Aqua Tech

水のマエザワ

NO. 55e

## Automatic Pressure Elimination Unit

# Flow Balance


Maezawa Industries, Inc.

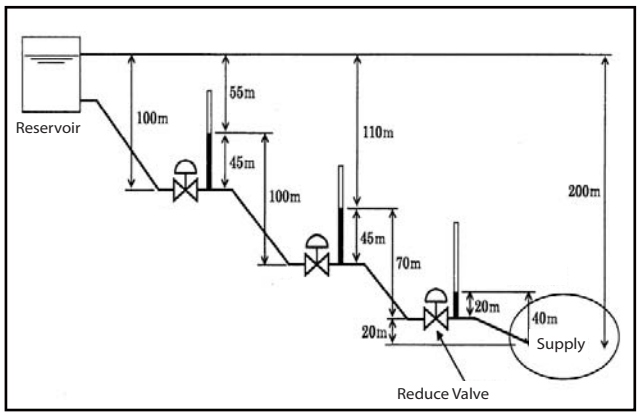
# 160meters water-head reduction

without Noise,Fluctuation,Cavitaion,Water-hammer and frequent maintenance

Reducing is critical to maintain safety,less water-loss,stable supply
and lower cost distribution system.
If not valves be controlled exactly...

## Problems of high pressure reduction

Example reduction with reduce valve




Reduce valves,which have to regulate the flows and
pressures to maintain a constant supply...however
1.Need frequent maintenance.
2.Piping structure become complicated.
3.Difficulty of regulate pressure.
4.Cause interference.
5.Water-hammer cause pipe-burst.

## Advantages of Flow balance

### Maintenance Free for 10 years

Over 100,000 times open-shut test with 1.6MPa
Double seat(Metal,Rubber) keep tight-shut and long life
Trim parts are all stainless steel
After 10 years service, changing one rubber seat is needed
No cavitation by atmospheric pressure release

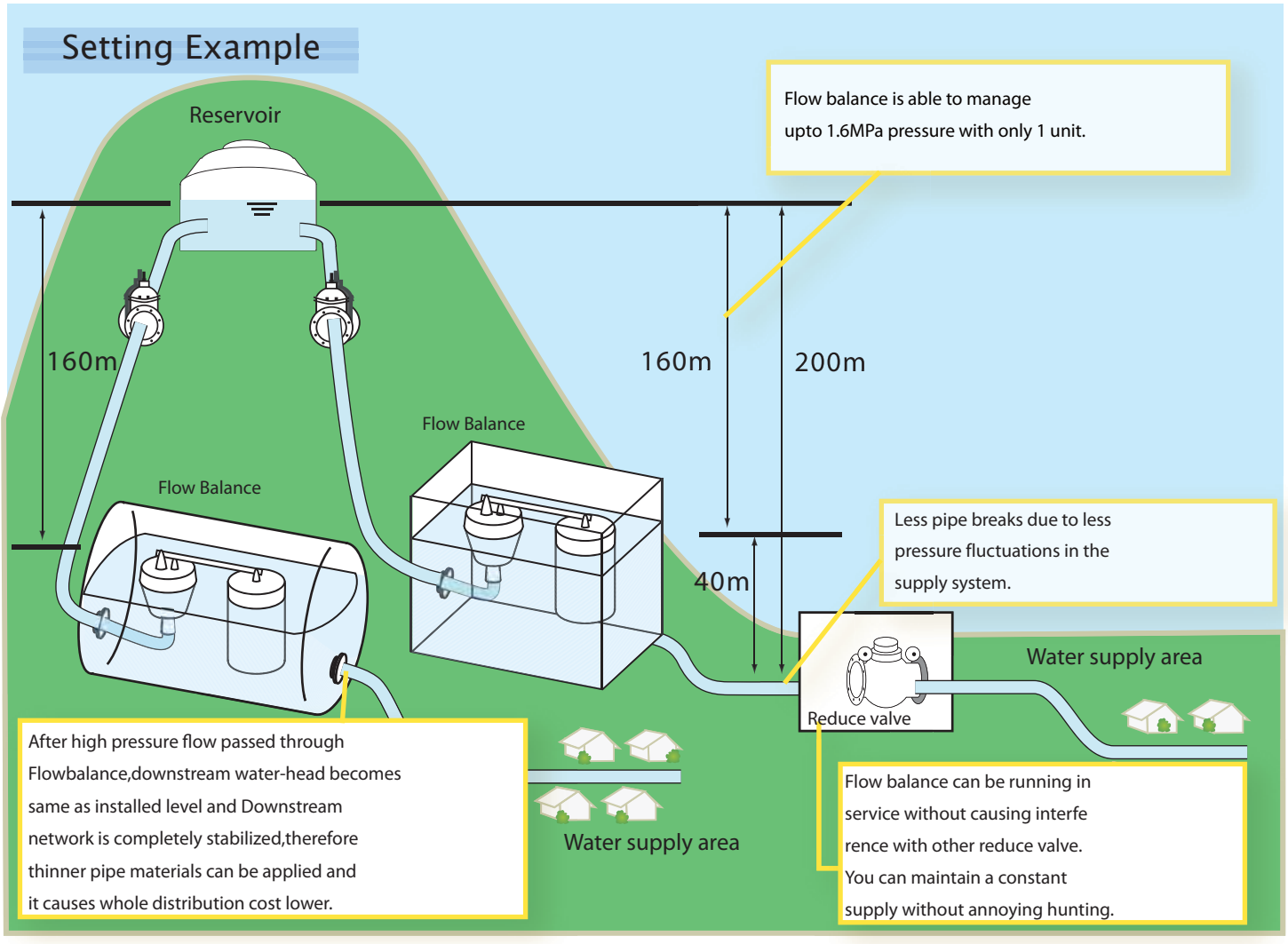
### Stable Pressure Management

High reduction abilility,From 1.6 MPa to 0 Mpa
Service without waterhamamer at upper and downstream
No interference with other serially connected reduce valve
Less pipe breaks due to less pressure fluctuation

### Less Enviromental Impact

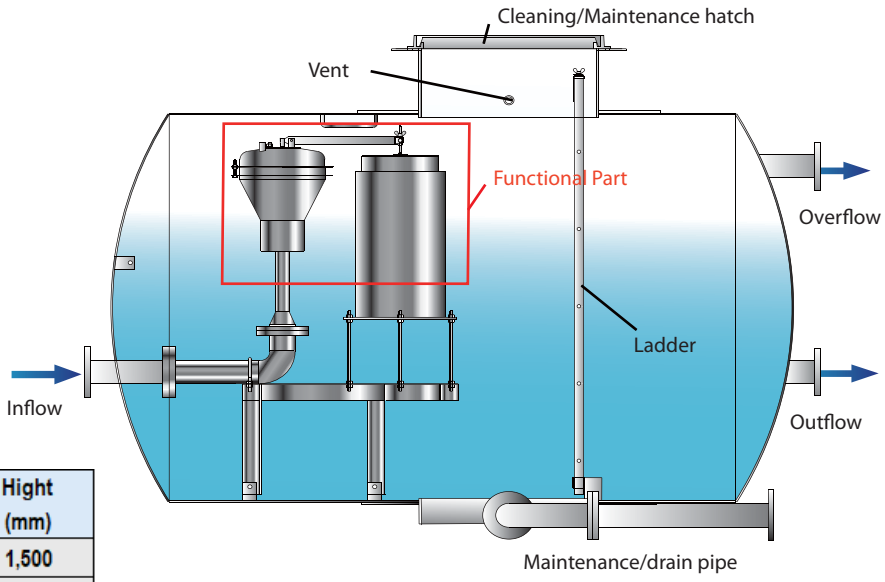
Running without power supply
Silent operation with silencer
Factory completion of unit,so that easy to installation

## Setting Example



## Steel Tank(FRP lining) Type for underground or semi-underground installation

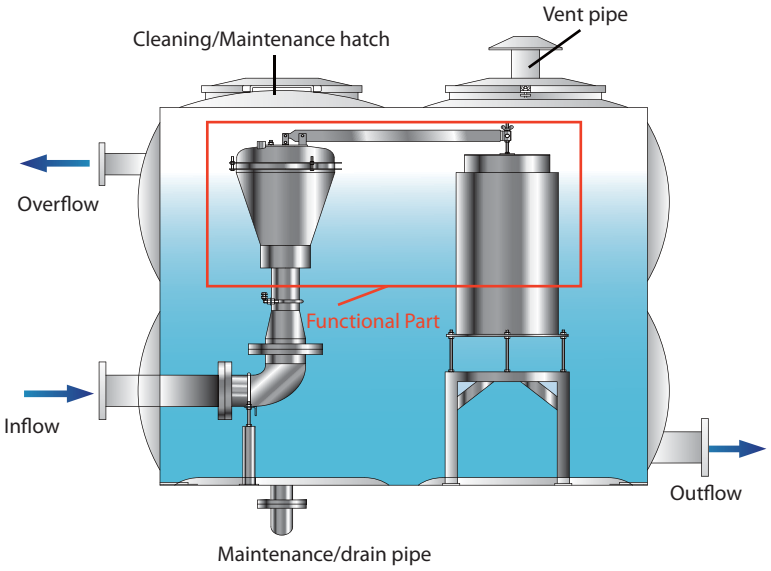
Before installation at Satte city




| Size | Length (mm) | Width (mm) | Hight (mm) |
|---|---|---|---|
| A | 2,000 | 2,600 | 1,500 |
| B | 3,048 | 3,748 | 1,800 |
| C | 4,000 | 4,700 | 1,800 |

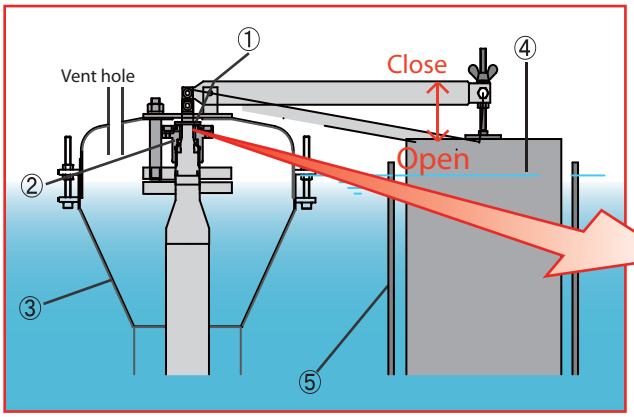
## Stainless-steel Tank Type for above ground installation

Operation at Okaya City




| Size | Length (mm) | Width (mm) | Hight (mm) |
|---|---|---|---|
| A | 2,000 | 1,000 | 1,500 |
| B | 2,000 | 2,000 | 2,000 |
| C | 3,000 | 2,000 | 2,000 |

## Functional Part




### Open

・Metal seat protects rubber seat from incoming flow, so that rubber seat is achieved long service life.

・No cavition occures. whole pressure is released to the atomosphere.

### Shut

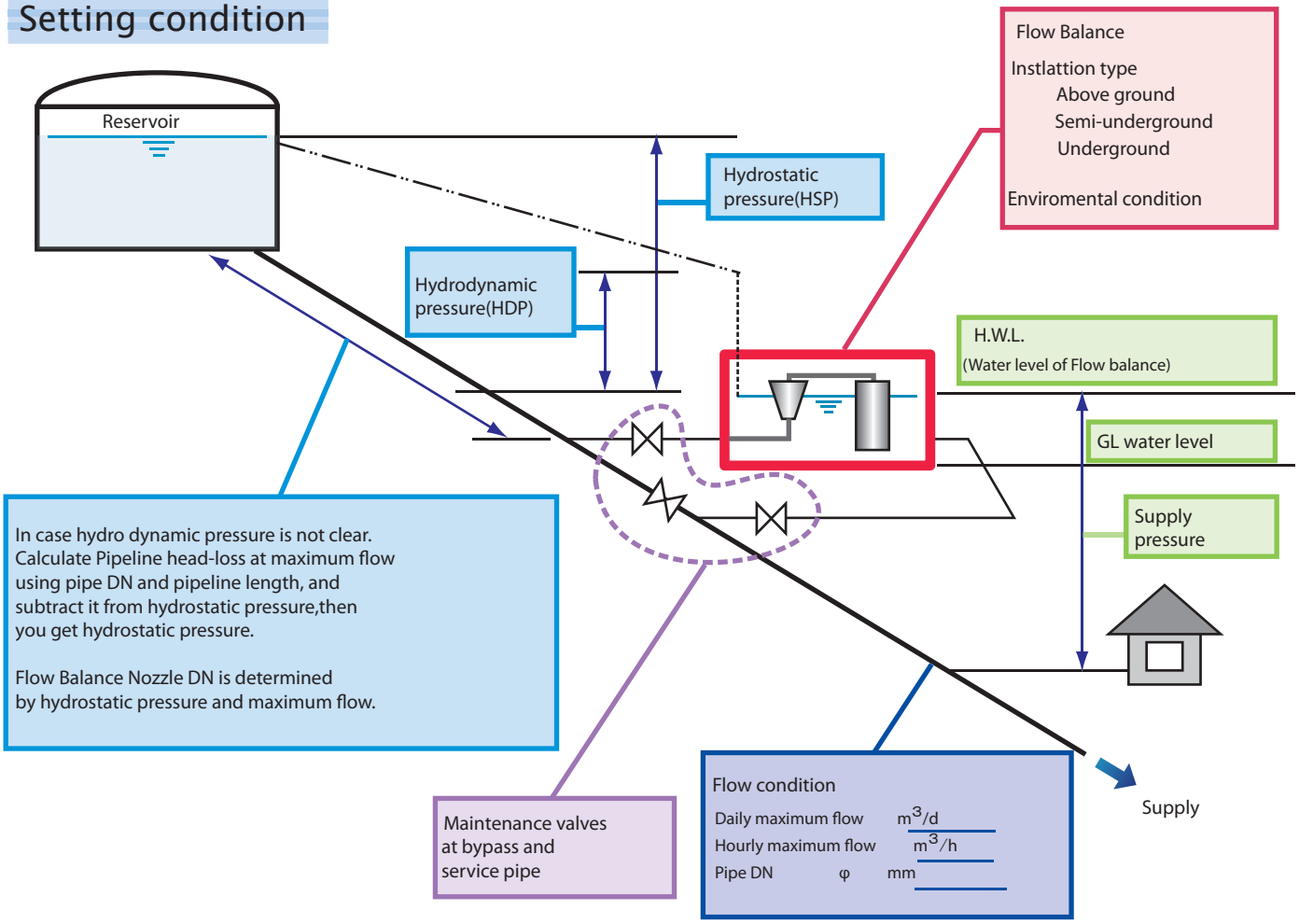
・Water hammer is reduced through slits on the metal seat.

・Rubber seat provids tight water shut while valve is closed by the float.

### Materials

① Valve Disc: SUS316
② Valve Body: SUS304
③ Silencer: SUS316
④ Float: SUS316+Epoxy coat
⑤ Float Guide: PVC

# Setting condition




| Section | Inflow Pressure to Flow Balance | Maximum Supply Flow | Water level of Flow Balance | Maintenance Valves |
|---|---|---|---|---|
| New const ruction | HSP MPa<br>HDP MPa | Daily max $m^3/d$<br>Hourly max $m^3/h$ | m | |
| Exsting const ruction | HSP MPa<br>HDP MPa | Daily max $m^3/d$<br>Hourly max $m^3/h$ | m | Under pressure installation |
| Remarks | What kind of pressure Flow Balance has from inflow?<br>1.Hydrostatic pressure at tight shut<br>2.Hydrodynamic pressure (residual pressure while inflow to tank) | How to calculate supply water quantity using planned supply popula tion.<br>use usual daily water comsumption of per people<br>as 0.3 to 0.5$m^3$ | HWL of Flow Balance shall be determined by How much pressure is needed in downstr eam<br>Set the value of usual supply pre ssure in installa tion area or inte nded pressure | In case dust and substances originated upstream pipes is accumlated to bottom of tank, the tank is ne eded to be cleaned.<br>Annually check of dust and operation is recommended.<br>Cleaning tank if needed. |

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