

Remote Control System for Self-Power (Mineral Power, Sunlight) Irrigation Equipment

PRODUCT BROCHURE



Company Overview

Remote Control System of **Self-Power** (Mineral Power, Solar Energy) **Irrigation Equipment**

DongHae Eco Energy Corp. its advanced technology and rich experience and up-to-date equipment, skilled human workforce, both at home and abroad, based on and meet the needs of the several customers. Remote control system to produce its own power (small hydro, solar,) with irrigation equipment.

By utilizing hydropower and solar energy, which are eco-friendly renewable energy, customers have developed and completed an integrated structure that monitors valve operation on/off and flow control, sensor data sensing, and pipe irrigation equipment remotely.
It's a Green New Deal technology company.

Based on our accumulated experience, our products supply agricultural and industrial water through pipe valves and sensors to water/heat power plants, multi-purpose water, reservoirs, water pumps, sewage treatment plants, smart farm fruit/horticulture crops, smart cities, high-rise air conditioning facilities, green parks, and rainwater recycling facilities.

It was established in November 2018 and has continuously developed technology for specialization of ICT convergence technology Total Solution System in the field of remote control system for self-generated (mini-power, solar energy) irrigation equipment.

As a result, we are confident that our products are competitive in all aspects, including quality, technology, price, and delivery date, than our competitors.

We will continue to develop our technology and return your support with better quality.

DongHae Eco Energy Corp.

CEO *Ham Young Hwan*



Company History

2018

- 2018.11.16** DongHae Ltd., its own power of smart valve remote control system signed a long-term supply agreement

2019

- 2019.01.03** Automatic irrigation system patent technology transfer (No. 10-1820093)
- 2019.02.06** Excellent technical certificate (TCB) of the self-developed smart valve remote control monitoring system
- 2019.03.04** Technical guarantee fund for self-developed smart valve remote control monitoring system
- 2019.03.20** Selected as a start-up child care company in rural areas in 2019
- 2019.04.01** Patent application for solid fuel and complete compost using biomass and anti-carbonated materials
- 2019.04.03** Select IP Narae Project (Self-Power Development Smart Valve Remote Control System)
- 2019.04.22** Selection of a customized support project for the regional S/W in Sejong City
- 2019.04.22** Selection of agricultural R&BD planning support project in 2019
- 2019.06.01** Selecting Chungbuk National University's Social Customized LINC Industry-Academic Joint Project
- 2019.08.01** Patent transfer of Small Hydroelectric Module Using Pipe Flow Water (Chungbuk National University)
- 2019.08.01** Selection of follow-up growth support projects for science belt functional zones
- 2019.08.04** Selection of non-R&D projects for fostering the wide-area cooperative industry (advanced new materials)
- 2019.09.02** Smart City (Sejong) Selection of Innovative Enterprise Foundation Industry

2020

- 2020.01.02** Protective technology transfer control methods and devices for stabilizing the power system with a constant power load connected to it
- 2020.03.06** Patent registration for self-developed smart valve remote control system
- 2020.03.09** 2020-21 Selected Local SW Service Commercialization Support Project (Information Communication Promotion Agency)
- 2020.03.11** Selection of R&BD R&D achievements and outstanding business tasks for agricultural products (practicalization foundation)
- 2020.04.21** Recognition of corporate subsidiary research institutes
- 2020.05.21** Remote control of self-generator with dual blade structure and smart valves using it System Patent Registration
- 2020.06.01** Selection of initial start-up package (Korea Water Resources Corporation)
- 2020.07.02** Registration of venture companies
- 2020.07.09** Smart Farm ICT Equipment and Materials National Standard Diffusion Project Selection (Practicalization Foundation)
- 2020.07.20** Proof of factory registration

2020.07.27	Selecting a project to support innovative growth vouchers for companies in Sejong area in 2020 (Sejong TP)
2020.08.20	Irrigation equipment system for self-power generation (design application)
2020.08.20	Impeller for self-development (design application)
2020.09.15	Selecting R&D Science Belt Functional District Project (R&D Special Zone)
2020.09.25	Certificate of Quality Management System (KSQ 9001)
2020.10.13	Register valve remote control SW
2020.10.15	Register sensor remote data transmission SW
2020.10.15	Register Internet Server Interlink SW
2020.10.23	Patent registration for power conversion devices
2020.10.23	Patent registration for microgrid systems equipped with fail-treatment devices and their operation methods
2020.12.01-04	Participate in the online Lyon Environmental Industry Expo 2020

2021

2021.01.21	Solid fuel and complete compost using biomass and semi-carbonized materials. Patent registration
2021.03.18	Remote Controller of Irrigation Equipment for Self-Power Generation KC Certification (R-R-3d3-DHECOEY-RIS)
2021.04.19	RS-485 tester data for self-power generation irrigation equipment remote controller communication function check Registering Generating Software
2021.04.19	Code SW registration for remote controller (system) sensor data inspection of irrigation equipment for self-generation
2021.04.19	For self-power generation irrigation equipment remote controller system fault characteristics weighting model AI Application Framework SW Registration
2021.07.15	Remote control system of irrigation equipment for self-power generation. Patent registration
2021.08.12	Selection of export voucher business (Ministry of SMEs and Startups)
2021.08.25	Technical know-how contract for developing a hydraulic pressure actuator for driving a smart valve (KIMM)
2021.08.31	Selection of Smart City Enterprise Attraction Promotion Project (Sejong TP)
2021.09.01	Selection of Manufacturing Innovation Voucher Company (Ministry of SMEs and Startups)
2021.10.06	Remote control monitoring system for predicting failure of AI machine learning driving irrigation equipment for self-power generation. Patent registration.
2021.10.13	Selection of 2021 Sejong Regional Enterprise Support Service Project for Major Industries
2021.10.21	Selection of business support service project for fostering local associations (materials and parts) industry
2021.11.12	Remote control controller system of irrigation equipment for self-power generation (KC certification)
2021.12.28	Received the Renewable Energy R&D Innovation Grand Prize (Money Today)

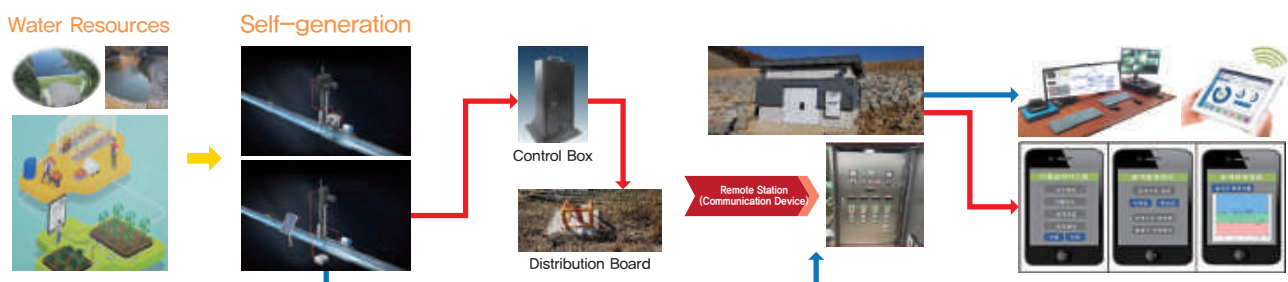
Business Performance

Current Status and Demand of Participation in Commercialization

- At one end of the essential product pipeline, such as valve sensor market; in the field of water, oil, gas market diversification is possible for Korea South–DongHae Co.Ltd of six of the plant.Yeongheung Verification testbed for a business partner engagement and regulatory DongHae in coal–fired power plant.
- Prototype and prop type demand for integrated products for our self–power irrigation system in multi–purpose water, water supply, sewage, smart farms, and smart cities
- Discussions are underway on the company's products to be developed by utilizing the flow rate of water treated after primary treatment(liquid fee and excrement) at the joint treatment plant in Gongju area and the livestock treatment plant in Deunggok–ri, Sejong–Bugang(30km – drainage channel)
- Valve Corp.'s 20 years experience in DongHae voice Gurye–gun, Jeollanam–do, Korea Rural Community Corporation(29 tons) Earth in collaboration with the pilot projects on the table, and add its own power system remote control of irrigation equipment.Korea Rural Community Corp., Water Resources Corporation, the integrated product to expand the market.
- Valve sensor market; in the field of water, oil, gas pipeline construction, essential products, including market diversification is possible to Korea South–DongHae Co.Ltd of six of the plant.Yeongheung Verification testbed for a business partner engagement and regulatory DongHae in coal–fired power plant.
- Prototype and prop type demand for integrated products for our self–power irrigation system in multi–purpose water, water supply, sewage, smart farms, and smart cities
- In the field of smart farm automatic irrigation system(facility horticulture: Apple, Blueberry, cucumber, etc.) the Rural Development Administration and the Sejong Area Test Bed Self–Powering Valve and Remote Control System are currently developing specialized(mineral power, solar power) self–generated irrigation equipment remote control systems, enabling customized access to ICT convergence technology products, which will greatly expand sales utilization in Korea, Italy, Germany, the Philippines, and Vietnam.



Participation in multi–purpose water dams, power generation and water and sewerage projects



Remote Control System Composition Diagram of Self–Power Generation (Mineral Power, Solar Energy) Irrigation Equipment

Core Capacity

DongHae Eco Energy Corps Core competency

- Self-generated(minor hydroelectricity, solar energy) irrigation equipment remote control systems are ICT and AI convergence technology products such as multi-purpose furnaces, reservoirs, pumping stations, sewage treatment plants, power plants, smart cities, smart farms, high-rise air conditioning facilities, green parks and rainwater recycling facilities.
- Self-generated irrigation equipment systems are integrated systems with hardware and SW-based remote control monitoring system with AI machine learning failure prediction(motor overload, battery failure, pipe leakage, pipe sound spectrum, etc.) algorithms.
- Single-product products(smart valves, sensors, accumulator modules, motors, remote control systems) and integrated Total Solution System products can be provided according to customer demand.
- Securing technologies for products linked to water resources and smart farms by transferring state-owned technologies from Rural Development Administration and Chungbuk National University
- We have 19 intellectual property rights(5 patent registrations, 3 patent applications, 2 designs, 6 SW registrations, 3 technology transfers)
- Run B2G, B2B, and B2C projects as customized products for domestic and overseas customers
- Self-generated irrigation equipment system is a system that integrates hardware and SW-based remote control monitoring algorithms for AI machine learning failure prediction(motor overload, battery failure, pipe leakage, etc.).
- Proceed R&D investment in bio-businesses for growth, such as the development of integrated products for self-developed irrigation systems and remote control systems.
- Customized to customer demand, single-product products (smart valves, sensors, power generation/power storage modules, actuators, facility failure prediction, remote control system) and integrated Total Solution System products can be provided.
- By transferring state-owned technologies from the Rural Development Administration, Chungbuk National University, and the Korea Institute of Machinery and Materials, we have secured technology know-how for water resources, smart farms, and smart cities.
- It has 21 intellectual property rights (8 patents, 3 designs, 6 SW registrations, 4 technology transfers).



Certifications





Product Information

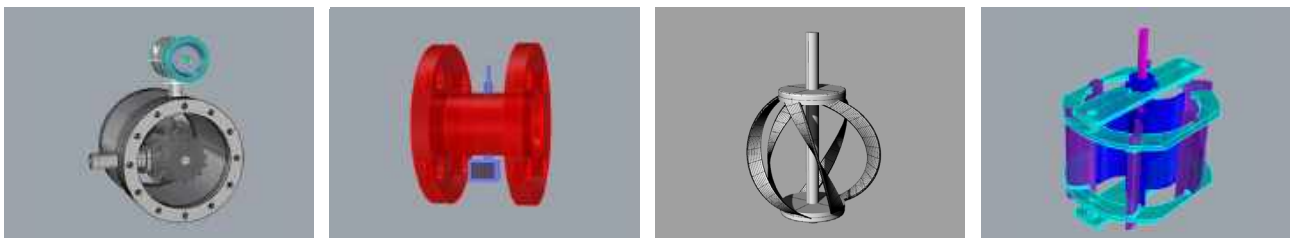
① Smart Valve

- It has been developed as a lightening cost reduction and flow control water leakage prevention structure by optimizing the distance between the sides of existing gate valves, thereby implementing integrated products for self-generated irrigation equipment.
- Intersection Optimized Gate Valve (100A) Existing Interfaces 250mm (199mm reduced) (150A) Existing 280mm→ 70mm / (300A) Existing 400mm → 76mm



Smart Valve (Soft Sheet Gate Valve)

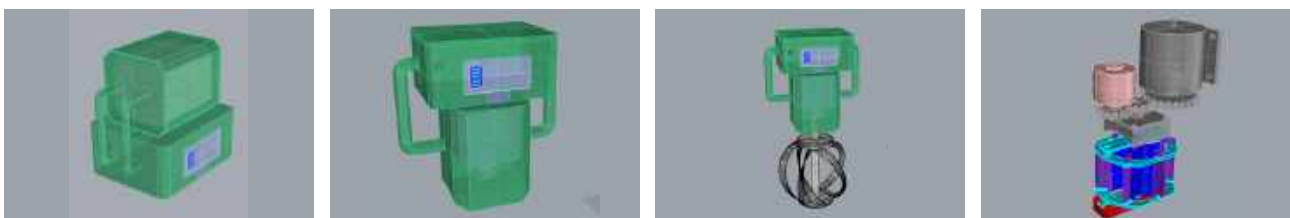
② Sensor and Propeller Rotator



Sensor (temperature, flow, pressure) and propeller rotor

③ Accumulator Module(ESS 100Wh~3kWh)

- Propeller rotor and sensor driven all-in-one product to apply accumulator module product depending on the environment (flow pressure piping size)



④ Self-Powering Irrigation Equipment Remote Control System

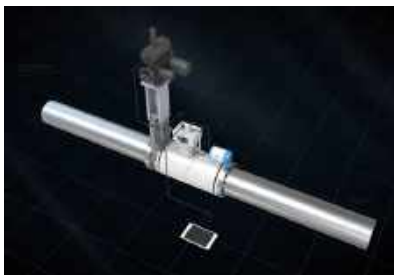
- Integrated products for self-generated irrigation equipment (smart valves, sensors, accumulator modules) and irrigation operation remote control monitoring systems
- AI Machine Learning Failure Prediction Algorithm SW Remote Control System



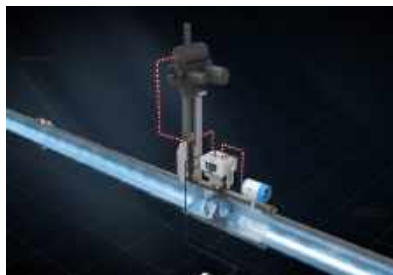
⑤ 100Wh~3kWh Integrated Products for Remote Control Systems of Self-Powering Irrigation Equipment

- Integrated products for remote control systems of self-generated (minor hydro and solar power) irrigation systems customized for customer demand and use environment
- Integrated communication and remote control monitoring system with irrigation equipment (smart valves, sensors, accumulator modules, solar panels)
- Finished developing 50mm, 80mm, 100mm, 150mm, 200mm, 250mm, and 300mm structure for the Smart Valve.
- AI Machine Learning failure prediction (motor overload, battery failure, pipe leakage, etc.) SW algorithm is applied.

Hydropower
(self-power generation structure)



Self-generated irrigation equipment

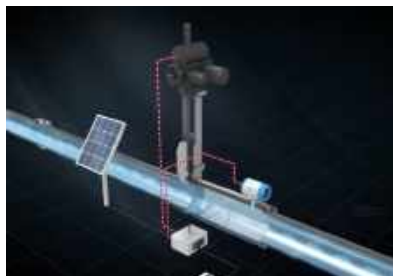


Axial structure of
self-generated irrigation equipment



Remote control system for self-generated
irrigation equipment (integrated)

Photovoltaic
(self-power generation structure)



Remote Control System for Self-Power (Mineral Power) Irrigation Equipment

- ① Remote control system of self-generated irrigation equipment (smart valves, sensors, accumulator modules)
- ② Smart valve on/off, flow control, sensor (temperature, pressure, flow rate) data transmission and two-way wireless communication remote control system through pipeline flow water impeller self-power (ESS100Wh to 3kWh)
- ③ Pre-fault prediction of AI machine learning (valve actuator, battery, power generation gear). Power generation, Flow rate, pipe leakage) Remote control
- ④ Monitoring system for irrigation equipment operation and remote control through self-power generation energy



Remote Control System for Self-Power Generation (Sunlight) Irrigation Equipment

- ① Self-generated irrigation equipment (smart valves, sensors, accumulator modules)
Remote Control System
- ② Smart Valve ON/OFF, Flow Control Sensor (temperature, pressure, flow rate) data transmission and two-way radio communication remote control system through solar self-power (ESS100Wh to 3kWh)
- ③ Pre-fault prediction of AI machine learning (valve actuator, battery, power generation gear). Power generation, Flow rate, pipe leakage) Remote control
- ④ The system for monitoring irrigation equipment operation and remote control through solar self-generated energy.

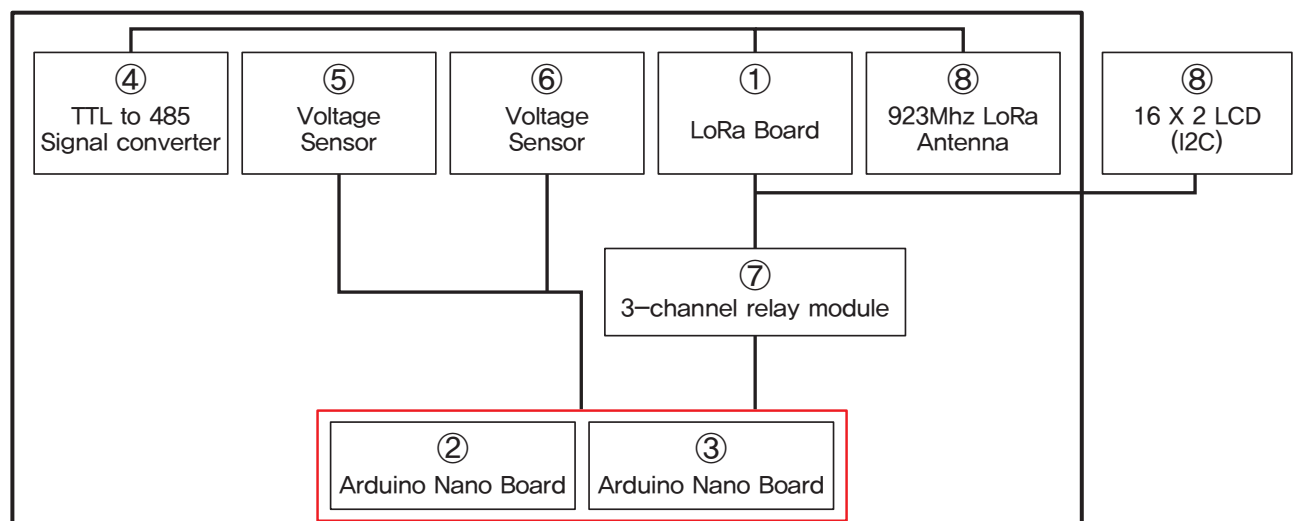
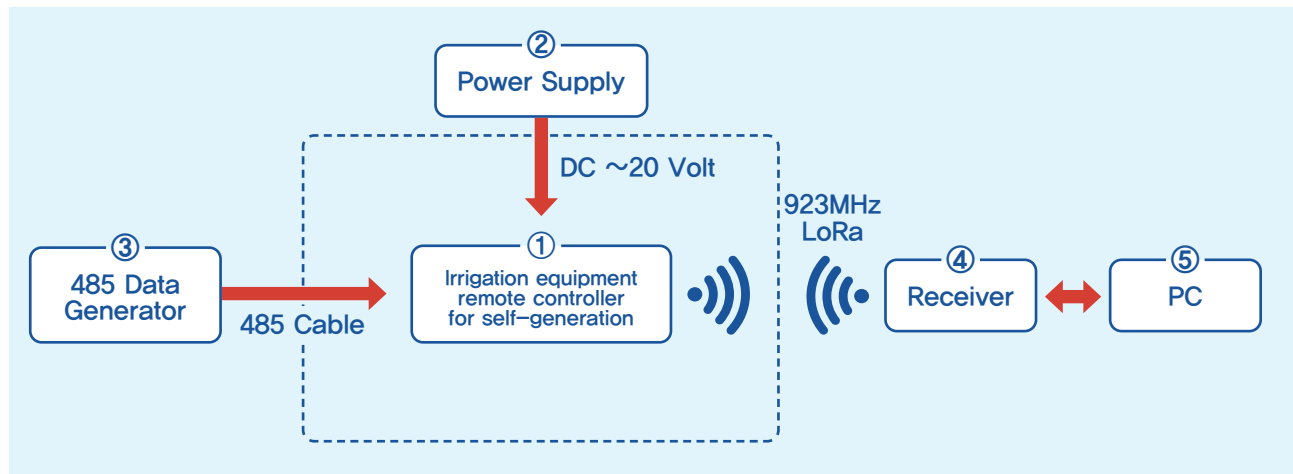


Product Information

⑥ Irrigation equipment remote controller for self-generation

- Remote control method of irrigation equipment for self-generation is LoRa communication to implement smart valve on/off and flow control, sensor sensing, and remote control monitoring for fault identification (PC, mobile)

Test Setup



(No. 10-2279852) Patent registration for remote control system of irrigation equipment for self-power generation (2021.07.15)



Self-powered irrigation equipment remote controller(R-R-3d3-DHECOEY-RIS)



Irrigation equipment remote control controller system.(R-R-3d3-DHECOEY-SPIE)



Two KC certification cases. (Suitable Registration Certificate)

Self-power irrigation equipment Remote controller Test certification (secure 3 cases: Wireless, electromagnetic compatibility)



Product Information

⑤ Irrigation Equipment Remote Control Monitoring system

- Monitor valve and sensor operation (power generation, sensor pressure, flow rate) by pipe channel
- AI Machine Learning Pre-Failure Prediction (Motor overload, Battery failure, Piping leakage, etc.) Remote Control Monitoring
- Remote irrigation control by waterways, valve operation and sensor data transmission via two-way radio communication



- Monitoring remote control of agricultural and industrial water from remote locations through mobile, PC, and situation rooms
- Status, failure, emergency alarm system, etc
- Smart City Water and Water Network Remote Control Monitoring System



| Configuration diagram of a remote control system for irrigation equipment for self-power generation



Product Information

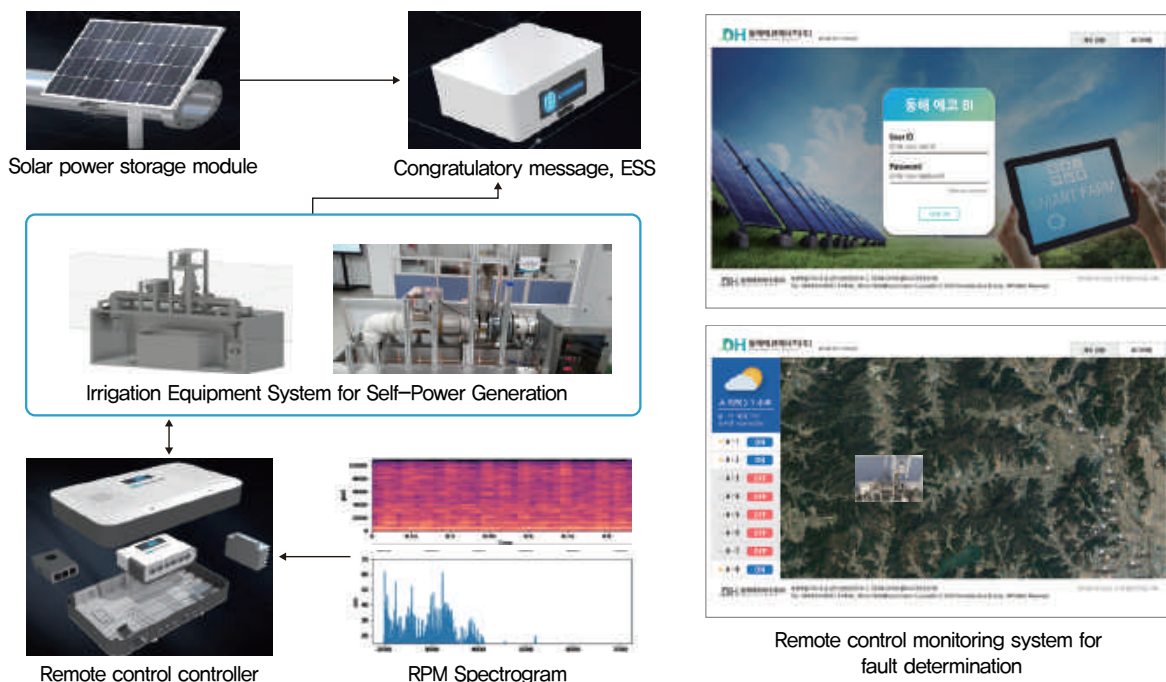
⑧ Remote control system for fault determination of AI machine learning facilities.

- IoT-based machine facility failure prediction function remote control system that utilizes self-power generation power for the first time in Korea and abroad.
- ICT Convergence Integrated Remote Control Monitoring System
- Artificial paper is equipped with a prediction algorithm for machine learning failure determination (NIPA regional SW service business)
- Prediction of failure such as remote wireless communication water supply network, oil, gas, etc. pipeline valves, actuators, power generation modules, sensors, etc.

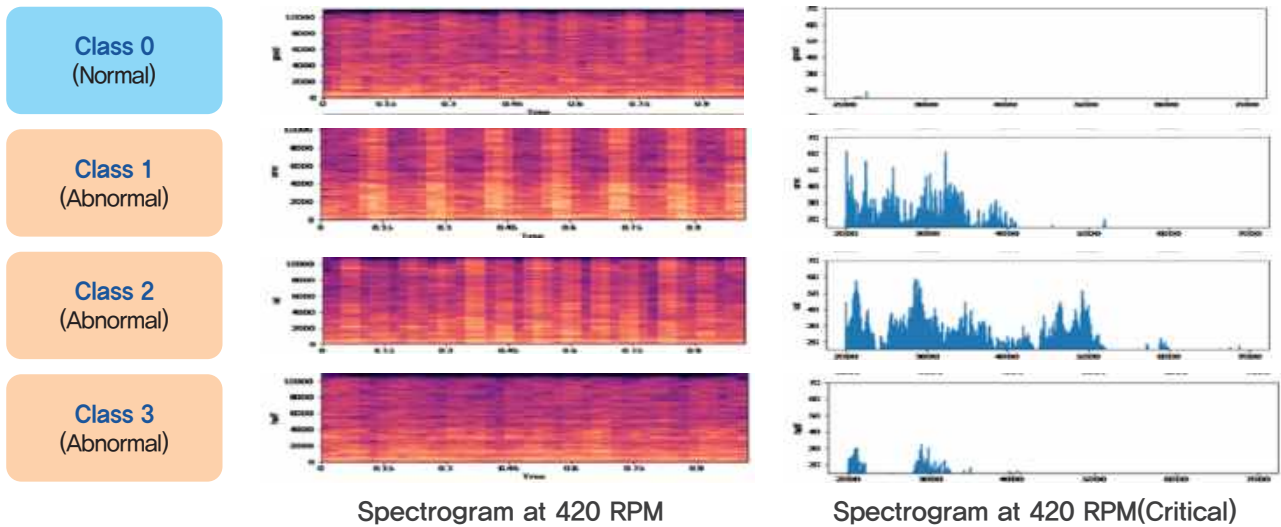
Function and characteristics

- IoT-based remote wireless communication (LoRa) constant failure prediction and leak diagnosis remote control system
- Equipped with acoustic spectrogram artificial intelligence algorithms with abnormal structures such as valves and actuators, power generation gears, and flow hydraulic pressure. PC, mobile.
- Two-way data transmission through a remote control controller (valve control, sensor sensing, fault identification, wireless communication) and a server in the pipeline structure.
- Failure identification and diagnostic monitoring by water supply network underground and remote areas.
- Valve on/off and flow control, sensor sensing, and wireless communication-based power utilization through self-power generation (minority power, solar power).
- Application field: Water supply, water supply, smart farm, smart city, power plant, water and agriculture, industrial water piping structure valve, sensor application product

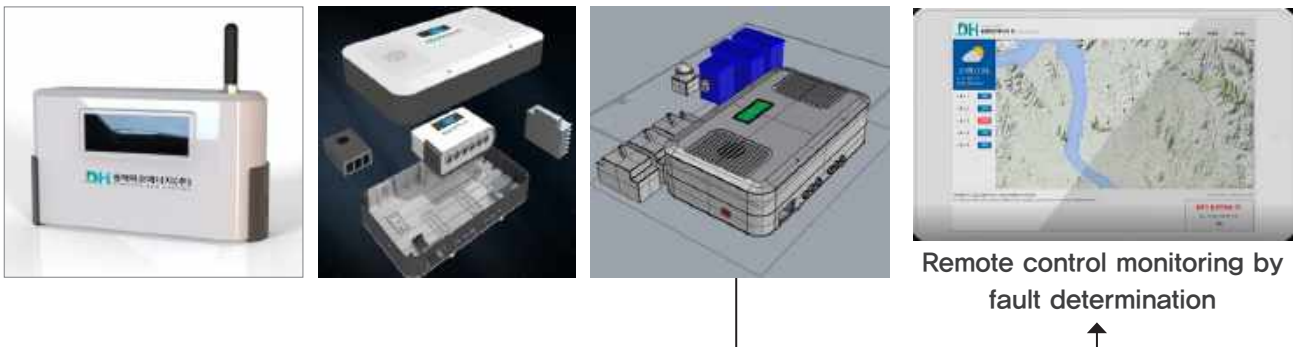
System configuration



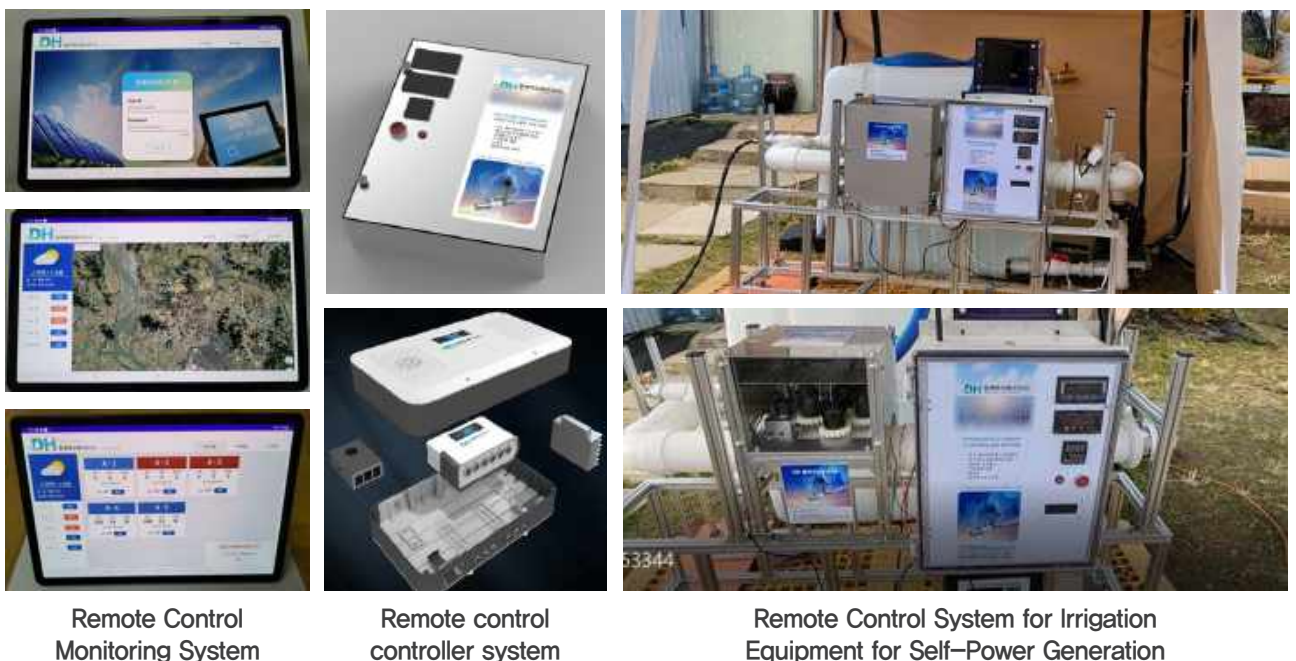
CNN Classification Performance Evaluation Index Utilization / Spectrogram and Spectrum Area 2 kHz to 7 kHz amplitude threshold experimental data



Remote control controller system based on irrigation equipment control (small-medium-large)



Irrigation equipment remote control controller system



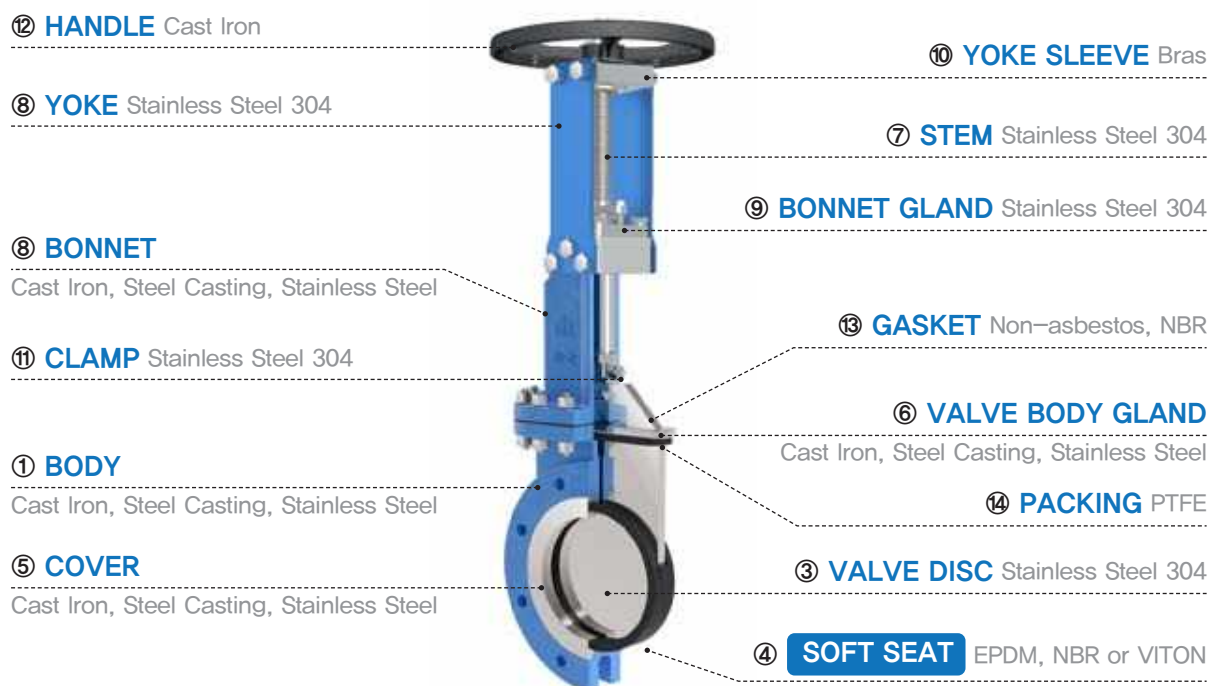
Product Information

⑦ Smart valve(Soft Seat Slim Gate Valve /For Waterworks & General Industries)

Overview

- For the improvement of valve sealing performance and reliability the patented round **soft seat**(rubber cushion seat) is inserted into the area where the valve disc moves up and down. If the valve is shut off, the disc drops and is adhered to the soft seat and then valve metal seat, such double sealing blocks fluid flow without leakage.
- It can be installed to the water/oil/gas/slurry-mixed fluid line where some chronic problems resulting from foreign matters accumulated under the valve and seat leakage occur to take care of them
- This flow-control and shut-dff valve in fire-safety design is applicable to importanat lines.

Structure



Specification

- AWWA Standards (AWWA C520 Knife Gate Valve)
- Soft Seal Sluice Valve Standard (SPS-KWWA B102-0709)
- Stainless Steel Sluice Valve Standard (SPS-KVIC 1103-1093)
- Water Supply Sluice Valve Standard (KS B 2332)
- High-pressure Knife Gate Valve Standard (MSS SP-135)

Applications



| Features and Advantages

Geat substitution for conventional fluid shut-off valves

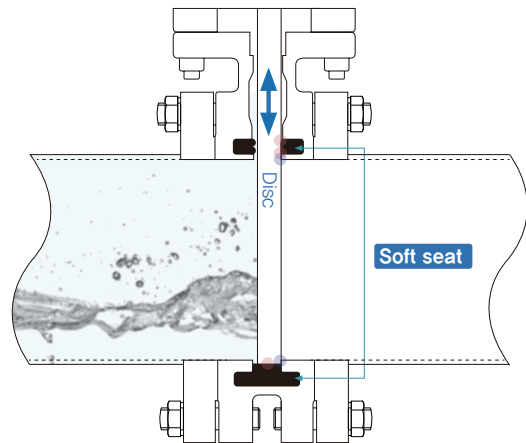
- Applicable to water, oil, gas and slurry-mixed lines

Flow- control

- Shut-off Valve

No Leakage

- Double shut-off structure
 - Primary shut-off **Soft seat** + ● Secondary shut off **Metal seat**
- Able to shut off even under high pressure ; bi-directional fluid control
- Applicable to important lines in fire-safety design

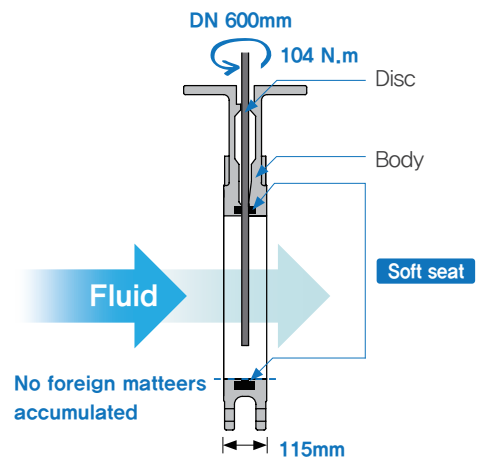


No Accumulation of Foreign Matters

- Total enclosure enabled all the time
- Significantly lowering the valve failure rate
- Smooth valve operation

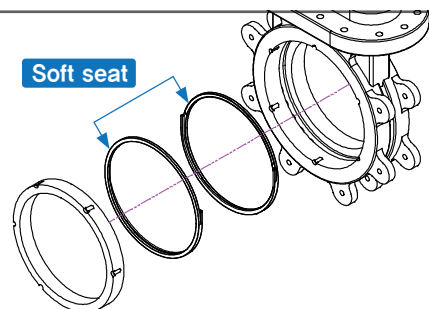
Easy Installation

- A slim face-to-face dimension with plate disc ; installable in a slim space (valve bore : 600mm, face-to-face dimension: 115mm)



Cost Reduction

- Replacement costs saved in easily installable & removable soft seat design
- Acquisition costs reduced in slim and light design
- Plate disc applied; low driving force used with O-shaped soft seat (valve bore: 600mm, 104N.m)



Model Introduction

Valve Color | ● Water Supply ● Sewerage

Non-rising Stem Type

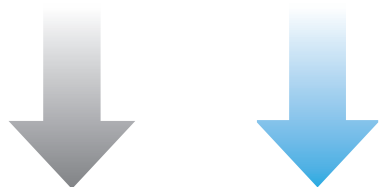
Manually Actuate(Cap)



Manually Actuated(Gear)



Electrically Actuated



S1
Slim F to F



S2
Medium F to F

• If requested by a client, a medium F to F type can be provided.

Rising Stem Type

Manually Actuate



Manually Actuated(Gear)



Electrically Actuated



Pneumatically Actuated



Double-floor Type



DH Non-rising Stem type

| Manually Actuate(Cap)

Valve Color | ● Water Supply ● Sewerage



10K – Slim F to F(S1)

Size		2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	32"	36"
Category		(50A)	(80A)	(100A)	(125A)	(150A)	(200A)	(250A)	(300A)	(350A)	(400A)	(450A)	(500A)	(600A)	(700A)	(800A)	(900A)
F to F	S1 (mm)	51	51	51	57	57/70	70	70	76	76	89	89	114	114	181	206	226
Weight	S1 (Kg)	13	20	30	40	55	70	98	115	180	225	285	365	455	500	563	580
Height (mm)		290	330	400	450	500	539	6030	820	905	1050	1150	1250	1323	1600	1750	1900
No.of Rotation		12	13	14	15	18	24	25	30	34	35	40	40	47	56	63	73
Torque (N.m)		26	26	33	36.4	46.8	46.8	52	58.5	65	71.3	78	92.3	104	118	135	151



20K – Slim F to F(S1)

Size		2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	32"	36"
		(50A)	(80A)	(100A)	(125A)	(150A)	(200A)	(250A)	(300A)	(350A)	(400A)	(450A)	(500A)	(600A)	(700A)	(800A)	(900A)
Category																	
F to F	S1 (mm)	70	70	70	80	80	89	136.6	136.6	140	140	156	189	216	254	267	304
Weight	S1 (Kg)	23	30	40	50	70	85	115	190	215	253	330	415	530	590	670	765
Height (mm)		290	330	400	450	500	539	6030	820	905	1050	1150	1250	1323	1600	1750	1900
No.of Rotation		12	13	14	15	18	24	25	30	34	35	40	40	47	56	63	73
Torque (N.m)		28,6	28,6	39	52	65	85,8	101,4	117	143	169	195	221	247	299	351	403



10K – Medium F to F(S2)

Size		2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	32"	36"
Category		(50A)	(80A)	(100A)	(125A)	(150A)	(200A)	(250A)	(300A)	(350A)	(400A)	(450A)	(500A)	(600A)	(700A)	(800A)	(900A)
F to F	S2 (mm)	134	140	140	154	164	164	180	180	198	232	240	252	286	324	356	356
Weight	S2 (Kg)	36	42	59	75	91	108	132	208	262	327	395	478	557	654	713	830
Height (mm)		290	330	400	450	500	539	6030	820	905	1050	1150	1250	1323	1600	1750	1900
No.of Rotation		12	13	14	15	18	24	25	30	34	35	40	40	47	56	63	73
Torque (N.m)		26	26	33	36,4	46,8	46,8	52	58,5	65	71,3	78	92,3	104	118	135	151



20K – Medium F to F(S2)

Size		2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	32"	36"
Category		(50A)	(80A)	(100A)	(125A)	(150A)	(200A)	(250A)	(300A)	(350A)	(400A)	(450A)	(500A)	(600A)	(700A)	(800A)	(900A)
F to F	S2 (mm)	150	165	180	180	188	188	208	208	231	272	280	312	334	510	570	570
Weight	S2 (Kg)	46	60	80	100	140	170	230	304	344	405	528	664	848	944	1070	1224
Height (mm)		290	330	400	450	500	539	6030	820	905	1050	1150	1250	1323	1600	1750	1900
No.of Rotation		12	13	14	15	18	24	25	30	34	35	40	40	47	56	63	73
Torque (N.m)		28,6	28,6	39	52	65	85,8	101,4	117	143	169	195	221	247	299	351	403

DH Non-rising Stem type

| Electrically Actuated

Valve Color | ● Water Supply ● Sewerage



10K – Slim F to F(S1)

Size		2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	32"	36"
Category		(50A)	(80A)	(100A)	(125A)	(150A)	(200A)	(250A)	(300A)	(350A)	(400A)	(450A)	(500A)	(600A)	(700A)	(800A)	(900A)
F to F	S1 (mm)	51	51	51	57	57/70	70	70	76	76	89	89	114	114	181	206	226
Weight	S1 (Kg)	43	50	60	70	85	100	128	145	220	265	335	415	505	570	633	650
Height (mm)		456	550	605	666	770	769	992	1310	1413	1589	1674	1794	2017	2185	2288	2424
Torque (N,m)		26	26	33	36,4	46,8	46,8	52	58,5	65	71,3	78	92,3	104	118	135	151



20K – Slim F to F(S1)

Size		2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	32"	36"
Category		(50A)	(80A)	(100A)	(125A)	(150A)	(200A)	(250A)	(300A)	(350A)	(400A)	(450A)	(500A)	(600A)	(700A)	(800A)	(900A)
F to F	S1 (mm)	70	70	70	80	80	89	136,6	136,6	140	140	156	189	216	254	267	304
Weight	S1 (Kg)	53	60	70	80	100	115	145	220	255	293	380	456	580	660	740	835
Height (mm)		456	550	605	666	770	769	992	1310	1413	1589	1674	1794	2017	2185	2288	2424
Torque (N,m)		28,6	28,6	39	52	65	85,8	101,4	117	143	169	195	221	247	299	351	403



10K – Medium F to F(S2)

Size		2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	32"	36"
Category		(50A)	(80A)	(100A)	(125A)	(150A)	(200A)	(250A)	(300A)	(350A)	(400A)	(450A)	(500A)	(600A)	(700A)	(800A)	(900A)
F to F	S2 (mm)	134	140	140	154	164	164	180	180	198	232	240	252	286	324	356	356
Weight	S2 (Kg)	56	62	80	95	120	128	153	238	292	357	425	508	587	684	740	870
Height (mm)		456	550	605	666	770	769	992	1310	1413	1589	1674	1794	2017	2185	2288	2424
Torque (N,m)		26	26	33	36,4	46,8	46,8	52	58,5	65	71,3	78	92,3	104	118	135	151



20K – Medium F to F(S2)

Size		2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	32"	36"
Category		(50A)	(80A)	(100A)	(125A)	(150A)	(200A)	(250A)	(300A)	(350A)	(400A)	(450A)	(500A)	(600A)	(700A)	(800A)	(900A)
F to F	S2 (mm)	150	165	180	194	210	220	245	260	285	338	350	380	430	510	570	570
Weight	S2 (Kg)	60	75	95	115	155	185	245	334	374	435	558	694	878	974	1100	1254
Height (mm)		456	550	605	666	770	769	992	1310	1413	1589	1674	1794	2017	2185	2288	2424
Torque (N,m)		28,6	28,6	39	52	65	85,8	101,4	117	143	169	195	221	247	299	351	403

DH Rising Stem type

I Manually Actuate

Valve Color | ● Water Supply ● Sewerage



10K – Slim F to F(S1)

Size		2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	32"	36"
Category		(50A)	(80A)	(100A)	(125A)	(150A)	(200A)	(250A)	(300A)	(350A)	(400A)	(450A)	(500A)	(600A)	(700A)	(800A)	(900A)
F to F	S1 (mm)	51	51	51	57	57/70	70	70	76	76	89	89	114	114	181	206	226
Weight	S1 (Kg)	16	24	36	45	62	79	106	167	196	233	302	385	476	521	583	612
Height (mm)		498	602	704	810	915	1121	1355	1689	1739	1995	2209	2393	2936	3244	3404	3561
Handle (W)		ø 200	ø 200	ø 200	ø 280	ø 280	ø 280	ø 345	ø 400	ø 400	ø 500	ø 500	ø 500	ø 500	ø 500	ø 500	ø 500
Torque (N.m)		26	26	33	36,4	46,8	46,8	52	58,5	65	71,3	78	92,3	104	118	135	151



20K – Slim F to F(S1)

Size		2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	32"	36"
Category		(50A)	(80A)	(100A)	(125A)	(150A)	(200A)	(250A)	(300A)	(350A)	(400A)	(450A)	(500A)	(600A)	(700A)	(800A)	(900A)
F to F	S1 (mm)	70	70	70	80	80	89	136,6	136,6	140	140	156	189	216	254	267	304
Weight	S1 (Kg)	26	34	46	60	82	100	131	200	231	272	352	445	560	621	700	812
Height (mm)		498	602	704	810	915	1121	1355	1689	1739	1995	2209	2393	2936	3244	3404	3561
Handle (W)		ø 200	ø 200	ø 200	ø 280	ø 280	ø 345	ø 345	ø 400	ø 400	ø 500	ø 500	ø 500	ø 500	ø 500	ø 500	ø 500
Torque (N.m)		28,6	28,6	39	52	65	85,8	101,4	117	143	169	195	221	247	299	351	403



10K – Medium F to F(S2)

Size		2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	32"	36"
Category		(50A)	(80A)	(100A)	(125A)	(150A)	(200A)	(250A)	(300A)	(350A)	(400A)	(450A)	(500A)	(600A)	(700A)	(800A)	(900A)
F to F	S2 (mm)	134	140	140	154	164	164	180	180	192	232	240	252	286	324	356	356
Weight	S2 (Kg)	36	42	59	75	91	108	132	208	262	327	395	478	557	654	710	830
Height (mm)		456	550	605	666	770	769	992	1310	1413	1589	1674	1794	2017	2185	2288	2424
Handle (W)		ø 200	ø 200	ø 200	ø 280	ø 280	ø 280	ø 345	ø 400	ø 400	ø 500	ø 500	ø 500	ø 500	ø 500	ø 500	ø 500
Torque (N.m)		26	26	33	36,4	46,8	46,8	52	58,5	65	71,3	78	92,3	104	118	135	151



20K – Medium F to F(S2)

Size		2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	32"	36"
Category		(50A)	(80A)	(100A)	(125A)	(150A)	(200A)	(250A)	(300A)	(350A)	(400A)	(450A)	(500A)	(600A)	(700A)	(800A)	(900A)
F to F	S2 (mm)	150	165	180	180	188	188	208	208	231	272	280	312	334	510	570	570
Weight	S2 (Kg)	40	52	68	85	102	135	203	250	297	350	430	512	615	695	750	860
Height (mm)		498	602	704	810	915	1121	1355	1689	1739	1995	2209	2393	2936	3244	3404	3561
Handle (W)		ø 200	ø 200	ø 200	ø 280	ø 280	ø 345	ø 345	ø 400	ø 400	ø 500	ø 500	ø 500	ø 500	ø 500	ø 500	ø 500
Torque (N.m)		28,6	28,6	39	52	65	85,8	101,4	117	143	169	195	221	247	299	351	403

DH Rising Stem type

Manually Actuated(Gear)

Valve Color | ● Water Supply ● Sewerage



10K – Slim F to F(S1)

Size		2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	32"	36"
Category		(50A)	(80A)	(100A)	(125A)	(150A)	(200A)	(250A)	(300A)	(350A)	(400A)	(450A)	(500A)	(600A)	(700A)	(800A)	(900A)
F to F	S1 (mm)	51	51	51	57	57/70	70	70	76	76	89	89	114	114	181	206	226
Weight	S1 (Kg)	28	36	48	59	79	99	136	199	224	273	357	440	531	587	642	677
Height (mm)		575	689	817	892	1056	1225	1419	1650	1824	2130	2178	2447	2755	3105	3280	3543
Torque (N.m)		26	26	33	36,4	46,8	46,8	52	58,5	65	71,3	78	92,3	104	118	135	151



20K – Slim F to F(S1)

Size		2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	32"	36"
Category		(50A)	(80A)	(100A)	(125A)	(150A)	(200A)	(250A)	(300A)	(350A)	(400A)	(450A)	(500A)	(600A)	(700A)	(800A)	(900A)
F to F	S1 (mm)	70	70	70	80	80	89	136,6	136,6	140	140	156	189	216	254	267	304
Weight	S1 (Kg)	38	45	62	79	95	113	138	221	273	342	410	495	590	669	717	747
Height (mm)		575	689	817	892	1056	1225	1419	1650	1824	2130	2178	2447	2755	3105	3280	3543
Torque (N.m)		28,6	28,6	39	52	65	85,8	101,4	117	143	169	195	221	247	299	351	403



10K – Medium F to F(S2)

Size		2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	32"	36"
Category		(50A)	(80A)	(100A)	(125A)	(150A)	(200A)	(250A)	(300A)	(350A)	(400A)	(450A)	(500A)	(600A)	(700A)	(800A)	(900A)
F to F	S2 (mm)	134	140	140	154	164	164	180	180	198	232	240	252	286	324	356	356
Weight	S2 (Kg)	38	56	66	79	97	117	160	227	259	305	390	468	574	627	698	750
Height (mm)		575	689	817	892	1056	1225	1419	1650	1824	2130	2178	2447	2755	3105	3280	3543
Torque (N.m)		26	26	33	36,4	46,8	46,8	52	58,5	65	71,3	78	92,3	104	118	135	151



20K – Medium F to F(S2)

Size		2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	32"	36"
Category		(50A)	(80A)	(100A)	(125A)	(150A)	(200A)	(250A)	(300A)	(350A)	(400A)	(450A)	(500A)	(600A)	(700A)	(800A)	(900A)
F to F	S2 (mm)	150	165	180	180	188	188	208	208	231	272	280	312	334	510	570	570
Weight	S2 (Kg)	53	67	87	107	147	177	237	319	359	420	543	679	863	959	1085	1239
Height (mm)		575	689	817	892	1056	1225	1419	1650	1824	2130	2178	2447	2755	3105	3280	3543
Torque (N.m)		28,6	28,6	39	52	65	85,8	101,4	117	143	169	195	221	247	299	351	403

DH Rising Stem type

| Electrically Actuated

Valve Color | ● Water Supply ● Sewerage



10K – Slim F to F(S1)

Size		2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	32"	36"
Category		(50A)	(80A)	(100A)	(125A)	(150A)	(200A)	(250A)	(300A)	(350A)	(400A)	(450A)	(500A)	(600A)	(700A)	(800A)	(900A)
F to F	S1 (mm)	51	51	51	57	57/70	70	70	76	76	89	89	114	114	181	206	226
Weight	S1 (Kg)	48	56	68	79	99	119	156	219	250	298	382	465	556	612	667	702
Height (mm)		608	712	847	925	1061	1285	1437	1854	1968	2238	2473	2703	3259	3714	3896	4215
Torque (N.m)		26	26	33	36,4	46,8	46,8	52	58,5	65	71,3	78	92,3	104	118	135	151



20K – Slim F to F(S1)

Size		2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	32"	36"
Category		(50A)	(80A)	(100A)	(125A)	(150A)	(200A)	(250A)	(300A)	(350A)	(400A)	(450A)	(500A)	(600A)	(700A)	(800A)	(900A)
F to F	S1 (mm)	70	70	70	80	80	89	136,6	136,6	140	140	156	189	216	254	267	304
Weight	S1 (Kg)	45	54	72	89	103	128	156	244	289	356	426	511	603	683	738	770
Height (mm)		608	712	847	925	1061	1285	1437	1854	1968	2238	2473	2703	3259	3714	3896	4215
Torque (N.m)		28,6	28,6	39	52	65	85,8	101,4	117	143	169	195	221	247	299	351	403



10K – Medium F to F(S2)

Size		2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	32"	36"
Category		(50A)	(80A)	(100A)	(125A)	(150A)	(200A)	(250A)	(300A)	(350A)	(400A)	(450A)	(500A)	(600A)	(700A)	(800A)	(900A)
F to F	S2 (mm)	134	140	140	154	164	164	180	180	198	232	240	252	286	324	356	356
Weight	S2 (Kg)	58	66	78	95	114	139	176	239	270	320	405	495	596	670	740	790
Height (mm)		608	712	847	925	1061	1285	1437	1854	1968	2238	2473	2703	3259	3714	3896	4215
Torque (N.m)		26	26	33	36,4	46,8	46,8	52	58,5	65	71,3	78	92,3	104	118	135	151



20K – Medium F to F(S2)

Size		2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	32"	36"
Category		(50A)	(80A)	(100A)	(125A)	(150A)	(200A)	(250A)	(300A)	(350A)	(400A)	(450A)	(500A)	(600A)	(700A)	(800A)	(900A)
F to F	S2 (mm)	150	165	180	180	188	188	208	208	231	272	280	312	334	510	570	570
Weight	S2 (Kg)	65	88	105	145	185	215	280	356	405	475	611	765	943	1046	1200	1355
Height (mm)		608	712	847	925	1061	1285	1437	1854	1968	2238	2473	2703	3259	3714	3896	4215
Torque (N.m)		28,6	28,6	39	52	65	85,8	101,4	117	143	169	195	221	247	299	351	403

DH Rising Stem type

Pneumatically Actuated

Valve Color | ● Water Supply ● Sewerage



10K – Slim F to F(S1)

Size		2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	32"	36"
Category		(50A)	(80A)	(100A)	(125A)	(150A)	(200A)	(250A)	(300A)	(350A)	(400A)	(450A)	(500A)	(600A)	(700A)	(800A)	(900A)
F to F	S1 (mm)	51	51	51	57	57/70	70	70	76	76	89	89	114	114	181	206	226
Weight	S1 (Kg)	38	46	56	69	89	109	146	209	240	288	370	480	570	630	697	730
Height (mm)		568	662	807	885	1018	1200	1487	1903	2018	2309	2629	2799	3349	3804	3985	4303
Torque (N,m)		26	26	33	36,4	46,8	46,8	52	58,5	65	71,3	78	92,3	104	118	135	151



20K – Slim F to F(S1)

Size		2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	32"	36"
Category		(50A)	(80A)	(100A)	(125A)	(150A)	(200A)	(250A)	(300A)	(350A)	(400A)	(450A)	(500A)	(600A)	(700A)	(800A)	(900A)
F to F	S1 (mm)	70	70	70	80	80	89	136,6	136,6	140	140	156	189	216	254	267	304
Weight	S1 (Kg)	41	49	66	84	98	123	149	240	283	351	416	502	596	678	725	765
Height (mm)		568	662	807	885	1018	1200	1487	1903	2018	2309	2629	2799	3349	3804	3985	4303
Torque (N,m)		28,6	28,6	39	52	65	85,8	101,4	117	143	169	195	221	247	299	351	403



10K – Medium F to F(S2)

Size		2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	32"	36"
Category		(50A)	(80A)	(100A)	(125A)	(150A)	(200A)	(250A)	(300A)	(350A)	(400A)	(450A)	(500A)	(600A)	(700A)	(800A)	(900A)
F to F	S2 (mm)	134	140	140	154	164	164	180	180	198	232	240	252	286	324	356	356
Weight	S2 (Kg)	48	56	70	89	100	129	171	229	265	318	410	430	620	700	797	820
Height (mm)		568	662	807	885	1018	1200	1487	1903	2018	2309	2629	2799	3349	3804	3985	4303
Torque (N,m)		26	26	33	36,4	46,8	46,8	52	58,5	65	71,3	78	92,3	104	118	135	151

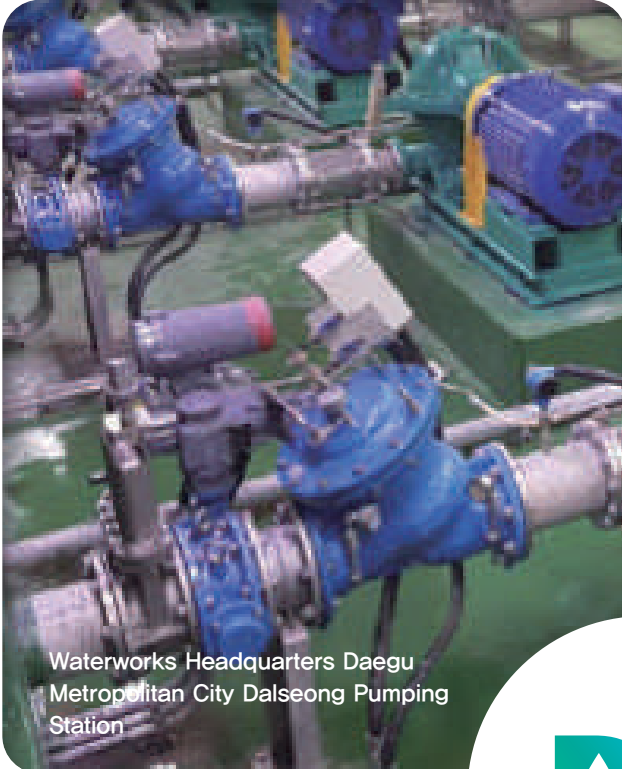


20K – Medium F to F(S2)

Size		2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	32"	36"
Category		(50A)	(80A)	(100A)	(125A)	(150A)	(200A)	(250A)	(300A)	(350A)	(400A)	(450A)	(500A)	(600A)	(700A)	(800A)	(900A)
F to F	S2 (mm)	150	165	180	180	188	188	208	208	231	272	280	312	334	510	570	570
Weight	S2 (Kg)	55	73	90	120	160	190	255	331	380	445	576	730	913	1011	1155	1310
Height (mm)		568	662	807	885	1018	1200	1487	1903	2018	2309	2629	2799	3349	3804	3985	4303
Torque (N,m)		28,6	28,6	39	52	65	85,8	101,4	117	143	169	195	221	247	299	351	403

DH Applications

- Currently, DONGHAE ECOENGY Co.,Ltd actively supplies water and sewage knife gate valves and industrial soft seat slim gate valves to domestic and international water and sewage facilities, environmental facilities, multi-purpose water supply facilities in rural areas, and various industrial plants.





DONGHAE ECO ENERGY



DONGHAE ECO ENERGY

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