

Compressed air auto drain valve and trap  
**POWER DRAIN TRAP**



Power drain

Float Type



Power drain

Float+Ball Valve Type



Power drain

Stainless Large Sized Type



Power drain

Electric Trap



Power drain

Reciprocating Type



Strainer

Integral Cleaning Valve



**LEADING MANUFACTURER OF ENERGY SAVING**



**우 리 테 크**

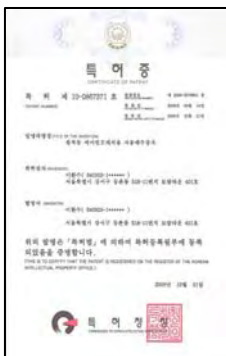
**WOORI TECHNOLOGY**

<http://www.iwooritech.co.kr>

Woori Technology is a manufacturer of thinking a customers place first and releasing a new product satisfying customers needs.

The specializing manufacturer, Woori Technology, of auto drain trap which is discharging condensed water from the compressed air develops and supplies the best products satisfying the customers need with a creative challenging spirit. We have various patents and utility models of developed and new products thanks to customers encouragement and prove our real worth in industrial fields.

The challenging manufacturer Woori Technology will return to the customer's confidence with a new technology and a better product.



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## Selection of Power Drain Trap



		WRCT -08	WRET SERIES					WRDT SERIES		
			08-I	15-Y	1500	3000	5000	500	1000	2000
Air compressor	Reciprocating Type	◎	◎	◎						
	~ 50 HP		○	◎				◎		
	~ 400 HP				◎			○	◎	◎
	~ over					◎	◎			◎
After cooler separator	~ 150 HP							○	◎	
	~ 400 HP				◎				◎	◎
	~ over					◎	◎			◎
Air filter	~200A		○	○	◎			◎	◎	
	~ over				◎	◎			◎	◎
Refrigerated air dryer	~ 100 HP		○	◎				◎		
	~ 800 HP				◎			◎	◎	
	~ over					◎	◎			◎
Air receiver tank	~ 2m³			○	◎			○	◎	
	~ 5m³				◎	◎		○	◎	◎
	~ over					◎			○	◎
Air pocket or Easy clog area by substances					◎	◎	◎		○	◎

\*\* More exact selection, please refer to the spec. or contact us.

# Condensed Water and Drain

■ The removal of condensed water under the compressed air system is absolute. If it isn't discharged, then the condensed water carrying over cooling type dryer or after cooler can damage seriously to the next processing equipments.

## The energy loss of a general trap.

Kind of Trap	Air Loss	Loss Power
	Nm <sup>3</sup> /min	Kwh
1/2" Manual Valve (1/2 open)	2.6	17.3
Disc/steam trap	0.11	0.76
Electric trap as per the time	0.06	0.41
WRDT-SERIES	Disregard	Disregard

■ The above is presumed based on the working pressure 7 kgf/cm<sup>2</sup> and it is flexible as per the installation condition, working time and etc. For more exact calculation to your conditions, please contact us.

## The special feature of general trap

### ■ Manual Ball Valve

You can lose the expensive compressed air as the valve leave opening to discharge the condensed water. and it make the system pressure lower and then obstruct the working of equipments.

### ■ General Mechanical float type

The oil and substance of condensed water may clog orifice which control open/close of trap and may make a small float not to work, so trap is opened. Then you should pay more expense by loss of compressed air.

### ■ Electric Trap by Sensor

The stain of sensor by oil and substance can be the reason of malfunction and the circuit board can be damaged by condensation. In case of malfunction, the self-repair is not easy.

### ■ Electric Trap by Timer

This is suitable for the place where the small condensed water come out, but too much exhaustion of compressed air may happen and it need to control the working time as per the using condition.

### ■ Steam Trap

For steam only.

For both of normal working and without condensed water, the loss of compressed air can be continue.

Power Drain Trap – Float

## Power Drain Trap

[WRDT – 500]

### Advantages

- High reliable working
- Manual discharge valve is sticked.
- No loss of compressed air
- Optimum determination of float location
- Easy maintenance
- Visible working status
- No need electric connection
- Easy installation

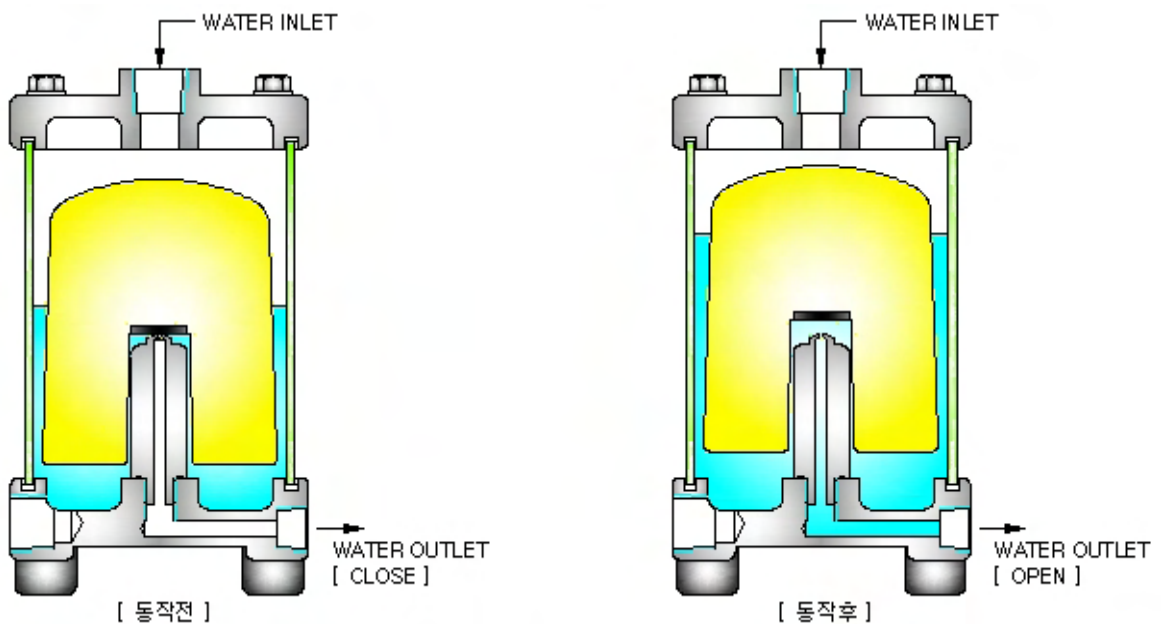
### Applications

- AIR COMPRESSOR
- AFTER COOLER
- RECEIVER TANK
- REFRIGERATED AIR DRYER
- OTHER PIPES WHERE CONDENSED WATER FORMED.



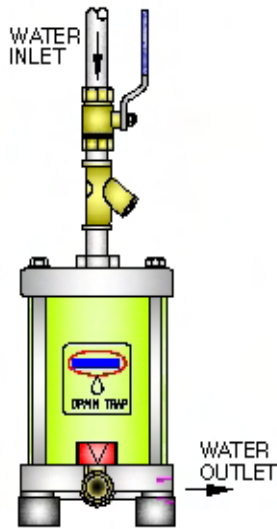
- INTER COOLER
- SEPARATOR
- AIR FILTER

### OPERATING PRINCIPLE



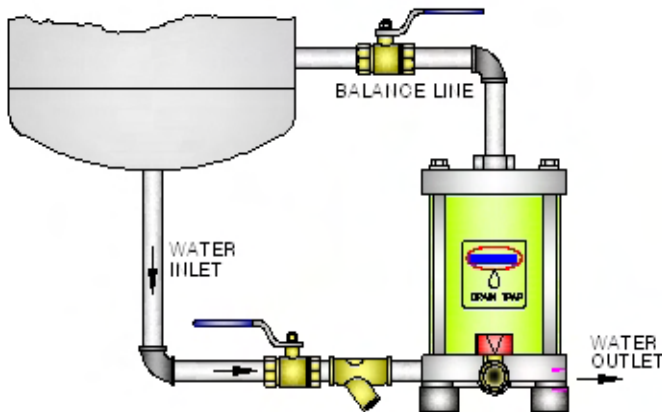
## WRDT-500 : Installation / Spec.

### Installation 1]



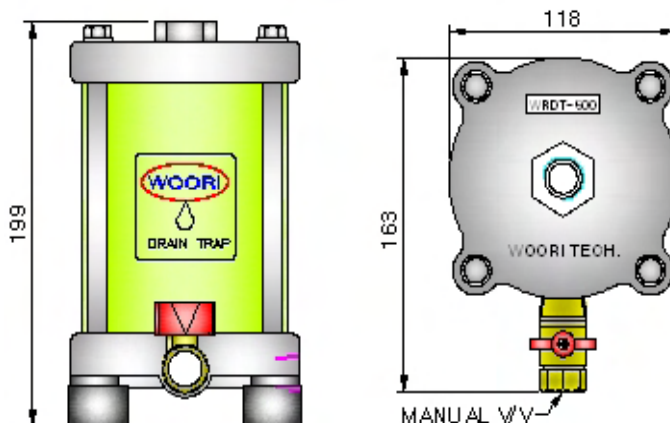
1. Install when the condensed water outlet is higher than drain trap.
  - 1) Install Shut off Valve & Strainer first and install Trap lower area.
  - 2) Use the valve stucked strainer which is easy to clean
  - 3) Connect Outlet
  - 4) Open the manual valve and check if the compressed air and condensed water is flowed.

### Installation 2]



2. Install when the condensed water outlet is lower than drain trap.
  - 1) Install Shut off Valve & Strainer first and install Trap by using Inlet.
  - 2) Connect Balance Line in the upper portion. If the Balance Line connection is difficult, install the valve and open slightly.
  - 3) Connect Outlet
  - 4) Open the manual valve and check if the compressed air and condensed water is flowed.

### WRDT-500 Drawing / Spec.



SPECIFICATIONS		
Working Temperature	2 ~ 70	°C
Working Pressure	0.1 ~ 9.9	kgf/cm <sup>2</sup>
Maximum Capacity	120	Liter/hr
AIR COMP.	100	HP
INLET	PT1/2" Up & Down	2 point
OUTLET	PT 3/8"	
OPTION	Y-strainer with cleaning valve	



Power Drain Trap – Float+Ball Valve

## Power Drain Trap

[WRDT – 1000, 2000]

### Advantages

- Bigger size outlet valve (15A BALL VALVE)
- High reliable working
- Manual discharge is available
- No loss of compressed air
- Optimum determination of float location
- Easy maintenance
- Visible working status
- No need electric connection
- Higher capacity of condensed water
- A heater for antifreezing is available(WRDT-2000 OPTION)



### Applications

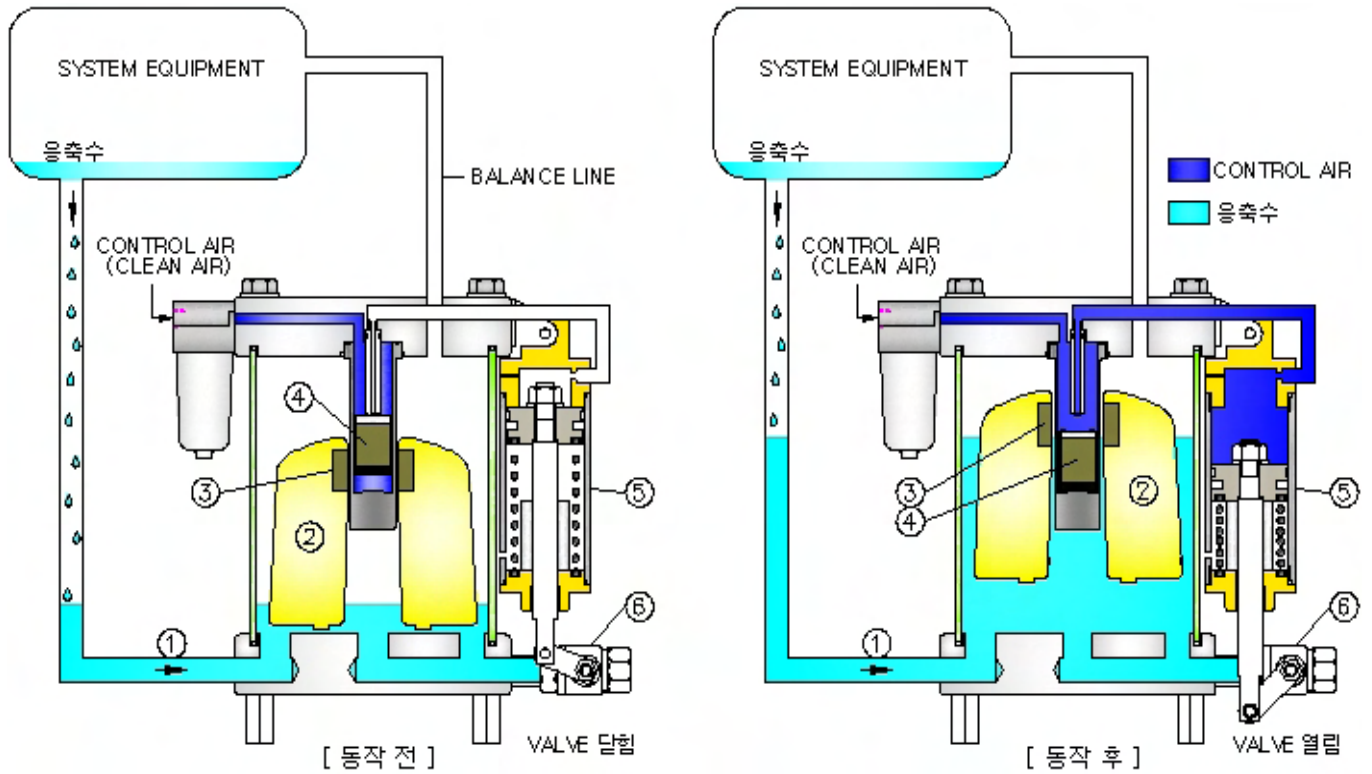
- Easy clog area by scale and sludge  
Air Receiver Tank, After Cooler
- High condensed water formed area  
Inter Cooler, Separator
- Frequent trouble trap by oil flowing  
Air Pre Filter, Refrigerated Air Dryer
- Open ball valve used area  
Air Compressor, Air Pocket
- Equipment of compressed air in blast resistance zone





# Operating Principle of WRDT-1000, 2000

## 1. Operating & Feature



Condensed water is flowed into the trap through Inlet① (Refer to *How to install*)

Condensed water reach a certain level(about 2/3), Float② is up by buoyancy.

At that time, the external Magnet③ sticked to Float② get down the internal Magnet④ .

The external Magnet③ & internal Magnet④ are assembled with the same pole and they never sticked each other.

When the internal Magnet④ get down, Control air is flowed to air cylinder⑤ and the cylinder get down and make ball valve(Φ15)⑥ open and then condensed water in trap is discharged.

The condensed water remains about 1/4, Float② get down and Magnet④ move up and shut control air supplying to air cylinder⑤. Air cylinder⑤ discharge the balance air through the hole in cover and return by spring and ball valve is closed.

It is done within 2~3sec. to discharge the condensed water by cylinder and shut again.

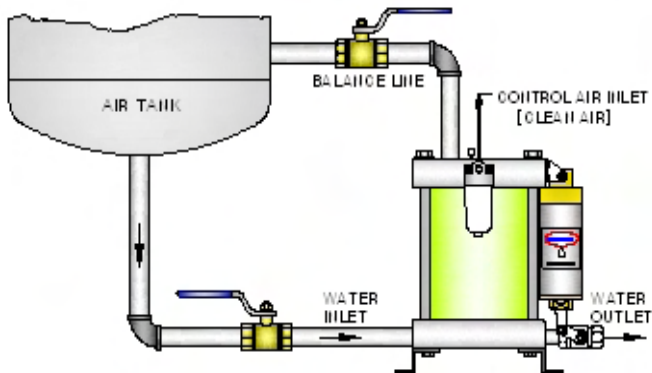
And there is no loss of compressed air because of remaining condensed water in bottom.

## Power Drain Trap – Float+Ball Valve

### Power Drain Trap

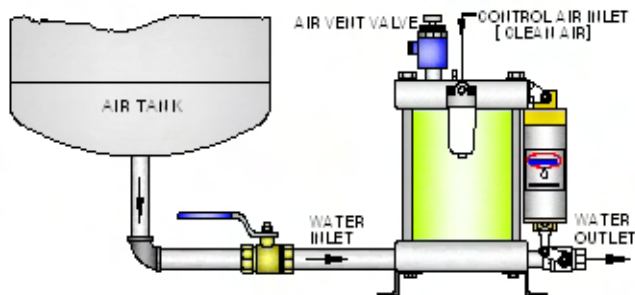
[WRDT – 1000, 2000 Installation]

#### Installation 1]



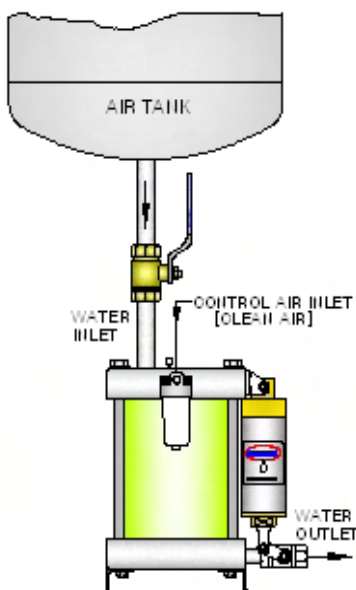
1. Connect inlet and outlet of condensed water pipe
2. Connect Control air line.  
[Use the clean dry air]
3. Connect the balance line as the picture.  
[The pipe of balance line should be over 15A]
4. Connecting should be separate for repairing.
5. Installation 1) is the best connection.
6. Caution : Do not join the balance line to the water inlet.

#### Installation 2]



1. Connect inlet and outlet of condensed water pipe
2. Connect Control air line.  
[Use the clean dry air]
3. If the Balance line is not connected, open slightly Speed control v/v.
4. There is a loss of air in the case of Installation 2)

#### Installation 3]



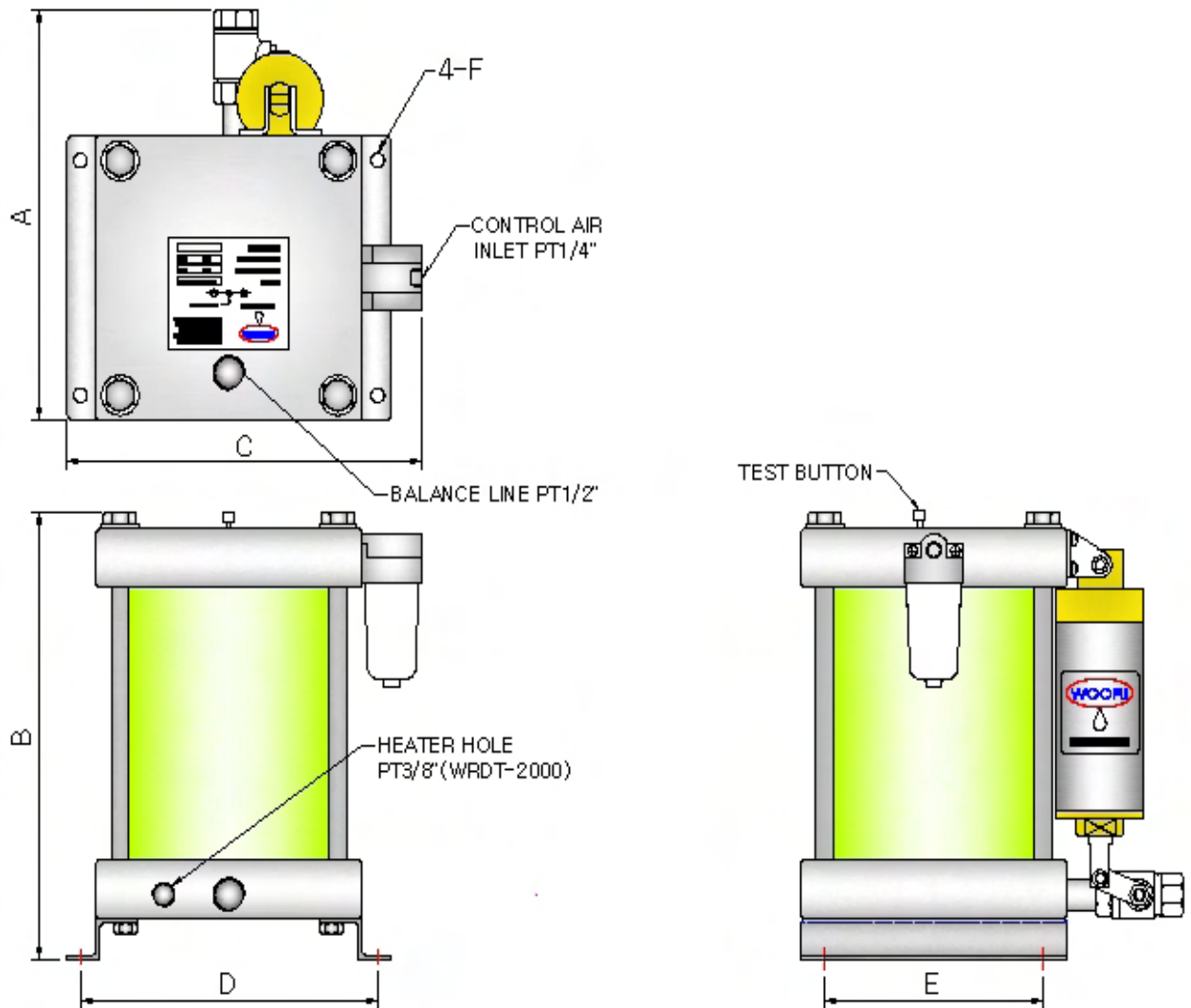
1. If the condensed water outlet is higher than the trap, use the balance line hole with the condensed water inlet
2. Stop up the inlet at the bottom with plug or valve.
3. Connect the control air line with clean dry air.
4. Check the condensed water is flowed.
5. Discharge the early condensed water manually.

#### \*\* Notice

1. Shut the compressed air before installation.
2. Check the leakage of trap and pipe after installation.
3. Check the inflow to the trap.
4. Push test button and check how it works.
5. Connecting should be separate for repairing.

# WRDT-1000, 2000 Dimensions / Spec.

## 1. Dimensions and Specifications



	SPECIFICATIONS			DIMENSIONS		
	WRDT-1000	WRDT-2000	Unit		WRDT-1000	WRDT-2000
Working Temp.	2 ~ 70		°C	A	187	256
Working Press.	0 ~ 9.9		kgf/cm <sup>2</sup>	B	222	278
Control Press.	2.5 ~ 9.9	2.8 ~ 9.9	kgf/cm <sup>2</sup>	C	178	238
One capacity	0.15	0.80	Liter/1 cycle	D	138	199
Capacity (Max)	250	660	Liter/hr	E	94	146
Air compressor	400	2000	HP	F	Φ11	Φ9
Inlet con.	PT1/2" Up & Down		2 point			
Outlet con.	PT3/8"(Φ10)	PT1/2"(Φ15)	Ball valve			
Option	NONE	For 20 kgf/cm <sup>2</sup>				

\*\* The optimum working is one time per 5~15minute.

## Power Drain Trap – Motorized Ball Valve

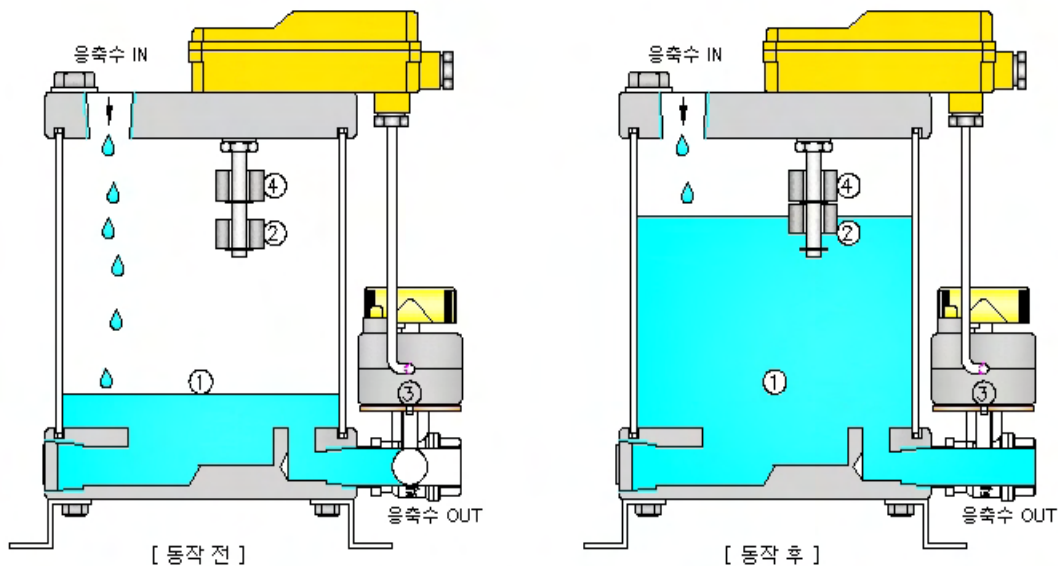
# POWER DRAIN TRAP [WRET – 1500, 3000]

### ADVANTAGES



- Bigger size outlet valve (15A BALL VALVE)
- High reliable working
- Manual discharge is available
- No loss of compressed air
- Built-in counter to show working times
- Easy maintenance
- Visible working status
- There is contacts and alarm is installed in case of trouble.
- Higher capacity of condensed water
- A heater for antifreezing is available (OPTION)
- RS-485 communication is available. (OPTION)

### OPERATING & FEATURE



1) OPEN : Condensed water is flowed into the trap through INLET and reach the Low level ②, then float switch start to work and the motorised valve ③ is opened by electric signal and condensed water is discharged.

2) CLOSE : Condensed water is discharged through the motorised valve ③ and the water level get lower.

Even though the float switch ② reach the original position, the valve is still opened during sometimes as per set-up inside and will be closed after set-up times.

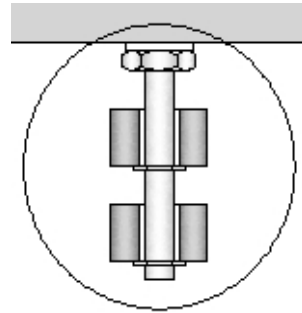
(Set-up times will vary for model and all have no loss of compressed air.)

## WRET-1500, 3000 FUNCTION

### FLOAT Sensor

Double float sensor improve the reliability.

Especially compressor oil make a goodsensor.



### No Loss of Compressed Air

Built-in Off Delay Timer make no loss of compressed air

and the timer is set already in releasig and adjustable anytime.



### Automatic Discharge Function in case of emergency

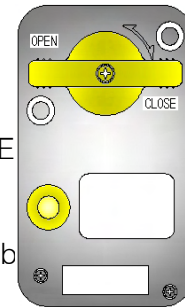
If the condensed water cannot be discharged, the alarm is activated (counter & alarm lamp flashed) by double float sensor and water is discharged all by the opening valve signal, then all the system return automatically.

(If the above situation is repeated continually, the sytem need check)

### Visible Discharging Status

You can see the level of condensed water by transparency FRP TUBE and can check the working status by manual handle of eletric valve .

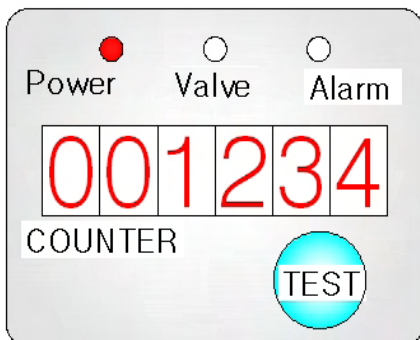
Push the button and turn the handle, manual operation can be avalab



### Check Discharging Capacity of Condensed Water (Check Working Times)

Accumulated working times are showed on a counter in Display panel

### DISPLAY PANEL FUNCTION



- 1) POWER : Show the power on
- 2) VALVE : Show the valve working
- 3) ALARM : Show the trap is working abnormally as water reach float high level(4) (Need check).
- 4) COUNTER : Show the total working times of trap.  
The counting less than 100 times is caused by test before release
- 5) TEST : Push "TEST" button, the valve is opened regardless of condensed water.

6) RS-485 communication is available (OPTION)

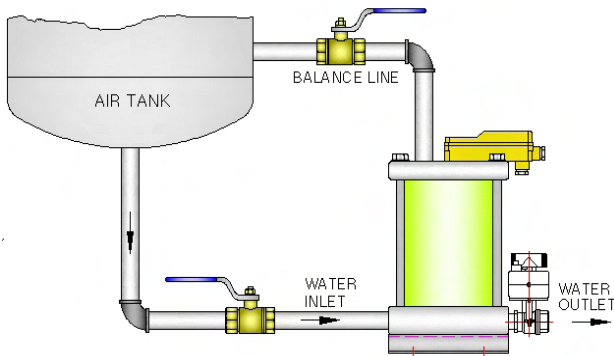
7) COUNTER In case of electric valve working : Show the valve opening time on second unit.(setting)

## Power Drain Trap – Motorized Ball Valve

# POWER DRAIN TRAP

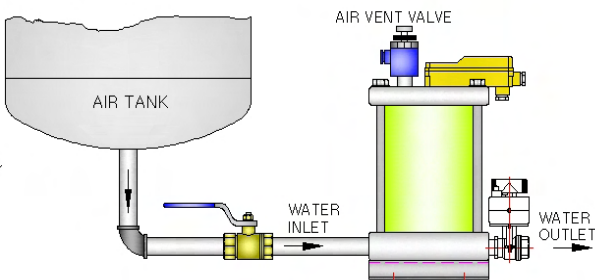
[WRET – 1500, 3000 INSTALLATION]

### Installation 1 ]



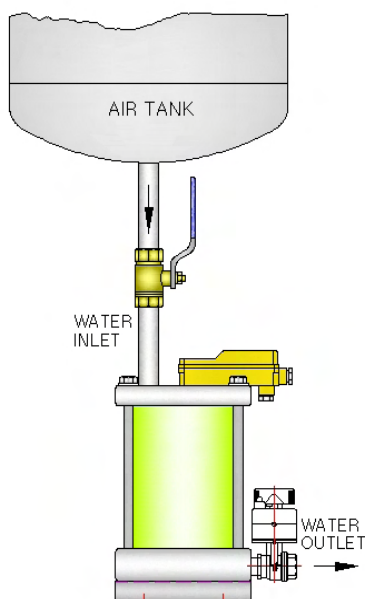
1. Connect inlet and outlet of condensed water pipe
2. Connect the balance line as the picture.  
[The pipe of balance line should be over 15A]
3. Connecting should be separate for repairing.
4. Connect the power (be sure the power is on)
5. Installation 1 ] is the best connection.
6. Caution : Do not join the balance line to the middle of condensed water inlet line.

### Installation 2 ]



1. Connect inlet and outlet of condensed water pipe
2. If the balance line is not connected, open the Speed Control v/v very slightly
3. Connect the power (be sure the power is on)
4. There is a loss of air in the case of Installation 2)

### Installation 3 ]



1. If the condensed water outlet is higher than the trap, use the balance line hole with the condensed water inlet.
2. Stop up the inlet at the bottom with plug or valve.
3. Connect the power (be sure the power is on)
4. Check the condensed water is flowed in.
5. Discharge the early condensed water manually.

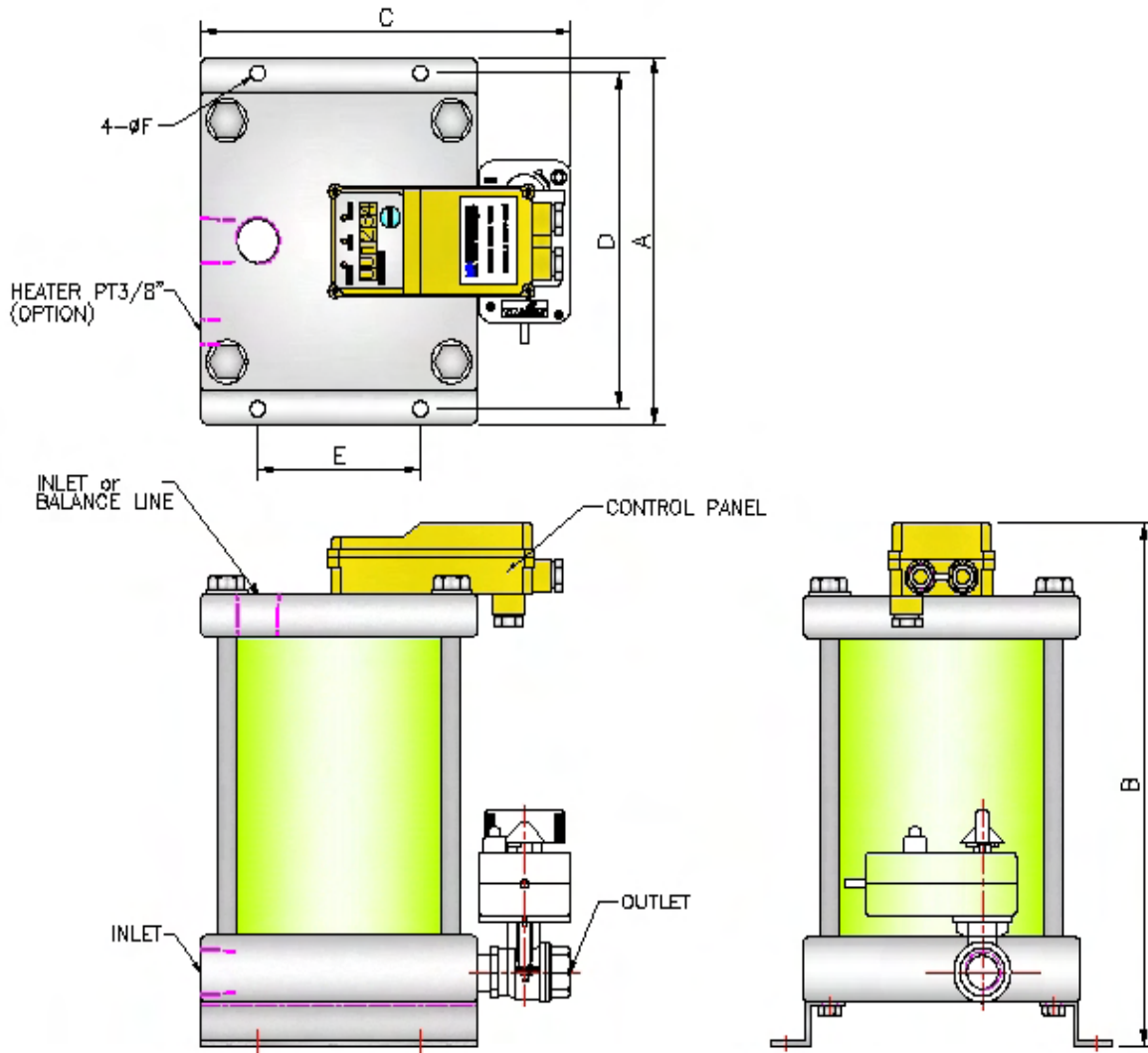
### \*\* NOTICE

1. Be sure the compressed air is shut before installation.
2. Check the leakage of trap and pipe after installation.
3. Check the inflow to the trap.
4. Push test button and check how it works
5. Connecting should be separate for trap repairing.



# WRET-1500, 3000 DIMENSIONS / SPEC.

## 1. FEATURE & SPECIFICATION



	SPECIFICATION			DIMENSION		
	WRET-1500	WRET-3000	Measure		WRET-1500	WRET-3000
Working Temperature	2 ~ 70		°C	A	158	210
Working Pressure	0 ~ 12.0		kgf/cm <sup>2</sup>	B	241	299
Power	95~230V 1PH 60Hz			C	177	228
Unit Capacity	0.65	2.2	Liter	D	138	192
Maximum Capacity	400	1000	Liter/hr	E	94	100
AIR COMP.	1500	5000	HP	F	φ11	φ9
INLET	PT1/2" Up & Down	PT3/4" Up & Down	2 point			
OUTLET	PT 1/2"		Electric Ball Valve			
OPTION	HEATER, RS485 Communication					

\*\* The reasonable capacity is one time working per 5~15 minutes.



Power Drain Trap – Stainless type

## Power Drain Trap

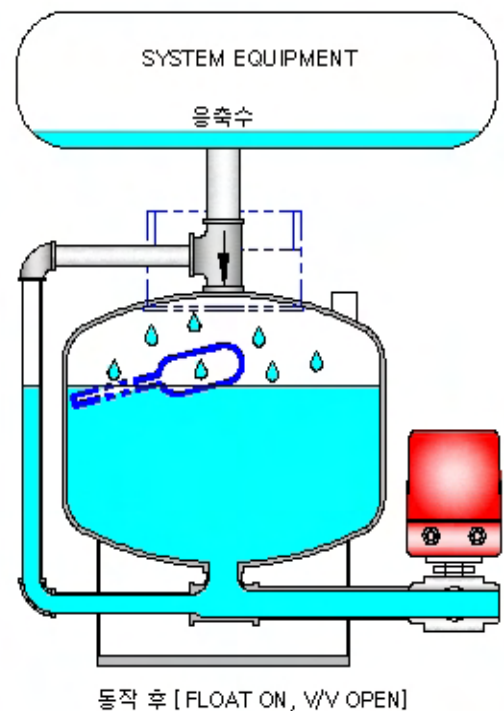
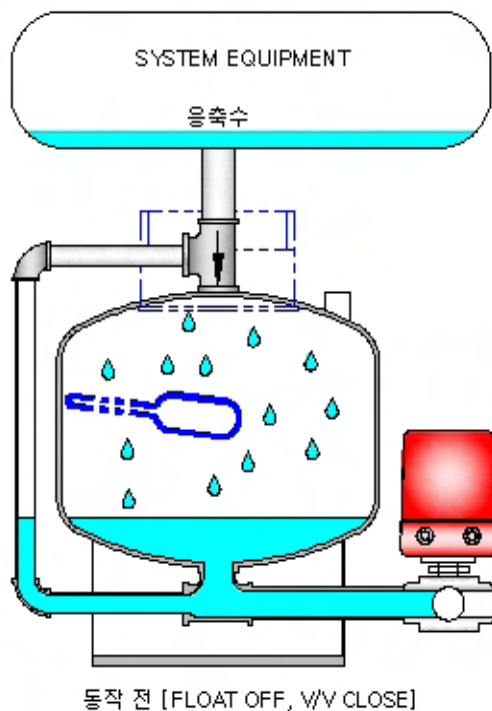
[WRET – 5000]

### Advantages

- Bigger size outlet valve (25A BALL VALVE)
- High reliable working
- Manual discharge is available
- No loss of compressed air (Zero Loss)
- Optimum determination of float location
- Easy maintenance
- Visible working status(sight glass).
- Higher capacity of condensed water
- A heater for antifreezing is available
- Stainless Feature

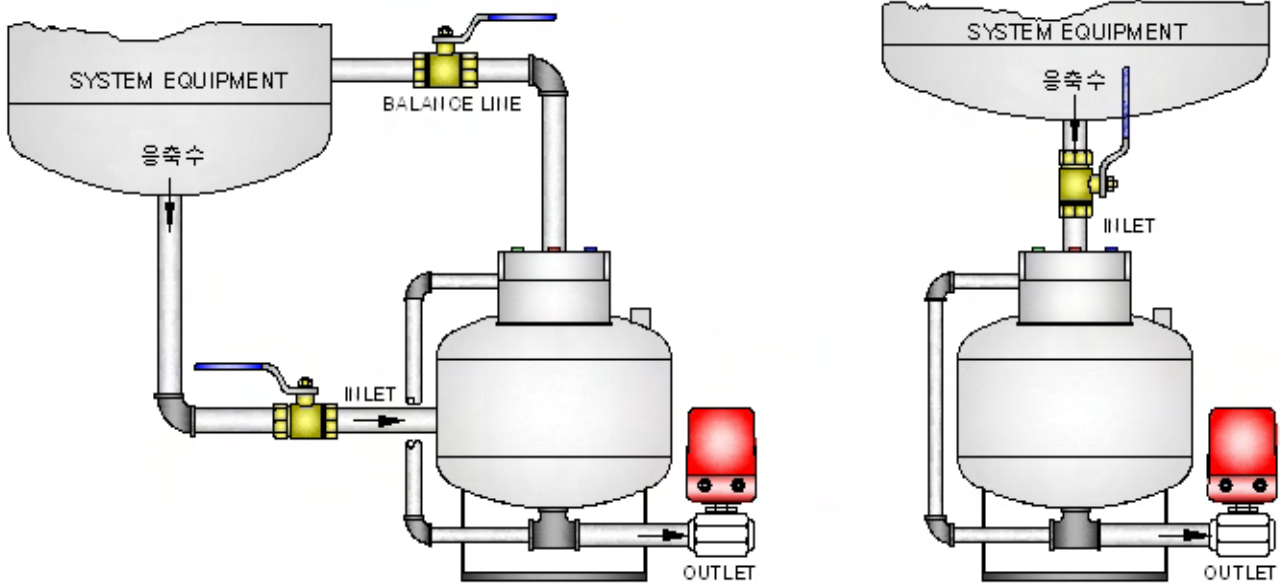


### Operating Principle & Structure



# WRET-5000 Installation / Specifications

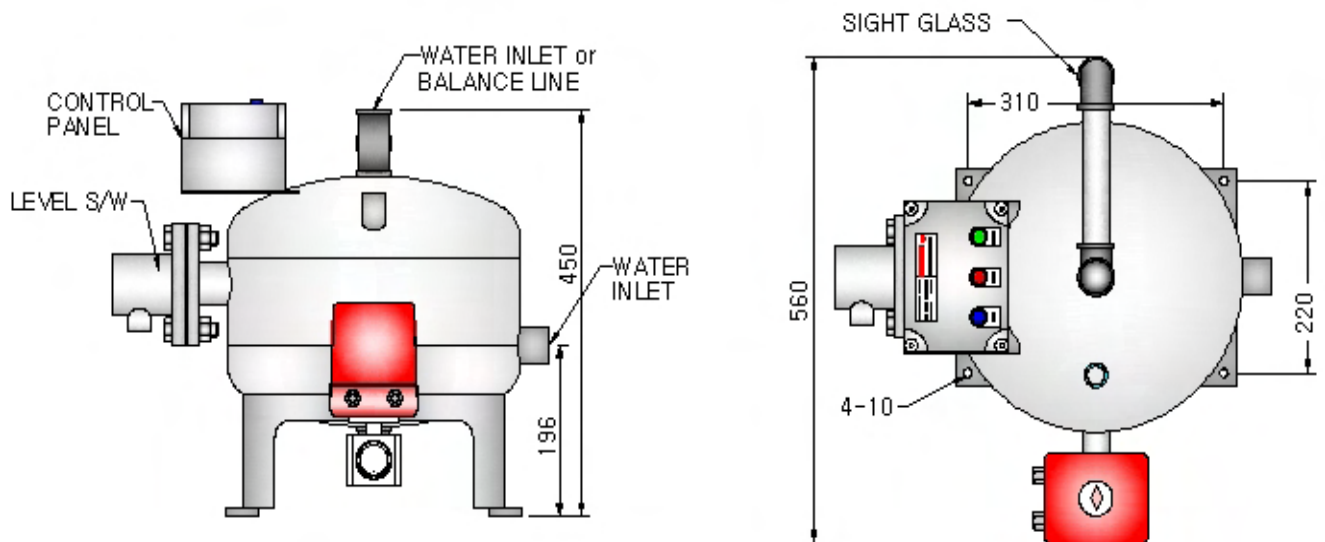
## 1. Installation



Ex.1) : In the case of Balance Line

Ex.2) : In the case without Balance Line

## 2. Dimension & Spec.



SPECIFICATIONS				
Working Temp.	2 ~ 70	°C	Power source	220V 1PH 60 Hz
Working Pressure	0 ~ 10	kgf/cm <sup>2</sup>	Inlet connection	1"(25A) 2 point
Capacity (Max)	2.8 ~ 9.9	kgf/cm <sup>2</sup>	Outlet connection	1"(25A) ball V/V
Air compressor	3000	HP	V/V off delay time	Free Setting Available

\*\* The optimum working is one time per 5~15minute.

Power Drain Trap – Electric type

## Electric Drain Trap

### [WRET – Series]

#### Advantages

- ⊙ Visible working status (LED lamp)
- ⊙ Spot check available with test button regardless of actual work
- ⊙ Open/close start can be controlled by timer setting.
- ⊙ Free installation regardless of direction.
- ⊙ Low freezing risk by the complete removal of remaining condensed water.
- ⊙ High reliable working by using coil acquired CE mark.
- ⊙ Clogging & cleaning can be solved at a time by using st  
sticked cleaning valve.



#### Specifications

MODEL	IN/OUT	Power	Pressure	Temp.	Capacity	Open time	Delay time
WRET-08	1/4"(8A)	220V 1PH 50/60Hz	0 ~ 16 kgf/cm <sup>2</sup> (Basic Spec.)	2 ~ 55 °C	100 liter/hr	2 sec	120 min
WRET-10	3/8"(10A)				150 liter/hr	1~10 sec	45 min
WRET-15	1/2"(15A)						

※ The strainer stucked cleaning valve is included to the above basic spec.

#### Indication

WRET(1) – 08(2) – 220(3) – 16(4) – ○(5)

(1) WRET : Small electric drain valve(Included strainer)

(2) PORT                      08 : 1/4"(8A)                      (3) POWER  
    10 : 3/8"(10A)                      220V 1PH 50/60Hz  
    15 : 1/2"(15A)

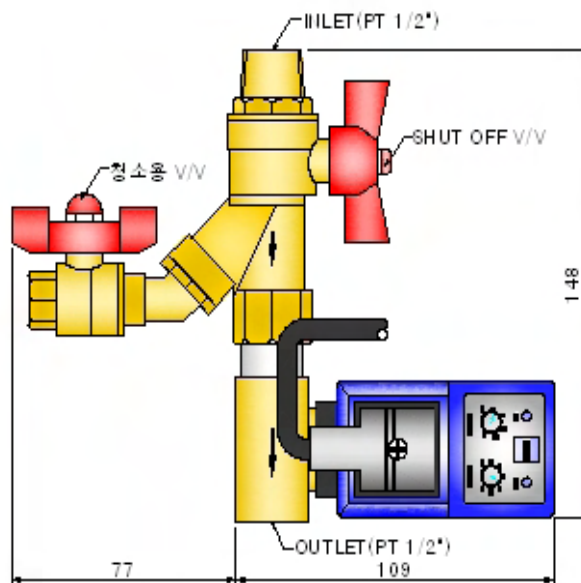
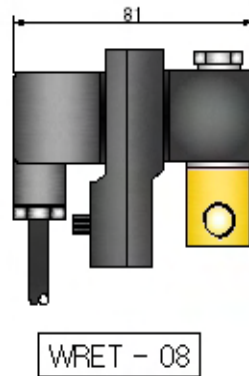
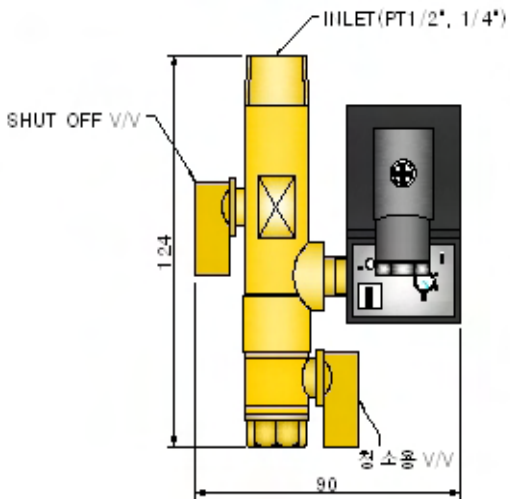
(4) PRESSURE              16 : 0 ~ 16 kgf/cm<sup>2</sup>              (5) OPTION  
    25 : 0 ~ 25 kgf/cm<sup>2</sup>                      No mark : Standard  
    40 : 0 ~ 40 kgf/cm<sup>2</sup>                      F : FILTER attachable adapter  
    80 : 0 ~ 80 kgf/cm<sup>2</sup>                      (M30x15A)

## WRET-SERIES Installation / Dimension

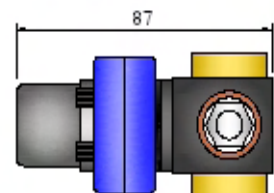
### 1. Installation

- ⊙ Remove pressure before installation.
- ⊙ Install the lamp in sight for maintenance.
- ⊙ Follow the install directions on the drain trap. (Refer to the arrow on the body)
- ⊙ Do not overpower to coil, timer, connector and others except for body.
- ⊙ The strainer is certainly necessary to the front of trap. (Over #50 of screen)
- ⊙ Check the power and connect.
- ⊙ Push the test button and check how it works and set the timer.

### 2. Dimension



WRET - 10,15



1. High pressure trap(25,40,80 kgf/cm<sup>2</sup>) is made it a custom to do.
2. The supplied strainer is surely to be installed to the whole space of trap to avoid malfunction by solid debris. (If not so, free warranty is not allowed)

# Power Drain Trap – Reciprocating Compressor

## [WRCT – Series]

### Advantages

- ⊙ Exclusive reciprocating compressor
- ⊙ The installable small size in the bottom of R-tank.
- ⊙ Working by compressor loading and unloading
- ⊙ Free installation regardless of direction.
- ⊙ Manual drain discharge is available
- ⊙ The optional valve stucked strainer



### Specifications

Model	In/Out port	Option	Using Pressure	Using Temp.	Compressor
WRCT-08	1/4"	-	0 ~ 9.9 kgf/cm <sup>2</sup>	2 ~ 75 °C	3 ~ 20HP
WRCT-08-I	1/4", 1/2"	I-STRAINER			
WRCT-08-Y	1/2"	Y-STRAINER			

### Auto drain Working Status

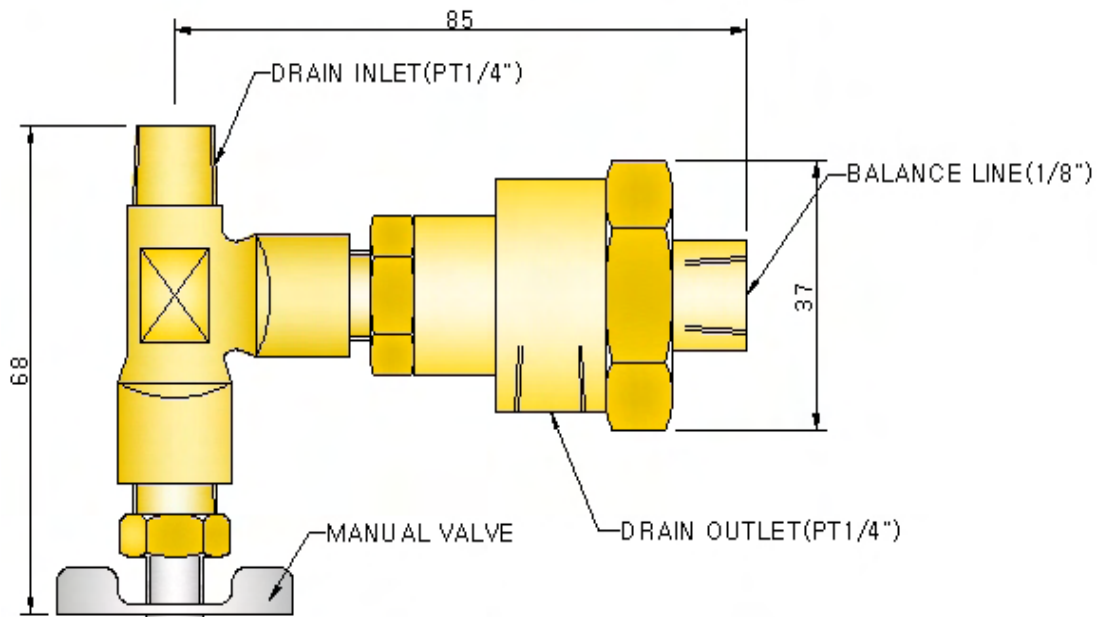
The 1st press. (R/Tank)	The 2nd press. (Head)	Compressor Working Status	Drain Status
0.2~2.0 kgf/cm <sup>2</sup>	0.2~2.0 kgf/cm <sup>2</sup>	Same pressure (In the case of compressor working)	OPEN
Over 2.0 kgf/cm <sup>2</sup>	Over 2.0 kgf/cm <sup>2</sup>	Same pressure (After pressure rising)	CLOSE
Over 5.0 kgf/cm <sup>2</sup>	2.0~4.0 kgf/cm <sup>2</sup>	In the case of Compressor running-Loading/Unloading	OPEN

\* The 1st press. : Inside pressure of air receiver tank (Inlet pressure of trap)

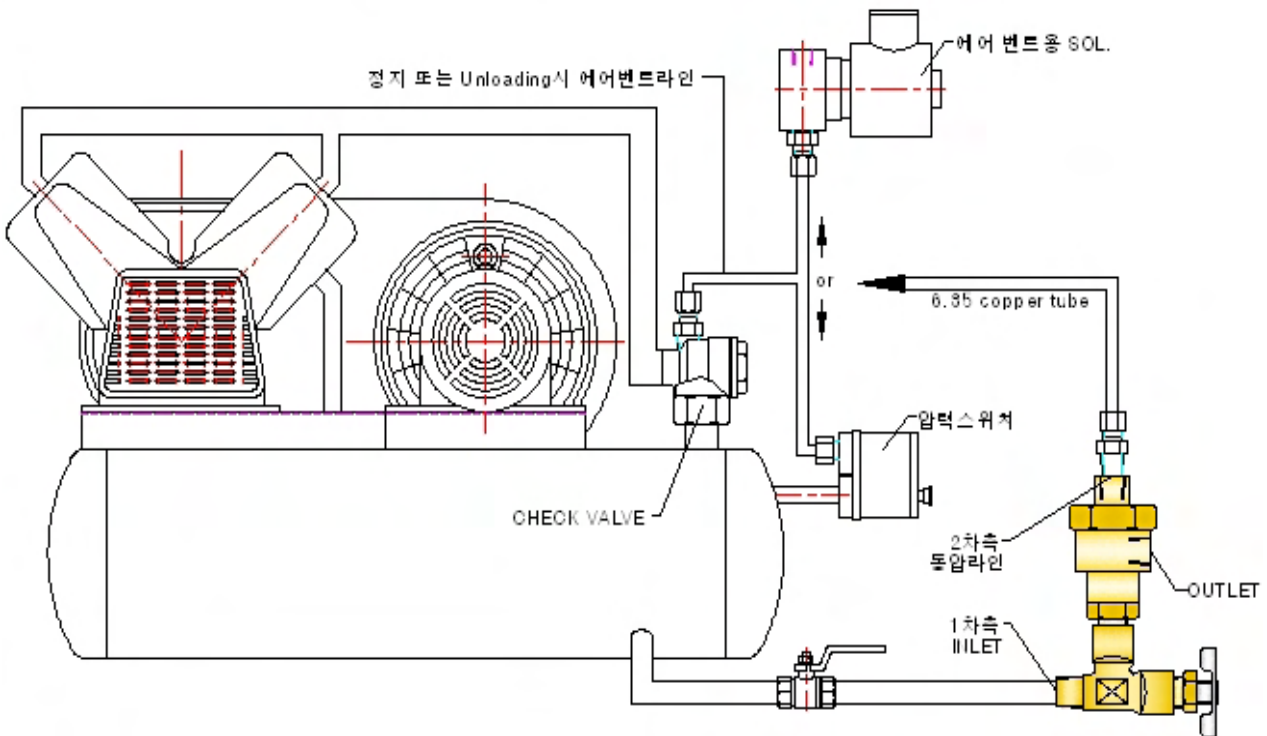
\* The 2nd press. : Pressure between compressor head & check valve (Balance line pressure of trap)

# WRCT-SERIES Dimension / Installation

## 1. Dimension



## 2. Installation

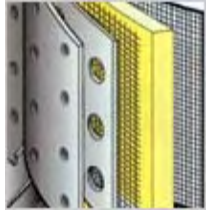







1. Stop air compressor and install.
2. The 1st piping of trap: Connect to the drain of receiver tank
3. The 2nd piping of trap: Connect to the using air vent line (Solenoid valve or pressure switch)
4. Check how it works after installation (Refer to the previous page *Auto drain Working Status*)



## Compressed Air Filter Element–Replacement



Model	Feature	Filtering	Applications
SEPARATOR FILTER WRE-34 STS PUNCHING		3 $\mu\text{m}$	Remove 99.9 % solid, particles of over 3 $\mu\text{m}$ Remove over 99 % of condensed water Use after cooler separator Install in the pipe where condensed water formed.
MAIN FILTER WRE-37 Sintered resin		40 $\mu\text{m}$	Remove 100 % solid, particles of over 40 $\mu\text{m}$ Remove over 90% of condensed water Remove over 65 % of aerosolized oil. Install to the front of refrigerated type air dryer
PRE FILTER WRE-32 Sintered resin		5 $\mu\text{m}$	Remove 100 % solid, particles of over 5 $\mu\text{m}$ Remove over 90% of condensed water Remove over 65 % of aerosolized oil. Install to the back of refrigerated type air dryer
LINE FILTER WRE-31 FIBER MEDIA		1 $\mu\text{m}$	Remove 100 % solid, particles of over 1 $\mu\text{m}$ Remove over 100 % of condensed water Remove over 98 % of aerosolized oil Install to the back of adsorption type air dryer
COALESCENT FILTER WRE-13 FIBER MEDIA		0.01 $\mu\text{m}$	Remove 100 % solid, particles of over 0.01 $\mu\text{m}$ Remove over 99.999 % of condensed water & oil Maintain oil under 0.1ppm in the filtered air Install to the front of adsorption type air dryer
ADSORBENT FILTER WRE-15 CARBON MEDIA		0.01 ppm	Remove 100 % solid, particles of over 0.01 ppm Maintain oil under 0.01ppm in the filtered air Remove an offensive smell by addition of carbon For purifier of breathing air and removing smell

\*Element Life : When the differential pressure 0.3 kgf/cm<sup>2</sup>, 6000 hours for sintered resin and 3000hours for fiber media



# Compressed Air Filter Element–Replacement



SIZE	MAIN-F	PRE-F	LINE-F	COA'-F	ADSO'-F	SEPA-F
15A	WRE37-3	WRE32-3	WRE31-3	WRE13-3	WRE15-3	WRE34-3
20A	WRE37-4	WRE32-4	WRE31-4	WRE13-4	WRE15-4	WRE34-4
25A	WRE37-5	WRE32-5	WRE31-5	WRE13-5	WRE15-5	WRE34-5
40A	WRE37-7	WRE32-7	WRE31-7	WRE13-7	WRE15-7	WRE34-7
50A	WRE37-9	WRE32-9	WRE31-9	WRE13-9	WRE15-9	WRE34-9
65A	WRE37-92	WRE32-92	WRE31-92	WRE13-92	WRE15-92	WRE34-92
80A	WRE37-93	WRE32-93	WRE31-93	WRE13-93	WRE15-93	WRE34-93
100A	WRE37-95	WRE32-95	WRE31-95	WRE13-95	WRE15-95	WRE34-95
125A	WRE37-96	WRE32-96	WRE31-96	WRE13-96	WRE15-96	WRE34-96
150A	WRE37-98	WRE32-98	WRE31-98	WRE13-98	WRE15-98	WRE34-98
200A	WRE37-911	WRE32-911	WRE31-914	WRE13-914	WRE15-914	WRE34-914
250A	WRE37-919	WRE32-919	WRE31-924	WRE13-924	WRE15-924	WRE34-924
300A	WRE37-930	WRE32-930	WRE31-936	WRE13-936	WRE15-936	WRE34-936

<b>Applicable ELEMENT series</b>	MF37 –	PF32 –	LF31 –	CF13 –	AF15 –	
	0737 –	0732 –	0731 –	0713 –	0715 –	0734 –
	EM37 –	EP32 –	EL31 –	EC13 –	EA15 –	
	HPE-40-	HPE-5-	HPE-1-	HPE-0.1-	HPE-0.01-	
		GF-TYPE	PF,DF-TYPE	HF-TYPE	CF-TYPE	
	GEL-40-	GEL-5-	GEL-1-	GEL-001-	GEL-001F-	

\* Manufacturing or OEM for other ELEMENTS and OIL SEPARATOR are available.

Power Drain Trap – Strainer with Ball Valve

Strainer with cleaning valve

[WRST – Series]

◎ Special Feature

◎ The installation in the front of trap is certainly necessary.

◎ No need another valve as the picture show the service valve is in the strainer

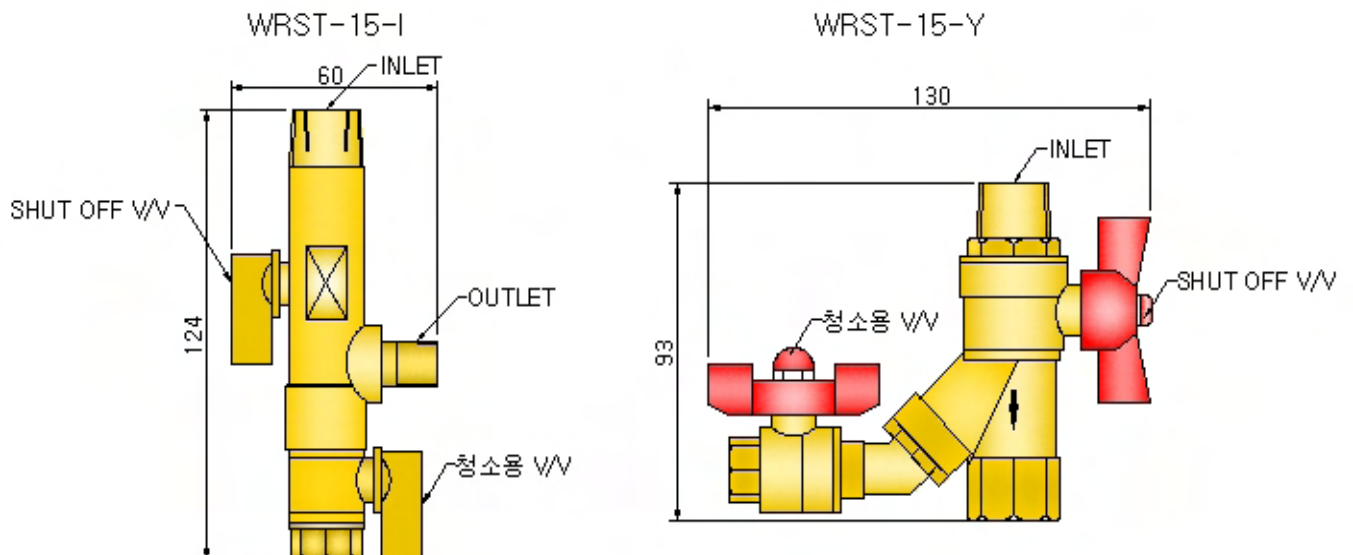
◎ Impurities such as scale can be discharged by opening the cleaning valve on the strainer



Specifications

MODEL	INLET SIZE	OUTLET SIZE	Cleaning V/V	Using Comp.	Using Temp.
WRST-15-I	1/4" , 1/2"	1/4"	1/4"	0 ~ 40 kgf/cm <sup>2</sup>	2 ~ 70 °C
WRST-15-Y	1/2"	1/2"			
WRST-20-Y	3/4"	3/4"	3/8"		

Dimensions



Compressed air auto drain valve and trap  
**POWER DRAIN TRAP**

## REFERENCE

1. Flowing moisture q'ty to air compressor.
2. Calculation a unit price of compressed air.
3. Compressed air Q'ty exhausting of orifice.
4. Damage by leaking compressed air.

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## 1. Flowing Water Q'ty to AIR COMPRESSOR

$$W = a \times \phi \times Q \times ((T + 273) / 273) / 1000$$

W : Flowing Water Q'ty(Liter/min)    a : Saturated Steam Q'ty at inspired air 30 30.36 g/m<sup>3</sup>

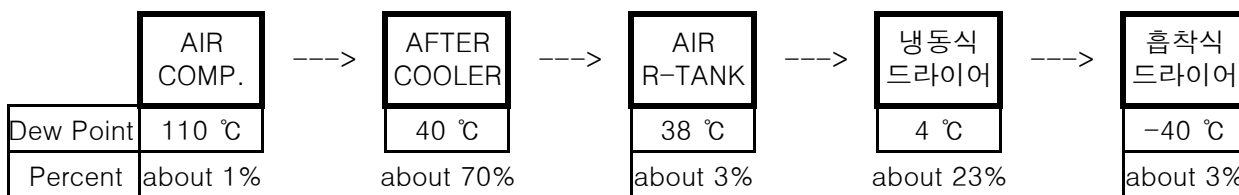
Q : Air Flow (Nm<sup>3</sup>/min)    ϕ : Relative Humidity of Inspired Air(outer) 0.75

T : Inspired Air(outer) Temperature = 30 °C

예) Air Compressor = 100 HP  
Compressed Air Flow = 10 Nm<sup>3</sup>/min

$$W = 30.36 \times 0.75 \times 10 \times (303 / 273) / 1000 = 0.25 \text{ Liter/min} = 364 \text{ Liter/24hr}$$

### 1) Individual Discharge Q'ty of Condensed Water in the back of AIR COMPRESSOR



Ref : The above percentage depends on the arrangement, kinds of Air Compressor , installation conditions, cooling water temperature and so on. For more informations, please contact us.

## 2. Calculation : Unit Price of Compressed Air

#Condition 100 HP = 13 Nm<sup>3</sup>/min, operating : 80%    Utility = Air production in the case of 90%

$$\text{AIR Production} = 13 \text{ Nm}^3/\text{min} \times 60 \text{ min} \times 0.8 \times 0.9 = 561.6 \text{ Nm}^3/\text{hr}$$

### 1) Electric Power expenses

- Air Ccompressor Operating Power : 75 Kwh
- Air Dryer Operating Power(Cooling Type): too slight to reflect
- U/Price of electric power : 70 W/Kwh
- Electric Power expenses 75 Kwh x ₩70/Kw / 61.6 Nm<sup>3</sup>/hr = 9.34 ₩/Nm<sup>3</sup> ①  
per Condensed Air 1 Nm<sup>3</sup> =

### 2) Maintenance Expenses

- Changing for oil/filter and overall 2,000,000 W/year
- Maintenance Expenses per Compressed Air 1 Nm<sup>3</sup> = 2,000,000/(561.6 x 24) 0.49 ₩/Nm<sup>3</sup> ②

### 3) Depreciation Expenses of related equipments

- Air Ccompressor Expense : 20,000,000 ₩
- Piping Work Expense of AIR DRYER & Service Tank 5,000,000 ₩
- Depreciation Expenses per Compressed Air 1 Nm<sup>3</sup> (Based on 20 years of using)  
= ( ₩25,000,000 / 20 years ) / ( 561.6 Nm<sup>3</sup>/hr x 24 hr x 300days ) 0.31 ₩/Nm<sup>3</sup> ③

**4) Unit Cost of Production per AIR 1 Nm<sup>3</sup> = ① + ② + ③ = 10.14 ₩/Nm<sup>3</sup>**

5) The actual unit price of compressed air is applying at ₩10~₩16 as per the individual electric power expense and maintenance.



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All the specifications on this brochure can be changed without notice.

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