 every two month to prevent sealing ring from aging.

4.2 Routine Maintenance

Warning

Ensure Driven air is cut off and every pressure is unloading before its maintenance.

Maintenance should be taken by professional trainee.

4.2.1 Booster Pump and High Pressure Elements

Selected pressurized and high pressure resistant elements are both kinds of high accuracy which requires inspection and maintenance by trainees. Please contact us if anything wrong.

4.2.2 Pressure Regulator

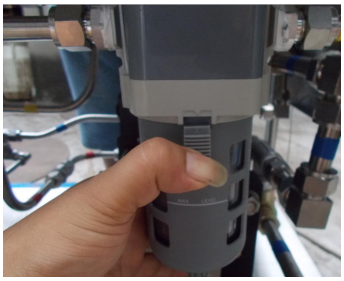
The Pressure regulator is used for output pressure adjustment of the elements, and its main role is to come from the air compressor (gas tank) of 8bar air pressure control to fit the device corresponding to driven air pressure gauge. Pull out regulator adjustment handle clockwise rotation regulator handle (H logo direction), increase drive air pressure can be achieved; counter-clockwise rotation of the handle (L identifies directions), enabling the drive air pressure decreases, after adjustment is completed, press regulator handle, self-locking regulator.

4.2.3 Air Filter

Air filters 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 blocks small impurities. If driven-air is not clean enough or used for a long term, the filter glass may have some water and impurities. When the filter stops working, water inside the cup will be automatically discharged, but the impurities should be regularly cleaned as follows:

Auto Drainer

EAF系列过滤器EAF4000



Press this button → 

Rotate to this location → 

Remove the cup

4.3 Parts Maintenance

Item	Maintenance period
Water inlet filter: Open the filter and get screens out to clean.	Once per month
Auto drainer: inspect storage condition	Once per month
Panel: clean dust	Twice per month
Pressure gauge: send to institutes for regularly inspection	Once per year

Attachment 1