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SAMSUNG

Space for Partnership

Samsung ECO HEATING SYSTEM

With Samsung's Eco Heating System that uses renewable energy,
you will feel the warmth even with your heart.



SAMSUNG

Samsung is moving with and ahead of our customers

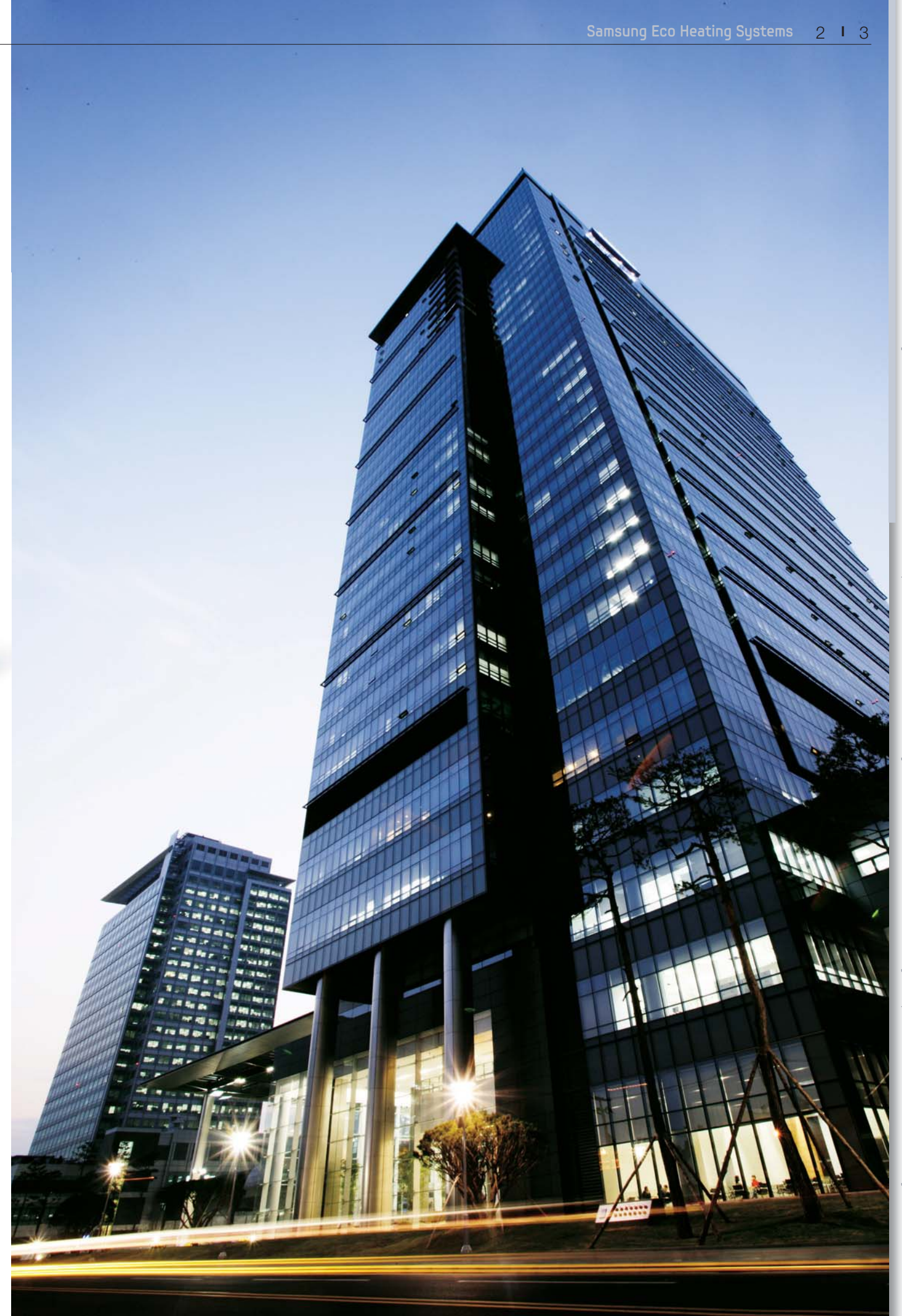
“Put simply, our differentiation is centered on producing innovative technology that brings genuine change to people’s lives. We do this by bringing a relentless focus on consumer experience and product innovation in everything we do.”

- Sue Shim CMO (Chief Marketing Officer), SAMSUNG



Global Business Network

● 11 Global Operation Centers ● 10 Global Headquarters ● 4 HA R&D Centers ● 7 Design Centers



'Eco-friendly' Samsung

Preserves the nature you live in.

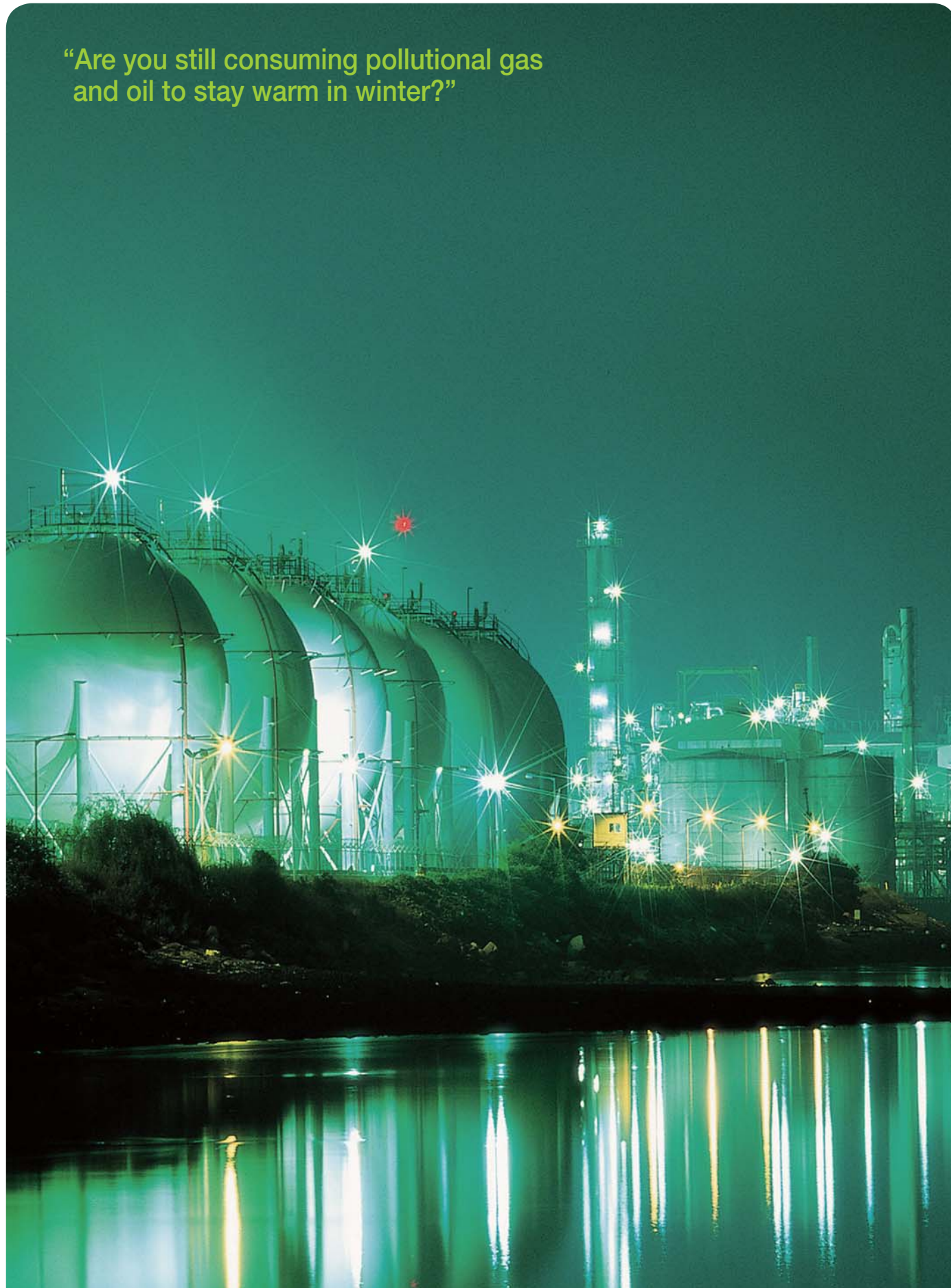
Thinking of you and the environment, Samsung plans for the future. Realizing your hopes for a greener, healthier life for you and the generations that follow, Samsung's environment-friendly technologies work to make the world a more beautiful place.

2012 SAMSUNG ECO HEATING SYSTEMS Contents

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Time to change the old way of heating

“Are you still consuming polluttional gas and oil to stay warm in winter?”



EU Energy efficiency plan 2011

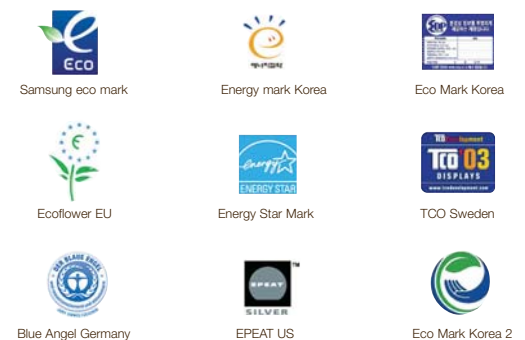
Save primary energy, spend less money

'Energy efficiency plan 2011' is aimed to reduce primary energy usage up to 20% by 2020. EU nations are trying to save money that is being wasted by unnecessary energy loss.



Eco-labels & Declaration

Samsung Electronics makes on-going efforts to develop environment-friendly products that minimize the negative impacts on the environment in every aspect of its products, from raw material procurement to production, transportation, usage and final disposal. Concerns for the environment are at the core of each product development. Samsung's environment-friendly technologies and recycling programs have been highly recognized via various global approvals and awards worldwide.



Reason why we made Samsung EHS



Global Warming

Human activity has resulted in an increase in Greenhouse gas emissions (CO₂).



Oil is running out!

As the oil price is getting higher, we need renewable energy resources.



Un-Sustainable Resources

Rising oil prices have lead to the associated operating costs of heating a home to increase.



Samsung EHS

Samsung's system can be integrated into your home and provide heating, hot water supply and air conditioning using only one system.



Save money

Samsung's EHS, can reduce your running costs by up to a 30% compared to a standard gas boiler system.



Keep our planet green

Using renewable energy efficiently instead of conventional boilers, will reduce CO₂ emissions and keep our planet green.

Ecological & Economical Heating System

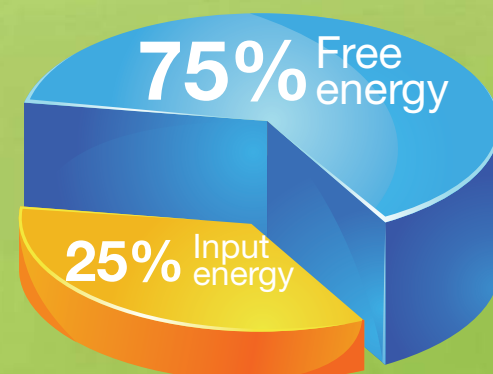
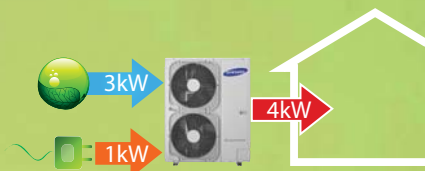
“Samsung EHS is more eco-friendly and efficient than any other solutions out there”



Heat-pump system

Using renewable energy from surrounding environment

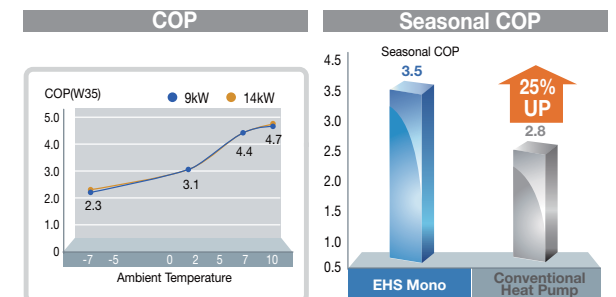
A heat pump uses the heat from ambient air, which is free and renewable energy source, for heating and hot water. Using a heat pump system for your house is an energy efficient and environmentally friendly solution.



High seasonal COP

High seasonal COP means less CO₂ emission

Samsung EHS has proven its optimizes heating performances at the actual operating temperature, -2°C to 2°C, providing an outstanding SCOP in compliance with eco-design directives.



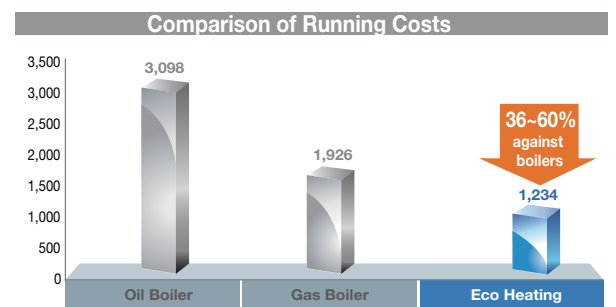
PEE(Primary Energy Efficiency) = 1.5
* based on SAMSUNG own test result according to VDI4650 standard

Low running cost

High efficiency technology, low running cost

High efficiency heat pump technology will reduce running cost. Samsung EHS Mono can reduce approximately up to 36~60% of running costs compare to conventional boiler systems.

Fuel	Oil	Gas	Heat Pump (Electricity)
Fuel Price	0.974 (euro/liter)	0.0622 (euro/kWh)	0.1478 (euro/kWh)
Efficiency	0.86	0.93	4.2 (A7/W35)



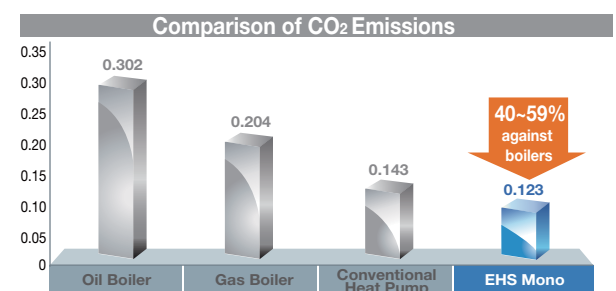
* Fuel Price based on <http://www.energy.eu>
* Standing Charge : 220 euro
* Heating Time
- 5 months x (30 days/month) x (12 hours/day) = 1800 hours
* Heat Pump
- Model : EHS Mono 16kW (1phase)
- Power Consumption : 3.81kW (A7/W35)

Low CO₂ emission

Samsung's new way of heating is the greener way

Samsung EHS Mono has substantially reduced CO₂ emissions compare to conventional boiler systems due to high-efficiency heat pump technology.

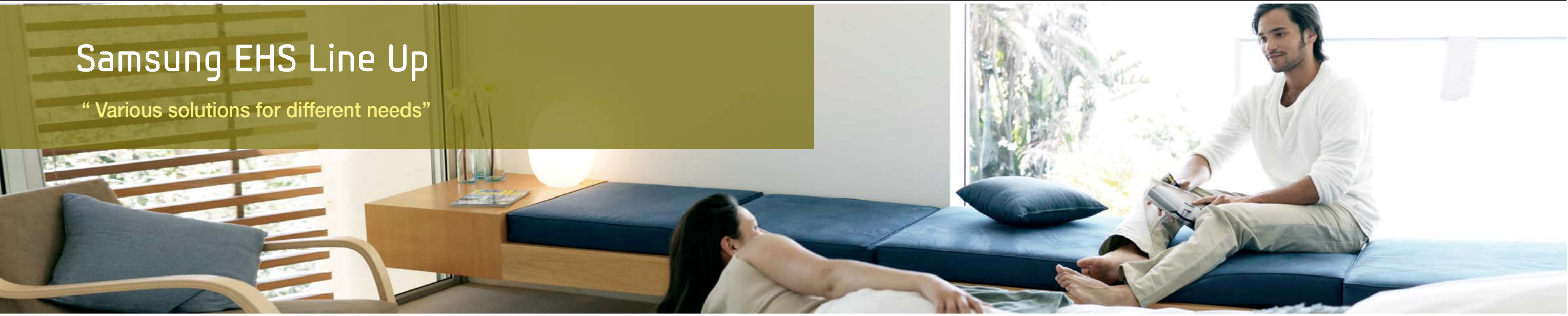
Fuel	CO ₂ Emission Factor (kg/kWh)	Fuel	Efficiency
Oil	0.26	Oil	0.86
Gas	0.19	Gas	0.93
Electricity	0.43	Conventional HP	3.0
		EHS Mono	3.5(SCOP)






* Government figure for UK long term average grid output
* CO₂ Emission = CO₂ Emission Factor / Efficiency

Samsung EHS Line Up

“ Various solutions for different needs”



2012 Samsung EHS lineup

Type	Outdoor unit												Hydro unit		Domestic Hot Water Tank Unit				Cylinder Unit		Control Kit	Indoor unit										Key features
	Power/Capacity	5.2kW	6.0kW	7.0kW	8.0kW	9.0kW	10.0kW	11.0kW	12.0kW	14.0kW	16.0kW	8.0kW	16.0kW	Standard		Solar		Standard		-	Model	2.2kW	2.8kW	3.6kW	4.5kW	5.6kW	7.1kW	10kW				
														200L	300L	200L	300L	200L	300L													
<div></div> <div>EHS Mono</div>	1P 220-240V 50Hz					●				●	●	●				●	●	●	●		-										<ul style="list-style-type: none">• Easy installation• Compact and light outdoor unit• Pre-plumbed cylinder unit	
	3P 380-415V 50Hz									●	●	●				●	●	●	●													
<div></div> <div>EHS Split</div>	1P 220-240V 50Hz	●						●		●	●	●	●	●		●	●	●	●												<ul style="list-style-type: none">• High reliability<ul style="list-style-type: none">- Newly designed fan- Base plate heater• Flexibility	
	3P 380-415V 50Hz									●	●	●		●																		
<div></div> <div>EHS TDM</div>	1P220-240V50Hz			●	●	●			●		●	●	●	●		●	●	●	●			Neo Forte	●	●	●			●	●		<ul style="list-style-type: none">• Integrated heating and cooling system at a lower cost• Perfect all-in-one system• Quick heating by TDM technology• Typical seasonal usage• Flexibility• Wall-mounted, Duct Type Indoor units• Diverse installations	
				●						●		●	●	●		●	●	●	●				Vivace	●	●	●			●	●		
																							Slim Duct	●	●	●	●	●				

‘Introducing Samsung's EHS for residential area’

There has been major addition to Samsung's 2012 EHS system lineups. With the newest EHS mono and split type ready with existing EHS TDM type, now you can choose the perfect type of EHS that suits your needs. Each type of EHS has their own unique and attractive features and we guarantee that you will be greatly satisfied with them.

EHS Mono

Simpler units, installation and usage for maximum convenience!

EHS Mono uses outdoor unit that includes the hydronic parts. Therefore it does not require space or installation process for hydro units and the refrigerant pipes.



Samsung EHS Residential Type



EHS Split

All new EHS Split to satisfy up to date demands.

EHS Split is the newest development added to the line-up to meet the up-to-date demands. This air-to-water heating system is designed and built especially for optimized heating.



EHS TDM

A perfect climate control solution for your home all seasons long.

EHS TDM support both air-to-air and air-to-water heating (and cooling) to be the ultimate indoor climate solution for all seasons long.

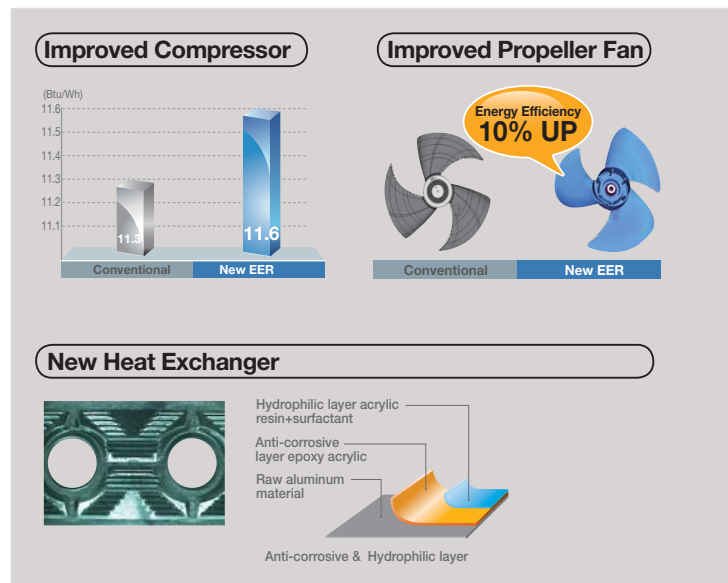


Samsung EHS Residential Type

World's top class energy efficiency - Save energy by using it efficiently



Improved compressor and propeller fan with newly adopted heat exchanger has achieved world's top class energy efficiency



World's Top Class Seasonal COP

SCOP
3.5

COP
4.35

Excellent performance in cold climates

Expect the same performance even in harsh climates

Samsung EHS is more reliable in cold climate countries compared with other products. Samsung EHS provides best heating performance at low ambient temperature, offering heating capacity of approximately 90% at -10°C. Furthermore, if the ambient temperature drops lower, it will trigger defrost operation to prevent the product from freezing.

High Performance of **90%** at -10°C



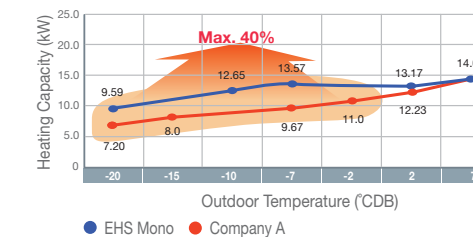
High heating capacity at low temperature



• Samsung EHS provides outstanding heating performance even at low temperature, maximum 40% higher than the competitor's.

* Based on the technical data of each company (Single-phased 14kW model).

Heating Capacity without defrost



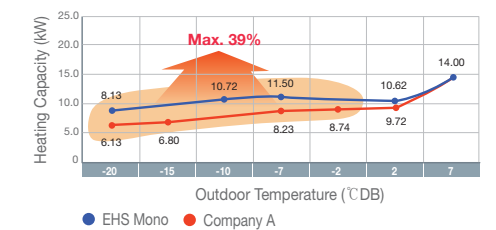
Reliable performance in freezing condition



• In freezing outside temperature Samsung EHS will execute defrost operation, (which may take effect on the heating performance) but it will still pull out about 39% better heating capacity than the competitor's product.

* Based on the technical data of each company (Single-phased 14kW model).

Heating Capacity with defrost



Space reduction of up to 50%

Save extra space, time and money spent unnecessarily



Samsung EHS saves you in terms of the low initial purchase cost and installation fee as well as the space needed for an extra outdoor unit.



Sophisticated remote controller - Remote controller that gives you easy and abundant options

Samsung EHS system is equipped with a simple but complete remote control, with many functions and quick access to statistics, energy consumption and the overall monitoring system.

Providing chances to reduce more energy by letting the customer make some choices insystem using patterns!



Simple standby function at outing

The system in "stand-by mode" stops all of its functions, except for one function that prevents the pipes from breaking/bursting due to weather changes. Additionally, this system can keep the house at a desired temperature even when you are out.



Real-time Energy Consumption Display

5 Eco-level bar indicator shows the level of energy consumption (Solar Panel, Back-Up Boiler and Back-Up Heater of the hydro unit).



Solar panel and Back-up boiler status display "Work in progress" display of Solar panel and Back-up boiler

The system indicates when Solar Panel and Back-Up Boiler are in the process of hybrid heating.



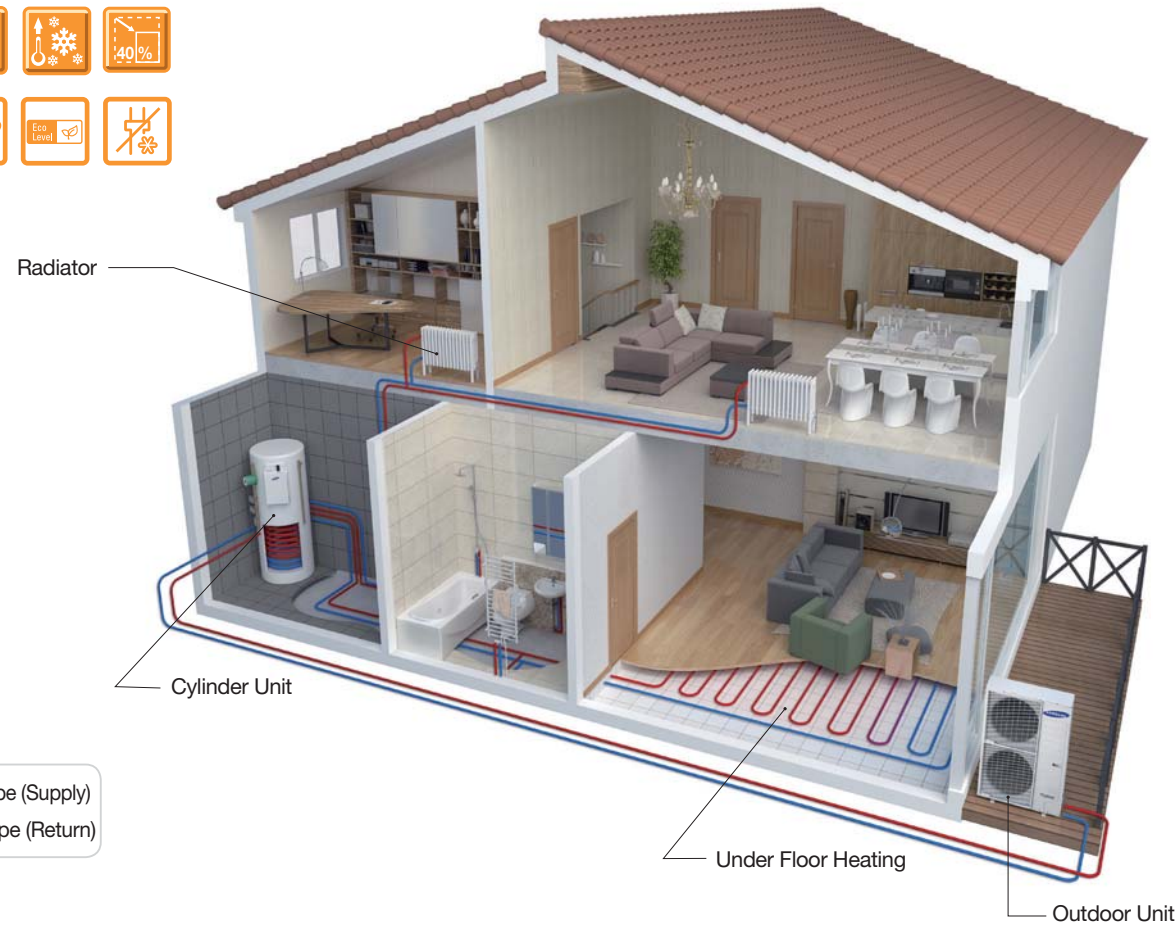
Automatic Anti-Freezing Function

When the house is left unattended for an extended period during the winter and the temperature outside goes down, the system automatically runs its heat pump to keep the water-flow above the sub-freezing point.

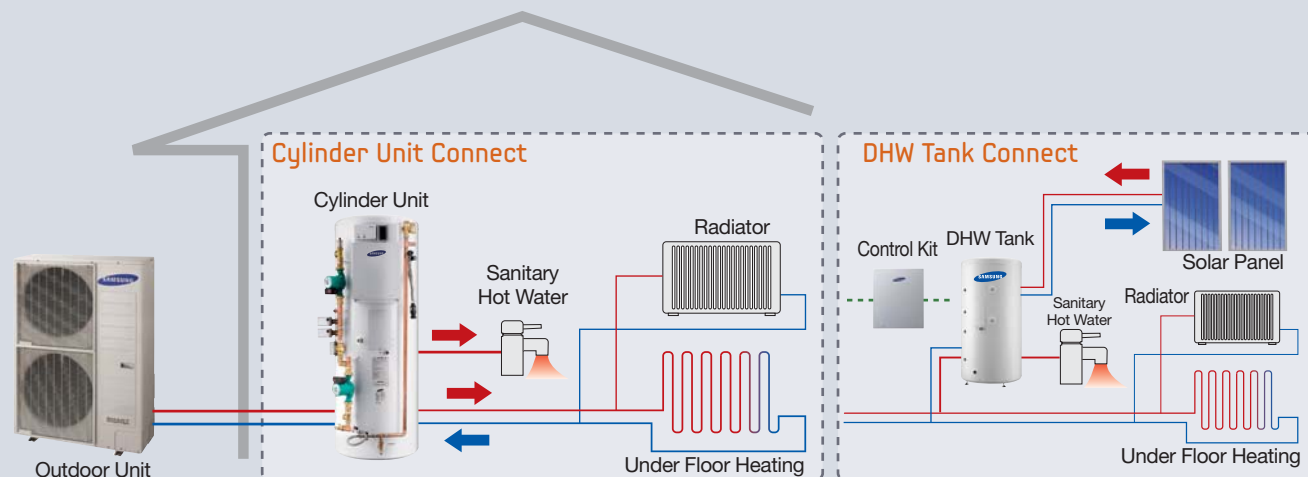
EHS Mono

Simpler units, installation and usage for maximum convenience!

EHS Mono uses outdoor unit that includes the hydronic parts. Therefore it does not require space or installation process for hydro units and the refrigerant pipes.



Overview of EHS Mono (Air to Water)



- A2W Space heating and sanitary hot water
- A2W Space cooling (by reversing heating cycle)
- Cools water and supply cold water (by reversing the heating cycle) when needed
- Consist of Outdoor unit and Cylinder unit (Optional)
- Compatible with 2 hybrid energy sources (field supply) : Solar panel/Back-up boiler

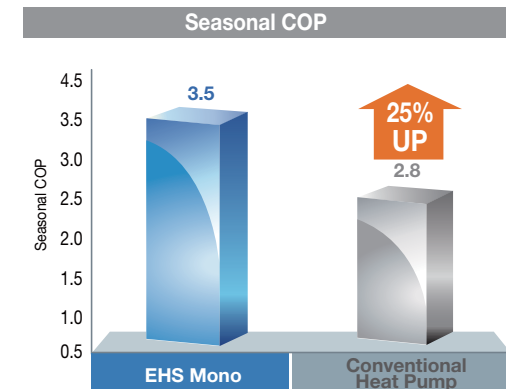
Features

Optimized Seasonal Efficiency

Consistently providing efficient performance all seasons long

- Optimizes heating performances at the actual operating temperature, -2°C to 2°C.
- Provides an outstanding SCOP in compliance with Eco-Design directives.

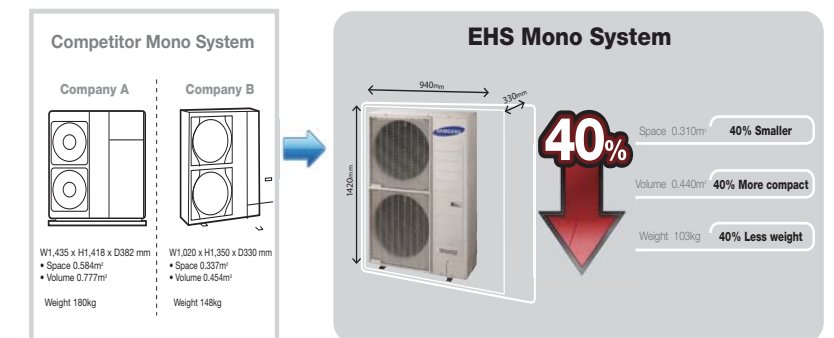
* PEE (Primary Energy Efficiency) = 1.5
(based on SAMSUNG own test result according to VDI4650 standard)



Compact and light outdoor units

Smaller outdoor units for quick and easy installation

Compact and light outdoor unit units will comparably save installation labor and cost, which will be a great satisfaction to both installer and customers.

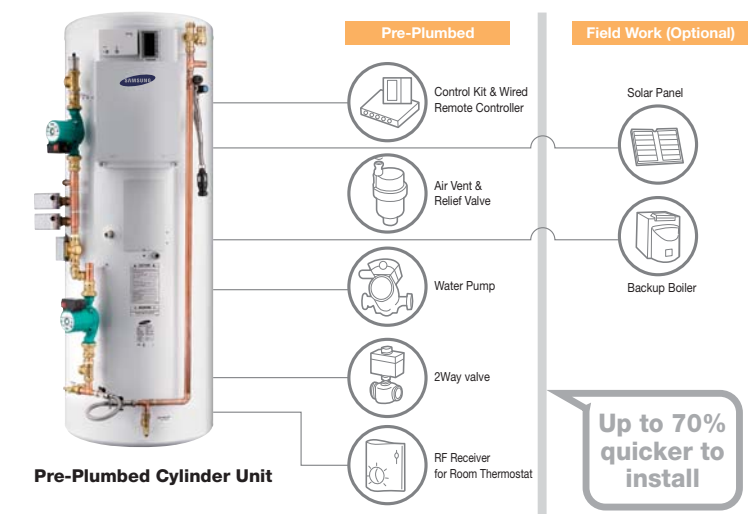


Pre-plumbed cylinder unit

No more time spending on assembling little parts

Samsung Cylinder Unit enables quick and easy installation since most components are assembled in the factory. The Pre-plumbed Cylinder Unit provides a flexible, quick and easy solution.

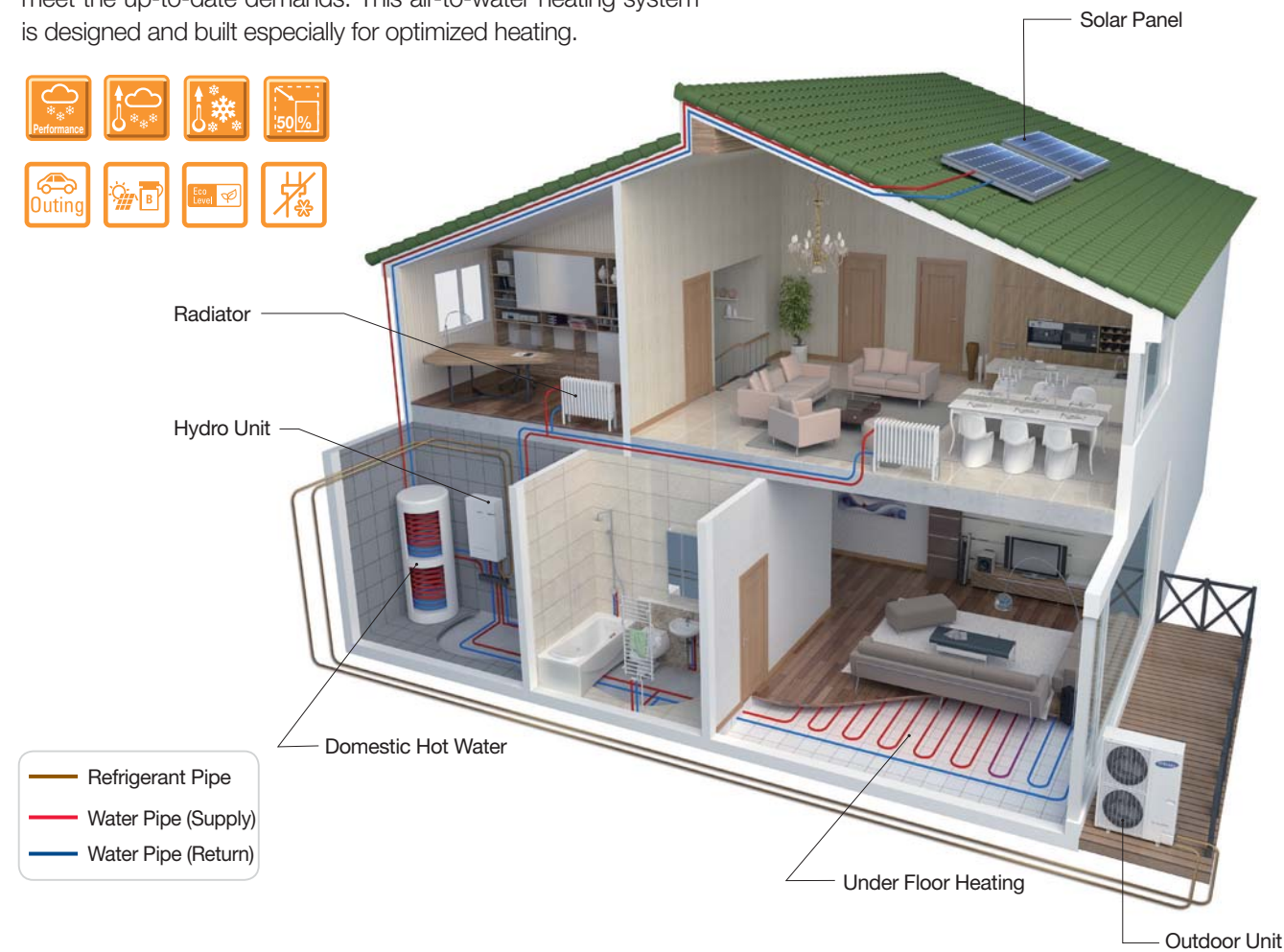
Cylinder Unit = Water Tank + Control Kit + Water Pump + 2way valves + Air-vent + Relief valve + RF Receiver + Wireless Thermostat + Wired Remote Controller



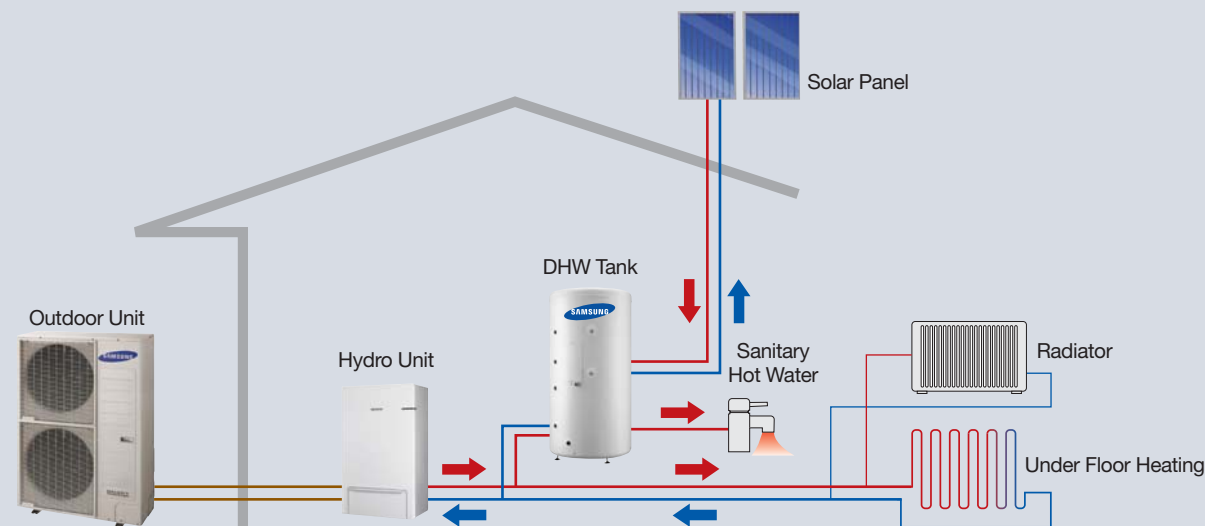
EHS Split

All new EHS Split to satisfy up to date demands.

EHS Split is the newest development added to the line-up to meet the up-to-date demands. This air-to-water heating system is designed and built especially for optimized heating.



Overview of EHS Split (Air to Water)



- A2W Space heating and sanitary hot water
- A2W Space cooling (by reversing heating cycle)
- Consist of Outdoor unit, Hydro unit and Cylinder unit (Optional)
- Compatible with 2 hybrid energy sources (field supply): Solar panel/Back-up boiler

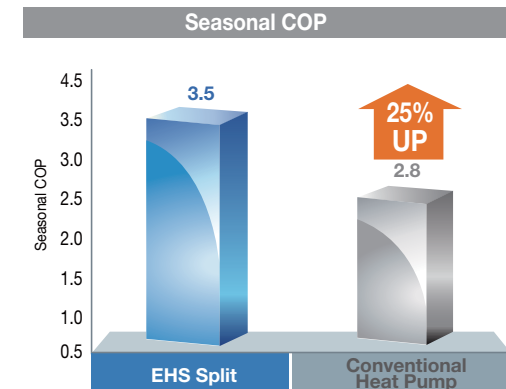
Features

Optimized Seasonal Efficiency

Consistently providing efficient performance all seasons long

- Optimizes heating performances at the actual operating temperature, -2°C to 2°C.
- Provides an outstanding SCOP in compliance with Eco-Design directives.

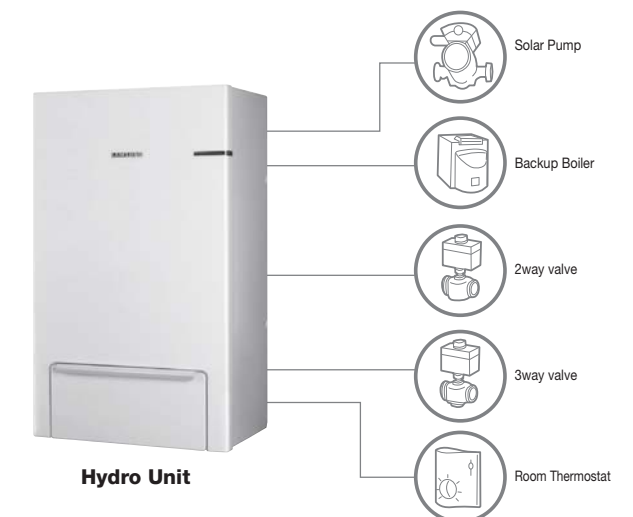
* PEE (Primary Energy Efficiency) = 1.5
(based on SAMSUNG own test result according to VDI4650 standard)



Flexibility

Wide compatibility that allows easier control

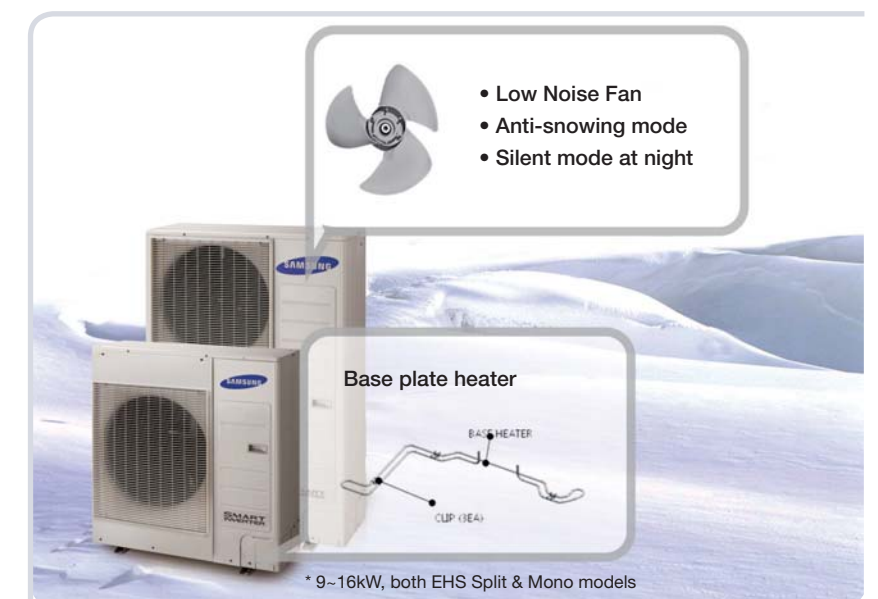
Samsung EHS can be implemented with other optional products: Domestic hot water tank, thermostat, pump, solar panel or back-up boiler, which makes it more versatile than ever.



High reliability

Subtle improvements that brings notable difference

Since Samsung EHS system is designed to meet the up to date demands, we have added improvements that may be seem subtle but which adds up to bring notable difference.

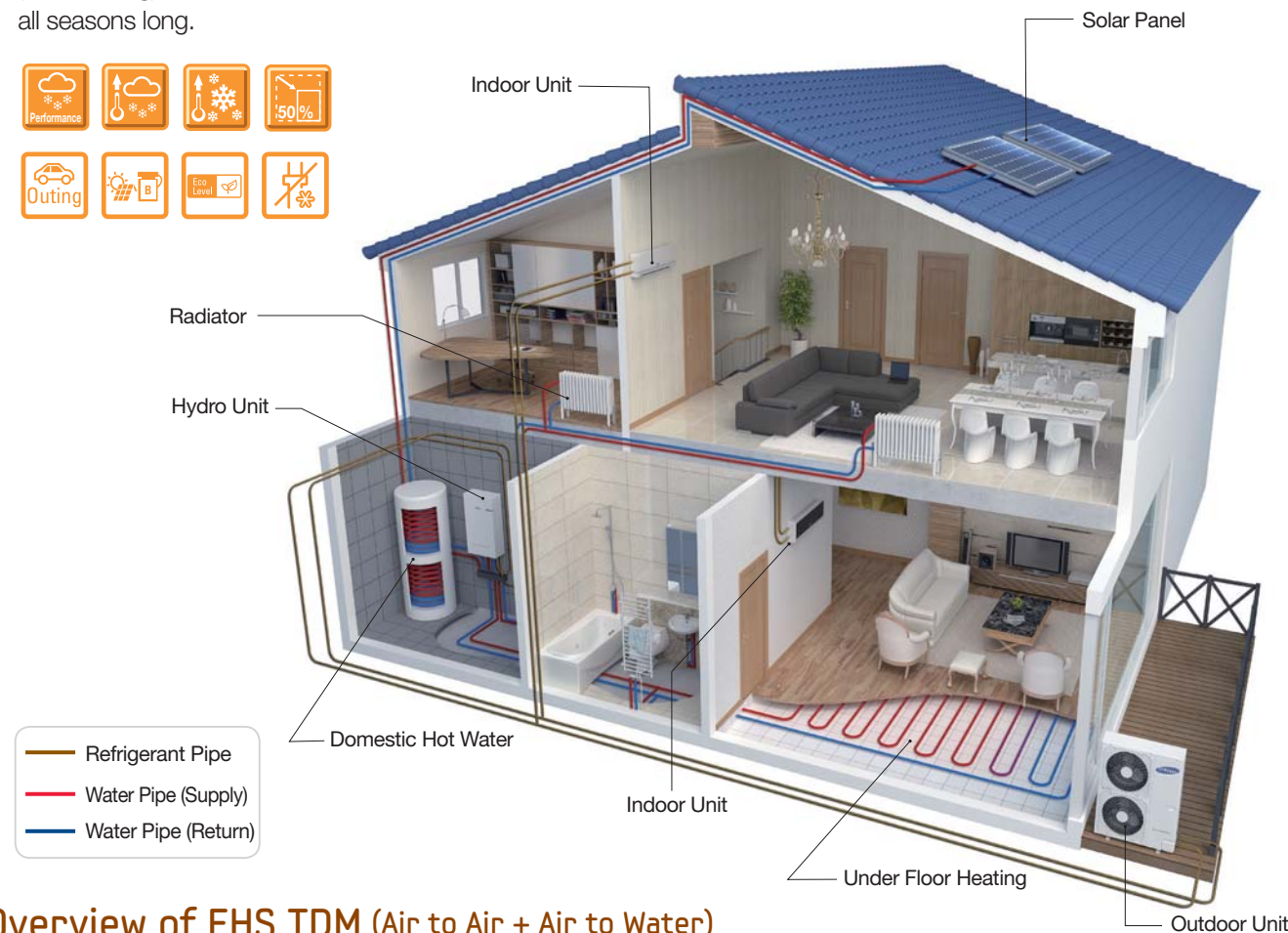


* 9~16kW, both EHS Split & Mono models

EHS TDM

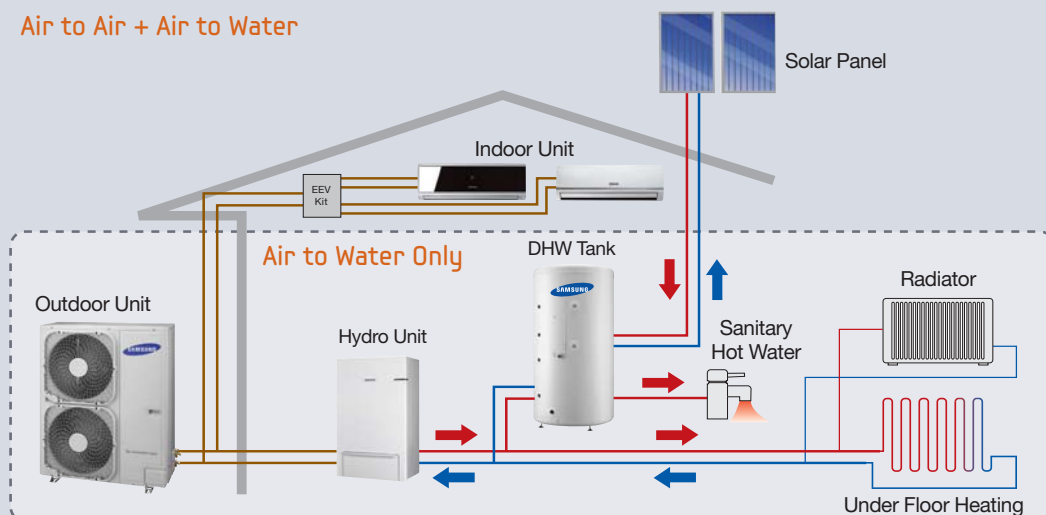
A perfect climate control solution for your home all seasons long.

EHS TDM support both air-to-air and air-to-water heating (and cooling) to be the ultimate indoor climate solution for all seasons long.



Overview of EHS TDM (Air to Air + Air to Water)

Air to Air + Air to Water



Air to Air + Air to Water

- A2W+A2A Space heating and sanitary hot water
- A2W+A2A Space cooling (by reversing heating cycle)
- Consist of Outdoor unit, hydro unit, DHW tank (optional) and indoor units (Wall mounted and slim duct type)
- Compatible with 2 hybrid energy sources (field supply) : Solar panel/ Back-up boiler

Air to Water Only

- A2W Space heating and sanitary hot water
- A2W Space cooling (by reversing heating cycle)
- Consist of Outdoor unit, hydro unit, DHW tank (optional)
- Compatible with 2 hybrid energy sources (field supply) : Solar panel/ Back-up boiler

Features

Integrated Heating & Cooling System at a Lower Cost

Both water and air are heated and cooled by single outdoor unit



Bringing comfort to your home whilst rapidly achieving a stable temperature. It can also be used for cooling in the summer and heating in the winter.



Bringing comfort to your home with a cost effective and efficient system where energy from the outside air is used to heat your radiator, under floor and sanitary water supply.



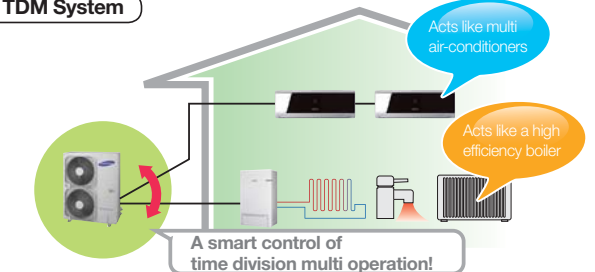
Perfect all-in-one system

One outdoor unit is all you need to install

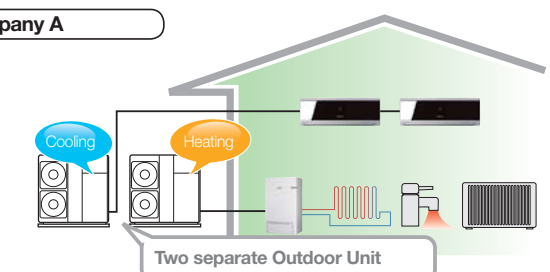
A smart control of Time Division Multi (TDM) operation between air-to-water and air-to-air enables one outdoor unit to operate for both functionalities, resulting in lower product cost and space saving.

Samsung's
New EHS
Technology,
First in
Europe!

Samsung EHS TDM System



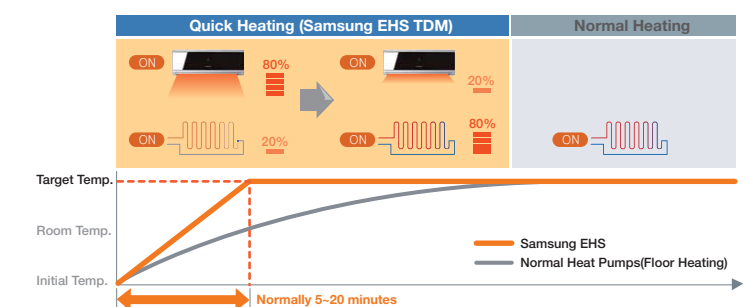
Company A



Quick heating by TDM technology

Double up the heating source to feel the warmth faster

Floor heating is well known as the optimal heating option for indoor thermal comfort. However, it takes 4~8 hours to heat up the room after it is turned on. Samsung EHS TDM technology quickens that process by blowing hot air along with floor heating to warm up the room.



EHS TDM

Simpler units, installation and usage for maximum convenience!

Typical Seasonal Usage

Ultimate air solution for all 4 seasons

Different heating solution is needed for each season with different climate. Samsung HES can be used all year long, no matter whether it's hot or cold because single outdoor unit can be used for both air-to-water or air-to-air functions for cooling and heating.



Flexibility

Wide compatibility that allows easier control

Samsung EHS can be implemented with other optional products: Domestic hot water tank, thermostat, pump, solar panel or back-up boiler, which makes it more versatile than ever.



Five types of indoor units

Five different types of indoor units to suit your interior

We have carefully selected and added 3 different types of indoor units to the line-up to provide variety of selection. Home owners may choose the best indoor units according to their design taste (for interior) or functional needs.



Vivace

Vivace's sophisticated appearance seamlessly becomes part of your interior design, adding modern elegance to your space with its shadow mirror panel.



Neo Forte

Neo Forte's clean panel design with a unique silver accent adds a touch of class to your space.



Slim Duct

Concealed behind ceilings, Slim Duct enhances the luxurious ambience of your space while providing fresh and powerful cool air.

Features

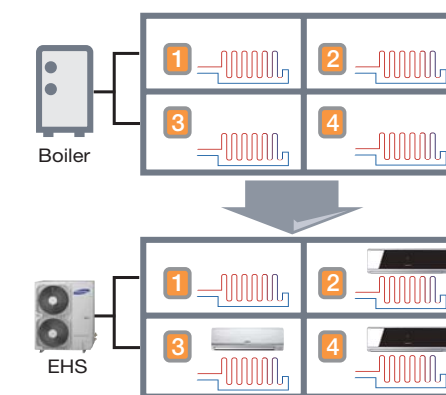
Diverse installations

Installation for more savings and comfort

Samsung EHS supports diverse installation options. Home owners looking for economical heating system for both new and renovating house may find Samsung EHS attractive since it can replace the existing boiler and provide many installation options to meet their budget.

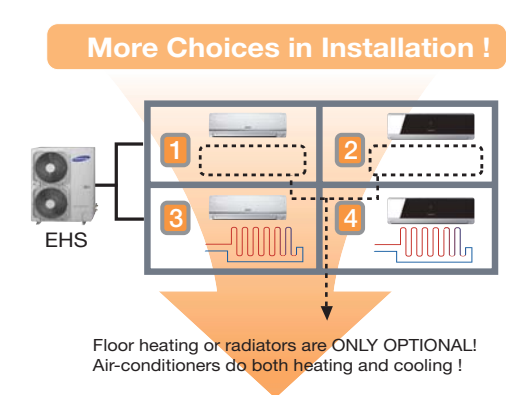


For Existing Houses with Boilers



Replace the boiler with Samsung Eco Heating System (EHS) and add air-conditioners where cooling is needed

For New or Renovated Houses



Saving Installation Cost !

Specification

EHS Mono

Outdoor Units



Model Name				RC090MHXEA	RC120MHXEA	RC140MHXEA	RC160MHXEA	RC120MHXGA	RC140MHXGA	RC160MHXGA
Mode			-	Heat Pump (A2W Only)	Heat Pump (A2W Only)	Heat Pump (A2W Only)	Heat Pump (A2W Only)	Heat Pump (A2W Only)	Heat Pump (A2W Only)	Heat Pump (A2W Only)
Power Supply			Ø, #, V, Hz	1, 2, 220-240, 50	1, 2, 220-240, 50	1, 2, 220-240, 50	1, 2, 220-240, 50	3, 4, 380-415, 50	3, 4, 380-415, 50	3, 4, 380-415, 50
Performance (A2W #1)	Nominal Capacity ⁽¹⁾	Heating	W	9,000	12,000	14,000	16,000	12,000	14,000	16,000
			Btu/h	30,700	40,900	47,800	54,600	40,900	47,800	54,600
		Cooling	W	10,000	13,500	16,000	17,000	13,500	16,000	17,000
			Btu/h	34,100	46,100	54,600	58,000	46,100	54,600	58,000
	Nominal Power Input ⁽¹⁾	Heating	W	2,090	2,610	3,220	3,810	2,610	3,220	3,810
		Cooling	W	2,860	4,070	5,330	5,860	3,910	5,250	5,710
	Nominal Current Input ⁽¹⁾	Heating	A	9.9	11.7	14.4	17.1	4.1	5.1	6.0
		Cooling	A	13.5	17.7	23.2	25.5	6.1	8.2	9.0
	COP (Heating) ⁽¹⁾		W/W	4.30	4.60	4.35	4.20	4.60	4.35	4.20
	EER (Cooling) ⁽¹⁾		W/W	3.50	3.32	3.00	2.90	3.45	3.05	2.98
ESEER ⁽²⁾		W/W	5.60	6.45	6.34	5.98	6.45	6.34	5.98	
Peformance (A2W, Low Temperature)	A2/W35	Heating Capacity	W	8,390	10,450	13,170	13,840	10,450	13,170	13,840
		COP	W/W	3.34	3.68	3.49	3.23	3.68	3.49	3.23
	A-7/W35	Heating Capacity	W	8,290	11,930	13,570	14,880	11,930	13,570	14,880
		COP	W/W	2.48	2.89	2.69	2.58	2.89	2.69	2.58
Electric Specification	MCA		A	22.0	28.0	30.0	32.0	10.0	11.0	12.0
	MFA		A	27.5	35.0	37.5	40.0	12.5	13.8	15.0
Water side	Required Water Pressure		bar	Max. 2.8	Max. 2.8	Max. 2.8	Max. 2.8	Max. 2.8	Max. 2.8	Max. 2.8
	Required Flow Rate		LPM	Min. 16.0	Min. 16.0	Min. 16.0	Min. 16.0	Min. 16.0	Min. 16.0	Min. 16.0
	Piping Connections	In/Out	Ø, inch	1"(BSPP)	1"(BSPP)	1"(BSPP)	1"(BSPP)	1"(BSPP)	1"(BSPP)	1"(BSPP)
Refrigerant Side	Compressor	Type	-	Rotary Inverter	Rotary Inverter	Rotary Inverter	Rotary Inverter	Rotary Inverter	Rotary Inverter	Rotary Inverter
	Oil	Type	-	POE	POE	POE	POE	POE	POE	POE
	Refrigerant	Type	-	R410A	R410A	R410A	R410A	R410A	R410A	R410A
Base Heater	Capacity	-	W	150	150	150	150	150	150	150
Sound	Sound Pressure ⁽³⁾	Heating	dB(A)	50	50	52	53	50	52	53
		Cooling	dB(A)	51	51	53	54	51	53	54
External Dimension	Weight	Net	kg	75	103	103	103	103	103	103
		Gross	kg	83	113	113	113	113	113	113
	Dimensions (WxHxD)	Net	mm	940x998x330	940x1,420x330	940x1,420x330	940x1,420x330	940x1,420x330	940x1,420x330	940x1,420x330
		Gross	mm	995x1,096x426	995x1,548x426	995x1,548x426	995x1,548x426	995x1,548x426	995x1,548x426	995x1,548x426
Operating Range	Ambient (A2W)	Heating	°C	-20~35	-20~35	-20~35	-20~35	-20~35	-20~35	-20~35
		Cooling	°C	10~46	10~46	10~46	10~46	10~46	10~46	10~46
		DHW	°C	-20~43	-20~43	-20~43	-20~43	-20~43	-20~43	-20~43
	Leaving Water	Heating	°C	25~55	25~55	25~55	25~55	25~55	25~55	25~55
Cooling		°C	5~25	5~25	5~25	5~25	5~25	5~25	5~25	

*1~2) A2W rating conditions in accordance with Eurovent Rating Standard for Liquid Chilling Packages 6/C/003-2008.
*1) A2W Condition #1 : (Heating) Water In/Out 30°C/35°C, Outdoor Air 7°CDB/6°CWB; (Cooling) Water In/Out 23°C/18°C, Outdoor Air DB 35°C.
*2) A2W Condition for ESEER (Cooling) at Water Out 18°C.
*3) Sound Pressure was acquired in an anechoic room. Thus actual noise level may be different depending on the installation conditions.
* Specification for the EHS Split type will be announced later.

Cylinder Units



Model Name			Standard	
			NH200CHXEA	NH300CHXEA
Pressure Vessel	Material Quality	-	AISI 444 / DIN 1.4521	
	Volume Capacity	Liter	196	287
Power Supply		Ø, #, V, Hz	1, 2, 220-240, 50	
Electric Element	Capacity	kW	3.0	
	Material	-	Incoloy 825	
	Thermostat #1 (Auto)	°C	40-70 (60 preset)	
	Thermostat #2 (Manual)	°C	91	
Heating Coil	Material Quality	-	Duplex LDX 2101	
	Heating Area	m ²	0.8	
Heating Coil for Solar	Material Quality	-	-	
	Heating Area	m ²	-	
Insulation	Material Quality	-	PUR	
	Thickness	mm	40	
Insulation Jacket	Material Quality	-	Epoxy-coated mild steel-white	
Dimensions Overall	Diameter	mm	585	585
	Height	mm	1,130	1,580
Connections	Cold Water Inlet	Ø, inch	3/4" (BSPP)	
	Hot Water Outlet	Ø, inch	3/4" (BSPP)	
	Recirculation	mm	Ø22mm Straight tube (for compression fitting)	
	Flow & Return	Ø, inch	3/4" (BSPP)	
	Sensor Poket(s)	mm	Ø8.05mm Inside, 1/2" Thread	
Weight	Net	kg	-	-
	Gross	kg	47	61
Max. Water Temperature		°C	70	
Pre-plumbed parts	Water Pump	-	Wilo RS 25/7	
	2Way Valve	-	Honeywell V4043	
	Temp. & Pressure Relief Valve	-	95°C & 10.0 bar	
	Pressure Reducing Valve	bar	3.0	
	Relief Pressure	bar	2.1	
	Strainer	mesh	25	
Packaged part	Flow Switch	-	Sika VH9342	
Room Thermostat & Receiver	Wireless Room Thermostat	-	Danfoss TP5000 Si RF	
	RF Receiver for Thermostat	-	Danfoss RX1	
Timer Controller		-	Danfoss FP715 Si	
Other	Packaging	-	Eco Foam-PUF	
	Adjustable Legs	pcs	3	

Control Kit



Model Name				MIM-E03A
Use with		-	EHS Mono Type	
Power Supply		Ø, #, V, Hz	1, 2, 220-240, 50	
External Dimension	Weight	Net	kg	3.5
		Gross	kg	5.7
	Dimensions (WxHxD)	Net	mm	290x342x110
		Gross	mm	330x440x170
External Control	Booster Heater		-	AC 230V (Max 20A)
	Back up Heater / Boiler		-	AC 230V (Max 0.5A)
	Water Pump		-	AC 230V (Max 2A)
	2Way or 3Way Valve		-	AC 230V (Max 0.5A / 120W)
	Room Thermostat		-	AC 230V (Max 10mA)
	Solar Pump		-	AC 230V (Max 10mA)

Specification

EHS TDM

Outdoor Units



Model Name				RD060PHXEA	RD070PHXEA	RD080PHXEA	RD110PHXEA	RD140PHXEA	RD160PHXEA
Mode			-	Heat Pump (A2A/A2W Multi)	Heat Pump (A2A/A2W Multi)	Heat Pump (A2A/A2W Multi)	Heat Pump (A2A/A2W Multi)	Heat Pump (A2A/A2W Multi)	Heat Pump (A2A/A2W Multi)
Power Supply			Ø, #, V, Hz	1, 2, 220-240, 50	1, 2, 220-240, 50	1, 2, 220-240, 50	1, 2, 220-240, 50	1, 2, 220-240, 50	1, 2, 220-240, 50
Performance (A2W #1)	Nominal Capacity ¹⁾	Heating	W	6,000	7,000	8,000	11,000	14,000	16,000
			Btu/h	20,500	23,900	27,300	37,500	47,800	54,600
		Cooling	W	7,000	7,500	8,000	11,300	14,200	15,500
			Btu/h	23,900	25,600	27,300	38,600	48,500	52,900
	Nominal Power Input ¹⁾	Heating	W	1,305	1,590	1,925	2,420	3,210	3,900
		Cooling	W	1,945	2,205	2,540	2,900	3,940	4,700
	Nominal Current Input ¹⁾	Heating	A	6.0	7.3	8.8	10.7	14.2	17.3
		Cooling	A	8.9	10.1	11.6	12.9	17.5	20.8
	COP (Heating) ¹⁾		W/W	4.60	4.40	4.15	4.55	4.36	4.10
	EER (Cooling) ¹⁾		W/W	3.60	3.40	3.15	3.90	3.60	3.30
ESEER ²⁾		W/W	5.20	5.50	4.90	5.96	5.66	5.50	
Peformance (A2W, Low Temperature)	A2/W35	Heating Capacity	W	5,330	6,400	6,700	9,920	12,620	14,430
		COP (Heating)	W/W	4.16	4.03	3.44	4.28	4.10	3.86
	A-7/W35	Heating Capacity	W	7,050	7,960	9,220	10,620	13,310	13,730
		COP (Heating)	W/W	2.72	2.73	2.47	2.72	2.57	2.45
Performance (A2A)	Nominal Capacity	Cooling	W	3,000~6,000	3,500~7,000	4,000~8,000	6,000~11,000	6,400~14,000	6,400~14,000
			Btu/h	10,200~20,500	11,900~23,900	13,600~27,300	20,500~37,500	21,800~47,800	21,800~47,800
	Allowable No. of Indoor Units		EA	Max. 3	Max. 3	Max. 3	Max. 4	Max. 4	Max. 4
	COP (Heating) ³⁾		W/W	4.04	4.04	4.04	3.94	3.94	3.94
	EER (Cooling) ³⁾		W/W	3.21	3.21	3.21	3.46	3.46	3.46
Electric Specification	MCA		A	13.50	16.00	18.00	25.00	28.00	30.00
	MFA		A	16.88	20.00	22.50	31.25	35.00	37.50
Refrigerant Side	Compressor	Type	-	Rotary Inverter	Rotary Inverter	Rotary Inverter	Rotary Inverter	Rotary Inverter	Rotary Inverter
	Oil	Type	-	POE	POE	POE	POE	POE	POE
	Refrigerant	Type	-	R410A	R410A	R410A	R410A	R410A	R410A
	Piping Connections	Liquid	Ø, mm (inch)	9.52 (3/8")	9.52 (3/8")	9.52 (3/8")	9.52 (3/8")	9.52 (3/8")	9.52 (3/8")
		Gas	Ø, mm (inch)	15.88 (5/8")	15.88 (5/8")	15.88 (5/8")	15.88 (5/8")	15.88 (5/8")	15.88 (5/8")
	Installation Limitation	Length	m	30	30	30	70	70	70
Height		m	15	15	15	30	30	30	
Sound	Sound Pressure ⁴⁾	Heating	dB(A)	48	48	49	49	51	53
		Cooling	dB(A)	48	48	50	50	52	54
External Dimension	Weight	Net	kg	71	71	71	108	108	108
		Gross	kg	79	79	79	116	116	116
	Dimensions (WxHxD)	Net	mm	880x798x310	880x798x310	880x798x310	932x1,128x375	932x1,128x375	932x1,128x375
		Gross	mm	1,023x891x413	1,023x891x413	1,023x891x413	1,091x1,286x472	1,091x1,286x472	1,091x1,286x472
Operating Range	Ambient (A2W)	Heating	°C	-20~35	-20~35	-20~35	-20~35	-20~35	-20~35
		Cooling	°C	10~46	10~46	10~46	10~46	10~46	10~46
		DHW	°C	-20~43	-20~43	-20~43	-20~43	-20~43	-20~43
	Leaving Water	Heating	°C	-20~24	-20~24	-20~24	-20~24	-20~24	-20~24
Cooling		°C	10~43	10~43	10~43	10~43	10~43	10~43	

*1~3) A2W rating conditions in accordance with Eurovent Rating Standard for Liquid Chilling Packages 6/C/003-2008.
*1) A2W Condition #1 : (Heating) Water In/Out 30°C/35°C, Outdoor Air 7°CDB/6°CWB; (Cooling) Water In/Out 23°C/18°C, Outdoor Air DB 35°C.
*2) A2W Condition for ESEER (Cooling) at Water Out 18°C.
*3) A2A Condition : (Heating) Indoor Air 20°CDB/15°CWB, Outdoor Air 7°CDB/6°CWB; (Cooling) Indoor Air 27°CDB/19°CWB, Outdoor Air 35°CDB/24°CWB.
*4) Sound Pressure was acquired in an anechoic room. Thus actual noise level may be different depending on the installation conditions.

Hydro Units

Model Name				NH080PHXEA	NH160PHXEA
Power Supply			Ø, #, V, Hz	1, 2, 220~240, 50	1, 2, 220~240, 50
Performance	Nominal Capacity	Heating	W	6,000 / 7,000 / 8,000	11,000 / 14,000 / 16,000
		Cooling	W	7,000 / 7,500 / 8,000	11,300 / 14,200 / 15,500
	Leaving Water Temperature Range	Heating	°C	15~55 (H/P : 25~55)	15~55 (H/P : 25~55)
		Cooling	°C	5~25	5~25
Water Side	Required Water Pressure		bar	Max. 3.0	Max. 3.0
	Required Flow Rate		LPM	Min. 12.0	Min. 16.0
	Piping Connections	In/Out	Ø, inch	1 1/4" (BSPP)	1 1/4" (BSPP)
Refrigerant Side	Piping Connections	Liquid	Ø, mm (inch)	9.52 (3/8")	9.52 (3/8")
		Gas	Ø, mm (inch)	15.88 (5/8")	15.88 (5/8")
Hydro Unit Parts	Water Pump	Flow Rate	kg/min	17.0 / 20.5 / 23.0	31.5 / 40.1 / 45.9
	Electric Heater	Input Power	W	4,000	6,000
	Expansion Vessel	Volume	Liter	8.0	8.0
	Pressure Relief Valve	Relief Pressure	bar	2.9	2.9
	Air Purge Valve	Size	Ø, inch	3/8" (BSPP male)	3/8" (BSPP male)
	Service Valve	Size	Ø, inch	1 1/4" (BSPP male)	1 1/4" (BSPP male)
External Dimension	Weight	Net	kg	45	48
		Gross	kg	55	58
	Dimensions (WxHxD)	Net	mm	510x850x315	510x850x315
		Gross	mm	564x1,024x412	564x1,024x412
External Control	Back up Boiler		-	230VAC 1A (DO)	230VAC 1A (DO)
	Room Thermostat		-	230VAC 1A (DI)	230VAC 1A (DI)
	Solar Pump		-	230VAC 1A (DI)	230VAC 1A (DI)
	Valves, 2 or 3Way		-	230VAC 1A (DO)	230VAC 1A (DO)



DHW Tanks

Model Name			Standard		Solar Connected	
			NH200WHXEA	NH300WHXEA	NH200WHXES	NH300WHXES
Pressure Vessel	Material Quality	-	AISI 444 / DIN 1.4521		AISI 444 / DIN 1.4521	
	Volume Capacity	Liter	198	287	198	287
Power Supply		Ø, #, V, Hz	1, 2, 220-240, 50		1, 2, 220-240, 50	
Electric Element	Capacity	kW	2.6		2.6	
	Material	-	Incoloy 825		Incoloy 825	
	Thermostat #1 (Auto)	°C	-		-	
	Thermostat #2 (Manual)	°C	-		-	
Heating Coil	Material Quality	-	Duplex LDX 2101		Duplex LDX 2101	
	Heating Area	m²	0.71		0.71	
Heating Coil for Solar	Material Quality	-	-		Duplex LDX 2101	
	Heating Area	m²	-		0.47	
Insulation	Material Quality	-	Polyurethane form		Polyurethane form	
	Thickness	mm	40		40	
Insulation Jacket	Material Quality	-	Epoxy-Coated Mild Steel-White		Epoxy-Coated Mild Steel-White	
Dimensions Overall	Diameter	mm	585	585	585	585
	Height	mm	1,130	1,580	1,130	1,580
Connections	Cold Water Inlet	Ø, inch	3/4" (FBSP)		3/4" (FBSP)	
	Hot Water Outlet	Ø, inch	3/4" (FBSP)		3/4" (FBSP)	
	Recirculation	mm	Ø22mm Straight tube (for compression fitting)		Ø22mm Straight tube (for compression fitting)	
	Flow & Return	mm	3/4" Female		3/4" Female	
	Sensor Pocket(s)	mm	Ø8mm Inside, 1/2" Thread		Ø8mm Inside, 1/2" Thread	
Weight	Net	kg	-	-	-	-
	Gross	kg	47	61	51	65
Max. Water Temperature		°C	70		70	
Other	Packaging	-	Eco Foam-PUF		Eco Foam-PUF	
	Adjustable Legs	pcs	3		3	



Specification

EHS TDM

Indoor Units

Vivace



Model Name				NH022VHXEA	NH028VHXEA	NH036VHXEA	NH056VHXEA	NH071VHXEA
Power Supply			Ø, #, V, Hz	1, 2, 220~240, 50	1, 2, 220~240, 50	1, 2, 220~240, 50	1, 2, 220~240, 50	1, 2, 220~240, 50
Performance	Nominal Capacity	Cooling ^{*1)}	W	2,200	2,800	3,600	5,600	6,800
		Heating ^{*2)}	W	2,500	3,200	4,000	6,300	7,000
	Nominal Input		W	30	30	35	50	50
	Running Current		A	0.13	0.18	0.19	0.30	0.30
Sound	Sound Pressure ^{*3)}	High/Low	dB(A)	31/21	31/21	35/21	40/30	41/30
Fan	Type		-	Cross Flow Fan	Cross Flow Fan	Cross Flow Fan	Cross Flow Fan	Cross Flow Fan
Airflow Rate	Cooling	High	CMM	7.0	7.0	8.2	13.3	13.3
	Heating	High	CMM	7.3	7.3	8.8	14.0	14.0
	ESP	Std. (Min.~Max.)	mmAq	-	-	-	-	-
Refrigerant Side	Type		-	R410A	R410A	R410A	R410A	R410A
	Control Method		-	EEV	EEV	EEV	EEV	EEV
	Piping Connections	Liquid (Flare)	Ø, mm (inch)	6.35 (1/4")	6.35 (1/4")	6.35 (1/4")	6.35 (1/4")	9.52 (3/8")
		Gas (Flare)	Ø, mm (inch)	12.70 (1/2")	12.70 (1/2")	12.70 (1/2")	12.70 (1/2")	15.88 (5/8")
		Drain	Ø, mm	ID 18 hose	ID 18 hose	ID 18 hose	ID 18 hose	ID 18 hose
External Dimension	Weight	Net	kg	8.5	8.5	8.5	12.0	15.0
		Gross	kg	11.5	11.5	11.5	15.0	15.0
	Dimensions (WxHxD)	Net	mm	825x285x189	825x285x189	825x285x189	1,065x298x218	1,065x298x218
		Gross	mm	900x349x252	900x349x252	900x349x252	1,137x377x299	1,137x377x299

*1) Nominal cooling capacities are based on ; Indoor Air 27°CDB/19°CWB, Outdoor Air 35°CDB/24°CWB, Equivalent refrigerant piping 7.5m, Level differences 0m.
*2) Nominal heating capacities are based on ; Indoor Air 20°CDB/15°CWB, Outdoor Air 7°CDB/6°CWB, Equivalent refrigerant piping 7.5m, Level differences 0m.
*3) Sound Pressure was acquired in an anechoic room. Thus actual noise level may be different depending on the installation conditions.



Neo Forte

Model Name				NH022NHXEA	NH028NHXEA	NH036NHXEA	NH056NHXEA	NH071NHXEA
Power Supply			Ø, #, V, Hz	1, 2, 220~240, 50	1, 2, 220~240, 50	1, 2, 220~240, 50	1, 2, 220~240, 50	1, 2, 220~240, 50
Performance	Nominal Capacity	Cooling ^{*1)}	W	2,200	2,800	3,600	5,600	6,800
		Heating ^{*2)}	W	2,500	3,200	4,000	6,300	7,000
	Nominal Input		W	25	25	30	45	50
	Running Current		A	0.18	0.18	0.18	0.27	0.30
Sound	Sound Pressure ^{*3)}	High/Low	dB(A)	32/23	32/23	36/23	40/30	41/30
Fan	Type		-	Cross Flow Fan	Cross Flow Fan	Cross Flow Fan	Cross Flow Fan	Cross Flow Fan
Airflow Rate	Cooling	High	CMM	7.8	7.8	9.3	12.0	14.0
	Heating	High	CMM	8.2	8.2	9.5	13.0	15.0
	ESP	Std. (Min.~Max.)	mmAq	-	-	-	-	-
Refrigerant Side	Type		-	R410A	R410A	R410A	R410A	R410A
	Control Method		-	EEV	EEV	EEV	EEV	EEV
	Piping Connections	Liquid (Flare)	Ø, mm (inch)	6.35 (1/4")	6.35 (1/4")	6.35 (1/4")	6.35 (1/4")	9.52 (3/8")
		Gas (Flare)	Ø, mm (inch)	12.70 (1/2")	12.70 (1/2")	12.70 (1/2")	12.70 (1/2")	15.88 (5/8")
		Drain	Ø, mm	ID 18 hose	ID 18 hose	ID 18 hose	ID 18 hose	ID 18 hose
External Dimension	Weight	Net	kg	7.8	7.8	7.8	13.0	13.0
		Gross	kg	9.4	9.4	9.4	16.0	16.0
	Dimensions (WxHxD)	Net	mm	825x285x189	825x285x189	825x285x189	1,065x298x218	1,065x298x218
		Gross	mm	900x349x252	900x349x252	900x349x252	1,137x377x299	1,137x377x299

*1) Nominal cooling capacities are based on ; Indoor Air 27°CDB/19°CWB, Outdoor Air 35°CDB/24°CWB, Equivalent refrigerant piping 7.5m, Level differences 0m.
*2) Nominal heating capacities are based on ; Indoor Air 20°CDB/15°CWB, Outdoor Air 7°CDB/6°CWB, Equivalent refrigerant piping 7.5m, Level differences 0m.
*3) Sound Pressure was acquired in an anechoic room. Thus actual noise level may be different depending on the installation conditions.









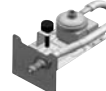











Slim Duct

Model Name				NH022LHXEA	NH028LHXEA	NH036LHXEA	NH045LHXEA	NH056LHXEA
Power Supply			Ø, #, V, Hz	1, 2, 220~240, 50	1, 2, 220~240, 50	1, 2, 220~240, 50	1, 2, 220~240, 50	1, 2, 220~240, 50
Performance	Nominal Capacity	Cooling ^{*1)}	W	2,200	2,800	3,600	4,500	5,600
		Heating ^{*2)}	W	2,500	3,200	4,000	5,000	6,300
	Nominal Input		W	80	80	80	90	100
	Running Current		A	0.40	0.40	0.40	0.60	0.60
Sound	Sound Pressure ^{*3)}	High/Low	dB(A)	31/26	32/27	32/27	33/30	33/30
Fan	Type		-	Sirocco Fan	Sirocco Fan	Sirocco Fan	Sirocco Fan	Sirocco Fan
Airflow Rate	Cooling	High	CMM	8.0	9.0	10.0	14.0	15.0
	Heating	High	CMM	9.0	10.0	12.0	16.5	18.0
	ESP	Std. (Min.~Max.)	mmAq	2 (0~4)	2 (0~4)	2 (0~4)	2 (0~4)	2 (0~4)
Refrigerant Side	Type		-	R410A	R410A	R410A	R410A	R410A
	Control Method		-	EEV	EEV	EEV	EEV	EEV
	Piping Connections	Liquid (Flare)	Ø, mm (inch)	6.35 (1/4")	6.35 (1/4")	6.35 (1/4")	6.35 (1/4")	9.52 (3/8")
		Gas (Flare)	Ø, mm (inch)	12.70 (1/2")	12.70 (1/2")	12.70 (1/2")	12.70 (1/2")	15.88 (5/8")
		Drain	Ø, mm	VP25(OD32,ID25)	VP25(OD32,ID25)	VP25(OD32,ID25)	VP25(OD32,ID25)	VP25(OD32,ID25)
External Dimension	Weight	Net	kg	26.0	26.0	26.0	31.0	31.0
		Gross	kg	31.0	31.0	31.0	39.0	39.0
	Dimensions (WxHxD)	Net	mm	900x199x600	900x199x600	900x199x600	1,100x199x600	1,100x199x600
		Gross	mm	1,133x333x730	1,133x333x730	1,133x333x730	1,330x330x730	1,330x330x730

*1) Nominal cooling capacities are based on ; Indoor Air 27°CDB/19°CWB, Outdoor Air 35°CDB/24°CWB, Equivalent refrigerant piping 7.5m, Level differences 0m.
*2) Nominal heating capacities are based on ; Indoor Air 20°CDB/15°CWB, Outdoor Air 7°CDB/6°CWB, Equivalent refrigerant piping 7.5m, Level differences 0m.
*3) Sound Pressure was acquired in an anechoic room. Thus actual noise level may be different depending on the installation conditions.

EHS Option & Accessories

Chassis		MONO	SPLIT	TDM				
			 Hydro Unit	 Slim Duct	 Vivace (Wall-mounted)	 Neo Forte (Wall-mounted)	 Hydro Unit	
Capacity		9/12/14/16kW	8/16kW	2.2~5.6kW	2.2~7.1kW	2.2~7.1kW	8/16kW	
EEV Kit (Option)	 for 2/3 room	-	-	-	MXD-A13K116A ≤3.6kW 1room + ≥5.6kW 1room	-	-	
					MXD-A13K200A ≤3.6kW x 2room			
					MXD-A16K200A ≥5.6kW x 2room			
					MXD-A13K216A ≤3.6kW 2room + ≥5.6kW 1room			
					MXD-A13K300A ≤3.6kW x 3room			
					MXD-A16K231A ≤3.6kW 1room + ≥5.6kW 2room			
				MXD-A16K300A ≥5.6kW 3room				
Y-joint (Option)		-	MXJ-YA1509K (≤15.0kW and below)	MXJ-YA1509K (≤15.0kW and below)				
Drain Pump (Option)		-	-	MDP-E075SEE3	-	-	-	
Wireless Remote Controller (Option/Included)		-	-	MR-DH00 (Option)	ARH-1364 (Included)	ARH-1364 (Included)	-	
Remote Controller Receiver Kit (Option)		-	-	MRK-A00	-	-	-	
Wired Remote Controller (Option/Included)		MWR-WH00 (Included)		MWR-WH00 MWR-WE10 MWR-SH00 (Option)	-	-	MWR-WH00 (Included)	
Domestic Hot Water Tank (Option)		NH300WHXES NH300WHXEA NH200WHXES NH200WHXEA		-	-	-	NH300WHXES NH300WHXEA NH200WHXES NH200WHXEA	
Cylinder Unit (Option)		NH300CHXEA NH200CHXEA (Control Kit is installed)		-	-	-	-	
Control kit		MIM-E03A	-	-	-	-	-	
Panel (Option)				-	-	-	-	
Panel (Option)		-	-	-	-	-	-	
Base Heater (option/included)		(Included)	Code : TBD (Option)	-	-	-	-	

Note) Do not recommend that EEV kit is installed near the living room or bed rooms.

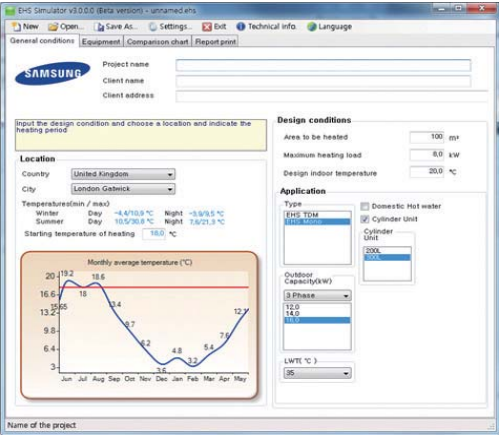
EHS Simulator

Through EHS simulation program, you can select devices and simulate heating load, energy consumption, cost, CO2 emission and LCC (Life cycle cost) analysis according to national/regional temperature and architectural conditions. Furthermore, simulation report can be submitted to the client in saved file or printed format.



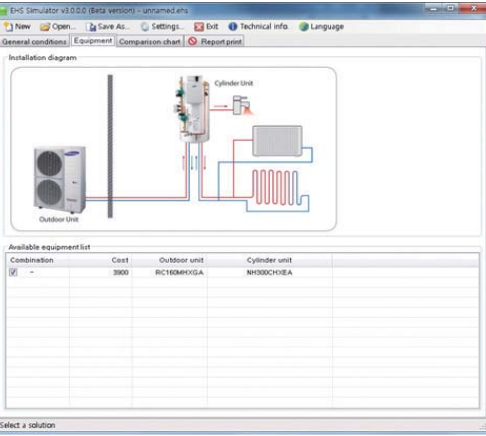
General conditions

- Location / Design Conditions / Application Setting



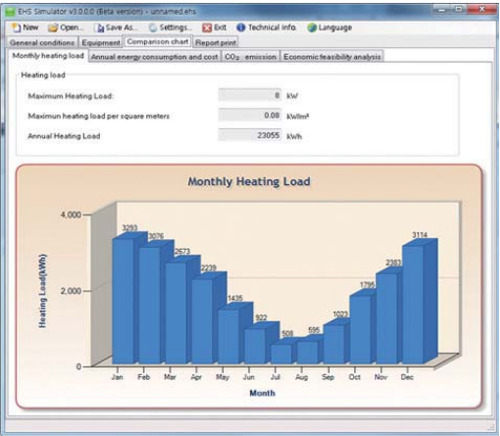
Equipment

- Installation Diagram / Available Equipment List Check



Comparisons chart

- Monthly Heating Load / Annual Energy Consumption & Cost / CO2 Emission / GHG Benefit / LCC Analysis



‘Samsung's commercial EHS, coming to us in year 2013!’

DVM EHS HE (High Efficiency)

Larger capacity and bigger satisfaction for mid-sized commercial areas.

DVM EHS HE (High Efficiency) units are perfect for mid-sized buildings. They have large capacity lineups which supports up to 50°C water heating while providing comfort warmth.

50°C

Samsung EHS Commercial Type

80°C

DVM EHS HT (High Temperature)

Larger capacity and bigger satisfaction for larger commercial areas.

DVM EHS HT units have the largest capacity outdoor units to heat up the relatively large-sized buildings. You will be satisfied with the water heating up to 80°C

Efficient use of energy in commercial area is being requested and it will be likely to become mandatory in near future. Samsung is in on-going process to develop the same concept of efficient and ecological climate solution, which is already applied to residential area, for commercial area and it will be launched in 2013 to provide the same satisfaction to the building owner that once home owners felt

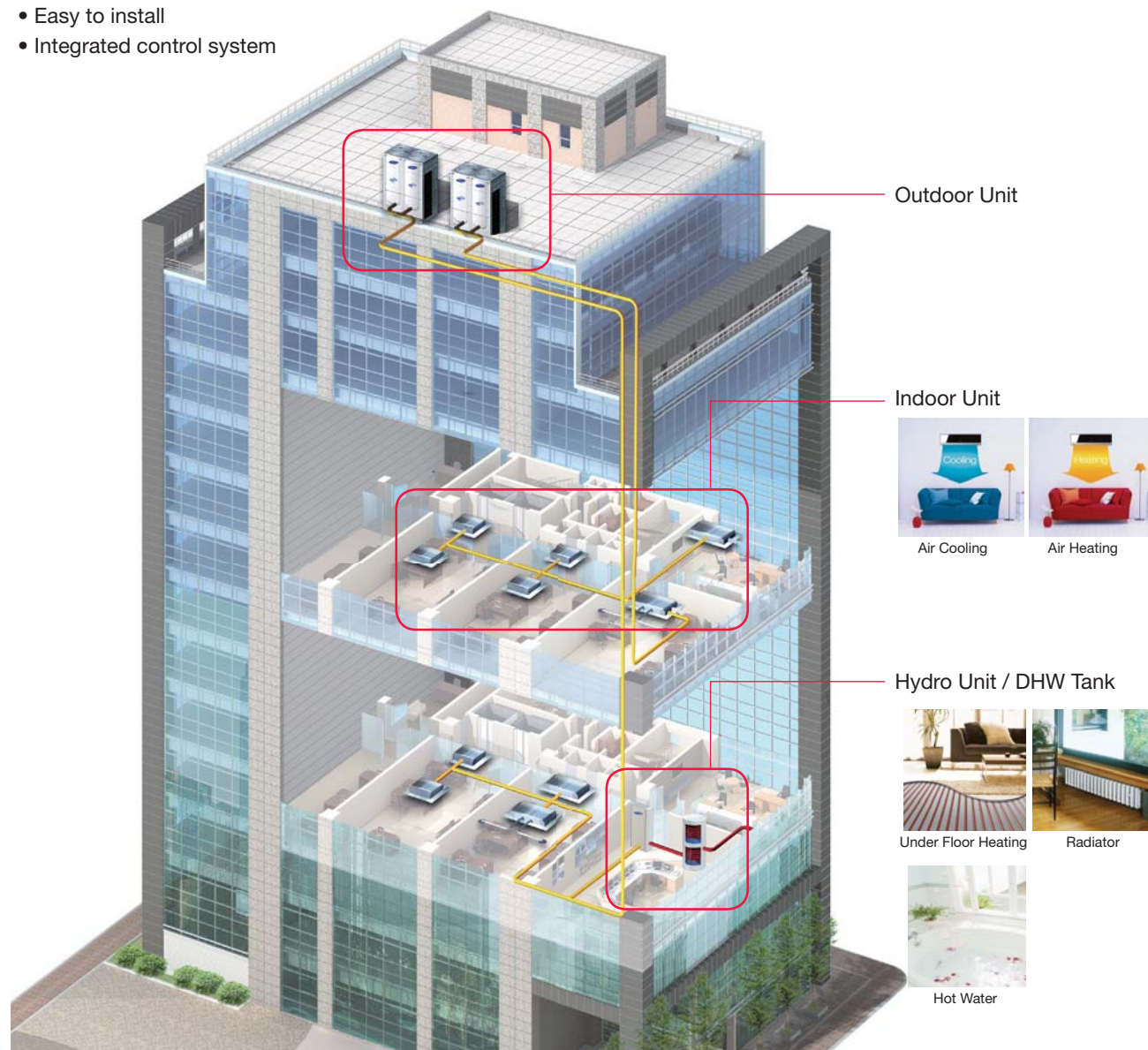




EHS Commercial Solution

Overview of DVM EHS

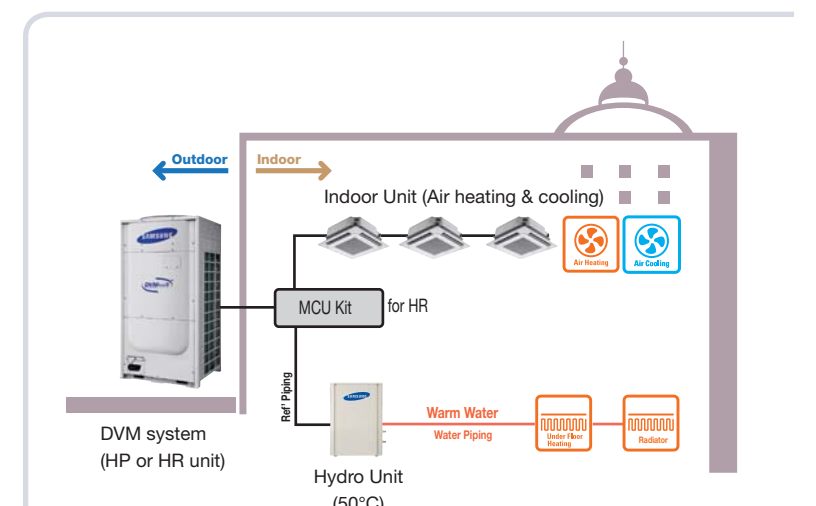
- Integrated solution in one system (air and water)
- Provide 50°C or 80°C water
- High COP operation
- Heat recovery technology
- Easy to install
- Integrated control system



DVM EHS HE (High Efficiency)

Provide HE (High Efficiency) solution up to 50°C

- Heat pump and Heat recovery(simultaneous cooling and heating) system
- Both air-to-air and air-to-water heating and cooling
- Consist of DVM outdoor units and hydro unit
- Cassette type indoor units are compatible for air-to-air solution
- Compatible with under floor heating and fan coil units
- Water temperature up to 50°C
- Integrated control system



DVM EHS HT (High Temperature)

Provide high temperature solution up to 80°C

- Heat pump and Heat recovery(simultaneous cooling and heating) system
- Both air-to-air and air-to-water heating and cooling
- Consist of DVM outdoor units, hydro unit and DHW tank
- Cassette type indoor units are compatible for air-to-air solution
- Compatible with under floor heating and fan coil units
- Water temperature up to 80°C
- Integrated control system

