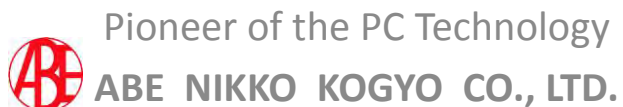
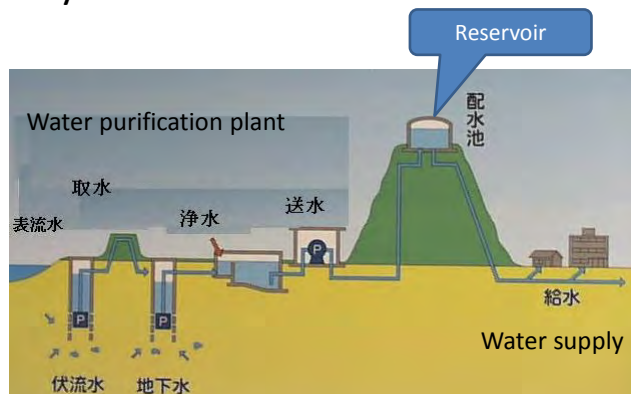


Pre-Stressed Concrete Tank



A distributing reservoir is a required matter of a water system.

- A distributing reservoir must be got ready in a water system.



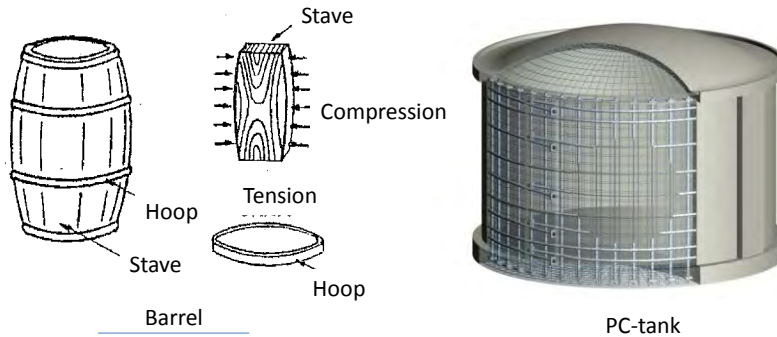
Pre-stressed Concrete Tank

- The PC tank is strong structure and resistant to an earthquake and a tsunami.
- The PC tank is superior durable and water-tightness by using a high-strength concrete and PC tendon. There is no limitation of the depth of the water. The required area for the construction may be narrowed.

Pre-stressed Concrete Tank

- Construction cost is cheap. The PC tank of 3000m³ or more will be cheaper than the RC tank. However, when the PC tanks which are smaller than 3000m³ are constructed on a highland and hillside, the amount of earthwork and site area will be reduced, as a result it is more economical. Therefore, the PC tank is now widely recognized in the Japanese tank market.

The principle of PC-tank



Stave → Concrete
Hoop → P S-tendon

5

CHARACTER of PC TANK TECHNOLOGY

Our Technology



① CONSTRUCTED THE FIRST PC WATER TANK IN JAPAN.

We designed and constructed the first PC water tank in Japan in 1957. More than 8,000 PC tanks have been built before now, and we engaged in more than 60% of them. [We have much technical know-how about design and construction.](#)

② AIR DOME METHOD

We developed and have diffused the breakthrough method of building the dome roofs, which is [ecological, safe and durable.](#)

6

CHARACTER of PC TANK TECHNOLOGY

Advantage of products and technology

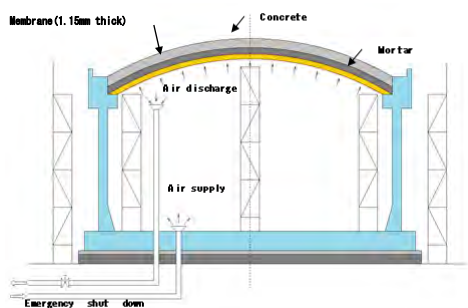
① The PC tank needs low materials and lightweight. It will not occur cracks and leakage. There is no limitation of the depth of the water, so the required area for the construction may be narrowed. PC tanks have been in widespread use because of the economic efficiency.

② Air-Dome Engineering is safety construction method and doesn't require formwork and support.

It is superior in term of durability of inside of the dome because the membrane remained in inside of the dome. There are 227 results in Japan.

7

Air-Dome Engineering



Rising the air pressure

A Formwork and support is unnecessary.
Not require the skilled workers and also
can sharply reduce labors.

8

Air Dome Engineering

Characteristics

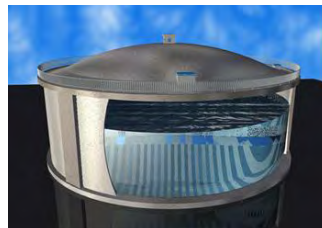
- The air dome Engineering is a labor-saving method for building the dome roofs of pre-stressed concrete tanks.
- Instead of the conventional formwork materials and shoring materials, it is used a membrane material which is fixed by air pressure and mortar shell that is placed on the membrane.

9

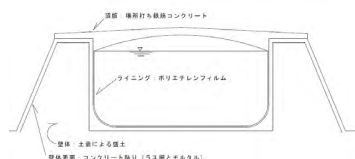
TECNOLOGY INTRODUCTION SUIT FOR AREA CHARACTERISTIC

▪ Suburban area

PC tank is low construction cost
long-term durability
easy maintenance

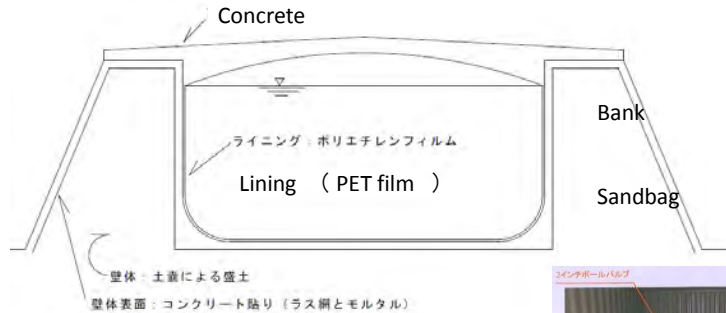


▪ Rural area (small tank)



10

An inexpensive small capacity tank.



Characteristic

Anyone can built it anywhere and low priced

- All of construction is human power.
- Be superior to the durability and is safe.
- Construction is simple.
- Restoration is simple, too.



Water Bag (sample)

11

ON-SITE APPLICABILITY

- Most materials are “local production and local consumption”, and construct by local labors.
Cement , aggregate and rebar are local materials. Limited materials, for example, PC steel is supplied from neighbor countries. Local labors construct forms , cast concrete and so on.
- Bring up PC engineers
From designing to constructing , engineers need much technical know-how.
So we'll coach and bring up local engineers , and engage in technology transfers.

12

お褒めいただき

ありがとうございました。



ESTABLISHED IN 1930

GROUP COMPANY

KANE KOGYO CO., LTD.
 OFFICE: SAPPORO, SENDAI, TOKYO, NAGOYA, OSAKA, HIROSHIMA, FUKUOKA, TAIPEI

SUNLIVING CO., LTD. FACILITY ENGINEERING.

QUINDAO KANE KOGYO MACHINERY CO., LTD.

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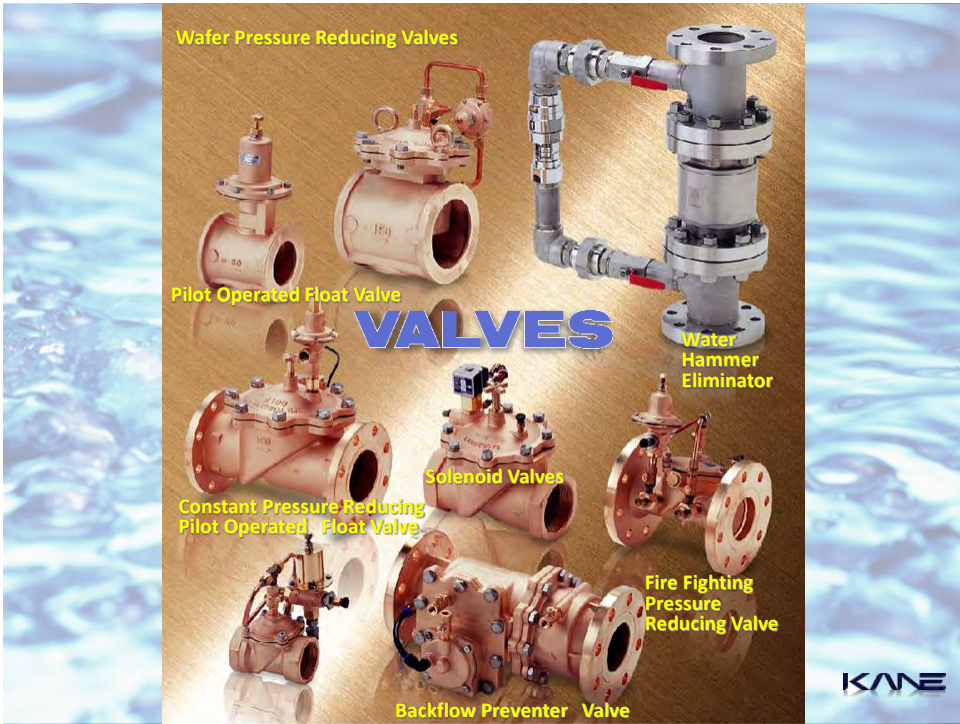
KANE INTERNATIONAL TECHNOLOGY CO., LTD. TAIPEI. SINGAPORE.



QUINDAO KANE CO., LTD.



KANE KOGYO CO., LTD.



KANE

ULTIMATE VALVE UNIT AS A SOLUTIONAL DEVICE FOR WATER DISTRIBUTION



**THE ULTIMATE VALVE UNIT
ACHIEVE TO
STABILIZE SERVICE PIPE PRESSURE
DECREASE OF THE WATER LEAKAGE
SAVE ENERGY OF THE DISTRIBUTION PUMP**



ULTIMATE VALVE UNIT

KANE

Contents

- Background of the **ULTIMATE VALVE UNIT**
- **Problem of water distribution at Capital city**
- What is the sustaining valve?
- **Development of the ULTIMATE VALVE UNIT**
- Stability of the water distribution pressure
- **Decrease of the water leakage rate**
- Power saving of the distribution pump
- What is **ULTIMATE VALVE UNIT**?

Appendix:

Leakage prevention and running energy

Table of items of water supply

Water supply invalidity rate table of each cities

Management material of Nagoya City
waterworks bureau

KANE

Background of the **ULTIMATE VALVE UNIT**

Many of the water-distribution corporations all over the world are setting the planning and the executing for the project with huge budget of reinforcing the ability of the water distribution pump (pressure shortage, etc. that occurred during the water distribution peak such as the morning and evening that is increasing every year) and the decreasing as the water leakage rate by the renewal of water distribution pipes.

KANE

Problem of the sustaining valve at a Capital city-1(KANE'S old history)

A serious water distribution peak problem occurred for about 25 years ago at a capital city as a result of attracting a lot of factories of the big enterprise to the vicinity of the residential area. At that time, the waterworks bureau of the capital city didn't have enough budget for increasing the water distribution pipes nor upgrading the ability of the distribution pumps.

KANE

Problem of the sustaining valve at a Capital city-2(KANE'S old history)

On the other hand, due to the shortage of the budget, that waterworks asked KANE to develop a new valve system for stabilizing the water distribution and intending to install into all the water distribution networks. However, the waterworks finally decided to install new valve system into only over 50mm pipe size. Therefore, the waterworks could not get any applicable result from that project.

KANE

What is sustaining valve?

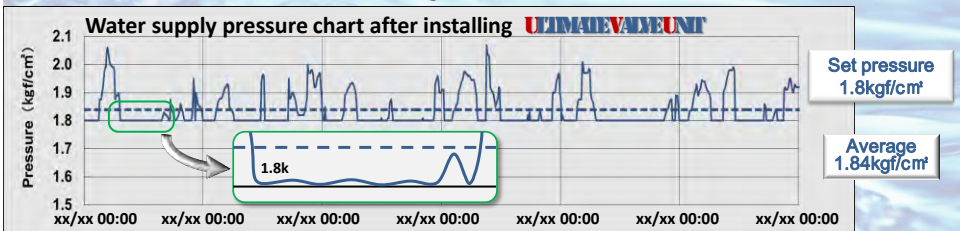
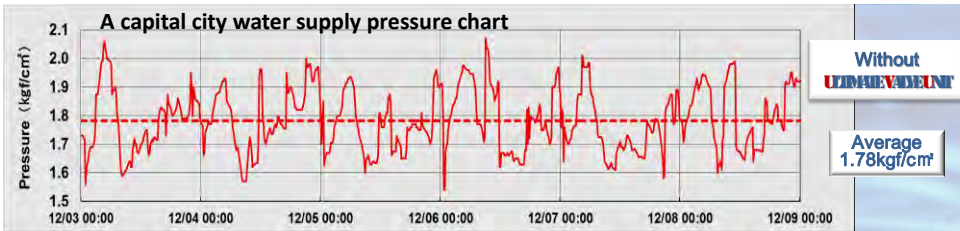
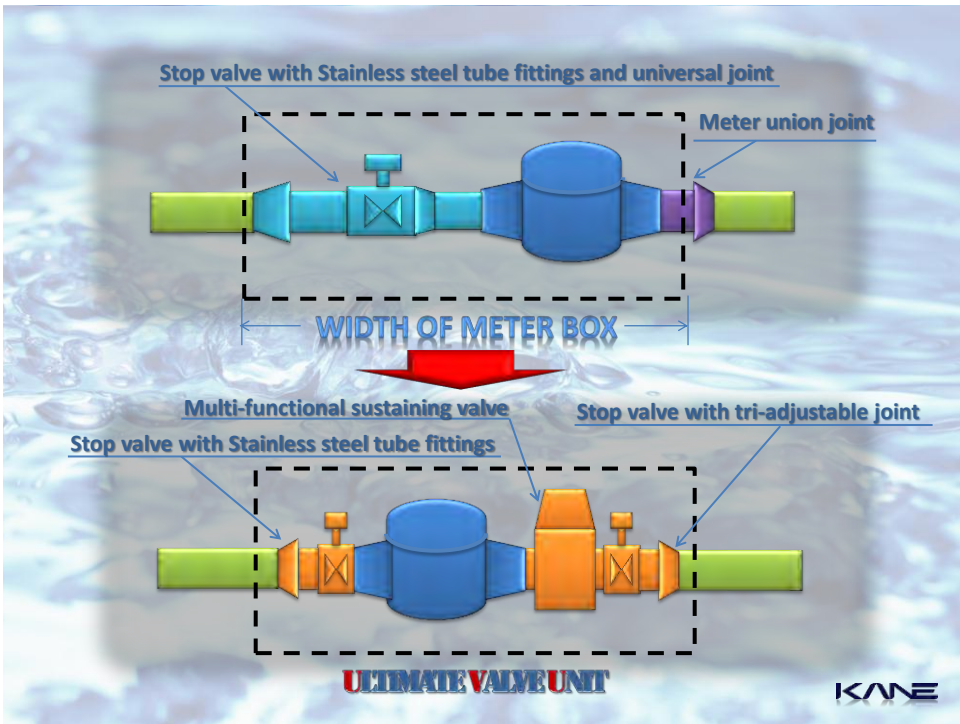
In general, it is a kind of primary pressure control valve that is called a pressure sustaining valve and a back pressure regulating valve. It is simply called a sustaining valve. The function is to be able to keep the primary side **Water Distribution** pressure by control the amount of the **W.D.** to the secondary side smaller when the primary side **W.D.** pressure decreases less than the intended pressure.

KANE

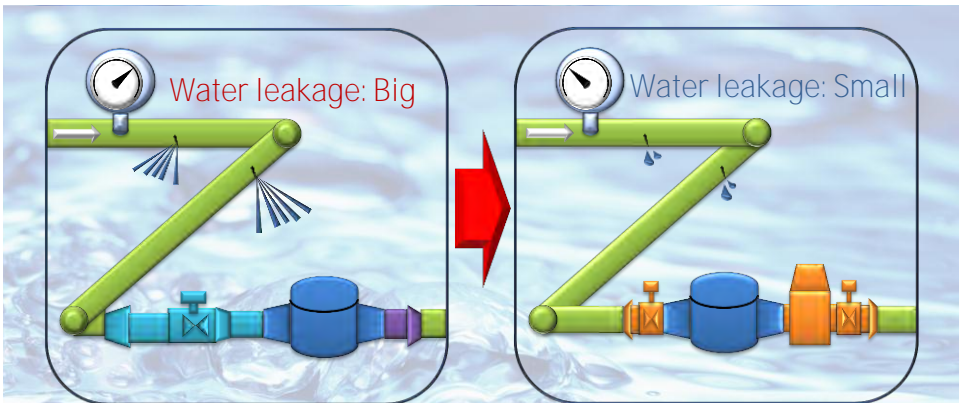
Development of the **ULTIMATE VALVE UNIT**

A capital city waterworks bureau and KANE succeeded in developing "**ULTIMATE VALVE UNIT**" that added the stop valve with two kinds of coupling for the water meter, to the super-compact, and multi functional type of valve with the sustaining, a prevention of backflow, An automatic air-vent, and the sewage suction prevention, as a result of advancing the development of a new valve with four functions to stabilize the water distribution pressure.

KANE



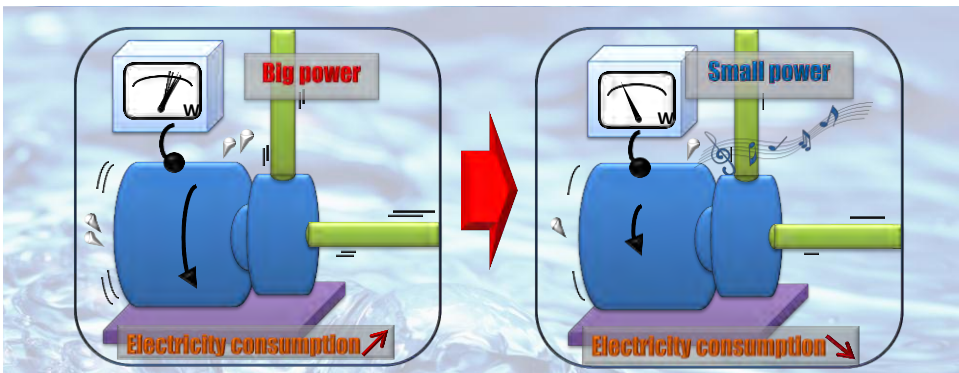
Stability of the water supply pressure: The water service can be used without problem. The Water Distribution pressure in the W.D block can be stabilized by installing ULTIMATEVALVE UNIT on all the secondary side of meters in the W.D block if there is a problem in the W.D pressure maintenance.



Decrease of the water leakage rate:

After installing **ULTIMATE VALVE UNIT** on all the downstream of water meter, the **W.D.** pressure in the **W.D** block can be stabilized and kept higher than before. Then the set pressure of the distribution pump can be lowered to the extent of the **W.D.** pressure rises and can decrease the water leakage rate lower.

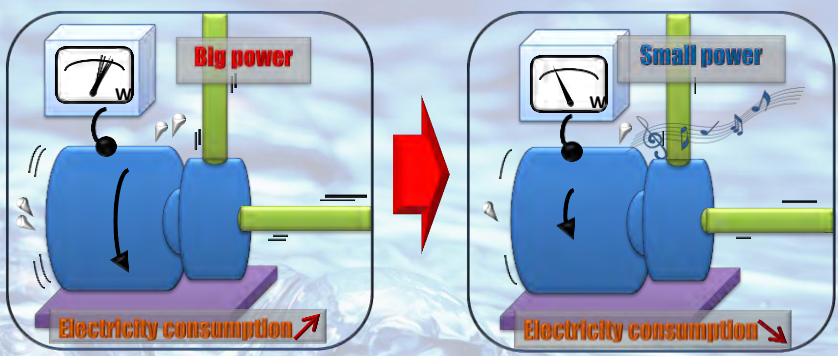
KANE



The power saving of the service pump:

The set pressure of the distribution pump can be lowered by using **ULTIMATE VALVE UNIT**. After installing on all the downstream of water meter, the pressure in the service pipe block can be stabilizing and keeping higher than before. Then the set pressure of the distribution pump can be lowered to the extent of the pressure rises and can decrease the water leakage rate lower.

KANE



Moreover, the effective use of water distribution can increase the substantial amount of the water and can reduce the leakage by lowering the set pressure of the distribution pump. Finally, effective use of the water resource can decrease power cost of the distribution pump.

KANE

Function of **ULTIMATE VALVE UNIT**

1) New multifunctional type of sustaining valve (4 in 1)

- Sustaining function.(Stabilize the water supply)
- Backflow prevention function.(Prevent backflow contamination)
- Automatic air-vent (rust prevention, air hammer prevention of water pipe)
- Preventing rain water sucking while the meter box is sinking

2) Stop valve with one touch coupling (primary side) for stainless pipe.

3) Stop valve with one touch coupling of multi adaptable fitting. (the secondary side).

This is a complete set product where the above- mentioned specification was included.

KANE

APPENDIXBy Japan International Corporation
of Welfare Services**LEAKAGE PREVENTION AND
RUNNING ENERGY****1 , Water leak prevention measures of Japan**

The managed volume of water can be decreased by preventing the water leak. Moreover, the Riverhead development through the dam construction, etc., the filtration plant, the distribution reservoir, the water distribution pump plant, and the cost of construction and the administrative and maintenance expense such as raw water transmission pipes and distribution pipes can be reduced. Moreover, the running energy of the raw water transmission, the water distribution, the distribution pump, the medicine processing, and waste-water treatment can be saved. In Japan, the targeted value of an effective rate is set to about 95% as an administrative measure throughout the country, and it tries to strengthen the water leak prevention measures of water service.

KANE**APPENDIX**

By Japan International Corporation of Welfare Services

In the amount of a total water supply in Japan of fiscal year 1996 was 17.06 billion m³ and an effective rate was 90.9%. The total power consumption of the pump of waterworks and the water service was about 7.89 billion kilowatt-hour.

An effective rate is raised by 4%, and the amount of a total water supply can be suppressed to 16.32 billionm³, and 740 millionm³ becomes possible to decrease if it can be assumed 95% it. If the effective rate 90.9% can be raised to 95%, the amount of a total water distribution can be suppressed to 16.32 billionm³. It means 740 millionm³ becomes possible to decrease. Therefore, power consumption can save 330 million kilowatt-hour. In addition, the quantity consumes such as the chlorine medicine, flocculants, and neutralizers are decreased. Moreover, the amount of waste-water treatment is decreased.

KANE

APPENDIX

By Japan International Corporation of Welfare Services

1. Running energy can be saved when water distribution pressure is well managed and water leakage rate is decreased
2. In general, the relational expression of hydraulic pressure and the amount of the water leak is considered as the amount of the water leak from the water leak hole such as a kind of orifice, and is shown by the following expression.

$$Q=C \times A \times P^{0.5}$$

Q: amount of water leak

C: Coefficient by shape of water leak hole

A: Sectional area of water leak hole

P: Piping Pressure

^: Involution

The amount of the water leak is proportional to the 1/2th power of hydraulic pressure. The amount of the water leak increases if hydraulic pressure rises. Therefore, detailed management of hydraulic pressure is important.

KANE**APPENDIX**

By Japan International Corporation of Welfare Services

As an example, 7.4% of the amount of the water leak can be decreased by lowering the hydraulic pressure of average from 3.5kgf/cm² to 3.0kgf/cm².

$$(1-\sqrt{3.0/3.5})=1-0.926=0.074$$

The amount of the water leak becomes 18.25 millionm³ during year when assuming that the water leak rate is 10% in amount 500,000m³ of the average water supply during a day. Decreasing the average hydraulic pressure of 0.5kgf/cm² can lower 1.35 millionm³ of the amount of the water leak to during year. The power consumption of the pump, the amount of the medicine use of the clean water processing, and the running energy of waste water treatment can also save about 0.7%.

Reference literature

- 1) By Japan Water Works Association: Statistics of Water
- 2) By Tokyo waterworks bureau management Planning Division

KANE

