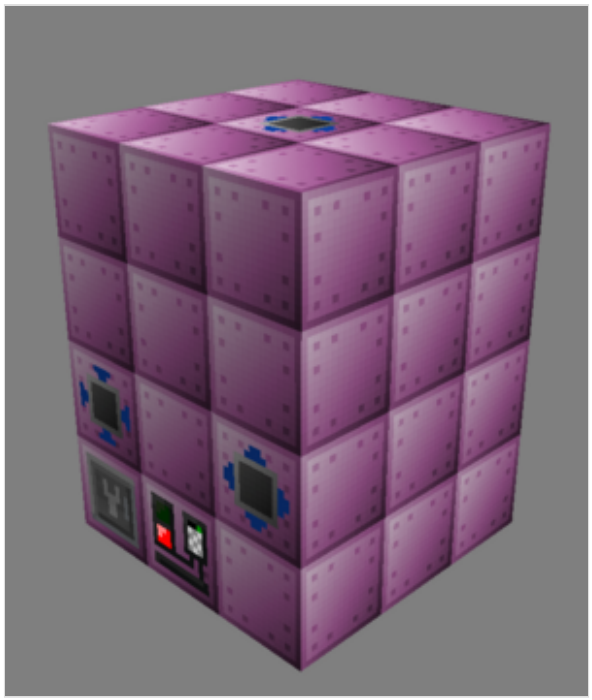
GT New Horizons

Large Heat Exchanger

The Gregtech Large Heat Exchanger takes lava, IC2 hot coolant, or GT++ Solar Salt (Hot) and distilled water and converts it into either steam or superheated steam depending on the amount and type of fluid supplied. Typically, one would then feed the steam into a Large Turbine for efficient conversion into EU. Keep in mind that there is a Large Turbine for regular steam and a Large High Pressure Turbine for superheated steam.



Formed Multiblock. Not shown; Input Hatch, bottom layer center, and 2x Titanium Pipe Casing, interior

Build Requirements

Dimensions: 3x4x3 (3x3 footprint, 4 blocks high.)
Structure:

- 1 Large Heat Exchanger (Controller), middle block on bottom layer
- 20 Stable Titanium Machine Casing (minimum, varies by number of hatches)
- 2 Titanium Pipe Casing, center two blocks of multi, not visible from outside.
- 1 Maintenance Hatch, any exterior casing block location
- 2 Input Hatch, one center of bottom layer (facing down), the other any exterior casing location
- 2 Output Hatch, one center of top layer (facing up), the other any exterior casing location

Mechanics - Heat Up/Cooldown

The LHE when activated has a heat up time of around 2 minutes to reach full efficiency, and after losing hot coolant input it take around 40 seconds to go back to 0% efficiency. Keep in mind to make sure you have a decent amount of all input fluids, and a way to make more, as this will waste fluid until it reaches 100% efficiency.

Mechanics - Superheated Steam Thresholds

After a certain input threshold, listed above, the LHE will stop producing steam and instead will produce superheated steam at half the previous rate.

Hot Fluid	Super-heated steam Threshold	Max Hot Fluid Input
Lava	1,000 L/s	2,000 L/s
Hot Coolant	800 L/s	1,600 L/s
Solar Salt (Hot)	160 L/s	320 L/s

Mechanics - Steam Conversion

The LHE will convert distilled water into steam or super-heated steam, depending on the amount of hot fluid available. Values below are listed at maximum efficiency.

Hot Fluid	SH Threshold	Maximum input	Steam produced per L of hot input	SH Steam produced per L of hot input	Maximum rate of SH Steam output
Lava	1,000 L/s	2,000 L/s	160 L	80 L	8,000 L/t
Hot Coolant	800 L/s	1,600 L/s	400 L	200 L	16,000 L/t
Solar Salt (Hot)	160 L/s	320 L/s	2,000 L	1,000 L	16,000 L/t

Note that hot fluid is consumed and cold fluid produced every *second*, while distilled water is consumed and steam is produced every *tick*.

For example, if we combine the information from the last two sections together, giving an LHE 1,600 L/s of hot coolant will, at 100% efficiency, output 1,600 * 200 = 320,000 L/s of superheated steam. This is also coincidentally the maximum amount of superheated steam one can produce from hot coolant with a single LHE.

Mechanics - Integrated Circuit

A configured integrated circuit can be placed inside the controller to reduce the threshold at which the large heat exchanger produces super-heated steam. Each circuit config over 1 reduces the super-heated steam threshold by 150 Liters at the cost losing 1.5% efficiency on the hot material to steam, or super-heated steam conversion.

Mechanics - Water

The LHE will only accept distilled water to convert into steam. Water will be consumed at the gregtech standard ratio of 1 L of water to 160 L of produced steam, or at absolute max of 2,000 L of distilled water per second.

Mechanics - Fluid Return

At 100% efficiency the LHE will return 100% of your input fluid as coolant if the input is hot coolant, or pahoehoe lava if the input fluid is lava.

As of 2.3.0, multiblocks do not void by default if their outputs are full, they simply stop processing. The original 'run even if the output(s) are full' mechanic can be toggled with the controller's Void Mode settings. The LHE will distribute output among multiple hatches if available.

Mechanics - Explosions

The only way to explode a large heat exchanger, other than leaving it out in the rain, is to supply distilled water to a already running LHE after stopping or not supplying enough distilled water.

Tips and Tricks

- Large Steam Turbines and Large High Pressure Steam Turbine and the LHE will maintain a perfect loop of distilled water as long as no turbines are getting too much steam but you should still have some method to slowly recharge the distilled water and coolant.
- Using fluid regulators, either the Gregtech cover or IC2 block, will allow you to limit your fluid input to what you want. The Gregtech cover has 3 ways to both increase and decrease flow: bare handed right-click, screwdriver handed right-click, screwdriver handed shift right-click. This will help give large turbines the exact amount of steam that it needs to output nominal EU, which varies with each rotor.
