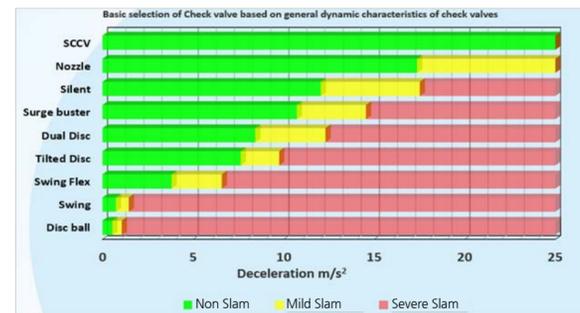
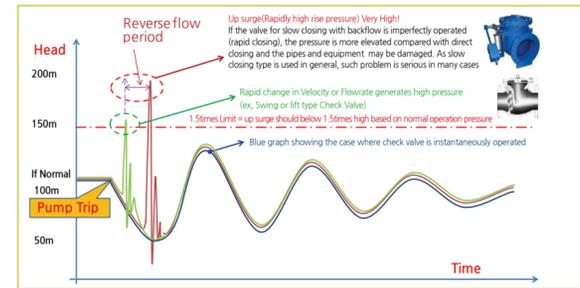


SCCV(Non-Slam Check Valve)

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!

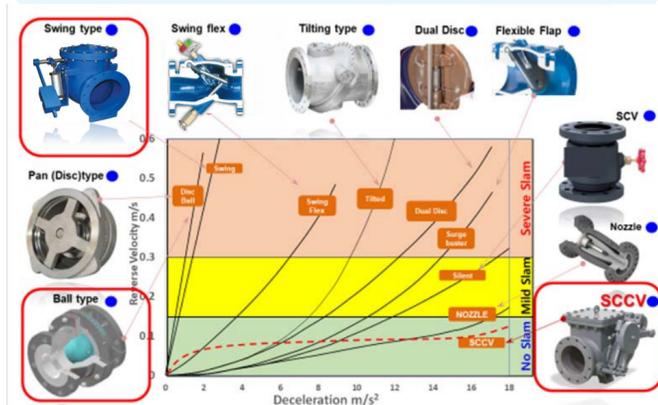


Therefore the (NON-SLAMMING check-valve) the next generation, such as the SCCV(Surge Control Check Valve) is developed based on an innovative concept, the SCCV mainly reduces the reverse flow velocity and deceleration without sudden stoppage of flow till the velocity becomes very low, resulting no slamming.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

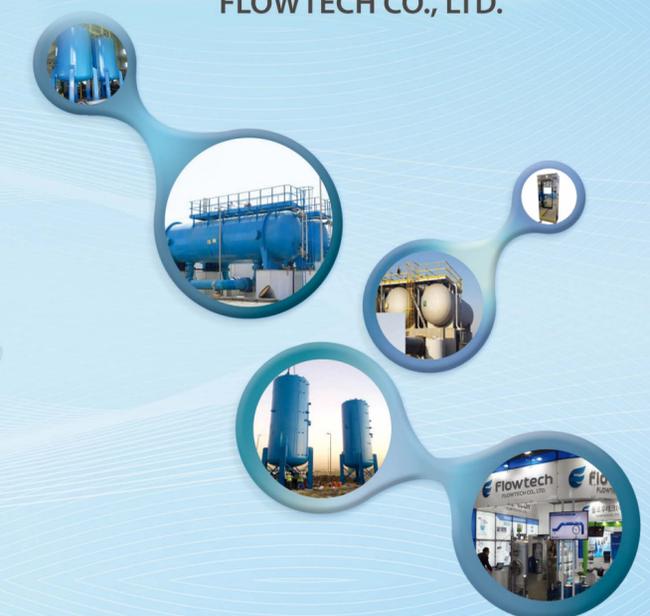


Suitability:
Water supply, Irrigation, Firefighting, sea water, power plants and sewage stations

FT-11b Check Valve for Clean Water & Sewage



www.flowtech21.co.kr Water hammer, technology meets safety.



Flowtech
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NO.201910

- 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

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 compete 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**
Acquired 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 / 90m²X2EA, 2 Packages)
- 2009**
Gained Venture Ethical Management Certificate (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
Acquired CE Certification (Pressure Vessel, Air Chamber)
- 2015**
Acquired KC Certificate(KCW-2015-0027)
Supplied with the direct order of the surge vessel (100m³x 18units, 60m³x1unit) 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)
Acquired Certificate in Performance(Gyeongnam-20180234-1-01)
Acquired 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 : 183m³ x 20bar x 10units, 172m³ x 20bar x 10units, 77m³ x 20bar x 3units, Sum 3,781m³



Project : Quriyat Tie
Client : PAEW
Location : Oman
Spec : 95m³ x 63bar x 2units

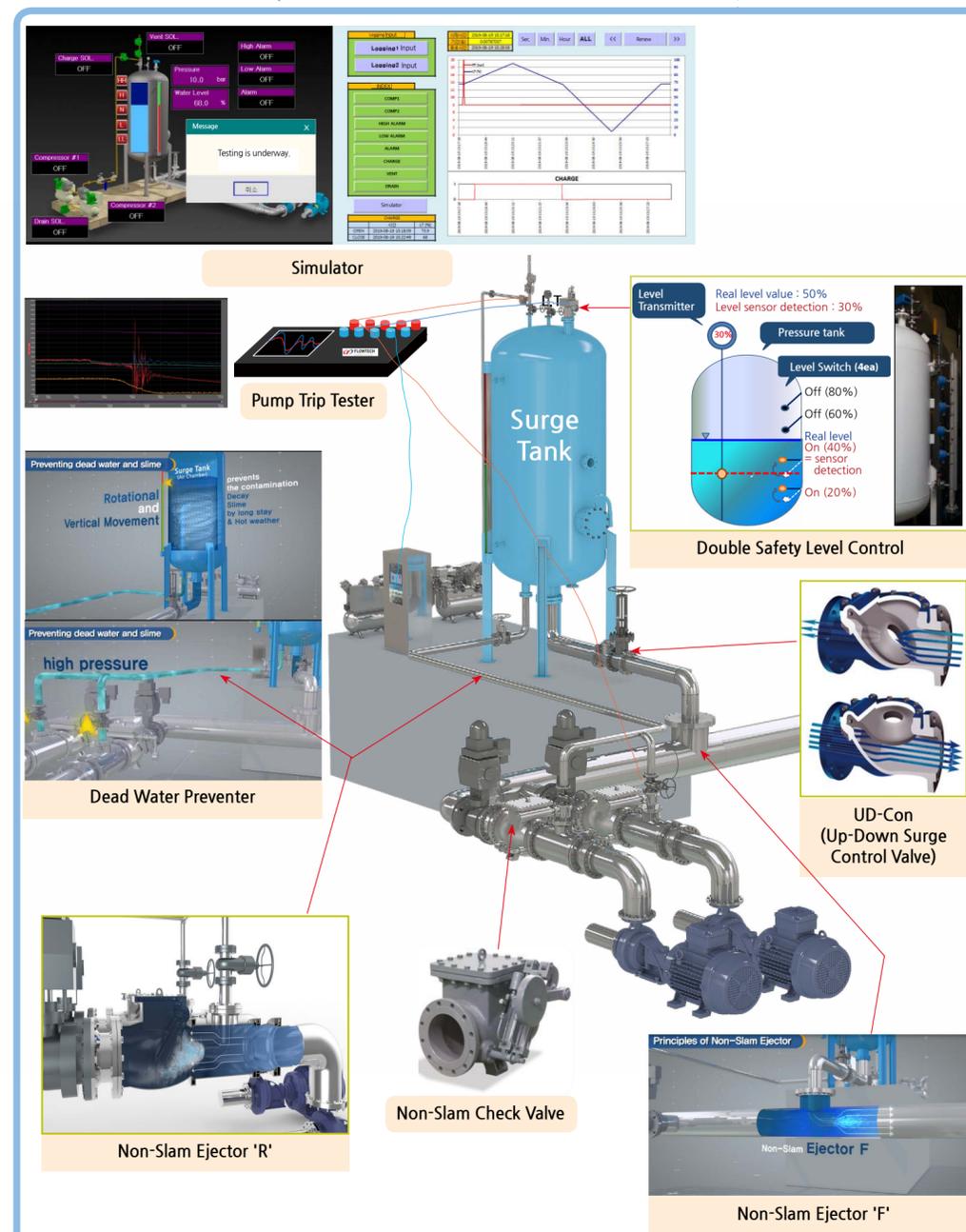


Project : Al Hair water line-Water hammer equipment's
Client : AL Riyadh Development Authority
Location : Kingdom of SAUDI
Spec : Surge Protection Package System
Surge Analysis, 18m³ x PN10 x 1unit, Ejector(F)400A x 1ea, Ejector(R)100A x 3ea, Check valve400A x 3ea, Commissioning(Pump Trip Test)



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: 100m³ x 14bar, 100m³ x 10bar, 100m³ x 13bar, 100m³ x 7bar
Bladder type surge vessel: Unit: 60m³ x 8bar

World Best Technology and Patents



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% N2 gas emitted from the N2 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 : 100m³ x 3 units
- Southeast District Distribution Complex CES Construction Project**
Project Owner : SH Corporation
Contractor : Lotte E&C
Pressure Maintaining System : 20m³ 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: 65m³x2 units(2nd)
- Seongnam Resource Recovery Facility Reconstruction Project**
Project Owner : Korea District Heating Corporation
Contractor : Kenertec
Pressure Maintaining System: 1.5m³ 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: 90m³ x 2 units
- Incheon Hyangchon Heat Exchange Facility**
Project Owner : Korea Land & Housing Corporation
Contractor : KEANGNAM ENETPRISES LTD
Pressure Maintaining System: 12m³ 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 N2 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

