

1. External appearance



Rendering 1: SGH120 high efficiency steam supply system



Rendering 2: SGH165 high efficiency steam supply system

## 2. Example of implementation

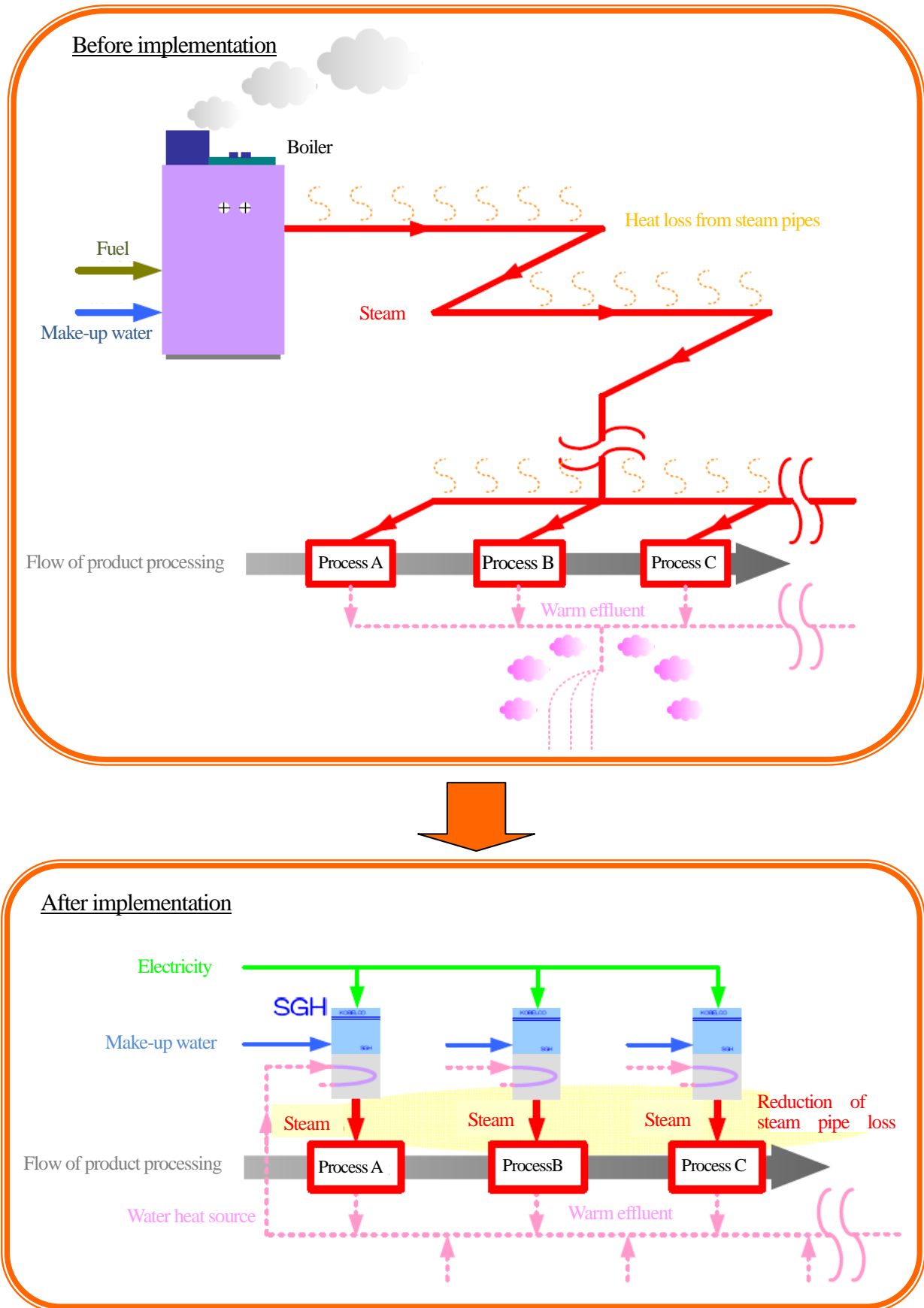


Diagram 1: SGH implementation example

### 3. Specifications

Table 1: Specifications of SGH

Model		SGH120	SGH165
Performance example	Steam pressure	0.1MPaG	0.6MPaG
	Steam temperature	120°C	165°C
	Heat source temperature	65°C	70°C
	Heating capacity	380kW	660kW
	Actual steam output	0.52t/hr	0.89t/hr
	COP	3.2	2.5
Water heat source temperature range		25-65°C	35-70°C
Steam pressure range		0.0-0.1 MPaG	0.2-0.8 MPaG
Size		1,200 mm (W) × 4,850 mm (D) × 2,530 mm (H)	4,300 mm (W) × 2,950 mm (D) × 2,530 mm (H)
Weight		4000 kg	7000 kg

### 4. Standard range of operation

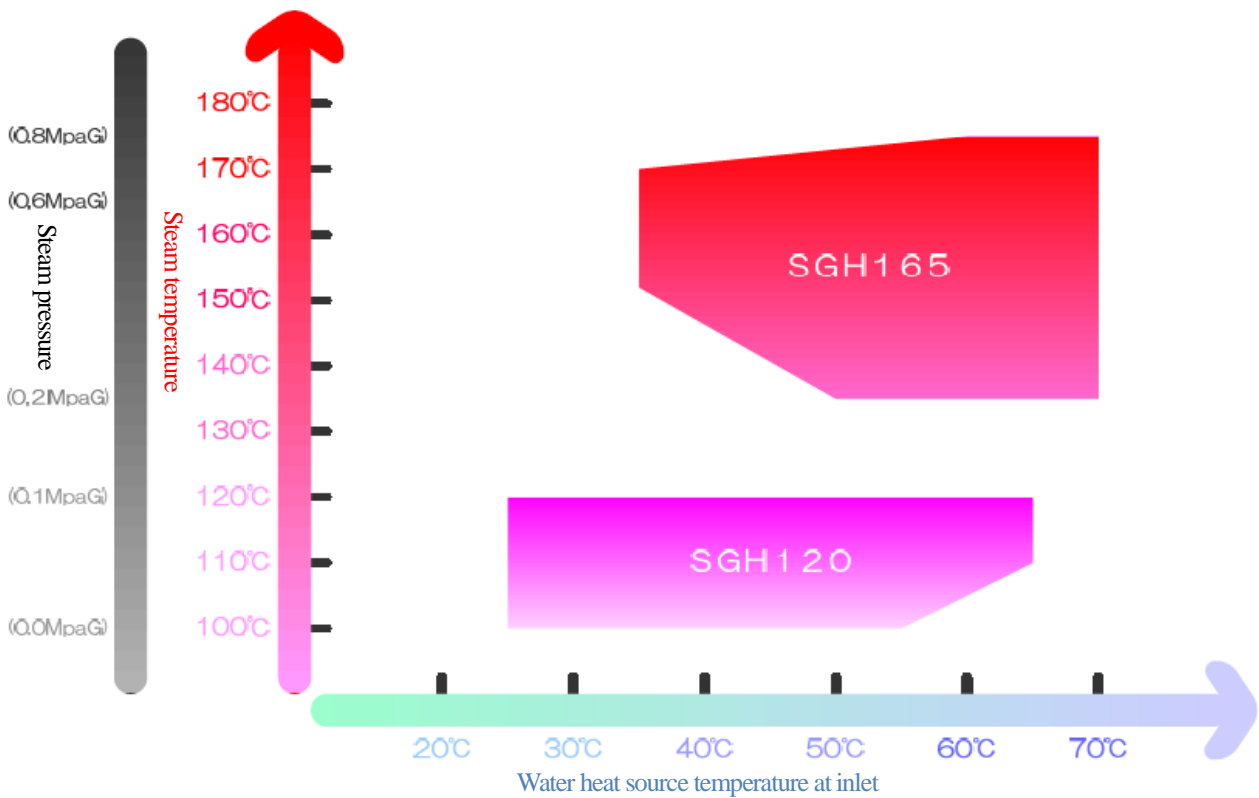


Figure 2 Standard operating range of SGH

5. Development considerations for the SGH

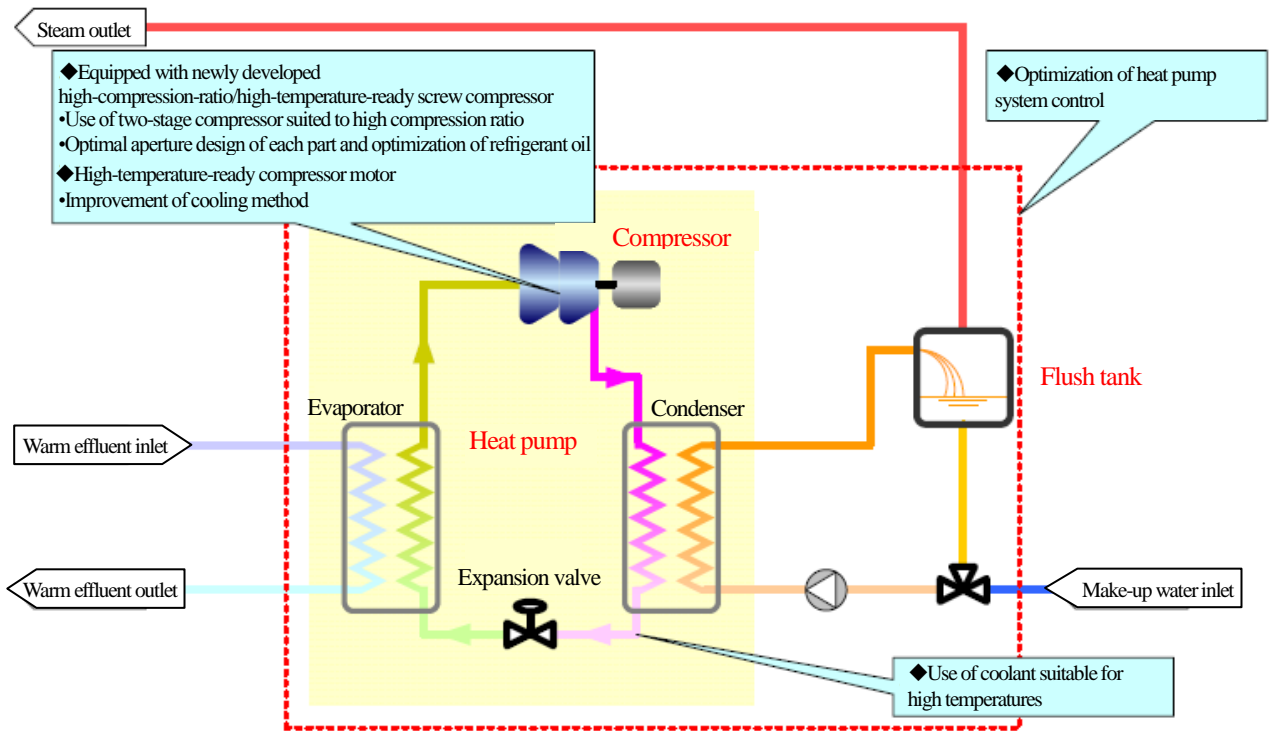


Figure 3 Development considerations for the SGH120

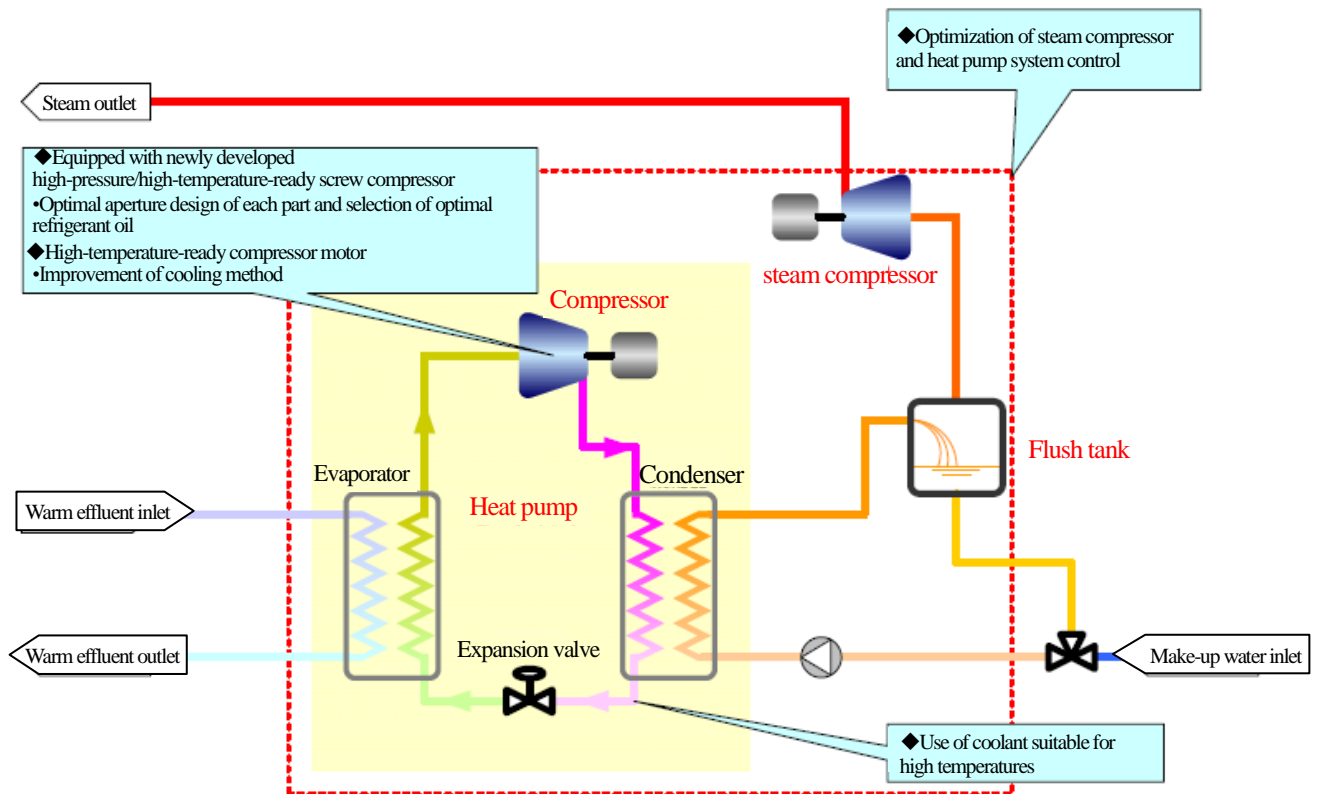


Figure 4 Development considerations for the SGH165

## 6. Projected effects of introducing the system

Table 2 Running Cost (Unit: Million yen/year)

	Tokyo Region	Nagoya Region	Osaka Region	Average for three regions
SGH120	7.1	6.7	6.5	6.8
Conventional system (gas boiler)	13.5	16.5	15.3	15.1
Rate of reduction	47.4%	59.6%	57.1%	55.1%

- Annual operating hours: 3,824 (16 hours/day, weekdays only)
- Electricity and gas rate menus for each of the three regions have been used.

Table 3 Energy Consumption (Unit: GJ/year)

	Tokyo Region	Nagoya Region	Osaka Region	Average for three regions
SGH120	4,728	4,728	4,728	4,728
Conventional system (gas boiler)	11,788	11,767	11,788	11,781
Rate of reduction	59.9%	59.8%	59.9%	59.9%

- For the calculation of energy consumption, the figure of 9,970 kJ/kWh, stipulated by the Enforcement Regulations for the Act on the Rational Use of Energy, was used for power, and the figures officially stated in the standard gas supply contracts of city gas companies in each region were used for city gas.
- A joule (J) is a unit expressing the magnitude of energy. 1 GJ is  $10^9$  J. 1 GJ is approximately equivalent to the amount of energy in 26 liters of crude oil.

Table 4 CO<sub>2</sub> Emissions (Unit: ton-CO<sub>2</sub> /year)

	Tokyo Region	Nagoya Region	Osaka Region	Average for three regions
SGH120	154	198	126	159
Conventional system (gas boiler)	596	601	595	598
Rate of reduction	74.2%	67.1%	78.9%	73.4%

- For the calculation of CO<sub>2</sub> emissions, figures officially published by the Ministry of the Environment were used for power, and figures officially published by city gas companies in each region were used for city gas.
- “t-CO<sub>2</sub>” is a value, expressed in units of tons, calculated by converting greenhouse gas emissions resulting from the use of energy into the greenhouse effect of carbon dioxide (CO<sub>2</sub>).