For more information, please contact the following offices.

NIPPON THERMOENER CO., LTD.

Headquarters: 3-2-10 (Shirokanedai Building), Shirokanedai, Minato-ku, Tokyo 108-0071 Japan
Tel: +81-3-6408-8251 (switchboard number) Fax: +81-3-6408-8278

https://www.n-thermo.co.jp

Hokkaido branch office
Sapporo Branch
TEL+81-11-789-5281
Asahikawa sales office
TEL+81-166-21-5770
Kushiro sales office
TEL+81-154-31-9211
Hakodate sales office
TEL+81-138-87-5001

Tohoku branch office
Sendai Branch
TEL+81-22-244-5181
Yamagata sales office
TEL+81-23-629-7378
Koriyama sales office
TEL+81-24-990-1852
Morioka branch
TEL+81-19-635-3366
Akita sales office
TEL+81-18-887-5630

Southern Kanto branch office
Tokyo branch
TEL+81-3-6408-8260
Tachikawa sales office
TEL+81-42-535-8701
Yamanashi sales office
TEL+81-55-242-2570
Yokohama branch
TEL+81-45-948-3911
Atsugi sales office
TEL+81-46-221-1911
Chiba branch
TEL+81-43-235-0071
Mito sales office
TEL+81-29-244-5720
Tsukuba sales office
TEL+81-29-833-6155

Northern Kanto branch office
Saitama Branch
TEL+81-48-660-2331
Utsunomiya sales office
TEL+81-28-613-0331
Takasaki branch
TEL+81-27-350-7230
Matsumoto sales office
TEL+81-263-48-3815
Nagano sales office
TEL+81-26-286-0341
Niigata branch
TEL+81-25-283-0171
Nagaoka sales office
TEL+81-258-20-5202

Chubu branch office
Nagoya Branch
TEL+81-52-509-5211
Mie sales office
TEL+81-59-213-5980
Hokuriku branch
TEL+81-76-223-4001
Toyama sales office
TEL+81-76-421-1131
Shizuoka branch
TEL+81-54-245-0253
Hamamatsu sales office
TEL+81-53-464-0253

Kansai branch office
Osaka Branch
TEL+81-6-6488-2233
Takamatsu sales office
TEL+81-87-864-5755
Kobe branch
TEL+81-78-579-6150
Himeji sales office
TEL+81-79-281-6227
Minami-Osaka branch
TEL+81-72-226-5165
Kyoto branch
TEL+81-75-935-2541

Chugoku branch office
Chugoku Branch
TEL+81-82-503-1606
Okayama sales office
TEL+81-86-800-7700
Sanin sales office
TEL+81-859-34-6577
Yamaguchi sales office
TEL+81-83-972-2666

Kyushu branch office
Kyushu Branch
TEL+81-92-711-1511
Kitakyushu sales office
TEL+81-93-963-5550
Oita sales office
TEL+81-97-554-2322
Kumamoto sales office
TEL+81-96-328-9811
Kagoshima sales office
TEL+81-99-255-3801

Kyoto plant
TEL+81-75-935-2500

Kanto plant
TEL+81-29-833-6110

AFFILIATES

NTEC Chemical CO., LTD.
NTEC Engineering CO., LTD.
NTEC Service CO., LTD.
NIPPON THERMOENER (THAILAND) CO., LTD.
TEL+66-(0)2-653-0660

ISO 9001 certified
JQA-QMA14830
Nippon Thermoener Co., Ltd.
Headquarters
Kyoto Plant
Kanto Plant

ISO 14001 certified
Nippon Thermoener Co., Ltd.
Kyoto Plant
JQA-EM0253
Kanto Plant
JQA-EM0253A

● Please note that the descriptions are subject to change without prior notice.

K0B0607E
2019.11R

NTEC

Vacuum Type Water Heater

SUPER VACOTIN HEATER

Super Vacotin Heater

GTL Series / GTLH (Latent Heat Recovery Type)

NIPPON THERMOENER CO., LTD.

Vacuum-type highly-efficient gas-fired water heater realizing energy savings

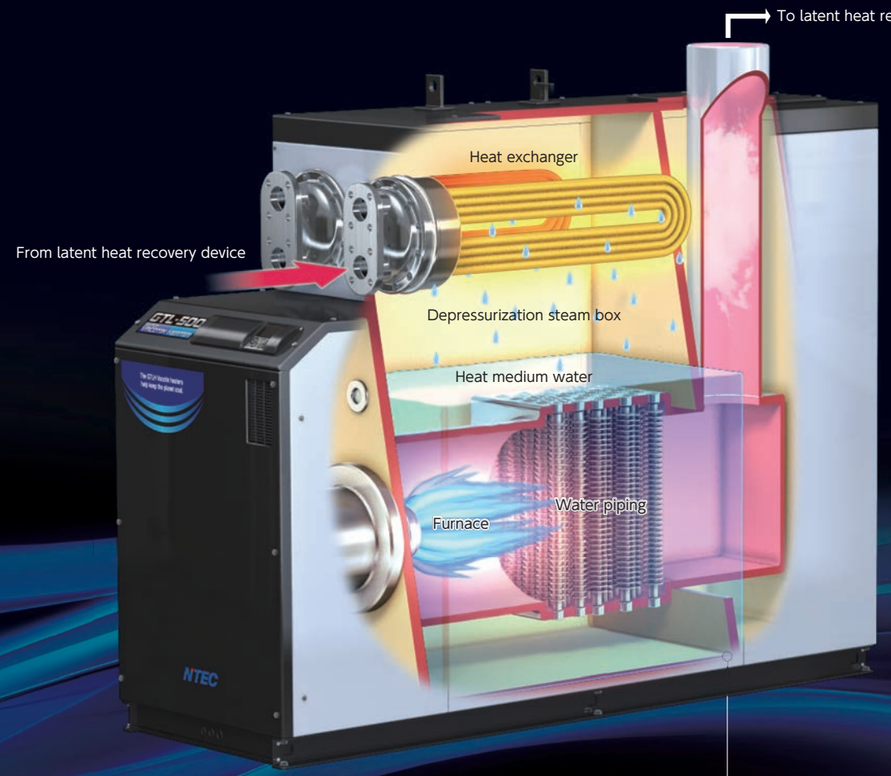
Super Vacotin Heater

GTL series / GTLH (Latent Heat Recovery Type)

High efficiency
95%
GTL series
105%
Latent heat recovery type GTLH

SUPER VACOTIN HEATER

Turndown ratio
5 : 1
Proportional control combustion format

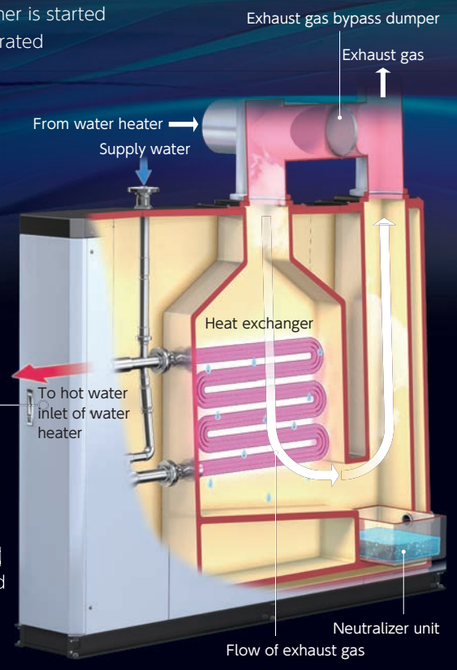


Vacuum Type Water Heater

- There is no air in the boiler, and the unit is completely hermetically sealed from the outside environment
- The depressurization steam box is kept at a pressure below atmospheric pressure
- The heat medium water boils immediately after heating with the burner is started Steam with the same temperature as the heat medium water is generated
- Steam generated in the boiler body condenses on the surface of the heat exchanger located inside the depressurization steam box, and the condensation indirectly heats water
- Depressurized steam condenses into water droplets and becomes heat medium water again
- The level of heat medium water never changes, so there is no fear of heating an empty boiler without ever needing to add additional water

Latent Heat Recovery Device (GTLH)

- Heat efficiency of 105% is achieved through the recovery of latent heat!!
- Realization of high heat efficiency by efficiently removing drain water!!
- Improved energy efficiency!! Smaller environmental footprint!!
- Because the combustion gas condensate generated when recovering the latent heat is acdic, the latest heat recovery device is constructed with stainless steel and is also equipped with a neutralizer unit
- Capable of adding on or bypassing a latent heat recovery device!!



Space conserving design & split delivery* !!

It is possible to split the latent heat recovery device from the main unit of the vacuum type water heater when delivering to the installation site, making installation easy even in locations with little open space leading to the installation location.

NOx emissions=60ppm or lower (converted at O_2=0%)

Uses a high-quality low NOx burner that adopts the divided flame and self-recirculating combustion methods (in case of LNG)

Subsequent euipping of the latent heat recovery device and by-passing are possible* !!

Through our unique design, it is possible to equip the latent heat recovery device to installed units, thereby increasing the freedom when selecting equipment. Also, water and exhaust gas by-passes are possible, which allows the running method to be selected.

* In case of GTLH

Super Vacotin Heater

GTL series / GTLH (Latent Heat Recovery Type)

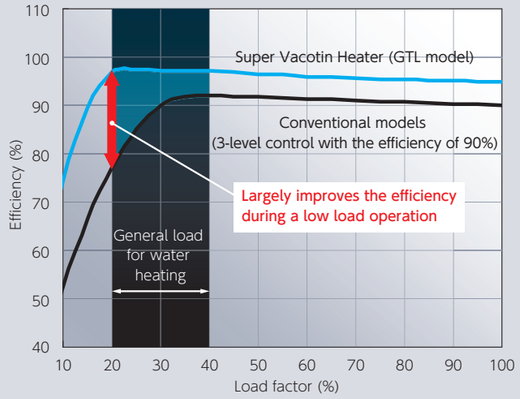
POINT 1 — GTL series / GTLH

Realized extremely high efficiency with a boiler body efficiency of 95% Proportional control combustion format Turndown ratio 5:1 (20%)

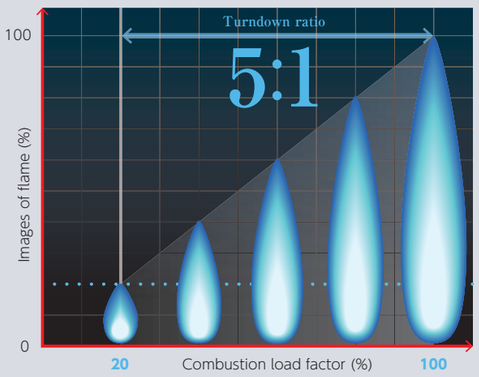
By re-examining the structure and further optimizing the heat-carrying water pipes, a thermal efficiency of 95% during a rated load operation has been realized. With the turndown ratio of 5:1* and proportional control combustion format, these products eliminate the need to stop the burner until the load factor falls to 20% of the rated load, making it possible to reduce losses in efficiency resulting from repeatedly stopping and starting the burner and realize a partial load efficiency of 96% or more (when the load factor is 20%).

* The turndown ratio represents a ratio between the rated (maximum) combustion capacity and minimum combustion capacity. When it is 5:1, the combustion capacity can be reduced to 20%.

Comparison of the partial load efficiencies



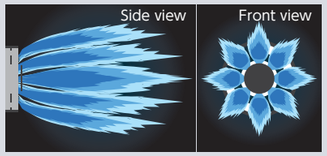
Images of flame at various combustion load factors



POINT 2 — GTL series / GTLH

NOx emissions=60ppm or lower (converted at O_2=0%)

A high-quality low NOx burner that adopts the divided flame and self-recirculating combustion methods is used as standard. Reducing emissions of NOx gas that causes acid rain and photochemical smog, these water heaters provide superior environmental performance.



Divided flame burner

Equipped with the new and highly-functional micro-computer as standard

Improved control functions, backlit LCD, additional display information, selectable tiered display, multiple remote controls, longer life, improved temperature resolution, communication function, operating data recording function, improved scheduled operating function, additional operating functions

* The high-grade remote control (option) enables individual, central, and multiple-unit (up to three units) controls.

POINT 3 — GTL series / GTLH

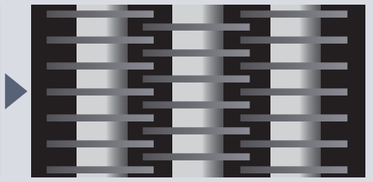
Improved heat conductivity with water pipes having alternately arranged fins

The fins arranged alternately prevent condensed water from obstructing heat transfer, realizing improvement in heat conductivity.

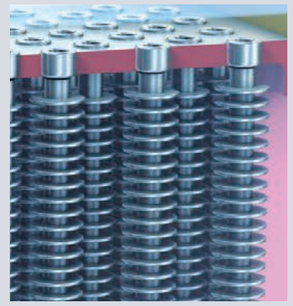
Conventional model

Generated condensed water accumulates between fins and obstructs the flow of exhaust gas (reducing the exhaust gas flow rate and obstructing heat transfer).

GTL model



With the fins arranged alternately, condensed water passes between the fins to be discharged, which prevents obstruction of heat transfer.



This image is for illustrative purposes only.

POINT 4 — GTLH

Space conserving design & split delivery* !! Subsequent euipping of the latent heat recovery device and by-passing are possible* !!

It is possible to split the latent heat recovery device from the main unit of the vacuum type water heater when delivering to the installation site, making installation easy even in locations with little open space leading to the installation location. * In case of GTLH

POINT 5 — GTLH

The world first vacuum type water heater realizing a thermal efficiency of 105%* through latent heat recovery

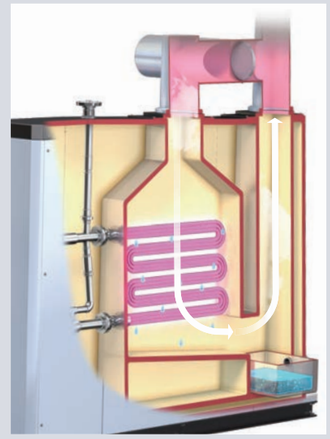
The latent heat recovery device realizes a thermal efficiency of 105%* by adjusting the flow of the internal exhaust gas and efficiently removing drain water. * In case of the LNG type (103% for the propane type)

■ Down-flow system for exhaust gas providing stable heat recovery

The flow helps condensed water fall down more easily, enabling stable heat recovery.

■ Highly resistant to acid drain water

Using stainless steel material highly resistant to corrosion due to acid and a built-in neutralizer unit, this device is well-prepared for use with drain water.



Note for Consideration

The GTLH can realize 105% high efficiency, but a moisture concentration in exhaust gas becomes very high because of latent heat recovery, and mist becomes acid. For this reason, white smoke is generated as an outer temperature decreases, and automobiles and steel products placed near the flue discharge opening may be corroded by mist.
If this may pose a problem, it is recommended to use the 95%-efficiency GTL first to confirm its energy conservation performance, and then, if the GTLH is reuired, install an add-on latent heat recovery device.

GTL/HGTL (Standard spec. / High-temperature spec.)

Indoor type　　Outdoor type

GTL-300 to 800／HGTL-300 to 800

Item			300	400	500	630	800
Boiler body output		kW	349	465	581	733	930
Heating surface area		㎡	8.4	9.8	12.7	14.0	
Heat efficiency		%	95				
Max combustion capacity (input)		kW	367	489	612	772	979
Fuel consumption	LNG	m³ (N)/h	32.6	43.4	54.3	68.4	86.8
	Propane	m³ (N)/h	14.1	18.8	23.5	29.6	37.6
		kg/h	28.5	38.0	47.5	59.9	76.0
Power source			Three-phase, AC200V, 50/60Hz				
Facility electric power	Blower motor	kW	1.0		1.5	2.2	
	Control box	kW	0.3				
Control system			Proportional + ON-OFF control				
Connecting pipe diameter	Fuel inlet (Union)	A	40			50	65 [50]
	Exhaust gas outlet	ϕmm	300	350		450	
	Exhaust gas drain outlet	A	25				
Heat exchanger		Material/ Structure	SUS444 / U-shape multitubular flange type heat exchanger				
Maximum working pressure		MPa	0.69	0.49			
Product weight (including heat medium water)		kg	1,240	1,480	1,735	1,965	
Amount of heat medium water		L	265	310	390	380	

The value in [ ] is specification of the propane type.

GTL-300 to 800 **1 circuit (for hot water supply)**

Item		300A	400A	500A	630A	800A
Maximum continuous output	kW	349	465	581	733	930
Hot water flow amount (20→65℃)	L/h	7,500※	8,890	11,110	14,000	17,780
Pressure loss for same as above	kPa	1.0			2.0	2.9
Amount of water held by heat exchanger	L	10.4	13.2		21.7	24.2
Hot water inlet / outlet (flange)	A	65 (JIS10K)	80 (JIS5K)			

※: The temperature condition for 300 type is 20 -> 60℃.

GTL-300 to 800 **1 circuit (for heating)**

Item		300A	400A	500A	630A	800A
Maximum continuous output	kW	349	465	581	733	930
Hot water flow amount (55→70℃)	L/h	20,000	26,700	33,300	42,000	53,300
Pressure loss for same as above	kPa	5.4	3.9	5.9	10.8	19.6
Amount of water held by heat exchanger	L	10.4	13.2	13.2	21.7	24.2
Hot water inlet / outlet (flange)	A	65 (JIS10K)	80 (JIS5K)			

GTL-300 to 800 **2 circuits**

Item			300B	400B	500B	630B	800B
Hot water I	Maximum continuous output	kW	349	465	581	733	930
	Hot water flow amount (55→70℃)	L/h	20,000	26,700	33,300	42,000	53,300
	Pressure loss for same as above	kPa	5.4	3.9	5.9	10.8	19.6
	Amount of water held by heat exchanger	L	10.4	13.2	13.2	21.7	24.2
	Hot water inlet / outlet (flange)	A	65 (JIS10K)	80 (JIS5K)			
Hot water II	Maximum continuous output	kW	349	465	581	733	930
	Hot water flow amount (20→65℃)	L/h	6,670	8,890	11,110	14,000	17,780
	Pressure loss for same as above	kPa	6.4	3.9	5.9	11.8	20.6
	Amount of water held by heat exchanger	L	8.8	13.0	13.0	13.2	21.7
	Hot water inlet / outlet (flange)	A	50 (JIS10K)	65 (JIS5K)			

GTL-300 to 800 **3 circuits**

Item			300C	400C	500C	630C	800C
Hot water I-1	Maximum continuous output	kW	174	233	291	366	465
	Hot water flow amount (55→70℃)	L/h	10,000	13,300	16,700	21,000	26,600
	Pressure loss for same as above	kPa	5.4	3.9	5.9	10.8	19.6
	Amount of water held by heat exchanger	L	5.2	6.6	6.6	10.85	12.1
	Hot water inlet / outlet (flange)	A	40 (JIS10K)	50 (JIS5K)			
Hot water I-2	Maximum continuous output	kW	349	465	581	733	930
	Hot water flow amount (25→50℃)	L/h	10,000※	16,000	20,000	25,200	32,000
	Pressure loss for same as above	kPa	5.4	5.9	8.8	14.7	27.5
	Amount of water held by heat exchanger	L	5.2	6.6	6.6	10.85	12.1
	Hot water inlet / outlet (flange)	A	40 (JIS10K)	50 (JIS5K)			
Hot water II	Maximum continuous output	kW	349	465	581	733	930
	Hot water flow amount (20→65℃)	L/h	6,670	8,890	11,110	14,000	17,780
	Pressure loss for same as above	kPa	6.4	3.9	5.9	11.8	20.6
	Amount of water held by heat exchanger	L	8.8	13.0	13.0	13.2	21.7
	Hot water inlet / outlet (flange)	A	50 (JIS10K)	65 (JIS5K)			

※The temperature condition for 300 type is 20 -> 50℃.

HGTL-300 to 800 **High-temperature spec.…1 circuit (for heating)**

Item		300A	400A	500A	630A	800A
Maximum continuous output	kW	349	465	581	733	930
Hot water flow amount (60→80℃)	L/h	15,000	20,000	25,000	31,500	40,000
Pressure loss for same as above	kPa	32.4	21.6	39.2	10.8	16.7
Amount of water held by heat exchanger	L	12.2	13.2	21.7	35.1	35.1
Hot water inlet / outlet (flange)	A	50 (JIS10K)	65 (JIS5K)		80 (JIS5K)	

HGTL-300 to 800 **High-temperature spec.…2 circuits**

Item			300B	400B	500B	630B	800B
Hot water I	Maximum continuous output	kW	349	465	581	733	930
	Hot water flow amount (60→80℃)	L/h	15,000	20,000	25,000	31,500	40,000
	Pressure loss for same as above	kPa	32.4	21.6	39.2	10.8	16.7
	Amount of water held by heat exchanger	L	12.2	13.2	21.7	35.1	35.1
	Hot water inlet / outlet (flange)	A	50 (JIS10K)	65 (JIS5K)		80 (JIS5K)	
Hot water II	Maximum continuous output	kW	349	465	581	733	930
	Hot water flow amount (20→65℃)	L/h	6,670	8,890	11,110	14,000	17,780
	Pressure loss for same as above	kPa	6.4	3.9	5.9	11.8	20.6
	Amount of water held by heat exchanger	L	8.8	13.0	13.0	13.2	21.7
	Hot water inlet / outlet (flange)	A	50 (JIS10K)	65 (JIS5K)			

HGTL-300 to 800 **High-temperature spec.…3 circuits**

Item			300C	400C	500C	630C	800C
Hot water I-1	Maximum continuous output	kW	174	233	291	366	465
	Hot water flow amount (60→75℃)	L/h	10,000	13,300	16,700	15,750※1	20,000※1
	Pressure loss for same as above	kPa	6.4	4.9	8.8	10.8	16.7
	Amount of water held by heat exchanger	L	6.1	6.6	10.85	17.55	17.55
	Hot water inlet / outlet (flange)	A	40 (JIS10K)	50(JIS5K)			
Hot water I-2	Maximum continuous output	kW	349	465	581	733	930
	Hot water flow amount (40→60℃)	L/h	15,000	20,000	25,000	15,750※2	20,000※2
	Pressure loss for same as above	kPa	12.7	9.8	18.6	10.8	16.7
	Amount of water held by heat exchanger	L	6.1	6.6	10.85	17.55	17.55
	Hot water inlet / outlet (flange)	A	40 (JIS10K)	50(JIS5K)			
Hot water II	Maximum continuous output	kW	349	465	581	733	930
	Hot water flow amount (20→65℃)	L/h	6,670	8,890	11,110	14,000	17,780
	Pressure loss for same as above	kPa	6.4	3.9	5.9	11.8	20.6
	Amount of water held by heat exchanger	L	8.8	13.0	13.0	13.2	21.7
	Hot water inlet / outlet (flange)	A	50 (JIS10K)	65 (JIS5K)			

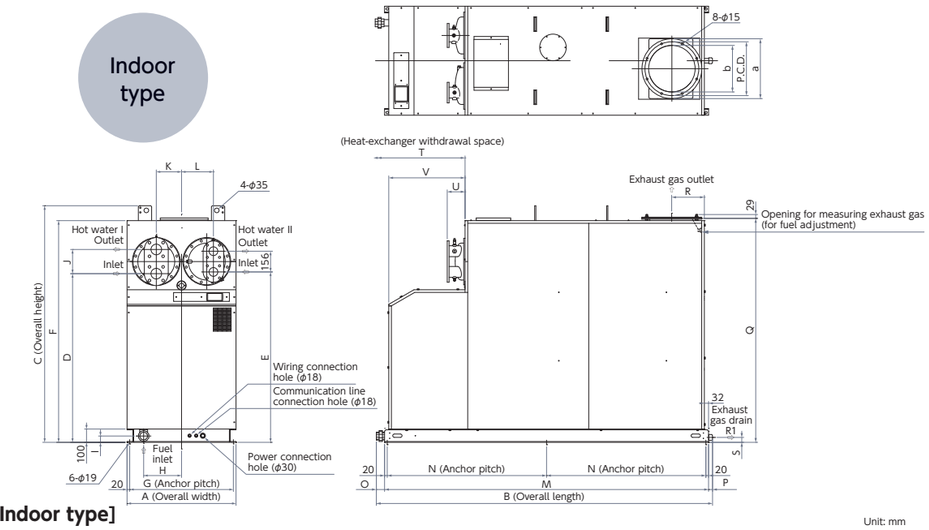
※1: The temperature condition for 630 and 800 types is 60 -> 80℃.
※2: The temperature condition for 630 and 800 types is 30 -> 70℃.

- The heat efficiency value is calculated by the heat loss scheme provided in JIS B 8222-1993.
  - The margins of error are as follows:
    Heat efficiency error: ±1%
    Combustion capacity error: ±3.5%
- Fuel consumption and maximum combustion amount (input) are computed on the lower-heating-value standard.
  LNG: 40.6MJ/m³ (N)　Propane: 93.7MJ/m³ (N), 46.4MJ/kg
- Install the gas pipe properly so that the supplied gas pressure can be secured when stopping/running the heater or operating other gas equipment.
  Supply gas pressure LNG: 2.0kPa　Propane: 2.8kPa
- If you pass water other than tap water through the heat exchanger, please contact our company.
- Boiler body output, fuel consumption, and facility electricity conform to JIS B 8417-2000 and "Guideline for Indicating Performance of Hot Water Generators and Hot Water Boilers" by Japan Heating Industrial Association.
- The 3-circuit type only supports indoor application.

Type display　G T L - □ □ □ □ □ - □

- Output: N: LNG, P: Propane
- S: Outdoor type
- A: 1 circuit, B: 2 circuits, C: 3 circuits
- H: High-temperature spec.

Indoor type



GTL-300 to 800 **[Indoor type]**

Unit: mm

Type/Code	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	Exhaust pipe ϕa	Exhaust pipe ϕb	Exhaust pipe P.C.D.
GTL-300	770	2,096	1,711	1,228	1,238	1,600	730	260	48	176	165	205	2,004	982	62	30	1,617	245	50	1,200	125	574	400	300	360
GTL-400	820	2,246	1,780	1,269	1,282	1,668	780	285	48	182	190	240	2,154	1,057	62	30	1,685	246	50	1,500	134	574	450	350	405
GTL-500	820	2,530	1,780	1,269	1,282	1,668	780	285	48	182	190	240	2,438	1,199	62	30	1,685	246	37	1,500	134	574	450	350	405
GTL-630	820	2,845	1,779	1,352	1,365	1,663	780	285	128	182	190	240	2,717	1,338.5	100	28	1,750	286	50	1,500	132	678	550	450	500
GTL-800	820	2,845	1,779	1,352	1,365	1,663	780	285	128	182	190	240	2,717	1,338.5	100	28	1,750	286	50	1,700	132	678	550	450	500

Note: The external outline drawing and dimension table show 2-circuit type standard specifications.

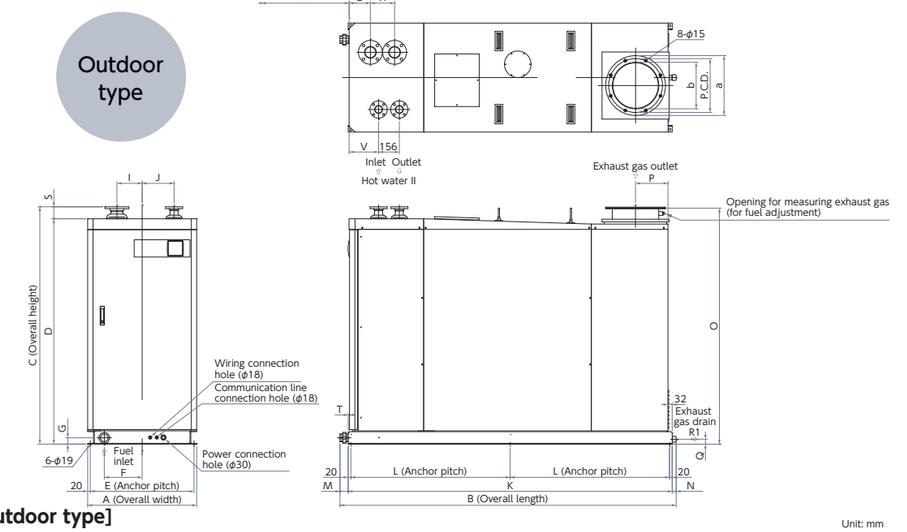
HGTL-300 to 800 **[Indoor, high-temperature spec.]**

Unit: mm

Type/Code	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	Exhaust pipe ϕa	Exhaust pipe ϕb	Exhaust pipe P.C.D.
HGTL-300	770	2,096	1,711	1,238	1,238	1,600	730	260	48	156	125	205	2,004	982	62	30	1,617	245	50	1,700	304	574	400	300	360
HGTL-400	820	2,246	1,780	1,282	1,282	1,668	780	285	48	156	140	240	2,154	1,057	62	30	1,685	246	50	1,500	134	574	450	350	405
HGTL-500	820	2,530	1,780	1,282	1,282	1,668	780	285	48	156	140	240	2,438	1,199	62	30	1,685	246	37	1,500	134	574	450	350	405
HGTL-630	820	2,845	1,779	1,352	1,365	1,663	780	285	128	182	190	240	2,717	1,338.5	100	28	1,750	286	50	2,300	649	678	550	450	500
HGTL-800	820	2,845	1,779	1,352	1,365	1,663	780	285	128	182	190	240	2,717	1,338.5	100	28	1,750	286	50	2,300	649	678	550	450	500

Note: The external outline drawing and dimension table show 2-circuit type standard specifications.

Outdoor type



GTL-300 to 800 **[Outdoor type]**

Unit: mm

Type/Code	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	Exhaust pipe ϕa	Exhaust pipe ϕb	Exhaust pipe P.C.D.
GTL-300	770	2,096	1,717	1,627	730	260	48	176	165	205	2,004	982	62	30	1,707	244	50	1,200	90	10	190	232	400	300	360
GTL-400	820	2,246	1,785	1,695	780	285	48	182	190	240	2,154	1,057	62	30	1,775	246	50	1,200	90	10	160	222	450	350	405
GTL-500	820	2,530	1,785	1,695	780	285	48	182	190	240	2,438	1,199	62	30	1,775	246	37	1,200	90	10	160	222	450	350	405
GTL-630	820	2,845	1,887	1,777	780	285	128	182	190	240	2,717	1,338.5	100	28	1,839	286	50	1,500	92	8	265	327	550	450	500
GTL-800	820	2,845	1,887	1,777	780	285	128	182	190	240	2,717	1,338.5	100	28	1,839	286	50	1,700	92	8	265	327	550	450	500

Note: The external outline drawing and dimension table show 2-circuit type standard specifications.

GTLH (Latent Heat Recovery Type)

Indoor type　　Outdoor type

GTLH-500 Latent Heat Recovery Type

Item		Type	500	
			LNG	Propane
Boiler body output		kW	581	
Heating surface area		㎡	12.7	
Heat efficiency		%	105	103
Max combustion capacity (input)		kW	553	564
Fuel consumption	LNG	m³ (N)/h	49.1	—
	Propane	m³ (N)/h	—	21.7
		kg/h	—	43.8
Power source			Three-phase, AC200V, 50/60Hz	
Facility electric power	Blower motor	kW	1.5	
	Control box	kW	0.3	
Control system			Proportional + ON-OFF control	
Connecting pipe diameter	Fuel inlet (Union)	A	40	
	Exhaust gas outlet	φmm	300	
	Exhaust gas drain outlet	A	25	
Heat exchanger		Material/ Structure	SUS444 / U-shape multitubular flange type heat exchanger	
Maximum working pressure		MPa	0.49	
Product weight (including heat medium water)		kg	2,525	
Amount of heat medium water		L	390	

GTLH-500 Latent Heat Recovery Type…1 circuit (for hot water)

Item	Type	GTLH-500A
Maximum continuous output	kW	581
Hot water flow amount (5→65℃)	L/h	8,330
Pressure loss for same as above	kPa	22.5
Amount of water held by heat exchanger	L	39.6
Hot water inlet / outlet (flange)	A	50(JIS5K)

GTLH-500 Latent Heat Recovery Type…2 circuits

Item		Type	GTLH-500B
Hot water I	Maximum continuous output	kW	581
	Hot water flow amount (55→70℃)	L/h	33,300
	Pressure loss for same as above	kPa	5.9
	Amount of water held by heat exchanger	L	13.2
	Hot water inlet / outlet (flange)	A	80(JIS5K)
Hot water II	Maximum continuous output	kW	581
	Hot water flow amount (5→65℃)	L/h	8,330
	Pressure loss for same as above	kPa	22.5
	Amount of water held by heat exchanger	L	39.6
	Hot water inlet / outlet (flange)	A	50(JIS5K)

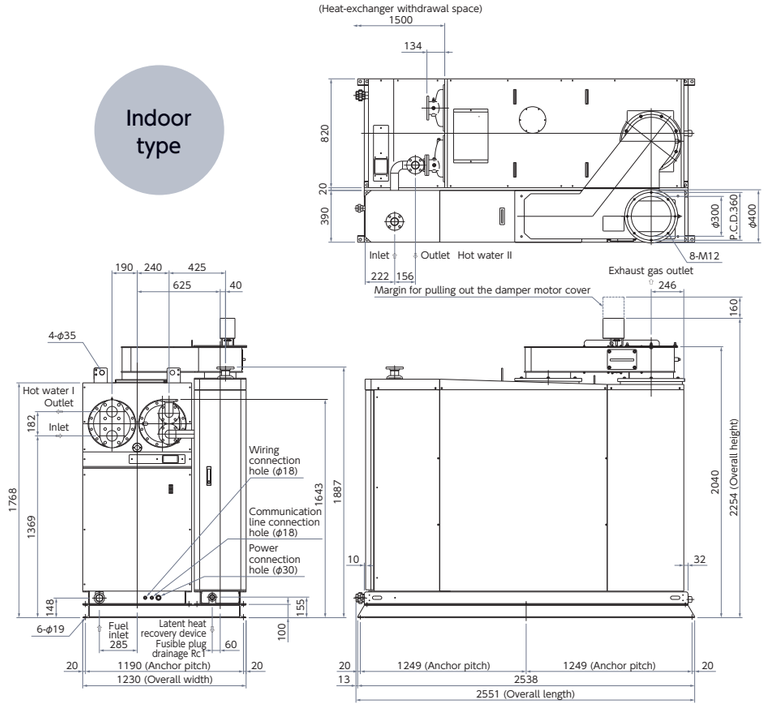
GTLH-500 Latent Heat Recovery Type…3 circuits

Item		Type	GTLH-500C
Hot water I-1	Maximum continuous output	kW	291
	Hot water flow amount (55→70℃)	L/h	16,700
	Pressure loss for same as above	kPa	5.9
	Amount of water held by heat exchanger	L	6.6
	Hot water inlet / outlet (flange)	A	50(JIS5K)
Hot water I-2	Maximum continuous output	kW	581
	Hot water flow amount (25→50℃)	L/h	20,000
	Pressure loss for same as above	kPa	8.8
	Amount of water held by heat exchanger	L	6.6
	Hot water inlet / outlet (flange)	A	50(JIS5K)
Hot water II	Maximum continuous output	kW	581
	Hot water flow amount (5→65℃)	L/h	8,330
	Pressure loss for same as above	kPa	22.5
	Amount of water held by heat exchanger	L	39.6
	Hot water inlet / outlet (flange)	A	50(JIS5K)

- The heat efficiency value is calculated by the heat loss scheme provided in JIS B 8222-1993.
  - The margins of error are as follows:
    Heat efficiency error: ±1%
    Combustion capacity error: ±3.5%
- Fuel consumption and maximum combustion amount (input) are computed on the lower-heating-value standard.
  LNG: 40.6MJ/m³ (N)　Propane: 93.7MJ/m³ (N), 46.4MJ/kg
- Install the gas pipe properly so that the supplied gas pressure can be secured when stopping/running the heater or operating other gas equipment.
  Supply gas pressure LNG: 2.0kPa　Propane: 2.8kPa
- If you pass water other than tap water through the heat exchanger, please contact our company.
- Boiler body output, fuel consumption, and facility electricity conform to JIS B 8417-2000 and "Guideline for Indicating Performance of Hot Water Generators and Hot Water Boilers" by Japan Heating Industrial Association.
- The 3-circuit type only supports indoor application.

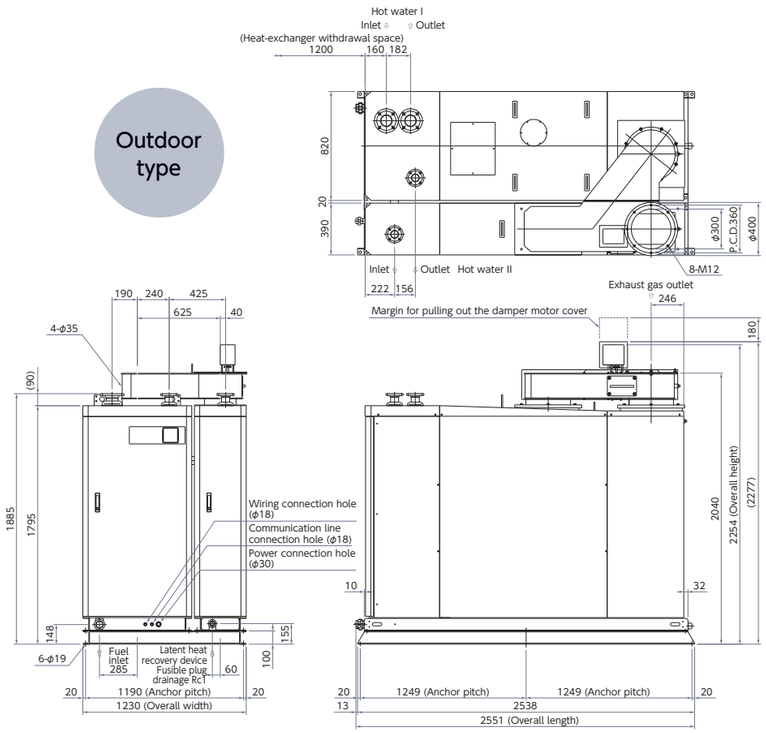
Type display　GTL□-□□□□□□-□
- Output: N: LNG / P: Propane
- S: Outdoor type
- A: 1 circuit / B: 2 circuits / C: 3 circuits
- H: Latent heat recovery spec.

Indoor type



Note: The external outline drawing shows dimensions of the 2-circuit type.

Outdoor type



Note: The external outline drawing shows dimensions of the 2-circuit type.

Selection of material for heat exchanger

The heat exchanger material needs to be selected in accordance with the following criteria. When you use water having quality that does not meet the following criteria, please consult with the distributor or our sales representative.

1 Criteria of water quality for the standard stainless steel heat exchanger

Items		Criteria
Hydrogen ion concentration	(25℃) pH	6.5 to 8.5
Electrical conductivity	(25℃) E	50mS/m or less
Chloride ion Fluorine compound	Cl^- F	200mg/l or less in total
Sulphate ion	SO_4^{2-}	100mg/l or less
Residual chlorine	Cl	1.0mg/l or less
Iron	Fe	1.0mg/l or less
Sulfide ion	S^{2-}	Not detected
Ammonium ion	NH^{4+}	1.0mg/l or less

※ When using water with quality other than the above, please contact the distributor from which you have purchased the product or our service division.

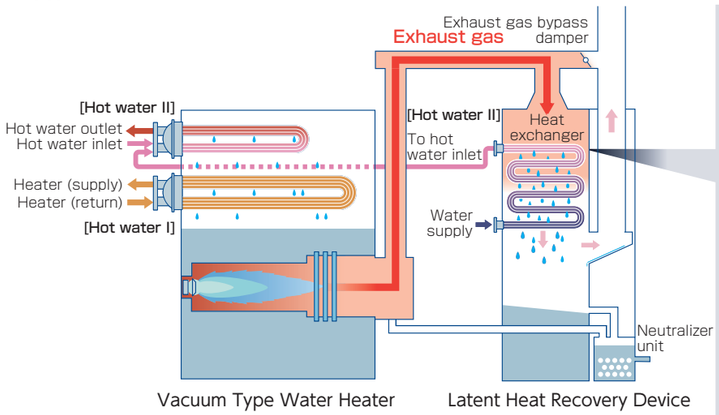
2 Other

Prepare for chemical cleaning when using ground water with 100mg/l or more of total hard $CaCO_3$, 50mg/l or more of ionic silica SiO_2, and 100mg/l or more of acid consumption [PH4.8] since such water causes scales.

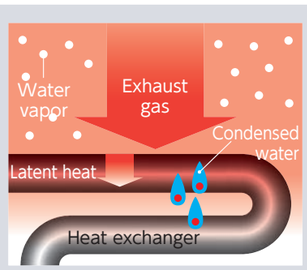
Notes (1) The standard values above are based on the Water Quality Guidelines for Refrigeration & Air-Conditioning Systems (JRA9001).
(2) The terms and the units are based on JIS K0101.

Latent heat recovery system

The latent heat is heat that water vapor contained in exhaust gas takes out to the external air, and the latent heat recovery represents collecting the heat of water vapor.
Because water vapor becomes condensed water as a result of latent heat recovery, latent heat has been discharged to the air without being recovered and used so far in order to prevent corrosion of the heat exchanger due to condensed water.
The vacuum type water heater with the latent heat recovery function, “GTLH”, adopted a stainless steel heat exchanger that is resistant to corrosion and enabled recovery of latent heat of water vapor contained in exhaust gas, realizing an extremely high efficiency that reaches 105%.
By using the neutralizer unit, GTLH is well-prepared for acid drain water that is generated as condensed water.



Vacuum Type Water Heater　　Latent Heat Recovery Device

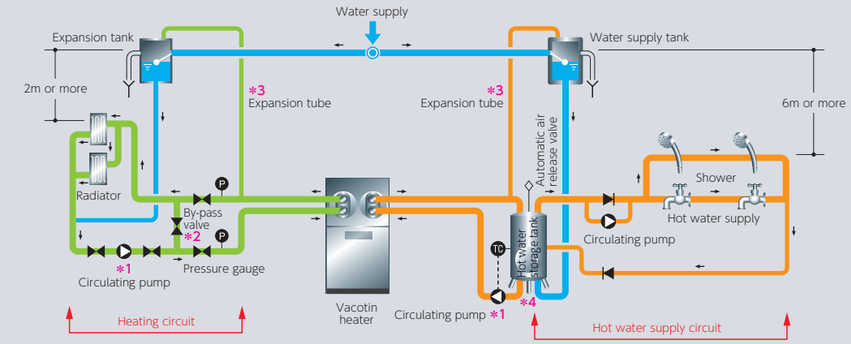


Latent heat recovery

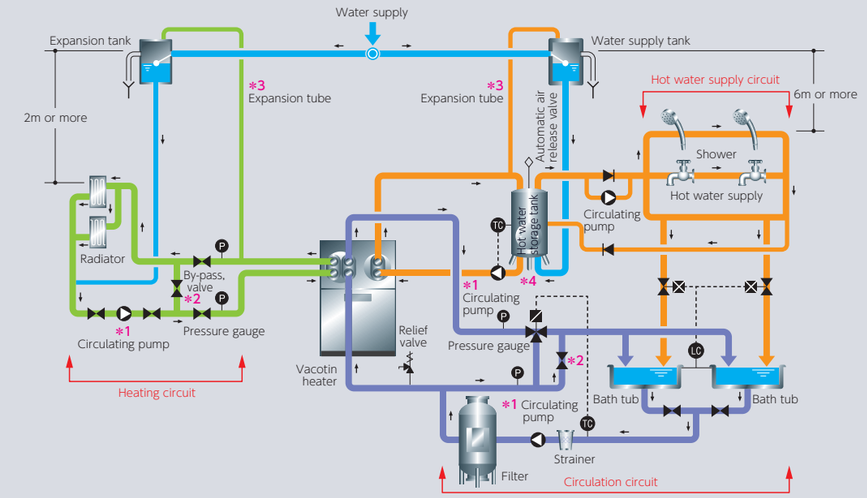
Reuses heated exhaust gas that has not been utilized so far. Exhaust gas is used to heat feedwater at the heat exchanger located inside the latent heat recovery device, and water vapor contained in the exhaust gas is cooled and condenses on the heat exchanger. Latent heat is recovered in this process.

[Standard system examples] A lineup of various types meets any environment or equipment

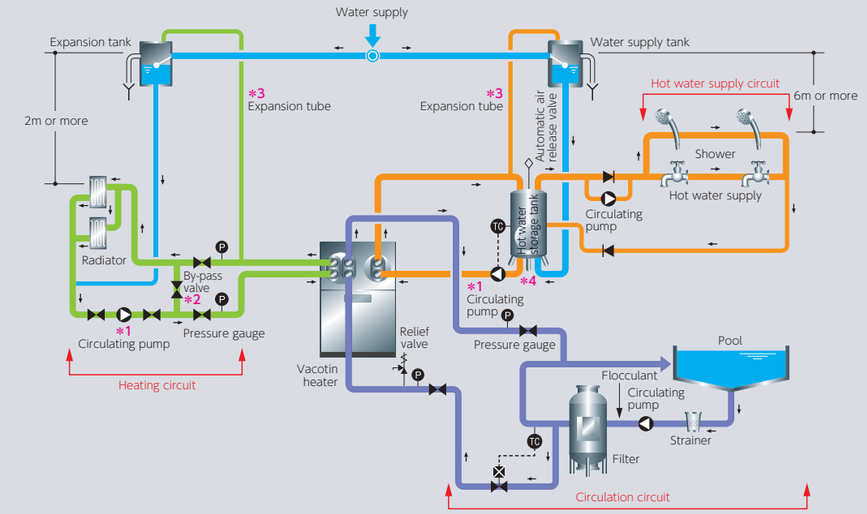
2 circuits for hot water supply and heating



3 circuits for hot water supply, heating, and bath heating



3 circuits for hot water supply, heating, and pool heating



Notes: *1 Select an appropriate pump within the range between the maximum and minimum flow in reference to the output examination data.
*2 Install a by-pass valve when the selected pump exceeds the maximum flow.
*3 Set the height of the expansion tube higher than the head of the circulating pump.
*4 Connect the pipe to the inlet of the Vacotin heater from the low-temperature part of the hot water tank or the makeup water pipe.
- Refer to the output examination data for the output of heat exchanger.
- If the pipe may have dirt or rust, install a strainer.
- The hot water tank cannot be used as a pressure vessel. This is an advantage for the tapping temperature of the Vacotin heater being kept under 100℃ even if the water head height exceeds 10m.