

HYDROGEN SKID SYSTEM SAMJUNG ENC



SAMJUNG ENC
HYDROGEN SKID SYSTEM

The company, developing along with customers

We play a key role to develop domestic industry and to improve the productivity of your company by satisfying various specifications for all kinds of industrial equipments required by information oriented and digital industry in this rapidly changing twenty-first century, domestically producing various freezing equipments, that were mostly depend on import, with our own technique, and improving them as the best products group.

Our Company



SAMJUNG ENC, a hydrogen industry equipment technology company

SAMJUNG ENC is a hydrogen company that has grown along with the development of the hydrogen industry utilizing hydrogen energy.

SAMJUNG ENC is a hydrogen company that contributes to the revitalization of Korea's hydrogen economy by developing, mass-producing, and commercializing the world's best H₂ Chiller and H₂ CONTROL SYSTEM, and realizes many achievements such as the development of accompanying hydrogen station infra equipment technology and environmental test facility construction systems.

SAMJUNG ENC is a future-oriented company leading the hydrogen refueling station infra equipment technology, and we are committed to the principle of quality first, executing and keeping our promises to our customers, and innovating for customer satisfaction through technology development.

CEO of SAMJUNG ENC Co., Ltd.



Patents and Certifications

SAMJUNG ENC World's No.1 hydrogen company

SAMJUNG ENC was founded in 1993 and has grown to become a leading hydrogen industry equipment company with the motto of continuous technology development and quality first.

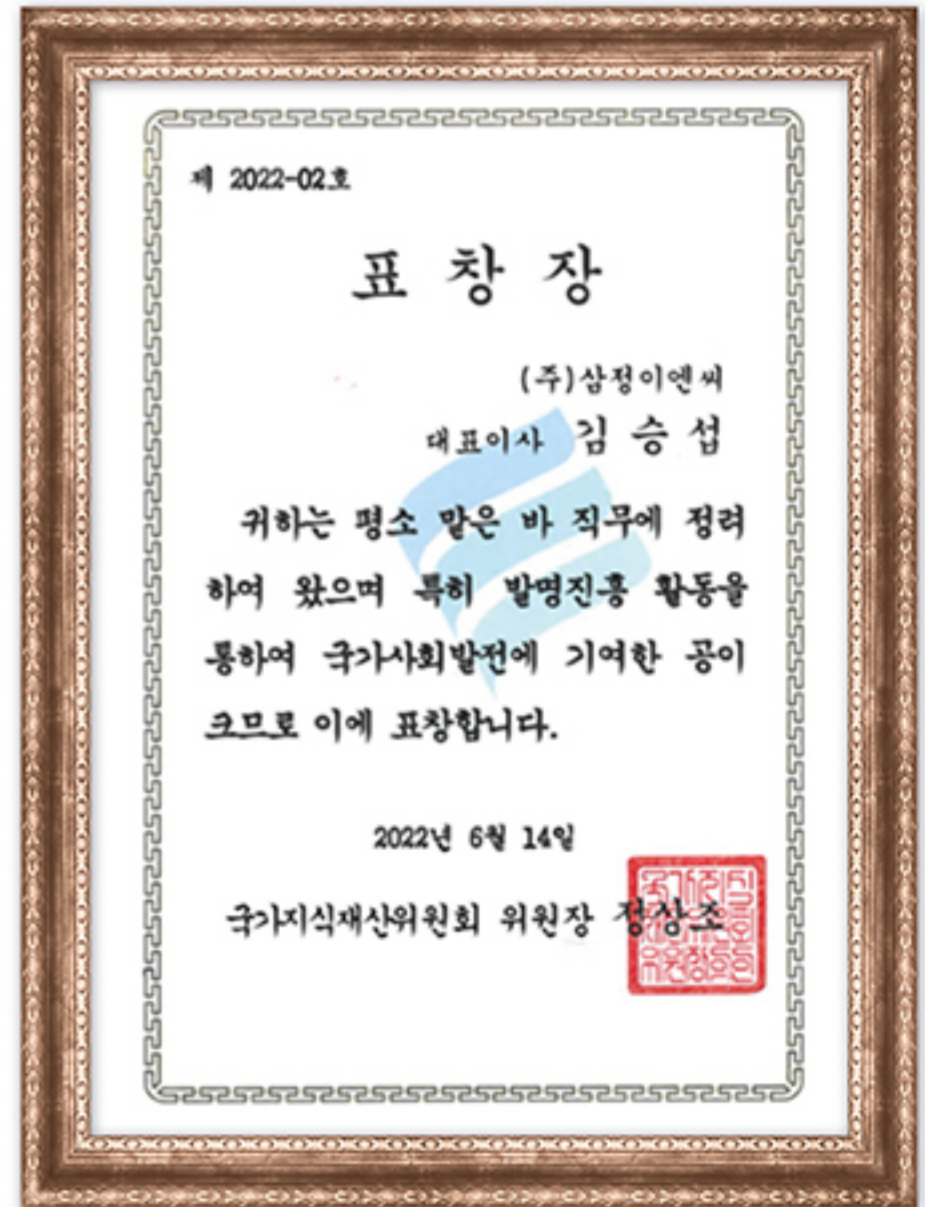
Not satisfied with this, through R&D and facility investment, we have developed hydrogen industry equipment technology from hydrogen gas production to storage utilization, which requires high stability and efficiency, to the highest technical level by applying our own patented technology.



Presidential Commendation



Awarded the Minister of Trade, Industry and Energy Award for the Hydrogen Industry in August 2022



AWARD CERTIFICATE FROM THE PRESIDENTIAL COUNCIL ON INTELLECTUAL PROPERTY

Carbon Neutrality

Definition of Carbon Neutrality

Carbon neutrality, or "Net Zero," refers to reducing emissions from human activities and increasing absorption rates to bring the net emissions to zero, in order to prevent the increase in greenhouse gas concentrations in the atmosphere.

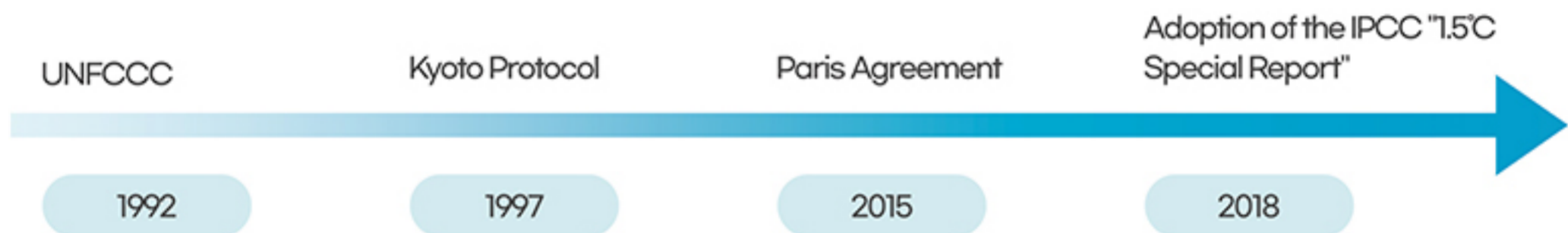
South Korea is working towards achieving carbon neutrality by 2050.



Background for Carbon Neutrality Initiatives

The international community has recognized the severity of global warming caused by human emissions of greenhouse gases and is working to address the climate crisis.

Through agreements like the Climate Change Convention (1992), the Kyoto Protocol (1997), and the Paris Agreement (2015), global efforts have been made to limit the rise in average global temperatures.

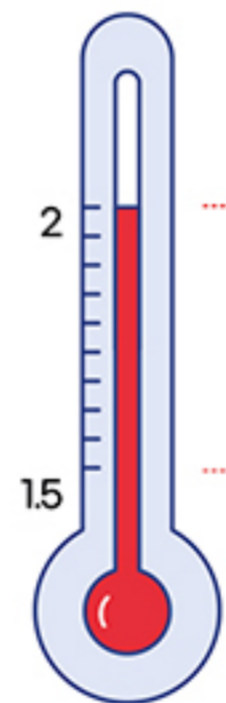


Why Was the Goal Set to Limit Global Warming to Below 1.5°C?

Despite ongoing climate change since industrialization, its effects have not appeared drastically because various elements of the Earth's system have buffered the impact of climate change.

However, the rapid changes in the Earth's system interactions due to climate change have triggered a climate crisis, leading to the establishment of the climate threshold (1.5°C).

The climate threshold represents the ultimate boundary that must not be crossed to ensure human survival and ecosystem preservation.



- 2°C Rise**
- Rising Sea Levels
 - Ecosystem Destruction
 - Extreme Weather Events
 - Health Deterioration and Population Decline

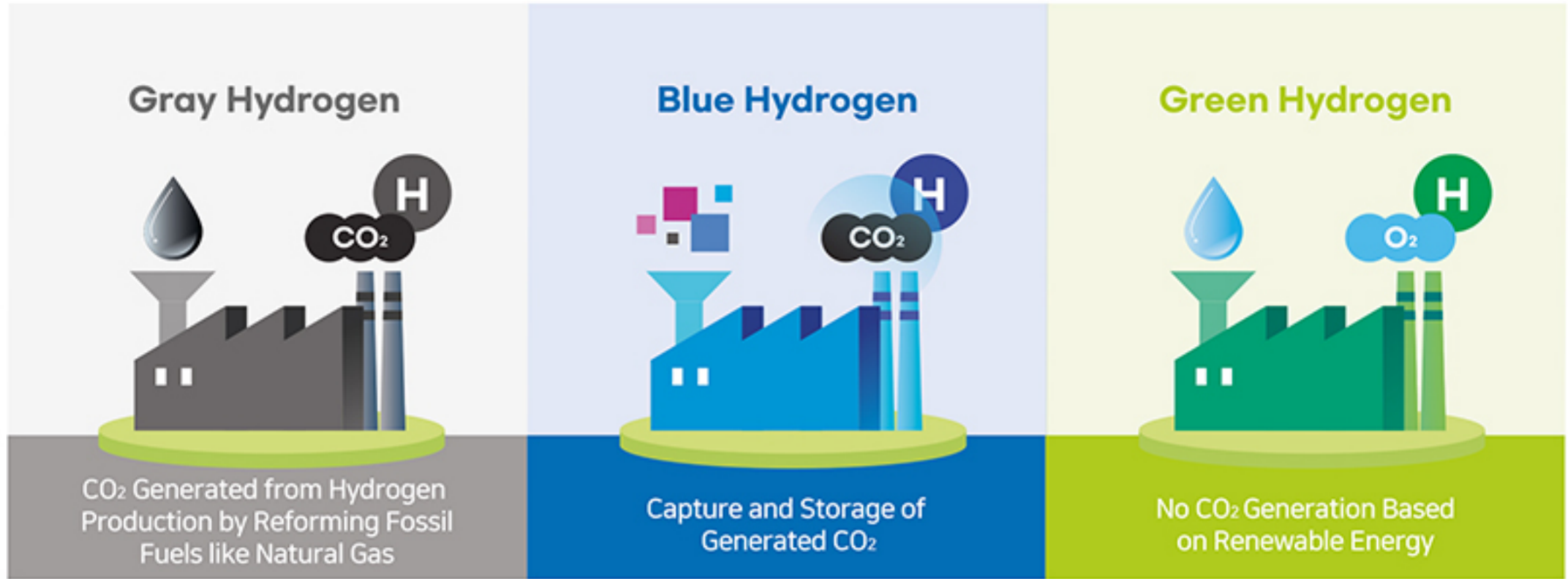
- 1.5°C Rise**
- Increase in Average Temperatures
 - Increase in Damage from Heavy Rain and Drought
 - Damage to Marine Ecosystems and Fishery Yields
 - Loss of More than Half of Ecosystems

Samjung ENC Co., Ltd. is committed to realizing carbon neutrality by designing, manufacturing, delivering, and maintaining eco-friendly products such as hydrogen coolers, as part of its efforts towards achieving Net Zero.

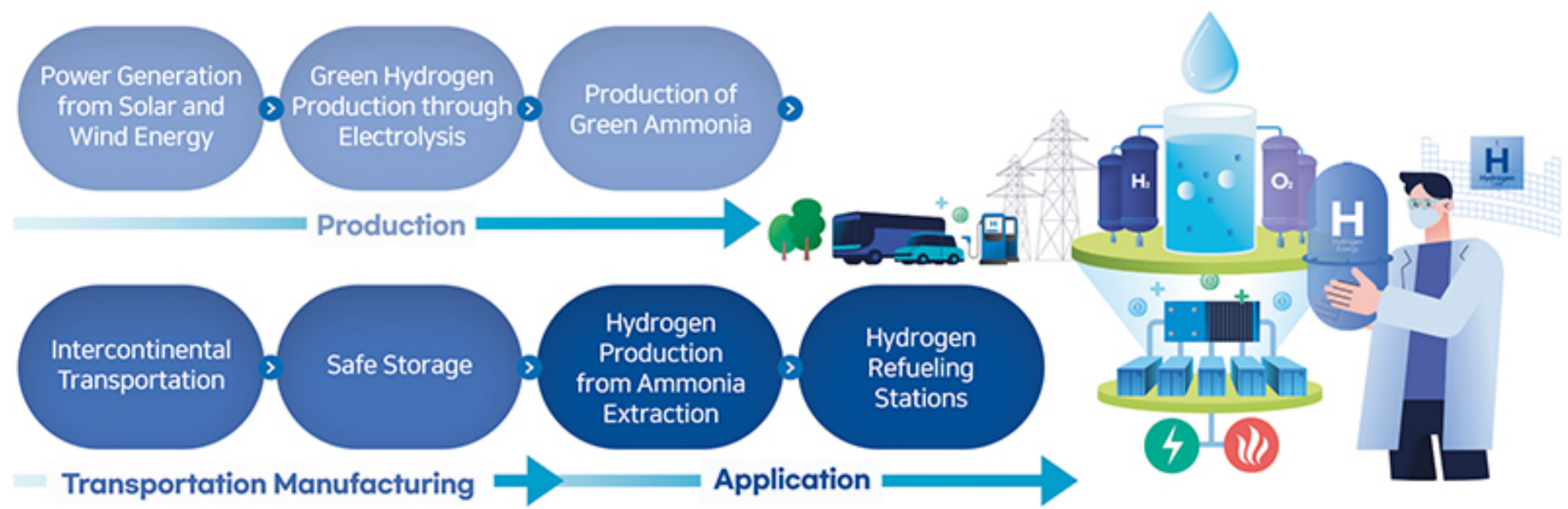


Carbon Neutrality

Types of Hydrogen



Green Hydrogen Business Model



Samjung ENC's Carbon Neutrality Practices



ESG Management

It is a management activity that aims to enhance both the financial and non-financial value of a company by internalizing the economic and social impacts on the environment, local communities, and customers, based on transparent governance.



Leading Company in Promoting the Eco-Friendly Hydrogen Economy



Development of Hydrogen Utilization Technology



Development and Mass Production of High-Efficiency Energy-Saving Products



Securing Stable Operation of Hydrogen Refueling Stations



A Company that Communicates and Collaborates with Customers



Expansion of Eco-Friendly Investments



Certified as a Rightful Company



Business Agreement on Hydrogen Energy Specialists



Greening the Jeongok Marine Industrial Complex



Helping Our Neighbors through the Hwaseong Chamber of Commerce



Donation to Seosin-myeon in September 2021



Commemoration of the 23rd Hwaseong Citizens' Day



Leading Activities in the Hydrogen Industry



Responsibility to the Nation and Society



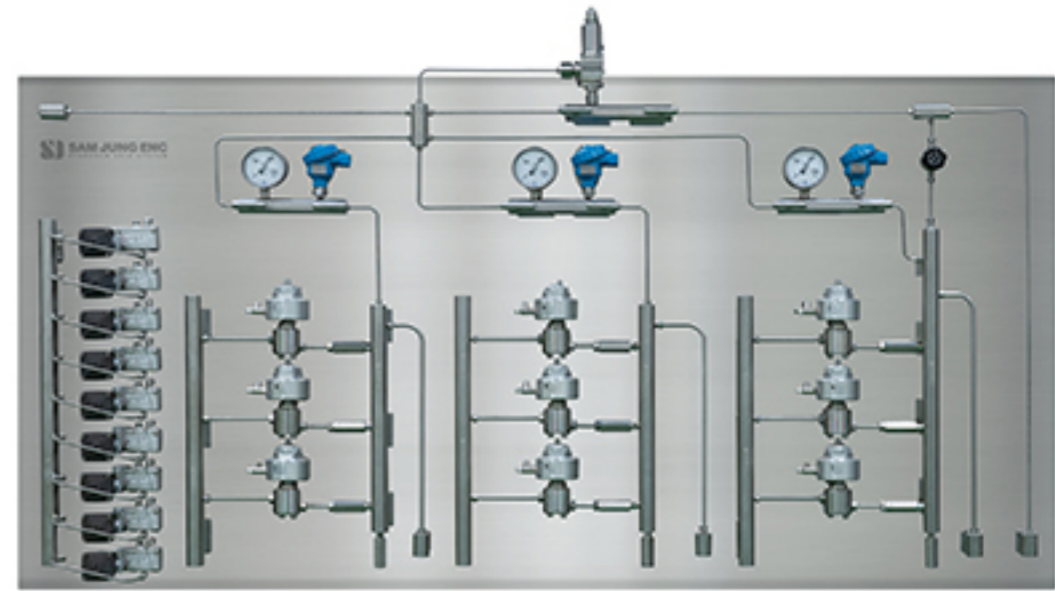
Revitalizing the Local Economy and Corporate Contributions to the Community



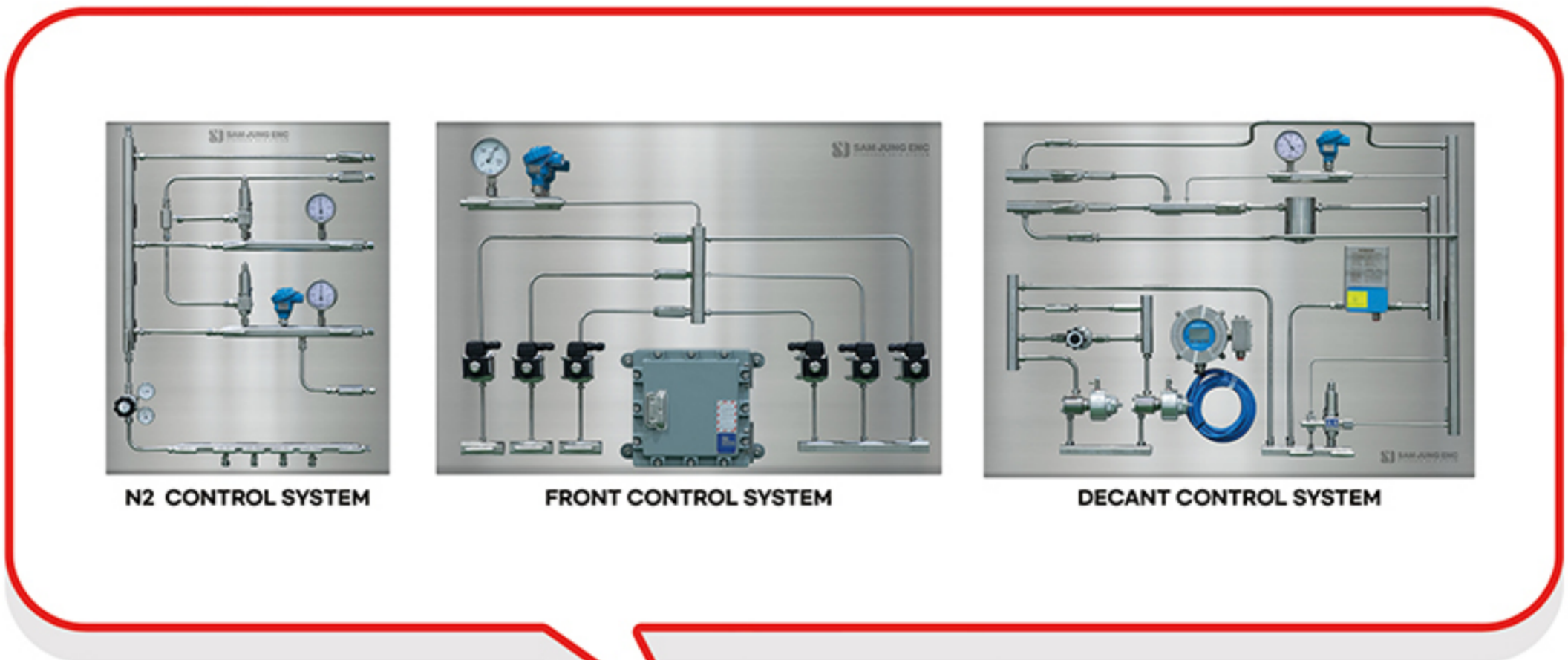
Hydrogen Gas Control System

The hydrogen gas control system must be able to quickly respond to dynamic fluidity such as hydrogen gas leakage, drive part wear, hydrogen embrittlement, and cavitation that may occur during long-term use.

SAMJUNG ENC secures stability and reliability by supplying materials and parts that are strictly quality-controlled and manufactured with its own equipment at short notice.



SAMJUNG ENC's Equipment



**Gaseous Hydrogen Charging Station
T40 Continuous Charging / SAE J2601 Charging**

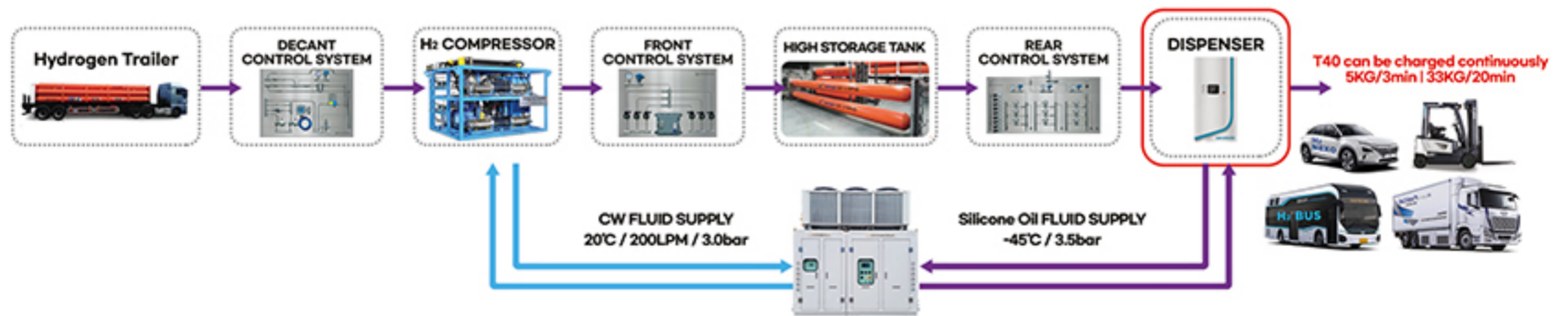


Hydrogen DISPENSER

It is an environmentally friendly hydrogen charging station that allows autonomous and self-service charging, focusing on hydrogen gas quality, precise charging, and anti-icing to promote an eco-friendly image.

As part of the goal of domestic production, more than 30% of the internal components of the hydrogen charging station are produced using equipment owned by SAMJUNG ENC, ensuring a stable supply.

SAMJUNG ENC's Equipment



**Gaseous Hydrogen Charging Station
T40 Continuous Charging / SAE J2601 Charging**

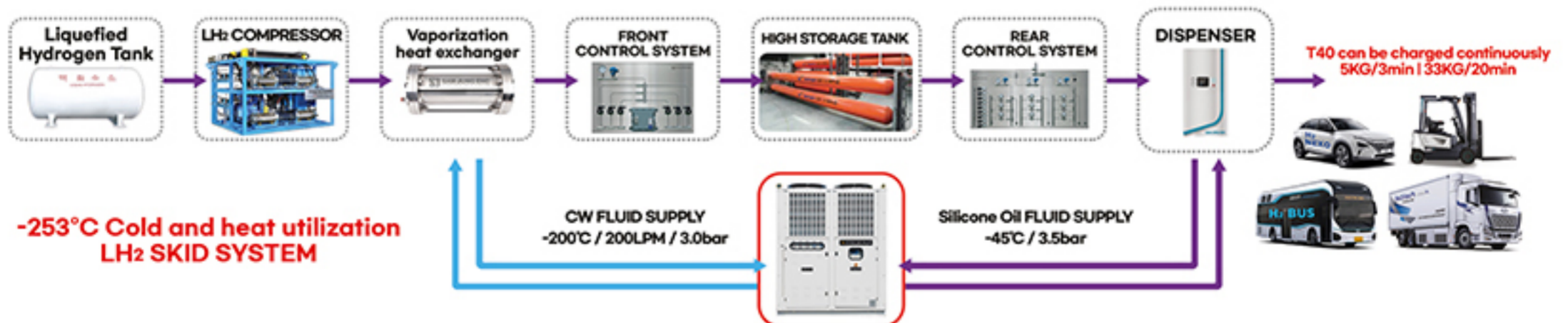
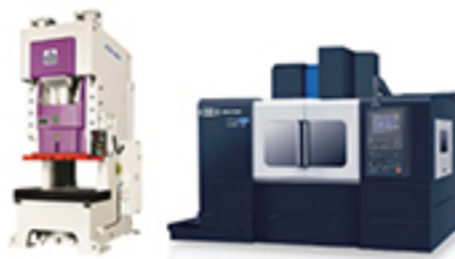


Liquid Hydrogen Skid Systems

This is a large-capacity hydrogen refueling station that utilizes the ultra-low temperature and heat of liquefied hydrogen (LH₂), and it is an eco-friendly hydrogen refueling station by limiting the use of freon gas and using low consumption power.

The LH₂ SKID SYSTEM has the advantage of high stability and fast vaporization by configuring a heat exchange system for liquefied hydrogen vaporization and a liquefied hydrogen heat exchanger with patented technology.

SAMJUNG ENC's Equipment



Liquid Hydrogen Charging Station
Eco-friendly hydrogen charging / T40 Continuous Charging
/ SAE J2601 Charging

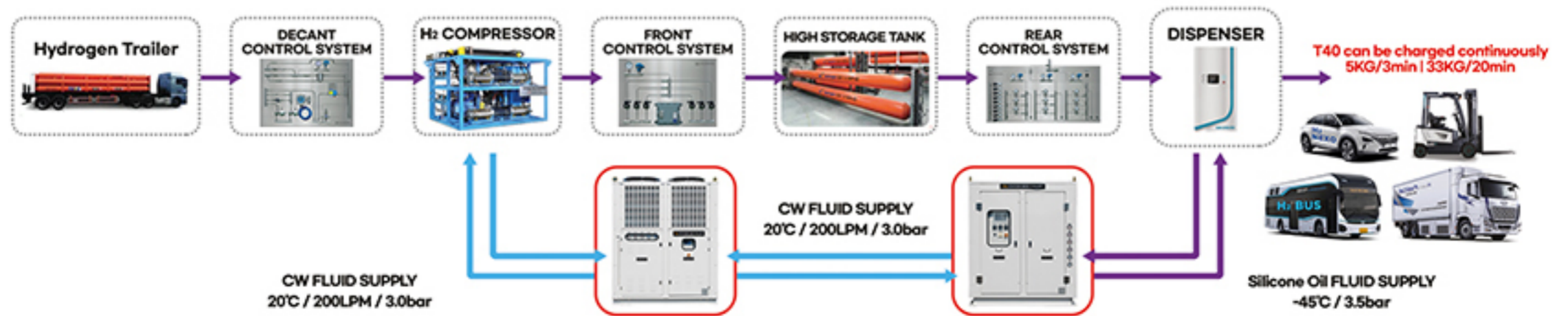


Hydrogen SKID SYSTEM

A representative core chiller for gaseous hydrogen refueling stations. It is the H₂ CHILLER SKID SYSTEM, which is in stable commercial operation at 154 hydrogen refueling stations in Korea.

The H₂ CHILLER SKID SYSTEM is a patented cooling system for hydrogen gas charging stations that can charge 12 units continuously regardless of seasonal atmospheric temperature changes and hydrogen gas load in summer.

SAMJUNG ENC's Equipment



**Gaseous Hydrogen Charging Station
T40 Continuous Charging / SAE J2601 Charging**



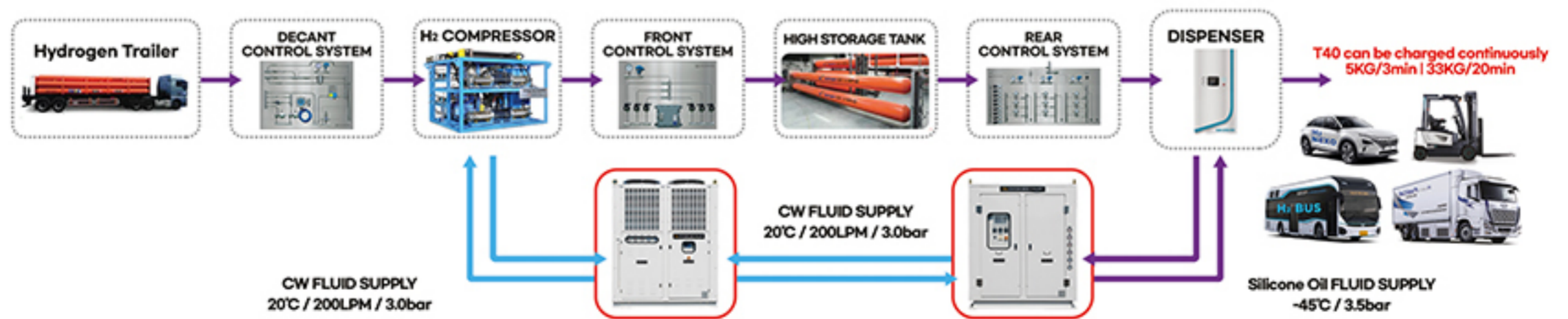
Electrolysis Cooling System

As green hydrogen production diversifies and electrolysis technology advances, the role of cooling systems in the hydrogen industry's technological advancements becomes increasingly important.

This eco-friendly cooling device maximizes the stability and efficiency of green hydrogen production systems by cooling the heat generated during the electrolysis process using a dry cooler with atmospheric convection cooling.



SAMJUNG ENC's Equipment



**Gaseous Hydrogen Charging Station
T40 Continuous Charging / SAE J2601 Charging**

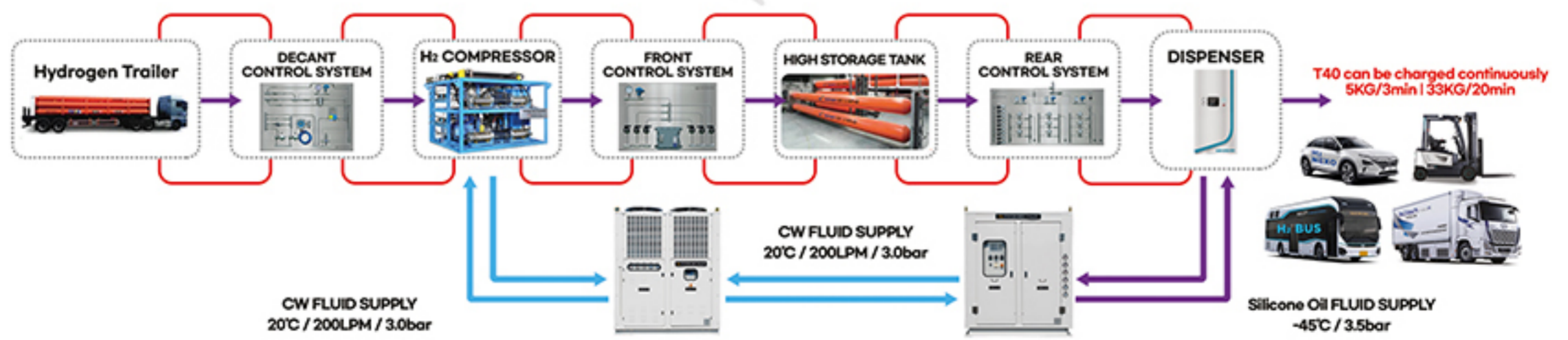
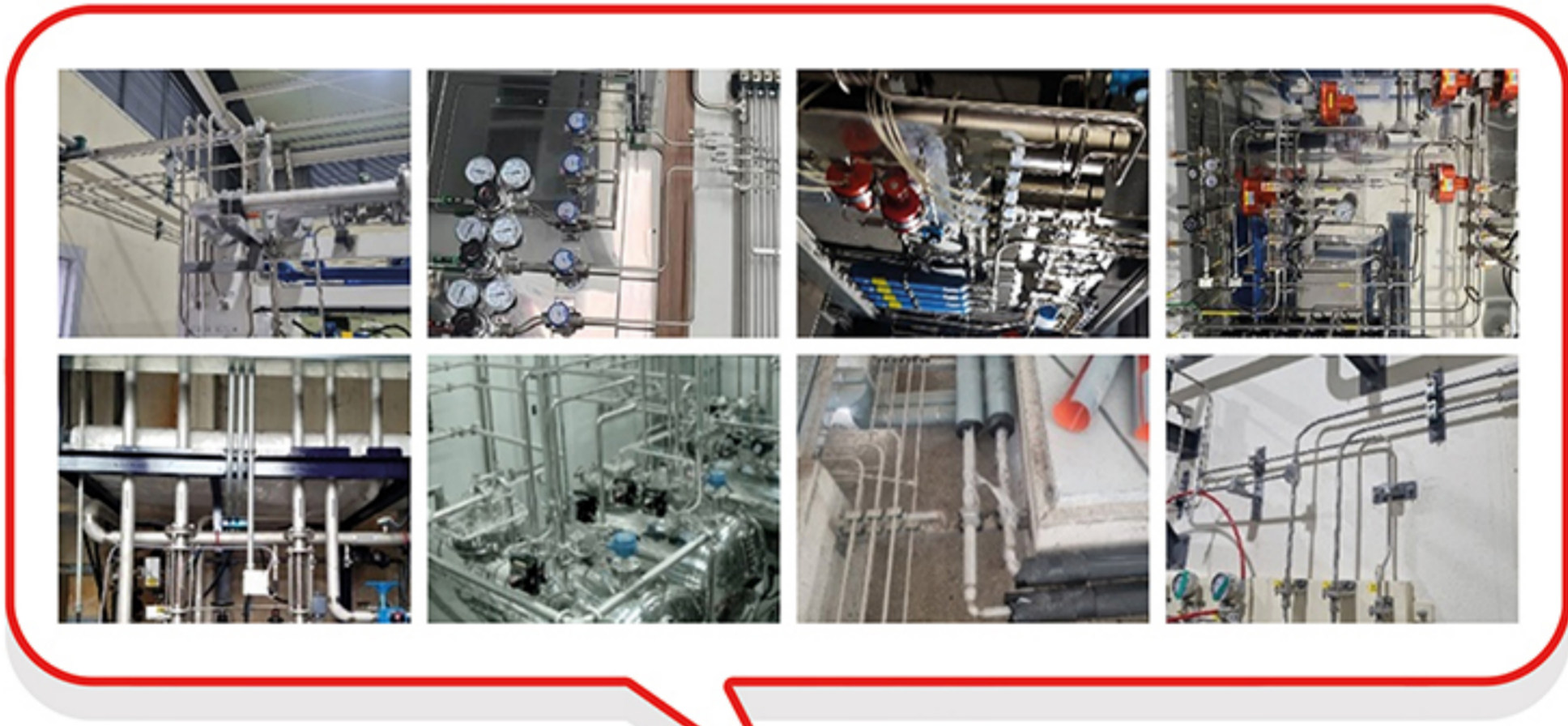
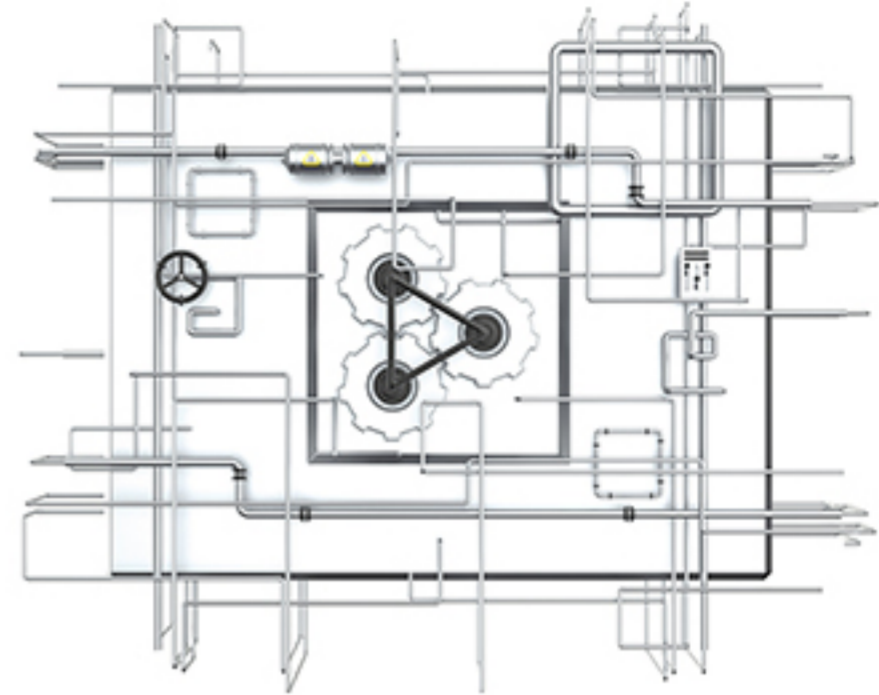


Utility Piping System

Hydrogen refueling stations are special places where gaseous hydrogen pressure of about 800 Bar is operated at ultra-high pressure.

SAMJUNG ENC has been a specialized equipment company in system engineering for over 30 years, performing utility piping facilities ranging from primary industries to advanced semiconductor industries.

SAMJUNG ENC's Equipment



**UTILITY PIPING
FAB PCW SYSTEM H₂ GAS 800Bar INTERNAL PRESSURE**



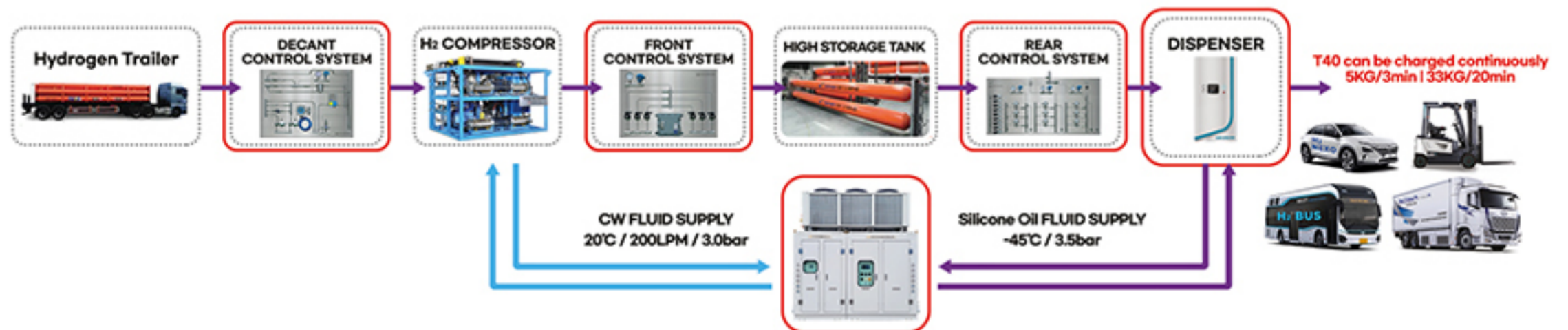
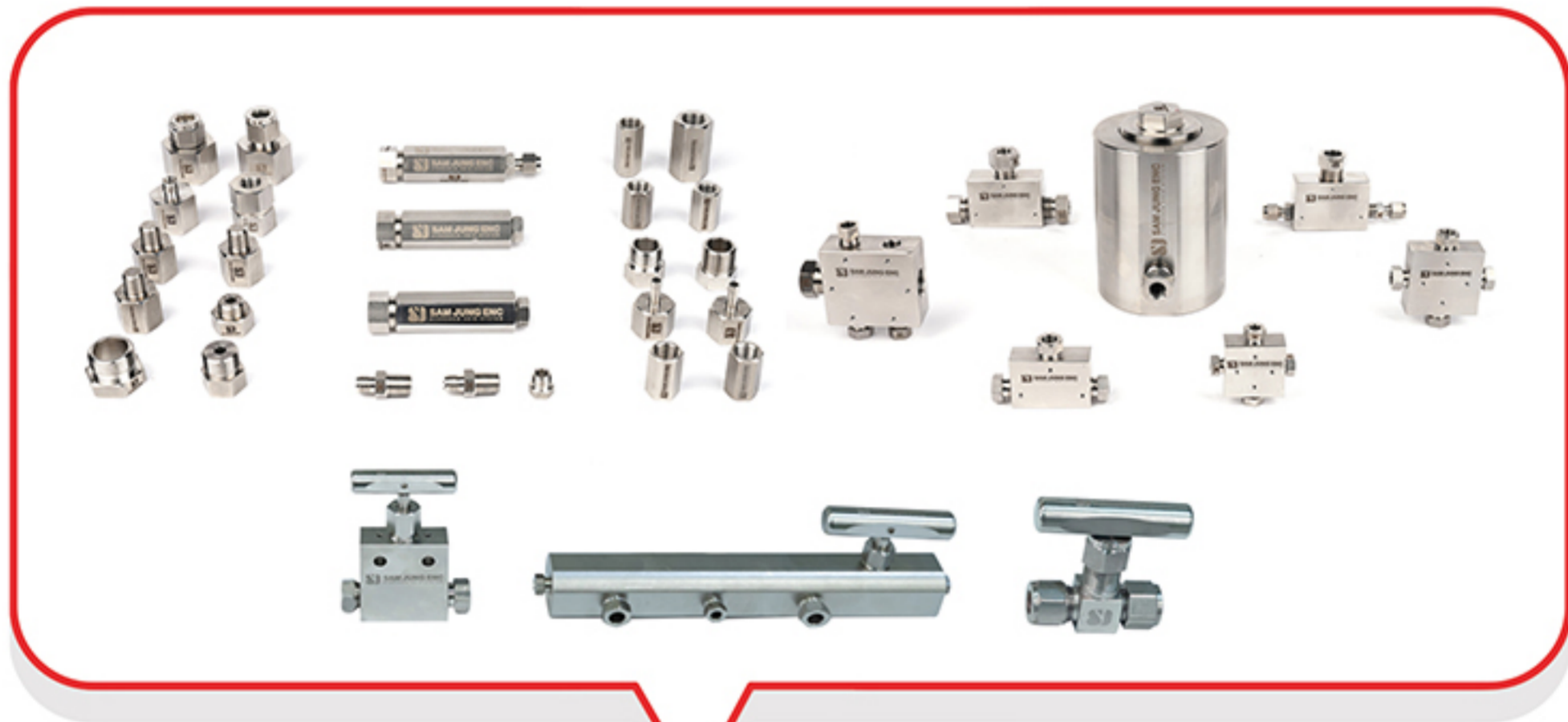
Valves & Fittings

The hydrogen industry in South Korea relies on imports for over 70% of its components.

Following the government's policies on hydrogen economy activation, fostering the world's leading hydrogen industry, energy security, and localization, SAMJUNG ENC strictly manufactures and produces domestic materials and components with its own technical expertise.



SAMJUNG ENC's Equipment



Gaseous Hydrogen Charging Station
T40 Continuous Charging / SAE J2601 Charging



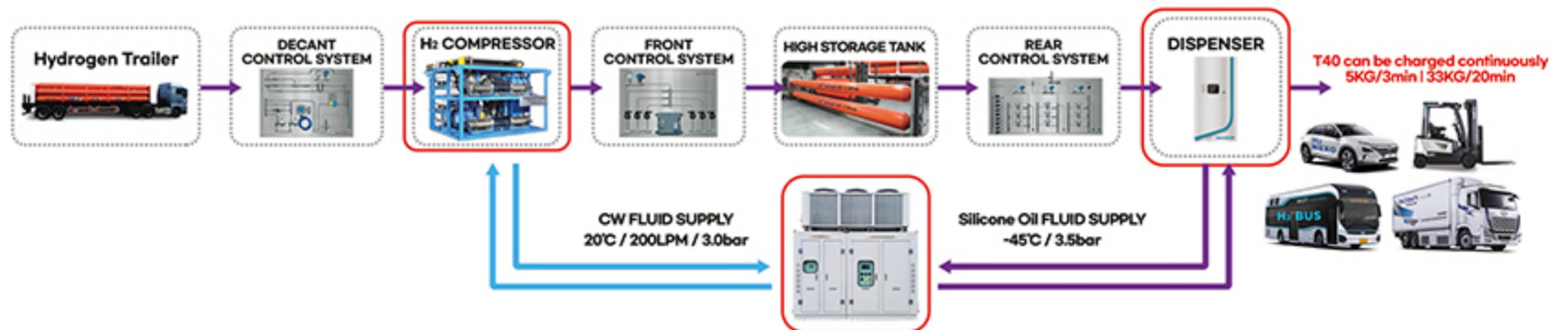
Hydrogen Heat Exchangers

It is a heat exchanger that determines the energy efficiency, equipment performance, and stability of the hydrogen industry.

SAMJUNG ENC is collaborating with the Korea Institute of Mechanical Research (KIMM) to develop a hydrogen heat exchanger, which is more efficient than the existing H₂ PCHE (PRINTED CIRCUIT HEAT EXCHANGER) heat exchanger and has no hydrogen gas leak in terms of safety.



SAMJUNG ENC's Equipment



Gaseous Hydrogen Charging Station
T40 Continuous Charging / SAE J2601 Charging



Water-cooled H2 CHILLER for Global Environments



Air-cooled H2 SUB CHILLER



Water-cooled H2 MAIN CHILLER

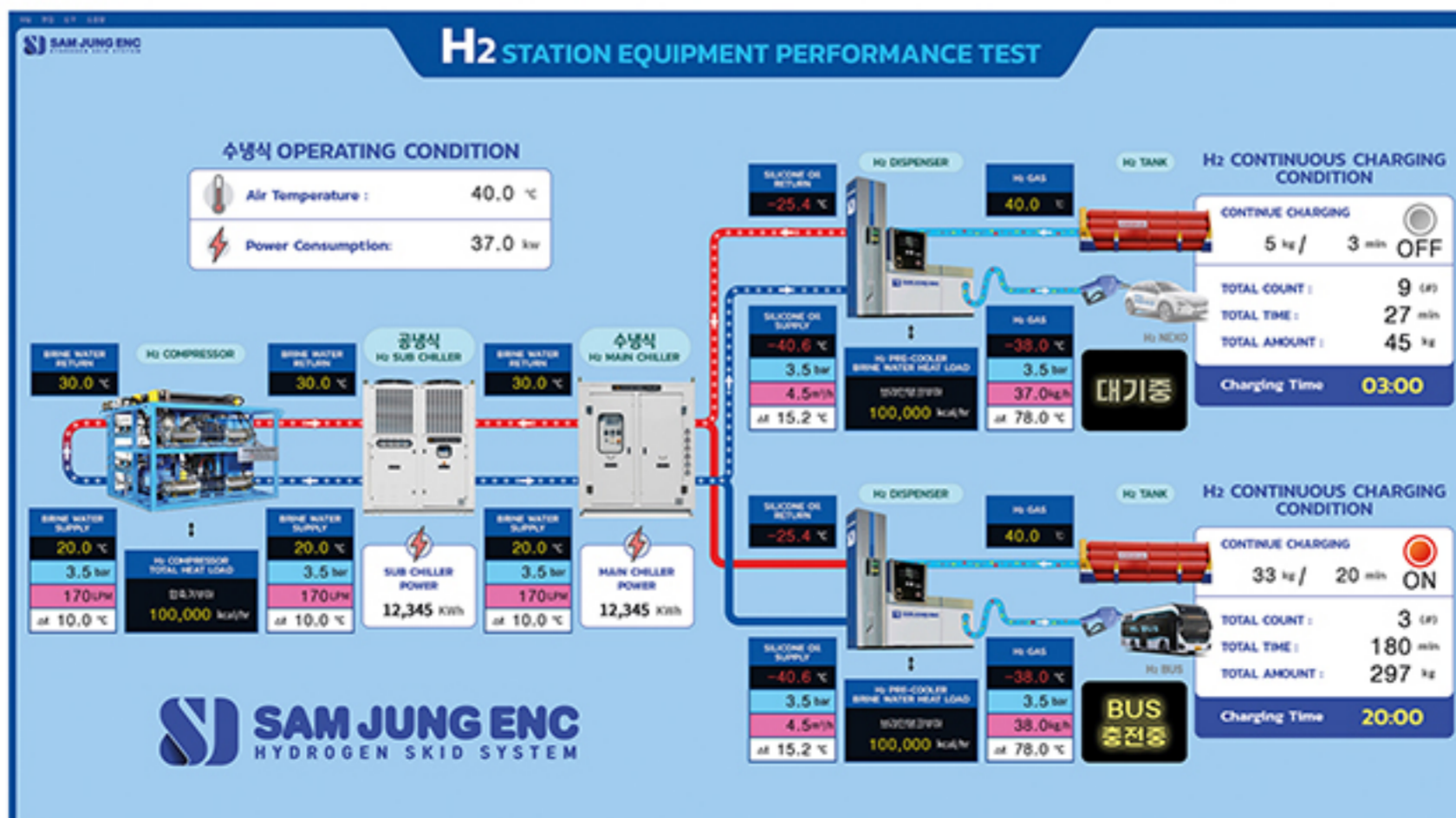


CE Certification acquired

Water-cooled H2 CHILLER is a representative product in stable commercial operation at more than 154 hydrogen charging stations in Korea.

It is suitable for the GLOBAL climate characteristic of the four seasons and tropical Condition, and it is a product that can meet the extreme freezing capacity effect by cooling the CONDENSER temperature of the refrigerant by water cooling.

Hydrogen compressor cooling water and DISPENSER CHILLER cooling water are available at the same time, and the configuration is supplied and installed in 1SYSTEM with 1 MAIN CHILLER AND 1 SUB CHILLER, for a total of 2 units.

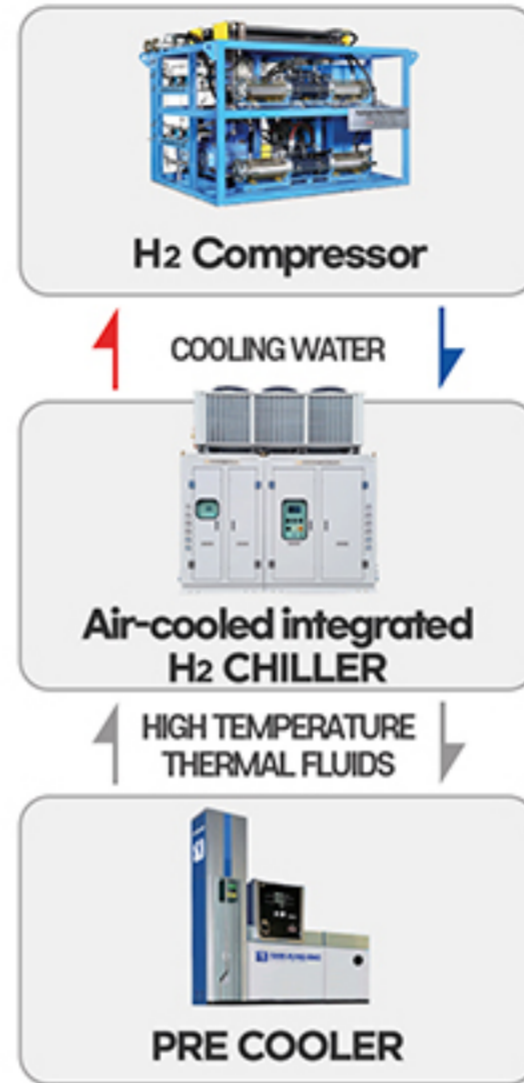




Specialized air-cooled integrated H2 CHILLER focused on customers



Air-Cooled Integral Type H2 CHILLER

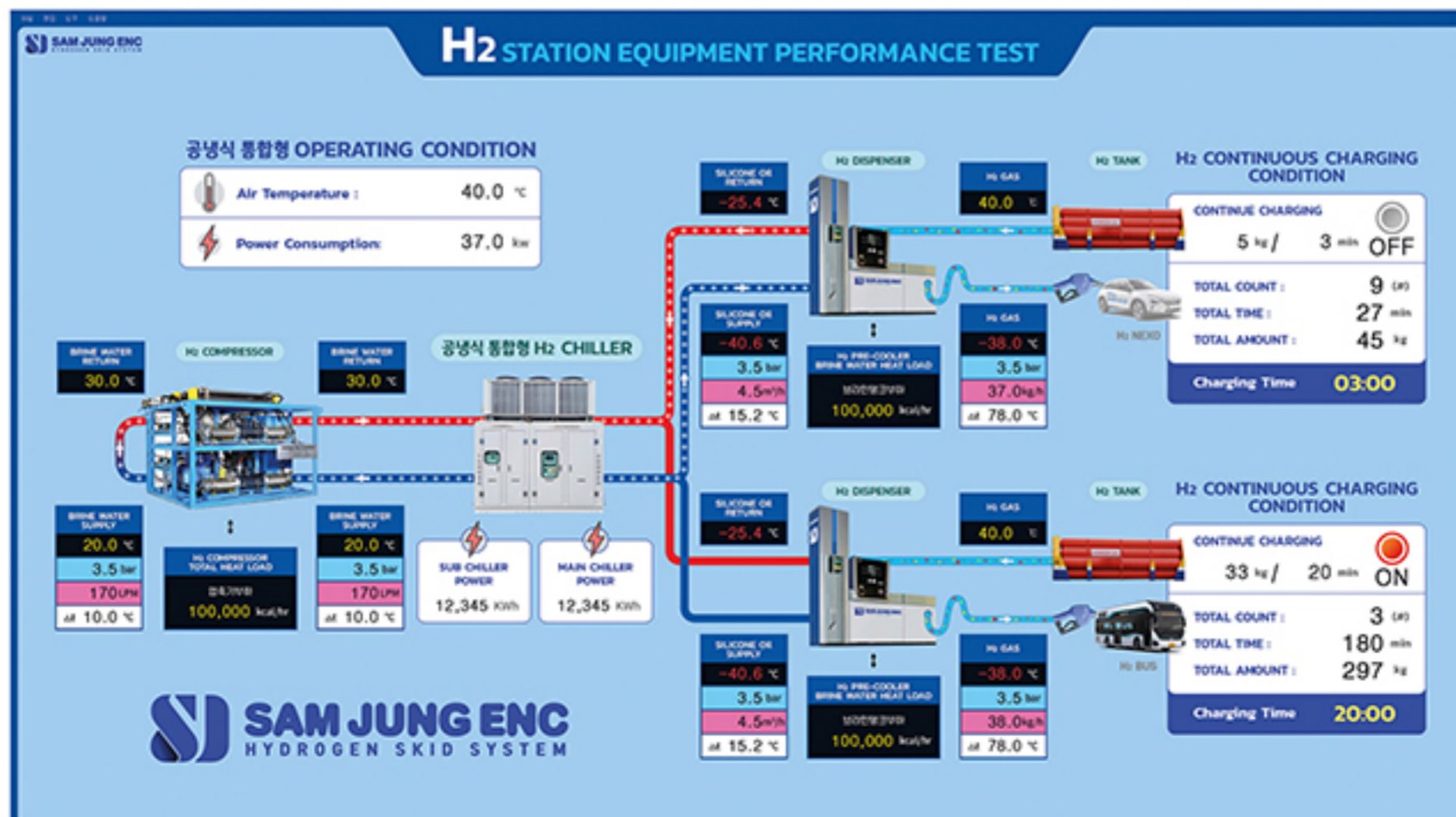


CE Certification acquired

It is an integrated H2 CHILLER with air cooling that reduces the hydrogen refueling station UTILITY footprint and dramatically simplifies the piping installation.

The simultaneous use of H2 COMPRESSOR cold water and DISPENSER CHILLER cold water minimizes the site area in the hydrogen refueling station, and is one of a variety of SOLUTIONS products that are easy to integrated manage.

Especially, it is suitable for the GLOBAL climate characteristic of the four seasons and tropical conditions.





H2 CHILLER for Mobile Hydrogen Charging Station



The mobile explosion-proof H2 CHILLER
(Zone 1,2 EX d IIB+H2)



↑ COOLING WATER ↓



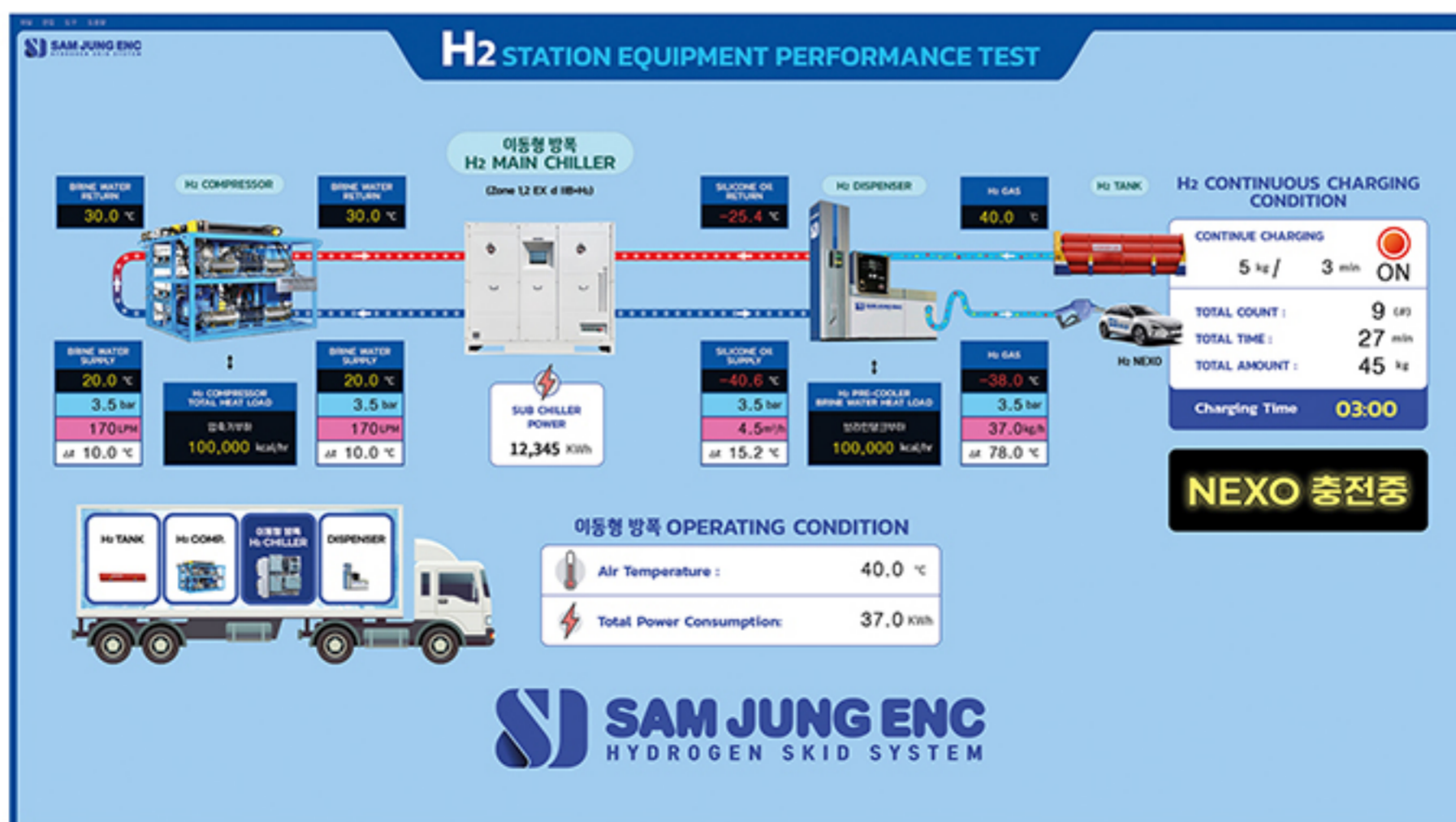
↑ HIGH TEMPERATURE THERMAL FLUIDS ↓



CE Certification acquired

The mobile explosion-proof H2 CHILLER (Zon3 1,2 EX d IIB+H2) is a product of technology that requires efficient operation and the highest level of safety.

The mobile explosion proof H2 CHILLER is a specialized next-generation hydrogen gas charger with explosion proof rating, space optimization design, high efficiency performance and durability design that can withstand vibration stress.

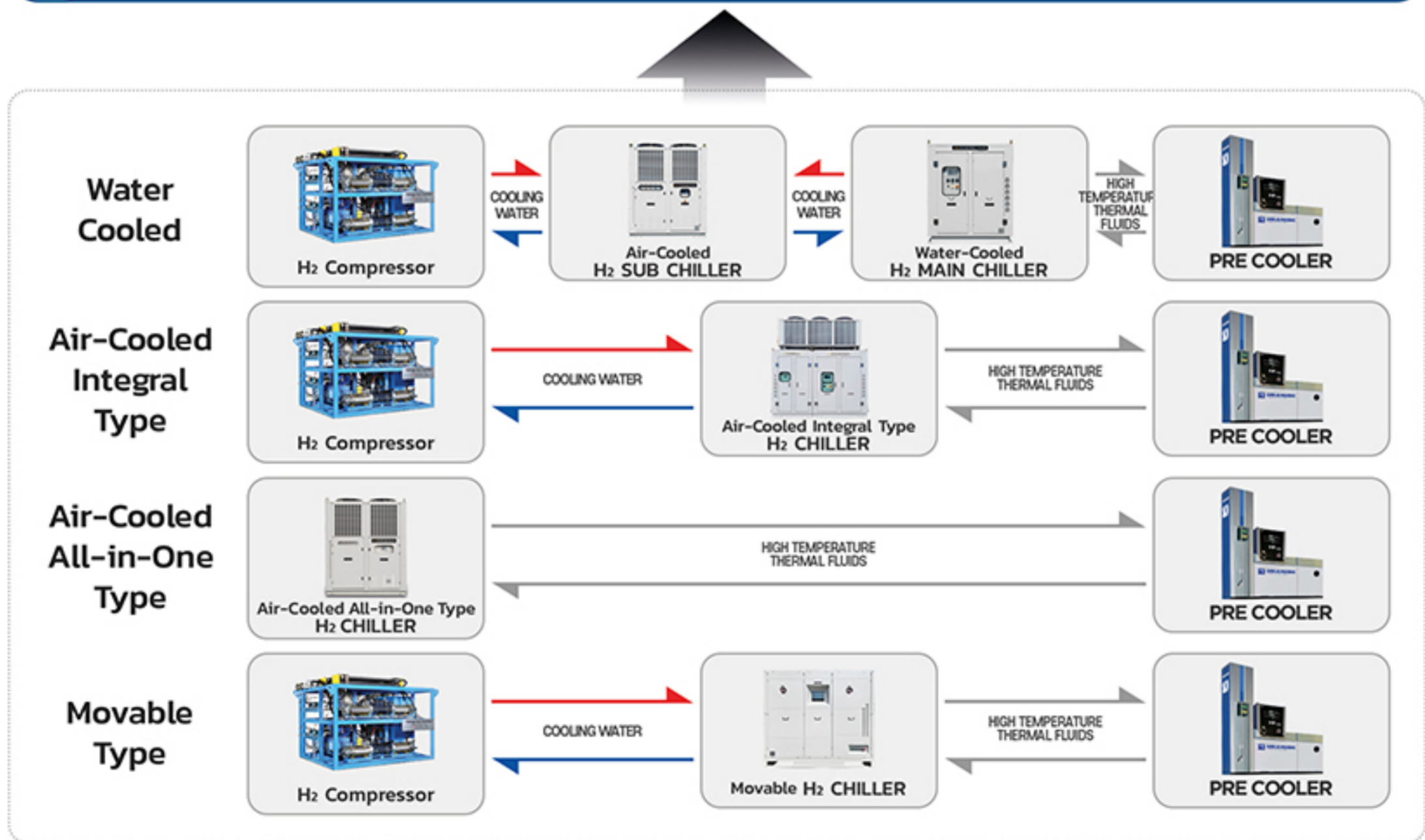


How to select the Chiller Type for Hydrogen Charging



Features of SAMJUNG ENC H₂ STATION Cooling System

- 1 Rechargeable continuously (based on H₂ NEXO 5kg/3min, H₂ Bus 29kg/15min)
- 2 Quick Cool to reduce cooling time
- 3 Reduction of charging waiting time by installing inverter pump
- 4 Maintain the PRE COOLER temperature for 365 days regardless of outside air temperature or charging temperature.
- 5 Minimize charging heat load shock by applying PUMP individually
- 6 Precise temperature deviation management functioned by maintaining set temperature
- 7 H₂ Installation location in charging station / manufacturing Cooler according to installation area conditions
- 8 Maintenance of Cooler for domestic and foreign hydrogen charging
- 9 Establishment of an emergency service network system for all regions of Korea
- 10 Establish systems for installation and operation in GLOBAL locations



Next generation H₂ CHILLER SYSTEM



State of SAMJUNG ENC's supply of the H₂ Chillers



Metropolitan area (Seoul, Gyeonggi, Incheon)

- Goyang wondang Charging Station
- Gwangmyeong Charging Station-1
- Guritopyeong Charging Station
- Gimpo Charging Station
- Namyangju Charging Station
- Balan Charging Station
- Bucheon City Corporation Charging Station
- Seongnam Charging Station
- Suwon Gwanggyo Service Area
- Suwon Topdong Charging Station
- Ansan Sangrok Charging Station
- Ansan Charging Station
- Ansungmatchum Service Area
- Anseong Charging Station
- Anseong Service Area
- Yeosu Service Area
- Pajumunbal Charging Station
- Pyeongtaek Wolgok Charging Station-1
- Pyeongtaek Wolgok Charging Station-2
- Pyeongtaek Charging Station
- Pyeongtaek Port Charging Station-1
- Pyeongtaek Port Charging Station-2
- Pyeongtaek Port Charging Station-3
- Hanamdream Service Area
- Hwaseong Charging Station
- Gangseo Bus Charging Station-1
- Gangseo Bus Charging Station-2
- Gangseo Bus Charging Station-3
- Seosomun Service Area
- Seoul Magok Charging Station
- Seoul Ogok Charging Station
- Seocho Station
- Jinkwan Charging Station-1
- Jingwan Charging Station-2
- Jingwan Charging Station-3
- National Assembly building Charging Station
- Yangjae Charging Station-1
- Yangjae Charging Station-2
- Gangnam Segok Charging Station
- Cheonghwa Dobong Charging Station
- Incheon Gyeyang Charging Station
- Incheon Seogu(Yeonhui) Charging Station
- Incheon Seo-gu Charging Station
- Incheon Songdo Charging Station
- Incheon Oryu Charging Station
- Incheon Jung-gu Charging Station
- Incheon Techno Park Charging Station
- Incheon Port-1
- Incheon Port-2
- Incheon Port-3
- Hyundai Steel Incheon Charging Station-1
- Hyundai Steel Incheon Charging Station-2
- Yongsan Mega Charging Station-1
- Yongsan Mega Charging Station-2
- Incheon Airport Charging Station
- Gwangmyeong Charging Station-2
- Incheon Namdong Nonhyup Hydrogen Shipping Center
- Icheon Majang Charging Station-1
- Icheon Majang Charging Station-2
- Hwaseong Dongtan Charging Station
- Hanam Deokpung Charging Station

Mobile Hydrogen Charging Station

- Chungju Hydrogen Explosion Proof
- Pyeongtaek Hydrogen Explosion Proof-1
- Pyeongtaek Hydrogen Explosion Proof-2
- Hydrogen Explosion Proof for Dron

Winning orders/Supplies to over 220 Charging Stations nationwide (As of April 2023)

Gangwondo

- Daegwanryeong Charging Station
- Donghae Charging Station
- Wonju Charging Station
- Chuncheon Charging Station-1
- Chuncheon Charging Station-2
- Hoengseong Charging Station

Gyeongsangdo

- Gyeongsan Charging Station
- East Busan Charging Station-1
- East Busan Charging Station-2
- East Busan Charging Station-3
- Seobusan NK Charging Station
- Yongsan Charging Station
- Ulsan APK Charging Station
- Ulsan Maeamdong Charging Station
- Ulsan Changgyeong Charging Station
- Jinju Charging Station
- Changwon Charging Station-1
- Changwon Charging Station-2
- Haman Service Area
- Daegu Charging Station-1
- Daegu Charging Station-2
- Daegu Charging Station-3
- Daecheon Charging Station
- Seongju Charging Station
- Chilgok Charging Station
- Ulsan Hyundai Motor NEXO LINE-1
- Ulsan Hyundai Motor NEXO LINE-2
- Korea Automobile Research Institute (Changwon)-1
- Korea Automobile Research Institute (Changwon)-2
- Korea Automobile Research Institute (Changwon)-3
- Korea Automobile Research Institute (Changwon)-4
- Daegu Intelligent Automobile Parts Promotion Agency
- Andong Service Area
- Galjeon Charging Station-1
- Galjeon Charging Station-2
- Gumi Otae Charging Station-1
- Gumi Otae Charging Station-2
- Daedo Hygen Charging Station-1
- Daedo Hygen Charging Station-2
- Yongsan Charging Station-1
- Yongsan Charging Station-2
- Eonyang Charging Station
- Changwon Unit 7 Charging Station
- Busan Donggu Charging Station
- Busan Gijang Charging Station-1
- Ulsan Maeamdong Charging Station
- Daegu Seongseo Charging Station
- Gyeongnam Geoje Charging Station
- Gyeongnam Tongyong Charging Station
- Busan Haeundae Charging Station
- Gyeongbuk Gimcheon Charging Station
- Changwon Gapo Charging Station-1
- Changwon Gapo Charging Station-2
- Changwon Gapo Charging Station-3
- Changwon Unit 8 Charging Station-1
- Changwon Unit 8 Charging Station-2
- Seobusan Charging Station-1
- Seobusan Charging Station-2
- Seobusan Charging Station-3
- Seobusan Charging Station-4
- Daegu Driving Test Site
- Bolbo-Hapcheon Charging Station
- Changwon Paryong Charging Station-1
- Changwon Paryong Charging Station-2

Chungcheongdo (Chungcheongbukdo, Chungcheongnamdo, Daejeon)

- Institute for Advanced Engineering
- Goesan Charging Station
- Naepo Charging Station
- Dangjin Charging Station
- Eumseong Charging Station
- Jukam Service Area-1
- Jukam Service Area-2
- Jincheon Charging Station
- Cheonan Charging Station-1
- Cheonan Charging Station-2
- Cheongju Expressway Service Area
- Chungnam Techno Park (Seosan)-1
- Chungnam Techno Park (Seosan)-2
- Chungnam Techno Park (Asan)-1
- Chungnam Techno Park (Asan)-2
- Daejeon Nangwol Charging Station-1
- Daejeon Nangwol Charging Station-2
- Daejeon Jeonjugi
- Daejeon Jungchon Charging Station
- Daejeon Charging Station-1
- Daejeon Charging Station-2
- Daejeon Charging Station-3
- Daejeon Hakha Charging Station
- Boryeong Charging Station-1
- Boryeong Charging Station-2
- Boryeong Charging Station-3
- Sintanjin Charging Station
- Chungju Charging Station-1
- Chungju Charging Station-2
- Chungju Charging Station-3
- Namcheongju Charging Station-1
- Namcheongju Charging Station-2
- Jaundae Charging Station
- Okcheondae Charging Station-1
- Okcheondae Charging Station-2
- Boeun Charging Station

Jeollado(Jeollabukdo, Jeollanamdo, Gwangju)

- Goheung Charging Station
- Gwangyang Charging Station
- Gwangju Charging Station-1
- Gwangju Charging Station-2
- Gunsan Charging Station
- Deogyusan Charging Station
- Mokpo Charging Station
- Buan Gomso Charging Station
- Buan Charging Station-1
- Buan Charging Station-2
- Osu Charging Station
- Iksan Charging Station
- Jangdeungdong Charging Station-1
- Jangdeungdong Charging Station-2
- Jangheung Charging Station
- Jeonju Songcheon Charging Station-1
- Jeonju Charging Station-1
- Jeonju Charging Station-2
- Jeonju Charging Station-3
- Jeonju Songcheon Charging Station-2
- Jeonju Wanju Charging Station
- Orange Charging Station-1
- Orange Charging Station-2
- Yeonggwang Charging Station

Jeju

- Jocheon Charging Station-1
- Jocheon Charging Station-2



Ansan Charging Station



Chungnam Techno Park (Asan)



Ulsan APK Charging Station



Chungnam Techno Park (Seosan)

Refrigeration Business

SPEED CHILLER



AIR-IN SIDE CHILLER

Air-cooled indoor integral type

It is a product that is widely used in the industrial plants and can be installed easily.

Features of Use

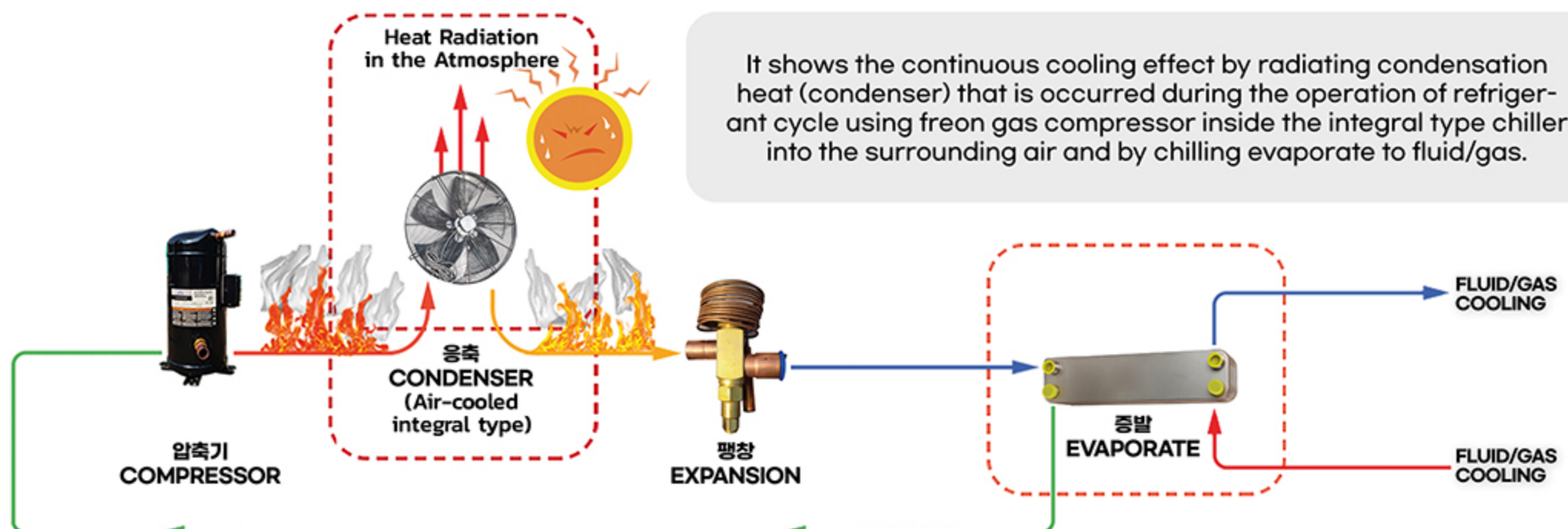
- **Air-cooled indoor integral type**
As an integral type with 1 unit simply, it is designed optimally to be able to adapt the indoor environment.
In particular, it shows the excellent performance of cooling effect for a variety of industrial equipment in the industrial plants.
- **General type**
general chiller to maintain the temperature variation of output cold water within 1-2 °C
- **Precise type**
precise chiller to maintain the temperature variation of output cold water within 0.3-0.7 °C



Standard specifications

Division/Model	SJ-01A	SJ-02A	SJ-03A	SJ-05A	SJ-075A	SJ-10A	SJ-15A	SJ-20A	SJ-25A	SJ-30A	SJ-40A	
Rated power of compressor (kw)	0.75	1.5	2.2	3.75	5.6	7.5	11.25	15	19	22.5	30	
Pump power (kw)	0.4	0.4	0.75	0.75	1.1	1.5	1.8	2.2	3	3	4	
Discharge rate (l/min)	55	55	80	120	150	200	250	320	400	400	450	
Cooling capacity (kcal/h)	2,800	5,500	8,500	15,000	22,500	30,000	45,000	60,000	75,000	90,000	120,000	
Maximum discharging pressure (bar)	2	2	2	3	3	3	3	4	4	4	4	
Weight (kg)	80	130	180	400	480	600	700	800	900	1,000	1,200	
Tank volume (l)	17	23	33	80	120	160	200	230	300	300	380	
Refrigerant	FREON R-407C											
Total consumption power (kw)	1	2	3	5	7	9.5	14	20	25	28	38	
External size (front)	L	500	500	500	650	650	750	750	850	850	1,050	1,050
	W	850	850	850	1,250	1,250	1,600	1,900	2,200	2,200	3,000	3,000
	H	1,400	1,790	1,790	1,790	1,790	2,000	2,200	2,300	2,300	2,300	2,300

Operational principle of chiller



Refrigeration Business



AIR-OUT SIDE CHILLER

Air-cooled outdoor integral type

It can be widely used in the industrial plants and installed simply in a variety of installation environments such as indoors and outdoors.

Features of Use

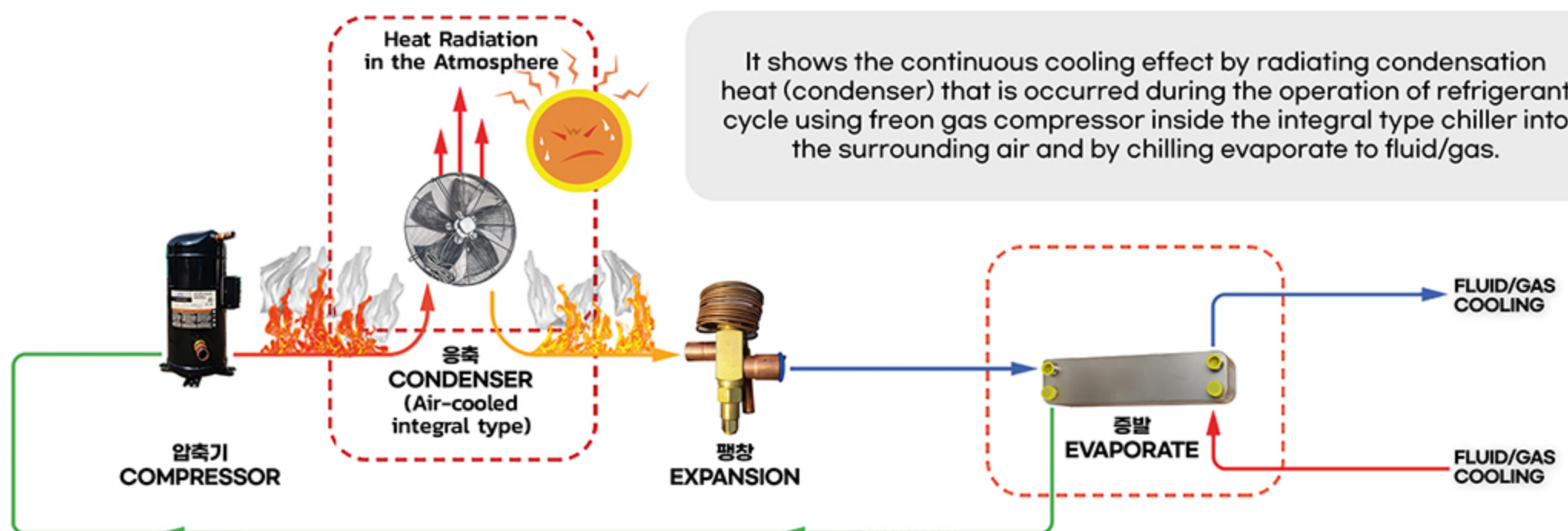
- **Air-cooled outdoor integral type**
As an integral type with 1 unit simply, it is designed optimally to be able to adapt multiple installation environments such as indoors and outdoors. In particular, it shows the excellent performance of cooling effect for a variety of industrial equipment in the industrial plants.
- **General type**
general chiller to maintain the temperature variation of output cold water within 1-2 °C
- **Precise type**
precise chiller to maintain the temperature variation of output cold water within 0.3-0.7 °C



Standard specifications

Division/Model	SJ-03A	SJ-05A	SJ-075A	SJ-10A	SJ-15A	SJ-20A	SJ-25A	SJ-30A	SJ-40A	SJ-50A	SJ-60A	
Rated power of compressor (kw)	2.2	3.75	5.6	7.5	11.25	15	19	22.5	30	38	45	
Pump power (kw)	0.75	0.75	1.1	1.5	1.8	2.2	3	3	4	5.5	7.5	
Discharge rate (l/min)	80	120	150	200	250	320	400	400	500	600	700	
Cooling capacity (kcal/h)	8,500	15,000	22,500	30,000	45,000	60,000	75,000	90,000	120,000	150,000	180,000	
Maximum discharging pressure (bar)	2	3	3	3	3	4	4	4	4	4	4	
Weight (kg)	300	400	500	600	700	800	900	1,000	1,100	1,200	1,300	
Tank volume (l)	33	80	120	160	200	230	300	300	380	450	550	
Refrigerant	FREON R-407C											
Total consumption power (kw)	3	5	7	9.5	14	20	25	28	38	45	55	
External size (front)	L	700	700	800	800	1,030	1,030	1,030	1,030	1,030	1,040	1,040
	W	1,260	1,260	1,400	1,400	1,630	1,950	1,950	2,800	2,800	3,740	3,740
	H	1,900	1,900	1,900	1,900	2,300	2,300	2,300	2,400	2,400	2,400	2,400

Operational principle of chiller



Refrigeration Business

SPEED CHILLER



AIR-REMOTE CHILLER

Air-cooled separable type

It can be installed where has the limitation for industrial plants or requires quietness.

Features of Use

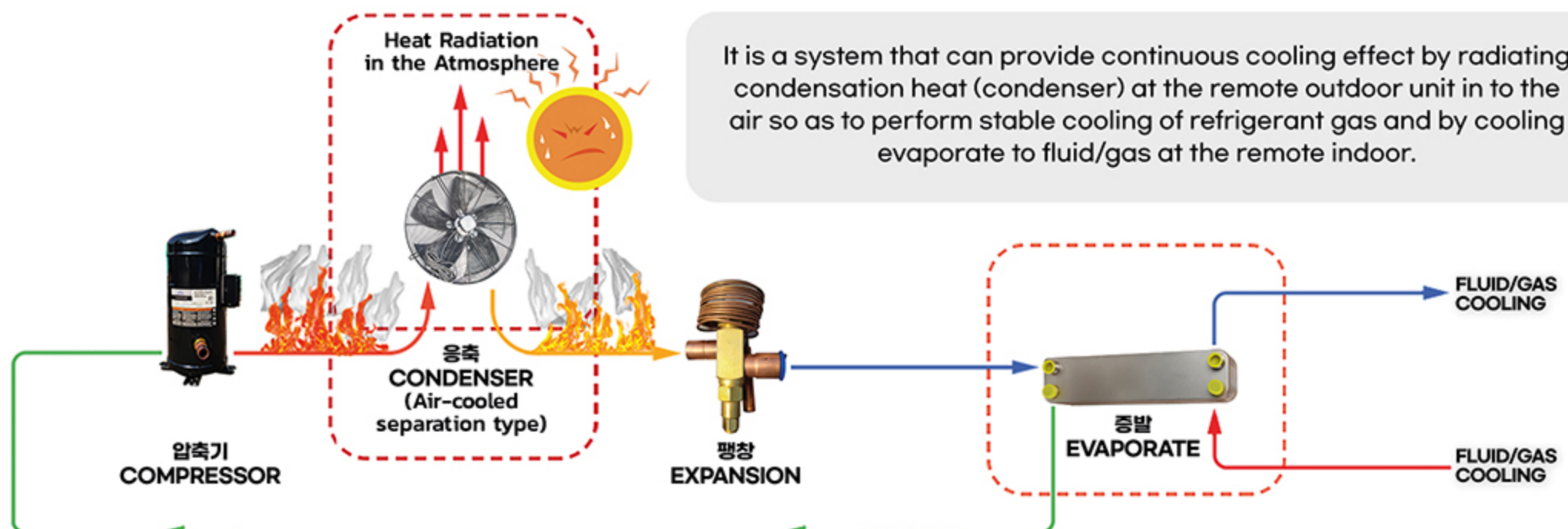
- **Air-cooled separable type**
It consists of two independent remotes to be installed both in indoor and outdoor.
- **General type**
general chiller to maintain the temperature variation of output cold water within 1-2 °C
- **Precise type**
precise chiller to maintain the temperature variation of output cold water within 0.3-0.7 °C



Standard specifications

Division/Model	SJ-05AS	SJ-075AS	SJ-10AS	SJ-15AS	SJ-20AS	SJ-25AS	SJ-30AS	SJ-40AS	SJ-50AS	SJ-60AS	SJ-80AS	
Rated power of compressor (kw)	3.75	5.6	7.5	11.25	15	19	22.5	30	38	45	60	
Pump power (kw)	0.75	1.1	1.5	1.8	2.2	3	3	4	5.5	7.5	10	
Discharge rate (l/min)	120	150	200	250	320	320	400	450	600	700	800	
Cooling capacity (kcal/h)	15,000	22,500	30,000	45,000	60,000	75,000	90,000	120,000	150,000	180,000	240,000	
Maximum discharging pressure (bar)	3	3	3	3	3	3	4	4	4	4	4	
Weight (kg)	150	230	350	430	500	600	700	900	1,000	1,100	1,200	
Tank volume (l)	80	120	160	20	230	230	300	380	450	550	650	
Refrigerant	FREON R-407C											
Total consumption power (kw)	5	7	9.5	14	20	25	28	38	45	55	70	
External size (front)	L	650	650	750	750	750	750	850	850	850	1,040	1,040
	W	1,250	1,250	2,000	1,600	1,900	1,900	2,200	2,200	2,200	3,740	3,740
	H	1,790	1,790	2,000	2,000	2,000	2,000	2,100	2,100	2,100	2,400	2,400

Operational principle of chiller



Refrigeration Business



WATER COOLING CHILLER

Water-cooled integral type

Water-cooled integral type is a product that shows excellent cooling effect stably and efficiently regardless of seasons and air temperature.

Features of Use

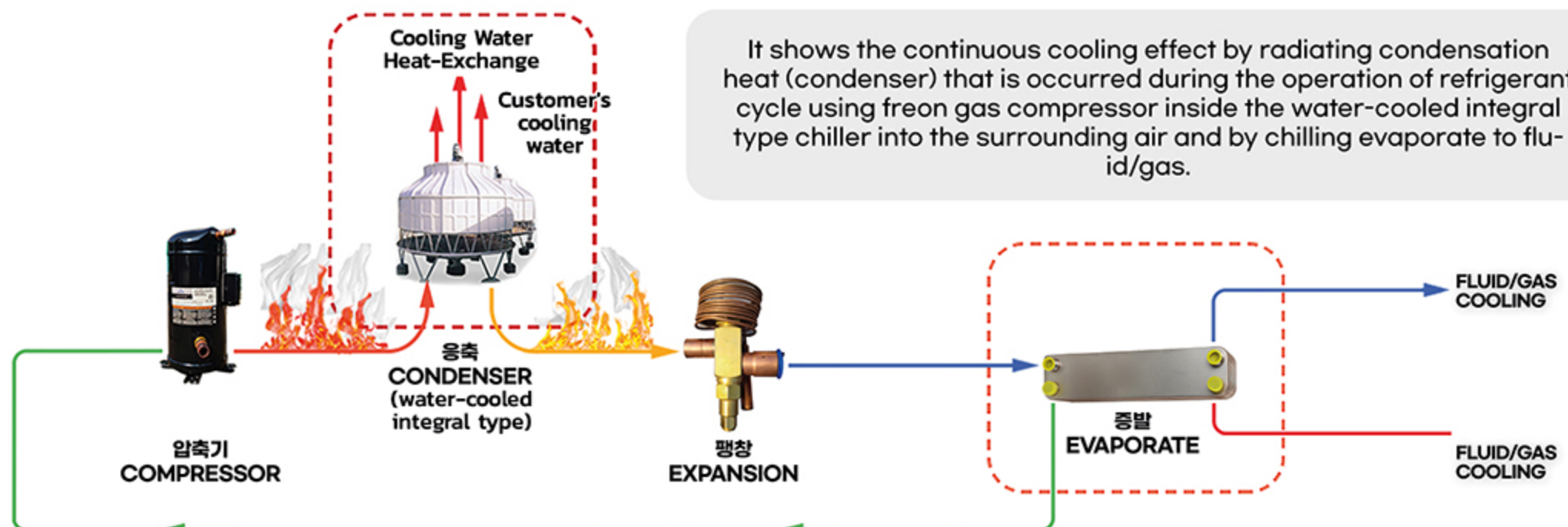
- **Water-cooled integral type**
It is a cooling method of condenser using industrial plant cooling tower and industrial water.
- **General type**
general chiller to maintain the temperature variation of output cold water within 1-2 °C
- **Precise type**
precise chiller to maintain the temperature variation of output cold water within 0.3-0.7 °C



Standard specifications

Division/Model	SJ-03W	SJ-05W	SJ-075W	SJ-10W	SJ-15W	SJ-20W	SJ-25W	SJ-30W	SJ-40W	SJ-50W	SJ-60W
Rated power of compressor (kw)	2.2	3.75	5.6	7.5	11.25	15	19	22.5	30	38	45
Pump power (kw)	0.75	0.75	1.1	1.5	1.8	2.2	3	3	4	5.5	7.5
Discharge rate (l/min)	80	120	150	200	250	320	320	400	450	600	700
Cooling capacity (kcal/h)	8,500	15,000	22,500	30,000	45,000	60,000	75,000	90,000	120,000	150,000	180,000
Tank volume (l)	33	80	120	160	200	230	230	300	380	450	550
필요냉각수량 l/min	80	100	150	200	250	300	300	350	400	700	800
Weight (kg)	250	350	500	600	700	800	900	1,000	1,100	1,200	1,300
Refrigerant	FREON R-407C										
Total consumption power (kw)	3	5	7.2	9.5	13.5	17.7	23	26	34.5	45	55
External size (front)	L	500	650	650	650	750	750	750	750	850	850
	W	650	1,250	1,250	1,250	1,600	1,600	1,600	1,900	1,900	2,200
	H	1,790	1,790	1,790	1,790	2,000	2,000	2,000	2,200	2,200	2,300

Operational principle of chiller



Refrigeration Business

SPEED CHILLER



SKID CHILLER

SKID chiller

It is an innovative product to cool the cooling system of factory process water part by part in the production process with 1 unit of SKID chiller.

Features of Use

- **SKID chiller**
As a mid-to-large scale cooling system, it is a custom-made product according to the load capacity and installation area of the client.
- **General type**
general chiller to maintain the temperature variation of output cold water within 1-2 °C
- **Precise type**
precise chiller to maintain the temperature variation of output cold water within 0.3-0.7 °C



Standard specifications

Division/Model	SJ-20A SKID	SJ-30A SKID	SJ-40A SKID	SJ-50A SKID	SJ-60A SKID	SJ-80A SKID	SJ-100A SKID	SJ-120A SKID	SJ-140A SKID	SJ-160 SKID	SJ-200 SKID
Rated power of compressor (kw)	15	22.5	30	38	45	60	75	84	105	120	150
Pump power (kw)	2.2	4	5.5	7.5	7.5	10	11	11	15	15	22
Discharge rate (t/min)	250	350	450	550	700	900	1,100	1,300	1,500	1,700	2,100
Cooling capacity (kcal/h)	60,000	90,000	120,000	150,000	180,000	240,000	300,000	360,000	420,000	480,000	600,000
Maximum discharging pressure (bar)	5	5	5	5	5	5	5	5	5	5	5
Weight (kg)	800	1,000	1,300	1,600	2,000	2,400	3,000	3,300	3,600	4,000	4,500
Tank volume (t)	-	-	-	-	-	-	-	-	-	-	-
Refrigerant	FREON R-407C										
Total consumption power (kw)	20	28	38	50	60	80	100	120	140	160	200
External size (front)	L	1,400	1,400	1,400	1,400	1,400	2,100	2,100	2,100	2,100	2,100
	W	3,200	4,000	4,000	5,000	5,000	5,000	5,000	5,000	6,000	6,000
	H	2,600	2,600	2,600	2,600	2,600	2,600	2,600	2,600	2,600	2,600

SKID CHILLER

It is a product organized based on 4 cycles of freezing including compression, condensation, expansion, and evaporation and to realize the strong and optimal cooling capacity in variable heat loads, efficient flow distribution, and temperature shock.



Refrigeration Business

SPEED CHILLER



SPECIAL CHILLER

Special chiller

As a custom-made product, it provides the best technology, such as high temperature, ultra-precision, and so on, that are required in the industrial plants.

Features of Use

- **Low temperature type**
Low temperature type chiller that maintains the chilling fluid at $-80^{\circ}\text{C} \pm 1^{\circ}\text{C}$.
- **General type**
High temperature type chiller that maintains the chilling fluid at $+250^{\circ}\text{C} \pm 1^{\circ}\text{C}$.
- **Precise type**
A type of chiller that maintains the chilling fluid with temperature variation within $\pm 0.01^{\circ}\text{C} \sim \pm 0.5^{\circ}\text{C}$.



Standard specifications

Division/Model	SJ-01AH	SJ-02AH	SJ-03AH	SJ-05AH	SJ-075AH	SJ-10AH	SJ-15AH	SJ-20AH	SJ-30AH	SJ-40AH	
Rated power of compressor (kw)	0.75	1.5	2.2	3.75	5.6	7.5	11.25	15	22.5	30	
Pump power (kw)	0.4	0.4	0.75	0.75	1.1	1.5	1.8	2.2	3	4	
Discharge rate (t/min)	55	55	80	120	150	200	250	320	400	450	
Cooling capacity (kcal/h)	2,800	5,500	8,500	15,000	22,500	30,000	45,000	60,000	90,000	120,000	
Maximum discharging pressure (bar)	5	5	5	5	5	5	5	5	5	5	
Weight (kg)	120	150	200	400	480	600	700	800	1,000	1,200	
Tank volume (t)	17	23	33	80	120	160	200	230	300	380	
Refrigerant	FREON R-407C										
Total consumption power (kw)	5	10	15	20	30	40	50	60	70	80	
External size (front)	L	500	500	500	650	650	750	750	850	1,050	1,050
	W	850	850	850	1,250	1,250	1,600	1,900	2,200	3,000	3,000
	H	1,400	1,790	1,790	1,790	1,790	2,000	2,200	2,300	2,300	2,300

SPECIAL CHILLER

As a custom-made product, it provides the best technology, such as high temperature, ultra-precision, and so on, that are required in the industrial plants.

1m



H₂ STORY





Exhibition·Awards



Cases of installing the H₂ CHILLERS at the Charging Stations



APK Charging Station



Osu Charging Station



Dangjin Charging Station



Seosan Charging Station



Suwon Gwanggyo Service Area Charging Station



Sintanjin Charging Station



Asan Chosa Charging Station



Ansan eroum Charging Station



Anseong Charging Station



Anseong Service Area Charging Station



Ulsan Hyundai Motors Charging Station



Eumseong Service Area Charging Station



Incheon Seo-gu Charging Station



Incheon Jung-gu Charging Station



Iksan Charging Station



Chuncheon Charging Station



Daegwanryeong Charging Station



Daegu Gwaneum Charging Station



Gunsan Jigok Charging Station



Changwon Sarim Charging Station



Gwangju Wolchul Charging Station



Ulsan Changpyeong Charging Station



Chungju Charging Station



Jeonju Charging Station



Seoul Ogok Charging Station

Company Overview

SAMJUNG ENC is a hydrogen company that has realized many achievements such as developing the world's best hydrogen refueling station infra equipment technology and building environmental test facilities in line with the development of hydrogen energy utilization and hydrogen industry.

Since 2022, we have grown into a hydrogen material, component, and equipment specialist that develops not only hydrogen chillers but also hydrogen heat exchangers, hydrogen gas control systems, valves and fittings, and hydrogen dispensers.

Through this, we are contributing to the development of the hydrogen industry and pursuing sustainable business based on excellent technology and innovative ideas.

We invest in continuous research and development for the development of the hydrogen industry and produce high-quality products to gain the trust of our customers.

With a corporate value of providing sustainable solutions for a better environment, our efforts have a positive and beneficial impact on society and the environment, and we are creating a new energy paradigm by contributing to the further development and growth of the hydrogen industry.

Our corporate value is to provide sustainable solutions for a better environment, and our efforts have a positive impact on society and the environment, and contribute to the further development and growth of the hydrogen industry, creating a new energy paradigm.

Company Profile

The first in the chiller industry

EU CE accreditations for all chiller items

Factories 1, 2, 3 - Operating its production lines
Factory 1 (freezing manufacturing)/Factory 2 (metal plate manufacturing)/Factory 3 (heat exchanger)

Chiller specialized developer/manufacturer
SAMJUNG ENC is a specialized company that has developed only chillers since its establishment in 1993.

Proven technology with market share over 90%

- CRYSTAL SAPPHIRE GROWER COOLING SYSTEM
- HOT & COOL 2CHANNEL-3CHANNEL
- SKID CHILLER COOLING SYSTEM

Establish the service response system within 12 hours nationwide

Apply over 40% of heat exchanger parts compared to the similar volume

HISTORY

1993.	05	Found SAMJUNG Engineering
1995.	04	Superconducting Cooler Sales Initiation
1999.	12	Initiate development of SPEED CHILLER
2001.	04	ISO 9001/ISO 14001 certificates
2004.	07	Acquisition of a practical patent (Registration No. 0282298)
2007.	07	Change of corporation to SAMJUNG ENC.
2008.	07	Accreditation of CE, a European standard
2011.	10	EU CE accreditations for all chiller items
2012.	01	First time production of EVAPORATOR TWISTED & SPIRAL COIL in the chiller industry
2012.	03	Manufacturing license of special freezing equipment first time in the chiller industry
2015.	04	Invention patent (10-1511693) a thermal shock cooling and heating system
2015.	04	Invention patent (10-2014-0190214) a pump to prevent from freezing and bursting of chiller
2015.	12	Invention patent (10-1582276) - a chiller with the function to prevent from raindrops
2016.	01	Invention patent (10-1589225) - a rapid SKID chiller with the function to prevent from raindrops
2016.	05	Establishment of the Corporate Affiliated Research Institute of SAMJUNG ENC's Gyeongin Branch
2017.	04	Acquisition of Venture Company Confirmation
2017.	04	Obtain Innobiz Confirmation
2018.	01	Expansion to Hwasung Jeongok Marine Industrial Complex
2018.	01	Cooling device for hydrogen gas charger primary production delivery (Yeoju Hz charging station)
2018.	02	New purchase of turning center, machining center
2018.	10	Mechanical equipment construction business registration
2019.	01	Acquisition of a patent for the invention of the oil cooling system (Registration No. 10-1941494)
2019.	02	Acquisition of a patent for invention of a cooling device for hydrogen gas charger (Registration No. 10-194990)
2020.	05	Acquisition of Main Biz Confirmation / Acquisition of Company Specialized in Material, Parts and Equipment / Acquisition of National Root Company Confirmation
2020.	07	Winning the Best Technology Award for Participating in Hydrogen Mobility + Show Exhibition
2020.	12	Awarded Minister of SMEs and Startups
2020.	12	2020 Korea's 14th Patent Awards for Excellence
2021.	01	Hydrogen gas charging gun ice prevention device invention patent (No. 10-2202439)
2021.	02	Acquisition of a patent for low-temperature cooling system for hydrogen gas chargers with oil recovery function (No. 10-2213908)
2021.	02	Acquisition of a patent for the invention of a cooling system for hydrogen gas chargers (No. 10-2217530)
2021.	02	Obtain confirmation of participation in the campaign for work-life balance
2021.	06	Registered as a member of the Hydrogen Convergence Alliance (H2KOREA)
2021.	09	Recipient of the 2021 Hong Dae-Yong Prize of the Patent Technology Awards from the Korean Intellectual Property Office



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