



# Flowtech

FLOWTECH CO., LTD.



## About FLOWTECH

Since established in July 2005, we, Flowtech Co., Ltd have been engaging in Surge protection system, surge analysis, pipe flow analysis and design, manufacture of the relevant goods, and commissioning, operation, and maintenance in the area of water hammer occurring in pipe lines related to sewage, water supply to households, farms, and industrial facilities, and industrial plant piping network. Also, We have made continued effort for R & D investments (8.5% of the revenue of 2016) every year and value creation for our customers, with the ultimate goal of making all the projects of our customers more cost-efficient and higher stable.

As a result, our technology and products have been recognized as by far the best in the world in various aspects, and as ranked as No. 1 in supply performance in Korea. Now, we are preparing for the new ear of our business in global market and entering into overseas markets to complete with global players.

## History

### 2005

Established FLOWTECH CO., LTD.- Surge Protection System equipment, integrated pump system and automatic fluid filtering system  
Developed Water Hammer Protection controller (HAMMER-trol) and testing analysis equipment.

### 2006

Supplied integrated pump system (I&I WMS) to Hyundai Seongwoo Resort for the first time in Korea  
Obtained ISO 9001 & ISO 14001 (CRK-Q0-420, CRK-E0-066)

### 2007

Aquired Certificate of Venture Business (No.20070200808)

### 2008

Gained INNO-BiZ Certificate (No.8071-2171)  
Supplied the world-largest scaled Pressure Maintenance equipment  
(to Combined Heat & Power plant In Paju and Goyang, Korea / 90m<sup>2</sup>X2EA, 2 Packages)

### 2009

Gained Venture Ethical Management Mertificate (No.08-05),  
Registered Company R&D center (No.2009110132)  
Selected as Promising SME by Incheon City (No. 250)

### 2010

Registered a utility model(1)- energy saving Water supply line pressure pump system (No.20-0446721)  
Selected as Quality Product Maker by incheon City (Water Hammer Prevention System, Pressure Maintaining System / Nov. 2011- Jan. 2014)  
Selected as VISION 2011 Company by Incheon City

### 2012

Performance Certified by Small Business Administration(No. 21-233)  
Green Technology Certified by the Ministry of Land and Maritime Affairs(No. gT-12-00090)  
Designated as a supplier of Excellent Water Hammer Prevention Controllers(No. 2012097)

### 2013

Selected as Export-promising Small & Medium Business(No. 13 Incheon-68)

### 2014

Submitted to Korean intellectual Property Office (KIPO) with three patent applications for valve control technologies related to water hammer reduction  
Established a branch in Dubai  
Aquired CE Certification (Pressure Vessel, Air Chamber)

### 2015

Acquired KC Certificate(KCW-2015-0027)  
Supplied with the direct order of the surge vessel (100m<sup>3</sup>x 18units, 60m<sup>3</sup>x1unit) from Eagle Electromechanical(Contractor) for DEWA project & Award Al riyadh Authority Project, executed Surge Analysis project in AKOYA

### 2016

ASMe U & S Certificate of Authorization  
Certified as ISO 9001 & ISO 14001(CPK-Q3-109, CRK-E3-026)  
Received Top Award Intellectual Property Entrepreneur (No.807)  
SME with Outstanding Employee Development Programs (No. 2016-0219)  
Incheon Export Award (No. 4408)

### 2017

Official Commendation of Incheon Metropolitan City Gangwon Province (Contribution to regional economy activation) (No.589)  
Selected as the Global IP Star Enterprise / Selected as Hidden Champions Company  
Acquired Certificate for the Job Invention Compensation Best Enterprise  
Certified as Technical Evaluation Excellent Company / the Best Company of Job Creation

### 2018

Acquired NET(New Excellent Technology) Certificate (No.1133)  
Selected as a Recommended Product for Purchase as Outstanding New Invention (No.2018-215)  
Aquired Certificate in Performance(Gyeongnam-20180234-1-01)  
Aquired Certificate of Designation of Excellent Product(2018123)

# Surge(water hammer)Protection System



## ■ Hydraulic Transient Analysis · Safety Diagnosis

Piping systems should be carefully examined and prevented from damaging the expected piping system due to various Water Hammer such as the sudden trip of pumps, the sudden closure and opening of valve, air valve, and the check valve slam, and the air pocket, etc. Therefore, it is necessary to review proper surge protection device reflecting characteristics of pump station and piping system, steady flow and operating conditions, and to take comprehensive countermeasures to prevent Water Hammer, Conformity must also be reviewed.

**Supply Performance** Water distribution network for USFK Peongtaek Base, Goheong-Gwangyang Metropolitan Network Safety Analysis and 50 more piping system



## ■ Water Hammer Prevention Valve

When the pump stops abruptly in the event of power failure, water in piping system continues to flow with the inertia force, lowering pump outlet pressure (negative pressure) and then causing up surge if blocked by Check Valve, flowing backwards. In this case, the system opens the valve in advance to control Up Surge.

**Supply Performance** Incheon Int'l Airport and USFK Kimhae Air Base and more.



## ■ Surge Protection System with Bladder BAL-trol®

Saving pressurized air almost permanently with a built-in bladder in Pressure Tank, the system does not require a separate compressor and effectively controls not only up and down surge but also surge in combination with UD-con that supplies interactive differential friction factor.

**Supply Performance** 16 units of Qatar Q-chem II, Olefins series (C4~30) production line to Middle East Supplied petro-chemical plant NBR-based equipment for the first time in Korea and more



## ■ HAMMER-trol® Surge Protection System

This is the only Surge Protection Prevention System which can control both up and down surge of pipes and is highly reliable to operate as its major functions are performed by expansion and shrinkage of compressed air filled in Air Chamber. Connected to the pump outlet, the system prevents pressure from falling by feeding water into the pipes if pressure of pipes is decreasing. Compared to passive pulse prevention valve, etc, this system is in an active and proactive design to control both up and down surge by air shrinkage when pressure of pipes rises.

### Acquisition of all certification first time in korea

- Official agency test results certification
- Quality certification for excellent product
- Performance certification / SMBA
- Green technology certification
- Excellent procurement product registration
- Holds the highest number of patents in the world

## ■ Supply Performance



Project : Qatar Mega Project E  
Client : KAHRAMAA  
Location : Qatar  
Spec' : 183m<sup>3</sup> x 20bar x 10units,  
172m<sup>3</sup> x 20bar x 10units, 77m<sup>3</sup> x  
20bar x 3units, Sum 3,781m<sup>3</sup>



Project : Quriyat Tie  
Client : PAEW  
Location : Oman  
Spec' : 95m<sup>3</sup> x 63bar x 2units



Project : Al Hair water line-Water hammer equipment's  
Client : AL Riyadh Development Authority  
Location : Kingdom of SAUDI  
Spec' : Surge Protection Package System  
Surge Analysis, 18m<sup>3</sup> x PN10 x 1unit,  
Ejector(F)400A x 1ea, Ejector(R)100A x 3ea, Check valve400A x 3ea,  
Commissioning(Pump Trip Test)



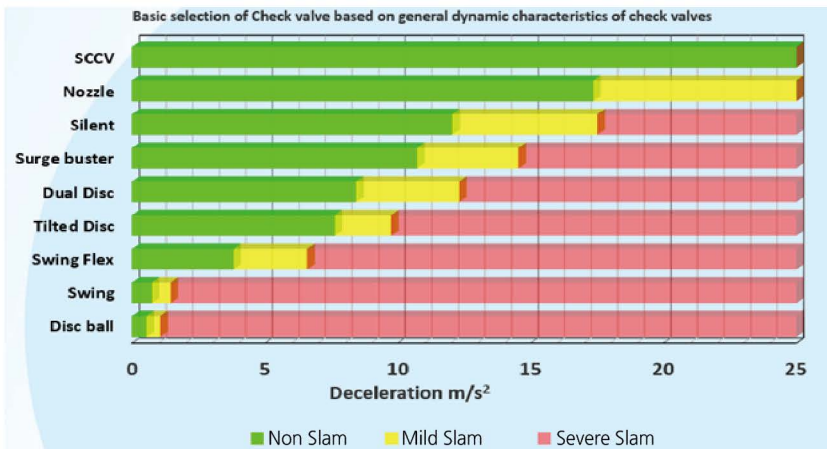
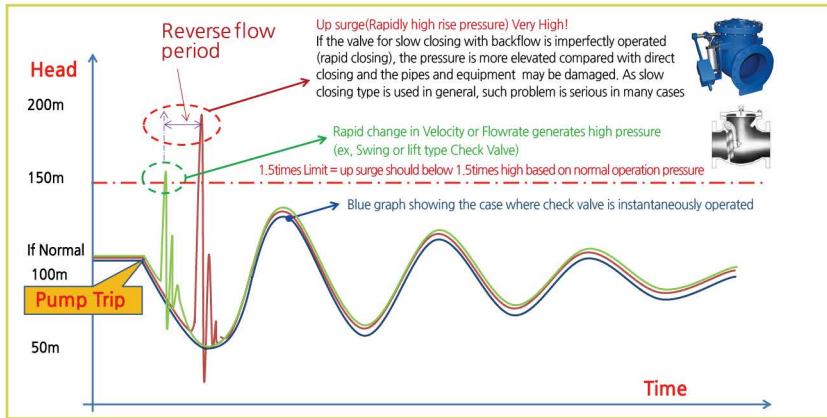
Project : Construction of Surge Protection Device for the Transmission Pipeline Network in Dubai  
Client : Dubai Electricity Water Authority(DEWA)  
Location : EMIRATES OF DUBAI  
Surge vessel 18units: 100m<sup>3</sup> x 14bar, 100m<sup>3</sup> x 10bar, 100m<sup>3</sup> x 13bar, 100m<sup>3</sup> x 7bar  
Bladder type surge vessel 1unit: 60m<sup>3</sup> x 8bar

# SCCV(Non-Slam Check Valve)

Check valves are the Key Element to pump and its headers and instruments safety; unfortunately it is the most neglected item in any surge analysis study due to lack of knowledge, in few cases the high sound of slamming becomes an alarm to pump station operators to check what is going on, some developers and suppliers are trying to make the slamming sound silent which plug ears to the hazard without solving it!

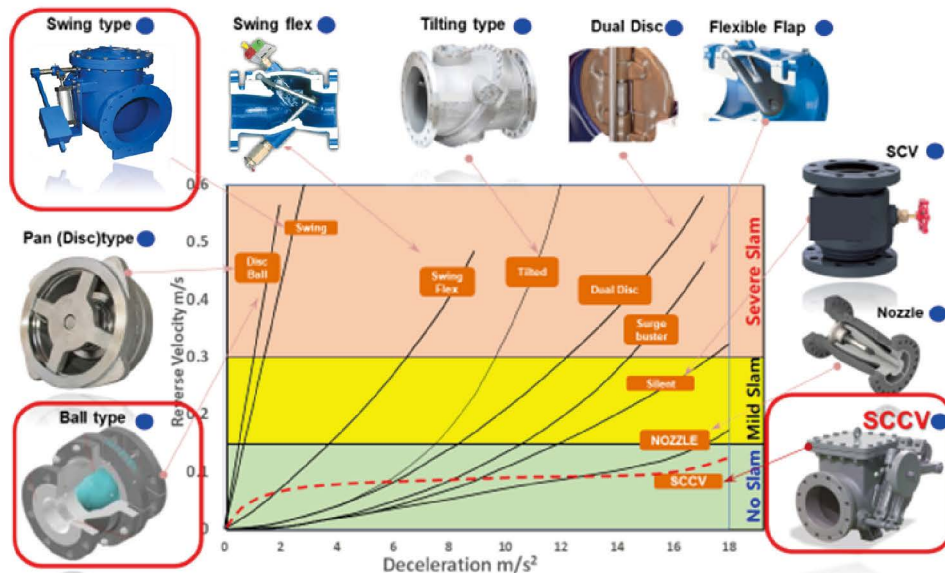


Therefore the (NON-SLAMMING check-valve) the next generation, such as the SCCV(Surge Control Check Valve) is developed based on an innovative concept, the SCCV mainly reduces the reverse flow velocity and deceleration without sudden stoppage of flow till the velocity becomes very low, resulting no slamming. on the other hand, the mass oscillation is being damped by the small Disc automatic controlled closure!



Suitability:  
Water supply, Irrigation, Firefighting, sea water, power plants and sewage stations

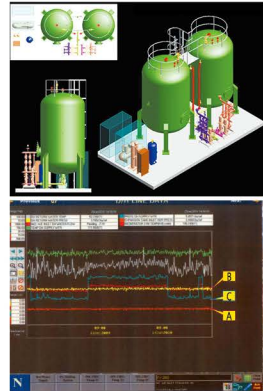
## FT-11b Check Valve for Clean Water & Sewage



# Power Plant · District Heating/Cooling

## ■ Pressure Maintaining System

This expansion control and Pressure Maintaining System to prevent flushing & Water Hammer of water in the 1st thermal piping system of combine heat and power generation or community cooling and heating (CES integrated energy) prevents corrosion of pipes by feeding 99.9% N<sub>2</sub> gas emitted from the N<sub>2</sub> generator in a system in the tank contacting expansion water. The system protects pipes by lowering high pressure and preventing evaporation at lower pressures in the event of sharp changes in flow of circulation piping system, sudden stop of pumps, trip caused by power failure and sudden valve closure and opening, and optimizes the system by securing reference pressure of piping system even for variable flow operation to save energy.



## Supply Performance



**Incheon Combined Unit 3 construction projects**  
 Project Owner : Korea Midland Power Co.,Ltd.  
 Heating Corporation : Kumho E&C  
 Pressure Maintaining System : 100m<sup>3</sup> x 3 units



**Southeast District Distribution Complex CES Construction Project**  
 Project Owner : SH Corporation  
 Contractor : Lotte E&C  
 Pressure Maintaining System: 20m<sup>3</sup> x 2 units



**Osan Combined Heat & Power Plant Expansion Project**  
 Project Owner : Daesung E&C Cogen Business Unit  
 Contractor : Daesung E&C  
 Pressure Maintaining System: 65m<sup>3</sup>x2 units(2nd)



**Seongnam Resource Recovery Facility Reconstruction Project**  
 Project Owner : Korea District Heating Corporation  
 Contractor : Kenertec  
 Pressure Maintaining System: 1.5m<sup>3</sup> x 2 units



**Goyang Samsung Combined Heat & Power Plant Construction Project**  
 Project Owner : Korea District Heating Corporation  
 Contractor : Hyundai Engineering & Construction



**Pressure Maintaining System: Paju Combined Heat & Power Plant Construction Project**  
 Project Owner : Korea District Heating Corporation  
 Contractor : Daewoo Engineering & Construction  
 Pressure Maintaining System: 90m<sup>3</sup> x 2 units



**Incheon Hwangchon Heat Exchange Facility**  
 Project Owner : Korea Land & Housing Corporation  
 Contractor : KEANGNAM ENETRPRISES LTD  
 Pressure Maintaining System: 12m<sup>3</sup> x 2 units

## ■ Thermal Accumulator(Storage tank)

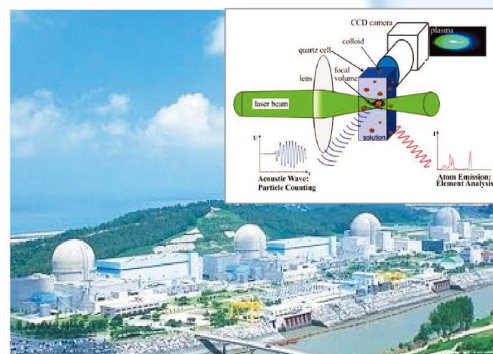
In a cogeneration plant, a Thermal Accumulator stores excessive heat during low heat load time and supplies the stored heat during high heat load time for flexible and efficient operation of heat production facilities. Also, the storage tank features quick initial stratification, minimized zone for minimized heat loss and extension of heat storage tank capacity. Besides, it has surge prevention function, reducing pipe destruction and extending the life and N<sub>2</sub> Gas Sealing in the upper space prevents corrosion.



## ■ On-line Corrosion Product Monitoring System

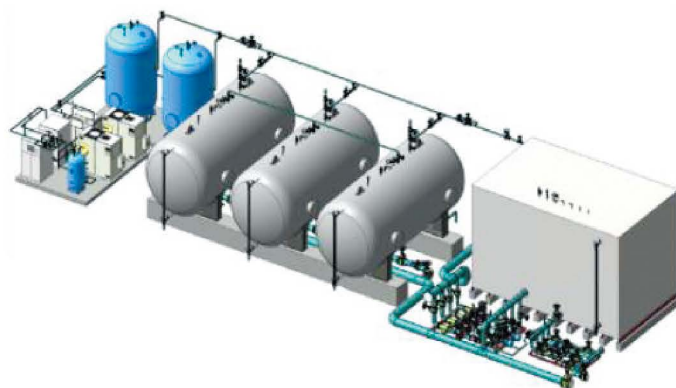
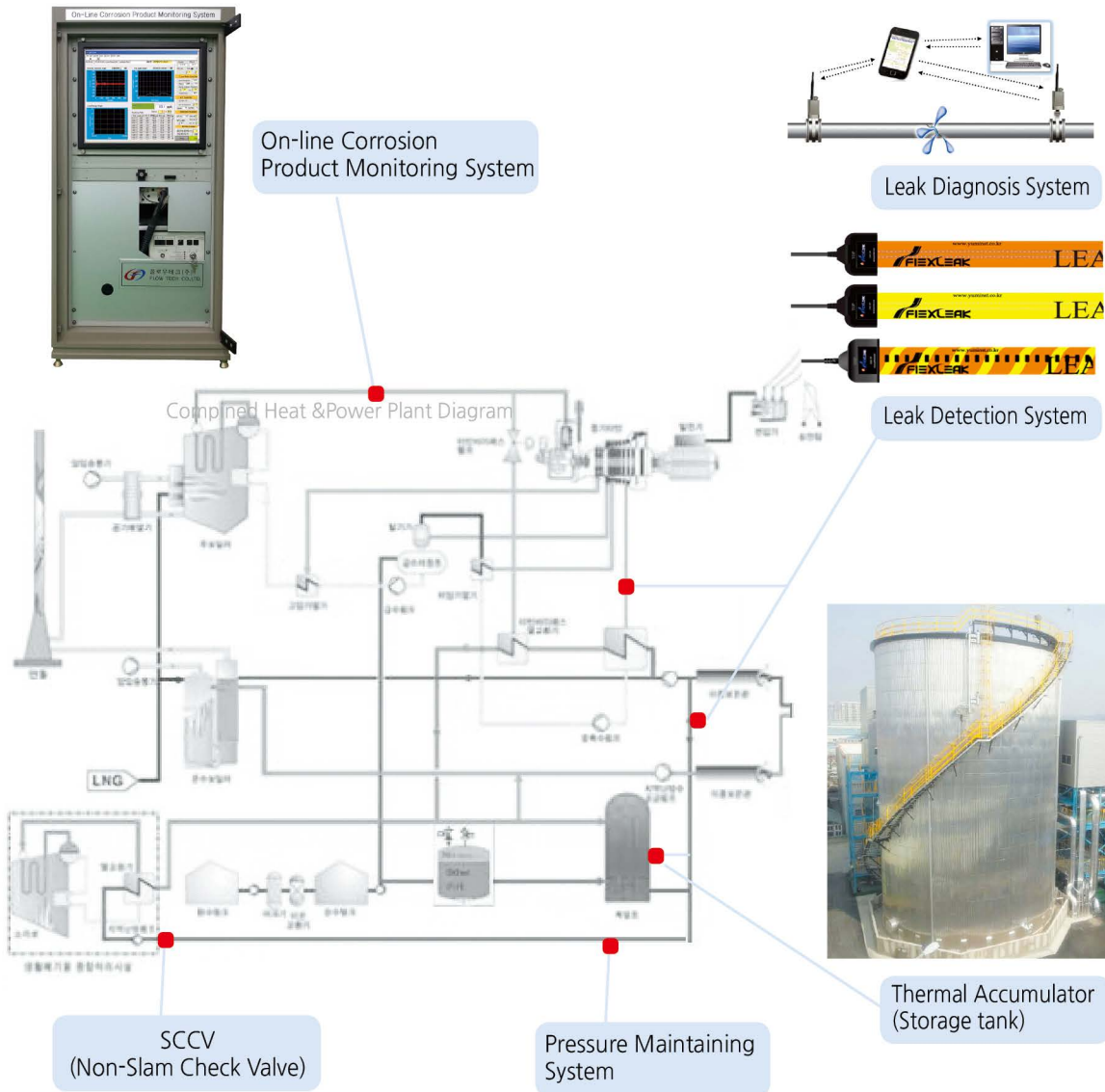
If the power Plant using a "On-line Corrosion Product Monitoring System", the infinitesimal(ppb) concentration of iron oxide that occurs from the corrosion of power station water plumbing can be measured in real time, optimizing the water quality program for the prevention of power station steam generator container corrosion with reliability, carrying out the work with high efficiency, and there is no need for pre-treatment process of sample and injecting color developing reagent as in the previous method.

\* Registered for domestic and international patent, first commercialized new technology, possess power station delivery record

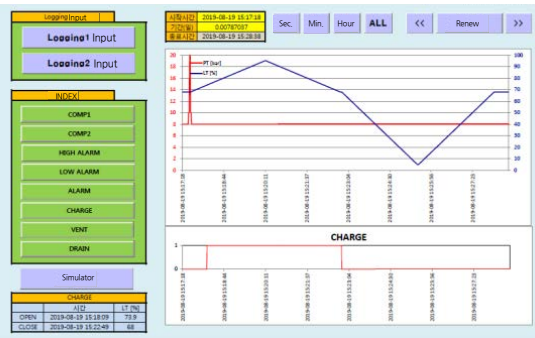
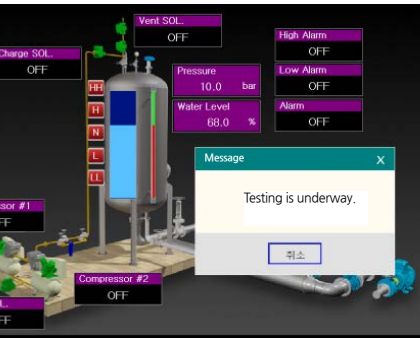


Surge(water hammer) Analysis  
 Surge(water hammer) Protection System  
 Pressure Maintaining System  
 Thermal Accumulator(Storage tank)  
 On-line Corrosion Product Monitoring System  
 Leak Detection System

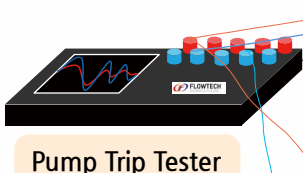
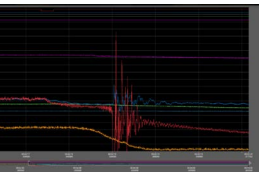
Flowtech's items in Power plant & District Heating/Cooling



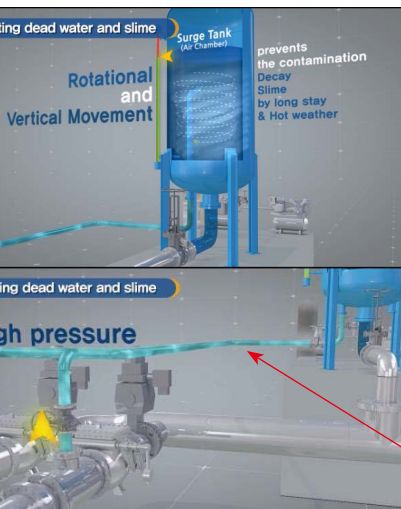
# World Best Technology and Patents



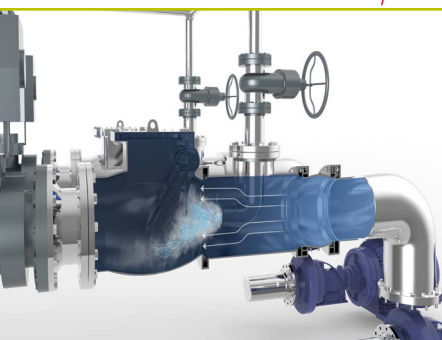
Simulator



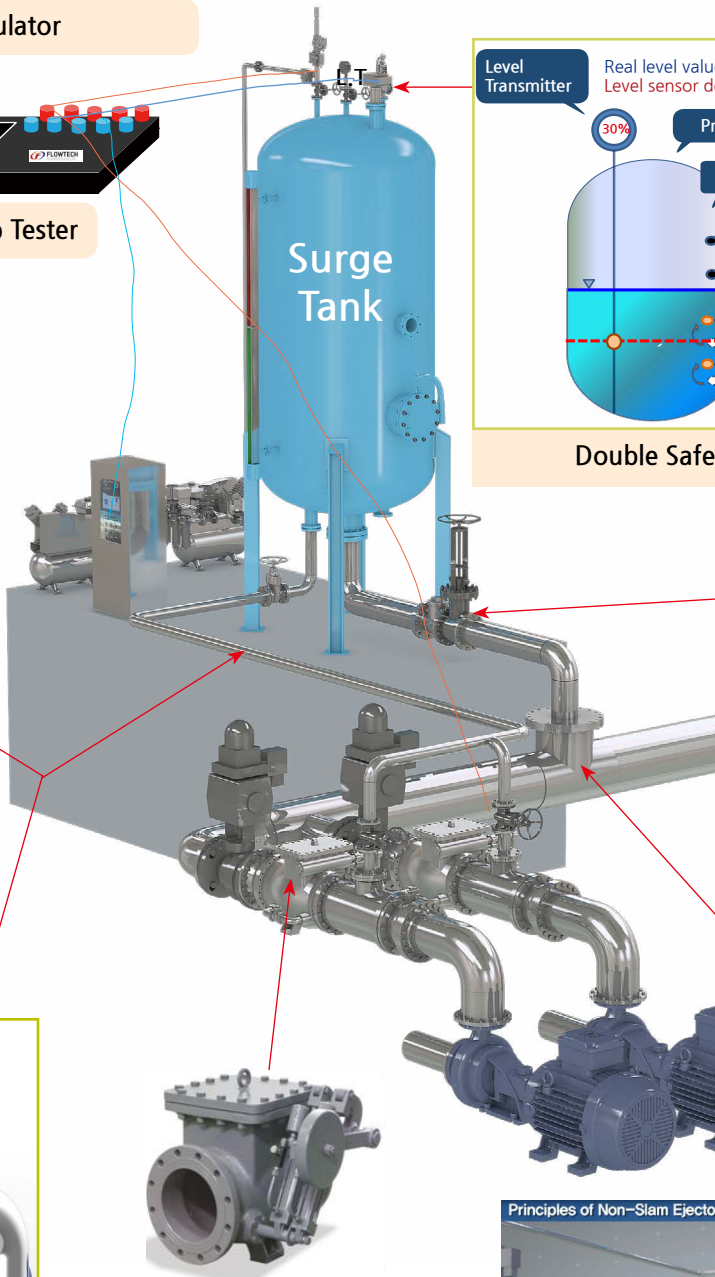
Pump Trip Tester



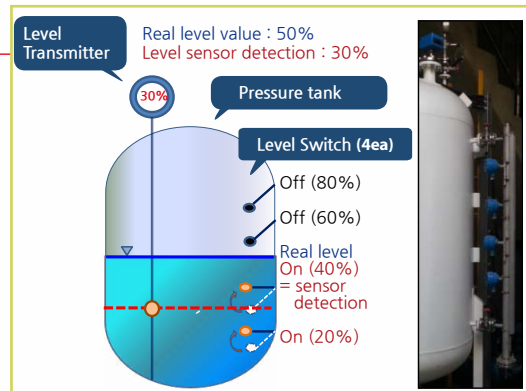
Dead Water Preventer



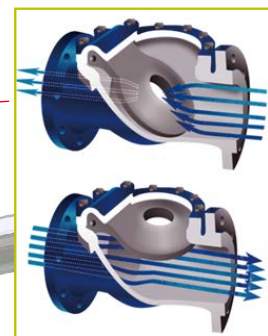
Non-Slam Ejector 'R'



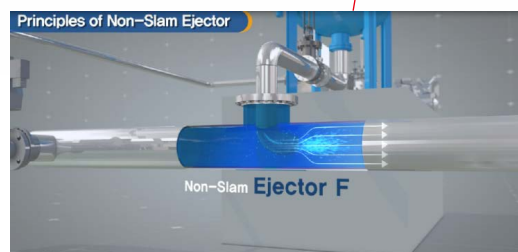
Non-Slam Check Valve



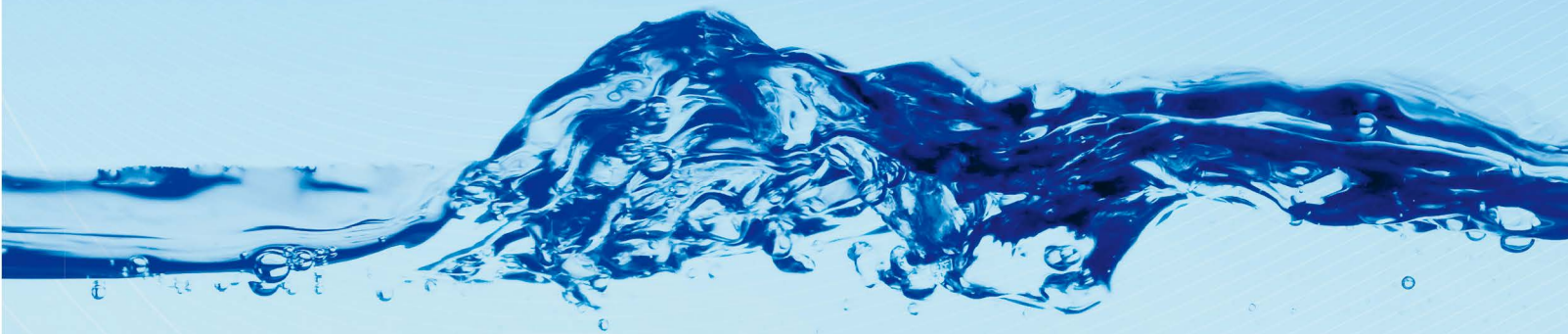
Double Safety Level Control



UD-Con (Up-Down Surge Control Valve)



Non-Slam Ejector 'F'



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